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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL 78

NO 1 THRU 13

JAN-MAR-1897

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME LXXVIII.

JANUARY 5 TO MARCH 30, INCLUSIVE,

1897.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1897.

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ERRATA.

574,390, page 7, in heading, residence of inventor, for "Pasadena, California" read *The United States Army.*

574,426, page 17, in heading, residence of inventor, for "Rutherford, New Jersey" read *East Rutherford, New Jersey.*

574,780, page 130, in heading, assignment, second-named assignee, for "Richard H. Pritchard" read *William H. Pritchard.*

574,963, pages 212-213, strike out all after number—title, drawing, and claims—and insert CANCELED.

575,062, page 246, first claim, line 2, for the compound word "brake-wheel" read *break-wheel.*

575,320, page 348, second claim, line 5, before the word "diaphragm," for the article "a" read *the*, and, same page, third claim, line 3, before the word "substantially" insert a comma.

576,104, page 646, in heading, residence of inventors, for "Mansfield, Ohio" read *near West Mansfield, Ohio;*

576,281, page 706, claim, line 4, before the word "another" insert the word *one.*

576,472, page 766, second claim, line 1, for "A multiple-transmitter signal" read *A multiple signal-transmitter.*

576,781, page 879, in heading, in assignment, name of assignee, for "Chemisch" read *Chemische.*

577,398, page 1090, in heading, assignment, for "assignor to Jos. Alexander & Co., same place" read *assignor, by mesne assignments, to Emile Cornely and Robert Cornely, Paris, France.*

577,423, page 1117, in heading, assignment, name of assignee, for "Christian Story" read *Christian Storz.*

577,458, page 1128, in heading, assignment, after the word "assignor" insert the words *of one-half.*

577,555, page 1162, first claim, line 2, after the word "turn" insert the word *with.*

577,683, page 1201, in heading, after the words "(No model)" insert *Patented in England July 18, 1895, No. 13,772.*

578,194, page 1385, in heading, name of inventor, for "John Henry Bauser" read *John Henry Banser.*

578,336, page 1447, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

578,968, page 1681, in heading, assignment, after the word "assignor" insert the words *of one-third.*

579,212, page 1776, in heading, for "(No model)" read (*Model.*)

579,234, page 1782, in heading, title of invention, for "Fire-Extinguishing Compound" read *Process of Rendering Benzin, &c., Non-Inflammable.*

579,329, page 1809, strike out all after number—title, drawing, and claims—and insert CANCELED.

579,773, page 1981, in heading, title of invention, for "Red-Blue Diazo Dye" read *Red-Blue Disazo Dye*, and in first claim, line 1, for the word "diazo" read *disazo.*

26,837, (Design,) page 2037, in heading, title of Design, for "Design for a Picture-Hook" read *Design for a Picture and Picture-Hook Hanger.*

29,554, (Trade-Mark,) page 795, in heading, title, for "Sulfid of Copper" read *Sulfate of Copper.*

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JANUARY—MARCH, 1897.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 78---No. 1. TUESDAY, JANUARY 5, 1897. Price---$5 per year.

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The Official Gazette.

The Official Gazette is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semiannual volumes; since July 1, 1883, in quarterly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; if mailed to foreign countries, 10 cents additional for postage; bound semiannual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. *Payment in advance.* No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1888, to October 1, 1892. One volume, 18 pages. Paper covers, 25 cents.

Appendix No. 2, October 1, 1892, to March 1, 1895. One volume, 28 pages. Paper covers, 25 cents.

Preparation of Specifications and Amendments for the Printer.

The Examiners are directed before passing applications to issue to carefully examine all the papers and see that they are in such shape and condition as to avoid all possibility of error being made by the printers. Whenever interlineations or erasures have been made in the specifications or amendments which would lead to confusion and mistake, the Examiners should require the entire specification to be rewritten before passing the case to issue.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electric Power, New York, a monthly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1895.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Foreign Patents and Publications.

The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library:

Austria-Hungary.
Barbadoes.
Belgium.
British Honduras.
Canada.
Ceylon.
Denmark.
Fiji.
Finland.
France.
Germany.
Great Britain.
Hawaii.
India.
Italy.
Jamaica.
Japan.
Leeward Islands.
Luxemburg
Malta.
Mauritius.
Mexico.
Netherlands.
New South Wales.
New Zealand.
Norway.
Portugal.
Queensland.
Russia.
South Australia.
Spain.
Straits Settlements.
Sweden.
Switzerland.
Tasmania.
Trinidad.
Victoria.
West Australia.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

PRINT.

42.—Title: "DON'T MONKEY." (For Molasses Candy.) *Herbert L. Hildreth*, Boston, Mass. Application filed November 16, 1896.

Issue of January 5, 1897.

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Labels	None.	
Total issue	560	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	3		New Hampshire	3	1
Arizona Territory			New Jersey	22	
Arkansas	5		New Mexico Territ'y	1	
California	12		New York	81	11
Colorado	2		North Carolina	2	
Connecticut	25		North Dakota	3	
Delaware	1		Ohio	25	
District of Columbia	3		Oklahoma Territory	1	
Florida	2		Oregon	1	
Georgia	2		Pennsylvania	73	
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Illinois	43	2	South Carolina		
Indian Territory			South Dakota	2	
Indiana	10		Tennessee	3	
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Kentucky	7		Vermont	3	
Louisiana	4	1	Virginia	2	
Maine	4		Washington	3	
Maryland	1	2	West Virginia	2	
Massachusetts	32	3	Wisconsin	10	
Michigan	14	1	Wyoming		
Minnesota	16	2	U. S. Army		
Mississippi	4		U. S. Navy		
Missouri	12	1			
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Nebraska	5				
Nevada	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary	1		Newfoundland		
Barbadoes			New South Wales		
Belgium	2		New Zealand		
Bermuda			Norway		
Brazil			Orange Free State		
Canada	6		Portugal		
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Cape Colony			Russia		
Ceylon			Scotland		
Chile, Republic of			South African Republic		
Colombia			South Australia		
Cuba			Straits Settlements		
Denmark			Sweden	1	
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France	6		Victoria	1	
Germany	1	1	West Australia		
Guatemala					
India					
Ireland					
Italy			Total to citizens of foreign countries	32	1

APPLICATIONS UNDER EXAMINATION.

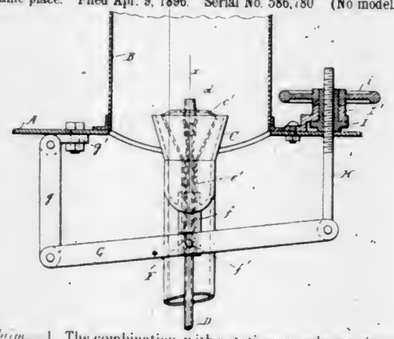
Condition at Close of Business December 29, 1896.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
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PATENTS

GRANTED JANUARY 5, 1897.

574,369. EXHAUST MECHANISM. GUSTAF A. ANDERSON, Waynesborough, Pa., assignor to the Geiser Manufacturing Company, same place. Filed Apr. 9, 1896. Serial No. 586,780 (No model.)

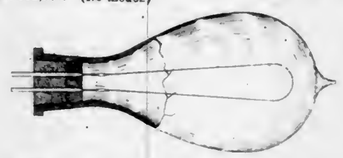


Claim.—1. The combination, with a stationary exhaust-pipe nozzle, of a vertically-slidable hollow plug provided with a depending tubular stem, and operating to vary the exhaust-blast, and a stationary blast-pipe for high-pressure steam arranged inside the said stem and plug and projecting from the upper end of the plug, substantially as set forth

2. The combination, with a stationary exhaust-pipe nozzle provided with a guide at its lower part, of a hollow plug provided with a tubular stem slidable in the said guide, a stationary blast-pipe for high-pressure steam arranged inside the said stem and plug and projecting above the upper end of the plug, and lever mechanism pivotally connected to the lower projecting end of the said stem, and operating to vary the position of the said plug, substantially as set forth.

3. The combination, with a stationary exhaust-pipe nozzle, of a slidable plug provided with a stem having laterally-projecting pivots at its lower end, levers engaging with the said pivots, links pivotally supporting one end of the said levers from the boiler-shell, a screw-threaded rod pivoted to the other end of the levers and projecting through the boiler-shell, and a hand-nut engaging with the projecting end of the said rod and operating to adjust the position of the said plug, substantially as set forth.

574,370. MANUFACTURE OF INCANDESCENT ELECTRIC LAMPS. THOMAS B. ATTERBURY, Pittsburg, Pa. Filed Dec. 18, 1894. Serial No. 532,207. (No model.)



Claim.—1. The method of making incandescent lamps consisting in cementing an unground perforated stopper in the lamp by vitrifiable enamel or cement, and then heating to vitrify said enamel, substantially as described.

2. The method of making incandescent lamps consisting in forming an unground stopper with holes therein, placing wires in these holes, inserting the stopper in the lamp, filling in vitrifiable enamel or cement above the stopper, and heating to vitrify the enamel; substantially as described.

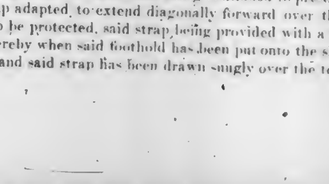
3. The method of making incandescent lamps, consisting in pressing an unground stopper with tapered holes therein, placing the wires in these holes, inserting such unground stopper in the lamp, filling in enamel above the stopper, and heating the same, substantially as described.

4. The improvement in the art of manufacturing incandescent electric lamps which consists in applying vitrifiable enamel or cement to the joint between the unground stopper and bulb-neck of a lamp and then heating the said parts until the enamel becomes fused and hermetically cements the stopper and bulb-neck together, substantially as described.

5. An incandescent electric lamp comprising an unground stopper or filament-support, an unground bulb-neck, and a body of vitreous enamel hermetically uniting the said parts, substantially as described.

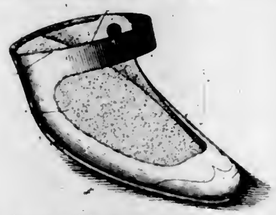
6. An incandescent electric lamp comprising an unground stopper or filament-support, a bulb-neck and a body of vitreous enamel intermediate said stopper and bulb-neck hermetically uniting said parts.

574,371. LIFTING-JACK. THOMAS B. AULT, Knoxville, Tenn. Filed June 25, 1896. Serial No. 596,900. (No model.)



Claim.—In a lifting-jack, the combination with the base P, provided with vertical uprights C, D, at its opposite ends, of the lever E, pivoted at its lower end to the standard D, and provided on its inner side intermediate its pivoted end and free end with an inwardly-projecting projection *n*, a notched lifting-bar A pivoted at one end to the standard C, and links B, B' pivoted at their upper ends to the other end of the bar A and at their lower ends pivoted to the projection *n*, the length of the lifting-bar A being less than the distance between the standards C and D, substantially as described and for the purpose specified

574,372. OVERSHOE. CHARLES J. BAILEY, Newton, Mass. Filed Apr. 28, 1896. Serial No. 589,359. (No model.)

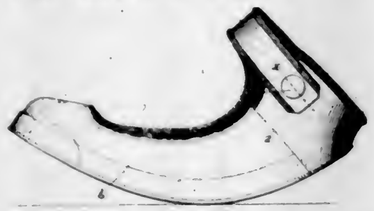


Claim.—1. As an article of manufacture, a foothold composed of a short sole to extend under the toe of the sole of the shoe to be protected back into the shank thereof, a toe part and sides having their ends inclined forwardly and upwardly, the ends of said sides terminating the foothold, the edge of one of said ends being prolonged by a strap which is adapted to be extended diagonally across the shoe in front of the ankle of the wearer thereof, said strap being connected to the end of the side of the foothold at the opposite side of the sole thereof, substantially as described.

2. As an article of manufacture, a foothold composed of a short sole to extend under the toe of the sole of the shoe to be protected back into the shank thereof where the sole of the foothold is contracted, and a toe part and sides having ends inclined forwardly and upwardly, the ends of said sides terminating the inner end of the foothold, the edge of one of said ends being continued to present a free-ended strap adapted to extend diagonally forward over the top of the shoe to be protected, said strap being provided with a fastening device whereby when said foothold has been put onto the shoe to be protected, and said strap has been drawn snugly over the top of the

shoe in front of the ankle thereof it may be connected to a cooperating fastening member attached to the end of the side at the opposite side of the sole, the said foothold being thus secured to the shoe by means wholly in front of the ankle or instep covering portion thereof, substantially as described.

574,373. FOOTHOLD. CHARLES J. BAILEY, Newton, Mass. Filed July 31, 1896. Serial No. 601,182. (No model.)



Claim.—1. As an article of manufacture, a foothold, composed of a short sole, and sides, said sides being carried about the rear end of the sole and shaped to present a neck which terminates the upper at the rear end of said sole, said neck having its free, rear edge, inclined forwardly and upwardly and provided with an attached strap adapted to be extended over the top of the foot, said strap having a suitable fastening device whereby it may be connected to the opposite side of the neck, the strap being unfastened when the foothold is to be removed or to be applied to the shoe to be protected, substantially as described.

2. As an article of manufacture, a foothold composed of a short sole contracted at its rear end, and an upper connected thereto, a portion of the said upper being extended about the rear end of the said sole to constitute a neck which terminates the upper, said neck having its edge shaped to bear against the sole and upper of the shank of the shoe to be protected, and having a strap forwardly extended therefrom and provided with a fastening by which to secure it about the top of the foot in front of the ankle, the strain of said strap when fastened drawing and fitting the edge of said neck snugly about the shank and instep of the shoe and retaining the foothold snugly in place, substantially as described.

3. As an article of manufacture, a foothold, composed of a short sole, an upper terminating substantially at the rear end of said sole, and a top strap connecting the rear upper edges of said upper, said sole being given a normal longitudinal curvature in excess of the curvature of the sole of the shoe with which it is to be worn, substantially as described.

574,374. PENCIL-SHARPENER. JAMES R. BAISLEY, Connellsville, Pa. Filed Mar. 17, 1896. Serial No. 583,599. (No model.)



Claim.—1. A pencil-sharpener consisting of a cone-shaped receptacle having two or more series of teeth projecting from its inner side, one of said series being so placed as to cut the material between the grooves cut by another set, as and for the purpose described.

2. A pencil-sharpener consisting of a cone-shaped receptacle having a number of teeth projecting from its inner side and so arranged as to cut concentric circles of regularly-increasing diameters, as and for the purpose described.

574,375. APPARATUS FOR AERATING AND COOLING LIQUIDS. CARL BARUS, Washington, D. C. Filed Oct. 8, 1895. Serial No. 565,040. (No model.)

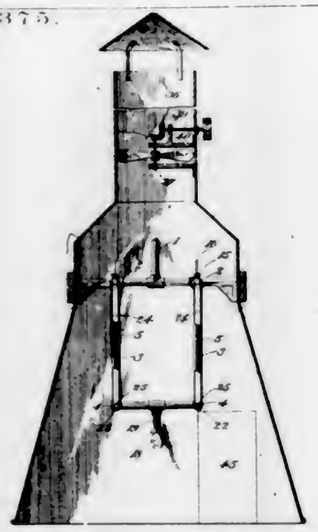
Claim.—1. In liquid-comminuting apparatus, the combination with draft-compelling apparatus, of a liquid-supply pipe and a punctured or porous elastic tube communicating therewith, substantially as set forth.

2. In liquid-comminuting apparatus, the combination with a pair of liquid-supply pipes and an intermediate punctured or porous, expansible tube connecting the supply-pipes, substantially as set forth.

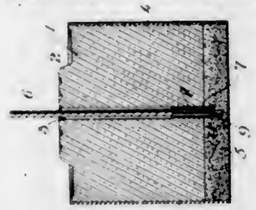
3. The combination with a pair of liquid-supply pipes, of an intermediate punctured porous or expansible tube communicating with each, a brush movable in the tube, a stem projecting through one of the pipes, and a stuffing-box in the pipe around the stem, substantially as set forth.

4. The combination with liquid-supply pipes and punctured or porous expansible tubes communicating therewith, of a drain-pipe adapted to readily drain the supply-pipes, and a stop-cock controlling the drain-pipe, substantially as set forth.

574,375.



574,376. NIGHT-LIGHT. ANTON F. BAUMER, Syracuse, N. Y. Filed Apr. 4, 1896. Serial No. 586,272. (No model.)



Claim.—1. In an article of the class described, the combination of a body of illuminant, an incombustible base therefor, a tube supported by said base and extending into the lower portion only of said body, said tube being apertured laterally to communicate with said illuminant and a wick within said tube and extending therefrom into and through the upper portion of said body, said tube being adapted to prevent the flame descending below its top, substantially as described.

2. In an article of the class described, the combination of a body of an illuminant, an incombustible base therefor, a slit tube supported by said base and extending into the lower portion only of the said body, and a wick in said tube, extending therefrom into and through the upper portion of the said body, said tube being adapted to prevent the flame descending below its top, substantially as described.

3. In an article of the class described, the combination of a body of an illuminant, an incombustible base therefor, an envelop inclosing said body and base, a slit tube supported by said base and extending into the lower portion only of said body, a wick within said tube and extending therefrom into and through the upper portion of said tube, said tube being adapted to prevent the flame descending below its top, substantially as described.

4. In an article of the class described, the combination with a paper casing 4, the plaster bottom 5, the wax body 1 having a central aperture, the slit tube vertically disposed and secured by the plaster in said aperture, and extending into the lower portion only of said body, and an inherently stable wick 6 supported in the body 1 by said tube, the tube being adapted to prevent the flame descending below its top, substantially as described.

5. The combination of the wax body 1, plaster bottom 5, paper casing 4, of the slit tube extending into the lower portion only of said body, extending above the plaster within an aperture in the wax and held in place by the said plaster, the aperture in the wax being continuously wider than said tube, and a stable wick of less diameter than said aperture upheld therein by said tube, the tube being adapted to prevent the flame descending below its top, substantially as described.

6. The combination, in an article of the class described, of the wax body 1, plaster base 5, paper casing 4, the wax having the aperture 3, the vertically split tube 7 secured at its base to said plaster and extending upwardly in the lower portion only of the aperture, and a wick supported in the said wax by said tube, the tube being adapted to prevent the flame descending below its top, substantially as described.

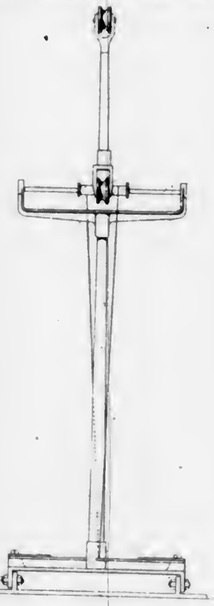
7. The combination, in an article of the class described, of the wax body 1, the plaster base 5, the paper casing 4, the wax having an aperture, the split tube 7 secured at its base to the plaster and extending upwardly in the lower portion only of said aperture, and a wick extending through said tube and wax and projecting out from said tube and into the plaster of the base, the tube being adapted to prevent the flame descending below its top, substantially as described.

8. The combination with the base 5, of the wick 6 having the flattened end 9 embedded in the base, the split tube 7 secured at its base in the plaster, the wax body 1 having the aperture 3 into the lower portion only of which said tube extends, the wick passing through said tube and through said aperture, and the paper casing 4 surrounding the base 5 and body 1, the tube being adapted to prevent the flame descending below its top, substantially as described.

9. The combination, in an article of the class described, with a suitable wax body and base for the same, of an upwardly-disposed wick having a flattened end embedded in the base, and a split tube extending into the lower portion only of said body, through which tube the wick extends for upholding the latter, the tube being adapted to prevent the flame descending below its top, substantially as described.

10. A night-light comprising the following elements, a paper casing, a body of illuminant located therein, having a longitudinal aperture, a slit tube of a diameter permitting said tube to be passed readily into said aperture and be held in the same by friction, and a stable wick of a diameter permitting it to be passed into said tube and be held therein by friction with its sides, and a molded incombustible base, substantially as described.

574,377. ELECTRIC-RAILWAY TROLLEY. EDWARD M. BENTLEY, New York, N. Y. Filed July 28, 1896. Serial No. 600,739. (No model.)



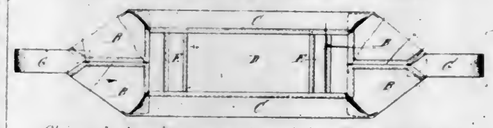
Claim.—1. The combination in an electric-railway contact device of a supporting-arm upwardly spring-pressed, a guideway on the outer end of said arm, a pivoted tip or end section movable on said guideway, a contact-wheel on its outer end and a spring for pressing said wheel into engagement with a line conductor.

2. The combination in an electric-railway contact device of a supporting-arm, lateral extensions on opposite sides of said arm at its outer end, having a guideway thereon, a pivoted rod or arm laterally movable along said guideway and upwardly spring-pressed, and a wheel or roller on the outer end of said rod or arm.

3. The combination in an electric-railway contact device of a supporting-arm, upwardly spring-pressed and carrying a contact wheel or roller at its outer end, a pivoted rod or arm forming an end section extending beyond the said supporting-arm and movable laterally with relation thereto and a second contact wheel or roller at the outer end of said pivoted rod or arm.

4. The combination in an electric-railway contact device of a laterally-movable and pivoted arm carrying a wheel or roller at its outer end, an actuating-spring for said arm attached to a relatively stationary part and an intermediate connecting device between the spring and arm adapted to move laterally with the latter.

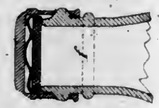
574,378. CATAMENIAL SACK. JENNIE L. BORNSTEIN, Dayton, Ohio. Filed Dec. 28, 1895. Serial No. 573,594. (No model.)



Claim.—1. A sanitary support consisting of a piece of waterproof material having its longitudinal edges folded inwardly and its corner portions folded inwardly and secured to said folded edges, to form an elongated sack having a central opening in one side, the meeting edges of said folded corner portions being secured together at widely-separated points, forming a longitudinal slit between them, in line with but exterior to said central opening, substantially as described.

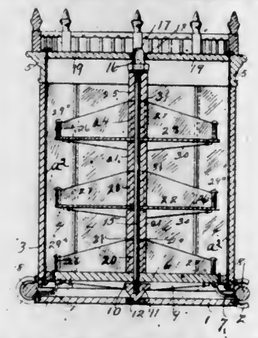
2. A sanitary support consisting of a piece of waterproof material having its longitudinal edges folded inwardly and its corner portions folded inwardly and secured to said folded edges to form an elongated sack having a central opening in one side, the meeting edges of said corner portions at each end of the support being in line with said central opening and secured together at widely-separated points to form a longitudinal slit exterior to said central opening, and retaining devices for securing said folded longitudinal edges in position, substantially as described.

574,379. MEANS OR APPARATUS FOR HERMETICALLY CLOSING BOTTLES. LOUIS BOUNEU, Brussels, Belgium. Filed July 21, 1896. Serial No. 600,045. (No model.) Patented in Belgium Sept. 11, 1895, No. 117,380, Sept. 12, 1895, No. 117,389, and Apr. 27, 1896, No. 121,075; in England Oct. 10, 1895, No. 19,034; in France Oct. 19, 1895, No. 251,077; in Luxemburg Oct. 30, 1895, No. 2,406, and in Spain Mar. 14, 1896, No. 18,271.



Claim.—In combination a cap, a washer of cork, rubber or the like and a washer of inverted-cup shape and of corrugated form fitting over the cork washer and engaging the same with its edges while its central part bears on the interior of the cap, the contact between the cap and corrugated washer allowing the cap to turn on the central part of the washer substantially as described.

574,380. REVOLVING SHOW-CASE. BENJAMIN C. BRADLEY, Alliance, Ohio. Filed Apr. 25, 1896. Serial No. 589,073. (No model.)



Claim.—1. In a revolving show-case of the class described, the combination of the base 1, provided with grooves 35, and 36, said groove 36, being curved and located to one side and adjacent to a portion of the groove 35, a fixed frame provided with panels, and the sliding door 32, provided with pins upon its ends, and the plate 19, all arranged substantially as and for the purpose specified.

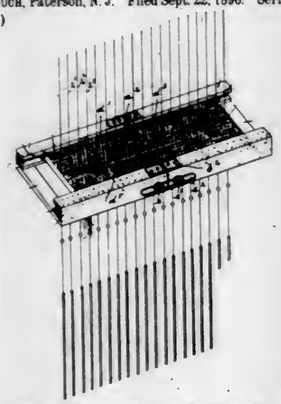
2. The combination of the base 1, provided with the socket 12, the cross-bar 9, secured to the lower shelf and provided with the recess 10, having the side groove 13, the cone-bearing 11, provided with the rib 14, the rod 15, connected to the cone-bearing and provided with a series of thimbles, the nut 16, adjustably attached to the top or upper end of the rod 15, and means for rotating the shelves, substantially as and for the purpose specified.

3. The combination of a base, a fixed case, a series of shelves located within the fixed casing, said shelves provided with posts and cups, thimbles located upon the rod 15, and having connected thereto the inner ends of radial partitions, and thimbles located above and upon the ends of the thimbles to which the radial partitions are attached, substantially as and for the purpose specified.

574,381. WITHDRAWN.

574,382. COMBER-BOARD FOR JACQUARD MECHANISM.

ADOLF BRAUCH, Paterson, N. J. Filed Sept. 22, 1896. Serial No. 606,632. (No model.)



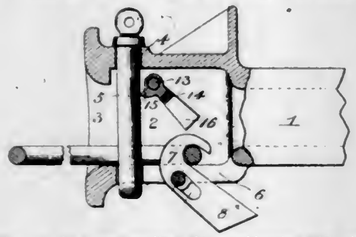
Claim.—1. A folding sectional comber-board, provided with means for adjusting and locking its sections at any desired angle, substantially as and for the purposes described.

2. A comber-board consisting of a folding frame, a series of two or more perforated sections arranged in said frame and means for adjusting and locking the sections of the frame at any desired angle, substantially as and for the purposes described.

3. A comber-board, consisting of a frame made in two parts hinged or otherwise foldingly connected, a perforated board arranged in said frame, and means for adjusting and holding the parts of the frame at any desired angle, and means for securing the perforated board to the frame, substantially as and for the purposes described.

574,383. CAR-COUPLING.

FRANK W. BRIDENBECKER, Frankfort, N. Y. Filed May 22, 1896. Serial No. 592,536. (No model.)

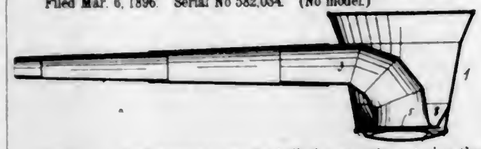


Claim.—1. In a car-coupling, the combination with the draw-head having alined apertures for the passage of a coupling-pin, and an elongated slot in its lower side, of the pin-holder located in the draw-head and pivotally connected therewith, having a lip forming a support for holding a coupling-pin in an elevated position, and the weighted hook passing through said slot and pivotally connected with the draw-head, and having its upper end curved backwardly to engage with a coupling-link, substantially as described.

2. In a car-coupling, the combination with the draw-head having alined pin-apertures and a slot in its lower side, of the pivoted pin-holder formed with a holding-lip, the weighted hook having an elongated slot, and the fulcrum-rod passing therethrough: substantially as described.

574,384. EAR-TRUMPET.

FRANK E. BROCKETT, Rome, N. Y. Filed Mar. 6, 1896. Serial No. 582,034. (No model.)



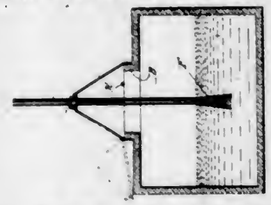
Claim.—1. In an ear-trumpet the bell, the ear-tube entering the side of the bell and curved down to a position adjacent to the bottom of the bell, a sounding-plate opposite the end of the ear-tube in the bottom of the bell, a spring supporting the sounding-plate, and a perforated plate closing the mouth of the bell, substantially as set forth.

2. In an ear-trumpet the combination of a bell, an ear-tube extending to a point adjacent to the bottom of the bell, a sounding-plate and a spring supporting the same, substantially as set forth.

3. An ear-trumpet having the bell 1, the ear-tube 3, the sounding-plate 5 mounted on a spring and the internal cone 8, substantially as set forth.

574,385. MUCILAGE-BOTTLE.

FRANK N. BROOKER, East Haven, Conn., assignor of one-half to Frank R. Perry, New Haven, Conn. Filed Feb. 27, 1896. Serial No. 581,095. (No model.)

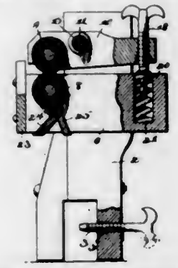


Claim.—1. The herein-described mucilage-bottle which is provided with a neck, to which is secured an attachment, the walls of which are contracted inwardly and upwardly, said attachment consisting of two parts, one of which is hinged in position, and the separate parts being provided at the top with an opening, adapted to receive the handle of a brush, and one of said parts being provided with a hinged clasp, by which the hinged section is held in place, substantially as shown and described.

2. The herein-described mucilage-bottle, which is provided with a neck, to which is secured an attachment, the walls of which are contracted inwardly and upwardly, said attachment consisting of two parts, one of which is hinged in position, and the separate parts being provided at the top with an opening, adapted to receive the handle of a brush, and one of said parts being provided with a hinged clasp, by which the hinged section is held in place, and the neck of the bottle being also provided with a cross-rod or wire on which the brush may be wiped, substantially as shown and described.

574,386. WRINGER.

ISRAEL F. BROWN, New London, Conn. Filed Aug. 28, 1894. Serial No. 521,505. (No model.)

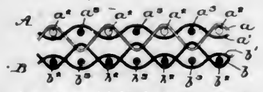


Claim.—In a clothes-wringer, the combination of side standards having their lower ends provided with clamping means, parallel horizontal bars firmly attached between their ends to the standards, and having vertical sockets in the top edges near their rear ends, a board cut away at its top edge and connecting the front ends of the horizontal bars and forming a guide, a horizontal shaft journaled in the upper ends of the standards, levers extending parallel with the horizontal bars and fulcrumed upon the horizontal shaft, a spacing-sleeve mounted upon the shaft and having its ends touching the inner sides of the levers, pressure-rollers journaled in the front ends of the said bars and levers, springs placed in the aforesaid vertical sockets, set-

screws mounted in the rear ends of the levers and engaging with the springs, oppositely-inclined strips secured to the aforesaid bars and forming an inverted-V stop disposed to come beneath the lower pressure-roller, and having its angle touching the surface thereof in the rear of its axis, a pinion mounted upon one end of the horizontal shaft and having a crank connected therewith, and a gear-wheel secured to the projecting journal of the adjacent pressure-roller and meshing with the said pinion and driven therefrom, substantially as set forth.

574,387. WOVEN MULTIPLE-PLY FABRIC.

JAMES BUCKLER, Philadelphia, Pa., assignor, by mesne assignments, to John M. Russell, Worcester, Mass. Filed Nov. 20, 1895. Serial No. 569,483. (Specimens.)



Claim.—1. A woven multiple-ply fabric wherein the weft-threads of each ply are bound into the fabric by their warp-threads, warp-threads of one ply being crossed with those of another ply at points directly intermediate opposite wefts of the respective plies, substantially as described.

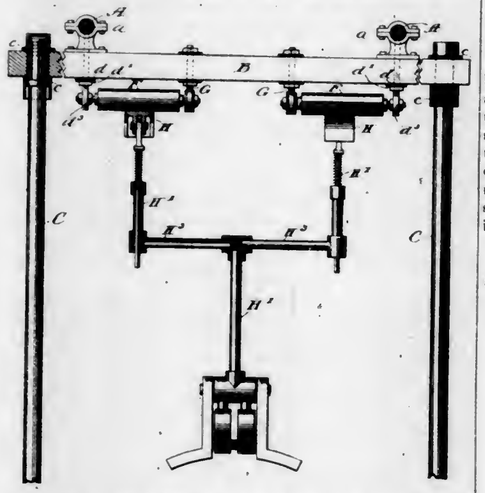
2. A multiple-ply fabric wherein the weft-threads of each ply are bound into the fabric by their warp-threads, one of the pair of warp-threads of one ply being tied or bound into the fabric by the crossing thereon of one of the warp-threads of the opposite ply at points directly intermediate opposite wefts of the respective plies, substantially as described.

3. A woven multiple-ply fabric wherein the weft-threads of each ply are bound into the fabric by their warp-threads, the warp-threads of one ply being crossed with those of another ply at points directly intermediate opposite wefts of the respective plies, and a supplemental weft-thread run into the fabric, substantially as described.

4. A multiple-ply fabric in which the weft-threads of each ply are bound into the fabric by their warp-threads, one of the pair of warp-threads of one ply being tied or bound into the fabric by the crossing thereon of one of the warp-threads of the opposite ply or face, and a supplemental weft-thread run into the fabric, between the faces thereof, substantially as described.

574,388. ELECTRIC PROPULSION OF VEHICLES.

WILLIAM A. BUTLER, New York, N. Y., assignor to John Gilmore Boyd, same place. Filed Mar. 19, 1895. Serial No. 542,373. (No model.)



Claim.—1. The combination of the overhead structure, consisting of uprights C and cross-beams B, positive and negative distributing-conductors A A, supported at intervals by and above the cross-beams B and insulated between such points of support, a series of contact-rollers for each conductor, each permanently electrically connected with it and located beneath one of such cross-beams, a track or way running parallel with the lines in which such contact-rollers are arranged, vertically-yielding elongated contact-shoes, one for each series of rollers, carried by a vehicle traveling upon such track or way, and circuit connections extending from each shoe to the vehicle, the organization being such that each shoe makes contact with one of the rollers of its series before leaving another, substantially as set forth.

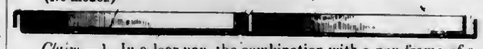
2. The combination of two overhead conductors supported at intervals and insulated between supports, a contact arranged at each support and electrically connected with its conductor, a traveling vehicle, two yielding vertical arms H^3 carried by the vehicle, a cross-bar carried by each arm, vertical telescoping supports arranged at each end of the cross-bar, and two elongated contact-shoes respectively pivotally connected with the telescoping supports, on corresponding ends of the cross-bars, substantially as and for the purpose set forth.

3. The combination of a track or way, a vehicle traveling thereon, a yielding elongated collecting-shoe carried by the car, a distributing-conductor, supports therefor arranged above the track, the conductor being insulated between such supports, a contact-roller mounted to rotate upon a fixed shaft, whose support is electrically connected with the distributing-conductor and contact-brushes attached to the shaft within the roller, and rubbing against the interior face of the roller, substantially as set forth.

4. The combination of the supporting-beams B, the distributing-conductor, the brackets mounted thereupon and within which the conductor is supported, insulation covering the conductor between said brackets, and insulation enveloping the conductor within the brackets, a conducting-rod electrically connected with the conductor within the bracket and extending therefrom through the cross-beam, a shaft having one end mounted in the end of said conducting-rod, and the other end in an insulated bracket or support depending from the under side of the cross-beam, and a contact-roller revolving upon said shaft.

574,389. LEER-PAN.

JOSEPH H. CALHOON and ARLINGTON D. BRITTAIN, Beaver Falls, Pa. Filed Apr. 12, 1895. Serial No. 545,494. (No model.)



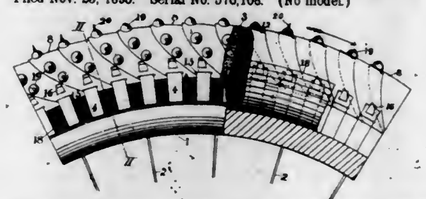
Claim.—1. In a leer-pan, the combination with a pan-frame of a body portion formed of interlocking wire coils, substantially as set forth, and metal binding embracing the edges and marginal sides of the said fabric and having tongues at its inner edges bent inwardly and engaged with the meshes or coils of the fabric, substantially in the manner shown and for the purpose described.

2. In combination, a series of leer-pans comprising frames inclosing and supporting body portions of wire fabric, and cross-strips strengthening and bracing the frames, the intermediate pans having the end portions of the cross-strips bent to form hooks, and the alternate pans having the end portions of the cross-strips bent to provide clips which engage with the said hooks and serve to connect the said pans in series, substantially as set forth.

3. In a leer, the combination with a pan of a wire fabric having hexagonal-shaped meshes and presenting the appearance of transverse and diagonally-disposed interlocked fluted wires, and formed from three series, or sets, of straight wires forming primary coils of corresponding shape disposed in parallel relation and spaced apart a distance between their axial lines corresponding to approximately the diameter of the primary coils, two sets of coils being diagonally arranged and intersected by the third set of transverse coils, the several sets of primary coils interlocking at the points of intersection, or crossing, substantially as specified.

574,390. VEHICLE-TIRE.

GEORGE N. CHASE, Pasadena, Cal. Filed Nov. 25, 1895. Serial No. 570,108. (No model.)



Claim.—1. The combination of a rim, a series of overlapping plates having a central connection and free ends, and means for connecting the ends of the plates with the rim, substantially as set forth.

2. The combination of a rim, a series of overlapping plates, and a series of ribs for connecting the ends of the plates with the rim, substantially as set forth.

3. The combination of a rim, a series of overlapping plates, a series of ribs having their outer ends secured to the plates and having their opposite ends bent and inserted in grooves in the rim, substantially as set forth.

4. The combination of a rim, a series of overlapping plates, a series of ribs having their inner ends secured to the rim, and having slots near their outer ends, slots in the ends of the overlapping plates, and tapering tongues on the plates adapted to enter the slots in the ribs, substantially as set forth.

5. The combination of a rim, a series of overlapping plates, central slots and hooks on the plates for connecting them together, and means for connecting the plates with the rim, substantially as set forth.

6. The combination of a rim, a series of overlapping plates, shoulders near the ends of the plates, tongues on the plates, a series of spring-ribs, and slots in the ribs adapted to engage the tongues on the plates, substantially as set forth.

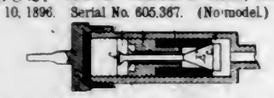
7. In a vehicle-wheel the combination of a suitable rim, a flexible inner tube, a series of protecting-plates, a series of perforated knobs on the plates having cup-shaped apertures on their inner sides, and removable points adapted to have their bases rest in the cup-shaped aperture and on the underlapping portion of the protecting-plates, and their points extending through the perforated knobs, substantially as set forth.

8. In a vehicle-wheel the combination of a suitable rim, a series of spring-plates, a series of ribs connecting the plates with the rim, a flexible inner tube, and a protecting-shield, interposed between the tube and the ribs, substantially as set forth.

574,391. PROCESS OF MAKING BICHROMATES. GUILLIAM H. CLAMER, Philadelphia, Pa., assignor to the Ajax Metal Company, same place. Filed Apr. 6, 1896. Serial No. 586,441. (No specimens.)

Claim.—The herein-described process of making alkaline chromates which consists in fusing together powdered chrome ore and an alkali nitrate, and allowing it to cool, afterward powdering same and mixing with a caustic alkali and a sufficient quantity of alkali nitrate to complete the oxidation of the ore, the caustic alkali and alkali nitrate, being first fused together in a suitable vessel and the powdered ore and nitrate added thereto gradually and the mass kept fused and stirred until the ore is completely oxidized, substantially as set forth.

574,392. VALVE. CHARLES H. CLARK, Rochester, N. Y. Filed Sept. 10, 1896. Serial No. 605,367. (No model.)

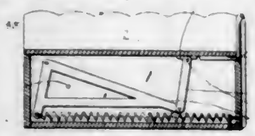


Claim.—1. In an air-valve, the combination of the tubular valve-casing, the tubular plug connected to the inner wall of the casing, the flexible tube supported on the inner end of the plug close to the wall of the casing, and the automatic check-valve, said valve operating to close the inner end of the tube and compress it against the casing when operated by back pressure, substantially as described.

2. In an air-valve, the combination of the tubular internally-threaded valve-casing, the threaded tubular plug removably screwed into said casing and having a projection on its inner end, the inwardly-projecting rubber tube fitting over said projection, and the conical automatic check-valve, said valve operating to close the inner end of the rubber tube and compress it against the casing when operated by back pressure, substantially as described.

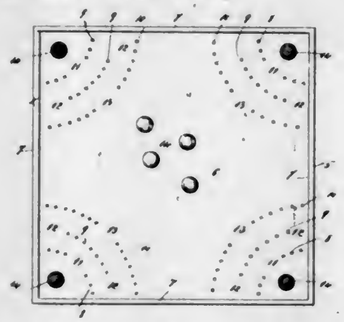
3. In an air-valve, the combination with the tubular internally-threaded valve-casing, the threaded tubular plug adapted to be screwed into said casing, the inwardly-projecting rubber tube supported upon said plug, the conical check-valve operating automatically in the inner end of the rubber tube, and the stem upon said valve extending through the opening of the plug and provided with a head upon its outer end, whereby the plug and valve are prevented from separating when the plug is removed, substantially as described.

574,393. BOX-COUCH. RAY G. COATES, Pasadena, Cal. Filed Dec. 14, 1895. Serial No. 572,156. (No model.)



Claim.—The combination of a box, an upholstered top hinged approximately on the line of intersection of the plane of the upper surface of the upholstery with that of the rear wall of the box, a lever fulcrumed on said box, a connecting-piece pivoted to the said lever and to the said top, and a spring so attached to the said box at one end and to the said lever at the other that the line of the direction of the reaction of the spring and the line joining the fulcrum and the point at which the said spring is attached to the said lever are more nearly perpendicular than parallel to each other in all positions of the said lever, whereby the said spring reacts on the said top, through the said lever, with a great lifting force when said top is down, substantially as described.

574,394. PUZZLE. MICHAEL F. COLLIS, Marfa, Tex. Filed July 18, 1896. Serial No. 599,611. (No model.)



Claim.—A puzzle, substantially as herein shown and described, consisting of a rectangular box or casing, having formed therein adjacent to the corners thereof three segmental walls 8, 9 and 10 arranged at equal distances apart, said walls having passages or openings formed therein, and eight balls differently colored, four of which are adapted to be placed in the corner chambers, said puzzle being adapted to be manipulated so as to change the position of the balls in the manner specified.

574,395. PROCESS OF OBTAINING ACETO DERIVATIVES OF AROMATIC AMINS. ROBERT W. CORNELISON, Bloomfield, N. J., and WILLIAM H. WARREN, Brooklyn, N. Y. Filed May 25, 1896. Serial No. 593,043. (No specimens.)

Claim.—1. The above-described method of producing the aceto derivatives of the aromatic amins, which consists in making them directly from an acetic-acid salt by replacing the acetic-acid radical of this salt with another acid radical, such as a sulfuric-acid radical, and causing the acetic-acid radical thus liberated to react finally with an aromatic amin to form the aceto derivative thereof.

2. The above-described method of producing acetanilid, which consists in making it directly from an acetic-acid salt by replacing the acetic-acid radical of the salt with another acid radical, such as a sulfuric-acid radical, and causing the acetic-acid radical thus liberated to react finally with anilin to form acetanilid.

3. The process of manufacturing the aceto derivatives of the aromatic amins by the reactions of an acetic-acid salt and an aromatic-amin salt upon each other, substantially as described.

4. The process of manufacturing acetanilid by the reactions of an acetic-acid salt and an anilin salt upon each other, substantially as described

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574,396. PROCESS OF OBTAINING ACETO DERIVATIVES OF AROMATIC AMINS. ROBERT W. CORNELISON, Bloomfield, N. J. and WILLIAM H. WARREN, Brooklyn, N. Y. Filed May 25, 1896. Serial No. 593,044. (No specimens.)

Claim.—1. The above-described method of producing the aceto derivatives of the aromatic amins, which consists in first converting a normal acetic-acid salt into the acid salt and then causing the excess of acetic acid thus taken up and carried by the salt to react with the desired aromatic amin.

2. The above-described method of producing the aceto derivatives of the aromatic amins, which consists in first converting the normal acetate of an alkali into the acid acetate and then causing the additional acetic acid thus taken up and carried by the salt to react with the desired aromatic amin.

3. The above-described method of producing acetanilid, which consists in first converting a normal acetic-acid salt into the acid salt and then causing the excess of acetic acid thus taken up and carried by the salt to react with anilin.

4. The above-described method of producing acetanilid, which consists in first converting the normal acetate of an alkali into the acid acetate and then causing the additional acetic acid thus taken up and carried by the salt to react with anilin

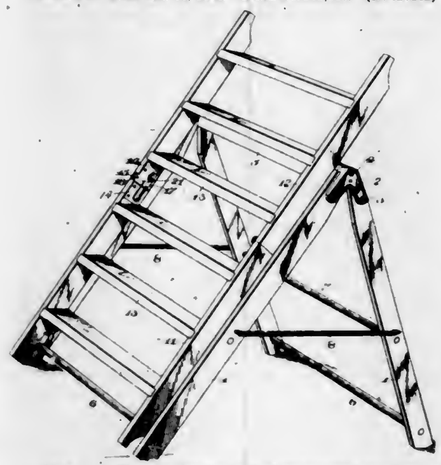
5. The process of manufacturing the aceto derivatives of the aromatic amins by the reactions of an acid salt of acetic acid with the desired aromatic amin, substantially as described.

6. The process of manufacturing the aceto derivatives of the aromatic amins by the reactions of the acid acetate of an alkali with the desired aromatic amin, substantially as described.

7. The process of manufacturing acetanilid by the reactions of an acid salt of acetic acid with anilin, substantially as described.

8. The process of manufacturing acetanilid by the reactions of the acid acetate of an alkali with anilin, substantially as described.

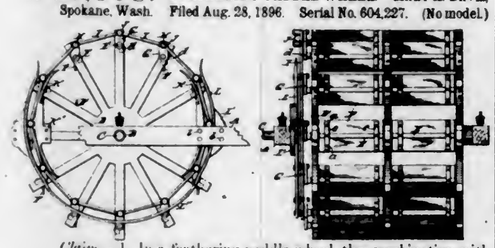
574,397. COMBINED STEP-LADDER, WASHBENCH, &c. WILLIAM P. COULTER, JOHN N. HORN, FRANCIS C. REITER, ARTHUR W. LYDA, JOHN FREIDHOFF, Jr., HOWARD DAVIS, and HENRY B. BARNES, Johnstown, Pa. Filed Jan. 16, 1896. Serial No. 575,813. (No model.)



Claim. 1. The combination with a supporting-frame having upwardly-converging side bars arranged in parallel pairs and joined to a connecting ridge-bar, of a ladder made in two sections hinged together and arranged to fold between the side bars of the supporting-frame, one of said sections being permanently and pivotally mounted on a cross-rung on the supporting-frame and the other section being provided with spring-clasps for engaging a cross-rung at the opposite side of the supporting-frame, and a spring-actuated latch for locking the ladder-sections rigidly together when brought into alinement, substantially as described.

2 A hinge consisting of two plates having interlapping ears at their contiguous corners, connected by a common pintle, a latch pivotally connected to one plate on an axis parallel with said pintle and projecting at its free end beyond said plate, a laterally-projecting stud on the opposing plate for engagement with said latch, an eye or staple on one plate embracing the latch intermediate its ends and forming a guard therefor, and a leaf-spring connected to said latch intermediate its ends and having its free end engaged in said eye or staple, substantially as described.

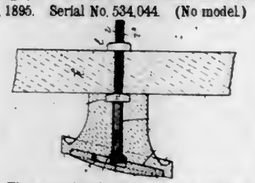
574,398. FEATHERING PADDLE-WHEEL. MARY A. DAVIS, Spokane, Wash. Filed Aug. 28, 1896. Serial No. 604,227. (No model.)



Claim.—1. In a feathering paddle-wheel, the combination with spiders having bearings near the ends of their radial arms, crank-shafts journaled therein, with paddles and cranks secured thereto, links connecting the wrists of all the cranks and antifriction-rollers thereon, of cams mounted near the front and rear of the wheel, and adapted to receive said rollers, the cams being practically arcs of a circle, the center of which is the length of each crank above the center of the wheel.

2. In a feathering paddle-wheel, the combination of the paddle-shafts E E, provided with cranks G G, their wrists H H, antifriction-rollers J J, and connecting-links I I, a boss 5 on one link engaging an eye in the other, substantially as and for the purpose set forth.

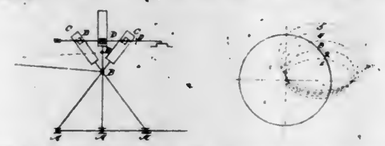
574,399. DRAWER-PULL. JOHN L. DAWES, Pittsburg, Pa. Filed Jan. 7, 1895. Serial No. 534,044. (No model.)



Claim.—1. The combination, in a drawer-pull, of a body portion having a shank and a recessed front face, a label having a recess in its rear face, and a bolt passing through said body portion and shank, and having a head at its forward end adapted to engage with the recess in the label and to lock the same by means of a bayonet-joint; substantially as described.

2. The combination, in a drawer-pull, of a body portion having a shank and a recessed front face, a label having a recess in its rear face, a bolt having a screw-threaded rear end passing through said body portion and shank and having a head at its forward end adapted to engage with the recess in the label and to lock the same by means of a bayonet-joint, a nut engaging with said screw-threaded end of the bolt for securing the bolt against displacement, and means for fastening the pull to the drawer; substantially as described.

574,400. VALVE-GEAR. TROPHIME DELVILLE, Brussels, Belgium. Filed Oct. 24, 1893. Serial No. 489,062. (No model.) Patented in Belgium Apr. 26, 1892, No. 99,442; in Germany July 22, 1892, No. 5,285; in France Oct. 24, 1892, No. 225,149, and in England May 26, 1893, No. 10,388.



Claim.—1. In combination with a valve-gear of a steam-engine, a lever connected at its lower end with the piston-rod, pivoted at an intermediate point to the eccentric-rod and having its upper free end suitably connected to the valve-rod, substantially in the manner herein explained.

2. In combination with the valve-gear of a steam-engine, a lever establishing controlling communication between the eccentric-rod and valve-rod, and having connection with the latter which permits the relative movement between them in a direction transverse to the valve-rod, and means for sliding the lever transversely of the valve-rod in opposite directions simultaneously with the stroke of the latter and thereby varying the amplitude of the movement imparted to the same at opposite ends of its throw, substantially as herein described.

574,401. PROCESS OF CRINKLING SILK. CHARLES DEPOULLY and PAUL DEPOULLY, Paris, France, assignors to the Society Gillet et Fils and the Society C. Garnier & Cie, Lyons, France. Filed July 6, 1895. Serial No. 555,158. (No specimens.) Patented in France Aug. 21, 1894, No. 240,879, and in England Mar. 15, 1895, No. 5,533.

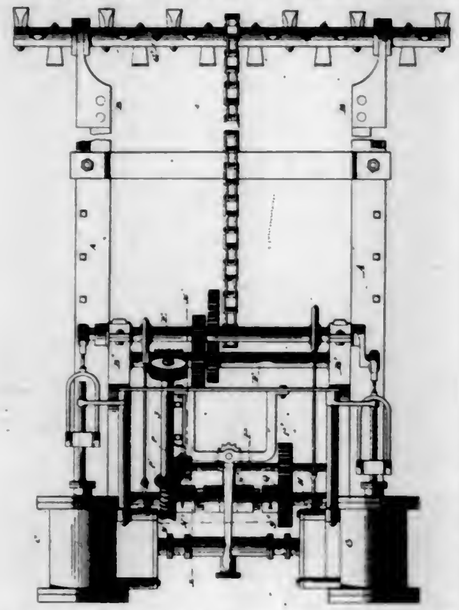
Claim.—1. The herein-described process of contracting silk fabric for the production of crinkled effects by subjecting threads or fabrics to the action of an acid of a density sufficient to contract the silk fibers herein specified.

2. The herein-described process of contracting silk fabric for the production of crinkled effects thereupon, which consists in subjecting silk which has gum contained therein to the action of an acid of a density sufficient to contract the silk fibers substantially as herein specified.

574,402. MINING-MACHINE. HENRY B. DIERDORFF, Columbus, Ohio, assignor to Joseph A. Jeffrey, same place. Filed Mar. 8, 1892. Serial No. 424,153. (No model.)

Claim.—1. In a mining-machine the combination with the stationary frame and the sliding frame of the transverse carriage-moving shaft H, the relatively fast-moving power-shaft, the intermediate shaft, the carriage-advancing mechanism consisting of the shaft J, the worm-wheel thereon engaging with a worm on the intermediate shaft,

a worm-wheel on the carriage-moving shaft and a worm on said shaft J for driving it, and the carriage-withdrawing mechanism having the continuously-rotating pinion-wheel on said shaft H, a shaft P having a bevel-wheel driven by a bevel-wheel on the shaft J, and gearing connecting said shaft P with the wheel Q, substantially as set forth.



2. In a mining-machine, the combination with a stationary bed-frame and the sliding frame, of the power-shaft, the intermediate shaft, and the reversible double-speeded carriage-moving shaft, the carriage-advancing mechanism having the shaft J driven by the intermediate shaft and having a worm driving a worm-wheel on the carriage-moving shaft, and the carriage-withdrawing mechanism consisting of a shaft parallel with the carriage-moving shaft geared to the said shaft J, and the straight spur-gearing connecting said shaft J with the carriage-moving shaft, substantially as set forth.

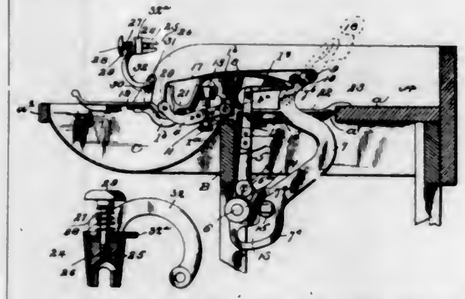
3. The combination with a stationary frame provided with a rack and a sliding frame provided with a pinion to engage said rack, of a shaft H, a worm-wheel thereon, a shaft J provided with a worm for driving said wheel, a wheel Q on said shaft H, a shaft P parallel with said shaft H and having a bevel-wheel *p* driven by a bevel-wheel *p'* on shaft J and gearing connecting said shaft P with said wheel Q, substantially as set forth.

4. The combination of the bed, the carriage, the chain-actuated cutting apparatus on the carriage, the prime power-shaft, the secondary shaft driven thereby, the chain-driving wheel connected to the chain-driving shaft, a transversely-mounted reversible shaft having pinions engaging with racks on the bed; a carriage-moving shaft, P, parallel to the pinion-shaft, a worm on the secondary shaft, a worm-wheel driven thereby, a relatively slow-moving gearing actuated by said worm-wheel for turning the reversible shaft slowly in one direction, means for connecting the worm-wheel to the carriage-moving shaft, P, the relatively faster straight spur-gearing connecting said carriage-moving shaft with the pinion-shaft, and the clutch, substantially as set forth.

5. The combination of the bed, the carriage, the chain-actuated cutting apparatus on the carriage, the prime power-shaft, the reversible double-speeded carriage-moving shaft mounted transversely on the carriage, the pinions thereon, the racks on the bed, the shaft parallel to the reversible pinion-shaft, one, of said shafts (to wit the reversible pinion-shaft and the shaft parallel thereto) having two loose wheels, and the other thereof having two fastened wheels, a clutch between the two loose wheels, and a worm and worm-wheel interposed between the two last-said shafts and the prime power-shaft, and adapted to impart power to rotate the reversible pinion-shaft slowly in one direction or rapidly in the opposite direction, substantially as set forth.

574,403. CIGAR-BUNCHING MACHINE. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed Mar. 9, 1894. Serial No. 503,020. (No model.) Patented in England Mar. 29, 1894, No. 6,330.

Claim.—1. In a cigar-bunching machine, the combination of a rolling-table having a concavity therein, a bunching-apron, a pivotally supported tension-frame supporting one end of said apron, means for causing the tension-frame to swing to relax the apron as the bunching-roller assumes its normal or inoperative position and a crank-arm secured to the journal of the tension-frame, with a pivotally-supported shaping-frame carrying a bunching-roller, and a cam secured to the journal of said shaping-frame adapted to operate the tension-frame to tighten the apron through the medium of the crank-arm as the bunch is being rolled.



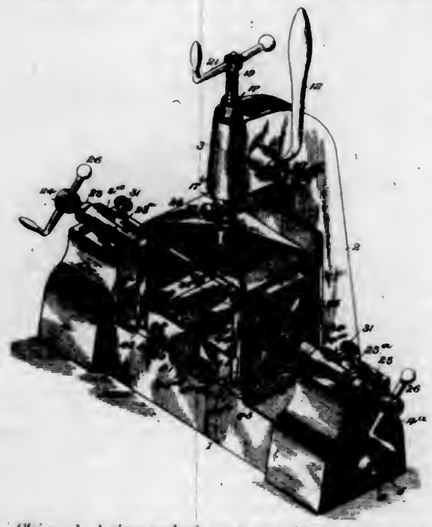
2. A cigar-bunching machine comprising a main frame formed with a transversely-arranged central plate, with a rolling-table located at the top of the central plate, with an apron-pocket receptacle at the front of the table, with an apron-bar receptacle in front of the apron-pocket receptacle, with a front shelf, and with a shelf extending rearwardly from the plate beneath the rolling-table, the front apron-holder fulcrumed to the plate beneath the table and adjustably connected with the table, the rear apron-holder fulcrumed to the rear side of the plate having an apron-bar occupying the pocket between the rear shelf and the table, and a short arm, and the levers hinged to the bottom of the central plate having bunching and guide rollers; one of the levers being provided with an enlargement, at its pivot portion, formed with a cam-slot through which the short arm of the rear apron-holder projects; substantially as described.

3. The combination of a cigar-maker's table having a top formed with a central opening, a scrap-receptacle in front of the top, a transverse bar located in rear of the scrap-receptacle beneath the opening, and a cigar-bunching machine comprising a main frame formed with a transversely-arranged ceutral plate having a horizontal flange seating on the bar with a rolling-table located at the top of the central plate, and extending on both sides thereof, with an apron-pocket receptacle at the front of the table, with an apron-bar receptacle in front of the apron-pocket receptacle, with a front shelf, and with a shelf extending rearwardly from the plate beneath the rolling-table, the front apron-holder fulcrumed to the plate beneath the rolling-table and adjustably connected with the rolling-table, the rear apron-holder fulcrumed to the rear side of the plate having an apron-bar occupying the pocket between the rear shelf and the rolling-table and a short arm, and the levers hinged to the bottom of the central plate, having bunching and guide rollers; one of the levers being provided with an enlargement at its pivot portion, formed with a cam-slot through which the short arm of the rear apron-holder projects; substantially as described.

4. A cigar-bunching machine comprising a transversely-arranged central plate, having a rolling-table at the top thereof, a front upper rib provided with a horizontal bearing-sleeve, and a vertical screw-socket, a pivot-pin projecting through the sleeve, the apron-pocket receptacle in front of the table, the apron-bar receptacle in front of the apron-pocket receptacle, the front apron-holder formed with boxes secured to the ends of the pivot-pin, with short arms connected by a cross-bar, with lateral projections located in front of the cross-bar and with main arms extending beneath the apron-pocket receptacle carrying an apron-rod within the apron-rod receptacle, and the screw threaded into the screw-socket, having upper and lower flanges located above and below the lateral projections; substantially as described.

5. A cigar-bunching machine comprising a rolling-table, an apron-pocket receptacle in front of the rolling-table, an apron-bar receptacle in front of the apron-pocket receptacle, a front shelf, the standards on the front shelf, the charger-frame having curved arms pivoted to the standards carrying a cross-plate, and extending over the apron-bar receptacle and into the apron-pocket receptacle, the charger and gaging-cup detachably secured to the cross-bar, the ejecting-plunger within the cup having a stem, the spring for seating the plunger, surrounding the stem, and the pressure-knob secured to the stem; substantially as described.

574,404. CIGAR-PACKER'S PRESS. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed July 31, 1896. Serial No. 601,133. (No model.)



Claim.—1. A cigar-packer's press comprising a tubular non-rotating vertically-sliding nut having a stem provided with a top presser-head, the tubular non-rotating horizontally-sliding nuts each having a stem provided with a side presser-head, the base having surmounting stationary bearing-boxes on which the horizontally-sliding nuts reciprocate, and mechanism whereby all the nuts are slid bodily simultaneously; substantially as described.

2. A cigar-packer's press comprising a tubular non-rotating vertically-sliding nut having a screw-threaded stem provided with a top presser-head, and means for adjusting the stem, the tubular non-rotating horizontally-sliding nuts, each having a screw-threaded stem provided with a side presser-head and means for adjusting the stem, the base having surmounting stationary bearing-boxes on which the horizontally-sliding nuts reciprocate, and mechanism whereby all the nuts are slid bodily simultaneously; substantially as described.

3. A cigar-packer's press comprising vertically and horizontally sliding nuts provided with presser-heads, the horizontal rock-shaft having a crank-arm, the cam-blocks mounted on the rock-shaft and connected with the horizontally-sliding nuts and mechanism connected with the crank-arm and with the vertically-sliding nut whereby all the nuts are operated simultaneously, substantially as described.

4. A cigar-packer's press comprising a vertically-sliding nut provided with a top presser-head, an upper rock-shaft having a crank-arm and a lever-arm, a bell-crank lever connecting the crank-arm of the upper rock-shaft to the vertically-sliding nut, the lower rock-shaft having a crank-arm, the pendent link connecting the bell-crank lever to the crank-arm of the lower rock-shaft, the blocks mounted on the lower shaft having right and left cam-slots, the horizontally-sliding nuts provided with side presser-heads, and pendent arbors secured to the horizontally-sliding nuts and working in the cam-slots of the blocks; substantially as described.

5. A cigar-packer's press comprising a frame having a base formed with surmounting stationary bearing-boxes a standard, and an upper bearing-box located at the top of the standard and overhanging the base, the tubular vertically-sliding nut having a stem provided with a top presser-head and located in the upper bearing-box and the tubular horizontally-sliding nuts each having a stem provided with a side presser-head, and located on the lower bearing-boxes, and means whereby all the nuts are reciprocated simultaneously; substantially as described.

6. A cigar-packer's press comprising a frame having a base formed with bearing-boxes and a standard formed with an upper bearing-box, the vertically-sliding nut provided with a top presser-head and extending through the upper bearing the bell-crank lever connected to the vertically-sliding nut, the upper rock-shaft connected to the bell-crank lever, the pendent link connected to the bell-crank lever, the lower rock-shaft connected to the link, the blocks having cam-slots and mounted on the lower rock-shaft, and the horizontally-sliding nuts provided with side presser-heads, mounted on the lower bearing-boxes, and having arbors working in the cam-slots of the blocks; substantially as described.

7. A cigar-packer's press comprising a frame having a base formed with end bearing-boxes, the lower rock-shaft having a crank-arm and mounted in the base, the hollow cam-blocks having right and left cam-slots respectively, the horizontal sliding nuts provided with side presser-heads and mounted on the bearing-boxes, the pendent arbors secured to the horizontal sliding nuts and provided with anjfriction-rollers working in the cam-slots, the upper rock-shaft having a crank-arm and lever-arm, the vertically-sliding nut provided with the top presser-head, the bell-crank lever connected to the vertically-sliding nut, and to the crank-arm of the upper rock-shaft and the pendent link connecting the bell-crank lever to the crank-arm of the lower rock-shaft; substantially as described.

8. A bundling-frame comprising a bottom plate, the sliding side blocks having tongue-and-groove-joint connection with the bottom plate, the sliding horizontal blocks having interlocking fingers, and tongue-and-groove-joint connection with the bottom plate and secured to the side blocks, the side plates sliding between the blocks, and the thumb-nuts whereby the horizontal blocks are secured immovably to the bottom plate; substantially as described.

9. A bundling-frame comprising a bottom plate, the sliding side blocks having tongue and-groove-joint connection with the bottom plate, the sliding horizontal blocks having interlocking fingers and tongue-and-groove-joint connection with the bottom plate and secured to the side blocks, the side plates sliding between the blocks, the plates surmounting the horizontal blocks and covering the joints between the latter; substantially as described.

10. The bundling-frame comprising a bottom plate, the sliding side blocks having vertical channels and tongue-and-groove-joint connection with the bottom plates, the sliding horizontal blocks having interlocking fingers and tongue-and-groove-joint connection with the bottom plate, and secured to the side blocks, and the side plates, sliding between the blocks and having cleats fitting in the vertical channels of the side blocks; substantially as described.

11. A cigar-packer's press comprising the bundling-frame comprising a bottom plate, the sliding side blocks having vertical channels, the sliding horizontal blocks having interlocking fingers and secured to the side blocks, the side plates sliding between the blocks and having cleats fitting in the vertical channels, and the side presser-heads having recesses fitting the side blocks and cleats; substantially as described.

12. A bundling-frame comprising side blocks, horizontal blocks having interlocking fingers, side plates sliding between the blocks, and the corner-blocks secured respectively to the horizontal blocks and to the side plates; substantially as described.

13. A divided bundling-frame comprising a sectional bottom plate, sliding rear sections having sliding side plates, sliding and removable front sections, having sliding side plates and the sectional covering-plate; substantially as described.

574,405. PENHOLDER. CHARLES M. DUNBAR and JOHN ROECKER, Jr., Guthrie, Okla. Filed July 14, 1896. Serial No. 599,090. (No model.)



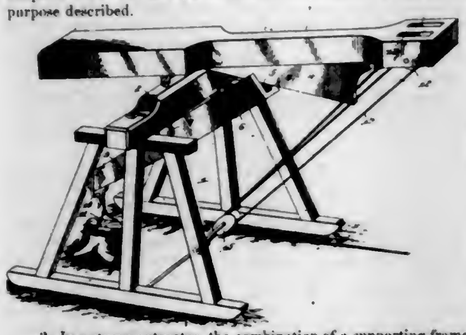
Claim.—1. The combination with a suitable pen-stock, provided with a cylindrical reduced extension, at one end, of a tubular penholder connected therewith, a sliding spring-operated sleeve mounted on said penholder, said sleeve and said spring being provided at their outer ends with a guard by which they are adapted to be forced backwardly, when the pen is inserted into an ink-bottle, and said stock being also provided with a tube which incloses the end of said sleeve, and into which said sleeve is adapted to be forced, substantially as shown and described.

2. The combination with a pen-stock, provided at one end with a reduced cylindrical extension, which is also provided at its outer end with a reduced cylindrical extension, of a penholder mounted on said last-named extension, a spiral spring mounted thereon, a sliding sleeve mounted on said spring, and inclosing the same, and connected with the outer end thereof, by means of a guard, and a tube mounted on the pen-stock, and inclosing the inner end of said sliding sleeve, and into which said sleeve is adapted to be forced, by said guard when the pen is inserted into an ink-bottle, substantially as shown and described.

574,406. STUMP-EXTRACTOR. BRISTOL EDDY and DANIEL PHILLIPS, Verndale, Minn. Filed Apr. 23, 1896. Serial No. 588,816. (No model.)

Claim.—1. In a stump-extractor, the combination of a supporting-frame, an operating-lever fulcrumed on the supporting-frame, a lower extracting-lever fulcrumed intermediate of its ends on the supporting-frame, and provided at one end with stump-engaging devices, and having its other end bearing against and located beneath, and

adapted to slide on, the operating-lever, substantially as and for the purpose described.



2. In a stump-extractor, the combination of a supporting-frame, an operating-lever fulcrumed on the supporting-frame, and provided at its lower face with a depending wedge-shaped portion forming an inclined lower edge, and a lower extracting-lever fulcrumed intermediate of its ends on the supporting-frame and provided at one end with stump-engaging devices, and having its other end engaged by, and adapted to slide on, the wedge-shaped portion of the operating-lever, substantially as described.

3. In a stump-extractor, the combination of a supporting-frame, an operating-lever fulcrumed on the supporting-frame, and provided at its rear end with pulleys, and having intermediate of its ends a depending wedge-shaped portion, an extracting-lever fulcrumed intermediate of its ends on the supporting-frame, and provided at its rear end with an antifriction-roller engaged by the wedge-shaped portion of the operating-lever, stump-engaging devices located at the front end of the extracting-lever, pulleys located at the base of the frame, and a rope passing over the said pulleys, substantially as described.

574,407. SPITTOON-CLEANER. HENRY ELLENBECKER and CHARLES THOMAS, Wausau, Wis. Filed Apr. 19, 1895. Serial No. 546,447. (No model.)



Claim.—1. A cleaner of the class described, comprising an operating-handle having a crank formed intermediate of its length, and a cleaning-brush at one end formed of semielliptical sections hinged by a vertical pivot to swing in a horizontal plane and secured to the lower end of the operating-handle, said sections being adapted to swing into and out of operative position by the rotation of said handle, substantially as set forth.

2. A cleaner of the class described, comprising an operating-handle having a knob journaled at one of its ends and a crank adjacent thereto, and a cleaning-brush formed of semielliptical sections each comprising a brush-holding frame, a strip secured thereto and having bristles, said sections being hinged together and secured to the lower end of the operating-handle, substantially as set forth.

3. In a cleaner of the class described, a cleaning-brush formed of semielliptical sections each of which comprises a brush-holding frame having one of its ends formed in a substantially semielliptical shape, a bristle-holding strip attached thereto, bristles secured in said strip, and a hinge for connecting the sections together, substantially as set forth.

574,408. MANUFACTURE OF OILS. WALTER D. FIELD, Bloomfield, N. J., assignor to the Tannette Manufacturing Company, same place. Filed June 14, 1894. Serial No. 514,498. (No specimens.)

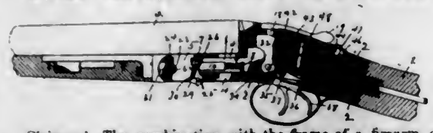
Claim.—1. The herein-described process of rendering stable the glycyl ethers of the unsaturated fatty acids, which consists in raising them to the temperature of from 150° to 210° centigrade then adding the sulfid of a pentavalent metal and then injecting air into the mixture until it reaches the required density.

2. The herein-described process of rendering stable the glycyl ethers of the unsaturated fatty acids, which consists in raising them to the temperature of from 150° to 210° centigrade then adding sulfid of antimony and then injecting air into the mixture until it reaches the required density.

3. The product resulting from the process of rendering stable the glycyl ethers of the unsaturated fatty acids, which consists in raising the temperature of the glycyl ether from 150° to 210° centigrade and then adding the sulfid of a pentavalent metal and then injecting air into the mixture until it reaches the required density.

4. The product resulting from the process of rendering stable the glycyl ethers of the unsaturated fatty acids, which consists in raising the temperature of the glycyl ether from 150° to 210° centigrade then adding a sulfid of antimony and then injecting air into the mixture until it reaches the required density.

574,409. BREAKDOWN FIREARM. ANDREW FYRBERG, Worcester, Mass. Filed May 13, 1895. Serial No. 549,180. (No model.)



Claim.—1. The combination with the frame of a firearm, of a barrel, a notched lug projecting from said barrel, a sliding latch-plate held in said frame, a spring by which said latch-plate is carried into engagement with said notched lug, a transverse rib on said latch-plate, an oscillating blade pivoted in said frame and acting against said rib to withdraw said latch to release the barrel and means for locking said oscillating blade against movement when said latch-plate is withdrawn, substantially as described.

2. The combination with the frame of a firearm, of a barrel, a notched lug projecting from said barrel, a sliding latch-plate held in said frame, a spring by which said latch-plate is carried into engagement with said notched lug, a transverse rib on said latch-plate, an oscillating blade pivoted in said frame and acting against said transverse rib, to withdraw said latch-plate, to release the barrel and a longitudinal rib on said latch-plate adapted to be brought against said blade and hold the same against reverse movement, substantially as described.

3. The combination with the frame of a firearm of a barrel, a notched lug projecting from said barrel, a sliding latch-plate held in said frame, a spring by which said latch-plate is carried into engagement with said notched lug, means for withdrawing said latch-plate, a rocking plate pivoted on said frame, a yielding connection between said rocking plate and said sliding latch-plate, by which said rocking plate is rocked to bring it into the path of a hooked lug on said barrel, whereby said rocking plate can be held from engagement with said hooked lug, a hooked lug projecting from said barrel arranged to engage said rocking plate, when said barrel is raised, and an arm on said rocking plate bearing against said sliding latch-plate, substantially as described.

4. The combination with the frame of a firearm, of a barrel, a lug projecting from said barrel and provided with a hooked end, a rocking plate arranged to be engaged by said hooked lug as the barrel is tipped, an arm projecting from said rocking plate, a sliding plate held in said frame and in contact with said arm, a shoulder on said sliding plate adapted to strike a pivoted hammer, a pivoted hammer, a hammer-spring, and means for locking said hammer when raised by said sliding plate, and a yielding connection between said rocking plate and said sliding plate by which the movement of said sliding plate will bring said rocking plate into engagement with said hooked lug, substantially as described.

5. The combination with the frame, of a firearm provided with a fixed cam-surface, as at 62, of a barrel capable of being tipped, a sliding pin 61 carried by the barrel, with its end in contact with said fixed cam-surface, a pivoted lever 58 having an arm 60 engaged by said sliding pin, and an arm 57 bearing against a sliding pin 56, a sliding pin 56 and a plate 54 adapted to engage the flanged head of a cartridge-shell, substantially as described.

574,410. BICYCLE-LOCK. CHARLES A. GAY, Seattle, Wash., assignor of one-half to John D. Atkinson and Charles E. Remsberg, same place. Filed Jan. 27, 1896. Renewed Nov. 17, 1896. Serial No. 612,526. (No model.)



Claim.—1. In a bicycle-lock, the combination of a suitable clamp for attaching the lock to a bicycle, a frame secured to said clamp, a lock secured in said frame and adapted to be turned therein, a bar or keeper for said lock secured in the frame, and a shoe carried by the lock and adapted to bear upon the bicycle-wheel, substantially as shown and described.

2. The combination in a brake attachment for bicycles, a suitable clamp for securing the device to the bicycle, a frame carried by said clamp, a lock carried by said frame and adapted to be turned therein, a keeper for said lock also carried by the frame, a shoe carried by the lock, and a spring having one end secured to the shoe and the other end to the keeper, substantially as shown and described.

574,411. WINDMILL. THOMAS R. GASSETT, Taylor, Tex. Filed June 2, 1896. Serial No. 593,986. (No model.)



Claim.—In a windmill, the combination of a horizontal wind-wheel comprising a vertical shaft, the movable and fixed blades each extending outward from both sides of said shaft and provided at their inner edges with vertical bars 4 and 5, the bars 4 being extended below the wind-wheel, the vertical sleeves 7 fixed to the shaft and provided at their upper ends with tapered recesses and carrying the fixed blades, the bars 5 being secured to the sleeves 7, the movable sleeves 6 located above the sleeves 7 and provided with depending projections and connected with the bars 4 of the movable blades, said projections adapted to interlock with the said recesses to hold the fixed and movable blades at right angles to each other, a grooved pulley disposed horizontally and fixed to the extensions of the vertical bars 4, and a lever provided with arms and embracing the pulley and engaging the groove thereof, said lever being adapted to lift the movable sleeves out of engagement with the fixed sleeves, substantially as described.

574,412. TIRE-TIGHTENER. GRANT J. GRANDPRE, Chamberlain, S. D. Filed June 16, 1896. Serial No. 595,819. (No model.)



Claim.—1. A felly-casting comprising the body *a* and the socketed arms *a'* extending outwardly from the ends of said body and inclined reversely to each other, combined with spokes fitted in the sockets of said arms and bearing endwise against close outer ends of the arms, the felly-section also fitted in the socketed arms, and a tightener device situated in the casting between the angular arms *a'* thereof, as and for the purposes described.

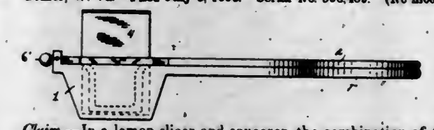
2. A felly-casting comprising the body and the angular socketed arms *a'*, *a'*, integral with said body, said arms having the solid walls, a^2, a^2, and open at the ends and inner side of the casting, combined with spokes fitted in said socketed arms and against the walls a^2, a^2 thereof, the fellies fitted in the ends of the casting, a tire, the angle-irons attached to the tire and lying between the arms *a'*, *a'* of the casting, and an adjusting-bolt, substantially as described.

3. The felly-casting comprising the body, the angular socketed arms, and the groove or channel *h* in the outer face of the body and between the arms, combined with spokes, the fellies, a tire, angle-irons fastened to the tire and partially fitting in the groove of the body, a right and left threaded bolt also partially fitted in the groove of the body and said bolt provided with a grooved or corrugated middle part, and a set-screw fitted in the body to engage with the corrugated or grooved middle part of the bolt, substantially as described.

4. The felly-casting comprising the body *a* and the socketed arms *a'* which extend outwardly from the ends of said body, said casting provided with the continuous grooves *j* in the edges of the body and said angular arms, combined with the removable face-plates J having their inner edges fitted in the marginal grooves *j* of the felly-casting, means for fastening said face-plates in position, a tightener device situated within the felly-casting, between the angular arms thereof, and within the face-plates, and the spokes and felly-sections fitted in the socketed arms of the felly-casting, as and for the purposes described.

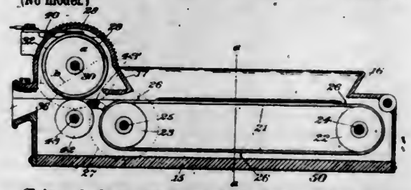
5. The combination of a felly-casting having the body and angular socketed arms, the spokes, the fellies, a tire, the angle-irons, the bolt, and the compressible washers or sleeves fitted on the threaded parts of the bolt between the shoulders of the latter and the angle-irons, substantially as described.

574,413. LEMON SLICER AND SQUEEZER. FRANK W. GRAVES, Behler, W. Va. Filed July 8, 1896. Serial No. 598,409. (No model.)



Claim.—In a lemon slicer and squeezer, the combination of the bowl, the handle extending therefrom, the ears formed upon the edge of the bowl, the trunnions pivoted therein, the block substantially of the same contour as said bowl, the neck projecting from said block, the enlargement on said neck, the handle extending from the opposite edge of said block, the plunger projecting from one face of said block, the blade projecting from the other and the recess formed in the inner edges and bottom of the bowl for the reception of portions of said blade, substantially as and for the purpose set forth.

574,414. APPARATUS FOR CANCELING POSTAL MARKS. HENRY GREER, Hartford, Conn. Filed July 13, 1895. Serial No. 555,821. (No model.)



Claim.—1. In an apparatus of the class specified, the combination with feed mechanism for the matter to be canceled; a rotary insulated cylinder having a recess in its periphery, and an aperture extending longitudinally through said cylinder and intersecting said recess; electric conductors encircling the ends of said cylinder; a segment disposed in said recess, and having a canceler on its periphery consisting of a wire or filament, one end thereof extending through the aperture in the cylinder and connecting with one of the conductors, and the other end thereof connecting with the other conductor; and means for actuating said cylinder and feeding mechanism, whereby the canceler will sear, burn, or scorch a mark, character, or design upon the matter to be canceled.

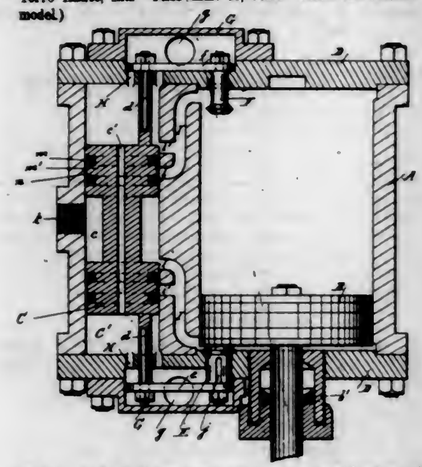
2. In an apparatus of the class specified, the combination with feed mechanism for the matter to be canceled; a rotary member having a recess in its periphery; electric conductors connected to said member; a segment disposed in said recess and having its peripheral face flush with the periphery of the rotary member, whereby said segment and rotary member form a cylinder having a relatively non-conducting surface and an electric canceler on said segment and connected with said conductors; and means for actuating said feeding mechanism and cylinder, whereby the canceler will sear, burn, or scorch a mark, character, or design a certain determinate depth, limited by the relatively non-conducting surface of the cylinder, upon the matter to be canceled.

3. In an apparatus of the class specified, the combination with a receptacle having a receiving-chute and an ejecting-chute, and having an inclosing cap having recesses therein; a rotary cylinder carried within said cap, and having electric conductors secured thereto adjacent to the recesses in said cap; electric conductors secured to the receptacle adjacent to the recesses in the cap and in contact with the conductors on the cylinder; an electrically-heated canceler carried by said cylinder, and having its ends in contact with the conductors secured to the cylinder; means for feeding the matter to be canceled into contact with the canceler; and mechanism for actuat-

ing said feeding means and cylinder, whereby the canceler will sear, burn, or scorch a mark, character, or design upon the matter to be canceled.

4. In an apparatus for canceling or marking mail-matter, the combination with a receptacle having a receiving-chute and an ejecting-chute, and having an inclosing cap; a rotary insulated cylinder carried by a rotary shaft within said cap of the receptacle, and having electric conductors secured to the ends thereof, and also having a recess in its periphery; a segment adapted to be secured in said recess, and carrying an electrically-heated wire, having its ends in contact with the conductors secured to the ends of said rotary cylinder; a carrying-belt supported on rollers in said receptacle for feeding the mail-matter, one of said rollers carrying a pinion; and a gear carried by the shaft of the rotary insulated cylinder and adapted to mesh with the pinion.

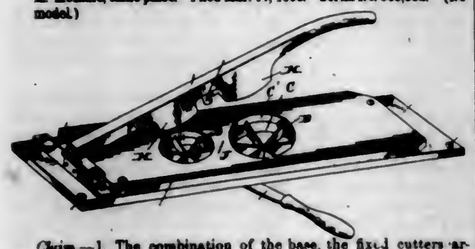
574,415. **DIRECT-ACTING ENGINE.** WINFIELD O. GUNCKEL, Terre Haute, Ind. Filed Mar. 18, 1896. Serial No. 583,769. (No model.)



Claim.—1. In a direct-acting engine, the combination, with a steam-cylinder, and its piston; of a cylindrical valve provided with a steam-distributing groove and a longitudinal hole *c'*, a valve-cylinder provided with a steam-inlet, and passages communicating with the said cylinder; inwardly-opening tappet-valves of unequal area arranged at the ends of the steam-cylinder, and connections arranged between the said tappet-valves and the said cylindrical valve, whereby the cylindrical valve is operated positively at the ends of the strokes of the piston, substantially as set forth.

2. In a direct-acting engine, the combination, with a steam-cylinder, and its piston; of a cylindrical valve provided with a steam-distributing groove and a longitudinal hole *c'*, a cylinder for the said valve to slide in provided with a steam-inlet communicating with the said groove, and passages arranged between the two said cylinders; inwardly-opening tappet-valves of unequal area at the ends of the cylinder, said tappet-valves being rigidly secured to the said cylindrical valve, and the lower tappet-valve being provided with a groove *j*; and hollow caps secured to the end of the cylinders and provided with exhaust-openings and connected with the ends of the valve-cylinder, substantially as set forth.

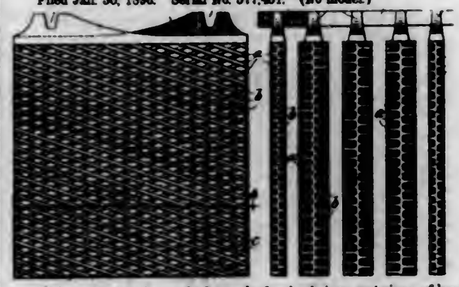
574,416. **SEED-POTATO CUTTER.** CAGER HARDGRAVE, Clarksville, Ark., assignor of two-thirds to Edward T. McConnell and Albert M. McLane, same place. Filed Mar. 17, 1896. Serial No. 583,552. (No model.)



Claim.—1. The combination of the base, the fixed cutters arranged therein, and the pivoted Y-shaped cutter adapted to reciprocate across the lines of the fixed cutters, substantially as shown and described.

2. The combination of the base provided with two openings, the cutters arranged vertically in said openings, and the Y-shaped knife or cutter pivotally secured to the under side of the base, whereby the branches of said Y-shaped cutter may be reciprocated over the respective openings, substantially as shown and described.

574,417. **SECONDARY BATTERY AND PROCESS OF FORMING SAME.** GEORGE W. HARRIS and RICHARD J. HOLLAND, New York, N. Y. Filed Jan. 30, 1896. Serial No. 577,431. (No model.)



Claim.—1. An electrode formed of a single integral piece of lead, for use in secondary or storage batteries, and consisting of an open-work or skeleton plate composed of oppositely-inclined intersecting or crossing ribs and grooves on its opposite sides, said ribs being of rectangular or quadrilateral form in cross-section, and the said grooves on one side of the plate extending to the grooves on the opposite side thereof, and all of said grooves being open at the side and bottom edges of the plate to make the latter borderless except at its top where it is provided with a lug as B, substantially as set forth.

2. The herein-described process of forming electrodes for secondary or storage batteries, consisting in subjecting lead plates to the action of an electric current in an electrolyte or bath composed of two acids, one of which acids is a solvent and the other of which is a non-solvent, or a poor solvent, of lead, together with one or more salts of each of said acids, and afterward subjecting the partly-formed electrodes to the action of an electric current in another electrolyte or bath composed of dilute sulfuric acid and an acid sulfate, substantially as described.

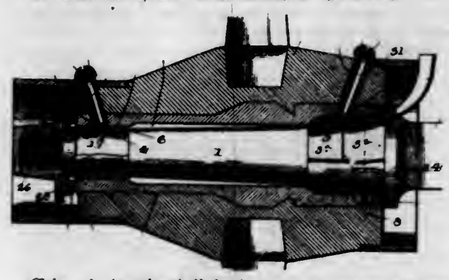
3. The herein-described process of forming electrodes for use in secondary or storage batteries consisting in subjecting lead plates to the action of an electric current in an electrolyte or bath composed of magnesium sulfate, sulfuric acid, acetic acid and magnesium acetate, and afterward subjecting the thus partly-formed electrode to the action of an electric current in another electrolyte composed of dilute sulfuric acid and an acid sulfate, substantially as described.

4. The herein-described process of forming electrodes for secondary or storage batteries, consisting in subjecting lead plates to the action of an electric current in an electrolyte or bath composed of a solution of magnesium sulfate and two acids, one of which acids is a solvent and the other of which is a non-solvent, or a poor solvent, of lead, together with a suitable metallic salt of the solvent acid, and afterward subjecting the partly-formed electrode to the action of an electric current in another electrolyte or bath composed of dilute sulfuric acid and an acid sulfate, substantially as described.

5. The herein-described process of forming electrodes for secondary or storage batteries, consisting in first subjecting the lead plates to an acid bath which will react thereon, to form a thin coating of lead sulfate, next subjecting the lead plates to the action of an electric current in an electrolyte or bath composed of a solution of magnesium sulfate and two acids, one of which acids is a solvent and the other of which acids is a non-solvent, or a poor solvent, of lead, together with a suitable metallic salt of the solvent acid, and afterward subjecting the partly-formed electrode to the action of an electric current in another electrolyte or bath composed of dilute sulfuric acid and an acid sulfate, substantially as described.

6. The herein-described process of forming electrodes for secondary or storage batteries, consisting in subjecting the lead plates to the action of an electric current in an electrolyte or bath composed of a solution of magnesium sulfate and two acids, one of which acids is a solvent, and the other of which acids is a non-solvent, or a poor solvent, of lead, together with a suitable metallic salt of the solvent acid, and afterward subjecting the partly-formed electrode to the action of an electric current in another electrolyte or bath composed of dilute sulfuric acid and an acid sulfate, and finally reducing positive electrodes, to form negatives, by subjecting said positives to the action of an electric current, from a negative terminal, in the last-mentioned electrolyte or bath, substantially as described.

574,418. **AXLE-SPINDLE.** BENJAMIN F. HARTMAN, Pickering, Pa. Filed Dec. 31, 1895. Serial No. 573,955. (No model.)



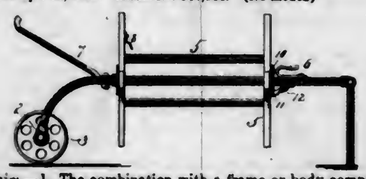
Claim.—1. An axle-spindle having an annular channel or recess, a soft-metal bushing fitting in said channel or recess and held by the end walls thereof from longitudinal movement, and a securing device severably attached to the bushing and engaging the spindle to prevent rotary movement of the former, said means being severable from the bushing to allow rotary adjustment without endwise movement of the latter, substantially as specified.

2. An axle-spindle having an annular channel or recess, a soft-metal bushing fitted in the channel or recess and held by the end walls thereof from longitudinal displacement, and a concealed locking-arm severably attached to the bushing at its inner end and fitting in an opening in the spindle, whereby said locking-arm extends transversely across the joint between the end of the bushing and the contiguous end wall of the channel or recess, to provide for severing the locking-arm in the plane of the joint to allow rotary adjustment of the bushing, substantially as specified.

3. An axle-spindle provided in its collar with a sprue-hole, a bushing revolubly mounted upon the spindle contiguous to said sprue-hole and provided with a notch registering with the same, and a projection or locking-arm formed by the introduction through the sprue-hole and into the notch of molten metal, substantially as specified.

4. An axle-spindle having a sprue-hole and provided contiguous thereto with a revolubly-adjustable soft-metal bushing formed by introducing molten metal between the spindle as a core and a suitable mold, and a projection or locking-arm on the bushing extending into said sprue-hole to lock the bushing at the desired adjustment, adjustment of the bushing being permitted by severing said projection or locking-arm, and the bushing being adapted for locking at a different adjustment by introducing molten metal through the sprue-hole and into contact with the bushing, substantially as specified.

574,419. **HOSE-REEL.** FRANK E. HARTZELL, Alliance, Ohio. Filed Apr. 13, 1896. Serial No. 587,316. (No model.)



Claim.—1. The combination with a frame or body composed of a single rod curved at its lower end, an axle rigidly secured to said curved end, and a leg or brace secured to the rod at a point above the curved portion thereof, of a hose-reel loosely mounted on said rod, substantially as set forth.

2. The combination with a frame or body composed of a single rod curved at its lower end, an axle secured to the lower end and a leg or support secured to the upper or free end of said rod, of a reel mounted on the rod and adapted to turn thereon.

3. The combination with a truck comprising a rod, an axle secured to one end of the rod, a leg or support at the other end, and wheels on the axle, of a reel mounted on the rod and adapted to turn thereon and a ratchet device between said reel and rod, substantially as set forth.

4. The combination with a rod, of supports at the respective ends of said rod, a reel revolubly mounted on said rod between its ends and a device for attaching a hose-nozzle to said rod, substantially as set forth.

5. The combination with a rod having a bent end, of a cross-bar secured between its ends to said bent end of the rod, wheels at the ends of said cross-bar and a reel revolubly mounted on said rod between the ends thereof, substantially as set forth.

6. The combination with a tubular rod having a curved end, of a tubular cross-bar secured between its ends to said curved end of the tubular rod, wheels at the ends of said tubular cross-bar and a reel mounted on said tubular rod, substantially as set forth.

7. The combination with a rod or standard curved at one end, of a cross-bar or axle secured between its ends to the curved end of the rod or standard, wheels on the ends of said cross-bar, and a U-shaped bar at the other end of said rod or standard, said U-shaped bar serving as handles and also as supporting-legs for the truck, substantially as set forth.

8. The combination with a rod or standard having a curved end, of a cross-bar secured to said curved end of the rod or standard, wheels on the ends of said cross-bar, a reel mounted on said rod or standard, a U-shaped bar at the outer end of the rod or standard, and a leg or brace secured to the rod or standard at or near the curved portion thereof, substantially as set forth.

574,420. **MANHOLE-FITTING FOR BREWERS' VATS, &c.** WILLIAM HEISER, Buffalo, N. Y. Filed Apr. 17, 1895. Serial No. 546,046. (No model.)



Claim.—1. A manhole-fitting for wooden or metallic vessels, consisting of an elliptical outside ring and an elliptical inside ring, both secured to the shell of said vessel around the manhole thereof, an elliptical door within said shell and hinged to the inside ring, a stud projecting from said door and provided with a fastening-nut, and a yoke upon said stud and adapted to swing through the manhole-opening, said inner ring having a curved bearing differing in curvature from that of said shell and provided with a gasket and adapted to engage with the curved flange on said door, whereby one of said doors is adapted for use in connection with several sizes of shells, as and for the object set forth.

2. In a manhole-fitting, an inside ring having a lateral flange, as described, the face of said inside ring having the curvature of a circle differing from that of the flange, the two circles having their centers differently located, as described.

574,421. **PROCESS OF OBTAINING AQUEOUS SOLUTIONS OF PHENOLS.** LUDWIG O. HELMERS, Hamburg, Germany, assignor to the Ichthyol Gesellschaft, Cordes, Hermanni & Co., same place. Filed Nov. 14, 1893. Serial No. 490,957. (No specimens.) Patented in Germany June 3, 1893, No. 76,133 and 80,260; in England Oct. 26, 1893, No. 20,245; in France Oct. 26, 1893, No. 233,663; in Belgium Oct. 26, 1893, No. 106,919; in Italy Dec. 31, 1893, No. 35,006, and in Austria-Hungary Mar. 17, 1895, No. 56,910 and No. 63,153.

Claim.—1. The process of rendering soluble in water phenols by reacting upon them with a sulfonic-acid compound, which consists of a chemical combination of a sulfureted hydrocarbon containing at least five per cent. sulfur and of sulfuric acid, and which compound is completely soluble in water and alcohol, but nearly insoluble in ether, substantially as set forth.

2. As an article of manufacture the herein-described product clearly soluble in water, composed of a phenol and a sulfonic-acid compound, which latter consists of a chemical combination of a sulfureted hydrocarbon containing at least five per cent. sulfur and of sulfuric acid, and which compound is completely soluble in water and alcohol, but nearly insoluble in ether, substantially as specified.

574,422. **BOILER-FLUE CLEANER.** HENRY L. HILDRETH, Saginaw, Mich. Filed Apr. 28, 1896. Serial No. 589,367. (No model.)

Claim.—1. In a boiler-tube scraper, the combination of a cylindrical or tubular head having one end closed and the other end open, longitudinal springs secured at their middle parts to the outer surface of the cylindrical head and having their free ends extending respectively forward and backward and bent outward to form elastic supports substantially as shown, a vapor-supply pipe leading into the closed end of the head and terminating in jets or nozzles, a rotary

shaft carried by the head, a propeller or screw secured to the shaft and adapted to be rotated by the jets of vapor, and an expansible cutter operated by the rotary propeller-shaft to scrape the interior surface of the tube.



2. In a boiler-tube scraper, the combination of a tubular head, a screw or propeller arranged close to said head, a shaft journaled in said head adapted to be rotated by the screw or propeller, expansible rotary cutters carried by and rotating relatively of the said shaft, a spring to retract the cutters when at rest and means to supply steam or air to said head for the purpose of rotating the screw or propeller while the head is being moved through the tube to be cleaned.

3. In a boiler-tube scraper, the combination of a tubular head, a screw or propeller arranged close to said head, a shaft journaled in said head adapted to be rotated by the screw or propeller, expansible cutters carried by and rotating with the said shaft consisting of a transverse arm secured to the shaft, movable arms held against centrifugal force by springs pivoted to said transverse arm, circular cutters or scrapers upon the ends of said movable arms, and means to supply a blast to said head for the purpose of rotating the screw or propeller while the head is being moved through the tube to be cleaned.

4. In a boiler-tube scraper, the combination of a tubular head, a screw or propeller arranged close to said head, a shaft journaled in said head adapted to be rotated by the screw or propeller, expansible cutters carried by and rotating with the shaft consisting of a transverse arm secured to the shaft, movable arms held against centrifugal force by springs pivoted to said transverse arm, circular cutters or scrapers upon the ends of said movable arms, springs arranged about the outer surface of the tubular part for guiding it centrally in the tube and acting as scrapers, and means to supply blast to said head for the purpose of rotating the screw or propeller while the head is being moved through the tube to be cleaned.

5. In a boiler-tube scraper, the combination of a tubular head provided upon the outside with centralizing-springs, a vapor-pipe leading into the tubular head and terminating in jets or nozzles, a rotary shaft journaled in the head and provided with a propeller or screw adapted to be rotated by the jets of vapor, a cross-head on the end of the shaft, and spring-controlled expansible cutters carried by and with the cross-head whereby the action of centrifugal force moves the cutters outward while being rotated with the shaft and screw.

6. In a boiler-tube scraper, the combination of a longitudinally-movable head or guiding-support, a tubular handle for moving the said head or support through the tube and holding it against rotation, a rotary shaft pivoted within the head or support and adapted to rotate under the action of a vapor supplied through the tubular handle, a rotary movable spring-controlled pivoted arm carried upon the forward end of the rotary shaft, and a pivoted cutter carried by the free end of the rotary arm, the parts operating in such manner that the head or support controls the longitudinal movement of the rotary cutter and the rotating shaft secures the rotary movement thereof.

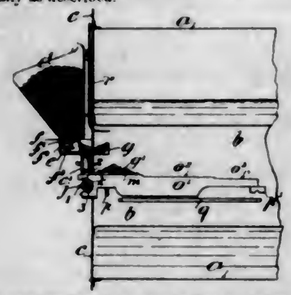
7. The combination of the head A, a tubular handle B for moving the same and the nozzles or apertures M within the head, with a rotary shaft E having one or more screws or propellers D within the head and adapted to be acted upon by the steam from the nozzles or apertures, an expansible cutter carried upon the end of the shaft D and movable outwardly by centrifugal force, and a spring to hold the cutter against the action of centrifugal force.

8. The combination of the head A, a tubular handle B for moving the same and the nozzles or apertures M within the head, with a rotary shaft E having one or more screws or propellers D within the head and adapted to be acted upon by the steam from the nozzles or apertures, and an expansible cutter carried upon the end of the shaft D consisting of a transverse arm G, pivoted spring-actuated arms H, and rotary cutters I.

574,423. MECHANICAL STOKER. JAMES HODGKINSON, Manchester, England. Filed July 8, 1896. Serial No. 598,468. (No model.) Patented in England July 20, 1894, No. 13,984, and in Germany Aug. 2, 1895, No. 86,930.

Claim.—1. In combination, the hopper, the pushers for feeding the material, the coking-plate *m* for receiving the same and arranged directly over the grate-bars, the grate-bars and the shelf *g* having a projection on its upper surface adapted to distribute the material said shelf being interposed between the coking-plate and the pushers, substantially as described.

2. In combination the hopper, the hollow pushers having the racks within the same, the segments within the boxes engaging the racks, the rocking shaft carrying the segments and the power connections for driving the rock-shaft, including the disk and the link i, substantially as described.



3. In combination, the reciprocating grate-bars having recessed heads connected thereto, with projections and the reciprocating cams having projections to operate the bars in succession one way and for returning them in unison, said cams having a projection to lock one bar against movement while the other bar is moved, substantially as described.

4. In combination, a pair of grate-bars having heads connected therewith, the head of one bar having an opening with an inwardly-extending projection and a laterally-extending projection, the head of the other bar having an inwardly-extending projection and a locking projection or step, and the cam having projections to engage the inwardly-extending projection of the grate-bar heads and having also a locking projection to engage the locking projection on one of the heads, one of the teeth of the cam being arranged to engage the lateral projection on the grate-bar head for moving both of them to the rear, substantially as described.

5. In combination, the two series of grate-bars, the heads of common to the two series and the cams for operating the heads and the series of bars, substantially as described.

6. In combination with the pusher *f* or its equivalent, the distributing-shelf *g* formed with a semiconcave hump substantially as described and shown.

574,424. WASHTUB-STAND. MICHAEL HOFFMAN, Dubuque, Iowa. Filed Apr. 6, 1896. Serial No. 586,406. (No model.)



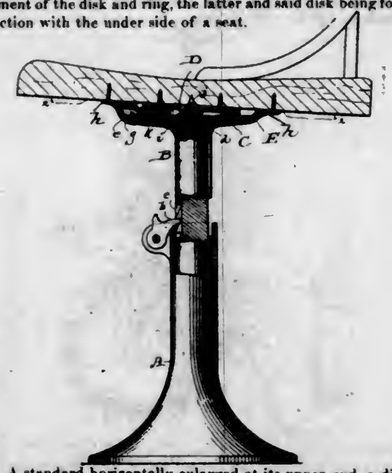
Claim.—The combination of the legs A, the sockets B having brackets *b* and top members having inclined bearing-faces, the arms C pivoted to the brackets *b*, and having longitudinal slots and the set-screw D all arranged substantially as shown and described.

574,425. SCHOOL-SEAT. WILLIAM C. HOOD, Racine, Wis., assignor to the Racine Hardware Company, same place. Filed June 26, 1896. Serial No. 596,980. (No model.)

Claim.—1. A standard horizontally enlarged at its upper end, a disk in central pivotal connection with the standard but provided with a depending annular flange in bearing contact with the enlargement of said standard concentric to the aforesaid pivotal connection, and a stay-ring encircling said standard enlargement, the disk and stay-ring being for rigid connection with the under side of a seat.

2. A standard horizontally enlarged at its upper end, a disk in central pivotal connection with the standard but provided with a depending annular flange of gradually-increasing depth in bearing contact with the standard enlargement concentric to the aforesaid pivotal connection, and a stay-ring encircling said standard enlargement, the disk and the stay-ring being for rigid connection with the under side of a seat.

3. A standard horizontally enlarged at its upper end, a disk in central pivotal connection with the standard but provided with a depending annular flange in bearing contact with the standard enlargement concentric to the aforesaid pivotal connection, a stay-ring encircling said standard enlargement, and suitable means for limiting rotary movement of the disk and ring, the latter and said disk being for rigid connection with the under side of a seat.



4. A standard horizontally enlarged at its upper end, a disk in pivotal connection with the standard but provided with a depending annular flange of gradually-increasing depth in bearing contact with the standard enlargement concentric with the aforesaid pivotal connection, a circumferentially-recessed stay-ring encircling said standard enlargement, and suitable means for limiting rotary movement of the disk and ring, the latter and said disk being for rigid connection with the under side of a seat.

5. A standard having an upper horizontal enlargement provided with a radial stop, a disk having central pivotal connection with the standard enlargement as well as a depending annular flange in bearing contact with the same, and a stay-ring that encircles said standard enlargement and has a circumferential recess engaged by the aforesaid stop to be thereby limited in the matter of rotary play, the ring and disk being for rigid connection with the under side of a seat.

6. A standard having an upper horizontal enlargement provided with a radial stop, a disk having central pivotal connection with the standard enlargement as well as a depending annular flange of gradually-increasing depth in bearing contact with the same, and a stay-ring that encircles said standard enlargement and has a circumferential recess engaged by the aforesaid stop to be thereby limited in the matter of rotary play, the ring and disk being for rigid connection with the under side of a seat.

7. A standard having a bevel-edge horizontal enlargement at its upper end, a disk in central pivotal connection with the standard enlargement but provided with a depending annular flange in bearing contact with the enlargement of said standard concentric to the aforesaid pivotal connection, and an interiorly-beveled ring encircling the bevel edge of said standard enlargement, this ring and said disk being for rigid connection with the under side of a seat.

8. A standard having a beveled-edge horizontal enlargement at its upper end provided with a radial stop, a disk having central pivotal connection with the standard enlargement as well as a depending annular flange of gradually-increasing depth in bearing contact with the same, and a stay-ring that encircles said standard enlargement and has a circumferential recess engaged by the aforesaid stop to be thereby limited in the matter of rotary play, the ring and disk being for rigid connection with the under side of a seat.

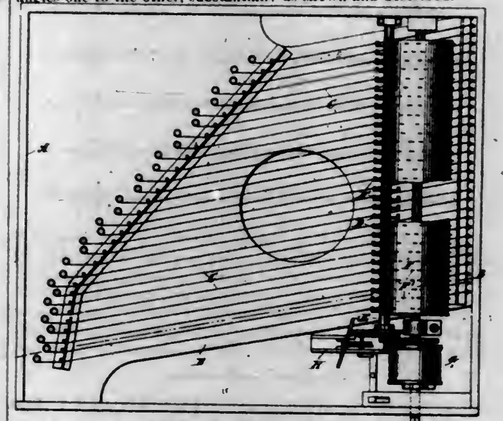
574,426. SELF-PLAYING STRINGED MUSICAL INSTRUMENT. THEODORE G. HOSTER, Rutherford, N. J. Filed Mar. 28, 1896. Serial No. 585,199. (No model.)

Claim.—1. A musical instrument comprising strings extending over a sounding-board, a series of star-wheels, one for each string and each provided with pickers movable against the corresponding string in planes convergent to the string, and a movable note-sheet for turning the said star-wheels independently of one another, substantially as shown and described.

2. A stringed musical instrument provided with a revoluble star-wheel having on its face a plurality of pickers at an angle to the plane of rotation of the wheel, substantially as described.

3. A stringed musical instrument provided with strings, and pickers movable against said strings in planes convergent to the strings, substantially as shown and described.

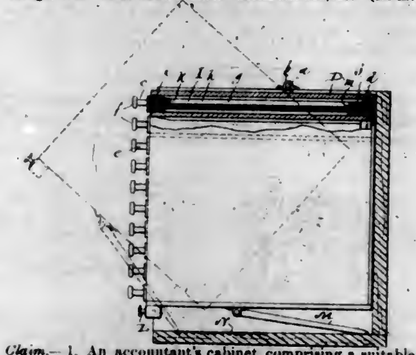
4. A stringed musical instrument, provided with star-wheels having lateral pickers, and strings adapted to be picked by said pickers, the face of each star-wheel and its corresponding string standing at angles one to the other, substantially as shown and described.



5. A stringed musical instrument, comprising a sounding-board, strings extending over the said sounding-board, a series of star-wheels, one for each string and each having its face extending at angles to the corresponding string, and lateral pickers formed on each wheel and adapted to successively pick the corresponding string, substantially as shown and described.

6. A stringed musical instrument, comprising a series of strings extending over a sounding-board, star-wheels, one for each string and each having its face extending at angles to the corresponding string, each star-wheel being provided with lateral pickers for picking the string, and a movable note-sheet for engaging and turning the said star-wheels independent one of the other, substantially as shown and described.

574,427. ACCOUNTANT'S CABINET. HIRAM C. HUMPHREY, Antigo, Wis. Filed June 1, 1896. Serial No. 593,763. (No model.)



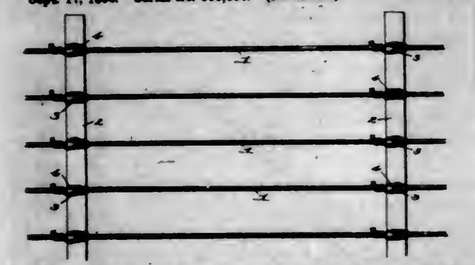
Claim.—1. An accountant's cabinet, comprising a suitable case, containing series of flat shallow drawers, separated by suitable partitions, series of pivoted levers arranged, one at the end of each drawer, within said case, and series of push-rods, arranged one alongside of each of said drawers, for engagement with the adjacent ends of said levers, substantially as set forth.

2. An accountant's cabinet, comprising a suitable outer case having notches or serrations in or on the upper surface of its base, an inner tilting case, supported by trunnions within the said outer case and provided with a pivoted brace for engagement with said notches or serrations, series of flat shallow drawers provided with holders for balance-cards upon the outer faces thereof, series of pivoted levers for actuating said drawers, and series of push-rods for actuating said levers, substantially as set forth.

3. In an accountant's cabinet, the combination of a flat shallow drawer, provided with interior transverse grooves at each end just above the bottom thereof, and slips of column-ruled paper having rounded ends fitted within said grooves, substantially as set forth.

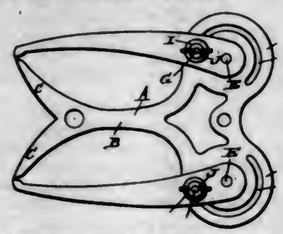
4. In an accountant's cabinet, the combination of a flat shallow drawer, containing slips of column-ruled paper, with a holder secured to the outer face of said drawer, and a card in said holder ruled in columns to correspond with the ruling of the slips within said drawer, substantially as set forth.

574,428. **FENCE.** FERDINAND JOHNSON, New London, Pa. Filed Sept. 17, 1896. Serial No. 606,166. (No model.)



Claim.—A fence having runners connected by stays provided at each point of intersection with transverse crimps forming seats for the reception of the runners, and a looped tie having its looped portion engaged with a runner contiguous to one edge of a stay and its extremities twisted in the same direction around said runner at the opposite edge of the stay, the sides of the loop extending transversely across the stay at the convex side of the seat, substantially as specified.

574,429. **CALIPERS.** JOHN D. JOHNSTON, Newport, R. I. Filed Feb. 21, 1896. Serial No. 580,233. (No model.)



Claim.—The combination with the body portion having curved slots and oppositely-extending circular portions and the centrally-disposed fixed arm terminating in oppositely-disposed points, of the legs pivotally mounted near opposite ends of the body portion and provided with bolts working in said slots, and thumb-nuts on the ends of said bolts, all substantially as and for the purpose specified.

574,430. **SUBWAY-CONDUIT.** WILLBUR H. JOHNSTON, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed Aug. 15, 1896. Serial No. 602,913. (No model.)

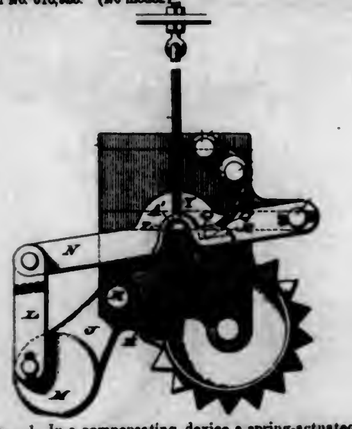


Claim.—1. In a conduit for electrical conducting wires or cables, the combination with main or cable ducts, of distributing-ducts b', a guideway e^3 centrally disposed with relation to said distributing-ducts, a block e adapted to slide back and forth in said guideway, arms e' e' mounted upon said block e, and extending into each of said distributing-ducts, to which arms may be secured the wires f f, which it is desired to draw through said distributing-ducts, and ropes g g attached to either end of said block to draw it through the guideway in either direction, substantially as described.

2. In a conduit for electrical conducting wires or cables, the combination with main or cable ducts, of distributing-ducts b', a guideway e^3 centrally disposed with relation to said distributing-ducts, a block e adapted to slide in said guideway, arms e' e' mounted upon said block e, and extending into each of said distributing-ducts, to which arms may be secured the wires f f, which it is desired to draw through said distributing-ducts, and a rope g attached to said block to draw it through the conduit, substantially as described.

3. The combination of a cable-duct b^3, a guideway located therein, a carriage e adapted to travel in said guideway, means for imparting longitudinal motion to said carriage, a second cable-duct b' disposed parallel to duct b^3, an arm or projection e' extending from said carriage into duct b' to which arm a conducting-wire that is to be drawn through duct b' is adapted to be secured substantially as described.

574,431. **SPRING-ACTUATED LEVER MECHANISM FOR COMPENSATING DEVICES FOR RAILROAD-SIGNALS, &c.** JOSHUA W. JONES, Harrisburg, and JOSEPH R. JONES, Philadelphia, Pa., assignors of one-third to Thomas A. Jones, Philadelphia, Pa. Filed Nov. 3, 1896. Serial No. 610,925. (No model.)



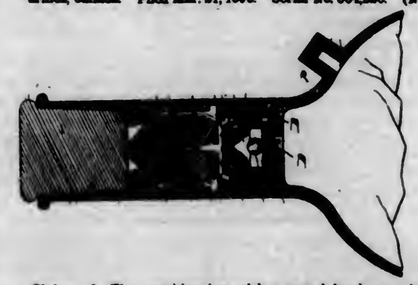
Claim.—1. In a compensating device a spring-actuated lever, a yoke on which said lever is mounted, and a rod connection supported above the same, hinged on an adjustable movable point said rod passing through said lever and adapted to lift the latter when said yoke is nearly in normal position.

2. In a compensating device, a yoke having a ratchet-wheel journaled therein, a pawl adapted to engage said ratchet-wheel, a lever suitably fulcrumed, a connection intermediate said lever and pawl, a spring suitably supported and having a portion thereof bearing upon said lever, and means for actuating the latter.

3. In a compensating device, a yoke suitably supported and having journaled therein, a ratchet-wheel provided with a sprocket-hub, a gravity-pawl fulcrumed on said yoke and having a nose adapted to engage said wheel, a lever suitably fulcrumed, a link intermediate the latter and said pawl, a recess or pocket located on said lever and a spring having one portion thereof adapted to bear on a suitable fixed point, while its other extremity is adapted to engage said pocket.

4. In a compensating device, a yoke having journaled therein, a ratchet-wheel provided with a sprocket-hub, a gravity-pawl fulcrumed on said yoke and having a nose adapted to engage said ratchet-wheel, a lever suitably fulcrumed and having a link intermediate it and said pawl, a recess or pocket in said lever, a plurality of lugs or pins projecting from said yoke, one of said lugs being adapted to have a spring supported thereupon, the free end of said spring contacting with said lever, while the other end of said spring is adapted to be wound around the other of said lugs.

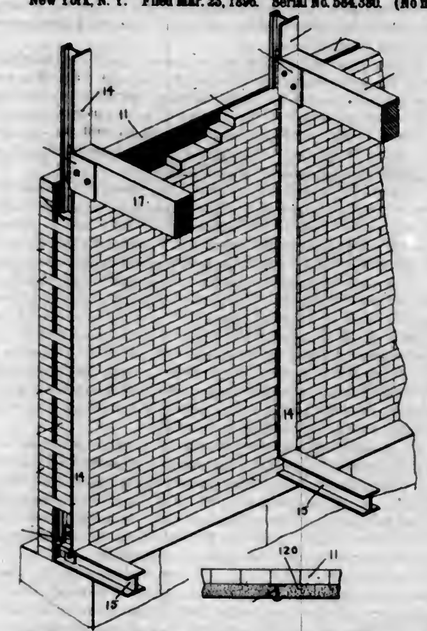
574,432. **NON-REFILLABLE BOTTLE.** ELIAS A. JUKER, St. Catharines, Canada. Filed Mar. 21, 1896. Serial No. 584,290. (No model.)



Claim.—1. The combination with a vessel having an inwardly-projecting annular seat or shoulder and having a valve-block resting thereon, having the annular enlargements at top and bottom entirely filling the exit-aperture, and having an internal chamber with a domed or conical top and lateral apertures leading from said chamber above the bottom enlargement, of a valve working in said chamber and seating on the annular shoulder of the vessel, and bridging the lateral apertures in the block, a spherical pusher located in the chamber above the valve and a retainer for holding said valve in place consisting of semicylindrical sections pivoted together and having projections at the lower end for cooperating with recesses in the walls of the vessel, substantially as described.

2. The combination with the vessel and the valve located in the exit-aperture thereof of the retainer for holding said valve in place consisting of the two semicylindrical sections pivoted together and having the projections at the lower end cooperating with recesses in the walls of the vessel said sections being respectively provided with a rib and recess to prevent independent movement, and the expander seated between the blocks for holding the section expanded; substantially as described.

574,433. **BUILDING CONSTRUCTION.** HERBERT R. KEITHLEY, New York, N. Y. Filed Mar. 23, 1896. Serial No. 584,380. (No model.)



Claim.—1. In a building construction of the class described, the combination of a wall formed of masonry, vertical beams inclosed in said wall, stringers for the various floors, and means for fastening said stringers to the beams, substantially as described.

2. In a building construction, the combination of a masonry wall, vertical beams embedded in the wall, said beams being formed of railroad-track rails, stringers for the various floors, and means for fastening said stringers to the beams, substantially as described.

3. In a building construction, the combination of a wall comprising a plurality of layers or facings, vertical beams embedded in the inner layer, stringers for the various floors, and means for fastening said stringers to the beams, substantially as described.

4. In a building construction, the combination of a masonry wall comprising a plurality of brick layers or facings, vertical beams embedded in the inner layer of bricks, said beams being formed by railroad-track rails, stringers for the various floors, and means for fastening the stringers to the independent, vertical beams, substantially as described.

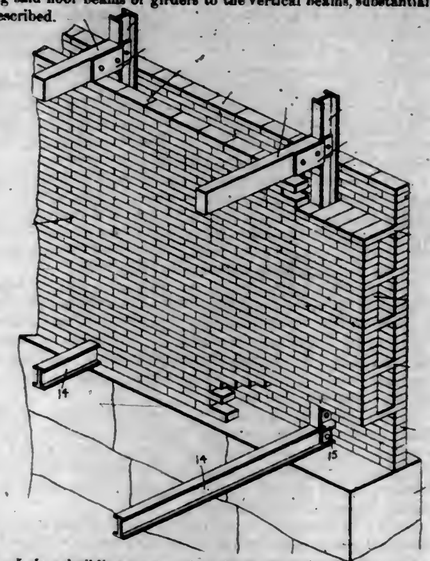
574,434. **BUILDING CONSTRUCTION.** HERBERT R. KEITHLEY, New York, N. Y. Filed June 29, 1896. Serial No. 597,296. (No model.)

Claim.—1. In a building construction, the combination of a hollow masonry wall, an iron or steel supporting-framework located within and inclosed by said wall, and horizontal floor beams or girders secured to said vertical frame, substantially as described.

2. In a building construction, the combination of a masonry wall comprising inner and outer layers, a steel or iron frame located between said inner and outer layers, and floor beams or girders connected to the said frame, substantially as described.

3. In a building construction, the combination of a masonry wall comprising inner and outer layers, vertical beams located in the space between said layers, floor beams or girders for the various floors, and means for connecting said beams or girders to the vertical beams, substantially as described.

4. In a building construction, the combination of a masonry wall comprising inner and outer layers, headers or bricks for bonding said layers together, vertical beams located in the space between said layers, beams or girders for the various floors, and means for fastening said floor beams or girders to the vertical beams, substantially as described.



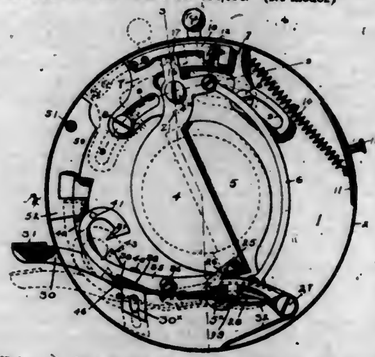
5. In a building construction, the combination of a masonry wall, comprising inner and outer layers, a steel or iron frame located between said inner and outer layers, and floor beams or girders connected to the said frame, and resting on the inner layer of said masonry wall, substantially as described.

6. In a building construction, the combination of a masonry wall comprising inner and outer layers, vertical beams located in the space between said layers, and a casing of concrete for inclosing each of said vertical beams, substantially as described.

7. In a building construction, the combination of a masonry wall comprising inner and outer layers of brick, headers or bricks for bonding said layers together, T or railroad-track rails located in the space between said layers and forming vertical strengthening-beams, a casing of concrete for each of said beams, beams or girders for the various floors, and means for fastening said floor beams or girders to the vertical beams, substantially as described.

8. In a building construction the combination of a masonry wall comprising inner and outer layers, vertical beams located in the space between said layers, floor beams or girders connected to said vertical beams, and a fireproof flooring carried by said floor beams or girders, substantially as described.

574,435. **PHOTOGRAPHIC SHUTTER.** ROBERT KROEBEL, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed Aug. 13, 1896. Serial No. 602,638. (No model.)



Claim.—1. In a photographic shutter, the combination with the shutter member pivoted at 4× and having the projections, as 17 and 21, on opposite sides of the pivot, of the motor member 7 having projections thereon for engaging the projections 17 and 21 on the shutter member, and means for operating the motor member progressively in one direction, substantially as described.

2. In a photographic shutter, the combination with a pivoted shutter member, of a progressively-movable motor member, a latch

arranged between the motor member and the shutter member on one side of the pivot of the latter, and positively engaging projections between the motor member and the shutter member on the other side of its pivot, and retaining devices for controlling the progressive movement of the motor member, substantially as described.

3. In a photographic shutter, the combination with the pivoted shutter member, having the projections on opposite sides of its pivot, of the progressively-movable motor member, having the spring-latch thereon engaging one projection and the shoulder engaging the other projection on the shutter member, substantially as described.

4. In a photographic shutter, the combination with the slotted and recessed casing, and a shutter member operating therein, of a motor-spring for operating the shutter, the adjustable spring-plate to which it is connected, and the pin thereon passing through the slot in the casing having the head held in engagement with one of the recesses by the spring-plate, substantially as described.

5. In a photographic shutter, the combination with the casing, the progressively-movable motor member, guided and movable upon the casing, and the spring-latch and the projec on on said member, of the pivoted shutter member having the projections on opposite sides of its pivot, with which the latch and projection coöperate, and the adjustable spring for operating the motor member in one direction, substantially as described.

6. In a photographic shutter, the combination with a movable shutter member, and devices for actuating said member in opposite directions at each exposure, of a movable release member and a catch carried thereby for retaining the shutter closed and yielding in a direction to permit the closing of the shutter independently of the release member, substantially as described.

7. In a photographic shutter, the combination with a movable shutter and spring-motor devices for throwing it open and closed, of a release member, a spring-operated catch for engaging the shutter and holding it closed and operated in a direction to release the shutter by the movement of the release member, substantially as described.

8. In a photographic shutter, the combination with a shutter member and spring-motor devices for throwing it open and closed, of a piroted release-lever, a pivoted spring-operated catch for engaging the shutter member and holding it closed, and connections between said catch and the lever, whereby it will be actuated by the movement of the release-lever in one direction but is permitted to yield independently thereof to permit the closing of the shutter, substantially as described.

9. In a photographic shutter, the combination with a vibrating shutter member and motor devices for throwing it open and closed, of a movable release member, a catch for retaining the shutter closed, movable independently of the release member but actuated by the latter to release the shutter, and controlling devices carried by the release member for regulating the closing of the shutter member, substantially as described.

10. In a photographic shutter, the combination with a vibratory shutter member, and motor devices for actuating it in both directions, of a movable release member, a catch for retaining the shutter closed movable independently of the release member but actuated by said member to release the shutter, controlling devices for regulating the closing of the shutter actuated by the movable release member, and adjusting devices acting upon the controlling devices to set them and vary their operation upon the shutter, substantially as described.

11. In a photographic shutter, the combination with a shutter member and motor devices for opening and closing it, of a catch for holding the shutter closed, a movable release member actuating the catch to release the shutter, and two catches operated by the movement of the release member and controlling the movement of the shutter member, substantially as described.

12. In a photographic shutter, the combination with a shutter member and motor devices for opening and closing it, of a catch for holding the shutter closed, and two catches for holding the shutter open and engaging it in succession when the motor devices tend to close it, and means for moving said last-mentioned catches successively out of engagement with the shutter, substantially as described.

13. In a photographic shutter, the combination with a shutter member and motor devices for opening and closing it, of a catch for holding the shutter closed, and two catches for holding the shutter open and engaging in succession when the motor devices tend to close it, a release member controlling said three catches and operating to move said two catches successively out of engagement with the shutter, substantially as described.

14. In a photographic shutter, the combination with a shutter member and motor devices for opening and closing it, of a catch for holding the shutter closed and a pair of catches for holding the shutter open and engaging in succession, a spring for actuating the catch first engaging when the shutter tends to close, and connections between the pair of catches for releasing them in succession, substantially as described.

15. In a photographic shutter, the combination with a shutter member and motor devices for opening and closing it, of a catch for holding the shutter closed and a pair of catches for holding the shutter open and engaging in succession, a spring for actuating the catch of the pair first engaging when the shutter tends to close, an adjusting device for holding said catch out of operation, and connections for actuating the catches to release in succession, substantially as described.

16. In a photographic shutter, the combination with a shutter member and motor devices for opening and closing it, of a catch for holding the shutter closed, a pair of catches for holding the shutter open and engaging in succession, and adjusting devices for holding one or both of the catches of the pair out of engaging position, substantially as described.

17. In a photographic shutter, the combination with a shutter member and motor devices for actuating it, of a catch for holding the shutter closed, a pair of catches for holding the shutter open and engaging in succession, one of the catches of said pair being spring-actuated, a movable release member controlling said three catches, and adjusting devices for holding one of the catches of the pair out of engaging position, substantially as described.

18. In a photographic shutter, the combination with a vibratory shutter member and motor devices for actuating it in opposite directions, a catch for retaining the shutter closed and a pair of catches for controlling its closing movement, one of the catches of the pair being adjustable out of engaging position, substantially as described.

19. In a photographic shutter, the combination with a vibratory shutter member and motor devices for actuating it in opposite directions, of a catch for retaining the shutter closed, a movable release member, a spring for actuating it, a pair of catches mounted on the release member, a spring for actuating the catch of the pair first engaging the shutter when the motor tends to close it, adjusting devices for holding the said spring-actuated catch out of operative position and connections between the release member and the catch that holds the shutter closed, substantially as described.

20. In a photographic shutter, the combination with a vibratory shutter and motor devices for actuating it in opposite directions, of the pivoted release-lever, a spring for operating it, a catch for holding the shutter closed and actuated by the release-lever, the two spring-actuated catches on the lever for controlling the shutter, and relatively stationary adjusting devices for controlling the position of the two catches on the lever, substantially as described.

21. In a photographic shutter, the combination with the vibratory shutter member and a projection thereon and motor devices for actuating the member in opposite directions, of the spring-actuated movable release member, the catch for engaging the projection on the shutter and actuated by the member, the pair of spring-actuated catches on the movable member projecting in opposite directions and arranged to engage the shutter projection in succession, and relatively stationary adjusting devices for holding one or both of the catches of the pair out of the path of the shutter projection, substantially as described.

22. In a photographic shutter, the combination with the vibratory shutter member having the projection 25, and a motor device for actuating it in opposite directions, of the lever 30, the catch 26 actuated thereby, the catches 35 and 42 pivoted on the lever and their actuating-springs, and the movable plate 50 having projections engaging the catches 35 and 42, substantially as described.

23. In a photographic shutter, the combination with the casing having the aperture, the two shutter members pivoted on opposite sides of the aperture and connected for simultaneous operation in opposite directions, and the pins 17 and 21 on one member, of the plate 7, the spring for actuating it, the spring-latch 18 and projection 20, and controlling devices for regulating the movement of the plate 7, substantially as described.

24. In a photographic shutter, the combination with the casing, a movable light-excluding medium or shutter, proper, motor devices and controlling devices within the casing, of the lever 30 having the operating portion 31, the lever 63 pivoted to the casing, the pneumatic cylinder on the casing and its piston engaging the lever 63 and the slot-and-pin connection between the levers 30 and 63, substantially as described.

25. In a photographic shutter, the combination with a vibratory shutter member and motor devices for actuating it in both directions, of a movable release member, a catch for retaining the shutter closed, movable independently of the release member but actuated by said member to release the shutter, a pivoted spring-operated catch on the release member operating to hold the shutter open and moved into engaging position when the holding-catch is released by the movable member, substantially as described.

26. In a photographic shutter, the combination with the shutter member, and a spring-motor device engaging the shutter member on opposite sides of the pivot to move it in opposite directions at each exposure, of the pin at the free end of the shutter member, the catch engaging the pin to hold the shutter member closed, and the spring-operated catch engaging said pin to hold the shutter open after it has completed its opening movement and at the beginning of its closing movement, substantially as described.

27. In a photographic shutter, the combination of a pivoted shutter member, a motor device for actuating it in opposite directions at each exposure, a catch for holding the shutter closed, and a spring-operated catch, automatically engaging the shutter after it has completed its opening movement and at the beginning of its closing movement, substantially as described.

28. In a photographic shutter, the combination of the pivoted shutter member, a motor device for actuating it in opposite directions at each exposure, a catch for holding the shutter closed, a movable release member arranged to release the said catch, and a spring-catch for holding the shutter open, pivoted on the release member and moved by the release member into position to engage the shutter when the first-mentioned catch is released, substantially as described.

574,436. UMBRELLA-CASE. EUGENE T. LAWRENCE, Poughkeepsie, N. Y. Filed Mar. 26, 1896. Serial No. 584,964. (No model.)



Claim.—1. The combination with an umbrella or parasol, of a strip located to one side of the stick and extending therefrom to an edge of the cover, and secured to the latter along its edges, and having fastenings throughout the length of the said edges to connect the latter and form a case when the umbrella is closed, substantially as described.

2. The combination with an umbrella or parasol, of a strip extending from the stick to an edge of the cover and secured a short distance from its longitudinal edges to the said cover so as to form loose edge portions which are brought together and overlap to form a case when the umbrella is closed, and fastenings along the edges of the strip to secure the said edges together, substantially as specified.

3. In an umbrella or parasol, the combination of a strip extending from the stick to and beyond an edge portion of the cover and secured at its edges to the said cover, and having its projecting end portion formed with converging edges, and fastenings along the longitudinal edges of the strip to secure the said strip about the covering and ribs of the umbrella when closed, substantially as set forth.

4. The combination with an umbrella or parasol, of a strip permanently applied to the cover thereof and having its edge portions loose and its outer portion projecting beyond the edge of the cover, and fastenings applied to the edges of the strip, the fastenings on the outer end portion of the strip converging, substantially in the manner set forth for the purpose described.

5. The combination with an umbrella or parasol, of a strip permanently applied to the cover thereof and having fastenings along its edges, and a lace adapted to coöperate with the said fastenings to secure the strip about the umbrella or parasol when folded, substantially as and for the purpose set forth.

6. In an umbrella or parasol, the combination with a strip applied to the cover thereof and having fastenings along its edges, of a lace to coöperate with the fastenings of the strip, and a spool fitted to the projecting end of the stick and adapted to have the lace wound thereon when not in use, substantially as set forth.

7. The combination with an umbrella or parasol, of a strip attached to a side portion of the cover thereof and having fastenings along its edges, a lace to coöperate with the fastenings of the strip to secure the edges thereof when brought together, and holders at opposite ends of the strip to secure the loose end portion of the lace, substantially as set forth for the purpose described.

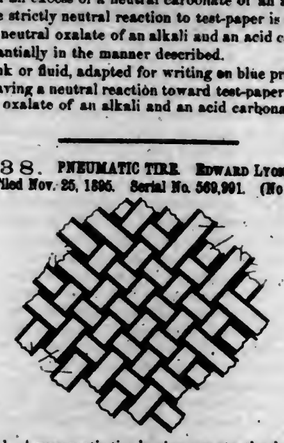
574,437. WRITING FLUID AND PROCESS OF MAKING SAME. HARRY J. LEWIS and SAMUEL L. BELLMAN, Pittsburg, Pa. Filed Mar. 18, 1896. Serial No. 583,742. (No specimens.)

Claim.—1. The process of manufacturing ink or fluid for writing on blue prints, which consists in mixing a solid acid oxalate of an alkali with solid neutral carbonate of an alkali in excess over that reqnired to neutralize the acid oxalate, dissolving the same in water and forming thereby a liquid with strictly neutral reaction toward test-papers which is composed of a neutral alkaline oxalate of an alkali and an acid carbonate of an alkali, substantially and in the manner described.

2. In the process of manufacture of ink for writing on blue prints the production of a liquid with a reaction strictly neutral to test-papers by dissolving in water a mixture of an acid alkaline oxalate of an alkali and an excess of a neutral carbonate of an alkali in such a way that the strictly neutral reaction to test-paper is due to the formation of a neutral oxalate of an alkali and an acid carbonate of an alkali, substantially in the manner described.

3. An ink or fluid, adapted for writing on blue prints, consisting of a liquid having a neutral reaction toward test-paper and composed of a neutral oxalate of an alkali and an acid carbonate of an alkali in water.

574,438. PNEUMATIC TIRE. EDWARD LYON, New Rochelle, N. Y. Filed Nov. 25, 1895. Serial No. 569,991. (No model.)



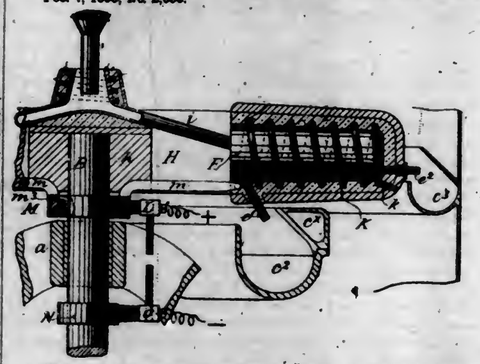
Claim.—1. A pneumatic tire having a protective layer composed of a fabric woven of strips of rawhide and strands of wire; substantially as described.

2. In a pneumatic tire, the combination of an inner air-tube of rubber and an inclosing protective tube composed of strips of rawhide and strands of wire woven together and disposed obliquely with respect to the axis of the tire; substantially as described.

3. A pneumatic tire having a protective layer composed of a fabric woven of strips of rawhide, said strips being disposed obliquely with respect to the axis of the tire, and being more or less embedded in one another where they cross, and being compressed to close the interstices between the strips; substantially as described.

4. A pneumatic tire having a protective layer composed of a fabric woven of strips of rawhide and strands of wire, the strips of rawhide being embedded more or less within each other where they cross, and the strands of wire being embedded within the rawhide; substantially as described.

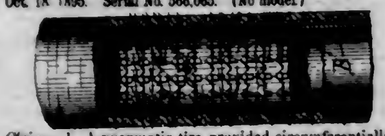
574,439. APPARATUS FOR REDUCING, SEPARATING, AND REFINING METALS. JONATHAN A. MAYS, London, England. Filed June 19, 1893. Serial No. 478,138. (No model.) Patented in England Feb. 7, 1893, No. 2,639.



Claim.—1. In an apparatus for separating molten metals, the combination of a revoluble receiving vessel, means for rotating the same, an eduction-tube, or eduction-tubes at different levels discharging from the said vessel, one or more collectors for receiving the separated substances and a heating-chamber inside the receiving vessel, substantially as described.

2. In combination with a revoluble receiving vessel, a combustion-space a gas jet or burner and an inlet for the metal passing through the combustion-space into the receiving vessel, substantially as described.

574,440. PNEUMATIC TIRE. LEWIS J. MILLER, Bergen, N. Y., assignor to Orville J. Miller and George D. Wiedrich, same place. Filed Oct. 18, 1895. Serial No. 566,065. (No model.)

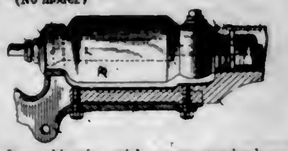


Claim.—1. A pneumatic tire provided circumferentially its air-chamber and interiorly its tread-surface with a flexible mail-like strip of laminated scale-like formation continuous with the portion it covers, and consisting of upper and lower stratas or rows of scales running both longitudinally and transversely parallel, the outer face-scales slightly overlapping each other in one direction and non-lapping in the other, and flexibly connected, and they respectively connected to the inner-lying scales in a manner to allow of flexibility of parts, and a flexible non-metallic backing-strip secured to and covering the inner series of plates, all combined and operating substantially as described.

2. A pneumatic tire provided internally its tread portion with an annular mail-like strip comprising a series of metallic scales, an outer and an inner layer, the outer scales being movably connected one to the other longitudinally, and the inner scales alternately disposed between the outer scales and yieldingly connected therewith, said plurally-formed mail-like strip being capable of slight expansion or contraction longitudinally, and flexible both longitudinally and transversely, the outer scales being arranged in parallel rows, and the inner scales being disposed in parallel rows located intermediately the outer or face rows, substantially as and for the purposes described.

3. The combination, with the tread portion of the air-tube or wrapper of a pneumatic tire, of a flexible metallic strip of annular shape seated within the elastic material of the tube or wrapper, the said strip comprising double layers or laminæ of conjointly-connected plates or scales disposed both longitudinally and transversely in parallel rows, the outer plates slightly overlapping each other in one direction, and the inner plates substantially covered by the outer plates, the outer or external plates being respectively provided with bent prongs or hooks at their opposite edges, like bent prongs or hooks forwardly, and perforations at their opposite extremities, the forward prongs passing into and hookingly retained in the perforation of the contiguous plate, and so on through the rows of the series, the inner or backing plates having central orifices, longitudinally elongated, and side prongs or hooks of the external plates passing through the orifices aforesaid and flexibly retaining the outer and inner plates in juxtaposition, said protective strip being adapted to longitudinal play, and to curvature both longitudinally and crosswise, all arranged and operating substantially as described and for the purposes specified.

574,441. PUMP. PHILIP A. MYERS, Ashland, Ohio, assignor of one-half to Francis E. Myers, same place. Filed Apr. 9, 1896. Serial No. 586,831. (No model.)



Claim.—1. In combination, with a pump-standard, a movable section on said standard, connected with the pipe and carrying a spout, and a spliced bracket, holding said section to the standard, substantially as described.

2. In combination, the pump-standard having the lower bracket-section at its upper end, an upper section adapted to be spliced upon the lower, and a spout-section on the standard, connected at its lower end to the main pipe, and held in place at its upper end by the upper bracket-section, substantially as described.

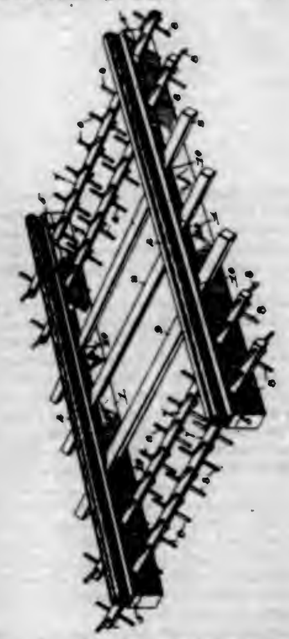
3. The combination of the pump-standard having the lower bracket-section, the upper bracket-section spliced to the lower, and having a ring *i* in line with the standard, and a spout-section connected to a pipe as *n*, and adapted to turn in the ring *i*, substantially as described.

574,442. ANTIREFILLING BOTTLE. WILLIAM B. NEVILL, Rockwall, Tex., assignor of one-half to E. W. Hardin, same place. Filed May 13, 1896. Serial No. 591,415. (No model.)

Claim.—The combination of a bottle provided on the interior of its neck with an annular groove reducing the neck in thickness at that point, and forming a frangible ligament, a cork arranged in the neck below the groove and having its upper face concave or hollowed out, a stopper or plug having a tapered lower end to fit the hollowed-out portion of the cork, and provided immediately above the tapered portion with an annular groove disposed opposite the annular groove of the neck of the bottle, and an elastic compressible locking-ring engaging both the groove of the bottle and the groove of the stopper or plug, substantially as and for the purpose described.



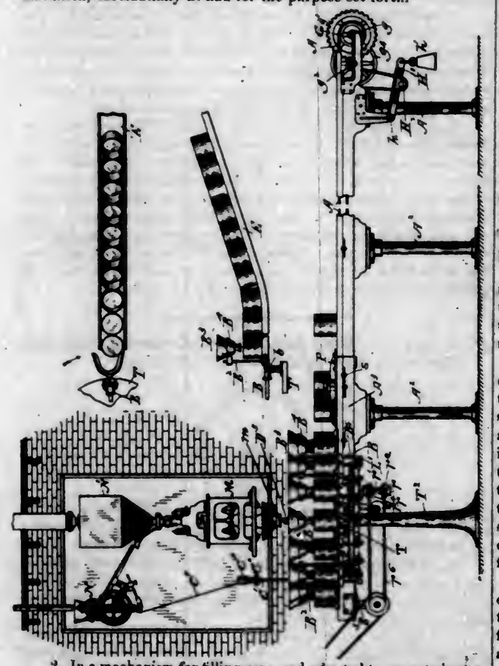
574,443. CATTLE-GUARD. WILLIAM B. NEVILL, Rockwall, Tex., assignor of one-half to R. P. Baker, same place. Filed Aug. 31, 1896. Serial No. 604,492. (No model.)



Claim.—In a railway cattle-guard, the combination with the rails, of parallel stringers arranged below the rails, cap bars or blocks interposed between the stringers and rails contiguous to the extremities of the former, half-bearings being formed respectively in the contacting faces of the stringers and cap-bars, cross-sectionally angular spurred ties arranged transversely of the road-bed and having reduced journals mounted in said bearings, and fixed cross-sectionally angular ties arranged between the rails and stringers in the interval between the contiguous extremities of the cap-bars, said fixed ties being arranged with their cross-sectional diagonals in vertical and horizontal planes, and having their upper and lower angles cut away in the planes of the rails to bear respectively against the rails and stringers, substantially as specified.

574,444. CAN-FILLING MACHINE. WILLIAM B. NICKERSON, Cambridge, Mass., assignor to the New England Weighing Machine Company, Boston, Mass. Filed Apr. 16, 1896. Serial No. 587,763. (No model.)

Claim.—1. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B; said table having a latch device adapted to be released by a movement of one of said beams, caused by a discharge of the weighing-machine; and means for causing the table to rotate upon the disengagement of the said latch, substantially as and for the purpose set forth.



2. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine: the combination of the rotating table T, the pivoted can-holding beams B B, said beams being so adjusted as to require two or more discharges of the weighing-machine into their respective cans to move them, a latch device adapted to be released by a movement of the beams in due order, and means for causing the table to rotate upon the disengagement of the latch device; whereby multiples of the quantity discharged by the machine, may be introduced into a can, substantially as and for the purpose set forth.

3. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B, a latch device adapted to be released by a movement of the said beams in due order, means for causing the table to rotate upon the disengagement of the said latch, and the inclined raceway E, whereby cans may be successively and automatically placed upon the beams and presented under the discharge-orifice of the weighing-machine, substantially as and for the purpose set forth.

4. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B, the shoe C, said shoe being adapted to perform a movement if one or more of the cans are missing from the table, the loose pulley c', the clutch-piece c, clutch-arm c^3, clutch-latch c^{11}, arm C, and appropriate connecting mechanism, whereby the supply of material is shut off from the weighing-machine when cans are not properly presented, substantially as and for the purpose set forth.

5. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; a rapping device, consisting of a rotating hub having flexible spokes, adapted to strike the filled cans, whereby the charge is shaken down in the can and spilling prevented, and means for conveying cans to and from the discharge-orifice of said weighing-machine, substantially as and for the purpose set forth.

6. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B adapted to be depressed at their outer ends by holding filled cans, a latch device adapted to be released by the depression of the said beams in due order, the traveling apron S, means for causing the table to rotate upon the disengagement of the said latch, and the inclined arm O, said arm being adapted to raise the depressed pivoted can-holding beams upon the rotation of the table, substantially as and for the purpose set forth.

7. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating table T adapted to present cans successively to the weighing-machine for filling, the main traveling apron A, the short supplementary traveling apron S, adapted to receive cans from the table T and deliver them to the said main apron A, and means for transferring the cans from the table T to the apron S, and from the apron S to the apron A, whereby the cans from several weighing-machines may be delivered to one main apron without interfering with each other, substantially as and for the purpose set forth.

8. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine, the main apron A, the short supplementary apron S adapted to receive filled cans from a weighing apparatus, and means for transferring said cans across from the said short supplementary apron to the main apron, whereby, by using a short supplementary apron with each weighing-machine, the cans from several weighing-machines may be delivered to one main apron without interfering with each other, substantially as and for the purpose set forth.

9. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; in combination, the main apron A, the supplementary apron S, the rollers *a*, *a*, and the rollers *s*, *s*, whereby the supplementary apron is driven by the under or return side of the main apron, substantially as and for the purpose set forth.

10. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating table T adapted to convey cans to and from the discharge-orifice of said weighing-machine, said table being provided with a latch device adapted to be released by the filling of a can presented to said weighing-machine and when not so released to prevent the rotation of said table, the vertical shaft D^8, the friction-disk D' fixed to the said shaft, the loose disk D resting upon the said disk D', and means for the continuous rotation of the said disk D, whereby the filling of a can presented to the weighing-machine allows the table to rotate and an empty can to be presented, substantially as and for the purpose set forth.

11. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating table T, the pivoted can-holding beams B B, the funnels B^3 B^3 said funnels being mounted upon said beams by suitable mechanism and adapted to transmit material into cans placed beneath them upon said beams, said table being provided with a latch device adapted to be disengaged whenever a can presented by said table to the weighing-machine has been filled, and means for rotating said table upon the disengagement of said latch device, substantially as and for the purpose set forth.

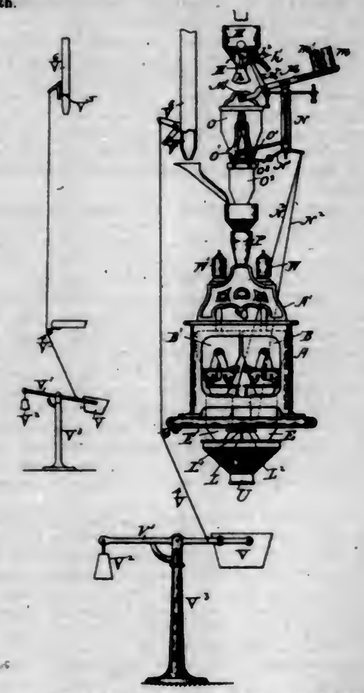
12. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the apron S, the rollers *s s* adapted to support and drive the said apron one at each end substantially as described, the rollers *s' s'* mounted in the frame s^3 and bearing upon the under or return part of the apron S and in opposition to the roller a^3, the roller a^2, the frame s^3 adapted to adjustably support the rollers *s s*, the pivoted arm s^3 adapted to carry the frame s^3 in opposition to the weight s^4, and the weight s^4, whereby tension is maintained on the said apron S, substantially as and for the purpose set forth.

13. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating hub R having the flexible spokes R' R', the spindle *r'* adapted to support the hub R, and the pulley r^4 fixed upon and adapted to drive the said spindle *r'*; with the hub R^2 having the flexible spokes R^2 R^2, and mounted upon the loose sleeve r^3, the sleeve r^3 rotating upon the spindle *r'*, the pulley r^4 fixed upon the sleeve r^3 and a suitable supporting-frame, whereby the said hubs R and R^2 may be rotated in directions opposite to each other, substantially as and for the purpose set forth.

574,445. AUTOMATIC WEIGHING APPARATUS. WILLIAM E. NICKERSON, Cambridge, Mass., assignor to the New England Weighing Machine Company, Boston, Mass. Filed June 22, 1896. Serial No. 596,488. (No model.)

Claim.—1. In an apparatus for automatic weighing, in combination, two separate scales, a primary and a secondary, arranged and coöperating as follows; first a primary scale adapted to receive a comparatively large stream of material and to cut off said stream after having weighed out therefrom with approximate accuracy a charge somewhat less than a full weight for said secondary scale; and said primary scale being adapted to retain said charge until an action of the said secondary scale causes its discharge and then to deliver it to said secondary scale; and said primary scale having a latch device for discharging it, suitably connected with said secondary scale; and said primary scale being adapted to automatically refill from the said large stream whenever it has been emptied; and second, a secondary scale, adapted to receive the charge from said primary scale, and to also receive a small stream of material to make up a full and accurate weight; and said secondary scale having a suitable mechanism connected with the latch mechanism of the said

primary scale whereby the said primary scale is discharged into the secondary scale upon each discharge of the latter: means for delivering a small stream into the secondary scale: connecting mechanism between the primary and secondary scales and means for supplying material to said primary scale, substantially as and for the purpose set forth.



2. In an apparatus for automatic weighing, a scale having two alternating weighing-buckets provided with discharge-doors having latches, said doors being adapted to be forced open by the pressure of the charge in the bucket when their latches are released, a chute adapted to oscillate from one bucket to the other, connecting mechanism by which the opening of the doors of each bucket alternately actuates the chute toward the opposite bucket, and a suitably-arranged scale-beam, weights and connected parts, substantially as and for the purpose set forth.

3. In an apparatus for automatic weighing, a scale having two alternating weighing-buckets and a delivery-chute adapted to oscillate from one bucket to the other, the combination of the chute C, knuckle-joints K and K', rocker-shafts R and R', mechanism for causing a partial rotation of the said shafts alternately upon the descent of the weighing-bucket, and a suitably-arranged scale-beam, weights and connected parts, substantially as and for the purpose set forth.

4. In an apparatus for automatic weighing, a scale having two alternating weighing-buckets, a chute adapted to oscillate from one bucket to the other, and said weighing-buckets having doors provided with latches, and said doors being adapted to be forced open by the charge of material in the buckets when said latches are released; in combination with the pivoted arms T T and T' T', said arms being out of contact with said doors when the latter are in their closed position, mechanism connecting said arms with the delivery-chute, whereby the opening of the doors causes the chute to swing over the alternate bucket, and a suitably-arranged scale-beam, weights, and connected parts, substantially as and for the purpose set forth.

5. In an apparatus for automatic weighing, a scale having two alternating weighing-buckets and a delivery-chute adapted to oscillate from one bucket to the other, and said buckets having doors provided with latches and said doors being adapted, when said latches are released, to be forced open by the charge in the buckets; the combination of the chute C, the knuckle-joints K and K', rocker-shafts R and R', the pull-wires r and r', the bent arms T T and T' T', the arms t and t', and a suitably-arranged scale-beam, weights and connected parts, all operating together as described, substantially as and for the purpose set forth.

6. In an apparatus for automatic weighing, a scale having two alternating weighing-buckets, a suitably-arranged scale-beam and weights, and a delivering-chute adapted to oscillate from one bucket to the other, the combination of the chute C, the chute-tip c, the arm c^3, and the fixed pin c^4, substantially as and for the purpose set forth.

7. In an apparatus for automatic weighing, in combination, a primary scale having latches for discharging it; with a secondary scale having the hopper U and centrally-hung flap L, said flap being adapted to be swung each way alternately by the discharge of the secondary scale as shown, and suitable mechanism connecting the said flap with said latches, substantially as and for the purpose set forth.

8. In an apparatus for automatic weighing, a primary scale embodying the following elements viz: a weighing-bucket having discharge-doors held closed by latches, and adapted to descend to the limit of its movement when loaded and to retain its charge until said latches are released, a weighted weighing-beam adapted to support said bucket, a feed-pipe having a shut-off mechanism adapted to close said pipe on a descent of said bucket, mechanism for connecting said shut-off with said beam whereby a descent of said bucket may close said shut-off and mechanism adapted to release said latches when required, substantially as and for the purpose set forth.

574,446. WHEEL-TIRE. JAMES H. NORTHROP, Hopedale, Mass. Filed Dec. 15, 1893. Serial No. 493,730. (No model.)



Claim.—1. An air-tube, folded over upon itself and vulcanized, adapted to be inflated and used in a pneumatic tire, the tube resuming its folded form when deflated, substantially as described.

2. An air-tube, folded over upon itself and vulcanized, and provided with an external integral band or rib, adapted to be inflated and used in a pneumatic tire, the tube resuming its folded form when deflated, substantially as described.

3. A pneumatic tire consisting of an annular tread-surface, combined with an inflatable air-tube flattened and folded over upon itself and vulcanized, whereby the tube resumes its folded form when deflated, substantially as described.

4. A pneumatic tire consisting of an annular tread-surface provided with rim-engaging edges, and a rim having retaining-flanges therefor, combined with an inflatable air-tube folded over upon itself and vulcanized to normally maintain itself in said folded over form, whereby insertion or removal of the tube between the rim and the free edge of the tread-surface is facilitated, substantially as described.

5. A pneumatic tire consisting of an annular tread-surface provided with rim-engaging edges, and a rim having flanges to receive said edges, combined with an inflatable air-tube flattened, folded over and vulcanized and provided with an external band or rib adapted to enter between the edges of the tread and retain them in the rim-flanges, substantially as described.

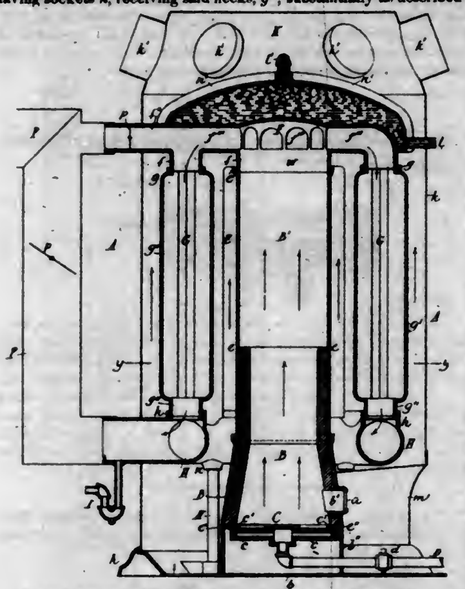
574,447. GAS-FIRED DOMESTIC HEATER FOR WATER AND AIR. HAWLEY PETTIBONE and BURDETT LOOMIS, Jr., Hartford, Conn. Filed Aug. 3, 1894. Serial No. 519,390. (No model.)

Claim.—1. The combination with a gas-burner having a combustion-chamber and an extension-flue, of a dome provided with radial passages or recesses, a series of downtake-flues around the extension-flue and combustion-chamber, each radial passage in the dome connecting with a separate downtake-flue of the series, and an annular flue connecting with the lower ends of the downtake-flues and with an escape-flue, as and for the purpose described.

2. The combination with a gas-burner having a combustion-chamber and extension-flue, of a dome provided with radial passages or recesses, a series of downtake-flues, having radial grooves or corrugations, around the extension-flue and combustion-chamber, each radial passage in the dome connecting with a separate downtake-flue of the series, and an annular flue connecting with the lower ends of the downtake-flues and with an escape-flue, as and for the purpose described.

3. In a domestic heater the combination with the combustion-chamber and flue, of a distributing and heating dome having radial plates forming interior radial recesses for distributing the hot products of combustion and providing an extended heating-surface, downtake-flues connecting with said recesses and an annular escape-flue connecting with the lower ends of said flues, substantially as described.

4. In a domestic heater the combination with the combustion-chamber and flue having a socket at the top, of a heating-dome having a central opening, radial recesses, and downwardly-extending flange fitted in said socket and also having circumferential downwardly-extending necks or flanges, f', a series of downtake heating-flues having sockets at their upper ends receiving said necks, f', and also having necks, g'', at their lower ends, and an annular escape-flue having sockets A, receiving said necks, g'', substantially as described



5. In a domestic heater, the combination with the combustion-chamber and extension-flue, of a heating-dome having circumferential notches and side walls forming interior radial distributing-recesses, a series of downtake heating-flues connecting with said recesses and an annular escape-flue, all suitably connected together, substantially as described.

6. In a domestic heater, the central combustion-chamber B and an extension-flue B', having external vertical ribs, e, and forming a tall central column for the rise of flame and hot gaseous products, a distributing-dome F, having radial recesses at the top of said column, the downtake-flues G, having radial grooves or channels, g', and connecting with the recesses of the dome and surrounding said column, the annular escape-flue H, and escape-pipe H', all in combination, substantially as described.

7. In a domestic heater, the combination with the combustion-chamber and extension-flue forming a tall column for the rise of flame and hot gaseous products, of a distributing and heating dome at the top of said column, having radial recesses or compartments, a water-heating chamber I, provided with inlet and outlet pipes, above said dome, downtake-flues connecting with the radial compartments of the dome and an escape-flue connecting with the lower end of said flues, substantially as described.

8. In a domestic heater, the combination with the combustion-chamber and flue, of a distributing and heating dome at the top of said flue and having circumferential notches and lateral walls forming internal radial distributing-recesses, a water-heating chamber I, provided with circumferential notches and with inlet and outlet water-pipes, and placed above said heating-dome, downtake-flues connecting with said distributing-recesses and an escape-flue connecting with the lower ends of said flues, substantially as described.

574,448. BOX-TOE STIFFENER. CHARLES S. PIERCE, Brockton, Mass. Filed May 16, 1896. Serial No. 591,765. (No model.)



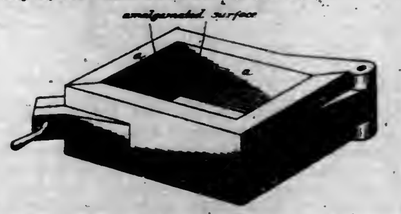
Claim.—The improved box-toe stiffener composed of the outer layer A, of textile fabric, the inner layer B of leather, and the intermediate layer C of textile fabric graded as described with relation to edge b of layer B, and with the edge a of layer A extending beyond the skived edge b of layer B: connected together and molded as and for the purposes specified.

574,449. POLISHING AND ABRASIVE MATERIAL. ARTHUR F. PETTENGILL, Pittsburg, Pa., assignor of one-half to Albert Pettit, same place. Filed Dec. 16, 1895. Serial No. 572,302. (Specimens.)

Claim.—As a new article of manufacture an abrasive polishing and scouring material consisting of an ordinary sponge combined with and filled with a mixture of caoutchouc, sulfur and an abrasive powder, vulcanized, substantially as described.



574,450. MOLD FOR FORMING ARTICLES FROM BITUMINOUS COMPOSITIONS. FREDERICK A. REDNOR, San Francisco, Cal. Filed May 12, 1896. Serial No. 591,231. (No model.)



Claim.—1. A metallic mold for forming articles from bituminous compositions, having an amalgamated pressing-surface.

2. A mold for forming articles from bituminous compositions, having a metallic pressing-surface amalgamated with mercury.

574,451. EYELET-HOLE ATTACHMENT FOR SEWING-MACHINES. HEINRICH T. REUTERMANN, San Antonio, Tex. Filed Sept. 2, 1892. Serial No. 444,908. (No model.)



Claim.—The combination in an eyelet-hole attachment for sewing-machines, of a base-plate, means whereby it is adapted to connect with the sewing-machine presser-bar, a frame pivoted to the base-plate, the connecting-pivot having a united cog-wheel and bevel cog-wheel F loosely fitted thereon, one end of the pivoted frame provided with a stud Q, and its opposite end with a feed-wheel I provided with a cog-wheel, and a cog-wheel H coöperating with the cog-wheels on the feed-wheel and on the pivot, as described, a cam P, connected with the base-plate, so as to engage the stud Q, and the pivotally-connected levers, with means substantially as described, whereby motion is transmitted from the said levers to the cam P and the beveled cog-wheel F, and feed-wheel, as set forth.

574,452. METALLIC STRAP. NOBLE G. ROSS and JULIUS J. WOLF, Kansas City, Mo., assignors to The Wolf Safety Box Strap Company, same place. Filed Feb. 17, 1896. Serial No. 579,620. (No model.)



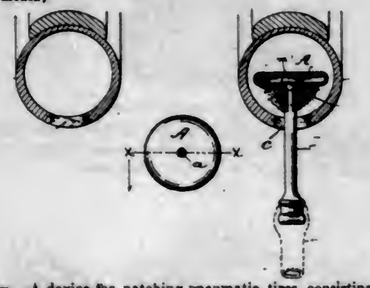
Claim.—1. A flexible metallic band or strap, comprising a cable, nails consisting each of a shank which is circular in cross-section, and a diminished extension which is semicircular in cross-section and is coiled tightly around the cable, substantially as shown and described.

2. A flexible metallic band or strap, comprising a cable, and a nail consisting of a bearded or roughened and sharpened shank, and an eye which embraces tightly said cable and is formed by bending or coiling around the cable a diminished extension of said shank.

3. A strap or band, comprising a flexible cable formed by twisting two wires upon each other, and a nail consisting of a stiff bearded

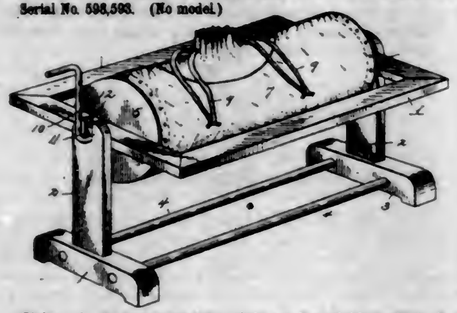
shank, and an extension projecting from the upper end of said shank and of only about half the thickness of the same, and bent to form an eye which embraces tightly said cable, substantially as described.

574,453. PATCHING DEVICE FOR PNEUMATIC TIRES. JOSEPH SAVOIE, Central Falls, R. I. Filed May 18, 1896. Serial No. 592,063. (No model.)



Claim.—A device for patching pneumatic tires, consisting of a hollow needle, having an enlarged head upon its inner end, and a series of longitudinal slits or openings through its sides extending to within a short distance of the head, and through which air and cement are forced, and which needle is adapted to receive a patch upon its end and draw it into position against the inner side of the tire after cement has been forced through the slits against the patch, substantially as shown.

574,454. INSECT-DESTROYER. CHARLES C. SCHIELD and PETER J. SCHIELD, Ionia, Mich. Filed Sept. 3, 1895. Renewed July 9, 1896. Serial No. 598,593. (No model.)



Claim.—1. An apparatus for applying an insecticide to the bodies or poultry, fowl, &c., consisting of heads, a flexible body secured at its ends to the said heads and having an opening in its side closed by a collapsible neck, and a frame exterior to the said body and heads and having the latter secured thereto, and holding the said body distended, and adapted to be rotatably mounted, substantially as and for the purpose set forth.

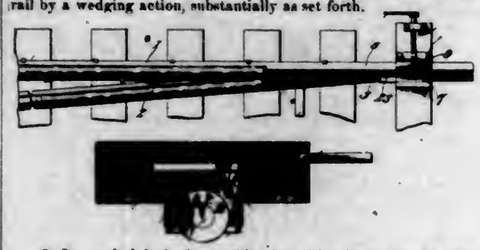
2. An apparatus for applying an insecticide to the bodies of poultry, &c., constructed substantially as herein set forth and comprising a base having vertical standards, a frame journaled at its ends to the said standards, heads secured to the end bars of the frame, and a flexible or textile fabric body secured to the said heads and held extended by the frame so as to form a compartment, and having an opening in its side closed by means of a flexible neck, substantially as and for the purpose set forth.

3. An insecticide apparatus for poultry, fowl and the like comprising a receptacle consisting of heads, and a soft flexible body portion provided with an opening in its side and adapted to closely confine therein the poultry or fowl and loose insecticide, a stationary support for said receptacle, and means for agitating the receptacle on its support, substantially as set forth.

4. An insecticide apparatus for poultry, fowl and the like, comprising a receptacle consisting of heads, and a body portion made of soft textile fabric formed with an opening in its side and adapted to closely confine therein the poultry or fowl and loose insecticide, a stationary bearing-support for the receptacle, and means for positively rotating the receptacle on its support, substantially as set forth.

574,455. SWITCH-LOCK. ASHLEY B. SCHRANTZ, Fairbury, Nebr. Filed Dec. 30, 1895. Serial No. 573,745. (No model.)

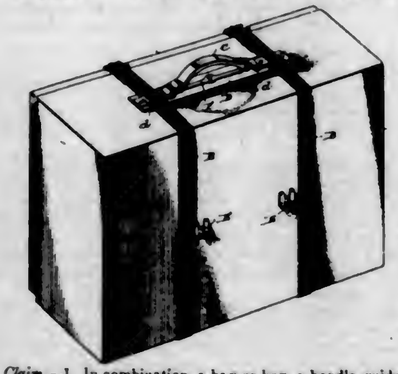
Claim.—1. In a switch-lock, the combination with a base-plate adapted to be secured to the flange of a rail, and means for fastening it thereto, of a lock-bolt movable endwise therein, said lock-bolt being adapted to be projected through one end or the other of the lock, and being provided at each end with a beveled edge, and mechanism for actuating the lock-bolt in both directions, so as to secure a split rail by a wedging action, substantially as set forth.



2. In a switch-lock, the combination with a base-plate, lip, lock-bolt and lock-bolt-actuating mechanism, of a second and removable lip, and mechanism for securing the same in place opposite the first-named lip, substantially in the manner and for the purpose specified.

3. In a switch-lock, the combination with a base-plate provided with a permanent lip and with a removable lip, of a lock-bolt movable endwise upon the base-plate, a slot therein, a crank working in the slot, and an actuating-shaft secured to the crank, substantially as specified.

574,456. ADJUSTABLE HANDLE FOR BAGS. SAMUEL SMITH, Philadelphia, Pa. Filed Apr. 16, 1896. Serial No. 587,803. (No model.)



Claim.—1. In combination, a bag or box, a handle, guides upon which said handle is adapted to move around said box or bag, and means to directly interlock said handle and bag or box.

2. In combination, a bag or box, straps for securing said bag or box, a handle loosely secured to and movable on said straps, and means to directly interlock said handle and bag or box.

3. In combination, a bag or box, a handle, guides upon which said handle is adapted to move around said box or bag, a device secured to the bag or box at desired points, and devices moving with the handle, said devices being adapted to interlock.

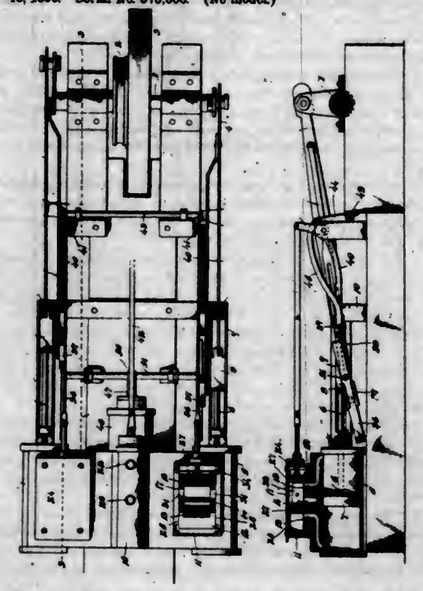
4. In combination, a bag or box, straps for securing said bag or box, a handle loosely secured to and movable on said straps, devices secured to the bag or box at desired points and devices moving with the handle, said devices being adapted to interlock.

5. In combination, a bag or box, straps for securing said bag or box, a plate, a handle secured to said plate, said plate being movably secured upon said straps, there being an orifice or orifices in said plate, loop projection or projections secured upon said bag or box at desired points, said loop or loops being adapted to pass through the orifice or orifices in the plate.

6. In combination, a bag or box, straps for securing said bag or box, a plate, a handle secured to said plate, said plate, being movably secured upon said straps, there being an orifice or orifices in said plate, loop projection or projections secured upon said bag or box at desired points, said loop or loops being adapted to pass through the orifice or orifices in the plate, and devices carried by said plate adapted to lock said loops and plate when said loops project through the orifices in the plate.

7. In combination, a bag or box, straps for securing said bag or box, a plate, a handle secured to said plate, said plate being movably secured upon said straps, there being an orifice or orifices in said plate, loop projection or projections secured upon said bag or box at desired points, said loop or loops being adapted to pass through the orifice or orifices in the plate, and a pivoted lever having hook ends adapted to enter the loop when said loops project beyond said orifice.

574,457. ENGINE. NEELY SHANNON, Huntsville, Ala., assignor of forty-nine one-hundredths to J. H. Landman, same place. Filed Jan. 16, 1896. Serial No. 575,800. (No model.)



Claim.—1. The combination of a slide-valve casing having a seat provided with ports, a rectangular shell removably fitted upon the seat and open top and bottom whereby the seat closes the lower side thereof, and a cap-plate closing the upper side of the shell and secured in place by bolts extending through the shell, and a slide-valve of rectangular construction having open upper and lower sides closed, respectively, by the cap-plate and seat and of less width than the casing to allow an exterior steam-port in the valve-seat to open outside of the valve, the side walls of the shell being provided with inwardly-extending flanges forming guides which bear against the sides of the slide-valve, and the bolts which secure the cap-plate being extended through the shell in the angles formed by the intersections of the side and end walls thereof, substantially as specified.

2. A slide-valve constructed to form a hollow square, a packing-frame corresponding in plan with the valve and provided at opposite sides with bars countersunk in the face of the valve and at the other opposite sides with parallel bars arranged in contact with the inner and outer surfaces of the valve, and resilient means for extending said frame, substantially as specified.

3. A hollow slide-valve provided with opposite pivotal packing-strips mounted to rock upon the valve, substantially as specified.

4. A hollow slide-valve having opposite parallel sides, and packing-strips each comprising parallel bars or members arranged contiguous to the opposite faces of one of the sides of the valve and connected at intermediate points by a transverse pin mounted in said side of the valve, substantially as specified.

5. The combination with a valve for controlling cylinder-ports, and means for admitting "live" motive agent to the valve-casing either between or beyond the cylinder-ports, of valve-operating mechanism including a rocking lever operatively connected with the valve, a pivotal connection between said lever and a reciprocatory member, as a pitman, and means for varying the point of connection of said lever with the reciprocatory member, substantially as specified.

6. The combination with a valve for controlling cylinder-ports, and means for admitting live motive agent to the valve-casing either between or beyond the cylinder-ports, of valve-operating mechanism including a rocking lever operatively connected with the valve, an oscillatory arm adapted to receive motion from a pitman and having a pivotal connection with said lever, and means for varying the point of pivotal connection to vary the throw of the lever, substantially as specified.

7. The combination with a valve for controlling cylinder-ports, and means for admitting live motive agent to the valve-casing either between or beyond the cylinder-ports, of valve-operating mechanism including a rocking lever operatively connected with the valve, an oscillatory arm provided at one end with a slide operating upon a stationary guide and connected at the other end to a reciprocatory and oscillatory member, as a pitman, and means for pivotally connecting said lever to the arm and varying the point of connection to vary the throw of the lever, substantially as specified.

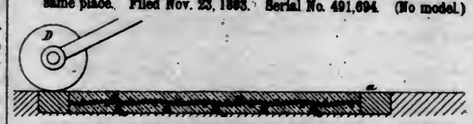
8. The combination with a valve for controlling cylinder-ports, and means for admitting live motive agent to the valve-casing either between or beyond the cylinder-ports, of valve-operating mechanism including an oscillatory arm connected at one end to an oscillatory and reciprocatory member, as a pitman, a guide carrying a slide connected to the other end of said arm, a rocking lever operatively connected with said valve and pivotally connected to the arm, and means for adjusting the guide to vary the path of the slide carried thereby, substantially as specified.

9. The combination with a valve for controlling cylinder-ports, and means for admitting live motive agent to the valve-casing either between or beyond the cylinder-ports, of valve-operating mechanism including a rocking lever operatively connected with the valve, an oscillatory arm connected at one end to a pitman, an adjustable guide, a slide mounted upon said guide and connected to the other end of the arm, connections between the rocking lever and the arm, and mechanism controlled by means for admitting motive agent to the valve-casing for reversing the position of the guide, substantially as specified.

10. The combination with a valve for controlling cylinder-ports, and means for admitting live motive agent to the valve-casing either between or beyond the cylinder-ports, of valve-operating mechanism including an oscillatory arm connected to a moving part, as a pitman, and operatively connected with the valve, an adjustable guide for the other end of said arm and adapted to be reversed to correspond with the point of admitting live motive agent to the valve-casing, and a piston adapted to be exposed to pressure upon one face or the other according to the point of admitting motive agent, said piston being operatively connected with the guide, substantially as specified.

11. The combination with a valve for controlling cylinder-ports, and means for admitting live motive agent to the valve-casing either between or outside of the cylinder-ports, said means including a throttle-valve, of valve-operating mechanism including an oscillatory arm adapted to receive motion from the moving part, as a pitman, and operatively connected with said valve, a reversible guide for the other end of the arm, a rock-shaft carrying said guide, and a piston arranged in the cylinder in communication upon opposite sides of the plane of the piston with the casing of said throttle-valve, whereby motive agent is admitted to said cylinder upon one side or the other of the piston according to the position of the throttle-valve, the piston being operatively connected with said rock-shaft, substantially as specified.

574,458. MACHINE FOR EMBEDDING WIRE IN GLASS. FRANK SHUMAN, Philadelphia, Pa., assignor to the Wire Glass Company, same place. Filed Nov. 23, 1893. Serial No. 491,694. (No model.)



Claim.—1. In an apparatus for embedding wire in glass, the combination of the bed, supports for the wire arranged at intervals on and extending above the face of the bed, the side walls for inclosing the glass extending above the supports for the wire, and a presser adapted to press the glass through the wire interstices and embed the same within the glass, substantially as described.

2. A bed for supporting the wire to be embedded in glass, said bed having detachable supporting ribs or bars arranged to elevate the wire above the face of the bed so that the molten glass when poured onto the bed will pass below the surface of the wire, substantially as described.

3. The combination of the bed, the detachable supports for the wire mounted on said bed, the side walls and a presser, substantially as described.

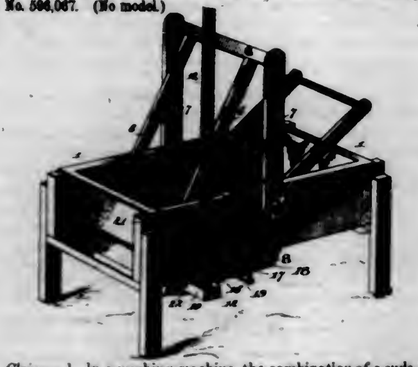
574,459. GARMENT-SUPPORTER LOOP. EDWARD S. SMITH, Waterbury, Conn. Filed Oct. 22, 1895. Serial No. 566,460. (No model.)

Claim.—1. A garment-supporter loop comprising a slotted frame, a wire lining extending around the inner edge of said frame and separated from the inner edge of said frame at points intermediate in the length of the loop to form a constricted throat at an intermediate point in the opening through said loop, one or more recesses in the outer edge of the said lining and one or more projections from the inner edge of the frame extending into the said recesses in the lining and embraced thereby, substantially as and for the purpose described.

2. A garment-supporter loop comprising a slotted frame, a wire lining extending around the inner edge of said frame and separated from the inner edge of said frame at points intermediate in the length of the loop, one or more recesses in the outer edge of said lining and one or more projections from the inner edge of the frame extending into the said recesses in the lining and embraced thereby, substantially as and for the purpose described.



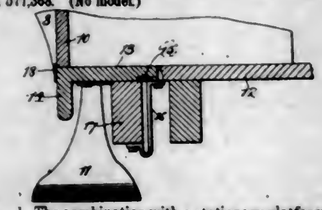
574,460. WASHING-MACHINE. JOHN G. STEVENSON, Summerfield, La., and MOLLIE J. STEVENSON, same place, natural tutrix of the heirs of Randle R. Stevenson, deceased. Filed June 18, 1896. Serial No. 596,067. (No model.)



Claim.—1. In a washing-machine, the combination of a suds-box having a metal bottom, brackets applied to the opposite sides of the suds-box, a furnace located beneath the suds-box, and rods having connection with the furnace and adjustable in the aforesaid brackets, and having their upper ends bent laterally to provide handles and stops to engage with the uppermost brackets to limit the downward movement of the furnace, substantially as set forth.

2. In a washing-machine, the combination of a suds-box having a metal bottom, bifurcated brackets applied to the opposite sides of the suds-box, a furnace located below the suds-box, a stirrup applied to the furnace and having its end portions extending horizontally, rods secured at their lower ends to the extremities of the stirrup and removably and adjustably fitted to the aforesaid bifurcated brackets, and having their upper ends bent to form handles and stops, and binding-screws applied to a member of the bifurcated brackets for holding the furnace in an adjusted position, substantially as set forth.

574,461. CAR-STEP. FRANK THOMPSON, Chicago, Ill., assignor to the Wells & French Company, same place. Filed Jan. 30, 1896. Serial No. 577,368. (No model.)



Claim.—1. The combination with a stationary platform, of an angularly-adjustable platform adapted and arranged to be operated to form a lateral platform extension of variable width, substantially as described.

2. The combination with a stationary platform, of a movable platform having a flanged portion and adapted to be angularly adjusted to form a platform extension of variable width, substantially as described.

3. The combination with a stationary platform, of an adjustable platform extension adapted to be suspended substantially vertically from the stationary platform when out of use and to be moved into a horizontal position to form an extension of the stationary platform, substantially as described.

4. The combination with a stationary platform, of an adjustable platform adapted and arranged to be operated to form a platform extension of variable width, the said adjustable platform, when extended, being in substantially the same horizontal plane as the main body of the platform, substantially as described.

5. The combination with a stationary platform, of an extension-platform adapted and arranged to be operated to form an extension of said stationary platform, and means for supporting said extension-platform, when extended, on substantially the same level as the stationary platform, substantially as described.

6. In a car, the combination with a stationary platform and a step, of an extension-platform adjustable to variable widths, and means for supporting said extension-platform in its adjusted positions, said extension-platform being angularly adjustable to expose or cover the car-step and vary the width of the platform, substantially as described.

7. In a car, the combination with a stationary platform, of a movable platform having a flange arranged at an angle thereto, said movable platform being angularly adjustable to form a platform extension of variable width, substantially as described.

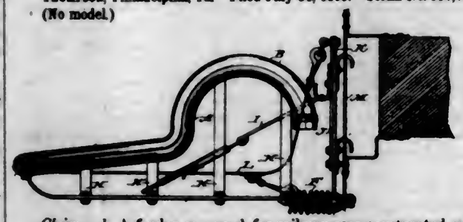
8. In a car, the combination with a stationary platform, of a movable platform having a flange arranged at an angle thereto and provided with a plate 18 to serve as a threshold and, also, as a stop for the car-door, said movable platform being angularly adjustable to form a platform extension of variable width, substantially as described.

9. In a car, the combination with a stationary platform, of an angularly-adjustable platform adapted and arranged to form a platform extension of variable width and provided with a plate to serve as a stop for the car-door, substantially as described.

10. In a car, the combination with a stationary platform, of a movable platform having an angular adjustment whereby it is adapted to form a platform extension of variable width, pins 15 carried by said movable platform, and guides 16 to receive said pins, substantially as described.

11. In a car, the combination with a stationary platform, of a movable platform 13 having a flange 14, said movable platform being angularly adjustable, pins carried by said movable platform, and guides 16 adapted to receive said pins, substantially as described.

574,462. CAR-FENDER. JOSEPH R. THOMPSON and JOHN D. THOMPSON, Philadelphia, Pa. Filed July 31, 1896. Serial No. 557,789. (No model.)

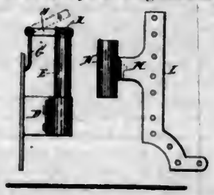


Claim.—1. A fender or guard for railway-cars constructed substantially as herein shown and described, consisting of a curved, concave-convex metal plate bent to form the rim of the said guard, an elastic tube secured in the upper and concave face of said plate, a cross-bar or axle, journaled in hangers depending from the end of the car, bars extending longitudinally from front to rear of fender and connected by means of slotted plates with said cross-bar, spiral springs on the rear ends of the longitudinal bars to operate against longitudinal motion of the fender, spiral springs on the axle-bar to operate against lateral motion of the fender, cross-bars with turned-up ends, connecting with the concave-convex plate and serving as braces to the fender, fender-supporting rods and straps, a frame attached to the car end for attachment of the fender, and a canvas apron covering the face of the fender, all arranged as set forth.

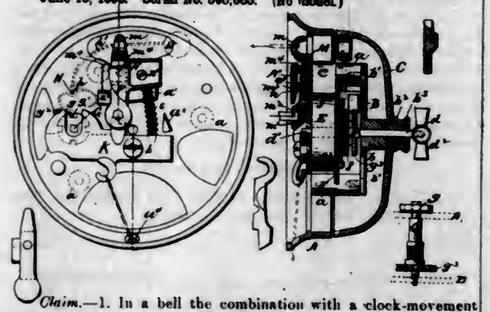
2. The combination with a railway-car of a guard constructed as herein shown and described, consisting of a curved concave-convex plate forming the front and side rims of the guard, an elastic tube secured to the upper face of said rim and coextensive with the same; cross-bars and longitudinal bars attached to each other and to the front and side rims of the frame and to a rear cross-bar, hangers for supporting the device from the platform of the car, and spiral springs interposed between the rear hangers and the next forward thereof, substantially as shown and described.

574,463. HINGE. ANTONY TIECH, New York, N. Y. Filed Dec. 2, 1895. Serial No. 570,755. (No model.)

Claim.—In a hinge, a plate having a shoulder provided with a pintle, said pintle having a transverse slot in the upper end, an arm secured to said plate above said pintle, a bar pivotally connected with said arm and adapted to snugly fit in said slot in aforesaid pintle, said bar and pintle being provided also with perforations transverse to said slot, and a pin adapted to enter said perforations and engage said bar and pintle, all of said parts being combined substantially as described.



574,464. DOOR-BELL. GEORGE E. TYSON, Reading, Pa. Filed June 15, 1896. Serial No. 595,603. (No model.)



Claim.—1. In a bell the combination with a clock-movement mechanism for operating the hammer, of a main lever pivoted to swing into or out of engagement with the escapement of said mechanism, and a supplemental lever pivoted to swing in a plane at right angles to said main lever and adapted to operate the latter substantially as set forth.

2. In a bell having a clock-movement mechanism for operating the hammer substantially as described, the combination of the pivoted lever K, the supplemental pivoted lever M, and the fulcrum-plate N and fulcrum-support a^2 for said lever M substantially as set forth.

3. In a bell having a clock-movement mechanism for operating the hammer substantially as described, the combination of the pivoted lever K having a pulling connection k^3 and pushing-lug k^2, stop a^3, supplemental lever M having one end engaging said lug, fulcrum-plate N and retaining-boss a^2 for said supplemental lever, and spring s, all substantially as set forth.

574,465. CIGARETTE-MACHINE. ALFRED G. VALE, New York, N. Y., assignor, by direct and mesne assignments, to the Vale Machine Company, of New York. Filed July 20, 1895. Serial No. 556,659. (No model.)

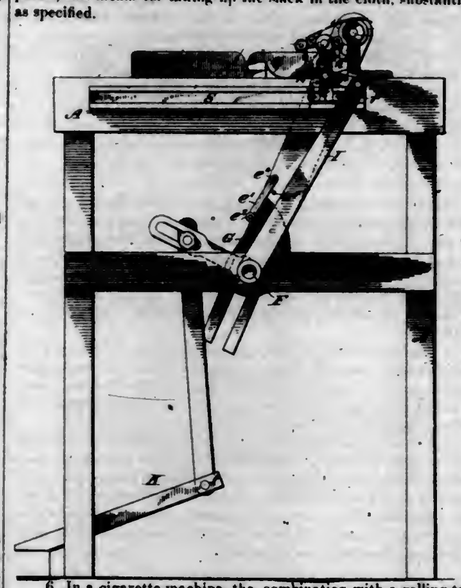
Claim.—1. In a cigarette-machine, the combination with a rolling-table, and a rolling-cloth, of a reciprocating rolling device comprising two rollers secured in a rocking frame over which rollers the apron passes, and means for causing the rollers to assume a position, during the rolling of the cigarette, in which the line joining the axes of the rollers is changed from a substantially horizontal to a substantially vertical position relatively to the table during their movement across the table, substantially as specified.

2. In a cigarette-machine, the combination with a rolling-table, and a rolling-cloth, of a reciprocating rolling device comprising two rollers secured in a rocking frame over which rollers the apron passes, and means for causing the rollers to automatically assume a position during the rolling of the cigarette in which the line joining the axes of the rollers is changed from a substantially horizontal to a substantially vertical position relatively to the table during the movement of the rollers across the table, substantially as specified.

3. In a cigarette-machine, the combination with a rolling-table, and a rolling-cloth, of a reciprocating rolling device comprising a rock-shaft, arms affixed thereto and rollers mounted in the arms over which rollers the apron passes, substantially as specified.

4. In a cigarette-machine, the combination with a rolling-table and a rolling-cloth, of a reciprocating rolling device comprising a rock-shaft, arms secured thereto and a roller mounted in the arms, tracks provided with cam-surfaces, and arms secured to said rock-shaft and provided with parts adapted to coact with said cam-surfaces, substantially as specified.
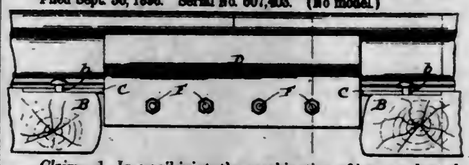
5. In a cigarette-machine, the combination with a rolling-table, and a rolling-cloth, of brackets and ways in which said brackets move lengthwise of the machine, a rock-shaft journaled in said brackets and provided with arms cam-surfaces arranged adjacent to the arms with which said arms are adapted to coact, rollers journaled in fixtures carried by the rock-shaft over which rollers the apron passes, and means for taking up the slack in the cloth, substantially as specified.



6. In a cigarette-machine, the combination with a rolling-table and a rolling-cloth, of a reciprocating rolling device comprising a rock-shaft, and rollers mounted in fixtures carried by the rock-shaft, means for automatically rocking said shaft during the rolling of a cigarette, and a take-up roller for the cloth, substantially as specified.

7. The combination of a rolling-table, a rolling-cloth, a reciprocating rolling device comprising a rock-shaft, arms secured thereto, and supported rollers, and means for automaticallly rocking said shaft, substantially as specified.

574,466. RAIL-JOINT. HARRY WELLSBOWETH, Philadelphia, Pa. Filed Sept. 30, 1896. Serial No. 607,403. (No model.)



Claim.—1. In a rail-joint, the combination of braces adapted to extend below the base of the rail, of a spring-plate adapted to lie between said braces and beneath the rail and press against the base thereof, said spring-plate being adapted to be compressed laterally and expanded vertically by the tightening of the braces, and means for locking together and tightening said braces, substantially as described.

2. In a rail-joint, the combination of braces adapted to bear against the head of the rail, the web and the top of the base and to extend beneath the base and bent inwardly, of a spring-plate adapted to be held in position by the depending and inturned sides of the braces and press against the base of the rail, said spring-plate being adapted to be compressed laterally and expanded vertically by the tightening of the braces, and means for locking together and tightening them, substantially as described.

3. In a rail-joint, the combination of braces adapted to extend below the base of the rail, of a spring-plate adapted to lie between said braces and beneath the rail and press against the base thereof, means for locking and tightening said braces and a locking-plate adapted to lie between the base of the rail and said spring-plate and engage the rail.

4. In a joint-rail, the combination of braces adapted to extend below the base of the rail, of a compressible and expansible device adapted to lie between said braces and beneath the rail and press against the base thereof, means for locking and tightening said braces and a locking-plate adapted to lie between the base of the rail and said device and engage the rail, said plate having widened-out ends

abutting against the ends of the braces and adapted to be secured to the ties.

574,467. TRUSS. EDWIN O. WARE and JOSEPH B. WILLAMAN, Salem, Ohio. Filed Dec. 3, 1896. Serial No. 570,941. (No model.)

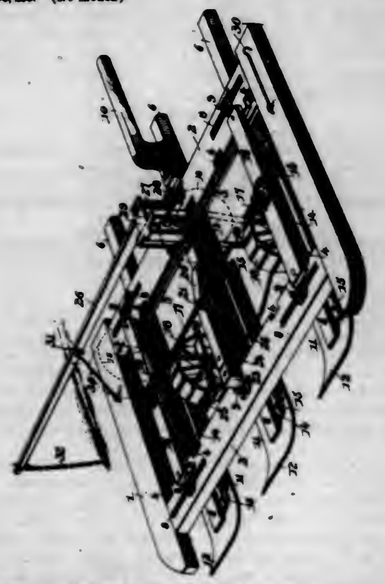


Claim.—1. A truss-pad composed of a body portion of soft material, a plate held within the same, a stud projecting outward from said plate, an outer plate, and an interposed block of resilient material, seated in a recess in the body portion and bearing against the inner plate combined with a spring-wire frame, the parallel portions of which are arranged between the outer plate and the body portion and bearing against the opposite sides of said block, substantially as specified.

2. The combination with a spring-frame, of a wire held at one end thereof and provided with a plate having a curved slot, a second plate pivotally mounted thereon with means engaging said slot, and carrying a spring-loop, and a spring-support with a loop located within the first-mentioned loop, substantially as specified.

3. A truss-frame formed of two substantially like parts, with their adjacent ends overlapping each other, and clamps binding the same together, whereby said frames may be adjusted to change the length thereof or separated to constitute two single truss-frames, each of said parts being formed at one end with a spring-loop and a spring-loop support within the same, the loops at one end being pivotally mounted in position; substantially as described.

574,468. COMBINED PULVERIZER AND LAND-MARKER. CHARLES WHITFORD, Milwaukee, Wis. Filed Feb. 24, 1896. Serial No. 580,423. (No model.)



Claim.—1. In an agricultural implement, the combination of a frame comprising transverse beams having grooves in their inner sides, and having upper and lower notches extending into the grooves, runners having projecting end portions to pass through the lower notches and move in the said grooves, and adapted to enter any one of the said top notches, and means for securing the runners in the located position, substantially as set forth.

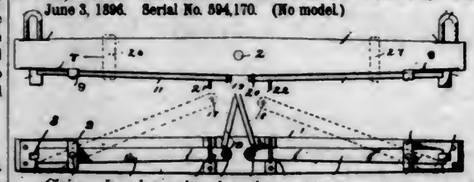
2. In an agricultural implement, the combination of a frame comprising transverse beams having slots and formed in their inner edges or sides with grooves, and having upper and lower notches, the upper notches being disposed opposite to the said slots, runners having projecting end portions to be passed through the lower notches into the grooves and adapted to enter any one of the upper notches, and bolts operating in the said slots and adapted to secure the runners in the located position, substantially as described.

3. In an agricultural implement, the combination with a runner, of a shoe applied thereto and formed from a plate having its front end curved and having a longitudinal space in the rear of the curved end and vertical flanges bordering upon the said longitudinal space to engage with the sides of the runner, and means for securing the shoe to the runner by passing through the said vertical flanges and the runner, substantially as set forth.

4. In an agricultural implement, the combination of a frame having a series of runners, a shaft journaled at and intermediate of its ends and having crank portions between its bearings, ground-wheels mounted upon the said crank portions of the shaft a bail having direct and rigid attachment at its ends with the crank portions of the shaft, and a pivoted block having a portion to be brought into engagement with the horizontal part of the bail to hold the ground-wheels upon the ground, substantially as and for the purpose set forth.

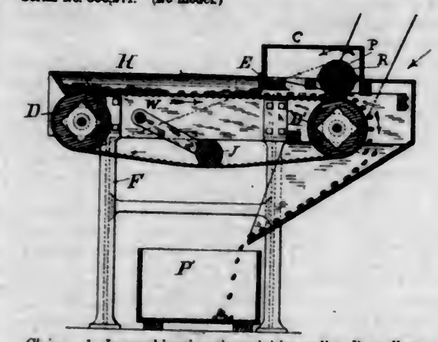
5. In an agricultural implement, the combination with the frame bearing the earth-treating devices, a crank-shaft having ground-wheels mounted upon its crank portions, and a bail having rigid connection with the crank portions of the crank-shaft, of a block, and a pivoted block having a tongue adapted to be projected over the end of the bail and engage with the adjacent portion of the aforesaid block and hold the ground-wheels in contact with the ground, substantially as and for the purpose set forth.

574,469. SINGLETREE. JAMES W. YORK, Hilledale, Ky. Filed June 3, 1896. Serial No. 594,170. (No model.)



Claim.—In a horse-detacher, the combination with a singletree, of U-shaped trace-hooks each having one leg longer than the other and said leg being flattened and slidable in the singletree, being provided with a notch, and the other end of the hook abutting on the singletree, levers pivoted to the singletree and adapted for reception in the notches, spring locking devices adapted to clasp the levers and hold them in engagement with the hooks, and thongs or straps connected to the free portions of the levers, whereby the latter may be operated.

574,470. RAISIN-PUNCTURING MACHINE. ELLIOTT D. AVERILL, Brooklyn, N. Y., assignor, by mesne assignments, to the Sanitas Dried Fruit Company of New York, of New York. Filed Nov. 28, 1894. Serial No. 530,271. (No model.)



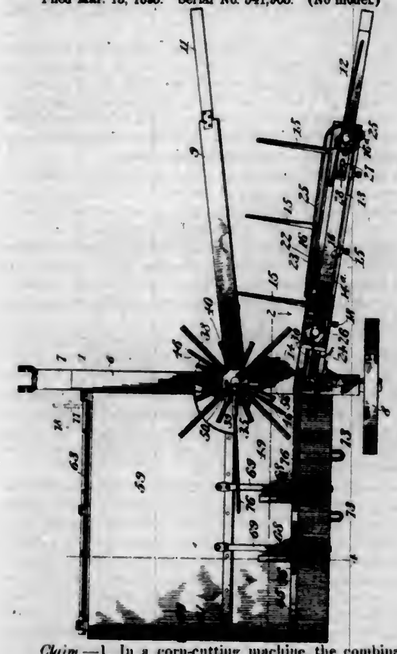
Claim.—1. In combination the pricking-roller R, endless carrying-belt W and drums D and D', the drum D' being located directly under the pricking-roller R and supporting the carrying-belt at the place where they approach each other and where the pricking-roller R performs the function of pricking the raisins, as and for the purpose shown.

2. In combination the pricking-roller R, endless carrying-belt W and drums D and D', the drum D' being located directly under the pricking-roller R and supporting the carrying-belt at the place where they approach each other and where the pricking-roller R performs the function of pricking the raisins, together with stripping-wires S located between the rows of pins or needles.

3. In combination the pricking-roller R, endless carrying-belt W and drums D and D', the drum D' being located directly under the pricking-roller R and supporting the carrying-belt at the place where they approach each other and where the pricking-roller R performs the function of pricking the raisins, together with stripping-wires S stretched between the rows of pins or needles and between the roller R and the drum D'.

4. In combination the hopper H, distributer E, endless carrier-belt W, pricking-roller R, drums D and D', the drum D' located under the roller R and supporting the carrier-belt at the point and in the act of pricking, and stripping-wires located between the rows of pins or needles for the purpose of stripping the raisins from the same.

574,471. CORN-HARVESTER. JOHN H. BECKER, Courtland, Minn. Filed Mar. 15, 1895. Serial No. 541,905. (No model.)



Claim.—1. In a corn-cutting machine, the combination of forwardly-extending grain-boards having their top edges inclining upwardly and rearwardly from their front ends, a bar attached to the top edge of one of the grain-boards and grooved in the side facing the opposite grain-board, a chain-reel comprising links and having some of the links formed with oppositely-extending vertical flanges which operate in the groove of the said bar, and with lateral extensions terminating in outward projections, strips attached to the vertical side of the aforesaid bar above and below the groove therein and extending over the said groove a short distance so as to engage with the vertical flanges of the chain-reel links, and providing a space in which operate the said lateral extensions, arms having their inner ends cleft and pivotally connected with the said outward projections, and a rod arranged to support the said arms in a horizontal position during their travel through the space formed between the grain-boards, said rod having its end portions curved, substantially in the manner set forth for the purpose described.

2. In a corn-cutting machine of the character specified the combination with the reel-shaft, and a reel loosely mounted upon the said shaft, of a spring having positive connection with the reel and its shaft and adapted to permit a yielding of the reel when subjected to abnormal strain and to return the said reel to a normal position with respect to its supporting-shaft after the abnormal strain has been removed from the reel, substantially as set forth.

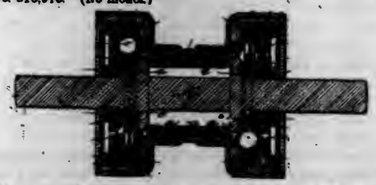
3. In a grain-cutting machine the combination with the reel-shaft of a coiled spring mounted upon the reel-shaft and firmly attached thereto midway of its ends, and reels loosely mounted upon the said shaft, one on each side of the said spring and having positive connection with the ends thereof, whereby each reel is adapted to yield independently of the other, and whereby both reels are returned to a normal position with respect to their supporting-shaft when relieved of abnormal stress, substantially as set forth for the purpose described.

4. In a grain-cutting machine the combination with the frame, and a tilting table, of a guard journaled at the delivery end of the said table and comprising a shaft having teeth projecting therefrom, a trip firmly attached to the said shaft and having its upper side curved to engage with a portion of the frame and turn the shaft in its bearings to project the teeth thereof into working position, substantially as set forth for the purpose described.

5. In a grain-cutting machine, the combination of a relatively-fixed platform, a tilting table forming a part of the platform, the opposing ends of the platform and table coming close together, and an apron secured to the tilting table and consisting of sheet metal possessing sufficient elasticity to maintain engagement with the edge of the platform during the entire tilting movement of the said table, substantially in the manner set forth for the purpose described.

6. In a grain-cutting machine, the combination with a relatively-fixed platform and a tilting table, of packers operating on the platform, and guards attached to the tilting table and adapted to prevent the active operation of the said packers when the table is tilted, substantially as set forth.

574,472. ANTIFRICTION-BEARING. CONRAD BENDER and CHARLES G. S. MUELLER, Indianapolis, Ind. Filed Nov. 3, 1896. Serial No. 610,910. (No model.)



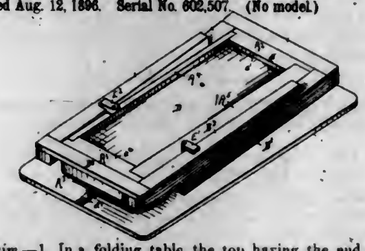
Claim.—1. The combination in a ball-bearing, of the axle, a surrounding hub, suitable ball-races composed of cones secured to said axle and to said hub, balls in said ball-races, disks between the respective balls, and rings forming tracks for said disks.

2. The combination, in a ball-bearing, of the axle, the hub, ball-races formed on said axle and said hub, balls in said ball-races, disks interposed between the balls, rings forming tracks for said disks, and balls interposed between the inner ring and the axle, substantially as shown and described.

3. The combination, in a ball-bearing, of the axle, the hub, ball-races carried thereby, balls in said ball-races, disks between said balls, rings forming tracks for said disks, and small balls seated in sockets in the parts of the structure alongside said rings, whereby frictional contact between said rings and said structure parts is prevented, substantially as shown and described.

4. The combination, in a ball-bearing, with the balls thereof, of interposed disks carried by independent tracks, whereby frictional contact between the balls themselves is prevented, and said tracks, substantially as and for the purposes set forth.

574,473. FOLDING TABLE. SAMUEL BLOOMER, Stillwater, Minn. Filed Aug. 12, 1896. Serial No. 602,507. (No model.)



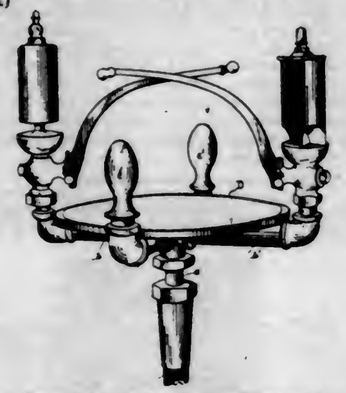
Claim.—1. In a folding table, the top having the end blocks, back plate, and connecting front bar attached thereto, a drawer fitting between said end blocks and slidable upon said front bar, legs connected in pairs by cross-bars and pivoted to the ends of said end blocks, the front legs when folded up resting across the front of said drawer to prevent its removal, substantially as described and for the purpose set forth.

2. In a folding table, the top having the end blocks, back plate, and connecting front bar attached thereto, a drawer fitting between said end blocks and slidable upon said front bar, legs connected in pairs by cross-bars and pivoted to the ends of said end blocks, and catches attached to the under side of said top and adapted to engage with said cross-bars of said legs to hold said legs extended, substantially as described and for the purpose set forth.

3. In a folding table, the top having the end blocks, a back plate, and connecting front bar attached thereto, a drawer fitting between said end blocks and slidable upon said front bar, legs connected in

pairs by cross-bars, pivots formed upon plates attached to said end blocks and projecting into said legs, whereby they are pivotally connected to said end blocks, substantially as described and for the purpose set forth.

574,474. COURSE-INDICATING APPARATUS. MICHAEL BRABAW, Detroit, Mich. Filed May 23, 1896. Serial No. 592,783. (No model.)



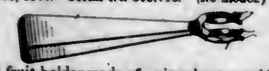
Claim.— In combination with a plurality of steam-whistles sounding different notes, a revolable frame carrying said steam-whistles adapted to be actuated to bring any one of said steam-whistles to a given point with respect to the vessel, whereby the whistle to be sounded is indicated, a chart revolubly secured on said frame and adapted to bring a given designating-character thereon into juxtaposition to any one of said whistles, and thereby indicate by such juxtaposition the signal to be given, substantially as described.

574,475. HOT-AIR REGISTER-BOX. FRANK E. COOPER, Owego, N. Y. Filed Aug. 3, 1896. Serial No. 601,446. (No model.)



Claim.—A hot-air register-box having an opening *a*, through its bottom for the admission of hot air, and which is provided with guides *d*, at each end, combined with the removable partitions D, which form the cold-air chambers which communicate with the compartment that is being heated, and the pipes C, E, connected to the partitions, and which conduct the cold air from the chambers B to the hot-air one, substantially as described.

574,476. FRUIT-HOLDER. WILLIAM C. S. COY, Dubuque, Iowa. Filed June 15, 1896. Serial No. 596,710. (No model.)



Claim.—A fruit-holder made of spring sheet metal bent at its middle to form a spring-handle, and two arms, each arm having a bifurcated end, the tines being formed concaved for grasping the pit, and curved outwardly at their tips to slide over the sides of the stone, substantially as shown.

574,477. BINDER. HARRY S. DADE, New York, and GEORGE F. HILL, Brooklyn, N. Y.; said Hill assignor to said Dade. Filed July 3, 1896. Serial No. 597,947. (No model.)

Claim.—1. In a binder, the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material, a plate having apertures adapting it to slide on the posts, and a spring-pressed toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being arranged for engagement with the posts and supported by the plate, substantially as set forth.

2. In a binder, the combination of two covers, one of which is provided with a pair of posts, a plate fixed to the other cover and having apertures for the posts, and a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being arranged to engage the posts and provided with a spring tending to hold it out of engagement and with suitable means to operate the toggle, substantially as set forth.



3. In a binder, the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material, a plate having apertures for the posts, and a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle and arranged to engage the posts and supported by the plate, the toggle being provided with a spring tending to hold it out of engagement and with suitable means to operate the toggle, substantially as set forth.

4. In a binder, the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material; and a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being arranged for engagement with the posts, the pintle of the toggle-joint being arranged to pass the dead-center line when the toggle is in its normal engaging position, substantially as set forth.

5. In a binder, the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material; and a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being arranged for engagement with the posts, said posts arranged to contact with the outer ends of the toggle-arms so as to hold the outer ends of the arms against movement transverse to the posts, the pintle of the toggle-joint being provided with a removable handpiece, substantially as set forth.

6. In a binder, the combination of a pair of posts rigidly connected at their bases and adapted to receive sheets of paper or other material; and a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being arranged for engagement with the posts, the pintle of the toggle-joint being arranged to pass the center line connecting the posts when the toggle is in its normal engaging position, and being provided with a removable handpiece, substantially as set forth.

7. In a binder, the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material, a casing provided with apertures adapting it to slide on the posts, a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being loosely inclosed in the casing and arranged for engagement with the posts, the posts arranged to contact with the outer ends of the arms so as to hold them against movement transverse to the posts, said casing having an aperture in its top, and a handpiece for operating the toggle extending through said aperture, substantially as set forth.

8. In a binder, the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material, a casing provided with apertures adapting it to slide on the posts, a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being loosely inclosed in the casing and arranged for engagement with the posts, said casing having an aperture in its top, and a removable handpiece for operating the toggle extending through said aperture, substantially as set forth.

9. In a binder, the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material, a casing provided with apertures adapting it to slide on the posts, a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being loosely inclosed in the casing and arranged for engagement with the posts, said casing having an aperture in its top, and a handpiece for operating the toggle extending through said aperture, the casing providing means to limit the movement of the toggle, substantially as set forth.

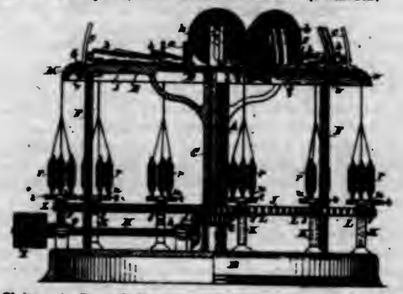
10. In a binder, the combination of a lower cover provided with two fixed posts, an upper cover provided with a fixed casing having apertures adapting the upper cover to slide on the posts, a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being loosely inclosed in the casing and arranged for engagement with the posts to lock the upper cover on the posts, the toggle-joint arranged to pass the dead-center when in its normal engaging position, the top of the said casing having an aperture, and a removable handpiece engaging the pintle of the toggle-joint through the aperture, substantially as set forth.

11. In a binder the combination of a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material, a plate provided with apertures for the posts, a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being arranged to engage the posts and supported by the plate and having an actuating-handpiece, said handpiece removable from the toggle when the latter is in engaging position, substantially as and for the purpose set forth.

12. In a binder, the combination of a lower cover provided with two fixed posts, an upper cover provided with a fixed casing having blocks as *d* and apertures adapting the upper cover to slide on the posts, a toggle comprising a pair of arms pivoted together by means of a bodily-movable pintle, the toggle being loosely inclosed in the casing and arranged for engagement with the posts to lock the upper cover on the posts, the toggle-joint arranged to pass the dead-center when in its normal engaging position, the top of the said casing having an aperture, and a removable handpiece engaging the pintle of the toggle-joint through the aperture, substantially as set forth.

13. In a binder, the combination with a pair of posts rigidly connected together at their bases and adapted to receive sheets of paper or other material, and a toggle arranged for engagement with the posts, said toggle comprising hinged arms having a bodily-movable pintle working in a plane at right angles to the posts, said posts arranged to contact with the outer ends of the arms so as to hold their outer ends against movement in a direction transverse to the posts, substantially as set forth.

574,478. WINDING-MACHINE. EDWARD DUNMER, Newton, Mass. Filed Apr. 10, 1895. Serial No. 545,237. (No model.)



Claim.—1. In a winding-machine the combination of a ring, disk or plate on a vertical shaft, means for revolving said ring, disk or plate, several conical spindles, means for maintaining said spindles radially with reference to and in contact with said ring, disk or plate, throughout the length of the surface of the spindle which is to receive the load, the diameters of the ends of each spindle having the same proportion with reference to each other as the diameters of the innermost and outermost circles of the surface of said ring, disk or plate with which said spindles are in contact, substantially as and for the purpose set forth.

2. The combination of a ring, disk or plate, stationary bearings to maintain several spindles radially with reference to, and to be revolved with their load by being in contact with said ring, disk or plate, a spiral traveler-guide on said ring, disk or plate, stationary traveler-guides transverse to said spiral guide and a traveler on each of said stationary guides to engage with said spiral guide, substantially as set forth.

3. The combination of a revoluble vertical shaft, bearings therefor and a ring, disk or plate secured thereto and presenting a surface which is a horizontal plane, several stands to serve as bearings for the ends of spindles arranged radially with reference to said ring, disk or plate to bear throughout the length of their load on said surface, several stationary traveler-guides located opposite to and transversely with reference to said ring, disk or plate, travelers on said guides, a spiral traveler-guide on said ring, disk or plate and an exterior stationary ring or circular rail having a friction-surface over which the yarn or threads to be wound are drawn, substantially as set forth.

4. In a winding-machine, a rail in contact with which the threads or yarn to be wound pass, and provided with a friction device, the friction-surface of which varies lengthwise of the rail, said rail being movable in the direction of its length and adjustably secured to the frame of the machine, substantially as set forth.

5. A circular winding-machine provided with a circular, frictional rail located transversely with reference to the paths of the threads, and provided with a friction device the friction-surface of which varies circumferentially of the rail, substantially as set forth.

6. A circular winding-machine provided with a circular rail in contact with which the threads or yarn to be wound pass, said rail being movable circumferentially and adjustably secured to the frame of the machine, and provided with a friction device, the friction-surface of which varies circumferentially of said rail, substantially as set forth.

7. The combination of a stationary base, a central vertical standard on said base, a hollow shaft revoluble on said standard, a stationary table secured to said standard, a ring, disk or plate having a horizontal surface and secured on said tubular shaft, a stationary ring, or annular table surrounding said disk, or plate, conical spindles to roll on said surface, and stands on said stationary table and stationary ring or annular table to maintain in position said spindles transversely arranged with reference to said disk or plate to bear throughout the length of their load on said surface, substantially as set forth.

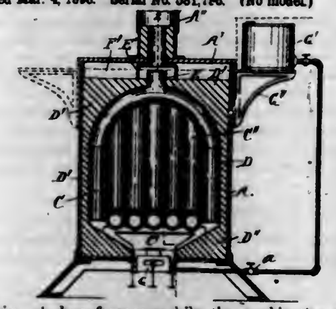
8. The combination of a stationary base, a central vertical standard secured at its lower end to said base, a central table fastened to the upper end of said standard, a hollow shaft revoluble about said standard, a disk or annular plate surrounding said table and secured to said shaft, a stationary ring surrounding said disk and secured to said base, stands for maintaining spindles in position transverse to said disk, traveler-guides secured transversely to said disk, travelers adapted to move on said guides, said disk having a spiral guide thereon to receive and guide each traveler so that it will carry the yarn or thread from end to end of each spindle, substantially as set forth.

9. The combination of a revoluble disk or plate, provided with a spiral traveler-guide, means for maintaining spindles radially with reference thereto and in contact therewith, travelers to engage with said spiral guide, and means for guiding said travelers transversely with reference to said disk or plate, substantially as set forth.

10. The combination of a revoluble ring, disk or plate provided with a spiral traveler-guide, means for maintaining spindles radially with reference thereto, and in contact therewith, stationary traveler-guides located transversely with reference to said disk or plate, and travelers for guiding the yarn or threads to be received onto the spindles as required, each traveler being adapted to move on one of said stationary guides and on said spiral guide, substantially as set forth.

11. In a circular winding-machine the combination of a vertical shaft, a ring, disk or plate secured to said shaft and mounted to revolve therewith, devices for supporting conical spindles radially with reference to said ring, disk or plate and in such relation thereto that each spindle with its load will bear throughout the length of said load on said ring, disk or plate, devices for supporting travelers and guiding them radially with reference to said ring, disk or plate, a driving wheel or gear secured to said shaft to revolve therewith, vertical spindles mounted to revolve and for supporting cops from which the thread or yarn is to be wound, and pinions secured to said vertical spindles to engage with said driving wheel or gear, substantially as set forth.

574,479. FURNACE OR KILN. WILLIAM BOLE, Detroit, Mich. Filed Mar. 4, 1896. Serial No. 581,796. (No model.)



Claim.—1. In a furnace or kiln, the combination with the exterior case, of the series of vertical tubes having connecting arches at their upper ends which communicate with the outlet or stack, said tubes being arranged contiguously forming the ceiling and walls of the oven, the series of closed horizontal tubes forming the bottom thereof, and the combustion-chamber below said horizontal tubes with which the lower ends of said vertical tubes communicate.

2. In a furnace or kiln, the combination of the exterior case having a combustion-chamber in the base thereof, the series of horizontal pipes located above said chamber, the series of looped pipes arranged contiguously and communicating at their lower ends with the combustion-chamber on each side of said horizontal pipes, pipes leading from the crown of said looped pipes, and the stack communicating therewith.

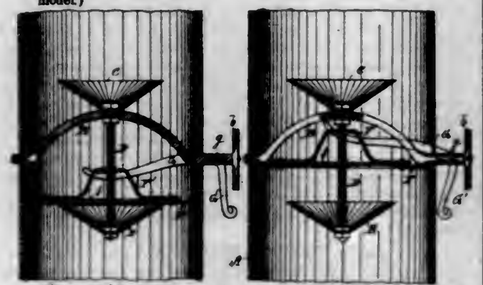
3. In a furnace or kiln, the combination with the exterior case, of the series of hollow pipes arranged in opposed vertical rows, forming the oven within the space inclosed thereby, the combustion-chamber with which the lower ends of said pipes communicate, the horizontal pipes forming the bottom of the oven, the hood embracing the upper ends of the vertical pipes, the stack communicating with said hood, and the lining of refractory material interposed between said pipes and the outer casing.

4. In a furnace or kiln, the combination with the outer case having a combustion-chamber located in the base thereof, the horizontal tubes above said chamber, the series of looped pipes arranged contiguously and embracing the oven-space, the lower ends of said pipes communicating with the combustion-chamber, the series of straight vertical pipes at the rear of said oven also communicating at their lower ends with said chamber, the short vertical pipes leading from the crown of said looped pipes, the hood embracing the upper ends of all of said vertical pipes, and the stack communicating with said hood.

5. In a furnace or kiln, the combination with the exterior case having the combustion-chamber, of the oven located above said chamber, the burner extending into said chamber having a receptacle for containing the hydrocarbon fuel, said burner having draft-openings through the sides thereof, the dampers hinged above said openings within the burner to swing inward, and means for actuating said dampers to control the air-supply.

6. The combination with the furnace or kiln, of the burner located at the base thereof, said burner consisting of a rectangular receptacle closed at the bottom and having draft-openings in the four vertical sides thereof, the fuel-pan located within said burner having vertical walls, the dampers hinged over said draft-openings within the burner to swing inward, the longitudinal removable rack-bars pivoted to said dampers, the pinions engaging said rack-bars substantially as set forth.

574,480. DAMPER AND HEAT-DEFLECTOR. PATRICK J. HANLEY, Amesbury, Mass. Filed Mar. 9, 1896. Serial No. 582,310. (No model.)



Claim.—1. In a damper a key-bar journaled in the smoke-pipe a central spindle secured to such bar and having a conical deflector C attached to its upper end combined with a lower deflector E and annular damper F one of said parts being adjustable to and from the other and means for adjusting such parts substantially as and for the purposes set forth.

2. In a damper a key-bar journaled in the smoke-stack and having a spindle D provided at its upper and lower ends with conical deflectors C E in combination with an adjustable annular damper F, and a pivoted lever G connected to the said damper F substantially as and for the purpose set forth.

574,481. RAILWAY-SWITCH. HARRY HARTWELL, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed Oct. 7, 1896. Serial No. 608,148. (No model.)



Claim.—1. In a split switch, braces continuous throughout the length of the point-rail and adapted to transmit the transverse strain from the working point-rail to the stock-rail.

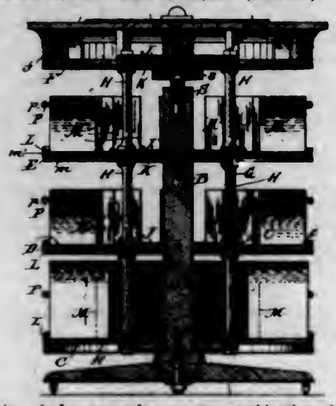
2. In a split switch, braces continuous throughout the length of the point-rail, adapted to transmit the transverse strain from the working point-rail to the stock-rail and adapted to reinforce said point-rail.

3. In a split switch, point-rails to each of which is secured a brace, said brace being adapted to bear continuously against the adjacent stock-rail, when said stock-rail is idle.

4. In a split switch, point-rails to the web of each of which are secured the flanges of a T-bar, said T-bar being so tapered as to adapt it to bear continuously against the adjacent stock-rail when said stock-rail is idle.

5. In a split switch, in combination, the T-bars D, D secured by their flanges to the point-rails of said switch, the webs of the T-bars being in a horizontal position and being longitudinally tapered at the ends of their webs, the pieces F, F and G, G adapted to guide the webs of D, D in a horizontal plane, all substantially as, and for the purpose, set forth.

574,482. MAGAZINE-CASE. CHARLES H. HASTINGS, Chicago, Ill. Filed Feb. 24, 1896. Serial No. 580,602. (No model.)



Claim.—1. In a magazine-case the combination with a base, a post fixed in the base, and with a series of shelves mounted to rotate about the post, of rods, G, G, for binding the shelves together and spaced apart radially from the post and from the outer edge of the shelves to provide a clear annular shelf-space, and shelves, H, H, mounted upon the rods for supporting the shelves in their proper relation each to the others, substantially as described and for the purpose set forth.

2. The combination with a circular shelf, of an internally-grooved beading at the edge of and projecting above the shelf, a laterally-adjustable partition mounted upon the shelf and having a heel-piece for engaging the groove of the beading, and means for securing the inner end of the partition, substantially as described and for the purpose set forth.

3. The combination with a circular shelf having an upwardly-projecting shoulder concentric with but removed from its edge, of an internally-grooved beading at the edge of and projecting above the shelf, a laterally-adjustable partition mounted upon the shelf and comprising a body portion in sector form and a thin extended foot-piece having a heel for engaging the groove of the beading and an upturned toe-piece adapted to abut against the shoulder of the shelf, and a set-screw in the toe-piece adapted to bear against the shoulder, substantially as described and for the purpose set forth.

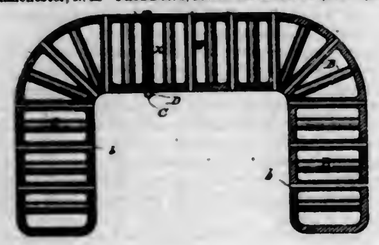
4. In a magazine-case the combination with a circular shelf, of laterally-adjustable partitions mounted upon the shelf, and means for supporting a magazine at the edge of the shelf and transverse to the radius thereof.

5. In a magazine-case the combination with a circular shelf, of partitions mounted upon the shelf and dividing it into sectors, and means for supporting a magazine at the edge of the shelf and transverse to the partition.

6. In a magazine-case the combination with a circular shelf, of partitions mounted upon the shelf and dividing it into sectors, and an elastic cord encircling the case above the shelf and carried by and in sliding engagement with the outer edges of the partitions.

7. In a magazine-case the combination with a circular shelf, of laterally-adjustable partitions mounted upon the shelf and dividing it into sectors, and an elastic cord encircling the case above the shelf and carried by and in sliding engagement with the outer edges of the partitions.

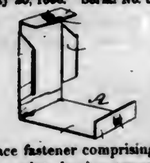
574,483. FEED-WATER HEATER. CHARLES H. HUTCHINSON, Manchester, N. H. Filed Dec. 2, 1895. Serial No. 570,775. (No model.)



Claim.—1. A feed-water heater formed integral and comprising a shell having a series of hollow stays the walls of which are weaker than the shell proper.

2. A feed-water heater formed integral and comprising a shell having a series of hollow stays the walls of which are weaker than the shell proper and means for closing said stays when fractured.

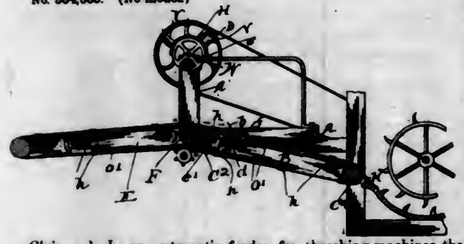
574,484. SHOE-LACE FASTENER. MARY E. JOHNSON, Greenwich, N. Y. Filed May 25, 1896. Serial No. 592,992. (No model.)



Claim.—1. A shoe-lace fastener comprising a non-resilient lower plate and a resilient upper plate having tongues formed integrally therewith adapted for engaging the sides of the said lower plate, and means for fastening the two plates together and locking them to each other, substantially as shown and described.

2. In a shoe-lace fastener, the combination of a lower plate of non-resilient metal having rear and front walls extended at right angles respectively from its front and rear edges, and an upper plate of resilient metal which has tongues projected from its two side edges and a wall projected from its outer edge, said plate being hinged to the rear wall of the said lower plate, and a locking device for maintaining the two parts in engagement with each other, substantially as shown and described.

574,485. BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES. RICHARD JOHNSON, Freeport, Ill. Filed Jan. 14, 1896. Serial No. 534,885. (No model.)



Claim.—1. In an automatic feeder for threshing-machines the combination with an endless carrier provided with transverse slats and a table lying beneath the upper fold of the carrier, of retarding-prongs pivoted below the table and adapted to be projected upward through it, or drawn completely beneath it and levers connected with said prongs and adapted to be actuated by the slats of the lower fold of the carrier, whereby the slats on the lower fold moving in one direction may operate to draw said prongs below the table at suitable intervals to permit the passage of the slats of the upper fold of the carrier in the opposite direction.

2. In an automatic feeder and band-cutter for threshing-machines: the spring retarding-prongs *b*, *b*, fastened to the cross-bar *d*, and the levers *f*, *f*, and adapted to be withdrawn through the feed-table by the returning slats to permit the slats traveling toward the cylinder on the surface of the feed to pass substantially as described.

3. In a band-cutter and feeder for threshing-machines, the combination with a shaft, W, of the hub, J, and sleeve, *r*, mounted thereon, the ring, *m*, having the check-stud, *n*, and lying in contact with the inner face of the hub, and the centrifugally-operated governor-arms and clamps, *p*, the clamps being adapted to be pressed against the ring by the outward movement of the governor-arms, and the check-stud being adapted for engagement with the clamps, *p*, to prevent slipping of the clamp upon the ring, *m*.

4. In an automatic feeder for threshing-machines, the spiral band-cutter D, in combination with the spring retarding device, the traveling slats *h*, *h*, the bundle-carrier E the feed-carrier B with means for operating the same substantially as described.

5. In a feeder for threshing-machines the spring retarding-prongs *b*, *b*, in combination with the traveling slats *h*, *h*, and the grooved roller C, substantially as described.

574,486. TRESTLE. CHARLES A. JOHNS, Hartford, Conn. Filed Oct. 26, 1896. Serial No. 610,017. (No model.)

Claim.—1. A support for a trestle-beam, comprising two pairs of beam-clamping members, the members of each pair being pivotally connected together near their upper ends and the two pairs being pivotally connected together near their lower ends; and a toggle device in connection with one pair and effective for securing a clamping action of the two pairs simultaneously.



2. In a trestle, the combination with a beam; of a pair of extensible legs having beam-clamping portions at one end and pivotally connected together near their beam-clamping ends; a toggle device in connection with and effective for spreading the opposite ends of said leg members, to effect a clamping action of the beam-clamping portion; and a clamping-brace pivotally carried by the legs in such manner as to have a beam-clamping action simultaneously with the beam-clamping action of said legs.

3. The combination with a trestle-beam, of a pair of pivotally-connected legs having beam-grasping prongs at the upper ends thereof; extension members supported for adjustment longitudinally of said legs; a clamping device for holding the extension members in adjusted positions; toggle members in pivotal connection with the lower ends of the legs and effective for spreading the lower ends of said legs to bring the beam-grasping prongs into engagement with the beam; and beam-clamping brace members in pivotal connection with said legs.

4. A support for trestle-beams, comprising two pairs of beam-clamping members pivotally connected together at their lower ends; and means carried by one pair of said members, for effecting a clamping movement of the two pairs of members and for holding said members in their beam-clamping positions.

5. The combination, in a beam-support; of two pivotally-connected leg members having inwardly-projecting beam-grasping prongs at their upper ends and having beam-bearing faces, between the prongs and pivotal connection of the leg members, which are inclined relatively to those adjacent faces of the leg members located below said pivotal points; and a toggle device pivotally connecting the two leg members near the lower ends thereof and adapted for spreading the legs at the lower ends thersof, to bring the beam-grasping prongs and the bearing-faces into engagement with the beam.

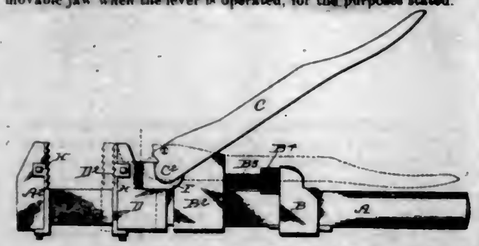
6. The combination, in a beam-support; of two pivotally-connected leg members having inwardly-projecting beam-grasping prongs at their outer ends and having beam-bearing faces, between the prongs and pivotal connection of the leg members, which are inclined relatively to those adjacent faces of the leg members located below said pivotal points; and a toggle device pivotally connecting the two leg members near the lower ends thereof and adapted for spreading the legs at the lower ends thereof, to bring the beam-grasping prongs, together with the inclined bearing-faces, into engagement with the beam.

7. A trestle-beam support comprising a pair of pivotally-connected leg members and a pair of pivotally-connected brace members, which brace members are so organized and pivotally connected to the leg members near the lower ends thereof that they will have a clamping action in unison with the leg members and may be folded up to lie in a plane parallel to the axis of said leg members; and a toggle device in connection with one pair of members, for effecting a clamping and a folding action of the two pairs of members, simultaneously.

8. In a trestle-beam support, a pair of pivotally-connected leg members having longitudinal slideways for the reception of extension members; extension members adjustably supported in said slideways; clamping devices for holding the extension members in adjusted positions relatively to the leg members; two toggle-links pivotally connected together at their inner ends and pivotally connected at their outer ends to the two leg members, and one of said toggle-links having a stop-abutment for limiting the movement of said toggle-links, and said leg members having beam-engaging prongs at the upper ends thereof adapted to clamp and hold the beam when the toggle-links are in their dead-center positions; and clamping brace members carried by the leg members and having means for engaging the beam, and which brace members are so constructed and organized relatively to the leg members as to have a clamping action simultaneously with the clamping action of said leg members.

574,487. WRENCH. HENRY J. KAPKA, Charles City, Iowa. Filed Aug. 19, 1896. Serial No. 603,277. (No model.)

Claim.—1. An improved wrench comprising a handle or shank, a stationary jaw on its outer end, a movable jaw slidingly mounted on the handle or shank, means for adjusting the movable jaw relative to the fixed jaws, a lever pivoted to the movable jaw and having a cam on its end, an auxiliary sliding jaw, mounted on the handle or shank between the said jaws and independently movable relative to both jaws, and an arm or arms formed on or fixed thereto to engage said cam and serve to move the auxiliary jaw both to and from the movable jaw when the lever is operated, for the purposes stated.



2. A wrench, comprising a straight handle, a stationary jaw on the outer end, a collar fixed to the handle, a screw-threaded shaft rotatably mounted in the collar, a movable jaw slidingly mounted on the handle and having a screw-threaded opening to admit said shaft, a thumb-wheel on the shaft, a lever fulcrumed to the movable jaw, two rounded projections on its forward end to overlap the sides of the jaw in advance of the fulcrum of the lever, an auxiliary movable jaw slidingly mounted on the handle, and two arms thereon curved to receive said rounded projection of the lever, substantially as and for the purposes stated.

3. A wrench, comprising a straight handle, a stationary jaw on the outer end having a toothed plate detachably secured to the face, a collar adjustably fixed to the handle, a screw-threaded shaft rotatably mounted in the collar, a movable jaw slidingly mounted on the handle and having a screw-threaded opening to admit said shaft, a thumb-wheel on the shaft, a lever fulcrumed to the movable jaw, two rounded projections on its forward end to overlap the sides of the jaw in advance of the fulcrum of the lever, an auxiliary movable jaw slidingly mounted on the handle having a toothed plate detachably secured to its face and two arms thereon curved to receive said rounded projection of the lever, substantially as and for the purposes stated.

574,488. JAIL-BAR. GEORGE KINSEY, Cincinnati, Ohio. Filed Mar. 16, 1896. Serial No. 583,419. (No model.)

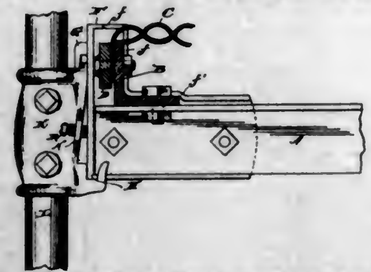


Claim.—1. In the manufacture of jail-bars, a suitable pile composed of outer layers of soft metal adapted to form the outer lateral layers of the bar, an inner layer of hard metal adjacent to each of said aforesaid layers of soft metal, terminal inner layers of hard metal interposed between the aforesaid layers of hard metal, the edges of the latter outwardly overlapping the terminal inner layers of hard metal, an inner core of soft metal confined between the several layers of hard metal, and terminal outer layers of soft metal, interposed between the overlapping edges of the hard inner layers which lie adjacent to the soft outer lateral layers, the several layers adapted to form a completed bar, substantially as described.

2. In the manufacture of jail-bars, a suitable pile composed of outer layers of soft metal adapted to form the outer lateral layers of the bar, an inner layer of hard metal adjacent to each of said aforesaid layers of soft metal, terminal inner layers of hard metal interposed between the aforesaid layers of hard metal, the edges of the latter outwardly overlapping the terminal inner layers of hard metal, an inner core of soft metal confined between the several layers of hard metal, and terminal outer layers of soft metal, interposed between the overlapping edges of the hard inner layers disposed adjacent to the soft outer lateral layers, the sides of the outer lateral layers of soft metal being disposed within the limits of the planes of the outer faces of the terminal inner layers of hard metal, the several layers being adapted to form a completed bar, substantially as described.

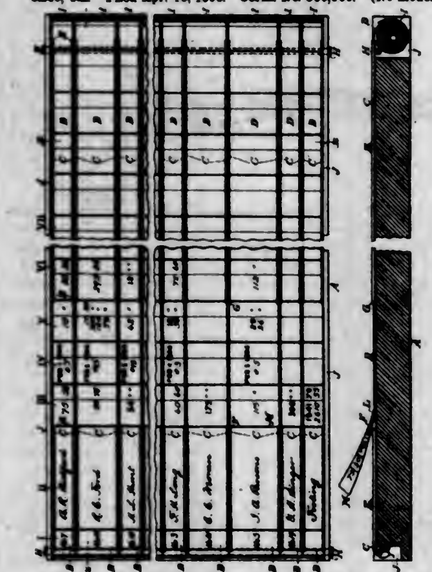
3. A jail-bar comprising two parallel hard-steel layers disposed along the sides of the bar, two parallel hard-steel layers disposed transversely to the aforesaid hard layers, along the front and rear walls of the bar and making with the first-named hard layers a tubular stratum of hard steel, a soft steel or equivalent core within the tubular hard steel stratum, soft steel or equivalent layers covering the several hard-steel layers and forming the side, and front and rear walls of the bar, the portions of the metal of the hard layers at or adjacent to their meeting edges, being diagonally directed outwardly beyond said layers, and well into the corners of the completed bar thus formed, whereby a maximum depth of hard metal is formed along a line extending diagonally from the corner of the core to the adjacent outer edge or corner of the bar where the hard inner layers and soft outer layers meet, substantially as set forth.

574,489. KNOCKDOWN BEDSTEAD. JAMES MONTGOMERY, Chicago, Ill. Filed Nov. 19, 1894. Serial No. 529,262. (No model.)



Claim.—In a knockdown bedstead, the combination with the end section having a support thereon provided with hooks and with a set-screw, of a bed-frame having a corner-piece provided with reversely-corresponding hooks and against which corner-piece the set-screw is adapted to impinge whereby to secure the two parts rigidly together when in their normal position, substantially as described.

574,490. ACCOUNTING DEVICE. ELIAS L. MCCLURE, San Francisco, Cal. Filed Apr. 10, 1896. Serial No. 586,906. (No model.)



Claim.—1. In an accounting device, the form A arranged to receive a series of laterally-movable units B, the latter consisting of strips of ruled paper to receive entries and sheaths to hold the same, substantially in the manner and for the purposes specified.

2. In an accounting device, laterally and longitudinally adjustable strips of ruled paper, in the manner described, a metallic sheath to hold these strips of paper, adapted to fit upon a form A, and removable therefrom by means of parallel rods engaged by the sheaths C, for the purpose of adding or transposing the strips and the accounts thereon, in the manner substantially as described.

3. In an accounting device, the form A and units B adapted to fit thereon, consisting of strips and their sheaths the latter curved at one end to form a chamber or recess to contain a reserve coil of paper, in the manner substantially as described.

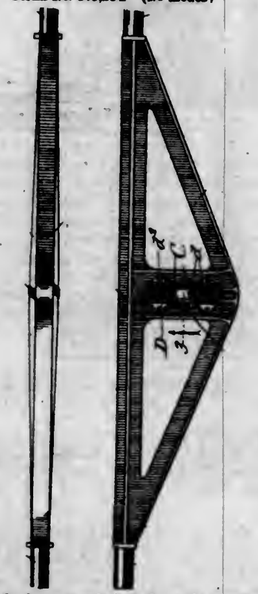
4. In an accounting device, the form A provided with the retaining-rods H, the transverse sheaths C adapted to fit across the form, curved at their ends to spring over the rods H, so as to be movable laterally, and held in place by the elastic grip of the curved ends, in the manner substantially as described.

5. In an accounting device, the form A provided with the transverse sheaths C and strips D therein, flat on the top and indented at the sides to receive the curved ends of the sheaths C, and parallel rods H extending through the indented recesses, in the manner and for the purposes substantially as described.

6. In an accounting device, the combination of the flat form A, adjustable sheaths C, and movable strips of ruled paper D set in alinement with the names and number of accounts in columns I and II, in the manner substantially and for the purposes specified.

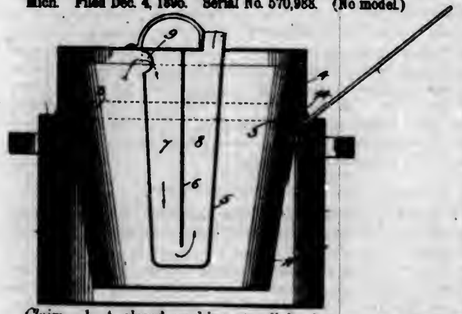
7. In an accounting device, the form A, laterally movable and removable sheaths C containing the longitudinal adjustable strips of paper D, and provided with overlapping flanges E that are cut away and omitted at one end of the sheath, so as to raise and cut off the contained strips of paper D, substantially as described.

574,491. BRAKE-BEAM. JOHN PLAYER, Topeka, Kans. Filed Jan. 13, 1896. Serial No. 575,284. (No model.)



Claim.—A brake-beam consisting of a main member, an angular tie member, a strut portion having an opening, and bearing portions formed of cast malleable iron and in one integral portion, in combination with a removable and reversible lever-block to adapt the beam for use in either a right or left position, substantially as described.

574,492. COOKING UTENSIL. CHARLES W. POST, Battle Creek, Mich. Filed Dec. 4, 1895. Serial No. 570,988. (No model.)



Claim.—1. A closed cooking utensil having a passage leading from the upper part of the interior thereof down into the body of the vessel or receptacle and then out through the upper part thereof, substantially as set forth.

2. A cooking utensil having in combination a vessel or receptacle and a passage for the discharge of steam, removably suspended therein and depending thereinto, and extending from the upper part thereof down into the body thereof, and thence up and out to the atmosphere, substantially as set forth.

3. A cooking utensil having in combination a vessel or receptacle, a cover closing the top of said vessel or receptacle and shutting off the escape of steam, and a steam-passage depending from said cover into said vessel and having an outlet through said cover, substantially as set forth.

4. A cooking utensil having in combination a vessel or receptacle, a cover closing said vessel or receptacle, a chamber secured to the under side of said cover and depending into said vessel and having a passage provided with an inlet at its upper end, communicating with the interior of the utensil, and a second passage communicating with the lower end of said first passage and having an outlet through said cover, substantially as set forth.

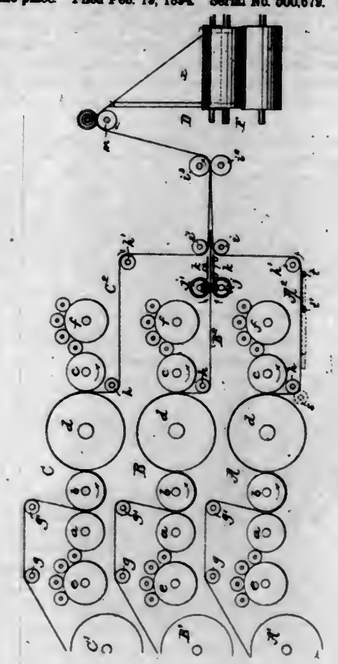
5 A cooking utensil having in combination an outer vessel, a second vessel suspended therein, a cover arranged over said second vessel and having a steam-passage depending into said second vessel and open to the admission of steam from said vessels and having an outlet through said cover, substantially as set forth.

6. A cooking utensil having in combination an outer vessel partially decked over and having a flange surrounding the inner edge of its deck, a second receptacle or vessel supported by said flange, said flange and second receptacle having a space between them for the ascension of steam and heat, a cover fitting over said flange, and having a steam outlet or passage depending into said second vessel and having a discharge-opening through the top of said cover, substantially as set forth.

7. A cooking utensil having in combination an outer vessel partially decked over, an inner receptacle supported through the opening in said deck, a cover arranged over said inner receptacle and deck and having its under side inclined whereby the water of condensation formed thereon will run back into said outer receptacle or vessel, and a steam-chamber depending from said cover into said second receptacle and having an inlet at its upper end below said cover, and an outlet through said cover, substantially as set forth.

8. A cooking utensil having in combination a water vessel or outer receptacle, a food vessel or inner receptacle whose plan section is of elliptical or oblong form, suspended in said outer vessel and being covered over, a steam vessel depending into said food-receptacle and having communication at one end with the upper part of both said food-receptacle and outer receptacle and at its other end with the external atmosphere through the cover of said food-receptacle, substantially as set forth.

574,493. MULTIPLE WEB-PRINTING MACHINE. CHARLES POTTER, Plainfield, N. J., assignor to the Potter Printing Press Company, same place. Filed Feb. 19, 1894. Serial No. 500,679. (No model.)

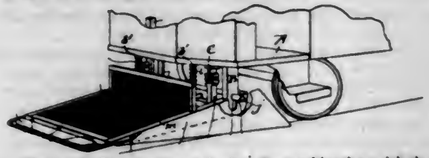


Claim.—1. In a multiple printing-machine, the combination with three printing-machines superimposed one above the other for printing independent webs, of means for operating the center printing-machine and feeding the web therefrom at a speed slower than the other two machines, adjacent leading-rolls separated a distance apart for the uppermost and lowermost webs, other leading-rolls in biting contact situated a distance from the first-mentioned rolls, and a web-severing device for the center web interposed between the center printing-machine and said first-mentioned leading-rolls, as set forth.

2. In a multiple printing-machine, the combination with three printing-machines superimposed one above the other for printing three independent webs, a slitter for longitudinally slitting one of the webs, and turning-bars for associating the divided portions of said web, of means for operating the center printing-machine and feeding the web therefrom at a speed slower than the other two machines, adjacent leading-rolls separated a distance apart for the uppermost and lowermost webs, other leading-rolls in biting contact situated a distance from the first-mentioned rolls, and a web-severing device for the center web interposed between the center printing-machine and said first-mentioned leading-rolls, as set forth.

3. In a multiple printing-machine, the combination with three printing-machines superimposed one above the other for printing independent webs, of means for operating the center printing-machine and feeding the web therefrom at a speed slower than the other two machines, adjacent leading-rolls separated a distance apart for the uppermost and lowermost webs, other leading-rolls in biting contact situated a distance from the first-mentioned rolls, a slitter for dividing the associated webs and interposed sheets longitudinally, a longitudinal guide or folder for bringing the divided portions together, and a delivery mechanism for each portion, as set forth.

574,494. CAR-FENDER. DANIEL RICE, Canton, Ohio. Filed Apr. 13, 1896. Serial No. 587,247. (No model.)

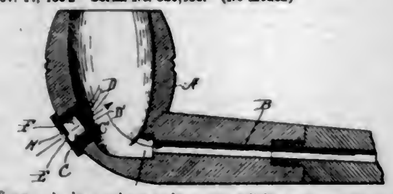


Claim.—1. In a street-car fender, the combination with the net-carrying bars having shouldered recesses at their rear ends, of yielding supports for connecting the said bars to the platform of a car, fixed pins carried by the car for engaging the shouldered recesses, and the lever for actuating the fender to lower it into or raise it out of contact with the track.

2. In a street-car fender, the combination with the car-platform having fixed brackets provided with laterally-projecting pins, of net-carrying bars having their rear ends provided with shouldered recesses with which the pins engage to hold the bars in either a raised or depressed position, springs interposed between the bottom of the car and fender for forcing the latter downward, and an actuating-lever.

3. In a street-car fender, the combination with a car-platform having brackets supporting a cross-bar, the ends of which project laterally beyond said brackets and are formed into pins, the net-carrying side bars having shouldered recesses at their rear ends to engage said pins, a cross-bar connecting said side bars, springs interposed between the cross-bar and the bottom of the platform for depressing the fender, supports hinged to the bottom of the platform and to the fender, a bail pivoted to the side bars at their forward ends, a spring-actuated nose-piece, and the actuating-lever.

574,495. TOBACCO-PIPE. GEORGE C. RICKLY, Ottawa, Ill. Filed Nov. 17, 1894. Serial No. 529,135. (No model.)

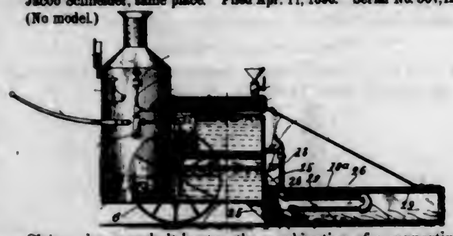


Claim.—1. In a tobacco-pipe, a vent C, its bottom perforated as at D D, its top provided with an opening; a valve-plate pivoted to swing across and away from the said opening, and provided with a pin-hole acting as a draft-hole when the valve is closed, and serving to operate the valve-plate.

2. In a tobacco-pipe, a vent placed in the bowl thereof, comprising a perforated bottom plate, and a cover provided with an aperture; a valve-plate pivoted to swing over and away from the said aperture, and provided with a pin-hole; and a stop to prevent the pin-hole from passing under the top of the vent.

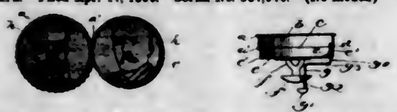
3. In a tobacco-pipe, a vent placed in the bowl thereof comprising the casing C; a perforated plate D' closing the inner end thereof; a cover-plate provided with an aperture covering the outer end; a valve-plate pivoted to the inner side of said cover-plate and provided with a pin-hole, adapted to swing across the aperture; and a stop to prevent the pin-hole from passing under the top of the vent.

574,496. ASPHALT-PAVEMENT-HEATING MACHINE. JOHN ROCHE, Buffalo, N. Y., assignor of two-thirds to John Trumpfheller and Jacob Schneider, same place. Filed Apr. 11, 1896. Serial No. 587,123. (No model.)



Claim.—In an asphalt-heater, the combination of a supporting-frame, a steam-boiler and water-tank mounted and secured thereon, an oil-tank secured above the water-tank, a heat-deflector, secured to the rear end of the water-tank and having its upper sides lined with fire-brick, a steam-pipe communicating with the boiler and extending to and downward through the heat-deflector, then rearward under the top of the heat-deflector to a bend, from thence it extends forward to a transverse perforated steam-pipe, an oil-pipe extending from the oil-tank through the steam-pipe to a perforated oil-burner within the perforated steam-pipe, and means for controlling the flow of steam and oil, for the purposes described.

574,497. CAMPAIGN-BUTTON. HUGO I. SKIDEL, Eureka Springs, Ark. Filed Apr. 17, 1896. Serial No. 587,976. (No model.)



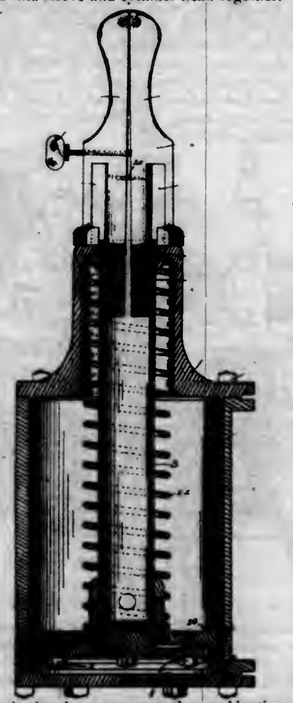
Claim.—1. The combination of the tray *a*, hinged to the smaller tray *c*, the two trays adapted to be thrown open by a spring *c'*; tray *b*, provided with a catch *d*; tray *c*, having secured on its inside and to its bottom the lower and spring end of a catch *e*, having an incline *e'*; shank *f*, and perforated head *f'*; wire *g*, having a head *g'*, and passing through the perforation in the head *f'*, its other end extending through a perforation in the tray *c*, and between the wall of tray *c*, and the incline *e'*, of the catch *e*, and adapted to throw said catch back when pressed upwardly, substantially as shown and described and for the purposes set forth.

2. The combination of the tray *b*, hinged to the smaller tray *c*, the two trays adapted to be thrown open by a spring *c'*; tray *b*, provided with a catch *d*; tray *c*, having secured on its inside and to its bottom the lower and spring end of a catch *e*, having an incline *e'*; shank *f*, and perforated head *f'*; wire *g*, having a head *g'*, and passing through the perforation in the head *f'*, its other end extending through a perforation in the tray *c*, and between the wall of tray *c*, and the incline *e'*, of the catch *e*, and adapted to throw said catch back when pressed upwardly; coil-spring c^2, working around wire *g*, and between the heads *f'* and *g'*, substantially as shown and described and for the purposes set forth.

574,498. AIR-BRAKE-PISTON REMOVER. CHARLES E. SHERWOOD, St. Paul, Minn. Filed Dec. 23, 1895. Serial No. 573,062. (No model.)

Claim.—1. In a clamp of the class described, in combination, the clamp members adapted to be inserted into the piston-rod sleeve, the stops or shoulders relatively fixed with relation to the jaws of said members, for engaging the cylinder-head, and the means for expanding said members so as to cause their jaws to tightly grip said sleeve and lock said sleeve and cylinder-head together.

2. In a device of the class described, in combination the similar clamp members adapted to be inserted into the piston-rod sleeve, the fixed stops carried by each of said clamp members for engaging the cylinder-head, the hinged connection for said clamp members, and the means for expanding them so as to cause their jaws to grip said sleeve, and lock said sleeve and cylinder-head together.

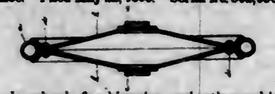


3. In an air-brake-piston remover, the combination of the pair of clamp members, their jaws being adapted to engage the piston-rod sleeve, the means upon each of said members for independently engaging the cylinder-head, the hinge connection for said clamp members, and the transverse screw carried by one member and engaging the other for separating the jaws of said members.

4. In a device of the class described, the pair of similar clamp members having the faces of their jaws roughened the shoulder upon each of said members adapted to engage the cylinder-head, the hinged connection for said clamp members, and the means for turning said members upon their hinge, so as to separate their jaws and cause them to engage the piston-rod sleeve, whereby said clamp is fixed to said sleeve and relative ontward movement of the cylinder-head prevented by said shoulder.

5. In an air-brake-piston remover, the combination of the similar clamp members adapted to engage the piston-rod sleeve, the hinged connection for said clamp members, the exterior relatively-fixed shoulder or stop carried by each of said members, and abutting against said cylinder-head, the notch between each of said stops and its member to receive the projecting end of the piston-rod sleeve, and the means for separating said members.

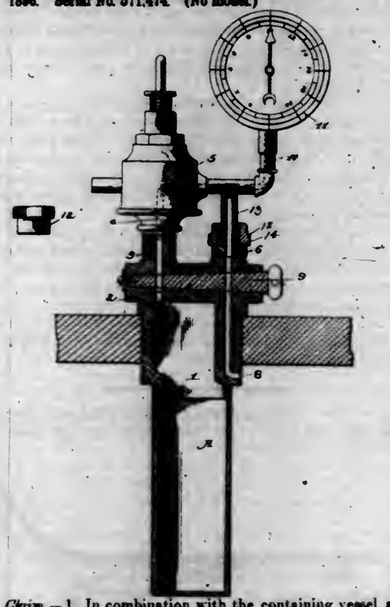
574,499. WHEEL FOR BICYCLES OR OTHER VEHICLES. LOUIS R. SNYDER, Philadelphia, Pa., assignor of one-half to William H. McFadden, same place. Filed May 23, 1896. Serial No. 592,630. (No model.)



Claim.—1. In wheels for bicycles and other vehicles, the fiber dished plates or disks *b*, *b*, riveted together near their peripheral edges by means of the rivets *d*, *d*, and bulged at their centers, and having central perforations, hubs *e*, *e*, surrounding the same, and riveted thereto, the said disks *b*, *b*, flared at their extreme peripheral edges, thereby forming a seat for the pneumatic tire, substantially as herein shown and described.

2. In wheels for bicycles and other vehicles, the centrally-perforated, vulcanized fiber disks *b*, *b*, bulged outwardly at their centers, securely riveted together near their outer edges, and provided on the outer sides, centrally, with hubs *e*, *e*, riveted thereto, the peripheral edges of the disks flared outwardly forming a seat for the pneumatic tire, substantially as herein shown and described.

574,500. DEVICE FOR CHARGING LIQUIDS WITH GAS. NELSON STOW and WILLIAM E. DOBBINS, Binghamton, N. Y. Filed Jan. 30, 1896. Serial No. 577,474. (No model.)



Claim.—1. In combination with the containing vessel and gas-tank, having a discharge-port therefrom and an inlet-port to the barrel, a valve controlling said ports and a bracket detachably secured to the head-piece and having a channel connecting the said ports, substantially as described.

2. In combination, the barrel, the tank having the head-piece with the discharge and inlet ports in the same, a valve controlling the same, a cap 12 for closing the discharge-port and means adapted to be attached to the head-piece and having a channel to connect the outlet and inlet ports, substantially as described.

3. In combination, the barrel, the tank attached thereto, and having the outlet and inlet ports, the gage-bracket having a channel connecting said ports and having also a channel leading to the gage and a valve controlling the said ports, substantially as described.

574,501. BILLIARD-CHALK HOLDER. EUGENE V. C. TAMBARI, Paris, France. Filed Apr. 13, 1896. Serial No. 587,349. (No model.)



Claim.—1. A plastic shell for billiard-chalks composed of two parts *a*, and *b*, having flanges *f*, and *c*, cemented together, one of the parts having a retaining-rim *d*, and opening *e*, and the other part forming a pocket, substantially as shown and described.

2. A billiard-chalk holder consisting of the part *a*, having a flange *f*, formed integrally therewith, the part *b*, having a flange *c*, formed integrally therewith, and the inner concave rim *d*, in the part *a*, being provided with an opening *e*, adapted for the admission of a billiard-cue tip, substantially as shown and described.

574,502. VEHICLE-BODY. WALTER H. TOMLINSON, Chicago, Ill. Filed June 18, 1896. Serial No. 596,060. (No model.)



Claim.—1. In a vehicle of the class described, a body portion provided with a front portion adapted to be closed and form a front

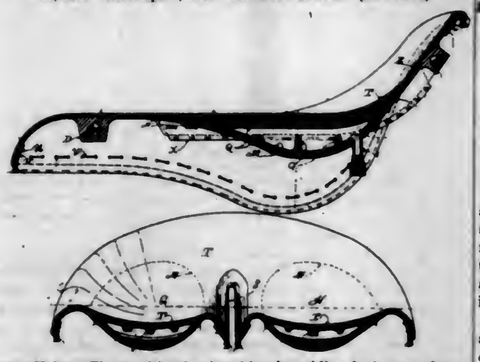
for the body, and opened to form a seat portion, substantially as described.

2. In a vehicle of the class described, a body portion in which there are combined sides and roof, and a front portion composed of two swinging sections adapted to form a front for the wagon-body when in its closed position, at least one of such portions or sections arranged to form a seat portion when in its open position, substantially as described.

3. In a vehicle of the class described, a body portion in which there are combined sides, roof and end portions, a front portion composed of swinging foldable sections adapted to form a front for the wagon-body when in its closed position and a seat portion when in its open position, and sliding doors arranged in the sides to complete the closing of the wagon or open the same for ingress or egress as desired, substantially as described.

4. In a vehicle of the class described, a body portion in which there are combined sides, roof and rear portions, a front portion composed of two swinging sections adapted to form a front for the wagon-body when in its closed position and a seat portion when in its open position, and a seat portion proper adapted to be used as a seat when the wagon is in its closed position and be moved over to support one of the front sections to form the seat when the front is in its open position, substantially as described.

574,503. BICYCLE-SADDLE. SEYMOUR DOBB VAN METER, Denver, Colo. Filed Apr. 7, 1896. Serial No. 586,603. (No model.)



Claim.—The combination in a bicycle-saddle of a base or frame comprising in form and contour a horizontal horn having a downward-curved point and sides, a high cantle blending upward from said horn, an opening through the center of said horn, a seat portion on each side of said horn containing coocaved depressions adapted to receive the tuber ischii, a concentrically-curved cantle and rolled side edge to said seat portion adapted to receive the buttocks of the rider, having the said side rolled edges of said seat portions raised higher than the horn whereby the perineum is relieved from pressure, a concavo-convex air-sack having a feather border edge adapted to blend evenly into the surrounding surface of the saddle secured in each of said concaved depressions, means for introducing air into said sacks, depending ribs formed on the inside of the upper and lower walls of said sack, those of the upper walls being arranged transversely to those of the lower wall, and arranged a space apart and adapted to prevent the total collapse of said air-sacks in case of puncture, means for introdneing air into said sacks, and a covering of leather for said frame and sack arranged and secured substantially as herein set forth and described.

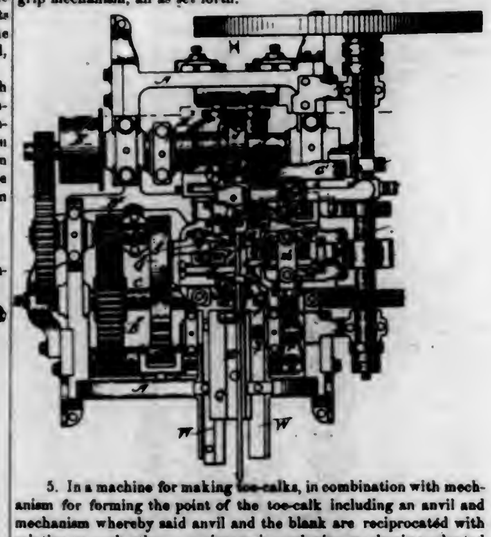
574,504. MACHINE FOR FORGING TOE-CALKS. JOSEPH T. VARNEY, Cambridge, Mass., assignor to the Union Toe Calk Company, Portland, Me. Filed Mar. 23, 1896. Serial No. 542,926. (No model.)

Claim.—1. In a machine for making toe-calks, in combination with a blank grip and feed, an anvil, a rotary die adapted to cooperate with said anvil to draw down the point of the toe-calk blank, a pair of squeezing-dies located one on each side of the end of the blank and slightly in front of the anvil and mechanism whereby the end of the blank is placed between said squeezing-dies just before the squeezing operation and it and the face of the anvil are brought into contact again immediately thereafter, all as set forth.

2. In a machine for making toe-calks, in combination with two squeezing-dies and means whereby one or both of them are reciprocated, a blank-holding mechanism, and mechanism for giving a slight reciprocating movement thereto while said dies are apart, whereby the blank is placed fairly between the dies, as and for the purposes set forth.

3. In a machine for making toe-calks, in combination with oscillating dies adapted to squeeze the sides of the point of the toe-calk, an anvil and a blank-gripping mechanism and means whereby said anvil and toe-calk are intermittently reciprocated with respect to each other, between each squeezing operation, all as set forth.

4. In a machine for making toe-calks, in combination with shaping-dies, an anvil and means whereby the blank is fed thereto and shaped, an intermittently-reciprocating blank-gripping mechanism of the kind described and mechanism whereby said blank is intermittently reciprocated during the intervals when it is released by said grip mechanism, all as set forth.



5. In a machine for making toe-calks, in combination with mechanism for forming the point of the toe-calk including an anvil and mechanism whereby said anvil and the blank are reciprocated with relation to each other, a reciprocating gripping mechanism adapted to alternately grip and release the blank, and a lateral pushing mechanism adapted to relocate the blank laterally upon the anvil, when it is released by said gripping mechanism, all as set forth.

6. In a machine for making toe-calks, in combination with the anvil and with suitable dies whereby the point of the toe-calk is shaped over the front corner thereof, a disengaging-finger adapted to be moved across the line of motion of the blank and disengage the point of the blank from the front corner of the anvil, and mechanism whereby the blank shall be withdrawn, all as and for the purposes set forth.

7. In a machine for making toe-calks, mechanism for withdrawing and cutting off the finished toe-calk, consisting of a pair of cutters located in the rear of the forming-dies and in front of the carriage, one on each side of the path of the blank, and mechanism for disengaging the point of the toe-calk from the edge of the anvil, in combination with a feeding-carriage and mechanism for withdrawing said carriage after the point of said blank has been released, all as and for the purposes set forth.

8. In a machine for making toe-calks, a rod-cutting mechanism consisting of a pair of cutters located one on each side of the path of the rod, and mechanism whereby one or both of them are reciprocated across the path of the blank rod, in combination with the finger a located forward of said cutters and adapted to support the pointed end of the toe-calk during the cutting operation, as set forth.

9. In a machine for making toe-calks, in combination with a reciprocating feed-carriage, an oscillating feed-gate and means whereby it is oscillated intermittently across the path of the blank when the feed-carriage is withdrawn, as and for the purposes set forth.

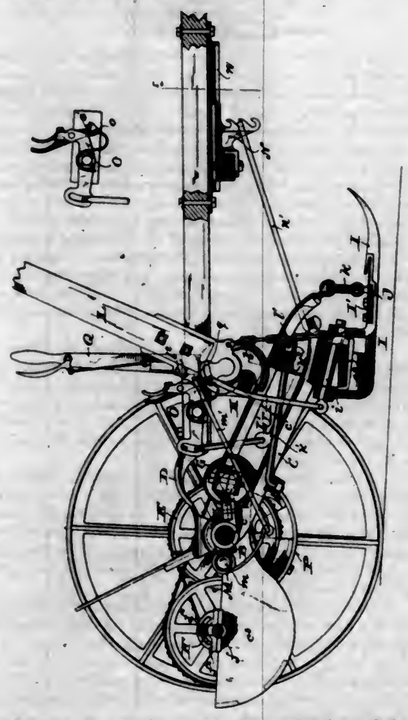
10. In a machine for making toe-calks, in combination with an oscillating feed-gate and a reciprocating carriage, the post 8^{a} located in front of said gate and adapted with said gate to close the path of the blank rod, as and for the purposes set forth.

11. In a machine for making toe-calks, the reciprocating carriage above described having mechanism located thereon whereby the blank rod is held while the carriage is in its forward position and a releasing mechanism adapted to operate when said carriage is in its rearward position, in combination with mechanism whereby said carriage is reciprocated between its extreme positions and also is given a series of short reciprocations while in its forward position, all as set forth.

12. In a machine for making toe-calks having a reciprocating carriage adapted to hold the blank rod, an anvil and mechanism for forming the toe-calk over the edge of the anvil, a cutting mechanism located in rear of the anvil and mechanism for moving the toe-calk laterally to clear the edge of the anvil whereby the carriage carrying

the toe-calk may withdraw it to a point between the cutters, as set forth.

574,505. MOWING-MACHINE. FRANCIS N. VIOLET, Milwaukee, and CHARLES H. SHAW, Wauwatosa, Wis. Filed May 23, 1893. Serial No. 475,215. (No model.)



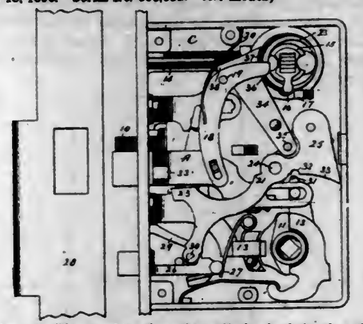
Claim.—1. In a mowing-machine, the combination with the main frame, the cutter-bar and its actuating-crank, of a triangular lever connected at diagonally-opposite corners with said cutter-bar and crank and at the intermediate corner by a universal joint with the frame of the machine in line with the crank-shaft, a brace pivoted at its rear end to said frame below said universal joint and adjustably connected at its front end with the under side of said triangular lever whereby the front end of said lever may be raised and lowered with respect to said frame, substantially as and for the purposes set forth.

2. In a mowing-machine, the combination with the main frame and the pole and cutting apparatus having jointed connections therewith, of a lifting-lever connected with the cutting apparatus and fulcrumed to said frame independently of the pole, and a spring attached to the main frame and connected with said lifting-lever so as to exert a lifting tendency upon the outer end of the cutting apparatus without adding weight to the pole, substantially as and for the purposes set forth.

3. In a mowing-machine, the combination with the main frame formed or provided with a stud close to and parallel with the axle, and the pole and cutting apparatus having jointed connections therewith, of a lifting-lever connected with the cutting apparatus and fulcrumed to said frame independently of the pole, and a spring coiled around said stud and attached at one end to said frame and connected at the other with said lifting-lever so as to exert a lifting tendency upon the outer end of the cutting apparatus without adding weight to the pole, the stub of said lifting-lever being provided with a series of holes for the adjustable connection of said spring, substantially as and for the purposes set forth.

4. In a mowing-machine, the combination with the main frame and the pole and cutting apparatus having jointed connections therewith, of a lifting-lever fulcrumed to said frame independently of the pole and connected with the cutting apparatus, a spring connected with said lever and the frame of the machine so as to exert a lifting tendency at the outer end of the finger-bar without adding weight to the pole, and a sliding draft connection with the pole attached to the frame near the ground so as to exert a lifting tendency at the inner end of the finger-bar, substantially as and for the purposes set forth.

574,506. LOCK. HENRY G. VOIGHT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Oct. 15, 1896. Serial No. 608,935. (No model.)

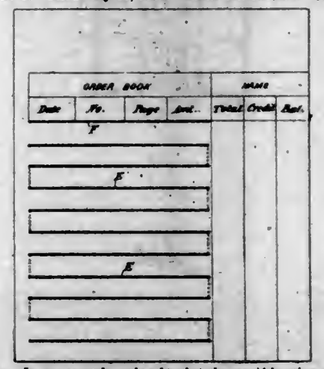


Claim.—1. The combination of a cylinder-lock having the wing 16, a latch-bolt, the lever 18 connecting said wing and latch-bolt, the latch-hub 11, lever 12 connecting said hub and latch-bolt, the false latch-bolt having the incline or cam 29, the latch locking-dog pivoted on the case in engagement with said false latch-bolt and lever 12, and the pivoted swinging arm on said dog for being engaged by the wing 16 of said cylinder-lock, substantially as described.

2. In a lock the combination of the latch-bolt having a shoulder 22, the latch-hub 11, the lever 12 acted upon by said hub, the locking-dog 21 pivoted at 24 and having the holding-arm 23, pin 30, shoulder 32 and curved face 33, the end of the lever 12 being adapted for acting on said shoulder and curved face, and the spring-pressed false latch-bolt having the incline or cam 29 for engagement with the pin 30 of the locking-dog, substantially as described.

3. In a lock, the combination of the latch-bolt and its operating devices with the locking-dog pivoted on the case, the swinging arm pivoted to the weighted end of said dog and having the projection 38 shoulder 36 and curved edge 37, and the wing 16 of a lock for engaging the said swinging arm, substantially as described.

574,507. ACCOUNT-KEEPING BOOK. EDWARD F. WARD, Northport, N. Y. Filed May 28, 1896. Serial No. 593,395. (No model.)

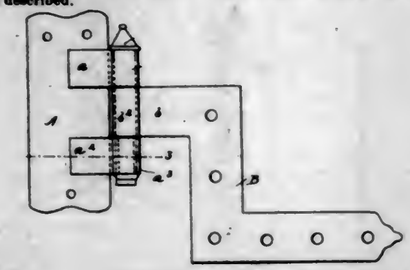


Claim.—In account-keeping books, the combination of an order-sheet having a space at the top for the name of the purchaser, spaces at the bottom for date, number, page and amount, and an intermediate space for the name of the goods bought, with a ledger-sheet ruled or divided so as to have at top a space for the name of the purchaser, and heading-indications of date, number, page and amount corresponding with the similar indications on the order-sheet, and three columns at the right-hand side for total, credit and balance, or similar ledger-column headings, and parallel horizontal loops, and slot F—these parts being combined and arranged substantially as and for the purposes hereinbefore set forth.

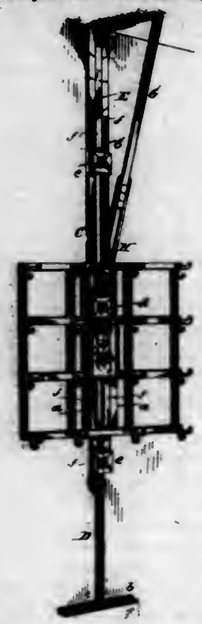
574,508. HINGE FOR WINDOW-SHUTTERS. ALFRED H. WEEKS, Rockville Centre, N. Y. Filed Feb. 20, 1896. Serial No. 580,032. (No model.)

Claim.—A shutter-hinge which consists of two parts, one of which is adapted to be secured to the frame of a window, and the other to a shutter, that part which is adapted to be secured to the frame of a window being provided with two tubular heads or projections, and the other being provided with a single tubular head

or projection which is adapted to be placed between the others, and a hinge pin or pintle, which is adapted to be passed through said tubular heads, one of the heads which is connected with the part adapted to be secured to the frame, being provided with vertical splines or ribs, and the hinge-pin with vertical grooves, and said hinge-pin being also provided with a head, substantially as shown and described.



574,509. CLOTHES AND HAT RACK. ISAAC C. WELTER, Kingston, Pa. Filed July 22, 1896. Serial No. 600,130. (No model.)



Claim.—1. A clothes and hat rack, suitable guides secured to the back thereof, vertically-adjustable arms connected thereto, a vertically-adjustable standard connected to the lower end of the arms, a hinged clamping-arm at the top of the adjustable arms, a brace hinged to the clamping-arm, and a support therefor, substantially as and for the purpose described.

2. A clothes and hat rack, a clamping device therefor, said device consisting of suitable guides upon the back of the rack, vertically-adjustable arms connected thereto, vertically-adjustable standards connected to the respective ends of the arms, the lower standard provided with a cross-bar and the upper standard provided with a hinged clamping-arm, a brace hinged to the arm and provided at its lower end with a foot extension, and suitable supports upon the adjustable arms with which the foot engages, and means for holding the adjustable arms and standards in their adjusted position, substantially as and for the purpose set forth.

574,510. BUFFER DEVICE FOR LOOMS. LOUIS C. WERNER, East Windsor, Conn. Filed Mar. 16, 1896. Serial No. 583,279. (No model.)

Claim.—1. In a loom-picker buffer device, the combination with that portion of the framework of a loom adjacent to the shuttle-box, of a buffer-head comprising a plate having guiding-arms extending beyond the same; and a buffer comprising a pair of superimposed springs intermediate said plate and the transverse wall of the framework.



2. A buffer device comprising a buffer-head having a rearwardly-extending stud or projection; a base-block remotely disposed from said buffer-head and having a forwardly-extending stud or projection; a buffer comprising a pair of coiled or spiral springs one encircling the other intermediate said base-block and buffer-head, the end coils of the inner spring having an engagement with the buffer-head and base-block and with the studs or projections thereof and the end coils of the outer springs having an engagement with the buffer-head and base-block at relatively remote points from the end coils of the inner spring and the studs of the buffer-head and base-block thereof, whereby oscillatory or lateral movement of the buffer-head is prevented.

3. A buffer device consisting of a buffer-head comprising a plate having forwardly-extending guide-arms; forwardly-extending parallel walls, and a curved and recessed extension; a base-block having extending wings; and a buffer intermediate said base-block and buffer-head.

4. A buffer device consisting of a buffer-head comprising a plate having a pair of forwardly-extending guide-arms; forwardly-extending parallel walls and a recessed extension, and also having a stud or projection on its rear face; a base-block also having a pair of parallel extensions, and a stud or projection on its front or inner face; and a pair of superimposed coiled or spiral springs intermediate the base-block and the buffer-head.

5. In a loom-picker buffer device, the combination with the framework of a loom adjacent to the shuttle-box, one wall thereof having a slot, and the opposite wall thereof having inwardly-extending plates; of a buffer-head having guide-arms working intermediate the opposing edges of said plates, and an extension projecting into said slot; and a buffer intermediate the buffer-head and the transverse wall of the framework.

6. In a loom-picker buffer device, the combination with the framework of a loom adjacent to the shuttle-box, one wall thereof having a slot, and the opposite wall thereof having guiding means: of a buffer-head having a part thereof extending into said slot, and a part thereof engaged by said guiding means; a base-block also having a part thereof extending into said slot: and a buffer intermediate said base-block and buffer-head.

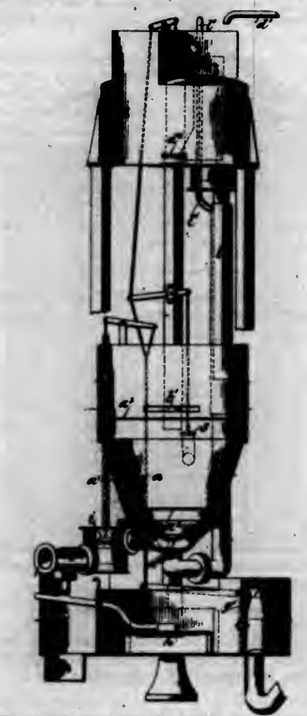
7. In a buffer device for a loom-picker, the combination with the framework of a loom adjacent to the shuttle-box, one wall thereof having a slot, and the opposing wall thereof having guiding means; of a buffer-head having a part thereof extending into said slot, and a part thereof guided by said guiding means; a base-block also having a part thereof extending into said slot; and a buffer comprising a pair of superimposed coiled or spiral springs intermediate said buffer-head and base-block.

8. In a device of the class specified, the combination with a stuffing-box of a loom-picker, of a buffer device constructed to fit therein and comprising a buffer-head adapted to engage the picker; and a pair of superimposed springs one encircling the other intermediate said buffer-head and one of the walls of said box, the ends of said springs having a bearing engagement with said buffer-head and said wall at remote points relatively to each other, whereby oscillatory, or lateral movement, of the buffer-head is prevented.

9. In a buffer device for a loom-picker, the combination with the framework of a loom adjacent to the shuttle-box, one wall thereof having a slot or way, and the opposite wall thereof having inwardly-extending plates bent at their lower ends and forming a guideway; of a buffer-head comprising a plate having an extension adapted to engage the slot of said wall, a pair of forwardly-extending guide-arms guided by said plates, and a pair of parallel projections or walls adapted to abut against the lower ends of said plates when the buffer-head is in its normal inoperative position; a base-block having parallel extensions projecting into the slot of the wall; and a buffer comprising a pair of superimposed coiled or spiral springs intermediate the base-block and the buffer-head.

574,511. AUTOMATIC FILTER. JAMES WILSON, London, England. Filed July 14, 1896. Serial No. 599,148. (No model.)

Claim.—1. The combination of a filter-bed, means for supplying liquid to be filtered to the upper side thereof, and for withdrawing the filtered liquid from its under side, an automatic siphon which withdraws liquid from the upper surface of the filter-bed when it ceases to pass through as rapidly as it is supplied, means connected with the supply and escape ports and operated by the descent of liquids through the siphon to arrest the supply to the upper surface of the filter-bed, and the escape from the under side thereof, and means also operated by the flow of liquid through the siphon for directing a flow of liquid upward through the filter-bed.



2. The combination of the filter-bed, means for supplying liquid to and withdrawing filtered liquid from the filter-bed, means for discharging liquid when it accumulates above the filter-bed, a cistern containing a measured quantity of liquid for washing the filter-bed, means operated by the descent of liquid from above the filter-bed for arresting the supply of liquid above the filter-bed, and for also effecting the discharge of the contents of the cistern upward through the bed.

3. The combination of a filter-bed, means for supplying liquid to and withdrawing filtered liquid from the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed, a cistern containing a measured quantity of liquid for washing the filter-bed, means by which the descent of liquid through the said automatic siphon arrests the supply of liquid above the filter-bed, and discharges the contents of the cistern upward through the filter-bed.

4. The combination of a filter-bed, means for supplying liquid to and withdrawing filtered liquid from the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed, a cistern containing a measured quantity of liquid for washing the filter-bed, a float raised by the liquid delivered by the said automatic siphon, valves connected with the float and means by which the rise of the float effects the discharge of the cistern upward through the filter-bed.

5. The combination of a filter-bed, means for supplying liquid to and withdrawing filtered liquid from the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed, means governing the supply of liquid above the filter-bed, and the flow of liquid up through the filter-bed to wash the same, and means operated by the descent of liquid through said automatic siphon for arresting the supply of the liquid above the filter-bed and directing the flow of liquid up through the filter-bed, and a valve controlled by a float raised by the liquid discharged by the siphon which allows the washing liquid to escape from below the filter and prevents it from mixing with the filtered water.

6. The combination of a filter-bed, means for supplying liquid to and withdrawing filtered liquid from the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed, a trough receiving liquid from the automatic siphon, regulated passages by which the liquid enters and leaves the trough, and a float in the trough controlling valves which regulate the passage of the liquid.

574,512. SUSPENDED LAMP. ALFRED EMPLINER, Vienna, Austria-Hungary. Filed July 12, 1894. Serial No. 517,980. (No model.) Patented in Austria Mar. 7, 1894, No. 44/309, and in Hungary Mar. 7, 1894, No. 104.



Claim.—1. In suspension-lamps, the combination with a lamp-holder, of supporting-arms adapted for connection with a suspension device, a pivotal connection between the arms and the holder, and an abutment adapted to limit the rotation of the arms in an upward direction, for the purpose set forth.

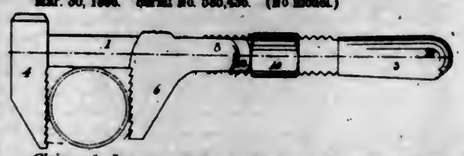
2. In suspension-lamps, the combination with a lamp-holder, of supporting-arms therefor adapted for connection with a suspension device, a separable interlocking pivotal connection between the arms and holders, and means for limiting the rotation of the arms in an upward direction, for the purpose set forth.

3. In suspension-lamps, a lamp-holder, supporting-arms adapted for connection with a suspension device, an interlocking pivotal connection between the arms and the holder, and an abutment adapted to limit the rotation of the arms in an upward direction, in combination with a shade-holder detachably connected with the supporting-arms above the lamp-support, for the purpose set forth.

4. In suspension-lamps, a lamp-holder, supporting-arms adapted for connection with a suspension device, a separable pivotal connection between the arms and holder, and an abutment adapted to limit the rotation of the arms, in an upward direction on their pivots, in combination with a shade-holder and a separable interlocking joint connecting said shade-holder with the supporting-arms, for the purpose set forth.

5. In suspension-lamps, a lamp-holder, more or less elastic supporting-arms adapted for connection with a suspension device, a separable pivotal connection between the arms and the holder, and an abutment adapted to limit the rotation of the arms in an upward direction on their pivots, said arms provided with a hook-shaped lug, as *d*, projecting from a horizontal base *d'*, in combination with a shade-holder provided with slots for the reception of the aforesaid lugs, and on its under side with a stud *c'* on opposite sides of said slots, said studs adapted to bear on the horizontal base *d'* of the lugs *d*, substantially as and for the purpose set forth.

574,518. WRENCH. JOHN A. BARKER, La Canada, Cal. Filed Mar. 30, 1896. Serial No. 585,436. (No model.)



Claim.—1. In a wrench the combination, of a main stem having a screw-threaded portion, a jaw fixed to the stem, a movable jaw loosely connected with the stem at its outer end so as to permit of a rocking movement, an internal screw-threaded sleeve mounted upon the stem and having an internal annular groove, shanks on the movable jaw and lugs on the shanks adapted to engage in the groove in the sleeve, substantially as set forth.

2. In a wrench the combination, of a main stem, having a screw-threaded portion, a threaded sleeve mounted upon the stem, a jaw fixed to the stem, a movable rocking jaw mounted upon the stem, a two-part shank connecting the movable jaw with the sleeve, and having an intervening space between the members of the shank for the reception of the main stem, substantially as set forth.

3. In a wrench the combination, of a main stem having a screw-threaded portion, a threaded sleeve mounted upon the stem, a jaw fixed to the stem, a movable rocking jaw mounted upon the stem, a two-part shank connecting the movable jaw with the sleeve and a plate connecting the rear portion of the members of the two-part shank with each other, substantially as set forth.

4. In a wrench the combination, of a main stem having a screw-threaded portion, a threaded sleeve mounted upon the stem, a jaw fixed to the stem, a movable rocking jaw mounted upon the stem, a two-part shank connecting the movable jaw with the sleeve and shoulders upon the shank which abut against the end of the sleeve, substantially as set forth.

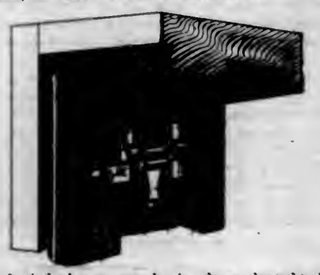
574,514. NEEDLE-THREADER. JOHN BARLOW, Nottingham, England, assignor of one-fourth to Henry Edward Hubbart and Arthur Durose, same place. Filed June 16, 1896. Serial No. 595,738. (No model.) Patented in England Feb. 1, 1895, No. 2,256.



Claim.—1. A device for threading needles, comprising a frame, which is composed of a vertical and a horizontal part, the vertical part being provided with a groove in which the needle may be held, and the horizontal part with a similar groove formed at an angle thereto, and which communicates therewith, and serves as a guide for the thread, said vertical part being also provided with a spring clamping device for holding the needle in the groove, and formed by folding a part thereof over said groove, substantially as shown and described.

2. A device for threading needles, comprising a frame, which is composed of a vertical and a horizontal part, the vertical part being provided with a groove in which the needle may be held, and the horizontal part with a similar groove, which communicates therewith, and which serves as a guide for the thread, said vertical part being also provided with a folded spring clamping device for holding the needle in the groove, formed therein, and said frame being also provided at the angle thereto, with a slot whereby the device is adapted to serve for threading machine-needles, substantially as shown and described.

574,515. SHADE-SUPPORTER. JOSEPH P. BAUNGARTNER, Philadelphia, Pa. Filed Oct. 6, 1896. Serial No. 608,011. (No model.)



Claim.—1. A shade-supporter having shoes adapted to be placed between strips on a side of a window-frame, right and left threaded studs engaging openings in said shoes, and a body portion connected with said studs and having an arm with a journal-bearing thereon.

2. A shade-supporter having shoes adapted to be placed between strips on a side of a window-frame, and provided with beveled edges adapted to enter between the said strips and the backing of the window-frame, an arm projecting from one of said shoes and provided with an extension having a journal-bearing thereon, and a body-piece with right and left threaded studs engaging in openings in said shoes and provided with an arm for operating the same.

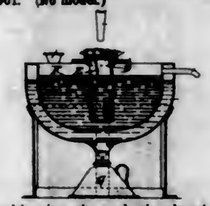
3. In a shade-supporter, shoes adapted to be placed between strips on a side of a window-frame having openings therein provided with right and left hand threads, a bearing for the shade-roller having right and left hand threaded stems projecting in an opposite direction therefrom, said stems being adapted to engage the threaded openings in said shoes.

4. In a shade-supporter, shoes having their outer edges beveled and provided with right and left hand threaded openings, an arm having a bearing therein and provided with the right and left hand threaded stems projecting in opposite directions therefrom, and adapted to engage the threaded openings in said shoes, said shoes and arm with studs and bearing being adapted to be placed between upright strips on one side of a window-frame.

5. In a shade-supporter, shoes having oppositely-threaded openings respectively, an arm provided with a bearing projecting from one of said shoes, a body portion having oppositely-threaded stems engaging said shoes, and means for operating said body portion, said shoes and body portion provided with stems being adapted to be placed between vertical strips on one side of a window-frame.

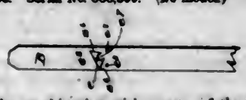
6. In a shade-supporter, shoes having oppositely-threaded openings and adapted to be placed between strips on a side of a window-frame, an arm having a bearing projecting from one of said shoes, a body portion having stems engaging said shoes, and an arm attached to said body portion having a bearing.

574,516. DEVICE FOR REMOVING PARAFFIN FROM ARTICLES. JOSEPH S. BESMAN, Camberwell, Victoria. Filed Feb. 19, 1896. Serial No. 579,961. (No model.)



Claim.—In combination, the tank, the absorber-holder at the top thereof, the absorber and the spring I surrounding the absorber at its exposed end, substantially as described.

574,517. GATE-LATCH. JOHN S. BERRY, Tyler, Tex., assignor of two-thirds to William Quinn and Morris Dowler, same place. Filed Apr. 24, 1896. Serial No. 588,899. (No model.)



Claim.—The combination with a gate, of the beam D, provided with the latch-pin d; perforated post B; rod e^4, working in said post; arm e^4, secured on the outer edge of rod e^4; latch e, having the inclines e^5 and recess e^7, rigidly secured to the inner end of the rod e^4; stop-pins e^6, secured in the face of the post B, substantially as shown and described and for the purposes set forth.

574,518. GATE-LATCH. JOHN S. BERRY, Tyler, Tex., assignor of two-thirds to William Quinn and Morris Dowler, same place. Filed Aug. 15, 1896. Serial No. 602,853. (No model.)

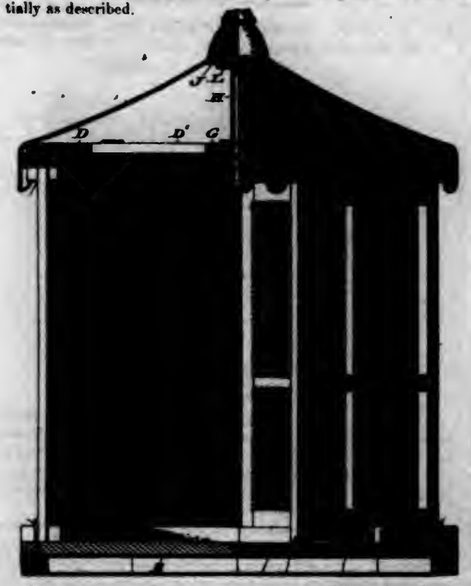


Claim.—1. In combination with a gate, substantially as shown and described the combination of the latch-pin d, secured in beam D, with latch F, secured to the inner face of post B, and consisting of the plate 1, having recess 2, hinged piece 4, fitting in said recess; hangers 8 and 8', pivoted one to each end of the plate 1, and having upper extensions adapted to impinge against the ends of piece 4, substantially as shown and described and for the purposes set forth.

2. A gate-latch, consisting of the plate 1, having the recess 2, and extensions 3; piece 4, fitting in said recess and hinged between extensions 3; hangers 8 and 8', pivoted to the face and one at each end of the plate 1, and having upper extensions adapted to impinge one against each end of the piece 4, substantially as shown and described and for the purposes set forth.

574,519. FOLDING SUMMER-HOUSE. JOHN W. BOUGHTON, Philadelphia, Pa. Filed Mar. 3, 1896. Serial No. 581,674. (No model.)

Claim.—1. A summer-house having a folding floor with recesses in its upper face, a folding cornice formed of sections hinged together, each having a central cross-bar and a rim with a recess in its under face, folding side panels with their ends in the recesses of said floor and cornice, a staff fitted in openings in the sectional cross-bar of the cornice, and a cover connected at top with said staff, and at its lower end with the rim of the cornice, said parts being combined substantially as described.



2. A folding summer-house consisting of a folding floor, having recesses in its upper face with a cut-away portion, a folding cornice with a recess in its under side, hinged panels with ends in said recesses, a door hinged to one of said panels adjacent to said cut-away portions, a staff secured to cross-pieces on said cornice, a cover on the cornice, and means on said staff for securing the cover in elevated position, said parts being combined, substantially as described.

3. In a folding summer-house, side panels, a folding cornice connected with the tops of said panels, and a cross-bar on said cornice, said bar being formed in sections hinged together in combination with a staff which is supported on said bar, and a cover which is sustained by a collar on said staff, substantially as described.

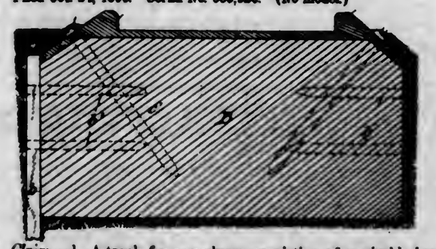
4. Folding side panels, a folding floor, a folding cornice and a cover, the ends of said panels being freely fitted in recesses in said floor and cornice, and said cover being supported above said cornice, substantially as described.

574,520. TWINE-CUTTER. LOUIS M. BRAY, Pittston, Va. Filed Mar. 18, 1896. Serial No. 583,712. (No model.)



Claim.—A twine-cutter comprising two rings rigidly secured together by an integral connection separating said rings, one of them formed with an enlargement, and a cutting-blade held in said enlargement and provided with a notch adjacent to the outer face of the enlargement, substantially as and for the purpose described.

574,521. ROADWAY. GEORGE F. BROTT, Washington, D. C. Filed Oct. 24, 1896. Serial No. 609,926. (No model.)



Claim.—1. A track for a roadway, consisting of a suitable base, and a metal plate with a straight plane central surface, and downturned edges, which edges are secured to said base outside the track-surface, substantially as set forth.

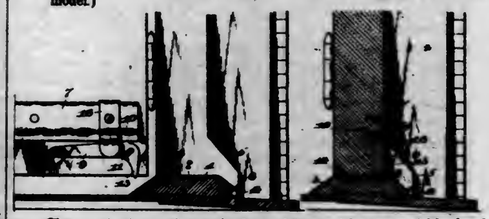
2. In a roadway, the combination of a base, and a metal surface therefor, which surface consists of a plate with side ribs and downwardly-extending flanges on their edges, which flanges are secured to said base, substantially as set forth.

3. In a roadway, the combination of a suitable base, and a metal surface therefor, consisting of a metal plate having its edges bent downwardly and secured to said base outside the track-surface, substantially as set forth.

4. A roadway composed of a suitable base, and a metal surface consisting of a plate with a smooth top surface, and longitudinal strengthening-ribs projecting upwardly on each side, said ribs being tapered on their outside faces, terminating in the tapered flanges of said plate, substantially as set forth.

5. A rail for tram or road ways formed with a central plane smooth surface, an upwardly-projecting rib on each side thereof, the outside faces of said ribs being formed tapered from their tops downward and outward, terminating in side flanges below the main track-way, substantially as set forth.

574,522. WEATHER-STRIP. GUSTAV A. BYOR and WILLIAM B. MAHAN, Palmyra, Ill. Filed Mar. 12, 1896. Serial No. 582,914. (No model.)



Claim.—1. A weather-strip formed from a sheet-metal blank of rectangular shape, bent to conform to the threshold and having one edge rolled upon itself to form a fulcrum terminating at the ends of the strip, the said strip being removably seated between the door-jambs, its ends being received in recesses in the door-stops, and the rolled edge being removably fitted between the threshold and door-stops, in combination with an adjustable trip-lever mounted on the door and adapted to be moved into and out of the normal plane of the free edge of the weather-strip, whereby said strip may be thrown into and out of action, substantially as described.

2. A weather-strip formed from a sheet-metal blank of rectangular shape, bent to conform to the threshold and having one edge rolled upon itself to form a fulcrum terminating at the ends of the strip, the said strip being removably seated between the door-jambs, its ends being received in recesses in the door-stops, and the rolled edge being removably fitted between the threshold and door-stops, in combination with an adjustable trip-lever mounted on the door and adapted to be moved into and out of the normal plane of the free edge of the weather-strip, and a horizontal strip on the door forming an overhanging water-table, the free edge of the weather-strip being received under said strip and the trip-lever being located entirely beneath the same when the door is closed, substantially as described.

574,523. SPECTACLE-CASE. JAMES H. CARRIS, Stamford, Conn. Filed May 27, 1895. Serial No. 550,805. (No model.)

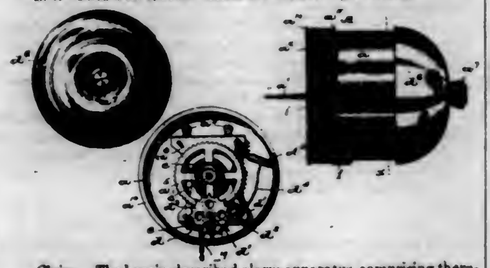


Claim.—1. A spectacle or eyeglass case, comprising two parts, and guards on one of the parts providing pockets or recesses for the lenses.

2. As a new article of manufacture, a spectacle-case provided with keepers projecting inwardly from opposite sides of the case-body at or near the top thereof, said keepers being adapted to extend over opposite sides of the spectacles contained in the case and firmly hold them therein, as set forth.

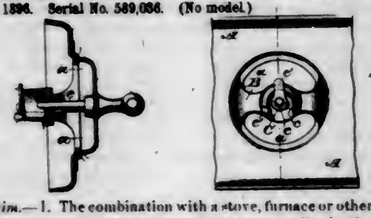
3. As a new article of manufacture, a spectacle-case provided with two inwardly-projecting keepers on one side, one at each side of the center, and a single keeper on the other side, the single keeper being at the center of the case, as specified.

574,524. BURGLAR-ALARM. ARTHUR CLEVELAND, Newark, N. J., assignor of seven-tenths to James P. Northrop, North Plainfield, N. J. Filed Feb. 8, 1896. Serial No. 578,468. (No model.)



Claim.—The herein-described alarm apparatus, comprising therein, a casing *a*, having flanges a^{10} and a^{11}, a screw *a'* on the back of said casing, a frame a^4, a tubular post a^5 on said frame, an arbor a^6 and finger-piece thereon, an operating mechanism on said arbor, a gong or bell on said post a^4, an arbor *d'* and striking mechanism thereon, a spring device *e*, normally in holding engagement with said striking mechanism, and a flexible connection connected with said spring device and adapted to be arranged between the said flanges on said casing *a*, and a loop or ring on the free end of said connection, adapted to be arranged over a hook on a window-sash or door, substantially as and for the purposes set forth.

574,525. DAMPER FOR STOVES. GEORGE M. COCKE, Milwaukee, Wis., assignor to the Fuller-Warren Company, same place. Filed Apr. 25, 1896. Serial No. 589,086. (No model.)



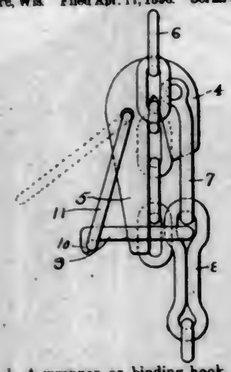
Claim.—1. The combination with a stove, furnace or other heater having a draft opening or orifice and a sleeve or collar having an incline arranged transversely and to one side of its axis, of a damper disk or plate provided with a stem loosely fitting in said sleeve and having a lateral projection adapted to engage with said incline when the damper is closed and to prevent the withdrawal of the stem from said sleeve when the damper is opened, substantially as and for the purposes set forth.

2. The combination with a stove or heater having a draft opening or orifice and a bridge or cross-piece spanning said opening and provided with a sleeve which is formed at its inner end with an incline, of a disk or plate adapted to close said opening and provided with a stem loosely fitted to turn and slide endwise in said sleeve and having a lateral projection adapted when turned into engagement with said incline to draw and hold said disk snugly against its seat, substantially as and for the purposes set forth.

3. The combination with a stove or heater having a draft opening or orifice, and within said orifice a sleeve formed or provided at its inner end on one side with a transverse incline terminating in a lug or stop, of a damper disk or plate provided on the outside with a handle secured thereto for opening and closing it and on the inside with an inwardly-projecting stem fitted to turn and slide endwise freely in said sleeve, and provided with a lateral projection adapted to be turned in engagement with said incline for tightly closing the damper and to be turned out of engagement with said incline to permit the stem to be withdrawn lengthwise for opening the damper, said projection serving as a stop for limiting the outward movement of the damper, substantially as and for the purposes set forth.

4. The combination with a stove door or plate having a draft-opening and a sleeve within said opening formed or provided at its inner end at a distance from its bore with a curved transverse incline extending partially around said sleeve, of a substantially circular flanged damper-disk provided with a plain inwardly-projecting cylindrical stem loosely fitting in said sleeve and having a lateral projection adapted to engage with said incline and draw the marginal flange of said damper-disk tightly against the face of the stove door or plate when said stem is thrust inward and turned to one side, substantially as and for the purposes set forth.

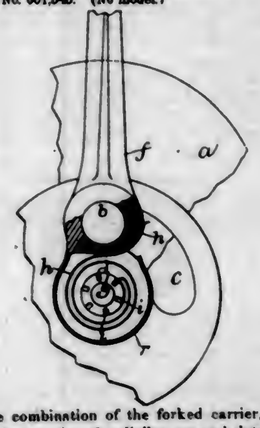
574,526. BINDING OR WRAPPER HOOK. HENRY D. DAVIS, Eau Claire, Wis. Filed Apr. 17, 1896. Serial No. 587,990. (No model.)



Claim.—1. A wrapper or binding hook, comprising a shank 5 having a turned end 4, a space being provided between said shank and said end to receive a link at one end of the chain, the link 7 pivoted to the turned end 4 and carrying the link 8, and the part 9 pivoted to said link 8 and adapted to receive the end of said shank 5, substantially as described.

2. A wrapper or binding hook, comprising a shank 5 and turned end 4, having the wedge-shaped space between them, the link 7 pivoted to said part 4 and carrying the link 8, the part 9 pivoted to said link 8 and adapted to receive the end of said shank, said part 9 having a shoulder or lug 10 and a link 11 carried by said shank, and adapted to receive the end of said part 9, for the purpose set forth.

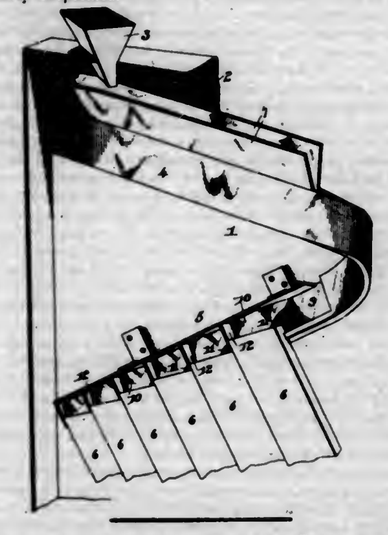
574,527. SELF-ADJUSTING TROLLEY-WHEEL. GEORGE W. DURYEA and THOMAS W. THOMPSON, Brooklyn, N. Y. Filed Aug. 3, 1896. Serial No. 601,545. (No model.)



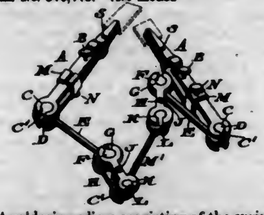
Claim.—The combination of the forked carrier, studs carried thereby and having a series of radially-arranged slots, guiding-arms mounted thereon having housings at their lower ends, flat coiled springs arranged in said housings and having one end fitting in the radial slots of the studs and the other ends bearing against the said arms, said shaft being movable within arc-shaped slots in the arms of said fork, and a trolley-wheel mounted on said shaft.

574,528. COIN SEPARATOR AND DISTRIBUTER. WALTER H. ELDER and WALTER ELDER, Clarion, Iowa. Filed Feb. 24, 1896. Serial No. 580,449. (No model.)

Claim.—In a coin separator and distributer, the combination of a feed-chute disposed at a lateral inclination, delivery-tubes for coins of different denominations arranged in series in communication with said chute, a series of deflectors, one for each delivery-tube, arranged in inclined positions in the chute and extending from the top to the bottom of the chute with their front edges cut away to form at their upper edges tongues arranged terminally in contact with the side wall of the chute and having lower edges of equal lengths, respectively, with the long diameters of the contiguous delivery-tubes, whereby coins passing through the cut-away portions of the deflectors are held from lateral displacement toward the delivery-tubes, and stops arranged at the rear edges, respectively, of the deflectors in the planes of the rear walls of the contiguous delivery-tubes, substantially as specified.



574,529. SOLDERING-PLIERS. WALTER S. ELLIOTT, Sag Harbor, N. Y., assignor to James W. Ivory, Philadelphia, Pa. Filed Dec. 2, 1896. Serial No. 570,773. (No model.)



Claim.—1. A soldering-pliers consisting of the spring-jaws A, the two sets of plates H, H, the arms E having ball-and-socket connections with said plates, and jaws, and the arm M' having ball-and-socket connection with both of said sets of plates H, said parts being combined substantially as described

2. A soldering-pliers having spring-jaws at its opposite ends provided with slides on their rear ends, a set of plates connected with each of said jaws by a rod having a ball-and-socket joint at each of its ends and a rigid arm connecting by ball-and-socket joints said sets of plates.

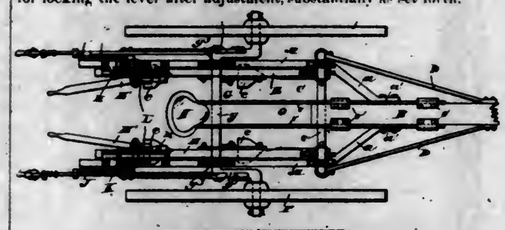
3. A soldering-pliers having a jaw consisting of two spring-plates with recesses in the inner end of each, slides embracing said plates, means connected with said plates for opening the same, and a pin on one of said plates for guiding the movements of both, said parts being combined substantially as described.

4. A soldering-pliers having a central arm, plates having ball-and-socket connections with the ends of said arm, jaws, and arms having ball-and-socket connections with said jaws and plates, said parts being combined, substantially as described.

574,530. CULTIVATOR. JOHN H. ELWARD, Peoria, Ill. Filed Oct. 20, 1894. Serial No. 526,456. (No model.)

Claim.—1. In a walking and riding cultivator, the combination of the tongue, the main frame rigidly secured to the tongue, the downward-depending rigidly-secured frame, the plows hinged to the downward-depending frame, the crank-axle extending continuously from one side of the frame to the other and hinged thereto, the wheels mounted on the said crank-axle and adapted to have their axes moved from a line in front of the rocking part of the axle to a line in the rear thereof, the lever rigidly secured to the axle and adapted to hold it in either of several positions, and the fastening devices on the main frame for holding the lever in either of two positions, substantially as set forth.

2. In a walking and riding cultivator, the combination of a rocking axle having two downwardly-depending crank-arms, the tongue, the main frame rigidly secured to the tongue, the downwardly-extending rigidly-secured plow-drawing frame in front of the wheel-spindles, the plow-gangs hinged to said downward-depending frame, the adjusting-lever connected to the plow-gangs and supported on the main frame for vertically adjusting said beams, the lever rigidly secured to the rocking axle and adapted to move the wheels from a position in front of the rocking part of the axle to a position in rear thereof and to hold the wheels in either position, and means on the main frame for locking the lever after adjustment, substantially as set forth.



574,531. CARTRIDGE-CARRIER. LEWIS R. FERGUSON, Harvey, Ill. Filed Dec. 23, 1895. Serial No. 573,077. (No model.)



Claim.—1. In a cartridge-carrier, a vertically-disposed flexible pocket, adapted to be suspended from the shoulder, a rigid discharge-chute located at the lower end of said pocket, and a pivoted and spring-actuated dropper-frame hinged to said chute and carrying an upper cut-off and a lower cut-off both rigidly connected therewith and adapted to operate, substantially as specified.

2. In a cartridge-carrier, a flexible pocket adapted to contain a number of cartridges, and a rigid discharge-chute attached to the end of said pocket and forming an extension thereof, in combination with a dropper-frame hinged to the discharge-chute and provided with two cut-offs rigidly connected together for holding and releasing the cartridges, substantially as described.

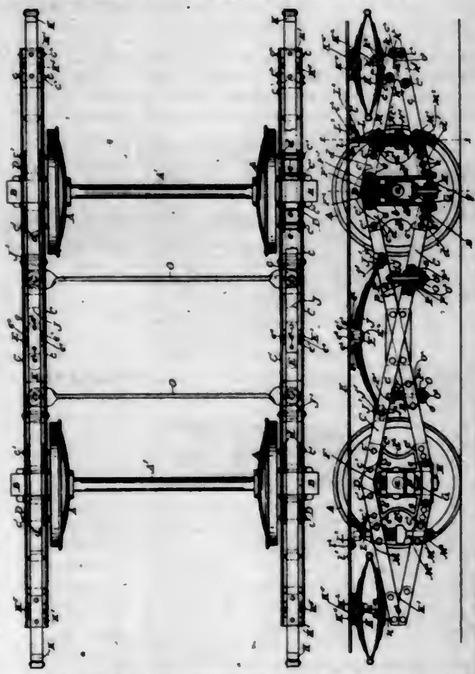
3. In a cartridge-carrier, a flexible pocket adapted to contain the cartridges, and an inflexible discharge-chute attached to the end of the pocket, in combination with a dropper-frame hinged to the discharge-chute and partially surrounding and embracing the same, a cut-off rigidly connected to the swinging end of the dropper-frame and operating in segmental slots in the chute described in the arc of a circle of which the pivotal point of the dropper-frame is the center, a second cut-off rigidly connected to the dropper-frame and located intermediate the swinging end and the pivotal point thereof and operating through an opening in the chute, and a spring bearing against the dropper-frame, substantially in the manner and for the purpose described.

574,532. TRUCK FOR MOTOR OR CABLE CARS. HORACE L. GEE, Kingston, N. Y., assignor to the Diamond Truck and Car Gear Company, New York, N. Y. Filed July 24, 1895. Serial No. 556,966. (No model.)

Claim.—1. In a car-truck, the combination with two oppositely-located pedestals, each forming a part of a side frame of the truck, bolsters E E which are each elastically supported each from a side frame of the truck and in position above the upper end of the pedestal and separate and independent of both the frame and pedestal below, an axle having a journal with each of its ends, a pair of wheels rigidly secured on said axle, and housings, one in each pedestal and receiving each a journal of said axle, and situated within the jaw-opening in its pedestal, of a load-supporting spring between each pedestal and the upper side of its housing, a tension-spring support H, rigidly secured to the lower ends of the limbs of each pedestal and having a spring-receiving wall *g* projected above a spring-seating surface located in said support below the plane of the lower ends of the pedestals, and tension-springs G, each below the lower side of a housing and between it and the spring-support below with its lower half portion supported from lateral deflection by the wall *g* projecting from said support, substantially as and for the purposes set forth.

2. In a car-truck the combination with the side frames of the truck, bolster-plates E, over each side frame and load-bearing springs interposed between said bolster-plates and side frames, of guide-blocks M and M' secured to the side frames, elastic guiding check-bolts L, adjustably secured to said bolster-plates and working loosely in said

guide-blocks, checking-pieces M^3 secured to the lower end of each said check-bolt and adapted to limit the upward movement of said bolts and the said bolster-plates in relation to the side frames of the truck, substantially as and for the purposes set forth.



3. In a car-truck the combination with a bolster-plate E, a side frame, two or more springs interposed between said side frame and bolster-plate, perforated guide-blocks M having each in its lower side the seat *n* and rigidly secured to an upper member of the side frame, guide-blocks M' rigidly secured to a lower member of the frame with the centers of their perforations on alinement with those of the bores of blocks M, and check-bolts L adjustably secured by their upper ends to the bolster-plate and passing through said guide-blocks, of vertical sleeves M^3 working loosely in the guide-blocks M' and receiving the lower portions of said check-bolts, spring-seats N' mounted each on the upper end of one of said sleeves and adapted to be moved as the sleeve is moved, springs N mounted each on one of said check-bolts and held supported between the seat *n* of a guide-block M and a vertically-moving spring-seat N', and the checking-pieces M^3 secured to the lower ends of said check-bolts, substantially as and for the purposes set forth.

4. The combination with the guide-block M, adapted to be secured to an upper member of a truck-frame and provided in its lower side with a recessed seat *n* and centrally perforated, a lower guide-block M' calculated to be secured to a lower member of the truck-frame and centrally perforated, a vertical sleeve M^3 working loosely in the perforation in said lower guide-block, a spring-seat N' mounted on the upper end of said sleeve, of a spring N mounted between the seat *n* and seat N', a guiding check-bolt L passing through the guide-block M, spring, lower spring-seat N' and sleeve M^3 and a check-piece M^3 secured to the lower end of said check-bolt, the upper end of said check-bolt being adapted to be secured to a bolster elastically supported from the frame and adapted to move vertically in relation to the frame proper of the truck, all substantially as and for the purposes set forth.

5. In a car-truck, the combination with two frame members, of the truck-frame, a bolster and a spring between said frame members and the said bolster, of a spring-supporting block K' comprising the spring-seat *k'*, flanges *k* projected laterally from said spring-seat, side webs k^2 and perforated sleeves k^3 k^3, between said side webs and adapted to receive rivets c^3 c^3 securing said block K' with said frame members, substantially as and for the purposes set forth.

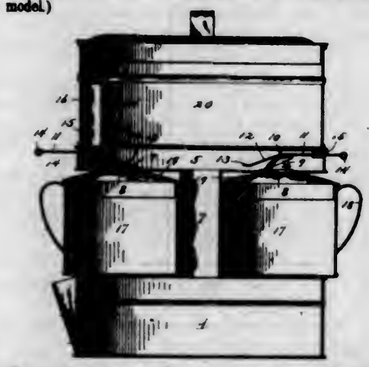
6. In a car-truck, the combination with the end portions of two adjacent members of a side frame of the truck, of the spring-supporting block, comprising a seat, laterally-projected flanges for bearing on the upper edge of the upper one of the said frame members, side webs integral with said seat and connected by perforated sleeves integral with said side webs, and bolts or rivets holding said frame members secured to said spring-supporting block, substantially as and for the purposes set forth.

7. In a car-truck the combination with the two opposite side frames thereof; two pedestals in each side frame, a longitudinal bolster-plate over each side frame, springs between the bolsters and said side frames and allowing the former to move vertically independently of the latter, two car-wheel axles and a housing working in each pedestal of the frame and receiving each a journal end of an axle and supported on the same, a load-bearing spring between each pedestal and the upper side of the housing therein, a tension-spring support secured with the lower ends of the limbs of each pedestal in the frame, and a tension-spring between the lower side of each housing and the spring-support secured below to said pedestals, of check-bolts located at each end portion of a side frame and having their upper ends secured to the bolsters above, and held in place by guide-blocks secured to the frames, and springs mounted on said check-bolts and held between seating devices which are operated to compress the said springs when the bolsters are raised in relation to the side frames below, and also allow said springs to expand when said bolsters are depressed, substantially as and for the purposes set forth.

8. In a car-truck, the combination with the side frames of the truck in which pedestals form a part, housings working in the pedestal portions of the frames and adapted to receive the journals of the axles of the truck-wheels, load-bearing springs between said housings and side frames, and tension-springs between the lower sides of said housings and said frames, of horizontal bolster-plates arranged above said side frames and adapted to receive the body of a car, and elliptic springs interposed each between an end portion of each side frame and the bolster-plates and arranged lengthwise in relation to the latter, and calculated to support the end portions of said bolsters and prevent them moving longitudinally in relation to the said side frames, substantially as and for the purposes set forth.

9. In a car-truck, the combination with the side frames of the truck in which pedestals form a part, housings working in the pedestals and adapted to receive the journals of the car-wheel axles, load-bearing springs between said housings and side frames, tension-springs between the lower sides of said housings and frames, horizontal bolster-plates arranged above the side frames and adapted to receive the body of a car, and elliptic springs interposed each between an end portion of each side frame and the bolster-plate above and arranged lengthwise in relation to the said plates, so as to support their end portions and prevent them moving longitudinally in relation to the side frames, of elastic check-bolts arranged relatively between the pedestals of the side frames and the elliptic springs which support the end portions of the bolster-plates, the said check-bolts having their upper ends securely connected with the bolster-plates and their lower end portions working loosely in guide-blocks secured to the frame and provided with checking devices whereby the upward throw or expansion of said elliptic springs may be limited while the load-bearing springs are being expanded upwardly, or the tension-springs are being expanded downwardly, substantially as and for the purposes set forth.

574,533. STEAM-COOKER. PHARES E. GETZ and THOMAS J. AMOS, Bentonville, Ark. Filed Apr. 9, 1896. Serial No. 586,865. (No model.)



Claim.—1. A steam-cooker comprising a generator, a steam-distributing chamber placed above and overhanging the generator and in communication therewith, and a vessel removably fitted into the space formed between and held in place by the overhanging portion of the steam-distributing chamber and the generator, and receiving a supply of steam from the said chamber, substantially as and for the purpose set forth.

2. A steam-cooker comprising a generator, a steam-distributing chamber in communication with the generator and located above the same, and having an opening in its bottom side, and a vessel removably fitted into the space formed between the generator and steam-distributing chamber and having its cover convex on its outer side and apertured to form a close connection with the said opening in the bottom side of the steam-distributing chamber, substantially as and for the purpose set forth.

3. In a steam-cooker, the combination with a generator, and a steam-distributing chamber placed above and in communication with the generator, and having a valve-controlled opening in its bottom side, of a vessel adapted to be fitted into the space formed between the generator and the steam-distributing chamber and having an opening in its top to register with the valve-controlled opening of the said steam-distributing chamber, substantially as set forth and for the purpose described.

4. In a steamer, the combination with a part having an opening for the escape of steam, of a valve for closing the said opening, and a slidably-mounted lifter having a bent portion in engagement with the valve to open and close the latter at the pleasure of the user, substantially as and for the purpose set forth.

5. In a steamer, the combination with a part having an opening for the egress of steam, of a valve for closing the said opening and having a loop, and a lifter slidably mounted and having a bent portion operating through the said loop, and a curved terminal to ride upon and close the said valve, substantially in the manner and for the purpose set forth.

6. The herein-described steam-cooker, comprising a generator, a steam-distributing chamber located above the generator and having communication therewith, valves for closing openings in the bottom side of the steam-distributing chamber, lifters slidably mounted in the sides of the steam-distributing chamber for positively opening and closing the said valves, vessels having apertured covers and adapted to be fitted into the space formed between the generator and steam-distributing chamber, a pipe rising from the steam-distributing chamber, and a receptacle adapted to be placed upon the steam-distributing chamber and having a housed opening to receive the said pipe, substantially as and for the purpose set forth.

574,534. TURKEY CALLER AND GOBBLER. HENRY C. GIBSON, Dardanelle, Ark., assignor of one-half to John R. Boddie, Arkadelphia, Ark. Filed June 17, 1896. Serial No. 595,846. (No. model.)



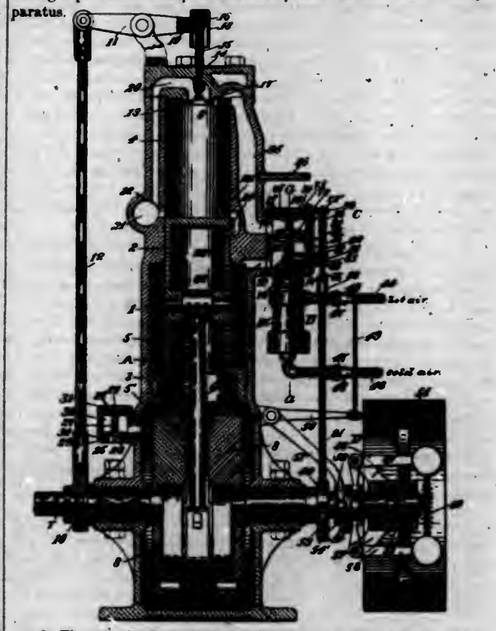
Claim.—1. The combination of the block 1, having the bowl or dugout 2, end pieces 3 and 4, sides 5 and 6; top 11, having the oval under face 13, said top loosely pivoted on the top face of the wall 4, substantially as shown and described and for the purposes set forth.

2. The combination of the block 1, having the bowl or dugout 2, end pieces 3 and 4, having V extensions 7 and 8; long wall 5 and short wall 6; top 11, provided with handle 12, and oval under face 13, said top loosely pivoted on the top face of the wall 4, substantially as shown and described and for the purposes set forth.

3. The combination of the block 1, having the bowl or dugout 2, end pieces 3 and 4, having V extensions 7 and 8; long wall 5, and short wall 6, and recess 9; top 11, provided with handle 12, and oval under face 13, said top loosely pivoted on the top face of the wall 4, substantially as shown and described and for the purposes set forth.

574,535. GAS-ENGINE. CARL L. GRONEMANN, Hartford, Conn. Filed Mar. 31, 1896. Serial No. 585,647. (No model.)

Claim.—1. The combination of a casing having a working chamber and a compression-chamber; a piston working in said casing; a valve-chest connected with said casing; an evaporator provided with a spiral way connected with said valve-chest; means for conducting the gaseous fluid from the evaporator through the valve-chest to the compression-chamber and from thence back through the valve-chest to the working chamber; and means for controlling the flow of the gaseous fluid from the compression-chamber to the working chamber during a predetermined period in the cycle of movements of the apparatus.



2. The combination of a casing having a working chamber and a compression-chamber; a piston working in said casing; an evaporator or gas-producing device provided with a spiral way in which the gaseous fluid is completely formed; means for conducting the completely-formed gaseous fluid from the evaporator to the compression-chamber and from thence to the working chamber; and means for controlling the flow of gaseous fluid from the compression-chamber to the working chamber during a predetermined period in the cycle of movements of the apparatus.

3. The combination of a casing having a compression-chamber and a working chamber; a piston working therein; means for conducting gaseous fluid to the compression-chamber of the casing and from thence to the working chamber thereof; means in position for restricting or controlling the flow of such gaseous fluid to the working chamber during a certain predetermined period in the cycle of movements of the apparatus; and means adapted to permit the induction of fresh air into the casing below the compression-chamber and from thence through the casing into the working chamber after the explosion of the gaseous fluid therein.

4. The combination of a casing having a compression-chamber and a working chamber; a piston working therein; means for conducting gaseous fluid to the compression-chamber on the downward stroke of the piston and from thence to the working chamber during a part of the upward stroke of the piston; means in position for restricting or controlling the flow of such gaseous fluid to the working chamber throughout the entire downward stroke and the major portion of the upward stroke of said piston; means for permitting the induction of fresh air to the casing below the compression-chamber at the inauguration of the upward stroke of the piston; and means for permitting the flow thereof from said compression-chamber through the casing and the piston and into the working chamber at the completion of the downward stroke of said piston.

5. The combination of a casing having a compression-chamber and a working chamber; a piston working therein; means for conducting gaseous fluid to the compression-chamber on the downward stroke of the piston and from thence to the working chamber during a part of the upward stroke of said piston; means in position for restricting or controlling the flow of such gaseous fluid to the working chamber throughout the entire downward stroke and during the major portion of the upward stroke of such piston; means for permitting the induction of fresh air into the casing below the compression-chamber during the upward stroke of the piston; means for conducting the products of combustion from the working chamber and embodying valve mechanism operative on the upward stroke of the piston; and means for permitting the flow of fresh air from said compression-chamber through the casing and into the working chamber at the completion of the downward stroke of said piston.

6. The combination of a casing having a working chamber and a compression-chamber; a compound piston working therein and com-

prising a working piston and a compression-piston; a valve-chest connected with said casing; means for conducting gaseous fluid into the valve-chest and from thence to the compression-chamber of the casing on the downward stroke of the piston, whereby it will be compressed back into said valve-chest on the upward stroke of said piston; means for conducting the compressed fluid from the valve-chest chamber to the working chamber; means disposed in said valve-chest and operative during one part of the cycle of movements to prevent the flow of such gaseous fluid to the working chamber and operative during another part of the cycle of movements to permit the flow of such gaseous fluid to the working chamber to actuate the piston; and means for permitting the induction of fresh air into the casing below the compression-chamber and from thence into the working chamber at certain periods in the cycle of movements of the apparatus.

7. In a gas-engine, the combination of a casing having a working and a compression chamber; a crank-shaft; a compound piston therein comprising a working and a compression piston and operatively connected with the crank-shaft; a valve-chest connected to said casing; means for conducting the gaseous fluid to the valve-chest; a passage connecting said valve-chest with the compression-chamber; a valve operative by the action of the piston to permit the inflow of the gaseous fluid into said valve-chest and from thence to the compression-chamber of the casing; a passage connecting said valve-chest with the working chamber of the casing; and valve mechanism operatively connected with the crank-shaft and operative during a certain period in the rotation thereof to permit the compressed gaseous fluid to flow from the valve-chest into the working chamber of the cylinder to actuate the piston.

8. In a gas-engine, the combination of a casing having a working and a compression chamber; a crank-shaft; a compound piston therein comprising a working and a compression piston; a valve-chest connected to said casing; means for conducting the gaseous fluid to the valve-chest; a passage connecting said valve-chest with the compression-chamber; a passage connecting the valve-chest with the working chamber; a valve in said chest; spring-actuated mechanism for holding said valve closed during a part of the cycle of movements of the apparatus; and an eccentrically-actuated lever connected with the crank-shaft and operative to actuate said valve-closing mechanism to release the valve and permit the flow of the gaseous fluid to the working chamber.

9. In a gas-engine, the combination of a casing having a working and a compression chamber; a crank-shaft; a compound piston therein comprising a working and a compression piston; a valve-chest connected to said casing; means for conducting the gaseous fluid to the valve-chest; a passage connecting said valve-chest with the compression-chamber; a passage connecting the valve-chest with the working chamber; a valve in said chest; spring-actuated mechanism for normally holding said valve closed and comprising a shaft journaled in said valve-chest having an arm operatively engaging the valve and spring-actuated lever also connected to said shaft; means for holding said valve closed with increased pressure during a part of the cycle of movements of the apparatus and comprising a spring-actuated rod engaging said spring-actuated lever; and means for operating said spring-actuated rod at a certain predetermined period in the cycle of movements of the apparatus and comprising an eccentrically-actuated lever or rod connected to the crank-shaft.

10. In a gas-engine, the combination of a casing having a working and a compression chamber; a crank-shaft; a piston therein comprising a working and a compression piston; a valve-chest connected to said casing; an evaporator or gas-generator connected with said valve-chest and provided with a spiral way; a valve operative by the action of the piston to permit the inflow of the gaseous fluid from the evaporator or gas-generator; a passage connecting the valve-chest with the compression-chamber; a passage connecting the valve-chest with the working chamber; and valve mechanism operatively connected with the crank-shaft to permit the opening thereof at a predetermined period in the cycle of movements of the apparatus, to thereby permit the compressed fluid to flow from the valve-chest to the working chamber of the casing to actuate the piston.

11. An evaporator comprising a chambered casing having a liquid-conductor connected therewith; a tubular member therein having a spiral way; an overflow-conductor connected to said evaporator; a hot-air conductor connected with said casing; and a cold-air conductor connected with said tubular member.

12. The combination of a casing; a crank-shaft; a piston in said casing; a valve-chest connected with said casing and having valve mechanism therein; an evaporator connected with said valve-chest and comprising a chambered casing having a tubular member therein having a spiral way; a liquid-conductor connected to said chambered casing; a hot and a cold air conductor connected with the casing and the tubular member, respectively; and valve mechanism in said hot and cold air conductors and operatively connected with the crank-shaft, whereby the supply of air to the evaporator is regulated.

13. The combination of a casing; a crank-shaft; a piston in said casing and operatively connected with the crank-shaft; a valve-chest connected to said casing and having valve mechanism therein; a gas-producing device connected to said valve-chest and having hot and cold air conductors connected therewith; a liquid-conductor also connected therewith; and valve mechanism in said hot and cold air conductors and operatively connected to the crank-shaft, whereby the supply of air to the gas-producing device is regulated.

14. The combination of a casing; a crank-shaft; a piston in said casing and operatively connected with the crank-shaft; a gas-producing device operatively connected with said piston-casing and comprising a chambered casing; a liquid-conductor connected thereto; a hot and a cold air conductor also connected thereto; valve mechanism in said hot and cold air conductors; a governor operatively connected with the crank-shaft; and mechanism connecting said valves and governor for regulating the supply of air to the gas-producing device.

15. The combination of a casing; a crank-shaft; a piston operatively connected to said crank-shaft; a valve-chest connected to said casing and having valve mechanism therein; a gas-producing device connected to said valve-chest and operatively connected with a liquid-reservoir; an overflow-conductor also connected with said gas-producing device and with an overflow-tank; a pump operatively connecting the overflow-tank and liquid-reservoir; a hot and cold air conductor connected with said gas-producing device; and valve mechanism in the hot and cold air conductors and operatively connected with the crank-shaft, whereby the supply of air to the gas-producing device is regulated.

16. The combination of a casing having a working chamber and a compression-chamber; a crank-shaft; a compound piston working in said casing and comprising a compression-piston and a working piston and operatively connected with the crank-shaft, said working piston and working chamber having ports communicating with each other at the end of the downward stroke of the piston; an air-inlet valve operative on the upward movement of the piston to admit fresh air into the casing, whereby on the next downward movement of said piston the same will, by means of the communicating ports, flow into the working chamber; an exhaust-valve operatively connected with the crank-shaft, whereby on the inauguration of the upward stroke of the piston said valve will be opened to permit the fresh air to force the products of combustion from said working chamber; a valve-chest connected with said casing and having a passage communicating with the compression-chamber thereof and a passage communicating with the working chamber thereof; a fluid-controlling valve in said chest; a valve-actuator operative throughout the entire downward movement of the piston and the major portion of the upward movement thereof to hold said valve closed; means operatively connected with the crank-shaft and operable at a predetermined period in each rotation thereof to release the valve-actuator and thereby permit the gaseous fluid to open said valve and rush into the working chamber to charge the same when the piston has reached a predetermined period in its upward movement; a gas-producing device connected with the valve-chest; a valve operative on the downward stroke of the piston to permit the gaseous fluid from the evaporator to be drawn therefrom through the valve-chest to the compression-chamber of the cylinder; a liquid-supply conductor connected with said gas-producing device; a hot and a cold air conductor also connected with said gas-producing device; valve mechanism in said hot and cold air conductors; a governor operatively connected with the crank-shaft; and mechanism connecting said governor and hot and cold air valve mechanisms, whereby the valves thereof will regulate the supply of air to the gas-producing device, and all combined and operative to obtain an explosion of the gaseous fluid in the working chamber at each rotation of the crank-shaft and at the completion of each upward stroke of the compound piston, to thereby drive said piston downward.

17. The combination with a casing having a working chamber and a compression-chamber; a piston working in said casing; a valve-chest connected to said casing; an evaporator or gas-producing device connected to said valve-chest; means for conducting the gaseous fluid from the evaporator through the valve-chest to the compression-chamber and from thence back through the valve-chest to the working chamber; and a spring-pressed valve disposed in the valve-chest for controlling the flow of the gaseous fluid from the compression-chamber to the working chamber during a predetermined period of the cycle of movements of the apparatus.

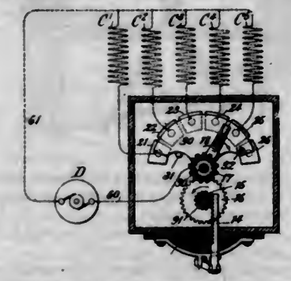
574,536. ELECTRICALLY-HEATED SAD-IRON. WILLIAM S. HADAWAY, Jr., New York, N. Y. Filed Apr. 7, 1896. Serial No. 586,484. (No model.)

Claim.—1. A flat or sad iron having a plane smoothing-surface bounded by two side lines and a base-line, said surface, in outline, approximating the form of a triangle, combined with an electric heating-conductor in proximity thereto but insulated therefrom, said conductor being helically disposed in two or more continuous sections each section composed of a series of convolutions, the convolutions of the section located at or near the base-line being greater than the convolutions at or near the side lines whereby the greater heating capacity is located along said base-line, substantially as described.



2. A flat or sad iron having a plane smoothing-surface bounded by a base-line and two side lines, in outline approximating a triangle, combined with insulating material, and an electric heating-conductor composed of helical convolutions arranged in three or more graduated sections, the section of greatest diameter being at or near the base-line; the section of smallest diameter being at or near the center and the sections of intermediate diameter at or near the side lines, substantially as described.

574,537. AUTOMATICALLY-CONTROLLED ELECTRIC OVEN. WILLIAM S. HADAWAY, Jr., New York, N. Y. Filed May 4, 1896. Serial No. 590,134. (No model.)



Claim.—1. In an electric heating device the combination of a surface to be heated, an electric conductor in sections located in proximity thereto, a series of fixed contacts respectively connected to different points in said sectional conductor, a contact movable across the surface of the fixed contacts, an engaging point on said movable contact, a radial arm in position to engage said point but capable of independent movement, a thermal-motor device and separable gearing connecting the motor device and radial arm whereby the arm may be set and the extent of free movement thereof may be varied, substantially as described.

2. In an electric heating device the combination of a surface to be heated, a sectional heating-conductor in proximity thereto, a series of fixed contacts respectively connected to different points in said sectional conductor, a movable contact traveling over said fixed contacts, a spring normally holding said contact at one limit, an engaging point on said contact, a radial pivoted arm capable of independent movement and of engaging said point to impart motion to said contact, a thermal-motor device for moving said arm and a variable mechanical connection between said motor and said arm whereby the extent of free movement of said arm may be varied, substantially as described.

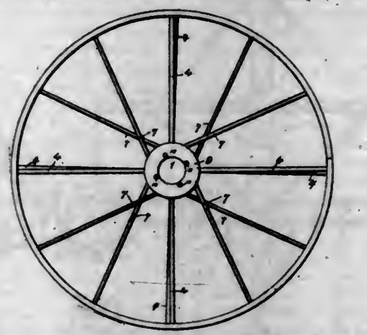
574,538. WHEEL FOR VEHICLES. HIRAM F. HAMMON, Palm Beach, Fla. Filed Sept. 17, 1890. Renewed Dec. 3, 1892. Serial No. 454,005. (No model.)

Claim.—1. A wheel provided with a series of radial spokes, a series of tangential or non-radial spokes, and means for rigidly securing both of said series of spokes in place, substantially as described.

2. A wheel provided with a rim, a central fastening, radial spokes secured thereto, inclined inward and arranged to cross each other, and tangentially-arranged spokes also secured to said rim and fastening, substantially as described.

3. A wheel provided with a rim, a central fastening, tangentially-arranged spokes secured thereto and arranged to cross each other near their inner ends, and radial spokes also secured to said rim and fastening, substantially as described.

4. In a wheel, the combination, with a rim and a central fastening, of spokes secured thereto and arranged to incline inward and cross each other, and other spokes secured to said fastening and rim and also arranged to cross each other, substantially as described.



5. In a wheel, the combination, with a rim and a central fastening, radial spokes secured thereto and arranged to incline inward and cross each other, for resisting dishing strain, and tangential spokes secured to said fastening and rim and also arranged to cross each other, for resisting torsional strain, substantially as described.

6. In a wheel, the combination, with a rim and central hubs or collars, of spokes secured thereto and arranged to incline inward and cross each other, for resisting dishing strain, and other spokes secured to said rim and central hubs or collars and also arranged to cross each other, for resisting torsional strain, substantially as described.

7. In a wheel, the combination, with a rim and central hubs or collars, of radial spokes secured thereto and arranged to incline inward and cross each other, for resisting dishing strain, and tangential spokes secured to said rim and hubs or collars and also arranged to cross each other, for resisting torsional strain, substantially as described.

8. In a wheel, the combination, with a rim and hubs or collars, of spokes secured thereto and arranged to cross each other, for resisting dishing and torsional strains, substantially as described.

9. A wheel provided with a rim, collars, a series of radial spokes which are connected to said collars, arranged to cross each other near said rim and connected thereto near its edges, a series of straight, tangential or non-radial spokes, and means for securing the several parts in place, substantially as described.

10. A wheel provided with a rim, collars, a series of radial spokes which are connected to said collars, arranged to cross each other near said rim and connected thereto near its edges, a series of straight, tangential or non-radial spokes, arranged to cross each other near their inner ends, and means for securing said spokes in place, substantially as described.

11. In a wheel, the combination, with the rim 3 and the central hubs or collars 1, formed with the annular grooves 2 and the slots or holes 6 and provided with the caps 9, of the series of radial spokes 4, arranged to incline inward and cross each other toward their outer ends, a series of tangential spokes 7, arranged to cross each other near their inner ends, and means at the outer and inner ends of said spokes for securing them to said rim and hubs or collars, substantially as described.

574,539. CORN-PLANTER. EDWARD M. HEYLMAN, Canton, Ill., assignor to the Parlin & Orendorff Company, same place. Filed Aug. 3, 1895. Serial No. 558,115. (No model.)

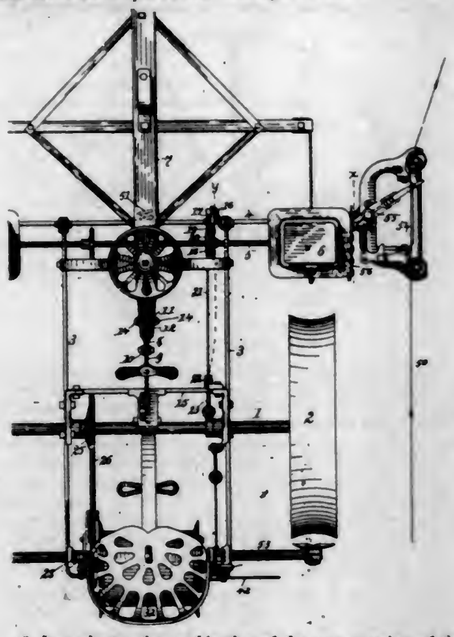
Claim.—1. A planter-tongue the under surface of which is rounded upward at its rear end, a plate secured to the under side of the tongue and having the upper surface of its rear end rounded downward, a spring lift-bar held between the tongue and the plate and extended rearward thereof, and a stiff link connecting the extended end of the spring-bar with the lift-lever of the planter, substantially as set forth.

2. A planter-tongue the under surface of which is rounded upward at its rear end, a plate under the tongue having a downcurved rear end and side lugs, a saddle on the tongue, a U-bolt resting in the saddle and exteading through the lugs, and a spring lift-bar held between the tongue and the plate and extended rearward thereof, substantially as set forth.

3. A reel for planters, comprising a reel-shaft adapted to be either driven from the planter or locked against rotation, and a reel on the shaft connected therewith by a friction-clutch, or friction-developer, substantially as set forth.

4. In a planter, the combination of a reel journaled under the driver's seat, and a wire-guide mounted slidably on the scraper-bar, substantially as set forth.

5. In a planter, the combination of a round scraper-bar, or shaft, a wire-guide mounted loosely on the scraper-bar, and a reel journaled above the scraper-bar, substantially as set forth.



6. In a planter, the combination of the rear cross-bar of the frame, a scraper-bar below and slightly in front of the cross-bar, a wire-guide on the scraper-bar adapted to swing against the cross-bar, and a reel above the bars, substantially as set forth.

7. In a planter, the combination of a reel under the driver's seat, a wire-guide mounted slidably on the frame under the reel, and a lever, adjacent to the seat, connected with the wire-guide, substantially as set forth.

8. In a planter, the combination of a reel under the driver's seat, a wire-guide mounted slidably on the frame under the reel, a lever, adjacent to the seat, connected with the wire-guide, and an auxiliary guide-hook extended below the front or runner planter-frame, substantially as set forth.

9. A wire-guide for the reels of planters comprising a sleeve adapted to a scraper-bar, an eye portion, a curved and concaved portion, and stop-fingers adapted to engage a cross-bar of the planter, substantially as set forth.

10. A friction clutch, or developer, for check-row wire-reels, comprising a friction-wheel, a bracket secured to the reel and having pivot-pins, clamp members adapted to embrace the wheel and having hooks to engage the pivot-pins, a bolt extending through the free ends of the clamp members, a nut on the bolt, and a spring between the nut and one of the clamp members, substantially as set forth.

11. An adjustable connection between a check-row lever and a connecting-rod, the same consisting of a concaved saddle-block placed between the rod and the lever with the concaved face against the rod, and a hook, or eye, bolt embracing the rod and extending through the block and the lever, substantially as set forth.

12. A check-row movement comprising a forked lever, a rock-arm, a pawl having a forked operative end, and a ratchet-wheel the teeth of which are rod-formed, the forked lever being connected with the rock-arm and the pawl being pivoted on the rock-arm and adapted to engage the ratchet-teeth, substantially as set forth.

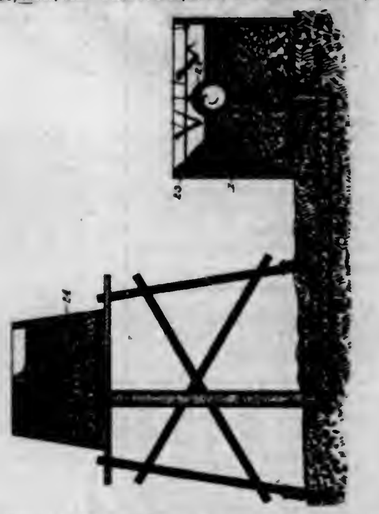
13. A check-row movement consisting of a ratchet-wheel composed of a disk, a ring and interposed rods, a forked pawl adapted to engage the teeth of the ratchet, a rock-arm carrying the pawl, and a forked lever connected with the rock-arm, substantially as set forth.

14. The combination with an intermittently-oscillating lever situated under a seedbox and adapted to actuate the second drop-valve of a planter, of an intermediate swinging valve having its free end resting on the lever in position to close the passage from the seed-disk when the lever rises, substantially as set forth.

15. The combination with an intermittently-oscillating lever situated under a seedbox and adapted to actuate the second drop-valve of a planter, of an intermediate swinging valve having its free end resting on the lever in position to close the passage from the seed-disk when the lever rises, such intermediate valve being detachable from its pivot and having a recess adapted to engage the outer end of the lever and hold it raised, substantially as set forth.

16. The combination of a ratchet-wheel, a pawl adapted to intermittently actuate the wheel, a hand-lever with which the pawl is connected, a foot-lever, a bar connecting the hand-lever with the foot-lever, and a retractile spring common to both the hand-lever and the foot-lever, substantially as set forth.

574,540. VALVE HILLARY H. HALLEY and ROBERT I. MCCULLEY, Stiles, Tex. Filed Jan. 31, 1896. Serial No. 577,562. (No model.)



Claim.—1. The combination of a valve adapted to be seated by internal pressure in the valve-casing, and a float loosely seated on the stem of the valve and held by gravity in operative relation therewith whereby when vibrated it is unseated, the weight of the float being sufficient to open the valve when the level of the liquid falls below a predetermined point, substantially as specified.

2. The combination of a valve adapted to be seated by internal pressure in the valve-casing, a cup carried by the stem of said valve, and a float provided with a head removably seated in said cup and held in place therein by gravity, substantially as specified.

3. The combination of a valve adapted to be seated by internal pressure in the valve-casing and carrying a cup, a float provided with a head removably seated in said cup, and exposed means connected to the float and adapted when vibrated to dismount the head from the cup and thus disconnect the float from the valve, substantially as specified.

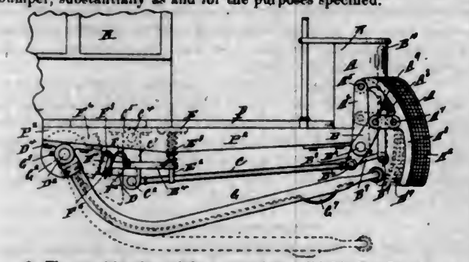
4. The combination of a valve adapted to be seated by internal pressure in the valve-casing, a cup carried by the valve, a float having a head seated in said cup, and limiting or guy wires attached to the float and arranged in exposed positions, vibration of the wires being adapted to cause the disconnection of the float from the valve, substantially as specified.

5. The combination of a valve adapted to be seated by internal pressure in the valve-casing, a float having a loose detachable connection with the stem of the valve and adapted to be disconnected by vibration or jarring, an eye attached to the float, and radially-disposed limiting or guy wires attached at their inner ends to said eye and at their outer ends to fixed objects, substantially as specified.

574,541. FENDER FOR STREET-CARS. LYTLE J. HUNTER, Covington, Ky., assignor of one-fortieth to O. C. Phillips, Columbus, Ohio. Filed Mar. 18, 1896. Serial No. 582,231. (No model.)

Claim.—1. In combination with a car, the movable bumper or trigger guard, and the dropable fender, and mechanism between the bumper and the fender for enabling the moving of the bumper in a given direction to drop the fender, and the support to wit hook D, fixed to shaft D^3 of the fender, and mechanism for automatically retracting the bumper and for returning the swinging support C^3 under the hook D, as soon as pressure upon the bumper A is removed, substantially as and for the purposes specified.

2. The combination of the car, a dropable fender, and the oscillatory pivoted support C^3, swung from a pivot C^4 of the platform, and the arm D fixed to the fender-shaft D^3, and the movable bumper and mechanism for moving the bar C connected ultimately with the bumper, substantially as and for the purposes specified.



3. The combination of the car, and the slidable bar C and a pivoted oscillating support for the arm D, and shaft D^3 and fender G fixed thereto, and mechanism substantially as set forth for moving the bar C and dropping the fender, and the bumper A, and mechanism substantially as described for enabling the latter when moved to actuate the bar C, substantially as and for the purposes specified.

4. The combination of the car, and a dropable fender, having axial shaft D^3, and lever-arm D thereon, and a pivoted oscillating support C^4, C^3, C^3, and a reciprocatory bar C and connected to the latter, and mechanism substantially as set forth for moving the said bar C and dropping the fender, and for enabling the bumper when moved to actuate the bar C, and the driver's lever, and mechanism substantially as set forth for enabling this lever to actuate the bar C, substantially as and for the purposes specified.

5. In a car-fender mechanism, the combination of means for withdrawing the support for the fender, the fender G, shaft D^3 thereof, arm E^4 of said shaft, spring E^3 to depress said arm, ratchet-wheel F^4 on said shaft, spring F, and pawl F^4, substantially as and for the purposes specified.

6. In a car-fender mechanism, the combination of means for withdrawing the support for the fender, the fender G, shaft D^3 thereof, arm E^4 of said shaft, spring E^3 to depress said arm, ratchet-wheel F^4 on said shaft, spring F fixed to arm E^4, and pawl F^4 also fixed thereto and engaging the ratchet-wheel, substantially as and for the purposes specified.

7. The fender having in its front portion a broad curved depressed sheet extending over the rails and across the road-bed between the rails, substantially as and for the purposes specified.

8. The fender having at front an elastic coiled wire, and behind the latter a curved depressed sheet extending across the track and over the rails, substantially as and for the purposes specified.

9. The fender, having at and across its front an elastic coiled wire, and behind the latter a curved depressed portion extending across the track and over the rails, and a netting fabric, at rear of the latter, substantially as and for the purposes specified.

10. In a fender, the combination of the rigid side arms or bars G^4, and the yielding portion G^3, connected to the bars, and the downwardly-curved part G^7 held between and by the bars, and the coiled spring G^8, at each end embracing the end of the adjacent side bars, this forward end of each side bar being at right angles to the rest of the bar, substantially as and for the purposes specified.

11. The bumper A pivoted at A^4, and pivotally connected by links A^5 to the lever B, shaft B^3, lever B and lever B^2 fixed thereto, and rod C, carrying mechanism for directly supporting the fender, substantially as and for the purposes specified.

12. The bumper A pivoted at A^4, and pivotally connected by link A^5 to the lever B, shaft B^3, lever B and lever B^2 fixed thereto, and rod C, hanger C^3 connected to said rod, shaft D^3 and arm D supported thereon, and fender fixed to said shaft, substantially as and for the purposes specified.

13. The bumper A pivoted at A^4, and pivotally connected by link A^5 to the lever B, shaft B^3, lever B and lever B^2 fixed thereto, and rod C, hanger C^3 connected to said rod, shaft D^3 and arm D supported thereon, and fender fixed to said shaft, and ratchet F^4, and pawl for engaging the latter, substantially as and for the purposes specified.

14. The bumper A pivoted at A^4, and pivotally connected by link A^5 to the lever B, shaft B^3, lever B and lever B^2 fixed thereto, and rod C, hanger C^3 connected to said rod, shaft D^3 and arm D supported thereon and fender fixed to said shaft, and arm E^4 of shaft D^3, and spring E^3 for depressing said arm, substantially as and for the purposes specified.

15. The bumper A, pivoted at A^4, and pivotally connected by link A^5 to the lever B, shaft B^3, lever B and lever B^2 fixed thereto, and rod C, hanger C^3 connected to said rod, shaft D^3 and arm D supported thereon and fender fixed to said shaft, and arm E^4 of shaft D^3, and spring E^3 for depressing said arm, and ratchet F^4 on shaft D^3, and pawl F^4 and spring F, both supported by arm E^4, substantially as and for the purposes specified.

16. In combination with the fender and means for supporting the same, shaft B^3, and means for enabling the transverse reciprocatory rotatable shaft to withdraw the support of the fender including arm B^2 and pull-rod C connected to the free end of said arm, the spring B^{12} embracing the shaft and at one end connected to a stationary portion of the mechanism and at the other to the shaft B^3, substantially as and for the purposes specified.

17. In combination with the fender and means for supporting the same, shaft B^3, and means for enabling the transverse reciprocatory rotatable shaft to withdraw the support of the fender including arm B^2 and pull-rod C connected to the free end of said arm, the spring B^{12} embracing the shaft and at one end connected to a stationary portion of the mechanism and at the other to the shaft B^3, and the bumper A and interconnecting mechanism, substantially as and for the purposes specified.

18. In combination with the fender and means for supporting the same, shaft B^3, and means for enabling the transverse reciprocatory rotatable shaft to withdraw the support of the fender, the spring B^{12} embracing the shaft and at one end connected to a stationary portion of the mechanism and at the other to the shaft B^3, and the bumper A, pivotally fulcrumed, and lever B mounted on said shaft B^3, and a connection between the bumper and said lever, substantially as and for the purposes specified.

19. In combination with the fender and means for supporting the same, shaft B^3, and means for enabling the shaft to withdraw the support of the fender, the spring B^{12} embracing the shaft and at one end connected to a stationary portion of the mechanism and at the other to the shaft B^3, and vertical lever B^{10}, pivotally fulcrumed, and hook-piece engaging same and connected to said means for enabling the shaft B^3 to withdraw the support of the fender, substantially as and for the purposes specified.

20. In mechanism for dropping the car-fender, the combination of the lever B^{10}, pivotally fulcrumed, shaft B^3, levers B and B^2 thereof, hook-piece B^7, B^8, connected to the latter lever, substantially as and for the purposes specified.

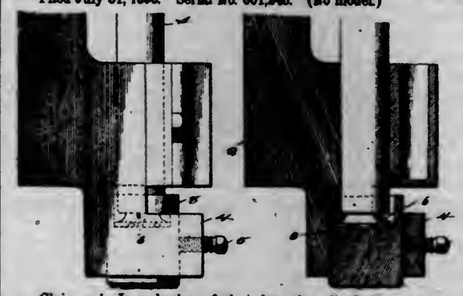
21. In mechanism for dropping the car-fender, the combination of the lever B^{10}, pivotally fulcrumed, shaft B^3, levers B and B^2 thereof, hook-piece B^7, B^8, connected to the latter lever, and bumper A connected to lever B, all substantially as and for the purposes specified.

22. In mechanism for dropping the car-fender, the combination of the lever B^{10}, pivotally fulcrumed, shaft B^3, levers B and B^2 thereof, hook-piece B^7, B^8, connected to the latter lever, and bumper A connected to lever B, and spring for retracting the bumper and hook-piece, and the mechanism for supporting the fender, substantially as and for the purposes specified.

23. The combination of bumper A, and lever B^{10}, lever B for bumper, shaft B^3, lever B^2 fixed thereto, hanger C^3, rod C connected to lever B^2 and hanger C^3, shaft D^3, arm D, and fender thereon, arm D for connection with hanger, ratchet, and pawl, arm E^4 of shaft D^3 and spring for depressing same, all substantially as and for the purposes specified.

24. The combination of a bumper pivotally hung and a shaft B^2 and a lever connected with the said shaft and operated by the bumper, and the dropable fender, and mechanism for enabling the operation of said lever to drop the said fender, and a spiral spring as B^{12} for retracting the bumper and adding to the resiliency of its movement, and fixed at one end to the car, and a ring and a set-screw, whereby the tension of this spring can be adjusted, substantially as and for the purposes specified.

574,542. LUBRICATOR. LEONIDAS C. KIRBY, Montgomery, Pa. Filed July 31, 1896. Serial No. 601,246. (No model.)



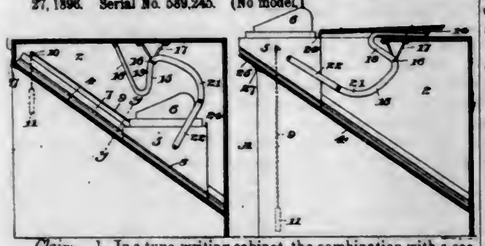
Claim.—1. In a device of the class described, the combination with a shaft, of a step or cup having a socket receiving an end of the shaft, and a bearing-plate interposed between the shaft and the bottom of the socket and provided with a perforation extending through

the plate from the end of the shaft and communicating at its outer end with the supply of oil within the step or cup, said perforation being arranged at a point between the axis of the shaft and its circumference, whereby when the shaft rotates, the lubricant will be spread over the bearing-plate and the end of the shaft by centrifugal force, substantially as and for the purpose described.

2. In a device of the class described, the combination with a shaft, of a step or cup having a socket, and a bearing-plate interposed between the bottom of the socket and the end of the shaft, provided at its outer face with a groove or way and having a perforation communicating with the groove or way and extending therefrom to the end of the shaft, said perforation being located at a point between the center of the shaft and the periphery thereof, whereby oil will be spread over the ends of the shaft by centrifugal force, substantially as described.

3. In a device of the class described, the combination of a bearing provided with a depending substantially L-shaped arm having a vertical opening, a vertical shaft mounted in the bearing, a cup or step provided with a socket adjustably secured in the opening of said arm and receiving the lower end of the shaft, and a bearing-plate interposed between the bottom of the socket and the lower end of the shaft, having a groove or passage at its lower face and provided with a perforation extending from the groove to the end of the shaft, and arranged to deliver oil to the end of the shaft at a point between the center and the periphery thereof, whereby the oil will be spread by centrifugal force, substantially as described.

574,543. TYPE-WRITING CABINET. GEORGE B. KLINE, Woodstock, Ill., assignor of one-half to V. S. Lumley, same place. Filed Apr. 27, 1896. Serial No. 589,245. (No model.)



Claim.—1. In a type-writing cabinet, the combination with a casing having an aperture in its top, a carrier or support for a type-writer mounted within said casing, means for moving such carrier to move the machine thereon through the aperture in the top of the casing, and a plate adapted to cover said aperture when the type-writer support is in its lowered position and to contact with said support when the latter is elevated, substantially as and for the purpose set forth.

2. In a type-writing cabinet, the combination with a casing having an aperture formed in its top, a guideway arranged within the casing in line with said aperture, a carriage or support for a type-writer fitted to said guideway, a cover-plate adapted to close the aperture in the top when the said carriage or support is in a lowered position, and links connecting said plate with said carriage, whereby when the plate is removed from the aperture the carriage will be elevated to carry the type-writer thereon through such aperture, and said plate will act to maintain the carriage in its elevated position, substantially as set forth.

3. In a type-writer cabinet, the combination with a casing having an inclined support arranged therein, of a carriage or movable carrier mounted on said support and adapted to have a type-writer secured thereto, a plate hinged to the forward end of the inclined support and normally lying in the planes of the front of the casing, and means for moving the carriage to bring the machine thereon above the plane of the top of the casing and the forward end thereof beyond the front wall of such casing, substantially as set forth.

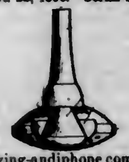
4. In a type-writing cabinet, the combination with a casing having a guideway formed therein and alining with an opening in the top of the casing, a carriage or movable carrier for a type-writer fitted to move longitudinally of said guideway, a cover-plate for closing the opening in the casing-top, and means connecting the movable carrier and said cover-plate whereby said parts will move simultaneously and when adjusted to bring the type-writer into position for use said top plate will lie in rear of and contact with the carriage to maintain it in its adjusted position, substantially as set forth.

5. In a combined desk and type-writer cabinet, the combination with a casing having a movable top plate, a counterbalanced carriage mounted within said casing and adapted to support a type-writer, and a toggle having one member connected to the said carriage and its other member connected to the movable top plate, said toggle being arranged to lock the carrier in its upper position, substantially as set forth.

6. In a combined desk and type-writer cabinet, the combination with a casing having a movable top plate, and a movable carrier mounted within said casing and adapted to support a type-writer, of a lever fulcrumed below the casing-top and having two oppositely-curved arms, one of which is connected with the movable top plate, and a link connecting the other arm of such lever with the movable carrier, substantially as set forth.

7. In a type-writer cabinet, the combination with a casing having an inclined guideway arranged therein, of a carrier mounted on said guideway and adapted to support a type-writer, means for moving said carrier and its load on said way, and a spring-pressed plate hinged to the upper end of said inclined guideway and adapted to form an extension thereof under pressure exerted by the said movable carrier, substantially as set forth.

574,544. VOCALIZING-AUDIPHONE. JAMES A. LAKIN, Westfield, Mass. Filed Oct. 22, 1896. Serial No. 609,704. (No model.)

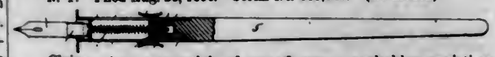


Claim.—1. A vocalizing-audiphone comprising a hollow case having an ear-tube extending from one side and a perforated cover applied to the opposite side thereof, combined with a dome of resonant material secured by its apex to the inner side of said cover, and a hollow cone-shaped sound-receiver connected by one end to the inner surface of said dome, but mainly separated therefrom, substantially as set forth.

2. A vocalizing-audiphone comprising a hollow case having an ear-tube extending from one side and a perforated cover applied to the opposite side thereof, combined with a dome of resonant material attached by its apex, only, to the inner side of said cover, whereby the body thereof is free for resonant action, and a hollow cone-shaped sound-receiver of resonant material connected by one end to the inner surface of said dome, but mainly separated therefrom, substantially as set forth.

3. A vocalizing-audiphone comprising a hollow case having an ear-tube extending from one side and a perforated cover applied to the opposite side thereof, combined with a dome of resonant material secured by its apex to the inner side of said cover, substantially as set forth.

574,545. PENHOLDER. MULFORD W. LANSING, Lisha's Kill, N. Y. Filed Aug. 26, 1896. Serial No. 603,947. (No model.)



Claim.—As a new article of manufacture a penholder consisting of a stock of any desirable form, and a sleeve secured thereto and provided on its opposite sides with longitudinal slots therein, an annular flange on the rim or the outer end thereof, a cross plate or bar mounted in said tube near the outer ends of said slots, the outer end of said pen-stock being provided with a chamber centrally formed therein, a rod mounted in said cross-plate and extending through said tube, a cross-bar secured to the inner end of said rod and projecting through said slots, disks or plates slightly concave on either end of said bar outside of said tube, a spring mounted on said rod between said cross-bars and cross-plate, a suitable penholder secured to the outer end of said rod adapted to engage the pen, all of said parts being combined substantially as and for the purposes set forth and described.

574,546. MONEY WRAPPER AND COUNTER. CHARLES B. LAWLOR, New York, N. Y., assignor of one-half to James W. Blake, same place. Filed Dec. 23, 1895. Serial No. 572,990. (No model.)



Claim.—1. As an article of manufacture a combined wrapper and counter for coins, comprising a semicylindrical coin-holder, having at each end thereof a disk or end piece rigidly secured thereto; said holder only partially surrounding said disks, so as to provide an opening for the insertion of the coins, and a semicylindrical portion or cover for closing said opening fitting snugly within said holder and also provided with end pieces or disks arranged to rotate in the plane of the disks of the holder; the end pieces of the holder being provided with pivots on their inner surfaces on which the end pieces of the inner member or cover are pivotally supported; said inner portion being adapted to rotate within the outer portion in frictional contact therewith, substantially as described.

2. As an article of manufacture a coin-container composed entirely of paper and consisting of a semicylindrical coin-holder, having at each end thereof a disk or end piece rigidly secured thereto; said holder only partially surrounding said disks, so as to provide an opening for the insertion of the coins, and a semicylindrical portion or cover for closing said opening fitting snugly within said holder and also provided with end pieces or disks arranged to rotate in the plane of the disks of the holder; the end pieces of the holder being provided with pivots on their inner surfaces on which the end pieces of the inner member or cover are pivotally supported; said inner portion being adapted to rotate within the outer portion in frictional contact therewith, and means for securing the cover to the holder, substantially as described.

3. In a wrapper and counter for coins and the like, the combination with a holder comprising disks or end pieces, and a casing partially surrounding the same, of a cover or member provided with end pieces eccentrically pivoted to the inner surfaces of said disks so as to pass within the holder when rotated in one direction and to inclose the open portion of said holder when moved in the opposite direction, together with a handle arranged upon said cover, whereby the coins may be readily inserted into and retained within the holder or removed therefrom, substantially as described.

574,547. THILL-COUPLING. EVERETT B. LEWIS, Dwight, Ill. Filed July 29, 1896. Serial No. 600,928. (No model.)



Claim.—1. In a thill-coupling, the combination with a bracket adapted for connection to the axle of the vehicle and for the reception of the thill, said bracket being provided with a slot which extends through one of the arms thereof, and also having a second locking-slot in the inner face of a recess in the arm, of a cylindrical locking-bolt provided with a pin which is adapted to be passed through the first-named slot and to be turned so that its pin will be received in the locking-slot.

2. In a thill-coupling the combination with a bracket adapted for connection to the axle of the vehicle, the said bracket being provided with an open head, which head is formed with an internal locking-slot and also having a slot which leads through the side of the head into the opening in the latter, of a locking-bolt provided with a pin which is adapted to be passed through the last-named slot and be turned so that its pin will be received in the locking-slot, and a coil-spring encircling the bolt and interposed between the end of the latter and the head of the bracket whereby after the bolt is once located the pin is retained in the locking-slot.

574,548. NUT-LOCK. FRANK P. LEWIS, ELDRIDGE N. STAPP, and ACHILLE STAPP, South Greenfield, Mo. Filed Oct. 29, 1896. Serial No. 610,503. (No model.)



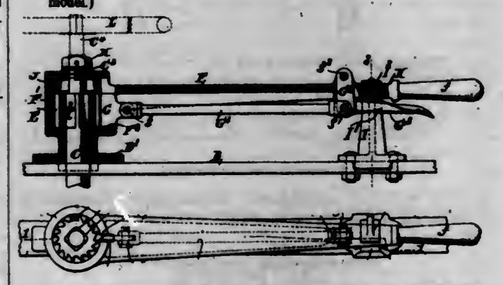
Claim.—1. In a nut-lock, the combination of a nut provided with an extension having an annular series of ratchet-teeth, and an oscillating arm journaled on the extension and provided with a spring-actuated pawl adapted to engage the ratchet-teeth of the extension of the nut, said oscillating arm being adapted to rotate the nut and to lock the nut against retrograde rotation, substantially as described.

2. In a nut-lock, the combination of a nut having an extension with an annular series of ratchet-teeth, an oscillating arm journaled on the extension, and a spring-actuated pawl having a beveled tooth mounted on the oscillating arm and engaging the annular series of ratchet-teeth, said pawl detachably securing the oscillating arm to the extension, whereby the oscillating arm is adapted to be readily moved or reversed, so that the ratchet mechanism may be employed for screwing the nut in either direction, substantially as described.

3. In a nut-lock, the combination of a nut comprising a disk and a sleeve extending from the disk and having an annular series of ratchet-teeth, an oscillating arm journaled on the sleeve and having one end rounded and the other end squared, the rounded end of the arm being substantially flush with the adjacent portion of the periphery of the said disk, and a spring-actuated pawl mounted on the oscillating arm and engaging the ratchet-teeth, substantially as described.

4. In a nut-lock, the combination of a nut provided with a sleeve having an annular series of ratchet-teeth, an oscillating arm having an opening to receive the sleeve and provided with a longitudinal bore intersecting the said opening provided with a reduced portion forming a shoulder, said arm being provided at its outer end with a recess, a pawl mounted in the bore of the oscillating arm and provided with a stem, a plate fitting in the recess of the oscillating arm and connected to the stem of the pawl, and a coiled spring disposed on the stem of the pawl and bearing against the latter and the said shoulder, substantially as described.

574,549. BRAKE-ACTUATING MECHANISM. CHARLES LINDSTRÖM, Altoona, Pa. Filed May 14, 1896. Serial No. 591,491. (No model.)



Claim.—1. In combination with the rotatable shaft as C of brake-setting mechanism having a ratchet and pawl as D D' to hold the brake closed, of a lever pivoted on shaft C, a clutch secured to said lever and arranged to engage and turn the shaft when the lever is moved in the direction to set the brake while permitting the lever to move freely in the opposite direction, and an automatic clutch-releasing device whereby the clutch and shaft are disengaged when the lever is in its normal position of rest.

2. In combination with the rotatable shaft as C of brake-setting mechanism having a ratchet and pawl as D D' to hold the brake closed of a lever pivoted on shaft C, a clutch secured to said lever and arranged to engage and turn the shaft when the lever is moved in the direction to set the brake while permitting the lever to move freely in the opposite direction, a stop to hold the lever in normal position of rest, and an automatic clutch-releasing device whereby the clutch and shaft are disengaged when the lever is in its said normal position of rest.

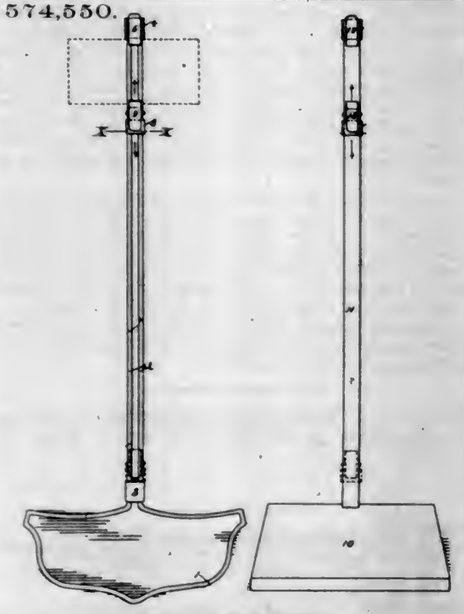
3. In combination with the rotatable shaft as C of brake-setting mechanism having a ratchet and pawl as D D' to hold the brake closed, of a lever pivoted on shaft C, a clutch secured to said lever and arranged to engage and turn the shaft when the lever is moved in the direction to set the brake, a clutch-releasing lever as G^3 G^4 pivoted to the brake-setting lever at or near the handle-grip and a fixed stop as I' I^3 arranged to act on the clutch-releasing lever whenever the brake-setting lever is moved to its normal position of rest

4. In combination with the hand-rail of a car-platform, a rotatable brake-setting shaft as C having a ratchet and pawl as D D' for holding the brake closed, a brake-setting lever as F pivoted to shaft C above the hand-rail, a clutch device secured to said lever whereby it engages and turns the shaft when moved in the direction to set the brake, a clutch-releasing lever as G^4 G^3 pivoted to lever F near its handle-grip and a stop as I' I^3 secured to the hand-rail and adapted to actuate lever G^4 G^3 and stop the motion of lever F when said lever F is moved to a position parallel or nearly so to the hand-rail.

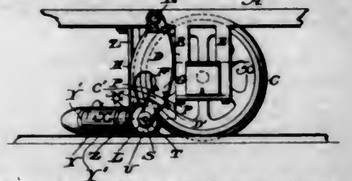
574,550. TICKET-HOLDER. WILLIAM S. LODER, Albany, N. Y. Filed May 10, 1894. Serial No. 510,736. (No model.)

Claim.—A sign-holder comprising a base and upright bent from a length of wire, the upright consisting of parallel strands of wire forming plane-like surfaces against which the sign or signs may be pressed and a slide or slides movable along said upright and having grippers by which to bind the sign or signs thereto, substantially as shown and described.

574,550.



574,551. CAR-FENDER. WILLIAM LOREY, Philadelphia, Pa. Filed Apr. 9, 1896. Serial No. 586,819. (No model.)



Claim.—1. In a car-fender, a shield supported in front of a running wheel of a car, a wheel on said shield adapted to contact with said running wheel, rolls carried by a frame, and mechanism intermediate said wheels and rolls for rotating the latter, substantially as described.

2. In a car-fender, a shield in front of the running wheel of a car, arms extending from said shield, a wheel and axle journaled in said arms and adapted to contact with said running wheel, rolls suitably mounted, and mechanism intermediate the latter and said arms for rotating said rolls, substantially as described.

3. In a car-fender, the strap M having the head L, and arms P provided with studs Q, in combination with an arm having sockets therein, and the recessed portion K, the latter being adapted to be placed in juxtaposition with a similar recessed portion N in the head L, and means for holding said strap in position, substantially as described.

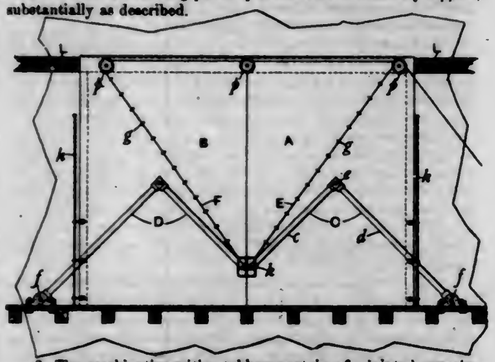
4. A car-fender having hangers D provided with the portions F and H, the arms G depending from said hangers, bearings therein, the axles S supported in said bearings, said axles having heads T and gears V mounted thereon, in combination with the gears W and the rolls Y and C suitably supported, substantially as described.

5. In a car-fender, a stationary frame having a netting and projecting arms at its front end, rolls journaled in said arms and having conical abutting ends, bevel-wheels on the other ends of said rolls, swinging shields for the front running wheel of the car, having depending side arms, wheels journaled in said arms and adapted to contact with said running wheels, and bevel gear-wheels on the shaft of said shield-wheels adapted to mesh with said bevel-wheels on the ends of the rolls, said parts being combined, substantially as described.

6. In a car-fender, shields pivotally supported in front of the running wheels of a car, wheels rotatably mounted upon said shields, a frame and rolls thereon actuated by said running wheel, substantially as described.

574,552. TABLEAU-CURTAIN. EDWARD LYTTON, London, England. Filed Sept. 29, 1896. Serial No. 607,306. (No model.) Patented in England Feb. 13, 1896, No. 3,249, and in France Aug. 13, 1896.

Claim.—1. The combination with a tableau-curtain, of a jointed arm pivotally attached to the curtain at or near its inner edge, the other end of the arm being pivotally attached to a stationary support, substantially as described.



2. The combination with a tableau-curtain, of a jointed arm pivotally attached to the curtain at or near its inner lower corner, the other end of the arm being pivotally attached to a stationary support at one side of the stage, substantially as described.

3. The combination with a tableau-curtain, of an arm composed of two links hinged together, one link being pivotally attached to the curtain, and the other to a stationary support, said links being arranged to move in an upright plane only, substantially as described.

4. The combination with a tableau-curtain, of an arm composed of two links hinged together, one link being pivotally attached to the curtain, and the other to a stationary support, said links being of such a length as to stand at an angle to each other when the curtain is down, substantially as described.

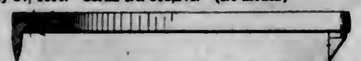
5. The combination with a tableau-curtain, of an arm composed of two links, one pivotally attached to the curtain, and the other to a stationary support, said links being hinged together by a joint which prevents them from folding together beyond a predetermined angle, substantially as described.

6. The combination with a tableau-curtain, of a jointed arm having one end pivotally attached to the curtain and the other end pivotally attached to a stationary support, and a lifting-cord attached at or near the inner end of the arm and running diagonally toward the upper outer corner of the curtain, substantially as described.

7. The combination with a tableau-curtain, of a jointed arm pivotally attached to the curtain and to a stationary support, a cord for lifting the inner end of said arm, and means for retaining the outer edge of the curtain in a given upright position, substantially as described.

8. In tableau-curtains, the combination with the parts A, B, thereof, of the arms C, D, composed of links *c d* hinged together at *c* and pivotally attached to the parts A B at *k* and to the stage at *f*, the rings *g* on the parts A, B, the cords E F attached to the parts A B at *k* and running through the rings *g*, the upright rods *h* to which the outer edges of the parts A B are loosely attached, and the batten L to which the upper edges of the parts A B are attached, substantially as described.

574,553. HORSESHOE. JOHN MACDOUGALL, Wyoming, Pa. Filed May 27, 1896. Serial No. 593,278. (No model.)

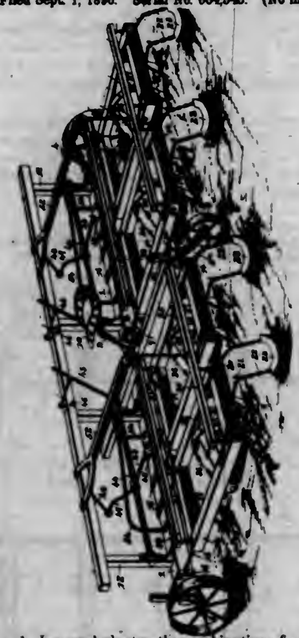


Claim.—1. A horseshoe provided on the under side of its toe-section with a calk-seat having retaining-walls; a depending section struck from the body of the shoe and extending into the body of said seat; a calk adapted to snugly fill said seat and provided upon its upper face with a recess adapted to receive said depending section of the shoe proper, substantially as described and for the purpose set forth.

2. A horseshoe provided on the under side of its toe-section with a tapered calk-seat having inwardly-inclined walls; a depending section struck from the body of the shoe and extending into the body of said seat; a calk adapted to snugly fill said seat and provided upon its upper face with a transverse recess adapted to receive said depending section of the shoe proper, substantially as described and for the purpose set forth.

3. The combination with a horseshoe, provided with a cylindrical calk-seat having a threaded and an enlarged section, of a washer formed of plastic material adapted to fill the enlarged section of said seat, and a calk having the body provided with a threaded stem adapted to fill the threaded section of said seat, and further provided with a cylindrical shoulder having a roughened or corrugated face arranged to tightly impinge upon said washer when the calk is turned home in its seat, substantially as described and for the purpose set forth.

574,554. SEED-PLANTER. MAXIMILIAN MANNEWITZ, Abilene, Tex. Filed Sept. 1, 1896. Serial No. 604,545. (No model.)



Claim.—1. In a seed-planter, the combination of a wheeled draft-axle having a central rearwardly-extending reach-bar carrying at its rear end a guide wheel or caster and supporting a driver's seat, transversely-alined hopper-carrying frames arranged at opposite sides of said reach-bar and flexibly connected at their front ends with said draft-axle, said hopper-frames carrying furrow opening and closing devices, and rolling hopper-drums loosely journaled within said frames, substantially as set forth.

2. In a seed-planter, a wheeled draft-axle, transversely-alined hopper-frames arranged in rear of the draft-axle and flexibly connected at their front ends thereto, said frames carrying furrow openers and coverers and seed-hoppers, suspension devices for said hopper-frames, and means for adjusting the suspension devices for raising and lowering the hopper-frames, substantially as set forth.

3. In a seed-planter, a long wheeled draft-axle having a central rearwardly-extending reach-bar carrying a guide-wheel, horizontal suspension-bars arranged at opposite sides of the reach-bar in rear of the draft-axle, adjusting means for raising and lowering said suspension-bars, and a plurality of hopper-frames loosely suspended from said suspension-bars and flexibly connected at their front ends with the draft-axle, substantially as set forth.

4. In a seed-planter, a long wheeled draft-axle, a pair of horizontal suspension-bars arranged in rear of the draft-axle, adjusting means for supporting the suspension-bars and providing for raising and lowering the same, and a plurality of transversely-alined hopper-frames loosely hung at their front and rear ends respectively from said front and rear suspension-bars and flexibly connected at their front ends with the draft-axle, said hopper-frames carrying furrow openers and coverers and rolling seed-hoppers, substantially as set forth.

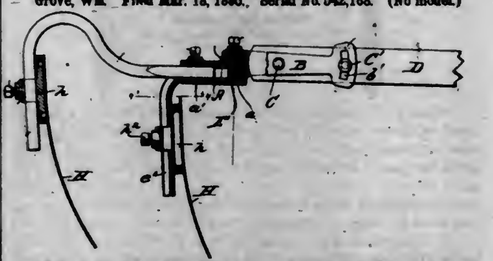
5. In a seed-planter, a long wheeled draft-axle having a central rearwardly-extending reach-bar carrying a guide-wheel, an upright frame mounted on top of said axle, a pair of front and rear horizontal suspension-bars arranged at opposite sides of the reach-bar in rear of the draft-axle, a plurality of transversely-alined hopper-frames loosely hung at their front and rear ends respectively from each pair of front and rear suspension-bars and flexibly connected at their front ends with the draft-axle, said hopper-frames carrying furrow openers and coverers and rolling seed-hoppers, supporting-brackets extending rearwardly from the top of said upright frame over each pair of suspension-bars and carrying at their rear ends guide-pulleys, separate guide-pulleys mounted on the upright frame adjacent to the front ends of said rearwardly-extending brackets, horizontal lever-adjusted rock-shafts journaled on the upright frame at opposite sides of the central reach-bar and provided with a pair of offstanding rock-arms, a flexible connection between one rock-arm of each rock-shaft and the adjacent front suspension-bar, and an elevating chain or rope connected at one end with the other rock-arm of each rock-shaft, passing over said guide-pulleys, and connected at its other end with the rear suspension-bar directly in rear of such rock-shaft, substantially as set forth.

6. In a seed-planter, a long wheeled draft-axle, transversely-alined hopper-frames arranged in rear of the draft-axle and flexibly connected at their front ends thereto, rolling hopper-drums loosely mounted in said frames, furrow-opening shovels mounted at the front ends of said hopper-frames, a pair of covering-shovels mounted at the rear ends of the hopper-frames, a pair of rearwardly-convergent supporting-arms extended rearwardly from the rear ends of the hopper-frames, and horizontal covering drag-shoes flexibly connected with said supporting-arms, substantially as set forth.

7. In a planter, the combination with a hopper-carrying frame; of a stationary hopper-axle mounted transversely in the frame, a rolling hopper-drum loosely mounted on the hopper-axle, said hopper-drum being polygonal in cross-section and contracted toward both ends to provide a central annular ridge portion having a circular series of regularly-spaced dropping-openings, a circular interior slide-band guided for movement within the drum at the inner side and against the central ridge portion thereof and provided with a series of seed-openings adapted to be thrown in and out of alinement with the dropping-openings of the drum, said feed-regulating slide-band being further provided with a short rack portion, and a crank-operated shaft journaled within the drum and carrying a pinion meshing with said rack portion of the slide-band, substantially as set forth.

8. In a seed-planter, a horizontal wheeled draft-axle, a plurality of transversely-alined hopper-frames arranged in rear of the axle and flexibly connected at their front ends thereto, rolling hopper-drums mounted in said frames, suspension devices having flexible connections with the front and rear ends of all of the hopper-frames, and means for adjusting the suspension devices to provide for raising and lowering the hopper-frames with the drums carried thereby, substantially as set forth.

574,555. HAND-CULTIVATOR. EDWARD M. MINTON, Union Grove, Wis. Filed Mar. 18, 1895. Serial No. 542,163. (No model.)



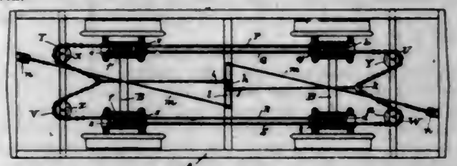
Claim.—1. A hand-cultivator comprising a bifurcated head adapted to embrace the end of a handle and for pivotal engagement therewith, and the furcations of said head being provided in their extremities with slots for engagement with a retaining-bolt to secure the head in an adjusted position upon the handle, said head being further provided with sockets for the reception of shanks, a plurality of shanks having downturned ends and adapted for adjustable and removable engagement with said sockets, and a plurality of blades provided with apertured bosses for adjustable engagement with the downturned ends of said shanks and having suitable set-screws for securing them in their adjusted positions, substantially as described.

2. A hand-cultivator comprising a bifurcated head adapted to embrace the end of a handle and for pivotal engagement therewith, and the furcations of said head being provided in their extremities with slots for engagement with a retaining-bolt to secure the head in an adjusted position upon the handle, said head being provided with a longitudinal and a transverse socket or passage, a plurality of shanks having downturned ends and adapted for engagement respectively with said sockets or passages, and a plurality of blades provided with apertured bosses for adjustable engagement with the downturned ends of said shanks, and provided with set-screws for securing them in their adjusted positions thereon, substantially as described.

574,556. CAR-BRAKE. WILLIAM A. MITCHELL, Saco, Me., assignor of one-half to Jasper Duncan Cochrane, same place. Filed June 15, 1896. Serial No. 595,516. (No model.)

Claim.—1. In car-brake in combination, wheels provided with an enlarged inner hub having sockets in the periphery thereof, semi-

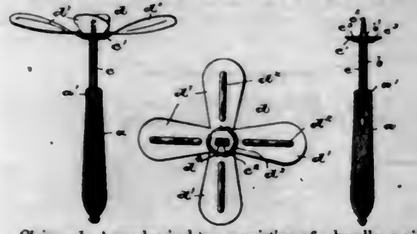
circular collars provided with lugs on their inner periphery surrounding said hub and adapted to be rigidly attached thereto, split brake-shoes adapted normally to loosely fit over said collars, a curved band-spring attached to said brake-shoes and means for tightening and loosening said band-spring, substantially as and for the purposes set forth.



2. In a car-brake in combination, wheels, semicircular collars rigidly attached thereto, a spring-band provided with split brake-shoes adapted normally to fit loosely over said collars, said band-spring being provided with ears containing sockets through which are adapted to run rods to tighten said band-spring, substantially as and for the purposes set forth.

3. In a car-brake, in combination, wheels provided with enlarged inner hubs, split brake-shoes adapted to surround the inner hub of said trucks and held in position by means of curved band-springs provided with ears, rods having an adjusting-nut on one end running through said ears, pulleys attached to the bottom of the car, and chains running from the end of the rods over said pulley to a vertical shaft pivotally attached to the bottom of the car-frame near its center, a yoke rigidly attached to said vertical shaft, and chains running from the arms of said yoke to the ends of the car, substantially as and for the purposes set forth.

574,557. **MECHANICAL TOY.** ERNST G. MOHRICH, Newark N. J. Filed Mar. 5, 1896. Serial No. 581,913. (No model.)



Claim.—1. A mechanical toy, consisting of a handle, a pin *b* secured to the end thereof, and having a head *b'*, a tubular spindle *c* rotatively arranged on said pin, a cup-shaped disk *c'* on said spindle, and a flat post c^3 on said spindle having its ends c^3 secured thereto, and a spinning or flying piece, having wings, and a centrally-arranged and rectangularly-formed opening d^4 adapted to be fitted over said post c^3 on said disk *c'*, substantially as and for the purposes set forth.

2. A mechanical toy, consisting of a handle, a pin *b* secured to the end thereof, and having a head *b'*, a tubular spindle *c* rotatively arranged on said pin, a cup-shaped disk *c'* on said spindle, and a flat post c^3 on said disk having its ends c^3 secured thereto, and a spinning or flying piece *d*, having wings *d'*, ribs d^2 and d^3, a centrally-arranged opening d^4 corresponding in shape to the cross-section of said post c^3 on said disk *c'*, substantially as and for the purposes set forth.

574,558. **PENCIL-SHARPENER.** WILLIAM M. MOSELEY, Elgin, Ill. Filed Oct. 13, 1896. Serial No. 566,059. (No model.)



Claim.—1. In a pencil-sharpener, a notch or slit in the body portion to retain the cutting-blade while said blade is being sharpened, substantially as set forth.

2. A cutting-blade for lead-pencil sharpeners having a cutting edge, a shank or body portion, and a relatively thin portion between the cutting edge and the body portion, said intermediate thin portion being substantially of uniform thickness, substantially as and for the purpose set forth.

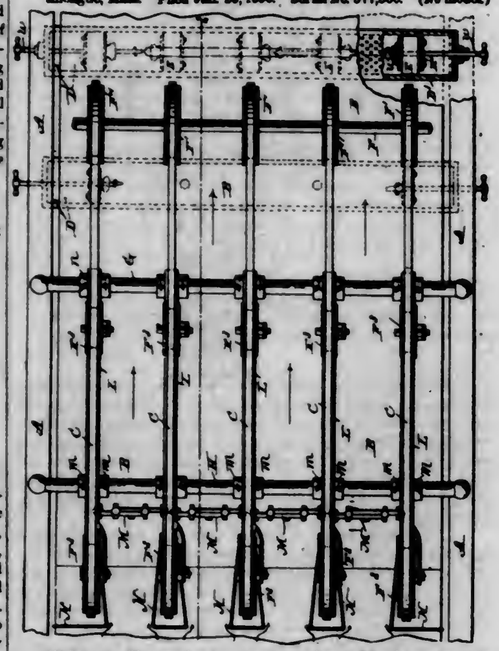
3. A pencil-sharpener comprising a body portion having a tapered bore partially cut away, a cutting-blade removably secured to the body portion with its cutting edge adapted to engage a pencil when entered within said bore, said blade having an extension on the side opposite its cutting edge, and a notch or slit in the body portion adapted to retain said extension while the cutting edge is being sharpened, substantially as described.

4. The cutting-blade for lead-pencil sharpeners described, having a thick body portion and a relatively thin portion, the latter having a cutting edge along one of its margins, grooves or apertures in said thick or body portion for the engagement of screws to effect a transverse adjustment of the blade, and an opening, as *b*, through said body portion, substantially as described.

5. The cutting-blade for lead-pencil sharpeners having a relatively thick shank or body portion provided on its under side with a longitudinal groove, and having between its cutting edge and said grooved body portion a relatively thin portion, substantially as described.

6. In a lead-pencil sharpener comprising a body portion cut away to form a seat, a cutting-blade on said seat and screws in said body portion for adjusting said blade entering sockets in the body portion, and slots, as K, in the body portion intersecting said sockets, substantially as described.

574,559. **PAPER-MAKING MACHINE.** HORACE A. MOSES, Mittineague, Mass. Filed Jan. 29, 1896. Serial No. 577,300. (No model.)



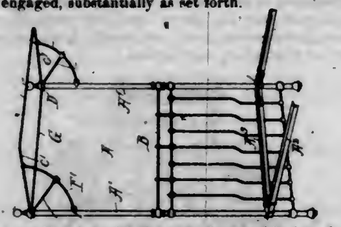
Claim.—1. The suction-box, having a longitudinal opening O in its bottom, and a suction-pipe connected thereto, combined with the adjustable partitions, means for expanding them in place, the deckles, and the endless wire, substantially as described.

2. In a paper-making machine, the combination with the moving endless wire-cloth, of three or more deckle-straps supported adjustably on suitable frames over said wire-cloth, dams attached to the forward ends of the frames supporting said deckle-straps, and a suction-box divided into two or more compartments by movable partitions, a common air-conduit opening into all of the said compartments and communicating with the suction-pipe of a pump, whereby air is withdrawn from said compartments, regardless of the position of the partitions between them, substantially as set forth.

3. In a paper-making machine in combination, the main frame thereof, the deckle-frames thereon having the looped portions S and S', therein, for engagement with the shafts G and H, supported on said main frame, and collars on said shafts for holding said frames in position on said shafts, and the dams N, secured to one end of said deckle-frames, substantially as set forth.

574,560. **METAL BEDSTEAD.** EDDY T. MCKAIG, Chicago, Ill., assignor of two-thirds to E. C. Kadow and S. M. Lane, same place. Filed Oct. 12, 1895. Serial No. 565,510. (No model.)

Claim.—1. The combination with the posts of a metal bedstead, of a canopy-bracket comprising a curved brace-bar adjustably connected at one end with the bed-post and provided at its other end with means for engaging and supporting a canopy-rod and a bracket-arm rigidly connected at one end with the central portion of the curved brace-bar and provided at its other end with an expanded portion and a socket carried by said post with which said expanded portion is engaged, substantially as set forth.



2. The combination with the post of a metal bedstead, of a canopy-bracket comprising a curved brace-bar adjustably connected at one end with the body of the post and provided at its other end with a fork, a hollow metal socket carried by said post and a bracket-arm rigidly connected at one end with the central portion of the curved brace-bar and inserted at its other end within said hollow metal socket, the end portion of the bracket-arm within said hollow metal socket being flattened and expanded laterally so as to prevent its withdrawal therefrom, substantially as set forth.

3. A hollow shell-socket for securing an attachment to the post of a bedstead comprising upper and lower sections separable in a horizontal plane, the lower section being provided with a shank adapted for insertion in the hollow upper end of the post, a bolt for securing said sections together and an aperture in the shell at the line of separation of the parts thereof, substantially as set forth.

4. The combination with a bedstead-post, of a hollow shell-socket for securing an attachment to the post comprising upper and lower sections made separable, a shank on one of said sections for insertion in the post, a stud rigidly connected with one section and extending through the other, and an aperture in the shell at the line of separation of the parts, substantially as set forth.

5. The combination with a bedstead-post of a hollow shell-socket for securing an attachment to the post comprising upper and lower sections made separable, a shank on one of said sections for insertion in the post, a stud rigidly connected with one of the sections and extending through the other, an ornamental retaining-nut engaging with the end of said stud, and an aperture in the shell at the line of separation of the parts, substantially as set forth.

6. The combination with the posts of a metal bedstead of canopy-brackets each comprising a curved brace-bar, screw-threaded at one end, a bell-shaped adjusting-sleeve engaging with said screw-threaded portion for adjustably connecting said brace-bar with the bed-post, a fork formed upon the other end of said brace-bar, a hollow metal socket carried by the bed-post and a bracket-arm rigidly connected at one end to the central portion of the curved brace-bar and inserted at its other end within an aperture formed in said hollow metal socket carried by the bed-post, the end portion of the bracket-arm within said hollow metal socket being flattened and expanded laterally so as to prevent its withdrawal therefrom, substantially as set forth.

7. The combination with the posts of a metal bedstead of canopy-brackets each comprising a curved brace-bar, screw-threaded at one end, a bell-shaped adjusting-sleeve engaging with said screw-threaded portion for adjustably connecting said brace-bar with the bed-post, a fork formed upon the other end of said brace-bar, a hollow metal socket carried by the bed-post, a bracket-arm rigidly connected at one end to the central portion of the curved brace-bar and inserted at its other end within an aperture formed in said hollow metal socket carried by the bed-post, the end portion of the bracket-arm within said hollow metal socket being flattened and expanded laterally so as to prevent its withdrawal therefrom, and a canopy-rod having the form of a horizontally-arranged rectangular loop, the end portions thereof being engaged with said hollow sockets and its intermediate portions supported by the outer ends of the brackets, substantially as set forth.

8. The combination with the posts of a metal bedstead of canopy-brackets each comprising a curved brace-bar screw-threaded at one end, a bell-shaped adjusting-sleeve engaging with said screw-threaded portion for adjustably connecting said brace-bar with the bed-post, a fork formed upon the other end of said brace-bar, a hollow metal socket carried by the bed-post, a bracket-arm rigidly connected at one end to the central portion of the curved brace-bar and inserted at its other end within an aperture formed in said hollow metal socket carried by the bed-post, the end portion of the bracket-arm within said hollow metal socket being flattened and expanded laterally so as to prevent its withdrawal therefrom, a canopy-rod having the form of a horizontally-arranged rectangular loop, the end portions thereof being engaged with said hollow sockets and its intermediate portions supported by the outer ends of the brackets, and a cross-bar connecting said posts arranged in the same plane with said canopy-rod, substantially as set forth.

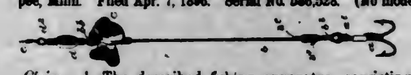
9. The combination with the corner-post of a bedstead, of a bracket for attaching the side and end rails thereto, comprising integral rail-supporting arms extending at right angles to each other, a vertical post-aperture extending through the body of said bracket at the juncture of the arms, means for securing the bracket in position upon the post, and means for securing the rails upon said arms, comprising a clamping-ring provided at one side with a set-screw arranged to impinge against one of the encircled parts to clamp the same together, substantially as set forth.

10. The combination with the corner-post of a bedstead, of a bracket for attaching the rails thereto comprising integral rail-supporting arms extending at right angles to each other, the said rails having the form of a right-angled triangle in cross-section, the rectangular sides of which are arranged in horizontal and vertical planes, respectively, a vertical post-aperture extending through the body of the bracket at the juncture of the arms, means for securing the bracket in position upon the post and means for securing angle-iron rails upon said rail-supporting arms comprising a clamp-ring arranged to encircle both rail and bracket and provided with a set-screw at one side of said ring arranged to impinge against the bracket-arm whereby the latter is forced into the angle of the rail, substantially as set forth.

11. The combination with a set-screw having an outwardly-flaring pyramidal head, of a removable cast-metal thumb-nut provided with a tapered rectangular socket adapted to receive the head of the set-screw, said socket being made tapering toward its inner end, substantially as set forth.

12. A clip for securing the parts of a metal bedstead together in fixed relation, comprising two metal castings having flat meeting faces, each provided in its face with grooves semicircular in cross-section and arranged to register with each other and extending in crossed relation so as to form sockets for the reception of cylindrical bodies, and a rivet or equivalent securing said parts together, each of said sockets being enlarged within the body of the casting to form a recess of greater diameter than said groove whereby a shoulder is formed adapted to receive and hold the head of a bolt or the like, substantially as set forth.

574,561. **FISHING APPARATUS.** JAMES B. MCMULLIN, Shakopee, Minn. Filed Apr. 7, 1896. Serial No. 586,523. (No model.)

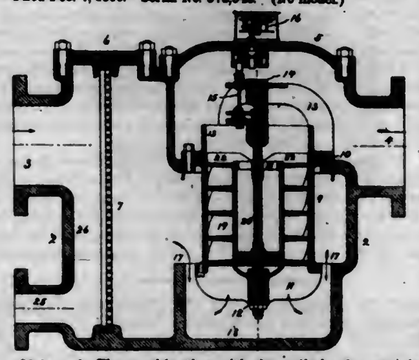


Claim.—1. The described fishing apparatus, consisting of the hook *a*; the wire section *b*; the twirler *c*; and the line *e*; the hook being loosely and detachably attached to the wire section; the twirler being rigidly mounted and concentrically arranged upon the upper portion of the wire section; and the line being connected to the upper extremity of the wire section: substantially as and for the purposes set forth.

2. The combination in a fishing apparatus, of a fish-hook; a guard-section, of wire, loosely connected to the upper extremity of the fish-hook; a concentrically-arranged propeller-like twirler, rigidly mounted upon the upper portion of the section of wire; and a trolling-line, connected to the upper extremity of the section of wire; substantially as shown and described, and for the purposes specified

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574,562. **WATER-METER.** LEWIS H. NASH, South Norwalk, Conn., assignor to the National Meter Company, New York, N. Y. Filed Feb. 7, 1896. Serial No. 578,346. (No model.)

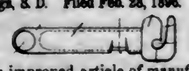


Claim.—1. The combination with the cylinder 9 containing the propeller 19, means for causing the water passing said propeller to

flow from the bottom upward, an inclosing case 2 completely inclosing said cylinder and leaving around it an annular space and forming an ante-chamber divided by a screen on the outer side of which are two openings, one for the inlet of water and one for the removal of sediment.

2. The combination of the propeller 19, with a spider 22 carried by said propeller acting directly in line with the flow of the water as it passes through the meter.

574,563. ENVELOP-OPENER. JOHN T. NELSON and ROBERT F. KERR, Brookings, S. D. Filed Feb. 28, 1896. Serial No. 581,104. (No model.)



Claim.—As an improved article of manufacture, a combined envelop-opener and pencil-sharpener, consisting of a casing, one side of which is cut away to form a notch or opening, a flat shank therein having a cutting edge, a portion of which projects through said notch, an oblong head formed integrally to said shank and extending in the front and rear and beyond the lines of its edges, said head being provided with a slot in one side which opens outwardly by means of which a prong is formed for the insertion into an envelop, said slot connecting at its inner end with a circular opening in the head provided with a cutting edge and said shank being adapted to slide within said casing, substantially as shown and described.

574,564. SHACKLE. AXEL L. NILSON, Ottumwa, Iowa. Filed June 29, 1896. Serial No. 597,482. (No model.)



Claim.—1. The combination in a shackle, of a stock or handle, a sliding hook, and a jaw located opposite the hook, pivoted directly to the stock or handle and arranged to be engaged and actuated by said sliding hook, substantially as specified.

2. The combination with a handle having a longitudinal bore, of a hook having an integral shank slidingly mounted therein, and a jaw pivotally connected directly to the handle and adapted to be operated by the hook when the latter is slid, substantially as described.

3. The combination with a handle having a longitudinal bore, of a hook having an integral shank slidingly mounted therein and provided with a longitudinal slot, and pivoted jaw fulcrumed on the handle and extending through the slotted shank, the arrangement being such that the sliding of the hook will actuate the pivoted jaw and effect a closing of the jaws of the device, substantially as described.

4. The combination with the stock having a longitudinal bore, of a hook having a stem slidingly mounted therein and provided with a series of teeth or notches, a jaw pivoted directly to the stock and adapted to be actuated by the hook, and a pawl fulcrumed on the stock and engaging the teeth or notches in the stem of the hook for holding the jaw closed, substantially as described.

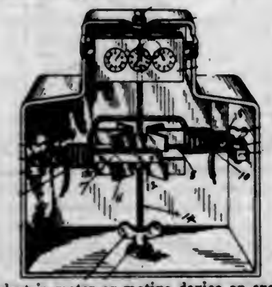
5. The combination of a stock having a longitudinal bore, a hook having a stem slidingly mounted therein and provided with teeth or notches, a spring-actuated pawl for engaging the said teeth or notches, and a jaw pivoted directly to the stock or handle and arranged to be engaged and actuated by the sliding stem of the hook, substantially as specified.

6. The combination with the stock having a bifurcated extension or frame comprising parallel portions having longitudinal slots, of a hook having an integral shank slidingly mounted in said bifurcated extension and provided with oppositely-extending studs or trunnions working in said slots, the said shank being also provided with a longitudinal slot and having an antifriction-roller journaled therein, and a pivoted jaw fulcrumed on the stock and extending through the slotted shank and adapted to be actuated by said roller in the outward movement of the hook, substantially as described.

7. The combination with the stock, of the sliding hook having its point slotted and provided at a point remote therefrom with a socket or opening, a pivoted jaw located opposite the hook and having an offset for entering said socket or opening, and a bill for entering the slot in the point of the hook and means on the sliding hook for actuating the pivoted jaw, substantially as and for the purpose described.

574,565. ELECTRIC METER FOR ALTERNATING CURRENTS. GRANVILLE F. PACKARD, Fort Wayne, Ind. Filed Oct. 26, 1896. Serial No. 610,060. (No model.)

Claim.—1. In an electric meter, the combination of a rotary armature provided with radial vanes for the purpose specified the said armature being adapted to be rotated by the mutually repellent action of the inducing and eddy-current fields, said inducing fields being established by the adjacent poles of one or more electromagnets; an energizing coil or coils forming the winding for and exciting said magnets when traversed by alternating electric currents; and a registering-train or indicating device actuated by the movements of the armature, all substantially as described.



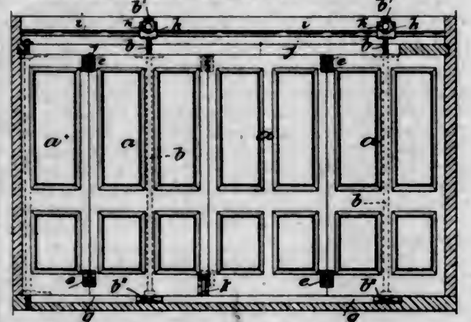
2. In an electric meter or motive device an energizing coil or coils or field of force in combination with a rotary armature provided with a plurality of radial vanes or damping devices so arranged in inductive relation to said field as to be successively repelled therefrom, and a counting or registering train connected with said armature, all substantially as described.

3. The combination in an electric meter or motive device of one or more rotatable armatures each having radial retarding-vanes upon which are brought to bear the inducing field or fields of one or more electromagnets for the purpose of generating eddy-currents upon and repelling said vanes, and a registering-train or indicating device actuated by the movements of said armature, all substantially as described.

4. In an electric meter or motive device a rotary armature arranged in inductive relation to an energizing field of force as shown, and provided with a plurality of radial retarding devices so arranged relative to said field as to have induced upon their surfaces eddy or vortex currents whose field is opposed or repelled by the inducing-field, thereby producing rotation.

5. In an alternating-electric-current meter, the combination of a rotary armature having a series of radial damping or retarding vanes arranged in inductive relation to an energizing field of force, as described; a main circuit coil or coils traversed by the current to be measured and embracing a plurality of laminated cores, as shown, having their inner ends approximately tangential to the arc of rotation of said vanes whereby the said armature will be rotated by the magnetic blast emanating therefrom and threading the plane of said vanes; and a counting or indicating device connected with and actuated by said armature, all substantially as described.

574,566. SLIDING PARTITION. JAMES B. PEACE, Manchester, England. Filed July 13, 1896. Serial No. 599,011. (No model.) Patented in England Sept. 5, 1892, No. 15,873.

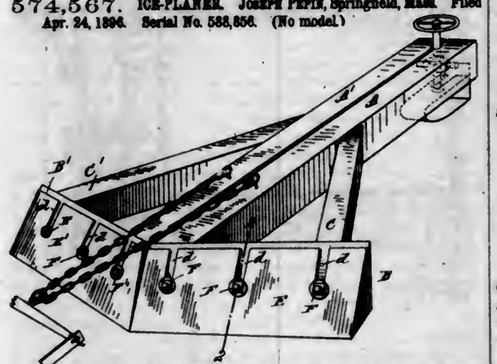


Claim.—1. A movable partition for dividing a large room or hall into two or more smaller rooms or spaces composed of a series of sections or leaves reaching from floor to ceiling and hinged to each other, each alternate leaf being centrally suspended on a pivot from a traveling carriage above, the foot of the pivot being guided in a groove in the floor and the last half-section being hinged against the wall, substantially as described.

2. A movable partition for dividing a large room or hall into two or more smaller rooms or spaces, composed of a series of sections or leaves reaching from floor to ceiling and hinged to each other, each alternate leaf being supported centrally at the foot on a pulley carried in a pivoted bracket *o*, and means for steadying the top of the partition substantially as described.

3. As means for supporting and carrying the hinged swiveling leaves or sections of movable swiveling partitions, the socket *m* sunk in and combined with each alternate leaf, the jawed bracket *o* formed with prolongations or plows o^3 and having a pivot to loosely fit the sleeve of the socket *m*, the pulley *p*, the grooved rail Q lying flush with the floor and the dished cover-plates *s* all as set forth.

574,567. ICE-PLANER. JOSEPH PEPIN, Springfield, Mass. Filed Apr. 24, 1896. Serial No. 588,856. (No model.)



Claim.—1. An ice-planer consisting of a pair of frames hinged together, a planer-knife adjustably secured to the forward end of each of said frames and an adjustable support for the rear ends thereof consisting of a screw having vertical movement therethrough and engaging a nut fixed between said frames, and a runner secured to the lower extremity of said screw, substantially as set forth.

2. An ice-planer consisting of a pair of knife-frames hinged together, a planer-knife secured to the forward end of each frame, and an adjustable support for the rear ends of said frames, combined and operating substantially as set forth.

574,568. BICYCLE OR VEHICLE LAMP BRACKET. JAMES F. PLACE, Glen Ridge, N. J. Filed July 27, 1896. Serial No. 600,611. (No model.)

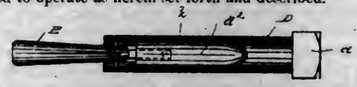


Claim.—1. In a bicycle or carriage lamp bracket the combination of a short gripping side piece having one or more prongs on one end, and a clamping-bend on the opposite end; a long gripping side piece having one or more holes near one end (corresponding to and adapted to engage the said one or more prongs) and a clamping-bend on the opposite end; a reversible upright piece for holding the lamp, having also one or more holes corresponding to the said one or more prongs and means between the ends of the gripping side pieces for gripping the said upright piece at one end and the bicycle-fork or carriage-dashboard between the clamping-bends at the opposite end of said side pieces, both at one operation, and substantially as herein shown and described.

2. The combination in a bicycle or carriage lamp bracket of a short and a long gripping side piece, each having a bent or clamping end and a raised strengthening-rib; a reversible upright piece for holding the lamp; one or more prongs on the end of the short side piece opposite to the clamping end; one or more holes in the long side piece near the end opposite to the clamping end, and also in the shank of said upright piece; all of said holes corresponding to and adapted to engage said one or more prongs; and a bolt passing through a square hole in one side piece and a round hole in the other between the clamping ends and the one or more prongs and corresponding holes—whereby with a nut, and by one operation, the upright piece is tightly gripped between the ends of the side pieces, and the bicycle-fork or carriage-dashboard is clamped by the opposite ends of said side pieces, within the clamping-bends thereof, substantially as shown and described.

574,569. THILL-COUPLING BOLT. GARRETT N. POLHEMUS, Franklin Park, N. J. Filed Apr. 15, 1896. Serial No. 587,635. (No model.)

Claim.—The herein-described coupling pin or bolt D having a head *d*, and having formed in the shank thereof a groove d^2 semicircular in cross-section, and which extends to the end of the coupling-pin opposite the head, nearly the entire length thereof, and said groove growing shallower toward the head of the bolt, and said bolt being provided also with an angular opening or recess d^4, in which is pivoted a locking-plug E, the free end of which is larger than the pivoted end, said plug being adapted to be folded backwardly into the groove d^2, and being held in position by the spring G, which is secured to the lower side of the pin or bolt D, all constructed and designed to operate as herein set forth and described.



574,570. NOZZLE. CHARLES V. POLLOCK, Des Moines, Iowa. Filed Oct. 20, 1894. Serial No. 526,507. (No model.)



Claim.—1. A nozzle having an enlarged mouth and a longitudinal bore communicating therewith and restricted near the mouth, and a spraying-body, one side of which is weighted, placed loosely within the mouth and arranged to be held therein by the action of the fluid flowing through the nozzle, substantially as described.

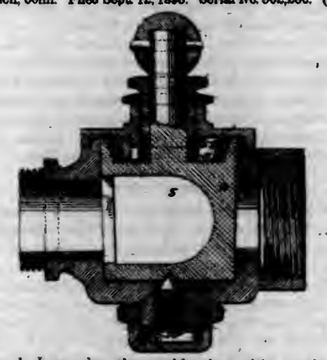
2. A nozzle having an enlarged mouth and a longitudinal bore communicating therewith and having an internal shoulder by which the passage of water is restricted near the mouth, and a spraying-body weighted upon one side and having its sides grooved, placed loosely within the mouth and arranged to be held therein by the action of the fluid flowing through the nozzle, substantially as described.

3. A nozzle having an enlarged mouth and a longitudinal bore communicating therewith and restricted near the mouth, and a spraying-body, weighted upon one side, whereby the axis of rotation of the body is determined, and having in its surface grooves diverging from one of the poles of said axis, placed loosely within the mouth and arranged to be held therein by the action of the fluid flowing through the nozzle, substantially as described.

4. A nozzle having an enlarged mouth and a longitudinal passage-way communicating therewith, restricted near the mouth, and rifled, and a spraying-body, one side of which is weighted, placed loosely within the mouth and arranged to be held therein by the action of the fluid flowing through the nozzle, substantially as described.

5. A nozzle having an enlarged mouth with a rifled surface and a longitudinal bore communicating therewith and restricted near the mouth, and a spraying-body, one side of which is weighted, placed loosely within the mouth and arranged to be held therein by the action of the fluid flowing through the nozzle, substantially as described.

574,571. COCK OR VALVE. CHARLES VER TRENSE POLLOCK, Greenwich, Conn. Filed Sept. 12, 1895. Serial No. 562,286. (No model.)



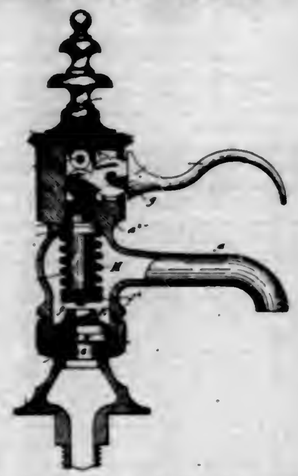
Claim.—1. In a valve, the combination, with a casing having a tapering valve-chamber and a tapering and revolubly-mounted valve-plug therein having a suitable valve-stem by which it may be rotated, and a washer surrounding said stem, of an axially-adjustable gland surrounding said stem and arranged to press said washer and valve-plug inward, said gland and washer having correspondingly-shaped tapering male and female ends adapted to seat one on the other, whereby the washer may be centered with respect to the gland, and

a set-screw engaging the other end of the valve-plug at the center thereof, and supporting the same, and longitudinally adjustable, substantially as described.

2. In a valve, the combination, with a casing having a valve-chamber and a revolubly-mounted valve-plug therein having a suitable valve-stem by which it may be rotated, of a washer surrounding said stem, and an axially-adjustable gland surrounding said stem and arranged to press said washer inward and against the valve-plug, said gland and washer having correspondingly-shaped tapering male and female ends adapted to seat one on the other, whereby the washer may be centered with respect to the gland, substantially as described.

3. In a valve, the combination, with a casing having a valve-chamber and a revolubly-mounted valve-plug therein having a suitable valve-stem by which it may be rotated, of a washer surrounding said stem and fitting within a depression of the valve-plug, and an axially-adjustable gland surrounding said stem and arranged to press said washer inward and against the valve-plug, said gland and washer having correspondingly-shaped tapering male and female ends adapted to seat one on the other, whereby the washer may be centered with respect to the gland, substantially as described.

574,572. COMPRESSION-COCK. JOHN PORTBOOM, Cincinnati, Ohio. Filed Jan. 29, 1894. Serial No. 498,365. (No model.)

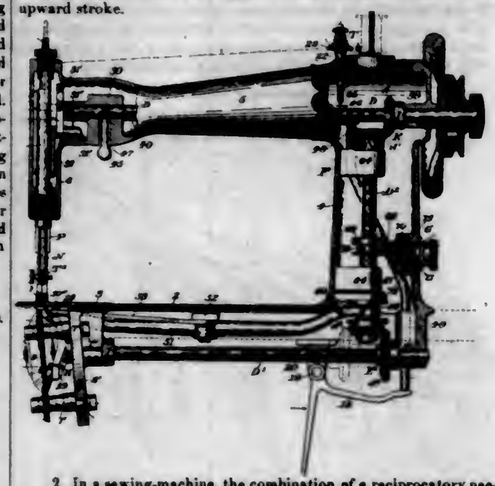


Claim.—1. In a compression-cock, the combination of the valve-case, the loose removable seat within its lower end, the base and the couplings for holding the case to the base and the removable seat within the case, the valve, the spring coiled around the stem of the valve to hold it normally to its seat, said stem having its upper end slotted to receive the end of the operating-lever, the antifriction-pulley journaled in the said slot to receive the thrust of the lever, and the packing-rings I and *i* to prevent leakage through the upper end of the case, substantially as shown and described.

2. In a compression-cock, the combination of the base, the thimble, having an annular projection on top thereof, the removable valve-seat having a neck to fit said thimble, and an extended flange to rest upon the annular projection upon the face of the thimble, said projection having an inclined seat, the valve-case having a lower flaring end to rest upon said seat, and the coupling C to force and hold the parts together, substantially as shown and described.

574,573. SEWING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 15, 1894. Serial No. 531,931. (No model.)

Claim.—1. In a sewing-machine, the combination with fabric holding and feeding devices, of stitch-forming mechanism comprising a vertically-reciprocating needle-bar; a revoluble three-hook loop-taker; a horizontally-disposed needle-bar-actuating shaft; a crank carried by said needle-bar-actuating shaft; a link pivotally connected at one end with said crank, and pivotally connected at its opposite end with the needle-bar, in the rear of the path of movement of said needle-bar; a horizontally-disposed loop-taker-actuating shaft; a driver carried by said loop-taker-actuating shaft and in operative connection with the loop-taker; a vertically-disposed feed-actuating shaft; a one-to-one train of gears operatively connecting the needle-bar-actuating shaft and feed-actuating shaft; a two-to-three train of gears operatively connecting the loop-taker-actuating shaft and feed-actuating shaft; a driver in connection with one of said shafts; and suitable tension devices for the thread, all constructed and organized, whereby the loop-taker and needle-bar will have a two-to-three ratio of movement, and whereby the needle will have a relatively slight retardation during the lower part of its downward stroke, and a relatively great acceleration during the corresponding lower part of its upward stroke.



2. In a sewing-machine, the combination of a reciprocatory needle-bar; a revoluble three-hook loop-taker; a feed-lever; a loop-taker-actuating shaft in operative connection with the loop-taker; a needle-bar-actuating shaft in operative connection with the needle-bar; a feed-lever-actuating shaft, having lever-actuating means thereon, located intermediate the loop-taker and needle-bar-actuating shafts; a two-to-three train of gears operatively connecting the loop-taker-actuating shaft and intermediate shaft; a one-to-one train of gears operatively connecting the intermediate shaft and needle-bar-actuating shaft; and means for actuating one of said shafts, whereby a two-to-three ratio of movement is effected between the loop-taker and needle-bar.

3. In a sewing-machine, the combination with fabric-holding and fabric-feeding devices; of stitch-forming mechanism comprising a revoluble loop-taker having three equidistantly-disposed peripheral loop-engaging hooks; a reciprocatory needle-bar carrying a needle; a loop-taker-actuating shaft; a needle-bar-actuating shaft; an actuating-connector between and connecting said loop-taker-actuating shaft and needle-bar-actuating shaft, and embodying a shaft and a one-to-one and a two-to-three train of gears for effecting a two-to-three ratio of movement between the loop-taker and needle-bar; and a connector between the needle-bar-actuating shaft and needle-bar, for effecting a retardation in the velocity of the needle-bar at that point in the descending movement thereof which corresponds with the loop-taking position of the loop-taker, and for effecting an acceleration in the velocity of the needle-bar at that point in the ascending movement which corresponds with the initial loop-drawing position of the loop-taker.

4. In a sewing-machine of the class specified, the combination with the frame of the machine and with the vertically-reciprocating needle-bar and its actuating-shaft; of a revoluble loop-taker peripherally supported at an inclination to the path of movement of and below the needle-bar, and having three relatively equidistant peripherally-disposed loop-engaging hooks, and having three pairs of relatively equidistantly-disposed driving-sockets in one side thereof, located, one pair between each two adjacent hooks; a loop-taker-actuating shaft; a driver carried by said shaft with its axis at an inclination to the axis of the loop-taker, and having equidistantly-disposed driving-pins in position and adapted for successively entering the successive pairs of driving-sockets in and for rotating the loop-taker, and also adapted for holding said loop-taker against movement relatively to said driving-pins; mechanism operatively connecting the needle-bar-actuating shaft and loop-taker-actuating shaft for reducing the speed of the latter; and means for actuating one of said shafts.

5. In a sewing-machine, the combination with the sewing-machine head and with suitable fabric-feeding devices, of a longitudinally-recessed presser-bar supported for vertical movement in, and locked as against rotary movement relatively to, said head; a presser-bar actuator in operative connection with said presser-bar; a needle-bar supported for reciprocatory movement in said presser-bar; a needle-bar-actuating shaft; an actuating-connector extending through the longitudinal recess in the presser-bar, and operatively connecting the needle-bar and needle-bar-actuating shaft, and providing means for holding the needle-bar against rotation relatively to the presser-bar; and complemental stitch-forming mechanism.

6. In a sewing-machine, the combination with a reciprocatory needle and a revoluble three-hook loop-taker; of needle-bar and shuttle actuating mechanism organized and timed to impart relatively slow and fast, downward and upward strokes, respectively, to the needle-bar, and retard the lower part of the slow, downward stroke, and accelerate the corresponding lower part of the fast, upward stroke of said needle-bar at predetermined points in the rotation of the shuttle, substantially as described, and comprising a needle-bar-actuating shaft having its axis in the plane of, and at right angles to, the axis of the needle-bar; a crank carried at the end of said shaft and having a link connection with the needle-bar; a loop-taker-actuating shaft located in the plane of, and parallel to, the needle-bar-actuating shaft; and an actuating-connector between and connecting the needle-bar and loop-taker actuating shafts, and embodying a one-to-one and a two-to-three train of gears, for effecting a two-to-three ratio of movement between the loop-taker and needle-bar actuating shafts.

7. In a sewing-machine, the combination with fabric holding and feeding devices, of stitch-forming mechanism comprising a reciprocating needle-bar; a revoluble three-hook loop-taker; a needle-bar-actuating shaft; a crank carried by said shaft; a link pivotally connected with said crank and needle-bar; a loop-taker-actuating shaft; a driver carried by said loop-taker-actuating shaft and in operative connection with the loop-taker; a feed actuating shaft; a one-to-one train of gears connecting the needle-bar-actuating shaft and feed-actuating shaft; a two-to-three train of gears connecting the loop-taker-actuating shaft and feed-actuating shaft; and a driver in connection with one of said shafts; and the parts being so organized that the loop-taker and needle-bar will have a two-to-three ratio of movement, and the needle will have a relatively slight retardation during the lower part of its downward stroke and a relatively great acceleration during the corresponding lower part of its upward stroke.

8. The combination with a sewing-machine head, of combined presser-bar and needle-bar mechanism comprising a tubular, longitudinally-recessed presser-bar non-rotatively supported for vertical movement in said head; a needle-bar supported for reciprocatory movement within and concentric to the presser-bar; a needle-bar-actuating shaft carrying a crank adjacent to the needle-bar; a strap carried by the needle-bar and extending through the recess in the presser-bar, and holding the needle-bar against rotation relatively to the presser-bar; a link pivotally connected at one end to the strap and at the opposite end thereof to the crank on the needle-bar-actuating shaft; a presser-regulating device in adjustable connection with the presser-bar; means for actuating the presser-bar independently of the needle-bar; and complementary stitch-forming mechanism.

9. The combination with the sewing-machine head and with the tubular, longitudinally-recessed presser-bar non-rotatively supported for vertical movement in the said head; of a needle-bar supported for reciprocatory movement within and concentric to the presser-bar; a rotating needle-bar-actuating shaft carrying a crank adjacent to the needle-bar; a strap carried by the needle-bar and extending through the recess in the presser-bar and adapted for holding the needle-bar against rotation relatively to the presser-bar; and a link pivotally connected at one end to said strap and at the opposite end to the crank of the needle-bar-actuating shaft.

10. The combination with the sewing-machine head, of a presser-bar supported for vertical movement in said head; a laterally-projecting arm fixed to said presser-bar and having cam-faces on the outer end thereof; a rock-shaft supported for rocking movement in bearings in the sewing-machine head; and a crank carried at the outer end of said rock-shaft, and having a pin extended between the cam-faces of the laterally-projecting arm of the presser-bar; and means for actuating the rock-shaft to raise and lower the presser-bar.

11. The combination with the sewing-machine head, of a presser-bar supported for vertical movement in bearings in said head; a pressure device in adjustable engagement with the upper end of said presser-bar; a laterally-projecting arm secured to said presser-bar and having oppositely-disposed cam-faces at the outer end thereof; a rock-shaft supported in bearings in said head; a crank carried at the outer end of said rock-shaft and having a crank-pin in movable engagement with and between the cam-faces of the laterally-projecting arm; and means for actuating the rock-shaft to raise and lower the presser-bar.

12. The combination with the sewing-machine head, of a presser-bar supported for vertical movement in said head, and having a laterally-projecting slotted arm; a crank engaging in the slot in said arm and having stop-faces in bearing engagement with the opposite sides of said arm, and holding the same against lateral movement; and a rock-shaft in connection with, and having means adapted for rocking, said crank to raise and lower the presser-bar.

13. In a sewing-machine, a vertically-reciprocating needle-bar; a revoluble three-hook shuttle peripherally supported below the needle-bar; a horizontally-disposed needle-bar-actuating shaft having means in connection with, and adapted for effecting a relatively slow downward movement and a relatively rapid upward movement of, the needle-bar at every two-thirds of a revolution of the shuttle; a shuttle-actuating shaft in vertical alinement and in horizontal parallelism with the needle-bar-actuating shaft; a vertical shaft intermediate to the two horizontal shafts; a one-to-one train of gears operatively connecting the needle-bar-actuating and vertical shafts; a two-to-three train of gears connecting the shuttle actuating and vertical shafts, whereby a two-to-three ratio of movement is maintained between the shuttle-actuating shaft and needle-bar-actuating shaft; and feed mechanism in direct operative connection with, and actuated by, the vertical shaft.

14. In a sewing-machine, cooperative stitch-forcing and fabric-feeding mechanism comprising a reciprocating needle-bar; a revoluble three-hoop loop-taker; a universally oscillatory feed-lever carrying a feed-dog; and combined needle-bar, loop-taker, and feed-actuating mechanism constructed, organized, and timed to actuate the loop-taker and needle-bar with a two-to-three ratio of movement, and effect a slow downward and a relatively rapid upward movement of the needle-bar at every two-thirds of a rotation of the loop-taker, and also to impart a feed movement to the feed-lever subsequently to each downward stroke of the needle-bar, and comprising a loop-taker-actuating shaft and needle-bar-actuating shaft located in the plane of the axis of the needle-bar and at right angles thereto; a feed-lever-actuating shaft; a one-to-one and a two-to-three train of gears operatively connecting the feed-lever-actuating shaft with the needle-bar and loop-taker actuating shafts, respectively; and means for actuating one of said shafts.

15. In a sewing-machine of the class specified having a suitable frame, a vertically-reciprocatory needle-bar, a revoluble multihook shuttle, and a feed-dog supported for reciprocatory movement intermediate to the needle-bar and shuttle; in combination with a horizontally-disposed needle-bar-actuating shaft in operative connection with the needle-bar; a horizontally-disposed shuttle-actuating shaft operatively connected with the shuttle; a vertical shaft having means in operative connection with the feed-dog and adapted for directly controlling the movements of said feed-dog; a one-to-one train of gears directly connecting the needle-bar-actuating shaft and vertical shaft; and a two-to-three train of gears directly connecting the vertical shaft and the shuttle-actuating shaft.

16. In a sewing-machine, the combination with two horizontally-disposed shafts and a vertically-disposed shaft, of actuating mechanism for synchronously rotating the two horizontal shafts with a two-to-three ratio of movement; a reciprocatory needle-bar in operative connection with one of said horizontal shafts; a revoluble three-hook shuttle operated by the other horizontal shaft; a feed mechanism in operative connection with the vertical shaft between the two horizontal shafts, and actuated by said vertical shaft; means in direct connection with, and adapted for rotating, one of said shafts, to effect a simultaneous movement of all of said shafts; and means in position and adapted for effecting a relatively slow downward and a relatively rapid upward movement of the needle-bar at every two-thirds of a revolution of the shuttle.

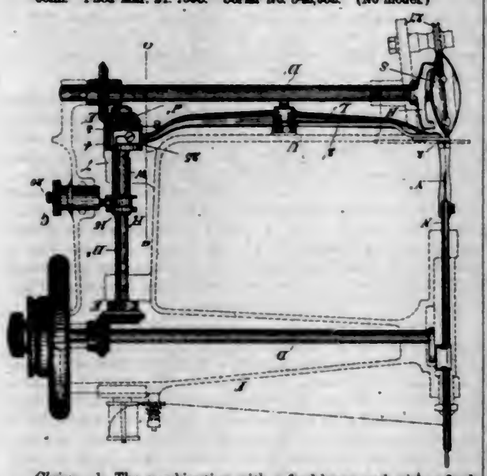
17. In a sewing-machine, a reciprocatory needle-bar; a revoluble multihook shuttle; a feed-dog supported for reciprocatory movement intermediate to said needle-bar and shuttle; and a feed-lever supported for oscillatory movements and carrying said feed-dog; in combination with a horizontally-disposed needle-bar-actuating shaft in operative connection with the needle-bar; a horizontally-disposed shuttle-actuating shaft in operative connection with the shuttle; a vertically-disposed feed-lever-actuating shaft; a feed-lever-actuating cam adjustably carried by said shaft in operative connection with the feed-lever; a one-to-one train of gears directly connecting the feed-lever-actuating shaft and needle-bar-actuating shaft; a two-to-three train of gears directly connecting the feed-lever-actuating shaft and shuttle-actuating shaft; means for directly actuating one of said horizontally-disposed shafts to rotate both of said shafts at comparative speeds of relatively-varying velocities; and means for maintaining the feed-dog in parallelism with the line of its longitudinal movement.

18. In a sewing-machine, the combination with a reciprocatory needle-bar and its horizontal actuating-shaft, and with the revoluble shuttle and its horizontal actuating-shaft; of a feed mechanism comprising a vertical shaft intermediate to, and in direct geared connection with, the two aforesaid horizontal shafts; a feed-cam shiftably carried by, and adapted for movement transversely of, the vertical shaft, and having means for imparting both vertical and horizontal oscillations to a feed-lever; a feed-lever supported midway of its length for vertical and horizontal oscillations, and having cam-engaging arms at one end thereof in engagement with opposite sides of the feed-cam; a regulating device in sliding connection with, and adapted for changing the transverse relations of, the feed-cam and vertical shaft; a feed-dog pivotally carried for longitudinal recipro-

cation by the feed-lever; and means for actuating the three shafts in synchronism.

19. In a sewing-machine having a suitable frame and a revoluble shuttle, the combination therewith of a combined cloth-clamp and needle-carrier comprising two axially-coincident members locked as against rotation and supported for longitudinal movement relatively to each other, and the outer member of which has an outwardly-extended cam-faced arm; and actuating mechanism for said members which consist of two horizontally-disposed shafts, one of which is supported for rotation and has a crank operatively connected by means of a link with the inner member at one side of and remote from the axis of said inner member, and is adapted for imparting a relatively slow advancing and a relatively rapid retracting movement to said inner member, and the other shaft of which carries a crank in operative connection with the cam-faced arm, and is adapted to be operated to lift the outer member independently of the inner member; means for continuously rotating that shaft which is operatively connected with the inner member, to effect a continuous reciprocation of said inner member; and means for operating that shaft which is in operative connection with the outer member, to raise and lower said outer member relatively to the inner member.

574,574. SEWING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 31, 1896. Serial No. 585,632. (No model.)



Claim.—1. The combination with a feed-lever, and with a feed-dog pivotally mounted on said feed-lever; of an actuator for imparting movements to said feed-lever; and vibratory means for holding the feed-dog in parallelism with the plane of the longitudinal movement of said dog.

2. The combination with a feed-lever, and with a feed-dog pivotally mounted on said lever; of rotative mechanism constructed and arranged to impart an elliptical movement to the feed end of said lever; and a vibratory device for holding the feed-dog in parallelism with the plane of the longitudinal movement of said dog.

3. A feed mechanism of the class specified, comprising a suitably-supported lever; a feed-dog carried by said lever; a rotative actuating-eccentric universally connected with one end of said lever, and adapted to impart an elliptical movement to both ends thereof; and vibratory means for holding the feed-dog in parallelism with the plane of the longitudinal motion of said dog.

4. The combination with a sewing-machine feed-lever, and means for imparting thereto elliptical movements; of a feed-dog directly carried by said lever; and means having a movement conforming to the motion of the lever, for maintaining the feed-dog in substantial parallelism with the line of its longitudinal movement.

5. The combination with a sewing-machine feed-lever, and means for imparting thereto elliptical movements; of a feed-dog pivoted to said lever, and directly carried thereby; and a link having a movement conforming to the motion of the lever, for maintaining the feed-dog in substantial parallelism with the line of its longitudinal motion.

6. The combination with a sewing-machine feed-lever, and means for actuating the same; of a feed-dog pivotally mounted on the free end of said lever, and provided with an opening back of its pivotal point; a device passing through said opening, and permitting a slight play of the dog thereon; and means for maintaining the feed-dog in substantial parallelism with the line of its longitudinal motion.

7. The combination with a sewing-machine feed-lever; an eccentric universally connected to said lever, and serving to impart to the same elliptical movements; of a feed-dog pivotally mounted on the free end of the lever; and a link connecting said dog with the feed-lever carrier, and serving to maintain said dog in substantial parallelism with the line of its longitudinal movement.

8. The herein-described feed mechanism for sewing-machines; it consisting of a feed-lever supported, approximately midway of its length, for vertical and horizontal oscillations; a feed-actuating shaft; an eccentric carried by said shaft, and adapted for adjustment, transversely of said shaft; an eccentric-strap revolubly carried by said eccentric, in a plane oblique to the axis thereof; a universal connection between said eccentric-strap and feed-lever; an eccentric-shifting member shiftably carried upon the feed-actuating shaft, and in operative connection with the eccentric, and adapted for shifting said eccentric, transversely of said shaft; and an adjusting device in operative connection with said eccentric-shifting member, and adapted for shifting said member longitudinally of the shaft, to effect a change in the effective throw of the eccentric, substantially as described, and for the purpose set forth.

9. In a sewing-machine feed mechanism, a feed-lever supported near its middle portion for elliptical movement at the feed end thereof, and held as against rotative movement about its longitudinal axis; combined with a rotative actuator comprising a shiftable eccentric having an obliquely-disposed eccentric-strap surrounding the periphery thereof, and so connected with one end of the feed-lever as to impart, during the rotation of the eccentric, an elliptical movement to the feed end of said feed-lever without rotating said feed-lever upon its longitudinal axis; a driver for rotating said eccentric; and an adjusting device in operative connection with, and adapted for shifting, said eccentric transversely of the driver, to increase or decrease the eccentricity thereof, and effect a change in the range of elliptical movement of the feed end of the feed-lever.

10. The herein-described feed mechanism for sewing-machines, it comprising a feed-lever pivotally supported near its middle portion for elliptical movement at the feed end thereof, and held against rotative movement about its longitudinal axis; a variable eccentric; an annular eccentric-strap movably carried on the periphery of said eccentric in a plane oblique to the plane of rotation of the eccentric; a universal connection between the feed-lever and eccentric-strap located at one side only of the axis of movement of said eccentric, and adapted for transmitting an elliptical movement to the end of the feed-lever; and adjusting means for effecting a change in the effective throw of said eccentric.

11. In a sewing-machine feed mechanism, a feed-lever supported midway of its length for elliptical movement at the ends thereof, and held as against rotative movement about its longitudinal axis; combined with continuous rotary-motion feed-lever-actuating mechanism, for imparting an elliptical movement to the ends of the feed-lever, and comprising an actuating-shaft; an eccentric rotative with, and shiftable transversely of, said shaft; an eccentric-adjusting wedge interposed between the eccentric and actuating-shaft; an eccentric-strap peripherally carried by, and at an inclination to the path of movement of, said eccentric; a ball-and-socket connection between the eccentric-strap and feed-lever; and means for adjusting the eccentric-adjusting wedge longitudinally of the actuating-shaft, to effect a change in the effective throw of the eccentric, whereby a change in the range of elliptical movement of the ends of the feed-lever is attained.

12. The combination with a feed-lever carrier pivotally supported in a bearing, of a feed-lever pivotally supported for oscillation remote from the outer end of said carrier; a feed-dog pivotally carried for oscillatory reciprocation at one end of said feed-lever; a link in parallel disposition relatively to the feed-lever, and connecting the feed-dog and feed-lever carrier, and adapted for holding the feed-dog in parallelism with the line of its longitudinal movement; and an actuator in operative connection with the opposite end of said feed-lever, and adapted for imparting vertical and horizontal oscillations to said feed-lever.

13. The combination with a feed-lever pivotally supported for oscillation by a carrier pivotally carried for oscillations in a bearing, of a feed-dog pivotally carried at one end of the feed-lever; a link in parallelism with the feed-lever and pivotally connected at one end thereof to the carrier and at its opposite end to the feed-dog, and adapted for maintaining the feed-dog in parallelism with the line of its longitudinal movement; actuating means for imparting vertical and horizontal oscillations to the feed-lever and connected link; and a regulating device for changing the effective throw of said feed-lever.

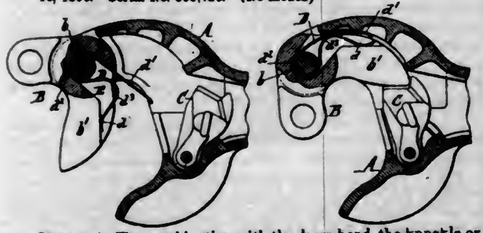
14. In a sewing-machine the combination with a reciprocatory needle-bar and its horizontally-disposed actuating-shaft and with a revoluble shuttle and its horizontally-disposed actuating-shaft, of a feed mechanism comprising a vertically-disposed shaft in operative connection with the two aforesaid horizontally-disposed shafts; a feed-lever-actuating device carried by the vertical shaft; a feed-lever fulcrumed near the middle portion thereof for vertical and horizontal oscillations, and having one end thereof in operative engagement with the said device; a feed-dog pivotally carried at the opposite end of said feed-lever; and a link pivotally supported at one end in alinement with the fulcrum of the feed-lever and pivotally connected at the opposite end with the feed-dog and adapted for maintaining the feed-dog in parallelism with the line of its longitudinal movement.

15. In a sewing-machine the combination with a suitable frame having a bed-plate, of a feed-lever carrier pivotally carried in a horizontal bearing below, and in connection with, the bed of the machine; a feed-lever pivotally supported for horizontal oscillation remote from the extreme outer end of said carrier; a feed-dog pivotally carried for horizontal oscillation at one end of said feed-lever and operatively connected with the extreme outer end of said carrier by means of a link in parallel disposition relatively to the feed-lever; a feed-lever-actuating device in operative connection with the opposite end of the feed-lever and adapted for imparting horizontal and vertical oscillations to said feed-lever; and means in connection with; and adapted for actuating, said device.

16. In a sewing-machine the combination with a suitable frame having a bed-plate, of a feed-lever carrier pivotally mounted in a horizontal bearing below, and in connection with, the bed of the machine; a feed-lever pivotally supported for horizontal oscillation remote from the extreme outer end of said carrier; a feed-dog pivotally carried at one end of said feed-lever and operatively connected with the extreme outer end of said carrier by means of a link in parallel disposition relatively to the feed-lever; a feed-lever-actuating device shiftably carried by a driving-shaft and in operative connection with the opposite end of the feed-lever and adapted for imparting vertical and horizontal oscillations to said feed-lever; a driving-shaft in operative connection with said device; and means for regulating the effective movement of said lever, to increase or decrease the throw of the lever.

17. In a sewing-machine the combination, with the framework thereof, of a feed-lever supported for vertical and horizontal oscillations; a feed-dog pivotally carried by said feed-lever; an actuating-shaft; a feed-lever-actuating device carried by, and shiftable transversely of, said shaft; a sliding wedge in engagement with said feed-lever-actuating device and adapted for shifting the same transversely of said shaft, to change the throw thereof; and a regulating device comprising a stud journaled for rotation in the frame and having an eccentrically-disposed pin at one end thereof in engagement with the sliding wedge; and a bolt carried by the stud in movable engagement with an annular groove formed in the bearing in which the stud is seated.

574,575. CAR-COUPLING. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed June 16, 1896. Serial No. 595,720. (No model.)



Claim.—1. The combination with the draw-head, the knuckle or coupling-jaw and a lock, of a knuckle-opening device interposed between the draw-head and the back of the knuckle and comprising a light primary spring bearing against one of said parts and a secondary auxiliary spring acting upon the other part and arranged to come into action after the primary spring has been strained, substantially as set forth.

2. The combination with the draw-head, the knuckle or coupling-jaw and a lock, of a knuckle-opening spring consisting of a branch bearing against the draw-head and a branch bearing against the knuckle and having a bulge or auxiliary spring, substantially as set forth.

3. The combination with the draw-head, the knuckle or coupling-jaw and a lock, of a knuckle-opening spring consisting of an elastic strip extending around the knuckle-pivot and having an outer branch bearing at its free end against the draw-head and an inner branch bearing at its free end against the knuckle and provided with an outward bulge forming an auxiliary spring which is adapted to bear against said outer branch, substantially as set forth.

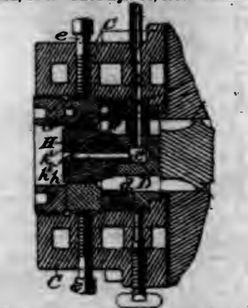
574,576. CAR-BUFFER. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Sept. 18, 1896. Serial No. 606,204. (No model.)

Claim.—1. The combination with a socket adapted to be secured to the end of a car, of a tubular follower guided in said socket and provided near one side thereof with a longitudinal slot, a stop pin or bolt passing through said socket and the longitudinal slot of the follower, and a buffer spring or springs arranged in said socket and follower, substantially as set forth.



2. The combination with a socket adapted to be secured to the end of a car, of a tubular follower guided in said socket and provided in its upper and lower walls and near opposite sides thereof with longitudinal slots, stop-pins passing through said socket and the longitudinal slots of the follower, and a buffer spring or springs arranged in said socket and follower, substantially as set forth.

574,577. MACHINE FOR MANUFACTURING TUBING. VERNON ROYLE, Paterson, N. J. Filed Apr. 17, 1896. Serial No. 587,920. (No model.)



Claim.—1. The combination, with a tube-forming die and means for forcing the material which is to compose the tube, to the die of a core around which the material to form the tube passes, the said core being provided with a conduit therethrough for supplying a substance to the interior of the tube as it is formed and a second conduit extending across the path of the tube forming material into communication with the conduit in the core, substantially as set forth.

2. The combination with the plodder and a suitable supporting-casing at the end of the plodder, of a die located within said casing, a core-supporting piece provided with open passage-ways therethrough for the material to form a tube and having a conduit extending from its periphery to its central portion, a core provided with a conduit in communication with the aforesaid conduit within the core-supporting piece and means for conducting a substance through the said conduits to the interior of the formed tube to prevent its sides from becoming cemented together when they collapse, substantially as set forth.

3. The combination with the skeleton core-supporting piece provided with a conduit leading from its periphery to its central portion and a die of the core provided with a conduit in communication with the conduit within the core-supporting piece and passage-ways radiating from the conduit in the core and communicating with the space at the free end of the core, substantially as set forth.

574,578. CORN-PLANTER. MARSHALL SATTLEY, ARCHIBALD SATTLEY, and MARTIN HEIMER, Springfield, Ill.; assignors to the Sattley Manufacturing Company, same place. Filed Mar. 23, 1896. Serial No. 584,453. (No model.)

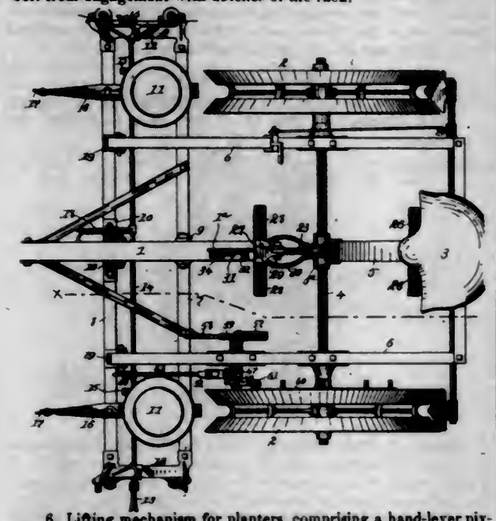
Claim.—1. Lifting mechanism for planters, comprising a hand-lever pivoted in the front frame, a bell-crank lever swung on a horizontal pivot in the rear frame and engaging the front frame with one of its arms, and a link connecting the other arm of the bell-crank lever with the lower end of the hand-lever.

2. Lifting mechanism for planters, comprising a hand-lever pivoted in the front frame, a bell-crank lever swung on a horizontal pivot in the rear frame and engaging the front frame with one of its arms, a foot-pressure arm extended rearward from the bell-crank lever, and a link connecting the other arm of the bell-crank lever with the hand-lever.

3. Lifting mechanism for planters, comprising a hand-lever pivoted in the front frame, a bell-crank lever swung on a horizontal pivot in the rear frame, a link extending upward from the front end of the bell-crank lever and connecting with the front frame, and a link connecting the downward-extended arm of the bell-crank lever with the hand-lever.

4. Lifting mechanism for planters, comprising a hand-lever pivoted in a rearward extension of the tongue, a bell-crank lever pivoted on the axle-shaft of the rear frame, a link extending upward from an arm of the bell-crank lever and connecting with the tongue, a link connecting the other arm of the bell-crank lever with the lower end of the hand-lever, a foot-pressure arm extending rearward from the bell-crank lever, and a foot-rest on the rear end of the tongue.

5. Lifting mechanism for planters, comprising a hand-lever pivoted in the front frame and supplied with a lock-bolt, a bell-crank lever swung in the rear frame on a horizontal pivot and engaging the front frame with one of its arms, a link connecting the other arm of the bell-crank lever with the hand-lever, a rack adjacent to the hand-lever and thinner than the lock-bolt thereof, and a guard-finger adapted to be swung alongside the rack and when so swung to hold the bolt from engagement with notches of the rack.



6. Lifting mechanism for planters, comprising a hand-lever pivoted in the tongue, a bell-crank lever pivoted on the axle-shaft of the rear frame, a link connecting one end of the bell-crank lever with the end of the tongue, and a two-part link connecting the other end of the bell-crank lever with the hand-lever, such two-part link being separated to permit play of forward arm of bell-crank lever.

7. Drill mechanism for planters, comprising a drive-wheel having tappets, a trip-finger mounted loosely on a shaft and adapted to be actuated by the tappets of the wheel, a rock-arm on the shaft having such engagement with the trip-finger as to partake of its motion in one direction only, a spring between the rock-arm and the trip-finger tending to arrest backlash of the trip-finger, and a rod connecting the rock-arm with the drop-actuating shaft of the planter.

8. Drill mechanism for planters, comprising a drive-wheel having tappets, a trip-finger on the rear frame adapted to be actuated by the tappets of the wheel, a rock-arm receiving motion from the trip-finger, a rod connecting the rock-arm with the drop-actuating shaft of the planter, and an arm on the front frame adapted to swing the trip-finger out of the path of the tappets as the runners are raised, substantially as stated.

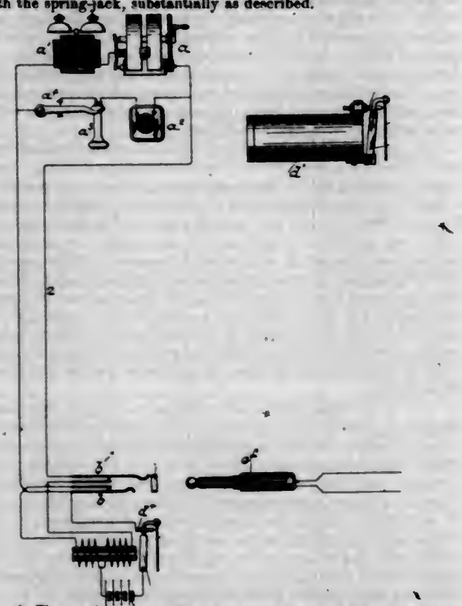
9. Drill mechanism for planters, comprising a drive-wheel having tappets, a shaft having a trip-finger adapted to be actuated by the tappets and capable of being turned out of the path thereof, a rock-arm fixed on the shaft, connected with the drop-actuating shaft of the planter, and adapted to receive motion from the trip-finger, and a foot-lever also fixed on the shaft of the rock-arm.

10. A front frame of a planter consisting, essentially, of two cross-bars, a tongue connected with the rear bar in any suitable manner, and brackets 10 having slots 10^a and 10^b, and roughened faces 10^c, such brackets being adjustably secured to the front cross-bar and providing for vertical adjustment of the tongue, all in combination.

11. A front frame of a planter consisting, essentially, of two cross-bars, a tongue connected with the front bar in any suitable manner, and a bracket 9 connected with the rear cross-bar through slot 9^a and with the tongue through holes 9^a, substantially as set forth.

574,579. CIRCUIT FOR ANNUNCIATORS OF TELEPHONE-LINES. CHARLES E. SCRIBNER, Chicago, and FRANK B. MCBERTY, Downer's Grove, Ill., assignors to the Western Electric Company, Chicago, Ill. Filed May 14, 1896. Serial No. 591,492. (No model.)

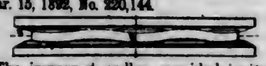
Claim.—1. The combination with a telephone-line having at its substation means for producing in the line a momentary signaling-current, and at a central station a spring-jack connected with a line, of an annunciator in the line-circuit adapted to display its indicator when traversed by current, a shunt or parallel circuit of the annunciator including a source of current, normally-separated switch-contacts interposed in said shunt controlled by an electromagnet in the line-circuit, and other switch-contacts in the spring-jack interposed in the shunt-circuit adapted to be separated when connection is made with the spring-jack, substantially as described.



2. The combination with a telephone-line provided at its substation with a generator of signaling-current and including at a central station a spring-jack switch and an annunciator adapted to give its indication when traversed by current, of a shunt or parallel circuit of the annunciator including a source of current controlled by normally-separated contacts adapted to be closed by the armature of the annunciator when attracted, one terminal of said shunt being applied to the telephone-line between the spring-jack and the substation apparatus, and the other terminal being applied to the line-circuit between the spring-jack and some portion of the winding of the annunciator, substantially as described.

3. The combination with a telephone-line equipped at its substation with a generator of signaling-current, and at its central station including a spring-jack switch and the magnet of an annunciator adapted to display its indicator when traversed by current, of a local circuit including the winding of the annunciator or a portion thereof and separable contacts of the spring-jack together with a source of current, and switch-contacts controlling said local circuit adapted to be closed together when the armature of the annunciator is attracted, substantially as described.

574,580. GROOVED PULLEY. JEAN P. SERVE, Lyons, France. Filed Oct. 9, 1895. Serial No. 565,148. (No model.) Patented in France Mar. 15, 1892, No. 220,144.

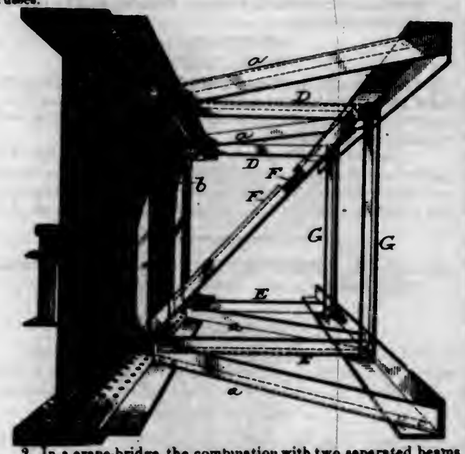


Claim.—The improved pulley provided in its peripheral face with an inner groove having continuous undulating side walls diverging outward and an outer groove forming a continuation of the inner groove and having side walls extending straight around the pulley and parallel to each other and diverging from the point where they join the walls of the inner groove, outward.

574,581. CRANE. ALTON J. SHAW, Muskegon, Mich.; Mary H. Shaw, administratrix of said Alton J. Shaw, deceased, assignor to the Shaw Electric Crane Company, same place. Filed Dec. 13, 1894. Serial No. 531,711. (No model.)

Claim.—1. A crane-bridge provided with a lateral support consisting of two horizontal trusses, one projecting from its upper and the other projecting from its lower chord or flange, diagonal struts or braces extending from the bridge proper to the outer chord of one

of the trusses, and uprights connecting the outer chords of the two trusses.



2. In a crane-bridge, the combination with two separated beams or girders each provided with a horizontal truss, of trolley-supporting rails carried by the inner faces of said beams or girders, in line with the neutral axes thereof as regards the torsion of said beams or girders.

3. In a crane-bridge, the combination of two separated beams or girders each having parallel upper and lower chords; horizontal trusses applied to the outer faces of said beams; and rails carried by the inner faces of said beams, in a horizontal plane midway between their upper and lower chords.

4. In combination with bridge A comprising beams B, C, and ends L, horizontal trusses applied to the beams; rails J, carried by the inner faces of said beams in plane with the neutral axes of said beams from end to end, as regards torsion: and a trolley mounted upon said rails.

574,582. NUT-LOCK. ALBERT D. SMITH, Philadelphia, Pa., assignor of one-half to P. H. Markley, Hatborough, Pa., and Albert W. Markley, New York, N. Y. Filed Aug. 20, 1896. Serial No. 603,401. (No model.)



Claim.—1. The combination with a nut having its inner face grooved adjacent to and intersecting the hole in the nut, of a staple of ordinary form having cutting and swaging ends and constructed to enter the groove in the nut and straddle the bolt on which the nut is screwed and wedge itself between the bolt and the wall of the groove, thereby displacing the threads at the points of contact therewith, substantially as set forth.

2. The combination with a nut having the usual threaded opening therein and a pair of parallel or approximately parallel grooves formed therein on opposite sides of the opening and intersecting the same, of a staple entering the two grooves as guides and having cutting and swaging ends adapted to displace the threads of the bolt on opposite sides thereof, substantially as set forth.

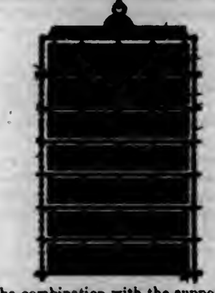
574,583. BEER-TAP. DANIEL E. SPRINGER and JAMES M. HARNETT, Tamaqua, Pa. Filed Feb. 12, 1896. Serial No. 578,905. (No model.)



Claim.—1. In a tap such as described, a circular cutting-bit on the lower end thereof adapted to cut a circular groove in a bung to form a closing for the tap in combination with an outlet-pipe adapted to slide through the tap and force the bung out of engagement with the bit and engage in the bung to retain it when out of engagement with the circular bit so the bung may be replaced on the circular bit when it is desired to withdraw the outlet-pipe, as and for the purpose described.

2. In a device of the character described, a tubular tap, a bit on the end thereof adapted to engage a bug thereby forming a closing for the tap, an outlet-pipe adapted to slide through the top and disengage the bung from the bit said outlet-pipe having a screw-bit on its end to engage the bung and retain it in a position to close the tap when the outlet-pipe is withdrawn, as and for the purpose described.

574,584. SIGN. GEORGE H. STATEN, Portsmouth, Ohio. Filed Feb. 12, 1896. Serial No. 579,062. (No model.)

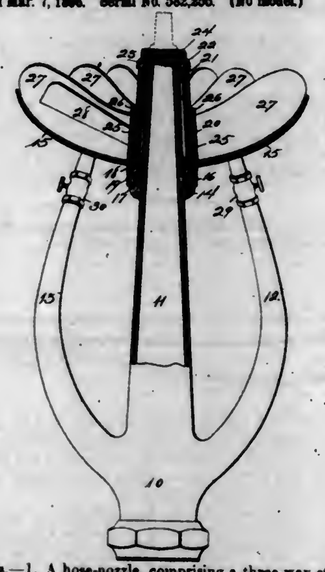


Claim.—1. The combination with the supporting-board and the cords or chains suspended therefrom, of the slats connecting the cords or chains and the signs supported from said slats, the said slats being adjustable upon the cords or chains, substantially as described.

2. The combination with the supporting-board and the cords or chains suspended therefrom, of the slats connecting the cords or chains and the signs supported from said slats, the said slats being adjustable upon the cords or chains, and means for holding the same in their adjusted position, substantially as described.

3. The combination with the supporting-board and the cords or chains suspended therefrom, of the slats connecting the cords or chains and the signs supported from said slats, the said slats being adjustable upon the cords or chains, and double hooks supported from the slats, substantially as described.

574,585. HOSE-NOZZLE. FRANK W. STEVENS, Lake View, Iowa. Filed Mar. 7, 1896. Serial No. 582,255. (No model.)



Claim.—1. A hose-nozzle, comprising a three-way stem, a bowl of materially greater diameter than the nozzle communicating with two of said ways independent of the central way, a spray-wheel of a diameter coincident with the diameter of the bowl mounted upon the other way and arranged within the bowl in the path of the water

from the first said ways, wings on said spray-wheel and arranged to receive the impact of the water from the said two ways, and a ball-bearing interposed between said spray-wheel and the central nozzle.

2. A hose-nozzle, comprising three connecting nozzles, a bowl communicating with two of the said nozzles, a spray-wheel mounted on the other nozzle and arranged within the bowl in the path of the flow of water from the first said nozzles, and means for controlling the flow of water from the nozzles.

3. In a hose-nozzle, the combination of a stem or central nozzle, a ball-bearing cone mounted on said nozzle and resting against a shoulder 14 thereon, a traveling cone mounted in opposition to the first said cone and separated therefrom for the insertion of balls 19, a hub rigidly mounted upon the said traveling cone, wings mounted on said hub and radiating therefrom, deflecting-plates mounted on the wings, a traveling cone 21 mounted on the end of the hub opposite to the first said traveling cone, a stationary cone in opposition to the cone 21 and separated therefrom for the insertion of balls 23 therein, and a jam-nut 24 whereby the stationary cone is held in proximity to the traveling cone 21.

4. In a hose-nozzle, a central or jet nozzle, a hub mounted thereon, blades radially mounted on the said hub and extending at oblique angles to the axis of the nozzle, deflecting-plates 28 mounted on the central portions of one side of the blades and having their longitudinal planes at oblique angles to the axis of the nozzle, a bowl rigidly mounted on the central nozzle and conforming in contour to the lower edges of the blades, and branch nozzles 12, 13 arranged peripherally of the central nozzle and communicating with the blades through the bowl, which branch nozzles are arranged helically relative to the axis of the central nozzle.

574,586. **HARNESS ATTACHMENT.** CHARLES R. STOWELL, Locke's Mills, Me., assignor of one-half to Robert R. Powers, same place. Filed Apr. 30, 1896. Serial No. 589,684. (No model.)



Claim.—1. In a harness the combination of a strap doubled upon itself to form a loop, a roller about which the strap is folded, a transverse bar upon a sliding frictional buckle to which the free end of the loop is fastened, and a series of transverse bars in the sliding frictional buckle about which the strap is folded back and forth; all combined with each other substantially as and for the purpose set forth.

2. In a harness, a connection between two of its parts in which a roller attached to one of the parts is combined with a strap attached to the other part and folded about it in a loop, a sliding frictional buckle with three or more transverse bars about which the strap is folded back and forth, and a screw and nut by which the strap is fastened to another transverse bar of the sliding frictional buckle, all as set forth.

3. In a harness, a strap doubled upon itself to form a loop, in combination with means for equalizing the strain in the two halves of the loop, a series of transverse bars in a sliding frictional buckle about which the strap at one end of the loop is bent back and forth, and a transverse bar at the end of the frictional buckle which has such a position in relation to the loop, that when the free end of the loop is fastened to it, the two halves of the loop will be there drawn tightly together if under strain; all as and for the purpose set forth.

574,587. **TONGUE-SUPPORT.** GEORGE THOMAS, Effingham, Ill. Filed June 2, 1896. Serial No. 593,974. (No model.)



Claim.—1. In a tongue-support consisting of a flat spring having its rear end provided with a clip adapted to embrace the top and front faces of an ordinary vehicle-axle, and its front end bent at right angles to its body portion whereby the pole is supported on the edge of the spring, substantially as described.

2. In a tongue-support, a flat supporting-spring having its free end bent at right angles to the body portion and adapted to bear on the tongue, in combination with a clip portion, substantially as described.

3. In a tongue-support, the combination with a spring having its free end bent at right angles to its body portion, of a bearing-plate, adapted to be applied to the under side of the tongue and provided with guide-lugs, substantially as described.

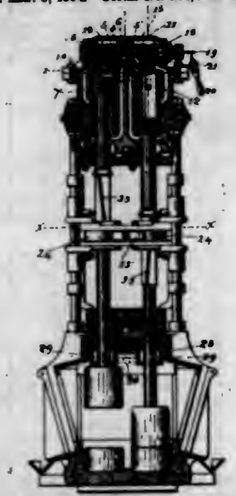
574,588. **OPTICAL INSTRUMENT FOR TESTING DIAMONDS.** THOMAS THORP, Whitefield, England. Filed July 20, 1895. Serial No. 556,573. (No model.)



Claim.—1. An optical instrument for testing diamonds, consisting of the combination of a totally-reflecting prism, a tube of opaque material extending from one of the side faces of the prism, and a magnifying-lens within the tube.

2. An optical instrument for testing diamonds, consisting of the combination of a totally-reflecting prism, a tube of opaque material extending from one of the side faces of the prism, and a magnifying-lens within the tube, said lens being adjustable to and from the prism.

574,589. **STEAM ORE-STAMP.** CHARLES W. TREMAIN, Portland, Oreg. Filed Mar. 5, 1894. Serial No. 502,419. (No model.)



Claim.—1. The combination in a steam-stamp, with the cylinders and the pistons therein, and a single valve controlling the ports admitting steam into said cylinders, of one independent set of ports and ducts for conducting into the valve-chamber to move said valve, a portion of the live steam admitted into the cylinder below the piston to lift the stamp, and another independent set of ports and ducts for conducting another portion of said live steam from the under to the upper side of the piston in said cylinder to cushion the piston-head, and prevent the same from striking against the cylinder-head, and also to start the piston back substantially as set forth.

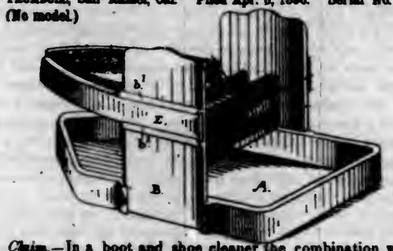
2. In a stamp the combination with the spiral stems of the smooth-faced wheels or collars having a central opening corresponding to the spiral of the stamp-stems, which operate therein as described, and antifriction facing or sleeve in the eye of such wheels for the spiral stems to operate in, and means adapted to allow such wheels to move in one direction but bind and hold the same if moved in the opposite direction, substantially as set forth and for the purposes described.

3. In a stamp the combination with the spiral stems of the smooth-faced wheels or collars having a central opening, corresponding to the spiral of the stamp-stems, which operate therein as described, and antifriction facing or sleeve in the eye of such wheels for the spiral stems to operate in; and a spring-clutch secured at its center and having two arms or members each faced at its end with some friction material and adapted to allow said wheels to move in one direction, but bind and hold the same if moved in the opposite direction substantially as set forth, and for the purposes described.

4. In a steam-stamp, in combination, two cylinders and pistons therein, a valve-chest on said cylinders, and a single piston-valve in such chest, having ports 8, 11, and provided with a double-D or slide valve controlling the ports admitting steam into said cylinders respectively; independent steam and exhaust chambers within said valve-chest; pipe 2 and passage 3 leading into such steam-chambers; ducts and passages as 5, 7, 9, 10, and 12, 13, 14, 15, 16, 17 furnishing communications between such cylinders and valve-chest, and providing ingress and egress for the steam operating the pistons within said cylinders; and ports 8 and 18 for permitting the steam that has moved the valve to exhaust, all substantially as set forth.

5. The combination in a steam-stamp with the cylinders and pistons therein, a valve-chest upon said cylinders and passages or ports furnishing communication between said cylinders and valve-chest and providing ingress and egress for the steam operating the pistons and valve, of a piston-valve, and a slide-valve, the latter controlling the ports admitting steam into the cylinders, substantially as set forth.

574,590. **FOOT-SCRAPER OR BOOT-CLEANER.** ROBERT J. TRUMBULL, San Rafael, Cal. Filed Apr. 6, 1896. Serial No. 586,400. (No model.)



Claim.—In a boot and shoe cleaner the combination with the tray, of the removable vertical standards carrying the metal scraper, the rubber block and the curved spring-brushes, as described.

574,591. **VETERINARY MOUTH-SPECULUM.** ALEXANDER A. WALKER, Casselton, N. D. Filed Apr. 7, 1896. Serial No. 586,582. (No model.)



Claim.—1. In a veterinary speculum the upper and lower jaws pivoted together, the cross-plates attached to the said upper and lower jaws, a lever member pivoted to the upper and lower jaws, said lever member having shoulders or offsets adapted to engage the upper jaw, the head-strap connected to the lower jaw, the drawing-strap attached to the lever member and adapted to pull upon the lower jaw, substantially as and for the purpose specified.
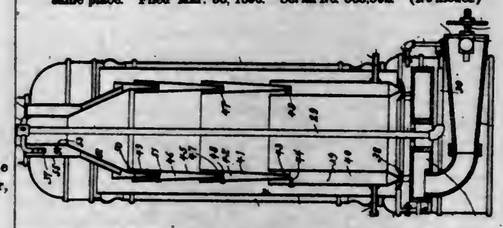
2. In a veterinary speculum, the upper and lower jaws pivoted together, the lever member pivotally attached to said upper and lower jaws, said lever member having shoulders or offsets to engage the upper jaw, the head-strap connected with the lower jaw, the cross-plates and pivoted bars, the drawing-strap attached to the lever, the staple and buckle attached to the lower jaw, and through which the drawing-strap passes, substantially as shown and described.

574,592. **POTATO SORTER AND SACKER.** DOUGLAS C. WEATHERHEAD, Sabin, Minn., assignor of one-third to Josiah Benjamin Flanders. Filed June 6, 1896. Serial No. 594,513. (No model.)



Claim.—In a separator, substantially as shown and described, the sack-holder, consisting of the cross-beam 27, perforated plates 28, V-shaped frame 29, hinged to the lower end of said separator; pins 32, secured to the lower edge of said frame and adapted to enter the perforations in the plates 28; pins 33, in the outer face of the frame 29; perforated metal bars 38, pivoted in bearings 35, the lower perforations of said bars adapted to fit over the pins 33, and to be held in place by springs 40, substantially as shown and described and for the purposes set forth.

574,593. **HOT-WATER HEATER.** JOHN P. WENNING, Milwaukee, Wis., assignor of two-thirds to Frederick Daase and Arthur J. Maag, same place. Filed Mar. 30, 1896. Serial No. 585,392. (No model.)



Claim.—1. In a water-heater, the combination, of a casing, a series of water-jackets in the casing, each jacket consisting of inner and outer annular walls forming a water-chamber therebetween, the lower end of each upper jacket extending to or into the upper end of the next jacket below, and provided with a discharge orifice or orifices, the inner walls of the several jackets thereby forming a continuous upwardly-extending central heating-chamber, a burner in the casing adapted to discharge the products of combustion into the heating-chamber, and a water-pipe extending into the casing and adapted for discharging into the water-chamber of the upper jacket.

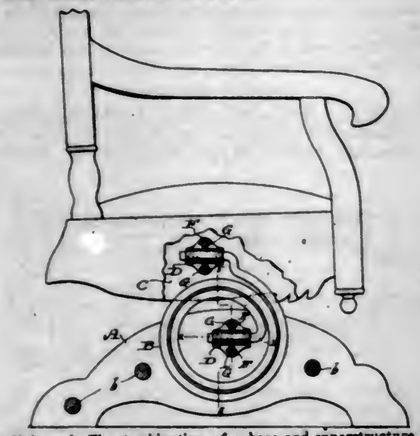
2. In a water-heater, the combination, of a casing, a series of water-jackets in the casing, each jacket consisting of inner and outer annular walls forming a water-chamber therebetween, the lower ends of the several jackets being contracted and provided with a discharge orifice or orifices, the contracted ends of the upper jackets of the series extending and adapted to discharge into the upper widened ends of the succeeding jackets, and the inner walls of the several jackets thereby forming a continuous upwardly-extending central heating-chamber, a burner in the casing adapted to discharge the products of combustion into the heating-chamber, and a water-pipe extending into the casing, and adapted for discharging into the water-chamber of the upper jacket.

3. In a water-heater, the combination, of a casing, a series of water-jackets in the casing and arranged at a distance from the wall forming said casing, each jacket consisting of inner and outer annular walls forming a water-chamber therebetween, the lower end of each upper jacket extending to or into the upper end of the next succeeding jacket below, and provided with a discharge orifice or orifices, the inner walls of the several jackets forming a continuous upwardly-extending central heating-chamber, and the space confined between the outer walls of these jackets and the casing forming an outer heating-space, a burner in the casing adapted to discharge the products of combustion into the central upwardly-extending heating-chamber and into the outer heating-space, and a water-pipe extending into the casing and adapted for discharging into the water-chamber of the upper jacket.

4. In a water-heater, the combination, of a casing, a series of water-jackets in the casing and arranged at a distance from the inner side of the wall forming the casing, each jacket consisting of inner and outer annular walls forming a water-chamber therebetween, the lower ends of the several jackets being contracted and provided with a discharge orifice or orifices, the contracted ends of the upper jackets of the series extending and adapted to discharge into the upper widened ends of the succeeding jackets, the inner walls of the several jackets forming a continuous upwardly-extending central heating-chamber, and the space confined between the outer walls of these jackets and the casing forming an outer heating-space, a burner in the casing adapted to discharge the products of combustion into the central upwardly-extending heating-chamber and into the outer heating-space, and a water-pipe extending into the casing and upwardly in the central upwardly-extending heating-chamber, and adapted for discharging into the water-chamber of the upper jacket.

5. In a heater, the combination, of a casing, a water-jacket within the casing, said jacket provided with a discharge pipe or pipes, a channel or trough supporting the jacket, a burner located immediately beneath the channel or trough, a fuel-supply pipe leading to the burner and adapted to be connected to a source of supply, and a water-pipe in the casing having one end adapted for connection to a source of supply, and its other end adapted to discharge into the water-jacket.

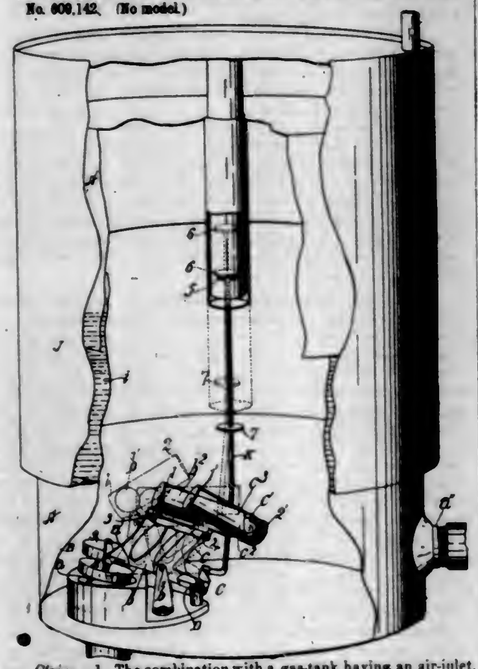
574,594. SPRING-ROCKER. ARTHUR WHITE, Plymouth, Wis., assignor of one-half to Adolph W. Schram, same place. Filed July 16, 1896. Serial No. 599,376. (No model.)



Claim.—1. The combination of a base and superstructure provided with recesses, bolts having their heads concealed in said recesses, a pair of parallel plates held against torsional strain on each set of bolts and having their opposing faces recessed, nuts run on the bolts against a plate in each pair, and convolute springs having each end thereof engaging the recesses in a pair of said plates.

2. The combination of a base and superstructure each provided with superronted recesses in communication with apertures open on the inside of the parts aforesaid, bolts having their heads let in the recesses through the apertures, a pair of parallel plates on each set of bolts and the outer plate in each pair provided with lugs engaging seats in the adjacent base or superstructure, nuts run on the bolts against the adjacent plate, and convolute springs having each end thereof engaging recesses in the opposing faces of a pair of plates.

574,595. AIR AND GAS MIXER. NATHAN WHITE, Pasadena, Cal., assignor to Edith White, same place. Filed Oct. 16, 1896. Serial No. 609,142. (No model.)



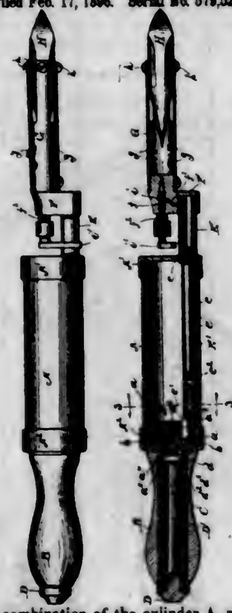
Claim.—1. The combination with a gas-tank having an air-inlet, a vapor-inlet and a gas-outlet, and a sealed holder which covers the tank and is arranged to rise and fall with relation thereto; of a valve to close the said inlets; a lever carrying such valve; an overbalance-weight, the same being movably mounted on the valve-lever and having its path from side to side of a vertical drawn from the pivot of the valve-lever; stops connected with the valve-lever to stop the weight at the ends of its path; an auxiliary weighted lever, the weighted arm of which is arranged to move the center of gravity of the weight thereof from side to side of a vertical drawn from the pivot of such lever; stops on the valve-lever arranged in the path of the auxiliary lever on opposite sides of a vertical drawn from the pivot of the lever; a catch connected with the holder to rise and fall therewith; and two catches connected with the auxiliary weighted lever to move the same, and arranged respectively above and below the catch carried by the holder and in the path of such catch.

2. The combination with a gas-tank having an air-inlet, a vapor-inlet and a gas-outlet, and a sealed holder which covers the tank and is arranged to rise and fall; of a valve to close the said inlets; a lever carrying such valve and provided with a weight-runway with stops at the ends thereof and which stops have paths respectively on opposite sides of a vertical drawn from the pivot of the lever: a weight arranged in such runway to move thereal0ng; an auxiliary lever provided with a weight-runway with stops at the ends thereof and which stops have paths respectively on opposite sides of a vertical, drawn from the pivot of the lever; a weight arranged in such runway to move thereal0ng; stops on the valve-lever arranged in the path of the auxiliary lever on opposite sides of the vertical drawn from the pivot of the lever; a catch connected with the holder to rise and fall therewith; and two catches connected with the auxiliary weighted lever to move the same and arranged respectively above and below the catch carried by the holder and in the path of such catch.

3. The combination of the pivoted valve-lever provided with a weight-runway having stops at opposite sides of a vertical drawn from the pivot of the lever; a rolling weight in such runway; an auxiliary lever provided with a weight-runway having stops at opposite sides of a vertical drawn from the lever-pivot; a rolling weight arranged to move along such runway; and stops arranged on the valve-lever on opposite sides of said vertical in the path of the auxiliary lever.

4. A pivoted valve-lever carrying a valve and provided with a weight-runway having stops with paths at opposite sides of a vertical drawn from the pivot of the lever; a weight arranged to move along such runway; an auxiliary lever provided with a weight-runway having stops with paths at opposite sides of a vertical drawn from the lever-pivot; a weight arranged to move along such runway; and stops arranged on the valve-lever on opposite sides of said vertical in the path of the auxiliary lever.

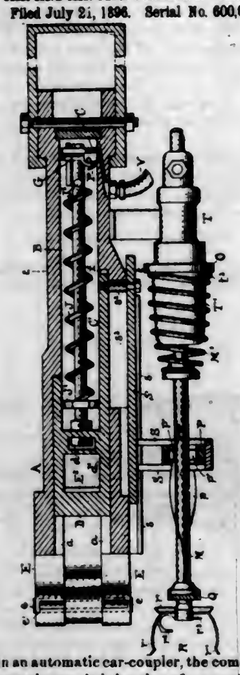
574,596. SELF-HEATING SOLDERING-IRON. JOHN WICKSTROM, Chicago, Ill. Filed Feb. 17, 1896. Serial No. 579,525. (No model.)



Claim.—The combination of the cylinder A, provided with the internal annular flange *a*, the cap A^2, having the ring *b*, tubular projection *a'*, and opening a^3, the spring-held check-valve a^4, located in

the projection *a'*, an air-pump secured to the outer surface of the cap A^2, and communicating with the oil-receptacle, and having on the end of the piston-rod adjacent to said cap a piece *d'*, to close the opening therein, substantially as described.

574,597. CAR AND AIR-PIPE COUPLING. CLINTON L. BANCROFT, Brown's Nev. Filed July 21, 1896. Serial No. 600,017. (No model.)



Claim.—1. In an automatic car-coupler, the combination with the draw-head and a coupler carried thereby, of a movable head for locking the coupler in its operative position and adapted to move said coupler to its inoperative or uncoupled position, a piston operated by suitable pressure for moving said head out of locking position, and a spring for returning said head to its normal position, substantially as set forth.

2. In an automatic car-coupler, the combination with the draw-head carrying a pivoted coupler having a curved arm, of a reciprocating head in the path of movement of said arm for holding the coupler in locking position, a piston operated by suitable pressure for moving said head out of locking position and thereby swinging said coupler out of locking position, and a spring for returning said head to its normal position, substantially as set forth.

3. In an automatic car-coupler, the combination with the draw-head carrying a pivoted coupler having a curved arm, and a reciprocating head in the path of movement of said arm for holding the coupler in locking position, a piston operated by suitable pressure for moving said head out of locking position and thereby swinging said coupler out of locking position, a spring for returning said head to its normal position, and an automatic relief-valve in the piston for reducing the pressure behind the piston, substantially as set forth.

4. In an automatic car-coupler, the combination with the draw-head carrying a pivoted coupler having a curved arm, of a reciprocating head in the path of movement of said arm for holding the coupler in locking position, a piston operated by suitable pressure for moving said head out of locking position and thereby swinging said coupler out of locking position, a valve in the piston, means for opening said valve on the backward stroke of the piston, and a spring for returning said head to its normal position, substantially as set forth.

5. In an automatic air-pipe coupler, the combination with the pipe, of clamping-jaws adapted to engage with an opposing coupler, locking-jaws for locking opposing couplers when held by the clamping-jaws, and means for automatically operating said locking-jaws by the bringing together of the two couplers, substantially as set forth.

6. In an automatic air-pipe coupler, the combination with the pipe, of clamping-jaws adapted to engage with an opposing coupler, rotary locking-jaws for locking opposing couplers when held by the clamping-jaws, and means for automatically rotating said locking-jaws by the bringing together of the two couplers, substantially as set forth.

7. In an automatic air-pipe coupler, the combination with the pipe, of clamping-jaws adapted to engage with an opposing coupler, locking-jaws for locking opposite couplers when held by the clamping-jaws, spiral ribs on said pipe, a movable yoke having slots in which said ribs work, and a suitable motor for reciprocating said yoke to rotate the pipe by means of the spiral ribs, whereby the pipe-coupler is rotated to move the locking-jaws into and out of locking position, substantially as set forth.

8. In an automatic air-pipe coupler, the combination with a pipe capable of slight lengthwise movement, of clamping-jaws adapted to engage with an opposing coupler, locking-jaws for locking opposing couplers when held by the clamping-jaws, means for operating said locking-jaws, and a valve controlled by the lengthwise movement of the pipe for opening or shutting off communication between said pipe and a similar pipe at the other end of the car, substantially as set forth.

9. In an automatic air-pipe coupler, the combination with a pipe capable of slight lengthwise movement, of clamping-jaws adapted to engage with an opposing coupler, locking-jaws for locking opposing couplers when held by the clamping-jaws, means for operating said locking-jaws, a valve-chamber into which the inner end of said pipe projects, a valve in said chamber controlled by the lengthwise movement of said pipe for opening or shutting off communication between said pipe and a similar pipe at the other end of the car, and a flexible chamber connected with said pipe and the valve-chamber to prevent the escape of air, substantially as set forth.

10. In a system of air-piping for railroad-cars, the combination with a set of three air-pipes at each end of the car provided at their free ends with automatic couplers, two stationary yokes for supporting each set of pipes, spiral ribs on said pipes, a reciprocating yoke for each set having slots in which said ribs work, by the movement of which yoke the pipes are rotated to place the couplers into locking and unlocking position, piping connecting the air-pipes at one end of the car with those at the other end, two pipes of each set being directly connected by piping, and a valve at both ends of the car controlled by the lengthwise movements of the third pipe of each set for controlling communication between them, substantially as set forth.

11. In a system of air-piping for railroad-cars, the combination with a set of three air-pipes at each end of the car provided at their free ends with automatic couplers, two stationary yokes for supporting each set of pipes, spiral ribs on said pipes, a reciprocating yoke for each set having slots in which said ribs work, by the movement of which yoke the pipes are rotated to place the couplers into locking and unlocking position, piping connecting the air-pipes at one end of the car with those at the other end, two pipes of each set being directly connected by piping, a connection between said piping containing a cock, controlling the supply of air to the air-brake cylinder, whereby either or both said lines of piping may be employed for the air-brakes, and a valve at both ends of the car controlled by the lengthwise movements of the third pipe of each set for controlling communication between them, substantially as set forth.

12. In a combined automatic car and air-pipe coupler, the combination with the car-coupler and the air-pipes, of means operated by a piston in the draw-head for controlling the locking and unlocking of the car-coupler, a connection from one of the air-pipes leading to said piston-chamber, couplings for the air-pipes, and means moving with said piston for operating the said couplings to move them into and out of locking position, substantially as set forth.

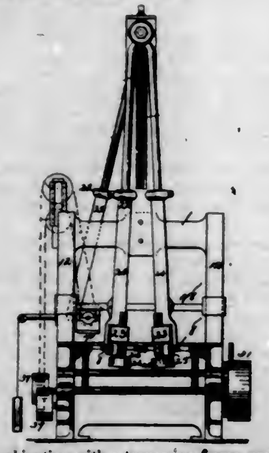
13. In a combined automatic car and air-pipe coupler, the combination with the draw-head carrying a pivoted coupler having a curved arm, of a reciprocating head in the path of movement of said arm for holding the coupler in locking position, a piston operated by air-pressure for moving said head out of locking position and thereby swinging said coupler out of locking position, a spring for returning said head to its normal position, a set of air-pipes carried by said draw-head, a movable yoke secured to and moving with the reciprocating head, pipe-couplers carried by said pipes, and means for converting the reciprocating motion of said yoke into a rotary motion of said pipes to move said pipe-couplers into and out of locking position, substantially as set forth.

14. In a combined automatic car and air-pipe coupler, the combination with the car-coupler, of air-pipes in proximity thereto, coupling devices carried by the free ends of said pipes, means for rotating said pipes to move the air-pipe couplers into and out of locking position, and means whereby when the car-couplers of adjoining cars separate and the air-pipe couplers are placed under strain said pipes will be caused to rotate and unlock their couplers, substantially as set forth.

574,598. MACHINE FOR MANUFACTURING TANKS. WILLIAM H. BULLOCK, Oswego, N. Y., assignor to Thomson Kingsford, same place. Filed Mar. 23, 1896. Serial No. 584,392. (No model.)

Claim.—1. The combination with a traversing frame provided with laterally-adjustable rectangular bars adapted to rock in the bear-

ings on said frame, of swinging legs carrying cutters upon their free ends and slides upon said legs engaging with said bars to follow their alinement as said frame is reciprocated.



2. The combination with a traversing frame, provided with rectangular guide-bars mounted to rock thereon and adjustable to vary their alinement, of cutters mounted upon diverging swinging legs pivoted upon the same center, adjustable to vary their length, and slides upon said legs through which said guide-bars pass and whereby said cutters are swung laterally as said frame is reciprocated.

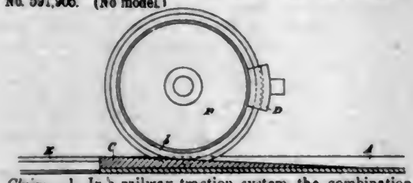
3. The combination with a table, a traversing frame thereon, slides upon the end rails thereof, rectangular rocking bars connected to said slides and means to adjust them by traversing said slides, of swinging legs and slides thereon traversing said bars to vary the degree of the divergence of said legs as the frame traverses, and cutters upon said legs.

4. The combination with a table, a traversing frame thereon, slides upon the end rails thereof, bars connected to said slides and adapted to rock in the bearings thereon, and means to adjust said bars laterally and in equal degree by traversing said slides, of laterally swinging and diverging legs mounted upon a common center and engaging with said bars to vary the degree of their divergence as the frame traverses, cutters upon said legs, and means to simultaneously adjust the length of said legs to the radius of the circle of the head of the tank.

5. In a stave-machine, a frame mounted and adapted to traverse upon a suitable support and consisting of side and end rails, slides upon said end rails, longitudinal rectangular bars journaled to rock in said slides and screws for shifting said slides to vary the spaces between the ends of said bars, in combination with cutters mounted upon swinging legs actuated laterally by the traverse of said frame, and slides upon said legs through which said bars reciprocate and whereby the staves are tapered and beveled.

6. In a stave-machine, a table, a standard erected thereon, a slide upon said standard, beveling and tapering and crozing legs suspended therefrom and means to vary their length simultaneously and equally by shifting said slide, in combination with a traversing frame upon said table engaging with said cutter-legs to guide and swing them, and cutters upon each of said legs whereby a stave upon said frame is tapered and beveled by the traverse of said frame, and crozed when the crozing-cutter is swung across it.

574,599. RAILWAY TRACTION SYSTEM. WELLON M. CALDWELL and JAMES BEWSHER, Seattle, Wash. Filed May 18, 1896. Serial No. 591,905. (No model.)

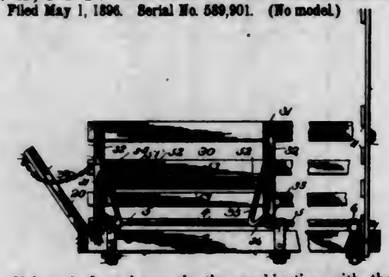


Claim.—1. In a railway traction system, the combination of a trough-shaped rail in which the inner surfaces of opposite sides form a downwardly-converging angle, and an ordinary T-rail with ends abutting said trough-shaped rail, with wheels having a cylindrical tread, a flange, and a beveled tread upon each side the cylindrical tread at an angle to correspond with the angle of the sides of the trough, and an incline placed within the trough-shaped rail and adapted to raise the wheel from engagement with the inclined surfaces, substantially as shown and described.

2. In a railway traction system, the combination of a track composed in parts of a rail adapted to a wheel of cylindrical tread, and in parts of a rail which is trough-shaped having the inner surfaces of opposite sides forming a downwardly-converging angle, with rolling-stock having wheels which have a cylindrical tread and also have a conical tread upon each side of the same and within the circumference, the same being adapted to engage the angular surfaces of the trough-shaped rail, and an incline placed within the trough of one rail and adapted to engage the cylindrical tread on the wheel and raise it to the level of the other rail, substantially as shown and described.

3. The combination of a trough-shaped rail having complementary and downwardly-converging tread-surfaces, and a rail having a horizontal upper tread-surface, with a frog or incline placed within the trough of the first-named rail, substantially as shown and described.

574,600. HAY-RACK. J ROSS CARPENTER, Little York, Ill. Filed May 1, 1896. Serial No. 589,901. (No model.)



Claim.—1. In a hay-rack, the combination with the bottom board, side strips rising rigidly from the edges thereof, transverse beams beneath the board and strips extending beyond the latter, and strap-irons whose outer ends are mounted on said beams, whose bodies are attached to the strips and rise above the edges of the latter to form bearings, and whose inner ends pass through the bottom board and beams and receive nuts; of a rock-shaft journaled in the upper ends of the strap-irons above the strips, and wagon sides carried by said rock-shafts, substantially as described.

2. In a hay-wagon, the combination with the bottom board, rigid side strips rising from the edges thereof, blocks mounted on said strips and having notched upper edges, and strap-irons attached to said side strips and curving over above the blocks so as to form bearings of a rock-shaft standing above each side strip and reduced where it rests in the blocks, and wagon sides carried by said rock-shafts, substantially as described.

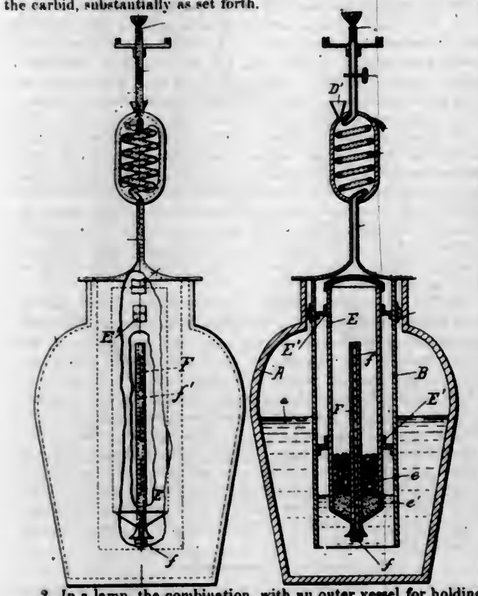
3. In a hay-wagon, the combination with the bottom board having side strips rising rigidly from its edges and carrying bearings, and a folding front end and folding tail-board attached to said side strips; of rock-shafts journaled in said bearings, wagon sides carried by said rock-shafts and comprising cross-strips connected by longitudinal slats, in the outer face of each cross-strip an eye near its upper end and a sleeve near its lower end with a notch at one side, and a bracket substantially as described whose extremities are journaled in the eye and sleeve, as and for the purpose set forth.

4. In a hay-rack, the combination with the bottom board, front end, tail-board, and outwardly-swinging sides consisting of cross-strips connected by longitudinal slats; of the wheel-guard comprising a body, end pieces hinged thereto, a hinge connecting one end piece with the rearmost cross-strip, a U-shaped bracket beneath the other end piece, and a button on the cross-strip next forward of the rearmost which button is adapted to engage slots in the front or rear arm of said bracket according as the wheel-guard is raised or lowered, as and for the purpose set forth.

5. In a hay-rack, the combination with the bottom board, front end, tail-board, and outwardly-swinging sides consisting of cross-strips connected by longitudinal slats; of a wheel-guard consisting of a body, depending strips secured to its edges and having beveled ends, end pieces hinged to the extremities of the body, a hinge connecting one end piece with one cross-bar of the side, and a bracket beneath the other end piece adapted to pass inside the cross-bar next in front when the body is raised and the end pieces stand oblique, as and for the purpose set forth.

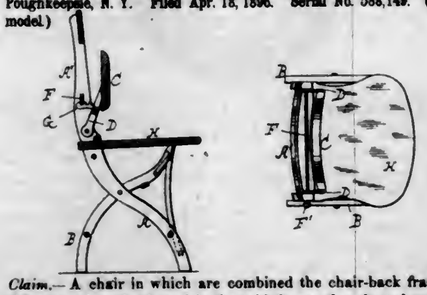
574,601. ACETYLENE-GAS-GENERATING LAMP. HENRI E. CASGRAIN, Quebec, Canada. Filed May 20, 1896. Serial No. 592,284. (No model.)

Claim.—1. In a lamp, the combination, with an outer vessel for holding water, of a cylinder open at the bottom and provided with means for regulating the passage of gas from its upper part, said cylinder being supported in the said vessel, and a vessel for holding carbid of calcium supported in the said cylinder and provided with an upwardly-projecting perforated pipe having a valve at its lower part for permitting the water to enter in prearranged quantity to act upon the carbid, substantially as set forth.



2. In a lamp, the combination, with an outer vessel for holding water, of a cylinder provided with a cover and a gas-pipe at its upper end and supported in the said outer vessel, a vessel for holding carbid of calcium supported above the open bottom of the said cylinder and provided with an upwardly-projecting perforated pipe, and a regulating-screw provided with a wedge-shaped groove and controlling the passage of water to the carbid, substantially as set forth.

574,602. TYPE-WRITER'S CHAIR. FRANKLIN CHICHESTER, Poughkeepsie, N. Y. Filed Apr. 18, 1896. Serial No. 588,149. (No model.)

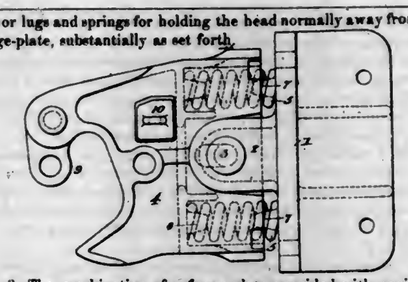


Claim.—A chair in which are combined the chair-back frame, the tilting panel, as C, pivoted in the said frame, the pivoted arms, as D, supporting said panel, the locking-bar, as F, having guide-bearings in said frame, toothed segments, as G, attached to the supporting-arms to engage with said locking-bar, springs, as *e*, acting on the supporting-arms, and a spring, as *g*, acting on the locking-bar, the whole adapted to operate substantially as herein described, for the purpose set forth.

574,603. TENDER-COUPLING. FRANK J. CURTIS, Bon Avon, Pa., assignor to the McConway & Torley Company, Pittsburg, Pa. Filed May 21, 1896. Serial No. 592,392. (No model.)

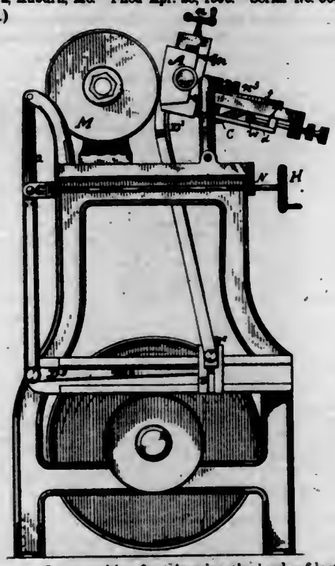
Claim.—1. The combination of a flange-plate provided with projecting ears or lugs, a coupler-head provided with slots, a pin passing through said slots and holes in the ears or lugs and springs for holding the head normally away from the flange-plate, substantially as set forth.

2. The combination of a flange-plate provided with projecting ears or lugs, a coupler-head having a straight rear wall or face, and provided with slots, a pin passing through said slots and holes in the ears or lugs and springs for holding the head normally away from the flange-plate, substantially as set forth.



3. The combination of a flange-plate provided with projecting ears or lugs, a coupler-head provided with slots, a pin passing through said slots and holes in the ears or lugs, and springs for holding the head normally away from the flange-plate, said springs being arranged with their axes below a horizontal plane passing through the middle of the coupler-head, substantially as set forth.

574,604. MACHINE FOR SHAPING HEELS OF LASTS. AMOS G. FITZ, Auburn, Me. Filed Apr. 23, 1896. Serial No. 588,750. (No model.)



Claim.—1. In a machine for trimming the heels of lasts the combination of a rotary cutter, a pattern-wheel, a pattern, a rocking frame, a support for the last and a support for the pattern independently hinged to the rocking frame and free to swing about the same center line, and an adjustable connection between the two supports which controls the relative range of their swings, all as set forth.

2. In a machine for shaping the heels of lasts, the combination of a rotary cutter, a pattern-wheel, a pattern, a rocking frame, a support for the last hinged to the top of the rocking frame, a support for the pattern similarly hinged, a connecting-rod extending from the pattern-support to a guided piece, a second rod connecting the guided piece with the last-support, means of varying the point of attachment of the connecting-rod to the last-support, and thereby its leverage, and means of horizontal adjustment for the guided piece which brings the connecting-rods approximately into line with the average direction of motion of their upper ends.

3. In a machine for shaping the heels of lasts, the combination of a swinging support for the last attached to a rocking frame, a vertically-moving slide, a rod connecting the swinging support to the vertically-moving slide, a horizontally-adjustable support for the vertically-moving slide, a vertical lever from which the adjustable support receives its adjustment, and means of imparting motion to the vertical lever at such a point that a movement there equal to the difference in depth of two last-heels will shift the vertically-moving slide from a position approximately correct for one last, to a position approximately correct for the other, all as set forth.

4. In a machine for shaping the heels of lasts, the combination of a swinging support for the last hinged to a rocking frame, a rod connecting the support to a vertically-moving slide, a horizontal slide upon which the vertical slide is mounted, a vertical lever pivoted at

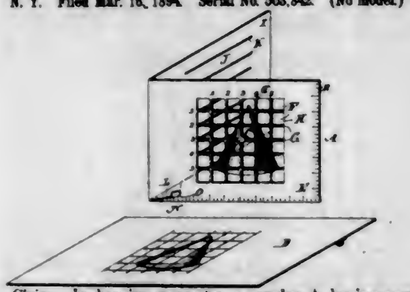
its upper end, means of connection between the vertical lever and the horizontal slide, a screw acting upon the vertical lever and projecting through the front of the machine, and a hand-wheel upon the end of the screw, all in combination with each other and of such relative proportions that the vertical slide will be in an approximately correct position when the hand-wheel is separated from the front of the machine by a distance equal to the height of the last-heel.

5. In a machine for shaping the heels of lasts, the combination with a rotary cutter of a pattern-wheel, a swinging pattern, a swinging support for the last whose motion has a definite relation to that of the swinging pattern, and a support for the last-toe mounted upon the support for the last and vertically adjustable in relation thereto, all as set forth.

6. In a machine for finishing the heels of lasts a support for the pattern and a support for the last, separately hinged to the top of a swinging frame, and a connection between the two supports which maintains them in a definite angular relation to each other, in combination with a vertically-adjustable support for the toe of the last.

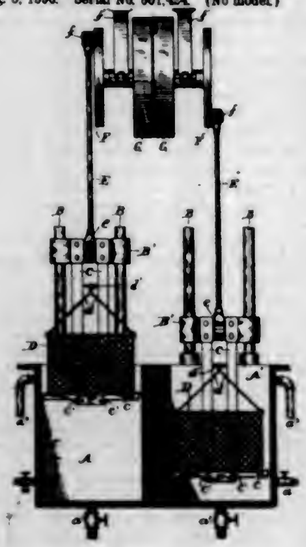
7. In a machine for shaping the heels of lasts the combination with a support for a last which is hinged to the top of a rocking frame of a support for the toe of the last which has a pair of inclined projections on its lower side and is hinged to the front end of the last-support, a pair of tracks parallel to the upper surface of the last-support and suspended from its lower side, a pair of rollers acting between the tracks and the inclined projections and a screw which passes through the front end of the last-support and actuates the rollers, all as set forth.

574,605. DRAWING APPARATUS. THEODORE C. HAILER, Albany, N. Y. Filed Mar. 16, 1894. Serial No. 503,842. (No model.)



Claim.—In drawing apparatus, a member A, having cross-lines, in combination with a marker B, having a plurality of slots K having ruling edges, said marker connected to said member by a folding connection, and a brace L between said members, substantially as and for the purpose set forth.

574,606. DISH-CLEANER. GEORGE B. HEIDEMAN, Bellevue, Ky. Filed Aug. 3, 1896. Serial No. 601,424. (No model.)



Claim.—1. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a circumferential series of upright division-blades which are loosely connected with each other and capable of swinging out and supporting themselves at their outer edges against the peripheral wall of the bowl, substantially as set forth.

2. The combination with the bowl of a centrifugal separator, of an expansible division contrivance consisting of a series or row of division-blades connected with each other by movable joints, the ends of the series being disconnected from each other, whereby the series of blades can be arranged in the bowl circumferentially or in a circular form and can support themselves against the inner side of the bowl, substantially as set forth.

3. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a series or row of upright division-blades which intersect the radial lines of the bowl and which are connected with each other by movable joints, substantially as set forth.

4. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a series or row of upright division-blades which intersect the radial lines of the bowl and which are provided with spacing projections and are connected with each other by movable joints, substantially as set forth.

5. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a series or row of upright division-blades which intersect the radial lines of the bowl and links which connect the upright edges of adjacent blades at one side of the series or row of blades, substantially as set forth.

Claim.—1. In a dish-washing machine the two water-tanks, upright columns opposite each of said tanks, boxes fitted to slide upon said columns, basket-supporting arms secured to said boxes and projecting down into said tanks, baskets supported upon said arms, pitmen coupled at one end to said boxes and at the opposite ends to crank-pins, and means such as shown to operate said pitmen for the purpose of impartifig a vertical reciprocating motion to the baskets within the tanks, substantially as shown and described.

2. In a dish-washing machine two tanks, uprights opposite each tank, connected boxes sliding upon said columns, flexible basket-supporting arms secured to said boxes and projecting into said tanks, baskets supported upon said arms, and means such as shown for imparting a vertical reciprocating movement to said baskets, combined and arranged substantially as shown and described.

3. The combination in a dish-washing machine of a washing and rinsing tank arranged side by side, upright columns opposite each tank, connected boxes sliding upon said columns, supporting spring-arms secured to said boxes extending down into said tanks and having horizontal arms, bars connected to said horizontal arms to support baskets for holding dishes, baskets resting upon said arms, and pitmen connecting the sliding boxes and actuating mechanism to impart a vertical reciprocating movement to said baskets, substantially as shown and described.

4. The combination in a dish-washing machine of the tanks, uprights opposite said tanks, the connected boxes fitted to slide upon said uprights, arms secured to said boxes and extending into said tanks, baskets supported upon said arms, said baskets having bails upon opposite sides and loops at their upper ends, and a spring-catch to hold the said bails together, substantially as shown and described.

5. The combination substantially as hereinbefore set forth of the two tanks, uprights opposite each tank, connected boxes fitted to slide upon said uprights and having a journal-shaft connecting the boxes of each pair, arms secured to said boxes and extending into the tanks to support dish-holding baskets, the baskets supported upon said arms, a driving-shaft having tight and loose pulleys thereon and disks carrying crank-pins at their opposite ends, and pitmen connecting said crank-pins and the sliding boxes.

574,607. CENTRIFUGAL LIQUID-SEPARATOR. MATTHEW L. HOYT, Brighton, N. Y., assignor to D. H. Burrell & Co., Little Falls, N. Y. Filed Oct. 23, 1894. Serial No. 526,705. (No model.)



Claim.—1. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a circumferential series of upright division-blades which are loosely connected with each other and capable of swinging out and supporting themselves at their outer edges against the peripheral wall of the bowl, substantially as set forth.

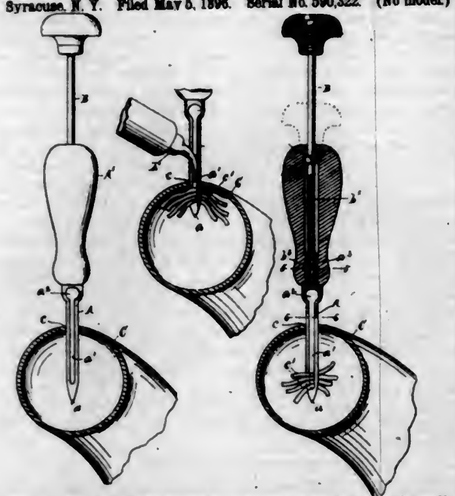
2. The combination with the bowl of a centrifugal separator, of an expansible division contrivance consisting of a series or row of division-blades connected with each other by movable joints, the ends of the series being disconnected from each other, whereby the series of blades can be arranged in the bowl circumferentially or in a circular form and can support themselves against the inner side of the bowl, substantially as set forth.

3. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a series or row of upright division-blades which intersect the radial lines of the bowl and which are connected with each other by movable joints, substantially as set forth.

4. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a series or row of upright division-blades which intersect the radial lines of the bowl and which are provided with spacing projections and are connected with each other by movable joints, substantially as set forth.

5. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance arranged within the liquid-space of the bowl and consisting of a series or row of upright division-blades which intersect the radial lines of the bowl and links which connect the upright edges of adjacent blades at one side of the series or row of blades, substantially as set forth.

574,608. DEVICE FOR MENDING TIRES. FRANK B. JENCKS, Syracuse, N. Y. Filed May 5, 1896. Serial No. 590,322. (No model.)



Claim.—1. A tire-mending device consisting of a slotted needle provided with a hollow shank, and a push-rod or plunger movable in the shank and the slot of the needle, said needle and push-rod being provided with suitable handles, substantially as and for the purpose described.

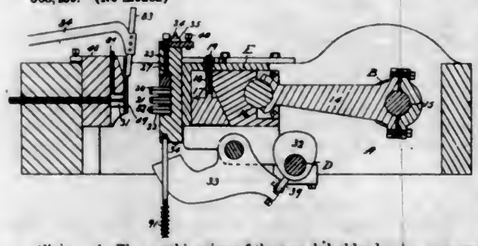
2. In a tire-mending device, the combination of a slotted needle provided with a handle, a hollow shank and an eye or opening for inserting strips of the mending material: of a sliding push-rod or plunger movable in the shank and the slot of the needle for forcing said strips of mending material into the tire, substantially as and for the purpose set forth.

3. A tire-mending device consisting of a combined needle and push-rod or plunger sliding within the needle, said needle being provided with suitable openings for the insertion of tire-mending material, substantially as and for the purpose specified.

4. A tire-mending device, consisting of a slotted needle, and a push-rod or plunger movable in the slot of the needle, and provided with a lengthwise groove, substantially as and for the purpose set forth.

5. A tire-mending device consisting of a slotted needle, and a push-rod or plunger movable in the slot of the needle and provided with oppositely-arranged lengthwise grooves alined with said slot and opening thereinto, substantially as and for the purpose specified.

574,609. MACHINE FOR HEADING SCREW-BLANKS. HORACE K. JONES, Hartford, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Oct. 12, 1895. Serial No. 565,489. (No model.)



Claim.—1. The combination of the punch-holder having a recess with the several punches and pairs of punch-holding blocks with screw-seats on their outer side edges, a holding-cap and the screws 28 for holding and adjusting said punches laterally, substantially as described and for the purpose specified.

2. The combination of the reciprocating ram, a punch-holder mounted on said ram, and two or more independent sets of levers and cams acting at different times for elevating said punch-holder to different heights for different strokes of the ram, substantially as described and for the purpose specified.

3. The combination of the reciprocating ram, a punch-holder mounted on said ram, levers, cams, and separate adjusting-screws for regulating the height of the punch-holder at each of its different strokes, substantially as described and for the purpose specified.

4. The combination of the reciprocating ram, the punch-holder mounted to slide vertically on said ram, means for moving said ram vertically, and adjusting-screws 34, 38 and 40 extending to the top of the ram for adjusting the height of the punch-holder at different strokes, substantially as described and for the purpose specified.

5. The combination of a ram, a punch-holder mounted on said ram, the continuously-rotating crank-shaft directly connected with said ram by a pitman, the cam-shaft connected with said crank-shaft for rotating in the proportion of three to one, and means for holding the punch-holder at different heights for three successive strokes of the ram, substantially as described and for the purpose specified.

6. The combination of the die-closing slide having cam or wedge with the die-closing rollers geared together, the rack 71, roller-slide in which said rollers are mounted, and the cam for reciprocating said roller-slide, substantially as described and for the purpose specified.

7. The combination of the heading-dies with the die-closing slide having cam or wedge at one end, geared rollers and rack, and means for rolling said rollers against said cam or wedge to close said dies for cutting off and pointing one end of the wire preparatory to heading the other end, substantially as described and for the purpose specified.

8. The combination of the feed-rollers, the ratchet-wheel for driving them, the pawl-carrier and pawl for acting on said ratchet-wheel, means for moving the pawl-carrier and means for lifting and holding the pawl out of action during certain strokes of the pawl-carrier, substantially as described and for the purpose specified.

9. The combination of the ram, its driving-shaft, the punch-holder and punches on said ram, the cam-shaft connected with said driving-shaft to rotate in the proportion of three to one, the heading-dies, the feed-rollers, the ratchet-wheel, the pawl-carrier and pawl, the pitman for driving said pawl-carrier, a crank on said driving-shaft for driving said pitman and pawl-carrier, a pawl-lifting lever and a cam on the cam-shaft for regulating the action of said lifting-lever to make the coutinuously-moving pawl-carrier feed only once for every three strokes of the ram substantially as described.

10. In a heading-machine, a die having the head-forming cavity slotted transversely, the punch having the slot-swaging blade in alinement with the transverse slot through said head-forming cavity, and a clearing-tool mounted to pass through said head-forming cavity to finish the slot in the headed blank, substantially as described and for the purpose specified.

11. In a heading-machine, the combination of the die-holder, the heading-dies having at one end the chisel-edge cutting-off and pointing cavity, and the air-blast tube in said die-holder with its end directed to the space between said dies at the cutting end, substantially as described and for the purpose specified.

12. In a heading-machine whose ram makes two or more blows in forming one head; the combination of a continuously-rotating crank-shaft, a continuously-moving ram directly connected to said crank-shaft by means of a pitman, punches mounted on said ram to move therewith, and a cam-shaft geared to said crank-shaft and acting to move the punches into position for their successive operations on the head, substantially as described and for the purpose specified.

13. In a heading-machine, the combination of a ram carrying three punches, mechanism for presenting said punches consecutively to the heading-dies at equal intervals of time, and an intermittent feed which acts after each blow of the third punch and before the next blow of the first punch, the interval of time between each series of three strokes being the same as the interval of time between any two consecutive strokes in each series, substantially as described.

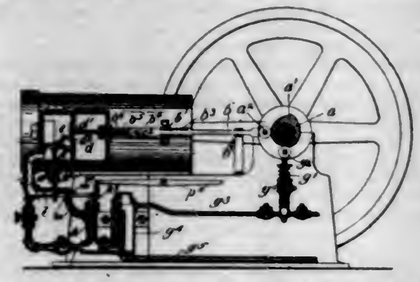
14. In a machine for heading blanks, the combination of a series of heading-punches carried on a ram, with a continuously-revolving crank-shaft, a pitman directly connecting said crank-shaft and ram, mechanism for consecutively presenting to the heading-dies the different punches in said series, and an intermittent feed operating between the last blow of the last punch and the first blow of the first punch in said series of punches, the interval of time between said blows being equal to the interval between the blows of any two consecutive punches in said series, substantially as described.

15. The combination of a punch-holder, with the several punches and pairs of laterally-movable punch-holding blocks, means for binding the several pairs of blocks upon each other, and means for separately binding each pair of blocks upon its punch, substantially as described and for the purpose specified.

16. The combination of a punch-holder with the several punches and pairs of laterally-movable punch-holding blocks, means for binding the several pairs of blocks upon each other, and means for separately adjusting each pair of blocks and its punch laterally, substantially as described and for the purpose specified.

574,610. GAS-ENGINE. GUSTAF JOHANSON, Berwyn, Ill. Filed Sept. 20, 1895. Serial No. 563,053. (No model.)

Claim.—1. In a gas-engine, the combination with the exhaust-valve and actuating connections therefor, of a cam of irregular periphery mounted upon the main shaft of the engine, a short portion of the periphery of said cam being adapted to lock and maintain said actuating connections of the valve in operative position, another and longer portion being adapted to open the valve, and the remaining and longest portion permitting the closing of the valve and the release of the actuating connections thereof, substantially as described.



2. In a gas-engine, the combination with ignition-chamber e of the exhaust-valve d', slotted casting c, rod b^3 connecting the exhaust-valve and the said casting, piston c^7 moving in cylinder c^6 by the force of the explosion in the ignition-chamber, pin c^5 actuated by the movement of the said piston to enter within the slot in casting c in the path of valve-rod b, valve-rod b extending within the slot in casting c and cam a' of irregular periphery mounted upon the main shaft of the engine, a short portion of the periphery of said cam being adapted to lock and maintain the actuating connections of the valve in operative position, another and longer portion being adapted to open the valve, and the remaining and longest portion permitting the closing of the valve and the release of the actuating connections thereof, substantially as described.

3. The combination with a cam mounted upon the shaft of the engine, of a part carrying a cam-roller adapted to engage said cam and to be reciprocated thereby, an exhaust-valve, a longitudinally-movable part upon which said valve is mounted, a slot carried in the end of one of said parts within which a tongue carried upon the other part is adapted to move, a pin adapted to be inserted into said slot in the path of said tongue, an auxiliary cylinder in communication with the engine-cylinder, and a piston moving in said cylinder and connected with said pin; substantially as described.

4. The combination with a rod b^3 carrying the exhaust-valve, of the casting c mounted upon the end thereof and carrying a slot c', said casting having a slight freedom of movement relatively to the exhaust-valve, the tongue b^4 adapted to be reciprocated in the slot c', the pin c^5 adapted to be moved into the slot in the path of said tongue, and the cam a' for reciprocating said tongue and having the concentric portion B' C' adapted to maintain the end of the tongue in engagement with the pin c^5 without imparting longitudinal movement to the rod b^3; substantially as described.

5. The combination with a part adapted to be moved by the suction within the engine-cylinder, of a pump-plunger operated thereby, a spring opposing the movement of said plunger, and a governor for regulating the tension of said spring; substantially as described.

6. The combination with an inlet-valve adapted to be moved by the suction within the engine-cylinder, of a pump-plunger operated thereby, and a governor for regulating the movement of the plunger and the inlet-valve to control the quantity of explosive mixture admitted to the engine-cylinder, substantially as described.

7. The combination with an inlet-valve adapted to be moved by the suction within the engine-cylinder, of a pump-plunger, a spring opposing the movement of the inlet-valve and the plunger, and a governor for varying the tension of said spring to control the quantity of explosive mixture drawn into the engine-cylinder; substantially as described.

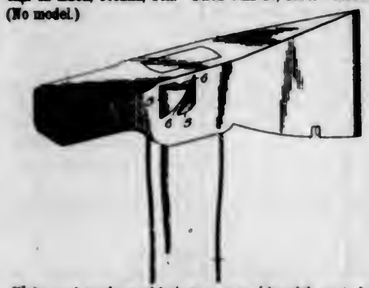
8. The combination with an inlet-valve operated by the suction within the engine-cylinder, of a pump-plunger moved by said valve, a governor for controlling the strokes of the pump-plunger and of the inlet-valve, and means for permitting a slight freedom of movement of the valve relatively to the plunger to admit air to the engine-cylinder when the plunger remains at rest; substantially as described.

9. The combination with a longitudinally-movable wheel or disk mounted upon the engine-shaft, of a wedge interposed between said wheel and a part mounted stationarily upon the engine-shaft, said wedge when moved serving to impart longitudinal movement to said wheel or disk, a governor-ball for moving said wedge, a controlling-lever continuously in engagement with said longitudinally-movable wheel and adapted to be operated by the longitudinal movement of said wheel, a pump-plunger, and an inlet-valve, the stroke of said plunger and the stroke of said inlet-valve being controlled by the movement of said operating-lever; substantially as described.

10. The combination with a longitudinally-movable wheel or disk mounted upon the engine-shaft, of a wedge interposed between said wheel and a part mounted stationarily upon the engine-shaft, said wedge when moved serving to impart longitudinal movement to said wheel or disk, a governor-ball for moving said wedge, a controlling-lever continuously in engagement with said longitudinally-movable wheel and adapted to be operated by the longitudinal movement of said wheel, and an inlet-valve the stroke of which is controlled by the movement of said operating-lever; substantially as described.

11. In a gas-engine, the combination with the ignition-chamber e, of the exhaust-valve d', slotted casting c, rod b^3 connecting the exhaust-valve and the said casting, piston c^7 moving in cylinder c^6 by the force of the explosion in the ignition-chamber, pin c^5 actuated by the movement of the said piston to enter within the slot of casting c in the path of valve-rod b, valve-rod b extending within the slot in casting c, cam a' mounted upon the main shaft of the engine, the periphery of said cam being provided with portions A' C', C' D' and D' A', the latter portion being respectively of increasing and decreasing radius, a short portion of the periphery A' C' being adapted to actuate the valve-rod to lock and maintain pin c^5 in position when the said pin is forced within the slot, portion C' B' being adapted to open the valve, and the longer portion B' A' permitting the closing of the valve and the release of the actuating connections thereof, substantially as described.

574,611. COMBINED HATCHET AND WIRE-TIGHTENER. EDGAR A. KECK, Cotulla, Tex. Filed Jan. 17, 1896. Serial No. 575,868. (No model.)



Claim.—A tool provided upon one side with opposing triangular jaws projecting laterally therefrom and having their adjacent faces arranged opposite and parallel to each other, the said jaws lapping by each other and terminating in acute-angled points which are undercut to form wire-engaging shoulders, substantially as and for the purpose described.

574,612. LASTING DEVICE. THOMAS K. KEITH, Boston, Mass. Filed Oct. 24, 1895. Serial No. 566,693. (No model.)



Claim.—A flexible wire successively bent so as to form loops, each loop as formed being passed through an awl-hole made through the upper and the sole and then clenched, whereby the upper is secured to the sole, the said wire being adapted to be withdrawn when the boot or shoe is sewed, substantially as and for the purpose set forth.

574,613. EXCELSIOR-MACHINE. LEICESTER P. KING, Cincinnati, Ohio, assignor of one-half to Isaac Sturm, same place. Filed Aug. 17, 1896. Serial No. 603,005. (No model.)

Claim.—1. In an excelsior-machine, the combination with inner and outer cylinders united to constitute a frame, of a rotatory table mounted thereon, a gear upon the bottom of the table, a second gear meshing therewith, a shaft, a box in the frame completely inclosing the shaft, and a driving-pulley upon the outer end of the shaft, substantially as set forth.

2. The combination with a frame composed of inner and outer cylinders, collar and step, of a table and trunnion thereon mounted in the collar and step, movable cutters upon the table, an actuating-groove on the surface of the inner cylinder operatively connected with the movable cutters, antifriction-rollers upon the side walls of the outer cylinder supporting the table, and table-driving mechanism, substantially as set forth.

3. In an excelsior-machine, the combination with a frame and rotatory table, of a swinging cutter-frame upon the table, a bell-crank lever pivoted to the table, connected at one end to the cutter, and at the other end to a cam-groove said cam-groove being defined upon the frame, substantially as set forth.



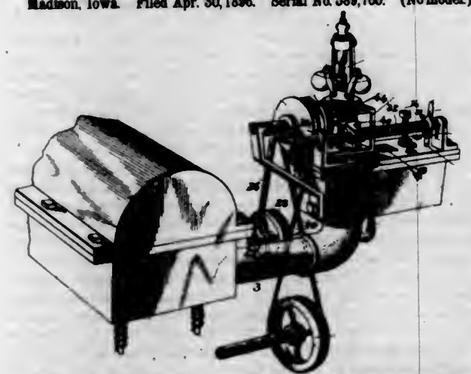
4. In an excelsior-machine, the combination with a frame and rotatory table, of lugs upon the bottom of the table, a plate secured to the lugs, a recess and transverse slot in the plate, a shuttle pivoted to the plate, a longitudinal slot therein, a cutter-frame working in the shuttle, a bolt passing through the same, and the slots in the shuttle and in the plate, respectively, a bell-crank lever pivoted to the table, and the shuttle-driving mechanism and lever-actuating mechanism, substantially as set forth.

5. In an excelsior-machine, the combination with a frame, rotatory table, cutters thereon, and feed-boxes above the same, of a waste-discharging member supported above the table in a line with the box and disposed transversely of the path of the cutters, substantially as set forth.

6. In an excelsior-machine, the combination with a frame, and annular plate thereon, of a rotatory table carried on the frame underneath the plate, a feed-box upon the plate, knives upon the table, an aperture in the side wall of the plate, a rib between the plate, and the table, in line with the feed-boxes, for causing discharge of waste blocks through the aperture in the side wall of the plate, substantially as and for the purpose specified.

7. In an excelsior-machine, the combination with a frame, rotatory table, and driving mechanism, of a swinging cutter-frame upon the table, disk cutters mounted in the cutter-frame, a bell-crank lever pivoted to the table and connected at one end to the cutter-frame, and at the other end to a cam-groove defined upon the main frame, substantially as set forth.

574,614. GAS-ENGINE ATTACHMENT. GEORGE W. LAMOS, Fort Madison, Iowa. Filed Apr. 30, 1896. Serial No. 589,705. (No model.)



Claim.—1. In a gas-engine attachment, the combination with the main suction supply-pipe of the engine, of a vaporizer-box having an air-inlet and separate oil-feed and drain-pipe connections therewith, an upright pipe extension arranged within the vaporizer-box and communicating with said main suction supply-pipe, said upright pipe extension having a valve-seat at its upper end within the box, a vertically-movable valve-stem working through the top of the vaporizer-box and carrying within the same a valve-disk working over and onto the said pipe extension, adjusting mechanism for said valve-stem, and a partition-plate fitted within the vaporizer-box at one side of said pipe extension and provided at its lower edge with a gauze-covered circulating-opening, substantially as set forth.

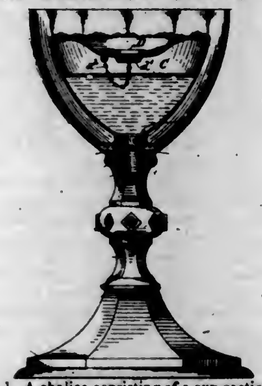
2. In a gas-engine attachment, the combination with the main suction supply-pipe of the engine having a valve-seat, of a vertically-movable valve-stem carrying a valve-disk working over and onto the valve-seat of said suction supply-pipe, a suitably-supported shaft, an adjustable spring coiled on said shaft, a valve-adjusting lever loosely mounted on said shaft and connected at one end with said valve-stem, said valve-adjusting lever being engaged and normally elevated by said spring, and a suitably-operated governor supported above the valve-adjusting lever and having a vertically-movable stem working above and onto the upper end of said valve-stem, substantially as set forth.

3. In a gas-engine attachment, the combination with the suction supply-pipe of the engine having a valve-seat, of a vertically-movable valve-stem carrying a valve-disk working over said seat, a normally spring-elevated valve-adjusting lever supported at one side of the valve-stem and loosely connected therewith, and a suitably-operated governor supported above the valve-adjusting lever and having a vertically-movable stem working above and onto the upper end of said valve-stem, substantially as set forth.

4. In a gas-engine attachment, the combination of a main suction supply-pipe of the engine having a valve-seat, a vertically-movable valve-stem carrying a valve-disk working over said seat, a suitably-supported shaft, a valve-lever loosely mounted at one end on said shaft and loosely connected at its other end with said valve-stem, an adjusting-spring coiled on said shaft and having hook extremities, one of which engages with said valve-lever, a double-handled adjusting-lever adjustably fitted on said shaft and engaging with the other hook extremity of said spring, and a suitably-operated governor supported above the valve-lever and having a vertically-movable stem working above and onto the upper end of the valve-stem, substantially as set forth.

5. In a gas-engine attachment, the combination of a suction supply-pipe of a gas-engine having a valve-seat, a movable valve-stem carrying a valve-disk working over said seat, a horizontal rock-shaft journaled in suitable bearings and provided at one end with a depending arm extension carrying an idler-pulley, a normally spring-elevated valve-adjusting lever loosely mounted at one end on said rock-shaft and loosely connected at its other end with said valve-stem, a tappet-collar secured fast on the rock-shaft at one side of the valve-adjusting lever and having a lug normally lying above and adapted to work onto said valve-adjusting lever, a governor supported above the valve-adjusting lever and having a vertically-movable stem working above and onto the upper end of the valve-stem, a counter-shaft geared with said governor and carrying a belt-pulley, and a governor-belt passing over said belt-pulley and driven from one of the shafts of the gas-engine, said governor-belt receiving thereagainst the weight of said idler-pulley, substantially as set forth.

574,615. CHALICE. VICTOR M. LAW, East Oakland, Cal. Filed Aug. 28, 1895. Serial No. 560,202. (No model.)



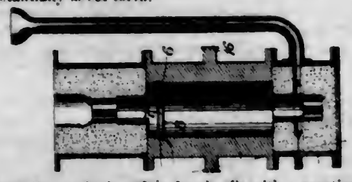
Claim.—1. A chalice consisting of a cup-section, and a reservoir-section located in the cup-section having a discharge and vent opening at or near its base, a fill-opening in its top, and a sealing-closure for the fill-opening, substantially as described.

2. A chalice consisting of a cup-section and a reservoir-section located within the cup and held free from the sides thereof, and having a vent and discharge opening at or near its base, and a closed top, substantially as described.

574,616. MOLD FOR CASTING ROLLS, &c. JOHN I. LEWIS, Pittsburg, Pa. Filed Aug. 19, 1896. Serial No. 603,192. (No model.)

Claim.—1. Means for producing plain-faced rolls with a practi-

cally uniform depth of chill, consisting of a chill-mold having a substantially smooth inner surface and supports for the casting constructed and arranged to bear on the surface of the casting during cooling and which, while permitting the longitudinal movement of the casting, will maintain the latter in a central position with reference to the mold, substantially as set forth.



2. Means for producing plain-faced rolls with a practically uniform depth of chill, consisting of a chill-mold having a substantially smooth inner surface, and supports constructed and arranged in such position as to be brought into contact with the surface of the casting by the movement of the latter due to its contraction during cooling and solidification and which while permitting the longitudinal movement of the casting will maintain the latter in a central position with reference to the mold, substantially as set forth.

3. Means for producing plain-faced rolls with a practically uniform depth of chill, consisting of a chill-mold provided on its inner wall with one or more downwardly-inclined or beveled shoulders located at or near the upper end of the chill-mold and constructed and arranged to maintain the casting in a central position with reference to the mold and support the same externally during cooling and solidification and permit longitudinal movement thereof, the remaining portions of the inner wall of the mold being substantially smooth.

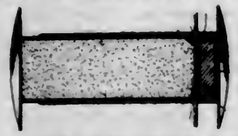
4. Means for producing plain-faced rolls with a practically uniform depth of chill, consisting of a chill-mold having a substantially smooth inner wall and provided with one or more annular shoulders having their edges downwardly inclined or beveled, one of said recesses being located at or near the upper end of the chill-mold, whereby the casting will be maintained in a central position with reference to the mold and supported externally during cooling and solidification, substantially as set forth.

5. Means for producing plain-faced rolls with a practically uniform depth of chill, consisting of a chill-mold having a substantially smooth inner wall provided with one or more downwardly-inclined or beveled shoulders constructed and arranged at or near the upper end of the chill-mold to maintain the casting in a central position with reference to the mold while permitting of a longitudinal movement thereof, and so proportioned with reference to the expected shrinkage of the casting during cooling substantially as described as to permit of the stripping of the mold from the castiug after solidification, substantially as set forth.

6. Means for producing plain-faced rolls with a practically uniform depth of chill, consisting of a chill-mold having a substantially smooth inner wall and provided with one or more outstanding downwardly-inclined or beveled shoulders constructed and arranged at or near the upper end of the chill-mold to maintain the casting in a central position with reference to the mold while permitting of a longitudinal movement thereof, and so proportioned as to height or outstanding from the surface of the wall of said chill with reference to the expected shrinkage of the casting during cooling substantially as described as to permit of the stripping of the mold from the casting after solidification, substantially as set forth.

7. Means for producing plain-faced rolls with a practically uniform depth of chill, consisting of a chill-mold having a substantially smooth inner surface, and lateral supports constructed and arranged in such position as to be brought into contact with the surface of the casting by the movement of the latter due to its contraction during cooling and solidification and which while permitting the longitudinal movement of the casting will maintain the latter in a central position with reference to the mold, and will also brace or support the chilled shell of the casting during solidification as against internal pressure, substantially as set forth.

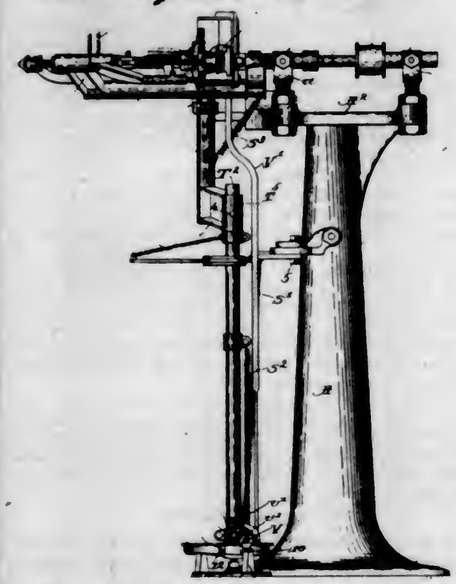
574,617. CHALK-LINE HOLDER. WILLIAM G. LEWIS, Hope, Ark. Filed Dec. 31, 1895. Serial No. 573,937. (No model.)



Claim.—1. A device of the class described comprising two separable telescoping tubular sections provided at their outer ends with heads to form a reel, one of the sections being provided at opposite sides with longitudinal slots having enlarged inner ends, and the other section constituting a receptacle and extending into the said section and covering the major portions of the slots or openings and confining a chalk-line to the outer terminals of the slots, substantially as described.

2. A device of the class described, comprising two separable tubular sections provided at their outer ends with heads to form a reel, one of the sections being provided with longitudinal slots or openings, and the other section having at its inner end an inwardly-extending annular flange, a block arranged within one of the sections at the outer end thereof and provided with a groove located opposite the slots or openings, and a piece of flexible material arranged on the block and disposed opposite the annular flange and forming a brush whereby pulverized chalk or similar material may be used, substantially as described.

574,618. HEEL-TRIMMING MACHINE. BENJAMIN F. MAYO, Salem, Mass., assignor to James W. Brooks, Peterham, principal trustee, and John Brooks, Cambridge, Mass., associate trustee. Filed Mar. 16, 1896. Serial No. 583,302. (No model.)



Claim.—1. In a heel-trimming machine, a rotary cutter, a jack, movable from front to rear transversely to the cutter-axis, a vertically-movable support therefor, a holder for the boot or shoe mounted to freely rotate bodily in the jack, said holder including a pattern, and means to clamp the boot or shoe in the holder, and a fixed rest to cooperate with the pattern, whereby the shape and size of the heel are determined, substantially as described.

2. In a heel-trimming machine, a rotary cutter, a tipping jack, means to automatically maintain the fulcrum of the jack in fixed position relative to the center of the cutter, a holder for the boot or shoe rotatably mounted in the jack, a clamp to retain the boot or shoe firmly in the holder, and manually-controlled means to move the jack laterally and to tip it, substantially as described.

3. In a heel-trimming machine, a jack, a boot or shoe holder laterally and rotatably movable in said jack, said holder including a heel-rest, a cooperating clamp, and a positioning device for the boot or shoe, and means to actuate the clamp and simultaneously move the holder laterally in the jack, to its fixed bearings therein, substantially as described.

4. In a heel-trimming machine, a jack, a rotatable boot or shoe holder mounted therein and bodily movable laterally in the jack, the holder comprising a heel-support, a cooperating clamp, and a positioning-band to embrace the boot or shoe, and means to actuate the clamp, to bring the heel firmly upon its support and thereafter move the clamped boot or shoe partially through the positioning-band, exposing the rand-crease and at the same time moving the holder into operative position, substantially as described.

5. In a heel-trimming machine, a jack, a heel-support rotatably mounted therein, a pattern surface movable with said heel-support, a positioning device and a clamp for the boot or shoe, both rotatable in the jack in unison with the heel-support, and means to move the clamp and positioning device toward and from the heel-support, to clamp or release the boot or shoe, substantially as described.

6. A jack for heel-trimming machines, having a heel-support and pattern rotatably mounted therein, a cooperating clamp, and a positioning device to grasp the rear portion of the boot or shoe, means to adjust said device toward and from the heel-support, and also laterally, and actuating mechanism for the clamp, said clamp and positioning device being rotatable in the jack with the heel-support, substantially as described.

7. In a heel-trimming machine, a rotatable holder for the boot or shoe, comprising a heel-support, a spring-band to embrace the rear part of the boot or shoe, a clamp cooperating with the heel-support, a laterally-adjustable band-carrier, and means to support the band relatively to the center of the heel-support, to properly position the shoe, substantially as described.

8. In a heel-trimming machine, a heel-support, a cooperating clamp for the boot or shoe, an open band to embrace the rear of the boot or shoe and position the same, means to rotate said heel-support, clamp and band, about a common axis, and means to adjust the band transversely to the axis of rotation, for different shapes and sizes of shoes, substantially as described.

9. In a heel-trimming machine, a jack, a boot or shoe holder rotatably mounted therein and comprising a heel-support, a clamp, actuating means therefor and a positioning device, antifriction end-thrust bearings for said holder when in operative position, and means to rotate the holder manually, operation of the clamp-actuating means moving the holder into operative position in the jack, substantially as described.

10. In a heel-trimming machine, a heel-support, a cooperating longitudinally-movable clamp, means to operate the clamp, a positioning-band to partially embrace the boot or shoe, a friction-coupling between it and the clamp, and a stop for said device, whereby operation of the clamp moves the positioning-band into operative position, and thereafter the boot or shoe is moved partially through the band, to expose the rand-crease, substantially as described

11. In a heel-trimming machine, a heel-support, a cooperating-clamp, a positioning-band to partly embrace the boot or shoe adjacent the heel, and means to adjust the band toward and from the heel-support, whereby when the boot or shoe is moved into position to have its heel trimmed the rand-crease will be properly exposed, substantially as described.

12. In a heel-trimming machine, a jack, a clamp carried thereby to secure the boot or shoe in position, a spindle upon which the jack is mounted, a treadle connected by a universal joint to the spindle, an operating-treadle for the clamp, and means to lock the treadles, whereby the shoe will be held clamped during movement of the jack, substantially as described.

13. In a heel-trimming machine, a jack, a boot or shoe clamping device carried thereby: means to move the jack vertically, means to operate the clamp, and a lock to connect said jack and clamp controlling means when desired, substantially as described.

14. In a heel-trimming machine, a jack-spindle, a jack mounted on a horizontal pivot thereon, a fixed centering-arm, an upright wing on the pivot and to bear against the centering-arm, a rotary cutter mounted in fixed bearings, and means to raise and lower the jack, the movement of the wing relative to the centering-arm maintaining the horizontal fulcrum of the jack in alinement with the center of the cutter, substantially as described.

15. In a heel-trimming machine, a holder for the boot or shoe, means to clamp it in the holder, and a compound treadle, one of the members of which controls vertical movement of the holder, the other member controlling the clamping means, and a lock controlled by the operator, to connect or disconnect said treadle members, substantially as described.

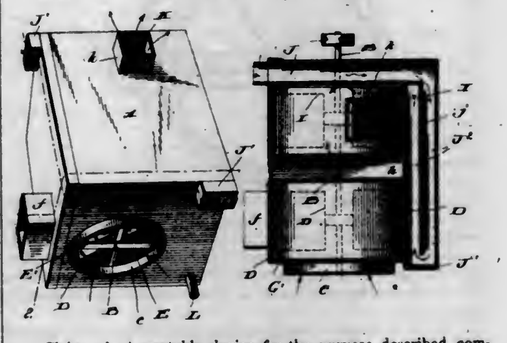
16. In a heel-trimming machine, a jack, a heel-support rotatably mounted therein, a positioning device for the boot or shoe, mounted independently of and movable toward and from the heel-support, means to adjust said positioning device laterally, and sliding connections between said heel-support and positioning device, whereby they may be rotated in unison about a common axis, substantially as described.

17. In a heel-trimming machine, a jack, a fulcrum therefor about which it may be tipped in a vertical plane, a vertical support upon which the jack is pivotally mounted and about which it may be swung horizontally, and means to clamp the boot or shoe in the jack, substantially as described.

18. In a heel-trimming machine, a rotary cutter, a vertically-movable jack, a horizontal axis about which it is normally tipped, and compensating means to maintain the horizontal fulcrum of the jack in alinement with the center of the cutter, substantially as described.

19. In a heel-trimming machine, a rotatable heel-support, a spring-band rotatable therewith, means to adjust said band toward and from the support and laterally relatively to the length of the shoe, to properly center the heel to be trimmed, and means movable toward and from the face of the support, to clamp the boot or shoe upon said heel-support, substantially as described.

574,619. VENTILATOR. AUGUST J. F. MILLER, Centralia, Ill., assignor of one-half to G. E. Eis, S. L. Dwight, A. H. Rainey, and O. V. Parkinson, same place. Filed July 14, 1896. Serial No. 599,111. (No model.)



Claim.—1. A portable device for the purpose described, comprising a casing, a rotatable shaft mounted therein, two independent fans on said shaft one for forcing fresh air through the casing into a room and the other for forcing the foul air from the room through said casing, a cylindrical casing within the outer casing and a partition forming a part of said cylindrical casing and separating the same from the fan-chamber, substantially as described.

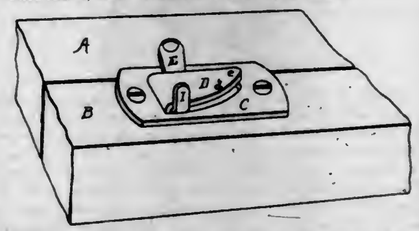
2. A portable device for the purpose described, comprising a casing, a rotatable shaft mounted therein, two independent fans on said shaft, and a heater for heating the air before it enters said fan-casings and a divided flue over said heater closed at one end, as set forth.

3. A portable device of the character described, comprising a casing, having a partition, two independent fan-casings within the same, a rotatable shaft, a fan thereon in each fan-casing, an inlet to one of the said fan-casings from the room and an outlet therefrom, and conduits leading from the open air to the other fan-casing, and an outlet therefrom into a room, substantially as specified.

4. The combination of the casing with its inlet and outlet openings and the flues at right angles to each other and communicating and meeting at one corner of the casing, one of said conduits divided longitudinally, a shaft, two independent fans thereon, and a heater arranged beneath said divided flue, all substantially as and for the purpose specified.

5. The portable device herein described comprising a casing, a shaft extending therethrough, a pulley on said shaft, two independent fans on said shaft one to draw air in and the other to force it out, one fan being opposite an opening in the end of the casing, a flange around said opening, a partition in the casing between the fans forming a portion of the case of one of the fans, the conduit J, the flue J^3 communicating therewith, the partition in said flue, said flue and conduit uniting at one corner of the casing at the point where said partition terminates, and a heater beneath the flue, all substantially as shown and described.

574,620. SASH-LOCK. JAMES B. MORGAN, Davenport, Iowa. Filed Mar. 6, 1896. Serial No. 582,132. (No model.)



Claim.—In a sash-lock, the combination of the plate, the tongue struck therefrom and standing adjacent thereto, said plate adapted to be mounted on one rail of a window-sash and to project over the side thereof onto the rail of the opposite sash, the movable arm, the angled portion on said arm, the washer under the pivoted end of said arm, said arm adapted to be swung between said tongue and the plate for the purpose described.

574,621. CHAIN-BRUSH FOR BICYCLES. CHARLES A. MCCULLOCH and MAXIMILLION F. CORNEABY, Minneapolis, Minn. Filed Nov. 21, 1895. Serial No. 569,663. (No model.)



Claim.—1. An attachment for sprocket-and-chain drives for cycles and other uses, consisting of the spring-holder, the side pieces of which are formed by spring-wires bent upon themselves to form the clamp sides or jaws with bolt-eyes, and holder-arms for the brush or brushes, the bolts passing through the bolt-eyes of said jaws, and one or more brushes loosely mounted in said holder-arms, substantially as described.

2. An attachment for sprocket-and-chain drives for cycles and other uses, consisting of the spring-holder the side pieces of which are formed by spring-wires bent upon themselves to form the clamp sides or jaws with bolt-eyes, and the holder-arms with U-shaped free ends, the bolts passing through the bolt-eyes of said jaws, and the pair of brushes mounted in said holder-arms, substantially as described.

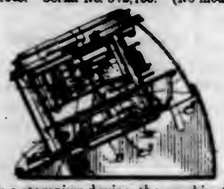
574,622. NUT-WRENCH. ROBERT F. OLDEN, Lordsburg, N. Mex. Filed July 7, 1896. Serial No. 598,281. (No model.)



Claim.—1. A nut-wrench provided with two inclined faces adapted to receive two sides of a nut, a main jaw adapted to bind on one side of the nut, an auxiliary jaw adapted to bind on another side of the nut, and a cam for guiding the nut against the inclined faces.

2. A nut-wrench provided with two inclined faces located at the same angle as that defined by two sides of a hexagon, a main jaw which is cut away to form a shoulder adapted to bind on the nut, an auxiliary jaw adapted to bind on the opposite side of the nut from the main jaw, and a curved cam leading from the auxiliary jaw to one of the inclined faces.

574,623. TICKET-STAMP. LEWIS E. PADDACK, Duluth, Minn. Filed Dec. 14, 1895. Serial No. 572,185. (No model.)



Claim.—1. In a stamping device, the combination of a vertically-movable casing, a support to which said casing is hinged, a flat spring mounted on the casing and having its free ends engaging projections on the support whereby the casing is normally held up, stamping devices mounted in said movable casing and comprising a clock mechanism and suitable stamps actuated thereby, and an inking device mounted in said movable casing and adapted to be reciprocated across the face of the stamps when the casing is depressed, substantially as described.

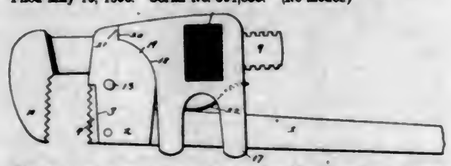
2. In a stamping device, the combination of a reciprocating casing carrying clock-actuated stamping-dials, a support for said casing, a spring connecting said support and said casing whereby the latter is held normally up, an inking-roller, and bell-crank levers connecting the casing and support and the roller whereby the roller is adapted to be reciprocated across the face of the stamps when the casing is depressed, and tracks for guiding and supporting the roller in its reciprocations, substantially as described.

3. In a stamping device, the combination of a vertically-movable casing carrying clock-actuated stamping-dials, a support for said casing, an inking-roller, bell-crank levers carrying the same, operating-levers connected to said bell-crank levers and each carrying a lateral stud which engages slots in the casing and support respectively whereby upon the casing being depressed the roller is actuated, substantially as described.

4. In a stamping device, the combination of a suitable support, a casing hinged thereto and provided with apertured projections adapted to be grasped by the fingers of the operator, a spring connecting said casing and support whereby the former is kept normally up in its raised position, clock-actuated stamping-dials and inking devices for the same, substantially as described.

5. In a stamping device, the combination of a vertically-movable casing carrying clock-actuated stamping-dials, a support for said casing, bell-crank levers pivoted in said casing and having longitudinal slots in their lower ends, an inking-roller mounted in said slots, springs for normally holding the roller in the upper ends of said slots, and means for actuating said bell-cranks when the casing is depressed to cause the inking-roller to be oscillated across the face of the stamping-dials, substantially as described.

574,624. WRENCH. JOHN M. PALMER, Marysville, Mont. Filed May 16, 1896. Serial No. 591,853. (No model.)



Claim.—1. A wrench comprising a handle, a head or enlargement at the forward end of the handle, forming a fixed jaw and having a longitudinally-disposed opening and also having a bearing-surface describing a portion of a circle, a rocking piece having a curved surface conforming to the bearing-surface of the head and also having the forwardly-extending arm pivotally connected to the head adjacent to the forward side thereof, and a movable jaw having its shank extended through the longitudinally-disposed opening of the head and connected with the rocking piece, substantially as specified.

2. A wrench comprising a handle, a head or enlargement at the forward end of the handle forming a fixed jaw and having a longitudinally-disposed opening and also having a bearing-surface describing a portion of a circle and a stop at one end of such bearing-surface, a rocking piece having a curved surface conforming to the bearing-surface of the head and a portion adapted to engage the stop thereof and also having the forwardly-extending arm pivotally connected to the head adjacent to the forward side thereof, a movable jaw having a threaded shank extending loosely through the longitudinally-disposed opening of the head and also through the rocking piece, a nut carried by the rocking piece and receiving the shank of the movable jaw and a spring interposed between the rocking piece and the handle, substantially as and for the purpose set forth.

3. A wrench comprising a handle, a head or enlargement at the forward end of the handle forming a fixed jaw and having a bearing-surface on its rear side describing a portion of a circle, a rocking piece having a curved surface conforming to the bearing-surface of the head and also having a stirrup loosely receiving the handle, and a forwardly-extending arm pivotally connected to the head adjacent to the forward side thereof, and further having the longitudinally-disposed opening and a transverse opening intersecting the longitudinal opening, a movable jaw having a threaded shank extended through the longitudinal opening of the rocking piece, a nut in the transverse opening of said rocking piece receiving the shank, and a spring interposed between the handle and rocking piece, substantially as specified.

4. A wrench comprising a handle, a head or enlargement at the forward end of the handle forming a fixed jaw and having a bearing-surface on its rear side describing a portion of a circle, and a stop at one end of said curved bearing-surface, and also having a longitudinally-disposed opening, a rocking piece having a curved surface conforming to the bearing-surface of the head and a portion to engage the stop of the head, and also having a stirrup loosely receiving the handle, and a forwardly-extending arm pivotally connected to the head adjacent to the forward side thereof, and further having the longitudinally-disposed opening and a transverse opening intersecting the longitudinal opening, a movable jaw having a threaded shank extended through the longitudinal openings of the head and rocking piece, a nut in the transverse opening of said rocking piece receiving the shank, and a spring interposed between the handle and rocking piece, substantially as and for the purpose set forth.

5. A wrench comprising a handle, a head or enlargement at the forward end of the handle forming a fixed jaw and having a convex bearing-surface on its rear side describing a portion of a circle and a stop at one end of said bearing-surface, a rocking piece having a concave curved bearing-surface conforming to the bearing-surface of the head and a portion adapted to engage the stop of said head and also having depending side portions arranged at opposite sides of the handle and a forwardly-extending arm pivotally connected to the head adjacent to the forward side thereof, and a jaw connected with the rocking piece, substantially as specified.

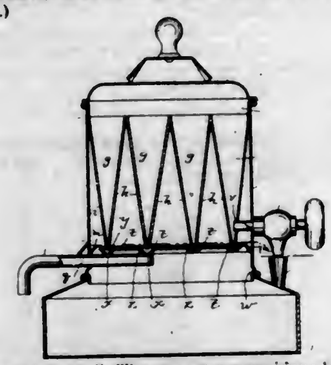
574,625. HARMONICA. HUGH PARR, Rat Portage, Canada. Filed Jan. 25, 1896. Serial No. 576,851. (No model.)



Claim.—1. The combination with a harmonica having chromatically-tuned half-spaced reeds arranged in half-spaced reed-cells, of a movable mouthpiece having full-spaced openings adapted to register in either position of the mouthpiece with alternate reed-cells, the intermediate parts of the mouthpiece covering the intermediate reed-cells, substantially as specified.

2. The combination with a chromatically-tuned harmonica having half-spaced reed-cells in each of which is arranged a plurality of reeds, the contiguous degrees of the chromatic scale being arranged in contignous or different reed-cells, while the reeds arranged in the same cell are tuned to sound an interval greater than a semitone, of a mouthpiece mounted to slide longitudinally of the reed-plates and having full-spaced openings adapted to simultaneously communicate with alternate reed-cells, the intermediate reed-cells being closed, substantially as specified.

574,626. WATER-DISTILLING APPARATUS. HENRY PATTISON, Windsor, Canada. Filed Jan. 17, 1896. Serial No. 575,840. (No model.)



Claim.—A water-distilling apparatus, comprising a boiler, a condenser having its bottom constructed of a series of conical partitions forming concentric annular spaces, triangular in vertical section, the upper surfaces of whose walls are exposed to the condensing water, and the lower surfaces of whose walls are exposed to the direct contact of the steam from said boiler; annular troughs on the lower joining ends of said partitions for receiving the condensations from said surfaces; and a discharge-pipe having ports registering with the mouths of said troughs and leading through the wall of the condenser-body substantially as specified.

574,627. STOVEPIPE-LOCK. DAVID C. PHILLIPS and JOSEPH M. MCCOWN, Paris, Ill. Filed Jan. 14, 1896. Serial No. 575,530. (No model.)

Claim.—1. The herein-described improved lock for stovepipes, comprising two relatively-adjustable arms or members, and a transverse rod or locking member loosely mounted in one of said adjustable arms or members, as set forth.

2. The herein-described improved lock for stovepipes, comprising two relatively-adjustable arms or members, one of which is provided with a hole or opening, and a rod or locking member loosely mounted in said hole or opening, as set forth.

3. The herein-described improved lock for stovepipes, comprising two relatively-adjustable arms or members, a sleeve formed on one of said arms or members, and a locking member loosely mounted in said sleeve, substantially as set forth.



4. The herein-described improved lock for stovepipes, comprising two relatively-adjustable arms or members, a flange or shoulder formed on the inner end of one of said arms or members, a sleeve formed on the outer end of the other one of said arms or members, and a locking member loosely mounted in said sleeve, substantially as set forth.

5. The combination with a stovepipe, of a slotted arm or member having a locking member loosely mounted in one end thereof and at right angles thereto, a second arm or member, and a securing rod or bolt passed through coincident holes in said pipe and said latter arm or member and through the slot of said former arm or member, said locking member being designed to automatically lock said stovepipe when the latter has been adjusted to its position, substantially as set forth.

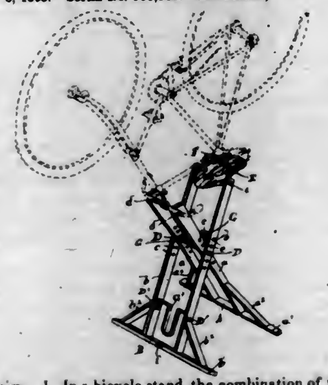
6. The combination with a stovepipe, of a slotted arm or member, a sleeve formed on one end thereof, a second arm or member, a securing rod or bolt passed through coincident holes in said pipe and said latter arm or member, and projected through the slot of said former member, and a rod or locking member carried by said sleeve and provided with heads or flanges on its ends, substantially as and for the purpose set forth.

7. The combination with a slotted stovepipe, of an adjustable arm or member, a second arm or member having a slot therein coincident with the slot in said pipe, a locking member loosely carried by said former arm or member, and a lug also formed on said adjustable arm or member and projected through said slots, said lug serving to prevent lateral movement of the parts with relation to each other, as and for the purpose set forth.

8. The combination with a slotted stovepipe, of an adjustable arm or member, a second arm or member having a slot therein coincident with the slot in said pipe, a shoulder also formed on said arm or member, a locking member loosely carried by said former arm or member, and a lug also formed on said adjustable arm or member and projected through said slots, said lug serving to prevent lateral movement of the parts with relation to each other, as and for the purpose set forth.

9. The combination with a slotted stovepipe, of an adjustable arm or member, a second arm or member having a slot therein coincident with the slot in said pipe, a sleeve formed integral with one end of said former arm or member, a lug also formed on the other end of the same arm or member and projected through said slots, and a locking member carried by said sleeve, substantially as set forth.

574,628. BICYCLE STAND OR HOLDER. HARRY C. PHILLIPS, Rochester, N. Y., assignor, by direct and mesne assignments, to the Rochester Bicycle Combination Holder Company, same place. Filed July 8, 1895. Serial No. 555,309. (No model.)



Claim.—1. In a bicycle-stand, the combination of the two members loosely pivoted together below their upper ends and having at said upper ends devices for positively engaging two separated portions of a bicycle and preventing the movement of the members on their pivot, said pivot being located between the engaging devices, whereby the weight of the bicycle will clamp it to the stand, substantially as described.

2. In a bicycle-stand, the combination of the two intersecting members loosely pivoted together at their crossing-point and their lower ends resting on the ground, one of said members having at its upper end a saddle-support and holding devices thereon, and the other recesses for engaging a bicycle handle-bar, said support and recesses being arranged on opposite sides of the pivot of the members, the bicycle engaged by them serving to prevent the separation of the upper ends of the members and thereby locking itself to the stand by its weight, substantially as described.

3. In a bicycle-stand, the combination of the two members pivoted together below their upper ends, one having recesses for receiving the handle-bar of a bicycle, and the other a pivoted saddle-support and a device on the latter for engaging a saddle, substantially as described.

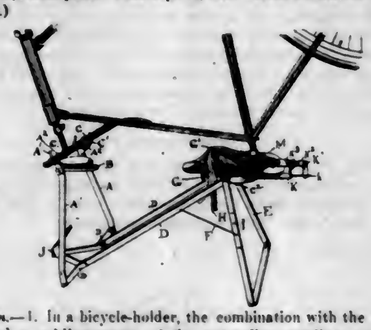
4. In a bicycle-stand, the combination of the two members pivoted together below their upper ends, one having the recesses for receiving the handle-bar of a bicycle, and the other a pivoted saddle-support provided with the loop for engaging the under side of a saddle on the support, substantially as described.

5. In a bicycle-stand, the combination of two members loosely pivoted together, and crossing each other intermediate their ends and their lower ends resting on the ground, engaging devices on the upper ends of said members for positively engaging two separated parts of a bicycle, which latter will prevent the separation of said upper ends, and thereby become locked to the stand by its weight, substantially as described.

6. In a bicycle-stand, the combination of the two members pivoted together and crossing each other intermediate their ends, the lower ends resting on the floor, each member consisting of two connected standards, the upper ends of one standard having the recesses, and those of the other having the saddle-support between them, and the loop connected thereto, substantially as described.

7. In a bicycle-stand, the combination with the two members pivoted together below their upper ends, their lower ends resting on the floor and each composed of two connected standards and having at their upper ends devices for positively engaging separated parts of a bicycle and preventing further separation of the members, of a transverse recessed cross-piece between the standards of one member, adapted to receive the rim of a bicycle-wheel and support it when resting on the ground, substantially as described.

574,629. BICYCLE STAND OR HOLDER. HARRY C. PHILLIPS, Rochester, N. Y., assignor to the Rochester Bicycle Combination Holder Company, same place. Filed Sept. 11, 1896. Serial No. 562,145. (No model.)



Claim.—1. In a bicycle-holder, the combination with the base-frame, and a saddle-support, of the upwardly-extending movable member pivoted below its upper end to the frame and having devices at its upper end for engaging the handle-bar of a bicycle, said member being movable on its pivot and held from movement by the bicycle supported upon it, and a device on the saddle-support for engaging a saddle and preventing the movement of the latter in the plane of movement of the end of the movable member, whereby the bicycle will be locked to the holder by its weight, substantially as described

2. In a bicycle-holder, the combination with the collapsible base-frame composed of the two parts pivoted together and a saddle-support thereon, of the upwardly-extending movable member pivoted below its upper end to the frame and having devices, as yokes, at its upper free end for engaging the handle-bar of a bicycle, said member being movable on its pivot and held from movement by the bicycle supported upon it, and a device on the saddle-support for engaging a saddle and preventing the movement of the latter in the plane of movement of the end of the movable member, whereby the bicycle will be locked to the holder by its weight, substantially as described.

3. In a bicycle-holder, the combination with the base-frame composed of the two parts adjustably connected and a saddle-support, of the upwardly-extending movable member pivoted to said frame below its upper end, said member being movable on its pivot, and being held from movement by the bicycle supported upon it, and having a clamping device on its free end for positively engaging and holding a bicycle handle-bar, and a device on the saddle-support for engaging a bicycle-saddle and preventing its movement in the plane of the movement of the end of the movable member, whereby the bicycle will be locked to the holder by its weight, substantially as described.

4. In a bicycle-holder, the combination with the base-frame composed of the parts D and E pivoted together, the detachable connection between them, and the bracket J, of the pivoted member A, A, the forked bracket B, and the securing devices arranged on the upper end of the pivoted member and on the base-frame for positively engaging separated parts of a bicycle-frame and preventing the movement of the movable member, substantially as described.

5. In a bicycle-holder, the combination with the base-frame composed of the parts D and E pivoted together, a locking device for securing them, the pivoted saddle-support, the forked bracket thereon, and the bracket J, of the pivoted member A, A, the forked bracket B, and clamping devices on the end of the pivoted member, substantially as described.

6. In a bicycle-holder, and as a means for clamping the handle-bar thereto, the combination of an arm or support, the stationary curved fingers, the movable cooperating curved fingers, the guide-pins C' and the movable blocks C, substantially as described.

7. In a bicycle-holder, the combination with the frame, a saddle-support thereon, and the pivoted member having handle-attaching devices, of the saddle-clamp on the saddle-support having the downwardly-extending hook for engaging the under side of the saddle, and adjustable vertically and also longitudinally of the support to secure the saddle thereto, substantially as described.

8. In a bicycle-holder, the combination with the base-frame and the movable member pivoted below its upper end to the frame, of a saddle-support, and a device thereon for engaging a bicycle-saddle and preventing its movement in the plane of movement of the free end of the movable member, and devices, as fingers, for engaging a bicycle handle-bar, said support and fingers being arranged upon the frame and movable member, and adjustable toward and from each other by the movement of the member on its pivot and said member being held from movement on its pivot by the bicycle supported upon it, substantially as described.

9. In a bicycle-holder, the combination with the frame, and a saddle-support, of the bracket secured to the support, the vertically and longitudinally adjustable clamp-arm on the bracket and the clamping-bolt, substantially as described.

574,630. ROLLER APPLIANCE FOR ROCKING-CHAIRS. JAMES C. REID and ALBERT E. WARREN, Cleveland, Ohio. Filed Sept. 5, 1896. Serial No. 604,940. (No model.)



Claim.—1. In a roller appliance for rocking-chairs, metallic straps B, and shifting rollers C, journaled thereon, which straps are held in bearings attached to the rockers of the chair, in combination with locking-pins mounted centrally in the journals of the rollers, and provided with suitable springs which pins are joined together by a chain or other flexible connection, substantially as described.

2. The plate A, fixed securely to the rocker of the chair, provided with a radial slot I, and a metallic strap B, one end of which has a pivotal bearing in the plate A, and a stud fixed to the other end of the strap B, and adapted to slide in the slot I, and a roller C, journaled on strap B, near its center, for the purpose set forth.

3. In a roller appliance for rocking-chairs, &c. the plate A, adapted to be firmly attached to the chair and containing a suitable aperture to engage the locking-pin, combined with the strap B, pivoted to the plate A, and a roller journaled on strap B, and also carrying a locking-pin E, held in bearings in strap B, and provided with a spring for the purpose of forcing it into the aperture in the plate A, in its lower position and to create frictional contact between the end of the pin and the plate A, in its other position, substantially as described.

4. The combination in a roller appliance of the plate A, having pivoted to it a strap B, which strap has near its center a hollow cylindrical projection D, on the outside surface of which is journaled the roller C, and inside of which projection and extending through the strap, a locking-pin is fitted to slide, substantially as shown.

5. In a roller appliance for chairs, &c. the combination of plates A, and straps B, having cylindrical projections D, on which rollers are adapted to turn and through which locking-pins, encircled by and having bearings for spiral springs, are fitted to slide, which pins are provided on their inside ends with hooks F, or other suitable attachments for a chain or other flexible connection joining them together, substantially as set forth.

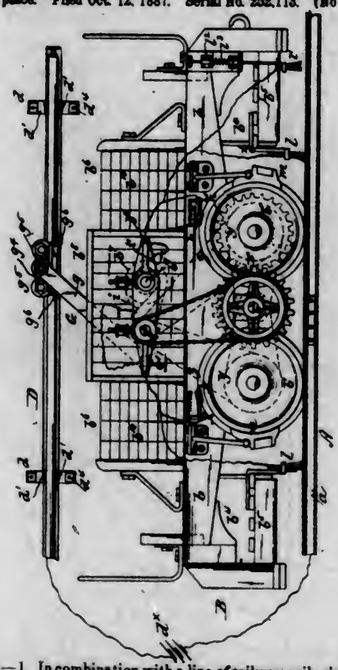
6. The combination of the plate A, the roller C, provided with steel-ball races K, and the strap B, with its cylindrical projection D, over which is fitted a steel sleeve J, between which and the races K, are placed steel balls, thus forming an antifriction-bearing, substantially as shown, for the purpose specified.

574,631. BICYCLE-BELL. EDWARD D. ROCKWELL, Bristol, Conn., assignor to the P. & F. Corbin, New Britain, Conn. Filed June 1, 1896. Serial No. 593,867. (No model.)



Claim.—In bell mechanism, the combination with a base and gong, of sounding mechanism embodying a gear extending upon one side of the base, a bushing for the gear, a disk of greater diameter than the gear secured concentrically with the gear around its bushing, a recess in the disk around the bushing, a stud in the base fitting within the bushing, a washer on the end of the stud, and a coiled spring surrounding the bushing located within the recess and bearing at one end against the disk, and at the other end against the washer, substantially as set forth.

574,632. ELECTRIC RAILWAY. WILLIAM M. SCHLEMMER, Philadelphia, Pa., assignor, by mesne assignments, to A. H. Williams, same place. Filed Oct. 12, 1887. Serial No. 252,113. (No model.)



Claim.—1. In combination with a line of railway-rails electrically connected to form a working conductor, another conductor separate from the track-rails, and an electrically-propelled car having separate traveling collectors between its motor and said conductors, one of the collectors for the rail conductor being normally out of contact and adapted to be manually placed in contact with said rail, substantially as set forth.

2. In combination with a car having an electric motor and transmitting devices between the motor-shaft and the running-gear of the car, a line of electric conductors, a traveling current-collector on said car in circuit with one of the brushes for the motor-commutator, circuit connection between the remaining commutator and the motor-frame and two or more separate traveling current-collectors between the remaining conductor and said motor-frame, substantially as set forth.

3. The electric-motor car B having a frame or body provided with end apartments b^3, ballast-apartments b^2 and an electric motor located between the apartments b^2 b^3, substantially as set forth.

4. The car B having frame or body b in the center of which is a casing inclosing an electric motor, apartments b^2 at each end of said casing, and end apartments b^4 the floors of which are below the floor of said body and frame, and part of the sides and the ends of the latter forming the sides and one end of apartments b^4, substantially as set forth.

5. The car B having frame b, centrally-located electric-motor casing b^5, apartments b^2 at each end of said casing above said frame, and end apartments b^4 extending below said frame, substantially as set forth.

6. In combination with an electrically-propelled car, line conductors and traveling current-collectors normally in contact with said conductors, of a separate traveling contact-brush located upon the car in circuit with the electric motor on the car, and normally out of contact with said conductors and adapted to be put at will in contact with one of the conductors substantially as set forth.

7. In combination with an electrically-propelled car, line conductors and traveling current-collectors normally in contact with said conductors of a separate sliding contact-brush I having an operating-handle, circuit connections with the electric motor on the car, and devices for normally maintaining said brush out of contact with one of said conductors, substantially as set forth.

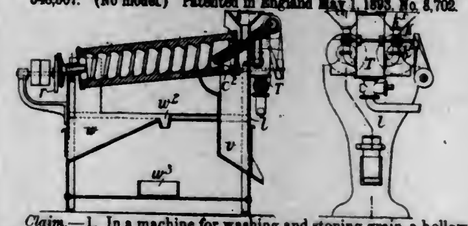
8. A current-collector having two contact-shoes arranged at an angle to one another and secured to a sliding bar or plunger, and spring-actuating devices for moving said plunger and shoes in the direction of the length of the plunger substantially as set forth.

9. In combination with an electrically-propelled car, a traveling current-collector comprising a pivoted bar g having at its outer end a tubular sleeve, a plunger-rod in said sleeve, having at its outer end a bent plate, contact rollers or shoes on each bend of said plate, and an actuating-spring for said plunger-rod, substantially as set forth.

10. In combination with an electrically-propelled car a line of conductors one of which forms one of the track-rails, a traveling current-collector on the car in contact with said track-rail, and a separate traveling current-collector on the car provided with contact-shoes some of which have a gravity contact and others a lateral spring-pressure contact with the remaining conductor, substantially as set forth.

11. The combination of conductor D, a supporting-bracket d having recess d^3, and lugs d^2, and insulating-block f, and elastic block f' substantially as set forth.

574,633. APPARATUS FOR WASHING AND STONING GRAIN. JOSEPH SENIOR, Wakefield, England. Filed May 6, 1895. Serial No. 548,307. (No model.) Patented in England May 1, 1893. No. 8,702.



Claim.—1. In a machine for washing and stoning grain, a hollow cylinder of earthenware having its interior provided with an inwardly-projecting spiral web or rib, the interior surface of said cylinder and the surface of said web being glazed, substantially as and for the purpose set forth.

2. In a machine for washing and stoning grain, a hollow cylinder of earthenware having its interior provided with an inwardly-projecting spirally-arranged web, one side of said web being perpendicular to the inner face of the cylinder and the other side being disposed angularly thereto, the interior of said cylinder, and said web being glazed substantially as and for the purposes set forth.

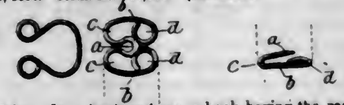
3. In a machine for washing and stoning grain, a hollow cylinder of earthenware having its interior provided with a spirally-arranged web, one side of said web being perpendicular to the inner face of the cylinder and the other side being disposed angularly thereto, said web increasing in height from one end of the cylinder to the other, the interior surface of said cylinder and the surface of said web being glazed substantially as and for the purpose set forth.

4. In a machine for washing and stoning grain the combination with an inclined revoluble earthenware cylinder provided interiorly with a spiral web and having its interior including said web, glazed, devices for feeding water and grain to the upper end of said cylinder, means for imparting rotary motion to said cylinder and means for oscillating said cylinder at intervals during its revolutions, substantially as described.

5. In a machine for washing and stoning grain, the combination with a pair of inclined revoluble earthenware cylinders, each having an internal spiral web, and having its interior, including said web, glazed, feeding devices for feeding water and grain to said cylinders gear-wheels connected with said cylinders for revolving the same and a disk provided with a spiral cam engaging the gear-wheels of both cylinders for revolving said cylinders simultaneously substantially as and for the purpose set forth.

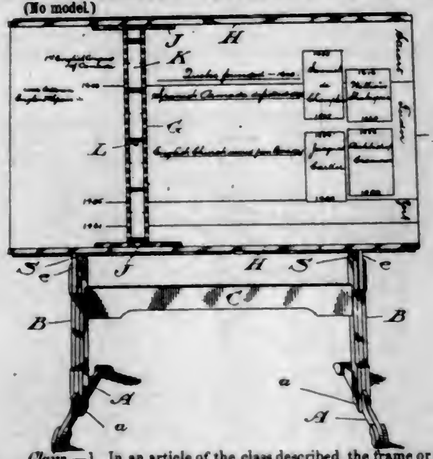
6. In a machine for washing and stoning grain, the combination with a pair of inclined revoluble earthenware cylinders, each having an internal spiral web and having its interior including said web glazed, feeding devices for feeding water and grain to said cylinders, gear-wheels connected with said cylinders for revolving the same, a spiral cam engaging said gear-wheels of both cylinders for revolving them simultaneously, said cam being provided with a grade for oscillating said cylinders during their revolution, substantially as described.

574,634. **HOOK AND EYE.** WILLIAM S. SEYMOUR, Philadelphia, Pa., assignor of one-half to Joseph S. Keller, same place. Filed Apr. 10, 1896. Serial No. 587,021. (No model.)



Claim.—In a hook and eye, a hook having the rearwardly-extending bill *a*, the side pieces *b*, *b*, on either side of said bill and separated therefrom by an intervening space, and the anchorage-loops *d*, *d*, formed by turning or bending the side pieces inwardly at the rear ends the adjacent edges of said loops being inclined upwardly toward the overhanging end of the bill *a* so as to act as spring-guards to prevent the disengagement of the eye.

574,635. **PORTABLE BLACKBOARD.** WALTER L. SEXTON, Toronto, Canada, assignor to the Comparative Synoptical Chart Company, Limited, same place. Filed Aug. 21, 1896. Serial No. 603,518. (No model.)



Claim.—1. In an article of the class described, the frame or easel comprising the feet A, detachable standards B, provided with the supports S and detachable cross-bar C, in combination with the blackboard D resting on the supports S and provided with the loops E, adapted to fit over the upper ends of the standards, substantially as and for the purpose specified.

2. In an article of the class described, the frame or easel comprising the feet A, detachable standards B, provided with the supports S and detachable cross-bar C, in combination with the blackboard D, resting on the supports S, and provided with the loops E, adapted to fit over the upper ends of the standards, and having a vertical straight-edge G movable in guideways H, connected to the front of the board, substantially as and for the purpose specified.

3. In an article of the class described, the frame or easel comprising the feet A, the standards B, provided with the supports S, and with jaws *a* embracing the feet A and connected thereto by screws or pins, the cross-bar C provided with hooked lugs *b* engaging with the slotted plates I, connected to the sides of the standards B, and overlying recesses therein, in combination with the blackboard D resting on the supports S and provided with the loops E adapted to fit over the upper ends of the standards, substantially as and for the purpose specified.

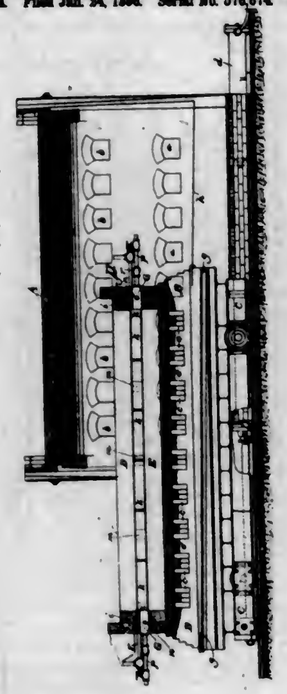
4. In an article of the class described, the blackboard D, having horizontal guideways H connected thereto shaped in section substantially as shown, in combination with the heads J adapted to slide in the guideways, the straight-edge G connected to the heads and a scale K sprung into the recesses *f* in the heads J, and secured to the straight-edge by the hand-screw L, substantially as and for the purpose specified.

574,636. **TRANSOM-HINGE.** ALBERT SLACK, Cicero, Ind. Filed Mar. 17, 1896. Serial No. 583,577. (No model.)



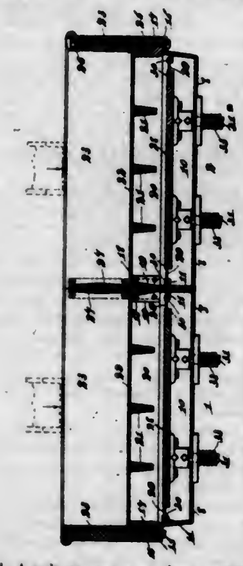
Claim.—A transom-hinge, consisting of two members, one member having spaced ears and the other member having an eye-bearing, a pivot or trunnion member interposed between the said members, and a removable pintle connecting said pivot or trunnion member with the member having the spaced ears, substantially as described.

574,637. **METHOD OF MAKING CARBONIZED STEEL FOR ARMOR-PLATES.** FRANK L. SLOCUM, Pittsburg, and WILLIAM R. COREY, Munhall, Pa., assignors to the Carnegie Steel Company, Limited, Pittsburg, Pa. Filed Jan. 24, 1896. Serial No. 576,674. (No specimens.)



Claim.—The herein-described process of supercarburizing steel for armor-plates and other purposes, which consists in subjecting the same in a heated condition to contact with acetylene gas, substantially as described.

574,638. **PAPER-PULP STRAINER.** JOHN W. SMITH, Sandy Hill, N. Y. Filed Sept. 10, 1895. Serial No. 562,106. (No model.)



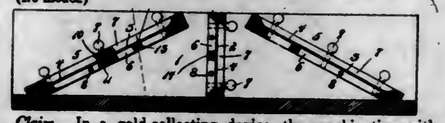
Claim.—1. A pulp screen or strainer, comprising a screen-box composed of two sections detachably connected together, a screen-plate held between the sections by the detachable connections between said sections and capable of being removed when the sections are separated, means to supply pulp to said box on one side of the screen, means to discharge the pulp from the box on the other side of the screen, and means to draw the pulp through the screen, substantially as set forth.

2. A pulp screen or strainer, comprising an open-top lower box-section having its side bars correspondingly notched along their inner sides, cross-bars extending transversely across the lower section with their lower ends held removable in said notches in the side bars, a removable screen-plate extending across the open top of the lower section and fitting flush on the edges of the same, the central portion of said screen being supported on the upper surfaces of said cross-bars, an upper section having an open bottom fitting flush on the screen-plate, said upper section being detachably connected to the lower section and having its connections arranged to hold the screen-plate against removal from the screen-box when the sections are closed together, means to supply pulp to the upper section, means to withdraw pulp from the lower section, and means to draw the pulp through said screen-plate, substantially as set forth.

3. In a pulp screen or strainer, the combination of a table having a hollow upper face and having a partition formed vertically in and extending longitudinally along the hollow at one side of the table, whereby a passage is formed in the table along one side of the main portion of the hollow therein and forming an outlet for the pulp, a diaphragm vertically movable in the main portion of the hollow, means for actuating the diaphragm, a flexible gasket extending across the spaces between the edges of the diaphragm and the walls of the hollow in the table, a lower box-section having its bottom and top open, said section being arranged on the top of the table and having its bottom formed by the diaphragm and its interior in communication with the passage along the side of the hollow in the table, a removable screen-plate extending across the open top of said lower section and supported at its edges upon the edges thereof, and an upper box-section having an open bottom and provided with means for supplying pulp to it, said upper section being arranged with its lower edges resting upon the edges of the screen-plate and detachably connected to the edges of the lower box-section, substantially as set forth.

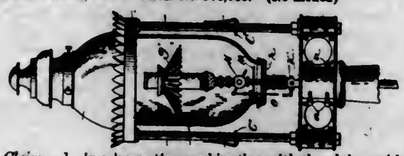
4. A pulp screen or strainer having two screen-boxes provided with screen-plates and diaphragms, and arranged end to end, said screen-boxes each being composed of two sections and having the adjacent ends of their lower sections formed by removable cross-bars each box having means for closing the end of its upper section adjacent to the other box, whereby when one box is open the other may be in operation, substantially as set forth.

574,639. **GOLD-SAVING DEVICE.** JOHN SNOWDOSH and DANIEL V. SNOWDOSH, Ashland, Oreg. Filed Aug. 8, 1896. Serial No. 602,178. (No model.)



Claim.—In a gold-collecting device, the combination with a sluice-box, of a group of collecting-plates arranged within the box, diametrically opposite pairs of clamp-bars for each collecting-plate, each pair of said bars comprising a fixed or stationary bar having intermediate of its ends and in its clamping-face a mortise, and a companion movable bar working against the fixed or stationary bar to clamp the side edges of the plates, screws detachably connecting the movable and fixed bars together, and transverse brace-bars arranged flat against one side of the plates and having reduced ends fitting in the mortises of the fixed or stationary clamp-bars, substantially as set forth.

574,640. **BOULEVARD-LAMP.** AARON P. STORRS, Owego, N. Y. Filed Dec. 12, 1895. Serial No. 571,905. (No model.)



Claim.—1. In a lamp, the combination with the globe and burner of a by-pass valve for reducing the flow of illuminant to the burner and an air-valve for admitting air to the globe connected with said by-pass valve for simultaneous operation, whereby when the by-pass valve is turned on, the air-valve will be opened for the admission of air to the globe to support combustion at the burner; substantially as described.

2. In a lamp, the combination with the globe, and the platform or receiver for closing the lower end of the globe having air-inlet passages therein, of the burner and by-pass valve controlling the supply of illuminant to the burner and an air-valve connected with said by-pass valve for simultaneous operation for controlling the supply of air to the globe; substantially as described.

3. In a lamp, the combination with the globe having the screened openings at top and bottom and the burner within said globe, of a by-pass valve for controlling the flow of illuminant to the burner and an air-valve connected with said by-pass valve for simultaneous operation for controlling the flow of air through the screened aperture at the bottom of the globe; substantially as described.

4. In a lamp, the combination with the burner and the receiver or platform rigidly connected with said burner of the globe seating on and movable toward and from said platform, of a by-pass valve, an operating-rod for the by-pass valve operating through the receiver or platform and an air-valve connected with said rod and adapted to be operated thereby; substantially as described.

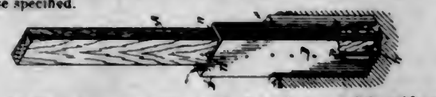
5. In a lamp, the combination with the globe and receiver or platform for sealing the lower end of the globe having air-openings therein of a by-pass valve and operating-rod therefor passing through the platform or receiver and an air-valve adjustably connected with said rod for closing the openings in said platform or receiver; substantially as described.

6. In a lamp the combination with the post or support carrying the burner and the globe-frame rigidly mounted upon said post or support with a globe depending from said frame, of the receiver or platform on which the globe sits having air-inlet openings therein and a screw-collar interposed between said receiver or platform and the post or support whereby the receiver or platform may be adjusted and fixed in position to seal the lower end of the globe; substantially as described.

7. In a lamp, the combination with the base and globe supporting frame with the globe depending therefrom of the vertical adjustable receiver or platform on which the globe seats having air-inlet openings therein, and by-pass valve for controlling the flow of illuminant and a rod connecting said by-pass valve and air-valve for simultaneous operation; substantially as described.

574,641. **POST.** HENRY D. STERRATT, Kalamazoo, Mich. Filed Dec. 3, 1894. Serial No. 530,659. (No model.)

Claim.—1. The combination of a post with a casing around said post separated a little distance therefrom and extending to different heights on opposite sides to form two independent flues of different heights a passage connecting the flues together at the bottom to cause circulation around the post to dry and preserve the same, for the purpose specified.



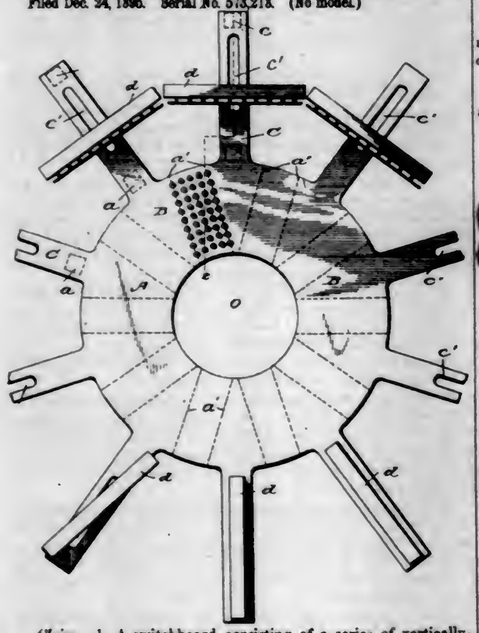
2. The combination with a post, of a casing around the said post extending to different heights to the sides of the post to form independent flues of different heights a passage connecting the flues at the bottom so that the air shall circulate down through the shorter flues around under the post, out and up through the longer flues for the purpose of drying and preserving the post, for the purpose specified.

3. The combination with the post of a suitable casing around the same extended to different heights to form flues of different heights; a block under the post to support the same and afford connection between the bottom of the flues to induce circulation of air, for the purpose specified.

4. The combination of a post, the casing, D, around the same forming flues of different heights; strips, *n*, *n*, between the casing and post to form said flues; a block, *n'*, under the post to support the same to prevent its absorbing moisture from the soil and form a passage to connect the lower end of the flues so that the air can circulate, for the purpose specified.

5. The combination of a post, a casing of boards around the lower part of the same higher at one side than the other; vertical strips between said casing and post to divide the space into flues of different height; and a block laid under said post to support it to afford ventilation as specified.

574,642. TELEPHONE-SWITCHBOARD. HENRY J. SWARTS, Knoxville, Tenn., assignor of one-half to A. J. Douglas, same place. Filed Dec. 24, 1896. Serial No. 573,213. (No model.)



Claim.—1. A switchboard consisting of a series of vertically-disposed annunciator-boards arranged around a common center, subscriber's-line plugs arranged in a series corresponding with the annunciators of each board between said board and the said center and provision whereby the operator can be stationed at the said center, substantially as described.

2. In a switchboard, the combination with a table, having arms projecting therefrom, and provision whereby an operator can be stationed at the center of the table, annunciator-boards mounted on said arms, said boards being adjustable to different angles in respect to said arms, and subscriber's-line plugs corresponding with the annunciators of each board arranged on the table adjacent to said board, substantially as described.

3. In a switchboard, the combination with the table, of vertically-disposed annunciator-boards arranged around the said table and adjustable toward and from the center of the table, subscriber's-line plugs corresponding to the annunciators of each board on said table adjacent to the said board and provision whereby an operator can be stationed at the center of the table, substantially as described.

4. In a switchboard, the combination of the table, the slotted arms radiating therefrom, the annunciator-boards mounted on the said arms, and the tubes mounted in the slots in the said arms and connected with the said boards, substantially as described.

5. In a switchboard, the combination of the table, the slotted arms radiating therefrom, the annunciator-boards mounted on the said arms, the tubes mounted in the slots in the said arms and connected with the said boards, and the wires leading from the said tubes to the table, substantially as described.

6. In a switchboard the combination with a table having a central opening to admit an operator, of subscriber's-line plugs located on said table around said opening, substantially as described.

7. In a switchboard the combination with a table having a central opening to admit an operator, of subscriber's-line plugs located on said table around said opening and means for receiving two plugs to connect their respective wires, substantially as described.

8. In a switchboard the combination with a table having an opening at the center to admit an operator, of subscriber's-line plugs located on said table between the said table and its outer edge, a connecting device adapted to receive two plugs to connect their respective wires, said connecting device including a clearing-out drop, substantially as described.

9. In a switchboard, the combination of the polygonal table having a central opening and divided into sections by lines radiating from its center to the periphery thereof, and the plugs grouped in the said sections, substantially as described.

10. In a switchboard, the combination of the table having a central opening permitting an operator to be stationed therein, the arms radiating therefrom, and the annunciator-boards mounted on the said arms, substantially as described.

11. In a switchboard, the combination of the table having a central opening permitting an operator to be stationed therein, the arms radiating therefrom, and the annunciator-boards adjustably mounted on the said arms, substantially as described.

574,643. BELL. CHARLES A. TREDWELL, Bristol, Conn., assignor to the P. & F. Corbin, New Britain, Conn. Filed Dec. 30, 1895. Serial No. 573,741. (No model.)



Claim.—1. In a bell, the combination with a frame and gong, of a yielding vibratory striker-carrier, pivotally mounted on the frame, a striker, and a fixed obstructive element in the path of the striker, which impedes the pivotal movement of the striker and striker-carrier, until sufficient pressure is brought to bear upon the latter to cause it in yielding to slip by the obstructive element and strike the side of the gong, substantially as specified.

2. In a bell, the combination with a frame and gong, of a yielding vibratory striker-carrier pivoted to the frame, a striker, a fixed obstructive element in the path of the striker adapted to impede the movement of the latter until sufficient force is exerted to cause it to slip by and strike the gong, and an antifriction device arranged to cooperate between the striker and the obstructive element, substantially as set forth.

3. In a bell, the combination with a frame and gong, of a yielding vibratory resilient striker-carrier pivoted to the frame, a striker, and a post secured eccentrically to the frame, and obstructing the movement of the striker until sufficient force is exerted upon it to cause it to slip by and strike the gong, said post being bent to carry the gong concentrically with the frame, substantially as specified.

4. In a bell, the combination with a frame and gong, of an actuating-lever pivoted to the frame, a yielding spring secured to the lever, a striker secured to the spring, and an obstructive element located in the path of the striker and adapted to impede its pivotal movement until sufficient force is exerted upon it to cause it to slip by and strike the gong, substantially as specified.

5. The combination with a frame and gong, and a yielding vibratory resilient striker-carrier pivoted to the frame, and spring-actuated in one direction, of a striker secured to the carrier, and a fixed obstructive element in the path of the striker adapted to impede its movement until sufficient force is exerted to cause it to slip by and strike the gong, substantially as specified.

574,644. FAUCET-FILTER. WILLIAM H. VANCE, San Francisco, Cal., assignor of two-thirds to Frank W. Wolfe and Edwin D. Wolfe, same place. Filed June 5, 1895. Serial No. 551,765. (No model.)



Claim.—1. A filter having a casing provided with inlet and outlet openings, a yieldingly-mounted deflecting-disk arranged in front of the inlet-opening in position to receive the impact of fluid entering the casing, and a filtering medium arranged in rear of and protected by said disk and in communication with the outlet-opening, substantially as specified.

2. A filter having a casing provided with inlet and outlet openings, a spring-supported deflecting-disk arranged in front of the inlet-opening to receive the impact of fluid entering the casing, and a filtering medium arranged in rear of and protected by said disk and in communication with the outlet-opening, substantially as specified.

3. A filter having a casing provided with inlet and outlet openings, a filtering-chamber provided at one end with an imperforate disk arranged in front of the inlet-opening to receive the impact of fluid entering the casing, a filtering-screen attached at one end to said disk to limit the movement of the screen toward the inlet-opening, and a spring arranged at one end in contact with the disk to yieldingly support the same and maintain the screen in a taut condition, said spring being adapted to oppose the impact of fluid projected against the disk, substantially as specified.

4. As a new article of manufacture, a filtering-chamber having a ring adapted to be attached to a supporting-tube, a disk parallel with the ring and connected therewith by a filtering-screen, and a spring interposed between and seated at its extremities upon the ring and disk and inclosed by the screen to hold the same extended, the disk being supported solely by the spring, substantially as specified.

5. A filter having a casing provided at one end with an inlet-opening, a nipple or spout arranged at the other end of the casing and mounted for movement parallel with its axis, and a filtering-chamber communicating with and adapted to be moved by said nipple or spout, said nipple or spout being provided with lateral vents arranged outside of the filtering-chamber and adapted to be exposed to communicate with the interior of the casing when the nipple or spout is moved inwardly to remove the contiguous end of the filtering-chamber from contact with the end of the casing, substantially as specified.

6. A filter having a casing provided at its upper end with an inlet-opening, a nipple or spout threaded in an opening at the opposite end of the casing and provided with lateral vents adapted to be exposed when the nipple or spout is moved axially inward, and a filtering-chamber communicating with and carried by the nipple or spout and adapted to be moved upward in the casing to remove its lower end from contact with the contiguous end of the casing and thereby allow communication between the interior of the casing and the nipple or spout through said vents, substantially as specified.

7. A filter having a casing provided at its upper end with an inlet-opening and at its lower end with a removable cap, a nipple or spout threaded for vertical movement in an opening in said removable cap and provided at its upper end with a threaded collar and below said collar with lateral vents, and a filtering-chamber threaded at its lower end upon said collar and normally arranged with its lower end in contact with the contiguous end of the casing, said nipple or spout being capable of axial movement to remove the lower end of the filtering-chamber from contact with the end of the casing and expose the said lateral vents below the lower end of the filtering-chamber, substantially as specified.

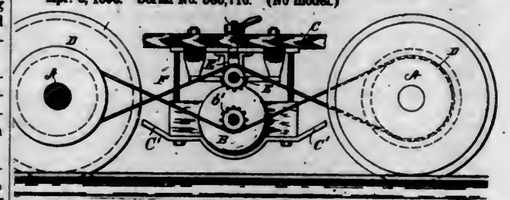
8. A filter having a casing provided at its upper end with an inlet-opening and at its lower end with a removable cap, a nipple or spout threaded for vertical movement in an opening in said removable cap and provided at its upper end with a threaded collar and below said collar with lateral vents, and a filtering-chamber threaded at its lower end upon said collar and normally arranged with its lower end in contact with the contiguous end of the casing, said nipple or spout being capable of axial movement to remove the lower end of the filtering-chamber from contact with the end of the casing and expose the said lateral vents below the lower end of the filtering-chamber, the pitch of the threads on the nipple or spout, whereby it is moved axially to elevate and depress the filtering-chamber, being greater than the pitch of the threads whereby the filtering-chamber is secured to the collar, substantially as specified.

574,645. LATCH. HENRY G. VOIGHT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Oct. 15, 1896. Serial No. 608,936. (No model.)



Claim.—The combination of the case having stop-shoulders, with the latch-bolt slide adapted to rock and engage said shoulders and having an operating-handle moving with said slide, the beveled nose pivoted to said slide, and a spring substantially as described.

574,646. GEARING FOR CAR-TRUCKS. LOUIS E. WALKER, Boston, Mass., assignor to George H. Drew, trustee, same place. Filed Apr. 8, 1896. Serial No. 586,716. (No model.)

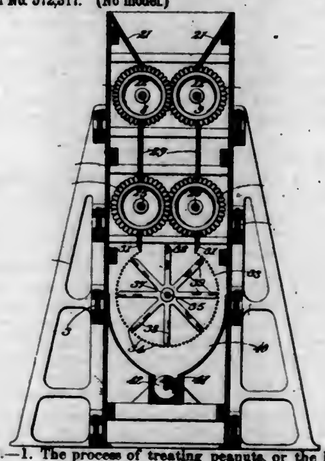


Claim.—1. In a railway-truck the combination of a pair of drums, an intermediate driving-pulley, and an adjustable idler-pulley, with a crossed drive-chain engaging with the drums, the driving-pulley, and the idler, as and for the purpose set forth.

2. In a railway-truck the combination of a pair of drums, an intermediate driving-pulley, and an adjustable spring-supported idler-pulley, with a crossed drive-chain engaging with the drums, the driving-pulley, and the idler, as and for the purpose set forth.

3. In a railway-truck the combination of a pair of axles carrying traction-wheels and drums, and a sprocket-chain passing around the same, with an intermediate sprocket driving-pulley, and an adjustable idler-pulley above it, the sprocket-chain passing from the top of the drums below the driving-pulley, and from the bottom of the drums above the idler, as and for the purpose set forth.

574,647. PROCESS OF AND APPARATUS FOR TREATING PEANUTS. WILSON E. WEATHERLY, Allegheny, Pa. Filed Dec. 16, 1895. Serial No. 572,317. (No model.)



Claim.—1. The process of treating peanuts, or the like, which consists in dividing the nuts and afterward treating the mass of divided particles to a hot separating-bath, to separate the shells and the kernels, and afterward drying the kernels to remove their skins, substantially as set forth.

2. The process of treating peanuts, or the like, which consists

in subjecting them to a cutting and crushing operation, afterward subjecting the cut and crushed mass to a hot bath for separating the shells and kernels, and finally drying the kernels to separate them from their skins, substantially as set forth.

3. In an apparatus for treating peanuts or the like, the combination with a frame and dividing-rolls provided with continuous peripheries, and having a cutting and crushing action (as distinguished from a cutting or crushing action), of a screen adapted to receive the discharge from the dividing-rolls, and a beater in connection with the screen, substantially as specified.

4. The combination with a frame and dividing-rolls provided with continuous peripheries, and having a cutting and crushing action (as distinguished from a cutting or crushing action), of a cylindrical screen adapted to receive the discharge from the rolls, and a concentric rotatory beater within the screen, substantially as specified.

5. The combination with a frame and a plurality of sets of dividing-rolls provided with continuous peripheries discharging from one to the other and having respectively a cutting and crushing action (as distinguished from a cutting or crushing action), of a screen receiving the discharge from the last set of rolls, and a beater operating to loosen the mass received from the last set of rolls and to discharge the particles thereof through the screen, substantially as specified.

6. The combination with a frame, of a hopper at one end thereof, a cylindrical screen near the other end thereof, dividing-rolls between the screen and hopper provided with continuous peripheries and having a cutting and crushing action (as distinguished from a cutting or crushing action), and stripper-plates fitting against the surfaces of the rolls and defining with the rolls a continuous discharge from the hopper to the screen, substantially as specified.

7. As a part of an apparatus for treating peanuts, a roll provided with channels defining annular angular projections, both sides of each annular projection being continuous, and notches in the edges of the projections formed in the continuous sides thereof and defining cutting and crushing teeth therein, substantially as specified.

8. As a part of an apparatus for treating peanuts, a roll consisting of a plurality of flat disks clamped together, and having continuous, wedge-shaped annular peripheries provided at intervals with teeth-defining notches whereby a cutting and crushing action is obtained in practice, substantially as set forth.

9. As a part of an apparatus for treating peanuts, the combination with a roll provided with alternating annular, angular peripheries, of a second roll similar in construction, the angular peripheries of both rolls fitting one close against the other, teeth-defining notches in the angular periphery of each roll, and each annular periphery being continuous so that each roll may revolve against the surface of its neighbor, and independently thereof, substantially as set forth.

10. As a part of an apparatus for treating peanuts, or the like, the combination with mechanism for dividing the peanuts, of a tank provided with a fluid-inlet and with a fluid-outlet at its upper end, a conveyer arranged to receive the divided peanuts from the mechanism first named and to discharge them into the tank, a removable basket within the tank designed to receive the kernels, and a second conveyer in operative proximity to the outlet of the tank and designed to convey away the hulls, substantially as specified.

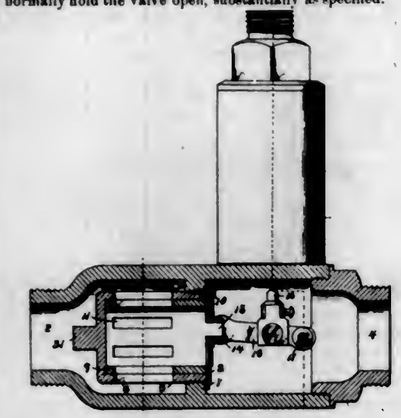
11. As a part of an apparatus for treating peanuts or the like, a basket consisting of two horizontally-disposed rings of different diameters, vertical frame-pieces secured at their opposite ends to said rings, a series of horizontally-disposed rings intermediate of the first-named rings, a lining of wire-cloth and a gate-controlled discharge-pipe depending from the bottom of the basket, substantially as specified.

574,648. AIR-PUMP GOVERNOR. GEORGE F. WENTZ, Colorado Springs, Colo. Filed Feb. 10, 1896. Serial No. 578,773. (No model.)

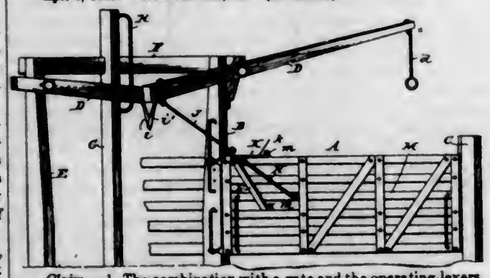
Claim.—1. An air-pump governor having a casing exposed to fluid-pressure, and a rotary valve seated in the casing, a lever inclosed in the casing and operatively connected with the valve, a stem connected at one end to the lever within the casing and extending through a stuffing-box in the side of the casing, a piston secured to the outer end of the stem and arranged in a pressure-cylinder exposed to fluid-pressure, and yielding means connected with the stem for normally holding the valve open, substantially as specified.

2. An air-pump governor having a main casing provided with an interior annular collar 7, a tubular valve-seat threaded at one end in said collar and provided at the other end with a wrench-seat which is accessible through the inlet-port of the main casing, a rotary valve mounted in said seat, and yielding means for holding the valve open, said means including a piston exposed to fluid-pressure, substantially as specified.

3. An air-pump governor having a main casing exposed to steam-pressure and a rotary valve seated in the casing, a lever provided at one end with a notch engaging a lug on said valve, a stem arranged at one end within the casing and connected to said lever, a spring-casing removably secured to the main casing and inclosing the exposed portion of said stem, a cap removably fitted in the outer extremity of the spring-casing and forming a pressure-cylinder exposed to fluid-pressure, a piston adjustably mounted upon said stem and operating in the pressure-cylinder, a collar carried by the piston, and a spring arranged in the spring-casing and seated at one end upon said collar to normally hold the valve open, substantially as specified.



574,649. GATE. WILLIAM R. WHITE, Bloomington, Ill. Filed Apr. 6, 1895. Serial No. 544,778. (No model.)



Claim.—1. The combination with a gate and the operating-levers, of a latch-bar, a lever pivotally connected to the gate below the latch-bar and extending upward above the same, the upper end of the lever also extending outward from the gate on the side toward the inner ends of the operating-levers when the gate is closed, a connection between this lever and the operating-levers, and a connection between the lever and the latch-bar, substantially as set forth.

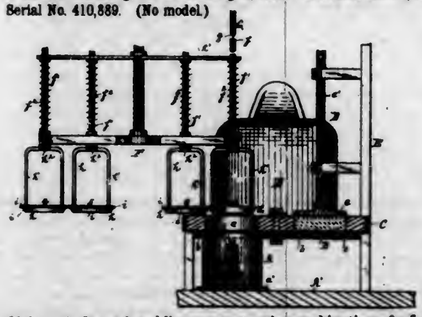
2. The combination of a gate, the operating-levers, the connecting-bar, the lever K having a substantially horizontal portion *k* pivotally connected with the gate, and a downwardly-inclined portion *k'* also pivotally connected with the gate, this lever K being connected at or near its outer end with the connecting-bar J, and a link connecting the said lever with the latch-bar, substantially as set forth.

3. The combination with the gate, of the operating-levers, each mounted upon a fixed fulcrum, and provided at their inner ends, the one with the arm *i'* and the other with the link *i* pivotally connecting with said arm, substantially as shown and for the purpose set forth.

4. The combination with a swinging gate, of the operating-levers, the posts by which the operating-levers are supported, a post G disposed intermediate of the supporting-posts and close to the inner ends of the operating-levers, the inner end of said levers being close to each other and arranged on the side of the intermediate post adjacent to the roadway, the laterally-projecting lever pivotally supported on one side of the gate and projecting toward the inner ends of the operating-levers, and a vertically-disposed guide for said levers attached to the intermediate post and permitting vertical movement of the operating-levers but preventing sidewise or lateral swaying thereof, substantially as described.

5. The combination with the gate and the operating-levers, of a latch-bar for the gate, a lever projecting laterally from the gate and pivoted thereto at a point within the point of suspension of the gate and having two members, one of said members being pivotally connected with the gate below the latch-bar and the other pivotally connected with the gate above the latch-bar, the two pivotal points being in the same vertical line, a connecting-bar between the operating-levers and the projecting lever, and a movable connection between this latter lever and the latch-bar, substantially as described.

574,650. APPARATUS FOR MAKING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Aug. 4, 1890. Renewed Nov. 4, 1891. Serial No. 410,889. (No model.)



Claim.—1. In sand-molding apparatus the combination of a flask, a sand-reservoir, a measuring-box adapted to pass under said reservoir and having a pocket therein, a table extending under and supporting the measuring-box and having an opening therein to discharge sand and a packer adapted to compress the sand within the measuring-pocket and before it passes over the flask, substantially as and for the purposes set forth.

2. In sand-molding apparatus, the combination of a flask, a reservoir for sand, a measuring-box having measuring-pockets therein, a table extending under and supporting the measuring-box and having an opening therein to discharge sand, a packer adapted to compress the sand within the measuring-pocket and before it passes over the flask, and a packer in line with the flask adapted to force the sand out of the measuring-pocket and into the flask, substantially as and for the purposes set forth.

3. In sand-molding apparatus, the combination of a flask having a pattern therein, and a frame carrying a series of packers arranged to be successively brought above and forced down into said flask, said packers corresponding substantially in shape to the space between the pattern and flask at the points at which they act to pack the sand, substantially as and for the purposes set forth.

4. In sand-molding apparatus, the combination with the flask having a pattern therein, of a frame carrying a series of packers adapted to be successively brought over and forced into the flask, said packers corresponding substantially to the space between the pattern and the flask at the points at which they pack, and a solid packer corresponding in shape to the interior of the flask, so as to compact the sand at the upper end thereof, substantially as and for the purposes set forth

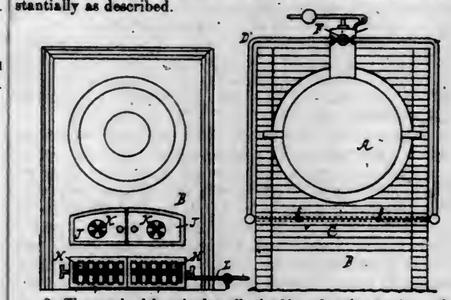
5. In sand-molding apparatus, the combination of the flask, the frame F mounted on a vertical axis and carrying a series of packers adapted to be successively brought over the flask, and the vertically-moving rod G in line with the flask, and adapted to press the packers supported on said frame into the flask substantially as and for the purposes set forth.

6. In sand-molding apparatus, the combination of the flask and the pattern extending into the same, of a vertically-movable packer having tapering side walls and a flange or flanges extending out of the upper edge thereof, substantially as and for the purposes set forth.

7. In sand-molding apparatus, the combination of a flask and frame extending above the flask, said frame having different arms extending down therefrom and provided with different packers corresponding to the spaces to be packed within the flask, said packers and arms being adapted to enter the flask, substantially as and for the purposes set forth.

574,651. SMOKE-CONSUMING FURNACE. GEORGE Y. ALLAIRE, Cresskill, N. J., assignor of two-thirds to John P. Stockton, Jr., and Richard Stockton, Jersey City, N. J. Filed July 17, 1896. Serial No. 599,491. (No model.)

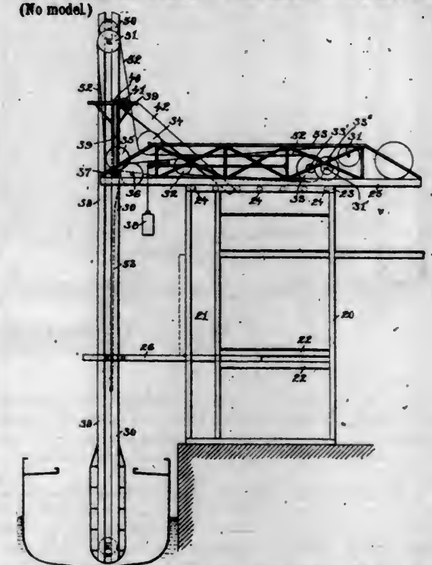
Claim.—1. The method herein described of burning and utilizing the smoke, soot and gas produced by the use of bituminous coal as fuel, consisting of the series of continuous steps or acts in succession after the fire has been started, namely, excluding air-draft below the body of fuel, supplying bituminous coal to the incandescent fuel, excluding air-draft above the fuel, thus cutting off all draft and preventing escape of smoke, producing ignition of the smoke evolved by the admission of dry steam, admitting air-draft below the fuel, supplying an ash-saturating body of water to insure a continuous emission of wet steam passing up through the burning fuel with the air-draft and cutting off ingress of steam above the body of fuel, substantially as described.



2. The method herein described of burning the smoke and combustible products emitted from the use of bituminous coal as fuel, which consists in closing off all draft of air from admission to the burning fuel when freshly supplied to the fire, and immediately admitting and diffusing a quantity of dry steam above the body of the fire, and then admitting draft of air below the fuel, supplying a body of water to the ashes of the fuel causing the same to pass continuously in the form of wet steam together with the draft of air up through the burning fuel, and at the same time cutting off ingress of steam above the body of fuel, substantially as specified.

3. The method described of burning the smoke and combustible products resulting from bituminous coal as a fuel which consists in supplying dry steam above the body of fuel after replenishing such fuel in the absence of air-draft, and subsequently causing a continuous supply of wet steam to pass up through the fuel together with an air-draft from below it, substantially as specified.

574,652. CONVEYER. PELLE ANDERSON, Philadelphia, Pa., and ALVIN C. SEYMOUR, Warren, R. I. Filed Jan. 27, 1896. Serial No. 576,969. (No model.)



Claim.—1. In an elevating device, the combination with an elevator-leg having side members forming channels, of a horizontally-adjustable boom having ways or tracks, a carriage, consisting of a frame embracing the elevator-leg, traversable on said ways, and a wheel-bearing secured in such carriage and working in the channel of the elevator-leg.

2. In an elevating device of the nature described, the combination with a bucket-guideway having cut-away portions, and a supplemental take-up guide for partially closing these portions, of a bucket having members moving in the guides and adapted to be released therefrom at the cut-away portions, and means for operating the bucket.

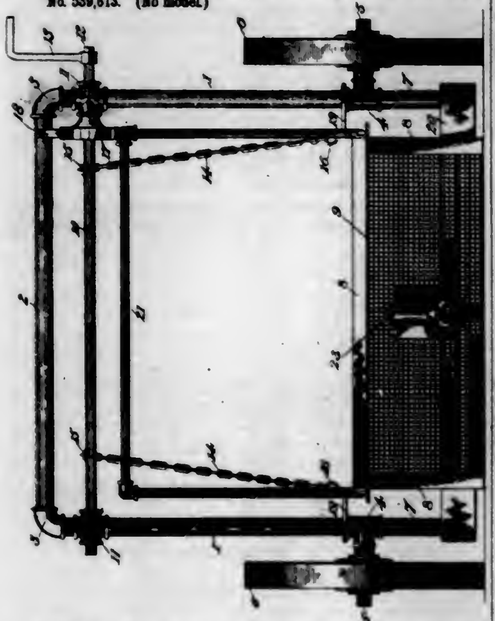
3. In an elevating device of the nature described, a bucket-guide flexible in one direction and adapted to present a rigid surface to the weight of the bucket, in combination with means for taking up and letting out the same.

4. In an elevating device of the nature described, a take-up and let-out bucket-guide chain in combination with a latching device for holding a portion of the chain from outward movement.

5. In an elevating device of the nature described, the combination with bucket-chains having recesses in the edges of corresponding links, of a bucket pivotally connected at its lower end to the chains and having means near its upper end adapted to be engaged in the recesses of the chain-links.

6. In an elevating device of the nature described, the combination with a supporting-staging, a boom horizontally adjustable therein, a carriage traversable on the boom and comprising a framework carrying bearing-wheels, a platform traversably mounted at the upper portion of the staging, a driving mechanism mounted thereon, brackets at the outer end of the platform, and guide-wheels mounted on the brackets, of an elevator-leg having channeled side members movable on the guide-wheels of the bracket and of the boom-carriage, chain-carrying pulleys rotatable at the upper portions of the elevator-leg, and driving-gear including a belt-take-up mechanism connecting said pulleys with the driving mechanism on the platform.

574,653. APPARATUS FOR REPAIRING ASPHALT PAVEMENTS. ANNI L. BARBER, Washington, D. C., assignor to the Barber Asphalt Paving Company, New York, N. Y. Filed Feb. 25, 1895. Serial No. 539,613. (No model.)



Claim.—1. In pavement-repairing apparatus, the combination with the uprights of a frame and its wheels, of a vertically-adjustable fuel-receptacle on the frame, and guide-pieces secured to the receptacle and movable with it upon the vertical uprights, substantially as set forth.

2. The combination with side uprights, wheels and cross-piece uniting the side uprights, of a fuel-receptacle carried between the side uprights, a windlass carried underneath the cross-piece in the side uprights, stop mechanism, and chains supporting the receptacle upon the windlass, substantially as set forth.

3. The combination with cylindrical uprights, T-fittings secured to the ends thereof, stud-axles in the T-fittings, and wheels, of a cross-piece and fittings uniting the same to the uprights, four-way fittings combined with the uprights, a windlass revolubly mounted in the four-way fittings, a fuel-receptacle, and chains uniting the receptacle and the windlass, and stop mechanism for limiting the movement of the windlass in one direction, substantially as set forth.

4. The combination with a frame and wheels, of a fuel-receptacle vertically adjustable thereon and mechanism for regulating the adjustment, wheels upon the opposite ends of the receptacle, and handles also upon the opposite ends thereof, substantially as set forth.

5. In an apparatus for repairing asphalt pavement, the combination with a supporting-frame composed of arched side bars and transverse connecting-bars, of rear supporting-wheels a front swivel or steering-wheel, a fuel-receptacle arranged between the said front and rear wheels, and having a perforated bottom, a transverse shaft journaled on said supporting-frame, and suspension-chains connecting the fuel-receptacle with said shaft, substantially as set forth.

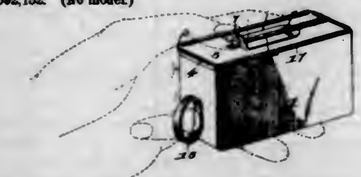
574,654. TELEPHONE-RECEIVER. RUSSELL S. BARBUR, Chicago, Ill. Filed Apr. 3, 1896. Serial No. 586,125. (No model.)



Claim.—1. The combination in a telephone-receiver of a magnet-supporting bridge placed at the end of the receiver-case adjacent to and parallel with the diaphragm, set-screws inserted into the end of the case having their axes parallel with that of the case and their heads beneath the bridge so as to form stops or rests therefor while their heads are partially exposed, and securing-screws projected through the bridge and into the case, substantially as described.

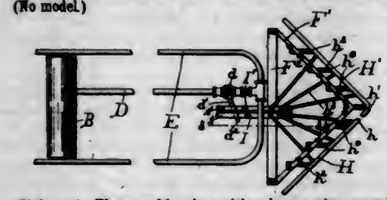
2. The combination in a telephone-receiver of a magnet-supporting bridge placed at the end of the receiver-case adjacent to and parallel with the diaphragm, screws *i i*, inserted into the ends of the case beneath the bridge so as to form rests or stops therefor, notches *j j* and screws *k*, substantially as described.

574,655. CHECK HOLDING AND DISTRIBUTING DEVICE. EDSON W. BEEMAN, Albany, Oreg. Filed May 19, 1896. Serial No. 592,152. (No model.)



Claim.—A ticket or card holding and distributing device having a box or case provided with flat side walls, guide-ribs arranged at the upper edges of said side walls and projecting outwardly from the plane thereof, a removable lid or cover carrying ticket or card discharging devices, and a finger-ring affixed to the rear end of the box or case, substantially as specified.

574,656. AUTOMATIC AIR-BRAKE-OPERATING DEVICE. DAVID BENTLEY, Philadelphia, Pa. Filed May 23, 1896. Serial No. 592,801 (No model.)

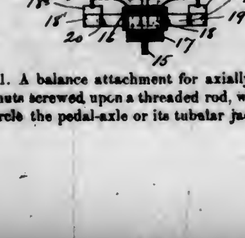


Claim.—1. The combination with a locomotive carrying an air pump and reservoir, and connections for operating a system of air-brakes from the cab thereof, of a pipe leading from the air-reservoir forward beneath the locomotive, to the front end thereof; a valve in said pipe at or near its forward end; an arm on said valve for operating the same; branch pipes leading from the front end of said pipe backward and connected to the main air-pipe to the brake system, a yielding guard composed of two independent sections carried by the front of the cow-catcher; a pair of sliding bars connected to the arm on said valve, and a plurality of rods pivoted to each of said sliding bars and connected to each section of said yielding guards, whereby the said valve may be opened when either of said sections strikes an obstruction, independently of the other, substantially as described.

2. The combination with a locomotive carrying an air pump and reservoir, and connections for operating a system of air-brakes from the cab thereof, of a pipe leading from the air-reservoir forward beneath the locomotive to the front end thereof; a valve in said pipe at or near its forward end; an arm on said valve for operating the same; branch pipes leading from the front end of said pipe backward and connected to the main air-pipe to the brake system, a yielding guard composed of two independent sections carried by the front of the cow-catcher; a pair of sliding bars each having an elongated link at its rear end engaging the arm on said valve; and a plurality of rods independently connected to each section of said yielding guard and independently pivoted to the forward end of each said sliding arms, substantially as described.

3. The combination with a locomotive carrying an air pump and reservoir, and pipes leading from said reservoir to a system of air-brakes; of the pipe D leading forward beneath the locomotive to the front end thereof and having a valve *d* therein; the arm *d'* on said valve; branch pipes E leading from the forward end of said pipe D backward and connected to the main supply-pipe to the brake system: a yielding guard composed of the two independent sections H and H', the latter having the curved end *h'*; the sliding bars I and I' provided with elongated links *i* and *i'* at their rear ends engaging the arm *d'* on said valve *d*; rods pivoted to sliding bar I and connected to said section H, and rods pivoted to said sliding bar I' and connected to said section H', each section adapted to open the valve when an obstruction is struck thereby, independently of the other section, substantially as described.

574,657. SAFETY-FENDER FOR STREET-CARS. FRANK BERRY, Swampscott, Mass. Filed Mar. 18, 1896. Serial No. 583,723. (No model.)



Claim.—1. A safety-fender for street-cars, comprising a swinging frame, carriers to which said frame is pivoted at its inner end, vertically-movable yieldingly-supported slide-rods to which the carriers are secured, spring-controlled bolts movable in the carriers and adapted to act upon said frame and maintain it above the track, and means to adjust the position of the said bolts to regulate the normal position of the frame, substantially as described.

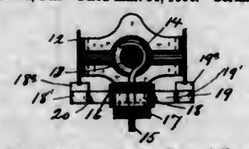
2. In a safety-fender for street-cars, vertically-movable spring-controlled supports, means to adjust said supports vertically, carriers secured to said supports and recessed at their inner sides, a fender-frame pivoted to the carriers and adapted to be swung up into inoperative position in the recesses of the carriers, and a gate in said frame, whereby when the frame is swung up and the gate opened the car-bumper is exposed, substantially as described.

3. In a safety-fender for street-cars, vertical supports, carriers secured to the lower ends thereof and recessed at their inner sides, a fender-frame having substantially L-shaped side bars, pivots connecting the upper ends of the bars to the carriers, the said bars being adapted to be swung in the recesses of the carriers, a roll on the outer end of the frame, and means to retain the frame extended above the track when in operative position, substantially as described.

4. A fender for street-cars having side bars downturned at their outer ends and provided with inturned journal-studs, a roll having a yielding covering, a bushing threaded into each end of the roll, to receive the studs and rotatably support the roll, and a shield secured to the downturned ends of the side bars and extended over the roll, substantially as described.

5. A fender for street-cars having side bars inturned journal-studs at the outer ends thereof, a metallic roll having a yielding covering, and a bushing threaded into each end of the tube, said studs extending into the bushings to rotatably support the roll, substantially as described.

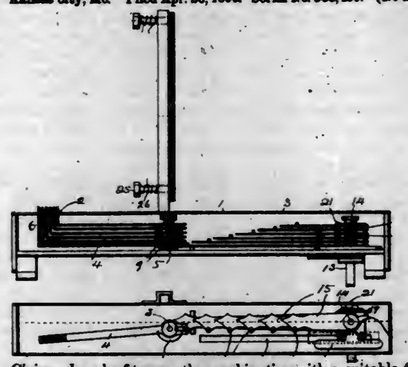
574,658. BALANCE ATTACHMENT FOR PEDALS. JOHN R. BLIVEN, Daytona, Fla. Filed Mar. 30, 1896. Serial No. 585,455. (No model.)



Claim.—1. A balance attachment for axially-supported pedals, consisting of nuts screwed upon a threaded rod, whose end is bent to partially encircle the pedal-axle or its tubular jacket, a slotted disk intermediate said nuts, and laterally-extending plates 19 20 located in said disk-slots, substantially as specified.

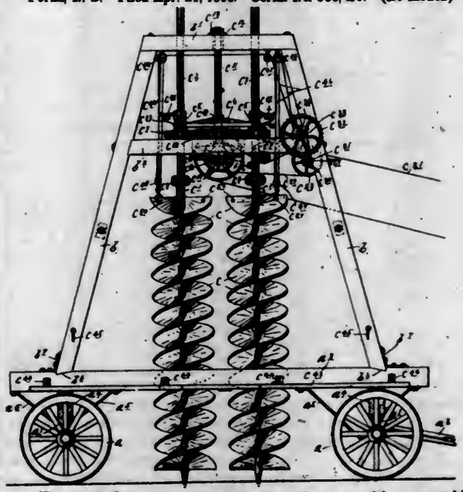
2. In combination with a pedal mounted to revolve on an axial shaft, a balance attachment consisting of a screw having a hook-shaped end adapted to engage said shaft, or its tubular jacket, as set forth, threaded nuts fitted to said screw, a slotted disk intermediate said nuts, and laterally-extending plates loosely fitted in the disk-slots with their ends adapted to engage the side frames of the pedal, all substantially as specified.

574,659. LEAF-TURNING DEVICE. WINDSOR O. CAMPBELL, Kansas City, Mo. Filed Apr. 20, 1896. Serial No. 588,409. (No model.)



Claim.—In a leaf-turner, the combination with a suitable frame, of a post secured thereto, a leaf-turning arm provided at one end with a leaf-engaging device and at the other end with a slot, a cam mounted upon the said post, an operating-arm secured at one end to a support longitudinally movable upon the frame, the other end of the operating-arm being transversely movable and provided with a projection adapted to engage the slot in the leaf-turning arm, the transversely-movable end of the operating-arm being adapted to engage the cam at the same time the leaf-turning arm is engaged by the operating-arm, substantially as described.

574,660. VERTICAL EXCAVATOR. JOHN M. CARROLL, Grand Forks, N. D. Filed Apr. 21, 1896. Serial No. 588,439. (No model.)



Claim.—1. In an excavator, the combination with a portable frame, of the pair of upright augers mounted for vertical movement thereon, a pair of spur-gears rotatively connected to but free for sliding motion on the auger-steems, and a spur-gear between said auger-gears and engaging with both, substantially as described.

2. In an excavator, the combination with a portable frame, of the pair of upright augers mounted for vertical movement thereon, the pair of gears rotatively connected to the auger-stems but free for sliding motion of the same, the central gear having its opposite sides engaged by said auger-gears, the vertical shaft supporting said central gear, and means for driving said shaft, substantially as described.

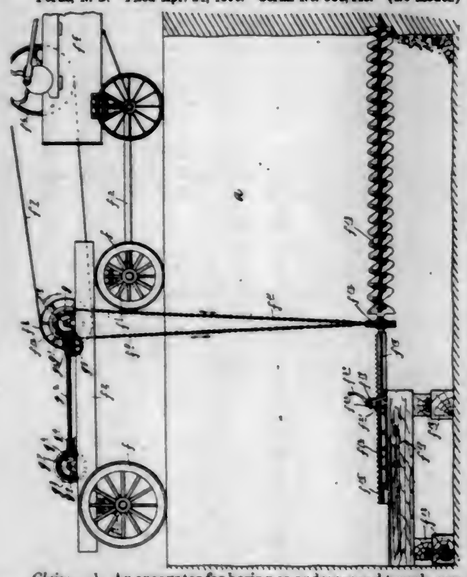
3. In an excavator, the combination with a portable support, of a pair of upright augers mounted for vertical movement on said support, gears on the auger-stems, rotatively connected thereto but free for sliding motion thereon, fixed bearings forming guides for said auger-stems and seats for said auger-gears, and a yoke-bar having end bearings embracing the auger-stems and resting on the hubs of the auger-gears and forming part of the support for the drive which operates said augers, substantially as described.

4. The combination with the portable support, of the upright augers mounted for vertical movement on said frame, the fixed bearings c^4 for the stems of said augers, the gears c^7 rotatively connected to but sliding on said auger-stems with their hubs resting on said bearings c^4, the bearing-yoke c^6 with end bearings c^5 working on said auger-stems and resting on the hubs of said gears c^7, the central vertical shaft c^{11} supported from the cap of the main frame and from said yoke c^6, the central gear c^{10} on said shaft engaging said auger-gears c^7 and the drive c^{13} c^{15} c^{17} and c^{22}, substantially as described.

5. In an excavator, the combination with the main frame or support of one or more upright augers mounted for vertical movement thereon, gears on the auger-stems rotatively connected thereto but free to permit sliding motion of the auger-stems therethrough, and pivoted clamping-levers with eyes or hubs through which the auger-stems work, for automatically clamping and holding the augers wherever set in their vertical movement, substantially as described.

6. The combination with the supporting-frame, vertically-movable augers, windlass and connections therefrom for lifting the augers, of the driving connections for imparting rotary motion to said augers and windlass including as one element thereof a clutch for making the same rotate the augers or the windlass at will, and a clutch controlling the connection of the windlass-drum with its supporting and driving shaft, for unwinding the drum at will, substantially as described.

574,661. HORIZONTAL EXCAVATOR. JOHN M. CARROLL, Grand Forks, N. D. Filed Apr. 21, 1896. Serial No. 588,440. (No model.)



Claim.—1. An excavator for boring an underground trench, comprising a truck adapted to span the pit and movable over the surface of the ground, a horizontal auger adapted to be operated within a pit, a chain-wheel or equivalent device rotatively connected to, but movable lengthwise of, the auger-stem or boring-bar, and a chain driven from a power device carried by said portable support, and passing over said chain-wheel, substantially as described.

2. In an excavator, for boring an underground trench, the combination with a horizontal auger operative from a pit, at the head of the bore, of a series of driving-bars adapted to be coupled to the auger-stem and each other and provided with guide-disks fitting the auger-bore, for guiding the auger to a true-line movement, substantially as described.

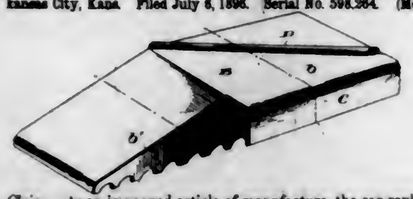
3. The combination with the truck, at the surface, of the horizontal auger operative from a pit at the head of the bore, the rack-and-pinion feed in said pit, the driving-bars with guide-disks, adapted to be coupled to the auger-stem and each other, the drive-chain wheel rotatively connected to but movable over said auger-stem and driving-bars, a driven shaft on said truck provided with a chain-wheel and the chain connecting said chain-wheels, substantially as described.

4. The combination with a truck or other portable support, on the surface, and the horizontal auger operative from a pit, at the head of the bore, through to a distant pit, at the foot of the bore, of a windlass on the truck having its cable wrapped about the same with its ends free and extending therefrom, and sheave-blocks adapted to be anchored in the head and foot pits, for rendering the windlass and cable available to drag the auger and other parts, through the bore made by the same, substantially as described.

5. A pipe-clamp for movement through or engagement with the inside of a pipe-section, comprising a pair of expansible and contractible jaws, an expanding device working between said jaws, flexible connections uniting said jaws to said expanding device, with freedom for a limited movement, and a pair of cable-sections attached to said expanding device and extensible through the pipe in opposite directions, substantially as described.

6. The pipe-clamp comprising the jaws A having their inner ends connected by the links A', the wedge-shaped spreader A^3 working between said jaws, the chains A^3 connecting the outer ends of said jaws with the cable-coupling eye A^4, on the outer end of said spreader, and the cable-coupling chain A^5, at the inner end of said spreader, substantially as described.

574,662. CAR-REPLACING DEVICE. ADONIRAM J. CHAPEL, Arkansas City, Kans. Filed July 6, 1896. Serial No. 598,264. (Model.)



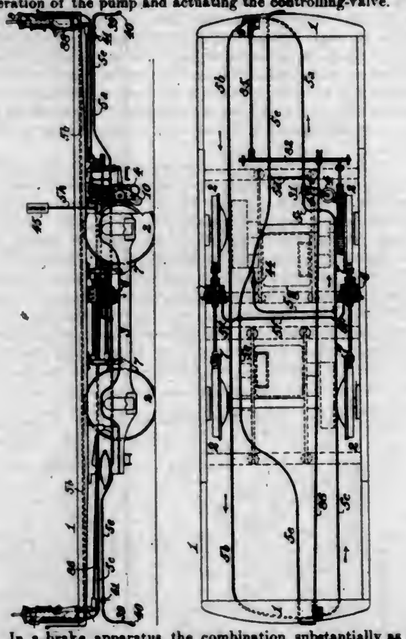
Claim.—As an improved article of manufacture, the car-replacer herein described, consisting of the block having integral inclined portion at one end with the upper face of the body portion and inclined portion beveled toward one edge, and the metallic housing in a single piece having inclined end portion, a flange beyond one edge of the block to engage over a rail and a single integral ridge on its upper face extending diagonally entirely across the body portion of the housing and having its opposite ends oppositely beveled, the upper face of the housing over the body portion and inclined end of the block being correspondingly beveled toward the flanged edge of the housing, all substantially as shown and described.

574,663. HYDRAULIC BRAKE. FRANCIS L. CLARK, Stewart Station, Pa. Filed Jan. 15, 1896. Serial No. 575,545. (No model.)

Claim.—1. In a brake apparatus, the combination, substantially as set forth, of a pump-supporting frame, a suspension-link connecting said frame to the frame of a railroad-car adjacent to a wheel thereof, a driving ring or pulley formed or fixed on said wheel, a pump-cylinder connected to the supporting-frame, a piston working in said cylinder, a pump-shaft journaled in the supporting-frame, connections for reciprocating the piston from said shaft, a driving-roller fixed upon the pump-shaft and a friction-roller journaled in the supporting-frame, each in position to bear against the wheel-driving ring, mechanism for moving the supporting-frame into and out of position for the driving and friction rollers to make contact with the wheel-driving ring, a pipe system through which liquid may be circulated by the pump, and a brake-applying mechanism actuated by pressure imparted to liquid in the pipe system by the pump.

2. In a brake apparatus, the combination, substantially as set forth, of a pump adapted to be intermittently operated from a car-axle, a pipe system through which liquid may be circulated by the pump, a brake-applying mechanism actuated by pressure imparted to liquid in the pipe system by the pump, mechanism for transferring the pump into and out of position for actuation, lever mechanism located adjacent to each end of the car, for actuating the pump-transferring mechanism, and connections between said lever mechanisms for enabling either to be operated independently of the other.

3. In a brake apparatus, the combination, substantially as set forth, of a pump adapted to be operated from a car-axle, a pipe leading from said pump to a casing provided with a receiving and a delivery valve, a pipe leading from the delivery-valve chamber to a controlling-valve, a pipe leading from the controlling-valve to the receiving-valve chamber, a pipe leading from one of said pipes to a brake-cylinder, a piston fitting said brake-cylinder, a brake-shoe connected to said piston, and mechanism operative independently of variation in the pressure of the liquid in the system for instituting and discontinuing the operation of the pump and actuating the controlling-valve.



4. In a brake apparatus, the combination, substantially as set forth, of a pump adapted to be operated from a car-axle, a pipe leading from said pump to a casing provided with a receiving and delivery valve, a pipe leading from the delivery-valve chamber to a controlling-valve, a pipe leading from the controlling-valve to the receiving-valve chamber, a by-pass pipe establishing a circulation from the receiving to the delivery-valve chamber, independently of the controlling-valve, an excess-pressure or safety valve governing said by-pass pipe, a pipe leading from one of said pipes to a brake-cylinder, a piston fitting said brake-cylinder, a brake-shoe connected to said piston, and mechanism operative independently of variation in the pressure of the liquid in the system for instituting and discontinuing the operation of the pump and actuating the controlling-valve.

5. In a brake apparatus, the combination, substantially as set forth, of a pump adapted to be operated from a car-axle, a pipe leading from said pump to a casing provided with a receiving and a delivery valve, a pipe leading from the delivery-valve chamber to a controlling-valve, a pipe leading from the controlling-valve to the receiving-valve chamber, a train-pipe connected with one of said pipes and provided with an end coupling and cock, a pipe leading from one of the before-recited pipes to a brake-cylinder, a piston fitting said brake-cylinder, and a brake-shoe connected to said piston.

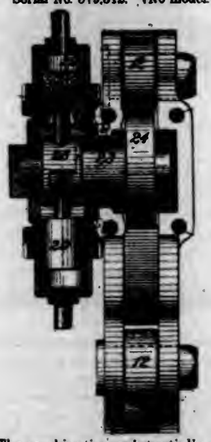
6. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder connected to a car-frame between wheels of two axles of a car, a fluid-supply pipe leading into said cylinder, a piston fitting said cylinder, a piston-rod fixed to said piston, a double-armed brake-lever coupled to said piston-rod and to a suspension-link, a brake-shoe pivoted to one end of said brake-lever, a fulcrum rod or bar fitting freely in the head of the cylinder and extending therefrom in opposite direction to the piston-rod, a double-armed brake-lever coupled to the fulcrum rod or bar and to a suspension-link, a brake-shoe pivoted to one end of said brake-lever, and a rod or link coupled to the opposite end of said brake-lever, and to the corresponding end of the brake-lever which is directly connected to the piston-rod.

7. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder, a fluid-supply pipe leading thereinto, a piston fitted in a counterbore at the supply end of said cylinder, a piston fitted to traverse in a smaller bore extending from the counterbore toward the opposite end of the cylinder, a piston-rod fixed to the smaller piston, a retracting-spring bearing on said smaller piston, a tubular projection on the larger piston which enters a recess in the smaller piston, and initially bears thereon, and a spring-seated valve controlling the passage of fluid through the larger piston to the space between the two pistons.

8. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder, a fluid-supply pipe leading thereinto, a piston fitted in a counterbore at the supply end of said cylinder, a piston fitted to traverse in a smaller bore extending from the counterbore toward the opposite end of the cylinder, a piston-rod fixed to the smaller piston, a retracting-spring bearing on said smaller piston, a tubular projection on the larger piston which enters a recess in the smaller piston and initially bears thereon, a spring-seated valve controlling the passage of fluid through the larger piston to the space between the two pistons and a by-pass or conduit controlled by a cock or valve and leading from the space between the two pistons to the supply side of the larger piston.

9. In a brake apparatus, the combination, substantially as set forth, of a pump adapted to be intermittently operated from a car-axle, a brake-cylinder having a piston connected to a brake-shoe, a pipe system through which liquid may be circulated by the pump, a valve controlling the traverse of liquid in the pipe system, a pivoted lever and connections for transferring the pump into and out of position for operation, a dog or latch for holding said lever in adjusted position, and a pivoted hand-lever having connections for moving the transferring-lever and releasing the dog or latch, and for closing and releasing the controlling-valve without changing the position of the transferring-lever.

574,664. PUMP. FRANCIS L. CLARK, Stewart Station, Pa. Filed Feb. 17, 1896. Serial No. 579,512. (No model.)



Claim.—1. The combination, substantially as set forth, of a frame adapted to be supported adjacent to a power-imparting shaft, a pump-casing connected to said frame, a pump-shaft journaled in said casing, pump-cylinders connected to said casing, a frictional driving-roller and an eccentric, each fixed on the pump-shaft, pistons fitting the pump-cylinders and coupled to straps on the eccentric, and friction-rollers journaled in the frame with their axial planes parallel to that of the pump-shaft.

2. The combination, substantially as set forth, of a frame adapted to be supported adjacent to a power-imparting shaft, a pump-casing fitting movably in said frame, an elastic medium, as one or more springs, holding said casing to a bearing against the frame, a pump-shaft journaled in said casing, pump-cylinders connected to said casing, a frictional driving-roller and an eccentric, each fixed on the pump-shaft, and pistons fitting the pump-cylinders and coupled to straps on the eccentric.

3. The combination, substantially as set forth, of a pump-cylinder, a main and a supplemental piston, of larger and smaller diameters respectively, fitted to traverse therein, a spring for effecting the traverse of the main piston in one direction, separable bearing-faces on the main and supplemental pistons, through which either coincident movement of both pistons may be effected, or inaction of the main piston permitted, and connections coupling the supplemental piston to a rotatable shaft.

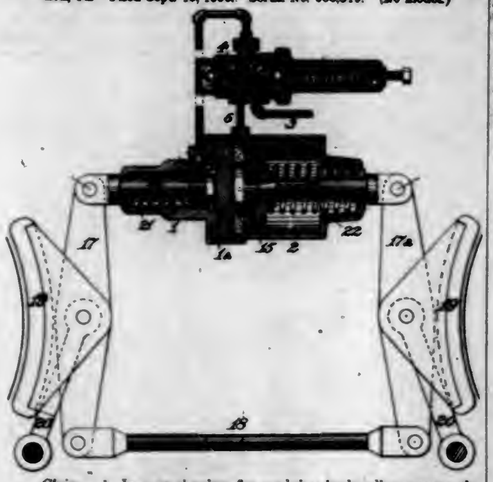
4. The combination, substantially as set forth, of a pump-cylinder, a main piston fitting therein, a supplemental piston of smaller diameter fitted to traverse in the main piston, a spring bearing longitudinally on the main piston and on the pump-cylinder, a projection on the supplemental piston adapted to abut, in one direction of its traverse, against the main piston, and connections coupling the supplemental piston to a rotatable shaft.

5. The combination, substantially as set forth, of a pump-cylinder, a main piston fitting therein, a supplemental piston of smaller diameter, fitted to traverse in and independently of the main piston, connections coupling the supplemental piston to a rotatable shaft, a spring acting on the main piston and tending to effect its traverse in one direction independently of the supplemental piston, and a projec-

tion on the supplemental piston which engages the main piston and effects its traverse in the opposite direction, when and only when it has been moved by the spring.

6. The combination, substantially as set forth, of a pump-cylinder, a main piston fitting therein, a supplemental piston of smaller diameter fitted to traverse in the main piston, a spring bearing longitudinally on the main piston and on the pump-cylinder, a projection on the supplemental piston traversing freely in one direction in the main piston, a shoulder or bearing-face on the main piston against which said projection abuts, in the opposite direction, when and whenever the main piston is brought into position therefor by the spring, and connections coupling the supplemental piston to a rotatable shaft.

574,665. **BRAKE-CYLINDER.** FRANCIS L. CLARK, Stewart Station, Pa. Filed Sept. 19, 1896. Serial No. 606,319. (No model.)



Claim.—1. In a mechanism for applying hydraulic pressure, the combination, substantially as set forth, of two cylinders of differential areas of transverse section, pistons fitted therein, two movable pressure members, connections coupling the pistons one to the other and to the pressure members, a pipe for the supply and release of incompressible fluid under pressure, and a valvular mechanism, controlling, in sequence, the retention of fluid in the larger cylinder to act as an abutment for the smaller piston, the flow of fluid to the smaller cylinder, the retention of fluid in the smaller cylinder to act as an abutment for the larger piston, and the flow of fluid to the larger cylinder.

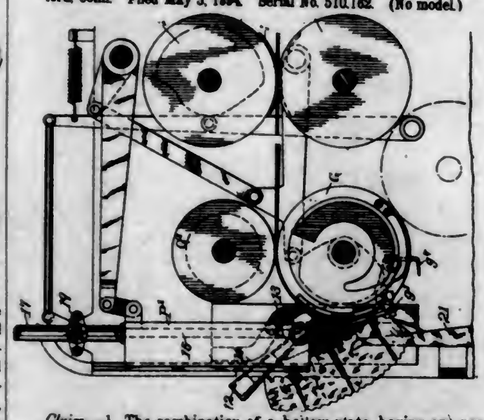
2. In a mechanism for applying hydraulic pressure, the combination, substantially as set forth, of two cylinders of differential areas of transverse sections, pistons fitted therein, two movable pressure members, connections coupling the pistons one to the other and to the pressure members, a pipe for the supply and release of fluid under pressure, a valve controlling communication between said pipe and the larger cylinder, and between said pipe and the smaller cylinder, two differential pistons connected to said valve and subject to the pressure in the fluid supply and release pipe, and a spring acting on said pistons in direction opposite to that of the action of fluid-pressure upon the larger thereof.

3. In a hydraulic-pressure brake mechanism, the combination, substantially as set forth, of two brake-cylinders of differential areas of transverse section, pistons fitted therein, piston-rods secured to said pistons and projecting in opposite directions from the cylinders, brake-levers coupled to said piston-rods, a brake-rod coupling said brake-levers one to the other, brake-shoes coupled to said brake-levers, a pipe for the supply and release of incompressible fluid under pressure, and a valvular mechanism, controlling, in sequence, the retention of fluid in the larger cylinder to act as an abutment for the smaller piston, the flow of fluid to the smaller cylinder, the retention of fluid in the smaller cylinder to act as an abutment for the larger piston, and the flow of fluid to the larger cylinder.

4. In a hydraulic-pressure brake mechanism, the combination, substantially as set forth, of an initially-operating brake-cylinder and piston, a finally-operating brake-cylinder and piston of larger diameter, two oppositely-acting brake-shoes, connections coupling the brake-cylinder pistons one to the other and to the brake-shoes, a valve-casing having connections to a pipe for the supply and release of fluid under pressure and to the larger and the smaller brake-cylinders, a controlling-valve traversing in said casing and having a port adapted to establish communication between the fluid-pressure pipe and the smaller cylinder, and a recess adapted to establish communication alternately between the larger cylinder and the outer face of the smaller differential valve-piston hereinafter specified, and between the larger cylinder and the fluid-pressure pipe, two differential pistons connected to the controlling-valve and subject on their adjacent faces to the pressure in the fluid-pressure pipe, a port controlled by said valve and leading from the inner to the outer face of the smaller valve-piston, and a spring acting on the valve-pistons in direction opposite to that of the action of fluid-pressure on the larger thereof.

5. In a hydraulic-pressure brake mechanism, the combination, substantially as set forth, of two brake-cylinders of different diameters, pistons fitted therein, two brake-shoe connections coupling the pistons one to the other and to the brake-shoes, and a valvular mechanism actuated by oppositely-exerted fluid and spring pressures, through which valvular mechanism, and passages controlled thereby, fluid under pressure is primarily supplied to the smaller cylinder, to take up the slack of the brake connections and impart initial pressure of the brake-shoes to the wheels, and thereafter, said fluid is retained in the smaller cylinder and fluid under pressure supplied to the larger cylinder, to effect the application of the brake-shoes with determined full and final force by a comparatively short traverse of the piston thereof.

574,666. **PAPER-BAG MACHINE.** EDWARD R. CLAUSSEN, Hartford, Conn. Filed May 5, 1894. Serial No. 510,162. (No model.)



Claim.—1. The combination of a hollow plate, having one perforated wall, and adapted to vibrate upon bearings located upon a line with, or parallel with, the line upon which a ply of a paper-bag blank is to be folded over by that plate; with pneumatic mechanism to draw the ply to be folded to the perforated side of the plate, and to carry it therewith and devices coöperating with the plate to effect the opening of the bag-blank; all substantially as described.

2. The combination of a hollow plate, having one perforated wall, and one thin edge, and adapted to vibrate upon bearings located upon a line with, or parallel with, the line upon which a ply of a paper-bag blank is to be folded over by that plate, across its thin edge; with pneumatic mechanism to draw the ply to be folded to the perforated side of the plate, and to carry it therewith and devices coöperating with the plate to effect the opening of the bag-blank; all substantially as described.

3. The combination of a traveling folding bed, having grippers or other means for holding the lower ply of a paper-bag blank thereon; a hollow plate, having one perforated wall, and adapted to vibrate upon bearings, which are located upon a line with, or parallel with, the line upon which the upper ply of the paper-bag blank is to be folded over by that plate, and which bearings move in unison with the traveling folding bed, during the folding operation; and pneumatic mechanism, to draw the ply to be folded to the perforated side of the plate, and to carry it therewith; all substantially as described.

4. The combination of a traveling folding bed, having grippers or other means for holding the lower ply of a paper-bag blank thereon; a hollow plate, having one perforated wall, and one thin edge, and adapted to vibrate upon bearings located upon a line with, or parallel with, the line upon which a ply of a paper-bag blank is to be folded over by that plate, across its thin edge; with pneumatic mechanism, to draw the ply to be folded to the perforated side of the plate, and to carry it therewith; all substantially as described.

574,667. **SELF OPENING AND CLOSING GATE.** THOMAS R. COOK, Marion, Ind. Filed May 22, 1896. Serial No. 592,619. (No model.)

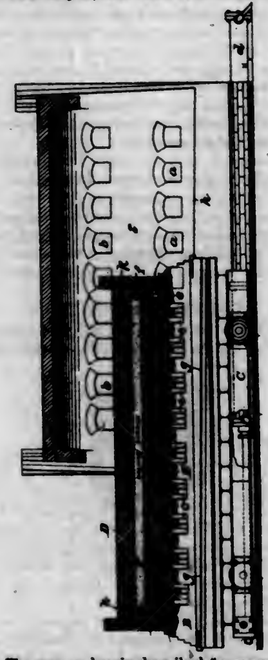
Claim.—1. The combination, with a plate having oscillatory movement controlled by a passing vehicle, of a gate having an end stile pivoted at its upper end in vertical alinement with the pivot of the plate and having its lower end supported by the said plate at a point remote from the pivotal point of the said plate, the plate having notches substantially as described, to engage a pawl, a pivoted pawl to engage the notches of the plate and a cam moving with the gate and contacting with the pawl at certain positions of the gate for the purpose of releasing the plate, substantially as described.



2. The combination, with a gate, the outer end of which is elevated by the operation of opening and closing said gate, of a wide horizontal lock-plate secured to the front stile of the gate and a latch-hook pivotally secured to the gate-post and extending across the top of the lock-plate and engaging the inner edge of the plate, said hook being curved on its under side as shown and described so as to be raised up out of engagement with the plate of the gate by the elevation of the end of the gate, in the manner substantially as specified.

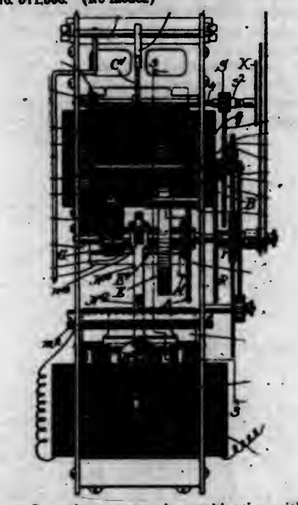
3. The combination, with a plate having horizontal oscillatory movement and having notches for locking the plate, a pair of cranks located one on each side of the plate and adapted to be actuated by the wheels of a passing vehicle and connecting-rods connecting the cranks with the plate so as to give the plate an oscillatory movement said rods having slotted heads as described, to receive the cranks, of a gate having one of its end stiles pivotally secured at a point in vertical alinement with the pivotal point of the plate and having its lower end supported by the plate at a point remote from the pivotal point of the plate, a pawl pivoted to the hinge-post of the gate so as to engage the notches in the oscillating plate and a cam moving with the gate and contacting with the pawl at certain positions of the gate, all substantially as described and for the purposes specified.

574,668. **PROCESS OF MAKING CARBONIZED STEEL FOR ARMOR-PLATES.** WILLIAM R. CORNY, Munhall, and FRANK L. SLOCUM, Pittsburg, Pa., assignors to the Carnegie Steel Company, Limited, Pittsburg, Pa. Filed May 28, 1896. Serial No. 593,429. (No specimens.)



Claim.—The process herein described for supercarburizing steel for armor-plates and other purposes, which consists in heating the same with the surface to be supercarburized in contact with calcium carbid.

574,669. **ELECTRIC CLOCK.** CHARLES M. CROOK, Chicago, Ill., assignor to Charles S. Burton, trustee, same place. Filed Dec. 12, 1895. Serial No. 571,866. (No model.)



Claim.—1. In a chronometer, in combination with the winding shaft, drum or barrel, the cam thereon; the electromagnet and its armature, and the lever which carries the latter having an abutment adapted to operate against the cam; the lever having an arm adapted to be stopped by collision with the frame in the movement caused by the attraction of the magnet for the armature, one of said colliding parts having an adjustment-screw by which the collision may tend, with respect to the approach of the armature to the magnet-poles and of the abutment to the end of the cam-track, whereby the armature may be prevented from contact with the poles, and the abutment prevented from giving a blow to the cam: substantially as set forth.

2. In a chronometer, having a seconds-hand rotating about a different center from the minute-hand, in combination with the principal train, a train connecting the three hands, said train having frictional connection only with the principal train, such connection being at a wheel in said train intermediate between the minute and seconds hands.

3. In a chronometer, in combination with the principal train, a train connecting the seconds-hand, minute-hand and hour-hand, such train being connected to the principal train frictionally, and not positively, the wheels of such train which extend from the minute-hand to the seconds-hand being mounted on the shafts of the principal train, and having the speeds of such shafts respectively, the frictional connection being made at an intermediate shaft of the principal train and corresponding intermediate wheel of the hands-train.

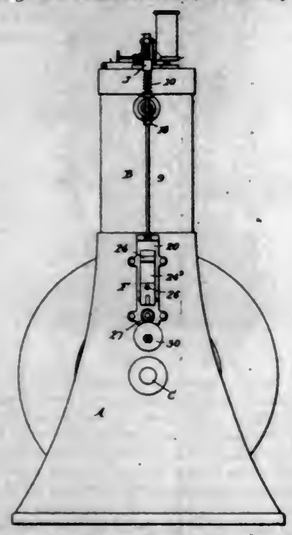
4. In a chronometer, in combination with the principal train, a train frictionally connected with the principal train and connecting the seconds-hand, minute-hand and hour-hand, a wheel in said train intermediate between the seconds-hand and minute-hand, being provided with a synchronizing device, and an electromagnet and its armature provided with a lever-arm adapted to operate upon such synchronizing device.

5. In a chronometer, in combination with the principal train, a train frictionally connected with such principal train, and extending between the seconds-hand, minute-hand and hour-hand, such frictional connection being made at a wheel intermediate in the train between the minute-hand and the seconds-hand, and a synchronizing-lever adapted to operate upon such intermediate wheel.

6. In a chronometer, in combination with the principal train having the escapement-wheel staff extending forwardly through the frame; a train in front of the frame comprising a pinion mounted on the forwardly-protruding staff of the escapement-wheel; the hub of said pinion having an aperture and the staff having an annular groove in a position corresponding to said aperture; and a spring-clasp exterior to the hub having a portion which lodges in the aperture and extends into the annular groove of the shaft, whereby the pinion is longitudinally stopped on the shaft and detachably disengaging the clasp: substantially as set forth.

574,670. **GAS-ENGINE.** WALKER L. CROUCH, New Brighton, Pa., assignor to the Pierce-Crouch Engine Company, same place. Filed Nov. 30, 1895. Serial No. 570,665. (No model.)

Claim.—1. In a gas-engine the combination with a gas-inlet valve, of a governor comprising a support provided with an engaging piece and two movable parts, one carrying a shouldered bearing and the other a pivoted blade engaging the shoulder of the bearing and having an engaging piece adapted to make contact with the stationary engaging piece to throw the blade out of engagement with the shoulder of the bearing when the speed of the engine is above normal, a cam operated from the crank-shaft for actuating the movable part carrying the pivoted blade and means on the other movable part for limiting its backward movement, substantially as described.



2. In a gas-engine, the combination with a gas-inlet valve, of a governor therefor comprising a stationary engaging piece and two movable parts, a shouldered bearing on one of said parts, and a pivoted spring-pressed blade and a friction-roll upon the other of said parts, said blade being adapted to engage the shouldered bearing, a cam and its operating means adapted to engage the friction-roll, and means for maintaining the said roll in contact with the cam, substantially as described.

3. In a gas-engine, the combination with a valve, of a governor therefor comprising two movable parts, one of which is provided with shoulders, and the other with pivoted blades adapted to engage the shoulders, one of said blades having a yielding connection with the other and having its end extending in advance of the end thereof, means for positively reciprocating one of the movable parts, and devices for shifting the pivoted blades laterally to move the same into and out of contacting position with the shoulders, substantially as described.

574,671. BOTTLE AND SEAL THEREFOR. CHARLES W. DAVISON, Minneapolis, Minn. Filed Aug. 1, 1896. Serial No. 601,331. (No model.)



Claim.—1. The combination, with a suitable bottle, of a cap for the neck thereof, said cap having a thin or paneled top adapted to be easily broken or shattered, and a lock for said cap within the cap and accessible and removable only when or after the said thin or paneled top of the cap is broken or removed, substantially as described.

2. The combination, with a suitable bottle, of a cap for the neck thereof, said cap having a thin or paneled top, means connecting the cap and the neck of the bottle to lock the cap, whereby the cork of the bottle is also locked, said lock or means connecting the cap and the neck of the bottle, being accessible only when or after the top of said cap is broken or removed, substantially as described.

3. The combination, with a suitable bottle, of a cap for the neck thereof, said cap having a thin or paneled top, means for locking said cap to the neck of the bottle, said means being accessible and removable only from within the cap and only when or after said thin or paneled top thereof is broken or removed, substantially as described.

4. The combination, with a suitable bottle provided with a groove or recess in the inner surface of its neck, of a cap fitting into said neck and provided with a spring or dog arranged to enter said recess and lock the cap in the neck, said cap being provided with a thin or paneled top whereby upon breaking said top access may be had to said spring or dog for the purpose of removing said cap from the neck of the bottle.

5. The combination, with a suitable bottle provided with a groove or recess in the inner surface of its neck, of a cap fitting in said neck and provided with a thin or paneled top and with a spring or dog arranged to engage said recess and also the cap, access to said spring or dog being possible only when said top of the cap is broken or removed, substantially as described.

6. The combination, with a suitable bottle having a groove or recess in the interior surface of its neck, of the cap 7 having a thin or fragile top, a spring arranged within said cap in position to engage the groove or recess in the neck of said bottle, whereby on breaking said cap access may be had to said spring for the purpose of removing the same and permitting the removal of said cap, substantially as described.

7. The combination, with a bottle having the groove or recess in the interior surface of its neck, of a cork arranged in the neck of said bottle below said groove or recess, the cap having a thin or paneled top and provided with a spring engaging in said groove or recess, whereby access may be had to draw said cork only by first breaking said thin or paneled top of the cap and thereafter withdrawing the said spring.

8. The combination, with the bottle having a suitable recess in the interior surface of its neck, of the cap 7 having a thin or paneled top and having the hole 11, the spring 9 having the bend 13 and arranged with its end extending through said hole 11 and adapted to enter the recess in the neck of said bottle, for the purpose set forth.

9. The combination, with the bottle having the recess in the interior surface of its neck, of the cap 7 having the opening 11 and the horizontal groove 13, the spring 9 arranged in said cap and having its end projecting through said opening 11, and a portion of said spring resting in said groove 13 whereby when the top of the cap is broken the end of the wire may be withdrawn from the recess in the neck of the bottle by turning said wire up into a substantially vertical position, for the purpose set forth.

10. The combination, with the bottle having a suitable design or trade-mark blown or marked thereon, of a cap for the neck of the bottle, said cap having a thin or paneled top provided with a similar design or trade-mark, locking means for securing said cap in position, and said locking means being accessible only when or after the thin or paneled top of the cap which is provided with said design or trade-mark is broken or removed, substantially as described.

574,672. SEAL FOR BOTTLES. CHARLES W. DAVISON, Minneapolis, Minn. Filed Aug. 10, 1896. Serial No. 602,308. (No model.)



Claim.—1. The combination, with the neck of the bottle, of a cap or thread thereon, and a lock provided within the cap between the side thereof and the side of the neck, and means whereby said lock is held stationary during the act of turning on the cap, substantially as described.

2. The combination with the neck of the bottle, of the cap to thread thereon, said neck and said cap being threaded, and a lock or splinter arranged within the cap and between the sides thereof and the neck, and adapted to prevent the unscrewing of the cap, and means whereby said lock is held stationary during the act of turning on the cap, substantially, as described.

3. The combination, with the neck of the bottle of the cap to thread thereon, said cap and neck being threaded, a gap being provided in said thread on one of said parts and a recess provided in the other part, and a lock or splinter arranged between the neck and the sides of the cap in said gap and said recess, whereby the unscrewing of the cap is prevented.

4. The combination, with the neck of the bottle, of a cap to thread thereon, said cap provided with a fragile or weak top, the bottle and said cap bearing the same or similar marks, means for locking said cap upon the neck of the bottle, said means adapted to prevent the removal of the cap until the weak portion thereof is destroyed, and means whereby the locking device is held stationary during the act of turning on the cap, substantially as described.

5. The combination, with the bottle, having a neck provided with a thread, with the cap having a thin fragile top, an interior thread and a recess 11 in its side, the thread upon the neck being provided with a gap 5, and the lock or splinter arranged in said gap and having a part to lock in the recess in the cap, the upper end of said lock or splinter being bent down within the cap when the same is screwed in place, substantially as described.

6 The combination, with the neck of the bottle provided with the thread 4, having the gap 5 of the cap provided with the internal thread 10 and the recess 11, and the lock or splinter 6, having the tongue 12 to engage in said recess 11, the lower end of said splinter resting upon the lower end of the thread 4, substantially as described.

574,673. TRANSVERSE SEAT FOR FOOT-POWER VEHICLES. GEORGE O. DRAPER, Hopedale, Mass. Filed Mar. 12, 1896. Serial No. 582,895. (No model.)



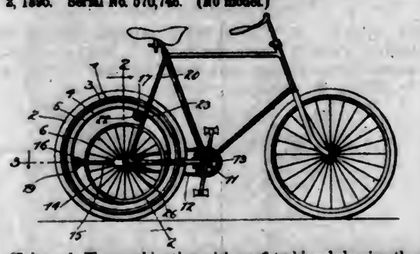
Claim.—1. In a saddle, a curved transverse frame, an upturned resilient support secured to and upturned in front of said frame, and a flexible seat having a horn and lateral portions at the side of the horn, said seat being stretched between the ends of the frame and the resilient support, substantially as described.

2. In a saddle, an upwardly-curved laterally-adjustable transverse frame, a resilient support upturned in front of said frame, and a seat of flexible material having three points of attachment, to the ends of the frame and the support respectively, and suspended therefrom, substantially as described.

3. In a saddle, a curved transverse frame, a horn-support upturned in front thereof, side supports secured to the ends of the frame and curved transversely thereto, a flexible seat attached to the side supports and stretched therebetween, the front edge of the seat being shaped to present a central horn secured at its tip to the horn-support, substantially as described.

4. A flexible transverse seat for foot-power vehicles, shaped at its front edge to present a central projecting horn and a flap or projection at each side thereof, means to support the tip of the horn, and side supports for the seat, curved forward and downward beneath the outer portions of the flaps or projections, substantially as described.

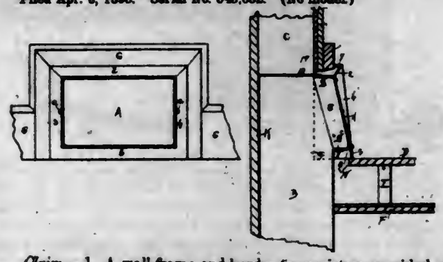
574,674. VELOCIPEDE. WILLIAM A. DRYDEN, Sr., Chicago, Ill., assignor of one-half to John L. Davenport, Jr., same place. Filed Dec. 2, 1895. Serial No. 570,746. (No model.)



Claim.—1. The combination with a safety-bicycle having the slotted rear-fork ends for the reception of the driving-wheel axle, of a rigid extension-fork having a sliding and adjustable connection with said fork ends, an open rim or tread surrounding the driving-wheel and in frictional engagement therewith, and a guiding and steadying roller journaled in said fork and bearing against said open rim, substantially as described.

2. A velocipede having in combination a tread or ground rim, the frame of the machine having the slotted plates 26, a rearwardly-extending fork provided with the plates 24 having splines 25 fitting in said slotted plates 26, a driving-wheel located within said rim and bearing thereagainst, an axle or bolt passing through said wheel and said plates 24, 26, and an antifriction-roller mounted in said fork and bearing against said rim, substantially as set forth.

574,675. WALL-REGISTER. CHARLES H. FOSTER, Omaha, Nebr. Filed Apr. 8, 1895. Serial No. 545,032. (No model.)



Claim.—1. A wall-frame and border for registers provided with two flanges arranged at substantially right angles thereto, one of the flanges disposed at the inner edge of the frame, and the other flange disposed at the outer edge of the frame, the outer flange being as deep or deeper than the inner flange.

2. A wall-frame and border for registers provided with two flanges arranged at substantially right angles thereto, one of the flanges being disposed at the inner edge of the frame, and the other flange disposed at the outer edge of the frame, the two flanges forming a ventilating-flue; in combination with a hot-air flue, and means for causing air to pass through the ventilating-flue.

574,676. BICYCLE-SUPPORT. JOHN M. GETCHELL, Haverhill, N. H., assignor of one-half to William W. Crook, same place. Filed Mar. 27, 1896. Serial No. 585,110. (No model.)



Claim.—1. A bicycle-support consisting of a bar having means for attachment to the frame of a bicycle and curved near its lower end, and a rest mounted to slide through an opening in the curved portion, and having at its upper end a lateral portion receiving the rod, substantially as described.

2. A bicycle-support consisting of a bar having means for attachment to the frame of a bicycle and curved near its lower end, and a rest mounted to slide through an opening in the curved portion, and having at its upper end a lateral portion receiving the rod, and provided with set-screws, substantially as described.

3. A bicycle-support consisting of a rod provided with clamps for its attachment with the frame of a bicycle having its lower end curved in two directions, and a rest mounted to slide on the rod and pass loosely through an opening in the curved portion, and having a thumb-screw at its upper end, substantially as described.

4. A bicycle-support consisting of a rod provided with clamps for its attachment to the frame of a bicycle having its lower end curved in two directions, and a rest mounted to slide on the rod and pass loosely through an opening in the curved portion, and having a thumb-screw at its upper end, the said rod having a notch near its lower clamp, substantially as described.

574,677. TOY PIANO. THOMAS GIDDINGS, Williamsport, Pa. Filed Aug. 24, 1896. Serial No. 603,751. (No model.)

Claim.—1. In a toy piano, the case thereof provided in its end walls with vertical grooves, in combination with the action-bar and its guard, the latter having its ends slidingly mounted in said grooves and adapted to be removed through the top of the case, substantially as described.

2. In a toy piano, the case thereof provided in its end walls with vertical grooves of different depths, in combination with an action-bar and guard, said guard having its ends removably fitted in said grooves and adapted to be disengaged laterally therefrom, and a wedge adapted to be inserted in the deeper groove behind the adjacent edge of said guard, substantially as and for the purpose described.



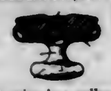
3. In a toy piano, the combination with two sets of key-levers for the natural and semitone scales, of two action-boards, one for each set of levers, each of said boards being provided with end supports, the supports of the upper action-board resting upon the lower board, and both of said boards being made removable, substantially in the manner and for the purpose described.

4. In a toy piano, the combination with an action-board, and a series of sounding plates or keys thereon, of an action-bar, a series of hammers pivoted thereto and underlying the action-board, key-levers located beneath said hammers and each provided at its rear end with an upright, a cross-bar secured to said upright and extending forward, a block secured to the front end of said cross-bar and carrying a sound-deadener for contact with its respective hammer, and a guide-pin arranged within the case and projecting through a slot in the rear end of said cross-bar, whereby the movements thereof are steadied, substantially as described.

5. In a toy piano, the combination with the action-bar, of a hammer and a piece of fabric attached to and projecting beyond the edge of said action-bar, said fabric being secured to and covering the under side of the hammer so as to form a sound-deadener and provide a pivotal connection between said hammer and action-bar, substantially as described.

6. In a toy piano, the key-levers 17 having the elevated key portion 14 and fulcrumed upon a cross-wire, the upright 18, the forwardly-extending bar 19, the end block 20, the bar 19 provided with a slot in its rear end, and the guide 22, substantially as described.

574,678. COLLAR-BUTTON. JOSEPH GOLDSMITH, Providence, R. I. Filed Dec. 16, 1895. Serial No. 572,229. (No model.)



Claim.—1. The combination in a collar-button of a stem mounted on a foot and having a cap attached thereto containing a disk of zinc at the bottom, with a central stud of copper soldered to the disk on its top, and a face of soft cork on the outside of the zinc disk, substantially as described.

2. A collar-button having a hollow or recessed cap *a*, a plate of zinc secured in the bottom thereof, and a central stud *c* secured thereto and projecting outwardly beyond the outer edge of the cap, combined with a perforated piece of cork which is fitted around the stud, and secured in position in the cap, substantially as shown.

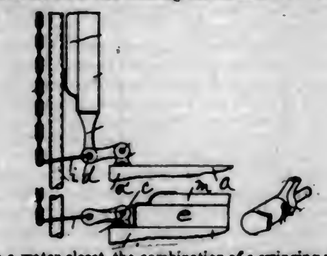
3. A collar-button having a hollow recessed cap having its outer edges turned inwardly, a disk of zinc secured in the cap, and a stud of copper projecting from this zinc, combined with a circumferentially grooved and perforated piece of cork which surrounds the stud, and has the edge of the cap to catch in its groove, substantially as described.

4. A collar-button having a recessed or hollow cap, and a stud projecting from the center thereof, combined with a perforated piece of cork which surrounds the stud and forms a bearing upon the button for the neck, substantially as set forth.

574,679. WATER-CLOSET. THOMAS GRACE, Pittsburg, Pa., assignor to the Bailey-Farrell Manufacturing Company, same place. Filed Apr. 29, 1895. Serial No. 547,544. (No model.)

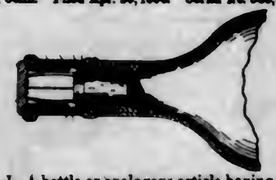
Claim.—1. The combination of a rock-bar and connections therefrom to the flushing mechanism, a seat mounted on the rock-bar, and connections between the seat and bar, whereby upon lifting said seat to an upright position the flushing mechanism is operated, substantially as set forth.

2. In a water-closet, the combination of a swinging seat, a rock-bar, rods in said seat and journaled on said rock-bar, a lug on said rod adapted to engage a shoulder on said rock-bar, and connections between said rock-bar and flushing mechanism, substantially as set forth.



3. In a water-closet, the combination of a swinging seat, a rock-bar, rods in said seat and journaled on said rock-bar, a lug on said rod fitting in a recess on said rock-bar, and connections between said rock-bar and the flushing mechanism, substantially as set forth.

574,680. NON-REFILLABLE BOTTLE. JOSEPH A. GRAHAM, Meriden, Conn. Filed Apr. 29, 1896. Serial No. 590,492. (No model.)



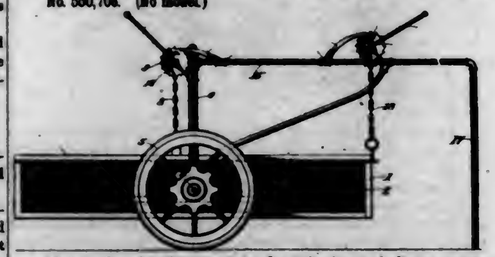
Claim.—1. A bottle or analogous article having a neck provided with an internal shoulder; a cork therein; and a cork-locking device having a plurality of inwardly-extending arms having locking devices adapted to engage said shoulder, and having their inner opposing faces engaged by one end of said cork.

2. A bottle or analogous article having a neck provided with an annular recess on its interior forming a shoulder; a cork therein; a cork-locking device comprising a metal cap having a series of inwardly-extending spring-arms having hooked ends adapted to engage said shoulder, and having their inner opposing faces engaged by one end of said cork.

3. A bottle or analogous article having a neck provided with an annular recess on its interior forming a shoulder; a cork therein having a beveled end; a cork-locking device comprising a metal cap adapted to rest on the outer end of said bottle-neck and to also close the mouth thereof, and having a series of inwardly-extending spring-arms having hook-shaped ends adapted to engage said shoulder, said hooked ends having interiorly-beveled faces adapted to be engaged by the beveled end of said cork.

4. A bottle or analogous article having a neck provided with an annular recess on its interior forming a shoulder, and with an exterior recess or groove encircling said interior recess; a cork therein having a beveled end; a cork-locking device comprising a cast-iron metal cap adapted to rest on the outer end of said bottle-neck and to close the mouth thereof, and having a series of inwardly-extending spring-arms having hook-shaped ends adapted to engage said interior shoulder, said hook-shaped ends having interiorly-beveled faces adapted to be engaged by the beveled end of said cork.

574,681. APPARATUS FOR REPAIRING ASPHALT PAVEMENTS. PHILIP W. HENRY, New York, N. Y., assignor to the Barber Asphalt Paving Company, same place. Filed May 25, 1895. Serial No. 550,708. (No model.)



Claim.—In a heating apparatus for softening asphalt pavements, the combination with a portable supporting-frame, of an open fuel-basket adapted to contain a bed of solid incandescent fuel, and having a perforated bottom through which the lower surface of the bed of fuel is exposed, and adjustable suspension devices which permit the fuel-basket to be lowered in close proximity to the surface of the pavement, or raised to clear the ridges of the pavement in transporting the apparatus, substantially as set forth.

574,682. ELASTIC TIRE FOR VEHICLE-WHEELS. WILLIAM H. HOLDEN, Chicago, Ill. Filed Mar. 21, 1896. Serial No. 584,237. (No model.)



Claim.—1. In a vehicle-wheel, in combination with the felly, a non-extensible tread-rim and a spiral spring whose axis is a circle intermediate the felly and tread-rim, such spiral spring being positively and pivotally connected at its several coils respectively to the felly and tread-rim.

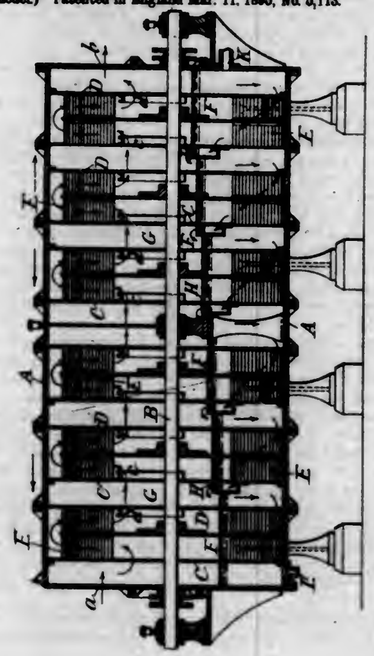
2. In a vehicle-wheel, in combination with the felly a non-extensible tread-rim of greater diameter than the felly, and a spiral spring whose axis is a circle intermediate the felly and the tread-rim, said felly and tread-rim having eyelets in which the several coils of the spiral spring are engaged, whereby the spring connects the two parts positively.

3. In a vehicle-wheel, in combination with the felly and a non-extensible tread-rim of greater diameter than the felly, each of said parts having a perforated flange facing the other part, and a spiral spring whose axis is a circle intermediate the felly and rim having its coils engaged with the perforations of said flanges respectively.

4. In a vehicle-wheel, in combination with the felly having inturned perforated lips at its lateral edges, a non-extensible tread-rim having also inturned perforated lips; and a spiral spring whose axis is a circle intermediate the felly and tread-rim, the coils of the spiral being engaged respectively in the perforations of the felly and tread-rim; substantially as set forth.

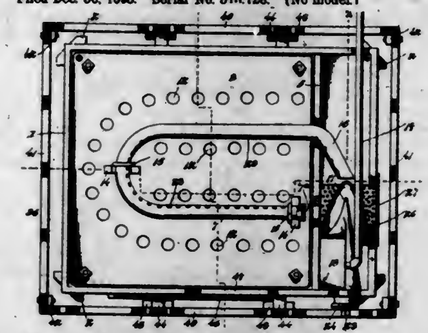
5. In a vehicle-wheel, in combination with a peripherally-concave felly having its lateral edges inturned and perforated, a non-extensible tread-rim which is inwardly concave and has its lateral edges also inturned and perforated; a spiral spring whose axis is a circle intermediate the felly and tread-rim adapted to seat in the concavities of said parts and having its several coils engaged in the perforations of their lips respectively.

574,683. APPARATUS FOR WASHING GAS. PERCY F. HOLMES, Huddersfield, England. Filed May 16, 1896. Serial No. 591,772. (No model.) Patented in England Mar. 11, 1895, No. 5,113.



Claim.—In apparatus for washing gases, in combination with the successive compartments containing liquid in which brushes or their equivalents revolve, intermediate comparatively still compartments, substantially as and for the purpose set forth.

574,684. HEATER. HARDIN M. HUGER, Three Mile Bay, N. Y. Filed Dec. 30, 1895. Serial No. 573,728. (No model.)



Claim.—1. A heater comprising an inner casing, having a perforated bottom, a burner arranged within the casing, non-heat-conducting plates mounted on the inner casing and disposed above and below the bottom thereof and located beneath the burner, a removable top supported on the inner casing, a radiator suspended from the removable top and carried by the same, and an outer casing surrounding the inner casing and forming a foot-rest, substantially as described.

2. A heater comprising an inner casing, having a perforated bottom, a burner arranged within the casing, a non-heat-conducting plate located beneath the burner and mounted on the casing and preventing a downward radiation of heat, a radiator suspended within the casing and located above the burner, and a foot-rest mounted on the inner casing, substantially as described.

3. A heater comprising an inner casing, provided with a perforated bottom, upper and lower non-heat-conducting plates mounted on the casing and spaced from the bottom thereof, the lower plate being imperforate, and the upper plate being provided with perforations located opposite the intervals of the perforations of the bottom of the casing, a burner mounted within the casing and located above the upper plate, and a radiator suspended within the casing and mounted above the burner, substantially as described.

4. A heater comprising an inner casing, a plate located at the bottom of the casing and constructed of non-heat-conducting material, a burner located above the plate, a perforated top mounted on the inner casing, a radiator suspended within the casing and located above the burner, and a non-heat-conducting plate interposed between the perforated top and the radiator and spaced from them, substantially as and for the purpose described.

5. In a heater, the combination of an inner casing, a burner arranged therein, a top detachably mounted on the inner casing, a radiator suspended within the casing and carried by the top, and an open-work outer casing supported upon the said top and forming a foot-rest, substantially as described.

6. In a heater, the combination of an inner casing, a burner arranged therein, a top detachably mounted on the casing and provided with upward-extending lugs or posts, a radiator suspended from and carried by the top, and an outer casing supported upon the posts or lugs, and interlocked with the inner casing, and being removable therefrom, substantially as described.

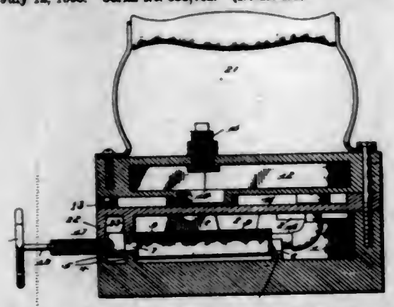
7. In a heater, the combination of an inner casing, a burner, a detachable top carrying a radiator and provided with upwardly-extending supports, lugs extending horizontally from the casing, and an outer open-work casing supported on the said top and forming a foot-rest and provided with lugs engaging under and interlocked with those of the inner casing, substantially as described.

8. The combination with a heater provided with depending legs, of caps covering the lower ends of the legs and constructed of material which is a non-conductor of heat to prevent a carpet or the like from being scorched or otherwise injured, and bands arranged at the upper edges of the caps and securing the same to the legs, substantially as described.

9. In a heater, the combination of an inner casing provided adjacent to one end with a transverse partition, a substantially U-shaped burner mounted within the casing and having at one end a jet-opening and provided at the other end with an extension 16 located in the space between the partition and the adjacent end of the casing, a generator detachably secured to one side of the casing, provided with a longitudinal bore and having a chamber 20 communicating

with the bore and forming a receptacle for gasolene, said generator being provided with a reduced end located opposite the end of the extension 16, an adjusting-screw arranged in the bore of the generator and forming a cock or cut-off, and a tapering evaporating dish located below the generator and located adjacent to the extension 16 and to the jet-opening of the other end of the burner, substantially as described.

574,685. SAD-IRON. PERRY A. HULWICK, Goshen, Ind. Filed July 12, 1896. Serial No. 555,782. (No model.)

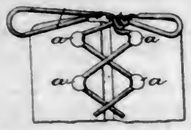


Claim.—1. In a sad-iron, the combination of a hollow open-topped base forming a combustion-chamber, alined front and rear seats having open upper sides arranged in the combustion-chamber, a burner-tube removably fitted at its reduced extremities in said seats, the ends of the body portion of the burner bearing against said seats to prevent longitudinal displacement, a plate detachably secured to the base to close the upper side of the combustion-chamber, a stud depending from said plate within the chamber to bear upon the burner and hold it in its seats, a reservoir and handle carried by the said detachable plate, and an injector in communication with and carried by the reservoir to discharge fuel into the burner-tube, substantially as specified.

2. In a sad-iron, the combination of a hollow base forming a combustion-chamber and provided with a front parallel-sided seat 3 and a rear seat 4 in alinement with the front seat, a burner-tube provided at its front end with a flat parallel-sided projection 6 to fit in the parallel-sided seat 3 and provided at its rear end with a hollow projection forming a throat and adapted to fit in the seat 4, a plate detachably secured to the base to close the upper side of the combustion-chamber and provided with a depending stud to bear upon the upper side of the hollow projection of the burner and prevent vertical displacement thereof, a reservoir and a handle carried by the said detachable plate, and an injector carried by and in communication with the reservoir and arranged in alinement with the throat of the burner-tube, substantially as specified.

3. In a sad-iron, the combination of a hollow base or shell provided with front and rear seats and a rest in rear of the rear seat, a burner-tube provided with terminal projections fitted in said seats, one of said projections being hollow to form a throat, a deflecting-plate covering the cavity of the base or shell, a hollow guard and reservoir arranged above the deflecting-plate and carrying a handle, and an injector connected to a pipe or conductor in communication with the reservoir and adapted to discharge fuel into the throat of the burner-tube, said injector being arranged upon the rest in rear of the rear seat and the deflecting-plate being provided with a depending lug to bear upon said injector and hold it in place on the rest, substantially as specified.

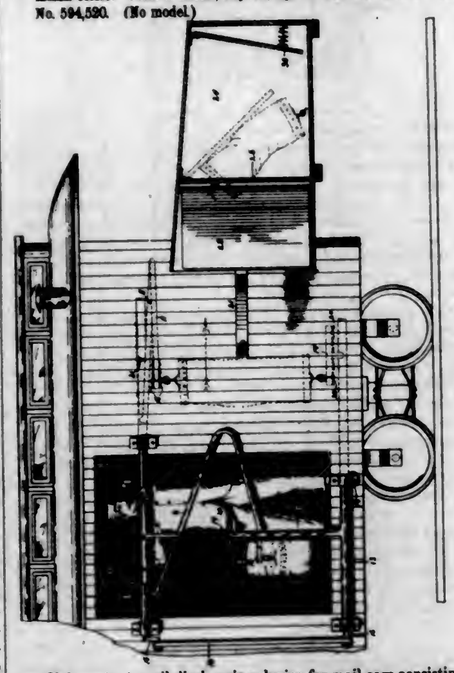
574,686. LACING-FASTENER FOR BOOTS OR SHOES. HERBERT M. NICHOLS, Boston, Mass. Filed Jan. 29, 1894. Renewed Nov. 21, 1896. Serial No. 613,046. (No model.)



Claim.—1. The herein-described fastening device consisting of two coöperating members adapted to be secured respectively to the ends of the cord to be fastened, one of said members having an eye to receive the point of the other, and a bend in one of said members in which the ends to be fastened are laid and frictionally held by the other member when the two are locked together, substantially as described.

2. The herein-described fastening device consisting of two coöperating members adapted to be secured respectively to the ends of the cord or cords to be fastened, one of said members having two eyes to receive the other member, and a bend in one of said members in which the ends to be fastened are laid and frictionally held by the other member when the two are locked together, substantially as described.

574,687. REVERSIBLE RECEIVER AND DELIVERER FOR MAIL-CARS. JOHN C. STONE, Dayton, Ky. Filed June 6, 1896. Serial No. 594,520. (No model.)



Claim.—1. A mail-discharging device for mail-cars consisting of two arms pivotally connected to the car and adapted to be laterally projected therefrom and each provided with two catches for securing the mail-bag which is stretched out between the arms, one of the catches on each arm to be only used at the time, the other catches provided for use when the car is traveling in the other direction, in combination with stationary means provided adjacent to the track and within the path of the suspended bag and adapted to take the same off the car.

2. A mail-discharging device for mail-cars, consisting of two arms 11 and 12 each pivotally connected and the two adapted to be together projected out laterally from the car for the purpose of suspending between them a mail-bag, the upper arm 11 which is reversibly connected, having for such purpose two catches 18 at its end, the lower arm 12 having a cross-piece 19 and a catch 20 at each one of its ends thereof, one of the catches on each arm to be used only at the time, the other set being provided when the parts are to be reversed, in combination with stationary means provided adjacent to the track and within the path of the suspended bag and adapted to take the same off the car.

3. A mail-discharging device for mail-cars, consisting of two arms 11 and 12, a rock-shaft for each of the arms to which they are connected, means whereby the two rock-shafts may be operated in a manner that they are projected out together laterally from the car for the purpose of suspending between them a mail-bag, the lower arm 12 having a cross-piece 19 with a catch 20 near each end of the latter, the upper arm having two catches 18 on opposite sides at its end, sockets 28 provided in the upper rock-shaft in either one of which the upper arm may be inserted, such sockets so located that in either position the catches on the upper arm come above one of the catches on the cross-piece of the lower arm whereby either set of catches may be used to suit the direction in which the train travels, in combination with stationary means provided adjacent to the track and within the path of the suspended bag and adapted to take the same off the car.

4. A mail-discharging device for mail-cars consisting of two arms pivotally connected to the car and adapted to be laterally projected

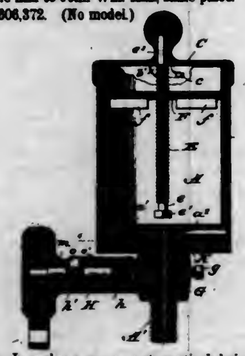
therefrom and each provided with two catches for securing the mail-bag which is stretched out between the arms, one of the catches on each arm to be used only at the time, the other catches provided for use when the car is traveling in the other direction, in combination with a stationary receiver so located adjacent to the track and of such dimensions as to reach into the space between the arms before mentioned when they are extended, its open mouth within the path of the approaching bag and its upper and lower edges thereat adapted to disengage the bag by stripping it from the supporting-arms and a support 26 for the receiver located on one side only to clear the lower arm 12.

5. A mail-discharging device for mail-cars, consisting of two arms 11 and 12, a rock-shaft for each of the arms to which they are connected, means whereby the two rock-shafts may be operated in a manner that they are projected out together laterally from the car for the purpose of suspending between them a mail-bag, the lower arm 12 having a cross-piece 19 with a catch 20 near each end of the latter, the upper arm having two catches 18 on opposite sides at its end, sockets 28 provided in the upper rock-shaft, in either one of which the upper arm may be inserted, such sockets so located, that in either position, the catches on the upper arm come above one of the catches on the cross-piece of the lower arm, whereby either set of catches may be used to suit the direction in which the train travels, in combination with a stationary receiver so located adjacent to the track and of such dimensions as to reach into the space between the arms before mentioned when they are extended, its open mouth within the path of the approaching bag and its upper and lower edges thereat adapted to disengage the bag by stripping it from the supporting-arms and a support 26 for the receiver located on one side only to clear the lower arm 12.

6. In a mail receiving and discharging device, an arm 8 having a square end 27 secured to a rock-shaft whereby it may be manipulated to be either in or out of operative position and with which rock-shaft it forms the means for receiving mail-bags, said arm 8 having an extension to form another arm 11, having two catches 18 at its free end for the purpose of suspending the mail-bag to be discharged, sockets 28 in the rock-shaft near each end thereof, either one adapted to receive the square end of combined arms 8 and 11 whereby these arms may be reversed to be operative in either direction of the train and set-screws, one for each socket to hold the arms in position on the rock-shaft.

7. In a mail receiving and discharging device, an arm 8 secured to a rock-shaft whereby it may be manipulated to be either in or out of operative position and with which rock-shaft it forms the means for receiving mail-bags, said arm 8 having an extension to form another arm 11, having two catches 18 at its free end for the purpose of suspending the mail-bag to be discharged, sockets 28 in the rock-shaft near each end thereof, either one adapted to receive the square end of combined arms 8 and 11 whereby these arms may be reversed to be operative in either direction of the train and an angle-shaped locking-arm 31 pivotally secured to the rock-shaft midway between the sockets 28 therein and adapted to be used in either position of arm 8.

574,688. LUBRICATOR. MARK E. STOVER, Saginaw, Mich., assignor of one-half to John Wm. Hall, same place. Filed Sept. 19, 1896. Serial No. 606,372. (No model.)



Claim.—1. In a dope-cup or automatic lubricator, the combination with a cup which contains the dope or lubricant, of a casing rotatable with respect thereto and provided with a depending flange having gear-teeth, a cover secured to the casing and having a threaded rod which depends into the cup, a disk or piston in engagement with the threaded rod, and gearing mechanism for rotating the casing, substantially as shown and for the purpose set forth

2. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto, a threaded rod carried by the casing and located within the cup, a disk or piston having a threaded aperture in engagement with the threaded rod, and mechanism for rotating the casing, substantially as shown and for the purpose set forth.

3. In a dope-cup or automatic lubricator, the combination with the cup and rotatable casing, of a rod carried by the rotatable casing and located within the cup, said rod being threaded for a greater part of its length and provided at its lower end with a reduced portion and head or stop; together with a disk or piston having a threaded aperture in engagement with the threaded portion of the rod, substantially as shown and for the purpose set forth.

4. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto, a removable cover placed in locked engagement with the casing, a threaded rod secured to the cover to depend within the cup, a disk or piston mounted upon the threaded portion of the rod and in frictional engagement with the cup, together with mechanism for rotating the casing, substantially as shown and for the purpose set forth.

5. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto and provided at its upper open end with angular slots, a cover having studs which engage said slots, a threaded rod secured to the cover to depend within the cup, and a disk or piston mounted upon the threaded portion of the rod; together with mechanism for rotating the casing, substantially as shown and for the purpose set forth.

6. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto, a cover removably attached to the upper end of the casing and having a central recess, a threaded rod let into said recess and secured therein by a transverse pin, said rod depending into the cup, and a disk or piston mounted on the threaded portion of the rod, substantially as shown and described.

7. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto and carrying a threaded rod upon which is mounted a disk or piston located within the cup, said casing having gear-teeth, a shaft geared to the rotatable casing substantially as shown, a disk mounted on said shaft, and a casing inclosing the disk and provided with wedge-shaped recesses containing rollers which engage the periphery of the disk, together with means for oscillating the casing, substantially as shown and for the purpose set forth.

8. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto and carrying means for forcing the dope or lubricant out of the cup through a feed-opening therein, said casing having gear-teeth, a shaft geared to the rotatable casing substantially as shown, a disk mounted on said shaft, and friction-clutch mechanism in engagement with said disk and operated from a suitable power, substantially as described.

9. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or grease, of a casing rotatable with respect thereto and carrying means for forcing the dope or lubricant out of the cup through a feed-opening therein, said casing having gear-teeth, a shaft geared to the rotatable casing substantially as shown, and a disk keyed upon the shaft; together with a casing inclosing the disk and provided with wedge-shaped recesses adjoining said disk, rollers mounted in the recesses to contact with the periphery of the disk, and springs forcing the rollers toward the smaller end of the recesses, the casing being oscillated from a driven shaft, substantially as set forth.

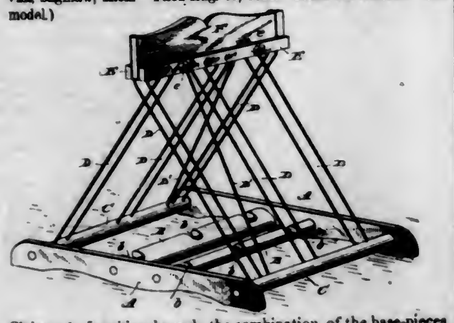
10. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto and carrying means for forcing the dope or lubricant out of the cup through a feed-opening therein, said casing having gear-teeth, a shaft geared to the rotatable casing substantially as shown, and a friction-clutch rotating the shaft, said friction-clutch having a depending arm; together with a cam on a rotary shaft, for oscillating said arm, substantially as set forth.

11. In a dope-cup or automatic lubricator, the combination with the cup which contains the dope or lubricant, of a casing rotatable with respect thereto and carrying means substantially as shown for forcing the dope or lubricant out of a feed-opening therein, said casing having gear-teeth, a shaft having a worm, a worm-wheel in mesh with said worm and carrying a pinion in mesh with the gear-teeth of the rotatable casing; together with a pawl and ratchet in engagement with the shaft, and a friction-clutch mounted on the shaft, said friction-clutch having an arm which is oscillated from a rotary shaft, for the purpose set forth.

12. In a dope-cup or automatic lubricator, the combination of a cup having a shank secured to a suitable support, a rotatable casing inclosing the cup and bearing on the shank, said casing having gear-teeth and a removable cover carrying a threaded rod on which is

mounted a disk or piston located within the cup; a frame G secured to an intermediate portion of the shank, a shaft mounted in the frame and geared to the casing through the intervention of a worm-wheel and pinion, a pawl in engagement with ratchet-teeth on the shaft, together with a friction-clutch on the shaft and provided with an arm oscillated from a suitable power, substantially as shown and described.

574,689. BICYCLE-RACK. PETER M. STOVER and MARK E. STOVER, Saginaw, Mich. Filed Aug. 13, 1896. Serial No. 602,624. (No model.)



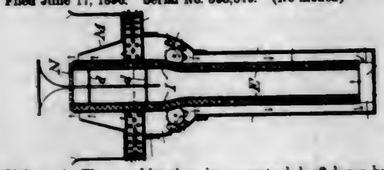
Claim.—1. In a bicycle-rack, the combination, of the base-pieces A A rigidly connected to each other by intermediate cross-bars B, cross-bars C journaled in the ends of said base-pieces, parallel rods secured to the cross-bars C to project therefrom, and independent cross-bars E secured to the ends of the rods; together with means for detachably connectiug the cross-bars E to each other, substantially as shown and for the purpose set forth.

2. In a bicycle-rack, the combination of the base-pieces A A, intermediate cross-bars connected to said base-pieces and provided with notches or recesses, cross-bars C journaled in the ends of the base-pieces, rods D projecting from the cross-bars C and provided with cross-bars E at their ends, and means for connecting the cross-bars E to each other, substantially as shown and described.

3. A bicycle-rack comprising base-pieces A A rigidly connected to each other by intermediate cross-bars B, cross-bars C journaled in the ends of the base-pieces, rods D projecting from the cross-bars C and secured at their ends to cross-bars E having apertures which register; together with a sign-board having apertures which register with the apertures in the cross-bars E, and bolts or screws for connecting the sign-board and cross-bars E together, substantially as shown and described.

4. A bicycle-rack comprising longitudinal base-pieces rigidly connected to each other by intermediate cross-bars provided with recesses, as shown; cross-bars journaled in the ends of the base-pieces and having parallel rods which extend therefrom, as well as diagonal rods; cross-bars E secured to the upper ends of said rods and provided with registering apertures; and means for connecting the cross-bars E together, substantially as described, to provide a bicycle-rack the parts of which may be folded upon each other, for the purpose set forth.

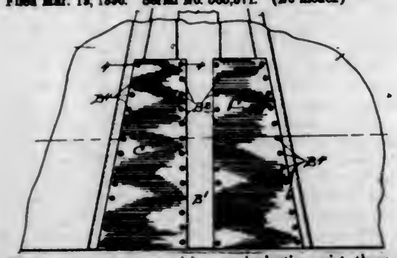
574,690. LAMP-BURNER. JOSEPH A. TATRO, Beaver Falls, Pa. Filed June 17, 1896. Serial No. 595,879. (No model.)



Claim.—1. The combination, in a central-draft-lamp burner, of the perforated chamber; the perforated gallery seated upon said chamber; the hollow open cone rising from said gallery; the pair of communicating and oppositely-placed tubes prolonged downward from and from within the perforated chamber, formed near their bottom into an inwardly-directed offset and terminating at bottom in a tight disk; the partly-round, partly-elliptical tube rising centrally from the offset of the aforesaid pair of tubes to, through and above the aforesaid chamber, gallery and cone, and communicating at bottom with the aforesaid pair of tubes; and the jacket within and above the perforated chamber and perforated gallery, and loosely surrounding the aforesaid central tube to the top thereof; the whole combination constructed and arranged as hereinbefore described, for the purpose of supplying outward and inward draft to the flame of a tubular-wick lamp.

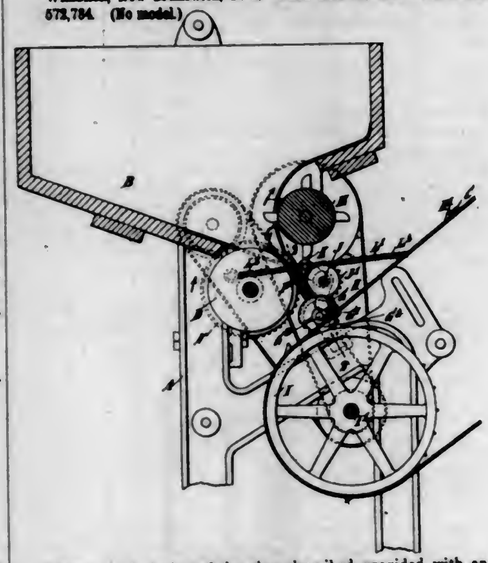
2. The combination, in a central-draft-lamp burner, of the top-closed perforated chamber; the pair of communicating and oppositely-placed tubes prolonged downward from and from within said chamber, formed near their bottom into an inwardly-directed offset and terminating at bottom in a tight disk; and the partly-round, partly-elliptical tube rising centrally from the offset of the aforesaid pair of tubes to, through and above the aforesaid perforated chamber and communicating at bottom with the aforesaid pair of tubes; the said combination constructed and arranged as hereinbefore described, for the purpose of supplying an inward draft to the flame of a tubular-wick lamp.

574,691. CORSET. HELEN M. A. THOMPSON, Gloversville, N. Y. Filed Mar. 19, 1896. Serial No. 583,871. (No model.)



Claim.—A corset comprising an inelastic waist, three vertical metallic ribs extending down the waist and hip-section to the bottom of the corset and separated by gore-shaped openings extending from the inelastic waist down the hip-section to the lower ends of the ribs, and a pair of detachable gore-shaped elastic connections secured along their vertical edges to the ribs and covering the gore-shaped openings, substantially as described.

574,692. LATH-FEEDER FOR PAPER-DRIERS. WILLIAM H. WALDRON, New Brunswick, N. J. Filed Dec. 20, 1895. Serial No. 572,784. (No model.)



Claim.—1. A device of the class described, provided with an oscillating carrier adapted to carry one lath at a time from the chute to the carrier-chain, substantially as shown and described.

2. In a lath-feeder, the combination of a delivery-chute having an outlet-opening accommodating only a single lath, of a lath-carrier mounted to turn and having a plain rounded surface normally closing the outlet of the chute and sustaining the laths in single succession in the chute, the carrier further having lath-receiving slots approximately equal in size to the chute-outlet, and movable to and from the latter as the carrier is moved on its axis, substantially as described.

3. In a device of the class described, the combination with a delivery-chute for the lath and an oscillating carrier-chain adapted to receive the lath, of a segmental carrier mounted to oscillate and formed with a radial slot or notch, said carrier holding said lath normally in place in the delivery-chute, substantially as shown and described.

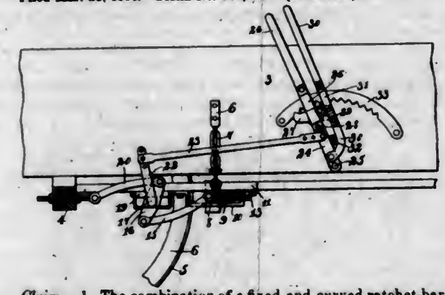
4. In a device of the class described, the combination with a delivery-chute for the lath and a carrier-chain adapted to receive the lath, of carriers mounted to turn and arranged between said chute and carrier-chain, to feed the lath singly to the latter, and means for imparting a motion to said carrier, said means including a spring acting to relieve the carrier of sudden movement by its said actuating means, substantially as shown and described.

574,693. BILLIARD OR POOL CUE. JOHN B. WEBSTER, St. Louis, Mo., assignor of one-half to Henry McNichols, same place. Filed Oct. 10, 1892. Serial No. 448,431. (No model.)



Claim.—In a billiard and pool cue, the combination of the tube 3 formed with a longitudinal and lateral slot, the tube 7 telescoping and working in said tube 3, a pin carried by the tube 7 working in said slots, a cushion 8 located in the tube 7, and the spiral spring 6 located in the tube 3 and adapted to bear upon the cushion 8, substantially as shown and described.

574,694. WAGON-BRAKE. LAURENS S. WHEELER, Tyro, Kans. Filed Mar. 23, 1896. Serial No. 584,481. (No model.)



Claim.—1. The combination of a fixed and curved ratchet-bar, a lever fulcrumed at one end, a second lever fulcrumed to the first lever at a point immediately adjacent to the fulcrum of said lever and the free end of the second lever extending to the free end of the first lever, a pawl pivoted to the first lever and capable of engaging the ratchet-bar, a link pivoted to the pawl and to the second lever, the link and pawl being arranged so that as the second lever moves from the first lever, the pawl will be forced to engage the ratchet-bar, and an expansive spring confined between and engaging the two levers, substantially as described.

2. The combination of a fixed and curved ratchet-bar, a lever fulcrumed at one end and located adjacent to the ratchet-bar, a pawl having three corners, one of which is positively pivoted to the lever and a second of which cooperates with the ratchet-bar, a second lever having one end fulcrumed directly adjacent to the fulcrum of the first lever and having its free end extended to the free end of the first lever, a link pivotally connected to the remaining corner of the pawl and to the second lever, and an expansive spring located between and pressing apart the two levers, substantially as described.

3. The combination with a wagon-body, the rear axle and the wheels therefor, of a brake-beam suspended beneath the body, the brake-beam being located forward of the rear axle, a guide-plate supported beneath the body, a transverse rolling shaft held by the guide-plate, an arm fixed to the rolling shaft and extending oppositely from each side thereof, a link pivotally connected to each end of the arm and respectively pivoted to the rear axle and to the brake-beam, a crank-arm fixed to the rolling shaft, a rod pivoted to the crank-arm, a lever one end of which is fulcrumed to the body, a pawl pivoted to the lever, a curved ratchet-bar fixed on the body and cooperating with the pawl, a second lever having one end fulcrumed directly adjacent to the fulcrum of the first lever and on the first lever, a link pivotally connected to the pawl and to the second lever, and an expansive spring located between and pressing apart the two levers, substantially as described.

574,695. TRAIN-PIPE COUPLING. WILLIAM F. WHITE, Chicago, Ill. Filed July 13, 1896. Serial No. 599,050. (No model.)

Claim.—1. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with means for connecting it with the train-pipe, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, and a tubular stem extending from said other barrel, substantially as described.



2. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with means for connecting it with the train-pipe and with means for suspending it from a car-coupler, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, and a tubular stem extending from said other barrel, substantially as described.

3. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with a telescopic tubular extension for connection with the train-pipe, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, and a tubular stem extending from said other barrel, substantially as described.

4. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with means for connecting it with the train-pipe, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, a bell-mouth on the end of the valve-containing barrel, and a tubular stem extending from said other barrel, substantially as described.

5. In an automatic train-pipe coupler, the combination of a double-barreled tube C provided with means for connecting it with the train-pipe, ports n' and n^3 in the wall between the barrels r and r', a tubular valve C' in the barrel r, having a port n^3 and provided with a spring l, and a tubular stem C^6 extending from the barrel r', substantially as described.

6. In an automatic train-pipe coupler, the combination of a double-barreled tube C provided with a head C^5 having a telescopic tubular extension for connection with the train-pipe, ports n' and n^3 in the wall between the barrels r and r', a hollow tubular valve C' in the barrel r, having a port n^3 and provided with a spring l, an impact-stem C^8 in the barrels r', having a hollow head m at one end and a port n^4 opening into said head, and a tubular stem C^9 having a head g at one end at which it is retained by a ball-and-socket joint in said barrel r' to extend therefrom, substantially as described.

7. In combination with the car-coupler and train-pipe on a car, an automatic train-pipe coupler comprising, in combination, a double-barreled tube C provided with a head C^5 having the telescoping tube extensions C^6 and C^9 at which it is coupled to the train-pipe, ports n' and n^3 in the wall between the barrels r and r', a bell-mouth q on the barrel r and a hollow tubular spring-controlled valve C' confined therein, having a port n^3, an impact-stem C^8 in the barrel r', having a port n^4, a tubular stem C^9 extending from the barrel r', and means on the tube C and said car-coupler for suspending from the latter the train-pipe coupler, substantially as described.

574,696. SIFTER FOR ASHES, &c. WILLIAM H. WHITING, Philadelphia, Pa. Filed Nov. 29, 1895. Serial No. 570,357. (No model.)

Claim.—A box having a discharge-opening, and a sieve above the same, in combination with a valve which is adapted to close said open-

ing, and a handle which is connected with said valve and guided in a cross-piece of the journals of the box, substantially as described.



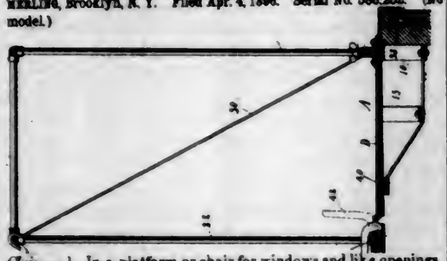
574,697. HAT. GEORGE WILDMAN, London, England, assignor of one-half to the Cooper Box & Company, Limited, same place. Filed July 31, 1896. Serial No. 601,234. (Model.) Patented in England May 6, 1896, No. 8,987.



Claim.—1. The combination with a head-covering, as a hat, of a flexible flange attached at one edge to the interior of the hat, and a band of elastic material contained within said flange and projecting at its free ends through said flange to permit the adjustment of the tension of the elastic band, substantially as described.

2. The combination with a head-covering, as a hat, of a flexible flange attached at one edge to the interior of the hat, a band of elastic material contained within said flange, and a pad, and a pad attached to the front, interior portion of the hat, said pad covering the elastic flange and relieving the forehead of the wearer of undue pressure, substantially as described.

574,698. WINDOW-CLEANING PLATFORM. HENRY G. WILMERDING, Brooklyn, N. Y. Filed Apr. 4, 1896. Serial No. 586,252. (No model.)



Claim.—1. In a platform or chair for windows and like openings, a platform, a locking-bar connected with the platform, having its inner end extended beyond said platform and of angular construction, and a keeper in the nature of a socket adapted for attachment to a window-sill, having its interior construction arranged to receive in locking embrace, the angular terminal of the locking-bar, substantially as shown and described.

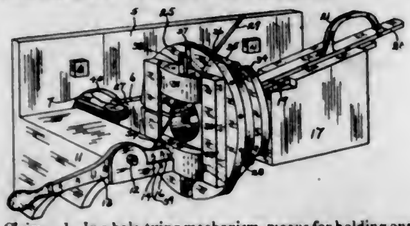
2. In a platform or chair for windows and like openings, a platform, a collapsible railing connected with said platform, a locking-bar removably connected with the platform, locking devices adapted to attach the platform to the locking-bar, and means, substantially as described, for attaching the locking-bar to a support adjacent to the window or opening at which the chair or platform is to be used, as and for the purpose specified.

3. In a window-cleaning chair or platform, a platform, a pivotally-connected railing pivotally and collapsibly connected with the said platform, a yoke attached to the platform, adapted for engagement with the outer face of the window-sill, a locking-bar held to slide between the yoke and the platform, the said locking-bar being provided with a serrated surface, a slideway through which the locking-bar passes, also having a serrated face for engagement with the serrated surface of the locking-bar, the forward end of the locking-bar being adapted to enter a socket in a window-sill, and a lock-lever carried by the platform adapted for engagement with the locking-bar and to force the serrations of the said bar into engagement with the serrations of the slideway through which it passes, as and for the purpose specified.

4. In a window-cleaning chair or platform, a platform, a pivotally-connected railing pivotally and collapsibly connected with the said platform, a yoke attached to the platform, adapted for engagement with the outer face of the window-sill, a locking-bar held to slide between the yoke and the platform, the said locking-bar being provided with a serrated surface, a slideway through which the locking-bar passes, also having a serrated face for engagement with the serrated surface of the locking-bar, the forward end of the locking-bar being adapted to enter a socket in a window-sill, a lock-lever carried by the platform, adapted for engagement with the locking-bar and to force the serrations of the said bar into engagement with the serrations of the slideway through which it passes, and a set-screw passed through the platform and adapted for engagement with the forward or locking portion of the locking-bar, being adapted to hold the said bar in engagement with the said yoke, and adjustable braces for the railing, as and for the purpose specified.

5. In a window-cleaning chair or platform, the combination, with a keeper-plate adapted for attachment to a window-sill, a platform provided with an extension from its under face adapted for engagement with the outer face of the aforesaid sill, a strap attached to the under central portion of the platform, having a serrated upper face, and a locking-bar adapted to enter at its inner end the keeper-plate, the said locking-bar being passed between the inner projection from the platform and between the platform and said strap, the locking-bar having serrations formed therein, adapted to coincide with the serrations on the said strap, of a locking device located at the inner portion of the platform, engaging with the locking-bar, a lock-lever engaging with the rear end of the locking-bar, forcing the said bar in engagement with the said strap, and a collapsible railing attached to the said platform, provided with braces for maintaining it in the upright position, as and for the purpose specified.

574,699. BALE-TIER. ABRAHAM AHAUS, Grammer, Ind., assignor of one-half to James V. Wright and James Childers, same place. Filed May 7, 1896. Serial No. 590,547. (No model.)



Claim.—1. In a bale-tying mechanism, means for holding one end of the tie-wire, means for looping the other end of the wire about the first and withdrawing the same until a bend or loop is formed in the first end, and a rotatable head provided with a spur to penetrate the bend or loop thus formed, whereby the wires forming the loops will be twisted, substantially as shown.

2. In a bale-tying mechanism, a needle for holding one end of the tie-wire, pliers for catching the other end and looping it about the first and withdrawing the same until a bend or loop is formed in the first end, and a rotatable bevel-faced head provided with a spur to penetrate the bend or loop thus formed, whereby the wires forming the loops will be twisted, substantially as shown.

3. In a bale-tying mechanism, a needle for holding one end of the tie-wire, a block or frame-piece, a hollow disk or wheel mounted thereon adjacent to the needle, pliers that pass through the hollow in said disk and catch the other end of the tie-wire whereby the same may be looped about the first and withdrawn until a bend or loop is formed in the first end, and a pair of bevel-faced heads mounted on the surface of the disk or wheel adjacent to the needle, one of such heads being reciprocably mounted and having a spur to penetrate the bend or loop formed by the first-named end of the tie-wire.

4. In a bale-tying mechanism, a needle for holding one end of the tie-wire, a suitable block or framework hollow at one end, a hollow disk or wheel rotatably mounted thereon adjacent to the needle, a pair of pliers slidably mounted in the block or framework in such position with relation to the needle that when the pliers protrude through the disk they will pass over the end of the tie-wire held by the needle and under the needle and catch the other end of the tie-wire, whereby it may be withdrawn through the opening in the disk until a bend or loop is formed in the end of the tie-wire held by the needle, and a rotatable head provided with a spur to penetrate such bend or loop, whereby the wires forming the loops will be twisted, substantially as shown.

5. In a bale-tying mechanism, the combination with a suitable frame or block hollowed longitudinally and having a longitudinal horizontal slot on the side adjacent to the bale-press, of a rotatable disk mounted on the end of such block hollowed in the center and provided with a radial slot from center to circumference, a guideway on its front face, reciprocating heads in said guideway one being provided with a spur and the other with a socket to receive the spur when the heads meet, and means for reciprocating such heads.

6. In a bale-tying mechanism, the combination with a suitable block or frame rounded at one end, a disk or wheel rotatably carried on said end, a guideway on the front face of such disk, sliding heads in such guideway, one being provided with a spur and the other with a socket to receive such spur when the heads meet, a sliding and rotatable collar mounted on the frame or block behind the disk, bell-cranks pivoted to the disk and connected at one end with the sliding heads, and links connecting the other end of the bell-crank with the sliding collar.

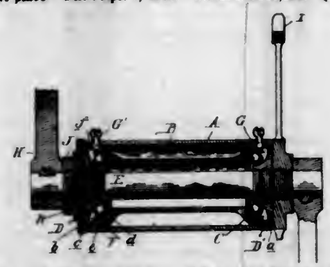
7. In a bale-tying mechanism, means for holding and guiding the tie-wire which comprises a frame provided with a holding-block and cutting-block separated by a recess, the holding-block being higher than the cutting-block, and a jaw whose thickness is less than the width of the recess between the blocks so pivoted in the frame as to closely engage the side of the cutting-block but be slightly removed from the side of the holding-block.

8. In a bale-tying mechanism, means for holding one end of the tie-wire, a needle to insert and hold the other end over the first-named end, and pliers slidably mounted at such an angle that they will pass under the needle and over the inner strand of wire held by the needle and catch the first-named end of the wire.

9. In a bale-tying mechanism, means for holding one end of the tie-wire, a needle to insert and hold the other end over the first-named end, the same being cut out somewhat on its rear and under surfaces, the pliers slidably mounted at such an angle that they will pass under the needle at the cut-out portion and over the inner strand of wire held by the needle and catch the first-named end of the wire.

10. A bale-tier comprising a front framework having a holding-block and a cutting-block with a recess between them, the cutting-block being lower than the holding-block, a jaw whose thickness is less than the width of the recess so pivoted in such frame as to closely engage the cutting-jaw, a rear frame or block centrally hollowed out having a horizontal slot on the side adjacent to the bale-press and rounded at the end adjacent to the first-named frame, a disk or wheel rotatably mounted on the rounded portion of such frame and radially slotted from the center to the circumference, a guideway provided on the front face of such disk, sliding bevel-faced heads mounted in the guideway, one head having a spur and the other a socket to receive the spur when the heads meet, a sliding collar mounted on the rounded portion of the frame behind the disk, a bell-crank connection between the collar and the sliding heads whereby the latter are reciprocated, pliers mounted in an inclined guideway in the rear frame and adapted to be moved through the disk, and a needle grooved about its end and cut out on its inner and under faces that move in a plane above the pliers, and a cutting and holding jaw, substantially as shown and described.

574,700. BALL-BEARING. WILLIAM AUBERLIN, Detroit, Mich., assignor of one-half to Frank W. Weyher and Frederick C. Weyher, same place. Filed Apr. 7, 1896. Serial No. 586,522. (No model.)



Claim.—1. The combination with a tube forming a fixed or integral part of the bicycle and having an oil-aperture formed therethrough, of a bearing-tube removably secured in said fixed tube and provided with an exterior annular groove, with perforations at one or more points therein through the tube, said groove being adapted to register with the oil-aperture in the fixed tube and forming an oil-channel to the bearing and balls in the removable tube.

2. The combination with the tube A forming an integral part of the bicycle and having an oil-aperture formed therethrough, of the bearing-tube B removably secured within the tube A and provided with the annular groove *e* and perforations *f*, said groove adapted to register with said oil-aperture in the tube A and forming an oil-channel to the bearing and balls in the bearing-tube.

3. The combination with the tube A forming an integral part of the bicycle of the bearing-tube B and adapted to fit within the tube A having the annular flange *a* at one end, the screw-threaded portion *b* at the other end and an annular groove *c* formed exteriorly therein with perforations *f* through the tube, said group being adapted to register with an oil-hole in the tube A and forming an oil-channel to the bearing, the clamping-nut *c* engaged with the screw-threaded portion *b* of the tube and balls in the bearing-tube.

4. The combination with the tube A forming an integral part of the bicycle, of a bearing removably secured therein and comprising the tube B having the annular flange *a*, the screw-threaded portion *b*, the annular grooves *c* provided with the perforations *f* and registering with oil-apertures in the tube A, the cones D and D′ on the shaft E′ fitting within the ends of the tube B, the clamping-nut *c* engaging with the screw-threaded portion *b* and balls in the tube B.

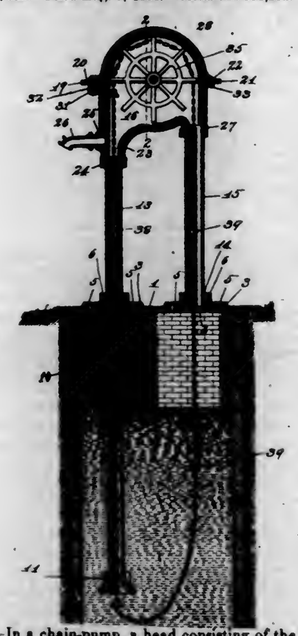
5. The combination of a tube A, a bearing removably secured therein and comprising a tube B having an annular flange at one end, a screw-threaded portion at the opposite end, the clamping-nut *c* on the screw-threaded portion, the shaft, the cones D and D′ thereon fitted within the ends of the tube B, and balls fitted between the tube B and the cones, substantially as described.

574,701. AIR-VALVE. LUCIEN BARNES, Sr., and CHARLES O. BARNES, Buffalo, N. Y. Filed July 9, 1896. Serial No. 598,563. (No model.)



Claim.—A valve comprising a screw-threaded case provided with an air-passage and a suitable attaching device, a sleeve thereon and provided with a diaphragm forming an outer and an inner compartment and provided with an air-passage over or around said diaphragm connecting said compartments and communicating with the aforesaid air-passage, said sleeve being movable longitudinally to open and close said communication, as set forth and shown.

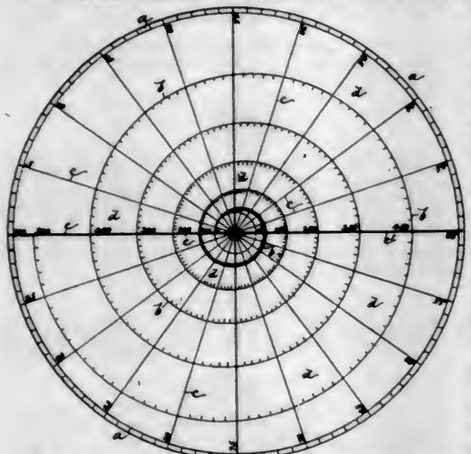
574,702. PUMP. CHARLES D. BENNETT and WILLIAM M. DALY, Kirkwood, Mo. Filed Aug. 5, 1895. Serial No. 558,252. (No model.)



Claim.—In a chain-pump, a head consisting of the metallic casing 16, the flange 17 extending around the outer surface and upper edge of said casing, said casing also having the cut-away portion 18 extending around the inner face of its upper edge and inside of the flange 17, the lug 19 extending laterally from the flange 17 at one end of said casing, the lug 21 extending laterally from said lug at the opposite end of said casing, said lugs being vertically perforated, the hollow arm 23 extending downwardly from said casing from the side to which the lug 19 is attached, the lower end of said arm being interiorly screw-threaded, the pump-spout 26 screw-seated in the upper outer side of said hollow arm 23, the interiorly-screw-threaded annu-

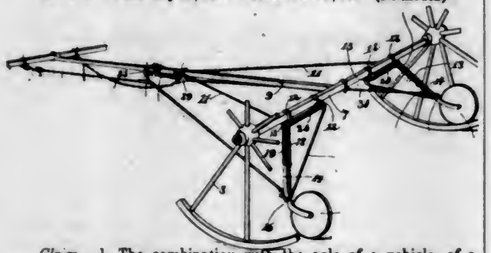
lar flange 27 depending from the end of said casing opposite to the hollow arm 23, the upper end of said flange 27 being slightly above the plane of the pump-spout 26 and there being a wall formed by the lower side of the casing 16 extending from the upper edge of said flange 27 to the upper edge of the hollow arm 23, said wall sloping slightly toward the pump-spout, the metallic cap 28 designed to fit upon the upper edge of the casing 16, the tongue 30 depending from the lower inner edge of said cap and fitting in the cut-away portion 18, the lug 31 depending from the front end of said cap and designed to fit in the aperture in the lug 19, said lug 31 being horizontally perforated below said lug 19, the hook-shaped lug 33 depending from the rear end of said cap and designed to engage in the aperture in said lug 21, there being horizontally-alined bearings transversely of said casing and between its upper edge and the lower edge of the cap and approximately in the longitudinal center thereof, substantially as herein specified.

574,703. CHRONOLOGICAL SKELETON CHART. JACOB BLOCH, Portland, Oreg. Filed May 8, 1896. Serial No. 590,772. (No model.)



Claim.—A chronological skeleton chart, comprising a sheet of paper or like material having thereon a spherical area traversed by the spiral line *b* and the radial lines *c*, subdividing such area into the spaces *d* beginning at the center, and gradually increasing in size, the peripheral lines being decimally graduated throughout, substantially as described.

574,704. VEHICLE RUNNING-GEAR. ARCHIE D. BLODGETT, Berlin, N. H. Filed May 22, 1896. Serial No. 592,526. (No model.)



Claim.—1. The combination with the axle of a vehicle, of a transverse shaft rockably mounted on the axle, a second shaft revolubly connected with the rock-shaft and extending at right angles thereto, means for normally holding the second shaft upward, a caster carried by the second shaft, and a draft-rod connected with the second shaft and capable of drawing the same downward to engage the caster with the ground, substantially as described.

2. The combination with the front and rear axles of a vehicle, of a rock-shaft held by the rear axle, a second shaft revolubly connected with the rock-shaft, means for normally holding the second shaft upward, a caster carried by the second shaft, and a connection between the second shaft and the front axle, by which the second shaft may be lowered to engage the caster with the ground, substantially as described.

3. The combination with a vehicle having a front and rear axle, of a shaft pivotally connected with the rear axle, a caster carried by the shaft, a spring normally lifting the shaft, and a connection between the shaft and the front axle, substantially as described.

4. The combination with a vehicle having a front and rear axle and a reach connecting the axles, of a rock-shaft held by the rear axle, a second shaft pivotally connected to the rock-shaft and extending outwardly therefrom, means for normally raising the second shaft, a caster carried by the second shaft, a slide held on the reach, a rod connecting the second shaft and slide, and a connection between the slide and front axle, substantially as described.

5. The combination with a vehicle having a front and rear axle and a reach connecting the axles, of a shaft pivotally carried by the rear axle, a caster held by the shaft, means for normally lifting the shaft, a slide longitudinally movable on the reach, a rod connecting the shaft and the slide, and a connection between the slide and the front axle, substantially as described.

6. The combination with a vehicle having a front and rear axle and a reach connecting the axles, of a shaft pivotally carried by the rear axle, means for normally lifting the shaft, a caster carried by the shaft, a rod connected to the shaft, a guide-plate held beneath the reach, a slide movable on the guide-plate and connected to the rod, and a connection between the slide and the front axle, substantially as described.

7. The combination with a vehicle having a front and rear axle and a reach connecting the axles, of a guide-plate held beneath the reach, a slide movable on each edge of the guide-plate, a rod connected to each slide, a connection between each slide and the front axle, two shafts pivotally carried by the rear axle and respectively connected to the rods, means for normally lifting the shafts, and a caster carried by each shaft, substantially as described.

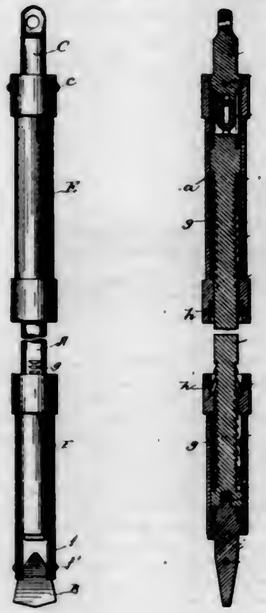
8. The combination with a support, of a shaft connected thereto and capable of having swinging and axial movement, the shaft having a crank, and a spring-arm formed with a loop receiving the crank, substantially as described.

9. The combination with a support, of a shaft having axial movement thereon, the shaft being formed with a crank, and a spring-arm having a loop receiving the crank, substantially as described.

10. The combination with an axle, of a rock-shaft carried by the axle, a second shaft revolubly connected with the rock-shaft and formed with a crank, and an arm carried by the axle and provided with a loop receiving the crank of the second shaft, substantially as described.

11. The combination of a rock-shaft, bearings for the rock-shaft, a second shaft having revoluble connection with the rock-shaft, a caster carried by the second shaft, means for raising the second shaft, and a rod connected to the second shaft and capable of drawing the same downward, substantially as described.

574,705. OIL-WELL TOOL. MAX BLUMENTHAL and HERBERT KIETZ, Sharpsburg, Pa. Filed Feb. 15, 1896. Serial No. 579,451. (Model.)



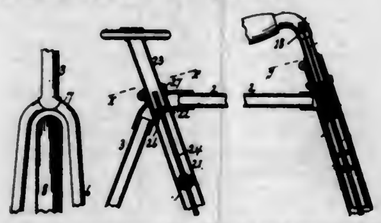
Claim.—1. In an oil-well drill, the combination with the stem and a member connected thereto, said stem having an exterior shoulder near the joint with the member, of a casing inclosing said joint and secured at one end to the member and provided with an interior shoulder near its free end to engage the shoulder on the stem in the event of a break at the joint, substantially as and for the purpose specified.

2. In an oil-well drill, the combination with the stem and a member connected thereto, said stem being provided with teeth, of a casing connected to the member and extending over the joint between the member and stem, devices on the stem and casing to lock them together in the event of a break at said joint, and a pawl on the casing to engage the teeth on the stem, substantially as and for the purpose specified.

3. In an oil-well drill, the combination with the stem, the rope-socket and the jars, of a casing connected to the rope-socket and extending over the stem below the jars, said casing being free to have a reciprocating movement on the stem equal to the play of the jars, and devices on the casing and stem to lock them together in the event of a break at said jars, substantially as and for the purpose specified.

4. In an oil-well drill, the combination with the stem, the rope-socket and the jars, said stem having teeth below the jars, of a casing connected to the rope-socket and extending over the stem below the jars, said casing being free to have a reciprocating movement on the stem equal to the play of the jars, devices on the stem and casing to lock them together in the event of a break at said jars, and a pawl on the casing to engage the teeth on the stem when the jars break and permit upward but prevent downward movement of the casing on the stem, substantially as and for the purpose specified.

574,706. VELOCIPEDE. JULIUS BONNER, New York, N. Y. Filed June 18, 1896. Serial No. 596,031. (No model.)



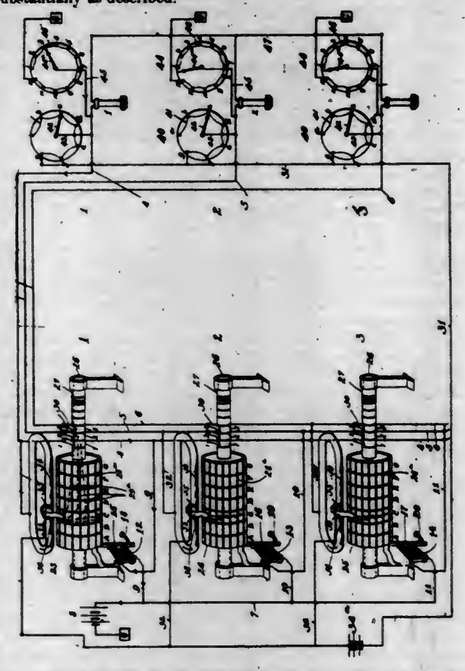
Claim.—A steering-tube and handle-tube each provided with non-circular eyes or diaphragms, a non-circular or non-rotary stem slipped through or fitted into said eyes to secure the tubes non-rotatively to one another, and an adjusting-screw for the handle-tube made to engage said non-rotary shaft substantially as described.

574,707. AUTOMATIC TELEPHONE-EXCHANGE SYSTEM. LAWRENCE G. BOWMAN, New York, N. Y. Filed July 18, 1896. Serial No. 599,721. (No model.)

Claim.—1. An automatic telephone system comprising a plurality of subscribers' lines and a central office, having a revoluble drum for each of said lines, said drums being provided each with peripheral contact-plates corresponding in number to the subscribers' lines, connections between the subscribers' lines and their respective contact-plates on the drum and a second connection from each subscriber's line to its respective drum and means for moving said connection relative to the drum to engage the contact-plates thereof successively and cut its line into circuit with a second line, substantially as described.

2. In an automatic telephone system the combination of a plurality of subscribers' lines and a central office provided with a revoluble drum for each line, peripheral series of contact-plates on each of said drums corresponding in number to and having connections with their respective subscribers' lines, a contact for each drum in electrical connection with its respective subscriber's line, means for shifting said contact with respect to the drum and means for revolving each drum to cause the plates of a series to engage successively with said contact and cut the line of the latter into circuit with a second subscriber's line, substantially as described.

3. An automatic telephone-exchange system comprising a plurality of subscribers' lines and a central office provided with a series of revoluble drums, one for each subscriber's line, a plurality of peripheral series of contact-plates on each drum, each plate being in electrical connection with a corresponding subscriber's line, a contact-point in electrical connection with each subscriber's line, means for moving the drum relative to said contact-point to cause engagement of the latter with the contact-plates of a series successively and means for shifting said contact-point to engage a different series of plates, substantially as described.



4. In an automatic telephone-exchange system, the combination with a plurality of subscribers' lines, of a central station provided with a revoluble drum for each subscriber's line, a plurality of peripheral series of contact-plates on each drum in connection with their respective subscribers' lines, a contact-point in electrical connection with each subscriber's line and adapted to successively engage the contact-plates on its respective drum, means operated from each subscriber's station for moving the drum relative to said contact-point and means operated from each subscriber's line for shifting its respective contact-point relative to the drum and cut its respective line into circuit with a second line, substantially as specified.

5. A system of the class described, comprising a plurality of subscribers' lines and a central station, the latter containing a revoluble drum for each subscriber's line, a plurality of peripheral series of contact-plates on each of said drums, in electrical connection with their respective subscriber's line, a contact-point for each drum in electrical connection with its respective subscriber's line, electromechanical means, operating from each subscriber's station, for moving each drum relative to its contact-point, a source of electricity of given potential, adapted to energize said means, and electromechanical means also operated from each subscriber's station for moving said respective contact-point relative to its drum, said means being energized from a source of electricity having a different potential from the aforesaid source, substantially as described.

6. A system of the class described, comprising a plurality of subscribers' lines and a central station, the latter containing a revoluble drum for each subscriber's line, a plurality of peripheral series of contact-plates on each of said drums, in electrical connection with their respective subscriber's line, a contact-point for each drum in electrical connection with its respective subscriber's line, electromechanical means for moving each drum relative to its contact-point, a source of electricity of given potential adapted to energize said means, and electromechanical means for moving its respective contact-point relative to its drum, said means being energized from a source of electricity having a different potential from the aforesaid source, substantially as described.

7. An automatic telephone system comprising a plurality of subscribers' lines and a central office, having a revoluble drum for each of said lines, said drums being provided each with peripheral contact-plates corresponding in number to the subscribers' lines, connections between the subscribers' lines and their respective contact-plates on the drum and a second connection from each subscriber's line to its respective drum, electromechanical means for moving said connection relative to the drum to engage the contact-plates thereof successively and cut its line into circuit with a second line, and means located at each subscriber's station in electrical connection with its respective

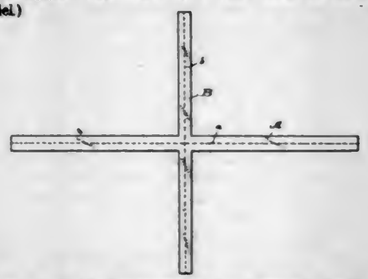
electromechanical means for operating the latter, substantially as described.

8. In an automatic telephone system the combination of a plurality of subscribers' lines and a central office provided with a revoluble drum for each line, peripheral series of contact-plates on each of said drums corresponding in number to and having connections with their respective subscribers' lines, a contact for each drum in electrical connection with its respective subscriber's line, means for shifting said contact with respect to the drum, electromechanical means for revolving each drum to cause the plates of a series to engage successively with said contact and cut the line of the latter into circuit with a second subscriber's line, and means located at each subscriber's station for electrical connection with its respective electromechanical means for operating the latter, substantially as described.

9. An automatic telephone-exchange system comprising a plurality of subscribers' lines and a central office provided with a series of revoluble drums, one for each subscriber's line, a plurality of peripheral series of contact-plates on each drum, each plate being in electrical connection with a corresponding subscriber's line, a contact-point in electrical connection with each subscriber's line, means for moving the drum relative to said contact-point to cause engagement of the latter with the contact-plates of a series successively, electromechanical means for shifting said contact-point to engage a different series of plates, and means located at each subscriber's station for electrical connection with its respective electromechanical means for operating the latter, substantially as described.

10. An automatic telephone-exchange system comprising a plurality of subscribers' lines and a central office provided with a series of revoluble drums, one for each subscriber's line, a plurality of peripheral series of contact-plates on each drum, each plate being in electrical connection with the corresponding subscriber's line, a contact-point in electrical connection with each subscriber's line, electromechanical means for moving the drum relative to said contact-point to cause the plates of the series to successively engage said point, means located at each subscriber's substation for operating its respective electromechanical means, and in electrical connection therewith, electromechanical means for shifting said contact-points to engage a different series of plates and means located at each subscriber's station for operating its respective shifting means, substantially as described.

574,708. METHOD OF MAKING SQUARES. FRANKLIN B. BRADLEY, Bridgeport, Conn. Filed Apr. 6, 1896. Serial No. 586,297. (No model.)

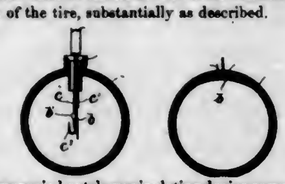


Claim.—1. The improvement in the art of making squares which consists in taking one or more blanks of suitable size to form the long arms of a plurality of squares, taking a blank or blanks of suitable shape and size to form the short arms of a plurality of squares, welding or brazing said blanks together at right angles to each other and then separating the compound blank into independent squares.

2. The improvement in the art of making squares which consists in taking one or more blanks of suitable length to form the long arms of two squares lying end to end and of suitable width to form the long arms of one or more squares lying side by side, taking one or more blanks of suitable length to form the short arms of two squares lying end to end and of suitable width to form the short arms of one or more squares lying side by side, placing said blanks across each other at right angles, then welding the blanks under heat into one compound blank and then separating the compound blank into four complete squares.

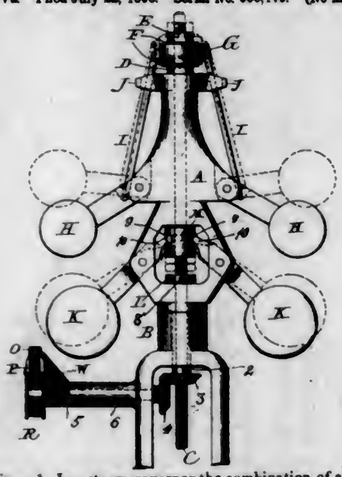
574,709. MEANS FOR REPAIRING PNEUMATIC TIRES. JAS. H. CALKINS, Wakefield, Mass. Filed May 14, 1896. Serial No. 591,470. (No model.)

Claim.—1. A tire-repairing means comprising a centrally-thickened patch formed to fit the inner surface of the tire around a puncture therein, and a patch-manipulating device comprising two clamping members formed to embrace the patch, one of said members having a perforating-hook adapted to penetrate the thickened central portion of the patch, so that the said thickened portion may be transferred to the body portion of the said hooked member and held by the clamp while the patch is being forced through the puncture, and then transferred back to the hook and drawn outwardly against the inner surface of the tire, substantially as described.



2. The improved patch-manipulating device comprising two slender elongated clamping members suitably connected at their outer ends, the inner end of one of said members being extended beyond the inner end of the other member and provided with a penetrating-hook.

574,710. STEAM-GOVERNOR. WARREN R. CARMICHAEL, Le Roy, W. Va. Filed July 22, 1896. Serial No. 600,179. (No model.)



Claim.—1. In a steam-governor the combination of a tree A, the lower end of which is situated in the casing, B; the said casing, B; a shaft, C, passing through the tree, A, and the casing, B; a pinion keyed to the lower end of the said tree, A, and revolving therewith; a band, G, loosely mounted on the upper end of the shaft, C; governor-balls, H H, pivoted by means of arms to said tree, A; rods, I, attached to the band, G, and the said arms; screw-nuts, D and E situate on each side of band, G, and on the upper end of the shaft, C; a sliding drum, M, slots on each side thereof; a second pair of governor-balls pivoted by means of arms to said tree, A, the ends of the said arms fitting in the said slots; a plate, L, keyed to the shaft, C; a gear, 4, keyed to the inner end of the shaft, 5, journaled in arm, 6; said arm, 6; a band-wheel, R, substantially as set forth.

2. In the herein-described device, the combination of a tree, A, revolving in casing, B; a tubular arm, 6, formed integrally with the casing, B; a shaft, 5, journaled in said arm; a gear, 4, keyed to the inner end of the said shaft; a band-wheel, R, keyed to the other end of the said shaft, 5; a crane-neck, O; said crane-neck, O, adapted to fall upon band-wheel, R; a roller, P, in the bifurcated end of the said crane-neck, O; a shoulder, *q*, over pivoted end of said crane-neck, O, substantially as set forth.

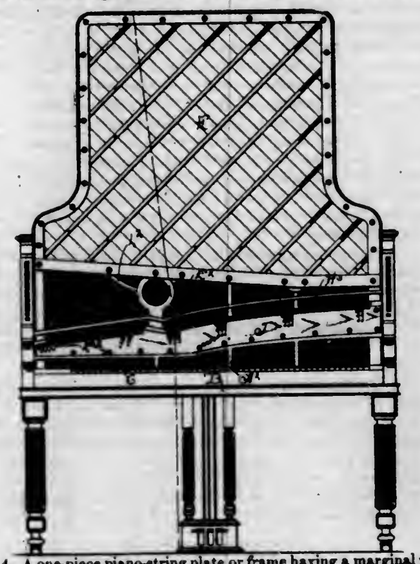
574,711. PIANO. JAMES F. CONOVER, Chicago, Ill. Filed Feb. 10, 1896. Serial No. 578,720. (No model.)

Claim.—1. A piano-string plate or frame having a broad marginal web or band perpendicular to the general plane of the frame, hitch-bars and curved braces integrally connecting the web and hitch-bars, substantially as and for the purpose set forth.

2. A one-piece, cast, piano-string plate or frame having a broad marginal web or band perpendicular to the general plane of the frame, and extending beyond each side or face thereof, hitch-bars and curved braces extending laterally from each side of the latter to connect them integrally with the corresponding portions of the web or band.

3. A one-piece, cast, piano-string plate or frame having a marginal web or band perpendicular to the general plane of the frame.

hitch-bars and braces connecting the latter to said web, each of said braces having a sinuous or curved portion adapted to yield slightly and thus relieve the great strain due to cooling contraction in casting.



4. A one-piece piano-string plate or frame having a marginal web or band perpendicular to the plane of the frame as a whole, hitch-bars extending across the plate or frame, braces connecting the web and hitch-bars and rings intersecting said braces whereby said rings are adapted to yield in the cooling of the casting to relieve artificial strain.

5. The combination with a key-bed, of a string plate or frame and a sounding-board, both arranged above the bed, a manual keyboard, keys mounted above the bed and passing beneath said plate or frame and sounding-board; and hammers arranged to be operated by said keys.

6. The combination with a key-bed, of a string plate or frame and a sounding-board, both arranged above the bed, a manual keyboard, keys mounted above the bed and passing beneath said plate or frame and sounding-board and an action with which the keys are directly connected.

7. The combination with a key-bed, of a string plate or frame and a sounding-board, both arranged above the key-bed, a manual keyboard, keys mounted above the bed and passing beneath said plate or frame and sounding-board and hammers arranged to be operated by said keys and to strike forwardly.

8. The combination with the key-bed, of a broad marginal web or band of inverted-U shape, which is perpendicular to the general plane of the frame, having its ends fixed upon the bed and projecting upwardly from said bed, hitch-bars and suitable braces connecting the hitch-bars to the web the whole being cast in a single-piece.

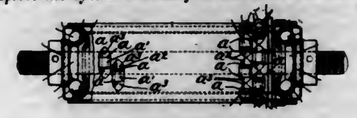
9. The combination with the key-bed, of a broad marginal web or band of inverted-U shape, which is perpendicular to the general plane of the frame, having its ends fixed upon the said key-bed and extending vertically upward therefrom, hitch-bars, braces extending from the hitch-bars to the web or band and cast integrally with both and a sounding-board parallel to the plane of the frame and fixed to the marginal portion of said web or band.

10. The combination with the key-bed of a one-piece, cast, string plate or frame having a broad marginal U-shaped web or band perpendicular to the general plane of the frame and having its ends fixed to the bed, hitch-bars and braces supporting the hitch-bars from said web or band, said braces having curved portions adapted to relieve artificial strain of the plate or frame by changing their curvature in the cooling of the casting.

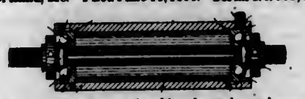
11. A string plate or frame consisting of a marginal web or band perpendicular to the plane of the plate or frame as a whole, wrest-plank bars, hitch-bars, and a network of braces connecting the hitch-bars to the web and wrest-plank bars and having curved portions between their points of attachment adapted to change their curvature and thus relieve artificial strain due to contraction in the cooling of the casting.

574,712. WHEEL FOR VEHICLES. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed June 12, 1896. Serial No. 595,261. (No model.)

Claim.—A hub for a wheel having a barrel with longitudinal slits and the strips between the slits expanded outwardly to form eyes, the metal of the barrel on each side of each strip being punched inwardly to complete the eye, substantially as shown and described.



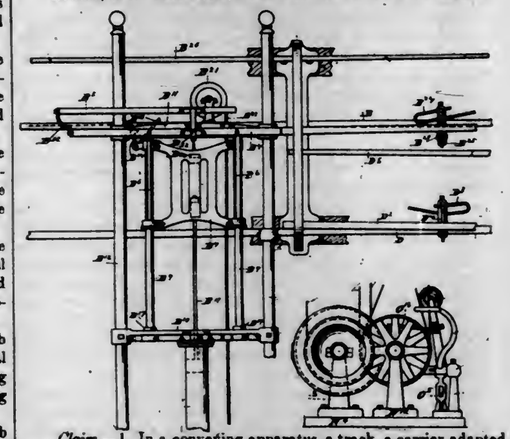
574,713. WHEEL FOR VEHICLES. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed June 16, 1896. Serial No. 595,764. (No model.)



Claim.—1. A hub for a wheel having a barrel provided with holes and studs inserted through said holes from the inside, each of said studs having a head or projection to engage the barrel and an eye for engagement with a spoke, and a sleeve within said barrel to support said studs, substantially as shown and described.

2. A hub for a wheel having a barrel provided with holes and studs inserted through said holes from the inside, each of said studs having a head or projection to engage the barrel and an eye for engagement with a spoke, said barrel having a series of holes and studs at each end, a sleeve within said barrel to support both series of studs, and bearing-cases secured in the ends of said barrel against the ends of said sleeve, substantially as shown and described.

574,714. CONVEYING APPARATUS. JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Feb. 6, 1895. Serial No. 537,504. (No model.)



Claim.—1. In a conveying apparatus, a track, a carrier adapted to travel on said track, an elevator movable with relation to said track for receiving the carrier from the track, mechanism for moving said elevator, and means whereby said mechanism is actuated by the carrier passing on to said elevator.

2. In a conveying apparatus, an upper and a lower track, a carrier adapted to travel on said tracks, an elevator for receiving the carrier from one track and for transferring it to the other track, mechanism for moving said elevator, and means whereby said mechanism is actuated by the carrier passing on to said elevator.

3. In a conveying apparatus, an upper and a lower track, a carrier adapted to travel on said tracks, an elevator for receiving the carrier from one track and for transferring the same to the other track, mechanism for moving the elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator from one track, and means operated by the movement of the elevator to stop the moving mechanism when the elevator has reached the other track.

4. In a conveying apparatus, an upper and a lower track, a carrier adapted to travel on said tracks, an elevator for receiving the carrier from one track and for transferring the same to the other track, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator from one track, and means for stopping said moving mechanism when the elevator reaches the other track.

5. In a conveying apparatus, an upper and a lower track, a carrier adapted to travel on said tracks, an elevator for receiving the carrier from the lower track, mechanism for moving the said elevator to transfer said carrier to the upper track, means whereby said mechanism is actuated by the carrier passing on to said elevator, and mechanism operated by the upward movement of the elevator to stop the moving mechanism when the elevator reaches the upper track.

6. In a conveying apparatus, a track, a carrier adapted to travel thereon, a station located at a different height from said track, an elevator normally located in line with said track for receiving the carrier from the track and for transferring the same to the said station, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator, and mechanism for stopping said moving mechanism when the elevator reaches said station.

7. In a conveying apparatus, a track, a carrier adapted to travel thereon, a station located at a different height from said track, an elevator normally located in line with said track for receiving the carrier from the track and for transferring the same to the said station, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator, and mechanism operated by the movement of the elevator to stop the moving mechanism when the elevator reaches said station.

8. In a conveying apparatus, a forwarding and a return track, a carrier adapted to travel on said tracks, a station located at a different vertical height from said tracks, an elevator normally in line with the forwarding-track to receive the carrier and adapted to transfer said carrier to the said station and to the said return-track, mechanism for moving said elevator, and means whereby said mechanism is actuated by the carrier passing on to said elevator.

9. In a conveying apparatus, a forwarding and a return track, a carrier adapted to travel on said tracks, a station located at a different vertical height from the forwarding-track, an elevator normally in line with the forwarding-track to receive the carrier and adapted to transfer said carrier to said station and to the said return-track, mechanism for moving said elevator, and means whereby said mechanism is actuated by the carrier passing on to said elevator.

10. In a conveying apparatus, a forwarding and a return track, a carrier adapted to travel on said tracks, a station located at a different vertical height from the forwarding-track, an elevator normally in line with the forwarding-track to receive the carrier and adapted to transfer said carrier to said station and to the said return-track, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator, and means for holding said elevator in alinement with said station and adapted to be actuated to release said elevator as the carrier passes from said station back on to said elevator.

11. In a conveying apparatus, a forwarding and a return track, a carrier adapted to travel on said tracks, a station located at a different vertical height from the forwarding-track, an elevator normally in line with the forwarding-track to receive the carrier and adapted to transfer said carrier to said station and to the said return-track, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator, and means for holding said elevator in alinement with said return-track and adapted to be actuated to release said elevator as said carrier passes on to said return-track.

12. In a conveying apparatus, a forwarding and a return track, a carrier adapted to travel on said tracks, a station located at a different vertical height from the forwarding-track, an elevator normally in line with the forwarding-track to receive the carrier and adapted to transfer said carrier to said station and to the said return-track, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator, and means for holding said elevator in alinement with said return-track and adapted to release said elevator as said carrier passes on to said return-track.

13. In a conveying apparatus, a forwarding-track, a return-track, a carrier adapted to travel on said tracks, a station located at different vertical heights from said tracks, an elevator normally in line with the forwarding-track to receive the carrier and adapted to transfer the carrier to the said station and to said return-track, and means for holding said elevator in alinement with said return-track and adapted to be released by the movement of the carrier after it has passed on to the return-track.

14. In a conveying apparatus, a forwarding-track, a return-track, a carrier adapted to travel on said tracks, an elevator for receiving the carrier from the forwarding-track and for conveying it to the return-track, mechanism for moving said elevator, and means whereby said mechanism is actuated by the carrier passing on to said elevator.

15. In a conveying apparatus, a forwarding-track, a return-track, a carrier adapted to travel on said tracks, an elevator for receiving the carrier from the forwarding-track and for conveying it to the return-track, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to the said elevator, and means for holding said elevator in alinement with said return-track and adapted to release said elevator as the carrier passes on to the said return-track.

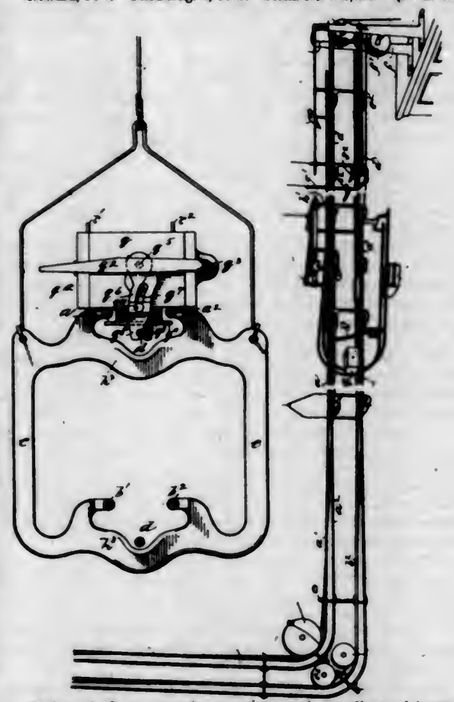
16. In a conveying apparatus, an upper and a lower track, a carrier adapted to travel on said tracks, an elevator for receiving the carrier from one track and for transferring it to the other track, mechanism for moving said elevator, means whereby said mechanism is actuated by the carrier passing on to said elevator, and a governing device for regulating the descent of the said elevator.

17. In a conveying apparatus, a motor-cable, a track, a carrier adapted to travel on said track and provided with a gripping device by which the carrier is engaged with the cable, said gripping device consisting of two movable jaws between which the cable is gripped, each having a slot in which is located a fixed pin on which the said jaws are adapted to move, and means for moving said jaws to open and close the same.

18. In a conveying apparatus, a motor-cable, a track, a carrier adapted to travel on said track and provided with a gripping device by which the carrier is engaged with the cable, said gripping device consisting of two movable jaws between which the cable is gripped, each loosely mounted on a fixed shaft and provided with a slot in which is located a pin on which the said jaws are adapted to move, and means for moving said jaws to open and close the same.

19. In a conveying apparatus, a motor-cable, a track, a carrier adapted to travel on said track and provided with a gripping device by which the carrier is engaged with the cable, said gripping device consisting of two movable jaws between which the cable is gripped, each having a slot in which is located a pin on which the said jaws are adapted to move, and a lever provided with a pin for each jaw adapted to move in a slot in each of said jaws and actuate the same upon the movement of said lever.

574,715. CONVEYING APPARATUS. JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Aug. 6, 1896. Serial No. 552,366. (No model.)



Claim.—1. In a conveying apparatus, a forwarding and a return track, carriers adapted to travel on said tracks, means for propelling said carriers, switching-guides at each station for diverting the carrier belonging to said station, means on each carrier for engaging said switching-guides, other guides at each station, and independent means on each carrier adapted to engage with said last-named guides for preventing the switching of a carrier belonging to a station beyond.

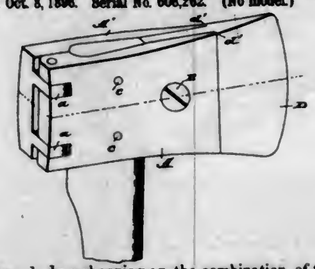
2. In a conveying apparatus, a forwarding and a return track, carriers adapted to travel on said tracks, a motor-cable for propelling said carriers, a cable-gripping mechanism on said carriers adapted to receive and grip the cable, means for attaching and automatically detaching said carriers from said cable, switching-guides at each station for diverting the carrier belonging to said station, means on each carrier for engaging said switching-guides, other guides at each station, and independent means on each carrier adapted to engage with said last-named guides for preventing the switching of a carrier belonging to a station beyond.

3. In a conveying apparatus, a forwarding and a return track, carriers adapted to travel on said tracks, a motor-cable for propelling said carriers, a cable-gripping mechanism on said carriers adapted to receive and grip the cable, means for attaching and automatically detaching said carriers from said cable, switching-guides at each station for diverting the carrier belonging to said station, a pin on each carrier for engaging said switching-guides, other guides at each station, and another pin on each carrier adapted to engage with said last-named guides for preventing the switching of carriers belonging to stations beyond.

4. In a conveying apparatus, a carrier provided with a cable-gripping mechanism consisting of a spring-controlled operating-lever and pendent gripping-jaws mounted on said lever and provided with irregular surfaces, and means engaging with said surfaces for guiding said jaws in their movements.

5. In a conveying apparatus, a carrier provided with a cable-gripping mechanism consisting of a spring-controlled operating-lever and pendent gripping-jaws mounted on said lever and each provided with an irregular slot, and a pin secured to said carrier and working in said slots and adapted to guide the said jaws in their movements.

574,716. CHOPPING-AX. JAMES G. CRAWFORD, Texarkana, Tex. Filed Oct. 8, 1896. Serial No. 608,262. (No model.)



Claim.—1. In a chopping-ax, the combination, of the sections A and A' hinged to each other at one end and providing a recess to receive the end of the handle, a boss formed on the inner side of one of said sections, a bit having a recess to receive the boss, and a screw let into a threaded aperture in the several parts, substantially as shown and described.

2. The combination in an ax, of the sections A and A' hinged to each other at one end and providing a recess to receive the end of the handle, pins projecting from the handle into apertures therefor in said sections, a boss formed on the inner side of one of the sections and provided with a threaded aperture, a bit or hardened section having a recess to receive said boss, and a screw passed through one of the sections to engage the threaded aperture of the boss, substantially as shown and for the purpose set forth.

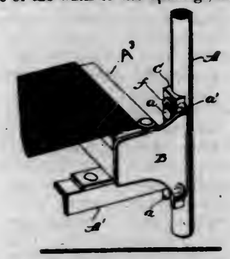
3. The combination in an ax, of the sections A and A' hinged to each other at one end and providing a recess to receive the end of the handle, a boss formed on the inner side of one of the sections and provided with a threaded aperture, a bit or hardened section having a recess to receive the boss said recess being positioned to lock the inner end of the bit in contact with the handle, transverse shoulders on the sides of the bit to engage the ends of the sections A and A'; together with a screw passed through one of the sections to engage the threaded aperture of the boss carried by the other section, substantially as shown and for the purpose set forth.

574,717. BEDSTEAD-SECURING DEVICE. MILTON L. CROSS, Philadelphia, Pa., assignor to John B. Bunting, same place. Filed Nov. 16, 1895. Serial No. 569,165. (No model.)

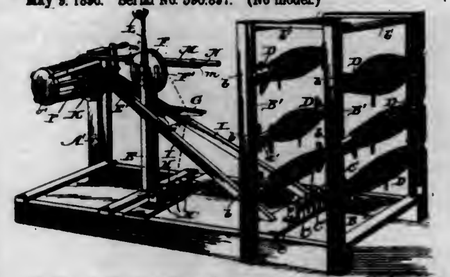
Claim.—1. In a bedstead-frame a round metal post, A, plate, C, having a concaved face, c, adapted to the convexed walls of the post, A, a protruding headed pin, a', secured in the post, A, orifice, O, in plate, C, having enlarged mouth, o, and inclined or converging wedge-shaped walls, w, wedge-shaped shoulder, f, provided upon the outer face of the plate, C, around the edges of the inclined walls, w, having its greatest thickness at or near the point of convergence diminishing to a minimum at or near the mouth portion, o, substantially as described.

2. The combination in a securing device for metallic bedstead,

of the vertical tube A, headed pins a', secured in the tube and projecting slightly therefrom, a side rail A', a vertically-disposed plate B, secured to said rail, a bar or plate C, secured to or formed integral with the plate B, and having a concaved face adapted to fit snugly against the tube A, openings O, in said plate C, said openings having enlarged lower mouths o for the reception of the headed pins, and inclined and converging side walls w, above the mouths to form wedge-shaped recesses, and wedge-shaped shoulders f, around the openings, said shoulders inclining from their minimum thickness around the enlarged mouths to the maximum thickness at or above the convergence of the walls of the openings, substantially as specified.



574,718. ROPE-REEL. JOHN B. CROWDER, Tuluosa, Ala. Filed May 9, 1896. Serial No. 590,897. (No model.)



Claim.—1. The supply-reel comprising a drum having one end longitudinally slotted, and a removable head having a cross-bolt to enter said slot from the end of the drum and provided with a clamping-nut, substantially as set forth.

2. The supply-reel comprising a drum having longitudinal slots in one end, and a removable two-part head having parallel connecting-bolts to enter said slots from the end of the drum and provided with clamping-nuts, substantially as set forth.

3. The tapering hanking-reel having a spring tongue or clamp attached thereto, said clamp having its free end pointing toward the smaller end of said reel as and for the purpose set forth.

4. The tapering hanking-reel formed of a large and a small disk or head, slats connecting said disks or heads, a shaft for said reel, and a spring tongue or clamp secured to the inside of one of said slats and lying directly in the same plane therewith, the free end of said tongue or clamp being pointed in the direction of said smaller disk or head, as set forth.

5. The tapering hank-reel formed of a large and a small disk or head, converging slats or bars connecting said disks or heads, a shaft for said reel, and a spring tongue or clamp secured to one of said slats or bars having its free end pointing toward said smaller disk or head, substantially as set forth.

6. The supply-reel comprising a slotted drum, an adjustable head adapted to enter said slots and means for binding said head therein, as set forth.

7. A rope-reel comprising a base, vertical parallel racks at one end thereof, a guide-roll mounted in bearings on said base at the lower ends of said racks, spacing-fingers for said roll, a standard located on said base near its opposite end, and provided with a forked upper end, a measuring-wheel mounted in said end, a second guide-roll mounted on said base at the foot of said standard, spacing-fingers adjacent said second roll, in alinement with said former fingers, inclined supporting-bars secured at their lower ends to said base, said bars converging to a point in rear of said standard, a hanking-reel supported by a standard at the end of said base opposite said vertical racks, and a cutter on said bars in rear of said measuring-wheel, as set forth.

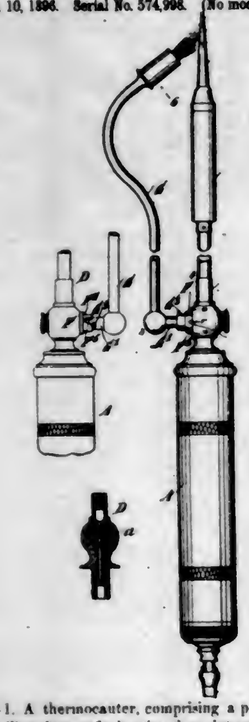
8. A rope-reel comprising a base, supply-reel racks at one end of said base, a standard on the end of said base opposite said supply-reel racks having a tapering hanking-reel located thereon, a second standard on said base between said ends, converging inclined supporting-bars secured at their lower ends to said base, and crossing

said latter standard, a cutter on the upper converged ends of said bars, a measuring-wheel mounted on said standard in horizontal alinement with said hanking-reel, guide-rolls located on said base, and a forked tension-arm projecting from said standard below said wheel, said arm being provided with a transverse adjusting-screw, substantially as set forth.

9. In a rope-reel, the combination with a base, and a supply-reel rack thereon; of a standard thereboyend, having a measuring-wheel mounted therein, an adjustable tension device projecting from said standard toward said supply-reel rack, horizontally-alined guide-rolls over which the rope passes in its course from said supply-reel rack to said measuring-wheel, a tapering hanking-reel in the rear of said measuring-wheel having a spring-clamp thereon, the free end of said clamp pointing toward the tapered end of said reel, and a cutter located between said hanking-reel and said measuring-wheel, substantially as set forth.

10. In a rope-reel, the combination with a base, a supply-reel rack, a hanking-reel, and a standard on said base between the two; of a grooved measuring-wheel mounted on said standard having an inclined cam on the side thereof, a spring hammer-arm projecting upwardly from said standard arranged to strike a gong by the operation of said cam, a horizontal support secured to said standard having guides thereon, a register-bar provided with spaced pins on its outer side, and adapted to slide in said guides, and an arm projecting from the axle of said measuring-wheel arranged to successively engage said pins when said wheel is turned, as and for the purpose set forth.

574,719. **THERMOCAUTER.** FRIEDRICH DRUHM, New York, N. Y. Filed Jan. 10, 1896. Serial No. 574,998. (No model.)



Claim.—1. A thermocauter, comprising a point and a gas-generator, an auxiliary burner for heating the point arranged to be swung into and out of operative position, a rigid gas connection between the auxiliary burner and the gas-generator, and a valve controlling said gas connection and controlled by the swinging of the auxiliary burner into and out of operative position, substantially as set forth.

2. In a thermocauter, the combination of a point adapted for use as a burner, a gas-generator, a rigid gas connection between the generator and the point, an auxiliary heating device for the burner arranged to be swung into and out of operative position, and a valve controlling the gas connection between the generator and the point and controlled by the swinging of said auxiliary burner into and out of operative position, substantially as set forth.

3. In a thermocauter, the combination of a gas-generator, a point adapted for use as a burner, a gas connection between the generator and the point, a valve-casing in the said connection, a valve mounted in the casing and controlling the flow of gas from the generator to the point, a rigid gas-pipe extending from the valve, passages formed in the valve adapted to communicate between said gas-pipe and the gas-generator when the valve is turned to cut off the flow of gas from the generator to the point, and an auxiliary burner carried on said gas-pipe and arranged to direct a flame against the point when the pipe stands in one position, said pipe being adapted when moved, to swing the burner out of operative position to turn the valve to cut off the flow of gas from the generator to said gas-pipe, and to open the communication between the generator and the point, substantially as set forth.

4. A thermocauter, comprising a gas-supply pipe, a hollow point supported thereon, an attenuated tube forming the terminal of said supply-pipe and extending into the hollow of said point, and a return-pipe connected with the point and arranged to surround said supply-pipe, substantially as set forth.

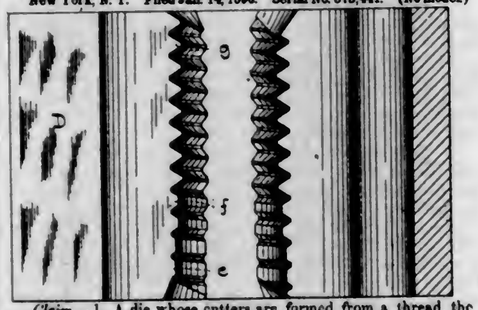
5. A thermocauter, comprising a supply-pipe, a hollow point supported thereon, an attenuated tube forming the terminal of said supply-pipe and extending into the hollow of said point, a return-pipe connected with the hollow of the point and surrounding the supply-pipe and provided with perforations, and a casing secured at one end to the burner and extending rearwardly therefrom, said casing being arranged to surround the return-pipe and having its rear end open, substantially as set forth.

574,720. **SAFETY-HOLDER FOR POCKET-BOOKS.** JOHN RHEINGREN, Lowell, Mass. Filed Apr. 2, 1896. Serial No. 585,897. (No model.)



Claim.—The combination with a pocket-book, of a safety-holder consisting of a holder-bar C extending across the back of the pocket-book and provided intermediate its ends with a finger-ring E, and a shank A formed in one piece with said holder-bar and disposed parallel thereto, the said shank being inserted between the leaves of the pocket-book and at its free end engaging a hook D formed on the end of the holder-bar C, substantially as described.

574,721. **THREAD-CUTTING IMPLEMENT.** CHARLES ELTERICH, New York, N. Y. Filed Jan. 14, 1896. Serial No. 575,441. (No model.)



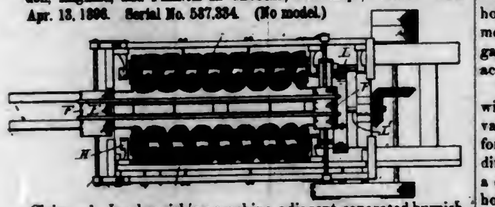
Claim.—1. A die whose cutters are formed from a thread, the base-line of which is substantially straight from bottom to top of said die; the top of the thread being cut away at the entering end and gradually increased by steps consisting of one or more substantially flat-top teeth to the finishing end, substantially as described.

2. A die whose cutters are formed from a thread, the base-line of which is substantially straight from bottom to top of said die; said thread having its top cut away at its entering end, but having its full width at the base-line, and said thread being gradually increased toward its apex by steps consisting of one or more substantially flat-top teeth, substantially as described.

3. A die whose cutters are formed from a thread, the base-line of which is substantially straight from bottom to top of said die, and having its top cut away at the entering end and gradually increased by steps of one or more substantially flat-top teeth; the backs of said teeth being cleared circumferentially backward and tapered from the clearance portion to the cutting edge, substantially as described.

4. A die provided with a cutting-thread of constant taper at its base-line; the top of the thread being cut away at the entering end and gradually increased by steps consisting of one or more substantially flat-top teeth to the finishing end, substantially as described.

574,722. **BURNISHING-MACHINE.** GUILLERMO A. FARINI, London, England, and FRANCIS X. GAUDRIE, Port Hope, Canada. Filed Apr. 13, 1896. Serial No. 587,334. (No model.)



Claim.—1. In a burnishing-machine, adjacent, separated burnishing devices, and an interposed feed, arranged to rotate the article while being fed.

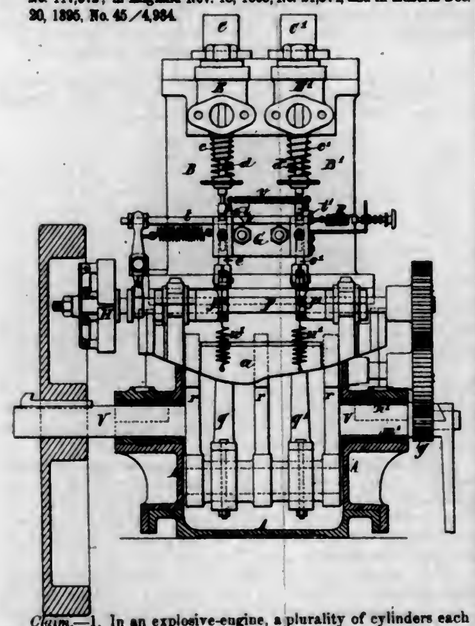
2. In a can-burnishing machine, adjacent, separated burnishing devices, an interposed table, a guide on which the can is fed, and a feed-belt traveling over the guideway and acting as a feed for the cans.

3. In a can-burnishing machine, the combination of horizontally, parallel separated, rotating burnishing-brushes, and an interposed feed device.

4. In a can-burnishing machine, the combination of two horizontal, parallel, separated, rotating, burnishing-brushes, having the teeth or bristles spirally arranged, means for rotating the brushes toward each other, and a feed for the cans between the brushes.

5. In a can-burnishing machine, the combination of adjacent separated burnishing devices, means for adjusting them in relation to each other and the interposed feed comprising a feed-belt, pulleys upon which the belt runs and a spring-backed support for the initial or entering pulley, substantially as described.

574,723. **GAS OR OIL ENGINE.** EUGÈNE FERNARD, Poissy, France. Filed Feb. 26, 1896. Serial No. 580,799. (No model.) Patented in France Apr. 13, 1895, No. 246,621; in Belgium Oct. 14, 1895, No. 117,872; in England Nov. 13, 1895, No. 21,574, and in Austria Dec. 20, 1895, No. 45/4,984.



Claim.—1. In an explosive-engine, a plurality of cylinders each provided with an exhaust-valve, a stem movable independently of the exhaust-valve stem and adapted to engage the same, operating mechanism for imparting a reciprocating motion to said independent stems at different times so as to open the exhaust-valves in regular succession, a click or pawl arranged to engage each of the independent stems to hold the same stationary and out of the path of said operating mechanism, a connection between said clicks, a governor actuated by the engine, and a shifting device controlled by the governor and operatively connected to the clicks, substantially as described.

2. In an explosive-engine, a plurality of cylinders each provided with an exhaust-valve, a stem movable independently of the exhaust-valve stem and adapted to engage the same, operating mechanism for imparting a reciprocating motion to said independent stems at different times so as to open the exhaust-valves in regular succession, a click or pawl arranged to engage each of the independent stems to hold the same stationary and out of the path of the said operating mechanism, a movable rod or bar carrying projections adapted to engage said clicks, and a governor controlling the position of said bar according to the speed of the engine, substantially as described.

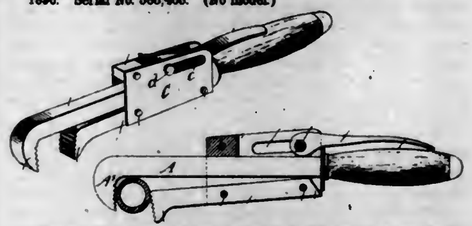
3. In an explosive-engine, a plurality of cylinders each provided with an exhaust-valve, a stem movable independently of the exhaust-valve stem and adapted to engage the same, operating mechanism for imparting a reciprocating motion to said independent stems at different times so as to open the exhaust-valves in regular succession, a click or pawl arranged to engage each of the independent stems to hold the same stationary and out of the path of the said operating mechanism, a movable rod or bar carrying projections adapted to engage said clicks at opposite sides, a spring connecting the clicks, and a governor controlling the position of said bar according to the speed of the engine, substantially as described.

4. In an explosive-engine, a cylinder having an inlet for the gas, vapor, or other fuel, said inlet being arranged approximately tangentially to the interior curved surface of the cylinder and oblique to the plane of the cylinder-head, substantially as described.

5. In an explosive-engine, a cylinder having an inlet for the gas, vapor, or other fuel, said inlet being arranged approximately tangentially to the interior curved surface of the cylinder, and an outlet likewise arranged tangentially to said surface, but out of line with the inlet, substantially as described.

6. In an explosive-engine, a cylinder provided with a spring-controlled valve, a rod driven from the engine and adapted to periodically actuate said valve, a click or pawl arranged to hold the valve open, independently of the action of said rod, and a governor controlling the position of the click or pawl according to the speed of the engine, substantially as described.

574,724. **WRENCH.** MURAT K. FLYE, Sharpsburg, Tex., assignor of one-half to Sidney Gail Borden, same place. Filed Mar. 16, 1896. Serial No. 583,408. (No model.)



Claim.—1. A wrench, comprising a fixed jaw, a movable jaw loosely mounted on the fixed jaw, and a clamping device for locking the movable jaw in position on the fixed jaw, said clamping device being adjustable longitudinally of the movable jaw and serving when in one position as fulcrum for said movable jaw, substantially as described.

2. A wrench, comprising a fixed jaw, a movable jaw loosely and slidably mounted on the fixed jaw, and a clamping device carried by the movable jaw for locking it in position on the fixed jaw, said clamping device having sliding movement and serving when in one position as a fulcrum for the movable jaw, whereby the said movable jaw may be locked rigid or to rock, substantially as described.

3. A wrench, comprising a fixed jaw, a movable jaw on the shank of the fixed jaw, and a longitudinally-adjustable device constituting in one position a rocking point for the movable jaw, substantially as and for the purpose set forth.

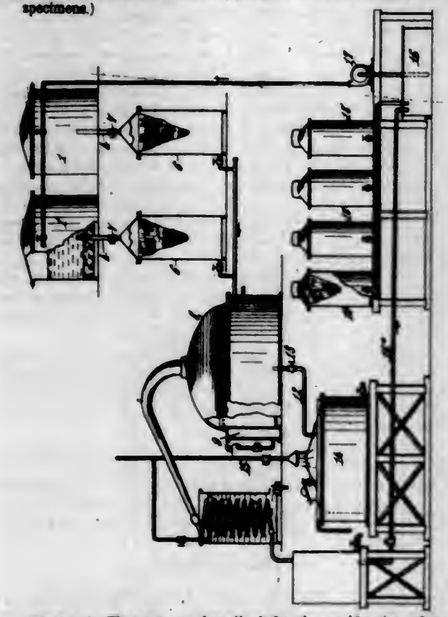
4. A wrench, comprising a fixed jaw, a movable jaw on the shank of the fixed jaw, and a device longitudinally adjustable along the movable jaw and independently thereof, said device constituting in one position a rocking point for the movable jaw, substantially as described.

5. A wrench having one of its jaws slidably and pivotally mounted and having a cam-lever for locking the said jaw in position, the cam-lever having also a sliding movement to adjust its position, substantially as described.

6. A wrench, comprising a fixed jaw, a yoke loosely mounted on the shank of the fixed jaw, a jaw secured to said yoke, and a cam-lever mounted to slide in longitudinal ways in the yoke, substantially as described.

7. A wrench, comprising a fixed jaw, a yoke loosely mounted on the shank of the fixed jaw and provided with longitudinal slots, a jaw rigidly secured to the yoke, a cam-lever, and a bolt passing through the cam-lever and slots of the yoke, substantially as described.

574,725. PROCESS OF PURIFYING CAMPHOR. JOSEPH R. FRANCE, New York, N. Y., assignor to the Arlington Manufacturing Company, same place. Filed Aug. 2, 1895. Serial No. 558,003. (No specimens.)



Claim.—1. The process described for the purification of crude camphor and its reduction to anhydrous, granular camphor crystals, said process consisting in dissolving crude camphor in a closed chamber in a solvent having a less specific gravity than water, withdrawing the solvent with the pure camphor in solution from off the stratum of water on which it floats in the dissolving-chamber, driving off the solvent and crystallizing the pure, anhydrous camphor held in solution by it, substantially as described.

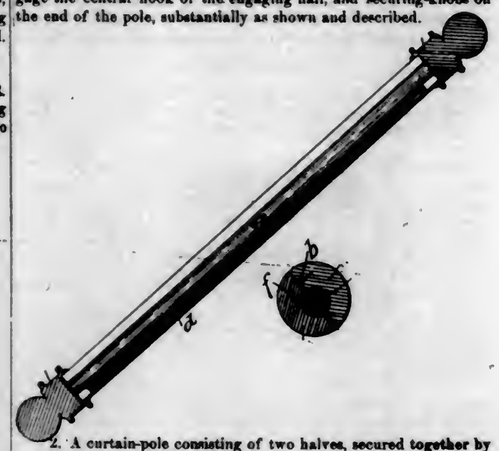
2. The process described for the purification of crude camphor and its reduction to anhydrous, granular camphor crystals, said process consisting in dissolving crude camphor in a closed chamber in a hydrocarbon, such as naphtha, having a less specific gravity than water, separating the solution of pure camphor by allowing it to float upon the stratum of water set free from the crude camphor by solution, withdrawing the supernatant solution to a closed filtering-chamber, and filtering the same, then separating the hydrocarbon solvent by distillation, and crystallizing the pure, anhydrous camphor remaining, substantially as described.

3. The process described for purifying crude camphor and reducing it to anhydrous, granular, camphor crystals, said process consisting in dissolving the pure from the crude camphor by a solvent of less specific gravity than water, separating the water set free by the crude camphor from the supernatant solution of pure camphor, driving off the solvent by distillation, and filtering the remaining concentrated solution to separate the remainder of the solvent from the granular mass of crystals of pure anhydrous camphor, substantially as described.

4. The process described for purifying crude camphor and reducing it to anhydrous, granular, camphor crystals, which consists in dissolving crude camphor in a hydrocarbon such as naphtha or other solvent having less specific gravity than water, separating the water yielded by the crude camphor from the supernatant solution of pure camphor by drawing off the latter, filtering said separated solution, driving off the solvent by distillation, crystallizing the pure anhydrous granular camphor, and separating any remaining solvent therefrom by filtering, substantially as described.

574,726. CURTAIN-POLE. CHRISTIAN A. FRANK, Braddock, Pa. Filed Sept. 19, 1896. Serial No. 606,364. (No model.)

Claim.—1. In a curtain-pole formed in two halves, each half grooved to form a hollow pole when together, hooks secured in one half, a rod supported by said hooks, a hook in the other half to engage the central hook of the engaging half, and securing-knobs on the end of the pole, substantially as shown and described.



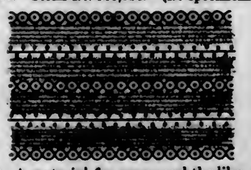
2. A curtain-pole consisting of two halves, secured together by end knobs, a chamfer on each half, hooks secured in one half, a rod supported in said hooks to hold the curtain and a fastening-hook in the opposite half, substantially as shown and described.

574,727. SASH-FASTENER. ALBERT M. FRASIER, Penn Station, Pa. Filed Apr. 1, 1896. Serial No. 585,685. (No model.)



Claim.—In a sash-holder and lock, the combination of the locking-bar pivotally secured in the casing and provided with a catch operating in a slot in said casing, a holder pivotally secured in the casing and provided with a corrugated engaging face and catch on the upper end, said holder and lock being retained in their normal positions by a triangular-shaped spring, substantially as shown and described.

574,728. COMPOSITION MATERIAL FOR SHIELDS. EDWARD C. GERSTENBERGER, Brooklyn, N. Y. Filed Oct. 11, 1895. Renewed June 1, 1896. Serial No. 593,920. (No specimens.)



Claim.—1. A material for armor and the like, consisting of alternate layers of fabrics, of which one layer consists of haircloth and the other layer comprises sheets of silesia with a minutely-divided substance between the sheets, substantially as shown and described.

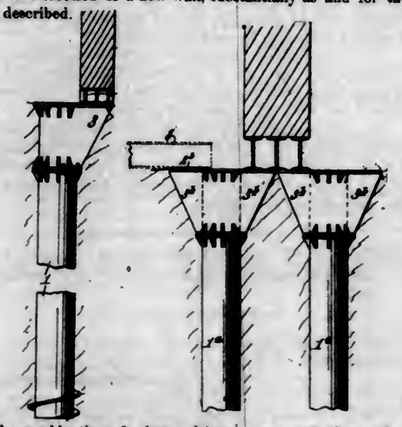
2. A material for armor and the like, consisting of alternate layers of fabrics, of which one layer consists of haircloth and the other layer comprises sheets of silesia with a minutely-divided substance between the sheets, the said substance being a mixture of alum and ground glass, substantially as shown and described.

3. A material for armor and the like, consisting of alternate layers of fabrics, of which one layer consists of haircloth and the other layer comprises sheets of silesia with a minutely-divided substance between the sheets, the said layers being firmly united with each other by the application of heat and pressure, substantially as shown and described.

4. A material for armor and the like, consisting of alternate layers of fabrics, of which one layer consists of haircloth and the other layer comprises sheets of silesia and a minutely-divided substance between the sheets, the layers of haircloth crossing one upon the other, substantially as shown and described.

574,729. CONSTRUCTION OF SUPPORTS FOR BUILDING-WALLS, &c. RICHARD S. GILLESPIE, New York, N. Y. Filed July 10, 1896. Serial No. 598,724. (No model.)

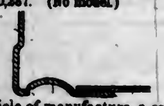
Claim.—1. A wall-support for an existing building-wall and the erection of an adjacent new building, consisting of a sectional, tubular column driven or sunk into the earth at one side of the existing wall and having its upper end composed of a separate attachable and detachable section constructed with a cantaliver or corbel and adapted to be attached after the main body of the sectional, tubular column is driven or sunk for the purpose of placing the cantaliver or corbel under the existing wall, so that the upper end of the attached section serves for the erection of a new wall, substantially as and for the purposes described.



2. The combination of columns driven or sunk into the earth at one side of an existing wall and having attached cantalivers or corbels extending laterally therefrom under said wall, and longitudinal beams inserted into the old wall and supported by the said cantalivers or corbels of the columns, substantially as described.

3. A support for an existing wall and the erection of a new building, consisting of a column formed with numerous perforations and driven or sunk in the earth the required distance at one side of the existing wall, and a rigid cantaliver or corbel detachably connected with the column and constructed to extend under the existing wall, substantially as and for the purposes described.

574,730. CAN. JAMES GOULD, Jr., Berkeley, Cal. Filed May 5, 1896. Serial No. 590,287. (No model.)



Claim.—As an article of manufacture, a can consisting of a body and a head, said head having a deep flange to fit over the exterior of the body and having a portion between its lower edge and the angle formed with the top, provided with an inwardly-bent portion curved in cross-section, whereby its lower inner angle with the lower straight portion of the flange forms a positive stop for limiting the projection of the head upon the body, a positive circumferential indentation of a right-angular form in cross-section so as to produce a tearing-line at the inner angle of the walls and at a point inside of the outer periphery of the can-head, whereby it is protected from accidental rupture, said indentation being made in the flange at the point where the upper portion of the inwardly-bent portion forms an angle with a straight portion depending from the top of the head, said last-named straight portion of the flange adapted to be fitted over the top edge of the body after the severable portion of the flange has been removed whereby the head still serves as a temporary cover for the can.

574,731. SAFETY BABY-HOLDER. KATE HATCH, Brooklyn, N. Y. Filed Apr. 27, 1896. Serial No. 589,231. (No model.)

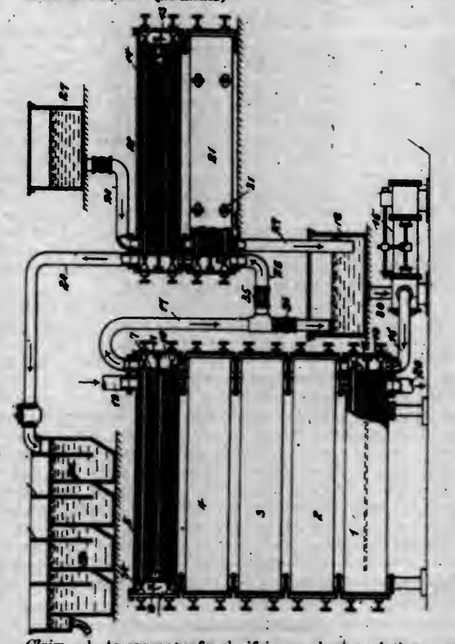
Claim.—1. A safety baby-holder, comprising a netting fashioned to form a pocket open at the front and top, a belt to which the strands at the upper end of the netting are fastened and a bottom with which the strands at the lower end of the netting are connected at predetermined intervals, substantially as shown and described.

2. A safety baby-holder, comprising a netting fashioned to form a pocket open at the front and top, a belt connected with the upper end of the netting, and means for engaging the lower end of the netting to hold the several meshes suitable distances apart, substantially as shown and described.

3. A safety baby-holder, comprising a netting fashioned to form a pocket open at the front and top, a belt secured to the upper end of the netting, a rod engaging loops formed by the lower ends of the strands of the netting, and a bottom formed with openings through which pass the strands to the said rod, the latter being attached to the under side of the bottom, substantially as shown and described.



574,732. APPARATUS FOR CLARIFYING SACCHARINE SOLUTIONS. LEON F. HAUSMAN, New Orleans, La. Filed Aug. 26, 1896. Serial No. 603,946. (No model.)



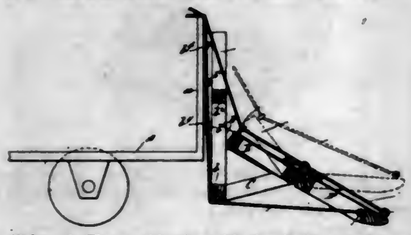
Claim.—1. An apparatus for clarifying saccharine solutions, comprising a number of heating vessels, one arranged above another and having connections one with another, each vessel having chambers at its ends, tubes connecting said chambers, valves for closing the ends of certain of said tubes, partitions extended longitudinally through the vessels, means for forcing a solution to be clarified through the series of vessels, and means for directing a heating medium through said vessels, substantially as specified.

2. An apparatus for clarifying saccharine solutions, comprising a series of vessels connected one with another, each vessel having in one end a receiving-chamber and a discharge-chamber, and at the opposite end a transferring-chamber, tubes connecting the receiving-chamber and transferring-chamber, tubes connecting the transferring-chamber and discharge-chamber, valves for closing the ends of certain of said tubes, a partition extended longitudinally in the vessel and having a space between its end and one of the tube-sheets, means for forcing a heating medium through the several heating vessels, means for forcing a liquid through the several heating vessels in a direction opposite to that of the heating medium, a tank for receiving the liquid from the heating vessels, and a cooling vessel similar in construction to the heating vessels, substantially as specified.

3. An apparatus for clarifying saccharine solutions, comprising a series of closed heating vessels having connections for the passage of liquid to be treated, and also having connections for the passage of steam or other heating medium, circulating-pipes arranged in each vessel, valves at the ends of certain of the pipes, cooling vessels comprising valve-controlled circulating-pipes, one vessel being connected

with another for the passage of a hot solution and connected one with another for the passage of a crude cold solution, a tank for cold solution communicating with the cooling vessels, a pipe leading from the cooling vessels to a settling-tank, and a pipe leading from the cooling vessels to a receiving-tank having connection with a pump, for forcing the liquid through the heating vessels, substantially as specified.

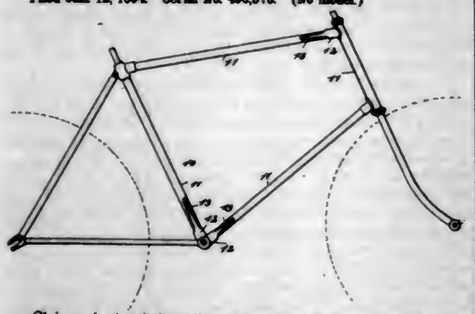
574,733. CAR-FENDER. STEPHEN K. HITCHCOCK, Fair Haven, N. Y. Filed Feb. 28, 1896. Serial No. 581,116. (No model.)



Claim.—1. The combination with the dashboard of a car of a fender or guard detachably connected therewith, and comprising a main upright frame having forwardly-directed bars or frames connected with the ends thereof at its lower side, a supplemental frame, the outer side of which is pivoted between said bars, and an auxiliary frame hinged to said bars and projected in front thereof, and means for operating said supplemental and auxiliary frames, consisting of a rope, cord or chain which is secured to the central outer part of the auxiliary frame and passed backwardly and connected with the central inner portion of the supplemental frame, and a similar rope, cord or chain which is secured to the central outer portion of the auxiliary frame and passed backwardly beneath the main upright frame each of said ropes, cords or chains being passed over the dashboard, or connected therewith, whereby both of the frames of the fender are raised or lowered, substantially as shown and described.

2. The combination with the dashboard of a car of a fender or guard, detachably connected therewith, and comprising a main upright frame having forwardly-directed bars or frames connected with the ends thereof at its lower side, a supplemental frame, the outer side of which is pivoted between said bars of an auxiliary frame hinged to said bars and projected in front thereof, and means for operating said supplemental and auxiliary frames, consisting of a rope, cord or chain which is secured to the central outer part of the auxiliary frame and passed backwardly and connected with the central inner portion of the supplemental frame and a similar rope, cord or chain which is secured to the central outer portion of the auxiliary frame and passed backwardly beneath the main upright frame each of said ropes, cords or chains being passed over the dashboard, or connected therewith, whereby both of the frames of the fender are raised or lowered, and the body portion of the supplemental and auxiliary frames being composed of wire mesh or similar material, substantially as shown and described.

574,734. BICYCLE CONSTRUCTION. FERDINAND F. IDE, Peoria, Ill., assignor, by direct and mesne assignments, to the F. F. Ide Manufacturing Co., same place, and Frederick D. Owen, Washington, D. C. Filed Jan. 12, 1894. Serial No. 496,573. (No model.)



Claim.—1. A reinforce for uniting bicycle-frame sections comprising tongues secured to one section of the frame and having their length extended from said section longitudinally of another section of the frame and brazed to the outer side thereof whereby the strain on said tongues will be transverse or widthwise thereof, substantially as specified.

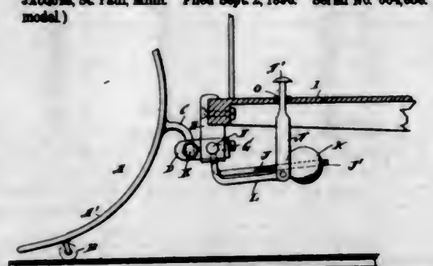
2. A reinforce for uniting bicycle-frame tubes consisting of a piece secured to one member of the frame, said piece being provided with a socket portion receiving a second frame-tube and being provided with tongues which extend longitudinally of said second tube and socket, and brazed to the outer side of said tube, substantially as specified.

3. A reinforce for bicycle-frame sections comprising tongues secured to one section of the frame and having their length extended on said section longitudinally and brazed or sweated to the outer side thereof, whereby the strain on said tongues will be transverse or widthwise thereof, substantially as specified.

4. A dressed tube-joint, made up of a tube end brazed or welded within a socket, the line of reduction of the tube-end wall due to dressing being of such a nature that its parts are connected by portions of said tube end, substantially as described.

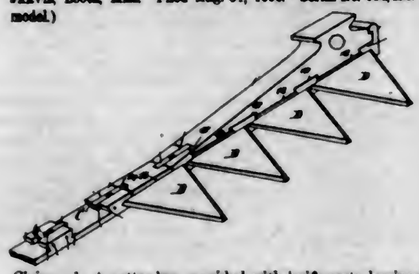
5. A dressed tube-joint made up of a tube end brazed or welded within a socket, the edge of the socket being of fish-mouth outline and the line of reduction of the tube-end wall due to dressing being of such a nature that its parts are connected by portions of said tube end, substantially as described.

574,735. CAR-FENDER. JOSEPH B. JACQUES and JOSEPH A. JACQUES, St. Paul, Minn. Filed Sept. 2, 1896. Serial No. 604,656. (No model.)



Claim.—A car-fender having two bearings, the upper portion of each being provided with a rearwardly-extending recess adapted to receive the forward portion of the car-platform, a transverse rock-shaft mounted in the lower portion of each bearing, an arm fixed to the rock-shaft and extended rearward therefrom, a weight carried on the arm, two forwardly-projecting arms secured to the rock-shaft, a guard, two hooks secured to the guard, the hooks respectively passing downward into the forwardly-projecting arms of the rock-shaft, an additional arm secured to the rock-shaft and projecting rearwardly, and a bar pivoted to the said additional arm and extending vertically through the platform of the car, substantially as described.

574,736. CUTTER-BAR FOR REAPERS AND MOWERS. MOSES JARVIS, Leota, Miss. Filed Aug. 31, 1896. Serial No. 604,453. (No model.)



Claim.—1. A cutter-bar provided with knife-seats having their end walls undercut, buttons pivoted on the cutter-bar and extending beyond the undercut walls of the knife-seats, and knives having shanks shaped to enter the said seats, the shanks being provided with recesses to receive the ends of the buttons extending within the seats, as and for the purpose set forth.

2. The combination, with the cutter-bar of mowers and reapers, the said cutter-bar being provided with knife-seats in its upper face cut to form a dovetail outline and separated by lugs, of buttons pivoted in the said lugs, extending through and beyond the undercut walls of the knife-seats, and knives provided with shanks which extend beyond the plane of their upper faces, the ends of the knife-shanks being beveled and provided with recesses in which the projecting ends of the buttons fit, as and for the purpose specified.

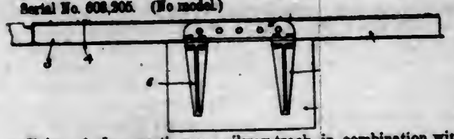
3. The combination, with the cutter-bar of a mower or a reaper, provided with knife-seats in its upper face, cut to form dovetail ont-

lines, the surfaces supporting the said seats being provided with slots which extend below the bottom of the seats, the said slots connecting with said seats, of springs fulcrumed upon the bottom portion of the said slots, latches pivoted in the slots and having their ends bearing on opposite ends of the springs, the said latches extending out beyond the undercut walls of the knife-seats and having their outer ends correspondingly inclined, and knives provided with shanks, fitted to the knife-seats and having recesses in their ends to receive the projecting portions of the latches, as and for the purpose set forth.

4. The combination, with a cutter-bar provided with knife-seats cut to form a dovetail outline, and knives provided with shanks fitted to the said seats and having recesses in their ends, of an eyebar, and pivoted latches located between the knife-seats and extending therein and into the slots of the shanks of the knives, sundry of the said latches having undercut extensions which enter dovetail recesses in the aforesaid eyebar, substantially as described.

5. The combination, with a cutter-bar provided with knife-seats cut to form a dovetail outline, and knives provided with shanks, fitted to the said seats and having recesses in their ends, of an eyebar, and pivoted buttons located between the knife-seats and extending therein and into the slots of the shanks of the knives, sundry of the said buttons having undercut extensions which enter dovetail recesses in the aforesaid eyebar, and springs having a fulcrum between opposing buttons, bearing upon the under faces thereof below their pivots, substantially as and for the purpose specified.

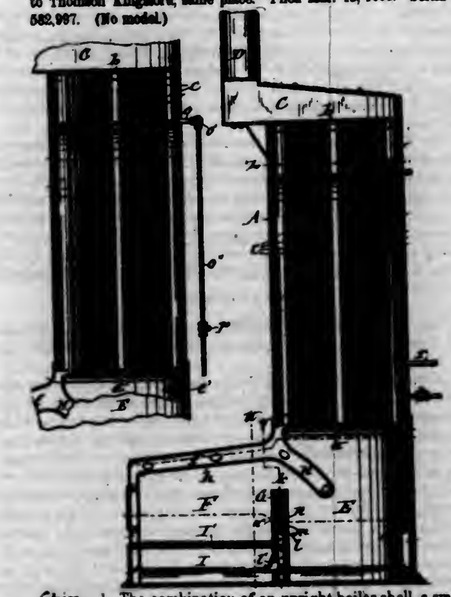
574,737. RAILWAY-TRACK. WILLIAM JESS, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed Aug. 19, 1896. Serial No. 603,205. (No model.)



Claim.—1. In a continuous railway-track, in combination with the rails abutting switchwork, anchor members consisting of a single metal support fastened rigidly to both of said abutting rails and extending downward therefrom into concrete or similar material, as and for the purpose set forth.

2. In a continuous railway-track, in combination with the rails abutting switchwork, a single deep metallic casting, fastened rigidly to both of said abutting rails and fastening them securely together, said casting extending downwardly into concrete or similar material, substantially as and for the purpose set forth.

574,738. STEAM-BOILER. ROBERT JOY, Oswego, N. Y., assignor to Thomson Kingsford, same place. Filed Mar. 13, 1896. Serial No. 582,987. (No model.)



Claim.—1. The combination of an upright boiler-shell, a smoke-box on top of said shell, a combustion-chamber under said shell, direct-draft flues extending vertically through the boiler-shell, the fire-box extending laterally from the combustion-chamber, a bridge-wall interposed between the fire-box and combustion-chamber, and a deflector extending from the crown of the fire-box over the bridge-wall and with an inclination part way into the combustion-chamber, substantially as set forth and shown.

2. The combination of an upright boiler-shell, a combustion-chamber directly under said shell, a smoke-box on top of the boiler-shell, direct-draft flues extending from the combustion-chamber to the smoke-box, a water-leg surrounding the combustion-chamber and communicating with the interior of the boiler-shell, the fire-box extending laterally from the combustion-chamber and formed with a water-crown and with water-legs on its sides and front communicating with the water-leg of the combustion-chamber, a bridge-wall interposed between the fire-box and combustion-chamber and a hollow water-charged deflector extending from the water-crown rearward and downward into the combustion-chamber and connected to the water-legs of the latter, substantially as described and shown.

3. In combination with the upright direct-flue boiler proper and a smoke-box and combustion-chamber respectively on top and directly under the said boiler, of a fire-box extending laterally from said combustion-chamber and formed with a water-crown, a hollow deflector extending from said crown into the combustion-chamber and charged with water and having its extremity inclined toward the side of the combustion-chamber, as set forth.

4. In combination with the upright direct-flue boiler proper and a smoke-box and combustion-chamber respectively on top and directly under said boiler, a fire-box extending laterally from said combustion-chamber and formed with a water-crown, a hollow water-charged deflector extending from said crown into the combustion chamber and having its extremity inclined toward the side of the combustion-chamber, and a bridge-wall interposed between the fire-box and combustion-chamber and having its top inclined corresponding to the inclination of the extremity of the aforesaid deflector as and for the purpose set forth.

5. In combination with the upright direct-flue boiler proper and a smoke-box and combustion-chamber respectively on top and directly under said boiler, the fire-box extending laterally from said combustion-chamber and formed with a water-crown, and a hollow deflector extending from said crown at its junction with the boiler proper into the combustion-chamber and having its interior communicating directly with the water-crown and water-space of the boiler, substantially as shown.

6. In combination with the upright direct-flue boiler proper and a smoke-box and combustion-chamber respectively on top and directly under said boiler, the fire-box extending laterally from said combustion-chamber and formed with water-legs at its sides and with a water-crown, a hollow deflector extending from said crown into the combustion-chamber and having its interior communicating with the water-spaces of the boiler and crown and the extremity of said deflector inclined toward the side of the combustion-chamber and a bridge-wall interposed between the fire-box and combustion-chamber and having its top inclined to correspond to the inclination of the extremity of the deflector as set forth.

7. In combination with the upright direct-flue boiler proper and a smoke-box and combustion-chamber respectively on top and directly under said boiler, a water-leg surrounding said combustion-chamber, the fire-box extending laterally from said combustion-chamber and formed with water-legs at its sides and with a water-crown communicating with said water-legs, a hollow deflector extending from said crown into the combustion-chamber and having its interior communicating directly with the water-spaces of the boiler, crown and water-leg of the combustion-chamber and inclined to said water-leg as set forth.

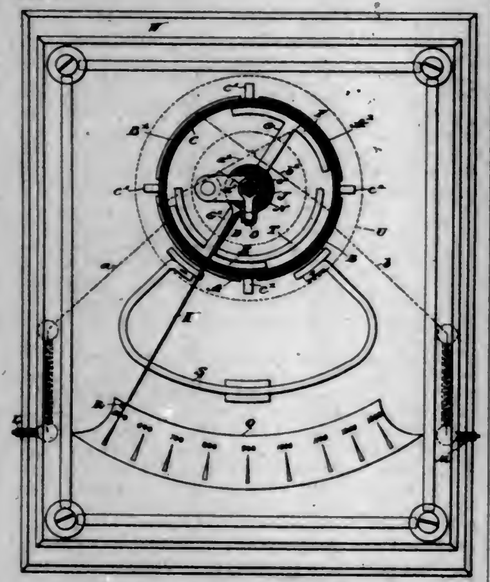
8. The combination of an upright boiler having fire-flues extending vertically through it and arranged in groups with definite radial waterways between the groups, surface blow-off pipes tapping the boiler at points in line with said waterways, a pipe uniting said blow-off pipes at the exterior of the boiler, and a main blow-off pipe connected to said uniting-pipe as set forth.

574,739. ELECTRICAL MEASURING AND INDICATING APPARATUS. JOHN F. KELLY, Pittsfield, Mass., assignor of one-half to Cummings C. Chesney, same place. Filed June 16, 1896. Serial No. 595,787. (No model.)

Claim.—1. In a measuring and indicating instrument the combination of a vibrating needle and stationary quadrants separated from each other by a wall of insulating material, substantially as described.

2. In a static measuring and indicating instrument, the combination of stationary quadrants and a vibrating needle, the quadrants and the vanes of the needle being segments of cylinders, with a cylindrical wall of insulating material placed between them, substantially as described.

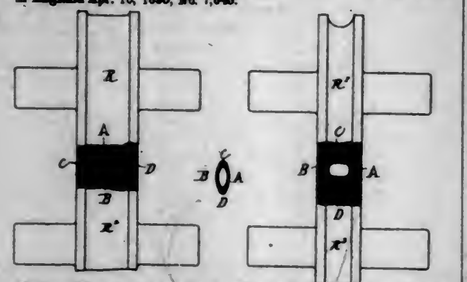
3. In a static measuring and indicating instrument the combination of stationary quadrants and a vibrating needle, the quadrants and the vanes of the needle being segments of cylinders, with a permanent magnet whose lines of force lie in the path of the needle's vane, and substantially at right angles thereto, substantially as described.



4. In a static measuring and indicating instrument the combination of fixed quadrants, and a vibrating needle having vanes in close proximity to said quadrants, with a separating insulating dielectric between said needle and quadrants and a permanent magnet whose lines of force cross the path of one of the vanes of the vibrating needle, substantially as described.

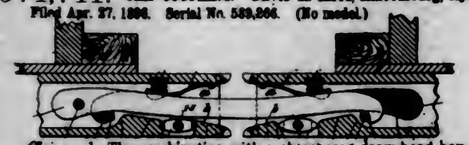
5. In a static measuring and indicating instrument the combination of a vibrating needle having vanes, and fixed quadrants in close proximity to said vanes, the vanes and quadrants being in the form of segments of cylinders, with a cylindrical insulating dielectric having its wall between the vanes of said needle and said quadrants and a permanent magnet and armature, said armature and the poles of said magnet being on opposite sides of the path of said needle, substantially as described.

574,740. METHOD OF MANUFACTURING PIPES WITHOUT WELDED JOINTS. CARL G. P. DE LAVAL Stockholm, Sweden. Filed Dec. 31, 1894. Serial No. 533,422. (No specimens.) Patented in Sweden Nov. 15, 1894, No. 5,290; in Germany Dec. 19, 1894, No. 83,553, and in England Apr. 16, 1895, No. 7,643.



Claim.—The process herein described of making seamless tubes, which consists in first flat-rolling a hollow metallic body, secondly, round-rolling the flattened body in a direction at right angles to that of the flat-rolling, thirdly, flat-rolling the round body only for a portion of its width, and along the center of the same, in the same direction as was the act of round-rolling, so as to flatten the body along its center and not at the edges, whereby the thickness of the body is reduced uniformly throughout its cross-section, and finally round-rolling the body at right angles to the flat-rolling, whereby the body is opened out into practically perfect annular cross-section, substantially as set forth.

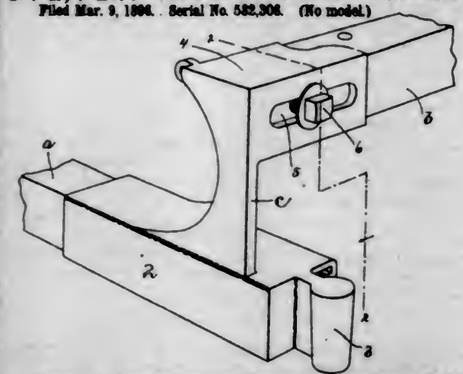
574,741. CAR-COUPLING. DAVID M. LEFFEL, Harrodsburg, Ky. Filed Apr. 27, 1896. Serial No. 589,866. (No model.)



Claim.—1. The combination with a chambered draw-head having a rearward and upward incline on the lower wall of its chamber, and also provided with a transverse aperture in said incline, of a hook-bar pivoted by one end within the draw-head chamber behind the incline therein so as to project its hooked end out of the draw-head, a tripping-dog supported to rock in the aperture on a transverse rock-shaft, a device to rock the shaft at the side of a car, and means to hold the shaft rocked until a similar hook-bar on another coupling enters the draw-head and rocks the dog, substantially as described.

2. In a car-coupling of the described construction, the combination with a chambered draw-head having an apertured incline on the lower wall of its chamber, a shaft supported to rock transversely of the draw-head and having two tripping-dogs thereon, rockable in the aperture of the incline, and means to rock the shaft from the side of a car, of a detent-spring on the side of the draw-head, adapted to contact with a block on the rock-shaft and hold said shaft rocked for elevation of a hook-bar that is pivoted in the draw-head, and a securing device adapted to prevent a rotation of the rock-shaft, substantially as described.

574,742. SPRING-BED FRAME. GUY MAFERA, Boston, Mass. Filed Mar. 9, 1896. Serial No. 582,306. (No model.)



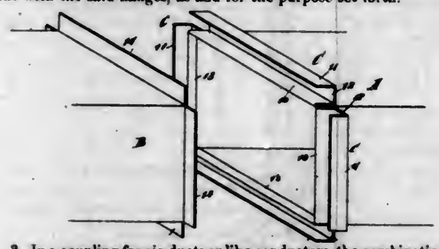
Claim.—1. An angular connecting-piece or coupling for the side and end rails of metallic bedsteads, the same comprising the sockets 2 and 4 integrally connected and extending at right angles to each other in different planes, each of said sockets being angular in cross-section and having its edges provided with internal grooves or ways adapted to receive the edges of the side and end rails, and one of said sockets having a tenon 3.

2. The combination with the side and end rails *a* and *b* composed of bars of metal L-shaped in cross-section, of the coupling *c* having the integral sockets 2 and 4 extending at right angles to each other from opposite ends of the portion *c*, each of said sockets being angular in cross-section and having its edges provided with internal grooves or ways adapted to receive the edges of the rails *a* and *b*, the socket 2 having the end tenon 3 and the socket 4 being provided with the slot 5, and the bolt 6 passing through said slot into the rail *b*, substantially as described.

574,748. AIR-DUCT CLENCH-COUPLING. EDWARD J. MALLEN, New York, N. Y. Filed Aug. 11, 1896. Serial No. 602,408. (No model.)

Claim.—1. In a coupling for air-ducts and like conductors, the combination, with the mating sections of the air-duct, one of the said sections being provided with outwardly-extending flanges at its end, the other end being adapted to receive couplings, of, couplings, comprising a substantially U-shaped body, consisting of parallel members and a connecting member, and a return tongue formed upon one of the parallel members and extending in direction of the connecting member, the edges of the duct-section being received between the tongues of the couplings, and the member over which the tongues return, the open longitudinal portions of the couplings facing in direction of the section of the duct to be received, and the space between the parallel members of the coupling being of such dimensions as to receive the flanges of the opposing duct-section, as and for the purpose set forth.

2. In a coupling for air-ducts or like conductors, the combination, with the mating sections of the air-duct, one of the said sections being provided with outwardly-extending flanges at its end, and the other section being adapted to receive couplings, of couplings comprising a substantially U-shaped body, consisting of parallel members and a connecting member, and a return tongue formed upon one of the parallel members and extending in direction of the connecting member, the edges of the duct-section being received between tongues on the couplings and the member over which the tongues return, the open longitudinal portions of the couplings facing in direction of the section of the duct to be received, and the space between the parallel members of the couplings being of such dimensions as to receive the flanges of the opposing duct-section, the outermost parallel members of the couplings being bent over to a close engagement with the said flanges, as and for the purpose set forth.



3. In a coupling for air-ducts or like conductors, the combination, with the mating sections of the air-duct, one of the said sections being provided with outwardly-extending flanges at its end, and the other section being adapted to receive couplings, of couplings comprising a substantially U-shaped body, consisting of parallel members and a connecting member, and a return tongue formed upon one of the parallel members and extending in direction of the connecting member, the edges of the duct-section being received between tongues on the couplings and the member over which the tongues return, the open longitudinal portions of the couplings facing in direction of the section of the duct to be received, and the space between the parallel members of the couplings being of such dimensions as to receive the flanges of the opposing duct-section, the outermost parallel members of the couplings being bent over to a close engagement with the said flanges, and stiffening-bars located between the flanges and the return or bent members of the couplings, as and for the purpose set forth.

4. An inflexible coupling for pipes, the coupling being formed of pliable sheet metal and having two parallel side members with a connecting member or web at one edge and one of the side members having a tongue at the edge opposite the connecting member or web the tongue being bent outwardly and thence backwardly toward the connecting member or web, substantially as described.

5. An inflexible coupling for pipes, the coupling being formed with a metal plate separate from the pipes and having two connected side members, one of which is provided with a tongue, the tongue serving to engage one pipe-section and one of the side members being capable of folding to engage the second pipe-section, substantially as described.

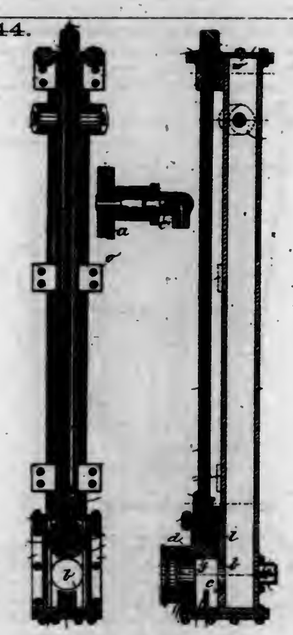
6. A pipe-joint having two pipe-sections, one of which is provided with an outwardly-extending flange and a coupling consisting in two connected side members, one of which is provided with an outwardly-extending tongue, the remaining side member being capable of bending over the flange on the said pipe-section and the tongue of the coupling being capable of attachment to the pipe-section not having the flange, substantially as described.

574,744. HYDRANT. NEIL MALMQVIST, Brooklyn, N. Y. Filed Dec. 12, 1896. Serial No. 571,913. (No model.)

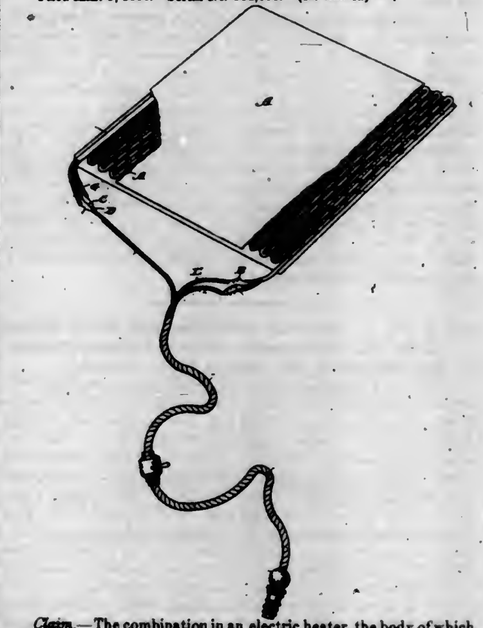
Claim.—1. In a hydrant having a gate-valve in a valve-inclosing case exterior to the stand-pipe and detachably attached thereto, said case formed with a protective cover for the valve-rod consisting of an integral vertical extension of the valve-rod stuffing-box along in contact with and bolted to the side of the stand-pipe, said cover chambered in the side bearing against the stand-pipe for the rod and the stuffing-box gland, and being extended to the top of the stand-pipe and having the rod-actuating nut fitted in the top substantially as described.

2. The combination in a hydrant, of the stand-pipe having the exterior valve-face surrounding the inlet-opening in the side, near the lower end, the valve-chest covering said face, the gate-valve inclosed in said face, the packing-follower within said case and on the exterior face of the valve, and the rod for working the valve, said rod being exterior to the stand-pipe and connected with the valve through the stuffing-box on the top of the valve-case substantially as described.

574,744.



574,745. ELECTRIC HEATER. JOHN R. MEEK, New York, N. Y., assignor to the H. W. Johns Manufacturing Company, same place. Filed Mar. 5, 1896. Serial No. 581,935. (No model.)

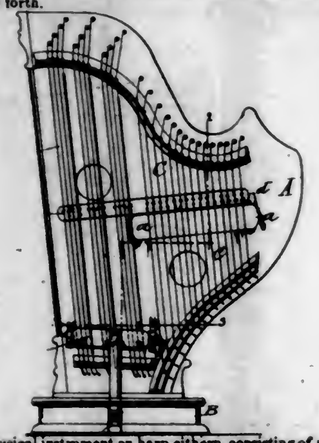


Claim.—The combination in an electric heater, the body of which is made of flexible, insulating and non-conducting material, of two or more continuous and separately-insulated conductors, in substantially the same plane, each of which extends to substantially all parts of the heater, and woven into the fabric thereof, and induction and eduction current-conveyers, for the purposes set forth.

574,746. HARP-CITHERN. FREDERICK MERKENBAUER, Jersey City, N. J. Filed Oct. 28, 1896. Serial No. 610,292. (No model.)

Claim.—1. A musical instrument or harp-cithern, consisting of a sounding-board provided with a transverse opening in its middle rear portion; an open scale of leading-strings arranged on the rear portion

of the sounding-board, and extending across the opening, and a number of groups of accompaniment-strings arranged at the front portion of the sounding-board, the strings of each group being tuned to the intervals of separate harmonic chords of the leading-strings, substantially as set forth.



2. A musical instrument or harp-cithern, consisting of an upright sounding-board made in the form of a harp and provided with a transverse opening in the middle rear portion of the same, a base for supporting the sounding-board in upright position, an open scale of leading-strings on the rear part of the sounding-board extending across the transverse opening in the same, and a number of groups of accompaniment-strings arranged on the front part of the sounding-board, each group of accompaniment-strings being tuned to the intervals of the separate harmonic chords of the leading-strings, substantially as set forth.

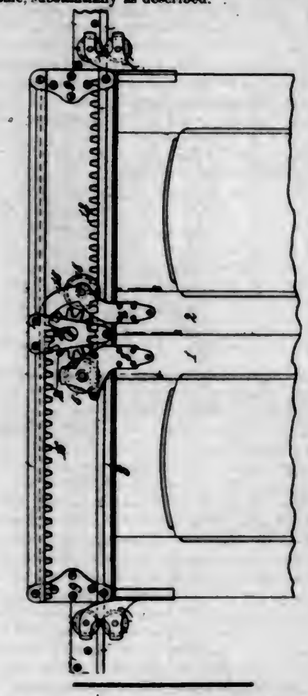
3. A musical instrument or harp-cithern, composed of an upright sounding-board in the form of a harp and provided with a transverse opening at the middle rear portion of the sounding-board, an open scale of leading-strings arranged at the rear portion of the sounding-board, a number of groups of accompaniment-strings arranged on the front part of the sounding-board, the strings of each group being tuned to the intervals of separate harmonic chords of the leading-strings, a fret-board provided with individual frets below one of the strings of each group of accompaniment-strings, a pivoted presser-bar provided with fingers in front of the strings adjacent to which the frets are arranged, and a spring-actuated pedal applied to the presser-bar and adapted to actuate the presser-bar so as to be pressed on the strings or moved away therefrom and produce thereby the play of the groups of accompaniment-strings in the major or minor key as required, substantially as set forth.

574,747. OPERATING MECHANISM FOR DOUBLE SLIDING DOORS. CARL METTERHAUSEN and WILLIAM B. JOHNSON, Wilmington, Del. Filed Sept. 29, 1896. Serial No. 607,357. (No model.)

Claim.—1. In mechanism for the simultaneous operation of double sliding doors, the combination with two doors arranged to operate in the same plane, of an overhead track having a grooved guideway in its upper side, a hanger secured to the upper part of each door, sheaves journaled in said hangers to suspend the doors, a lower rack secured to the hanger of one door and extended into said track-guideway above the other door, and upper guide-rail having a guide-groove in its under side, an upper rack rigidly secured to the other door-hanger and operating in the guide-groove of said upper guide-rail, and a gear-wheel journaled intermediate the upper and lower racks to transmit motion from either one to the other, to open and close the doors simultaneously, substantially as described.

2. In mechanism for the simultaneous operation of double sliding doors, the combination with a track-rail, and the two doors arranged to slide in the same plane and connected by rack-and-wheel gearing to operate reciprocally, of the double sheaves mounted on brackets secured to the outer ends of the doors, and track extensions with which said double sheaves are engaged, one above and one below, to prevent tilting of the opened doors, substantially as described.

3. In mechanism for the simultaneous operation of double sliding doors, the combination with the two doors, arranged to slide in the same plane, an overhead track having a longitudinal guide-groove in its top, and an upper guide-rail provided in its lower side with a longitudinal dovetail groove, of the hangers secured to the upper part of each door, a lower rack secured to the hanger of one door and operating in the guideway of the door-track, an upper rack rigidly secured to the hanger of the other door and operating in the guide-way of the upper guide-rail, a gear-wheel located intermediate said racks and meshing with both, peripherally-grooved sheave-wheels mounted in the door-hangers to run on the overhead track-rail and adapted to straddle the lower rack, track extensions at the outer ends of the doors, and double sheave-wheels mounted on the outer ends of the doors to operate on said track extensions, above and below the same, substantially as described.



574,748. COMBINED PATTERN AND CORE-BOX. HARRY V. MOORE, Hamilton, Ohio, assignor to F. & L. Kahn & Bros., same place. Filed Sept. 14, 1896. Serial No. 605,702. (No model.)



Claim.—1. The combination, substantially as set forth, of a half-pattern portion in box form with an opening in its top, an opening in its front wall and an open bottom, a follow-board supporting said pattern portion, a plate closing said top opening, a half-flask resting on the follow-board and having in one of its walls an opening corresponding with the opening in the front wall of the pattern portion, a half-box between the front wall of the half-flask and the front wall of the pattern portion around the openings therein, and a stay clamping the pattern against the inner edge of said box.

2. The combination, substantially as set forth, of a box-pattern having an opening in its upper wall and an opening in its front wall and having a parting through the last-mentioned opening in a plane substantially parallel with the top wall of the pattern, two half-flasks inclosing said pattern and joining each other in a plane substantially parallel with said top wall and having in their joint an opening opposite to and corresponding with the opening in the front wall of the pattern, and a metallic box with the edges of its walls in contact with the outer surface of the front wall of the pattern and with the inner surface of the corresponding wall of the flask around the openings therein.

3. The combination, substantially as set forth, of a box-pattern having an opening in its top wall and an opening in its front wall and having a parting through said latter opening substantially parallel with the plane of the top opening, and a plate in said top opening.

4. The combination, substantially as set forth, of a box-pattern

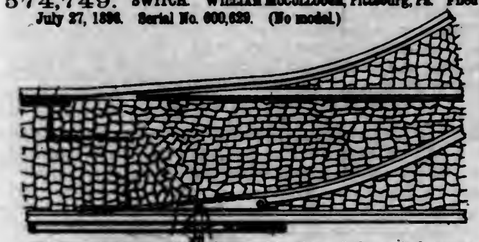
having an opening in its top wall and an opening in its front wall and a parting through said front opening substantially parallel with the plane of the top opening, a flask formed in two parts and inclosing said pattern and having an opening in one of its walls corresponding with the front opening in said pattern, and a plate in the top opening of the pattern and adapted to serve as a parting between mold-sand rammed in the flask outside the pattern and core-sand rammed within the pattern.

5. The combination, substantially as set forth, of a box-pattern having an opening in its top wall and an opening in its front wall and parted through said latter opening in a plane substantially parallel with the plane of the top opening, a flask surrounding the pattern, and a plate in the top opening of the pattern and provided with an anchor projecting from its inner surface and adapted to serve as a parting between mold-sand and core-sand.

6. The combination, substantially as set forth, of a box-pattern having a top opening and a front opening and a parting through the front opening in a plane substantially parallel with the top opening, and a plate within said top opening and provided with an anchor projecting from its outer surface and adapted to serve as a parting between mold-sand and core-sand.

7. The combination, substantially as set forth, of a box-pattern having a top opening and a front opening and parted through the front opening in a plane substantially parallel with the top opening, and a plate in said top opening and provided with anchors projecting from its inner and outer surfaces and adapted to serve as a parting between mold-sand and core-sand.

574,749. SWITCH. WILLIAM MCCULLOUGH, Pittsburg, Pa. Filed July 27, 1896. Serial No. 600,639. (No model.)



Claim.—1. In a switch, the combination of the switch-tongue connected to a bar and wedge and to a bar operating in a guide beside the track, said bar carrying a pin to engage a rod of the car, said switch-tongue also connected by a series of pivoted arms and a bell-crank lever, said arms and lever extending across the track the outer one of which carries an upwardly-extending pin operating in a slot at the opposite side of the track from the switch-tongue, substantially as shown and described.

2. In a switch, the combination of the tongue, a bar connected to said tongue by a pin operating in a slot in the switch-plate, said bar carrying a wedge engaging in a bar extending parallel with the track in a guide, said tongue being also connected by a series of cross-arms and a bell-crank lever, said arms and lever extending across the track to permit of the tongue being operated from either side of the car, substantially as shown and described.

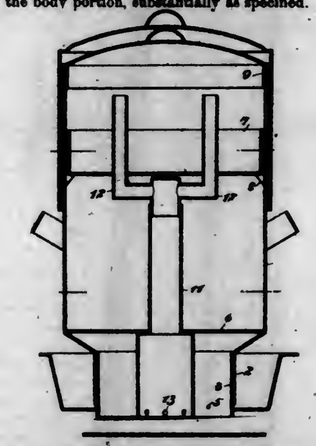
3. In a switch, the combination of the tongue, a bar connected to said tongue by a pin operating in a slot in the switch-plate, said bar connected by a wedge to a bar extending parallel with the track and carrying in its end a plate to engage a rod of the car, and a series of pivoted arms and levers extending across the track whereby the switch may be operated from either side of the car, substantially as shown and described.

574,750. FRUIT-CANNER. ANNA C. MCCUTCHEON, Sparta, Mich. Filed Aug. 10, 1896. Serial No. 602,335. (No model.)

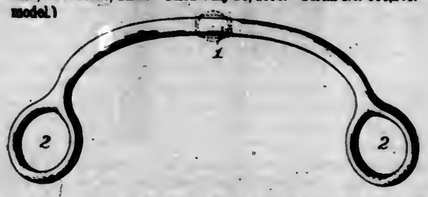
Claim.—1. A fruit-canner, comprising a body portion, a pan in which said body portion is removably supported, a perforated bottom in the lower portion of said body, the said perforated bottom being above the plane of the pan, a tray supported in said body portion and having a perforated bottom, and a steam-pipe extended from the lower portion of the pan through said tray, substantially as specified.

2. A fruit-canner, comprising a body portion, a pan, a cup secured in said pan and supporting the body portion, a perforated bottom in the body portion, a removable tray in said body portion having a perforated bottom, a steam-pipe resting on the bottom of the said cup and extended upward through the tray, and a cover for the body portion, substantially as specified.

3. A fruit-canner, comprising a pan, a cup in said pan, having perforations providing communication between the pan and the interior of the cup, a body portion having a reduced lower end removably engaging with said cup, a removable perforated bottom in said body portion, a tray removably supported in the body portion and having a perforated bottom, a steam-pipe extended from the cup and having perforations at the lower end, branch pipes removably attached to the upper end of said steam-pipe and extended through the bottom of the tray, a cover for the body portion, and an auxiliary cover having its side wall extended downward approximately to the center of the body portion, substantially as specified.



574,751. HANDLE-BAR GRIP FOR BICYCLES. ISAAC A. NEWMAN, Greenville, Miss. Filed July 23, 1896. Serial No. 600,279. (No model.)



Claim.—1. A handle-bar grip having a looped form and presenting a continuous gripping-surface extended from one side of the junction of grip and handle-bar around to the other side, substantially as and for the purpose described.

2. A handle-bar grip having the form of an ovate loop, whereby it is adapted to afford a gripping-surface at any point from either side of the junction of grip and handle-bar around to the other side, substantially as and for the purpose described.

3. The combination with a handle-bar for bicycles and velocipedes, of a looped grip curved rearwardly from its junction with the handle-bar and adapted to afford a restful variety in position of the hands, substantially as described.

574,752. VEHICLE-WHEEL. HENRY J. NEY, Pottsville, Pa. Filed Mar. 25, 1896. Serial No. 584,788. (No model.)



Claim.—1. In a device of the character described, an auxiliary wheel having projections on its periphery and means for securing it to an ordinary wheel consisting of a T-shaped clamp adapted to engage the spokes of the ordinary and auxiliary wheel, as and for the purpose described.

2. In a device of the character described, an auxiliary wheel consisting of an inner ring, an outer ring, spokes connecting said rings, projections formed on the periphery of the outer ring, set-screws threaded in the inner ring and clamps adapted to connect the spokes of the auxiliary wheel to the spokes of an ordinary wheel, as and for the purpose described.

574,753. RAILWAY-SWITCH. EDWARD O. NORTON, Daphne, Ala., assignor of one-half to Daniel P. Brown, Mobile, Ala. Filed July 3, 1896. Serial No. 597,961. (No model.)

Claim.— 1. The improved switch comprising the switch-point and an operating rod or bar extended alongside the same and having a portion to engage the said point and a portion for operation by the locomotive or car substantially as shown and described.



2. An improved switch comprising the switch-point and an operating rod or bar extending alongside said point and movable toward and from the same, said rod or bar having a portion to engage the switch and a portion for engagement by the actuating device substantially as shown and described.

3. An improved switch comprising the switch-point the operating rod or bar extended alongside the same and having at its middle a portion to engage the point and at its opposite end portions for engagement by the actuating device, substantially as shown and described.

4. A switch comprising the switch-point and the operating-bar arranged alongside and movable toward and from the point, such bar being formed of a plate having a portion to engage the point and a portion for engagement by the actuating device and having an approximately spiral twist between said points substantially as shown and described.

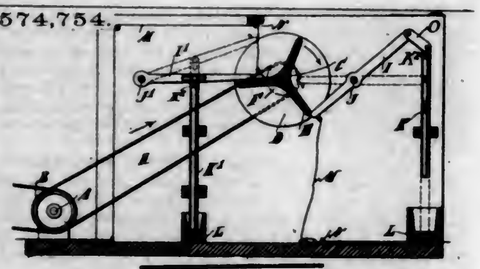
5. The improved switch herein described comprising the switch-point, the operating-bar extending alongside the same, and composed of a plate provided between its ends with a portion to engage the switch-point and having between said portion and its ends an approximately spiral twist substantially as shown and described.

6. In a switch substantially as described, the combination of the switch-points, the operating bar or rod arranged alongside and turning toward and from one of the said points and having an intermediate portion to engage the said point and opposite end portions for engagement by the actuating device, and an operating rod or bar arranged alongside the other point and movable toward and from the same the latter bar having a portion to operate the point and a portion for engagement by the actuating device substantially as shown and described.

574,754. CRUSHING APPARATUS. IGNACIO MONTES DE OCA Y MELIAN, New York, N. Y. Filed Dec. 11, 1896. Serial No. 571,784. (No model.)

Claim.—The combination with a frame, of a shaft mounted in the frame, a cam carried by the shaft, two vertically-movable stamps, a mortar for each stamp, two levers fulcrumed on the frame and respectively connected with the stamps, the levers being engaged and operated by the cam, and a cord connected with each lever and capable of holding the same out of engagement with the cam whereby the operation of either stamp may be suspended, substantially as described.

574,754.



574,755. ATTACHABLE BRAKE-HANDLE. OTTO C. OEHLER, Cramer Hill, N. J. Filed Jan. 2, 1896. Serial No. 574,100. (No model.)



Claim.—As a new article of manufacture, an attachable handpiece for brake-handles, consisting of two sections of non-conducting material hinged together, a spring-catch countersunk on the inside of one section, a pin connected to the catch and passing through said section flush with the outside thereof, and a latch-plate secured to the other section adapted to be engaged by the latch, as and for the purpose described.

574,756. PHOTOGRAPHIC SHUTTER. DANIEL P. O'LEARY and SAMUEL B. KULL, New York, N. Y. Filed Feb. 11, 1896. Serial No. 578,896. (No model.)



Claim.—1. A camera-shutter, comprising two plates or slides having openings normally out of coincidence, means for moving the plates in one direction, a dog arranged to engage one of the plates and hold the same when moved, means to retract the other plate, said openings being arranged to be brought into coincidence by the movement of the last-mentioned plate, and a releasing device carried by said last-mentioned plate and arranged when the same is retracted to engage the dog and move the same out of engagement with the other plate, substantially as set forth.

2. A photograph-shutter, comprising two plates or slides having apertures normally out of coincidence, a handle connected to one of the plates and arranged to move the same, a lug on the other plate arranged to engage the plate with which the handle is connected, to move both plates in one direction in unison, means for retracting the respective plates, a dog to hold the plate whereon the lug is mounted when moved in one direction, and a releasing device carried by the other plate, to disengage said dog, substantially as set forth.

3. A photograph-shutter, comprising two plates provided with apertures normally out of coincidence, a shaft having a handle and connected to one of the plates to move the same, the other plate being movable independently of said shaft and having a lug to engage the plate with which the shaft is connected, to move both plates in one direction in unison, means for retracting the respective plates, a dog arranged to engage the plate having the lug to hold the same in position when moved, and a releasing device carried by the other plate arranged to disengage the dog from the plate, substantially as set forth.

4. The combination of a casing, a lens-tube longitudinally movable therein, means for moving the lens-tube, a shaft, a sleeve arranged to turn with the shaft and adapted to move longitudinally thereon, a handle for operating the shaft, a shutter-plate connected to the sleeve and having an aperture, another shutter-plate mounted to turn on the sleeve and also provided with apertures, said apertures being normally out of coincidence, a lug on one plate to engage the other to move both plates in unison in one direction, means for retracting the plates, a dog arranged to engage one plate and hold the same when moved, and a releasing device actuated by the backward movement of the other plate, to disengage the said dog, substantially as set forth.

5. A photographic shutter, comprising two plates or slides having apertures normally out of coincidence with the lens, means to move one plate to bring its aperture into coincidence with the lens, means to hold said plate with its aperture in coincidence with the lens, means to move the other plate to cause its aperture to pass across the lens, and means actuated by the last-mentioned plate to release the first-mentioned plate, substantially as set forth.

6. A photographic shutter, comprising two plates or slides having apertures normally out of coincidence with the lens, a handle connected to one plate and arranged to move the plates in one direction, means to hold one plate when moved by the handle, with its aperture coinciding with the lens, and a spring to move the other plate to cause its aperture to pass across the lens, said last-mentioned plate when moved by its spring being arranged to release the first-mentioned plate to bring its aperture out of coincidence with the lens, substantially as set forth.

7. A photographic shutter, comprising two plates or slides having means for moving them and provided with apertures normally out of coincidence with the lens, one plate having a catch to hold it against movement when its aperture coincides with the lens, and a releasing device actuated by the other plate when moved to cause its aperture to pass across the lens, said releasing device being arranged to disengage the catch from the first-mentioned plate, substantially as set forth.

8. The combination of a casing having a lens-tube, a shaft arranged to turn in the casing, a handle for operating the shaft, a shutter-plate carried on and moving with the shaft and having an aperture, another shutter-plate arranged to turn pivotally on the shaft and also provided with an aperture, said apertures being normally out of coincidence with the lens, a catch to hold one of the plates against movement when its aperture coincides with the lens, means for moving the plates in one direction in unison with the handle, means for retracting the plates to cause their apertures to pass into coincidence with each other and with the lens, and a releasing device to disengage the catch when the handle is retracted, substantially as set forth.

9. The combination of a casing having an opening, a slotted face-plate arranged at the opening and having recesses leading into its slot, and a shutter-slide operatively mounted in the casing and having a handle arranged to play in the slot in the face-plate and adapted to be engaged with the recesses leading into the same, said shutter-slide being arranged for instantaneous and time exposure, and being controlled in its operation by the engagement of the handle with the various recesses in the face-plate, substantially as set forth.

10. The combination of a casing having a lens-tube, an operating-handle, a face-plate having recesses with which the handle is adapted to engage, whereby the handle may be held in various positions, a shutter-plate moving with the handle and having an aperture, another shutter-plate arranged to turn pivotally and also provided with an aperture, said apertures being normally out of coincidence with the lens, one of the plates being arranged to move in one direction in unison with the handle, a catch to hold the pivotally-mounted plate when the plate is moved to bring its aperture in coincidence with the lens, means to retract the other plate to bring its opening into coincidence with the lens, and a releasing device actuated by said plate to disengage said catch, substantially as set forth.

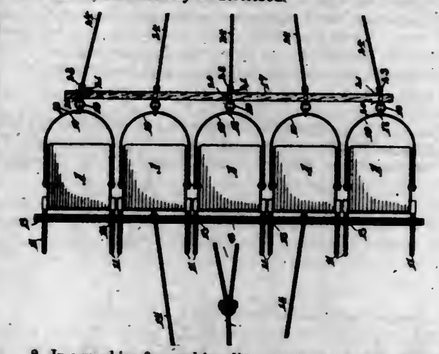
11. In a camera, the combination of a casing, a lens-tube mounted therein and arranged to be moved to focus the camera, a sleeve carried by the lens-tube, shutter slides or plates carried on the lens-tube and actuated from said sleeve, a handle mounted in the casing, and a shaft connected to the handle and having a sliding engagement with said sleeve to move the same to actuate the shutter plates or slides, substantially as set forth.

12. In a camera, the combination of a casing, a lens-tube mounted therein and arranged to be moved to focus the camera, a sleeve carried by the lens-tube, shutter plates or slides carried on the lens-tube and actuated from said sleeve, a shaft having engagement with the sleeve to move the same to actuate said plates or slides, and an operating-handle carried by the casing and also connected with the shaft to turn the same, substantially as set forth.

13. In a camera, the combination of a casing, a face-plate mounted thereon and provided with a slot and having recesses communicating with said slot, a lens-tube mounted in the casing, shutter plates or slides, a shaft to actuate the plates or slides, a handle for operating the shaft and extending through the slot in the face-plate, and a spring coiled on the shaft and arranged to retract the handle when the same is released, said spring having one end arranged to be held in either of the recesses in the face-plate, substantially as set forth.

574,757. SCRAPER. WILLIAM OWNBY, Twin Bridges, Mont. Filed July 23, 1896. Serial No. 600,706. (No model.)

Claim.—1. A scraper, comprising a plurality of bailed scoops or scrapers connected at the rear and having their bails connected with a spacing-bar, substantially as described.



2. In a machine for working dirt, a series of scrapers placed side by side in a gang, handles projected from the rear portions of the scrapers, a connecting-bar attached to the handles of the scrapers, bails attached to the said scrapers and extending forwardly therefrom, and a spreading-bar connected with the bails of all of the scrapers, as and for the purpose specified.

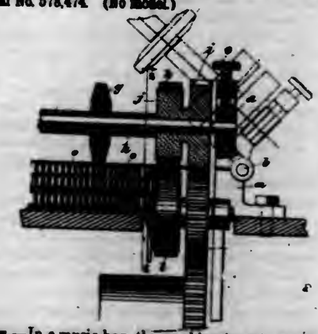
3. In a machine for working dirt, a gang of horizontally-arranged scrapers, a connecting-bar uniting the rear portions of the scrapers, bails projected from the forward portions of the scrapers, and a spacing-bar connected with the said bails, as and for the purpose set forth.

4. In a machine for working dirt, a gang of horizontally-arranged scrapers, a connecting-bar uniting the rear portions of the scrapers, bails projected from the forward portions of the scrapers, a spacing-bar connected with all of the said bails, a draft mechanism connected with the spacing-bar, and a return draft mechanism connected with the connecting-bar, as and for the purpose set forth.

5. In a machine for working dirt, the combination, with a gang of scrapers connected at the rear and provided with forwardly-extending bails, of a draft-clevis located at the front center of the gang of scrapers, a spacing-bar placed in front of the scraper-bails, and a connection between the said draft-clevis, the spacing-bar and each of the scraper-bails, as and for the purpose specified.

6. The combination, with a series of scrapers placed side by side and having rearwardly-extending handles, a connecting-bar secured to the said handles, and bails projected forwardly from each of the scrapers, of a spacing-bar placed in front of the bails, interlocking clevises pivotally connected with the spacing-bar in front of each bail, the said rear clevises having connection one with each bail of the scrapers, a draft-clevis, and cables connecting the outer clevises attached to the spacing-bar and the aforesaid draft-clevis, substantially as and for the purpose set forth.

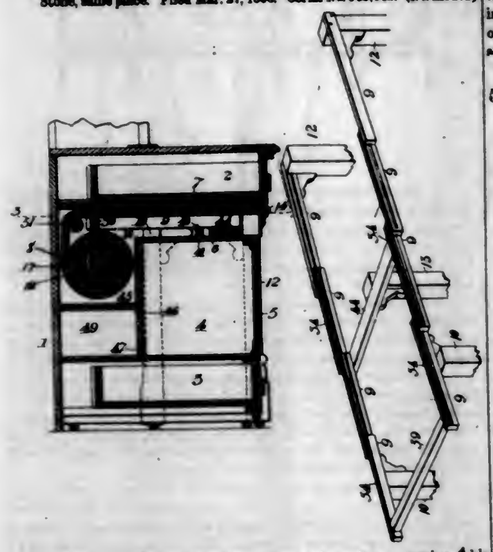
574,758. MUSIC-BOX. JOHN PAOLI, Rahway, N. J., assignor to the Regina Music Box Company, of New Jersey. Filed Feb. 8, 1896. Serial No. 578,474. (No model.)



Claim.—In a music-box, the combination of a music-disk, a lower positively-driven feed-roll with the periphery thereof bearing upon the disk only at or near the outer edge thereof, a gear-wheel formed integral with the feed-roll, means to rotate said gear, a second feed-roll of the same diameter as the first-mentioned feed-roll and with the periphery thereof bearing upon the upper side of the disk only at or near the outer edge thereof, a second gear-wheel formed integral with the upper feed-roll and adapted to mesh with the first-named gear-wheel and be operated thereby, a shaft for said upper feed-roll and gear-wheel pivoted at one end, friction-rollers loosely

carried by said shaft and means for adjusting said shaft at the pivoted end and retaining it in the adjusted position, said feed-rolls and their gear-wheels being maintained against movement away from each other, whereby when the shaft is turned upon its pivot the upper feed-roll and gear therefor are thrown out of operation and whereby the pressure of the rolls upon the disk or sheet can be regulated.

574,759. COMBINED SIDEBOARD AND EXTENSION-TABLE. WILLIAM H. PICKETT, Warren, Pa., assignor of one-half to Charles W. Stone, same place. Filed Mar. 27, 1896. Serial No. 585,062. (No model.)



Claim.—1. The combination with a casing, of an extension-table movable into and out of the casing and comprising inner and outer leg-frames and a flexible top, an eccentric winding-roller having a longitudinal shoulder and a series of annular grooves located at different points in the roller, strap-attaching devices at one end of the flexible top, and a series of flexible straps secured in the annular grooves of the eccentric roller and detachably engaged with the strap-attaching devices on the flexible table-top, substantially as described.

2. The combination with a casing, of an extension-table movable into and out of the casing and comprising inner and outer leg-frames and a flexible top, strap-attaching devices at one end of the flexible top, a winding-roller journaled in the casing and having a series of annular grooves located at different points in the roller, and a series of flexible straps secured at one end in the annular grooves and detachably engaged with the strap-attaching devices on the flexible table-top, substantially as described.

3. The combination of a casing, a winding-roller journaled in the casing, extension-table slides having dovetailed tongue-pieces on their upper edges, a flexible table-top having near each side a series of parallel dovetailed grooves engaging the tongue-pieces on the slides, connections between the flexible top and the winding-roller, an inner leg-frame for the table-top, and an outer leg-frame having an attached panel provided near its side edges with longitudinal grooves of a width sufficient to receive all the tongue-pieces of the slides, substantially as described.

4. The combination with an upright casing, of an extension-table movable into and out of the casing and comprising supporting-legs at its outer end and supporting-legs and a cross-bar at its inner end, a movable arm carried by a part of the upright casing, and means for adjusting the arm into and out of the path of the cross-bar at the inner end of the table, substantially as described.

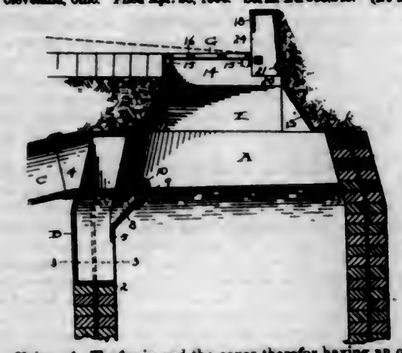
5. The combination with an upright casing, of a winding-roller journaled in the casing, an extension-table comprising a flexible table-top, supporting-legs at its outer end and supporting-legs at its inner end, connecting between the flexible table-top and the winding-roller, an arm carried by a part of the upright casing and movable into and out of the path of a part of the inner end of the table, and means for operating the arm, substantially as described.

6. A sideboard having an upper chamber 45, a lower receptacle 49, a front compartment 4, a swinging door 46 separating the front compartment from the upper chamber and lower receptacle, a winding-roller journaled in the upper chamber, and an extension-table having a flexible table-top connected with the winding-roller, substantially as described.

7. The combination with an upright casing, of a winding-roller journaled in the casing, an extension-table comprising a flexible top detachably connected with the winding-roller, and a movable abutment or arm carried by a part of the casing for engaging and disengaging an inner end portion of the table, substantially as described.

8. The combination with an upright casing, of a winding-roller journaled to the casing, an extension-table comprising a flexible top, an outer leg-frame, and an inner leg-frame detachably connected with the winding-roller, a pivoted stop-arm carried by a part of the casing to swing into and out of the path of a part of the inner leg-frame of the table, and a rod for swinging the stop-arm, substantially as described.

574,760. CATCH-BASIN FOR STREETS. GEORGE M. PIERCE, Cleveland, Ohio. Filed Apr. 20, 1896. Serial No. 588,242. (No model.)



Claim.—1. The basin and the cover therefor having an opening down through its top, a grate over the front part of said opening and a curb-box over the rear part thereof, and said cover and box constructed to adjust the box to different inclinations and elevations in relation to the cover, substantially as described.

2. The catch-basin having a body of masonry and a cover therefor with a central water-passage, a grate over the front portion of said passage and a curb-box in a separate piece over the rear portion thereof, said box having an unobstructed opening in its side into the basin the full width of said grate, and closed across its top and means to adjust said box separately to the inclination of the covering, substantially as described.

3. The basin-wall having a recess in its top and vertical grooves in the sides of said recess, in combination with the trap-frame set into said recess and having vertical flanges at its sides fitting in said grooves, thereby making a water-tight joint between said parts, substantially as described.

574,761. AGITATOR FOR TELEPHONE-TRANSMITTERS. SAMUEL B. RAWSON, Elyria, Ohio. Filed Jan. 14, 1895. Serial No. 534,797. (No model.)

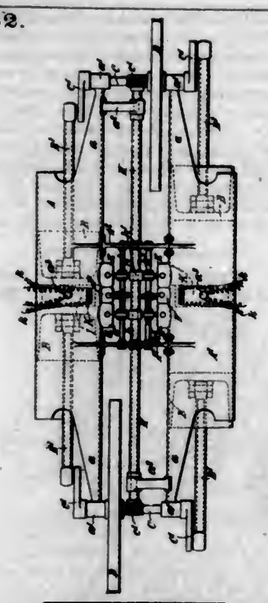


Claim.—A centrally-pivoted dust-transmitter in a telephone, a lever for removably holding the receiver, said lever provided with a slot at its inner end and engaging a pin attached to said transmitter, all in combination, whereby the operating of said lever will impart motion to said transmitter and thereby agitate the dust contained therein, all as above set forth and substantially as described.

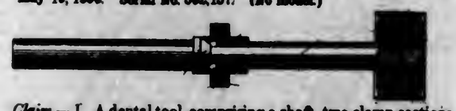
574,762. OIL, GAS, OR LIKE ENGINE. WALTER ROWBOTHAM, Birmingham, England. Filed Apr. 30, 1896. Serial No. 590,774. (No model.)

Claim.—In an explosive-engine, the combination with a pair of open-ended cylinders each provided with two pistons, and driving crank-shafts and fly-wheels mounted at opposite ends of the cylinders and driven by said pistons, of a shaft extending longitudinally between the two cylinders and driven by gearing from the said crank-shafts, valve mechanism arranged on the opposite sides of the two cylinders for controlling the inlet, exhaust and air valves, and means actuated by said shaft for operating the valve mechanism, substantially as described.

574,762.



574,763. DENTAL TOOL. FLAVEL A. RUDOLPH, Carmi, Ill. Filed May 19, 1896. Serial No. 592,157. (No model.)

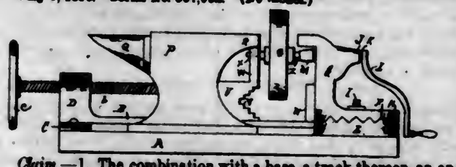


Claim.—1. A dental tool, comprising a shaft, two clamp-sections, one adjustable relatively to the other longitudinally of the shaft, said sections being provided with bevels in their opposing faces, said bevels converging toward the shaft, an expansible head held between said sections, and means for moving the sections relatively to each other to expand the head, substantially as shown and described.

2. A dental tool, comprising a shaft, a clamp held therein, comprising two sections one movable relatively to the other longitudinally of the shaft, means for moving one clamp-section relatively to the other, and a head held between said clamp-sections and made of expansible material such as rubber, said head being provided with a concave periphery so that the periphery of the head will become cylindrical when the head is expanded, substantially as shown and described.

3. A dental tool, comprising a spindle carrying a clamp-section and provided with a conical collar facing said clamp-section, a sleeve longitudinally movable on said spindle between said collar and said clamp-section, the sleeve carrying another clamp-section at one of its ends, an expansible head held between the two clamp-sections, and a nut screwing on the said sleeve and engaging the conical collar of the shaft, substantially as shown and described.

574,764. COMBINATION-TOOL. CHRISTIAN A. SALSMAN, Hamilton, Ohio, assignor of one-half to John A. Robbins, same place. Filed July 3, 1896. Serial No. 597,992. (No model.)



Claim.—1. The combination with a base, a track thereon, an anvil movable on the base and engaging with the track, said anvil being provided with a perforated apron, a hand-screw engaging with a boss on the track and with the anvil, of a vise-jaw adjustable to different horizontal angles in relation to the track, a drill-spindle journaled therein and provided with a socket in one end and a crank on the other, said spindle being in a line with the perforation in the apron and means to secure the vise-jaw immovably to the track.

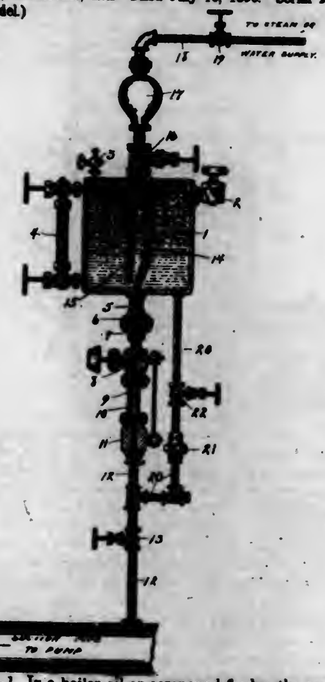
2. The combination, with a base, provided with a track, of an anvil longitudinally movable thereupon, one end of which is provided with an apron and two jaws, a horizontally-adjustable jaw secured to the track, a spindle journaled in the adjustable jaw opposite the apron, and a removable jaw upon the adjustable jaw and opposite one of the jaws of the anvil, substantially as set forth.

3. The combination, with a base provided with a track, of an anvil longitudinally movable thereupon, one end of which is provided with a perforated apron and two jaws, of a horizontally-adjustable jaw upon the opposite end of the track, the inner face of which is provided with two parallel flanges, a spindle journaled in the adjustable jaw opposite the apron, and a removable jaw between the flanges, substantially as set forth.

4. The combination with a base, a track thereon a vise-jaw adjustably mounted on one end of the track, a drill-spindle journaled therein, of an anvil movable along the track on the base, an abutment depending from the heel of the anvil and formed integral therewith, a bearing formed in the abutment on the axial line of the spindle and a grindstone mounted on a journal adapted to engage with the spindle and with the bearing in the abutment.

5. The combination with a base, a track thereon, a vise-jaw adjustably secured to the track, an anvil movable on the base and along the track, a hand-screw engaging with the anvil and with the track, of pipe-vise jaws formed integral with the anvil and projecting parallel with each other from one end thereof and a pipe-vise jaw movable between said jaws formed on the anvil and removably engaging with the vise-jaw or bracket on the track.

574,765. BOILER OIL OR COMPOUND FEEDER. WILLIAM A. SEMANS, Noblesville, Ind. Filed July 16, 1896. Serial No. 599,383. (No model.)



Claim.—1. In a boiler oil or compound feeder, the combination with a reservoir adapted to contain said compound, of a discharge-pipe leading therefrom near the top thereof, a nipple formed on the outer end of said pipe, a vacuum-chamber formed around said nipple and communicating with the suction-pipe of a pump, and an inflow-pipe through which water may be introduced into the reservoir near the bottom thereof, all combined and arranged to cooperate substantially as and for the purpose set forth.

2. In a boiler oil or compound feeder, the combination with a reservoir adapted to contain said compound, of a discharge-pipe leading therefrom near the top thereof, a vacuum-chamber formed about the discharge end of said pipe and communicating with the suction-pipe of a pump, an inflow-pipe through which water may be introduced into the reservoir near the bottom thereof, and a second discharge-pipe, provided with a suitable valve, leading from the reservoir near the bottom thereof, all combined and arranged to cooperate substantially as and for the purpose set forth.

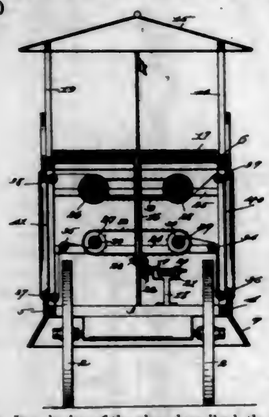
3. In a boiler oil or compound feeder, the combination with a reservoir adapted to contain said compound, of a discharge-pipe lead-

ing therefrom near the top thereof, a nipple formed at the discharge end of said pipe, a valve mounted between said reservoir and nipple, a sight-glass mounted over the end of said nipple and forming a vacuum-chamber adapted to be connected with the suction-pipe of a pump, and an inflow-pipe through which water may be introduced into the reservoir near the bottom thereof, substantially as described.

4. In a boiler oil or compound feeder, the combination with a reservoir adapted to contain said compound, of a discharge-pipe leading therefrom near the top thereof, a nipple formed at the discharge end of said pipe, a valve mounted between said reservoir and nipple, a sight-glass mounted over the end of said nipple and forming a vacuum-chamber adapted to be connected with the suction-pipe of a pump, an inflow-pipe through which water may be introduced into the reservoir near the bottom thereof, a condensing-chamber connected with said inflow-pipe, and a second discharge-pipe, provided with a suitable valve, leading from said reservoir near the bottom thereof, all combined and arranged to cooperate substantially as and for the purpose set forth.

5. In a boiler oil or compound feeder, the combination with a reservoir adapted to contain said compound, of a pipe 14, valve 8, nipple 9, sight-glass 10, and intermediate connections adapted to form a communication between said glass and the suction-pipe of a pump, pipe 15, and discharge-pipe 20 provided with a suitable valve, all combined and arranged to cooperate substantially as and for the purpose set forth.

574,766. ADVERTISING-WAGON. GEORGE A. SHARP and ROBERT H. HOOLE, St. Louis, Mo. Filed May 18, 1896. Serial No. 592,001. (No model.)

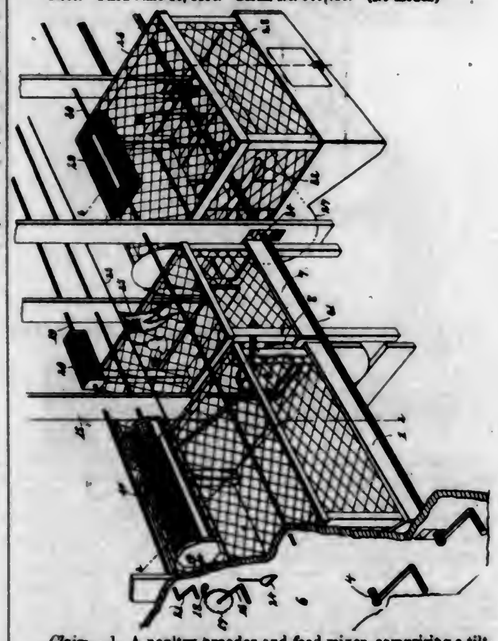


Claim.—1. In a device of the class described, the base 3, the side pieces 4 and 5 attached to said base at their lower edges, the top piece 6 connecting the upper edges of said side pieces, the end pieces 7 and 8 connecting said side pieces and base and top piece, the hood 9 extending around the vehicle and attached to said base, the smooth surfaces 10 and 11 at each end of said side pieces, the rectangular openings 12 between said smooth surfaces and in said side pieces, the posts 13 and 14 extending upwardly from the top piece 6 and the canopy 15 attached to the upper ends of said posts, substantially as specified.

2. In a device of the class described, the base 3, the top piece 6, suitable connections between said base and said top piece whereby the top piece is supported, the shaft 16 vertically positioned with its lower end journaled in the center of said base and its upper end journaled in the center of the top piece 6, the disk 17 rigidly fixed in a horizontal position upon the upper end of said shaft 16, the post 18 mounted upon the base 3 and near the shaft 16, the shaft 21 mounted in a horizontal position in bearings in the upper end of said post, the bevel-gear 22 upon the inner end of said shaft 21, the bevel-gear 23 upon the shaft 16 and meshing with said bevel-gear 22, and the handle upon the outer end of said shaft 21 for manually operating the same, substantially as specified.

3. In a device of the class described, the base 3, the side pieces 4 and 5 attached to said base, the cross-bars 24 and 25 connecting said side pieces, the shafts 26, 27, 28 and 29 rotatably mounted upon said cross-bars and in positions parallel with each other and with said side pieces, the sprocket-wheels 30 and 31 mounted upon and fixed to the ends of said shafts, one wheel upon each shaft, and in horizontal alinement with each other, the sprocket-chain 32 connecting the sprocket-wheels 30, the sprocket-chain 33 connecting the sprocket-wheels 31, the guide-rollers 34 and 35 in horizontal alinement with the shafts 27 and 29 and parallel with said shafts, the guide-rollers 36 and 37 mounted below the guide-rollers 34 and 35 and in positions parallel therewith, the guide-rollers 38 and 39 mounted above the rollers 36 and 37 and approximately in horizontal alinement with the shafts 26 and 28, the canvas 40, having one of its ends attached to the shaft 28 and wound around said shaft, and its opposite end passing over the guide-roller 39 and downwardly under the guide-roller 36, then upwardly over the guide-roller 34 and attached to the shaft 29, the canvas 41 having one of its ends attached to the shaft 26 and wound around said shaft and its opposite end passing over the guide-roller 38 and downwardly under the guide-roller 37, then upwardly over the guide-roller 35 and attached to the shaft 27, and handles for operating said shafts 26, 27, 28 and 29, substantially as specified.

574,767. POULTRY-BROODER. HIRAM H. STODDARD, Kearney, Nebr. Filed June 16, 1896. Serial No. 595,723. (No model.)



Claim.—1. A poultry-brooder and feed-mixer, comprising a tilting feed-box, a feed-receptacle for discharging feed into said box, a fixed box or coop adjacent to the feed-box and communicating therewith, and a chicken-call located over the said fixed box, substantially as specified.

2. A poultry-brooder and feed-mixer, comprising a tilting feed-box, a fixed box arranged adjacent thereto and having communication therewith, and a feed-distributer located over said fixed box, substantially as specified.

3. A poultry-brooder and feed-mixer, comprising a tilting box, a feed-distributer located over the same, a fixed box arranged adjacent to the tilting box and having communication therewith, a chicken-call arranged above the fixed box, and a feed-distributer arranged above said fixed box, substantially as specified.

4. A poultry-brooder and feed-mixer, comprising a series of feed-boxes, an oscillating or rocking shaft on which said boxes are mounted, a series of feed-receptacles arranged above the feed-boxes and respectively communicating with the feed-boxes and all mounted on a shaft, and fixed boxes arranged between the tilting boxes, substantially as specified.

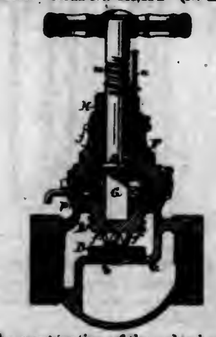
5. A poultry-brooder and feed-mixer, comprising a box having an inclined floor portion and a concaved portion, a rotary shaft extending through said box, arms or sweepers mounted on said shaft and adapted to turn within the concave portion of the bottom, and a feed-distributer arranged above said box, substantially as specified.

6. The combination, with a tilting box and a fixed box adjacent thereto, of a feeding-box having a concave floor portion and an inclined floor portion, and a mixer operating in said concave portion, substantially as specified.

7. A poultry-brooder and feed-mixer having a series of feed-boxes, a rock-shaft on which said boxes are fixed stationary boxes arranged between the feed-boxes and respectively communicating with the feed-boxes and means for mixing the food within the feed-boxes, substantially as described.

8. A poultry-brooder and feed-mixer having a box with a floor a portion of which is inclined and a second portion of which is concaved, the two said portions being contiguous to each other, a rotary shaft adjacent to the concaved portion, and arms or sweepers carried by the shaft and moving through the said concaved portion, substantially as described.

574,768. STOP-VALVE. JAMES WALSH, Jr., Philadelphia, Pa. Filed July 25, 1892. Serial No. 441,124. (No model.)



Claim.—1. The combination of the valve having projecting fingers at the back, with the valve-carrier having an inverted conical socket in which said fingers are expanded, said socket having side openings so as to permit the flow of fluid therethrough, substantially as specified.

2. The combination of the valve-carrying nut, with the valve-casing having an internal thread for the reception of said nut and a lateral drainage-opening passing directly through said casing and communicating with said internal thread, the nut fitting loosely in said thread so as to provide a passage between the threads to the drainage-opening when the valve is closed, substantially as specified.

574,769. ANTIRATTLER FOR THILL-COUPLINGS. JOHN W. WILLARD, Pittsford, Vt., assignor to Charles G. Farwell, Quincy, Mass. Filed Sept. 9, 1896. Serial No. 605,250. (No model.)

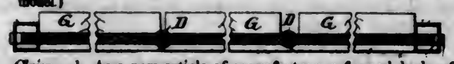


Claim.—1. An antirattler for thill-couplings, comprising a pair of pivotally-connected jaws; and an adjusting mechanism connecting and in engagement with said jaws whereby they may be positively swung toward or from each other, thus contracting or expanding the antirattler, as desired, substantially as described.

2. In an antirattler for thill-couplings, a pair of jaws hinged together; and an adjusting mechanism connecting and in engagement with said jaws whereby they may be positively swung toward or from each other and thus contract or expand the antirattler, as desired, substantially as set forth.

3. In an antirattler for thill-couplings, in combination, a pair of jaws permanently connected together when in operative position by a hinge; and an adjusting mechanism connecting and in engagement with said jaws whereby they may be positively swung toward or from each other and thus contract or expand the antirattler, as desired, substantially as described.

574,770. FRAMING WINDOW-GLASS OR TILE. WILLIAM H. WINSLOW, Chicago, Ill. Filed Nov. 23, 1896. Serial No. 613,133. (No model.)



Claim.—1. As a new article of manufacture, a framed body of tile sections comprising a series of such sections placed in the same plane, a surrounding frame, and cross frame-pieces between the sections to support and secure them, consisting each of an electrical conductor and a mass of electrically-deposited metal surrounding said conductor to complete the frame and seal the joints between the sections.

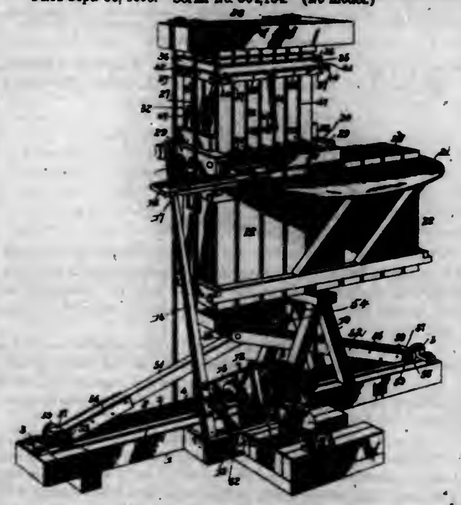
2. As a new article of manufacture, a framed body of tile sections comprising a series of such sections placed in the same plane, a surrounding frame, and cross frame-pieces between the sections to support and secure them, consisting each of a copper-like electrical conductor and a mass of electrically-deposited metal surrounding said conductor to complete the frame and seal the joints between the sections.

3. As a new article of manufacture, a framed body of tile sections comprising a series of such sections placed in the same plane, and provided each with prismatic ribs forming between them a surface angle and extending substantially to the edge of such section, a surrounding frame and cross frame-pieces between the sections to support and secure them, consisting each of an electrical conductor and a mass of electrically-deposited metal surrounding such conductor, and with lugs projecting into the surface angles of the sections, to complete the frame, seal the joints between the sections and resist any tendency of the sections to longitudinal motion along the frame-pieces.

4. As a new article of manufacture, a framed body of tile sections comprising a series of tile sections placed in the same plane and having their opposed edges recessed, a surrounding frame and cross frame-pieces between the sections to support and secure them, consisting each of an electrical conductor and a mass of electrically-deposited metal surrounding such conductor and filling such recesses to complete the frame, seal the joints between the sections and resist the tendency of the sections to move across such frame-pieces.

5. As a new article of manufacture, a framed body of tile sections comprising a series of tile sections placed in the same plane, a surrounding frame and a skeleton frame consisting of frame-pieces between the sections, and overhanging key-pieces at the intersections of such frame-pieces to support and secure the sections, such frame-pieces and keys being electrical conductors, and a mass of electrically-deposited metal surrounding such conductors to complete the frame and seal the joints between the sections.

574,771. BALING-PRESS. ALVA H. ANDERSON, Clarksville, Tex. Filed Sept. 30, 1895. Serial No. 564,184. (No model.)



Claim.—1. In a baling-press, the combination with a baling-chamber, a follower-head, a friction-wheel operatively connected with the follower-head and having inner and outer concentric friction-surfaces, and a friction-pulley adapted to be arranged in contact with either friction-surface and rotated continuously in a uniform direction, of a movable bearing consisting of a pivoted arm 11^a carrying said pulley, a hand-lever connected to said arm, locking devices for the hand-lever, and a trip arranged in the path of a moving part of the mechanism and operatively connected with the hand-lever to move and disengage it from said locking devices, substantially as specified.

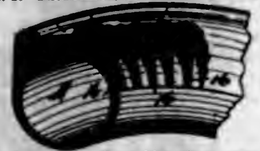
2. In a baling-press, the combination with a baling-chamber, a follower-head, a friction-wheel operatively connected with the follower-head, and a friction-pulley adapted to be arranged in contact with either friction-surface of the friction-wheel, and having a continuous rotary motion in a uniform direction, of a hand-lever operatively connected with the friction-pulley to move it from one position to the other and provided with an elongated detent, means for locking the hand-lever in one position including a rack for engagement by said detent, a contractile spring for moving the hand-lever when

released in the opposite direction, a rock-shaft having an arm upon which said hand-lever is fulcrumed, the movement of said arm being parallel with and greater than the length of the detent to disengage the hand-lever from the rack, and a trip carried by the rock-shaft and arranged in the path of a moving part of the mechanism, substantially as specified.

3. In a baling-press, the combination with a baling-chamber, a follower-head, a continuously-operated friction-wheel having inner and outer friction-surfaces, operating connections between the friction-wheel and plunger, and a friction-pulley adapted to be arranged in contact with either friction-surface of the friction-wheel, of a hand-lever operatively connected with the friction-pulley to move it from one position to the other, means, consisting of a rack 17 having its teeth inclined in opposite directions from its center, for locking the hand-lever at any desired point in its movement, a contractile spring for moving the hand-lever when disengaged toward one end of the rack, a rock-shaft having an arm upon which said hand-lever is fulcrumed, the movement of said arm being adapted to impart longitudinal movement to the hand-lever to disengage it from the teeth of the rack, and a trip on the rock-shaft arranged in the path of a moving part of the mechanism, substantially as specified.

4. In a baling-press, the combination with a baling-chamber, a follower-head, toggle-arms, a feed-screw, and feed-nuts connected to the toggle-arms and engaged by the feed-screw, of a friction-wheel operatively connected with the feed-screw, a friction-pulley adapted to be arranged in contact with either friction-surface of the friction-wheel, means for communicating continuous rotary motion in a uniform direction to the friction-pulley, a hand-lever operatively connected with the friction-pulley to move it from one position to the other, means consisting of a toothed rack for locking the hand-lever at the limit of its movement in one direction, a rock-shaft having a loop or bail 62 upon which the said hand-lever is fulcrumed and adapted when operated in one direction to elevate the hand-lever and thereby disengage it from the rack, a contractile spring connected at one end to the lever and at the other end to the axis of the rock-shaft, whereby when the hand-lever is disengaged from the rack it is drawn in the opposite direction to that in which it is moved to its locked position, and a trip secured to the rock-shaft and arranged in the path of a moving part of the mechanism, substantially as specified.

574,772. **VEHICLE-TIRE PROTECTOR.** MARION A. ANDREWS, Syracuse, N. Y. Filed Jan. 30, 1896. Serial No. 577,381. (No model.)



Claim.—1. A protector for vehicle-tires, comprising a suitable backing, a body thereon, straight transverse spring-plates in said body and parallel ribs upon the exterior of said body, all vulcanized together, whereby the compression of said ribs produces a spring action of said plates.

2. A protector for vehicle-tires, comprising a suitable backing, a body thereon, straight transverse spring-plates in said body, parallel ribs upon the exterior of said body, all vulcanized together and spurs projecting from said plates through said body into the space between said ribs.

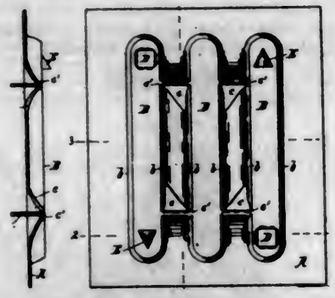
3. A protector for vehicle-tires comprising a suitable backing, a body thereon, straight spring-plates within and across said body and concaved transversely, parallel ribs upon said body and constituting the tread of said protector, in combination with a tire provided with a peripheral rib fitting into said concavity when the protector is applied to said tire.

4. The combination with a tire, and a protector-strip applied thereto, provided interiorly with transverse spring-metal plates, and exteriorly with parallel flexible ribs, of an endless band mounted in the peripheral recess of said strip and consisting of a backing, a body, and projecting spurs vulcanized together.

5. A protector-strip for tubular tires comprising an endless interiorly-concaved backing, a body thereon provided with exterior parallel ribs of flexible and yielding material, creating an annular recess between them, and flat spring-metal plates having their lateral edges abutting against each other and embedded in said body and respectively lying in a plane tangential to the arc of said concavity, all vulcanized together.

6. The combination with a tubular tire of a protector against puncturing mounted thereon and comprising a suitable backing, a body divided on either side into brackets, flat plates within said body and having their outer ends resting upon said brackets, and exterior ribs interiorly bridging over the spaces between said brackets, and exteriorly projecting to create an annular recess between them and vulcanized together in any ordinary manner.

574,773. **RAILWAY-TIE PLATE.** HENRY W. AVERY, Cleveland, Ohio. Filed Mar. 19, 1896. Serial No. 583,900. (No model.)



Claim.—1. A railway-tie plate having two or more hollow truss-ribs which extend up from said plate and lie wholly within the marginal edges of the plate, and are adapted to support the rail, substantially as and for the purpose specified.

2. A railway-tie plate having its marginal edges in one plane and having two or more hollow truss-ribs which extend above said plane and lie wholly within said marginal edges, substantially as and for the purpose specified.

3. A railway-tie plate having two or more hollow truss-ribs which extend up from said plate and are adapted to support the rail and lie wholly within the marginal edges of said plate, said plate having on its under side a tongue or tongues which are attached to and project downward from the metal between said ribs, substantially as and for the purpose specified.

4. A railway-tie plate having its marginal edges in one plane, and hollow truss-ribs which extend above said plane and lie wholly within the marginal edges of the plate, and tongues cut and turned down from the metal between said ribs, substantially as and for the purpose specified.

5. A railway-tie plate having its marginal edges in one plane, and hollow truss-ribs which extend above said plane and lie wholly within the marginal edges of the plate, and tongues cut and turned down from the metal between said ribs, the metal between the hole thus formed and the edges of the plate being raised above said plane, substantially as and for the purpose specified.

6. A railway-tie plate having its marginal edges in one plane and hollow truss-ribs B which extend above said plane and lie wholly within the marginal edges of the plate, and having tongues cut and turned down from the metal between said ribs B and raised portions *c* raised to the level of the ribs B on both sides of the holes from which said tongues are cut, substantially as and for the purpose specified.

7. A railway-tie plate, having two or more upwardly-extended hollow truss-ribs, and having spike-holes formed through the tops of said ribs, and triangular tongues turned down on all four sides of said spike-holes, substantially as and for the purpose specified.

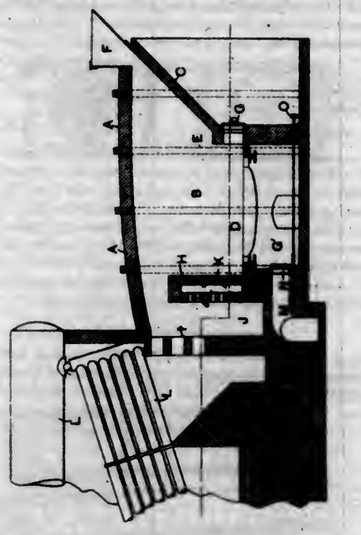
574,774. **DESTRUCTOR-FURNACE.** SAMUEL J. BEAMAN and JAMES DEAS, Warrington, England. Filed Oct. 1, 1894. Serial No. 524,607. (No model.) Patented in England Aug. 17, 1893, No. 15,866, Dec. 9, 1893, No. 23,712, and July 5, 1894, No. 13,039.

Claim.—1. In a destructor-furnace, the combination of an inclined feeding-hearth, a furnace at the back of the hearth, an unperforated reverberatory arch extending over the furnace and the hearth and means for directing the draft of the furnace away from the hearth, substantially as and for the purpose set forth.

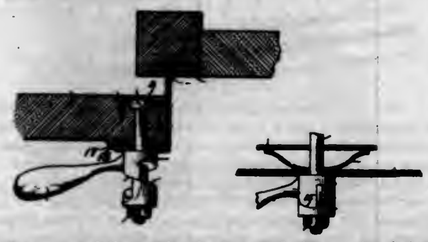
2. In a destructor-furnace, the combination of an inclined feeding-hearth, a furnace at the back of the hearth, a secondary combustion-chamber at the back of the furnace, means for leading the draft through the combustion-chamber and from the furnace and an unperforated reverberatory arch extending over the hearth and furnace, substantially as described.

3. In a destructor-furnace, the combination of an inclined feeding-hearth, a furnace at the back of the hearth, a secondary combustion-chamber at the back of the furnace, means for leading the draft through the combustion-chamber and from the furnace, and an unperforated reverberatory arch extending over the hearth, furnace, and chamber.

4. In a destructor-furnace, the combination with an inclined feeding-hearth, of a furnace at the back of the hearth, a main unperforated reverberatory arch extending over the furnace and hearth and an auxiliary perforated arch, substantially as described.



574,775. **CAR-DOOR FASTENER AND PROTECTOR.** JOHN C. BISHOP, McComb, Miss. Filed Aug. 18, 1896. Serial No. 603,148. (No model.)



Claim.—1. A sliding car-door having attached to one edge thereof an L-shaped strip, one flange of which bears against the car-body and the other flange overlaps the door, and means connected with the door and the overlapping flange for throwing the first-mentioned flange inward against the car-body and outward therefrom, substantially as described.

2. A sliding car-door having attached to one edge thereof, an L-shaped strip, one flange of which bears against the car-body and the other flange overlaps the door, a clamping device connected with the door and the overlapping flange for throwing the first-mentioned flange inward against the car-body, and a spring for throwing said flange outward away from the car-body to permit the door to slide, substantially as described.

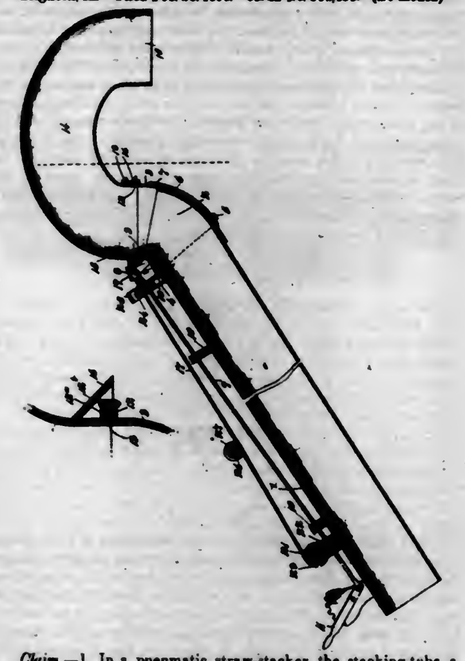
3. The combination with a sliding car-door, of an L-shaped strip embracing the edge of said door, a bolt connected to the door and passing through said strip, and a cam-shaped clamp mounted on said bolt and operating against said strip for forcing the latter into engagement with the car-body, substantially as described.

4. The combination with a sliding car-door, of a strip embracing one of the vertical edges thereof, a bolt connected to the door, a stationary cam on said bolt, and a rotatable cam on said bolt interposed between the stationary cam and said strip, substantially as and for the purpose described.

5. A car-door fastener comprising an L-shaped strip, one flange of which bears against the car and the other flange overlaps the door, a spring for throwing the first-mentioned flange outward, and a series of bolts and cams connecting the door and the overlapping flange for throwing said flange inward against the car-body, substantially as described.

6. The combination with a sliding car-door, of a strip applied to the edge of said door and having an L shape in cross-section, means on the door for forcing one edge of said strip into engagement with the car-body, and a spring located between said strip and the car-door for withdrawing said strip from engagement with the car-body, substantially as described.

574,776. **PNEUMATIC STRAW-STACKER.** LOUIS BLUMSTEIN, Brighton, Ill. Filed Feb. 28, 1896. Serial No. 581,132. (No model.)



Claim.—1. In a pneumatic straw-stacker, the stacking-tube, a segmentally-connecting collar telescoping on the outer end of the tube and hinged to the upper side thereof, an oscillatory delivery-spout having a swivel connection at one end with said collar, means for adjusting said collar on its hinge, and separate means for swinging the delivery-spout laterally on its swivel, substantially as described.

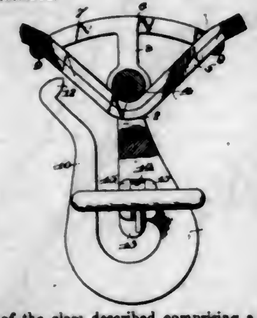
2. In a pneumatic straw-stacker, the stacking-tube provided with an upwardly-curved outer end, a segmental connecting-collar exteriorly fitted on the curved outer end of the tube and hinged to the upper side of such tube, said collar being provided at its upper edge with an annular bearing-groove, a laterally-oscillatory delivery-spout provided with elbow extremities and having at its inner end an annular flange loosely registering in the groove of said collar, and an exterior hood-flange overhanging the swivel-joint formed by said bearing-groove and the flange registering therein, a lever-adjusted rod arranged over the stacking-tube and connected at its outer end with said collar adjacent to its hinge connection, and a suitably-controlled adjusting-cable having a wrap around the inner elbow of the delivery-spout to provide for oscillating the latter, substantially as set forth.

3. In a pneumatic straw-stacker, the stacking-tube provided with an upwardly-curved outer end, a curved skeleton bracket attached to the under side of the stacking-tube near its outer end and provided with a guide-slot, a segmental connecting-collar exteriorly fitted on the curved outer end of the tube and hinged to the upper side of such tube, said collar having a stop-pin working in the guide-slot of said skeleton bracket, a laterally-oscillatory delivery-spout swiveled to said collar, and suitable adjusting devices, substantially as set forth.

574,777. **BREAST-STRAP ROLL.** GEORGE E. BOUGHTON, Alma, Mich. Filed Sept. 26, 1895. Serial No. 563,638. (No model.)

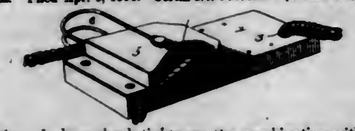
Claim.—1. A device of the class described comprising a substantially horizontal open frame, a central depending yoke rigid with the frame, a hook rigid with the yoke and extending downward therefrom, and a roller journaled in the yoke and located centrally beneath the open frame, said device forming a lever with the roller for a fulcrum, so that when the hook is swung in one direction the frame will be carried in the opposite direction, and being adapted to receive a breast-strap on its roller and have the same pass upward therefrom and extend within the frame in position to be engaged by the ends thereof, whereby when the roller moves on the breast-strap, the frame will automatically engage the latter, frictionally, at the side toward which the roller moves to check such movement, and will simultaneously free the other side of the breast-strap to facilitate a return of the roller, substantially as described.

2. A device of the class described, comprising a yoke, a centrally-arranged roller journaled on the yoke, an open angular frame supported above the roller and having its end portions located above and at opposite sides of the same in position to engage the outer face of a breast-strap, and a hook rigid with the yoke and having its outer side arranged substantially parallel with the shank of the hook, extended above the same and terminating adjacent to one end of the frame at a point between the end and the roller in close proximity to the breast-strap, the space between the upper terminal and the outer portion of the hook or breast-strap, when the latter is in position, being much less than the thickness of a ring for engaging the hook, whereby the mouth of the hook is effectually closed to prevent a ring from becoming accidentally disengaged from the hook substantially as described.



3. A device of the class described comprising a hook having inner and outer sides with an intervening opening or space and provided at its inner side with a depending projection 13, a lug extending rearward from the inner side of the hook and located directly above the projection 13, a loop pivoted to the said lug to receive a holdback-strap, offset laterally from the opening or space between the sides of the hook to arrange it ont of the way of the neck-yoke ring and provided with shoulders arranged to engage the hook, whereby the loop is held normally at right angles to the hook and is prevented from swinging downward from such a position, but is permitted to swing upward, substantially as described.

574,778. CORN-SHOCK TIGHTENER. PATRICK BRADY, Emporia, Kans. Filed Apr. 6, 1896. Serial No. 586,434. (No model.)



Claim.—1. In a shock-tightener, the combination with a rope, of a weight attached to one end of the rope and carrying a direction-pulley, and a rope-clamp arranged upon the weight and consisting of contiguous approximately parallel spring-metal loops between which the free end of the rope is adapted to be passed to secure a shock at the desired compression, substantially as specified.

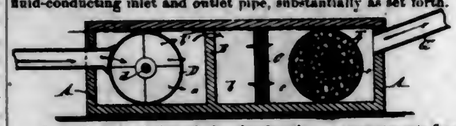
2. In a shock-tightener, the combination with a rope, of a weight attached to one end of the rope and carrying a rope-clamp, a twine-cutter carried by the base, and a twine-clutch mounted upon the weight and adapted to engage the free end of the twine whereby the latter may be extended around a shock simultaneously with the rope, substantially as specified.

3. In a shock-tightener, the combination with a rope, of a weight secured to one end of the rope and carrying a rope-clamp, and a combined twine cutting and clutching device including a fixed blade and a fixed parallel plate, a pivotal blade, and a pivotal clutch-plate cooperating with the fixed plate, said pivotal blade and clutch-plate being connected for simultaneous operation to a common handle or finger-hold, substantially as specified.

574,779. FILTER. LOUIS BRANDEIS, Brooklyn, N. Y., assignor to Fanita M. Brandeis, same place, and Charles T. Strauss, New York, N. Y. Filed Sept. 28, 1896. Serial No. 607,248. (No model.)

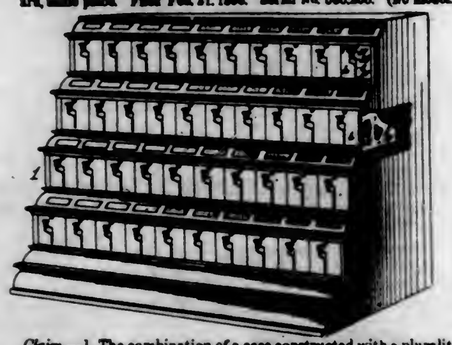
Claim.—1. A filter consisting of a box having compartments formed by partitions, one partition being provided with a top opening and the other partition being of porous material, and a revoluble wheel or perforated cylinder in the first compartment having the partition with the top opening, in combination with a fluid-conducting inlet and outlet pipe, substantially as set forth.

2. A filter consisting of a box having three compartments formed by partitions, one partition being provided with a top opening and the other being of porous material, a revoluble wheel or perforated cylinder in the compartment having the partition with the top opening, and a revoluble perforated cylinder containing chemicals for the purpose described, in the third compartment, in combination with a fluid-conducting inlet and outlet pipe, substantially as set forth.



3. A filter consisting of a box having three compartments formed by partitions, one partition being provided with a top opening and the other partition consisting of perforated sheets filled up with filtering material, a revoluble wheel or perforated cylinder in the first compartment having the partition with the top opening and a revoluble perforated cylinder containing chemicals, for the purpose described, in the third compartment, in combination with fluid-conducting inlet and outlet pipes, substantially as set forth.

574,780. DRUGGIST'S LABEL-CASE. LOUIS H. BRITTON, Lisbon, Ohio, assignor of two-thirds to Josiah B. Morgan and Richard H. Pritchard, same place. Filed Feb. 21, 1896. Serial No. 580,265. (No model.)



Claim.—1. The combination of a case constructed with a plurality of compartments, and a plurality of frames fitted into said compartments and removable and replaceable as described, each frame having a removable and replaceable roller carrying a convoluted web of druggists' labels, two feed-rollers between which the said web passes, a vertically-movable label-cutting knife, a pivoted lever having two arms, one arm arranged in operative connection with one of the feed-rollers, and the other arm engaging said label-cutting knife and provided with a finger-piece, a platform located between the feed-rollers and the label-cutting knife, and a shelf in front of the platform by which the label is supported after it is cut from the web, said label-cutting knife moving vertically between said platform and shelf, substantially as described.

2. A druggist's label-case having a removable and replaceable roller carrying a convoluted web of druggists' labels, a lower feed-roller, an upper feed-roller composed of two separated roller-sections, one of which carries a pawl, a pinion loosely mounted between said roller-sections and provided with an attached ratchet-wheel with which said pawl engages, a label-cutting knife, a lever having two arms, one arm having a segmental gear to engage the ratchet-wheel, and the other arm engaging and operating the label-cutting knife and provided with a finger-piece, a platform located between the said knife and the said feed-rollers, and a shelf in front of the platform, said knife moving vertically between said platform and shelf, substantially as described.

3. A druggist's label-case having a removable and replaceable roller carrying a convoluted web of druggists' labels, a lower feed-roller, an upper feed-roller composed of two separable roller-sections, one of which carries a pawl, a pinion loosely mounted between said roller-sections and provided with an attached ratchet-wheel with which said pawl engages, a vertically-movable label-cutting knife, a pivoted lever having two arms, one arm having a segmental gear to engage the ratchet-wheel, and the other arm engaging and operating the label-cutting knife and provided with a finger-piece, a platform located between said knife and feed-rollers, and a shelf in front of the platform, said label-cutting knife moving vertically between said platform and shelf, substantially as described.

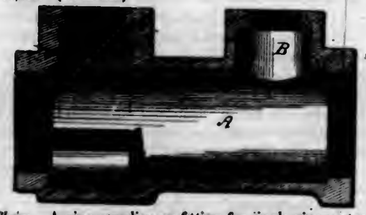
4. A druggist's label-case having a compartment, and a frame removably fitted into said compartments and composed of side walls and a vertically-slotted front wall and having a removable and replaceable roller carrying a convoluted web of druggists' labels, a lower feed-roller, an upper feed-roller composed of two separated roller-sections, one of which carries a pawl, a pinion loosely mounted between said roller-sections and provided with an attached ratchet-wheel with which said pawl engages, a vertically-movable label-cutting knife; a pivoted lever having two arms, one arm having a segmental gear to engage the ratchet-wheel, and the other arm engaging said label-cutting knife and provided with a finger-piece, a platform located between said knife and feed-rollers, a device arranged in proximity to the upper side of the platform to hold the label-web down thereupon, and a shelf in front of the platform, said label-cutting knife moving vertically between said platform and shelf, substantially as described.

5. The combination in a druggist's label-case, of a roller carrying a convoluted web of druggists' labels, a vertically-sliding label-cutting knife, a lower feed-roller, an upper feed-roller composed of two separated roller-sections, one of which carries a pawl, a pinion loosely mounted between said roller-sections and provided with an attached ratchet-wheel with which said pawl engages, and a pivoted lever having two arms, one engaging and operating the label-cutting knife, and the other provided with a segmental gear extending between said roller-sections and adapted to engage said ratchet-wheel, substantially as described.

574,781. MANUFACTURE OF SHEET METAL. JOHN F. BUDER, Canonsburg, Pa., assignor to The Canonsburg Iron and Steel Company, same place. Filed Feb. 26, 1895. Serial No. 539,768. (No specimens.)

Claim.—As an improvement in the art of manufacturing iron or steel sheets, the method herein described, which consists in pickling the sheet-bars for the purpose of removing cinders or other impurities from the surface thereof, washing the bars, heating them to a good rolling-temperature, reducing them by rolling to approximately the finished gage, pickling and washing the sheets, and finally reducing them to the finished gage, substantially as set forth.

574,782. PIPE-FITTING FOR HOT-WATER RADIATORS. LE ROY S. BUNKER, Webster City, Iowa. Filed Feb. 24, 1896. Serial No. 580,383. (No model.)



Claim.—A pipe coupling or fitting for single-pipe water-heating systems cast complete in one piece and comprising an open-ended section screw-threaded at each end to admit the adjacent ends of a supply-pipe, having an opening at its top near one end to admit a flow-pipe leading to a radiator, an annular enlarged section in the coupling near the opposite end, having an opening in its top to admit a return-pipe, and a semicircular partition on the interior of the coupling covering the return-opening and extending across said enlarged portion with spaces at its sides to admit the return steam or water to pass into the interior of the coupling at or below its horizontal center.

574,783. TEAKETTLE. GEORGE BURNET and CLOID W. BURNET, Missouri Valley, Iowa, assignors of one-third to William H. Fensler, same place. Filed June 23, 1896. Serial No. 596,610. (No model.)



Claim.—The combination of a kettle-top provided with a circular opening, a stationary concavo-convex plate provided at one side with an opening and having an upturned edge secured to the lower face of the top of the kettle and forming a circular groove or way, and a rotary concavo-convex lid arranged on the upper face of the stationary plate at one side with an opening and having its periphery arranged in the said groove or way, said lid and plate being provided with corresponding concentric grooves or corrugations centering the lid of the plate and enabling the former to rotate freely without binding at its edges and without employing a central pivot, substantially as described.

574,784. PNEUMATIC TOOL. JOHN G. CARLISLE, Philadelphia, Pa. Filed May 19, 1896. Serial No. 592,308. (No model.)



Claim.—1. In a pneumatic tool, the combination, with a casing closed at both ends, of a plunger adapted to move within the said casing, an anvil adapted to be struck by the forward motion of said plunger, a cutting-tool carried by said anvil, and means for admitting and exhausting fluid under pressure at the ends of the said plunger through an alternate motion of the casing, substantially as described.

2. In a pneumatic tool, the combination, with a casing provided with closing-screws at each end, of a plunger adapted to move within the said casing, an anvil also within said casing and adapted to be struck by the forward motion of the said plunger, a central supply-pipe and means for alternately admitting and exhausting the motive fluid at the ends of the aforesaid plunger, substantially as described.

3. In a pneumatic tool, the combination, with a casing provided with front and rear closing-screws having admission and exhaust ports, of a plunger provided with ports and adapted to move within the said casing, an anvil also provided with ports and carried by the aforesaid casing and front closing-screw, a cutting-tool carried by the said anvil and passing through said front closing-screw, and a central supply-pipe provided with ports, and passing through the rear end closing-screw, and the plunger, and engaging the said anvil, substantially as described.

4. In a pneumatic tool, the combination with a casing provided with front and rear end closing-screws having admission and exhaust ports, of a plunger provided with ports and adapted to move within the said casing, an anvil provided with ports and carried by the said casing and the front end closing-screw, a cutting-tool carried by the said anvil and passing through the said front closing-screw, and a central supply-pipe having a solid head, provided with ports and passing through the aforesaid rear end closing-screw and plunger, substantially as described.

5. In a pneumatic tool, the combination with a casing provided with front and rear end closing-screws having admission and exhaust ports, of a plunger carried within the said casing, an anvil provided with ports, carried within the said casing and front closing-screw and adapted to be struck by the forward motion of the plunger, a cutting-tool carried by the said anvil and passing through the said front closing-screw, a central supply-pipe, made solid at one end, provided with ports and passing through the said rear closing-screw and plunger and adapted to engage said anvil, substantially as described.

6. In a pneumatic tool, the combination, with a casing provided with a rear end closing-screw having admission and exhaust ports, of a second closing-screw inserted in the other end of the said casing and provided with exhaust-ports and a central chamber; a plunger provided with ports and adapted to move within said casing; an anvil provided with ports and carried by said casing and front closing-screw; a cutting-tool carried by the said anvil, a central supply-pipe made solid at one end, provided with ports and passing through the said rear closing-screw and plunger, and engaging the anvil, substantially as described.

7. In a pneumatic tool, the combination, with a casing, of a closing-screw provided with a central chamber and exhaust-port and inserted in one end of the casing, a rear closing-screw provided with ports and inserted in the other end of the said casing, a plunger provided with ports and adapted to move within the said casing, an anvil provided with ports and carried within said casing and front closing-screw, a cutting-tool carried by the said anvil, means for resisting the forward motion of the said anvil carried by the said front closing-screw, and a central supply-pipe, provided with ports and adapted to be engaged by the rear end closing-screw plunger and anvil, substantially as described.

8. In a pneumatic tool, the combination with a casing provided at each end with a closing-screw having admission and exhaust ports, of a plunger adapted to move within said casing, an anvil carried within said casing and front closing-screw and adapted to be struck by said plunger, a cutting-tool carried by said anvil, a spring adapted to resist the forward motion of the said anvil, and means for admit-

ting and exhausting fluid alternatively to and from both ends of the said plunger, substantially as described.

9. In a pneumatic tool, the combination with a casing provided with closing-screws at each end having admission and exhaust ports, of a plunger provided with ports and adapted to move within the said casing; an anvil carried within the said casing and provided with ports and front and rear cavities or sockets, a cutting-tool carried by said anvil in the front socket, a spring adapted to resist the forward motion of the said anvil, and a central supply-pipe provided with ports, passing through the said rear closing-screw and plunger and adapted to engage the rear socket of the aforesaid anvil, substantially as described.

10. In a pneumatic tool, the combination with a casing of a closing-screw having ports and provided with a central chamber, of a second closing-screw provided with ports and inserted in the other end of said casing, a plunger and ports therein carried within said casing, an anvil also provided with ports and carried within the said casing and closing-screw chamber, a cutting-tool carried by said anvil, a spring carried within said closing-screw chamber and adapted to resist the forward motion of said anvil, a central inlet-pipe having a solid head, provided with ports and passing through said rear end closing-screw and plunger and adapted to engage the aforesaid anvil, substantially as described.

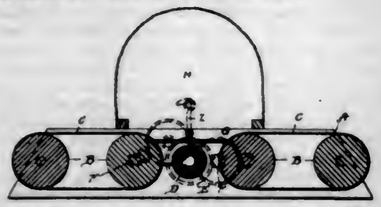
11. In a pneumatic tool, the combination with a casing, of a closing-screw provided with a central chamber and ports and inserted in one end of said casing, a second closing-screw provided with ports and inserted in the other end of said casing; a plunger provided with ports and carried within the said casing; an anvil also provided with ports and carried within the said casing and closing-screw chamber, a cutting-tool carried by one end of said anvil; a spring carried within said closing-screw chamber and adapted to resist the forward motion of said anvil and carried by said closing-screw chamber; a central supply-pipe having a solid head at one end and adapted to be connected to the source of fluid-supply at the other provided with ports and passing through the rear closing-screw and plunger and adapted to engage said anvil, substantially as described.

12. In a pneumatic tool, the combination with a casing, of a closing-screw provided with a central chamber and inserted in one end of said casing, a second closing-screw inserted in the other end of said casing, a plunger adapted to move within said casing, an anvil adapted to be struck by said plunger and carried within said casing and closing-screw chamber, a cutting-tool carried by said anvil, a central supply-pipe having a solid head at one end and adapted to be connected with the source of fluid-supply at the other, provided with ports and passing through the rear closing-screw and plunger and adapted to engage the said anvil, and ports provided for the admission and expulsion of the fluid at the ends of the said plunger, substantially as described.

13. In a pneumatic tool, the combination, with a casing provided with closing-screws in each end having admission and exhaust ports; of a plunger provided with ports and carried within the said casing, an anvil carried within the said casing and front closing-screw and provided with ports, a cutting-tool carried by the said anvil, a spring carried within the front closing-screw and adapted to resist the forward motion of the said anvil, a central supply-pipe, having a solid head at one end and adapted to be connected with the source of fluid-supply at the other end, passing through the rear end closing-screw and plunger and engaging the said anvil, means for limiting the motion of the said supply-pipe, substantially as described.

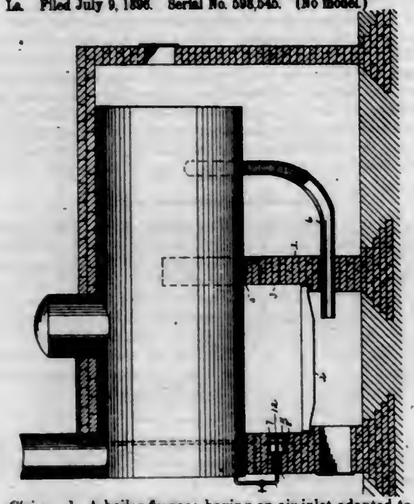
14. In a pneumatic tool, the combination with a sliding casing closed at both ends and adapted to act as a valve, of a plunger carried within the said casing, an anvil adapted to be struck by the forward motion of said plunger, a cutting-tool carried by the said anvil, and means for admitting and exhausting fluid at the ends of said plunger through the alternate motion of the said casing, substantially as described.

574,785. FLY-TRAP. MYRON L. CARPENTER, Horseheads, N. Y. Filed Apr. 2, 1896. Serial No. 585,944. (No model.)



Claim.—The herein-described fly-trap, comprising an oblong box having closed sides and open top and end portions a cylinder-drum journaled transversely at each end portion of the said box, two similar drums journaled at the central portion of said box, with a space between them, a spring-motor located in such intermediate space, and geared to the two central drums to revolve them in opposite directions, the two endless aprons carried by the drums, the clearing-board between the two central drums above the motor and having one of its edges adjacent to each, and the open-bottom, perforated, cage removably supported on the box above the clearing-board and central drums.

574,786. BOILER-FURNACE. WALTER W. DAVIS, New Orleans, La. Filed July 9, 1896. Serial No. 598,545. (No model.)



Claim.—1. A boiler-furnace having an air-inlet adapted to feed air under the fire-grate, said inlet consisting of a pipe located in the combustion-chamber and extending at its front end through the bridge-wall of the furnace, the rear end of the pipe being bifurcated, said bifurcations extending through opposite sides of the furnace-walls.

2. A boiler-furnace having an air-inlet adapted to feed air under the fire-grate, said inlet consisting of a pipe located in the combustion-chamber and extending at its front end through the bridge-wall of the furnace, the rear end of the pipe being bifurcated, said bifurcations extending up on opposite sides of the boiler and passing through the side walls of the furnace.

3. A boiler-furnace having in its bridge-wall openings leading into the combustion-chamber, an air-inlet adapted to feed air under the fire-grate, said inlet consisting of a pipe located in the combustion-chamber and extending at its front end through the bridge-wall, the rear end of the pipe being bifurcated, said bifurcations each passing up opposite one of the openings in the bridge-wall and extending through opposite sides of the furnace.

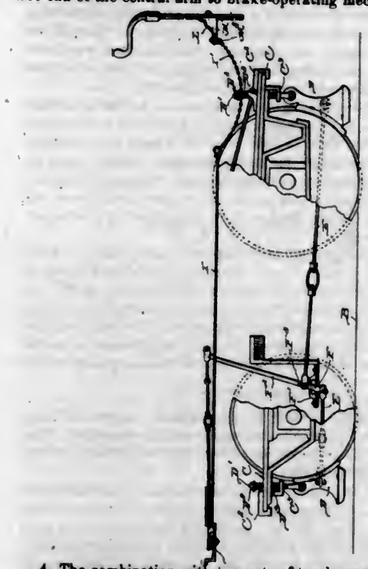
4. A boiler-furnace having a casting set in the wall above the fire-grate, said casting having an air-mixing chamber, air-ducts leading into said chamber air-outlets leading from said chamber into the fire-box, a compartment formed in the casting between the air-outlets, a steam-distributer located in said compartment.

574,787. CAR-BRAKE. JAMES C. DEVLIN, Hernando, Miss. Filed July 2, 1896. Serial No. 597,815. (No model.)

Claim.—1. The combination with a four-wheeled truck having brakes adapted to move horizontally against each of the wheels, of a transverse rock-shaft mounted in bearings adapted to permit bodily lateral movement and provided with suitable rigid arms, near each end, rods connecting the arms at each end, respectively, to the brakes swinging against the corresponding wheels, and means for rocking said rock-shaft.

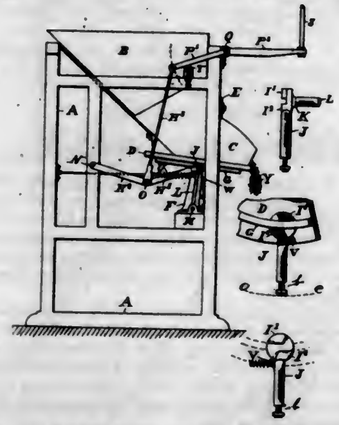
2. The combination with two four-wheeled trucks each having brakes acting upon each wheel, of a lever centrally pivoted between the trucks and movable bodily toward either, two transverse rock-shafts lying, one in each truck, between the pairs of wheels and mounted in bearings permitting either end to move toward either pair, devices connecting the arms of said lever to the rock-shafts, each to each, to operate the latter, and devices connecting each end of each rock-shaft to the brakes acting upon the adjacent wheels.

3. The combination with the truck having brakes arranged for pressing the wheels, respectively, of a rock-shaft supported in bearings permitting bodily lateral movement and provided with rigid end arms and with a rigid central arm, devices connecting said end arms, respectively, to the corresponding brakes, and devices connecting the free end of the central arm to brake-operating mechanism.



4. The combination with two sets of trucks each provided with brakes for each wheel and with a transverse rock-shaft connected to its several brakes to operate them by its rotary motion, of a lever arranged, between the sets, for bodily movement toward either, devices connecting the lever-arms, respectively, to the corresponding rock-shafts to operate them, and means for forcing one lever-arm toward one of said sets.

574,788. ORE-FEEDING MACHINE. MICHEL DILLENBURG, San Francisco, Cal. Filed July 27, 1896. Serial No. 600,638. (No model.)



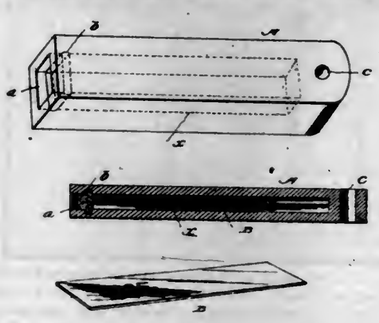
Claim.—1. In an ore-feeding machine, the combination of a hopper, a revolving table slightly inclined from a horizontal plane, on which the ore is delivered, said table having on its under side a circular ledge, a reciprocating arm J having gripping-jaws I' I² which engage said circular ledge in one direction and slide free in the other direction, and connections between said arm J and the reciprocating parts of the machine whereby an intermittent rotation of the said table in one direction is obtained, substantially as and for the purpose specified.

2. In an ore-feeding machine, the combination of the hopper, the revolving table having a circular ledge on its under side, the reciprocating arm J provided with gripping-jaws I' I² engaging said circular ledge, stem L loosely pivoted at its lower extremity and carrying arm J pivotally mounted thereon at its upper extremity, and connections between the said arm J and the reciprocating parts of the machine whereby the said arm J is caused to reciprocate and thus intermittently grasp the said circular ledge with its gripping-jaws and thereby intermittently rotate the said table, substantially as and for the purpose specified.

3. In an ore-feeding machine, the combination of the rotary table having the depending circular ledge, with the arm J having gripping-jaws I' I² engaging the said ledge, vibrating stem L supporting the said arm J, spring U, and connections between the said arm J and the reciprocating parts of the machine imparting a reciprocating motion to said arm whereby the said gripping-jaws intermittently operate the said ledge, and cause an intermittently forward rotation of the table, substantially as and for the purpose specified.

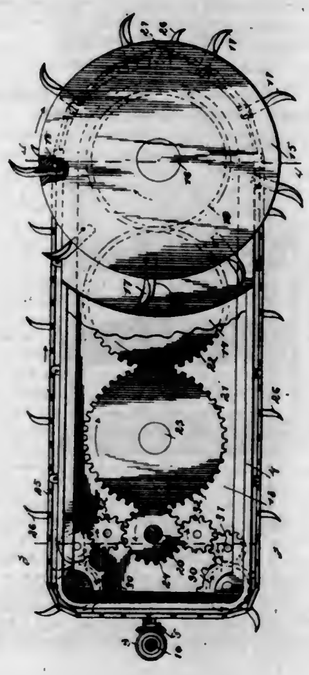
4. In an ore-feeding machine, the combination of the hopper, the rotary table, having the depending ledge, reciprocating arm J with gripping-jaws I' I², vibrating stem L, spring U, and toggle-lever and link connections with rocker-shaft Q and reciprocating rod S whereby the said table is intermittently rotated in synchronism with the movements of the stamp-mill, substantially as and for the purpose specified.

574,789. LABEL-HOLDER. WILLIAM W. DODGE, Burlington, Iowa. Filed June 24, 1896. Serial No. 596,782. (No model.)



Claim.—In a label-holder the body A, provided with aperture *a*, the hollow space *x*, the groove *b* and the perforation *c*, all in combination with a card B inclosed in space *x*, substantially as and for the purpose set forth.

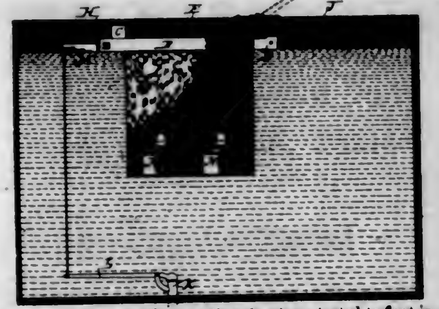
574,790. MINING-MACHINE. HUGH F. DORIS and JOHN J. McCLOSKEY, Pittsburg, Pa. Filed May 21, 1895. Serial No. 550,109. (No model.)



Claim.—1. A mining-machine comprising a stationary frame, a movable frame carried thereby, cutters at the outer end of the movable frame, a carrier-chain encircling the movable frame and coacting with the cutters, a driving-gear for the cutters, a similar gear for the chain, and a motor carried by the movable frame and common to and driving both the cutter and chain gearing, substantially as shown and described.

2. An improved mining-machine comprising a frame, the cutter-heads, the endless conveyer encircling the frame and extending between the cutter-heads, the friction-rollers, the supports for the rollers extended beyond the peripheries of the latter to form guides for the chain, and an operating mechanism, substantially as shown and described.

574,791. ANTIFREEZING STOCK-WATERER. JOHN A. DRAKE, Brooklyn, Iowa. Filed Sept. 4, 1896. Serial No. 604,919. (No model.)



Claim.—1. A water-tight heating-chamber adapted to float in a trough or tank, comprising a frame composed of two parallel wooden bars or side pieces and two cross-pieces fixed on their tops and end portions and a sheet-metal chamber fixed to the inside faces of said four bars and a cover on top of the cross-pieces as shown and described for the purposes stated.

2. A water-tight heating-chamber, adapted to float in a trough or tank, comprising a frame composed of two parallel wooden bars or side pieces and two cross-pieces fixed on their tops and end portions and a sheet-metal chamber fixed to the inside faces of said four bars and a cover on top of the cross-pieces as shown and described, in combination with a trough or tank, having an opening to admit a water-heater and to give access to animals, for distributing heat over the surface of the water in the tank and under the fixed top of the tank in the manner set forth, for the purposes stated.

574,792. WATER-FILTER. LOUIS BECHNER, Philadelphia, Pa. Filed July 21, 1896. Serial No. 537,302. (No model.)



Claim.—1. A water-filter consisting of a casing having a horizontal filtering-surface, a vaned hub located above said filtering-surface and adapted to be rotated by the water-flow and a loose mass of particles of abrading material resting on the filtering-surface and adapted to be carried around with the vanes, substantially as specified.

2. A water-filter consisting of a casing having a filtering-surface, a scraper adapted to be rotated by the flow of water through the filtering-chamber, supply and discharge pipes for such water, and means for opening and closing both the supply and discharge pipes at predetermined intervals, substantially as specified.

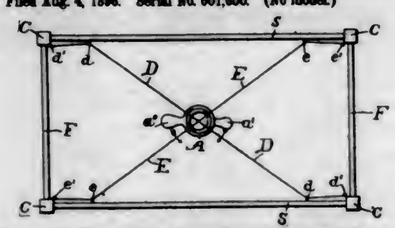
3. A water-filter consisting of a casing having a filtering-surface, a scraper located in the filtering-chamber and adapted to be rotated by the flow of water through said chamber, supply and discharge pipes for such water, a pipe for supplying water to the casing for filtering purposes and means for opening and closing, at predetermined intervals, the pipe which supplies the water to be filtered and the pipe which provides for the flow of water for rotating the scraper, substantially as specified.

4. A water-filter in which are combined a casing having a filtering-surface, a scraper located in the filtering-chamber and adapted to be rotated by the flow of water through said chamber, supply and discharge pipes for such water and means for effecting the starting and stopping of the rotative flow at predetermined intervals, one of the elements of such starting and stopping device being a motor actuated by the flow of water on its way to the filter, substantially as specified.

574,793. ART OF MAKING OIL FABRICS. ALFRED N. FORD, London, England, assignor to Charles James Grist, same place. Filed June 11, 1894. Serial No. 514,248. (No specimens.) Patented in England May 12, 1890, No. 7,264.

Claim.—The improvement in the art of making oil fabrics consisting in loosely separating fibers or finely-divided particles of wool, flax, hemp, jute, cotton, silk, &c., repeatedly immersing the same in boiling oil so as to coat the separated fibers, in thoroughly oxidizing the oil adhering to the fibers after each immersion by subjecting the coated fibers to the action of air, the fibers being maintained in their loosely-separated condition during the steps of coating and oxidizing, and in grinding the coated fibers after oxidation to form a homogeneous mass, substantially as described.

574,794. FURNITURE-BRACE. JOHN A. FRETWELL, Buford, Ga. Filed Aug. 4, 1896. Serial No. 601,660. (No model.)



Claim.—1. In a furniture-brace the combination with a plurality of wires or cords secured to the various members of the article to which it is applied; of a tension device composed of two concentric rings, each provided with a pair of cleats adapted to engage one of said wires or cords; a hand-grip on each of said rings for turning the same, and means for locking said rings against backward rotation, substantially as described.

2. In a furniture-brace, the combination with a plurality of wires or cords secured to the various members of the article to which it is applied; of a tension device composed of two concentric rings each provided with a pair of cleats arranged at diametrically opposite points thereon, a hand-grip on each of said rings for turning the same, and means for automatically locking said rings against backward rotation, substantially as described.

3. In a furniture-brace, the combination with a plurality of wires or cords secured to the various members of the article to which it is applied; of a tension device composed of two concentric rings each provided with a pair of cleats arranged at diametrically opposite points thereon; a radially-extending arm on each ring for turning the same, and means for automatically locking said rings against backward rotation, but allowing of a forward rotation thereof, substantially as described.

4. A tension device of the character described, comprising a pair of hollow concentric rings adapted to turn relative to each other; cleats formed at diametrically opposite points on each of said rings; a radially-extending hand-grip on each ring; a series of beveled notches on one of said rings; a spring-pressed beveled latch on the other of said rings, adapted to engage said beveled notches, and a knob for withdrawing said latch, substantially as described.

5. In a tension device of the character described, the combination with the outer ring A^2 having cleats a^4 formed thereon at diametrically opposite points, and having hand-grip a^5 for turning the same; a beveled latch, and a coil-spring pressing said latch forward, fitting in a recess in said hand-grip; and a knob for withdrawing said latch; of the inner concentric ring A' having cleats a^3 being oppositely disposed to the cleats a^4; the hand-grip a' on said inner ring cut away as at a^3, to fit over said outer ring, and beveled notches $a^\times$ formed on the periphery of said inner ring and adapted to be engaged by said beveled latch, substantially as described.

574,795. SHUTTER-FASTENER. MANNING F. GANO, Annandale, N. J. Filed Mar. 20, 1896. Serial No. 584,131. (No model.)



Claim.—1. In a shutter-fastener, a pivoted lever-hook, in combination with a stationary bar arranged in a plane parallel with and at one side of said hook, the said bar being provided with an inclined and tapering working edge set obliquely to the path in which the fastener moves, substantially as described.

2. In a shutter-fastener, a cylindrical case divided diametrically and longitudinally into similar sections one of which has a notch formed in its end wall, in combination with a lever-hook mounted on a pivot within said case, and a stationary bar arranged at one side of said hook and extending obliquely, said bar being fixedly engaged at one point by the pivot of the hook and at another point by the notch in the case, substantially as described.

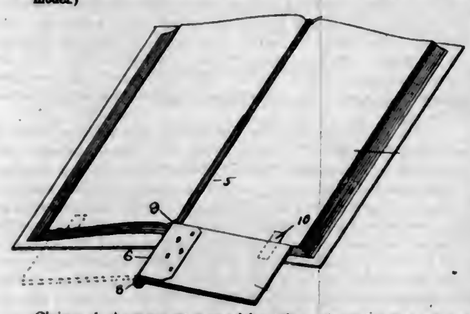
574,796. STAIR-CARPET-SECURING DEVICE. EDWARD F. GARDNER, Scranton, Pa. Filed June 24, 1896. Serial No. 596,747. (No model.)



Claim.—1. In a stair-carpet-securing device, the combination with a flat plate having a screw secured at one end thereof adapted to be inserted in a riser, a pin at the opposite end and side having a threaded section at its base, and a button, substantially as described.

2. A stair-carpet-securing device, consisting of a flat oblong plate having a countersunk opening at one end, and a rigid pointed pin at the opposite end permanently secured to the plate and formed with a threaded base, and a button, substantially as described.

574,797. ARM-REST. CHARLES S. GILMAN, Minneapolis, Minn. Filed Nov. 23, 1895. Renewed Sept. 28, 1896. Serial No. 607,270. (No model.)



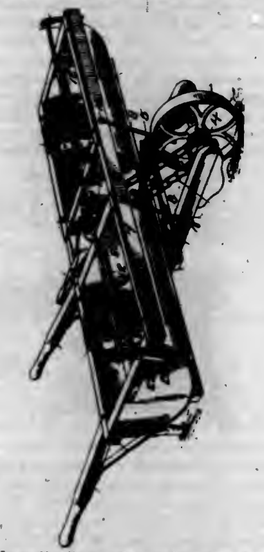
Claim.—1. An arm-rest, comprising telescoping tubes to rest upon the surface of the book, means for holding the same in position, and a board or rest provided on the end of one of said tubes, and forming a continuation of the leaf of the book, substantially as described.

2. An arm-rest, comprising telescoping tubes adapted to rest upon the surface of the book, means for holding the same in position, and a pivoted plate or board provided on the end of one of said telescoping tubes, and forming a continuation of the leaf of the book, substantially as described.

3. An arm-rest, comprising telescoping tubes adapted to rest upon the surface of the book, means for holding the same in position, a pivoted plate or board provided on the end of said telescoping tubes, and adapted to be turned to form a continuation of either the right or left hand page of the book, and said plate being provided with a lug or projection to rest upon the surface of the leaf, for the purpose set forth.

4. An arm-rest, comprising a tube 3 having a hooked end to engage the end of the book, a second tube within which said tube 3 is adapted to slide, said second tube having a slotted end whereby it may be compressed about said first-named tube, and provided at its opposite end with a pivoted board, means for holding the same in position on said tube, and said plate or board being provided on its inner edge with a projection to rest upon the surface of either side of the book, substantially as described.

574,798. INSECTICIDE-DISTRIBUTER. JAMES GOHN, Newport, R. I., assignor of two-thirds to Melville Bull and William Shepley, same place. Filed Jan. 31, 1896. Serial No. 577,580. (No model.)



Claim.—1. In a distributer, the combination of an open-topped receptacle adapted to contain and forming a reservoir for a liquid having a powdered insecticide, or its equivalent, in suspension, a rotary distributing and agitating brush arranged at its lower side within the receptacle and projecting at its upper side above the plane thereof, whereby the contents of the receptacle are agitated to hold the insecticide in suspension, a rod for obstructing the bristles of the upper side of the brush and means for communicating motion to the brush, substantially as specified.

2. In a distributer, the combination of a semicylindrical adjustable receptacle, a distributing-brush mounted with its lower side within said receptacle, operating connections for the brush, a rod disposed transversely in the path of the extremities of the brush-bristles to impede the forward movement thereof, terminal slotted brackets carried by the receptacle for supporting the rod, and set-screws engaging the slots of the brackets and adapted to secure the latter at the desired adjustment to vary the extent of obstruction offered by the rod to the brush-bristles, substantially as specified.

3. In a distributer, the combination with a truck, of a transversely-elongated receptacle mounted upon the truck, a brush-spindle arranged in and parallel with the receptacle, distributing-brushes adjustably fitted upon the spindle whereby the interval therebetween may be varied, said brushes operating at their lower sides in the receptacle, operating connections for communicating motion to the distributing-brushes, and means for impeding the forward movement of the brush-bristles, substantially as specified.

4. In a distributer, the combination with a truck, of a receptacle mounted upon the truck, a transverse brush-spindle mounted upon the receptacle, brushes adjustably fitted upon the spindle whereby the interval therebetween may be varied, operating connections for communicating motion to the brushes, and means for impeding the forward movement of the brush-bristles, said means including a transverse rod, adjustable terminal brackets for supporting the extremities of said rod, and intermediate brackets provided with series of notches or seats to receive the rod, substantially as specified.

5. In a distributer, the combination with a truck, of a receptacle mounted thereon, a transverse brush-spindle, means for communicating rotary motion to the brush-spindle, brushes fitted upon the brush-spindle and operating at their lower sides in the receptacle, terminal

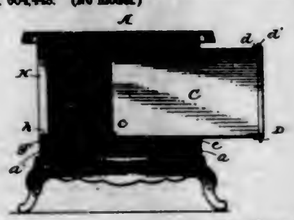
and intermediate brackets arranged upon a transverse line in advance of the brush-spindle, and a distributing-rod extending through and supported by said brackets and provided with tension devices whereby the tension thereof may be adjusted, substantially as specified.

6. In a distributer, the combination of a truck, an open-topped receptacle mounted upon the truck to rock forwardly and rearwardly and having a transverse axis, means for securing the receptacle at the desired angular adjustment with relation to the plane of the truck, distributing-brushes mounted upon and arranged at their lower sides within the receptacle and with their upper sides above the top of the same, and means for communicating rotary motion to the brushes, substantially as specified.

7. In a distributer, the combination of a truck provided with opposite concaved seats or rests, a receptacle mounted upon said seats or rests and capable of forward and rearward rocking adjustment, means for securing the receptacle in the desired angular position with relation to the plane of the truck, distributing-brushes, and means for communicating rotary motion thereto, substantially as specified.

8. In a distributer, the combination of a truck, a receptacle mounted transversely upon the truck and capable of forward and rearward angular adjustment, tie-rods loosely connected to the front and rear sides of the receptacle, means for adjusting the tie-rods with relation to the truck, distributing-brushes, and means for communicating rotary motion thereto, substantially as specified.

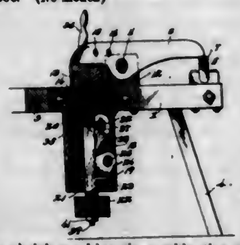
574,799. COOKING-STOVE. JOHN J. GRAVES, Buffalo, N. Y., assignor to Sherman S. Jewett & Co., same place. Filed Aug. 31, 1896. Serial No. 604,443. (No model.)



Claim.—1. A cooking-stove comprising the plates *a*, *a'*, having openings through them into the space for the oven, the plate *a'* being provided with an internally-projecting flange shaped to fit closely around one end of the oven, an oven, and a frame adapted to fit the opening in the stove-plate *a'* and to be secured in place, and provided with an inward-projecting flange adapted to fit closely inside the end of the oven, substantially as set forth.

2. The combination in a cooking-stove, of the stove-plates, *a* and *a'*, formed with openings through them for the oven, the latter plate being provided on its inner side with a flange *g*, surrounding the oven-opening, the oven, the frame D secured to one end of the oven, and adapted to be secured to the stove-plate *a*, and the frame H, adapted to be secured to the stove-plate *a'*, and provided with a flange which, when the frame is in place, is parallel with the flange *g*, the end of the oven occupying the space between the said flanges, *g* and *h*, substantially as set forth.

574,800. BRICK-MACHINE. ANDREW J. GWIN, Minden, La., assignor of one-half to S. G. Webb, same place. Filed Mar. 31, 1896. Serial No. 585,638. (No model.)



Claim.—1. In a brick-machine, the combination with a mold, and a lever bearing a cap to close the mold, of a shaft operatively connected with the lever to actuate it to cause the cap carried thereby to close or uncover the mold as desired, and having a crank portion to be brought into engagement with the lever when the mold is closed so as to hold the cap in locked relation, substantially as set forth.

2. In a brick-machine, the combination with a mold, and a lever bearing a cap to close the mold, of a shaft having a handle and lug, a link having pivotal connection at one end with the lug of the shaft and having an approximately L-shaped slot at the other end, and a pair of pins 15 and 16 on the lever and operating in the said L-shaped slot of the link, substantially as set forth for the purpose described.

3. In a brick-machine, the combination with a mold, and a lever bearing a cap for closing the mold, and having a pair of laterally-projecting pins, of a shaft having a crank portion and a lug, a link pivotally connected at one end with the said lug and having in its other end an approximately L-shaped slot to receive the pins on the lever, and means for turning the said shaft in its bearings to operate the lever to close or uncover the mold and to bring the said crank portion into engagement with the lever when the mold is closed so as to lock the cap in place, substantially as set forth.

4. In a brick-machine, the combination with a mold, and a plunger operating in the mold, of parallel shafts, complementary cams secured to the parallel shafts and having their opposing portions toothed and intermeshing, a lever applied to one of the shafts, an arm secured to the other shaft, a stem having loose connection with the plunger, an adjustable stop on the stem to engage with the part of the plunger through which the stem plays, and a link connecting the stem with the aforesaid arm, substantially as set forth.

5. In a brick-machine, the combination of a mold, a plunger operating in the mold and having a cross-head, parallel shafts, complementary toothed cams secured to the shafts and intermeshing, a lever applied to one of the shafts, an arm secured to the other shaft, a stem slidably mounted in the said cross-head, a link connecting the stem with the arm on the said shaft, a stop adjustably mounted on the stem to engage with the cross-head and move the plunger, and means for moving the plunger independently of the intermeshing toothed cams and the connecting mechanism between the said cams and the cross-head, substantially as set forth.

6. In a brick-machine, the combination with a mold, and a plunger provided with a rod having a toothed portion and a cross-head, of a stem operating through an opening in the cross-head, a nut mounted upon the projecting threaded end portion of the stem and adapted to be brought into engagement with the cross-head, means for moving the stem to actuate the plunger, a shaft, a toothed element secured to the shaft and meshing with the toothed portion of the plunger-rod, and means for turning the shaft to actuate the plunger-rod independently of the said stem, substantially as set forth.

7. In a brick-machine, the combination with a mold, a plunger operating in the mold and having its rod formed with a toothed portion and a cross-head, a stem operating through an opening in the cross-head and having an adjustable portion to be brought into engagement with the latter, and means for moving the stem to advance the plunger in the mold, of a shaft, a toothed element upon the shaft meshing with the toothed portion of the plunger-rod, a ratchet-wheel secured upon the shaft, a lever loosely mounted upon the said shaft, a dog pivoted to the lever, and a hand-latch carried by the lever and having connection with the dog to throw it into or out of engagement with the teeth of the ratchet-wheel, substantially as set forth for the purpose described.

8. In a brick-machine, the combination of a series of molds, and a corresponding series of plungers operating in the molds and having their rods spaced apart and connected by a cross-head, one of the rods having a toothed portion, stems operating through openings in the cross-head, a shaft having arms which are in connection with the said stems, means for turning the shaft to advance the plungers to the work, a shaft having a toothed element meshing with the toothed plunger-rod, and a lever adapted to actuate the last-mentioned shaft to eject the bricks from the molds, substantially as set forth.

9. In a brick-machine, the combination of a series of molds, a corresponding series of plungers having their rods spaced apart and connected by a cross-head, stems operating loosely through openings in the cross-head and having portions to engage with the cross-head, a shaft having arms opposite the spaces between the plunger-rods and operatively connected with the stems, a second shaft, complementary toothed cams secured upon the two shafts for decreasing the leverage and increasing the effective force for operating the plungers to compress the bricks, a third shaft having a toothed element to engage with a toothed portion of a plunger-rod, and means for operating the last-mentioned shaft to eject the bricks from the molds, substantially in the manner set forth for the purpose described.

574,801. ROCKING-CHAIR. GEORGE H. HARRIS, Kenton, Ohio, assignor to the Scioto Furniture Company, same place. Filed Oct. 2, 1896. Serial No. 607,961. (No model.)

Claim.—1. In a rocking-chair, a rock-frame pivotally secured to the rockers, a back pivotally supported on the rock-frame, a sliding seat pivotally secured at its rear end to the back, and legs rigidly secured to the rockers and connected by a rung, said rung being adapted to support the forward end of the seat.

2. In a rocking-chair, a rock-frame pivotally secured to the rockers, a back pivotally supported on the rock-frame, a sliding seat pivotally secured at its rear end to the back, legs rigidly secured to the rockers and connected by a rung, and means carried by the forward end of the seat adapted for engagement with said rung for holding the seat in adjusted position.



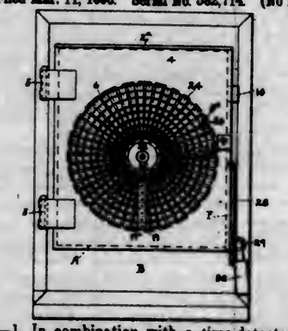
3. In a rocking-chair, a rock-frame pivotally secured to the rockers, a back pivotally supported on the rock-frame and provided on each side with a laterally-projecting pin, a sliding seat pivoted to the back, and diagonal braces extending from the front legs of the chair to the rockers, with which braces the pins on the back are adapted to engage, thereby limiting the rearward incline of the back.

4. In a rocking-chair, a back, a rock-frame pivotally supporting the back from the rockers, legs rigidly secured to the rockers, and arms pivoted at their front ends on said legs and detachably pivoted at their rear ends to the back, whereby on detaching the rear ends of the arms the chair may be folded.

5. In a rocking-chair, a rock-frame pivotally secured to the rockers, legs rigidly secured to the forward parts of the rockers, rungs connecting said legs, a back pivotally supported on the rock-frame, arms pivoted at their front ends on the legs and at their rear ends to the back, and a sliding seat pivoted at its rear end to the back and provided at its front end with means adapted to engage with one of said rungs for holding the seat in adjusted position.

6. In a rocking-chair, a rock-frame pivotally secured to the rockers, a back pivotally supported on the rock-frame, legs rigidly secured to the forward parts of the rockers, rungs connecting said legs, arms pivoted at their front ends on the legs of the chair and at their rear ends to the back, rungs connecting said legs, a sliding seat pivoted to the back, and graduated notched racks secured to the seat and adapted to engage with one of said rungs, substantially as and for the purposes described.

574,802. TIME-DETECTOR. ISAAC A. HERMANN, Cleveland, Ohio. Filed Mar. 11, 1896. Serial No. 582,714. (No model.)



Claim.—1. In combination with a time-detector, a door-lock, the lever 12 pivoted thereto and having the slot 12^a, the pin 14 projecting from the lock-bolt into said slot, the lance 16 pivoted at the rear to said lever, and the perforated guide 17 depending from said lock to receive the free terminal of said lance, substantially as and for the purpose set forth.

2. The combination in a time-detector, of a box, a door-lock therein, a door hinged to said box, the lock-plate 8 and perforated extension 8^a secured to said door adjacent to said lock when said door is closed, the lever 12 pivoted to said lock and having the slot 12^a, the pin 14 projecting from the lock-bolt into said slot, the lance 16 pivoted at the rear to said lever, and the perforated guide 17 depending from said lock to receive the free terminal of said lance, substantially as and for the purpose set forth.

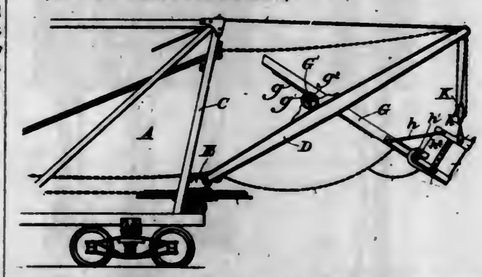
3. The combination in a time-detector, of a box, a door-lock therein, a door hinged to said box, the lock-plate 8 and perforated extensions 8^a secured to said door adjacent to said lock when said door is closed, a rotary dial in said box between said lock and extension, the lever 12 pivoted to said lock and having the slot 12^a, the pin 14 projecting from the lock-bolt into said slot, the lance 16 pivoted at the rear to said lever, and the perforated guide 17 depending from said lock to receive the free terminal of said lance, the latter adapted to pierce said dial during the operation of closing said door or unlocking the same, substantially as and for the purpose set forth.

4. The combination in a time-detector, of a box, a lock therein, a lance operated by the lock-bolt, a door hinged to said box having a glass-covered opening surrounded by an inside flange, and a lock-plate and perforated extension on said door to receive said bolt and lance, substantially as and for the purpose set forth.

5. The combination in a time-detector, of a box, a perforated escutcheon on one side thereof having a perforated frame extending into said box, a bracket secured within said box provided with one rear and two front perforated posts, having a narrow space or slot between the latter, having perforations in said escutcheon, frame and posts corresponding in number to the days of the week, a series of spring and key actuated plungers operating in the perforations in said rear post and said frame, sleeves fast on said plungers, blocks pivotally connected to said sleeves, and needles carried by said blocks with their pointed ends operating in the perforations in said front posts, substantially as and for the purpose set forth.

6. The combination in a time-detector, of a box, a perforated escutcheon on one side thereof having a perforated frame extending into said box, a bracket secured within said box provided with one rear and two front perforated posts, having a narrow space or slot between the latter, having perforations in said escutcheon, frame and posts corresponding in number to the days of the week, a series of spring and key actuated plungers operating in the perforations in said rear post and said frame, needles coacting with said plungers, the pointed ends of said needles operating in the perforations in said front posts, a clock-movement in said box, and a dial attached to said movement and rotating through said slot, substantially as and for the purpose set forth.

574,803. LATCH-OPERATING DEVICE FOR STEAM SHOVELS OR DREDGES. JOSIAH C. HOUCK, South Bend, Ind. Filed Mar. 16, 1896. Serial No. 583,405. (No model.)



Claim.—1. A latch-operating device for dredging and excavating machines comprising the boom-frame, or derrick, an oscillating bucket-arm, a bucket secured thereto having a hinged bottom and latch connections, a backing-chain and a latch-chain connecting said backing-chain to the latch-bolt, substantially as described.

2. In a dredging and excavating machine, the combination of the oscillating bucket-arm, the bucket secured thereto provided with a hinged bottom and latch, a chain connecting the bucket-arm with a fixed part of the machine and a latch-chain connecting the backing-chain with the latch, substantially as described.

3. In a dredging and excavating machine, the combination with the boom or derrick frame, the endwise-moving oscillating bucket-arm, the hinged bucket and latch, the backing-chain and a latch-chain and coupling for adjustably connecting said chains, substantially as described.

4. The combination with the backing-chain, of a dredging-machine or a similar chain, of an adjustable clip comprising a staple having threaded ends and nuts thereon and cleats through which the ends of said staple pass to embrace the links of the chain and pro-

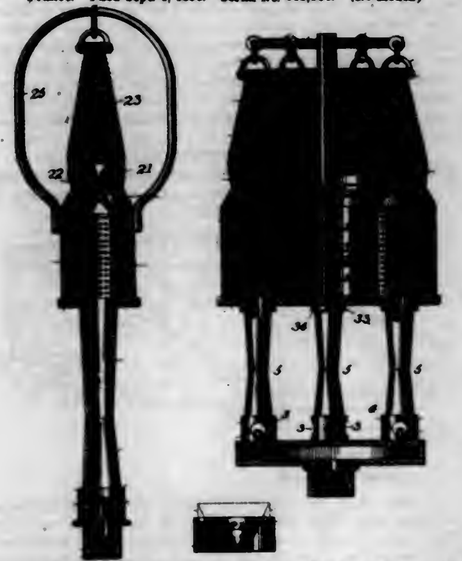
vide an outstanding loop to receive the hook of a connecting-chain, substantially as described.

574,804. MOP-WRINGER. GEORGE B. JOHNSON, Wellsborough, Pa. Filed Feb. 4, 1896. Serial No. 577,994. (No model.)



Claim.—The combination in a mop-wringer adapted to be secured to a water-pail, of the frame having lateral arms converging into a curved portion conforming with the side of the pail, the ends of said frame being bent outward and forward on a plane with the bottom of the pail to form a foothold reaching forward at the sides of the pail, a roller journaled in said lateral arms, the pivoted frame bent to form a foot-piece forward of the pail, a roller journaled in the pivoted frame, and a spring slidably secured to the rear of the pail and extending from one end to the other of the pivoted frame to equalize the spring-pressure of the said frame, substantially as shown and described.

574,805. INCANDESCENT BURNER. OTTMAR KERN, Paris, France. Filed Sept. 3, 1896. Serial No. 605,180. (No model.)



Claim.—1. The method of raising a refractory body to a high degree of incandescence, which consists in subjecting the refractory body to the heating effect of the hyperincandescent zone of the flame of a self-burning mixture of air and gas, substantially as described.

2. The method of raising a refractory body to a high degree of incandescence, which consists in maintaining such body, as nearly as practicable, in superficial contact with or within the hyperincandescent zone of the flame of a self-burning mixture of air and gas, substantially as described.

3. The method of giving high illuminating power to a mantle or hood of refractory material, which consists in maintaining the hyperincandescent zone or zones of a flame or flames of a self-burning mixture of air and gas, as nearly as practicable, in superficial contact with a part or parts of such mantle or hood, substantially as described.

4. The method of giving high illuminating power to a mantle or hood of interlaced threads of refractory earths, which consists in subjecting the lower portion of such mantle or hood to the heating effect of the hyperincandescent zone or zones of a flame or flames of a self-burning mixture of air and gas, substantially as described.

5. The method of giving high illuminating power to an annular mantle or hood of interlaced threads of refractory earths, which consists in directing the hyperincandescent zone of an annular flame of a self-burning mixture of air and gas, as nearly as practicable, into contact with a portion of the inner surface of said mantle or hood, substantially as described.

6. An annular gas-burner tip, designed for the consumption of a self-burning mixture of air and gas, composed of an exterior cylindrical tube and a concentric interior, upwardly and outwardly widening, conical tube, whereby the outer surface of the hyperincandescent zone of the flame forms, approximately, as a vertical cylinder, substantially as described.

7. In an incandescent gas-burner, designed for the consumption of a self-burning mixture of air and gas, the combination of an annular burner-tip constructed to shape the outer surface of the hyperincandescent zone of the flame into an approximately-vertical cylinder, with a mantle or hood of refractory threads, concentric with such zone and, as nearly as practicable, in superficial contact with the same, substantially as described.

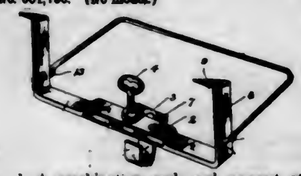
8. An incandescent gas-burner, composed of two concentric mantles or hoods of threads of refractory material, and two concentric annular burner-tips, each directing an annular flame into heating proximity to one of the mantles, substantially as described.

9. An improved Bunsen burner for producing a self-burning mixture of air and gas, composed of an upwardly-converging hollow mixing-cone, into which the air and gas are admitted, and an upwardly-diverging hollow suction-cone, having an angle of divergence of not more than ten degrees, substantially as described.

10. An improved Bunsen burner for producing a self-burning mixture of air and gas, composed of a hollow, upwardly-converging truncated cone, whose apex angle is not greater than ten degrees, and into which the air and gas are admitted; and a hollow, upwardly-diverging truncated cone whose apex angle is between the limits of five degrees and seven degrees, substantially as described.

11. An improved Bunsen burner, composed of an upwardly-converging, hollow mixing-cone, of such determined length as to mix the admitted air and gas into a self-burning compound, and an upwardly-diverging truncated hollow suction-cone of suitable length, and having an apex angle preferably between five degrees and seven degrees, and not more than ten degrees; the two cones being joined at their smaller bases, substantially as described.

574,806. COMBINATION RACK AND SUPPORT ATTACHMENT FOR STOVES. HULDA L. KRESS, Holyoke, Mass. Filed Aug. 5, 1896. Serial No. 601,786. (No model.)

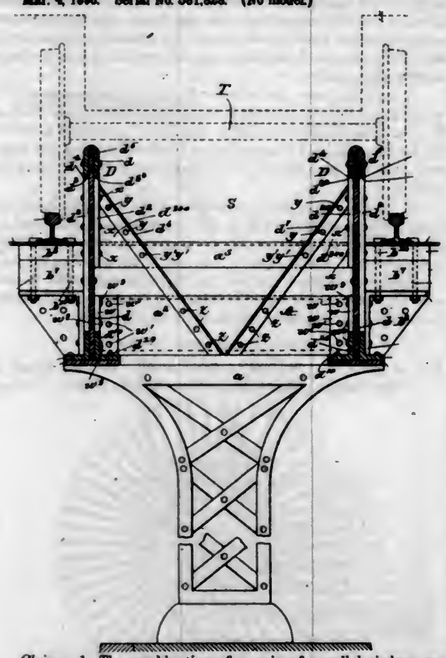


Claim.—1. A combination rack and support attachment for stoves, consisting of a frame having hooked rests for engaging clips on the bottom of a plate adapted to be detachably supported thereon, a clamp connected to said frame and adapted to secure the same to a stove, and a frame having a loose connection with the first frame and serving as a brace for said plate and also serving as a rack when the plate is removed, substantially as described.

2. A combination rack and support attachment for stoves, consisting of a suitable frame, a clamp connected thereto and adapted to bind the same fixedly upon the stove, a bail-shaped frame having a loose connection with the aforesaid frame so as to swing relatively thereto and adapted to serve as a rack, and one or more stops or shoulders for limiting the downward movement of the bail-shaped frame and regulating the position thereof, substantially as described.

3. A combination rack and support attachment for stoves, comprising a frame carrying a clamp whereby it is adapted to be fixedly secured to the edge of a stove and also provided with upwardly-extending arms having keyhole-slots formed therein, in combination with a swinging bail-shaped frame having flattened studs working in said slots, said studs while in the enlarged ends of the slots permitting the bail-shaped frame to swing, but holding the same stationary when engaged in the narrow portions of the slots, said bail-shaped frame serving as a rack or a support for a plate or tray, substantially as described.

574,807. ELEVATED RAILWAY. GEORGE A. LANCASTER, Boston, Mass., assignor to Edward S. Beach, trustee, same place. Filed Mar. 4, 1896. Serial No. 581,823. (No model.)



Claim.—1. The combination of a pair of parallel girders, each having an outwardly-projecting lower flange; and a series of exterior upright plates; a series of exterior brackets mounted on said flange and secured to said upright plates and connected girders; a series of block-cases mounted on said brackets; a series of blocks mounted in said cases; and track-rails, said track-rails being exterior to and in a lower plane than the tops of said girders.

2. The combination of parallel girders; a series of projections mounted on and projecting from the outer sides of each of the girders; a series of separate blocks detachably connected with and supported separately on said projections and movable in a path at right angles to the girders for renewal, and rails mounted on said blocks.

3. The combination of a girder with a projection at the side thereof, a block-case; a block removably secured in said case and a track-rail with or without a shoe-plate between the rail and the block.

4. A girder guard-rail having a continuous smooth-surfaced top cap formed of an inverted troughed rail, the sides of which are secured to the body of the girder-rail.

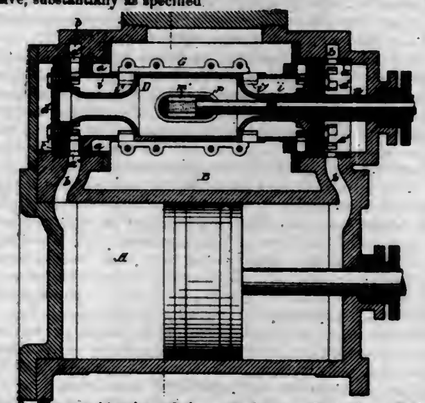
5. The combination of a wheeled vehicle having its floor between its wheels and seat-spaces over the wheels with wheel journal-box and connections for the vehicle-body and said box extending upwardly above the vehicle-floor under the seats.

6. In a railroad for quick and safe transportation, the combination with a superstructure comprising parallel girders, the upper portions of which form guard-rails, track-rails exterior to said girders with their tops in a lower plane than the tops of the said girders, and a series of cushioning adjustably-mounted rail-blocks and brackets therefor, said brackets being attached to and projecting from said parallel girders, of a wheeled vehicle having axles to connect its wheels which run on said track-rails, and having its axle in close proximity to the tops of said girders, and its floor in close proximity to said axle and between said wheels.

574,808. VALVE FOR STEAM-ENGINES. LINFORD J. LARSHER, Williamsport, Pa. Filed Nov. 21, 1895. Serial No. 569,699. (No model.)

Claim.—1. The combination of the ported valve-chest, with the cylindrical valve having at each end a split packing-ring, consisting of a body portion with lateral outer flange, follower-plates for holding the body portion of said packing-rings in place longitudinally on the valve-body, and means for conveying steam on its way to the cylinder to the inner sides of the contracted body portion of said packing-rings for expanding the same, substantially as specified.

2. The combination of the ported valve-chest, with the cylindrical valve having at each end a packing-ring provided with ports adapted to coact with those of the chest to direct steam first to one end of the cylinder and then to the other end of the same, and follower-plates for holding said packing-rings longitudinally in place on the valve, substantially as specified.



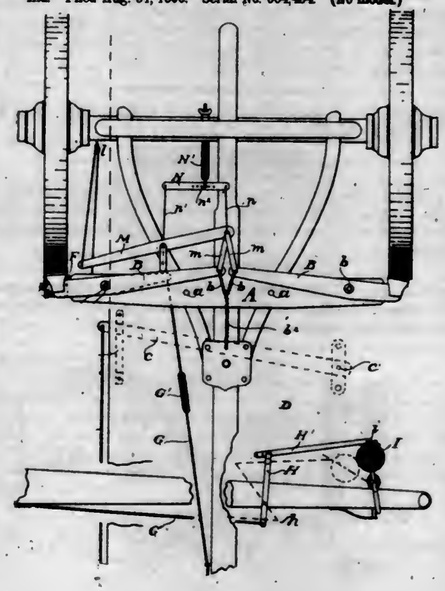
3. The combination of the ported valve-chest, the cylindrical valve having passages for conveying steam from the live-steam chamber of the valve-chest, a cut-off valve acting in conjunction with the receiving ends of said passages, and packing-rings at the ends of the valve, said rings being subjected to the pressure of steam in the conveying-passages of the valve, substantially as specified.

4. The combination of the ported valve-chest, the cylindrical valve having ported packing-rings at each end, passages in the valve leading from said ported packing-rings to the central steam-chamber of the chest, and a cut-off valve acting in conjunction with the receiving ends of said passages, substantially as specified.

5. The combination of the cylindrical main valve having slotted sides, a tubular main-valve rod, a cylindrical cut-off valve surrounding the main valve, a cut-off-valve rod passing through the tubular main-valve rod, and a cross-head passing through the slots in the sides of the main valve and serving to connect the exterior cut-off valve to the inner end of the cut-off-valve rod, substantially as specified.

6. The combination of the cylindrical main valve having slotted sides, a tubular main-valve rod, a cylindrical cut-off valve surrounding the main valve, and composed of sections bolted together, a cut-off-valve rod passing through the tubular main-valve rod, and a cross-head passing through the slots in the sides of the main valve and serving to connect the exterior cut-off valve to the inner end of the cut-off-valve rod, substantially as specified.

574,809. WAGON-BRAKE. RAWSON H. LAYTON, South Bend, Ind. Filed Aug. 31, 1896. Serial No. 604,434. (No model.)



Claim.—1. The combination with the running-gear of a wagon, of a cross-bar secured thereto, a hand-brake lever and an automatic-brake lever pivoted thereto at one end thereof, a rod connecting the said automatic-brake lever with a lever pivoted to the forward end of the pole, a link and yoke also supported at the forward end of the pole and connected together, substantially as described.

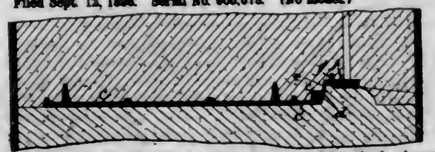
2. A combination hand and automatic brake, comprising the running-gear of a wagon, a cross-bar secured thereto, brake-levers pivoted thereto at each end thereof and hand-lever mechanism connected therewith, an automatic-brake lever also pivoted to said cross-bar upon the opposite side thereof, and connected to the neck-yoke, and an equalizing-lever connected with the running-gear and with the said automatic and direct brake levers, substantially as described.

3. An automatic brake, comprising the running-gear of a wagon, a brake-lever connected at one end to the neck-yoke and provided at its opposite end with a roller, a ratchet-spool and chain connecting the same with a hand-lever mechanism, substantially as described.

4. In a combined automatic and hand brake, the combination with the running-gear of a wagon, of a cross-bar, brake-levers pivoted thereto and connected at their inner ends to a hand-brake mechanism, an automatic-brake lever pivoted to said cross-bar and connected to the yoke at the forward end of the tongue, and an equalizing-gear comprising a lever, rods connecting the lever with the said brake-levers and a spring-link connecting the equalizing-lever with the running-gear or rear axle, substantially as described.

5. In a combined automatic and hand brake, the combination with the wagon-gear, of the hand and automatic levers, a brake-roller on the automatic lever, a ratchet-spool, a chain connecting the end of the automatic lever, a lever pivoted to the running-gear connected to said chain and also connected to the inner ends of the hand-brake levers, substantially as described.

574,810. GATE FOR CASTING. JAMES O. LITTLE, Quincy, Ill. Filed Sept. 15, 1896. Serial No. 605,673. (No model.)



Claim.—1. A gate-pattern for molding comprising the horizontal portion having an inclined face, the upwardly-extending vertical portion, the second horizontal portion extending rearwardly from the upper edge of the vertical portion, the flange upon the upper side of the said rearwardly-extended portion, and the pattern for the pour-opening extending upwardly from said rearwardly-extended portion, substantially as described.

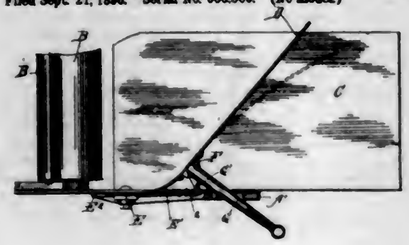
2. A gate-pattern for molding comprising the horizontal portion, the substantially vertical portion extending upwardly and having a flange or shoulder at its lower portion, the second horizontal portion extending rearwardly from the upper edge of the vertical portion, the flange upon the upper face of said second horizontal portion, and the pattern for the pour-opening extending upwardly from said second horizontal portion, substantially as described.

574,811. BROOM. NATHAN LLOYD, Greenbrier, Mo. Filed Feb. 21, 1896. Serial No. 580,243. (No model.)



Claim.—The combination with a broom having its handle formed with a recess, of a hook pivotally mounted within said recess and a spring held in the handle and acting upon said hook, substantially as described.

574,812. HEAD-BOARD FOR HARVESTERS. JAMES MACPHAIL, Chicago, Ill., assignor to the Piano Manufacturing Company, same place. Filed Sept. 21, 1896. Serial No. 606,509. (No model.)

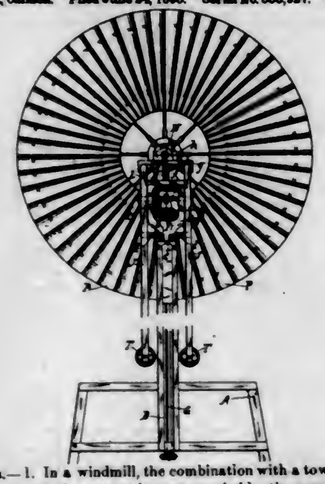


Claim.—1. In a harvester, the elevator-frame, A, the head-board, D, attached at one end to said elevator-frame by a spring connection adapted to retain the said head-board in an outward normal position; the rack-arm, E', secured to the elevator-frame; the dog, G', pivotally mounted on the head-board; and means adapted to rotate the dog into engagement with the rack-arm, E', and thereby thrust the said head-board inward.

2. In a harvester, the elevator-frame, A, the head-board, D, of spring metal, secured at one end to the elevator-frame; the rack-arm, E', secured to the elevator-frame; the dog, G', pivotally mounted on the head-board; and means adapted to rotate the dog into engagement with the rack-arm, E', and thereby thrust the said head-board inward.

3. In a harvester, the elevator-frame, A; the spring-metal head-board, D, secured at one end to the elevator-frame; the bracket, E, provided with the rack-arm, E', carrying the teeth, *e*, secured to said elevator-frame; the bracket, F, mounted on the head-board; the pin, G, adapted to rotate in the bracket, F, and provided with the crank-arm, G^3, and with the dog, G', adapted to engage with the teeth, *e*, constructed and operated, substantially as described.

574,813. WINDMILL-REGULATOR. EDGAR J. MARSH, Coldstream, Canada. Filed June 24, 1896. Serial No. 553,927. (No model.)



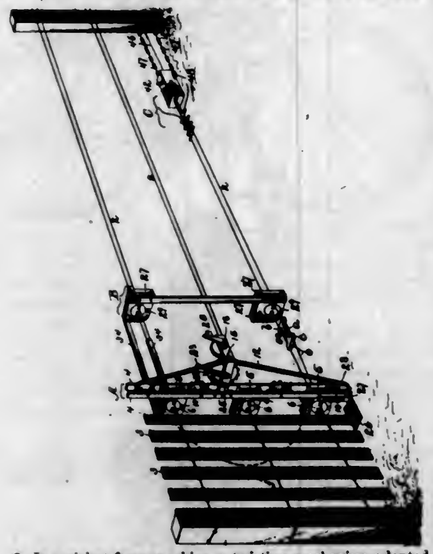
Claim.—1. In a windmill, the combination with a tower, a rotating yoke mounted thereon, and a vane carried by the tower and having a roller; of a tilting frame composed of two long arms standing astride the yoke and pivoted between their ends thereto, a second roller on the pivot-bar within the yoke, braces connecting the arms above and below said pivot, a cap connecting their upper ends and having bearings for the axle of the wind-wheel, weights at their lower ends, and a rope leading from the cap, over the roller on the vane, thence over the roller on the pivot-bar, and to the ground, as and for the purpose set forth.

2. In a windmill, the combination with a tower, a tubular head mounted thereon and having an annular shoulder, an upright yoke having a tubular stem journaled around said head and resting on the shoulder, and a collar secured to the head above the stem; of a brace across the yoke above said collar, an upright shaft journaled through the head and brace and carrying a bevel-gear at its upper end, an open frame spanning the yoke and pivotally connected with the outside thereof by a transverse pivot-bar passing through the yoke above said bevel-gear, a wind-wheel on one end of the frame, a weight at its other end, a longitudinal shaft in the frame driven by said wind-wheel and having a bevel-gear just above said pivot-bar, and an idle-gear journaled on the pivot-bar and connecting said two bevel-gears, substantially as and for the purpose set forth.

574,814. PICKET-FENCE MACHINE. NATHAN R. MORRIS, Jr., Grassland, Tenn. Filed Apr. 23, 1896. Serial No. 588,772. (No model.)

Claim.—1. In a picket-fence machine, a twisting mechanism having a frame adapted to be supported by the wires and carrying twisters for the sets of wires, each of said twisters having sprockets, a sprocket driving-chain running tangent to one side of the sprockets on the twisters and clear of the wires, with means of operating said driving-chain, and a series of sprocket-wheels arranged at intervals on the frame to press the chain into contact with the twister-sprockets, substantially as described.

2. In a picket-fence machine, a twisting mechanism adapted to be freely supported upon the wires, consisting of a supporting-frame, twister-heads for the sets of wires carried by said frame, driving mechanism for said heads operating clear of the wires on one side, a gage-plate or rest vertically adjustable upon the frame for supporting the picket, said frame being adapted for driving the pickets into place as the machine is moved forward, substantially as described.



3. In a picket-fence machine, a twisting mechanism adapted to be supported upon the wires, consisting of a supporting-frame, twister-heads provided with peripheral notches for the reception of the wires and carried by said supporting-frame, mechanism for driving said heads, and a steadying device consisting of a supporting-frame having a link connection with the twisting mechanism, and guiding disks or heads provided with peripheral notches for the reception of the wires and rotatably mounted in bearings on the said frame, substantially as described.

4. The herein-described tension device for picket-fence machines, consisting of a box provided with a spindle-bearing, a spindle mounted thereon, a tension-wire passing around said spindle and secured to a post, and a tension-grip having a swiveled connection with said box, substantially as described.

5. The herein-described tension device for picket-fence machines, consisting of a box provided with a slotted bearing at its front end, a tension-grip having a swiveled connection with said box, a vertical spindle mounted therein, and a tension-wire passing around said spindle and secured to a post, substantially as described.

6. The herein-described tension device for picket-fence machines, consisting of a box, a spindle vertically mounted therein, a tension-wire having one end secured to said spindle and the other end to a post, and a tension-grip over which the wires of the fence pass and are gripped by friction and having a swiveled connection with the box, with means for fixedly securing the box to a post, substantially as described.

7. In a picket-fence machine, a tension device consisting of a box provided with a slotted bearing at one end, a stem provided with a circular head near one end and journaled in the slotted bearing of the box, with projections at each side of said stem, forming friction tension-gripe over which the wires are passed and held by friction, and means for securing the said box to a post, substantially as described.

8. The herein-described tension device for picket-fence machines, consisting of a box, a friction-grip for the wires connected to the box by a swivel connection, a spindle provided with a disk at its lower end resting on the bottom of the box, and a ratchet-wheel adjacent to the top of the box, a pawl engaging with said ratchet-wheel, and a tension-wire connected to the spindle at one end and secured to a post, substantially as described.

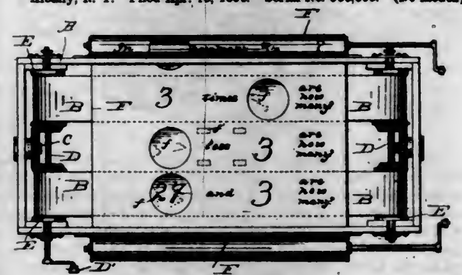
9. The herein-described tension device for picket-fence machines, consisting of a box provided with a bearing at its front end, a tension-grip seated in said bearing and held to the box by a swiveled connection, a vertical spindle mounted on the other end of the box, a wire connected at one end to the spindle and at the other end to a fixed post, projecting studs on the box, and a chain adapted to pass around the post and connected with the studs on the box, to hold the said device in a fixed position, substantially as described.

10. In a picket-fence machine, the combination of a supporting-frame, twister-heads carried thereby and provided with peripheral sprocket-teeth, a supplemental frame or bracket projecting from said supporting-frame, a driving-gear mounted thereon, and means for rotating the said gear, counter-gears on said supporting-frame, a driving-chain passing around the driving and counter gears with one run tangent to one side of the twister-heads and engaging the sprocket-teeth at that side, and sprocket-wheels mounted on said frame and arranged to press the said chain in contact with the twister-heads substantially as described.

11. In a picket-fence machine, the combination of the supporting-frame, twister-heads carried thereby, a bracket on said frame, a driving-gear mounted on said bracket, with means for operating said gear, a driving-chain passing around said driving-gear, one run of which is tangent to the twister-heads on one side thereof, and a series of sprockets mounted on the supporting-frame and engaging the driving-chain to press it into contact with the twister-heads, substantially as described.

12. In a picket-fence machine, the combination of a supporting-frame, twister-heads carried thereby, a driving-chain, with means for operating the said chain, one run of said chain being tangent to one side of the twister-heads clear of the fence-wires, a series of sprocket-wheels mounted on the supporting-frame, and engaging the driving-chain to press it into contact with the twister-heads, and a belt-tightener for taking up the slack in said chain, substantially as described.

574,815. EDUCATIONAL APPARATUS. MARY A. MCCLELLAND, Albany, N. Y. Filed Apr. 18, 1896. Serial No. 588,099. (No model.)



Claim.—1. In an educational apparatus, the combination of a longitudinally-arranged band by which may be carried words, numbers, &c., a transversely-arranged, movable perforated band over the longitudinal band, and a perforated cover arranged over the last-mentioned band, certain of the perforations in such cover being arranged to be over unperforated parts of the transverse band, substantially as set forth.

2. In an educational apparatus, the combination of a longitudinally-arranged band upon which may be placed words, numbers, &c., and a broad, transversely-arranged movable band situated over the first-mentioned band, and formed with a series of openings, and with written or printed matter adjacent to such openings, whereby such printed matter may be read in connection with the matter upon the longitudinal band appearing through said openings, substantially as set forth.

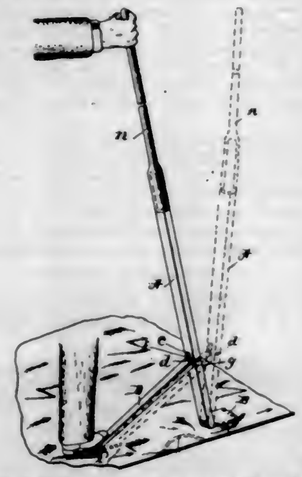
3. In an educational apparatus, the combination of a pair of narrow longitudinally-arranged bands, B, mechanism for moving them, a broad, transversely-arranged, movable band F, provided with a series of perforations, and a removable and replaceable perforated cover-plate H, substantially as set forth.

4. In an educational apparatus, the combination of a movable band upon which may be placed words, numbers, &c., and a perforated screen arranged over such band and provided with card-holders situated adjacent to the perforations in the screen and adapted to contain cards upon which is printed matter to be read in connection with the printed matter on the movable band, substantially as set forth.

5. The combination, with a supporting-case, of a pair of narrow movable bands arranged therein, a broad band movable transversely over the said narrow bands, and provided with openings through which the lower bands may be seen, and with printed matter upon it, and a cover-plate having openings disposed so as to expose the parts of the said bands which it is desired should be seen, substantially as set forth.

574,816. CARPET-STRETCHER. JOHN M. NEWLON, Falls Church, Va. Filed June 13, 1896. Serial No. 595,457. (No model.)

Claim.—1. A carpet-stretcher consisting of a lever having at its lower end a roughened surface adapted to grip the carpet only, a brace having its upper end pivotally connected to the lever at a point above its lower end, the lower end of the brace having an outwardly-projecting foot engaging and extending in a plane with the surface of the carpet, said foot having its under side roughened to grip the carpet only, whereby the brace is adapted to receive the foot of the operator to hold the roughened surfaces in contact with the carpet only and to move forward to take up the slack of the carpet, a forward step-by-step movement of the two members of the stretcher being thus accomplished by moving the lever back and forth, substantially as described.



2. A carpet-stretcher comprising an operating-lever having at its lower end a laterally-extending flat foot provided with marginal notches adapted to support a tack, said foot having teeth upon its under side, of a brace-rod as D extending upward at an inclination with its upper end pivotally connected to the operating-lever at a point above the said foot B, the opposite or free end of the link provided with an outwardly-extending foot adapted to rest flatly upon the carpet, said foot having teeth upon its under side and the same adapted to be operated in a manner by the foot of the operator to hold the foot of the brace and the foot of the operating-lever upon the carpet, for the purpose described.

574,817. BALING-PRESS. WILLIAM J. PEARCE, Pilot Point, Tex., assignor to the W. J. Pearce Hay Press Company, Dallas, Tex. Filed Apr. 23, 1896. Serial No. 588,752. (No model.)

Claim.—1. In a baling-press, the combination with a baling-chamber having a feed-opening, of a plunger having a sectional guard-plate, one section of the guard-plate being fixed to the plunger and the other being hinged to the fixed member, a flexible connection 32 between the free end of the movable member of the guard-plate and a fixed part of the baling-chamber, said flexible connection including a contractile spring 33, and means for operating the plunger, substantially as specified.

2. In a baling-chamber, the combination with a rebounding plunger, of a swinging arm, a sliding connection between the plunger-stem and the swinging arm including a stirrup pivotally mounted upon the stem and embracing the swinging arm, means for limiting the outward movement of the stirrup upon the swinging arm, and a sweep-head having studs to engage a bearing-ear on the swinging arm and adapted at an intermediate point of each stroke to engage an open-sided notch in the front end of the plunger-stem, substantially as specified.

3. In a baling-press, the combination with a rebounding plunger, of a swinging arm provided with a terminal rearwardly-extending hook, a bearing-roller on the plunger-stem traversing the inner side of said swinging arm, a swinging stirrup pivoted upon the stem concentrically with said bearing-roller and embracing the swinging arm with an antifriction-roll to bear against the outer side thereof, and a rotary sweep-head provided with studs to engage a bearing-ear on the swinging arm and also adapted to engage the front end of the plunger-stem, substantially as specified.

4. In a baling-press, the combination with a rebounding plunger, of a swinging arm, a sliding connection between the plunger-stem and the swinging arm, said connection including a bearing-roller traversing the inner side of the swinging arm, a curved stationary guide arranged contiguous to and eccentrically with the pivotal point of the swinging arm, a guide-roller mounted on the plunger-stem to traverse said guide, and a rotary sweep-head provided with studs to engage a bearing-ear on the swinging arm and also adapted to engage a seat in the end of the plunger-stem, substantially as specified.



5. In a baling-press, the combination with a rebounding plunger, of a swinging arm, a sliding connection between the free end of the plunger-stem and the swinging arm, inner and outer guides the former of which is eccentric, a guide-roller mounted upon the plunger-stem and adapted to operate between and in contact with the contiguous faces of said guides whereby it is moved outwardly as it advances, and a rotary sweep-head provided with studs to engage a bearing-ear on the swinging arm and also adapted to engage a seat in the contiguous end of the plunger-stem, substantially as specified.

6. In a baling-press, the combination with a rebounding plunger, of a swinging arm, sliding connections between the free end of the plunger-stem and the swinging arm, inner and outer guides, a guide-roller mounted upon the plunger-stem and adapted to operate between and in contact with the contiguous faces of the guides, a releasing-spring arranged in the path of the swinging arm and adapted to be engaged thereby as the plunger reaches the limit of its advance movement, the yielding movement of the releasing-spring being limited by a fixed stop, and a rotary sweep-head provided with studs to engage a bearing-ear on the swinging arm and also adapted to engage a seat in the contiguous extremity of the plunger-stem, substantially as specified.

7. In a baling-press, the combination with a rebounding plunger, of a swinging arm provided with a hooked extremity, a fixed stop arranged in the path of the swinging arm and provided with a cushion-spring, a sliding connection between the plunger-stem and the swinging arm, including a swinging stirrup having rollers to bear against opposite sides of the swinging arm, a stop 57 on the swinging arm to limit the outward movement of the free end of the stirrup, a releasing-spring arranged in the path of the swinging arm, and a rotary sweep-head provided with studs for engaging a bearing-ear on the swinging arm and also adapted to engage a seat in the contiguous extremity of the plunger-stem, substantially as specified.

8. In a baling-press, the combination with a rebounding plunger, of a swinging arm provided with a hooked extremity, a fixed stop arranged in the path of the swinging arm and provided with a cushion-spring, a sliding connection between the plunger-stem and the swinging arm, a releasing-spring arranged in the path of the swinging arm, a rotary sweep-head provided with studs for engaging a bearing-ear on the swinging arm and also adapted to engage a seat in the contiguous extremity of the plunger-stem, and a cushioned fixed stop 68 arranged in the path of a moving stop 69 on the plunger-stem, substantially as specified.

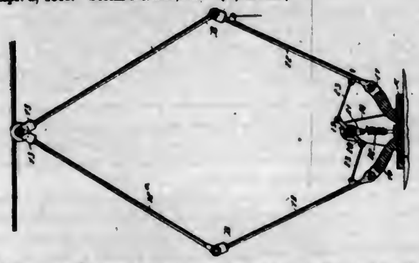
574,818. WHEELED VEHICLE. EDWARD J. PENNINGTON, Chicago Heights, Ill., assignor to the Motor Cycle Company, Chicago, Ill. Filed Mar. 21, 1893. Serial No. 467,043. (No model.) Patented in England Dec. 11, 1895, No. 23,771.



Claim.—1. In a wheeled vehicle, an explosive propelling-engine comprising a cylinder supported in a horizontal position behind the rear axle by means of an extension of said cylinder at the end adjacent to the said axle and a brace extending obliquely upward from the opposite end of said cylinder to a higher portion of the vehicle-frame, substantially as described.

2. In a wheeled vehicle, a propelling-cylinder open at its forward and closed at its rear end and provided with an extension for loose connection with the rear axle, and a brace attaching the rear end of said cylinder to a higher portion of the vehicle-frame, substantially as described.

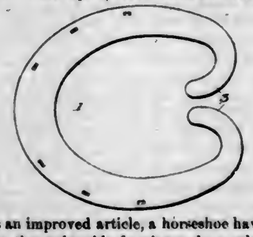
574,819. TROLLEY. WILBUR L. PEPPER, Philadelphia, Pa. Filed Apr. 2, 1895. Serial No. 544,173. (No model.)



Claim.—1. The combination, with oppositely-disposed trolley-arms, each constructed in pivoted sections, the upper sections of the arms being pivoted to the trolley-wheel and the lower sections of the arms pivotally attached to a support, of a shaft journaled between the trolley-arms, provided with spring-controlled crank-arms at its ends, a lever carried by the said shaft, and a link connection between the ends of the lever and the lower sections of the said trolley-arms, substantially as shown and described.

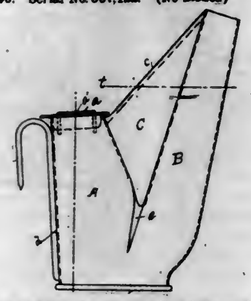
2. The combination with a base, oppositely-arranged trolley-arms pivoted to the base, the said arms being constructed in pivotally-connected sections, and a trolley-wheel mounted in the upper ends of the upper sections of the said arms, of a shaft between the trolley-arms and provided with crank-arms at its ends, springs secured to the crank-arms and to the base, a lever secured at the center of its length to the shaft, and links connecting the ends of the lever with the lower sections of the trolley-arms, substantially as herein shown and described.

574,820. SPRING-TREAD HORSESHOE. LOUIS PETERSEN, Sheldon, Iowa. Filed Apr. 6, 1896. Serial No. 586,292. (No model.)



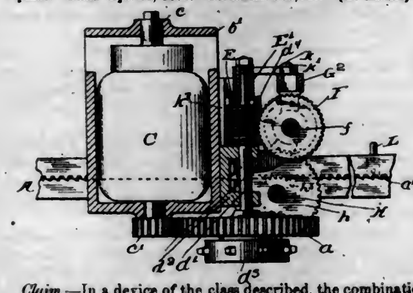
Claim.—As an improved article, a horseshoe having the toe portion concaved on the under side forming a sharp edge, and the ends or heel portions curved inwardly so as to nearly meet, and said curved ends bifurcated forming two spring-arms, the inner side of one of which is plain or flat and the other one convexed or rounded, substantially as and for the purpose specified.

574,821. MINER'S LAMP. MOSES RAKER, Olyphant, Pa. Filed Apr. 11, 1896. Serial No. 587,122. (No model.)



Claim.—A blank for forming a miner's lamp from a single piece of metal, consisting of the body portion or wings, the wick-tube, and the braces; the body portion being separated from the braces at its top edge, at an acute angle, and the braces being made to extend from opposite edges of the wick-tube and made widest at their lower ends, substantially as described.

574,822. COAL-MINING MACHINE. EDWARD P. RAUSCHER, Chicago, Ill., assignor to the Morgan-Gardner Electric Company, same place. Filed Apr. 23, 1896. Serial No. 588,747. (No model.)



Claim.—In a device of the class described, the combination with the driven shaft, d', and worm, d^4, longitudinally movable thereon, of the hollow washer, E, resting upon said worm and having a conical hole in its upper end, and a collar, E', having a corresponding conical end resting in the conical hole in the washer, whereby the collar, E', will split the washer, E, before sufficient strain is put upon the other portions of the machine to injure the same; substantially as described.

574,823. AUTOMATIC FLUID-PRESSURE FRICTION-CLUTCH. GEORGE M. RICHARDS, Erie, Pa. Filed July 31, 1896. Serial No. 601,136. (No model.)

Claim.—1. In a device of the class described, the combination with the driving and driven elements, of the interposed friction device, and automatic mechanism for operating said friction device mounted upon one element and engaged by the other element, whereby said mechanism is actuated whenever and so long as there is relative movement between said elements.

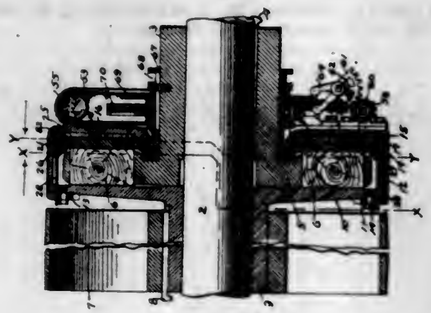
2. In a friction-clutch, the combination with the driving and driven elements, of the friction device, its automatic operating mechanism carried by one element and normally engaging the other element so as to be in action whenever and so long as there is relative movement between said elements, and means for throwing the said mechanism out of such engagement, and consequently out of action.

3. In a friction-clutch, the combination with the driving and driven elements, of automatic means for operating said clutch by creating frictional pressure between said elements, said means being carried by one element, and operatively engaged by the other.

4. In a friction-clutch, the combination with the driving and driven elements, of the pressure-creating mechanism carried by one of said elements and normally in operative engagement with the other and adapted to increase the pressure in proportion to the increase of load, and means independent of said mechanism for releasing said pressure.

5. In a friction-clutch, the combination with the driving and driven elements thereof, of a pressure-creating mechanism carried by

one of said elements and automatically operated by the relative movement between said elements, and the pressure-releasing mechanism acting in opposition to said pressure-creating mechanism.



6. In a friction-clutch, the combination with the driving and driven elements, of mechanism carried by one element and normally in operative engagement with the other for creating frictional pressure between them in proportion to the load, and means for throwing said mechanism out of operative engagement.

7. In a fluid-pressure clutch, the combination with the two members thereof, of the interposed friction device, the mechanism for actuating said friction device mounted upon one of said members and adapted to be operatively engaged by the other member.

8. In a fluid-pressure clutch, the combination with the two elements or members thereof, of the interposed friction device, and automatic means for actuating said device while there is relative movement in either direction between said elements.

9. In a fluid-pressure clutch, the combination with the two elements thereof, either serving as the driver, of the interposed friction device, its operating mechanism, and automatic means for actuating said mechanism while and whenever there is relative movement in either direction between said elements.

10. In a fluid-pressure clutch, the combination with its members or elements, either adapted to serve as a driver, and the interposed expansible friction device, of the supply-pump, and means for automatically operating said pump while and whenever there is relative movement in either direction between said members.

11. In a fluid-pressure clutch, the combination with its members or elements, either adapted to serve as a driver, and the interposed friction device, of the supply-pump, the release-valve, means for automatically operating said pump while and whenever there is relative movement in either direction between said clutch members, and means for throwing said pump out of operation and for opening said valve.

12. In a fluid-pressure clutch, the combination with the members thereof, and the interposed expansible friction device, of the supply-pump, automatic means for actuating said pump only while there is relative movement between said clutch members, and means for holding said pump out of action.

13. The combination with a fluid-pressure clutch, of the supply-pump therefor carried by one member of the clutch, the pump-operating mechanism carried by the other member, the relief-valve, and the means for opening said relief-valve and for disengaging the pump and its operative means.

14. The combination with a fluid-pressure clutch, of the pump carried by one member, the cam carried by the other member for operating said pump in one direction, the spring for operating it in the other direction, and means for throwing said pump out of engagement with said operating device.

15. The combination with the fluid-pressure clutch, having a fluid-chamber interposed between its members, of the flexible diaphragm closing said chamber, the friction-plate actuated by the diaphragm, the supply-pump, and automatic means for actuating the pump only when there is relative movement of the clutch members.

16. The combination with the fluid-pressure clutch having a fluid-chamber interposed between its members, of the supply-pump, the relief-valve, automatic means for operating the pump during the relative movement of the clutch members, and means for operating the relief-valve and disengaging said pump from its operating mechanism.

17. The combination with the fluid-pressure clutch, of a supply-pump intermediate of the clutch members automatically operative while and whenever there is relative movement of the members, the relief-valve, and the shipping sleeve adapted to actuate said valve, and to set said pump in operation or throw it out of operation.

18. In a fluid-pressure clutch, the combination of a supply-pump carried by one of its members, a cam carried by the other member, the pump-actuating lever, the spring for holding said lever in engagement with said cam, the relief-valve, and the shipping sleeve for operating said relief-valve and for throwing said pump into or out of action.

19. In a friction-clutch, the combination with the driving and driven elements, of the mechanism mounted upon one element, and normally engaging the other for creating frictional pressure between said elements in proportion to the load on the clutch, and operative only when there is relative movement of said elements.

20. In a clutch of the class described, in combination the driving and driven elements, the fluid-pressure chamber, the collapsible fluid-reservoir, the pump for forcing the contents of said reservoir into the chamber, the relief-valve for permitting the return of the contents of the chamber into the reservoir, automatic means for actuating said pump while and so long as there is relative movement between said elements, and means for throwing said pump out of action and opening said relief-valve.

21. In a clutch of the class described, the combination with its elements, either serving as the driver, of the expansible fluid-pressure chamber, the collapsible fluid-reservoir, the pump connecting said reservoir with said chamber, and the relief-valve controlling the reflow from the chamber to the reservoir, all carried by one element, and the means carried by the other element for automatically actuating the pump during relative movement of the elements, and for mechanically throwing the pump out of action and opening the relief-valve.

22. In a clutch of the class described, the combination with the friction parts, of the fluid-circulating system carried by one clutch element or member, made up of an expansible pressure-chamber, a connected collapsible reservoir, suitable valve connections, a pump for forcing the fluid of the system into said chamber, means carried by the other element for automatically actuating said pump during relative movement of said elements, and means for mechanically stopping said pump and releasing the contents of said chamber.

23. In a clutch of the class described, in combination, the shaft, the circular flange carried thereby having openings through its web, the friction-blocks arranged in said openings, the pulley journaled on said shaft, the webs or flanges carried thereby, one adapted to bear upon one face of said friction-blocks, the other having an expansible chamber, the movable friction-plate upon the wall of said chamber adapted by its expansion to be brought into frictional engagement with the other face of said blocks, means for automatically expanding said chamber so long as there is relative movement between said shaft and pulley, and means for collapsing said chamber and separating the frictionally-bearing surfaces.

24. In a clutch of the class described, a fluid-circulating system, comprising an expansible fluid-pressure chamber, a collapsible fluid-reservoir, means for automatically forcing the contents of said reservoir into said chamber to actuate the clutch so long as there is relative movement between its members, and the means for throwing said automatic means out of action, and permitting the reflow of the contents of said chamber into said reservoir, and separating the frictionally-bearing surfaces.

25. In a clutch of the class described, the combination with the fluid-circulating system, of the pump connected therewith, the eccentric for actuating its piston in one direction, and the spring for actuating it in the reverse direction, said pump being made up of the cylinder, the cylindrical piston fitted thereto, the sleeve fitted upon said piston and serving as a seat for said spring, and the packing interposed between the cylinder and piston, and receiving the thrust of said sleeve.

26. In a pump, the combination of the cylinder having a cylindrical enlarged or socketed top, the cylindrical piston fitted to said cylinder, the packing arranged in the socket around said piston, the sleeve fitted to said piston and bearing upon said packing, and the retracting-spring bearing upon the top of said sleeve.

27. In a pump of the class described, in combination, the cylinder having a cylindrical enlarged top, the hollow cylindrical piston fitted to said cylinder, the piston-rod of less diameter than the opening in said piston extending into the same and secured in the head thereof, and flattened or cut away in a plane at right angles to the plane of the rod and pump-lever so as to accommodate it to the arc of movement of the lever, the packing arranged in the enlarged or socketed portion of said cylinder around said piston, the sleeve fitted to said piston and extending into the enlarged end of the cylinder and bearing upon said packing, the end of said sleeve being inwardly chamfered so as to wedge said packing against the piston, and the spring surrounding the piston-rod and seated upon said sleeve.

28. In a fluid-pressure clutch, the fluid-circulating system, comprising in combination the expansible pressure-chamber, the collapsible hose serving as a reservoir, the valve-controlled connection between each end thereof and said chamber, the means for forcing the contents of said hose into said chamber, and the means for permitting the partial return flow of the contents of the chamber into said hose.

29. In a fluid-pressure clutch, the combination with the fluid-pressure chamber, of the collapsible hose serving as a fluid-reservoir, the pump connecting one end of said hose with said chamber, and adapted to force its contents into said chamber, and the relief-valve connecting said chamber with the other end of said hose.

30. In a clutch of the class described, the combination with the driving and driven elements, of the fluid-circulating system made up of the expansible fluid-pressure chamber and the collapsible fluid-reservoir, the interposed pump for forcing the contents of the reservoir into the chamber, and the relief-valve for permitting the reflow of the contents of the chamber into the reservoir, the shipping sleeve for throwing the pump into action, the segmental pinion carried by the relief-valve, the segmental gear operatively engaging said pinion, and the flange upon said shipping sleeve for engaging said segmental gear so as to open and close its connected valve when slipped to throw said pump into or out of action.

574,824. WEATHER-CHECK FOR DOORS. FRANK ROGERS, Boston, Mass. Filed Apr. 7, 1896. Serial No. 586,487. (No model.)



Claim.—A weather-check for doors consisting of the housings B B' adapted to fit into sockets in the bottom of the door, means to secure said housings to the door, the bar b^3 movable vertically in a slot in the bottom of the door and in the said housings, cross-bars c^3 secured to the bar b^3 and extended transversely through the housings B B', upright posts secured to the said cross-bars on opposite sides of the housings B B' and extended through side flanges on the said housings, springs encircling the said posts between the said flanges, means on said posts to adjust the tension of the said springs, an actuating-rod b extended through the housings above the bar b^3, and links connecting the said rod to the said housings, substantially as described.

574,825. CAR-COUPLING. HENRY B. ROGERS, Sanger, Cal. Filed May 22, 1896. Serial No. 592,565. (No model.)



Claim.—In an automatic car-coupler, the combination with a draw-head, of a spring-pressed coupling-head movable therein, a spring-retracted vertically-movable frame carrying a coupling-pin adapted to be projected down in front of the coupling-head, and a transverse rotary shaft carrying cams adapted for engagement with the vertically-movable frame and means for turning said shaft, whereby the frame may be lifted and the pin raised to allow the coupling-head to move forward, substantially as described.

574,826. SECONDARY-BATTERY SUPPORT OR GRID. JOHN J. ROONEY, Brooklyn, N. Y. Filed Feb. 12, 1896. Serial No. 578,986. (No model.)



Claim.—1. A grid for a secondary-battery plate made up of layers of strips of wool felt laid together in sets of rows which cross each other so as to form pockets or holes between the rows, substantially as described.

2. A grid for a secondary-battery plate made up of layers of strips of wool felt, the strips forming the different layers being fastened together by sealing-wax, the strips being laid in sets of rows which cross each other, so as to form pockets or holes between the rows of strips, substantially as described.

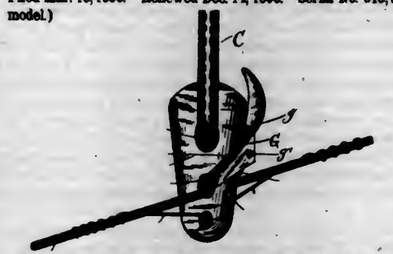
3. A grid for a secondary-battery plate made up of layers of strips of insulating and porous material, the strips being disposed in rows which cross each other, forming rows of holes or pockets between the rows of strips and conductors laid between the strips, one along each row of holes or pockets and midway between the faces of the grid, substantially as described.

574,827. CASK-PITCHING APPARATUS. PHILIP SHERREK and JOSEPH SCHMIDT, Cleveland, Ohio. Filed Aug. 30, 1895. Serial No. 561,034. (No model.)



Claim.—The kettle, provided with a hinged cover b, combined with the thimble g, drip-pan H, and drain-pipe h, all made in a single piece and secured to said door, and the flue G, which has its lower end to fit in said drip-pan, and which is provided with an opening through its edge corresponding to the pipe h, substantially as shown.

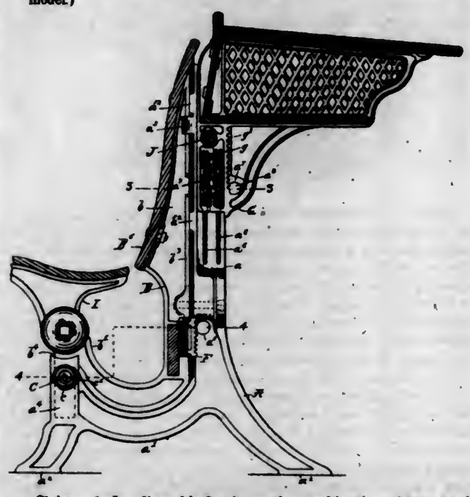
574,828. INSULATOR. BENJAMIN D. B. SHOCK, Wickatunk, N. J. Filed Mar. 10, 1896. Renewed Dec. 14, 1896. Serial No. 615,713. (No model.)



Claim.—1. An insulator consisting of a body portion with an opening to receive a wire and a ribbed wedge adapted to be inserted to hold the wire therein, as set forth.

2. An insulator consisting of a body portion with an opening with inclined outlet having grooves, and a removable wedge having ribs fitted to said grooves, substantially as specified.

574,829. ADJUSTABLE SCHOOL FURNITURE. WILLIAM F. SPIETH, Cleveland, Ohio, assignor to the Cleveland School Furniture Company, same place. Filed Sept. 23, 1895. Serial No. 563,434. (No model.)



Claim.—1. In adjustable furniture, the combination of two standards A A each of which includes the upwardly-extended part a having a vertical slot which extends through it from front to back, and having also a transverse hole adapted to serve as a bearing for one end of a removable operating-shaft, with two supports adapted to slide upon the front edge of the parts a, racks secured to said supports adjacent to said holes, a removable shaft finding its bearings in said

holes and having pinions which engage with said racks, and set-screws passing through said slots and screwing into said supports, substantially as and for the purpose specified.

2. In adjustable furniture, the combination of two standards having transverse holes which serve as bearings for a removable operating-shaft, with two combined seat and back supports movable up and down upon the front edge of said standards, and racks on said supports adjacent to said holes, with a removable shaft adapted to find its bearings in said holes and having near its ends corrugations which serve as pinions and engage with said racks, said pinions being of smaller diameter than one of said holes, and means for rigidly connecting said standards and supports, substantially as and for the purpose specified.

3. In adjustable school furniture, the combination of two standards each having a transverse hole which is adapted to serve as one bearing for the removable operating-shaft, with two supports movable upon said standards and provided with racks, and a removable shaft adapted to extend from one support to the other and to find its bearings in said holes and having (1) two longitudinally-corrugated parts near its ends which are of smaller diameter than one of said holes, and are adapted to engage with said racks, (2) a part intermediate of said corrugated parts which is of still smaller diameter, and (3) two approximately-cylindrical portions outside of said corrugated parts, which are adapted to lie within said holes, substantially as and for the purpose specified.

4. In adjustable furniture, the combination of two side standards A A, each of which includes (1) an upwardly-extended part *a* on the front edge of which a guiding-channel is formed, and in which a vertical slot is formed extending through it from front to back, and (2) a forwardly-extended part *a'*, with two combined supports B B for seat and back, each of which includes (1) the upwardly-extended part *b* of which the rear edge lies in said guiding-channel, and (2) a forwardly-extended part *b'* which is provided with a leg b^4 on the under side, means for connecting said leg and the parts *a'* of the standards, and set-screws which pass through the slots in part *a* of the standards and screw into the supports, substantially as and for the purpose specified.

5. In adjustable furniture, the combination of two standards each consisting of (1) an upwardly-extended part *a* which is provided on its front edge with a guiding-channel, and is also provided with a vertical slot *d* extending from rear to front, and (2) a forwardly-extended part *a'* having a socket a^4, with two supports for the seat and back each consisting of (1) an upwardly-extended part *b* the rear edge of which lies in said guiding-channel, and (2) a forward extension having a leg b^4 on its under side which enters said socket, and set-screws passing through the parts *a'* and engaging with the said leg, set-screws which extend through the slot *d* and screw into said supports, and raised flanges on the standards around the heads of said set-screws, substantially as and for the purpose specified.

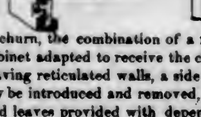
574,880. BELL. CHARLES W. STORM and WILLIAM F. HUNTER, Elgin, Ill. Filed Feb. 20, 1896. Serial No. 580,031. (No model.)



Claim.—1. In an alarm-bell, a reciprocating spring-actuated push-rod having a lateral stud and mounted on the base of the bell, in combination with a segmental gear fulcrumed at one side of said push-rod and having an oblong slot with which the stud on the push-rod engages, the center post, the central pinion journaled thereon, the centrifugal hammer slidingly mounted on said pinion and rotating therewith, the stud on the bell for actuating said hammer, and suitable gearing between the central pinion and the segmental gear, all arranged for joint operation substantially as described.

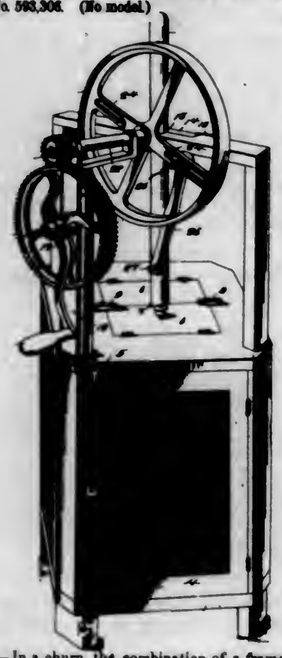
2. In an alarm-bell, the combination with a rigid base, of a central actuating-pinion, a segmental gear pivotally mounted on said base and formed with a segmental slot whereby it is adapted to embrace the central pinion and oscillate with relation thereto, and also provided with a radially-disposed slot, a spring-actuated push-rod having a laterally-projecting pin engaging said radial slot for oscillating the segmental gear, a pinion meshing with the segmental gear, a gear-wheel rotatable with said pinion and meshing with the central actuating-pinion, the bell having the center post thereon and passing through the central pinion, the said bell being also provided with an inwardly-projecting stud, and a centrifugal hammer formed with a central longitudinal slot embracing the hub portion of the central pinion, the said hammer being mounted to rotate with said pinion and being adapted to slide longitudinally upon the hub of said pinion, substantially as and for the purpose described.

574,881. SASH-FASTENER. JACOB STRUBEE, Kalamazoo, Mich. Filed Dec. 9, 1895. Serial No. 571,573. (No model.)



Claim.—The combination of a window-frame and a window-sash of a rack upon one of the said parts; a double-pointed pawl upon the other; a lever one end of which projects between said pawl and rack; a pin in the end of said lever; a spring to hold said pin in yielding contact with said pawl and permit it to be moved back and forth past the pivot of the pawl to reverse the same or hold it out of engagement with the rack by resting at the center as specified.

574,882. CHURN. CHRISTOPHER C. TAYLOR, Rockingham, N. C., assignor of one-half to L. C. Sharp, same place. Filed May 27, 1896. Serial No. 593,306. (No model.)

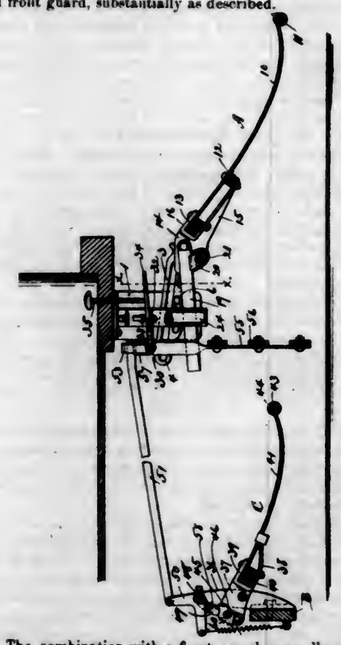


Claim.—In a churn, the combination of a frame constructed to form a cage or cabinet adapted to receive the churn-receptacle, said cage or cabinet having reticulated walls, a side door through which the receptacle may be introduced and removed, and a top lid having oppositely-mounted leaves provided with depending holding-blocks to engage and secure the cover of the churn-receptacle, means for fastening said lid in its closed position, a churn-dasher having its staff mounted in half-bearings formed in the meeting edges of the leaves of said top lid, and operating devices for the dasher, substantially as specified.

574,888. LIFE-GUARD FOR STREET-CARS. ALBERT J. THORNLEY, Pawtucket, R. I., assignor to the Consolidated Car Fender Company, Providence, R. I. Filed Jan. 22, 1896. Serial No. 576,372. (No model.)

Claim.—1. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism for dropping said guards, and means for dropping one of said guards independently of the other, substantially as described.

2. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism operative from the platform for dropping said guards, and means automatically operated by an object on the track for dropping said wheel-guard independently of said front guard, substantially as described.



3. The combination with a front guard normally raised, and a wheel-guard normally raised, of a mechanism for dropping said guards, and means for locking one of said guards in its lower position, substantially as described.

4. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism for dropping said guards, means for dropping said wheel-guard, and means for locking said wheel-guard in its lower position, substantially as described.

5. The combination with a front guard normally raised, and a wheel-guard normally raised, of a mechanism operative from the car-platform for dropping said guards, and means independent of said front guard for automatically dropping said wheel-guard, substantially as described.

6. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism operative from the car-platform for dropping said guards, an apron located behind said front guard and in front of said wheel-guard for automatically dropping said wheel-guard independently of said front guard, substantially as described.

7. The combination with a front guard and a wheel-guard, of a catch for holding said front guard raised, an independent catch for holding said wheel-guard raised, a mechanism for disengaging said catches and means for disengaging one of said catches independently of the other, substantially as described.

8. The combination with a front guard and a wheel-guard, of a catch for holding said front guard raised, an independent catch for holding said wheel-guard raised, a mechanism operative from the car-platform for disengaging said catches, and means for automatically disengaging said wheel-guard catch, substantially as described.

9. The combination with a front guard and a wheel-guard, of a catch for holding said front guard raised, an independent catch for holding said wheel-guard raised, a rock-shaft connected to disengage said catches, and a swinging apron connected to disengage said wheel-guard catch, substantially as described.

10. The combination of a plate adapted to be secured to the car, and provided with a series of holes, an arm provided with slots, bolts passing through said slots and holes, and a bearing in said arm, whereby said arm and bearing may be adjusted, substantially as described.

11. The combination of a guard comprising plates provided with trunnions, bearings for said trunnions, a rearwardly-extending arm pivoted to one of said plates, a lug on said plate engaging said arm, and a catch also engaging said arm, substantially as described.

12. The combination of a guard comprising plates provided with trunnions, bearings for said trunnions, rearwardly-extending arms, catches for also engaging said arms, and means for disengaging said catches, substantially as described.

13. A guard comprising plates provided with extending arms, cross-bars secured to said arms, resilient rods secured to said cross-bars, and a cross-rod to which the forward ends of said rods are secured, substantially as described.

14. The combination with a guard of a movable catch independent of said guard for holding said guard raised, and also locking said guard in its lower position, and means for operating said catch to drop said guard, substantially as described.

15. The combination with a guard of a catch for holding said guard raised, said guard and said catch being provided with engaging shoulders for locking said guard in its lower position, and means for disengaging said catch to drop said guard, substantially as described.

16. The combination with a guard of a pivoted catch for holding said guard raised, a tooth on said guard, a tooth on said catch, said teeth being arranged to engage when said guard is dropped, and means for rocking said catch on its pivot, substantially as described.

17. The combination with a guard of a catch for holding said guard raised, an adjustable lug on said guard engaging said catch, and means for disengaging said lug and catch, substantially as described.

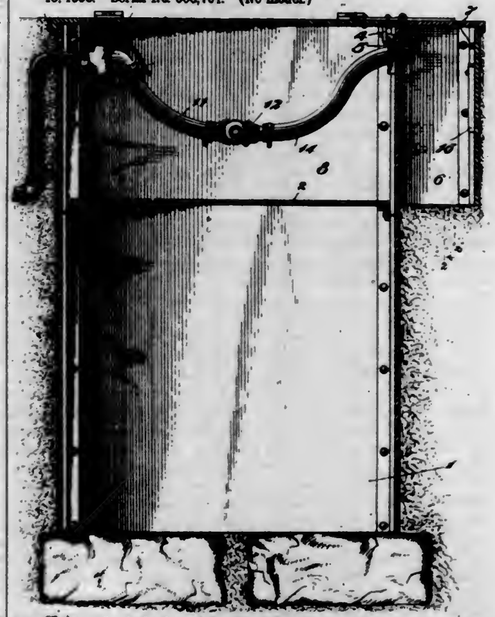
18. The combination with a guard of a catch for holding said guard raised and also for locking said guard in the lower position, of means for disengaging said catch from the car-platform, and means for disengaging said catch automatically, substantially as described.

19. The combination with a guard of a catch for holding said guard raised, means for disengaging said guard and catch comprising a bar, a rock-shaft, an arm secured to said shaft and engaging said bar for operating the same to disengage said guard and catch, means for rocking said shaft from the car-platform, and means for automatically operating said bar, substantially as described.

20. The combination with a guard of a catch for holding said guard raised, means for disengaging said guard and catch comprising a bar, means for operating said bar from the car-platform to disengage said guard and catch, a pivoted apron, an arm operated by said apron and engaging said bar for operating the same to disengage said guard and catch, substantially as described.

21. The combination with a guard of a pivoted catch for holding said guard raised, a bar for operating said catch provided with an offset at its free end, a rock-shaft, an arm secured to said rock-shaft and supporting the free end of said bar, means for rocking said shaft, and a pivoted apron provided with an arm for engaging said offset, substantially as described.

574,884. AIR-BOX. PATRICK M. TOBIN, Elmira, N. Y. Filed Oct. 13, 1896. Serial No. 608,761. (No model.)

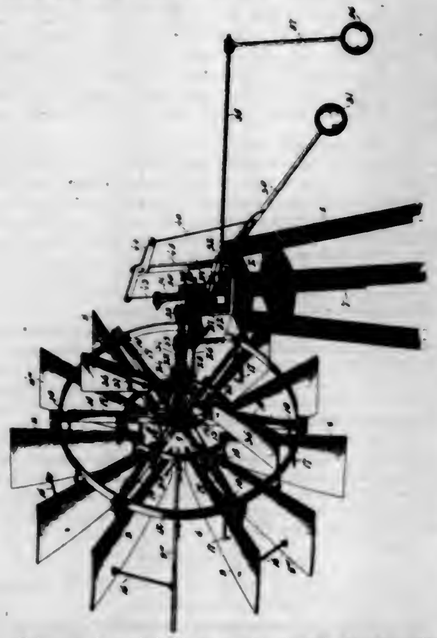


Claim.—1. A device of the kind specified consisting of a casing having a horizontal partition between its upper and lower ends, an auxiliary chamber at the upper end portion of said casing, a hinged cover for said casing, a cover for said auxiliary chamber hinged to

said casing-cover, and an opening in the upper end of the wall between said casing and auxiliary chamber.

2. A box of the kind specified consisting of a casing having a horizontal partition, a hinged cover upon the upper end of said casing, a lock for said cover, a slot in the end of said casing adjacent to said lock, an auxiliary chamber at one end of said box, a cover 7 hinged to said main cover, and a pipe or passage entering the upper end portion of said casing near the other end thereof and provided with a valve and coupling.

574,835. **WINDMILL.** BERNHARDUS M. TOTDAHL, St. Olaf, Minn. Filed Apr. 1, 1896. Serial No. 585,769. (No model.)



Claim.—1. In a windmill, the combination of a tower, a rotary frame, a wind-wheel arranged at one side of the rotary frame and provided with hinged blades, a rigid horizontal rod extending from the opposite side of the rotary frame, a depending rod hinged at its upper end to the horizontal rod and provided at its lower end with a weight, a weighted lever mounted on the rotary frame, located at the same side as the horizontal rod, and connections between the weighted lever and the hinged blades, substantially as described.

2. In a windmill, the combination of a tower, a rotary frame, a wind-wheel mounted at one side of the rotary frame and provided with hinged blades, a spring connected with the hinged blades and arranged to hold the same normally closed to cause the wind-wheel to rotate, a weighted lever connected with the blades and adapted to hold them open against the action of the said spring, and means for operating the weighted lever from the base of the tower, whereby the weighted lever is held elevated to permit the spring to maintain the blades in their closed position, substantially as described.

3. In a windmill, the combination of a rotary frame or turn-table, a horizontal wind-wheel shaft, a wind-wheel mounted thereon and provided with hinged blades, a sliding sleeve mounted on the shaft and connected with the hinged blades, a weighted lever fulcrumed on the rotary frame or turn-table, governing devices connected with the sliding sleeve, a sliding rod guided on the frame or turn-table adjacent to the shaft, having its outer ends connected with the sleeve, and a pair of links connecting the sliding rod and the weighted lever, whereby the sleeve is permitted to slide independently of the weighted lever when the latter is raised, to permit an operation of the governing devices, substantially as described.

4. In a windmill, the combination of a rotary frame or turn-table, a horizontal wind-wheel shaft, a wind-wheel mounted on the shaft and provided with hinged blades, a sliding sleeve connected with the blades, a weighted lever fulcrumed on the rotary frame or turn-table, a sliding rod guided on the frame or turn-table, swiveled at its outer end to the sliding sleeve, and provided at its inner end with an adjustable arm, and a pair of pivoted links connecting the adjustable arm with the weighted lever, substantially as described.

5. In a windmill, the combination of a horizontal wind-wheel shaft, a wind-wheel mounted thereon, provided with hinged blades, a lever fulcrumed on the wind-wheel and connected with the hinged blades and adapted to open and close the same, and a governing-blade hinged to the lever and adapted to swing to a position parallel to the wind-wheel during the rotation thereof, and capable of automatically swinging edgewise to the wind when the windmill is thrown out of operation, substantially as and for the purpose described.

6. In a windmill, the combination of a horizontal wind-wheel shaft, a wind-wheel provided with hinged blades, a sliding sleeve mounted on the shaft and connected with the blades, a lever fulcrumed on the wind-wheel and connected with the sliding sleeve, and a governing-blade hinged to the lever and adapted to swing to a position parallel with the wind-wheel during the operation of the windmill, and capable of assuming a position at right angles to the frame of the wind-wheel when the windmill is out of operation, substantially as described.

7. In a windmill, the combination of a horizontal wind-wheel shaft, a wind-wheel having hinged blades, a sliding sleeve mounted on the shaft and connected with the blades, a support adjustably secured to the frame of the wind-wheel, a lever fulcrumed on the support and connected at its inner end to the sliding sleeve, and a governing-blade hinged to the outer portion of the lever, substantially as described.

8. In a wind-wheel, the combination of a supporting-frame, blades hinged to the supporting-frame and arranged in pairs, links connecting the blades of the pairs, springs interposed between the pairs of blades and holding the same separated, and means for operating the blades, substantially as described.

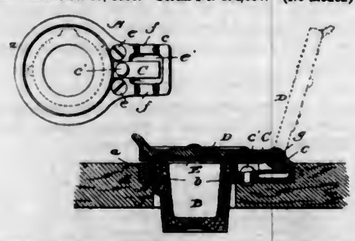
9. In a windmill, the combination of a rotary frame or turn-table, a wind-wheel shaft, a wind-wheel provided with hinged blades, a sliding sleeve mounted on the wind-wheel shaft, connected with the blades and adapted to open and close the same, means for engaging the sleeve to close the blades automatically, a weighted lever fulcrumed on the rotary frame or turn-table, connected with the sleeve and adapted to hold the blades open and maintain the windmill out of operation, a lever 44 fulcrumed intermediate of its ends on the rotary frame or turn-table and connected at its outer end with a weighted lever, a tubular pump-rod, the connection 43 passing through the bottom rod and connected with the inner end of the lever 44, an operating-lever, and a swivel connecting the operating-lever with the connection 43, substantially as described.

574,836. **FLY-BRUSH.** WILSON D. TRIEM, St. Joseph, Mo., assignor of one-half to Levi L. McBride, same place. Filed Oct. 30, 1895. Serial No. 567,441. (No model.)



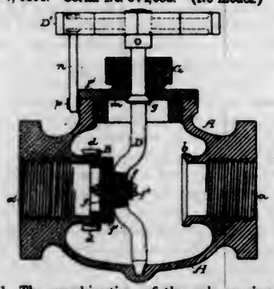
Claim.—The combination with a door, of the upper and lower brackets arranged at the upper portion of the free edge of the door and mounted on the door frame or casing, a vertically-disposed rotary brush journaled on the brackets, supported by the same and provided with a drum, a spring concealed within the drum and connected with and adapted to actuate the same, the L-shaped arm 9 mounted on the door and extending horizontally therefrom to a point beyond the outer side of the fly-brush when the door is closed, and a cord wound around the drum and extending directly from the outer end of the L-shaped arm to the said drum, whereby the door is adapted to be completely closed without any intermediate connection of the cord with the casing, substantially as described.

574,837. **INK-WELL FOR DESKS.** THEODORE G. TRITT, Carlisle, Pa. Filed Dec. 19, 1893. Serial No. 494,097. (No model.)



Claim.—In a support and cover for ink-wells, the flat cast-metal base A comprising the flanged ring *a* and the horizontal ear *c* which projects beyond the ring *a* and has its upper surface formed with the recess or depression *c'* and the raised lugs *f*, on opposite sides of said depression, combined with a cover D having an arm *h* fitted between the lugs *f* and an eccentric or cam *i* at its free extremity, the flat spring C riveted firmly to a solid part of the ear *c* next to the ring *a* and having its unconfined end extending into the recess *f* to bear upon the eccentric or cam *i* of the cover, and the pivot passing through the lugs *f* and the arm *h* to pivotally connect the cover to the base, all arranged and combined substantially as and for the purposes described.

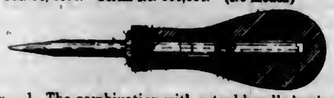
574,838. **STOP-VALVE.** JAMES WALSH, Jr., Philadelphia, Pa. Filed Jan. 7, 1896. Serial No. 574,632. (No model.)



Claim.—1. The combination with a tool-handle having a slotted rim, and a tool provided with a lug or projection, of a ring revolubly confined between the said rim and handle and having a groove and a cam to wedge the ring between the rim and tool end for the purpose of locking the tool to the handle, as set forth.

2. The combination with the tool-handle having a hollow body, and a tube secured in said body and provided with a slot extending through the tube-rim, of a ring revolubly confined between the said rim and end of the handle and having a groove to register with the said slot, a cam upon the ring adapted to engage a lug or projection on a tool to lock the latter to the said tube, as set forth.

574,839. **TOOL-HANDLE.** FRANK H. WHITNEY, Springfield, Vt. Filed Oct. 31, 1896. Serial No. 610,681. (No model.)

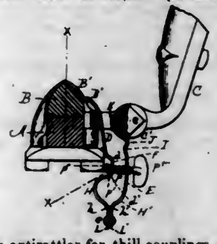


Claim.—1. The combination with a tool-handle having a slotted rim, and a tool provided with a lug or projection, of a ring revolubly confined between the said rim and handle and having a groove and a cam to wedge the ring between the rim and tool end for the purpose of locking the tool to the handle, as set forth.

2. The combination with the tool-handle having a hollow body, and a tube secured in said body and provided with a slot extending

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574,840. **ANTIRATTLER FOR THILL-COUPLINGS.** JOHN W. WILLARD, Pittsford, Vt., assignor to Charles G. Farwell, Quincy, Mass. Filed Sept. 9, 1896. Serial No. 605,251. (No model.)

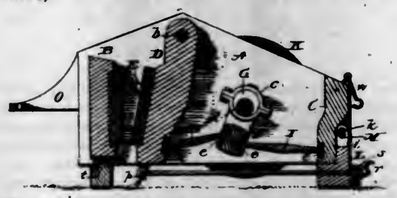


Claim.—1. An antirattler for thill-couplings, comprising a pair of spring-jaws rigidly secured together; and an adjusting mechanism connecting and in engagement with said spring-jaws whereby they may be positively drawn toward or forced from each other thus contracting or expanding the antirattler, as desired, substantially as described.

2. In an antirattler for thill-couplings, a pair of spring-jaws secured together near one end by a rigid connection; and an adjustable mechanism connecting and in engagement with said jaws whereby they may be positively drawn toward or forced from each other and thus contract or expand the antirattler, as desired, such adjusting mechanism being intermediate of the point of rigid connection and the point of engagement with the thill-coupling, substantially as set forth.

3. The herein-described improved antirattler for thill-couplings, comprising a pair of spring-jaws formed with upwardly diverging or spreading portions near their lower ends, and having said lower ends formed to extend down from said diverging or spreading portions into the substantially parallel portions L, L': rigid connections uniting said parallel portions; and an adjusting mechanism connecting and in engagement with said jaws whereby they may be positively drawn toward or forced from each other and thus contract or expand the antirattler, as desired, such adjusting mechanism being intermediate of the point of rigid connection and the point of engagement with the thill-coupling, substantially as described.

574,841. **MACHINE FOR CRUSHING ORE, &c.** OTIS WILLIAMS, St. Johnsville, N. Y. Filed May 25, 1896. Serial No. 592,953. (No model.)



Claim.—1. In a machine for crushing stone, ore, and analogous material, a suitable frame and a support therefor pivoted at or near its end, means for holding the support or pivoted part of the frame in an elevated position, a longitudinal coupling-rod having a hooked end to engage with a link or other device on the lower end of the movable jaw, said rod extending through the support or pivoted portion of the frame, and means for drawing the rod tight to hold the toggles in position with relation to the lever, movable jaw, and block, substantially as and for the purpose set forth.

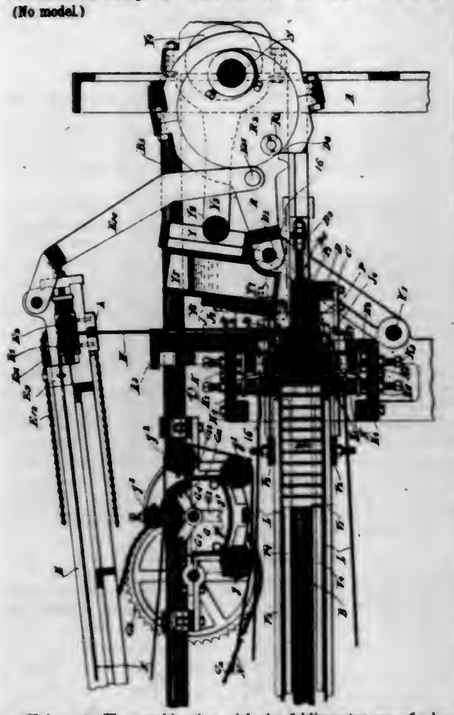
2. In a machine for crushing stone, ore, and analogous material, a frame consisting of side plates having outwardly-projecting flanges at their lower edges, a support or pivoted portion of the frame having laterally-extending bearings for the flanges, set-screws or other suitable means for holding the flanges in position thereon, and means for holding the support or pivoted part of the frame in a raised or lowered position, substantially as and for the purpose specified.

3. In a machine for crushing stone, ore, and analogous material, a frame consisting of side plates having outwardly and laterally extending flanges at their ends, the support or pivoted part of the frame having laterally-extending bearings for the flanges, set-screws or other suitable means to hold them in position thereon, upwardly-projecting arms on the support or pivoted part of the frame having elongated

slots, a transverse coupling-rod extending through the slots in the arms, and means for holding the support or pivoted part of the frame in an elevated or lowered position, substantially as and for the purpose described.

4. In a machine for crushing stone, ore, and analogous material, a frame consisting of side plates having outwardly-extending flanges, a support for the frame pivoted to the side plates said support having laterally-extending bearings for the flanges, set-screws or other suitable means for holding the flanges to the bearings, a longitudinal coupling-rod extending through the support or pivoted part of the frame and having a hooked end to engage with the lower end of the swinging jaw, and means for holding the support or pivoted part of the frame in a raised or lowered position, substantially as and for the purpose set forth.

574,842. MACHINE FOR MAKING MATCH-BOXES. WILLIAM R. WILLIAMS, Chicago, Ill. Filed Mar. 29, 1895. Serial No. 543,761. (No model.)



Claim.—1. The combination with the folding-plunger, of a box-detacher lying normally within the plunger and having faces adapted to support the box-walls by contact with a small portion only of their surfaces, and means for projecting said detacher from the end of the plunger at intervals; whereby the box upon the plunger may be pushed therefrom and not be drawn back with the retracting detacher.

2. The combination with a suitably-mounted plunger, of a box-detacher sliding in the plunger in the line of its motion, means imparting reciprocatory motion to both plunger and detacher, and devices arranged to project the detacher from the end of the plunger while both advance.

3. The combination with a reciprocating cross-head carrying a folding-plunger, of a box-detacher carried by the plunger, and a rotary shaft bearing devices for accelerating the advance of the detacher at suitable intervals, substantially as set forth.

4. The combination with the adjustable box-pressing rollers K, of the fender-bars lying in grooves therein and projecting in the rear of the same to hold the box-flaps in position as they pass the line of pressure of the rollers.

5. The combination with the folding-rollers K and the fender-bars, of the conveyer-rollers K′ and the belts L, substantially as set forth.

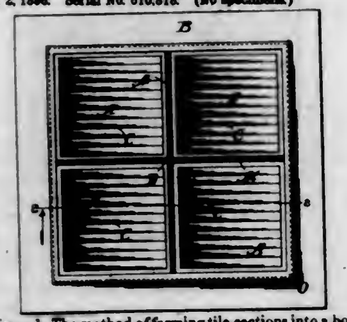
6. The combination with the plunger, of folding-plates fixed upon opposite sides of the plunger's path to fold two sides of the box-blank carried by the plunger, pivoted tuckers arranged to swing inward and onward with the plunger to fold the flaps or ends of said sides, and rollers mounted in front of the tuckers to fold the remaining sides of the blank back upon the advancing plunger.

7. The combination with the swinging arm carrying the feed-rollers, of devices arranged to apply glue to the marginal portions of the paper before it reaches said rollers, and a guideway attached to said arm in position to receive the paper from the rollers and provided with open spaces permitting the glued portions to pass through without contact.

8. The combination with the box-drying conveyer and the belts running therein, of the adjustably connected belt-tightening rollers pressing, respectively, upon the two belts; whereby the tension may be varied yet must always be the same upon the two belts.

9. The combination with the adjustable conveyer-way, of the adjustable pulleys or drums at the ends thereof, the belts carried by said pulleys and running in said way, the worm-wheels mounted upon the pulley-shafts, the worms engaging said wheels, and means for rotating said worms.

574,843. METHOD OF ELECTROLYTICALLY UNITING GLASS TILES INTO A BODY. WILLIAM H. WEBSLOW, Chicago, Ill. Filed Nov. 2, 1896. Serial No. 610,818. (No specimens.)



Claim.—1. The method of forming tile-sections into a body, which consists in bringing the several sections nearly together edge to edge, but with an open space between such edges, interposing a foundation cathode electrical conductor between such edges but so as still to leave a space to be filled between such edges, then subjecting the whole to the process of electrodeposition while the parts are in such position, and thus depositing a homogeneous mass of metal between the tile edges until the tile edges are permanently secured together by the engagement of the conductor and mass of deposited metal with each other and with the tile between the edges thereof.

2. The method of forming tile-sections into a body, which consists in bringing the several sections nearly together edge to edge, but with an open space between such edges, interposing a foundation cathode electrical conductor between such edges but so as still to leave a space to be filled between such edges, then subjecting the whole to the process of electrodeposition while the parts are in such position, and thus depositing a homogeneous mass of metal between the tile edges until the tile edges are permanently secured together by the engagement of the conductor and mass of deposited metal with each other and with the tile between the edges thereof, and continuing such electrodeposition until the mass of deposited metal is continued over upon the surface of such sections along such edges.

3. The method of forming tile-sections into a body, which consists in bringing the several sections nearly together edge to edge, but with an open space between such edges, interposing a foundation cathode electrical conductor comprising a loose skeleton frame of relatively strong material between such edges but so as still to leave a space to be filled between such edges, then subjecting the whole to the process of electrodeposition while the parts are in such position, and thus depositing a homogeneous mass of metal between the tile edges until the tile edges are permanently secured together by the engagement of the conductor and mass of deposited metal with each other and with the tile between the edges thereof.

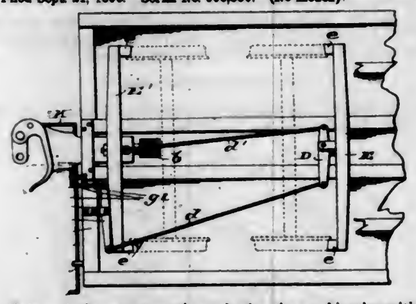
4. The method of forming tile-sections into a body, which consists in bringing the several sections nearly together edge to edge, but with an open space between such edges, interposing a foundation cathode electrical conductor comprising a loose skeleton frame of relatively strong material between such edges but so as still to leave a space to be filled between such edges, then subjecting the whole to the process of electrodeposition while the parts are in such position, and thus depositing a homogeneous mass of metal between the tile edges until the tile edges are permanently secured together by the engagement of the conductor and mass of deposited metal with each other and with the tile between the edges thereof, and continuing such electrodeposition until the mass of deposited metal is continued over upon the surface of such sections along such edges.

5. The method of forming tile-sections into a body, which consists in bringing the several sections nearly together edge to edge, such opposed edges being provided with grooves, interposing a foundation cathode electrical conductor between such edges, then subjecting the whole to the process of electrodeposition while the parts are in such position and thus depositing a homogeneous mass of metal between the tile edges and within such grooves until the tile edges are permanently secured together by the engagement of the conductor and mass of deposited metal with each other and with the tile between the edges thereof and the walls of the groove.

6. The method of forming tile-sections into a body, which consists in bringing the several sections nearly together edge to edge, but with an open space between such edges, said sections provided with prismatic ribs which extend substantially across the section and form intermediate surface angles, interposing a foundation cathode electrical conductor between such edges, then subjecting the whole to the process of electrodeposition while the parts are in such position, and thus depositing a homogeneous mass of metal upon such conductor and within such surface angles adjacent to the edges where such conductor is interposed, until the tile edges are permanently secured together by the engagement of the conductor and mass of deposited metal with each other and with the tile-surfaces within such angles.

7. The method of forming tile-sections into a body, which consists in bringing the several sections nearly together edge to edge, but with an open space between such edges, interposing a foundation cathode electrical conductor between such edges, but so as still to leave a space to be filled between such edges, inserting within such spaces a finely-divided electrical conducting material, then subjecting the whole to the process of electrodeposition while the parts are in such position, and thus depositing a homogeneous mass of metal between the tile edges and in the midst of such finely-divided electrical conducting material until the tile edges are permanently secured together.

574,844. AUTOMATIC BRAKE. JAMES F. ADAMS, Hubert, Ga. Filed Sept. 21, 1896. Serial No. 606,539. (No model.)



Claim.—1. In an automatic car-brake, the combination with the draw-bar provided with a depressed portion lying below other portions of the draw-bar, a block in said depressed portion, a brake-operating lever secured to the car, a connecting bar secured to said lever and to said block, the brake-beams operatively connected with said lever and means for moving said block to disconnect the draw-bar and said operating-lever, substantially as described.

2. In an automatic car-brake, the combination with the draw-bar provided with a recess on its upper side, a block loosely placed in said recess, a brake-operating lever secured to the car, the brake-beams operatively connected with said lever, a connecting-bar having one end connected with said lever and its other end provided with a laterally-extending pin having a pivotal connection with said block, and means for raising said block into a vertical position to disconnect the draw-bar from said brake-operating lever, substantially as described.

574,845. FURNACE AND HEATER. EDWARD FALES, Winthrop, Mass. Filed Jan. 21, 1896. Renewed Dec. 7, 1896. Serial No. 614,634. (No model.)



Claim.—1. A stove or furnace having an imperforate fuel-support, a grate of limited area forming a continuation of said fuel-support, and a wall extending downward toward said grate and to a point which is in a plane somewhat below the normal level of the fuel, whereby the air-supply is directed to a limited portion of the fuel only.

2. The combination with the fire-box provided with a solid or imperforate fuel-support, of a movable feeding-shovel and means for operating the same, whereby the fuel may be pushed forward, as consumed, to discharge the ashes and make room for fresh fuel.

3. The combination with the fire-box having a solid fuel-support, of a fuel-feeding shovel having its lower edge resting upon said fuel-support, and means for moving said shovel back and forth, substantially as specified.

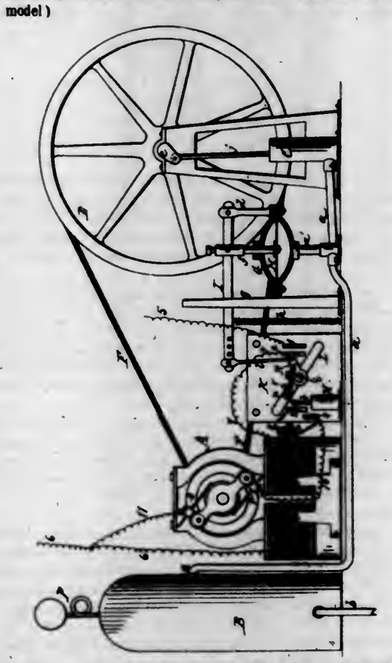
4. The combination with the fire-box having a solid fuel-support, of a fuel-feeding shovel having arms extending through slots in the opposite side walls of the furnace and connected to a rock-shaft by means of suitable connecting-rods, and means for moving said shovel back and forth, substantially as specified.

5. A stove or furnace having an imperforate fuel-support, a grate of limited area forming a continuation of said fuel-support, a wall extending downward toward said grate and to a point which is in a plane somewhat below the normal level of the fuel, and a horizontal plate situated immediately below the upper portion of the front wall of the furnace and extending into the combustion-chamber, whereby the air is directed not only to a limited portion of the fuel but toward the center thereof.

6. The combination with the upper front wall of the furnace, of the lower front wall setting forward of said upper wall, and the horizontal plate covering the top of the forwardly-extending portions of the side walls and projecting into the fire-box below the lower edge of the upper wall, the whole forming a passage whereby air is directed upon the front and upper surfaces of the fuel to support the combustion thereof.

7. The combination with the forward extension of the furnace and the horizontal plate at the top of the same projecting into the fire-box and forming an air-passage to said fire-box, of the downwardly-swinging door, whereby air in regulated quantities may be admitted to the fuel, substantially as specified.

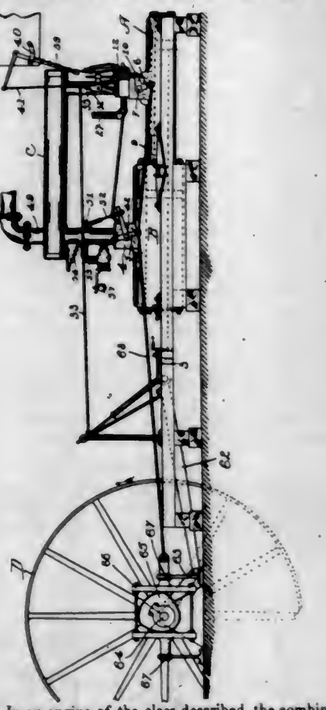
574,846. FLUID-PRESSURE REGULATOR. EDGAR H. FREEMAN, Rochester, N. Y., assignor of three-fourths to Moss Mosely, same place. Filed July 16, 1894. Renewed July 14, 1896. Serial No. 598,905. (No model.)



Claim.—1. In a fluid-pressure regulator, the combination, with the motor and pump, of a pivoted switch-arm, a pivoted crank-arm, a spring connecting the two on opposite sides of the pivot, a set of three electrodes so arranged that the switch rests in contact with all three when it is partially turned down, a fourth electrode so arranged that the switch rests in contact with all four when turned fully down, and electrical connections connecting the electrodes with a battery and the motor, as and for the purpose specified.

2. In a fluid-pressure regulator, the combination, with the motor and pump, of a pivoted switch-arm, a pivoted crank-arm, a spring connecting said arms on opposite sides of the pivot, a dash-pot, a rod connecting the dash-pot with the switch-arm, a diaphragm, a lever connected with the diaphragm so as to be operated by it, and a rod connecting the lever with the crank-arm, as and for the purpose specified.

574,847. VALVE-GEAR AND ADJUSTABLE CUT-OFF. DAVID M. SWAIN, Stillwater, Minn. Filed June 29, 1896. Serial No. 554,423. (No model.)



Claim.—1. In an engine of the class described, the combination with the cylinder, its main valve and the inlet-port for said valve, of the puppet-valve closing said port, the adjustable cut-off for said valve, the crab-claw for picking up said cut-off at the beginning of each stroke, and the operative connection between said claw and main valve.

2. In an engine of the class described, the combination with the cylinder, its main valve and the inlet-port for said valve, of the puppet-valve controlling the inlet of steam to the main valve, the crab-claw for actuating said puppet-valve, the operative connection between said claw and main valve, the tripping attachment for said crab-claw, and the pendulum attachment operatively connecting said tripping attachment with the cross-head.

3. In an engine of the class described, the combination with a cylinder, its main valve, and the inlet-port for said valve, the puppet-valve closing said port and the crab-claw for actuating said puppet-valve, of the rocker-arm, the operative connection between said arm and the cross-head, and the projections upon said arm for tripping said crab-claw.

4. In an engine of the class described, the combination with the cylinder, its main valve and inlet-port, the puppet-valve for controlling the inlet of steam to said main valve, and the crab-claw for operating said puppet-valve, of the rocker-arm adapted to engage and trip said crab-claw, the operative pendulum attachment connecting said rocker-arm to the cross-head, and the means for adjusting the point of connection of said attachment with the rocker-arm so as to vary the point of cut-off.

5. In an engine of the class described, the combination with the cylinder, its main valve and inlet-port, the puppet-valve for closing said inlet-port, and the crab-claw for operating said puppet-valve, of the rocker-arm, the studs upon said arm adapted to engage and trip said crab-claw, the rock-shaft connected to the cross-head, the crank upon the rock-shaft, the rod operatively connecting said crank with the rocker-arm, and means for adjusting the point of connection of said rod to and from the axis of rotation of said arm.

6. In an engine of the class described, the combination with the cylinder, its main valve and inlet-port, of the puppet-valve for closing the inlet of steam to the main valve, the crab-claw, the operative connection between said crab-claw and main valve, the rock-shaft operated by said crab-claw, the cross-arm upon said rock-shaft, and the projections upon said cross-arm adapted to engage the puppet-valve stem, and the controlling valve-spring.

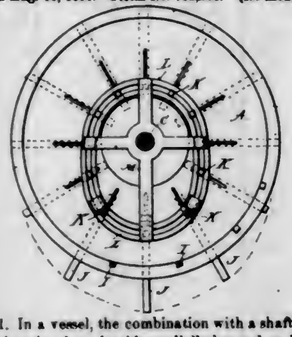
7. In an engine of the class described, the combination with the cylinder, its main valve and inlet-port, the puppet-valve for controlling the inlet of steam to said main valve, and the crab-claw for actuating said puppet-valve, of the rocker-arm adapted to engage said crab-claw to trip the same, the operative connection between said rocker-arm and the cross-head, and means for adjusting the connection between the same and the rocker-arm to vary the point of cut-off.

8. In a double-expansion engine, the combination with the high and low pressure cylinders, the interposed receiver and the exhaust-pipe, of the valve in said exhaust-pipe, the by-pass pipe connecting the exhaust-pipe on opposite sides of said valve, the pressure-valve in said by-pass pipe, and the means for opening the main valves of said cylinders and closing said exhaust-pipe valve.

9. In an engine of the class described, the combination with the high and low pressure cylinders, the interposed expansion-chamber, the exhaust-pipe, the valve arranged therein, the by-pass pipe, its pressure-valve and the main valves of the cylinders, of the eccentrics for tilting said valves to lift the same from their seats, the cranks upon said eccentrics, their connecting-rod and the connection between the same and said exhaust-pipe valve, whereby when said main valves are lifted from their seats the valve in said exhaust-pipe is closed so as to permit the flowing of steam through said main valves, while retaining a predetermined pressure in the expansion-chamber for use in the low-pressure cylinder in starting.

10. In an engine of the class described, the combination with the main valves, the low-pressure cylinder and the exhaust-pipe leading from said cylinder, of the means for lifting said valves from their seats, and the means operated by said valve-lifting means for closing said exhaust-pipe to the outlet of steam below a certain pressure, but permitting the outlet of steam above such pressure.

574,848. PADDLE-WHEEL. CHAUNCEY W. KELLOGG, St. Louis, Mo. Filed Aug. 10, 1896. Serial No. 602,261. (No model.)



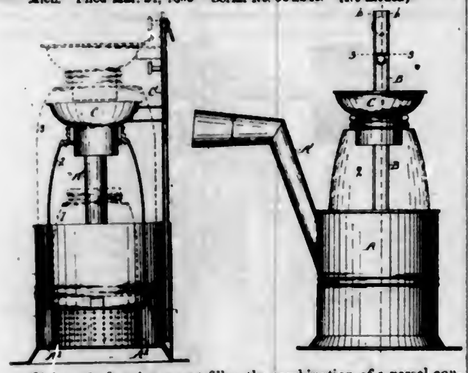
Claim.—1. In a vessel, the combination with a shaft, a revoluble drum thereon, interior slotted guides radially located, and water-tight compartments between said guides, of blades slidingly mounted in said guides, having pins projecting through said slots, an elliptical slotted cam forming a groove with which said pins are engaged, and concentric with said shaft at its upper portion, a fixed support for said cam, a motor, and operative connections between said motor and said drum to rotate the latter.

2. The combination with a paddle-wheel having radially-slidable blades with laterally-projecting pin-bolts, of an elliptical cam composed of two parallel rings forming a slotted channel for said bolts, a stationary spider cross-bar supporting said rings and looped at the ends above said channel, and means to rotate said wheel.

3. The combination with a main shaft, of a paddle-wheel mounted thereon consisting of a drum with radial side slots, concentric, water-tight compartments alternating with said slots and forming the outer face of the drum and radial passages, slotted guides in said passages, radially-slidable blades with laterally-projecting bolts, an elliptical cam composed of two parallel rings forming a slotted channel for said bolts, a stationary spider cross-bar supporting said rings, and looped at their ends above said channel, and means to rotate said wheel.

4. In a paddle-wheel, the combination with the sides, and cross-bolts from side to side, of wedge-shaped water-tight compartments located between said sides and having tubes traversing the compartments to allow the passage of said bolts without penetrating said compartments, substantially as described.

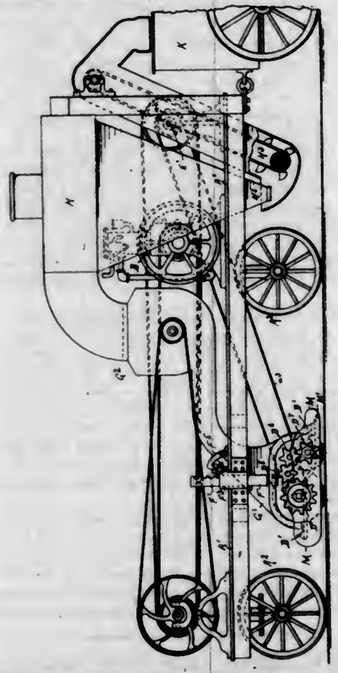
574,849. CAN OR JAR FILLER. JAMES M. MERRITT, Homer, Mich. Filed Mar. 21, 1896. Serial No. 584,246. (No model.)



Claim.—1. In a jar or can filler, the combination of a vessel constructed to hold a multiple number of jars or cans of various sizes, a standard rising thereabove, an adjustable funnel-support on the standard above the vessel, and means to center jars or cans of various sizes in said receptacle, substantially as set forth.

2. A jar or can filler, having in combination, a vessel having a base to receive and support a can or jar, means rising above said base to support an additional jar of a different size, a standard rising above the vessel, and a funnel-support upon said standard arranged to be centered over the mouths of various-sized jars supported within said receptacle, for the purpose set forth.

574,850. STREET-SWEEPER. MILO CARRIER, St. Paul, Minn. Filed Sept. 21, 1895. Serial No. 563,188. (No model.)

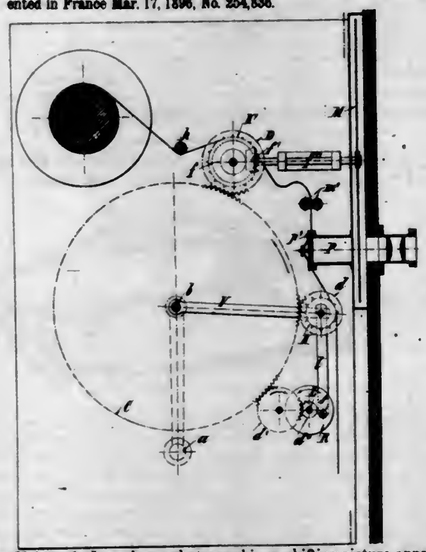


Claim.—1. In a street-sweeper, a platform mounted upon wheels, a stationary hood and wind-trunk supported by said platform and through which artificial air-currents are caused to pass, a frame suspended from said platform, and inclosing the open mouth of said hood and adjustable with relation to said platform, and two oppositely-revolving cylindrical brushes journaled to said frame within the mouth of said wind-trunk, means for revolving one of said brushes at a greater speed than the other, and means for adjusting said more-rapidly-revolving brush independently of its supporting-frame, substantially as and for the purpose set forth.

2. In a street-sweeper, a platform mounted upon wheels, a frame suspended adjustably beneath said platform, a stationary hood and wind-trunk supported by said platform and inclosed by said frame, and through which artificial air-currents are caused to pass, and oppositely-actuated cylindrical brushes supported by said adjustable frame beneath the open mouth of said wind-trunk, substantially as and for the purpose set forth.

3. In a street-sweeper, a platform mounted upon wheels, a frame supporting oppositely-revolving cylindrical brushes and suspended from said platform and adapted to be adjusted perpendicularly with relation thereto, a stationary hood and wind-trunk above said frame and brushes, and through which artificial air-currents are caused to pass, guards supported from said adjustable frame and depending from the sides thereof and yieldable perpendicularly with relation to said frame, to cover the space between the lower surface of said frame and the pavement being swept, to prevent the escape of dust, substantially as and for the purpose set forth.

574,851. KINETOGRAPHIC CAMERA. MARIE J. H. JOLY, Paris, France. Filed Oct. 16, 1896. Serial No. 609,133. (No model.) Patented in France Mar. 17, 1896, No. 254,836.



Claim.—1. In a chronophotographic or shifting picture apparatus, wherein a picture-bearing film is employed, a feed-roller acting on the film to form a loop or fold therein in advance of the dark chamber and rotated by a continuous movement to unwind the film, a second feed-roller acting on the film after it leaves the dark chamber, said roller being mounted on a movable support, and means for turning said roller on its axis and for oscillating its support, thereby intermittently advancing the film through the dark chamber, substantially as described.

2. The combination with means for unrolling the film, said film having perforations therein at regular intervals, of a rotating reciprocating roller having teeth thereon engaging the perforations in the film and acting to pass the film through the dark chamber by an intermittent movement, and means for imparting said movements or rotation and reciprocation to the roller, substantially as described.

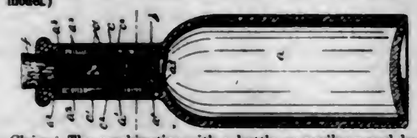
3. The combination with means for unrolling the film, the latter having perforations therein at regular intervals, of a roller having teeth thereon engaging the perforations in the film and acting upon the latter after it leaves the dark chamber, a gear-wheel for rotating said roller about its axis, and means for reciprocating the roller through an arc the center of which coincides with the axis of the driving-gear, substantially as described.

4. In apparatus of the kind described, wherein a perforated film is employed, the combination with means for unrolling the film, of a driving-gear, a frame pivoted at one end on the axle of the driving-gear, a roller, having pins thereon adapted to engage the perforations in the film, journaled in the other end of the frame, a pinion on the end of the shaft of the roller meshing with the driving-gear, and means for reciprocating the frame, whereby an intermittent movement of the film through the dark chamber is effected, substantially as described.

5. In an apparatus of the kind described wherein a perforated film is employed, the combination with a driving-gear, a toothed drum acting on the film to unwind the same and rotated from the driving-

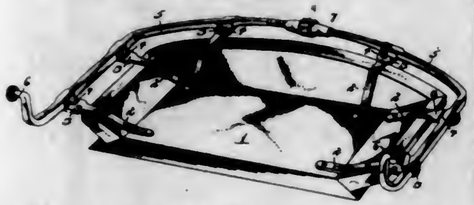
gear through an intermediate pinion, a swinging frame having its pivotal axis coincident with that of the driving-gear, a second toothed roller acting on the film to intermittently advance it through the dark chamber, said roller being journaled in the free end of the frame and having a pinion on its axle meshing with the driving-gear, means—such as a disk, a crank-pin on the disk and a pitman—operated from the driving-gear for reciprocating the frame about its axis, substantially as described.

574,852. **NON-REFILLABLE BOTTLE.** LARS G. LARSON and CLAUS LUNDQUIST, Minneapolis, Minn., assignors to Frederick T. Vanstrum, same place. Filed Nov. 30, 1895. Serial No. 570,653. (No model.)



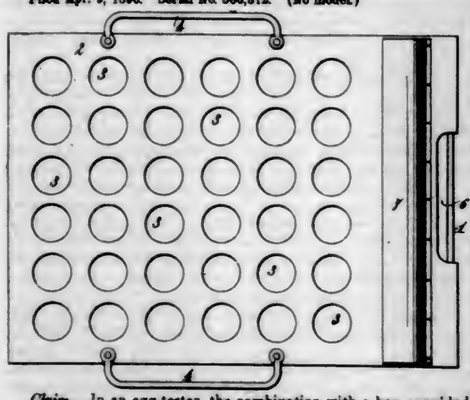
Claim.—The combination with a bottle or similar vessel, having longitudinal grooves a^3 and valve-seat a^5 formed in the interior wall of its neck portion, of the loose sectional stopper in said neck portion, involving the plug-valve b and guard-plug c, provided with the spring-prongs c' engaging said grooves, said prongs being of such length that they will permit a limited longitudinal movement of said stopper-sections while at the same time holding said stopper-sections from displacement, substantially as described.

574,853. **BUGGY-TOP RAIL.** ALFRED A. MOORE, High Point, N. C. Filed May 22, 1896. Serial No. 592,677. (No model.)



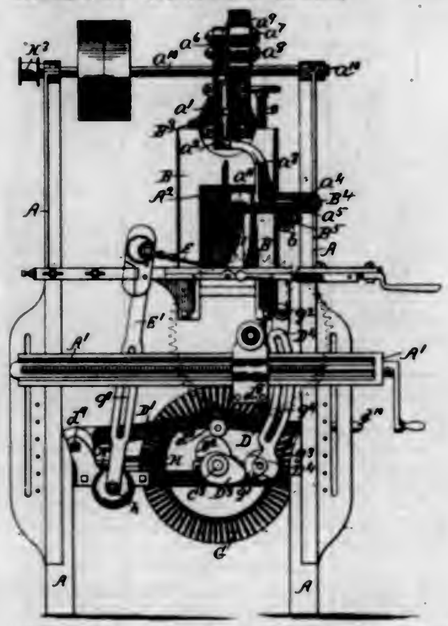
Claim.—A seat provided with stay-irons projecting outward therefrom at the rear and sides thereof, said stay-irons being provided with T-shaped slots, the irons at the rear of the seat having the enlarged portions of the slots facing inward toward each other, the slots of the stay-irons on each side being disposed at right angles to each other, in combination with a sectional top rail having T-headed studs for engaging said slots, and means for connecting the sections of said top rail to spread the same for causing the studs to enter the narrow portion of their respective slots, substantially as described.

574,854. **EGG-TESTER.** CHARLES G. MORENEN, Brandenburg, Ky. Filed Apr. 9, 1896. Serial No. 586,812. (No model.)



Claim.—In an egg-tester, the combination with a box provided with a sight-opening at one end and having an inclined mirror arranged in its bottom, of a perforated tray removably supported on the box and a flexible opaque curtain attached to one end of said tray and adapted to be rolled up to uncover any number of the perforations desired, substantially as described.

574,855. **SAW-SHARPENING MACHINE.** HENRY P. SCHOFIELD, Chicago, Ill., assignor of one-half to L. Larsen Flistrup, same place. Filed Mar. 6, 1896. Serial No. 582,076. (No model.)



Claim.—1. In a saw-sharpening machine, the combination with a guide-standard, having a fixed position, of a grinding-wheel gate, provided with a bracket extension and having a vertical movement in said guide-standard, a pivot-spindle, journaled in said bracket extension, the grinding-wheel and its arbor, a connecting-rod, a lever, a plate, connecting the adjacent ends of said rod and lever, and a revoluble shifting wheel, adapted to impart the required movement to said lever, substantially as described.

2. In a saw-sharpening machine, the combination with a grinding-wheel and its arbor, supported from a pivotal bearing, of a rod, adjustably connecting said arbor-bearing with a lever, a lever, to which the opposite end of the rod is attached, and a shifting wheel, having a double-grooved path for a part of its circumference and a single path running into the double path at either end, whereby the grinding-wheel is set at an angle on the down movement and square with the axis of the saw on the up movement, substantially as described.

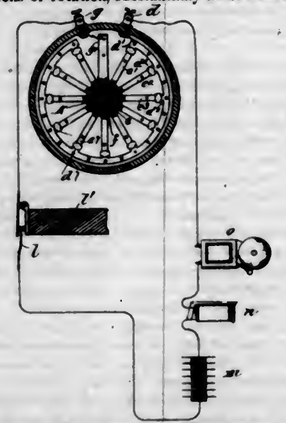
3. In a saw-sharpening machine, the combination with the grinding-wheel, of a connecting-rod, a vertical lever, a plate, having a pivotal connection with one end of said rod and adjustably attached to the upper end of said lever, a shifting wheel, provided with both a double and single grooved pathway, a plate, hinged to the lower end of said lever, a friction-roller, journaled in the lower end of said plate and adapted to traverse the grooved pathway in the shifting wheel, and a switch-plate, pivoted in the shifting wheel and diverting the friction-roller alternately into one groove and then the other in imparting a swinging movement to the grinding-wheel, substantially as described.

4. In a saw-sharpening machine, the combination with the lever, C, of a bracket, provided with a number of holes and to which said lever is adjustably attached, the shifting wheel, having grooves in its periphery as described, and the plate, hinged to the lower end of lever C and provided with a friction-roller adapted to engage with the grooved periphery of said wheel, substantially as described.

574,856. **ELECTRIC ALARM DEVICE.** GEORGE V. TROTT, Chicago, Ill. Filed Apr. 10, 1896. Serial No. 586,943. (No model.)

Claim.—1. In a circuit-controlling device for electrically-operated alarms, the combination with a plurality of possible contacts through which the circuit is open, of an adjustable member adapted to close the circuit through any one of the said contacts, and a rotatable contact-piece adapted to prevent the actuating-current from being transmitted to the alarm when the said contact-piece is in a single adjusted position during its rotation; substantially as described.

2. The herein-described circuit-controlling device, consisting of a base or disk wherein are mounted a plurality of paired contacts d' d^2 d^3, &c., a plug or key h adapted to close the circuit through any one pair of contacts, and a rotatable contact-piece e adapted to maintain the circuit closed through the device in all but one of its adjustable positions of rotation, substantially as described.



3. The combination, in a circuit-controlling device, with a base of insulating material, of a plurality of contacts mounted in said base through all of which the circuit is open, a key or plug adapted to close the circuit through any one of the said contacts, and a movable element adapted to open the circuit through the said device when in a single operative position corresponding to the contact through which the circuit is closed, substantially as described.

4. In a circuit-controlling device for an electrically-operated alarm, the combination with a plurality of possible contacts through which the circuit is open, of an adjustable contact-piece or plug adapted to close the circuit through any one of the said contacts, a rotatable contact-piece, and a segment of insulating material mounted thereon by which the said rotatable contact is adapted to prevent the transmission of the actuating-current to the alarm when in a single adjustable position of rotation corresponding to the contact through which the plug is adjusted to close the circuit, substantially as described.

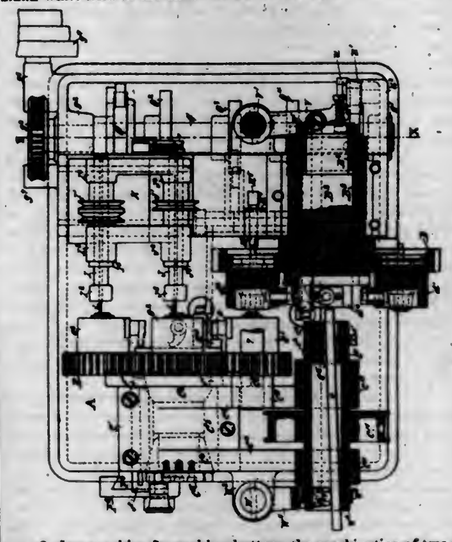
5. In a device for opening and closing an alarm-circuit, the combination with a supporting-base of insulating material, of a rotatable contact-piece mounted therein connected with one of the circuit-terminals, a plurality of paired contacts provided upon the said base, the elements of each pair being connected respectively with the rotatable contact and the opposite circuit-terminal, a member adapted to close the circuit between any one pair of contacts, a segment of insulating material carried upon the rotatable contact-piece, and means for opening the circuit through any one of the paired contacts by rotating the said insulating-segment into engagement with the connection thereof, substantially as and for the purpose specified.

6. The herein-described circuit opening and closing device consisting of the disk a of insulating material, a rotatable contact-piece e mounted therein connected with the circuit-terminal g, the segment f of insulating material carried upon the contact e, a plurality of split thimbles mounted in the disk a, the outer halves d' d^2 d^3, &c., of which are connected with the circuit-terminal d and the inner halves of the said thimbles are connected with the contact-piece e by separate contact-springs c' c^2 c^3, &c., slightly narrower than the insulating-segment f, plug h adapted to be inserted in and close the circuit through any one of the said split thimbles, and means for rotating the contact-piece e so that the insulating-segment f shall engage the contact-spring of the split thimble in which the plug is inserted, thereby opening the circuit through the device, substantially as and for the purpose described.

7. The combination, in a circuit-controlling device for electrically-operated alarms, with a dial or switch whereon the said circuit is adapted to be adjustably closed through any one of a plurality of contacts, disposed within the protected room or building, of a second dial or indicator situated without the said room or building, and an element operated from the exterior connecting the said indicator with the switch, adapted to actuate the latter and prevent the operating-current from being transmitted to the alarm, substantially as described.

574,857. **BUTTON-MAKING MACHINE.** OLOF TYRBERG, Brooklyn, N. Y., assignor, by mesne assignments, to Tillie Böhm, New York, N. Y. Filed May 4, 1895. Serial No. 548,138. (No model.)

Claim.—1. In a mechanical organization for forming complete buttons from rough blanks, the combination of a series of chucks each adapted to hold an individual button-blank, inserted from the front and having an internal seat against which the inner face of the blank bears, a rotating tool adapted to act on the exposed face of the blank, another series of chucks, means for transferring the partly-formed blank from a chuck of the first series into a chuck of the second series, thus exposing the other face thereof, a rotating tool for forming this face of the button, and a drilling device for perforating the blank while held in the chuck of the second series.



2. In a machine for making buttons, the combination of two turret-heads each provided with a series of chucks, having axes parallel to the axis of the turrets, adapted to hold button-blanks inserted from the front and having internal seats against which the inner faces of the blanks bear, said turret-heads being movable and so arranged that a chuck of one of the turret-heads may be brought to face a chuck of the other turret-head, and in alinement therewith, and means for transferring a blank from a chuck of one of the turret-heads to a chuck of the other turret-head.

3. In a machine for making buttons, the combination of two turret-heads each provided with a series of chucks, having axes parallel to the axis of the turrets, adapted to hold button-blanks inserted from the front and having internal seats against which the inner faces of the blanks bear, said turret-heads being movable and so arranged that a chuck of one of the turret-heads may be brought to face a chuck of the other turret-head, and in alinement therewith, means for transferring a blank from a chuck of one of the turret-heads to a chuck of the other turret-head, and a revolving tool-holder and tool carried thereby arranged in front of and in alinement with a chuck of each of the turrets, when the turrets are at rest, whereby the two sides or faces of the blanks may be acted upon and formed.

4. In a machine for making buttons, the combination of two turret-heads each provided with a series of chucks, having axes parallel to the axis of the turrets, adapted to hold button-blanks inserted from the front and having internal seats against which the inner faces of the blanks bear, said turret-heads being movable and so arranged that a chuck of one of the turret-heads may be brought to face a chuck of the other turret-head, and in alinement therewith, means for transferring a blank from a chuck of one of the turret-heads to a chuck of the other turret-head, a revolving tool-holder and tool carried thereby arranged in front of and in alinement with a chuck of each of the turrets, when the turrets are at rest, whereby the two sides or faces of the blanks may be acted upon and formed, and means for rotating the turret-heads to bring the chucks carried thereby successively in opposition.

5. In a machine for making buttons, the combination of a turret-head having a series of chucks circularly arranged, on the face and having axes parallel with the axis of the turret, another turret-head having a series of chucks similarly arranged facing in the opposite direction to the first turret-head and located so that the chucks of the two turret-heads may be brought successively in alinement, gear-teeth on the peripheries of the two turret-heads, a shaft and pinions connecting the turret-heads by their gear-teeth, and means applied to one of the turret-heads for intermittently rotating the turret-heads and setting them with their chucks successively in opposition.

6. In a machine for making buttons, the combination of a turret-head provided with a series of button-blank-holding chucks, means

for intermittently rotating the turret-head, a drilling-spindle and drill carried thereby, and means for automatically shifting the drilling-spindle whereby the drill may be brought into two positions, to drill two holes in each button-blank, as the blanks are successively presented to the drill, and while the blank occupies the same position.

7. In a machine for making buttons, the combination of a turret-head provided with a series of button-blank-holding chucks, means for intermittently rotating the turret-head, a drilling-spindle and drill carried thereby, means for automatically shifting the drilling-spindle whereby the drill may be brought into two positions to drill two holes in each button-blank, as the blanks are successively presented to the drill, and while the blank occupies the same position, and another drilling-spindle and drill carried thereby, and arranged to similarly drill two additional holes in the blanks when the blank is in another position from the position it occupied when acted upon by the first drill.

8. In a machine for making buttons, the combination of a turret-head having a series of chucks circularly arranged, another turret-head having a series of chucks circularly arranged facing the opposite direction to the first turret-head, and located so that the chucks of the two turret-heads may be brought successively in alinement, means for intermittently rotating the turret-heads, a revolving tool-holder and tool carried thereby arranged in front of and in alinement with a chuck of each of the turrets, whereby the two sides or faces of the blanks are acted upon and formed, two drilling-spindles and drills carried by a carriage or slide and arranged to act on the blanks held in the chucks of one of the turret-heads which are in different positions to one another, and means for shifting the drill carriage or slide.

9. In a machine for making buttons, a series of chucks similarly constructed carried by a turret-head and each composed of spring-acting collets or gripping-jaws, a spring-acting sleeve adapted to close the jaws, and a spring-acting discharge-plunger centrally arranged between the jaws, in combination with means for allowing the jaws to open when the chucks are in one position to receive the blank, and also to open the jaws when the chucks acquire another position, a device for pressing forward the plungers to discharge the blanks from the chucks when in this position, another series of chucks carried by another turret-head arranged and operated so that the chucks are successively in alinement with the chucks of the first turrets as they assume their discharging positions to receive the blanks discharged from the first series of chucks.

10. In a machine for making buttons, the combination of two turret-heads, each provided with a series of chucks, having axes parallel to the axis of the turrets, adapted to hold button-blanks inserted from the front and having internal seats against which the inner faces of the blanks bear, said turret-heads being movable and so arranged that a chuck of one of the turret-heads may be brought to face a chuck of the other turret-head, and in alinement therewith, means for automatically opening and closing the two chucks when they are in line with each other, and means for transferring a button-blank from a chuck of one of the turret-heads to a chuck of the other turret-head.

11. In a machine for making buttons, the combination of two turret-heads, each provided with a series of chucks, having axes parallel to the axis of the turrets, adapted to hold button-blanks inserted from the front and having internal seats against which the inner faces of the blanks bear, said turret-heads being movable and so arranged that a chuck of one of the turret-heads may be brought to face a chuck of the other turret-head, and in alinement therewith, a cam or cam-plate mounted upon the frame of the machine and at right angles to the chucks, and adapted to open and close the chucks, mechanism for actuating said cam-plate, and means for transferring a blank from the chuck of one turret-head to a chuck of the other turret-head, substantially as set forth.

12. In a button-making machine, the combination of two turret-heads, each having a series of chucks, the chucks of one turret-head containing spring-retracted plungers, and means for pressing said plungers forward, the chucks of the other turret-head each containing a normally-projected plunger, said latter plunger being adapted to be depressed by said first-named plunger when the button-blank is between the two plungers and is being transferred from one chuck to another, substantially as set forth.

13. The transfer mechanism, consisting of the combination of a chuck containing a plunger, a retracting-spring in said chuck for the plunger, and means for pushing the plunger forward, with a chuck for the other plunger wherein the latter is held normally projected, the same being adapted to be depressed by the first-mentioned plunger when the backed button-blank is between them, substantially as set forth.

14. In a machine for making buttons, the combination with a turret-head provided with a series of chucks, and another turret-head also provided with a series of chucks presented toward the other series of chucks, of revolving tool-holders and their tools, which are presented in opposite directions and arranged at right angles to the planes of the turret-heads, and means for simultaneously reciprocating the revolving tool-holders and tools, consisting of a cam-shaft provided with a cam, a lever actuated by said cam, vertical oscillating shafts at opposite sides of the machine, each provided with an arm at one end and connected with the shafts or spindles of the respective tools, an arm at the other end of each of the shafts, and a connecting-rod between the last-named arms, substantially as set forth.

15. In a machine for making buttons, the combination with a turret-head provided with a series of chucks on one face, another turret-head provided with a series of chucks on one face presented toward the other series of chucks, all the said chucks having axes parallel to the axis of the turrets, means for connecting the turret-heads for simultaneous rotation, and the revolving tool-holders and their tools, of means for transferring the button-blank from one alined chuck to another, a cam-shaft, a lever actuated by a cam on said shaft, a slide guided on the frame of the machine and connected with said lever, a star-wheel mounted on the shaft of one of the turret-heads, and a pivoted actuating-arm carried by said slide and adapted to engage and intermittently rotate said star-wheel and through the same rotate the turret-heads, substantially as set forth.

16. In a machine for making buttons, the combination with a turret-head provided with a series of chucks on one face, another turret-head also provided with a series of chucks on one face presented toward the othes series of chucks, means for connecting the turret-heads for simultaneous rotation, and the revolving tool-holders and tools for the respective turret-heads, of a slide guided on the frame of the machine, means for reciprocating said slide, means for intermittently rotating one of the turret-heads through the medium of said slide, a locking-bolt guided in the frame of the machine and adapted to engage in holes in the last-named turret-head, a fulcrumed lever acting on said locking-bolt and arranged in a recess in the block on which the slide is guided, said lever being provided with a recess, and a pawl on said slide adapted to engage in the recess of said lever, substantially as set forth.

17. In a machine for making buttons, the combination with a turret-head provided with a series of chucks, another turret-head also provided with a series of chucks arranged parallel with the other series of chucks, the revolving tool-holders and tools for the respective turret-heads, arranged parallel with the axes of and extending toward the respective heads and located near the peripheral parts of the heads, and means for holding one of the chucks of one of the turret-heads in alinement with one of the chucks of the other turret-head, at the adjacent peripheral parts of the heads, of a transfer-pin guided in the frame of the machine parallel with the rotating tools and adapted to transfer a backed button-blank from one alined chuck to the other, and means for reciprocating said transfer-pin, substantially as set forth.

574,858. WATER-FILTER. JOSEPH L. WELSHANS, Omaha, Nebr. Filed Mar. 23, 1896. Serial No. 584,529. (No model.)

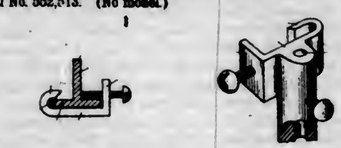


Claim.—1. In a water-filter, a cylindrical casing, a partition-plate fitted within the casing intermediate of its ends, a cylindrical filter-stone arranged below the partition-plate, a perforate circulating-pipe arranged within the filter-stone and carrying at its lower end a supporting-plate for the lower end of the stone, and a check-valve casing detachably fitted on the upper end of the circulating-pipe above said partition-plate and serving to clamp the filter-stone between said supporting-plate and the under side of the partition-plate, substantially as described.

2. In a water-filter, an upright cylindrical casing having an intermediately-located partition-plate, a filtered-water outlet above said plate, a bottom drain-opening, and an inlet-opening below the plate, a cylindrical filter-stone supported below said plate and having a longitudinal bore, a perforate circulating-pipe arranged within the bore of the filter-stone and projecting at its upper end above the partition-plate, and a check-valve fitted on the upper end of the circulating-pipe above the partition-plate and provided in its casing below the valve proper with a return-port, substantially as set forth.

3. In a water-filter, an upright cylindrical filter-casing having a partition-plate between its upper and lower ends, and suitably-arranged inlet, outlet and drain openings, said partition-plate being provided with a central pipe-opening and a depending annular retaining-flange, a cylindrical filter-stone fitted at its upper end with said retaining-flange and having a longitudinal bore, a perforate circulating-pipe arranged within the bore of the stone and carrying at its lower end a flanged supporting-plate embracing the lower end of the stone, and a check-valve fitted on the upper end of said pipe above the partition-plate and provided in its casing below the valve proper with a return-port, substantially as set forth.

574,859. COLLAPSIBLE FLOWER-STAND. LOUIS G. BEERS and HENRY EBERHARDT, Chicago, Ill., assignors to the Gilbert & Bennett Manufacturing Company, Georgetown, Conn. Filed June 12, 1895. Serial No. 552,513. (No model.)



Claim.—1. The combination of the supporting-legs formed with ledges or rests in their upper parts and sockets in their lower portions, with bracing-frames between the front and rear of the pairs of legs and fitted in said sockets, the trays to rest on the ledges, a number of removable clamps to secure the bracing-frames at their top and the trays to the legs, the combined clamps and sockets secured to the rear supporting-legs, and the ornamental top piece in said sockets, substantially as described.

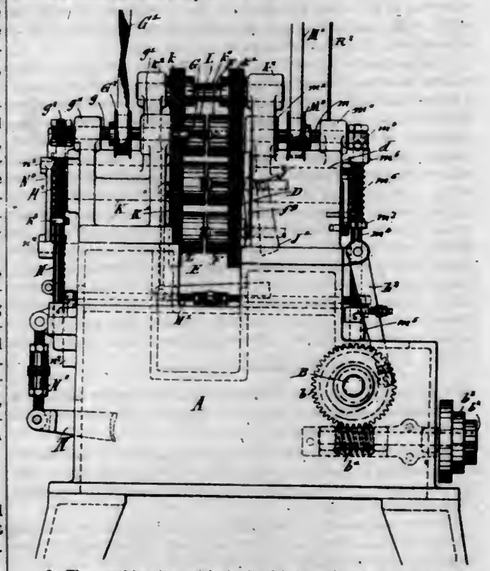
2. The combination of a bar T-shaped in cross-section, with a clamp composed of a piece of material having one of its ends bent at a right angle to its body, a set-screw located in and projecting through said bent portion and parallel with the body of the clamp, the other end of the clamp being bent back upon itself forming a hook to overlap one of the flanges of the bar, and a rod interposed between the hook and the bar, substantially as described.

3. The combination with a bar T-shaped in cross-section, of a combined clamp and socket-piece, composed of a piece of material having one of its ends bent at a right angle to its body, and provided with a set-screw in said bent portion to admit of the insertion of one of the flanges of the bar between the screw and the body of the clamp and to contact with the rib of the bar, and its other end bent back upon itself to form a hook and overlap the other flange of the bar, a rod interposed between said hook and flange, and a transverse piece integral with the body, and having a socket at right angles to said set-screw, substantially as described.

574,860. MACHINE FOR TURNING BUTTONS. JOSEPH BÖHM, New York, N. Y., assignor, by direct and mesne assignments, to Lionel Sutro and Tillie Böhm, same place. Filed June 3, 1895. Serial No. 551,483. (No model.)

Claim.—1. The combination, with the backing mechanism and the facing mechanism, of a reciprocating carriage, a rocking frame mounted on said carriage and provided with the drills for producing the eyes in the buttons while they are held by the chucks of the facing mechanism, means for intermittently operating the backing and facing mechanisms, and means for reciprocating the carriage and rocking said rocking frame, substantially as set forth.

2. The combination, with the backing and facing mechanisms, of a reciprocating carriage, means for reciprocating said carriage, a rocking frame mounted on said carriage, and means for rocking said frame, a drill provided with a spindle journaled in said rocking frame, means for rotating said spindle, and means for holding one of the chucks of the facing mechanism with its contained blank in alinement with said drill, substantially as set forth.

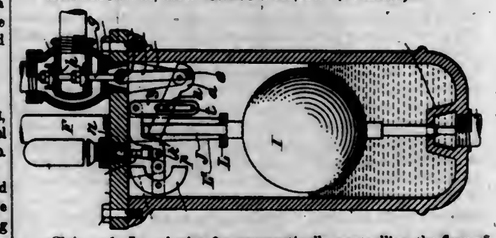


3. The combination, with the backing mechanism and the facing mechanism, of the drilling mechanism, consisting of a reciprocating carriage, means for reciprocating the same, a rocking frame fulcrumed on said carriage and having an upright and horizontal portion, means for rocking said frame, a pair of drills provided with spindles journaled in the upright and horizontal portions of said rocking frame respectively, and means for revolving said drilling-tools, substantially as set forth.

4. The herein-described mechanism, consisting of a frame, the drills provided with spindles, a worm-shaft journaled in bearings on said frame, worm-wheels meshing with the worms of said shaft, and eccentric bushings or sleeves within bearings of the frame and on which the said worm-wheels are mounted, said spindles being located in said bushings for the adjustment of the alinement of the drills with the work to be operated on, substantially as set forth.

5. The chuck of the backing mechanism consisting of a shell or casing, a split tube screwed into the casing and formed with jaws beveled on their outer surfaces, a tubular slide guided in the casing outside of the tube and provided with a wedge-like end portion for engaging the outer bevels of the jaws, a spring arranged between the shell and slide and acting on the slide to close the jaws, a fixed guide-tube arranged in said split tube, a pin or plunger guided in said guide-tube and a spring in the guide-tube acting on said plunger, substantially as set forth.

574,861. AUTOMATIC FEED-WATER REGULATOR. ANOS E. BURROWS and WALTER E. CLARK, Picture Rocks, Pa., assignors of one-third to the E. Keeler Company, Williamsport, Pa. Filed Feb. 28, 1896. Renewed Nov. 17, 1896. Serial No. 612,527. (No model.)



Claim.—1. In a device for automatically controlling the flow of water under pressure to a steam-boiler, in combination, a shell or case, a removable head closing the top of said shell or case, a connection leading from the bottom of said shell or case to the water-space of a boiler, a connection leading from the top of said shell or case to the steam-space of a boiler, a valve-case and valve carried by said removable head, a connection leading from said valve-case to a water-supply, a connection leading from said valve-case to the boiler, a float within said shell, a vertical stem carried by said float, a pivoted lever

one end of which is adapted to be engaged and operated by said stem as said float rises and falls, and a link one end of which is pivotally connected to said lever and the other end of which is pivotally connected to the stem of the valve within the valve-casing carried by the removable head of the shell or case.

2. In a device for automatically controlling the flow of water under pressure to a steam-boiler, in combination, a shell or case, a removable head carried by said shell or case, a connection leading from the bottom of said shell or case to the water-space of the boiler, a connection leading from the top of said shell or case to the steam-space of the boiler, a valve-case carried by the removable head, a balanced valve within said case, a connection leading from said valve-case to a water-supply, a connection leading from said valve-case to the boiler, a vertically-moving float within said shell, a vertical stem carried by said float, a guide carried by the lower part of said shell for the lower part of said stem, a guide carried by said removable head for the upper part of said stem, a downwardly-extending bracket carried by said removable head, a lever pivoted to said bracket one end of which is adapted to be engaged and operated by the upper part of said float-stem, and a link one end of which is pivotally attached to said lever and the other to the stem of the balanced valve.

574,862. MANTLE OR HOOD FOR INCANDESCENT GAS-LAMPS. GERRIT VAN DEUS, New York, N. Y. Filed Mar. 28, 1895. Serial No. 543,573. (No specimens.)

Claim.—1. A composition for incandescing hoods or mantles, the same consisting of thorium nitrate, cerium nitrate, ammonium nitrate, lithium nitrate, zirconium nitrate, and yttrium nitrate, in proportions substantially as described.

2. A compound for an incandescent gas-light mantle, including a nitrate of lithium adapted to be converted into an oxid by heat, substantially as described.

3. As an article of manufacture an incandescent mantle impregnated throughout its body with a lithium salt, substantially as described.

4. As an article of manufacture an incandescent mantle impregnated throughout its body with an oxid or hydroxid of lithium, in combination with one or more refractory earths.

5. As an article of manufacture a burned mantle, containing an oxid or hydroxid of lithium as a compound part among certain refractory earths, substantially as described.

6. The described process of preparing an incandescent hood or mantle which consists in impregnating the hood with nitrates of thorium, cerium, ammonium, lithium, zirconium and yttrium in substantially the proportions named, then subjecting the hood to a low degree of heat sufficient to evaporate the moisture and finally subjecting it to the action of a flame until the combustible matter is entirely consumed or burned out.

574,863. PEN-HOLDER. FREDERICK DOBSON, Sanford, Me., assignor of one-half to Thomas Howe, same place. Filed Aug. 4, 1896. Serial No. 601,649. (No model.)



Claim.—1. The combination with a penholder, of a movable clamp for holding a pen-point therein made up of two parts pivoted to each other at their rear ends, means for holding said clamp within said holder, and a spring for forcing the same outwardly, substantially as and for the purpose described.

2. The combination with a penholder, having an elongated slot therein with a lateral extension at its rear end forming a shoulder, of a movable clamp for holding a pen-point made up of two parts pivoted to each other at their rear ends, a pin or button secured to said clamp adapted to slide in said slot, and a spring engaging the rear end of said clamp, substantially as and for the purpose described.

3. The combination with a penholder, having an elongated slot therein with a lateral extension at its rear end forming a shoulder, of a clamp for holding a pen-point made up of a pair of half-round strips of metal connected together at their rear ends, a pin or button on said clamp projecting through the slot in said holder and adapted to be brought into engagement with the shoulder at the rear end of said slot, and a spring for normally urging said clamp outwardly, substantially as and for the purpose described.

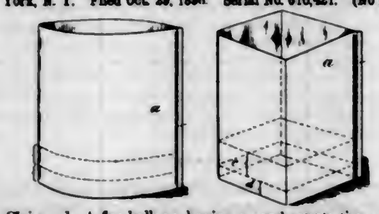
574,864. LOOM-SHUTTLE. WILLIAM F. DRAPER, Hopedale, Mass., assignor to George Draper & Sons, same place. Filed May 29, 1896. Serial No. 593,575. (No model.)

Claim.—1. A shuttle-body open at its top and under sides for the reception and passage through it of a filling-carrier, combined with a holder composed of open jaws provided with inclined holding-surfaces to coöperate with annular projections on the filling-carrier and hold the same in an inclined position in the body of the shuttle, the top of the filling-carrier being elevated, substantially as described.



2. A shuttle-body open at its top and under sides for the reception and passage through it of a filling-carrier, and provided with an open-slotted self-threading device, combined with a holder composed of open jaws provided with inclined holding-surfaces to coöperate with annular projections on the filling-carrier and hold the same in an inclined position in the body of the shuttle, the top of the filling-carrier being elevated, whereby the filling-thread as it is unwound from the filling-carrier is unerringly thrown into the open slot of said threading device, substantially as described.

574,865. PYROTECHNIC BALLOON. HENRY T. HIRSCH, New York, N. Y. Filed Oct. 29, 1896. Serial No. 610,421. (No model.)



Claim.—1. A fire-balloon having a combustible tissue structure and a pyrotechnic substance attached to the tissue structure and ignited by the burning thereof, substantially as described.

2. A fire-balloon having a combustible structure collapsing upon burning whereby to form a light, ash film or body adapted to be lifted or floated in the hot air generated, substantially as described.

3. A fire-balloon having a combustible structure collapsing upon burning, whereby to form an ash-film shell adapted to be floated by heat from the burning of the structure, and a pyrotechnic substance attached to the structure and ignited by the burning thereof after the ash film rises, substantially as described.

4. A fire-balloon formed of a combustible tissue tube collapsing inward upon burning, whereby to form an ash-film shell within which the heat from the burning of the shell is confined and by which heat the shell is floated in the air, substantially as described.

5. A fire-balloon having a combustible structure and a pyrotechnic substance attached to the structure by an oily adhesive medium, substantially as described.

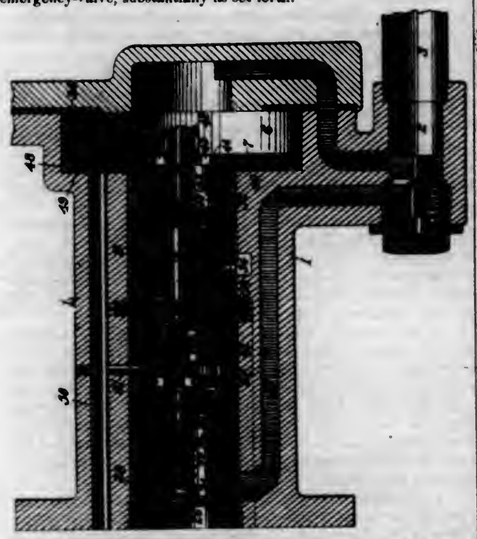
6. A fire-balloon having a combustible tissue structure the ashes of which arise by the heat of the burning tissue, and a pyrotechnic substance attached to the structure by a suitable adhesive medium, substantially as described.

574,866. AIR-BRAKE. THOMAS J. HOGAN, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Filed Feb. 14, 1896. Serial No. 579,287. (No model.)

Claim.—1. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, an auxiliary reservoir, and a brake-cylinder, of a release-passage, a check or non-return valve in the release-passage, an emergency-valve which is normally held closed by fluid under pressure, a normally-closed valve device, controlling a passage for the release of the fluid under pressure, which may be opened by a reduction in train-pipe pressure without effecting the operation of the emergency-valve, and means for rapidly discharging the fluid under pressure and thereby effecting opening movement of the emergency-valve, substantially as set forth.

2. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, an auxiliary reservoir, and a brake-cylinder, of an emergency-valve device which is held closed by the pressure of fluid in a chamber which is cut off from the train-pipe during emergency applications of the brakes, means for effecting a comparatively gradual release of fluid from the chamber in service applications of the brakes, and means for effecting a rapid release of fluid from the chamber and thereby effecting the operation of the emergency-valve, substantially as set forth.

3. In an automatic fluid-pressure brake apparatus, an emergency-valve device which is held closed by the pressure of fluid in a chamber and whose opening movement is independent of the direct pressure of the fluid in the train-pipe, a supply-passage through which fluid is admitted to the chamber, a passage of greater capacity through which fluid may be released from the chamber, and a valve device controlling the latter passage which is adapted, in service applications, to effect a comparatively gradual release of fluid from the chamber, and in emergency applications to effect a more rapid release of fluid from the chamber, and thereby cause opening movement of the emergency-valve, substantially as set forth.



4. In an automatic fluid-pressure brake apparatus, an emergency-valve device which is held closed by the pressure of fluid in a chamber which is disconnected from the train-pipe in making applications of the brakes, and a valve device which is operated by variations of pressure in the train-pipe to gradually release fluid under pressure from the chamber in service applications of the brakes, and means whereby opening movement of the emergency-valve is effected by rapidly releasing fluid from the chamber, substantially as set forth.

5. In an automatic fluid-pressure brake apparatus, the combination with a train-pipe, an auxiliary reservoir, a brake-cylinder and a triple-valve device of an emergency-valve device which is held closed by the pressure of fluid in a chamber which is, at all times, in open communication with the auxiliary reservoir, a passage from the train-pipe to the brake-cylinder which is controlled by the emergency-valve device, a check-valve in the passage, and a valve device which is adapted to release fluid under pressure from the chamber with greater rapidity than it is supplied thereto, and thereby effects opening movement of the emergency-valve, substantially as set forth.

6. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, an auxiliary reservoir, and a brake-cylinder, of an emergency-valve which is held closed by the pressure of fluid in a chamber communicating with the auxiliary reservoir, a passage outside of the chamber, which is controlled by the emergency-valve, a check-valve in the passage, and a valve device which effects a comparatively gradual release of fluid from the chamber to the brake-cylinder in service applications of the brakes, and a more rapid release of fluid from the chamber in emergency applications, and thereby effects opening movement of the emergency-valve, substantially as set forth.

7. In an automatic fluid-pressure brake apparatus, the combination with a train-pipe, an auxiliary reservoir, a brake-cylinder, and a triple-valve device, of an emergency-valve which is held closed by the pressure in the main-valve chamber of the triple-valve device, a passage from the train-pipe to the brake-cylinder outside of the main-valve chamber, a check-valve in the passage, a restricted passage through which fluid is admitted to the valve-chamber, a main valve, and a graduating-valve controlling the release of fluid from the chamber and adapted to effect an emergency application of the brakes by releasing fluid from the chamber more rapidly than it is supplied through the restricted passage, substantially as set forth.

8. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, an auxiliary reservoir, a brake-cylinder, and a triple-valve device, of an emergency-valve which is operated by a reduction of pressure in the main-valve chamber of the triple-valve device, and which controls a release-passage independent of the main valve of the triple-valve device, a restricted passage through which fluid is supplied to the chamber, a main valve controlling a port or passage, of greater capacity than the restricted passage, for releasing fluid from the chamber, and a graduating-valve controlling the flow of fluid through the main valve and adapted to open a passage for the release of fluid from the chamber of greater capacity than the restricted passage, whereby a sufficient reduction of pressure is effected to permit opening movement of the emergency-valve, substantially as set forth.

9. In an automatic fluid-pressure brake apparatus, the combination, with a triple-valve device, of an emergency-valve which is held closed by the pressure in the main-valve chamber of the triple-valve device and which controls a passage around the main-valve chamber, a main valve, a passage through the main valve for releasing fluid under pressure from the main-valve chamber, and a graduating-valve adapted to open the passage through the main valve in service applications, and to effect the operation of the emergency-valve by opening the passage to a greater extent in emergency applications, substantially as set forth.

10. In an automatic fluid-pressure brake apparatus, the combination, with an emergency-valve which is held closed by the pressure in the main-valve chamber of a triple-valve device, of a main valve, a graduating-valve, a supplemental piston for operating the graduating-valve, a supply-port, or passage, through which fluid is supplied to the main-valve chamber, and which is open in making both service and emergency applications of the brakes, and ports, or passages, controlled by the main and graduating valves for rapidly releasing fluid from the main-valve chamber and thereby effecting opening movement of the emergency-valve, substantially as set forth.

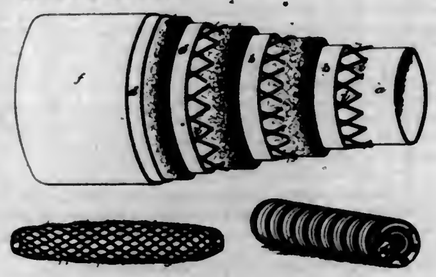
11. In a triple-valve device, the combination, with a main valve, of a graduating-valve controlling a passage in the main valve, and a passage through which fluid under pressure is admitted to the passage in the main valve when the main valve is in release position, for the purpose of counterbalancing the pressure tending to hold the graduating-valve to its seat, substantially as set forth.

12. In a triple-valve device, the combination, with a main valve, of a graduating slide-valve which is adapted to slide on, and control a passage in, the main valve, and a passage through which fluid under pressure is admitted to the passage in the main valve, for the purpose of counterbalancing the pressure on the back of the graduating-valve, substantially as set forth.

13. The combination, with a train-pipe, a brake-cylinder, and an auxiliary reservoir, of a triple-valve device, the main piston of which has the same traverse in both service and emergency applications, a main valve controlling a passage from the auxiliary reservoir to the brake-cylinder, an emergency-valve controlling the release of fluid from the train-pipe through a separate passage, and which is normally held seated by the pressure in the main-valve chamber, and means whereby the emergency-valve may be unseated on a sudden reduction of pressure in the main-valve chamber, substantially as set forth.

14. The combination, in a triple-valve device, of a main valve which has the same traverse in both service and emergency applications, an emergency-valve device, exposed to the pressure in the main-valve chamber and controlling a passage from the train-pipe which is disconnected from the main-valve chamber and through which fluid is released from the train-pipe in emergency applications, and means for rapidly releasing fluid under pressure from the main-valve chamber and thereby effecting an emergency application of the brakes, substantially as set forth.

574,867. PILLOW. ROBERT KELSO, Philadelphia, Pa., assignor of one-half to Morris Rosenbaum, same place. Filed Aug. 13, 1895. Serial No. 559,163. (No model.)



Claim.—1. A pillow or the like consisting of an elastic tube composed of diagonally crossed or entwined resilient cords or strands loosely bound together at the crossing-points, but otherwise unrestrained between the opposite ends of the pillow, and a pad or cushion surrounding said elastic tube, substantially as specified.

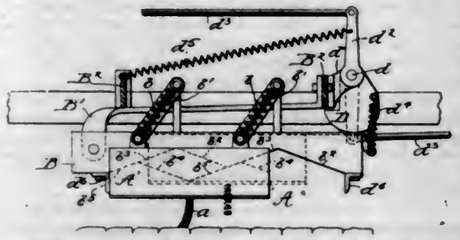
2. A pillow or the like consisting of an elastic tube composed of a series of diagonally crossed or entwined cords each consisting of a fibrous textile core with a spiral wrapping of resilient wire, said cords being held together at the crossing-points, and a pad surrounding said elastic tube, substantially as specified.

3. A pillow or the like consisting of a series of elastic tubes, each consisting of a number of resilient cords or strands diagonally crossed or entwined and held together at the crossing-points, with pads interposed between the successive elastic tubes, and a pad surrounding the outer one of said tubes, substantially as specified.

4. A pillow or the like consisting of one or more elastic tubes each consisting of a series of resilient cords or strands diagonally crossed or entwined and loosely bound together at the crossing-points but otherwise unrestrained between the opposite ends of the pillow, a casing or cover surrounding the elastic tube, and a pad surrounding said casing or cover, substantially as specified.

5. A pillow or the like consisting of a series of elastic tubes, each composed of a series of resilient cords or strands diagonally crossed or entwined and held together at the crossing-points, pads interposed between the successive elastic tubes, and an outer pad consisting of an annular bag with stuffing material contained therein, substantially as specified.

574,868. **VEHICLE-BRAKE.** CHARLES B. FAIRCHILD, New York, N. Y., assignor of one-eighth to Daniel W. Bosley, Chicago, Ill. Original application filed Dec. 3, 1896, Serial No. 570,948. Divided and this application filed Feb. 18, 1896. Serial No. 579,718. (No model.)



Claim.—1. In a vehicle-brake, the combination of a brake-brush, consisting of a rigid back in which are secured a plurality of brush-teeth, a pivoted block or support, springs connecting said block or support and said brush, whereby said brush is maintained in movable contact with said block or support, cam-surfaces formed on said brush and on said pivoted block or support, respectively, such that movement of said brush, longitudinally of said support, will operate to advance or to retract said brush, relatively to said block or support, stops to limit the longitudinal movement of said brush relatively to said block or support and means to lower and raise the free end of said block or support, to depress the free ends of the brush-teeth into and to raise them out of contact with the road-bed or pavement, substantially as described.

2. In a vehicle-brake, the combination of a brake-brush, consisting of a rigid back in which are secured a plurality of brush-teeth, a pivoted block or support, springs connecting said block or support and said brush, whereby said brush is maintained in movable contact with said block or support, cam-surfaces formed on said brush and on said pivoted block or support, respectively, such that movement of said brush, longitudinally of said support, will operate to advance or to retract said brush, relatively to said block or support, stops to limit the longitudinal movement of said brush relatively to said block or support, a cam-block applied to the free end of said pivoted block or support and adapted to depress the same to bring the free ends of the brush-teeth into contact with the road-bed or pavement and a link connecting said cam-block with the free end of said pivoted block or support, whereby the free end of said block or support will be raised to raise the free ends of the brush-teeth out of contact with the road-bed or pavement, as the cam-block is actuated to relieve the pressure on said block or support, substantially as described.

3. In a vehicle-brake, the combination of a brake-brush, consisting of a rigid back in which are secured a plurality of brush-teeth, a pivoted block or support, springs connecting said block or support and said brush, whereby said brush is maintained in movable contact with said block or support, cam-surfaces formed on said brush and on said pivoted block or support, respectively, such that movement of said brush, longitudinally of said support, will operate to advance or to retract said brush, relatively to said block or support, stops to limit the longitudinal movement of said brush relatively to said block or support, a cam-block applied to the free end of said pivoted block or support and adapted to depress the same to bring the free ends of the brush-teeth into contact with the road-bed or pavement and an elastic link connecting said cam-block with the free end of said pivoted block or support, whereby the free end of said block or support will be raised to raise the free ends of the brush-teeth out of contact with the road-bed or pavement, as the cam-block is actuated to relieve the pressure on said block or support, substantially as described.

REISSUES.

11,581. **TUMBLER-WASHER.** CHARLES KLAUBERG, New Haven, Conn. Filed Mar. 5, 1896. Serial No. 582,012. Original No. 550,794, dated Dec. 3, 1895.



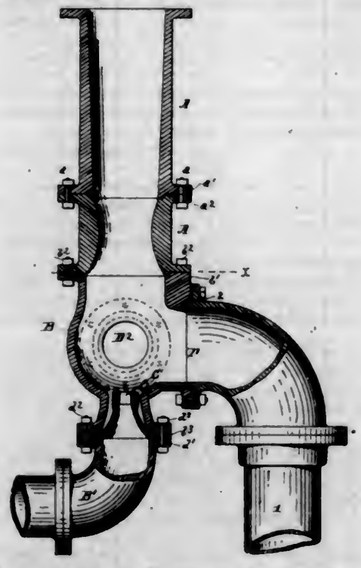
Claim.—1. In a device for cleaning tumblers, the combination with two handles pivoted together, and each constructed with an arm, of two brush-carriers pivotally connected respectively with said arms, bristles secured to the outer ends of said carriers, and brushes connected with said carriers, substantially as described.

2. In a device for cleaning tumblers, the combination with two handles pivoted together, and each constructed with an arm, of two brush-carriers pivotally connected respectively with said arms, and formed at their outer ends with flaps, bristles secured to the outer ends of said carriers by said flaps, and brushes connected with said carriers, substantially as described.

3. In a device for cleaning tumblers, the combination with two handles pivoted together and each constructed with an arm, of two brush-carriers pivotally connected respectively with said arms, and constructed at their outer ends with flaps, and having their ends notched, bristles secured to the outer ends of said carriers by said flaps, and brushes constructed at their ends with retaining-fingers which enter the notches in the ends of the carrier, and which at the outer ends pass through the bristles on the end of the carrier, substantially as described.

4. The combination with a handle, of a brush-carrier pivotally connected therewith, bristles mounted in the end of said carrier projecting in line therewith and beyond the end thereof, and a brush removably applied to the said carrier, its outer end passing through the bristles on the end of the carrier which reinforce and support the bristles at the outer end of the brush, substantially as described.

11,582. **BASE CHAMBER OR SEAT FOR HYDRAULIC ELEVATORS.** GEORGE H. EVANS, Oroville, Cal., assignor, by mesne assignments, of one-half to the Risdon Iron and Locomotive Works, San Francisco, Cal. Filed Oct. 10, 1896. Serial No. 608,513. Original No. 564,062, dated July 14, 1896.



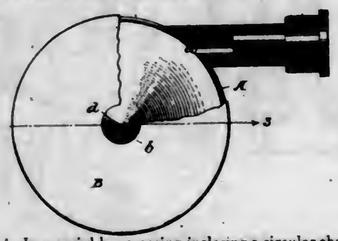
Claim.—1. In a hydraulic elevator, the combination with the elevator-pipe, of the throat connected to the lower end thereof, the base chamber or seat secured to the throat, the main suction-opening cut therein, the side or auxiliary suction-opening formed in the base chamber or seat (through which suction-openings the spoil enters the base chamber or seat in a divided condition), the ejector-nozzle located within the contracted mouth of the base chamber or seat, and the ejector-pipe connected to the end of the contracted mouth, the water from which is forced through the nozzle into the interior of the base chamber or seat and commingles with and disintegrates the spoil delivered into the said chamber through the suction-openings before forcing the spoil into the elevator-pipe.

2. In a hydraulic elevator, the combination with the elevator-pipe, of the base chamber or seat provided with a main suction-opening and one or more open auxiliary suction-openings through which the spoils enter the base chamber or seat, a throat interposed between the base chamber or seat and the lower end of the elevator-pipe, and of the ejector-nozzle located within the month of the base chamber or seat below the plane of the mouth of the suction-pipes.

3. The combination with the elevator-pipe, of the water-ejector pipe, the base chamber or seat interposed between the elevator-pipe and the water-ejector pipe, and of two or more open independent suction-openings cut through the base chamber or seat, above the plane of the nozzle end of the ejector-pipe through which openings the spoils enter the base chamber or seat in a divided condition and commingle with a jet of water entering therein from the water-ejector pipe.

4. As a new article of manufacture a base chamber or seat for hydraulic elevators provided with an outlet-opening for the spoils, an inlet-opening for the water-ejector pipe and with two or more independent suction-openings through which the spoils enter the base chamber or seat above the water-ejector pipe.

11,583. **LAWN-SPRAYER.** JOHN AUBLE, New York, N. Y., and ARKLESS D. WEISS, Wilkes-Barré, Pa., assignors to Ralph W. Lee and James A. Watson, Washington, D. C. Filed Nov. 6, 1896. Serial No. 611,296. Original No. 558,891, dated Apr. 21, 1896.



Claim.—1. In a sprinkler, a casing inclosing a circular chamber, said chamber having an inlet arranged to impart a rotary movement to the water within the chamber, and an annular outlet, said outlet being formed by a circular opening in the top of the casing and a cone-shaped body centrally arranged in and nearly filling said opening, the portion of said cone-shaped body below the opening being larger than and tapering toward said opening, substantially as described.

2. In a sprinkler, a casing inclosing a circular chamber, a central circular opening in the top of said chamber, a cone-shaped body centrally located in and tapering toward said opening, the portion of the cone below the opening being of greater diameter than said opening and the smaller end of the cone projecting through and nearly filling said opening, whereby an annular outlet to the chamber is formed, and an inlet to said chamber arranged to impart a rotary movement to the water contained therein, substantially as described.

3. In a lawn-sprinkler, a casing having an annular wall, a closed bottom, a substantially flat top plate having a central circular opening, a cone-shaped body within the circular wall of the casing and having its apex projecting above and nearly filling said circular opening, and an opening in the circular wall arranged to admit water tangentially to the annular chamber surrounding the cone, substantially as described.

4. A lawn-sprinkler consisting of a casing having an annular wall with a tangential opening therein, a substantially flat top plate having a central circular opening, and a cone-shaped bottom plate arranged with the apex of the cone protruding from and nearly filling the circular opening of the top plate, substantially as described.

DESIGNS.

26,482. **BOTTLE.** HENRY LEMMERMANN, Hasbrouck Heights, N. J. Filed Nov. 14, 1896. Serial No. 612,160. Term of patent 14 years.



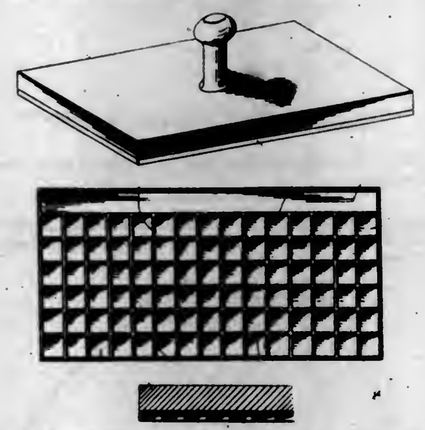
Claim.—The design for a bottle substantially as shown and described.

26,483. **MUSTACHE-GUARD.** CHARLES WELLER, Newark, N. J. Filed Nov. 13, 1896. Serial No. 612,028. Term of patent 7 years.



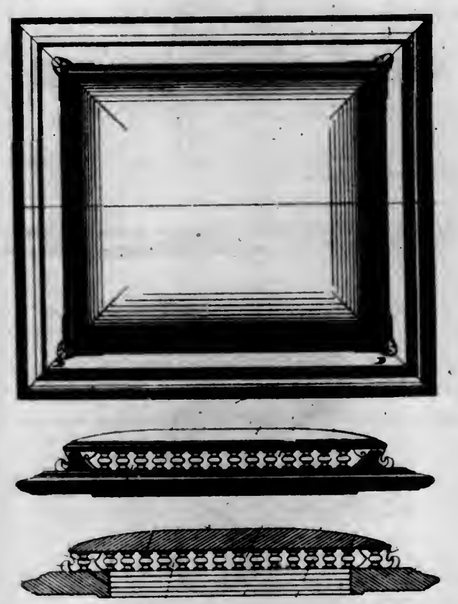
Claim.—The design for the mustache-guard herein shown and described

26,484. **HAND-STAMP.** JAMES B. HUDSON, Toledo, Ohio. Filed Sept. 5, 1896. Serial No. 605,034. Term of patent 7 years.



Claim.—The design for a stamp substantially as shown and described.

26,485. **MUSIC-BOX COVER.** GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed Nov. 30, 1896. Serial No. 614,009. Term of patent 14 years.



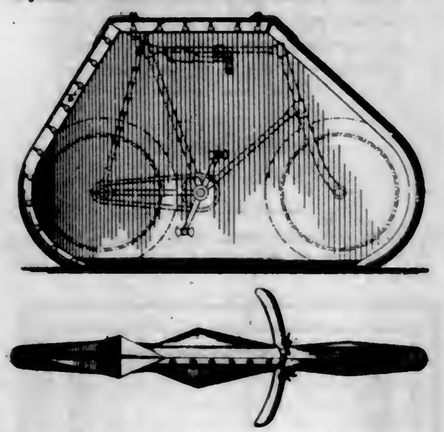
Claim.—The design for music-box covers, having a base, a cap above said base, and grillework intervening between said base and cap, substantially as shown and described.

26,486. CLOCK-FACE. CHARLES A. CORNIBERT, Woodside, N. Y. Filed Dec. 1, 1896. Serial No. 614,136. Term of patent 3½ years.



Claim.—The design for a clock-face, substantially as herein shown and described.

26,487. BICYCLE-COVER. HORATIO OGDEN NELSON, Long Island City, N. Y. Filed Apr. 23, 1896. Serial No. 588,829. Term of patent 14 years.



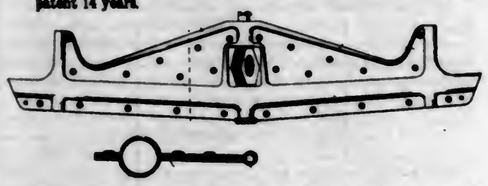
Claim.—The design for safety-bicycle covers substantially as herein shown and described.

26,488. BICYCLE TOE-CLIP. WILLIAM N. BEARDSLEY, Bridgeport, Conn. Filed Mar. 28, 1896. Serial No. 585,287. Term of patent 3½ years.



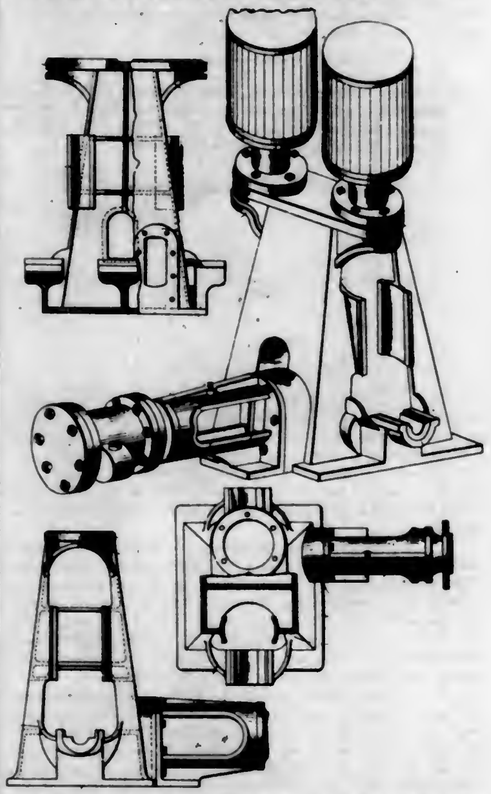
Claim.—The design for a bicycle toe-clip, substantially as herein shown and described.

26,489. BRAKE-BEAM FOR CARS. WILLIAM P. BETTENDORF, Davenport, Iowa. Filed June 29, 1896. Serial No. 597,478. Term of patent 14 years.



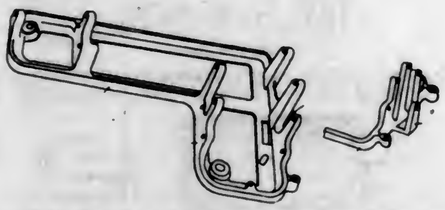
Claim.—The design for a brake-beam for cars as herein shown and described.

26,490. FRAME FOR ICE-MACHINES. THOMAS SHIPLEY, Waynesborough, Pa., assignor to the Frick Company, same place. Filed Nov. 28, 1896. Serial No. 613,633. Term of patent 14 years.



Claim.—The design for the frame of an ice-machine, substantially as herein described and shown.

26,491. FRAME FOR PHONOGRAPH-MOTORS. FRANK L. CAPPS, Newark, N. J. Filed May 27, 1896. Serial No. 593,345. Term of patent 7 years.



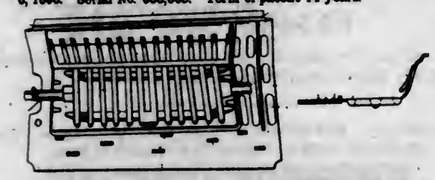
Claim.—The design for a frame for phonograph-motors herein shown and described.

26,492. BRACKET FOR INCANDESCENT LIGHTS. EDWIN C. HOWE, Bridgeport, Conn. Filed Aug. 14, 1896. Serial No. 602,817. Term of patent 7 years.



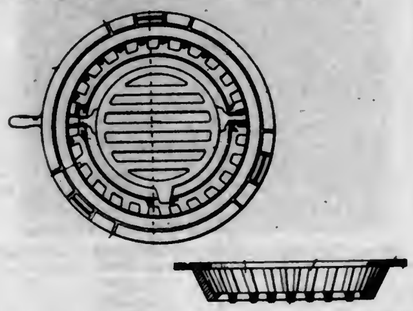
Claim.—The design for a bracket for incandescent lights, substantially as herein shown and described.

26,493. GRATE. ALBERT S. NEWBY, Kansas City, Mo. Filed Oct. 6, 1896. Serial No. 608,065. Term of patent 14 years.



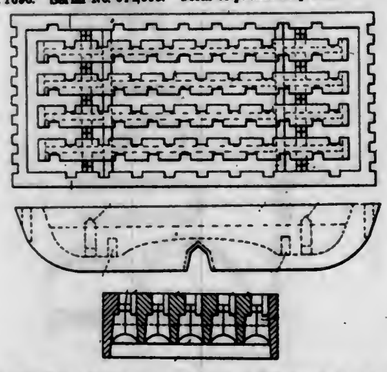
Claim.—The design for a front and bottom grate for stoves, as described and shown in the accompanying drawings.

26,494. GRATE. ALBERT S. NEWBY, Kansas City, Mo. Filed Oct. 6, 1896. Serial No. 608,067. Term of patent 14 years.



Claim.—The design for bottom grates as described and shown in the drawings.

26,495. GRATE. CHARLES HOWARD, New York, N. Y. Filed Nov. 30, 1896. Serial No. 614,008. Term of patent 14 years.



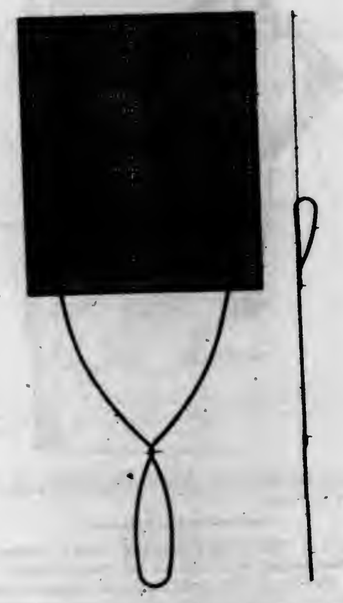
Claim.—The design for a furnace-grate, substantially as shown and described.

26,496. STANDARD FOR CLOTHES-DRIERS. JOHN EDEN, Attleborough, Mass. Filed Oct. 15, 1896. Serial No. 609,027. Term of patent 7 years.



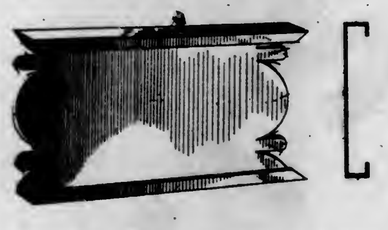
Claim.—The design for a standard for a clothes-drier herein shown and described, consisting of a vertical rectangular plate having a projecting horizontal flange or base and an oval cap with radial slots made in it, a straight rectangular bar extending up from the cap of the rectangular plate and surmounted by an oval semicircular cap having radial slots made therein.

26,497. FLY BRUSH OR BAT. GEORGE R. RACK, Gothenburg, Nebr. Filed Oct. 26, 1896. Serial No. 610,167. Term of patent 14 years.



Claim.—The design for a fly brush or bat substantially as shown and described.

26,498. DISPLAY-HOLDER. ALBERT R. KILNER, Baltimore, Md. Filed Dec. 1, 1896. Serial No. 614,137. Term of patent 7 years.



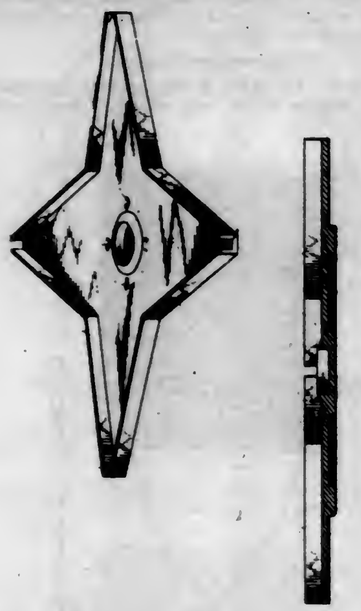
Claim.—The design for a display-holder herein shown and described.

26,499. GAME-COUNTER. JULIUS WIELAR, New York, N. Y. Filed Oct. 1, 1896. Serial No. 607,630. Term of patent 3½ years.



Claim.—The design for a game-counter as shown and described.

26,500. GAME-BOARD. DAVID P. HEVERLY, Centre Point, Iowa. Filed Nov. 28, 1896. Serial No. 613,837. Term of patent 14 years.



Claim.—The design for a game-board, substantially as herein shown and described.

26,501. FONT OF PRINTING-TYPE. JOHN F. CUMMING, Worcester, Mass., assignor to the American Type Founders Company, Newark, N. J. Filed Nov. 11, 1896. Serial No. 611,764. Term of patent 7 years.

ABCDEFGHIJKL
MNOPQRSTUVW
XYZ
abcdefghijklmnop
qrstuvwxyz
1234567890 &$£

Claim.—The design for a font of type as herein described and as shown in the accompanying typographical impression.

26,502. WOVEN FABRIC. ROBERT LEWIS, Bridesburg, Pa. Filed Dec. 2, 1896. Serial No. 614,249. Term of patent 3½ years.



Claim.—The design for a woven fabric, as shown and described.

TRADE-MARKS

REGISTERED JANUARY 5, 1897.

29,399. COTTON PIECE GOODS. HAMILTON STEAM COTTON COMPANY, Salem, Mass. Filed Dec. 14, 1896.



Essential feature.—A pictorial representation of a stork and a turtle. Used since June 6, 1878.

29,400. STIFFENING-TAPES. WARREN FEATHERBONE COMPANY, Three Oaks, Mich. Filed Dec. 1, 1896.

BUSTLEBONE.

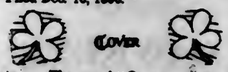
Essential feature.—The word "BUSTLEBONE." Used since August 1, 1896.

29,401. EYEGLASSES AND EYEGLASS-GUARDS. JULIUS KING, New York, N. Y. Filed Nov. 28, 1896.

Anchor.

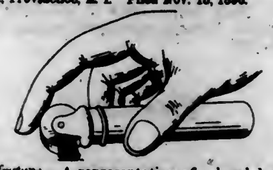
Essential feature.—The word "ANCHOR." Used since January, 1892.

29,402. MOUTH-HARMONICAS. STRAUSS, SACHS & CO., New York, N. Y. Filed Dec. 10, 1896.



Essential feature.—The word "CLOVER" or a picture of a clover-leaf. Used since December 1, 1896.

29,403. TOOTH-POWDERS AND LIQUID DENTIFRICE. WALTER V. LAWTON, Providence, R. I. Filed Nov. 13, 1896.



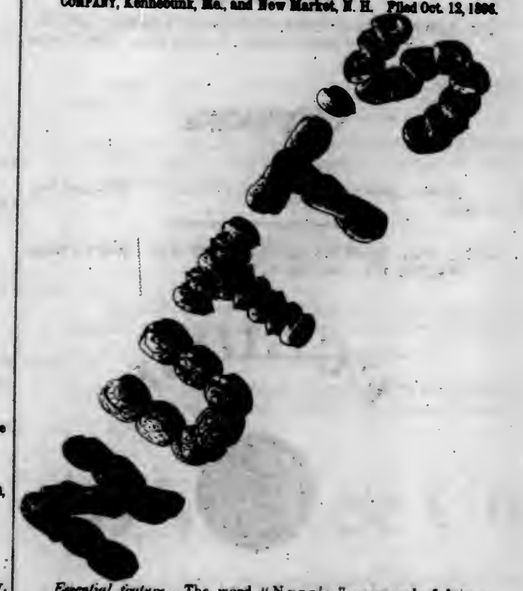
Essential feature.—A representation of a hand holding a cylindrical instrument for spraying the contents thereof. Used since August 1, 1896.

29,404. COMPLEXION-CREAM. EMMA BERGMAN ELDRIDGE, Bedford Park, N. Y. Filed Sept. 17, 1896.



Essential feature.—A representation of five birds on the wing following each other around the inside of a circle. Used since December 1, 1895.

29,405. SALVES, CORDIALS, PILLS, SYRUPS, AND OTHER MEDICINES, ESSENCES, AND PERFUMES. RAYMOND MEDICINE COMPANY, Kennebunk, Me., and New Market, N. H. Filed Oct. 12, 1896.



Essential feature.—The word "NUTT'S," composed of letters formed of representations of nuts. Used since November 1, 1895.

29,406. EXTRACT OF THYROID GLANDS FOR USE IN OBESITY AND CUTANEOUS AFFECTIONS. FARBENFABRIKEN, VORMALS FR. BAYER & Co., Elberfeld, Germany. Filed June 5, 1896.

IODOTHYRINE

Essential feature.—The word "IODOTHYRINE." Used since April 11, 1896.

29,407. REMEDIES FOR PILES. JOSEPH WILLIAMS, Osceola, Iowa. Filed Dec. 3, 1896.

HAWKEYE

Essential feature.—The word "HAWKEYE." Used since January 1, 1896.

29,408. FOOD PREPARATION IN DRY FORM FOR INFANTS AND INVALIDS. SMITH, KLINE & FRENCH COMPANY, Philadelphia, Pa. Filed Dec. 5, 1896.

ESKAY'S



Essential feature.—The word "ESKAY'S" and a pictorial representation of a child's head inclosed within a wreath formed of spikes of cereal grains. Used since October 15, 1896.

29,409. PREPARATIONS OF CEREALS, PRESERVES, AND JELLIES. THE TOWLE SYRUP COMPANY, St. Paul, Minn. Filed Nov 19, 1894.

LOG CABIN

Essential feature.—The words "LOG CABIN." Used since May 1, 1894.

29,410. MARKING AND STENCILING INKS. BINNEY & SMITH, New York, N. Y. Filed Dec. 11, 1896.

ECLIPSE



Essential feature.—The word "ECLIPSE," the illustration of an eclipse, or both combined. Used since November 26, 1889.

29,411. ARTICLE FOR REMOVING PAINT, OIL, VARNISHES, STAINS, AND FINISHES. HARRISON BROTHERS & Co., Philadelphia, Pa. Filed Dec. 3, 1896.

DISSOLVO

Essential feature.—The word "DISSOLVO." Used since October, 1896.

29,412. ARTICLE FOR REMOVING PAINT, OIL, VARNISHES, STAINS, AND FINISHES. HARRISON BROTHERS & Co., Philadelphia, Pa. Filed Dec. 3, 1896.

REMOVO

Essential feature.—The word "REMOVO." Used since October, 1896.

29,413. LEATHER-DRESSING. RESTORFF & BEITHANN, New York, N. Y. Filed Dec. 10, 1896.

EBONOLE

Essential feature.—The word "EBONOLE." Used since September 15, 1896.

29,414. SOAP. SAMUEL B. THORP, New York, N. Y. Filed Aug. 4, 1896.

WEINKLE SKIN SOAP

Essential feature.—The words "WEINKLE SKIN SOAP." Used since July 1, 1890.

29,415. CHEWING-GUM. LAUER & SUTER, Baltimore, Md. Filed Dec. 12, 1896.

CORKER

Essential feature.—The word "CORKER." Used since September 1, 1896.

29,416. WHEAT-FLOUR. RODRIGO MARQUES DOS SANTOS, New York, N. Y. Filed Dec. 7, 1896.

ALMERIA.

Essential feature.—The word "ALMERIA." Used since April 1, 1896.

29,417. WHEAT-FLOUR. RODRIGO MARQUES DOS SANTOS, New York, N. Y. Filed Dec. 7, 1896.

ONDINA.

Essential feature.—The word "ONDINA." Used since April 1, 1896.

29,418. ROLLED OATS AND OATMEAL. MUSCATINE OAT MEAL COMPANY, Muscatine, Iowa. Filed Dec. 8, 1896.



Essential feature.—The word "AX" or the representation of an AX. Used since December 12, 1895.

29,419. CONFECTIONERY AND CHOCOLATES. HENRY MAILLARD, New York, N. Y. Filed Dec. 1, 1896.



Essential feature.—Two oval shield-like figures, between which is located an anchor entwined by serpents and surmounted by the American eagle with outstretched wings, bearing upon his breast a shield, and a scroll bearing the words "E PLURIBUS UNUM." Used since 1853.

29,420. RYE WHISKY. DANIEL MALONE, Baltimore, Md. Filed Dec. 10, 1896.

MALONE'S

Essential feature.—The word "ALONE" printed in conspicuous letters, and said word prefixed by the letter "M" and suffixed by the letter "S," both of said letters being indistinct or inconspicuous, so that the mark may be read "ALONE" or "MALONE'S." Used since May 1, 1896.

29,421. PORTER AND LAGER-BEER. DULUTH BREWING AND MALTING Co., Duluth, Minn. Filed Dec. 5, 1896.



Essential feature.—A representation of a moose's head. Used since November 1, 1896.

29,422. HORSE-NAILS. NORTHWESTERN HORSE NAIL MANUFACTURING COMPANY, Chicago, Ill. Filed Nov. 27, 1896.

WESTERN HORSE NAIL

Essential feature.—The words "WESTERN HORSE NAIL." Used since 1864.

29,423. WROUGHT-IRON. PHILLIPS, NIMICK & Co., Pittsburg, Pa. Filed Dec. 3, 1896.

"SLIGO."

Essential feature.—The word "SLIGO." Used since 1846.

29,424. WROUGHT-IRON. PHILLIPS, NIMICK & Co., Pittsburg, Pa. Filed Dec. 3, 1896.

"TYRONE."

Essential feature.—The word "TYRONE." Used since 1846.

29,425. WROUGHT-IRON. PHILLIPS, NIMICK & Co., Pittsburg, Pa. Filed Dec. 3, 1896.

"S. S."

Essential feature.—The letters "S. S." Used since 1873.

29,426. STEEL BAR, STEEL PLATE, AND ARTICLES MADE THEREFROM. CRESCENT STEEL COMPANY, Pittsburg, Pa. Filed Nov. 25, 1896.

CRESCENT

Essential feature.—The word "CRESCENT." Used since December 28, 1875.

29,427. STEEL BAR, STEEL PLATE, AND ARTICLES MADE THEREFROM. CRESCENT STEEL COMPANY, Pittsburg, Pa. Filed Nov. 25, 1896.



Essential feature.—The symbol of a crescent. Used since December 28, 1875.

29,428. STAMPED AND PIERCED SHEET-METAL WARE ENAMELED. AMERICAN STAMPING COMPANY, New York and Brooklyn, N. Y. Filed Dec. 11, 1896.



Essential feature.—A representation of a gem and radial lines, with the word "DIAMOND." Used since September 1, 1896.

29,429. AGRICULTURAL MACHINES AND IMPLEMENTS AND THEIR SEVERAL PARTS. D. M. OSBORNE & COMPANY, Auburn, N. Y. Filed Dec. 10, 1896.

D.M.O. & Co.

Essential feature.—The letters, character, and abbreviation "D. M. O. & Co." Used since October, 1862.

29,430. WAGONS. WEBER WAGON COMPANY, Chicago, Ill. Filed Oct. 20, 1896.

WEBER

Essential feature.—The word "WEBER" and a representation of a Maltese cross. Used since March, 1895.

29,431. SHOVELS AND SCOOPS. BERA H. LEHLEY, St. Louis, Mo. Filed Dec. 7, 1896.

DEADWOOD

Essential feature.—The word "DEADWOOD." Used since September, 1877.

29,432. SHEARS AND SCISSORS. ROBERT H. SEYMOUR, Holyoke, Mass. Filed Oct. 21, 1896.

SEYMOUR CUTLERY COMPANY

Essential feature.—Two oblique-angled parallelograms, a representation of sheep-shears within the inner parallelogram, and the words "SEYMOUR CUTLERY COMPANY." Used since 1877.

29,433. COTTON-BALE TIES. WILLIAM W. BURKE, New Orleans, La. Filed Nov. 23, 1896.

Ant-I-Trust
T. T. T.
Cotton Ties

Essential feature.—The letters "T. T. T.," arranged between the symbols "ANT.-I-TRUST" and the words "COTTON TIES." Used since October, 1896.

PHOTO LITH. THE NORRIS PETERS CO. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

BRIGGS *v.* SEYMOUR, COMMISSIONER OF PATENTS.

Decided December 1, 1896.

1. BRIGGS—ICE-PLANING MACHINE—COMMISSIONER'S DECISION AFFIRMED.

Upon a consideration of the merits of the case, *Held* that there was no error in the decision of the Commissioner of Patents appealed from and that such decision should accordingly be affirmed.

2. REISSUE—ADDITION OF AN ELEMENT TO A CLAIM—CONSTRUCTION BY COURT.

The conclusion of the Commissioner of Patents that the addition to the original claim of a feature shown and described in the original patent does not confer patentability on the reissue claim was right, since the whole combination was substantially passed upon by the Circuit Court of Appeals.

3. INVENTION—ANALOGOUS USE—POTTS *v.* CREAGER.

The decision in *Potts* v. *Creager* does not apply to the circumstances of this case, in which an old construction of cutter-head used in a wood-planing machine is applied to an ice-planing machine, since the uses are analogous.

Messrs. Pollok & Mauro and *Mr. Benjamin F. Lee* for the appellant.

Mr. W. A. Megrath (law-clerk) for the Commissioner of Patents.

SHEPARD, *J.:*

This is an appeal by John N. Briggs from a decision of the Commissioner of Patents refusing an application for the reissue of a patent for an ice-planing machine.

The application contained several claims, of which the following only is in controversy.

3. The combination, with the cutter-head and the racks directly attached thereto, of the guides for both cutter-head and the racks, arranged perpendicularly to the plane of the elevator, the pinions mounted on said guides and engaging in said racks, and the levers or arms for operating said pinions, a cutter consisting of a number of points entering the ice in such a manner as not only to cut but to groove it at one operation and an ice-elevator adapted to positively force ascending cakes of ice into contact with the cutter and groover, all constructed substantially as described, so that the depth of the cut may be directly and positively regulated by means of the levers and the ice at the same time properly grooved for storage.

It appears from the record that original patent No. 367,267 had been issued to said Briggs on July 27, 1887, one of the claims of which reads as follows:

1. The combination, with the cutter-head and the racks directly attached thereto, of the guides for both cutter-head and the racks, arranged perpendicularly to the plane of the elevator, the pinions mounted on said guides and engaging in said racks, and the levers or arms for operating said pinions, all constructed, substantially as described, so that the depth of the cut may be directly and positively regulated by means of the levers, as herein specified.

It further appears that on February 19, 1890, he obtained a reissue, No. 11,060, wherein the cutter shown in the claim under consideration is specifically described in combination with the inclined railway and endless chain of an ordinary ice-elevator.

Considering that the separate elements of the combination claimed were shown in the prior patents of the applicant himself and in those for wood and ice planing machines of Butterfield, Loring and Giles, Smith, and others, the Commissioner was of the opinion that it did not show invention. His decision was founded in main on the view taken by him of the effect of the decision of the Circuit Court of Appeals for the Second Circuit in the case of *Briggs* v. *Central Ice Co.*, (60 Fed. Rep., 87.) That decision was made in a suit brought by said Briggs against the ice company for an infringement of his patent, No. 367,267, aforesaid, and hence it is true, as claimed by the appellant, involved directly only the claim in that patent, hereinabove set forth, and which the court held to be destitute of patentable novelty. In arriving at this conclusion Judge Wallace, who delivered the opinion of the court, after describing the older devices for planing ice that had been patented to Chaplin, Loring and Giles, and Smith, said:

The adjusting devices of the first two of these prior patents do the same work, in substantially the same way, as the adjusting devices of the patent in suit. In the Loring and Giles apparatus they work automatically, and are designed to cut a definite depth into each cake of ice. In operation, the cakes of ice raise the cutter-head, and after the planer has done its work the cutter-head falls by gravity to its normal position. In the Smith apparatus the range of adjustment of the devices is not as great as in the patent in suit. In the apparatus of Chaplin they are not controlled so positively as in that of the patent in suit. It cannot be disputed, and, indeed, it is obvious, that the adjusting devices of the patent are preferable to those described in any of these prior patents. They enable the operator to do his work of planing the ice with more certainty, ease, and speed. Because this is so, we reach the conclusion that the claim is invalid with reluctance. But the patentee was not the first to use the adjusting devices of the claim for the purpose of enabling a planing-tool to do its work. Precisely the same combination, found in the complainant's patent, of cutter-head, guides, racks, pinions, and levers, is described in a patent for a planing-machine granted May 17, 1859, to T. B. Butterfield. In this machine, which is a wood-planer, there is a feed-roller, located in the cutter-head above the planing-tool, which is designed to bear against the shaving and assist in moving the piece of wood through the machine. It is obvious that this device would be unnecessary in an ice-planing machine. It could be omitted without the slightest readjustment of the other parts. If retained, it would not affect their mode of coöperation. If omitted in the Butterfield machine, its absence would not affect in the least the coöperation of the parts for the adjustment of the planing-tool. All the advantages ascribable to the patented combination are due to the assembling together of an old elevator and an old cutter-adjusting mechanism. This could be effected without requiring any modification of the parts which was not an obvious one, and

within the ordinary skill of the mechanic. In contemplation of law, the patentee merely transported the devices of Butterfield into the old elevator, and cut away the useless feed-roller. When thus assembled together, the elevating mechanism performs no new functions, and the adjusting cutter mechanism performs precisely the functions it did in the Butterfield machine. It is wholly immaterial that the adjusting devices of Butterfield were designed to be used in a machine for planing wood. The application of an old organism to an analogous use is not patentable. (*Blake* v. *City and County of San Francisco*, 113 U. S., 679; 5 Sup. Ct., 692; *Pennsylvania R. Co.* v. *Locomotive Engine Safety Truck Co.*, 110 U. S., 490; 4 Sup. Ct., 220; *Steiner Fire Extinguisher Co.* v. *City of Adrian*, 59 Fed. Rep., 132.) It is not invention to use an old combination of devices in a new location to perform the same operations, when no changes or modifications are required to adapt it to the new use, or when only such are required as can be made by the exercise of ordinary mechanical skill. The case of *Aron* v. *Railway Co.* (132 U. S., 84; 10 Sup. Ct., 24) is an apposite illustration of the rule.

Although the ice-elevator was not set out in the combination claimed in the patent in controversy, its coincidence was so obvious that it was read into it by the court.

Assuming (said Judge Wallace) that the ice-elevator, although not specifically mentioned, ought to be regarded as an element of the claim, and recognizing the fact, as we must upon the proofs, that the other devices of the claim were never before assembled together in an ice-elevator, nevertheless, we are of the opinion that the claim is destitute of patentable novelty.

Nor does the addition to the present claim (not noticed in that opinion) of—

a cutter consisting of a number of points entering the ice in such manner as not only to cut, but to groove it at one operation—

add anything new to the combination, for, as we have seen, that cutter was specifically described ih reissued Patent No. 11,060 and, besides, was shown in the specification and drawings of No. 367,267. Notwithstanding, therefore, the able and ingenius arguments made on behalf of the appellant, we must say that we think the Commissioner was right in the conclusion that the whole combination had been substantially passed upon by the Circuit Court of Appeals.

Appellant seeks, however, to avoid the effect of that decision on the ground that it must necessarily have been different had the case of *Potts* v. *Creager* (155 U. S., 597) then been decided. Here again we agree with the Commissioner in the view taken and expressed by him of that decision also. We had occasion in a recent case that closed a long and ably-conducted litigation to determine the patentability of a combination wherein the cases of *Webster Loom Co.* v. *Higgins* (105 U. S., 580) and *Potts* v. *Creager* were both carefully considered in their application to a claim of a new combination of old devices in a useful system of house-drainage which we think came much nearer to the exercise of the inventive faculty than does the claim in this case, and we do not think it necessary to add anything to what was there said. (*Durham* v. *Seymour*, 6 App. D. C., 78, 103, 105, 105.) Attention was also called in that case to a familiar rule directly applicable to the merits of this case, as follows:

In this connection must be borne in mind, too, the latitude of construction given to new invention and the strict and narrow construction invariably applied in a case where the claims are for the same general subject-matter, and especially where the same person is applying for a second patent.

Without prolonging the discussion, we find that there is no error in the decision appealed from, and must therefore affirm it and direct that the proceedings and decision of this court be certified to the Commissioner of Patents, as provided by law, and it is so ordered.

Court of Appeals of the District of Columbia.

HILL *et al.* v. PARMELEE.

Decided December 8, 1896.

1. INTERFERENCE—APPEAL TO COURT—COMMISSIONER'S DECISION AFFIRMED.

On appeal to the Court of Appeals of the District of Columbia it was *Held* that the Commissioner was right in his decision that Parmelee was the inventor of the device in controversy, and that decision is therefore affirmed.

2. SAME—SAME—CONDUCT OF APPELLANT—PRESUMPTION AS TO INVENTORSHIP.

The conduct of the appellant Hill and of his assignee, the Sheldon Axle Company, toward the appellee for four months after their alleged discovery of the issue of a patent to the latter is wholly irreconcilable with any other theory than that they recognized the appellee as the true inventor of the de vice in controversy.

Mr. John R. Bennett for the appellants.

Mr. J. J. Darlington for the appellee.

MORRIS, *J.*:

This is an appeal from the decision of the Commissioner of Patents in a case of interference.

The appellee, Wolcott J. Parmelee, has a patent for the invention, which is set forth as follows:

1. A die for removing the fins from the collars of axles, having a recess to receive the axle, and having also a cutting edge, constituting the front edge of said recess.

2. The combination with a holding-die to receive one end of an axle, of a die for removing the fins from the collars of said axles, having a recess to receive the other end of the axle, and having also a cutting edge, constituting the front edge of said recess.

The Sheldon Axle Company appears in the proceedings only as the assignee of the appellant Hill, who claims to have made the invention, and the controversy in regard to priority of invention is between Hill and Parmelee, or, rather, the real controversy is as to which of the two was the actual inventor of the device in question, the two parties at the time of the invention having been in the employment of the same company and the invention in dispute being the same identical invention and not the result of independent action by the parties proceeding upon similar lines at or about the same time.

The appellee, Parmelee, claims to have conceived the invention in April of 1889, to have disclosed it to others at or about the same time, and to have made a full set of dies, fit for actual work, in October of 1889. He applied for a patent on January 22, 1890, and the patent was issued to him on August 12, 1890.

On April 22, 1891, the appellant Hill made application for Letters Patent for the same identical invention described in substantially identical terms, and thereupon an interference was declared between him and the patentee, Parmelee. In his preliminary statement thereafter filed the appellant claimed to have conceived the invention in the early part of October, 1889, to have almost immediately disclosed it to others, and to have reduced it to practice in the latter part of the same month. The reduction to practice was the same as that claimed by Parmelee.

Voluminous testimony extending to more than fifteen hundred printed pages, and much of it useless and irrelevant, was taken by the parties in support of their respective claims, upon the considera-

tion of which all three of the tribunals in the Patent Office—namely, the Examiner of Interferences, the Board of Examiners, and the Commissioner of Patents—held adversely to the claims of the applicant and appellant Hill. The latter has now brought his case here by appeal from the decision of the Commissioner.

Inasmuch as the appellee has the patent, which, it will be noticed, was issued to him upward of eight months before the appellant filed any application in the Patent Office, the appellant having delayed the filing of any claim until after the lapse of more than seventeen months after the conceded date of the reduction of the invention to practice, it becomes incumbent upon the appellant to make out his case beyond all reasonable doubt and to show very clearly that the decision of the Commissioner was erroneous. This is the well-settled rule of law in all such cases, for which no citation of authorities is now necessary, for it may be regarded as fundamental and elementary law in all patent causes.

We have carefully perused the voluminous mass of testimony adduced in the case, and we have failed to find that the appellant has made any such showing as the rule thus stated requires. On the contrary, it seems to us that he has wholly failed to cast any reasonable doubt on the case of the appellee. It would not serve any good purpose to analyze the testimony with a view of showing wherein we think the appellant fails to show any good ground for his application. That has already been satisfactorily done by the tribunals in the Patent Office, and we do not find that they have misconceived the tenor and purport of the evidence. Suffice it to say that in our opinion the conduct of the appellant Hill and of his assignee, the Sheldon Axle Company, toward the appellee for four months after their alleged discovery of the issue of a patent to the latter is wholly irreconcilable with any other theory than that they recognized the appellee as the true inventor of the device in controversy. During those four months he was in the course of executing a contract with the company with special reference to the patent, to the knowledge and with the concurrence of the appellant, like himself an employee of the company during all that time, and neither the company nor the appellant at any time during that period gave the slightest intimation, as they would most undoubtedly have done if such were the fact, that Parmelee was not the true inventor of the device and had actually pirated for himself the invention of Hill. It seems to be conceded that the application of Hill was made for the sole purpose of forcing this interference and of compelling Parmelee to accede to the propositions of the company, which had before this become the assignee of Hill; and yet even after the filing of Hill's application the company entered into another contract with Parmelee on July 1, 1891, having reference to the use of his patent, and it was not until after he refused to comply with its propositions and left its employment to take service with a rival company that the application of Hill for Letters Patent was vigorously prosecuted. The conclusion is irresistible that the claim of Hill to be the inventor was an afterthought, and, while he might possibly be said to have had some participation in elaborating the original idea of Parmelee, he is not entitled in any sense to be regarded as the inventor of the device.

We are of opinion that the Commissioner was right in his decision, and that decision is therefore affirmed. The clerk of this court will accordingly certify this decision and the proceedings in this cause to the Commissioner of Patents, according to law.

U. S. Circuit Court of Appeals—Sixth Circuit.

HEATON-PENINSULAR BUTTON FASTENER COMPANY *v.* EUREKA SPECIALTY COMPANY *et al.*

Decided October 12, 1896.

1. EGGLESTON—BUTTON-SETTING INSTRUMENT—DECREE OVERRULING DEMURRER REVERSED.

Decree sustaining demurrer against bill in equity brought for infringement of Letters Patent No. 293,234, granted February 12, 1884, to Charles H. Eggleston, for a button-setting instrument, reversed.

2. RESTRICTED LICENSE—CONDITIONAL SALE.

Each machine sold has a metal label affixed thereon to the effect that with such machines fasteners made by a certain company only are to be used. This is equivalent to notice of a restricted license only, and the purchaser of the machine obtains title subject to a reverter in case of violation.

3. SAME—SAME.

Purchaser of a machine upon the condition that such machine is to be used only upon or in connection with articles from a particular source is a mere licensee. All alienations of a mere right to use the machine operate only as licenses.

4. LICENSE—WAIVER OF MONOPOLY.

A license operates only as a waiver of the monopoly as to the licensee and estops the licensor from exercising its prohibitory powers in derogation of the privileges conferred by him upon the licensee.

5. SAME—CONDITIONAL SALE—LICENSEE'S REMEDY AT LAW.

When a buyer enters into an implied agreement that he will not use the machine contrary to his license and when the agreement contains a provision for a reverter of the structure itself in case of breach, the licensor may have a remedy at law either for liability upon the broken contract or for the tortious use of the invention.

6. SAME—MONOPOLY.

A patentee may lawfully prevent his machine from passing beyond the monopoly of the patent by a license which defines the boundaries of lawful use.

7. RIGHTS TO MAKE, USE, AND SELL, SEVERABLE.

The rights to make, use, or sell are completely severable rights and involve the right to confer on others such qualified privilege as the owner of the patent sees fit, whether within specified limits or under limitations of quantity, or numbers, or restricted use.

8. RIGHTS UNDER PATENT SUBJECT TO GENERAL LAW.

The property right of a patentee is but a property right and is subject to the general law of the land. He may not, by virtue of his patent, make illegal contracts or do any other illegal acts. A prohibited business is not protected by the patent laws because it is conducted through instrumentalities which are the subject of patent-rights.

9. CONDITIONAL LICENSE, RIGHT TO.

A court will not sustain the objection that a patentee has no right to license upon condition that the licensees use the invention only in conjunction with a non-patentable article made by himself when the ground of objection is that an illegal monopoly will thereby be created. Courts will not lightly interfere with the freedom to contract, and especially will not sit in judgment upon the limitations which a patentee may put upon the use of his invention.

10. CONDITIONS OF GRANTS OF PATENTS—PATENTEE'S INTEREST.

Grants of patents are made upon the reasonable expectation that patentees will use their inventions or permit them to be used; but the public has no security to enforce such expectation beyond the interest of the patentee.

11. MONOPOLY NON-OBNOXIOUS.

A monopoly depending upon the merits of an invention to which it is a mere incident is neither obnoxious to public policy nor an illegal restraint of trade.

12. CONTRIBUTORY INFRINGEMENT—MALICIOUS PERSUASION TO EXCESS OF LICENSE.

Defendants who aid and abet infringement by intentionally and maliciously persuading and inducing the licensees of machines to exceed their licenses, and who furnish them with the means for such infringement, are themselves infringers and liable as tort-feasors. The knowledge that the articles made and sold by defendants are to be used for infringing, coupled with an active intent that they shall be so used, constitutes contributory infringement.

13. SAME—AIDING VIOLATION OF LICENSE.

The principle governing infringement of combination patents, by furnishing a necessary element in the combination with the intent that it be used to effect infringement, is applicable to a case where one sells an unpatented article with the knowledge and intent that it will be used to effect infringement by enabling a licensee to violate the conditions of his license.

14. EQUITY JURISDICTION—MULTIPLICITY OF SUITS—INADEQUACY OF REMEDY AT LAW.

When a bill in equity discloses that more than forty-nine thousand machines are in use and charges a long-continued infringement and a purpose to continue therein, both upon the ground of avoiding a multiplicity of law-suits and upon the general and apparent inadequacy of a suit at law for damages, a court of equity has jurisdiction.

APPEAL from the United States Circuit Court for the Southern Division of the Western District of Michigan.

STATEMENT OF THE CASE.

This is an appeal from the decree of the Circuit Court for the Western District of Michigan sustaining a demurrer filed by the defendants and dismissing the bill of the complainant. (65 Fed. Rep., 619.)

The averments of the bill are substantially these:

The complainant, a corporation of the State of Rhode Island, is by assignment the sole owner of several patents for inventions relating to the art of fastening buttons to shoes with metallic fasteners. The validity of these patents is not now involved. The machine embodying these inventions is used exclusively for affixing buttons to shoes. The complainant and its predecessor in the title to the patents have been successful in getting them into general use in the shoe trade, and it is alleged that these machines have wholly superseded every other mode of fastening buttons to shoes. The object of these patents was to produce a machine wherein the buttons and staples should be automatically presented to a guide or carrier having a combined driver and former coöperating therewith, the driver causing the insertion of the staple through the leather or other material of the shoe, shaping and forming the head of the staple, the legs of the staple being clenched upon a suitable anvil. The principal and earlier of these patents—that of Charles H. Eggleston, No. 293,234—describes the invention as intended to produce a setting device—

which can be used conveniently for setting and clenching an ordinary metallic staple, and have the two prongs of the staple, if desired, in a line at right angles with the strain on the button.

The mechanism by which such results are reached includes a staple chute or raceway, into which wire staples of suitable size are fed and automatically conveyed, set, and clenched. The size of the staples to be used in the machine depends upon the size of the chute or raceway, and this depends upon the judgment of the manufacturer of the machines. No staple can be used in the machine which is not adapted in size to this raceway, and a variation of a very slight character between the staple and the diameter of the raceway will prevent the operativeness of the machine.

The bill alleges that neither the complainant nor its predecessors in title have ever sold any right to manufacture machines, but have reserved to themselves the monopoly of the manufacture and sale. It also alleges that no machines have ever been sold except upon condition, and that there is attached to each machine a conspicuous metal plate on which is plainly expressed a restriction upon the use of the machine to the effect that the machine was sold and purchased "to use only with fasteners" made by the complainant or the Peninsular Novelty Company, predecessors in title to the patents embodied in the machine, and that title should revert at once upon any violation of this restriction. Every user of the machine is alleged to have had full notice of this restriction upon the use of the machines and to buy and use the machines subject to this restriction upon their use.

These machines have been placed in the hands of shoe-dealers to the number of forty-nine thousand at the actual cost of the machines to the makers, they expecting a profit on their monopoly alone from the sale of fasteners or staples to those having the machine.

Complainant then alleges that the defendants, with full knowledge of this method of putting complainant's monopoly in general use, are making and selling staples adapted only to use with these machines, and that they are guilty of infringement by reason of the fact that the staples so made and sold by them are adapted only to use in these machines and are made and sold with intent that they shall be used in violation of the restriction placed by complainant upon the use of machines made and sold by it.

It is further charged, in very broad and emphatic terms, that defendants maliciously persuade and induce the licensees of said machines to buy and use said staples on their machines and to thus deliberately and continuously violate the restriction placed upon the use of the machine.

It is not charged that the defendants either make, sell, or use said machines, but that they are guilty of contributory infringement by inducing others to use the machine in excess of the license and by furnishing them with the means for such infringement with the express intent that the staples so sold and bought shall be so used.

Before TAFT, LURTON, and HAMMOND, Judges.

After the foregoing statement the opinion of the court was delivered by LURTON, Circuit Judge.

Staples in size and form adapted to use in such machines are unpatented articles and not even an element in a combination claim. They are therefore no more within the direct monopoly of the patents than are the buttons to be affixed by means of the staples or the shoe to which both are to be attached. This conceded fact furnishes the foundation for the principal objection to the bill presented by the demurrer. It has been very earnestly and ably argued by counsel for appellees that the restrictions on use imposed by the complainant operate to create a monopoly in an unpatented article and are therefore void as contrary to public policy, or, if valid as purely legal contracts, are so unconscionable as not to entitle complainant to equitable remedies for their enforcement. This view seemed to meet with the approbation of the

learned judge who heard the case below, who in his opinion said that he—

was persuaded that the patentees' privilege has its limits in the rights and interests of the public, and that it is an abuse of his privilege to so shape his dealings with his patent as to secure a monopoly upon an unpatented article.

This presents a question somewhat novel and of wide general interest. The restriction imposed by the Peninsular Novelty Company, the assignors under whom complainant holds, was inscribed upon a metal label affixed to each machine and was in these words:

CONDITION OF SALE.

This machine is sold and purchased to use only with fasteners made by the Peninsular Novelty Company, to whom the title to said machine immediately reverts upon violation of this contract of sale.

The bill further charges that the complainant corporation has succeeded to all the patents, property rights, titles, contracts, and contract rights of the Peninsular Novelty Company and has continued the manufacture and sale of button-fastener machines under conditions and restrictions identical in terms and notoriety with the methods pursued by the predecessor company.

If we for the present assume the legality of the conditions and restrictions imposed upon the purchasers of such machines, it is highly important to an orderly disposition of other questions that we shall at the outset determine whether the purchasers of the machines made and sold under complainant's patents are guilty of any infringement of the monopoly of the patents by using with such machines fasteners or staples not made by the patentee. Undoubtedly the general rule is that if a patentee make a structure embodying his invention and unconditionally make a sale of it the buyer acquires the right to use the machine without restrictions, and when such machine is lawfully made and unconditionally sold no restriction upon its use will be implied in favor of the patentee. By such unconditional sale the machine passes without the limit of the monopoly. (*Adams* v. *Burks*, 33 O. G., 114; 17 Wall., 453–457; *Mitchell* v. *Hawley*, 3 O. G., 241; 16 Wall., 544–546–547.)

That the complainant has attempted to state a case not within this rule is very obvious, for it charges that every sale has been under an express restriction as to the use of the invention embodied in the machine.

In view of the conspicuous character of both the machine and the notice permanently affixed thereon every one buying must be conclusively presumed to have notice that the owners of the patents intended by the inscription on the machine to grant only a restricted license for its use, and it is difficult to see why such purchaser is not to be regarded as acquiring and accepting the structure subject to this restriction. The buyer of the machine undoubtedly obtains the title to the materials embodying the invention, subject to a reverter in case of violation of the conditions of the sale; but as to the right to use the invention he is obviously a mere licensee, having no interest in the monopoly granted by the Letters Patent. A license operates only as a waiver of the monopoly as to the licensee—

and estops the licensor from exercising its prohibitory powers in derogation of the privileges conferred by him upon the licensee. (Rob. on Pats., secs. 806–808.)

It has been said that the sole matter conveyed in a license is the right not to be sued. (*Hawks* v. *Swett*, 4 Hun., 146.)

A licensee is one who is not the owner of an interest in the patent, but who has by contract acquired a right to make, or use, or sell machines embodying the invention. (*Gayler* v. *Wilder*, 10 How., 477; *Oliver* v. *Rumford Chem. Works*, 25 O. G., 784; 109 U. S., 75; Rob. on Pats., secs. 606, 607, 608.)

All alienations of a mere right to use the invention operate only as licenses. It must follow, therefore, that the purchaser of one of complainant's machines subject to a restricted use takes the structure with a license to use the invention only with staples made by the patentee. That the complainant sells the machine through jobbers and not directly to those who buy for use is immaterial under the facts stated on the face of the bill. The jobber buys and sells subject to the restriction, and both have notice of the conditional character of the sale and of the restriction on the use. (*American Cotton-Tie Co.* v. *Bullard*, 17 O. G., 379; 17 Blatchf., 160; *American Cotton-Tie Co.* v. *Simmons*, 22 O. G., 1976; 106 U. S., 89.)

That the buyer enters into an implied agreement that he will not use the machine contrary to the terms of his license and that there is in the agreement a provision for a reverter of the title to the structure may operate to give the patentee a remedy under general principles of law, as for damages for a breach of contract or for recovery of the machine. It may be that a suit for a breach of contract would not be a suit depending on the patent laws, and would, therefore, be cognizable by the State courts, as intimated in *Hartell* v. *Tilghman* (99 U. S., 547) and *White* v. *Rankin*, (59 O. G., 1606; 144 U. S., 628.) The remedy of complainant may be a double one, for liability may rest either upon the broken contract or for the tortious use of the invention. (Rob. on Pats., secs. 1225–1250, and notes.)

If a patentee may lawfully make and sell machines embodying his invention and restrict the use of the invention in respect of territory, or time, or business, or purposes to which it may be put, or material to be used in conjunction therewith, it would seem very obvious that the effect of the restrictions and limitations on the use would operate to prevent the machine from passing, as in the case of an unconditional sale, beyond the monopoly of the patent. The control reserved by the patentee as to the use of the machine has the effect of continuing it within the prohibition of the monopoly. The license defines the boundaries of a lawful use and estops the licensor from the assertion of his monopoly contrary to its terms. On the other hand, a use prohibited by the license is a use in defiance of the monopoly reserved by the patentee and necessarily an unlawful invasion of the rights secured to him by his patent. The license would be no defense to a suit for infringement by a use in

excess of its terms. The patentee has the exclusive right of use, except in so far as he has parted with it by his license. The essence of the monopoly conferred by the grant of Letters Patent is the exclusive right to use the invention or discovery described in the patent. This exclusive right of use is a true and absolute monopoly, and is granted in derogation of the common right, and this right to monopolize the use of the invention or discovery is the substantial property right conferred by law and which the public is under obligation to respect and protect.

> The right to make and use, or sell, are completely severable rights and involves the right to confer on others such qualified privilege, whether of making, of selling to others, or of using, as he sees fit, whether within specified limits, or under limitations of quantity, or numbers, or restricted use. (*Dorsey Rake Co.* v. *Bradley Mfg. Co.*, 12 Blatchf., 202.)

In *Adams* v. *Burks* (33 O. G., 114; 17 Wall., 453-456) the Court said:

> The right to manufacture, the right to sell, and the right to use, are each substantive rights, and may be granted separately or conferred together by the patentee.

If, then, the patentee has the exclusive right to the use of his invention or discovery during the term of his patent, it would seem to follow that any use by another, unauthorized by the patentee, would be an infringement of his monopoly. If, therefore, he can find a purchaser for a machine subject only to certain specified uses, any violation of the privilege granted would be an infringement for which the remedies granted patentees would be appropriate. These conclusions find support in many cases. A few only need be cited.

In *Rubber Company* v. *Goodyear* (9 Wall., 788–790) the defense to a suit for infringement was a license which authorized the licensee—

> to use the said Goodyear's gum-elastic composition for coating cloth for the purpose of japanning, marbling, and variegate-japanning at his own establishment, but not to be disposed of to others, * * * and not being intended to convey any right to make any contract with the Government of the United States.

The licensee was held guilty of infringement by allowing it to be used at an establishment occupied by himself and others and also by using it for articles manufactured for the United States under a contract with the Quartermaster-General.

In *Burr* v. *Duryee*, a case decided by Justice Grier on circuit, and reported as No. 2,190, Federal Cases, the license was to use two machines "in the city of Newark, and there only," and "by one manufacturing concern"—

> to be used only for hats manufactured by them and not in manufacturing hat-bodies for any other persons or for sale in an unfinished state.

Any use beyond the license was held to be infringement.

The license in *Pope Manufacturing Company* v. *Owsley* (33 O. G., 781; 27 Fed. Rep., 100–104) was to use certain patents pertaining to improvements in bicycles. Judge Blodgett, in passing upon the scope and effect of the license, said:

> The licenses do not, any of them, purport to give the defendants an unlimited use of any of the patents, but only a restricted right to make machines of certain sizes and descriptions; so that when defendants made machines not in conformity to the licenses, they violated, not only their express covenant not to do so, but also the complainant's patents or some of them covering such machines.

In *Steam Cutter Company* v. *Shelden* (5 Fish., 477–487) the license was to use one machine—

> in their quarries at West Rutland, and in no other place or places.

The licensee permitted the use of the machine in another quarry by a third person. Judge Woodruff said:

> In that infringement of the rights of the complainants, the defendants find no defense in the agreement. They are, with the Rutland Marble Company, joint infringers.

See also the very satisfactory text of Robinson on Patents, sections 812–815 and 1250, and the notes citing many other cases.

This brings us to consider the objections urged against the rather novel restrictions contained in the licenses granted by complainant.

The very able counsel for appellees have urged very forcibly an argument based upon principles of public policy in respect of monopolies and contracts in restraint of trade and have contended that public policy forbids a patentee from so contracting with reference to his monopoly as to create another monopoly in an unpatented article. We are not at all prepared to say that there are no limitations upon a patentee's power of contract with reference to the use of his invention by others. The property right of a patentee is, after all, but a property right, and subject, as is all other property, to the general law of the land.

We may also concede that contracts respecting the use of inventions and discoveries are, like all other contracts, subject to the limitations imposed by definite principles of public policy. The cases of *Missouri* v. *Bell Telephone Co.* (23 Fed. Rep., 539) and *State ex rel.* v. *Delaware and Atlantic Tel. and Telephone Co.* (47 Fed. Rep., 633, and 50 Fed. Rep., 677) afford illustrations of a limitation founded on principles of public policy upon the licenses granted by patentees. They arose under licenses granted by the owners of patents essential to the operation of telephone-lines. The patentees had licensed telephone companies to use their patents for the purpose of operating public telephone-lines within a given district, but prohibited such companies from serving, within such district, any telegraph company. The court in each of the cases cited by mandamus compelled the extension of service to any one within the district demanding connection and paying established charges. These decisions were rested upon the very solid ground that a public telephone company was a "common carrier," and as such subject to the regulations imposed on all corporations of a quasi-public character, among which was the duty of dealing equally with all and discriminating against none tendering equal pay for equal service.

The conclusion to be drawn from these *Telephone Cases* is this: That when a patentee authorizes the use of his invention by one charged with public duties and subject to regulation by law it is not competent by a restriction on the use to deprive the licensee of the power of rendering an equal service to all who apply and tender the compensation fixed by law or regulation for the same service to others. The patentees were under no obligation to license the use of their inventions by any public telephone company. Having done so, however, they were not at liberty to place restraints upon such a public corporation which would disable it

from the discharge of all the duties imposed upon companies engaged in the discharge of duties subject to regulation by law.

It could not be a public telephone company and could not exercise the franchise of a common carrier of messages with such exceptions in the grant. The exception being repugnant to the grant was void, and the rights acquired under the grant were enforced against the grantor without regard to the exception or condition.

Neither the patentee, nor the machine involving his invention, nor a license for use can be exempted from the liabilities and regulations which in the public interest attach to all persons and property under the general law of the land. Neither is the right to make and sell or use a patented invention or process free from the restraints imposed by the police power of the States. This is illustrated by the case of *Patterson* v. *Kentucky*, (97 U. S., 501,) where the appellant had been convicted of selling an improved burning-oil, of which he was the inventor, and which had been condemned by the State inspector as unsafe, but which the appellant claimed the right to sell by reason of the monopoly of his patent. The Supreme Court, through Mr. Justice Harlan, in reply to this contention, said:

> The right which the patentee or his assignee possesses in the property created by the application of a patented discovery must be enjoyed subject to the complete and salutary powers, with which the States have never parted, of so defining and regulating the sale and use of property within their respective limits as to afford protection to the many against the injurious conduct of the few.

On substantially the same ground it was decided in *Vannini* v. *Paine* (1 Har., Del., 65) that the patentee of a mode of drawing lotteries and engaged in the business of drawing lotteries in the State of Delaware was not protected by his patent from prosecution under the law of Delaware making the drawing of a lottery a criminal offense. In other words, a prohibited business is not protected by the patent laws of the United States because it is conducted through instrumentalities the subject of patent-rights.

The case at bar presents no question affected by the principles underlying either of the class of cases we have cited. What we are asked to do is to mark another boundary-line around the patentee's monopoly which will debar him from engrossing the market for an article not the subject of a patent. To do this, we are asked to say that he cannot license others to use his invention on condition that they shall use it only in conjunction with a non-patentable article made by himself. The only reason suggested for this limitation upon his right to define the terms upon which others may use his invention is that a monopoly in the unpatented article may thereby be created. Upon what authority are we to circumscribe the exercise of the privileges awarded a patentee? In considering any question in respect of restraints upon the liberty of contracting imposed by principles of public policy we should bear in mind that very high considerations of public policy are involved in the recognition of a wide liberty in the making of contracts. This caution was well expressed by Sir George Jessell in *Printing Company* v. *Sampson*, (19 Eq., 462–465,) who said:

> It must not be forgotten that you are not to extend arbitrarily those rules which say that a given contract is against public policy, because if there is one thing which more than another public policy requires it is that men of full age and competent understanding shall have the utmost liberty of contracting, and that their contracts, when entered into freely and voluntarily, shall be held sacred and shall be enforced by courts of justice. Therefore you have this paramount public policy to consider, that you are not lightly to interfere with this freedom of contract.

Especially is this caution applicable when we sit in judgment upon the limitations which a patentee may put upon the use of his invention. If he see fit, he may reserve to himself the exclusive use of his invention or discovery. If he will neither use his device nor permit others to use it, he has but suppressed his own. That the grant is made upon the reasonable expectation that he will either put his invention to practical use or permit others to avail themselves of it upon reasonable terms is doubtless true. This expectation is based alone upon the supposition that the patentee's interest will induce him to use or let others use his invention. The public has retained no other security to enforce such expectations. A suppression can endure but for the life of the patent, and the disclosure he has made will enable all to enjoy the fruit of his genius. His title is exclusive and so clearly within the constitutional provisions in respect of private property that he is neither bound to use his discovery himself nor permit others to use it. The dictum found in *Hoe* v. *Knapp* (36 O. G., 1244; 27 Fed. Rep., 204) is not supported by reason or authority. (*Wilson* v. *Rousseau et al.*, 4 How., 674; *Pitts* v. *Wemple*, 1 Biss., 93; *Grant* v. *Raymond*, 6 Pet., 218; *U. S.* v. *Bell Telephone Co.*, 29 Fed. Rep., 17; *Consolidated Roller Mill Co.* v. *Combs*, 39 Fed. Rep., 805; *Campbell Printing Press Co.* v. *Manhattan Railroad Company*, 60 O. G., 894; 49 Fed. Rep., 935.)

If the patentee choose to reserve to himself the exclusive use of his device and the invention be of a wide character and so radical as to enable him to make and sell an unpatentable product cheaper than any other competitor, a practical monopoly of the market for that article will result, and yet no one could say that a monopoly thus secured was illegitimate or obnoxious to public policy. To illustrate, let it be supposed that the patents owned by this complainant were of so wide a character as to cheapen the process of manufacturing shoes and to drive from competition all other modes of manufacture. Then suppose the patentees were of opinion that they could most profitably enjoy their inventions by retaining the monopoly of the use and engaging in the manufacture of shoes. If content to undersell all others, they could engross the market for shoes to the extent of their capacity to supply the demand during the life of their patents, or so long as their invention was not superseded by subsequent inventions still further cheapening the cost of manufacture. The monopoly thus secured would be the legitimate consequence of the meritorious character of their invention, yet just such monopolies may result whenever a new and surprising advance is made

in some art of wide and general use. The great consuming public would be benefited rather than injured, for the monopoly could endure so long only as shoes were supplied at a less price than had prevailed before the invention. Now, if the patentees, by retaining to themselves the exclusive use of their invention, are able, legitimately and lawfully, to acquire a monopoly of the manufacture of shoes and destroy the shoe market for those who before had shared it, why may they not by a system of restricted licenses permit others to use their devices on condition that only some minor part of the shoe—the pegs, the tips, the thread, or the buttons, or the button-fasteners—shall be bought from them? If these concessions were such as to enable others to compete, though their use of the mechanism was restricted by the terms of the license, who could justly complain if the inventors, content with a monopoly of the market for the article named in their license, surrendered the opportunity for a monopoly of the manufacture of the complete shoe?

The device protected by the patents owned by complainant is of no such wide or radical character as that used for purposes of illustration, yet there is no appreciable difference in the legal principles applicable to the supposed facts used for illustration and those stated on the face of the complainant's bill. The fact which has affected the makers of wire staples for shoe-manufacturing is the invention of a machine which by its simplicity, superior capabilities, its cheapness and accuracy has practically driven all other methods of fastening buttons to shoes out of use. The older and clumsier methods on the allegations of the bill have been completely superseded. From this invention there results a large market for wire staples adapted in size and shape to use with the new mechanism, and a second consequence is the complete cessation of the demand for button-fasteners not adapted to be used with complainant's machine. To supply staples adapted to meet this new demand becomes a matter of moment to those engaged in the business of making wire button-fasteners.

The inventions covered by complainant's patents are not of such character as to enable them, by retaining the exclusive use, to absorb either the making of shoes or the minor work of fastening buttons to shoes. In the exercise of the right of exclusive use they have put on the market a structure embodying their devices and licensed the purchaser to use the invention "only with staples" made by themselves. In other words, they have chosen to fix the price for the right of use at the profit resulting from the sale of staples. As observed by counsel for complainant—

the fasteners are thus made the counters by which the royalty proportioned to the actual use of the machine is determined.

This method of licensing their mechanism may or may not result in the engrossment of the market for staples. So long as their invention controls the market for button-fastening appliances and to the extent that their machines shall supersede other modes of clenching staples just so long will they be enabled to control the market for staples. Their monopoly in an unpatented article will depend upon the merit of their patented device and the extent to which other clenching devices are superseded by it. In the last analysis the invention destroyed the demand for sizes and shapes of staples not adapted to use with the machine of complainant, and the monopoly of the use awarded by the patents destroyed the market for staples fitted for use in complainant's machines. The monopoly in the unpatented staple results as an incident from the monopoly in the use of complainant's invention and is therefore a legitimate result of the patentee's control over the use of his invention by others. Depending, as such a monopoly would, upon the merits of the invention to which it is a mere incident, it is neither obnoxious to public policy nor an illegal restraint of trade.

If we are right in the foregoing conclusions that the users of Peninsular machines who use therein the button-fasteners made and sold by the defendants thereby infringe the patents for inventions embodied in said machines, it would seem to follow that the defendants, who aid and abet such infringement by intentionally and maliciously persuading and inducing the licensees of such machines to exceed their licenses and by furnishing them with the means for such infringement, are themselves infringers and liable as tort-feasors.

The allegations of the bill in this regard are very full and emphatic. Beginning with the distinct averment that there is no market for fasteners adapted in size and shape for use in complainant's structure except in connection with those structures, it is then charged that defendants actively induced the users of such machines to infringe by persuading them that they may use defendants' fasteners with impunity, and that they, with the malicious purpose of causing them to violate their licenses, furnish them with the means necessary to that end. Thus through a concert of action between defendants and complainant's licensees the patents are infringed, and all engaged directly and intentionally become joint infringers. It is the knowledge that the staples made and sold by defendants are to be used for the purpose of infringing, coupled with the active intent that they shall be so used, which in a case like this constitutes contributory infringement. Under the circumstances alleged it is immaterial that defendants do not themselves use the Peninsular machines and equally immaterial that they are engaged in the business of making and selling an unpatentable article which is not even an element in a combination patent. The facts of this case may make an unusual mode of infringing, but the principle applicable is quite well established. If the licensees infringe, all who actively and intentionally aid and abet them in infringing are equally infringers. The intent characterizes the conduct of defendants and is essential to make a case against them.

The principle governing infringement of combination patents by furnishing a necessary element

in the combination is applicable to the case at bar. To make or sell a single element may be quite an innocent act, for a combination is not infringed except by uniting all of the necessary elements; but—

to make or sell a single element with the intent that it shall be united to the other elements and so complete the combination is infringement. (Rob. on Pats., sec. 924, and cases cited.)

Judge Shepley stated the rule quite clearly in *Saxe* v. *Hammond* (7 O. G., 781; 1 Ban. & Ard., 629–632) when he said:

Different parties may all infringe by respectively making or selling, each of them, one of the elements of a patented combination, provided those separate elements are made for the purpose and with the intent of their being combined by a party having no right to combine them. But the mere manufacture of a separate element of a patented combination, unless such manufacture be proved to have been conducted for the purpose and with the intent of aiding infringement, is not, in and of itself, infringement.

The case of *Wallace* v. *Holmes* (1 O. G., 117; 9 Blatchf., 65) is a leading case illustrating the rule we deem here applicable. The complainants had a patent for an improved burner in combination with a chimney. The defendants made and sold the burners alone, leaving the purchaser to supply the chimney, without which the burner was useless. This was done for the express purpose and with the intent of making a profit through an infringement of the complainants' patent. The rule of law invoked by the defendants was this:

That where a patent is for a combination merely, it is not infringed by one who uses one or more of the parts, but not all, to produce the same results either by themselves or by the aid of other devices.

To this the Court responded as follows:

But I am not satisfied that this rule will protect the defendants. If, in actual concert with a third party, with the view to the actual production of the patented improvement in lamps, and the sale and use thereafter, they consented to manufacture the burner, and such other party to make the chimney, and in such concert they actually make and sell the burner, and he the chimney, each utterly useless without the other, and each intended to be used and actually sold to be used with the other, it cannot be doubtful that they must be decreed to be joint infringers of the complainants' patent. It cannot be that when a useful machine is patented as a combination of parts, two or more can engage in its construction and sale, and protect themselves by showing that, though united in an effort to produce the same machine, sell, and bring it into extensive use, each makes and sells one part only which is useless without the other, and still another person, in precise conformity with the purpose in view, puts them together for use. If it were so, such patents would indeed be of little value. In such cases all are tort-feasors, engaged in a common purpose to infringe the patent, and actually, by their concerted action, producing that result. * * * Here the actual concert with others is a certain inference, from the nature of the case, and from the distinct efforts of the defendants to bring the burner in question into use, which can only be done by adding the chimney. The defendants have not, perhaps, made an actual prearrangement with any particular person to supply the chimney to be added to the burner, but every sale they make is a proposal to the purchaser to do this, and his purchase is a consent with the defendants that he will do or cause it to be done. The defendants are therefore active parties to the whole infringement, consenting and acting to that end, manufacturing and selling for that purpose.

There are many other cases in accord with those from which we have made extracts, a few of which are: *Holly* v. *Vergennes Machine Co.*, (9 Blatchf., 327;) *Travers* v. *Beyer*, (26 Fed. Rep., 450;) *Willis* v. *McCollen*, (38 O. G., 1017; 29 Fed. Rep., 641;) *Alabastine Co.* v. *Payne*, (35 O. G., 1438; 27 Fed. Rep., 559;) *Celluloid Mfg. Co.* v. *Am. Zylonite Co.*, (40 O. G., 1453; 30 Fed. Rep., 437;) *Boyd* v. *Cherry*, (50 Fed. Rep., 279;) *Am. Cotton-Tie Co.* v. *McCready*, (17 O. G., 515; 4 Ban. & Ard., 588.)

Morgan Envelope Company v. *Albany Perforated Wrapping Paper Company* (152 U. S., 425) has been much relied upon by the defendants. The claim of the patent involved was for a combination of a mechanism for the delivery of paper, to be delivered as used, with a paper-roll the subject of an independent patent. The infringement charged consisted—

in selling oval rolls of paper of their own manufacture with fixtures manufactured and sold by the plaintiff, in combination with their paper, to persons other than the defendants, the fixtures having been obtained by the defendants from the original purchasers of the patented combination; and also by selling oval rolls of paper of defendants' own manufacture to persons who had previously purchased fixtures and paper from the plaintiffs, with the knowledge and intention that the paper so sold was to be used in connection with the plaintiffs' fixtures.

It also appeared that it had not been the practice of the plaintiffs to sell fixtures independently of its paper, and that they sold only to such parties as dealt in and used their paper.

Purchasers were also required to buy a given quantity of paper to a given number of fixtures, to be sold only in connection with the paper, the rule being not to sell more than one fixture to one case of paper. The fixtures were also sold to hotels and other public buildings, with the understanding that their paper would be subsequently purchased of the plaintiff company.

The Court adds that—

it appears to have been its invariable rule to refuse to sell its fixtures except to persons also ordering paper.

No question was made as to the novelty of the mechanism employed as a fixture for the delivery of paper as desired by the user. The independent patent on the paper-roll was held void for want of patentable novelty. This left for decision the question as to whether the sale by defendants of old mechanisms made by complainant with paper made by defendants or the sale by defendants of paper made by themselves for use in fixtures bought from complainant was infringement. Upon the first point the Court, through Justice Brown, said:

So far as fixtures sold by defendants, which had been originally manufactured and sold by the patentee to other parties, are concerned, it is evident that, by such original sale by the patentee, they passed out of the limits of the monopoly, and might be used or sold by any one who had purchased them from the original vendees. The patentee having once received his royalty upon such device, he cannot treat the subsequent seller or user as an infringer. (*Bloomer* v. *McQuewan*, 14 How., 539.) As was said by Mr. Justice Clifford in *Chaffee* v. *Boston Belting Company*, (22 How., 217–223:) "When the patented machine rightfully passes to the hands of the purchaser from the patentee, or from any other person authorized to convey it, the machine is no longer within the limits of the monopoly. * * * By a valid sale and purchase, the patented machine becomes the private individual property of the purchaser, and is no longer protected by the laws of the United States, but by the laws of the State in which it is situated." (See also *Bloomer* v. *Millinger*, 1 Wall., 340; *The Paper Bag Cases*, 21 O. G., 1275; 105 U. S., 766, 771.) In this latter case one, Morgan, had purchased a machine for making paper bags of the patentee, and it was held that, having the absolute ownership of the machine, he had the right either to use it during the existence of the Letters Patent or to transfer such ownership and right to another. It was said that "the power to sell the machine and transfer the accompanying right of use is an incident of unrestricted ownership. (*Birdsell* v. *Shaliol*, 30 O. G., 261; 112 U. S., 485; *Woodworth* v. *Curtis*, 2 Woodb. & Min., 554; *Goodyear* v. *Beverly Rubber Co.*, 1 Cliff., 348.)

With respect to the second question the Court said:

The real question in this case is, whether, conceding the combination of the oval roll with the fixture to be a valid combination, the sale of one element of such combination, with the intent that it shall be used with the other element, is an infringement. We are of opinion that it is not. There are doubtless many cases to the effect that the manufacture and sale of a single element of a combination, with intent that it shall be united to the other elements, and so complete the combination, is an infringement. (*Saxe* v. *Hammond*, 7 O. G., 781; 1 Holmes, 456; *Wallace* v. *Holmes*, 1 O. G., 117; 9 Blatchf., 65; *Barnes* v. *Straus*, 2 O. G., 62; 9 Blatchf., 553; *Schneider* v. *Pountney*, 29 O. G., 84; 21 Fed. Rep., 399.) But we think these cases have no application to one where the element made by the alleged infringer is an article of manufacture perishable in its nature, which it is the object of the mechanism to deliver, and which must be renewed periodically, whenever the device is put to use. Of course, if the product itself is the subject of a valid patent, it would be an infringement of that patent to purchase such product of another than the patentee; but if the product be unpatentable, it is giving to the patentee of the machine the benefit of a patent upon the product by requiring such product to be bought of him. To repeat an illustration already put: If a log were an element of a patentable mechanism for sawing such log, it would, upon the construction claimed by the plaintiff, require the purchaser of the sawing device to buy his logs of the patentee of the mech-

anism, or subject himself to a charge of infringement. This exhibits not only the impossibility of this construction of the patent, but the difficulty of treating the paper as an element of the combination at all. In this view the distinction between repair and construction becomes of no value, since the renewal of the paper is in a proper sense neither the one nor the other.

It is true that Mr. Justice Brown in discussing the question involved in that case assumes that a combination of the machine for delivering the paper with the paper to be delivered was valid; but before he finishes the argument he shows that the assumption leads to an absurdity, and the decision in effect is that form of argument known as the *reductio ad absurdum*, establishing that his original assumption was not founded in reason.

The illustration of the result of such a combination shows that what the Court was deciding was that a combination of the machine with an unpatentable paper or material to be operated upon by the machine was an impossibility and the sale of the machine involved and implied the right of use of the material with which it was to be combined, and this is shown by the case of *Wilson* v. *Simpson*, (9 How., 109,) which is cited by Mr. Justice Brown as a case sustaining his conclusion. That case was a suit for infringement against the purchaser of a patent machine for planing wood, in which there were claims for the combination between the rest of the machine and certain knives necessary to its operation.

The alleged infringer had made or bought knives to replace the knives in the machine which had worn out and which it was shown must necessarily wear out and be renewed long before the main body of the machine would wear out. It is held that the conveyance of the machine itself with the knives in it implied the right on the part of the purchaser to renew or replace the knives necessary for the enjoyment and use of the whole machine during its natural life. Thus with respect to the paper-holder the Supreme Court in effect held that the sale of the paper-fastener with the paper in it contained the implication of a right to renew the right when that paper sold should be exhausted, and did not require the purchase of the paper from the original patentee, the paper itself not being patented. In the case at bar the purchaser expressly agreed by contract that his right to use the machine should not extend beyond its use with staple-fasteners furnished by the patentee, and this makes the broad distinction between the *Morgan Envelope Co. Case* and the case at bar.

The suggestion has been made that, although defendants may be guilty of infringement, complainant's remedy at law is adequate, and under the circumstances of the case equity ought not to accord to the patentees the equitable relief of injunction. As to this aspect of the case, it would seem clear that if complainant has imposed a legal restriction upon the use of the inventions embodied in the structures made and sold by it that the remedy at law is wholly inadequate and relief by injunction should be awarded upon the case stated in the bill. As to this the court below seemed to entertain no serious doubt, for Judge Severens, in replying to the suggestion that, as defendants were not engaged in the use of complainant's machines and were only concerned—

in selling to those who were so employed a non-patented article, an article constituting no part of the patented thing, were not, therefore, accountable to the complainant—

said:

I am not clear, however, that this distinction can be maintained upon the allegations of this bill, which are very broad and emphatic in asserting not merely that the defendants make and sell the staples, but that they actively persuade the users of the machine to violate the supposed rights secured to the complainant by the patent and the restriction in the sale of its machines. It would rather seem that if the complainant has such rights as it asserts, the defendants would upon such facts be tort-feasors, and that equity would restrain them in the circumstances alleged.

The bill discloses that more than forty-nine thousand machines are in use and charges a long-continued infringement and a purpose to continue therein. Under such circumstances it must be evident that, both upon the ground of avoiding a multiplicity of lawsuits and upon the general and apparent inadequacy of a suit at law for damages, either against the infringer who infringes by an unauthorized use or those who actively contribute to that infringement, a court of equity has jurisdiction. An action at law for the character of continuing trespass alleged by complainant would be grossly inadequate to protect the patents from invasion.

If the complainant has the right to reserve a control over the use in the manner stated in its bill, then its machines, to the extent it has reserved such control, are within the monopoly of the patents. If its licenses do not infringe public policy, but are within the privileges awarded by the patents, then it must follow that the case presented should be accorded relief by injunction restraining the acts complained of. A court of equity has the power, independently of any other relief, to restrain the continuing infringement of a patent. (*American Cotton-Tie Co.* v. *McCready et al.*, No. 295, Fed. Cas.)

The decree must be reversed and the cause remanded, with directions to overrule the demurrers.

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

SUPPLEMENT

CONTAINING THE

REVISED CLASSIFICATION OF SUBJECTS OF INVENTION,

ARRANGED BY DIVISIONS,

AND

THE SUBCLASSES ARRANGED ALPHABETICALLY.

JANUARY 1, 1897.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1897.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 1, 1897.

The following is the official classification of patents and inventions in the Patent Office. No changes will be made therein except by order of the Commissioner.

Should occasion arise for any modification of this classification, either by the discontinuance of any title or by the addition of a new one, the matter will be presented to the Commissioner for his action.

Examiners will not transfer patented drawings from one class or subclass to another except on the Commissioner's approval.

Changes in classes and subclasses will be published in the OFFICIAL GAZETTE.

JOHN S. SEYMOUR,
Commissioner of Patents.

SUBJECTS OF INVENTION.

Subjects of invention are divided into two hundred and twenty-six classes, and assigned for examination to the thirty-four Examining Divisions of this Office, as follows:

DIVISION I.—Examiner Fox.

Classes.

39. Fences.
55. Harrows and Diggers.
97. Plows.
111. Seeders and Planters.
47. Trees, Plants, and Flowers.

DIVISION II.—Examiner I. U. Townsend.

Classes.

6. Bee Culture.
119. Care of Live Stock.
192. Clutches.
31. Dairy.
216. Label-Affixers.
184. Lubricators.
185. Mechanical Motors.
100. Presses.
131. Tobacco.

DIVISION III.—Examiner Byrnes.

Classes.

148. Annealing and Tempering.
96. Coating with Metal.
204. Electro-Chemistry.
22. Metal-Founding.
75. Metallurgy.
207. Shaping Fluid Metal.

DIVISION IV.—Examiner Pond.

Classes.

14. Bridges.
212. Cranes and Derricks.
37. Excavating.
183. Fireproof Buildings.
61. Hydraulic Engineering.
189. Iron Structures.
214. Loading and Unloading.
72. Masonry.
137. Water Distribution.

DIVISION V.—Examiner Lane.

Classes.

11. Bookbinding.
41. Fine Arts.
63. Jewelry.
84. Music.
120. Stationery.

DIVISION VI.—Examiner Littlewood.

Classes.

8. Bleaching and Dyeing.
23. Chemicals.
52. Explosives.
71. Fertilizers.
167. Medicines.
95. Photography.
99. Preserving.
127. Sugar and Salt.
128. Surgery.

DIVISION VII.—Examiner Skinner.

Classes.

56. Harvesters.
208. Velocipedes.

DIVISION VIII.—Act. Exam'r McRoberts.

Classes.

5. Beds.
155. Chairs.
156. Curtains, Shades, and Screens.
45. Furniture.
65. Kitchen and Table Articles.
211. Store Furniture.

DIVISION IX.—Examiner Tryon.

Classes.

4. Baths and Closets.
169. Fire-Extinguishers.
138. Hydraulic Motors.
103. Pumps.
182. Sewerage.

DIVISION X.—Examiner Sanders.

Class.

21. Carriages and Wagons.

DIVISION XI.—Examiner Harmon.

Classes.

12. Boots and Shoes.
24. Buckles, Buttons, Clasps, etc.
218. Button-Setting and Eyeleting.
54. Harness.
60. Hose and Belting.
69. Leather-Working Machinery.
219. Punches.

DIVISION XII.—Exam'r Aughinbaugh.

Classes.

193. Conveyers.
187. Elevators.
159. Fire Escapes and Ladders.
57. Hoisting.
64. Journal-Boxes, Pulleys, and Shafting.
74. Machine Elements.
186. Store-Service.
200. Towers.

DIVISION XIII.—Examiner Winter.

Classes.

86. Arms and Projectiles. Making
59. Chains, Staples, and Horseshoes.
53. Hardware-Making.
10. Metal Bolts, Nuts, Rivets, and Screws.
77. Metal Boring and Drilling.
205. Metal-Drawing.
78. Metal-Forging.
80. Metal-Rolling.
76. Metal Tools and Implements. Making
134. Metal-Tube Manufacture.
82. Metal Turning, Planing, and Milling.
206. Metal-Welding.
85. Nails and Spikes.
163. Needles and Pins.
152. Wagon, Car, and Track Irons.

DIVISION XIV.—Examiner Maxson.

Classes.

194. Coin-Controlled Apparatus.
168. Farriery.
153. Metal-Bending.
201. Metal-Ornamenting.
79. Metal Personal Wear. Making
164. Metal Punching and Shearing.
81. Metal-Working Tools.
151. Nut and Bolt Locks.
113. Sheet-Metal Ware. Making
140. Wire-Working.

DIVISION XV.—Examiner Campbell.

Classes.

106. Artificial Stone.
107. Bread, Cracker, and Lozenge Making.
18. Caoutchouc and Minor Plastics.
25. Clay and Pottery.
154. Composite Roofings and Coverings.
30. Cutlery.
44. Fuel.
49. Glass.
222. Hydraulic Cement and Lime.
92. Paper-Making.
94. Paving.

DIVISION XVI.—Examiner Bissing.

Classes.

176. Electric Lighting.
177. Electric Signaling.
175. Electricity. Special Applications.
178. Telegraphy.
179. Telephony.

DIVISION XVII.—Examiner Rice.

Classes.

93. Paper Manufactures.
101. Printing.

DIVISION XVIII.—Examiner Fowler.

Classes.

162. Injectors and Ejectors.
160. Steam and Vacuum Pumps.
122. Steam-Boilers.
110. Steam-Boiler Furnaces.
121. Steam-Engines.
136. Steam-Engine Valves.

DIVISION XIX.—Examiner Steward.

Class.

126. Stoves and Furnaces.

DIVISION XX.—Examiner Wilkinson.

Classes.

3. Artificial Limbs.
16. Builders' Hardware.
32. Dentistry.
70. Locks and Latches.
109. Safes.
27. Undertaking.

DIVISION XXI.—Examiner Hains.

Classes.

13. Brakes and Gins.
19. Carding.
26. Cloth-Finishing.
28. Cordage.
38. Felt and Fur.
66. Knitting and Netting.
117. Silk.
118. Spinning.
139. Weaving.

DIVISION XXII.—EXAMINER SEATON.

Classes.

9. Boats.
42. Firearms.
43. Fishing and Trapping.
115. Marine Propulsion.
89. Ordnance.
102. Projectiles.
114. Ships.
116. Signals.

DIVISION XXIII.—EXAMINER NEWTON.

Classes.

181. Acoustics.
33. Drafting.
58. Horology.
73. Measuring Instruments.

DIVISION XXIV.—EXAMINER PIERCE.

Classes.

165. DESIGNS.
2. Apparel.
223. Apparel Apparatus.
112. Sewing-Machines.
132. Toilet.
135. Umbrellas and Canes.

DIVISION XXV.—EXAMINER WYNNE.

Classes.

166. Artesian and Oil Wells.
17. Butchering.
83. Mills.
125. Stone-Working.
130. Threshing.
146. Vegetable Cutters and Crushers.

DIVISION XXVI.—EXAMINER SEELY.

Classes.

173. Electricity. Conductors.
191. Electricity. Electric Railways.
171. Electricity. Generation.
174. Electricity. Medical and Surgical.
172. Electricity. Motive Power.

DIVISION XXVII.—EXAMINER GOULD.

Classes.

15. Brushing and Scrubbing.
51. Grinding and Polishing.
68. Laundry.
141. Washing Apparatus.

DIVISION XXVIII.—EX. W. W. TOWNSEND.

Classes.

123. Air and Gas Engines.
34. Driers.
98. Pneumatics.
62. Refrigeration.
170. Wind-Wheels.

DIVISION XXIX.—EXAMINER MORRIS.

Classes.

20. Carpentry.
147. Coopering.
108. Roofing.
157. Wheelwright-Machines.
143. Wood-Sawing.
142. Wood-Turning.
144. Woodworking-Machines.
145. Woodworking-Tools.

DIVISION XXX.—EXAMINER WOODWARD.

Classes.

67. Lamps and Gas-Fittings.
199. Linotyping.
198. Matrix-Making.
88. Optics.
197. Type-Writing Machines.

DIVISION XXXI.—EXAMINER ELY.

Classes.

195. Alcohol.
203. Ammonia, Water, and Wood Distillation.
202. Charcoal and Coke.
35. Educational Appliances.
50. Fluid-Pressure Regulators.
46. Games and Toys.
48. Gas.
149. Hides, Skins, and Leather.
196. Mineral Oils.
87. Oils, Fats, and Glue.
91. Painting.

DIVISION XXXII.—EXAM'R WITHERSPOON.

Classes.

180. Accoutrements.
40. Advertising.
190. Baggage.
215. Bottles and Jars.
224. Bundle-Carriers.
209. Carbonating Beverages.
225. Dispensing Beverages.
221. Metallic Dispensing-Cans.
220. Metallic Shipping and Storing Vessels.
226. Packaging Liquids.
150. Packing and Storing Vessels.
217. Wooden Barrels and Boxes.

DIVISION XXXIII.—EXAMINER NEWTON.

Classes.

LABELS AND PRINTS.
TRADE-MARKS.

DIVISION XXXIV.—EXAMINER SIMPSON.

Classes.

188. Railway-Brakes.
213. Railway Draft Appliances.
105. Railway Rolling-Stock.
104. Railways.

CLASSES ALPHABETICALLY ARRANGED.

Division.	Number.	Class.	Patents.
32	180	Accoutrements	451
23	181	Acoustics	435
32	40	Advertising	1,485
28	123	Air and gas engines	1,237
31	195	Alcohol	1,210
31	203	Ammonia, water, and wood distillation	292
3	148	Annealing and tempering	782
24	2	Apparel	4,149
24	223	Apparel apparatus	2,021
13	86	Arms and projectiles. Making	274
25	166	Artesian and oil wells	1,941
20	3	Artificial limbs	455
15	106	Artificial stone	983
32	190	Baggage	1,144
9	4	Baths and closets	3,236
8	5	Beds	5,264
2	6	Bee culture	1,010
6	8	Bleaching and dyeing	1,571
22	9	Boats	1,296
5	11	Bookbinding	2,488
11	12	Boots and shoes	8,453
39	215	Bottles and jars	2,598
21	13	Brakes and gins	1,374
15	107	Bread, cracker, and lozenge making	899
4	14	Bridges	995
27	15	Brushing and scrubbing	3,477
11	24	Buckles, buttons, clasps, etc	10,669
20	16	Builders' hardware	8,333
32	224	Bundle-carriers	568
25	17	Butchering	1,053
32	218	Button-setting and eyeleting	717
15	18	Caoutchouc and minor plastics	2,164
32	209	Carbonating beverages	257
21	19	Carding	1,386
2	119	Care of live stock	3,124
29	20	Carpentry	3,938
10	21	Carriages and wagons	21,783
13	59	Chains, staples, and horseshoes	1,060
8	155	Chairs	4,613
31	202	Charcoal and coke	187
6	23	Chemicals	1,796
15	25	Clay and pottery	3,219
21	26	Cloth-finishing	731
2	192	Clutches	1,306
3	96	Coating with metal	485
14	194	Coin-controlled apparatus	954
15	154	Composite roofings and coverings	689
12	193	Conveyers	1,284
29	147	Coopering	705
21	28	Cordage	1,678
4	212	Cranes and derricks	634
8	156	Curtains, shades, and screens	2,645
15	30	Cutlery	4,506
2	31	Dairy	1,417
20	32	Dentistry	1,481
24	165	DESIGNS	26,777
32	225	Dispensing beverages	675
23	33	Drafting	2,609
28	34	Driers	791
31	35	Educational appliances	2,272
26	173	Electricity. Conductors	2,195
26	191	Electricity. Electric railways	3,309
26	171	Electricity. Generation	418
26	174	Electricity. Medical and surgical	1,324
26	172	Electricity. Motive power	536
16	175	Electricity. Special applications	4,170
16	176	Electric lighting	2,087
16	177	Electric signaling	2,065
3	204	Electro-chemistry	1,883
12	187	Elevators	2,354
4	37	Excavating	547
6	52	Explosives	1,265
14	168	Farriery	796
21	38	Felt and fur	7,549
1	39	Fences	695
6	71	Fertilizers	1,606
5	41	Fine arts	4,242
22	42	Firearms	2,640
12	159	Fire escapes and ladders	1,204
9	169	Fire-extinguishers	546
4	183	Fireproof buildings	2,377
22	43	Fishing and trapping	944
31	50	Fluid-pressure regulators	695
15	44	Fuel	5,371
8	45	Furniture	4,990
31	46	Games and toys	3,227
31	48	Gas	1,356
15	49	Glass	2,851
27	51	Grinding and polishing	1,407
13	53	Hardware-making	7,998
11	54	Harness	4,894
1	55	Harrows and diggers	1,894
7	56	Harvesters	10,432
31	149	Hides, skins, and leather	1,201
12	57	Hoisting	4,502
23	58	Horology	3,865
11	60	Hose and belting	638
15	222	Hydraulic cement and lime	332
4	61	Hydraulic engineering	1,201
9	138	Hydraulic motors	2,695
18	162	Injectors and ejectors	588
4	189	Iron structures	602
5	63	Jewelry	1,147
12	64	Journal-boxes, pulleys, and shafting	4,930
8	65	Kitchen and table articles	1,917
21	66	Knitting and netting	1,727
2	216	Label-affixers	361
30	67	Lamps and gas-fittings	8,809
27	68	Laundry	7,647
11	69	Leather-working machinery	611
30	199	Linotyping	177
4	214	Loading and unloading	1,583
20	70	Locks and latches	6,522
2	184	Lubricators	1,484
12	74	Machine elements	4,261
22	115	Marine propulsion	1,655
4	72	Masonry	663
30	198	Matrix-making	123
23	73	Measuring instruments	11,900
2	185	Mechanical motors	1,902
6	167	Medicines	1,513
14	153	Metal-bending	675
13	10	Metal bolts, nuts, rivets, and screws	2,513
13	77	Metal boring and drilling	1,336
13	205	Metal-drawing	374
13	78	Metal-forging	804
13	22	Metal-founding	2,535
32	221	Metallic dispensing-cans	1,231
32	220	Metallic shipping and storing vessels	2,456
3	75	Metallurgy	5,001
14	201	Metal-ornamenting	138
14	79	Metal personal wear. Making	676
14	164	Metal punching and shearing	1,104
13	80	Metal-rolling	1,199
13	76	Metal tools and implements. Making	2,851
13	134	Metal-tube manufacture	490
13	82	Metal turning, planing, and milling	2,231
13	206	Metal-welding	567
14	81	Metal-working tools	3,399
25	83	Mills	11,735
31	196	Mineral oils	717
5	84	Music	4,485
13	85	Nails and spikes	1,705
13	163	Needles and pins	167
14	151	Nut and bolt locks	1,736
31	87	Oils, fats, and glue	1,880
30	88	Optics	1,858
22	89	Ordnance	1,117
22	226	Packaging liquids	477
22	150	Packing and storing vessels	2,776
31	91	Painting	2,080
15	92	Paper-making	3,967
17	93	Paper manufactures	3,106
15	94	Paving	1,408
6	95	Photography	1,720
1	97	Plows	10,543
28	98	Pneumatics	3,996
6	99	Preserving	1,004
2	100	Presses	3,967
17	101	Printing	6,656
22	102	Projectiles	2,202
9	103	Pumps	4,546
11	219	Punches	228
24	188	Railway-brakes	3,123
24	213	Railway draft appliances	6,886
24	105	Railway rolling-stock	7,100
24	104	Railways	9,154
28	62	Refrigeration	3,568
29	108	Roofing	1,250
20	109	Safes	531
1	111	Seeders and planters	7,630
9	182	Sewerage	802
24	112	Sewing-machines	6,480
3	207	Shaping fluid metal	243
14	113	Sheet-metal ware. Making	2,519
22	114	Ships	2,209
22	116	Signals	3,085
21	117	Silk	102
21	118	Spinning	2,420
5	120	Stationery	4,788
18	160	Steam and vacuum pumps	286
18	122	Steam-boilers	2,708
18	110	Steam-boiler furnaces	6,069
18	121	Steam-engines	6,999

CLASSES ALPHABETICALLY ARRANGED.—CONTINUED.

Division.	Number.	Class.	Patents.
18	136	Steam-engine valves	2,679
25	125	Stone-working	2,656
8	211	Store furniture	1,496
12	186	Store-service	715
19	126	Stoves and furnaces	19,279
6	127	Sugar and salt	2,557
6	128	Surgery	3,503
16	178	Telegraphy	3,244
16	179	Telephony	2,653
25	130	Threshing	4,432
2	131	Tobacco	2,684
24	132	Toilet	902
12	200	Towers	491
1	47	Trees, plants, and flowers	1,206
20	197	Type-writing machines	1,383
24	135	Umbrellas and canes	1,051
20	27	Undertaking	674
25	146	Vegetable cutters and crushers	2,276
7	208	Velocipedes	3,010
13	152	Wagon, car, and track irons	1,120
27	141	Washing apparatus	770
4	137	Water distribution	9,323
21	139	Weaving	4,070
20	157	Wheelwright-machines	323
28	170	Wind-wheels	1,564
14	140	Wire-working	1,487
2	217	Wooden barrels and boxes	3,314
29	143	Wood-sawing	4,228
29	142	Wood-turning	739
29	144	Woodworking-machines	5,839
29	145	Woodworking-tools	4,245

CLASSES NUMERICALLY ARRANGED.

Number.	Class.	Division.
2	Apparel	24
3	Artificial limbs	20
4	Baths and closets	9
5	Beds	8
6	Bee culture	2
8	Bleaching and dyeing	6
9	Boats	22
10	Metal bolts, nuts, rivets, and screws	13
11	Bookbinding	5
12	Boots and shoes	11
13	Brakes and gins	21
14	Bridges	4
15	Brushing and scrubbing	27
16	Builders' hardware	20
17	Butchering	25
18	Caoutchouc and minor plastics	15
19	Carding	21
20	Carpentry	29
21	Carriages and wagons	10
22	Metal-founding	3
23	Chemicals	6
24	Buckles, buttons, clasps, etc	11
25	Clay and pottery	15
26	Cloth-finishing	21
27	Undertaking	20
28	Cordage	21
30	Cutlery	15
31	Dairy	2
32	Dentistry	20
33	Drafting	23
34	Driers	28
35	Educational appliances	31
37	Excavating	4
38	Felt and fur	21
39	Fences	1
40	Advertising	32
41	Fine arts	5
42	Firearms	22
43	Fishing and trapping	22
44	Fuel	15
45	Furniture	8
46	Games and toys	31
47	Trees, plants, and flowers	1
48	Gas	31
49	Glass	15
50	Fluid-pressure regulators	31
51	Grinding and polishing	27
52	Explosives	6
53	Hardware-making	13
54	Harness	11
55	Harrows and diggers	1
56	Harvesters	7
57	Hoisting	12
58	Horology	23
59	Chains, staples, and horseshoes	13
60	Hose and belting	11
61	Hydraulic engineering	4
62	Refrigeration	28
63	Jewelry	5
64	Journal-boxes, pulleys, and shafting	12
65	Kitchen and table articles	8
66	Knitting and netting	21
67	Lamps and gas-fittings	30
68	Laundry	27
69	Leather-working machinery	11
70	Locks and latches	20
71	Fertilizers	6
72	Masonry	4
73	Measuring instruments	23
74	Machine elements	12
75	Metallurgy	3
76	Metal tools and implements. Making	13
77	Metal boring and drilling	13
78	Metal-forging	13
79	Metal personal wear. Making	14
80	Metal-rolling	13
81	Metal-working tools	14
82	Metal turning, planing, and milling	13
83	Mills	25
84	Music	5
85	Nails and spikes	13
86	Arms and projectiles. Making	13
87	Oils, fats, and glue	31
88	Optics	30
89	Ordnance	22
91	Painting	31
92	Paper-making	15
93	Paper manufactures	17
94	Paving	15
95	Photography	6
96	Coating with metal	3
97	Plows	1
98	Pneumatics	28
99	Preserving	6
100	Presses	2
101	Printing	17
102	Projectiles	22
103	Pumps	9
104	Railways	34
105	Railway rolling-stock	34
106	Artificial stone	15
107	Bread, cracker, and lozenge making	15
108	Roofing	29
109	Safes	20
110	Steam-boiler furnaces	18
111	Seeders and planters	1
112	Sewing-machines	24
113	Sheet-metal ware. Making	14
114	Ships	22
115	Marine propulsion	22
116	Signals	22
117	Silk	21
118	Spinning	21
119	Care of live stock	2
120	Stationery	5
121	Steam-engines	18
122	Steam-boilers	18
123	Air and gas engines	23
125	Stone-working	25
126	Stoves and furnaces	19
127	Sugar and salt	6
128	Surgery	6
130	Threshing	25
131	Tobacco	2
132	Toilet	24
134	Metal-tube manufacture	3
135	Umbrellas and canes	24
136	Steam-engine valves	18
137	Water distribution	4
138	Hydraulic motors	9
139	Weaving	21
140	Wire-working	14
141	Washing apparatus	27
142	Wood-turning	29
143	Wood-sawing	29
144	Woodworking-machines	29
145	Woodworking-tools	29
146	Vegetable cutters and crushers	25
147	Coopering	29
148	Annealing and tempering	3
149	Hides, skins, and leather	31
150	Packing and storing vessels	32
151	Nut and bolt locks	14
152	Wagon, car, and track irons	13
153	Metal-bending	14
154	Composite roofings and coverings	15
155	Chairs	8
156	Curtains, shades, and screens	8
157	Wheelwright-machines	29
159	Fire escapes and ladders	12
160	Steam and vacuum pumps	18
162	Injectors and ejectors	18
163	Needles and pins	13
164	Metal punching and shearing	14
165	Designs	24
166	Artesian and oil wells	25
167	Medicines	6
168	Farriery	14
169	Fire-extinguishers	9
170	Wind-wheels	28
171	Electricity. Generation	26
172	Electricity. Motive power	26
173	Electricity. Conductors	26
174	Electricity. Medical and surgical	26
175	Electricity. Special applications	16
176	Electric lighting	16
177	Electric signaling	16
178	Telegraphy	16
179	Telephony	16
180	Accoutrements	32
181	Acoustics	23
182	Sewerage	9
183	Fireproof buildings	4
184	Lubricators	2
185	Mechanical motors	2
186	Store-service	12
187	Elevators	12
188	Railway-brakes	34
189	Iron structures	4
190	Baggage	32
191	Electricity. Electric railways	26
192	Clutches	2
193	Conveyers	12
194	Coin-controlled apparatus	14

Number.	Class.	Division.	Number.	Class.	Division.
195	Alcohol	31	212	Cranes and derricks	4
196	Mineral oils	31	213	Railway draft appliances	34
197	Type-writing machines	30	214	Loading and unloading	4
198	Matrix-making	30	215	Bottles and jars	23
199	Linotyping	30	216	Label-affixers	2
200	Towers	12	217	Wooden barrels and boxes	32
201	Metal-ornamenting	14	218	Button-setting and eyeleting	11
202	Charcoal and coke	31	219	Punches	11
203	Ammonia, water, and wood distillation	31	220	Metallic shipping and storing vessels	32
204	Electro-chemistry	3	221	Metallic dispensing-cans	32
205	Metal-drawing	3	222	Hydraulic cement and lime	15
206	Metal-welding	3	223	Apparel apparatus	24
207	Shaping fluid metal	3	224	Bundle-carriers	32
208	Velocipedes	7	225	Dispensing beverages	32
209	Carbonating beverages	32	226	Packaging liquids	32
211	Store furniture	8			

DIVISION I.

EXAMINER FOX.

CLASSES.—39, Fences; 55, Harrows and Diggers; 97, Plows; 111, Seeders and Planters; 47, Trees, Plants, and Flowers.

CLASS 39.—FENCES. (I.)

Subclasses.

Fences—
1. Barbed—
70. Linked,
102. Ribbon.
71. Visible,
64. Cat-guards,
65. Earth and plastic,
4. Flood,
6. Iron,
9. Wire—
72. Fabric,
12. Fasteners—
76. Clamps,
77. Hook-nails and staples,
73. Picket,
74. Stays—
78. Linked,
79. Lock-plates,
75. Strands,
45. Stretchers, Permanent—
46. Compensators,
47. Mid-wire-take-ups,
48. Path-closers,
49. Post-winders—
50. Vertical,
51. Stretchers, Removable—
52. Clutch-bars,
53. Grips,
54. Levers—
55. Attached,
56. Loopers,
57. Rack-bars,
58. Ratchet-bars,
59. Reel-carriers,
63. Screw,
60. Tongs,
61. Twin-hooks,
62. Windlasses,
66. Wood—
80. Panel—
83. Suspended,
84. Worm,
81. Picket—
85. Panel,
82. Tied.
5. Gates—
15. Compound,
24. Dropping,
21. Expanding,
98. Fire-guards,
22. Jump,
Openers—
91. Cab-door,

Gates—
Openers—
92. Car-door,
93. Car-platform door,
96. Hatch,
94. Sliding door,
95. Swinging door.
97. Window,
23. Oscillating,
103. Race-starters,
11. Railway—
42. Cattle-guard,
38. Electric,
36. Mast—
35. Automatic,
41. Platform-guard,
37. Pneumatic,
39. Rocking,
44. Sliding,
43. Swinging,
40. Vertically-moving,
7. Sliding—
29. Lever-openers,
28. Pulley or rack openers,
30. Suspended,
31. Vibrating tracks,
32. Sliding and swinging—
33. Hinged-roller,
34. Suspending-frames,
8. Swinging—
18. Folding-panel,
14. Hand-openers,
20. Load-openers,
17. Rotary,
16. Self-closers,
25. Tilting,
19. Vertically-adjustable,
13. Tilting—
26. Folding-panel,
99. Turnstiles,
100. Wire gates,
101. Wire gates, frameless.
Posts—
Bases—
86. Metal,
87. Plastic,
88. Wood,
Braces—
89. Lateral,
90. Longitudinal,
67. Metal,
68. Plastic,
69. Wood.

CLASS 55.—HARROWS AND DIGGERS. (I.)

Subclasses.

1. Clod-crushers—
21. Barred and corrugated rollers,
22. Drag-bars,
23. Drag bars and harrows,
24. Toothed rollers and wheels.
2. Forks—
25. Adjustable heads,
26. Combined forks and shovels,
27. Fodder-forks,
28. Potato forks and shovels.
3. Harrows—
29. Changeable-form,
30. Disk,
31. Expansible,
32. Flexible,
11. Revolving,
18. Rotary,
33. Spring-tooth,
34. Tooth-cleaners,
19. Wheel—
73. Disk,
20. Rotary,
74. Spring,
75. Trailing teeth.

Harrow-teeth—
35. Spike,
36. Spring,
37. Trailing and draw-cut.
5. Hoes—
38. Adjustable,
39. Compound—
40. Adjustable,
41. Horizontal—
42. Adjustable,
43. Interchangeable,
44. Toothed blades,
45. Weeding.
6. Land-rollers—
46. Furrowers and markers,
47. Pivoted,
48. Weighted cylinders,
49. Weighted frames.
7. Pivoted teeth.
8. Pivoted tooth-bars.
9. Potato-diggers—
50. Bearing-wheel separators,
51. Endless-carrier—
52. Receptacles,
54. Plow and screen,
53. Plow-clearers,

CLASS 55.—Continued.

Potato-diggers—
55. Plow, vibrating screens,
57. Screen-cylinders,
56. Sifting-wheels, side-delivery,
58. Spiral conveyers,
59. Toothed drum.
10. Rakes.
12. Rollers and harrows.
14. Shovels.
15. Stalk-choppers—
60. Draw-cut,
63. Reciprocating,
61. Revolving, horizontal—
62. Vertical,

Stalk-choppers—
64. Vine-cutters.
65. Stalk-pullers, hand—
66. Wheel.
17. Stone-gatherers.
18. Transplanters—
67. Dibbles,
68. Pivoted jaws,
70. Post-hole diggers—
71. Pivoted jaws,
69. Sliding jaws,
72. Wheel-machines.

CLASS 97.—PLOWS. (I.)

Subclasses.

1. Attachments—
44. Harrow.
2. Beams.
3. Cleaners.
4. Clevises.
6. Colters—
43. Rolling.
5. Corn-coverers.
8. Cotton-choppers.
9. Cotton-scrapers.
7. Couplings.
10. Cultivators—
41. Hand—
42. Wheel,
30. Parallel,
37. Revolving,
38. Rolling,
25. Rotary—
39. Horizontal,
31. Straddle-row,
34. Wheel—
35. Straddle-row.

11. Cultivator-teeth.
13. Fenders.
14. Gage wheels and runners.
15. Handles.
17. Landsides.
18. Moldboards—
23. Revolving.
21. Plows—
12. Ditching,
19. Mole,
40. Revolving,
26. Shovel,
27. Side-hill,
30. Steam,
36. Wheel.
22. Points.
24. Ridgers.
28. Sod-cutters.
29. Standards.
32. Subsoilers.
33. Weed-turners.

CLASS 111.—SEEDERS AND PLANTERS. (I.)

Subclasses.

1. Broadcast—
2. Hand,
3. Revolving hoppers,
4. Walking.
5. Check-row.
8. Cups on belt.
9. Cups on disk.
Drills—
35. Adjustable rank,
18. Grain,
36. Walking.
10. Drills and broadcast combined.
11. Drill-teeth.
12. Elastic feed-wheels.
34. Fertilizer-distributers—
13. Hand,
14. Revolving hoppers,
15. Walking.
17. Force-feed.

19. Grain-drill cleaners.
24. Land-markers.
25. Pivoted seed-cups.
Planters—
6. Corn,
7. Cotton,
16. Foot,
20. Hand—
21. Oscillating,
22. Reciprocating,
23. Rotating,
27. Potato—
28. Walking,
32. Walking—
33. Vibrating hoppers.
26. Plungers.
29. Preparing seed.
37. Rolling hoppers.
31. Screw-feed.

CLASS 47.—TREES, PLANTS, AND FLOWERS. (I.)

Subclasses.

15. Blanching.
16. Dress attachments.
17. False stems.
18. Flower-holders.
19. Flower-pots.
20. Flower-work.
21. Garden-beds
6. Grafting.
22. Hand-screens.
23. Hanging baskets.
13. Hedge-training.
7. Hop-culture.
24. Lawn-vases.
27. Plant frames and houses.
25. Plant-stands—
26. Revolving.

28. Root-guards.
29. Sap-buckets.
11. Sap-spouts.
30. Seed-testers.
31. Stays and props.
32. Strawberry-growing.
34. Transplanting-pots.
35. Trap-belts.
36. Treatment—
37. Implements.
38. Tree-covering.
12. Trellises.
38. Trunk-guards, cattle—
39. Vermin.
40. Turpentine-gathering.
41. Window-gardens.

DIVISION II.

EXAMINER I. U. TOWNSEND.

CLASSES.—6, Bee Culture; 119, Care of Live Stock; 192, Clutches; 31, Dairy; 216, Label-Affixers; 184, Lubricators; 185, Mechanical Motors; 100, Presses; 131, Tobacco.

CLASS 6.—BEE CULTURE. (II.)

Subclasses.

1. Beehives.
2. Hive appliances.

CLASS 119.—CARE OF LIVE STOCK. (II.)

Subclasses.

Animal-stocks—
14. Hog-traps,
15. Horse and cattle,
16. Sheep.
46. Bird cages and houses.
17. Catching and holding tools.
55. Collars.
48. Currycombs.
47. Gags and muzzles.
18. Gangways.
3. Grooming.
Hitching devices—
56. Posts and post attachments,
57. Rotary-arm,
58. Spring-reel,
59. Ties,
60. Travelers,
51. Hopples.
4. Incubators.
54. Manure-pouches.
61. Nose-rings.
12. Pokes.
5. Poultry-culture.
62. Ringers and markers.
63. Shields.
9. Stanchions.
Steading and feeding—
20. Calf-feeders,
21. Combined troughs and racks,
22. Feed-racks,
23. Feed-troughs,
52. Nose-bags,
24. Releasing devices,
25. Stall-floors,
26. Stalls, sheds, and pens.
53. Stock-cars.
27. Stock-sorters.

CLASS 192.—CLUTCHES. (II.)

Subclasses.

1. Clutches.
2. Eccentric or wedge.
3. Expansible segment.
18. Fluid.
4. Frictional and positive.
15. Intermittent-grip—
17. Ratchet,
16. Strap and dog or ball.
5. Lever-shoe.
6. Locking-pawl.
7. Longitudinally-movable, double-face.
8. Longitudinally-movable, single-face.
9. Longitudinally-movable, with projections.
19. Magnetic.
10. Multiple-disk.
11. Radially-movable shoes.
12. Radially-movable shoes, opposing.
13. Split-ring.
14. Strap.

CLASS 31.—DAIRY. (II.)

Subclasses.

Butter and cheese—
24. Cutters,
23. Manufacture of.
25. Butter workers and molds.
21. Cheese-hoops.
26. Cheese-turners.
22. Cheese-vats and curd-breakers.
7. Churns—
9. Double-acting,
Reciprocating—
Crank mechanism—
29. Multiple-dasher,
30. Single-dasher,
31. Combined lever and crank mechanism,
32. Foot mechanism,
33. Hand and foot mechanism,
Lever mechanism—
34. Multiple-dasher,
35. Single-dasher,
36. Rocking-seat mechanism,
37. Without operating mechanism,
Rotary—
38. Diagonal-dasher,
39. Horizontal single-dasher,
Horizontal double-dasher—
40. Concentric shafts,
41. Parallel shafts,
Churns—
Rotary—
42. Vertical single-dasher,
Vertical double-dasher—
43. Concentric shafts,
44. Parallel shafts,
17. Vibrating,
18. Working body.
8. Cow-milkers.
27. Cream-pumps.
63. Drink-mixers.
57. Egg-beaters—
61. Reciprocating,
59. Rotary multiple-dasher—
58. Single-dasher,
60. Vibrating.
Milk-coolers—
45. Aerating,
46. Creaming-cans—
47. Agitators,
48. Depending-tube,
49. Floats,
50. Vacuum creamers,
51. Vertical-tube,
52. Milk-circulation,
53. Vats—
54. Air-circulation,
55. Horizontal-tube,
56. Removable-tube.
13. Milk-stools.
14. Pails and strainers.
28. Tables and racks.

CLASS 216.—LABEL-AFFIXERS. (II.)

Subclasses.

1. Cutter and plunger.
2. Label-affixers.
3. Magazine.
4. Pickers.
5. Runway-machines—
6. Label bed.

CLASS 184.—LUBRICATORS. (II.)

Subclasses.

1. Capillary attraction.
2. Condensation displacement.
3. Force-feed.
4. Gravity-feed—
5. Automatic cut-off.
6. Liquefiers.
8. Miscellaneous.

CLASS 185.—MECHANICAL MOTORS. (II.)

Subclasses.

1. Horse-powers—
8. Drivers,
9. Drums,
2. Equalizers,
10. Gears,
3. Treads.
4. Manual.
5. Miscellaneous.
6. Spring.
7. Weight.

CLASS 100.—PRESSES. (II.)

Subclasses.

Baling—
Articles and attachments—
14. Bales and bale-covers,
15. Bale-band tighteners,
16. Bale-ejectors,
20. Binders,
19. Boxes and frames,
21. Brakes,
22. Condensers,
23. Discharge-end contracting devices,
24. Division-blocks and block-inserters,
25. Feeders,
27. Indicators,
28. Movable bale-boxes,
29. Plungers,
30. Retainers.
1. Belt and roller.
Plunger—
2. Cam,
3. Crank and pitman,
4. Lever,
5. Rack bar and pinion,
6. Ratchet and grapple bar,
7. Rebounding,
8. Screw,
11. Thrust-bar,
9. Toggle-joint,
10. Toggle-joint, inverted,
12. Windlass.
13. Screw.
Bundling—
31. In lengths,
32. In lengths, shingles,
33. Wool.
34. Can-filling machines.
Copying—
63. Fluid-pressure,
60. Hand-impressing,
61. Hand-impressing, book-flexure,
62. Roller mechanism.
Expressing—
Articles and attachments—
50. Boxes and frames,
51. Cake-formers,
52. Cake-strippers,
53. Cake-trimmers,
54. Mats.
35. Belt,
36. Belt and plunger,
37. Belt and roller,
38. Disk.
Plunger—
39. Cam,
40. Crank and pitman,
41. Lever,
42. Rack bar and pinion,
43. Ratchet and grapple bar,
44. Screw,
45. Toggle-joint,
46. Windlass.
47. Roller,
48. Screw,
49. Without operating mechanism.
Packing—
59. Articles,
55. Cheese,
56. Continuous-compression,
57. Single-compression,
58. Silos.

CLASS 131.—TOBACCO. (II.)

Subclasses.

37. Cigar and cigarette cutters.
18. Cigar-bundling.
38. Cigar-cutters, tip.
5. Cigar-machines—
39. Adjuncts,
40. Apron—
41. Moving rolling-table,
42. Stationary rolling-table,
43. Endwise-moving filler,
44. One traveling apron,
45. Roller,
46. Two traveling aprons.
47. Cigar-machine aprons.
48. Cigar-makers' implements—
49. Wrapper-cutters.
50. Cigar-perforators.
51. Cigar supports and stands.
52. Cigars, cigarettes, and cartridges.
6. Curing.
55. Dressing, casing, and flavoring.
7. Granulating.
60. Leaf-treating—
56. Booking,
58. Stem-crushing,
57. Stemming.
30. Moistening.
9. Molding cigars.
10. Mouthpieces.
11. Packing.
13. Pipe-cleaners.
12. Pipes and stems.
14. Plug-making.
15. Plugs.
31. Smoking-tobacco.
22. Smoking-tubes.
16. Snuff manufacture.
Tobacco-cutters—
33. Pivoted-knife,
34. Reciprocating-knife,
35. Rotating-knife.
21. Tobacco-hangers.
59. Tobacco-users' appliances.
61. Tube-machines—
62. Folders,
63. Spiral-wind,
64. Straight-wind.
36. Wrappers.

DIVISION III.

EXAMINER BYRNES.

CLASSES.—148, Annealing and Tempering; 96, Coating with Metal; 204, Electro-Chemistry; 22, Metal-Founding; 75, Metallurgy; 207, Shaping Fluid Metal.

CLASS 148.—ANNEALING AND TEMPERING. (III.)

Subclasses.

13. Annealing apparatus—
14. Boxes and pots,
15. Clamps,
16. Muffles,
17. Ovens—
18. Rotary hearths,
19. Pits,
20. Wire and springs.
21. Annealing processes—
22. Drawing temper,
23. Gas,
24. Toughening.
40. Cementation and case-hardening—
25. Compounds,
26. Gaseous,
27. Liquid.
8. Decarbonizing.
Glass-annealing—
28. Flattening-tables,
29. Hearths,
30. Leers—
31. Grids,
32. Muffles,
33. Processes.
34. Hardening apparatus—
35. Bands and wire,
36. Clamps.
37. Hardening processes—
39. Molten metal,
38. Solutions.
Tempering and annealing—
10. Applications of electricity,
12. Metals other than iron.

CLASS 96.—COATING WITH METAL. (III.)

Subclasses.

2. Galvanizing.
9. Iron oxids.
11. Pickling and swilling.
8. Precipitating.
7. Tinning.
10. Wipers.

CLASS 204.—ELECTRO-CHEMISTRY. (III.)

Subclasses.

Batteries—
49. Anodes,
50. Cathodes,
52. Connectors,
51. Diaphragms,
53. Vessels,
54. Carbon,
47. Earth,
48. Gas,
46. Piles,
33. One-fluid—
55. Iron,
34. Zinc—
30. Chlorids,
37. Chromates,
35. Nitrates,
38. Oxids,
36. Sulfates,
40. Two-fluid—
56. Iron,
41. Zinc—
45. Chromates,
42. Nitrates,
43. Sulfates—
44. Gravity,
20. Secondary.
Electrolysis—
1. Aqueous bath—
2. Alloys,
3. Aluminium,
Electrolysis—
4. Anodes,
5. Apparatus, Aqueous bath—
6. Cathodes—
7. Cleaning,
8. Metallizing,
9. Chemicals,
10. Copper,
11. Depolarizing and burnishing,
12. Gold,
13. Multiple,
14. Nickel,
15. Ores,
16. Silver,
17. Tin,
18. Zinc,
22. Bleaching,
28. Diaphragms,
19. Fused bath—
20. Aluminium,
21. Sodium,
24. Purifying liquids—
26. Alcohol,
25. Water,
27. Tanning.
Synthesis—
31. Synthesis—
32. Ozone.

CLASS 22.—METAL-FOUNDING. (III.)

Subclasses.

Metal molds—
1. Apparatus and plants.
2. Chains, hinges, and joints.
4. Hardware.
5. Hollow ware.
7. Ingots—
9. Compound,
6. Hollow and tube,
10. Plants,
53. Strippers.
52. Ladles.
11. Materials.
12. Ordnance and projectiles.
13. Pigs.
14. Plows.
15. Rolls.
18. Screw-threads.
16. Soft metal, machines—
21. Molds,
19. Shot,
20. Spoons,
22. Traps,
51. Type.
Metal molds—
50. Tools.
23. Vehicle-wheels.
24. Wheels.
Molded molds—
25. Chains, hinges, and joints.
26. Hardware.
27. Hollow ware.
29. Materials.
28. Molded molds.
8. Molders' flasks.
30. Ordnance and projectiles.
31. Pipes—
32. Horizontal.
3. Pipe-elbows.
33. Plants.
34. Plows.
35. Rolls.
36. Screw-threads.
37. Tools.
17. Tools and arts.
38. Vehicle-wheels.
39. Wheels.

CLASS 22.—Continued.

Molding apparatus—
40. Blacking-molds.
41. Hollow ware.
42. Machines.
43. Ordnance and projectiles.
44. Pipes—
45. Horizontal.
Molding apparatus—
46. Pipe-cores.
47. Screw-threads.
48. Vehicle-wheels.
49. Wheels.
Rotary molds—
50. Rotary molds.

CLASS 75.—METALLURGY. (III.)

Subclasses.

1. Alloys.
2. Assaying.
90. Blowpipes.
3. Converters—
148. Fixed,
149. Furnace,
150. Runway,
151. Sectional,
152. Twyers and bottoms.
182. Crucibles.
107. Cupolas—
108. Drop-bottoms,
109. Fore-hearths,
110. Water-jackets,
111. Wind-chests and twyers.
112. Finery-fires.
113. Fire-brick.
80. Fume-arresters.
Furnaces—
40. Blank—
Tire,
5. Blast—
114. Charging devices—
115. Bell and hopper,
116. Protecting walls,
97. Twyers,
117. Tymps and slag-spouts,
27. Crucible,
178. Electric,
180. Forge—
181. Twyers,
84. Melting—
89. Glass-pots,
156. Glory-hole,
119. Open-hearth,
92. Pot-hearth,
93. Tank,
19. Pigment,
Reverberatory—
121. Heating air,
122. Necks and chimneys,
123. Water-walls and roofs.
Hot-blast ovens—
53. Double-surface,
52. Single-surface.
124. Hot-blast valves.
14. Iron and steel direct—
71. Apparatus,
73. Bricks,
74. Flux,
75. Gases,
72. Retorts and hearths,
76. Slag,
77. Sponge.
15. Lead.
127. Mechanical puddlers—
128. Rotary hearths,
129. Tools.
130. Puddling-hearths—
131. Chills and bottoms,
132. Doors and bits.
22. Quicksilver.
17. Reducing and separating—
58. Aluminium,
57. Apparatus,
62. Copper,
59. Desilverizing lead,
60. Desulfurizing ores,
61. Disintegrating ores,
63. Flux,
64. Gold and silver,
85. Manganese,
66. Nickel and cobalt,
65. Ore bricks,
188. Sodium.
Regenerators—
95. Double-surface,
94. Single-surface.
Roasters—
133. Blasting,
134. Hearths—
135. Rotary,
136. Kilns,
137. Muffles,
Revolving—
138. Cylinders,
139. Retorts,
140. Shaft-and-shelf,
Stirrers—
141. Endless-chain,
142. Reciprocating,
143. Rotary,
144. Screw.
25. Roasting and smelting hearths.
145. Slag—
146. Disintegrating,
91. Heaters,
147. Separators, centrifugal.
18. Solution and precipitation—
86. Apparatus,
67. Chlorination,
185. Cyanids,
69. Ferric salts,
70. Parting bullion.
28. Spelter—
153. Processes,
154. Retorts,
155. Stacks.
27. Treating molten iron—
44. Air, steam, and gases,
45. Alloys,
46. Basic,
87. Basic linings,
47. Granulating,
48. Oxids,
49. Physic,
50. Scrap,
51. Vacuum.
55. Utilizing tin-scrap—
56. Wet processes.

CLASS 207.—SHAPING FLUID METAL. (III.)

Subclasses.

8. Granulating.
1. Shaping.
Shaping, by dies—
2. Bars and plates,
6. Covering wire,
Shaping, by dies—
3. Tubes—
4. Compound,
5. Curved.
7. Shaping, by rolls.

DIVISION IV.

EXAMINER POND.

CLASSES.—14, Bridges; 212, Cranes and Derricks; 37, Excavating; 183, Fireproof Buildings; 61, Hydraulic Engineering; 189, Iron Structures; 214, Loading and Unloading; 72, Masonry; 137, Water Distribution.

CLASS 14.—BRIDGES. (IV.)

Subclasses.

Bridges—
7. Arch.
12. Bowstring.
1. Draw—
13. Bascule.
9. Gates.
14. Lift.
15. Swing.
Bridges—
8. Floating.
5. Suspension.
6. Truss.
2. Ferry-guards.
11. Flooring.
4. Piers.

CLASS 212.—CRANES AND DERRICKS. (IV.)

Subclasses.

1. Cranes and derricks.
2. Rectilinearly-movable load-support—
3. Electric.
4. Hydraulic.
8. Load-lifting devices.
5. Longitudinal-shaft driver.
6. Stationary motor.
7. Traveling motor.
9. Rotary load-support—
10. Vertically-adjustable jib.
11. Motor-operated—
12. Vertically-adjustable jib.
13. Rotary rectilinearly-movable load-support.
14. Stationary load-support—
15. Jib.

CLASS 37.—EXCAVATING. (IV.)

Subclasses.

11. Diggers.
Dredgers—
18. Anchoring.
14. Clamshell—
30. Buckets.
13. Scouring—
36. Hydraulic.
Excavators—
24. Chain and bucket—
23. Buckets.
16. Dipper.
9. Hydraulic—
46. Pipe-supports.
44. Steam vacuum.
45. Suction-pipe mouthpieces.
25. Plow and carrier.
10. Rammers.
26. Screw—
27. And carrier.
Excavators—
17. Wheel—
28. And belt.
29. And carrier.
39. Miscellaneous.
43. Road beds and grades.
40. Scoops—
41. Railway-side.
5. Scrapers—
19. Distant power.
22. Railway-side.
42. Sledded.
7. Wheeled.
6. Self-loading carts—
32. Carrier.
33. Scoop.
34. Wheel.
35. Snow-road machines.
20. Treating quicksands.

CLASS 183.—FIREPROOF BUILDINGS. (IV.)

Subclasses.

Ceilings and floors—
10. Concrete.
11. Concrete and metal.
12. Metal.
13. Protected wood.
14. Tile.
15. Tile and metal.
2. Columns and timber.
4. Fireproof roofs.
8. Fire-shields.
5. Flooding.
9. Shutters, fireproof.
Sidings and partitions—
16. Concrete.
17. Tile.

CLASS 61.—HYDRAULIC ENGINEERING. (IV.)

Subclasses.

1. Aqueducts.
19. Breakwaters.
2. Cable-laying.
3. Caissons—
20. Ship.
4. Canals—
28. Gate-valves.
21. Lock-gates—
27. Bear-trap.
5. Chutes—
33. Screens.
34. Water-power.
23. Cribbing.
24. Dams and levees—
35. Cores.
36. Mattresses.
Dams—
22. Coffer.
25. Sectional.
7. Diving-armor.
8. Docks.
9. Drains.
26. Forming and preserving channels.
32. Harbors.
29. Jetties, sectional.
11. Marine ways.
12. Mining.
13. Pile-drivers—
37. Jigs.
38. Monkey.
39. Piston.
41. Sinking.
40. Swinging-hammer.
Piles—
42. Metallic.
43. Protected.
30. Protecting shores.
15. Tide-powers.
16. Tunnels—
44. Excavators.
45. Shields.
17. Water-gates—
46. Sliding.
47. Swinging.
31. Wharves.

CLASS 189.—IRON STRUCTURES. (IV.)

Subclasses.

1. Building.
5. Doors.
2. Grilles.
3. Jails.
6. Lathing—
7. Wire.
11. Metal sheathing.
12. Stairs.
9. Shutters.
10. Windows.

CLASS 214.—LOADING AND UNLOADING. (IV.)

Subclasses.

14. Elevated carriers—
15. Draft-sustaining.
22. Fall-rope carriers.
16. Lever-lock.
17. Non-lowering support.
18. Ratchet-lock.
19. Rope-catch.
20. Sheave-frame catch.
21. Ways.
1. Loading and unloading—
2. Hay.
3. Hoist and dump.
4. Hoist, raised track and dump.
5. Load-binders.
Loading and unloading—
6. Pilers.
7. Raised track.
8. Raised track, track-end dump.
9. Raised track, track-end dump, tilting track-section.
13. Scoop, hoist, carry, and dump.
10. Shoveling devices.
11. Tilting platform.
12. Vertical hoist and dump.

CLASS 72.—MASONRY. (IV.)

Subclasses.

19. Apartment-houses.
26. Ash-chutes.
10. Bonding and tying.
27. Building-blocks.
13. Cellars.
2. Centering.
12. Cisterns.
4. Composite walls.
25. Construction, miscellaneous.
11. Coping.
28. Culverts.
6. Facing walls.
17. Foundations.
18. Hollow tile walls.
19. Smoke and air flues.
20. Stone and brick setting.
21. Subways.
23. Tile and metal floors.
22. Timber-seats.

CLASS 137.—WATER DISTRIBUTION. (IV.)

Subclasses.

1. Aquariums.
32. Check-valves.
Cocks and faucets—
26. Compound.
4. Reciprocating valves.
5. Sliding gates.
27. Tank.
35. Thermal.
6. Tube-compressors.
7. Turning plugs.
9. Cut-offs and spouts.
Filters—
36. Beer.
37. Cistern-cleaners.
45. Cistern-supply.
46. Decanters.
38. Faucet.
47. Filtering-faucets.
39. Granular-bed.
48. Materials.
40. Oil.
49. Porous-wall.
41. Portable.
50. Pressure.
42. Rotary-bed.
52. Service-pipe.
51. Strainers.
44. Submerged.
43. Systems.
11. Fountains.
12. Funnels.
33. Hose-patches.
13. Hydrants and plugs.
14. Irrigating and sprinkling—
63. Carts.
64. Heads.
60. Insertors.
65. Pipes.
67. Pumps.
62. Roses and cans.
61. Shakers.
66. Systems.
16. Mains and pipes.
59. Nozzle-holders.
17. Nozzles—
55. Compressible.
56. Flexible.
57. Splasher.
58. Systems.
Pipe-couplings—
28. Detachable.
34. Detachable and flexible.
29. Permanent.
30. Valved.
53. Safety-valves.
18. Sampling-tubes.
20. Siphons.
21. Tanks—
68. Automatic.
54. Valves for inflation.
31. Water-supply hose-holders.

DIVISION V.

EXAMINER LANE.

CLASSES.—11, Bookbinding; 41, Fine Arts; 63, Jewelry; 84, Music; 120, Stationery.

CLASS 11.—BOOKBINDING. (V.)

Subclasses.

1. Albums.
18. Bank-notes, checks, and bonds.
16. Binding.
2. Binding-machines—
33. Pamphlet-coverers.
24. Rounding and backing.
25. Signature-gatherers.
17. Books and binding.
3. Books and covers—
26. Cutting attachments.
4. Book-cover protectors.
5. Book-cutting.
12. Book-leaf holders and marks.
6. Book-stapling—
34. Continuous-feed.
18. Covers.
7. Indexing—
21. Card-catalogues.
27. Cutting and printing.
19. Leaves.
20. Leaves and covers.
9. Newspaper-files.
14. Postage and revenue stamps.
10. Temporary binders—
28. Longitudinal cords.
32. Projecting pins.
29. Removable covers.
30. Spring-backs.
31. Transverse cords.
15. Tickets.
11. Writing-tablets—
22. Continuous.
23. Manifolding.

CLASS 41.—FINE ARTS. (V.)

Subclasses.

2. Artificial flowers.
1. Artists' appliances.
19. Badges.
3. Banners and flags.
4. Canvas-stretchers.
6. Drawing-boards.
7. Easels.
9. Engraving and tools.
8. Engraving-machines.
10. Gilding. Leaf-
12. Medals.
21. Metal ornamentation.
13. Ornamenting cloth.
15. Pictures.
14. Picture-frames.
20. Picture-supports.
16. Sculpture.
17. Theater appliances.
18. Transfers.

CLASS 63.—JEWELRY. (V.)

Subclasses.

1. Bracelets.
2. Brooches.
4. Ear-rings.
5. Finger-rings.
8. Gem-setting.
6. Lockets.
11. Metal stock and ornamental wire fabric.
7. Ornamental chains.
10. Processes.
12. Scarf-pins.
9. Watch-chain attachments.

CLASS 84.—MUSIC. (V.)

Subclasses.

1. Accordions.
82. Autoharps.
53. Auxiliary strings.
120. Banjo-bridges.
121. Banjos—
122. Mutes.
123. Necks.
124. Resonators.
6. Castanets.
85. Charts—
86. Harmony and transposition.
7. Clarinets and flutes.
55. Combined organ and piano
125. Cornet-mutes.
8. Cornets and trumpets.
9. Couplers—
126. Pneumatic.
10. Drums—
127. Snare.
81. Electric actions—
128. Couplers.
129. Keyboard, self-playing.
130. Self-playing.
131. Sostenuto.
11. Exercising devices—
91. Hand attachments.
92. Keyboard.
93. Keyboard attachments.
94. Vocal.
87. Finger-boards.
132. Guitar-bridges.
133. Guitars—
134. Capo-tasto.
13. Harmonicas—
88. Supports.
12. Harmonic attachments—
56. Dampers—
83. Violin.
14. Harps.
48. Indicators—
150. Keyboard attachments.
15. Insulators.
57. Keyboard self-playing attachments.
58. Key-holding devices.
16. Keys and keyboards—
96. Touch-regulators.
49. Knee-swells.
17. Leaf-turners—
135. Spring and gravity.
136. Mandolin-bridges.
137. Mandolins.
79. Mouthpieces.
89. Musical blocks.
18. Notation.
Organ—
19. Actions—
95. Electropneumatic.
20. Pneumatic.
50. Bellows.
21. Cases.
22. Pipes.
59. Stop-actions—
54. Combination.
23. Swells.
47. Wind-chests.
Organs—
90. Pedal-bass.
32. Pipe.
35. Reed—
36. Attachments for.
111. Folding.
112. With pipes.
38. Steam.
24. Pedals—
97. Auxiliary.
98. Guards.
99. Locks.
61. Pianissimo devices.
Piano—
26. Actions—
100. Dampers.
101. Flanges.
102. Frames.
103. Hammers.
60. Pedal.
104. Plectrum.
138. Agraffes.
Piano—
27. Attachments.
139. Bridges.
140. Capo-tasto bars.
52. Cases—
118. Desks.
119. Fall-boards.
141. Knockdown.
148. Lid-props.
149. Swells.
28. Frames.
29. Legs.
30. Sounding-boards.
40. Stringing.
144. String-plates.
67. Tuning-pins—
105. Coupling-clamp.
106. Direct-pull.
107. Lever.
108. Presser-deflectors.
109. Push-rod and carrier.
110. Worm-gear.
25. Pianos—
142. Forte devices.
70. Sostenuto.
143. Tone-modifiers.
46. Violin.
31. Without strings.
68. Recording attachments.
33. Reeds.
34. Reed-boards.
37. Self-playing instruments—
71. Cylinder.
113. Electropneumatic.
84. Note-sheets—
145. Projections.
51. Pneumatic.
114. Spurs and picks.
69. Solo attachments.
146. Tailpieces—
147. Reel.
41. Transposers.
42. Tremolos.
43. Tuning instruments.
Violin—
72. Bows.
73. Bridges.
74. Chin-rests.
75. Dampers and mutes.
78. Tuning-pegs.
44. Violins—
76. Practice.
115. Supports.
80. Zithers—
116. Keyed.
117. Picks.

CLASS 120.—STATIONERY. (V.)

Subclasses.

4. Bill-files—
40. Boxes—
52. Indexes.
53. Indexes and followers.
41. Separators.
42. Continuous-web.
43. Division leaves and pockets.
44. Followers.
45. Impaling-pins.
46. Packet-holders.
47. Pins and followers.
5. Blotters.
6. Calendars—
48. Continuous-web.
49. Disk.
50. Roller.
7. Copy-holders—
57. Movable copy.
58. Movable marker.
39. Desk-rulers.
54. Drawing-pens.
9. Erasers.
11. Fountain-pens—
59. Special.
12. Hand-rests.
13. Inkstands.
37. Knife-erasers.
55. Moisteners and spreaders—Fountain-handle.
36. Paper-clips.
17. Paper-weights.
18. Pens—
51. Reservoir attachments.
19. Penholders—
56. Hand-rests.
20. Pen and pencil cases—
60. Clutch—
61. Automatic.
62. Compound—
63. Automatic.
64. Chalk-holders.
65. Screw and slide.
66. Step-by-step.
67. Magic.
68. Polypointed.
69. Screw.
70. Slide.
21. Pen racks and cleaners.
22. Pencils.
25. Pencil-sharpeners.
26. Post-office boxes.
28. Scholars' companions.
29. Slate and blackboard rubbers.
30. Sponge-cups.
35. Stylographic pens.
32. Ticket-cases.

DIVISION VI.

EXAMINER LITTLEWOOD.

CLASSES.—8, Bleaching and Dyeing; 23, Chemicals; 52, Explosives; 71, Fertilizers; 167, Medicines; 95, Photography; 99, Preserving; 127, Sugar and Salt; 128, Surgery.

CLASS 8.—BLEACHING AND DYEING. (VI.)

Subclasses.

16. Apron vats and stretchers.
2. Bleaching.
1. Carbon dyes.
18. Close vats.
5. Dyeing processes.
6. Dyes.
13. Mordants.
19. Open vats.
17. Perforated rolls and spray-jets.
7. Press-dyeing.
8. Renovating dress.
15. Steam and bleach chests.
12. Wool-cleaning.

CLASS 23.—CHEMICALS. (VI.)

Subclasses.

1. Acids. Mineral
21. Ammonia.
3. Apparatus.
24. Carbon compounds, not dyes.
5. Fire-extinguishing compounds.
10. Metalloids. Embraces non-illuminating gases, sulfur, and phosphorus.
11. Packing chemicals.
26. Purifying water.
13. Salines.
22. Soda and potash.

CLASS 52.—EXPLOSIVES. (VI.)

Subclasses.

1. Blasting-powder.
2. Fulminates.
4. Gunpowder.
5. Matches.
3. Nitro compounds.
6. Pyrotechnic compounds.

CLASS 71.—FERTILIZERS. (VI.)

Subclasses.

1. Apparatus.
9. Compositions.
6. Organic.
7. Phosphates.
8. Sewage and night-soil.

CLASS 167.—MEDICINES. (VI.)

Subclasses.

2. Capsules.
8. Disinfectants.
4. Extracts.
5. Hair dyes and tonics.
6. Insecticides.
7. Internal remedies.
8. Plasters.
11. Tobacco substitutes.
9. Topical remedies.
10. Veterinary.

CLASS 95.—PHOTOGRAPHY. (VI.)

Subclasses.

31. Actinometers.
2. Baths.
4. Burnishing.
5. Cameras—
53. Kinetographic,
39. Magazine,
40. Panoramic.
7. Camera-stands.
8. Coloring.
9. Daguerreotypy.
10. Dark rooms.
12. Embossing.
41. Finders.
42. Focusing devices.
16. Heaters and driers.
17. Mechanical printing.
18. Mounting.
32. Photosculpture.
22. Pictures.
36. Plate-holders—
43. Magazine.
25. Printing and vignetting.
29. Processes.
20. Retouching.
38. Roll-holders.
44. Shutters—
45. Curtain,
46. Diaphragm,
47. Pivoted,
48. Sliding.
49. Studios—
50. Accessories.
35. Surfaces—
51. Sensitive.
52. Trays and tanks.

CLASS 99.—PRESERVING. (VI.)

Subclasses.

1. Antiseptics.
2. Apparatus.
4. Cold.
5. Desiccation.
6. Egg-testers.
8. Exclusion of air.
11. Food compounds.
9. Fumigation.
10. Panification.
12. Wood saturation.

CLASS 127.—SUGAR AND SALT. (VI.)

Subclasses.

1. Bleaching cane-juice.
2. Bone-black.
3. Centrifugal machines—
21. Honey-extractors,
20. Liquid-separators,
22. Testers.
4. Confectionery.
6. Cube sugar.
7. Defecating.
8. Diffusion apparatus.
9. Evaporating-pans.
10. Glucose.
19. Graining and draining.
11. Mixers.
12. Molds and carriages.
14. Refining salt.
15. Refining sugar.
16. Salt-making.
23. Starch.
17. Sugar-making.
18. Vacuum-pans.

CLASS 128.—SURGERY. (VI.)

Subclasses.

2. Atomizers.
33. Baby-jumpers.
34. Baby-walkers.
3. Bandages—
37. Bandage-machines,
38. Suspensory,
30. Water.
4. Breast-pumps.
32. Capsule-machines.
5. Catamenial sacks.
9. Depurators.
35. Dumb-bells and clubs.
10. Ear.
36. Exercising-machines.
11. Eye.
13. Inhalers and respirators—
42. Mask.
43. Laryngoscopes.
28. Miscellaneous.
16. Movement cure.
17. Nasal douches.
44. Needle holders and cases.
18. Nipples.
19. Nursing-bottles.
20. Obstetrics.
21. Pessaries.
22. Pharmaceutical.
23. Scarificators and lancets.
24. Speculums.
25. Syringes—
45. Expanding arm,
46. Pile,
47. Water-bag.
49. Thermocauters.
26. Trusses.
51. Urinary apparatus.
27. Veterinary.

DIVISION VII.

EXAMINER SKINNER.

CLASSES.—56, Harvesters; 208, Velocipedes.

CLASS 56.—HARVESTERS. (VII.)

Subclasses.

1. Bean-harvesters.

Binders—
35. Compressors,
36. Grain-adjusters,
37. Sheaf-carriers.
2. Clover-harvesters.
3. Combined rakes and tedders.

Corn-harvesters—
40. Implements.
103. Stalk-cutters—
104. Droppers, Crane
105. Direct-tilting,
106. Ejector,
107. Endless-apron,
108. Horizontally moving and tilting,
109. Sliding-bottom,
110. Strippers,
111. Strippers, Comb
112. Knife,
113. Roller.
5. Corn-shockers.
6. Cotton-harvesters—
117. Pneumatic,
118. Rotating picker-stems.

Cutting apparatus—
42. Endless,
43. Guard-fingers and finger-bars,
44. Reciprocating,
45. Rotary,
46. Vibrating.

Droppers—
47. Direct-tilting,
49. Miscellaneous,
48. Opening and closing,
50. Side-delivery,
51. Swinging and tilting.
99. Fruit-gatherers.
9. Gearing.
31. Grain wheels and casters.

Hand-binders—
52. Attachments,
53. Elevated delivery, Rear
54. Elevated delivery, Side
55. Flat delivery,
56. Manual traction.
12. Hand-rakers.

Hay-loaders—
61. Endless belts,
62. Intermittent,
63. Lifting-reels,
64. Walking-rakes.
100. Headers.
16. Hedge-trimmers.
17. Hemp and flax harvesters.

Horse-rakes—
65. Draft-dumpers,
66. Drags,
67. Hand-dumpers,
68. Hay-cockers,
69. Rake-teeth,
115. Side-delivery.
19. Lawn-mowers—
114. Grass-catchers.
20. Manure-forks.
33. Miscellaneous.

Mowers—
70. Anomalies,
72. Center-cut,
73. Front-cut, One-wheel
74. Two-wheels,
76. Rear-cut, One-wheel
77. Two-wheels,
75. Reciprocating-gear,
78. Thrust-cut.
32. Platform adjustments.
22. Reels.

Revolving horse-rakes—
80. Flop-over,
81. Wheel.
27. Scythes and cradles.
24. Seats.

Self-binders—
82. Clips and prepared bands,
83. Cord-knotters,
84. General structure,
85. Gleaners and binders,
116. Self-binders,
86. Tension and take-up devices,
87. Twisters and tuckers,
88. Wire-twisters.

Self-rakers—
89. Endless carriers,
90. Gaveling-tongs,
91. Platform-movement,
92. Reciprocating, horizontal curvilinear,
93. Reciprocating, horizontal rectilinear,
96. Rotary, horizontal axis,
94. Rotary, vertical axis, switch,
95. Rotary, vertical axis, no switch,
98. Traveling, horizontal irregular path,
97. Traveling, vertical irregular path.
102. Shock-compressors.
28. Tedders.
29. Threshers.
30. Track clearers and dividers.

CLASS 208.—VELOCIPEDES. (VII.)

Subclasses.

11. Bearings.

Bicycles—
5. Header-preventers,
4. Ordinary, Rigid-frame
6. Safety, Rigid-frame
7. Spring-frame,
28. Supports,
8. Tandem.

Bicycles, Propulsion—
16. Crank and gear,
17. Crank and chain,
18. Lever and crank,
19. Lever, crank, and gear or chain,
20. Lever and ratchet,
21. Lever, ratchet, and gear or chain,
23. Miscellaneous,
22. Rack-and-pinion.
13. Brakes.
24. Children's seats.
27. Coupling-bars.
9. Crank-clutches.
3. Dicycles.
29. Dress and mud guards.
2. Epicycles.
14. Locks.
25. Luggage-carriers.
10. Pedals and cranks.

Polycycles—
42. Figure,
43. Spring-frame,
44. Steering devices.

Polycycles, Propulsion—
40. Axle-couplings,
32. Crank and chain,
31. Crank and gear,
30. Crank and pitman,
33. Lever and crank,
34. Lever, crank, and gear or chain,
35. Lever and ratchet,
36. Lever, ratchet, and gear or chain,
38. Miscellaneous,
37. Rack-and-pinion,
41. Rowing-machines.
15. Saddles.
12. Steering-heads and handle-bars.
26. Steps and foot-rests.
1. Unicycles.

DIVISION VIII.

ACTING EXAMINER McROBERTS.

CLASSES.—5, Beds; 155, Chairs; 156, Curtains, Shades, and Screens; 45, Furniture; 65, Kitchen and Table Articles; 211, Store Furniture.

CLASS 5.—BEDS. (VIII.)

Subclasses.

Beds—
1. Air,
5. Camp.

Bed-bottoms—
39. Fabrics,
40. Fabrics and springs,
25. Slats,
26. Slats and springs,
29. Springs.

3. Bed-clothing.

4. Bedsteads—
41. Attachments,
42. Braces,
8. Extension,
9. Folding,
12. Invalid—
43. Head-sections,
44. Lifters and conveyers,
45. Vertically-moving frame,
16. Sofa—
46. Extension,
47. Folding-back,
48. Folding back and seat,
49. Folding-seat,
50. Rotary back and seat,

Bedsteads—
Sofa—
51. Vertically-moving frame,
17. Table,
18. Wardrobe-bedsteads—
52. Center-folding,
53. End-folding,
54. Extension,
54. Shifting-fulcrum,
37. Single-frame,
38. Sliding-frame.
22. Clothes-clamps.
55. Corner-fastenings.
56. Cradles—
57. Motor-operated.
58. Cribs—
59. Attachments.
10. Hammocks—
31. Stretchers,
32. Supports.
13. Mattresses.
14. Mosquito-nets and canopies.
15. Pillows.
33. Pillow-sham holders.
21. Springs.

CLASS 155.—CHAIRS. (VIII.)

Subclasses.

3. Chairs—
27. Adjustable backs,
28. Adjustable backs and seats,
26. Attachments,
29. Backs and seats independently adjustable,
4. Bottoms,
6. Convertible,
7. Dentists',
8. Folding—
30. Adjustable,
11. Invalid,
12. Nursery,
13. Opera,
16. Reclining,
18. Rocking—
31. Platform,
21. Step-ladder,
23. Surgical,
36. Swinging,
24. Tilting.

38. Pads and feet.
Rests—
9. Foot,
10. Head.
34. School seats and desks.
Seats—
2. Car,
5. Circus,
37. Reversible,
25. Spring.
19. Settees.
20. Sofas.
22. Stools and seats—
38. Duplex,
39. Pawl and ratchet,
40. Pedestal,
41. Screw.
Stools—
42. Cane,
32. Folding.
35. Swings.
43. Upholstery.

CLASS 156.—CURTAINS, SHADES, AND SCREENS. (VIII.)

Subclasses.

15. Awnings.
32. Curtain-cord tighteners.
40. Curtain-tassels.
Curtain—
33. Holders,
19. Poles,
20. Poles and rings,
22. Pole-supports,
21. Rings and pins.
16. Flexible blinds.
23. Shade and curtain hangers.
Shade—
24. Brackets,
25. Fastenings,
26. Guides,
27. Hangers, vertically-adjustable,

Shade—
28. Raisers,
29. Rollers—
30. Dropping,
34. Friction-brake,
35. Ratchet-and-pawl,
36. Spring,
31. Sticks.
17. Venetian blinds.
13. Window-cornices—
14. Screens—
37. Exits,
38. Extensible,
39. Rolling,
10. Shades.

CLASS 45.—FURNITURE. (VIII.)

Subclasses.

1. Bookcases—
53. Adjustable shelf-partitions,
54. Adjustable shelves and shelf-supports,
55. Hanging shelves,
78. Knockdown,
79. Revolving,
56. Roller-shelves.

Book and music holders—
57. Base-supported—
80. Adjustable,
81. Rotary,
59. Body-supported,
60. Book-stands—
85. Folding,
86. Leveling,
58. Bracket-supported—

CLASS 45.—Continued.

Book and music holders—
Bracket-supported—
82. Adjustable,
61. Leaf-holders,
83. Leaf-rests,
62. Music-stands—
121. Portable,
64. Portfolio.
Brackets—
65. Arm-supporting—
84. Adjustable,
66. End-supporting—
67. Adjustable.
5. Bureaus—
88. Knockdown.
89. Carpet-stretchers.
43. Carpet stretchers and tackers.
68. Covers.
6. Desks—
90. Attachments,
91. Lids—
92. Flexible,
69. Portable,
93. Sectional,
70. Table.
7. Drawers—
77. Guides,
94. Locking devices,
95. Swinging,
96. Tilting.
13. Hat and coat racks.
15. Insect-guards.
16. Kitchen-cabinets.
18. Mirrors—
97. Bracket,
98. Hand,
99. Multiple,
100. Stand,
39. Window.
22. Packing furniture.
23. Picture-hangers—
101. Adjustable.
71. Provision-safes—
102. Knockdown,

Provision-safes—
103. Revolving,
104. Window.
24. Quilting-frames.
105. Screens—
106. Folding.
28. Soap-holders.
41. Spittoons—
107. Covered,
108. Flushing.
31. Tables—
109. Adjustable angularly—
110. Angularly and vertically.
74. Folding,
111. Vertically,
75. Attachments,
9. Extension—
112. Center,
113. End,
114. Flexible top,
115. Slides,
11. Folding—
116. Sectional top,
122. Game,
17. Kitchen,
46. Lap,
47. Leaf-supports,
48. Leg fastening and bracing,
117. Pedestals,
26. Self-waiting,
27. Sewing-machine—
120. Covers,
50. Surgical,
51. Wall.
32. Towel racks and stands.
52. Type-writer cabinets.
33. Umbrella-stands.
36. Wall-protectors.
37. Wardrobes—
118. Knockdown.
38. Washstands—
119. Reservoir.

CLASS 65.—KITCHEN AND TABLE ARTICLES. (VIII.)

Subclasses.

3. Cake-turners.
5. Casters—
55. Rotary.
10. Compound tools—
56. Gripping.
45. Condiment-holders—
57. Pulverizing.
12. Culinary.
13. Cups—
58. Collapsible.
15. Dishes and plates—
59. Covered,
60. Pivoted covers.
16. Dish-covers—
61. Stands.
20. Dust-pans—
62. Brush attachments,
63. Foot-pieces.
22. Egg-cups.
25. Fruit-lifters.
26. Jar-lifters.
28. Ladles.
29. Napkin-holders.
30. Oyster-openers.
31. Pitchers—
64. Tilting-frame.
32. Plate-lifters.
65. Racks and rests.
36. Scoops.
46. Stopper-extractors—
47. Hook,
48. Screw—
49. Lever-operated,
50. Rotary,
51. Screw and lever.
52. Table-tongs.
53. Trays—
54. Attaching devices.

CLASS 211.—STORE FURNITURE. (VIII.)

Subclasses.

1. Bag and twine holders—
2. Bag-holders,
3. Twine-holders—
4. Take-up—
5. Rotary.
6. Bins.
7. Cabinets—
8. Delivering,
9. Grocers',
10. Spool.
11. Counters—
12. Attachments.
13. Display-forms.
14. Display-racks.

Display-racks—
15. Adjustable-arm,
16. Enclosed,
17. Hanging,
18. Roll,
19. Rope,
20. Rotary—
21. Enclosed,
22. Sample-sheet—
23. Rotary.
24. Display-stands.
25. Show-cases—
26. Lid-lifters.
27. Shelving.

DIVISION IX.

EXAMINER TRYON.

CLASSES.—4, Baths and Closets; 169, Fire-Extinguishers; 138, Hydraulic Motors; 103, Pumps; 182, Sewerage.

CLASS 4.—BATHS AND CLOSETS. (IX.)

Subclasses.

1. Basins and stands.
24. Bath and basin fittings.
2. Bathing apparatus—
25. Bidets,
26. Shower,
27. Tubs.
19. Bed-pans.
5. Closet-cisterns—
28. Combined supply and flush valves.
29. Couplings, miscellaneous.
30. Disinfecting apparatus.
20. Dry closets—
31. Magazine,
32. Portable,
33. Receptacles.
34. Float-valves.
35. Plugs, covers, and strainers.
36. Sinks.
12. Urinals.
13. Vapor-baths.
Water-closets—
16. Plunger,
22. Siphon,
17. Valved,
23. Washout.
21. Water-closet and sewer ventilation.
18. Water-closet attachments.
37. Water-closet couplings.
15. Water-closet valves.

CLASS 169.—FIRE-EXTINGUISHERS. (IX.)

Subclasses.

5. Automatic nozzles and sprinklers.
6. Automatic valves.
4. Car-heater.
7. Chemical-mixing—
8. Automatic.
9. Chemical stream impregnating.
10. Combustion.
11. For oil-tanks.
12. Gas-pressure supply.
13. Miscellaneous.
Portable—
14. Automatic,
15. Grenades,
16. Hand vessels,
17. Liquid pumps and syringes,
18. Water-towers,
19. Wheeled.
20. Stationary systems—
21. Automatic,
22. Automatic valve—
23. Pressure-controlled,
24. Chemical-mixing,
25. Gas-pressure supply.

CLASS 138.—HYDRAULIC MOTORS. (IX.)

Subclasses.

11. Chain.
13. For cranes.
8. For elevators—
14. Valves,
15. Varying power.
9. For jacks.
10. For presses—
16. Valves,
17. Varying power.
1. Oscillating.
2. Reciprocating.
3. Rotary—
12. Feathering,
18. Impact.
Turbines—
4. Bottom-supply,
5. Side-ring supply,
6. Top and side direct-supply,
7. Top-ring supply.

CLASS 103.—PUMPS. (IX.)

Subclasses.

45. Accumulators.
52. Air-suction chamber.
53. Assembling.
5. Cattle.
6. Chain.
50. Collapsible tube.
54. Combined types.
8. Compressed-air water-elevators—
84. Aerated column,
55. Hydraulic compression.
10. Diaphragm.
56. Differential reciprocating pistons—
57. Hollow piston-rod.
Elements—
58. Air and vacuum chambers,
60. Cut-off and drain devices,
59. Cylinders,
61. Miscellaneous and combined,
62. Operating devices,
63. Pistons,
64. Sand traps and strainers,
65. Stocks, curbs, and supports,
Elements—
66. Valves.
67. Fluid motive power—
68. Fluid-transmitting,
69. Water-wheel.
17. Hollow piston-rod—
70. Double-acting—
71. One solid piston,
72. Multiple-cylinder.
73. Oscillating piston.
51. Railway-tank feeders.
29. Rams.
44. Rotary double-piston.
43. Rotary single-piston.
74. Sand-bailers.
75. Solid reciprocating piston—
76. Double-acting,
77. Multiple-cylinder—
78. Double-acting.
79. Systems.
80. Valved reciprocating piston—
81. Multiple-cylinder,
82. Opposing pistons,
83. Successive pistons.
35. Windlass water-elevator.

CLASS 182.—SEWERAGE. (IX.)

Subclasses.

9. Animal-stops.
2. Cleaning.
3. Construction.
4. Flushing.
8. Flush-tank siphons.
10. Manholes, catch-basins, and cesspools.
6. Mechanical treatment.
7. Systems.
Traps—
11. Air-valves,
12. Liquid-seal—
13. Pipe-inlet,
14. Valve-seal.

DIVISION X.

EXAMINER SANDERS.

CLASS.—21, Carriages and Wagons.

CLASS 21.—CARRIAGES AND WAGONS. (X.)

Subclasses.

80. Ambulances and stretchers.
2. Axle-boxes.
4. Axle-skeins.
5. Axles.
7. Bodies.
81. Boots and aprons.
10. Brake-levers.
8. Brakes—
9. Automatic,
82. Shoes.
11. Carriage-irons.
85. Chafe-irons.
12. Children's carriages—
83. Folding,
84. Stops.
86. Chute-wagons.
13. Clips.
14. Close carriages.
15. Dashboards.
125. Doors and windows.
76. Draft-equalizers.
19. Drays.
20. Dumping-wagons.
21. End-gates.
87. Felloes and rims.
23. Fenders.
24. Fifth-wheels.
88. Hand-barrows.
74. Hay-racks.
26. Hearses.
27. Holdbacks.
75. Horse-detachers.
28. Hose-carriages.
29. Hounds.
30. Hub-attaching devices.
89. Hub-caps.
31. Hubs.
32. King-bolts.
33. Lumber-wagons.
90. Motor-vehicles.
77. Neck-yokes.
35. Poles and shafts—
91. Convertible.
92. Pole-tips.
39. Running-gear.
40. Sand-bands.
41. Seat-locks.
42. Seats—
43. Shifting,
44. Spring.
45. Shifting-rails.
93. Short-turning gear.
46. Sled-brakes.
47. Sled-propellers.
48. Sleds—
94. Hand,
95. Shifting-thills,
96. Wheel-runners.
49. Spoke-sockets.
97. Spring-gear—
99. Axle cross,
101. Lever,
100. Longitudinal,
98. Side-bar cross,
50. Springs—
102. Bolster,
105. Braces and equalizers,
103. Elliptic,
51. Platform,
104. Shackles,
53. Torsion.
54. Standards.
55. Steps.
56. Sulkies.
57. Thill-couplings—
106. Antirattlers,
107. Jacks.
108. Thill-supports.
Tires—
109. Cushion,
112. Inflating,
110. Metallic,
111. Pneumatic,
126. Pneumatic armor,
113. Repairing.
59. Tire-tighteners.
63. Tongue-supports.
60. Top-joints.
61. Top-props.
62. Tops.
114. Traction-engines—
124. Steppers.
64. Traction-wheels.
65. Trucks—
121. Barrel,
116. Brick,
122. Drying,
118. Elevating,
115. House-moving,
120. Implement,
117. Piano,
119. Water-barrel.
68. Wheelbarrows.
69. Wheels—
123. Spring.
79. Whiffletree-hooks.
78. Whiffletrees.

DIVISION XI.

EXAMINER HARMON.

CLASSES.—12, Boots and Shoes; 24, Buckles, Buttons, Clasps, Etc.; 218, Button Setting and Eyeleting; 54, Harness; 60, Hose and Belting; 69, Leather-Working Machinery; 219, Punches.

CLASS 12.—BOOTS AND SHOES. (XI.)

Subclasses.

2. Boot-jacks.
30. Boot-treeing machines.
3. Boot-trees.
4. Burnishing.
24. Channeling-machines.
5. Crimping.
6. Edge-planes and shaves.
32. Hand nailing implements.
34. Heel-machines.
33. Heel-nailing machines.
29. Heel-stiffener machines.
7. Heels.
8. Ice-creepers.
9. Lasts.
25. Lasting and lasting-tools.
10. Lasting-machines.
31. Peg-floats.
11. Pegs.
12. Pegging-jacks.
13. Pegging-machines, nails and pegs—
35. Wire.
14. Rubber.
15. Shanks and machines.
16. Shoe-fastenings.
17. Soles.
18. Sole and heel trimming machines.
19. Sole-machines.
26. Sole and heel plates.
20. Tips and stiffeners.
21. Tools.
22. Uppers.
23. Upper-machines.

CLASS 24.—BUCKLES, BUTTONS, CLASPS, ETC. (XI.)

Subclasses.

1. Baggage-checks.
Bale and package ties—
2. Bale-ties,
3. Package-ties.
4. Belt-slide and skirt-supporting attachments.
Buckles—
5. Ball,
6. Clamp,
7. Guards,
8. Lock,
9. Pivoted-tongue,
10. Pivoted-tongue and clamp,
11. Rigid-frame and tongue,
12. Slide,
13. Sliding tongue-piece,
14. Suspender,
15. Wedge.
16. Buckles and snap-hooks combined.
17. Buttoners.
18. Buttons—
19. Cloth-shank,
20. Link,
21. Separate thread-bar.
26. Buttons, detachable—
29. Separable—
32. Screw,
30. Spring—
31. With operating devices,
28. Spiral-fasteners,
27. Spring-fasteners,
33. Buttons, hinged shoe—
34. Axial,
36. Double spring-leaf,
35. Single spring-leaf,
37. Sliding shoe.
38. Button-covers.
22. Button-fasteners—
23. Integral-prong,
24. Spring,
25. Tack-and-rivet.
39. Button-guards.
40. Button-loops.
41. Carriage-curtain fasteners.
Clasps—
42. Album,
43. Extensible,
44. Hook-and-loop—
45. Spring-retained,
46. With keeper,
47. Keyhole-slot,
48. Lace,
49. Lever,
50. Pencil,
51. Pivoted-latch,
Clasps—
52. Resilient head and socket,
53. Ribbon,
54. Shoe,
55. Spring,
56. Spring with closing device,
57. Wedge.
Cord and rope clamps—
58. Friction,
59. Positive-grip.
60. Corset-fastenings.
61. Cuff-holders.
62. Eyelets—
63. Plastic-head.
Garment-fastenings—
64. Lacing,
65. Spring-frame.
66. Garment-supporters.
67. Glove-fastenings.
68. Hooks—
69. Foldable,
70. Hat-hangers,
71. Hat-holders,
72. Hooks and clasps combined,
73. Guarded,
74. Lock,
75. Picture,
76. Pneumatic,
77. Removable,
78. Spring-bill,
79. Suspension devices,
80. Twin,
81. Two-part.
85. Hooks and eyes.
Snap-hooks—
82. Pivoted-tongue,
83. Sliding-bolt,
84. Spring-tongue,
86. Lacing-studs—
87. Plastic-head.
88. Necktie-fasteners—
89. Band-fasteners,
90. Depressors,
91. Make-ups.
92. Paper-fasteners.
93. Safety attachments—
94. Safety attachments and pencil-clasps combined,
95. Pocket.
96. Sleeve-holders.
97. Strap-attaching devices.
98. Suspenders.
99. Suspender-ends.
100. Tags and tag-fasteners.

CLASS 218.—BUTTON SETTING AND EYELETING. (XI.)

Subclasses.

1. Button-setting machines.
2. Button-setting tools.
3. Eyeleting-machines.

CLASS 54.—HARNESS. (XI.)

Subclasses.

40. Billet-loops.
1. Bonnets and covers.
41. Breast-strap slides.
2. Bridle-bits.
3. Bridles and halters.
37. Check hooks and terrets.
38. Checking and unchecking.
4. Collar-fasteners.
5. Collar-machines.
6. Fly-nets.
8. Hame-fasteners.
28. Hame-tugs.
9. Hames.
10. Harness—
29. Attachments,
11. Machines,
30. Pads,
Harness—
12. Saddles,
13. Tools.
35. Hitching-straps.
16. Horse-boots.
17. Horse-collars.
31. Ox-yokes.
36. Rein buttons—
32. Holders,
39. Supports.
21. Riding-saddles.
22. Spurs and stirrups.
24. Trace-carriers.
25. Trimmings.
26. Tugs.
27. Whips.
33. Whip-sockets.

CLASS 60.—HOSE AND BELTING. (XI.)

Subclasses.

1. Belt-fasteners—
2. Machines,
7. Stretchers.
3. Belting.
4. Hose and tubing.
5. Hose-machines.

CLASS 69.—LEATHER-WORKING MACHINERY. (XI.)

Subclasses.

1. Cutting.
3. Machines.
4. Splitting.

CLASS 219.—PUNCHES. (XI.)

No subclasses.

DIVISION XII.

EXAMINER AUGHINBAUGH.

CLASSES.—193, Conveyers; 187, Elevators; 159, Fire Escapes and Ladders; 57, Hoisting; 64, Journal-Boxes, Pulleys, and Shafting; 74, Machine Elements; 186, Store-Service; 200, Towers.

CLASS 193.—CONVEYERS. (XII.)

Subclasses.

1. Conveyers.
2. Endless—
3. Adjustable leg,
4. Belt,
5. Boot,
6. Buckets,
7. Buckets, with traction-rollers,
8. Flights,
9. Hooks.
10. Pneumatic—
21. Stackers.
11. Reciprocating.
12. Retransfer and weighing.
13. Screw.
22. Spouts.
20. Storehouse.
14. Thresher attachments—
15. Foldable,
16. Laterally and vertically adjustable,
17. Oscillatory,
18. Vertically-adjustable.
19. Trimmers.

CLASS 187.—ELEVATORS. (XII.)

Subclasses.

10. Adjustable balances.
11. Automatic stops.
12. Chairs.
13. Combined locks and automatic stops.
2. Controllers—
35. Running-rope.
14. Counterweights.
3. Dumb-waiters.
1. Elevators.
15. Guides.
5. Hod.
6. Indicators.
7. Lazy-tongs.
16. Locks.
17. Mail.
8. Safety devices—
18. Door-locked controllers,
21. Overwinding,
22. Shaft-guide catches and grips,
Safety devices—
25. Slack-cable stops,
19. Speed-governors—
20. Fluid-retarders,
23. Well-bottom cushions,
24. Well-obstruction.
9. Screw.
26. Screw and traveling sheave or block.
Well-doors—
Horizontal—
27. Horizontal hinge,
28. Horizontally-slidable,
29. Vertical hinge,
30. Vertically-slidable,
Vertical—
31. Horizontal hinge,
32. Horizontally-slidable,
33. Vertical hinge,
34. Vertically-slidable.

CLASS 159.—FIRE ESCAPES AND LADDERS. (XII.)

Subclasses.

10. Bed-bottom.
11. Blanket.
Checks—
22. Escapement,
23. Fluid,
24. Fly,
25. Governor.
1. Chutes.
4. Friction—
28. Hand-clamp,
26. Jaw,
27. Jaw, set-screw,
29. Reel—
30. End-thrust,
32. Jaw-brake,
33. Jaw-brake, tension,
31. Strap-brake,
34. Shooting lines,
35. Tortuous,
36. Tortuous and jaw—
37. Set-screw,
38. Wheel-brake.
5. Hoists—
39. Fixed guides,
40. Movable guides,
41. Pulley-block,
42. Reciprocating cages,
43. Shooting-spar,
9. Trolley.
8. Ladders—
49. Collapsible,
Escape—
58. Balcony,
15. Fixed,
16. Mounting,
17. Sectional hand,
19. Shooting and truck,
18. Trolley,
50. Extension,
51. Feet,
3. Flexible—
44. Reel,
45. Sectional—
46. Elevator,
47. Single-stile,
48. Trolley,
52. Hooks,
57. Jacks,
53. Sectional,
7. Step—
56. Store-service,
54. Stops,
55. Trussed.
6. Lazy-tongs.
14. Sliding poles.
Towers—
13. Fixed,
12. Shooting.

CLASS 57.—HOISTING. (XII.)

Subclasses.

107. Bale and box hooks.
2. Barrel-rollers.
34. Block and tackle—
5. Differential pulleys.
22. Capstans and windlasses—
82. Capstans,
83. Drum and clutch,
84. Hand-crank operated,
85. Lever-operated,
86. Steam-winch,
87. Sweep-operated,
88. Wildcats,
89. Windlass with capstan.
37. Chutes—
114. Counterweighted,
115. Equalizers.
9. Grapples.
Hay-forks—
39. Corkscrew,
40. Grapple,
41. Harpoon,
42. Tilting.
11. Hay-slings.
13. Hoisting-buckets.
108. Lewises.
Lifters—
109. Barrel and box,
110. Picture,
111. Spittoon,
112. Spool,
113. Store-goods.
15. Lifting-jacks—
97. Bar and cam-lever,
43. Lever,
98. Lever, bar, and clutch-loop,
99. Lever, bar, and double-acting pawls,
100. Lever, bar, and pawl,
101. Lever and lifting-bar,
102. Rack and pinion,
44. Screw.
18. Skids.
53. Stackers.
19. Stump-extractors—
103. Drum,
104. Lever,
105. Lever and drum,
106. Screw.
79. Wagon-raisers.

CLASS 64.—JOURNAL-BOXES, PULLEYS, AND SHAFTING. (XII.)

Subclasses.

27. Axles, lubricating.
4. Belt-shifters.
5. Belt-tighteners.
7. Compensating journals.
41. Gudgeons.
21. Idle-pulley supports.
10. Journal-boxes—
20. Brasses,
19. Compositions,
22. Guards,
23. Lids,
24. Lubricating—
31. Band-applying,
32. Centrifugal,
28. Coolers,
33. Roller-applying—
34. Elastically-supported,
35. Yieldably-supported pads,
Journal-boxes—
Roller-bearings—
36. Ball,
37. Ball and cylinder,
38. Cylinder—
39. Circular series,
25. Thrust-bearings.
17. Pulleys—
8. Expansible,
40. Grip,
26. Lubricating,
18. Split.
12. Shafts, casings—
13. Couplings,
14. Hangers.
29. Shafting—
30. Flexible.

CLASS 74.—MACHINE ELEMENTS. (XII.)

Subclasses.

1. Cams and eccentrics.
5. Cranks and levers—
38. Cranks and wrist-pins,
33. Handles,
39. Hand-levers.
6. Fly-wheels.
7. Gearing—
21. Belt,
26. Frictional,
34. Planetary—
35. Eccentric,
36. Screw,
40. Screw and nut,
28. Sectional,
31. Sprocket—
32. Sprocket-chain—
42. Endless-belt,
43. Solid-link,
44. Solid-link and coupler,
41. Teeth and bodies,
Gearing—
Sprocket—
29. Yieldable.
8. Gibs and keys.
13. Machine-brakes—
45. Centrifugal speed-regulators,
46. Stop mechanisms,
37. Strap.
14. Mechanical movements.
20. Overcoming dead-centers.
16. Pawls and ratchets.
17. Pitmen—
47. Longitudinally-adjustable rod,
48. Longitudinally-yieldable.
27. Racks and pinions.
18. Treadles—
30. Hand attachments.
19. Universal joints.

CLASS 186.—STORE-SERVICE. (XII.)

Subclasses.

3. Buffers.
4. Carriers—
5. Wheeled.
6. Elevators and drops.
1. Gravity.
2. Propulsion—
11. Cable,
12. Spreaders.
7. Switches.

CLASS 200.—TOWERS. (XII.)

Subclasses.

1. Girders and columns.
4. Portable.
2. Skeleton.
3. Telegraph-poles.

DIVISION XIII.

EXAMINER WINTER.

CLASSES.—86, Arms and Projectiles: Making; 59, Chains, Staples, and Horseshoes; 53, Hardware-Making; 10, Metal Bolts, Nuts, Rivets, and Screws; 77, Metal Boring and Drilling; 205, Metal-Drawing; 78, Metal-Forging; 80, Metal-Rolling; 76, Metal Tools and Implements: Making; 134, Metal-Tube Manufacture; 82, Metal Turning, Planing, and Milling; 206, Metal-Welding; 85, Nails and Spikes; 163, Needles and Pins; 152, Wagon, Car, and Track Irons.

CLASS 86.—ARMS AND PROJECTILES. MAKING (XIII.)

Subclasses.

1. Arms.
2. Bullets and shot.
3. Cannon and ball.
4. Cartridges and caps.
5. Gun-barrels.
7. Rifling.

CLASS 59.—CHAINS, STAPLES, AND HORSESHOES. (XIII.)

Subclasses.

1. Chains.
2. Chain and link making.
9. Detachable links.
4. Horseshoe-bars. Making
5. Horseshoe-calks. Making
6. Horseshoe-machines.
10. Key-holders.
7. Staples.
8. Staples, making
11. Swivels.

CLASS 53.—HARDWARE-MAKING. (XIII.)

Subclasses.

1. Bridge-irons.
2. Builders' hardware.
3. Cutlery.
4. Eyebolts and hooks.
6. Ferrules, rings, and thimbles.
8. Gas and water fittings.
10. Hinges.
11. Leather-workers' hardware.
9. Miscellaneous.
20. Musical-instrument work.
21. Printing appliances.
13. Spinners' and weavers'.
15. Spoons, manufacture of
16. Springs.
22. Stamping.
17. Sucker-rod joints.
18. Umbrella-irons.

CLASS 10.—METAL BOLTS, NUTS, RIVETS, AND SCREWS. (XIII.)

Subclasses.

1. Bolts and nuts, dressing and assembling.
2. Bolts and rivets.
3. Bolts and rivets, making.
4. Capping screws and nails.
5. Metal-screw machines.
6. Nuts and washers.
7. Nuts and washers, making.
8. Screws.
9. Screw-blank feeders.
10. Screw-cutting machines.
11. Screw-swaging machines.
12. Screw-tapping machines.
13. Screw-threading machines.
14. Taps and dies.
15. Wood-screw machines.

CLASS 77.—METAL BORING AND DRILLING. (XIII.)

Subclasses.

1. Bits.
2. Boring and drilling appliances.
3. Boring-machines.
4. Drill-chucks.
5. Drills, Hand—
9. Ratchet.
6. Drilling-machines.
7. Reamers and drifts.
8. Tapping mains.

CLASS 205.—METAL-DRAWING. (XIII.)

Subclasses.

1. Bars.
5. Draw-plates.
7. Lubricants.
6. Roller-dies.
2. Tubes.
3. Wire—
8. Covering,
4. Reels.

CLASS 78.—METAL-FORGING. (XIII.)

Subclasses.

1. Anvils.
16. Compressing.
3. Drop-hammers.
5. Forging.
8. Olivers.
9. Power-hammers.
11. Riveting.
18. Shafts and pulleys
19. Structural work.
15. Upsetting metal.
21. Wire pointing.

CLASS 80.—METAL-ROLLING. (XIII.)

Subclasses.

11. Angle-irons.
1. Cylindrical.
2. Foil. Manufacture of
3. Mill appliances.
8. Plates and bars.
5. Puddlers' balls.
6. Railroad-rails.
13. Reworking.
14. Rods for wire.
7. Rolling, miscellaneous.
9. Sheet and hoop iron manufacture.
10. Taper.

CLASS 76.—METAL TOOLS AND IMPLEMENTS. MAKING (XIII.)

Subclasses.

1. Augers.
2. Axes and hatchets.
27. Compound metal-working machines.
3. Cultivator-irons.
4. Dies.
5. Drills.
6. Farm implements.
7. File-blanks.
8. File-cutting.
9. Files and rasps.
10. Hammers.
11. Harvester-irons.
12. Hoes and shovels.
13. Picks and mattocks.
14. Pitchforks.
15. Plow-irons.
16. Rake and harrow irons.
26. Saw clamps and jointers.
19. Saw-setting.
22. Saw-swaging.
17. Saws.
18. Saws, gumming.
20. Saws, sharpening, reciprocating tool.
21. Saws, sharpening, rotary tool.
23. Scythes.
24. Tools and implements.
25. Wrenches.

CLASS 134.—METAL-TUBE MANUFACTURE. (XIII.)

Subclasses.

10. Bent seam.
3. Cross weld.
11. Lining.
8. Mandrels.
4. Seamless—
   Rolling—
7. Cross,
   Seamless—
   Rolling—
5. Longitudinal,
6. Spiral.
2. Spiral weld.
1. Straight weld.
9. Tubes.

CLASS 82.—METAL TURNING, PLANING, AND MILLING. (XIII.)

Subclasses.

1. Centerers.
2. Cutters and cutter-holders.
4. Gear-cutting.
5. Key-seat cutters.
6. Lathe-chucks.
7. Mandrels and work-holders.
8. Milling.
9. Milling-cutters.
10. Planer-chucks.

Planers—
11. Reciprocating bed or cutter,
    Planers—
12. Rotary bed or cutter.
13. Rests.
14. Shaping and slotting.

Turning—
15. Irregular forms,
16. Miscellaneous,
17. Tapers,
18. Wheels and axles.
19. Watchmakers' lathes.
20. Wrist-pin turners.

CLASS 206.—METAL-WELDING. (XIII.)

Subclasses.

7. Fluxes.

Ingots and piles—
2. Bar,
3. Beam,
4. Plate,
5. Rail,
   Ingots and piles—
6. Tube.

Metal-working—
8. Electric.
1. Welding.

CLASS 85.—NAILS AND SPIKES. (XIII.)

Subclasses.

1. Cut-nail making.
3. Horseshoe-nail-blank finishing.
2. Horseshoe-nail cutting.
4. Horseshoe-nail forging.
6. Nail-distributers.
18. Nail-heads, ornamental.
8. Nail-plate feeders.
9. Nails and spikes.
15. Shoe nails and tacks—
19. Making.
16. Spike-making.
17. Wrought-nail making.

CLASS 163.—NEEDLES AND PINS. (XIII.)

Subclasses.

1. Machine-needles, making.
4. Pins, making.
5. Pins, papering.
6. Sewing-needles, making.

CLASS 152.—WAGON, CAR, AND TRACK IRONS. (XIII.)

Subclasses.

1. Car axles and boxes. Making
2. Car and locomotive irons.
3. Carriage clips and shackles.
4. Carriage-irons, miscellaneous.
5. Car-wheels and tires.
6. Fifth-wheels, making.
7. Railway-chairs.
8. Repairing and capping ralls.
10. Tire-upsetting.
11. Track-irons, miscellaneous.
12. Wagon axles and boxes. Making
13. Wagon tires and fellies. Making

DIVISION XIV.

EXAMINER MAXSON.

CLASSES.—194, Coin-Controlled Apparatus; 168, Farriery; 153, Metal-Bending; 201, Metal-Ornamenting; 79, Metal Personal Wear: Making; 164, Metal Punching and Shearing; 81, Metal-Working Tools; 151, Nut and Bolt Locks; 113, Sheet-Metal Ware: Making; 140, Wire-Working.

CLASS 194.—COIN-CONTROLLED APPARATUS. (XIV.)

Subclasses.

1. Article-delivery—
26. Chance,
2. Oscillatory,
3. Rotatory—
4. Sheet-feed,
5. Slidable pusher, coin-engaged,
6. Slidable pusher, detent,
7. Slidable pusher, detent and handle,
27. Spiral.
32. Boot-blacking.
28. Chairs.
29. Dice-throwers.
8. Door and turnstile locks.
9. Exhibitors, movable-object—
10. Surface.
11. Fluid-delivery.
12. Fraud-preventives.
30. Gasometers.
13. Height-measurers
14. Induction-coils.
15. Loan-receptacles.
16. Miscellaneous.
31. Music-boxes.
35. Opera-glasses.
17. Phonographs.
18. Photographic.
19. Race-courses.
36. Shooting devices.
25. Telephones.
20. Testers—
21. Lung,
22. Strike.
23. Weighing—
24. Recorders.

CLASS 168.—FARRIERY. (XIV.)

Subclasses.

10. Calks.
1. Calk-sharpeners.
2. Hoof and shoe spreaders.
3. Hoof cleaners and trimmers.
5. Hoof-pads.
6. Shoes—
11. Composite,
12. Nailless,

Shoes—
13. Ox,
14. Removable-calk,
15. Soft-tread,
16. Swamp.
7. Shoe-nail clenchers.
8. Shoeing-stands.
9. Toe-weights.

CLASS 153.—METAL-BENDING. (XIV.)

Subclasses.

1. Bending—
11. By press,
12. By rolls.
2. Coiling.
13. Coiling and bending pipe.
3. Corrugating.
4. Curving plates.
5. Dishing plates.
6. Flanging—
7. Straight.
8. Straightening—
9. Plates and sheets.
10. Twisting.

CLASS 201.—METAL-ORNAMENTING. (XIV.)

Subclasses.

1. Ornamenting.
2. Pressing.
3. Rolling.
4. Stippling.

CLASS 79.—METAL PERSONAL WEAR. MAKING (XIV.)

Subclasses.

7. Buttons—
8. Assembling,
9. Drilling and turning.
10. Clasps.
2. Eyelets.
3. Ornamental chains.
4. Personal wear.
5. Thimbles. Manufacture of
6. Watches and clocks.

CLASS 164.—METAL PUNCHING AND SHEARING. (XIV.)

Subclasses.

6. Combined punching and shearing.
1. Cutting.
7. Fence-barbs of sheet metal.
9. Punches.
2. Punching—
10. Crank,
11. Foot-lever,
12. Hammer,
    Punching—
13. Hand-lever,
14. Rotary,
15. Screw.
3. Sawing.
5. Shears. Lever and sliding
4. Shears. Rotary
8. Tie-bands.

CLASS 81.—METAL-WORKING TOOLS. (XIV.)

Subclasses.

26. Bolt-holders.
23. Cutting sharpeners.
24. Nippers.

Nut-wrenches—
30. Ratchet-segment,
6. Ratchet-wheel—
31. Adjustable jaws,
7. Rigid-jaw,
71. Rigid socket,
32. Track and tire,
72. Wheel-engaging.

Nut and pipe wrenches—
33. Jaw attachments,
34. Sliding-jaw—
35. Clamp,
36. Grip—
37. Rack,
38. Screw,
39. Rack—
40. Cam-lock,
41. Pivoted-lock,
42. Sliding-lock,
43. Wedge-lock,
44. Thread adjustment—
45. Displaceable nut or screw,
46. Double-thread,
47. Duplex,
48. Inner jaw, nut adjustment—
49. Screw adjustment,
50. Mutilated nut or screw,
51. Outer jaw, nut adjustment—
52. Screw adjustment,
53. Tap,
54. Pivoted-jaw—
55. Inner jaw—
56. Rack,
57. Screw,
58. Outer jaw—
59. Rack,

Nut and pipe wrenches—
Pivoted-jaw—
60. Screw,
61. Pipe-tongs—
62. Rack,
63. Screw,
64. Side-jaw—
65. Rack,
66. Screw,
67. Wedge.

Pipe-cutters—
10. Inside,
11. Outside.
12. Pipe-expanders.
68. Pipe-wrenches—
28. Chain,
29. Expanding-jaw,
69. Hose-spanners,
14. Pivoted-jaw, with cutter,
70. Rigid-jaw,
17. Sliding-jaw, with cutter.
25. Pliers—
18. Rod and bolt cutters,
19. Smiths' tongs.

Vises—
20. Pipe and rod,
21. Smiths'—
73. Attachments,
74. Pivoted-jaw, cam—
75. Lever and link,
76. Screw,
77. Sliding-jaw, cam, quick-action—
78. Double-screw, quick-action,
79. Lever and link, quick-action,
80. Screw—
81. Quick-action,
22. Woodworkers'.

CLASS 151.—NUT AND BOLT LOCKS. (XIV.)

Subclasses.

1. Base, key and ratchet.
2. Base, washer.
3. Side.
4. Side, key and ratchet.
5. Thread.
6. Thread, key and ratchet.
7. Top.
8. Top, key and ratchet.

CLASS 113.—SHEET-METAL WARE. MAKING (XIV.)

Subclasses.

28. Burnishing.
1. Cutting printers' leads.
2. Edging sheets.
35. Lamp-work.
34. Pens, pencils, and holders.
3. Roller-tools.
4. Screw-thread bending.
5. Seaming sheets.
24. Spinning.
36. Stamping.
11. Tools.
12. Troughs and moldings.

Soldering—
6. Clamps—
32. Expanding mandrel,
31. Trough.
37. Fluxes.
7. Irons—
26. Heaters—
33. Electric.
8. Machines—
41. Can-capping,
38. Dip. Endless-chain carrier—
39. Reciprocating carrier,
40. Rotary table-carrier,
49. Sequential,
44. Simultaneous,

Soldering—
Machines—
29. Endless-chain carrier—
42. Can-capping,
30. Rotary table-carrier—
43. Can-capping.
27. Soldering.
10. Solders.

Tubing—
13. Curved and spouts.
14. Grooving and seaming.
15. Pipe-elbows. Making
16. Straight. Making

Vessels—
17. Bending. Angular—
18. Curved.
19. Seaming. Die—
45. Can-head-applying, inside—
46. Outside—
47. Compressing,
21. Roller,
48. Side-seam.
20. Shaping. Die—
38. Fillers and forcers.
22. Wiring and flanging.

CLASS 140.—WIRE-WORKING. (XIV.)

Subclasses.

31. Attaching card-clothing.
1. Barbing—
12. Sheet-metal,
22. Tools.
3. Bending.
4. Bending and coiling.
5. Bending and twisting.
6. Coiling—
26. By mandrel, definite lengths,
27. By mandrel, indefinite lengths.
25. By rolls.
7. Covering.
8. Cutting and straightening.
9. Fabrics—
10. Making—
32. Coiled,

Fabrics—
Making—
33. Twisted,
20. Working.
21. Feeding and tension.
13. Heddles. Making
14. Joining.
15. Reels and spools.
16. Tools.
24. Winding.
17. Wiring bottles and corks—
18. Brushes and cards,
19. Wood—
11. Fences—
28. Gear,
29. Rack-bar,
30. Sprocket,
23. Fencing.

DIVISION XV.

EXAMINER CAMPBELL.

CLASSES.—106, Artificial Stone; 107, Bread, Cracker, and Lozenge Making; 18, Caoutchouc and Minor Plastics; 25, Clay and Pottery; 154, Composite Roofings and Coverings; 30, Cutlery; 44, Fuel; 49, Glass; 222, Hydraulic Cement and Lime; 92, Paper-Making; 94, Paving.

CLASS 106.—ARTIFICIAL STONE. (XV.)

Subclasses.

1. Composition—
11. Bituminous and resinous,
12. Glutinous,
13. Oxychlorid,
14. Scoriaceous.
4. Molds.
10. Mortar-mixers.
16. Ornamental.
5. Plastering—
9. Fiber,
7. Implements,
8. Retarders.
17. Protective surfaces.
18. Treatment.

CLASS 107.—BREAD, CRACKER, AND LOZENGE MAKING. (XV.)

Subclasses.

1. Bread and cracker machines.
3. Cake-cutters.
9. Confectionery-machines.
6. Lozenge-machines.
4. Mixers and kneaders.
2. Pastry-boards.
7. Pie crimpers and trimmers.
8. Rolling-pins.

CLASS 18.—CAOUTCHOUC AND MINOR PLASTICS. (XV.)

Subclasses.

Caoutchouc—
22. Articles,
4. Fabrics,
5. Hard rubber,
6. Machine for coating,
8. Soft rubber,
9. Vulcanizing apparatus.

Minor plastics—
23. Articles,
1. Artificial ivory,
16. Button machines and dies,
3. Celluloid,

Minor plastics—
15. Coating and embossing moldings,
19. Compositions,
14. Crayon-machines,
18. Fibrous compositions,
17. Insulating compounds,
13. Molding devices,
12. Pill-machines,
20. Processes,
10. Vulcanized fiber.

CLASS 25.—CLAY AND POTTERY. (XV.)

Subclasses.

1. Bricks.

Brick-kilns—
18. Continuous—
19. Tunnels,
20. Downdraft,
35. Furnaces,
22. Reversible-draft,
21. Updraft,
23. Vertical.

Brick-machines—
44. Attachments,
Portable mold, in carrier—
56. Approached in line of feed,
57. Approached transverse to feed,
58. Portable mold, in mold-race—
59. Plunger-feed,
Press-box mold, movable—
Endless chain of molds—
54. Continuous travel,
55. Intermittent travel,
49. Reciprocating on plunger,
53. Reciprocating table,
50. Rotary disk, molds in face—
51. Fluid-pressure,
52. Rotary disk, molds in periphery,
Press-box mold, stationary—
45. Compacting single surface—
46. Fluid-pressure,

Brick-machines—
Press-box mold, stationary—
47. Compacting several surfaces—
48. Fluid-pressure.
26. Brick and tile cutters.
Brick and tile machines—
Continuous bar—
60. Cutter with plunger.
24. Brick-making implements.
6. Brick-molds—
25. Sanders.
Cleaning—
36. Dry,
37. Wet.
8. Drain-tiles.
9. Paving-tiles.
Pottery—
10. Articles,
11. Kilns—
42. Saggers,
12. Machines.
Preparation of clay—
41. Miscellaneous.
13. Pug-mills—
39. Feeders,
38. Ring-pits.
16. Sarcophagi.
40. Shredders.
17. Tile-machines—
31. Continuous,
32. Dies,
33. Socket-formers,
34. Tampers.

CLASS 154.—COMPOSITE ROOFINGS AND COVERINGS. (XV.)

Subclasses.

1. Apparatus.
4. Boiler-coverings.
2. Composition.
3. Felt.

CLASS 30.—CUTLERY. (XV.)

Subclasses.

1. Animal-shears.
2. Buttonhole-cutters.
3. Can-openers.
16. Envelop-openers.
21. Fork-guards.
5. Forks.
22. Forks and spoons, solid.
9. Knives—
20. Gage,
8. Hay,

Knives—
10. Pocket.
28. Manicure implements.
11. Pruning implements—
24. Fruit-clippers.
12. Razors.
13. Scissors and shears.
14. Twine-cutters.
15. Wick-trimmers.
17. Wire-shears.

CLASS 44.—FUEL. (XV.)

Subclasses.

1. Artificial.
2. Fire-kindlers—
5. Absorbers,
6. Automatic.
3. Peat-machines.
4. Purifying coal.

CLASS 49.—GLASS. (XV.)

Subclasses.

33. Batch-mixers.
34. Blowing.
35. Combined casting and blowing.
Combined pressing and blowing—
12. Integral parts,
13. United parts.
14. Compositions.
15. Fire-polishing.
16. Flaring and crimping.
17. Forming chimney-bottoms.
18. Forming glass pipes.
19. Frosting by abrading.
20. Frosting by chipping.
21. Frosting by etching.
22. Heat-developed coloring.
23. Mold-coolers.
Molds—
24. Blowing,
25. Pressing,
26. Screw-threading.
27. Neck-forming.
28. Putty knives and tools.
29. Snaps and sockets.
30. Uniting pressed parts.
31. Vitreous painting and decorating.
32. Wire-glass.

CLASS 222.—HYDRAULIC CEMENT AND LIME. (XV.)

Subclasses.

1. Cement—
2. Slag.
3. Kilns.
4. Lime.

CLASS 92.—PAPER-MAKING. (XV.)

Subclasses.

1. Bleaching.
2. Bronzing-machines.
3. Calendering.
24. Carpet-lining.
4. Coating.
5. Digesters.
6. Disintegrating fibrous substances.
7. Fabrics.
8. Fibers.
9. Flocking.
10. Materials.
11. Molding machines and articles.
12. Ornamenting.
13. Paper-board.
14. Paper-hanging machines.
15. Paper-making machines.
16. Parchment.
17. Processes.
18. Pulp-engines and bed plates.
19. Pulp washing and straining.
20. Rag dusters and engines.
21. Stock-grinders.
22. Waterproofing and sizing.
23. Wood-grinders.

CLASS 94.—PAVING. (XV.)

Subclasses.

2. Gutters.
9. Mixers.
Pavements—
1. Concrete,
3. Iron,
5. Stone,

Pavements—
8. Wood.
4. Road-rammers.
6. Tools.
7. Vault-covers.

DIVISION XVI.

EXAMINER BISSING.

CLASSES.—176, Electric Lighting; 177, Electric Signaling; 175, Electricity: Special Applications; 178, Telegraphy; 179, Telephony.

CLASS 176.—ELECTRIC LIGHTING. (XVI.)

Subclasses.

Cut-outs—
- 80. Electromagnetic—
- 256. Endothactic,
- 257. Exothactic,
- 190. Hanger,
- 79. Mechanical—
- 154. Oscillating snap,
- 178. Oscillating spring,
- 155. Rotary,
- 156. Sliding,
- 78. Thermal—
- 192. Branch,
- 193. Lamp,
- 194. Plug,
- 195. Successive.

Lights—
- Arc—
- 104. Gravity-feed—
- 105. Clutch,
- 216. Double-dog clutch,
- 106. Gear-clutch,
- 217. Pivot-dog clutch,
- 218. Ring-clutch,
- 107. Positive-feed—
- 108. Clutch,
- Lights—
- Arc—
- Positive-feed—
- 219. Electric gear-clutch,
- 109. Gear-clutch,
- 112. Special features,
- 220. Step gear-clutch.
- Lights—
- 110. Arc and incandescent—
- 111. Non-feeding,
- 180. Ceiling-block,
- 102. Filaments and carbons,
- 18. Incandescent—
- 113. Special features,
- 196. Stopper,
- 255. Mantles,
- 98. Sockets and keys,
- 19. Systems—
- 166. Automatic-regulation,
- 129. Car,
- 197. Display,
- 167. Hand-regulation,
- 198. Safety,
- 130. Secondary-battery,
- 131. Test.

CLASS 177.—ELECTRIC SIGNALING. (XVI.)

Subclasses.

- 1. Alarms—
- 199. Æquoreal,
- 200. Barokinetic,
- 2. Burglar,
- 201. Safe.
- 3. Annunciators—
- 139. Drop,
- 157. Drop system,
- 140. Step-by-step,
- 158. Time.
- 7. Bells.
- 26. Indicators—
- 159. Station.
- 88. Railway—
- 147. Block,
- 146. Block systems,
- 148. Cab—
- 149. Sectional rail,
- 150. Sectional rail,
- 151. Track instruments,
- 258. Trolley.
- 89. Recorders.

CLASS 178.—TELEGRAPHY. (XVI.)

Subclasses.

Telegraphs—
- 46. Automatic,
- 45. Circuits and systems,
- 47. Dial,
- 48. Duplex,
- 49. Dynamo,
- 50. Fire—
- 160. Automatic,
- 162. Engine-house apparatus,
- 163. Non-interfering,
- 165. Repeaters,
- 164. Variable signal—
- 161. Dial,
- 108. Fire alarms and extinguishers,
- 51. Multiplex,
- 52. Perforating,
- 54. Printing—
- 141. Multiple-wheel,
- Telegraphs—
- Printing—
- 142. Wheel,
- 55. Quadruplex,
- 56. Railway-car,
- 53. Reed.
- 10. Circuit-closers—
- 202. Burglar,
- 203. Lock,
- 204. Retarded,
- 128. Thermal.
- 12. Condensers.
- 29. Keys.
- 30. Lightning-arresters—
- 214. Magnetic,
- 215. Thermal.
- 35. Morse registers.
- 41. Relays and sounders.
- 42. Repeaters.
- 69. Transmitters.

CLASS 179.—TELEPHONY. (XVI.)

Subclasses.

- 82. Anti-induction devices.
- 81. Conductors. Anti-inductive

Telephones—
- 57. Calls—
- 143. Reed,
- 144. Step-by-step,
- 145. Strength and polarity,
- 58. Details,
- 59. Electric—
- 184. Granular,
- 185. Multiple-electrode,
- 60. Magnetic,
- 62. Radiophones,
- 77. Relays and repeaters,
- Telephones—
- 100. Supports,
- 85. Switchboards,
- 71. Switches,
- 64. Systems—
- 101. Automatic,
- 186. Central,
- 133. Divided central,
- 187 House,
- 134. Intermediate substation,
- 135. Multiple switchboard—
- 136. Divided central,
- 137. Test.

CLASS 175.—ELECTRICITY. SPECIAL APPLICATIONS. (XVI.)

Subclasses.

- 4. Applications. General
- 181. Demagnetizing.
- 21. Electromagnets.

Igniting devices—
- 115. Automatic,
- 117. Inductional,
- Igniting devices—
- 116. Manual,
- 91. Portable.
- 182. Ore-detectors.
- 183. Testing.

DIVISION XVII.

EXAMINER RICE.

CLASSES.—93, Paper Manufactures; 101, Printing.

CLASS 93.—PAPER MANUFACTURES. (XVII.)

Subclasses.

- 2. Articles.
- 5. Bag-machines—
- 38. Blank-formers,
- 39. Transverse central folders.
- 40. Triangular folders,
- 41. Tube-closers,
- 42. Tube-formers,
- 43. Tube formers and closers,
- 44. Tube formers and openers,
- 45. Tube formers, openers, and closers—
- 46. Openers, Roll
- 47. Openers, Side
- 48. Tube-openers—
- 49. Roll,
- 50. Side,
- 51. Tube openers and closers—
- 52. Openers, Roll
- 53. Openers, Side.
- 10. Box-machines.
- 11. Collar, cuff, and bosom machines.
- 27. Cutters—
- 13. Reciprocating,
- 14. Rotary—
- 28. Slitters and winders,
- 29. Transverse,
- 30. Traveling,
- 31. Traveling.
- 15. Envelops.
- 16. Envelop-machines.
- 18. Folding.
- 19. Label and tag machines.
- 63. Perforators—
- 64. Punch-selectors—
- 65. Pattern-controlled,
- 66. Rotary—
- 67. Traveling,
- 68. Rules.
- 82. Reels.
- 33. Serving apparatus—
- 34. Printing attachment,
- 35. Roll-holders—
- 36. Cutting attachment,
- 37. Feeding attachment.
- 25. Wrapping-machines.

CLASS 101.—PRINTING. (XVII.)

Subclasses.

- 1. Address-printers—
- 2. Strip-form.
- 3. Autographic registers.
- 4. Bed and cylinder machines—
- 5. Cushions,
- 153. Multirevolution—
- 154. Perfecting,
- 6. Oscillating-cylinder—
- 7. Perfecting,
- 8. Perfecting,
- 155. Sliders,
- 9. Stop-cylinder—
- 10. Perfecting,
- 11. Traveling-cylinder—
- 12. Perfecting.
- 13. Bed and platen machines—
- 14. Inking attachment,
- 15. Oscillating—
- 16. Roller-inker—
- 17. Orbital,
- 18. Roller and plate inker,
- 19. Stationary roller-inker,
- 20. Roller-inker,
- 21. Roller and plate inker,
- 22. Tympan-gages,
- 23. Web.
- 24. Branding-stamps.
- 25. Chases.
- 27. Color-machines—
- 28. Coloring-tools.
- 26. Composing-sticks.
- 29. Deliveries—
- 30. Associators,
- 31. Droppers,
- 32. Fly-frames,
- 33. Gripper-fliers,
- 34. Receiving-tables.
- 35. Electrotyping.
- 36. Feeding—
- 37. Gages—
- 38. Front stops,
- 39. Separators—
- 40. Buckling,
- 41. Pneumatic,
- 151. Sheet-cutters,
- 42. Web.
- 43. Folders—
- 44. Longitudinal,
- 45. Longitudinal and rotary,
- 46. Newspaper-wrapping machines,
- 152. Oscillating,
- 47. Reciprocating,
- 48. Rotary,
- 49. Sheet-conveyers.
- 50. Furniture—
- 51. Quoins,
- 52. Tools and appliances.
- 53. Galleys—
- 54 Galley-locks—
- 55. Rests.
- 56. Hand-stamps—
- 57. Check-punches.
- 58. Head and handle—
- 59. Inking attachment,
- 60. Mutilators,
- 61. Roller—
- 62. Inking attachment,
- 63. Inking attachment,
- 64. Mutilators,
- 66. Sealing-tools,
- 67. Settable type-carrier—
- 68. Clock set,
- 69. Inking attachment,
- 70. Tumbler.
- 71. Inking apparatus—
- 73. Composition rollers, making and preserving,
- 74. Fountains,
- 75. Pads and holders,
- Inking apparatus—
- 76. Rollers—
- 77. Compositions,
- 78. Traveling ductor-plate,
- 79. Traveling roller and plate.
- 80. Mail-marking machines—
- 81. Rotary—
- 82. Machines and stackers.
- 83. Marking-machines—
- 84. Rotary.
- 85. Multicolor-machines—
- 86. Bed and cylinder—
- 87. Multiple impression,
- 88. Bed and platen,
- 89. Rotary—
- 90. Multiple printing couple,
- 91. Supplemental forms.
- 92. Numbering-machines—
- 93. Form attachments,
- 94. Hand,
- 95. Measurers and markers.
- 96. Paper-damping machines—
- 97. Winders.
- 98. Planographic machines—
- 99. Bed and cylinder,
- 100. Rotary.
- 101. Plate.
- Plate-machines—
- 102. Bed and cylinder,
- 103. Bed and platen,
- 104. Rotary,
- 105. Traveling-bed.
- 106. Press-copying—
- 107. Damping.
- 111. Printing couple appliances—
- 112. Anti-offset devices,
- 113. Blankets,
- 156. Friskets,
- 115. Grippers.
- 116. Processes.
- 117. Rotary machines—
- 118. Associators—
- 119. Stop-sheet,
- 120. Associators and folders,
- 122. Machines and associators,
- 123. Machines and deliveries,
- 125. Machines and folders,
- 124. Machines, associators, and folders,
- 126. Non-perfecting,
- 127. Reversing and perfecting,
- 121. Rotary conical printing couple.
- 128. Ruling-machines—
- 129. Rotary.
- 130. Setting and distributing.
- 131. Sheet-stencils. Making
- 132. Stenciling-machines.
- 133. Stencil-making pens.
- 134. Stencil-plates.
- 135. Stereotyping—
- 136. Casting-boxes,
- 137. Matrices and materials.
- 138. Surfaces—
- 139. Bases,
- 140. Holders—
- 141. Sliding-clamp,
- 142. Planographic—
- 143. Hektographs,
- 144. Holders and supports,
- 145. Rules,
- 146. Types.
- 147. Ticket-machines.
- 148. Traveling-bed machines.
- 149. Type-cases.
- 150. Type-machines.

DIVISION XVIII.

EXAMINER FOWLER.

CLASSES.—162, Injectors and Ejectors; 160, Steam and Vacuum Pumps; 122, Steam-Boilers; 110, Steam-Boiler Furnaces; 121, Steam-Engines; 136, Steam-Engine Valves.

CLASS 162.—INJECTORS AND EJECTORS. (XVIII.)

No subclasses.

CLASS 160.—STEAM AND VACUUM PUMPS. (XVIII.)

No subclasses.

CLASS 122.—STEAM-BOILERS. (XVIII.)

Subclasses.

1. Attachments.
5. Circulation.
2. Cleaners—
30. Steam or air jet.
22. Feeders.
6. Fire-tube.
7. Flashers.
8. Flue and tubular.

Heating feed-water—
29. Furnace-gases,
20. Steam,
21. Steam-injected.
10. Incrustation.
11. Indicators.
12. Introducing smoke and gases.
33. Manholes.
13. Rotary.
32. Safety devices.
14. Sectional—
34. Headers.
15. Separators.
16. Superheaters.
17. Tubes and flues.
4. Vapor-generators.
27. Water-tube—
28. Coil.
18. Water fire-boxes.

CLASS 110.—STEAM-BOILER FURNACES. (XVIII.)

Subclasses.

1. Ash-pans.
4. Attachments.
2. Doors for steam-boiler furnaces.

Furnace-feeding—
3. Air—
19. Automatic,
17. Chain grates,
4. Fuel,
15. Fine,
16. Steam.
5. Furnaces.

Grates—
Hollow—
10. Air,
18. Water.
12. Smoke and gas returning.
7. Spark-arresters for locomotives—
13. Conductors for cars.

CLASS 121.—STEAM-ENGINES. (XVIII.)

Subclasses.

1. Attachments.

Condensers—
25. Injector,
26. Surface.
46. Cylinder relief-valves.

Engines—
47. Bell-ringer,
60. Combined engine and boiler,
3. Compound—
58. Locomotive,
16. Hammer,
9. Locomotive,
35. Multiple-cylinder,
48. Multiple-piston,
11. Oscillating,
13. Portable,
17. Pumping—
49. Duplex.
18. Rock-drilling,
14. Rotary—
57. Alternating-piston,
30. Concentric-piston,
31. Eccentric-piston,
36. Impact,
34. Oscillating-piston,
41. Reciprocating-piston,
50. Wabbling-piston,

Engines—
51. Single-acting, compound,
59. Single-cylinder,
19. Steam-steering.
6. Exhaust mechanism.
27. Exhaust regenerated.
61. Lubricators.
23. Mufflers.

Packing—
28. Compound and textile,
12. Metallic piston,
29. Rod,
32. Steam-joint.
53. Pistons.
23. Speed-governors—
37. Centrifugal,
38. Marine,
42. Pressure.
54. Steam sanding device.
30. Traps—
43. Expansion.
21. Valve-gear—
44. Link,
45. Rod,
33. Shifting-eccentric—
55. Automatic,
56. Tripping cut-off.

CLASS 136.—STEAM-ENGINE VALVES. (XVIII.)

Subclasses.

1. Balanced-slide—
13. Double,
14. Roller.
2. Cut-off.
3. Gage-cocks.
4. Governor.
5. Piston.
6. Puppet.
12. Reversing.
7. Rotary.
9. Safety.
8. Slide.
10. Steam-actuated.
11. Throttle—
15. Electric.

DIVISION XIX.

EXAMINER STEWARD.

CLASS 126.—Stoves and Furnaces.

CLASS 126.—STOVES AND FURNACES. (XIX.)

Subclasses.

Boilers—
1. Agricultural,
16. Domestic—
17. Steamers,
84. Stand.

Burners—
79. Hay and straw,
49. Refuse.
9. Coffee and tea pots.
12. Corn-poppers.
13. Dampers—
14. Automatic—
113. Balanced-motor,
110. Draft-operated,
116. Electrical,
114. Expansion,
111. Fluid-pressure,
109. Positive-connection,
112. Pressure-motor.
95. Dough-raisers.
115. Draft-regulators—
Steam-injected.
20. Fenders.
21. Fire-dogs.
22. Fireplaces—
89. Blowers,
68. Firebacks,
23. Fronts,
70. Hot-air.
25. Fire-pots and linings.
27. Foot-warmers.
90. Fuel-boxes.

Furnaces—
106. Bagasse,
76. Cremation,
37. Hot-air—
43. Magazine,
86. Steam,
103. Hydrocarbon—
104. Injector-burners,
105. Retort-vaporizers,
46. Portable.
28. Glue-pots.
29. Grates—
96. Adjustable,
98. Compound-movement,
97. Cut-offs,
24. Fireplace,
102. Raking attachments,
99. Reciprocating,
100. Rocking-bar,
78. Rotary,
101. Vertical-movement.
108. Grates and grate-bars, stationary.
31. Gridirons.

Heaters—
5. Barrel,
137. Curling-iron,
15. Dish,
117. Electric,
26. Flat-iron,
138. Frictional,
40. Lunch,
82. Solar,
52. Soldering-iron.
82. Heating-drums.

Heating systems—
119. Air—
120. Steam or water,

Heating systems—
Car—
131. Air,
133. Steam,
132. Water,
Local—
123. Air,
125. Steam,
124. Water,
122. Steam,
Train—
126. Air,
130. Smoke,
129. Steam,
127. Water—
128. Steam,
121. Water—
139. Steam.
83. Hot-air registers.
136. Liquid-sterilizers.

Ovens—
4. Bakers',
19. Domestic.
87. Paint-breamers.

Pans—
2. Ash,
3. Bake,
80. Frying.
94. Pipe-hangers.
45. Platforms.
81. Pots and kettles.
48. Ranges.
51. Shovels, tongs, and pokers.
83. Snow and ice melters.
72. Steam-radiator attachments.
85. Steam-radiators.
54. Steaming-tables.
55. Stove doors and windows—
56. Hoods,
57. Legs,
58. Lids and tops,
59. Pipes,
60. Pipe-shelves,
61. Pipe-thimbles,
62. Shelves.
47. Stove-lid lifters.

Stoves—
134. Car—
135. Protective casings,
10. Cooking—
11. Hearths,
41. Magazine,
98. Parlor,
50. Reservoir,
71. Steam,
66. Gas,
69. Heating—
92. Central air-tube,
34. Horizontal-body,
33. Hot-air,
35. Open-front,
36. Panel,
39. Lamp,
44. Magazine—
42. Fireplace,
64. Vapor.
63. Teakettles.
88. Waffle-irons.

DIVISION XX.

EXAMINER WILKINSON.

CLASSES.—3, Artificial Limbs; 16, Builders' Hardware; 32, Dentistry; 70, Locks and Latches; 109, Safes; 27, Undertaking.

CLASS 3.—ARTIFICIAL LIMBS. (XX.)

Subclasses.

1. Arms and hands.
4. Crutches.
5. Foot extensions.
2. Fracture apparatus.
3. Legs.
6. Leg-joints.
7. Plastic splints.

CLASS 16.—BUILDERS' HARDWARE. (XX.)

Subclasses.

1. Blind-stops.
2. Bolts—
60. Can,
61. Double-door,
67. Jail bolt-work,
63. Multiple,
66. Operators,
64. Sliding,
65. Sliding and rotary.
3. Carpet-fasteners—
68. Clasps,
69. Moldings,
70. Strips,
71. Tack-fasteners.
4. Casters—
Antifriction-rollers—
73. Loose,
72. Pivoted,
45. Ball—
151. Antifriction-rollers,
152. Pivoted,
76. Pintle-retainers,
21. Sewing-machine,
74. Spring,
75. Wheels.
6. Door-checks—
77. Buffers,
80. Catches and buffers,
79. Catches, floor,
78. Catches, wall,
81. Chain or link,
83. Foot-bolt,
82. Foot-lever,
84. Sliding-bolt,
85. Trippers,
86. Weights.
46. Door checks and closers—
88. Liquid,
87. Pneumatic,
47. Closers. Gravitating
7. Hangers—
89. Brackets,
90. Roller-carriage—
91. Ball-bearing,
92. Sliding,
93. Stay-rollers,
8. Securers—
154. Braces,
9. Springs—
94. Bow,
95. India-rubber,
96. Lever attachments,
98. Sliding-door,
97. Strap and pulley attachments,
99. Torsional—
100. Coiled,
101. Flat,
102. Volute.
10. Handles—
103. Coffin—
153. Braces.
11. Hinges—
48. Awning-blind,
104. Box,
5. Coach,
105. Concealed,
106. Door—
107. Butt,
108. Strap,
109. Flush,
Hinges—
49. Gate,
111. Lock, frictional—
110. Positive,
112. Longitudinally-adjustable,
14. Safe,
25. Spring,
27. Table,
113. Vertically-adjustable.
15. Sash-balances—
114. Friction,
115. Spring—
148. Drum and cord,
149. Friction-roller,
150. Gear and rack,
116. Weight.
16. Sash-cord fasteners—
125. Weight.
17. Sash-cord guides.
18. Sash-fasteners—
117. Gear and rack,
53. Lifts,
51. Mid-rail,
52. Right-angle,
118. Rod-clamps,
119. Sliding bolts.
19. Sash-holders—
121. Clamps,
120. Combined fasteners,
122. Foot,
54. Roller-bearing,
123. Strips,
124. Wedges.
20. Sash-weights.
22. Shutter-bowers—
23. Fasteners—
126. Bars or bolts,
128. Catches, double—
131. Gravity,
130. Rod,
127. Single,
155. Sliding,
129. Wall,
55. Combined sash,
56. Fire,
132. Hooks,
133. Operators,
24. Workers—
57. Combined slat,
134. Cord or chain,
135. Levers,
136. Rotary-shaft,
137. Sliding-shaft,
138. Sliding-shutter.
26. Stair-rods and securers—
139. Buttons,
140. Fasteners,
141. Rods.
27. Till-alarms.
28. Transom-lifters—
142. Pivots.
29. Window-bead fasteners.
30. Window and door buttons—
58. Automatic,
143. Sliding bolts,
144. Screw,
59. Strips,
145. Trippers,
146. Vertically-swinging.

CLASS 32.—DENTISTRY. (XX.)

Subclasses.

1. Articulators.
12. Bridgework.
13. Disks and holders.
14. Engines—
21. Bracket-supports,
23. Friction-gear,
22. Standard-supports.
3. Foil-condensers.
15. Handpieces—
11. Angle attachments.
16. Jaw-braces.
17. Matrices.
4. Mechanical.
5. Miscellaneous.
6. Molds.
27. Mouth-mirrors.
28. Obtunders.
7. Operative.
8. Pluggers—
18. Air,
24. Angle attachments,
25. Hand-operated,
26. Power-operated.
19. Regulators and spacers.
20. Rubber-dam clamps.
33. Saliva-ejectors.
9. Teeth—
32. Filling,
29. Metal-crown,
30. Porcelain-crown.
10. Tools—
31. Burs,
34. Forceps.

CLASS 70.—LOCKS AND LATCHES. (XX.)

Subclasses.

3. Box-fasteners—
80. Seal,
81. Sliding-bolt,
82. Spring-catch.
83. Hasp-fasteners.
7. Key-fasteners—
65. Portable.
8. Keyhole-guards—
61. Sliding and pivoted.
9. Keys.
10. Knobs.
11. Knob attachments—
84. Key-fastener,
85. Screw-spindle,
86. Set-screw and pin fastener,
87. Spring-fastener.
88. Wedge-fastener.
12. Knob-roses.
41. Knob-spindle fasteners.
13. Latches—
64. Automatic-detent,
28. Gate,
51. Gravity,
44. Lifting—
45. Hooked-end,
43. Pivoted-end,
21. Reversible,
42. Sliding,
49. Swinging.
14. Locks—
1. Alarm—
89. Detonating,
2. Bag,
90. Bicycle,
4. Car-seat,
46. Cylinder,
91. Cylinder knob—
92. Multiple-key,
50. Electric—
63. Combination,
62. Time,
5. Hasp,
6. Indicator,
74. Multiple-bolt,
69. Multiple-key—
70. Adjustable tumbler,
71. Master-key,
72. Primary and secondary,
73. Trap,
20. Piano,
47. Pin—
93. Multiple-key,
Locks—
75. Pivoted-tumbler.
23. Seal—
95. Seals,
31. Sliding-door,
76. Sliding-tumbler,
79. Systems of locks,
25. Till,
26. Time,
27. Trunk—
115. Swinging-hasp,
77. Tumbler and dog,
78. Without tumblers.
15. Lock-strikes—
52. Electric.
16. Lock-trimmings.
29. Locks and latches combined.
17. Padlocks—
109. Alarm,
104. Divided-shackle,
110. Indicator—
111. Pivoted-shackle,
19. Permutation—
112. Pivoted-shackle,
113. Sliding-shackle,
96. Pin,
105. Pivoted-shackle—
106. Sliding-bolt,
107. Rotating-shackle,
97. Seal,
108. Sliding-shackle.
18. Permutation—
56. Dials,
55. Hasp,
66. Keyhole-guards,
58. Knob-pins,
57. Operating-handle,
54. Push-pin,
53. Rotating tumblers,
60. Sliding tumblers,
59. Spindles,
67. Till-locks.
94. Seal-bolts.
98. Seals—
99. Automatic-catch,
100. Box and bag,
101. Box-strap.
24. Shackles.
102. Sliding-door fasteners.
103. Trunk-fasteners.

CLASS 109.—SAFES. (XX.)

Subclasses.

1. Burglar-proof.
4. Circular-door.
5. Express.
2. Fireproof.
6. Gas and explosives.
11. Pressure mechanism.
3. Safe bolt-work—
9. Automatic,
10. Filling.
7. Safety-deposit.
12. Safety-deposit boxes.
8. Water and air.

CLASS 27.—UNDERTAKING. (XX.)

Subclasses.

1. Biers.
2. Burial apparatus—
5. Grave-fillers.
6. Raising and lowering.
3. Coffins—
10. Brackets,
11. Corners,
12. Fasteners,
13. Head-rests,
14. Lids,
Coffins—
15. Life-signals,
16. Linings and coverings,
7. Metallic,
8. Plastic material,
17. Shields,
9. Wooden.
4. Embalming—
18. Apparatus,
19. Processes.

DIVISION XXI.

EXAMINER HAINS.

CLASSES.—13, Brakes and Gins; 19, Carding; 26, Cloth-Finishing; 28, Cordage; 38, Felt and Fur; 66, Knitting and Netting; 117, Silk; 118, Spinning; 139, Weaving.

CLASS 13.—BRAKES AND GINS. (XXI.)

Subclasses.

10. Delinting cotton-seed.
1. Gin attachments.
11. Gin brushes.
17. Gin condensers.
12. Gin feeders—
19. Pneumatic.
13. Gin ribs.
20. Gin rollers.
14. Gin saws.
15. Gin saw cleaners.
2. Hackling machines.
3. Hair pickers.
4. Oakum machines.
5. Processes.
6. Reciprocating brakes.
7. Roller-gins.

Rotary brakes—
16. Breakers and crushers,
21. Rotary brakes,
18. Scutchers.
9. Saw gins.

CLASS 19.—CARDING. (XXI.)

Subclasses.

16. Balling heads.
1. Burring.
2. Card clothing.
3. Carding.
5. Coilers.
17. Comb dabbing mechanism.
6. Combing—
24. Circle combs.
12. Covering yarn.
22. Cylinders and rollers.
18. Dust trunks.
7. Feeding cards.
13. Fleece dividers and condensers.
14. Fleece removers.
8. Lapping.
19. Opener beaters.
20. Opener evening mechanism
9. Pickers.
21. Screens.
25. Stopping.
15. Stripping mechanism.
23. Traveling flat cards.
10. Wadding.
11. Wool oiling.

CLASS 26.—CLOTH-FINISHING. (XXI.)

Subclasses.

10. Beetling.
11. Calendering.
9. Cutting lace and looped fabrics.
2. Finishing.
12. Finishing cut pile fabrics.
3. Folding.
18. Guiding.
4. Napping—
19. Planetary machines.
5. Pressing.
13. Rigging.
6. Shearing.
14. Singeing.
15. Sizing.
7. Sponging.
8. Stretching.
16. Stretching and drying.
17. Winding.

CLASS 28.—CORDAGE. (XXI.)

Subclasses.

23. Balls.
2. Banding.
3. Bobbin supporters.
4. Braiding.
24. Braiding carriers.
25. Braids.
21. Cord and rope machines.
5. Cords and ropes.
6. Covering cord.
7. Finishing yarn and thread.
27. Fuse and packing machines
20. Lease formers.
9. Packaging braid and yarn.
10. Reels.
11. Separating rope.
13. Tassels.
14. Warping.
30. Warping reeds.
31. Warping stop motions.
32. Winding balls.
Winding bobbins—
17. Sewing machine shuttle,
15. Warp wind,
16. Weft wind,
22. Winding heddle and seine-needles.
18. Winding spools.
19. Winding tatting shuttles.
30. Yarn guides and clearers.

CLASS 38.—FELT AND FUR. (XXI.)

Subclasses.

7. Fabrics.
8. Felting machines.
9. Flock cutting.
10. Forming bats.
11. Fulling.
12. Furs and pelts.

CLASS 66.—KNITTING AND NETTING. (XXI.)

Subclasses.

1. Burs and sinkers.

Circular—
2. Circular machines,
18. Independent needles,
11. Looper pin and hook machines.
17. Crocheting.
3. Darning.
4. Fabrics.
12. Feeding.
5. Needles.
6. Netting.
7. Stopping.

Straight—
15. Cams and stops,
13. Fashioning-machines,
14. Looper pin and hook machines,
8. Straight machines,
16. Warp-machines.
9. Take-ups and tensions.
10. Tatting.

CLASS 117.—SILK. (XXI.)

Subclasses.

1. Assorting.
3. Cocooneries.
4. Doubling.
5. Silk.
6. Stretching.
7. Throwing.
8. Winding.

CLASS 118.—SPINNING. (XXI.)

Subclasses.

1. Bobbin and cop builders.
31. Bobbin and spindle connectors.
2. Bobbins.
26. Clearers.
30. Covering yarn.
5. Domestic.
6. Doubling.
7. Drawing and evening.
23. Drawing rollers.
17. Drawing stop mechanism.
28. Drawing trumpets.
29. Fliers.
8. Hemp, flax, and hair.
9. Mules and jacks.
10. Ring frames.
11. Rings and travelers.
27. Spindles and appurtenances.

Spindles and bearings—
18. Bolsters,
19. Combined bearings.
20. Sleeve whirls and standards,
25. Spindles and bearings,
21. Steps.
24. Spindle driving devices.
12. Stopping.
22. Top roll saddles.
13. Throstles and caps.
14. Twisting-heads.
16. Yarn controllers.

CLASS 139.—WEAVING. (XXI.)

Subclasses.

47. Bag-turning machines.
5. Carpet-rag loopers.
6. Chenille.
40. Chenille-machines.
8. Cross-weaving.
50. Cutting double pile fabrics.
67. Driving and lay motions.

Fabrics—
70. Elastic,
9. Fabrics,
71. Pile,
72. Tubular.
41. Fringe-machines.
10. Fringes.
73. Heddle-frames.
13. Heddle-machines.
14. Heddles.
16. Jacquard mechanism.
74. Lay structures.
75. Lease-rods.

Looms—
1. Bag,
2. Basket,
3. Buttonhole,
7. Circular,
11. Hair-cloth,
12. Hand,
15. Irregular,
17. Lappet,
18. Looms,
19. Narrow-ware,
20. Needle,

Pile-fabric—
62. Longitudinal wires,
23. Pile fabric,
63. Pile-wires,
64. Pile-wire motions,
65. Terry,
66. Tufted,
22. Slat, cane, and straw,
69. Swivel,
76. Weft-supplying mechanism,

Looms—
39. Wire.
77. Loose-reed motions.
42. Pattern-chains.
22. Picker-checks.
21. Pickers.
24. Reeds and reed-making.

Shedding—
78. Cam and treadle,
80. Harness connections.
79. Pattern-controlled,

Shuttles—
44. Cop-cell and cover,
45. Float-detecting,
46. Guides and tensions,
27. Shuttles.
28. Shuttle-boxes.
29. Shuttle-checks.
30. Shuttle-guards.

Shuttle-motions—
48. Fly,
83. Magnetic,
60. Pneumatic.
49. Positive,
43. Shuttle-threaders.

Stopping—
51. Protector mechanism,
52. Stopping,
53. Warp-stop motions,
54. Weft-stop motions.

Take ups and let-offs—
56. Beams,
57. Escapement let-offs,
58. Friction let-offs,
81. Guide and whip rolls,
59. Let-offs,
60. Take-ups,
61. Take-ups and let-offs.
26. Temples.
82. Treating warp and web.
37. Tying-in warps.
38. Weft-forks.

DIVISION XXII.

EXAMINER SEATON.

CLASSES.—9, Boats; 42, Firearms; 43, Fishing and Trapping; 115, Marine Propulsion; 89, Ordnance; 102, Projectiles; 114, Ships; 116, Signals.

CLASS 9.—BOATS. (XXII.)

Subclasses.

2. Building.
3. Buoys and safes.
4. Detaching, hoisting, and lowering.
14. Life boats—
15. Rafts.
6. Life-preservers.
11. Oars—
12. Bow-facing.
8. Rafting and booming.
13. Rowlocks.
9. Sectional and folding.
10. Swimming appliances.

CLASS 42.—FIREARMS. (XXII.)

Subclasses.

25. Ball-traps.
3. Bayonets.
5. Bows and cross-bows.
8. Catapults.
28. Cartridge-holders. Temporary
26. Electrical appliances.

Guns—
1. Air and spring,
4. Blow,

Breech-loading—
A. Barrel sliding forward,
B. Barrel tilting up at breech—
30. Ejectors, elbow—
31. Hammer,
32. Plunger,
33. Extractors,
34. Single-trigger,
C. Barrel tilting up at muzzle,
D. Barrel hinged to stock,
E. Barrel swinging laterally on vertical pin,
F. Barrel rotating on parallel pin,
H. Breech-block drawn back by hand or lever, (bolt-gun,)
I. Breech-block swinging upward and forward,
J. Breech-block swinging laterally forward,
K. Breech-block swinging backward and downward,
L. Breech-block swinging on center or trunnions,
M. Breech-block swinging upward and backward,
N. Breech-block swinging laterally backward,
O. Breech-block swinging downward and backward,
P. Breech-block swinging on longitudinal pin or hinge,
Q. Breech-block sliding vertically in mortise,
R. Breech-block sliding laterally in mortise,
S. Faucet breech-block, chambered,
T. Faucet breech-block with chamber in front,
U. Rotating sleeve on barrel,
V. Gas-operated,
W. Recoil-operated,
7. Cane,
13. Magazine—
A. Barrel sliding forward,
B. Barrel tilting up at breech,

Guns—
Magazine—
C. Barrel tilting up at muzzle,
D. Barrel hinged to stock,
E. Barrel swinging laterally on vertical pin,
F. Barrel rotating on parallel pin,
G. Longitudinally-reciprocating breech-bolt, (spring-impelled firing-pin,)
H. Same, with firing-pin impelled by rotating hammer,
I. Breech-block swinging upward and forward,
J. Breech-block swinging laterally forward,
K. Breech-block swinging backward and downward,
L. Breech-block swinging on center or trunnions,
M. Breech-block swinging upward and backward,
N. Breech-block swinging laterally backward,
O. Breech-block swinging downward and backward,
P. Breech-block swinging on longitudinal pin or hinge,
Q. Breech-block sliding vertically in mortise,
R. Breech-block sliding laterally in mortise,
S. Faucet breech-block, chambered,
T. Rotating carrier, filled from a fixed magazine and discharged in the carrier,
U. Rotating carrier.
9. Gun-barrels.
10. Gun-trimmings.
11. Implements.
12. Locks.
27. Muzzle-loaders.
15. Nipples and guards.
16. Pistol-swords.

Revolvers—
A. Muzzle-loading,
B. Breech-loading,
35. Extractors,
29. Locks,
36. Swinging cylinders.
19. Rifling.
20. Sights.
21. Stocks.
22. Targets—
24. Flying.
23. Toy pistols.

CLASS 43.—FISHING AND TRAPPING. (XXII.)

Subclasses.

2. Decoys.

Fishing—
28. Bait and tackle holders,
3. Fishways,
4. Floats,
6. Harpoons and spears,
7. Hooks—
30. Artificial bait,
31. Spring-actuated,
9. Nets and seines,
29. Oyster and pisci culture,
11. Oyster-dredges,
12. Oyster rakes and tongs,
15. Reels,
16. Rods,
17. Sinkers.

Insect-destroyers—
1. Catchers,
5. Fumigators,
14. Powder-dusters.

Traps—
19. Cage,
20. Fish,
21. Impalement,
22. Insect—
32. Mechanical,
23. Jaw,
24. Self-set and ever-set,
25. Sporting,
26. Victim-set,
27. Wire-choker.

CLASS 115.—MARINE PROPULSION. (XXII.)

Subclasses.

1. Buoyant propellers.
2. Chain-propellers.
3. Crank-paddles.
6. Hydraulic propellers.
25. Manual power.
21. Motion of vessel.
24. Oscillating propellers.

Paddle-wheels—
4. Feathering-blades,
22. Fitting and driving,
23. Form and construction.
8. Pneumatic propellers.
12. Reciprocating propellers.

Screw-propellers—
26. Adjustable blades,
15. Fitting and driving,
16. Form and construction,
17. Steering.
10. Steering-propellers, (except screw,)

Towing—
18. External power,
19. Internal power.
13. Wheels in channels.

CLASS 89.—ORDNANCE. (XXII.)

Subclasses.

26. Body structure.
1. Breech-loading—
30. Clutch-block,
25. Gas-operated,
24. Recoil-operated,
31. Swinging and sliding block,
32. Transverse block,
33. Transverse-rolling block,
40. Transverse-swinging block.
2. Carriages.
19. Cartridge feed cases—
39. Belt.
3. Counterpoise-carriages.
4. Disabling.
34. Disappearing.
21. Electrical appliances.
27. Gas-checks.
35. Gun-mounts.
7. Loading.
20. Locks.
9. Machine-guns.
10. Mortars.
12. Operating.
22. Pneumatic.
29. Practice-barrels.
36. Recoil-checks—
37. Hydropneumatic,
38. Spring.
13. Shields.
28. Sights.
15. Submarine guns.
16. Tompions and valves.
17. Trunnions.
18. Vents and stoppers.

CLASS 102.—PROJECTILES. (XXII.)

Subclasses.

21. Blasting-cartridges—
24. Electric.
22. Blasting-fuses—
25. Electric.
23. Blasting implements.
2. Bomb-lances.
3. Cap-boxes.
4. Cap-filling.
19. Cartridge implements.
5. Cartridge-loading.
6. Cartridges—
26. Accelerating,
20. Electric,
27. Miniature.
7. Flasks and chargers.
8. Lubricating.
9. Marine torpedoes.
29. Oil-distributers.
11. Primers—
32. Electric.
12. Projectiles—
28. Line-throwing.
13. Rockets.
14. Sabots and wads.
15. Shells.
16. Shell-fuses—
30. Electric.
18. Torpedoes—
31. Well.

CLASS 114.—SHIPS. (XXII.)

Subclasses.

1. Anchors.
2. Anchor-trippers.
3. Armor-clad.
4. Ballasting.
5. Berths, cabins, and furniture.
6. Bilge-water. Discharging
9. Building.
53. Bulkheads and doors.
10. Cables and cable-stoppers.
51. Camels and floating docks.
14. Centerboards and keels.
15. Cleats and belaying-pins.
16. Couplings and tow-lines.
18. Decks and hatches.
52. Fenders and torpedo-guards.
19. Fire-extinguishers.
22. Form.
23. Gangways and bridges.
24. Hanks, cringles, and hoops.
26. Ice boats and breakers.
27. Implements.
29. Leak-stoppers.
30. Light and air ports.
32. Masts and spars.
46. Oil-distributers.
33. Raising sunken vessels.
34. Reefing and furling sails.
35. Sails and rigging.
36. Scows.
37. Scuppers and hawse-holes.
38. Steamboat-chimneys.
39. Steering mechanism—
47. Hydraulic,
48. Pneumatic,
50. Rudders,
49. Wheels in channels.
40. Submarine and torpedo.
41. Surge-relievers.
54. Torpedo-launching.
42. Travelers.
43. Turrets.
44. Valve and port stoppers.
45. Ventilating.

CLASS 116.—SIGNALS. (XXII.)

Subclasses.

1. Alarms—
53. Bicycle,
Burglar—
41. Combined,
42. Detonating,
44. Ringing,
11. Fire,
15. Leak,
58. Poison-indicators,
23. Shoal,
54. Speed-indicating.
59. Steam-whistles,
32. Annunciators.
33. Bells—
55. Bicycle—
56. Wheel-actuated,
34. Call,
35. Door,
36. Letter-box,
37. Sleigh.
38. Bell-hanging—
30. Pulls,
Bell-hanging—
40. Ringing.
12. Flagstaff-holders.
31. Indicators—
45. Barbers' turns,
57. Bolt-operated,
51. Game-counters,
46. Identity,
60. Medicine-dose,
47. Office,
48. Peg,
49. Rotary,
50. Sliding,
52. Station.
22. Semaphores.
Signals—
9. Car,
13. Fog,
18. Nautical,
19. Pneumatic,
20. Pyrotechnic.
26. Speaking-tubes.

DIVISION XXIII.

EXAMINER NEWTON.

CLASSES.—181, Acoustics; 33, Drafting; 58, Horology; 73, Measuring Instruments.

CLASS 181.—ACOUSTICS. (XXIII.)

Subclasses.

1. Audiphones.
2. Ear trumpets.
4. Graphophones.
6. Graphophone tablets.
3. Mechanical telephones.
5. Miscellaneous.

CLASS 33.—DRAFTING. (XXIII.)

Subclasses.

13. Beam compasses.
1. Calipers and dividers.
2. Curve scribers.
5. Ellipsographs.
6. Pantographs.
7. Parallel rulers.
8. Plotters.
12. Protractors.
9. Scribers.
10. Stair curves.
14. T-squares.

CLASS 58.—HOROLOGY. (XXIII.)

Subclasses.

36. Cannon pinions.
4. Clock cases—
37. Block,
38. Cylindrical,
39. Panel,
40. Sash.
41. Clock frames.
42. Clock keys.
43. Clock trains—
44. Alarm—
45. Eight day,
46. Let offs,
47. Dial,
48. Striking—
49. Cam controlled,
50. Chimes,
51. Musical,
52. Repeating—
53. Double snail,
54. Turn-backs,
55. Winding—
56. Motors, spring—
57. Thermal,
58. Pneumatic.
3. Clocks—
2. Calendar—
59. Dial,
60. Roller,
28. Electric—
61. Circuit controllers,
62. Hand setters—
63. Lever,
64. Sliding,
65. System.
66. Pendulum—
67. Actuated,
68. Regulators,
69. Synchronizers,
70. Primary,
71. Secondary,
72. Striking,
73. Systems—
74. Circuit,
75. Winding—
76. Self,
77. Geographical, disk—
78. Globe,
79. Illuminated,
80. Magic,
29. Pneumatic—
81. Systems.
82. Dials.
34. Dials and hands.
8. Escapements, balance—
83. Lever—
84. Straight line,
35. Chronometer,
85. Pendulum—
86. Gravity.
10. Metronomes.
87. Pendulum balls.
11. Pendulums—
88. Beat adjusters,
89. Compensating,
90. Regulating,
91. Torsion.
92. Safety-wheels, barrel—
93. Center.
14. Sun dials—
94. Curved,
95. Disk.
15. Time alarms—
96. Electric,
97. Program—
98. Drum.
16. Time checks.
99. Time recorders—
100. Watchmen's—
101. Electric—
102. Receivers,
103. Receivers and transmitters,
104. Portable,
105. Workmen's—
106. Autograph,
107. Disk,
108. Drum,
109. Electric,
110. Key,
111. Tag.
31. Time lamp lighters—
112. Controllers, cam—
113. Alarm clock,
114. Percussion.
33. Time signals—
115. Time ball,
116. Clock,
117. Retarders.
18. Watch balances—
118. Compensation,
119. Hair-spring collets—
120. Studs,
121. Hair springs,
122. Staffs and bearings.
19. Watch barrels—
191. Mainspring-fasteners.
123. Watchcase centers—
124. Hinges,
125. Pendants.
20. Watchcases—
126. Bow fasteners—
127. Pin,
128. Screw,
129. Sleeve,
130. Magic,
131. Screw—
132. Movement rings,
133. Centers, integral,
21. Springs—
134. Backs, detachable—
135. Integral,
136. Flanged,
137. Slotted.
23. Watch keys—
192. Case inclosed,
138. Dust protectors,
139. Expansible-jaw,
140. Pendant,
141. Safety.
24. Watch plates.
32. Watchmakers' tools—
142. Balance testers—
143. Electric,
144. Pliers,
145. Roller removers,
146. Setters, jewel—
147. Ruby pin,
148. Spring winders,
149. Staking tools,
150. Truing calipers,
151. Tweezers.
152. Watch movement boxes.

CLASS 58.—Continued.

95. Watch regulators—
153. Cam,
154. Compensation,
155. Rack and pinion,
156. Screw,
157. Screw and spring,
158. Screw-worm,
159. Steady pins.
17. Watches—
160. Calendar,
161. Dust proof,
162. Repeaters—
163. Double snail—
164. Trains,
165. Stem fasteners—
166. Clutch—
167. Sleeve,
168. Spring,
169. Stem winders—
170. Couplers—
171. Eccentric,
172. Oscillating,
Watches—
Stem winders—
Couplers—
173. Sliding—
174. Sleeve,
175. Stem,
176. Side lever—
177. Clutch—
178. Rocking,
179. Yoke,
180. Yoke—
181. Locking cam,
182. Locking lever—
183. Stem,
26. Stop—
184. Balance stop,
185. Couplers, rocking pinion—
186. Sliding,
187. Split seconds,
188. Winding—
189. Lever,
190. Indicators.

CLASS 73.—MEASURING INSTRUMENTS. (XXIII.)

Subclasses.

2. Anemometers.
3. Balances—
101. Electrical attachments,
99. Equal arms,
102. Pick-up weights,
100. Recording.
4. Barometers.
5. Bathometers.
6. Bevels.
7. Calculators—
84. Tabular.
Calipers—
105. Dial,
106. Stem.
86. Cash registers—
87. Rotating indicators.
9. Cloth measuring machines.
10. Coin counters.
88. Coin packages.
11. Coin testers.
73. Conformators.
13. Dividing engines.
15. Dynamometers.
16. Gages—
107. Depth,
77. Micrometer,
33. Rain,
66. Surface,
108. Thickness,
67. Track,
54. Water—
82. Float.
19. Grain meters—
97. Double trap bottom,
94. Oscillating,
96. Positively actuated,
78. Rotating,
95. Twin buckets.
20. Grain tallies.
22. Hydrometers.
24. Hygroscopes.
79. Lactometers.
63. Leather measuring.
Levels—
71. Plumb,
70. Spirit.
Measures—
36. Rotary,
40. Scale,
64. Shoemakers',
43. Speed,
48. Tailors',
49. Tape.
60. Measuring faucets.
61. Measuring pumps.
62. Measuring vessels.
Meters—
1. Air and gas,
12. Diaphragm,
98. Disk,
Meters—
28. Oscillating,
30. Piston,
68. Proportional,
37. Rotary,
45. Spirit.
27. Odometers.
80. Pitch boards.
81. Planimeters.
72. Plumb bobs.
31. Pressure gages—
109. Bourdon,
110. Diaphragm,
111. Piston.
34. Recorders—
89. Fare,
88. Manual,
90. Passenger,
91. Pressure,
92. Speed,
93. Steam engine indicator.
123. Registering ballot-boxes.
35. Registers—
59. Fare,
17. Game,
58. Passenger.
Scales—
39. Beams,
8. Cart,
23. Hydrostatic,
41. Pans,
29. Pendulum,
121. Platform,
104. Price,
38. Sack,
46. Spring.
69. Ships' logs.
113. Spacing instruments.
42. Specific gravity apparatus.
44. Sphygmoscopes.
112. Spirometers.
47. Squares—
115. Center,
116. Folding.
103. Steelyards.
117. Telemetry.
50. Testing illuminating fluids.
51. Testing machines.
52. Thermometers—
118. Metallic,
119. Oven,
83. Pyrometers,
85. Telethermometers.
21. Tollers.
120. Ullage rods.
53. Voting machines.
55. Weather vanes.
56. Weights.

DIVISION XXIV.

EXAMINER PIERCE.

CLASSES.—2, Apparel; 223, Apparel Apparatus; 112, Sewing-Machines; 132, Toilet; 135, Umbrellas and Canes; 165, DESIGNS.

CLASS 2.—APPAREL. (XXIV.)

Subclasses.

Body-garments—
54. Aprons,
34. Armpit-shields,
55. Belts,
56. Buttonhole-casings,
57. Buttonhole-strips,
58. Button-strips,
59. Chest-protectors,
60. Cloaks,
61. Coats—
62. Collars,
63. Hangers,
63. Shape-retainers,
64. Sleeve-closures,
65. Ventilated,
66. Collarettes,
67. Collars—
68. Cape,
69. Closures,
70. Necktie attachments,
71. Necktie-retainers,
72. Waterproof,
73. Corsets—
74. Closures,
75. Shields,
76. Corset-stiffeners—
77. Hinged,
78. Reinforced,
79. Cuffs,
80. Lap-robes,
81. Linings,
11. Neckties—
82. Bow,
83. Made-up,
84. Shields,
85. Tips,
86. Overcoats,
87. Pads—
88. Shoulder,
41. Shirts—
89. Bosoms,
90. Bosom-supporters,
91. Collar-supporters,
92. Reinforced,
93. Shoulder-braces,
94. Sleeve-adjusters,
95. Sleeve-protectors,
96. Suspender attachments,
97. Vests,
98. Waists.

Hand-coverings—
99. Base-ball,
100. Bath,
101. Boxing,
9. Gloves,
102. Mittens,
103. Muffs,

Hand-coverings—
104. Shields.

Head-coverings—
106. Caps—
107. Flap,
108. Hats—
109. Bands,
110. Brim-bindings,
111. Frames,
112. Shades,
32. Sweats,
113. Tips,
114. Ventilated,
33. Ventilators,
115. Head-coolers,
116. Head-screens,
117. Helmets,
118. Hoods,
119. Masks,
120. Muffs—
121. Ear.

Nether garments—
122. Bifurcated,
123. Bustles,
124. Edge-protectors,
125. Garters,
126. Gussets and stays,
127. Hoop-skirts—
128. Clasps,
129. Hoops,
130. Knee-protectors,
131. Napkins,
132. Placket-closures,
15. Pockets—
133. Closures,
134. Reinforced,
135. Skirt-protectors,
136. Skirt-supporters,
42. Skirts—
137. Cycling,
138. Lifters,
139. Riding,
23. Stockings,
140. Suspender attachments,
141. Trunks,
142. Waistbands,
143. Waist-closures.

Union-garments—
144. Bifurcated,
145. Skirted.

Trimmings—
146. Edgings,
147. Embroidery—
6. Patterns,
148. Pendants,
16. Plaited.

CLASS 223.—APPAREL APPARATUS. (XXIV.)

Subclasses.

1. Charts—
2. Adjustable.
3. Cloth-pilers.
4. Corset-stiffeners, Making
5. Cutters—
6. Die,
7. Overboard—
8. Rotary,
9. Reciprocating—
10. Notchers,
11. Rotary—
12. Band-knife,
13. Traveling.
14. Darning-lasts.
15. Folders.
16. Garment-fitters.
17. Garment-formers.
18. Garment-forms.
19. Garment-stretchers.
20. Garment-turners.

Hat-machines—
21. Blocks,
22. Brim-curlers,
23. Brim-heaters,
24. Brim-trimmers,
25. Brim-wirers,
26. Cleaners,
27. Finishers,
28. Ironers,
29. Pinners,
30. Pouncers,
31. Shapers,
32. Sizers,
33. Stretchers,
34. Sweat-flangers.
35. Needle-holders.
36. Needle-threaders.
37. Needles—
38. Tape.
39. Plaiters—
40. Boards,
41. Creasers,
42. Fluters,
43. Slotted-bed,
44. Vibrating-blade,
45. Wavers.
47. Spool-boxes.
48. Spool-holders.
49. Spool-stands.
50. Spool-tensions.
51. Thimbles.
52. Trimmings, Making
53. Work-boxes.
54. Work-holders.

CLASS 112.—SEWING-MACHINES. (XXIV.)

Subclasses.

35. Attachment-holders.
1. Binders.
41. Book-sewing.
3. Braiders and corders.
43. Broom-sewing.
4. Buttonhole.
5. Chain and double chain.
7. Embroidering.
8. Feeding.
36. Glove-sewing machines.
9. Guides.
10. Hemmers.
34. Methods.
29. Miscellaneous parts.
11. Needles.
37. Needle-clamps.
13. Presser-feet and lifters.
14. Quilting.
38. Revolving hooks.
15. Revolving-hook machines.
16. Rufflers and gatherers.
17. Running-stitch.
18. Setters and threaders.
31. Sewing hats.
19. Sewing looped fabrics.
32. Sewing on buttons.
42. Sewing rugs.
20. Sewing shoes.
21. Short-thread.
22. Shuttle-machines.
23. Shuttles and bobbins.
24. Special machines.
25. Straw.
26. Take-ups.
39. Tensions.
33. Thread-cutters.
6. Trimmers.
27. Tuck creasers and markers.
12. Tucking-guides.
40. Turfing fabrics.
28. Wax-thread.

CLASS 132.—TOILET. (XXIV.)

Subclasses.

3. Combs—
17. Cleaners,
16. Personal wear.
18. Hair-crimpers.
19. Hair-curlers—
20. Rotary,
21. Self-heating.
22. Hair-fasteners.
23. Hair structures—
24. Making.
25. Hat-fasteners.
8. Mustache-guards.
14. Pins—
26. Safety.
27. Pin-holders.
28. Powder-puffs.
29. Razor-cleaners.
15. Shaving-cups.
11. Toilet-cases.
12. Toothpicks.

CLASS 135.—UMBRELLAS AND CANES. (XXIV.)

Subclasses.

2. Canes.
3. Combined cane and umbrella.
4. Covers.
5. Drip-cups.
7. Handles and sticks.
8. Ribs and stretchers.
9. Runners and notches.
10. Tip-cups.
13. Umbrellas, Folding—
14. Self opening and closing,
12. Supporters.

CLASS 165.—DESIGNS. (XXIV.)

The subclasses conform as nearly as possible to those of the mechanical classes.

DIVISION XXV.

EXAMINER WYNNE.

CLASSES.—166, Artesian and Oil Wells; 17, Butchering; 83, Mills; 125, Stone-Working; 130, Threshing; 146, Vegetable Cutters and Crushers.

CLASS 166.—ARTESIAN AND OIL WELLS. (XXV.)

Subclasses.

1. Casing-heads.
2. Cleaning.
3. Drilling and boring.
4. Drill-jars.
5. Drill-rod grabs.
11. Earth-augers—
12. Bits,

Earth-augers—
13. With carriers.
6. Reamers.
10. Sucker-rods.
7. Tube-clamps.
8. Tubing and packing.
9. Walking-beams.

CLASS 17.—BUTCHERING. (XXV.)

Subclasses.

8. Butchers' stalls.
9. Chopping-blocks.

Dressing—
10. Fish-dressing machines,
11. Hog-scraping machines,
12. Intestine-cleaners,
13. Skinning.
14. Meat-clamps.

Meat-cutters—
16. Cracklings,
17. Crank mechanism,
18. Cube,
19. Cylinder and block,
20. Cylinder and concave,
21. Double-cylinder,

Meat-cutters—
22. Hand,
23. Rocking-knife,
24. Slicers,
25. Trip mechanism.
26. Meat-mixers.

Meat-tenderers—
27. Hand,
28. Pivoted-head,
29. Rotary.
6. Sausage-machines.
7. Scalding and singeing.
30. Slaughtering, elevating, and suspending.

CLASS 83.—MILLS. (XXV.)

Subclasses.

Amalgamators—
65. Electric,
66. Lead,
67. Mercury,
68. Plate,
69. Vacuum,
70. Vapor.

Bagging grain—
26. Bag-holders.

Chop-graders—
50. Bran-dusters, Beaters
51. Bran-dusters, Brushes
49. Electric purifiers,
42. Flour processes,
40. Gravity,
39. Rotary bolts,
38. Shaking bolts.

Dust-collectors—
47. Reciprocating,
48. Rotating.

Grain-scourers—
32. Centrifugal,
36. Concave face,
31. Conical,
30. Cylinder, Horizontal
29. Cylinder, Vertical
37. Disk-face,
33. Pestle-action,
35. Reciprocating and endless,
34. Screw-action.

Grinding-mills—
17. Balancing millstones,
9. Ball and drum,
21. Bark,
45. Chasing,
18. Coffee,
10. Compound movement,

Grinding-mills—
13. Cone and shell,
12. Crushing-rolls,
14. Cylinder and concave,
7. Disk-action, Horizontal
8. Disk-action, Vertical
44. Feed-regulators,
15. Grain-samplers,
16. Grist-alarms,
23. Hominy,
46. Impact-pulverizers,
6. Knife-action,
1. Mill-spindles,
3. Millstone-dress,
4. Millstone-exhaust,
2. Millstone-trams,
22. Paint,
11. Rotary beaters.

Ore and coal—
52. Coal-breakers,
53. Crushers,
63. Ice-crushers,
62. Ice picks and shavers,

Separators—
54. Dry,
58. Jiggers,
71. Magnetic,
59. Washers,
56. Sifters and screens—
60. Household,
57. Stamps.

Preparing grain—
28. Processes,
27. Steaming and dampening.
64. Steam-boiler and flue scrapers.
61. Sugar and salt crushers.

CLASS 125.—STONE-WORKING. (XXV.)

Subclasses.

2. Channeling-machines.
3. Chucks for rock-drills.
4. Diamond-tools.
5. Dressing slate.
6. Dressing stone.
10. Drills.
11. Millstone-dressing machines.
12. Millstone paint-staffs
13. Millstone-picks.
14. Mining-machines.
15. Monuments.
18. Sawing stone.
19. Tools.

CLASS 130.—THRESHING. (XXV.)

Subclasses.

1. Band-cutters and feeders.
31. Cane-strippers.
2. Clover-hullers.
3. Corn-cribs.
4. Corn-husking implements.
5. Corn-husking machines.

Corn-shellers—
6. Breast and cylinder,
7. Disk-action,
9. Ear-grasping,
10. Implements,
8. Peripheral action.
12. Fans and regulators.
13. Flax-threshers.
32. Fruit and vegetable separators.

Grain-separators—
17. Gravity,
18. Oat, seed, and garlic,

Grain-separators—
16. Rotary screens,
19. Screens and riddles,
15. Shaking screens,

Straw-carriers—
21. Endless aprons,
22. Overhung rakes,
23. Reels,
24. Shaking tables,
25. Vibrators,
26. Walking-rakes.
14. Granaries and bins.
20. Stackers.

Threshing-machines—
27. Cylinder-machines,
29. Dust-conveyers,
28. Flail-machines.
30. Vine and seed strippers.

CLASS 146.—VEGETABLE CUTTERS AND CRUSHERS (XXV.)

Subclasses.

8. Apple-parers.
16. Bunching-machines.

Crushers and graters—
15. Reciprocating,
9. Rotary.

Cutters—
12. Bread,
7. Reciprocating,
11. Rotary.
3. Nut-crackers.
14. Peelers and washers.
6. Pitters, corers, and eye-cutters.
5. Seeders.

Straw-cutters—
Cutter and bed—
17. Reciprocating-knife,
18. Rotary-cylinder,
19. Cylinder and concave.

Straw-cutters—
20. Double-cylinder,
Pivoted-knife—
21. Rake-feed,
22. Roller-feed,
23. Without feed,
Rotary-wheel—
24. Follower-feed,
25. Rake-feed,
26. Roller-feed,
27. Without feed,
Single-cylinder—
28. Rake-feed,
29. Roller-feed,
30. Without feed,
Sliding-knife—
31. Rake-feed,
32. Roller-feed,
33. Without feed.

DIVISION XXVI.

EXAMINER SEELY.

CLASSES.—173, Electricity: Conductors; 191, Electricity: Electric Railways; 171, Electricity: Generation 174, Electricity: Medical and Surgical; 172, Electricity: Motive-Power.

CLASS 173.—ELECTRICITY. CONDUCTORS. (XXVI.)

Subclasses.

13. Conductors—
94. Lead-covered.
247. Conduits—
248. Cleaning and wire-drawing,
249. House-wiring,
250. Junction and distributing boxes.
14. Connectors.
28. Insulators.
31. Lightning-rods.
244. Machines for covering.
43. Rheostats.
251. Supports and hangers.

CLASS 191.—ELECTRICITY. ELECTRIC RAILWAYS. (XXVI.)

Subclasses.

17. Collapsible-tube conductor.
1. Conductor supports and insulators.
2. Electric locomotives—
25. Electric control,
26. Electromechanical control,
30. Motor on axle,
24. Motor part along track,
27. Single and multiple motor
31. Traveling-dynamo.
15. General.
Sectional conductor—
18. Connected,
19. Magnetic closers—
33. Magnet in car,
34. Magneto-mechanical,
21. Mechanical closers,
Sectional conductor—
20. Traveling closers.
Systems—
4. Battery,
8. Circuits, series,
6. Closed conduits,
5. Conduit—
32. Collectors,
42. Roadway structures,
9. Converters,
41. Current-distribution—
11. Overhead—
12. Trolleys—
35. Catchers—
36. Drop,
37. Guards and finders,
38. Ice-clearers,
39. Poles and heads,
40. Stands.
22. Telpher and towing.

CLASS 171.—ELECTRICITY. GENERATION. (XXVI.)

Subclasses.

Batteries—
73. Thermal.
23. Friction-generators.
95. Galvanometers.
Inductoriums—
123. Induction-coils,
123. Transformers. Rotary
194. Transformers. Stationary
Magneto-electric—
Armatures—
205. Disk,
206. Drum,
207. Pole,
208. Ring,
209. Bipolar,
210. Brushes and holders,
211. Commutators and collectors,
118. Connecting devices,
76. Hand-machines,
209. Multipolar,
212. Uniform field.
94. Meters.
125. Pyro-magneto-electric devices.
Regulators—
119. Alternating—
241. Compounding,
242. Inductive resistance,
221. Brush adjustment,
222. Circuit-interruption,
224. Compounding-machines
223. Compound-winding,
225. Counter electromotive force,
226. Engine-control,
227. Magnetic reluctance,
228. Reducing sparks,
229. Resistance,
230. Sectional winding,
231. Transmitting mechanism.
97. Systems of distribution—
253. Alternating. Direct
254. Transformer-controllers.

CLASS 174.—ELECTRICITY. MEDICAL AND SURGICAL. (XXVI.)

Subclasses.

87. Baths.
88. Body-wear.
89. Electrodes.
177. Medical and surgical—
172. Chairs and couches,
Medical and surgical—
173. Combs and brushes.
174. Electric soles,
175. Exercising apparatus
170. Vaporizers.

CLASS 172.—ELECTRICITY. MOTIVE-POWER. (XXVI.)

Subclasses.

15. Dental instruments.
152. Elevators.
36. Motors—
120. Alternating—
233. Condensers,
234. Distorted-field,
235. Rotary-field,
236. Starters,
179. Hand-operating devices,
126. Reciprocating.
8. Steering and propulsion.
Transmission of power—
237. Alternating,
239. Direct,
245. Phase-indication,
238. Phase-modification,
246. Phase-regulation,
240. Reciprocating.

DIVISION XXVII.

EXAMINER GOULD.

CLASSES.—15, Brushing and Scrubbing; 51, Grinding and Polishing; 68, Laundry; 141, Washing Apparatus.

CLASS 15.—BRUSHING AND SCRUBBING. (XXVII.)

Subclasses.

1. Blacking box and brush cases.
18. Blacking-box holders.
61. Boot-blacking machines.
2. Boot-cleaners.
4. Broom-machines.
Brooms—
19. Broom-heads,
20. Household,
21. Stable and yard,
22. Whisk.
23. Brush and broom, bridles
24. Handles,
6. Supports.
25. Brush-cleaners.
Brush heads and faces—
26. Bath and flesh brushes,
27. Brush and broom fiber,
28. Dusting-brushes,
29. Hair-brushes,
30. Hat and clothes brushes,
31. Horse-brushes,
32. Metal-cleaning brushes,
33. Metallic tuft-fasteners,
34. Molds and molded backs,
35. Nail-brushes,
36. Paint and whitewash brushes,
37. Rotary brushes,
13. Scrubbers,
38. Shaving-brushes,
39. Tooth-brushes.
7. Brush-machines.
40. Brush-trimming machines.
8. Carpet-cleaners.
60. Carpet-sweepers.
Chimney-cleaners—
41. Flue and stovepipe,
42. Lamp.
43. Combined mop heads and wringers.
44. Combined scrubbers and mops.
45. Dressing and assorting machines.
Fountain-brushes—
46. Blacking,
47. Broom,
48. Hair,
49. Paint,
51. Scrubbers,
50. Shaving,
52. Tooth.
53. Window-cleaners.
Holders—
54. Brush-head,
55. Convertible mop and brush,
56. Mop-heads.
57. Mops.
12. Mop-wringers.
14. Scrubbing-machines—
15. Pails.
58. Shoe-blacking stands.
16. Shoe-brushes.
17. Street-sweepers.
59. Window-cleaners.

CLASS 68.—LAUNDRY. (XXVII.)

Subclasses.

1. Bosom-boards.
2. Clamps.
34. Clothes-driers.
12. Clothes-line fasteners.
14. Clothes-line reels.
3. Clothes-lines.
5. Clothes-pounders.
6. Clothes sticks and tongs.
7. Fluting-irons.
8. Hand-rubbers.
9. Ironing-machines.
10. Ironing-tables.
11. Laundries.
13. Mangles.
26. Sad-irons.
27. Sad-iron holders.
28. Starching-machines.
35. Washbenches.
29. Washboards.
30. Washbollers.
31. Washtubs.
Washing-machines—
15. Agitator,
16. Boiler,
17. Combined washing and wringing,
18. Cylinder,
37. Miscellaneous,
19. Pounder,
20. Reciprocating-rubber,
21. Rocking and swinging,
22. Roller,
23. Roller and bed,
24. Rotary-rubber.
32. Wringers.
33. Wringer-rolls.

CLASS 51.—GRINDING AND POLISHING. (XXVII.)

Subclasses.

1. Abrading materials and tools.
17. Boots and shoes.
Glass and stone—
3. Curved surfaces,
11. Plane surfaces.
Metal—
2. Card-grinding,
4. Curved surfaces,
6. Cutlery-scourers,
7. Edge-tools,
Metal—
8. Mower and reaper knives,
9. Needle-eyes,
10. Needles, rods, and points,
12. Plane surfaces,
14. Rumbles,
15. Sheet metal and wire,
16. Strops, hones, and rifles.
Wood—
5. Curved surfaces,
13. Plane surfaces.

CLASS 141.—WASHING APPARATUS. (XXVII.)

Subclasses.

6. Barrel-washers.
7. Bottle and can washers.
9. Dish-cleaners.
8. Dish cleaners and drainers. Combined
10. Dish-cloth holders.
11. Dish-drainers.
12. Pitching casks.
3. Tumbler-washers.
5. Wool-washing machines.

DIVISION XXVIII.

EXAMINER W. W. TOWNSEND.

CLASSES.—123, Air and Gas Engines; 34, Driers; 98, Pneumatics; 62, Refrigeration; 170, Wind-Wheels.

CLASS 123.—AIR AND GAS ENGINES. (XXVIII.)

Subclasses.

Engines—
1. Air,
2. Caloric,

Engines—
3. Explosive,
4. Gas.

CLASS 34.—DRIERS. (XXVIII.)

Subclasses.

1. Absorbent.
2. Baffles and screens.
3. Condensers.

Cylinder—
4. External,
Internal—
5. Rotary horizontal,
6. Rotary inclined,
7. Stationary horizontal,
8. Stationary inclined,
9. Vertical.

10. Disk and hopper.
11. Elevator.
12. Endless carrier.
13. Endless scraper.

Floors—
14. Fixed,
15. Tilting section.

16. Forms and platens.
17. Frames and trays.
18. Heaters.
19. Houses and kilns.
20. Lath and chain.
21. Pans.
22. Pan and boiler.
23. Pan and scraper.
24. Processes.
25. Push-bar.
26. Racks and stands.

Reels—
27. Skein,
28. Tray-carrier,
29. Winding.

30. Retort.
31. Rolls.
32. Rotary disk.

Shafts—
33. Inclined,
34. Vertical,
35. Zigzag.

36. Shaft and cylinder.
37. Shaft and shelf.
38. Shaking.
39. Shelf and tray.
40. Sliding rack.
41. Solar.
42. Spiral.
43. Stirrers.
44. Trough and beater.
45. Trough and screw.

Truck and rail—
46. Horizontal,
47. Inclined.

48. Web.

CLASS 98.—PNEUMATICS. (XXVIII.)

Subclasses.

1. Aerial navigation.

Air and gas pumps—
31. Hydraulic,
32. Mechanical,
33. Mercury,
34. Rotary.

5. Bellows.

Chimneys and cowls—
22. Rotary,
23. Stationary.

28. Fan attachments.

Fans—
27. Automatic,
29. Toilet.

35. Pneumatic railways—
36. Dispatch-carriers,
37. Dispatch-tubes,
38. Motor-charging.

15. Sand-blowers.

Ventilation—
7. Car,
10. Grain,
11. House,
12. Mine.

19. Window-ventilators.

CLASS 62.—REFRIGERATION. (XXVIII.)

Subclasses.

1. Air-cooling apparatus—
15. Air-expansion.
2. Beer-coolers.
3. Corpse-coolers.
4. Ice-cream freezers—
17. External freezing.
6. Ice-machines.
8. Implements.
16. Lard-coolers.
10. Refrigerators.
11. Refrigerator-buildings.
12. Refrigerator-cars.
13. Water-coolers.
14. Wine-coolers.

CLASS 170.—WIND-WHEELS. (XXVIII.)

Subclasses.

4. Automatic regulators.
5. Gearing.

Wind-wheels—
1. Horizontal,

Wind-wheels—
7. Oscillating,
2. Vertical feathering-blades,
3. Vertical solid-wheel.

DIVISION XXIX.

EXAMINER MORRIS.

CLASSES.—20, Carpentry; 147, Coopering; 108, Roofing; 157, Wheelwright-Machines; 143, Wood-Sawing; 142, Wood-Turning; 144, Woodworking-Machines; 145, Woodworking-Tools.

CLASS 20.—CARPENTRY. (XXIX.)

Subclasses.

53. Ceiling-centerpieces.
34. Compound lumber.
54. Corner-shields.
2. Doors—
23. Car—
51. Grain,
24. Sliding.
56. Door and window frames.
32. Drip-troughs.
4. Floors.
5. Frame houses.
9. Lathing.
57. Mantels.
10. Marquetry.
39. Mats—
67. Metallic,
43. Wire.
26. Moldings.
58. Panels and wainscoting.
11. Portable houses.
12. Scaffolds—
28. Bracket,
60. Trestle.
19. Scaffold-binders.
13. Shingling-brackets.
14. Shutters—
44. Sliding,
45. Swinging.
15. Skylights.
33. Splices and joints.
17. Stairs.
18. Stair-covers.
31. Thresholds.
62. Voting-booths.
63. Weather-boarding.
Weather-strips—
35. Hinged—
37. Sills,
38. Packing,
36. Sliding.
Window—
46. Chairs,
40. Guards,
47. Sashes—
48. Sliding,
50. Sliding and swinging,
49. Swinging.
20. Windows—
64. Car.
66. Wooden walls.

CLASS 147.—COOPERING. (XXIX.)

Subclasses.

1. Barrel-head making.
2. Barrel-hoop machines.
3. Barrel-making machines.
4. Basket-making machines.
5. Box-machines.
11. Coiling.
12. Crozing barrels.
6. Crozing staves.
13. Hoop-drivers.
8. Jointing staves.
10. Wooden articles.

CLASS 108.—ROOFING. (XXIX.)

Subclasses.

1. Battening.
9. Car.
18. Conductor-supports.
2. Eaves-troughs—
18. Strainers.
3. Fenders.
8. Flashings.
4. Metallic—
14. Shingle,
Metallic—
15. Standing-seam.
10. Portable.
13. Ridges.
5. Roofs.
6. Slate and shingle.
11. Thatch.
7. Tile.
16. Valleys.

CLASS 157.—WHEELWRIGHT-MACHINES. (XXIX.)

Subclasses.

1. Axle-gages.
2. Boring hubs.
3. Carriage-bow setters.
8. Tire-setters.
9. Wheelwright-machines.

CLASS 143.—WOOD-SAWING. (XXIX.)

Subclasses.

11. Log-turners.
15. Sawbucks.
25. Saw-guards.
26. Saw-guides.
16. Saw-hanging.

Sawing-machines—
1. Band-saw,
4. Circular-saw—
22. Angular,
6. Fire-wood,
23. Radial,
24. Traveling,
29. Drag. Crank—
30. Lever,
5. Edgers,
3. Mills. Circular-saw—
31. Auxiliary-saw,
12. Reciprocating-saw,

Sawing-machines—
32. Reciprocating-saw—
21. Scroll,
13. Resawing,
20. Shingle—
33. Horizontal-saw,
28. Tubular-saw.
17. Sawmill appliances.

Sawmill-carriages—
34. Feed,
35. Offsetting.
18. Sawmill-dogs.
9. Sawmill set-works.
14. Saws.
27. Saw-table gages.
19. Saw-teeth.

CLASS 142.—WOOD-TURNING. (XXIX.)

Subclasses.

9. Irregular forms.

Lathes—
12. Automatic-spindle,
2. Gage,
13. Many-spindle,
14. Single-chuck,
15. Tubular-cutter.
8. Lathe appliances.
8. Oval forms.
16. Polygonal forms.

Regular forms—
17. Lateral-movement,
18. Longitudinal-movement.

CLASS 144.—WOODWORKING-MACHINES. (XXIX.)

Subclasses.

1. Bending wood.
2. Boring—
77. Portable.
48. Boring and reaming.
78. Box-nailing machines.
6. Clothes-pin machines.
8. Comb-teeth, Cutting
80. Cutters—
49. Chain,
9. Rotary-stock.
10. Cutting dye-wood.
11. Cutting gears.
14. Dovetailing.
81. Feed mechanism—
82. Rolls.
50. Gaining.
51. Machine-tables.
16. Match-splints, Making
75. Match-trays.
Mitering—
83. Knife,
84. Saw.
Molding—
85. Axles,
52. Clamped-work,
53. Hand-feed,
54. Lateral-feed,
55. Pattern-feed,
86. Revolving-feed,
56. Special-feed,
57. Straight-feed.
Mortising—
58. Auger-cutters,
59. Chisel and auger cutters,
60. Chisel-cutters,
Mortising—
61. Rotary cutters.
19. Osier-peelers.
22. Pencil-wood. Making
Planers—
64. Beveling,
65. Rotary-cylinder,
66. Rotary-disk,
25. Sliding.
26. Planer attachments.
27. Planing and matching.
28. Planing and sawing.
63. Presser bars and rolls.
67. Punching-cutters.
29. Rossing bark.
68. Routing—
4. Pattern.
Sashes and blinds—
31. Making,
74. Tenoning.
69. Shaving. Fixed-knife
Slicers—
70. Beveling,
71. Reciprocating,
72. Rotary and oscillating.
36. Slivering.
37. Special work.
38. Splitting and bundling.
73. Tenoning and boring.
40. Universal joiners.
46. Wiring blinds.
42. Wooden pins. Making
43. Wooden trays. Making
44. Wood ornamentation.
45. Working ratan.

CLASS 145.—WOODWORKING-TOOLS. (XXIX.)

Subclasses.

1. Augers—
25. Countersink,
35. Detachable-lip,
36. Expansible,
34. Gage attachments.
2. Auger-handles—
26. Ratchet.
3. Bench-dogs.
4. Bench-planes—
37. Bit-adjusting,
38. Crozes,
29. Gage attachments.
51. Bit-sockets.
5. Bit-stocks—
27. Ratchet.
6. Box-openers.
7. Box-scrapers.
22. Cant-dogs.
10. Chalk-line holders.
8. Chisels—
39. Gage.
9. Clamps—
40. Box and miter,
41. Double-screw,
42. Pivoted-jaw,
43. Single-screw,
44. Sliding-jaw.
30. Floor-sets.
11. Gages—
45. Scratch,
31. Weather-board—
46. Marking.
12. Hammers and hatchets.
23. Handsaws.
47. Handsaw attachments.
13. Hollow augers.
52. Mallets.
53. Nail-extractors, Claw—
54. Nipper.
16. Saw-handles.
17. Screw-drivers—
48. Attachments,
28. Ratchet.
33. Spiral tool-drivers.
18. Spokeshaves—
49. Adjustable-bit.
55. Tenoning-bits.
19. Tools.
20. Tool-handles—
32. Fastenings,
50. Sockets.
21. Work-benches.

DIVISION XXX.

EXAMINER WOODWARD.

CLASSES.—67, Lamps and Gas-Fittings; 199, Linotyping; 198, Matrix-Making; 88, Optics; 197, Type-Writing Machines.

CLASS 67.—LAMPS AND GAS-FITTINGS. (XXX.)

Subclasses.

1. Candlesticks—
97. Miners'.
66. Canopy shades and reflectors.
3. Chandeliers. Gas
4. Chimney-holders.
92. Chimneys, Composite—
93. Double,
91. Integral.
99. Collars and tops.
53. Cut-offs, Automatic—
54. Pressure.
89. Distributers.
100. Drip-catchers.
Drop-lights—
55. Burner attachments,
118. Cord-supports,
56. Counterweight,
57. Friction and clutch,
58. Spring-drum.
Extinguishers—
60. Fluid,
59. Mechanical,
61. Pneumatic.
101. Founts.
74. Gas brackets and valves.
7. Gas-burners—
51. Incandescent,
52. Regenerative,
9. Regulating.
8. Gas-fittings.
62. Gas-lighting attachments.
77. Globes—
102. Attachments.
94. Guards.
78. Harps and hangers.
79. Lamp attachments.
83. Lamp-boxes.
33. Lamp-burners—
10. Argand,
11. Multiple-wick.
63. Lamp-lighting attachments.
32. Lamps—
87. Bicycle,
30. Bracket,
76. Carriage,
42. Cigar-lighting,
103. Flash,
16. Forced-draft,
17. Independent-reservoir,
64. No-chimney,
Safety-tube and central-draft—
104. Draw-bar,
Lamps—
Safety-tube and central-draft—
105. Miscellaneous,
106. No-raiser,
107. Rack-bar,
108. Screw-rod,
109. Swiss-screw,
85. Special,
29. Street.
24. Lanterns—
90. Dark,
35. Signal,
46. Submarine,
44. Tubular.
45. Lantern-holders.
71. Lighting implements.
84. Lighting systems.
Lights—
96. Christmas-tree,
50. Decorative,
70. Head,
75. Hydrogen-platinum,
34. Signal.
Match-boxes—
98. Igniting,
110. Single-delivery.
27. Match-safes.
95. Oil indicators and fillers.
80. Pedestals.
81. Pocket-lighters.
21. Posts.
Reflectors—
82. Hooded,
72. Miscellaneous,
68. Side.
37. Refracting attachments.
69. Safety lamps and lanterns.
Shade-supports—
119. Base.
120. Candle,
111. Double-clamp,
112. Drop,
113. Miscellaneous,
114. Spider,
115. Umbrella.
116. Spark-catchers.
73. Street-light hangers.
38. Torches.
30. Vapor-burners.
117. Vents.
86. Wick-pickers.
88. Wick raisers. Flat-
23. Wicks.

CLASS 198.—MATRIX-MAKING. (XXX.)

Subclasses.

1. Bar.
2. Dies.
3. Miscellaneous.
4. Reciprocating die-carrier, electrical.
5. Reciprocating die-carrier, mechanical.
6. Rotary die-carrier.

CLASS 88.—OPTICS. (XXX.)

Subclasses.

1. Altitude instruments.
19. Compasses.
2. Distance instruments.
23. Eyeglasses.
3. Heliostats.
4. Kaleidoscopes.
25. Kinetoscopes.
5. Lenses.
6. Leveling instruments.
7. Magic lanterns.
8. Microscopes.
24. Opera-glasses.
20. Optometers.
9. Photometers.
10. Prisms.
26. Projecting apparatus.
11. Sextants.
12. Spectacles.
22. Spectacle-cases.
13. Stakes and targets.
14. Stereoscopes.
17. Surveying instruments.
15. Telescopes.
21. Testing instruments.
16. Tripods.

CLASS 199.—LINOTYPING. (XXX.)

Subclasses.

5. Bar-machines, Plural—
6. Single.
7. Circulation-machines.
8. Guide-machines.
4. Justifying devices.
3. Linotype-making.
2. Linotypes.
9. Machine attachments.
10. Miscellaneous machines.
11. Rotary linotype-machines.

CLASS 197.—TYPE-WRITING MACHINES. (XXX.)

Subclasses.

1. Aliners.
2. Attachments.
3. Bar.
4. Carriages.
5. Cleaners.
6. Electrical.
7. Index-wheel.
8. Keyboards.
9. Key-wheel—
10. Miscellaneous.
11. Plate.
12. Ribbon mechanism.
13. Stenographic.

DIVISION XXXI.

EXAMINER ELY.

CLASSES.—195, Alcohol; 203, Ammonia, Water, and Wood Distillation; 202, Charcoal and Coke; 35, Educational Appliances; 50, Fluid-Pressure Regulators; 46, Games and Toys; 48, Gas; 149, Hides, Skins, and Leather; 196, Mineral Oils; 87, Oils, Fats, and Glue; 91, Painting.

CLASS 195.—ALCOHOL. (XXXI.)

Subclasses.

1. Beer—
4. Preserving—
5. Pasteurizing,
2. Purifying—
3. Finings and shavings.
6. Distilled spirits—
Aging—
7. Apparatus—
9. Rocking racks,
10. Processes,
11. Apparatus—
12. Stills—
13. Columns,
14. Doublers and worms,
16. Vapor-filters,
15. Rectifying processes.
Fermenting—
17. Apparatus—
18. Vats,
19. Vent-bungs,
20. Processes.
Malting—
21. Apparatus—
22. Cylinders, rotary,
23. Malt-stirrers,
24. Processes.
Mashing—
25. Apparatus—
26. Digesters and disintegrators,
27. Fore-mashers,
28. Mash-tubs—
29. Rakes,
30. Tubular rakes,
31. Hops,
32. Processes,
33. Wort—
34. Hopping,
35. Purifying.
36. Wines.

CLASS 203.—AMMONIA, WATER, AND WOOD DISTILLATION. (XXXI.)

Subclasses.

1. Ammonia.
2. Turpentine—
3. Apparatus,
4. Processes.
5. Water.
6. Wood.

CLASS 202.—CHARCOAL AND COKE. (XXXI.)

Subclasses.

1. Charcoal—
10. Kilns,
2. Processes,
3. Retorts.
Coke—
4. Ovens—
5. Chargers and dischargers,
Coke—
Ovens—
6. Doors,
7. Dumping-bottoms.
8. Processes.
9. Retort-ovens.

CLASS 35.—EDUCATIONAL APPLIANCES. (XXXI.)

Subclasses.

1. Alphabet-blocks.
2. Arithmetic.
3. Astronomy.
15. Blackboards.
18. Cryptography.
5. Globes.
6. Maps.
12. Miscellaneous.
8. Penmanship.
9. Reading.
10. Slates.
14. Slate-mufflers.

CLASS 50.—FLUID-PRESSURE REGULATORS. (XXXI.)

Subclasses.

4. Cut-offs.
5. Diaphragm—
6. Lever.
7. Float—
8. Lever.
9. Piston.

CLASS 46.—GAMES AND TOYS. (XXXI.)

Subclasses.

4. Balls and bats.
43. Base-ball.
6. Billiard appliances—
7. Balls,
8. Chalk-cups,
9. Cues,
10. Cue-tip fasteners,
11. Cushions,
12. Tables,
13. Table-levelers.
53. Bowling-alleys—
54. Pin-setting apparatus.
14. Buzzes and whirligigs.
55. Card-game accessories.
56. Chance devices—
57. Ball.
15. Croquet.
58. Duplicate-whist apparatus.
Game apparatus—
59. Aerial projectiles—
60. Peg and pocket,
61. Surface projectiles—
62. Longitudinal.
21. Game-boards—
63. Chance-controlled,
64. Checkered surfaces.
65. Game pieces.
22. Hobby-horses.
23. Kites.
42. Lawn-tennis.
25. Playing-cards.
41. Puzzles and magic.
27. Roundabouts.
53. Skaters' appliances.
50. Skates—
51. Roller.
52. Skate-wheels.
30. Skipping-ropes.
31. Soap-bubble pipes.
32. Spinning-tops.
33. Stilts.
35. Toy building-blocks.
36. Toy money-boxes.
37. Toys—
49. Electric,
40. Figure—
45. Wheeled,
46. Sounding—
47. Wheeled,
48. Wheeled.
38. Trundles and hoops.

CLASS 48.—GAS. (XXXI.)

Subclasses.

2. Carbureters—
24. Carbureting-lamps,
29. Float-vaporizers,
25. Gas and air mixers,
3. Jet-mixers,
26. Oil-feed, float-valves,
27. Oil-feed, rotary,
28. Revolving.
4. Center-seals and by-pass valves.
9. Dip-pipes.
22. Distribution—
46. Leakage,
47. Preventing leakage,
48. Regulating pressure,
49. Separators.
10. Exhausters.
Gas—
53. Acetylene,
5. Coal,
6. Coal and oil.
8. Coal and water,
7. Coal, oil, and water,
12. Hydrogen,
13. Oil,
14. Oil and water—
Generators—
50. Cupola,
51. Refractory,
Gas—
Oil and water—
Generators—
52. Retort,
30. Producers,
19. Water,
20. Wood.
11. Holders.
Purifiers—
31. Boxes,
32. Compounds,
33. Condensers,
34. Miscellaneous,
35. Processes,
36. Revivifying,
37. Trays,
38. Washers and scrubbers—
39. Float,
40. Reciprocating,
41. Rotary.
18. Retort-chargers.
23. Retort gas-furnaces.
16. Retort-lids.
17. Retorts and settings—
42. Attachments,
43. Cleaning,
44. Domestic plants,
45. Retorts.

CLASS 149.—HIDES, SKINS, AND LEATHER. (XXXI.)

Subclasses.

8. Apparatus—
22. Coloring and polishing,
19. Endless belts,
16. Helical tools,
20. Putting out and stretching—
21. Stretching-frames,
17. Reciprocating tools—
18. Rocking frames,
23. Rolling and embossing,
14. Rotary cylinders,
15. Rotating tools,
12. Tables and frames,

Apparatus—
13. Tanners' tools,
9. Tanning,
11. Tumbling-drums,
10. Vats.

Processes and compositions—
3. Bating,
7. Coloring and polishing,
6. Currying,
2. Depilating,
1. Preserving,
4. Tanning,
5. Tawing.

CLASS 196.—MINERAL OILS. (XXXI.)

Subclasses.

1. Apparatus—
2. Reducing gravity,
3. Stills—
6. Bottoms,
5. Condensers,
7. Feeders,
8. Films,
9. Furnaces and flues,
10. Heads,
11. Jackets,
12. Rotary,
13. Series,
4. Stirrers and scrapers,
18. Supplementary heating,
14. Tubular,
15. Utilizing gases and residue,

Apparatus—
Stills—
16. Vacuum,
17. Vapor-outlets.

Coal-oil—
21. Processes,
19. Retorts—
20. Rotary.
22. Compositions—
23. Burning-fluid.
24. Paraffin.
25. Processes—
26. Chemical,
27. Injecting gases,
28. Residuum,
29. Washing and filtering.

CLASS 87.—OILS, FATS, AND GLUE. (XXXI.)

Subclasses.

17. Adhesives.
18. Artificial butter.
21. Candles.
3. Candle apparatus.
4. Decomposing fats.
5. Detergents.
6. Extracting oils.
7. Glue.
9. Lubricants.
12. Refining fat oils.
13. Rendering.
23. Soap articles.
15. Soap-cutting.
24. Soap-frames.
16. Soap-manufacture.
25. Soap-presses.
26. Suint.
19. Wax.

CLASS 91.—PAINTING. (XXXI.)

Subclasses.

Apparatus—
23. Air-brushes,
Brushes or rolls—
24. Fixed,
25. Reciprocating,
26. Dipping-tanks,
27. Enameling wood,
28. Fountain-discharge,
29. Heaters,
30. Indenting and filling machines,
31. Paint-mixers,
32. Pots and tools,
Rolls or webs—
33. Continuous-motion, hand,
34. Interrupted-motion, hand,
35. Work-holders.

Compositions—
58. Driers,
59. Fillers,
36. Fireproofing compounds,
Inks—
37. Copying and sensitive,
38. Printing,
39. Writing,

Compositions—
Mixed paints—
60. Alkali,
40. Barrel-linings,
41. Oil,
61. Rubber,
42. Tar,
62. Vulcanized,
43. Water—
44. Soluble silicates,
45. Pigments—
46. Lampblack,
47. Lead salts,
48. Ultramarine,
49. Zinc salts,
50. Stove-polishes,
Varnishes—
52. Alkali,
Making—
51. Processes and apparatus,
53. Oil,
54. Pyroxylin,
55. Tar.

Processes—
56. Processes,
57. Japanning.

DIVISION XXXII.

EXAMINER WITHERSPOON.

CLASSES.—180, Accoutrements; 40, Advertising; 190, Baggage; 215, Bottles and Jars; 224, Bundle-Carriers; 209, Carbonating Beverages; 225, Dispensing Beverages; 221, Metallic Dispensing-Cans; 220, Metallic Shipping and Storing Vessels; 226, Packaging Liquids; 150, Packing and Storing Vessels; 217, Wooden Barrels and Boxes.

CLASS 180.—ACCOUTREMENTS. (XXXII.)

Subclasses.

1. Accoutrements.
16. Cartridge-belts.
17. Cartridge-boxes—
18. Cartridge-feed.
19. Game-belts.
20. Gun and pistol holders.
15. Knapsacks and haversacks.
21. Knapsack-slings.
22. Safety-harness.
23. Scabbards—
24. Hangers.
8. Tents—
25. Bed,
26. Frames,
27. Pegs and poles,
28. Shelter,
29. Pipe-shields and ventilators.

CLASS 40.—ADVERTISING. (XXXII.)

Subclasses.

1. Articles—
78. Multiple-card,
77. Single-card.
75. Card-exhibitors—
76. Droppers,
20. Rotary,
21. Sliding.
3. Card-racks.
28. Display-cards.
40. Display-trays.
41. Drawer-plates.
43. Embroidery-cases.
9. Labels.
10. Label-holders—
79. Clip,
80. Freight-car,
81. Hat,
82. Slide,
83. Street-car.
52. Pattern-exhibitors.
84. Sign dummies.
6. Sign-letters.
4. Signs—
58. Belt,
59. Endless-belt—
89. Motors—Clock,
90. Vehicle,
60. Guide-post,
65. Hanging,
61. Illuminated—
91. Lantern,
92. Perforated,
62. Interchangeable-letter,
63. Interchangeable-slide,
64. Mechanically-rotated,
86. Multiple-plate,
87. Raised letters,
93. Rotatable,
88. Single-plate,
66. Street-lamp,
67. Vibrating.
73. Vending devices, ribbon-holders.

CLASS 190.—BAGGAGE. (XXXII.)

Subclasses.

2. Canteens and flasks.
3. Hat and fur cases.
4. Musicians' cases.
11. Saddle-bags.
13. Toilet-kits.
7. Traveling-bags—
14. Convertible,
15. Fasteners—
16. Pivoted,
17. Frameless,
18. Frames—
19. Top-opening,
20. Handles,
21. Handle-fasteners,
22. Hinge-stays,
23. Telescoping.
5. Trunks—
6. Convertible—
24. Bed,
Trunks—
Convertible—
25. Bureau,
26. Desk and table,
27. Wardrobe,
28. Corner-shields,
29. Cylindrical,
30. Extensible,
31. Followers,
32. Handles,
33. Hinge-stays,
34. Lid-stays,
35. Straps and strap-fasteners,
36. Supporting devices,
37. Trays,
38. Tray lifters and supporters,
39. Wall.

CLASS 215.—BOTTLES AND JARS. (XXXII.)

Subclasses.

1. Bottle attachments—
2. Clip.
3. Bottle-cases—
4. Wire,
5. Wrapper—
6. Corrugated.
7. Bottle-labels.
8. Bottle-stoppers—
9. Cap—
10. Crimped,
11. Elastic,
12. Frangible,
13. Screw,
14. Disk,
15. Dose—
16. Droppers,
100. Ejectors,
17. Expanding—
18. Cam,
19. Screw,
20. Fasteners—
21. Bail—
22. Locking,
23. Cap—
24. Tie,
101. Expanding,
25. Spring—
26. Clip,
27. Wire,
28. Internal—
29. Ball,
30. Extension—
31. Wire,
32. Plug,
33. Locks,
34. Pivoted—
35. Locking—
36. Ball,
37. Cam—
38. Plug,
39. Rotary,
40. Lever—
41. Lever and yoke,
42. Plug—
43. Slotted,
44. Top—
45. Slotted,
46. Wire,
47. Screw,
48. Spring—
49. Catch,
50. Plug—
51. Composite,
52. Screw,
53. Pullers,
54. Tube—
55. Valve—
56. Ball,
57. Rotary,
58. Screw,

Bottle-stoppers—
Tube—
Valve—
102. Spring,
59. Vent.
60. Bottle-valves—
Controllers—
61. Spring,
62. Weight—
63. Pendent,
64. Float,
65. Guards—
66. Caps,
67. Fasteners,
68. Multiple,
103. Necks, separable,
69. Valves and seats.
70. Bottles—
71. Compartment,
72. Indicating—
112. Internal,
113. Poison,
73. Jugs,
74. Mucilage—
75. Brushes,
76. Scrapers,
77. Necks—
78. Breakable—
105. Bottom-fillers,
Stopper-fasteners—
106. Disk,
107. Ring,
108. Spring,
Stoppers—
109. Expanding,
110. Multiple,
111. Plastic,
79. Nesting.
80. Jar-closures—
81. Cap—
82. Grooved,
83. Ring,
84. Screw—
85. Inclines,
86. Ring,
87. Clamp—
88. Lever,
89. Screw,
90. Pivoted,
91. Spring—
92. Bow,
93. Inclines,
94. Packing,
95. Stoppers—
96. Expanding,
97. Plug—
98. Screw.
99. Jars—
104. Ejecting.

CLASS 224.—BUNDLE-CARRIERS. (XXXII.)

Subclasses.

1. Baskets. Metallic—
2. Sheet metal,
3. Wire,
4. Wooden—
5. Blanks,
6. Bottoms,
7. Braced,
8. Covered—
9. Fasteners,
10. Folding,
11. Handles,
12. Interwoven strip,
13. Overlapping staves.
14. Bicycle luggage carriers—
15. Cases,
16. Clamp,
Bicycle luggage carriers—
17. Collapsible,
18. Strap,
19. Watch.
20. Book-carriers—
21. Clamp—
22. Tighteners.
23. Package-carriers—
24. Handles—
25. Strap,
26. Slings.
27. Shawl-straps—
28. Fasteners,
29. Handles—
30. Bar,
31. Tighteners.

CLASS 209.—CARBONATING BEVERAGES. (XXXII.)

Subclasses.

7. Beverages.
1. Carbonators—
10. Beer—
11. Atomizer,
12. Pressure,
13. Pump,
3. Rotary-mixer,
14. Spray.
8. Carbonators and generators—
9. Portable.
15. Gas-collection.
16. Gas-distribution.
4. Gas-generators—
6. Acid-feed siphon,
17. Furnace,
5. Rotary-stirrer.

CLASS 225.—DISPENSING BEVERAGES. (XXXII.)

Subclasses.

1. Beer apparatus—
2. Barrel-taps—
3. Draft-tube,
4. Driving-tools,
5. Faucets—
6. Foam,
7. Pump,
8. Foam-separators—
9. Settling-chambers,
10. Followers—
11. Collapsible,
12. Pipe-cleaners—
14. By-pass,
13. Hot-water,
15. Pressure. Air—
16. Pump,
17. Gas—
18. Attached chamber,
19. Pump,
20. Vents.
21. Soda-water apparatus—
22. Bottle-taps,
23. Faucets—
24. Foam—
25. Rotary valve,
26. Mixing,
27. Nozzles,
28. Fountains—
29. Casings,
30. Pressure-reducers,
31. Pump,
32. Syrup-cocks—
33. Measuring,
34. Rotary,
35. Syrup-tanks—
36. Removable—
37. Sliding,
38. Swinging,
39. Valves.

CLASS 221.—METALLIC DISPENSING-CANS. (XXXII.)

Subclasses.

1. Filling-cans—
2. Closures—
3. Cap—
4. Screw,
5. Spout,
6. Pivoted,
7. Screw—
8. Plug,
9. Jackets—
10. Corrugated,
29. Wooden,
11. Nozzles—
12. Cut-offs—
13. Automatic—
14. Spring—
15. Pull,
16. Push,
17. Vents,
18. Detachable,
19. Rotary—
20. Vented,
22. Screw,
21. Slide,
23. Detachable—
24. Reversing,
25. Flexible tube,
26. Pivoted,
27. Sliding,
28. Vented,
30. Pivoting stands,
31. Vents.
32. Hand-oilers—
33. Attachments,
34. Bottom springs,
35. Compartment,
36. Drip-catchers—
37. Return—
38. Valved,
39. Vents,
40. Droppers,
41. Feed-controllers—
42. Automatic,
43. Bottom,
44. Spout,
Hand-oilers—
Feed-controllers—
45. Stem—
46. Lever,
47. Forced feed—
48. Bottom-actuated,
49. Bulb,
50. Nozzle-actuated,
51. Pump—
52. Air,
53. Holders—
54. Rod,
55. Illuminating,
56. Spouts—
57. Cleaning-pins,
58. Closing-caps,
59. Vented.
60. Paint-tubes.
61. Powder-cans—
62. Cut-offs—
63. Measuring,
64. Rotary,
65. Receiving-pockets,
66. Rotary stirrers.
67. Tanks—
68. Cabinets,
69. Drainers—
70. Covered,
71. Cup,
72. Pump—
73. Covered,
74. Pressure. Air—
75. Blow,
76. Bulb,
77. Pump,
78. Followers—
79. Screw,
80. Pump—
81. Covered,
82. Lift—
83. Removable,
84. Nozzle,
85. Removable,
86. Return suction.

CLASS 220.—METALLIC SHIPPING AND STORING VESSELS. (XXXII.)

Subclasses.

1. Barrels—
2. Corrugated,
3. Jackets,
4. Sectional.
5. Boxes—
6. Blacking—
7. Handles,
8. Blanks,
9. Closures—
10. Fasteners,
11. Hinges—
12. Spring,
13. Sliding,
14. Compartment—
15. Closures,
16. Dispensing,
17. Knockdown,
18. Lunch—
19. Compartment,
20. Knockdown.
21. Bucket-bottoms.
22. Bucket-closures.
23. Bucket-ears—
24. Detachable,
25. Driving,
26. Embossed,
27. Locking. Ball—
28. Cover,
29. Wire.
30. Bucket-handles—
31. Wire—
32. Bails.
33. Buckets—
34. Can,
35. Coal—
36. Blanks,
37. Bottoms—
38. Integral foot—
39. Integral foot and body,
40. Wooden,
41. Closed,
42. Feeders—
43. Bottom,
44. Guards—
45. Pivoted,
46. Sifting,
47. Garbage,
48. Jackets,
49. Lunch—
50. Compartment—
51. Nesting—
52. Sectional,
53. Jackets,
54. Slop—
55. Closures—
56. Disinfecting,
57. Liquid seal.
58. Can-closures—
59. Cap,
60. Fasteners—
61. Bar,
62. Pivoted,
63. Plug,
64. Ring,
Can-closures—
65. Rip—
66. Breakable,
67. Cutting,
68. Strip—
69. Integral—
70. Double seam,
71. Key,
72. Wire—
73. Seam,
74. Screw—
75. Bayonet,
76. Slip—
77. Multiple cover,
78. Packed,
79. Sealing grooves,
80. Snapping.
81. Can-seams—
82. Crimped—
83. Ring,
84. Three-wall,
85. Four-wall,
86. Five-wall,
87. Six to twelve wall.
88. Canisters—
89. Bottom feed,
90. Closures,
91. Display.
92. Cans—
93. Blanks,
94. Hermetic closures—
95. Fusible,
96. Plug,
97. Sealers,
98. Lined,
99. Milk—
100. Bottoms,
101. Breasts,
102. Closures—
103. Locking—
104. Key,
105. Rotary,
106. House,
107. Jacketed.
108. Casks—
109. Soda-water—
110. Valved.
111. Crates.
112. Pans—
113. Blanks.
114. Receptacles. Antirust—
115. Garbage—
116. Hoisting,
117. Sinks,
118. Vault,
119. Wall.
120. Tank attachments—
121. Safety—
122. Float,
123. Water-jackets.
124. Tank-closures.
125. Tanks—
126. Transporting—
127. Compartment,
128. Vehicle,
129. Wooden.

CLASS 226.—PACKAGING LIQUIDS. (XXXII.)

Subclasses.

1. Capping-machines—
2. Internal cap,
3. Rotary.
4. Corking-machines—
5. Automatic feed,
6. Compressing—
7. Automatic feed,
8. Hand-tools.
9. Filling-machines—
10. Barrel,
15. Counter-pressure,
11. Cut-offs—
12. Automatic—
13. Float,
14. Vent,
16. Faucets,
17. Gage—
18. Adjustable,
Filling-machines—
Gage—
19. Pump—
20. Adjustable,
21. Multiple nozzle,
22. Reciprocating nozzle,
23. Siphon-bottle,
24. Siphon-tube,
25. Stoppers. Internal—
26. Valve,
27. Turn-over.
28. Filling and corking machines—
29. Barrel,
30. Corking-nozzles,
31. Counter-pressure,
32. Reciprocating nozzles.

CLASS 150.—PACKING AND STORING VESSELS. (XXXII.)

Subclasses.

178. Ballot-boxes—
225. Ball,
227. Closures.
179. Fare-boxes—
180. Change,
228. Check-receivers,
230. Closed-slot,
229. Conveyers,
231. Detachable locking-receptacle,
181. Portable—
232. Closures,
233. Shelf. Rotating—
236. Serrated,
237. Sliding,
234. Tilting—
235. Multiple.
182. Letter-boxes—
238. Chutes. Discharge—
239. Double-trap,
240. Receiving—
241. Rotary,
242. Detachable-receptacle,
183. House—
Closures—
254. Bottom,
246. Pivoted-body,
247. Sliding,
248. Collection and delivery,
249. Door-jamb lock,
250. Name-plate,
251. Package,
253. Signal.
243. Indicators,
244. Parcel.

Cloth, leather, and rubber—
191. Bag-closures—
192. Bar.
184. Bag-fasteners—
193. Cord—
196. Tie,
197. Hinged-jaw,
198. Locking-lever,
199. Strap.
128. Bags.
129. Baskets and buckets.
130. Boxes.
Cloth, leather, and rubber—
170. Mail-bags—
200. Closures—
201. Angular-frame,
202. Flap—
203. Corner folds,
204. Sliding fastener,
205. Turning fastener,
206. Pivoted-jaw,
207. Top-slide,
208. Label-holders.
187. Pocket-book fasteners and frames.
185. Pocket-book holders.
186. Pocket-books.
188. Portfolios—
189. Roll.
190. Purses.

Paper vessels: bags—
142. Bags—
143. Closures,
144. Square-bottom.

Paper vessels: barrels and pails—
82. Barrels.
148. Pails.

Paper vessels: Boxes. Angular—
149. Boxes, angular—
150. Blanks, plural,
151. Compartment—
152. Folded,
153. End folds,
154. Side and end folds,
155. Side folds,
156. Side folds and end laps,
157. End laps,
158. Side and end laps,
159. Side laps,
160. Slide,
161. Stays.

Paper vessels: Boxes. Curved—
162. Boxes, curved—
163. Compartment.

CLASS 217.—WOODEN BARREL AND BOXES. (XXXII.)

Subclasses.

1. Barrel-bungs—
2. Bushings,
3. Expansible—
4. Vented,
5. Locks—
6. Bayonet,
7. Plugs—
8. Diaphragm—
9. Integral,
10. Protectors,
11. Valves—
12. Ingress—
13. Collapsible,
14. Controllers—
15. Rotary,
16. Screw,
17. Diaphragm,
18. Liquid-seal,
19. Safety,
20. Wrenches.
21. Barrel-closures—
22. Clamp—
23. Bail,
24. Cam,
25. Expanding bolts,
26. Hoops,
27. Lever,
28. Rotary,
29. Screw,
30. Fasteners—
31. Spring-catch.
32. Barrel-covers—
33. Compartment,
34. Hinged,
35. Rotary,
36. Wire.
37. Barrel-heads—
38. Braced,
39. Expanding,
40. Fasteners,
41. Followers.
42. Barrel-hoops—
43. Blanks,
44. Elastic,
45. Locks—
46. Notched,
47. Staple,
48. Retainers,
49. Tighteners.
50. Barrel-joints.
51. Barrel-racks.
52. Barrel-stands—
53. Portable,
57. Swing—
58. Roller-supports,
54. Tilting—
55. Portable,
56. Trucks.
59. Barrel-staves—
60. Moisteners.
61. Barrels—
62. Bent—
63. Sections,
64. Cases,
65. Compartment,
66. Knockdown,
67. Linings,
68. Ventilated—
69. Perforated.
70. Boxes—
Bent—
71. Angular—
72. Double blank,
73. Joints,
74. Curved—
75. Joints,
76. Walls,
77. Block,
78. Bottle-racks,
79. Cases—
80. Bottle—
81. Cells—
82. Strips,
Boxes—
Cases—
Bottle—
85. Mailing,
86. Can,
157. Dispensing—
158. Closures,
159. Pivoting—
160. Closure—
161. Hinged,
162. Frames,
87. Jar—
88. Cushion,
89. Cells—
90. Clips,
91. Cord,
92. Crimped,
93. Cushioned,
94. Plate—
95. Multiple,
96. Pocket—
97. Flexible—
98. Slitted,
99. Separable,
100. Strip—
101. Locking—
102. Bent,
103. Cushions,
104. Loops,
105. Slit—
106. Tongued,
107. Closures—
108. Hinged—
109. Slide,
110. Supports,
111. Sliding,
112. Compartment—
113. Followers,
114. Dispensing,
115. Display—
116. Bottle—
117. Clips,
118. Compartments—
119. Folding,
120. Grooved,
121. Covers—
122. Compartment,
123. Cravat,
124. Embroidery,
125. Jewelers'—
126. Clamp,
127. Sample-fasteners—
128. Clips,
129. Joints,
130. Knockdown—
131. Folding—
132. Removable sides,
133. Linings,
134. Stays—
135. Angular,
136. Driving—
137. Wire,
138. Straps—
139. Wire,
140. Walls.
141. Crates—
142. Closures,
143. Cushioned,
144. Folding—
145. Poultry—
146. Removable sides,
147. Fruit-box,
148. Hat-supports,
149. Knockdown—
150. Poultry,
151. Package—
152. Roll,
153. Poultry—
154. Collapsible,
155. Sectional,
156. Ventilated.

DIVISION XXXIII.

EXAMINER NEWTON.

TRADE-MARKS.

This classification has no official character, but is a grouping of merchandise kindred in character to facilitate search by the Office. The parenthetical references point to the titles of analogous groups into which the field of search may extend, depending on the nature of the merchandise.

TRADE-MARKS.

Titles.

1. Agricultural implements. (See Title 41, 73.)
2. Baking-powder and yeast. (See Title 30.)
3. Beverages. (See Title 42.)
4. Blacking and leather-dressing. (See Title 12.)
5. Boots, shoes, and lasts. (See Title 57.)
6. Brooms and brushes.
7. Buttons. (See Title 22.)
8. Canned goods. (See Title 16, 26.)
9. Carpets, &c.
10. Cement, plaster, and bricks.
11. Cigars and cigarettes. (See Title 71.)
12. Cleaning and polishing preparations. (See Title 4.)
13. Coffee and tea.
14. Confectionery.
15. Corsets. (See Title 75.)
16. Cured meats. (See Title 8, 26, 37.)
17. Cutlery and edge-tools. (See Title 73, 68.)
18. Dairy products.
19. Dentistry.
20. Drugs and chemicals. (See Title 44, 53, 72.)
21. Dry goods. (See Title 22, 69.)
22. Fancy goods. (See Title 7, 21, 30, 47.)
23. Fertilizers. (See Title 20.)
24. Firearms, ammunition, and explosives.
25. Flour.
26. Food and relishes. (See Title 8, 16, 62.)
27. Fuel.
28. Games and toys. (See Title 46.)
29. Glassware. (See Title 32, 55.)
30. Gloves. (See Title 22.)
31. Headwear.
32. Household articles. (See Title 29, 35, 55.)
33. Inks. (See Title 65.)
34. Iron, steel, and manufactures. (See Title 41, 73.)
35. Jewelry and plated ware. (See Title 32, 70.)
36. Lamps, lanterns, &c. (See Title 29.)
37. Lard and tallow. (See Title 16, 18.)
38. Laundry articles. (See Title 32, 61, 64.)
39. Leather and saddlery.
40. Locks and hardware. (See Title 72, 73.)
41. Machines. (See Title 1, 34, 73.)
42. Malt liquors. (See Title 3, 63.)
43. Matches.
44. Medical compounds. (See Title 20, 53, 72.)
45. Miscellaneous.
46. Musical instruments. (See Title 29.)
47. Needles and pins. (See Title 22.)
48. Oils and lubricants. (See Title 51.)
49. Optics and measuring instruments. (See Title 73.)
50. Packing. (Machinery.) (See Title 39, 57.)
51. Paints and painters' supplies. (See Title 48.)
52. Paper and envelops. (See Title 65.)
53. Poisons for animals. (See Title 20, 44.)
54. Publications.
55. Receptacles. (See Title 29, 32.)
56. Rope, cord, and twine. (See Title 59.)
57. Rubber goods. (See Title 5, 50, 69.)
58. Sewing-machines and attachments. (See Title 41, 73.)
59. Sewing silk, cotton, and thread. (See Title 56.)
60. Shirts, collars, and cuffs. (See Title 75.)
61. Soap. (See Title 38, 72.)
62. Spices, mustard, and salt. (See Title 26.)
63. Spirituous liquors. (See Title 42, 77.)
64. Starch, corn-starch, and products. (See Title 26, 38.)
65. Stationery miscellany. (See Title 33, 52.)
66. Stoves and heaters.
67. Sugar, syrup, and molasses.
68. Surgical instruments and appliances. (See Title 17.)
69. Tailoring and clothing. (See Title 21, 57, 75.)
70. Time-keeping instruments. (See Title 35.)
71. Tobacco and snuff. (See Title 11.)
72. Toilet articles and preparations. (See Title 20, 61.)
73. Tools and devices.
74. Umbrellas, parasols, and canes.
75. Underwear and furnishing. (See Title 15, 60.)
76. Vehicles.
77. Wines. (See Title 3, 42, 63.)

PRINTS AND LABELS.

Not classified, but arranged in chronological order and preserved for reference in the Examiner's room.

DIVISION XXXIV.

EXAMINER SIMPSON.

CLASSES.—188, Railway-Brakes; 213, Railway Draft Appliances; 105, Railway Rolling-Stock; 104, Railways.

CLASS 188.—RAILWAY-BRAKES. (XXXIV.)

Subclasses.

16. Automatic—
17. Draw-bar actuated—
19. Centrifugal governor,
18. Winding,
20. Push-rod actuated—
21. Winding.
22. Beams.
23. Brake-flange on wheel.
24. Brakes.
25. Brake-shoes—
26. Chills,
27. Composite faces,
28. Fasteners,
29. Non-metallic,
30. Rail,
31. Recessed faces,
09. Roller.
32. Conduit-slot.

Disk on axle—

33. Brake-band,
34. Peripheral shoes,
35. Side shoes.
36. Electric—

Magnetic clutch—

37. Winding-drum,
38. Magnetic shoes,
39. Solenoid-operated.

Fluid-pressure—

1. Automatic,
9. Brake-piston indicators,
10. Brake-release valves,
2. Derailment,
3. Direct,
4. Electric,
7. Engineers' valves,
11. Load-regulated valves,
5. Momentum-pump,
12. Pressure-retainers,

Fluid-pressure—

13. Train-pipe couplings,
14. Train-pipe-release valves,
8. Train-pipe stop-cocks,
15. Triple valves,
6. Vacuum.
40. Hand-levers—
41. Ratchet-drum,
42. Ratchet-segment.
70. Hangers.
43. Load-regulated.

Locomotive—

44. Connected series,
45. Shoes between drivers.
46. Positive lock.
47. Rail—

Grippers.

48. Slack-adjusters—
50. Ratchet-bar,
51. Ratchet-driven screw.
52. Staffs—
53. Friction-clutch handles,
54. Geared,
55. Locking-ratchets,
56. Ratchet-handles—

Pivoted,

57. Screw,
59. Winding attachments.
60. Top shoes.
61. Train-operated—
62. Rotary shafts,
63. Winding.
64. Wheel and rail—
65. Chock-block.

Winding—

66. Pneumatic shift.
67. Winding-axle.
68. Winding-drum.

CLASS 213.—RAILWAY DRAFT APPLIANCES. (XXXIV.)

Subclasses.

39. Buffers—
60. Draw-bar actuated,
2. Fluid-pressure.

Bumpers—

3. Rigid.

Couplings—

35. Arrowhead and jaws,
36. Bails,
37. Beveled link and fixed catch,
38. Beveled link and swing catch,
61. Chains,
40. Combined air-brake,

Combined draw-bar and hook—

4. With link,
43. Headed link and V-slot,
44. Hook and catch,
45. Hook and link—

Combined,

5. Janney type—
6. Emergency-releases,
7. Gravity-locks,
8. Horizontal sliding latches,
9. Knuckle-openers,

Knuckle-openers and locks—

10. Combined,
11. Pivoted horizontal latches,
12. Pivoted vertical latches,

Couplings—

Janney type—

13. Safety-brackets,
14. Vertical sliding pins,

Link—

62. End openers,
63. Handled,
15. Star-wheel detent,
47. Link-lifters,
49. Miller hook—
66. Swing-heads,
50. Pins and links,

Pin-supports—

16. Balls,
51. Gravity,
52. Spring,
54. Rolling detent,
53. Rotary heads,
55. Sliding detent,
56. Swing-pins,
57. Tools,
58. Train,
17. Twin jaws,
59. Uncoupling-levers.
1. Draft-cable.
42. Draw-bars—
41. Continuous,
64. Friction-buffers,
18. Street-car.

Locomotives—

19. Side-track push-rods.
20. Street-car poles.

CLASS 105.—RAILWAY ROLLING-STOCK. (XXXIV.)

Subclasses.

4. Axles—

Divided—

258. Fixed middle bearings,
66. With couplings,
67. Wheel-attaching devices,
68. With sleeved and fixed wheels,

Bevel-ended—

69. Non-telescoping.
63. Car-movers—
132. Flange or axle grip,
70. Pinch-bars—
71. With rail-grip,
72. Pushing-jacks,
73. Traction-wheels.

Cars—

133. Bell-cord hangers,
74. Dining,
14. Dumping—
184. Convertible flat and hopper bottom,
185. Hopper-bottom,

Inclined-bottom—

186. Side doors,
187. Inwardly-tilting sections,
188. Outwardly-tilting sections—

Displaceable sides,

189. Tilting-body—

Displaceable sides,

190. Expansible,
191. Express—
262. Burglar-proof,
75. Floor-frames,
76. Freight—
15. Frames,
192. Fruit,
77. Removable covers,
78. Removable side sections,
193. Rolling,
79. Running boards and rails,
194. Stakes—
182. Releasable,
173. Side-folding,
174. Steps and platforms,
195. Hand—
16. Geared,
196. Lamp arrangement,
197. Merchandising,
198. Open street—

Seats,

80. Side guards,
81. Passenger—
19. Baskets,
5. Double-deck,
199. Dust-guards,
200. Emergency-exits,
82. Frames,
201. Head-rests,
202. Individual safes,
83. Platform extensions—

With gates,

84. Platforms,
204. Seat and door arrangement,
205. Steps—
85. Extension—

Folding,

86. Sliding,
87. With gate,
88. Safety-bridges,
21. Sleeping—
23. Berth-guards,
90. Berth-locks,
206. Compartment arrangement,
207. Convertible seat and berth,
208. Curtains and rods,
89. Hinged berths,
209. Ladders,
91. Partitions,
210. Seat-back and upper berth,
211. Suspended berths,
212. Steam street,
28. Street—
31. Awnings,
213.

Cars—

Street—

92. Convertible open and closed,
35. Hand-straps,
214. Reversible,
93. Storm-fronts,
61. Vestibule.
216. Derailers and replacers.
94. Derailment-guards—
215. Inclined wheels,
95. Rail-interlocking,
96. Supplemental wheels.
17. Locomotives—
217. Belt-gearing,
97. Draw-bar lifters,
259. Electric—
218. Belt-gearing,
219. Friction-roller driven,
220. Geared,
221. Intermittent-grip,
222. Longitudinal gear-shafts,
223. Longitudinal worm-shafts,
224. Friction-roller driven,
225. Intermittent-grip,
227. Longitudinal shafts,
228. Rack-rail,
226. Swinging-bogie,
98. Telescoping pilots,
260. Tenders,
99. Traction-increasers—
175. Electric,
229. Gripping-drivers.

Mail-bag delivery—

230. Car-forks,
231. Catchers and cranes,
232. Cranes,
261. Projectors.

Motors—

102. Manually-operated,
101. Spring,
100. Tread power.
60. Sanding devices—
176. Chain-feed,
177. Oscillatory-feed,

Reciprocatory-feed—

178. Horizontal,
179. Vertical,
180. Rotary-feed.
233. Single rail—
234. Side guides—
235. Locomotives.
236. Single top and bottom rail.
181. Sound-deadening devices.
24. Springs—
117. Coil—
118. Cap and bed plates,
119. Coil and rubber,
120. Conical volute,
121. Elliptic—
122. Cap and bed plates,
123. Multiple-disk,
124. Pneumatic,
134. Rubber—
125. Cap and bed plates,
126. Zigzag.
26. Starters.
27. Starters and brakes.
237. Suspended.

Trains—

238. Power-transmitters.
32. Trucks—
135. Antifriction-wheels,
108. Bolsters—
104. Cast,
105. Guides,
106. Pressed-steel,
107. Trussed,
257. Cable-grip,
108. Center bearings—
109. Pressed-steel,
110. Roller,
11. Changeable-gage,

Curve-adjusters—

136. Swiveled-wheel,

Electric-motor—

239. Bogies,
240. Equalizing-levers,
241. Motor-supporters,

CLASS 105.—RAILWAY ROLLING-STOCK. (XXXIV.)

Continued.

Subclasses.

Trucks—
Electric-motor—
242. Rigid-frame,
Four-wheel—
243. Bogies,
Curve-adjusters—
137. Axles, radial,
138. Axles, sectional,
111. Frames—
112. Pressed-steel,
113. Pedestals,
114. Safety-supporters,
115. Side bearings—
116. Roller,
Six-wheel—
244. Bogies,
Curve-adjusters—
139. Axles, radial,
245. Supplemental.
246. Velocipedes—
247. Bicycle attachments,
248. Geared.
Wheel-bodies—
140. Cast in tires,
141. Cast on hubs.
33. Wheel-fenders—
249. Car and truck equalizer,
250. Combined brake,
251. Fixed-scoop,
252. Folding hinged-scoop,
253. Hinged-scoop,
Inclined—
127. Tilt-up front,
128. Obstacle projectors,
254. Pilot type,
Rotary—
129. Positively-driven,
130. Trip and drop-scoop,
255. Trip and shoot forward,
256. Wheeled-scoop,
131. Wheel-tread.
Wheels—
146. Bushings,
Wheels—
147. Counterbalances,
148. Epicycle,
Flanges—
149. Independent movement,
Integral—
150. Cast—
151. Hollow webs,
Spokes—
153. Cast in,
Metallic—
154. Detachable,
155. Wooden,
156. Tire-fasteners—
158. Bolted lap-flanges,
157. By casting,
159. Integral lugs,
160. Transverse intermediate keys,
Tires—
Cushioned—
161. Metallic springs,
162. Rubber,
163. Wooden blocks,
164. Loose,
165. Non-metallic,
166. Roller-supported,
Webs—
167. Sheet-metal disks—
168 Non-metallic filling,
169. Single,
Split castings—
170. Detachable tires,
171. Wooden,
Webs and tires—
172. Pressed-steel.
182. Wheel-tread surfaces—
142. Form,
143. Multiple,
144. Peripheral rollers,
145. Recessed.

CLASS 104.—RAILWAYS. (XXXIV.)

Subclasses.

154. Balloon.
114. Bridge-guards.
49. Buffers.
1. Car-replacers.
2. Chairs.
63. Compensators—
148. Intermittent-grip,
149. Slot,
150. Weight.
40. Crossings—
116. Movable-rail—
117. Stub.
3. Deadening noise.
75. Deflection-stands.
76. Detector-bars.
4. Elevated—
131. Bicycle,
146. Cable rail.
50. Foot-guards.
5. Frogs—
99. Movable-rail—
118. Lap,
119. Stub,
98. Spring-rail.
35. Grippers—
87. Automatic release,
130. Coal-car,
88. Friction,
89. Friction-belt,
132. Overstepping,
90. Roller,
91. Sprocket-wheel,
92. Whelp-wheel.
109. Guard-rail clamps.
7. Hose-bridges.
8. Inclined plane—
113. Traction.
39. Interlocking—
105. Rods,
101. Selectors,
106. Stands—
120. Catch,
121. Plunger.
133. Logging.
111. Pleasure-railways.
60. Pot-sleepers.
134. Rack-rails.
54. Rail-braces.
Rail-joints—
135. Boxes,
136. Bridge-pieces. Base—
137. Tread,
138. Joint-chairs,
145. Miscellaneous,
139. Scarf,
140. Splice-bars—
141. Girder,
143. Threadless bolts,
142. Truss,
144. Web-blocks.
10. Rails—
147. Compound.
21. Signals—
42. Automatic alarm,
67. Bar,
71. Danger,
31. Detonating,
68. Light,
27. Pneumatic—
104. Automatic,
69. Portable,
22. Switch,
Signals—
70. Train-order.
94. Signals. Automatic—
122. Agitated,
123. Block.
124. Crossing,
72. Setting apparatus,
151. Stops,
73. Tappets,
74. Trips.
61. Sledways.
95. Switch-chairs.
115. Switch-pieces.
96. Switch-rods.
25. Switch-stands.
12. Switches—
23. Automatic,
77. Automatic safety,
127. Derailing,
155. Electric,
125. Lap,
26. Pneumatic,
78. Safety,
152. Slip,
79. Spring,
126. Stub,
24. Tramway—
128. Car devices,
129. Track devices.
Track—
44. Fastenings,
14. Miscellaneous,
45. Portable—
112. Crossovers,
46. Stringers and ties—
156. Composition,
55. Metallic.
Track-cleaners—
65. Blade and broom,
86. Centrifugal,
37. Dumpers,
38. Elevators,
56. Explosive,
100. Flangers—
101. Rotary,
102. Vibrating,
103. Hot plows,
153. Oilers and washers,
51. Plows,
58. Removing weeds,
66. Snow-guards,
57. Stock-alarms.
110. Track-curves.
16. Track-layers.
17. Track-platforms.
59. Track-raisers.
18. Traction—
80. Cable-shields,
81. Crossing conduits,
82. Crossing streams,
83. Curves,
53. Running and carrying rope,
84. Slot-closers,
85. Slot-switches,
86. Take-ups,
47. Underground.
48. Transfer-tables.
64. Truck-changers.
19. Turn-tables.
62. Yards and plants.

SUBCLASSES ALPHABETICALLY ARRANGED

WITH THE

NUMBER OF PATENTS IN EACH SUBCLASS ON JANUARY 1, 1897.

Subclass.	Class.	No. of patents in subclass.	Division.
Abrading materials and tools.	Grinding and Polishing	265	27
Absorbent	Driers	15	28
Accordions	Music	47	5
Accoutrements	Accoutrements	20	32
Accumulators	Pumps	22	9
Acids, mineral	Chemicals	186	6
Actinometers	Photography	5	6
Actions, organ	Music	70	5
Address-printers	Printing	69	17
Address-printers—Strip-form	do	22	17
Adhesives	Oils, Fats, and Glue	76	31
Aerial navigation	Pneumatics	157	28
Agraffes. Piano-	Music	43	5
Air	Beds	37	8
Air and gas pumps—			
Hydraulic	Pneumatics	198	28
Mechanical	do	609	28
Mercury	do	45	28
Rotary	do	395	28
Air-brushes	Painting	24	31
Air-cooling apparatus	Refrigeration	163	28
Air-cooling apparatus—Air-expansion	do	38	28
Air-suction chamber	Pumps	21	9
Alarms	Electric Signaling	121	16
Alarms—			
Aequoreal	do	63	16
Barokinetic	do	33	16
Burglar	do	122	16
Burglar, safe	do	52	16
Alarms	Signals	67	22
Alarms—			
Bicycle	do	15	22
Poison-indicator	do	9	22
Albums	Bookbinding	80	5
Aliners	Type-Writing Machines	14	30
Alloys	Metallurgy	250	8
Alphabet-blocks	Educational Appliances	17	31
Altitude instruments	Optics	39	30
Amalgamators—			
Electric	Mills	60	25
Lead	do	59	25
Mercury	do	517	25
Plate	do	149	25
Vacuum	do	26	25
Vapor	do	20	25
Ambulances and stretchers.	Carriages and Wagons	41	10
Ammonia	Ammonia, Water, and Wood Distillation.	58	31
Ammonia	Chemicals	50	6
Anchors	Ships	160	22
Anchor-trippers	do	40	22
Anemometers	Measuring Instruments	90	23
Angle-irons	Metal-Rolling	9	13
Animal-shears	Cutlery	326	15
Animal-stocks—			
Hog-traps	Care of Live Stock	58	2
Horse and cattle	do	81	2
Sheep	do	59	2
Animal-stops	Sewerage	10	9
Annealing apparatus	Annealing and Tempering	34	8
Annealing apparatus—			
Boxes and pots	do	36	8
Clamps	do	23	8
Muffles	do	30	8
Ovens	do	26	8
Ovens—			
Rotary hearths	do	7	8
Pits	do	9	8
Wire and springs	do	23	8
Annealing processes	do	25	8
Annealing processes—			
Drawing temper	do	27	8
Gas	do	16	8
Toughening	do	10	8
Annunciators	Electric Signaling	63	16
Annunciators—			
Drop	do	149	16
Drop systems	do	60	16
Step-by-step	do	103	16
Time	do	40	16
Annunciators	Signals	47	22
Antifriction-wheels (*See* Trucks.)	Railway Rolling-Stock	24	34
Anti-induction devices	Telephony	44	16
Antiseptics	Preserving	181	6
Anvils	Metal-Forging	70	13
Apartment-houses	Masonry	35	4
Apparatus	Chemicals	98	6
Apparatus	Composite Roofings and Coverings.	74	15
Apparatus	Fertilizers	119	6
Apparatus	Hides, Skins, and Leather	34	31
Apparatus	Mineral Oils	10	31
Apparatus	Preserving	171	6
Apparatus—Reducing gravity	Mineral Oils	21	31
Apple-parers	Vegetable Cutters and Crushers.	230	25
Applications, general	Electricity. Special Applications.	11	16
Apron vats and stretchers.	Bleaching and Dyeing	30	6
Aquariums	Water Distribution	20	4
Aqueducts	Hydraulic Engineering	9	4
Arc and incandescent	Electric Lighting	35	16
Arc and incandescent—Non-feeding	do	32	16
Arithmetic	Educational Appliances	78	31
Armor-clad	Ships	101	22
Arms	Arms and Projectiles. Making	25	13
Arms and hands	Artificial Limbs	38	20
Article-delivery	Coin-Controlled Apparatus	42	14
Article-delivery—Chance	do	17	14
Article-delivery—Oscillatory	do	32	14
Article-delivery—Rotatory	do	65	14
Article-delivery—Rotatory—Sheet-feed	do	88	14
Slidable pusher—Coin-engaged	do	51	14
Slidable pusher—Detent	do	45	14
Slidable pusher—Detent and handle	do	59	14
Slidable pusher—Spiral	do	7	14
Articles	Advertising	24	32
Articles	Glass	194	15
Articles	Paper Manufactures	106	17
Articles—Caoutchouc	Caoutchouc and Minor Plastics.	192	15
Minor plastics	do	63	15
Multiple card	Advertising	16	32
Single card	do	18	32
Articulators	Dentistry	89	20
Artificial fuel	Fuel	195	15
Artificial—Butter	Oils, Fats, and Glue	71	31
Flowers	Fine Arts	88	5
Ivory	Caoutchouc and Minor Plastics.	45	15
Stone, composition	Artificial Stone	189	15
Artists' appliances	Fine Arts	92	5
Ash-chutes	Masonry	15	4
Ash-pans	Steam-Boiler Furnaces	61	18
Assaying	Metallurgy	14	8
Assembling	Pumps	106	9
Assorting	Silk	6	21
Astronomy	Educational Appliances	101	31
Atomizers	Surgery	159	6
Attaching card-clothing	Wire-Working	18	14
Attachment-holders	Sewing-Machines	62	24
Attachments	Plows	72	1
Attachments	Steam-Boiler Furnaces	53	18
Attachments	Steam-Boilers	198	18
Attachments	Steam-Engines	172	18
Attachments	Type-Writing Machines	16	30
Attachments—Hand, exercising devices.	Music	7	5
Attachments—Harrow	Plows	73	1
Attachments—Keyboard, exercising devices.	Music	17	5
Attachments—Reed-organ	do	15	5
Attachments—Watch-chain	Jewelry	86	5
Audiphones	Acoustics	10	23
Auger-handles	Woodworking-Tools	68	39

Subclass.	Class.	No. of patents in subclass.	Division.
Auger-handles—			
Ratchet	Woodworking-Tools	15	29
Augers	Metal Tools and Implements. Making	88	13
Augers	Woodworking-Tools	139	29
Augers—			
Countersink	do	91	29
Detachable-lip	do	41	29
Expansible	do	47	29
Gage attachments	do	26	29
Autographic registers	Printing	113	17
Autoharps	Music	45	5
Automatic	Railway-Brakes	30	34
Automatic	Telegraphy	217	16
Automatic—			
Draw-bar actuated	Railway-Brakes	162	34
Draw-bar actuated—			
Centrifugal governor.	do	44	34
Winding	do	48	34
Nozzles and sprinklers	Fire-Extinguishers	254	9
Push-rod actuated	Railway-Brakes	101	34
Push-rod actuated—			
Winding	do	26	34
Regulators	Wind-Wheels	117	28
Spindle-lathes	Wood-Turning	82	29
Valves	Fire-Extinguishers	34	9
Auxiliary pedals	Music	35	5
Auxiliary strings	do	14	5
Awnings	Curtains, Shades, and Screens.	273	8
Awnings	Railway Rolling-Stock	6	34
(*See* Cars, street.)			
Axes and hatchets	Metal Tools and Implements. Making	109	13
Axle-boxes	Carriages and Wagons	140	10
Axle-gages	Wheelwright-Machines	52	29
Axle-skeins	Carriages and Wagons	130	10
Axles	do	343	10
Axles	Railway Rolling-Stock	58	34
Axles—			
Divided, fixed middle bearings.	do	27	34
Divided, fixed middle bearings—			
With couplings	do	91	34
Lubricating	Journal-Boxes, Pulleys, and Shafting.	219	19
Wheel-attaching devices.	Railway Rolling-Stock	77	34
With sleeved and fixed wheels.	do	45	34
Baby-jumpers	Surgery	70	6
Baby-walkers	do	63	6
Badges	Fine Arts	28	5
Baffles and screens	Driers	3	28
Bag and twine holders	Store Furniture	40	8
Bag-closures	Packing and Storing Vessels	52	32
Bag-closures—			
Bar	do	18	32
Bag-fasteners	do	34	32
Bag-fasteners—			
Cord	do	9	32
Cord—			
Tie	do	17	32
Hinged-jaw	do	22	32
Locking-lever	do	16	32
Strap	do	11	32
Baggage-checks	Buckles, Buttons, Clasps, Etc.	64	11
Bag-holders, bagging grain.	Mills	367	25
Bag-holders	Store Furniture	36	8
Bag-machines	Paper Manufactures	49	17
Bag-machines—			
Blank-formers	do	28	17
Transverse central-folders.	do	24	17
Triangular folders	do	9	17
Tube-closers	do	27	17
Tube-formers	do	40	17
Tube formers and closers.	do	52	17
Tube formers and openers.	do	4	17
Tube formers, openers, and closers.	do	32	17
Tube formers, openers, and closers—			
Openers—			
Roll	do	13	17
Side	do	5	17
Tube-openers	do	13	17
Tube-openers—			
Openers—			
Roll	do	9	17
Side	do	10	17
Tube openers and closers.	do	34	17
Bag-machines—			
Tube openers and closers—			
Openers—			
Roll	Paper Manufactures	6	17
Side	do	5	17
Bags	Packing and Storing Vessels	37	32
Bags, traveling	Baggage	63	32
Bag-turning machines	Weaving	7	21
Bait and tackle holders	Fishing and Trapping	66	22
Balanced slide	Steam-Engine Valves	417	18
Balanced slide—			
Double	do	58	18
Roller	do	56	18
Balances	Measuring Instruments	169	23
Balances—			
Electrical attachments.	do	29	23
Equal arms	do	58	23
Pick-up weights	do	27	23
Recording	do	58	23
Bale and box hooks	Hoisting	14	12
Bale and package ties—			
Bale-ties	Buckles, Buttons, Clasps, Etc.	876	11
Package-ties	do	42	11
Baling—			
Articles and attachments.			
Bale-band tighteners.	do	127	2
Bale-ejectors	do	13	2
Bales and bale-covers.	do	64	2
Binders	do	92	2
Boxes and frames	do	82	2
Brakes	do	1	2
Condensers	do	3	2
Discharge-end contracting devices.	do	9	2
Division-blocks and block-inserters.	do	11	2
Feeders	do	41	2
Indicators	do	4	2
Movable bale-boxes	do	88	2
Plungers	do	2	2
Retainers	do	6	2
Ballasting	Ships	31	22
Balling-heads	Carding	13	21
Balloon	Railways	17	34
Ballot-boxes	Packing and Storing Vessels	8	32
Ballot-boxes—			
Ball	do	10	32
Closures	do	13	32
Balls	Cordage	9	21
Balls and bats	Games and Toys	112	31
Ball-traps	Firearms	107	22
Bandages	Surgery	142	6
Bandages—			
Bandage-machines	do	6	6
Suspensory	do	43	6
Water	do	25	6
Band-cutters and feeders.	Threshing	411	25
Banding	Cordage	16	21
Band-saw	Wood-Sawing	238	29
Banjo-bridges	Music	3	5
Banjos	do	92	5
Banjos—			
Mutes	do	10	5
Necks	do	19	5
Resonators	do	16	5
Bank-notes, checks, and bonds.	Bookbinding	90	5
Banners and flags	Fine Arts	13	5
Bar	Matrix-Making	12	30
Bar, type-writing	Type-Writing Machines	425	30
Barbing	Wire-Working	138	14
Barbing—			
Sheet-metal	do	9	14
Tools	do	16	14
Bar-machines—			
Plural	Linotyping	12	30
Single	do	17	30
Barometers	Measuring Instruments	29	23
Barrel-bungs	Wooden Barrels and Boxes	13	32
Barrel-bungs—			
Bushings	do	19	32
Expansible	do	20	32
Expansible—			
Vented	do	6	32
Locks	do	35	32
Locks—			
Bayonet	do	36	32
Plugs	do	26	32
Plugs—			
Diaphragm	do	7	32
Diaphragm—			
Integral	do	28	32
Barrel-bungs—			
Protectors	Wooden Barrels and Boxes	9	32
Valves	do	19	32
Valves—			
Ingress	do	39	32
Ingress—			
Collapsible	do	13	32
Controllers	do	6	32
Controllers—			
Rotary	do	6	32
Screw	do	16	32
Diaphragm	do	16	32
Liquid-seal	do	10	32
Safety	do	12	32
Wrenches	do	25	32
Barrel-closures	do	15	32
Barrel-closures—			
Clamp	do	10	32
Clamp—			
Ball	do	17	32
Cam	do	9	32
Expanding bolts	do	19	32
Barrel-closures—			
Clamp—			
Hoops	do	11	23
Lever	do	17	32
Rotary	do	17	32
Screw	do	33	32
Fasteners	do	21	32
Fasteners—			
Spring-catch	do	9	32
Barrel-covers	do	17	32
Barrel-covers—			
Compartment	do	13	32
Hinged	do	27	32
Rotary	do	7	32
Wire	do	9	32
Barrel-heads	do	48	32
Barrel-heads—			
Braced	do	11	32
Expanding	do	37	32
Fasteners	do	10	32
Followers	do	26	32
Barrel-head making	Coopering	61	29
Barrel-hoops	Wooden Barrels and Boxes	19	32
Barrel-hoops—			
Blanks	do	19	32
Elastic	do	16	32
Locks	do	21	32
Locks—			
Notched	do	11	32
Staple	do	8	32
Retainers	do	31	32
Tighteners	do	35	32
Barrel-hoop machines	Coopering	66	29
Barrel-joints	Wooden Barrels and Boxes	23	32
Barrel-making machines	Coopering	126	29
Barrel-racks	Wooden Barrels and Boxes	9	32
Barrel-rollers	Hoisting	27	12
Barrel-stands	Wooden Barrels and Boxes	15	32
Barrel-stands—			
Portable	do	15	32
Swing	do	20	32
Swing—			
Roller-supports	do	12	32
Tilting	do	31	32
Tilting—			
Portable	do	11	32
Trucks	do	19	32
Barrel-staves	do	14	32
Barrel-staves—			
Moisteners	do	7	32
Barrel-washers	Washing Apparatus	58	27
Barrels (*See* Paper vessels, barrels.)	Packing and Storing Vessels	35	32
Barrels	Metallic Shipping and Storing Vessels.	17	32
Barrels—			
Corrugated	do	19	32
Jackets	do	15	32
Sectional	do	9	32
Barrels	Wooden Barrels and Boxes	30	32
Barrels—			
Bent	do	40	32
Bent—			
Sections	do	22	32
Cases	do	18	32
Compartment	do	10	32
Knockdown	do	32	23
Linings	do	31	32
Ventilated	do	12	32
Ventilated—			
Perforated	do	16	32
Bars	Metal-Drawing	39	13
Bascule-bridges	Bridges	17	4
Base-ball	Games and Toys	9	31
Base key and ratchet	Nut and Bolt Locks	208	14
Base-washer	Nut and Bolt Locks	343	14
Basins and stands	Baths and Closets	140	9
Basket-making machines.	Coopering	33	20
Baskets—			
Metallic	Bundle-Carriers	11	32
Metallic—			
Sheet-metal	do	17	32
Wire	do	15	32
Wooden	do	12	32
Wooden—			
Blanks	do	21	32
Bottoms	do	58	32
Braced	do	51	32
Covered	do	32	32
Covered—			
Fasteners	do	31	32
Folding	do	16	32
Handles	do	22	32
Interwoven strip	do	9	32
Overlapping staves	do	18	32
Baskets and buckets, (cloth, leather, and rubber.)	Packing and Storing Vessels	35	32
Batch-mixers	Glass	8	15
Bath and basin fittings	Baths and Closets	213	9
Bathing apparatus	do	76	9
Bathing apparatus—			
Bidets	do	19	9
Shower	do	100	9
Tubs	do	139	9
Bathometers	Measuring Instruments	44	23
Baths	Electricity. Medical and Surgical.	46	26
Baths	Photography	10	6
Bating	Hides, Skins, and Leather	33	31
Battening	Roofing	64	29
Batteries—			
Anodes	Electro-Chemistry	18	3
Cathodes	do	20	3
Connectors	do	23	3
Diaphragms	do	17	3
Vessels	do	29	3
Carbon	do	7	3
Earth	do	7	3
Gas	do	22	3
Piles	do	15	3
One-fluid—			
Iron	do	3	3
Zinc	do	116	3
Zinc—			
Chlorids	do	29	3
Chromates	do	19	3
Nitrates	do	2	3
Oxids	do	93	3
Sulfates	do	21	3
Piles	do	15	3
Secondary	do	581	3
Thermal	Electricity. Generation	56	26
Two-fluid—			
Iron	Electro-Chemistry	5	3
Zinc	do	49	3
Zinc—			
Chromates	do	54	3
Nitrates	do	48	3
Sulfates	do	21	3
Sulfates—			
Gravity	do	55	3
Bayonets	Firearms	26	22
Beam-compasses	Drafting	42	23
Beams	Plows	59	1
Beams	Railway-Brakes	109	34
Bean-harvesters	Harvesters	21	7
Bearings	Velocipedes	83	7
Bed and cylinder machines.	Printing	60	17
Bed and cylinder machines—			
Cushions	do	49	17
Multirevolution	do	38	17
Multirevolution—			
Perfecting	do	25	17
Oscillating-cylinder	do	34	17
Oscillating-cylinder—			
Perfecting	do	13	17
Perfecting	do	5	17
Sliders	do	9	17
Stop-cylinder	do	42	17
Stop-cylinder—			
Perfecting	do	5	17
Traveling-cylinder	do	57	17
Traveling-cylinder—			
Perfecting	do	23	17
Bed and platen machines	do	27	17
Bed and platen machines—			
Inking attachment	do	21	17
Oscillating	do	73	17

Subclass.	Class.	No. of patents in subclass.	Division.
Bed and platen machines—			
Oscillating—			
Roller and plate inker.	Printing	84	17
Roller-inker	do	45	17
Roller-inker—			
Orbital	do	15	17
Stationary roller-inker.	do	17	17
Roller and plate inker	do	28	17
Roller-inker	do	56	17
Tympan-gages	do	61	17
Web	do	32	17
Bed-bottom	Fire Escapes and Ladders	19	12
Bed-bottoms—			
Fabrics	Beds	348	8
Fabrics and springs	do	130	8
Slats	do	68	8
Slats and springs	do	750	8
Springs	do	466	8
Bedclothing	do	16	8
Bed-pans	Baths and Closets	51	8
Bedsteads	Beds	108	8
Bedsteads—			
Attachments	do	29	8
Braces	do	43	8
Extension	do	20	8
Folding	do	90	8
Invalid	do	176	8
Invalid—			
Head-sections	do	106	8
Lifters and conveyers.	do	62	8
Vertically-moving frame.	do	28	8
Sofa	do	76	8
Sofa—			
Extension	do	60	8
Folding-back	do	114	8
Folding back and seat.	do	59	8
Folding-seat	do	142	8
Rotary back and seat	do	19	8
Vertically-moving frame.	do	42	8
Table	do	55	8
Wardrobe-bedsteads	do	45	8
Wardrobe-bedsteads—			
Center-folding	do	81	8
End-folding	do	57	8
Extension	do	30	8
Shifting-fulcrum	do	92	8
Single-frame	do	290	8
Sliding-frame	do	14	8
Bee culture—			
Beehives	Bee Culture	875	2
Hive appliances	do	135	2
Beer	Alcohol	8	31
Beer—			
Coolers	Refrigeration	357	28
Preserving	Alcohol	16	31
Preserving—			
Pasteurizing	do	23	31
Purifying	do	23	31
Purifying—			
Finings and shavings	do	24	31
Beer apparatus	Dispensing Beverages	13	32
Beer apparatus—			
Barrel-taps	do	9	32
Barrel-taps—			
Draft-tube	do	34	32
Driving-tools	do	9	32
Faucets	do	11	32
Faucets—			
Foam	do	90	32
Pump	do	14	32
Foam-separators	do	9	32
Foam-separators—			
Settling-chambers	do	21	32
Followers	do	14	32
Followers—			
Collapsible	do	16	32
Pipe-cleaners	do	12	32
Pipe-cleaners—			
By-press	do	5	32
Hot-water	do	6	32
Pressure—			
Air	do	29	32
Air—			
Pump	do	34	32
Gas	do	17	32
Gas—			
Attached chamber	do	13	32
Pump	do	12	32
Vents	do	7	32
Beetling	Cloth-Finishing	3	21
Bell-cord hangers (See Cars.)	Railway Rolling-Stock	9	34
Bell-hanging	Signals	33	23
Bell-hanging—			
Pulls	do	27	22
Ringing	do	40	22
Bellows	Pneumatics	90	28
Bellows—			
Organ	Music	54	5
Bell-ringer	Steam-Engines	34	18
Bells	Electric Signaling	193	16
Bells	Signals	101	22
Bells—			
Bicycle	do	61	22
Bicycle—			
Wheel-actuated	do	15	22
Belt and roller	Presses	74	2
Plunger—			
Cam	do	91	2
Crank and pitman	do	68	2
Lever	do	100	2
Rack bar and pinion	do	92	2
Ratchet and grapple bar.	do	125	2
Rebounding	do	261	2
Screw	do	292	2
Thrust-bar	do	59	2
Toggle-joint	do	377	2
Toggle-joint—			
Inverted	do	94	2
Windlass	do	192	2
Screw	do	4	2
Belt-fasteners	Hose and Belting	368	11
Belting	do	108	11
Belting-machines	do	50	11
Belts, game	Accoutrements	7	32
Belt-shifters	Journal-Boxes, Pulleys, and Shafting.	281	13
Belt-slide and skirt-supporting attachments.	Buckles, Buttons, Clasps, Etc.	36	11
Belt-stretchers	Hose and Belting	78	11
Belt-tighteners	Journal-Boxes, Pulleys, and Shafting.	157	12
Bench-dogs	Woodworking-Tools	86	29
Bench-planes	do	264	29
Bench-planes—			
Bit-adjusting	do	108	29
Crozes	do	24	29
Gage attachments	do	94	29
Bending	Metal-Bending	135	14
Bending	Wire-Working	151	14
Bending and coiling	do	16	14
Bending and twisting	do	67	14
Bending—			
By press	Metal-Bending	47	14
By rolls	do	28	14
Bending wood	Woodworking-Machines	280	29
Bent seam	Metal-Tube Manufacture	23	13
Berths, cabins, and furniture.	Ships	116	22
Berths (See Cars, sleeping.)	Railway Rolling-Stock	12	34
Bevel-ended, non-telescoping.	Railway Rolling-Stock	12	34
Bevels	Measuring Instruments	241	23
Beverages	Carbonating Beverages	12	32
Bicycle attachments (See Velocipedes.)	Railway Rolling-Stock	12	34
Bicycle-lamps	Lamps and Gas-Fittings	64	30
Bicycle luggage-carriers	Bundle-Carriers	17	32
Bicycle luggage-carriers—			
Cases	do	10	32
Clamps	do	9	32
Collapsible	do	9	32
Strap	do	17	32
Watch	do	11	32
Bicycles—			
Header-preventers	Velocipedes	8	7
Ordinary, rigid-frame	do	34	7
Propulsion—			
Crank and chain	do	137	7
Crank and gear	do	165	7
Lever and crank	do	31	7
Lever and ratchet	do	62	7
Lever, crank and gear, or chain.	do	41	7
Lever, ratchet and gear, or chain.	do	23	7
Miscellaneous	do	16	7
Rack and pinion	do	19	7
Safety—			
Rigid-frame	do	128	7
Spring-frame	do	175	7
Supports	do	198	7
Tandem	do	27	7
Biers	Undertaking	20	27
Bilge-water, discharging.	Ships	67	22
Billet-loops	Harness	84	11
Bill-files	Stationery	98	5

Subclass.	Class.	No. of patents in subclass.	Division.
Bill-files—			
Boxes	Stationery	22	5
Boxes—			
Indexes	do	34	5
Indexes and followers.	do	54	5
Separators	do	51	5
Continuous-web	do	8	5
Division leaves and pockets.	do	31	5
Followers	do	123	5
Impaling-pins	do	180	5
Packet-holders	do	64	5
Pins and followers	do	52	5
Billiard—			
Appliances	Games and Toys	84	31
Balls	do	10	31
Chalk-cups	do	64	31
Cues	do	72	31
Cue-tip fasteners	do	19	31
Cushions	do	69	31
Table-levelers	do	43	31
Tables	do	81	31
Binders	Sewing-Machines	90	24
Binders—			
Compressors	Harvesters	36	7
Grain-adjusters	do	113	7
Sheaf-carriers	do	140	7
Temporary	Bookbinding	198	5
Temporary—			
Longitudinal cords	do	23	5
Projecting pins	do	26	5
Removable covers	do	33	5
Spring-backs	do	37	5
Transverse cords	do	69	5
Binding	do	117	5
Binding-machines	do	98	5
Binding-machines—			
Pamphlet-coverers	do	11	5
Rounding and backing	do	21	5
Signature-gatherers	do	13	5
Bins	Store Furniture	26	8
Bird cages and houses	Care of Live Stock	93	2
Bits	Metal Boring and Drilling	112	13
Bit-sockets	Woodworking-Tools	190	29
Bit-stocks	do	77	29
Bit-stocks—			
Ratchet	do	65	29
Bituminous and resinous, composition.	Artificial Stone	34	15
Blackboard rubbers. Slate and	Stationery	124	5
Blackboards	Educational Appliances	84	31
Blacking box and brush cases.	Brushing and Scrubbing	23	27
Blacking-boxes (See Metallic vessels, blacking-boxes.)	Metallic Shipping and Storing Vessels.	23	32
Blacking-box holders	Brushing and Scrubbing	37	27
Blanching	Trees, Plants, and Flowers	8	1
Blanket	Fire Escapes and Ladders	37	12
Blasting-cartridges	Projectiles	77	22
Blasting-cartridges—			
Electric	do	22	22
Blasting-fuses	do	74	22
Blasting-fuses—			
Electric	do	36	22
Blasting implements	do	68	22
Blasting-powder	Explosives	117	6
Bleaching	Bleaching and Dyeing	60	6
Bleaching	Paper-Making	47	15
Bleaching cane-juice	Sugar and Salt	39	6
Blind-stops	Builders' Hardware	188	20
Block and tackle	Hoisting	295	12
Block and tackle—			
Differential pulleys	do	137	12
Block-signals, automatic	Railways	50	34
Blocks, musical	Music	9	5
Blotters	Stationery	112	5
Blowing	Glass	47	15
Blowpipes	Metallurgy	83	3
Boards. Drawing-	Fine Arts	91	5
Boat-building (See Building.)	Boats	115	22
Boats—			
Life (See Life-boats.)	do	145	22
Sectional and folding	do	83	22
Bobbin and cop builders	Spinning	22	21
Bobbin and spindle connectors.	do	60	21
Bobbins	do	182	21
Bobbin-supporters	Cordage	56	21
Bodies	Carriages and Wagons	296	10
Body-garments—			
Aprons	Apparel	37	24
Armpit-shields	do	75	24
Belts	do	57	24
Buttonhole-casings	do	29	24
Body-garments—			
Buttonhole-strips	Apparel	19	24
Button-strips	do	15	24
Chest-protectors	do	18	24
Cloaks	do	49	24
Coats	do	33	24
Coats—			
Collars	do	11	24
Hangers	do	14	24
Shape-retainers	do	11	24
Sleeve-closures	do	7	24
Ventilated	do	15	24
Collarettes	do	18	24
Collars	do	141	24
Collars—			
Cape	do	8	24
Closures	do	18	24
Necktie attachments	do	14	24
Necktie-retainers	do	12	24
Waterproof	do	81	24
Corsets	do	503	24
Corsets—			
Closures	do	81	24
Shields	do	11	24
Stiffeners	do	161	24
Stiffeners—			
Hinged	do	13	24
Reinforced	do	36	24
Cuffs	do	56	24
Lap-robes	do	11	24
Linings	do	9	24
Neckties	do	26	24
Neckties—			
Bow	do	26	24
Made-up	do	91	24
Shields	do	30	24
Tips	do	18	24
Overcoats	do	39	24
Pads	do	55	24
Pads—			
Shoulder	do	13	24
Shirts	do	345	24
Shirts—			
Bosoms	do	48	24
Bosom-supporters	do	20	24
Collar-supporters	do	16	24
Reinforced	do	72	24
Shoulder-braces	do	52	24
Sleeve-adjusters	do	17	24
Sleeve-protectors	do	13	24
Suspender attachments.	do	20	24
Vests	do	24	24
Waists	do	90	24
Body structure	Ordnance	99	22
Body-wear	Electricity. Medical and Surgical.	191	26
Bogies (See Trucks.)	Railway Rolling-Stock	36	34
Boiler attachments. Steam-	Steam-Boilers	198	18
Boiler-coverings	Composite Roofings and Coverings.	205	15
Boiler feeders. Steam-	Steam-Boilers	624	18
Boilers—			
Agricultural	Stoves and Furnaces	304	19
Domestic	do	502	19
Domestic—			
Steamers	do	337	19
Stand	do	194	19
Steam, sectional	Steam-Boilers	516	18
Bolsters (See Trucks.)	Railway Rolling-Stock	30	34
Bolt-holders	Metal-Working Tools	25	14
Bolts	Builders' Hardware	12	20
Bolts and nuts, dressing and assembling.	Metal Bolts, Nuts, Rivets, and Screws.	60	13
Bolts and rivets	do	184	13
Bolts and rivets—			
Making	do	374	13
Bolts—			
Can	Builders' Hardware	5	20
Double-door	do	34	20
Jail-boltwork	do	23	20
Multiple	do	36	20
Operators	do	9	20
Sliding	do	136	20
Sliding and rotary	do	37	20
Bomb-lances	Projectiles	68	22
Bonding and tying	Masonry	61	4
Bonds, bank-notes, and checks.	Bookbinding	90	5
Bone-black	Sugar and Salt	130	6
Bonnets and covers	Harness	134	11
Book and music holders—			
Base-supported	Furniture	71	8
Base-supported—			
Adjustable	do	38	8

Subclass.	Class.	No. of patents in subclass.	Division.
Book and music holders—			
Base-supported—			
Rotary	Furniture	8	8
Body-supported	do	7	8
Book-stands	do	26	8
Book-stands—			
Folding	do	43	8
Leveling	do	25	8
Bracket-supported	do	79	8
Bracket-supported—			
Adjustable	do	60	8
Leaf-holders	do	60	8
Leaf-rests	do	14	8
Music-stands	do	13	8
Music-stands—			
Portable	do	55	8
Portfolio	do	58	8
Book-carriers	Bundle-Carriers	11	32
Book-carriers—			
Clamp	do	15	32
Clamp—			
Tighteners	do	16	32
Bookcases	Furniture	43	8
Bookcases—			
Adjustable shelf-partitions.	do	34	8
Adjustable shelves and shelf-supports.	do	109	8
Hanging shelves	do	9	8
Knockdown	do	29	8
Revolving	do	66	8
Roller-shelves	do	31	8
Book-cover protectors	Bookbinding	76	5
Book-cutting	do	32	5
Book-leaf holders and marks.	do	110	5
Books and binding	do	109	5
Books and covers	do	90	5
Books and covers—			
Cutting attachments	do	9	5
Book-sewing	Sewing-Machines	92	24
Book-stapling	Bookbinding	81	5
Book-stapling—			
Continuous feed	do	7	5
Boot-blacking	Coin-Controlled Apparatus	2	14
Boot-blacking machines	Brushing and Scrubbing	64	27
Boot-cleaners	do	75	27
Bootjacks	Boots and Shoes	126	11
Boots and aprons	Carriages and Wagons	68	10
Boots and shoes	Grinding and Polishing	108	27
Boot-treeing machines	Boots and Shoes	19	11
Boot-trees	do	208	11
Boring	Woodworking-Machines	218	29
Boring and drilling appliances.	Metal Boring and Drilling	153	13
Boring and reaming	Woodworking-Machines	12	29
Boring hubs	Wheelwright-Machines	114	29
Boring-machines	Metal Boring and Drilling	81	13
Boring, portable	Woodworking-Machines	106	29
Bosom-boards	Laundry	135	27
Bottle and can washers	Washing Apparatus	215	27
Bottle attachments	Bottles and Jars	36	32
Bottle attachments—			
Clip	do	7	32
Bottle-cases	do	35	32
Bottle-cases—			
Wire	do	16	32
Wrapper	do	33	32
Wrapper—			
Corrugated	do	30	32
Bottle-labels	do	18	32
Bottle-stoppers	do	18	32
Bottle-stoppers—			
Cap	do	24	32
Cap—			
Crimped	do	14	32
Elastic	do	13	32
Frangible	do	12	32
Screw	do	20	32
Disk	do	15	32
Dose	do	40	32
Dose—			
Droppers	do	24	32
Ejectors	do	18	32
Expanding	do	30	32
Expanding—			
Cam	do	14	32
Screw	do	19	32
Fasteners	do	11	32
Fasteners—			
Ball	do	33	32
Ball—			
Locking	do	14	32
Cap	do	15	32
Cap—			
Tie	do	24	32
Expanding	do	13	32
Spring	do	13	32
Bottle-stoppers—			
Fasteners—			
Spring—			
Clip	Bottles and Jars	13	32
Wire	do	28	32
Internal	do	14	32
Internal—			
Ball	do	28	32
Extension	do	36	32
Extension—			
Wire	do	43	32
Plug	do	9	32
Locks	do	36	32
Pivoted	do	16	32
Pivoted—			
Locking	do	14	32
Locking—			
Ball	do	21	32
Cam	do	27	32
Cam—			
Plug	do	23	32
Rotary	do	11	32
Lever	do	26	32
Lever—			
Lever and yoke	do	31	32
Plug	do	51	32
Plug—			
Slotted	do	12	32
Top	do	34	32
Top—			
Slotted	do	9	32
Wire	do	33	32
Screw	do	15	32
Spring	do	10	32
Spring—			
Catch	do	47	32
Plug	do	14	32
Plug—			
Composite	do	41	32
Screw	do	33	32
Pullers	do	27	32
Tube	do	29	32
Tube—			
Valve	do	32	32
Valve—			
Ball	do	10	32
Rotary	do	34	32
Screw	do	37	32
Spring	do	16	32
Vent	do	11	32
Bottle-valves	do	16	32
Bottle-valves—			
Controllers	do	13	32
Controllers—			
Spring	do	21	32
Weight	do	31	32
Weight—			
Pendent	do	17	32
Float	do	12	32
Guards	do	47	32
Guards—			
Caps	do	12	32
Fasteners	do	17	32
Multiple	do	15	32
Necks, separable	do	12	32
Valves and seats	do	20	32
Bottles	do	30	32
Bottles—			
Compartment	do	11	32
Indicating	do	15	32
Indicating—			
Internal	do	13	32
Poison	do	12	32
Jugs	do	11	32
Mucilage	do	47	32
Mucilage—			
Brushes	do	21	32
Scrapers	do	31	32
Necks	do	18	32
Necks—			
Breakable	do	11	32
Bottom fillers	do	3	32
Stopper-fasteners—			
Disk	do	6	32
Ring	do	8	32
Spring	do	10	32
Nesting	do	8	32
Stoppers—			
Expanding	do	6	32
Multiple	do	5	32
Plastic	do	10	32
Bowling-alleys	Games and Toys	27	31
Bowling-alleys—			
Pin-setting apparatus.	do	24	31
Bows and cross-bows	Firearms	34	22
Bows, Violin-	Music	21	5
Boxes	Metallic Shipping and Storing Vessels.	56	32

Subclass.	Class.	No. of patents in subclass.	Division.
Boxes—			
Blacking	Metallic Shipping and Storing Vessels.	23	32
Blacking—			
Handles	do	22	32
Blanks	do	32	32
Closures	do	43	32
Closures—			
Fasteners	do	15	32
Hinges	do	14	32
Hinges—			
Spring	do	9	32
Sliding	do	13	32
Compartment	do	17	32
Compartment—			
Closures	do	23	32
Dispensing	do	15	32
Knockdown	do	23	32
Lunch	do	8	32
Lunch—			
Compartment	do	31	32
Knockdown	do	10	32
Boxes, (cloth, leather, and rubber.)	Packing and Storing Vessels	28	32
Boxes—			
Bent	Wooden Barrels and Boxes	34	32
Bent—			
Angular	do	25	32
Angular—			
Double blank	do	14	32
Joints	do	13	32
Curved	do	32	32
Curved—			
Joints	do	10	32
Walls	do	22	32
Block	do	21	32
Bottle-racks	do	7	32
Cases	do	26	32
Cases—			
Bottle	do	27	32
Bottle—			
Cells	do	22	32
Cells—			
Strips	do	22	32
Mailing	do	24	32
Can	do	13	32
Dispensing	do	26	32
Dispensing—			
Closures	do	35	32
Pivoting	do	10	32
Pivoting—			
Closures	do	20	32
Closures—			
Hinged	do	19	32
Frames	do	18	32
Jar	do	12	32
Jar—			
Cushion	do	24	32
Cells	do	35	32
Cells—			
Clips	do	18	32
Cord	do	16	32
Crimped	do	29	32
Cushioned	do	8	32
Plate	do	19	32
Plate—			
Multiple	do	14	32
Pocket	do	15	32
Pocket—			
Flexible	do	24	32
Flexible—			
Slitted	do	11	32
Separable	do	22	32
Strip	do	12	32
Strip—			
Locking	do	38	32
Locking—			
Bent	do	6	32
Cushions	do	14	32
Loops	do	11	32
Slit	do	10	32
Slit—			
Tongued	do	24	32
Closures	do	38	32
Closures—			
Hinged	do	35	32
Hinged—			
Slide	do	7	32
Supports	do	9	32
Sliding	do	13	32
Compartment	do	18	32
Compartment—			
Followers	do	25	32
Dispensing	do	17	32
Display	do	33	32
Display—			
Bottle	do	21	32
Bottle—			
Clips	do	20	32
Boxes—			
Display—			
Compartments	Wooden Barrels and Boxes.	18	32
Compartments—			
Folding	do	26	32
Grooved	do	14	32
Covers	do	29	32
Covers—			
Compartment	do	13	32
Cravat	do	14	32
Embroidery	do	13	32
Jewelers	do	17	32
Jewelers—			
Clamp	do	12	32
Sample-fasteners	do	14	32
Sample-fasteners—			
Clips	do	16	32
Joints	do	46	32
Knockdown	do	33	32
Knockdown—			
Folding	do	25	32
Folding—			
Removable sides	do	30	32
Linings	do	21	32
Stays	do	17	32
Stays—			
Angular	do	15	32
Driving	do	14	32
Driving—			
Wire	do	15	32
Straps	do	28	32
Straps—			
Wire	do	21	32
Walls	do	18	32
Post-office	Stationery	84	5
Box-fasteners	Locks and Latches	70	20
Box-fasteners—			
Seal	do	26	20
Sliding-bolt	do	13	20
Spring-catch	do	96	20
Box-machines	Coopering	16	29
Box-machines	Paper Manufactures	376	17
Box-nailing machines	Woodworking-Machines	134	29
Box-openers	Woodworking-Tools	42	29
Box-scrapers	do	30	29
Bracelets	Jewelry	287	5
Bracket-lamps	Lamps and Gas-Fittings	13	30
Brackets—			
Arm-supporting	Furniture	70	8
Arm-supporting—			
Adjustable	do	14	8
End-supporting	do	56	8
End-supporting—			
Adjustable	do	94	8
Braiders and corders	Sewing-Machines	94	24
Braiding	Cordage	123	21
Braiding, carriers	do	25	21
Braids	do	20	21
Brake-flange on wheel	Railway-Brakes	19	34
Brake-levers	Carriages and Wagons	137	10
Brakes	do	407	10
Brakes—			
Automatic	do	462	10
Shoes	do	85	10
Brakes	Railway-Brakes	369	34
Brakes	Velocipedes	115	7
Brake-shoes	Carriages and Wagons	85	10
Brake-shoes	Railway-Brakes	7	34
Brake-shoes—			
Chills	do	15	34
Composite faces	do	37	34
Fasteners	do	123	34
Non-metallic	do	9	34
Rail	do	6	34
Recessed faces	do	27	34
Roller	do	5	34
Branding-stamps	Printing	88	17
Bread and cracker machines.	Bread, Cracker, and Lozenge Making.	308	15
Breakwater	Hydraulic Engineering	19	4
Breast-pumps	Surgery	34	6
Breast-strap slides	Harness	37	11
Breech-loading	Ordnance	235	22
Breech-loading—			
Clutch-block	do	14	22
Gas-operated	do	15	22
Recoil-operated	do	29	22
Swinging and sliding block.	do	5	22
Transverse block	do	62	22
Transverse rolling block.	do	4	22
Transverse swinging block.	do	42	22
Brick and tile cutters	Clay and Pottery	135	15
Brick and tile machines—			
Continuous bar—			
Cutter with plunger	do	5	15

Subclass.	Class.	No. of patents in subclass.	Division.
Brick-kilns—			
Continuous	Clay and Pottery	83	15
Continuous—			
Tunnels	do	87	15
Downdraft	do	87	15
Furnaces	do	62	15
Reversible-draft	do	31	15
Updraft	do	161	15
Vertical	do	17	15
Brick-machines—			
Attachments	do	50	15
Portable mold, in carrier—			
Approached in line of feed.	do	28	15
Approached transverse to feed.	do	36	15
Portable mold, in mold-race.	do	68	15
Portable mold, in mold-race—			
Plunger-feed	do	141	15
Press-box mold, movable—			
Endless chain of molds—			
Continuous travel.	do	19	15
Intermittent travel.	do	13	15
Reciprocating on plunger.	do	57	15
Reciprocating table	do	82	15
Rotary disk, molds in face.	do	179	15
Rotary disk, molds in face—			
Fluid-pressure	do	5	15
Rotary disk, molds in periphery.	do	108	15
Press-box mold, stationary—			
Compacting, single surface.	do	141	15
Compacting, single surface—			
Fluid-pressure	do	9	15
Compacting, several surfaces.	do	131	15
Compacting, several surfaces—			
Fluid-pressure	do	12	15
Brick-making implements.	do	63	15
Brick-molds	do	106	15
Brick-molds—			
Sanders	do	47	15
Bricks	do	128	15
Brick setting. Stone and	Masonry	32	4
Bridge-guards	Railways	9	34
Bridge-irons	Hardware-Making	102	13
Bridges—			
Arch	Bridges	18	4
Bowstring	do	66	4
Draw	do	26	4
Draw—			
Bascule	do	17	4
Gates	do	209	4
Lift	do	10	4
Swing	do	50	4
Ferry-guards	do	12	4
Floating	do	19	4
Flooring	do	7	4
Piers	do	54	4
Suspension	do	62	4
Truss	do	434	4
Violin	Music	12	5
Bridgework	Dentistry	29	30
Bridle-bits	Harness	309	11
Bridles and halters	do	502	11
Broadcast	Seeders and Planters	622	1
Broadcast—			
Hand	do	108	1
Revolving hoppers	do	22	1
Walking	do	11	1
Bronzing-machines	Paper-Making	92	15
Brooches	Jewelry	127	5
Broom-machines	Brushing and Scrubbing	48	27
Broom-sewing	Sewing-Machines	15	24
Brooms—			
Broom-heads	Brushing and Scrubbing	186	27
Household	do	78	27
Stable and yard	do	26	27
Whisk	do	27	27
Brush and broom bridles	do	86	27
Brush and broom handles.	do	96	27
Brush and broom supports.	do	40	27
Brush-cleaners	do	3	27
Brushes or rolls—			
Fixed	Painting	42	31
Reciprocating	do	20	31
Brush heads and faces—			
Bath and flesh brushes	Brushing and Scrubbing	25	27
Brush and broom fiber	do	24	27
Dusting-brushes	do	78	27
Hair-brushes	do	47	27
Hat and clothes brushes.	do	24	27
Horse-brushes	do	27	27
Metal-cleaning brushes.	do	15	27
Metallic tuft-fasteners	do	18	27
Molds and molded backs.	do	12	27
Nail-brushes	do	2	27
Paint and whitewash brushes.	do	194	27
Rotary brushes	do	67	27
Scrubbers	do	76	27
Shaving-brushes	do	14	27
Tooth-brushes	do	56	27
Brush-machines	do	109	27
Brush-trimming machines.	do	18	27
Bucket-bottoms	Metallic Shipping and Storing Vessels.	8	32
Bucket-closures	do	15	32
Bucket-ears	do	40	32
Bucket-ears—			
Detachable	do	10	32
Driving	do	15	32
Embossed	do	15	32
Locking—			
Bail	do	12	32
Cover	do	12	32
Wire	do	11	32
Bucket-handles	do	36	32
Bucket-handles—			
Wire	do	12	32
Wire—			
Bails	do	19	32
Buckets	do	14	32
Buckets—			
Can	do	45	32
Coal	do	12	32
Coal—			
Blanks	do	14	32
Bottoms	do	25	32
Bottoms—			
Integral-foot	do	15	32
Integral-foot—			
Foot and body	do	8	32
Wooden	do	10	32
Closed	do	70	32
Feeders	do	12	32
Feeders—			
Bottom	do	12	32
Guards	do	13	32
Guards—			
Pivoted	do	7	32
Sifting	do	39	32
Garbage	do	21	32
Jackets	do	30	32
Lunch	do	9	32
Lunch—			
Compartment	do	8	32
Compartment—			
Nesting	do	24	32
Nesting—			
Sectional	do	16	32
Jacket	do	8	32
Slop	do	8	32
Slop—			
Closures	do	26	32
Closures—			
Disinfecting	do	7	32
Liquid-seal	do	5	32
Buckles—			
Bail	Buckles, Buttons, Clasps, Etc.	115	11
Clamp	do	194	11
Guards	do	32	11
Lock	do	47	11
Pivoted-tongue	do	359	11
Pivoted-tongue and clamp.	do	26	11
Rigid-frame and tongue.	do	145	11
Slide	do	36	11
Sliding tongue-piece	do	42	11
Suspender	do	349	11
Wedge	do	38	11
Buckles and snap-hooks combined.	do	85	11
Buffers	Railway Draft Appliances	67	34
Buffers—			
Draw-bar actuated	do	28	3
Fluid-pressure	do	16	3

Subclass.	Class.	No. of patents in subclass.	Division.
Buffers	Railways	58	34
Buffers	Store-Service	17	12
Builders' hardware	Hardware-Making	67	13
Building	Boats	115	25
Building	Ships	239	22
Building-blocks	Masonry	145	4
Building-blocks, toy	Games and Toys	62	31
Buildings	Iron Structures	86	4
Bulkheads and doors	Ships	12	22
Bullets and shot	Arms and Projectiles. Making	41	13
Bumpers, rigid	Railway Draft Appliances	14	34
Bundling—			
In lengths	Presses	89	2
In lengths—			
Shingles	do	25	2
Wool	do	40	2
Bunching-machines	Vegetable Cutters and Crushers.	7	25
Buoyant propellers	Marine Propulsion	54	22
Buoys and safes	Boats	53	22
Bureaus	Furniture	20	8
Bureaus, knockdown	do	20	8
Burglar-alarms—			
Combined	Signals	76	22
Detonating	do	198	22
Ringing	do	326	22
Burglar-proof	Railway Rolling-Stock	49	34
(See Cars, express.)			
Burglar-proof	Safes	194	20
Burial apparatus	Undertaking	10	20
Burial apparatus—			
Grave-fillers	do	11	20
Raising and lowering	do	57	20
Burners—			
Hay and straw	Stoves and Furnaces	75	19
Refuse	do	128	19
Burnishing	Boots and Shoes	382	11
Burnishing	Photography	68	6
Burnishing	Sheet-Metal Ware. Making	41	14
Burring	Carding	73	21
Burs and sinkers	Knitting and Netting	46	21
Bushings	Railway Rolling-Stock	9	34
(See Wheels.)			
Butchers' stalls	Butchering	4	25
Butter and cheese cutters.	Dairy	118	2
Butter and cheese.	do	53	2
Manufacture of Butterworkers and molds.	do	290	2
Buttoners	Buckles, Buttons, Clasps, Etc.	71	11
Button-fasteners	do	279	11
Button-fasteners—			
Integral-prong	do	41	11
Spring	do	87	11
Tack-and-rivet	do	180	11
Buttonhole	Sewing-Machines	567	24
Buttonhole-cutters	Cutlery	102	13
Button machines and dies.	Caoutchouc and Minor Plastics.	38	15
Buttons	Buckles, Buttons, Clasps, Etc.	170	11
Buttons—			
Cloth-shank	do	30	11
Link	do	54	11
Separate thread-bar	do	31	11
Detachable	do	137	11
Detachable—			
Separable	do	28	11
Separable—			
Screw	do	64	11
Spring	do	133	11
Spring—			
With operating devices.	do	108	11
Spiral fasteners	do	49	11
Spring-fasteners	do	25	11
Hinged shoe	do	40	11
Hinged shoe—			
Axial	do	51	11
Double spring-leaf	do	89	11
Single spring-leaf	do	121	11
Sliding shoe	do	37	11
Buttons	Metal Personal Wear. Making	53	14
Buttons—			
Assembling	do	96	14
Drilling and turning	do	87	14
Button-covers	Buckles, Buttons, Clasps, Etc.	22	11
Button-guards	do	4	11
Button-loops	do	20	11
Button-setting machines	Button-Setting and Eyeleting.	287	11
Button-setting tools	do	195	11
Buzzes and whirligigs	Games and Toys	134	31
Cab-door openers	Fences	15	1
Cabinets	Store Furniture	11	8
Cabinets—			
Delivering	do	69	8
Grocers'	do	34	8
Spool	do	34	8
Cable-laying	Hydraulic Engineering	23	4
Cables and cable-stoppers.	Ships	40	22
Caissons	Hydraulic Engineering	37	4
Caissons—			
Ship	do	14	4
Cake-cutters	Bread, Cracker, and Lozenge Making.	44	15
Cake-turners	Kitchen and Table Articles	5	7
Calculators	Measuring Instruments	308	23
Calculators—			
Tubular	do	149	23
Calendars	Stationery	122	5
Calendars—			
Continuous-web	do	32	5
Disk	do	73	5
Roller	do	40	5
Calendering	Cloth-Finishing	8	21
Calendering	Paper-Making	116	15
Calipers and dividers	Drafting	224	23
Calipers—			
Dial	Measuring Instruments	68	23
Stem	do	14	23
Calks	Farriery	70	14
Calk-sharpeners	do	33	14
Call-bells	Signals	70	22
Calls	Telephony	62	16
Calls—			
Reed	do	24	16
Step-by-step	do	146	16
Strength and polarity	do	37	16
Camels and floating docks.	Ships	80	22
Cameras	Photography	201	6
Cameras—			
Kinetographic	do	15	6
Magazine	do	112	6
Panoramic	do	18	6
Camera-stands	do	58	6
Camp	Beds	183	8
Cams and eccentrics	Machine Elements	186	12
Canals	Hydraulic Engineering	31	4
Canals—			
Gate-valves	do	22	4
Lock-gates	do	40	4
Lock-gates—			
Bear-trap	do	23	4
Can-closures	Metallic Shipping and Storing Vessels.	32	32
Can-closures—			
Cap	do	35	32
Fasteners	do	28	32
Fasteners—			
Bar	do	47	32
Pivoted	do	12	32
Plug	do	15	32
Ring	do	11	32
Rip	do	13	32
Rip—			
Breakable	do	29	32
Cutting	do	15	32
Strip	do	23	32
Strip—			
Integral	do	26	32
Integral—			
Double-seam	do	14	32
Key	do	15	32
Wire	do	22	32
Wire—			
Seam	do	26	32
Screw	do	31	32
Screw—			
Bayonet	do	21	32
Slip	do	13	32
Slip—			
Multiple-cover	do	26	32
Packed	do	16	32
Sealing-grooves	do	31	32
Snapping	do	8	32
Can-filling machines	Presses	134	2
Candle apparatus	Oils, Fats, and Glue	75	31
Candles	do	48	31
Candlesticks	Lamps and Gas-Fittings	171	30
Candlesticks—			
Miners'	do	30	30
Canes	Umbrellas and Canes	82	24
Cane-strippers	Threshing	65	25
Canisters	Metallic Shipping and Storing Vessels.	21	32
Canisters—			
Bottom-feed	do	30	32
Closures	do	29	32

Subclass.	Class.	No. of patents in subclass.	Division.
Canisters—			
Display	Metallic Shipping and Storing Vessels.	15	32
Cannon and ball	Arms and Projectiles. Making	64	13
Cannon-pinion	Horology	22	23
Can-openers	Cutlery	228	13
Canopy shades and reflectors.	Lamps and Gas-Fittings	153	30
Can-seams	Metallic Shipping and Storing Vessels.	26	32
Can-seams—			
Crimped	do	8	32
Crimped—			
Ring	do	7	32
Three-wall	do	26	32
Four-wall	do	28	32
Five-wall	do	18	32
Six to twelve wall	do	12	32
Cans	do	43	32
Cans—			
Blanks	do	14	32
Hermetic closures	do	16	32
Hermetic closures—			
Fusible	do	6	32
Plug	do	10	32
Hermetic sealers	do	28	32
Lined	do	25	32
Milk	do	38	32
Milk—			
Bottoms	do	30	32
Breasts	do	11	32
Closures	do	29	32
Closures—			
Locking	do	15	32
Locking—			
Key	do	24	32
Rotary	do	8	32
House	do	26	32
Jacketed	do	19	32
Cant-dogs	Woodworking-Tools	72	39
Canteens and flasks	Baggage	33	32
Canvas-stretchers	Fine Arts	40	5
Cap-boxes	Projectiles	22	22
Cap-filling	do	15	22
Capping-machines	Packaging Liquids	25	32
Capping-machines—			
Internal	do	4	32
Rotary	do	12	32
Capping screws and nails	Metal Bolts, Nuts, Rivets, and Screws.	48	13
Capstans and windlasses	Hoisting	99	12
Capstans and windlasses—			
Capstans	do	78	12
Drum and clutch	do	63	12
Hand-crank operated	do	127	12
Lever-operated	do	101	12
Steam-winch	do	25	12
Sweep-operated	do	49	12
Wildcats	do	18	12
Windlass with capstan	do	47	12
Capsule-machines	Surgery	102	6
Capsules	Medicines	10	6
Car	Roofing	104	29
Car and locomotive irons	Wagon, Car, and Track Irons	132	13
Car axles and boxes. Making	do	54	13
Carbonators	Carbonating Beverages	15	32
Carbonators—			
Beer	do	13	32
Beer—			
Atomizer	do	16	32
Pressure	do	16	32
Pump	do	10	32
Rotary mixer	do	12	32
Spray	do	24	32
Carbonators and generators.	do	11	32
Carbonators and generators—			
Portable	do	23	32
Carbon compounds	Chemicals	316	6
Carbon dyes	Bleaching and Dyeing	689	6
Carbureters	Gas	496	31
Carbureters—			
Carbureting-lamps	do	108	31
Float-vaporizers	do	56	31
Gas and air mixers	do	55	31
Jet-mixers	do	95	31
Oil-feed—			
Float-valves	do	47	31
Rotary	do	28	31
Revolving	do	69	31
Card-clothing	Carding	36	21
Card-exhibitors	Advertising	62	32
Card-exhibitors—			
Droppers	do	22	32
Card-exhibitors—			
Rotary	Advertising	64	32
Sliding	do	34	32
Card-game accessories	Games and Toys	30	31
Carding	Carding	183	21
Card-racks	Advertising	54	32
Car-door openers	Fences	45	1
Car-heater	Fire-Extinguishers	142	9
Car-movers	Railway Rolling-Stock	6	34
Car-movers—			
Flange or axle grip	do	45	34
Pinch-bars	do	24	34
Pinch-bars—			
With rail-grip	do	37	34
Pushing-jacks	do	52	34
Traction-wheels	do	15	34
Carpet-cleaners	Brushing and Scrubbing	159	27
Carpet-fasteners	Builders' Hardware	10	20
Carpet-fasteners—			
Clasp	do	30	20
Moldings	do	44	20
Strips	do	86	20
Tack-fasteners	do	34	20
Carpet-lining	Paper-Making	189	15
Carpet-rag loopers	Weaving	25	21
Carpet-stretchers	Furniture	325	8
Carpet stretchers and tackers.	do	67	8
Carpet-sweepers	Brushing and Scrubbing	203	27
Car-platform door-openers.	Fences	46	1
Car-replacers	Railways	194	34
Carriage—			
Bow-setters	Wheelwright-Machines	16	29
Clips and shackles	Wagon, Car, and Track Irons	69	13
Irons	Carriages and Wagons	130	10
Irons—			
Miscellaneous	Wagon, Car, and Track Irons	192	13
Lamps	Lamps and Gas-Fittings	33	30
Carriage-curtain fasteners.	Buckles, Buttons, Clasps, Etc.	142	11
Carriages	Ordnance	40	22
Carriages	Type-Writing Machines	331	30
Carriers—			
Luggage	Velocipedes	6	7
Cars—			
Bell-cord hangers	Railway Rolling-Stock	9	34
Dining	do	4	34
Dumping	do	31	34
Dumping—			
Convertible flat and hopper bottom.	do	30	34
Hopper-bottom	do	85	34
Inclined bottom, side doors.	do	25	34
Inwardly-tilting sections.	do	19	34
Outwardly-tilting sections.	do	21	34
Outwardly-tilting sections—			
Displaceable sides	do	19	34
Tilting body	do	58	34
Tilting body—			
Displaceable sides	do	113	34
Expansible	do	1	34
Express, burglar-proof	do	49	34
Floor-frames	do	43	34
Freight	do	47	34
Freight—			
Frames	do	63	34
Fruit	do	16	34
Removable covers	do	19	34
Removable side sections.	do	17	34
Rolling	do	18	34
Running boards and rails.	do	12	34
Stakes	do	17	34
Stakes—			
Releasable	do	27	34
Side-folding	do	16	34
Steps and platforms	do	7	34
Hand	do	12	34
Hand—			
Geared	do	67	34
Lamp arrangement	do	6	34
Merchandizing	do	7	34
Open street—			
Seats	do	13	34
Side guards	do	24	34
Passenger	do	27	34
Passenger—			
Baskets	do	17	34
Double-deck	do	14	34
Dust-guards	do	11	34
Emergency-exits	do	33	34
Frames	do	61	34

Subclass.	Class.	No. of patents in subclass.	Division.
Cars—			
Passenger—			
Head-rests	Railway Rolling-Stock	5	34
Individual safes	do	8	34
Platform extensions with gates.	do	9	34
Platforms	do	24	34
Seat and door arrangement.	do	23	34
Steps	do	16	34
Steps—			
Extension, folding	do	43	34
Extension, sliding	do	38	34
With gate	do	16	34
Safety-bridges	do	47	34
Sleeping	do	160	34
Sleeping—			
Berth-guards	do	11	34
Berth-locks	do	8	34
Compartment arrangement.	do	26	34
Convertible seat and berth.	do	35	34
Curtains and rods	do	12	34
Hinged berths	do	20	34
Ladders	do	12	34
Partitions	do	11	34
Seat-back and upper berth.	do	29	34
Suspended berths	do	18	34
Steam street	do	55	34
Street	do	25	34
Street—			
Awnings	do	6	34
Convertible open and closed.	do	36	34
Hand-straps	do	20	34
Reversible	do	6	34
Storm-fronts	do	12	34
Vestibule	do	100	34
Car-signals	Signals	102	22
Cartridge—			
Belts	Accoutrements	42	32
Boxes	do	65	32
Boxes—			
Cartridge-feed	do	31	32
Feed-cases	Ordnance	35	22
Feed-cases—			
Belt	do	4	22
Holders, temporary	Firearms	38	22
Implements	Projectiles	251	22
Loading	do	209	22
Cartridges	do	388	22
Cartridges—			
Accelerating	do	53	22
Electric	do	12	22
Miniature	do	15	22
Cartridges and caps	Arms and Projectiles. Making	112	13
Cart-scales	Measuring Instruments	56	23
Car-wheels and tires	Wagon, Car, and Track Irons	122	13
Cases—			
Organ	Music	62	5
Piano	do	17	5
Piano—			
Desk	do	76	5
Fall-boards	do	14	5
Knockdown	do	11	5
Lid-props	do	14	5
Swells	do	16	5
Ticket	Stationery	161	5
Cash-registers	Measuring Instruments	378	23
Cash-registers—			
Rotating indicators	do	333	23
Casing-heads	Artesian and Oil Wells	69	25
Casks	Metallic Shipping and Storing Vessels.	24	32
Casks—			
Soda-water	do	20	32
Soda-water—			
Valved	do	18	32
Castanets	Music	10	5
Casters	Builders' Hardware	191	20
Casters	Kitchen and Table Articles	64	8
Casters—			
Antifriction-rollers—			
Loose	Builders' Hardware	44	20
Pivoted	do	66	20
Ball	do	29	20
Ball—			
Antifriction-roller	do	45	20
Pivoted	do	14	20
Pintle-retainers	do	76	20
Rotary	Kitchen and Table Articles	27	8
Sewing-machine	Builders' Hardware	73	20
Spring	do	14	20
Wheels	do	23	20
Catamenial sacks	Surgery	63	6
Catapults	Firearms	55	22
Catching and holding tools.	Care of Live Stock	53	2
Cattle	Pumps	59	9
Cattle-guards, railway-gates.	Fences	121	1
Ceiling-block	Electric Lighting	74	16
Ceiling-centerpieces	Carpentry	7	29
Ceilings and floors—			
Concrete	Fireproof Buildings	10	4
Concrete and metal	do	99	4
Metal	do	13	4
Protected wood	do	58	4
Tile	do	72	4
Tile and metal	do	59	4
Cellars	Masonry	20	4
Celluloid	Caoutchouc and Minor Plastics.	307	15
Cement	Hydraulic Cement and Lime	72	15
Cement—			
Slag	do	14	15
Cementation and case-hardening.	Annealing and Tempering	21	3
Cementation and case-hardening—			
Compounds	do	74	3
Gaseous	do	20	3
Liquid	do	15	3
Centerboards and keels	Ships	128	22
Centerers	Metal Turning, Planing, and Milling.	73	13
Centering	Masonry	29	4
Center-seals and by-pass valves.	Gas	20	31
Centrifugal machines	Sugar and Salt	286	6
Centrifugal machines—			
Honey-extractors	do	24	6
Liquid-separators	do	159	6
Testers	do	24	6
Chafe-irons	Carriages and Wagons	66	10
Chain	Hydraulic Motors	65	9
Chain	Pumps	252	9
Chain and double chain	Sewing-Machines	368	24
Chain and link making	Chains, Staples, and Horseshoes.	241	13
Chain grates	Steam-Boiler Furnaces	84	18
Chain-propellers	Marine Propulsion	71	22
Chains	Chains, Staples, and Horseshoes.	62	13
Chains—			
Ornamental	Jewelry	163	5
Chairs	Chairs	142	8
Chairs	Coin-Controlled Apparatus	6	14
Chairs	Railways	261	34
Chairs—			
Adjustable backs	Chairs	124	8
Adjustable backs and seats.	do	46	8
Attachments	do	57	8
Backs and seats, independently-adjustable.	do	49	8
Bottoms	do	161	8
Convertible	do	156	8
Dentists'	do	150	8
Folding	do	364	8
Folding—			
Adjustable	do	133	8
Invalid	do	26	8
Nursery	do	189	8
Opera	do	119	8
Pads and feet	do	97	8
Reclining	do	228	8
Rocking	do	97	8
Rocking—			
Platform	do	202	8
Step-ladder	do	34	8
Surgical	do	48	8
Swinging	do	29	8
Tilting	do	162	8
Chairs and couches	Electricity. Medical and Surgical.	18	26
Chalk-line holders	Woodworking-Tools	30	39
Chance devices	Games and Toys	105	31
Chance devices—			
Ball	do	69	31
Chandeliers. Gas	Lamps and Gas-Fittings	75	30
Channeling-machines	Boots and Shoes	127	11
Channeling-machines	Stone-Working	88	25
Charcoal—			
Kilns	Charcoal and Coke	24	31
Processes	do	19	31
Retorts	do	8	31
Charts	Apparel Apparatus	137	24
Charts—			
Adjustable	do	64	24
Charts	Music	15	5
Charts—			
Harmony and transposition.	do	42	5

Subclass.	Class.	No. of patents in subclass.	Division.
Chases	Printing	45	17
Check-hooks and terrets	Harness	248	11
Checking and unchecking.	....do	89	11
Check-punches	Printing	130	17
Check-row	Seeders and Planters	604	1
Checks, bank-notes, and bonds.	Bookbinding	90	5
Checks—			
Escapement	Fire Escapes and Ladders	22	12
Fluid	....do	29	12
Fly	....do	12	12
Governor	....do	47	12
Check-valves	Water Distribution	147	4
Cheese-hoops	Dairy	51	2
Cheese-turners	....do	19	2
Cheese-vats and curd-breakers.	....do	131	2
Chemical mixing	Fire-Extinguishers	205	9
Chemical mixing—			
Automatic	....do	30	9
Chemical stream impregnating.	....do	26	9
Chenille	Weaving	16	21
Chenille-machines	....do	25	21
Children's carriages	Carriages and Wagons	305	10
Children's carriages—			
Folding	....do	106	10
Stops	....do	58	10
Children's seats	Velocipedes	39	7
Chills	Railway-Brakes	15	34
Chimney-cleaners—			
Flue and stovepipe	Brushing and Scrubbing	69	27
Lamp	....do	88	27
Chimney-holders	Lamps and Gas-Fittings	26	30
Chimneys and cowls—			
Rotary	Pneumatics	193	28
Stationary	....do	473	28
*Chimneys—			
Composite	Lamps and Gas-Fittings	106	30
Double	....do	5	30
Integral	....do	74	30
Chin-rests, violin	Music	32	5
Chisels	Woodworking-Tools	67	29
Chisels—			
Gage	....do	18	29
Chock-block, locomotive	Railway-Brakes	79	34
Chop-graders—			
Bran-dusters—			
Beaters	Mills	150	25
Brushes	....do	62	25
Electric purifiers	....do	8	25
*Flour processes	....do	82	25
Gravity	....do	113	25
Rotary bolts	....do	401	25
Shaking bolts	....do	466	25
Chopping-blocks	Butchering	17	25
Christmas-tree lights	Lamps and Gas-Fittings	47	30
Chucks for rock-drills	Stone-Working	51	25
Churns	Dairy	62	2
Churns—			
Double-acting	....do	129	2
Reciprocating—			
Combined lever and crank mechanism.	....do	17	2
Crank mechanism—			
Multiple-dasher	....do	93	2
Single-dasher	....do	204	2
Foot mechanism	....do	7	2
Hand and foot mechanism.	....do	12	2
Lever mechanism—			
Multiple-dasher	....do	41	2
Single-dasher	....do	90	2
Rocking-seat mechanism.	....do	20	2
Without operating mechanism.	....do	282	2
Rotary—			
Diagonal-dasher	....do	18	2
Horizontal double-dasher—			
Concentric shafts	....do	27	2
Parallel shafts	....do	32	2
Horizontal single-dasher.	....do	304	2
Vertical double-dasher—			
Concentric shafts	....do	114	2
Parallel shafts	....do	72	2
Vertical single-dasher.	....do	381	2
Vibrating	....do	253	2
Working body	....do	455	2
Chutes	Fire Escapes and Ladders	73	12
Chutes	Hoisting	141	12
Chutes—			
Counterweighted	....do	19	12
Chutes—			
Equalizer	Hoisting	22	12
Chutes	Hydraulic Engineering	21	4
Chutes—			
Screens	....do	10	4
Water-power	....do	16	4
Chute-wagons	Carriages and Wagons	119	10
Cigar and cigarette cutters.	Tobacco	58	2
Cigar-bundling	....do	31	2
Cigar-cutters, tip	....do	109	2
Cigar-lighting lamps	Lamps and Gas-Fittings	25	30
Cigar-machine aprons	Tobacco	5	2
Cigar-machines	....do	77	2
Cigar-machines—			
Adjuncts	....do	41	2
Apron	....do	12	2
Apron—			
Moving rolling-table	....do	53	2
Stationary rolling-table.	....do	170	2
Endwise-moving filler	....do	94	2
One traveling apron	....do	61	2
Roller	....do	81	2
Two traveling aprons	....do	10	2
Cigar-makers' implements.	....do	20	2
Cigar-makers' implements—			
Wrapper-cutters	....do	46	2
Cigar-perforators	....do	55	2
Cigars, cigarettes, and cartridges.	....do	79	2
Cigar supports and stands.	....do	50	2
Circuit-closers	Telegraphy	120	16
Circuit-closers—			
Burglar	....do	60	16
Lock	....do	30	16
Retarded	....do	24	16
Thermal	....do	206	16
Circuits and systems	....do	171	16
Circular—			
Circular machines	Knitting and Netting	95	21
Door	Safes	48	20
Independent needles	Knitting and Netting	523	21
Looper pin and hook machines.	....do	36	21
Circular saw	Wood-Sawing	308	29
Circular saw—			
Angular	....do	88	29
Fire-wood	....do	48	29
Radial	....do	46	29
Traveling	....do	125	29
Circulation	Steam-Boilers	234	18
Circulation-machines	Linotyping	54	30
Cisterns	Masonry	62	4
Clamps	Laundry	11	27
Clamps	Woodworking-Tools	61	29
Clamps—			
Box-and-miter	....do	66	29
Double-screw	....do	29	29
Pivoted-jaw	....do	43	29
Single-screw	....do	72	29
Sliding-jaw	....do	74	29
Clarinets and flutes	Music	44	5
Clasps—			
Album	Buckles, Buttons, Clasps, Etc.	44	11
Extensible	....do	55	11
Hook-and-loop	....do	137	11
Hook-and-loop—			
Spring-retained	....do	142	11
With keeper	....do	63	11
Keyhole-slot	....do	32	11
Lace	....do	38	11
Lever	....do	96	11
Pencil	....do	24	11
Pivoted-latch	....do	33	11
Resilient head and socket.	....do	250	11
Ribbon	....do	54	11
Shoe	....do	17	11
Spring	....do	689	11
Spring with closing device.	....do	51	11
Wedge	....do	30	11
Clasps	Metal Personal Wear. Making	27	14
Cleaners	Plows	75	1
Cleaners	Steam-Boilers	274	18
Cleaners	Type-Writing Machines	39	30
Cleaners, steam or air jet	Steam-Boilers	89	18
Cleaning	Artesian and Oil Wells	64	25
Cleaning—			
Dry	Clay and Pottery	22	15
Wet	....do	14	15
Cleaning	Sewerage	34	9

*Approximate on account of number of cases without drawings.

Subclass.	Class.	No. of patents in subclass.	Division.
Clearers	Spinning	32	21
Cleats and belaying-pins	Ships	42	22
Clevises	Plows	269	1
Clips	Carriages and Wagons	61	10
Clips—			
Paper	Stationery	136	5
Clock-cases	Horology	34	23
Clock-cases—			
Block	....do	7	23
Cylindrical	....do	18	23
Panel	....do	12	23
Sash	....do	7	23
Clock-frames	....do	19	23
Clock-keys	....do	10	23
Clock-trains	....do	42	23
Clock-trains—			
Alarm	....do	47	23
Alarm—			
Eight-day	....do	12	23
Let-offs	....do	12	23
Dial	....do	38	23
Striking	....do	46	23
Striking—			
Cam-controlled	....do	21	23
Chimes	....do	13	23
Musical	....do	14	23
Repeating	....do	17	23
Repeating—			
Double-snail	....do	11	23
Turn-backs	....do	17	23
Winding	....do	44	23
Winding—			
Motors—			
Pneumatic	....do	11	23
Spring	....do	12	23
Thermal	....do	4	23
Clocks	....do	27	23
Clocks—			
Calendar	....do	26	23
Calendar—			
Dial	....do	41	23
Roller	....do	27	23
Electric	....do	11	23
Electric—			
Circuit-controllers	....do	21	23
Hand-setters	....do	19	23
Hand-setters—			
Lever	....do	12	23
Sliding	....do	11	23
System	....do	17	23
Pendulum	....do	26	23
Pendulum—			
Actuated	....do	29	23
Regulators	....do	10	23
Synchronizers	....do	11	23
Primary	....do	7	23
Secondary	....do	37	23
Striking	....do	19	23
Systems	....do	16	23
Systems—			
Circuit	....do	24	23
Winding	....do	12	23
Winding—			
Self	....do	46	23
Geographical—			
Disk	....do	19	23
Globe	....do	26	23
Illuminated	....do	22	23
Magic	....do	6	23
Pneumatic	....do	14	23
Pneumatic—			
Systems	....do	11	23
Clod-crushers	Harrows and Diggers	14	1
Clod-crushers—			
Barred and corrugated rollers.	....do	29	1
Drag-bars	....do	19	1
Drag-bars and harrows	....do	82	1
Toothed rollers and wheels.	....do	43	1
Close carriages	Carriages and Wagons	81	10
Closet-cisterns	Baths and Closets	421	9
Closet-cisterns—			
Combined supply and flush valves.	....do	31	9
Close vats	Bleaching and Dyeing	38	6
Cloth-pilers	Apparel Apparatus	24	24
Clothes-clamps	Beds	49	8
Clothes-driers	Laundry	778	27
Clothes-line fasteners	....do	82	27
Clothes-line reels	....do	58	27
Clothes-lines	....do	147	27
Clothes-pin machines	Woodworking-Machines	8	29
Clothes-pounders	Laundry	203	27
Clothes sticks and tongs	....do	27	27
Cloth-measuring machines.	Measuring Instruments	173	23
Cloth, ornamenting	Fine Arts	84	5
Clover-harvesters	Harvesters	58	7
Clover-hullers	Threshing	176	25
Clutches	Clutches	57	2
Clutches—			
Eccentric or wedge	....do	28	2
Expansible-segment	....do	59	2
Fluid	....do	14	2
Frictional and positive	....do	25	2
Intermittent-grip	....do	224	2
Intermittent-grip—			
Ratchet	....do	90	2
Strap and dog or ball	....do	156	2
Lever-shoe	....do	45	2
Locking-pawl	....do	80	2
Longitudinally-movable—			
Double-face	....do	111	2
Single-face	....do	192	2
With projections	....do	116	2
Magnetic	....do	10	2
Multiple-disk	....do	20	2
Radially-movable shoes.	....do	136	2
Radially-movable shoes—			
Opposing	....do	51	2
Split-ring	....do	123	2
Strap	....do	45	2
Coal-breakers	Mills	61	25
Coal-oil—			
Processes	Mineral Oils	11	31
Retorts	....do	15	31
Rotary	....do	11	31
Coal, purifying	Fuel	10	15
Coating	Paper-Making	230	15
Coating and embossing moldings.	Caoutchouc and Minor Plastics.	34	15
Cocks and faucets—			
Compound	Water Distribution	117	4
Reciprocating valves	....do	920	4
Sliding gates	....do	302	4
Tank	....do	512	4
Thermal	....do	40	4
Tube-compressors	....do	28	4
Turning plugs	....do	394	4
Cocooneries	Silk	6	21
Coffee and tea pots	Stoves and Furnaces	795	19
Coffee-mills	Mills	118	25
Coffer-dams	Hydraulic Engineering	34	4
Coffins	Undertaking	108	20
Coffins—			
Brackets	....do	6	20
Corners	....do	24	20
Fasteners	....do	113	20
Head-rests	....do	31	20
Lids	....do	82	20
Life-signals	....do	10	20
Linings and coverings	....do	28	20
Metallic	....do	67	20
Plastic material	....do	63	20
Shields	....do	8	20
Wooden	....do	11	20
Collers	Carding	16	21
Coiling	Coopering	61	29
Coiling	Metal-Bending	29	14
Coiling	Wire-Working	12	14
Coiling—			
By mandrel—			
Definite length	....do	54	14
Indefinite length	....do	57	14
By rolls	....do	21	14
Coiling and bending pipe	Metal-Bending	84	14
Coin-counters	Measuring Instruments	169	23
Coin-packages	....do	73	23
Coin-testers	....do	33	23
Coke—			
Processes	Charcoal and Coke	23	31
Retort-ovens	....do	48	31
Coke-ovens	....do	26	31
Coke-ovens—			
Chargers and dischargers.	....do	17	31
Doors	....do	11	31
Dumping-bottoms	....do	11	31
Cold	Preserving	35	6
Collapsible tube	Pumps	29	9
Collapsible tube conductors.	Electricity. Electric Railways.	23	26
Collar, cuff, and bosom machines.	Paper Manufactures	111	17
Collar-fasteners	Harness	151	11
Collar-machines	....do	84	11
Collars	Care of Live Stock	24	2
Collars and tops	Lamps and Gas-Fittings	104	30
Coloring	Photography	47	6
Coloring and polishing apparatus.	Hides, Skins, and Leather	20	31
Coloring and polishing processes.	....do	94	31
Color-machines	Printing	58	17

Subclass.	Class.	No. of patents in subclass.	Division.
Color-machines—			
Coloring-tools	Printing	33	17
Colters	Plows	187	1
Colters—			
Rolling	do	159	1
Columns and timber	Fireproof Buildings	24	4
Comb-dabbing mechanism.	Carding	16	21
Combination organ stop-actions.	Music	22	5
Combined cane and umbrella.	Umbrellas and Canes	59	24
Combined casting and blowing.	Glass	25	15
Combined dish cleaners and drainers.	Washing Apparatus	47	27
Combined engine and boiler.	Steam-Engines	82	18
Combined mop heads and wringers.	Brushing and Scrubbing	91	27
Combined organ and piano.	Music	22	5
Combined pressing and blowing—			
Integral parts	Glass	32	15
United parts	do	47	15
Combined punching and shearing.	Metal Punching and Shearing.	101	14
Combined rakes and tedders.	Harvesters	79	7
Combined scrubbers and mops.	Brushing and Scrubbing	30	27
Combined types	Pumps	36	9
Combing	Carding	51	21
Combing, circle combs	do	55	21
Combs	Toilet	83	24
Combs—			
Cleaners	do	19	24
Personal wear	do	43	24
Combs and brushes	Electricity. Medical and Surgical.	23	26
Comb-teeth, cutting	Woodworking-Machines	15	29
Combustion	Fire-Extinguishers	15	9
Compasses	Optics	127	30
Compensating journals.	Journal-Boxes, Pulleys, and Shafting.	47	12
Compensators	Railways	5	34
Compensators—			
Intermittent-grip	do	25	34
Slot	do	8	34
Weight	do	19	34
Composing-sticks	Printing	49	17
Composite walls	Masonry	15	4
Composition	Artificial Stone	139	15
Composition—			
Bituminous and resinous.	do	34	15
Glutinous	do	44	15
Oxychlorid	do	40	15
Scoriaceous	do	31	15
Composition	Composite Roofings and Coverings.	262	15
Compositions	Caoutchouc and Minor Plastics.	184	15
Compositions	Fertilizers	152	6
Compositions	Glass	36	15
Compositions	Mineral Oils	10	31
Compositions—			
Burning-fluid	do	49	31
Compound	Steam-Engines	222	18
Compound—			
Locomotive	do	83	18
Lumber	Carpentry	44	29
Metal-working machines.	Metal Tools and Implements, Making	80	13
Compounds—			
Fire-extinguishing	Chemicals	40	6
Food	Preserving	187	6
Insulating	Caoutchouc and Minor Plastics.	169	15
Pyrotechnic	Explosives	17	6
Compound tools	Kitchen and Table Articles	51	8
Compound tools—			
Gripping	do	23	8
Compressed-air water-elevators.	Pumps	125	9
Compressed-air water-elevators—			
Aerated column	do	26	9
Hydraulic compression.	do	28	9
Compressing	Metal-Forging	15	13
Concrete	Paving	330	15
Condensers	Driers	16	28
Condensers	Telegraphy	12	16
Condensers—			
Injector	Steam-Engines	152	18
Surface	do	213	18
Condiment-holders	Kitchen and Table Articles	118	8
Condiment-holders—			
Pulverizing	do	48	8
Conductors	Electricity. Conductors	319	26
Conductors—			
Anti-inductive	Telephony	128	16
Lead-covered	Electricity. Conductors	56	26
Conductor-supports	Roofing	32	29
Conductor supports and insulators.	Electricity. Electric Railways.	234	26
Conduit-slot	Railway-Brakes	20	34
Conduits	Electricity. Conductors	352	26
Conduits—			
Cleaning and wire-drawing.	do	41	26
House-wiring	do	60	26
Junction and distributing boxes.	do	91	26
Confectionery	Sugar and Salt	104	6
Confectionery-machines	Bread, Cracker, and Lozenge Making.	219	15
Conformators	Measuring Instruments	49	23
Connectors	Electricity. Conductors	383	26
Construction	Sewerage	28	9
Construction—			
Miscellaneous	Masonry	43	4
Converters	Metallurgy	57	3
Converters—			
Fixed	do	15	3
Furnace	do	7	3
Runway	do	4	3
Sectional	do	17	3
Twyers and bottoms	do	23	3
Conveyers	Conveyers	66	12
Conveyers—			
Endless	do	41	12
Endless—			
Adjustable-leg	do	92	12
Belt	do	40	12
Boot	do	15	12
Buckets	do	153	12
Buckets—			
With traction-rollers.	do	64	12
Flights	do	158	12
Hooks	do	15	12
Pneumatic	do	97	12
Pneumatic—			
Stackers	do	70	12
Reciprocating	do	15	12
Retransfer and weighing.	do	25	12
Screw	do	74	12
Spouts	do	34	12
Storehouse	do	32	12
Thresher attachments	do	74	12
Thresher attachments—			
Foldable	do	20	12
Laterally and vertically adjustable.	do	97	12
Oscillatory	do	46	12
Vertically-adjustable.	do	22	12
Trimmers	do	22	12
Coping	Masonry	12	4
Copy-holders	Stationery	37	5
Copy-holders—			
Movable copy	do	56	5
Movable marker	do	48	5
Copying-presses—			
Fluid-pressure	Presses	6	2
Hand-impressing	do	7	2
Hand-impressing—			
Book-flexure	do	14	2
Roller mechanism	do	25	2
Cord and rope clamps—			
Friction	Buckles, Buttons, Clasps, Etc.	169	11
Positive-grip	do	349	11
Cord and rope machines	Cordage	257	21
Cords and ropes	do	84	21
Corking-machines	Packaging Liquids	31	32
Corking-machines—			
Automatic-feed	do	13	32
Compressing	do	11	32
Compressing—			
Automatic-feed	do	6	32
Hand-tools	do	7	32
Corn-coverers	Plows	28	1
Corn-cribs	Threshing	10	25
Corner-fastenings	Beds	265	8
Corner-shields	Carpentry	8	39
Cornet-mutes	Music	2	5
Cornets and trumpets	do	75	5
Corn-harvesters—			
Implements	Harvesters	22	7
Stalk-cutters	do	126	7

Subclass.	Class.	No. of patents in subclass.	Division.
Corn-harvesters—			
Stalk-cutters—			
Droppers—			
Crane	Harvesters	37	7
Direct-tilting	do	190	7
Ejector	do	49	7
Endless apron	do	35	7
Horizontally moving and tilting.	do	52	7
Sliding bottom	do	25	7
Strippers	do	43	7
Strippers—			
Comb	do	28	7
Knife	do	25	7
Roller	do	79	7
Corn-husking—			
Implements	Threshing	119	25
Machines	do	206	25
Corn-planters	Seeders and Planters	1807	1
Corn-poppers	Stoves and Furnaces	63	19
Corn-shellers—			
Breast and cylinder	Threshing	208	25
Disk-action	do	184	25
Ear-grasping	do	125	25
Implements	do	82	25
Peripheral action	do	21	25
Corn-shockers	Harvesters	25	7
Corpse-coolers	Refrigeration	90	28
Corrugating	Metal-Bending	89	14
Corset-fastenings	Buckles, Buttons, Clasps, Etc.	72	11
Corset-stiffeners, making.	Apparel Apparatus	25	24
Cotton-choppers	Plows	453	1
Cotton-harvesters	Harvesters	120	7
Cotton-harvesters—			
Pneumatic	do	37	7
Rotating picker-stem	do	94	7
Cotton-planters	Seeders and Planters	365	1
Cotton-scrapers	Plows	190	1
Counterbalances (*See* Wheels.)	Railway Rolling-Stock	4	34
Counterpoise-carriages	Ordnance	29	22
Counters	Store Furniture	16	8
Counters—			
Attachments	do	22	8
Couplers	Music	82	5
Couplers—			
Pneumatic	do	2	5
Coupling-bars	Velocipedes	20	7
Couplings	Plows	71	1
Couplings and tow-lines	Ships	33	22
Couplings—			
Arrowhead and jaws	Railway Draft Appliances	378	34
Balls	do	353	34
Beveled link and fixed catch.	do	55	34
Beveled link and swing catch.	do	123	34
Chains	do	10	34
Combined—			
Air-brake	do	32	34
Draw-bar and hook, with link.	do	19	34
Headed link and V-slot	do	99	34
Hook and catch	do	333	34
Hook and link	do	466	34
Hook and link—			
Combined	do	60	34
Janney type	do	12	34
Janney type—			
Emergency-releases	do	16	34
Gravity-locks	do	39	34
Horizontal sliding latches.	do	46	34
Knuckle-openers	do	64	34
Knuckle openers and locks combined.	do	100	34
Pivoted—			
Horizontal latches	do	63	34
Vertical latches	do	186	34
Safety-brackets	do	23	34
Vertical sliding pins	do	202	34
Link—			
End-openers	do	25	34
Handled	do	16	34
Star-wheeled detent	do	16	34
Link-lifters	do	384	34
Miller hook	do	156	34
Miller hook—			
Swing-heads	do	30	34
Miscellaneous	Baths and Closets	22	9
Pins and links	Railway Draft Appliances	178	34
Pin-supports—			
Balls	do	21	34
Gravity	do	683	34
Spring	do	511	34
Rolling detent	do	80	34
Rotary heads	do	126	34
Couplings—			
Sliding detent	Railway Draft Appliances	287	34
Swing-pins	do	489	34
Tools	do	29	34
Train	do	17	34
Twin jaws	do	360	34
Uncoupling-levers	do	178	34
Covering	Wire-Working	3	14
Covering—			
Cord	Cordage	103	21
Yarn	Carding	26	21
Yarn	Spinning	14	21
Covers	Bookbinding	75	5
Covers	Furniture	4	8
Covers	Umbrellas and Canes	83	24
Cow-milkers	Dairy	100	2
Cradles	Beds	182	8
Cradles—			
Motor-operated	do	50	8
Scythes and	Harvesters	169	7
Cranes and derricks	Cranes and Derricks	27	4
Cranes and derricks—			
Motor-operated	do	43	4
Motor-operated—			
Vertically-adjustable jib.	do	27	4
Rectilinearly-movable load-support.	do	46	4
Rectilinearly-movable load-support—			
Electric	do	8	4
Hydraulic	do	10	4
Load-lifting devices	do	26	4
Longitudinal shaft driver.	do	7	4
Stationary-motor	do	29	4
Traveling-motor	do	14	4
Rotary load-support	do	134	4
Rotary load-support—			
Vertically-adjustable jib.	do	112	4
Rotary rectilinearly-movable load-support	do	46	4
Stationary load-support.	do	53	4
Stationary load-support—			
Jib	do	52	4
Crank-clutches	Velocipedes	7	7
Crank-paddles	Marine Propulsion	59	22
Cranks and levers	Machine Elements	301	12
Cranks and levers—			
Cranks and wrist-pins	do	103	12
Handles	do	41	12
Hand-levers	do	17	12
Crates	Metallic Shipping and Storing Vessels.	14	32
Crates	Wooden Barrels and Boxes	26	32
Crates—			
Closures	do	14	32
Cushioned	do	9	32
Folding	do	34	32
Folding—			
Poultry	do	38	32
Poultry—			
Removable sides	do	23	32
Fruit-box	do	22	32
Hat-supports	do	26	32
Knockdown	do	12	32
Knockdown—			
Poultry	do	10	32
Package	do	30	32
Package—			
Roll	do	19	32
Poultry	do	17	32
Poultry—			
Collapsible	do	6	32
Sectional	do	26	32
Ventilated	do	9	32
Crayon-machines	Caoutchouc and Minor Plastics.	9	15
Cream-pumps	Dairy	4	2
Cribbing	Hydraulic Engineering	12	4
Cribs	Beds	56	8
Cribs—			
Attachments	do	39	8
Crimping	Boots and Shoes	237	11
Crocheting	Knitting and Netting	10	21
Croquet	Games and Toys	36	31
Crossing-signals, automatic.	Railways	64	34
Crossings	do	97	34
Crossings—			
Movable-rail	do	44	34
Movable-rail—			
Stub	do	21	34
Cross-weaving	Weaving	32	21
Cross-weld	Metal-Tube Manufacture	47	18

Subclass.	Class.	No. of patents in subclass.	Division.
Crozing barrels	Coopering	76	29
Crozing staves	....do	41	29
Crucibles	Metallurgy	42	3
Crushers and graters—			
Reciprocating	Vegetable Cutters and Crushers.	98	25
Rotary	....do	267	25
Crutches	Artificial Limbs	58	20
Cryptography	Educational Appliances	26	31
Cube sugar	Sugar and Salt	53	6
Cuff-holders	Buckles, Buttons, Clasps, Etc.	208	11
Culinary	Kitchen and Table Articles	99	8
Cultivator-irons	Metal Tools and Implements. Making	25	13
Cultivator-teeth	Plows	302	1
Cultivators	....do	1120	1
Cultivators—			
Hand	....do	55	1
Hand—			
Wheel	....do	179	1
Parallel	....do	202	1
Revolving	....do	80	1
Rolling	....do	78	1
Rotary	....do	198	1
Rotary—			
Horizontal	....do	30	1
Straddle-row	....do	277	1
Wheel	....do	251	1
Wheel—			
Straddle-row	....do	1481	1
Culverts	Masonry	20	4
Cupolas	Metallurgy	52	3
Cupolas—			
Drop-bottoms	....do	5	3
Fore-hearths	....do	64	3
Water-jackets	....do	30	3
Wind-chests and twyers.	....do	45	3
Cups	Kitchen and Table Articles	70	8
Cups—			
Collapsible	....do	10	8
Egg	....do	30	8
On belt	Seeders and Planters	41	1
On disk	....do	77	1
Sponge	Stationery	110	5
Curing, tobacco	Tobacco	100	2
Currycombs	Care of Live Stock	305	2
Currying	Hides, Skins, and Leather	34	31
Curtain—			
Holders	Curtains, Shades, and Screens.	18	8
Poles	....do	52	8
Poles and rings	....do	61	8
Pole-supports	....do	64	8
Rings and pins	....do	64	8
Tassels	....do	56	8
Curtain-cord—			
Tighteners	....do	139	8
Curtains and rods (See Cars, sleeping.)	Railway Rolling-Stock	12	34
Curve-scribers	Drafting	23	23
Curving plates	Metal-Bending	45	14
Cutlery-making	Hardware-Making	92	13
Cut-nail making	Nails and Spikes	161	13
Cut-off	Steam-Engine Valves	304	18
Cut-offs	Fluid-Pressure Regulators	72	31
Cut-offs—			
Automatic	Lamps and Gas-Fittings	102	30
Pressure	....do	43	30
Cut-offs and spouts	Water Distribution	206	4
Cut-outs—			
Electromagnetic	Electric Lighting	50	16
Electromagnetic—			
Endothactic	....do	50	16
Exothactic	....do	75	16
Hanger	....do	45	16
Mechanical	....do	95	16
Mechanical—			
Oscillating—			
Snap	....do	127	16
Spring	....do	41	16
Rotary	....do	116	16
Sliding	....do	54	16
Thermal	....do	134	16
Thermal—			
Branch	....do	23	16
Lamp	....do	44	16
Plug	....do	17	16
Successive	....do	44	16
Cutters	Apparel Apparatus	9	24
Cutters—			
Die	....do	40	24
Overboard	....do	45	24
Overboard—			
Rotary	....do	50	24
Reciprocating	....do	45	24
Reciprocating—			
Notchers	....do	6	24
Cutters—			
Rotary	Apparel Apparatus	27	24
Rotary—			
Band-knife	....do	8	24
Traveling	....do	20	24
Cutters	Glass	81	15
Cutters	Paper Manufactures	29	17
Cutters	Woodworking-Machines	91	20
Cutters—			
Bread	Vegetable Cutters and Crushers.	85	25
Chain	Woodworking-Machines	13	20
Reciprocating	Paper Manufactures	299	17
Reciprocating	Vegetable Cutters and Crushers.	246	25
Rotary	Paper Manufactures	93	17
Rotary	Vegetable Cutters and Crushers.	245	25
Rotary—			
Slitters and winders	Paper Manufactures	60	17
Stocks	Woodworking-Machines	399	20
Transverse	Paper Manufactures	57	17
Traveling	....do	38	17
Sod	Plows	49	1
Traveling	Paper Manufactures	46	17
Cutters and cutter-holders.	Metal Turning, Planing, and Milling.	190	13
Cutting	Leather-Working Machinery	426	11
Cutting	Metal Punching and Shearing.	109	14
Cutting and straightening.	Wire-Working	60	14
Cutting apparatus—			
Endless	Harvesters	61	7
Guard-fingers and finger-bars.	....do	198	7
Reciprocating	....do	353	7
Rotary	....do	45	7
Vibrating	....do	39	7
Cutting double-pile fabrics.	Weaving	23	21
Cutting dyewood	Woodworking-Machines	20	20
Cutting gears	....do	5	20
Cutting lace and looped fabrics.	Cloth-Finishing	22	21
Cutting printers' leads	Sheet-Metal Ware. Making.	48	14
Cutting sharpeners	Metal-Working Tools	148	14
Cylinder—			
External	Driers	58	28
Internal—			
Rotary horizontal	....do	409	28
Rotary inclined	....do	92	28
Stationary horizontal.	....do	90	28
Stationary inclined	....do	4	28
Vertical	....do	6	28
Cylinder machines. Bed and	Printing	60	17
Cylinder relief-valves	Steam-Engines	126	18
Cylinders and rollers	Carding	32	21
Cylinders for self-playing instruments.	Music	91	5
Cylindrical	Metal-Rolling	98	13
Daguerreotypy	Photography	29	6
Dampers	Stoves and Furnaces	452	19
Dampers—			
Automatic	....do	45	19
Automatic—			
Balanced-motor	....do	34	19
Draft-operated	....do	52	19
Electrical	....do	80	19
Expansion	....do	139	19
Fluid-pressure	....do	222	19
Positive-connection	....do	25	19
Pressure-motor	....do	110	19
Harmonic	Music	7	5
Harmonic—			
Violin	....do	13	5
Dampers and mutes, violin.	....do	11	5
Dampers for piano-actions.	....do	18	5
Dams—			
Coffer	Hydraulic Engineering	34	4
Sectional	....do	13	4
Dams and levees	....do	50	4
Dams and levees—			
Cores	....do	13	4
Mattresses	....do	13	4
Dark rooms	Photography	25	6
Darning	Knitting and Netting	7	21
Darning-lasts	Apparel Apparatus	35	24
Dashboards	Carriages and Wagons	116	10
Deadening noise	Railways	41	34
Decarbonizing	Annealing and Tempering	46	3
Decks and hatches	Ships	18	22
Decomposing fats	Oils, Fats, and Glue	102	31
Decorative lights	Lamps and Gas-Fittings	20	30
Decoys	Fishing and Trapping	32	23

Subclass.	Class.	No. of patents in subclass.	Division.
Defecating	Sugar and Salt	41	6
Deflection-stands	Railways	12	34
Delinting cotton-seed	Brakes and Gins	94	21
Deliveries	Printing	47	17
Deliveries—			
Associators	....do	11	17
Droppers	....do	70	17
Fly-frames	....do	19	17
Gripper-fliers	....do	34	17
Receiving-tables	....do	37	17
Demagnetizing	Electricity. Special Applications.	12	16
Dental instruments	Electricity. Motive-power	57	26
Depilating	Hides, Skins, and Leather	28	31
Depurators	Surgery	36	6
Derailers and replacers	Railway Rolling-Stock	6	34
Derailing-switches	Railways	18	34
Derailment-guards	Railway Rolling-Stock	35	34
Derailment-guards—			
Inclined wheels	....do	15	34
Rail-interlocking	....do	22	34
Supplemental wheels	....do	17	34
Derricks. Cranes and	Cranes and Derricks	27	4
Desk-rulers	Stationery	132	5
Desks	Furniture	54	8
Desks—			
Attachments	....do	6	8
Lids	....do	57	8
Lids—			
Flexible	....do	16	8
Portable	....do	26	8
Sectional	....do	37	8
Table	....do	47	8
Desiccation	Preserving	199	6
Detachable links	Chains, Staples, and Horseshoes.	90	13
Detaching, hoisting, and lowering.	Boats	234	22
Details	Telephony	110	16
Detector-bars	Railways	14	34
Detergents	Oils, Fats, and Glue	411	31
Detonating-signals	Railways	105	34
Devices. Key-holding	Music	10	5
Dial	Telegraphy	29	16
Dials	Horology	43	23
Dials and hands	....do	14	23
Diamond-tools	Stone-Working	59	25
Diaphragm	Fluid-Pressure Regulators	243	31
Diaphragm	Pumps	58	9
Diaphragm-lever	Fluid-Pressure Regulators	105	31
Dice-throwers	Coin-Controlled Apparatus	26	14
Dicycles	Velocipedes	34	7
Dies	Matrix-Making	15	30
Dies	Metal Tools and Implements. Making	33	13
Differential reciprocating pistons.	Pumps	115	9
Differential reciprocating pistons—			
Hollow piston-rod	....do	8	9
Diffusion apparatus	Sugar and Salt	52	6
Digesters	Paper-Making	211	15
Diggers	Excavating	27	4
Dining-cars	Railway Rolling-Stock	4	34
Dipping-tanks	Painting	48	31
Dip-pipes	Gas	67	31
Disabling	Ordnance	4	22
Disappearing	....do	51	22
Dish-cleaners	Washing Apparatus	159	27
Dish cleaners and drainers combined.	....do	47	27
Dish-cloth holders	....do	19	27
Dish-covers	Kitchen and Table Articles	14	8
Dish-drainers	Washing Apparatus	58	27
Dishes and plates	Kitchen and Table Articles	65	8
Dishes and plates—			
Covered	....do	60	8
Pivoted covers	....do	34	8
Dishing plates	Metal-Bending	14	14
Dish-stands	Kitchen and Table Articles	44	8
Disinfectants	Medicines	237	6
Disinfecting apparatus	Baths and Closets	83	9
Disintegrating fibrous substances.	Paper-Making	63	15
Disk and hopper	Driers	9	28
Disk on axle—			
Brake-band	Railway-Brakes	25	34
Peripheral shoes	....do	31	34
Side shoes	....do	13	34
Disks and holders	Dentistry	34	20
Display-cards	Advertising	91	32
Display-forms	Store Furniture	118	8
Display-racks	....do	156	8
Display-racks—			
Adjustable-arm	....do	63	8
Enclosed	....do	96	8
Hanging	....do	73	8
Roll	....do	125	8
Rope	....do	19	8
Display-racks—			
Rotary	Store Furniture	125	8
Rotary—			
Enclosed	....do	59	8
Sample-sheet	....do	34	8
Sample-sheet—			
Rotary	....do	18	8
Display-stands	....do	69	8
Display-trays	Advertising	41	32
Distance instruments	Optics	83	30
Distilled spirits	Alcohol	12	31
Distilled spirits—			
Aging apparatus	....do	83	31
Aging apparatus—			
Rocking racks	....do	13	31
Aging processes	....do	26	31
Apparatus	....do	33	31
Apparatus—			
Stills	....do	64	31
Stills—			
Columns	....do	90	31
Doublers and worms.	....do	86	31
Vapor-filters	....do	27	31
Rectifying processes	....do	49	31
Distributers	Lamps and Gas-Fittings	17	30
Distribution	Gas	32	31
Distribution—			
Leakage	....do	51	31
Preventing leakage	....do	14	31
Regulating pressure	....do	21	31
Separators	....do	16	31
Ditching-plows	Plows	159	1
Dividing-engines	Measuring Instruments	48	23
Diving-armor	Hydraulic Engineering	45	4
Docks	....do	35	4
Domestic	Spinning	80	21
Door and turnstile locks	Coin-Controlled Apparatus	11	14
Door and window frames	Carpentry	100	29
Door-bells	Signals	208	22
Door-checks	Builders' Hardware	55	20
Door-checks—			
Buffers	....do	28	20
Catches—			
Floor	....do	141	20
Wall	....do	136	20
Catches and buffers	....do	10	20
Chain or link	....do	73	20
Foot-bolt	....do	51	20
Foot-lever	....do	47	20
Sliding bolt	....do	23	20
Trippers	....do	16	20
Weights	....do	5	20
Door checks and closers	....do	12	20
Door checks and closers—			
Liquid	....do	52	20
Pneumatic	....do	97	20
Door-closers, gravitating	....do	42	20
Door-hangers	....do	158	20
Door-hangers—			
Brackets	....do	9	20
Roller-carriage	....do	100	20
Roller-carriage—			
Ball-bearing	....do	33	20
Sliding	....do	2	20
Stay-rollers	....do	38	20
Door-openers—			
Cab	Fences	15	1
Car	....do	45	1
Car-platform	....do	46	1
Hatch	....do	----	1
Sliding	....do	21	1
Swinging	....do	52	1
Doors	Carpentry	182	29
Doors—			
Car	....do	187	29
Car—			
Grain	....do	187	29
Sliding	....do	78	29
Doors	Iron Structures	15	4
Doors	Steam-Boiler Furnaces	103	18
Doors and windows	Carriages and Wagons	46	10
Door-securers	Builders' Hardware	155	20
Door-securers—			
Braces	....do	25	20
Door-springs	....do	30	20
Door-springs—			
Bow	....do	19	20
India-rubber	....do	18	20
Lever attachments	....do	127	20
Sliding-door	....do	2	20
Strap and pulley attachments.	....do	29	20
Torsional	....do	35	20
Torsonial—			
Coiled	....do	31	20
Flat	....do	31	20
Volute	....do	9	20

Subclass.	Class.	No. of patents in subclass.	Division.
Doubling	Silk	6	21
Doubling	Spinning	51	21
Dough-raisers	Stoves and Furnaces	53	19
Dovetailing	Woodworking-Machines	66	29
Draft—			
Cable	Railway Draft Appliances	7	34
Equalizers	Carriages and Wagons	524	10
Regulators, steam-injected.	Stoves and Furnaces	45	19
Drag—			
Crank	Wood-Sawing	294	29
Lever	do	240	29
Drains	Hydraulic Engineering	27	4
Drain-tiles	Clay and Pottery	92	15
Draw-bars	Railway Draft Appliances	282	34
Draw-bars—			
Continuous	do	60	34
Friction-buffers	do	14	34
Street-car	do	48	34
Drawbridges	Bridges	26	4
Drawer-plates	Advertising	28	32
Drawers	Furniture	54	8
Drawers—			
Guides	do	82	8
Locking devices	do	52	8
Swinging	do	16	8
Tilting	do	30	8
Draw-gates, bridges	Bridges	219	4
Drawing and evening	Spinning	101	21
Drawing—			
Boards	Fine Arts	91	5
Rollers	Spinning	62	21
Stop mechanism	do	71	21
Trumpets	do	9	21
Drawing-pens	Stationery	31	5
Draw-plates	Metal-Drawing	30	13
Drays	Carriages and Wagons	46	10
Dredgers—			
Anchoring	Excavating	27	4
Clam-shell	do	36	4
Clam-shell—			
Buckets	do	153	4
Scouring	do	72	4
Scouring—			
Hydraulic	do	31	4
Dress and mud guards	Velocipedes	43	7
Dress attachments	Trees, Plants, and Flowers	53	1
Dressing and assorting machines.	Brushing and Scrubbing	47	27
Dressing, casing, and flavoring tobacco.	Tobacco	112	2
Dressing slate	Stone-Working	46	25
Dressing stone	do	334	25
Driers	Painting	20	31
Drill-chucks	Metal Boring and Drilling	209	13
Drilling and boring	Artesian and Oil Wells	444	25
Drilling-machines	Metal Boring and Drilling	353	13
Drill-jars	Artesian and Oil Wells	34	25
Drill-rod grabs	do	55	25
Drills	Stone-Working	681	25
Drills	Metal Tools and Implements, Making	113	13
Drills—			
Adjustable-rank	Seeders and Planters	71	1
Drills and broadcast combined.	do	23	1
Grain	do	601	1
Hand	Metal Boring and Drilling	56	13
Ratchet	do	171	13
Rock	Steam-Engines	317	18
Walking	Seeders and Planters	81	1
Drill-teeth	do	195	1
Drink-mixers	Dairy	78	2
Drip—			
Catchers	Lamps and Gas-Fittings		30
Cups	Umbrellas and Canes	34	24
Troughs	Carpentry	16	29
Driving and lay motions	Weaving	19	21
Drop-hammers	Metal-Forging	103	13
Drop-lights—			
Burner attachments	Lamps and Gas-Fittings	38	30
Cord-supporters	do	1	30
Counterweight	do	85	30
Friction and clutch	do	173	30
Spring-drum	do	145	30
Droppers—			
Direct-tilting	Harvesters	80	7
Miscellaneous	do	8	7
Opening and closing	do	40	7
Side-delivery	do	93	7
Swinging and tilting	do	28	7
Drums	Music	47	5
Drums—			
Snare	do	14	5
Dry closets	Baths and Closets	89	9
Dry closets—			
Magazine	do	124	9
Portable	do	104	9
Receptacles	do	91	9
Dumb-bells and clubs	Surgery	26	6
Dumb-waiters	Elevators	60	12
Dumping-cars	Railway Rolling-Stock	31	34
Dumping-wagons	Carriages and Wagons	447	10
Duplex	Telegraphy	120	16
Duplicate-whist apparatus.	Games and Toys	33	31
Dust-collectors—			
Reciprocating	Mills	90	25
Rotating	do	208	25
Dust-guards	Railway Rolling-Stock	11	34
Dust-pans	Kitchen and Table Articles	115	8
Dust-pans—			
Brush attachments	do	27	8
Foot-pieces	do	22	8
Dust-trunks	Carding	19	21
Dyeing processes	Bleaching and Dyeing	35	6
Dyes	do	109	6
Dyes—			
Carbon	do	680	6
Dynamometers	Measuring Instruments	134	23
Dynamos	Telegraphy	29	16
Ear	Surgery	41	6
Ear-rings	Jewelry	112	5
Ear-trumpets	Acoustics	43	23
Earth-augers	Artesian and Oil Wells	140	25
Earth-augers—			
Bits	do	285	25
With carriers	do	13	25
Easels	Fine Arts	108	5
Eaves-troughs	Roofing	242	29
Eaves-troughs—			
Strainers	do	21	29
Edge-planes and shaves	Boots and Shoes	155	11
Edgers	Wood-Sawing	140	29
Edging sheets	Sheet-Metal Ware, Making	152	14
Egg-beaters	Dairy	24	2
Egg-beaters—			
Reciprocating	do	41	2
Rotary—			
Multiple-dasher	do	67	2
Single-dasher	do	72	2
Vibrating	do	47	2
Egg-cups	Kitchen and Table Articles	39	8
Egg-testers	Preserving	66	6
Elastic feed-wheels	Seeders and Planters	17	1
Electric	Railway-Brakes	98	34
Electric—			
Magnetic clutch—Winding-drum	do	22	34
Magnetic shoes	do	25	34
Solenoid-operated	do	19	34
Soles	Electricity, Medical and Surgical.	20	26
Toys	Games and Toys	27	31
Electric actions	Music	15	5
Electric actions—			
Couplers	do	5	5
Keyboard self-playing	do	7	5
Self-playing	do	12	5
Sostenuto	do	8	5
Electrical	Type-Writing Machines	29	30
Electrical appliances	Firearms	11	22
Electrical appliances	Ordnance	16	22
Electric locomotives	Electricity, Electric Railways.	39	26
Electric locomotives	Railway Rolling-Stock	18	34
Electric locomotives—			
Electric control	Electricity, Electric Railways.	41	26
Electromechanical control.	do	28	26
Motor on axle	do	73	26
Single and multiple motor.	do	23	26
Traveling-dynamo	do	12	26
Electrodes	Electricity, Medical and Surgical.	61	26
Electrolysis—			
Aqueous bath	Electro-Chemistry	45	3
Aqueous bath—			
Alloys	do	17	3
Aluminium	do	6	3
Anodes	do	25	3
Apparatus	do	92	3
Cathodes	do	15	3
Cathodes—			
Cleaning	do	6	3
Metallizing	do	47	3
Chemicals	do	96	3
Copper	do	9	3
Depolarizing and burnishing.	do	50	3
Gold	do	3	3
Multiple	do	22	3
Nickel	do	31	3
Ores	do	81	3
Silver	do	2	3
Tin	do	9	3

Subclass.	Class.	No. of patents in subclass.	Division.
Electrolysis—			
Aqueous bath—			
Zinc	Electro-Chemistry	4	3
Bleaching	do	15	3
Diaphragms	do	19	3
Fused bath	do	27	3
Fused bath—			
Aluminium	do	29	3
Sodium	do	8	3
Purifying liquids	do	8	3
Purifying liquids—			
Alcohol	do	21	3
Water	do	81	3
Tanning	do	7	3
Electromagnets	Electricity, Special Applications.	110	16
Electropneumatic, organ-actions.	Music	14	5
Electrotyping	Printing	37	17
Elements—			
Air and vacuum chambers.	Pumps	33	9
Cut-off and drain devices.	do	61	9
Cylinder	do	76	9
Miscellaneous and combined.	do	164	9
Operating devices	do	250	9
Pistons	do	247	9
Sand traps and strainers.	do	34	9
Stocks, curbs, and supports.	do	131	9
Valves	do	306	9
Elevated	Railways	109	34
Elevated—			
Bicycle	do	19	34
Cable-rail	do	49	34
Elevated carriers	Loading and Unloading	126	4
Elevated carriers—			
Draft-sustaining	do	73	4
Fall-rope carriers	do	25	4
Lever-lock	do	15	4
Non-lowering support	do	23	4
Ratchet-lock	do	27	4
Rope-catch	do	114	4
Sheave-frame catch	do	155	4
Ways	do	81	4
Elevator	Driers	79	28
Elevators	Electricity, Motive-Power	182	26
Elevators	Elevators	237	12
Elevators—			
Adjustable balances	do	7	12
Automatic stops	do	36	12
Chairs	do	7	12
Combined locks and automatic stops.	do	12	12
Controllers	do	95	12
Controllers—			
Running-rope	do	39	12
Counterweights	do	13	12
Dumb-waiters	do	60	12
Guides	do	10	12
Hod	do	83	12
Indicators	do	48	12
Lazy-tongs	do	17	12
Locks	do	10	12
Mail	do	18	12
Safety devices	do	29	12
Safety devices—			
Door-locked controllers.	do	58	12
Overwinding	do	9	12
Shaft-guide catches and grips.	do	340	12
Slack-cable stops	do	33	12
Speed-governors	do	20	12
Speed-governors—			
Fluid-retarders	do	50	12
Well-bottom cushions.	do	15	12
Well obstruction	do	25	12
Screw	do	45	12
Screw and traveling sheave or block.	do	22	12
Well-doors—			
Horizontal—			
Horizontal hinge	do	154	12
Horizontally-slidable.	do	38	12
Vertical hinge	do	4	12
Vertically-slidable	do	30	12
Vertical—			
Horizontal hinge	do	53	12
Horizontally-slidable.	do	82	12
Vertical hinge	do	6	12
Vertically-slidable	do	128	12
Elevators and drops	Store-Service	61	12
Ellipsographs	Drafting	53	28
Embalming	Undertaking	7	20
Embalming—			
Apparatus	do	14	20
Processes	do	4	20
Embossing	Photography	16	6
Embroidering	Sewing-Machines	269	24
Embroidery-cases	Advertising	23	32
Enameling	Glass	78	15
Enameling wood	Painting	25	31
End-gates	Carriages and Wagons	442	10
Endless belts	Hides, Skins, and Leather	12	31
Endless carrier	Driers	140	28
Endless scraper	do	7	28
Engines	Dentistry	41	20
Engines—			
Air	Air and Gas Engines	26	28
Bracket-supports	Dentistry	27	20
Caloric	Air and Gas Engines	263	28
Compound	Steam-Engines	222	18
Explosive	Air and Gas Engines	843	28
Friction-gear	Dentistry	15	20
Gas	Air and Gas Engines	105	28
Hammer	Steam-Engines	208	18
Locomotive	do	112	18
Multiple-cylinder	do	273	18
Multiple-piston	do	63	18
Oscillating	do	196	18
Portable	do	132	18
Pumping	do	353	18
Pumping—			
Duplex	do	102	18
Rock-drilling	do	317	18
Rotary	do	37	18
Rotary—			
Alternating piston	do	23	18
Concentric piston	do	764	18
Eccentric piston	do	185	18
Impact	do	177	18
Oscillating piston	do	78	18
Reciprocating piston	do	94	18
Wabbling piston	do	51	18
Single-acting compound.	do	124	18
Single-cylinder	do	198	18
Standard-supports	Dentistry	61	20
Steam steering	Steam-Engines	104	18
Engraving and tools	Fine Arts	61	5
Engraving-machines	do	240	5
Envelop-machines	Paper Manufactures	240	17
Envelop-openers	Cutlery	33	15
Envelops	Paper Manufactures	459	17
Epicycles	Velocipedes	28	7
Erasers	Stationery	86	5
Erasers—			
Knife	do	45	5
Escapements—			
Balance	Horology	61	23
Lever	do	34	23
Lever—			
Straight-line	do	21	23
Chronometer	do	33	23
Pendulum	do	39	23
Pendulum—			
Gravity	do	15	23
Evaporating-pans	Sugar and Salt	774	6
Excavators—			
Chain and bucket	Excavating	147	4
Chain and bucket—			
Buckets	do	10	4
Dippers	do	128	4
Hydraulic	do	155	4
Hydraulic—			
Pipe-supports	do	7	4
Steam vacuum	do	28	4
Suction-pipe mouthpieces.	do	27	4
Miscellaneous	do	13	4
Plow and carrier	do	226	4
Rammers	do	12	4
Road beds and grades	do	9	4
Scoops	do	152	4
Scoops—			
Railway-side	do	19	4
Scrapers	do	115	4
Scrapers—			
Distant-power	do	56	4
Railway-side	do	13	4
Sledded	do	38	4
Wheeled	do	297	4
Screw	do	17	4
Screw and carrier	do	19	4
Self-loading carts	do	22	4
Self-loading carts—			
Carrier	do	19	4
Scoop	do	208	4
Wheel	do	30	4
Snow-road machines	do	50	4
Treating quicksand	do	8	4

Subclass.	Class.	No. of patents in subclass.	Division.
Excavators—			
Wheel	Excavating	151	4
Wheel and belt	....do	11	4
Wheel and carrier	....do	35	4
Exclusion of air	Preserving	270	6
Exercising apparatus	Electricity. Medical and Surgical.	14	26
Exercising devices	Music	10	5
Exercising devices—			
Hand attachments	....do	7	5
Keyboard	....do	17	5
Keyboard attachments	....do	18	5
Vocal	....do	5	5
Exercising-machines	Surgery	315	6
Exhaust mechanism	Steam-Engines	209	18
Exhausters	Gas	14	31
Exhaust, regenerated	Steam-Engines	76	18
Exhibitors—			
Movable-object	Coin-Controlled Apparatus	29	14
Surface	....do	56	14
Express	Safes	14	20
Expressing—			
Articles and attachments—			
Boxes and frames	Presses	97	2
Cake-formers	....do	13	2
Cake-strippers	....do	1	2
Cake-trimmers	....do	2	2
Mats	....do	88	2
Belt	....do	35	2
Belt and plunger	....do	5	2
Belt and roller	....do	53	2
Disk	....do	6	2
Plunger—			
Cam	....do	24	2
Crank and pitman	....do	2	2
Lever	....do	85	2
Rack bar and pinion.	....do	18	2
Ratchet and grapple bar.	....do	14	2
Screw	....do	167	2
Toggle-joint	....do	22	2
Windlass	....do	8	2
Roller	....do	176	2
Screw	....do	9	2
Without operating mechanism.	....do	39	2
Extension-ladders	Fire Escapes and Ladders	62	12
Extinguishers—			
Fluid	Lamps and Gas-Fittings	10	30
Mechanical	....do	274	30
Pneumatic	....do	21	30
Extracting oils	Oils, Fats, and Glue	218	31
Extracts	Medicines	232	6
Eye	Surgery	38	6
Eyebolts and hooks	Hardware-Making	93	13
Eyeglasses	Optics	278	30
Eyeleting-machines	Button-Setting and Eyeleting.	235	11
Eyelets	Buckles, Buttons, Clasps, Etc.	43	11
Eyelets—			
Plastic heads	....do	16	11
Eyelets	Metal Personal Wear. Making	50	14
Fabrics	Caoutchouc and Minor Plastics.	120	15
Fabrics	Felt and Fur	104	21
Fabrics	Knitting and Netting	184	21
Fabrics	Paper-Making	321	15
Fabrics	Wire-Working	27	14
Fabrics—			
Elastic	Weaving	35	21
Fabrics	....do	206	21
Making	Wire-Working	23	14
Making—			
Coiled	....do	20	14
Twisted	....do	67	14
Pile	Weaving	97	21
Tubular	....do	55	21
Wire	Fences	149	1
Working	Wire-Working	23	14
Facing walls	Masonry	69	4
False stems	Trees, Plants, and Flowers	5	1
Fan attachments	Pneumatics	243	28
Fans and regulators	Threshing	44	25
Fans—			
Automatic	Pneumatics	284	28
Toilet	....do	120	28
Fare-boxes	Packing and Storing Vessels	22	32
Fare-boxes—			
Change	....do	37	32
Check-receivers	....do	42	32
Closed-slot	....do	21	32
Conveyers	....do	7	32
Detachable locking-receptacle.	....do	18	32
Fare-boxes—			
Portable	Packing and Storing Vessels	15	32
Portable closures	....do	31	32
Shelf—			
Rotating	....do	19	32
Serrated	....do	10	32
Sliding	....do	13	32
Tilting	....do	16	32
Tilting—			
Multiple	....do	15	32
Farm implements	Metal Tools and Implements. Making	13	13
Feed mechanism	Woodworking-Machines	31	29
Feed mechanism—			
Rolls	....do	87	29
Feeders	Steam-Boilers	624	18
Feeding	Knitting and Netting	143	21
Feeding	Printing	92	17
Feeding	Sewing-Machines	409	24
Feeding—			
Air	Steam-Boiler Furnaces	56	18
Air—			
Automatic	....do	44	18
Cards	Carding	143	21
Fine fuel	Steam-Boiler Furnaces	80	18
Fuel	....do	217	18
Gages	Printing	23	17
Gages—			
Front stops	....do	30	17
Separators	....do	89	17
Separators—			
Buckling	....do	44	17
Pneumatic	....do	53	17
Sheet-cutters	....do	43	17
Steam	Steam-Boiler Furnaces	366	18
Web	Printing	27	17
Feeding and tension	Wire-Working	19	14
Feed-wheels, elastic	Seeders and Planters	17	1
Fellies and rims	Carriages and Wagons	127	10
Felt	Composite Roofings and Coverings.	89	15
Felting-machines	Felt and Fur	334	21
Fence-barbs of sheet metal.	Metal Punching and Shearing.	75	14
Fence-posts, bases, metal.	Fences	180	1
Fences—			
Barbed	....do	273	1
Barbed—			
Linked	....do	40	1
Ribbon	....do	127	1
Visible	....do	35	1
Cat-guards	....do	22	1
Earth and plastic	....do	5	1
Flood	....do	182	1
Iron	....do	238	1
Wire	....do	149	1
Wood	....do	168	1
Wood—			
Panel	....do	463	1
Panel—			
Suspended	....do	17	1
Worm	....do	133	1
Picket	....do	30	1
Picket—			
Panel	....do	69	1
Tied	....do	211	1
Fenders	Carriages and Wagons	59	10
Fenders	Plows	172	1
Fenders	Railway Rolling-Stock	72	34
Fenders	Roofing	34	20
Fenders	Stoves and Furnaces	76	19
Fenders and torpedo-guards.	Ships	39	22
Fermenting apparatus	Alcohol	3	31
Fermenting apparatus—			
Vats	....do	43	31
Vent-bungs	....do	50	31
Fermenting processes	....do	51	31
Ferrules, rings, and thimbles.	Hardware-Making	98	13
Ferry-guards, bridges	Bridges	12	4
Fertilizer-distributers	Seeders and Planters	419	1
Fertilizer-distributers—			
Hand	....do	25	1
Revolving hoppers	....do	26	1
Walking	....do	38	1
Fibers	Paper-Making	67	15
Fibrous compositions	Caoutchouc and Minor Plastics.	73	15
Fifth-wheels	Carriages and Wagons	493	10
Fifth-wheels—			
Making	Wagon, Car, and Track Irons	27	13
Figure toys	Games and Toys	398	31
Figure wheeled toys	....do	178	31
Filaments and carbons	Electric Lighting	300	16
File-blanks	Metal Tools and Implements. Making	33	13
File-cutting	Metal Tools and Implements. Making	170	13
Files—			
Bill	Stationery	98	5
Newspaper	Bookbinding	122	5
Files and rasps	Metal Tools and Implements. Making	93	13
Fillers	Painting	47	31
Filling-cans	Metallic Dispensing-Cans	31	32
Filling-cans—			
Closures	....do	10	32
Closures—			
Cap	....do	7	32
Cap—			
Screw	....do	25	32
Spout	....do	12	32
Pivoted	....do	8	32
Screw	....do	6	32
Screw—			
Plug	....do	10	32
Jackets	....do	27	32
Jackets—			
Corrugated	....do	12	32
Wooden	....do	40	32
Nozzles	....do	33	32
Nozzles—			
Cut-offs	....do	6	32
Cut-offs—			
Automatic	....do	12	32
Automatic—			
Spring	....do	14	32
Spring—			
Pull	....do	13	32
Push	....do	16	32
Vents	....do	26	32
Detachable	....do	34	32
Rotary	....do	11	32
Rotary—			
Vented	....do	19	32
Screw	....do	26	32
Slide	....do	13	32
Detachable	....do	12	32
Detachable—			
Reversing	....do	17	32
Flexible-tube	....do	10	32
Pivoted	....do	14	32
Sliding	....do	9	32
Vented	....do	28	32
Pivoting-stands	....do	29	32
Vents	....do	14	32
Filling-machines	Packaging Liquids	9	32
Filling-machines—			
Barrels	....do	20	32
Counter-pressure	....do	14	32
Cut-offs	....do	12	32
Cut-offs—			
Automatic	....do	12	32
Automatic—			
Float	....do	42	32
Vent	....do	11	32
Faucets	....do	7	32
Gage	....do	22	32
Gage—			
Adjustable	....do	9	32
Pump	....do	10	32
Pump—			
Adjustable	....do	10	32
Multiple nozzles	....do	25	32
Reciprocating	....do	14	32
Siphon-bottle	....do	8	32
Siphon-tube	....do	18	32
Stoppers—			
Internal	....do	24	32
Valve	....do	10	32
Turn-over	....do	17	32
Filling and corking machines.	....do	10	32
Filling and corking machines—			
Barrel	....do	9	32
Corking-nozzles	....do	13	32
Counter-pressure	....do	31	32
Reciprocating nozzles	....do	11	32
Filters—			
Beer	Water Distribution	30	4
Cistern-cleaners	....do	58	4
Cistern-supply	....do	56	4
Decanters	....do	39	4
Faucet	....do	172	4
Filtering-faucets	....do	35	4
Granular-bed	....do	323	4
Materials	....do	30	4
Oil	....do	87	4
Porous-wall	....do	103	4
Portable	....do	134	4
Pressure	....do	66	4
Rotary-bed	....do	48	4
Service-pipe	....do	69	4
Strainers	....do	128	4
Filters—			
Submerged	Water Distribution	69	4
Systems	....do	75	4
Finders	Photography	12	6
Finery-fires	Metallurgy	12	8
Finger-boards	Music	11	5
Finger-rings	Jewelry	113	5
Finishing	Cloth-Finishing	73	21
Finishing cut pile fabrics.	....do	13	21
Finishing yarn and thread.	Cordage	137	21
Fire	Telegraphy	200	16
Fire—			
Automatic	....do	151	16
Engine-house apparatus.	....do	21	16
Non-interfering	....do	104	16
Repeaters	....do	12	16
Variable-signal	....do	40	16
Variable-signal—			
Dial	....do	102	16
Fire-alarms	Signals	127	22
Fire alarms and extinguishers.	Telegraphy	47	16
Fire-brick	Metallurgy	114	8
Fire-dogs	Stoves and Furnaces	20	19
Fire-extinguishers	Ships	11	22
Fire-extinguishers—			
Car-heater	Fire-Extinguishers	142	9
For oil-tanks	....do	11	9
Gas-pressure supply	....do	40	9
Portable—			
Automatic	....do	19	9
Grenades	....do	19	9
Hand vessels	....do	22	9
Liquid pumps and syringes.	....do	27	9
Water-towers	....do	48	9
Wheeled	....do	35	9
Stationary systems	....do	62	9
Stationary systems—			
Automatic	....do	18	9
Automatic—			
Valve	....do	45	9
Valve—			
Pressure-controlled.	....do	81	9
Chemical mixing	....do	29	9
Gas-pressure supply	....do	19	9
Fire-extinguishing compounds.	Chemicals	40	6
Fire-guards	Fences	32	1
Fire-kindlers	Fuel	188	15
Fire-kindlers—			
Absorbers	....do	106	15
Automatic	....do	37	15
Fireplaces	Stoves and Furnaces	186	19
Fireplaces—			
Blowers	....do	46	19
Firebacks	....do	55	19
Fronts	....do	44	19
Hot-air	....do	169	19
Fire-polishing	Glass	23	15
Fire-pots and linings	Stoves and Furnaces	171	19
Fireproof	Safes	61	20
Fireproof—			
Roofs	Fireproof Buildings	21	4
Shutters	....do	54	4
Fireproofing compounds	Painting	27	31
Fire-shields	Fireproof Buildings	59	4
Fire-tubes	Steam-Boilers	308	18
Fish-dressing machines	Butchering	11	25
Fishing—			
Bait and tackle holders	Fishing and Trapping	66	22
Fishways	....do	18	22
Floats	....do	31	22
Harpoons and spears	....do	18	22
Hooks	....do	47	22
Hooks—			
Artificial-bait	....do	103	22
Spring-actuated	....do	69	22
Nets and seines	....do	134	22
Oyster and pisci culture.	....do	43	22
Oyster-dredges	....do	47	22
Oyster rakes and tongs	....do	21	22
Reels	....do	205	22
Rods	....do	132	22
Sinkers	....do	31	22
Flags, Banners and	Fine Arts	13	5
Flagstaff-holders	Signals	46	22
Flanges for piano-actions.	Music	23	5
Flanging	Metal-Bending	88	14
Flanging—			
Straight	....do	5	14
Flaring and crimping	Glass	37	15
Flashers	Steam-Boilers	49	18

Subclass.	Class.	No. of patents in subclass.	Division.
Flashings	Roofing	28	29
Flash-lamps	Lamps and Gas-Fittings	48	30
Flasks and chargers	Projectiles	45	22
Flax harvesters. Hemp and	Harvesters	34	7
Flax-threshers	Threshing	21	25
Fleece dividers and condensers.	Carding	59	21
Fleece-removers	....do	38	21
Flexible blinds	Curtains, Shades, and Screens.	56	8
Flexible ladders	Fire Escapes and Ladders	90	12
Flexible ladders—			
Reel	....do	86	12
Sectional	....do	92	12
Sectional—			
Elevator	....do	23	12
Single-stile	....do	37	12
Trolley	....do	10	12
Fliers	Spinning	67	21
Float	Fluid-Pressure Regulators	184	31
Float-lever	....do	52	31
Float-valves	Baths and Closets	108	9
Flock-cutting	Felt and Fur	30	21
Flocking	Paper-Making	7	15
Flooding	Fireproof Buildings	22	4
Flooring bridges	Bridges	7	4
Floors	Carpentry	60	29
Floors—			
Fixed	Driers	21	28
Tile and metal	Masonry	9	4
Tilting-section	Driers	27	28
Floors. Ceilings and—			
Concrete	Fireproof Buildings	10	4
Concrete and metal	....do	99	4
Metal	....do	13	4
Protected wood	....do	58	4
Tile	....do	72	4
Tile and metal	....do	59	4
Floor-sets	Woodworking-Tools	156	29
Flower-holders	Trees, Plants, and Flowers	27	1
Flower-pots	....do	45	1
Flower-work	....do	15	1
Flowers, artificial	Fine Arts	88	5
Flue and tubular	Steam-Boilers	205	18
Flues and tubes, steam-boiler.	....do	220	18
Flues, smoke and air	Masonry	11	4
Fluid-delivery	Coin-Controlled Apparatus	67	14
Fluid motive power	Pumps	76	9
Fluid motive power—			
Fluid-transmitting	....do	33	9
Water-wheel	....do	23	9
Fluid-pressure—			
Automatic	Railway-Brakes	196	34
Brake piston indicators.	....do	6	34
Brake release valves	....do	30	34
Derailment	....do	40	34
Direct	....do	120	34
Electric	....do	26	34
Engineers' valves	....do	64	34
Load-regulated valves	....do	24	34
Momentum-pump	....do	100	34
Pressure-retainers	....do	19	34
Train-pipe—			
Couplings	....do	13	34
Release-valves	....do	11	34
Stop-cocks	....do	26	34
Triple valves	....do	135	34
Vacuum	....do	66	34
Flushing	Sewerage	30	9
Flush-tank siphons	....do	33	9
Flutes. Clarinets and	Music	44	5
Fluting-irons	Laundry	160	27
Fluxes	Metal-Welding	58	13
Fly-nets	Harness	78	11
Fly-wheels	Machine Elements	85	12
Focusing devices	Photography	15	6
Fog-signals	Signals	118	22
Foil-condensers	Dentistry	32	20
Foil manufacture	Metal-Rolling	23	13
Folders	Apparel Apparatus	28	24
Folders	Printing	72	17
Folders—			
Longitudinal	....do	20	17
Longitudinal and rotary.	....do	13	17
Newspaper-wrapping machines.	....do	37	17
Oscillating	....do	94	17
Reciprocating	....do	51	17
Rotary	....do	40	17
Sheet-conveyers	....do	15	17
Folding	Cloth-Finishing	39	21
Folding	Paper Manufactures	36	17
Folding reed-organ	Music	9	5
Followers, bill-files	Stationery	123	5
Food compounds	Preserving	187	6
Foot extensions	Artificial Limbs	5	20
Foot-guards	Railways	62	34
Foot-warmers	Stoves and Furnaces	130	19
Forced-draft lamps	Lamps and Gas-Fittings	65	30
Force-feed	Seeders and Planters	201	1
Forging	Metal-Forging	39	13
Fork-guards	Cutlery	60	15
Forks	....do	55	15
Forks	Harrows and Diggers	89	1
Forks—			
Adjustable heads	....do	36	1
Combined forks and shovels.	....do	6	1
Fodder-forks	....do	9	1
Potato forks and shovels.	....do	66	1
Forks and spoons	Cutlery	84	15
Form	Ships	108	22
Forming and preserving channels.	Hydraulic Engineering	27	4
Forming bats	Felt and Fur	135	21
Forming chimney-bottoms.	Glass	16	15
Forming glass pipes	....do	17	15
Forms and platens	Driers	40	28
For oil-tanks	Fire-Extinguishers	11	9
Foundations	Masonry	17	4
Fountain-brushes—			
Blacking	Brushing and Scrubbing	34	27
Brooms	....do	10	27
Hair	....do	6	27
Paint	....do	54	27
Scrubbers	....do	28	27
Shaving	....do	7	27
Tooth	....do	12	27
Window-cleaners	....do	54	27
Fountain-discharge	Painting	26	31
Fountain-pens	Stationery	326	5
Fountain-pens—			
Special	....do	41	5
Fountains	Water Distribution	71	4
Founts	Lamps and Gas-Fittings	4	30
Fracture apparatus	Artificial Limbs	122	20
Frame houses	Carpentry	49	29
Frames and trays	Driers	28	28
Frames—			
Piano	Music	21	5
Piano-action	....do	21	5
Picture	Fine Arts	246	5
Fraud-preventives	Coin-Controlled Apparatus	27	14
Freight-cars	Railway Rolling-Stock	47	34
Friction	Fire Escapes and Ladders	16	12
Friction—			
Hand-clamp	....do	18	12
Jaw	....do	60	12
Jaw—			
Set-screw	....do	12	12
Reel	....do	15	12
Reel—			
End-thrust	....do	19	12
Jaw-brake	....do	27	12
Jaw-brake—			
Tension	....do	27	12
Strap-brake	....do	32	12
Shooting lines	....do	13	12
Tortuous	....do	84	12
Tortuous and jaw	....do	73	12
Tortuous and jaw—			
Set-screw	....do	29	12
Wheel-brake	....do	26	12
Friction-generators	Electricity. Generation	36	26
Fringe-machines	Weaving	34	21
Fringes	....do	20	21
Frogs	Railways	190	34
Frogs—			
Movable-rail	....do	22	34
Movable-rail—			
Lap	....do	52	34
Stub	....do	86	34
Spring-rail	....do	65	34
Frosting by abrading	Glass	21	15
Frosting by chipping	....do	8	15
Frosting by etching	....do	37	15
Fruit and vegetable separators.	Threshing	101	25
Fruit-cars	Railway Rolling-Stock	16	34
Fruit-gatherers	Harvesters	403	7
Fruit-lifters	Kitchen and Table Articles	9	8
Fuel, artificial	Fuel	195	15
Fuel-boxes	Stoves and Furnaces	43	19
Fulling	Felt and Fur	77	21
Fulminates	Explosives	43	6
Fume-arresters	Metallurgy	86	8
Fumigation	Preserving	93	6
Funnels	Water Distribution	191	4
Furnace-feeding—			
Air	Steam-Boiler Furnaces	56	18
Air—			
Automatic	....do	44	18

Subclass.	Class.	No. of patents in subclass.	Division.
Furnace-feeding—			
Chain grates	Steam-Boiler Furnaces	84	18
Fuel	....do	217	18
Fuel—			
Fine	....do	80	18
Steam	....do	366	18
Furnaces	....do	532	18
Furnaces—			
Bagasse	Stoves and Furnaces	76	19
Blank	Metallurgy	127	3
Blank—			
Tire	....do	98	3
Blast	....do	104	3
Blast—			
Charging devices	....do	25	3
Charging devices—			
Bell and hopper	....do	39	3
Protecting walls	....do	29	3
Twyers	....do	77	3
Tymps and slag-spouts.	....do	14	3
Cremation	Stoves and Furnaces	6	19
Crucible	Metallurgy	59	3
Electric	....do	40	3
Forge	....do	80	3
Forge—			
Twyers	....do	203	3
Hot-air	Stoves and Furnaces	778	19
Hot-air—			
Magazine	....do	41	19
Steam	....do	97	19
Hydrocarbon	....do	282	19
Hydrocarbon—			
Injector-burners	....do	502	19
Retort-vaporizers	....do	341	19
Melting	Metallurgy	19	3
Melting—			
Glass-pots	....do	26	3
Glory-hole	....do	15	3
Open-hearth	....do	28	3
Pot-hearth	....do	74	3
Tank	....do	67	3
Pigment	....do	93	3
Portable	Stoves and Furnaces	194	19
Reverberatory—			
Heating air	Metallurgy	100	3
Necks and chimneys	....do	17	3
Water-walls and roofs.	....do	13	3
Furniture	Printing	15	17
Furniture—			
Quoins	....do	95	17
Tools and appliances	....do	38	17
Furs and pelts	Felt and Fur	116	21
Fuse and packing machines.	Cordage	12	21
Gage-cocks	Steam-Engine Valves	169	18
Gage-lathes	Wood-Turning	60	29
Gages	Measuring Instruments	226	23
Gages	Woodworking-Tools	67	29
Gages—			
Depth	Measuring Instruments	140	23
Micrometer	....do	155	23
Rain	....do	33	23
Scratch	Woodworking-Tools	75	29
Surface	Measuring Instruments	68	23
Thickness	....do	25	23
Track	....do	36	23
Water	....do	175	23
Water—			
Float	....do	88	23
Weather-board	Woodworking-Tools	125	29
Weather-board—			
Marking	....do	18	29
Gage wheels and runners	Plows	39	1
Gags and muzzles	Care of Live Stock	135	2
Gaining	Woodworking-Machines	150	29
Galleys	Printing	33	17
Galleys—			
Galley-locks	....do	65	17
Galley-rests	....do	17	17
Galvanizing	Coating with Metal	150	3
Galvanometers	Electricity. Generation	291	26
Game apparatus—			
Aerial projectiles	Games and Toys	65	31
Aerial projectiles—			
Peg and pocket	....do	100	31
Belts	Accoutrements	7	32
Boards	Games and Toys	33	31
Boards—			
Chance-controlled	....do	51	31
Checkered surfaces	....do	75	31
Counters	Signals	108	22
Pieces	Games and Toys	42	31
Surface projectiles	....do	126	31
Surface projectiles—			
Longitudinal	....do	138	31
Gangways	Care of Live Stock	24	2
Gangways and bridges	Ships	38	22
Garbage-buckets	Metallic Shipping and Storing Vessels.	21	32
Garden-beds	Trees, Plants, and Flowers	4	1
Garment-fastenings—			
Lacing	Buckles, Buttons, Clasps, Etc.	48	11
Spring-frame	....do	18	11
Garment-fitters	Apparel Apparatus	41	24
Garment-formers	....do	91	24
Garment-forms	....do	96	24
Garment-stretchers	....do	149	24
Garment-supporters	Buckles, Buttons, Clasps, Etc.	388	11
Garment-turners	Apparel Apparatus	8	24
Gas—			
Acetylene	Gas	51	31
Coal	....do	51	31
Coal and oil	....do	40	31
Coal and water	....do	42	31
Coal, oil, and water	....do	137	31
Hydrogen	....do	89	31
Oil	....do	114	31
Oil and water	....do	33	31
Oil and water—			
Generators—			
Cupola	....do	160	31
Refractory	....do	36	31
Retort	....do	214	31
Producers	....do	80	31
Water	....do	200	31
Wood	....do	63	31
Gas and explosives	Safes	16	20
Gas and water fittings	Hardware-Making	198	13
Gas brackets and valves	Lamps and Gas-Fittings	79	30
Gas-burners	....do	131	30
Gas-burners—			
Incandescent	....do	157	30
Regenerative	....do	167	30
Regulating	....do	293	30
Gas-checks	Ordnance	14	22
Gas collection	Carbonating Beverages	10	32
Gas distribution	....do	11	32
Gas-fittings	Lamps and Gas-Fittings	18	30
Gas-generators	Carbonating Beverages	50	32
Gas-generators—			
Acid-feed, siphon	....do	5	32
Furnace	....do	10	32
Rotary-stirrer	....do	19	32
Gas-lighting attachments.	Lamps and Gas-Fittings	117	30
Gasometers	Coin-Controlled Apparatus	35	14
Gas-pressure supply	Fire-Extinguishers	40	9
Gates	Fences	56	1
Gates—			
Compound	....do	53	1
Dropping	....do	37	1
Expanding	....do	32	1
Fire-guards	....do	32	1
Jump	....do	44	1
Openers—			
Cab-door	....do	15	1
Car-door	....do	45	1
Car-platform	....do	46	1
Hatch	....do	38	1
Sliding-door	....do	21	1
Swinging-door	....do	52	1
Window	....do	23	1
Oscillating	....do	22	1
Race-starters	....do	10	1
Railway	....do	12	1
Railway—			
Cattle-guard	....do	121	1
Electric	....do	24	1
Mast	....do	64	1
Mast—			
Automatic	....do	61	1
Platform-guard	....do	11	1
Pneumatic	....do	49	1
Rocking	....do	52	1
Sliding	....do	50	1
Swinging	....do	61	1
Vertically-moving	....do	55	1
Sliding	....do	79	1
Sliding—			
Lever-openers	....do	117	1
Pulley or rack openers.	....do	75	1
Suspended	....do	58	1
Vibrating tracks	....do	58	1
Sliding and swinging	....do	44	1
Sliding and swinging—			
Hinged-roller	....do	124	1
Suspending-frames	....do	136	1
Swinging	....do	74	1
Swinging—			
Folding-panel	....do	144	1
Hand-openers	....do	485	1
Load-openers	....do	139	1
Rotary	....do	34	1

Subclass.	Class.	No. of patents in subclass.	Division.
Gates—			
Swinging—			
Self-closers	Fences	63	1
Tilting	do	64	1
Vertically-adjustable.	do	150	1
Tilting	do	107	1
Tilting—			
Folding-panel	do	68	1
Turnstiles	do	9	1
Wire	do	47	1
Wire—			
Frameless	do	36	1
Gear-cutting	Metal Turning, Planing, and Milling.	135	13
Gearing	Harvesters	150	7
Gearing	Machine Elements	201	12
Gearing	Wind-Wheels	44	28
Gearing—			
Belt	Machine Elements	165	12
Frictional	do	207	12
Planetary	do	86	12
Planetary—			
Eccentric	do	39	12
Screw	do	44	12
Screw and nut	do	34	12
Sectional	do	72	12
Sprocket	do	69	12
Sprocket—			
Sprocket-chains	do	160	12
Sprocket-chains—			
Endless-belt	do	22	12
Solid-link	do	144	12
Solid-link and coupler.	do	55	12
Teeth and bodies	do	96	12
Yieldable	do	47	12
Gem-setting	Jewelry	107	5
General	Electricity. Electric Railways.	34	26
Gibs and keys	Machine Elements	125	12
Gilding. Leaf-	Fine Arts	36	5
Gin—			
Attachments	Brakes and Gins	31	21
Brushes	do	15	21
Condensers	do	52	21
Feeders	do	72	21
Feeders—			
Pneumatic	do	56	21
Ribs	do	47	21
Rollers	do	9	21
Saw-cleaners	do	16	21
Saws	do	24	21
Girders and columns	Towers	241	12
Glass and stone—			
Curved surfaces	Grinding and Polishing	104	27
Plane surfaces	do	281	27
Glass-annealing—			
Flattening-tables	Annealing and Tempering	17	3
Hearths	do	16	3
Leers	do	32	3
Leers—			
Grids	do	22	3
Muffles	do	1	3
Processes	do	12	3
Glass-enameling	Glass	78	15
Globe attachments	Lamps and Gas-Fittings	13	30
Globes	Educational Appliances	52	31
Globes	Lamps and Gas-Fittings	77	30
Glove-fastenings	Buckles, Buttons, Clasps, Etc.	33	11
Glove-sewing machines	Sewing-Machines	39	24
Glucose	Sugar and Salt	127	6
Glue	Oils, Fats, and Glue	110	31
Glue-pots	Stoves and Furnaces	25	19
Glutinous	Artificial Stone	44	15
Governor	Steam-Engine Valves	58	18
Governors, speed	Steam-Engines	142	18
Grafting	Trees, Plants, and Flowers	51	1
Grain-drill cleaners	Seeders and Planters	25	1
Graining and draining	Sugar and Salt	55	6
Grain-meter	Measuring Instruments	174	23
Grain-meters—			
Double-trap bottom	do	60	23
Oscillating	do	148	23
Positively-actuated	do	59	23
Rotating	do	132	23
Twin buckets	do	50	23
Grain-scourers—			
Centrifugal	Mills	51	25
Concave-face	do	67	25
Conical	do	122	25
Cylinder—			
Horizontal	do	243	25
Vertical	do	238	25
Disk-face	do	79	25
Pestle-action	do	25	25
Grain-scourers—			
Reciprocating and endless.	Mills	32	25
Screw-action	do	33	25
Grain-separators—			
Gravity	Threshing	228	25
Oat, seed, and garlic	do	215	25
Rotary screens	do	105	25
Screens and riddles	do	85	25
Shaking screens	do	749	25
Grain-tallies	Measuring Instruments	88	23
Grain wheels and casters	Harvesters	35	7
Granaries and bins	Threshing	36	25
Granulating	Shaping Fluid Metal	28	3
Granulating	Tobacco	28	2
Graphophones	Acoustics	145	23
Graphophone-tablets	do	43	23
Grapples	Hoisting	223	12
Grates	Stoves and Furnaces	124	19
Grates—			
Adjustable	do	62	19
Compound-movement	do	71	19
Cut-offs	do	20	19
Fireplace	do	124	19
Raking attachments	do	53	19
Reciprocating	do	125	19
Rocking-bar	do	438	19
Rotary	do	217	19
Vertical-movement	do	45	19
Grates and grate-bars, stationary.	do	283	19
Gridirons	do	305	19
Grilles	Iron Structures	18	4
Grinding-mills—			
Balancing millstones	Mills	50	25
Ball and drum	do	168	25
Bark	do	67	25
Chasing	do	253	25
Coffee	do	118	25
Compound-movement	do	163	25
Cone and shell	do	255	25
Crushing-rolls	do	465	25
Cylinder and concave	do	193	25
Disk-action—			
Horizontal	do	200	25
Vertical	do	202	25
Feed-regulators	do	278	25
Grain-samplers	do	19	25
Grist-alarms	do	26	25
Hominy	do	68	25
Impact-pulverizer	do	31	25
Knife-action	do	128	25
Mill-spindles	do	290	25
Millstone-dress	do	189	25
Millstone-exhaust	do	105	25
Millstone-trams	do	8	25
Paint	do	38	25
Rotary beaters	do	206	25
Grippers	Railways	68	34
Grippers—			
Automatic release	do	59	34
Coal-car	do	28	34
Friction	do	184	34
Friction-belt	do	13	34
Overstepping	do	17	34
Roller	do	49	34
Sprocket-wheel	do	51	34
Whelp-wheel	do	22	34
Grooming	Care of Live Stock	29	2
Guard-rail clamps	Railways	29	34
Guards	Lamps and Gas-Fittings	22	30
Guards for pedals	Music	18	5
Gudgeons	Journal-Boxes, Pulleys, and Shafting.	7	12
Guide-machines	Linotyping	10	30
Guides	Sewing-Machines	282	24
Guiding	Cloth-Finishing	24	21
Guitar-bridges	Music	17	5
Guitars	do	34	5
Guitars—			
Capo tastos	do	15	5
Gun and pistol holders	Accoutrements	20	32
Gun-barrels	Arms and Projectiles. Making	18	13
Gun-barrels	Firearms	52	22
Gun-mounts	Ordnance	30	22
Gunpowder	Explosives	89	6
Guns—			
Air and spring	Firearms	241	22
Blow	do	16	22
Breech-loading—			
Barrel hinged to stock.	do	16	22
Barrel rotating on parallel pin.	do	28	22
Barrel sliding forward.	do	30	22

Subclass.	Class.	No. of patents in subclass.	Division.
Guns—			
Breech-loading—			
Barrel swinging laterally on vertical pin.	Firearms	20	22
Barrel tilting up at breech.	do	231	22
Barrel tilting up at breech—			
Ejectors—			
Elbow	do	9	22
Hammer	do	41	22
Plunger	do	20	22
Extractors	do	68	22
Single-trigger	do	20	22
Barrel tilting up at muzzle.	do	2	22
Breech-block drawn back by hand or lever, (bolt-gun.)	do	198	22
Breech-block sliding laterally in mortise.	do	8	22
Breech-block sliding vertically in mortise.	do	97	22
Breech-block swinging backward and downward.	do	177	22
Breech-block swinging downward and backward.	do	62	22
Breech-block swinging laterally backward.	do	10	22
Breech-block swinging laterally forward.	do	7	22
Breech-block swinging on center or trunnions.	do	9	22
Breech-block swinging on longitudinal pin or hinge.	do	71	22
Breech-block swinging upward and backward.	do	34	22
Breech-block swinging upward and forward.	do	61	22
Faucet breech-block, chambered.	do	4	22
Faucet breech-block with chamber in front.	do	9	22
Gas-operated	do	33	22
Recoil-operated	do	16	22
Rotating sleeve on barrel.	do	2	22
Cane	do	22	22
Cartridge-holders, temporary.	do	38	22
Magazine	do	187	22
Magazine—			
Barrel hinged to stock.	do	8	22
Barrel rotating on parallel pin.	do	8	22
Barrel sliding forward.	do	31	22
Barrel tilting up at breech.	do	3	22
Breech-block sliding laterally in mortise.	do	7	22
Breech-block sliding vertically in mortise.	do	22	22
Breech-block swinging backward and downward.	do	37	22
Breech-block swinging downward and backward.	do	27	22
Breech-block swinging laterally forward.	do	4	22
Breech-block swinging on center or trunnions.	do	3	22
Breech-block swinging on longitudinal pin or hinge.	do	10	22
Breech-block swinging upward and backward.	do	5	22
Breech-block swinging upward and forward.	do	5	22
Guns—			
Magazine—			
Longitudinally-reciprocating breech-bolt—			
Firing-pin impelled by rotating hammer.	Firearms	189	22
Spring-impelled firing-pin.	do	138	22
Rotating carrier	do	34	22
Rotating carrier filled from a fixed magazine and discharged in the carrier.	do	33	22
Gun-trimmings	do	11	22
Gutters	Paving	98	15
Hackling-machines	Brakes and Gins	87	21
Hair-crimpers	Toilet	87	24
Hair-curlers	do	100	24
Hair-curlers—			
Rotary	do	16	24
Self-heating	do	13	24
Hair dyes and tonics	Medicines	43	6
Hair-fasteners	Toilet	52	24
Hair-pickers	Brakes and Gins	52	21
Hair structures	Toilet	51	24
Hair structures—			
Making	do	25	24
Hame-fasteners	Harness	271	11
Hames	do	369	11
Hame-tugs	do	275	11
Hammers	Metal Tools and Implements. Making	39	13
Hammers and hatchets	Woodworking-Tools	244	29
Hammers, piano-actions	Music	22	5
Hammocks	Beds	85	8
Hammocks—			
Stretchers	do	30	8
Supports	do	69	8
Hand attachments, exercising devices.	Music	7	5
Hand-barrows	Carriages and Wagons	26	10
Hand-binders—			
Attachments	Harvesters	18	7
Elevated delivery—			
Rear	do	40	7
Side	do	105	7
Flat delivery	do	15	7
Manual traction	do	12	7
Hand-cars	Railway Rolling-Stock	12	34
Hand-cars—			
Geared	do	67	34
Hand-coverings—			
Base-ball	Apparel	25	24
Bath	do	7	24
Boxing	do	12	24
Gloves	do	137	24
Mittens	do	57	24
Muffs	do	46	24
Shields	do	9	24
Handle-bars. Steering-heads and	Velocipedes	226	7
Handles	Builders' Hardware	140	20
Handles	Plows	41	1
Handles, braces	Builders' Hardware	7	20
Handles, coffin	do	99	20
Handles and sticks	Umbrellas and Canes	117	34
Hand-levers	Railway-Brakes	11	34
Hand-levers—			
Ratchet-drum	do	10	34
Ratchet-segment	do	34	34
Hand nailing implements.	Boots and Shoes	212	11
Hand-oilers	Metallic Dispensing-Cans	42	32
Hand-oilers—			
Attachments	do	10	32
Bottom-springs	do	14	32
Compartment	do	7	32
Drip-catchers	do	9	32
Drip-catchers—			
Return	do	10	32
Return—			
Valved	do	11	32
Vents	do	11	32
Droppers	do	10	32
Feed-controllers	do	10	32
Feed-controllers—			
Automatic	do	10	32
Bottom	do	13	32
Spout	do	7	32
Stem	do	15	32
Stem—			
Lever	do	19	32
Forced-feed	do	14	32
Forced-feed—			
Bottom-actuated	do	7	32
Bulb	do	7	32

Subclass.	Class.	No. of patents in subclass.	Division.
Hand-oilers—			
Forced-feed—			
Nozzle-actuated	Metallic Dispensing-Cans	9	32
Pump	do	13	32
Pump—			
Air	do	10	32
Holders	do	10	32
Holders—			
Rod	do	7	32
Illuminating	do	16	32
Spouts	do	21	32
Spouts—			
Cleaning-pins	do	12	32
Closing-caps	do	10	32
Vented	do	24	32
Handpieces	Dentistry	113	20
Handpieces—			
Angle attachments	do	37	20
Hand-rakers	Harvesters	103	7
Hand-rests	Stationery	96	5
Hand-rubbers	Laundry	38	27
Handsaw attachments	Woodworking-Tools	35	29
Handsaws	do	204	29
Hand-screens	Trees, Plants, and Flowers	84	1
Hand-stamps	Printing	61	17
Hand-stamps—			
Check-punches	do	130	17
Head and handle	do	88	17
Head and handle—			
Inking attachment	do	29	17
Mutilators	do	77	17
Roller	do	12	17
Roller—			
Inking attachment	do	45	17
Inking attachment	do	103	17
Mutilators	do	23	17
Sealing-tools	do	47	17
Settable type-carrier	do	42	17
Settable type-carrier—			
Clock-set	do	67	17
Inking attachment	do	62	17
Tumblers	do	53	17
Hangers	Railway-Brakes	31	34
Hangers. Supports and	Electricity. Conductors	53	26
Hanging baskets	Trees, Plants, and Flowers	20	1
Hanks, cringles, and hoops.	Ships	100	22
Harbors	Hydraulic Engineering	6	4
Hardening apparatus	Annealing and Tempering	36	3
Hardening apparatus—			
Bands and wire	do	38	3
Clamps	do	34	3
Hardening processes	do	49	3
Hardening processes—			
Molten metal	do	2	3
Solutions	do	53	3
Hard rubber	Caoutchouc and Minor Plastics.	58	15
Harmonicas	Music	37	5
Harmonica-supports	do	9	5
Harmonic attachments	do	18	5
Harmonic dampers	do	7	5
Harmonic dampers—			
Violin	do	13	5
Harmony and transposition charts.	do	42	5
Harmony-charts	do	15	5
Harness	Harness	414	11
Harness—			
Attachments	do	540	11
Machines	do	219	11
Pads	do	223	11
Saddles	do	495	11
Tools	do	52	11
Harpoons and spears	Fishing and Trapping	18	22
Harps	Music	20	5
Harps and hangers	Lamps and Gas-Fittings	390	30
Harrows	Harrows and Diggers	302	1
Harrows—			
Changeable-form	do	25	1
Disk	do	255	1
Expansible	do	86	1
Flexible	do	72	1
Revolving	do	93	1
Rotary	do	161	1
Spring-tooth	do	101	1
Tooth-cleaners	do	22	1
Wheel	do	196	1
Wheel—			
Disk	do	19	1
Rotary	do	21	1
Spring	do	73	1
Trailing teeth	do	27	1
Harrow-teeth—			
Spike	do	40	1
Spring	do	146	1
Trailing and draw-cut	do	28	1
Harvester-irons	Metal Tools and Implements. Making	86	13
Hasp-fasteners	Locks and Latches	61	20
Hat and coat racks	Furniture	99	8
Hat and fur cases	Baggage	58	32
Hatch-openers	Fences	38	1
Hat-fasteners	Toilet	54	24
Hat-machines—			
Blocks	Apparel Apparatus	30	24
Brim-curlers	do	80	24
Brim-heaters	do	12	24
Brim-trimmers	do	38	24
Brim-wirers	do	9	24
Cleaners	do	17	24
Finishers	do	11	24
Ironers	do	57	24
Pinners	do	20	24
Pouncers	do	111	24
Shapers	do	154	24
Sizers	do	17	24
Stretchers	do	62	24
Sweat-flangers	do	4	24
Hay-forks—			
Corkscrew	Hoisting	16	12
Grapple	do	156	12
Harpoon	do	226	12
Tilting	do	121	12
Hay-loaders—			
Endless belts	Harvesters	193	7
Intermittent	do	64	7
Lifting-reels	do	13	7
Walking-rakes	do	55	7
Hay-racks	Carriages and Wagons	212	10
Hay-slings	Hoisting	100	12
Head-coverings—			
Caps	Apparel	37	24
Caps—			
Flap	do	61	24
Hats	do	152	24
Hats—			
Bands	do	13	24
Brim-bindings	do	48	24
Frames	do	19	24
Shades	do	18	24
Sweats	do	82	24
Tips	do	33	24
Ventilated	do	54	24
Ventilators	do	71	24
Head-coolers	do	12	24
Headers	Harvesters	98	7
Headlights	Lamps and Gas-Fittings	177	30
Head-rests	Railway Rolling-Stock	5	34
Head-screens	Apparel	12	24
Hearses	Carriages and Wagons	12	10
Heat-developed coloring	Glass	12	15
Heaters	Driers	72	28
Heaters	Painting	11	31
Heaters—			
Barrel	Stoves and Furnaces	63	19
Curling-iron	do	38	19
Dish	do	14	19
Electric	do	221	19
Flat-iron	do	166	19
Frictional	do	9	19
Lunch	do	82	19
Solar	do	27	19
Soldering-iron	do	124	19
Heaters and driers	Photography	5	6
Heating-drums	Stoves and Furnaces	422	19
Heating feed-water—			
Furnace-gases	Steam-Boilers	272	18
Steam	do	301	18
Steam-injected	do	343	18
Heating systems—			
Air	Stoves and Furnaces	118	19
Air, steam, or water	do	29	19
Car—			
Air	do	171	19
Steam	do	9	19
Water	do	77	19
Local—			
Air	do	30	19
Steam	do	76	19
Water	do	60	19
Steam	do	94	19
Train—			
Air	do	77	19
Smoke	do	7	19
Steam	do	122	19
Water	do	21	19
Water—			
Steam	do	62	19
Water	do	39	19
Water—			
Steam	do	15	19
Heddle-frames	Weaving	33	21
Heddle-machines	do	43	21
Heddles	do	60	21
Heddles—			
Making	Wire-Working	15	14
Hedge-training	Trees, Plants, and Flowers	141	1

Subclass.	Class.	No. of patents in subclass.	Division.
Hedge-trimmers	Harvesters	79	7
Heel-machines	Boots and Shoes	192	11
Heel-nailing machines	do	253	11
Heels	do	314	11
Heel-stiffener machines	do	161	11
Height-measurers	Coin-Controlled Apparatus	4	14
Helical tools	Hides, Skins, and Leather	82	31
Heliostats	Optics	10	30
Helmets	Apparel	11	24
Hemmers	Sewing-Machines	156	24
Hemp and flax harvesters.	Harvesters	34	7
Hemp, flax, and hair	Spinning	92	21
Hermetic closures	Metallic Shipping and Storing Vessels.	16	32
Hermetic sealers	do	25	32
Hinges	Builders' Hardware	64	20
Hinges	Hardware-Making	75	13
Hinges—			
Awning-blind	Builders' Hardware	18	20
Box	do	64	20
Coach	do	23	20
Concealed	do	26	20
Door	do	70	20
Door—			
Butt	do	99	20
Strap	do	53	20
Flush	do	27	20
Gate	do	104	20
Lock—			
Frictional	do	12	20
Positive	do	239	20
Longitudinally-adjustable.	do	25	20
Safe	do	16	20
Spring	do	279	20
Table	do	30	20
Vertically-adjustable	do	15	20
Hitching devices—			
Posts and post attachments.	Care of Live Stock	110	2
Rotary-arm	do	45	2
Spring-reel	do	23	2
Ties	do	21	2
Travelers	do	16	2
Hitching-straps	Harness	59	11
Hobby-horses	Games and Toys	133	31
Hoes	Harrows and Diggers	108	1
Hoes—			
Adjustable	do	29	1
Compound	do	73	1
Compound—			
Adjustable	do	15	1
Horizontal	do	52	1
Horizontal—			
Adjustable	do	19	1
Interchangeable	do	27	1
Toothed blades	do	12	1
Weeding	do	14	1
Hoes and shovels	Metal Tools and Implements. Making	154	13
Hog-scraping machines	Butchering	31	25
Hoisting-buckets	Hoisting	131	12
Hoists	Fire Escapes and Ladders	42	12
Hoists—			
Fixed guides	do	44	12
Movable guides	do	17	12
Pulley-block	do	51	12
Reciprocating cages	do	26	12
Shooting-spar	do	34	12
Trolley	do	50	12
Holdbacks	Carriages and Wagons	198	10
Holders	Gas	71	31
Holders—			
Brush-head	Brushing and Scrubbing	20	27
Convertible mop and brush.	do	30	27
Copy	Stationery	37	5
Mop-heads	Brushing and Scrubbing	157	27
Pen	Stationery	236	5
Hollow augers	Woodworking-Tools	23	29
Hollow grates—			
Air	Steam-Boiler Furnaces	78	18
Water	do	78	18
Hollow piston-rod	Pumps	76	9
Hollow piston-rod—			
Double-acting	do	108	9
Double-acting—			
One solid piston	do	11	9
Multiple cylinder	do	18	9
Hollow-tile walls	Masonry	12	4
Hoods	Apparel	21	24
Hoof and shoe spreaders	Farriery	80	14
Hoof cleaners and trimmers.	do	72	14
Hoof-pads	do	62	14
Hooks	Buckles, Buttons, Clasps, Etc.	168	11
Hooks—			
Foldable	Buckles, Buttons, Clasps, Etc.	45	11
Hat-hangers	do	17	11
Hat-holders	do	87	11
Hooks and clasps combined.	do	30	11
Guarded	do	77	11
Lock	do	106	11
Picture	do	24	11
Pneumatic	do	10	11
Removable	do	93	11
Spring-bill	do	37	11
Suspension devices	do	70	11
Twin	do	36	11
Two-part	do	4	11
Hooks and eyes	do	168	11
Hoop-drivers	Coopering	75	29
Hoops. Trundles and	Games and Toys	48	31
Hop culture	Trees, Plants, and Flowers	102	1
Hopples	Care of Live Stock	62	2
Horse-boots	Harness	115	11
Horse-collars	do	390	11
Horse-detachers	Carriages and Wagons	434	10
Horse-rakes—			
Draft-dumpers	Harvesters	346	7
Drags	do	124	7
Hand-dumpers	do	395	7
Hay-cockers	do	32	7
Rake-teeth	do	98	7
Side-delivery	do	29	7
Horseshoe-bars. Making	Chains, Staples, and Horseshoes.	110	13
Horseshoe-calks. Making	do	124	13
Horseshoe-machines	do	267	13
Horseshoe-nail—			
Blank-finishing	Nails and Spikes	135	13
Cutting	do	72	13
Forging	do	159	13
Hose and tubing	Hose and Belting	180	11
Hose-bridges	Railways	68	34
Hose-carriages	Carriages and Wagons	96	10
Hose-machines	Hose and Belting	54	11
Hose-patches	Water Distribution	48	4
Hot-air registers	Stoves and Furnaces	190	19
Hot-blast ovens—			
Double-surface	Metallurgy	71	3
Single-surface	do	80	3
Hot-blast valves	do	38	3
Hounds	Carriages and Wagons	47	10
Household, sifters and screens.	Mills	764	25
Houses and kilns	Driers	200	28
Houses, apartment	Masonry	35	4
House-wiring	Electricity. Conductors	60	26
Hub-attaching devices	Carriages and Wagons	422	10
Hub-caps	do	50	10
Hubs	do	738	10
Hydrants and plugs	Water Distribution	636	4
Hydraulic motors—			
For cranes	Hydraulic Motors	218	9
For elevators	do	43	9
For elevators—			
Valves	do	133	9
Varying power	do	62	9
For jacks	do	53	9
For presses	do	105	9
For presses—			
Valves	do	29	9
Varying power	do	81	9
Oscillating	do	56	9
Hydraulic propellers	Marine Propulsion	80	22
Hydrogen-platinum lights.	Lamps and Gas-Fittings	18	30
Hydrometers	Measuring Instruments	30	23
Hydrostatic scales	do	31	23
Hygroscopes	do	19	23
Ice boats and breakers	Ships	36	22
Ice-cream freezers	Refrigeration	215	28
Ice-cream freezers—			
External freezing	do	63	28
Ice-creepers	Boots and Shoes	208	11
Ice-crushers	Mills	33	25
Ice-machines	Refrigeration	520	28
Ice picks and shavers	Mills	91	25
Idle-pulley supports	Journal-Boxes, Pulleys, and Shafting.	18	12
Igniting devices—			
Automatic	Electricity. Special Applications.	156	16
Inductional	do	32	16
Manual	do	106	16
Portable	do	32	16
Implements	Firearms	141	22
Implements	Plastering	109	15
Implements	Refrigeration	139	28
Implements	Ships	85	22

Subclass.	Class.	No. of patents in subclass.	Division.
Incandescent lights	Electric Lighting	335	16
Incandescent lights—			
Special features	do	308	16
Stopper	do	92	16
Inclined planes	Railways	7	34
Inclined planes—			
Traction	do	33	34
Incrustation	Steam-Boilers	68	18
Incubators	Care of Live Stock	137	2
Indenting and filling machines.	Painting	5	31
Independent-reservoir lamps.	Lamps and Gas-Fittings	331	30
Indexing	Bookbinding	164	5
Indexing—			
Card-catalogues	do	25	5
Cutting and printing	do	22	5
Index-wheel	Type-Writing Machines	128	30
Indicators	Electric Signaling	73	16
Indicators	Music	8	5
Indicators	Signals	58	22
Indicators	Steam-Boilers	366	18
Indicators—			
Barber's turn	Signals	9	22
Bolt-operated	do	33	22
Fluid-pressure-brake piston-indicators.	Railway-Brakes	6	34
Game-counters	Signals	108	22
Identity	do	10	22
Keyboard attachments	do	33	5
Medicine-dose	do	19	22
Office	do	28	22
Peg	do	15	22
Poison	do	9	22
Rotary	do	98	22
Sliding	do	51	22
Station	do	374	22
Station	Electric Signaling	37	16
Induction-coils	Coin-Controlled Apparatus	27	14
Induction-coils	Electricity. Generation	94	26
Inductoriums, transformers, rotary.	do	80	26
Inductoriums, transformers, stationary.	do	123	26
Indurating	Artificial Stone	54	15
Ingots and piles—			
Bar	Metal-Welding	53	13
Beam	do	19	13
Plate	do	52	13
Rail	do	39	13
Tube	do	13	13
Inhalers and respirators	Surgery	323	6
Inhalers and respirators—			
Mask	do	47	8
Injectors and ejectors	Injectors and Ejectors	528	16
Inking apparatus	Printing	90	17
Inking apparatus—			
Composition rollers, making and preserving.	do	33	17
Fountains	do	54	17
Pads and holders	do	42	17
Rollers	do	24	17
Rollers—			
Compositions	do	27	17
Traveling ductor-plate.	do	26	17
Traveling roller and plate.	do	54	17
Inks—			
Copying and sensitive	Painting	31	31
Printing	do	75	31
Writing	do	48	31
Inkstands	Stationery	513	5
Insect-destroyers—			
Catchers	Fishing and Trapping	130	22
Fumigators	do	127	22
Powder-dusters	do	162	22
Insect-guards	Furniture	50	8
Insecticides	Medicines	148	6
Insulating compounds	Caoutchouc and Minor Plastics.	169	15
Insulators	Electricity. Conductors	387	26
Insulators	Music	13	5
Interlocking	Railways	34	34
Interlocking—			
Rods	do	14	34
Selectors	do	25	34
Stands	do	14	34
Stands—			
Catch	do	35	34
Plunger	do	28	34
Internal remedies	Medicines	354	6
Intestine-cleaners	Butchering	28	25
Introducing smoke and gases.	Steam-Boilers	46	18
Iron	Paving	94	15
Iron and steel direct	Metallurgy	50	3
Iron and steel direct—			
Apparatus	Metallurgy	34	3
Bricks	do	35	3
Flux	do	18	3
Gases	do	44	3
Retorts and hearths	do	46	3
Slag	do	12	3
Sponge	do	19	3
Ironing-machines	Laundry	269	27
Ironing-tables	do	467	27
Iron oxids	Coating with Metal	25	3
Irregular forms	Wood-Turning	125	29
Irrigating and sprinkling.	Water Distribution	104	4
Irrigating and sprinkling—			
Carts	do	136	4
Heads	do	29	4
Insertors	do	8	4
Pipes	do	40	4
Pumps	do	44	4
Roses and cans	do	57	4
Shakers	do	29	4
Systems	do	14	4
Jacquard mechanism	Weaving	105	21
Jails	Iron Structures	72	4
Japanning	Painting	29	31
Jar-lifters	Kitchen and Table Articles	51	8
Jar-closures	Bottles and Jars	34	32
Jar-closures—			
Cap	do	36	32
Cap—			
Grooved	do	22	32
Ring	do	27	32
Screw	do	46	32
Screw—			
Inclines	do	21	32
Ring	do	37	32
Clamp	do	32	32
Clamp—			
Lever	do	55	32
Screw	do	41	32
Pivoted	do	40	32
Spring	do	37	32
Spring—			
Bow	do	43	32
Inclines	do	64	32
Packing	do	37	32
Stoppers	do	29	32
Stoppers—			
Expanding	do	16	32
Plug	do	19	32
Plug—			
Screw	do	19	32
Jars	do	32	32
Jars—			
Ejecting	do	16	32
Jaw-braces	Dentistry	7	20
Jetties, sectional	Hydraulic Engineering	15	4
Joining	Wire-Working	121	14
Jointing staves	Coopering	123	20
Journal-boxes	Journal-Boxes, Pulleys, and Shafting.	467	12
Journal-boxes—			
Brasses	do	125	12
Compositions	do	171	12
Guards	do	166	12
Lids	do	138	12
Lubricating	do	378	12
Lubricating—			
Band-applying	do	52	12
Centrifugal	do	52	12
Coolers	do	50	12
Roller-applying	do	50	12
Roller-applying—Elastically-supported.	do	121	12
Yieldably-supported pads.	do	138	12
Roller-bearings—			
Ball	do	204	12
Ball and cylinder	do	35	12
Cylinder	do	99	12
Cylinder—			
Circular series	do	398	12
Thrust-bearings	do	101	12
Jugs	Bottles and Jars	11	32
Justifying devices	Linotyping	25	30
Kaleidoscopes	Optics	15	30
Keyboard attachments, exercising devices.	Music	5	5
Keyboard, exercising devices.	do	18	5
Keyboards	Type-Writing Machines	44	30
Keyboards and keys	Music	87	5
Keyboard self-playing attachments.	do	48	5
Keyed zithers	do	8	5
Key-fasteners	Locks and Latches	70	20
Key-fasteners—			
Portable	Locks and Latches	59	20
Key-holders	Chains, Staples, and Horse-shoes.	62	13
Key-holding devices	Music	10	5
Keyhole-guards	Locks and Latches	45	20
Keyhole-guards—			
Sliding and pivoted	do	70	20
Key-seat cutters	Metal Turning, Planing, and Milling.	55	13
Key-wheel	Type-Writing Machines	171	30
Key-wheel—			
Miscellaneous	do	17	30
Keys	Locks and Latches	98	20
Keys	Telegraphy	133	16
Keys and keyboards	Music	87	5
Keys and keyboards—			
Touch-regulators	do	15	5
Kilns	Hydraulic Cement and Lime	222	15
Kinetoscopes	Optics	28	30
King-bolts	Carriages and Wagons	55	10
Kitchen-cabinets	Furniture	213	8
Kites	Games and Toys	33	31
Knapsacks and haversacks.	Accoutrements	28	32
Knapsack-slings	do	55	32
Knee-swells	Music	7	5
Knife-erasers	Stationery	45	5
Knitting and netting—			
Circular—			
Circular machines	Knitting and Netting	95	21
Independent needles	do	523	21
Looper pin and hook machines.	do	36	21
Straight—			
Cams and stops	do	17	21
Fashioning-machines.	do	87	21
Looper pin and hook machines.	do	17	21
Straight machines	do	214	21
Warp-machines	do	44	21
Knives	Cutlery	248	15
Knives—			
Gage	do	48	15
Hay	do	53	15
Pocket	do	222	15
Knob attachments	Locks and Latches	67	20
Knob attachments—			
Key-fastener	do	17	20
Screw-spindle	do	68	20
Set-screw and pin-fastener.	do	47	20
Spring-fastener	do	43	20
Wedge-fastener	do	29	20
Knob-roses	do	30	20
Knobs	do	110	20
Knob-spindle fasteners	do	36	20
Label-affixers	Label-Affixers	55	2
Label-affixers—			
Cutter and plunger	do	72	2
Magazine	do	42	2
Pickers	do	17	2
Runway-machines	do	126	2
Runway-machines—			
Label-bed	do	49	2
Label and tag machines	Paper Manufactures	55	17
Label-holders	Advertising	53	32
Label-holders—			
Clip	do	31	32
Freight-car	do	33	32
Hat	do	14	32
Slide	do	35	32
Street-car	do	12	32
Labels	do	28	32
Lacing-studs	Buckles, Buttons, Clasps, Etc.	157	11
Lacing-studs—			
Plastic-head	do	29	11
Lactometers	Measuring Instruments	16	28
Ladders	Fire Escapes and Ladders	25	12
Ladders—			
Collapsible	do	9	12
Escape—			
Balcony	do	72	12
Fixed	do	76	12
Mounting	do	33	12
Sectional hand	do	13	12
Shooting and truck	do	180	12
Trolley	do	22	12
Extension	do	62	12
Feet	do	20	12
Flexible	do	90	12
Flexible—			
Reel	do	86	12
Sectional	do	92	12
Sectional—Elevator	do	23	12
Single-stile	do	37	12
Ladders—			
Flexible—Trolley	Fire Escapes and Ladders	10	12
Hooks	do	18	12
Jacks	do	39	12
Sectional	do	34	12
Sleeping-car	Railway Rolling-Stock	12	34
Step	Fire Escapes and Ladders	395	12
Step—			
Store-service	do	32	12
Stops	do	95	12
Trussed	do	10	12
Ladles	Kitchen and Table Articles	18	8
Lamp attachments	Lamps and Gas-Fittings	28	30
Lampblack	Painting	78	31
Lamp-boxes	Lamps and Gas-Fittings	13	30
Lamp-burners	do	730	30
Lamp-burners—			
Argand	do	140	30
Multiple-wick	do	97	30
Lamp-lighting attachments.	do	79	30
Lamps	do	59	30
Lamps—			
Bicycle	do	64	30
Bracket	do	13	30
Carriage	do	33	30
Cigar-lighting	do	25	30
Flash	do	48	30
Forced-draft	do	65	30
Independent-reservoir	do	331	30
No-chimney	do	96	30
Safety-tube and central-draft—			
Draw-bar	do	106	30
Miscellaneous	do	53	30
No-raiser	do	243	30
Rack-bar	do	65	30
Screw-rod	do	54	30
Swiss screw	do	41	30
Special	do	90	30
Street	do	153	30
Lampwork	Sheet-Metal Ware. Making	13	14
Land-markers	Seeders and Planters	115	1
Land-rollers	Harrows and Diggers	38	1
Land-rollers—			
Furrowers and markers.	do	30	1
Pivoted	do	49	1
Weighted cylinders	do	24	1
Weighted frames	do	18	1
Landsides	Plows	42	1
Lantern-holders	Lamps and Gas-Fittings	116	30
Lanterns	do	411	30
Lanterns—			
Dark	do	13	30
Signal	do	121	30
Submarine	do	16	30
Tubular	do	306	30
Lapping	Carding	24	21
Lard-coolers	Refrigeration	48	28
Laryngoscopes	Surgery	10	6
Lasting and lasting-tools	Boots and Shoes	166	11
Lasting-machines	do	286	11
Lasts	do	337	11
Latches and locks combined.	Locks and Latches	208	20
Latches—			
Automatic detent	do	25	20
Gate	do	256	20
Gravity	do	70	20
Lifting	do	115	20
Lifting—			
Hooked end	do	45	20
Pivoted end	do	59	20
Reversible	do	172	20
Sliding	do	269	20
Swinging	do	50	20
Lath and chain	Driers	23	28
Lathe appliances	Wood-Turning	77	29
Lathe-chucks	Metal Turning, Planing, and Milling.	241	13
Lathing	Carpentry	66	29
Lathing	Iron Structures	97	4
Lathing—			
Wire	do	53	4
Laundries	Laundry	19	27
Lawn-mowers	Harvesters	315	7
Lawn-mowers—			
Grass-catchers	do	63	7
Lawn-tennis	Games and Toys	54	31
Lawn-vases	Trees, Plants, and Flowers	15	1
Lay structures	Weaving	9	21
Lazy-tongs	Fire Escapes and Ladders	115	12
Lead	Metallurgy	43	3
Lead-covered	Electricity. Conductors	56	26
Lead salts	Painting	203	31
Leaf-gilding	Fine Arts	36	5
Leaf-turners	Music	157	5

Subclass.	Class.	No. of patents in subclass.	Division.
Leaf-turners—			
Spring and gravity	Music	114	5
Leak-alarms	Signals	20	22
Leak-stoppers	Ships	28	22
Lease-formers	Cordage	8	21
Lease-rods	Weaving	6	21
Leather-measuring	Measuring Instruments	18	23
Leather-workers' hardware.	Hardware-Making	77	13
Leaves	Bookbinding	196	5
Leaves and covers	do	11	5
Leg-joints	Artificial Limbs	211	30
Legs	do		
Legs—			
Piano	Music	2	5
Lenses	Optics	83	30
Letter-box bells	Signals	27	22
Letter-boxes	Packing and Storing Vessels	22	22
Letter-boxes—			
Chutes—			
Discharge	do	9	32
Double-trap	do	11	32
Receiving	do	28	32
Receiving—			
Rotary	do	28	32
Detachable receptacle	do	24	32
House	do	21	32
House—			
Closures—			
Bottom	do	11	32
Pivoted-body	do	30	32
Sliding	do	9	32
Collection and delivery.	do	24	32
Door-jamb lock	do	9	32
Name-plate	do	23	32
Package	do	30	32
Signal	do	31	32
Indicators	do	28	32
Parcel	do	29	32
Leveling instruments	Optics	268	30
Levels. Plumb-	Measuring Instruments	128	23
Lewises	Hoisting	10	12
Life-boats	Boats	145	22
Life-preservers	do	164	22
Life-rafts	do	119	22
Lifters—			
Barrel and box	Hoisting	28	12
Picture	do	16	12
Spittoon	do	12	12
Spool	do	8	12
Store goods	do	34	12
Lifting-jacks	do	57	12
Lifting-jacks—			
Bar and cam-lever	do	83	12
Lever	do	284	12
Lever and lifting-bar	do	330	12
Lever, bar, and clutch-loop.	do	76	12
Lever, bar, and double-acting pawls.	do	60	12
Lever, bar, and pawl	do	103	12
Rack and pinion	do	103	12
Screw	do	179	12
Light and air ports	Ships	32	22
Lighting implements	Lamps and Gas-Fittings	101	30
Lighting systems	do	7	30
Lightning-arresters	Telegraphy	62	16
Lightning-arresters—			
Magnetic	do	58	16
Thermal	do	39	16
Lightning-rods	Electricity. Conductors	241	26
Lights—			
Arc—			
Gravity-feed	Electric Lighting	38	16
Gravity-feed—			
Clutch	do	76	16
Double dog-clutch	do	87	16
Gear-clutch	do	279	16
Pivot dog-clutch	do	96	16
Ring-clutch	do	149	16
Positive-feed	do	25	16
Positive-feed—			
Clutch	do	28	16
Electric gear-clutch.	do	35	16
Gear-clutch	do	36	16
Step gear-clutch	do	60	16
Special features	do	214	16
Christmas-tree	Lamps and Gas-Fittings	47	30
Decorative	do	20	30
Head	do	177	30
Hydrogen-platinum	do	18	30
Signal	do	49	30
Light-signals	Railways	68	34
Lime	Hydraulic Cement and Lime	24	15
Lining	Metal-Tube Manufacture	13	13
Links. Detachable	Chains, Staples, and Horseshoes.	90	13
Linotype-making	Linotyping	15	30
Linotypes	Linotyping	7	30
Liquid-sterilizers	Stoves and Furnaces	31	19
Loading	Ordnance	24	22
Loading and unloading	Loading and Unloading	82	4
Loading and unloading—			
Hay	do	7	4
Hoist and dump	do	27	4
Hoist, raised track, and dump.	do	64	4
Load-binders	do	39	4
Pilers	do	74	4
Raised track	do	58	4
Raised track—			
Track-end dump	do	33	4
Track-end dump—			
Tilting track-section.	do	28	4
Scoop, hoist, carry, and dump.	do	29	4
Shoveling devices	do	107	4
Tilting platform	do	120	4
Vertical hoist and dump.	do	146	4
Load-regulated	Railway-Brakes	34	34
Loan-receptacles	Coin-Controlled Apparatus	35	14
Lockets	Jewelry	63	5
Lock-strikes	Locks and Latches	53	20
Lock-strikes—			
Electric	do	29	20
Lock-trimmings	do	147	20
Locks	Firearms	226	22
Locks	Locks and Latches	110	20
Locks	Ordnance	25	22
Locks	Velocipedes	20	7
Locks—			
Alarm	Locks and Latches	100	20
Alarm—			
Detonating	do	11	20
Bag	do	73	20
Bicycle	do	61	20
Car-seat	do	20	20
Cylinder	do	207	20
Cylinder—			
Knob	do	51	20
Multiple-key	do	16	20
Electric	do	51	20
Electric—			
Combination	do	23	20
Time	do	14	20
For pedals	Music	11	5
Hasp	Locks and Latches	85	20
Indicator	do	20	20
Multiple-bolt	do	25	20
Multiple-key	do	6	20
Multiple-key—			
Adjustable tumbler	do	15	20
Master-key	do	19	20
Primary and secondary key.	do	16	20
Trap	do	10	20
Piano	do	43	20
Pin	do	56	20
Pin—			
Multiple-key	do	17	20
Pivoted-tumbler	do	119	20
Seal	do	219	20
Seal—			
Seals	do	16	20
Sliding-door	do	67	20
Sliding-tumbler	do	48	20
Systems of locks	do	9	20
Till	do	14	20
Time	do	189	20
Trunk	do	74	20
Trunk—			
Swinging-hasp	do	64	20
Tumbler and dog	do	37	20
Without tumblers	do	53	20
Locks and latches combined.	do	206	20
Locomotive	Steam-Engines	112	18
Locomotive—			
Connected series	Railway-Brakes	21	34
Shoes between drivers	do	40	34
Locomotives	Railway Rolling-Stock	122	34
Locomotives—			
Belt-gearing	do	32	34
Draw-bar lifters	do	14	34
Electric	do	18	34
Electric—			
Belt-gearing	do	23	34
Friction-roller driven.	do	18	34
Geared	do	87	34
Intermittent-grip	do	6	34
Longitudinal gear-shafts.	do	36	34
Longitudinal worm-shafts.	do	21	34
Friction-roller driven	do	23	34

Subclass.	Class.	No. of patents in subclass.	Division.
Locomotives—			
Intermittent-grip	Railway Rolling-Stock	8	34
Longitudinal shafts	do	15	34
Rack-rail	do	11	34
Side-track push-rods	Railway Draft Appliances	6	34
Swinging bogie	Railway Rolling-Stock	33	34
Telescoping pilots	do	12	34
Tenders	do	7	34
Traction-increasers	do	40	34
Traction-increasers—			
Electric	do	17	34
Gripping-drivers	do	11	34
Logging	Railways	40	34
Log-turners	Wood-Sawing	140	29
Looms—			
Bag	Weaving	18	21
Basket	do	6	21
Buttonhole	do	5	21
Circular	do	44	21
Hair-cloth	do	34	21
Hand	do	85	21
Irregular	do	8	21
Lappet	do	19	21
Looms	do	245	21
Narrow-ware	do	43	21
Needle	do	34	21
Pile-fabric—			
Longitudinal wires	do	8	21
Pile-fabric	do	82	21
Pile-wire motions	do	45	21
Pile-wires	do	19	21
Terry	do	17	21
Tufted	do	48	21
Slat, cane, and straw	do	58	21
Swivel	do	33	21
Weft-supplying mechanism.	do	31	21
Wire	do	25	21
Loose-reed motions	do	14	21
Lozenge-machines	Bread, Cracker, and Lozenge Making.	48	15
Lubricants	Metal-Drawing	23	13
Lubricants	Oils, Fats, and Glue	190	31
Lubricating	Projectiles	12	22
Lubricators	Steam-Engines	63	18
Lubricators—			
Capillary attraction	Lubricators	42	2
Condensation displacement.	do	344	2
Force-feed	do	368	2
Gravity-feed	do	441	2
Gravity-feed—			
Automatic cut-off	do	131	2
Liquefiers	do	41	2
Miscellaneous	do	117	2
Luggage-carriers	Velocipedes	6	7
Lumber-wagons	Carriages and Wagons	53	10
Machine attachments	Linotyping	22	30
Machine-brakes	Machine Elements	199	12
Machine-brakes—			
Centrifugal speed-regulators.	do	63	12
Stop mechanism	do	19	12
Strap	do	35	12
Machine-guns	Ordnance	154	22
Machine-needles. Making	Needles and Pins	92	13
Machines	Leather-Working Machinery	42	11
Machines for coating	Caoutchouc and Minor Plastics.	50	15
Machines for covering	Electricity. Conductors	101	26
Machine-tables	Woodworking-Machines	92	29
Magic lanterns	Optics	82	30
Magnetic clutch	Clutches	10	2
Magnetic clutch	Railway-Brakes	22	34
Magneto-electric—			
Armatures—			
Disk	Electricity. Generation	23	26
Drum	do	201	26
Pole	do	19	26
Ring	do	176	26
Bipolar	do	279	26
Brushes and holders	do	168	26
Commutators and collectors.	do	153	26
Connecting devices	do	15	26
Hand-machines	do	141	26
Multipolar	do	255	26
Uniform field	do	28	26
Mail-bag delivery—			
Car-forks	Railway Rolling-Stock	32	34
Catchers and cranes	do	82	34
Cranes	do	47	34
Projectors	do	14	34
Mail-bags	Packing and Storing Vessels	20	32
Mail-bags—			
Closures	do	34	32
Closures—			
Angular-frame	do	51	32
Mail-bags—			
Closures	Packing and Storing Vessels	42	32
Flap			
Flap—			
Corner folds	do	11	32
Sliding fastener	do	55	32
Turning fastener	do	19	32
Pivoted-jaw	do	13	32
Top slide	do	13	32
Label-holders	do	26	32
Mail-marking machines	Printing	16	17
Mail-marking machines—			
Rotary	do	50	17
Rotary machines and stackers.	do	27	17
Mains and pipes	Water Distribution	339	4
Mallets	Woodworking-Tools	30	29
Malting apparatus	Alcohol	56	31
Malting apparatus—			
Cylinders, rotary	do	22	31
Malt-stirrers	do	28	31
Malting processes	do	8	31
Mandolin-bridges	Music	2	5
Mandolins	do	13	5
Mandrels	Metal-Tube Manufacture	31	13
Mandrels and work-holders.	Metal Turning, Planing, and Milling.	151	13
Mangles	Laundry	86	27
Manholes	Steam-Boilers	35	18
Manholes, catch-basins, and cesspools.	Sewerage	151	9
Manicure implements	Cutlery	46	15
Mantels	Carpentry	25	29
Mantles	Electric Lighting	58	16
Manual power	Marine Propulsion	116	22
Manure-forks	Harvesters	30	7
Manure-pouches	Care of Live Stock	9	2
Many-spindle lathes	Wood-Turning	31	29
Maps	Educational Appliances	36	31
Marine torpedoes	Projectiles	33	22
Marine ways	Hydraulic Engineering	35	4
Marking-machines	Printing	68	17
Marking-machines—			
Rotary	do	46	17
Marquetry	Carpentry	56	29
Mashing apparatus	Alcohol	9	31
Mashing apparatus—			
Digesters and disintegrators.	do	47	31
Fore-mashers	do	19	31
Mash-tubs	do	32	31
Mash-tubs—			
Rakes	do	50	31
Tubular rakes	do	22	31
Hops	do	22	31
Mashing processes	do	85	31
Mashing processes—			
Wort	do	4	31
Wort—			
Hopping	do	23	31
Purifying	do	16	31
Masks	Apparel	16	24
Masts and spars	Ships	146	22
Match-boxes—			
Igniting	Lamps and Gas-Fittings	82	30
Single-delivery	do	59	30
Matches	Explosives	68	6
Match-safes	Lamps and Gas-Fittings	188	30
Match-splints	Woodworking-Machines	79	29
Match-trays	do	105	29
Materials	Metal-Founding	62	3
Materials	Paper-Making	79	15
Matrices	Dentistry	21	20
Mats	Carpentry	94	29
Mats—			
Metallic	do	28	29
Wire	do	42	29
Mattresses	Beds	105	8
Measures—			
Rotary	Measuring Instruments	50	23
Scale	do	143	23
Shoemakers'	do	22	23
Speed	do	124	23
Tailors'	do	172	23
Tape	do	84	23
Measuring-faucets	do	191	23
Measuring-pumps	do	48	23
Measuring vessels	do	461	23
Meat-clamps	Butchering	22	25
Meat-cutters—			
Cracklings	do	3	25
Crank mechanism	do	121	25
Cube	do	24	25
Cylinder and block	do	47	25
Cylinder and concave	do	162	25
Double-cylinder	do	18	25
Hand	do	50	25
Rocking-knife	do	26	25

Subclass.	Class.	No. of patents in subclass.	Division.
Meat-cutters—			
Slicers	Butchering	74	25
Trip mechanism	do	42	25
Meat-mixers	do	9	25
Meat-tenderers—			
Hand	do	60	25
Pivoted-head	do	19	25
Rotary	do	58	25
Mechanical	Dentistry	150	20
Mechanical motors—			
Horse-powers	Mechanical Motors	41	2
Horse-powers—			
Drivers	do	12	2
Drums	do	142	2
Equalizers	do	45	2
Gears	do	380	2
Treads	do	204	2
Manual	do	258	2
Miscellaneous	do	45	2
Spring	do	492	2
Weight	do	283	2
Mechanical movements	Machine Elements	383	12
Mechanical printing	Photography	91	6
Mechanical puddlers	Metallurgy	42	3
Mechanical puddlers—			
Rotary hearths	do	17	3
Tools	do	21	3
Mechanical telephones	Acoustics	175	23
Mechanical treatment	Sewerage	16	9
Medals	Fine Arts	2	5
Medical and surgical	Electricity. Medical and Surgical.	37	26
Medical and surgical—			
Chairs and couches	do	18	26
Combs and brushes	do	23	26
Electric soles	do	20	26
Exercising apparatus	do	14	26
Vaporizing	do	8	26
Metal—			
Card-grinding	Grinding and Polishing	82	27
Curved surfaces	do	279	27
Cutlery-scourers	do	176	27
Edge-tools	do	487	27
Mower and reaper knives.	do	208	27
Needle-eyes	do	20	27
Needles, rods, and points.	do	47	27
Ornamentation	Fine Arts	116	5
Plane surfaces	Grinding and Polishing	180	27
Rumbles	do	33	27
Screw-machines	Metal Bolts, Nuts, Rivets, and Screws.	174	13
Sheet metal and wire	Grinding and Polishing	51	27
Stock and ornamental wire fabric.	Jewelry	28	5
Strops, hones, and rifles.	Grinding and Polishing	207	27
Metallic	Roofing	141	29
Metallic—			
Sheathing	Iron Structures	110	4
Shingle	Roofing	138	29
Standing-seam	do	79	29
Metalloids	Chemicals	194	6
Metal molds—			
Apparatus and plants	Metal-Founding	40	3
Chains, hinges, and joints.	do	11	3
Hardware	do	70	3
Hollow ware	do	68	3
Ingots	do	90	3
Ingots—			
Compound	do	126	3
Hollow and tube	do	34	3
Plants	do	126	3
Strippers	do	16	3
Ladles	do	56	3
Materials	do	25	3
Ordnance and projectiles.	do	7	3
Pigs	do	12	3
Plows	do	10	3
Rolls	do	25	3
Screw-threads	do	96	3
Soft-metal machines	do	61	3
Soft-metal machines—			
Molds	do	77	3
Shot	do	4	3
Spoons	do	10	3
Traps	do	27	3
Type	do	49	3
Tools	do	18	3
Vehicle-wheels	do	43	3
Wheels	do	10	3
Metal-working, electric	Metal-Welding	269	13
Meters	Electricity. Generation	304	26
Meters—			
Air and gas	Measuring Instruments	158	23
Diaphragm	do	61	23
Meters—			
Disk	Measuring Instruments	56	23
Oscillating	do	144	23
Piston	do	239	23
Proportional	do	65	23
Rotary	do	245	23
Spirit	do	18	23
Methods	Sewing-Machines	80	24
Metronomes	Horology	7	23
Microscopes	Optics	63	30
Milk-cans	Metallic Shipping and Storing Vessels.	38	32
Milk-coolers—			
Aerating	Dairy	24	2
Creaming-cans	do	219	2
Creaming-cans—			
Agitators	do	7	2
Depending-tube	do	31	2
Floats	do	9	2
Vacuum-creamers	do	11	2
Vertical-tube	do	55	2
Milk-circulation	do	64	2
Vats	do	109	2
Vats—			
Air-circulation	do	10	2
Horizontal-tube	do	13	2
Removable-tube	do	30	2
Milk-stools	do	49	2
Mill appliances	Metal-Rolling	253	13
Milling	Metal Turning, Planing, and Milling.	167	13
Milling-cutters	do	60	13
Mills—			
Auxiliary saw	Wood-Sawing	17	29
Circular-saw	do	42	29
Reciprocating-saw	do	232	29
Reciprocating-saw—Scroll	do	233	29
Millstone-dressing machines.	Stone-Working	181	25
Millstone paint-staffs	do	56	25
Millstone-picks	do	97	25
Mining	Hydraulic Engineering	21	4
Mining-machines	Stone-Working	482	25
Mirrors	Furniture	64	8
Mirrors—			
Bracket	do	32	8
Hand	do	45	8
Multiple	do	59	8
Stand	do	19	8
Window	do	28	8
Miscellaneous	Acoustics	17	23
Miscellaneous	Coin-Controlled Apparatus	18	14
Miscellaneous	Dentistry	45	20
Miscellaneous	Educational Appliances	59	31
Miscellaneous	Excavating	13	4
Miscellaneous	Fire-Extinguishers	23	9
Miscellaneous	Hardware-Making	155	13
Miscellaneous	Harvesters	264	7
Miscellaneous	Matrix-Making	5	30
Miscellaneous	Surgery	210	6
Miscellaneous	Type-Writing Machines	17	30
Miscellaneous machines	Linotyping	9	30
Miscellaneous parts	Sewing-Machines	139	24
Mitering-knife	Woodworking-Machines	78	29
Mitering-saw	do	201	29
Mixed paints—			
Alkali	Painting	106	31
Barrel-linings	do	60	31
Oil	do	173	31
Rubber	do	69	31
Tar	do	90	31
Vulcanized	do	26	31
Water	do	70	31
Water—Soluble silicates	do	30	31
Mixers	Paving	36	15
Mixers	Sugar and Salt	21	6
Mixers and kneaders	Bread, Cracker, and Lozenge Making.	202	15
Moisteners and spreaders, fountain-handle.	Stationery	112	5
Moistening	Tobacco	71	2
Moldboards	Plows	143	1
Moldboards—Revolving	do	64	1
Mold-coolers	Glass	23	15
Molded molds—			
Chains, hinges, and joints.	Metal-Founding	17	3
Hardware	do	58	3
Hollow ware	do	122	3
Molded molds	do	21	3
Molders' flasks	do	96	3
Molders' materials	do	62	3
Molders' tools and arts	do	149	3
Ordnance and projectiles.	do	10	3
Pipe-elbows	do	25	3

Subclass.	Class.	No. of patents in subclass.	Division.
Molded molds—			
Pipes	Metal-Founding	78	3
Pipes—			
Horizontal	do	12	3
Plants	do	15	3
Plows	do	40	3
Rolls	do	18	3
Screw-threads	do	11	3
Tools	do	14	3
Tools and arts	do	149	3
Vehicle-wheels	do	144	3
Wheels	do	57	3
Molding apparatus—			
Blacking-molds	do	11	3
Hollow ware	do	20	3
Machines	do	196	3
Ordnance and projectiles.	do	4	3
Pipe-cores	do	62	3
Pipes	do	80	3
Pipes—			
Horizontal	do	8	3
Screw-threads	do	18	3
Vehicle-wheels	do	14	3
Wheels	do	39	3
Molding—			
Axles	Woodworking-Machines	17	29
Cigars	Tobacco	152	2
Clamped work	Woodworking-Machines	94	29
Devices	Caoutchouc and Minor Plastics.	143	15
Hand-feed	Woodworking-Machines	71	29
Lateral-feed	do	50	29
Machines and articles	Paper-Making	219	15
Pattern-feed	Woodworking-Machines	208	29
Revolving-feed	do		29
Special-feed	do	120	29
Straight-feed	do	201	29
Moldings	Carpentry	54	29
Molds	Artificial Stone	128	15
Molds	Dentistry	65	20
Molds	Glass	35	15
Molds—			
Blowing	do	82	15
Pressing	do	111	15
Screw-threading	do	37	15
Molds and carriages	Sugar and Salt	34	6
Monuments	Stone-Working	125	25
Mops	Brushing and Scrubbing	11	27
Mop-wringers	do	150	27
Mordants	Bleaching and Dyeing	103	6
Morse registers	Telegraphy	32	16
Mortar-mixers	Artificial Stone	81	15
Mortars	Ordnance	3	22
Mortising—			
Auger-cutters	Woodworking-Machines	65	29
Chisel and auger cutters.	do	57	29
Chisel-cutters	do	149	29
Rotary cutters	do	64	29
Mosquito-nets and canopies.	Beds	195	8
Motion of vessel	Marine Propulsion	16	22
Motor part along track	Electricity. Electric Railways.	28	26
Motors	Electricity. Motive-Power	377	26
Motors—			
Alternating	do	39	26
Alternating—			
Condensers	do	24	26
Distorted field	do	24	26
Rotary field	do	39	26
Starters	do	46	26
For elevators	Hydraulic Motors	218	9
For jacks	do	52	9
For presses	do	180	9
Hand-operating devices.	Electricity. Motive-Power	234	26
Manually-operated	Railway Rolling-Stock	25	34
Mechanical, miscellaneous.	Mechanical Motors	151	2
Reciprocating	Electricity. Motive-Power	136	26
Spring	Railway Rolling-Stock	18	34
Tread-power	do	11	34
Motor-vehicles	Carriages and Wagons	76	10
Mounting	Photography	22	6
Mouth-mirrors	Dentistry	15	20
Mouthpieces	Music	25	5
Mouthpieces	Tobacco	113	2
Movement cure	Surgery	48	6
Mowers—			
Anomalies	Harvesters	31	7
Center-cut	do	104	7
Front-cut—			
One wheel	do	60	7
Two wheels	do	446	7
Lawn	do	293	7
Rear-cut—			
One wheel	do	63	7
Mowers—			
Rear-cut—			
Two wheels	Harvesters	269	7
Reciprocating-gear	do	156	7
Thrust-cut	do	90	7
Mud guards. Dress and	Velocipedes	43	7
Mufflers	Steam-Engines	105	18
Muffs	Apparel	29	24
Muffs—			
Ear	do	40	24
Mules and jacks	Spinning	206	21
Multicolor-machines	Printing	19	17
Multicolor-machines—			
Bed and cylinder	do	12	17
Bed and cylinder—Multiple-impression	do	22	17
Bed and platen	do	56	17
Rotary	do	59	17
Rotary—Multiple printing couple.	do	33	17
Supplemental forms	do	26	17
Multiple-cylinder	Steam-Engines	243	18
Multiple-piston	do	59	18
Multiplex	Telegraphy	86	16
Musical blocks	Music	9	5
Musical-instrument work.	Hardware-Making	28	13
Music-boxes	Coin-Controlled Apparatus	11	14
Musicians' cases	Baggage	21	32
Mustache-guards	Toilet	22	24
Mutes. Dampers and—			
Violin	Music	33	5
Muzzle-loaders	Firearms	16	22
Nail-distributers	Nails and Spikes	45	13
Nail-extractors—			
Claw	Woodworking-Tools	123	29
Nipper	do	157	29
Nail-heads, ornamental	Nails and Spikes	94	13
Nail-plate feeders	do	164	13
Nails and spikes	do	296	13
Napkin-holders	Kitchen and Table Articles	19	8
Napping	Cloth-Finishing	84	21
Napping—			
Planetary machines	do	34	21
Nasal douches	Surgery	14	6
Nautical signals	Signals	40	22
Neck-forming	Glass	80	15
Necktie-fasteners	Buckles, Buttons, Clasps, Etc.	253	11
Necktie-fasteners—			
Band-fasteners	do	80	11
Depressors	do	47	11
Make-ups	do	46	11
Neck-yokes	Carriages and Wagons	262	10
Needle-clamps	Sewing-Machines	41	25
Needle-holders	Apparel Apparatus	59	24
Needle holders and cases	Surgery	19	6
Needle-threaders	Apparel Apparatus	31	24
Needles	do	52	24
Needles—			
Tape	do	14	24
Needles	Knitting and Netting	71	21
Needles	Sewing-Machines	75	24
Nethergarments	Apparel	330	24
Nethergarments—			
Bifurcated	do	72	24
Bustles	do	251	24
Edge-protectors	do	63	24
Garters	do	39	24
Gussets and stays	do	109	24
Hoop-skirts	do	153	24
Hoop-skirts—			
Clasps	do	53	24
Hoops	do	33	24
Knee-protectors	do	18	24
Napkins	do	20	24
Placket-closures	do	21	24
Pockets	do	45	24
Pockets—			
Closures	do	38	24
Reinforced	do	16	24
Skirt-protectors	do	37	24
Skirt-supporters	do	52	24
Skirts	do	23	24
Skirts—			
Cycling	do	42	24
Lifters	do	56	24
Riding	do	10	24
Stockings	do	52	24
Suspender attachments.	do	17	24
Trunks	do	11	24
Waistbands	do	51	24
Waist-closures	do	102	24
Netting	Knitting and Netting	40	21
Newspaper-files	Bookbinding	122	5
Nippers	Metal-Working Tools	81	14
Nipples	Surgery	31	6

Subclass.	Class.	No. of patents in subclass.	Division.
Nipples and guards	Firearms	20	22
Nitro compounds	Explosives	213	6
Nose-rings	Care of Live Stock	39	2
Notation	Music	24	5
Note-sheets for self-playing instruments.	....do	17	5
Nozzles	Water Distribution	260	4
Nozzles—			
Compressible	....do	21	4
Flexible	....do	11	4
Splasher	....do	68	4
Systems	....do	10	4
Nozzle-holders	....do	30	4
Numbering-machines	Printing	104	17
Numbering-machines—			
Form attachment	....do	29	17
Hands	....do	24	17
Measurers and markers.	....do	17	17
Nursing-bottles	Surgery	69	6
Nut-crackers	Vegetable Cutters and Crushers.	42	25
Nuts and washers	Metal Bolts, Nuts, Rivets, and Screws.	52	13
Nuts and washers—Making	....do	257	13
Nut-wrenches—			
Ratchet-segments	Metal-Working Tools	27	14
Ratchet-wheel	....do	107	14
Ratchet-wheel—Adjustable	....do	63	14
Rigid-jaw	....do	36	14
Rigid-socket	....do	54	14
Track and tire	....do	45	14
Wheel-engaging	....do	62	14
Nut and pipe wrenches—			
Jaw attachments	....do	36	14
Pipe-wrenches	....do	7	14
Pipe-wrenches—			
Chain	....do	94	14
Expanding-jaw	....do	20	14
Hose-spanners	....do	18	14
Pivoted-jaw, with cutter.	....do	24	14
Rigid-jaw	....do	13	14
Sliding-jaw, with cutter.	....do	24	14
Pivoted-jaw	....do	18	14
Pivoted-jaw—			
Inner-jaw	....do	33	14
Inner-jaw—			
Rack	....do	47	14
Screw	....do	77	14
Outer-jaw	....do	77	14
Outer-jaw—			
Rack	....do	100	14
Screw	....do	103	14
Pipe-tongs	....do	39	14
Pipe-tongs—			
Rack	....do	21	14
Screw	....do	46	14
Side-jaw	....do	49	14
Side-jaw—			
Rack	....do	18	14
Screw	....do	44	14
Wedge	....do	17	14
Sliding-jaw	....do	16	14
Sliding-jaw—			
Clamp	....do	42	14
Grip	....do	28	14
Grip—			
Rack	....do	54	14
Screw	....do	34	14
Rack	....do	57	14
Rack—			
Cam-lock	....do	26	14
Pivoted-lock	....do	99	14
Sliding-lock	....do	37	14
Wedge-lock	....do	29	14
Thread adjustment	....do	27	14
Thread adjustment—			
Displaceable nut or screw.	....do	51	14
Double-thread	....do	33	14
Duplex	....do	17	14
Inner-jaw—			
Nut adjustment	....do	57	14
Screw adjustment.	....do	161	14
Mutilated nut or screw.	....do	44	14
Outer-jaw—			
Nut adjustment	....do	53	14
Screw adjustment.	....do	14	14
Tap	....do	25	14
Oakum-machines	Brakes and Gins	10	21
Oars	Boats	30	22
Oars—			
Bow-facing	Boats	70	22
Obstetrics	Surgery	40	6
Obtunders	Dentistry	18	20
Odometers	Measuring Instruments	162	33
Oil-distributers	Projectiles	25	22
Oil-distributers	Ships	35	22
Oil Indicators and fillers.	Lamps and Gas-Fittings	57	30
Oilvers	Metal-Forging	54	13
Opener-beaters	Carding	18	21
Opener-evening mechanism.	....do	22	21
Open vats	Bleaching and Dyeing	300	6
Opera-glasses	Coin-Controlled Apparatus	6	14
Opera-glasses	Optics	66	30
Operating	Ordnance	64	22
Operative	Dentistry	21	20
Optometers	Optics	61	30
Ore and coal—			
Coal-breakers	Mills	61	25
Crushers	....do	231	25
Ice-crushers	....do	33	25
Ice picks and shavers	....do	91	25
Separators—			
Dry	....do	241	25
Jiggers	....do	113	25
Magnetic	....do	206	25
Washers	....do	887	25
Sifters and screens	....do	244	25
Sifters and screens—			
Household	....do	764	25
Stamps	....do	282	25
Ore-detectors	Electricity. Special Applications.	9	16
Organ-actions	Music	70	5
Organ-actions—			
Electropneumatic	....do	14	5
Pneumatic	....do	72	5
Organ and piano, combined.	....do	22	5
Organ-bellows	....do	54	5
Organ-cases	....do	62	5
Organic	Fertilizers	118	6
Organ-pipes	Music	23	5
Organs—			
Pedal-bass	....do	10	5
Pipe	....do	38	5
Reed	....do	151	5
Reed—			
Attachments for	....do	15	5
Folding	....do	9	5
With pipes	....do	21	5
Steam	....do	3	5
Organ stop-actions	....do	77	5
Organ stop-actions—			
Combination	....do	22	5
Organ-swells	....do	30	5
Organ wind-chests	....do	4	5
Ornamental chains	Jewelry	163	5
Ornamental chains	Metal Personal Wear. Making	41	14
Ornamental stone	Artificial Stone	28	15
Ornamental wire fabric, etc.	Jewelry	28	5
Ornamentation	Glass	115	15
Ornamentation—			
Metal	Fine Arts	116	5
Ornamenting	Metal-Ornamenting	22	14
Ornamenting	Paper-Making	70	15
Ornamenting cloth	Fine Arts	84	5
Oscillating	Hydraulic Motors	56	9
Oscillating	Steam-Engines	196	18
Oscillating piston	Pumps	87	9
Oscillating propellers	Marine Propulsion	104	22
Osier-peelers	Woodworking-Machines	15	29
Oval forms	Wood-Turning	88	29
Ovens—			
Bakers'	Stoves and Furnaces	203	19
Domestic	....do	247	19
Overcoming dead-centers.	Machine Elements	58	12
Ox-yokes	Harness	78	11
Oxychlorid	Artificial Stone	40	15
Oyster and pisciculture	Fishing and Trapping	43	22
Oyster-dredges	....do	47	22
Oyster-openers	Kitchen and Table Articles	31	8
Oyster rakes and tongs	Fishing and Trapping	21	22
Package-carriers	Bundle-Carriers	22	32
Package-carriers—			
Handles	....do	17	32
Handles—			
Strap	....do	9	32
Slings	....do	15	32
Packaging braid and yarn.	Cordage	22	21
Packing	Tobacco	48	2
Packing—			
Articles	Presses	2	2
Cheese	....do	106	2

Subclass.	Class.	No. of patents in subclass.	Division.
Packing—			
Chemicals	Chemicals	99	6
Compound and textile	Steam-Engines	178	18
Continuous-compression.	Presses	154	2
Furniture	Furniture	18	8
Metallic piston	Steam-Engines	404	18
Rod	....do	492	18
Silos	Presses	2	2
Single-compression	....do	158	2
Steam-joint	Steam-Engines	58	18
Paddle-wheels—			
Feathering-blades	Marine Propulsion	196	22
Fitting and driving	....do	111	22
Form and construction	....do	125	22
Padlocks	Locks and Latches	33	20
Padlocks—			
Alarm	....do	4	20
Divided-shackle	....do	10	20
Indicator	....do	12	20
Indicator—			
Pivoted-shackle	....do	42	20
Permutation	....do	47	20
Permutation—			
Pivoted-shackle	....do	49	20
Sliding-shackle	....do	56	20
Pin	....do	11	20
Pivoted-shackle	....do	120	20
Pivoted-shackle—			
Sliding-bolt	....do	73	20
Rotating-shackle	....do	17	20
Seal	....do	110	20
Sliding-shackle	....do	78	20
Pails, paper	Packing and Storing Vessels	31	32
Pails and strainers	Dairy	168	2
Paint-breamers	Stoves and Furnaces	33	19
Paint-mixers	Painting	44	31
Paint-tubes	Metallic Dispensing-Cans	23	32
Pan and boiler	Driers	77	28
Pan and scraper	....do	101	28
Panels and wainscoting	Carpentry	44	29
Panification	Preserving	126	6
Pans	Driers	25	28
Pans	Metallic Shipping and Storing Vessels.	13	32
Pans—			
Ash	Stoves and Furnaces	64	19
Bake	....do	231	19
Blanks	Metallic Shipping and Storing Vessels.	14	32
Frying	Stoves and Furnaces	119	19
Pantographs	Drafting	30	23
Paper-board	Paper-Making	87	15
Paper boxes—			
Angular	Packing and Storing Vessels	100	32
Angular—			
Blanks, plural	....do	54	32
Compartment	....do	84	32
Compartment—			
Folded	....do	30	32
End folds	....do	43	32
End laps	....do	157	32
Side and end folds	....do	14	32
Side and end laps	....do	81	32
Side folds	....do	40	32
Side folds and end laps.	....do	21	32
Side laps	....do	84	32
Slide	....do	60	32
Stays	....do	22	32
Curved	....do	123	32
Curved—			
Compartment	....do	22	32
Paper-clips	Stationery	136	5
Paper-damping machines.	Printing	18	17
Paper-damping machines—			
Winders	....do	24	17
Paper-fasteners	Buckles, Buttons, Clasps, Etc.	156	11
Paper-hanging machines.	Paper-Making	68	15
Paper-making machines	....do	331	15
Paper vessels—			
Bags	Packing and Storing Vessels	42	32
Bags—			
Closures	....do	55	32
Square-bottom	....do	121	32
Barrels	....do	35	32
Boxes—			
Compartment	....do	22	32
Curved	....do	123	32
Pails	....do	31	32
Paper-weights	Stationery	32	5
Paraffin	Mineral Oils	54	31
Parallel-rulers	Drafting	50	23
Parchment	Paper-Making	30	15
Partitions. Sidings and—			
Concrete	Fireproof Buildings	36	4
Tile	....do	19	4
Passenger-cars	Railway Rolling-Stock	27	34
Pastry-boards	Bread, Cracker, and Lozenge Making.	26	15
Pattern-chains	Weaving	25	21
Pattern-exhibitors	Advertising	23	32
Paving-tiles	Clay and Pottery	93	15
Paving-tools	Paving	89	15
Pawls and ratchets	Machine Elements	164	12
Peat-machines	Fuel	149	15
Pedal-bass organs	Music	11	5
Pedal piano-actions	....do	11	5
Pedals	....do	42	5
Pedals—			
Auxiliary	....do	35	5
Guards	....do	13	5
Locks	....do	15	5
Pedals and cranks	Velocipedes	196	7
Pedestals	Lamps and Gas-Fittings	65	30
Pedestals, truck	Railway Rolling-Stock	87	34
Peelers and washers	Vegetable Cutters and Crushers.	89	25
Peg-floats	Boots and Shoes	85	11
Pegging-jacks	....do	201	11
Pegging-machines—			
Nails and pegs	....do	393	11
Wire	....do	200	11
Pegs	....do	32	11
Pen and pencil cases	Stationery	46	5
Pen and pencil cases—			
Clutch	....do	51	5
Clutch—			
Automatic	....do	70	5
Compound	....do	33	5
Compound—			
Automatic	....do	33	5
Chalk-holders	....do	12	5
Screw and slide	....do	25	5
Step-by-step	....do	23	5
Magic	....do	17	5
Polypointed	....do	13	5
Screw	....do	50	5
Slide	....do	55	5
Pencils	....do	125	5
Pencil-sharpeners	....do	320	5
Pencil-wood. Making	Woodworking-Machines	12	29
Pendulum-balls	Horology	4	23
Pendulums	....do	22	23
Pendulums—			
Beat-adjusters	....do	25	23
Compensating	....do	31	23
Regulating	....do	27	23
Torsion	....do	6	23
Penholders	Stationery	236	5
Penholders—			
Hand-rests	....do	47	5
Penmanship	Educational Appliances	41	31
Pen racks and cleaners	Stationery	72	5
Pens	....do	85	5
Pens—			
Pencils and holders	Sheet-Metal Ware. Making	11	14
Reservoir attachments.	Stationery	76	5
Stylographic	....do	81	5
Perforated rolls and spray-jets.	Bleaching and Dyeing	65	6
Perforating	Telegraphy	22	16
Perforators	Paper Manufactures	70	17
Perforators—			
Punch-selectors	....do	36	17
Punch-selectors—			
Pattern-controlled	....do	22	17
Rotary	....do	39	17
Rotary—			
Traveling	....do	23	17
Rules	....do	20	17
Permutation-locks	Locks and Latches	59	20
Permutation-locks—			
Dials	....do	14	20
Hasp	....do	14	20
Keyhole-guards	....do	9	20
Knob-pins	....do	12	20
Operating-handle	....do	3	20
Push-pin	....do	38	20
Rotating tumblers	....do	434	20
Sliding tumblers	....do	20	20
Spindles	....do	23	20
Till-locks	....do	67	20
Personal wear	Metal Personal Wear. Making	141	14
Pessaries	Surgery	137	6
Pharmaceutical	....do	67	6
Phonographs	Coin-Controlled Apparatus	24	14
Phosphates	Fertilizers	190	6
Photographic	Coin-Controlled Apparatus	16	14

Subclass.	Class.	No. of patents in subclass.	Division.
Photometers	Optics	19	30
Photosculpture	Photography	3	0
Pianissimo devices	Music	56	5
Piano-actions	....do	319	5
Piano-actions—			
Dampers	....do	18	5
Flanges	....do	23	5
Frames	....do	21	5
Hammers	....do	22	5
Pedal	....do	11	5
Plectrum	....do	9	5
Piano-agraffes	....do	43	5
Piano attachments	....do	13	5
Piano-bridges	....do	34	5
Piano capo-tasto bars	....do	20	5
Piano-cases	....do	17	5
Piano-cases—			
Desks	....do	76	5
Fall-boards	....do	14	5
Knockdown	....do	11	5
Lid-props	....do	14	5
Swells	....do	16	6
Piano-frames	....do	21	5
Piano-legs	....do	2	5
Pianos	....do	97	5
Pianos—			
Forte devices	....do	7	5
Sostenuto	....do	31	5
Tone-modifiers	....do	21	5
Violin	....do	18	5
Without strings	....do	58	5
Piano sounding-boards	....do	77	5
Piano-stringing	....do	37	5
Piano tuning-pins	....do	23	5
Piano tuning-pins—			
Coupling-clamp	....do	7	5
Direct-pull	....do	32	5
Lever	....do	14	5
Presser-deflectors	....do	13	5
Push-rod and carrier	....do	9	5
Worm-gear	....do	6	5
Picker-checks	Weaving	63	21
Pickers	Carding	297	21
Pickers	Weaving	76	21
Pickling and swilling	Coating with Metal	43	3
Picks and mattocks	Metal Tools and Implements. Making	38	13
Picks for zithers	Music	10	5
Picture-frames	Fine Arts	246	5
Picture-hangers	Furniture	28	8
Picture-hangers—			
Adjustable	....do	66	8
Pictures	Fine Arts	61	5
Pictures	Photography	24	6
Picture-supports	Fine Arts	70	5
Pie crimpers and trimmers.	Bread, Cracker, and Lozenge Making.	17	15
Piers, bridges	Bridges	54	4
Pigments	Painting	74	31
Pile-drivers	Hydraulic Engineering	16	4
Pile-drivers—			
Jigs	....do	11	4
Monkey	....do	128	4
Piston	....do	18	4
Sinking	....do	22	4
Swinging-hammer	....do	12	4
Piles—			
Metallic	....do	33	4
Protected	....do	43	4
Pill-machines	Caoutchouc and Minor Plastics.	116	15
Pillows	Beds	77	8
Pillow-sham holders	....do	98	8
Pinch-bars	Railway Rolling-Stock	24	34
Pins	Toilet	27	24
Pins—			
Holders	....do	40	24
Safety	....do	152	24
Pins, Making	Needles and Pins	21	13
Pins, Papering	....do	41	13
Pipe-cleaners	Tobacco	17	2
Pipe-couplings	Railway-Brakes	13	34
Pipe-couplings—			
Detachable	Water Distribution	914	4
Detachable and flexible.	....do	376	4
Permanent	....do	200	4
Valved	....do	176	4
Pipe-cutters—			
Inside	Metal-Working Tools	78	14
Outside	....do	130	14
Pipe-expanders	....do	182	14
Pipe-hangers	Stoves and Furnaces	97	19
Pipe-organs	Music	35	5
Pipes—			
On reed-organs	....do	21	5
Organ	....do	38	5
Soap-bubble	Games and Toys	22	31
Pipes and stems	Tobacco	280	2
Pistol-swords	Firearms	13	22
Piston	Fluid-Pressure Regulators	188	31
Piston	Steam-Engine Valves	147	18
Piston-packing, metallic	Steam-Engines	404	18
Pistons	....do	31	18
Pitch-boards	Measuring Instruments	44	23
Pitchers	Kitchen and Table Articles	222	8
Pitchers—			
Tilting-frame	....do	36	8
Pitchforks	Metal Tools and Implements. Making	24	13
Pitching casks	Washing Apparatus	34	27
Pitmen	Machine Elements	306	12
Pitmen—			
Longitudinally-adjustable rod.	....do	2	12
Longitudinally-yieldable.	....do	34	12
Pitters, corers, and eye-cutters.	Vegetable Cutters and Crushers.	103	25
Pivoted seed-cups	Seeders and Planters	21	1
Pivoted teeth	Harrows and Diggers	59	1
Pivoted tooth-bars	....do	174	1
Plaiters	Apparel Apparatus	11	24
Plaiters—			
Boards	....do	66	24
Creasers	....do	5	24
Fluters	....do	25	24
Slotted-bed	....do	8	24
Vibrating-blade	....do	37	24
Wavers	....do	6	24
Planer attachments	Woodworking-Machines	37	29
Planer-chucks	Metal Turning, Planing, and Milling.	41	13
Planers—			
Beveling	Woodworking-Machines	31	29
Reciprocating bed or cutter.	Metal Turning, Planing, and Milling.	165	13
Rotary-cylinder	Woodworking-Machines	118	29
Rotary-disk	....do	52	29
Rotating bed or cutter.	Metal Turning, Planing, and Milling.	17	13
Sliding	Woodworking-Machines	68	29
Planimeters	Measuring Instruments	13	23
Planing and matching	Woodworking-Machines	127	29
Planing and sawing	....do	34	29
Planographic machines	Printing	32	17
Planographic machines—			
Bed and cylinder	....do	29	17
Rotary	....do	21	17
Planters—			
Corn	Seeders and Planters	1807	1
Cotton	....do	365	1
Foot	....do	9	1
Hand	....do	27	1
Hand—			
Oscillating	....do	70	1
Reciprocating	....do	275	1
Rotating	....do	32	1
Potato	....do	142	1
Potato—			
Walking	....do	38	1
Walking	....do	1113	1
Walking—			
Vibrating hoppers	....do	67	1
Plant frames and houses	Trees, Plants, and Flowers	28	1
Plant-stands	....do	35	1
Plant-stands—			
Revolving	....do	38	1
Plastering	Artificial Stone	89	15
Plastering—			
Fiber	....do	52	15
Implements	....do	109	15
Retarders	....do	124	15
Plasters	Medicines	48	6
Plastics, minor compositions.	Caoutchouc and Minor Plastics.	184	15
Plastic splints	Artificial Limbs	10	20
Plate	Printing	8	17
Plate	Type-Writing Machines	71	30
Plate and window	Glass	68	15
Plate-holders	Photography	126	6
Plate-holders—			
Magazine	....do	55	6
Plate-lifters	Kitchen and Table Articles	159	8
Plate-machines—			
Bed and cylinder	Printing	36	17
Bed and platen	....do	17	17
Rotary	....do	9	17
Traveling-bed	....do	16	17
Plates and bars	Metal-Rolling	209	13
Platform adjustments	Harvesters	177	7
Platforms	Stoves and Furnaces	94	19
Playing-cards	Games and Toys	58	31
Pleasure-railways	Railways	94	34
Plectrum, piano-actions	Music	9	5

Subclass.	Class.	No. of patents in subclass.	Division.
Pliers	Metal-Working Tools	109	14
Pliers—			
Rod and bolt cutters	....do	175	14
Smiths' tongs	....do	37	14
Plotters	Drafting	92	23
Plow-irons	Metal Tools and Implements. Making	108	13
Plows	Plows	903	1
Plows—			
Ditching	....do	159	1
Mole	....do	135	1
Revolving	....do	58	1
Shovel	....do	484	1
Side-hill	....do	355	1
Steam	....do	188	1
Wheel	....do	1339	1
Pluggers	Dentistry	10	20
Pluggers—			
Air	....do	39	20
Angle attachments	....do	37	20
Hand-operated	....do	55	20
Power-operated	....do	66	20
Plug-making	Tobacco	125	2
Plugs	....do	58	2
Plugs, covers, and strainers.	Baths and Closets	95	9
Plumb-bobs	Measuring Instruments	14	23
Plungers	Seeders and Planters	89	1
Pneumatic	Ordnance	62	22
Pneumatic organ actions	Music	66	5
Pneumatic propellers	Marine Propulsion	50	22
Pneumatic railways	Pneumatics	29	28
Pneumatic railways—			
Despatch-carriers	....do	14	28
Despatch-tubes	....do	102	28
Motor-charging	....do	23	28
Pneumatic self-playing instruments.	Music	75	5
Pneumatic signals	Railways	45	34
Pneumatic signals—			
Automatic	....do	51	34
Pneumatic signals	Signals	88	22
Pneumatic switches	Railways	16	34
Pocket-book fasteners and frames.	Packing and Storing Vessels	150	32
Pocket-book holders	....do	23	32
Pocket-books	....do	108	32
Pocket-lighters	Lamps and Gas-Fittings	61	30
Points	Plows	159	1
Poison-Indicators	Signals	9	22
Pokers. Shovels, tongs, and	Stoves and Furnaces	117	19
Pokes	Care of Live Stock	165	2
Poles and shafts	Carriages and Wagons	306	10
Poles and shafts—			
Convertible	....do	37	10
Pole-tips	....do	110	10
Polycycles—			
Figure	Velocipedes	80	7
Propulsion—			
Axle-couplings	....do	17	7
Crank and chain	....do	93	7
Crank and gear	....do	46	7
Crank and pitman	....do	16	7
Lever and crank	....do	151	7
Lever and ratchet	....do	85	7
Lever, crank, and gear, or chain.	....do	56	7
Lever, ratchet, and gear, or chain.	....do	52	7
Miscellaneous	....do	69	7
Rack and pinion	....do	20	7
Rowing-machines	....do	14	7
Spring-frame	....do	15	7
Steering devices	....do	33	7
Polygonal forms	Wood-Turning	53	29
Portable—			
Automatic	Fire-Extinguishers	19	9
Grenades	....do	19	9
Hand vessels	....do	22	9
Liquid pumps and syringes.	....do	27	9
Water-towers	....do	48	9
Wheeled	....do	35	9
Portable	Roofing	84	29
Portable	Steam-Engines	132	18
Portable	Towers	11	12
Portable houses	Carpentry	94	20
Portable signals	Railways	15	34
Portable track	....do	35	34
Portfolios	Packing and Storing Vessels	84	32
Portfolios—			
Roll	....do	9	32
Positive-lock	Railway-Brakes	11	34
Postage and revenue stamps.	Bookbinding	84	5
Post-hole diggers—			
Pivoted jaws	Harrows and Diggers	9	1
Transplanters	....do	53	1
Post-office boxes	Stationery	84	5
Posts	Lamps and Gas-Fittings	17	30
Posts—			
Bases—			
Metal	Fences	180	1
Plastic	....do	89	1
Wood	....do	12	1
Braces—			
Lateral	....do	128	1
Longitudinal	....do	69	1
Metal	....do	318	1
Plastic	....do	46	1
Wood	....do	47	1
Potash. Soda and	Chemicals	231	6
Potato-diggers	Harrows and Diggers	77	1
Potato-diggers—			
Bearing-wheel separators.	....do	26	1
Endless-carrier	....do	67	1
Endless-carrier—			
Receptacles	....do	105	1
Plow and screen	....do	151	1
Plow-clearers	....do	33	1
Plow, vibrating screens	....do	130	1
Screen-cylinders	....do	22	1
Sifting-wheels, side-delivery.	....do	55	1
Spiral conveyers	....do	25	1
Toothed-drum	....do	93	1
Potato-planters	Seeders and Planters	121	1
Potato-planters—			
Walking	....do	38	1
Pots and kettles	Stoves and Furnaces	167	19
Pots and tools	Painting	53	31
Pot-sleepers	Railways	102	34
Pottery articles	Clay and Pottery	46	15
Pottery-kilns	....do	41	15
Pottery-kilns—			
Saggers	....do	17	15
Pottery-machines	....do	179	15
Poultry culture	Care of Live Stock	156	2
Powder—			
Blasting	Explosives	117	6
Gun	....do	89	6
Powder-cans	Metallic Dispensing-Cans	13	32
Powder-cans—			
Cut-offs	....do	15	32
Cut-offs—			
Measuring	....do	12	32
Rotary	....do	8	32
Receiving-pockets	....do	9	32
Rotary stirrers	....do	5	32
Powder-puffs	Toilet	15	24
Power-hammers	Metal-Forging	167	13
Practice barrels	Ordnance	4	22
Practice violins	Music	4	5
Precipitating	Coating with Metal	101	3
Preparation of clay—			
Miscellaneous	Clay and Pottery	19	15
Preparing grain—			
Processes	Mills	55	25
Steaming and dampening.	....do	88	25
Preparing seed	Seeders and Planters	12	1
Preserving	Hides, Skins, and Leather	32	31
Preserving—			
Cold	Preserving	35	6
Exclusion of air	....do	270	6
Press-copying	Printing	11	17
Press-copying—			
Damping	....do	56	17
Press-dyeing	Bleaching and Dyeing	39	6
Presser bars and rolls	Woodworking-Machines	122	29
Presser feet and lifters	Sewing-Machines	122	24
Presses	Glass	58	15
Presses—			
Baling—			
Articles and attachments.		127	2
Bale-band tighteners.	Presses	13	2
Bale-ejectors	....do	64	2
Bales and bale-covers.	....do	92	2
Binders	....do	83	2
Boxes and frames	....do	1	2
Brakes	....do	3	2
Condensers	....do	9	2
Discharge-end contracting devices.	....do	11	2
Division-blocks and block-inserters.	....do	41	2
Feeders	....do	4	2
Indicators	....do	83	2
Movable bale-boxes.	....do	2	2
Plungers	....do	6	2
Retainers	....do		

Subclass.	Class.	No. of patents in subclass.	Division.
Presses—			
Baling—			
Belt and roller	Presses	74	2
Plunger—			
Cam	do	91	2
Crank and pitman	do	68	2
Lever	do	100	2
Rack bar and pinion.	do	92	2
Ratchet and grapple bar.	do	125	2
Rebounding	do	261	2
Screw	do	292	2
Thrust-bar	do	59	2
Toggle-joint	do	377	2
Toggle-joint—Inverted	do	94	2
Windlass	do	192	2
Screw	do	4	2
Bundling—			
In lengths	do	80	2
In lengths—Shingles	do	25	2
Wool	do	40	2
Can-filling machines	do	134	2
Copying—			
Fluid-pressure	do	6	2
Hand-impressing	do	7	2
Hand-impressing—Book-flexure	do	14	2
Roller mechanism	do	25	2
Expressing—			
Articles and attachments—			
Boxes and frames	do	97	2
Cake-formers	do	13	2
Cake-strippers	do	1	2
Cake-trimmers	do	2	2
Mats	do	88	2
Belt	do	35	2
Belt and plunger	do	5	2
Belt and roller	do	53	2
Disk	do	6	2
Plunger—			
Cam	do	24	2
Crank and pitman	do	2	2
Lever	do	85	2
Rack bar and pinion.	do	18	2
Ratchet and grapple bar.	do	14	2
Screw	do	167	2
Toggle-joint	do	22	2
Windlass	do	8	2
Roller	do	176	2
Screw	do	9	2
Without operating mechanism.	do	39	2
Packing—			
Articles	do	2	2
Cheese	do	106	2
Continuous-compression.	do	154	2
Silos	do	25	2
Single-compression	do	158	2
Pressing	Cloth-Finishing	89	21
Pressing	Metal-Ornamenting	46	14
Pressure-gages	Measuring Instruments	88	23
Pressure-gages—			
Bourdon	do	62	23
Diaphragm	do	86	23
Piston	do	32	23
Pressure mechanism	Safes	17	20
Primers	Projectiles	72	22
Primers—			
Electric	do		22
Printing	Telegraphy	100	16
Printing—			
Mechanical	Photography	91	6
Multiple-wheel	Telegraphy	189	16
Wheel	do	264	16
Printing and vignetting	Photography	164	6
Printing appliances	Hardware-Making	79	13
Printing couple appliances.	Printing	23	17
Printing couple appliances—			
Anti-offset devices	do	38	17
Blankets	do	20	17
Friskets	do	6	17
Grippers	do	41	17
Prisms	Optics	2	30
Processes	Brakes and Gins	14	21
Processes	Caoutchouc and Minor Plastics.	137	15
Processes	Driers	23	28
Processes	Jewelry	21	5
Processes	Mineral Oils	20	31
Processes	Painting	68	31
Processes	Paper-Making	265	15
Processes	Photography	57	6
Processes	Printing	59	17
Processes—			
Chemical	Mineral Oils	104	31
Injecting gases	do	43	31
Residuum	do	17	31
Washing and filtering	do	23	31
Producers	Gas	80	31
Projectiles	Projectiles	171	22
Projectiles—			
Line-throwing	do	28	22
Projecting apparatus	Optics	41	30
Props. Stays and	Trees, Plants, and Flowers	17	1
Protecting shores	Hydraulic Engineering	27	4
Protective surfaces	Artificial Stone	9	15
Protractors	Drafting	75	23
Provision-safes	Furniture	57	8
Provision-safes—			
Knockdown	do	18	8
Revolving	do	38	8
Window	do	8	8
Pruning implements	Cutlery	288	15
Pruning implements—Fruit-clippers	do	55	15
Puddlers' balls	Metal-Rolling	30	13
Puddling-hearths	Metallurgy	68	3
Puddling-hearths—			
Chills and bottoms	do	28	3
Doors and bits	do	31	3
Pug-mills	Clay and Pottery	40	15
Pug-mills—			
Feeders	do	11	15
Ring-pits	do	26	15
Pulleys	Journal-Boxes, Pulleys, and Shafting.	284	12
Pulleys—			
Expansible	do	62	12
Grip	do	23	12
Lubricating	do	291	12
Split	do	288	12
Pulp-engines and bedplates.	Paper-Making	106	15
Pulp washing and straining.	do	148	15
Pumping	Steam-Engines	353	18
Pumping—			
Duplex	do	102	18
Pumps, miscellaneous and combined.	Pumps	164	9
Punches	Punches	228	11
Punches	Metal Punching and Shearing.	58	14
Punching	do	186	14
Punching-cutters	Woodworking-Machines	163	29
Punching-machines—			
Crank	Metal Punching and Shearing.	18	14
Foot-lever	do	16	14
Hammer	do	18	14
Hand-lever	do	65	14
Rotary	do	12	14
Screw	do	33	14
Puppet	Steam-Engine Valves	55	18
Purifiers—			
Boxes	Gas	17	31
Compounds	do	20	31
Condensers	do	25	31
Miscellaneous	do	15	31
Processes	do	15	31
Revivifying	do	9	31
Trays	do	26	31
Washers and scrubbers.	do	67	31
Washers and scrubbers—			
Float	do	5	31
Reciprocating	do	4	31
Rotary	do	31	31
Purifying coal	Fuel	10	15
Purifying water	Chemicals	235	6
Purses	Packing and Storing Vessels	48	32
Push-bar	Driers	2	28
Putting out and stretching.	Hides, Skins, and Leather	34	31
Putting out and stretching—			
Stretching-frames	do	40	31
Putty-knives and tools	Glass	13	15
Puzzles and magic	Games and Toys	439	31
Pyro-magneto-electric devices.	Electricity. Generation	11	26
Pyrometers	Measuring Instruments	41	23
Pyrotechnic compounds	Explosives	17	6
Pyrotechnic signals	Signals	78	22
Quadruplex	Telegraphy	90	16
Quicksilver	Metallurgy	42	3
Quilting	Sewing-Machines	197	24
Quilting-frames	Furniture	162	8

Subclass.	Class.	No. of patents in subclass.	Division.
Race-courses	Coin-Controlled Apparatus	13	14
Rack-rails	Railways	21	34
Racks and pinions	Machine Elements	203	12
Racks and rests	Kitchen and Table Articles	39	8
Racks and stands	Driers	57	28
Radiophones	Telephony	10	16
Rafting and booming	Boats	68	22
Rag dusters and engines	Paper-Making	24	15
Rail	Railway-Brakes	94	34
Rail-braces	Railways	43	34
Rail-grippers	Railway-Brakes	20	34
Rail-joints—			
Boxes	Railways	7	34
Bridge-pieces—			
Base	do	119	34
Tread	do	154	34
Joint-chairs	do	287	34
Miscellaneous	do	31	34
Scarf	do	96	34
Splice-bars	do	171	34
Splice-bars—			
Girder	do	42	34
Threadless bolts	do	114	34
Truss	do	24	34
Web-blocks	do	29	34
Railroad-rails	Metal-Rolling	78	13
Rails	Railways	167	34
Rails—			
Compound	do	177	34
Rack	do	21	34
Railway	Electric Signaling	164	16
Railway—			
Block	do	150	16
Block systems	do	75	16
Cab	do	45	16
Cab—			
Sectional-rail	do	211	16
Car	Telegraphy	83	16
Chairs	Wagon, Car, and Track Irons	41	13
Gates	Fences	12	1
Gates—			
Automatic mast	do	61	1
Cattle-guards	do	121	1
Electric	do	24	1
Mast	do	64	1
Platform-guards	do	11	1
Pneumatic	do	49	1
Rocking	do	52	1
Sliding	do	50	1
Swinging	do	61	1
Vertically-moving	do	55	1
Sectional-rail	Electric Signaling	206	16
Tank-feeders	Pumps	59	9
Trolley	Electric Signaling		16
Track instruments	do	81	16
Rain-gages	Measuring Instruments	33	23
Raising sunken vessels	Ships	110	22
Rake and harrow irons	Metal Tools and Implements. Making	71	13
Rakes	Harrows and Diggers	184	1
Rakes—			
Hand	Harvesters	106	7
Rakes and tedders, combined.	do	79	7
Rams	Pumps	57	9
Ranges	Stoves and Furnaces	280	19
Razor-cleaners	Toilet	3	24
Razors	Cutlery	99	15
Reading	Educational Appliances	67	31
Reamers	Artesian and Oil Wells	124	25
Reamers and drifts	Metal Boring and Drilling	121	13
Receptacles—			
Antirust	Metallic Shipping and Storing Vessels.	17	32
Garbage	do	32	32
Garbage—			
Hoisting	do	12	32
Sinks	do	8	32
Vault	do	12	32
Wall	do	22	32
Reciprocating	Hydraulic Motors	131	9
Reciprocating brakes	Brakes and Gins	110	21
Reciprocating die-carriers—			
Electrical	Matrix-Making	35	30
Mechanical	do	12	30
Reciprocating propellers.	Marine Propulsion	83	22
Reciprocating tools	Hides, Skins, and Leather	94	31
Reciprocating tools—			
Rocking frames	do	54	31
Recoil-checks	Ordnance	17	22
Recoil-checks—			
Hydropneumatic	do	65	22
Spring	do	7	22
Recorders	Electric Signaling	38	16
Recorders	Measuring Instruments	156	23
Recorders—			
Fare	do	33	23
Recorders	Measuring Instruments	76	23
Manual	do	34	23
Passenger	do	51	23
Pressure	do	53	23
Speed	do	74	23
Steam-engine indicator.	do	16	5
Recording attachments	Music	60	3
Reducing and separating.	Metallurgy		
Reducing and separating—			
Aluminium	do	40	3
Apparatus	do	5	3
Copper	do	37	3
Desilverizing lead	do	20	3
Desulfurizing ores	do	64	3
Disintegrating ores	do	27	3
Flux	do	32	3
Gold and silver	do	89	3
Manganese	do	10	3
Nickel and cobalt	do	30	3
Ore-bricks	do	10	3
Sodium	do	5	3
Reed	Telegraphy	56	16
Reed-boards	Music	53	5
Reed-organ attachments	do	15	5
Reed-organs	do	151	5
Reed-organs—			
Folding	do	9	5
With pipes	do	21	5
Reeds	do	66	5
Reeds and reed-making	Weaving	24	21
Reefing and furling sails	Ships	108	22
Reels	Cordage	92	21
Reels	Harvesters	237	7
Reels	Paper Manufactures	50	17
Reels—			
Skein	Driers	5	28
Tray-carrier	do	67	28
Winding	do	5	28
Reels and spools	Wire-Working	30	14
Refining fat-oils	Oils, Fats, and Glue	94	31
Refining salt	Sugar and Salt	28	6
Refining sugar	do	120	6
Reflectors—			
Hooded	Lamps and Gas-Fittings	8	30
Miscellaneous	do	21	30
Side	do	125	30
Refracting attachments	do	53	30
Refrigerator-buildings	Refrigeration	241	28
Refrigerator-cars	do	265	28
Refrigerators	do	1110	28
Regenerators—			
Double-surface	Metallurgy	36	3
Single-surface	do	83	3
Registering ballot-boxes	Measuring Instruments	48	23
Registers	do	472	23
Registers—			
Fare	do	266	23
Game	do	81	23
Passenger	do	150	23
Regular forms—			
Lateral movement	Wood-Turning	23	29
Longitudinal movement.	do	61	29
Regulators—			
Alternating	Electricity. Generation	32	26
Alternating—			
Compounding	do	34	26
Inductive resistance	do	12	26
Brush-adjustment	do	141	26
Circuit-interruption	do	22	26
Compounding-machines.	do	35	26
Compound winding	do	69	26
Counter electromotive force.	do	25	26
Engine control	do	29	26
Magnetic reluctance	do	20	26
Reducing sparks	do	19	26
Resistance	do	180	26
Sectional winding	do	67	26
Transmitting mechanism.	do	5	26
Regulators and spacers	Dentistry	29	20
Rein-buttons	Harness	43	11
Rein-holders	do	330	11
Rein-supports	do	87	11
Relays and repeaters	Telephony	38	16
Relays and sounders	Telegraphy	235	16
Rendering	Oils, Fats, and Glue	146	31
Renovating dress	Bleaching and Dyeing	18	6
Repairing and capping rails.	Wagon, Car, and Track Irons	30	13
Repeaters	Telegraphy	52	16
Resawing	Wood-Sawing	63	29
Rests	Metal Turning, Planing, and Milling.	109	13

Subclass.	Class.	No. of patents in subclass.	Division.
Rests—			
Foot	Chairs	108	8
Hand	Stationery	96	5
Head	Chairs	200	8
Retort	Driers	40	28
Retort-chargers	Gas	58	31
Retort gas-furnaces	....do	31	31
Retort-lids	....do	71	31
Retorts and settings	....do	37	31
Retorts and settings—			
Attachments	....do	31	31
Cleaning	....do	21	31
Domestic plants	....do	41	31
Retorts	....do	141	31
Retouching	Photography	33	6
Reversing-valves	Steam-Engine Valves	83	18
Revolvers—			
Breech-loading	Firearms	213	22
Extractors	....do	85	22
Locks	....do	139	22
Muzzle-loading	....do	179	22
Swinging cylinders	....do	38	22
Revolving-hook machines.	Sewing-Machines	150	24
Revolving hooks	....do	68	24
Revolving horse-rakes—			
Flop-over	Harvesters	106	7
Wheel	....do	136	7
Reworking	Metal-Rolling	72	13
Rheostats	Electricity. Conductors	188	26
Ribbon-clasps	Buckles, Buttons, Clasps, Etc.	54	11
Ribbon mechanism	Type-Writing Machines	79	30
Ribs and stretchers	Umbrellas and Canes	112	24
Ridgers	Plows	29	1
Ridges	Roofing	26	29
Riding-saddles	Harness	341	11
Rifling	Arms and Projectiles. Making	14	13
Rifling	Firearms	20	22
Rigging	Cloth-Finishing	17	21
Ringers and markers	Care of Live Stock	81	2
Ring-frames	Spinning	91	21
Rings—			
Ear	Jewelry	112	5
Finger	....do	113	5
Rings and travelers	Spinning	140	21
Riveting	Metal-Forging	181	13
Road-rammers	Paving	42	15
Roasters—			
Blasting	Metallurgy	23	3
Hearths	....do	22	3
Hearths—			
Rotary	....do	7	3
Kilns	....do	56	3
Muffles	....do	26	3
Revolving—			
Cylinders	....do	68	3
Retorts	....do	26	3
Shaft and shelf	....do	72	3
Stirrers—			
Endless-chain	....do	20	3
Reciprocating	....do	9	3
Rotary	....do	38	3
Screw	....do	18	3
Roasting and smelting hearths.	....do	46	3
Rock-drilling	Steam-Engines	317	18
Rockets	Projectiles	28	22
Rocking frames	Hides, Skins, and Leather	54	31
Rod-packing	Steam-Engines	492	18
Rods for wire	Metal-Rolling	147	13
Roller-dies	Metal-Drawing	10	13
Roller-gins	Brakes and Gins	140	21
Rollers and harrows	Harrows and Diggers	115	1
Roller-skates	Games and Toys	440	31
Rollers, land	Harrows and Diggers	38	1
Roller-tools	Sheet-Metal Ware. Making	77	14
Roll-holders	Photography	79	6
Rolling	Metal-Ornamenting	56	14
Rolling—			
Cross	Metal-Tube Manufacture	10	13
Hoppers	Seeders and Planters	199	1
Longitudinal	Metal-Tube Manufacture	58	13
Miscellaneous	Metal-Rolling	132	13
Pins	Bread, Cracker, and Lozenge Making.	35	15
Spiral	Metal-Tube Manufacture	39	13
Rolling and embossing	Hides, Skins, and Leather	59	31
Rolls	Driers	7	28
Rolls or webs—			
Continuous-motion, hand.	Painting	17	31
Interrupted-motion, hand.	....do	3	31
Roofings and coverings, composition.	Composite Roofings and Coverings.	262	15
Roofs	Roofing	61	29
Roofs—			
Fireproof	Fireproof Buildings	21	4
Root-guards	Trees, Plants, and Flowers	3	1
Rope machines. Cord and	Cordage	257	21
Rossing bark	Woodworking-Machines	32	29
Rotary	Hydraulic Motors	337	9
Rotary	Steam-Boilers	19	18
Rotary—			
Alternating-piston engines.	Steam-Engines	23	18
Brakes—			
Breakers and crushers.	Brakes and Gins	47	21
Rotary brakes	....do	144	21
Scutchers	....do	96	21
Concentric-piston engines.	Steam-Engines	764	18
Cylinders	Hides, Skins, and Leather	66	31
Die-carriers	Matrix-Making	44	30
Disk	Driers	4	28
Double-piston	Pumps	292	9
Eccentric-piston engines.	Steam-Engines	185	18
Feathering	Hydraulic Motors	98	9
Impact	....do	126	9
Impact-engines	Steam-Engines	177	18
Machines	Linotyping	6	30
Machines	Printing	29	17
Machines—			
Associators	....do	31	17
Associators—			
Stop-sheet	....do	9	17
Associators and folders.	....do	56	17
Machines and associators.	....do	14	17
Machines and deliveries.	....do	20	17
Machines and folders	....do	13	17
Machines, associators, and folders.	....do	39	17
Non-perfecting	....do	53	17
Reversing and perfecting.	....do	30	17
Rotary conical printing couple.	....do	7	17
Molds	Metal-Founding	28	3
Oscillating-piston engines.	Steam-Engines	78	18
Reciprocating-piston engines.	....do	94	18
Single-piston	Pumps	155	9
Valves	Steam-Engine Valves	241	18
Wabbling-piston engines.	Steam-Engines	51	18
Rotating tools	Hides, Skins, and Leather	61	31
Roundabouts	Games and Toys	80	31
Routing	Woodworking-Machines	55	29
Routing-pattern	....do	70	29
Rowlocks	Boats	157	22
Rubber	Boots and Shoes	310	11
Rubber—			
Hard	Caoutchouc and Minor Plastics.	58	15
Soft	....do	148	15
Rubber-dam clamps	Dentistry	48	20
Rudders	Ships	131	22
Rufflers and gatherers	Sewing-Machines	208	24
Rulers, desk	Stationery	132	5
Ruling-machines	Printing	137	17
Ruling-machines—			
Rotary	....do	20	17
Runners and notches	Umbrellas and Canes	178	24
Running-gear	Carriages and Wagons	496	10
Running-stitch	Sewing-Machines	20	24
Sabots and wads	Projectiles	148	22
Saddle-bags	Baggage	25	32
Saddles	Velocipedes	325	7
Sad-iron holders	Laundry	77	27
Sad-irons	....do	410	27
Safe-boltwork	Safes	73	20
Safe-boltwork—			
Automatic	....do	34	20
Safe-filling	....do	35	20
Safety	Steam-Engine Valves	394	18
Safety attachments	Buckles, Buttons, Clasps, Etc.	96	11
Safety attachments—			
Pocket	....do	77	11
Safety attachments and pencil-clasps combined.	....do	54	11
Safety-deposit	Safes	4	20
Safety-deposit boxes	....do	8	20
Safety devices	Steam-Boilers	66	18
Safety-harness	Accoutrements	8	32
Safety lamps and lanterns.	Lamps and Gas-Fittings	37	30
Safety-tube and central-draft—			
Draw-bar	....do	106	30

Subclass.	Class.	No. of patents in subclass.	Division.
Safety-tube and central-draft—			
Miscellaneous	Lamps and Gas-Fittings	53	30
No-raiser	....do	243	30
Rack-bar	....do	65	30
Screw-rod	....do	31	30
Swiss screw	....do	54	30
Safety-valves	Water Distribution	41	4
Safety-wheels—			
Barrel	Horology	17	23
Center	....do	34	23
Sails and rigging	Ships	92	22
Salines	Chemicals	332	6
Saliva-ejectors	Dentistry	12	20
Salt-making	Sugar and Salt	93	6
Sampling-tubes	Water Distribution	26	4
Sand-ballers	Pumps	42	9
Sand-bands	Carriages and Wagons	127	10
Sand-blowers	Pneumatics	8	28
Sanding devices	Railway Rolling-Stock	10	34
Sanding devices—			
Chain-feed	....do	6	34
Oscillatory feed	....do	47	34
Reciprocatory feed—			
Horizontal	....do	18	34
Vertical	....do	16	34
Rotary feed	....do	19	34
Sap-buckets	Trees, Plants, and Flowers	37	1
Sap-spouts	....do	104	1
Sarcophagi	Clay and Pottery	20	15
Sash-balances—			
Drum and cord	Builders' Hardware	73	20
Friction	....do	15	20
Friction-roller	....do	10	20
Gear and rack	....do	60	20
Spring	....do	13	20
Weight	....do	94	20
Sash-cord fasteners	....do	99	20
Sash-cord fasteners—			
Weight	....do	11	20
Sash-cord guides	....do	126	20
Sashes and blinds—			
Making	Woodworking-Machines	5	29
Tenoning	....do	27	29
Sash-fasteners	Builders' Hardware	348	20
Sash-fasteners—			
Gear and rack	....do	113	20
Lifts	....do	154	20
Mid-rail	....do	84	20
Right-angle	....do	62	20
Rod-clamps	....do	63	20
Sliding bolts	....do	209	20
Sash-holders	....do	227	20
Sash-holders—			
Clamps	....do	18	20
Combined fasteners	....do	133	20
Foot	....do	87	20
Roller-bearing	....do	121	20
Strips	....do	36	20
Wedges	....do	62	20
Sash-weights	....do	35	20
Sausage-machines	Butchering	100	25
Sawbucks	Wood-Sawing	40	29
Saw clamps and jointers	Metal Tools and Implements. Making	204	13
Saw-gins	Brakes and Gins	258	21
Saw-guards	Wood-Sawing	52	29
Saw-guides	....do	145	29
Saw-handles	Woodworking-Tools	205	29
Saw-hanging	Wood-Sawing	130	29
Sawing	Metal Punching and Shearing.	75	14
Sawing-machines, reciprocating saw.	Wood-Sawing	67	29
Sawing stone	Stone-Working	237	25
Sawmill appliances	Wood-Sawing	77	29
Sawmill-carriages—			
Feed	....do	173	29
Offsetting	....do	52	29
Sawmill-dogs	....do	166	29
Sawmill set-works	....do	378	29
Saws	Metal Tools and Implements. Making	88	13
Saws	Wood-Sawing	287	29
Saw-setting	Metal Tools and Implements. Making	381	13
Saws, gumming	....do	127	13
Saw-sharpening—			
Reciprocating tool	....do	288	13
Rotating tool	....do	193	13
Saw-swaging	....do	190	13
Saw-table gages	Wood-Sawing	107	29
Saw-teeth	....do	253	29
Scabbard-hangers	Accoutrements	16	32
Scabbards	....do	14	32
Scaffold-binders	Carpentry	33	29
Scaffolds	....do	222	29
Scaffolds—			
Bracket	....do	66	29
Scaffolds—			
Trestle	Carpentry	80	29
Scalding and singeing	Butchering	24	25
Scales—			
Beams	Measuring Instruments	137	23
Cart	....do	56	23
Hydrostatic	....do	31	23
Pans	....do	18	23
Pendulum	....do	158	23
Platform	....do	237	23
Price	....do	109	23
Sack	....do	140	23
Spring	....do	160	23
Scarf-pins	Jewelry	40	5
Scarificators and lancets	Surgery	46	6
Scholars' companions	Stationery	52	5
School seats and desks	Chairs	436	8
Scissors and shears	Cutlery	280	15
Scoops	Kitchen and Table Articles	53	8
Scoriaceous	Artificial Stone	31	15
Scows	Ships	92	22
Screens	Carding	16	21
Screens	Furniture	14	8
Screens—			
Folding	....do	22	8
Screens and riddles	Threshing	85	25
Screw-blank feeders	Metal Bolts, Nuts, Rivets, and Screws.	37	13
Screw-cutting machines	....do	399	13
Screw-drivers	Woodworking-Tools	85	20
Screw-drivers—			
Attachments	....do	47	29
Ratchet	....do	47	29
Screw-feed	Seeders and Planters	42	1
Screw-propellers—			
Adjustable blades	Marine Propulsion	32	22
Fitting and driving	....do	216	22
Form and construction	....do	264	22
Steering	....do	44	22
Screws	Metal Bolts, Nuts, Rivets, and Screws.	159	13
Screw-swaging machines.	....do	107	13
Screw-tapping machines	....do	88	13
Screw-thread bending	Sheet-Metal Ware. Making	56	14
Screw-threading machines.	Metal Bolts, Nuts, Rivets, and Screws.	54	13
Scribers	Drafting	13	23
Scrubbing-machines	Brushing and Scrubbing	50	27
Scrubbing-pails	....do	7	27
Sculpture	Fine Arts	7	5
Scuppers and hawseholes.	Ships	24	22
Scythes	Metal Tools and Implements. Making	22	13
Scythes and cradles	Harvesters	169	7
Seal-bolts	Locks and Latches	37	20
Sealing-tools	Printing	47	17
Seals	Locks and Latches	141	20
Seals—			
Automatic catch	....do	55	20
Box and bag	....do	14	20
Box-strap	....do	12	20
Seaming sheets	Sheet-Metal Ware. Making	99	14
Seamless	Metal-Tube Manufacture	10	13
Seat-locks	Carriages and Wagons	132	10
Seats	....do	165	10
Seats	Harvesters	50	7
Seats—			
Car	Chairs	278	8
Circus	....do	7	8
Reversible	....do	11	8
Shifting	Carriages and Wagons	314	10
Spring	....do	166	10
Spring	Chairs	94	8
Sectional	Steam-Boilers	516	18
Sectional—			
Headers	....do	273	18
Sectional and folding	Boats	83	22
Sectional conductors—			
Connected	Electricity. Electric Railways.	42	26
Magnetic closers	....do	104	26
Magnetic closers—			
Magnet on car	....do	63	26
Magneto-mechanical	....do	15	26
Mechanical closers	....do	135	26
Traveling closers	....do	13	26
Seeders	Vegetable Cutters and Crushers.	114	25
Seed, preparing for planting.	Seeders and Planters	12	1
Seed-testers	Trees, Plants, and Flowers	3	1
Selectors, interlocking	Railways	25	34
Self-binders—			
Clips and prepared bands.	Harvesters	27	7
Cord-knotters	....do	469	7
General structure	....do	516	7

Subclass.	Class.	No. of patents in subclass.	Division.
Self-binders—			
Gleaners and binders	Harvesters	33	7
Self-binders	....do	30	7
Tension and take-up devices.	....do	55	7
Twisters and tuckers	....do	104	7
Wire-twisters	....do	192	7
Self-playing attachments, keyboard.	Music	48	5
Self-playing instruments.	....do	91	5
Self-playing instruments—			
Cylinder	....do	91	5
Electropneumatic	....do	7	5
Note-sheets	....do	20	5
Note-sheets—			
Projections	....do	13	5
Pneumatic	....do	88	5
Spurs and picks	....do	48	5
Self-rakers—			
Endless carriers	Harvesters	165	7
Gaveling-tongs	....do	32	7
Platform-movement	....do	115	7
Reciprocating—			
Horizontal curvilinear.	....do	180	7
Horizontal rectilinear.	....do	92	7
Rotary—			
Horizontal axis	....do	80	7
Vertical axis—			
No-switch	....do	151	7
Switch	....do	142	7
Traveling—			
Horizontal irregular path.	....do	63	7
Vertical irregular path.	....do	16	7
Semaphores	Signals	50	22
Separating rope	Cordage	1	21
Separators	Steam-Boilers	174	18
Separators, boxes, billfiles.	Stationery	51	5
Serving apparatus	Paper Manufactures	64	17
Serving apparatus—			
Printing attachment	....do	55	17
Roll-holders	....do	47	17
Roll-holders—			
Cutting attachment	....do	206	17
Feeding attachment	....do	31	17
Settees	Chairs	34	8
Setters and threaders	Sewing-Machines	72	24
Setting and distributing	Printing	308	17
Setting gems	Jewelry	107	5
Sewage and night-soil	Fertilizers	106	6
Sewing hats	Sewing-Machines	48	24
Sewing looped fabrics	....do	53	24
Sewing-needles, Making	Needles and Pins	13	13
Sewing on buttons	Sewing-Machines	84	24
Sewing rugs	....do	5	24
Sewing shoes	....do	323	24
Sextants	Optics	24	30
Shackles	Locks and Latches	64	20
Shade and curtain hangers.	Curtains, Shades, and Screens.	102	8
Shade-brackets	....do	98	8
Shade-fastenings	....do	47	8
Shade-guides	....do	68	8
Shade-hangers, vertically-adjustable.	....do	188	8
Shade-raisers	....do	56	8
Shade-rollers	....do	49	8
Shade-rollers—			
Dropping	....do	35	8
Friction-brake	....do	101	8
Ratchet and pawl	....do	103	8
Spring	....do	252	8
Shade-sticks	....do	25	8
Shade-supports—			
Base	Lamps and Gas-Fittings	28	30
Candle	....do		30
Double-clamp	....do	26	30
Drop	....do	4	30
Miscellaneous	....do	3	30
Spider	....do	55	30
Top	....do	15	30
Umbrella	....do	10	30
Shaft and cylinder	Driers	4	28
Shaft and shelf	....do	37	28
Shaft-casings	Journal-Boxes, Pulleys, and Shafting.	17	12
Shaft-couplings	....do	272	12
Shaft-hangers	....do	106	12
Shafting	....do	9	12
Shafting—			
Flexible	....do	49	12
Shafts—			
Inclined	Driers	10	28
Shafts—			
Vertical	Driers	154	28
Zigzag	....do	6	28
Shafts and pulleys	Metal-Forging	30	13
Shaking	Driers	23	28
Shanks and machines	Boots and Shoes	86	11
Shaping	Shaping Fluid Metal	11	3
Shaping—			
By dies—			
Bars and plates	....do	17	3
Covering wire	....do	70	3
Tubes	....do	43	3
Tubes—			
Compound	....do	17	3
Curved	....do	25	3
By rolls	....do	32	3
Shaping and slotting	Metal Turning, Planing, and Milling.	103	13
Sharpeners, pencil	Stationery	320	5
Shaving-cups	Toilet	23	24
Shaving, fixed knife	Woodworking-Machines	39	29
Shawl-straps	Bundle-Carriers	13	32
Shawl-straps—			
Fasteners	....do	18	32
Handles	....do	8	32
Handles—			
Bar	....do	21	32
Tighteners	....do	17	32
Shearing	Cloth-Finishing	64	21
Shears—			
Lever and sliding	Metal Punching and Shearing.	207	14
Rotary	....do	110	14
Shedding—			
Cam and treadle	Weaving	70	21
Harness connections	....do	214	21
Pattern-controlled	....do	36	21
Sheet and hoop iron manufacture.	Metal-Rolling	119	13
Sheet-stencil making	Printing	43	17
Shelf and tray	Driers	216	28
Shell-fuses	Projectiles	132	22
Shell-fuses—			
Electric	....do	10	22
Shells	....do	169	22
Shelving	Store Furniture	41	8
Shields	Care of Live Stock	35	2
Shields	Ordnance	23	22
Shifting rails	Carriages and Wagons	121	10
Shifting-thills, sleds	....do	53	10
Shingle	Wood-Sawing	132	29
Shingle—			
Horizontal saw	....do	126	29
Shingling-brackets	Carpentry	106	29
Ship-building	Ships	242	22
Ships' logs	Measuring Instruments	67	23
Shoal-alarms	Signals	9	22
Shock-compressors	Harvesters	52	7
Shoe-blacking stands	Brushing and Scrubbing	50	27
Shoe-brushes	....do	123	27
Shoe-fastenings	Boots and Shoes	356	11
Shoeing-stands	Farriery	26	14
Shoe-nail clenchers	....do	44	14
Shoe nails and tacks	Nails and Spikes	208	13
Shoe nails and tacks—			
Making	....do	44	13
Shoes	Farriery	128	14
Shoes—			
Composite	....do	99	14
Nailless	....do	148	14
Ox	....do	15	14
Removable-calk	....do	237	14
Soft-tread	....do	110	14
Swamp	....do	20	14
Shooting devices	Coin-Controlled Apparatus	4	14
Short-thread	Sewing-Machines	31	24
Short-turning gear	Carriages and Wagons	152	10
Shovels	Harrows and Diggers	208	1
Shovels, tongs, and pokers.	Stoves and Furnaces	98	19
Show-cases	Store Furniture	69	8
Show-cases—			
Lid-lifters	....do	21	8
Shredders	Clay and Pottery	30	15
Shutter-bowers	Builders' Hardware	101	20
Shutter-fasteners	....do	27	20
Shutter-fasteners—			
Bars or bolts	....do	29	20
Catches—			
Double	....do	83	20
Gravity	....do	10	20
Rod	....do	36	20
Single	....do	32	20
Sliding	....do	14	20
Wall	....do	25	20
Combined sash	....do	50	20
Fire	....do	28	20
Hooks	....do	32	20
Operators	....do	20	20

Subclass.	Class.	No. of patents in subclass.	Division.
Shutters	Carpentry	165	29
Shutters	Iron Structures	98	4
Shutters	Photography	2	6
Shutters—			
Curtain	....do	8	6
Diaphragm	....do	11	6
Fireproof	Fireproof Buildings	54	4
Pivoted	Photography	134	6
Sliding	Carpentry	69	29
Sliding	Photography	28	6
Swinging	Carpentry	36	29
Shutter-workers	Builders' Hardware	17	20
Shutter-workers—			
Combined slat	....do	27	20
Cord or chain	....do	19	20
Levers	....do	36	20
Rotary-shaft	....do	135	20
Sliding-shaft	....do	59	20
Sliding-shutter	....do	9	20
Shuttle-boxes	Weaving	189	21
Shuttle-checks	....do	44	21
Shuttle-guards	....do	30	21
Shuttle-machines	Sewing-Machines	729	24
Shuttle-motions—			
Fly	Weaving	180	21
Magnetic	....do	7	21
Pneumatic	....do	4	21
Positive	....do	69	21
Shuttles—			
Cop-cell and cover	....do	23	21
Float-detecting	....do	20	21
Guides and tensions	....do	121	21
Shuttles	....do	218	21
Shuttles and bobbins	Sewing-Machines	264	24
Shuttle-threaders	Weaving	12	21
Side	Nut and Bolt Locks	337	14
Side—			
Key and ratchet	....do	179	14
Sidings and partitions—			
Concrete	Fireproof Buildings	36	4
Tile	....do	19	4
Sights	Firearms	168	22
Sights	Ordnance	31	22
Signal-lights	Lamp and Gas-Fittings	49	30
Signals	Railways	100	34
Signals—			
Automatic	....do	45	34
Automatic—			
Agitated	....do	43	34
Alarm	....do	65	34
Block	....do	50	34
Crossing	....do	64	34
Setting apparatus	....do	10	34
Stops	....do	25	34
Tappets	....do	9	34
Trips	....do	32	34
Bar	....do	35	34
Car	Signals	102	22
Danger	Railways	19	34
Detonating	....do	105	34
Fog	Signals	118	22
Light	Railways	68	34
Nautical	Signals	41	22
Pneumatic	Railways	48	34
Pneumatic	Signals	96	22
Pneumatic—			
Automatic	Railways	53	34
Portable	....do	15	34
Pyrotechnic	Signals	78	22
Switch	Railways	98	34
Train-order	....do	14	34
Sign-dummies	Advertising	12	32
Sign-letters	....do	54	32
Signs	....do	67	32
Signs—			
Belt	....do	53	32
Endless-belt	....do	38	32
Endless-belt—			
Motors—			
Clock	....do	19	32
Vehicle	....do	16	32
Guide-post	....do	24	32
Hanging	....do	15	32
Illuminated	....do	44	32
Illuminated—			
Lantern	....do	36	32
Perforated	....do	23	32
Interchangeable-letter	....do	52	32
Interchangeable-slide	....do	30	32
Mechanically-rotated	....do	64	32
Multiple-plate	....do	37	32
Raised letters	....do	14	32
Rotatable	....do	53	32
Single-plate	....do	13	32
Street-lamp	....do	29	32
Vibrating	....do	32	32
Silk	Silk	12	21
Singeing	Cloth-Finishing	12	21
Single-acting compound	Steam-Engines	124	18
Single-chuck lathes	Wood-Turning	92	29
Single-cylinder	Steam-Engines	198	18
Single rail	Railway Rolling-Stock	5	34
Single rail—			
Side guides	....do	26	34
Side guides—			
Locomotives	....do	12	34
Single top and bottom rail.	....do	12	34
Sinks	Baths and Closets	52	9
Siphons	Water Distribution	135	4
Sizing	Cloth-Finishing	9	21
Sizing. Waterproofing and	Paper-Making	287	15
Skaters' appliances	Games and Toys	32	31
Skates	....do	364	31
Skates—			
Roller	....do	440	31
Skate-wheels	....do	82	31
Skeleton	Towers	104	12
Skids	Hoisting	93	12
Skinning	Butchering	15	25
Skipping-ropes	Games and Toys	16	31
Skylights	Carpentry	169	29
Slack-adjusters	Railway-Brakes	40	34
Slack-adjusters—			
Ratchet-bar	....do	37	34
Ratchet-driven screw	....do	18	34
Slag	Metallurgy	23	3
Slag—			
Disintegrating	....do	30	3
Heaters	....do	20	3
Separators, centrifugal.	....do	19	3
Slate and blackboard rubbers.	Stationery	124	5
Slate and shingle	Roofing	70	29
Slate-mufflers	Educational Appliances	68	31
Slates	....do	162	31
Slaughtering, elevating, and suspending.	Butchering	93	25
Sled-propellers	Carriages and Wagons	185	10
Sleds	....do	507	10
Sleds—			
Brakes	....do	155	10
Hand	....do	139	10
Shifting thills	....do	53	10
Wheel-runners	....do	150	10
Sledways	Railways	18	34
Sleeping-cars	Railway Rolling-Stock	160	34
Sleeve-holders	Buckles, Buttons, Clasps, Etc.	11	11
Sleigh-bells	Signals	66	22
Slicers—			
Beveling	Woodworking-Machines	255	29
Reciprocating	....do	256	29
Rotary and oscillating	....do	224	29
Slide	Steam-Engine Valves	131	18
Sliding and swinging gates.	Fences	44	1
Sliding and swinging gates—			
Hinged rollers	....do	124	1
Suspending-frames	....do	136	1
Sliding-door fasteners	Locks and Latches	147	20
Sliding-door openers	Fences	21	1
Sliding gates	....do	79	1
Sliding gates—			
Lever-openers	....do	117	1
Pulley or rack openers	....do	75	1
Suspended	....do	58	1
Vibrating tracks	....do	58	1
Sliding-poles	Fire Escapes and Ladders	8	12
Sliding-rack	Driers	19	28
Slivering	Woodworking-Machines	142	29
Smoke and air flues	Masonry	11	4
Smoke and gas returning.	Steam-Boiler Furnaces	191	18
Smoke and gases. Introducing	Steam-Boilers	46	18
Smoking-tobacco	Tobacco	13	2
Smoking-tubes	....do	41	2
Snap-hooks—			
Pivoted-tongue	Buckles, Buttons, Clasps, Etc.	188	11
Sliding-bolt	....do	76	11
Spring-tongue	....do	132	11
Snaps and sockets	Glass	20	15
Snow and ice melters	Stoves and Furnaces	102	19
Snuff manufacture	Tobacco	2	2
Soap articles	Oils, Fats, and Glue	36	31
Soap-bubble pipes	Games and Toys	22	31
Soap-cutting	Oils, Fats, and Glue	42	31
Soap-frames	....do	12	31
Soap-holders	Furniture	59	8
Soap manufacture	Oils, Fats, and Glue	127	31
Soap-presses	....do	50	31
Sockets and keys	Electric Lighting	285	16
Soda and potash	Chemicals	223	6

Subclass.	Class.	No. of patents in subclass.	Division.
Soda-water apparatus	Dispensing Beverages	26	32
Soda-water apparatus—			
Bottle-taps	do	24	32
Faucets	do	7	32
Faucets—			
Foam	do	14	32
Foam—			
Rotary-valve	do	12	32
Mixing	do	16	32
Nozzles	do	8	32
Fountains	do	20	32
Fountains—			
Casings	do	20	32
Pressure-reducers	do	261	32
Pump	do	21	32
Syrup-cocks	do	12	32
Syrup-cocks—			
Measuring	do	8	32
Rotary	do	9	32
Syrup-tanks	do	15	32
Syrup-tanks—			
Removable	do	16	32
Removable—			
Sliding	do	13	32
Swinging	do	7	32
Valves	do	13	32
Sod-cutters	Plows	49	1
Sofas	Chairs	68	8
Soft rubber	Caoutchouc and Minor Plastics.	148	15
Solar	Driers	6	28
Soldering	Sheet-Metal Ware. Making	46	14
Soldering—			
Clamps	do	75	14
Clamps—			
Expanding-mandrel	do	42	14
Trough	do	30	14
Fluxes	do	6	14
Irons	do	94	14
Irons—			
Heaters	do	70	14
Heaters—			
Electric	do	30	14
Machines	do	112	14
Machines—			
Can-capping	do	32	14
Dip—			
Endless-chain carrier.	do	62	14
Reciprocating carrier.	do	8	14
Rotary-table carrier.	do	29	14
Sequential	do	43	14
Simultaneous	do	36	14
Endless-chain carrier.	do	22	14
Endless-chain carrier—			
Can-capping	do	9	14
Rotary-table carrier	do	66	14
Rotary-table carrier—			
Can-capping	do	13	14
Solders	do	31	14
Sole and heel plates	Boots and Shoes	217	11
Sole and heel trimming machines.	do	375	11
Sole-machines	do	300	11
Solenoid-operated	Railway-Brakes	19	34
Soles	Boots and Shoes	681	11
Solid reciprocating piston.	Pumps	134	9
Solid reciprocating piston—			
Double-acting	do	257	9
Multiple-cylinder	do	147	9
Multiple-cylinder—			
Double-acting	do	26	9
Solo attachments	Music	12	5
Solution and precipitation.	Metallurgy	93	3
Solution and precipitation—			
Apparatus	do	19	3
Chlorination	do	78	3
Cyanids	do	25	3
Ferric salts	do	12	3
Parting bullion	do	13	3
Sostenuto-pianos	Music	31	5
Sound-deadening devices.	Railway Rolling-Stock	8	34
Sounding-boards, piano	Music	77	5
Sounding toys	Games and Toys	248	31
Sounding wheeled toys	do	26	31
Spacing instruments	Measuring Instruments	14	23
Spark-arresters	Steam-Boiler Furnaces	656	18
Spark-catchers	Lamps and Gas-Fittings	19	30
Spark-conductors	Steam-Boiler Furnaces	104	18
Speaking-tubes	Signals	89	22
Special lamps	Lamps and Gas-Fittings	90	30
Special machines	Sewing-Machines	202	24
Special machines	Weaving	4	21
Special work	Woodworking-Machines	196	29
Specific-gravity apparatus.	Measuring Instruments	12	23
Spectacle-cases	Optics	20	30
Spectacles	do	176	30
Speculums	Surgery	70	6
Speed-governors	Steam-Engines	142	18
Speed-governors—			
Centrifugal	do	437	18
Marine	do	44	18
Pressure	do	136	18
Speed-indicating alarms	Signals	9	22
Spelter	Metallurgy	6	3
Spelter—			
Processes	do	31	3
Retorts	do	22	3
Stacks	do	10	3
Sphygmoscopes	Measuring Instruments	8	23
Spikes. Making	Nails and Spikes	149	13
Spindle-driving devices	Spinning	78	21
Spindles and appurtenances.	do	148	21
Spindles and bearings—			
Bolsters	do	77	21
Combined bearings	do	258	21
Sleeve-whirls and standards.	do	38	21
Spindles and bearings	do	85	21
Steps	do	59	21
Spinners' and weavers' appliances.	Hardware-Making	66	13
Spinning	Sheet-Metal Ware. Making	62	14
Spinning-tops	Games and Toys	108	31
Spiral	Driers	8	28
Spiral tool-drivers	Woodworking-Tools	44	29
Spiral weld	Metal-Tube Manufacture	21	13
Spirometers	Measuring Instruments	15	23
Spittoons	Furniture	129	8
Spittoons—			
Covered	do	50	8
Flushing	do	18	8
Splices and joints	Carpentry	63	29
Splitting	Leather-Working Machinery	143	11
Splitting and bundling	Woodworking-Machines	75	29
Spokeshaves	Woodworking-Tools	56	29
Spokeshaves—			
Adjustable-bit	do	37	29
Spoke-sockets	Carriages and Wagons	128	10
Sponge-cups	Stationery	110	5
Sponging	Cloth-Finishing	60	21
Spool-boxes	Apparel Apparatus	32	24
Spool-holders	do	61	24
Spool-stands	do	43	24
Spool-tensions	do	12	24
Spoons, manufacture of	Hardware-Making	73	13
Spring-gear	Carriages and Wagons	227	10
Spring-gears—			
Axle-cross	do	120	10
Lever	do	104	10
Longitudinal	do	536	10
Side-bar cross	do	354	10
Springs	Beds	119	8
Springs	Carriages and Wagons	104	10
Springs	Hardware-Making	143	13
Springs	Railway Rolling-Stock	85	34
Springs—			
Bolster	Carriages and Wagons	145	10
Braces and equalizers	do	124	10
Coil	Railway Rolling-Stock	40	34
Coil and rubber	do	40	34
Coil, cap and bed plates	do	102	34
Conical volute	do	34	34
Elliptic	Carriages and Wagons	185	10
Elliptic	Railway Rolling-Stock	33	34
Elliptic—			
Cap and bed plates	do	18	34
Multiple-disk	do	30	34
Pneumatic	do	36	34
Platform	Carriages and Wagons	144	10
Rubber	Railway Rolling-Stock	11	34
Rubber—			
Cap and bed plates	do	31	34
Shackles	Carriages and Wagons	66	10
Torsion	do	162	10
Zigzag	Railway Rolling-Stock	13	34
Spurs and picks for self-playing instruments.	Music	48	5
Spurs and stirrups	Harness	202	11
Squares	Measuring Instruments	159	23
Squares—			
Center	do	25	23
Folding	do	59	23
Stackers	Hoisting	157	12
Stackers	Threshing	6	25
Staffs	Railway-Brakes	7	34

Subclass.	Class.	No. of patents in subclass.	Division.
Staffs—			
Friction-clutch handles.	Railway-Brakes	9	34
Geared	do	14	34
Locking ratchets	do	44	34
Ratchet-handles	do	33	34
Ratchet-handles—			
Pivoted	do	11	34
Screw	do	14	34
Winding attachments	do	16	34
Stair-covers	Carpentry	32	29
Stair-curves	Drafting	17	23
Stair-rods and securers	Builders' Hardware	89	20
Stair-rods and securers—			
Buttons	do	8	20
Fasteners	do	15	20
Rods	do	15	20
Stairs	Carpentry	45	29
Stairs	Iron Structures	32	4
Stakes	Railway Rolling-Stock	17	34
Stakes and targets	Optics	27	30
Stalk-choppers	Harrows and Diggers	9	1
Stalk-choppers—			
Draw-cut	do	36	1
Reciprocating	do	32	1
Revolving—			
Horizontal	do	162	1
Vertical	do	15	1
Vine-cutters	do	14	1
Stalk-cutters	Harvesters	126	7
Stalk-pullers—			
Hand	Harrows and Diggers	61	1
Wheel	do	37	1
Stamping	Hardware-Making	17	13
Stamping	Sheet-Metal Ware. Making	52	14
Stamps—			
Branding	Printing	88	17
Hand	do	61	17
Postage and revenue	Bookbinding	84	5
Stanchions	Care of Live Stock	89	2
Standards	Carriages and Wagons	119	10
Standards	Plows	48	1
Staples	Chains, Staples, and Horseshoes.	26	13
Staples—			
Making	do	61	13
Starch	Sugar and Salt	157	6
Starching-machines	Laundry	66	27
Starters	Railway Rolling-Stock	281	34
Starters and brakes	do	300	34
Stationary systems	Fire-Extinguishers	62	9
Stationary systems—			
Automatic	do	18	9
Automatic valve	do	45	9
Automatic valve—			
Pressure-controlled	do	81	9
Chemical mixing	do	29	9
Gas-pressure supply	do	19	9
Stays and props	Trees, Plants, and Flowers	17	1
Steading and feeding—			
Calf-feeders	Care of Live Stock	11	2
Combined troughs and racks.	do	120	2
Feed-racks	do	42	2
Feed-troughs	do	305	2
Nose-bags	do	107	2
Releasing devices	do	87	2
Stall-floors	do	54	2
Stalls, sheds, and pens	do	90	2
Steam-actuated	Steam-Engine Valves	403	18
Steam and bleach chests	Bleaching and Dyeing	40	6
Steam and vacuum pumps.	Steam and Vacuum Pumps	238	18
Steamboat-chimneys	Ships	13	22
Steam-boiler and flue scrapers.	Mills	257	25
Steam-boiler cleaners	Steam-Boilers	274	18
Steam-hammers	Steam-Engines	203	18
Steaming-tables	Stoves and Furnaces	22	19
Steam-joint packing	Steam-Engines	58	18
Steam-mufflers	do	105	18
Steam-organs	Music	3	5
Steam-plows	Plows	188	1
Steam-radiator attachments.	Stoves and Furnaces	142	19
Steam-radiators	do	419	19
Steam sanding	Steam-Engines	62	18
Steam steering	do	104	18
Steam-traps	do	208	18
Steam-whistles	Signals	58	22
Steelyards	Measuring Instruments	20	23
Steering and propulsion	Electricity. Motive-Power	32	26
Steering-heads and handle-bars.	Velocipedes	226	7
Steering mechanism	Ships	250	22
Steering mechanism—			
Hydraulic	do	24	22
Pneumatic	do	2	22
Steering mechanism—			
Rudders	Ships	131	22
Wheels in channels	do	9	22
Steering-propellers, (except screw.)	Marine Propulsion	19	22
Stenciling-machines	Printing	77	17
Stencil-making pens	do	39	17
Stencil-plates	do	73	17
Stenographic	Type-Writing Machines	19	30
Step-ladders	Fire Escapes and Ladders	395	12
Step-ladders—			
Store-service	do	32	12
Steps	Carriages and Wagons	108	10
Steps	Railway Rolling-Stock	16	34
Steps and foot-rests	Velocipedes	17	7
Stereoscopes	Optics	124	30
Stereotyping	Printing	40	17
Stereotyping—			
Casting-boxes	do	58	17
Matrices and materials	do	47	17
Sterilizers, liquid	Stoves and Furnaces	31	19
Stills	Mineral Oils	39	31
Stills—			
Bottoms	do	18	31
Condensers	do	64	31
Feeders	do	8	31
Films	do	18	31
Furnaces and flues	do	32	31
Heads	do	12	31
Jackets	do	25	31
Rotary	do	10	31
Series	do	29	31
Stirrers and scrapers	do	19	31
Supplementary heating.	do	13	31
Tubular	do	16	31
Utilizing gases and residue.	do	1	31
Vacuum	do	16	31
Vapor-outlets	do	9	31
Stilts	Games and Toys	40	31
Stippling	Metal-Ornamenting	14	14
Stirrers	Driers	18	28
Stock-cars	Care of Live Stock	454	2
Stock-grinders	Paper-Making	101	15
Stocks	Firearms	110	22
Stock-sorters	Care of Live Stock	5	2
Stone	Paving	117	15
Stone and brick settings	Masonry	32	4
Stone-gatherers	Harrows and Diggers	20	1
Stools—			
Cane	Chairs	55	8
Folding	do	89	8
Stools and seats	do	234	8
Stools and seats—			
Duplex	do	14	8
Pawl and ratchet	do	61	8
Pedestals	do	38	8
Screw	do	49	8
Stop-actions—			
Organ	Music	77	5
Organ—			
Combination	do	22	5
Stop-cocks (*See* Fluid-pressure train-pipe stop-cocks.)	Railway-Brakes	8	34
Stopper-extractors	Kitchen and Table Articles	39	8
Stopper-extractors—			
Hook	do	38	8
Screw	do	39	8
Screw—			
Lever-operated	do	30	8
Rotary	do	41	8
Screw and lever	do	27	8
Stopper-fasteners	Bottles and Jars	11	32
Stopper-pullers	do	27	32
Stoppers	do	18	32
Stopping	Carding	23	21
Stopping	Knitting and Netting	118	21
Stopping	Spinning	68	21
Stopping—			
Protector mechanism	Weaving	33	21
Stopping	do	51	21
Warp stop-motions	do	36	21
Weft stop-motions	do	102	21
Store-service—			
Buffers	Store-Service	17	12
Carriers	do	14	12
Carriers—			
Wheeled	do	64	12
Elevators and drops	do	61	12
Gravity	do	177	12
Propulsion	do	178	12
Propulsion—			
Cable	do	67	12
Spreaders	do	57	12
Switches	do	80	12
Stove doors and windows	Stoves and Furnaces	291	19

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Subclass.	Class.	No. of patents in subclass.	Division.
Stove-hoods	Stoves and Furnaces	93	19
Stove-legs	do	129	19
Stove-lid lifters	do	50	19
Stove lids and tops	do	157	19
Stovepipes	do	268	19
Stovepipe-shelves	do	169	19
Stovepipe-thimbles	do	332	19
Stove-polishes	Painting	43	31
Stoves—			
Car	Stoves and Furnaces	57	19
Car—			
Protective casings	do	37	19
Cooking	do	851	19
Cooking—			
Hearths	do	41	19
Magazine	do	79	19
Parlor	do	28	19
Reservoir	do	353	19
Steam	do	25	19
Gas	do	717	19
Heating	do	449	19
Heating—			
Central air-tube	do	23	19
Horizontal-body	do	51	19
Hot-air	do	317	19
Open-front	do	70	19
Panel	do	15	19
Lamp	do	684	19
Magazine	do	441	19
Magazine—			
Fireplace	do	77	19
Vapor	do	606	19
Stove-shelves	do	161	19
Straight—			
Cams and stops	Knitting and Netting	17	21
Fashioning-machines	do	87	21
Looper pin and hook machines.	do	17	21
Straight machines	do	214	21
Warp-machines	do	44	21
Straight weld	Metal-Tube Manufacture	178	13
Straightening	Metal-Bending	80	14
Straightening plates and sheets.	do	12	14
Strap-attaching devices	Buckles, Buttons, Clasps, Etc.	49	11
Straw	Sewing-Machines	70	24
Strawberry-growing	Trees, Plants, and Flowers	10	1
Straw-carriers—			
Endless aprons	Threshing	170	25
Overhung rakes	do	45	25
Reels	do	26	25
Shaking tables	do	157	25
Stackers	do	6	25
Vibrators	do	52	25
Walking-rakes	do	68	25
Straw-cutters—			
Cutter and bed—			
Reciprocating-knife	Vegetable Cutters and Crushers.	4	25
Rotary-cylinder	do	25	25
Cylinder and concave	do	22	25
Double-cylinder	do	22	25
Pivoted-knife—			
Rake-feed	do	13	25
Roller-feed	do	45	25
Without feed	do	125	25
Rotary-wheel—			
Follower-feed	do	6	25
Rake-feed	do	8	25
Roller-feed	do	143	25
Without feed	do	12	25
Single-cylinder—			
Rake-feed	do	2	25
Roller-feed	do	138	25
Without feed	do	19	25
Sliding-knife—			
Rake-feed	do	33	25
Roller-feed	do	63	25
Without feed	do	75	25
Street-car poles	Railway Draft Appliances	15	34
Street-cars	Railway Rolling-Stock	25	34
Street-lamps	Lamps and Gas-Fittings	153	30
Street-light hangers	do	97	30
Street-sweepers	Brushing and Scrubbing	272	27
Stretchers, canvas	Fine Arts	40	5
Stretching	Cloth-Finishing	93	21
Stretching	Silk	9	21
Stretching and drying	Cloth-Finishing	35	21
Stringing, piano	Music	37	5
String-plates	do	47	5
Strings, auxiliary	do	14	5
Stripping mechanism	Carding	86	21
Structural work	Metal-Forging	43	13
Studios	Photography	6	6
Studios—			
Accessories	do	53	6
Stump-extractors	Hoisting	36	12
Stump-extractors—			
Drum	Hoisting	62	12
Lever	do	206	12
Lever and drum	do	200	12
Screw	do	47	12
Stylographic pens	Stationery	81	5
Submarine and torpedo	Ships	122	23
Submarine guns	Ordnance	17	22
Subsoilers	Plows	158	1
Subways	Masonry	18	4
Sucker-rod joints	Hardware-Making	11	13
Sucker-rods	Artesian and Oil Wells	95	25
Sugar and salt crushers	Mills	68	25
Sugar-making	Sugar and Salt	60	6
Suint	Oils, Fats, and Glue	21	31
Sulkies	Carriages and Wagons	902	10
Sun-dials	Horology	13	23
Sun-dials—			
Curved	do	18	23
Disk	do	11	23
Superheaters	Steam-Boilers	132	18
Supports	Telephony	100	16
Supports—			
For violins	Music	22	5
Picture	Fine Arts	79	5
Supports and hangers	Electricity. Conductors	53	26
Surfaces	Photography	28	6
Surfaces	Printing	119	17
Surfaces—			
Bases	do	25	17
Holders	do	86	17
Holders—			
Sliding-clamp	do	55	17
Planographic	do	70	17
Planographic—			
Hektographs	do	41	17
Holders and supports	do	20	17
Rules	do	18	17
Sensitive	Photography	53	6
Types	Printing	72	17
Surge-relievers	Ships	34	22
Surveying instruments	Optics	99	30
Suspended	Railway Rolling-Stock	15	34
Suspenders	Buckles, Buttons, Clasps, Etc.	310	11
Suspender-ends	do	130	11
Suspension-bridges	Bridges	62	4
Swells—			
Knee	Music	7	5
Organ	do	30	5
Swimming appliances	Boats	48	22
Swing-bridges	Bridges	50	4
Swinging-door openers	Fences	52	1
Swinging gates	do	94	1
Swinging gates—			
Folding-panel	do	144	1
Hand-openers	do	485	1
Load-openers	do	139	1
Rotary	do	34	1
Self-closers	do	63	1
Tilting	do	64	1
Vertically-adjustable	do	150	1
Swings	Chairs	209	8
Switchboards	Telephony	133	16
Switch-chairs	Railways	30	34
Switches	do	125	34
Switches	Telephony	150	16
Switches—			
Automatic	Railways	245	34
Automatic—			
Safety	do	137	34
Derailing	do	18	34
Electric	do	58	34
Lap	do	19	34
Pneumatic	do	21	34
Safety	do	65	34
Slip	do	10	34
Spring	do	64	34
Stub	do	61	34
Tramway	do	178	34
Tramway—			
Car devices	do	72	34
Track devices	do	154	34
Switch-pieces	do	56	34
Switch-rods	do	46	34
Switch-signals	do	98	34
Switch-stands	do	316	34
Swivels	Chains, Staples, and Horseshoes.	18	13
Synthesis	Electro-Chemistry	14	8
Synthesis—			
Ozone	do	22	8
Syringes	Surgery	335	6
Syringes—			
Expanding-arm	do	22	6
Pile	do	15	6
Water-bag	do	20	6
Systems	Electric Lighting	185	16
Systems	Pumps	48	9
Systems	Sewerage	20	9
Systems	Telephony	87	16
Systems—			
Automatic	do	61	16
Automatic regulation	Electric Lighting	94	16
Battery	Electricity. Electric Railways.	73	26
Car	Electric Lighting	77	16
Central	Telephony	188	16
Circuits. Series	Electricity. Electric Railways.	40	26
Closed-conduit	do	41	26
Conduit	do	219	26
Conduit—			
Collectors	do	55	26
Roadway structures	do	98	26
Converter	do	45	26
Current distribution	do	56	26
Display	Electric Lighting	50	16
Divided central	Telephony	60	16
Hand regulation	Electric Lighting	84	16
House	Telephony	32	16
Intermediate-substation.	do	109	16
Multiples-witchboard	do	38	16
Multiple-switchboard—			
Divided central	do	34	16
Test	do	206	16
Overhead	Electricity. Electric Railways.	169	26
Overhead—			
Trolleys	do	122	26
Trolleys—			
Catchers	do	32	26
Catchers—			
Drop	do	18	26
Guards and finders	do	63	26
Ice-clearers	do	17	26
Poles and heads	do	111	26
Stands	do	70	26
Safety	Electric Lighting	43	16
Secondary batteries	do	144	16
Test	do	42	16
Systems of distribution	Electricity. Generation	144	26
Systems of distribution—			
Alternating, direct	do	39	26
Transforming controllers.	do	14	26
Tables	Furniture	71	8
Tables—			
Adjustable angularly	do	17	8
Adjustable angularly and vertically.	do	44	8
Adjustable folding	do	49	8
Adjustable vertically	do	25	8
Attachments	do	23	8
Extension	do	36	8
Extension—			
Center	do	130	8
End	do	60	8
Flexible-top	do	35	8
Slides	do	99	8
Folding	do	160	8
Folding—			
Sectional-top	do	118	8
Game	do	30	8
Kitchen	do	42	8
Lap	do	23	8
Leaf-supports	do	142	8
Leg fastening and bracing.	do	126	8
Pedestals	do	41	8
Self-waiting	do	76	8
Sewing-machine	do	88	8
Sewing-machine—			
Covers	do	78	8
Surgical	do	63	8
Wall	do	53	8
Tables and frames	Hides, Skins, and Leather	22	31
Tables and racks	Dairy	18	2
Table-tongs	Kitchen and Table Articles	41	8
Tablets—			
Writing	Bookbinding	93	5
Writing—			
Continuous	do	58	5
Manifolding	do	107	5
Tags and tag-fasteners	Buckles, Buttons, Clasps, Etc.	328	11
Tailpieces	Music	50	5
Tailpieces—			
Reel	do	14	5
Take-ups	Sewing-Machines	126	24
Take-ups and let-offs—			
Beams	Weaving	27	21
Escapement let-offs	do	25	21
Take-ups and let-offs—			
Friction let-offs	Weaving	104	21
Guide and whip rolls	do	11	21
Let-offs	do	104	21
Take-ups	do	89	21
Take-ups and let-offs	do	36	21
Take-ups and tensions	Knitting and Netting	61	21
Treating warps and webs.	Weaving	4	21
Tank attachments	Metallic Shipping and Storing Vessels.	18	32
Tank attachments—			
Safety	do	19	32
Safety—			
Float	do	8	32
Water-jackets	do	17	32
Tank-closures	do	9	32
Tank-feeders, railway	Pumps	59	9
Tanks	Metallic Dispensing-Cans	18	32
Tanks—			
Cabinets	do	14	32
Drainers	do	6	32
Drainers—			
Covered	do	11	32
Cup	do	10	32
Pump	do	16	32
Pump—			
Covered	do	13	32
Pressure—			
Air	do	10	32
Blow	do	13	32
Bulb	do	20	32
Pump	do	12	32
Followers	do	8	32
Followers—			
Screw	do	12	32
Pump	do	16	32
Pump—			
Covered	do	22	32
Lift	do	10	32
Lift—			
Removable	do	17	32
Nozzle	do	8	32
Removable	do	9	32
Return-suction	do	8	32
Tanks	Metallic Shipping and Storing Vessels.	32	32
Tanks—			
Transporting—			
Compartment	do	12	32
Vehicle	do	8	32
Wooden	do	15	32
Tanks	Water Distribution	125	4
Tanks—			
Automatic	do	141	4
Tanners' tools	Hides, Skins, and Leather	36	31
Tanning apparatus	do	96	31
Tanning processes	do	82	31
Taper	Metal-Rolling	28	13
Tapping mains	Metal Boring and Drilling	80	13
Taps and dies	Metal Bolts, Nuts, Rivets, and Screws.	905	13
Targets	Firearms	58	22
Targets—			
Flying	do	69	22
Tassels	Cordage	8	21
Tatting	Knitting and Netting	14	21
Tawing processes	Hides, Skins, and Leather	86	31
Teakettles	Stoves and Furnaces	143	19
Tedders	Harvesters	166	7
Teeth	Dentistry	108	20
Teeth—			
Filling	do	16	20
Metal-crown	do	26	20
Porcelain-crown	do	58	20
Telegraph-poles	Towers	135	12
Telemetry	Measuring Instruments	15	23
Telephones	Coin-Controlled Apparatus	59	14
Telephones—			
Electric	Telephony	256	16
Electric—			
Granular	do	129	16
Multiple-electrode	do	180	16
Magnetic	do	282	16
Telescopes	Optics	30	30
Telethermometers	Measuring Instruments	45	23
Telpher and towing	Electricity. Electric Railways.	59	26
Tempering and annealing—			
Applications of electricity.	Annealing and Tempering	17	8
Metals other than iron	do	11	8
Temples	Weaving	198	21
Temporary binders	Bookbinding	198	5
Temporary binders—			
Longitudinal cords	do	23	5
Projecting pins	do	26	5

Subclass.	Class.	No. of patents in subclass.	Division.
Temporary binders—			
Removable covers	Bookbinding	33	5
Spring-backs	do	37	5
Transverse cords	do	69	5
Tenoning and boring	Woodworking-Machines	110	29
Tenoning-bits	Woodworking-Tools	90	29
Tenoning, sashes and blinds.	do	27	29
Tensions	Sewing-Machines	234	24
Tents	Accoutrements	18	32
Tents—			
Bed	do	13	32
Frames	do	63	32
Pegs and poles	do	13	32
Pipe-shields and ventilators.	do	20	32
Shelter	do	14	32
Testers	Coin-Controlled Apparatus	37	14
Testers—			
Lung	do	12	14
Strike	do	22	14
Testing	Electricity. Special Applications.	8	16
Testing illuminating fluids.	Measuring Instruments	22	23
Testing instruments	Optics	34	30
Testing-machines	Measuring Instruments	172	23
Thatch	Roofing	7	29
Theater appliances	Fine Arts	168	5
Thermocauters	Surgery	17	6
Thermometers	Measuring Instruments	155	23
Thermometers—			
Metallic	do	53	23
Oven	do	21	23
Pyrometers	do	41	23
Telethermometers	do	45	23
Thill-couplings	Carriages and Wagons	1134	10
Thill-couplings—			
Antirattlers	do	371	10
Jacks	do	31	10
Thill-supports	do	200	10
Thimbles	Apparel Apparatus	36	24
Thimbles—			
Manufacture of	Metal Personal Wear. Making	6	14
Threshers	Harvesters	77	7
Threshing-machines—			
Cylinder-machines	Threshing	450	25
Dust-conveyers	do	47	25
Flail-machines	do	23	25
Thread	Nut and Bolt Locks	149	14
Thread—			
Cutters	Sewing-Machines	42	24
Finishing yarn and	Cordage	137	21
Key and ratchet	Nut and Bolt Locks	236	14
Thresholds	Carpentry	51	20
Throstles and caps	Spinning	166	21
Throttle	Steam-Engine Valves	119	18
Throttle—			
Electric	do	47	18
Throwing	Silk	24	21
Ticket-cases	Stationery	161	5
Ticket-machines	Printing	30	17
Tickets	Bookbinding	165	5
Tide-powers	Hydraulic Engineering	92	4
Tie-bands	Metal Punching and Shearing.	26	14
Tile	Roofing	112	20
Tile and metal floors	Masonry	9	4
Tile cutters. Brick and.	Clay and Pottery	135	15
Tile-machines	do	200	15
Tile-machines—			
Continuous	do	164	15
Dies	do	50	15
Socket-formers	do	36	15
Tampers	do	38	15
Till-alarms	Builders' Hardware	18	20
Tilting gates	Fences	107	1
Tilting gates—			
Folding-panel	do	68	1
Timbers. Columns and.	Fireproof Buildings	24	4
Timber-seats	Masonry	38	4
Time-alarms	Horology	21	23
Time-alarms—			
Electric	do	41	23
Program	do	41	23
Program—			
Drum	do	17	23
Time-checks	do	42	23
Time-recorders	do	10	23
Time-recorders—			
Watchmen's	do	46	23
Watchmen's—			
Electric	do	16	23
Electric—			
Receivers	do	31	23
Receivers and transmitters.	do	27	23
Portable	do	29	23
Workmen's	do	6	23
Time-recorders—			
Workmen's—			
Autograph	Horology	11	23
Disk	do	10	23
Drum	do	14	23
Electric	do	6	23
Key	do	19	23
Tag	do	9	23
Time-lamplighters	do	23	23
Time-lamplighters—			
Controllers—			
Cam	do	17	23
Cam—			
Alarm-clock	do	15	23
Percussion	do	29	23
Time-signals	do	10	23
Time-signals—			
Clock	do	56	23
Retarders	do	39	23
Time-ball	do	5	23
Tinning	Coating with Metal	133	3
Tip-cups	Umbrellas and Canes	51	24
Tips and stiffeners	Boots and Shoes	215	11
Tire-setters	Wheelwright-Machines	56	29
Tires—			
Cushion	Carriages and Wagons	255	10
Inflating	do	27	10
Metallic	do	73	10
Pneumatic	do	406	10
Pneumatic—			
Armor	do	56	10
Repairing	do	50	10
Tire-tighteners	do	253	10
Tire-upsetting	Wagon, Car, and Track Irons	222	13
Tobacco—			
Cutters—			
Pivoted-knife	Tobacco	36	2
Reciprocating-knife	do	55	2
Rotating-knife	do	70	2
Hangers	do	88	2
Leaf-treating	do	26	2
Leaf-treating—			
Booking	do	8	2
Stem-crushing	do	9	2
Stemming	do	36	2
Substitutes	Medicines	15	6
Tobacco-users' appliances.	Tobacco	18	2
Toe-weights	Farriery	121	14
Toilet-cases	Toilet	46	24
Toilet-kits	Baggage	20	32
Tollers	Measuring Instruments	39	23
Tompions and valves	Ordnance	8	22
Tongs, pokers, and shovels.	Stoves and Furnaces	98	19
Tongue-supports	Carriages and Wagons	205	10
Tool-handle fastenings	Woodworking-Tools	149	29
Tool-handles	do	128	29
Tool-handles—			
Fastenings	do	149	29
Sockets	do	147	29
Tools	Boots and Shoes	305	11
Tools	Dentistry	75	30
Tools	Glass	34	15
Tools	Paving	80	15
Tools	Railway Draft Appliances	29	34
Tools	Sheet-Metal Ware. Making	57	14
Tools	Stone-Working	219	25
Tools	Wire-working	38	14
Tools	Woodworking-Tools	60	29
Tools—			
Burs	Dentistry	17	30
Engraving	Fine Arts	61	5
Forceps	Dentistry	51	30
Tools and implements	Metal Tools and Implements. Making	67	13
Tools. Putty knives and	Glass	13	15
Toothpicks	Toilet	31	24
Top	Nut and Bolt Locks	150	14
Topical remedies	Medicines	351	6
Top-joints	Carriages and Wagons	92	10
Top, key and ratchet	Nut and Bolt Locks	136	14
Top-props	Carriages and Wagons	144	10
Top-roll saddles	Spinning	25	21
Tops	Carriages and Wagons	512	10
Top shoes	Railway-Brakes	45	34
Torches	Lamps and Gas-Fittings	61	30
Torpedo-launching	Ships	15	22
Torpedoes	Projectiles	19	22
Torpedoes—			
Well	do	60	22
Touch-regulators, keys and keyboards.	Music	10	5
Towel racks and stands.	Furniture	44	8
Towers—			
Fixed	Fire Escapes and Ladders	32	12
Shooting	do	58	12
Towing—			
External power	Marine Propulsion	33	22
Internal power	do	84	23

Subclass.	Class.	No. of patents in subclass.	Division.
Toy building-blocks	Games and Toys	62	31
Toy money-boxes	do	152	31
Toy pistols	Firearms	93	22
Toys	Games and Toys	103	31
Toys—			
Electric	do	27	31
Figure	do	398	31
Figure—			
Wheeled	do	178	31
Sounding	do	248	31
Sounding—			
Wheeled	do	26	31
Wheeled	do	91	31
Trace-carriers	Harness	288	11
Track—			
Cleaners—			
Blade and broom	Railways	103	34
Centrifugal	do	136	34
Dumpers	do	38	34
Elevators	do	34	34
Explosive	do	7	34
Flangers	do	120	34
Flangers—			
Rotary	do	13	34
Vibrating	do	4	34
Hot plows	do	11	34
Oilers and washers	do	20	34
Plows	do	159	34
Removing weeds	do	6	34
Snow-guards	do	9	34
Stock-alarms	do	18	34
Clearers and dividers	Harvesters	88	7
Curves	Railways	90	34
Fastenings	do	138	34
Irons, miscellaneous	Wagon, Car, and Track Irons	63	13
Layers	Railways	91	34
Miscellaneous	do	81	34
Platforms	do	4	34
Portable	do	35	34
Portable—			
Crossovers	do	12	34
Raisers	do	91	34
Stringers and ties	do	51	34
Stringers and ties—			
Composition	do	14	34
Metallic	do	558	34
Traction	do	73	34
Traction—			
Cable-shields	do	6	34
Crossing conduits	do	45	34
Crossing streams	do	11	34
Curves	do	78	34
Engines	Carriages and Wagons	394	10
Engines—			
Steppers	do	37	10
Increasers	Railway Rolling-Stock	40	34
Running and carrying rope.	Railways	39	34
Slot-closers	do	18	34
Slot-switches	do	29	34
Take-ups	do	17	34
Underground	do	217	34
Wheels	Carriages and Wagons	215	10
Train-operated	Railway-Brakes	94	34
Train-operated—			
Rotary shafts	do	46	34
Winding	do	92	34
Train-order signals	Railways	14	34
Trains, power-transmitters.	Railway Rolling-Stock	10	34
Tramway-switches	Railways	178	34
Transfers	Fine Arts	45	5
Transfer-tables	Railways	29	34
Transformers—			
Rotary	Electricity. Generation	80	26
Stationary	do	123	26
Transmission of power—			
Alternating	Electricity. Motive-Power	19	26
Direct	do	54	26
Phase indication	do	15	26
Phase-modifiers	do	34	26
Phase regulation	do	9	26
Reciprocating	do	53	26
Transmitters	Telegraphy	73	16
Transom-lifters	Builders' Hardware	180	20
Transom-lifters—			
Pivots	do	44	20
Transplanters	Harrows and Diggers	22	1
Transplanters—			
Dibbles	do	15	1
Pivoted jaws	do	96	1
Post-hole diggers	do	53	1
Post-hole diggers—			
Pivoted jaws	do	9	1
Sliding jaws	do	7	1
Wheel-machines	do	77	1
Transplanting-pots	Trees, Plants, and Flowers	37	1
Transposers	Music	49	5
Transposition and harmony charts.	do	42	5
Trap-belts	Trees, Plants, and Flowers	73	1
Traps—			
Air-valves	Sewerage	14	9
Cage	Fishing and Trapping	118	22
Expansion	Steam-Engines	134	18
Fish	Fishing and Trapping	57	22
Impalement	do	103	22
Insect	do	288	22
Insect—			
Mechanical	do	44	22
Jaw	do	286	22
Liquid-seal	Sewerage	270	9
Liquid-seal—			
Pipe-inlet	do	98	9
Self-set and ever-set	Fishing and Trapping	388	22
Sporting	do	50	22
Valve-seal	Sewerage	108	9
Victim-set	Fishing and Trapping	111	22
Wire choker	do	47	22
Travelers	Ships	14	22
Traveling-bags	Baggage	63	32
Traveling-bags—			
Convertible	do	12	32
Fasteners	do	60	32
Fasteners—			
Pivoted	do	29	32
Frameless	do	21	32
Frames	do	82	32
Frames—			
Top-opening	do	21	32
Handle-fasteners	do	33	32
Handles	do	21	32
Hinge-stays	do	21	32
Telescoping	do	33	32
Traveling-bed machines	Printing	28	17
Traveling-flat cards	Carding	39	21
Trays	Kitchen and Table Articles	73	8
Trays—			
Attaching devices	do	17	8
Trays and tanks	Photography	104	6
Treadles	Machine Elements	323	12
Treadles—			
Hand attachments	do	41	12
Treating molten iron	Metallurgy	57	3
Treating molten iron—			
Air, steam, and gases	do	105	3
Alloys	do	80	3
Basic	do	47	3
Basic linings	do	42	3
Granulating	do	14	3
Oxids	do	85	3
Physic	do	87	3
Scrap	do	31	3
Vacuum	do	5	3
Treatment	Artificial Stone	21	15
Treament	Trees, Plants, and Flowers	24	1
Treatment—			
Implements	do	23	1
Tree-covering	do	13	1
Trellises	do	112	1
Tremolos	Music	55	5
Trimmers	Sewing-Machines	186	24
Trimmings	Harness	208	11
Trimmings—			
Edgings	Apparel	35	24
Embroidery	do	27	24
Embroidery—			
Patterns	do	8	24
Making	Apparel Apparatus	10	24
Pendants	Apparel	23	24
Plaited	do	56	24
Tripods	Optics	60	30
Trolleys	Electricity. Electric Railways.	122	26
Trough and beater	Driers	106	28
Trough and screw	do	24	28
Troughs and moldings	Sheet-Metal Ware. Making	114	14
Truck and rail—			
Horizontal	Driers	98	28
Inclined	do	27	28
Truck-changers	Railways	24	34
Trucks	Carriages and Wagons	270	10
Trucks	Railway Rolling-Stock	67	34
Trucks—			
Antifriction-wheels	do	24	34
Barrel	Carriages and Wagons	54	10
Bolsters	Railway Rolling-Stock	30	34
Bolsters—			
Cast	do	14	34
Guides	do	7	34
Pressed-steel	do	12	34
Trussed	do	29	34
Brick	Carriages and Wagons	36	10
Cable-grip	Railway Rolling-Stock	19	34

Subclass.	Class.	No. of patents in subclass.	Division.
Trucks—			
Center bearings	Railway Rolling-Stock	25	34
Center bearings—			
Pressed-steel	do	12	34
Roller	do	8	34
Changeable-gage	do	53	34
Curve-adjusters, swiveled wheel.	do	9	34
Drying	Carriages and Wagons	21	10
Electric-motor—			
Bogies	Railway Rolling-Stock	36	34
Equalizing-levers	do	39	34
Motor-supporters	do	50	34
Rigid-frame	do	96	34
Elevating	Carriages and Wagons	82	10
Four-wheel—			
Bogies	Railway Rolling-Stock	156	34
Curve-adjusters—			
Axles—			
Radial	do	77	34
Sectional	do	25	34
Frames	do	12	34
Frames—			
Pressed-steel	do	20	34
House-moving	Carriages and Wagons	38	10
Implement	do	37	10
Pedestals	Railway Rolling-Stock	87	34
Piano	Carriages and Wagons	31	10
Safety-supporters	Railway Rolling-Stock	28	34
Side bearings	do	17	34
Side bearings—			
Roller	do	21	34
Six-wheel—			
Bogies	do	20	34
Curve-adjusters, axles, radial.	do	44	34
Supplemental	do	10	34
Water-barrel	Carriages and Wagons	28	10
Trumpets. Cornets and	Music	75	5
Trundles and hoops	Games and Toys	48	31
Trunk-fasteners	Locks and Latches	96	20
Trunk-guards—			
Cattle	Trees, Plants, and Flowers	41	1
Vermin	do	28	1
Trunks	Baggage	135	32
Trunks—			
Convertible	do	12	32
Convertible—			
Bed	do	28	32
Bureau	do	39	32
Desk and table	do	18	32
Wardrobe	do	21	32
Corner-shields	do	43	32
Cylindrical	do	17	32
Extensible	do	12	32
Followers	do	22	32
Handles	do	13	32
Hinge-stays	do	30	32
Lid-stays	do	60	32
Straps and strap-fasteners.	do	48	32
Supporting devices	do	11	32
Tray lifters and supporters.	do	41	32
Trays	do	24	32
Wall	do	18	32
Trunnions	Ordnance	1	22
Truss-bridges	Bridges	434	4
Trusses	Surgery	550	6
T-squares	Drafting	52	23
Tube-clamps	Artesian and Oil Wells	151	25
Tube-machines	Tobacco	18	2
Tube-machines—			
Folders	do	19	2
Spiral-wind	do	18	2
Straight-wind	do	53	2
Tubes	Metal-Drawing	69	13
Tubes	Metal-Tube Manufacture	62	13
Tubes and flues	Steam-Boilers	220	18
Tubing—			
Curved and spouts	Sheet-Metal Ware. Making	9	14
Grooving and seaming	do	36	14
Pipe-elbows. Making	do	63	14
Straight. Making	do	56	14
Tubing and packing	Artesian and Oil Wells	367	25
Tubular-cutter lathes	Wood-Turning	111	29
Tubular saw	Wood-Sawing	68	29
Tuck creasers and markers.	Sewing-Machines	143	24
Tucking-guides	do	90	24
Tugs	Harness	174	11
Tumbler-washers	Washing Apparatus	47	27
Tumbling-drums	Hides, Skins, and Leather	48	31
Tuning instruments	Music	41	5
Tuning-pegs, violin	do	60	5
Tuning-pins—			
Piano	do	25	5
Tuning-pins—			
Piano—			
Coupling-clamp	Music—	7	5
Direct-pull	do	32	5
Lever	do	14	5
Presser-deflectors	do	13	5
Push-rod and carrier	do	9	5
Worm-gear	do	6	5
Tunnels	Hydraulic Engineering	60	4
Tunnels—			
Excavators	do	19	4
Shields	do	10	4
Turbines—			
Bottom-supply	Hydraulic Motors	70	9
Side-ring supply	do	476	9
Top and side direct-supply.	do	410	9
Top-ring supply	do	202	9
Turfing fabrics	Sewing-Machines	49	24
Turners, leaf	Music	157	5
Turning—			
Irregular forms	Metal Turning, Planing, and Milling.	25	13
Miscellaneous	do	345	13
Tapers	do	36	13
Wheels and axles	do	123	13
Turnstiles	Fences	9	1
Turn-tables	Railways	129	34
Turpentine	Ammonia, Water, and Wood Distillation.	6	31
Turpentine—			
Apparatus	do	37	31
Gathering	Trees, Plants, and Flowers	23	1
Processes	Ammonia, Water, and Wood Distillation.	40	31
Turrets	Ships	29	22
Twine-cutters	Cutlery	123	15
Twine-holders	Store Furniture	71	8
Twine-holders—			
Take-up	do	25	8
Take-up—			
Rotary	do	25	8
Twisting	Metal-Bending	19	14
Twisting-heads	Spinning	33	21
Tying-in warps	Weaving	22	21
Type-cases	Printing	93	17
Type-machines	do	28	17
Type-writer cabinets	Furniture	124	8
Ullage-rods	Measuring Instruments	15	23
Ultramarine	Painting	8	31
Umbrella-irons	Hardware-Making	38	13
Umbrellas—			
Folding	Umbrellas and Canes	82	24
Self opening and closing.	do	28	24
Supporters	do	205	24
Umbrella-stands	Furniture	71	8
Unicycles	Velocipedes	39	7
Union-garments—			
Bifurcated	Apparel	59	24
Skirted	do	9	24
Uniting pressed parts	Glass	30	15
Universal joiners	Woodworking-Machines	56	29
Universal joints	Machine Elements	162	12
Upholstery	Chairs	46	8
Upper-machines	Boots and Shoes	336	11
Uppers	do	1098	11
Upsetting metal	Metal-Forging	19	13
Urinals	Baths and Closets	70	9
Urinary apparatus	Surgery	6	6
Utilizing tin-scrap	Metallurgy	25	3
Utilizing tin-scrap—			
Wet processes	do	37	3
Vacuum	Railway-Brakes	66	34
Vacuum-pans	Sugar and Salt	176	6
Vacuum pumps. Steam and	Steam and Vacuum Pumps.	238	18
Valleys	Roofing	7	20
Valved reciprocating piston.	Pumps	146	9
Valved reciprocating piston—			
Multiple-cylinder	do	172	9
Opposing pistons	do	40	9
Successive pistons	do	35	9
Valve-gear	Steam-Engines	389	18
Valve-gear—			
Link	do	202	18
Rod	do	64	18
Shifting-eccentric	do	170	18
Shifting-eccentric—			
Automatic	do	329	18
Tripping cut-off	do	236	18
Valves and port-stoppers.	Ships	33	22
Valves for inflation	Water Distribution	58	4
Vapor-baths	Baths and Closets	130	9

Subclass.	Class.	No. of patents in subclass.	Division.
Vapor-burners	Lamps and Gas-Fittings	437	30
Vapor-generators	Steam-Boilers	48	18
Vaporizers	Electricity. Medical and Surgical.	8	26
Varnishes—			
Alkali	Painting	27	31
Oil	do	109	31
Processes and apparatus for making	do	37	31
Pyroxylin	do	91	31
Tar	do	54	31
Vats	Hides, Skins, and Leather	54	31
Vats—			
Apron	Bleaching and Dyeing	30	6
Close	do	38	6
Open	do	300	6
Vault-covers	Paving	372	15
Velocipedes	Railway Rolling-Stock	24	34
Velocipedes—			
Bicycle attachments	do	12	34
Geared	do	37	34
Vending devices, ribbon-holders.	Advertising	56	32
Venetian blinds	Curtains, Shades, and Screens.	83	8
Ventilating	Ships	40	22
Ventilation—			
Car	Pneumatics	355	28
Grain	do	60	28
House	do	308	28
Mine	do	30	28
Ventilators, window	do	155	28
Vents	Lamps and Gas-Fittings	1	30
Vents and stoppers	Ordnance	9	22
Vessels—			
Angular bending	Sheet-Metal Ware. Making	61	14
Curved bending	do	39	14
Die-seaming	do	13	14
Die-seaming—			
Can-head—			
Applying inside	do	11	14
Applying outside.	do	38	14
Applying outside—			
Compressing	do	57	14
Roller	do	137	14
Side-seam	do	34	14
Die-shaping	do	142	14
Die-shaping—			
Fillers and forcers	do	21	14
Wiring and flanging	do	36	14
Vestibule-cars	Railway Rolling-Stock	100	34
Veterinary	Medicines	75	6
Veterinary	Surgery	184	6
Vine and seed strippers	Threshing	147	25
Vine-cutters, stalk-choppers.	Harrows and Diggers	14	1
Vine and seed strippers.	Threshers	147	25
Violin—			
Bows	Music	27	5
Bridges	do	12	5
Chin-rests	do	32	5
Dampers and mutes	do	11	5
Pianos	do	18	5
Tuning-pegs	do	60	5
Violins	do	64	5
Violins—			
Practice	do	4	5
Supports	do	22	5
Vises—			
Pipe and rod	Metal-Working Tools	75	14
Smiths'	do	28	14
Smiths'—			
Attachments	do	37	14
Pivoted-jaw—			
Cam	do	15	14
Lever and link	do	4	14
Screw	do	56	14
Sliding-jaw—			
Cam, quick-action	do	20	14
Double-screw, quick-action.	do	8	14
Lever and link, quick-action.	do	8	14
Screw	do	90	14
Screw—			
Quick-action	do	129	14
Woodworkers'	do	97	14
Vitreous painting and decorating.	Glass	57	15
Vocal exercising devices	Music	5	5
Voting-booths	Carpentry	39	29
Voting-machines	Measuring Instruments	137	23
Vulcanized fiber	Caoutchouc and Minor Plastics.	20	15
Vulcanizing apparatus	do	258	15
Wadding	Carding	63	21
Waffle-irons	Stoves and Furnaces	38	19
Wagon axles and boxes. Making	Wagon, Car, and Track Irons	108	18
Wagon-raisers	Hoisting	79	12
Wagon tires and fellies. Making	Wagon, Car, and Track Irons	60	18
Walking-beams	Artesian and Oil Wells	100	25
Wall-protectors	Furniture	28	8
Walls—			
Composite	Masonry	15	4
Hollow tile	do	12	4
Wardrobes	Furniture	39	8
Wardrobes—			
Knockdown	do	38	8
Warping	Cordage	126	21
Warping-reeds	do	8	21
Warp stop-motions	do	58	21
Washbenches	Laundry	93	27
Washboards	do	258	27
Washboilers	do	413	27
Washing-machines—			
Agitator	do	239	27
Boiler	do	196	27
Combined washing and wringing.	do	49	27
Cylinder	do	246	27
Miscellaneous	do	64	27
Pounder	do	733	27
Reciprocating-rubber	do	839	27
Rocking and swinging	do	157	27
Roller	do	118	27
Roller and bed	do	504	27
Rotary-rubber	do	58	27
Washstands	Furniture	40	8
Washstands—			
Reservoir	do	42	8
Washtubs	Laundry	39	27
Watch-balances	Horology	16	23
Watch-balances—			
Compensation	do	19	23
Hair-spring collets	do	8	23
Hair-spring collets—			
Studs	do	16	23
Hair-springs	do	12	23
Staffs and bearings	do	22	23
Watch-barrels	do	33	23
Watch-barrels—			
Mainspring-fasteners	do	35	23
Watchcase-centers	do	11	23
Watchcase-centers—			
Hinges	do	19	23
Pendants	do	50	23
Watchcases	do	101	23
Watchcases—			
Bow-fasteners	do	19	23
Bow-fasteners—			
Pin	do	11	23
Screw	do	21	23
Sleeve	do	26	23
Magic	do	11	23
Screw	do	23	23
Screw—			
Movement-rings	do	17	23
Centers, integral	do	12	23
Springs	do	35	23
Springs—			
Backs—			
Detachable	do	29	23
Integral	do	13	23
Flanged	do	7	23
Slotted	do	13	23
Watch-chain attachments.	Jewelry	86	5
Watch-keys	Horology	30	23
Watch-keys—			
Case inclosed	do	17	23
Dust-protectors	do	15	23
Expansible-jaw	do	27	23
Pendant	do	9	23
Safety	do	10	23
Watchmakers' tools	do	57	23
Watchmakers' tools—			
Balance-testers	do	16	23
Balance-testers—			
Electric	do	11	23
Pliers	do	26	23
Roller-removers	do	20	23
Setters—			
Jewel	do	13	23
Ruby pin	do	15	23
Spring-winders	do	10	23
Staking-tools	do	17	23
Truing-calipers	do	10	23
Tweezers	do	18	23
Watch-movement boxes	do	29	23
Watch-plates	do	54	23
Watch-regulators	do	19	23
Watch-regulators—			
Cam	do	10	23
Compensation	do	9	23

Subclass.	Class.	No. of patents in subclass.	Division.
Watch-regulators—			
Rack and pinion	Horology	21	23
Screw	do	27	23
Screw and spring	do	11	23
Screw-worm	do	14	23
Steady-pins	do	12	23
Watches	do	64	23
Watches—			
Calendar	do	17	23
Dust-proof	do	43	23
Repeaters	do	5	23
Repeaters—			
Double-snail	do	10	23
Double-snail—Trains	do	14	23
Stem-fasteners	do	13	23
Stem-fasteners—			
Clutch	do	4	23
Clutch—			
Sleeve	do	10	23
Spring	do	16	23
Stem-winders	do	20	23
Stem winders—			
Couplers	do	9	23
Couplers—			
Eccentric	do	16	23
Oscillating	do	10	23
Sliding	do	9	23
Sliding—			
Sleeve	do	32	23
Stem	do	16	23
Side-lever	do	14	23
Side-lever—			
Clutch	do	22	23
Clutch—			
Rocking	do	21	23
Yoke	do	20	23
Yoke	do	20	23
Yoke—			
Locking-cam	do	20	23
Locking-lever	do	35	23
Locking-lever—			
Stem	do	10	23
Stop	do	23	23
Stop—			
Balance-stop	do	11	23
Couplers, rocking-pinion.	do	16	23
Couplers, rocking-pinion—			
Sliding	do	30	23
Split seconds	do	22	23
Winding	do	16	23
Winding—			
Lever	do	16	23
Indicators	do	19	23
Watches and clocks	Metal Personal Ware. Making	175	14
Watchmakers' lathes	Metal Turning, Planing, and Milling.	162	13
Water	Ammonia, Water, and Wood Distillation.	91	31
Water	Gas	200	31
Water and air	Safes	32	20
Water-closet and sewer ventilation.	Baths and Closets	132	9
Water-closet attachments.	do	203	9
Water-closet couplings	do	89	9
Water-closets—			
Plunger	do	75	9
Siphon	do	111	9
Valved	do	216	9
Washout	do	80	9
Water-closet valves	do	162	9
Water-coolers	Refrigeration	290	28
Water-elevators—			
Compressed-air	Pumps	125	9
Windlass	do	317	9
Water fire-boxes	Steam-Boilers	274	18
Water-gages	Measuring Instruments	175	23
Water-gages—			
Float	do	88	23
Water-gates—			
Sliding	Hydraulic Engineering	47	4
Swinging	do	54	4
Waterproofing and sizing.	Paper-Making	287	15
Water, purifying	Chemicals	235	6
Water-supply hose-holders.	Water Distribution	77	4
Water-tube, coil	Steam-Boilers	155	18
Water-tubes	do	780	18
Wax	Oils, Fats, and Glue	31	31
Wax-thread	Sewing-Machines	196	24
Weather-boarding	Carpentry	34	29
Weather-strips—			
Hinged	do	221	29
Hinged—			
Sills	do	88	29
Weather-strips—			
Packing	Carpentry	129	29
Sliding	do	116	29
Weather-vanes	Measuring Instruments	13	23
Weaving, cross	Weaving	32	21
Web	Driers	45	28
Weed-turners	Plows	60	1
Weft-forks	Weaving	24	21
Weighing	Coin-Controlled Apparatus	38	14
Weighing—			
Recorders	do	13	14
Weights	Measuring Instruments	25	23
Weights—			
Paper	Stationery	32	5
Welding	Metal-Welding	35	13
Wells—			
Cleaning	Artesian and Oil Wells	64	25
Drilling and boring	do	444	25
Wharves	Hydraulic Engineering	8	4
Wheel and rail	Railway-Brakes	31	34
Wheel and rail—			
Chock-block	do	79	34
Wheel-attaching devices	Railway Rolling-Stock	77	34
Wheelbarrows	Carriages and Wagons	159	10
Wheel-bodies—			
Cast in tires	Railway Rolling-Stock	20	34
Cast on hubs	do	7	34
Wheeled toys	Games and Toys	91	31
Wheel-fenders	Railway Rolling-Stock	72	34
Wheel-fenders—			
Car and truck equalizers.	do	16	34
Combined-brake	do	51	34
Fixed-scoop	do	29	34
Folding, hinged-scoop	do	99	34
Hinged-scoop	do	70	34
Inclined, tilt-up front	do	81	34
Obstacle-projectors	do	21	34
Pilot type	do	71	34
Rotary, positively-driven.	do	40	34
Trip and drop-scoop	do	107	34
Trip and shoot forward	do	58	34
Wheeled-scoop	do	46	34
Wheel-tread	do	45	34
Wheel-harrows	Harrows and Diggers	196	1
Wheel-harrows—			
Disk	do	19	1
Rotary	do	21	1
Spring	do	72	1
Trailing teeth	do	27	1
Wheels	Carriages and Wagons	682	10
Wheels—			
Bushings	Railway Rolling-Stock	9	34
Counterbalances	do	4	34
Epicyclic	do	7	34
Flanges, independent movement.	do	10	34
In channels	Marine Propulsion	14	22
Integral—			
Cast	Railway Rolling-Stock	51	34
Cast—			
Hollow webs	do	63	34
Spokes—			
Cast in	do	25	34
Metallic, detachable	do	19	34
Wooden	do	8	34
Spring	Carriages and Wagons	87	10
Tire-fasteners	Railway Rolling-Stock	36	34
Tire-fasteners—			
Bolted lap-flanges	do	24	34
By casting	do	7	34
Integral lugs	do	15	34
Transverse intermediate keys.	do	10	34
Tires—			
Cushioned—			
Metallic springs	do	7	34
Rubber	do	70	34
Wooden blocks	do	11	34
Loose	do	9	34
Non-metallic	do	18	34
Roller-supported	do	16	34
Webs—			
Sheet-metal disks	do	44	34
Sheet-metal disks—			
Non-metallic filling.	do	34	34
Single	do	7	34
Split castings, detachable tires.	do	17	34
Wooden	do	14	34
Webs and tires, pressed-steel.	do	18	34
Wheel tread-surfaces	do	13	34
Wheel tread-surfaces—			
Form	do	15	34
Multiple	do	15	34
Peripheral rollers	do	10	34
Recessed	do	11	34

Subclass.	Class.	No. of patents in subclass.	Division.
Wheelwright-machines	Wheelwright-Machines	85	29
Whiffletree-hooks	Carriages and Wagons	441	10
Whiffletrees	do	443	10
Whips	Harness	252	11
Whip-sockets	do	297	11
Wick-pickers	Lamps and Gas-Fittings	11	30
Wick-raisers, flat	do	52	30
Wicks	do	78	30
Wick-trimmers	Cutlery	48	15
Wind-chests, organ	Music	4	5
Winding	Cloth-Finishing	61	21
Winding	Silk	39	21
Winding	Wire-Working	26	14
Winding-axle	Railway-Brakes	43	34
Winding-balls	Cordage	33	21
Winding-bobbins—			
Sewing-machine shuttle.	do	135	21
Warp-wind	do	149	21
Weft-wind	do	77	21
Winding-heddle and seine-needles.	do	4	21
Winding-drum	Railway-Brakes	69	34
Winding, pneumatic shift.	do	5	34
Winding-spools	Cordage	27	21
Winding tatting-shuttles.	do	4	21
Windlasses. Capstans and	Hoisting	99	12
Windlass water-elevators.	Pumps	317	9
Window and door buttons.	Builders' Hardware	208	20
Window and door buttons—			
Automatic	do	108	20
Screw	do	19	20
Sliding bolts	do	68	20
Strips	do	5	20
Trippers	do	38	20
Vertically-swinging	do	97	20
Window and plate glass	Glass	68	15
Window—			
Bead-fasteners	Builders' Hardware	46	20
Chairs	Carpentry	113	29
Cleaners	Brushing and Scrubbing	65	27
Cornices	Curtains, Shades, and Screens.	73	8
Gardens	Trees, Plants, and Flowers	47	1
Guards	Carpentry	80	29
Openers	Fences	23	1
Sashes	Carpentry	112	29
Sashes—			
Sliding	do	122	29
Sliding and swinging	do	182	29
Swinging	do	71	29
Screens	Curtains, Shades, and Screens.	217	8
Screens—			
Exits	do	56	8
Extensible	do	140	8
Rolling	do	132	8
Shades	do	42	8
Ventilators	Pneumatics	170	28
Windows	Carpentry	105	29
Windows	Iron Structures	21	4
Windows—			
Car	Carpentry	49	29
Wind-wheels—			
Horizontal	Wind-Wheels	300	28
Oscillating	do	12	28
Vertical feathering-blades.	do	376	28
Vertical solid-wheel	do	655	28
Wine-coolers	Refrigeration	29	28
Wines	Alcohol	23	31
Wipers	Coating with Metal	33	3
Wire	Metal-Drawing	72	13
Wire-covering	do	18	13
Wire fabric	Fences	69	1
Wire fabric, etc., ornamental.	Jewelry	28	5
Wire-fasteners	Fences	24	1
Wire-fasteners—			
Clamps	do	30	1
Hook-nails and staples	do	31	1
Wire fences	do	149	1
Wire fences—			
Picket	do	112	1
Stays	do	90	1
Stays—			
Linked	do	47	1
Wire fences—			
Stays—			
Lock-plates	Fences	24	1
Strands	do	31	1
Wire gates	do	47	1
Wire gates—			
Frameless	do	36	1
Wire-glass	Glass	23	15
Wire-pointing	Metal-Forging	83	13
Wire-reels	Metal-Drawing	108	13
Wire-shears	Cutlery	29	15
Wire-stretchers—			
Permanent	Fences	22	1
Permanent—			
Compensators	do	74	1
Mid-wire take-ups	do	57	1
Path-closers	do	14	1
Post-winders	do	100	1
Post-winders—			
Vertical	do	23	1
Removable	do	36	1
Removable—			
Clutch-bars	do	11	1
Grips	do	43	1
Levers	do	69	1
Levers—			
Attached	do	28	1
Loopers	do	34	1
Rack-bars	do	10	1
Ratchet-bars	do	41	1
Reel-carriers	do	143	1
Screw	do	13	1
Tongs	do	21	1
Twin hooks	do	8	1
Windlasses	do	86	1
Wiring—			
Blinds	Woodworking-Machines	45	29
Bottles and corks	Wire-Working	31	14
Brushes and cards	do	40	14
Wood	do	15	14
Wood—			
Fences	do	174	14
Fences—			
Gear	do	48	14
Rack-bar	do	31	14
Sprocket	do	97	14
Fencing	do	120	14
Wood	Ammonia, Water, and Wood Distillation.	60	31
Wood	Gas	63	31
Wood	Paving	239	15
Wood—			
Curved surfaces	Grinding and Polishing	97	27
Plane surfaces	do	117	27
Wooden articles	Coopering	27	29
Wooden pins. Making	Woodworking-Machines	30	29
Wooden trays. Making	do	27	29
Wooden walls	Carpentry	29	29
Wood-grinders	Paper-Making	209	15
Wood ornamentation	Woodworking-Machines	82	29
Wood saturation	Preserving	276	6
Wood-screw machines	Metal Bolts, Nuts, Rivets, and Screws.	185	13
Wool-cleaning	Bleaching and Dyeing	63	6
Wool-oiling	Carding	38	21
Wool-washing machines	Washing Apparatus	133	27
Work-benches	Woodworking-Tools	59	29
Work-boxes	Apparel Apparatus	23	24
Work-holders	do	30	24
Work-holders	Painting	36	31
Working ratan	Woodworking- Machines	53	29
Wrappers	Tobacco	20	2
Wrapping-machines	Paper Manufactures	78	17
Wrenches	Metal Tools and Implements. Making	34	13
Wringer-rolls	Laundry	92	27
Wringers	do	491	27
Wrist-pin turners	Metal Turning, Planing, and Milling.	33	13
Writing-tablets	Bookbinding	93	5
Writing-tablets—			
Continuous	do	58	5
Manifolding	do	107	5
Wrought-nail making	Nails and Spikes	178	13
Yards and plants	Railways	22	34
Yarn-controllers	Spinning	105	21
Yarn guides and clearers.	Cordage	84	21
Zinc salts	Painting	33	31
Zithers	Music	15	5
Zithers—			
Keyed	do	8	5
Picks	do	10	5

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THE

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Trade-Marks	39—No.	29,434 to No. 29,472, inclusive.
Prints	2—No.	43 to No. 44, inclusive.
Labels	None.	
Reissues	1—No.	11,584.
Total issue	522	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	3		New Hampshire	1	
Arizona Territory			New Jersey	30	2
Arkansas	1		New Mexico Territ'y		
California	9		New York	67	2
Colorado	2		North Carolina	1	
Connecticut	19	3	North Dakota		
Delaware			Ohio	29	2
District of Columbia	4		Oklahoma Territory		
Florida	2		Oregon	1	
Georgia	7		Pennsylvania	66	2
Idaho	1		Rhode Island	1	
Illinois	35	1	South Carolina	2	
Indian Territory			South Dakota	3	
Indiana	12		Tennessee		
Iowa	16	1	Texas	7	
Kansas	2		Utah		
Kentucky	2		Vermont	1	
Louisiana	1		Virginia		
Maine	3		Washington	3	1
Maryland	2		West Virginia	1	
Massachusetts	37	17	Wisconsin	17	
Michigan	14		Wyoming		
Minnesota	5	2	U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	15	1			
Montana	1		Total to citizens of the United States	433	34
Nebraska	8				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary	1		Newfoundland		
Barbadoes			New South Wales	2	
Belgium	2		New Zealand		
Bermuda			Norway		
Brazil			Orange Free State		
Canada	4		Peru		
Canary Islands			Queensland		
Cape Colony		1	Russia	2	
Ceylon			Scotland		
Chile, Republic of			South African Republic		
Colombia			Spain		
Cuba			Straits Settlements		
Denmark			Sweden		
England	8	1	Switzerland	2	1
France	7	2	Victoria		
Germany	19	2	West Australia		
Guatemala					
India			Total to citizens of foreign countries	47	7
Ireland					
Italy					

PRINTS.

43.—Title: "Beauty and Strength." (For Trunks and the Like.) *N. Drucke & Co.*, Cincinnati, Ohio. Application filed December 8, 1896.

44.—Title: "Cut No. 5670 B. V." *Isaac E. Palmer*, Middletown, Conn. Application filed December 8, 1896.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electric Power, New York, a monthly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1895.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Special Report of the Condition of Applications Under Examination at the Close of the Year 1896.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Dec. 1	Dec. 22	150
217	V. Fine Arts, Stationery, Book-Binding, Music, and Jewelry.	Dec. 2	Dec. 21	185
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 1	Dec. 21	239
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 1	Dec. 14	154
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 2	Dec. 10	140
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 1	Dec. 10	210
123	XXIX. Wood-Working Machines and Tools, Carpentry, Coopering and Roofing, etc.	Dec. 3	Dec. 7	162
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 2	Dec. 7	159
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 2	Dec. 5	184
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery, etc.	Dec. 1	Dec. 4	202
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, Ordnance and Projectiles.	Dec. 3	Dec. 3	195
255	XII. Mechanical Engineering, Store-Service, etc.	Dec. 3	Dec. 3	249
243	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Dec. 2	Dec. 2	148
246	I. Tillage, Fences, and Trees, Plants, and Flowers.	Dec. 2	Dec. 2	229
215	XVII. Paper M'uf'tures & Printing	Dec. 1	Dec. 2	164
122	XXIV. Sewing-Machines, Crinolines & Corsets, Apparel, Toilet, Umbrellas & Canes, and Designs.	Dec. 1	Dec. 2	167
93	XXI. Textiles, etc	Dec. 1	Dec. 2	195
253	X. Carriages and Wagons	Dec. 1	Dec. 2	262
35	XXVIII. Pneumatics, Refrigeration, Air & Gas E'gines, Driers, etc.	Dec. 1	Dec. 2	290
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Masonry, Water-Distribution, etc.	Dec. 2	Dec. 1	308
248	XVIII. Steam-Engineering, etc	Dec. 1	Dec. 1	152
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 1	Dec. 1	167
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, Artificial Stone, etc.	Dec. 1	Dec. 1	223
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Dec. 1	Dec. 1	250
25	XXX. Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, Optics, and Type-Writing Machines.	Dec. 1	Dec. 1	281
256	XXIII. Measuring-Instruments, Acoustics, Drafting, and Trade-Marks.	Dec. 1	Dec. 1	298
155	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, Locks & Latches, etc.	Dec. 1	Dec. 1	304
39	XXXI. Alcohol, Gas, Painting, Hides, Skins and Leather, Oils, Fats, Glue, Games, and Toys, etc.	Dec. 1	Dec. 1	310
106	II. Farm Stock and Products, Lubricators, Mechanical Motors, Presses, Tobacco, etc.	Dec. 1	Dec. 1	323
102	XIX. Stoves and Furnaces	Dec. 1	Dec. 1	329
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 1	Dec. 1	526
111	XXXII. Advertising, Baggage, Packing and Storing Vessels, etc.	Dec. 1	Dec. 1	529
240	VII. Harvesters and Velocipedes.	Dec. 1	Dec. 1	862
	Total number of applications awaiting action			8,645
	Under one month in arrears.			
	Designs	Dec. 7	Dec. 17	172
	Trade-Marks	Dec. 21	Dec. 24	50

APPLICATIONS UNDER EXAMINATION.

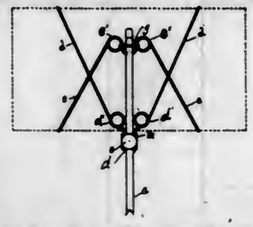
Condition at Close of Business January 5, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 28	Dec. 28	203
256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Dec. 7	Dec. 26	151
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Dec. 5	Dec. 24	145
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 5	Dec. 15	165
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 7	Dec. 14	183
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 5	Dec. 14	133
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 7	Dec. 12	137
215	XVII. Paper Manufactures and Printing.	Dec. 5	Dec. 11	138
253	X. Carriages and Wagons	Dec. 7	Dec. 10	257
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 5	Dec. 10	313
255	XII. Mechanical Engineering, Store-Service, etc.	Dec. 7	Dec. 9	243
243	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Dec. 7	Dec. 8	151
246	I. Tillage and Fences	Dec. 5	Dec. 8	217
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 7	Dec. 7	206
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Dec. 7	Dec. 7	306
102	XIX. Stoves and Furnaces	Dec. 7	Dec. 7	337
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 5	Dec. 7	159
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Dec. 5	Dec. 7	195
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Dec. 7	Dec. 5	202
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Dec. 5	Dec. 5	232
221	XXIII. Instruments of Precision, Acoustics, etc.	Dec. 5	Dec. 5	281
106	II. Farm Stock, Products, etc	Dec. 5	Dec. 3	308
	Between one and two months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 2	Dec. 17	196
248	XVIII. Steam-Engineering, etc	Dec. 1	Dec. 7	159
93	XXI. Textiles, etc	Dec. 4	Dec. 5	206
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Dec. 2	Dec. 4	279
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Dec. 2	Dec. 2	168
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 1	Dec. 2	314
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 1	Dec. 1	194
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Dec. 1	Dec. 1	263
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Dec. 1	Dec. 1	530
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 1	Dec. 1	564
240	VII. Harvesters, Games and Toys, and Velocipedes.	Dec. 1	Dec. 1	806
	Total number of applications awaiting action			8,505
	Under one month in arrears.			
	Designs	Dec. 7	Dec. 22	187
	Trade-Marks	Dec. 21	Dec. 24	65

PATENTS

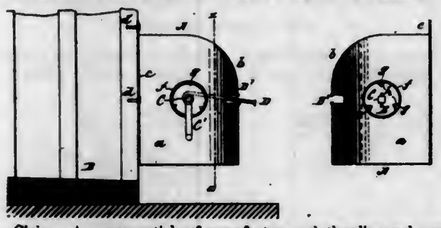
GRANTED JANUARY 12, 1897.

574,869. **MUSIC-BOOK HOLDER.** RINALDO ALDEN, Waukegan, Ill. Filed Nov. 20, 1896. Serial No. 570,566. (No model.)



Claim.—In a music-book holder in combination with the rod *a*, and sliding block *m*, the bent arms *d*, *d*, and *e*, *e*, provided with the springs *d'*, *d'*, *e'*, *e'*, and link *g*, substantially as shown.

574,870. **CLOTHES-LINE REEL.** HENRY O. ANDERSON, Clear Lake, S. D. Filed Apr. 1, 1896. Serial No. 585,706. (No model.)



Claim.—As a new article of manufacture a clothes-line reel comprising a top or cover, flanged side pieces, a crank-shaft journaled in said side pieces and a notched disk keyed on said shaft, the said side pieces being provided with recesses and marginal lugs, substantially as described.

574,871. **SOOT-DOOR FOR CHIMNEYS.** ANDERS P. ANDERSEN, Milwaukee, Wis. Filed Sept. 19, 1896. Serial No. 606,339. (No model.)

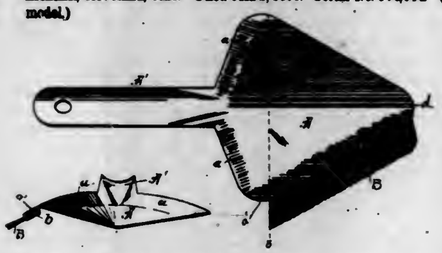


Claim.—1. The combination with a door-frame provided with an inwardly-projecting flange on its front edge along the lower portion thereof, of a door adapted to fit into the frame and bear outwardly against the flange on the frame, and to bear inwardly against the frame on the upper portion thereof.

2. The combination with a door-frame provided with an inwardly-projecting flange on the front edge of the sill and of the stiles along the lower portions thereof, of a door comprising a sheet of metal provided with guards on its lateral edges along the upper portions thereof, adapted when the door is in position to bear against the front edges of the stiles of the frame.

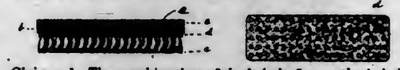
3. The combination with a door-frame having a flange along the front edge of the sill and along the lower portions of the front edges of the stiles, and having a recess in the lintel between the stiles, of a door adapted to fit into the frame and provided with guards along the lateral edges at the upper portions thereof, and with a lip adapted to take over the flange on the frame.

574,872. **SINK-CLEANER.** HARRY B. ATWATER and CARL P. RICHLER, Cleveland, Ohio. Filed Jan. 2, 1896. Serial No. 574,014. (No model.)



Claim.—The herein-described sink-cleaner, consisting of the triangular blade A having the upwardly-inclined rear edge *a* integral with the handle A', the downwardly-inclined side edge *a'* carrying the brush B in socket *b*, the central longitudinal depression *c*, and the triangular-pointed front end *d*, substantially as set forth.

574,873. **BRUSH.** FERDINAND S. BARTRAM, New York, N. Y. Filed Sept. 25, 1896. Serial No. 606,943. (No model.)



Claim.—1. The combination of the bristle-frame, the bristle-tufts and the absorbent material, placed adjacent the bristle-frame, substantially as described.

2. In a brush, the combination of the back *a*, the bristle-frame *b*, the pads *c* and *d*, the bristles *e* all substantially in the manner described and for the purposes herein specified.

574,874. **PARAPHENETIDIN COMPOUND.** HEINRICH BAUM, Manchester, England, assignor to Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung, Frankfort-on-the-Main, Germany. Filed May 5, 1896. Serial No. 590,328. (No specimens.)

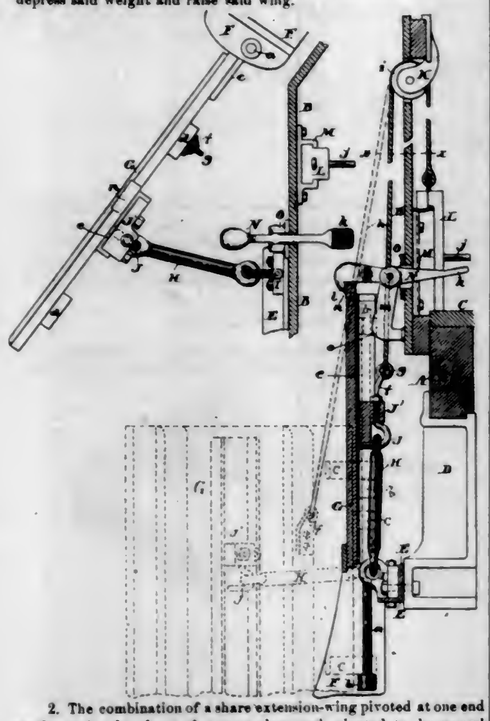
Claim.—1. The method substantially as hereinbefore set forth of manufacturing medicinal paraphenetidin compounds, which consists in condensing gentisinaldehyde with paraphenetidin, and in alkylating the product of condensation.

2. The new medicinal crystalline product meta-alkyloxy salicylidenparaphenetidin having the constitution herein set forth, which dissolves with difficulty in water, is readily soluble in alcohol, benzene, ether, chloroform, and alkalies, substantially as described.

574,875. **SNOW-PLOW FOR STREET-RAILWAYS.** WILLIAM R. BULLINGS and EDWARD C. COLLINS, Taunton, Mass., assignors to the Taunton Locomotive Manufacturing Company, same place. Filed Oct. 17, 1896. Serial No. 609,186. (No model.)

Claim.—1. In a snow-plow, the combination of a share extension-wing pivotally connected to the main plowshare, and adapted to be raised relative to said main share and moved about said pivotal connection; a sheave mounted in the side of the car-body; a cord or chain connected at one end to said extension-wing and passing over said sheave into the interior of the car-body; a weight secured to the other end of said cord or chain, and guided by a suitable bearing, and adapted to partially counterbalance the weight of

the extension-wing; and means for receiving the operator's foot to depress said weight and raise said wing.

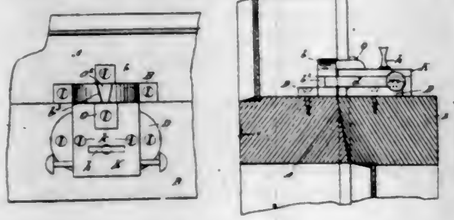


2. The combination of a share extension-wing pivoted at one end to the main plowshare of a snow-plow, and adapted to be moved about said pivotal connection, and raised relative to said main share; a link pivoted at one end to a fixed part of the plow-frame, and at its other end to a fixed connection to said wing, and adapted to be moved from a horizontal, to a vertical position; a sheave set in the side wall of the car-body; a counterweight fitted to a suitable guide within said car-body; a cord or chain passing over said sheave, and connected at one end to said share extension-wing, and at its other end to said weight; and means for depressing said weight and raising said wing by the pressure of the operator's foot.

3. In a snow-plow, the combination of a share extension-wing pivotally connected to the main plowshare, and adapted to be raised relative to said main share and moved about said pivotal connection; means for raising said wing relative to said main share, and moving it about its pivotal connection thereto; a locking-lever pivoted to the wall of the car-body, and provided, outside of said car-body, with a catch to automatically engage the upper edge of said wing when in raised and folded position, and on the inside of said car-body with a pedal-arm by which said catch may be disengaged from said wing by the operator within the car; and means for automatically impelling said wing away from said car-body when released.

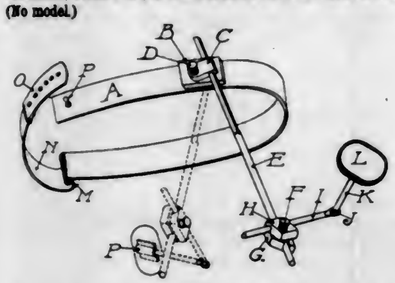
4. In a snow-plow, the combination of the pivoted wing G; means for raising said wing and moving it about its pivotal axis; the three-armed lever N, one arm of which is provided with the foot-pad *k*, another arm with the catch *l*, and the third with the knuckle *o*, all constructed, arranged and operating substantially as described.

574,876. SASH-FASTENER. JOHN BLASIUS, Union, N. J. Filed Feb. 28, 1896. Serial No. 581,102. (No model.)



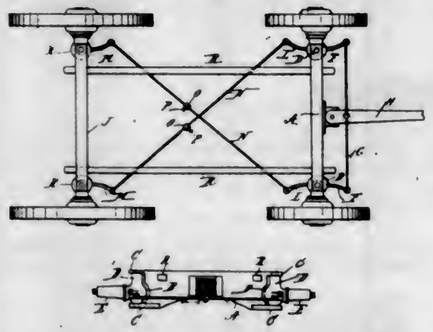
Claim.—A lock or fastening device for window-sashes, which is composed of two parts, one of which is adapted to be secured to the upper sash, and the other to the lower sash, that part which is adapted to be secured to the upper sash being provided with notches or recesses in the sides thereof, and with a dovetailed cross-groove in the top thereof, and that part which is adapted to be secured to the lower sash being provided with spring-operated levers which are adapted to enter said notches or recesses, and said part being also provided with a shoulder or projection which is adapted to enter the said dovetailed groove, and with means for operating said levers, substantially as shown and described.

574,877. ADJUSTABLE DENTAL MOUTH-MIRROR. FRED W. BLOMILEY, Sioux Falls, S. D. Filed Dec. 20, 1895. Serial No. 572,822. (No model.)



Claim.—The combination with a head-band A, of the adjustable rods E, I and K, the clamps C and G H, joint J and ferrule P the mouth mirror and reflector L as and for the purposes described.

574,878. WAGON-GEAR. CHARLES E. BOSTWICK, West Stockbridge, Mass. Filed May 31, 1895. Serial No. 551,035. (No model.)



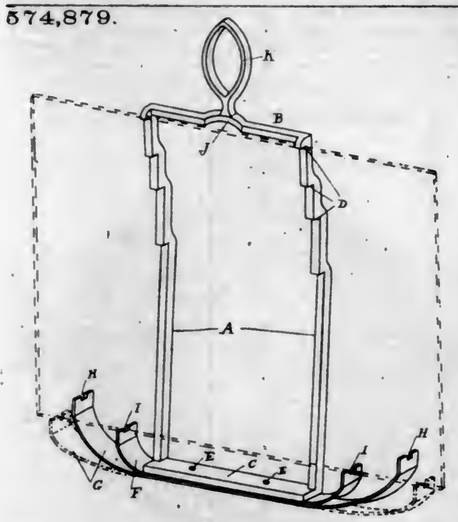
Claim.—A wagon-gear constructed and arranged substantially as herein shown and described, with the front and rear axles transversely recessed at each end and having top and bottom extensions, front and rear spindles provided with enlarged heads pivoted in said recesses forward and rearward extending arms integral with the forward spindles and forward-extending arms integral with the rear spindles, diagonal rods crossing each other pivotally connected at their ends the forward arms of the rear spindles and with the rear arms of the forward spindles, and adjustable shoes or stops fitted on said diagonal rods and provided with means for holding them in place, as set forth.

574,879. PHOTOGRAPHIC-PLATE DIPPER. HENRY L. CHENERY, Deering, Me. Filed Mar. 30, 1896. Serial No. 585,506. (No model.)

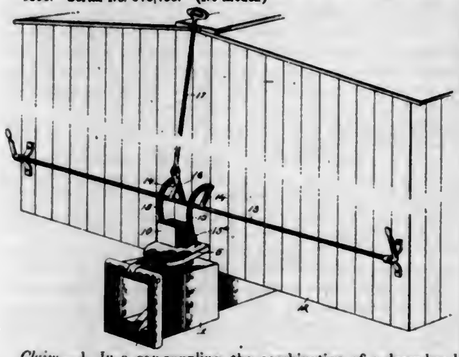
Claim.—1. In a plate-holder in combination, a rectangular frame provided with shoulders on its sides and springs attached thereto and provided with notches in the end for the reception of the plate, an offset in the top of said frame and means for holding the said frame as desired, substantially as and for the purposes set forth.

2. In a plate-holder in combination, a rectangular frame provided with shoulders on two sides each series overhanging the one next below, springs attached to the bottom of said frame and provided with notches in their ends for the reception of a plate, an offset in the top of said frame and means for holding the said frame, substantially as and for the purposes set forth.

574,879.



574,880. CAR-COUPLING. JOHN S. COLLIDON, Stromsburg, Nebr., assignor of one-half to Louis W. Peterson, same place. Filed Jan. 16, 1896. Serial No. 575,735. (No model.)



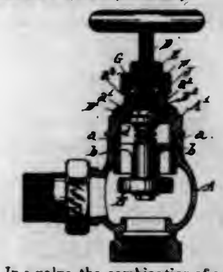
Claim.—1. In a car-coupling, the combination of a draw-head provided at its bottom with a fixed catch, a pivoted catch mounted on the draw-head, depending from the top thereof and located above the fixed catch, a link, and a vertically-movable bar mounted on the draw-head in rear of the catches, engaging the upper face of the link and connected with and operated by the pivoted catch, substantially as described.

2. In a car-coupling, the combination of a draw-head provided at its bottom with a fixed catch, a pivoted catch depending from the top of the draw-head and located at the top thereof above the fixed catch, and the vertically-disposed link-engaging bar located in rear of the catches and capable of vertical movement independent of the pivoted catch, and provided with a head arranged to be engaged by the pivoted catch, whereby the bar is moved vertically when the pivoted catch is swung upward, substantially as described.

3. In a car-coupling, the combination of a draw-head, a fixed catch arranged at the bottom of the draw-head, a pivoted catch depending from the top of the draw-head and having a top or plate located above the draw-head, and the vertically-movable link-engaging bar located in the rear of the catches and provided with a pair of forwardly-projecting lugs to engage a link, and having a head supported by the pivoted catch, substantially as and for the purpose described.

4. In a car-coupling, the combination of a draw-head provided at its bottom with a fixed catch, a pivoted catch depending from the top of the draw-head and located above the fixed catch, a car, a transverse rock-shaft journaled on the car and provided at its terminals with handles, and having a centrally-arranged arm and a pair of arms located at opposite sides of the centrally-arranged arm, curved links connecting the pair of arms with the pivoted catch, and connections between the centrally-arranged arm and the top of the car, substantially as described.

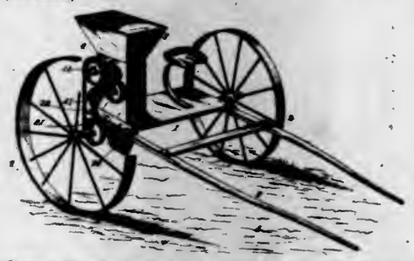
574,881. VALVE. JAMES L. COOK, Springfield, Ill. Filed Feb. 7, 1896. Serial No. 578,415. (No model.)



Claim.—1. In a valve, the combination of a valve-body provided with a valve-seat, a valve-bonnet provided with a diaphragm and connected with the valve-body, said valve-bonnet having an annular downwardly-extending valve-seat also having diametrically opposite channels, a valve adapted to rest on the seat in the valve-body and having arms sliding in the channels in the valve-bonnet, a channeled valve-stem carrying a disk seating on the seat in the valve-bonnet, bearing-plates fitting in the valve-bonnet above its diaphragm, balls interposed between said bearing-plates and surrounding the valve-stem, a ring inclosing the valve-stem and having a lug fitting in the channel thereof, and a screw-cap screwing on the valve-stem above said ring and surrounding and inclosing the upper end of the valve-bonnet, as set forth.

2. A valve-stem D having a slot d^4, a screw d', screw-threaded parts d^2 and d^3, an integral disk-plate d, and a retaining-nut D^2, in combination with a disk fitting on said disk-plate, a valve-bonnet having an internal seat on which said disk seats also having a cavity in its upper part, balls in said cavity, a ring surrounding said stem above said balls and having a lug fitting in the channel in said stem, a screw-cap screwing on said stem above said ring, a valve-body with which said valve-bonnet is connected, and a slidable valve B operated by the screw d', as set forth.

574,882. COTTON-SEED CRUSHER AND DISTRIBUTER. JAS. W. COOPER, Mayesville, S. C. Filed July 17, 1896. Serial No. 599,507. (No model.)

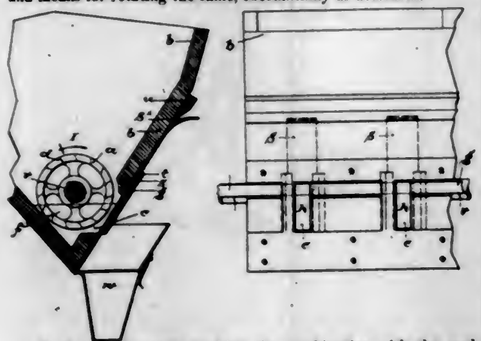


Claim.—In a device of the character set forth, the combination with a truck mounted upon wheels having suitable draft appliances attached thereto, of a cotton-seed crusher and distributer secured to said truck, the same consisting of a casing open at its upper and lower ends, a hopper secured to the upper end of said casing and discharging thereinto, a feed-roller mounted to rotate in said casing having teeth or projections thereon, a sprocket-wheel upon the outer end of the shaft on which said feed-roller is mounted, a feed-chute pivoted to the inside of said casing whose lower end is separated a slight distance from the surface of said feed-roller, an adjusting-screw for said chute, a pair of crushing-rolls mounted upon suitable shafts at the lower end of said casing one of said rolls having a smooth outer surface, and the other having grooves or corrugations thereon forming crushing-teeth, intergearing cog-wheels upon the outer ends of the shafts upon which said crushing-rolls are mounted, a sprocket-wheel upon the opposite end of the shaft of one of said rollers, a sprocket-wheel on the hub of one of the wheels of said truck, and a sprocket-chain passing around said sprocket-wheel and the sprocket-wheels on said crushing and feed rollers, substantially as and for the purpose described.

574,883. SOWING-MACHINE. ERNST CROLL, Langensalza, Germany. Filed Apr. 4, 1896. Serial No. 586,194. (No model.)

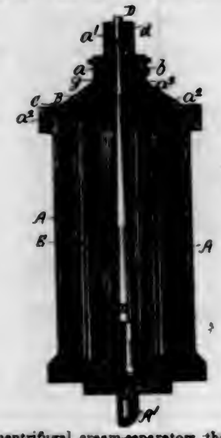
Claim.—1. In a seed-sowing machine, the combination with the seedboxes having seed-openings therein, the rotatable wheels having peripheral triangular or wedge-shaped teeth, of the slides for vary-

ing the area of said seed-openings, the rod to which they are secured, the angle-lever connected therewith, the cam with which said lever engages having its periphery made partly helical and partly circular, and means for rotating the same, substantially as described.



2. In a seed-sowing machine, the combination with the seed-boxes having seed-openings therein, the rotatable seed-disks having peripheral wedge-shaped teeth, and the guide-blocks located between said wheels, having their upper sides inclined in opposite directions, of the slides for varying the area of the seed-openings, the rod to which they are secured, the angle-lever, the cam-wheel having its periphery made partly circular and partly helical, the screw-shaft on which said wheel is journaled, the clutch member secured to said cam-wheel, the fixed clutch member on said shaft, the coiled spring interposed herebetween and the handle having a screw-threaded aperture engaging with the correspondingly-threaded end of said shaft, substantially as described.

574,884. **CENTRIFUGAL CREAM-SEPARATOR.** DANIEL J. DAVIS, Chicago, Ill. Filed Aug. 21, 1896. Serial No. 559,963. (No model.)

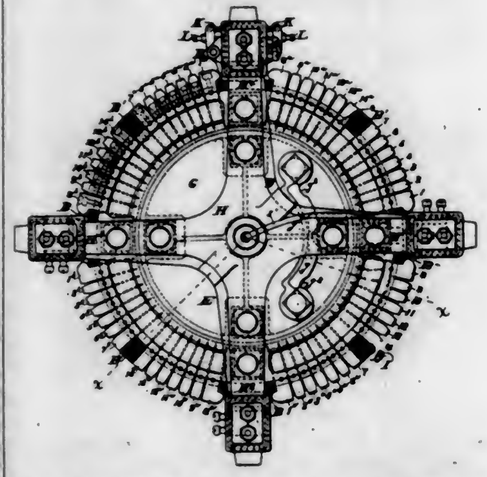


Claim.—In centrifugal cream-separators, the combination with a rotatable vessel or bowl, provided with a conical closing-cap terminating in a contracted top part having a milk-outlet therefrom, of a diaphragm, corresponding in contour to the sloping sides of said cap but of a less diameter, and terminating in a neck extension having a cream-outlet and provided with a threaded connection in said contracted top part below the milk-outlet, substantially as described.

574,885. **CONTROLLER FOR ELECTRIC MOTORS.** HARRY P. DAVIS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Dec. 3, 1895. Serial No. 570,912. (No model.)

Claim.—1. In a controller for electric motors, the combination with circumferentially-arranged sets of stationary contact blocks or pieces, and a centrally-mounted head, movable a limited distance from neutral position in either direction and having radial arms provided with contacts at their outer ends electrically connected in pairs, of a plurality of resistances each permanently connected to two sets of contact-blocks.

2. In a controller for electric motors, the combination with eight sets or groups of circumferentially-arranged contact-blocks, of a centrally-mounted head having radial arms provided with contacts electrically connected in pairs, said head and arms being movable a sufficient distance to effect the engagement of each of said movable contacts with two sets of stationary contacts, and four sectional resistances each permanently connected to two sets of contact-blocks.



3. In a controller for electric motors, the combination with eight sets or groups of circumferentially-arranged contact-blocks, the contact-blocks of correspondingly-located sets being electrically connected in pairs, of a rotatable member having four contacts electrically connected in pairs, and a plurality of resistances connected to said pairs of stationary contact-blocks whereby a movement of the rotatable member in either direction will first insert the entire resistance and then gradually cut it out.

4. In a controller for electric motors, the combination with sectional resistances and a plurality of double sets of stationary contacts connected in pairs to said resistances, of a rotatable member having a contact for each double set of stationary contacts, said movable contacts being electrically connected in pairs and the amount of resistance included in the circuit being controlled to the same degree by moving the rotatable member either to the right or to the left.

5. A switch-contact device comprising a base, two fingers pivoted thereto at their outer ends and overlapping at their inner ends, a spring tending to separate said overlapping ends and adjustable means for opposing the action of the spring.

6. A switch-contact device comprising a magnetizable base, a pair of overlapping fingers pivoted thereto, a spring tending to separate said fingers, and a magnetizing-coil on said base, said base having pole-pieces projecting in proximity to the contact portions of said fingers.

7. In a controller for electric motors, a plurality of circumferentially-located contact-pieces arranged in groups or sets and varying in width whereby the number of circuit changes is increased.

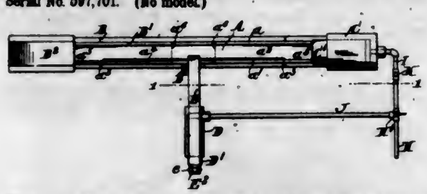
8. In a controller for electric motors, a plurality of sets of stationary contact-blocks circumferentially arranged, each of said contact-blocks being provided with a removable face-plate, in combination with a plurality of rigidly-connected movable contacts, one for each two sets of stationary contacts, said movable contacts being electrically connected in pairs.

9. The combination with a plurality of sets of circumferentially-arranged stationary contacts, of a plurality of movable contacts, electrically connected in pairs and mechanically connected to be moved at the same time over the stationary contacts adjacent thereto and resistances permanently connected to said stationary contacts in pairs.

10. A controlling means for electric motors comprising stationary contacts, resistances, electric connections between said devices and between the stationary contacts and the motor and a single set of movable contacts electrically connected in pairs, the engagement of said movable and stationary contacts serving both for inserting and cutting out the resistance and for reversing the motor.

11. A controller of the commutator type for electric motors, having stationary contacts arranged in groups, in combination with a member having a plurality of contacts electrically connected in pairs and movable in either direction from its initial position to insert and progressively cut out resistance, the direction of movement of said member with reference to said initial position determining the direction of rotation of the motor-armature.

574,886. **METHOD OF AND APPARATUS FOR FORMING TRUSSES.** NATHAN H. DAVIS, Philadelphia, Pa. Filed July 1, 1896. Serial No. 597,701. (No model.)



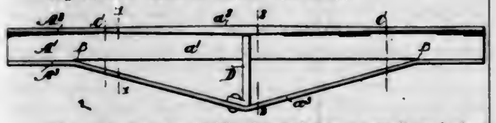
Claim.—1. The method of making a truss member which consists in slitting longitudinally an iron or steel beam leaving it unsevered at its ends, then heating the beam on one side of the cut to a temperature which will permit of the upsetting of the metal, and then shortening the heated side of the slit beam by pressure on its ends and drawing the other unshortened side away from the shortened side as described.

2. The method of making a truss member which consists in slitting longitudinally an iron or steel I-beam at or near the junction of the web with one flange thereof leaving it unsevered at its ends, then heating the beam on the side of the cut upon which the most metal lies to a temperature which will permit of the upsetting of the metal, and then shortening the heated side of the slit beam by pressure on its ends and drawing the other unshortened side away from the shortened side as described.

3. An apparatus for forming truss members out of longitudinally-slit beams comprising means for compressing and upsetting the beam longitudinally, and means for simultaneously drawing away from the upset portion one side of the slit beam substantially as specified.

4. An apparatus for forming truss members out of longitudinally-slit beams comprising means for compressing and upsetting the beam longitudinally, means for simultaneously drawing away from the upset portion one side of the slit beam and means for clamping the beam where it is upset with a yielding pressure to prevent the buckling of the metal.

574,887. **TRUSS.** NATHAN H. DAVIS, Philadelphia, Pa. Filed Aug. 21, 1896. Serial No. 603,445. (No model.)



Claim.—1. As a new article of manufacture a truss formed of an integral metal beam longitudinally slit intermediate its ends having the metal on one side of the slit upset and thickened in cross-section and the metal on the other side of the slit drawn away from the upset portion to an extent regulated by the shortening of said portion by upsetting.

2. As a new article of manufacture a truss formed of an integral metal beam having flanges and a web A' said beam being longitudinally slit in its web intermediate its ends, having the metal on one side of the slit upset and thickened in cross-section and the metal on the other side of the slit drawn away from the upset portion to an extent regulated by the shortening of said portion by upsetting.

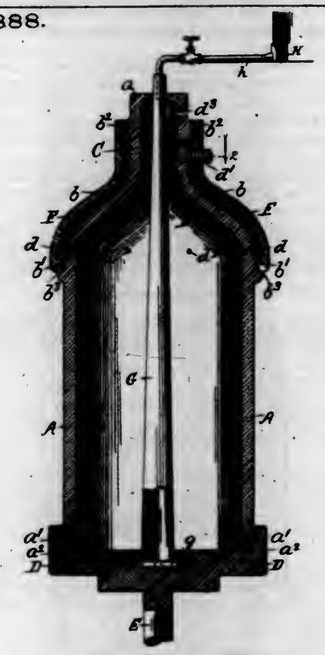
3. As a new article of manufacture a truss formed of an integral metal beam longitudinally slit intermediate its ends having the metal on one side of the slit upset and thickened in cross-section with a gradual taper from the center of the truss, and the metal on the other side of the slit drawn away from the upset portion to an extent regulated by the shortening of said portion by upsetting.

574,888. **CENTRIFUGAL CREAM-SEPARATOR.** WILLIAM J. DAVIS, Chicago, Ill. Filed June 19, 1895. Serial No. 553,208. (No model.)

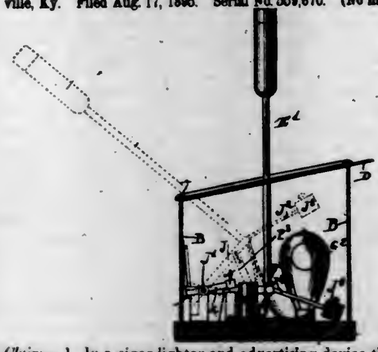
Claim.—1. The combination with a separator-bowl, having an integral upper closed end perforated for the insertion of a milk-receiving tube, of a jacket, detachably secured to and inclosing the upper end of said bowl and providing an annular space or chamber between the adjacent surfaces, and the series of apertures, opening into said space through the wall of the bowl, substantially as described.

2. The combination with a separator-bowl, having an integral contracted upper end, of a jacket, detachably secured to and inclosing the contracted upper end of said bowl with an annular chamber therebetween, a series of apertures, leading from the bowl into said chamber, and a regulating screw-plug, inserted through said jacket and stopping short in said chamber and having a passage therethrough for the escape of the blue milk, substantially as described.

574,888.



574,889. **ELECTRIC CIGAR-LIGHTER.** JOHN W. DAWSON, Louisville, Ky. Filed Aug. 17, 1896. Serial No. 559,670. (No model.)



Claim.—1. In a cigar-lighter and advertising device the combination of a handle, a wire filament, a weighted pivoted cross-bar, a switch, a lamp, and a cigar-cutting apparatus connected to said weighted cross-bar in such a manner that when the handle is being drawn in position to light the cigar, the lamp and the cigar-lighting device are connected in circuit and the cutter is operated, the parts so constructed that they are returned to their normal position by the weights on said weighted pivoted cross-bar, substantially as described.

2. In a cigar-lighter and advertising device, the combination of a cigar-cutting apparatus with an incandescent lamp, an incandescent cigar-lighting device, an advertising-case and a switch, the parts connected so that by the movement of the handle, the lamp and the lighting device are energized and the cutter is operated.

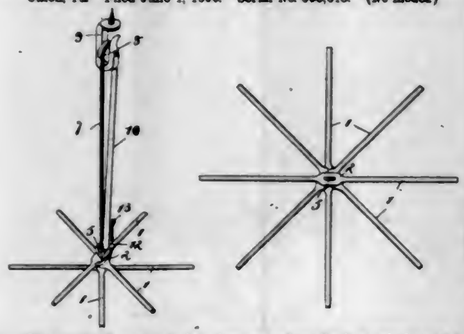
3. In a cigar-lighting device the combination of a rigid insulation-handle with an insulation end, filaments adapted to be made incandescent lying across such end, conductors leading therefrom, a device down within the insulation-handle, a switch associated with said handle by which the current through said filaments is controlled, and a cigar-cutting apparatus associated with said handle so as to be operated thereby.

4. In a cigar-lighting and advertising device, the combination of a handle, a circuit-closing switch consisting of two bars, one connected with the handle, the other with the circuit-closing end, two cross-rods which engage said bars and lie loosely in sockets, a spring which forces the two bars together so that as one is rocked the other alternately shifts its relative angular position thereto to make or break the circuit, a filament associated with the outer end of said

handle, and connected in circuit so as to be controlled by said switch, and a cigar-cutting apparatus also associated with said handle so as to be operated thereby.

5. In a cigar-lighting and advertising device, the combination of a handle, a circuit-closing switch consisting of two bars, one connected with the handle, the other with the circuit-closing end, two cross-rods which engage said bars and lie loosely in sockets, a spring which forces the two bars together so that as one is rocked the other alternately shifts its relative angular position thereto to make or break the circuit, and a cigar-lighting device on the handle, consisting of one or more filaments extending across the end of said handle and connected in circuit so as to be controlled by said switch and inclosing advertising-case, and a lamp in circuit with said filaments and adapted to be controlled by said switch, and a cigar-cutting apparatus connected with said handle so as to be operated thereby.

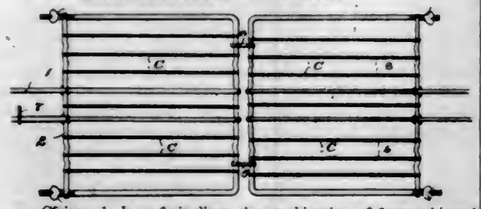
574,890. CLOTHES-DRIER. CHARLES H. DE FRESN, Mount Union, Pa. Filed June 1, 1896. Serial No. 593,815. (No model.)



Claim.—1. A rack of the character described, consisting of a series of bars pivoted at their middle points upon a bolt having an eye therein, a cord attached to the eye of said bolt and passing around a pulley in the ceiling of the room and a securing-rod having a ring or eye in its upper end through which said cord passes and a cleat or button upon its lower end around which said cord is adapted to be wound, substantially as and for the purpose set forth.

2. A rack of the character described, consisting of a series of bars pivoted at their middle points upon a bolt having an eye therein, an extension of said bolt rising upwardly from said eye, a cord attached to the eye of said bolt and passing around a pulley in the ceiling of the room, a securing-rod having a ring or eye upon its upper end through which said cord passes, a cleat or button upon its lower end around which said cord is wound and a slot or opening in its lower end within which said extension fits, substantially as and for the purpose set forth.

574,891. FRUIT-SLICER. HATTIE DELZELL, Jackson, Cal. Filed June 22, 1896. Serial No. 596,474. (No model.)

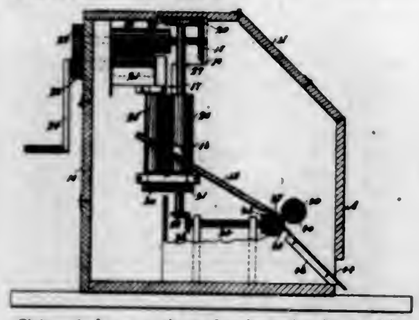


Claim.—1. In a fruit-slicer, the combination of frames hinged together at one end and each having an adjustable side, and slicing-knives having notched ends which receive the adjustable side and the side of the frame opposite, said knives being provided for both of the frames and adapted to graze each other when the frames are closed together.

2. In a fruit-slicer, the combination of frames hinged together and having sides terminating in screw-threaded ends, sides through which said ends loosely pass, adjusting-nuts on the screw-threaded ends of the respective frames which are adapted to advance the movable sides, and knives carried by the frames and held between the adjustable sides and the opposite fixed sides of said frames.

3. In a fruit-slicer, the combination of frames each formed of a single piece of material having a cross-piece which is provided with notches, and side pieces terminating in screw-threaded ends, the cross-pieces of the two frames being hinged together, a slidable cross-piece for each frame which has its ends loosely received on the screw-threaded ends, said slidable cross-piece having notches, thumb-nuts on the screw-threaded ends of both frames, knives for each frame having notched ends that are received in the notches of the fixed and slidable cross-pieces of the frame, and handles connected to the respective frames.

574,892. DEVICE FOR MOISTENING AND SEALING ENVELOPS, &c. ARAHEL W. EDDY, Coleridge, Nebr. Filed Apr. 21, 1896. Serial No. 588,466. (No model.)



Claim.—1. In an envelop moistening and sealing machine, a casing, a moistening-roller adapted to receive the gummed flap of the envelop, feed-rollers arranged below the moistening-roller and in such relation thereto as to receive the body of the envelop while its flap is in engagement with the aforesaid moistening-roller, sealing-rollers between which the envelop in its moistened condition is to be passed, and a conducting device located between the guide-rollers and the sealing-rollers, as and for the purpose specified.

2. In an envelop moistening and sealing machine, a casing, a moistening-roller adapted to receive the gummed flap of the envelop, feed-rollers arranged below the moistening-roller and in such relation thereto as to receive the body of the envelop while its flap is in engagement with the aforesaid moistening-roller, sealing-rollers between which the envelop in its moistened condition is to be passed, a conducting device located between the guide-rollers and the sealing-rollers, and a guide partition located upon the said conducting device at a point between the space intervening the guide-rollers and the sealing-rollers, as and for the purpose specified.

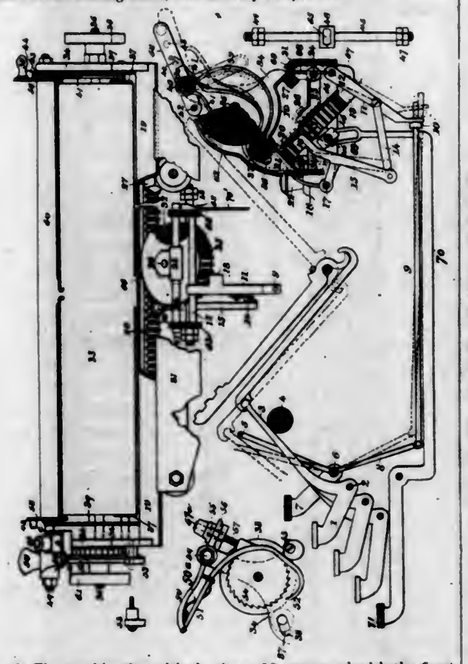
3. In a machine for moistening and sealing envelops and like packages, the combination, with a casing, a moistening-roller and a guide-roller located above the moistening-roller, the casing being provided with an opening adjacent to one end of the moistening-roller, and at an angle to the said roller, of feed-rollers located at each side of the aforesaid slot, an inclined partition extending across the feed-rollers, and sealing-rollers located at the lower end of the aforesaid partition, as and for the purpose specified.

4. In a machine for moistening and sealing envelops and like packages, the combination, with a casing provided with a moistening-roller, and a guide-roller substantially in contact with the moistening-rollers, the two rollers being horizontally located and the casing being provided with a vertical slot adjacent to one end of the moistening-roller, of perpendicular guide-rollers located one at each side of the said perpendicular slot, an inclined partition crossing the feed-rollers, sealing-rollers located at the lower end of the said partition, and means, substantially as described, for driving one of the rollers, and a driving connection between all of the rollers, whereby motion may be simultaneously imparted to all of the rollers upon operating one of them, as and for the purpose specified.

5. In a machine for moistening and sealing envelops, the combination, with a casing, a moistening-roller located in the said casing, a guide-roller adapted to turn in conjunction with the moistening-roller, the casing being provided with a slot at an angle to one end of the moistening-roller, guides exteriorly located on the casing, one leading to the space between the moistening and guide rollers and the other to the said slot, of guide-rollers located one at each side of the said slot, an inclined partition crossing the said guide-rollers and provided with a diagonal guide-partition upon its upper face and adjacent to one of the guide-rollers, sealing-rollers located at the lower end of the said partition, and a driving mechanism operated on by the said rollers, as and for the purpose specified.

574,898. TYPE-WRITING MACHINE. WILLIAM C. FARNUM, Arlington, Vt. Filed Aug. 15, 1893. Serial No. 483,183. (No model.)

Claim.—1. The combination with a rack, of a scape-wheel pinion, means connected with the said pinion for rotating it, means connected with the said pinion for reciprocating it in the direction of the travel of the rack, two connected escapement-pallets, one coacting with the rack and one with the pinion, and means connected with one of the pallets for oscillating them, substantially as specified.



2. The combination with the finger 18 connected with the front pallet-arm, of the front and back pallet-arms and pallets, the sliding scape-wheel the paper-carriage provided with a lip and the rack, substantially as specified.

3. The combination of a pivotal grip-wire frame and a support allowing its oscillation, with the clamping-rolls and the springs attached to the said rolls, the said springs being arranged for contact with the said frame and to be operated thereby substantially as set forth.

4. The line-feed space-block constructed with the described step-faces and fitted to turn and slide upon a fixed stud, in combination with the platen-roll provided with a ratchet, and means, substantially as shown, interposed between the space-block and the ratchet for simultaneously depressing the block and propelling the ratchet, substantially in the manner described and for the purposes set forth.

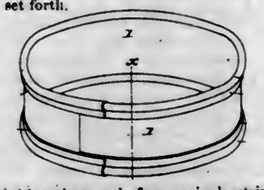
5. The line-feed space-block constructed with the described step-faces and fitted to turn upon a fixed stud and adapted to slide up and down thereon, in combination with the platen-roll provided with a ratchet, and means, substantially as shown, interposed between the space-block and the ratchet for simultaneously depressing the block and propelling the ratchet, the extent of sliding motion of the said block governing the turning of the said ratchet and platen-roll, substantially in the manner described and for the purpose set forth.

6. The combination in a type-writer with the mechanism for rotating the platen-roll to produce the line-spaces, of a stepped and pivoted space-block adapted to slide up and down as well as to be rotated, the extent of sliding motion of the said block governing the turning of the said ratchet and platen-roll and such sliding motion depending on the position of the said space-block as turned to bring one step or another under the lever, substantially as specified.

7. In a type-writer the combination with the paper-carriage and the platen-roll of the described rack and scape-wheel, means for rotating the scape-wheel, means for reciprocating the scape-wheel in the direction of the line of travel of the carriage, two connected pallets adapted to coact with the carriage-rack and the scape-wheel and means connected with one of the pallets for actuating it, all constructed and actuated to operate in the manner and for the purpose specified.

574,894. HAT-PACKING RING. FRANK P. FERRY, Danbury, Conn., assignor of one-half to Theodore Clark & Co., same place. Filed June 2, 1894. Serial No. 513,302. (No model.)

Claim.—1. As a new article of manufacture a hat-packing ring, made from a single strip of pasteboard having hollow closed beads at its upper and lower edges and petticoats extending from the extremities of such edges after curling flat against the body of the strip, substantially as set forth.



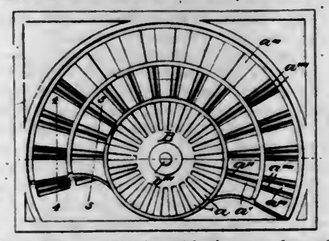
2. A hat-packing ring, made from a single strip of pasteboard having its upper and lower edges curled into the form of hollow beads and then disposed flat against the body of the strip, the extremities of such strip being secured together in any suitable manner, substantially as set forth.

3. As a new article of manufacture, a pasteboard hat-packing ring having closed beads at its edges, and with the extreme edges of the stock beyond the beads disposed flat against the body of the strip, substantially as described.

4. As a new article of manufacture, a hat-packing ring having its edges curled over to form hollow beads, the stock of such edges being extended beyond the beads to form petticoats, substantially as described.

5. As a new article of manufacture, a pasteboard strip for hat-packing rings, said strip having its edges curled to form hollow closed beads and with the extreme edges of the stock beyond the beads disposed against the body of such strip, substantially as described.

574,895. STOVE-OVEN DOOR. GILES F. FILLEY, St. Louis, Mo. Filed Sept. 16, 1896. Serial No. 605,961. (No model.)

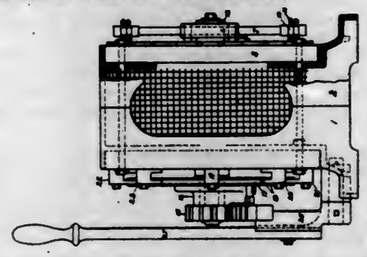


Claim.—1. The combination with the oven-door of a cooking stove, or range, which door is provided with two or more sets of openings in radial line with each other, and a rotary register which is adapted to coöperate with said openings; substantially as described.

2. The combination with the oven-door of a cooking stove, or range, which door is provided with openings a, a' and a''' of V-shaped bars arranged in the openings a' and a''', and a rotary register provided with openings for coöperating with the openings in the door; substantially as described.

3. The combination with the oven-door of a cooking stove, or range, which door is provided with openings, of V-shaped bars arranged in the openings, the apices of which bars are outwardly disposed, and a register for coöperating with said openings; substantially as described.

574,896. COMBINED RHEOSTAT AND REVERSING-SWITCH. JONATHAN P. B. FISKE and CHARLES P. SMITH, Alliance, Ohio. Filed Mar. 18, 1895. Serial No. 542,181. (No model.)



Claim.—1. In a rheostat or resistance, the combination with sections composed of a conductor of high resistance with interposed wedge-shaped spacing-blocks electrically connected to the resistance, all being associated and secured in circular form, of a plate or base secured over the resistance, a series of contact-plates thereon ip so-

sitions corresponding to the spacing-blocks and bolts electrically connecting the spacing-blocks with their respective contact-plates, as set forth.

2. In a rheostat or resistance, the combination with sections composed of a metallic ribbon folded upon itself with insulating material interposed between the folds, of wedge-shaped spacing-blocks interposed between the sections of ribbon and in electrical connection therewith, the whole being arranged and secured in circular form, a plate secured to the circular resistance, a series of contact-plates thereon in positions corresponding to the spacing-blocks and bolts passing through the plates and electrically connecting the said contact-plates with the spacing-blocks respectively, as set forth.

3. In a rheostat or resistance, the combination with one or more circularly-arranged series of resistances, of skeleton frames having laterally-projecting lugs or teeth and insulated from the resistances and bolts for binding together the skeleton frames and clamping the interposed resistances, as set forth.

4. The combination with a variable resistance or rheostat, of a reversing-switch consisting of an insulated support having contact-arms, a sleeve upon which the support is mounted, a forked extension from said sleeve, a pivoted lever having a projection for engaging with the forked extension, and stationary terminals engaged by the contact-arms when the disk is moved by the engagement therewith of the projection when the lever is turned, as set forth.

5. The combination with the casing composed of two substantially similar halves or sections and provided with openings for the escape of heated air, of a resistance contained within the casing, a reversing-switch secured to the face of one half or section of the casing and a resistance-switch secured to the face of the other, as set forth.

6. The combination with the series of resistance-coils and contact-plates divided into two parts, a centrally-pivoted contact-lever the ends of which travel over the plates of the two parts respectively, a reversing-switch and electrical connections whereby the operation of the reversing-switch connects the terminals of the line and translating devices respectively with the contact-plates of the two parts of the series of resistance-coils that are the last to be encountered by the contact-arm in its movement over said plates, as set forth.

7. The combination with the reversing-switch and lever for operating or throwing the same, of a segment-gear with curved ends or stops, moved by the lever and a rheostat or variable resistance in gear therewith, as set forth.

8. The combination with the pivoted lever, the shaft and pinion, a reversing-switch mounted loosely in respect to said shaft, a segment-gear carried by the lever and engaging with the pinion, and a projection on the lever in position to engage with a part moving with the reversing-switch whereby a movement of the said lever turns the shaft and throws the reversing-switch, as set forth.

574,897. RAILWAY-SWITCH. FRANK FLANAGAN, Chicago, Ill., assignor of one-third to Thomas J. O'Donnell, same place. Filed June 13, 1896. Serial No. 596,065. (No model.)

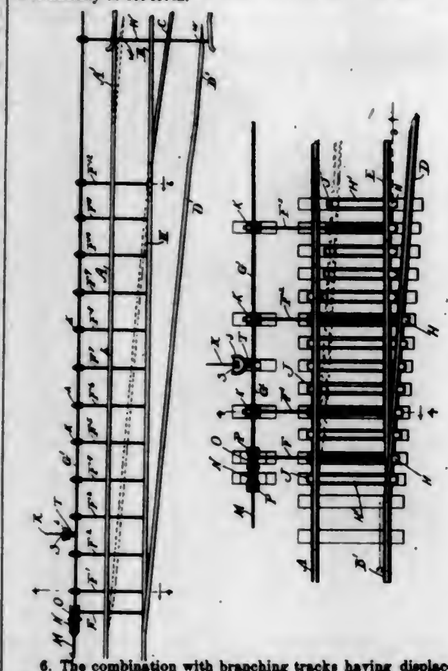
Claim.—1. In a switch, the combination with branching tracks having inside rails terminating at their intersection, of a switch-tongue having its heel located at the termini of said inside rails whence it extends to a point opposite the end of the outside rail of the branch tracks, and means including a system of differential screws for operating the switch-tongue, substantially as set forth.

2. In a switch, the combination with branching tracks having inside rails terminating at their intersection, of a switch-tongue having its heel located at the termini of said inside rails whence it extends to a point opposite the end of the outside rail of the branch tracks, and means for operating said tongue said means including a system of differential screws engaging the tongue, pinions carried by the screws, an endwise-movable rack-bar engaging the pinions, and means for moving the rack-bar, substantially as set forth.

3. In a switch, the combination with the tongue, and means including an endwise-movable rack-bar for operating it of an upright shaft having a pinion engaging the rack-bar, an elevated signal, and means for transmitting movement from the shaft to the signal, substantially as set forth.

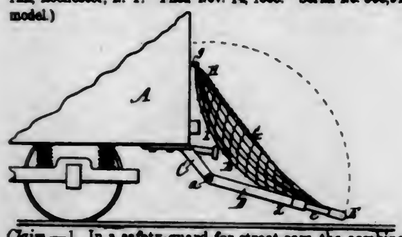
4. In a switch, the combination with the tongue, and means including an endwise-movable rack-bar for operating it, of an upright shaft having a pinion engaging said rack-bar, said shaft having a thread, a nut engaging the thread, a pivoted target, and means for transmitting movement from the nut to the target, substantially as set forth.

5. The combination with branching tracks, each having a displaceable section in its outside rail, said sections being so related to each other that when one of them is in position to complete the rail in which it is incorporated the other rail is interrupted, and a switch common to both of said tracks, of means common to both of said displaceable sections and to the switch for simultaneously operating them, the arrangement being such that when the switch is in position to complete either of said branching tracks the displaceable section of the other of said branching tracks is in a position to leave it open, substantially as set forth.



6. The combination with branching tracks having displaceable sections A', D', in their outside rails, of a shaft having threaded portions engaging said displaceable sections, a switch-tongue, and means common to both of the displaceable sections and the switch-tongue for operating all of them simultaneously, said displaceable sections being so related to each other that when one of them is in position to complete the rail in which it is incorporated the other rail is interrupted, substantially as set forth.

574,898. SAFETY-GUARD FOR STREET-CARS. GEORGE T. FOSTER, Rochester, N. Y. Filed Nov. 14, 1896. Serial No. 568,912. (No model.)

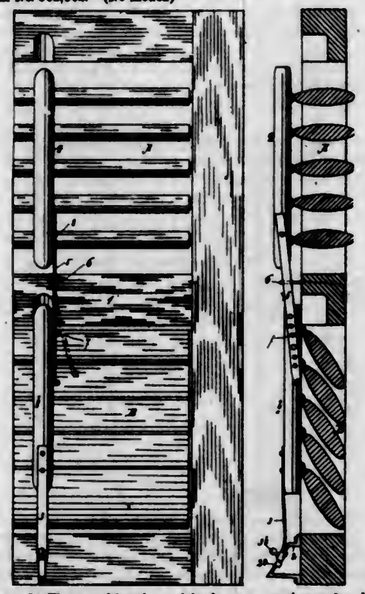


Claim.—1. In a safety-guard for street-cars, the combination of a pivoted frame, a buffer-rod with bent ends resting in the outer tubular ends of the frame, springs for forcing the rod outward, a net attached at one end to the car and at the other to the buffer-rod, and a stiff board forming a pad attached to the flexible net and covering the draw-head, and so arranged that when the frame is turned up the board folds in flatwise with the net and above the draw-head, as herein shown and described.

2. In a street-car guard, the combination, with the flexible net B, attached at one end to the car and at the other to the buffer-rod of the supporting-frame, of the board I attached to the meshes of the net and covering the draw-head of the car, as and for the purpose specified.

3. In a street-car guard, the combination of the tubular arms D D, the buffer-rod E provided with bent ends entering the arms, the friction-rollers *j j* attached to the bent ends and standing at right angles to each other, the springs *b b* for forcing the bent ends outward, and the bolts *d d* attached to the bent ends and playing loosely in slots *f f* of the tubular bars, as and for the purpose specified.

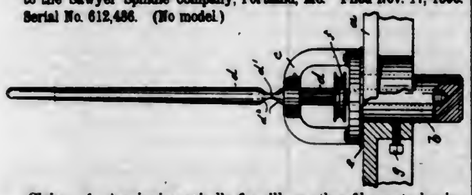
574,899. BLIND-SLAT-ADJUSTING DEVICE. KING H. FREEMAN, Whitesborough, and JOHN KNOTT, Utica, N. Y. Filed Mar. 6, 1896. Serial No. 582,062. (No model.)



Claim.—1. The combination with the two sections of a slat-bar of the spring-connecting strap, having a series of holes and fixed guide-eye through which the strap passes and a pin or projection on one of the sections of slat-bar with which the strap is adapted to engage, substantially as set forth.

2. In a slat-adjusting device, the combination of a slat-bar, a spring-catch rigidly secured on the slat-bar, a bracket having the incline bar located in the plane of the slat-bar and having projections on which the catch engages, substantially as set forth.

574,900. SPINDLE. ALFRED GARTNER Newark, N. J., assigno to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,486. (No model.)



Claim.—1. A spinning-spindle for silk or other filaments, having a reduced portion with adjoining conical-shaped portions, substantially as and for the purposes described.

2. A spinning-spindle for silk or other filaments, having a reduced portion with adjoining conical-shaped portions, and a block of elastic material covering the same, substantially as and for the purposes described.

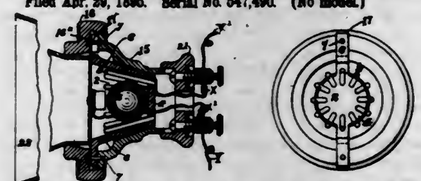
3. A spinning-spindle for silk or other filaments provided with a substantially semicircular groove, as and for the purposes described.

4. A spinning-spindle for silk or other filaments provided with a substantially semicircular groove and having said groove covered and surrounded by a block of suitable flexible material, substantially as and for the purposes described.

5. The combination with the spindle-rail, of a tube mounted in said rail, an annular flange on said tube and above the rail, an elastic washer between said flange and the rail, a yoke projecting from said flange, and a whirl-driven spindle in said tube and having an upper bearing in said yoke, and provided above said bearing with a reduced portion, substantially as and for the purposes described.

6. The combination with the spindle-rail, of a tube mounted in said rail, an annular flange on said tube and above the rail, an elastic washer between said flange and the rail, a yoke projecting from said flange, a spindle in said tube and yoke and provided above said yoke with an annular substantially semicircular groove, and a block of suitable elastic material covering and surrounding said groove, all said parts, substantially as and for the purposes described.

574,901. TELEPHONE. CLAUDE C. GOULD, Philadelphia, Pa., assignor to the Make and Break Telephone Company, of New Jersey. Filed Apr. 29, 1895. Serial No. 547,490. (No model.)



Claim.—1. In a telephone, the combination with a diaphragm, of a basket comprising a series of arms and having the form of a conic or pyramidic frustum, and a rolling electrode mounted in said basket and adapted to collide with said diaphragm and partake of rectilinear motion between said arms, substantially as described.

2. In a telephone, the combination with a diaphragm and a rolling electrode, of a basket comprising a plate and a series of arms projecting outward from said plate for the accommodation of said rolling electrode, substantially as described.

3. In a telephone, the combination with a diaphragm and a rolling electrode, of a plate provided with outwardly-projecting pointed arms having beveled edges for the accommodation of said rolling electrode, substantially as described.

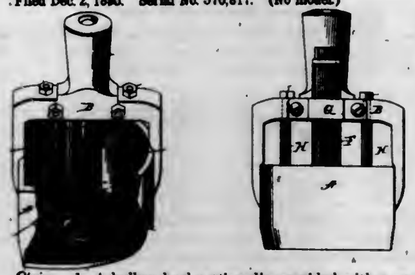
4. In a telephone, the combination with a diaphragm and a rolling electrode, of a series of arms having beveled edges and disposed nearer together at one of their ends than at the other of their ends and having spaces between them in which said electrode is afforded rectilinear motion in respect to the diaphragm, substantially as described.

5. The combination in a telephone, of a casing or housing, a diaphragm, a rolling electrode, a basket for said electrode, and a yoke attached to said casing and basket, substantially as described.

6. The combination in a telephone, of a casing or housing comprising a detachable sleeve and ring, a yoke carrying a basket and having its end adapted to recesses in said sleeve, dowel-pins for said yoke, and a rolling electrode and diaphragm, substantially as described.

7. A telephone-transmitter comprising the combination of, a casing or housing comprising a sleeve provided at its respective ends with a ring and a cap, a basket comprising a plate and diverging arms circularly arranged, a yoke attached to said basket and doweled between the sleeve and ring, a diaphragm, as mica, interposed between the sleeve and ring and provided with apertures for the pins of the dowel, a rolling electrode, and circuit connections, substantially as described.

574,902. HEEL-CUTTING DIE. JOHN HECKEL, Rochester, N. Y. Filed Dec. 2, 1895. Serial No. 570,817. (No model.)



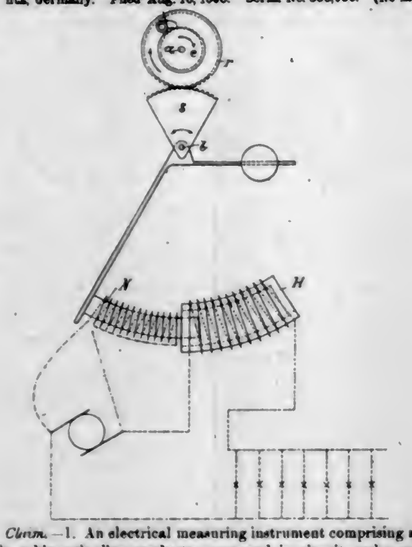
Claim.—1. A hollow heel-cutting die provided with a movable follower with a rigid stem or shank and a rigid base arranged therein and normally adjacent to the cutting edge of the die, and two fixed attenuated pick-ups for the lifts one near the breast and the other near the rear of the heel and which project through the follower, substantially as described.

2. A heel-cutting die provided with a movable follower therein, which forms a bed for the die as successive lifts are cut, and also an ejector for the built-up heel, one arm to receive the impact of a mallet or hammer for operating the cutter and a separate vertical arm arranged outside of and parallel with the first arm for operating the ejector, substantially as described.

3. A heel-cutting die having a movable follower therein, forming a bed for the die as successive lifts are cut, and also an ejector for the built-up heel, and an adjusting-washer on the shank of the follower, substantially as described.

4. A heel-cutting die having a movable follower therein a pusher for the follower, an adjusting-washer on the shank of the latter, and a projection for holding the pusher, substantially as described.

574,903. ELECTRIC METER. JOHANNES HEMBERGER, Niedersedlitz, Germany. Filed Aug. 10, 1895. Serial No. 558,930. (No model.)



Claim.—1. An electrical measuring instrument comprising a bismuth or bismuth-alloy conductor arranged in circuit, and a second conductor in circuit and producing a magnetic field, one of said conductors being movable in relation to the other, substantially as described.

2. An electrical measuring instrument for continuous or alternating currents comprising a shunt-coil of bismuth or bismuth-alloy, a main-current coil arranged to receive the bismuth coil said bismuth coil being movably supported and alternately drawn into and moved out of the main-current coil by reason of the variation of the resistance of the bismuth in the magnetic field, and a counter connected with the bismuth coil, substantially as described.

3. An electrical instrument comprising means for producing a magnetic field, a bismuth or bismuth-alloy conductor movable in said field and an indicator connected with said bismuth conductor, substantially as described.

4. An electrical instrument comprising means for producing a magnetic field, and a bismuth or bismuth-alloy conductor in the said field, one of said parts being movable in relation to the other, substantially as described.

574,904. FASTENING. GEORGE A. HOLMES, Cambridge, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed May 13, 1895. Serial No. 549,067. (No model.)



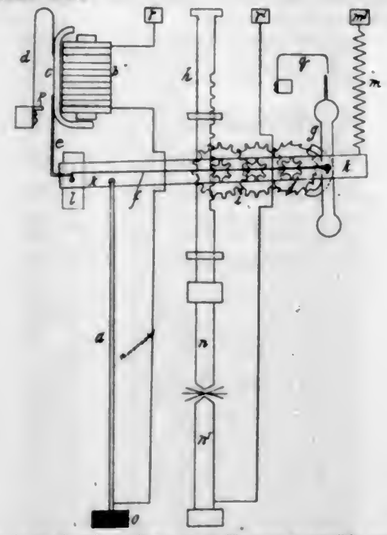
Claim.—An improvement in fastenings for shoes and other articles consisting of two flaps, A and B, wherein flap A is provided with a fixed, stationary, adjusting-plate C secured to its upper side, and having the depressed socket-corrugations E, with the reversed lips F, and wherein the flap B is provided with an adjusting-stud G placed on its under side near its end, substantially as described.

574,905. ELECTRIC-ARC LAMP. RALPH O. HOOD, Danvers, Mass. Filed July 6, 1896. Serial No. 598,064. (No model.)

Claim.—1. In an electric-arc lamp, the combination of a mass whose expansion under the action of the electric current separates the carbons employed therein and a magnet in series with the arc for feeding the carbons toward each other when the current flowing across the arc is at a predetermined value.

2. In an electric-arc lamp, the combination of a mass whose expansion under the action of the electric current flowing through said mass draws and forms the arc and a magnet in series with the arc for maintaining the arc and preventing the current from falling below a predetermined value.

3. In an electric-arc lamp, a mass expansible under the action of the electric current flowing through it for the purpose of moving a device which holds the carbons, under the control of a magnet in series with the arc, in such a manner as to strike the arc in combination with said magnet for releasing the hold of the carbons when the current flowing through said mass and the arc is at or below a predetermined value.



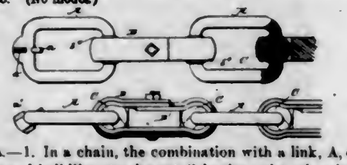
4. In an electric-arc lamp, a metallic mass expansible under the action of the electric current and operating a device for separating the carbons and thereby forming the arc in combination with an electromagnetic device placed in series with the arc for releasing or feeding the carbons when the current flowing between said carbons is at or below a fixed value.

5. In an electric-arc lamp, the combination of a metallic mass whose expansion due to the flow of the current separates and keeps the carbons apart, a clock-escapement device for feeding the carbons and a magnet in series with the arc arranged to permit of the operation of said escapement device when the current flowing through the metallic mass and the arc falls to a predetermined amount.

6. The combination in an electric-arc lamp of a wire, in series with the arc, whose expansion due to the heat caused by the flow of the current permits of the separation of the carbons and a magnet, in series with the arc, whose action, when the current falls below the amount desired to flow through the lamp, is to permit of the feeding of the carbons, substantially as and for the purpose described.

7. In an electric-arc lamp, the combination of a mass whose expansion under the action of the electric current separates the carbons employed therein, a magnet for feeding the carbons toward each other, with a detent for preventing said feeding when said mass has expanded to a degree above the normal, as and for the purpose described.

574,906. CHAIN. LYMAN D. HOWARD, Philadelphia, Pa., assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Jan. 7, 1891. Serial No. 377,025. (No model.)



Claim.—1. In a chain, the combination with a link, A, of a separately-formed ball-like attachment, C, having a slot wherein the end bar of the link is detachably seated, said ball and end bar being arranged substantially as set forth whereby the link and ball are caused to rock together around lines transverse to the chain, and the connecting device, B, having a partly-spherical socket at its ends to receive the said ball, said socket being narrower than the diameter of the ball, whereby lateral flexion of the link, A, is permitted as well as vertical vibration, substantially as set forth.

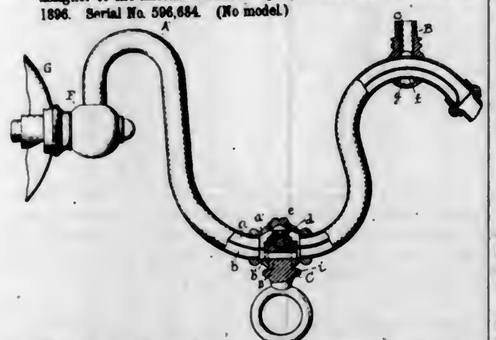
2. In a chain, the combination with the links, A, A, having ball-like extensions connected to their end bars, of an intermediate coupler, B, formed with partly-spherical cavities in the ends adapted to fit said ball-like expansions, the width of the walls of the socket parts being less than the diameter of said balls, whereby the coupler can rock transversely as well as longitudinally, said coupler having a top longitudinal bar and a bottom longitudinal bar, and a bolt connecting said bars, substantially as set forth.

3. In a chain, the combination with the links, A, A, having ball-like expansions, C, C, on their end bars, of the intermediate coupler formed of a bar curved to have the sockets, *b*, concave transversely and concave longitudinally, and bent to provide upper and lower longitudinal bars with overlapping ends secured together after bending, substantially as set forth.

4. A chain having the wrought bar-links A, A, the link or connecting device B, and the ball-shaped bushings C, C, each adapted to be detachably connected to and rock with one of the said links in relation to the other, substantially as set forth.

5. In a chain, the combination with two adjacent links, of a connecting device provided near its ends with suitable sockets, ball-shaped bushings fitted in said sockets and adapted to be detachably connected with the adjacent end bars of the chain-links, and a thrust-piece interposed between said ball-and-socket joints in the connecting device, substantially as set forth.

574,907. GAS-FIXTURE. EDWARD A. C. KAYSER, New York, N. Y., assignor to the Mitchell-Vance Company, same place. Filed June 24, 1896. Serial No. 596,684. (No model.)

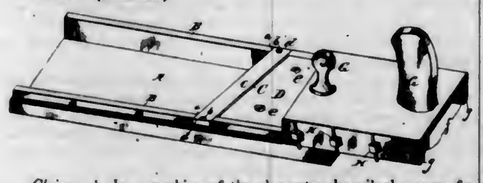


Claim.—1. In a fixture, the combination with a gas and electrical connection, of a pipe-arm having two adjacent parallel ways therein, one a gasway and the other a conduit for wires, said conduit being above the gasway at the main pipe connection, a gas-cock having two ways therein corresponding and registering with the ways of said pipe-arm, and a plug in said gas-cock extending into the gasway only, substantially as set forth.

2. In a fixture, the combination with a gas and electrical connection, of a pipe-arm having two adjacent parallel ways therein, one a gasway and the other a conduit for wires, said conduit being above the gasway at the main pipe connection, a gas-cock having two ways therein corresponding and registering with the ways of said pipe-arm, a plug in said gas-cock extending into the gasway only, and entirely clear of the conduit and a dummy-screw in the conduit above said plug, substantially as set forth.

3. In a fixture, the combination with a gas and electrical connection, of a pipe-arm having two adjacent parallel ways therein, one a gasway and the other a conduit for wires, said conduit being above the gasway at the main pipe connection, a gas-cock having two ways therein corresponding and registering with the ways of said pipe-arm, a plug in said gas-cock extending into the gasway only, and a jet-body having a groove and jet-pipe, said groove communicating with the gasway, substantially as set forth.

574,908. PLANER FOR WOODCUTS AND ELECTROPLATES. MICHAEL P. KENNA, Dubuque, Iowa. Filed Mar. 23, 1896. Serial No. 584,396. (No model.)



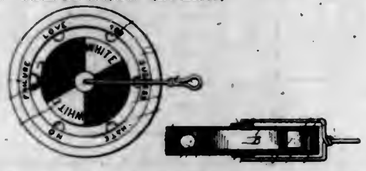
Claim.—1. In a machine of the character described, a gage for holding electroplates to be planed or shaved, having a plate E, one or more type-high gages secured to said plate, means for rigidly securing an electroplate on said plate and a cutter for shaving said electroplate, for the purposes shown.

2. A machine of the character described, consisting of a bed A, having sides B, cutter C, gage D, and a holder with a handle for operating the same and having one or more type-high gages *f*, projection *g*, and set-screw H, all combined to operate, as and for the purposes shown.

3. A machine of the character described, consisting of a bed-plate with parallel sides, a cutter set in said sides flush with the same, a gage for said cutter, a holder for the electroplate having one or more type-high gages adapted to be moved along on the sides of the bed and means for holding the electroplate in said holder, as and for the purposes shown.

4. A machine of the character described, consisting of a bed with parallel sides, a cutter set with its upper edge flush with the top of said sides and at an angle to said sides, a gage for said cutter, adjustably set in the bed, a holder provided with a type-high gage having projections adapted to compass the side pieces of the bed, means for adjustably holding the electroplate within the holder and handle for driving the holder with the electroplate secured therein over said cutter, whereby the cut is shaved or planed to the thickness of said gage, for the purposes shown.

574,909. GAME APPARATUS. ISIDOR KITSEE, Philadelphia, Pa., assignor of one-fourth to Barton L. Brown, same place. Filed Aug. 3, 1895. Serial No. 558,095. (No model.)



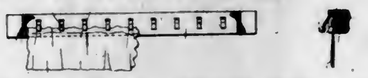
Claim.—1. In a game apparatus in combination a grooved disk, a ball adapted to revolve in said grooved disk, a handle adapted to hold said grooved disk, said game apparatus being also provided with an independent removable device provided with a series of words or sentences.

2. A game apparatus, consisting of a grooved disk provided with holes or depressions and an independent movable ring provided with words or characters, corresponding in number to the number of depressions in the groove, and a ball adapted to spin in said groove.

3. A game apparatus consisting of a grooved disk, a ball adapted to spin in said groove, and an interchangeable ring provided with words or characters substantially as and for the purpose specified.

4. A game apparatus consisting of an outer casing, a grooved disk having a ball in its groove, a ring provided with words or sentences and a clamping device for holding casing, disk and ring together.

574,910. CURTAIN-FIXTURE. HENRY KOCH, Chicago, Ill. Filed Sept. 22, 1896. Serial No. 606,616. (No model.)



Claim.—A curtain-fixture comprising a cornice; a plurality of clips, each of said clips being composed of a pair of spring-pressed curtain-engaging members, one of which is looped over a staple; and the staples whereby the clips are pivotally secured to the back of the cornice, substantially as described.

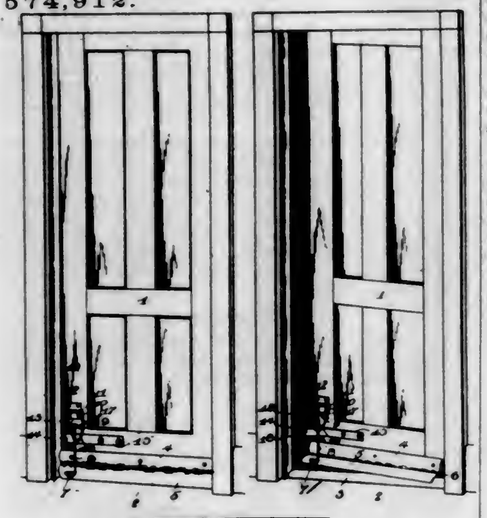
574,911. EGG-PRESERVING COMPOUND. HENRY KOCH, Chicago, Ill. Filed Sept. 30, 1896. Serial No. 607,389. (No specimens.)

Claim.—The herein-described compound to be used for preserving eggs, consisting of silicate of sodium, rice-flour, and water in about the proportion specified.

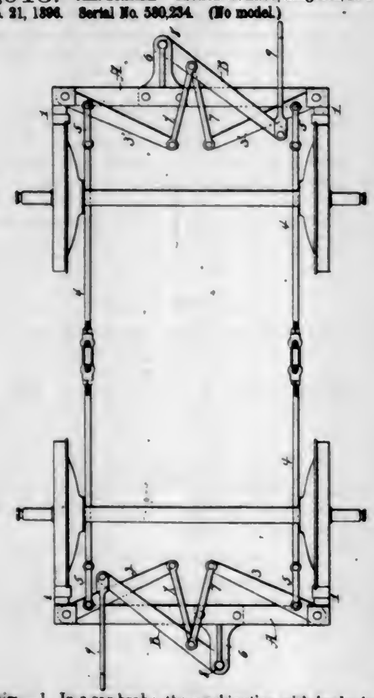
574,912. WEATHER-STRIP FOR DOOR-SILLS. GEORGE W. KREBS and DAVID L. GWIN, Conway Springs, Kans. Filed Aug. 25, 1896. Serial No. 603,879. (No model.)

Claim.—The combination with the weather-strip 5 pivoted at the lower end of the door and provided with a fixed eye 7, of the bracket 12, a transverse shaft pivoted in said bracket and having one end 13 extending downwardly, and having its other end extending downwardly and inwardly, thence upwardly and laterally and connected to the downwardly-projecting portion, a rod 8 connecting the eye 7 with the said laterally-extending portion of the shaft, and a flat spring 15 secured to the door and projecting laterally beyond the free edge of the same and adapted to engage and be actuated by the recess of the door-frame, and an eye carried by the free end of the spring to receive the downwardly-extending end 14 of the transverse shaft, substantially as shown and described.

574,912.



574,918. CAR-BRAKE. GEORGE W. LACY, Kingston, N. Y. Filed Feb. 21, 1896. Serial No. 580,234. (No model.)



Claim.—1. In a car-brake, the combination with brake-heads, 1, levers 3, 3' pivotally connected therewith, and rods connecting said levers, of lever B fulcrumed on a brake-beam, connections between the brake-head levers and lever B, and means for operating the same, substantially as described.

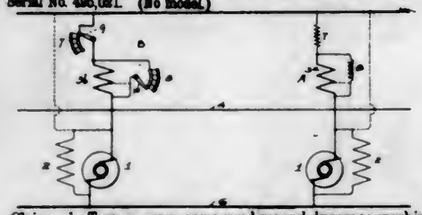
2. In a car-brake, the combination with a brake-beam, brake-heads, levers pivoted to the brake-heads, at a point directly behind the point where the power is to be applied and rods connected with these levers near their point of connection with the brake-heads, of a main operating-lever fulcrumed on the brake-beam and connecting-rods extending from the brake-head levers, to the main operating-levers, substantially as set forth.

3. In a car-brake, the combination with a brake-beam, brake-heads connected with the ends thereof, levers pivotally connected with said brake-heads at a point directly behind the point where the power is to be applied, links connected with these levers and rods extending from the links to the other end of the car, of a main operating-lever, fulcrumed on the brake-beam, and connecting-rods extending from the inner ends of the brake-head levers, to this operating-lever, substantially as set forth.

4. In a car-brake, the combination of a brake-beam, brake-heads, a compound lever system, comprising the levers 3, connections between said levers, and lever B, and means for operating the same, substantially as described.

5. The combination with two brake-beams, levers 3, 3', fulcrumed at their extreme ends at or near the outer ends of the beams, and rods extending from the levers 3, 3, at one end to the levers 3', 3', at the opposite end, of main operating-levers fulcrumed at one end on the brake-beams, and links 7, 7, extending from the inner ends of levers 3, 3' to these main operating-levers and connected with the latter near their fulcrums, substantially as set forth.

574,914. MEANS FOR ADJUSTING COMPOUND-WOUND DYNAMOS. BENJAMIN G. LAMME, Pittsburg, Pa. Filed Dec. 28, 1893. Serial No. 496,021. (No model.)



Claim.—1. Two or more compound-wound dynamos working in parallel, and an equalizing or compensating wire connecting them; in combination with means for shunting more or less current around more or less of the series field-magnet coils of one or more of said dynamos, and a variable resistance in series with one or more of said series field-magnet coils, substantially as described.

2. In an electric supply system, two or more compound-wound dynamos working in parallel, and an equalizing or compensating wire connecting them; in combination with a resistance in series with the series field-magnet coils of each of said dynamos, between one outgoing wire of the system and said equalizing-wire, substantially as described.

3. The method of adjusting the compounding or series coil of a compound-wound dynamo, which consists in varying its compounding effect, while maintaining a constant resistance between its terminals, substantially as described.

4. The method of varying the magnetizing effect of one coil among a number working in parallel between two conductors, without varying the current in the other coils, which consists in placing a resistance in series with said coil, and simultaneously providing a shunt around it, substantially as described.

5. The method of adjusting compound-wound dynamos, which consists in maintaining a substantially constant resistance in circuit with the series field-magnet coil between the commutator-brush and line, while varying the current passing through said series field-magnet coil, substantially as described.

6. The method of adjusting compound-wound dynamo-electric machines connected in multiple, which consists in maintaining a substantially constant resistance in circuit with the series field-magnet coil between the omnibus-wire and the equalizing-conductor, while varying the current passing through the series field-magnet coil, substantially as described.

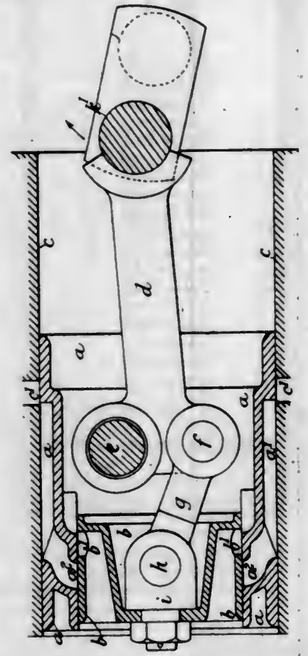
7. The method herein set out of adjusting compound-wound dynamo-electric machines connected in parallel, which consists in maintaining a resistance constant in amount but variable in distribution in circuit with the series coil between the omnibus-wire and the equalizing connection, while varying the current passing through the series coil; thus permitting the independent adjustment of one of the machines in parallel while allowing the others to run undisturbed, substantially as described.

8. The method of individually regulating the compounding effect of the series coils of a number of dynamos feeding the same work-circuit in parallel, and connected as described, which consists in separately varying the currents flowing through said series coils without changing the resistance between the omnibus-wire and the equalizing connection substantially as described.

9. The method of individually regulating the compounding effect of one of the series coils of a number of compound-wound dynamos feeding the same work-circuit in parallel, which consists in inversely varying two resistances, one in series with said series coil and the other in shunt thereto, substantially as described.

10. The method of adjusting an electric coil, which consists in varying the compounding effect of the coil while maintaining a constant resistance between its terminals substantially as described.

574,915. COMBINED WORKING PISTON AND VALVE-GEAR. FREDERICK LAMPLOUGH, Glen Ridge, N. J., assignor to Frederick Thomas Goodman, London England. Filed June 15, 1896. Serial No. 595,556. (No model.)



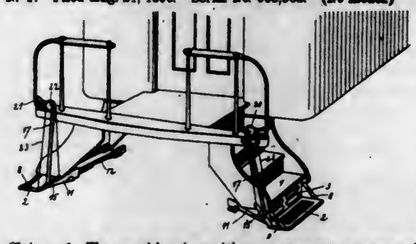
Claim.—1. A combined piston and valve-gear, consisting of two concentric pistons of equal end area, one working within the other, and provided with port-holes adapted to serve either as inlet or exhaust, a connecting-rod having a T-shaped end to which the said pistons are pin-jointed thereby to equalize the strains from the piston on the latter and direct them through the central line thereof, and a cylinder open at one end and adapted to receive such pistons, substantially as shown and described.

2. The combination with a cylinder open at one end, of a combined piston and valve-gear arranged and working in such cylinder, and consisting of two concentric pistons, operated by a single connecting-rod, one piston working within the other, and provided with port-holes adapted to act as inlet or exhaust through an annular space or recess in the periphery of the outer piston of a length equal to about the throw of the crank plus the port-opening in the cylinder, substantially as and for the purpose described.

3. The combination with a cylinder open at one end, of a combined piston and valve-gear, arranged and working in said cylinder, and consisting of two concentric pistons operated by a single connecting-rod, and one working within the other, the outer piston being provided with an annular recess on its periphery equal to about the throw of the crank plus the port-opening, and with port-holes leading from the annular recess into the reduced part in the interior of said outer piston, and the smaller or central piston fitting and sliding in the reduced part of the outer piston, and provided with port-holes adapted to register with the port-holes of said outer piston, a connecting-rod having a T-shaped end, and the said outer piston being directly pin-jointed to one eye of the said T-shaped end of the said connecting-rod, and the smaller central piston being connected by a link to the other eye of the T-shaped end of said connecting-rod, substantially as herein described.

4. The combination with a cylinder open at one end, of a combined piston and valve-gear, arranged and working in said cylinder, and consisting of two concentric pistons, one working within the other, and provided with registering port-holes, a single connecting-rod provided with a T-shaped head having eyes equidistant from the center line of said rod and adapted to be firmly secured by a cross-pin directly to one of said combined pistons and valves and by a link to the other combined piston and valve for the purposes of directing the strains thereon through its center line, and of producing a relative sliding movement between the two pistons and valves as well as an advancing or return motion thereof in the interior of the cylinder, substantially as described.

574,916. EXTENSION CAR-STEP. GUSTAV LANGKAMP, Utica, N. Y. Filed Aug. 21, 1896. Serial No. 603,502. (No model.)



Claim.—1. The combination with a permanent car-step of the extension-step, the riser hinged to the permanent step and to the rear of the extension-step, the double-jointed brace for supporting the outer edge of the extension-step and the braces detachable from fixed supports, substantially as set forth.

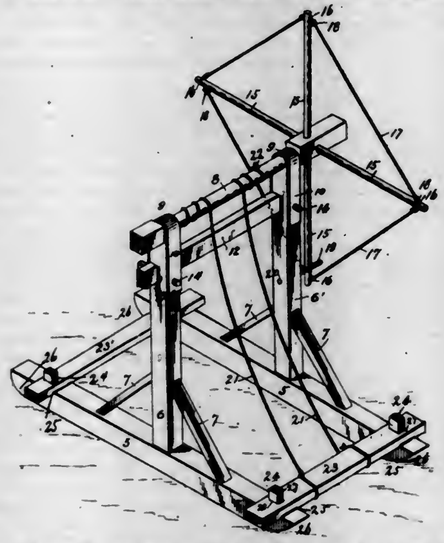
2. The combination in a folding car-step of the permanent step 1, the folding step 2, the riser 3 hinged to each, the double-jointed brace 8, the braces 11 and fixed supports with which they are detachably engaged, substantially as set forth.

3. The combination with a folding car-step of the levers 15 and 17, the rocking hand disk and the flexible connections attached to the lever 15, substantially as set forth.

4. The combination with an extension car-step of the brace 11 having the shoulder 13 and a support 14 having the head portion 14^a and the shoulder portion 14^b, substantially as set forth.

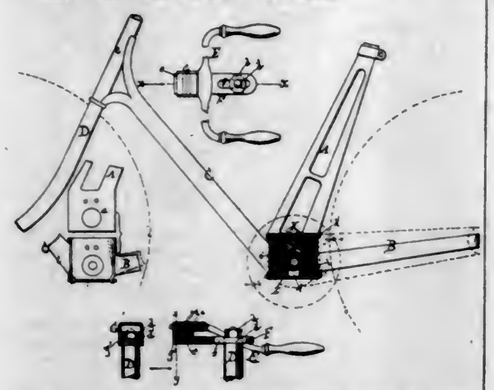
5. The combination in a car-step and operating mechanism of the folding step 2, the riser 3 hinged to the rear of the step and to the fixed step, the double-jointed braces 8, the rigid braces 11, the supports 14 with which the braces 11 are detachably engaged, the counterweight connection between the ends of the braces 11, the levers 15 and 17 connected with each other and to the step as described, the hand-disk, having a crank-pin engaging with the lever 17 and the connections extending to the ends of the lever 15, substantially as set forth.

574,917. PORTABLE WINDLASS. CHARLES D. LEE, Salmon City, Idaho. Filed Apr. 28, 1896. Serial No. 589,490. (No model.)



Claim.—The portable windlass, comprising the base-rails 5, 5, having the recesses 25, in its beveled ends, in which are secured the cross-braces 23, 23', by pins 24, having shoulders 28, and the uprights 6, 6, provided with the rectangular recesses 13 and cross-brace 12 secured therein by pins 14, and having the semicircular bearings 9, in which is journaled a shaft 8, having the straps 10 secured by said pins 14, said shaft 8 being provided with flexible ropes or chains 21, extending to the brace 23, and having its outer end provided with radial arms 15, having holes 16, through which passes a hand-rope 17, having knots 18, on each side of the holes 16, and the locking-pin 19 removably secured in a hole 20 in the uprights 6', substantially as and for the purpose specified.

574,918. BICYCLE. CARL A. LINDSTRÖM, Rockaway, N. J. Filed June 1, 1892. Serial No. 435,184. (No model.)



Claim.— 1. In a bicycle, or similarly-steered vehicle, the combination of a steering-post having a clip or socket, provided with an internal ridge or groove, a handle having a correspondingly grooved or ridged projection entering said clip or socket, and a spring or elastic substance interposed between said post and projection.

2. In a bicycle, or similarly-steered vehicle, the combination of a steering-post reduced at its upper end on opposite sides to form shoulders and flat parallel surfaces, and turned down and threaded above said reduced portion, with a handle having a slotted arm fitted to slide upon the said reduced flat portion, and a nut fitting the said threaded end for securing the said slotted arm in the adjusted position.

3. In a bicycle, or similar vehicle, the combination of the seat-post A, having bearing for the propelling crank-shaft with the frame-bars B and C pivoted to the said post at opposite sides of the said crank-shaft, and springs interposed between them and said bearing and tending to keep them apart.

4. In a bicycle or similar vehicle, the combination of the seat-post A, having the lower side pieces or plates *a*, the frame-bars B, C, having end flanges *b*, *c*, pivoted between said side pieces, a cap K secured to said side pieces and having end flanges *k* limiting the outward oscillation of said flanges *b*, *c*, and a spring or springs tending to keep said flanges *b*, *c*, apart.

5. In a bicycle or similar vehicle, the combination of the seat-post A having the lower side pieces or plates *a*, the frame-bars B, C, having end flanges *b*, *c*, pivoted between said side pieces, the crank-shaft bearing having flat portion or shank *m*, the center block H having slot *h* fitting said flat shank, the retaining-cap K secured to said side pieces *a*, the central screw O securing the said cap to said center block and having oil-hole *n* for the crank-shaft, and the springs I, substantially as set forth.

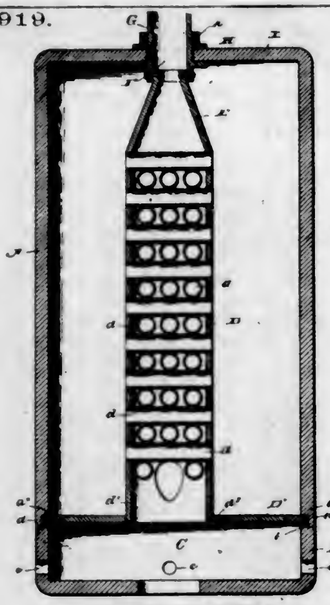
6. In a bicycle or similar vehicle, the combination of the seat-post A having lower side pieces *a* with slots a^3, the frame-bars B, C, having end flanges *b*, *c*, pivoted between said side pieces, the crank-shaft bearing M fitting with its flat shank *m* in the said slots *a* and lapping with its heads *m'* the outer surfaces of the side pieces *a* to prevent their spreading, the center block H preventing inward bending of the said side pieces *a*, the retaining-cap K and springs I, substantially as specified.

7. In a bicycle or similar vehicle, the combination of the seat-post A having lower side pieces *a* with slots a^3, the frame-bars B, C, having end flanges *b*, *c*, pivoted between said side pieces, the crank-shaft bearing M fitting with its flat shank *m* in the said slots *a* and lapping with its heads *m'* the outer surfaces of the side pieces *a* to prevent their spreading, the center block H preventing inward bending of the said side pieces *a*, the retaining-cap K having depending arms or flanges *k'* fitting the said slots a^3 the locking-screws *s* threaded into the center block H in the line of junction between the edges of said arms *k'* and slots a^3, and the springs I, substantially as specified.

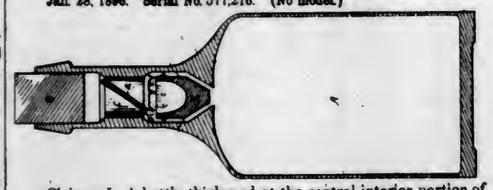
574,919. WATER TANK AND HEATER. CHARLES N. LIPPITT, Beloit, Wis. Filed June 10, 1896. Serial No. 594,997. (No model.)

Claim.— A combined tank and heater, comprising the crown sheet D', removably secured in the annular recess *a'* by the contiguous edges of the shells A and B, and having the circular central orifice d^2, the vertital flue D, having a lower threaded end and removably secured in said central orifice in the crown-sheet, and its upper end provided with an externally-threaded smoke-stack and internally-threaded flanged lock-nut K, substantially as shown and described.

574,919.



574,920. BOTTLE. EDWARD LIPSKA, Dubuque, Iowa. Filed Jan. 28, 1896. Serial No. 577,216. (No model.)



Claim.—1. A bottle thickened at the central interior portion of its neck, and grooves made in said thickened portion, combined with a stopper having projections extending horizontally from its upper portion, and which projections are adapted both to pass through the grooves, and by bearing against the inner walls of the neck, form passages around the stopper for the liquid, substantially as shown.

2. A bottle thickened at the central interior portion of its neck, grooves in said thickened portion, and studs or projections formed integrally upon the lower end of said thickened portion upon each side of the lower ends of the grooves, combined with a stopper having projections extending from its upper portion and which projections are adapted to pass through said grooves, substantially as shown.

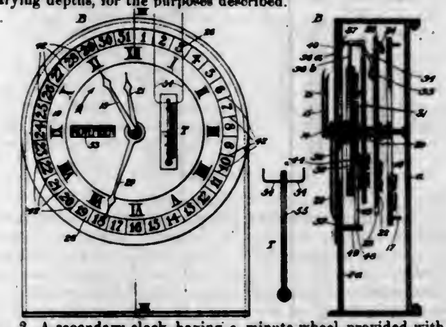
574,921. SHIRT-PROTECTOR. WILLIAM LLOYD, Boston, Mass. Filed Apr. 21, 1896. Serial No. 588,455. (No model.)



Claim.—A shirt-protector consisting of a waterproof body having a waterproof neckband secured thereto, said neckband terminating in elastic straps, a hook attached to one of the straps, a clasp attached to the other having a hole for the passage of the collar-button and a loop to engage the hook and metallic hooks bent inward secured to the sides of the protector to engage the suspenders as and for the purpose described.

574,922. ELECTRIC CALENDAR-CLOCK. GEORGE W. MACKENZIE, Beaver, Pa. Filed Dec. 28, 1895. Serial No. 573,684. (No model.)

Claim.—1. In a secondary clock, in combination with an intermittently-electrically-actuated minute-wheel mounted on a shaft, carrying a minute-hand, an hour-wheel intermittently actuated by a pawl attached to the minute-wheel mounted on a hollow sleeve surrounding the minute-wheel shaft and carrying the hour-hand, and a month-wheel intermittently actuated by a pawl attached to the hour-wheel, mounted on a hollow sleeve surrounding the hour-hand sleeve, and carrying the day-of-month hand; the regulator-wheel 39 provided on the inside with ratchet-teeth 47 designed to be engaged by the intermittently-actuated hooked pawl 43, pivotally attached to the month-wheel and designed to bear against a fixed pin 49 at one period of its revolution, the regulator-wheel bearing on its face the names of the months in rotation and having pockets in its periphery of varying depths, for the purposes described.



2. A secondary clock having a minute-wheel provided with a series of equally-spaced pins located in a circle and projecting out from the face of the wheel: an inclined-faced pawl pivotally secured at the top of an electrically-actuated reciprocating bar, designed to engage one of the pins and advance it and the wheel one space, to lock the wheel against movement by such insertion between the pins, and to be retracted for another stroke, the pivoted pawl riding over the next pin and assuming a working position, substantially as set forth.

3. As a device for shifting the minute-wheel, an electrically-actuated reciprocating bar mounted in guides, an inclined-faced pawl pivotally secured to the top of such bar provided with a tailpiece and an adjustable stop secured on the guide-frame and designed to engage the tailpiece and return the pawl to a normal position, substantially as set forth.

4. In a secondary clock of the class described, having an electrically-actuated minute-wheel, an hour-wheel, a month-wheel and a regulating-wheel, a pawl attached to the hour-wheel for imparting motion to the month-wheel by engaging teeth therein provided with a downwardly-projecting pin bearing on the flange of the regulator-wheel, and a pin projecting into a main cam-groove, in the frame of the clock, such groove holding the pawl out of engagement with the teeth of the month-wheel until it falls into a slot forming part of the cam to the level of certain other inclined cams leading back into the main cam-groove, such fall of the pawl being controlled by pockets in the flange of the regulator-wheel located in the path of the downwardly-projecting pin, substantially as set forth.

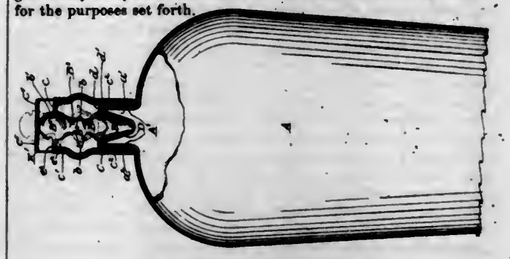
5. In combination with the hour-wheel 22 and its attached pawl-arm 34 provided with a pin 36^a traveling in a cam-groove 37 in the frame of the clock, and a downwardly-projecting pin 36^b for the purposes described: a month-wheel 31 provided with sixty-two ratchet-teeth, two of which 32^b and 32^c have corresponding depressions d^{30} and d^{31} of a greater depth than the depth of the other ratchet-teeth spaces, substantially as and for the purposes set forth.

6. In a secondary clock, the combination with a stationary cam-groove 37 provided with the vertical way 40 and secondary cam-faces 41, 51, and the intermittently-actuated regulator-wheel 39 provided with pockets in its periphery of varying depths: of the intermittently-actuated hour-wheel 22 and a pawl-arm 34 pivotally attached thereto provided with a hook 35, a pin 36^b bearing on the periphery of the regulator-wheel 39, and a pin 36^a traveling in the cam-groove 37, substantially as and for the purposes set forth.

574,923. BOTTLE. EDWARD MADDEN, Amsterdam, N. Y. Filed Jan. 2, 1896. Serial No. 574,003. (No model.)

Claim.—1. The combination with the neck of a bottle of a shell-form stopper D, stopper-piece B which is provided with the lower end portion B', upper end bulb B^3, contracted middle portion B^2 and stop B^4, and stopper-guard C having its upper end provided with an internal flange c and central perforation *c'*, which is adapted to allow the bulb end of the stopper-piece to have passage through it until the contracted portion B^2 is within said central perforation, and an enlarged middle chamber of diameter greater than the outer diameter of the neck of the bottle, the said stopper-guard being permanently secured to the neck of the bottle, with the throat thereof closed by the said stopping-pieces, substantially as and for the purposes set forth.

2. The combination with the neck of a bottle, of stopper-piece B having its lower end closing the throat of said neck and provided with a bulb-form end B^3, contracted middle portion B^2 and stop B^4, of a stopper-guard C provided with the upper end internal flange c having central perforation *c'* which allows the bulb end B^3 of the stopper-piece to have passage through it, the lower end of said stopper-guard being permanently secured to the said neck, and mechanism described, secured to the upper end portion of said stopper-guard, and adapted to hold the stopper-piece from being accidentally moved longitudinally away from the throat of said neck, substantially as and for the purposes set forth.



574,924. PNEUMATIC HAMMER. JAMES MANNING, Omaha, Nebr. Filed Mar. 23, 1896. Serial No. 584,464. (No model.)



Claim.—1. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination, with the throttle-valve controlling said passage and the spring pressing said valve in one direction to close it, of an adjustable stop for limiting the movement of the valve in the opposite direction, and means for holding the stop in its different adjusted positions, substantially as and for the purpose described.

2. In a pneumatic hammer having the inlet-passage for the admission of the motive fluid extending through the handle, the combination, with the throttle-valve located in the handle for controlling said passage, a spring pressing said valve in one direction to close it, means for moving the valve in the opposite direction to open it, an adjustable stop for arresting the valve at different points in its opening movement, and means for holding the stop in its different adjusted positions, substantially as and for the purpose described.

3. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination, with a reciprocating throttle-valve for controlling said passage, and means pressing said valve in one direction to close it, of an adjustable stop-screw arranged to limit the movement of the valve in the opposite direction, and means for positively but releasably holding the stop-screw in its different adjusted positions, substantially as described.

4. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination, with a reciprocating throttle-valve for controlling said passage, and means pressing said valve in one direction to close it, of an adjustable stop-screw arranged to limit the movement of the valve in the opposite direction, a clutch member turning with the screw and coöperating with a fixed clutch member, and a spring for maintaining said clutch members in engagement, substantially as described.

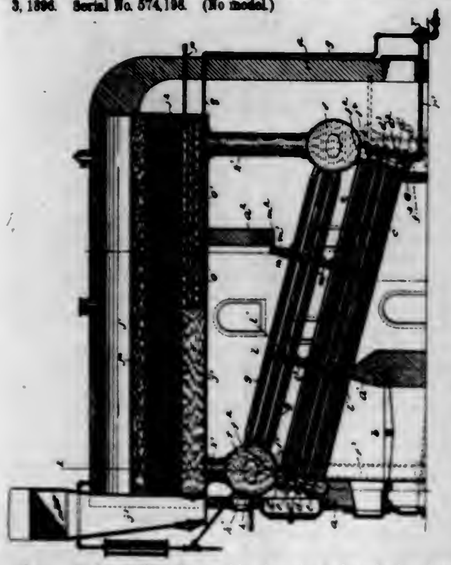
5. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination, with a reciprocating throttle-valve for controlling said passage and means pressing said valve in one direction to close it, of an adjustable stop-screw arranged to limit the movement of the valve in the opposite direction, a thumb-piece turning with the screw and having clutch-teeth formed upon it and coöperating with fixed clutch-teeth upon the hammer, and a spring for pressing the clutch-teeth upon the thumb-piece into engagement with the clutch-teeth upon the hammer, substantially as described.

6. In a pneumatic hammer, the combination of the handle B having the inlet-passage D extending through it, the throttle-valve chamber intersecting said passage, the reciprocating throttle-valve I located in said chamber, the spring K pressing said valve in one direction to close it and the lever L for moving it in the opposite direc-

tion to open it, the adjustable stop-screw M passed through a threaded opening in one end of the valve-chamber and projecting into the path of the valve, the thumb-piece N mounted upon and turning with the screw M and having clutch-teeth engaging fixed clutch-teeth at the end of the valve-chamber, and the spring O acting upon the thumb-piece N to maintain the engagement of said clutch-teeth, substantially as described.

7. In a pneumatic hammer, the combination of the handle B having the inlet-passage D extending through it, said passage being separated into two portions by the diaphragm G, the bore intersecting both portions of said passage and extending through the diaphragm G, the valve-casing H fitting in said bore and provided with the ports *a* and *b* communicating with said passage on opposite sides of the diaphragm G, the valve I in the valve-casing H, the plug J closing the lower end of the valve-casing, the spring K confined between said plug and the valve I and yieldingly holding the valve in closed position, the lever L pivoted in the slot *d* and acting upon the upper end of the valve to depress and open it, the screw M having the threaded portion passing through a threaded opening in the plug J and projecting into the path of the valve L and having the squared lower portion extending below the plug J; the thumb-piece N fitting upon the squared portion of the screw M and provided on its upper end with the clutch-teeth cooperating with clutch-teeth upon the lower end of the plug J, and the spring O surrounding the squared head of the screw M within the thumb-piece N, substantially as described.

574,925. BOILER. JOHN J. MEEHAN, New Castle, Pa. Filed Jan. 3, 1896. Serial No. 574,196. (No model.)



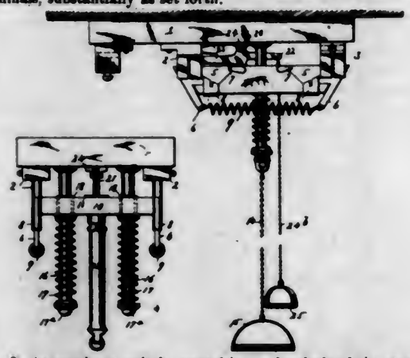
Claim.—1. In a boiler, the combination of a series of tubes, legs connected by said tubes, cross-drums communicating with said legs and with the main water-drum above, and a second series of tubes connecting said cross-drums, substantially as set forth.

2. In a boiler, the combination of a series of tubes, legs connected by said tubes, a cross-drum interposed between the front leg and the main water-drum above, a series of tubes entering said cross-drum, said last-mentioned tubes having converging ends, said cross-drum having an opening therein at a point opposite the points of entrance of said converging tubes into said cross-drum, substantially as set forth.

3. The combination of a boiler, a closed receptacle contained therein, a supply-pipe leading to said receptacle, said receptacle having openings in the top thereof, baffle-plates adjacent to said openings, a pipe leading from said receptacle to a mud-drum without the furnace-walls, a leg connected to said boiler and a pipe leading from said leg to said mud-drum, substantially as set forth.

574,926. OVERHEAD ELECTRICAL KNIFE-SWITCH. JOSEPH MERCHEN, Kansas City, Mo. Filed Feb. 25, 1896. Serial No. 580,727. (No model.)

Claim.—1. An overhead switch, comprising an insulating-base, standards depending vertically therefrom, an insulating reciprocatory cross-head mounted thereon, knife-terminal jaws secured to the base, contact-knives carried by said cross-head, and provided with pivotal terminals, and retractile springs connected with each pair of pivotal terminals, substantially as set forth.



2. An overhead switch, comprising an insulating-base, standards depending vertically therefrom an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by said cross-head, terminals pivotally secured to the opposite ends of said knives and provided with downward projections, retractile springs connecting said projections, and means to hold said pivoted terminals into engagement with the terminal jaws, with a yielding pressure, substantially as described.

3. An overhead switch, comprising an insulating-base, standards depending therefrom, an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by the cross-head, terminals pivotally secured to the opposite ends of the knives, retractile springs connecting said terminals, means for holding the terminals in engagement with the contacts, with a yielding pressure, and means to break such engagement, substantially as described.

4. An overhead switch, comprising an insulating-base, standards depending therefrom, an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by the cross-head, terminals pivotally secured to the opposite ends of the knives, retractile springs connecting said terminals, a post depending from the cross-head, a chain depending from the post and springs mounted upon the standards to normally press the cross-head toward the base, substantially as described.

5. An overhead switch, comprising an insulating-base, knife-terminal jaws secured thereto, standards depending from the base, an insulating reciprocatory cross-head upon the standards, contact-knives carried by the cross-head, springs normally pressing the cross-head toward the base with the knives engaging the knife-terminal jaws, and a dog to hold the cross-head in its removed position from the base, with the knives and terminal jaws separated, substantially as described.

6. An overhead switch, comprising an insulating-base, knife-terminal jaws secured thereto, standards depending from the base, an insulating reciprocatory cross-head upon said standards, and provided with a wear-plate, contact-knives carried by the cross-head, springs upon said standards and normally pressing the cross-head elevated, and a spring-actuated dog, carried pivotally by the base, which automatically engages the wear-plate when the cross-head is removed from the base, substantially as described.

7. An overhead switch, comprising an insulating-base, standards depending therefrom, an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by the cross-head, springs upon the standards for normally pressing the cross-head elevated, a post depending centrally from the cross-head, a chain connected thereto, a dog pivotally connected to the base to automatically engage and hold the cross-head when removed from the base, and means to trip said dog to permit the cross-head to rise, substantially as described.

8. An overhead switch, comprising an insulating-base, knife-terminal jaws and standards depending therefrom, an insulating reciprocatory cross-head upon said standards, contact-knives carried by the cross-head and provided with pivoted terminals and springs normally pressing the cross-head elevated, and said terminals with a yielding pressure into frictional engagement with said knife-terminal jaws, substantially as described.

9. An overhead switch comprising an insulating-base, knife-terminal jaws and standards depending therefrom, an insulating reciprocatory cross-head upon said standards, contact-knives carried by said cross-head, and provided with terminals, and with slotted guides, which also act as current-conductors between the two sections of the knives, springs normally pressing the cross-head elevated and the said knife terminals into frictional engagement with knife-terminal jaws, whereby, when the cross-head is removed from the base, said terminals are caused to pivotally operate, and a retractile spring connecting each pair of pivoted terminals to facilitate their separation from the knife-terminal jaws, and engagement with the slotted guides, substantially as described.

10. In an overhead switch, the combination of a suitably-supported insulating-base, vertical standards projecting upwardly into the base, nuts engaging and clamping them in position, knife-terminal jaws depending from the base, an insulating reciprocatory cross-head upon said standards, provided with a wear-plate at its upper side, a post screw-bolted to the cross-head with a chain attached, expansion-springs spirally encircling the standards and bearing at their opposite ends against the heads of the same and the under side of the cross-head, contact-knives engaging the knife-terminal jaws, and carried by the cross-head, a bifurcated casting-screw bolted to the base, a dog pivoted therein, a spring interposed between the base and the dog, and a chain depending from the dog, all arranged substantially as shown and described.

574,927. COMPARTMENT-URN. ALBERT W. MEYER, Terre Haute, Ind. Filed Mar. 11, 1896. Serial No. 582,799. (No model.)



Claim.—1. In a compartment-urn, the combination with the base having an opening in its bottom, of a skeleton frame supported above said base, the compartments within said skeleton frame, and a water-compartment extended beneath the bottom of the skeleton frame; substantially as described.

2. In a compartment-urn, the combination with the base having an opening in its bottom, a skeleton frame supported above said base, the compartments within said skeleton frame, and a water-compartment extended beneath the bottom of the skeleton frame, said skeleton frame having its vertical partitions and bottom formed of reticulated material; substantially as described.

3. In a compartment-urn, the combination with the base having an opening in its bottom, of a skeleton frame supported above said base, the compartments within said skeleton frame, and a water-compartment extended beneath the bottom of the skeleton frame, and a steam-coil within the water-compartment; substantially as described.

4. In a compartment-urn, the combination with the base having an opening in its bottom, of a skeleton frame, supported above said base, the compartments within said skeleton frame, a water-compartment extended beneath the bottom of the skeleton frame, a pipe connected with the steam-chamber, and a branch pipe leading from said pipe extending to and terminating in a coil within the water-compartment; substantially as described.

5. The combination with the base having the vertical flange, an inwardly-extending horizontal shoulder, of the water-compartment having a horizontal flange resting on said shoulder, and an inclosing jacket held within the vertical flange and supported on the shoulder of the base; substantially as described.

6. The combination with the base having hot-water compartment, and an opening, of the skeleton frame supported above the base, the water-compartment extended through the opening in the base, the inclosing jacket, the pipe leading from the water-compartment through the hot-water compartment and extended through an opening in the jacket, a steam-pipe connected with the steam-chamber of the urn, and a branch leading therefrom and communicating with the coil within the water-compartment; substantially as described.

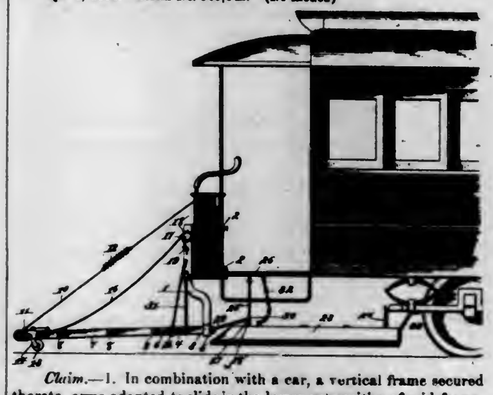
7. In a compartment-urn, a skeleton frame having reticulated vertical partitions, a bottom to three compartments, the remaining compartment being bottomless, and flanges extending vertically from the bottom rim at the outer edges of the vertical partitions; and a water-compartment extending into the bottomless compartment, substantially as described.

8. The combination with the sack, and the frame, having horizontal and vertical flanges, of a band adapted to fit over the vertical flange to hold the sack thereon, and pins on the vertical flange for holding the turned-over edge of the sack; substantially as described.

9. The combination with a triangular frame having one side curved and formed with surrounding horizontal and vertical flange, and pins on said vertical flange, of a sack having its edges turned over the vertical flange, and a band triangular in form with one side curved and fitted over the vertical flange and the turned-over edge of the sack; substantially as described.

10. In a compartment-urn, the combination with a faucet, of a drip-cup holder formed of wire, and having a loop to receive the handle of the faucet, arched portions to embrace the horizontal portion of the faucet upon opposite sides of the handle, and the depending arms carrying a ring to receive a drip-cup; substantially as described.

574,928. CAR-FENDER. IRA D. MOSER, Philadelphia, Pa. Filed Apr. 1, 1896. Serial No. 585,842. (No model.)



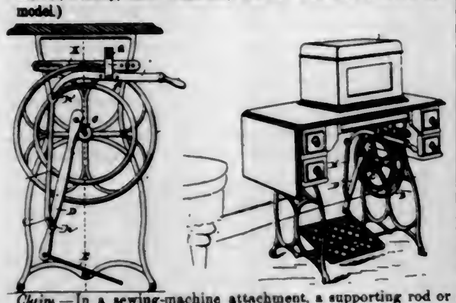
Claim.—1. In combination with a car, a vertical frame secured thereto, arms adapted to slide in the lower extremities of said frame, a rectangular frame 7 pivoted to said arms, a buffer-roll carried by the outer end of the last-named frame, supporting-wires 10 connected to the outer end of the frame 7 and to the dasher, trunnel-rolls carried by the outer end of the frame 7 adapted to travel upon the track so as to determine the lowest position of said frame, a shaft 17 journaled in the vertical frame provided with suitable winding and locking mechanism, a netting attached to the outer end of the frame 7 and to said shaft, primary springs and secondary springs secured to the side bars of the vertical frame and arranged to offer a spring resiliency to the rearward movement of the frame 7, as shown and for the purpose set forth.

2. In combination with a car, a vertical frame secured thereto, arms adapted to slide in the lower extremities of said frame, a rectangular frame 7 pivoted to said arms, a buffer-roll carried by the outer end of the last-named frame, supporting-wires 10 connected to the outer end of the frame 7 and to the dasher, trunnel-rolls carried by the upper end of the frame 7 adapted to travel upon the track so as to determine the lowest position of said frame, a shaft 17 journaled in the vertical frame provided with suitable winding and locking mechanism, a netting attached to the outer end of the frame 7 and to said shaft, primary springs and secondary springs secured to the side bars of the vertical frame and arranged to offer a spring resiliency to the rearward movement of the frame 7, and a wheel-guard adapted to shed an obstruction sidewise beyond the wheels, substantially as and for the purpose set forth.

3. In combination with a car, a vertical frame 1 secured thereto by suitable clamps 2, arms 4 adapted to slide horizontally in suitable holes formed in the lower extremities of said frame, springs 21 secured to the side bars of said frame and connected to said arms, secondary springs 31 also secured to the side bars of the vertical frame, and so arranged as to pick up the primary springs when the fender is forced rearward past a certain limit, a rectangular frame 7 pivoted at 6 to said arms, a buffer-roll 9 secured to the outer end of said frame, supporting-wires 10 connecting the outer end of the frame 7 to the dasher of the car, springs 12 placed in the center of said wires for giving the outer end of the frame 7 a resilient swinging movement, trunnel-rolls 13 journaled in the casters 14 for limiting the downward movement of the frame 7, an angular guard 23 suspended from the under side of the car so as to shed an obstruction with

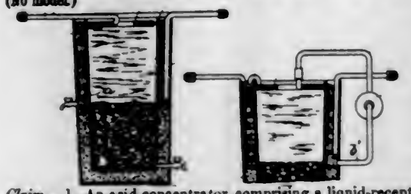
which it may come in contact, crosswise, beyond the wheels, a hooked rod 25, a link 29 connecting said rod to the arms 4 whereby the rear movement of said arms will disengage said hook from the guard and permit the latter to drop in contact with the road-bed, and a netting connecting the outer end of the frame 7 with the upper end of the frame 1, substantially as shown and for the purposes set forth.

574,929. SEWING-MACHINE ATTACHMENT. LAFAYETTE MOYER, Felicity, Ohio. Filed May 7, 1896. Serial No. 590,558. (No model.)



Claim.—In a sewing-machine attachment, a supporting rod or bar having a series of perforations near one end, and the elongated slot at the opposite end, the bolts and staples for securing said rod or bar, the curved or arched hanger-bracket composed of two pieces riveted together and bifurcated at their ends, said hanger-bracket being rigidly attached to the supporting rod or bar, the hand operating-lever supported in said bracket, and provided with a series of perforations for adjustment, the rectangular-shaped hook at the rear end of said lever, and the connecting link or pitman attached to said hook, and having a series of perforations at its lower end for adjustable connection with the main pitman of the sewing-machine, substantially as shown and described.

574,930. APPARATUS FOR CONCENTRATING VINEGAR. EDWARD R. MURPHY, Boston, Mass. Filed Feb. 24, 1896. Serial No. 580,319. (No model.)



Claim.—1. An acid-concentrator comprising a liquid-receptacle and a freezing apparatus having a conduit extending over the surface and surrounding substantially the upper half of the receptacle, the lower portion of the receptacle being unaffected by said apparatus and provided with an outlet.

2. An acid-concentrator comprising a liquid-receptacle, a freezing apparatus having a conduit arranged to act on the surface and sides of the contents of the upper portion of the receptacle, and an insulating-jacket which protects the contents of the lower portion of said receptacle.

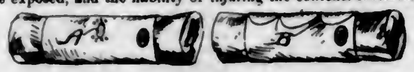
3. An acid-concentrator comprising a liquid-receptacle, a jacket surrounding the upper portion of the receptacle and adapted to contain a non-congealable liquid, a refrigerating-coil in said jacket, and a horizontal refrigerating coil or casing arranged to act on the upper surface of the contents of the receptacle.

4. An acid-concentrator comprising a liquid-receptacle, a jacket surrounding the upper portion of the receptacle and adapted to contain a non-congealable liquid, a refrigerating-coil in said jacket, a movable refrigerating coil or casing adapted to enter the upper portion of the liquid-receptacle, and connections between said movable coil and the jacket, said connections including a pump whereby the non-congealable liquid in the jacket may be circulated through the movable coil.

574,931. NEWSPAPER-WRAPPER. JOHN MCCONNELL, Cleveland, Ohio. Filed Dec. 3, 1896. Serial No. 570,891. (No model.)

Claim.—1. A paper-wrapper provided with a scallop in its loose gummed edge, said scallop extending so as to form a slit or slits having ungummed edges, and being so located as to be in the exterior fold when the wrapper is in use, so that the wrapper may be removed without injury to the contents, substantially as shown and described.

2. An envelop or wrapper for papers or the like, consisting of two or more folds, the inner fold or folds being imperforate beneath the slit or opening of the outer fold whereby the contents are in no wise exposed, and the liability of injuring the contents is lessened.



574,932. TEMPORARY BINDER. JAMES S. MCDONALD, Jr., Chicago, Ill. Filed Dec. 9, 1895. Serial No. 571,500. (No model.)



Claim.—1. A temporary binder having in combination two covers, a hinge secured to one of said covers and being movable bodily with relation to the other cover and means for adjustably locking said hinge to the said other cover, substantially as set forth.

2. A temporary binder having in combination two covers, a hinge secured to one of said covers and being capable of bodily movement independently of the other of said covers, means for holding said hinge against turning and means for locking said hinge to the said other cover, substantially as set forth.

3. A temporary binder having in combination two covers, a hinge secured to one of said covers and being capable of bodily movement independently of the other, guides for holding said hinge from turning throughout a portion of its movement and means for locking said hinge against bodily movement, substantially as set forth.

4. A temporary binder having in combination two covers, a hinge secured to one of said covers and having two parts provided with registering perforations or passages, a guide secured to the other of said covers and fitting in said registering perforations or passages, and means for locking said hinge to the cover to which said guide is secured, substantially as set forth.

5. A temporary binder having in combination two covers, a hinge secured to one of said covers, a lock secured to said hinge, a toothed rack secured to the other of said covers and said lock being provided with a locking-dog for engaging with the teeth of said rack, substantially as set forth.

6. A temporary binder having in combination two covers, a hinge secured to one of said covers, a lock secured to said hinge and having a locking-dog, a toothed rack secured to the other of said covers and having the teeth 42 and the tooth 41 projecting beyond the teeth 42 and adapted to be engaged by said locking-dog, said locking-dog being provided with the shoulder 45 whereby it may be entirely released from said toothed rack, substantially as set forth.

7. A temporary binder having in combination two covers, the plate 30 secured to one of said covers, the plate or portion 32 hinged to said plate 30, said plates being provided with registering perforations 33, 34, a lock secured to the plate 32, a toothed rack secured to the other of said covers and projecting up into said lock for engagement with the locking-dog thereof, and guide-rods 35 secured to said latter cover and projecting up into said perforations 33, substantially as set forth.

8. A temporary binder having in combination a pair of hinged covers, the impaling-pins projecting from one of said covers, and a transfer wire or hook mounted on vertical and longitudinal axes upon said cover whereby it may be joined with said impaling-pin or turned and folded down out of the way, substantially as set forth.

9. A temporary binder having in combination a pair of covers adapted to be secured together, a socket swiveled or mounted to turn on a horizontal axis and a transfer hook or wire having its stem mounted in said socket and adapted to turn on a vertical axis, substantially as set forth.

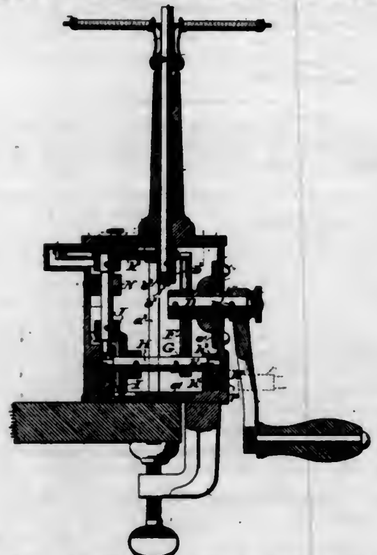
10. A temporary binder having in combination a pair of covers detachably secured together, a socket hinged to one of said covers on a horizontal axis, and a transfer-hook having a stem reciprocally mounted in said socket, substantially as set forth.

11. A temporary binder having in combination a pair of covers detachably secured together, one of said covers being provided with impaling-pins, a socket mounted upon said cover on a horizontal axis, a transfer-hook having its stem reciprocally mounted in said socket and provided with a notch or stop thereon, and a friction-spring bearing against said stem, substantially as set forth.

12. A temporary binder having in combination a pair of covers hinged together, impaling-pins secured to one of said covers, a pair of sockets mounted upon one of said covers, and adapted to turn on horizontal axes toward each other and transfer-hooks having their stems reciprocally mounted in said sockets, substantially as set forth.

13. A temporary binder having in combination a pair of covers hinged together, one of said covers being provided with an impaling-pin, a socket mounted upon a horizontal axis between the hinge of said cover and said impaling-pin, and a transfer-hook having its stem reciprocally mounted in said socket whereby it may be folded down between the hinge of said covers and said impaling-pin, substantially as set forth.

574,933. CENTRIFUGAL MACHINE. CHARLES PARHAM, Philadelphia, Pa. Filed Jan. 11, 1896. Serial No. 575,105. (No model.)



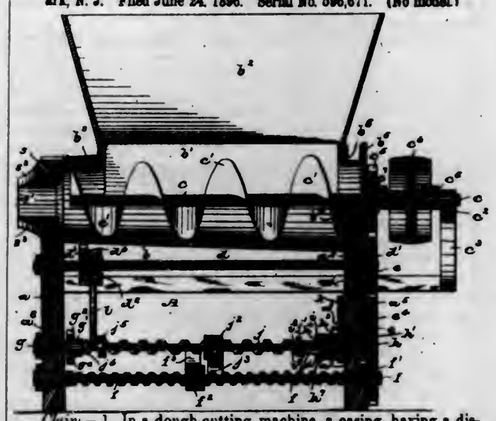
Claim.—1. In a centrifuge, a casing, two shafts mounted in the side of said casing, the first of which shafts is provided with a projection, a spindle mounted in said casing, a test-tube holder mounted on said spindle, a train of gearing within the casing in gear with the first of said shafts, through which gearing rotation is imparted from the first of said shafts to the said spindle, a pair of gear-wheels removably applied to the protruding extremities of said shafts, the gear-wheel mounted upon the first shaft being provided with a recess on its inner face adapted to make locking engagement with the projection on the shaft, and the gear-wheel mounted upon the second shaft being provided with a projection on its outer face, a recess-provided handle removably applied at will to either of said shafts, and adapted to make locking engagement with either the projection on the first shaft or the projection on the gear-wheel on the second shaft, substantially as set forth.

2. In a centrifuge, in combination, a casing, a spindle revolubly mounted in the casing, a test-tube holder, a shaft mounted in and projecting through the wall of the casing, and means for imparting rotation to the same, and gearing connective of said shaft and the spindle, as a means for adjustably supporting said shaft, a sleeve surrounding said shaft and mounted in an opening in the casing of diameter in excess of its own, and screws mounted in lateral extensions of said sleeve and extending through openings in the casing of diameter in excess of their own, substantially as set forth.

3. In a centrifuge, a casing, a spindle revolubly mounted therein, a test-tube holder mounted on said spindle, a shaft revolubly mounted in the wall of the same and equipped with a gear-wheel, a horizontal idle-shaft provided with a driven wheel in mesh with said gear-wheel and with a driving bevel-wheel in mesh with a driven bevel-wheel mounted on a vertical counter-shaft which is equipped with a driving spur-gear from which rotation is imparted to the spindle, as a means for adjustably supporting said counter-shaft to place its wheels in accurate mesh with other wheels, a block embracing said shaft, and a plurality of screws engaged with said block and passing through openings in the wall of the casing of diameter in excess of their own, and a set-screw engaged in a tapped opening in the wall of the casing and bearing against said block, substantially as set forth.

4. In a centrifuge, a casing, a spindle revolubly mounted therein, a test-tube holder mounted thereon, a shaft revolubly mounted in the wall of the casing and equipped with a gear-wheel, a sleeve surrounding said shaft and mounted in an opening of diameter in excess of its own, in the casing, and screws mounted in lateral extensions of said sleeve and extending through openings in said casing of diameter in excess of their own, an idle shaft provided with a driven wheel in mesh with said gear-wheel and with a driving bevel-wheel in mesh with a driven bevel-wheel mounted upon a vertical counter-shaft which is also equipped with a driving gear-wheel through which rotation is imparted to the spindle, a block embracing said counter-shaft and a plurality of screws engaged with said block and passing through openings, of diameter in excess of their own, in the wall of the casing, substantially as set forth.

574,934. MACHINE FOR CUTTING DOUGH. JAMES PARK, Newark, N. J. Filed June 24, 1896. Serial No. 596,671. (No model.)



Claim.—1. In a dough-cutting machine, a casing, having a discharge-opening, a conveyer in said casing, means for operating said conveyer, a dough former or mold in said discharge-opening, and mechanism adapted to separate the dough in equal portions as it is discharged from said former or mold, comprising a disk n^3, means for operating the same, and a vertically-arranged knife p on said disk, substantially as and for the purposes set forth.

2. In a dough-cutting machine, a casing having a discharge-opening, a conveyer in said casing, means for operating said conveyer, a dough former or mold in said discharge-opening, mechanism adapted to separate the dough in equal portions as it is discharged from said former or mold, comprising a disk n^3, means for operating the same, a vertically-arranged knife, and a bar r on said disk, and means acting to force each cut portion of dough from the mouth of said former or mold, substantially as and for the purposes set forth.

3. In a dough-cutting machine, a casing having a discharge-opening, a conveyer in said casing, means for operating said conveyer, a dough former or mold in said discharge-opening, a screw-shaft f and slide f^3 thereon, means for operating said shaft, a second shaft or rod j and slide j^3 thereon, a knife or cutter adapted to cut the dough in equal portions as it is discharged from said former or mold, and means connected with said shaft j for causing a rotary motion of said knife or cutter, substantially as and for the purposes set forth.

4. In a dough-cutting machine, a casing having a discharge-opening, a conveyer in said casing, means for operating said conveyer, a dough former or mold in said discharge-opening, a screw-shaft f and slide f^3 thereon, means for operating said shaft, a second shaft or rod j and slide j^3 thereon, a knife or cutter adapted to cut the dough in equal portions as it is discharged from said former or mold, and means connected with said shaft j for causing a rotary motion of said knife or cutter, consisting, essentially, of a shaft d, a ratchet-wheel thereon, a spring-actuated pawl d^5, a spring-actuated pawl-lever l, actuated from said shaft or rod j, a gear-wheel d^2, shaft m and gears m' and m^2, shaft n, gear n', and a disk n^3 on which said knife or cutter is arranged, substantially as and for the purposes set forth.

5. In a dough-cutting machine, a casing having a discharge-opening, a conveyer in said casing, means for operating said conveyer, a dough former or mold in said discharge-opening, a screw-shaft f and slide f^3 thereon, means for operating said shaft, a second shaft or rod j and slide j^3 thereon, a knife or cutter adapted to cut the dough in equal portions as it is discharged from said former or mold, and means connected with said shaft j for causing a rotary motion of said knife or cutter, consisting, essentially, of a shaft d, a ratchet-wheel thereon a spring-actuated pawl d^5, a spring-actuated pawl-lever l, actuated from said shaft or rod j, a gear-wheel d^2, shaft m and gears m' and m^2, shaft n, gear n', a disk n^3 on said shaft n having lugs or ears n^4, and a rod or bar r pivoted between said lugs or ears, adapted to be actuated and forced against each cut portion of dough and push it from the discharge-opening, substantially as and for the purposes set forth.

6. In a dough-cutting machine, the combination, with the frame thereof, of a casing having a discharge-opening, a shaft c, a conveyer

thereon, and means for operating the same, gear c^3 on said shaft c, a shaft d and gear d', a toothed sector e pivotally arranged on said shaft d, gears e^4 and e^5 on said sector, a spindle h and pinion h' thereon, a screw-shaft f, a slide f^3 and gear f', a spindle g, a cam-sleeve h^4, a shaft or rod j having a slide j^2 thereon, said shaft j having its ends arranged in tubular portions in said spindle and cam-sleeve, and adapted for a longitudinally-sliding motion therein, a knife or cutter adapted to cut the dough in equal portions as it is discharged from the discharge-opening, and means connected with said shaft j for causing a rotary motion of said knife or cutter, substantially as and for the purposes set forth.

7. In a dough-cutting machine, the combination, with the frame thereof, of a casing having a discharge-opening, a shaft c a conveyer thereon, and means for operating the same, gear c^3 on said shaft c, a shaft d and gear d', a toothed sector e pivotally arranged on said shaft d, gears e^4 and e^5 on said sector, a spindle h and pinion h' thereon, a screw-shaft f, a slide f^3 and gear f', a spindle g, a cam-sleeve h^4, a shaft or rod j having a slide j^2 thereon, said shaft j having its ends arranged in tubular portions in said spindle and cam-sleeve, and adapted for a longitudinally-sliding motion therein, a knife or cutter adapted to cut the dough in equal portions as it is discharged from the discharge-opening, and means connected with said shaft j for causing a rotary motion of said knife or cutter, consisting essentially, of a ratchet-wheel on said shaft d, a spring-actuated pawl d^3, a spring-actuated pawl-lever l, actuated from said shaft or rod j, a gear-wheel d^4, shaft m and gears m' and m^3, shaft n, gear n', and a disk n^2 on which said knife or cutter is arranged, substantially as and for the purposes set forth.

8. In a dough-cutting machine, the combination, with the frame thereof, of a casing having a discharge-opening, a shaft c, a conveyer thereon, and means for operating the same, gear c^3 on said shaft c, a shaft d and gear d', a toothed sector e pivotally arranged on said shaft d, gears e^4 and e^5 on said sector, a spindle h and pinion h' thereon, a screw-shaft f, a slide f^3 and gear f', a spindle g, a cam-sleeve h^4, a shaft or rod j having a slide j^2 thereon, said shaft j having its ends arranged in tubular portions in said spindle and cam-sleeve, and adapted for a longitudinally-sliding motion therein, a knife or cutter adapted to cut the dough in equal portions as it is discharged from the discharge-opening, and means connected with said shaft j for causing a rotary motion of said knife or cutter, consisting, essentially, of a ratchet-wheel on said shaft d, a spring-actuated pawl d^3, a spring-actuated pawl-lever l, actuated from said shaft or rod j, a gear-wheel d^4, shaft m and gears m' and m^3, shaft n, gear n', a disk n^2 on said shaft n having lugs or ears n^3, and a rod or bar r pivoted between said lugs or ears, adapted to be actuated and forced against each portion of dough and push it from the discharge-opening, substantially as and for the purposes set forth.

9. In a dough-cutting machine, the combination, with the machine-frame, a casing, a shaft c and a conveyer thereon, and the shafts d, f and j, of a gear mechanism for operating said shafts, consisting, essentially, of a gear c^3 on the shaft c, gear d' and a pivoted toothed sector e on said shaft d, gears e^4 and e^5 on said sector, gear f' on shaft f, spindle h and a pinion h' thereon adapted to be operated from said shaft j, all arranged and operating, substantially as and for the purposes set forth.

10. In a dough-cutting machine, the combination, with the machine-frame, a casing, a shaft c and a conveyer thereon, and the shafts d, f and j, of a gear mechanism for operating said shafts, consisting, essentially, of a gear c^3 on the shaft c, gear d' and a pivoted toothed sector e on said shaft d, gears e^4 and e^5 on said sector, gear f' on shaft f, a spindle h and pinion h' thereon, a cam-sleeve h^4 adapted to be actuated by said shaft j, gear-teeth h^5 on said sleeve and a pivotally-arranged sector k having gear-teeth k' meshing with the teeth on said sleeve h^4, all substantially as and for the purposes set forth.

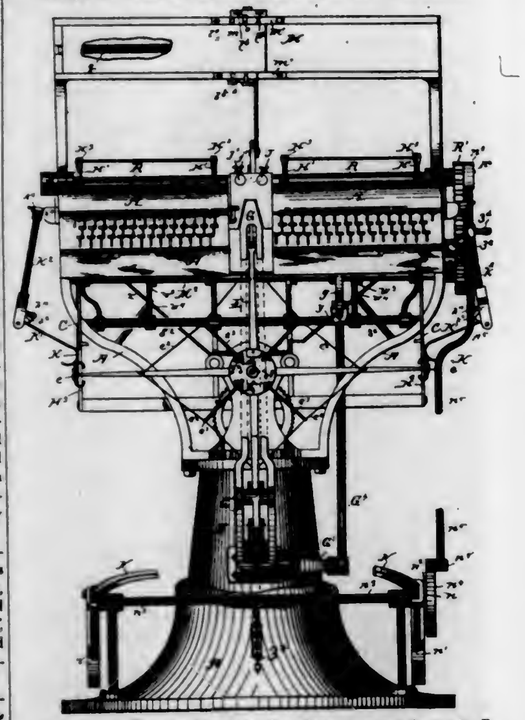
11. In a machine of the class herein set forth, the combination, with a screw shaft or rod j, of a spindle h, a cam-sleeve on said spindle having grooves h^5, a sleeve or shell i, provided with grooves i^3, guides i^4 and i^5 sliding in said grooves, provided with pins i^7 and projections i^6, said pins i^7 projecting into said grooves h^5, and said projections i^6 being adapted to engage with a collar or projection j' on said shaft j, substantially as and for the purposes set forth.

12. In a machine of the class herein set forth, the combination, with a screw shaft or rod j, of a spindle h, a cam-sleeve on said spindle having grooves h^5, a sleeve or shell i, provided with grooves i^3, guides i^4 and i^5 sliding in said grooves, provided with pins i^7 and projections i^6, said pins i^7 projecting into said grooves h^5, and said projections i^6 being adapted to engage with a collar or projection j' on said shaft j, and means for actuating said shaft or rod j, consisting, essentially, of a screw-threaded shaft f and a slide f^3 thereon, and a gear mechanism for operating said shaft f, substantially as and for the purposes set forth.

13. In a dough-cutting machine, the combination, with the machine-frame, and a casing, as b, having a discharge-opening, of a dough former or mold s in said discharge-opening, having cut-away portions s^2, a shaft n in bearings o and o' on said machine-frame, a disk n^2 on said shaft n, and a knife or cutter, as p, on said disk, substantially as and for the purposes set forth.

14. In a dough-cutting machine, the combination, with the machine-frame, and a casing, as b, having a discharge-opening, of a dough former or mold s in said discharge-opening, having cut-away portions s^2, a shaft n in bearings o and o' on said machine-frame, a disk n^2 on said shaft n, and a knife or cutter p on said disk, a pair of lugs n^3 on said disk, and a spring-actuated bar or rod r pivoted between said ears or lugs, and a spur r^2 on said bar or rod r adapted to engage with an eccentric groove o^2 in said bracket o', substantially as and for the purposes set forth.

574,935. MACHINE FOR SETTING AND DISTRIBUTING TYPE AND PRODUCING IMPRESSIONS THEREFROM. OLE M. PETERSON, Chicago, Ill. Filed Mar. 22, 1886. Serial No. 196,061. (No model.)



Claim.—1. The combination of stationary supporting-rods, B, with type-arms, C, having both a longitudinal and a pivotal swinging movement thereon, substantially as specified.

2. The combination of parallel supporting-rods, B, arranged in the same horizontal plane, with type-arms, C, mounted loosely thereon so as to turn pivotally and slide longitudinally, and provided with bends or offsets, c', near their pivoted end, substantially as described.

3. The combination of the type-arms, C, mounted to turn pivotally and slide longitudinally on their supporting-rods, B, with a pushing-bar, H, provided with fingers, h, for moving said type-arms forward, substantially as described.

4. The combination of a pivoted or swinging type-arm, C, with a sweeper-arm, E, for elevating said type-arm, substantially as described.

5. The combination of swinging type-arms, C, with sweeper-arms E, provided with a spring or cushion for the type-arms to strike against, substantially as described.

6. The combination of swinging type-arms, C, with sweeper-arms, E, provided with a saddle, e, and a curved spring-bearing, e', substantially as and for the purpose specified.

7. The combination with swinging type-arms of a rotary sweeper-arm, having its end or bearing, against which said type-arms strike, projecting to one side, to prevent the type-arm entangling with said sweeper-arms, substantially as described.

8. The combination with swinging type-arms, C, arranged part on each side of the line, of a rotary sweeper-arm, E, having a saddle, e, and a spring-bearing, e', on each side, to elevate the type-arms on either side of the center of the machine, according as the sweeper-arm is rotated one way or the other, substantially as described.

9. The combination with swinging type-arms, of rotary sweeper-arms, four in number, arranged at a right angle to each other, substantially as and for the purpose specified.

10. The combination of supporting-rods B, with swinging type-arms C of different lengths, and a device for gradually lowering the type-arms, the form and path of said device being such substantially as described that each type-arm rests upon said device until it reaches a vertical position, and means for moving said device, substantially as specified.

11. The combination of support-rods, B, type-arms, C, and a support for lowering said type-arms, moving at an angle of about forty-five degrees to the vertical, so that all the type-arms will rest thereon until they reach a vertical position, and mechanism for moving said support in the angular path described, substantially as described

12. The combination of supporting-rods, B, with type-arms, C, and a rest or roller, K, for lowering said type-arms, of sufficient diameter substantially as described to prevent the longer type-arms from crossing the type on the shorter type-arms, as they are lowered and means for lowering said roller K, substantially as described.

13. In a machine for the purpose stated, the combination of a key-lever, D^4, with a pushing-bar, H, and intermediate mechanism substantially as described for giving said pushing-bar a reciprocating movement by depressing a key-lever, substantially as, and for the purpose, specified.

14. The combination of swinging and longitudinally-moving type-arms with sweeper-arms for elevating said type-arms, and a pushing-bar, H, for pushing them forward into their proper place in the line, substantially as described.

15. In a machine for the purpose stated, the combination of a key-lever, D^2, with sweeper-arms, E, and intermediate mechanism substantially as described for giving said sweeper-arms a rotary movement, by depressing a key-lever, substantially as, and for the purpose, specified.

16. The rocking frame, D^3, in combination with key-levers and mechanism substantially as described for elevating swinging type-arms, substantially as specified.

17. The combination of key-levers, D^2, and rocking frame, D^3, with pushing-bar, H, and intermediate mechanism substantially as described for giving said pushing-bar a reciprocating movement by depressing any of the key-levers, substantially as, and for the purpose specified.

18. The combination with rotary or swinging type-arms, of an operating-key and an auxiliary power substantially as described set in action by said operating-key, to swing said type-arms into position, substantially as specified.

19. The combination with a sliding type-arm, of an operating-key and an auxiliary power substantially as described set in action by said operating-key, to slide said type-arm into position, substantially as specified.

20. The combination with a swinging and sliding type-arm, of an operating-key and an auxiliary power substantially as described set in action by said operating-key, to swing and slide said type-arm into position.

21. In a machine for the purpose stated, the bar, F, in combination with sliding type-arms, substantially as and for the purpose specified.

22. In a machine for the purpose stated, the combination of the parallel guide-plates 8 with swinging and sliding type-arms and their stationary supporting-rods for the purpose of preventing the type-arms from entangling while in a vertical position, substantially as specified.

23. The combination with a bed or support for the type-arms, of an alining-bar on each side of the line, one of which is movable both vertically and horizontally, so as to both straighten the line and level the face of the type, substantially as described.

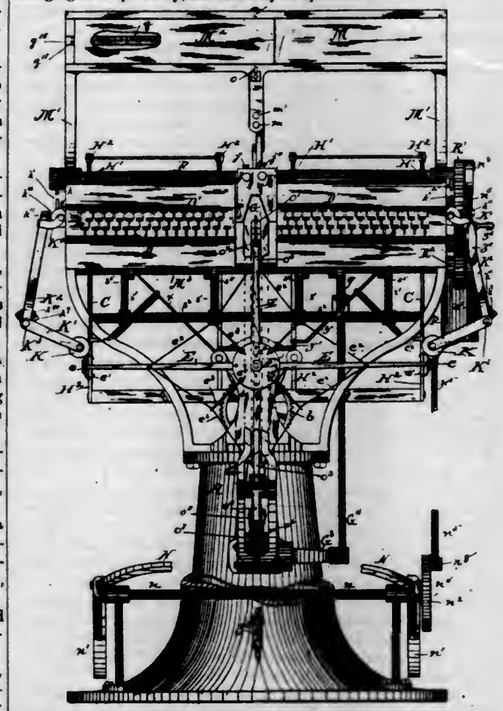
24. The combination with the pushing-bar, H, and swinging type-arms, of a suitable device substantially as described for moving said pushing-bar backward or raising it, so as to prevent its interference with the type-arms as they are pushed back into their original position after being used to form a line, substantially as described.

574,986. MACHINE FOR SETTING AND DISTRIBUTING TYPE AND PRODUCING IMPRESSIONS THEREFROM. OLE M. PETERSON and CHRISTIAN C. HILL, Chicago, Ill. Filed Mar. 22, 1886. Serial No. 196,062. (No model.)

Claim.—1. The type-arm C, consisting of a thin flat bar, twisted at right angles near its ends and provided with an eye c at one end and type c^3 at the other, substantially as specified.

2. The type-arm C, having eye or sleeve c provided with notch or recess c^4, substantially as specified.

3. The combination of parallel supporting-rods B, with pendent type-arms C mounted loosely thereon, means substantially as described for sliding said type-arms, and means substantially as described for swinging them pivotally, substantially as specified



4. The combination of a series of type-arm-supporting rods with a series of sliding pivotal type-arms, spring-pawls for holding the type-arms at one end of said supporting-rods and reciprocating hooks or devices connected with the keys for pulling the type-arms one by one from behind said spring-pawl, substantially as specified.

5. The combination of a pivotal sliding type-arm C, with a supporting-rod B provided with a longitudinal groove or guide b, and a reciprocating hook-bar D sliding in said groove or guide, substantially as specified.

6. The combination with type-arms C provided with eyes or sleeves c, having notches or recesses c^4, of supporting-bar B provided with groove b, and sliding spring-bar D provided with upwardly-curved end bearing hook or projection d to engage with said notches c^4 in said eyes c, substantially as specified.

7. The combination with parallel supporting-rods B, of type-arms C mounted loosely thereon, a device substantially as described for holding the type-arms not in use near one end of said supporting-rods, and a device substantially as described for pulling the type-arms one by one from behind such retaining device, substantially as specified.

8. The combination of parallel supporting-rods B with type-arms C mounted loosely thereon, a device substantially as described for holding the type-arms when not in use at one end of said supporting-rods, a device substantially as described for pulling them forward one by one, and a device substantially as described for elevating them into position for use in the line, substantially as specified.

9. The combination of parallel supporting-rods B, with type-arms C mounted loosely thereon, a device substantially as described for pulling the type-arms forward one by one, a device substantially as described for elevating them into position for use in the line and a device substantially as described for moving them longitudinally into their proper position in the line, substantially as specified.

10. The combination of parallel supporting-rods B, with type-arms C mounted loosely thereon, a device substantially as described for pulling them forward one by one, a device substantially as described for elevating them to the level of the line, a bed or support for the free end of the type-arms to rest upon and a device substantially as described for pushing the type-arms forward into position in the line, substantially as specified.

11. The combination with pivoted longitudinally-sliding type-arms C, of a movable bed or support G for the free end of the type-arms to rest upon when elevated into position for use, substantially as specified.

12. The combination of parallel supporting-rods B with type-arms C mounted to swing radially and slide longitudinally thereon, of spring-pawls b^3 for retaining said type-arms at the rear end of their supporting-rods, substantially as specified.

13. The combination of parallel supporting-rods B with type-arms C mounted to swing radially and slide longitudinally thereon, of spring-pawls b^3 for retaining said type-arms at the rear end of their supporting-rods, and springs b^3 for pressing the type-arms against said spring-pawls, so that the forward type-arm will always occupy the same position whatever may be the number of type-arms back of the spring-pawl, substantially as specified.

14. The combination of parallel supporting-rods B with type-arms C mounted to swing radially and slide longitudinally thereon, spring-pawls b^3 for retaining said type-arms at the rear end of their supporting-rods, and springs b^3 for pressing the type-arms against said spring-pawls, so that the forward type-arm will always occupy the same position whatever may be the number of type-arms back of the spring-pawl, and reciprocating hook-bar D for pulling the type-arms forward one by one, substantially as specified.

15. The combination of parallel supporting-rods B with type-arms C mounted to swing radially and slide longitudinally thereon, spring-pawls b^3 for retaining said type-arms at the rear end of their supporting-rods, and springs b^3 for pressing the type-arms against said spring-pawls, so that the forward type-arm will always occupy the same position whatever may be the number of type-arms back of the spring-pawl, reciprocating hook-bar D for pulling the type-arms forward one by one, and rotary sweeper-arms E for elevating the type-arms to the level of the line, substantially as specified.

16. The combination of parallel supporting-rods B, with type-arms C mounted to swing radially and slide longitudinally thereon, of spring-pawls b^3 for retaining said type-arms at the rear end of their supporting-rods, and springs b^3 for pressing the type-arms against said spring-pawls, so that the forward type-arm will always occupy the same position whatever may be the number of type-arms back of the spring-pawl, reciprocating hook-bar D for pulling the type-arms forward one by one, rotary sweeper-arms E for elevating the type-arms to the level of the line, and movable bed or support G for the free end of the type-arms to rest upon when the same are pushed forward off of said sweeper-arm, substantially as specified.

17. The combination of parallel supporting-rods B, with type-arms C mounted to swing pivotally and slide longitudinally thereon, a movable bed or support G on which the free ends of said type-arms rest when in use in the line, and a device for pulling the type-arms back to their original position when released, substantially as specified.

18. The combination of parallel supporting-rods B, with type-arms C mounted loosely thereon, and a reciprocating bar T for pulling or pushing the type-arms back to their original position, substantially as specified.

19. The combination of parallel supporting-rods B, with type-arms C mounted loosely thereon, a reciprocating bar T for pulling or pushing the type-arms back to their original position, and spring-pawls b^3 secured to a rocking or movable bar b^4 so that said spring-pawls may be elevated to permit the type-arms to pass under or back of the same, substantially as specified.

20. The combination of supporting-rods B, with type-arms C mounted loosely thereon, a reciprocating bar T mounted under said supporting-rods B for moving the type-arms back to their original position, spring-pawls b^3 secured to a rocking or movable bar b^4, mechanism substantially as described for elevating said pawls and releasing the same after the type-arms pass under them, and mechanism substantially as described for releasing the reciprocating bar T after the spring-pawls are let down upon the rods B, substantially as specified.

21. The combination of parallel supporting-rods B of type-arms C mounted loosely thereon, a device substantially as described for retaining said type-arms at one end of said rods, a device substantially as described for pulling them forward one by one, a device substantially as described for elevating them into position for use, and a pushing-bar H provided with pivoted fingers A adapted to ride or drop over the type-arm and shove the same forward into its position in the line, substantially as specified.

22. The combination of parallel supporting-rods B, with type-arms C mounted loosely thereon, a device substantially as described for retaining said type-arms at one end of said rods, a device substantially as described for pulling them forward one by one, a device substantially as described for elevating them into position for use and a reciprocating pushing-bar H for moving the type-arm forward into position in the line and a cam or device d^4 to elevate said pushing-bar over the type-arms as it makes its backward reciprocation, substantially as specified.

23. The combination of supporting-rods B, with type-arms C mounted loosely thereon and provided with eyes *e* surrounding said supporting-arms; a reciprocating bar H sliding on said rods B for moving said type-arms forward, and a cam or equivalent device d^4 for elevating said pushing-bar over the eye of the type-arm as said pushing-bar makes its backward reciprocation, substantially as specified.

24. The combination of supporting-rods B with type-arms C mounted to turn pivotally and slide longitudinally thereon, and provided with eyes *e* sufficiently larger than said rods to permit the upper end of the type-arms to move forward the requisite distance without binding on said rod, though the lower end of said type-arm for the instant remains stationary, substantially as specified.

25. The combination of supporting-rod B with pivotal and sliding type-arms C mounted thereon, said type-arms C having an eye or sleeve *e*, the inner surface of which is curved or beveled substantially as shown at e^3, substantially as and for the purpose specified.

26. The combination of parallel supporting-rods B arranged part on each side of the line to be formed, with type-arms C mounted loosely thereon, and rotary sweeper-arms E, and mechanism substantially as described for operating the same in opposite directions when keys on different sides of the machine are depressed, substantially as specified.

27. The combination of parallel supporting-bars B, with type-arms C mounted loosely thereon, devices substantially as described for pulling said type-arms forward one by one, keys and suitable connecting mechanisms substantially as described for operating said devices, sweeper-arms E for elevating the type-arms, mechanism substantially as described for operating said sweeper-arms by power, and suitable connecting mechanism substantially as described for releasing or setting said operating mechanism in motion by the movement of the keys, substantially as specified.

28. The combination of pivoted type-arms C with a device substantially as described for elevating the same into position for use, mechanism substantially as described for operating the type-arm elevating device by a weight or other power, and devices substantially as described actuated by the key for releasing or setting such operating mechanism in motion, substantially as specified.

29. The combination of pivoted type-arms C mounted part on each side of the machine, a rotary device substantially as described or sweeper for elevating said type-arms, mechanism substantially as described actuated by a weight or power for operating said rotary device or sweeper, and devices substantially as described actuated by the keys for releasing or setting such operating mechanism in motion in opposite directions when keys on opposite sides of the machine are depressed, substantially as specified.

30. The combination of parallel supporting-rods B, with type-arms C mounted loosely thereon, devices substantially as described for pulling said type-arms forward one by one, keys and suitable connecting mechanisms substantially as described for operating said devices, sweeper-arms E for elevating the type-arms, a pusher-bar H for moving said type-arms forward into position in the line, mechanism substantially as described for operating said sweeper-arms and pusher-bar by power, and suitable connecting devices substantially as described for releasing or setting said operating mechanism in motion by the movement of the keys, substantially as specified.

31. The combination of pivoted type-arms C, with a device substantially as described for elevating the same into position for use, a device substantially as described for pushing them forward into position in the line and mechanism substantially as described for operating the type-arm-elevating device and said pushing device by a weight or other power, and devices substantially as described actuated by the movement of the key for releasing or setting such operating mechanism in motion, substantially as specified.

32. The combination of pivoted type-arms C, mounted part on each side of the machine, a rotary device substantially as described or sweeper for elevating said type-arms, a pusher-bar H for moving said type-arms forward, mechanism substantially as described actuated by a weight or power for operating said rotary device or sweeper and said pusher-bar, and devices substantially as described actuated by the keys for releasing or setting such operating mechanism in motion in opposite directions when keys on opposite sides of the machine are depressed, substantially as specified.

33. The combination of pivoted and sliding type-arms C, with a device or pusher-bar H for moving the same forward into position in the line, mechanism substantially as described for operating said type-arm-moving device by a weight or other power, and devices substantially as described actuated by the key for releasing or setting such operating mechanism in motion, substantially as specified.

34. The combination of swinging and longitudinally-sliding type-arms C, rotary sweeper E, and movable bed or support G for the free end of the type-arms arranged in juxtaposition, and on about a level with said rotary sweeper when the same is elevated, substantially as specified.

35. The combination with swinging type-arms C, arranged part on each side of the machine, of a movable support or bed G for the free end of the type-arms arranged near the middle of the machine, said support G extending transversely to said type-arms and vibrating or moving in and ont transversely to said type-arms, substantially as specified.

36. The combination of swinging type-arms C, with movable support G and a device substantially as described for gradually lowering the type-arms to a pendent position when said support is removed, substantially as specified.

37. The combination of supporting-rods B, type-arms C, movable support G, roller J and mechanism substantially as described for moving said roller up under the type-arms before said support G is removed and gradually lowering the same on an angle of about forty-five degrees, substantially as specified.

38. The combination of supporting-rods B with type-arms C and movable fingers S for separating the several different sets of type-arms as the same are moved back, substantially as specified.

39. The combination of parallel supporting-rods B, with type-arms C and reciprocating pivoted fingers S, supported in front of the pivots on a movable bar, so that said pivoted fingers may be inclined, substantially as specified.

40. The combination of supporting-rods B with type-arms C, reciprocating finger-bar S', fingers S pivoted thereto and supporting-bar S pivoted at its inner end near the shorter type-arms, so that said fingers may be inclined according to the length of the different sets of type-arms, substantially as specified.

41. The spacing device consisting of the hinged levers I, I and the type in a line in combination with the type-arms to which said type are attached, substantially as specified.

42. The combination of spacing device consisting of hinged leaves I, I', with a movable bar for applying pressure to said hinged leaves to spread the same, substantially as specified.

43. The combination of hinged leaves I, I', with reciprocating bar I^2 to which said leaves are pivoted and mechanism substantially as described actuated by a key for pulling said bar forward, substantially as specified.

44. The combination of hinged leaves I, I', with bar or plate I^2 provided with stops or projections i^4 i^3 to prevent said leaves closing in the wrong direction when pressure is applied, substantially as specified.

45. The spacing device, consisting of the hinged leaves I, I', having beveled ends i^3, so that the pressure applied will tend to close the same when extended straight, substantially as specified.

46. The combination of hinged leaves I I', plate I^2 to which said leaves are pivoted, reciprocating bar I^4, key I^2 and lever I^3, substantially as specified.

47. The combination of hinged leaves I, I', plate I^2 to which said leaves are pivoted, reciprocating bar I^4, key I^2, lever I^3 and spring i^3 substantially as specified.

48. The combination with spacing devices consisting of hinged leaves I, I', of movable bar L^4 resting upon the upper edge of said spacing devices, and means substantially as described for actuating said bar from the impression-bed as the latter descends to take the impression, substantially as specified.

49. The combination with spacing devices I, I', of hinged plate or bar L^4 provided with crank l^4, and impression-bed M provided with projection or arm *m* engaging said crank-arm l^4, substantially as specified.

50. The combination with spacing devices I, I', of hinged plate or bar L^4 provided with crank l^4, and impression-bed M, provided with spring tappet or arm *m*, adapted to yield to permit the impression-bed to descend farther to take the impression after actuating the spacing devices, substantially as specified.

51. The combination with a bed or support for the type-arms, of a straightening-bar L on one side of the line, a vertically and horizontally moving straightening-bar L' on the opposite side of the line and means substantially as described for actuating said bar from the impression-bed as it descends to take the impression, substantially as specified.

52. The combination with a bed or support for the type-arms, of a fixed straightening-bar, a horizontally-moving straightening-bar and means substantially as described for actuating the same from the impression-bed, substantially as specified.

53. The combination of a support or bed for the type-arms, with a vertically-moving bar for leveling the face of the type, and means substantially as described for actuating said bar from the impression-bed, substantially as specified.

54. The combination with horizontally and vertically moving straightening-bar L', having inclined rear face l^8, of stationary bar L^5 having incline l^9, rotary cam-shaft l^7 and a projection l^{10} on said movable bar L' for said cam to impinge against, and a crank-arm l^{10}, and the impression-bed provided with a spring-tappet *m'*, substantially as specified.

55. The combination of swinging type-arms C arranged part on each side of the machine, with a bed or support for the free end of said arms near the middle of the machine, and a vertically-moving bar L' to level the face of the type, the type-arms on one side of the machine being provided with heels or projecting ends c^4 for said bar to bear against, substantially as specified.

56. The combination of revolving sweeper-shaft E' with weight 2 and intermediate mechanism substantially as described for revolving said shaft in either direction, substantially as specified.

57. The revolving sweeper-shaft E', having the disk or wheel 15 secured to it, in combination with pawl 25 for stopping said shaft after making a whole or a partial revolution, substantially as specified.

58. The revolving sweeper-shaft E' in combination with pawl 25, key-lever D^3, and intermediate connections substantially as described for operating said pawl at each depression of said key, substantially as described.

59. The revolving sweeper-shaft E' in combination with pawl 25, rocking frame D^3 and intermediate connection substantially as described for releasing and stopping said shaft at each depression of a key-lever, substantially as described.

60. The combination of revolving sweeper-shaft E' weight 2, gear 6, operating-pinion 8, with pin 12 or equivalent device for releasing and stopping the revolution of said pinion at each whole or partial revolution, substantially as specified.

61. The combination of revolving sweeper-shaft E' weight 2 suspended from an endless chain running in opposite directions over pin-gears 4 and 5, with gears 6 and 7, pinions 8 and 9, pins 12 running in appropriate bearings in wheels 10 and 11 secured to said pinions 8 and 9, respectively, for operating said wheels 10 and 11 in opposite directions, substantially as described.

62. The combination of revolving shaft E' having disk or wheel 15 secured to it weight 2, gear 6, pinion 8, wheel 10, pin 12 or equivalent device with key-lever D^3 and connections substantially as described for releasing said pin, thus allowing said wheel 10 to revolve, by depressing said key-lever, substantially as specified.

63. The combination of revolving sweeper-shaft E' weight 2, gear 6, pinion 8, wheel 10, and pin 12, with disk 15 secured to shaft E' and containing appropriate holes or slots for receiving said pin 12 as it is released by depressing a key-lever, thereby causing said shaft to revolve, substantially as specified.

64. The combination of revolving sweeper-shaft E' wheel 10, pin 12 and disk 15, with parallel guard-plate 24 for keeping said pin 12 in the hole or slot in said disk 15, until the desired revolution of the shaft E' has taken place, substantially as described.

65. The combination of wheel 8 with pushing-bar H and intermediate mechanism substantially as described for giving said pushing-bar a reciprocating movement at each whole or partial revolution of said wheel, substantially as described.

66. The combination of the roller K, arms K' and K^2 hinged at K^3, with mechanism substantially as described for moving said roller at an angle of about forty-five degrees by swinging said arm K^4 on its supporting-shaft K^5 from about a horizontal to about a vertical position, substantially as described.

67. The combination of the arm K' with the arm K^2 hinged at K^3, with beveled segments k^9 and k^{10}, lever k^{12} and cam k^{13} for making the free end of arm K' describe a particular path deviating from the circular by swinging the arm K^2 from a vertical to a horizontal position, substantially as described.

68. In a machine for the purpose stated, the combination with the type-arms and their support of a hinged impression-bed and two mechanisms for imparting to said impression-bed its movement one mechanism for swinging it quickly from a vertical to a horizontal position and an auxiliary mechanism substantially as specified for producing great pressure at the point of contact between the types and the matrix or mold carried by said impression-bed whereby the machine is adapted to operate with rapidity and at the same time exert the great pressure required for taking the impression of a whole line at a time, substantially as specified.

69. In a machine for the purpose stated, the combination of the type and type-arms and their supporting-bed, of a movable impression-bed carrying the matrix or mold and two separate mechanisms for imparting to said impression-bed its movements one of said mechanisms consisting of a foot-lever and connections substantially as described, for swinging said impression-bed down to bring the matrix in contact with the type, and the other of said mechanisms being an auxiliary mechanism, substantially as described, for exerting great pressure at the point of contact between the types and the matrix carried by said impression-bed, substantially as specified.

70. The combination of the impression-bed M with the foot-lever N, grappling-hooks *o* and *o'*, toggle-levers o^4, o^3, and o^6, and connecting-rods o^5 and o^7, substantially as and for the purpose described.

71. The combination of the impression-bed M, foot-lever N, segment *n'*, gear n^2, and pitman n^3, substantially as and for the purpose set forth.

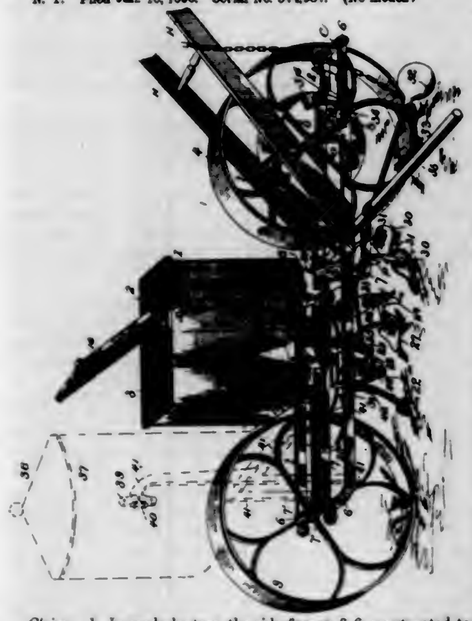
72. The combination of leading-screw *q* with threaded gear *q'*, impression-bed M and mechanism substantially as described for mov-

ing said screw longitudinally by the upward and backward movement of the impression-bed, substantially as and for the purpose described.

73. The combination of the movable type-supporting bed G with the cam-shaft M^3 and connecting mechanism, substantially as and for the purpose described.

74. The combination of the bar T with the cam-shaft M^3 and connecting mechanism, substantially as and for the purpose specified.

574,937. SEED-PLANTER. RALPH M. PHILLIPS, Jamestown, N. Y. Filed Jan. 10, 1896. Serial No. 574,957. (No model.)



Claim.—1. In seed-planters, the side-frames 6, 6, constructed to receive the journals of a broad carrying-wheel at their front end, a drive-wheel within their rear ends, the sides having arms above the line of said sides and in which said drive-wheel is journaled, the sides being secured together by bolts and cross-piece 45 provided with arm 34 to receive the wrist 15′ of rod 15, and pin 44 to which the marker is hinged, substantially as shown.

2. In seed-planters, the metal side pieces 7, 7, hinged at their front end, having fertilizer and seed box secured thereto, the sides being bent at the rear of said box to drop below and within the main sides 6, 6, of the planter-frame, the rear ends being turned up and having wrists on which revolving antifriction-rollers travel in the ratchet-wheel, substantially as shown.

3. In seed-planters, the metal side pieces 7, 7, hinged at their front end, and provided with antifriction-rollers at their rear ends to travel in the ratchet-wheel, in combination with a fertilizer and seed box secured thereto, substantially as shown.

4. In seed-planters, the upper box 1, having apartments 2 and 3, secured to the oval base 8, said base having a rod passing through its center, which rod is provided with opening and closing blocks 50 and 63, the rod being turned at one end to form a crank for moving the blocks back and forth, substantially as described.

5. In seed-planters, the seed and fertilizer box constructed as shown, a rod passing through the center of the base-carrying blocks 50 and 63, in combination with protecting-hoods 61, and 64, as described.

6. In seed-planters, the boot 18, hung within the main frame 6, 6, and provided at its lower end with a curved hinged door, and suitable connecting-rods to open and close the door, substantially as described.

7. In seed-planters, the boot 18 constructed and pivoted in the sides 6, 6, as shown, having the metal bridge 24^1 to secure it to seed-boot 21, which is also pivoted in the main frame, the lower part of boot 21 being drawn together to prevent the seed from scattering, substantially as described.

8. In seed-planters, the double plow 27, 29, having its large front part 27 to cover the fertilizer and its rear end 29 curved and small to open a furrow for the seed, substantially as described.

9. In seed-planters, the adjustable opening-plow 22, secured to the front of the fertilizer-boot, the rear double plow 27, 29, and covering-plows 30, 30, made as shown, and arranged to operate in the positions and for the purpose described.

10. In seed-planters, the adjustable trip 36, having arms of different lengths and mounted on rod 25, between springs s, s, in combination with trip-pins O, O, O, O, on the drive-wheel for the purpose of operating the feed and fertilizer rods, substantially as described.

11. In seed-planters, the adjusting-pipes 73, 74, made as shown, the arms of upright forks that are secured to the rear of two or more planter-frames, substantially as described.

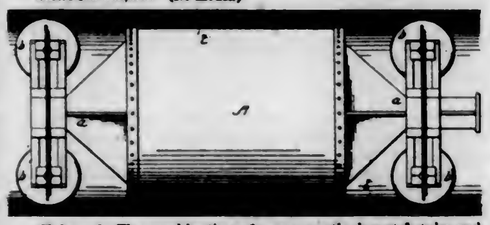
12. In seed-planters, the adjusting-pipes 73, 74, connecting the arms of upright forks that connect two or more planters, in combination with a center fork attached to the rear of a center planter-frame, the fork-arm of the planter having a hook to engage the connecting-pipes, substantially as described.

13. In seed-planters, the cross-piece 76, secured at its front end to the central frame of a gang of planter-frames, and provided on its under side with a hook 77 to engage the connecting-pipe 73, to hold the rear end of the planter-frames in a raised position while turning corners or going afield, substantially as shown and for the purpose set forth.

14. In seed-planters, rear forks secured to the planter-frame, having stems to connect with adjusting-pipes, a cross-bar provided with a hook to engage the pipes, the front end of cross-bar being secured to the central frame of the planters, in combination with thills and front drawing connections, substantially as described.

15. In seed-planters, the malleable or steel rakes 78, 78, 78, provided with hinged arms to connect with the draw-bar of the planter, substantially as described.

574,938. PNEUMATIC-DESPATCH TUBE AND CARRIER THEREFOR. CHARLES F. PIKE, Philadelphia, Pa. Filed Aug. 11, 1896. Serial No. 602,380. (No model.)



Claim.—1. The combination of a pneumatic-despatch tube and carrier, said carrier having a diameter in cross-section approximately equal to the diameter of the bore of the tube, grooved trackways provided longitudinally in the tube beyond the line of the bore of the tube, wheels provided upon opposite ends of the carrier and adapted to travel in said longitudinal grooves, substantially as described.

2. In a pneumatic-despatch-tube system, a tube, a cylindrical carrier provided therein having a diameter approximately equal to the bore of the tube, longitudinally-grooved trackways integrally provided in said tube opposite each other, located beyond the line of the bore of the tube, wheels provided upon opposite ends of the said carrier adapted to travel in said longitudinal grooves, substantially as described.

574,939. VALVE. EDWIN REYNOLDS, Milwaukee, Wis. Filed Jan. 9, 1896. Serial No. 574,879. (No model.)

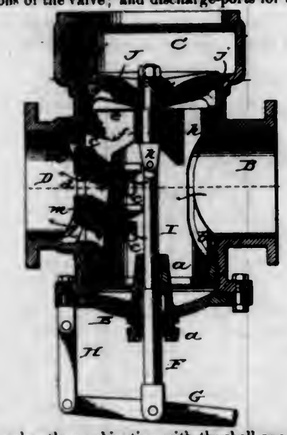
Claim.—1. In combination with the valve-casing provided with an inlet and with two outlets; a valve-stem mounted therein; a single-beat valve and a slide-valve mounted upon the stem, the parts being in such relation that as one outlet is closed the other is open, and vice versa.

2. In combination with the shell or casing provided with an inlet, and two discharge-openings, valves for said discharge-openings, said shell or casing being enlarged or extended at or near the discharge-ports of the valves.

3. In combination with the shell or casing provided with an inlet, and two discharge-openings, a hollow cylindrical valve mounted within said casing and adapted to control one of the discharge-openings, a valve-stem passing through and connected to said cylindrical valve; a second valve mounted upon and secured to the end of the valve-stem and adapted to control the second discharge-outlet, said valves being fixed with relation to each other and so arranged that but one discharge-opening will be closed at a time.

4. In combination with the shell or casing, provided with an inlet and two discharge-openings, a valve-stem passing through said casing; a hollow cylindrical valve mounted within said casing and adapted to control one of the discharge-outlets; guides for said valve; and a second valve mounted upon the end of the valve-stem, and adapted to control the second outlet.

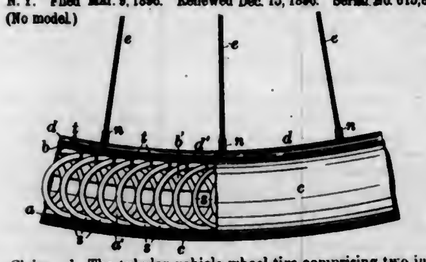
5. In combination with the valve-casing provided with an inlet; a hollow slide-valve working therein, said valve provided with an extended inlet-port designed to work beneath the inlet and to be open at all positions of the valve; and discharge-ports for the valve.



6. In a valve, the combination with the shell or casing, provided with an inlet and with two exhaust-ports, one leading to the condenser and the other to the atmosphere; of a valve-stem mounted in said casing; a hollow slide-valve provided with an extended inlet-port and an exhaust-port, said valve secured upon the valve-stem and having its inlet-port working beneath the inlet to the casing and its exhaust-port over the condenser-port; and a second valve also secured to the valve-stem and designed to close the exhaust-port to the atmosphere, the parts being fixed in such relation that the inlet is always open, and one exhaust is closed while the other is open, and vice versa.

7. In a valve, the combination with the shell or casing provided with an inlet-port and exhaust-ports, the casing being enlarged or extended at such points; of a valve-stem mounted in the casing; a hollow slide-valve, provided with an extended inlet-port designed to work beneath the inlet in the casing and with exhaust-ports; and a single-beat valve secured upon the end of the valve-stem, substantially as described.

574,940. VEHICLE-WHEEL. JAMES M. RICE, New Rochelle, N. Y. Filed Mar. 9, 1896. Renewed Dec. 15, 1896. Serial No. 615,808. (No model.)



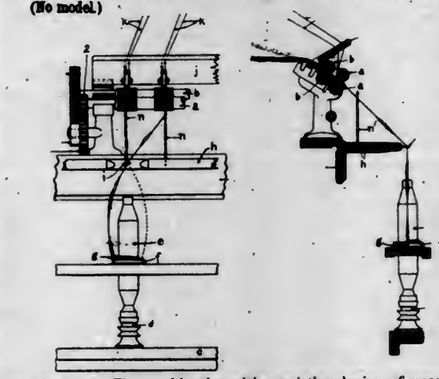
Claim.—1. The tubular vehicle-wheel tire comprising two independently-movable and relatively concave rings, the one surrounding the other, and an interposed continuous wire spring formed of a series of flat overlapping circular coils for retaining the same in their normal concentric relation, said spring being inserted loosely between said rings with its consecutive coils fastened together on one side at the point of overlapping, as and for the purpose set forth.

2. The tubular vehicle-wheel tire comprising two independently-movable and relatively concave rings, the one surrounding the other, and an interposed continuous wire spring formed of a series of flat overlapping circular coils of flattened cross-section in parallel relation thereto, said spring being inserted loosely between said rings with its consecutive coils fastened together on one side at the point of overlapping, as herein shown and described and for the purpose set forth.

3. A tubular vehicle-wheel tire formed of two independent concentric rings, the one surrounding the other, with opposed annular internal cavities and intermediate external recesses, interposed continuous wire springs formed each of a connected series of flat overlapping coils retained within said cavities and a flexible rubber shoe enveloping the outer ring and the adjacent portion of the inner ring to close and seal the intervening space and having annular tongues upon its inner periphery adapted to enter and engage the external recesses of the outer ring, as and for the purpose set forth.

4. In a vehicle-wheel, the combination, with the spokes e and nipples n with heads n', of the concentric rings a and b formed with opposed internal cavities and intermediate external recesses as described, interposed wire springs s with flat overlapping coils retained within said cavities, the flexible rubber shoe c with annular tongues c' upon its inner periphery incasing said rings, and the tubular rim d formed with annular slit d' having lateral branches d^2 to receive the heads of said nipples, said rim being secured to the inner ring, substantially as herein shown and described and for the purpose set forth.

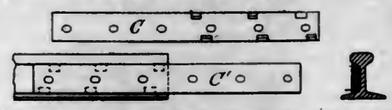
574,941. DOUBLING AND TWISTING FRAME. CHARLES H. RICHARDSON, Lowell, Mass. Filed Oct. 16, 1896. Serial No. 609,072. (No model.)



Claim.—1. The combination with a twisting device, of means for delivering two pairs or sets of yarns thereto, means for delivering to each of said sets of yarns, at intervals, tufts or fragments of roving, and guiding means whereby the said two pairs or sets of yarns with their tufts are brought together and delivered to said twisting device.

2. The combination with a twisting device, of a pair of continuously-driven delivery-rolls, guides for directing two pairs or sets of yarns to said rolls, a pair of intermittingly-driven back rolls for delivering tufts or fragments of roving to two pairs or sets of yarns passing between the said continuously-driven rolls, a guide through which both of said pairs or sets of yarns with their fragments of rovings pass to said twisting device, and a second guide, removed from the first-named guide, and by means of which one of said pairs or sets of yarns with its tufts or fragments of roving is caused to travel in an indirect path in passing from the continuously-driven delivery-rolls to the said first-named guide, so that its tufts will be caused to succeed the tufts carried by the other pair or set of yarns in passing to the said twisting device.

574,942. RAIL-JOINT. WILLIAM ROBINSON, Boston, Mass. Filed Nov. 14, 1894. Serial No. 528,715. (No model.)



Claim.—1. In a rail-joint, a plate having one end permanently secured to the bottom of one rail, space being left being between said plate and the longitudinal center of said rail, the opposite end of said plate extending under and detachably supporting, the adjacent rail, substantially as described.

2. In a rail-joint, the combination, substantially as described, of two rails, each provided with a truss or plate having one end permanently secured to the bottom of said rail at one side of the longitudinal center of the same, and the opposite end extending under and supporting the adjacent rail, an open space being thus left between the inner vertical walls of said truss or bottom plates.

3. In a rail-joint, the combination, substantially as described, of the rail and a girder or truss plate having one end permanently secured to the bottom of said rail and the other end extending beyond the end of said rail and detachably supporting the adjacent rail, said plate being provided with ribs or projections extending inwardly toward or under the longitudinal center line of the rail and affording central support for the same.

4. In a rail-joint, the combination, substantially as described, of two rails, each provided with a truss or plate having one end perma-

nently secured to the bottom of said rail at one side of the longitudinal center of the same, the other end of said plate extending beyond the end of said rail and forming a support for the adjacent rail, said plates being provided with vertical ribs or projections extending inwardly toward or under the center of the rails and arranged to afford central support for the same.

5. The girder-plates B B' adapted to be secured to the bottoms of adjacent rails, said plates being provided, respectively, with the inward projections *b b'*, said projections alternating with each other, substantially as described.

6. In a rail-joint, a splice-bar constructed for welded attachment to one only of the abutting rails, said bar being provided with a plurality of welding projections grouped nearer to one end of said bar than the other and adapted to form a plurality of welding connections with the same rail, substantially as described.

7. In a rail-joint, the truss or bottom plate B provided with the welding projections *d d*, with space between them, said projections being adapted to form several welding connections with the same rail, substantially as described.

8. In a rail-joint, a splice-bar constructed for welded attachment to one only of the abutting rails, said bar being provided with a plurality of welding projections grouped nearer to one end of said bar than the other, said projections forming a plurality of welding connections with the same rail, the portion of said splice-bar between said projections, and not raised to a welding heat, limiting the compression and regulating the predetermined relative position of said splice-bar and rail when welded together, substantially as described.

9. In a rail-joint, a splice-bar provided with a plurality of welding-points projecting from the surface of said bar and grouped nearer to one end of said bar than the other, portions of said bar being located between said welding projections and not raised to a welding heat, limiting the position of said bar and causing the same to fit the surface or groove of the rail in a predetermined manner, whereby said splice-bar, when welded to the rail, will be in proper and exact alinement relatively to the rail or rails, substantially as described.

10. A splice-bar provided with welding-points projecting from its surface, said welding-points being located at intervals diagonally opposite to each other, substantially as described.

11. A rail-joint consisting, essentially, of the following elements in combination: two abutting rails, each provided with a truss-plate having one end permanently secured to the bottom of said rail and the opposite end extending under and supporting the other rail, space being left between the inner vertical sides of said plates, said girder-plates interlocking and detachably supporting each other, fish-plates on opposite sides of said rails and bolts passing through said fish-plates and rails.

12. A rail-joint consisting, essentially, of the following elements in combination: two abutting rails, each provided with a truss-plate having one end permanently secured to the bottom of said rail and the opposite end extending under and supporting the other rail, space being left between the inner vertical sides of said plates, said girder-plates interlocking and supporting each other, and two fish-plates, each rail being provided with one having one end permanently secured to the side of said rail and the other end overlapping the abutting rail, said rails being detachably secured together.

574,943. PESSARY. HERMAN M. RYMAN, Brooklyn, N. Y., assignor to Annie Ryman, same place. Filed Nov. 1, 1895. Serial No. 567,589. (No model.)

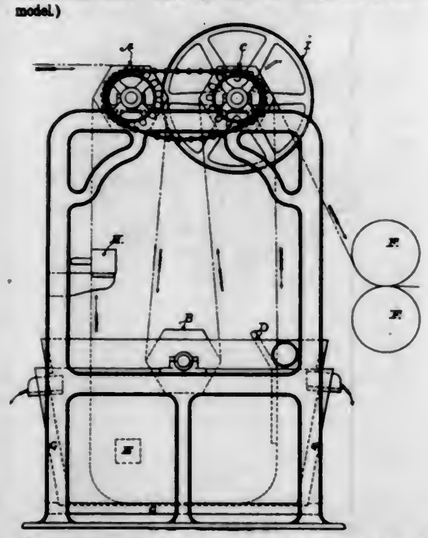


Claim.—1. A pessary comprising a cylindrical stem, a head of greater diameter than the stem, there being an annular recess or chamber between said stem and head for the reception of medicaments, and a cup-shaped base below said stem to hold said medicaments or the overflow thereof, substantially as described.

2. A pessary comprising a cylindrical grooved stem, a head of greater diameter than the stem, there being an annular recess or chamber between said stem and head for the reception of medicaments, and a cup-shaped base below said stem to hold said medicaments or the overflow thereof, substantially as described.

3. A pessary comprising a cylindrical stem restricted at its lower end to form an annular recess or chamber for the reception of medicaments about said stem, and having a similar recess near its upper end and terminating at said end in a head of greater diameter than said stem, said stem having channels leading from one recess to the other, and a cup-shaped base to hold said medicaments or the overflow thereof, said base having channels converging toward said stem, substantially as described.

574,944. CLOTH-WASHING MACHINE. HENRI N. F. SCHAEFFER, Lowell, Mass. Filed Apr. 13, 1894. Serial No. 507,381. (No model.)



Claim.—1. A washing-machine consisting of a series of rolls not in contact with each other and so located relative to one another that the cloth in passing from each roll to the next will travel back in essentially the opposite direction from that in which it was traveling before reaching that roll, and a tank so located with respect to the series of rolls that the cloth will pass alternately around the series of rolls and loosely free of said rolls through said tank, substantially as and for the purpose described.

2. A washing-machine consisting of a series of rolls not in contact with each other and one or more of which rolls is of a cross-section other than round, so located relative to one another that the cloth in passing from each roll to the next will travel back in essentially the opposite direction from that in which it was traveling before reaching that roll, and a tank so located with respect to the series of rolls that the cloth will pass alternately around the series of rolls and loosely free of said rolls through said tank, substantially as and for the purpose described.

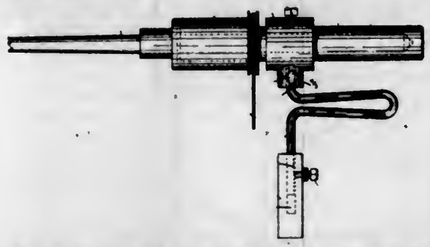
3. A washing-machine consisting of a series of rolls not in contact with each other and one or more of which rolls is of a cross-section other than round, so located relative to one another that the cloth in passing from each roll to the next will travel back in essentially the opposite direction from that in which it was traveling before reaching that roll, mechanism by which two of said rolls are caused to run at the same surface speed, and a tank so located with respect to the series of rolls that the cloth will pass alternately around the series of rolls and loosely free of said rolls through said tank, substantially as and for the purpose described.

4. A washing-machine consisting of a series of rolls not in contact with each other and one or more of which rolls is of a cross-section other than round, so located relative to one another that the cloth in passing from each roll to the next will travel back in essentially the opposite direction from that in which it was traveling before reaching that roll, sprocket-wheels and chain connecting two of said rolls whereby those rolls will be caused to run at the same surface speed, and a tank so located with respect to the series of rolls that the cloth will pass alternately around the series of rolls and loosely free of said rolls through said tank, substantially as and for the purpose described.

574,945. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,513. (No model.)

Claim.—1. The combination with the spindle-rail, of a rod or wire adjustably arranged in said rail, and provided with an intermediate loop, a vertically-arranged sleeve carried by said rod or wire, a tube containing step and bolster bearing, rigidly but adjustably arranged in said sleeve, and a whirl-driven spindle in said tube, all said parts substantially as and for the purposes described.

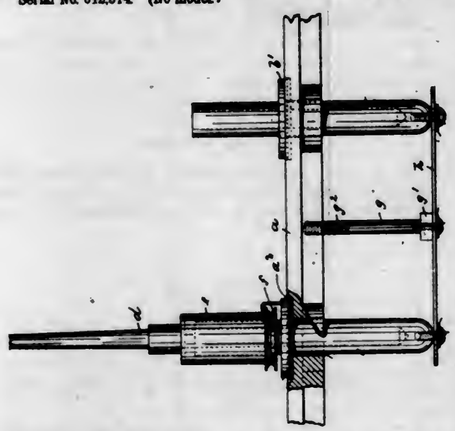
2. The combination with the spindle-rail, of a rod or wire arranged in said rail and provided with an intermediate loop, a vertically-arranged sleeve adjustably secured to said rod or wire, a tube containing step and bolster bearing rigidly but adjustably secured within said sleeve, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.



3. The combination with the spindle-rail, of a rod or wire adjustably arranged in said rail and provided with an intermediate loop, a vertically-arranged sleeve adjustably secured to said rod or wire, a tube containing step and bolster bearing rigidly but adjustably secured within said sleeve, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

4. The combination with the spindle-rail, provided with a horizontal hole or opening, a rod or wire provided at its inner end with an elongated groove slidingly arranged in said rail and adapted to engage said elongated groove, said rod or wire being provided with an intermediate loop, a vertically-arranged sleeve adjustably secured to the outer end of said rod or wire, a tube, containing step and bolster bearing, rigidly but adjustably secured within said sleeve, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

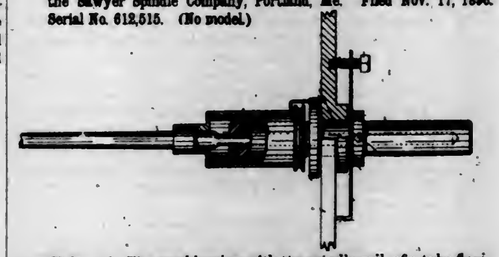
574,946. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,514. (No model.)



Claim.—1. The combination with the spindle-rail, of two tubes, each containing step and bolster bearing, loosely mounted in said rail, a flat spring-plate adjustably secured at or near its ends to the lower ends of said tubes, a vertical stem or rod, arranged midway between said tubes, and in the rail and vertically adjustable therein, and loosely secured at its lower end to the central portion of the flat spring-plate, and a whirl-driven spindle in each of said tubes, all said parts, substantially as and for the purposes described.

2. The combination with the spindle-rail, provided with a series of vertical holes or openings and with enlarged adjoining recesses, of a tube loosely arranged in each of said openings, an annular flange projecting from each tube and above the rail and arranged in its respective recess, an intermediate washer in said recess and below said flange, a flat spring-plate adjustably secured at or near its ends to the lower ends of two adjoining tubes, a vertical stem or rod provided at its lower end with a polygonal-shaped head, loosely secured to the central portion of said spring-plate, and having its upper portion threaded and engaging the rail midway between the openings for the tubes, and a whirl-driven spindle in each of said tubes, all said parts, substantially as and for the purposes described.

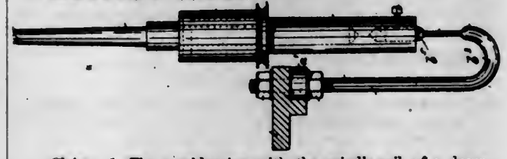
574,947. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor of the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,515. (No model.)



Claim.—1. The combination with the spindle-rail, of a tube flexibly mounted on said rail, a ring or collar adjustably secured on said tube and below the rail, a flat spring provided with a central opening arranged on said ring or collar, and having one end bent upward at right angles and bearing against the under side of the rail, an adjusting-screw arranged in the other end of said flat spring and bearing with its rounded end against the under side of the rail, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

2. The combination with the spindle-rail provided with a vertical opening, a tube of smaller diameter than the opening and containing step and bolster bearing, penetrating said opening, an annular flange on said tube and above the rail, an intermediate washer between said flange and the rail, a ring or collar adjustably secured on said tube and below the rail, a flat spring provided with a central opening arranged on said ring or collar, and having one end bent upward at right angles and bearing against the under side of the rail, an adjusting-screw arranged in the other end of said flat spring and bearing with its rounded end against the under side of the rail, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

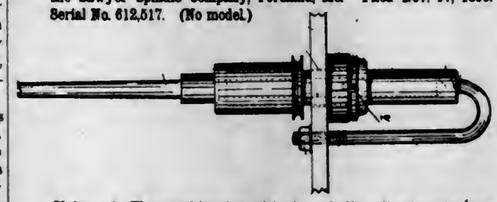
574,948. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,516. (No model.)



Claim.—1. The combination with the spindle-rail, of a downwardly-extending brace flexibly mounted on said rail, a vertical rod carried by said brace and provided with an annular groove, a tube adjustably arranged on said rod and containing step and bolster bearing, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

2. The combination with the spindle-rail, of a downwardly-extending brace flexibly mounted on said rail, a lug projecting from the lower end of said brace and provided with a vertical bore or hole, a rod adjustably secured in said bore or hole and having its central portion reduced in diameter, a tube, containing step and bolster bearings, adjustably secured on said rod, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

574,949. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,517. (No model.)

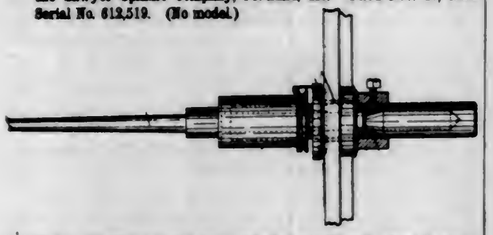


Claim.—1. The combination with the spindle-rail, of a tube containing step and bolster bearing, loosely arranged in said rail, an annular flange on said tube and arranged on the under side of the rail, said tube being provided at its lower end with a conical-shaped recess, a flexible washer between the flange and the under side of the rail, a hook-shaped brace adjustably arranged in the spindle-rail and engaging with its conical-shaped free end the conical-shaped recess of the

tube, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

2. The combination with the spindle-rail, provided with a vertical hole or opening of a tube, containing step and bolster bearing, penetrating said opening, an annular flange on said tube and bearing on the under side of said rail, a flexible washer between said flange and the said rail, said tube being provided in the center of its lower end with a conical-shaped recess, a vertical brace screw-threaded at its upper end penetrating the rail, a nut on said screw-threaded end, the free end of said brace being hook-shaped and provided with a conical-shaped point engaging the conical recess of the tube, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

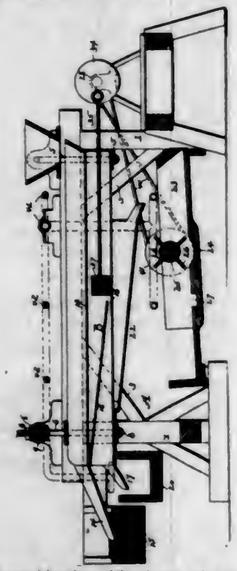
574,950. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,519. (No model.)



Claim.—1. The combination with the spindle-rail, of a tube containing step and bolster bearing flexibly mounted on said rail and provided below said rail with a substantially triangular groove forming on said tube an upright cone, a ring or collar on said tube and over said groove, a set-screw in said ring or collar and engaging said cone, and a whirl-driven spindle in the tube, all said parts, substantially as and for the purposes described.

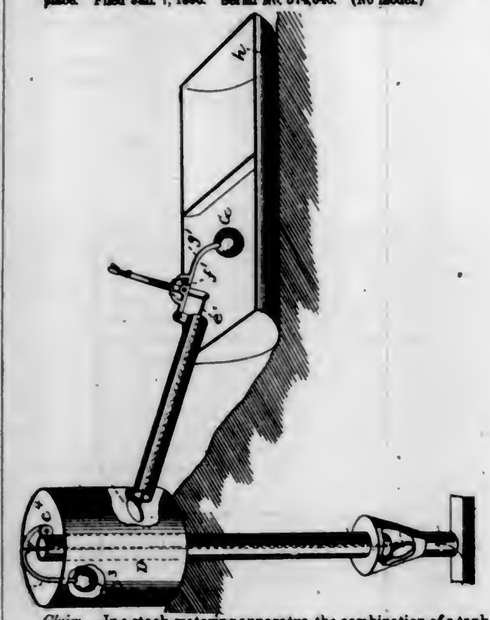
2. The combination with the spindle-rail, of a tube containing step and bolster bearing flexibly mounted on said rail and provided below said rail with a substantially triangular groove forming on said tube an upright cone, a ring or collar on said tube and over said groove, an elastic washer between said collar and the rail, a set-screw in said ring or collar and engaging the cone of the tube, and a whirl-driven spindle in the tube, all said parts, substantially as and for the purposes described.

574,951. GOLD-WASHER. CHARLES J. SCHMITT and JOHN A. HARRER, Anaconda, Mont. Filed June 22, 1896. Serial No. 593,727. (No model.)



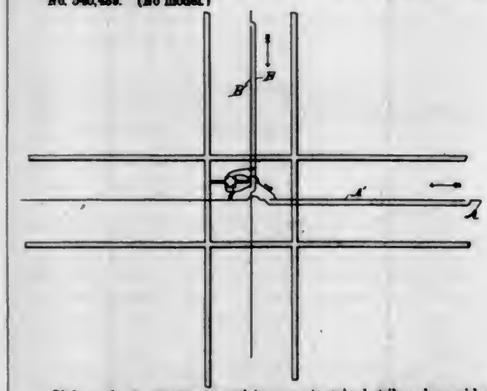
Claim.—The combination with a frame, of a box suspended therein and carrying screens and false bottoms, a box into which one of the false bottoms discharges, a roller operating in this box, and a compound shaft comprising two parts located end to end and having a crank-and-link connection with each other, a pitman extending from one section to the box having the screens for reciprocating it, and a belt extending from the other section to the roller whereby the latter has a steady rotary motion imparted to it while the former has an irregular motion communicated to it, substantially as set forth.

574,952. STOCK-WATERING APPARATUS. EMANUEL S. SHELLY, La Grange, Ind., assignor of one-half to Samuel Shelly, same place. Filed Jan. 7, 1896. Serial No. 574,646. (No model.)



Claim.—In a stock-watering apparatus, the combination of a tank or reservoir, a drinking-trough, a float-lever, an arc-rack on the float-lever, a hand-lever with spring-pawl, a discharge-pipe, a valve-rod in said pipe and a valve hinged to one end of said pipe, all connected and arranged substantially as shown and described.

574,953. ELECTRICAL SIGNAL SYSTEM. ROBERT SKEEN, Madison, Ill., assignor, by mesne assignments, to the Skeen Electric Switch and Signal Company, St. Louis, Mo. Filed Mar. 4, 1895. Serial No. 540,489. (No model.)



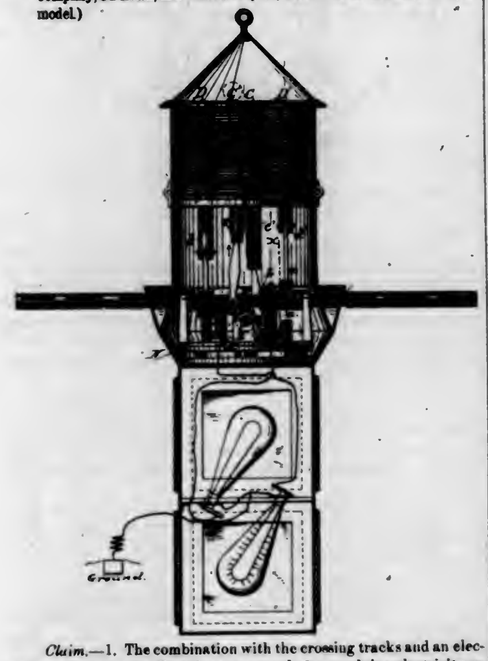
Claim.—1. A system comprising an electrical railroad provided with a trolley-wire for supplying current thereto having an insulated section, a switch for cutting off the current from said section, and a railroad crossing the former road, the one end of the insulated section terminating substantially at the crossing road, and a live wire over the electrical road in addition to the insulated section.

2. A signal system, comprising a pair of insulated sections of trolley or other electrified lines, a pair of brushes insulated from each other, one brush fed from the trolley-wire, the other brush wired to the insulated section, an electromagnet in circuit with said brushes and their corresponding section, another pair of brushes and electromagnet for the other insulated section, a conducting-piece movably mounted adapted to electrically connect the said pairs of brushes, or complete the circuit through one pair only, and mechanical connections between said conducting-piece and said electromagnets, substantially as described.

3. In an electric signal, the combination with a main line and an insulated section therein, of an electromagnet and its armature, a switch device comprising a crank-shaft, a conducting-piece thereon and a pair of brushes normally contacting therewith, one brush wired through the electromagnet to the insulated section and the other brush to the main wire.

4. In an electric signal, the combination with a main line and an insulated section therein, of an electromagnet and its armature, a switch device comprising a crank-shaft, a conducting-piece thereon and a pair of brushes normally contactiug therewith, one brush wired through the electromagnet to the insulated section and the other brush to the main wire, and a rheostat in circuit with the first brush and the electromagnet.

574,954. ELECTRIC SIGNAL. ROBERT SKEEN, Madison, Ill., assignor, by mesne assignments, to the Skeen Electric Switch and Signal Company, St. Louis, Mo. Filed May 11, 1895. Serial No. 548,984. (No model.)



Claim.—1. The combination with the crossing tracks and an electric conductor extending along one track for supplying electricity as a motive power, of means under the control of a train moving along the other track for temporarily cutting the electricity off from a portion of said conductor along the first-named track, and a locking device to lock said means throughout the duration of said temporary cut-out.

2. A system comprising a trolley-wire which supplies a working current for a car, said trolley-wire having an insulated section in proximity to a crossing or other danger-point, there being a branch wire connecting the insulated section to the adjoining portion of the trolley-wire, and an automatically-locking switch in the branch wire for positively controlling the electrical condition of the insulated section.

3. A system comprising an electrical road, an intersecting road, an insulated section of working conductor on the electrical road, a cut-out therefor, a train-stopping device on the intersecting road operatively connected with said cut-out to block traffic on one road when the right of way is given to the other road, and an automatic device for locking the cut-out and the signal controlled thereby in the safety and danger positions thereof, respectively.

4. The combination with two electric roads in proximity to a crossing or other danger-point, each provided with an insulated section near said crossing, and also a secondary section of electric conductor forming a contact device beyond its respective insulated section in the direction of travel, a switch electrically connected to the insulated sections of both lines to cut out one or the other section respectively, operative means for said switch and wired to the insulated section on each line that first contacts with the car, and a self-unlocking operative device between said switch and the second contact device on each line respectively, to return said switch to normal position.

5. An electric cut-out comprising a rotatable or oscillating piece having a crank, operative means, a connection of variable length between said crank and operative means, and a stop adapted to engage laterally with the said connection in an extreme position of the same.

6. An electric signal comprising a commutator having a crank, an electromagnet, an armature therefor provided with a slotted extension operatively connecting it to said crank, and a stop adapted to act laterally on said slotted connection near its crank end, substantially as described.

7. An electric cut-out comprising a commutator, brushes therefor with their connections, a crank shaft and pin for said commutator, an operative link having a slotted engagement with said crank-pin and limited in its forward movement, and a stop obstructing its backward movement in a circular direction till it be first moved longitudinally to pass such stop.

8. An electric signal comprising a commutator-switch, brushes and their respective connections adapted to be cut in or cut out according to the position of said commutator, a lamp-signal, a brush contacting with said commutator and wired to said lamp-signal and normally resting on an insulated portion of said commutator, but fed from one of said brushes when the current is cut off from the other brush by the rotation of the commutator, and operative means for said commutator.

9. An electric signal comprising a plurality of signal-lamps wired in multiple and properly grounded, a plurality of commutators having each an insulated portion, a pair of brushes for each commutator and wired to their several connections, and a brush for each commutator normally resting on the insulated portion thereof and fed from one of said pair of brushes when the commutator is rotated to cut out the other brush on the same commutator, whereby a current is sent to the lamp wired to the said lamp-brush in circuit.

10. An electric signal comprising a pair of stationary lamps adapted to show one color or another color from the same point of view according to which lamp is lighted, said lamps being wired in multiple and grounded in common, a commutator-switch for each lamp, brushes respectively wired to their connections, a lamp-brush for each commutator wired to its respective lamp, operative means for each commutator and a self-locking device with its electrical connections to lock and release said commutator at predetermined periods.

11. An electric signal for a pair of crossing roads, comprising a pair of semaphore-bearing shafts mounted transversely to each other and adapted to be rotated ninety degrees to expose the edge or the face of the semaphore to its respective road, an automatic self-locking device for each shaft at each limit of its rotation, and means under control of each road for operating the signal on the other road respectively.

12. An electric signal for a pair of crossing roads, comprising a pair of axles mounted transversely to each other, a pair of cranks oppositely arranged on each axle, a pair of solenoid-electromagnets for each shaft, cores therefor connected to the corresponding pair of cranks, each pair of magnets being under control of one line, a pair of contact devices on each line wired to the corresponding pair of magnets, and a locking device for each limit of motion of said cranks, whereby the car passing on either line will expose a danger-signal to the crossing line and lock it in said position at the beginning of a predetermined period, and unlock it at the end of said period of travel between a pair of contact devices.

13. An electric signal comprising a crank-shaft, a solenoid-electromagnet and adjunctive electrical connections, a core for said magnet, a link pivoted to the core at one end and having a slotted connection with the crank-pin at the other end to rotate the latter till the link engage with the crank-hub, and a stop adapted to act laterally on the crank end of said link at or near this limit of rotation of the crank, to lock the crank against return movement till the link be first operated longitudinally to pass the stop.

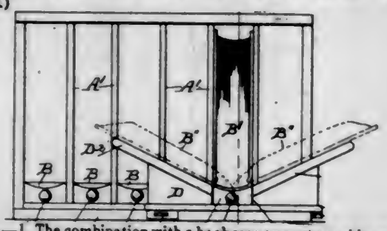
14. An electric signal comprising a rotatable shaft, a signal controlled thereby, a pair of cranks oppositely disposed on said shaft, a pair of electromagnets operatively connected to said cranks and adapted to be energized alternately, a locking device for each limit of rotation of said shaft, and electrical connections for said pair of magnets, whereby one magnet will lock the shaft in one rotated position, and the other magnet will unlock the shaft, rotate it and lock it in the other position.

15. The combination with a traffic-road, and an electric conductor extending along said road, of a signal, an electromagnet for operating said signal, a circuit-closer located at one point in said road, a branch wire connecting said electromagnet and circuit-closer with the electric conductor, another circuit-closer located at another point

in said road, another branch wire and electromagnet to return said signal to its former position, whereby the passage of a car will operate the signal at the said first point in the road, and return the signal to its original position when the car passes the said second point in the road.

16. The combination with a traffic-road, of an electric conductor along said road, a signal, an electromagnet operatively connected to said signal, a locking device in connection with said electromagnet, a circuit-closer located at one point in said road adapted to be operated by the passage of a car, a branch wire connecting said circuit-closer with said electromagnet and electric conductor, a second circuit-closer located at another point in said road, and operated by the passage of a car, an unlocking device connected to said signal, a branch wire through said unlocking device, the circuit-closer and source of electricity, whereby the signal will be operated by the passage of a car past the first circuit-closer, be locked for a predetermined period, and be unlocked at the end of said period by a car passing the second circuit-closer.

574,955. BOOK CASE AND HOLDER. CHARLES T. R. SMITH, Lansingburg, N. Y. Filed July 27, 1896. Serial No. 600,633. (No model.)

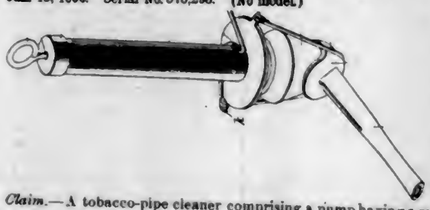


Claim.—1. The combination with a bookcase open at one side and subdivided into a plurality of separate book-compartments, of book-supporting shoes in the several compartments, a platform extending along the open side of the case and provided with a slideway, and a book-holder movable along the platform-slideway transversely of the book-compartments and adapted to receive the several shoes and hold the shoe-supported book in an open position, substantially as described.

2. The combination with a bookcase open at one side and provided with separate book-compartments, of a slideway-platform hinged to the bottom of the case and adapted to cover the open side thereof, locking mechanism for such cover, and a detachable book-holder movable along the platform transversely of the book-compartments and adapted to support the several books in an open position, substantially as described.

3. The combination with a bookcase open at one side and having separate book-compartments, and a slideway-platform extending along the open side of the case, of book-supporting shoes in the several compartments, and a book-holder movable along the slideway and having a notch adapted to receive the several shoes, and a pair of upwardly-flaring wings adapted to hold the shoe-supported book in an open position, substantially as described.

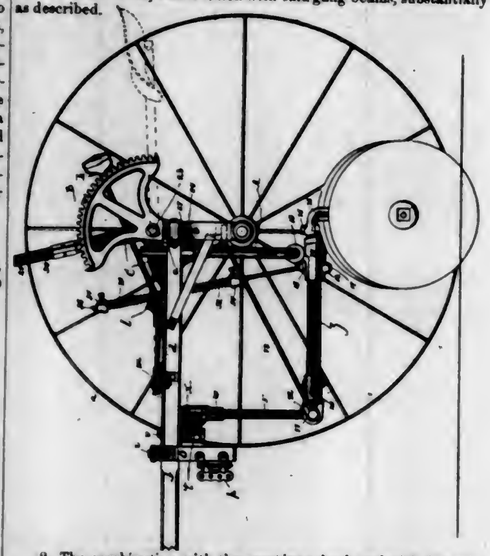
574,956. PIPE-CLEANER. JOHN J. SNYDER, Chicago, Ill. Filed Jan. 13, 1896. Serial No. 575,293. (No model.)



Claim.—A tobacco-pipe cleaner comprising a pump having a cylinder and a gasket at one end of the cylinder adapted to effect a water-tight connection between the cylinder and a pipe-bowl, and also having a plate provided with the projection *k*, and with a clamp arranged adjacent to the cylinder, and a string connected with the plate at a point opposite to the projection thereof and adapted to be passed around a pipe-bowl, wrapped around the projection of the plate and interposed between the clamp and the pump-cylinder, substantially as specified.

574,957. DISK CULTIVATOR. WILLIAM SOBEY, Racine, Wis., assignor to the J. I. Case Plow Works, same place. Filed Nov. 9, 1894. Serial No. 528,307. (No model.)

Claim.—1. The combination with the wheel-frame comprising the axle and a fore-reach sustained therefrom, of the centrally-swiveled arch-bar, the vertically-rigid connecting-links pivotally uniting said arch-bar at opposite sides with the fore-reach, the companion gang-beams pivotally carried upon the arch-bar extremities and the adjusting-levers in suspension union with said gang-beams, substantially as described.



2. The combination with the carrying-wheels and with the main frame comprising the axle and a fore-reach sustained therefrom, of the team-pole pivoting laterally at said reach, the steering-lever fulcrumed on the team-pole, the cross connector or link uniting the lever with the main frame, the cross-arm or arch-bar swiveled to the pole, the opposite gang-beams carried thereby and the connecting links or braces extended from the cross-arm pivotally fore and aft to the main frame, substantially as described.

3. The combination with the wheel-frame comprising the axle and a fore-reach sustained therefrom, of the team-pole pivoting laterally at said reach, the cross-arm or arch-bar swiveled to the pole and the independent gang-beams extended therefrom, and each supported separately by its own jockey in the wheel-frame, substantially as described.

4. The combination with the wheel-frame and with the team-pole pivoting laterally thereon, of the cross-arm swiveled separately to said pole, the gang-beams extended from said arm and the independent jockeys for each beam supported on the wheel-frame, substantially as described.

5. The combination with the wheel-frame comprising the axle and a fore-reach sustained therefrom, of the team-pole pivoting laterally at said reach, the cross-arm swiveled to said pole, the gang-beams extended separately from said cross-arm and the braces pivotally uniting the cross-arm and main frame, substantially as described.

6. The combination with the wheel-frame and with the team-pole pivoting laterally thereon, of the cross-arm swiveled to said pole, the braces uniting the cross-arm pivotally with the frame, the gang-beam extended from said arm and the independent jockeys for each beam supported at the wheel-frame, substantially as described.

7. The combination with the wheel-frame, of the swivel-mounted cross-arm or arch-bar sustained forward of the main axle, the independent gang-beams pivotally carried by said arch-bar at opposite sides of the plant row, and a separate jockey for each gang-beam, pivotally united to such beam and to the main frame respectively, substantially as described.

8. The combination with the wheel-frame and with the cross arm or arch-bar, of the independent jockeys supported on the wheel-frame and the gang-beams extended between and mounted pivotally at said cross-arm and the jockeys, substantially as described.

9. The combination with the main frame and with the gang-beam pivoted therefrom, of the adjusting-lever on the frame the connecting-link extended between said lever and beam and the resist and suspension springs separately mounted upon said link with their confronting ends carried at the lever-arm, substantially as described.

10. The combination with the gang-beam and with its adjusting-lever, of the connecting-link between them, the resist and suspension springs upon said link and the seat for confronting ends thereof, pivotally carried by said lever, substantially as described.

11. The combination with the wheel-frame comprising the axle and a fore-reach sustained therefrom, of the team-pole pivoting laterally at said reach, the cross-arm or arch-bar and the intermediate box or coupling in swivel union with said pole and cross-arm respectively, substantially as described.

12. The combination with the wheel-frame having a fore-reach, of the team-pole pivoted laterally thereon, the cross-arm or arch-bar, the intermediate union-coupling or box-swivel mounted on said pole and cross-arm respectively, and the connecting-link extended between the fore-reach and cross-arm, substantially as described.

13. The combination with the wheel-frame, of the swivel-mounted cross-arm or arch-bar sustained forward of the main axle, the independent gang-beams pivotally carried by said arch-bar at opposite sides of the plant-row, the separate jockey for each gang-beam, pivotally united to such beam and to the main frame respectively, and the individual adjusting-levers on the frame linked to the separate gang-beams, substantially as described.

14. The combination with the wheel-frame and with the pivoted gang-beam, of the individual jockey guided on said frame and the union-coupling extended between said gang-beam and jockey and swiveling upon the jockey-arm, substantially as described.

15. The combination with the wheel-frame and with the pivoted gang-beam of the individual jockey guided on said frame and the union-coupling extended from the gang-beam and swiveling upon and adjustable laterally along the jockey-arm, substantially as described.

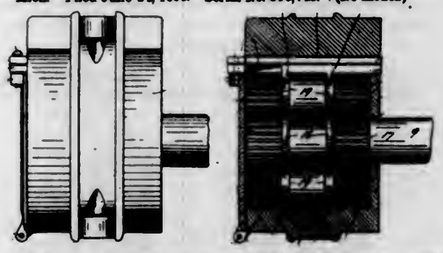
16. The combination with the wheel-frame and with the pivoted gang-beam, of the jockey guided on said frame and the union-coupling axially adjustable upon said beam, swivel-mounted about the jockey-arm and laterally adjustable thereon, substantially as described.

17. The combination with the gang-bars of the separate counter-beams for the leader-disks and the cross connector or rod extending between said beams, substantially as described.

18. The combination with the wheel-frame and with the pivoted gang-bars, of the separate counter-beams for the leader-disks, the cross-connector and the union boxes between each bar and beam swivel-mounted upon the bar, substantially as described.

19. The combination with the gang-bar and with the counter-beam, of the box-coupling adjustable laterally thereon and the leader-disk standard adjustable radially in said box, substantially as described.

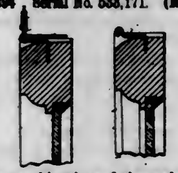
574,958. JOURNAL-BOX. ERWIN H. SPENCER, West Bay City, Mich. Filed June 24, 1896. Serial No. 596,740. (No model.)



Claim.—1. A journal box or bearing for axles having a casing provided with a circular central chamber therein, an end plate having a central opening therein secured at one end of said casing, an axle adapted to pass therethrough, a door hinged to said casing and covering the outer end thereof, annular inwardly-directed ribs formed on the wall of said chamber and dividing said wall into three equal annular spaces, inwardly-directed cogs in the walls of said outer annular spaces, annular flanges within said casing on said axle and being in line respectively with said ribs, gear-teeth formed on said axle within said casing and on the other sides of said flanges, a plurality of rollers in said casing having two annular grooves therein adapted to receive said ribs and flanges, cogs secured to said rollers outside of said grooves and engaging said cog and gear-teeth, said casing being provided in the upper portion thereof and in communication with said chamber with a longitudinal slot, shoulders in the sides thereof, a plate adapted to snugly fill the lower part of said slot, ribs on said plate registering with the aforesaid ribs, teeth on the under side of said plate outside of said ribs, a shoulder on the outer side of said door, a plate passing through the upper part of said slot and securing the aforesaid plate, said plate and shoulder being provided with a registering vertical slot therein, and a bolt adapted to pass therethrough, all of the said parts being combined substantially as described.

2. In a journal-box for axles, a casing having a circular chamber therein, a plate with an opening therein secured at one end, an axle passing therethrough, annular ribs on the walls of said chamber, cogs secured to said walls outside of said ribs, rollers having grooves therein adapted to receive said ribs, teeth on the said rollers outside of the said grooves, annular flanges on said axle adapted to enter said grooves, cogs also on said axle outside of said flanges, said casing having a longitudinal slot therein, shoulders in the sides thereof, a plate, having ledges on the sides thereof adapted to engage said shoulders, cogs on the under side of said plate corresponding to said teeth on the rollers, ribs also secured to the under side of said plate, plate 24', and means for securing said latter plate in place, all of the said parts being combined substantially as described.

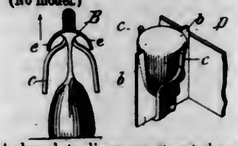
574,959. WINDOW-SCREEN. CHARLES I. STILL, Sing Sing, N. Y. Filed Dec. 23, 1894. Serial No. 533,171. (No model.)



Claim.—1. The combination of the sash provided at or near its edges with hooks having inwardly-extending points, and at its central portion with a hook having an outwardly-extending point, and a screen connected to the said hooks, substantially as described.

2. The combination of the screen the casing on one end thereof and provided with outwardly-extending slots having lateral notches, and the spring-pressed fastening-bolts slidably mounted in the sides of the casing and provided with projections traveling in the said slots and notches, substantially as described.

574,960. DEVICE FOR DIPPING CHOCOLATES. JOHN R. STOUT and WILLIS N. HARTSHORN, Brooklyn, N. Y. Filed June 3, 1896. Serial No. 594,115. (No model.)



Claim.—1. A chocolate-dipper constructed as a skeleton cup with arms for holding the core and with a retainer formed with surfaces beneath the core and out of contact therewith, adapted to retain a mass of the coating material adjacent to the core and to partially release this material when inverted and lifted off the core, whereby the released material drops back onto the core and forms a stroke.

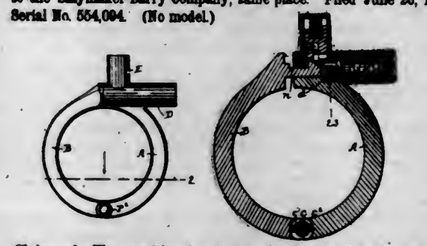
2. A chocolate-dipper constructed as a skeleton cup with arms for holding the core, and with a retainer for retaining a mass of the coating material beneath the core, said retainer constructed with lateral openings adapted to permit the excess of coating material to escape.

3. A chocolate dipper constructed as a skeleton cup with arms for holding the core, and with a retainer formed as a socket beneath but out of contact with the core, adapted to retain a mass of coating material beneath and adjacent to the core, said socket constructed with a metal plate forming its bottom.

4. A chocolate-dipper constructed with upright arms *b c*, and a retainer B constructed of tongues *e* of sheet metal.

5. A chocolate-dipper constructed with upright arms *b* and *c*, the latter bifurcated at *c'*, and a retainer B constructed with tongues *e e* of sheet metal approximating in shape to the bifurcation of said arms, and located beneath the same.

574,961. PADLOCK. WILLIAM F. TROAST, Lancaster, Pa., assignor to the Slaymaker-Barry Company, same place. Filed June 26, 1895. Serial No. 554,094. (No model.)



Claim.—1. The combination, in a lock, of a shackle divided into sections hinged together at one end, a case carrying a locking-bolt

and a case through which the key passes to actuate said bolt, the said two cases being formed together on the free end of one of said shackle-sections and at an angle the one with the other, and a tongue on the free end of the other shackle-section and constructed to be locked in one of said cases.

2. The combination, in a lock, of a lock-case and a bolt-case formed together at an angle, a shackle constructed to engage the lock-case, and a bolt in the lock-case adapted to engage the shackle when in the lock-case, said bolt being constructed to be disengaged from the shackle by means of a key inserted in said lock-case.

3. The combination, in a lock, of a shackle divided into sections hinged together at one end, a lock-case and a bolt-case formed at an angle with each other on the free end of one of said sections, a bolt in the bolt-case adapted to engage a tongue on the swinging end of the other section, and mechanism in the lock-case adapted to disengage the bolt from said tongue.

4. In a lock, the combination, with a lock-case, of a bolt-case formed on the lock-case at an angle therewith, a bolt having a jaw constructed to secure a tongue in the lock-case, a jaw on the bolt adapted to be engaged by a key-head, and a key-head constructed to engage said second jaw and disconnect the bolt from said tongue.

5. In a lock, the combination, with a divided shackle, and a bolt-case and a lock-case formed on an arm of said shackle, substantially as described, of a bolt having a jaw constructed to engage a tongue on the other arm of the shackle, a jaw on the bolt adapted to be engaged by a key-head, and a revoluble key-head constructed to engage said second jaw and disconnect the bolt from said tongue.

6. In a lock, the combination, with a lock-case having a passage-way adapted to receive a key-head, of a bolt-case formed on the lock-case at an angle therewith, a bolt having a jaw constructed to secure a tongue in the lock-case, a jaw on the bolt adapted to be engaged by a key-head, a key-head constructed to engage said second jaw and disconnect the bolt from said tongue, and a ward-plate adjustably secured between the key-opening and the key-head in said passage-way, for the purpose specified.

7. In a lock, the combination, with a lock-case having a passage-way adapted to receive a key-head, of a bolt-case formed on the lock-case at an angle therewith, a bolt having a jaw constructed to secure a tongue in the lock-case, a jaw on the bolt adapted to be engaged by a key-head, a key-head constructed to engage said second jaw and disconnect the bolt from said tongue, and an interchangeable ward and a spacing-plate located between the key-opening and the key-head in said passage-way, for the purpose specified.

8. In a lock, the combination, with a lock-case having a passage-way adapted to receive key-heads of different sizes, of a bolt-case formed on the lock-case at an angle therewith, a bolt having a jaw constructed to secure a tongue in the lock-case, a jaw on the bolt adapted to be engaged by a key-head, a key-head constructed to engage said second jaw and disconnect the bolt from said tongue, and means for maintaining the key-head in the path of travel of the bolt, for the purpose specified.

9. In a lock, the combination, with a lock-case having a passage-way adapted to receive key-heads of different sizes, of a bolt-case formed on the lock-case at an angle therewith, a bolt having a jaw constructed to secure a tongue in the lock-case, a jaw on the bolt adapted to be engaged by a key-head, a key-head constructed to engage said second jaw and disconnect the bolt from said tongue, and a ward and a spacing-plate located between the key-opening and the key-head in said passage-way, for the purpose specified.

10. In a lock, the combination, with a divided shackle, and a bolt-case and a lock-case formed on an arm of said shackle, substantially as described, of a bolt having a jaw constructed to engage a tongue on the other arm of the shackle, a jaw on the bolt, having a beveled edge, and a revoluble key-head having a lip thereon adapted to engage said beveled edge and disconnect the bolt from said tongue.

11. The combination, in a lock, of a shackle-arm constructed to be engaged by a bolt, a lock-case, a bolt-case formed at an angle with the lock-case, a bolt, means for preventing the bolt from turning in the bolt-case, a jaw on the bolt adapted to engage the end of said shackle-arm, a jaw on the bolt adapted to be engaged by a key-head, and a key-head in the lock-case, constructed to engage a jaw on the bolt and disconnect the same from the shackle-arm.

12. The combination, in a lock, of a shackle-arm constructed to be engaged by a bolt, a lock-case, a bolt-case formed at an angle with the lock-case, a bolt having jaws separated by a groove, a bar across the bolt-case and engaging said groove, one of said jaws being adapted to engage said shackle-arm and the other of said jaws being adapted to be engaged by a key-head, and a key-head in the lock-case, constructed to engage a jaw on the bolt and disconnect the same from the shackle-arm.

13. The combination, in a lock, of a shackle-arm constructed to be engaged by a bolt, a lock-case, a bolt-case formed at an angle with the lock-case, a bolt having jaws separated by a groove, a bar across the bolt-case and engaging said groove, one of said jaws being adapted to engage said shackle-arm, the other of said jaws having an edge beveled perpendicularly to the groove in the bolt, and a revoluble key-head in the lock-case, having a lip constructed to engage said beveled edge, for the purpose specified.

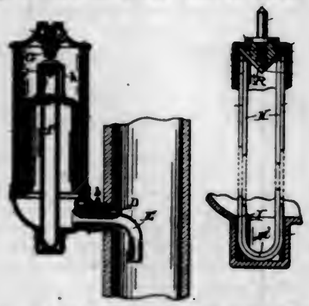
14. The combination, in a lock, of a shackle-arm constructed to be engaged by a bolt, a lock-case, a bolt-case formed at an angle with the lock-case, a bolt, a jaw on the bolt adapted to engage said shackle-arm, a revoluble key-head in the lock-case, having an opening therein, and a jaw on the bolt, constructed to engage the opening in the key-head, and having a beveled edge adapted to be engaged by a side of said opening, for the purpose specified.

15. The combination, in a lock, of a shackle-arm constructed to be engaged by a bolt, a lock-case, a bolt-case formed at an angle with the lock-case, the lock-case having a shoulder therein opposite its intersection with the bolt-case, a revoluble key-head in the lock-case, bearing against said shoulder and having an opening therein, a bolt, a jaw on the bolt, constructed to engage the shackle-arm, and a jaw on the bolt, adapted to engage the opening in the key-head, and having a beveled edge adapted to be engaged by a side of said opening, for the purpose specified.

16. The combination, in a lock, of a shackle-arm constructed to be engaged by a bolt, a lock-case, a bolt-case formed at an angle with the lock-case, the lock-case having a shoulder therein opposite its intersection with the bolt-case, a revoluble key-head in the lock-case, bearing against said shoulder and having an opening therein, a bolt having jaws separated by a groove, and a bar across the bolt-case, engaging said groove, one of said jaws being adapted to engage said shackle-arm, the other of said jaws being adapted to engage the opening in the key-head, and having a beveled edge adapted to be engaged by a side of said opening, for the purpose specified.

17. In a lock, the combination, with a shackle divided into sections hinged together at one end, the swinging end of one of said sections being adapted to be engaged by a bolt, of a lock-case formed on the swinging end of the other section and tangentially thereto, a radial bolt-case formed with the lock-case, a shoulder in the lock-case, and opposite its intersection with the bolt-case, a bar across the bolt-case, a bolt having a groove engaging said bar, a revoluble key-head bearing against said shoulder and having an opening therein, a jaw on the bolt, adapted to engage the end of a shackle, a jaw on the bolt, engaging the opening in the key-head and having a beveled edge adapted to be engaged by a side of said opening, a plate of the diameter of the lock-case and located on the front of the key-head, and an interchangeable ward-plate and spacing-plate interposed between the key-head and the end of the lock-case, substantially as and for the purpose specified.

574,962. AUTOMATIC AIR-VALVE. CLARENCE R. VAN AUKEN, Chicago, Ill. Filed Mar. 23, 1896. Serial No. 584,399. (No model.)

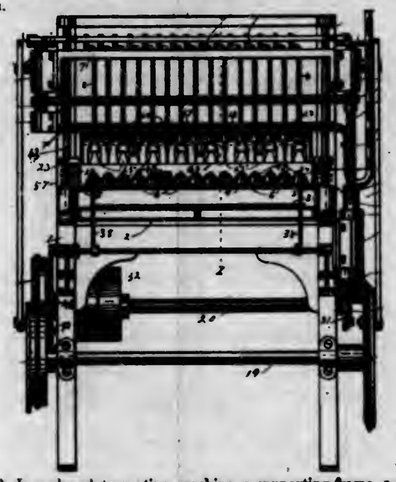


Claim.—1. In an automatic air-valve having an inlet and an outlet, a valve to the outlet, a cone to which the valve is secured, and a compound metallic expansible member the ends whereof are by variations of temperature, forced to and away from each other and against the surface of the cone, and the valve thereby closed upon the subjection of the expansible member to heat; substantially as described.

2. In an automatic air-valve having an inlet, and an outlet, a float, a valve mounted on the float, the float and valve being longitudinally movable, a cone secured to the float and valve, and a compound metallic expansible member, both ends whereof are in contact with the cone; substantially as described.

574,963. CHOCOLATE-COATING MACHINE. PETER J. VANDER LINDA, Grand Rapids, Mich. Filed Dec. 16, 1895. Serial No. 572,356. (No model.)

Claim.—1. In a chocolate-coating machine, a main frame supporting suitable driving mechanism, a vertical frame attached to said frame and provided with ways for the support of a vertically-reciprocating brush-frame, cranks and pitmen for reciprocating said frame, revolving brushes supported in said frame, a chocolate, or dipping trough beneath said brushes, a tray secured to vertically-reciprocatable slides for supporting the centers and conveying them to the melted chocolate in the trough, slides to force the centers to the tray and the coated stock from the tray to the dripping-shelf, a dripping-shelf, and a conveyer-belt, substantially as and for the purpose set forth.



2. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame supported thereon, brushes supported upon shafts that pass through said brush-frame, cranks on the upper ends of said shafts, a pitman connecting said cranks and driven by cranks, one at each end of the frame, the shafts supporting said cranks connected by a sprocket chain and wheels so that the pitman must always travel in the same parallel plane, the driving-shaft supported at the lower end in a sleeve, a clutch at the upper end of said sleeve to engage with a pin in the shaft to drive the shaft intermittently, cranks and pitmen for reciprocating the brush-frame, a trough for holding melted chocolate, a tray secured to sliding supports to hold the centers when being fed to and from the chocolate, guards to hold the centers to place on the tray, a hood over the brushes to cover the centers while being coated, a blower, an air-pipe connecting said blower and hood, slides to convey the coated stock from under the brushes toward the conveyer-belt, a conveyer-belt, a ratchet-wheel, a pawl, a crank and pitman to operate the conveyer-belt, wings attached to the conveyer-belt to close the flue under the ice-box, an auxiliary pawl and ratchet for use when the wings are approaching the flue under the ice-box, and an ice-box situated above the conveyer-belt with a flue between, substantially as and for the purpose set forth.

3. In a chocolate-coating machine, a supporting-frame, a vertical frame attached thereto and fitted to support a vertically-reciprocating brush-frame, a brush-frame fitted to reciprocate vertically in said frame, a series of brushes supported in said brush-frame, said brushes having heads constructed to agitate the chocolate as it is being coated on the centers and supported on shafts that pass up through the brush-frame and terminate in cranks at their upper ends, a pitman fitted to revolve all of the brushes simultaneously, a crank at each end of the brush-frame for actuating said pitman and supported upon shafts that are connected by a sprocket chain and wheels, one of said shafts connected with a sleeve having a clutch fitted to drive the shaft, only, when the brush-frame is lowered, a hood covering the brush-heads, vents in said hood, a blower and pipe connected with the hood to force air through the hood, a dipping-trough below said brush a tray secured to sliding supports at the top of the trough to be forced down by the hood that covers the brushes, springs for actuating said slides, a wire guard for holding the stock to place, slides for conducting the centers to the dipping-trough and the coated stock from it, a dripping-shelf, a standard and ratchet-wheels for vibrating said shelf, and an elevator to carry the guards from the dripping-shelf within convenient reach of the operator, substantially as and for the purpose set forth.

4. The combination in a chocolate-coating machine, of a supporting-frame, a dipping-trough on said frame, slides for conducting the centers to and the coated stock from the trough, with a guard and hood for covering the centers, a revoluble brush for agitating the chocolate over and around each individual center while being coated, and means for forcing cold air through the hood and commingling it with the agitated chocolate about the centers, substantially as and for the purpose set forth.

5. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame supporting a series of revoluble brushes, a hood covering said brushes, a blower connected by pipe with said hood, a dipping-trough, vertically-reciprocating slides supporting a tray over said trough, a receiving and a dripping shelf connected with the trough, slides for conducting the centers from the receiving-shelf to the trough and the coated stock from the trough to the dripping-shelf, rods and ratchet-wheels arranged to vibrate said dripping-shelf, and cones by means of which the rapidity of said vibrations may be regulated, substantially as and for the purpose set forth.

6. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame carrying a series of revoluble brushes, a dipping-trough, beneath said brush-frame, slides for conducting centers to said trough and the coated stock from it, guards to cover the centers while being coated, a dripping-shelf, and an elevator to carry the guards from the dripping-shelf to the warming-shelf, substantially as and for the purpose set forth.

7. In a chocolate-coating machine, a frame supporting the driving mechanism of the machine, a vertically-reciprocating brush-frame, cranks for actuating said brush-frame, pitmen connecting said cranks and the brush-frame the upper ends of said pitmen being slotted so that the brush-frame is stationary during a portion of the lower course of travel of the cranks, brushes supported in said frame arranged to revolve, only, when the frame is down and the brushes in the dipping-trough, a dipping-trough, a receiving-shelf, a dripping-shelf, and a conveyer-belt substantially as and for the purpose set forth.

8. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame, intermittently-revoluble brushes in said frame, a dipping-trough, means for heating the chocolate in said trough, a warming-shelf convenient to the reach of the operator, guards to cover the centers when passing to and from the dipping-trough, a dripping-shelf back of the dipping-trough, an elevator for carrying the guards from the dripping-shelf to the warming-shelf and a conveyer-belt to carry the coated stock from the machine, substantially as and for the purpose set forth.

9. In a chocolate-coating machine, a supporting-frame, a dipping-trough on said frame, a vertically-reciprocating frame and tray for carrying the centers into and out of the trough, a hood for covering the tray and passing with it into the melted chocolate, and form an air-chamber through which air may be forced to intermingle with the chocolate when flowing around the centers in the dipping-trough, a guard to cover the stock within the hood, and a blower connected to force cold air through the hood for the purpose of tempering the coated stock to produce the desired color, substantially as and for the purpose set forth.

10. In a chocolate-coating machine, a longitudinal guard made of wire for securing the stock when being coated and a series of ornamenting devices suspended from the top of said guard, substantially as and for the purpose set forth.

574,964. INDICATOR FOR ENGINES. JOHN J. WALDNER, Freeman, S. D., assignor of one-eighth to Jakob Wiens, Gretna, Canada. Filed Oct. 4, 1895. Serial No. 564,607. (No model.)

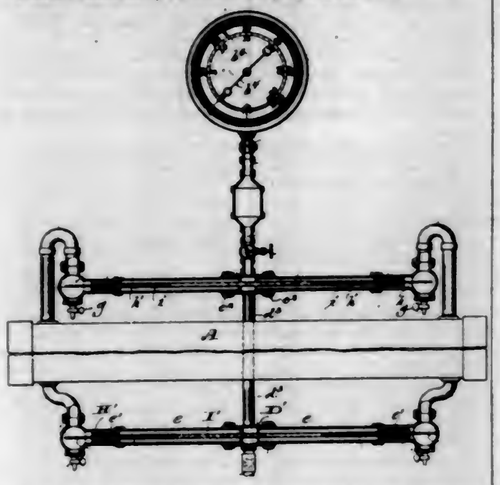
Claim.—1. In an indicator for engines the combination of a suitable gage or pressure-indicating device having connections for attachment to opposite ends of the engine-cylinder and valve mechanism constructed and arranged to automatically open and close communication alternately between opposite ends of said cylinder and said gage or pressure-indicating device, substantially as and for the purposes set forth.

2. In an indicator for engines, the combination of a suitable gage or pressure-indicating device having connections with opposite ends of the engine-cylinder and valve mechanism constructed and arranged to open and close communication alternately between the ends of said cylinder to which the actuating medium is admitted and from which the actuating medium is released and said gage or pressure-indicating device, substantially as and for the purposes set forth.

3. In an indicator for engines the combination with a pressure-gage comprising a spring-tube and pressure-indicating mechanism connected with said tube, of valve-controlled connections between said tube and opposite ends of the cylinder arranged to automatically establish communication between said tube and the ends of the cylinder to which the actuating medium is admitted, substantially as and for the purposes set forth.

4. In an indicator for engines the combination with a pressure-gage comprising a bent tube, an air-tight chamber inclosing said tube

and pressure-indicating mechanism connected therewith, of valve-controlled connections between said tube and opposite ends of the cylinder constructed and arranged to automatically open communication between said tube and the ends of the cylinder to which the actuating medium is admitted, and valve-controlled connections between said chamber and the ends of the cylinder which are open to exhaust, substantially as and for the purposes set forth.



5. In an indicator for engines, the combination with a pressure-gage or indicating device, of connections between it and opposite ends of the cylinder, comprising an expansion-chamber, a regulating-valve and automatic check-valves between said expansion-chamber and opposite ends of the cylinder, substantially as and for the purposes set forth.

6. In an indicator for engines, the combination with a suitable pressure-gage or indicating device, of connections between said gage and opposite ends of the cylinder, comprising valve-chambers connected by upward bends or turns with the cylinder and provided with automatic check-valves constructed and arranged to open communication between said gage and the ends of the cylinder to which the actuating medium is admitted, substantially as and for the purposes set forth.

7. In an indicator for engines, the combination of a suitable gage or pressure-indicating device, valve-chambers connected with said gage or pressure-indicating device and with opposite ends of the cylinder and check-valves opening outwardly or away from the cylinder, and connected so that the opening of one causes the closing of the other, substantially as and for the purposes set forth.

8. In indicator or relief connections for engines, the combination of valve-chambers connected with opposite ends of the engine-cylinder and provided with reversible check valves, a pipe connecting said valve-chambers with each other, and a tube connecting said valves, substantially as and for the purposes set forth.

9. In indicator and relief connections for engines, the combination of valve-chambers connected with opposite ends of the engine-cylinder through reverse bends, a horizontal pipe connecting said valve-chambers with each other, check-valves having seats in said chambers, and a tube connecting said valves and provided with an air-chamber, substantially as and for the purposes set forth.

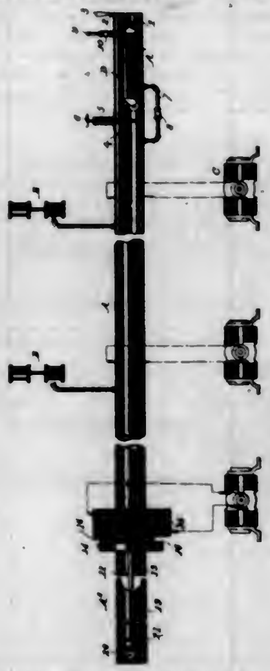
10. In an indicator for steam-engines the combination of a pressure-indicating device having double connections for attachment to opposite ends of an engine-cylinder provided with valves for automatically and alternately opening and closing communication between opposite ends of the cylinder and said indicating device through each of said connections and two scales one indicating pressure and the other horse-power, substantially as and for the purposes set forth.

574,965. VACUUM DESPATCH SYSTEM. JAMES A. WATSON, Washington, D. C. Filed Feb. 18, 1893. Serial No. 462,901. (No model.)

Claim.—1. In a despatch system, the combination of a normally closed and exhausted tube, a carrier movable within the tube, and exhausting mechanism to constantly maintain a vacuum within the tube.

2. In a despatch system, the combination of a normally closed and exhausted tube, a carrier movable within the tube, and means for propelling the carrier within the tube.

3. In a despatch system, the combination of a normally closed and exhausted tube, a carrier movable within said tube, a motor upon the carrier, and means for supplying power to the motor.



4. In a despatch system, the combination with a normally closed and exhausted tube, and exhausting mechanism to constantly maintain a vacuum therein, of a lock-chamber having suitable valves to seal the main tube against the inflow of air while a carrier is being introduced.

5. In a despatch system, the combination of a normally-exhausted despatch-tube, means for maintaining the tube in an exhausted condition, a carrier movable within the tube, suitable valves through which the carrier may be passed into and out of the tube, and means for propelling the carrier within the tube.

6. In a despatch system the combination with a normally closed and exhausted tube and a carrier movable therein, of a lock-chamber at the initial end thereof adapted to be closed air-tight, a valve for controlling communication between the lock-chamber and the tube proper, a second valve for controlling communication between the lock-chamber and the atmosphere, said lock-chamber being preferably but little larger than said carrier, whereby the carrier may be introduced into the tube without impairing the vacuum in the latter, substantially as described.

7. In a despatch system, the combination with a normally closed and exhausted tube and a carrier movable therein, of a lock-chamber separated from the exhausted portion by a valve, an entrance-valve at the outer end of the lock-chamber, and means for alternately filling the lock-chamber with air and exhausting the same, to facilitate the operation of the valves, substantially as described.

8. In a despatch system, the combination with a normally closed and exhausted tube, of a lock-chamber separated from the exhausted portion of the tube by a valve, a valved by-pass pipe around the said valve, an entrance-valve at the outer end of the lock-chamber, and a valved port communicating between the lock-chamber and the atmosphere, substantially as described.

9. In a despatch system, the combination of a normally closed and exhausted tube, a carrier movable therein, and a tube 19 having its outer end normally closed and its inner end open to the atmosphere and in line with the exhausted tube, said tube 19 being arranged to receive the carrier from the exhausted tube and form an air-cushion for the same, substantially as described.

10. In a despatch system the combination of a normally closed and exhausted tube having two or more separate tracks or guideways therein, carriers movable within the tube and adapted to said tracks, and means for propelling said carriers in opposite directions at the same time, substantially as described.

11. In a despatch system, the combination of a normally closed and exhausted tube, a carrier movable within said tube, and a series of exhaust-pumps in communication with said tube, said pumps being arranged at intervals along the line of the tube, whereby any air due to leakage may be removed without creating detrimental air-currents, substantially as described.

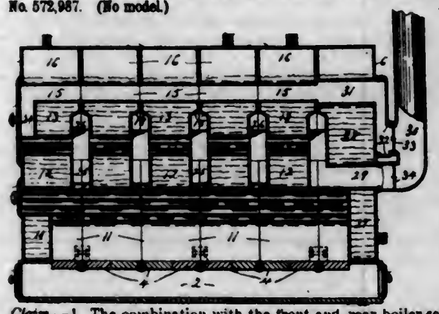
12. In a despatch system, the combination of a normally closed and exhausted tube, carriers movable within said tube, electromotors for operating the carriers, and a series of power-stations arranged at intervals along the tube, each station being provided with dynamo-electric machinery and air-exhaust pumps connected with the tube for supplying power to the carriers and exhausting the air from said tube respectively, substantially as described.

574,966. MENTHOL COMPOUND. ALBERT WELLER and ANDREAS JESSER, Frankfort-on-the-Main, Germany, assignors to Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung, same place. Filed Mar. 31, 1896. Serial No. 585,630. (No specimens.)

Claim.—1. The herein-described process of preparing a menthol preparation for internal use consisting in dissolving menthol in the menthol ether of valeric acid, as and for the purpose set forth.

2. As an article of manufacture menthol dissolved in the menthol ether of valeric acid.

574,967. HEATER. THOMAS WHEATLEY, Syracuse, N. Y., assignor to Albert P. Fowler, same place. Filed Dec. 23, 1895. Serial No. 572,987. (No model.)



Claim.—1. The combination with the front and rear boiler-sections having their adjacent surfaces provided with diagonally opposite recessed corners, the end wall of each corner provided with a screw-threaded aperture and said sections connected together, alternately at the top and bottom, by means of right and left hand screw-threaded nipples, so as to establish an alternate upward and downward circulation through the sections substantially as specified.
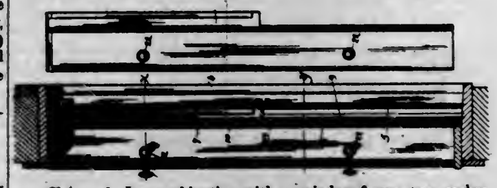
2. In a heater, the combination of the base, the grate, the sections set on the base, said sections having in their lower portions a fire-space and water-legs forming the sides of said fire-space, said sides and top of the fire-space being longitudinally corrugated, a lower space, vertical flues leading from said fire-box through said lower water-space into a lower horizontal flue, said flue having its upper and lower walls corrugated longitudinally, vertical dead ends arranged above said vertical flues and corresponding in position and size therewith extending into an upper water-space from said lower horizontal flue, an end flue connecting said lower flue with an upper horizontal flue, said upper flue being arranged between the upper water-space and the steam-space and having its upper and lower walls longitudinally corrugated, substantially as specified.

3. In a heater, the combination of the supporting-base having on one side bearings for the grate-bars, and on the other an elongated slot for the admission of the grate-sections, a locking-bar for locking the grate in position, a connecting-arm connecting said grate-sections, a handle for operating the same, boiler-sections arranged upon said base, said sections forming a fire-box having its walls and top corrugated above said grate and said sections having horizontal flues longitudinally corrugated, a front flue connecting said horizontal flues, vertical flues and dead ends, substantially as described and shown.

4. A heater composed of a base having bearings on one side and an elongated slot on the other side to receive the grate-sections, a boiler supported on said base and having a fire-space beneath, water-legs on both sides of the fire-space, lower and upper water-spaces and a steam-space, two horizontal flues arranged respectively between the lower and upper water-spaces, and upper water-space and steam-space, a single vertical flue connecting said horizontal flues, vertical flues leading from fire-space of lower water-space, dead ends immediately over said vertical flues and extending from lower horizontal flues into the upper water-space, the heating-surfaces forming the walls of said fire-space and walls of both horizontal flues being longitudinally corrugated, substantially as described and shown.

5. In a heater, intermediate boiler-sections each formed with water-legs, lower and upper water-spaces and a steam-space, a fire-space arranged beneath the lower and upper flues, said boiler-sections having both front and rear faces formed with a countersunk central portion extending from the fire-box nearly to the top of the upper water-space and terminating above and below toward each side by inclined planes sloping respectively downwardly and outwardly, and upwardly and outwardly and terminating in rectangular cut-outs on their outer edges, substantially as described and shown.

574,968. WINDOW. JAMES M. WHEELER, Fish's Eddy, N. Y., assignor of one-third to Peter F. Rolin, same place. Filed July 15, 1896. Serial No. 599,306. (No model.)

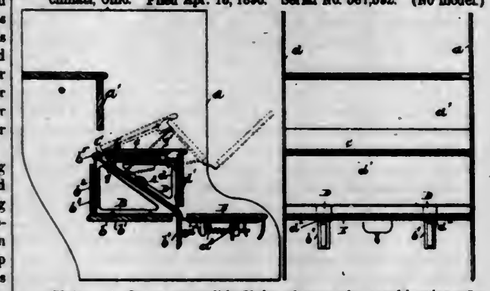


Claim.—1. In combination with a window-frame, two sashes located therein, parting-strips extending half-way up said frame, check-rails adapted to guide the sashes, latches secured upon said rails, screws secured upon the casing and adapted to engage the latches when the latter are swung inward whereby the sashes may be locked against vertical movements and lateral vibrations, as specified.

2. The herein-described combination of a window-frame, two sashes adapted to slide therein, half-length parting-strips for guiding the sashes when in their lowered position, check-rails fitted within the frame and adapted to be moved to and from the sashes, latches carried by said rails, said latches having forked noses, escutcheons secured upon the face of the frame, screws threaded through lugs formed upon said escutcheons, said screws having reduced portions for the engagement of the noses of the latches, and knobs for swinging the latches into engagement with the screws, substantially as and for the purpose set forth.

3. The herein-described combination of a window-frame, two sashes adapted to slide vertically therein, half-length parting-strips for guiding said sashes, check-rails fitted within said frame and also adapted to give guidance to said sashes, plates carried by the rails, latches pivoted to said plates, knobs attached to the latches for their operation and forked noses formed with said latches, escutcheons secured to the frame having lugs formed therewith and openings and elongated slots formed in the escutcheons, and screws threaded through said lugs said screws having reduced portions for engagement with the noses of the latches, substantially as and for the purposes set forth.

574,969. EXTENSION-STEP FOR CARS. DANIEL L. WHITE, Cincinnati, Ohio. Filed Apr. 13, 1896. Serial No. 587,392. (No model.)



Claim.—1. In an extensible flight of steps, the combination of a step-frame, pivoted within the angle of the step and adapted to rotate into a position above or below its pivot: and a step-frame hinged thereto adapted to swing into the position of use of the first frame when the latter swings into a position of non-use, substantially as and for the purpose set forth.

2. In an extensible flight of steps, the combination of a step-frame, pivoted within the angle of the step and adapted to rotate into a position above or below its pivot: a step-frame hinged thereto and adapted to swing into the position of use of the first frame when the latter swings into its position of non-use, and means for locking the frames in position, substantially as and for the purpose set forth.

3. In an extensible flight of steps, the combination of a step-frame, pivoted within the angle of the step and adapted to rotate into a

position above or below its pivot; a step-frame hinged thereto and adapted to swing into the position of use of the first frame when the latter swings into its position of non-use, and means for locking the frames in position when the first frame is in its position of use, substantially as and for the purpose set forth.

4. In an extensible flight of steps the combination of one or more triangular frames, pivoted relatively to the step-hangers, and carrying a step, a projection or projections on one end of the frame or frames adapted to limit the forward movement of the frame, and one or more plates hinged to the frames and carrying a triangular frame or frames supporting a step, substantially as and for the purpose set forth.

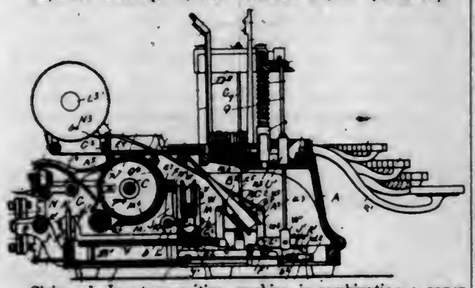
5. In an extensible flight of steps, the combination of one or more triangular frames, pivoted to the step-hangers, and carrying a step, a projection or projections on one end of the frame or frames, adapted to limit the forward movement of the frame, one or more plates hinged to the frame and carrying triangular frames supporting a step, a sliding pin or bolt carried by the plates and adapted to lock the first frame and plate together, substantially as and for the purpose set forth.

6. In an extensible flight of steps, the combination of one or more triangular frames, pivoted to the step-hangers, and carrying a step, a projection on one end adapted to limit the forward movement of the frame, one or more plates hinged to the frames and carrying triangular frames supporting a step, a sliding pin or bolt carried by each plate adapted to lock the first frames and plates together and actuated by the second frame, substantially as and for the purpose set forth.

7. The combination in an extensible flight of a step-frame, B, pivoted to step-hangers, a plate, C, hinged to frame, B, a frame, D, hinged to plate, C, and carrying a step, E, a sliding pin or bolt, G, adapted to lock frame, B, and plate, C, together, and actuated by frame, D, and a spring, g', for actuating the pins in one direction, substantially as and for the purpose set forth.

8. The combination in an extensible flight of a step, a frame B pivoted to the step-hangers, a plate C hinged to the frame a second step-frame hinged to the plate, a locking mechanism carried by plate, C, and adapted to engage frame, B, the locking device actuated by the second frame, and a plate having arms adapted to throw the second frame and plate apart thereby disengaging the locking device from the first frame, substantially as and for the purpose set forth.

574,970. TYPE-WRITING MACHINE. JOSEPH A. WHITE, Boston, Mass. Filed Apr. 17, 1893. Serial No. 470,700. (No model.)



Claim.—1. In a type-writing machine, in combination, a paper roll or platen, a frame on which said platen is supported, a swinging frame supporting one side of said frame, mechanism connected to the swinging frame for operating the same, a support for said platen-frame on the opposite side to said swinging frame, and links pivoted at their lower ends to a suitable support, and at their other ends to said platen-frame on the opposite side to the swinging frame for holding the platen-frame in place.

2. In a type-writing machine, in combination, a carriage-frame adapted to move back and forth on suitable guideways, a ratchet-toothed bar on said frame, a rock-shaft, a permanent plate on said shaft, a ratchet-tooth in the edge of said plate, a plate pivoted to said shaft by a slot, below said permanent toothed plate, a ratchet-tooth on the edge of said pivoted plate, a guide-bearing for the free end of said pivoted plate, a spring arranged to bear upon the end and side of said pivoted plate, and both plates adapted to engage alternately by its tooth with said ratchet-tooth bar.

3. In a type-writing machine, in combination, a carriage-frame adapted to move back and forth in suitable guideways, ratchet-teeth on said frame, a rock-shaft, a plate pivoted by a slot to said shaft having a ratchet-tooth on one edge arranged to engage with said frame ratchet-teeth, a strip having diagonal slots engaging with pins in said frame to slide diagonally back and forth thereon below said ratchet-teeth and to bear upon said pivoted plate in its forward movement, and a pivoted lever engaging with said strip for operation thereof.

4. In a type-writing machine, in combination, two ink-ribbon spools side by side arranged to turn on a suitable support, flanges of said spools having teeth on their edges, a spring-pawl arranged to engage alternately with said spool-flanges, a rock-shaft to which said spring-pawl is secured, means for operating said shaft, a fixed plate in front of said spools having an opening through it and two notches or seats in upper part of said opening, a downward projection between the two, with which notches the spring-pawl is alternately guided and held in its operation on the two spools.

5. In a type-writing machine, two ink-ribbon spools arranged to turn on a suitable support side by side, a platen-roll in front of said spools, two rolls back of said platen and each substantially under its respective spool, two rolls forward of the platen side by side and in line with the first two spools and substantially in the same horizontal plane, and a roll with flanges in front of said latter rolls and at an angle thereto, by which the ink-ribbon from one spool will run under its roll, over the roll in front and round the flanged roll, back over the other front roll and under the other rear roll in line with and to the other spool

6. In a type-writing machine, in combination, a paper roll or platen, a rod in front of and parallel with said roll pivoted to a suitable support, a plate secured thereto having a series of spring-arms projecting transversely therefrom and arranged to bear close to said roll, a shaft pivoted on said plate, and a series of rolls secured thereto said rolls being located respectively between the spring-arms and arranged to bear upon the paper-roll.

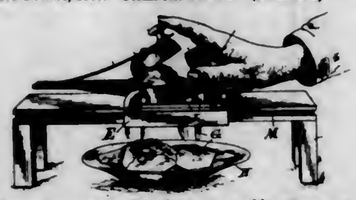
7. In a type-writing machine, in combination, a lever pivoted to a suitable support, an upright rod adapted to move up and down in suitable guideways and connected to means for moving the paper-roll frame on its support, said rod being made in two parts, each screwing in a block between them, the block having an opening in its side in which one arm of the lever extends and engages.

8. In a type-writing machine, in combination, a paper roll or platen, a frame to which said roll is secured, a swinging frame to which said paper-roll frame is connected, a rod connected to said swinging frame extending toward the front of the machine, a lever adapted to engage with said rod for operation thereof, a weighted pawl resting by its free end on said rod, and a shoulder on said rod adapted to abut against the end of the pawl when operated upon by said lever.

9. In a type-writing machine, in combination, a paper roll or platen, a frame to which said roll is secured, a swinging frame to which said paper-roll frame is connected, a rod connected to said swinging frame, extending toward the front of the machine, a shoulder on said rod, a lever adapted to engage with said shoulder, another lever engaging with said first lever and extending to the front of the machine for operation thereof, a weighted pawl resting by its free end on the rod, being adapted to abut against the end of the pawl when operated upon by the levers.

10. In a type-writing machine, in combination, a paper roll or platen arranged to turn on a suitable support, a gear on its end, a pawl adapted to engage with said gear for turning said roll, and to rest on a support when disengaged from said gear, a pivoted support for said pawl, a lever arranged to bear upon said pawl for operation thereof, an abutment or stop, an arm of said pawl-support adapted to rest against said abutment, and a spring for returning the pawl-support.

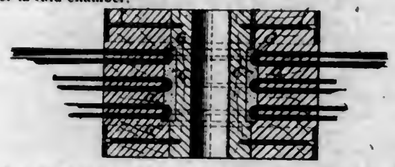
574,971. VEGETABLE-SLICER. WILLIAM T. WHYTE, Lima, Ohio. Filed Feb. 20, 1895. Serial No. 539,161. (No model.)



Claim.—In combination in a vegetable-cutter, an automatic hopper, mounted to slide on a table, over an opening in said table provided with knives, pivoted to permit of angular adjustment, said angular adjustment being secured by an arm extending laterally from each knife, through the supporting-frame and bent down parallel thereto and extending into holes in a common strip, by the longitudinal adjustment of which, the knives are rotated to and held in any angular adjustment, substantially as described.

574,972. METAL-CLEANING BRUSH. JOHN P. WIENS, Milwaukee, Wis. Filed May 25, 1896. Serial No. 593,068. (No model.)

Claim.—1. A metal-cleaning brush comprising a center block provided with an annular groove, segmental non-metallic hub-sections having their inner faces provided with concavities registering with the aforesaid groove to form a chamber, looped spring-wires run through radial openings arranged in plural series of pairs circumferentially of the hub-sections, stay-wires arranged in the loops of those aforesaid against the concavities of said hub-sections, stay-bands on the aforesaid hub-sections, screws run through the stay-bands and hub-sections into the center block, and a filling of lead or solder in said chamber.



2. A brush comprising a center block and non-metallic segmental hub-sections cut out to form an intervening chamber when assembled and bound together, each hub-section being provided with radial openings in plural series of pairs circumferentially thereof; stay-wires in said chamber circumferentially of the same, spring-wires looped on the stay-wires and extended through said openings, and a filling of lead or solder in the aforesaid chamber.

574,973. COMBINED PICTURE-FRAME AND ALBUM. CONRAD WIEDIGER, Milwaukee, Wis. Filed Jan 25, 1896. Serial No. 576,759. (No model.)

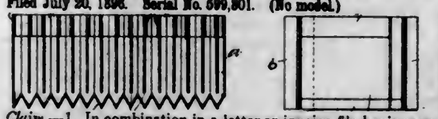


Claim.—1. The combination of a series of leaves, provided at opposite ends with bearings, the bearings of each successive leaf being longer than the bearings of the preceding leaf, a single pivot-rod removably engaging registering apertures in the bearings, and a receptacle in which the ends of the rod are removably journaled, the construction adapting the leaves to be removed separately from the pivot-rod, and the pivot-rod to be removed from the receptacle.

2. In a combined picture-frame and album, the combination of a receptacle, a transverse cleat within the receptacle, strips extending longitudinally from the cleat the outer surfaces thereof being beveled toward their outer ends, a frame hinged to the receptacle and opening outwardly therefrom, and a series of hinged leaves, the free ends thereof lying on the transverse cleat, and the hinged joint being above the outer ends of the beveled strips, substantially as described.

3. The combination, of a receptacle having its top and bottom pieces provided with inwardly-extending slots, the bottom of the slot of the bottom piece having an aperture therethrough, a hinged leaf adjacent to the slot of the top piece and provided with an elongated opening adapted to be brought into alinement with said slot of the top piece, a button beneath said hinged leaf, one or more photograph or picture leaves, a pivot-rod therefor, the lower end of said rod seated in the slot of the bottom piece of the receptacle and passing through the apertured bottom of said slot, and the upper end of the rod seated in the slot of the top piece of the receptacle in line to be engaged by the hinged leaf, through the slot of which leaf the button is adapted to pass, substantially as described.

574,974. LETTER-FILE. CLARENCE H. WILEY, Hartford, Conn. Filed July 20, 1896. Serial No. 599,801. (No model.)



Claim.—1. In combination in a letter or invoice file having gusseted bottom and ends, partitions formed of a single piece of material extending back and forth with gusseted ends secured to the gusseted end portions of the file, all substantially as described.

2. In combination in a letter or invoice file having gusseted bottom and ends, partitions formed of a continuous piece of material extending back and forth, and having gusseted ends a part of which are secured to the gusseted end pieces of the file, and a portion of the ends left free, all substantially as described.

3. In combination with a letter or invoice file having gusseted bottom and ends, partitions formed of a single piece of material extending back and forth and gusseted at each fold, a portion of the gusseted partitions being secured to the gusseted end portions of the file, and a portion being left free, the upper edge of the partition-piece being folded its entire length to form a reinforce, all substantially as described.

4. In combination in a letter or invoice file having gusseted bottom and ends, partitions extending between the gusseted ends and gusseted to correspond therewith, a portion of the ends of the partitions being free and a portion secured to the end pieces of the file, all substantially as described.

5. In combination in a letter or invoice file having gusseted ends, partitions extending between the gusseted ends and gusseted to correspond therewith, each end portion having a gusseted partition secured thereto.

574,975. REFRIGERATOR. GEORGE WILKINSON, Charleston, Pa. Filed Dec. 19, 1895. Serial No. 572,658. (No model.)



Claim.—In a refrigerator, the combination with the ice-chamber, and the provision-chamber below the same, of vertical side partitions arranged adjacent to the side walls of the provision-chamber and terminating a short distance above the bottom of said chamber and a short distance below the bottom of the ice-chamber, a hot-air-escape flue rising centrally from the provision-chamber and passing through the ice-chamber but having no communication therewith, and cold-air flues passing downward from the ice-chamber into the space between the side partitions and the side walls of the provision-chamber.

574,976. MACHINE FOR DIPPING MATCHES. WILLIAM E. WILLIAMS, Chicago, Ill. Filed Mar. 29, 1895. Renewed June 11, 1896. Serial No. 595,228. (No model.)

Claim.—1. The combination with a composition-box and a roller mounted therein in position to be partially immersed in the composition, of a scraper and stirrer lying between the roller and the bottom of the box, and means for moving the stirrer back and forth parallel to the roller's axis.

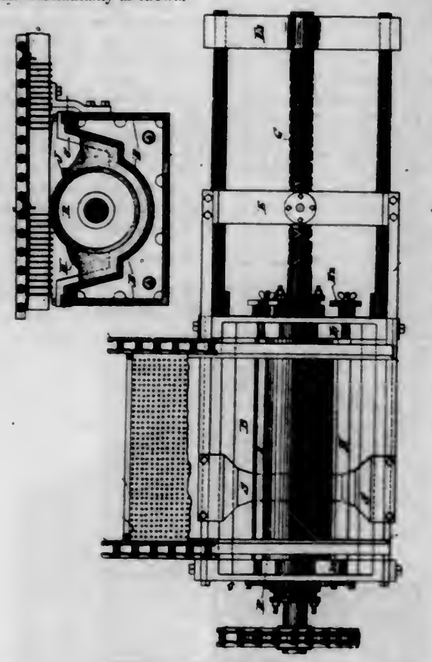
2. The combination with a composition-box and a roller arranged to rotate therein while partially immersed in the composition, of a transverse scraper and stirrer arranged below the roller to reciprocate parallel to the roller's axis, and adapted to simultaneously scrape the surface of both the box and the roller.

3. The combination with a composition-box and a roller arranged to rotate therein with its upper side above the normal surface line of the composition, of a transverse scraper and stirrer mounted in the box and having its lower side fitting the interior surface of the box and its upper side fitting the contour of the roller, and means whereby the rotation of the roller automatically moves the scraper back and forth from end to end of the latter.

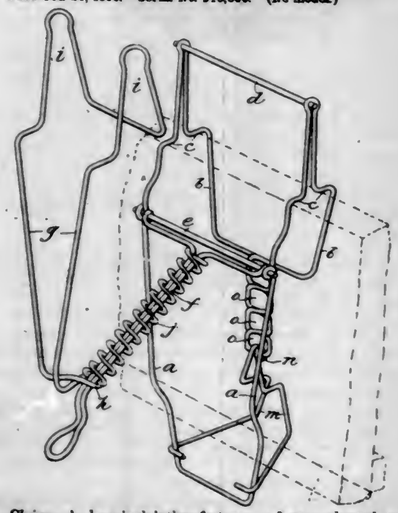
4. The combination with a composition-box and a roller mounted therein, of a rod projecting outward in the line of the roller's shaft and provided with both right and left screw-threads, a suitable non-revoluble nut mounted upon said screw, a scraper mounted alongside the roller, and devices connecting said scraper to said nut; whereby the rotation of the roller carries the scraper back and forth along its elements although the rotation is in a constant direction.

5. The combination of a composition-applying roller of a movable stirrer and scraper moving back and forth the length of the roller

and composition-chamber with a gateway for discharging the composition substantially as shown.



574,977. BEDCLOTHES-FASTENER. ANNA WOLF, Chicago, Ill. Filed Oct. 26, 1896. Serial No. 610,066. (No model.)



Claim.—1. In a bedclothes-fastener, a frame adapted to be attached to a side rail of a bed, and provided with a cross-bar at its upper end raised above the said side rail, in combination with a swinging supplemental frame adapted to be swung over and down upon said cross-bar, substantially as and for the purpose specified.

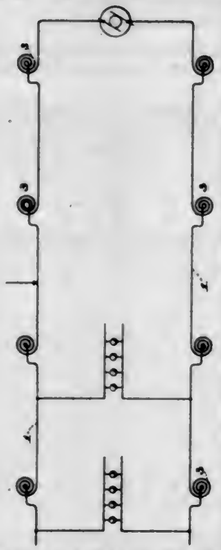
2. In a bedclothes-fastener, a frame adapted to be attached to a side rail of a bed, and a movable supplemental frame adapted to engage the upper end of said first-named frame, in combination with a locking-piece adapted to pass under the side rail, and attached to said first-named frame for holding the device as a whole in place, substantially as specified.

3. In a bedclothes-fastener, the combination of a frame adapted to be attached to a side rail of a bed, and consisting of a front and rear portion, said rear portion having on its lower end a series of loops, a supplemental movable frame adapted to engage the upper end of said first-named frame, and a locking-piece having a hook at its upper end for engaging said loops and bent to pass under the side rail, and provided with means for attachment to the front portion of said first named frame, substantially as specified.

4. In a bedclothes-fastener, the combination of a frame adapted to be attached to a side rail of a bed, a handle pivoted to the front of said frame, a coiled spring located on said handle, a supplemental frame loosely attached to said handle, and adapted to be swung over and down upon the upper end of said first-named frame, substantially as and for the purpose specified.

5. In a bedclothes-fastener, the combination of the frame *a b*, having at its upper end a cross-bar *d* raised above the side rail of the bed to which the frame *a b* is to be attached, the handle *f* pivoted to the frame, the supplemental frame *g* loosely attached to the lower end of the handle and provided with the loops *i* at its upper end for engaging the cross-bar *d* and the bedclothes that are placed over said bar, and the coiled spring *j* surrounding the handle *f*, all substantially as and for the purpose specified.

574,978. SYSTEM OF LIGHTNING PROTECTION FOR ELECTRIC CIRCUITS. ALEXANDER WURTS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed July 19, 1893. Serial No. 480,898. (No model.)



Claim.—1. In a system of electrical distribution, the combination with a source of current and translating devices, of a line-circuit provided at suitable intervals with ungrounded inductive resistances, said resistances serving to dissipate static charges by transforming their energy into heat.

2. In a system of electrical distribution, the combination with a suitable generator and translating devices, of a line-circuit having a series of ungrounded choke-coils arranged at intervals therein, said choke-coils serving to dissipate static charges by transforming their energy into heat, substantially as described.

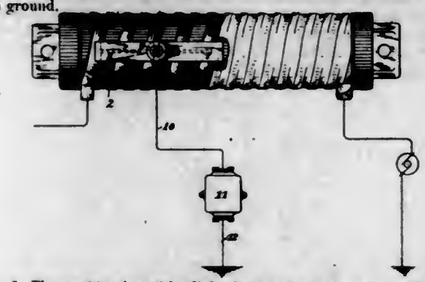
574,979. DEVICE FOR PROTECTING ELECTRIC CIRCUITS. ALEXANDER J. WURTS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Oct. 2, 1896. Serial No. 584,404. (No model.)

Claim.—1. The combination with a lightning-arrester having a ground connection, of a choke-coil, and a conducting-strip extending along said coil for a portion of its length whereby spark-gaps are formed between the same and the adjacent turns of the coil, and an electrical connection between said strip and the lightning-arrester.

2. A choke-coil provided with a conducting piece or strip located adjacent to but not in contact with several of the turns thereof, whereby spark-gaps are formed between said turns and said strip.

3. A choke-coil provided with a conducting piece or strip located adjacent to, but not in contact with, several consecutive turns thereof, whereby spark-gaps are formed between said turns and said strip, in combination with a lightning-arrester interposed between said piece or strip and the ground.

4. A choke-coil provided with a conducting piece or strip adjacent to several of the turns thereof and a slotted insulating-strip interposed between said conducting-strip, and said turns, in combination with a lightning-arrester interposed between said conducting-strip and the ground.



5. The combination with a lightning-arrester, of a choke-coil provided with a slotted strip of insulating material in contact with several of the turns thereof, a conducting-strip on said insulating-strip and an insulating-covering for said parts.

6. A choke-coil comprising a helically-grooved core formed of insulating material, a coiled, bare conductor seated in said groove, a conducting-strip located adjacent to but out of contact with said bare conductor and provided with a binding-post, and an insulating-covering for said coil and strip.

7. A choke-coil comprising a helically-grooved cylinder, a coiled bare conductor seated in said groove, a slotted strip of insulating material extending longitudinally of said cylinder for a portion of its length, a conducting-strip upon said insulating-strip, and a protecting and insulating covering wound upon said parts.

574,980. BIT OR DRILL FOR BORERS, &c., AND MANUFACTURE OF SAME. CAMILLE BORNET, Paris, France. Filed Apr. 2, 1896. Serial No. 585,985. (No model.) Patented in France Apr. 6, 1894, No. 237,565; in Germany Apr. 11, 1894, No. 79,296; in England Apr. 17, 1894, No. 7,614; in Belgium July 13, 1894, No. 110,960; in Spain July 13, 1894, No. 16,080, and in Austria Apr. 3, 1895, No. 45/1,948.



Claim.—1. The method of forming seamless drills containing cleansing-openings, which consists in elongating a hollow metallic block to reduce its diameter and the opening therein, severing the end of the elongated block in an oblique line passing through the opening, and finally bending the severed end of the same and the opening therein to form a cutting-head, substantially as described.

2. As a new article of manufacture, a seamless bit or drill having its cutting-head bent laterally and provided with an opening extending longitudinally through the shank of the drill and then laterally through the bent head of the same.

574,981. MATCH CASE AND LIGHTER. HENRY L. BUXTON, Milwaukee, Wis. Filed Nov. 2, 1894. Serial No. 527,694. (No model.)



Claim.—1. The combination with a globular match, of a receptacle having converging walls terminating in or near a pocket or cavity of sufficient size to hold one match only, and a cut-off and igniter movable between said receptacle and pocket, substantially as and for the purposes set forth.

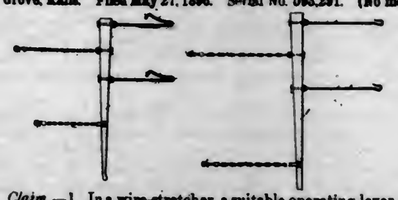
2. The combination in a case for globular matches, of a receptacle terminating in or near a pocket or cavity of sufficient size to contain but a single match, a spring-actuated igniter and cut-off movable between said pocket and receptacle, a catch for holding said igniter and cut-off in normal position, and a releasing device for disengaging said catch from said slide, substantially as and for the purposes set forth.

3. The combination in a case for globular matches, of a match-receptacle having converging walls terminating in or near a pocket or cavity of sufficient size to hold a single match, a cut-off and igniter movable between said receptacle and pocket and an ejector for removing the residuum of burned matches from said pocket, substantially as and for the purposes set forth.

4. The combination in a case for globular matches, of a match-receptacle, a pocket or cavity opposite an opening in said receptacle of sufficient size to admit but a single match, and an igniting device arranged to operate upon the match in said pocket, said case having an opening into said pocket of smaller size than one of the matches, substantially as and for the purposes set forth.

5. The combination in a case for globular matches, of a receptacle for holding a number of matches, a pocket or cavity having communication therewith and of sufficient size to hold but one match, and an igniter arranged to operate upon the match in said pocket without effect upon the matches in said receptacle, said case being provided with a lateral opening into said pocket of smaller size than an individual match, and a shield surrounding said opening, substantially as and for the purposes set forth.

574,982. WIRE-STRETCHER. JAMES C. CARPENTER, Council Grove, Kans. Filed May 27, 1896. Serial No. 593,291. (No model.)



Claim.—1. In a wire-stretcher, a suitable operating-lever or body portion, suitable hooks, each having a hooked portion for embracing the wire on one side and a terminal deflected portion for bearing against the opposite side of the wire carried at one end thereof and extending in one direction, and a grab-hook also carried by the lever but extending in the opposite direction, and serving as a fulcrum for the lever in the operation of stretching the wire, substantially as set forth.

2. In a wire-stretcher, a suitable operating-lever or body portion, a pair of hooks, each having a hooked portion for embracing the wire on one side and a terminal deflected portion for bearing against the opposite side of the wire carried at one end of the same and extending in one direction, a chain secured at one end to the lever at a point between the connections of the hooks with the lever and extending in the opposite direction from that of the hooks, a grab-hook carried at the free end of said chain, and suitable means carried by the lever for temporarily holding the lever while in the act of stretching the wire, substantially as set forth.

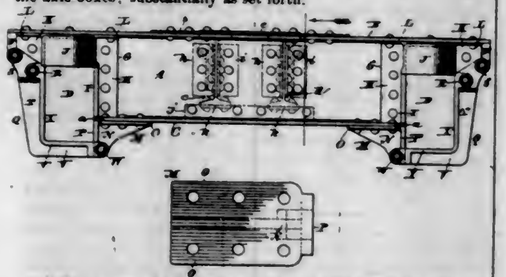
3. A wire-stretcher, comprising a suitable lever or body portion, a pair of hooks, each having a hooked portion for embracing the wire on one side and a terminal deflected portion for bearing against the opposite side of the wire carried at one end of the lever and separated a suitable distance, a chain having one end secured to the lever intermediate between the hooks, and having a grab-hook at the free end thereof, said chain being disposed in a direction opposite to that of the pair of hooks carried by the lever, a second chain carried by the lever at a point exterior to the inner hook and at a suitable distance from the free end or handle portion of the lever, and a hook carried at the free end of the second chain whereby the lever with the first-named chain as a fulcrum can be operated in two directions, and whereby the hook of the second chain may serve to temporarily hold the lever in position against the tension of the wire, until the ends of the wire can be either securely spliced or stapled to the fence-post, substantially as set forth.

4. In a wire-stretcher, a suitable hook having a hooked or bent portion proper for embracing the wire, an inwardly-concave continuation, and a terminal deflected portion or arm adapted to bear against the opposite surface of the wire from that embraced by the hooked portion, substantially as set forth.

574,983. CAR-TRUCK FRAME. EDWARD CLIFT, Newark, N. J. Filed July 13, 1896. Serial No. 598,934. (No model.)

Claim.—1. In a car-truck, the metal frame side beams having the spaces for the axle-boxes and springs formed within their opposite ends and having the horizontal upper and lower flanges, combined with a bolster or bolsters connecting said side frames, an extension for the pedestals below the lower flange of the side frames, and removable frames closing the outer side and bottom of the pedestal-spaces and affording rubbing-surfaces for the axle-boxes, the inner side of

said pedestal-spaces within the side frames and within the extension below the side frames being also provided with rubbing-surfaces for the axle-boxes; substantially as set forth.



2. In a car-truck, the connected metal sides having at their opposite ends the pedestal-spaces for the axle-boxes and their springs, said spaces being open at their outer and lower sides, combined with the frames composed of the vertical and horizontal members in a single piece and forming a single right angle for closing the outer and lower sides of said spaces, the bolt at the inner end of the lower member of said frames for securing the latter, and the two bolts at the upper end of the vertical member of said frames, one of said two bolts being a safety-bolt and the other a hinge-bolt upon which said frames may be swung outward from said spaces; substantially as and for the purposes set forth.

3. In a car-truck, the connected side frames having the flanges at their upper edges and formed with the pedestal-spaces at their opposite ends, combined with the frames G, G, at opposite sides of each end of each of said frames and comprising the vertical flanges forming the rubbing-surface for the axle-boxes, the sections of the inverted spring-receptacle extending from said vertical flanges across the pedestal-spaces, and the smaller flanges at the outer edge of said receptacle and riveted to the said side frames, and the flanged removable outer side for the said pedestals secured to the side frames adjacent to the said inverted receptacles and said smaller flanges and affording rubbing-surfaces for the axle-boxes; substantially as set forth.

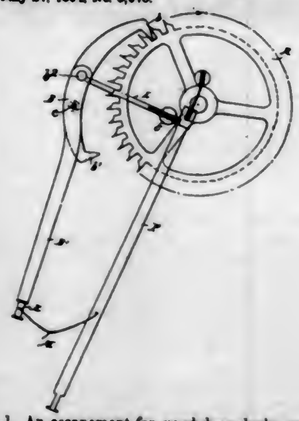
4. In a car-truck, the connected side frames having the flanges along their upper edges and formed at their ends with the spaces for the reception of the axle-boxes and their springs, combined with the castings G, G, secured upon opposite sides of each end of each of said frames and comprising the vertical flanges I for the axle-boxes, the inverted receptacle-sections J extending across said spaces, the smaller flanges K adjoining said receptacles and the horizontal flanges L meeting the upper flanges on the side frames, and the hinged and removable outer sides for said spaces, said sides affording rubbing-surfaces for the axle-boxes; substantially as set forth.

5. In a car-truck, the connected side frames having the flanges along their upper edges and formed with the pedestal-spaces for the reception of the axle-boxes and their springs, there being left above said spaces and below said upper flanges a shallow portion E of the web of the side frame, combined with the castings G, G, secured upon opposite sides of each end of each of said frames and comprising the vertical flanges H having the rubbing-flanges I, the inverted receptacle-sections J closing against said shallow portion E of the side frames, and the smaller flanges K connecting with said receptacle-sections, and the frames for the outer and lower side of said pedestal-spaces, said frames being hinged and removable and capable of being turned outward from said spaces; substantially as set forth.

6. In a car-truck, the connected side frames having formed in their ends the pedestal-spaces for the reception of the axle-boxes and their springs and flanged at their upper and lower edges, combined with the flange I upon said side frames at the inner edge of said spaces, the bracket M secured to the lower flange of said side frames and having the rubbing-flange P in line with said flange I, and removable frame for the outer and lower side of said spaces and having the rubbing-flange X in alinement with said flanges I, P; substantially as set forth.

7. In a car-truck, the side frames having within the vertical web at their ends the pedestals for the reception of the axle-boxes and formed with the horizontal parallel flanges along their upper and lower edges, combined with the central plates secured upon the upper flanges of said side frames, and the metal beam-frames connecting said side frames and at their upper edges secured to said central plates and abutting against the inner edges of the flanges at the upper edges of said side frames, the angle-plates by which said beams are connected to the web of the side frames, and the seat secured to said web above the lower flanges of the side frames and below the lower flanges of said beams and also secured to the lower flanges of said beams; substantially as set forth.

574,984. PENDULUM-ESCAPEMENT. AUGUSTE DARDENNE, Brussels, Belgium, assignor to La Société Anonyme pour l'Exploitation des Brevets Darsenne, same place. Filed Aug. 11, 1894. Serial No. 520,076. (No model.) Patented in Belgium June 30, 1894, No. 110,764; in France July 9, 1894, No. 239,914; in England July 16, 1894, No. 13,690; in Germany July 17, 1894, No. 80,170; in Switzerland July 17, 1894, No. 8,696; in Italy July 17, 1894, No. 36,870/266, and in Austria July 27, 1894, No. 5,675.



Claim.—1. An escapement for pendulum-clocks comprising an escapement-wheel, a pendulum, an escapement-anchor having an upper pallet, a lower pallet, and an anchor-arm, a rock-shaft, whereby the escapement-anchor is supported, having a laterally-extending arm provided with a counterpoise, and a flexible connection between the pendulum and the arm of the escapement-anchor; substantially as described.

2. An escapement for pendulum-clocks comprising an escapement-wheel, a pendulum, an escapement-anchor having an upper pallet, a lower pallet, and an anchor-arm provided with a rotatable stud at its lower end, a rock-shaft whereby the escapement-anchor is supported, having a laterally-extending arm provided with an adjustable counterpoise, and a flexible connection between the pendulum and the rotatable stud of the arm of the escapement-anchor; substantially as described.

574,985. INJECTOR. JOHN DESMOND, New York, N. Y., assignor to the Nathan Manufacturing Company, same place. Filed Sept. 3, 1896. Serial No. 604,707. (Model.)

Claim.—1. In a double-tube injector of the character described, the combination with the movable forcing steam-nozzle, lifting, intermediate and delivery nozzles of the intermediate steam-chamber *k*, formed by the valve-seat cap *g* and the lifting steam-nozzle *c*, as and for the purpose specified.

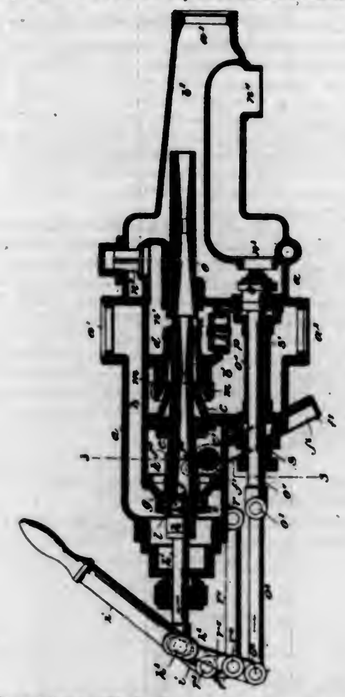
2. In a double-tube injector of the character described, the combination with the annular lifting steam-nozzle, central forcing steam-nozzle, intermediate and delivery nozzles, of the intermediate steam-chamber *k*, formed by the valve-seat cap *g* and lifting steam-nozzle *c* and supplied with steam from the main steam-chamber *b* through passages *l* in cap *g*, as and for the purpose specified.

3. In a double-tube injector in which both sets of nozzles are located in a common barrel on the same axis, the combination with the annular lifting steam-nozzle, central forcing steam-nozzle, intermediate and delivery nozzles of the intermediate steam-chamber *k*, formed by the valve-seat cap *g* and lifting steam-nozzle *c*, supplied with steam from the main chamber *b* through passages *l* in cap *g* and supplying steam to nozzle *c* through passages *c'* in the latter, substantially as described.

4. In a double-tube injector of the character described, the combination with the movable forcing steam-nozzle, annular lifting steam-nozzle, intermediate and delivery nozzles of the intermediate steam-chamber *k*, formed by the valve-seat cap *g* and lifting steam-nozzle *c*, said cap and nozzle serving also as supports and guides for the movable forcing steam-nozzle *f*, substantially as described.

5. In a double-tube injector of the character described, the combination with the movable forcing steam-nozzle, annular lifting steam-nozzle, intermediate and delivery nozzles, of the cap *g*, provided with a seat for valve *h*, with side passages *l* and a central passage, the former communicating with the chamber inclosed between the cap and the lifting steam-nozzle, the latter with the nozzle *f*, steam admission into passages *l*, being controlled by valve *h* and into the central passage by extension h^4 of said valve, substantially as and for the purpose specified.

6. In a double-tube injector with forcibly-closed final overflow, the combination with the usual steam-valve *h* and its spindle, overflow-valve *o* and its spindle, and the lever *i*, of the fulcrum-bar r' r^2, and the hangers r^3 connected to the overflow-valve spindle and operated by the lever *i*, substantially as hereinbefore set forth.



7. In an injector with forcibly-closed overflow, the combination with the steam-valve *h* and its spindle, overflow-valve *o* and its spindle, lever *i*, fulcrum-bar r', r^2 and hangers r^3, of the link o^3 connecting spindle o^4 with hangers r^3, as and for the purpose specified.

8. In a double-tube injector with forcibly-closed overflow, a compound-lever arrangement for the simultaneous operation of the steam-valve and overflow-valve in parallel but opposite directions, consisting of the lever *i*, double fulcrum-bar r', r^2, hangers r^3, link o^3, spindles h' and o^4, valves *h* and *o*, the hangers being oscillatingly attached to pin h^3, which connects spindle h' to lever *i*, the lever imparting an oscillating motion to hangers r^3, which transmit this motion through link o^3 to spindle o^4 and valve *o*, substantially as described and specified.

9. In an injector with forcibly-closed overflow the combination with the casing of the injector, overflow-valve *o*, spindle o^4 and stuffing-box *s* of the guide-box *s'*, separating the delivery-chamber from the water-chamber *b'* and serving as guide to the spindle o^4, substantially as described.

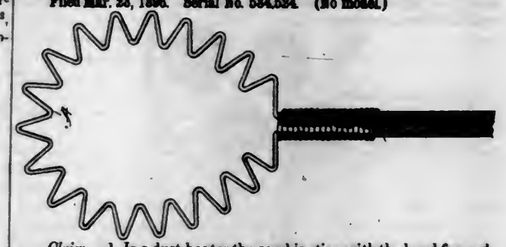
10. In an injector with forcibly-closed overflow, the combination with the casing of the injector, overflow-valve *o*, spindle o^4 and stuffing-box *s*, of the cylindrical guide-box *s'*, passing longitudinally through the water-chamber *b'*, separating this latter from the delivery-chamber b^2 and serving as guide and support for spindle o^4, substantially as specified.

11. In an injector with forcibly-closed overflow, the combination with the casing, overflow-valve *o*, spindle o^4 and stuffing-box *s*, of the cylindrical guide-box *s'*, screwed at one end into the partition which separates the water and delivery chambers, and at the other end fitted piston-like into the stuffing-box *s* and tightly packed therein, permitting the overflow-spindle to pass through the water-chamber, but preventing any fluid from passing from the delivery-chamber b^2 into water-chamber b^3, substantially as described.

12. In a double-tube injector of the character described, the combination with the movable forcing steam-nozzle, pinion f' and spindle f^9 of the double handle f^8 f^9, notched plate f^{10} and pin f^{11}, all arranged, constructed and operated substantially as described.

13. In a double-tube injector of the character described, the combination with the steam-valve-operating mechanism, of the movable forcing steam-nozzle, an operating mechanism for said nozzle independent of and separate from the steam-valve-operating mechanism and means for locking said nozzle-operating mechanism in its adjusted position, substantially as and for the purpose hereinbefore set forth.

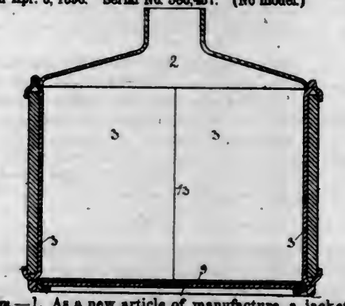
574,986. DUST-BEATER. STEPHEN S. DREIBACH, Catawissa, Pa. Filed Mar. 23, 1896. Serial No. 584,534. (No model.)



Claim.—1. In a dust-beater the combination with the head formed of one continuous piece of wire, of the plug or block receiving the ends of the wire, the handle, the colled spring encircling the handle at its lower portion, and its upper portion encircling the plug or block, whereby both the plug and the ends of the wire will be held in place; substantially as described.

2. A dust-beater, having a head formed of one continuous piece of crimped wire.

574,987. JACKET-CAN. DANIEL FARRELL, Jr., Omaha, Nebr. Filed Apr. 6, 1896. Serial No. 586,427. (No model.)



Claim.—1. As a new article of manufacture, a jacketed sheet-metal body-blank, said blank being provided with a top and bottom returned edge in the form of the letter Y facing one another, the main stem of the letter being of a double thickness and forming the extreme edges of the blank, the wings being adapted to form a groove, in combination with a jacket movably held within said top and bottom groove.

2. As a new article of manufacture, a jacketed sheet-metal body-blank, said blank being provided with a top and bottom returned edge in the form of the letter Y facing one another, the main stem of the letter being of a double thickness and forming the extreme edges of the blank, the wings being adapted to form a groove, in combination with a jacket movably held within said top and bottom groove, said Y-shaped top and bottom edges forming upon the exterior, seatings for the breast and bottom of the can.

574,988. ROLLER-BEARING. THOMAS R. FERRALL, Somerville, Mass. Filed Apr. 18, 1896. Serial No. 588,076. (No model.)



Claim.—In a roller-bearing for a sheave, in combination, an open-ended case or shell, divided laterally into halves adapted to interlock; an annular rib projecting from the interior surface of said shell midway of its ends; a series of rollers, having their ends flush with the ends of said shell, and each provided with an annular groove midway of their ends, adapted to receive said rib; and an interior guide-bearing adapted to loosely engage said grooves in the rollers and prevent the rollers from contact with each other, all as shown and described.

574,989. BOILER-CLEANER. MITCHELL W. CRAFT, Osage City, Mo., assignor of two-thirds to Charles Milligan and Wm. H. Rahner, New Albany, Ind. Filed Apr. 30, 1896. Serial No. 589,717. (No model.)

Claim.—1. The combination with a boiler having a mud-receiver and an interposed leg or connection, of a removable deflector or partition plate having a shank arranged diametrically in the leg or connection with its side edges in contact with the walls of the leg or connection, the upper end of the shank projecting above the contigu-

ous end of the leg or connection and enlarged to bear upon the bottom of the boiler and thereby support the shank in operative position, substantially as specified.



2. As a new article of manufacture, a deflector or partition plate for arrangement in the leg or connection between a boiler and its communicating mud-receiver, said deflector or partition plate having a shank to fit in the leg or connection, and lateral projections to bear upon the contiguous portions of the bottom of the boiler, substantially as specified.

3. As a new article of manufacture, a deflector or partition plate for arrangement in the leg or connection between a boiler and its communicating mud-receiver, said deflector or partition plate having a parallel-sided shank to fit in the leg or connection, lateral shoulders to bear upon the contiguous portions of the bottom of the boiler, said shoulders being formed by lateral ears, and an opening or perforation in its upper extremity to facilitate the introduction and removal of the deflector, substantially as specified.

574,990. COTTON ELEVATOR AND DISTRIBUTER. THOMAS J. GRIFFIN, Galveston, Tex., assignor, by direct and mesne assignments, of four-fifths to H. Riedel, Ed McCarthy, and N. Weeks, same place. Filed Jan. 20, 1896. Serial No. 576,216. (No model.)



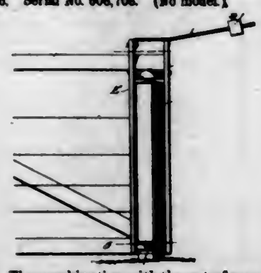
Claim.—1. In a cotton elevator and distributer, the combination with a suction supply-pipe, and a distributer; of a separating-box connected with said supply-pipe and said distributer, and provided in one side with an air-discharge opening, a suitable suction-fan connection with said air-discharge opening, a rotary separating-screen arranged wholly within the separating-box at one side of said air-discharge opening with its axis of rotation in lineal alinement with the portion of the supply-pipe opening into the separating-box, whereby the screen will be disposed in a position for relieving itself of the cotton by centrifugal force, and means for rotating said screen, substantially as described.

2. In a cotton-handling apparatus, a separating-box having suitable air-suction connections therewith and provided at the bottom with a cotton-discharge opening, a rotary conical separating-screen arranged within the separating-box with its axis of rotation disposed in line with the cotton-inlet, and means for rotating said screen, substantially as described.

3. In a cotton elevator and distributer, the combination with a suction supply-pipe, and a distributer; of a separating-box connected with the supply-pipe and said distributer and provided in one side with a fan inlet-opening, a fan-casing mounted at one side of said box over said opening, a suction-fan rotating in said casing with its shaft in line with the supply-pipe connection with the separating-box, a rotary separating-screen mounted on the fan-shaft so as to have its axis of rotation disposed in line with the cotton-inlet and arranged to work wholly within the separating-box at the side of the fan inlet-opening opposite the location of the fan, and means for rotating said screen, substantially as set forth.

4. In a cotton elevator and distributer, the combination with a suction supply-pipe and a distributer; of a separating-box connected with said pipe and said distributer and provided in one side with a fan inlet-opening, a fan-casing mounted at one side of said box over said inlet-opening, a horizontal fan-shaft arranged centrally within the fan-casing and projecting through said inlet-opening into said separating-box, a rotary fan mounted on the shaft within the fan-casing and provided at its outer side with a circular shield-plate, a conical separating-screen mounted on the inner projecting end of the fan-shaft and within the separating-box, and a concaved shield-disk fitted on the inner extremity of the fan-shaft at the apex of said screen, substantially as set forth.

574,991. GATE. ALBERT A. HANEMAN, Quigley, Iowa. Filed Oct. 13, 1896. Serial No. 608,708. (No model.)



Claim.—1. The combination with the gate-frame and post, of the knob arranged upon the top of the post, the socket attached to the gate, and an encircling band surrounding the lower end of the post and attached to the gate substantially as shown and described.

2. The combination with the gate, having parallel standards at the end, of the post having a metallic knob at its upper end, the socket arranged between the parallel standards and an encircling band surrounding the post and attached to the gate between the said parallel standards, substantially as shown and described.

3. The combination with the gate, of the parallel standards attached to one side thereof, near one end, the metallic knob arranged upon the top of the post and having a hemispherical head, the hemispherical socket arranged between the parallel standards, and having the angular attaching-ears, the encircling bands, and the metallic sleeve, all arranged and adapted to operate, substantially as shown and described.

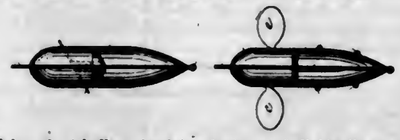
4. The combination with the gate and post, of the parallel standards attached to the gate, the metallic knob mounted upon the top of the post, the hemispherical socket arranged between the parallel standards, the encircling band and the balancing-lever attached to the upper end of one standard bearing upon the top of the outer standard and extending beyond the same, and a weight carried by the said lever, all arranged and adapted to operate, substantially as shown and described.

574,992. VALVE FOR PNEUMATIC TIRES. LEONARD HELD, Cleveland, Ohio. Filed Jan. 2, 1896. Serial No. 574,025. (No model.)



Claim.—In a valve for pneumatic tires, the combination with a hollow casing, said casing being composed of a head and stem, the head being provided with an annular recess containing an elastic valve-seat, of a hollow-stemmed valve provided at its upper end with a head which engages the elastic valve-seat, and at its lower end a screw-thread and a nut which engages a spring for adjusting the tension of the valve, substantially as set forth.

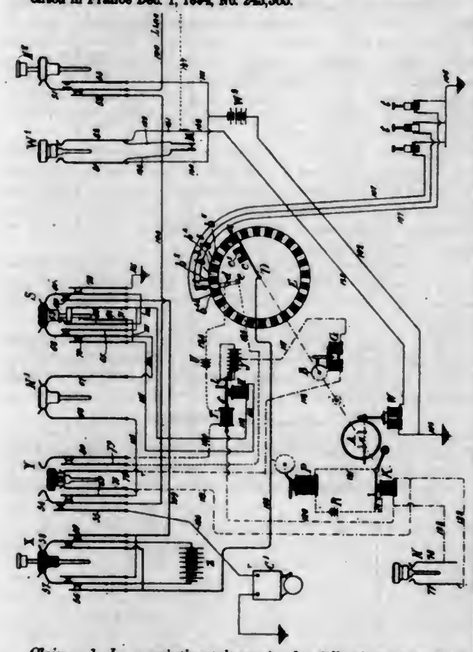
574,993. PHANTOM FLOAT. LIVINGSTON S. HINCKLEY, Newark, N. J. Filed Nov. 3, 1896. Serial No. 610,933. (No model.)



Claim.—1. A hollow aluminium body, two individually-separate parts constituting the same, each capable of being filled with floatable matter, a wire passing through both said parts, the upper part revolving on and the lower part attached to said wire, two or more blades or wings attached to the upper revoluble part in any suitable manner, all for the purposes as set forth, substantially as it is illustrated and described.

2. In a hollow aluminium float of the character set forth, an upper revoluble part having two or more wings or blades attached for the purposes as set forth, a lower part furnished with eyes, a wire or cord passing through the center of the said float having the lower part attached thereto, and the upper part movable thereon, conforming with their touching surfaces to each other in the manner described and illustrated and for the purposes as set forth.

574,994. PRINTING-TELEGRAPH. BERNHARD HOFFMANN, Paris, France. Filed July 17, 1895. Serial No. 556,240. (No model.) Patented in France Dec. 1, 1894, No. 243,305.



Claim.—1. In a printing-telegraph, the following-defined improvements, substantially as hereinbefore specified, namely: the combination of a type-wheel and escapement connected together, an escapement-magnet controlling said escapement, a printing-magnet adapted to act on the stopping of the escapement, a local battery and circuit operating said magnets, a polarized relay controlling said local circuit, a line-circuit, means for sending intermittent currents of normal direction over said circuit, and a pole-changer for reversing said currents at will.

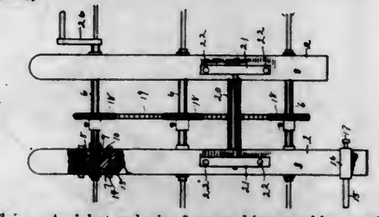
2. The combination of a type-wheel and escapement connected together, an escapement-magnet controlling said escapement, a local battery and circuit operating said magnet, a relay controlling said circuit, normally non-polarized but having a polarizing-coil in a special circuit, contacts for closing said special circuit in the unison position of the type-wheel, a line-circuit, means for sending intermittent currents over said line, of such normal direction as to actuate said relay whether it be polarized or not, and means for reversing the direction of said currents, whereby when said relay becomes polarized it ceases to act and stops the instrument with the type-wheel in said unison position until the normal current is restored.

3. A printing-telegraph comprising a type-wheel, escapement and revolving brush connected together, a dial of segments traversed by said brush, keys connected to said segments, normally alternately grounded and open-circuited, and each adapted to establish the reverse condition when depressed, a line connection from said brush through a line-battery to line, a relay in said line connection, normally non-polarized but having a polarizing-coil in a special circuit, a special segment on said dial and a special brush revolving with said escapement and touching said segment to close said special circuit in the unison position of the type-wheel, whereby in said position the relay is always instantaneously polarized, and a pole-changer for reversing the current from said line-battery, whereby to unison the transmitting and receiving instruments said pole-changer is operated to reverse the current through the relays and thereby arrest each relay when it becomes polarized in the unison position.

4. A printing-telegraph comprising a type-wheel, escapement and revolving brush connected together, a dial of segments traversed by said brush, keys connected to said segments, normally alternately grounded and open-circuited, and each adapted to establish the reverse condition when depressed, a line connection from said brush through a line-battery to line, a relay in said line connection, an escapement-magnet controlling said escapement, a printing-magnet, and a commutator which in the "receiving" position grounds the line through said relay, and in the "transmitting" position grounds the line through said relay, line-battery, brush, segments and keys.

5. A printing-telegraph comprising a type-wheel, escapement and revolving brush connected together, a dial of segments traversed by said brush, keys connected to said segments, normally alternately grounded and open-circuited, and each adapted to establish the reverse condition when depressed, a line connection from said brush through a line-battery to line, a relay in said line connection, an escapement-magnet controlling said escapement, a printing-magnet, means for polarizing said relay, and a commutator which in the receiving position grounds normally incoming currents through said relay in a prescribed direction, and in the transmitting position connects the keys, segments, brush and line-battery to line through said relay in such order that normal outgoing currents traverse said relay in the same prescribed direction as in receiving, whereby said relay is affected alike by currents of normal direction in either transmitting or receiving.

574,995. PICKET-FENCE-MAKING MACHINE. CASPER L. HORRAS, Manhattan, Iowa. Filed Aug. 18, 1896. Serial No. 603,106. (No model.)



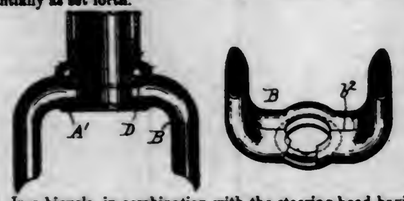
Claim.—A picket-and-wire-fence-making machine consisting of two upright standards, movable blocks temporarily fixed to said standards, perforated shafts journaled in said blocks, sprocket-wheels fixed on said shafts, a sprocket-chain engaging each sprocket-wheel, a tension device consisting of a roller journaled to strips supported by the standards, and coil-springs located on the standards and adapted to exert a pressure against the connections of said strips and thereby cause the roller to press laterally against the sprocket-chain and take up the slack therein.

574,996. BICYCLE-FORK-HEAD JOINT AND BEARING. THOMAS B. JEFFERY, Chicago, Ill. Filed Nov. 11, 1896. Serial No. 568,519. (No model.)

Claim.—1. A tubular frame joint comprising a tubular stem and a hollow cross-head penetrated by the stem, the cross-head being made of sheet metal folded into tubular form having an aperture to admit the stem, and having the metal about the margin of such aperture struck out of its normal plane for a distance back from the stem, the stem being inserted through such aperture and there brazed to the cross-head.

2. In a bicycle, in combination with the steering-head having a ball-seat at its lower end, the steering-fork comprising a tubular stem

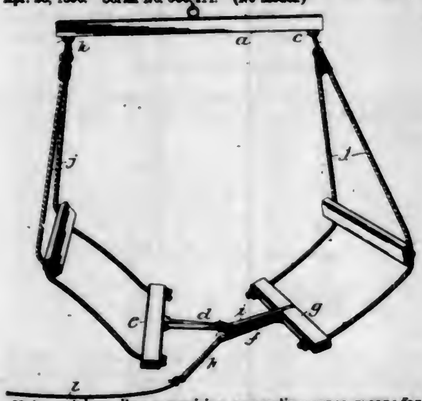
and hollow cross-head penetrated by the stem, the cross-head being made of sheet metal apertured to admit the stem, and having the metal about the margin of such aperture struck out of its normal plane forming an upwardly-concave annulus, the stem being inserted through said aperture and there brazed to said cross-head; the balls supported by said upwardly-concave annulus, whereby the thrust of the steering-head is transmitted through the balls to the annulus: substantially as set forth.



3. In a bicycle, in combination with the steering-head having a ball-seat at its lower end, the steering-fork comprising a tubular stem, and a hollow cross-head penetrated by the stem, the cross-head being made of sheet metal apertured to admit the stem and having the metal about the margin of the aperture struck inward with respect to the cross-head, forming an upwardly-concave annulus depressed from the upper side of the cross-head and below the normal plane of the metal thereof, and the balls lodged in such depressed annulus: substantially as set forth.

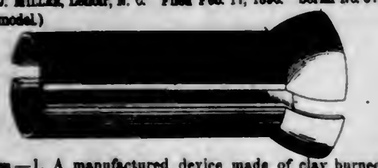
4. In a bicycle, in combination with the steering-head having a ball-seat at its lower end, the steering-fork comprising a tubular stem and a hollow cross-head penetrated by the stem, the cross-head being made of sheet metal apertured to admit the stem and having the metal about the margin of the aperture struck inward with respect to the cross-head, forming an upwardly-concave annulus depressed from the upper side of the cross-head and below the normal plane of the metal thereof; the ball-seat D supported in said depressed annulus and projecting above the outer margin thereof, and the dust-cap secured to the lower end of the steering-head overhanging the balls and depending outside the upwardly-projecting margin of the ball-seat: substantially as set forth.

574,997. HAY-SLING. OLE E. JENSEN, Clark's Grove, Minn. Filed Apr. 20, 1896. Serial No. 588,411. (No model.)



Claim.—A hay-sling comprising suspending-ropes, means for supporting said ropes, slats attached to said ropes, a hook attached to the slat at the free ends of one pair of ropes, a link attached to the slat at the free end of the other pair of ropes, a spring secured to said slat and bearing upon the hook when in engagement with the link, and means for releasing said hook.

574,998. FRUIT-TREE PROTECTOR. ALFRED A. KENT and ROBERT J. MILLER, Lenoir, N. C. Filed Feb. 17, 1896. Serial No. 579,573. (No model.)

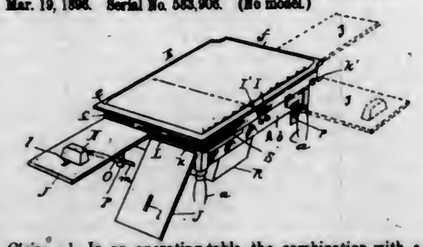


Claim.—1. A manufactured device made of clay burned and glazed or other durable material, in shape of a hollow pipe, one end enlarged in bell shape, combined with a lid made in a single piece with a central aperture and a slit from the circumference to the central aperture.

2. A manufactured device made as herein described, consisting of two lateral parts, which, being brought together and so held, form a hollow pipe bell-shaped at one end, of smaller diameter above, shouldered at the other end, to receive and retain the lid, combined with a lid made of a single piece &c. as described.

3. A manufactured device made as described, combined with a cold interior fill or packing composed of ice and sawdust, or other materials making a cold zone around the trunk of the tree in the hollow space of the pipe.

574,999. OPERATING-TABLE. CHARLES LAMKIN and JAMES T. SHIPLEY, Detroit, Mich.; said Lamkin assignor to said Shipley. Filed Mar. 19, 1896. Serial No. 583,906. (No model.)



Claim.—1. In an operating-table, the combination with a stationary stand or support, of central cross-bars rigidly secured thereon, a post carried by the cross-bars, a transverse lever pivotally supported on the upper end of the post, a table having a central cross-bar *d*, and the bearings F on the cross-bar *d* in which the ends of the lever engage, substantially as described.

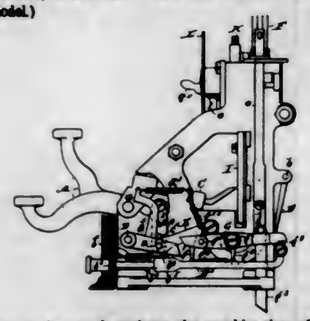
2. In an operating-table the combination with the supporting-stand, of a central post thereon, a trunnion-lever pivotally secured to said post, the table proper pivotally supported upon said trunnion-lever, curved bearings on the stand segments pivotally secured to said table in axial line respectively with the trunnions and the pivotal support of the lever, and slidingly engaging with said bearings on the stand, and means for locking said segments to the stand to hold the table in its adjusted position.

3. In an operating-table, the table proper E comprising the frame *e*, the stationary top *e* and the movable top *f*, the leaves J hinged to the end of said movable top, the adjustable brace Q for supporting the movable top at different inclinations, the horizontal notched bar *m'* and the notched brace O secured to the leaves J and adapted to engage with the brace Q.

4. In an operating-table, the combination with the table proper of the detachable leaves J secured thereto by a separable hinge connection, and movable means for locking them from accidental disengagement.

5. In an operating-table the combination with the table proper, and the detachable leaves J of a separable hinge connection, between said leaves and table, comprising the members K and locking-bolt M secured to the table and the members L secured to the leaves.

575,000. CASH INDICATOR AND REGISTER. CHARLES H. LITTLE, Melrose, Mass., assignor, by mesne assignments, to Robert F. Herrick, trustee, Boston, Mass. Filed June 11, 1894. Serial No. 514,191. (No model.)

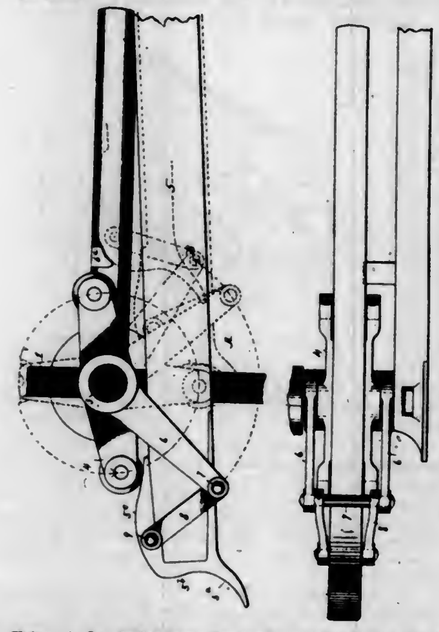


Claim.—1. In a cash-register, the combination of a key, a locking-bar, normally engaging said key and preventing the operation thereof, a lever, adapted to engage said locking-bar to hold said bar out of engagement with said key, and an arm raised by the registering movement of said key and depressed when said key returns to

position and adapted in the beginning of its downward movement to disengage said lever from said locking-bar and an auxiliary lever, adapted to engage said locking-bar when said first-named lever is disengaged therefrom, and to prevent the engagement of said bar with said key until the return movement of said key is nearly completed, said auxiliary lever being adapted to be disengaged from said locking-bar in the latter part of the downward movement of said arm, as and for the purpose specified.

2. In a cash-register, a key-lever having a hub provided with guards projecting therefrom above and below said hub, in combination with a guard-plate and with a rock-plate arranged above said key-lever and having a downhanging projection against which one of said guards bears, as and for the purpose specified.

575,001. BALING-PRESS. WINFIELD S. LIVENGOOD and ARTHUR J. MASON, Kansas City, Mo. Filed Feb. 11, 1896. Serial No. 578,840. (No model.)



Claim.—1. In a baling-press the combination with the pitman, the power-shaft and a trip-lever for operating the pitman, of compound hinged arms, one of said arms pivotally mounted on the power-shaft and the other arm pivotally connected with the pitman, substantially as shown and described.

2. In a baling-press the combination with the pitman, the power-shaft, and a trip-lever for operating the pitman, of compound hinged arms so disposed that the hinge is adapted to bear against the pitman during the initial forward movement; one of said arms pivoted on the power-shaft, the other arm pivotally connected with the pitman, substantially as shown and described.

3. In a baling-press the combination with the power-shaft, the trip-lever having antifriction end rollers and a pitman having a convex inner face at its vibratory end, of compound hinged arms so disposed that the hinge is adapted to bear against the pitman during the initial forward movement, one of said arms pivoted on the power-shaft, the other arm pivotally connected with the pitman, substantially as set forth.

4. In a baling-press the combination with the power-shaft, the trip-lever having antifriction end rollers, and a pitman having at its vibratory end a convex inner face, a curved end forming a pocket for the reception of the trip-lever roll, and an extension at its outer corner, of compound hinged arms so disposed that the hinge is adapted to bear against the pitman during the initial forward movement, one of said arms pivoted on the power-shaft, the other arm pivotally connected with the pitman, substantially as shown and described.

5. In a baling-press a pitman having at its vibrating end a convex inner face, a power-shaft, compound hinged arms connecting the pitman with said power-shaft, and a trip-lever adapted to act upon said convex inner face of the pitman during the initial movement of the instroke of the pitman, substantially as and for the purpose set forth.

6. In a baling-press a pitman having at its vibrating end a convex inner face, a curved end forming a pocket to receive the roller on the trip-lever, and an extension at its outer corner, a power-shaft, compound hinged arms connecting the pitman with said power-shaft, and a trip-lever provided with antifriction end rollers substantially as shown and described.

7. In a baling-press having a suitable baling-chamber, the combination with a delivery portion connected with said baling-chamber having an expansible end, of arms pivoted on one side of said expansible end, extending across the same and having pivotal connection on the other side of the baling-chamber, short arms pivotally connected with said arms forming therewith a toggle-joint and having a bearing against the side of said expansible end, a bracket secured to said end, a rocking head having a rocking bearing in said bracket, a threaded rod engaging said head and having a bearing against the knee of the toggle, and a wheel threaded on said rod bearing against said head, substantially as and for the purpose set forth.

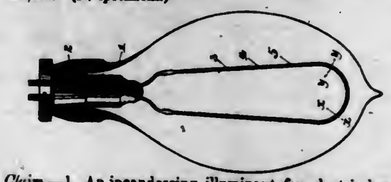
8. In a baling-press having a suitable baling-chamber, the combination with a delivery portion connected with said baling-chamber having an expansible end, of a toggle-joint one arm of which has a bearing on one side of said expansible end, and the other arm a bearing on the other side of said end, a bracket secured to said end, a threaded rod having at one end a bearing on the knee of the toggle, and a wheel threaded on said rod provided with a rocking bearing in said bracket, substantially as and for the purpose set forth.

9. In a baling-press the combination with the power-shaft and the pitman, of compound hinged arms, one of said arms pivotally mounted on the power-shaft, the other of said arms pivotally connected with the pitman, said arms being so proportioned that the arm pivoted to the power-shaft under restraint of the other arm acts as a single arm to control the path of the pitman during a portion of the instroke and in conjunction with the other arm controls the path of the pitman during the remainder of the stroke, substantially as shown and described.

10. In a baling-press the combination with the power-shaft, a trip-lever, and the pitman of a pair of arms pivotally mounted on the power-shaft and a pair of arms pivotally connected with the pitman and having a hinged connection with said arms mounted on the power-shaft substantially as and for the purpose set forth.

11. In a baling-press the combination with the power-shaft, a trip-lever, a pitman and a convex inner face on the pitman, of a pair of arms pivotally mounted on the power-shaft and a pair of arms pivotally connected with the pitman and having a hinged connection with said arms mounted on the power-shaft substantially as and for the purpose set forth.

575,002. ILLUMINANT FOR INCANDESCENT LAMPS. ALEXANDER DE LODYGUINE, Pittsburg, Pa. Filed Jan. 4, 1893. Serial No. 457,227. (No specimens.)



Claim.—1. An incandescing illuminant for electric lamps composed of an incandescing metallic body and containing a conducting-fillet of different material, substantially as described.

2. An illuminant for electric lamps composed of an incandescing body of practically non-ductile metal and containing a fillet of different material.

3. An illuminant for electric lamps composed of an incandescing body of practically non-ductile metal and containing a fillet of ductile metal.

4. An illuminant for electric lamps composed of an incandescing body of practically non-ductile and infusible metal and containing a fillet of platinum.

5. An illuminant for electric lamps composed of an incandescing body of chromium and containing a fillet of conducting material.

6. An illuminant for electric lamps composed of an incandescing body of chromium and containing a fillet of platinum.

7. The method of making illuminants for electric lamps which consists in imparting to a conducting-fillet the shape desired, depositing thereon a metallic oxid and subjecting the same to the action of hydrogen gas, substantially as described.

8. The process of making illuminants for electric lamps which consists in imparting the shape desired to a conducting-fillet, passing a heating-current through the fillet and subjecting the heated fillet to the action of a metallic oxid and of hydrogen gas.

9. A process of making illuminants for electric lamps which consists in imparting the desired shape to a conducting-fillet, passing a heating-current through the fillet in an atmosphere of vaporized chromium oxid and subsequently heating the resulting illuminant in an atmosphere of hydrogen.

10. The method of making illuminants for electric lamps which consists in imparting the shape desired to a conducting-fillet, passing a heating-current through the fillet in an atmosphere of chlorochromic acid and subsequently heating the resulting illuminant in an atmosphere of hydrogen.

11. The method of making illuminants for electric lamps which consists in bending a platinum fillet to the shape desired, passing a heating-current through said fillet in an atmosphere of chlorochromic acid and then passing a heating-current through the resulting illuminant in an atmosphere of hydrogen.

12. The method of making illuminants for electric lamps which consists in imparting the shape desired to a conducting-fillet, dipping said fillet into liquid chlorochromic acid, and subjecting the dipped fillet to the action of heat, moist air and hydrogen.

575,008. AUTOMATIC BRAKE FOR VEHICLES. AUGUST F. MOSKENWEBER, HENRY C. MOSKENWEBER, and GUSTAV MOSKENWEBER, Henderson, Minn. Filed Feb. 24, 1896. Serial No. 580,442. (No model.)



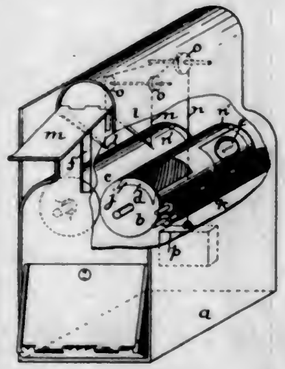
Claim.—1. In a brake, the combination of a transverse rock-shaft designed to be mounted on the running-gear and provided with a pair of arms disposed longitudinally of the rock-shaft and arranged substantially parallel, and a band-brake provided with a band and having the terminals thereof connected to the arms of the rock-shaft, whereby when the latter is rotated the band will be operated, substantially as described.

2. In a brake, the combination with a running-gear, of a transverse rock-shaft provided with a pair of arms disposed longitudinally of the shaft and arranged substantially parallel, an outer ring or wheel provided at its inner periphery with teeth, an inner ring or wheel mounted on the adjacent wheel of the running-gear, receiving the outer wheel or ring and provided at its periphery with pawls arranged to engage the said teeth, a band arranged on the outer ring or wheel and having its terminals connected with the arms of the rock-shaft, and the clips secured to the inner ring or wheel and engaging the spokes of the adjacent wheel of the running-gear, substantially as and for the purpose described.

3. In a brake, the combination with a running-gear, of a transverse rock-shaft journaled on the rear bolster and provided with a centrally-arranged depending loop extending beneath the ratchet, said rock-shaft being provided at its ends with substantially parallel arms disposed longitudinally of the shaft and arranged adjacent to the hind wheels, an operating-lever mounted on the front of the tongue, a cable extending from the lever to the loop of the rock-shaft, a clip adjustably connecting the cable to the loop of the rock-shaft, a pair of pulleys located beneath the front axle and arranged at opposite sides of the cable, and band-brakes connected with the hind wheels and having the terminals of the bands secured to the arms of the rock-shaft, substantially as described.

4. In a device of the class described, the combination of a loop-arm, a cable, and a clip composed of two sides provided at one end of the clip with pivotally-connected ears, and detachably connected at the other end of the clip and adapted to clamp the cable, the upper section being provided with a curve or band receiving the loop, substantially as described.

575,004. COMBINED STAMP-CANCELING, POSTMARKING, AND RECORDING MAIL-BOX. WARD MCLEAN, Brooklyn, N. Y. Filed Oct. 23, 1894. Serial No. 526,737. (No model.)



Claim.—1. The combination with a mail-box or other letter-receptacle, of rolls adapted for passing the letters between them and canceling the stamps and postmarking the letters when dropped in the box, motive apparatus geared with one or both of said rolls for operating them, a motor detaining and releasing lever subject to the dropping letters, and the spring-guard located in the chute above the rolls for detaining letters falling in undue succession substantially as described.

2. The combination with a mail-box or other letter-receptacle, of rolls adapted for passing letters between them, and canceling the stamps and postmarking the letters when dropped in the box, motive apparatus geared with one or both of said rolls for operating them, and a motor detaining and releasing lever located in the grooves of the rolls and subject to the dropping letters in advance of the rolls substantially as described.

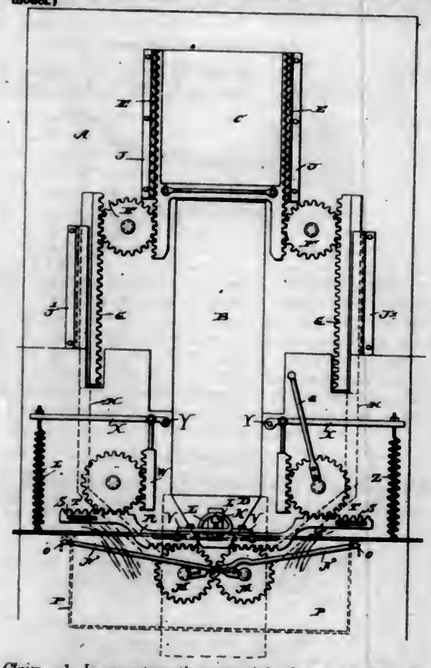
3. The combination with a mail-box or other letter-receptacle, of rolls adapted for passing the letters between them, and canceling the stamps and postmarking the letters when dropped in the box, motive apparatus geared with one or both of said rolls for operating them and consisting of the arms of the slot-cover, and cord or cords and weight connected with said rolls substantially as described.

4. The combination with a mail-chute, of rolls adapted for passing the letters between them and canceling the stamps and postmarking the letters when dropped in the chute, and means for automatically actuating the rolls, said rolls located at one side of the main passage of the chute for free passage of other letters dropped from above substantially as described.

5. The combination with a mail-box or other letter-receptacle, of rolls adapted for passing the letters between them and canceling the stamps and postmarking the letters, means for actuating said rolls, and recording apparatus whereof the prime mover is located under the rolls and adapted to be actuated by the letters impelled by the rolls substantially as described.

6. The combination with a mail-box or other letter-receptacle, of rolls adapted for passing the letters between them and canceling the stamps and postmarking the letters, means for actuating the rolls and registering apparatus whereof the prime mover is a star-wheel located under the rolls and subject to the letters impelled by the rolls, and carries the units-disk mounted on wheels in the ring carrying the annular disk, and said annular disk mounted on wheels carried in the case-ring and geared with the units-disk by the ratchet and pawl substantially as described.

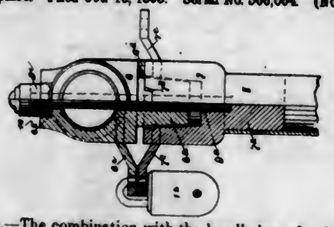
575,005. WATER-TIGHT BULKHEAD-DOOR. JOHN O. PELTON, Croydon, England. Filed Mar. 22, 1895. Serial No. 542,806. (No model.)



Claim.—1. In an automatic water-tight door for bulkheads the combination with a pair of traveling door members that are adapted to be reciprocally opened and closed by means of traveling racks and engaging pinions which are in operative connection therewith, means for holding said doors in open normal position, that consists of tension devices engaging with said rack mechanism and a locking device controlled by said tension devices and an independent disengaging means for automatically releasing said doors thus held, which is actuated by the weight of a volume of water directed thereon, substantially as described.

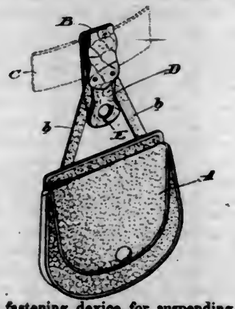
2. In an automatic water-tight door for bulkheads the combination with a pair of vertically-traveling door members, that are adapted to be reciprocally raised and lowered by means of vertically-traveling racks and engaging pinions which are in operative connection therewith, means for holding said doors in open normal position, that consists of oppositely-disposed tension devices engaging with said rack mechanism and a locking device controlled by said devices and disengaging means for automatically releasing said doors thus held which is actuated by the weight of water flowing thereon, substantially as described.

575,006. ADJUSTABLE HANDLE-BAR FOR BICYCLES. WILLIAM PENBERTHY, Denver, Colo., assignor of one-half to Thomas C. Johns, same place. Filed Oct. 18, 1895. Serial No. 566,064. (No model.)



Claim.—The combination with the handle-bar of a bicycle, and the post or shank of the front fork, of the two clutch members, one made fast to the handle-bar, and the other made fast to the said post or shank, one member having a projection, and the other a counterpart socket, means for connecting the clutch members, one or more apertured arms attached to each clutch member, and means for locking the said arms together when the handle-bar is so adjusted as to cause the apertures in one pair of arms to register, said means consisting of a padlock whose hasp is adapted to enter the apertures of said arms, substantially as described.

575,007. SUPPORT FOR CHATELAINES. SIGMUND D. RAPPAPORT, Philadelphia, Pa. Filed June 10, 1896. Serial No. 594,952. (No model.)

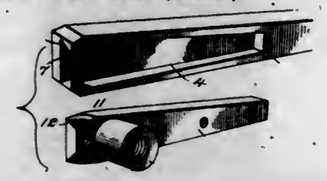


Claim.—1. A fastening device for suspending chatelaines &c., consisting of a suspending-piece having an open hook adapted to engage the belt, and a flap D fastened at one end to one portion of the hook and provided with means for detachably fastening its other end to the hook to close the open portion thereof and prevent the hook becoming disengaged from the belt.

2. A fastening device for suspending chatelaines &c., consisting of a bent metallic piece B adapted to engage the belt, and a flexible flap D fastened at one end to one portion of the piece and provided at its other end with means for detachably fastening it to the other portion of the piece A.

3. The combination with the suspension-hook B adapted to engage the belt, of the chatelaine or bag A suspended therefrom, the flap D fastened at one end to one portion of the hook B, and a detachable fastening between the other end of the flap D and the other portion of the hook B.

575,008. PITMAN. THOMAS REGAN, Crawford, Nebr. Filed Dec. 26, 1895. Serial No. 573,353. (No model.)



Claim.—1. A pitman having a longitudinal recess or seat tapered in width from an intermediate point toward its extremities and terminating at its inner end in an abrupt shoulder, a journal adapted to fit in a bearing-eye and provided with a securing-plate removably fitted in said recess or seat, said plate being constructed to correspond with and fit snugly in the recess or seat, and means for detachably securing the plate in place, substantially as specified.

2. A pitman provided in one side with a longitudinal tapered recess or seat terminating at its inner end in an abrupt shoulder and provided at its outer end with dovetailed inwardly-projecting or overhanging ears, a journal adapted to be fitted in a bearing-eye, a securing-plate carried by said journal and constructed to fit snugly in said recess or seat, the inner end of the securing-plate being abrupt to bear against said shoulder and the outer end thereof being dovetailed to engage the under surfaces of the overhanging ears at the outer end of the recess or seat, and means for detachably securing said plate against lateral displacement at its inner end, the thrust of the plate in opposite directions being resisted, respectively, by the abrupt shoulder and the overhanging ears respectively at the inner and outer ends of the recess or seat, substantially as specified.

575,009. BUNG. HOWARD A. RUNKLE, Reading, Pa. Filed Aug. 13, 1896. Serial No. 602,670. (No model.)



Claim.—1. A bung, consisting of a body having an air-inlet, a sleeve in said body, a pivoted valve at the inner end of said sleeve, a spring attached at one end to said valve adjacent to the pivot thereof and operating to hold said valve yieldingly to its seat, and a spring-

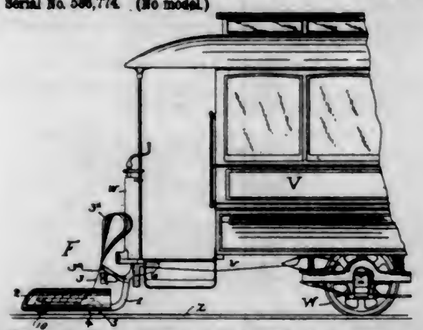
latch secured to said sleeve and having one end extended beyond the inner end thereof and curved to engage said valve.

2. A bung, consisting of a body having an air-inlet; a sleeve in said body; a valve, comprising a plate pivoted at one side to the inner end of said sleeve and having a projection extending from said pivot toward the wall of the body, a spring engaging said projection at one end and abutting against a projection from the wall of the sleeve at its other end, a body of rubber or similar material secured to said plate, and a core of wear-resisting material extending from said plate through said valve-body; and a spring-latch secured to the side of said sleeve remote from said spring and having a curved end engaging said valve when the latter is seated.

3. In a bung, the combination of the body having an internally-threaded outer end, a plug screwed into said outer end and formed with lugs extending outward from its outer surface, said lugs being below the plane of the outer end of the body, and a detachable key, formed with lugs extending into said outer end and relatively positioned to provide spaces fitting said lugs of the plug.

4. The herein-described tap for beer-barrels, &c., consisting of a body, having a lateral air-inlet and formed with an internally-threaded outer end, a sleeve in said bung, a valve at the inner end of said sleeve, a plug having an opening registering with that through the sleeve, said plug being threaded into the outer end of said body and having outwardly-extending lugs terminating below the plane of the top of the body, the draft-tube, and a detachable key the head of which is formed with an opening, whereby it may be inserted or removed when the draft-tube is in place, and is also formed with lugs relatively positioned to provide spaces to fit said lugs of the plug.

575,010. CAR-FENDER. WILLIAM H. RUSSELL, New City, and WILLIAM B. WISE, West New Brighton, N. Y. Filed Apr. 9, 1896. Serial No. 586,774. (No model.)



Claim.—1. The combination with a car of a fender provided with rollers or wheels to rest on the track and support the fender, accommodation couplings connecting the fender removably to the car-body and adapted to permit the body to move up and down on its springs without disturbing the fender, and means substantially as described at said coupling for preventing the front end of the fender from being lifted or tilted up by the turning of the fender about its rear edge, substantially as set forth.

2. A fender for a car having a frame, a front bar 2, secured to the said frame at its lower edge, inclined back at its upper edge, rounded at its ends 2×, which extend laterally beyond the track-rails and having straight end portions which extend back substantially parallel as shown, said front bar being oblique to the track-rails, and a concave spring-cradle mounted on said frame and front bar, as set forth.

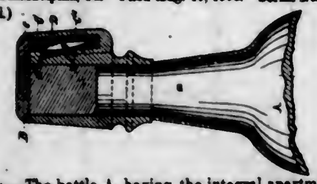
3. The combination with a car, and a fender therefor, of the open-topped, slotted coupling-brackets, 6, mounted on the car-body, one at each side, and the T-lugs 7, on the respective side frames of the fender, said lugs having each two studs 8, engaging the respective sockets of the brackets 6, and a shoulder 9, adapted to take against the face of the bracket and prevent the fender from being tilted up at its front edge, as set forth.

4. A fender for a car having a frame 1, and front bar 2, formed of thin sheet metal secured to the frame at its lower edge, inclined back at its upper edge, and rounded at its ends 2× which project beyond the track-rails, said front bar being oblique to the track-rails, substantially as set forth.

5. A removable fender for a car having an obliquely-arranged front bar 2 and a cradle formed of spring-stripe 3, attached at their front ends to said bar and bent to substantially the form shown, the ends of said stripe extending upward at the rear and connected by a spring-cushion strip 3^a, substantially as set forth.

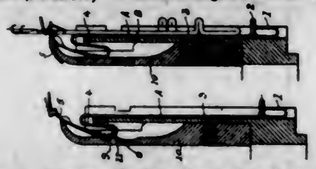
6. A removable fender comprising a frame, a front bar 2, and a cradle formed of the spring-stripe 3 and spring-cushion strip 3^a, said strips 3 being secured to the front bar at one end, curved downwardly back of said bar, curved upwardly at their rear ends, connected by the strip 3^a, and having spring-loops 3×, formed in their upright rear ends, substantially as set forth.

575,011. SEAL FOR BOTTLES OR FLASKS. GEORGE W. SNYDER, Philadelphia, Pa. Filed Aug. 19, 1896. Serial No. 603,240. (No model.)



Claim.—The bottle A, having the integral apartment extended laterally from the neck *a*, said apartment being provided with a passage-way *c*, extending downward therein said passage having a shoulder *d*, upon its upper end, in combination with a spring D, adapted to spread and fill said recesses, whereby the upper ends thereof rest respectively under the shoulders *d*, *d'*, of said recesses, whereby the stem is secured within the passage, thereby securing the cover B, upon the surface of the rim of the neck *a*, of the bottle, substantially in the manner shown and described for the purpose set forth.

575,012. WEB-NEEDLE FOR KNITTING-MACHINES. GEORGE F. STURGESS, Leicester, England. Filed Dec. 30, 1895. Serial No. 573,847. (No model.) Patented in England Oct. 31, 1894, No. 20,235.



Claim.—1. A web-needle formed out of steel wire, having provisions whereby the thread is measured off and the loop held by the spring-pressure substantially and for the purposes set forth.

2. A web-needle having a prong to measure off the yarn and a hook for holding the knitted loop by spring-pressure, adapted to slide longitudinally, substantially and for the purposes set forth.

3. A web-needle having a spring-bend 4, curve 5, prong 6, and hook 7, substantially and for the purposes set forth.

4. A flexible-wire web-needle having a tail 1, foot 2, stem 3, and prongs 6, substantially and for the purposes set forth.

5. A flexible-wire web-needle having a tail 1, foot 2, stem 3, prongs 6, hooks 7, substantially and for the purposes set forth.

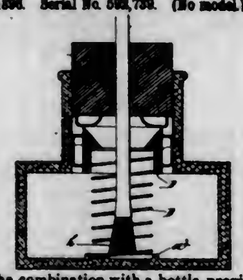
6. A flexible-wire web-needle having a tail 1, foot 2, stem 3, prongs 6, hooks 7, and spring-bend 4, substantially and for the purposes set forth.

7. A flexible-wire web-needle having a tail 1, foot 2, stem 3, prongs 6, hooks 7, spring-bend 4, and curved portion 5, substantially and for the purposes set forth.

8. A wire web-needle having a tail 1, foot 2, stem 3, prong 6, hook 7, spring-bend 4, curved portion 5, and pivot 8, substantially and for the purposes set forth.

9. A wire web-needle having tail 1, foot 2, stem 3, prong 6, hook 7, spring-bend 4, curved portion 5, pivot 8, and projection 9, substantially and for the purposes set forth.

575,018. MUCILAGE-BOTTLE. GEORGE W. TAYLOR, Orange, Tex. Filed May 23, 1896. Serial No. 592,739. (No model.)



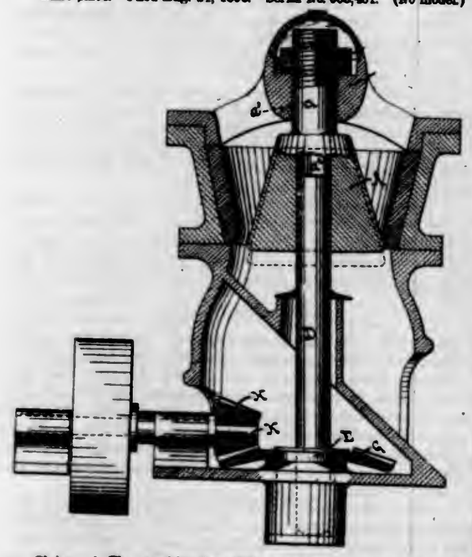
Claim.—1. The combination with a bottle, provided with an enlarged neck, of a vertically-movable tubular guide which is sustained concentrically within said neck, and supported by a spiral spring which rests upon the bottom of the bottle, and a plug or stopper through which passes the handle of the brush, said plug or stopper being adapted to be inserted into the neck and to depress said guide, substantially as shown and described.

2. The combination with a bottle, provided with an enlarged neck, of a vertically-movable tubular guide which is sustained concentrically within said neck, and supported by a spiral spring which rests upon the bottom of the bottle, and a plug or stopper through which passes the handle of the brush, said plug or stopper being adapted to be inserted into the neck and to depress said guide, and said brush being adapted to be passed through said guide, and said guide being provided with an annular inwardly-directed shoulder by means of which the surplus mucilage may be removed from the brush, substantially as shown and described.

3. The combination with a bottle, provided with an enlarged neck, of a vertically-movable tubular guide which is sustained concentrically within said neck, and supported by a spiral spring which rests upon the bottom of the bottle, and a plug or stopper through which passes the handle of the brush, said plug or stopper being adapted to be inserted into the neck and to depress said guide, and said brush being adapted to be passed through said guide, and said guide being provided with an annular inwardly-directed shoulder by means of which the surplus mucilage may be removed from the brush, and said guide being also provided at its opposite sides with outwardly-directed wire loops by which it is retained concentrically in the neck of the bottle, substantially as shown and described.

4. The combination with a bottle, provided with an enlarged neck, of a vertically-movable tubular guide which is sustained concentrically within said neck, and supported by a spiral spring which rests upon the bottom of the bottle, and a plug or stopper through which passes the handle of the brush, said plug or stopper being adapted to be inserted into the neck and to depress said guide, and said brush being adapted to be passed through said guide, and said guide being provided with an annular inwardly-directed shoulder by means of which the surplus mucilage may be removed from the brush, and said guide being provided at its opposite side with outwardly-directed wire loops by which it is retained concentrically in the neck of the bottle, and said plug or stopper being provided on its bottom with radial wire loops which are adapted to come in contact with said guide, substantially as shown and described.

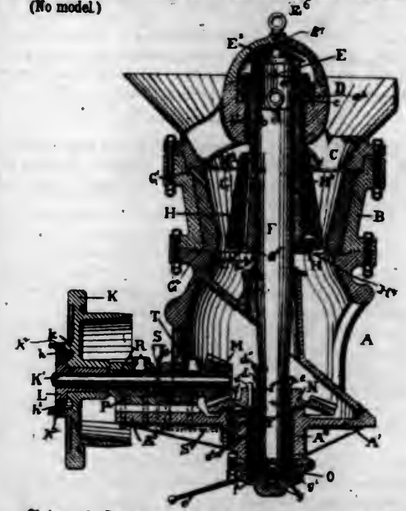
575,014. GYRATORY CRUSHER. KLAS H. TERNSTEDT, Birdsborough, Pa., assignor to the Diamond Drill and Machine Company, same place. Filed Aug. 21, 1896. Serial No. 603,451. (No model.)



Claim.—1. The combination of the crushing-chamber, the crushing head or cone loosely and revolubly suspended therein and formed with an axial bore, the driving-pinion, the bushing therein, and the gyrating shaft having its lower end eccentrically supported in said bushing and its upper end loosely inserted in the bore of the crushing-head.

2. The combination of the crushing-chamber, the crushing head or cone loosely and revolubly suspended therein and vertically adjustable, and formed with an axial bore, the driving-pinion, the bushing therein, and the driving-shaft eccentrically stepped in said bushing and having its upper end loosely inserted in the bore of the crushing-head.

575,015. GYRATORY CRUSHER. KLAS H. TERNSTEDT and JOS. H. TEMPLIN, Birdsborough, Pa., assignors to the Diamond Drill and Machine Company, same place. Filed Sept. 9, 1896. Serial No. 605,321. (No model.)



Claim.—1. In a gyratory crusher, the combination with the body and base A', hopper, spider, and vertical shaft of the machine; of the flanged sleeve surrounding the vertical shaft, truncated cone-shaped crushing-head supported or suspended by the spider and vertical sleeve, and through the medium of a number of interposed sectional staves, the lower portion of the head being secured by bolts and nuts to the flange of the sleeve, substantially as described and for the purpose set forth.

2. In a gyratory crusher, the combination with the body and base A' hopper, spider, vertical shaft, vertical sleeve surrounding the same, truncated cone-shaped crushing-head, suspended from the vertical sleeve and spider, interposed sectional staves, chilled pieces located in the hopper, perforated conical cap located upon the upper end of the vertical sleeve, flanged bushings *b*, *b'*, encircling the upper part of the vertical sleeve, split nut located upon the flange of bushing *b*, packing-ring E^2, packing E^3, and eyebolt, all arranged and operated substantially as and for the purpose set forth.

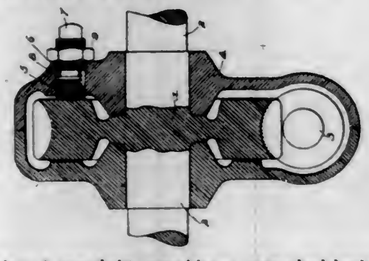
3. In a gyratory crusher, the combination with the body and base A', hopper, spider, vertical shaft, vertical sleeve, truncated cone-shaped crushing-head, interposed sectional staves, chilled pieces located in the hopper, perforated conical cap, flanged bushing *b*, *b'*, split nut, packing-ring, and its packing, and eyebolt located in the upper part of the vertical shaft; of the downwardly-projecting extension A^2, of the base A', of the body, driving-bushing located therein, having its upper portion cup-shaped whereby an oil and waste reservoir, and dust-protector for the vertical-shaft bearing is formed, oil-cup *d'*, antifriction-disks *g*, *g'*, hinged-bottom bearing-plate, hand-bar, oil-wells *s*, *s*, channel *s'*, plate covering said wells, and channels, communicating pipe S', oil-cup S, overflow-pipe s^3, gear N, located in the base of the body of the machine, and secured to the driving-bushing, all arranged and operated substantially as described and for the purpose set forth.

4. In a gyratory crusher, the combination with the body and base A', hopper, chilled pieces located therein, spider, vertical shaft, vertical sleeve, crushing-head suspended or supported from said vertical shaft through the medium of said spider and sleeve, interposed sectional staves between the crushing-head and sleeve, perforated conical cap flanged bushings *b*, *b'*, split nut, packing-ring and its packing, eyebolt located in the upper part of the shaft F downwardly-projecting extension A^2 of the base A' of the body, driving-bushing located in the extension A^2, having its upper portion cup-shaped, thus forming an oil-reservoir and dust-protector for the vertical-shaft bearing, oil-cup projected from the cover, antifriction-disks *g*, *g'*, hinged-bottom bearing-plate, hand-bar *o*, oil-wells *s*, *s*, channels *s'*, plate covering said wells and channels, communicating pipes S', oil-cup S, overflow-pipe s^3, gear N, located in the base of the body of the machine and secured to the driving-bushing; of the overhanging portion of the base, driving-shaft and rollers carrying

the same, pinion secured to the inner end of the driving-shaft and meshing with the gear N flanged sleeve secured to the opposite or outer end of the driving-shaft, pockets in the flange of said sleeve, combined pulley and fly wheel, annular ring formed thereon, perforations formed in said ring, brake-pins passed through these perforations and in the pockets of the flanged sleeve, band encircling the annular ring, and L-shaped slot formed in said band, substantially as described.

5. In a gyratory crusher, the combination of the supporting-casing A, provided with an opening T in the base thereof adjacent to the bearing P; of a sectional door comprising a central vertical plate, extending down and over the shaft and doors t, t' hinged to the central plate or section and adapted to be opened and closed substantially as shown, and for the purpose specified.

575,016. FRICTIONAL CONTROLLING DEVICE FOR SCREW-HOISTS. HENRY R. TOWNE, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed May 22, 1894. Serial No. 512,106. (No model.)



Claim.— A screw-hoist comprising a worm-wheel having gudgeons 2, a worm-shaft 3, a casing 4 in which the gudgeons are journaled, having an opening 6, a friction-block 5 mounted in the opening, an adjusting-screw 7 working through the casing, a spring 8 interposed between the block and the screw, and a clamping-nut 9, for locking the screw; substantially as described.

575,017. ATTACHMENT FOR VAPOR-BURNING STOVES. WILLIAM A. WAY, Iowa Falls, Iowa. Filed Jan. 9, 1896. Serial No. 574,925. (No model.)

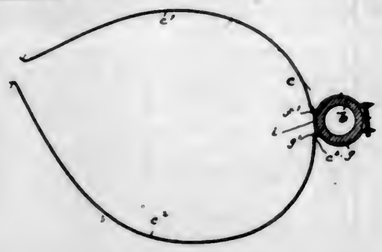


Claim.—An attachment for vapor-burning stoves consisting of a flat plate or under part having an opening at one end portion and a flange around the opening to project down through an opening in the top of a stove to inclose a burner, fixed bearings for a sliding frame at the other end portion and a sliding frame fitted in said bearings, and a movable upper part having a downward-projecting flange around its edge, two openings, for vessels, in its top and an opening in one end for the escape of products of combustion, to operate in the manner set forth, for the purposes stated.

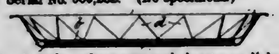
575,018. PARCEL-CARRIER FOR BICYCLES. FRED W. WENTWORTH, Paterson, N. J. Filed June 3, 1896. Serial No. 594,079. (No model.)

Claim.—1. A parcel-carrier for bicycles comprising two substantially horseshoe-shaped spring-clamps, each of said clamps being provided at or near its center with shoulders and a clip consisting of two polygonal-shaped sections provided with horizontally-arranged flanges, which latter are penetrated by its respective spring-clamp and bear against the shoulders thereof, all said parts, substantially as and for the purposes described.

2. A parcel-carrier for bicycles comprising two spring-clamps, substantially horseshoe-shaped, each of said clamps being provided at or near its center with shoulders, a clip consisting of two sections provided at opposite sides with projecting flanges, the flanges on one side are penetrated by its respective spring-clamp and bear against the shoulders thereof, and a tightening-screw arranged in the flanges on the opposite side, all said parts, substantially as and for the purposes described.



575,019. STICKY FLY-PAPER. FRANK V. WIGHTMAN, RUDOLPH W. BIRDSELL, and THEODORE D. NOSTRAND, Philadelphia, Pa. Filed Oct. 17, 1896. Serial No. 609,232. (No specimens.)



Claim.—1. A series of superposed sheets or disks of sticky fly-paper provided with integral flaps or points radiating from a common center and staggered so that a flap or point of one of the sheets may be separately seized and that sheet thereby removed, substantially as described.

2. The combination with a receptacle provided with a rim, of a series of superposed sheets or disks of sticky fly-paper provided with integral non-coated flaps or points arranged so as to radiate from a common center and staggered so that a flap or point of one of the sheets may be separately seized and that sheet thereby removed, and the said flaps or points normally resting upon the periphery or rim of said receptacle, substantially as described.

575,020. CONVERTIBLE MEASURE. HENRY E. ATTERBERY, Springfield, Ill., assignor of one-half to George M. Bennett, same place. Filed Mar. 30, 1896. Serial No. 585,377. (No model.)



Claim.—1. In a convertible measure, the combination of a member having handles provided with ledges, and a revoluble member connected with said first-named member and adapted to abut against the ledges on said handles, as set forth.

2. In a convertible measure, the combination of a bottomless member; handles having ledges and secured to said member; a clamping-plate and a pivot-plate secured to said member; a bottom member fitting in said bottomless member; and a knob and a pivot secured to said bottomed member, and adapted to work in said clamping-plate and pivot-plate respectively, as set forth.

3. In a convertible measure, a pivot provided with a roller, and a curved and slotted pivot-plate on which said roller turns, in combination with a revoluble member to which said pivot is secured; a complemental member with which said revoluble member is connected; and means adapted to clamp said members together; as set forth.

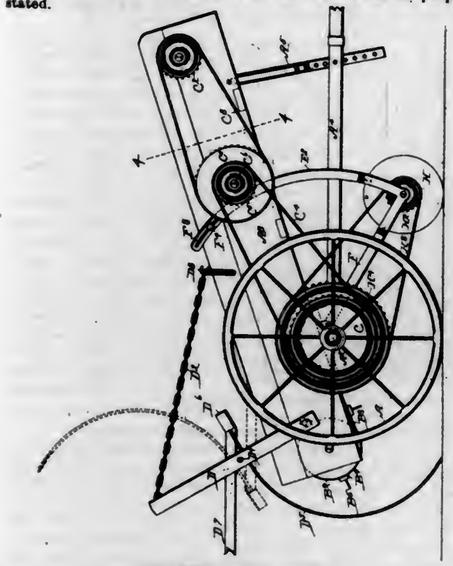
575,021. HAY RAKE AND LOADER. LEONARD AVERY, Montour, Iowa. Filed July 10, 1896. Serial No. 598,773. (No model.)

Claim.—1. The combination with a hay-loader of two arms pivoted to the sides of the frame to swing longitudinally of the frame, a bar mounted in said arms, rake-teeth pivoted to the bar and so arranged that said teeth may swing upwardly and rest on the top of the loader-frame, and means for adjusting said arms to change the position of the said teeth relative to the ground and the loader, for the purposes stated.

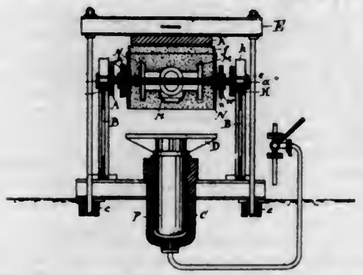
2. The combination with a suitable hay-loader, of two arms pivoted to the sides of the loader, a chain attached to each, hooks secured to the loader-frame to hold the chain, a bar pivotally mounted in the said arms, rake-teeth mounted thereon, a cross-bar for connecting the teeth and a handle secured to said cross-bar, all arranged substantially as and for the purposes stated.

3. The combination with a hay rake and loader, of an arm pivoted to one side of the loader-frame, a sharp-edged colter rotatably mounted in said arm, a sprocket-wheel fixed to the colter, a sprocket-chain driven by power derived from the loader passed around said wheel, and means for adjusting the colter relative to the loader-frame.

4. The combination with a hay rake and loader, of a sprocket-wheel connected with each of the driving-wheels, an arm having a bifurcated lower end, means for pivotally and detachably securing the arm to either side of the loader-frame, a sharp-edged colter, mounted in the said arm, a sprocket-wheel connected therewith, a chain for gearing it to one of the sprockets on the driving-wheels, and a rod leading from the lower end of said arm and adjustably secured to the loader-frame, substantially as and for the purposes stated.

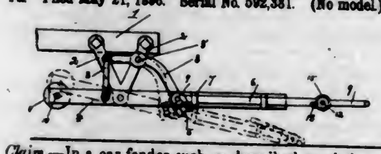


575,022. MOLDING-MACHINE. HANS BERG, Durlach, Germany. Filed Apr. 28, 1896. Serial No. 589,376. (No model.)



Claim.—In a molding-machine, the combination of a double-faced reversible pattern-plate, trunnions formed integral with said plate, vertically-elongated bearings in which the trunnions are adapted to move vertically and to rotate, mold-boxes and detachable means for connecting and supporting one of said mold-boxes on each face of the pattern-plate, a frame adapted to fit on said mold-boxes, a cross-bar pivotally mounted and carrying a presser-block which is adapted to swing with said cross-bar over and into the path of the mold-boxes in their upward movement and a hydraulic press beneath said mold-boxes and adapted to bear upon the sand in the lower mold-box and at the same time to move the mold-boxes and pattern-plate to cause the sand in the upper mold-box to be compressed by the presser-block, substantially as specified.

575,023. CAR-FENDER. ORSON W. BRENNER, Allegheny County, Pa. Filed May 21, 1896. Serial No. 592,381. (No model.)



Claim.—In a car-fender such as described consisting of the following parts: the hangers 2 secured to the car-front, the fender-frame 4 pivoted to the said hangers, the rods 6 loosely supported upon the said frame and provided at their forward ends with the trip-frame 9, the arms 3 pivoted to the said hangers and adapted to be operated by the said rods, the links 8 connecting the fender to said arms and adapted to be operated therefrom, the balance-weights 11 arranged upon the rear end of the fender and adapted to return the fender to position, all parts arranged and adapted to operate substantially as shown and described.

575,024. ESPALIER-WALL. WILLIAM BÜSCHE, Brussels, Belgium. Filed Apr. 14, 1896. Serial No. 587,502. (No model.) Patented in Belgium Dec. 11, 1895, No. 91,259; in England Dec. 17, 1895, No. 24,200, and in Germany Dec. 18, 1895, No. 26,118.



Claim.—1. An espalier-wall facing-plate, of hard ceramic composition having a heat-reflecting surface, provided with knobs projecting therefrom, substantially as described.

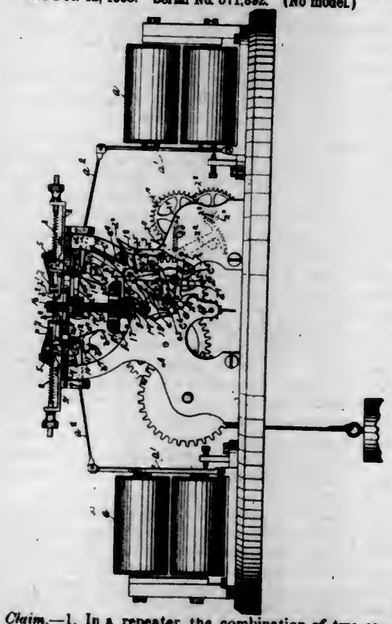
2. An espalier-wall facing-plate, of hard ceramic composition having a heat-reflecting surface provided with knobs molded in one piece therewith and projecting therefrom; substantially as described

3. The combination with a supporting-wall; of a facing secured thereto and comprising a series of plates of hard ceramic composition having heat-reflecting surfaces provided with means whereby a plant can engage therewith; substantially as described.

4. The combination, with a supporting-wall; of a facing secured thereto and comprising a series of plates of hard ceramic composition having a heat-reflecting surface provided with knobs projecting therefrom; substantially as described.

5. The combination, with a supporting-wall, of a coping of hard ceramic composition having a heat-reflecting surface, a rod secured to the coping for supporting a curtain or frame, and a facing secured to the supporting-wall and comprising a series of plates of hard ceramic composition having a heat-reflecting surface provided with means whereby a plant can engage therewith; substantially as described.

575,025. REPEATER. WINTHROP M. CHAPMAN, Needham, Mass. Filed Dec. 12, 1895. Serial No. 571,892. (No model.)



Claim.—1. In a repeater, the combination of two or more circuits each having a controller, independent operating devices for the repeater corresponding in number to the number of circuits and operated respectively by the said controllers, a repeating circuit-closer for each circuit, and independent detachable supports attached to the main frame of the repeater, each bearing one of the operating devices and also one of the repeating circuit-closers, substantially as described.

2. In a repeater, the combination of two or more circuits each having a controller, operating devices for the repeater, corresponding

in number to the number of circuits and operated respectively by the controllers, locking-out mechanism for holding all of said operating devices except the one connected with the operating-circuit, a co-operative part of said locking-out mechanism being connected with the operating devices, and an independent detachable support attached to the main frame for each operating device and parts connected therewith, substantially as described.

3. In a repeater, the combination of two or more circuits each having a controller, operating devices for the repeater, corresponding in number to the number of circuits and operated respectively by the controllers, locking-out mechanism for holding all of said operating devices except the one connected with the operating-circuit, a repeating circuit-closer for each circuit, connected to and movable with a co-operative part of the locking-out mechanism, said locking-out mechanism being formed integral with the operating devices, and an independent support attached to the main frame for each operating device and parts rigidly connected therewith, substantially as described.

4. In a repeater, the combination of two or more circuits each having a controller, bell-crank levers *b*, *b'*, corresponding in number to the number of circuits and operated respectively by said controllers, a repeating circuit-closer for each circuit rigidly attached to its corresponding bell-crank lever, and independent supports attached to the main frame, each bearing one of the bell-crank levers, and attached repeating circuit-closers, substantially as described.

5. In a repeater, the combination of a main motor, two or more circuits each having a controller independently-movable operating devices for the main motor corresponding in number to the number of circuits, and operated respectively by said controllers, locking-out mechanism for holding all of said operating devices except the one connected with the operating-circuit from operating the main motor, a co-operative part of said locking-out mechanism being rigidly secured to or formed integral with its corresponding operating device, and a repeating circuit-closer for each circuit also rigidly secured to said operating device, substantially as described.

6. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating devices for the main motor operated by said controllers, and restoring mechanism for said operating devices operated by said main motor at the end of each impulse of the signal, said operating devices being adapted to engage a projection common to them all, said projection being connected to an arm secured to a shaft, said shaft having also secured to it the locking-arm for the main motor, and also another arm carrying a roll, said roll being arranged to be acted on by a cam operated by the main motor, said operating devices serving to release said main motor, and said cam acting to restore said operating devices, and said operating devices also being so constructed that they may be restored by their controllers or magnets independent of said main motor, substantially as described.

7. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating devices for the main motor operated by said controllers, and restoring mechanism for said operating devices operated by said main motor at the end of each impulse of a signal, said restoring mechanism serving to partially restore said operating devices, and a latch for holding the operating device in its partially-restored position, and a releasing device for said latch operated by the controller, said action of the controller also serving to complete the restoration of said operating parts, substantially as described.

8. In a repeater, the combination of a main motor, two or more circuits each having a controller, and a corresponding number of operating devices for the main motor operated by said controllers, a locking-lever for said main motor having a single locking-surface, and operated by any one of said operating devices to release said main motor, and a restoring mechanism for said locking-lever operated by the main motor at the end of each impulse of the signal, said locking-lever also being so arranged that it may be restored by the action of the controllers independent of the action of said main motor, substantially as described.

9. In a repeater, the combination of a main motor, two or more circuits each having a controller, and a corresponding number of operating devices for the main motor operated by said controllers, a locking-lever for said main motor having a single locking-surface, and operated by any one of said operating devices, and a restoring mechanism for said locking-lever operated by the main motor at the end of each impulse of the signal, said locking-lever and said operating devices being so constructed that they may also be restored by their controllers or magnets independent of the restoring mechanism of said main motor, and a latch for holding the locking-lever in its restored position when restored by the main motor, and a releasing device for said latch operated by the controller, said latch not being operative when said locking-lever is restored by the controllers, substantially as described.

10. In a repeater, the combination of a main motor, two or more circuits each having a controller, and a corresponding number of operating devices for the main motor operated by said controllers, restoring mechanism for said operating devices operated by said main motor at each impulse of a signal, and a locking-lever for said main motor operated by any one of the operating devices to release the motor and restored by said restoring mechanism, said operating devices being so constructed that they may also be restored by their controllers independent of the action of said main motor, such action of said controllers also allowing said locking-lever to assume its locking position, substantially as described.

11. In a repeater, the combination of a main motor, two or more circuits each having a controller, and a corresponding number of operating devices for the main motor, operated by said controllers, restoring mechanism for said operating devices operated by said main motor at the end of each impulse of a signal, and a locking-lever for said main motor operated by any one of the operating devices to release the motor and restored by said restoring mechanism, said operating devices and said locking-levers being so constructed that they may be restored by their controllers or magnets independent of the action of said main motor and a latch for holding the operating device and locking-lever in their restored positions when restored by the action of the main motor, said latch not being operative when said parts are restored by their controllers, and a releasing device for said latch operated by the controller, substantially as described.

12. In a repeater, two or more circuits each having a controller, independent operating-levers corresponding in number to the number of circuits and operated respectively by said controllers, a main motor, a vertically-movable rod common to all said operating-levers and adapted to be acted upon and moved by any one of them to mechanically release said main motor, a pivoted locking-lever for said main motor and an intermediate connection between said vertically-movable rod and said locking-lever, substantially as described.

13. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating devices, operated respectively by said controllers to repeatedly release the main motor, a repeating circuit-closer for each circuit, both members of which are secured to an independently-movable base, a device for operating said repeating circuit-closers actuated directly by said main motor, and means directly operated by said main motor for moving bodily both members of all of said repeating circuit-closers except the one connected with the operating-circuit, into the path of movement of and so as to be operated by said device, substantially as described.

14. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating devices, operated respectively by said controllers to repeatedly release the main motor, a repeating circuit-closer for each circuit, both members of which are secured to an independently-movable base, a device for operating said repeating circuit-closers actuated directly by said main motor, and means directly operated by said main motor for moving bodily both members of all of said repeating circuit-closers except the one connected with the operating-circuit, into the path of movement of and so as to be operated by said device, and for holding them in such position until after the completion of the signal, substantially as described.

15. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating devices operated respectively by said controllers to repeatedly release the main motor, a repeating circuit-closer for each circuit, both members of which are secured to an independently-movable base, a device for operating said repeating circuit-closers actuated directly by said main motor, a locking-out mechanism for the operating devices positively moved into locking-out position by the main motor, a latch for holding the locking-out mechanism in such position, a releasing-arm therefor, and a timing device controlled by the main motor for operating said releasing-arm, substantially as described.

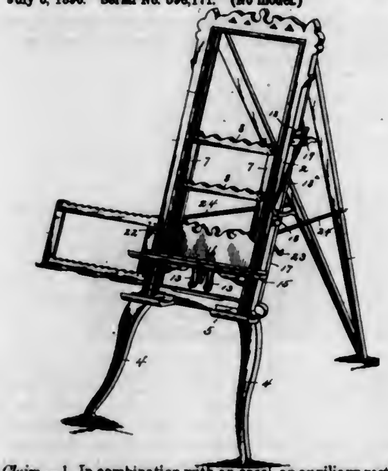
16. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating devices operated respectively by said controllers to repeatedly release the main motor, a repeating circuit-closer for each circuit, both members of which are secured to an independently-movable base, a device for operating said repeating circuit-closers actuated directly by said main motor, a locking-out mechanism for the operating devices, positively moved into locking-out position by the main motor, said locking-out mechanism also moving bodily both members of all the repeating circuit-closers except the one connected with the operating-circuit into the path of movement of and so as to be operated by the main motor, substantially as described.

17. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating devices operated respectively by said controllers to repeatedly release the main motor, a repeating circuit-closer for each circuit, both members of which are secured to an independently-movable base, a device for operating said repeating circuit-closers actuated directly by said main motor, a locking-out mechanism for the operating devices, positively moved into locking-out position by the main motor, said locking-out mechanism also moving bodily both members of all the repeating circuit-closers except the one connected with the operating-circuit into the path of movement of and so as to be operated by said main motor, a locking-out mechanism for the operating devices, positively moved into locking-out position by the main motor, said locking-out mechanism also moving bodily both members of all the repeating circuit-closers except the one connected with the operating-circuit into the path of movement of and so as to be operated by said main motor, a latch for holding said locking-out mechanism in its locking position, a releasing-arm therefor, and a timing device controlled by the main motor for operating said releasing-arm to move the latch at the completion of a signal, substantially as described.

18. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of bell-crank levers *b*, *b'*, operated respectively by said controllers, the arms *b'* thereof serving as operating-levers and the arms *b* depending therefrom, and a flanged wheel *f* moved by said main motor upon the reception of the first impulse into position to engage and hold all of said arms *b* thereby positively holding them all except the one connected with the operating-lever of the operating-circuit from operating the repeater, substantially as described.

19. In a repeater, the combination of a main motor, two or more circuits each having a controller, a corresponding number of operating-levers operated respectively by said controllers, a repeating circuit-closer for each circuit rigidly secured to its corresponding operating-lever, a pivoted support therefor, a device for operating said circuit-closers to repeat the signal actuated directly by the main motor, arms depending from the support of said repeating circuit-closers, and a flanged wheel *f* adapted to engage all of said arms except the one connected with the repeating circuit-closer of the operating-circuit, and to thereby bodily move said repeating circuit-closers into the path of movement of their operating devices, substantially as described.

575,026. **EASEL.** HARRY COOPER, San Antonio, Tex. Filed July 6, 1896. Serial No. 598,171. (No model.)



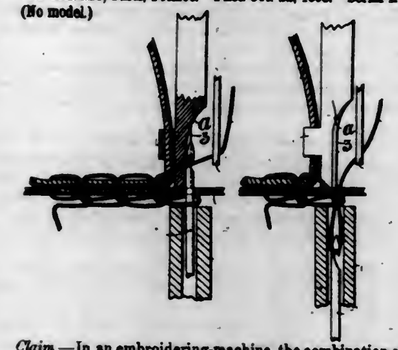
Claim.—1. In combination with an easel, an auxiliary rest hinged to the side of the easel-frame and adapted to be folded into the same plane therewith or to a position in rear thereof, and fastening means for holding said auxiliary rest in either of such positions, substantially as described.

2. In an easel, the combination of a vertically-adjustable rest, clutches located at the sides of the rest and adapted to engage with the main frame of the easel for holding the rest at an adjusted position, finger-levers fulcrumed to the rest and having independent connection with the clutches, and springs operating directly on the finger-levers to normally hold the clutches in engagement with the frame of the easel, substantially as set forth.

3. In an easel, the combination of a vertically-adjustable rest, friction-clutches pivoted to the rest adjacent to the edges thereof, finger-levers fulcrumed midway of their ends to the said rest, rods connecting the finger-levers with the pivoted clutches and having pivotal connection with each, and springs connecting the ends of the finger-levers with the rest for normally holding the clutches in engagement with the frame of the easel, substantially as and for the purpose set forth.

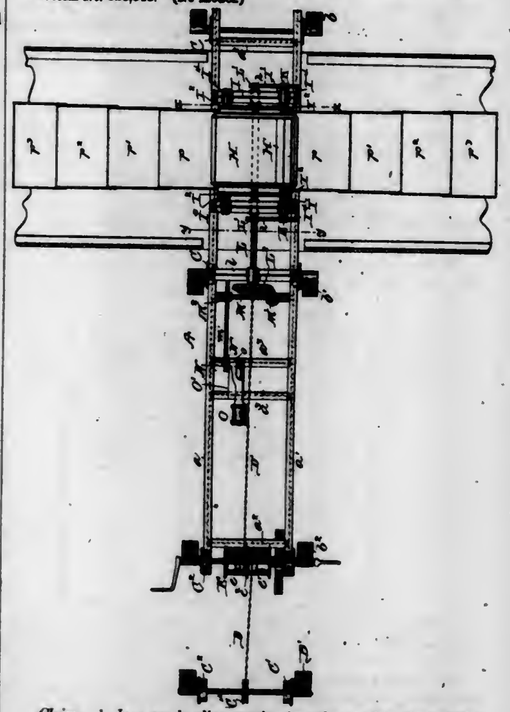
4. In combination with an easel-frame, a slide-bar moving through loops or keepers attached to one of the side bars of the easel, a picture-holding hook pivotally connected to said slide-bar and adapted to fold beside the slide-bar and into the plane of the easel-frame, and a dog for holding said slide-bar at any adjustment, substantially as described.

575,027. **EMBROIDERING-MACHINE.** EMILE CORNELY and ROBERT CORNELY, Paris, France. Filed Oct. 22, 1895. Serial No. 566,544. (No model.)



Claim.—In an embroidering-machine, the combination of a cord-guiding nipple above the cloth-plate, a thread-carrier for winding a thread around the nipple, a reciprocating hook-needle working upwardly from beneath the cloth-plate, a second nipple surrounding said hook-needle, and operating mechanism for said nipples, needle and thread-carrier, substantially as described.

575,028. **BOX-CAR LOADER.** HENRY R. DIERDORFF, Columbus, Ohio, assignor to Joseph A. Jeffrey, same place. Filed Nov. 9, 1894. Serial No. 528,313. (No model.)



Claim.—1. In a car-loading mechanism, the combination of the outer stationary frame, the carriage movable thereon into the car, the trough mounted on the carriage and having a central part on the transverse lines of the car-door and opposite end parts, all of said parts having stationary bottoms and sides, and a pushing device reciprocating longitudinally in the central part of the trough and above the stationary bottom, and means for moving it bodily back and forth therein, substantially as set forth.

2. The combination of the outside frame, the carriage, the trough having a central part fixed upon the carriage, and two opposing end parts formed of foldable or telescoping sections adapted to be folded to the side lines of the carriage and when in operation having stationary bottoms and sides, a reciprocating pusher mounted in the fixed central part of the trough, and means for reciprocating it bodily above the bottom thereof, whereby the material is pushed through the end

parts of the trough in contradistinction from being tossed or thrown substantially as set forth.

3. The combination with the carriage, a platform, the trough, and the plunger, of the chain connected to the plunger for reciprocating it, substantially as set forth.

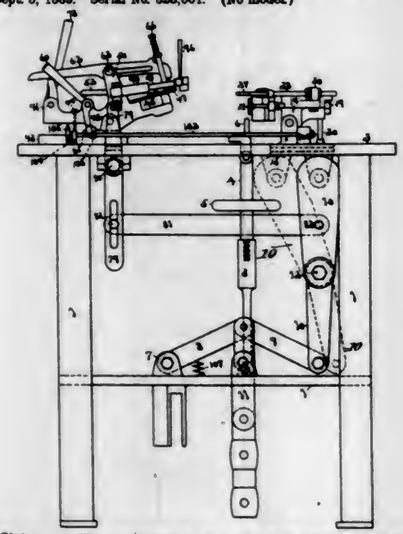
4. The combination with the carriage or platform, the trough, a plunger therein, parallel chains on each side of said plunger and loosely connected thereto, and means for moving said chains, substantially as set forth.

5. The combination with the carriage or platform, and the transverse trough thereon, of parallel chains traveling longitudinally of said trough, sprocket-wheels for supporting and driving the chains, a cross-plate connected to said chains, and traveling in said trough, a power-shaft on said carriage and power-transmitting devices connecting said sprocket-wheels with said power-shaft, substantially as set forth.

6. The combination with the main frame, and the carriage thereon adapted to be inserted into a car transversely thereof, of a rectilineally-reciprocating plunger mounted on the carriage, means for imparting movement to the plunger on lines parallel to the length of the car, a stationary trough or guide below the plunger, and a delivery-trough extending from the plunger longitudinally of the car to points beyond the sides of the door, substantially as set forth.

7. The combination with the main frame, and the carriage thereon movable into and transversely of a car, of a trough on the carriage situated longitudinally of the car, a plate in said trough moving rectilineally longitudinally of the car, and a supplemental delivery-trough extending from the aforesaid trough longitudinally of the car to points beyond the sides of the door, subetantially as set forth.

575,029. **LASTING-MACHINE.** JAMES FERGUSON and GEORGE FERGUSON, Bridgewater, Mass.; Hosea Kingman administrator of said James Ferguson, deceased; said Kingman assignor to said George Ferguson, Arthur D. Ferguson, and Mary E. Ferguson, same place. Filed Sept. 5, 1889. Serial No. 323,061. (No model.)



Claim.—1. The combination, in a lasting-machine, of the block, 41, having the cavity therein adapted to receive the toe of the last, and vamp around it, the central plate, 46, overlapping said cavity, and the pivoted wipers 47, 47, hung on each side of said central plate, and forming with it a continuous wiper edge, adapted to fold the edge of the vamp over the insole upon the last, and allow of its being tacked in that position, substantially as described.

2. The combination, in a lasting-machine, of the block, 41, having the cavity therein, adapted to receive the toe of the last with the vamp thereon, the central plate, 46, overlapping said cavity, the clamping-plate, 56, adapted to clamp the edge of the vamp to said central plate, and the pivoted wipers 47, 47, hung upon each side of said central plate and adapted to swing horizontally over the toe of the last and hold the vamp thereon, while being tacked, substantially as described.

3. The combination, in a lasting-machine, of the block, 41, having the cavity therein adapted to receive the toe of the last with the vamp thereon, the central plate, 46, overlapping the said cavity, the clamping-plate, 56, adapted to clamp the edge of the vamp to said central plate, the pivoted wipers 47, 47, hung upon each side of said central plate and adapted to swing horizontally over the toe of the last and hold the vamp thereon, and the presser-feet, 70, 70, adapted to press the edge of the vamp upon said wipers and allow the same to slip through beneath them during the folding process, substantially as described.

4. The combination, in a lasting-machine, of the central fixed toe-plate, 46, the clamping-plate 56, the pivoted wipers 47, 47, and the pairs of jaws, 97, 98, on each side of the vamp, substantially as described.

5. The combination, in a lasting-machine, of the flexible heel-band, 33, sustained upon pivoted plungers at the ends thereof, the latter being mounted upon the reciprocating block, 13, and the toe-lasting mechanism, substantially as described.

6. The combination of the toe-block, 41, provided with a cavity adapted to receive the toe of the last with the vamp thereon, the jaws 97, 98, on each side thereof mounted on plungers 91 moving in pivoted tubes 90 and extruded therefrom by the springs 93 so as to be adapted to swing laterally in and out and to yield to the movement of the last lengthwise, and the heel-block arranged to force the last forward toward the toe-block, substantially as described.

7. The combination, in a lasting-machine, of a fixed toe-block, provided with pivoted wipers, and a swinging pivoted heel-block, provided with wipers which adjust themselves to the angle of the last as it swings with the latter and arranged to move forward toward the toe-block and force the last and vamp under the wipers thereof, substantially as described.

8. The combination, with a toe-lasting machine, of the separate plate, having its outer edge substantially coinciding with that of the insole, and arranged to allow the vamp to be folded over it capable of being removed from over the insole, and a lever attached to the machine, arranged to take a bearing thereon and force the last into the vamp, substantially as described.

575,030. **LUBRICATOR.** FRANKLIN D. FORNEY, Glenville, Pa., assignor of one-half to J. A. Shue, same place. Filed June 10, 1896. Serial No. 594,976. (No model.)



Claim.—1. A lubricator for shafts having a basin or cavity, means for maintaining lubricating material at a uniform depth in said basin or cavity, and a lubricating-disk carried by the shaft and tapered toward its periphery to dip into the lubricant contained in the basin or cavity, the walls of the basin or cavity fitting snugly against the surfaces of said disk, substantially as specified.

2. A lubricator for shafts having spaced bearings, an interposed basin or cavity, a well or reservoir and means for maintaining lubricating material at a uniform depth therein, said well or reservoir being in communication with the basin or cavity, a lubricating-disk arranged in the basin or cavity and adapted to be carried by a shaft, and waste-receptacles arranged contiguous to and beyond the bearings and communicating by declined passages with the well or reservoir, substantially as specified.

3. A lubricator having a well or reservoir, a basin or cavity in communication with the well or reservoir and arranged contiguous to a shaft-bearing to receive a lubricating-disk carried by the shaft, and an air-tight oil-cup having a feed-tube extending into the well or reservoir and adapted to dip into the contents thereof to regulate the flow of lubricant, substantially as specified.

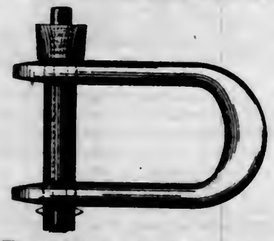
4. A lubricator having a well or reservoir, a basin or cavity arranged contiguous to a shaft-bearing and adapted to receive a lubricating-disk carried by the shaft, an air-tight oil-cup having a removable cap, and a feed-tube provided with a controlling-top and extending from the oil-cup to the well or reservoir, the extremity of said feed-tube dipping into the contents of the well or reservoir to maintain a uniform depth of lubricant therein, substantially as specified.

575,031. **CARPET-RAG LOOPER.** LAURA V. GILLILAND, Davenport, Nebr. Filed Mar. 23, 1896. Serial No. 584,503. (No model.)

Claim.—A carpet-looper, comprising an oblong case having a longitudinal bore or recess, a needle slidingly mounted therein and provided at its inner end with a lateral projection, the case being provided with a slot in one side communicating with the inner end of the bore and terminating short of the ends of the case, a leaf-spring located in said bore and arranged opposite the said slot in the case whereby it may be pressed inward by the finger for releasing the needle, the said spring having its free end offset to form a shoulder for engaging the heel end of the needle when thrust outward, and provision for securing the looper to a suitable support, substantially as described.



575,032. **CLEVIS-PIN.** WILLIAM P. KIMBRELL, Beaver City, Nebr. Filed June 27, 1894. Serial No. 515,896. (No model.)



Claim.—1. The combination of a clevis, and a clevis-pin comprising a tubular pin arranged in openings of the clevis, provided at its top with a shoulder to engage the upper portion thereof and having at its lower end a slot located beyond the lower side of the clevis, a key arranged in the slot, projecting therefrom and engaging the bottom of the clevis to lock the clevis-pin therein, a plunger arranged within the tubular pin and pivoted to and carrying the key, and a spring engaging the plunger and holding the key normally extended, substantially as described.

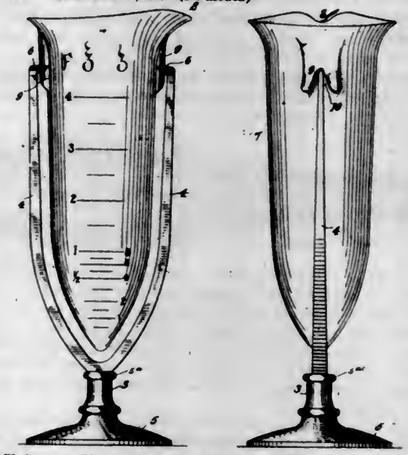
2. The combination of a clevis, and a clevis-pin comprising a tubular pin arranged in openings of the clevis, and provided at its top with a shoulder to engage the upper portion thereof and having at its lower end a slot located beyond the lower side of the clevis, a key arranged in the slot and projecting therefrom and adapted to engage the bottom of the clevis to lock the clevis-pin therein, a depressible plunger arranged within the tubular pin and projecting above the latter and pivoted to and carrying the key, and a spring housed within the tubular pin and holding the plunger normally raised to maintain the key extended, substantially as described.

3. The combination with a clevis, of a tubular pin arranged in an opening of the clevis, having a notch at its bottom and provided at its top with a head resting upon the top of the clevis, the lower end of the tubular pin being provided below the clevis with opposite slots having horizontal lower walls and inclined upper walls, a depressible plunger arranged within the tubular pin, provided at its lower end with a slot having a horizontal lower wall and an oppositely-inclined upper wall, oppositely-disposed keys pivoted in the slot of the plunger, projecting outward through the slots of the tubular pin and arranged to engage the bottom of the clevis, and a spring housed within the tubular pin and holding the plunger normally raised to maintain the keys extended, substantially as described.

4. A clevis-pin comprising a hollow cylindrical pin, provided with a head at one end and a transverse slot through the other end, said head containing an annular enlargement, a compression-spring within said enlargement, a plunger arranged to reciprocate within said hollow pin and provided with a head adapted to enter said enlargement and normally held in retracted position by said spring, a slot through the opposite end of said plunger and normally alined with the pin-slot, a key pivoted within the plunger-slot and arranged to project normally through and beyond the pin-slot, but adapted to be retracted within said pin-slot by the depression of said plunger, all combined substantially as described.

5. A clevis-pin comprising a hollow cylindrical pin, provided with a head at one end and a transverse slot through the other end, said slot having a bottom wall perpendicular to the pin and top walls extending obliquely upward thereto at the other ends of said slot, said head containing an annular enlargement, a compression-spring within said enlargement, a plunger arranged to reciprocate within said hollow pin and provided with a head adapted to enter said enlargement and normally held in retracted position by said spring, a slot through the opposite end of said plunger and normally alined at its bottom with the pin-slot bottom, two keys transversely pivoted at their inner ends, within the plunger-slot and arranged to project normally through and beyond the pin-slot, but adapted to be retracted within said pin-slot by the depression of said plunger, and a notch in the lower edge of said pin, arranged to aline with the key-pivot hole when the plunger is depressed, said notch being provided for the insertion of said key-pivot through the plunger, all combined substantially as described.

575,033. **SELF-LEVELING GRADUATING MEASURING-GLASS AND HOLDER.** JAMES F. LEHMANN, New York, N. Y. Filed May 4, 1896. Serial No. 590,147. (No model.)



Claim.—1. The combination of a druggist's or similar glass having inverted-V-shaped lugs on opposite sides near its top, and a base and pedestal with standards the ends of which bend inward and engage said lugs from the lower side, whereby the glass takes a vertical position, and is free to be lifted from the standards.

2. The combination of a graduated druggist's or similar glass tapering to a point at its lower end, inverted-V-shaped lugs near the top of the glass, and a base with standards engaging the lugs, whereby the glass hangs freely, and is free to be lifted from the standards.

575,034. **METALLIC CASING FOR SHIPMENT OF PETROLEUM.** CHARLES N. LEROY, Paris, France. Filed Dec. 19, 1895. Serial No. 572,657. (No model.) Patented in France Nov. 3, 1894, No. 242,607.



Claim.—1. A metallic barrel or cask for the transportation of petroleum or other liquids, composed of two sheet-steel or sheet-iron cylinders of equal diameters and of the same length, each stamped from a single piece of metal with an integrally-formed cap or head at one end, and firmly united together by incasing one cylinder within the other while the outer cylinder is heated, substantially as set forth.

2. The combination with the two cylinders *a b* of substantially the same diameter and length and each having an integrally-formed head or cap at one end, and adapted to be tightly united together by inserting one cylinder within the other, as described, of a ring *d* of malleable metal or the like inserted in the bottom of the outer cylinder *a* and adapted to unite with the edge of the inner cylinder *b*, substantially as set forth.

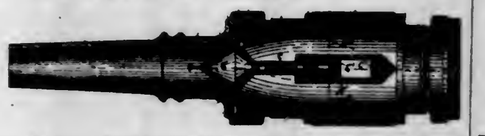
3. A metallic barrel or cask for the transportation of petroleum and other like liquids, consisting of two stamped-up sheet iron or steel cylinders of substantially equal diameters and length, each having one end closed by an integrally-formed head or cap provided with ribs or corrugations, the said cylinders firmly united to form a complete receptacle by inserting the open end of one into the open end of the other and shrinking one upon the other, substantially as set forth.

575,085. POST FOR FENCES. ALBERT MARBLE, Lansing, Mich., assignor of one-half to Alva M. Dayton, same place. Filed Oct. 26, 1896. Serial No. 610,106. (No model.)



Claim.—The combination of a base provided with a tapering top forming a central apex and having inclined faces adapted to shed water, a wooden post supported upon the apex of the base, and vertical bars embedded in the base, extending vertically therefrom at opposite sides of the post and secured to the latter, substantially as described.

575,086. HOSE-NOZZLE. PETER B. MONTROIS, Watertown, N. Y., assignor of one-half to Frederick M. Carpenter, same place. Filed Apr. 17, 1896. Serial No. 587,968. (No model.)



Claim.—1. In a hose-nozzle, the combination of an inclosing shell having an annular spray-opening in its outer peripheral wall inclining forwardly from the inner face of said wall, said inner face being contracted forwardly toward the spray-opening, a sleeve movable lengthwise of the inclosing shell for opening and closing the spray-opening, and a valve having a substantially conical rear face for deflecting the water through the spray-opening, substantially as and for the purpose specified.

2. In a hose-nozzle, the combination of an inclosing shell having an internal passage and an annular spray-opening in its outer peripheral wall inclining forwardly from the inner face of said wall, for communicating with the internal passage, said inner face being contracted forwardly toward the spray-opening, and the front side of the spray-opening being extended inwardly beyond the rear side of said opening, and being formed with a forwardly-inclining annular shoulder at its outer edge projecting beyond the outer edge of said rear side, and a sleeve screwing upon the inclosing shell at the rear of the spray-opening for opening and closing said opening, said sleeve being provided with a forwardly-inclined annular face for engaging said shoulder, substantially as and for the purpose described.

3. In a hose-nozzle, the combination of an inclosing shell consisting of front and rear sections inclosing an internal passage and arranged end to end with their adjacent end faces separated for forming an annular spray-opening between said faces opening from said internal passage, means for connecting the sections, and a sleeve movable lengthwise of the inclosing shell for opening and closing the spray-opening, substantially as and for the purpose set forth.

4. In a hose-nozzle, the combination of an inclosing shell consisting of front and rear sections having their adjacent end faces separated and inclined forwardly for forming an annular spray-opening between said faces, screws passed through said end faces for connecting the sections, sleeves encircling the portions of the screws interposed between the end faces of the sections, and a sleeve movable lengthwise of the inclosing shell for opening and closing the spray-opening, substantially as and for the purpose described.

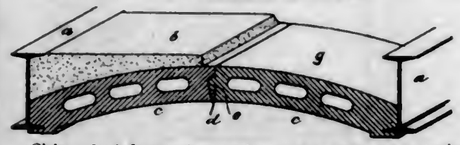
5. In a hose-nozzle, the combination of an inclosing shell consisting of front and rear sections having their adjacent end faces separated and inclined forwardly for forming an annular spray-opening between said faces, the front section being formed with an annular shoulder inclined forwardly from the inclined end face of the front section, means for holding the sections together, and a sleeve movable lengthwise of the inclosing shell for opening and closing the spray-opening, said sleeve being provided with a forwardly-inclined annular face for engaging said shoulder, substantially as and for the purpose set forth.

6. In a hose-nozzle, the combination of an inclosing shell consisting of front and rear sections inclosing an internal passage and arranged end to end, means between the adjacent end faces of the sections for separating the same and forming an annular spray-opening between said faces opening from the internal passage, means for connecting the sections, and a sleeve movable lengthwise of the inclosing shell for opening and closing the spray-opening, substantially as and for the purpose described.

7. In a hose-nozzle, the combination of an inclosing shell consisting of front and rear sections having their adjacent faces separated for forming an annular spray-opening between said faces, the front section being of less internal diameter than the remaining portion of the shell, and the front end of the inner peripheral face of the rear section being contracted for deflecting the water against the end face of the front section, means for connecting the sections, and a sleeve movable lengthwise of the inclosing shell for opening and closing the spray-opening, substantially as and for the purpose set forth.

8. In a hose-nozzle, the combination of an inclosing shell consisting of front and rear sections having their adjacent faces separated for forming an annular spray-opening between said faces, the front section being provided with an annular flange, screws for holding the sections together having their heads engaged with the flange and their opposite extremities passed through said end faces and engaged with the rear section, and a sleeve movable lengthwise of the inclosing shell for opening and closing the spray-opening, substantially as and for the purpose described.

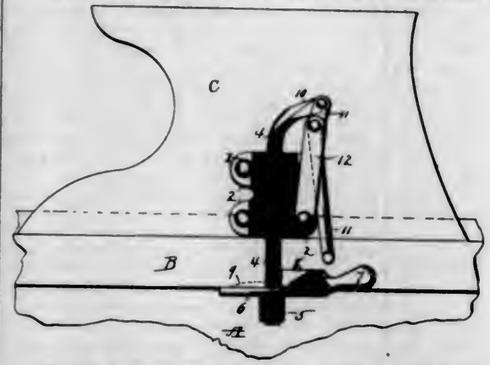
575,087. FLOOR-ARCH. JAMES D. MURPHY, New York, N. Y. Filed Apr. 1, 1896. Serial No. 585,680. (No model.)



Claim.—1. A floor-arch comprising a pair of blocks of suitable material adapted to fit together to form an arch, one of said blocks being formed with a groove in its abutting face, an integral rib formed on the other block, said rib being adapted to fit within the groove on the abutting block, substantially as described.

2. A floor comprising supporting-beams placed at suitable distances from each other, a pair of blocks bridging the space between said beams, said blocks being supported at their outer ends by said beams, their inner faces abutting together midway between said beams, an integral horizontal rib formed on the outer vertical face of one of said blocks, a corresponding groove being formed in the vertical face of the other block, said rib and groove interlocking, and a top of concrete laid over said blocks, substantially as described.

575,088. LOCK FOR VEHICLE-SEATS. MILTON H. OBERHOLTZER, Kingsley, Iowa. Filed Jan. 25, 1896. Serial No. 576,856. (No model.)



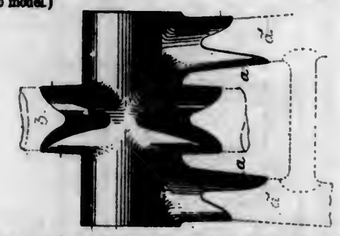
Claim.—1. The combination with a bracket adapted to be secured to a seat-standard, a vertically-movable rod supported in said bracket, and a pivoted lever for raising and lowering the rod, of a rotary clamping-plate secured to the lower end of said rod, said plate being provided with a tooth and with a stop, substantially as set forth.

2. The combination with a bracket adapted to be secured to a seat-standard, a vertically-movable rod supported in said bracket, and a rotary clamping-plate secured to the lower end of said rod, of an operating-lever pivoted to the rod, and a link pivoted at one end to the bracket and at its other end to the lever, substantially as set forth.

3. The combination with a bracket adapted to be secured to a seat-standard, a vertically-movable rod supported in said bracket, and a clamping-plate secured to the lower end of said rod, of a lever pivoted to the rod, a link pivoted at one end to the lever and at its opposite end to the bracket, the construction of parts being substantially as described whereby the lever is automatically locked by the link, substantially as set forth.

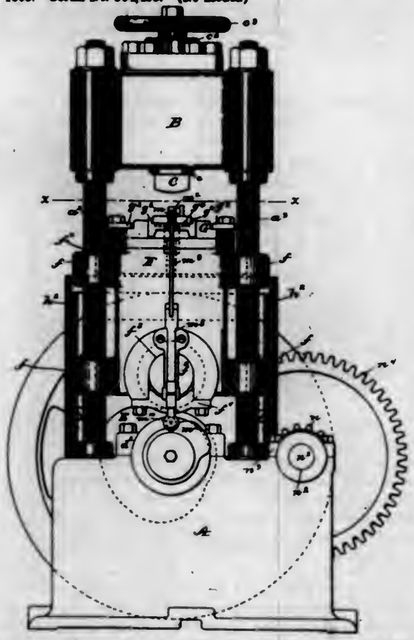
4. The combination with a bracket adapted to be secured to a seat-standard, a shaft adapted to have a longitudinal movement in said bracket and a cam secured to said shaft and adapted to engage the seat-rail, of a lever pivoted to said shaft, and links pivoted at one end to said lever between the ends of the latter and at their other ends to said bracket, whereby when said lever is moved in one direction, the cam will be released from the seat-rail and when moved in the other direction said cam will be caused to clamp the rail, the pivotal connections of the lever and the links being such that the pivotal connection of the links with the lever will move out of alinement with the pivotal connection of the lever with the shaft and the links with the bracket, substantially as and for the purpose set forth.

575,089. TUBE-JOINT FOR CYCLE-FRAMES. FREDERICK D. OWEN, Washington, D. C. Filed June 5, 1895. Serial No. 551,763. (No model.)



Claim.—A dressed tube-joint, made up of a tube end brazed or welded within a socket, the edge of the socket being of fish-mouth outline, one of the lips of the fish-mouth being longer than the other and the line of reduction of the tube end wall due to dressing being of such a nature that its parts are connected by portions of said tube end; substantially as described.

575,040. PRESS. FREEBORN F. RAYMOND, 2d, Newton, and CHARLES H. FOSS, Hyde Park, Mass., assignors to James W. Brooks, Petersham, and John Brooks, Cambridge, Mass., trustees. Filed Oct. 3, 1895. Serial No. 564,493. (No model.)



Claim.—1. The combination of the bed of the machine, the upwardly-extending rods, the stationary head D, the movable head F guided by the rods and having the cam-roll f^6, the shaft D having bearings on the bed and extending backwardly therefrom, the gear N fast to the shaft, the shaft n' having bearings in one side of the bed, the pinion n fast thereon and engaging gear N, the gear n^4 on said shaft n', the pinion n^5 having a bearing on an extension of the shaft D and meshing with the gear n^4, and a driving or fly wheel free on said extension of shaft and connected with the pinion n^5 to rotate it upon said shaft extension, as and for the purposes described.

2. The combination of a base A, having a long bearing in its upper surface for the shaft D and a central cavity upon each side of the bearing midway the length of the bearing, a pressure-cam secured to said shaft to turn in said cavity, caps for holding the shaft in the bearing, the pressure-head F having in its under side a long bearing for the shaft f^5 and a cavity midway the length of the same, a pressure-roll f^6 in said cavity arranged to bear upon the pressure-cam, caps for holding the shaft to the pressure-head, and suitable guides for said pressure-head, substantially as described.

3. The combination of the former C, the die G having a forward-extending feedway, the side guides or walls and a heel-pusher to traverse said feedway when the die is in its lowest position.

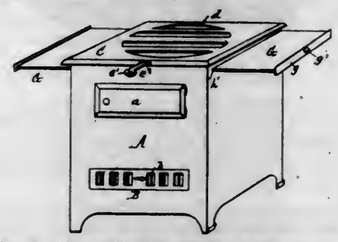
4. The combination of the die having the heel-guideway with the pusher M, cam m^{11} and intermediate connecting devices.

5. The combination of a die having the heel-feedway, the pusher M, its reciprocating holder and means for adjusting it lengthwise in its holder.

6. The combination of the die-block having the forwardly-extending feedway, the pusher M, its holding clamp or support m', the lever m^8 to which the said support or clamp is pivoted, the spring m^9, the slide m^6 having a cam-roll at its lower end, and the operating-cam m^{11}, the die-block having on each side of the die-cavity raised guides, as and for the purposes described.

7. The die-block having a die-cavity and an integral forward extension forming a support for a heel, an integral upward extension forming side guides therefor, as and for the purposes described.

575,041. STOVE. JAC. ROTHLEBERGER and HERMANN GRAICHEN, Niagara Falls, N. Y. Filed Apr. 16, 1896. Serial No. 588,163. (No model.)



Claim.—1. The combination with the stationary top plate of a stove having slots over the fire-chamber, of a damper arranged below said top plate and provided with slots adapted to register with the slots of the top plate and having a manipulating device which projects from said damper outwardly below said top plate, whereby said damper can be operated without disturbing the vessel resting on said top plate, substantially as set forth.

2. The combination with the stationary top plate of a stove having slots over the fire-chamber, of a damper arranged below said top plate and having slots adapted to register with those of the top plate, and an imperforate damper arranged below said slotted damper and adapted to exclude the heat from the same and from the overlying top plate, substantially as set forth.

3. The combination with the stationary top plate of a stove having transverse slots over the fire-chamber, of a longitudinally-movable damper arranged below said slotted top plate and having transverse slots adapted to register with the slots of the top plate, and two imperforate dampers arranged below said slotted damper and adapted to be moved transversely in opposite directions for exposing the slotted damper to the heat or excluding the heat therefrom, substantially as set forth.

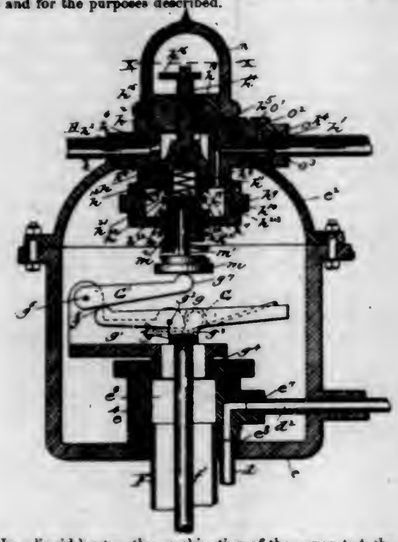
575,042. AUTOMATIC REGULATOR FOR LIQUID-HEATERS. LEVI L. ROWE, Boston, Mass. Filed June 7, 1893. Serial No. 476,824. (No model.)

Claim.—1. In a liquid-heater, the valve-casing A^2, having the gas-chambers A^3 and A^7, the upper adjustable section A^{11} of the valve within the chamber A^3, and encircling the chamber A^{17}; the inlet A^4 in the body of the valve-casing, and discharging into the chamber A^3; the body of the casing of the valve H', having the passage A^{16}, connecting the chamber A^3 with the chamber A^{17}; the movable cylindrical section A^{12}, within the chamber A^{17}, and provided with the lateral ports A^{20}; and the push-rod m', actuated as described, and supporting the cylindrical section A^{12}; in combination, substantially as and for the purposes set forth.

2. In a liquid-heater, the combination of the valve-casing; the section A^{11} of the valve, having the chamber A^{17}, and the inlets A^{18} thereto; the slidable section A^{12} of the valve, having a cylindrical portion, to enter the chamber A^{17}, and provided with ports A^{20}, one or more; and the push-rod m', actuated by the means described; substantially as and for the purpose specified.

3. In a liquid-heater, the casing e^3, attached to the diaphragm e, as specified, having a central threaded hole in which is screwed an

extensible tube F, to project downwardly into the liquid-holding tank, and into the upper end of which is screwed a bracket g', having the sleeve g^4, and supporting the levers of the valve-actuating mechanism; as and for the purposes described.



4. In a liquid-heater, the combination of the support c^4, the extensible tube F, its foot or end f, and the inextensible rod f'; with the lever-bracket g', having a sleeve g^4 to screw upon the support c^4, and affording means for the adjustment of the position of the levers in relation to the end of the inextensible rod; substantially as described.

5. In a liquid-heater, the valve-casing having the chambers A^6 A^7, the section A^{11} of the valve, contained in the chamber A^6, the cap A^9 and the support m^2 mounted therein, for guiding the push-spindle m', the slidable section A^{12} of the valve, and the inlet and outlet passages in said casing, and the ports in the two sections of the valve; as and for the purposes described.

6. In a liquid-heater, the support c^4, attached to the top of the tank, and having a hole or passage c^5, and an extensible tube carried by said support, in line with said passage; and a liquid-supply pipe, also carried by said support; as and for the purposes described.

7. In a liquid-heater, the combination with the tank A, of the chamber E, extending down from the upper extremity of the tank, downwardly into the same, and provided in its lower portion with the upwardly-extending tube-supporting section e^4; the tube F, depending from the section into the tank, the liquid-supply pipe, having the sections D, d^3, and d, the latter extending downward along the air-tube, to the lower extremity thereof; the rod f' within the air-tube, and rounded at its upper extremity; the lever G, having rounded bottom cavity as described, and eccentrically pivoted as shown; the lever G', eccentrically pivoted upon the bracket g', and operating in connection with the push-rod: and the valve H', upon the push-rod: substantially as described.

575,043. **WINDOW-CLEANER.** NILS O. STARKS, Madison, Wis. Filed May 5, 1896. Serial No. 590,263. (No model.)

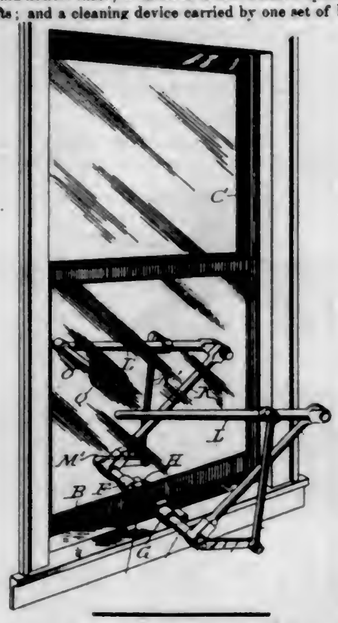
Claim.—1. A window-cleaner, comprising two shafts; means for securing the shafts upon the window-casing so as to permit rotation and longitudinal movement thereof, a series of levers or arms secured upon each end of the shafts, and a cleaning device secured to one set of levers.

2. In combination with two shafts revolubly and slidably mounted upon a window-frame, a series of levers attached to each end of said shafts; and a cleaning device carried by one set of levers.

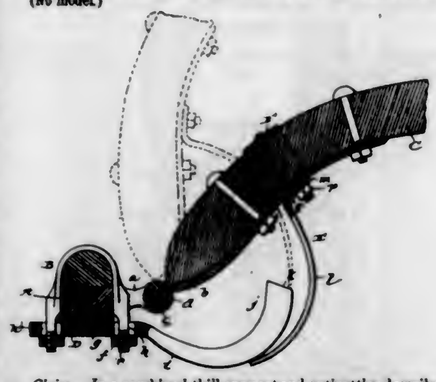
3. In combination with a plate provided with bearings, a hollow shaft mounted therein; a second shaft mounted within the first shaft; a series of levers connected to each end of the shafts; and a cleaning device carried by one set of levers.

4. In combination with the plate provided with bearings; a hollow shaft mounted therein; a second shaft mounted within the first shaft; a series of levers connected to each end of the shafts; a cleaning device carried by one set of levers; and a stop to prevent the sash from resting on the shaft.

5. In combination with the casting D; a plate provided with a recess adapted to fit over said casting; bearings on the plate; a hollow shaft mounted within said bearings, a second shaft journaled within said hollow shaft; a series of levers secured upon each end of the shafts; and a cleaning device carried by one set of levers.



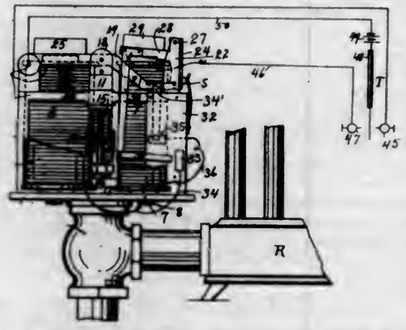
575,044. **ANTIRATTLER AND THILL-SUPPORT.** ALEXANDER M. STEWART, Winnipeg, Canada. Filed Apr. 20, 1896. Serial No. 588,337. (No model.)



Claim.—In a combined thill-support and antirattler described the combination of the axle, the shackle arranged on the axle and having its lower ends threaded and provided with nuts, the thill pivotally connected with the shackle, the bar D, having the horizontal portion arranged below the axle and provided with the longitudinal slots h, receiving the ends of the shackle, and also having the portion extending forwardly from the axle and curved downwardly and upwardly and having the broad downwardly and forwardly inclined free end k, the clip arranged on the thill and having the threaded ends and the nuts thereon and the spring having the head m, at its forward end secured by the nuts to the ends of the clip; said spring being curved in conformity to the curved portion of the bar D, and adapted to bear against the under side of said bar to prevent rattling and also adapted to bear at its free end upon the broad inclined end k, of said bar to support the thill in its raised position, all as and for the purpose set forth.

575,045. **ELECTRIC VALVE APPARATUS.** JOHN V. STOUT, Easton, Pa. Filed June 7, 1892. Serial No. 435,862. (No model.)

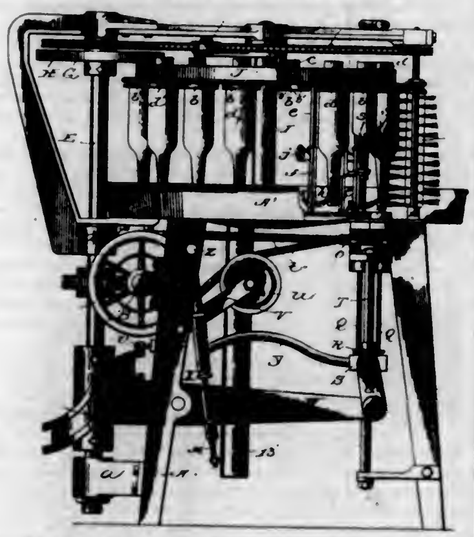
Claim.—1. In a valve-controlling device, the combination with the valve, of a frame carrying two magnets and two armature-levers, the armature-lever of one of the magnets controlling the valve and provided with a contact controlling the circuit of the second magnet only, the armature-lever of the second magnet operating as a lock for the armature-lever of the first magnet and provided with a contact controlling the circuit of the first magnet only, one of the said contacts being made when the other is broken, whereby but one magnet can be energized at the closing of the circuit, substantially as set forth.



2. In a valve-controlling device, the combination with the valve, the frame carrying two magnets and armature-levers, the armature-lever of one of the magnets controlling the valve and provided with a contact controlling the second magnet only, the armature-lever of the second magnet being provided with a contact controlling the circuit of the first magnet only, the armature-lever of the first magnet when in position to close the valve being locked by the lever of the second magnet, and when in position to open the valve itself serving as a lock for holding the armature-lever of the second magnet in position to make its contact, substantially as set forth.

3. In a valve device the combination with the bonnet, of a frame mounted thereon and supporting the magnets, uprights attached to the frame, a cross-piece connected to the uprights and forming a guide for the valve-stem, armature-levers connected to the uprights and carrying the contacts, one of the levers acting as a lock for the other and connections between the latter lever and the valve-stem, substantially as described.

575,046. **BOTTLE-WASHER.** CHARLES R. TUBELIUS, Chicago, Ill. Filed July 28, 1896. Serial No. 600,765. (No model.)



Claim.—1. In a bottle-washing machine the combination with a supporting-frame, of a rotatable bottle-rack bearing a series of driving-studs, and a constant-speed cam comprising a radial arm and mutilated concentric rings for engaging said studs successively to communicate thereto an intermittent motion, substantially as described.

2. In a bottle-washing machine the combination with a supporting-frame, of a rotatable bottle-rack bearing a series of driving-studs, suitable cleaning-brushes, and a constant-speed cam comprising a radial arm and mutilated concentric rings for engaging said studs successively to advance and lock them, substantially as described.

3. In a bottle-washing machine the combination with a supporting-frame, of suitable cleaning-brushes and a bottle-rack, of a studded drive-wheel forming part of said rack, upper and lower bottle-sockets mounted upon the drive-wheel, and a constant-speed cam comprising a radial arm and mutilated concentric rings for imparting to said rack an intermittent motion, substantially as described.

4. In a bottle-washing machine the combination with a supporting-frame, of suitable cleaning-brushes and a bottle-rack, of a stud-bearing drive-wheel forming part of the rack, a revoluble bottle-socket journaled in said drive-wheel, a spring-retained lower bottle-socket, a depending shaft upon which the latter is vertically adjustable, and a cam comprising a radial arm and mutilated concentric rings for imparting to the rack an intermittent motion, substantially as described.

5. In a bottle-washing machine the combination with a supporting-frame, of a bottle-rack having rotatable and vertically-adjustable hollow bottle-sockets, means for connecting such sockets in pairs, pipes for periodically injecting water through both sockets, a main supply-valve, and means for automatically controlling the valve, substantially as described.

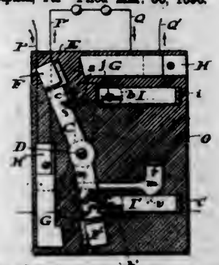
6. In a bottle-washing machine the combination with a supporting-frame, of a bottle-rack having rotatable and vertically-adjustable hollow bottle-sockets, of means for connecting such sockets in pairs, a peripheral flange upon the rotatable sockets, a grooved friction-wheel running at constant speed for periodically engaging said flange, pipes for periodically injecting water through both sockets, a main supply-valve, and a reciprocating lever for automatically controlling the valve, substantially as described.

7. In a bottle-washing machine the combination with a supporting-frame, of a bottle-rack bearing hollow bottle-sockets having radial water-openings, a corresponding series of hollow adjustable bottle-sockets, means for connecting such sockets in pairs, pipes for periodically delivering water through both sockets, a main supply-valve, and means for automatically controlling the valve, substantially as described.

8. In a bottle-washing machine the combination with a supporting-frame, of a rotatable bottle-rack, a reciprocating hollow cross-head, a series of hollow brush-bearing spindles mounted thereon, a corresponding series of telescoping sleeves upon the spindles, positively-driven spindle-pulleys for revolving said sleeves and spindles, a water-supply pipe communicating with the cross-head and spindles, a main supply-valve, and a lever for periodically opening the valve and elevating the cross-head, substantially as described.

9. In a bottle-washing machine the combination with a supporting-frame and drip-pan, of a drive-shaft, a vertical power-shaft driven thereby, an interposed safety-clutch, a rotatable bottle-rack, a series of revolving exterior brushes, a second series of revolving internal brushes, a reciprocating sleeve with split end surrounding each brush-spindle, a pulley driven from the main shaft for revolving each spindle, a hollow reciprocating cross-head supporting said spindles, a water-supply pipe in communication with the cross-head and spindles, a second pipe for delivering water upon the exterior of bottles, a main controlling-valve, a lever for opening said valve and simultaneously elevating the brush-spindles, and cams upon the driven shaft for rocking the lever aforesaid and imparting to the bottle-rack an intermittent motion, substantially as described.

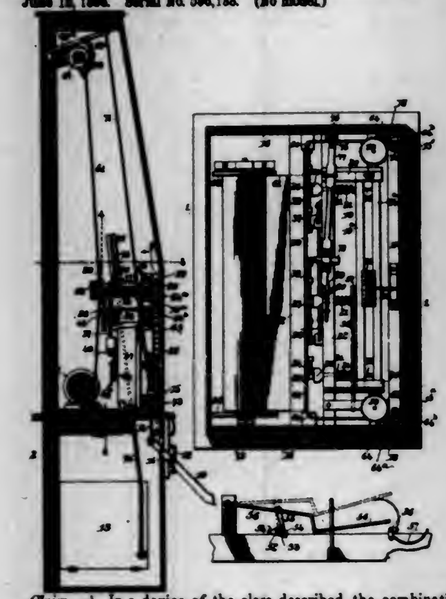
575,047. **ELECTRIC QUICK-BREAK SWITCH.** ARAKELYAN H. ARMEN, Philadelphia, Pa. Filed Mar. 30, 1896. Serial No. 585,374. (No model.)



Claim.—1. In an electric quick-break switch, the combination of a switch-lever and push-button working in planes perpendicular to each other, with a button-arm auxiliary to the button and a spring working between the switch-lever and button-arm, substantially as set forth.

2. In an electric quick-break switch, the combination of the lever C oscillating in a plane parallel with the surface upon which the switch is to be fastened, the push-buttons b b' moving in planes perpendicular to that of the lever C, the button-arms I I' adapted to govern the movement of the buttons, the springs s s' working between said lever and button-arms, and the dog m so constructed as to catch the lever C, substantially as described.

575,048. LETTER-BOX. HARVEY BENHAM, Plummer, Ind. Filed June 12, 1896. Serial No. 596,138. (No model.)



Claim.—1. In a device of the class described, the combination of a casing provided with a letter-box and having an entrance-opening, a movable cover arranged at the entrance-opening, a permanent record-sheet, movable stamps arranged to engage the record-sheet mechanism for actuating the stamps, and connections between the stamps and the movable cover and the latter and the record-sheet, whereby the stamps will be operated and the record-sheet advanced to bring a fresh portion opposite the stamps, when the cover is opened, substantially as and for the purpose described.

2. In a device of the class described, the combination of a casing provided with a letter-box and having an entrance-opening, a movable cover arranged at the entrance-opening, a record-sheet, movable stamps arranged to engage the record-sheet, mechanism for actuating the stamps, connections between the stamps and the movable cover, whereby the former will be operated when the latter is opened, a door for the letter-box, and an indicating device connected with the door, operated by the same and provided with a marking device arranged to engage the record-sheet when the door is opened, substantially as and for the purpose described.

3. In a device of the class described, the combination of a casing having a letter-box provided with an opening, ways arranged at the opening, a sliding cover mounted in the ways, an operating-lever fulcrumed on the casing at one end of the cover, a connecting-rod extending from the lever to the cover, a guide or keeper receiving the connecting-rod, and recording mechanism connected with the lever, whereby the latter will be operated when the cover is opened, substantially as and for the purpose described.

4. In a device of the class described, the combination of a casing having a letter-box and provided with a door, a reciprocating indicator provided with a marking device, and a rod capable of upward and downward movement connected with the door and having an inclined portion slidingly connected with the indicator, whereby the latter will be reciprocated when the rod is moved upward and downward, substantially as described.

5. In a device of the class described, the combination of a casing, a horizontally-disposed reciprocating indicator provided with an angularly-disposed portion arranged in suitable guides and adapted to shift the indicator laterally when the same is moved longitudinally, a marking device carried by the reciprocating indicator, and a rod capable of upward and downward movement and provided with an inclined portion slidingly connected with the reciprocating indicator, substantially as and for the purpose described.

6. In a device of the class described, the combination of a casing provided with a letter-box having an entrance-opening, a movable cover arranged over the opening, a reciprocating stamping-frame, movable stamps located adjacent to the stamping-frame, clock mechanism connected with and operating the stamps, and connections between the movable cover and the stamping-frame, whereby the latter is reciprocated, substantially as described.

7. In a device of the class described, the combination of a casing having a letter-box, a movable cover, an operating-lever connected with and adapted to open the cover, a horizontally-disposed reciprocating stamping-frame, movable stamps, clock mechanism for actuating the stamps, and a vertically-movable wedge connected with the operating-lever and arranged to engage and actuate the stamping-frame, substantially as and for the purpose described.

8. In a device of the class described, the combination of a casing having a letter-box and provided with a movable cover, an operating-lever connected with and adapted to open the movable cover, a reciprocating stamping-frame, movable stamps arranged to be engaged by the stamping-frame, a wedge connected with the operating-lever and arranged to engage the stamping-frame, and springs for returning the stamping-frame to its initial position, substantially as described.

9. In a device of the class described, the combination of minute and hour wheels capable of rotation and provided with a series of stamps, a record-sheet arranged to be engaged by the stamps, a stamping-frame, arranged to engage a stamp of each wheel and carry the same against the record-sheet, clock mechanism connected with and adapted to actuate the said wheels, and operating mechanism connected with and actuating the stamping-frame, substantially as described.

10. In a device of the class described, the combination of a supporting-frame, hour and minute wheels having their faces arranged in the same plane and provided with spokes, stamps mounted on the spokes and arranged on the faces of the wheels, a record-sheet arranged adjacent to the faces of the wheels in position to be engaged by the stamps, an ink-carrying ribbon interposed between the record-sheet and the stamps, and a movable stamping-frame arranged to engage a stamp of each of the wheels to cause the same to engage the ribbon and the record-sheet, substantially as described.

11. In a device of the class described, the combination of a supporting-frame, hour and minute wheels carrying stamps and provided with ratchet-wheels, oscillating levers, actuating-pawls connected with the levers and engaging the ratchet-wheels, a horizontal rod pivotally connected with one of the oscillating levers, passing through a perforation of the other lever and provided with a head, an actuating-wheel having a series of spokes arranged to engage the lever adjacent to the head of the rod, one of the spokes being offset from the plane of the other spokes and being arranged to engage the head of the rod, whereby both levers will be operated, substantially as described.

12. In a device of the class described, the combination of vertically-disposed hour and minute wheels carrying stamps, the substantially vertically-disposed oscillating levers 37 and 38 connected with and adapted to actuate the said wheels, a connecting-rod pivoted at one end to the lever 38 and passing through a perforation of the lever 37, an actuating-wheel having a series of arms or spokes arranged to engage the lever 37, one of the spokes being bent out of the plane of the other spokes and arranged to engage the adjacent end of the connecting-bar, whereby both levers will be oscillated, substantially as described.

13. In a device of the class described, the combination of a supporting-frame, the vertically-disposed hour and minute wheels provided with stamps, clock mechanism for operating the wheels, an ink-carrying ribbon arranged adjacent to the wheels and mounted on spools, a horizontally-disposed stamping-frame arranged to engage a stamp of each of the wheels, a vertically-movable horizontal bar, a vertically-movable wedge connected with the horizontal bar and arranged to engage the stamping-frame and adapted to actuate the same when the horizontal bar is drawn downward, and an actuating device connected with the horizontal bar, operated by the same and adapted to rotate the spools, substantially as described.

14. In a device of the class described, the combination of a vertically-disposed spool provided with a toothed wheel, and a vertically-movable wedge-shaped tooth arranged to engage the teeth of the wheel, whereby the spool is rotated, substantially as described.

15. In a device of the class described, the combination of a supporting-frame, vertically-disposed spools located at opposite sides thereof and provided with toothed wheels, an ink-carrying ribbon extending across the frame and having its ends arranged on the spools, a horizontal bar extending across the frame and capable of upward and downward movement, rods extending upward from the ends of the bar, and wedge-shaped teeth carried by the rods and arranged to engage the teeth of the spools, said wedge-shaped teeth being swiveled to the rods and adapted to be turned out of engagement with the toothed wheels to permit the ribbon to be reversed, substantially as and for the purpose described.

16. In a device of the class described, the combination of a letter-box having an opening, a permanent record-sheet mounted within the letter-box, time-controlled stamps, a movable cover arranged over the letter-box and opening and connected with and adapted to operate the stamps, whereby the time of deposit of a letter will be recorded, and connections between the record-sheet and the movable cover, adapted to advance the said sheet to bring fresh portions of the same opposite the stamps, substantially as described.

17. In a device of the class described, the combination of a casing having a letter-box and provided with a movable cover, a horizontal bar capable of vertical movement, an operating-lever connected with the cover and with the horizontal bar, stamp-carrying wheels, clock mechanism for operating the wheels, vertically-disposed spools provided with toothed wheels, a ribbon arranged on the spools and extending across the casing in position to be engaged by the stamps, a stamping-frame adapted to engage a stamp of each of the wheels, a wedge engaging the stamping-frame and connected with the horizontal bar, vertically-movable rods provided with actuating devices engaging the toothed wheels of the spools, a substantially vertically-disposed record-sheet, upper and lower rolls carrying the record-sheet, and an actuating device for rotating the upper roll, and a rod connecting such actuating device with the horizontal bar, substantially as described.

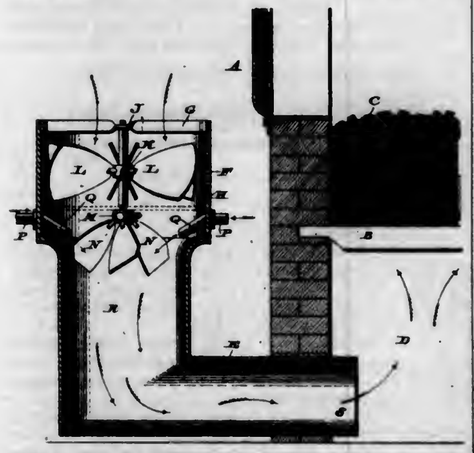
18. In a device of the class described, the combination of an oscillating stamp-carrier having a pair of arms, a substantially triangular shifting device connected with the oscillating stamp-carrier and provided at opposite sides with shoulders, a lever located above the shifting device, a pivoted finger depending from the lever and arranged to engage the shifting device, and means for operating the lever, substantially as described.

19. In a device of the class described, the combination of an hour-wheel provided with stamps, a cam-shaped arm connected with the hour-wheel, an oscillating stamp-carrier provided with a pair of arms, a triangular shifting device provided at opposite sides with shoulders a lever fulcrumed at one end and having its other end arranged to be engaged by the cam-shaped arm, and a pivoted finger depending from the lever and arranged to engage the shifting device, substantially as described.

20. In a device of the class described, the combination of a minute-wheel provided on its face with stamps, an hour-wheel carrying similarly-arranged stamps, operating mechanism for actuating the wheels and for rotating the hour-wheel one point at each complete revolution of the minute-wheel, an oscillating stamp-carrier provided with a pair of arms arranged to swing back and forth and carrying two stamps, and connections between the oscillating stamp-carrier and the hour-wheel, whereby the former will be shifted at the end of each complete revolution of the latter, substantially as described.

21. In a device of the class described, the combination of a supporting-frame, vertically-disposed spools located at opposite sides thereof and provided with toothed wheels, an ink-carrying ribbon arranged on the spool, guides mounted on the supporting-frame at opposite sides thereof and provided with openings or ways disposed longitudinally and transversely of the frame, wedge-shaped teeth, and swiveled rods carrying the teeth and provided with vertical flanges arranged in said ways and adapted to reciprocate in either of the openings thereof, substantially as and for the purpose described.

575,049. APPARATUS FOR PROMOTING COMBUSTION. CHAS. BERND, Jr., Riverside, N. J. Filed Oct. 16, 1896. Serial No. 609,043. (No model.)

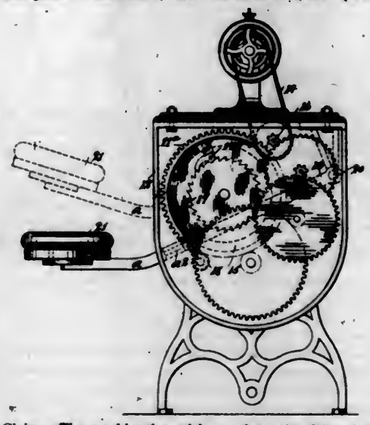


Claim.—1. A blower consisting of a casing, a plurality of fans mounted in the upper portion thereof, and a steam-supply pipe leading to the lower fan, said casing being contracted around said fan, forming a nozzle which leads to the commingling-chamber below the same, the discharge portion of the casing being below said chamber.

2. A blower consisting of a casing open at top and adapted to communicate with a furnace and an air-suction and a steam-operated fan in the upper portion of said casing, said fans having their shaft mounted in bearings in said portion, leaving the commingling-chamber below said fans unobstructed, the discharge portion of the blower being below said chamber.

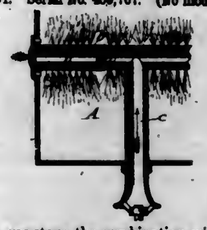
3. A blower consisting of a suitable casing open at its top, a plurality of cross-bars attached to said casing, a shaft having its bearings in said cross-bars and having an air-fan mounted thereon, said shaft having a journal projecting through the lower cross-bar and a steam-actuated fan mounted on said journal, in combination with a steam-pipe adapted to discharge upon said last-mentioned fan, a commingling-chamber below said fans, and means for conducting the commingled steam and air thence to a furnace.

575,050. SPRING-MOTOR. FRANCIS A. BURROWS, Columbia, S. C., assignor of one-half to James P. Rawls and Rufus N. Richbourg, same place. Filed Mar. 4, 1896. Serial No. 581,808. (No model.)



Claim.—The combination with a casing, of a drive-shaft, a gear-wheel loose on the drive-shaft, a helical spring having one end fixed to the drive-shaft and one end to the gear-wheel, mechanism connected with the gear-wheel, a disk loose on the drive-shaft, a flexible connection attached to the disk, a lever carried by the casing and attached to the flexible connection, a pawl carried by the loose disk, and a ratchet-disk with which the pawl engages, substantially as described.

575,051. GAS-STOVE BURNER. ALFRED R. DETWILER, Milwaukee, Wis., assignor to the Milwaukee Gas Stove Company, same place. Filed Oct. 26, 1891. Serial No. 409,767. (No model.)

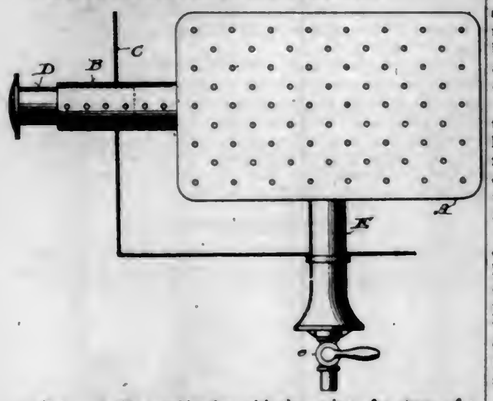


Claim.—1. In a gas-stove the combination with the casing, of a burner comprising two parts, one having a gas supply and regulating connection and the other a telescoping connection therewith, and constructed and arranged to be withdrawn, lighted and burned outside of said casing, and in that position to communicate its flame to a portion of the burner within through a suitable opening in the casing, substantially as and for the purposes set forth.

2. A gas-burner for ovens, ranges, &c., provided with a telescoping extension, having one or more gas-discharge apertures outside of the wall or casing of the oven or range when said extension is drawn out, substantially as and for the purposes set forth.

3. A gas-burner for ovens, ranges, &c., having gas-discharge apertures inside of the oven or range, and a telescoping extension, having corresponding apertures which may be drawn out and exposed for the purpose of lighting and regulation, outside of the wall or casing of the oven or range, said burner being provided with stops for limiting the movement of said extension, substantially as and for the purposes set forth.

575,052. GAS-STOVE BURNER. ALFRED R. DUTWILER, Chicago, Ill., assignor to the Milwaukee Gas Stove Company, Milwaukee, Wis. Filed May 22, 1896. Serial No. 592,535. (No model.)

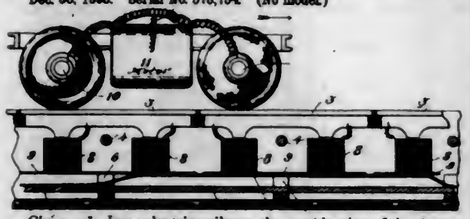


Claim.—1. The combination with the casing of a stove, of a burner having a gas and air supply connection and one or more gas-discharge apertures inside of said casing, and provided with a lighting extension projecting outside of said casing, and having one or more gas-discharge apertures in communication with or proximity to the apertures of the burner inside of the casing which has an opening for the communication of flame from the apertures outside to those inside, and a valve or cut-off controlling the supply of gas to said lighting extension, substantially as and for the purposes set forth.

2. The combination with the fire-chamber of a stove, of a burner-pipe located within the fire-chamber, extending outside the stove, and provided with a series of apertures extending therealong from the inside to the outside of the fire-chamber, said fire-chamber having an opening adjacent to the series of apertures and the apertures outside of the fire-chamber serving as lighting apertures, and devices for supplying and mixing air and gas, tapping the said burner-pipe at a point removed from the lighting apertures, substantially as and for the purposes set forth.

3. In a gas-stove, a burner provided with gas-supplying and air-mixing devices, and an extension projecting outside of the stove, and provided with a series of lighting-apertures, and a valve located in said extension, substantially as and for the purposes set forth.

575,053. ELECTRIC RAILWAY. LÉON DION, Natick, Mass., assignor to the Massachusetts Electric Company, Boston, Mass. Filed Dec. 30, 1896. Serial No. 573,734. (No model.)



Claim.—1. In an electric railway, the combination of the following instrumentalities, viz., a closed conduit along the line of track, a series of insulated contact-plates forming the top of said conduit, an electric motor and car or wheeled vehicle, a contact-carriage connected with said car or vehicle and adapted to travel on the contact-plates, main and auxiliary electrical conductors within said conduit, and a series of electromagnets within said conduit located between the electrical conductors and the contact-plates and arranged in a manner to establish an electric circuit between the main electrical conductor and the electric motor as the car is propelled along the line, substantially as herein set forth.

2. In an electric railway, the combination with a closed conduit having a top formed of insulated sections constituting contact-plates, a main electrical conductor within said conduit, and a flexible auxiliary electrical conductor superimposed on said main conductor, of a series of electromagnets within said conduit above said conductors, and in electrical connection with the contact-plates, whereby when an electric circuit is established by the passage of the traveling contact along the contact-plates, said electromagnets are successively energized in accordance with the travel of said contact, and magnetically pick up and pass along a raised portion of the flexible auxiliary electrical conductor, substantially as and for the purpose herein set forth.

3. In an electric railway, a closed conduit having insulated top sections forming contact-plates, electromagnets suspended from beneath, and in electrical connection with said contact-plates, in combination with non-magnetic plates interposed between said magnets and the electrical conductors and in electrical connection with said electromagnets, substantially as and for the purpose herein set forth.

4. In an electric-railway conduit, the combination, with the bottom and two sides thereof, of a series of top contact-plates, each plate having on its under side two or more electromagnets suspended therefrom and electrically connected therewith, and a non-magnetic plate corresponding in length to said contact-plate arranged parallel therewith and electrically connected to said electromagnets, substantially as and for the purpose herein set forth.

5. In an electric railway, the combination of a main electrical conductor, a flexible auxiliary electrical conductor, a series of insulated contact-plates along the line above said conductors, a series of electromagnets electrically connected to the bottom of said contact-plates, a series of non-magnetic plates above said conductors and electrically connected to the bottom of said magnets, a traveling contact-carriage on said contact-plates in circuit with said conductors, and a motor for controlling the movement of said traveling contact, substantially as and for the purpose set forth.

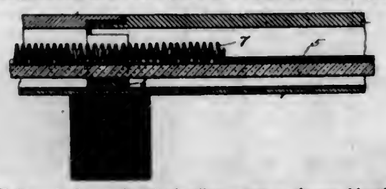
6. In an electric railway, the contact-plate 3, and non-magnetic plate 9, parallel to each other, in combination with the electromagnets 8, clamped between said plates at the ends thereof, and one end of the wire coils of each magnet being attached to the contact-plate and the other end to the non-magnetic plate, substantially as and for the purpose set forth.

7. In an electric railway, a closed tube or conduit, a main and auxiliary electrical conductor, and a series of electromagnets within the interior of said tube or conduit, in combination with a series of insulated exterior contact-plates, and a traveling contact-carriage on said contact-plates, substantially as and for the purpose herein set forth.

8. In an electric railway, in combination, the closed conduit having a series of insulated contact-plates, a contact-carriage adapted to travel thereon, a motor for propelling said carriage, a main and auxiliary electrical conductor within said conduit, a series of non-magnetic plates within said conduit above said conductors, and a series of electromagnets between said non-magnetic plates and the contact-plates, one end of the coils of said magnets being attached to the contact-plates and the other end of said coils being attached to the non-magnetic plates, all substantially as and for the purpose herein set forth.

9. In an electric railway a closed tube or conduit in sections, insulated from each other, with magnets therein, attached to the top of said tube or conduit, in combination with a non-magnetic main conductor and an auxiliary magnetic conductor superimposed thereon, said magnets lifting said auxiliary conductor, all as above described and for the purposes set forth.

575,054. ELECTRICAL PROPULSION FOR RAILWAY-CARS. LÉON DION, Natick, Mass., assignor to the Massachusetts Electric Company, Boston, Mass. Filed Feb. 27, 1896. Serial No. 581,065. (No model.)

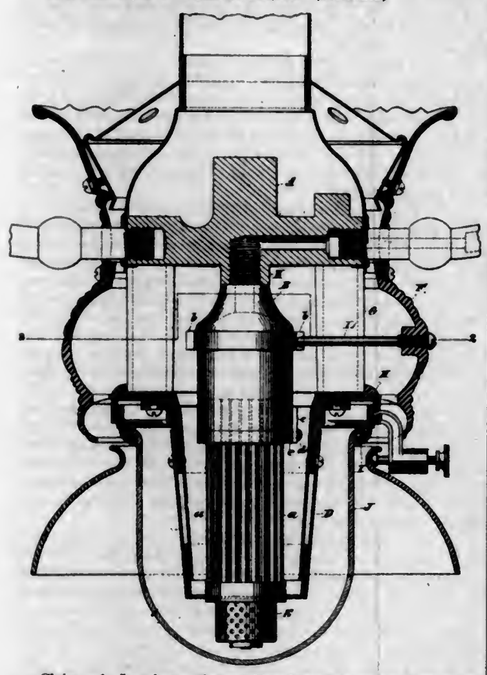


Claim.—1. In an electrical-railway system, the combination of a main electrical conductor having its upper surface grooved longitudinally, and a flexible, helically-formed auxiliary electrical conductor adapted to normally rest in the groove of the main conductor, substantially as and for the purpose set forth.

2. In an electrical-railway system, a closed conduit, a helical flexible auxiliary electrical conductor therein, in combination with a main electrical conductor having a concaved groove along its upper surface, for the purpose set forth.

3. In an electrical-railway system, a curved closed conduit, in combination with curved main and auxiliary electrical conductors therein, the auxiliary conductor being a helical spring composed of metal susceptible to magnetic attraction, and the main conductor composed of metal not susceptible to magnetic attraction and formed with a longitudinal guide or groove upon its upper surface for retaining the auxiliary conductor in its normal position, substantially as and for the purpose set forth.

575,055. LAMP. ROBERT M. DIXON, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, New York, N. Y. Filed Mar. 20, 1896. Serial No. 584,026. (No model.)



Claim.—1. In a lamp, the combination of a gas-supply pipe, an expansion-chamber depending therefrom and connected thereto by screw-threaded connections and provided with engaging means adapted to be projected into engagement with the engaging means on the expansion-chamber, a chimney-gallery provided with transverse inlet air-openings surrounding said expansion-chamber, a casing surrounding the chimney-gallery, a locking-pin carried by the casing and projecting through a transverse inlet air-opening in the chimney-gallery and into contact with the engaging means upon the expansion-chamber, substantially as described.

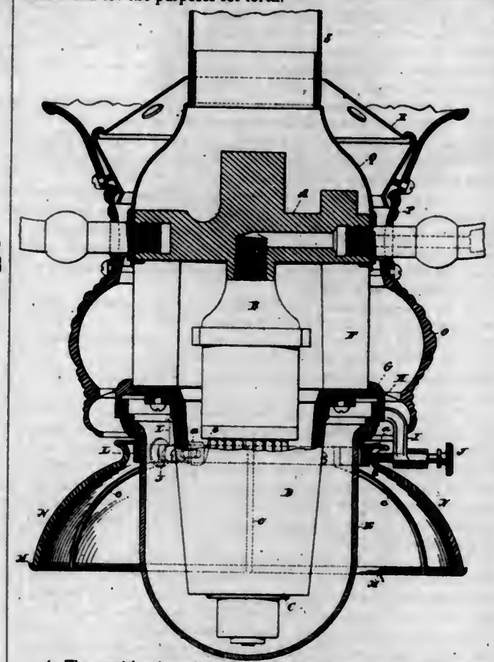
2. In a lamp, the combination of a gas-supply pipe, an expansion-chamber depending therefrom and connected thereto by screw-threaded connections and provided with engaging means adapted to be projected into engagement with the engaging means on the expansion-chamber, a chimney-gallery provided with transverse inlet air-openings surrounding said expansion-chamber, a casing surrounding the chimney-gallery, a locking-pin carried by the casing and projecting through a transverse inlet air-opening in the chimney-gallery and into contact with the engaging means upon the expansion-chamber, a burner-tube gallery suspended from the expansion-chamber, a lug mounted on the expansion-chamber and a screw passing through the lug and entering a part of the burner-tube gallery, whereby the parts may be securely locked from rotation upon each other, substantially as described.

575,056. LAMP. ROBERT M. DIXON, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, New York, N. Y. Filed Mar. 20, 1896. Serial No. 584,027. (No model.)

Claim.—1. In a lamp, the combination with a suitable support, of a shade-holder comprising annular members L M, arms c connecting the annuli, a shade N apertured at *e* and resting in the annulus M, and means projected through the apertures in the shade for connecting and disconnecting the shade-holder together with the shade supported thereon from the support.

2. In a lamp, the combination of a two-part globe-supporting ring, a bracket I projecting from the lower member of said two-part ring, a shade-holder comprising an annulus L, an annulus M and arms c connecting the annuli, said shade-holder having means coöperating therewith and with the brackets I to support the shade upon the lower member, whether the lower member be connected or disconnected from the other member of the two-part ring.

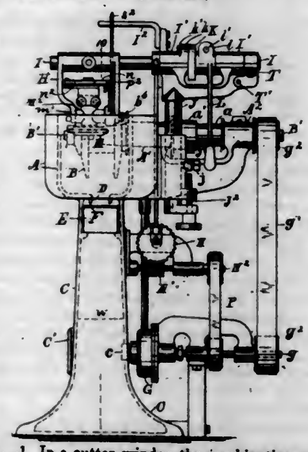
3. As a new and useful article of manufacture, the herein-described shade-holder comprising an annulus L, an annulus M of larger diameter than the annulus L, bowed arms c connecting the annuli, and perforated ears carried upon the annulus L, substantially as described and for the purposes set forth.



4. The combination with a shade of a holder comprising an annulus M, an annulus L, arms connecting the annuli, and perforated ears carried by the annulus L and projecting beyond the circumference of the said annulus L.

5. As a new and useful article of manufacture, the herein-described shade-holder comprising an annulus L, an annulus M of larger diameter than the annulus L, bowed arms c connecting the annuli, and perforated ears carried upon the annulus L and projecting beyond the annulus L, together with a screw or screws J for engagement with the ears, substantially as described and for the purposes set forth.

575,057. AUTOMATIC CUTTER-GRINDING MACHINE. ULRICH EBERHARDT and FRED L. EBERHARDT, Newark, N. J. Filed Sept. 5, 1896. Serial No. 604,965. (No model.)



Claim.—1. In a cutter-grinder, the combination, with means for sustaining the cutter and a grinding-wheel for making a cut upon the same, of water-jets applied at the opposite ends of such cut, to cool the cutter at opposite ends of the cut, substantially as herein set forth.

2. In a cutter-grinder, the combination, with the grinding-wheel and means for pressing a cutter thereon, of a water-pipe having two

nozzles arranged to direct water-jets toward one another upon the same side of such wheel, as and for the purpose set forth.

3. In a cutter-grinder, the combination, with means for sustaining a cutter having notches in its periphery and a grinding-wheel adapted to intersect the cutter at one of the notches, of water-nozzles arranged to discharge jets upon opposite sides of the cutter adjacent to such notch, substantially as herein set forth.

4. In a cutter-grinder, the combination, with the grinding-wheel, of two nozzles arranged to direct water-jets toward one another adjacent to the periphery of such wheel, and means for sustaining a cutter and intermittingly to adjust the cutting-faces against the wheel at the junction of such jets, as and for the purpose set forth.

5. In a cutter-grinder, the combination, with the grinding-wheel and means for pressing a cutter thereon, of a water-pipe arranged adjacent to its periphery and provided with nozzles arranged to direct water-jets toward one another upon the same side of the wheel, and means for adjusting the pipe to vary the position of the nozzles, as and for the purpose set forth.

6. In a cutter-grinder, the combination, with a grinding-wheel and a casing and cover inclosing the same, and means for pressing the cutter upon the grinding-wheel, of a water-pipe sustained adjustably upon the cover and extended within the same, and provided with nozzle adapted to project a jet upon the side of the wheel, as and for the purpose set forth.

7. In a cutter-grinder, the combination, with a grinding wheel and a casing having a hinged cover A^3 inclosing the wheel, and means for pressing a cutter upon such grinding-wheel, of the pipe d' supported adjustably upon the cover and having in its end the socket d^3 and the pipe a^3 swiveled in the socket and projected through the cover into proximity to the side of the wheel, and provided with the nozzles a^3 and a^4 adapted to project jets toward one another, as and for the purpose set forth.

8. In a cutter-grinder, the combination, with means for holding the cutter to the grinding-wheel, of a suitable casing having a bearing projected within the same and a spindle extended from such bearing, with hub b having recess b' to receive the bearing, a flange b^3 at the inner end of such hub, two grinding-wheels secured upon the hub with intermediate sleeve b^3, and nut upon the end of the spindle for clamping the parts together, the whole serving to sustain the hub intermediate to the grinding-wheels, substantially as herein set forth.

9. In a cutter-grinder, the combination, with a column having a stationary casing supported thereon with a grinder-wheel mounted therein, of a rock-shaft mounted upon the casing adjacent to the grinder with means for oscillating the same at pleasure, a yoke upon the rock-shaft with bearing and spindle to sustain the cutter, and means for intermittently adjusting the cutter to present its cutting-faces successively to the grinder, substantially as herein set forth.

10. In a cutter-grinder, the combination, with a casing and a grinder-wheel mounted therein, of a rock-shaft having bearings mounted adjustably upon the casing, as by the post J, a yoke carried by the rock-shaft, a bearing secured adjustably in the yoke, and a spindle mounted in the bearing to carry the cutter and present it in variable positions to the grinder-wheel, substantially as herein set forth.

11. In a cutter-grinder, the combination, with a casing and a grinder-wheel mounted therein, of a rock-shaft mounted adjacent to the grinder with means for oscillating the same at pleasure, a yoke upon the rock-shaft with bearing and spindle to sustain the cutter, an index-wheel upon the cutter-spindle, a pawl to turn the index-wheel and a stationary stop upon the machine with intermediate means adapted to actuate the pawl when the rock-shaft is suitably oscillated, substantially as set forth.

12. In a cutter-grinder, the combination, with a casing and a grinding-wheel mounted therein, of a rock-shaft mounted adjacent to the grinder with means for oscillating the same at pleasure, a yoke upon the rock-shaft with bearing and spindle to sustain the cutter, an index-wheel upon the cutter-spindle, a pawl to turn the index and a detent to lock the same, and a stationary stop upon the machine with intermediate means adapted to actuate the pawl and detent when the rock-shaft is suitably oscillated, substantially as set forth.

13. In a cutter-grinder, the combination, with a casing and a grinder-wheel mounted therein, of a rock-shaft mounted adjacent to the grinder, a yoke upon the rock-shaft with bearing and spindle to sustain the cutter, a hand-lever for oscillating the rock-shaft, and a pawl and ratchet for holding the same in its adjusted position, substantially as herein set forth.

14. In a cutter-grinder, the combination, with a casing and a grinder-wheel mounted therein, of a rock-shaft mounted adjacent to the grinder, a yoke upon the rock-shaft with bearing and spindle to sustain the cutter, a crank-arm secured to the rock-shaft, and means actuated by connection with the grinder-spindle, for vibrating such crank-arm and oscillating the rock-shaft automatically, as and for the purpose set forth.

15. In a cutter-grinder, the combination, with a casing and a grinder-wheel mounted therein, of a rock-shaft mounted adjacent to the grinder, a yoke upon the rock-shaft with bearing and spindle to sustain the cutter, a crank-arm secured to the rock-shaft, a worm and worm-wheel actuated by connection with the grinder-spindle, and a crank-pin upon the worm-wheel with link connected to the crank-arm upon the rock-shaft, to oscillate the same automatically, substantially as herein set forth.

16. In a cutter-grinder, the combination, with a casing and a grinder-wheel mounted therein, of a rock-shaft mounted adjacent to the grinder, with means for oscillating the same at pleasure, a yoke upon the rock-shaft with bearing and spindle to sustain the cutter, an index-wheel upon the cutter-spindle, the hub o fitted to turn upon the bearing and provided with screws u for fine adjustment, and with the plate o' provided with the detent n^3 fitted to the index, as and for the purpose set forth.

17. In a cutter-grinder, the combination, with a casing and a grinder-wheel mounted therein, of a rock-shaft mounted adjacent to the grinder, the yoke H upon the rock-shaft with bearing m having hub M^3 clamped adjustably within the yoke, the spindle M' for carrying the cutter and provided with the index n, a pawl for actuating the index, means, as crank-arm r and link r', oscillated upon the hub M^3 for vibrating the pawl, means, as the slotted segment s' and lug s^3, oscillated upon the hub M^3, and connected adjustably with the crank-arm r and a fixed stop to move the crank-arm, the whole arranged and operated to intermittingly turn the index when in various positions of the bearing m within the yoke, substantially as set forth.

18. In a cutter-grinder, the combination, with a grinding-wheel, of the casing A with bearing A' at the upper edge, upon the side, having spindle projected into the casing to carry the grinding-wheel, the casing being provided with notch A^4 opposite the end of the spindle, and with the hinged cover A^3 provided with the semicircular projection a^2 having flange a^4 to close the joint of the notch, substantially as herein set forth.

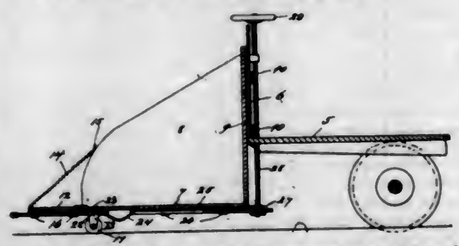
19. In a cutter-grinder, the combination, with a grinding-wheel, of the casing A with bearing A' at the upper edge, upon the side, having spindle projected into the casing to carry the grinding-wheel, the spindle being provided with hub having the peripheral flange b^4, and a cover A^3 being hinged to the casing and notched to fit over such flange, and provided with an annular groove a^7 to direct the water within the casing, substantially as herein set forth.

20. In a cutter or tool grinder, the combination, with a casing inclosing a grinding-wheel, and supported upon a column, (as C,) of a spindle supporting the grinding-wheel within the casing, one or more nozzles to direct water upon the grinding-wheel and tool or cutter, an aperture through the bottom of the casing, a pan fixed removably in the column and provided with a grease-separator, as set forth, and discharging the water into the bottom of the column, and a pump to circulate the water from the column to the nozzle, as and for the purpose set forth.

21. In a cutter or tool grinder, the combination, with a casing inclosing a grinding-wheel, and supported upon a column, (as C,) of a spindle supporting the grinding-wheel within the casing, one or more nozzles to direct water upon the grinding-wheel and tool or cutter, an aperture from the bottom of the casing, a pan receiving the water from such aperture, and discharging the water into the bottom of the column, the pan having a discharge-outlet above the bottom, and a grease-separator consisting of a flange projected downward adjacent to such outlet below the bottom of the same, and a pump to circulate the water from the column to the nozzle, as and for the purpose set forth.

22. A grease-separator for a cutter or tool grinder, comprising a pan fixed removably below the grinding-wheel to receive the water discharged therefrom, such pan having a discharge-outlet above the bottom, and a flange projected downward adjacent to such outlet below the bottom of the same to prevent the escape of grease therefrom, substantially as herein set forth.

575,058. CAR-FENDER. JOHN A. ERKSON, Prattsville, N. Y. Filed May 14, 1896. Serial No. 591,547. (No model.)

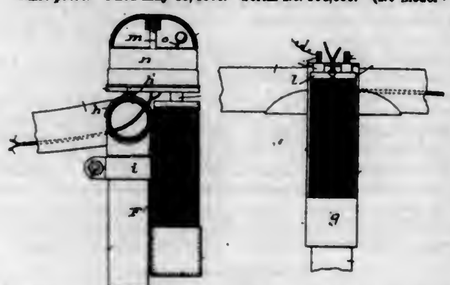


Claim.—1. A fender or guard for tramway-cars, consisting of a main fender or guard frame, which is adapted to be connected with the dashboard of the car, and a supplemental fender or guard hinged to the front edge thereof, said supplemental fender or guard being provided with springs which are connected with the main fender or guard frame, and by which the forward edge thereof, is adapted to be drawn upwardly, said supplemental fender or guard frame being also provided with a cross-bar, which is supported in front thereof, and which is adapted to be forced backwardly, said cross-bar being provided centrally thereof, with a sliding bar which projects backwardly beneath the main fender or guard frame, and through the inner end of which passes a catch, said sliding bar being also connected with a sliding rack-bar which is adapted to be operated by a pinion mounted on the lower end of a shaft which extends upwardly through the platform of the car, substantially as shown and described.

2. A fender or guard for tramway-cars consisting of a main fender or guard frame, a supplemental fender or guard hinged to the front edge thereof, and adapted to be drawn upwardly by springs connected therewith, a cross-bar supported in front of said supplemental fender or guard and held in position by springs, said cross-bar being adapted to be forced backwardly and being provided centrally with a sliding bar which passes backwardly beneath the main frame, and by which the supplemental fender or guard is held in a depressed position, and means connected therewith and with the dashboard of the car, for releasing said sliding bar, substantially as shown and described.

3. A fender or guard for tramway-cars consisting of a main fender or guard frame, a supplemental fender or guard hinged to the front edge thereof, and adapted to be drawn upwardly by springs connected therewith, a cross-bar supported in front of said supplemental fender or guard and held in position by springs, said cross-bar being adapted to be forced backwardly and being provided centrally with a sliding bar which passes backwardly beneath the main frame, and by which the supplemental fender or guard is held in a depressed position, and means connected therewith and with the dashboard of the car, for releasing said sliding bar, consisting of a catch which passes through the inner end thereof, and a rack-bar connected with the inner end thereof, and adapted to be operated by a pinion mounted on a shaft which passes upwardly through the platform of the car, and said fender or guard frame being provided with a bottom, and with sides connected therewith, and to which the springs which are designed to draw the supplemental fender-frame upwardly, are secured, substantially as shown and described.

575,059. BICYCLE ELECTRIC BELL. HERBERT B. EWBANK, Jr., Baltimore, Md., assignor of one-half to Herbert Bryan Ewbank, Sr., same place. Filed May 18, 1896. Serial No. 591,899. (No model.)

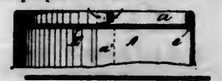


Claim.—1. The combination of a bicycle handle-bar and post; a supporting device for a bell and electric battery comprising a plate having a pocket, a hook which takes over said handle-bar, and a clip which clamps around said post; an electric battery supported in said pocket; an electromagnetic bell supported on said hook; and a make-and-break device in circuit with said battery and bell.

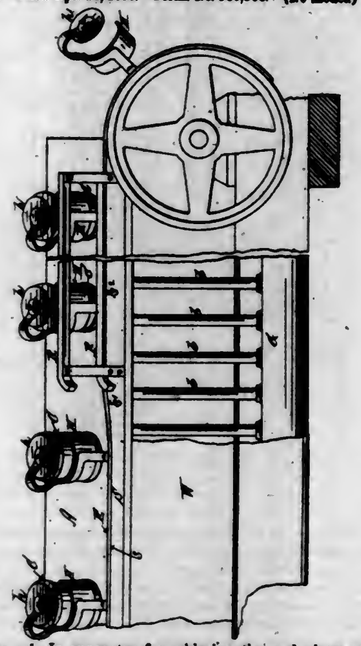
2. In an electric bell for bicycles, the combination of a supporting device comprising a back plate having at one side a pocket, at the other side a downward-pointing hook, and lateral curved clips projecting at the same side as the hook; an electric battery seated in said pocket; and an electromagnetic bell having an insulated base-plate which is seated partly upon said hook and partly upon said battery and secured to both.

575,060. SEALED PACKAGE. OLIN S. FELLOWS, Middletown, N. Y. Filed May 3, 1895. Serial No. 548,087. (No model.)

Claim.—A sheet-metal can having an end plate formed with an outwardly-projecting flange, and a can-body the edge of which is folded over said outwardly-projecting flange of the end cap to form a concave stripping portion soldered to the concave surface of the said end-plate flange, said fold of the can-body being made of greater width than that of the flange of the end plate to which it is soldered so as to form a space between the edge of the end-plate flange and the can-body where the lattter is turned over, substantially in the manner and for the purpose described.



575,061. SOLDERING-MACHINE. OLIN S. FELLOWS, Middletown, N. Y. Filed Apr. 28, 1896. Serial No. 589,963. (No model.)



Claim.—1. In apparatus for soldering the end plates of sheet-metal cans to the can-bodies with solder applied in solid form, the combination of a metallic heating-table for the cans, means for heating said metallic table, means for advancing said cans along said heating-table without rotation, and means for rotating the said cans on said heating-table, substantially in the manner and for the purpose described.

2. In apparatus for soldering the end plates of sheet-metal cans to the can-bodies with solder applied in solid form, the combination of a metallic heating-table for the cans, means for heating said metallic table, means for pressing said cans down upon the heating-table and advancing them thereon while under such pressure, and means for rotating the said cans on said heating-table, substantially in the manner and for the purpose described.

3. In apparatus for soldering the end plates of sheet-metal cans to their can-bodies with solder applied in solid form, the combination of the metallic heating-table, means for heating said metallic table, the endless conveyer E, traveling over the support S, and provided with the holders H, and means for rotating the cans when they arrive near the rear end of the heating-table, substantially in the manner and for the purpose described.

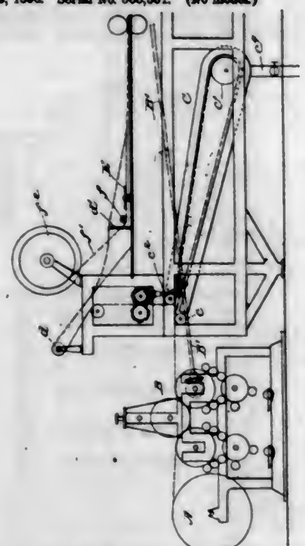
4. In apparatus for soldering the end plates of sheet-metal cans to their can-bodies with solder applied in solid form, the combination of the metallic heating-table, means for heating said metallic table, the endless conveyer E, provided with the holders H, the supporting-way S, formed with the lower level s, rise s', and upper level s^2, and the rails R, R, for rotating the cans, substantially in the manner and for the purpose described.

5. In apparatus for soldering the end plates of sheet-metal cans to their can-bodies with solder applied in solid form, the combination of the metallic heating-table, means for heating said metallic table, the endless conveyer E, provided with the holders H, formed with the presser-foot h, the supporting-way S, formed with the lower level s, rise s', and upper level s^2, and the rails R, R, for rotating the cans, substantially in the manner and for the purpose described.

6. In apparatus for soldering the end plates of sheet-metal cans to their can-bodies with solder applied in solid form, the combination of the metallic heating-table, means for heating said metallic table,

the endless conveyer E, formed with the holders H, the supporting-way S, and a traveling belt F, for rotating said cans by contact with the upper sides of their bodies during their passage over a portion of the heating-table, substantially in the manner and for the purpose described.

575,062. PAPER-BAG MACHINE. ALBERT C. GETTEN, Sandy Hill, N. Y., assignor to the Union Bag and Paper Company, Chicago, Ill. Filed Mar. 19, 1896. Serial No. 583,581. (No model.)



Claim.—1. In a bag-machine, the combination with the former, brake-wheel and pressing-rolls, of a device to introduce a strip between the side folds of the paper.

2. In a machine for forming bags with folded sides, the combination of means to supply a strip of paper and a guide to introduce said strip between the side folds of the web of paper.

3. In a bag-machine provided with means to introduce a strip between the side folds during the formation of the bag, the combination with the devices for folding in the bottom of each bag, of an air-blast to direct a current of air against the end of said strip and prevent the same from being folded in with the bottom of the bag.

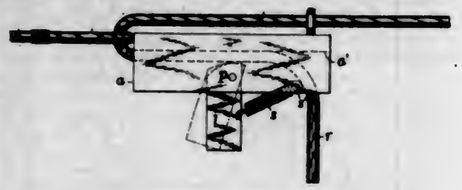
575,063. GLOBE OR SHADE HOLDER. ELLIOTT P. GLEASON, New York, N. Y. Filed May 11, 1895. Serial No. 549,027. (No model.)



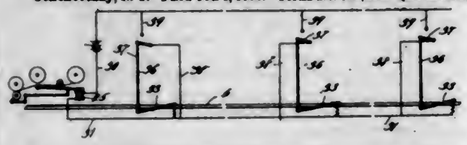
Claim.—The main ring for holding the globe provided with a slot, in combination with an open ring secured to the globe-holding ring by means of arm or arms such as *d*, said open ring having a screw-threaded hole near one of its free ends and provided with a second hole in its opposite free end and an opening in the latter free end to admit a screw having a rigid collar, said open ring having a projection extending into the above-mentioned slot, said projection consisting of one portion of the open ring bent over and upon itself, the screw-threaded hole extending through the two thicknesses and the bent portion extending at an angle to the radius of the open ring, substantially as described.

575,064. ROPE-CLAMP. WILLIAM HEGEL, Newark, N. J., assignor of one-half to Philip Kroell, Elizabeth, N. J. Filed Jan. 20, 1896. Serial No. 576,115. (No model.)

Claim.—The rope-clamp consisting of the block formed with a groove or channel in its under side, the lever pivoted therein adjacent to one edge by means of a transverse pin and having its inner end beveled, the spiral spring having one end attached to said lever and the other end secured to said block, and the open hook fixed to the opposite side of the block from the groove or channel on one end thereof, substantially as shown and described.



575,065. RAILWAY SIGNALING SYSTEM. NESTOR HERQUIN, Schenectady, N. Y. Filed Oct. 5, 1896. Serial No. 608,291. (No model.)



Claim.—1. In a railway signal system, the combination with a time and speed recording apparatus, which is adapted to be operated by an electromagnet, of two wires extending along the track, and connected with said magnet, in one of which is placed a battery, said track being provided at regular intervals with circuit closing and breaking devices which are adapted to be operated by the engine, said engine being provided with a device which is always in position to operate said circuit closing and breaking devices, and with another device which is under the control of the engineer by which said devices may be operated, substantially as shown and described.

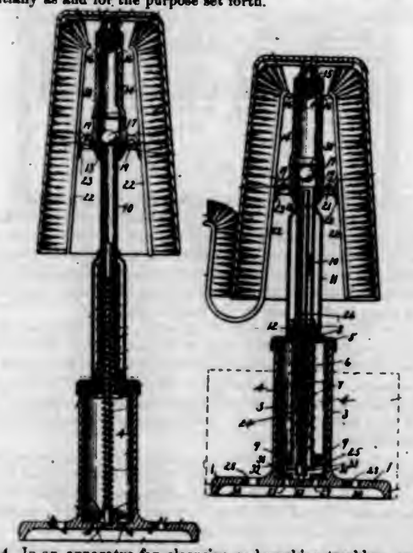
2. A railway signal system consisting of a combination of a railway-track, an engine mounted thereon, a reporting apparatus having a suitably-supported reel, a strip of paper mounted thereon, a lever secured below said reel and adjacent thereto, a roller, a pin adjacent to said roller, a second roller over said latter roller adapted to have the strip passed therebetween, a roller mounted at one end of said lever a gear-wheel in line with the said adjacent roller a shaft carrying said gear-wheel, a spiral spring mounted thereon a second gear-wheel meshing with said first, a second shaft bearing latter wheel, a wheel mounted on said second shaft being provided therein with notches or recesses, a corresponding wheel over the same, a shaft bearing said latter wheel, an armature secured to the lower end of said lever, an electromagnet mounted below said armature, a second lever pivotally secured adjacent to said armature, a crank-lever engaging the same, a dog mounted thereon at one end thereof and adapted to operate in connection with said notches or recesses, conducting-wires in connection with said electromagnet the base conductor extending along said track on suitable supports, the other said conductor being secured adjacent to one of the rails, other levers mounted on the track at a predetermined distance apart, a spring-supported rod in connection with the same, a rod in connection with the same extending upwardly therefrom, conducting means on the end thereof and means on the forward part of said engine for engaging the same all of the said parts being combined substantially as and for the purpose described.

575,066. TUMBLER-WASHER. FISHER H. LIPPINCOTT, Philadelphia, Pa., assignor to the American Soda Fountain Company, Trenton, N. J. Filed Oct. 14, 1896. Serial No. 608,806. (No model.)

Claim.—1. In an apparatus for cleansing and washing tumblers, or the like, the combination of the reciprocating tube, a water-containing vessel or chamber, with which the tube communicates, the brushes secured to the tube, the apertures in the tube, means whereby a rotary motion is imparted to the latter when reciprocated, together with means for forcing water from said water vessel or chamber into said tube and through the apertures therein by and simultaneously with the reciprocation of the tube, substantially as and for the purpose set forth.

2. In an apparatus for cleansing and washing tumblers or the like, the combination of the movable apertured tube the brushes secured thereto, a chamber with which said tube communicates, the piston-head, within said chamber and carried by said tube, means for causing a rotary movement of said tube when reciprocated, and suitable valves, whereby when the tube is moved in one direction water will be caused to enter said chamber, and when moved in the opposite direction the water will be forced out through apertures in said tube against the interior of the tumbler or vessel to be washed and cleansed, simultaneously with the rotation of the brushes on the tube, substantially as described.

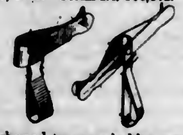
3. In an apparatus for washing and cleansing tumblers, or the like, the combination of the vertically-movable apertured tube, the brushes secured thereto, the chamber communicating therewith, the piston-head carried by said tube, a spring adapted to maintain the tube and adjuncts normally in the elevated position, means for causing the rotation of the tube, simultaneously with the reciprocation thereof, by pressure upon an inverted tumbler, or the like, applied thereto, the valve within the tube, and the inlet orifice and valve in said chamber, all combined constructed and adapted to operate substantially as and for the purpose set forth.



4. In an apparatus for cleansing and washing tumblers, or the like, the combination of the vertically-movable apertured and spring-controlled tube, a chamber communicating therewith, the piston-head carried by said tube, the brushes pivotally connected to the tube, means for causing the rotation of the latter simultaneously with the reciprocation thereof, by pressure upon an inverted tumbler, or the like, applied thereto, together with the coacting valves, substantially as and for the purpose set forth.

5. The combination of the water-containing cylinder, the movable, apertured, spring-controlled tube communicating with said chamber, and having a screw-thread engaging a corresponding thread in the head of said cylinder, brushes or the like, connected to said tube, the piston-head within the cylinder and adapted to be operated by the movement of said tube, together with the coacting valves, substantially as and for the purposes set forth.

575,067. TROUSERS-HOLDER. RICHARD W. LONG, Milwaukee, Wis. Filed Oct. 25, 1895. Serial No. 566,872. (No model.)



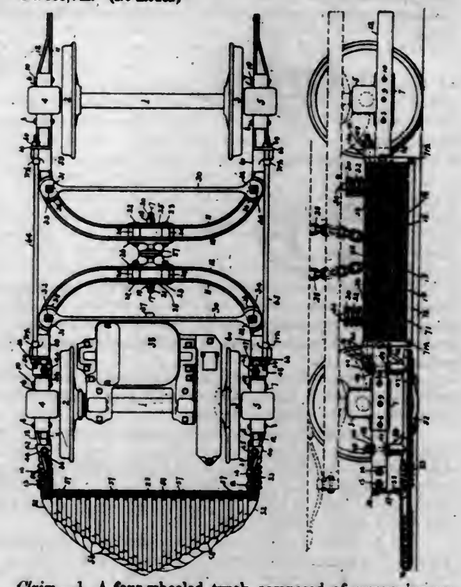
Claim.—1. An L-shaped trousers-holder consisting of two reversibly-bent metallic spring-loops, the open end of one being attached to the closed end of the other, substantially as and for the purposes set forth.

2. A folding trousers-holder consisting of two reversely-bent and pivotally-connected metallic spring-loops which are capable of being turned or folded one upon and parallal with the other, the open end of one loop being connected with the closed end of the other, substantially as and for the purposes set forth.

3. A reversible trousers-holder consisting of two reversely-bent and pivotally-connected spring-loops capable of being turned one upon the other in opposite directions to form a right or left L-shaped holder, the open end of one loop being connected with the closed end of the other, substantially as and for the purposes set forth.

4. An L-shaped trousers-holder consisting of two reversely-bent metallic spring-loops each formed on one side near its open end with upturned edges or jaws embracing the edges of the opposite side, the open end of one loop being connected with the closed end of the other, substantially as and for the purposes set forth.

575,068. COMPANION SECTIONAL TRUCK FOR RAILWAY-CARS. LOUIS T. PYOTT, Philadelphia, Pa. Filed June 1, 1896. Serial No. 593,742. (No model.)



Claim.—1. A four-wheeled truck composed of companion sections, wheels and an axle for each section, axle-boxes for each section secured to under frames, integral-bar frames for each section of U shape, and a union of the two sectional frames by a longitudinal pivot, as and for the purpose set forth.

2. In a sectional four-wheeled truck, wheels and an axle for each section, U-shaped frames having axle-boxes thereto attached and supported, a central longitudinal pivot seated on each frame, means to secure the pivot in place and unite the sections, and means to tie the two sections together at the outer sides of the frames, substantially as set forth.

3. In a sectional truck having an axle and wheels for each section, the axle carried in axle-boxes rigidly attached to double integral-bar U-shaped frames, longitudinal pivotal connections for each section to the other, side tie-bars attached to the frames but removable therefrom and a central support from each section of U-shaped frames to the car-body or subframing, all substantially as described.

4. In a sectional truck, wheels and an axle for each section, integral-bar frames carrying axle-boxes, having means for their pivotal union, longitudinally, each with its companion section, means for coupling and uncoupling each section at the central pivot and at each side and side guards depending from the side couplings, substantially as described.

5. In a sectional truck, wheels and an axle for each section, U-shaped frames composed of integral rectangular bars, a longitudinal central pivoted union to join the two sections, means to join the sections at the sides, and unjoining means therefor, central supports for each section to the car-body or subframe, and end guards for each section, substantially as described.

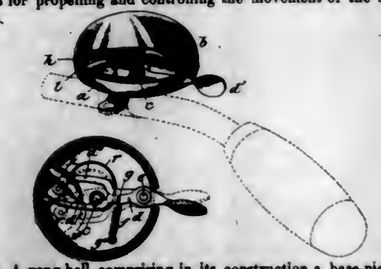
6. In a sectional truck, means for its movement upon the track, a central longitudinal pivoted union for the joining of the sections, side unions for the same purpose, each having means for attaching and detaching from the frames, side guards, removably attached; end guards, removably attached, and having means to cushion the shocks they receive, substantially as specified.

7. In a sectional truck, wheels and an axle for each section, boxes for the axles supporting frames of integral bars, means for central longitudinal pivotal union, means for side unions, side guards pendently and yieldingly supported, front guards supported for longitudinal yielding, and means for yieldingly supporting a motor from the frames, substantially as described and set forth.

575,069. BICYCLE-BELL. ALBERT F. ROCKWELL, Bristol, Conn., assignor to the New Departure Bell Company, same place. Filed July 10, 1896. Serial No. 598,731. (No model.)

Claim.—1. A gong-bell, comprising in its construction a base-piece and gong, a spring-actuated striker-mount provided with a striker, and a lever provided with resilient prongs for propelling, and controlling the movement of, the striker-mount.

2. A gong-bell comprising in its construction a base-piece and gong, a spring-actuated striker-mount provided with a striker, and a lever, spring-actuated in one direction and provided with resilient prongs for propelling and controlling the movement of the striker-mount.



3. A gong-bell, comprising in its construction a base-piece and gong, a striker-mount provided with a striker, a spring for actuating the same in either direction from a center, and a lever provided with resilient prongs for propelling, and controlling the movement of, the striker-mount.

4. In a gong-bell mechanism a lever pivoted to the base-piece provided with resilient prongs for propelling, and controlling the movement of, the striking mechanism.

5. In gong-bell mechanism a striker-mount comprising in its construction a hub, a crank or arm on the hub, a striker on the crank or arm provided with a pin carrying a roll, and a spring coiled loosely around a support at one end and secured to the roll of the striker-mount at the other for actuating the striker-mount in either direction from a center of equilibrium.

6. A gong-bell, comprising in its construction a base-piece and gong; a striker-mount constructed of a hub, a crank or arm on the hub, a striker on the end of the crank or arm, a pin carrying two rolls; a spring coiled loosely about a support at one end and attached to the lower of said rolls at the other for actuating the striker-mount in either direction from a center; and a lever, spring-actuated in one direction, constructed with means of manipulation and having resilient prongs, and limited in movement so as to propel the striker-mount, by bearing against the upper of said rolls past the center in either direction, but maintaining the same normally out of contact with the gong except at the instant of impingement.

575,070. ISOHOMOVANILLIN. BRUNO R. SEIFERT, Radebeul, Germany, assignor to the Chemische Fabrik von Heyden, Gesellschaft mit Beschränkter Haftung, same place. Filed June 6, 1896. Serial No. 594,597. (Specimens.)

Claim.—The new aromatic substances obtained from isocreosol and similar bodies and herein termed "isohomovanillins" of the formula

$$C_6H_3 \begin{cases} OC_nH_{2n}+1 & 1 \\ OH & 2 \\ CH_3 & 4 \\ COH & 5 \end{cases}$$

whereby the general group $C_nH_{2n}+1$ is limited to the special cases CH_3 and C_2H_5, the said isohomovanillins being soluble in soda-lye, ether and alcohol, forming colorless or yellowish scales and needles and being especially characterized by a vanilla-like scent and taste.

575,071. MANDOLIN, GUITAR, OR BANJO. ERNST SIMON, Markneukirchen, Germany. Filed May 22, 1896. Serial No. 592,612. (No model.)

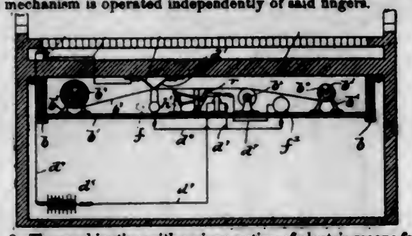


Claim.—1. A device for winding and tightening up the strings of string instruments consisting of a spindle A and means for rotating the same a sleeve B having milled disk to receive the string end and means for coupling said sleeve to the said spindle substantially as described.

2. The combination of the spindle A and means for rotating the same, a sleeve B to slide on said spindle, a disk *d* fast on said sleeve and having holes for the reception of the string end slots *b* longitudinally arranged in said sleeve and a projection *a* on spindle A to engage said slots substantially as described.

575,072. ELECTRICALLY-OPERATED PIANO ATTACHMENT. ERNEST J. SIEFKEN, Toledo, Ohio. Filed Dec. 26, 1895. Serial No. 573,376. (No model.)

Claim.—1. In a piano, in combination, a series of keys, a magnet adjacent to each key, a perforated strip, a conducting-bar over which said strip passes, said bar being in circuit with said magnets, a series of conducting-fingers, each in circuit with one of said magnets, and adapted to press upon said sheet, and contact with said bar through said perforations in said sheet, a resistance-coil, a switch mechanism for switching the circuit to said magnets through said coil, said switch mechanism having a part adapted to be moved by said strip whereby said mechanism is operated independently of said fingers.

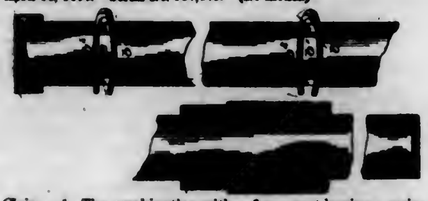


2. The combination with a piano-action of electric means for separably actuating the different keys thereof, a music sheet or strip, sheet-controlled circuit-closers determining the operation of the keys, a resistance, and means operated by the sheet independently of the said circuit-closers for cutting said resistance into and out of the circuit, substantially as and for the purpose described.

3. The combination with a piano-action, of electric means for separably actuating the different keys thereof, a music sheet or strip, sheet-controlled circuit-closers determining the operation of the keys, a resistance, and a double-actuating sheet-controlled cut-out device operating independently of said circuit-closers to include said resistance in or exclude it from the circuit substantially as and for the purpose described.

4. The combination with a piano-action, of electric means for separably actuating the different keys thereof, a music sheet or strip, sheet-controlled circuit-closers determining the operation of the keys, a resistance, a pair of sheet-controlled switches, one to open and close a circuit embracing the resistance, and the other to open and close a circuit excluding the said resistance, and movement-reversing connections between said switches.

575,073. FENCE-POST. AUSTIN W. SMITH, Natchez, Miss. Filed April 11, 1896. Serial No. 587,173. (No model.)



Claim.—1. The combination with a fence-post having a series of opposite coincident slots therein, of a series of wire-clamps of approximately W shape fitting in said slots and having diverging spring-arms bearing against the sides of said slots, said spring-arms being adapted to engage and support the fence-wires, as set forth.

2. The combination with a fence-post having a series of opposite coincident slots therein, of a series of wire-clamps of approximately W shape fitting in said slots and having spring-arms bearing against the sides of said slots, and hooks formed on the ends of said spring-arms and adapted to engage and support the fence-wires, as set forth.

3. The combination with a fence-post having a series of opposite coincident slots therein, of a series of wire-clamps having a central bowed portion, and diverging spring-arms bent counter to and approximately parallel with said central bowed portion and engaging the sides of said slots, said spring-arms being adapted to engage and support the fence-wires, substantially as set forth.

4. The combination with a fence-post having a series of opposite coincident slots therein, of a series of wire-clamps having central bowed portions, and diverging spring-arms bent counter to and approximately parallel with said central bowed portion, and bearing against the sides of said slots, said spring-arms having hook ends adapted to engage and support the fence-wires, substantially as set forth.

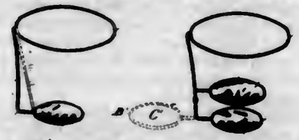
5. The herein-described clamp for fence-wires, composed of a single piece of spring-wire having a central bowed or looped portion, and diverging arms extending from said central portion and bent counter to and parallel with the latter, said arms having their ends bent in opposite directions to form hooks adapted to engage and support said fence-wires, substantially as set forth.

575,074. MOLDER'S CORE. JOHN SMITH, Verona, Pa. Filed June 4, 1896. Serial No. 594,340. (No model.)

Claim.—1. As a new article of manufacture, a core composed of any hydraulic cement and sand in proper proportions, substantially as set forth.

2. As a new article of manufacture, a core composed of any hydraulic cement and sand in proper proportions, and a sticky fluid to unite the same, substantially as set forth.

575,075. WATCHMAKER'S LOUPE. PHILIP H. STEVENS, Bristol, Conn. Filed Apr. 30, 1896. Serial No. 589,801. (No model.)



Claim.—1. The watchmaker's loupe, consisting of a rim adapted to be held by the contraction of the muscles about the eye, a frame or frames containing lenses of suitable magnifying power, and a wire substantially at right angles to the planes of said rim and frames connecting them rigidly, and so constructed as that the glass may be used by an operator wearing eyeglasses without removing the same, substantially as and for the purpose specified.

2. A watchmaker's loupe consisting of a holding-rim, a frame provided with a lens, and a rigid connecting-wire curved or bent so that when the glass is in use the connecting-wire will be out of the line of vision, substantially as set forth.

3. A watchmaker's loupe consisting of a holding-rim and frames provided with lenses connected rigidly by a wire so that the holding-rim and lenses are in substantially parallel planes, substantially as set forth.

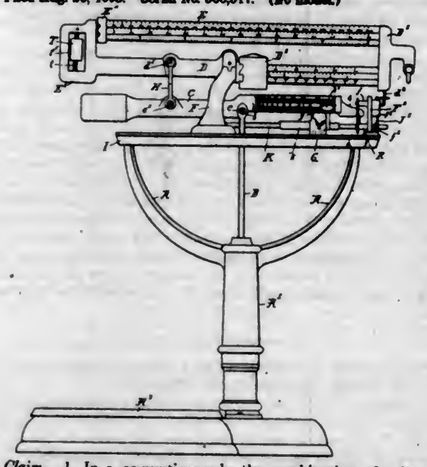
4. A watchmaker's loupe consisting of a holding-rim and frames provided with lenses in planes substantially parallel to that of the holding-rim connected with said holding-rim by a wire which is provided with swivel-joints so that the lens-frames may be swung out of the line of vision, in order that the use of lenses of different powers may be provided in the same loupe, substantially as described.

5. In a watchmaker's loupe the combination of an eye piece, a lens, and a swiveled connection whereby the lens may be turned out of the line of vision.

6. In a watchmaker's loupe the combination of a holding-piece, a lens, and lens-supporting connecting means attached to one side only of the holding-piece.

7. In a watchmaker's loupe the combination of a holding-piece, a projection from one side only of said piece, and a lens-support adjustably connected to said projection, whereby the lens may be turned out of the line of vision.

575,076. COMPUTING-SCALE. JOHN H. SWIHART, Dayton, Ohio, assignor to The National Computing Scale Company, Cleveland, Ohio. Filed Aug. 26, 1895. Serial No. 560,517. (No model.)



Claim.—1. In a computing-scale, the combination of a beam, with a movable fulcrum for said beam, and a support for said fulcrum which is wholly independent of the movable parts of the scale, and mechanism for relatively moving the beam and fulcrum out of engagement and holding them disengaged while the fulcrum is being moved, substantially as described.

2. In a computing-scale, the combination with a rate-beam graduated to indicate prices, of a movable fulcrum adapted to be moved the length of said graduations, said fulcrum being mounted free from the beam so that no part of its weight will be upon the beam, substantially as described.

3. In a computing-scale, the combination of a value-beam fulcrumed at a fixed point upon a fixed fulcrum, a rate-beam, a free-swinging link connected to fixed points upon said beams respectively, a movable fulcrum for said rate-beam, and means supporting and guiding said fulcrum wholly independently of the movable parts of the scale, substantially as described.

4. In a computing-scale, the combination of a value-beam fulcrumed at a fixed point upon a fixed fulcrum, and a flexible link depending from a fixed point upon said beam, with a rate-beam balanced upon said link when the scale is empty, a movable fulcrum for said rate-beam, and means supporting and guiding said fulcrum independently of the movable parts of the scale, substantially as described.

5. In a computing-scale, the combination of a value-beam balanced upon a fixed fulcrum, a flexible link hung from a fixed point upon said beam, and a rate-beam hung at a fixed point from said link, with a movable fulcrum adapted to bear against the under side of said rate-beam, a fixed support for said fulcrum, and a connecting-rod pivoted to a fixed point upon the rate-beam for connecting said rate-beam with the platform-levers, substantially as described.

6. In a computing-scale, the combination of a value-beam balanced upon a fixed fulcrum, a rate-beam, and a flexible link connecting said beams, with a movable fulcrum for said rate-beam, means for supporting and guiding said fulcrum wholly independently of the movable parts of the scale, and lifting mechanism for temporarily withdrawing the rate-beam out of engagement with the movable fulcrum preparatory to moving the latter, substantially as described.

7. In a price and weighing scale, the combination with a base, rigidly connected value and weight beams, a rate-beam, a flexible link interposed between said rate-beam and weight and value beams and upon which the rate-beam has a fulcrum when the scale is empty, of a movable bearing for said rate-beam mounted wholly below and independently of said rate-beam, said bearing forming the fulcrum of said rate-beam, when the scale is loaded, substantially as and for the purpose specified.

8. In a computing-scale, the combination with a rate-beam, of a movable fulcrum-block for changing the fulcrum of said beam, a parallel rod for guiding said fulcrum-block in its horizontal movement, and means operated by said rod to elevate the rate-beam and thereby permit the movement of the movable bearing, substantially as described.

9. In a computing-scale, the combination of a rate-beam, stationary as to horizontal movement, a movable fulcrum-block for changing the fulcrum of said beam, a horizontal rod mounted so as to oscillate upon its longitudinal axis, and adapted to guide said fulcrum-block, and means operated by said rod, for elevating the said beam, and thereby permitting free movements of said movable fulcrum-block as described.

10. In a computing-scale, the combination of a rate-beam, stationary as to horizontal movement, a movable fulcrum-block to change the fulcrum of said beam, a horizontal rod mounted so as to oscillate upon its longitudinal axis and adapted to guide said fulcrum-block and to permit the movement thereof, lever-arms, and vertically-movable plates, actuated by said rod and adapted to elevate said rate-beam preparatory to moving said fulcrum-block, substantially as described.

11. In a price and weighing scale, the combination with the value and rate beams, of a flexible coupling between said beams, a movable fulcrum-block to change the fulcrum of said rate-beam, a sleeve mounted in said fulcrum-block, an angular rod passing through said sleeve, a second sleeve surrounding the rod and mounted in a fixed bearing, lever-arms secured to said sleeve, vertically-movable plates having slots into which parts of said beams project, and links connecting said plates and lever-arms, and means for actuating said rod, substantially as described.

12. In a price and weighing scale, the combination with a connecting-rod, value, weight and rate beams, stationary as to longitudinal movement, a flexible link connecting the value and weight beams with the rate-beam, of a changeable bearing for said rate-beam and movable thereunder, a parallel guide-rod for said bearing and means actuated by said rod to elevate the rate-beam to permit the movement of said bearing, substantially as described.

13. In a price and weighing scale, the combination with beams of a combined gravity and balance weight, adjustable both vertically, and in an arc of a circle, and means for effecting said adjustments, substantially as described.

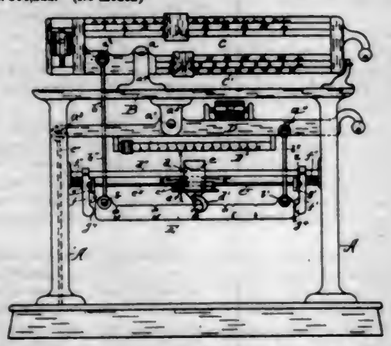
14. In a computing-scale, the combination of the computing mechanism, a balanced beam N, and a transverse pivot-pin carried thereby and located at one side of the fulcrum of said beam, with a flexible link suspended from the computing mechanism and having a bent lower end which passes under but lies out of contact with said pivot-pin when the scale is empty, but is engaged by said pivot-pin when said beam end is drawn down by the weight on the platform, substantially as and for the purpose specified.

15. In a computing-scale, the combination of the computing mechanism, and a balanced tare-beam having a transverse pivot-pin carrying upper and lower knife-edges which are in line with each other, with a two-part connecting-rod of which the lower part is suspended from the upper knife-edges, and the upper part is suspended from the computing mechanism, and extends beneath and lies close to the lower knife-edges, but out of contact therewith while the scale is empty, substantially as specified.

16. In a computing-scale, the combination of the computing mechanism, and a balanced tare-beam having a vertical slot, a pivot-bar secured thereto crossing the slot and projecting from both sides of the beam, said pivot-bar having knife-edges, which are in line with each other, upon the upper and lower sides respectively of the part within the slot and the projecting ends, a two-part connecting-rod, consisting of the part B which is suspended from the upper knife-edges, and the part B' which is suspended from the computing mechanism and extends beneath, but, when the scale is empty, lies out of contact with, the lower knife-edges, substantially as and for the purpose specified.

17. In a computing-scale, the combination of the value-beam, the rate-beam and a flexible connection between the beams, of a balanced tare-beam having a longitudinal vertical slot, and a pivot-bar extending across said slot and projecting from both sides thereof, the part which spans the slot and the projecting ends having knife-edges in line with each other but upon the upper and lower sides respectively, a link suspended from the rate-beam and passing beneath and lying out of contact with the pivot-bar when the scale is empty, and a connecting-rod suspended upon said pivot-bar, substantially as and for the purpose specified.

575,077. PRICE AND WEIGHING SCALE. JOHN H. SWINARD, Dayton, Ohio, assignor to The National Computing Scale Company, Cleveland, Ohio. Filed Apr. 10, 1895. Renewed June 19, 1896. Serial No. 596,222. (No model.)



Claim.—1. In a computing-scale, the combination of the value-beam, an auxiliary beam, two flexible links suspended respectively from said value-beam and auxiliary beam, a price-per-pound beam suspended from and lying between said links, a movable fulcrum adapted to engage with the upper side of the price-per-pound beam, a support for said fulcrum, means for raising and lowering said fulcrum out of and into contact with the price-per-pound beam, and a connecting-rod for connecting the auxiliary beam with the scale-platform or platform-levers, substantially as and for the purposes specified.

2. In a computing-scale, the combination of the value-beam, and an auxiliary beam, with two flexible links suspended respectively from the value-beam and auxiliary beam, a price-per-pound beam suspended from and lying between said links, a movable fulcrum-block adapted to engage with the top edge of said price-per-pound beam, a horizontal bar for supporting and guiding said fulcrum-block, mechanism for moving the fulcrum-block out of and into engagement with the price-per-pound beam, two spring-pressed plates for engaging with the ends of the price-per-pound beam, and mechanism which withdraws said plates from contact with the price-per-pound beam when the fulcrum-block is lowered into contact with the price-per-pound beam, substantially as and for the purposes specified.

3. In a computing-scale, the combination of the value-beam, and an auxiliary beam both fulcrumed in the same vertical plane, a flexible link suspended from the value-beam on one side of said vertical plane, a flexible link suspended from the auxiliary beam on the other side of said vertical plane, a price-per-pound beam suspended from and lying between said links, a movable fulcrum adapted to engage with the top edge of said price-per-pound beam, and means for raising and lowering said fulcrum out of and into engagement with said price-per-pound beam, mechanism for preventing longitudinal movement of the price-per-pound beam when the fulcrum therefor is raised, and a connecting-rod suspended from the auxiliary beam at a point on the opposite side of the beam-fulcrum from the link which is suspended from said beam, and at an equal distance from said fulcrum, substantially as and for the purpose specified.

4. In a computing and weighing scale, the combination with a beam denoting prices per pound, of a movable bearing mounted wholly independent of the movable parts of the scale and adapted to be moved approximately the entire length of the graduated part of said beam, and means for placing said bearing in and out of contact with said beam, substantially as described.

5. In a computing and weighing scale, the combination with a beam denoting prices per pound, of a movable bearing for said beam, a parallel bar rigidly mounted on stationary parts of the scale and upon which said bearing is supported, spring and cam devices inclosed within said bearing adapted to raise and lower it, substantially as described.

6. In a computing and weighing scale, the combination with beams upon which weights and values are shown, of an auxiliary beam provided with a depended bar having figures thereon denoting weights, a beam denoting prices per pound depended from said weight and value and auxiliary beams, a movable bearing for said price-per-pound beam movable the entire length of the graduated part of said beam, said bearing being mounted wholly independent of the movable parts of the scale, substantially as described.

7. In a computing and weighing scale, the combination with weight and value beams, of an auxiliary beam, a price-per-pound beam one end of which is coupled to the value and weight beams and the other end of which is coupled to the auxiliary beam, a graduated scale depended from said auxiliary beam and extending past the fulcrum of said beam, a movable bearing for said price-per-pound beam mounted wholly independent of the movable parts of the scale and movable the entire length of the graduated part of said beam, substantially as described.

8. In a computing and weighing scale, the combination with a beam, of a movable bearing for said beam, parallel bars mounted above said beam upon one of which said bearing is supported, and spring and cam devices inclosed within said bearing for placing the bearing in and out of contact with the beam, levers and cams mounted on one of said parallel bars for holding the beam when the latter is free from its movable bearing, substantially as described.

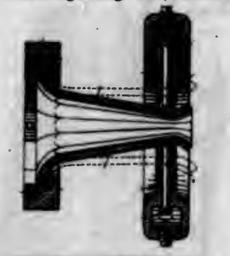
9. The combination with upper weight and value beams, of an intermediate beam, a bar depended from said intermediate beam extended past the fulcrum thereof and indicating weight, a price-per-pound beam having its ends connected to the upper and intermediate beams, a movable fulcrum for said price-per-pound beam, a connecting-rod pivoted to the opposite end of said intermediate beam and adapted to support a scoop or to be connected with the platform-levers whereby the load that actuates the beams will move them in their respective arcs, substantially as described.

10. In a computing and weighing scale, the combination with the upper beams C, C', of the beam D having pivots equidistant from its fulcrum, a graduated bar depended from said beam D, a price-per-pound beam E having its ends connected to the pivots of beams C' and D by links b'' and b^3, a movable bearing for said beam E mounted on a stationary bar adjacent to the beam and independently of the movable parts of the scale, spring inclosed in the upper part of said bearing, cams inclosed in the lower part of said bearing, a sleeve having a handle to which said cams are attached, a rocker-shaft upon which said sleeve is mounted, levers pivoted adjacent to the ends of said shaft, and cams rigidly mounted on said shaft adjacent to the levers and adapted to be brought in contact therewith to maintain said levers out of contact with the ends of the price-per-pound beam, and springs for pressing said levers in contact with the beam when freed from the cams, substantially as described.

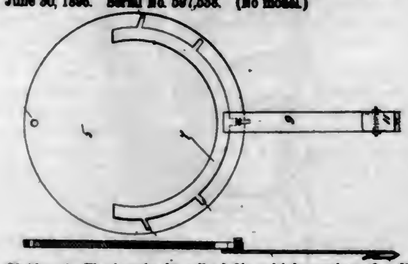
575,078. DRAW-DIE. JAMES D. SWINDELL, Allegheny, Pa. Filed Nov. 9, 1896. Serial No. 568,412. (No model.)

Claim.—1. A die for welding pipe having in combination an annular block, a series of plates pivotally connected to the block, a like series of pins bearing against the plates and means for holding the pins yieldingly as against outward movement, substantially as set forth.

2. A die for welding pipe having in combination a series of movable plates, a hollow annular frame surrounding the plates, a series of pins mounted in the frame, their inner ends bearing against the plates and their outer ends within the frame being provided with heads, a pipe for introducing fluid-pressure into the frame, and an escape-pipe provided with a regulating-valve, substantially as set forth.



575,079. FILE. FRANK E. THOMPSON, Wassaic, N. Y. Filed June 30, 1896. Serial No. 597,538. (No model.)



Claim.—1. The herein-described file, which consists of a disk or plate, having a segmental or circular slot in one side thereof, in the outer wall of which are formed a plurality of notches or recesses, and strips or bars which are suspended therefrom, and provided with clamps at their lower ends, substantially as shown and described.

2. The herein-described file, which consists of a disk or plate, having a segmental or circular slot in one side thereof, on the outer wall of which are formed a plurality of notches or recesses, and strips or bars which are suspended therefrom, and provided with clamps at their lower ends, said disk or plate being circular in form, and said strips or bars being provided at their upper ends with hooks which are adapted to enter said notches or recesses, substantially as shown and described.

3. The herein-described file, which consists of a disk or plate, having a segmental or circular slot in one side thereof, in the outer wall of which are formed a plurality of notches or recesses, and strips or bars which are suspended therefrom, and provided with means at their lower ends for securing bills, and documents thereto, substantially as shown and described.

575,080. TROLLEY-HEAD FOR ELECTRIC CARS. WILLIAM S. TROUTWINE, Indianapolis, Ind. Filed May 22, 1896. Serial No. 592,649. (No model.)

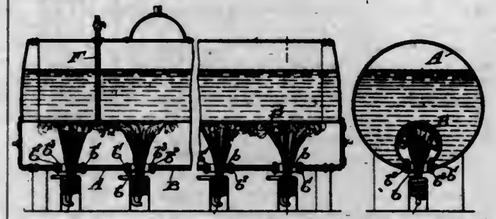


Claim.—1. The combination, with a trolley-head having openings to receive the axle, one of said openings being threaded and the other being countersunk in the manner substantially as described, and the countersunk end having a transverse pin-hole, of an axle having a head at one end with the outside transverse flange *g* and having a screw-thread at the other end said axle being adapted to be applied to the trolley-head in the manner as shown, a pin applied as shown to prevent the rotary movement of the axle and a metallic body to contact with the wire and removably secured to the head by means of the axle.

2. The combination with a trolley-head having the inside notches B, of the scraper C having its end inserted in the notches in the trolley-head and secured in the head by means of the axle on which the trolley-wheel ordinarily is mounted, said scraper having an upwardly-projected portion extending beyond the trolley-head into contact with the wire and terminating with a hollow or notch to keep the scraper on the wire.

575,081. STEAM-BOILER. SAMUEL TURNER, New York, N. Y., assignor of one-half to Cora L. Turner, same place. Filed Dec. 28, 1859. Serial No. 573,858. (No model.)

Claim.—1. A boiler comprising an exterior casing for containing a body of water to be heated, a fire-chamber located within the said exterior casing and closed at the opposite ends of the casing and a contracted neck forming a communication between the interior of the fire-chamber and the exterior air for the passage of a heating-flame, substantially as set forth.



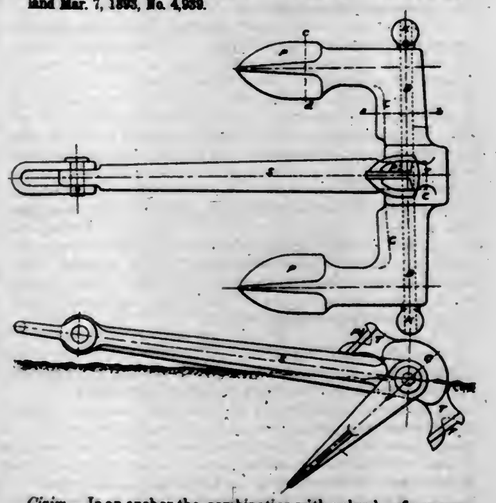
2. A boiler comprising an exterior casing for holding a body of water to be heated, a fire-chamber located within and spaced a short distance from the interior of the boiler-casing and closed at the opposite ends of the casing and a contracted neck leading from the interior of the fire-chamber to the exterior air through the said boiler-casing for admitting the heat of the flame, substantially as set forth.

3. A boiler comprising a cylindrical casing or containing a body of water to be heated, an interior tubular fire-chamber extending along the casing in proximity to one side thereof, a conduit leading from the interior of said fire-chamber to the exterior of the casing and a plurality of necks forming communications between the interior of the tubular fire-chamber and the exterior air for admitting the heating-flame, substantially as set forth.

4. A boiler comprising a cylindrical casing for containing a body of water to be heated, a tubular fire-chamber located within the said casing in proximity to one of its sides, a plurality of necks forming connections between the interior of the tubular fire-chamber and the exterior air and bulkheads across the interior of the tubular fire-chamber intermediate of the successive necks, substantially as set forth.

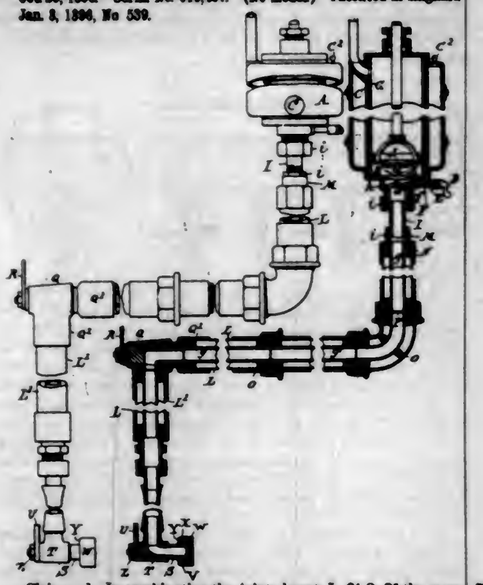
5. A boiler comprising a cylindrical casing for containing a body of water to be heated, a tubular fire-chamber located within the casing and in proximity to one side thereof, a plurality of necks connecting the interior of the fire-chamber with the exterior air and hollow bulkheads across the tubular fire-chamber intermediate of successive necks, the said hollow bulkheads being in communication with the interior of the boiler-casing, substantially as set forth.

575,082. ANCHOR. GEORGE TYLACK, South Shields, England. Filed June 1, 1896. Serial No. 593,871. (No model.) Patented in England Mar. 7, 1893, No. 4,939.



Claim.—In an anchor the combination with a shank, of a crown-piece having a recess to receive the eye of the said shank, holding-arms at the ends of the said crown-piece, and tripping-arms having hollow backs at the center of the said crown-piece, a bolt having a knob on one end passing through the said crown-piece and the shank, a knob on the other end of the said bolt, and a pin passing through the knob and bolt to hold the knob in position, substantially as described.

575,088. BEER-ENGINE. GEORGE WATSON, Peak Hill, New South Wales, assignor of one-half to Stephen W. Swain, same place. Filed Oct. 29, 1896. Serial No. 610,487. (No model.) Patented in England Jan. 8, 1896, No. 539.



Claim.—1. In combination the jointed parts L, Q', Q, Q² the movable piping L' depending therefrom, the stop-cock parts S, T, U, at the lower end of the piping L' said part S having a shoulder V, and the nut W having a cylindrical surface X and the shoulder Y all substantially as and for the purposes set forth.

2. In a pump of the character described, the combination of a pumping-cylinder, a pipe leading thereto composed of an inner glass tube and an outer metallic jacket, with an annular space between the two, and packing-rings at intervals in said annular space; a valve-plug at the end of said pipe; a sleeve inclosing said plug and capable of being turned thereon; a second pipe composed of an inner glass tube and an outer metal tube, connected to said sleeve; a plug-valve connected to said pipe; a plug seated in said valve; a screw-threaded collar swiveled upon said plug for connecting the same to a pipe or tube from the source of liquid, and means for turning said plug, substantially as described.

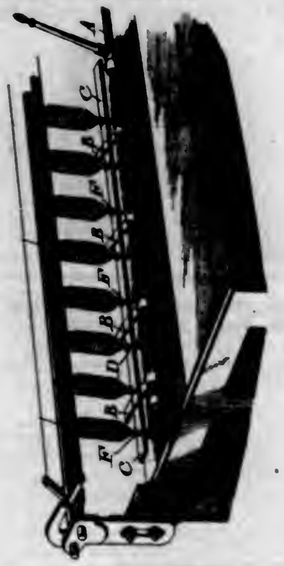
3. In a pump of the character described, the combination with a pumping-cylinder provided with inlet and outlet openings therein, and having an inclosing jacket with an annular space between said cylinder and said jacket; a piston in said cylinder; a valve in said piston; a check-valve in said cylinder, and means for opening both of said valves at the same time for the purpose of draining said cylinder; of a pipe leading to said cylinder composed of a sectional glass inner tube and an outer sectional metallic tube, with annular spaces between the two, and packing-rings in said annular spaces; a plug at the end of said pipe; a sleeve inclosing said plug and capable of being turned thereon; a second pipe composed of an inner glass tube and an outer metallic tube with an annular space between the two, and packing-rings in said annular space; a plug-valve connected to said pipe; a plug seated in said valve; a screw-threaded collar swiveled upon said plug and adapted to screw upon the end of a pipe or tube leading from the source of liquid supply; and means for turning said ping, substantially as described.

575,084. COP-DOFFER. WILLIAM D. WHITAKER, Philadelphia, Pa. Filed Nov. 23, 1893. Serial No. 491,722. (No model.)

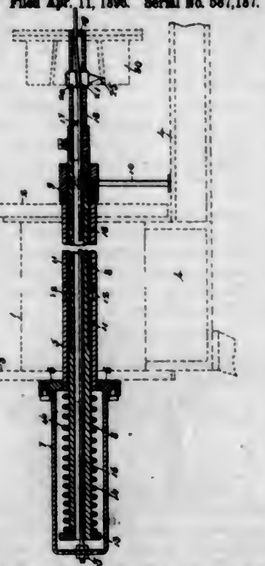
Claim.—1. A frame having the rock-shaft A mounted thereon, and the arms B projecting from said shaft, in combination with the independent lifting-bar C, which is formed with vertical openings therein to receive the spindles below the cops, and loosely supported on said arms B, substantially as and for the purpose described.

2. A lifting-bar with an opening receiving the cop-forming spindle, and a thimble freely fitted on said spindle and engaging the opening in the bar, in combination with a rock-shaft, and an arm on said shaft, the latter engaging the lifting-bar, and all operating substantially as described.

3. In a cop-doffer, a thimble and a lifting-bar therefor, a cop-forming spindle on which said thimble and bar are freely fitted, said thimble being adapted to engage the cop and said bar being adapted to engage said thimble and means for operating said bar, the parts being combined substantially as described.



575,085. SCREW-THREAD-CUTTING DEVICE. PAUL M. WIEBE, St. Louis, Mo. Filed Apr. 11, 1896. Serial No. 587,157. (No model.)



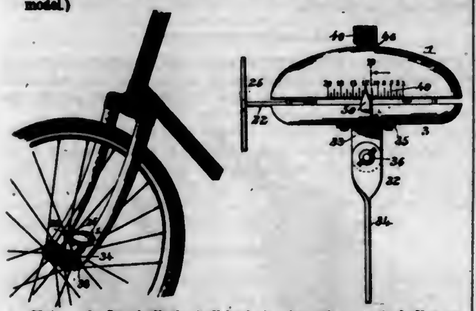
Claim.—1. In a screw-thread-cutting device, a suitable rotating sleeve, a tube loosely passed through the same and projecting a suitable distance therefrom, a tool carried by the projecting end of the tube, intermediate connections between the sleeve and tube for rotating the latter with the sleeve and simultaneously advancing the same and the tool carried by it, and means for restoring the tube to its normal or original position within the sleeve upon the completion of the cutting operation, substantially as set forth.

2. In a screw-thread-cutting device, a suitable rotating sleeve, a tube loosely passing through the same and projecting outwardly from each end thereof, a head carried by one of the projecting ends of the tube, a coiled spring encircling the tube and interposed between the head and the adjacent end of the sleeve, the opposite end of the tube having a peripheral screw-threaded portion, a stationary collar passed over the screw-threaded portion, a tool-holder carried by the tube exterior to the collar, a longitudinal groove or slit formed along the outer surface of the tube and located within the sleeve, and a pin carried by the sleeve, and cooperating within the groove of the tube, whereby upon rotation of the sleeve, the tube is rotated therewith and simultaneously advanced forward, substantially as set forth.

3. A screw-thread-cutting device comprising a rotating sleeve, a cup carried at one end of the same, a tube passing loosely through the sleeve and having one end projecting into said cup, a head carried by the end of the tube confined within the cup, a resilient coiled spring encircling the tube and interposed between the head and the adjacent end of the sleeve, peripheral longitudinal slots or grooves formed on the tube within the sleeve, pins carried by the sleeve cooperating in said slots or grooves, an exterior screw-threaded portion formed on the tube on the opposite projecting end thereof, a stationary interiorly-screw-threaded collar passed over the screw-threaded portion of the tube, a tool-holder carried by the tube on the side exterior to the collar, a cutter or knife movable freely in the tool-holder in a direction parallel to the shank of the cutter, a supporting-block forming a part of the cutter, an inclined groove formed on one of the surfaces of the block, a guide-rod passing through the tube and having one end firmly secured to the base of the cup, and the opposite end having an inclined section adapted to be embraced by the groove formed in the side wall of the block, the inclination of the section or inclined portion of the rod corresponding approximately to the inclination of the generatrix of the surface on which the screw-threads are to be cut, substantially as set forth.

4. In a screw-thread-cutting device, a suitable tool-holder, a tool-supporting block movable within the same in a direction parallel to the shank of the tool or cutter, a cutter adapted to be inserted in the block, a binding-bolt for securing the shank of the tool within the block, a screw-threaded socket formed in the shank of the tool or cutter, an adjusting-bolt passed into said socket, a head for the adjusting-bolt, a peripheral groove formed on said head, and suitable securing-plates carried by the upper surface of the block and having their curved edges passed into the groove of the head of the adjusting-bolt, the parts operating as and for the purpose set forth.

575,086. SPEED-INDICATING BELL FOR BICYCLES, &c. DAVID P. WOLHAUPTER, Washington, D. C., assignor of one-half to Edward G. Siggers, same place. Filed Nov. 2, 1896. Serial No. 610,864. (No model.)



Claim.—1. In a bell, the bell-body having a base and a bell member supported by the base, a rotary shaft journaled in bearings provided on the base and arranged diametrically within the bell-body, a stiff leaf-spring disposed longitudinally of the shaft and rigidly fastened or secured at one end thereto, said leaf-spring carrying at its free end a clapper, and operating connections with said shaft, substantially as set forth.

2. In a bell, the bell-body, a rotary shaft arranged diametrically within the bell-body intermediate of the top and bottom thereof, a resilient hammer-arm having an adjustable connection at one end with the shaft and carrying at its other end a clapper, said hammer-arm being normally disposed parallel with the shaft, and operating connections with said shaft, substantially as set forth.

3. In a bell, the bell-body, a rotary shaft supported diametrically within the bell-body in a plane intermediate of the top and bottom thereof, a collar or support slidably mounted on the rotary shaft near one end thereof and provided therein with an opening disposed parallel with the shaft, a straight spring-metal hammer-arm arranged parallel with the shaft and adjustably fitted in the opening of said collar or support, said spring-metal hammer-arm carrying at its free end a clapper, and operating connections with said shaft, substantially as set forth.

4. In a bell, the bell-body, a rotary shaft supported diametrically within the bell-body, a spring-metal hammer-arm carrying at one end a clapper and connected at its other end with the shaft, means for increasing and diminishing the throw of the hammer-arm, and operating connections with said shaft, substantially as set forth.

5. In a bell, the bell-body, a rotary shaft supported diametrically within the bell-body and carrying at one end a pinion, a resilient hammer-arm arranged longitudinally of the shaft and connected at one end therewith, a short counter-shaft mounted at its inner end within the bell-body and carrying at such end a gear-wheel meshing with said pinion, a spider strike-wheel fitted on the outer end of said counter-shaft, and an interfering button adapted to engage with the radial arms of the spider strike-wheel, substantially as set forth.

6. The combination with an interfering button adapted to be fitted to one of the spokes of a bicycle-wheel, a stationary bracket-arm mounted in a fixed position on one extremity of the wheel-axle, an alarm-bell hinged to said stationary bracket-arm and provided with striking-mechanism having an exterior operative engagement with said interfering button, and means for securing the hinged bell in either an operative or inoperative position, substantially as set forth.

7. In a bell, the bell member, striking mechanism mounted in a fixed position entirely within the bell member and having a clapper adapted to move thereagainst, and means for adjusting the bell member in a direction to vary the distance between the same and the clapper, whereby the throw of the latter is increased or diminished, substantially as set forth.

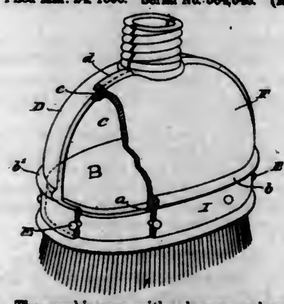
8. In a bell, the bell-body carrying a fixed pointer and having a circularly-movable bell member provided with speed-graduations, and adjustable in a direction toward and away from the base of the bell-body, means for securing the bell member in a set position, and ringing or striking mechanism mounted entirely within the bell-body and having a clapper adapted to move in a direction away from the base against the bell member, substantially as described.

9. In a bell, a base having a peripherally-disposed fixed pointer and an offstanding post having a threaded stud, a circularly-adjustable bell member having speed-graduations and a central externally and internally threaded split boss adjustably engaging said stud, a threaded clamping cap or nut engaging the external threads of said boss, and ringing mechanism mounted within the bell-body and having a clapper adapted to move against the bell member, substantially as described.

10. In a bell, the bell-body having a circularly-movable bell member, striking mechanism mounted in a fixed position entirely within the bell-body, and means for adjusting the bell member by its circular movement positively in a direction toward and away from the striking mechanism, to vary the throw of the striker, substantially as set forth.

11. In a bell, the bell-body, having a bell member, ringing or striking mechanism mounted in a fixed position entirely within the bell-body on the base portion thereof, and means for adjusting the bell member in a direction toward and away from the base portion to vary the distance between the bell member and said ringing or striking mechanism, substantially as set forth.

575,087. BROOM OR BRUSH. CLARENCE A. WORRALL, Philadelphia, Pa. Filed Mar. 24, 1896. Serial No. 584,646. (No model.)



Claim.—1. The combination with a broom or brush of a receptacle formed in two pieces, one of which is rigidly secured to the back of the brush and the other of which is movable, an externally-threaded nipple part of which is carried by the rigid portion of the receptacle and the other part of which is carried by the movable portion, and a screw-cap adapted to be screwed down upon said nipple.

2. The combination with a broom or brush of a collar adapted to be secured to the back of the same, a side, as D, secured to said collar and forming part of a receptacle or case a removable side, as F, a flange and bead upon the lower edge of this side, a gutter and bead upon the outer edge of this side, a threaded nipple part of which is carried by side D and part by side F, and a screw-cap, as G, adapted to be screwed down upon said nipple.

575,088. INCINERATING-FURNACE. WALTER B. WRIGHT, Philadelphia, Pa. Filed May 4, 1895. Serial No. 548,126. (No model.)

Claim.—1. A doubly-fired furnace, having an upwardly-sloping

bottom from each end, a dividing-ridge across the furnace under the feeding-mouth, serrations across the furnace, solid gutters for liquid retaining, across the furnace and an arch over each fire deflecting its flames to the central ridge, and thereafter passing them above and over the arch to flues connecting with the chimney, substantially as described.



2. A doubly-fired furnace, a grate for each furnace, a drop-plate communicating with an ash-pit for each furnace, an upwardly-inclining bottom from each end of the furnace terminating in an elevated central cross-ridge, serrations and gutters across the bottom and means to deposit the material to be consumed upon the central ridge where it may be parted and fall toward each fire, substantially as specified.

575,089. TAP-HOLE BUSHING. WILLIAM YARGER, Buffalo, N. Y. Filed Oct. 15, 1896. Serial No. 608,931. (No model.)



Claim.—A tap-hole bushing consisting of a metal screw-threaded supporting-case having its inner sides tapering from the bottom upward, an inner extending flange at the bottom of the same, a removable tapering expanding-ring adapted to rest on said flange, and a wooden tubular bushing adapted to pass into said case and be forced down over the expander and thereby fill the opening and be rigidly secured in place, substantially as described.

575,090. CLEAT. CARL F. ADAM, Trenton, N. J. Filed May 11, 1896. Serial No. 591,168. (No model.)



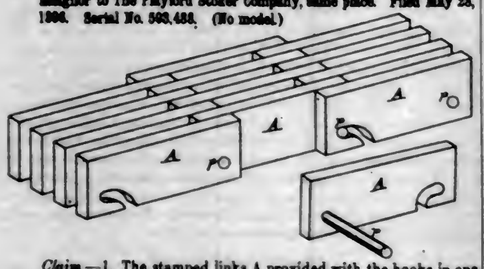
Claim.—1. A cleat having a groove for the reception of the wire, said groove being provided with teats placed at an angle to the direction of the groove and to the wire, substantially as described.

2. A cleat having a groove for the reception of the wire, and teats in said groove, said teats being placed at an angle to the line of direction of the groove and being crossed by other teats located in said groove.

3. A cleat having a groove for the reception of the wire, a teat in said groove extending parallel to the direction thereof, and parallel rows of other teats intersecting said first-named teat and being placed at an angle to the line of direction of the groove, substantially as and for the purposes set forth.

4. A cleat having a groove for the reception of the wire, a teat running along the middle thereof in the direction of the groove, and a plurality of teats extending from said central teat to the sides of the groove, said last-named teats being parallel to each other, but intersecting the central teat at different points in said central teat, substantially as and for the purposes set forth.

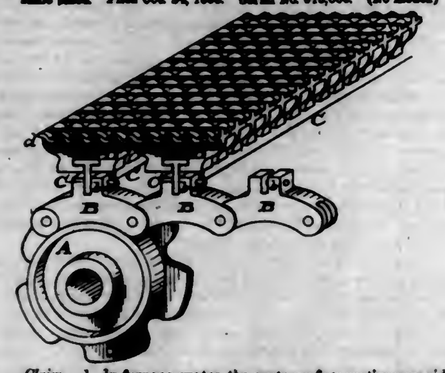
575,091. LINK GRATE-BAR. CHARLES J. ALLEN, Cleveland, Ohio, assignor to The Playford Stoker Company, same place. Filed May 28, 1896. Serial No. 593,488. (No model.)



Claim.—1. The stamped links A provided with the hooks in one end and the coupling-pins P in the opposite end, adapted for grouping and joining together to form the endless link grate-surface, substantially as described.

2. In an endless traveling grate for furnaces, the combination with carriage C and the supporting drums and rollers mounted thereon, of the link grate-bars A A, provided with hooks in one end and the coupling-pins P in the opposite end, grouped and hooked together and forming the grate-surface, substantially as described.

575,092. FURNACE-GRATE BAR. CHARLES J. ALLEN and FRANK R. FENCTE, Cleveland, Ohio, assignors to The Playford Stoker Company, same place. Filed Oct. 24, 1896. Serial No. 610,008. (No model.)

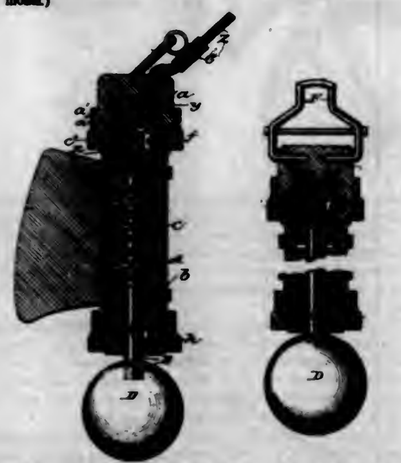


Claim.—1. In furnace-grates, the grate-surface sections provided with transverse, curved and overlapping fingers, substantially as shown and described.

2. In furnace-grates, the grate-surface sections provided with transverse, curved and overlapping fingers, and with a T-mortise, in combination with T-iron bars, substantially as described.

3. The combination of the links B provided with the slotted lugs *b*, the T-iron bars C supported in said lugs, and the grate-sections D provided with T-shaped mortise and supported on the T-iron bars, substantially as described.

575,093. AUTOMATIC ELECTRIC MARINE SOUNDING APPARATUS. JAMES F. BABCOCK, Bangor, Me., assignor of one-half to Flavius O. Beal, same place. Filed Mar. 11, 1896. Serial No. 583,737. (No model.)

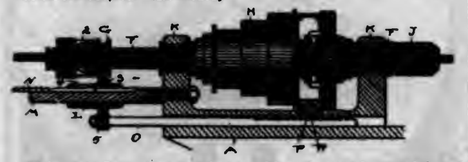


Claim.—1. An automatic electric marine sounding apparatus consisting of the combination of a cylinder having a water-tight chamber; a movable rod partially within said cylinder, working longitudinally therein, and having an insulated metallic cap upon its head and within said chamber; a stationary insulated metallic cap within said chamber and in line with said cap on said movable rod; a spring within said cylinder acting against the downward movement of said movable rod; a weight attached to the lower end of said movable rod sufficiently heavy to overbalance said spring; an electric battery, and two wires properly insulated connecting the poles of said battery with said insulated metallic caps.

2. In an automatic electric marine sounding apparatus the combination of a water-tight metallic cylinder having its lower end closed by a screw-cap and its upper end by a cap secured by a union-joint; a movable rod partially within said cylinder and working longitudinally through said screw-cap; a spiral spring within said cylinder surrounding said movable rod and stopped or secured near the upper end of said movable rod and at its lower end upon a support resting upon said screw-cap; a weight attached to the lower end of said movable rod sufficiently heavy slightly to overbalance said spring; an insulated metallic cap upon the head of said movable rod and another in line with the first upon the under side of the upper cap of said cylinder; an electric battery; and two wires properly insulated connecting the poles of said battery with said insulated metallic caps.

3. The combination of a cylinder having one end closed by a screw-cap; a rod partially within said cylinder and longitudinally movable therein and through said screw-cap; and an elastic packing or expansion-joint consisting of a hollow dome made of rubber or other elastic material and having a flanged base fitted and secured between the base of said cylinder and said screw-cap, and also having a neck or collar fitting and embracing and rigidly secured to said movable rod.

575,094. TURRET-LATHE. GEORGE C. BARDONS, JOHN G. OLIVER, and GEORGE W. DRAKE, Cleveland, Ohio. Filed Mar. 18, 1896. Serial No. 583,663. (No model.)



Claim.—1. In a form-turning machine, the stock securing and feeding mechanism substantially as described, comprising the collet and the tube bearing against the same, the elbow-levers to operate said tube and the collar to operate said levers, in combination with the ratchet-bar and sleeve for feeding the stock, the sleeve L engaging said collar and said ratchet-bar, a rack-bar connected with said sleeve L and extending thence beneath the bed of the machine, and a pinion beneath the said bed engaging said rack-bar, substantially as described.

2. The mechanism described comprising the bed of the machine, the sliding sleeve L and the collar G and ratchet-bar N engaged by said sleeve, in combination with the rack-bar O projecting beneath the bed of the machine, the transverse shaft P, pinion R thereon engaging said rack-bar and hand-lever S, substantially as described.

3. The combination of parts as described, consisting of the fixed supporting-bar M, the ratchet-bar N therein, the sleeve L having a slot 4 engaged by said ratchet-bar and a sliding collar G engaged by said sleeve and the feed-controlling sleeve connected with said ratchet-bar and said support M, and the operating mechanism for said parts consisting of the rack-bar O fixed to sleeve L, the shaft and pinion R and P and the hand-wheel S, substantially as described.

575,095. SIEVE FOR THRESHING-MACHINES. WILLIAM BARTELT, Fairfield, Wash. Filed July 8, 1896. Serial No. 598,495. (No model.)

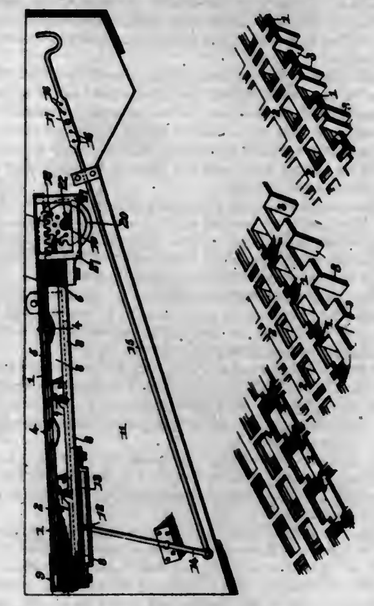
Claim.—1. A sieve or screen comprising overlying sections or parts slidably related and having corresponding and registering openings which are varied by relatively moving the sections, and one of the sections having other openings of smaller size intermediate of the main openings, substantially as and for the purpose described.

2. A sieve or screen comprising overlying slidable sections or parts having corresponding openings and adapted to have the size of the openings varied by relatively moving the sections, and lips extending from the upper section and projecting through the openings of the lower section to extend across the joint between the two sections and provide lips therefor, substantially as set forth.

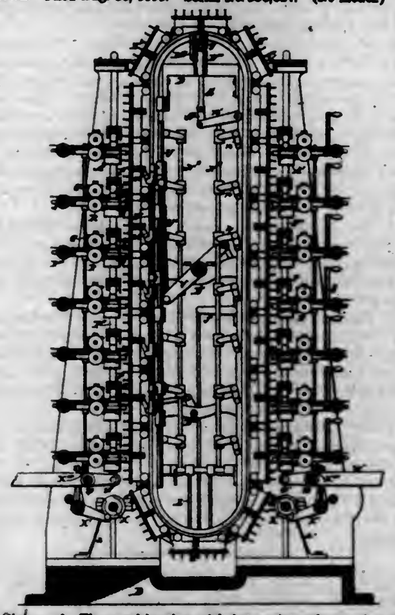
3. A sieve or screen comprising overlying slidable sections or parts having corresponding openings, lips projecting from the lower section, and other lips extending from the upper section and projecting through the openings of the lower section to overlap the joint formed between the sections and act jointly with the lips of the lower section, substantially as and for the purpose set forth.

4. The combination with a sieve or screen comprising relatively movable sections or parts having corresponding openings, of a longitudinally-movable shaft, pinions secured upon the shaft, rack-bars having connection with the movable screen-section and meshing with the pinions, and a locking mechanism for securing the parts in an adjusted position and engaged and disengaged by a longitudinal movement of the shaft, substantially as set forth.

5. In combination, a frame provided with a screen composed of overlying sections slidably related and having corresponding openings, means for supporting the frame at one end and serving to relatively adjust the sections, keepers at the opposite end of the frame, a crank-shaft having its horizontal portion operating in the said keepers, a rod having connection with an arm of the crank-shaft and extending within convenient reach to be operated for varying the inclination of the frame, and means for securing the said rod and holding the frame in the adjusted position, substantially as set forth.



575,096. EGG-CASE MACHINE. JAMES H. BATCHELDER, Tabor, Iowa. Filed Aug. 10, 1895. Serial No. 558,827. (No model.)



Claim.—1. The combination with intermittently-moving carriers for the slotted strips, of a number of punch-heads equal to the whole number of strips in the cell-case, adapted to punch and cut off the strips, and mechanism for feeding said strips into the carriers.

2. The combination with a plurality of punch-heads adapted to punch and cut off singly the total number of strips in the cell-case, at each movement of said punch-head, mechanism adapted to feed the strip material under the punches and a plurality of strip-carriers, equal to or greater than the number of punch-heads, adapted to re-

ceive the strips singly and progressively, whereby they are filled on completing the circuit of all the punch-heads, as described.

3. The combination with a series of punch-heads equal in number to the number of strips in the cell-case, mechanism adapted to feed the strip material under the punches and a series of intermittently-moving strip-carriers to receive the strips as cut off, said carriers having one cell-space of overlap as to said punch-heads, whereby each succeeding strip of the series enters a succeeding row of holders in said carriers.

4. The combination of a series of punch-heads equal to the whole number of initial strips of the cell-case, mechanism adapted to feed the strip material under the punches, another series of punch-heads equal to the number of final strips, and set opposite the first series, a series of strip-carriers moving successively in front of each punch-head, and means for turning each carrier a quarter-revolution after filling with the initial series of strips.

5. The combination with a punching and cutting table, substantially as described, of a shear to square the end of the paper of the old and new roll, the distance between said shear and the cut-off for the strip being an exact multiple of the width of the strip, whereby a new roll may be started without stopping the machine.

6. The combination with a pair of tracks, of a series of disconnected, abutting strip-carriers, mechanism for advancing them intermittently and mechanism for feeding the strip material and cutting and punching the same, substantially as described.

7. A strip-carrier having travelers each side, and adapted to run in line with either side of the carrier, and provided with abutments each side, in combination with suitable actuating mechanism therefor, and for feeding, cutting and punching the strips, substantially as and for the purpose set forth.

8. A strip-carrier having a pair of wheels on each of its four equal sides, abutments curved in the arc of a circle having the same center as each wheel, and fingers adapted to hold the strips in either direction on said carrier.

9. The combination with a carrier-table and holding-fingers substantially as described, of an ejector-frame seated in the face of said table, and spring-latches to retain the same in normal position.

10. The combination with a series of disconnected carriers, a track therefor having a gap therein, and a quarter-turning device adapted to lift a carrier out of its place, turn it one-quarter, and return it to the original place.

11. The combination with a carrier substantially as described, of a reciprocating cam having a partly direct and partly spiral upward course, and a direct descent, as described.

12. The combination with a carrier having an ejector-frame seated in the face thereof, ejector-forks adapted to engage therewith when the carrier is in the position to discharge the completed cell-case, and mechanism substantially as described for imparting an inward, downward, upward and outward movement to said forks.

13. The combination of a pair of vertically-reciprocating guide-rods, means substantially as described for reciprocating them, a series of punch-heads secured thereto, levers provided with rollers abutting on the lower ends of said guide-rods, and counterweights suspended from said levers, substantially as described.

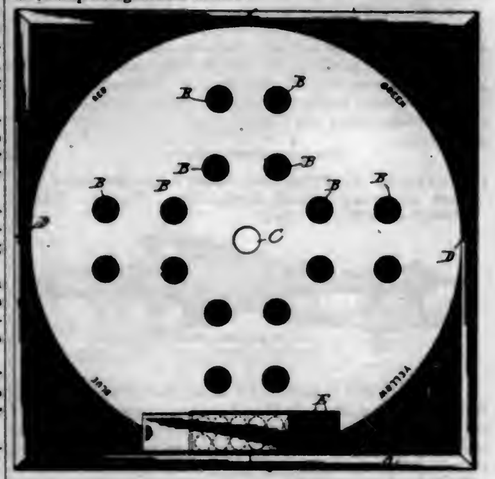
14. The combination of a series of strip-carriers having backward projections thereon, a reciprocating feed-rod and one or more pawls mounted thereon, and adapted to engage with the projections of said carriers, and to move them a space equal to the entire width of the carrier.

15. The combination with a rotating cam and connected mechanism, of a reciprocating cam and a series of strip-carriers, the reciprocating cam having a spiral path through part of its upward movement, and a direct return path, and mechanism to engage the carriers, whereby it is adapted to lift them successively, turn them one-quarter around and return them to place.

16. The combination with a rotating cam and connected mechanism, substantially as described, adapted to impart inward, downward, upward and outward movement to a strip-ejector, of a strip-carrier having strip-retainers thereon, a strip-ejector seated in said carrier, and a pair of ejector-forks connected to the actuating mechanism described, and adapted to engage with the ejector seated in the carrier.

575,097. GAME-BOARD. ROY D. BERAN, Meadville, Pa. Filed May 5, 1896. Serial No. 590,574. (No model.)

Claim.—The hereinbefore-described game apparatus, the same consisting of a plurality of sets of differently-colored balls, in combination with a board having a raised rim and a plain, flat upper surface and divided marginally into a number of player's stations corresponding to the sets of balls, and respectively colored to correspond with the sets of balls, sets of shallow counting-pockets arranged near the center of the board between diametrically opposite stations and adapted to receive and lightly hold the balls, the sets of pockets corresponding in number and color to the number and color of the stations and the sets of balls, and the number of pockets in each set corresponding to the number of balls of one color, and each set of pockets being located adjacent to a differently-colored station and on the opposite side of the board from the station of the same color, and a single default-pocket arranged in the center of the board and diametrically between the stations and the sets of pockets corresponding respectively thereto, whereby any ball or balls are to be projected from each station across the board opposite the set of holes belonging to the station of the opposing player and opposite the default-pocket into the holes of the set corresponding thereto in color.



575,098. DRUM. GEORGE W. BERRY, Worcester, Mass. Filed June 27, 1896. Serial No. 597,196. (No model.)



Claim.—1. A snare for drums formed of spirally-wound wire, substantially as described.

2. A snare for drums comprising a metallic spiral-spring body portion having flexible fastening-pieces at its opposite ends, substantially as described.

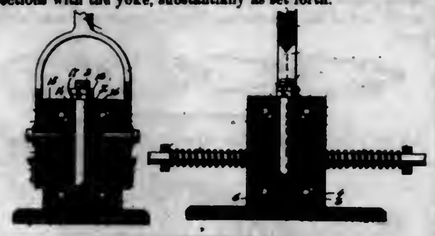
3. A snare for drums comprising a metallic spiral-spring body portion, and flexible cat-gut fastening-pieces at its opposite ends, said fastening-pieces being turned or threaded inside of the body portion of the snare, substantially as described.

4. The combination of a drum, and a plurality of metallic spiral-spring snares arranged to cooperate with the drumhead thereof, substantially as described.

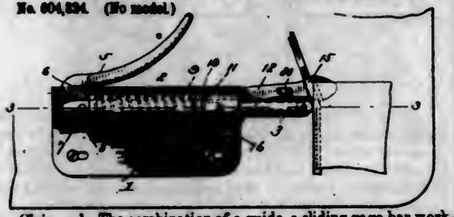
5. The combination of a drum, a plurality of snares arranged to cooperate with a drumhead, a rod extending transversely with respect to said snares, and a hook movably mounted on said rod and arranged to hold the snares away from the drumhead to muffle the drum, substantially as described.

575,099. TROLLEY-STAND. JOHN H. BISHOP, Indianapolis, Ind., assignor of two-thirds to Will A. Y. Bishop and Will H. Smith, Muncie, Ind. Filed Aug. 22, 1896. Serial No. 603,039. (No model.)

Claim.—A trolley-stand for electric cars comprising a base-plate having a vertically-disposed pivot-post, and an integral annularly-bored bearing-cup disposed at the lower end of and surrounding said post, bearing-balls arranged in said cup, a swivel-head longitudinally bored to loosely fit the pivot-post and provided at its lower end with an integral depending bearing-cone turning inside of the circle of the lower set of bearing-balls, and at its upper end provided with an annular rounded recess forming a ball-cup, bearing-balls arranged in the ball-cup of the swivel-head, a cap-plate adjustably fitted on the upper end of the pivot-post and provided with a central depending bearing-cone working inside of the circle of the upper set of balls, wear-bushings facing the ball-cups and bearing-cones, a trolley-pole having a yoke pivotally embracing the swivel-head, and oppositely-arranged spring-adjusted bars carried by the swivel-head and having connections with the yoke, substantially as set forth.



575,100. COMBINED WELT-GUIDE AND GAGE. BALDWIN S. BOUTON and SILAS H. GERMAIN, Ripon, Wis. Filed Sept. 3, 1896. Serial No. 604,824. (No model.)



Claim.—1. The combination of a guide, a sliding gage-bar working therein, means for yieldingly pressing said gage-bar outward, means for withdrawing said gage-bar against said yielding pressure and holding it in its inner position, a guide-arm connected to said gage-bar and adapted to be moved therewith, and a welt tube carried by said guide-arm at its forward end, substantially as and for the purpose set forth.

2. The combination of a sliding gage-bar, means for yieldingly pressing the gage-bar outward, means for withdrawing said gage-bar against said yielding pressure, a welt-guide, and means for securing the welt-guide to the gage-bar whereby it may be given a vertical rocking movement independent of the gage-bar, substantially as and for the purpose described.

3. The combination of a gage-bar, a welt-guide pivoted thereon and adapted to be moved out of operative position independent of the gage-bar, and a device engaging the rear end of the welt-guide and adapted to automatically hold it in either its operative or inoperative positions, substantially as described.

4. The combination of a base-plate, a gage-bar slidingly mounted thereon and carrying a gage-roller at its outer end, a spring normally pressing said bar outward, a guide confining said gage-bar to the base-plate, a cam-lever for operating the gage-bar, a guide-arm carrying at its outer end a tubular welt-guide, a vertical pivotal pin projecting upward from the guide-arm through the gage-bar, whereby the guide-arm is pivotally attached to the gage-bar, substantially as described.

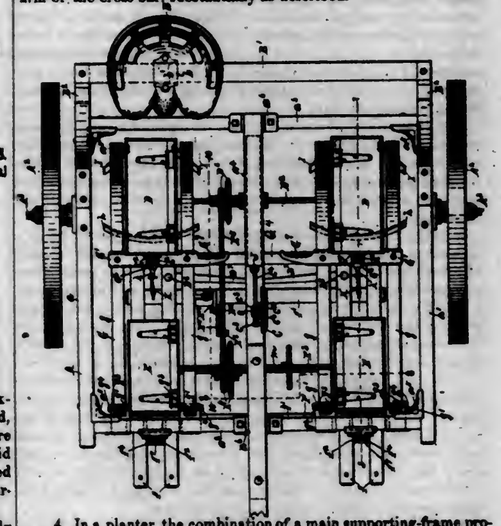
5. The combination of a base-plate, a gage-bar slidingly mounted thereon and carrying a gage-roller at its outer end, and formed with the shoulder 11, a guide for said gage-bar, a spring normally pressing the gage-bar outwardly, a washer 10 adapted to be forced by said spring against shoulder 11 of the gage-bar, a welt-guide pivoted to the gage-bar, its inner end being adapted to bear against the washer 10, said guide being formed with the straight edges 17 and 18, substantially as and for the purpose described.

575,101. PLANTER. MICHAEL D. BREEN and WILLIAM H. BRACE, Avon, N. Y.; said Brace assignor to said Breen. Filed Sept. 21, 1895. Serial No. 563,186. (No model.)

Claim.—1. In a planter, the combination of a receptacle for the seed to be planted, a frame for supporting the receptacle, a movable frame secured to the former frame, a shoe secured to the movable frame for covering the seed, a digging-tooth secured to the movable frame for forming a furrow for the reception of the seed, said tooth being adjustable vertically on the movable frame and independently of the shoe, substantially as and for the purpose set forth.

2. In a planter, the combination of a receptacle for the seed to be planted, a bar having a downturned end provided with a shoe for covering the seed, a cross-bar secured to the former bar above the shoe, and a digging-tooth arranged at one side of the shoe and having its shank secured to the cross-bar and adjustable transversely thereof, substantially as and for the purpose described.

3. In a planter, the combination of a receptacle for the seed to be planted, a pair of spring-bars having downturned ends provided with shoes for covering the seed, a cross-bar arranged above the shoes and having its opposite ends secured to the former bars and its intermediate portion provided with an upwardly-extending arm formed with lengthwise engaging shoulders, a digging-tooth interposed between the shoes and having its shank provided with a series of perforations arranged one above the other, said shank being engaged with the shoulders and movable lengthwise thereof, and a bolt for securing the shank of the digging-tooth to the upwardly-projecting arm of the cross-bar, substantially as described.



4. In a planter, the combination of a main supporting-frame provided with a laterally-movable seat, a pair of tooth-carrying bars arranged at one side of the seat and having their front extremities pivotally connected to the frame, and a cross-bar fixed to the former bars for holding the same apart said cross-bar having its end nearest the seat extending beyond the adjacent tooth-carrying bar and provided with a foot-engaging portion, substantially as and for the purpose specified.

5. In a planter, the combination of a receptacle for the seed to be planted, a movable frame for supporting the receptacle, a pair of movable tooth-carrying bars, a cross-bar fixed to the former bars for holding the same apart, said cross-bar being provided with a socket and a foot-engaging portion, an engaging arm having one end removably fixed in the socket, and a lifting-chain between the movable frame and the free end of said arm, substantially as and for the purpose described.

6. In a planter, the combination of a main supporting-frame provided with a seat, tooth-carrying bars arranged in pairs on opposite sides of the seat and having their front extremities pivotally connected to the frame, a cross-bar for connecting the pairs of tooth-carrying bars said cross-bar consisting of separate sections or divisions arranged one above the other and having their central portions separated from each other a greater distance than their extremities, a lever carried by the frame for elevating the tooth-carrying bars, and a chain connection between the central portion of the cross-bar and said lever, substantially as and for the purpose set forth.

7. In a planter, the combination of a main supporting-frame provided with a seat, a receptacle for the seed to be planted, a second frame for supporting the receptacle pivotally connected to the former frame, tooth-carrying bars arranged in pairs above the second frame on opposite sides of the seat, and having their front extremities pivotally connected to the supporting-frame and their rear extremities provided with teeth normally arranged beneath the second frame, cross-bars arranged upon the top faces of the tooth-carrying bars said cross-bars having their adjacent ends extended beyond the inner tooth-carrying bars, a cross-bar arranged beneath the tooth-carrying bars and consisting of upper and lower sections or divisions having their central portions separated from each other a greater distance than their extremities and the ends of the upper division or section extended beyond the ends of the lower section or division and secured to the outer tooth-carrying bars, thereby connecting all the tooth-carrying bars engaging arms having corresponding ends secured to the central portions of the upper cross-bars, connections between the second frame and the opposite ends of the engaging arms, a lever carried by the supporting-frame for elevating

the tooth-carrying bars, and a chain connection between the central portion of the lower cross-bar and said lever, substantially as and for the purpose described.

8. In a planter, the combination of a main supporting-frame provided with a seat, pairs of tooth-carrying bars arranged on opposite sides of the seat and having their front extremities pivotally connected to the frame, a cross-bar for connecting the pairs of tooth-carrying bars said cross-bar consisting of separate sections or divisions arranged one above the other and having their central portions separated from each other a greater distance than their extremities, a lever for elevating the tooth-carrying bars pivoted to the frame and extending upwardly therefrom and having one end provided with an engaging portion and its opposite end extended rearwardly, a chain connection between the central portion of the cross-bar and said lever, a stationary segment fixed to the frame, and a movable dog or stop carried by the lever for engaging the segment, substantially as and for the purpose specified.

9. In a planter, the combination of a main supporting-frame, a receptacle for the seed to be planted, a movable frame for supporting said receptacle, and a connecting-piece having one end fixed to the movable frame and adjustable laterally thereon and its opposite end vertically adjustable on and pivoted to the main frame, substantially as set forth.

10. In a planter, the combination of a main supporting-frame, a depending arm attached at one end to the said frame and laterally adjustable thereon, the said arm provided with holes or perforations arranged longitudinally thereof, a receptacle for the seed to be planted, a movable frame for supporting said receptacle, and a connecting-piece having one end attached to the movable frame and adjustable laterally thereon and the other end pivotally connected to the depending arm and vertically adjustable thereon, substantially as described.

11. In a planter, the combination of a main supporting-frame, a receptacle for the seed to be planted, a movable frame for supporting said receptacle, a connecting-piece having one end fixed to the movable frame and its opposite end movable vertically and pivoted to the main supporting-frame, and a tooth-carrying frame arranged above the movable frame and having its front extremity pivoted thereto and its opposite extremity provided with teeth arranged beneath the second frame, substantially as specified.

12. In a planter, the combination of a main supporting-frame provided with a cross-bar, a depending arm provided with a series of perforations arranged one above the other and having its upper end secured to the cross-bar and movable lengthwise thereof, a receptacle for the seed to be planted, a movable frame for supporting the receptacle provided with a cross-bar, a laterally-adjustable connecting-piece having its rear end provided with a groove in its lower face for receiving the second cross-bar and its front end extended beyond said cross-bar and provided with a transverse eye, a pivot passed through the eye and one of the perforations of the depending arm, a second laterally-adjustable connecting-piece having its front end provided with a groove in its lower face for receiving the second cross-bar and its rear end extended beyond said cross-bar and provided with a transverse eye, and a tooth-carrying frame arranged above the movable frame and having its front extremity pivoted to the transverse eye of the second connecting-piece and its opposite extremity provided with teeth arranged beneath the movable frame, substantially as described.

13. In a planter, the combination of a main supporting-frame provided with wheels, yielding standards projecting above and to the rear of the main frame and a transversely-extending supporting-bar mounted on the standards; with a seat movable lengthwise of said bar, substantially as set forth.

14. In a planter, the combination with opposite receptacles for the seed, a shaft provided with rotary seed-feeding heads movable in the receptacles and formed with transverse grooves in their peripheral faces for receiving the seed, and adjusting heads or collars movable lengthwise on the shaft and provided with slides or arms movable in the grooves for regulating the feed of the heads; of a frame for supporting the receptacles provided with a supporting-arm, levers pivoted to the frame and having corresponding ends secured to the adjusting heads or collars, and their opposite ends adjustably secured to said arm, substantially as described.

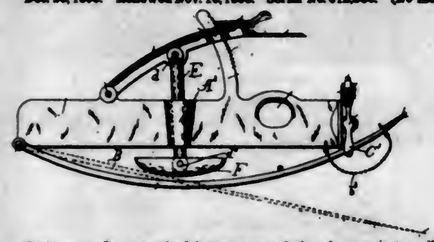
15. In a planter, the combination of a receptacle for the seed provided with an outlet, and a vertically-adjustable digging-tooth for forming a furrow to receive the seed separated therefrom and having its upper end provided with rearwardly-inclined laterally-extending arms or fenders, substantially as and for the purpose described.

575,102. CHAIN. RICHARD A. BENJ, Bridgeport, Conn., assignor to the Bridgeport Chain Company, same place. Filed Jan. 14, 1896. Serial No. 575,510. (No model.)

Claim.—A chain, each link of which is made from a single piece of wire bent to form a loop having an eye at one end formed by curving the free ends of the wire in opposite directions in planes perpendicular to the plane of the loop to form two coincident coils, the ends of such coils being bent or hooked around the sides of the loop on which they are respectively situated, the two hooks being in intersecting planes so that the parts thereof occupying, and in effect forming the end of the bow or link, cross each other, substantially as set forth.



575,108. COMPRESS. ERWIN L. BURTON, McKinney, Tex. Filed Dec. 28, 1896. Renewed Nov. 16, 1896. Serial No. 612,386. (No model.)



Claim.—1. In a surgical instrument of the character described, the combination with a body or frame, of a resilient needle hinged to one end of said frame; a pair of pivoted jaws mounted upon the opposite end of said frame for engaging and holding the pointed end of said needle; a block or shoe, and means mounted on said frame for depressing said block or shoe, substantially as described.

2. In a surgical instrument of the character described, the combination with a body or frame, of a resilient needle hinged to one end of said frame; a pair of toothed jaws, arms for opening and closing said jaws, and means for holding said jaws closed, mounted upon the opposite end of said frame for engaging and holding the pointed end of said needle; a block or shoe, and means mounted on said frame for depressing said block or shoe, substantially as described.

3. In a surgical instrument of the character described, the combination with a body or frame, of a resilient needle hinged to one end of said frame; a pair of pivoted jaws mounted upon the opposite end of said frame for engaging and holding the pointed end of said needle; a block or shoe; a lever-arm pivoted upon said frame and connected to said block for depressing the same, substantially as described.

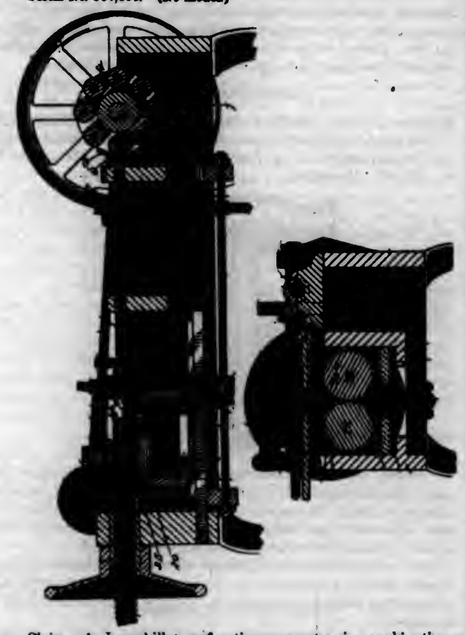
4. In a surgical instrument of the character described, the combination with a body or frame, of a resilient needle hinged to one end of said frame; a pair of toothed jaws pivoted at the opposite end of said frame for engaging and holding the pointed end of said needle; a block; a stem pivoted to said block; a lever pivoted to said stem and also pivoted to said frame, for depressing said block, substantially as described.

5. In a surgical instrument of the character described, the combination with a body or frame, of a resilient needle hinged to one end of said frame; a clamping device at the opposite end of said frame for engaging and holding the pointed end of said needle; a block; a stem pivoted to said block; a lever pivoted to said stem and also pivoted to said frame, for depressing said block; a curved arm on said frame provided with ratchet-teeth on one side thereof, and a thumb-catch on said lever adapted to engage said ratchet-teeth and thus hold said lever down, substantially as described.

6. In a surgical instrument of the character described, the combination with a body or frame, of a resilient needle hinged to one end of said frame; a clamping device at the opposite end of said frame for engaging and holding the pointed end of said needle; a block; a stem pivoted to said block; a lever pivoted to said stem and also pivoted to said frame, for depressing said block; a curved arm on said frame provided with ratchet-teeth on one side thereof, and a thumb-catch on said lever adapted to engage said ratchet-teeth and hold said lever down; and a finger-grip in said frame, substantially as described.

7. In a surgical instrument of the character described, the combination with a body or frame, of a resilient needle hinged to one end of said frame; a pair of toothed jaws, arms for opening and closing the same, and means for holding said jaws closed, mounted upon the opposite end of said frame for engaging and holding the pointed end of said needle; a block; a stem pivoted to said block and working in a guideway in said frame; a lever pivoted to said stem and also pivoted to said frame, for depressing said block; a curved arm on said frame provided with ratchet-teeth on one side thereof, working in a guideway in said lever; and a thumb-catch on said lever adapted to engage said ratchet-teeth and hold said lever down, substantially as described.

575,104. APPARATUS FOR PERFORATING BILLETS OR INGOTS. GEORGE J. CAPEWELL, Hartford, Conn. Filed Apr. 11, 1896. Serial No. 587,099. (No model.)



Claim.—1. In a billet-perforating apparatus, in combination, a perforating-tool having a hollow eccentrically-enlarged head, mechanism for rapidly vibrating the tool longitudinally, billet-supporting means, and mechanism for feeding the billet against the vibrating tool, substantially as specified.

2. In a billet-perforating apparatus, in combination, a perforating-tool having a hollow eccentrically-enlarged head, mechanism for rapidly vibrating the tool longitudinally, billet-supporting means, mechanism for rotating the billet, and mechanism for feeding the rotating billet against the vibrating tool, substantially as specified.

3. In a billet-perforating apparatus, in combination, a perforating-tool having a hollow eccentrically-enlarged head, mechanism for rapidly vibrating the tool longitudinally, rotary billet-supporting means, and mechanism for feeding the rotating billet-supporting means toward the vibrating tool, substantially as specified.

4. In a billet-perforating apparatus, in combination, a perforating-tool having an eccentrically-enlarged head, rotary billet-supporting means, and mechanism for feeding the rotary billet-supporting means toward the enlarged head of the perforating-tool, substantially as specified.

5. In a billet-perforating apparatus, in combination, a perforating-tool, a rotary percussive wheel arranged to rapidly vibrate the tool longitudinally, rolls adapted to support the billet, mechanism for rotating the rolls, and mechanism for feeding the billet against the vibrating tool, substantially as specified.

6. In a billet-perforating apparatus, in combination, a perforating-tool, a rotary wheel having peripheral rollers arranged to percussively engage the end of the tool, rolls for supporting the billet, a roll for holding the billet to the supporting-rolls, mechanism for rotating the supporting-rolls, and mechanism for feeding the billet against the tool, substantially as specified.

7. In a billet-perforating apparatus, in combination, a perforating-tool, a rotary wheel having peripheral rollers arranged to percussively engage the end of the tool, a spring normally holding the tool with its end in the path of the rollers, rolls for supporting the billet, mechanism for rotating the supporting-rolls, mechanism for feeding the billet against the tool, and adjusting means whereby the rate of speed of the billet feed mechanism may be changed, substantially as specified.

8. In a billet-perforating apparatus, in combination, a hollow perforating-tool having two chambers that are connected near the working end of the tool, water-ducts opening into both chambers, mechanism for rotating the billet, and mechanism for feeding the billet against the perforating-tool, substantially as specified.

9. In a billet-perforating apparatus, in combination, a perforating-tool, mechanism for rapidly vibrating the tool longitudinally, a pair of billet-supporting rolls held by a longitudinally-movable bed, mechanism for rotating the supporting-rolls, a roll for holding the billet to the supporting-rolls, and mechanism for feeding the billet and the supporting-rolls toward the perforating-tool, substantially as specified.

10. In a billet-perforating apparatus, in combination, a hollow perforating-tool having an eccentrically-enlarged head, a rotary wheel having peripheral rollers arranged to percussively engage the end of the tool, a pair of billet-supporting rolls held by a longitudinally-movable and vertically-adjustable bed, mechanism for rotating the supporting-rolls, a top roll held by a swinging plate for keeping the billet to the supporting-rolls, mechanism for feeding the billet-supporting rolls toward the rapidly-vibrating tool, and an adjustable friction-wheel for imparting motion to the feeding mechanism, substantially as specified.

11. In a billet-perforating apparatus, in combination, a perforating-tool having an eccentrically-enlarged head, billet-supporting means, and mechanism for feeding the billet and the perforating-tool together, one part having a rotary motion and the other a longitudinal vibration, substantially as specified.

12. A billet-perforating tool consisting of a shank with an eccentrically-enlarged head or working end, substantially as specified.

575,105. PLANIMETER. BYRON R. CHOLLAR, St. Louis, Mo. Filed July 16, 1896. Serial No. 599,371. (No model.)



Claim.—1. The combination with a planimeter, of a frame adapted to seat on the surface to be traced whereby the pointed upright of the planimeter is supported in contact with the said surface; substantially as described.

2. The combination of a pointed upright, a knife-edge upright, and a connection between the two, a collar adapted to support said pointed upright, and a horizontal ring secured to said collar by means of braces, substantially as described.

3. The combination of tracing-upright 2, knife-edge upright 3, and connection 1, all made integral, with supporting-collar 4 adapted to receive said tracing-upright 2, horizontal ring 5, and braces 6, likewise made integral, substantially as described.

575,106. PULLEY. THOMAS CORSCADEN, New Britain, Conn., assignor to the American Pulley Company, Philadelphia, Pa. Filed Nov. 24, 1894. Serial No. 530,050. (No model.)



Claim.—1. A pulley having a circumferentially-divided rim with flattened face for a flat belt, the parts of which rim meet in an inwardly-projecting flange in the inside of said rim and in a circumferential groove on the outer side of said rim, a hub and a series of separate spoke-arms radiating from said hub and having their outer ends lapped upon and secured to the said inwardly-projecting flange of the two-part rim substantially as described and for the purpose specified.

2. A divided pulley, having at one end of each half of the rim a spoke with a transverse bolt-socket 26, and at the other end of each

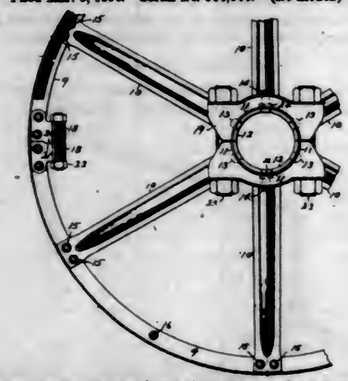
half-rim the rim-bolt lug 28, which registers with said bolt-socket, substantially as described and for the purpose specified.

3. A divided pulley the hub of which is provided with bolt-lugs, the main body of said lugs being U shape in cross-section while the outer end of each lug is provided with a short tubular portion 21, substantially as described and for the purpose specified.

4. A pulley having a transversely-divided and internally-flanged rim, and rim-bolt lugs with the sockets of said lugs inside of said rim and with portions of each lug embracing opposite sides of the central rib or flange to which said rim-bolt lugs are secured, substantially as described and for the purpose specified.

5. In a sheet-metal pulley, a circumferentially-divided internally-flanged rim, in combination with spokes whose hub-terminals 16 encircle hub-shells 14 and are secured thereto substantially as described.

575,107. SHEET-METAL PULLEY. THOMAS CORSCADEN, New Britain, Conn., assignor to the American Pulley Company, Philadelphia, Pa. Filed Mar. 5, 1896. Serial No. 581,906. (No model.)



Claim.—1. A pulley having a divided hub, a sheet-metal rim having the rolled-over edges and the inwardly-turned flanges, separate spoke-arms projecting from said hub and having their outer ends mechanically secured to said flanges, dowel-pins in said rolled-over edges, rim-bolt lugs secured to and projecting inside of said inwardly-turned flanges and opposing tongues and recesses in the abutting edges of said rim-bolt lugs, substantially as described and for the purpose specified.

2. A pulley having a divided hub, spoke-arms and rim, and also having rim-bolt lugs extending radially inward from the said rim with registering tongues and recesses in the meeting radial edges of said rim-bolt lugs, substantially as described and for the purpose specified.

3. A transversely-divided or two-part pulley having permanently-secured hub-shells, the hub-clamps formed of sheet metal doubled upon itself by two bends near the middle in the form of a flattened U in end view, and of a length to span the end of the hub, the metal sides of said clamps being separated to let the clamp-bolts pass between them while the metal connecting said sides is perforated and serves as a bolt-seat, substantially as described and for the purpose specified.

4. A transversely-divided pulley having permanently-secured hub-shells and having hub-clamps that span the ends of the hub, and means for yieldingly attaching said clamps to said hub-shells to prevent accidental displacement during transportation, but permitting them to yield and prevent throwing the pulley out of true in tightening up, substantially as described and for the purpose specified.

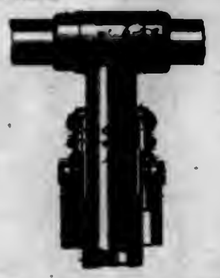
575,108. DENTAL NAPKIN-CLAMP. WILLIAM H. DUDDY, Boston, Mass., assignor to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Aug. 23, 1895. Serial No. 560,139. (No model.)



Claim.—1. The dentist's napkin holder or clamp formed of a single piece of spring-wire bent to constitute two members adapting it to loosely straddle the teeth at its inner portion, and having two parallel arms extending at an angle to the inner portion, each free at its outer end, and adapted to extend along the gum on opposite sides of the roots of a line of teeth, whereby absorbent material wound about the arms may be clasped against the gum, substantially as set forth.

2. The dentist's napkin holder or clamp formed of wire bent to form two members adapting it to loosely straddle the teeth at its inner portion, and having two parallel arms extending at an angle to the inner portion and provided with sleeves to receive the napkins and hold them against the gum, substantially as set forth.

575,109. HANDLE-BAR FASTENING FOR VELOCIPEDES. EDWARD J. GULICK, Jamestown, N. Y., assignor to the Fenton Metallic Manufacturing Company, same place. Filed Sept. 30, 1895. Serial No. 564,169. (No model.)



Claim.—1. The combination with a contractile sleeve provided with screw-threads and a smooth inclined bearing-surface, of a nut engaging the screw-threads of the sleeve, provided with a recess, and balls within the recess adapted to engage the bearing-surface of the sleeve to contract the same, substantially as described.

2. The combination with the fork-stem, of a split sleeve mounted thereon having a beveled edge, a nut mounted on the sleeve, and ball-bearings interposed between the nut and sleeve, substantially as described.

3. The combination with the fork-stem, of a split sleeve mounted thereon having a beveled portion, a nut fitting the sleeve having a recess containing ball-bearings, and means for securing the bearings in the recess, substantially as described.

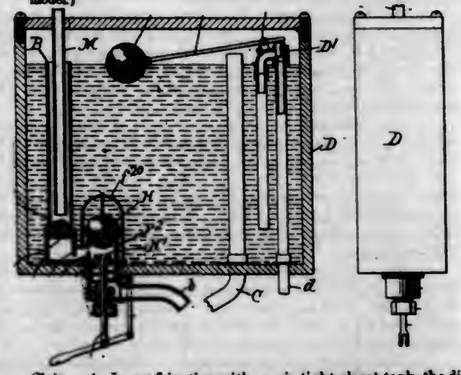
4. The combination with the split fork-stem and handle-stem fitting therein, of a split sleeve mounted on the fork-stem having internal and external screw-threads and a beveled edge, and a nut mounted on the sleeve having a recess, and balls engaging the faces of the recess and beveled portion of the sleeve, substantially as described.

575,110. MANUFACTURE OF STEEL. CHARLES M. HALL, Niagara Falls, N. Y. Filed Aug. 26, 1896. Serial No. 603,990. (No specimens.)

Claim.—1. In the manufacture of steel, the improvement which consists in adding to the molten steel an alloy containing aluminium and titanium.

2. In the manufacture of steel, the improvement which consists in adding to the molten steel an alloy containing aluminium and from .75 per cent. to 2.50 per cent. of titanium.

575,111. CLOSET-OPERATING TANK AND VALVE. PATRICK HARVEY, Chicago, Ill. Filed Feb. 20, 1896. Serial No. 580,063. (No model.)



Claim.—1. In combination with an air-tight closet-tank, the discharge-passage and the flushing-valve which controls the same, an overflow-passage communicating with the discharge-passage below the valve-seat, an air-exhaust pipe leading from the top of the tank, a ventilating-pipe opening in the overflow-passage at a point sufficiently above the water-level at which the flushing-valve seats to allow for the refill or afterwash.

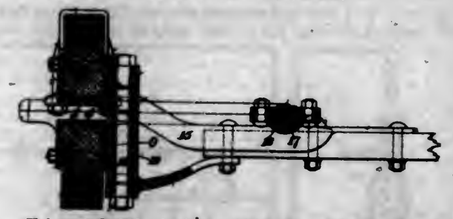
2. In combination with an air-tight closet-tank, the discharge-passage thereto and valve which controls such passage, an air-exhaust pipe, and an overflow-pipe having communication with the discharge-passage beyond the valve, and the ventilating-pipe extending air-tight through the tank-wall and down into the overflow-pipe and terminating open therein above the water-level at which the valve seats.

3. In combination with an air-tight closet-tank, the flushing-valve and the discharge-passage beyond it; an air-exhaust pipe; an overflow-pipe communicating at the lower end with such discharge-passage; a trap interposed between the discharge-passage and the overflow-pipe, and the ventilating-pipe opening in the overflow-passage at a point above the water-level at which the flushing-valve seats.

4. In combination with an air-tight closet-tank, the discharge-pipe leading therefrom and the flushing-valve controlling the same, an air-exhaust pipe, the overflow-pipe communicating with the discharge-passage beyond the flushing-valve, a trapped chamber interposed between the overflow-pipe and the discharge-passage, a float-valve seating downwardly to close the orifice of communication between the overflow-pipe and said trapped chamber, and the vent-pipe opening into the overflow-pipe above said orifice.

5. In combination with an air-tight closet-tank, the discharge-passage leading therefrom, the flushing-valve controlling such passage, an air-exhaust pipe: the overflow-pipe communicating with the discharge-passage beyond the valve-seat; a float-valve adapted when seated to close communication between the overflow-pipe and the discharge-passage; a ventilating-pipe terminating downwardly open above such float-valve and adapted to be closed by the latter when it is floated off its seat at the communication between the overflow and discharge passage.

575,112. FIFTH-WHEEL. WILLIAM L. HAWES, Cincinnati, Ohio. Filed Oct. 3, 1894. Serial No. 524,795. (No model.)



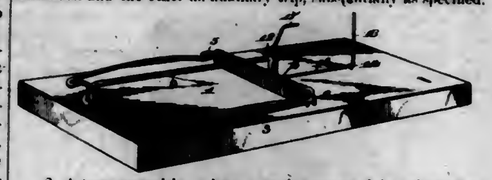
Claim.—1. In fifth-wheels for vehicles, the combination of a king-bolt socket having a flange adapted to be fixed to the rear of the head-block and having a perch-iron integral therewith, a plate adapted to be fixed to the bottom of the head-block and having an integral king-bolt socket interfitting with the socket above named, a top axle-plate having a king-bolt socket interfitting with the socket of the head-block plate, and a guard-stay, said guard-stay being interfitted with the socket of the axle-plate; substantially as described.

2. A fifth-wheel for vehicles having a top axle-plate provided with a rearwardly-extending projection or socket, a bottom head-block plate also provided with a rearwardly-extending projection or socket and adapted to bear on the top of the first-mentioned projection or socket, and a perch-iron having connected therewith a plate or flange adapted to bear against the rear of the head-block and secured thereto and having also a bearing upon the upper surface of the rearwardly-extending projection or socket of the head-block plate, said perch-iron extending therefrom downwardly under the circle-plates and being fixed to the top circle-plate by means of a flange or flanges; substantially as described.

3. A fifth-wheel for vehicles having a perch-iron, a king-bolt socket and a flange adapted to bear against the rear of the head-block, formed integral with each other, a head-block plate adapted to fit on the under side of the head-block and having a king-bolt socket interfitting with the socket of the perch-iron, and a top axle-plate having a king-bolt socket which interfits with the socket of the head-block plate and provided with a flange arranged to bear against the front side of the axle; substantially as described.

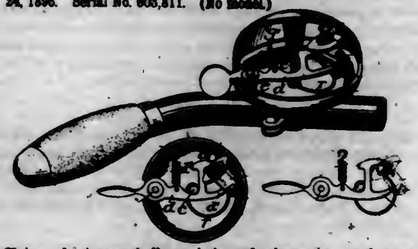
575,118. ANIMAL-TRAP. WILLIAM C. HOOKER, Abingdon, Ill. Filed Sept. 26, 1895. Serial No. 563,630. (No model.)

Claim.—1. A trap, comprising a stationary base, a spring-actuated jaw, a locking-bar, a trigger hinged to the base of the trap and having a longitudinally-extending journal and adapted to swing transversely in either direction, bearings at each end of said journal, the terminals of the trigger being extended upwardly, one forming a bait-hook and the other an auxiliary trip, substantially as specified.



2. A trap, comprising a base, a spring-actuated jaw thereon, a locking-bar therefor, a trigger having a longitudinally-extending journal and provided with a transversely-swinging arm, said arm having a lip for engaging the locking-bar, and a horizontal extension at the swinging end of said arm, substantially as and for the purpose described.

575,114. BICYCLE-BELL. ALBERT B. HUNN, Bristol, Conn., assignor to the New Departure Bell Company, same place. Filed Aug. 24, 1896. Serial No. 603,811. (No model.)



Claim.—1. A gong-bell consisting of a base-piece and gong, an elongated striker with an elongated slot loosely carried on a pin on a striker-mount, said striker-mount being actuated by a spring in either direction, and a lever provided with prongs for propelling and controlling the movement of the striker-mount, so that when the striker-mount is driven against a prong of the lever by force of the spring the striker will be carried forward by its momentum against the gong to sound the same and immediately recoil in the line of its motion.

2. A gong-bell consisting of a base-piece and gong, an elongated striker with an elongated slot loosely carried on a pin on the striker-mount, and limited to a forward-and-back motion so that the elongated slot will be at right angles substantially to the length of the striker-mount, said striker-mount being actuated by a spring in either direction, and a lever provided with prongs for propelling and controlling the movement of the striker-mount so that when the striker-mount is driven against a prong of the lever by the force of the spring the striker will be carried forward by its momentum against the gong to sound the same, and immediately recoil in the line of its motion.

3. In a gong-bell of the character described, an elongated striker having an elongated slot loosely carried on a pin on the striker-mount, said striker-mount being actuated by a spring in either direction, a lever actuated by a spring in one direction and provided with prongs for propelling and controlling the movements of the striker-mount.

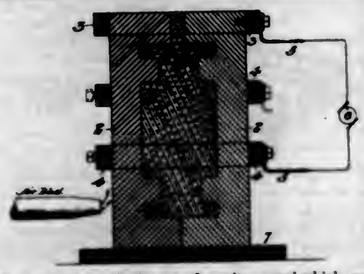
4. A gong-bell comprising in its construction a base-piece and gong, a striker-mount pivoted to the base-piece consisting of a hub and arm, a pin upon the arm carrying a striker with an elongated slot with means to prevent the striker from turning upon its pin, a spring for actuating the striker-mount in either direction, and a lever for propelling and controlling the movement of the striker-mount.

5. A gong-bell comprising in its construction a base-piece and gong: a striker-mount pivoted to one side of the base-piece and consisting of a hub and arm, said arm being provided with a shaft for carrying a striker and a pin carrying two rolls: a striker with a longitudinal slot loosely carried on said striker-shaft and held by a washer and spring coiled round the shaft: a spring for actuating the striker-mount fixed at one end to the lower roll, the other being coiled loosely round the central post; and a lever, spring-actuated in one direction, having prongs bearing against the upper roll to propel and control the movement of the striker-mount, all so constructed and arranged that by pressure upon the lever the striker-mount is moved past the center and by force of the spring said striker moving on its shaft is impinged against the gong to sound the same.

575,115. MANUFACTURE OF CASTINGS. ALFRED E. HUNT, Pittsburg, Pa. Filed Sept. 21, 1896. Serial No. 606,471. (No model.)

Claim.—1. An improvement in the art of casting metal which consists in heating the same by first passing a current of electricity

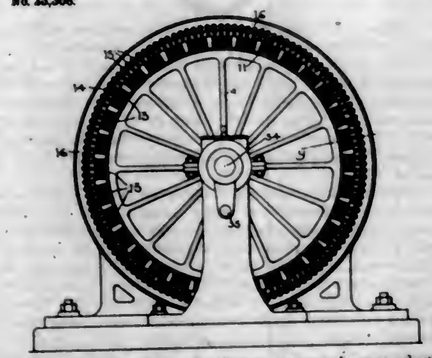
through the conductive material of the mold and substantially through the entire length of the mold, and then progressively shortening the portion included in the electrical circuit: substantially as described.



2. An improvement in the art of casting metal which consists in heating the same by first passing a current of electricity through the conductive material of the mold and then excluding the bottom part of the mold only from the circuit, substantially as described.

3. Apparatus for casting metal, the same comprising a mold of conductive material, an electric circuit in which the mold is included, and contacts on the mold connected with said circuit, one of said contacts being movable toward the other to vary the length of the mold included in the circuit.

575,116. DIRECT-CURRENT DYNAMO-ELECTRIC MACHINE. MAURICE HUTIN and MAURICE LEBLANC, Paris, France, assignors to the Société Anonyme pour la Transmission de la Force par l'Électricité, same place. Filed Feb. 12, 1894. Serial No. 499,851. (No model.) Patented in France June 29, 1893, No. 231,305, and in England Dec. 4, 1893, No. 23,306.



Claim.—1. A multipolar continuous-current dynamo-electric machine of the closed-circuit armature type, provided with a commutator having a lesser number of segments than there are armature-sections, and means for rotating the said commutator at a proportionally higher speed than the rotor, substantially as described.

2. A multipolar continuous-current dynamo-electric machine, having an equal number of uniformly-spaced armature sections for each pair of field-poles, a commutator the number of segments of which is an aliquot of the total number of armature-sections, and means for rotating the commutator apparatus at a rate that is as many times greater than that of the rotor, as the aliquot is contained in the total number of armature-sections, substantially as described.

3. A multipolar continuous-current dynamo-electric machine, provided with an armature having an equal number of uniformly-spaced pairs of armature-conductors for each pair of field-poles; a commutator having a lesser number of segments than there are pairs of armature-conductors, and means for rotating the commutator proportionately faster than the rotor, substantially as described.

4. A multipolar continuous-current dynamo-electric machine, having an equal number of uniformly-spaced armature-sections for each pair of field-poles, a commutator having as many segments as there are armature-sections for each pair of field-poles and means for rotating the commutator as many times faster than the rotor as there are pairs of field-magnet poles, substantially as described.

5. A multipolar continuous-current dynamo-electric machine, having an equal number of uniformly spaced pairs of armature-conductors for each pair of field-poles, a commutator having as many segments as there are pairs of conductors for each pair of field poles, and means for rotating the commutator as many times faster than the rotor as there are pairs of field-magnet poles, substantially as described.

6. A multipolar continuous-current dynamo-electric machine, provided with an armature having an equal number of uniformly-spaced pairs of armature-conductors for each pair of field-magnet poles, and a commutator, each segment of which extends through an arc representing a multiple of the degrees of the arc subtended by any two adjacent pairs of armature-conductors, and means for rotating the commutator apparatus with the same multiple of the angular speed of the rotor, substantially as described.

7. A multipolar continuous-current dynamo-electric machine, provided with an armature having an even number of groups of induced-circuit conductors connected in one closed series, with each part of any one group in the same or directly opposite relation to the field-poles, but with each group in a different relation to the field-poles, and a commutator apparatus driven at a higher rate than the main machine, substantially as described.

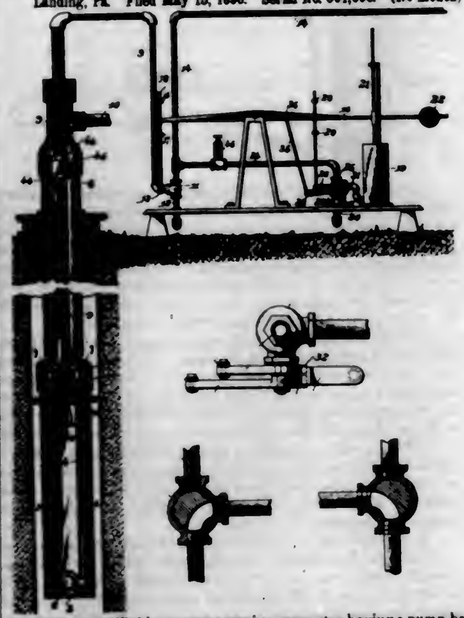
8. A multipolar continuous-current dynamo-electric machine, having $2t$ field-poles and an armature having $2s$ groups of induced-circuit conductors, each group consisting of $2t$ conductors, all connected in a closed series, and the conductors so spaced with reference to the field-poles as to generate, at any instant, the same electromotive force in the conductors of the individual groups, but regularly dephased electromotive forces in the conductors of the different groups; in combination with a commutator having $2s$ segments, and means for driving it t times faster than the main machine, substantially as described.

9. In a continuous-current multipolar dynamo-electric machine, the combination of field-magnets, an armature, a commutator, and an alternating-current synchronous motor, connected mechanically to said commutator and electrically to the windings of said armature, substantially as described.

10. In a dynamo-electric machine, a winding composed of pairs of conductors, one conductor of each pair being concentric with the other conductor of the same pair, substantially as described.

11. In a dynamo-electric machine, an armature having circuits composed of tubular conductors and solid conductors, the latter passing through and insulated from the tubular conductors, substantially as described.

575,117. AIR FORCE-PUMP. WILLIAM R. KARNS, Parker's Landing, Pa. Filed May 15, 1896. Serial No. 591,690. (No model.)



Claim.—1. Fluid-pressure pumping apparatus having a pump-barrel provided at its lower end with a valved inlet-port and provided near its upper end with a transverse partition forming a superjacent receiving-chamber, valved lift-tubes supported by said partition in communication at their upper ends with the receiving-chamber and at their lower ends with the pump-barrel contiguous to its inlet-port, a lift-pipe communicating with the receiving-chamber, a fluid-pressure-supply pipe removably seated upon the said partition in communication with the pump-barrel and adapted to be unseated to allow the withdrawal of the supply-pipe without disturbing the well-tubing or pump-barrel, said supply-pipe having a conical ground surface to fit a corresponding surface on the partition, and valve mechanism for controlling the application of pressure through the supply-pipe, substantially as specified.

2. Fluid-pressure pumping apparatus having a pump-barrel provided at its lower end with a valved inlet-port and at its upper end with a transverse partition or head forming a superjacent receiving-chamber, valved lift-tubes arranged within the pump-barrel and connecting the interior of the body portion thereof with the receiving-chamber, a lift-pipe in communication with the receiving-chamber, and a fluid-pressure-supply pipe extending axially through the lift-pipe and removably fitted in a seat in said partition to communicate with the interior of the pump-barrel, said supply-pipe being removable from and replaceable in the well without disturbing the lift-pipe or pump-barrel, substantially as specified.

3. Fluid-pressure pumping apparatus having a pump-barrel, lift-pipe, and air-supply pipe through which pressure is adapted to be applied at intervals, and valve mechanism for controlling the application of pressure, said valve mechanism including an air-pressure-controlling valve adapted to open communication with the air supply and exhaust alternately, an operating-lever or walking-beam arranged in operative relation with tappets carried by a stem of the fluid-pressure-controlling valve, and means controlled by fluid-pressure for oscillating said lever or walking-beam, said means including other valve mechanism connected to the walking-beam, substantially as specified.

4. Fluid-pressure pumping apparatus having a pump-barrel, lift-pipe, and air-supply pipe through which pressure is adapted to be applied at intervals, and valve mechanism for controlling the application of pressure, said valve mechanism including a fluid-pressure-controlling valve, an operating-lever or walking-beam arranged in operative relation with tappets carried by the stem of said valve, a cylinder in communication with a feed-pipe connected with the fluid-pressure-supply pipe, a piston operating in the cylinder and connected with the operating-lever or walking-beam, means for depressing the piston, and cylinder valve mechanism operatively connected with the walking-beam and including a valve controlling the cylinder inlet and exhaust, substantially as specified.

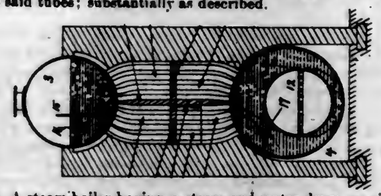
5. Fluid-pressure pumping apparatus having a pump-barrel and a lift-pipe, fluid-pressure-supply pipe, a fluid-pressure-controlling valve adapted to connect the pump-barrel with an exhaust, an operating-lever connected with the controlling-valve, a cylinder having a feed-pipe in communication with the fluid-pressure supply, a piston connected with the operating-lever, means for returning the piston to its initial position, and cylinder valve mechanism including a controlling-valve arranged in the feed-pipe and adapted to connect the cylinder with an exhaust, a valve-stem having tappets arranged in the path of the operating-lever, locking mechanism for securing said valve in one position, and trip mechanism controlled by the operating-lever for releasing a valve, substantially as specified.

6. Fluid-pressure pumping apparatus having a pump-barrel and a lift-pipe, fluid-pressure-supply pipe, a fluid-pressure-controlling valve adapted to connect the pump-barrel with an exhaust, an operating-lever connected with the controlling-valve, a cylinder having a feed-pipe in communication with the fluid-pressure supply, a piston connected with the operating-lever, means for returning the piston to its initial position, and cylinder valve mechanism including a controlling-valve arranged in the feed-pipe and adapted to connect the cylinder with an exhaust, a valve-stem having tappets arranged in the path of the operating-lever, locking mechanism for securing said valve in one position, and trip mechanism controlled by the operating-lever for releasing the valve, said trip mechanism including a cam-lever arranged in operative relation with the locking devices, a connecting-rod between the trip-lever and the operating-lever, and adjustable means for attaching the rod to said lever, substantially as specified.

7. Fluid-pressure pumping apparatus having a pump-barrel and a lift-pipe, fluid-pressure-supply pipe, a fluid-pressure-controlling valve adapted to connect the pump-barrel with an exhaust, an operating-lever connected with the controlling-valve, a cylinder having a feed-pipe in communication with the fluid-pressure supply, a piston connected with the operating-lever, means for returning the piston to its initial position, and cylinder valve mechanism including a controlling-valve arranged in the feed-pipe and adapted to connect the cylinder with an exhaust, a valve-stem having tappets arranged in the path of the operating-lever, locking mechanism for securing said valve in said position and consisting of a spring-latch for engaging a shoulder on the valve, and trip mechanism including a cam-lever arranged in operative relation with the latch and operatively connected with the lever, substantially as specified.

575,118. STEAM-BOILER. ROBERT D. KINNEY, Philadelphia, Pa., assignor to Alice B. Kinney, same place. Filed Apr. 13, 1896. Serial No. 587,365. (No model.)

Claim.—1. In a water-tube boiler having a steam-and-water drum provided with a partition-wall separating the water therein contained, and directly connected to a separate water-drum by a series of heating surface tubes, a flue-furnace surrounded by a water-chamber provided with a longitudinally-curved deflector deflecting the inflowing current of water from certain of the tubes thereto connected and comprising said separate water-drum, and inclosing walls and partitions arranged to convey the furnace-gases among and across said tubes; substantially as described.



2. A steam-boiler having a steam-and-water drum provided inside with a vertical longitudinal partition-plate extending downwardly to the shell of the drum and extending upwardly above the water-level, a furnace-incasing water-drum, heating surface tubes connecting said drums, and vertical and horizontal partitions arranged to convey the furnace-gases among and across said tubes: substantially as described.

3. An internal-fired water-tube boiler having a steam-and-water drum, and, a furnace-incasing water-drum provided with a deflecting-plate for deflecting the inflowing current of water discharged by the tubes which convey the feed-water to said drum, heating surface tubes connecting said drums, and partitions arranged to convey the furnace-gases among and across said tubes: substantially as described.

4. A steam-boiler having a steam-and-water drum provided inside with a vertical longitudinal partition-plate extending downwardly to the shell of the drum and extending upwardly above the water-level, a furnace-incasing water-drum provided with a deflecting-plate for deflecting the inflowing current of water from certain of the tubes, tubes connecting said drums and vertical and horizontal partitions arranged to convey the furnace-gases among and across said tubes; substantially as shown and described.

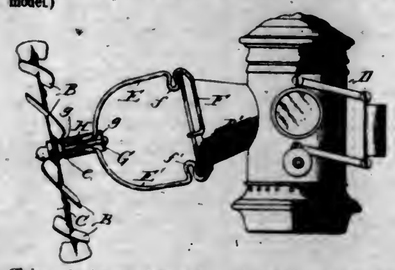
5. In a water-tube boiler having a steam-and-water drum directly connected to a separate water-drum by a series of heating surface tubes, a flue-furnace surrounded by a water-chamber provided on its inside with a deflector for deflecting the inflowing current of water from certain of said tubes and comprising said separate water-drum; substantially as described.

6. An internal-fired water-tube boiler having a steam-and-water drum, and, a furnace-incasing water-drum provided with a deflecting-plate for deflecting the inflowing current of water discharged by the tubes conveying feed-water to said drum, and heating surface tubes connecting said drums; substantially as described.

7. In a water-tube boiler, the combination, with a steam-and-water drum directly connected to a separate water-drum by a series of heating surface tubes, of a furnace-flue suspended to the walls of said water-drum: substantially as shown and described.

8. In a water-tube boiler, the combination, with a steam-and-water drum directly connected to a separate water-drum by a series of heating surface tubes, of a furnace-flue suspended to the walls of said water-drum and provided with a firo-grate: substantially as shown and described.

575,119. ATTACHMENT FOR BICYCLE-LAMPS. CAMILLUS KOEBEL, Chicago, Ill. Filed Sept. 20, 1895. Serial No. 563,070. (No model.)



Claim.—1. An attachment for a bicycle-lamp comprising a rotatable disk arranged in front of the face or lens of the lamp and a clamping device for securing the disk to the lamp in said position whereby as the bicycle is moved, the air-pressure will rotate the disk.

2. An attachment for a bicycle-lamp comprising a rotatable disk provided with wings upon its periphery and arranged in front of the

face or lens of the lamp and a clamping device for securing the disk to the lamp and holding it in said position whereby as the bicycle is moved, the air-pressure will rotate the disk.

3. An attachment for a bicycle-lamp, comprising a rotatable skeleton disk arranged in front of the face or lens of the lamp, a sheet of transparent material secured thereto, wings arranged upon the periphery of the disk whereby as it is moved, the air-pressure will rotate the disk, and a clamping device for securing the disk to the lamp.

4. An attachment for a bicycle-lamp comprising a rotatable disk having wings upon its periphery arranged in front of the face or lens of the lamp, and a continuous wire bent to rotatably hold the disk and also to secure it upon the lamp.

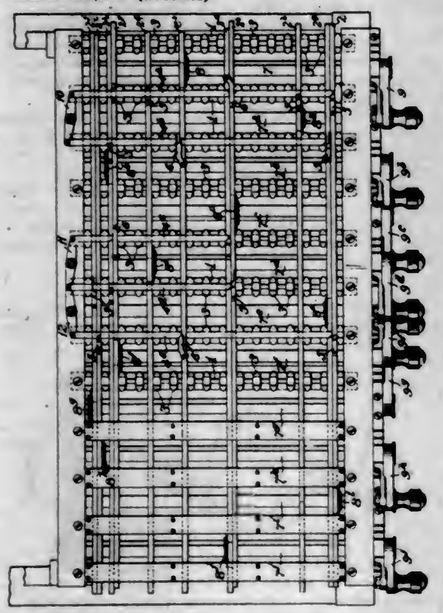
5. An attachment for a bicycle-lamp comprising a rotatable disk having wings arranged upon its periphery, and a clamping device for securing the disk to the lamp, consisting of a wire having spring-arms E E' and portions F F' at an angle to said arms for engaging the lamp.

6. An attachment for a bicycle-lamp comprising a rotatable skeleton disk, a sheet of transparent material secured thereto, wings arranged upon the periphery of the disk, a continuous wire clamp for holding the disk upon the lamp and consisting of spring-arms E E', portions F F' at an angle to said arms for engaging the reflector of the lamp, and a loop *e* adjacent to the disk and means for rotatably mounting the disk upon the loop *e*.

7. An attachment for a bicycle-lamp comprising a rotatable disk having wings arranged upon its periphery, a continuous wire clamp for holding the disk in front of the lamp and consisting of spring-arms E E', loops *f f'* pressing in front of the reflector, and portions F F' engaging the back of the reflector, the free ends of the wire being bent at an angle to the portions F F' and bearing against the front of the reflector, and means for attaching the disk in a rotatable manner to the clamp device.

8. An attachment for a bicycle-lamp comprising a rotatable disk having wings arranged upon its periphery, a continuous wire clamp for holding the disk in front of the lamp and consisting of bent portions at its free ends engaging the lamp-reflector and a loop *e*, a metallic piece H having its sides bent over upon the loop and provided with lugs *g g* having bearings, and a pin (i, rotatably mounted in said bearings and carrying the disk.

575,120. INTERLOCKING MECHANISM FOR SWITCH AND SIGNAL APPARATUS. GEORGE KOEHLE, Pittsburg, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed June 3, 1896. Serial No. 594,065. (No model.)



Claim.—1. In a mechanical interlocking mechanism for switches and signals, the combination of two or more parallel movable locking-blocks of such interlocking mechanism, means for shifting one of said locking-blocks, and one or more levers having a fixed fulcrum for transmitting motion from the driven locking-block to the other block or blocks, substantially as set forth.

2. In a mechanical interlocking mechanism for switches and signals, the combination of two or more parallel movable parts or members of such interlocking mechanism, means for shifting one of said parts or members, and mechanism so arranged between the driven part or member and the other part or parts, that the driven part or member can be shifted in one direction independent of the other part or parts, but when shifted in the opposite direction, movement will be imparted to the other part or parts, substantially as set forth.

575,121. SPRINKLER-HEAD FOR AUTOMATIC FIRE-EXTINGUISHERS. VALENTINE LAPHAM, Chicago, Ill. Filed Sept. 7, 1894. Serial No. 522,389. (No model.)



Claim.—1. As a new article of manufacture, an element for sprinkler-heads having in combination a rocker having offset ends and two parts bearing in opposite directions against the intermediate portion of the rocker, one of said parts being soldered against the inner face of each of the offset ends of the rocker and both of said parts being cut away sufficiently to permit them and the offset ends of the rocker to pass, substantially as set forth.

2. As a new article of manufacture, an element for sprinkler-heads, having in combination, two overlapping parts cut away to form opposing shoulders, and a rocker having an offset, the rocker having its offset ends secured against the outer faces of the parts first aforesaid, and having its intermediate portion arranged between the shoulders of said parts, substantially as set forth.

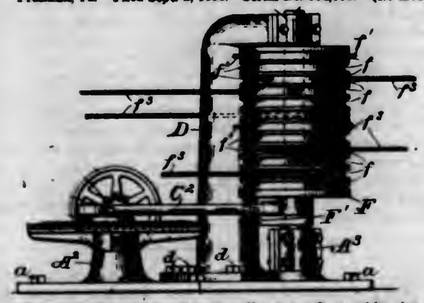
3. As a new article of manufacture, an element for sprinkler-heads having in combination a rocker, and two parts bearing in opposite directions against said rocker, said parts being soldered together and to the rocker and provided with overlapping marginal flanges; substantially as set forth.

4. As a new article of manufacture, an element for sprinkler-heads having in combination a rocker, and two parts bearing in opposite directions against said rocker, said parts and rocker being provided with complementary corrugations and soldered together; substantially as set forth.

5. As a new article of manufacture a strut for sprinkler-heads, having in combination two parts cut away to form opposing shoulders, and overlapping tongues, a rocker having a part occupying said cut-away portions and affording bearings for said shoulders, and having also parts secured against the outer faces of the parts first aforesaid, said parts first aforesaid having at their edges overlapping flanges for strengthening them, and guiding them, while being assembled, substantially as set forth.

6. As a new article of manufacture a strut for sprinkler-heads, having, in combination, two parts cut away to form opposing shoulders and overlapping tongues, a rocker having a part occupying said cut-away portions and affording bearings for said shoulders, and having also parts secured against the outer faces of the parts first aforesaid, said parts first aforesaid and the rocker having complementary corrugations, substantially as set forth.

575,122. OIL-WELL-PUMPING RIGGING. JOHN N. MAHER, Franklin, Pa. Filed Sept. 2, 1896. Serial No. 604,639. (No model.)



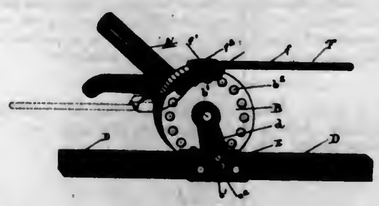
Claim.—1. In a rigging for oil-well pumps, the combination with a bevel gear-wheel, a crank on the said bevel gear-wheel a pinion meshing with the said bevel gear-wheel, and means for rotating the said pinion, of a drum, a crank connected with the said drum, grooves in the surface of the said drum, eyes secured in the said grooves, and connected with the pumps and a connecting-rod connected with the two cranks to oscillate the drum, substantially as described.

2. In a rigging for oil-well pumps, the combination with a base, a bevel gear-wheel mounted thereon, a bevel-pinion also mounted thereon, a crank on the said bevel gear-wheel, and means for rotating the said pinion; of a shaft mounted in bearings on the said base, a crank keyed on the said shaft and connected with the crank on the gear-wheel, a drum also keyed on the said shaft, eyes on the said drum and means for connecting the said eyes with the oil-pumps, substantially as described.

3. In a rigging for oil-well pumps, the combination with a base, a bevel gear-wheel mounted thereon, a bevel-pinion also mounted thereon, a crank on the said bevel gear-wheel, and means for rotating the said pinion; of a bearing mounted on the said base, a standard secured to the said base and bent over the said bearing, a bearing in the end of the said standard, a shaft mounted in the said bearings, a crank keyed on the said shaft and connected with the crank on the gear-wheel, a drum also keyed on the said shaft, eyes on the said drum and means for connecting the said eyes with the oil-pumps, substantially as described.

4. In a rigging for oil-well pumps, the combination with a bevel gear-wheel, a crank on the said bevel gear-wheel a pinion meshing with the said bevel gear-wheel, and means for rotating the said pinion, of a drum, a crank connected with the said drum, eyebolts secured in the said grooves by nuts on the inside of said drum, and connected with the pumps and a connecting-rod connected with the two cranks to oscillate the drum, substantially as described.

575,123. DEVICE FOR ADJUSTING COUNTERBALANCE-SPRINGS OF LOCOMOTIVES. WILLIAM J. A. MAKEMIE, Harrisburg, Pa. Filed Apr. 30, 1896. Serial No. 589,721. (No model.)



Claim.—1. A device of the class described, comprising the lever embodying a handle and the head portion consisting of a top plate adapted to extend across the periphery of a circular spring-box and side plates projecting therefrom and adapted to embrace the sides or faces of the spring-box, one of said plates being provided with an inwardly-turned point or projection, substantially as and for the purpose set forth.

2. A device of the class described, comprising the lever embodying a handle f and the head f' consisting of the plate or body f^3 having the projecting side plates or flanges f^3 and f^4, the side plate or flange f^4 being provided with the forwardly-projecting tongue or arm plate f^5 having the inwardly-turned point or projection f^6, said head portion of the lever approximately conforming to and being adapted to embrace the periphery or outer edge portion of a circular spring-box, substantially as and for the purpose set forth.

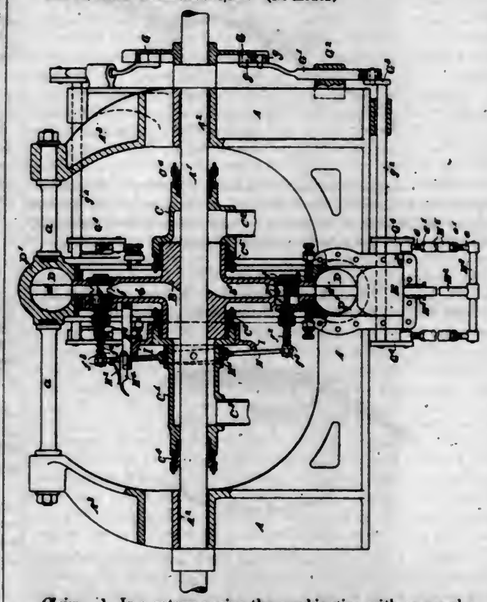
3. A device of the class described, comprising the lever having a head adapted to embrace the periphery or outer edge portion of a circular spring-box and provided with means for engaging said spring-box, substantially as and for the purpose set forth.

4. A device of the class described, comprising the lever embodying a handle and a head portion consisting of a plate or body adapted to extend across a periphery of a circular spring-box and side plates or flanges adapted to embrace the side or face of the spring-box, said head portion being provided with means for engaging the spring-box, substantially as and for the purpose set forth.

5. In a device or mechanism of the class described, the combination, with the circular spring-box having the periphery *b*, of the lever embodying the handle and the head portion projecting across the periphery of the spring-box and provided with side plates or flanges embracing the periphery or outer edge portion of the latter, said head portion being locked in engagement with the spring-box, substantially as and for the purpose set forth.

6. In a device or mechanism of the class described, the combination, with the circular spring-box provided with the series of holes or recesses in its face, of the lever embodying the handle and the head portion consisting of the plate or body and the side plates or flanges, one of said side flanges being provided with the inwardly-turned point or projection engaging one of said holes or recesses, said head portion approximately conforming to and embracing the periphery or outer edge portion of the spring-box, substantially as and for the purpose set forth.

575,124. ROTARY ENGINE. MATT MATSON, Sedro, Wash. Filed Jan. 20, 1896. Serial No. 576,127. (No model.)



Claim.—1. In a rotary engine the combination with an annular cylinder having a slot in its inner periphery, back-pressure gates and means for operating them, of a rotatable disk fitting the slot in said cylinder and having admission and exhaust ports extending from its center to its edge and opening into the cylinder, of valves for closing said ports having stems which extend without the disk, springs which unrestrained will keep said valves open, and means which may be attached to the valves of either set to open and close them at predetermined intervals, substantially as shown and described.

2. In a rotary engine, the combination with an annular cylinder having a slot in its inner periphery, back-pressure gates and means for operating them, of a rotatable disk fitting the slot in said cylinder and having admission and exhaust ports extending from its center to its edge and opening into the cylinder, of valves for closing said ports having stems which extend without the disk, springs which when unrestrained will keep said valves open, a fixed cam, a pivoted lever revolving with the disk and engaging said cam, and means for attaching it to and detaching it from the stems of either set of admission-valves, substantially as shown and described.

3. In a rotary engine, the combination with an annular cylinder having a slot in its inner periphery, back-pressure gates and means for operating them, of a rotatable disk fitting the slot in said cylinder and having admission and exhaust ports extending from its center to its edge and opening into the cylinder, of valves for closing said ports having stems which extend without the disk, springs which when unrestrained will keep said valves open, a lever surrounding the shaft and pivoted on a central axis so as to revolve with the disk, a central fixed face-cam engaging said lever to oscillate it, and means for attaching the ends of the lever to the opposite valves of either set of admission-valves, substantially as shown and described.

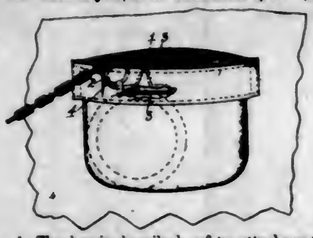
4. In a rotary engine, the combination with an annular cylinder having a slot in its inner periphery, back-pressure gates and means for operating them, of a rotatable disk fitting the slot in said cylinder and having admission and exhaust ports extending from its center to its edge and opening into the cylinder, of valves for closing said ports having stems which extend without the disk, springs which when unrestrained will keep said valves open, a lever surrounding the shaft and pivoted on a central axis so as to revolve with the disk and having side notches at each end adapted to engage the stems of either set of valves, a central fixed face-cam engaging said lever to oscillate it, a notched arm fixed to the disk, and a spring-held latch engaging said notched arm and holding the oscillating lever in engagement with either set of valve-stems or with neither, substantially as shown and described.

575,125. TOOL FOR SHAPING GLASSWARE. JOHN R. MILLER, Washington, Pa., assignor to George Duncan's Sons & Co., same place. Filed Jan. 30, 1896. Renewed Nov. 11, 1896. Serial No. 611,784. (No model.)



Claim.—A glass-finishing tool of metal, consisting of a plate having a surface curved to correspond to the contour of the finished article, and adapted to be held in contact with the outer surface of the article when the latter is rotated, substantially as described.

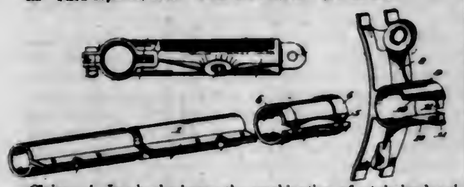
575,126. WATCH-POCKET GUARD. WILLIAM H. OFFUTT, Keyser, W. Va. Filed May 22, 1896. Serial No. 592,652. (No model.)



Claim.—1. The herein-described safety attachment or watch-pocket guard, which consists of a double-pointed pin or strip of wire, formed with a loop at one end through which the watch-chain projects, and with outwardly and backwardly extending arms, which are adapted to be inserted on both sides of the pocket to which device is applied, in combination with a supplemental pin for preventing an upward movement of the loop portion of said strip of wire, substantially as and for the purpose described.

2. The herein-described safety attachment or watch-pocket guard, which consists of a double-pointed pin or strip of wire, formed with a loop at one end through which the watch-chain projects and with a supplemental loop at an intermediate point, and with outwardly and backwardly extending arms, which are adapted to be inserted on both sides of the pocket to which the device is applied, substantially as and for the purpose described.

575,127. BRAKE-BEAM. HENRY B. ROSENCRANS, Kalamazoo, Mich., assignor to the Chicago Railway Equipment Company, Chicago, Ill. Filed Sept. 16, 1896. Serial No. 605,962. (No model.)



Claim.—1. In a brake-beam, the combination of a tubular longitudinally-slotted or open beam having radially-projecting flanges arranged in apposition, and a longitudinally-slotted end sleeve having radially-projecting flanges to embrace the flanges on the beam; substantially as and for the purposes specified.

2. In a brake-beam, the combination of a tubular longitudinally-slotted beam having radially-projecting flanges in apposition, of a longitudinally-slotted end sleeve having radially-projecting flanges and circumferential collars, and a brake-head having a clamp sleeve or band; substantially as and for the purposes specified.

3. In a brake-beam the combination with a brake-beam having a radially-projecting flange, of a brake-head having an open sleeve or band clamp provided with radially-projecting ears, and means for closing the clamp; substantially as and for the purposes specified.

4. In a brake-beam the combination of a tubular longitudinally-flanged beam, an open end sleeve having radially-projecting flanges, a brake-head having an open sleeve-clamp provided with radially-projecting ears, and means for securing the end sleeve and the brake-head to the beam; substantially as and for the purposes specified.

5. In a brake-beam, the combination with a beam having a radially-projecting flange, of a post having at its base a longitudinally-slotted clamp-sleeve provided with radially-projecting perforated ears; substantially as and for the purposes specified.

6. In a brake-beam the combination with a tubular beam having a radially-projecting flange, of a post having at its base a clamp-sleeve provided with a flange-recess and with radially-projecting perforated ears; substantially as and for the purposes specified.

575,128. TENPIN-BALL. FREDERICK C. ROCKWELL, Hartford, Conn. Filed Dec. 4, 1895. Serial No. 570,975. (No model.)

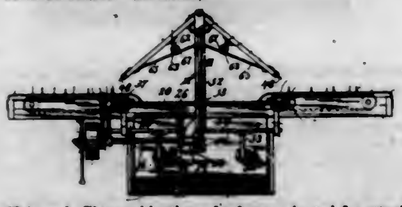


Claim.—1. As a new article of manufacture, a bowling-ball, consisting of a body of spherical shape formed of broken particles of cork and shellac united under heat and heavy pressure, having a texture without grain, a uniform density throughout its mass, and a specific gravity substantially the same as that of water, substantially as specified.

2. As a new article of manufacture, a bowling-ball, consisting of a spherical body having a specific gravity substantially the same as water, composed of sections of heated and heavily-compressed broken particles of cork and shellac cemented together under heavy pressure, substantially as specified.

3. As a new article of manufacture, a bowling-ball having an exterior surface composed of sections formed of heated and heavily-compressed particles of cork and shellac cemented together under heavy pressure and formed into a sphere which has a specific gravity substantially the same as water, substantially as specified.

575,129. FEEDER AND BAND-CUTTER FOR THRESHING-MACHINES. JOHN M. SAILER, Janesville, Wis. Filed Oct. 11, 1895. Serial No. 565,353. (No model.)



Claim.—1. The combination, of a frame adapted for attachment to a threshing-machine, or like apparatus, feeding mechanism mounted in said frame and adapted for feeding the grain to the machine, a support or supports extending upwardly from the frame, a board extending downwardly from the support or supports and having its lower edge terminating a desired distance above the feeding mechanism to form a throat or space between its lower edge and the feeding mechanism, said board being of a width corresponding to, or substantially corresponding to, the width of the feeding mechanism, and said board being inclined in a direction to bring its lower edge toward the incoming grain, thereby permitting the surplus grain to pass upwardly and to be held thereon until properly fed, cutting mechanism carried at the lower edge of the board, and means for actuating the cutting mechanism.

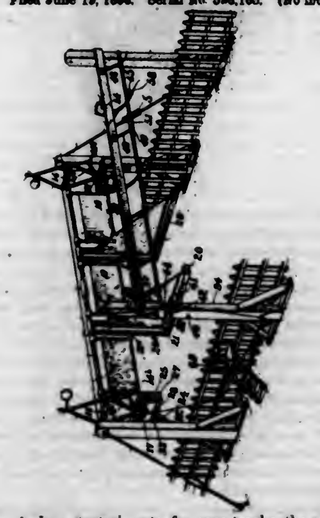
2. The combination, of a frame adapted for attachment to a threshing-machine, feeding mechanism mounted in said frame, an inclined board mounted above the feeding mechanism, cutting-blades carried at the lower edge of the board, a bar running lengthwise of the board, a rotatable shaft, a connection between said shaft and the bar, whereby the bar is reciprocated, a rock-shaft having a crank connection at one end of the bar and a double-crank connection at the opposite end with the two cutting-blades, whereby said blades are reciprocated in opposite directions, substantially as described.

3. The combination, of a frame adapted for attachment to a threshing-machine, feeding mechanisms, oppositely-inclined boards mounted above the feeding mechanisms, cutting-blades carried at the lower edges of the boards, a bar running lengthwise of each board, a rotatable shaft, a connection between the shaft and the bar, whereby the bar is reciprocated, rock-shafts each having a crank connection at one end of the bar, and a double-crank connection at the opposite end with the cutting-blades, whereby said blades are reciprocated in opposite directions, substantially as described.

4. The combination, of a frame adopted for attachment to a threshing-machine, feeding mechanism mounted in said frame, an inclined board mounted above the feeding mechanism, a screw-shaft held against longitudinal movement, and provided with right and left hand threads, a rod running lengthwise of the board, and straps each secured at one end to the board and having its opposite end bearing against the rod, said straps provided with threaded collars through which the screw-shaft passes, the threads of one collar corresponding to the right-hand threads of the shaft, and the threads of the other collar corresponding to the left-hand threads of the shaft, substantially as described.

5. The combination, of a frame adapted for attachment to a threshing-machine, a driven shaft mounted in said frame and receiving motion from the actuating mechanism of the threshing-machine, said shaft having a cranked end, an upper shaft having a beveled gear thereon, a connection between the two shafts for imparting rotation to the upper one thereof, rolls journaled in the frame, the shaft of the inner roll provided with a beveled gear meshing with the previously-mentioned beveled gear, a belt passing over the rolls, an inclined board mounted above the belt, cutting-blades carried at the lower edge of said board, a bar running lengthwise of the board, a connection between one end of said bar and the crank of the driven shaft, and a rock-shaft running along the end edge of the board, said shaft having a crank connection at one end with the bar, and a double-crank connection at the opposite end with the cutting-blades, whereby said blades are reciprocated in opposite directions, substantially as described.

575,130. STARTER'S GATE FOR RACE-TRACKS. JOHN SCHMIDT, New York, N. Y., assignor of one-half to Joseph S. Schmitt, Brooklyn, N. Y. Filed June 19, 1896. Serial No. 596,165. (No model.)



Claim.—1. In a starter's gate for race-tracks, the combination of a main cable, posts constructed to support said cable, means for tightening said cable and for securing the ends thereof, a tube inclosing said cable and revoluble thereupon between said posts, frames adapted for attachment to opposite ends of said tube, weights arranged to overbalance said frames, escapement mechanism placed beneath said frames, projecting pieces or stops borne by said frames and adapted for engagement with said escapement mechanism whereby said frames may be held in an upright, an intermediate or final inverted position, and means for operating said escapement, substantially as described.

2. In a starter's gate for race-tracks, the combination of a main cable, posts constructed to support said cable, means for tightening said cable and for securing the ends thereof, a tube inclosing said cable and revoluble thereupon between said posts, stall-bars attached to said tube, frames adapted for attachment to opposite ends of said tube, weights arranged to overbalance said frames, escapement mechanism placed beneath said frames, projecting pieces or stops borne by said frames and adapted for engagement with said escapement mechanism whereby said frames may be held in an upright, an intermediate or final inverted position, and means for operating said escapement, substantially as described.

3. In a starter's gate for race-tracks, the combination of a main cable, posts constructed to support said cable, means for tightening said cable and for securing the ends thereof, a tube inclosing said cable and revoluble thereupon between said posts, stall-gates pivotally connected with said tube, devices for limiting the rearward swing of said stall-gates and for causing said stall-gates to revolve with said tube, arms depending from said tube, stall-bars pivoted to said arms, means for supporting said stall-bars at an angle with said arms, means for supporting the pivoted stall gates when the stall-bars are in their inverted positions, frames adapted for attachment to opposite ends of said tube, weights arranged to overbalance said frames, escapement mechanism placed beneath said frames, projecting pieces or stops borne by said frames and adapted for engagement with said escapement mechanism whereby said frames may be held in an upright, an intermediate or final inverted position, and means for operating said escapement, substantially as described.

4. In a starter's gate for race-tracks, the combination of suitable uprights, a whip-board, devices supported by said uprights and connected with said whip-board whereby the weight of said whip-board and parts attached thereto is overbalanced, spring-rods or spring-whips, devices for connecting said spring-whips and whip-board, devices for holding said spring-whips in a bowed condition and for holding said whip-board in its lowered position, mechanism for releasing the spring-whips and whip-board, and means for operating said releasing mechanism, substantially as described.

5. In a starter's gate for race-tracks, the combination of a main cable, posts constructed to support said cable, means for tightening said cable and for securing the ends thereof, a tube inclosing said cable and revoluble thereupon between said posts, frames adapted for attachment to opposite ends of said tube, weights arranged to overbalance said frames, escapement mechanism placed beneath said frames, projecting pieces or stops borne by said frames and adapted for engagement with said escapement mechanism whereby said frames may be held in an upright, an intermediate or final inverted position, suitable uprights, a whip-board, devices supported by said uprights and connected with said whip-board whereby the weight of said whip-board and parts attached thereto is overbalanced, spring-rods or spring-whips, devices for connecting said spring-whips and whip-board, devices for holding said spring-whips in a bowed condition and for holding said whip-board in its lowered position, mechanism for releasing the spring-whips and whip-board, means for simultaneously operating said escapement and said whip-releasing mechanism, substantially as described.

6. In a starter's gate for race-tracks a spring-whip consisting of a yoke, a set-screw operating through one leg of said yoke, a spring-section connected at one end with said yoke, and a comparatively rigid rod-section connected with the remaining end of said spring-section, substantially as described.

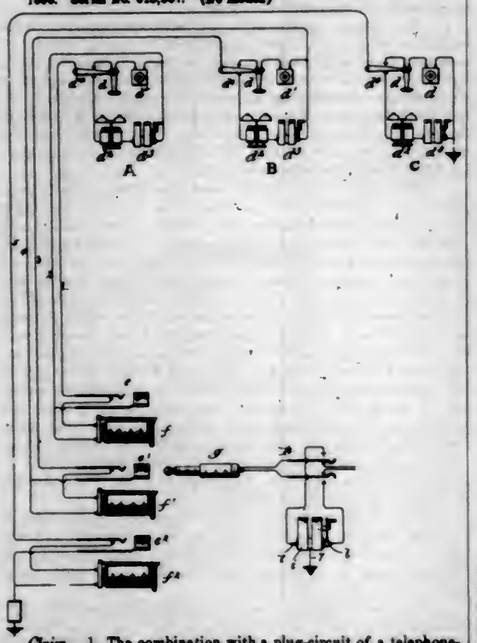
7. In a starter's gate for race-tracks, the combination of suitable uprights, grooved pulleys revoluble upon pintles borne by said uprights, a whip-board, weights, short cables adapted to be passed over said grooved pulleys and connected with said whip-board and weights, a rod having a bent end and pins projecting at intervals, end brackets attached to said whip-board and provided with transverse sleeves movably fitting said rod, intermediate brackets fixed to said whip-board and having transverse sleeves movably fitting said rod, the said sleeves being recessed longitudinally, sleeves fixed to said rod and having recesses corresponding in form and extent with the recesses of the sleeves upon said intermediate brackets, a flat spring attached to one of said uprights and arranged to resist the longitudinal movement of said rod, a latch constructed and arranged to engage the bent end of said rod and to hold the same against the force of said flat spring, and means for operating said latch, substantially as described.

8. In a starter's gate for race-tracks, the combination of suitable uprights, grooved pulleys revoluble upon pintles borne by said uprights, a whip-board, weights, short cables adapted to be passed over said grooved pulleys and connected with said whip-board and weights, a rod having a bent end and pins projecting at intervals, end brackets attached to said whip-board and provided with transverse sleeves movably fitting said rod, intermediate brackets fixed to said whip-board and having transverse sleeves movably fitting said rod, the said sleeves being recessed longitudinally, sleeves fixed to said rod and having recesses corresponding in form and extent with the recesses of the sleeves upon said intermediate brackets, a flat spring attached to one of said uprights and arranged to resist the longitudinal movement of said rod, a latch constructed and arranged to engage the bent end of said rod and to hold the same against the force of said flat spring, lugs placed at intervals upon said whip-board, spring-whips having yokes and set-screws adapted for engagement with said lugs, loops attached to said spring-whips and adapted to be brought into engagement with said pins when said spring-whips are bowed, and means for operating said latch, substantially as described.

9. In a starter's gate for race-tracks, the combination of a main cable, posts constructed to support said cable, means for tightening

said cable and for securing the ends thereof, a plurality of tubes and tube-couplings inclosing said cable and revoluble thereupon between said posts, frames adapted for attachment to opposite ends of said tubes, weights arranged to overbalance said frames, escapement mechanism placed beneath said frames, projecting pieces or stops borne by said frames and adapted for engagement with said escapement mechanism whereby said frames may be held in an upright, an intermediate or final inverted position, and means for operating said escapement, substantially as described.

575,181. **SIGNALING APPLIANCE FOR TELEPHONE-SWITCH-BOARDS.** CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 4, 1895. Renewed Dec. 15, 1896. Serial No. 615,807. (No model.)



Claim.—1. The combination with a plug-circuit of a telephone-switchboard, a caling-key in the plug-circuit, and a source of signaling-current having its terminals connected with the switch-contacts of the calling-key, of a ground connection to the middle point of said source of current, substantially as described.

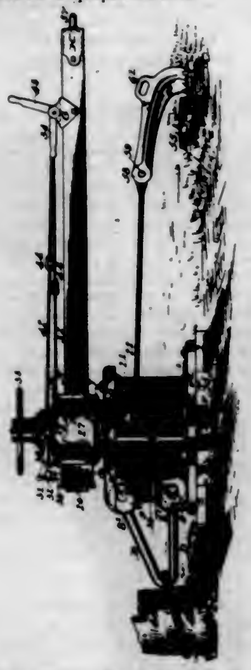
2. The combination with a plug-circuit, a calling-key in the plug-circuit, and a generator of signaling-current having the terminals of its armature connected with switch-contacts of the calling-key, of a ground connection to the middle point of the active wire of said armature, as described.

3. The combination with a group of telephone-lines comprising both metallic and grounded circuit-lines provided with bells at their substations, a generator of signaling-current, and means for applying the terminals of said generator to the different lines, of a permanently-closed ground-branch from the middle of the armature-winding of said generator, substantially as described.

575,182. **STUMP-EXTRACTOR.** JOHN C. SHARP, Delavan, Wis. Filed Apr. 11, 1896. Serial No. 587,160. (No model.)

Claim.—1. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating said drum, an anchor-bail with an eye formed at each of its ends, said eye ends projecting into openings in anchor-lugs made on the upper and lower parts of the main frame, cross-pins in the anchor-bail eyes and the ends of said cross-pins secured in slotted openings made therefor, in the sides of said anchor-lugs, said slotted openings being of sufficient length to give the cross-pins horizontal-play room therein to enable the anchor-bail to automatically adjust itself to the changing draft of the cable when it is winding at different heights on the drum, all substantially as shown and described and for the purpose set forth.

2. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating said drum, an anchor-lug made on the bed-plate part of said main frame with means of attachment for an anchor-bail or anchor device to said anchor-lug, a rib or wing part suitably secured to the anchor-lug and bed-plate and said rib projecting outwardly and forwardly from said anchor-lug partly around the drum, for the purpose of strongly tying or securing the anchor-lug to the wide and strong part of the bed-plate of the main frame, and also for stiffening said bed-plate, all substantially as shown and described and for the purpose set forth.



3. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating the drum, an anchor-lug made on the bed-plate part of said main frame with a rib or wing part suitably secured to said anchor-lug and bed-plate, and said rib or wing part projecting outwardly and forwardly from the anchor-lug partly around the drum, for the purpose of strongly tying or securing said anchor-lug to the wide and strong part of the bed-plate of the main frame and also for stiffening said bed-plate, an anchor-bail or anchor device with an eye formed at its end and said eye end projecting into an opening made in the anchor-lug therefor, a cross-pin in the eye of said anchor device and the outer ends of said cross-pin secured in a slotted opening made in the sides of said anchor-lug and said slotted opening being of sufficient length to give said cross-pin horizontal-play room therein for adjusting purposes, all substantially as shown and described.

4. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating said drum, an anchor-lug made on the top-plate part of said main frame with a rib or wing part suitably secured to said anchor-lug and top plate, and said rib or wing part projecting outwardly and forwardly from the anchor-lug partly around the drum, for the purpose of strongly tying or securing said anchor-lug to the wide and strong part of the top plate of the main frame and also for stiffening said top plate, an anchor-bail or anchor device with an eye formed at its end and said eye end projecting into an opening made in the anchor-lug therefor, a cross-pin in the eye of said anchor device and the outer ends of said cross-pin secured in a slotted opening made therefor in the sides of the anchor-lug, and said slotted opening being of sufficient length to give said cross-pin horizontal-play room therein for adjusting purposes, all substantially as shown and described.

5. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating said drum, an anchor-bail or anchor device with an eye formed at its end, said eye end projecting into an opening in an anchor-lug made on the bed-plate part of said main frame, a cross-pin in the eye of the anchor-bail or anchor device, the ends of said cross-pin secured in a slotted opening made therefor in the sides of the anchor-lug and said slotted opening being of sufficient length to give said cross-pin horizontal-play room therein to enable the anchor-bail to automatically adjust itself to the changing draft of the draft-cable when it is winding at different heights on the drum, all substantially as shown and described and for the purpose set forth.

6. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating said drum, an anchor-bail or anchor device with an eye formed at its end, said eye end projecting into an opening in an anchor-lug made on the top-plate part of said main frame, a cross-pin in said eye of the anchor-bail or anchor device, the ends of said cross-pin secured in a slotted opening made therefor in the sides of the anchor-lug and said slotted opening being made of a sufficient length to give said cross-pin horizontal-play room to enable said anchor-bail to automatically adjust itself to the changing draft of the draft-cable when it is winding at different heights on the drum, all substantially as shown and described and for the purpose set forth.

7. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating said drum, a roller mounted parallel to the drum between the bed-plate and top-plate parts of said main frame for guiding and holding the draft-cable on the drum, an anchor-bail with an eye formed at both of its ends, said eye ends projecting into openings in anchor-lugs made on said bed-plate and top plate, cross-pins in the eyes of the anchor-bail, and the ends of said cross-pins secured in slotted openings made therefor in the sides of the anchor-lugs, the slotted openings being made of sufficient length to give said cross-pins horizontal-play room to enable the anchor-bail to automatically adjust itself to the changing draft of the cable when it is winding at different heights on the drum, all substantially as shown and described and for the purpose set forth.

8. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, suitable mechanism for rotating said drum, an anchor-bail with an eye formed at each of its ends, said eye ends projecting into openings in anchor-lugs made on the bed-plate and top-plate parts of said main frame, cross-pins in said anchor-bail eyes, the ends of said cross-pins secured in openings made therefor in the side pieces of the anchor-lugs, a rib or wing part suitably secured to the anchor-lug that is on the bed-plate and said rib or wing part also secured to the bed-plate and projecting outwardly and forwardly from said anchor-lug partly around the drum, for the purpose of strongly tying or securing said anchor-lug to the wide and strong part of the bed-plate as well as for stiffening said bed-plate there being a groove or channel in the bed-plate adjacent to and surrounding the bearing of the lower hub of the drum for the purpose of intercepting and preventing dirt from getting into said hub-bearing, all substantially as described and shown.

9. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, mechanism for rotating said drum, an anchor-lug on the bed-plate part of said main frame, with suitable openings made in said anchor-lug for attachment of an anchor-bail, said anchor-lug also having a wing or rib part suitably secured to it and to the bed-plate, said rib or wing projecting outwardly and forwardly partly around the drum for the purpose of tying said anchor-lug strongly to the wide and strong part of the bed-plate, there being a groove or channel made in the bed-plate adjacent to and surrounding the bearing of the lower hub of the drum to intercept dirt and prevent it from getting into said hub-bearing, all substantially as shown and described and for the purpose set forth.

10. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, mechanism for rotating said drum, a circular row of teeth on the upper end of the drum, a pawl mounted on the top plate of said main frame and adapted to engage with the drum-teeth, a ring mounted on a rotating part of said machine and adapted to slide thereon, and said sliding ring suitably connected to said pawl so as to lift the pawl out of engagement with the drum-teeth when desired, by sliding said ring on its bearing, and suitable mechanism for causing the ring to slide, all substantially as shown and described and for the purpose set forth.

11. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, mechanism for rotating said drum, a circular row of teeth on the top part of the drum, a pawl mounted on the top-plate part of said main frame, and adapted to engage with the drum-teeth, a ring with a laterally-projecting flange on it, said ring mounted to slide on a rotating part of the machine, the lateral flange on said sliding ring suitably connected to said pawl so as to lift it out of engagement with the drum-teeth when desired, by sliding said ring, and suitable mechanism for causing said ring to slide, all substantially as shown and described and for the purpose set forth.

12. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a circular row of teeth on the top part of said drum, a pawl mounted on the top-plate part of said main frame and adapted to engage with the teeth on the drum, a draft-lever socket suitably connected to the drum to rotate it, a hoop part made on the draft-lever socket, a ring mounted to slide on said draft-lever socket-hoop, said sliding ring suitably connected to said pawl so as to lift it out of engagement with the drum-teeth when desired, by sliding the ring, and suitable mechanism for causing said ring to slide, all substantially as shown and described and for the purpose set forth.

13. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a circular row of teeth on the upper part of the drum, a pawl mounted on the top-plate part of said main frame, and adapted to engage with the drum-teeth, a draft-lever socket suitably connected to said drum to rotate it, a hoop part made on the draft-lever socket, a ring with a laterally-projecting flange mounted to slide on said hoop part of the lever-socket, said lateral flange of the sliding ring suitably connected to the pawl so as to lift it out of engagement with the drum-teeth when desired, by sliding the ring, and suitable mechanism for causing said ring to slide, all substantially as shown and described and for the purpose set forth.

14. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a vertical roller mounted in said main frame parallel to the face of the drum for guiding and holding the cable on the drum, a circular row of teeth on the top part of said drum, a pawl on the top-plate part of the main frame adapted to engage with said drum-teeth, a draft-lever socket suitably connected to the drum to rotate it, a hoop part made on the draft-lever socket, a ring mounted to slide on said hoop part, the sliding ring suitably connected to said pawl so as to lift it out of engagement with the drum-teeth when desired, by sliding the ring, and mechanism for causing said ring to slide, all substantially as shown and described and for the purpose set forth.

15. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a vertical roller mounted in said main frame parallel to the face of the drum for guiding and holding the draft-cable on the drum, a circular row of teeth on the top part of said drum, a pawl on the top-plate part of said main frame adapted to engage with said drum-teeth, a draft-lever socket suitably connected to the drum to rotate it, a hoop part made on the draft-lever socket, a ring with a laterally-projecting flange, mounted to slide on said hoop part of the draft-lever socket, the laterally-projecting flange of said sliding ring suitably connected to said pawl so as to lift it out of engagement with the drum-teeth when desired, by sliding the ring, and suitable mechanism for causing said ring to slide, all substantially as shown and described, and for the purposes set forth.

16. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a hand-wheel suitably connected to the drum for winding up slack in the draft-cable by hand, a draft-lever for rotating the drum to wind up the cable and pull the load, a circular row of teeth on the top part of the drum, a pawl on the top-plate part of the main frame, adapted to engage with said drum-teeth, a ring mounted to slide on a rotating part of the machine, and said ring suitably connected to said pawl so as to lift it out of engagement with the drum-teeth by sliding the ring, and mechanism for sliding said ring, all substantially as shown and described and for the purpose set forth.

17. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a hand-wheel suitably connected to the drum for winding up slack in the draft-cable by hand, a circular row of teeth on the top part of the drum, a pawl on the top-plate part of the main frame adapted to engage with said drum-teeth, a draft-lever socket suitably connected to the drum to rotate it when pulling the load, a hoop part made on the draft-lever socket, a sliding ring on said hoop part, said sliding ring suitably connected to the pawl to lift it out of engagement with the drum-teeth when desired, by sliding the ring, and mechanism for causing said ring to slide, all substantially as shown and described and for the purpose set forth.

18. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a hand-wheel suitably connected to the drum to rotate it for winding up slack in the draft-cable by hand, a circular row of teeth on the upper end of the drum, a pawl on the top-plate part of said main frame adapted to engage with said drum-teeth, a draft-lever socket suitably connected to the drum to rotate it when pulling the load, a hoop part made on the draft-lever socket, a ring with a laterally-projecting flange mounted to slide on said hoop part of the draft-lever socket, and said laterally-projecting flange of the ring suitably connected to the pawl to lift it out of engagement with the drum-teeth when desired by sliding the ring, and mechanism for

causing said ring to slide, all substantially as shown and described and for the purpose set forth.

19. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a hand-wheel suitably connected to the drum for winding up slack in the draft-cable by hand, a circular row of teeth on the upper end of the drum, a pawl on the top-plate part of the main frame adapted to engage with said drum-teeth, a draft-lever socket connected to the drum to rotate it when pulling the load, a hoop part made on said draft-lever socket, a sliding ring mounted on said hoop part and suitably connected with a pawl-lifting lever seated to rock on the top plate, and said pawl-lifting lever adapted to engage with and lift said pawl out of engagement with the drum-teeth when desired, by sliding the said ring, and mechanism for causing said ring to slide, all substantially as shown and described and for the purpose set forth.

20. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a hand-wheel suitably connected to the drum for winding up slack in the draft-cable by hand, a circular row of teeth on the upper end of the drum, a pawl on the top-plate part of said main frame adapted to engage with said drum-teeth, a draft-lever socket suitably connected to the drum to rotate it when pulling a stump or load, a hoop part made on said draft-lever socket, a ring mounted to slide on said hoop part, ears or lugs on said sliding ring, a lifting device fulcrumed on the lever-socket and connected to said lugs or ears for raising or sliding said ring, and said sliding ring suitably connected with the pawl to lift the same out of engagement with the drum-teeth when desired, all substantially as shown and described and for the purpose set forth.

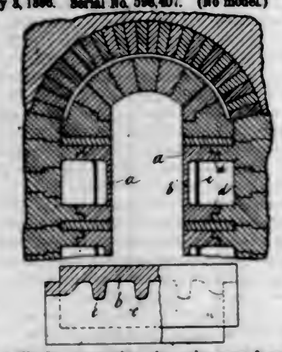
21. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, a draft-lever socket with a hoop part on it, said hoop part surrounding the upper hub of the drum, and the lower end of said hoop part resting upon antifriction-balls, which balls run in a circular groove made therefor in the top-plate part of said main frame, and mechanism for connecting said draft-lever socket to the drum to rotate the same, all substantially as shown and described and for the purpose set forth.

22. In a stump-extractor, the combination of a main frame with a winding-drum mounted to rotate therein, a draft-cable attached to the drum, mechanism for rotating said drum, there being an opening 70 in the lower end of the drum to receive the draft-cable, there being a rib or draft-cable guard 11 made on the bed-plate part of said main frame, all substantially as shown and described and for the purpose set forth.

23. The combination with the draft-cable of a stump-extractor, of a slip-noose clevis with an eye or opening in each of its sides to receive the cross-pin used for connecting the clevis to the draft-cable, the inner sides of said clevis curved or flared outwardly from their center, to prevent short bending and injury to the cable, and of a central longitudinally-disposed rib cast on the sides and around the closed end of said clevis and projecting outwardly therefrom, all substantially as shown and described and for the purpose set forth.

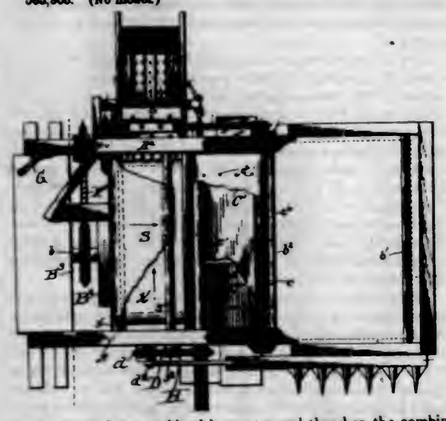
24. The combination with the draft-cable of a stump-extractor, of the low-stump hook with teeth or points to engage with a low stump, and its central tooth or point set on a different horizontal plane from the others, all substantially as shown and described and for the purpose set forth.

575,133. COKE-OVEN TILE. FRANK L. SLOCUM, Pittsburg, Pa. Filed July 3, 1896. Serial No. 598,407. (No model.)



Claim.—A tile for separating the coke-oven from the heating-flue having inwardly-projecting flanges at the top thereof and open at its ends, and vertical ribs formed on its inner face, substantially as set forth.

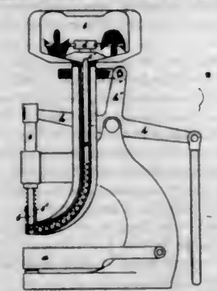
575,134. COMBINED HARVESTER AND THRESHER. ADOLPHUS M. SMITH, Myersville, Md. Filed Mar. 18, 1896. Serial No. 583,803. (No model.)



Claim.—1. In a combined harvester and thresher, the combination with the associated parts of the harvester, and a threshing attachment, of conveying means interposed between the harvester and thresher comprising a conveyer-belt, a trough into which the same discharges, an apron at the end of the conveyer opposite the discharge-passage therefor, and means for driving the apron in a direction opposite that of the conveyer.

2. In a combined harvester and thresher, the combination with the frame and cutting mechanism, of a horizontal platform, a traveling apron thereon, an inclined conveyer, a trough at the upper end of the conveyer, an apron projecting over the trough and located adjacent to the upper end of the inclined conveyer and arranged to travel in a direction opposite that of the inclined conveyer, a longitudinally-traveling apron in the bottom of the trough, and separating means at the rear of the trough, substantially as described.

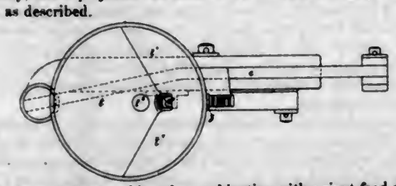
575,135. SELF-FEEDING ARRANGEMENT FOR RIVETING-MACHINES. JOSEF TEMLER, Warsaw, Russia, assignor, by mesne assignments, to the National Metal Edge Box Company, of New Jersey. Filed Nov. 9, 1895. Serial No. 568,493. (No model.)



Claim.—In a riveting-machine, the combination with a plunger for driving the rivets, and a sleeve containing the lower end of the plunger for guiding the rivets, of a channel communicating with the lower end of said sleeve and opening thereinto in a substantially horizontal direction, a receptacle above the mouth of said channel, said receptacle being horizontally disposed and having a sloping bottom leading to the channel, a guide in said channel projecting slightly above the bottom of the receptacle, making a closed channel conforming in shape in cross-section to the shape of the rivet, a brush for directing the rivets into the channel adapted to reciprocate over the mouth of the channel, a lever connected with a source of power, and a connection between said lever and the brush, and between said lever and the plunger, whereby the rivets are fed and driven simultaneously, substantially as described.

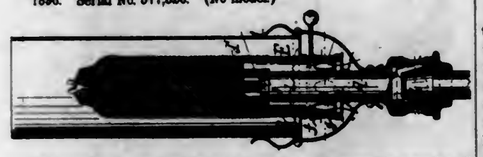
575,136. RIVET-FEEDING MECHANISM. JOSEF TEMLER, Warsaw, Russia, assignor, by mesne assignments, to the National Metal Edge Box Company, of New Jersey. Filed Nov. 9, 1895. Serial No. 568,494. (No model.)

Claim.—1. In a riveting-machine, the combination with a rivet-feed channel, of a vibratory dish or tray, a raised portion having converging edges, a discharge-mouth communicating with the feed-channel and adjacent to the converging point of the edges of the raised portion, a guide-rib in said channel projecting above the surface of the raised portion and adjacent thereto, means for vibrating said tray, and a projection in front of said channel-mouth, substantially as described.



2. In a riveting-machine, the combination with a rivet-feed channel, of a vibratory dish or tray, a raised portion having converging edges, the edges at the point of convergence being cut away to form a pocket, a discharge-mouth communicating with the feed-channel and within the pocket formed by said converging edges, a guide-rib in said channel projecting above the surface of the raised portion and adjacent thereto, and means for vibrating said tray, substantially as described.

575,137. PROCESS OF AND BURNER FOR PRODUCING INCANDESCENCE. GERRIT VAN DEUS, New York, N. Y. Filed Jan. 29, 1896. Serial No. 577,326. (No model.)

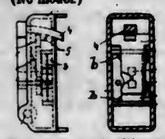


Claim.—1. The process of producing incandescence in mantles of incandescent gas-lights consisting in bringing between the flame and the mantle a quantity of air in excess of that required for combustion, and raising this air to a high temperature, whereby first the carbon in the gas is momentarily combined with the oxygen of the air and the hydrogen set free, next the hydrogen momentarily reduces the metallic oxids of the mantle to metals, and finally the oxygen of the air again momentarily oxidizes the metals of the mantle, and so on in intensely-rapid succession, substantially as described.

2. The combination in an incandescent gas-light of an incandescing mantle, and a burner therefor, and said burner being provided with a Bunsen-burner tube, an outer tube adapted to deliver around the flame and between it and the mantle an excess of air over that required to maintain combustion, and a regulating-valve on said outer tube for controlling the quantity of air admitted between the flame and the mantle, substantially as described.

3. The combination with an incandescing gas-light mantle, of a burner having a Bunsen tube of substantially uniform size throughout, an outer tube for delivering an excess of air over that required to maintain combustion around the flame and between it and the mantle, and a regulating-valve on said outer tube for controlling the quantity of air admitted between the mantle and the flame, substantially as described.

575,138. LOCK. THOMAS D. WALLACE, Allegheny, Pa., assignor of one-half to Jesse Y. Scott, Washington, Pa. Filed July 31, 1895. Serial No. 557,744. (No model.)

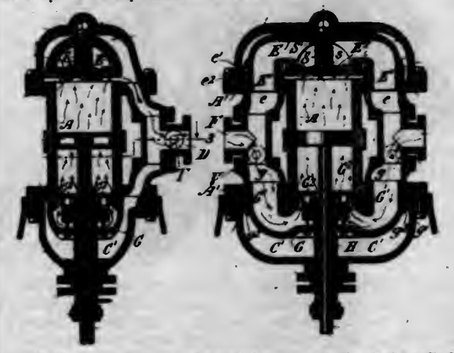


Claim.—1. In a lock, a casing, a locking-arm pivoted to the casing, a hook formed with the arm and a lug on the hook, a locking-bar within the casing, a tumbler for controlling the locking-bar and a spring for holding the tumbler in position.

2. In a lock, the casing and locking-arm pivotally secured thereto, said locking-arm being provided with a hook portion and a lug formed integral therewith, and provided on its face with a keyhole and a locking-bar for securing the arm, substantially as described and set forth.

575,139. COMPRESSOR OR PUMP. OSCAR WIEBER, Brooklyn, N. Y. Filed July 9, 1894. Serial No. 516,975. (No model.)

Claim.—1. The combination, substantially as set forth, of the cylinder, the piston, the end chamber communicating with the eduction-port, the hollow head-valve arranged in said chamber seated against the end face of the cylinder, the induction-port, extensible connections between such port and the interior of the head-valve arranged on the face of said valve adjacent or next to the cylinder end, and the induction-valve arranged in the head-valve, whereby the area of the face of the head-valve adjacent to the cylinder is made less than the area of the opposite face of such valve and the valve caused to close by the back pressure of the fluid.



2. The combination, substantially as set forth, of the cylinder, the piston, the chamber at each end of the cylinder communicating with the eduction-port, the hollow head-valve in each chamber seated against the end face of the cylinder, the extensible or telescoping connections on the side of the head-valve adjacent to the cylinder between the interior of the head and the induction-port, an induction-valve in said head, and the piston-rod passing through one of said heads and end chambers, whereby the area of the face of the head-valve adjacent to the cylinder is made less than the area of the opposite face of such valve and the valve caused to close by the back pressure of the fluid.

3. The combination, substantially as set forth, of the cylinder and piston, the chambers at the end of the cylinder communicating with the eduction-port, the valved hollow head-valves in said chambers connected by extensible joints on their faces adjacent to the cylinder with the induction-port, a tubular extension from one of said head-valves passing through the wall of the end chamber and through a packing-box, and the piston-rod having its bearing in such tubular extension, whereby the area of the face of the head-valve adjacent to the cylinder is made less than the area of the opposite face of such valve and the valve caused to close by the back pressure of the fluid.

4. The combination, substantially as set forth, with the cylinder, the piston working therein and the end chamber communicating with the eduction-port, of the hollow head-valve in said chamber closing the end of the cylinder, an induction-valve therein, opposite the end of the cylinder, and a yielding or telescoping connection between the induction-port and the interior of said head-valve located in the face of the head-valve adjacent to the end of the cylinder, whereby the area of the face of the head-valve adjacent to the cylinder is made less than the area of the opposite face of such valve and the valve caused to close by the back pressure of the fluid.

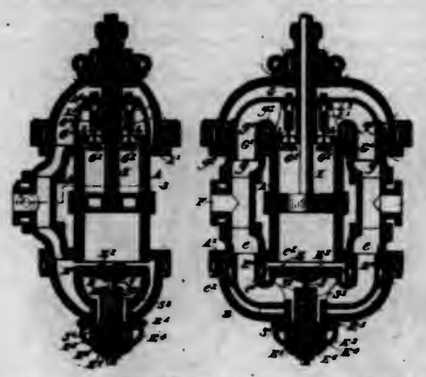
5. The combination, substantially as set forth, with the cylinder, the piston working therein and the end chamber communicating with the eduction-port, of the hollow valved head-valve in said chamber seating against the flat face of the cylinder and having one or more tubular extensions on its face next to the cylinder working in an induction passage or passages, for the purpose described.

6. In an apparatus of the character described, the combination of the cylinder and the piston moving to or beyond the extreme end of the cylinder, the head-valve closing the end of the cylinder and the induction and eduction passages, the head-valve having its two areas upon which the back pressure acts with a tendency to move it toward and from the cylinder so related that the area of the face adjacent to the cylinder is less than that of the opposite face, whereby the difference in pressure upon the two faces of the valve causes it to be seated after it has been displaced by the action of the piston and as the piston recedes.

7. A valve having opposite faces or areas upon which the same medium of pressure acts, and part of the area of the face adjacent to the valve-seat isolated from such pressure and exposed to a less pressure, whereby the valve is caused to close against its seat by the difference in pressure upon said two faces.

8. A valve having a portion of its side adjacent to its seat isolated and exposed to a less pressure than that exerted upon the remainder of the valve, whereby the valve is caused to close by the preponderance of pressure exerted upon that side of the valve farthest from its seat, substantially as set forth.

575,140. COMPRESSOR OR PUMP. OSCAR WEBBER, Brooklyn, N. Y. Filed Oct. 26, 1894. Serial No. 527,075. (No model.)



Claim.—1. The combination, substantially as set forth, of the cylinder, the piston, the end chamber communicating with the eduction-port, the hollow head-valve arranged in said chamber, seated against the radial face of the cylinder, and having an area of its outer face exposed to the atmosphere, the induction-port with which the interior of said head communicates by an extensible or telescoping joint, and the induction-valve arranged in the head-valve, the organization being such that the head is forced from its seat by the compressing action of the piston, and is returned to its seat as the piston recedes by the back pressure

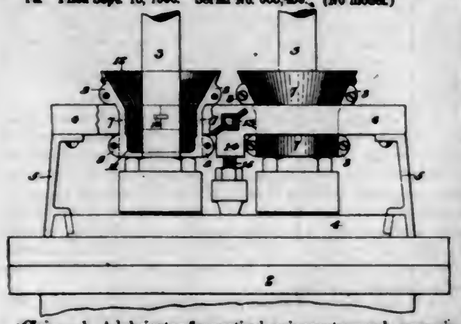
2. The combination, substantially as set forth, with the cylinder and piston working therein and the end chamber communicating with the eduction-port, of the hollow head-valve in said chamber and having part of the area of its outer face exposed to the atmosphere, an induction-valve therein opposite the end of the cylinder, and a yielding connection between the induction-port and the interior of the head-valve located on the face of the head-valve toward the end of the cylinder, for the purpose described.

3. The combination, substantially as set forth, with the cylinder, the piston working therein and the end chamber communicating with the eduction-port, of the hollow valved head-valve, having part of the area of its outer face exposed to the atmosphere, in said chamber, seating against the radial face of the cylinder and having one or more tubular extensions on its face next to the cylinder working in an induction passage or passages, for the purpose described.

4. The combination of the valve-spindle S, the pendent cylinder S^3, and the flanged bolt E^7, substantially as set forth.

5. The combination of the valve-spindle S, its valve E^3, the pendent cylinder S^3, the flanged bolt E^7, and the hollow head-valve E, having a valve-seat for the valve E^3, and containing the parts S, S^3, E^7, which parts are inserted thereinto through the said valve-seat, substantially as set forth.

575,141. LUBRICATING DEVICE. ALBERT G. ALLEN, Pittsburg, Pa. Filed Sept. 10, 1896. Serial No. 605,459. (No model.)



Claim.—1. A lubricator for vertical reciprocatory rods, comprising a cup formed in longitudinally-separated parts, and surrounding the rod, a rope packing in the bottom of the cup, a separating-partition surrounding the rod above the packing, a liquid-reservoir above the partition, and means for holding the lubricator against vertical movement; substantially as described.

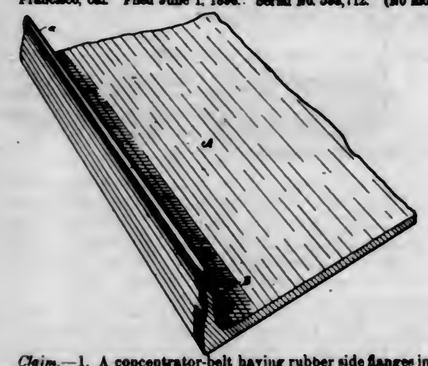
2. A lubricator for vertically-reciprocating rods, comprising a cup made in two halves and arranged to fit at its lower end snugly about the rod, a screw-plug made in two halves and arranged to surround the rod at an intermediate point in the cup, the space below the plug being arranged to receive a packing, while the space above the plug is arranged to act as a receptacle of a liquid lubricant, and means for normally holding the lubricator against vertical movement; substantially as described.

3. A lubricator for vertical piston-rods, comprising a plate arranged to rest loosely upon the head of a cylinder, a cup or reservoir held in said plate and surrounding the piston-rod, a rope packing in the lower portion of the cup, a screw-plug surrounding the rod above the packing, and a reservoir for liquid above the screw-plug; substantially as described.

4. A lubricator for vertical piston-rods, comprising a plate made of two halves and arranged to rest loosely upon the cylinder-head, a cup made in divided parts, seated within the plate and surrounding the rod, rope packing in the lower portion of the cup, and a plug above the packing; substantially as described.

5. A lubricator for vertically-reciprocating piston-rods, comprising a cup made in two halves and arranged to be clamped about the rod, a rope packing in the lower portion of the cup, a screw-plug made in separated parts and arranged to be screwed into the cup above the packing, and a keeper arranged to hold the screw-plug in place; substantially as described.

575,142. CONCENTRATOR-BELT. WILLIAM F. BOWERS, San Francisco, Cal. Filed June 1, 1896. Serial No. 593,712. (No model.)



Claim.—1. A concentrator-belt having rubber side flanges in the upper portions of which is embedded a separate flexible reinforcing-strip extending throughout the length of the flanges.

2. A concentrator-belt having rubber side flanges, in the upper portions of which is embedded a separate substantially non-elastic flexible reinforcing-strip extending throughout the length of the flanges.

3. A concentrator-belt having rubber side flanges in the upper portions of which is embedded a substantially non-elastic flexible cord extending throughout the length of the flanges.

575,143. COMPUTING-SCALE. BENJAMIN F. BROUSE, Indianapolis, Ind. Filed Oct. 31, 1895. Serial No. 567,464. (No model.)

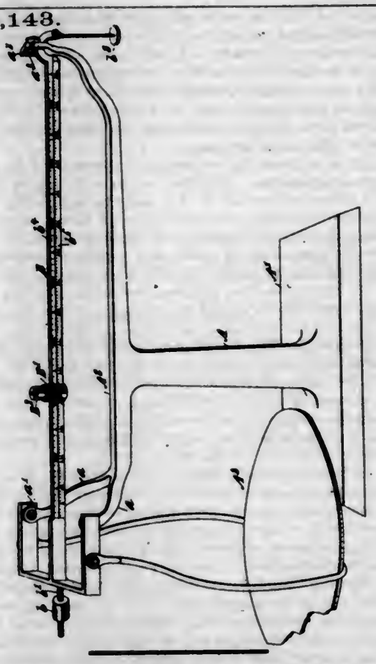
Claim.—1. A computing-scale, comprising a scale-beam having two sets of graduations thereon, the graduation of each set indicating a unit of cost at any price and one set indicating double the amount indicated by the other set, and a weight slidable on the beam and indicating two prices per pound one price being double that of the other, substantially as described.

2. A computing-scale, comprising a scale-beam having a series of graduations thereon, each of the graduations indicating a unit of price, and a series of weights each indicating a price per unit and each adapted to be mounted on the said beam, substantially as described.

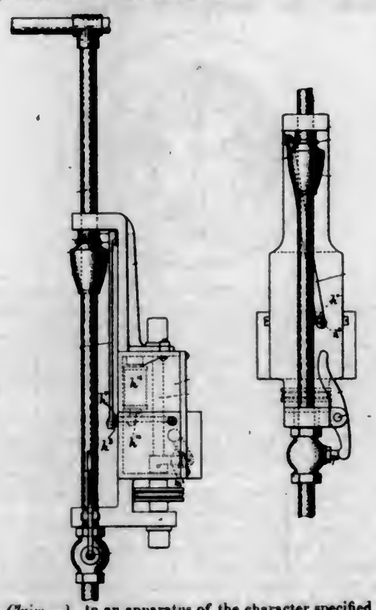
3. A computing-scale, comprising a scale-beam having two sets of graduations thereon, each graduation of each set indicating a unit of price, the graduations of one set bearing a definite relation to the graduations of the other set, and a weight indicating two prices per unit and slidably mounted on the beam, the said prices per unit bearing the above-mentioned definite relation to each other, substantially as described.

4. In a scale, a base, a supporting-arm mounted thereon and having at one end upwardly-extending diverging arms, a scale-beam having fulcrum-bearings in said diverging portions, the said beam being graduated into units of commodity value, a pea slidably mounted on the beam and having an upwardly-extending pin, and a weight bearing a price-mark and having a recess whereby the weight may be engaged over the pin on the pea and prevented from slipping off laterally, substantially as specified.

575,143.



575,144. APPARATUS FOR STOPPING ENGINES. GILMAN W. BROWN, West Newbury, Mass., assignor, by mesne assignments, to the Electro Steam Appliance Company, of New Jersey. Filed Oct. 4, 1895. Serial No. 564,582. (No model.)



Claim.—1. In an apparatus of the character specified, the combination with a vent-controlling valve, of an actuator therefor, an armature serving as a detent normally restraining said actuator, and speed-controlled means actuated by the power of the engine to displace said detent by centrifugal force, substantially as and for the purpose described.

2. In an apparatus of the character specified, the combination with a vent-controlling valve, of an actuator therefor, a detent normally restraining said actuator, and speed-controlled means actuated by the power of the engine to displace said detent by centrifugal force, substantially as described.

3. An apparatus of the character specified, comprising a vent-controlling valve, an actuator therefor, an actuator-arresting trigger or trip, a locking arm or detent normally standing in position to lock the said trigger, and speed-controlled means actuated by the power of the engine to displace said detent by centrifugal force and thereby release the trigger and actuator, substantially as described.

4. In an apparatus of the character specified, the combination with a vent-controlling valve, of an actuator therefor, an electromagnet, a centrifugal speed-controlled device, and a detent or trigger normally restraining the valve-actuator and located between the electromagnet and the centrifugal speed-controlled device and adapted to be actuated by either.

5. An apparatus of the character specified comprising a vent-controlling valve, an actuator therefor, an actuator-arresting trigger or trip, a locking arm or detent which normally stands in position to lock said trigger, a shaft contiguous to said detent adapted to be driven by the engine, and a weighted arm pivotally connected with said shaft and adapted to be moved centrifugally into position to release said trigger.

6. An apparatus of the character specified, comprising a vent-controlling valve, an actuator therefor, an actuator-arresting trigger or trip, a locking arm or detent which normally stands in position to lock said trigger, an electromagnet arranged to displace said detent when energized, a shaft contiguous to said detent adapted to be driven by the engine, and a weighted arm pivotally connected with said shaft and adapted to be moved centrifugally into position to release said trigger.

7. In an apparatus of the character specified, the combination of a vent-controlling valve, an actuator therefor, electrically-operated actuator-controlling means including an electric circuit and a circuit-closing device therein, a shield or casing adapted to normally prevent the operation of said circuit-closing device, a branch circuit which is broken by the cover of said shield when said cover is closed and is closed automatically when said cover is opened, and an alarm included in said branch circuit and adapted to be made operative by the opening of the casing.

575,145. SUBSTITUTE FOR INKING-RIBBONS IN TYPE-WRITER MACHINES. LEE S. BURRIDGE and NEWMAN R. MARSHMAN, New York, N. Y., assignors to John T. Underwood, same place. Filed Nov. 1, 1895. Serial No. 567,607. (No model.)



Claim.—1. A type-writer inking device consisting of a sheet of textile fabric provided with a stiffener at or near its edge, substantially as described.

2. As a new and useful article of manufacture, the herein-described improvement in type-writer inking devices consisting of a sheet or disk A provided with a peripheral stiffener *d* and perforated for coöperation with propelling means.

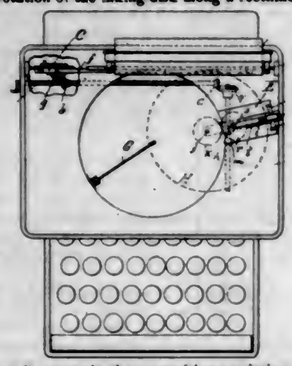
3. As a new and useful article of manufacture, the herein-described improvement in type-writer inking devices comprising a perforated ink-carrying disk combined with an annular stiffener secured against a face of the disk at or near the edge thereof.

4. As a new and useful article of manufacture, a type-writer inking device comprising an edge-stiffened flimsy ink-carrier.

575,146. TYPE-WRITING MACHINE. LEE S. BURRIDGE and NEWMAN R. MARSHMAN, New York, N. Y., assignors to John T. Underwood, same place. Filed Nov. 1, 1895. Serial No. 567,608. (No model.)

Claim.—1. A type-writer organization comprising a printing agent and platen combined with an inking plate or disk, means for rotating the disk and mechanical means for imparting a reciprocating motion to the center of rotation of the disk.

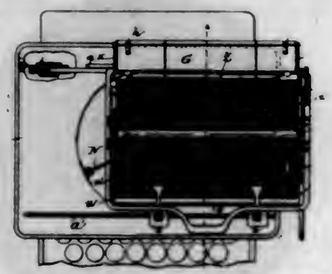
2. A type-writer organization comprising a printing agent and platen combined with an inking-disk, means for rotating the inking-disk and mechanical means for producing a reciprocating motion of the center of rotation of the inking-disk along a rectilinear path.



3. A type-writer organization comprising a printing agent key-levers and a platen, an inking-disk, means for rotating the said inking-disk and means for automatically displacing the axis of the inking-disk by means of the action of the key-levers in such a manner that successive portions of the disk will be presented to the printing-point, said successive portions lying in an annular space between circles concentric with the center of rotation of the disk.

4. A type-writer organization comprising the following instrumentalities in operative combination, to wit: a printing agent and platen, an inking-disk, means for rotating the disk at a relatively rapid rate of speed and means for automatically displacing the center of rotation of the disk at a relatively slow rate of speed by means of the action of the key-levers, whereby the printing agent will be made to act upon curves lying eccentrically within a ring on the disk which ring is concentric to the center of rotation of the disk.

575,147. TYPE-WRITING MACHINE. LEE S. BURRIDGE and NEWMAN R. MARSHMAN, New York, N. Y., assignors to John T. Underwood, Brooklyn, N. Y. Filed Jan. 7, 1896. Serial No. 574,639. (No model.)



Claim.—1. The combination with a mechanical writing-machine, of an inking device comprising an inker and means for automatically moving the printing portion of the inker in one direction in one plane by the travel of the carriage, and means for moving the printing portion of the inker at right angles thereto in the same plane as before by a rotation of the impression-cylinder, and restoring means for automatically bringing the inker to the initial position.

2. In a mechanical writing-machine, the combination of a printing agent and a carriage pivotally carrying an inker which is adapted to be swung from ont of the path of the printing agent, and an impression-roller and means for shifting the impression-roller independently of the inker to expose the work, and connections between the inker and the means for shifting the impression-roller, for moving the center portion of the inker automatically on lines at right angles to the feed of the ribbon by a rotation of the impression-roller, as specified.

3. In writing-machines, the combination of a printing agent and a paper-platen, a carriage, a sheet-inker, an inker-carrier therefor, said inker-carrier being carried by and pivotally connected with the carriage and movable around its pivot independently of the carriage, whereby the sheet-inker may be swung out of the path of the printing agent and means for automatically moving said inker at right angles to the feed of the carriage by a rotation of the paper-platen.

4. In a type-writer, the combination of a printing agent, a sheet-inker an impression cylinder or platen, means for conveying paper to be printed between said cylinder and printing agent, a guide as a over which the inker passes, and means for pulling the inker around the guide and for imparting a lateral motion to the inker and means for automatically restoring said inker to the initial position.

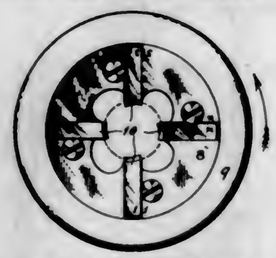
5. In a type-writing machine, the combination of a printing agent and a paper-carriage in operative relation, of an inker consisting of a sheet, an inker-carrier, means upon said inker-carrier for engaging one end of the sheet, and means upon said paper-carriage for engaging the other end of the inker.

6. In a type-writing machine, the combination of the paper-carriage, a paper-platen carried thereby, means for stepping said platen, an inker-carrier carried by said paper-carriage, springs upon the inker-carrier, an inker connected at one end to said springs, an inker-feeding mechanism connected with the other end of the inker and with the platen-stepping mechanism, whereby an operation of the platen-stepping mechanism will effect a movement of the inker.

7. In a type-writing machine, the combination of the paper-carriage, a paper-platen carried thereby, means for stepping said platen, an inker-carrier carried by said paper-carriage, springs upon the inker-carrier, an inker connected at one end to said springs, an inker-feeding mechanism connected with the other end of the inker and with the platen-stepping mechanism, whereby an operation of the platen-stepping mechanism will effect a movement of the inker, and means for effecting the restoration to the initial position of the inker and inker-feeding mechanism after a predetermined extent of movement of the inker in one direction.

8. In a type-writing machine, the combination of a paper-carriage, a paper-platen carried thereby, means for stepping said platen, an inker-carrier carried by said paper-carriage, springs upon said inker-carrier, an inker connected at one end to said springs, and inker-feeding mechanism connected with the other end of the inker, said inker-feeding mechanism comprising a pivoted rack, a mutilated pinion engaging therewith, and intermediate mechanism between said pinion and platen-stepping mechanism for operating said pinion, whereby an operation of the platen-stepping mechanism will effect the movement of the inker and the restoration to the initial position of the inker and inker-feeding mechanism after a predetermined extent of movement of the inker in one direction.

575,148. CHASER-DIE. JOSEPH L. CHAPMAN, Hartford, Conn. Filed Mar. 5, 1896. Serial No. 581,950. (No model.)



Claim.—1. As a new article of manufacture, a radially-cutting die-chaser, having a relatively narrow beveled surface adjacent to one edge of its leading side face, for the purpose specified.

2. In combination with a radially-slotted collet or holder therefor, a die-chaser having a relatively narrow beveled surface adjacent to one edge of its leading side face, with correspondingly-beveled clamping means engaging therewith.

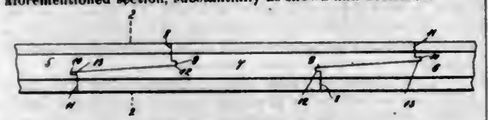
3. In a die of the class specified, in combination with a radially-arranged chaser-die, a screw located upon the leading side of the chaser with its axis parallel with the axis of the die, the screw having a plain tapering portion for engaging with a correspondingly-beveled portion of its chaser, and having a threaded portion whereby the plain portion may be tightened upon the chaser.

4. In a die of the class specified, in combination with a chaser thereof, a screw located upon the leading side of the chaser with its axis substantially parallel with the axis of the die, having a plain tapering portion adapted to bear against a correspondingly-beveled portion of the chaser, and having a threaded portion by means of which it may be adjusted endwise, the threaded portion being left-handed when employed in a right-hand die, and being right-handed when employed in a left-hand die, substantially as described and for the purpose specified.

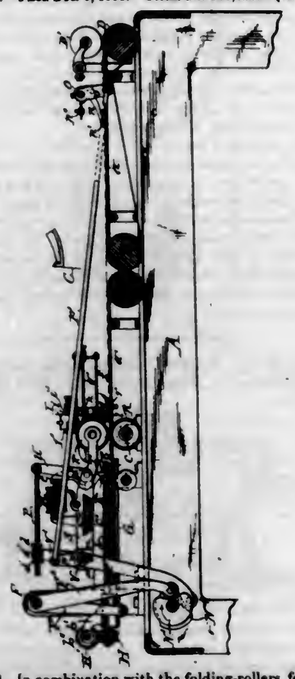
575,149. JOINT OR COUPLING FOR RAILWAY-RAILS. ARTHUR W. CLEMO, Ishpeming, Mich. Filed June 15, 1896. Serial No. 595,565. (No model.)

Claim.—The herein-described coupling for railway-rails, in combination with the adjacent ends of the rails, the ends of one of the

rails having an abrupt vertical and transverse shoulder, and a vertical projection 9, triangular in cross-section, the end of said rail being cut away to a point 10, at which point a vertical cavity is formed, said cavity forming a shoulder or projection 11, and the end of the coupling-piece 7 being formed to correspond with the formation of the rails, having a vertical notch or recess 12 to receive the shoulder 9, said coupling having also a projection 13 to enter the recess formed in the rail, the opposite side of the coupling having a similar formation, and the other rail-section being of a like construction to the aforementioned section, substantially as shown and described.



575,150. PAPER-REGISTERING MECHANISM. TALBOT C. DEXTER, Pearl River, N. Y., assignor to the Dexter Folder Company, New York, N. Y. Filed Dec. 9, 1895. Serial No. 571,520. (No model.)



Claim.—1. In combination with the folding-rollers, folding-blade and sheet-conveying tapes, sheet-shifting mechanism engaging the advance edge of the sheet and imparting a secondary forward impulse to said sheet, registering-points located between said shifting mechanism and folding-blade and operating independently of said blade to enter into the slits of the sheet and register the said sheet in advance of the operation of the folding-blade, and sheet-restraining brakes engaging the rear end portion of the sheet to check the motion of the sheet during the entrance of the registering-points into the aforesaid slits, as set forth.

2. In combination with the folding-rolls, folding-blade and sheet-conveying-tapes, a sheet-restraining brake engaging the rear end of the sheet, sheet-propelling mechanism engaging and releasing the opposite end of the sheet and mechanism transmitting motion from the propelling mechanism to the aforesaid brake to apply the latter to the sheet simultaneously with the engagement of the propelling mechanism as set forth.

3. In combination with the folding-rolls, folding-blade and sheet-conveying tapes, a rock-shaft over the sheet-feeding end of the machine, a sheet-restraining brake carried on said rock-shaft, sheet-propelling mechanism engaging and releasing the opposite end of the sheet and a rock-shaft controlling the action of said propelling mechanism and connected with the rock-shaft of the brake to apply the latter simultaneously with the engagement of the propelling mechanism as set forth.

4. In combination with the folding-rolls, folding-blades and sheet-conveying tapes, a rock-shaft over the sheet-feeding end of the machine, a sheet-restraining brake carried on said shaft, an arm attached to the latter shaft, sheet-propelling mechanism engaging and releasing the opposite end of the sheet, a rock-shaft throwing said propelling mechanism out of operative position, an arm attached to the latter rock-shaft and a rod connecting said two rock-arms as set forth.

5. In combination with the folding-rolls, folding-blade and sheet-conveying tapes, a rock-shaft over the feeding end of the machine, a sheet-restraining brake hung on said shaft with a lost motion between them, a rock-arm attached to said shaft, sheet-propelling mechanism over the opposite end of the machine and having one of its sheet-engaging members movable vertically to and from the sheet, a cam-wheel having cam-faces of different radii, a rock-shaft imparting the vertical movement to said member, a rock-arm attached to the latter rock-shaft, and a rod connecting said two rock-arms as set forth and shown.

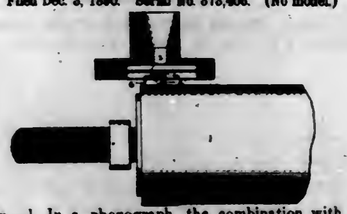
6. In combination with the folding-rolls, folding-blade, sheet-conveying tapes and a gage arresting the longitudinal movement of the sheet and movable to recede from the arrested sheet, sheet-propelling mechanism imparting a secondary impulse to the arrested sheet, an electromagnet controlling the action of said propelling mechanism, a circuit maker and breaker actuated by the paper moving under the aforesaid secondary impulse, a rock-shaft having an arm throwing the sheet-propelling mechanism out of operative position, a rock-shaft over the feeding end of the machine, a sheet-restraining brake connected to said rock-shaft with a lost motion between them, a rock-arm attached to the latter shaft, and a rod connecting said two rock-arms as set forth.

7. In combination with the sheet-propelling roller R, carriage S, arm T, pivoted to one end of said carriage and provided with the shoulder T' and the roller R' pivoted to said arm, the rock-arm U pivoted to the carriage in proximity to the arm T and provided with a lug U' for engaging the shoulder T', the rock-shaft V journaled in the opposite end of the carriage, the lever V' attached to said shaft, and the rod P connecting said lever with the arm U adjustably to regulate the lift of the roller R' substantially as described.

8. In combination with the sheet-conveying tapes *a*, bridge *j*, rotary roller R, drop-roller R', electromagnet M and armature of said magnet lifting said drop-roller by energy of the magnet, a bracket carried on the arm of the drop-roller, a circuit making and breaking finger pivoted to said bracket and having its lower end presenting in front of the aforesaid bridge an abutment for the edge of the slitted portion of the sheet, and a sheet-depressing shoe attached to the aforesaid bracket and extending under the aforesaid end of the circuit making and breaking finger substantially as set forth and shown.

9. In combination with the sheet-conveying tapes *a*, bridge *j*, rotary roller R, drop-roller R', electromagnet M and armature of said magnet lifting said drop-roller, a bracket connected to the arm of the drop-roller adjustably in a vertical direction and horizontally toward and from the drop-roller, a circuit making and breaking finger pivoted to said bracket and having its lower end presenting in front of the aforesaid bridge an abutment for the edge of the slitted portion of the sheet, and a sheet-depressing shoe attached to said bracket and extending under the aforesaid end of the circuit making and breaking finger, said adjustable bracket permitting the said finger and shoe to be adjusted in relation to the position of the bridge as set forth.

575,151. PHONOGRAPH. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Dec. 3, 1890. Serial No. 373,406. (No model.)



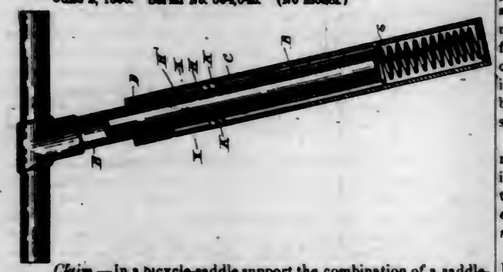
Claim.—1. In a phonograph, the combination with the diaphragm, of two recording or reproducing points arranged to act on the same side of the blank and having a common connection with the center of the diaphragm, such points being located at different distances from said center, substantially as set forth.

2. In a phonograph, the combination with the diaphragm, of two recording or reproducing points arranged to act on the same side of a blank, and carried by an arm pivoted upon a support independent of the diaphragm, said arm having a pivoted connection with the diaphragm whereby the movements of the diaphragm will move the points in opposite directions, substantially as set forth.

3. In a phonograph, the combination with the diaphragm, of two recording or reproducing points carried thereby and arranged to act

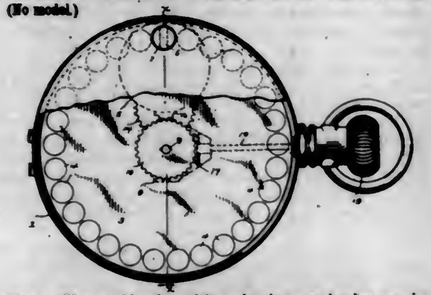
on the same side of the blank, said points being arranged at different distances from the center of the diaphragm, whereby the points will form, or trace over, two separate and parallel records, substantially as set forth.

575,152. BICYCLE. BERTON H. FOSS, Somerville, Mass. Filed June 2, 1896. Serial No. 594,042. (No model.)



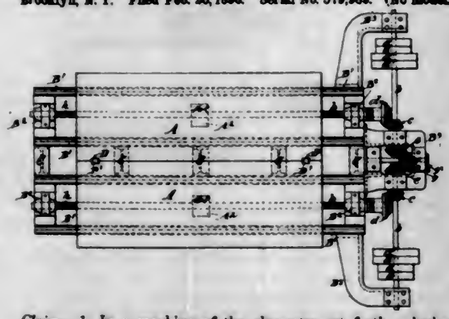
Claim.—In a bicycle-saddle support the combination of a saddle-support having a grooved stem B, as described, and the supporting-spring S; with the tubular part C adapted to fit in the seat-supporting tube provided with interior grooves H' H' adapted to receive, in connection with the grooves H H, friction-balls, the said grooves H' H' being made of a width to admit of a slight lateral movement of the said friction-balls, substantially as and for the purpose set forth.

575,153. SCENOSCOPE. WILLIAM A. FOSTER and WILLIAM H. DANIELS, New York, N. Y. Filed May 23, 1896. Serial No. 592,709. (No model.)



Claim.—The combination with a circular case having openings on opposite sides and a transparent disk free from perforations and having near its edge pictures adapted to register with said openings, of a shutter having a diameter less than half the diameter of the disk and having an opening adapted to register with the pictures on the disk, and an operating-shaft and gearing intermediate said operating-shaft and the disk and shutter which will impart rotary movement to the disk and will cause the shutter to make an entire rotation in the necessary time required to make the opening in the shutter central with the openings in the case at the instant each successive picture is central with said openings.

575,154. PLANER FOR DRESSING STONE. JOSEPH GILHOUR, Brooklyn, N. Y. Filed Feb. 20, 1896. Serial No. 579,969. (No model.)



Claim.—1. In a machine of the character set forth, a bed or frame having two sets of parallel ways, two sections forming the platen, arranged side by side in the same plane, to travel each on one of said sets of ways, and means for reciprocating said sections either separately or in unison, in combination with means for joining the sections and locking them together when required to be reciprocated as a unitary whole, whereby either one large stone carried by the two sections as one may be planed, or two stones each on a section may at the same time be planed independently on said sections, all substantially as herein specified.

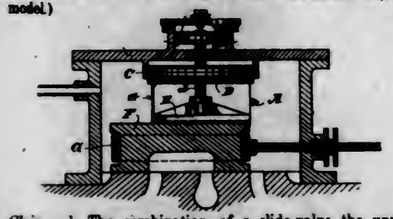
2. In a machine of the character set forth, two sections, composing a platen, arranged side by side to travel in parallel lines, and an independent reciprocating mechanism for each consisting of the nut A^3, screw *h*, gears *d* and *e* and the independently-driven shafts *b* for driving either section in either direction independently of the other, in combination with means for joining the sections and holding them locked relatively to each other while permitting them to be reciprocated together as a unitary whole, all substantially as herein specified.

3. In a planer or similar machine, a platen comprising two or more sections arranged to move side by side in parallel lines, and an independent reciprocating mechanism for each, in combination with tapering keys matching to corresponding notches in the adjacent edges of the sections for locking the latter together, all substantially as herein specified.

4. In a planer, the sections A having slides A' traveling in ways B' formed in the framing, arranged side by side and parallel with each other, the nut A^3, screw *h* and its driving means for each, in combination with the keys D' tapered as shown and matching the dovetailed notches D formed in the adjacent edges of the sections for locking the latter together, and means for coupling the said driving mechanisms together to act as one to reciprocate the sections as a unitary whole, all substantially as herein specified.

5. The sections A having slides A' traveling in ways B' formed in the framing, arranged side by side and parallel to each other, nuts A^3 on the under faces of the sections, screws *h* engaging said nuts and held against longitudinal movement, bevel-gears *d* on the screw-shafts, in combination with the shafts *b* and means for driving them, bevel-gears *e* and *e* thereon, the coupling-gear *f*, and its sliding shaft *f'*, arranged between said gears *e* to mesh with both and thereby transfer the motion from one to the other, and the dogs *g*, *g'* arranged to hold the said coupling-gear into or out of engagement, all substantially as herein specified.

575,155. BALANCED SLIDE-VALVE. GEORGE R. HERRICK, San Francisco, Cal. Filed July 20, 1896. Serial No. 599,856. (No model.)



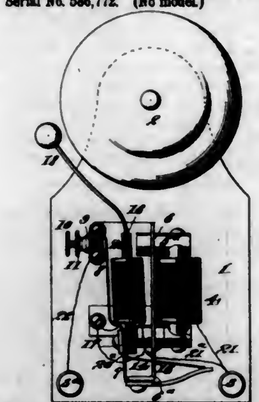
Claim.—1. The combination, of a slide-valve the upper and lower faces of which are provided with flanges, a steam chest within which it is adapted to reciprocate, a yoke loosely embracing the valve and movable between the flanges thereof, a cylinder fixed to the inner side of the steam-chest cover opposite the valve, a piston within the steam-chest and movable within the open end of the cylinder, at right angles with the movement of the valve, a vertically-guided plate having approximately the same area as the piston and resting upon the back of the valve, and a stem connecting the plate and the piston whereby the pressure of steam acts equally upon the piston and plate and the valve is relieved therefrom.

2. In an engine having a slide-valve and a containing steam-chest, a yoke loosely fitting the valve between flanges projecting from the upper and lower faces thereof, and connected with the valve-stem, a plate resting upon the back of the valve, its ends movable in vertical guides whereby its position is maintained, a piston of approximately the same area movable in a short cylinder projecting inwardly from the steam-chest cover and into the steam-chest, a rod or stem connecting the piston with the plate, having a ball-joint at the point of connection whereby irregularities in the position of movement of the plate and piston are corrected, and the plate allowed to adjust itself to the back of the valve.

3. In an engine having a slide-valve with flanges on its upper and lower faces and a steam-chest within which it is reciprocated, a yoke loosely embracing the valve between said flanges, and connected with the valve-stem, a plate fitting against the back of the valve and guides by which it is retained in position with relation thereto, a piston moving in the open end of a cylinder projecting inwardly from the steam-chest cover opposite the valve, and a flexible connection between the piston and the plate, a stem extending from the piston through the steam-chest cover connecting with a second smaller piston, a cylinder within which said piston is movable, and a pipe or passage for the admission of steam beneath said smaller piston to relieve the valve of the weight of the interior plate and piston when the pressure of steam is removed therefrom.

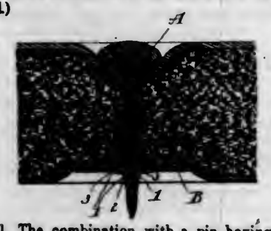
4. A slide-valve movable within a steam-chest, a yoke loosely embracing the valve and confined between flanges on the upper and lower faces thereof, a plate fitting the back of the valve and a stem connecting it with a piston of approximately the same area, movable within a cylinder upon the inner face of the steam-chest cover whereby the pressure of the steam acting upon the piston relieves the valve therefrom, a set-screw adjustable in the steam-chest cover adapted to press upon the center of the piston so as to prevent the valve being lifted from its seat by the upward pressure of exhaust-steam.

575,156. ELECTRIC BELL. JOHN W. HOLDSWORTH, St. Louis, Mo., assignor of one-half to Robert R. Dodsworth, same place; Robert R. Dodsworth administrator of said Holdsworth, deceased. Filed Apr. 9, 1896. Serial No. 586,772. (No model.)



Claim.—In an electric bell, the combination of a fixed electromagnet comprising a bobbin and core, and a movable electromagnet comprising a bobbin mounted upon a vibrating core, arranged parallel respectively to the fixed bobbin and core and having both the poles of said vibrating core arranged in magnetic relation to the poles of the fixed core of opposite sign; lateral extensions being provided on both the poles of one of the cores and at right angles thereto so as to bridge the space by which the cores are held apart by the bobbins and bring said cores in contacting relation, and thus close the magnetic circuit between them, as explained.

575,157. UPHOLSTERING-PIN. GEORGE H. HOWELL, Sioux City, Iowa. Filed May 8, 1895. Renewed Oct. 6, 1896. Serial No. 608,068. (No model.)



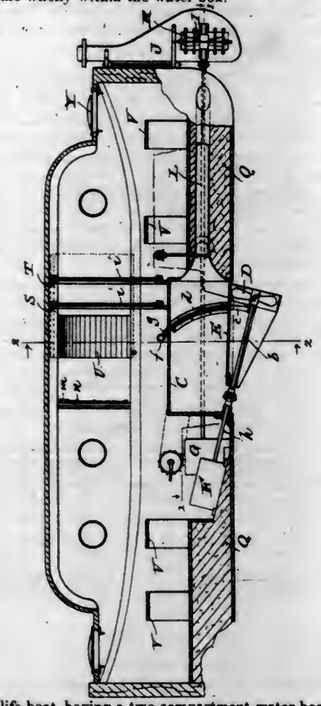
Claim.—1. The combination with a pin having a pointed end adapted to penetrate and find its way through the material to be fastened, of a plate or disk having a hole extending therethrough wherein to receive the pin, and also provided with several slots extending radially from the hole whereby to form spring-jaws to engage the pin, substantially as set forth.

2. In upholsterers' buttons, the button, the shank, the notches at 1, 1, and the head B with its central perforation and the points between the slits, substantially as set forth.

3. In upholsterers' appliances the button, its elongated shank, in combination with the head B with its perforation and its spring clutching-points, substantially as set forth.

575,158. SCREW-PROPELLER FOR LIFE-BOATS. JULIUS HUEBNER, Milwaukee, Wis. Filed Dec. 5, 1895. Serial No. 571,099. (No model.)

Claim.—1. A life-boat having a water-box extending upward from its bottom, a channel leading from the water-box through the stern of the boat, and a propeller adjustable in the matter of elevation to come wholly within the water-box.



2. A life-boat having a two-compartment water-box extending upward from its bottom, a channel leading from each compartment of the water-box through the stern of the boat, and twin propellers adjustable in the matter of elevation to come wholly within said water-box.

3. A life-boat having a two-compartment water-box extending upward from its bottom, a channel leading from each water-box compartment through the stern of the boat, a lateral channel leading from each of those aforesaid through a side of said boat, gates arranged at the junction of the channels, rotarily-adjustable bends on the outer ends of the lateral channels, and twin propellers adjustable in the matter of elevation to come wholly in said water-box.

575,159. SOAP-HOLDER AND BRUSH. GEORGE W. JOHNSON, San Francisco, Cal., assignor of one-third to Philip D. Raine, same place. Filed June 15, 1896. Serial No. 595,699. (No model.)



Claim.—1. A soap-holder consisting of an indestructible open-mesh netting, a hanger into the lower part of which the mouth of the netting is gathered, and a locking device for securing it therein.

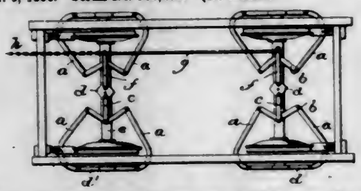
2. A soap-holder consisting of an indestructible flexible open-mesh netting, a hanger with a suspending-chain, said hanger having an upper and lower chamber and a rectangular opening extending

from the lower chamber into the chamber above, a nut turnable in the upper chamber without being removed therefrom, said nut having the lower end screw-threaded and adapted to receive the screw-threaded upper end of a bolt or stem, said bolt or stem having a rectangular portion fitting the rectangular opening in the hanger, and a head fitting within the chamber at the lower end of the hanger which head is adapted to receive and lock the mouth of the netting to the hanger.

3. A soap-holder consisting of a flexible indestructible netting, a shank having a head at the lower end about which the mouth of the netting may be gathered or secured, and a threaded upper end therefor, a hanger having a chamber in the lower end into which the head with the secured netting is entered, a nut turnable in a chamber in the upper part of the hanger adapted to screw upon the threaded end of the shank whereby the head and the netting are locked in the lower chamber, a ring extending through the sides of the upper end of the hanger so that its ends enter a groove or channel surrounding the nut whereby the latter may be turned within but not removed from the chamber.

4. A soap-holder consisting of a flexible indestructible netting, a swiveling head and hanger in which the mouth of the netting is gathered and locked to prevent removal, a chain and spring-actuated roller by which it is suspended so as to be moved up or down, and a brush having a flexible backing secured to the network-holder.

575,160. **CAR-BRAKE.** ALBERT H. LOWRY, Pittsburg, Pa. Filed Mar. 9, 1896. Serial No. 582,435. (No model.)

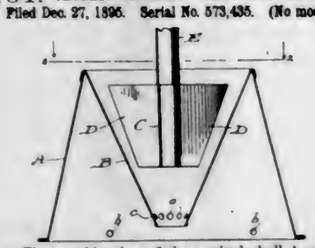


Claim.—1. In a brake, the combination of the curved brake-arms having their inner ends pivotally connected to arms connected to the operating-arm, the outer ends of the curved arms being pivotally connected to a cross-bar, one of said arms passing through each brake-shoe, the said shoe being supported by a shaft operating in a casting secured to the truck-frame, said shaft being provided with a rigid and jam nut and a coil-spring between the brake-shoe and rigid nut, substantially as shown and described.

2. In a brake, the combination of the curved arms at the sides of each wheel, said arms being connected by a series of pivoted arms to a center plate, a brake-rod connecting the arms on one side together, a casting secured to the truck-frame and carrying a screw-threaded sleeve adapted to receive the shaft carrying the brake-shoe, said shaft having a rigid and a jam nut, a coil-spring between the shoe and rigid nut, and an aperture in each brake-shoe adapted to receive one of the curved arms, substantially as shown and described.

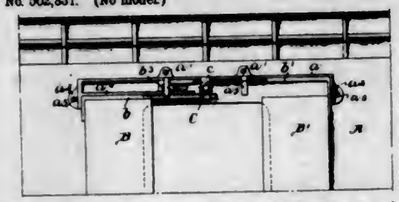
3. In a brake, the combination of the shaft carrying the brake-shoe secured thereto by a bolt, said shaft operating in a screw-threaded sleeve, secured in a casting attached to the truck-frame, curved arms at the side of each wheel, said arms connected together at their outer ends by a cross-piece secured to the journal-box and at their inner ends by pivoted arms attached to the center plate, a brake rod and chain for operating said arms, and a coil-spring on the shaft for applying the brake-shoe when the brake-chain is released, substantially as shown and described.

575,161. **CLOTHES-POUNDER.** JOHN G. MARKWISER, Milwaukee, Wis. Filed Dec. 27, 1895. Serial No. 573,435. (No model.)



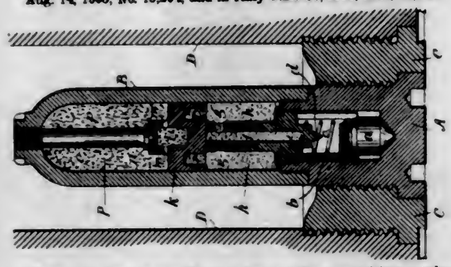
Claim.—The combination of the conical shell A provided with the apertures *b*, the funnel B in water-tight union with the upper edge of said shell to depend therein and provided with the lower end apertures *c*, the socket C provided with lateral wings D made fast to the interior of said funnel, and the handle E engaging the socket.

575,162. **SLIDING DOOR.** JOHN H. MUNDERLOH, Philadelphia, Pa., assignor to Louis Weber, same place. Filed Mar. 8, 1894. Serial No. 502,831. (No model.)



Claim.—The combination with a pair of sliding doors, and a frame upon and against which the same are mounted, of a pair of guide-bars a a^4 secured to said frame above the door, one above the other, one of said guide-bars extending above and beyond both doors, and the other extending above and beyond one only of said doors, a rack-bar b secured to the upper edge of one of said doors below and in contact with the guide-bar a^4 and extending over the other door, a rack-bar b' secured to said other door and extending beyond its inner edge above the first rack-bar, in contact with the guide-bar a', and having also a guide projection in contact with the bar a^4, a pinion-wheel fixedly secured to the frame centrally between the two rack-bars, means for maintaining said rack-bars in proper register with said pinion, and a stop or stops carried by the guide-bars for limiting the movement of said doors, substantially as described.

575,163. **SHELL-FUSE.** ALFRED NOBEL, Paris, France. Filed Sept. 15, 1896. Serial No. 605,880. (No model.) Patented in England Aug. 14, 1895, No. 15,294, and in Italy June 30, 1896, XXI, 41,725.



Claim.—1. In a projectile, a priming-tube comprising a tube B and a piston *k* within said tube and dividing the same into two chambers and a rod or anvil in the second chamber, a propulsive powder in the first chamber *h* for imparting great velocity to the piston, a charge of detonating material between the piston and the rod or anvil ignited by the movement of the piston and a main bursting charge in the second chamber and exploded by the detonating material, and firing the main charge in the projectile, substantially as specified.

2. In a projectile, a priming-tube comprising a tube B, a piston having a recess *l* within said tube and dividing the same in two compartments *h* and *p*, and a rod or anvil in the second chamber, a propulsive powder in the compartment or chamber *h* for imparting great velocity to the piston, a charge of high explosive or detonating material in the recess *l* of the piston and ignited by its movement, and a main bursting charge in the compartment or chamber *p*, exploded by said high explosive and firing the main charge in the projectile, substantially as specified.

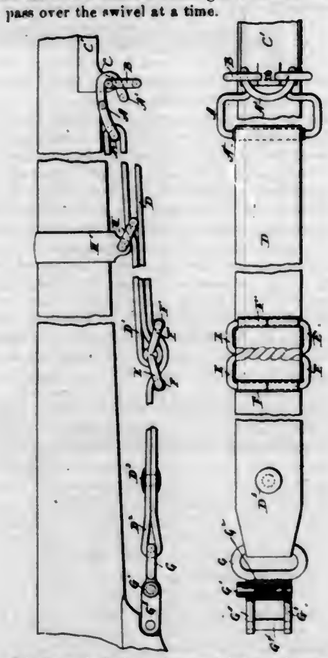
3. The combination with the projectile and the priming-tube B, of a piston within said tube having recesses *l* and *r* on opposite sides, a rod *o* having a collar against which the piston is seated and a tubular stem having passages *e f* and *g*, there being explosive materials in the chambers and recesses at the opposite sides of the piston, substantially as specified.

575,164. **SLIDE AND HOOK FOR SLING-STRAPS OF FIRE-ARMS.** WILLIAM C. PERKINS and THOMAS C. JOHNSON, New Haven, Conn., assignors to the Winchester Repeating Arms Company, same place. Filed Oct. 5, 1896. Serial No. 607,878. (No model.)

Claim.—1. A sling-strap-securing hook comprising an oblong body portion or eye, and a beak which is narrower than the eye is long and extends outward from the middle of the outer side bar of the eye, and is bent inward in the plane thereof.

2. A sling-strap-securing hook formed from a single piece of wire, and comprising an oblong eye having rounded corners, and also comprising a beak narrower than the eye is long extending outward from the middle of the outer side bar of the eye and bent over inward, substantially in the plane thereof.

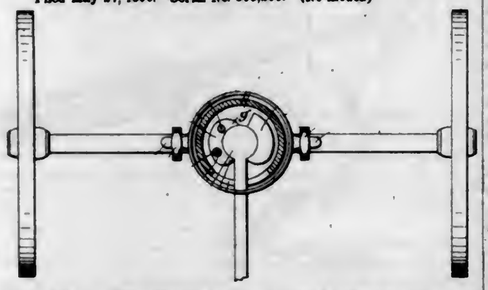
3. In a firearm, the combination with a stacking-swivel of oblong form, and having its outer side bar open, of a sling-strap, and a sling-strap-securing hook through which the strap is passed, and which comprises a body portion or eye, and a hook proper or beak, the eye of the hook being less in internal length than the external length of the stacking-swivel, so that the hook cannot be applied to or removed from the swivel without cocking it so as to allow one end of its eye to pass over the swivel at a time.



4. A slide formed of wire and comprising two corresponding eyes located in inclined planes, and a central twisted bar, the wire in one eye extending across the slide into the other eye, and vice versa, whereby the two eyes are prevented from swiveling with respect to each other, substantially as set forth.

5. A slide formed of wire and comprising two corresponding eyes immovably located in planes inclined with respect to each other and also comprising a central twisted bar into which the wire of each eye enters.

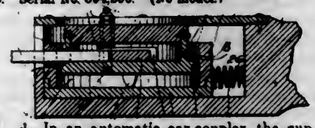
575,165. **VEHICLE RUNNING-GEAR.** GEORGE D. PETTINGELL, Jefferson, Iowa, assignor of one-half to Henry C. Laub, Denison, Iowa. Filed May 27, 1896. Serial No. 593,299. (No model.)



Claim.—1. The combination with a vehicle running-gear having a reach-pole provided with an enlarged head or end, of an automatic coupling comprising a circular housing having a reach-pole opening or slot, the cover having a curved slot, a stop integral with the bottom of the housing, a pivoted lock operated by said pole-head and carrying a pin adapted to engage a hole in the bottom of the housing and hold the lock in said operated position, substantially as set forth.

2. The combination with a vehicle running-gear having a circular bed provided with a vertical flange and secured to the front axle, and a reach-pole having an enlarged head or end, of an oscillating coupler comprising, the housing having a suitable opening for the reach-pole, a cover having a slot, a semicircular stop integral with the housing-bottom, a semicircular lock pivoted in said bottom and operated by the reach-pole, a barrel upon the lock working through said slot and carrying a locking-pin, and pivot-lugs upon the bottom of the housing forming the only bearing between the said bed and housing, as set forth.

575,166. **CAR-COUPLING.** GEORGE D. PETTINGELL, Jefferson, Iowa, assignor of one-half to Henry C. Laub, Denison, Iowa. Filed June 4, 1896. Serial No. 594,296. (No model.)



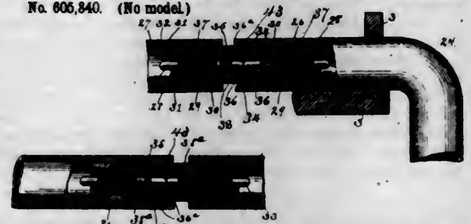
Claim.—1. In an automatic car-coupler, the cup pivoted in a draw-bar to oscillate transversely and vibrate vertically, a jaw in the bottom of the cup, and a dog pivoted in the bottom of the cup and carrying a coupling-pin, said dog being operated by the link to lock the dog to the cup and the link-head between the jaw and dog, as set forth.

2. In an automatic car-coupler, the cup having a fixed jaw and a pivoted dog, pivot projections upon the bottom of the cup, combined with a ring surrounding the cup and having pivot-lugs whereby the cup is held in the ring upon the said projections and lugs, as set forth.

3. In an automatic car-coupler, the combination of the cup having a jaw integral with its inner bottom, a dog pivoted in said bottom and carrying a coupling-pin, a removable slotted cover for the cup, and pivot projections on the under side of the cup-bottom, with the flanged ring surrounding the cup and having pivot-lugs engaging the cup-cover and the removable ring-bottom, as set forth.

4. The combination with a car-coupler, of a cup held in a draw-bar to oscillate transversely and vertically, and having a link-slot, the jaw integral with the inner cup-bottom, a dog pivoted to said bottom, and having an arm carrying a coupling-pin, and a removable cup-top having a slot for the said arm, as set forth.

575,167. **AUTOMATIC CAR AND AIR-BRAKE COUPLING.** GEORGE D. PETTINGELL, Jefferson, Iowa. Filed Sept. 14, 1896. Serial No. 605,840. (No model.)



Claim.—1. In an air-brake coupling the combination with a draw-bar having a valve, of a hollow coupling-bar having valves adapted to engage the draw-bar valves to open all of said valves simultaneously with the coupling of the cars by said hollow bar, substantially as set forth.

2. In an air-brake coupling, the combination with a draw-bar having a valve connected to an air-brake cylinder, of a hollow coupling-bar, and a valve contained in and closing each end of the coupling-bar, as set forth.

3. In an air-brake coupling, draw-bars having valves provided with a projection, combined with a hollow coupling-rod having an air-passage, like valves in each end of the coupling-rod, and having a projection to engage the said projection of the draw-bar valves, as set forth.

4. In an automatic car and air-brake coupling, the combination of the cup secured in a draw-bar to oscillate laterally and vibrate vertically, and a valve secured in the cup and connected to the air-brake pipe, with a hollow coupling-bar, a valve in each end of the coupling-bar, and means in the cup for locking the coupling-bar to the cup, as set forth.

5. A combined car and air-brake coupler, comprising a hollow rod having a valve in each end, a valve in the draw-bar, and means for automatically connecting the rod to the draw-bars to couple the cars, the said rod-valves adapted to engage the draw-bar valves to couple the latter and open communication between them through the hollow rod, as set forth.

6. In an automatic car and air-brake coupler, the hollow rod having end valves, like valves in the draw-bars connected to the air-brake pipes, and means located in the draw-bars to lock the rod ends

in the same to couple the cars, all of said valves adapted to be operated by the said rod to couple the air-brakes simultaneously with the coupling of the cars, as set forth.

7. The combination with the draw-bars having valves connected to the air-brake cylinders, and a hollow coupling-rod having screw-threaded ends, valves adjustably contained in said ends to make contact with the valves in the draw-bars, as set forth.

8. The combination of the casing, and the barrel having both ends permanently closed and contained in the casing to form an air-chamber between the latter and the barrel, ducts leading into the said chamber only at one end, with a valve having a stem extending through both ends of the barrel and casing, and a spring surrounding said stem and engaging the valve and barrel end, as set forth.

9. The combination with the inner and outer screw-threaded valve-casing, and a cushion-head secured to the casing, of a barrel having a screw-threaded end provided with air-ducts leading into a chamber between the casing and barrel, a spring-controlled valve having a projection beyond the casing and a projection into and closing the barrel, substantially as set forth.

10. The combination with a draw-bar, a suitable means for coupling cars, of the standards secured to the draw-bar and having slotted hand-shaft bearings, the said shaft having eyes at right angles to each other, to one of which is connected the said coupling-bolt, and to the other of which is connected a lever from the car-top, and stops upon the said shaft operated in the said slots to control the vibratory movement of the shaft, as set forth.

11. The combination with a draw-bar, a suitable means for coupling cars, of a crank hand-shaft having eyes, and projections at right angles to the eyes, standards secured to the draw-bar and having slotted bearings for the shaft, and hand-levers supported from the car-front and joined to the shaft to permit backward movement of the draw-bars, substantially as set forth.

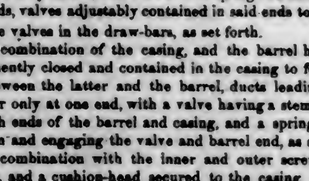
12. The combination with the cup, and ring of an open-top draw-bar having flanges, the removable back-stop, and the springs engaging the ring and the said back-stop, substantially as and for the purpose set forth.

13. The combination with the cup having an integral lug, a dog pivoted therein, a coupling-bolt carried by the dog and a valve secured to the cup in the rear of the lug and dog, of a hollow coupling-bar, and a valve in the end of the bar having a portion projecting and extending through and between the lug and dog to engage a like projection of the said cup-valve, substantially as and for the purpose set forth.

14. In a combined automatic car and air-brake coupling, the combination with draw-bars having valves, of a hollow coupling-rod having valves to engage the draw-bar valves and open communication between the air-brake cylinders of a train through said hollow rod simultaneously with the coupling of the cars by said rod, as set forth.

15. A hollow car-coupling rod having valves adapted to be opened simultaneously with the coupling of the cars by said rod, and means contained in the rod for closing the valves simultaneously with the uncoupling of the cars, as set forth.

575,168. **STEM WINDING AND SETTING WATCH.** WILSON E. PORTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed Oct. 15, 1894. Serial No. 525,922. (No model.)



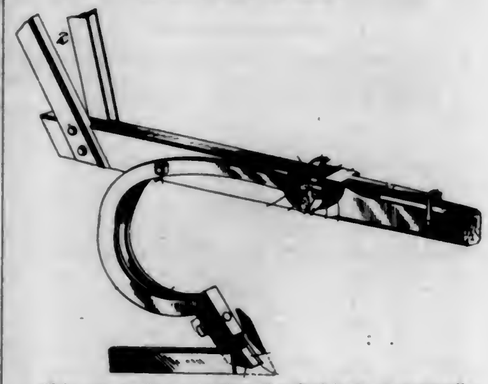
Claim.—1. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable sliding arbor mounted therein, an intermediate winding-wheel loosely mounted upon one end of the said sliding arbor adjacent to the outer face of one of the said movement-plates and normally meshing into the main winding-wheel of the watch, an intermediate setting-wheel loosely mounted upon the other end of the said sliding arbor adjacent to the outer face of the other movement-plate, and adapted to mesh into the minute-wheel of the watch, a winding and setting wheel, and means for shifting the said sliding arbor so as to throw the wheels loosely mounted upon it into and out of engagement with the said winding and setting wheel.

2. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable sliding arbor arranged therein and having its central portion formed with an inclined operating-face, an intermediate winding-wheel loosely mounted upon one end of the said arbor adjacent to the outer face of one of the said movement-plates, and normally meshing into the main winding-wheel of the watch, an intermediate setting-wheel loosely mounted upon the other end of the said arbor adjacent to the outer face of the other movement-plate, and adapted to mesh into the minute-wheel of the watch, a winding and setting wheel located in position to be alternately meshed into by the said intermediate winding and setting wheels carried by the said sliding arbor, a winding and setting arbor passing through the winding and setting wheel with which it is coupled for rotation, and having its inner end adapted, when it is pushed inward, to engage directly with the said inclined operating-face of the sliding arbor for sliding the same in one direction, and a spring for sliding the arbor in the opposite direction when the winding and setting arbor is drawn longitudinally outward.

3. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable, sliding arbor mounted therein and having its central portion formed with a transverse notch having an inclined operating-face, an intermediate winding-wheel loosely mounted upon one end of the arbor adjacent to the outer face of one of the movement-plates, and normally meshing into the winding-wheel of the watch, an intermediate setting-wheel loosely mounted on the other end of the arbor adjacent to the outer face of the other movement-plate, and adapted to mesh into the minute-wheel of the watch, a winding and setting wheel located in position to be alternately meshed into by the said intermediate winding and setting wheels carried by the said arbor, a longitudinally-movable and rotatable winding and setting arbor passing through the winding and setting wheel with which it is coupled for rotation, and having its inner end adapted to enter the said notch and engage with the said inclined operating-face for sliding the sliding arbor in one direction, and a spring for sliding the said arbor in the opposite direction.

4. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable, sliding arbor mounted therein, of an intermediate winding-wheel loosely mounted upon one end of the arbor, and normally meshing into the winding-wheel of the watch, an intermediate setting-wheel loosely mounted upon the other end of the arbor and adapted to mesh into the minute-wheel of the watch, a winding and setting wheel located in position to be alternately meshed into by the said intermediate winding and setting wheels, a longitudinally-movable winding and setting arbor coupled with the said winding and setting wheel for rotating the same and coacting with the said sliding arbor for sliding the same in one direction, and a spring connected directly with the said sliding arbor at a point between the movement-plates and engaging with the inner face of one of the same for sliding the sliding arbor in the opposite direction from that in which it is moved by the winding and setting arbor.

575,169. **PLOW OR CULTIVATOR.** ROBERT A. RAY, Talking Rock, Ga., assignor of one-half to James L. Keel, same place. Filed May 9, 1896. Serial No. 590,890. (No model.)



Claim.—1. A plow consisting of a draft-beam, a rearwardly-curved standard pivoted on said beam and having at its lower end an obtuse-angled crook and at its upper and front end a vertical series of teeth, a horizontal lever pivoted on said beam and having at its rear a dog to engage said teeth and a pair of beam and standard gripping keepers, and a lever-clasp pivoted on said beam, substantially as and for the purpose set forth.

2. A plow consisting of a draft-beam, a two-part or bifurcated rearwardly-bowed standard straddling and pivoted to said beam and having at its upper, front, end a pair of toothed segments, a crook extending at an obtuse angle from the bottom of said standard and having a beveled bottom edge, a lever having a bifurcated and eared rear extension pivoted on said beam, a pair of dogs on the bifurcated

rear portion of the lever, a pair of rearwardly-extending standard-gripping plates carried by said lever-pivot, and a link lever-keeper pivoted on said beam, substantially as and for the purpose set forth.

575,170. **ELECTRIC CONDUCTOR.** HERBERT T. RICHARDS, Brooklyn, N. Y. Filed Nov. 20, 1896. Serial No. 612,806. (No model.)



Claim.—1. An insulated conductor provided with a marker occurring at periodic intervals throughout its length and projecting from the surface by which its identity may be recognized.

2. A conductor provided with a braided covering, one of the threads of the braiding being thicker than the others to serve as a distinguishing marker when used with other conductors.

3. Twin or multiple insulated conductors having one wire provided with a marker or markers occurring at periodic intervals in the length of the conductors to distinguish them from one another.

4. Twin or multiple insulated conductors having distinguishable mechanical projections forming part of the covering to serve for identification of the several conductors.

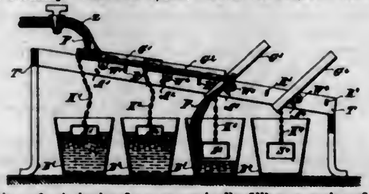
575,171. **LUBRICATING AXLE-JOURNAL.** JOHN T. RICHARDS, Gardiner, Me. Filed July 25, 1894. Serial No. 518,575. (No model.)



Claim.—1. An axle-journal having a longitudinal groove formed in its upper surface, said groove stopping at its ends short of the ends of the journal and the sides of the groove forming confining-walls whereby the groove constitutes an oil-reservoir, and distribution groove or grooves on the surface of the journal extending laterally from the bottom of the horizontal groove for distributing oil over the surface of the journal, substantially as set forth.

2. An axle-journal having a longitudinal groove in its upper surface the ends of which groove terminate short of the ends of the journal and the sides of which groove constitute retaining-walls whereby the groove forms a reservoir, distributing groove or grooves extending laterally from the bottom of this longitudinal groove, to distribute the oil over the surface of the journal, and returning-grooves for collecting superfluous oil and returning it to the longitudinal groove, substantially as set forth.

575,172. **FILLING DEVICE.** FRITZ ROSSBACH-ROUSSET, Tempelhof, Germany. Filed Feb. 8, 1896. Serial No. 578,586. (No model.)

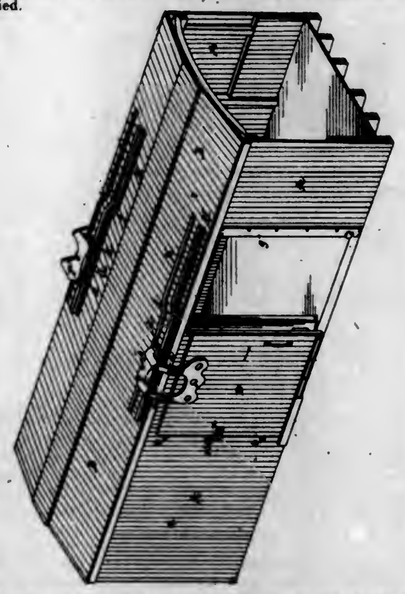


Claim.—1. A device for automatically filling a series of receptacles, consisting of a frame, a series of channels or gutters pivoted to the frame and provided each with a float-gage at one end, and a series of receptacles placed beneath the several channels and containing each the float-gage of the corresponding channel, substantially as and for the purpose described.

2. A device for automatically filling each after another a series of receptacles, consisting of a frame, a series of channels or gutters pivoted to the frame and tapering at one end, the pivots of the said channels being arranged in an inclined line and having a distance from each other less than the length of the several channels, a series of float-gages each connected to each of the said channels, and a series of receptacles placed beneath the said channels and containing each the float-gagé of the corresponding channel, substantially as and for the purpose described.

575,173. **CAR-DOOR.** HENRY J. SOEHNGE, Hamburg, Pa., assignor of one-sixteenth to John P. Martin, Pine Grove, Pa. Filed Aug. 28, 1896. Serial No. 604,184. (No model.)

Claim.—1. The combination of the car having upon the roof of the same a guideway offset so as to present two parallel longitudinal planes, one farther inward from the edge of the roof than the other, with a hanger-block, a car-door suspended therefrom, means whereby the movement of said hanger-block is controlled by the guideway on the roof of the car, and a pivotal connection whereby the door is free to swing on a vertical axis as well as to slide, substantially as specified.



2. The combination of the car having on the roof of the same a pair of rails constituting a guideway and offset so as to form one portion of said guideway farther inward from the edge of the roof than the other, with a hanger-block having portions engaging said guideway, a door suspended from said hanger-block, and a pivotal connection whereby the door is free to swing on a vertical axis as well as to slide, substantially as specified.

3. The combination of the car having on the roof a pair of rails constituting a guideway, and offset so as to form one portion of said guideway farther inward from the edge of the roof than the other, a carriage having wheels engaging said guideway, a hanger-block pivoted to said carriage, a door suspended from said hanger-block, and a pivotal connection whereby the door is free to swing on a vertical axis as well as to slide, substantially as specified.

4. The combination of the car having on the roof a pair of flanged rails constituting a guideway, and offset so as to form one portion of said guideway farther inward from the edge of the roof than the other, with a hanger-block, a door suspended from said hanger-block, grooved wheels adapted to the flanged rails so as to be free to move longitudinally thereon, but confined vertically thereto, means for connecting said wheels to the hanger-block, and a pivotal connection whereby the door is free to swing on a vertical axis as well as to slide, substantially as specified.

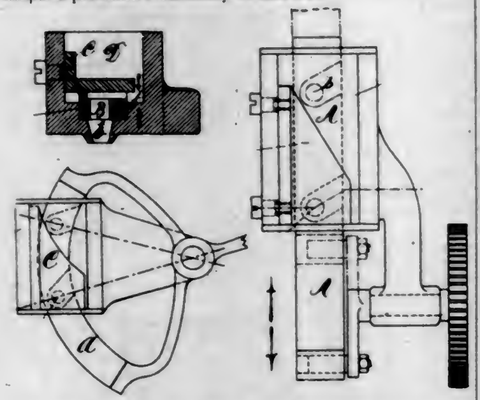
5. The combination of the car having on the roof an offset guideway, a hanger-block having its movement controlled by said guideway, a door suspended from said hanger-block, and a pivotal connection whereby the door is free to swing on a vertical axis as well as to slide, and a guard-rail on the inside of the car for limiting the inward movement of the front portion of the door when the latter is closed into the doorway, substantially as specified.

6. The combination of the car having on the roof an offset guideway, a hanger-block having its movement controlled by said guideway, a door suspended from said hanger-block so as to be capable of moving longitudinally and also laterally into and out of the doorway, and a guard-rail for limiting the lateral outward movement of the bottom of the door when the latter is open, substantially as specified.

575,174. **SLIDE DEVICE FOR MEASURING QUANTITIES OF SOLID MATERIAL.** LUDWIG SCHIFF, Carlsruhe, Germany, assignor to the Deutsche Metallpatronenfabrik, same place. Filed Sept. 5, 1896. Serial No. 605,066. (No model.)

Claim.—1. A movable-slide device for measuring quantities of pulverulent, granular or similar divided materials wherein the surface of the slide above the measuring-cavity is formed with a groove extending at an angle to the direction of motion of the slide, while the

front edge of the scraper is so arranged as to be at right angles, or nearly so, to the edges of the said groove at the crossing-points thereof, whereby a jamming or cutting of a grain of the material between the upper edge of the said measuring-cavity and the edge of the scraper is prevented substantially as described.



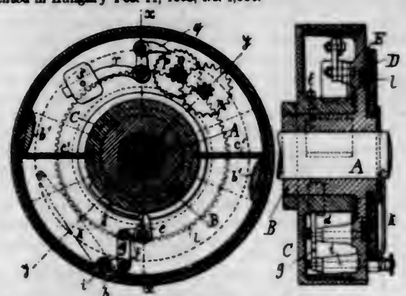
2. In combination, the slide having an opening and a groove in its upper side extending to the edge obliquely to the line of movement, the scraper having an edge inclining to the line of movement of the slide, and a casing carrying said parts, the walls of said groove being arranged to form first an obtuse angle with the inclined edge of the scraper and then a right angle, substantially as described.

575,175. IODOFORM SUBSTITUTE. ADOLF SCHUPTAN, Zurich, Switzerland, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed Nov. 2, 1895. Serial No. 567,725. (Specimens.)

Claim.—1. The process of producing a compound from methylenebisphenyldimethylpyrazolon and bromin which consists in dissolving the former in hydrochloric acid and then adding bromin-water to the solution, substantially as set forth.

2. As a new article of manufacture, the compound obtained from methylenebisphenyldimethylpyrazolon and bromin, being a yellow light powder, soluble in alcohol, ether, acetone, glacial acetic acid, chloroform or benzene, insoluble in water or ligroin, and having a faint smell resembling iodoform, substantially as set forth.

575,176. DYNAMOMETER. LOUIS SCHULER, Göppingen, Germany. Filed Mar. 30, 1896. Serial No. 585,840. (No model.) Patented in Hungary Feb. 11, 1896, No. 1,956.



Claim.—1. In combination the two disks B, C, the former having the tappets *b'* and the latter the spring-arms to engage said tappets, the indicator, the system of levers connected therewith and means for operating said lever system from the disk C, substantially as described.

2. In combination, the two disks, the tappets on one disk, the spring-arms carried by the other disk and engaging the tappets, the indicator and the system of levers for operating the same and the projection *d* for operating said lever system, substantially as described.

575,177. WATER-STRAINER. JOSEPH H. SEED, Brooklyn, N. Y. Filed July 21, 1896. Serial No. 600,052. (No model.)

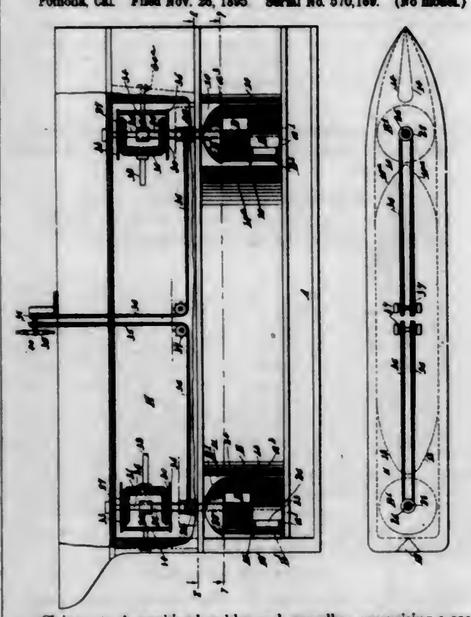
Claim.—1. A strainer having a casing, two semispherical sieves having their bases united to form a flange attached to the casing whereby to hold the sieves within the casing, and a hard impervious sphere held within the sieves, substantially as described.



2. A strainer having a casing, an approximately spherical sieve held within the casing, and a hard impervious sphere inclosed by the sieve, substantially as described.

3. A strainer having an approximately spherical sieve, and a hard impervious ball held within the sieve, substantially as described.

575,178. PROPULSION OF VESSELS. FRANK O. SLANKER, Pomona, Cal. Filed Nov. 26, 1895. Serial No. 570,169. (No model.)



Claim.—1. A combined rudder and propeller, comprising a casing mounted to revolve and having openings at angles to one another in one of its faces, shafts within the casing and paddles located within the said casing and respectively fixed to the shafts one paddle being opposite each of the aforesaid openings, and the paddles being at angles to one another, the said casing and each of the said paddles being capable of independent movement, as and for the purpose specified.

2. A combined rudder and propeller, the rudder consisting of a revoluble cylindrical casing closed at the top and at the bottom, and provided with side openings at angles to one another, and a partition having openings therein communicating with the aforesaid side openings, the propeller consisting of paddles located one in each compartment of the said casing, the paddles having the same arrangement relative to the side openings in the casing, and each of the paddles being capable of independent movement, as and for the purpose set forth.

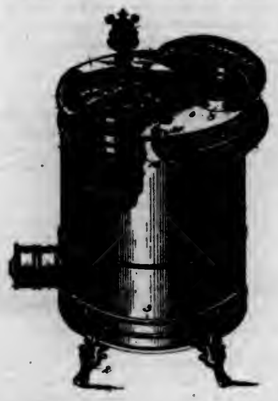
3. In a driving mechanism for vessels, the combination, with a steering apparatus consisting of a cylindrical casing closed at the top and bottom and provided with openings in the sides located one above the other and at right angles to each other, and a partition dividing the said casing into compartments, in each of which one of the aforesaid openings occurs, the partition being provided with a recess communicating with both of the aforesaid openings, of a propelling device consisting of blades located one in each of the aforesaid compartments of the casing, capable of revolving therein and placed at a right angle to each other, a tubular shaft attached to one of the aforesaid blades, a shaft contained within the tubular shaft and secured to the other of the said blades, a driving-shaft, independent gearing connecting the inner and outer paddle-shafts with the said driving-shaft, and a steering-shaft connected with the casing, all operated in substantially the manner herein set forth.

4. The combination, with a rudder consisting of a cylindrical casing closed at the top and bottom and provided with a partition dividing it into two compartments, each compartment being provided with a horizontal opening, the said openings being at right angles to each other, the said partition having an opening therein affording communication between the two compartments and leading into the aforesaid side openings, of a propeller consisting of paddles having semicylindrical ends and contracted centers, being adapted to revolve one within each of the said compartments of the cylinder, the said paddles being at right angles to each other, a solid shaft secured to one of the paddles, a tubular shaft surrounding the solid shaft and attached to the other paddle, a driving-shaft, independent gearing connecting the said driving-shaft with each of the paddle-shafts, and a steering apparatus having connection with the aforesaid cylinder, whereby the cylinder and each of the paddles are capable of independent movement, substantially as described.

5. In the construction of a vessel, a hull provided with an opening near the bow and near the stern, a combined propeller and rudder located within each of the said openings, a driving mechanism connected with the propellers, and a steering device connected with the rudders, the rudders being in the form of a casing provided with apertures, in which casings the rudders revolve, as and for the purpose specified.

6. In the construction of a vessel, a hull having a bow and a stern opening, a cylindrical casing constituting a rudder mounted to revolve in the said bow and in the said stern openings, each cylindrical casing having openings in its side at right angles to each other and located one above the other, propeller-paddles located within each casing opposite each of its side openings, the propeller-paddles having the same relation to each other as the openings in the casings, a driving mechanism arranged to simultaneously operate all of the propeller-paddles and impart to corresponding paddles of each casing an independent and reverse movement, and a steering device connected with the aforesaid casings, whereby the casings are turned independently of the movement of the said paddles, as and for the purpose set forth.

575,179. STOVE. MARTIN STEHLE and WILLIAM N. STEHLE, Perry, Mo. Filed Mar. 18, 1896. Serial No. 583,764. (No model.)



Claim.—1. In combination, a stove having an opening in its top surrounded by a vertical flange having an inner ledge or extension, an oven having an outer extension and suspended within the said opening of the stove-top by having its outer extension engaging with the inner extension of the said vertical flange, and a cover for closing the opening and the oven and adapted to be fitted to the aforesaid vertical flange, substantially as set forth.

2. In combination, a stove having an opening in its top, an oven removably fitted to the stove-top and suspended within the said opening, a cover for closing the opening and the oven, and a reflector removably fitted within the cover, substantially as and for the purpose set forth.

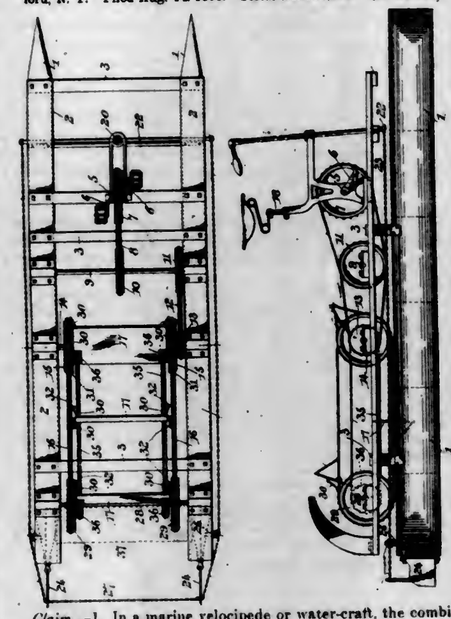
3. In combination, a stove having an opening in its top, an oven removably fitted in the said opening, a cover for closing the opening and the oven and having damper-controlled openings, and a reflector adapted to be contracted and held within the cover by its expansive action, and having extensions to be grasped between the fingers of the hand when placing the reflector in position or removing it from the cover, substantially as set forth.

4. In combination, a stove having an opening in its top, a circular oven removably fitted within the said opening and having an annular groove or depression in its inner side and a series of openings in its sides above the said groove, a ring fitted within the upper portion of the oven and having its lower edge deflected outward into the aforesaid groove and its upper edge bent over the top edge of the oven, and having openings corresponding in position and number with the said openings in the oven, and adapted to be moved to bring the openings into or out of register, and a cover for closing the stove-opening, oven and ring, substantially as specified.

5. The combination with a stove having side keepers and an intermediate stud, of a pair of shelves having projections at one end to engage with the keepers, and a yoke connecting the opposite ends of the shelves and adapted to engage with the intermediate stud to retain the shelves in proper position, substantially as set forth.

6. In combination, a stove having a side keeper, a shelf removably fitted to the stove, and a bracket having pivotal connection with the shelf and provided with a lateral lug to engage with the keeper of the stove, substantially as and for the purpose set forth.

575,180. MARINE VELOCIPEDE. CHARLES A. SULEMAN, Waterford, N. Y. Filed Aug. 14, 1895. Serial No. 559,276. (No model.)



Claim.—1. In a marine velocipede or water-craft, the combination with a float of required length substantially oval-shaped vertically in cross-section, of a backbone arranged within the float and comprising a vertically-disposed brace attached at its top and bottom edges centrally to the upper and lower sides of the said float, and extending longitudinally thereof and dividing the same into longitudinal air-tight compartments, substantially as set forth for the purpose described.

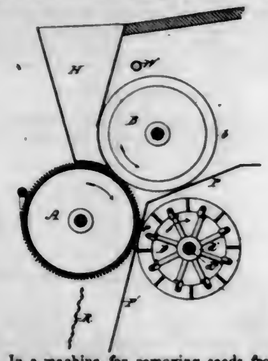
2. The herein shown and described marine velocipede comprising in its organization longitudinally-disposed floats having rudders at their rear ends which are connected so as to operate in unison, a framework supported by the said floats, front and rear supporting-wheels, the forward supporting-wheels having their inner marginal rim portions enlarged to provide circular guides, drive-chains mounted upon the supporting-wheels, blades having pivotal connection with the drive-chains, checks connecting the ends of the blades with the drive-chains, and adapted to engage with the aforesaid circular guides, a pedal-shaft operatively connected with and adapted to actuate the said drive-chains, a steering-post located within convenient reach of the driver's seat, and provided with a transverse bar, and connections between the ends of the said transverse bars and the rear portions of the rudders, substantially as set forth for the purpose described.

3. In a marine velocipede or water-craft, the combination of front and rear supporting-wheels, main drive-chains mounted thereon, blades having pivotal connection at their ends with the said drive-chains, supplemental main chains extending parallel with the main drive-chains and having connection with the said blades, and sprocket-wheels for supporting the said supplemental chains and revolving in unison with the aforementioned supporting-wheels, substantially as set forth for the purpose described.

4. In a marine velocipede or water-craft, the combination of front and rear supporting-wheels, main drive-chains mounted thereon,

blades having connection at their ends with the said main drive-chains, supplemental chains having connection with the aforementioned blades and mounted upon sprocket-wheels in line with the respective supporting-wheels, and two sets of checks connecting each blade with the drive-chains and extending in opposite directions, substantially as set forth for the purpose described.

575,181. MACHINE FOR SEEDING RAISINS. EUGENE SUTHERLAND, Jersey City, N. J. Filed Dec. 2, 1895. Serial No. 570,788. (No model.)

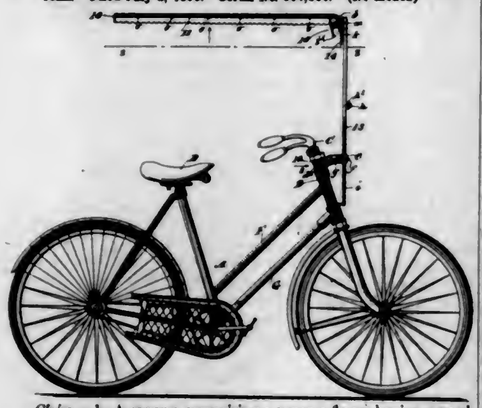


Claim.—1. In a machine for removing seeds from raisins, the combination of a rotary pin-cylinder and a presser-roll to impale the fruit upon the pins with rotary scraper-blades to remove the projected seeds.

2. In a machine for removing seeds from raisins and other such fruit, the combination of a rotary pin-cylinder, and a presser-roll to impale the fruit upon the pins, with rotary scraper-blades set at an angle or spirally, to remove the projected seeds.

3. In a machine for removing seeds from raisins and other such fruit, the combination of a pin-cylinder having the pins set at an angle backward from radial lines, with means for impaling the fruit upon the pins, means for removing the projected seeds, and blades lying between the rows of pins, to remove therefrom the seeded fruit, all substantially as described.

575,182. CANOPY FOR BICYCLES. THOMAS THOMPSON, Danbury, Conn., assignor of one-half to Charles B. Hatch, New Fairfield, Conn. Filed July 2, 1896. Serial No. 597,808. (No model.)



Claim.—1. A canopy, comprising a cover, a frame having spaced depending limbs at one end, a standard, and a lever pivoted on the standard and having a transverse head-bar provided with vertical openings adapted to receive the depending limbs of the frame, substantially as specified.

2. A canopy, comprising a flexible cover, a two-part frame having its parts jointed together at one end and having depending limbs at the other end, means to detachably secure the cover on the frame, a standard, and a lever pivoted on the standard and having a transverse head-bar provided with vertical openings to receive the depending limbs of the frame, substantially as specified.

3. A canopy, comprising an oblong flexible cover, a two-part oblong frame having its parts jointed together at one end and provided with spaced depending limbs at the opposite end, means to detachably secure the cover on the said frame, a standard, and a lever pivoted on the said standard near one end and having a transverse head-bar provided with enlargements at or near each end, the said enlargements being perforated vertically and adapted to receive the spaced depending limbs of the said frame, substantially as specified.

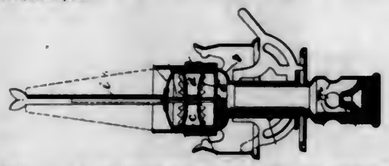
4. In a canopy, the combination with a flexible cover, a supporting-frame therefor having spaced limbs at one end, and rings secured to the under side of the cover at the sides and at one end thereof, and adapted to slide upon the frame over the ends of the limbs, the said rings being secured to the cover at spaced distances apart and at a sufficient distance from the edge thereof to form a depending curtain, of loose rings on the frame at one end and open rings secured to the inner surface of the cover at a corresponding end thereof and adapted for a detachable connection with the adjacent loose rings on the frame, substantially as specified.

5. The combination with an upright standard, of a rockable plate, pivotally connected at its central portion with the said standard near the upper end of the latter, the said rockable plate being formed at its ends with downwardly and rearwardly extending arms, and a mirror held in a suitable frame, the said frame being pivoted at its ends on the ends of the said arms, substantially as shown and described.

6. In a device of the described construction, the bracket-clamp comprising a clasp formed in sections and adapted to embrace a post of the bicycle, one of said sections having a semicircular body portion and provided with a projecting flange at one edge and an ear at the opposite edge, a second section having a curved part of less width than that of the first section and provided with an ear on one edge for hinged connection with the ear on the first-mentioned section and formed with a joint-leaf at its opposite edge, and a third section having a curved portion and formed at one edge with a flange adapted to be secured to the flange on the first-mentioned section and having on the opposite edge a joint-leaf corresponding with the joint-leaf on the second section, and a standard-holder consisting of a perforated hub in which the standard is adjustable, the said hub being formed with a joint-leaf adapted to be adjustably secured between the joint-leaves of the said clasp, substantially as specified.

7. A canopy, comprising a cover, a frame, a standard, and a lever pivoted on the standard and supporting the frame at its upper end, whereby the said frame may be readily inclined to tilt the canopy by the lateral movement of the depending portion of the said lever, substantially as specified.

575,183. BURNER FOR INCANDESCENT GAS-LIGHTS. RICHARD VIOLET, Berlin, Germany, assignor to Louis H. Hall, Philadelphia, Pa. Filed Jan. 2, 1896. Serial No. 574,137. (No model.) Patented in Belgium Feb. 16, 1895, No. 114,140, and in Luxemburg Feb. 20, 1895, No. 2,241.



Claim.—1. In an incandescent gas-burner, the combination of the burner-tube, a box or casing secured thereon and having a perforated bottom and a sieve top, a pin centrally traversing said box, a stationary mixing device within the casing, consisting of a blade-provided fan carried by said pin and fitting non-rotatively within the box, a tube or rod carried on the upper end of the pin to hold the incandescent body, and a ring to secure the lower end of the incandescent body against lateral displacement, substantially as described.

2. In an incandescent gas-burner, the combination of the burner-tube, a box or casing secured thereto and having openings at top and bottom, a central pin within the box supported at top and bottom of the latter, a stationary mixing device within the box, consisting of a blade-provided fan carried by the pin, a tube or rod carried on the upper end of the pin to hold the incandescent body, and a hinged ring for securing the lower end of the incandescent body against lateral displacement, substantially as described.

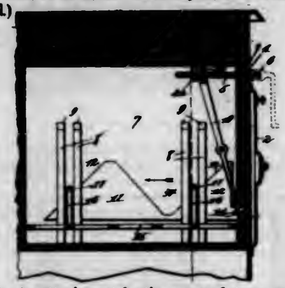
575,184. COMBINED STOOL AND BICYCLE-SADDLE. GEORGE VOELKER, Somerville, Mass. Filed Aug. 4, 1896. Serial No. 601,591. (No model.)

Claim.—1. The combination with the tubular upright A and saddle or seat of a bicycle; of a saddle-supporting head or bar provided with a plurality of pairs of ears in close proximity to each other; a shank made in a plurality of parts, divided longitudinally, and each pivoted to a separate pair of said ears, and arranged to contact with each other and fit into the socket of said tubular upright, and to be movable about their pivots when removed from said socket; and means for adjustably and removably securing said saddle to said head or bar.



2. As an article of manufacture, the combination of a bicycle-saddle provided with a clip or socket to receive its supporting-bar; the bar C provided with a plurality of pairs of ears *e*, *e*; a shank formed of a plurality of parts *c*, *c*, each pivoted to a separate pair of said ears, and arranged to contact with each other, or to be adjusted to divergent positions, and each having its upper end formed of two flat planes at an angle to each other, to serve as stops to limit the movement of said parts in either direction.

575,185. OVEN ATTACHMENT FOR STOVES, RANGES, &c. HENRY WEBER, St. Louis, Mo. Filed July 10, 1896. Serial No. 598,775. (No model.)



Claim.—1. An attachment for the ovens of stoves or ranges, constructed with a suitable casing, inclined surfaces arranged for movement along the side walls of said casing, a rack arranged for vertical movement within the casing, sliding connections between said rack and said inclined surfaces, and means of moving said inclined surfaces, substantially as specified.

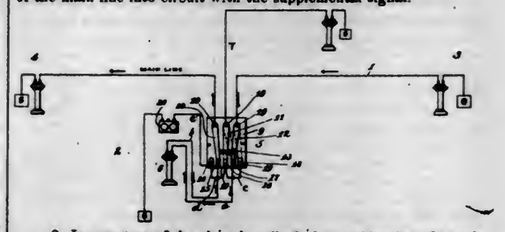
2. An attachment for the ovens of stoves or ranges constructed with a suitable casing, mating inclined surfaces arranged for movement along the inner faces of said casing, a rack arranged for vertical movement within said casing, sliding connections between said rack and said inclined surfaces, connections between said inclined surfaces whereby they are moved simultaneously and means of moving said inclined surfaces, substantially as specified.

3. An attachment for the ovens of stoves or ranges constructed with a suitable casing, a pair of plates constructed with inclined planes on their top edges arranged for movement along the side walls of said casing, a rack arranged for vertical movement within the casing, standards carried thereby, antifriction-rollers carried by the upper ends of the standards, the same riding on the inclined planes and means for moving the plates carrying said inclined planes longitudinally within the casing.

4. An attachment for the ovens of stoves or ranges constructed with a suitable casing, pairs of vertical bars located adjacent the side walls of said casing, plates arranged for movement between said bars and the side walls, which plates are constructed with pairs of inclined planes, a rack arranged for vertical movement within the casing, standards carried thereby, antifriction-rollers carried by the upper ends of said standards which ride on the inclined planes, a pair of fulcrumed levers, the lower ends of which engage with the forward ends of the plates, a screw-threaded rod passing through the wall of the stove or range, a nut located upon said screw-threaded rod, and a bar fixed to said nut, the ends of which bar are pivoted to the upper ends of the fulcrumed levers.

575,186. TELEPHONE SYSTEM. JOHN H. WECKER, Brooklyn, N. Y. Filed Mar. 7, 1896. Serial No. 582,254. (No model.)

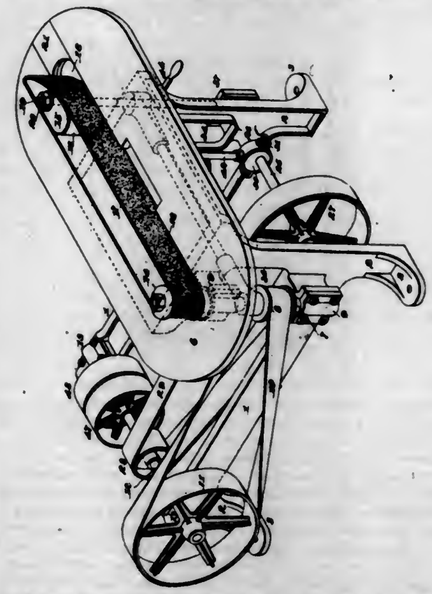
Claim.—1. In a system of the class described the combination with a main line, including in its circuit a plurality of stations each having a transmitting and receiving apparatus and a signal, of a central office normally in the circuit of the main line through the medium of a switchboard, a supplemental signal at the central office connected with the switchboard, and one or more side lines normally in circuit with said signal through the medium of the switchboard, said switchboard being adapted to throw the side line into circuit with one section of the main line and at the same time to throw the remainder of the main line into circuit with the supplemental signal.



2. In a system of the class described, the combination of a main line including a plurality of offices each having a transmitting and receiving apparatus and a signal, and a central office having a telephone instrument and a switchboard, a series of points on the switchboard in connection with the main line and the central office instrument, a second series of points on the switchboard, a supplemental signal in electrical connection with said second series of points, one or more side lines provided with telephone apparatus normally in electrical connection with the said supplemental signal through the medium of a switchboard and means for operating the switchboard to throw the side line into circuit with a section of the main line and to simultaneously place the remainder of the main line in circuit with the supplemental signal.

3 In a system of the class described, the combination with a main line provided with a plurality of stations, each having a transmitting and receiving instrument and a signal, a central office provided with transmitting and receiving instruments and a signal, a switchboard provided with points in electrical connection with the central instruments, fingers adapted to normally place the main line in circuit with the central instruments, a second series of contact-points on the switchboard, a supplemental signal at the central station in circuit with said second series, one or more side lines normally in circuit with the supplemental signal through the medium of the second points, and means for operating the switchboard to place a side line in circuit with the central instruments and a section of the main line and for simultaneously placing the remainder of the main line in circuit with the supplemental signal of the central office.

575,187. SANDING-MACHINE. LOUIS WELKER, Williamsport, Pa. Filed Mar. 12, 1896. Serial No. 582,950. (No model.)



Claim.—1. In a sanding-machine, the combination of a pulley, a stationary former, a sanding-belt extending around said pulley and former, the operative face of which belt is vertically arranged, and a table arranged adjacent to said belt and on which the work is held,

said table being cut away for the reception of said belt, substantially as set forth.

2. In a sanding-machine, the combination of a pulley, a former, means for vertically reciprocating said pulley and former, a sanding-belt extending around said pulley and former, the operative face of which belt is vertically arranged, and a table arranged adjacent to said belt and on which the work is held, said table being cut away for the reception of said belt, substantially as set forth.

3. In a sanding-machine, the combination of a pulley, a stationary former, a sanding-belt extending between said pulley and former, and means for adjusting said former, substantially as set forth.

4. In a sanding-machine, the combination of a pulley, a stationary former, a sanding-belt extending between said pulley and former, a bed-plate on which said former is held, a lever, and connections between said lever and bed-plate, substantially as set forth.

5. In a sanding-machine, the combination of a pulley, a former, a sanding-belt extending between said pulley and former, a table on which the work is held, and an adjustable section on said table adjacent to said former, substantially as set forth.

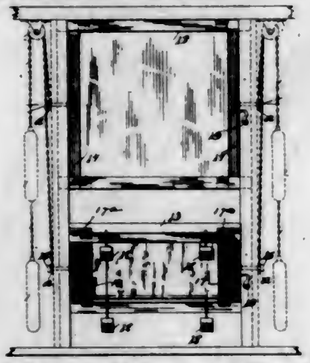
6. In a sanding-machine, the combination of a shaft 7, a pulley 14, at the upper end of said shaft, means for rotating said shaft, a reciprocating rod 36, a former 15 at the upper end of said rod, a sanding-belt extending between said pulley and former, a cross-bar connecting said shaft 7 and said reciprocating rod 36, and means for reciprocating said cross-bar, substantially as set forth.

7. In a sanding-machine, the combination of a shaft 7, a pulley 14 at the upper end of said shaft, a reciprocating rod 36, a former 15 at the upper end of said reciprocating rod, a sanding-belt extending between said pulley and former, a cross-bar connecting said shaft and said reciprocating rod, a shaft 25, eccentrics 30 mounted on said shaft, and connections between said eccentrics and said cross-bar, substantially as set forth.

8. In a sanding-machine, the combination of a shaft 7, a pulley 14 at the upper end of said shaft, a reciprocating rod 36, a bracket at the upper end of said reciprocating rod, a former 15, adjustably carried on said bracket, a sanding-belt extending between said pulley and former, and means for reciprocating said pulley and former, substantially as set forth.

9. In a sanding-machine, the combination of a shaft 7, a pulley 14 at the upper end of said shaft, a reciprocating rod 36, a bracket at the upper end of said reciprocating rod, a bed-plate adjustably mounted in said bracket, a former 15 removably mounted on said bed-plate, a sanding-belt extending between said pulley and former, and means for reciprocating said pulley and former, substantially as set forth.

575,188. WINDOW. MARY WEST, Birmingham, Ala. Filed Feb. 29, 1896. Serial No. 581,289. (No model.)



Claim.—1. In a window, the combination with a casing having two vertically-extending slots, of bolts respectively movable in the slots, a sash pivotally connected with the bolts, weighted chains also connected with the bolts, a locking-cleat slidable on the sash and capable of engaging the casement to hold the sash from rotation, and a block flexibly connected with the sash and capable of engaging the locking-cleat to hold the same in position, substantially as described.

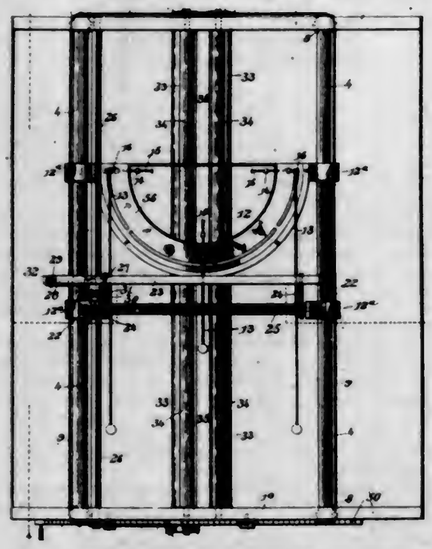
2. In a window, the combination with a window-frame having two vertical slots and two vertical grooves, of bolts respectively movable in the slots, a window-sash pivotally connected with the bolts and having slots at each end of its upper portion, two locking-cleats, the ends of which are reduced and respectively fitted within the slots, the locking-cleats being capable of movement on the sash to extend into the grooves, and blocks flexibly connected with the sash and capable of engaging the locking-cleats to hold the same in position, substantially as described.

3. The combination with a window-casement having grooves in its stiles, and two longitudinal slots therein, of sashes having opposite pivot-bolts slidable in the slots of the casement, weighted flexible connections, rings in the ends of said connections engaging the pivot-bolts, locking-cleats having lateral joint-facings and adapted to be moved into and out of the casement-grooves, and means for detachably securing the locking-cleats in the grooves, substantially as described.

575,189. MANUFACTURE OF SAPONACEOUS PRODUCTS FROM PETROLEUM. CHARLES WEYGANG, Romsey, England. Filed Dec. 28, 1894. Serial No. 533,211. (No specimens.) Patented in England Feb. 12, 1894, No. 3,025, and Dec. 10, 1894, No. 23,996; in Belgium Dec. 10, 1894, No. 113,137; in France Dec. 10, 1894, No. 243,535; in Germany Dec. 11, 1894, No. 89,145; in Cape of Good Hope Jan. 23, 1895, No. 6/224; in Transvaal Jan. 25, 1895, No. 790; in Italy Jan. 29, 1895, LXXIV, 319; in Victoria Feb. 7, 1895, No. 11,998; in New South Wales Feb. 9, 1895, No. 5,603; in South Australia Feb. 11, 1895, No. 2,865; in Spain Mar. 4, 1895, No. 16,867; in India Apr. 2, 1895, No. 32; in Hungary July 11, 1895, No. 3,196; in Austria Sept. 16, 1895, 45/3,310; in Canada Nov. 13, 1895, No. 50,571, and in Russia June 30, 1896, No. 15,562.

Claim.—The herein-described process for the production of a saponaceous liquid, which consists in dissolving resin in warm petroleum, treating the solution with alkali in small quantities under continuous energetic stirring until partial saponification is effected and the impurities in the resin and lye are precipitated, then settling and drawing off the supernatant clear liquid, and then proceeding with saponification in the cold until there is some precipitate that does not dissolve on agitation, and finally pouring off the saponaceous liquid, substantially as described.

575,190. TYPE-WRITING MACHINE. LINCOLN E. WILKES, Hillsborough, Oreg. Filed Jan. 17, 1896. Serial No. 575,903. (No model.)



Claim.—1. In a type-writing machine, the combination with a stationary base, of a main frame having carriage-guides, supports for connecting the main frame to the base, paper-feed rolls mounted upon the frame parallel with the base, and means for adjusting the frame to vary the interval between the feed-rolls and the base, substantially as specified.

2. In a type-writing machine, the combination with a stationary base, of a frame having guides for supporting a carriage and printing mechanism, standards connected to the frame, and feed-nuts seated upon the base and engaging threaded portions of the standards, substantially as specified.

3. In a type-writing machine, the combination with a stationary base, of a frame supporting printing mechanism, standards connected to the frame, feed-nuts seated upon the base and engaging threaded portions of the standards, and an endless chain traversing chain-wheels secured to the feed-nuts, substantially as specified.

4. In a type-writing machine, the combination of a frame and carriage-guides arranged transverse to the line of writing, a carriage mounted upon said guides and carrying printing mechanism, paper-feed rolls mounted in the frame with their axes transverse to the line of writing, and letter and word spacing mechanism connected to the feed-rolls to impart a step-by-step rotary movement thereto, substantially as specified.

5. In a type-writing machine, the combination with a frame having carriage-guides arranged transverse to the line of writing, a carriage mounted upon said guides and carrying printing mechanism, main lower feed-rolls mounted in the frame with their axes transverse to the line of writing, auxiliary upper rolls, a stationary platen or printing-surface arranged between the main or lower feed-rolls, and letter and word spacing mechanism for imparting a step-by-step rotary movement to the feed-rolls, substantially as specified.

6. In a type-writing machine, the combination with a frame having carriage-guides, a carriage mounted upon said guides and carrying printing mechanism, paper-feed rolls mounted upon the frame transverse to the line of writing, a longitudinally-movable spring-actuated rack meshing with a gear on one of the feed-rolls and provided with ratchet-teeth, a spring-actuated stop-dog engaging the rack-teeth, an operating-pawl having a tooth to engage the ratchet-teeth and a trip-finger to disengage the stop-dog when its tooth is brought into engagement with the ratchet-teeth, and means for communicating motion from the printing mechanism to the operating-pawl, substantially as specified.

7. In a type-writing machine, the combination with a frame having carriage-guides, a carriage mounted upon said guides and carrying printing mechanism, paper-feed rolls mounted upon the frame and provided at one end with gears, a longitudinally-movable rack-bar meshing with the gears, said rack-bar carrying ratchet-teeth, a storage spring operatively connected with one of the paper-feed rolls and adapted through one of said gears to communicate longitudinal movement to the rack-bar, a spring-actuated stop-dog arranged in operative relation with the rack-teeth, an operating-pawl having a tooth adapted to engage the ratchet-teeth and provided with a trip-finger to disengage the stop-dog from the rack-teeth, and operating connections between the printing mechanism and the pawl, substantially as specified.

8. In a type-writing machine, the combination of a frame having carriage-guides, a carriage mounted upon said guides and carrying printing mechanism, a rock-shaft mounted in the frame parallel with the carriage-guides, a spacing-lever mounted to slide upon the rock-shaft and connected to the carriage to prevent independent longitudinal movement thereof, connections between the key-levers and said spacing-lever whereby the depression of a key-lever causes the oscillation of the spacing-lever and a corresponding movement of the rock-shaft, paper-feed rolls mounted upon the frame, and mechanism connecting the rock-shaft to the paper-feed rolls, substantially as specified.

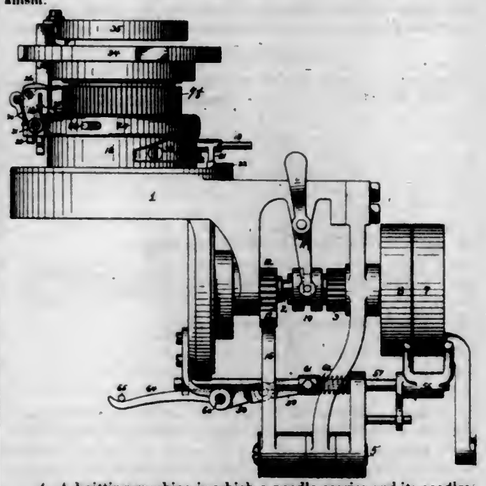
9. In a type-writing machine, the combination of a frame having carriage-guides, a carriage mounted upon said guides and carrying printing mechanism including key-levers, a space-bar arranged in the paths of the key-levers, a rock-shaft supporting the space-bar, a second rock-shaft arranged parallel with the carriage-guides, a spacing-lever mounted to slide upon said second rock-shaft and operatively connected with the space-bar, said spacing-lever being connected to the carriage to prevent independent longitudinal movement thereof, paper-feed rolls mounted upon the frame parallel with the carriage-guides, and mechanism for communicating motion from the rock-shaft to the paper-feed rolls, substantially as specified.

575,191. PICKER-OPERATING MECHANISM FOR KNITTING-MACHINES. LOUIS N. D. WILLIAMS, Ashbourne, Pa., assignor of one-half to Robert W. Scott, Philadelphia, Pa. Filed Dec. 14, 1895. Serial No. 572,114. (No model.)

Claim.—1. A knitting-machine in which a needle-carrier and its needles, a cam-carrier and provision for operating the latter, are combined with needle-picking devices comprising two elements, namely, a picker-carrier frictionally mounted upon the cam-carrier and having a needle-lifting picker and a needle-depressing picker, and cam mechanism mounted upon the cam-carrier so as to travel therewith, one of said elements being adjustable in respect to the other whereby either the lifter or depressor can be operated.

2. A knitting-machine in which a needle-carrier and its needles, a cam-carrier and provision for operating the latter, are combined with needle-picking devices comprising a picker-carrier frictionally and adjustably mounted upon the cam-carrier, and having a needle-lifting picker and a needle-depressing picker, and cams traveling with the cam-carrier, one for raising the needle-lifter and the other for lowering the needle-depressor.

3. The combination in a knitting-machine, of a needle-carrier and its needles, a cam-carrier, provision for operating the latter, knitting-cams and needle-picking mechanism adjustable one in respect to the other in the direction of movement of the movable carrier, such adjustment being independent of that required to effect the successive picking of the needles, and independent cams, one for acting on the pickers during the widening operation and the other for acting on the pickers during the narrowing operation, whereby in picking the needles out of action the picking mechanism may be caused to act in advance of the knitting-cams, while in picking needles into action the knitting-cams may be caused to act in advance of the picking mechanism.



4. A knitting-machine in which a needle-carrier and its needles, a cam-carrier, and provision for operating the latter, are combined with a picker-carrier frictionally mounted upon the cam-carrier, and having a needle-lifting picker and a depressing-picker, a cam structure traveling with the cam-carrier, and an adjustable stop whereby the relations of the picker-carrier and cam mechanism may be changed.

5. A knitting-machine in which a needle-cylinder and its needles, a cam-cylinder, and provision for operating the latter, are combined with a picker-ring frictionally mounted upon said cam-cylinder and having a needle-lifting picker and needle-depressing picker, cams on the cylinder for raising the lifter and lowering the depressor, and a movable stop for arresting the movement of the picker-ring with the cam-cylinder.

6. A knitting-machine in which are combined a needle-cylinder and its needles, a cam-cylinder, provision for operating the latter, a picker-ring frictionally mounted upon said cam-cylinder and having a needle-lifting picker and a needle-depressing picker, cams on the cam-cylinder for raising the lifter and lowering the depressor, a pair of pins projecting from the picker-ring, and a stop movable into and out of range of said pins.

7. A knitting-machine in which are combined a needle-carrier and its needles, a cam-carrier, a picker-carrier frictionally mounted upon said cam-carrier and having a needle-lifting picker and a needle-depressing picker, cam mechanism on the cam-carrier for raising the lifter and lowering the depressor, a stop for varying the relation of said cam mechanism and pickers, a cam-disk, intervening devices whereby said cam-disk is caused to actuate said stop, and provision for operating the cam-carrier and cam-disk.

8. A knitting-machine in which are combined a needle-carrier and its needles, a cam-carrier, a picker-carrier having a needle-lifting picker and a needle-depressing picker, cam mechanism on the cam-carrier for raising said lifter and lowering said depressor, a movable stop whereby the relation of said cam mechanism and the pickers can be varied, a belt-shifter, a cam-disk, devices whereby said disk is caused to actuate said stop, devices whereby one of the cams of the disk is caused to operate the belt-shifter, and provision for actuating the cam-carrier and cam-disk.

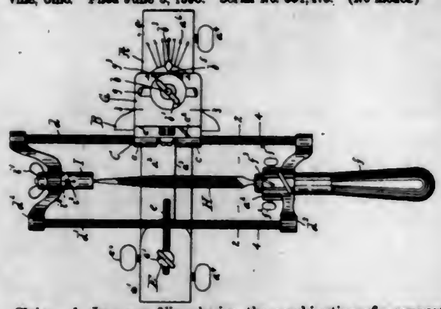
9. A knitting-machine in which are combined a needle-cylinder and its needles, a cam-cylinder, a picker-ring frictionally mounted upon said cylinder and having a needle-lifting picker and a needle-depressing picker, cam mechanism on the cam-cylinder for raising said lifter and lowering said depressor, an adjustable stop for varying the relation of said cam mechanism and the pickers, a cam-disk for operating said stop, rotating and reciprocating devices for the cam-cylinder of the machine, and two sets of ratchet-and-pawl mechanism for operating said cam-disk, one of said mechanisms being operated by the rotating devices of the machine, and the other being operated by the reciprocating devices of the machine.

10. A knitting-machine in which a needle-carrier and its needles, and cams for actuating said needles so as to cause them to form stitches, are combined with needle-picking mechanism comprising a

lifter and a depressor, with a lifter-cam for the picker located in the same radial plane as the knitting-cams, substantially as specified.

11. A knitting-machine in which the needle-carrier and its needles, and cams for actuating said needles so as to cause them to form stitches, are combined with needle-picking mechanism comprising a lifter and depressor, a cam for operating the lifter located in the same radial plane as the knitting-cams, and a cam for operating the depressor located in a different radial plane, substantially as specified.

575,192. SAW-FILING DEVICE. MILFORD J. WILSON, Painesville, Ohio. Filed June 3, 1895. Serial No. 551,475. (No model.)



Claim.—1. In a saw-filing device, the combination of a support-leg-plate, an oscillatory file-frame support loosely pivoted on a horizontal pivot, and an adjustable stop carried by one part and adapted to engage with the other, which permits the oscillation of the file-frame support upon its pivot and determines the extent of such oscillation in one direction, with a file-carrying frame which reciprocates in said file-frame support, substantially as and for the purpose specified.

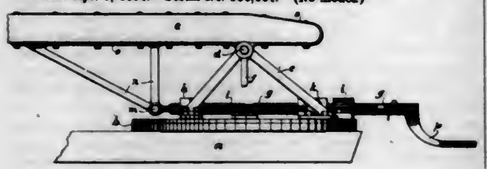
2. In a saw-filing device, the combination of a base, a plate B pivoted thereto on a vertical axis, a horizontally-movable plate G carried by the plate B, and means for fixing the positions of said plates relative to each other and to the base, with an oscillatory file-frame support pivoted on a horizontal pivot to the plate G, and a file-carrying frame, which reciprocates in said support, substantially as and for the purpose specified.

3. In a saw-filing device, the combination of a base, a plate B pivoted thereto on a vertical axis, a horizontally-movable plate G carried by and adjustable upon the plate B, and means for fastening said two plates in the desired relative positions, with a file-frame support loosely pivoted to said plate G, a file-carrying frame having two rods *d d'*, one of which reciprocates in said support, and a vertically-adjustable post with which the other rod engages to regulate the depth, said parts being combined substantially as described, whereby the pivot of the file-frame support may be brought into line with the said post and the pivot of the plate B.

4. In a saw-filing device, the combination of a base, a plate B pivoted thereto on a vertical axis, said plate and base having graduations by means of which the said plate may be turned to any desired angle to its normal position on said base, a horizontally-movable plate G carried by said plate B, said two plates having graduations which coöperate with the graduations first named to position the plate G in proper relation to the pivot of plate B and to the post E, and means for fastening the plates B and G in the desired positions, with an oscillatory file-frame support pivoted loosely to the plate G, a file-carrying frame having two rods *d d'*, one of which reciprocates in said support, and a vertically-adjustable post with which the other file-frame rod engages, substantially as and for the purpose specified.

5. In a saw-filing device, in combination, a base adapted to be secured to the saw, a horizontally-movable plate B pivoted to the base, an adjustable plate G carried by said plate B and having a slot, a bolt *b* which passes through said slot and serves as the pivot to the plate B, a nut on said bolt, an oscillating file-frame support pivoted to said plate G, and a file-frame which reciprocates in said file-frame support, substantially as and for the purpose specified.

575,193. LADDER-TRUCK. WILLIAM WRIGHT, Elmira, N. Y. Filed Apr. 3, 1896. Serial No. 586,061. (No model.)



Claim.—1. In a turn-table truck, the combination of a screw supported upon the turn-table, a traveling nut upon the screw, a ladder pivoted to the turn-table above the screw, braces depending from the ladder at the rear of its pivotal point and connections between the braces and the traveling nut whereby the pressure upon said nut shall be in the direction of the axis of the screw when the ladder is in its lowest position.

2. In a turn-table truck, the combination of a right-and-left screw, a nut for one of its threads rigidly attached to the turn-table, a journal-box for the shank of the screw also attached to the turn-table, a traveling nut on the other thread of the screw, a ladder pivoted to the turn-table above the screw, braces depending from the sides of the ladder at the rear of its pivotal points and having their extremities on a line with the axis of the screw when the ladder is in its lowest position, and connecting-rods between said extremities and the traveling nut.

575,194. METHOD OF MAKING GAS-INCANDESCENT MANTLES. ROBERT ALEXANDER, GEORGE F. PAYNE, and CHARLES H. MANN, Philadelphia, Pa., assignors to Louis H. Hall, same place. Filed Mar. 28, 1896. Serial No. 585,253. (No specimens.)



Claim.—1. A method of making gas-incandescent mantles, which consists in forming a tubular fabric having a central portion thickened or reinforced, saturating its opposite ends with differently-prepared solutions of the metallic salts of refractory earths which are suitable when oxidized for an incandescent, contracting the central thickened portion by encircling it with constricting means, then turning the fabric telescopically upon itself to produce a double mantle, and then applying heat to destroy the textile fabric and leave the infusible earthy oxids in the form of a double skeleton mantle.

2. A method of making gas-incandescent mantles, which consists in forming a tubular fabric having a central portion thickened or reinforced, saturating its opposite ends with differently-prepared solutions of the metallic salts of refractory earths which are suitable when oxidized for an incandescent, then turning the fabric telescopically upon itself to produce a double mantle, and then applying heat to destroy the textile fabric and leave the infusible earthy oxids in the form of a double skeleton mantle.

3. A method of making gas-incandescent mantles, which consists in forming a tubular fabric having a central thickened portion, saturating its opposite ends with differently-prepared solutions of the metallic salts of refractory earths which are suitable when oxidized for an incandescent, contracting said central portion by encircling it with a cord or equivalent device, turning one part telescopically upon the other, and thereby forming an integral double mantle, securing the free edges of the telescoped parts, and then applying an outer constricting-cord to the folded end, and then applying heat to destroy the textile fabric and leave the infusible earthy oxids in the form of a double skeleton mantle.

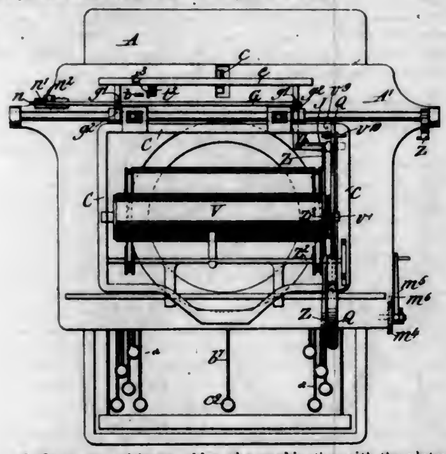
4. A method of making gas-incandescent mantles, which consists in forming a tubular fabric, saturating its opposite ends with differently-prepared solutions of the metallic salts of refractory earths, which are suitable when oxidized for an incandescent, turning it telescopically upon itself to produce a double mantle, and then applying heat to destroy the fabric and leave the infusible skeleton oxid.

5. A method of making gas-incandescent mantles, which consists in forming a tubular fabric having a central portion thickened or reinforced, saturating it with a solution of the metallic salts of mineral earths suitable when oxidized for an incandescent, turning it telescopically upon itself to produce a double mantle, uniting the free adjoining edges of the fabric, and then applying heat to destroy the fabric and leave an infusible skeleton oxid.

6. A method of making gas-incandescent mantles, which consists in forming a tubular fabric, saturating its opposite ends with differently-prepared solutions of the metallic salts of refractory earths which are suitable when oxidized for an incandescent, then turning the fabric telescopically upon itself to produce a double mantle, and then applying heat to destroy the textile fabric and leave the infusible earthy oxids in the form of a double skeleton mantle.

575,195. TYPE-WRITING MACHINE. NEAL L. ANDERSON, Montgomery, Ala. Filed Feb. 7, 1896. Serial No. 578,207. (No model.)

Claim.—1. In a type-writing machine, the combination with the platen-carriage, of a power-wheel having cog-teeth upon a portion of its periphery, a shaft upon which said wheel is loosely mounted, a volute spring connecting the wheel and shaft, a band-wheel mounted loosely on the shaft and connected to the carriage by a flexible band, a fixed pin on the power-wheel, a cooperating movable pin upon the band-wheel, a trip for moving the movable pin out of line with the fixed pin, a toothed bar connected with the carriage, and a pinion engaging the toothed bar and located in the path of movement of the power-wheel teeth; substantially as described.



2. In a type-writing machine, the combination with the platen-carriage, toothed power-wheel, and band-wheel, said power-wheel and band-wheel being coupled by a fixed pin and coöperating movable pin, of a trip for the movable pin consisting of a crescent-shaped arm, normally out of line with the movable pin, a lever-arm fulcrumed to the frame of the machine and upon whose free end the crescent-shaped arm is mounted, and a key for advancing said crescent-shaped arm to trip the movable pin; substantially as described.

3. In a type-writing machine, the combination with the platen-carriage, toothed power-wheel, and band-wheel, said power-wheel and band-wheel being coupled by a fixed pin and coöperating movable pin, of a trip for the movable pin consisting of a crescent-shaped arm, normally out of line with the movable pin, a lever-arm fulcrumed to the frame of the machine and upon whose free end the crescent-shaped arm is mounted, and a key for advancing said crescent-shaped arm to trip the movable pin, said key being connected to the lever-arm at a point intermediate of the fulcrum of said lever-arm and the crescent-shaped arm; substantially as described.

4. In a type-writing machine, the combination with the platen-carriage of a power-wheel mediately coupled thereto at the initial position of the carriage, a trip for disengaging the coupling, gearing intermediate of the power-wheel and carriage adapted to intermesh and return the carriage, upon the operation of the trip, auxiliary power-storage mechanism for supplying energy to said power-wheel with each return of the carriage, means for regulating said supply so as to restore to the power-wheel on each return of the carriage its original energy, said means consisting of a cam-wheel on the master-shaft of the power-wheel, a stop engaging therewith, and a trip in the path of the return movement of the carriage and means for regulating the tension of the spring on the power-wheel, said means consisting of a spring-pressed pawl on the surface of the cam-wheel and a ratchet-wheel engaging with said pawl, on the master-shaft of the power-wheel; substantially as described.

5. In a type-writing machine, the combination with the master-shaft of the power-wheel, of a cam-wheel loose on the shaft, a spring-pressed pawl on the surface of said cam-wheel, and a ratchet fastened to the master-shaft and engaging with said pawl, said cam-wheel engaging with the pinion-wheel of a fan-governor; substantially as shown and described.

6. In a type-writing machine, the combination with the platen-carriage, of a power-wheel mediately coupled thereto, at the initial position of the carriage, a trip for engaging the coupling, gearing intermediate of the power-wheel and carriage, adapted to intermesh and return the carriage to the beginning of the line on the operation of the trip, and auxiliary power-storage mechanism for supplying with each return of the carriage energy sufficient both to forward the carriage and reverse it, said mechanism consisting of a spring-motor, geared to the said power-wheel by means of an endless chain and sprocket-wheels on the master-shaft of the power-wheel and the shaft of the spring-motor respectively; substantially as described.

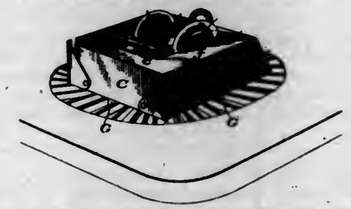
7. In a type-writing machine, the combination with the platen-carriage, of a power-wheel mediately coupled thereto, at the initial position of the carriage, a trip for engaging the coupling, gearing intermediate of the power-wheel and carriage, adapted to intermesh and return the carriage to the beginning of the line on the operation of the trip, and auxiliary power-storage mechanism for supplying with each return of the carriage energy sufficient both to forward the carriage and reverse it, said mechanism consisting of a spring-motor, geared to the said power-wheel by means of an endless chain and sprocket-wheels on the master-shaft of the power-wheel and the shaft of the spring-motor respectively, said main shaft of the spring-motor being connected with a key-winding rod having a hand-lever, by means of bevel-gear, the gear on the main shaft being smaller than the gear on the winding-lever, whereby the number of revolutions needed to wind the spring-motor is reduced; substantially as described.

8. In a type-writing machine, the combination with the platen-carriage, toothed power-wheel, and band-wheel, said power-wheel and band-wheel being coupled by a fixed pin and coöperating movable pin, of a trip for the movable pin consisting of a crescent-shaped arm, normally out of line with the movable pin, and a key for advancing said crescent-shaped arm and causing it to trip the movable pin, and a brake-shoe likewise connected with said key and brought into action simultaneously with the operation of said trip, said brake-shoe being mounted to swing in a plane transverse to the power-wheel so as to bear upon the flat surface of the wheel: substantially as described.

9. In a type-writing machine, the combination with the platen-carriage, toothed power-wheel, and band-wheel, said power-wheel and band-wheel being coupled by a fixed pin and coöperating movable pin, of a trip for the movable pin consisting of a crescent-shaped arm, normally out of line with the movable pin, and a key for advancing said crescent-shaped arm and causing it to trip the movable pin, and a brake-shoe likewise connected with said key and brought into action simultaneously with the operation of said trip, said brake-shoe being mounted to swing in a plane transverse to the power-wheel so as to bear upon the flat surface of the wheel, the wheel being roughened upon the surface on which the brake-shoe bears; substantially as described.

10. In a type-writing machine, the combination with the trip for the spacing rack-bar, of a releasing hand-lever adapted to operate the trip, a lever and driving-pawl for the platen-ratchet, the tail of the driving-pawl being located in the path of movement of the releasing hand-lever, whereby the rack-bar can be released from the escapement-dogs, and the carriage moved either back and forth on the line or to the begining of the line and the driving-pawl simultaneously thrown out of engagement with the ratchet, so that the platen cannot be automatically actuated during said movement; substantially as described.

575,196. SAD-IRON HEATER. STEPHEN ARLETH, Holland, Mich. Filed Mar. 18, 1896. Serial No. 583,729. (No model.)



Claim.—1. The improved sad-iron heater herein described having its front open and its top provided with an opening leading to said front, the hinged lid having a drop-flange closing the open front and provided near said flange with lateral stop portions and having the edge openings for the handles and the pivoted legs all substantially as and for the purpose described.

2. The improved sad-iron heater herein described having its front open and its top provided with an opening leading to said front, the hinged lid having a drop-flange closing the open front and provided near said flange with lateral stop portions having the edge openings for the handle all substantially as and for the purposes set forth.

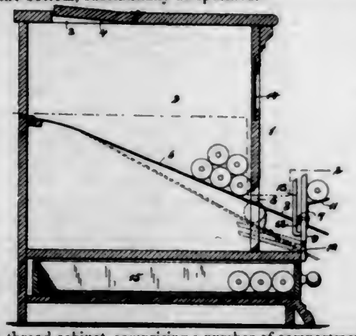
3. A sad-iron heater comprising the holder adapted to receive the iron and the legs pivoted to said holder and adapted to be turned up alongside said holder or down below the same to engage the meshes or slats of the stove-top substantially as shown and described.

575,197. THREAD-CABINET. JOHN S. ARMSTRONG, Burleson, Tex. Filed July 8, 1896. Serial No. 598,440. (No model.)

Claim.—1. A spool-cabinet, comprising a number of compartments, each compartment having a swinging bottom wall extended through a front opening in the cabinet, a swinging spool-receiver operated by said bottom wall, and means for automatically moving said bottom wall to its closed position, substantially as specified.

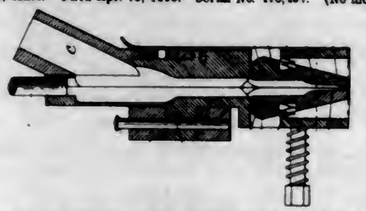
2. A thread-cabinet, comprising a number of compartments, each compartment having a downwardly and outwardly inclined bottom wall secured to the rear portion of the cabinet, a spool-receiver

extended through a slot-opening in said bottom wall, the lower end of the said receiver being pivoted, a bridge extended across the slot of the bottom wall extending through a longitudinal slot in the receiver, and a stop within each receiver for limiting the upward movement of the bottom, substantially as specified.



3. A thread-cabinet, comprising a number of compartments each having an opening through the front wall of the cabinet, a bottom wall of resilient metal for each compartment, the said bottom wall being extended downward and outward through the opening from the compartment, a pivoted spool-receiver extended upward through a slot-opening in the bottom wall, a bridge attached to the bottom wall and extended through a slot-opening in the receiver, a stop on the receiver to engage the bridge, and a lug or projection on the outer side of the receiver, substantially as set forth.

575,198. NAIL-FEEDING CHUCK. BENJAMIN S. ATWOOD, Whitman, Mass. Filed Apr. 15, 1893. Serial No. 470,497. (No model.)



Claim.—The combination of a chuck, one part of which is fixed to the machine and the other part yieldingly attached whereby the said chuck may be readily opened and when the obstructions are removed, closed without the aid of tools; with automatically-adjusting auxiliary nail-guiding jaws pivotally attached to the above-mentioned parts of the chuck and having between them a coned nailway adapted to form a cylindrical passage for directing the nail, substantially as and for the purpose set forth.

575,199. ORTHOPEDICAL APPLIANCE. WILLIAM AUTENRIETH, Cincinnati, Ohio. Filed June 1, 1896. Serial No. 593,771. (No model.)

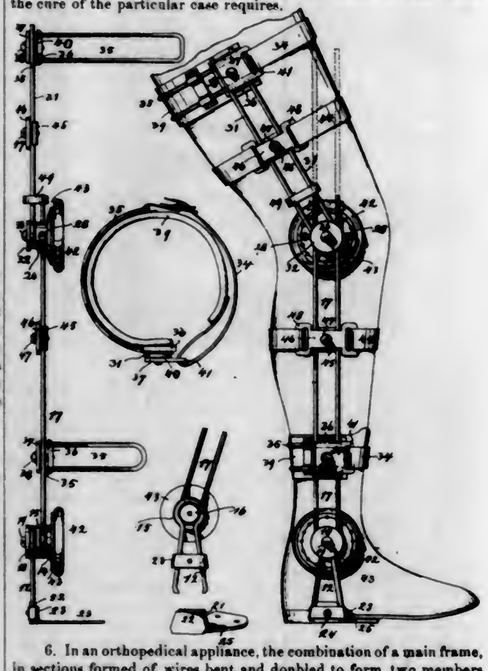
Claim.—1. In an orthopedical appliance, the combination of a main frame formed of wire rods and in sections corresponding with the parts of the leg, such sections articulated in correspondence with the joints of the leg, the position of the knee-joint being adjustable on the frame, means to hold the appliance in position and means whereby any special devices which the cure of the particular disorder requires, are connected to the main frame.

2. In an orthopedical appliance, the combination of a main frame formed of wire rods and in sections corresponding with the parts of the leg, such sections articulated in correspondence with the joints of the leg, means whereby the frame may be made rigid at the knee-joint, and means to hold the appliance in position.

3. In an orthopedical appliance, the combination of a main frame formed in sections constructed of wires 12, 17 and 31, bent and doubled to form two members for each section, bosses at the turns of the wires and adjoining ends of the sections to form the pivotal points of a flexible joint thereat, washers to hold the wires to the bosses at the joints, and means to hold the appliance in position.

4. In an orthopedical appliance, the combination of a main frame formed of wire rods and in sections corresponding with the parts of the limb, such sections articulated in correspondence with the joints of the limb, and clamping devices adapted to be connected to the wire members and adjustable in position thereon, to receive the means whereby the appliance is held in position, as well as those special devices which the cure of the particular case requires.

5. In an orthopedical appliance, the combination of a main frame in sections, formed of wires 12, 17 and 31, bent and doubled to form two members for each section, bosses at the turns of the wires and adjoining ends of the sections to form the pivotal points of a flexible joint thereat, washers to hold the wires to the bosses at the joints and clamping devices adapted to be connected to the wire members and adjustable in position thereon to receive the means whereby the appliance is held in position, as well as those special devices which the cure of the particular case requires.



6. In an orthopedical appliance, the combination of a main frame, in sections formed of wires bent and doubled to form two members or rods for each section, a foot-section 12, a plate 25 secured to the shoe-sole, an upright plate 22 grooved at its edges to receive the members of wire 12, a sleeve 23 to hold the latter in place on plate 22 and in the grooves thereat and clamping devices adapted to be connected to the wire members and adjustable in position thereon, to receive the means whereby the appliance is held in position, as well as those special devices which the cure of the particular case requires.

7. In an orthopedical appliance, the combination of the main frame in sections formed of wires bent and doubled to form two members or rods for each section, a foot-section 12 secured to the shoe, a section 17 for the lower leg, a boss 13 which receives the wire of the latter section, a flanged boss 16 which receives the lowest or foot section and at the same time holds section 17 in place, a top washer and screw connection whereby the two bosses with the ends of the sections are held together and clamping devices adapted to be connected to the wire members and adjustable in position thereon, to receive the means whereby the appliance is held in position, as well as those special devices which the cure of the particular case requires.

8. In an orthopedical appliance, the combination of the main frame in sections formed of wires bent and doubled to form two members or rods for each section, a foot-section 12 secured to the shoe, a section 17 for the lower leg, the two connected by a flexible joint, an upper leg-section formed by a wire 31, a boss 26 which receives the upper end of the lower leg-section, a boss 29 which receives the lower end of the upper leg-section, the two bosses being connected to each other, one of the sections only being capable of turning on its boss while between the other section and its boss, a sliding movement is obtained for the purpose of adjusting position of the joint, a top washer and screw connection which completes the joint and clamping devices adapted to be connected to the wire members and adjustable in position thereon, to receive the means whereby the appliance is held in position as well as those special devices which the cure of the particular case requires.

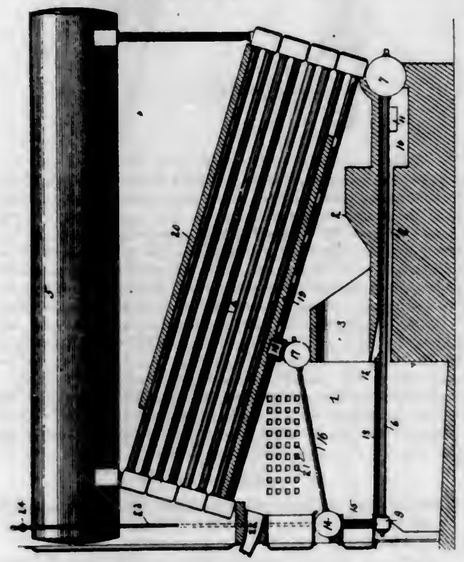
9. In an orthopedical appliance, the combination of a main frame in sections formed of wires bent and doubled to form two members or rods for each section, the sections being connected by articulated joints and clamping devices consisting of top and bottom plates and a screw connection whereby the two plates are held to each other and to the wires of the sections with the latter between them, one

of the plates being provided with loops adapted to receive the straps whereby the appliance is held in place and the special devices which the cure of the particular case requires.

10. In an orthopedical appliance, the combination of a main frame, in sections formed of wires bent and doubled to form two members or rods for each section, the sections being connected by articulated joints, braces 35 also of wires and clamping devices to secure them to the main-frame sections and consisting of top and bottom plates with a screw connection whereby the two plates are held to each other and to the wires of the sections with them and the wires forming the braces between them and means whereby the special devices which the cure of the particular case requires are secured to the main frame.

11. In an orthopedical appliance, the combination of a main frame in sections formed of wires, the lower leg-section formed of a wire 17, the upper leg-section formed of a wire 31, each bent and doubled to form two members, a boss which receives the free ends of one section, the connection being an adjustable one, the said boss also forming the pivotal support for the other section and constitutes the articulated joint, means like a screw-connected washer whereby the parts of the latter are held together, a sliding catch 49 on the pivoted section adapted to engage with the free ends of the wires of the other section and clamping devices adapted to be connected to the wire members and adjustable in position thereon, to receive the means whereby the appliance is held in position, as well as those special devices which the cure of the particular case requires.

575,200. DOWNDRAFT-FURNACE. JUDSON A. BALDWIN, Chicago, Ill., assignor to George W. Hale, same place. Filed Mar. 16, 1896. Serial No. 583,366. (No model.)



Claim.—1. In a downdraft-furnace, the combination with a boiler or steam-generator and a system of circulating water-tubes feeding upwardly, of a drum located in the front part of the furnace, the water-tubes connected therewith, and connections intermediate of said drum and the top of said boiler or generator to permit the escape of steam or air from the top of the drum to the top of said boiler or generator above the water-line therein, substantially as described.

2. In a downdraft-furnace, the combination with a boiler or steam-generator and a system of circulating water-tubes feeding upwardly, of a drum located in front of the combustion-chamber and extending transversely across the chamber, the water-tubes connected to said drum, and pipes connected at or about the ends of said drum to the top thereof and extending up to and opening into the top of said boiler or generator above the water-line therein, substantially as described.

3. In a downdraft-furnace, the combination with a boiler or steam-generator and a system of circulating water-tubes, of means for cooling a portion of the lower water-tubes and supplying an upward draft of heated air to the combustion-chamber, substantially as described.

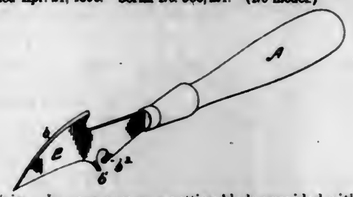
4. In a downdraft-furnace, the combination with a boiler or steam-generator and a system of circulating water-tubes, of a bridge-wall, an arch in advance of said bridge-wall, and means for maintaining a circulation of air around a portion of the lower water-tubes to cool the same and supplying an upward draft of heated air to the combustion-chamber immediately in front of said arch, substantially as described.

5. In a downdraft-furnace, the combination with a boiler or steam-generator and a system of circulating water-tubes, of a bridge-wall, an arch in advance of said bridge-wall, and air-channels formed around the water-tubes below the bridge-wall and arch, substantially as described.

6. In a downdraft-furnace, the combination with a boiler or steam-generator and a system of circulating water-tubes, of a bridge-wall, an arch in advance of said bridge-wall, the lower water-tubes passing beneath the bridge-wall and arch, air-channels formed around said water-tubes, and a chamber communicating with said air-channels and provided with openings in the side of the furnace, substantially as described.

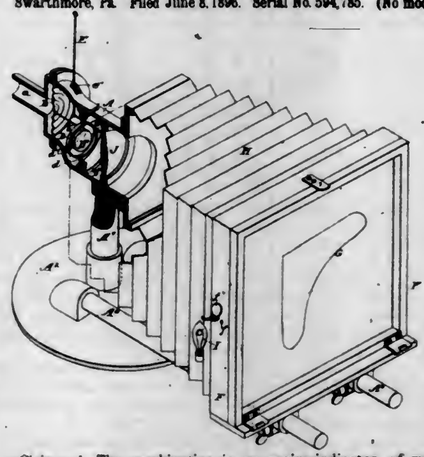
7. In a downdraft-furnace, the combination with a boiler or steam-generator, a bridge-wall and an arch in advance of said bridge-wall, of a system of circulating water-tubes, the lower water-tubes passing beneath the bridge-wall and arch and extending to the front of the furnace, dumping ash-plates arranged above the forward portions of said lower water-tubes, an air-chamber around the rear portions of said lower water-tubes and provided with openings in the side of the furnace, and air-channels around the intermediate portions of the said water-tubes communicating with the said air-chamber and adapted to supply an upward draft of heated air above the rear end of the said dumping ash-plates and immediately in front of the arch, substantially as described.

575,201. CAN-OPENER. AMOS BARNES, Detroit, Mich. Filed Filed Apr. 21, 1896. Serial No. 588,421. (No model.)



Claim.—In a can-opener, a cutting-blade provided with an upper cutting edge and with two wings projecting from the lower edge of the blade, one of said wings turned outward to traverse the outer side of the can to guide the blade, and the other turned inward to traverse the inner side of the can at the same time that the outer wing traverses the outside of the can, said inner wing adapted to follow and turn down the incut portion of the top, substantially as described.

575,202. STEAM-ENGINE INDICATOR. CHARLES H. BEDELL, Swarthmore, Pa. Filed June 8, 1896. Serial No. 594,785. (No model.)



Claim.—1. The combination in an engine-indicator, of means for projecting a beam of light, said projector being mounted so as to be capable of an angular movement, and provision whereby the va-

rying pressure in the engine-cylinder is caused to effect such angular motion of the projector, substantially as described.

2. The combination in an engine-indicator, of a mirror, means whereby the varying pressure in the engine-cylinder is caused to give the mirror an angular movement, and provision for directing a beam of light onto said mirror so as to cause it to be projected thereby, substantially as described.

3. The combination in an engine-indicator, of a mirror, means whereby the varying pressure in the engine-cylinder is caused to give the mirror an angular movement, provision for directing a beam of light onto said mirror so as to cause it to be projected thereby and a focusing-lens situated in the path of the beam of light, substantially as described.

4. The combination in an engine-indicator, of means for projecting a beam of light, said projector being mounted so as to be capable of universal movement, means whereby the varying pressure in the engine-cylinder is caused to move the projector in one direction and a connection between said projector and some reciprocating portion of the engine whereby said projector is caused to produce a corresponding motion in a direction at right angles to the movement due to the pressure, substantially as described.

5. The combination in an engine-indicator, of a mirror universally mounted, a device connected to the pressure-chamber of the engine and connected to the mirror so that the movement of the mirror will be angular around one axis and a device connected to the reciprocating part of the engine for producing a corresponding movement of the mirror at right angles to the line indicated by the pulsations of the engine, substantially as described.

575,203. APPARATUS FOR CALMING SEAS BY DISTRIBUTING OIL THEREON. ALBERTUS J. VAN BEEK, Buda-Pesth, Austria-Hungary. Filed June 20, 1896. Serial No. 596,338. (No model.) Patented in Germany June 2, 1896, No. 85,402; in France Oct. 4, 1895, No. 250,732, and in Belgium Feb. 10, 1896, No. 119,770.



Claim.—1. An apparatus for the calming of seas by distributing oil, comprising an oil-reservoir having an outlet and means for forcibly discharging the oil, with electromagnetic mechanism controlling the operation of the forcing means, substantially as set forth.

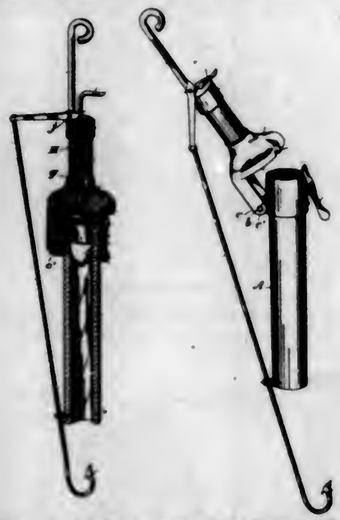
2. A floating buoy provided with an oil-reservoir having an outlet and means for forcibly discharging the oil, with electromagnetic mechanism controlling the operation of the forcing means, and an electric circuit from said electromagnetic mechanism to the shore or other distant point, substantially as described.

3. An oil-reservoir provided with a piston and a screw to move the piston to force the oil from the reservoir and means for operating the screw, in combination with electromagnetic mechanism for releasing the said screw, substantially as set forth.

4. A buoy provided with an oil-reservoir, an outlet for the oil therefrom, and a piston in the reservoir, in combination with electromagnetic means controlling the operation of the piston, and an electric cable connecting the electromagnetic mechanism with the shore or other distant point, all substantially as set forth.

5. A buoy provided with an oil-reservoir, an outlet for the oil therefrom, and a piston in the reservoir, the said piston being connected with a tube having a nut, in combination with two cylinders provided with right and left handed screws, respectively, to engage with the said nut, spiral springs in the cylinders and electric escapement-gear controlling the action of the springs, substantially as set forth.

575,204. ANIMAL-TRAP GUN. JAMES R. BOOTH, Barrie, Canada. Filed Mar. 9, 1896. Serial No. 582,427. (No model.)



Claim.—1. A bait-set gun comprising the barrel, the breech having a depending arm pivoted to one side of the barrel, locking means for holding the breech in place over the end of the barrel, the tube fitted to the breech and having a cap at its upper end, the spring-pressed firing-pin within the tube, the rod secured to the cap and having a hooked upper end for supporting the gun in a vertical position, the lever for engaging the firing-pin, and holding it in its rearward position, and the trip connected to the lever and extending down into proximity to the muzzle of the gun, substantially as described.

2. In combination, the barrel, the sleeve upon the upper end thereof, having a projecting lug, the breech fitting the open end of the barrel and having a depending arm pivoted to said lug, the pivoted catch on the opposite side of the sleeve adapted to engage a notch in the breech, the tube carried upon the upper end of the breech, the spring-pressed firing-pin in said tube, the sustaining-rod secured to the tube for sustaining the gun in a vertical position, and the lever and trip, substantially as described.

575,205. SWIVEL LEADER-HOLDER. GEORGE F. BRETSTEIN and FRANCIS BRETSTEIN, New York, N. Y. Filed Oct. 14, 1896. Serial No. 608,819. (No model.)

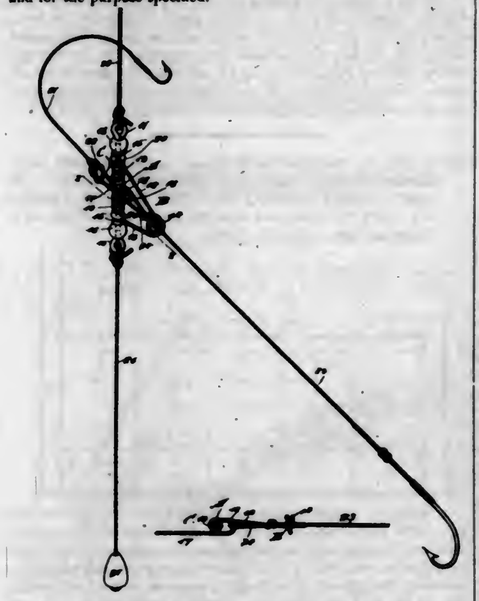
Claim.—1. A swivel leader-holder, comprising a stem, and wings swiveled upon the stem and normally projecting in opposite directions, as and for the purpose specified.

2. In a swivel leader-holder, a stem, and wings mounted to turn independently of the said stem, one wing being located between the inner ends of the other wing, one of the said wings being in the form of a hook and the other wing being provided with a guide-eye to receive a leader when attached to the hook portion of the hook-shaped wing, as and for the purpose specified.

3. A swivel leader-holder, consisting of a stem, a hook-shaped wing held to turn around the central portion of the said stem, and a second wing mounted to turn on the stem near its end portions, the latter wing being provided at its outer end with an eye arranged to face the central hook-shaped wing, as and for the purpose specified.

4. A swivel leader-holder, comprising a stem, a substantially triangular wing having its inner ends loosely mounted on the stem and its outer end provided with an eye, and a second wing held to turn around the central portion of the stem, comprising an outwardly-extending shank and a hook-shaped inner extremity, which extends partially around the said stem, as and for the purpose specified.

5. A swivel leader-holder, consisting of a stem, a wing constructed of wire and of substantially triangular shape, having the extremities of its members at its wider end pivoted on the said stem, the said wing being also provided at its contracted end with an eye, and a second wing likewise constructed of wire and held to turn around the central portion of the stem between the extremities of the first-named wing, the second wing comprising a twin shank extending outwardly from the stem and an inner hook-section connected with the stem and arranged to extend within the triangular wing, as and for the purpose specified.

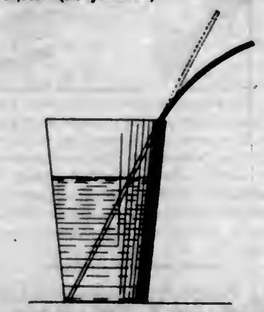


6. A swivel leader-holder, comprising a stem and wings independently pivoted on the stem, one of the wings being located at the center of the stem and the other connected with the stem near its ends, the latter wing being provided with an eye and the central wing with a hook-section, substantially in alinement with the eye of the expanded wing, as set forth.

7. In a swivel leader-holder, the combination with a stem, of a hook swiveled upon the stem and having its end extended to project from the side of the stem opposite from that which the hook proper projects, and formed with an opening therein, as and for the purpose set forth.

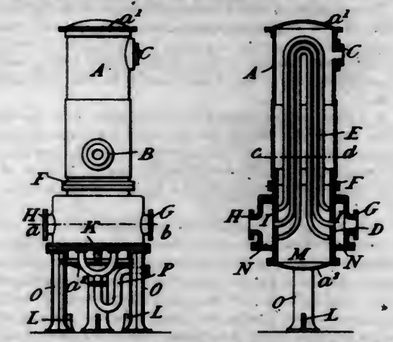
8. In a swivel leader-holder, the combination with a stem, of a hook swiveled upon the stem and having its end extended to project from the side of the stem opposite from that which the hook proper projects and formed with an opening therein, and a leader-guide swiveled upon the stem, as set forth.

575,206. ARTIFICIAL STRAW FOR IMBIBING BEVERAGES. LOUIS H. BRITTON, Lisbon, Ohio, assignor of two-thirds to Josiah B. Morgan and William H. Pritchard, same place. Filed July 2, 1896. Serial No. 597,900. (No specimens.)



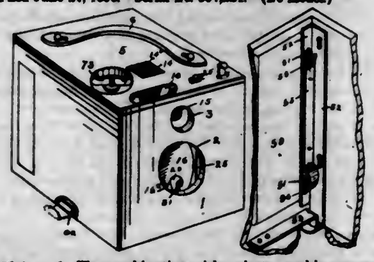
Claim.—An artificial straw or tube for imbibing beverages, consisting of a homogeneous mass of chewing-gum, flour, glucose, grain-sugar and starch, and possessing the characteristics of flexibility, which enables it to be bent, and semirigidity which enables it to stand upright in a glass of liquid, substantially as described.

575,207. APPARATUS FOR HEATING FEED-WATER. CHARLES J. BROWN, London, England. Filed Aug. 20, 1896. Serial No. 603,402. (No model.) Patented in England Mar. 20, 1894, No. 5,706.



Claim.—In an apparatus of the class herein described, the combination with the casing A, provided with an inlet and outlet opening, of the removable covers a', a^2, fitted to the top and bottom of said casing respectively, an annular tube-plate D, forming the lower part of the casing, a series of inverted-U-shaped tubes E, having their ends fixed in said tube-plate, an enlarged belt I, entirely surrounding the said casing near its lower end, so as to provide an annular chamber which is divided with two compartments by the vertical partitions J, an inlet branch G, communicating with one compartment and an outlet H communicating with the other compartment, legs O, secured to the enlarged belt and serving as a support for the casing; and ledges L, fixed to said legs and adapted to support the bottom of the casing when detached, substantially as described.

575,208. PHOTOGRAPHIC CAMERA. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed June 27, 1896. Serial No. 597,231. (No model.)



Claim.—1. The combination with a photographic camera, having devices for holding film, of a rearwardly-movable open frame arranged at the rear end of the exposing-chamber and between which and said rear end a plate-holder may be inserted, said frame having rollers at opposite sides, over which the film passes, substantially as described.

2. The combination with a photographic camera having devices for holding film, of the rearwardly-movable open frame at the rear of the exposing-chamber over which the film passes, and between which and the camera back a plate-holder may be inserted, substantially as described.

3. The combination with a photographic camera having devices for holding film, of the rearwardly-movable open frame at the rear of the exposing-chamber over which the film passes and between which and the rear of the exposing-chamber a plate-holder may be inserted, and springs for holding said open frame against the end of the exposing-chamber, substantially as described.

4. The combination with a photographic camera having the door in the side at the rear, and devices for holding film, of the rearwardly-movable open frame at the rear of the exposing-chamber over which the film passes and arranged adjacent to said door and between which frame and the back of the exposing-chamber a plate-holder may be inserted, substantially as described.

5. The combination with a photographic camera having devices for holding film near the forward portion and film-passages at the sides for the film, of a movable frame at the rear of the exposing-chamber forming a guide for the film, a door in the camera-casing adjacent to the movable frame, and an automatic light-excluding flap arranged in one of the film-passages, substantially as described.

6. The combination with a photographic camera having devices for holding film near the forward portion and film-passages at the

sides, of the spring-operated flap engaging the film and arranged to close the film-passage when the film is removed, substantially as described.

7. The combination with a photographic camera having devices for holding film, of the spring-pressed movable frame at the rear of the exposing-chamber serving as a guide for the film and having the plate or ledge at the bottom, whereby a plate-holder may be inserted between the frame and the rear of the exposing-chamber, substantially as described.

8. In a photographic camera, the combination with the casing having the door in the side, of the removable frame embodying the exposing-chamber having the lens and film-carrying devices thereon, and the rearwardly-movable spring-pressed frame at the rear of the exposing-chamber over which the film passes, substantially as described.

9. In a photographic camera, the combination with the casing, of the removable frame having the exposing-chamber, and the lens, the spring-arm at one side of the exposing-chamber having the stud for engaging one end of the film-spool, the stud for engaging the other end of the spool, and film holding and winding devices on the other side of the exposing chamber embodying an arbor for engaging a film-spool and a ratchet-wheel and cooperating pawl, substantially as described.

10. In a photographic camera, the combination with the casing and the removable frame therein embodying film-winding devices, of the holder for the film-supply spool, consisting of the spring 77 having the projection 76, and the stud 75 in the frame, substantially as described.

11. In a photographic camera, the combination with a lens, a movable shutter having an aperture and a motor for operating it, both arranged inside the casing of the camera, of a time-stop for arresting the shutter with the aperture in line with the lens-opening, having an operating part projecting from the camera when operative, a movable diaphragm having a series of apertures, and a rod for operating it projecting from the casing when the largest aperture is out of line with the lens, whereby the operating parts of the diaphragm and time stop will serve as indicators, substantially as described.

12. In a photographic camera, the combination with the casing and the removable frame having the exposing-chamber, and film holding and feeding devices thereon, of the swinging plate 68 having the ratchet wheel and pawl thereon, and the removable spindle passing through the casing and spool and engaging the ratchet-wheel so as to turn it, substantially as described.

13. The combination with the camera-casing, an exposing-chamber therein, and a film-support at the rear end of the said chamber, of film holding and winding devices located within the casing on opposite sides of the exposing-chamber and forward of the film-support, and a door in the casing adjacent to the film-support, whereby a plate-holder may be applied to the end of the exposing-chamber without displacing the film-winding devices, substantially as described.

14. In a camera, the combination with the film holding and winding devices, and a support for film at the rear portion and within the camera-casing, and a movable filling-frame in rear of the film-support, of a door in the casing adjacent to the film-support, locking devices for the door, and connections between the locking devices and the filling-frame for holding the door closed when the frame is in position, substantially as described.

15. In a camera, the combination with the film holding and winding devices and a support for film at the rear portion located within the camera-casing, and a movable filling-frame in rear of the film-support, of a door in the casing adjacent to the film-support, a movable plate, as 52, engaging the door, and the spring 53 engaged by the filling-frame when in position, substantially as described.

16. In a camera, the combination with the casing having the door at the rear, locking devices therefor, and the removable frame 60 cooperating with the locking devices for holding the door closed, of the removable frame adapted to be inserted in the casing having film-holding devices thereon and a film-support located in line with the door in the casing when the removable frame is in position, substantially as described.

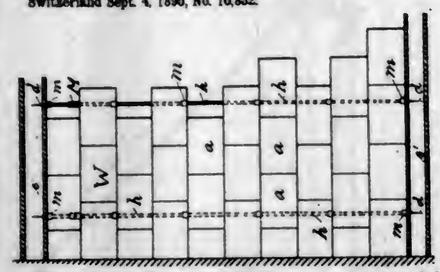
17. In a camera for holding roll-film or plates, the combination with a casing and film holding and winding devices, and a film-support therein, of a door adjacent to the film-support, locking devices for said door capable of being released from the exterior of the casing, and a movable member within the casing for preventing the operation of the locking devices when roll-film is being used in the camera, substantially as described.

18. In a camera, the combination with the casing having the door in its rear portion and securing devices therefor, the removable frame 60 cooperating with the locking devices, of the removable frame having film-holding devices, the exposing-chamber, and the spring-operated frame at the rear of the exposing-chamber and adjacent to the door in the casing, substantially as described.

19. In a camera for holding roll-film or plates, the combination with the camera-casing, the film holding and winding devices and a film-support, of the door in the casing adjacent to the film-support having the catches, the movable plate engaging the catches, the inclined projections on the plate for engaging the catches and forcing the door open, and locking devices within the casing for preventing the operation of the movable plate, substantially as described.

20. In a camera for holding roll-film or plates, the combination with the camera-casing, the film holding and winding devices and a film-support, of the door in the casing adjacent to the film-support having the catches, the movable plate engaging the catches and forcing the door open, the spring for actuating the plate in one direction and locking devices for preventing the operation of the movable plate, substantially as described.

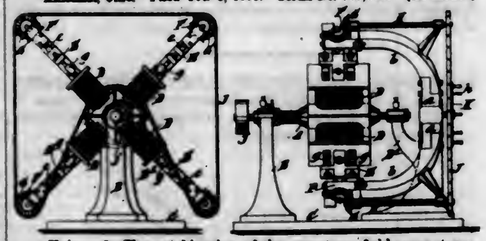
575,209. HOLLOW-PLATE WALL. ALFRED BRUCKNER, Aix-la-Chapelle, Germany. Filed June 15, 1896. Serial No. 595,685. (No model.) Patented in Germany Dec. 31, 1893, No. 78,867; in England July 4, 1894, No. 13,583; in Austria Dec. 1, 1894, No. 44/6,135, and in Switzerland Sept. 4, 1895, No. 10,832.



Claim.—1. A wall composed of hollow plates or slabs each having a series of through-going channels and a series of channels partially extending through, as specified, said through-going channels of the one slab corresponding with those of the adjacent slab, metal stays extending through said through-going channels, means for attaching same to the floor and ceiling, and a binding material arranged in said channels around said stays substantially as described.

2. A wall composed of hollow plates or slabs each having a series of through-going channels and a series of channels extending partially through them as specified, said through-going channels of the one slab corresponding with those of the adjacent slabs, metal stays extending through said channels, said stays being in sections, a sleeve to connect said sections having internal threads in opposite directions and means for turning said sleeve and a binding material around said stay within said channels substantially as described and shown and for the purpose specified.

575,210. DYNAMO-ELECTRIC MACHINE. GEORGE I. CAMPBELL, Kinsman, Ohio. Filed Oct. 3, 1896. Serial No. 585,008. (No model.)

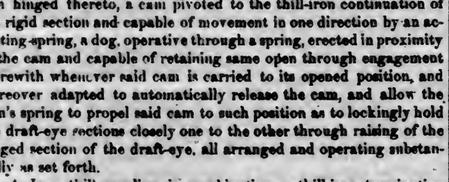


Claim.—1. The combination of the armature, field-magnet supports movable toward and from the armature, field-magnets mounted to move with said supports and pivoted thereto to swing in planes extending longitudinally of the armature, and means for holding the field-magnets in position, substantially as described.

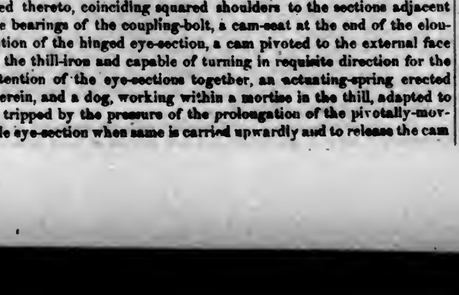
2. The combination of the armature, supports movable toward and from the armature, field-magnets pivotally carried by said supports, and means for holding the field-magnets in position, substantially as described.

575,211. FOLDING COT. ELIAS A. CLEAVELAND, Belvidere, Ill. Filed Feb. 20, 1896. Serial No. 580,035. (No model.)

Claim.—In a folding cot, in combination, a cot-frame composed of side and end bars, supporting-legs for the frame, pivoted to the side bars near to their ends and capable of being folded between the said bars, one of said legs having an opening formed in its outer face near to its pivotal connection with the side bar, a plate secured to the leg extending over the said opening therein, which plate is provided with an opening coinciding with the opening in the leg, two eyes set into the side bar near the said leg, a rod of spring material extending through, and free to slide in, the eyes, which rod is bent near one of its ends at substantially a right angle, to enter the opening in the plate, and is turned squarely upon itself, the end of the rod forming a bearing upon the under face of the plate, and at its other end is formed into hook shape, for engaging one of the said eyes and preventing movement of the leg in either direction the said eye being so located that the leg, when open, will form an obtuse angle with the frame substantially as and for the purpose specified.



575,212. THILL-COUPLING. HARRY W. CONNELL and HARVEY F. CONNELL, Syracuse, N. Y. Filed Feb. 14, 1896. Serial No. 579,264. (No model.)



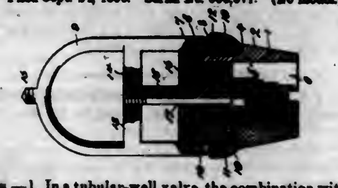
Claim.—1. In a thill-coupling, a divided draft-eye comprising a rigid eye-section secured to a thill and a movable eye-section pivoted thereto, a cam pivotally secured to the thill-iron continuation of the rigid section and impelled in one direction by a spring, a spring-actuated dog located in juxtaposition thereto and capable of retaining the cam open through engagement when said cam is carried to an opened position, and further capable of automatically releasing the cam, and allowing the cam's spring to impel the said cam to a position locking the draft-eye sections in close relation, by the upward swinging of the hinged section, substantially as described.

2. A thill-coupling, comprising a thill-iron provided with a rearwardly-projecting rigid eye-section and a movable eye-section hinged thereto, said sections being provided with coinciding shoulders contiguous the bearing of the coupling-bolt, a cam-seat upon the extremity of the elongation of the movable eye-section, a cam connected with the thill-iron and actuated in a direction for the retention of the eye-sections together by means of an actuating-spring therein, a dog contiguous the cam adapted to be tripped by the pressure of the prolongation of the hinged eye-section when swung upwardly and thereby releasing the cam from a retained opened position and permitting same to swing around into frictional contact with the cam-seat aforementioned, all combined and operating substantially as described and for the purposes set forth.

3. The combination, in a thill-coupling, of a divided draft-eye having a rigid eye-section secured to a thill and a movable eye-section hinged thereto, a cam pivoted to the thill-iron continuation of the rigid section and capable of movement in one direction by an actuating-spring, a dog, operative through a spring, erected in proximity to the cam and capable of retaining same open through engagement therewith whenever said cam is carried to its opened position, and moreover adapted to automatically release the cam, and allow the cam's spring to propel said cam to such position as to lockingly hold the draft-eye sections closely one to the other through raising of the hinged section of the draft-eye, all arranged and operating substantially as set forth.

4. In a thill-coupling, in combination, a thill-iron terminating rearwardly in a rigid eye-section having a movable eye-section pivoted thereto, coinciding squared shoulders to the sections adjacent the bearings of the coupling-bolt, a cam-seat at the end of the elongation of the hinged eye-section, a cam pivoted to the external face of the thill-iron and capable of turning in requisite direction for the retention of the eye-sections together, an actuating-spring erected therein, and a dog, working within a mortise in the thill, adapted to be tripped by the pressure of the prolongation of the pivotally-movable eye-section when same is carried upwardly and to release the cam from a locked opened position and permit same to turn into engagement with the cam-seat, all constructed and operating substantially as described and for the purposes specified.

575,218. WELL-TUBE VALVE. AUGUST D. COOK, Lawrenceburg, Ind. Filed Sept. 24, 1896. Serial No. 606,671. (No model.)



Claim.—1. In a tubular-well valve, the combination with a valve-cylinder externally reduced at its upper end and having a shoulder at the lower end of its reduction, the lower interior portion of the cylinder having a chamber the upper end of which is provided with an opening having surrounding ports, of a ring threaded on the upper reduced end of the cylinder, a yoke having a cross-bar mounted on the ring, said cross-bar being perforated and threaded, a packing-ring arranged between the shoulder of the cylinder and the lower end of the ring and embracing the latter, a perforated valve-disk located on the upper end of the cylinder and having a central perforation, and a screw inserted through the opening in the upper end of the cylinder and valve-disk and threaded in the cross-bar, substantially as specified.

2. In a tubular-well valve, the combination with a valve-cylinder externally reduced at its upper end and threaded and provided with a grooved shoulder at the lower end of said reduced threaded portion, the lower interior portion of the cylinder having a chamber the upper end of which is provided with a central opening having surrounding ports, of a ring threaded on the upper end of the cylinder a yoke having a cross-bar mounted on the ring, said cross-bar being perforated and threaded, said ring being externally reduced below its upper end and forming a shoulder 12, the cup-shaped packing clamped within the groove of the shoulder of the cylinder by the lower end of the ring said packing embracing said ring and terminating against and borne upon by the shoulder 12 thereof, the perforated valve-disk located on the cylinder, and the bolt passed through the opening in the cylinder, valve-disk and cross-bar of the yoke, substantially as specified.

575,214. PNEUMATIC APPARATUS FOR LIFTING AND DISCHARGING MOLTEN MATERIAL. JOHN H. CROSKEY and JOSEPH LOCKE, Pittsburg, Pa., assignors of one-half to John H. Phillips and George W. Morse, same place. Filed Sept. 19, 1896. Serial No. 606,409. (No model.)



Claim.—1. The herein-described tool or apparatus for lifting, conveying, and discharging molten material comprising a tubular handle, an air-exhausting device attached to said handle and communicating with the bore thereof and a cup adapted to contain molten material attached to one end of said handle and communicating with the bore thereof, substantially as set forth.

2. The herein-described tool or apparatus for lifting, conveying and discharging molten material consisting of the air-pipe A, the air-exhauster B connected to one end of said pipe and the cup-shaped receptacle F adapted to contain molten material attached to the other end of said pipe with its axis out of alinement with the pipe and communicating with the bore thereof, substantially as set forth.

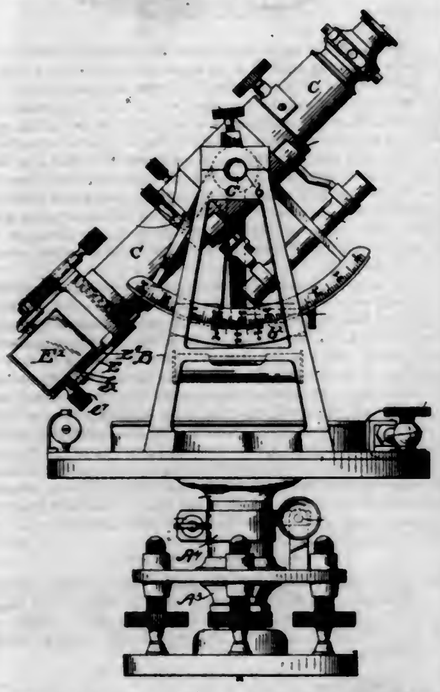
3. The herein-described tool or apparatus for lifting, conveying and discharging molten material consisting of the rigid tubular handle A, the air-pump B attached to one end of said handle and the cup-shaped receptable F adapted to contain molten material attached to the other end of said handle and communicating through the same with the air-pump, substantially as set forth.

4. The combination with the tube A, of a receptacle for molten material, consisting of the casing *f* and an inner vessel H, detachable therefrom and communicating with the bore of the tube A, and a suitable air-pump attached to and communicating with the bore of the tube A, substantially as described.

5. In a tool or apparatus for the purposes described the combination of the tube A, casing *f* having openings *p*, inner vessel H, said vessel H communicating with the bore of the tube A, and an asbestos or other refractory filling between the casing *f* and the vessel H, substantially as described.

6. In a tool or apparatus for the purpose described, the combination with the tube A and the casing *f* attached thereto and having a recess in its upper end, of the vessel H having the circumferentially-grooved boss *h*, with holes or piercings *n*, communicating with the bore of the tube A, substantially as described.

575,215. SOLAR AND TRANSIT INSTRUMENT. JOHN R. DAVIS, Cleveland, Ohio. Filed Jan. 6, 1896. Serial No. 574,464. (No model.)



Claim.—1. In a combined solar and transit instrument a single telescope the optical axis of which is the polar axis of the instrument in determining the true meridian in combination with a solar attachment revoluble with said telescope around said optical axis, substantially as and for the purposes set forth.

2. In a combined solar and transit instrument of the variety described in which the optical axis of the transit-telescope is the polar axis of the instrument in determining the true meridian, the combination with a telescope adapted to be revolved upon its optical axis of a reflector supported upon an axis transverse to said optical axis and arranged to revolve with said telescope, substantially as and for the purposes described.

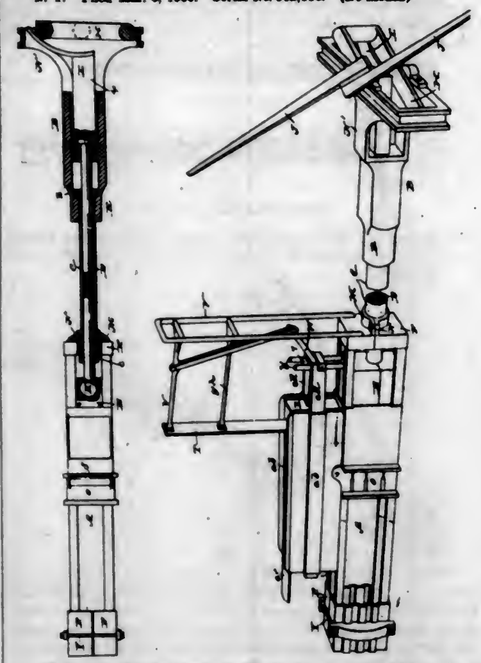
3. In a solar and transit instrument, the combination with a telescope adapted to revolve on its axis, of a reflector capable of being revolved upon an axis transverse to the optical axis of the telescope, and means substantially as described for adjusting said reflector-axis in its angular relation to the telescope-axis, substantially as described.

4. In a solar and transit instrument, the combination with a telescope adapted to revolve upon its optical axis, of a reflector capable of being revolved upon an axis transverse to the optical axis of the telescope, and means for adjusting said reflector-axis in its angular relation to the telescope-axis, substantially as set forth.

5. In a solar and transit instrument, the combination with a telescope adapted to be revolved upon its optical axis, of a reflector supported upon and exterior to the object end of the telescope and capable of being revolved upon an axis transverse to the optical axis of the telescope, and means for adjusting the angle of the axis of revolution of the reflector and the plane of the same in relation to the optical axis of the telescope, substantially as set forth.

6. A solar and transit instrument provided with a telescope adapted to be revolved upon its optical axis and to be vertically dipped upon a transverse axis, a vertical limb and a horizontal limb, a level on said telescope, a reflector at the object end of the telescope, revolnble therewith, and adapted to be revolved upon an axis transverse to the optical axis of the telescope, and means for adjusting the plane of the reflector in its angular relation to the optical axis of the telescope.

575,216. BALING-PRESS. PETER K. DEDERICK, Loudonville, N. Y. Filed Mar. 8, 1889. Serial No. 302,110. (No model.)



Claim.—1. In a baling-press, the combination with the traverser E, and slide D, of the cam I and open double-crank casting H, substantially as and for the purpose set forth.

2. In a baling-press, the combination with the press-box, and traverser, of the adjustable clamps surrounding and forming the complete discharge-opening, said clamps being adjustably connected together to vary the size of the discharge-opening; substantially as described.

3. In a baling-press, the combination of the adjustable clamps P P at the discharge end of the bale-chamber and the angle-bars 1 connected rigidly to said clamps, substantially as described.

4. In a baling-press, the combination with the press-box, traverser, and the angle-bars 1 secured to the press-box, of the clamps mounted on the angle-bars and surrounding and constituting the complete discharge end and means for adjustably connecting said clamps; substantially as described.

5. In the baling-chamber of a baling-press, the center encircling-band O forming the junction between the bale-chamber and press-box and the inner surfaces of which are the mold to give form to the sections and bale in combination with the traverser E reciprocating therein to complete the pressing and move forward the pressed material substantially as set forth.

6. In combination with the baling-chamber of a baling-press, the reciprocating traverser E, encircling forming-chamber O and angle-bars 1; substantially as set forth.

7. The combination with the baling-chamber of a baling-press the angle-bars 1 with the encircling forming-band O, reciprocating traverser E and adjustable clamps P as and for the purpose set forth.

8. The combination with a baling-press case of the head-castings F with the angle-bars 1 and the reciprocating traverser E.

9. The combination with a baling-press case of the head-castings F, angle-bars 1, forming-band O and reciprocating traverser E.

10. The combination with the baling-chamber of a baling-press, of the head-castings F, angle-bars 1, adjustable clamps, P, forming-band O and reciprocating traverser E, as and for the purpose set forth.

11. In a baling-press, the combination of the baling-chamber thereof with the head-castings F and pipe C, clamped, substantially as and for the purpose set forth.

12. In a baling-press, the combination with the traverser, of the feed-blade T, lever U, guide-bar *g*, *h*, and curved or bent lever W,

connected with the blade and operated by a projection moving with the traverser; substantially as described.

13. In a baling-press, the combination with the press-box, and traverser, of the roller S coöperating with the traverser and provided with a folding-blade and stops for arresting the rotation of said roller in both directions; substantially as described.

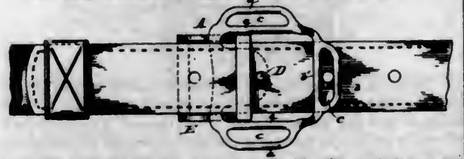
14. In a baling-press, the combination with the press-box, and traverser, of the roller S coöperating with the traverser and having a rotary motion in each direction and provided with a folding-blade whereby the hay is folded by the reverse movement of the roller; substantially as described.

15. In a baling-press, the combination with the traverser, press-case, power-frame and pipe C connected rigidly to the power-frame and press-case respectively, of the staff D working through the pipe, the slide I on said staff guided in bearings parallel to the pipe and the cam coöperating with the slide to reciprocate the traverser; substantially as described.

16. In a baling-press, the combination with the press-case, traverser, and slide-bar or staff having the cam-face arranged transversely on its outer end and moving bodily therewith, of the pivoted head to which the power is applied having the crank arm or projection coöperating with the cam-face to force the plunger inward; substantially as described.

17. In a baling-press, the combination with the press-case and the staff having the curved cam rigidly secured to its outer end, of the rotary head to which the power is applied having a plurality of crank arms or projections thereon for coöperation with the cam-face to force the traverser inward; substantially as described.

575,217. TRACE-BUCKLE. CHARLES F. DEMMON, Sacramento, Cal. Filed Mar. 17, 1896. Serial No. 583,618. (No model.)



Claim.—In combination, in a trace-buckle, the tug-bail and the rectangular frame having a central open space comprising the side and cross bars, the solid plate C extending into said space below the plane of said cross-bars and the tongue D projecting from the face of said plate and adapted to engage the trace between said tug-loop and the cross-bar *b*, substantially as described.

575,218. BICYCLE-TIRE. JOSEPH F. DOLLEN, Chester, Ill. Filed Sept. 25, 1896. Serial No. 606,949. (No model.)



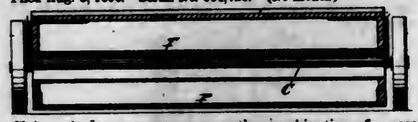
Claim.—1. As a new article of manufacture, a protective shield for pneumatic tires, consisting of a body of a pliable material and a series of endless metallic bands alternately arranged on each side of said body and to which they are attached, the said bands having their edges overlapping and bent over upon the outer faces of the bands to form ribs, as and for the purpose specified.

2. The combination, with a pneumatic tire, of a shield or diaphragm located within the tire and following the tread portion thereof, extending from side to side of the tire, the said diaphragm being continuous and consisting of a flexible body secured at its sides to the tire, and bands of a spring material secured to the outer and the inner faces of the said flexible body, following the circumference of the tire, the bands upon opposite sides of the said body having their edges overlapped, and each band being provided with ribs at its side edges, as and for the purpose set forth.

3. The combination, with a pneumatic tire, of a shield or diaphragm located within the tire and following the tread portion thereof, extending from side to side of the tire, the said diaphragm consisting of an endless canvas body secured at its side edges to the tire, and thin metal bands secured upon the inner and the outer faces of the canvas body, the arrangement of the bands being such that the edges of the bands on the inner and on the outer faces of the body of the diaphragm will overlap, the bands being placed one at each side of the center on the inner face of the canvas body and at the center of the under face of the body and near the edges, each band having its edge bent downward upon the body to form a continuous side rib, as and for the purpose set forth.

4. The combination, with a pneumatic tire, of a shield or diaphragm located within the tire and following the tread portion thereof, extending from side to side of the tire, the said diaphragm consisting of an endless canvas body secured at its side edges to the tire, and thin metal bands secured upon the inner and the outer faces of the canvas body, the arrangement of the bands being such that the edges of the bands on the inner and on the outer faces of the body of the diaphragm will overlap, the bands being placed one at each side of the center on the inner face of the canvas body and at the center on the under face of the body, and near the edges, each band having its edge bent downward upon the body to form a continuous side rib, and each band being also further provided with a concaved inner and a convexed outer face, as and for the purpose set forth.

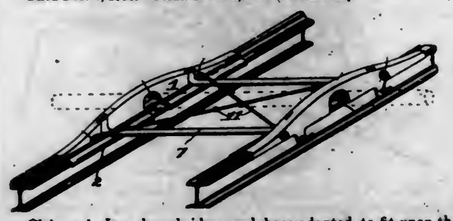
575,219. CARPET-SWEEPER. WALTER J. DREW, Grand Rapids, Mich., assignor to The Bissell Carpet Sweeper Company, same place. Filed Aug. 5, 1896. Serial No. 601,729. (No model.)



Claim.—1. In a carpet-sweeper, the combination of a case, an axle-rod extending through the ends of the case and supporting driving-wheels on the outside thereof, and a tube surrounding said axle-rod and fixed at its opposite ends in the ends of the case, whereby the axle-rod is protected from dust and other material, substantially as described.

2. In a carpet-sweeper, the combination of a case, a vertically-movable axle-rod extending through the ends of the case, driving-wheels supported on said axle-rod outside the ends of the case, and a tube surrounding said axle-rod and fixed at its opposite ends in the ends of the case, said tube being considerably larger in diameter than the diameter of the axle-rod to permit of the vertical adjustment of the axle-rod within said tube, substantially as described.

575,220. HOSE-BRIDGE. RICHARD G. DUNWODY, Atlanta, Ga. Filed Feb. 7, 1896. Serial No. 578,410. (No model.)



Claim.—1. In a hose-bridge, arch-bars adapted to fit upon the rail, cross-bars having suitable end engagement with each and braces crossing in X shape between said arch-bars and hooked into eyes set in each, substantially as and for the purpose specified.

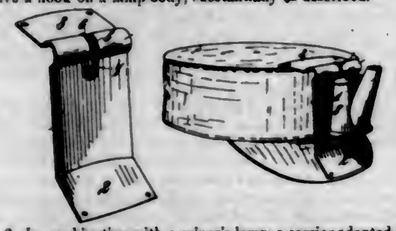
2. In a hose-bridge, arch-bars adapted to fit upon the rail, cross-bars therebetween having end engagement therewith and stay-bars each pivoted on an adjustable eyebolt in one arch-bar and hooked by their free ends to an eye in the other arch-bar, substantially as and for the purpose specified.

575,221. LAMP-CARRIER FOR MINERS' CAPS. LOUIS P. EISENBEIS and GEORGE B. SIMMONS, Ottumwa, Iowa, assignors to the Hardscog Manufacturing Company, same place. Filed Aug. 25, 1896. Serial No. 603,821. (No model.)

Claim.—1. A lamp-carrier consistiug of a plate provided with an integral transverse beaded projection intersected by a groove having a perforation at its upper or rear end, the said perforation and groove being adapted to receive a hook on the lamp-body and hold the lamp in position, substantially as described.

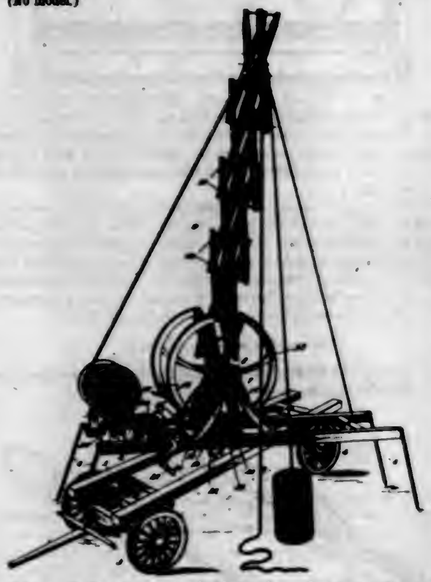
2. A lamp-carrier consisting of a plate adapted to be attached to a miner's cap or hat and having an integral transverse beaded projection provided with a central intersecting groove, a perforation at the rear end of said groove and a lip or prominence at the forward

end of the groove, the said groove and perforation being adapted to receive a hook on a lamp-body, substantially as described.



3. In combination with a miner's lamp, a carrier adapted for attachment to a miner's cap or hat and consisting of an integral plate having a transversely-beaded forward projection in which is formed a central groove conforming to the curvature of the bead, a perforation at the rear end of said groove, and a lip or prominence at its forward end, and a hook attached to the lamp-body and adapted to engage the said grooved and perforated bead, to support the lamp, substantially as described.

575,222. EXTENSION-LADDER AND HOSE-TOWER. CARL F. EKMAN, Marshalltown, Iowa. Filed Feb. 14, 1896. Serial No. 579,285. (No model.)

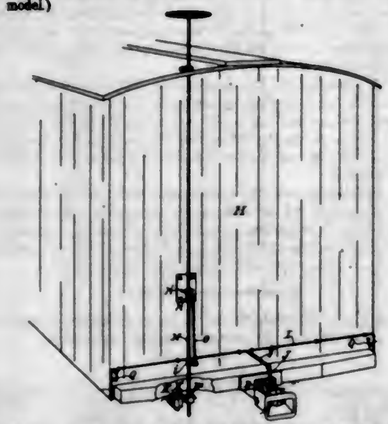


Claim.—1. In an extension-ladder or hose-pipe tower, the combination of two opposite series of jointed levers, the two series being connected so as to form a lazy-tongs, locking means applied directly to one set of levers, actuating mechanism having direct and positive connection with the other set of levers for extending and folding the lazy-tongs, a locking device for connecting the two sets of levers after the lazy-tongs have been extended to the proper distance, and means for releasing the lazy-tongs, whereby the actuating mechanism used for extending and folding the structure can be employed for leaning the ladder or tower in the required direction, substantially as set forth.

2. In an extension-ladder or hose-tower the combination of two opposite series of jointed levers, the two series being connected so as to form a lazy-tongs, a toothed segment firmly attached to one set of levers, a locking device to engage with the said toothed segment to secure it in a fixed position, a second toothed segment firmly attached to the opposite set of levers, actuating mechanism for moving the second toothed segment for extending and folding the lazy-tongs, and a locking means for securing the two sets of levers after the lazy-tongs have been extended to the required distance, whereby the two sets of levers are secured in locked relation and the ladder, or tower, capable of being leaned in either direction by the same mechanism employed for extending and folding the same, substantially as set forth.

3. In combination, a lazy-tongs structure mounted upon a bar, or shaft, toothed segments firmly attached to one set of levers, locking-pawls adapted to engage with the said toothed segments, a shaft having eccentrics to engage with the pawls and operate the same, a second toothed segment attached to the opposite levers, locking-bars for connecting the two sets of levers after the structure has been properly extended, a shaft having a worm-gear to engage with the said second toothed segment, and actuating mechanism therefor, the parts being combined so that the same mechanism employed for extending and folding the structure is used for leaning the same, substantially as described.

575,223. CAR-COUPLING. LINDSEY O. FERGUSON and SAMUEL J. MILLER, Glendora, Cal. Filed July 11, 1896. Serial No. 598,786. (No model.)



Claim.—1. In a car-coupling, the combination set forth of a draw-head provided with a vertical hook-receiving slot extending through the draw-head and intersecting the throat thereof; a coupling-hook pivoted in the slot by means of a pin passing through the draw-head and through the body of the hook and having its center arranged below the extended plane of the bottom of the throat of the draw-head, such hook being provided with a flat base arranged substantially flush with the bottom face of the draw-head; and a spring secured to the bottom of the draw-head and adapted to press against the flat base of the hook.

2. In a car-coupling, the combination set forth of the draw-head provided with a vertical slot intersecting the throat of the draw-head; a coupling-hook pivoted in such slot by means of a pin having its center arranged below the extended plane of the bottom of the throat of the draw-head, such hook being provided with a link-receiving recess extending, when the hook is in its coupled position, to a point above the top and to the rear of the top and rear faces of the throat of the draw-head; and a spring secured to the inner face of the hook-receiving recess and arranged to rest upon the top of the link when the draw-head is coupled, and to yieldingly hold the link in its horizontal position.

3. In a car-coupling, the combination set forth of a draw-head provided with a vertical hook-receiving slot intersecting the throat of the draw-head; a coupling-hook pivoted in the draw-head by a pin having its center arranged below the extended plane of the bottom of the throat of the draw-head, such hook being provided with a link-receiving recess extending both above and to the rear of the top and rear faces of the throat of the draw-head, such hook being also provided with a flat base arranged substantially flush with the bottom face of the draw-head; a spring secured to the rear face of the link-receiving recess of the hook and adapted to yieldingly bear upon the link when the link is in place in the draw-head to hold such link in its horizontal position; and a flat spring secured to the under face of the draw-head and arranged to bear against the base of the hook.

4. In a car-coupling, the combination set forth of a shaft having one end of the brake-chain, and a cog-wheel fixed thereto; an operating-pinion provided with an angular opening, journaled to the car, and meshing with the cog-wheel; the brake-shaft journaled to the car and provided with an angular stem arranged to slide through the angular opening in the pinion; a collar secured upon the brake-shaft; a clip journaled upon the brake-shaft above the collar; a crank-shaft extending across the end of the car, journaled thereto and provided with two projecting crank-arms; suitable means connecting one of the crank-arms with the clip; and suitable means adapted to connect the other crank-arm with an automatic coupler, whereby when the brake-stem is reciprocated vertically in its bearings, it will operate to uncouple the coupling; and such coupler.

5. In a car-coupling, the combination set forth of a draw-head provided with a vertical hook-receiving slot intersecting the throat of the draw-head; a coupling-hook pivoted in such slot by a pin having its center arranged below the extended plane of the lower wall of the throat of the draw-head; a spring arranged to normally hold the hook in its coupled position; and a second spring weaker than the first spring arranged to rest upon the top of the link when the link is in place in the draw-head and to normally tend to yieldingly hold the link in a horizontal position.

6. In combination, an automatic coupler: a shaft having one end of a brake-chain, and a cog-wheel fixed thereto; a pinion arranged to mesh with the cog-wheel and provided with an angular opening; a brake-shaft having an angular stem adapted to slide through the angular opening in the pinion; and suitable means connecting the brake-shaft with the automatic coupler and adapted to operate to uncouple the coupler by the reciprocation of the brake-shaft.

7. In a car coupler, the combination of a frame; a shaft journaled in the frame; a cog-wheel fixed to such shaft; a brake-chain having one end secured to the shaft; a pinion provided upon each face with a projecting hub or collar, journaled in the frame thereby and meshing with the cog-wheel, such pinion being provided with an angular opening; a brake-shaft journaled to rotate and arranged to reciprocate vertically, and having an angular stem arranged to slide in the opening in the pinion; an automatic coupler; and suitable means connecting the coupler with the brake-shaft and adapted to operate the coupler by the reciprocation of the brake-shaft.

575,224. WEATHER-STRIP FOR DOORS OR WINDOWS. FREDERICK FOURNIER, Chicago, Ill. Filed Mar. 28, 1896. Serial No. 585,273. (No model.)



Claim.—1. The combination, with a door or window recessed at its lower edge, of a weather-strip pivotally secured in said recess, the same consisting of a flexible strip clamped between and projecting each way beyond a pair of angle-strips, the free edges of said flexible strip being movable, a crank-arm attached to the weather-strip at one end and extending beyond the door, and a slotted plate secured to the door or window with which the crank-arm engages to automatically throw the weather-strip into or out of engagement, substantially as described.

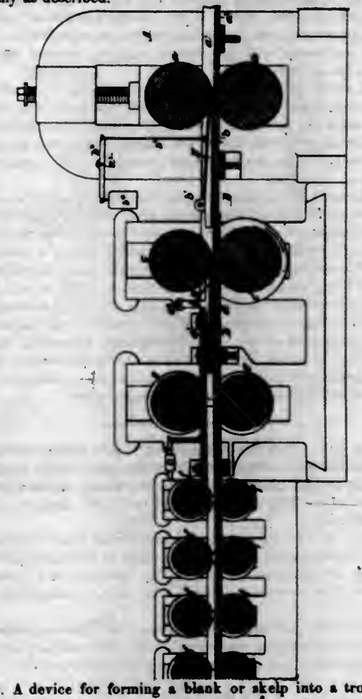
2. The combination, with a door or window recessed at its lower edge, of a weather-strip pivotally secured at its ends in said recess, the same consisting of a flexible strip clamped between and projecting each way beyond a pair of angle-strips, the lower portion of said angle-strips being substantially the width of said recess, and the free edges of said flexible strip being movable, one of which is arranged to engage the inner portion of said recess and the other the sill of the door, a crank-arm attached to the weather-strip at one end and extending beyond the door, and a slotted plate secured to the door or window with which the crank-arm engages to automatically throw the weather-strip into or out of engagement with the door and sill, substantially as described.

3. The combination, with a door having a rabbet in its lower edge, and a pair of angle-strips located in the rabbet, of a flexible strip between and projecting each way beyond the angle-strip, a pair of plates secured to the door, a pair of links journaled in said plates, one of the links having a crank-arm projecting beyond the door, a bolt passing through each link and through the angle-strips and a cheek-plate secured to the door-casing and provided with a slot arranged to engage and actuate the crank-arm, substantially as described.

575,225. MACHINE FOR MAKING TUBING. WILLIAM C. FRICK and THOMAS J. FRICK, Danville, Pa. Filed Dec. 14, 1894. Serial No. 531,845. (No model.)

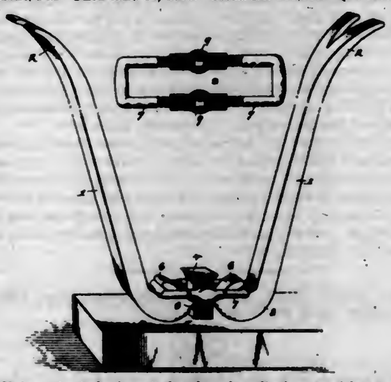
Claim.—1. The combination of a machine for rolling tubes in a continuous operation, said machine consisting in reducing and feeding rolls *a a*, a former B having a pivoted cover-plate B', a weight adapted to keep said plate against the upper feed-roll *a*, the plate and former being tapered and shaped to bend the flat blank to U shape, rolls beyond the former, one of said rolls having a U-shaped groove in its periphery, the other having a U-shaped tongue adapted to the groove, a former beyond the rolls U-shaped at the inlet end and circular at the opposite end, a pivoted mandrel within the former, and a pair of grooved rolls beyond the former, substantially as described.

2. In the rolls for making tubing, the combination of the feeding and reducing rolls *a a*, the former B having the pivoted plate, a weight adapted to force the plate up against the upper feed-roll, said former having a passage tapering from a flat to a U shape, a pair of feeding-rolls beyond the former one of said rolls having a U-shaped groove and the other having a U-shaped tongue adapted to the groove, the former D beyond this pair of rolls, said former tapering from a U shape to a round and having a pivoted mandrel therein, with a train of setting-rolls adapted to confine the tube until the metal sets, substantially as described.



3. A device for forming a blank or skelp into a trough or U shaped form, consisting essentially of a former having a tapered passage-way therein tapered from the flat to a U shape, with a cover pivoted at the U-shaped end of the former, the opposite end of said cover being shaped to conform to one of the feeding-rolls, and means for keeping the cover against the roll, substantially as described.

575,226. SPIKE AND BOLT PULLER. PHILIP J. FURLONG, Lake Mont, Fla. Filed Aug. 12, 1895. Serial No. 559,065. (No model.)



Claim.—1. A device of the class described, comprising a pair of oppositely-disposed operating-levers having their upper or outer portions forming handles, and bent at their lower ends to form fulcruming heels and provided with curved faces arranged to engage the opposite sides of a fastening device, whereby, when the levers are fulcrumed on their heels the engaging portion will exert a continuous lifting action on the fastening device as the handle portions of the levers are swung outward, and means for connecting the lower ends of the levers at points concentric with their curved engaging faces, substantially as described.

2. A device of the class described, comprising a pair of oppositely-disposed operating-levers having their upper or outer portions forming handles, and bent at their lower ends to form fulcruming heels and provided with curved faces arranged to engage the opposite sides of a fastening device, whereby when the levers are fulcrumed on their heels the engaging portions will exert a continuous lifting action on the fastening device as the handle portions of the levers are swung outward, and a link connecting the lower ends of the levers at points concentric with the curved engaging faces of the same, substantially as described.

3. A device of the class described, comprising a pair of oppositely-swinging operating-levers provided at their lower ends with fulcruming heels and having curved engaging edges and provided with openings concentric with the curved engaging edges, and a link connecting the levers and having its ends arranged in said openings, substantially as described.

4. A device of the class described, comprising a pair of operating-levers having their lower ends spaced apart and provided with openings, and having curved engaging edges or teeth concentric with the openings and arranged to engage the opposite sides of a spike or the like, said levers being provided at their lower ends with fulcruming heels and being adapted to exert a continuous lifting action on the fastening device when their upper portions are swung outward, and a link connecting the levers and having its ends arranged in the openings and composed of two sections adjustably connected, whereby the link may be varied in length to vary the space between the engaging portions of the levers to adapt the device to spikes and other articles of different sizes, substantially as described.

575,227. PROCESS OF MANUFACTURING ESTERS OF DIIODOSALICYLIC ACID. ALFRED GALLINEK and EMIL COURANT, Berlin, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed May 23, 1896. Serial No. 593,830. (Specimens.)

Claim.—1. The process herein described of manufacturing the esters of diiodosalicylic acid, which consists in subjecting salicylic-acid esters to the action of iodin in the presence of a compound which combines with the hydriodic acid formed, substantially as set forth.

2. As a new product, the alkyl ester of the diiodosalicylic acid, being a white crystalline compound, soluble with difficulty in water but easily in ether and hot alcohol and having the formula:

$$C_6H_2I_2\begin{matrix}OH\\COOAlk\end{matrix}$$

575,228. STABLE DIAZO COMPOUND. MORITZ VON GALLOIS, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Oct. 31, 1896. Serial No. 567,546. (No specimens.)

Claim.—1. The process herein described of manufacturing stable soluble non-explosive diazo compounds of paranitranilin and dianisidin in the form of a paste or powder, consisting in the concentration or evaporation to dryness of diazo solutions of paranitranilin and dianisidin at low temperature in presence of an excess of a mineral acid and in presence of an acid mineral salt, whereby not only the inflammability and explosiveness of the diazo compounds obtained are prevented, but the solutions obtained from the same rendered stable for dyeing and printing purposes, substantially as set forth.

2. As a new product, the paranitro diazo benzol sulfate, combined with an acid mineral salt and evaporated to dryness, said combination being a light, yellow powder, which is stable and non-explosive, easily soluble in water, insoluble in alcohol and benzene, and which when dissolved in water forms together with the alkaline beta-naphthol solution the well-known insoluble paranitranilin red dyestuff, substantially as set forth.

575,229. GATE. ROBERT GARRARD, Bedford, Iowa. Filed May 13, 1896. Serial No. 591,242. (No model.)

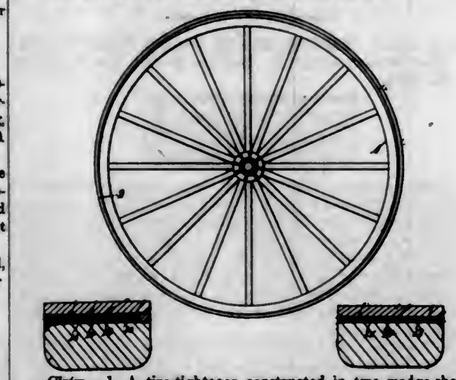


Claim.—1. The combination with the fence-posts and their rails, of the gate and latch posts, the inverted-U-shaped yoke having its ends let into recesses formed in the opposite sides of the posts, the opposite stub-shafts arranged in said yoke, the loose rollers thereon, the sliding gate having the overhanging track-rail at its upper edge resting on the rollers and having two of its longitudinal connecting-bars extended beyond its rear posts alongside the fence-rails, the cast plate connecting said extended bars and having a stub-shaft extended laterally between the fence-rails, and a loose roller flanged and mounted on the shaft and adapted to move in the track produced by the parallel adjacent edges of the fence-rails, substantially as specified.

2. The combination with the rail-fence, of the gate and latch posts, loose rollers arranged at opposite sides of the former, a gate having a track-rail at its upper edge resting on the pulleys and having two of its longitudinal bars extended rearwardly beyond the gate by the side of the fence and a roller loosely mounted upon said bars and engaged between the rails of the fence, substantially as specified.

3. The combination with the opposite gate-posts and the inverted-U-shaped yoke connecting the same, loose rollers at the upper end of the same, a gate having an oppositely-projecting flange at its upper edge resting on the rollers, rails extending in rear of the gate and having a roller, and a track supported in rear of the gate and supporting said roller, substantially as specified.

575,230. TIRE-TIGHTENER. ROBERT H. GARRETT, Troy, Tex. Filed Sept. 22, 1896. Serial No. 606,656. (No model.)



Claim.—1. A tire-tightener constructed in two wedge-shaped sections arranged to be passed one over the other, the thinner end of one section engaging with a stop at the thicker end of the opposing section, each section being provided with a stop intermediate of its ends, the stop of one section being on its under face and the stop on the other section being upon its upper face, the intermediate stops of the two sections being in engagement when the thinner ends of the two sections have found a bearing, as and for the purpose specified.

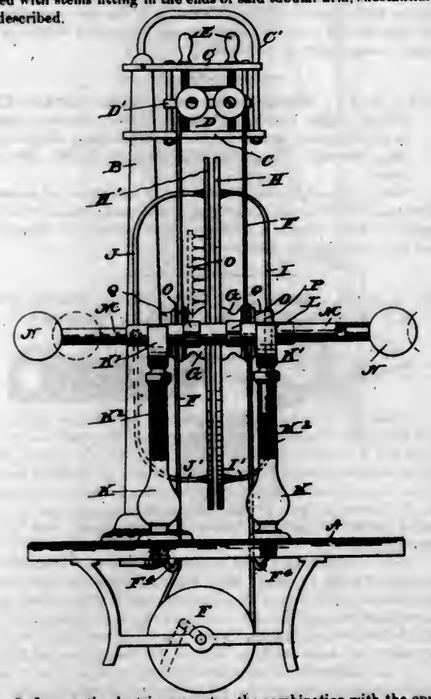
2. A tire-tightener, consisting of two sections of wedge construction, the opposing faces of the two sections being of like formation, namely, being provided with a shoulder at their thicker or outer ends, an intermediate shoulder, and inclined surfaces between the two shoulders and the intermediate shoulder and the thinner ends of the sections, the outer face of the upper section having a concavity, a concavity being also formed on the under face of the lower section of the tightener, as and for the purpose specified.

3. A tire-tightener, comprising the two wedge-shaped sections of predetermined lengths, and arranged to be fitted together between the tire and felly of a wheel to take up slack between the same, each section being formed with a thick and a thin side edge and an inclined face having the continuity of its incline broken by a shoulder adjacent the thick edge and a second shoulder half-way between the edges, the sections thus formed being arranged with such faces opposing, so that the intermediate shoulders will engage and the thin edge of one section abut against the shoulder adjacent the thick edge of the opposing section, as and for the purpose set forth.

575,231. STATIC GENERATOR. AUGUSTUS J. GAWEN, Sandusky, Ohio. Filed Oct. 10, 1896. Serial No. 608,510. (No model.)

Claim.—1. In a static electric generator, the combination with the table, the post secured thereto, the shaft secured to said post, the rotatable spools mounted on said shaft provided with flanges at their meeting or inner ends, the pulleys mounted on said spools, the oppositely-rotatable disks clamped between said flanges and pulleys and the screw-nuts engaging with the ends of said spools, of the driving-pulley located beneath the belt passing therearound and around the said pulleys, the frame secured to the upper end of said post, the vertically-movable bar having screw-threaded openings, the screws passing therethrough, and the pulleys journaled to said bar around which said belt also passes, substantially as described.

2. In a static electric generator, the combination with the oppositely-rotatable disks and the metal plates secured thereto, of the sectional posts, comprising the lower portion secured to the table of the generator, the tubular portion secured to said lower portion and the upper portion telescoping into said tubular portion, the laterally-slidable tubular arm connected with said upper portions of the posts, the current-collectors connected with said arm, and the terminals provided with stems fitting in the ends of said tubular arm, substantially as described.



3. In a static electric generator, the combination with the oppositely-rotating disks, the metal plates secured thereto and the brush-holders connected with the apparatus by telescoping or sliding joints or connections whereby the brushes may be given longitudinal or radial adjustment, of the laterally-movable tubular arm, the current-collectors connected therewith and the terminals having stems engaging with the ends of said arm, substantially as described.

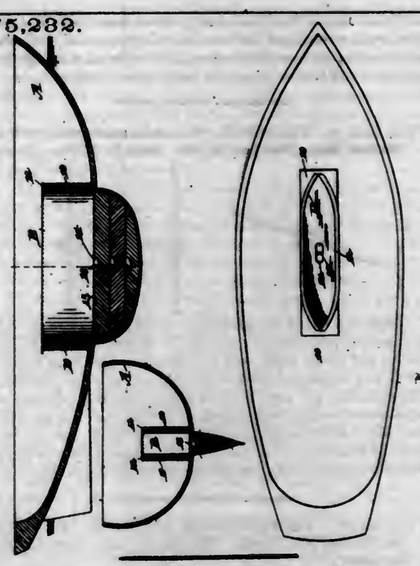
4. The brush-holders I, I', J, J', united to the general apparatus by telescoping or sliding joints or connections whereby the brushes may be given longitudinal or radial adjustment, substantially as described.

5. In a static electric generator, the combination with the table, the post secured thereto, the longitudinal shaft, the oppositely-rotating disks, the frame at the upper end of said post, the vertically-adjustable pulleys the single driving-belt, and the pulley located below the table, of the radially and longitudinally adjustable brush-holders, the sectional posts secured to said table, the laterally-slidable tubular arm, the current-collectors connected therewith, and the terminals provided with stems fitting in said tubular arm, substantially as described.

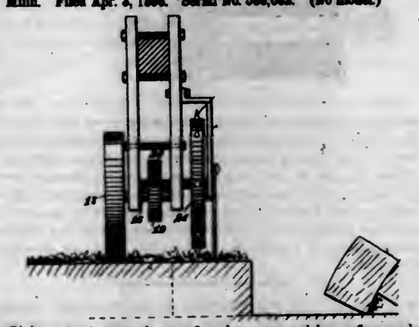
575,232. SAILING VESSEL. RANALD GILLIS, Sydney, Canada. Filed July 15, 1896. Serial No. 599,245. (No model.)

Claim.—1. A marine vessel, having a trunk rising from an opening in its bottom, a keel removably held within the trunk, the keel consisting in a shell and projecting through the opening and below the vessel, and a plurality of removable weights superposed in the shell and conforming to the shape thereof, substantially as described.

2. A vessel having an opening in its bottom, the opening being elongated fore and aft, a hollow or shell-like keel passing through the opening and extending below the vessel and conforming to the shape of the opening, and a series of weights elongated with the keel and removably seated within the keel, the weights being superposed on each other, and each weight snugly engaging the sides of the keel, substantially as described.



575,233. PLOW ATTACHMENT. PATRICK H. GRAHAM, Millwood, Minn. Filed Apr. 3, 1896. Serial No. 586,062. (No model.)



Claim.—1. An attachment for plows, comprising a frame, shafts journaled in the said frame one in advance of the other, a traction-wheel secured to one shaft at one side of the frame being adapted to travel at the land side of the plow, a driving connection between the shafts, and a separating and distributing wheel secured to the driven shaft at the opposite side of the frame being located at the furrow side of the plow, as and for the purpose specified.

2. An attachment for plows, comprising a frame arranged for attachment to a plow-beam in advance of the plow, shafts journaled in the said frame one in advance of the other, pinions on the said shaft in mesh with each other, a traction-wheel secured to one shaft and adapted to travel on the ground at the land side of the plow, and a distributing-wheel secured upon the driven shaft being out of engagement with the ground and having peripheral teeth, as and for the purpose set forth.

3. An attachment for plows, comprising a frame arranged to be secured to the plow-beam in advance of the plow and vertically adjustable thereon, a traction-wheel journaled in the said frame at the land side of the plow, and a separating and distributing wheel driven from the traction-wheel and journaled in the frame at the furrow side of the plow and in advance of the traction-wheel, as and for the purpose specified.

4. An attachment for plows, comprising a frame arranged to be secured to the plow-beam in advance of the plow, a traction-wheel journaled in the said frame at the land side of the plow, and a distributing-wheel journaled in the frame at the furrow side of the plow and in advance of the traction-wheel, the distributing-wheel being driven from the traction-wheel and the distributing-wheel turning in a direction the reverse of that of the traction-wheel, the distributing-wheel being also elevated from the ground and provided with peripheral teeth of sufficient length to contact with the surface of the ground, as set forth.

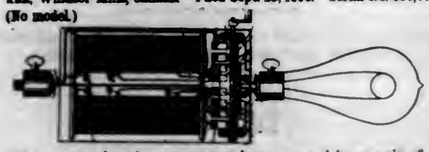
5. An attachment for plows, comprising a frame, a traction-wheel located at the land side of the frame, a distributing-wheel located at

the furrow side of the frame, being driven from the said traction-wheel, and a trailing arm also located at the furrow side of the frame, and extending rearwardly therefrom, said trailing arm being adapted to travel in the furrow, as and for the purpose specified.

575,234. **WIRE FENCE.** WALTER HAGAMAN and ERWIN D. CARY, Frontier, Mich. Filed Sept. 26, 1896. Serial No. 607,099. (No model.)

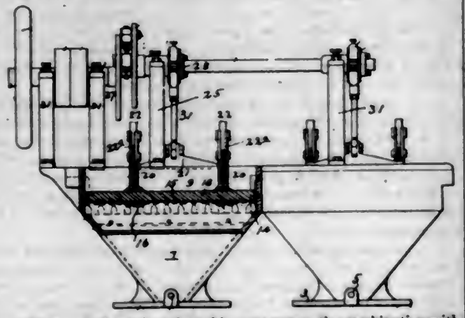
Claim.—A lock for intersecting wires comprising an eye having an extension provided with a groove in alinement with the bore of said eye and of less depth than the diameter of the wire to be fitted therein, and an integral pliable clamping arm or claw extending laterally from the eye and curved to form a wire-seat, whereby intersecting wires arranged respectively in said eye and seat are adapted to be held in frictional contact by the inward bending of the extremity of said clamping arm or claw, the clamping-arm terminating short of the lower end of the extension substantially as specified.

575,235. **ELECTRIC-CURRENT REGULATOR.** WILLIAM HAWKER, Windsor Mills, Canada. Filed Sept. 25, 1896. Serial No. 606,937. (No model.)



Claim.—An electric-current regulator, comprising a pair of resistance-coils, lead-wires having shunt connections with one end of said coils, a pair of contact-plates with which the lead-wires connect, pairs of contact-plates having shunt-wire connections with the coils at different points of their length, a pair of contact-plates common to all the other pairs of contact-plates and adapted for connection with a lamp or other device, a block carrying contacts for connecting the last-named contact-plates with either single pair of the first-named contact-plates, and a screw-shaft for moving said block, substantially as specified.

575,236. **JIG FOR MINERAL OR ORE WASHING.** CHARLES J. HOSES, Houghton, Mich. Filed June 29, 1896. Serial No. 597,423. (No model.)



Claim.—1. In a mineral-washing apparatus, the combination with the connected tanks, having converging lower ends and vertical upper ends, of the partitions dividing the upper ends of each of said tanks into two compartments, the vertically-reciprocating plungers located in said inner compartments, the vertical sockets near the ends of said plungers, the guide-rods and stationary cross-heads, the arches spanning the inner wall of said tanks and the reciprocating cross-head connected therewith and means for imparting a variable speed to said plungers, substantially as described.

2. In a mineral-washing apparatus, the combination with the connected tanks, having converging lower ends and vertical upper ends, the partitions dividing the upper ends of each of said tanks into two compartments the shoulders on said tanks and partitions, the outwardly-extending inclined deflecting-plates, the sieves supported on said shoulders and the removable strips resting upon the upper sides of said sieves, of the vertically-reciprocating plungers, the vertical sockets near the ends thereof, the guide-rods and stationary cross-heads, the arches spanning the inner wall of said tanks, the reciprocating cross-heads connected therewith and means for operating said plungers, substantially as described.

3. In a mineral-washing apparatus of the character described, the combination with the tanks and sieves, of the plungers, the cross-heads connecting the same, the pitmen, the eccentric-bands, the eccentrics, the eccentric-shaft having a variable speed, the disk at one end thereof provided with a wrist-pin, the driving-shaft provided with a corresponding disk, the wrist-pins secured to said disks eccentric to each other, the boxes in which said pins are journaled and the rods secured to one of said boxes, and movable or slidable in the other; substantially as described.

575,237. **PROCESS OF MANUFACTURING AROMATIC ALDEHYDES.** BENNO HOMOLKA, Frankfort-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed June 4, 1896. Serial No. 594,193. (No specimens.)

Claim.—The process herein described of manufacturing aromatic aldehydes, which consists in subjecting monobenzylanilin its homologues or nitro products to oxidation in the presence of dilute mineral acids, substantially as set forth.

575,238. **TEMPORARY BINDER.** HOMER J. HOTCHKISS, Ithaca, N. Y. Filed Feb. 23, 1896. Serial No. 581,139. (No model.)



Claim.—1. In a temporary binder, the combination with a support having an opening, and a clip secured to the support and having a fold and a portion extending over a part of the said opening, of an arched file-hook having a lateral pintle at one end fitted in the fold of the clip and having its opposite end bent and adapted to be passed into the aforesaid opening and automatically engage with the projecting portion of the clip, substantially in the manner and for the purpose specified.

2. In a temporary binder, the combination with a support or backing, of a clip formed of sheet metal having a slot between its ends and a notch in one of the said ends, and a file-hook having a pintle thrust through the said slot of the clip and operating in the fold of the latter, and having its free end bent to be passed through the said notch, substantially as set forth for the purpose described.

3. In combination, a support or backing having a slit a short distance from its edge and having an opening intersecting with the slit, a clip constructed from a blank having a slot between its ends and a notch in one end, said blank being folded over the edge of the support and having an end portion passed through the said slit and clenched upon the opposite end portion, and a file-hook journaled in the fold or bight of the blank and having its free end bent and adapted to be passed through the said notch and engaged with the clip to one side of the notch, substantially as set forth.

4. In combination, a support or backing, a clip secured thereto and having openings 8 and 10 out of alinement, and a file-hook journaled to the clip and operating in the opening 8, and having its free end bent and adapted to be passed through the opening 10 and engage with the clip to one side of the said opening, substantially as set forth.

5. In combination, a support having a slit a short distance from its edge, an opening intersecting with the slit, and having a notch or depression in its outer edge opposite an end portion of the slit, a clip having a slot between its ends and folded over the edge portion of the support, and having a notch in one end, and having an end portion passed through the said slit and clenched upon the opposite end portion, the said notch in the end of the clip registering with the opening intersecting with the slit, and a file-hook having a pintle fitted in the space provided by notching the support, and having its free end bent and adapted to engage with a portion of the clip adjacent to the notch therein, substantially as set forth.

6. The combination with a support having a straight and an inclined notch in its edge, and a clip fitted to the edge of the support and inclosing the said notches, of a file-hook having a pintle at one end to be detachably connected with the clip and having its free end constructed to engage with the clip, substantially as and for the purpose set forth.

7. In combination, a support or backing having a straight and an inclined notch in its edge, a clip fitted to the edge portion of the support and having a substantially L-shaped slot adjacent to the edge portion of the support, and a file-hook having a pintle to be detachably connected with the clip by being removably inserted in the slot thereof, substantially in the manner and for the purpose described.

575,239. **COMBINED PAPER-BOX AND PRINTING MACHINE.** GEORGE A. HUEWE and WILLIAM T. EMMES, Cincinnati, Ohio, assignors to the Keys, Lee & Huewe Company, same place. Filed Oct. 24, 1895 Serial No. 566,726. (No model.)



Claim.—1. In a paper-box machine, the combination of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, scoring and cutting mechanism operated by the rotation of said shaft, a gear-wheel mounted on this shaft, a shaft journaled in the main frame parallel with the shaft in the adjustable frame and geared with the press, and a pinion-gear movable longitudinally thereon and connected with the aforesaid gear-wheel, substantially as described.

2. In a paper-box machine, the combination of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, an eccentric on said shaft, a box surrounding the eccentric, a screw connecting the box with scoring and cutting mechanism, said scoring and cutting mechanism, a shaft journaled in the main frame parallel with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally thereon and connected with a gear-wheel mounted on the first-mentioned shaft, and the said gear-wheel, substantially as described.

3. In a paper-box machine, the combination of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, scoring and cutting mechanism operated by the rotation of said shaft, a gear-wheel mounted on this shaft, a shaft journaled in the main frame parallel with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally thereon and connected with the aforesaid gear-wheel, paper-feeding mechanism on the adjustable frame, and a disk on the shaft in the adjustable frame and a crank-arm adjustably secured to said disk for operating the feeding mechanism, substantially as described.

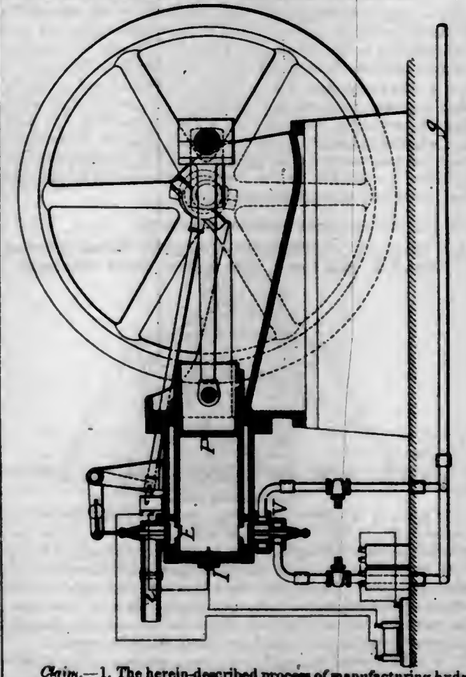
4. In a paper-box machine, the combination of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, an eccentric on said shaft, a box surrounding the eccentric, a screw connecting the box with scoring and cutting mechanism, said scoring and cutting mechanism, a shaft journaled in the main frame parallel with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally thereon and connected with the aforesaid gear-wheel, paper-feeding mechanism on the adjustable frame, and a disk on the shaft in the adjustable frame and a crank-arm adjustably secured to said disk for operating the feeding mechanism, substantially as described.

5. In the herein-described machine, the combination of a printing-press, a frame adjustable to and from said press, a shaft journaled therein in the line of its adjustment, a disk on said shaft, a crank-arm adjustably secured to the disk, a sector-gear mounted on the adjustable frame and pivotally connected with the crank-arm, a shaft for operating the paper-feeding mechanism, said feeding mechanism, a gear loose on the last-named shaft and engaged by the sector-gear, with a pawl-and-ratchet connection between the loose gear and its shaft, substantially as described.

6. In the herein-described machine, the combination of a printing-press, a frame adjustable to and from said press, a shaft journaled therein in the line of its adjustment, an eccentric on said shaft, a box surrounding the eccentric, a screw for connecting the box with scoring and cutting mechanism, the said scoring and cutting mechanism, a disk on the said shaft, a crank-arm adjustably secured to the disk, a sector-gear mounted on the adjustable frame and pivotally connected with the crank-arm, a shaft for operating the paper-feeding mechanism, said feeding mechanism, a gear loose on the last-named shaft and engaged by the sector-gear, and a pawl-and-ratchet connection between the loose gear and its shaft, substantially as described.

7. In a paper-box machine, the combination of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, an eccentric on said shaft, a box surrounding the eccentric, a screw for connecting the box with scoring and cutting mechanism, the said scoring and cutting mechanism, a disk on the said shaft, a crank-arm adjustably secured to the disk, a sector-gear mounted on the adjustable frame and pivotally connected with the crank-arm, a shaft for operating the paper-feeding mechanism, said feeding mechanism, a gear loose on the last-named shaft and engaged by the sector-gear, a pawl-and-ratchet connection between the loose gear and its shaft, a shaft journaled in the main bed-frame parallel with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally on the shaft in the main frame and connected with a gear on the shaft in the adjustable frame, and the last-mentioned gear, substantially as described.

575,240. **PROCESS OF MAKING HYDROCYANIC ACID.** ALFRED K. HUNTINGTON, London, England. Filed Feb. 17, 1896. Serial No. 579,637. (No specimens.) Patented in England Aug. 6, 1895, No. 14,855; in France Feb. 5, 1896, No. 253,740; in Belgium Feb. 5, 1896, No. 119,656; in Norway Feb. 7, 1896, No. 4,807; in Transvaal Mar. 10, 1896, No. 1,078, and in Cape Colony July 11, 1896, No. 1,184.

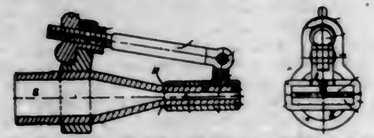


Claim.—1. The herein-described process of manufacturing hydrocyanic acid which consists in mingling acetylene and nitric oxid, and igniting and rapidly burning the mixture, substantially as described.

2. The described process of manufacturing hydrocyanic acid, which consists in mingling acetylene and nitric oxid, igniting and rapidly burning the mixture in a closed chamber, and expelling the products of combustion, substantially as described.

3. The described process of manufacturing hydrocyanic acid, which consists in mingling acetylene and nitric oxid, submitting the mixture to rapid combustion in a closed chamber, expelling the carbonic oxid, hydrogen, and hydrocyanic-acid gases produced by said combustion, and passing said products through solutions of substances which combine with hydrocyanic acid, such as soda or potash, substantially as described.

575,241. APPARATUS FOR EXHAUSTING, PROPELLING, OR INDUCING CURRENTS IN AIR OR OTHER FLUIDS. CHRISTOPHER W. JAMES and GEORGE WATSON, Leeds, England. Filed Feb. 12, 1896. Serial No. 579,079. (No model.) Patented in England Dec. 30, 1894, No. 24,751; in Germany Sept. 29, 1895, No. 90,013; in Belgium Dec. 31, 1895, No. 118,775, and in France Mar. 30, 1896, No. 252,271.



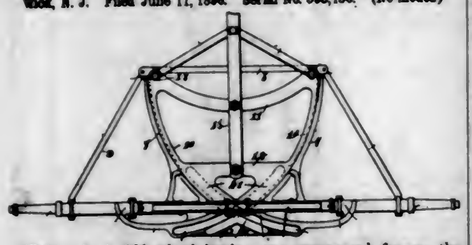
Claim.—1. In apparatus for exhausting, propelling or inducing currents in air or other fluids, the combination of a nozzle having a rectangular discharge-orifice provided with movable and fixed sides, the adjacent faces of said sides having flat, parallel and unbroken surfaces, and means for adjusting said movable side for increasing and diminishing the sectional area of the discharge-orifice, substantially as described.

2. In apparatus for exhausting, propelling, or inducing currents in air or other fluids, the combination of a nozzle having a rectangular discharge-orifice provided with movable and fixed sides, the adjacent faces of said sides having flat, parallel and unbroken surfaces and means for adjusting said movable side for increasing and diminishing the sectional area of the discharge-orifice, and a trumpet arranged over the end of said nozzle and shaped in cross-section to correspond to the cross-sectional shape of the nozzle, said trumpet having flaring ends and an intermediate contracted portion, substantially as described.

3. The combination in a nozzle, of a tube flattened at one end to form a rectangular discharge-orifice and divided at the edges of the flattened portion to form two jaws, a sleeve surrounding said jaws and attached to one of them, and means for adjusting the other jaw toward and away from the fixed jaw, substantially as described.

4. The combination in a nozzle, of a tube flattened at one end to form a rectangular discharge-orifice and divided at the edges of the flattened portion to form two jaws, a sleeve surrounding said jaws, and attached to one of them, a rod pivotally attached at one end to the other jaw, said rod at its opposite end being threaded, and a nut journaled in a bracket fixed on said tube and engaging the threaded end of said rod, substantially as described.

575,242. FIFTH-WHEEL. ALFRED W. JOHNSON, New Brunswick, N. J. Filed June 11, 1896. Serial No. 595,156. (No model.)

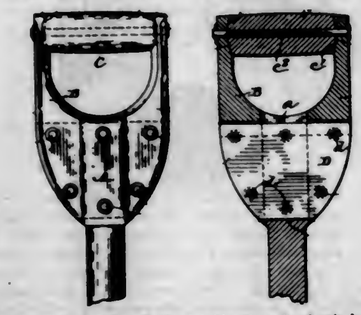


Claim.—1. A fifth-wheel having two superposed frames, the frames having at their rear portions two points on which they may have independent rocking movement, each frame also having a groove at its forward portion and in the faces respectively adjacent to each other, each groove having two runs with angular disposition to each other and the two grooves being arranged oppositely to each other, and an antifriction-ball freely movable in the grooves and supporting the upper frame on the lower frame, substantially as described.

2. A fifth-wheel having two superposed frames having at their rear portions two points on which they may have independent rocking movement, such points being in transverse alinement with each other, each frame having a groove at its forward portion and in the faces respectively adjacent to each other, each grooves having two curved runs with angular disposition to each other, such runs in each groove being respectively concentric to the points of rocking movement and the grooves having a reversed relative arrangement whereby the runs of one groove respectively lie in the arcs of the runs of the remaining groove, and a ball free in the grooves and supporting the upper frame in the lower frame, substantially as described.

3. A fifth-wheel having two superposed frames, the lower or axle frame having a transversely-extended front portion in the upper side of which a groove is formed, the groove having two runs, each curving inward and rearward and communicating with each other at their rear ends and the axle-frame having two curved side portions extending rearwardly from the front portion and each terminating with a lug located at its inner side and projecting forwardly to form a notch or socket, the upper or body frame having at its rear portion two downwardly-extending studs respectively bearing in the notches or sockets whereby the body-frame may move in a horizontal plane on either stud and the studs respectively being concentric to the arcs of the runs of the groove in the axle-frame, the body-frame extending forwardly to the front portion of the axle-frame and having in its lower side a groove with two runs each curved inwardly and forwardly and being respectively in the arcs of the runs of the groove in the axle-frame, and an antifriction-ball freely movable in the grooves and supporting the body-frame on the axle-frame, substantially as described.

575,243. SHOVEL-HANDLE. WILLIAM H. JOHNSON, Veedersburg, Ind. Filed Apr. 6, 1896. Serial No. 586,383. (No model.)

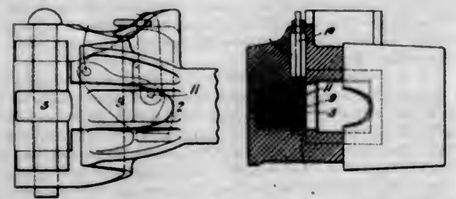


Claim.—1. In a handle the combination of a shank, handle-pieces attached thereto, and a hand-grip having grooved ends and so mounted between the free ends of the said handle-pieces as to wedge and tighten upon the same upon being turned one way or the other out of its normal position, substantially as described.

2. In a handle, the combination of a shank having an open slot formed in its upper end, handle-pieces on each side of the same and having open slots formed in their lower ends, a brace-plate projecting through the slot in the shank and the slots in the handle-pieces, and a grip-piece between the outer ends of said handle-pieces, substantially as described.

3. In a handle the combination with a shank of handle-pieces attached thereto and having the inner faces of their upper free ends curved laterally and concaved vertically, and a hand-grip having its ends cut to fit said curved and concaved portions of the handle-pieces and secured to the same by a bolt, or rivet, substantially as described.

575,244. CAR-COUPLING. STEWART JOHNSTON and BESCHER H. RINEHART, Alliance, Ohio. Filed Aug. 3, 1896. Serial No. 601,423. (No model.)



Claim.—1. In a car-coupling the combination of a hollow draw-head, a pivoted knuckle adapted to swing into said draw-head having a tailpiece convexly rounded upon the upper and outer side substantially of its entire length, and provided with an inner flat vertical bearing-surface, a gravity-operated latch pivoted longitudinally of the draw-head having a rounded convex inner under surface for engaging with the rounded surface of the tail of the knuckle during the entire inward movement thereof, said latch being entirely inclosed within the draw-head in a vertical longitudinal chamber, immediately in rear of the pivot of the knuckle, and having also a flat vertical bearing-surface adapted to engage with the flat vertical bearing-surface of the tail of the knuckle when in a locking position, the pivot of said latch being located at its extreme forward end within the front portion of said vertical chamber, whereby the point of contact between the tail of the knuckle and the latch in relation to the pivotal bearing of the latch recedes from such pivotal bearing on the closing of the hook, thereby steadily increasing the leverage of the tailpiece upon the locking-plate, substantially as set forth.

2. In a car-coupling the combination of a hollow draw-head, a pivoted knuckle adapted to swing into said draw-head having a tailpiece convexly rounded upon the upper and outer side substantially of its entire length, and provided with an inner flat vertical bearing-surface, a gravity-operated latch pivoted longitudinally of the draw-head having a rounded convex inner under surface for engaging with the rounded surface of the tail of the knuckle during the entire inward movement thereof, said latch being entirely inclosed within the draw-head in a vertical longitudinal chamber, immediately in rear of the pivot of the knuckle, and having also a flat vertical bearing surface adapted to engage with the flat vertical bearing-surface of the tail of the knuckle when in a locking position, the pivot of said latch being located at its extreme forward end within the front portion of said vertical chamber, whereby the point of contact between the tail of the knuckle and the latch in relation to the pivotal bearing of the latch recedes from such pivotal bearing on the closing of the hook, thereby steadily increasing the leverage of the tailpiece upon the locking-plate, and means for disengaging said latch and knuckle, substantially as set forth.

575,245. CASTER. ALFONSO E. JUDKINS, Brockton, Mass., assignor, by direct and mesne assignments, of two-thirds to Benjamin S. Atwood, Whitman, Mass. Filed Nov. 18, 1896. Serial No. 569,332. (No model.)

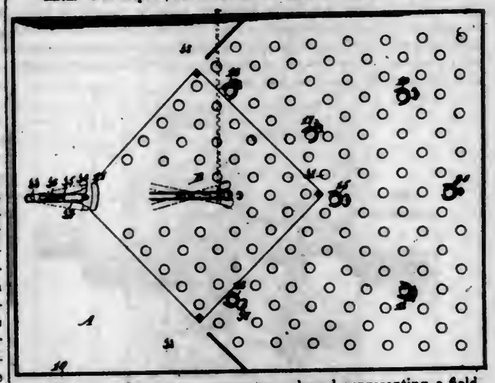
Claim.—In a roller or caster device the combination of a hollow rotating drum having a central disk as described; with a housing having stationary central disks, located within the said rotating drum, and having shoulders adapted to form bearings for friction-rollers said rollers forming together a bearing for the rotating drum, and said rollers substantially as and for the purpose set forth.

575,246. FLEXIBLE LADDER. THEODORE W. KNITHLEY, Montevideo, Minn. Filed May 5, 1896. Serial No. 590,311. (No model.)

Claim.—1. A flexible ladder comprising sections flexibly connected with each other, each section being formed of a rod or wire bent to form a rung, two sides and braces extending from the sides to the rung, substantially as described.

2. A flexible ladder, provided with a series of sections flexibly connected with each other, each section being formed of a single piece of wire formed into a rung, terminating at its ends in eyes from which extend sides terminating in eyes, from which eyes lead inwardly braces connected with the rung, the braces terminating in twists engaging part of the rung at the middle thereof, substantially as described.

575,247. GAME APPARATUS. JEROME G. KIAH, Sand Beach, Mich. Filed Apr. 2, 1896. Serial No. 585,872. (No model.)



Claim.—1. In a game apparatus a board representing a field, cages located on the board, representing the position of players in a base-ball game, a pivoted incline representing the pitcher's box and adapted to receive a rolling object, a rod connected with the incline for laterally moving the same, and a device located in front of the incline and adapted to strike the object delivered from the incline, as and for the purpose set forth.

2. A game apparatus comprising a board representing a field, the board being provided with a number of pockets, cages secured to the board, in position corresponding to the position of players in a base-ball game, an incline representing the pitcher's box and adapted to receive a rolling object, means for laterally moving the incline, and a pivoted plunger located in position to receive the object from the incline, as and for the purpose specified.

3. A game apparatus consisting of a board representing a base-ball field, the said board being provided with pockets at the in and out field portions thereof, cages secured to the said board, placed to represent the position of the players in a base-ball game, an inclined plane representing a pitcher's box pivoted to the said board and adapted to receive a rolling object, a shifting device connected with the inclined plane, and a spring-controlled plunger placed adjacent to the representation of a home plate, the said plunger representing the batter, as and for the purpose specified.

4. A game apparatus, consisting of a board representing a field, cages located on the board representing the position of players in a base-ball game, an incline representing the pitcher's box and adapted to receive a rolling object, a plunger located in front of said incline and representing a batter, and a shifting device for said incline, comprising a bracket connected to the said incline and pivoted to the board, a pin connected with the said bracket and extending through a slot in said board, and a rod connected with the said pin and extending beyond one side of the board or field, as and for the purpose set forth.

575,248. BOTTLE-LOCK. FRED W. KOEHLER, Chicago, Ill. Filed July 23, 1896. Serial No. 600,744. (No model.)

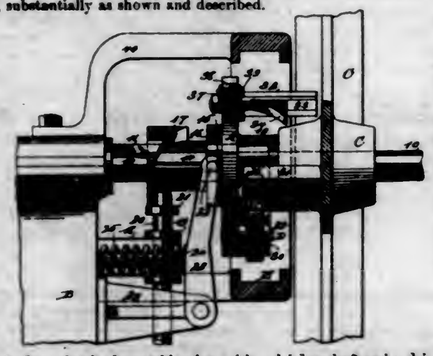


Claim.—The combination with a bottle-neck and cap therefor, of a vertical channel with a transverse branch, a spur to operate in said channels and a locking-spring, attached to said spur, to enter and hold on the side of said vertical channel, in locked position, substantially as specified.

575,249. CLUTCH. THEODORE J. KOVEN, Jersey City, N. J. Filed May 13, 1896. Serial No. 591,331. (No model.)

Claim.—1. In a clutch, the combination, with a driving-shaft and a driving-pulley loosely mounted thereon, the said pulley being provided with an extension from its hub, of a disk mounted to slide upon and turn with the drive-shaft, the said disk being provided with a hub having a recess therein, the extension of the driving-pulley extending over said hub, an angle-lever pivoted upon the disk, one member whereof is adapted to enter the recess in the hub of the disk

and is located in the path of the extension from the driving-pulley, the other member of the said lever being curved, a pin adapted as a fulcrum for the lever and for engagement with its curved member, the said pin having substantially a fixed relation to the lever, the latter having movement upon the pin, and a shifting mechanism whereby the clutch may be carried out of the path of the driving-pulley extension, substantially as shown and described.



2. In a clutch, the combination, with a driving-shaft and a driving-pulley loosely mounted thereon and provided with an extension of its hub, of a clutch comprising a disk mounted to slide upon and turn with the driving-shaft, the said disk being provided with a hub over which the extension of the driving-pulley is adapted to extend, the said hub having a recess therein, an angle-lever pivoted upon the disk, one member whereof is adapted for engagement with the extension from the driving-pulley and adapted to enter the recess in the disk-hub, the opposite member having a curved surface, a regulating-ring surrounding the disk, a pin carried by the said regulating-ring, adapted as a fulcrum for the said lever and for engagement with its curved member, a cam connection between the disk and the said ring, and means, substantially as shown and described, for releasing the ring from the disk and simultaneously turning it, as and for the purpose set forth.

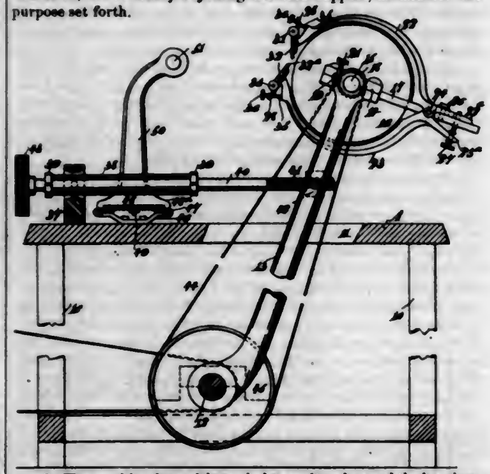
3. The combination, with a driving-shaft and a driving-pulley mounted thereon and provided with an extension of its hub, of a clutch comprising a disk mounted to slide upon and turn with the drive-shaft, the said disk being provided with a hub over which the extension of the driving-pulley is adapted to extend, said hub having a recess therein, an angle-lever pivoted upon the disk, one member whereof is adapted for engagement with the extension from the driving-pulley and adapted to enter the recess in the disk-hub, the opposite member having a curved surface, a regulating-ring surrounding the disk, a pin carried by the said regulating-ring, adapted as a fulcrum for the said lever and for engagement with its curved member, a cam connection between the disk and the said ring, means substantially as shown and described, for releasing the ring from the disk and simultaneously turning it, a shifting sleeve connected with the disk, spring-controlled arms pivoted to a fixed support and having outward bearing on the sleeve, a cam carried by the sleeve, and a movable directing-shaft adapted for engagement with the cam, substantially as shown and described.

4. In a clutch, the combination, with a driving-shaft and a driving-pulley mounted thereon and having an extension from its hub, of a clutch comprising a disk mounted to slide upon and turn with the shaft, an angle-lever pivoted upon the disk, one member whereof is adapted to enter a slot in the hub of the disk, the said member being in the path of the extension of the driving-pulley, the opposite end of the lever having a curved face, an adjusting-ring loosely mounted around the disk, a casing in which the said ring has movement, dogs carried by the ring and adapted for engagement with the casing, a spring-controlled locking-cam carried by the disk and adapted for engagement with the said ring, and a pin adapted as a fulcrum for the lever, carried by the ring and engaging with the curved member of the lever, and a shifting mechanism connected with the disk, as and for the purpose set forth.

575,250. GRINDING-LATHE. FRANK P. KUHN and CHARLES M. KUHN, Kearney, Nebr., assignors of one-half to Joseph H. Black & Sons, same place. Filed Jan. 13, 1896. Serial No. 575,313. (No model.)

Claim.—1. The combination, with a grindstone, of guides or fingers adjustable with reference to the said grindstone, one of the guides or fingers being adjustable to and from the stone, substantially as shown and described.

2. The combination, with a grindstone and its arbor, of a bifurcated support loosely mounted on the boxing of the arbor at each side of the said stone, guides or fingers located one above and the other below the stone, conforming to the curvature of said stone, being carried by the aforesaid support, and means, substantially as described, for vertically adjusting the said support, as and for the purpose set forth.



3. The combination, with a grindstone, its arbor and the bearings therefor, of a support having a bifurcated end straddling the stone and loosely mounted on the boxing of the arbor thereof, segmental guides or fingers located one above and the other below the stone, the said guides or fingers being carried by the bifurcated support, one of the said fingers or guides being adjustable to or from the stone, and an adjusting mechanism connected with the said support, whereby the support may be raised and lowered and the fingers or guides may be adjusted around the stone without changing their relative positions thereto, as and for the purpose set forth.

4. The combination, with a grindstone, its arbor and a support therefor, of semicircular fingers or guides located one above and the other below the said stone, and mounted to have adjustment around the stone, and a shoe located at the free end of each finger or guide, having adjustment to and from the periphery of the stone, and in direction of the sides of the same, as and for the purpose specified.

5. The combination, with a grindstone, its arbor and the supports therefor, of semicircular fingers or guides arranged one above and the other below the stone, being mounted to revolve around said stone, a supporting-plate pivoted at the free end of each finger or guide, means for adjusting the said plates to and from the periphery of the stone, and shoes located upon the said supporting-plates, being capable of side adjustment and having their edges adjacent to the stone curved and beveled, as and for the purpose set forth.

6. The combination, with a grindstone, of guides partially encircling the said stone, adjustable to and from its periphery and capable of rotary movement around said periphery, and shoes carried by the free ends of the guides or fingers, having adjustment to and from the periphery of the stone, and likewise being capable of side adjustment, substantially as shown and described.

7. In a machine for grinding sickles and other blades or cutters, the combination, with a grindstone and guides or fingers partially surrounding the same, of a plate pivoted to the free end of each finger or guide, the said plates extending in direction of each other and in direction of the periphery of the stone, adjusting-screws having bearings on the said fingers and connected with the ends of the plates farthest removed from said stone, a shoe pivoted upon each of the plates, extending from the free ends of the plates in direction of the periphery of the stone, and adjusting-screws carried by the plates and connected with the shoes, whereby the latter may have side adjustment, as and for the purpose specified.

8. The combination with a frame having a work-holder thereon, of a grinding-wheel mounted on the frame, a yoke fixed adjacent to and embracing the grinding-wheel and two curved fingers pivoted on the yoke and capable of adjustment with relation to the grinding-wheel, substantially as described.

9. The combination with a frame having a work-holder thereon, of a grinding-wheel mounted on the frame, a yoke held on the support of the grinding-wheel and embracing the grinding-wheel, and two curved fingers carried by the yoke and extending around the grinding-wheel, the fingers being adjustable with relation to the grinding-wheel, substantially as described.

10. The combination with a frame having a work-holder, of a grinding-wheel mounted on the frame, a curved finger pivotally mounted adjacent to the wheel, and an adjustable screw carried by the finger, substantially as described.

11. The combination with a frame having a work-holder, of a pivotally-mounted arm carried by the frame, a grinding-wheel mounted on the arm, means for moving the arm, a yoke carried by the arm, and a curved finger pivotally connected to the yoke and capable of adjustment with relation to the grinding-wheel, substantially as described.

575,251. NUT-LOCK. VERNON A. LAUB and PAUL F. LAUB, Cross Fork, Pa. Filed Feb. 11, 1896. Serial No. 578,890. (No model.)



Claim.—1. A nut-lock comprising a body having a circular bolt-receiving opening, arms extending inward from opposite sides of the body and provided with interlocking teeth adapted to engage each other when the body is compressed, and lugs located at the outer ends of the arms, presenting straight outer edges and adapted to be engaged by a tool, whereby the body is compressed to interlock the said teeth, substantially as described.

2. A nut-lock comprising a body having a bolt-receiving opening and provided with enlargements or lugs adapted to receive a tool for compressing the body, a projection extending inward from the body and arranged to engage the threads of a bolt, a pair of arms disposed substantially parallel, extending inward from one side of the body and provided at their outer ends with teeth, and an arm extending inward from the other side of the body and provided with an arrow-head, adapted to be inserted between the said arm and capable of interlocking with the teeth thereof, substantially as described.

575,252. AUTOMATIC DUST VALVE OR SHIELD FOR COUPLINGS OF AIR-BRAKES. JOHN A. LAWRENCE, Columbus, Ohio. Filed Sept. 23, 1896. Serial No. 606,744. (No model.)



Claim.—1. In an air-brake coupling, the combination with a coupler-head, of a spring-actuated lever and a valve plate pivotally mounted on the end of the lever and adapted to seat upon the air-opening, substantially as described.

2. In an air-brake coupling, the combination with a coupler-head, of a spring-actuated lever, a valve-plate pivotally connected to the end of said lever, the latter being provided with a stop to limit the play of the valve-plate upon its pivot, substantially as described.

3. In an air-brake coupling, the combination with a coupler-head, of a lever fulcrumed thereon, a valve-plate pivoted on the end of said lever, a spring coiled on said fulcrum to actuate the lever, and a housing partly inclosing said spring, substantially as described.

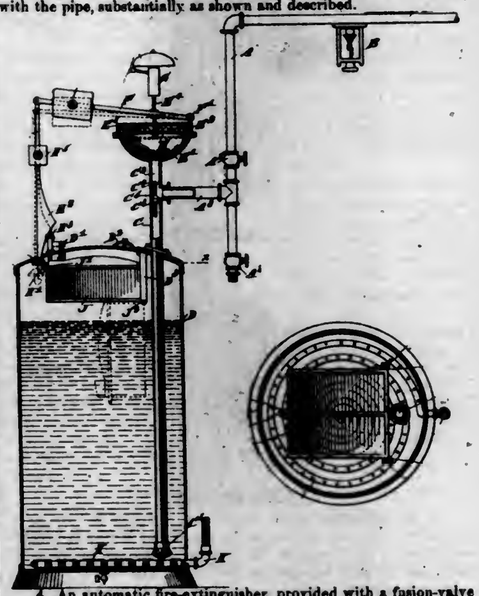
4. In an air-brake coupling, the combination with a coupling-head, of a lever pivoted upon a detachable bracket, a spring coiled on the pivot and partly inclosed by a housing on the bracket, and a valve-plate pivoted on the end of the lever to close the air-opening, the lever being provided on its inner face with a stop to limit the play of the valve-plate, substantially as described.

575,253. AUTOMATIC FIRE-EXTINGUISHER. EDWARD LIVINGSTON, New Orleans, La. Filed Oct. 22, 1895. Serial No. 566,484. (No model.)

Claim.—1. An automatic fire-extinguisher, comprising a distributing-pipe containing a fluid under pressure, a vessel connected with the said pipe and adapted to contain a fire-extinguishing fluid, normally dormant, a diaphragm connected with the said pipe, and a valve for closing the said pipe to the said vessel and opening it to the said diaphragm, and vice versa, substantially as shown and described.

2. An automatic fire-extinguisher, comprising a distributing-pipe containing a fluid under pressure, a vessel connected with the said pipe and adapted to contain a fire-extinguishing fluid, normally dormant, a diaphragm connected with the said pipe, a valve for closing the said pipe to the said vessel and opening it to the said diaphragm, and vice versa, a tank for supplying the gas-generating substance, and an intermediate mechanism between the said diaphragm and the said tank, to allow the contents of the tank to pass into the said vessel upon a reduction of pressure in the said pipe, substantially as shown and described.

3. An automatic fire-extinguisher, comprising a distributing-pipe containing a fluid under pressure, a weighted diaphragm connected with the said pipe, a vessel connected with the said pipe and adapted to contain a fire-extinguishing fluid, a tank for supplying the gas-generating substance, and arranged in said vessel, an intermediate mechanism between the said diaphragm and the said tank, to lock the latter normally in place and to unlock the same when a reduction of pressure takes place in the said pipe, and a double valve for connecting the said vessel with the said pipe and the said diaphragm with the pipe, substantially as shown and described.



4. An automatic fire-extinguisher, provided with a fusion-valve comprising a valve-seat with a bell-shaped mouth, and held on the pipe containing the fire-extinguishing matter, a ball-valve adapted to be seated on the said seat, a cup supporting the said valve, and a crutch engaging with the said cup and made of several members diverging at their upper portions, and a fusion-solder for holding the said members together, substantially as shown and described.

5. In a fire-extinguishing apparatus, the combination of a distributing-pipe having self-opening valves, a vessel having an outlet connected to the pipe and arranged to contain a fire-extinguishing fluid, a tank in the vessel adapted when moved to discharge its contents into the vessel, a lever, a connection between the lever and the tank, means actuated by the fall of pressure in the pipe for moving the lever, said means comprising a casing, a series of diaphragms carried therein and adapted for independent operation, and connections between the lever and the several diaphragms to move the lever from said diaphragms, whereby the tank is moved in the vessel to discharge its contents into the vessel, substantially as set forth.

575,254. FIRE-HYDRANT. CHRISTIAN R. LOHTER, Towanda, Pa. Filed July 24, 1896. Serial No. 600,404. (No model.)

Claim.—1. In a fire-hydrant, the combination of a stand-pipe, a hydrant-bottom secured to the stand-pipe, a vertical partition subdividing the hydrant-bottom into valve and water compartments, the water-compartment opening directly into the stand-pipe, a cover closing the upper end of the valve-compartment, gates located in the valve-compartment and slidably mounted therein, and adapted to close coincident openings in the said vertical partition and a wall of the hydrant-bottom, and means located within the stand-pipe and operating through the cover of the valve-compartment for actuating the gates, substantially as and for the purpose set forth.

2. In a fire-hydrant, the combination of a stand-pipe, a hydrant-bottom subdivided into vertically-disposed water and valve compartments, a cover closing the hydrant-bottom and having an opening opposite the water-compartment to establish communication between the stand-pipe and hydrant-bottom, valve-seats in the opposite walls of the valve-compartment, gates located in the valve-compartment and adapted to close against the valve-seats, and means for operating the gates, substantially in the manner set forth for the purpose described.

3. In combination, a case having a valve-seat provided with a drip-passage extending from its upper end through a side of the case,

a slide-valve having a recess in its side facing the valve-seat and extending from near the bottom to within a short distance of the top and which is in communication with the drip-passage only when the valve is closed, and means for operating the valve, substantially in the manner and for the purpose set forth.



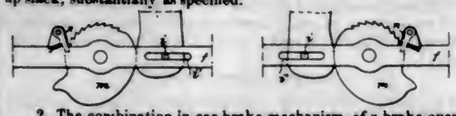
4. In combination, a case subdivided by a partition into water and valve compartments, and having an opening in its side, a valve-seat inclosing an opening in the partition separating the compartments and having a drip-passage at its upper end which is in communication with the opening in the side of the case, and a slide-valve for closing against the valve-seat and having a recess in its outer face extending from near the bottom to within a short distance of the top and having a vertical portion to close the drip-passage upon opening the valve and spaced at its upper end, substantially as and for the purpose described.

5. In a fire-hydrant, the combination of a stand-pipe, a hydrant-bottom subdivided by a vertical partition into water and valve compartments, a cover secured between the opposing ends of the stand-pipe and hydrant-bottom and having an opening opposite to the water-compartment, valve-seats surrounding openings in the walls of the valve-compartment, the inner valve-seat having a drip-passage extending therefrom through a side of the hydrant-bottom, gates located in the valve-compartment, the rear gate having a recess in its outer face and a strip to close the said drip-passage, a compound wedge interlocking with the gates, a feed-screw journaled in the aforesaid cover and having connection with the wedge, a plug journaled in the cap closing the stand-pipe, and a rod coupled to the plug and feed-screw, substantially in the manner set forth for the purpose described.

6. In a fire-hydrant, the combination of the base having oppositely-disposed seats, vertically-movable gates having vertical flanges on their rear faces in coincident relation, and having recesses in the inner sides of the flanges and corresponding grooves at the upper ends of the recesses, a nut having a wedge at its lower end and provided with lateral ribs of less thickness than and entering the said grooves, and having a limited play therein so as to admit of loosening the gates prior to opening them; a wedge corresponding to the wedge of the nut and supported by the inner recessed sides of the flanges, and an operating-stem having a threaded portion working within the said nut, the wedges being constructed to provide clearance for the threaded end of the operating-stem, substantially as and for the purpose set forth.

575,255. COMPENSATING DEVICE FOR RAILWAY-CAR BRAKES. JACOB E. LOUGHRIDGE, Philadelphia, Pa.; Mary R. Loughridge executrix of said Jacob E. Loughridge, deceased. Filed Oct. 5, 1894. Serial No. 525,096. (No model.)

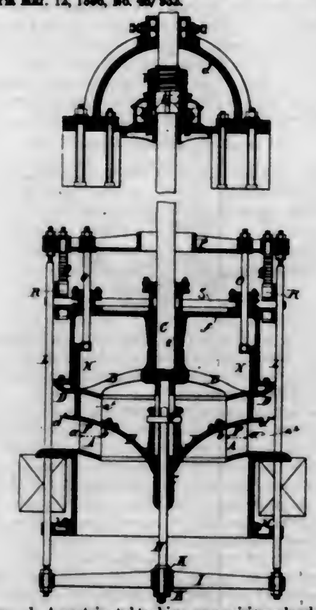
Claim.—1. The combination in car-brake mechanism, of a lever, a rod connecting said lever to another element of said brake mechanism, a movable cam carried by said rod and acted upon by the lever so as to be advanced thereby, and means for retaining said cam in its successive positions of advancement, whereby the effective length of the connecting-rod may be automatically changed in order to take up slack, substantially as specified.



2. The combination in car-brake mechanism, of a brake-operating lever, a rod connecting said lever to one of the other elements of the brake mechanism, an eccentric disk hung to said rod and adapted to be turned by contact with the brake-operating lever, and means for retaining said disk in its successive positions of advancement, whereby the effective length of the connecting-rod is automatically changed in order to take up slack, substantially as specified.

3. The combination in car-brake mechanism, of the live and dead levers, a rod connecting the two, a movable cam carried by said rod and acted upon by the live-lever so as to be advanced thereby, and means for retaining said lever in its successive positions of advancement, so as to automatically change the effective length of the connecting-rod in taking up slack, substantially as specified.

575,256. CENTRIPETAL TURBINE. LOUIS A. G. MALLIART, Besonnes, France. Filed June 3, 1896. Serial No. 593,961. (No model.) Patented in France Nov. 13, 1894, No. 242,840; in Italy Oct. 16, 1895, No. 39,983/40,539; in Switzerland Oct. 16, 1895, No. 12,169, and in Austria Mar. 12, 1896, No. 46/932.



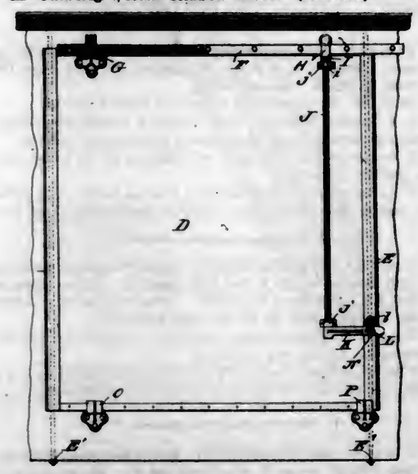
Claim.—1. A centripetal turbine, comprising a bucket-wheel having water-passages, a cone provided with plates projecting out in the passages of the said bucket-wheel, the said cone being adjustable vertically within said bucket-wheel and rotating therewith, a distributer encircling said bucket-wheel and having water-passages arranged opposite those of the bucket-wheel, a shield having plates projecting within the passages of the distributer and registering with the plates carried by the said cone, and means for moving said cone and shield, whereby the plates carried thereby are adjusted in unison, substantially as specified.

2. A centripetal turbine, comprising a rotary shaft, a crown or bucket-wheel mounted to rotate therewith, a fixed distributer surrounding the bucket-wheel and having passages for directing water to the buckets, a frame moving longitudinally of the shaft, a cylindrical shell supported from one end of said frame and having plates to engage in the passage-ways of the distributer, an inverted cone supported from the opposite end of the said frame and movable longitudinally on the said shaft, the said cone being provided with plates fitting in the buckets of the said bucket-wheel and means for moving said frame longitudinally of the shaft, substantially as specified.

3. In a centripetal turbine, the combination with a rotary shaft having a tubular end, of a crown or bucket-wheel mounted to rotate with said shaft, a fixed distributer surrounding said bucket-wheel and having passages for directing water to the buckets, a frame movable longitudinally on the rotary shaft, a cylindrical shell supported from one end of said frame and having plates to engage the passage-ways of the distributer, a rod supported from the other end of said frame and movable longitudinally in the tubular end of the said rotary shaft, a cone mounted to slide on the rotary shaft and movable with the said rod, the said cone being provided with plates fitting into the buckets of the said bucket-wheel, and means for moving the said frame longitudinally of the rotary shaft, substantially as shown and described.

4 A turbine, comprising the bucket-wheel having water-passages, the distributer encircling the bucket-wheel and having water-passages, a cylinder fitting between said wheel and distributer and having plates projecting outward within the passages of the distributer, a cone in the wheel provided with plates projecting out in the passages of said wheel and registering with the plates in the passages of the distributer, and means for adjusting said cone and cylinder, substantially as shown and described.

575,257. CAR-DOOR. EDWARD S. MARSHALL, St. Louis, Mo., assignor to the American Railway Equipment Company, East St. Louis, Ill. Filed Aug. 7, 1896. Serial No. 601,960. (No model.)



Claim.—1. The combination with a car-door, of a post forming the edge of the doorway, and with which the door is adapted to cooperate, said door being also capable of clearing the post in its movement to and from the doorway, said post being grooved on its outer face, and a truss-rod seated in said groove and having its ends passing through timbers above and below the post; substantially as described.

2. The combination with a car-door, of grooved posts arranged at the side edges of the doorway and with which said door is adapted to coöperate, truss-rods in the grooves of said posts, a track whose end portions recede toward the body of the car, hangers on the door for coöperating with the track, the hanger at the front end of the door being fixed relative to the track and door, so that the front end of the door will be guided inwardly to be flush with the post, and means for coöperating with the rear hanger so that the rear end of the door may be thrown into and out of its flush position relative to its coöperating post, said truss-rods passing through timbers above and below the posts, so that by tightening said rods, the posts can be drawn inwardly out of the path of movement of the door; substantially as described.

3. The combination with a car-door, of posts arranged at the side edges of the doorway, and with which said door is adapted to coöperate, a track having a receding portion for guiding the front end of the door so that it will be flush with the post, hangers on the door for coöperating with the track, a crank-arm mounted on the door for coöperating with the hanger at the rear end of the door, and a staple in the door-post contiguous to the rear end of the door, whereby, when the handle is turned to force the rear end of the door in front of the post, said handle engages the staple in the door-post, substantially as described.

4. The combination with a car-door, of grooved posts arranged at the side edges of the doorway and with which said door is adapted to coöperate, truss-rods arranged in the grooves of said posts, means for tightening the truss-rods of the posts, whereby, the rear post is drawn in out of the path of the door a track for guiding the front end of the door so that it will be flush with its coöperating post, a guide for coöperating with the lower front end of the door for holding said end of the door in its flush position, and means for throwing the rear end of the door into and out of its flush position relative to its coöperating post, said means being also adapted to lock the door in its flush position; substantially as described.

5. In a car-door, the combination with the track, of a roller-hanger arranged on said track, a crank-arm mounted on the car-door, an operating-rod for said crank-arm, and a handle on said rod, said handle being in the form of a hasp and means on the side wall of the car for engaging the hasp to lock the crank-arm and door in place; substantially as described.

6. The combination with a car-door, of a track, a roller hanger on said track, a headed stud on the lower end of said hanger, a crank-arm mounted on the car-door, said crank-arm having an open-ended slot in which said hanger-stud is received, a pin or bolt for closing the outer end of said slot, an operating-rod for said crank-arm, a handle on said rod, said handle being in the form of a hasp, and means on the side wall of the car for engaging the hasp to lock the crank-arm and door in place; substantially as described.

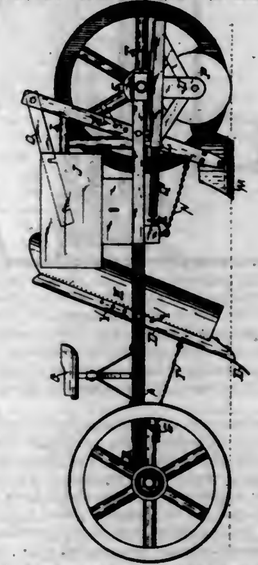
7. The combination with a car-door, of a crank-arm for moving the same into and out of a flush position relative to its doorway, a rod for operating said crank-arm, a handle for operating said rod, said handle being in the form of a hasp, and a vertically-swinging gravitating pivoted staple for coöperating with said hasp, said staple when not in engagement with its coöperating hasp, being flush with the face in which it is mounted, to permit the free passage of the door; substantially as described.

8. The combination with a car-door, of a crank-arm, for moving the same into and out of a flush position relative to its doorway, a rod for operating said crank-arm, a handle for operating said rod, said handle being in the form of a hasp, a vertically-swinging pivoted staple for coöperating with said hasp, said staple when not engaged by the hasp falling by gravity to a flush position to be out of the path of movement of the door and a pivoted and sliding bolt mounted on the hasp for coöperating with the pivoted staple; substantially as described.

9. The combination with a car-door, of a hasp pivotally mounted thereon, a pivoted and sliding bolt mounted on the hasp, a vertically-swinging staple with which said pivoted and sliding bolt coöperates, and a frame countersunk in the side wall of the car, in the upper part of which frame the vertically-swinging staple is pivoted, substantially as described.

10. The combination with a car-door, of a guide therefor, said guide having an inward projection which extends beneath the sill-plate and is adapted to be secured to the sill of the car, the vertical portion of the guide being adapted to be secured to the side of the car; substantially as described.

575,258. POTATO-PLANTER. ALFRED I. MERRIMS, Geneva, Wis. Filed Mar. 25, 1896. Serial No. 584,802. (No model.)



Claim.—1. A potato-planter, consisting in the combination of a supporting-vehicle, a plow secured to a pivotally-supported standard

and connected with said vehicle, a chute secured to the rear side of said plow-standard, potato-boxes located on said frame, and independent of said chute, coverers independently and adjustably attached to said frame, and a roller adapted to support the rear end of the vehicle and smooth the soil in the rear of said coverers, substantially as described.

2. A potato-planter, consisting in the combination with the vehicle-frame of the pivotally-supported plow depending therefrom, a chute connected with said plow-support, the coverers supported in the rear of said plow and chute, and the roller supporting the rear end of said frame, substantially as described.

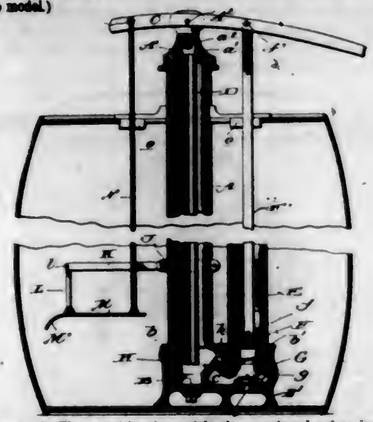
3. A potato-planter consisting in the combination with the supporting-vehicle, of the plow connected therewith, the chute arranged to guide the dropped potatoes into the furrow, and the coverers arranged to refill the furrow, together with a detachable roller adapted to support the rear axle with the wheels free from contact with the ground and springs intervening between the roller-frame and the axle whereby the vehicle is relieved from the jar of said roller, substantially as described.

575,259. FENCE-STAY. JOHN M. MOORE, Rushville, Ill. Filed Sept. 10, 1896. Serial No. 562,079. (No model.)



Claim.—In wire fencing, the combination with the line-wires, of a stay comprising a series of substantially U-shaped links having their closed ends straight and embracing the respective line-wires, and having eyes at their free ends which encircle the closed ends of the adjacent links and the line-wires embraced thereby, the line-wires and the closed ends of the links being held in the embrace of the eyes of the contiguous links upon opposite sides of their point of crossing, substantially as set forth.

575,260. INSECT-DESTROYER. ROLAND MORRILL and FERNANDO MORLEY, Benton Harbor, Mich. Filed Feb. 15, 1896. Serial No. 579,424. (No model.)



Claim.—1. The combination with the casting having inclined diaphragm with opening and valve therefor, of the air-cylinder secured in an opening upon one side of said diaphragm, the plunger in the pump-barrel, the pump-barrel secured in an opening on the outer side of said diaphragm, the discharge-pipe, the operating-lever and a removable plug in the bottom of the casting in line with the discharge-pipe, and a connection between the lever and the plunger; substantially as described.

2. The combination with the casting having inclined diaphragm with opening and valve therefor, of the air-cylinder secured in an opening upon one side of said diaphragm, the plunger in the pump-barrel, the pump-barrel secured in an opening on the outer side of said diaphragm, the discharge-pipe, the operating-lever, and a connection between the same and the plunger, a pivotal support mounted on the air-cylinder and an agitator pivotally supported from said pivotal support and connected with the operating-lever; substantially as described.

3. The combination with the operating-lever, of a pivoted horizontal arm, an agitator pivotally suspended from said arm, and a rod connected with the operating-lever, and pivotally connected with the agitator and with said arm; substantially as described.

4. The combination with the air-cylinder, of a clamp thereon, an arm pivotally mounted on the clamp, a depending arm pivotally mounted on said arm, an agitator pivotally connected with said arm, the operating-lever, and a rod pivotally connected therewith and pivotally connected with the agitator and with the arm carried by the clamp; substantially as described.

5. In an insect-destroyer, a suspended, pivotally-mounted agitator, having its outer end curved downward, combined with the operating-lever and a connection between said lever and the agitator and pivotally connected to each, said connection being pivotally connected with the horizontal, pivoted arm from which the agitator is pivotally suspended; substantially as described.

6. In an insect-destroyer, a suspended, pivotally-mounted agitator having its outer end curved downward, combined with the air-cylinder, a clamp adjustably mounted on the air-cylinder, a horizontal support pivotally mounted on the clamp and from the outer end of which said agitator is suspended, the operating-lever, and a connection between the same and the agitator, said connection being pivotally connected with the horizontal, supporting-arm; substantially as described.

575,261. GAS-INCANDESCENT. ROBERT MOSCHELES, Berlin, Germany, assignor to Louis H. Hall, Philadelphia, Pa. Filed July 3, 1896. Serial No. 598,002. (No specimens.)

Claim.—1. An incandescent containing oxid of gallium.

2. A filament, fabric or textile frame of combustible material impregnated with the salts of refractory earths and of gallium.

3. An incandescent composed of a mixture of the oxids of thorium, gallium and calcium.

4. An incandescent composed of a mixture of the oxids of thorium, gallium and calcium, in proportions substantially as set forth.

575,262. GAS-INCANDESCENT. ROBERT MOSCHELES, Berlin, Germany, assignor to Louis H. Hall, Philadelphia, Pa. Original application filed July 3, 1896, Serial No. 598,002. Divided and this application filed Nov. 17, 1896. Serial No. 612,497. (No specimens.)

Claim.—1. An incandescent consisting of a mixture of the oxids of aluminium, indium, and zirconium.

2. An incandescent composed of a mixture of the oxids of aluminium, indium, and zirconium, in proportions substantially as set forth.

575,263. GAS-INCANDESCENT. ROBERT MOSCHELES, Berlin, Germany, assignor to Louis H. Hall, Philadelphia, Pa. Original application filed July 3, 1896, Serial No. 598,002. Divided and this application filed Nov. 17, 1896. Serial No. 612,498. (No specimens.)

Claim.—1. An incandescent burner composed of a mixture of the oxids of indium and chrome.

2. An incandescent composed of a mixture of the oxids of indium and chromium, in proportions substantially as set forth.

575,264. PORTABLE CONVEYER. WILLIAM L. MCCABE and CHARLES H. ANDERSON, Tacoma, Wash. Filed July 23, 1896. Serial No. 600,262. (No model.)

Claim.—1. In a portable conveyer the combination with a suitable framework, of an endless conveying-belt and an outwardly and inwardly adjustable platform or support intermediate said conveying-belt and parallel therewith upon which articles to be conveyed are adapted to be placed and carried forward by said belts, substantially as described.

2. In a portable conveyer the combination with a suitable framework, of an endless conveying-belt, an outwardly and inwardly adjustable platform which is adapted to be brought nearer to or farther from the conveying-belt for conveying different-sized articles and cams for moving said platform outwardly and inwardly, substantially as described.

3. In a portable conveyer the combination with a suitable supporting-frame, of endless conveying belt, a platform adapted to be adjusted transversely with respect to the frame for bringing different-sized articles to be conveyed nearer to or farther from the conveying-belt, means for holding the platform in its adjusted positions, means for preventing longitudinal movement of said platform, and an automatic intermediate discharge-chute for said platform, substantially as described.

4. In a portable conveyer the combination with a suitable framework, of endless conveying-belts connected by cross-bars, guides for said belts, an adjustable platform, a series of cams for adjusting said platform outwardly and inwardly, and means for operating all of said cams simultaneously, substantially as described.

5. In a portable conveyer, the combination with a suitable framework, of endless conveying-belts arranged on opposite sides of the same, tubular guides through which said belts pass, balls upon said belts, cross-bars connecting the opposing balls of the respective belts, an adjustable platform, and means for securing the same in its adjusted positions, substantially as described.



6. In a portable conveyer the combination with a suitable framework, of an endless conveying-belt, an adjustable platform, a section hinged at one end to said platform and free at the other end for discharging its contents at some intermediate point along its length, and a chute for receiving the discharge at said intermediate point, substantially as described.

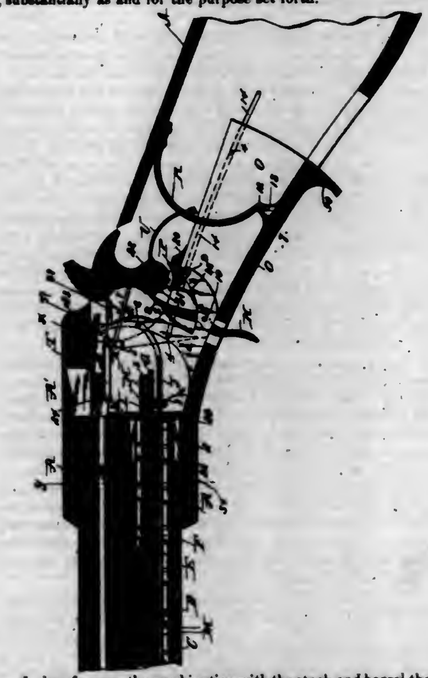
575,265. MAGAZINE-FIREARM. SAMUEL N. MCCLEAN, Washington, Iowa. Filed Oct. 19, 1891. Serial No. 409,191. (No model.)

Claim.—1. In a breech-loading firearm the combination of a stock-chamber formed with guide-grooves in its side walls, a sliding handle U-shaped in cross-section the side walls thereof conforming to the shape of the stock-chamber in which it slides and having lugs to engage with the guide-grooves in the stock-wall and the front end of the sliding handle being bifurcated and extending upward and forward on both sides of the operating mechanism and a reciprocating breech-piece connected to the bifurcated ends of the sliding handle.

2. In a breech-loading firearm, the combination with the breech-piece of a reciprocable spring-pressed handle, a guide-groove 7 in the wall below the breech-piece, a breech-locking bar T hinged at one end to the breech-piece, and engaging, toward its opposite end, the said groove, and a lever K pivotally connecting the said handle with the breech-locking bar, substantially as described.

3. In a firearm, a spring-actuated, operating sliding handle O, provided with pins or lugs 4, with the stock or handle of such firearm provided with a chamber therein having grooves or channels 14, located in the respective opposite walls of said chamber to receive said pins or lugs, and guide said handle, the rear end of said handle being constructed to engage with the spring R, the forward end of this handle being bifurcated and constructed to pass forward and upward on either side of the operating device, its separate arms having a knee or hinged connection to locking-levers K, which levers K, are hinged by means of pin 36, to the locking-bar T, which bar T, is hinged to the under side of the breech-piece L, the respective opposite ends of pin 36, are constructed to extend into cam locking-grooves 7, which grooves 7 are located in the respective opposite walls of the chamber; have a vertical, a curved and a rearward direction: the cam action of these grooves on the reciprocating movements of pin 36, in and through these grooves operates to unlock, actuate and lock the breech, substantially as and for the purpose set forth.

4. In a firearm provided with a barrel and stock or handle having a chamber therein, the combination with the stock and barrel thereof of a firing device, composed of a spring-actuated operating sliding handle O, which engages with a spring R, the lateral walls of this handle being controlled within the walls of the chamber in which it slides, and being provided with pins or lugs 4, which extend into curved grooves 14, located in the respective opposite walls of the stock-chamber, the forward end of this handle having a knee or hinged connection with an automatic breech-locking device, composed of locking-levers K, locking-pin 36, cam locking-grooves 7, and bar T, which is hinged to the under side of a longitudinally-reciprocating breech-piece L, the automatic action of the locking device being controlled by the locking-pin 36, which engages with the cam locking-grooves 7, these grooves being located in the respective opposite walls and having a vertical, a curved and a rearward direction, the vertical part being at a right angle with the chamber in which the breech moves, the cam action of these grooves on the reciprocating movement of the pin 36, operates to unlock, actuate and lock the breech, the rear end of the breech-piece engaging with the spring-actuated hammer S, which in turn engages with the spring-actuated trigger N, substantially as and for the purpose set forth.



5. In a firearm, the combination with the stock and barrel thereof of an automatic firing device, composed of a spring-actuated operating sliding handle O, provided with pins or lugs 4, the walls of the stock-chamber being provided with curved grooves or channels 14, to receive said pins and guide said handle, the rear end of said handle engaging with the spring R, the lateral walls of this handle being provided with a projection or arm 20, the forward ends of this handle having a knee or hinged connection with an automatic breech-locking device which engages with cam-grooves located in the walls of the stock-chamber, the said breech-locking device being hinged to the under side of a longitudinally-reciprocating breech-piece L, which engages with a spring-actuated hammer S, having ratchet-teeth cut in the heel thereof, a spring-actuated automatic sear P, located in the path of the forward movement of the projection or arm 20, the said sear being pivotally retained in the bifurcated extremity of a projection or bracket fixedly attached to the stock-wall, this sear engaging with the heel of the hammer in the usual manner, and being disengaged from the hammer by the said projection or arm 20, at a time when the breech-piece is locked in position in the rear of the bore of the barrel, substantially as and for the purpose set forth

6. In a firearm provided with a stock or handle, having a chamber therein, the respective opposite walls of the said stock-chamber having curved grooves 14, sunk therein: also cam locking-grooves 7, which grooves 7, have a curved and a rearward direction; the vertical part, being at right angles with the chamber in which the breech moves: also cam extracting-grooves 41, located in the opposite wall of the breech-chamber, these grooves 41, being of varying depth, a spring-actuated operating sliding handle O, having a body and lateral

walls, the lateral walls being provided with pins or lugs 4, which engage with the said curved grooves 14, the rear end of this handle engaging with the spring R, its forward arms having a hinged or knee connection with locking-levers K, which levers K, are hinged to the bar T, by means of the locking-pin 36, which pin 36, engages with the cam-grooves 7, the bar T, being hinged to the under side of the breech-piece L, fixedly attached to the breech L spring extractors 17, having bearings 18, which bearings 18, engage with the cam-grooves 41, the grooves 41, becoming shallower near their forward ends, substantially as and for the purpose set forth.

7. In a firearm provided with a stock or handle having a chamber therein; a sliding operating-handle provided with a projection 20, and a forward-actuating spring R, in combination with the spring-actuated hammer, S, having sear-teeth cut in its heel, a sear P, in the path of the forward movement of said projection 20 pivotally held in a projection or bracket, and its spring 40: the trigger N pivotally held in said projection or bracket having a catch 8 to engage with a corresponding catch in spring, S', whereby, the hammer having been forced into cocked position may be thrown forward, by disengagement of either of said triggers as may be desired, all substantially as shown.

8. In a firearm, having a chamber in its stock or handle, a cartridge-carrier capable of vertical reciprocating motion in said chamber, such cartridge-carrier being provided in its vertical face with a diagonal groove proceeding from its top downward and terminating in a vertical groove: the bottom of said vertical groove shallowing out and extending into a projection 15: the plate 28 constituting the front wall of said stock-chamber provided with its openings 43 and 48 and slot 29: a cartridge-magazine having two or more cartridge-chambers: each chamber provided with a spring-actuated plunger having a pin F, capable of being forced through the opening 48 in plate 28, into the groove 16 in the front face of the cartridge-carrier: the chambers of said magazine having catches 32: whereby when the last cartridge in the chamber is forced out on to the cartridge-carrier the pin, F, of the plunger engages in the groove 16: the upward movement of the carrier rotates the magazine: the projection 15 forces the pin and its plunger wholly within the chamber, and the plunger is caught by the catches and held, until the chamber is reloaded: all substantially as shown.

9. In a firearm, a cartridge-magazine having two or more cartridge-chambers: each chamber provided with a longitudinal groove: also having in the outer walls near each end slots cut into each chamber and each slot provided with spring-actuated catch devices capable of catching and holding a plunger: in combination with a plunger for each chamber actuated by a spring and having rigidly attached to it a pin F, moving in the longitudinal groove: whereby when a chamber is fully charged with cartridges, the plunger is forced back and caught and held by the catch devices located in the slots at the front of the magazine: and when the chamber has been emptied the plunger may be forced back and caught by the catch devices in the slots near the rear end of the magazine, until the chamber has been again filled: all substantially as shown.

10. In a firearm, the combination of the sliding operating-handle, O, provided with a projection capable of bearing upon the automatic trigger, P: the spring R: the spring-actuated hammer S, provided with sear-teeth: the sear P and spring 40: the trigger N and its spring 8': said two triggers and springs being pivotally supported in a projection or bracket in said chamber: and mechanism connecting said sliding operating-handle and said hammer: whereby said hammer may be automatically forced into cocked position, and released by the movements of said handle: or the hammer may be automatically forced into cocked position and released mechanically by the trigger N: all substantially as shown.

11. In a firearm, a breech-piece having a longitudinal bore for the firing-pin; having grooves cut on opposite sides at its front end to permit the compression of the extractors: recessed on its under side to receive the locking-bar, and at its rear under side having means for engaging the upper arm of the cartridge-carrier-lifting lever, and also having attached on opposite sides shell-extractors with lugs 18: in combination with the opposite walls of the stock-chamber respectively provided with grooves sunk therein and running parallel with the bore of the barrel and also with projections 38, which support and retain the rear end of said breech-piece, whereby said breech-piece is made capable of a longitudinal reciprocating motion in line with the bore of the barrel; all substantially as shown.

12. In a firearm, the combination of the plate 28, provided with a circular opening 43, the small opening 48, and the slot 29, with the barrel B, and a rotatable cartridge-magazine containing two or more chambers, each chamber provided with a longitudinal groove, and containing a spring-actuated plunger E, having fixedly attached to it a pin, constructed to move and slide in the said groove, capable when the magazine is empty of projecting through the opening 48, and engaging with a diagonal groove located on the face of a vertically-reciprocating carrier G, which diagonal groove 16, terminates in a projection 15, which moves and slides in the said slot 29, and in its upward movement engages with the pin F, and forces it back into the magazine and out of engagement with the carrier, substantially as and for the purpose set forth.

13. In a firearm, a cartridge-carrier having a horizontal plate G and a vertical plate G'; the vertical plate G' being provided in its face with a diagonal groove shallowing out and extending into a projection: said vertical plate G' being wider than the horizontal plate G so that its edges may be guided in grooves: in combination with two semicylindrical shells, each provided with diagonal slots and attached to said horizontal plate by pins or screws, having heads and passing through said slots into said horizontal table: whereby said shells are held in place and by their longitudinal motion on said plate are opened and closed: all substantially as shown.

14. In a firearm, a reciprocating cartridge-holder having converging cam-slots, a cartridge-carrier provided with pins to engage with the cam-slots of the holder whereby the holder is opened and closed.

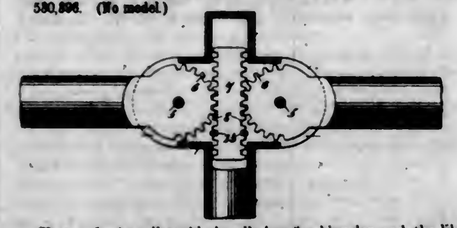
15. In a breech-loading magazine-firearm, a reciprocating cartridge-carrier provided with means for reciprocating it in operating the gun and having a cartridge-receiver formed with the obliquely-slotted longitudinally-movable curved shell-sections adjustably pinned to the said carrier through said slots, substantially as and for the purpose set forth.

16. In a breech-loading firearm, the combination of a spring-actuated hammer, a trigger adapted to engage the heel of the hammer in normal relation and a spring-catch to engage the trigger and hold it free from engagement with the heel of the hammer, substantially as and for the purpose set forth.

17. In a firearm, a sliding handle located on the under side of the stock and formed with a projection 20, and provided with lugs 4, a stock-wall having guide-grooves 14 to take the lugs and guide the handle in its movements, a reciprocating breech-piece connected to said handle, a hammer arranged to be cocked by the breech-piece, and a sear to engage the heel of the hammer and located in the path of said projection on the handle, to trip the sear and release the hammer.

18. In a breech-loading firearm, the combination of a sliding handle provided with a projection or lug 20, a reciprocating breech-piece connected to the sliding handle, a spring-actuated hammer engaged by the breech-piece, a spring-actuated sear to engage the heel of the hammer, and located in the path of the lug on the sliding handle which engages with the sear to release it from the hammer, a reciprocating cartridge-carrier, and a carrier-lever connected with the cartridge-carrier and the breech-piece, substantially as and for the purpose specified.

575,266. HANDLE-BAR FOR BICYCLES. JOHN A. MCCOLLUM and EDWIN J. KROLL, Riverside, Cal. Filed Feb. 26, 1896. Serial No. 580,896. (No model.)



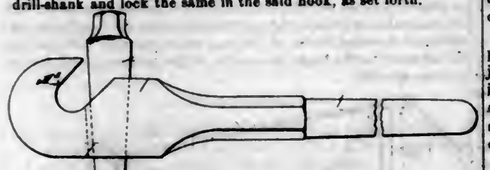
Claim.—1. An adjustable handle-bar for bicycles and the like, comprising a stem, lateral arms pivotally connected with the stem and provided with gear-faces, a rack movable longitudinally between the arms and provided with gear-faces meshing with the gear-faces on the arms, and a key having forks arranged to engage the teeth on said rack, substantially as set forth.

2. An adjustable handle-bar for bicycles and the like, comprising a stem, lateral arms pivotally connected with the stem and provided with gear-faces, a rack movable longitudinally between the arms and provided with gear-faces meshing with the gear-faces on the arms, a key having forks arranged to engage the teeth on said rack, and a spring to hold said key with its forks normally engaged with said teeth, substantially as set forth.

575,267. DRILL-RELEASING TOOL. RICHARD HETTRICH, Calumet, Mich. Filed Sept. 24, 1896. Serial No. 606,806. (No model.)

Claim.—1. A drill-releasing tool, comprising a body formed with a hook adapted to engage a drill-shank, and a locking device held on the said body and adapted to engage the said shank and lock the latter in place in the hook, substantially as shown and described.

2. A drill-releasing tool, comprising a body formed with a transverse opening, a hook next to the said opening, and a key or wedge adapted to be driven into the said transverse opening, to engage the drill-shank and lock the same in the said hook, as set forth.



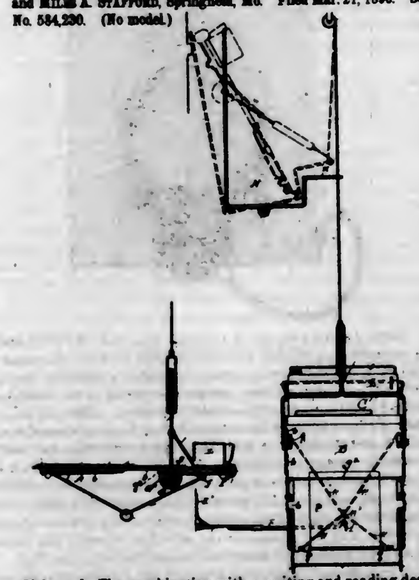
3. A drill-releasing tool, comprising a body having a hook at one end the opening of which is angular to the side of the body and provided with a transverse opening adjacent to the hook and in a plane parallel therewith, and a key or wedge in the said opening and extending partly across the opening of the hook, substantially as herein shown and described.

575,268. NUT-LOCK. ELLSWORTH G. NICODEMUS and CYRUS C. GUMBINER, Canal Winchester, Ohio. Filed June 9, 1896. Serial No. 594,821. (No model.)



Claim.—The combination of a bolt provided with a longitudinal slot through its threaded end, a collar with a tongue projecting into the slot, the collar also having a ratcheted upper face, a nut operating from the threaded end of the bolt and having a passage running through it parallel with the bolt, the nut also having two indentations in its upper face, the upper face being rounded to form a cam-surface, a spring-pressed pawl located within the lower portion of the passage in the nut and coacting with the ratchet of the ring and the rod connected to the pawl passing through the upper portion of the passage, the upper end of the rod being bent out laterally and thence upwardly to form a rounded extremity, the rounded extremity running on the cam-shaped portion of the nut and being capable of fitting within the recess in the upper side of the nut whereby to raise the pawl from engagement with the ring, substantially as described.

575,269. SUSPENSION-DESK. JUSTIN E. PAGE, Independence, and MILES A. STAFFORD, Springfield, Mo. Filed Mar. 21, 1896. Serial No. 584,230. (No model.)



Claim.—1. The combination with a writing and reading desk, of a supporting-bail pivotally connected thereto, an elastic cord connected to the said bail and to an overhead support, means for securing an elastic connection between said desk and a stationary part or object below the same, substantially as specified.

2. The combination with a reading and writing desk, of a suspension-bail pivotally connected thereto, an adjustable brace or adjusting-bail pivotally engaging said suspension-bail and having a sliding connection with the desk-frame, an elastic cord connected to said suspension-bail, and to an overhead support, and means for securing an elastic detachable connection between the said desk and a fixed object below the same substantially as specified.

3. The combination of the reading and writing desk, the suspension-bail and the adjusting-bail, said suspension-bail having a projecting arm, a casing loosely seated upon said arm and connected thereto by a spring, an elastic cord connected at its lower end to said casing, and at its upper end to an overhead support, and means for steadying said desk, substantially as specified.

4. The combination of a desk, the suspension and the adjusting bails, said suspension-bail having an arm, a casing loosely seated around said arm a spring connecting said arm and casing, a cord connected to said casing and to an overhead support, and an overhead pocket or receptacle designed to receive the said desk when it is not in use, together with means for steadying said desk when in use, substantially as specified.

5. The combination of the desk, its suspension and adjusting bails, the elastic suspension-cord connected at its lower end to said suspension-bail, a spring-roller to which the upper end of said cord is connected, and means whereby said desk may be elastically and detachably connected with a fixed object below it, substantially as specified.

6. The combination of the desk, its suspension and adjusting bails, the elastic cord connected to the suspension-bail, the overhead spring-roller to which the upper end of said cord is connected, the pivoted pocket or receptacle designed to receive said desk, its spring, and its arm having a guide for the said elastic cord, substantially as specified.

7. The combination with the desk and its suspension devices, of the intercrossed elastic cords attached to the under side of the desk the ring carried by the said cords and the hinged hook-arm secured to a fixed object below the desk, and designed to engage the said ring, substantially as specified.

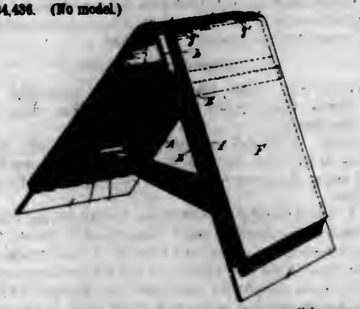
8. The combination with the suspension-desk, of the extension book-holder therefor, comprising a bail-shaped frame having a sliding engagement with the lateral arms of the desk-frame, and provided with means for engagement with the desk-frame whereby it may be held in proper position, substantially as specified.

9. The combination with a writing and reading desk of an elastic suspension device connected to said desk and adapted to be connected to an overhead support, and means for securing an elastic connection between said desk and a stationary part or object below said desk, substantially as specified.

10. The combination with a writing and reading desk of a bail connected thereto, an elastic connection to the said bail and to an overhead support, means for securing an elastic connection to an upright wall or object adjacent to and below said desk, substantially as specified.

11. The combination with a combined reading and writing desk, of means for elastically suspending the same from an overhead support and means for steadying said desk to prevent it from tipping or canting while in use, substantially as specified.

575,270. COMBINED COVER AND STAND FOR BOOKS, PAPERS, &c. JAMES PLANT, Syracuse, N. Y. Filed Sept. 29, 1894. Serial No. 524,436. (No model.)



Claim.—1. In combination, front and back reversible covers, one of the covers having its outer face provided with a pocket, a flexible joint between the adjacent extremities of the covers for separating the same to allow the insertion of a book or other article, and an ex-

teriorly-arranged cross-bar having one end hinged to the outer face of the other cover between its two extremities and its opposite end provided with a hinged tongue for entering said pocket, substantially as and for the purpose specified.

2. The herein-described book-cover, the same consisting of reversible front and back covers connected by a flexible joint to allow the insertion of a book or the like, a cross-bar of less length than said covers hinged at a point on the exterior of one face of one of the covers so that its free end is opposite to and substantially coincident with the joint of the covers and having its free end provided with a flexibly-hinged folding tongue, normally folded upon the cross-bar when the covers are closed, a retaining-loop for securing said cross-bar to the covers when the same are closed, and a pocket in the exterior face of the opposite cover for the insertion of the flexibly-hinged tongue of the cross-bar when the covers are opened and reversed to support the covers in a vertically-inclined position, substantially as and for the purpose set forth.

3. In combination, front and back reversible covers, a flexible joint between the adjacent extremities of said covers for separating the same to allow the insertion of a book or other article, said joint being provided with an aperture therethrough, a pocket provided upon the outer face of one cover, an exteriorly-arranged cross-bar having one end secured to the outer face of the other cover and its opposite end provided with a hinged tongue for entering said pocket, a book supported by the covers, and provided with an aperture therethrough, and a fastener passed through said apertures for securing the book in operative position, substantially as and for the purpose specified.

575,271. POCKET INK-BOTTLE WITH PEN, PENCIL, AND POUCH FOR STAMPS. JOHN POOL, Milparinka, New South Wales. Filed June 3, 1896. Serial No. 594,667. (No model.)



Claim.—1. A device for the purpose described, comprising an outer casing, a metal sheath having a weighted bottom, feet adapted to slide into and out of apertures formed in the weighted bottom, and an ink-bottle in the sheath, said sheath and bottle being adapted to slide into and out of the outer casing, substantially as specified.

2. A device of the character described, comprising a wrapper of leather or similar material, an outer metal casing to which one end of said wrapper is attached, a metal sheath and outwardly and inwardly adjustable legs on the bottom of said sheath, the said outer casing having compartments for writing materials, substantially as specified.

3. The combination of a case having a series of compartments, a sheath for an ink-bottle removably seated in one of the compartments, metal strips movable in guideways formed in the lower portion of the sheath and adapted to form feet when drawn outward, and a flexible cover attached at one end only to the case and adapted to wrap around said case, the said cover being provided with a pouch or pocket, substantially as specified.

4. The combination with a casing, of a sheath removably mounted therein and having a weighted bottom, the sides of said sheath at the lower end being provided with slots or guideways, and metal strips adjustable in said slots or guideways and forming feet when drawn outward, substantially as specified.

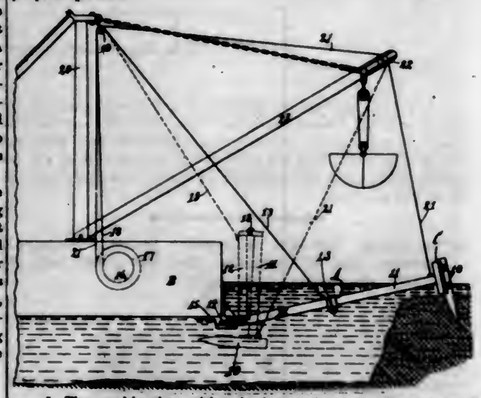
575,272. PICK ATTACHMENT FOR DREDGERS. HORACE S. POTTER, Jersey City, N. J. Filed Apr. 25, 1896. Serial No. 589,067. (No model.)

Claim.—1. A pick arranged for attachment to a dredger and having its handle or shank in pivotally-connected sections, the sections being adapted to break in one direction, as and for the purpose specified.

2. A pick adapted for attachment to dredgers and like machines, provided with a handle or shank constructed in sections, the sections being connected by a hinge the knuckle whereof extends below one of the faces of the said sections, as and for the purpose specified.

3. A pick adapted for attachment to a dredger or like machine, and a handle attached to the pick, constructed in two sections, the sections being connected by a hinge, the section of the handle attached directly to the pick being longer than the other section, as and for the purpose specified.

4. The combination, with a dredger and a turn-table connected therewith, of a pick, a handle attached to the pick and constructed in hinge-connected sections, one of the sections being connected with the turn-table, a hoisting device connected with the handle near the pick, and a second device of like character connected with the handle adjacent to the hinge connection of the sections, as and for the purpose specified.



5. The combination, with a dredger and a turn-table connected therewith, of a pick, a handle attached to the pick, constructed in sections, the sections having a hinge connection and the hinge being located at the under side of the handle, and hoisting devices connected one with the handle near the hinge and the other with the handle adjacent to the pick, as and for the purpose set forth.

6. In a dredging device, the combination, with a turn-table, of a pick, a handle connected with the pick and constructed in hinged sections, the inner section having a pivotal engagement with the turn-table, being capable of moving in a vertical direction, and hoisting devices connected one with the pick and the other with the handle adjacent to its hinge, as and for the purpose specified.

575,273. JOURNAL-BOX FOR ENGINE-TRUCKS. ORANGE POUND, Bartow, Fla. Filed July 28, 1896. Serial No. 600,837. (No model.)



Claim.—1. In a device of the class described, the combination of a journal-box, a journal, a journal bearing or brass interposed between the journal and the top of the journal-box, an oil-cellar arranged within the journal-box, fitting against the bottom of the journal and provided at its bottom with recesses 10, a tie-bar extending longitudinally of the oil-cellar at the bottom thereof, a pair of curved springs provided at their inner and outer ends with perforations and consisting of stems extending beneath the journal-box and the oil-cellar, and loops arranged at one side of the journal-box, fastening devices securing the outer ends of the loops to the journal-box, and bolts passing through the inner ends of the springs and the tie-bar and having heads interlocked with the recesses of the oil-cellar, whereby the latter is held against longitudinal movement, substantially as described.

2. In a device of the class described, the combination of a journal-box, an oil-cellar supported within the bottom thereof, a pair of removable longitudinal partitions arranged in suitable ways of the oil-cellar and dividing the space within the oil-cellar into a central waste-compartment and side compartments, said partitions being provided at their lower edges with recesses to establish communication between the compartments, and having their upper edges arranged adjacent to the journal and provided with teeth forming combs, substantially as described.

575,274. WASHBOARD. JOSEPH O. REED, Washington, D. C., assignor of forty-nine one-hundredths to Alfred A. Smith, same place. Filed Apr. 8, 1896. Serial No. 586,743. (No model.)



Claim.—1. A washboard having suckers secured on the ends of the legs thereof, substantially as described.

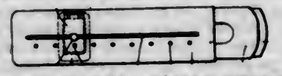
2. A washboard having suckers pivotally secured on the ends of the legs thereof, substantially as described.

3. A washboard, having legs, suckers at the ends of the legs, and a connection between the suckers and legs comprising shanks pivotally connected with the legs, and connected to the suckers, substantially as described.

4. The combination with the washboard and its legs, of suckers having strengthened upper portions, and means for connecting the suckers to the lower edges of the legs, substantially as described.

5. The combination with a washboard, of suckers thereon for securing the board in any desired position in the tub.

575,275. TAILOR'S CHALK AND HOLDER. CHARLES REED, Brooklyn, N. Y. Filed Apr. 28, 1896. Serial No. 589,397. (No model.)



Claim.—1. A tailor's marking substance, compounded of four parts of paraffin, one part of mineral wax, and from one-sixth to one-half parts of beeswax, and of some coloring-matter, as clay or ocher all these components being melted together and thoroughly mixed and the compound cast in strips suitable for use.

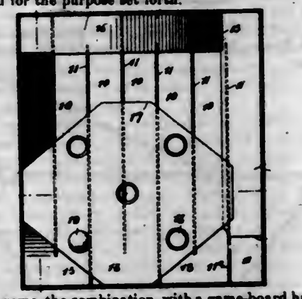
2. In a device for marking of cloth for cutting, the combination with a thin strip of a marking substance, of a protective tubular casing, closed around one end of the strip, and split and slotted on the other end, the casing being adapted to be inserted in a correspondingly-shaped tubular holder, and the split sides of the casing acting as springs and sustaining the casing in the holder by friction.

3. In a device for marking of cloth for cutting, the combination with a tubular holder, for a thin strip of a marking substance, inclosed in a tubular casing, provided with a longitudinal slot and with holes adapted to receive a locking-pin, arranged equidistantly along one edge of the slot, of a setter, comprising a flat frame, fitted into the holder and the casing, a spring, riveted to the frame, a knob, secured to the spring and projecting through a slot in the holder, and a locking-pin secured to the spring and adapted to lock the setter in adjusted position.

575,276. PUZZLE. CHESTER H. ROBINSON, Lafayette, Ind., assignor of one-half to William Frederick Mossholl, same place. Filed July 16, 1896. Serial No. 599,348. (No model.)

Claim.—1. A puzzle, comprising a body consisting of a flanged board, runs formed upon the said board in communication with each other, an inclined plane leading upward from one of the runs and parallel therewith, a second inclined plane connected with the first and crossing the runs, a table located above the runs, and a track connection between the second inclined plane and the said table, as and for the purpose set forth.

2. In a puzzle, a body-section comprising a flanged board, runs located upon the said board within its flanges, the various runs being connected at opposite ends, an inclined plane located in one of the runs, parallel therewith and commencing at the communication between that run and an adjacent one, a second inclined plane crossing the runs and connected with the longitudinal inclined plane, a table supported over the inclined planes and provided with recesses, and a track connection between the said table and the transverse inclined plane, as and for the purpose set forth.



3. In a game, the combination, with a game-board having a marginal flange and runs within the flange on the upper face of the board, the said runs being produced by parallel partitions, opposite partitions having openings at opposite ends forming communications between the runways, and a chute located at the first runway, of an inclined plane located at the last runway and commencing at the communication between that runway and the next, a transverse inclined plane connecting with the longitudinal inclined plane and crossing the runways at the outer end of the board, a track extending over the first runway from the transverse inclined plane to the aforesaid chute, a table connected with the said track and supported over the runs, the said table having an arched upper surface, and recesses made in the said upper surface, as and for the purpose set forth.

4. In a game, the combination, with a game-board having a marginal flange and runs formed within the flange on the upper face of the board, the said runs being produced by parallel partitions, opposite partitions having openings at opposite ends forming communications between the runways, and a chute located at the first runway, of an inclined plane located at the last runway and commencing at the communication between that runway and the next, a transverse inclined plane connecting with the longitudinal inclined plane and crossing the runways at the outer end of the board, a track extending over the first runway from the transverse inclined plane to the aforesaid chute, a table connected with the said track and supported over the runs, the said table having an arched upper surface, and recesses in said upper surface, and balls held to travel in the runs up the inclined planes and on the table, the number of balls corresponding to the number of recesses in the table, each recess in the table having a predetermined denomination, as and for the purpose set forth.

575,277. DISINFECTANT AND PROCESS OF MAKING SAME. FRANZ RÖSSLER and ARTHUR LIEBRECHT, Breslau, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed July 1, 1896. Serial No. 597,770. (Specimens.) Patented in Germany May 6, 1894, No. 82,951; in France Nov. 16, 1894, No. 242,933, and in England Nov. 16, 1894, No. 22,191.

Claim.—1. The herein-described process of producing a solid compound of silver and casein, which consists in dissolving a neutral alkali salt of casein with a soluble silver salt in water, and precipitating the new compound by alcohol from the solution in the form of a white powder, substantially as set forth.

2. As a new product, the solid compound of silver and an alkali salt of casein, being a white powder, easily soluble in hot water, from which solution it is not precipitated by sodium chlorid, albumen or hydrogen sulfid, and insoluble in alcohol, ether, benzene and ligroin, substantially as set forth.

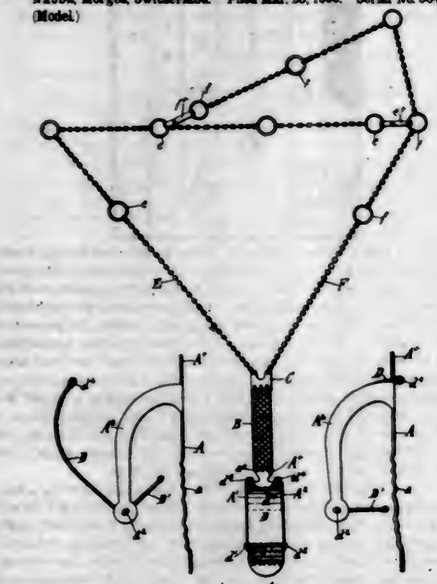
575,278. SPINNING-TOP. GEORGE B. ALLEN, Pawtucket, R. I., assignor of one-half to Edwin B. Bullock, same place. Filed Mar. 4, 1896. Serial No. 581,757. (No model.)



Claim.—In a bounding top, in combination a body-piece having a central longitudinal opening tapered to a smaller size near its lower

and, a spring or elastic cushion, a spur tapered at its upper extremity to correspond with the taper of the opening, and a ping pinned or otherwise secured in the upper extremity of said longitudinal opening, substantially as shown and described and for the purpose specified.

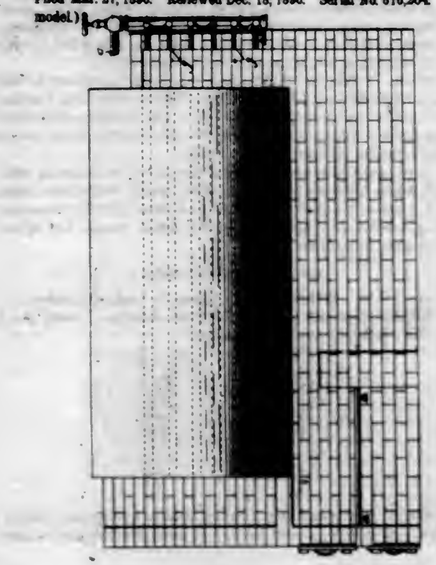
575,279. SKIRT-HOLDER. LOUIS BRÉLAZ and BERTHE BRÉLAZ NAUDÉ, Morges, Switzerland. Filed Mar. 25, 1896. Serial No. 584,727. (Model.)



A

Claim.—An improved device for holding up ladies' skirts, comprising a grip, consisting of a spring body-piece A provided with transverse corrugations, arched arms A^2 extending from one end of said body-piece, and head $A^\times$ extending beyond the bases of said arms, in combination with a cranked or bent lever D, D', corresponding in curvature to the arched arms and pivotally supported between the said arms, said lever having at its outer end a recess or cut-away portion and provided with two shoulders or projections d^4 at the sides of said recess which are adapted to spring over the body A at both sides of the head $A^\times$, substantially as set forth.

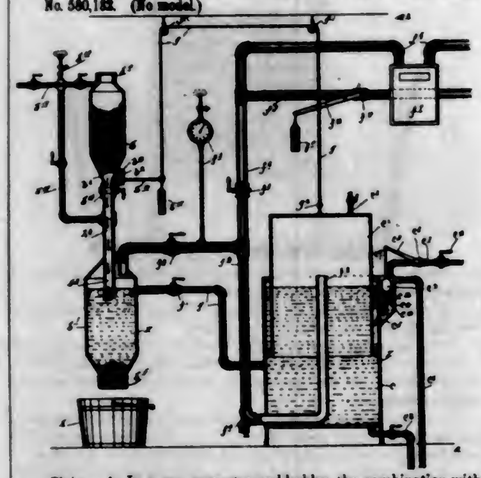
575,280. FLUE-CLEANER. JAMES J. BRENNAN, Pittsburg, Pa. Filed Mar. 27, 1896. Renewed Dec. 18, 1896. Serial No. 616,204. (No model.)



Claim.—1. A flue-cleaner consisting of a series of pipes, jets leading from the pipes and extending through the furnace-wall opposite the boiler-flues, and brackets embracing the horizontal pipes and connected to the wall, as and for the purpose described.

2. A flue-cleaner consisting of a series of blowpipes arranged at the rear of a furnace, clips secured to the wall with the ends embracing the pipes, jets connected to the pipes and extending into the flues, at the rear and means for admitting steam into the tubes and causing it to follow the products of combustion therethrough, as and for the purpose described.

575,281. APPARATUS FOR GENERATING ACETYLENE GAS. LEROY S. BUFFINGTON, Minneapolis, Minn. Filed Feb. 21, 1896. Serial No. 580,182. (No model.)



Claim.—1. In a gas generator and holder, the combination with a pair of receptacles located one above the other, a communicating passage between said receptacles, a valve in said passage, a storage-tank in communication with the lower member of the said receptacles, through a pair of fluid-passages which connect the same at points, one above the other, the lower serving to convey the liquid and the upper serving to convey the gas, and an automatic controller applied to said valve, operated directly or indirectly by the pressure of the generated gas stored in said storage-tank, substantially as described.

2. In a gas generator and holder, the combination with the pair of receptacles *b* and *b'* in communication through the neck-like passage b^2, of the slide-valve b^3 coöperating with an opening in the bottom of the receptacle *b*, the lever b^{14} with connections to said slide-valve b^3, the weight b^{13} at the free end of the lever b^{14}, the holder or storage-tank comprising the telescopic fixed and movable sections *c* and *c'*, the pair of fluid passages or pipes *f* and f^3 connecting the receptacle *b'* with said holder and serving to convey respectively the liquid and the gas, and the flexible connection *g* guided by sheaves *g'* and secured at one end to the free end of the lever b^{14} and at its other end to the head of the movable tank-section *c'*, substantially as described.

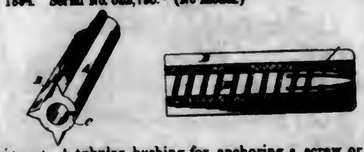
3. In a gas generator and holder, the combination with a pair of receptacles located one above the other, of a communicating passage between said receptacles, a valve in said passage, a two-part telescopic storage-tank in communication with the lower member of said receptacles, through a pair of fluid-pipes which connect the same at points one above the other, the lower serving to convey the liquid and the upper to convey the gas, and an automatic controller applied to said valve and connected to the movable section of said storage-tank, substantially as described.

4. A gas-generator, comprising an upper and a lower receptacle, the former located entirely above the latter and adapted to contain, respectively, a dry and a liquid gas-producing substance, a valved communicating passage extending from said upper receptacle and terminating at its lower open end within said lower receptacle, at a point below the liquid-level of the same, and a storage-tank in communication with said lower member of the receptacles, through a pair of fluid-passages which connect the same at points, one above the other, the lower serving to convey the liquid, and the upper to convey the gas, substantially as described.

5. In a gas generator and holder, the combination of the pair of receptacles, located one entirely above the other, of a communicating pipe extending from said upper receptacle and terminating in said lower receptacle at a point below its liquid-level, a valve in said communicating pipe, a two-part telescopic storage-tank connected with

the lower member of said receptacles through a pair of fluid-passages, one serving to convey the liquid and the other the gas, and an automatic controller applied to said valve and connected to the movable section of said storage-tank, substantially as described.

575,282. ANCHOR-BOLT BUSHING. JOHN H. COOK, West Springfield, Mass., assignor to Henry B. Newhall, Plainfield, N. J. Filed Sept. 12, 1894. Serial No. 522,795. (No model.)

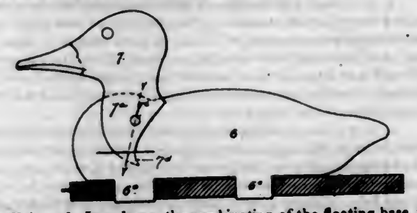


Claim.—1. A tubular bushing for anchoring a screw or screw-bolt in stone, brickwork or like material, consisting of a metallic tube having one or more longitudinal ribs B, and being slotted by a single slot along its length, as and for the purposes set forth.

2. A longitudinally-slotted tubular bushing A for anchoring a screw or screw-bolt in masonry or like material, which bushing is provided with walls of varying thickness and with one or more ribs B, substantially as and for the purpose set forth.

3. A longitudinally-slotted and interiorly-threaded tubular bushing A for anchoring a screw or screw-bolt in masonry or like material, which bushing is provided with one or more longitudinal ribs B, substantially as and for the purpose set forth.

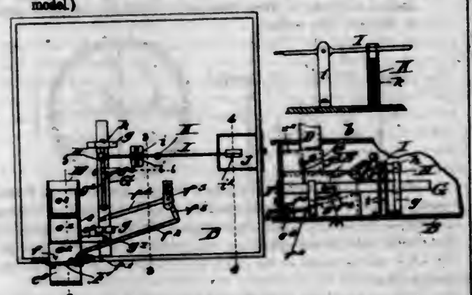
575,283. DECOY. GEORGE K. FRANTZ, Denver, Colo. Filed Apr. 6, 1896. Serial No. 586,474. (No model.)



Claim.—1. In a decoy, the combination of the floating base, the detachable sheet-metal body part mounted on the base, and shaped to represent a water-fowl in profile, and the head pivoted on the body part and provided with a projection adapted to enter a locking-slot formed in the body part, substantially as described.

2. In a decoy, the combination of the floating base having one or more central slots, the sheet-metal body part shaped to represent the body of a water-fowl in profile, and having one or more projections adapted to enter the slots of the base, and the head pivoted on the body part and having a projection adapted to enter a locking-slot formed in the body part, the floating base being provided with loops adapted to receive the projections on the body part when the latter is placed flat on the base, as and for the purpose set forth.

575,284. COIN-CONTROLLED VENDING-MACHINE. CHARLES W. HUNT, Calhoun, Ga. Filed Jan. 15, 1896. Serial No. 575,618. (No model.)



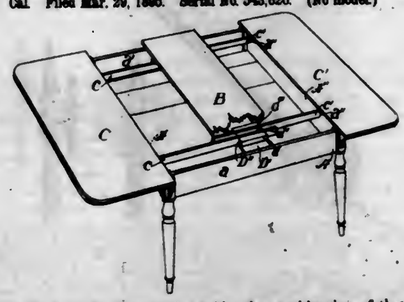
Claim.—1. In a vending-machine, a receptacle and a closure therefor, a toothed, reciprocable rack operatively connected to said closure, a pawl engaging the teeth thereof in a direction to prevent the opening of said closure, a lever connected to said pawl and adapted by its movement to disengage same, a coin-holder on the free end of said lever, adapted to retain the coin until depressed beyond the point necessary to release the pawl and means for producing such further depression.

2. In a vending-machine, a receptacle and a closure therefor, a toothed reciprocable rack operatively connected to said closure, a pawl engaging the teeth thereof in a direction to prevent the opening of said closure, a lever connected to said pawl and adapted by its movement to disengage the same, a coin-holder on the free end of said lever, adapted to retain the coin until depressed beyond the point necessary to release the pawl, and means for producing such further depression, consisting of an enlarged tooth on the aforesaid rack, substantially as specified.

3. In a vending-machine, a receptacle and a closure therefor, a toothed reciprocable rack operatively connected to said closure, a pawl engaging the teeth thereof in a direction to prevent the opening of said closure, a lever connected to said pawl and adapted by its movement to disengage the same, a coin-holder on the free end of said lever, adapted to retain the coin until depressed beyond the point necessary to release the pawl and means for producing such further depression, and a resilient motion-limiting stop under said lever.

4. In a vending-machine, a receptacle and a closure therefor, a toothed reciprocable rack operatively connected to said closure, a pawl engaging the teeth thereof in a direction to prevent the opening of said closure, a lever connected to said pawl and adapted by its movement to disengage the same, a coin-holder on the free end of said lever, adapted to retain the coin until depressed beyond the point necessary to release the pawl, and means for producing further such depression and a shutter governing the discharge-opening of said receptacle and connected operatively with said reciprocable rack.

575,285. EXTENSION-TABLE. WILLIAM H. MAYS, Los Angeles, Cal. Filed Mar. 29, 1895. Serial No. 543,620. (No model.)



Claim.—1. In an extension-table, the combination of the frame having the central or middle section rigidly secured thereto; the end or marginal sections each rigidly secured to slide-bars arranged to reach, when the table is extended, from the end rails of the frame to the rigid middle section, each slide-bar being arranged to slide in two short guideways, one provided in the end rails and the other formed of blocks secured to the middle section, all of such guideways being adapted to allow the slides to slide endwise therein, but to prevent their movement in any other direction, substantially as and for the purpose set forth.

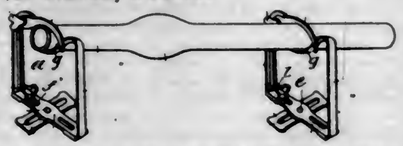
2. The combination set forth of the frame having the middle section rigidly secured to its side rails, and having the dovetail guideways provided in its end rails; the short dovetail guideways secured to the middle section; the dovetail slide bars, each arranged to slide in one of the guideways in the end rails, and in one of the guideways secured to the middle section, and the end or marginal sections secured to the slides, substantially as set forth.

3. The combination of the frame having the middle section rigidly secured to its side rails; the middle guideways each formed of three blocks secured to the rigid middle section and having their opposing faces beveled, and a bottom piece secured to the blocks, all arranged to form two short dovetail guideways; the end rails of the frame having the dovetail guideways provided therein; the dovetail slide-bars, each arranged to slide in one of the guideways of the middle section and one of the guideways of the end sections, and the end or marginal sections secured to the slide-bars, substantially as and for the purpose set forth.

575,286. PIPE-JOINTING HOLDER. ROBERT NEWMAN, Bridgeport, Conn., assignor to The Vanderman Plumbing and Heating Company, Willimantic, Conn. Filed Aug. 30, 1894. Serial No. 521,660. (No model.)

Claim.—1. In combination in a pipe-stand and frame having a base, a foot pivoted to the base and having a swinging movement in the plane thereof, a thumb-screw extending through the base, a pipe-

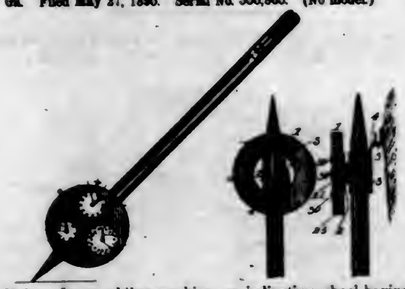
socket formed in the upper part of the frame and a clamping-arm adjustably supported on the frame and adapted to overlie the pipe-socket, all substantially as described.



2. A pipe-stand including a skeleton frame having a base, a foot pivoted to the base and having a swinging movement in the plane thereof, a thumb-screw extending through the base of the frame, a reëntrant bend in the upper part of the frame forming a pipe-socket, a swinging clamp-arm adapted to overlie the pipe-socket, and a clamp-screw adjustably attaching the arm to the frame, all subetantially as described.

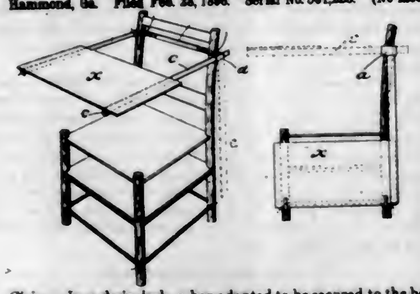
3. In combination in a pipe-stand and frame having a base, a foot pivoted to the base and having a swinging movement in the plane thereof, a thumb-screw extending through the base, a pipe-socket formed in the upper part of the frame, and extending crosswise thereof, a clamp-arm pivoted to the frame and having a swinging movement in the plane thereof and across the pipe-socket, and a clamp-screw forming the pivot for the clamp-arm whereby the latter is adjustably attached to the frame, all subetantially as described.

575,287. ADDING-MACHINE. CHARLES H. REDDING, Atlanta, Ga. Filed May 27, 1896. Serial No. 550,865. (No model.)



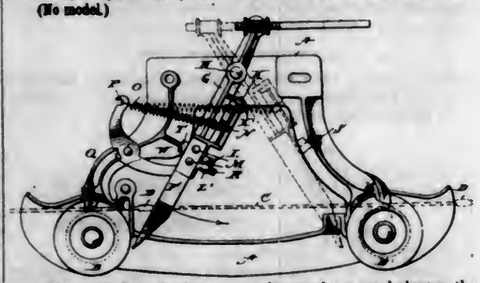
Claim.—In an adding-machine, an indicating-wheel having figures on its face and a toothed wheel secured thereto, same being mounted in a casing on a suitable pivot, a spring-lever having a pawl thereon engaging the teeth of said wheel and adapted to be moved in the plane of said wheel and the interdental distance thereof, a double-ended spring extending substantially half-way around said toothed wheel, carrying a tooth on one end adapted to engage the said toothed wheel, a cam mounted concentrically of said toothed wheel and having its periphery in the form of a volute curve, a lever pivoted to the casing and adapted to bear on the said periphery, an arm on said lever extending to the correlative end of the aforesaid double spring and contacting therewith at an angle thereto, and means for causing the disengagement of the two aforesaid pawls, substantially as and for the purpose specified.

575,288. ADJUSTABLE CHAIR-DESK. JOSEPH F. TRIMBLE, Hammond, Ga. Filed Feb. 28, 1896. Serial No. 581,225. (No model.)



Claim.—In a chair-desk, a bar adapted to be secured to the back of a chair, two parallel plates on each end thereof having connecting-bars between their contiguous faces at the upper back and lower front corners, bars adapted to have their back ends inserted between said plates and rest respectively under and over said connecting-bars and a table adapted to be seated on the free ends of said bars, substantially as and for the purpose specified.

575,289. CHECK-ROW ATTACHMENT FOR SEED-PLANTERS. JAMES F. WITCHELL, Springfield, Ohio, assignor to the Foos Manufacturing Company, same place. Filed May 14, 1896. Serial No. 591,462. (No model.)



Claim.—1. In a check-row attachment for a seed-planter, the combination with a suitable frame, of a pivoted lever mounted thereon and adapted to be connected with the seed-dropping mechanism, a stationary and a pivoted jaw mounted on said lever, a check-row wire or chain having knots thereon adapted to pass between said jaws and operate said lever, and mechanism for operating one of said jaws to release said knots at a predetermined point in the operation of the lever.

2. In a check-row attachment for a seed-planter, the combination with a suitable lever pivoted thereto and adapted to operate the seed-dropping mechanism, a hinged jaw and a stationary jaw connected to said lever, a check-row wire adapted to pass between said jaws and having knots for moving said lever in one direction, and mechanism to open said jaws to release said knots, and means to close said jaws and return said lever to normal position.

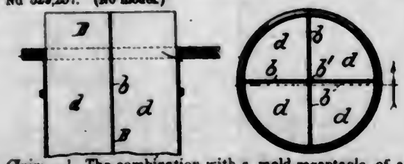
3. In a check-row attachment for a corn-planter, the combination with a lever pivoted thereto and adapted to be connected to the seed-dropping mechanism, of a pair of jaws carried by said lever one of which is partially rotatable on a pivot substantially lengthwise of itself and adapted to be opened and closed, a check-row wire working through said jaws whereby said lever is operated, and means to open the jaws to release the wire.

4. In a check-row attachment for seed-planters, the combination with a suitable frame, of an operating-lever pivoted thereto and adapted to be operated by a check-row wire passing between jaws, one of which is rigidly secured to said lever and the other of which is hinged to said lever, and means for raising and lowering said hinged jaw.

5. In a check-row attachment for seed-planters, the combination with a suitable frame having an operating-lever pivoted thereto, of a pair of jaws forming a part of said lever, said jaws being nearly closed together along one edge but standing apart along their other edge, one of them being partially rotatable, whereby when the machine is backed the check-row wire and its knots may pass between and pull through said jaws without operating the lever.

6. In a seed-planter, a check-row-wire lever having a fixed jaw and a horizontally-hinged jaw, the forward edges of said jaws being normally close together and their rear edges farther apart than the forward edges, whereby the wire may enter between the jaws but the knots are obstructed by the forward edges, and whereby when the hinged jaw is horizontally rotated, partially, the forward edges separate and the rear edges allow the knots to escape.

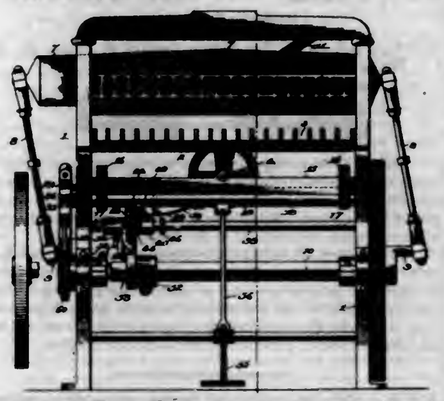
575,290. ICE-CREAM MOLD. MAURICE H. ADAMS, Chicago, Ill., assignor to Clinton R. Wiser, same place. Filed Nov. 19, 1894. Serial No. 529,257. (No model.)



Claim.—1. The combination with a mold-receptacle, of a compound partition device, loosely inserted therein and having one end projecting therefrom, and a drawing-plate, adapted to slip over the projecting part of the partition, closing that end of the mold and allowing said partition to be withdrawn therethrough, substantially as described.

2. In an ice-cream mold, the combination with a mold-receptacle of a removable partition device, consisting of a number of wings, radiating from a common center and adapted to divide said receptacle into a number of compartments, and a drawing-plate adapted to cover one end of the said receptacle and slotted to permit the removal of the said partition through it substantially as set forth.

575,291. PAPER-CUTTING MACHINE. EDWIN J. ARMSTRONG, Oswego, N. Y., assignor to the Oswego Machine Works, same place. Filed Nov. 13, 1895. Serial No. 568,747. (No model.)



Claim.—1. The combination, in a paper-cutting machine, of a presser-bar or clamp, means for automatically lowering said clamp to the paper, a shaft provided with means for engaging said clamp, said shaft being independent of said lowering means, a friction device, consisting of disks and a ratchet-wheel, mounted on said shaft, mechanism adapted to impart motion to said friction device after the clamp has reached the paper, a cam for imparting motion to said mechanism in one direction, and means for returning said mechanism to its normal position, substantially as described.

2. The combination, in a paper-cutting machine, of a presser-bar or clamp, means for supporting said clamp in its raised position and adapted to permit the same to graritate to the paper, a shaft, independent of said supporting means, connected to said clamp, and a friction device, consisting of disks and a ratchet-wheel, mounted on said shaft, for imparting motion to said shaft after the clamp has reached the paper, substantially as described.

3. The combination, in a paper-cutting machine, of a presser-bar or clamp, a shaft provided with means for operating said shaft after it has reached the paper, disks keyed to said shaft, a ratchet-wheel frictionally held between said disks, a dog engaging said ratchet-wheel, means for imparting motion to said dog whereby said shaft may be revolved, and means for automatically returning said dog and disengaging it from the ratchet-wheel, substantially as described.

4. The combination, with the presser-bar or clamp of a paper-cutting machine, of the shaft, disks keyed to said shaft, a ratchet-wheel frictionally held between said disks, a dog for engaging said wheel, a cam for vibrating said dog in one direction, a weight for returning said dog to its starting position, and means for disengaging said dog from said wheel, substantially as described.

5. The combination, with the presser-bar or clamp of a paper-cutting machine, of a lifting-cam, a connecting device interposed between said cam and clamp adapted to elevate the clamp, and means for automatically moving said device out of engagement with said cam, substantially as described.

6. The combination, with the presser-bar or clamp of a paper-cutting machine, of a rocker-arm, a cam for rocking said arm, and means for automatically shifting said rocker-arm to disengage it from said clamp, substantially as described.

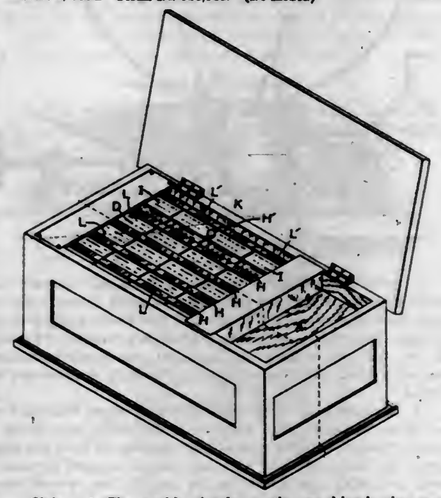
7. The combination, with the presser-bar or clamp of a paper-cutting machine, of a rocker-arm normally engaging said clamp, a cam engaging said rocker-arm, means for raising said clamp out of engagement with said rocker-arm, and means for shifting said rocker-arm bodily out of engagement with said cam upon the release of said rocker-arm from said clamp, whereby the clamp may be moved vertically independently of said rocker-arm, substantially as described.

8. The combination, with the presser-bar or clamp of a paper-cutting machine, of a shaft for applying pressure to said clamp, disks keyed to said shaft, a ratchet-wheel frictionally held by said disks, a case surrounding said wheel and disks, a dog carried by said case for engaging said wheel, a stop for disengaging said dog, and a cam for imparting vibratory movement to said case, substantially as described.

9. The combination, with the presser-bar or clamp of a longitudinally-movable rocker-arm for lifting said clamp, a cam for rocking said rocker-arm, and means for raising and lowering said clamp independent of said rocker-arm, substantially as described.

10. The combination, with the presser-bar or clamp of a paper-cutting machine, of a rocker-arm normally engaging said clamp, a cam normally engaging said rocker-arm, means for automatically shifting said rocker-arm out of engagement with the clamp, and means for automatically shifting said rocker-arm into engagement with the clamp, substantially as described.

575,292. VOTING-MACHINE. JOHN BLOCHER, Franklin Grove, Ill., assignor to Adam Grim and Elmer E. Miller, same place. Filed Nov. 9, 1894. Serial No. 528,311. (No model.)



Claim.—1. The combination in a voting-machine having several separate series of ballot-depositories, each separately receiving the ballots for candidates for the same office, of a slide having ballot-orifices therein which are adapted to communicate with the several depositories, the said orifices normally out of communication with the depositories, and means for moving the slide, whereby the orifices are moved into and out of communication therewith, a guard for each series of ballot-repository orifices consisting of a slide having a series of orifices therein, each of said orifices, one at a time, adapted to register with some particular one of the movable ballot-receptacle orifices, while the other orifices of the guard-elide are out of register—substantially as shown and described.

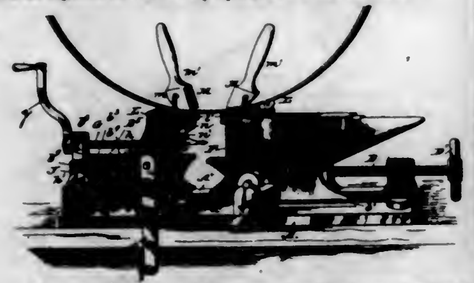
2. The combination in a voting-machine having several series of ballot-depositories each separately receiving the ballots for candidates for the same office, and a series of ballot-depositories each separately receiving one ballot for all the candidates on one ticket, of a slide having ballot-depository orifices therein, one of said orifices for each depository, the orifices normally out of communication with the depositories and means for moving the slide, whereby all the ballot-orifices are brought into and then out of communication with the depositories, a guard for each series of ballot-depository orifices consisting of a slide having a series of orifices therein which, one at a time, are adapted to register with some one of the movable ballot-receptacle orifices, the guard-slides for the several series of ballot-depository orifices for the separate candidates arranged relatively to the guard-slide for the ballot-depository orifices for all the candidates on each ticket, whereby a vote placed for all the candidates on one ticket throws all the other guard-elide orifices out of register with the ballot-depository orifices, and vice versa, substantially as described.

3. The combination in a voting-machine having several series of ballot-depositories, each depository of a series separately receiving the ballots for candidates for the same office, of a series of ballot-depositories each separately receiving one ballot for all the candidates on one ticket, and means, whereby after a vote is placed for all the candidates on some one ticket, the split-ticket-voting devices are thrown out of register or locked, and after a vote has been placed for some one candidate the straight-ticket-voting devices are thrown out of register or locked, for the purpose described.

575,293. BLACKSMITH'S COMBINATION-TOOL. RICHARD N. BOGGS and JOSEPH J. BOGGS, Mossy Creek, Ga., assignors of one-half to William I. Hobbs and John E. Redwine, Jr., Gainesville, Ga. Filed July 11, 1896. Serial No. 598,788. (No model.)

Claim.—1. An anvil having a fixed and a sliding jaw, said jaws having their clamp portions projected, and having grip members on their upper face and a hand-operated cam-lever, having bails hung eccentrically thereon, said bails having extensions adapted to extend under the projecting ends of the anvil-jaws as set forth.

2. The combination in a blacksmith's anvil as described, with the fixed jaw and the sliding jaw, said jaws having projecting clamp ends, and sockets in the upper face, of the grip-plates having shanks adapted to fit the jaw-sockets, and the cam-levers, having pendent bail members eccentrically hung in the said cam members and having inturned portions adapted to extend under the projecting ends of the anvil-jaws as and for the purposes shown and described.



3. As an improvement in blacksmiths' anvils, the combination of the fixed anvil-jaw, having a grip-plate detachably secured upon the upper face, of a longitudinally-movable jaw having a grip-plate on its upper face, and clamp-levers having bail portions adapted to straddle the said grip members and provided with pendent members adapted to hook under the anvil-jaws substantially as shown and described.

4. In an appliance as described, the combination with the fixed jaw having stationary vise members, of the sliding jaw, having a recess or pocket, a vertical channel-way opposing the fixed vise members, a vise detachably held in the said channel-way and the wedge-block for holding such detachable vise member from vertical movement, as and for the purposes set forth.

5. The combination with the fixed anvil-jaw having fixed vise members, of the movable jaw, having a vertical channel-way having a horizontal inwardly-extending wedge portion, a detachable vise member having its rear end made to slide vertically in the said channel-way and having dovetail recesses in the lower end to receive the aforesaid wedge portions and the clamp-block for holding the said detachable vise member from vertical movement all being arranged substantially in the manner and for the purposes described.

6. A blacksmith's tool or appliance, consisting of a base having a fixed member having an anvil-jaw portion a pocket and a bracket, and two or more rolls disposed horizontally at one side of the fixed member, said walls having their axis in different planes, a drill-shaft journaled in the bracket and the anvil and jaw and having its drill-socket disposed below the front end of such jaw, said base member having a longitudinal flanged guide, a movable anvil-jaw held to slide on the said guide, screw-operated means for adjusting the said movable jaw such jaw having at one side a horizontally-disposed tire-bending roll, each anvil-jaw having a socket, grip-plates having shanks adapted to fit such sockets, and hand-lever clamp devices having bail portions eccentrically hung therein, having projecting members adapted to straddle the anvil-jaws and extend thereunder all being arranged substantially as shown and for the purposes described.

575,294. COMBINED BOOK-SUPPORT AND LABEL-HOLDER. WILLIAM A. BORDEN, New Haven, Conn., assignor to Edward A. Burgess, same place. Filed Oct. 29, 1894. Serial No. 527,133. (No model.)



Claim.—1. The herein-described book-support comprising a horizontal plate, a vertical upright and a depending flange formed from a single piece of sheet metal, a second plate secured to said flange, and so as to leave an opening at its top between said plate and flange, said second plate constructed with a sight-opening, and a rearwardly-extended lip, substantially as described.

2. The herein-described book-support formed from sheet metal, and comprising a plate formed with a downwardly-depending flange at its forward end, an upright formed integral with said plate, the forward edge of said upright extending outward beyond the plane of said flange, a second plate applied to said flange, and so as to leave an opening at the top between said plate and flange, said second plate constructed with a sight-opening and a rearwardly-extended lip, substantially as described.

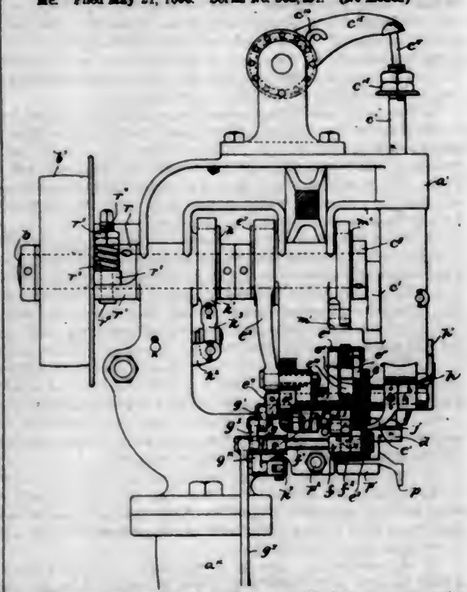
575,295. CUE-TIP. NICOLAS BOSHAMM, Jr., Chicago, Ill. Filed Mar. 15, 1895. Serial No. 541,853. (No model.)



Claim.—1. As an improved article of manufacture, a cue-tip composed of a cup-shaped piece made of one piece of rawhide, to receive the end of the cue, a cushion or exterior piece, and a thread or cord passed through and uniting the same and being looped in the cavity of the cup-piece, substantially as described.

2. A billiard-cue having the reduced end tenon, the cup-shaped piece thereon bearing against the shoulder of the cue and formed in a single hard integral piece of an elastic nature, readily receiving glue or cement, and the end cushion, so that a hard integral elastic body is directly interposed between the end of the cue and the cushion, said body being glued to the cue, and to the cushion.

575,296. MACHINE FOR MAKING AND DRIVING STAPLES. PETER A. COUPAL, Boston, Mass., assignor, by direct and mesne assignments, to the Gordon Staple Lasting and Tacking Company, Portland, Me. Filed May 21, 1896. Serial No. 592,431. (No model.)



Claim.—1. A machine for driving metallic fastenings, comprising in its construction a spring-operated driver, a detent or latch for holding the driver with its spring compressed, a movable work-rest, and means placed in action by pressure of the work against said rest to trip said latch to release the driver, and then restore the driver to its first position, the action of said means being continuous until the work is removed from the rest.

2. A machine for driving metallic fastenings, comprising in its construction a vertically-movable driver, a spring for depressing the driver, means for raising the driver, a detent or latch for holding the driver when so raised, a movable work-rest, and means placed in action by pressure of the work against said rest to trip said latch to release the driver, and then restore the driver to its first position, the action of said means being continuous until the work is removed from the rest.

3. A machine for making and driving staples, comprising in its construction staple-forming mechanism, a spring-operated driver, a detent or latch for holding the driver with its spring compressed, a movable work-rest having a throat for the passage of the staples, and means placed in action by pressure of the work against said rest to trip said latch to release the driver, and then restore the driver to its first position, the action of said means being continuous until the work is removed from the rest.

4. A machine for driving metallic fastenings, comprising in its construction a spring-operated driver, a carrier for guiding and raising the driver, a detent or latch for holding the driver when so raised, and a cam or striker carried by said carrier for automatically moving said latch to release the driver.

5. A machine for driving metallic fastenings, comprising in its construction a spring-operated driver having its bar provided with a shoulder, a carrier for elevating said bar, a latch to engage said shoulder, and cams or strikers carried by said carrier for automatically moving said latch out of and into engagement with said shoulder.

6. A machine for making and driving staples, comprising in its construction wire-feeding mechanism, a driver, an anvil, means for adjusting the length of wire fed for forming the staple, said means permitting varying lengths to be given, independent means under the control of the operator for instantly changing the length of feed from one limit to the other, and connections between the wire-feed adjustment and the anvil whereby the anvil will take the wire blank at the center.

7. In a machine of the character specified, the combination with the driving-shaft b, of the carrier c^3, a wrist-pin and pitman connecting the shaft and carrier, the spring-depressed driver and its bar, the latch c^6 for engaging said bar, and means connected with said carrier for automatically disengaging the latch from the driver-bar.

8. In a machine of the character specified, the combination with the driving-shaft b, of the carrier c^3, a wrist-pin and pitman connecting the shaft and carrier, the spring-depressed driver and its bar, the latter having an opening forming a shoulder c^9, the latch c^6 pivoted to a stationary part of the machine, and means connected with said carrier for automatically oscillating said latch on its pivot.

9. In a machine of the character specified, the combination with the carrier c^3 having the cam-shaped striking-surfaces c^{13} c^{14}, of means for reciprocating the carrier, the spring-depressed driver and its bar fitted to said carrier, and the latch c^6 having faces c^{15} c^{14} adapted to be alternately engaged by said striking-surfaces.

10. In a machine of the character specified, the combination with the carrier c^3 having its lower end slotted to form bending-jaws d' d', of the anvil d over which a wire blank is bent by said jaws, means for feeding blanks into position to be bent, the driver c' having the groove c^{11} and the shoulder c^9, the latch c^6, and means for reciprocating the said carrier and driver.

11. In a machine of the character specified, the combination with the reciprocating anvil and its gripper j, of the guide or back-rest j^3, means for feeding wire in front of said rest, and a cutter for severing the wire to form a blank.

12. In a machine of the character specified, the combination with wire-feeding mechanism and means under the control of the operator and independent of the thickness of the work for adjusting the length of feed, both as to two limits of size and to varying degrees within said limits, of a cutter for severing the wire to form the blank, an anvil, bending-jaws, and connections whereby the position of the anvil is adjusted to correspond with adjustments of the feed, for the purpose described.

13. In a machine of the character specified, the combination with wire-feeding mechanism, and means under the control of the operator and independent of the thickness of the work for adjusting the length of feed, both as to two limits of size and to varying degrees within said limits, of a cutter for severing the wire to form the blank, a reciprocating anvil and gripper to take the blank, a guide for said anvil, and means for adjusting said guide according to the adjustment of the feed.

14. In a machine of the character specified, the combination with wire-feeding mechanism and means for adjusting the length of feed, of a cutter for severing the wire to form the blank, a reciprocating anvil and gripper to take the blank, a guide for said anvil, means for adjusting said guide according to the adjustment of the feed, a stop for limiting the movement of the guide in one direction, and means under the control of the operator for limiting the movement of the guide in the other direction.

15. In a machine of the character specified, the combination with wire-feeding mechanism and means for adjusting the length of feed, of a cutter for severing the wire to form the blank, a reciprocating anvil and gripper to take the blank, a guide for said anvil, means for adjusting said guide according to the adjustment of the feed, a stop for limiting the movement of the guide in one direction, stop mechanism under the control of the operator for limiting the movement of the guide in the other direction, and means for adjusting said stop mechanism.

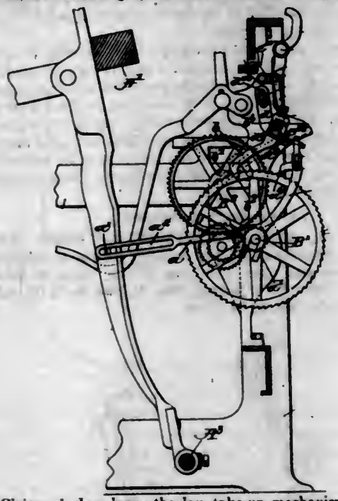
16. In a machine of the character specified, the combination with the anvil d, of the gripper j pivoted thereto and provided with the rearward extension having a socket, and the spring l^3 in said socket and bearing on the rear arm of the anvil.

17. In a machine of the character specified, the combination with wire-feeding mechanism and a cutter adapted to sever the wire at an acute angle, the bender n having a longitudinally-movable rod n', the spring n^2 for moving the rod in one direction, the back-stop n^4, and means for moving the rod against the action of the spring.

18. In a machine of the character specified, the combination with the rod n' and its point-bender n, of the spring n^2, the block o secured to the rod and having the inclined surface o^3, and the oscillating arm having the screw o^2 to engage said surface o^3.

19. In a machine of the character specified, the combination with the lever p' and its throat-rest p, of the lever p^3 having the pin p^{12} and connected to said lever p', the shaft b and pulley b', clutch mechanism for operatively connecting the pulley with the shaft and adapted to be brought into action by the removal of the pin p^{12} from the path of movement of a part of the clutch, the lug r^{12} carried by the clutch, and the yielding stop s to receive the impact of said lug.

575,297. TAKE-UP MECHANISM FOR LOOMS. EDWARD W. DAVENPORT, Hopedale, Mass., assignor to the Northrop Loom Company, Saco, Me. Filed Aug. 1, 1896. Serial No. 601,325. (No model.)



Claim.—1. In a loom, the lay, take-up mechanism, including a ratchet-wheel, an actuating-pawl therefor, a pawl-carrier on which the pawl is rigidly mounted, and having a slotted bearing, a fixed fulcrum for said bearing, connections between the lay and pawl-carrier, to operate the latter, and means to lift the pawl-carrier to thereby disengage the pawl from the ratchet-wheel, substantially as described.

2. In a loom, the lay, take-up mechanism, including a ratchet-wheel, a lever having a slotted bearing pivoted on the support of the ratchet-wheel, said lever having a pawl at one end to move the ratchet-wheel, and a slot at the other end, engaged by a stud or pin on the lay-sword, to thereby positively swing the lever on each stroke of the lay, and means to lift the slotted bearing of the lever from its fulcrum, to thereby disengage the pawl from the ratchet-wheel, substantially as described.

3. In a loom, the lay, take-up mechanism, including a ratchet-wheel, its actuating-pawl, and connections between it and the lay, to rotate said wheel step by step, combined with a slotted detent for the ratchet-wheel, one side of said slot being serrated, a support for the detent, having a foot to enter the slot and engage the serrated side thereof, an adjustable stop to limit the downward movement of the detent, and means to move the detent laterally to thereby disengage the foot from the serrations, whereby the detent may move longitudinally to permit retrogression of the ratchet-wheel, substantially as described.

575,298. WAIST-BELT. HENRY J. GAISMAN, New York, N. Y., assignor of one-half to Ferdinand S. M. Blun, same place. Filed June 17, 1895. Serial No. 553,093. (No model.)



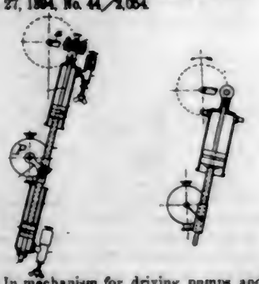
Claim.—1. The combination, with a belt provided with means for securing thereon the ends of a button-fastener, of said fastener

comprising guide-wires raised from the surface of the belt and extended alongside each other and forming a way in which a button-shank can move longitudinally of the belt, said wires having sufficient elasticity to enable the belt to move laterally to allow a button-shank or button to pass between them, the ends of said wires being constructed to engage the means on the belt for securing the same thereon, substantially as described.

2. The combination, with a belt, of a button-fastener comprising wires secured at one end to said belt at a distance from each other permitting a button to pass between them, then extending outward substantially at right angles to the plane of the belt, then bent into a plane substantially parallel with the belt and converging to a distance permitting the shank only to pass through them, then extending alongside each other and along the belt to form a slot to receive a button-shank, and to restrain its movement transversely of the belt while permitting it to move longitudinally of the belt and finally being secured at the other end to the belt so as to close said end to the button, substantially as described.

3. The combination, with a belt and a lining therefor, the latter provided with eyelets, of a button-fastener comprising guide-wires extending substantially parallel alongside each other and forming a slot to receive a button-shank, said wires diverging at the entrance to form guide-arms, said arms being bent at their ends downward or toward the belt and through the eyelets, and then bent again beneath the lining parallel with the plane of the belt, so as to be retained by said belt and lining, the opposite end of the fastener being secured to the belt, substantially as described.

575,299. MECHANISM FOR ACTUATING PUMPS. MORITZ HERRMANN, Frankfort-on-the-Main, Germany, assignor to The Firm of Otto Fromme, same place. Filed Aug. 27, 1894. Serial No. 521,455. (No model.) Patented in Germany Sept. 13, 1893, No. 74,813, and in Austria Mar. 27, 1894, No. 44/2,054.



Claim.—1. In mechanism for driving pumps and the like, the combination with the driving-gear and the driven apparatus, of a connecting-rod, a piston secured to said connecting-rod, a cylinder into which the said piston is fitted, the same having a valve to permit the escape of air at a predetermined pressure, and means whereby motion is transmitted from the connecting-rod to the pumping-piston, said means consisting of a piston-rod or arm secured to said cylinder through a pivotal connection.

2. In mechanism for driving pumps and the like, the combination with the driving-gear and the driven apparatus, of a connecting-rod, a piston secured to said connecting-rod, a cylinder into which the said piston is fitted, an extension of said connecting-rod working within a boring in one end of the cylinder and provided with a stop thereon to limit the movement of said rod, means to transmit the motion of the connecting-rod to the pumping-piston, the same consisting of a piston-rod, or arm secured to said cylinder through a pivotal connection, a reservoir for compressed air connected with said cylinder and means to allow the escape of the compressed air at a predetermined pressure.

3. In mechanism for driving pumps and the like, the combination with a driving-crank, of a connecting-rod, a piston secured to said connecting-rod and a cylinder into which the said piston is fitted, means adapted to provide for compressed air at one side of the said piston and means to allow the escape of the compressed air at a predetermined pressure, an extension of the said connecting-rod, a chamber connected with the cylinder, to receive the extension of the connecting-rod, a stop carried by said extension within said chamber, and means to transmit the motion of the said cylinder to the pumping-piston, the same comprising the piston-rod or arm to which said cylinder is pivotally connected.

4. In mechanism for driving pumps and the like the combination with the driving-gear and the driven apparatus, of a connecting-rod and a piston-rod, the former pivotally connected with a cylinder, and the latter with a piston fitting into said cylinder, a reservoir wherein air at a predetermined pressure is kept, and a connecting-pipe between the chamber of the cylinder behind the piston and said reservoir, substantially as described.

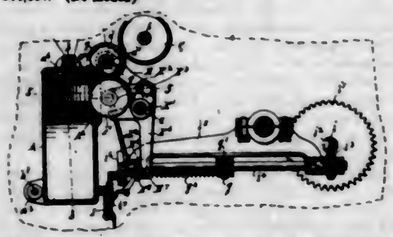
575,300. CHAIR-SEAT. WHITNEY HOMER, Warren, Pa., assignor to Hite Homer, same place. Filed Mar. 4, 1896. Serial No. 581,807. (No model.)



Claim.—1. The combination with the seat-frame having an opening, of a seat arranged within and supported by the edge of the opening, braces secured to the under side of the frame and extending under the seat, and a bolt connected to the seat and passed through the braces and provided with a nut at its lower end, substantially as specified.

2. The combination with the seat-frame having a central opening provided with a shoulder, of a shouldered seat fitting said opening, a pair of intersecting truss-braces spanning the seat and secured to the seat-frame, a bolt passed through the seat and through the braces at their points of intersection, and a nut on the lower end of the bolt below the braces, substantially as specified.

575,301. INKER. FREDERICK G. JAHN, Brooklyn, N. Y., assignor to Matthew J. Dolphin, same place. Filed Feb. 20, 1894. Serial No. 500,837. (No model.)



Claim.—1. In an inker, the combination of a receptacle for the ink provided with an outlet-opening, and an oscillating ink-applier normally inclosed within the receptacle and movable therein for feeding the ink from said receptacle, substantially as and for the purpose described.

2. In an inker, the combination of a receptacle for the ink provided with an outlet-opening, an oscillating ink-applier normally inclosed within the receptacle and movable therein for feeding the ink from said receptacle, said ink-applier having its feeding-face disposed normally in a substantially horizontal plane and movable into a substantially vertical plane, and means for actuating said ink-applier, substantially as and for the purpose set forth.

3. In an inker, the combination of a receptacle for the ink, the frame of an ink-applier having a groove therein, an ink-feeding piece movable in said groove, and springs supported by the frame for holding the feeding-piece in operative position, substantially as and for the purpose described.

4. In an inker, the combination of a receptacle for the ink, an arm consisting of a pivoted section, and a rocking section movable in a plane arranged at an angle with the pivot of the former section, an ink-applier carried by the rocking section of the arm, and means for oscillating the pivoted section and rocking the rocking section substantially as and for the purpose described.

5. In an inker, the combination of a receptacle for the ink, an arm consisting of a pivoted section and a rocking section, a spring surrounding a portion of the rocking section for forcing the same to its normal position, an ink-applier carried by the rocking section of the arm, and means for oscillating the pivoted section and rocking the rocking section substantially as and for the purpose specified.

6. In an inker, the combination of a receptacle for the ink having an engaging face, an arm consisting of a pivoted section, and a rocking section, a spring for forcing the rocking section to its normal position, an antifriction-roller supported by the rocking section for engaging said face of the receptacle, an ink-applier carried by the rocking section of the arm and means for oscillating the pivoted section, substantially as and for the purpose described.

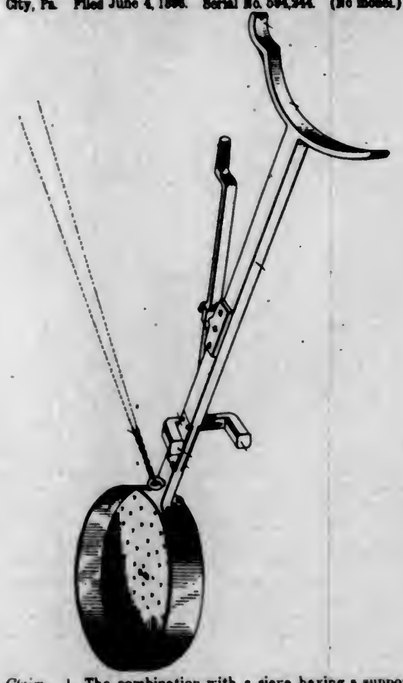
7. In an inker, the combination of an ink-feeding roller, a receptacle for the ink having an opening therein in proximity to the roller, and an oscillating ink-applier having its feeding-face normally inclosed within the receptacle and movable through the opening for feeding the ink to the roller, substantially as and for the purpose specified.

8. In an inker, the combination of a pivoted support, a second support pivoted to the former support, ink-feeding rollers mounted on the respective supports, means for independently adjusting said supports, and an actuator flexibly connected to one of the ink-feeding rollers, substantially as described.

9. In an inker, the combination of an adjustable support, a second support movably mounted on the former support, ink-feeding rollers mounted on the respective supports, one of said rollers being adjustable on its support, adjusters for varying the position of the supports, and a spring for holding one of the supports in its adjusted position, substantially as specified.

10. In an inker, the combination of a movable support having an engaging face provided with an engaging shoulder, an ink-feeding roller mounted on the support, and a hinged adjuster having one extremity provided with a movable shoulder formed with sockets for receiving the shoulder of said engaging face, substantially as set forth.

575,302. SHEVING APPARATUS. JOHN A. LEFFERTS, Ellwood City, Pa. Filed June 4, 1896. Serial No. 594,344. (No model.)



Claim.—1. The combination with a sieve having a supporting-bar, of a pivoted striking-bar pivoted to the support; substantially as described.

2. The combination with a sieve having a supporting-bar provided at its inner end with a yoke, of a lever pivoted to said supporting-bar, and having hammer-heads at its outer end; substantially as described.

3. The combination with a sieve having a supporting-bar provided with wearing-plates, of a lever pivoted to said bar and having a forked inner end forming hammer-heads arranged to strike the wearing-plate; substantially as described.

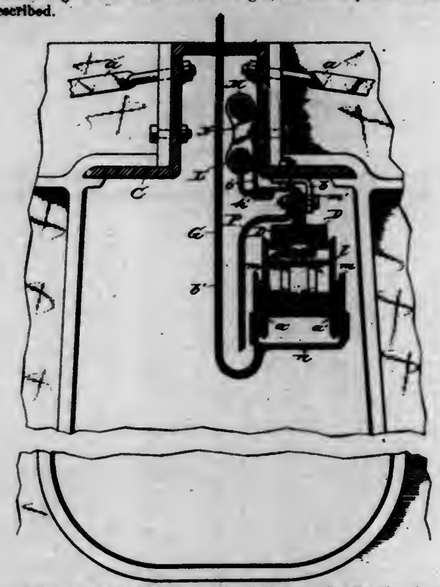
4. The combination with a sieve having a supporting-bar of a longitudinal lever pivoted to said bar, said lever having at its outer end a hammer arranged to strike the bar at a point near the sieve; substantially as described.

575,303. ELECTRIC RAILWAY. GEORGE W. C. LOHR, Birmingham, Ala., assignor of one-fourth to Addison Ballard, Hallettsville, Tex. Filed Feb. 18, 1895. Serial No. 538,790. (No model.)

Claim.—1. In an electric railway, the combination, with an electric conductor and insulating-envelop, inclosing same with contact-making pieces therefor, of a continuous hanger for holding said conductor and its insulating-envelop and trolley-wheel having a middle portion of conducting material, in contact with said envelop, and provided with flanges of insulated material embracing said hanger riding upon and guided thereby, substantially as shown and described.

2. In an electric railway, a combined track for the trolley, and hanger for the conductor, said track and hanger consisting of plates bolted together to form a U-shaped trough, with flanges extending inwardly, electric conducting-envelop supported on said flanges and flanged trolley-wheel having a middle portion of conducting material with its flanges of insulated material guided by and running on the outside of said hanger, substantially as shown and described.

3. In an electric railway, the combination of a series of similar plates bolted together to form a U-shaped trough and placed in sections end to end, flanges extending inwardly therefrom, electric conducting-envelop somewhat longer than said sections, supported on said flanges, and flanged trolley-wheel having a middle portion of conducting material with its flanges of insulated material guided by and running on the outside of said hanger, substantially as shown and described.



4. In an electric railway, an insulating-envelop for the electric conductor, and a double series of contact-pieces therefor arranged in a staggered row, said contact-pieces being loops of copper embedded in said envelop with two of their parallel sides extending lengthwise along the interior and exterior surface of said envelop, substantially as shown and described.

5. In an electric railway, contact-making pieces for the insulating-envelop for the electric conductor, consisting of staples with their ends passing through the envelop, and cross-pieces riveted or otherwise secured to said ends along the opposite surface of said envelop, substantially as shown and described.

6. In an electric railway, the combination, with a hanger and insulating-envelop for the conductor supported thereby, of a trolley provided with a pair of flanged trolley-wheels, one in contact with said insulating-envelop with its flanges embracing said hanger, the other cut away at the central portion so as to be out of contact with said envelop but with its flanges embracing said hanger, substantially as shown and described.

7. In an electric railway, in combination, with an electric conductor, insulating-envelop, and contact-pieces therefor, a trolley-wheel constructed of alternate sections of copper and insulating material, substantially as shown, with insulated bolts to fasten said sections together, with copper rim extending beyond the side faces of the wheel, with spring contact-pieces bearing against same, substantially as shown and described.

8. In an electric railway, the combination, with a hanger and insulating-envelop for the conductor supported thereby, of a trolley provided with a pair of flanged trolley-wheels, one in contact with said insulating-envelop with its flanges embracing said hanger, the other cut away at the central portion so as to be out of contact with said envelop but with its flanges embracing said hanger, said trolley-wheels being journaled in rock-arms pivoted to the trolley-casing, substantially as shown and described.

9. In an electric railway, an electric conductor, and insulating-envelop for same, with continuous hanger to support said envelop, all of said parts being made in sections of convenient length, with the ends of said conductor overlapping, two main cables, one for the supply, the other for the return current, with feed and outlet wires from said supply-cable to each section of the conductor, and from the return-cable to each section of the hanger, substantially as and for the purpose described.

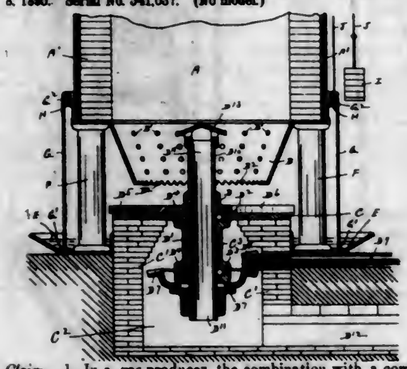
575,304. MOLDER'S APPARATUS. HARRY V. MOORE, Hamilton, Ohio, assignor to F. & L. Kahn & Bros., same place. Filed June 27, 1895. Serial No. 554,208. (No model.)

Claim.—In a molding apparatus, the combination, substantially

as set forth, of a half-flask, a pattern therein having a portion substantially at right angles to the face of the half-flask and having a hole through such portion with its axis parallel with the face of the half-flask, sand in said half-flask around the pattern and against the exterior of said pattern portion at said hole, an awl adapted to fit said hole in the pattern, and a chill-core having a thickness corresponding with said pattern portion at said hole and having a pin projecting from its outer face of a size corresponding with said awl and hole.



575,305. GAS-PRODUCER. RALPH L. MORGAN, Worcester, Mass., assignor to the Morgan Construction Company, same place. Filed Mar. 3, 1896. Serial No. 581,037. (No model.)



Claim.—1. In a gas-producer, the combination with a combustion-chamber, of a stationary table below said chamber and provided with a concentric journal-bearing for a rotating scraper, supporting-walls supporting said table and inclosing a pit beneath said table, a rotating scraper having radial blades above said table and having a hub journaled in the concentric bearing of said table and extending into said pit and means inclosed in said pit and connected with said hub for rotating said scraper, substantially as described.

2. In a gas-producer, the combination with a combustion-chamber and a stationary ash-supporting table beneath said chamber, of walls supporting said table and inclosing a closed chamber, forming the pit, a rotating scraper journaled in said table, means inclosed in said pit for rotating said scraper and an annular pan outside the walls of said pit and surrounding said table to receive the ashes delivered from the edge of the table by said scraper, substantially as described.

3. In a gas-producer, the combination with a combustion chamber and an ash-hopper, of a stationary table placed a short distance below said hopper, a series of fixed teeth located a short distance above said table and an ash-scraper rotating between said table and said fixed teeth, substantially as described.

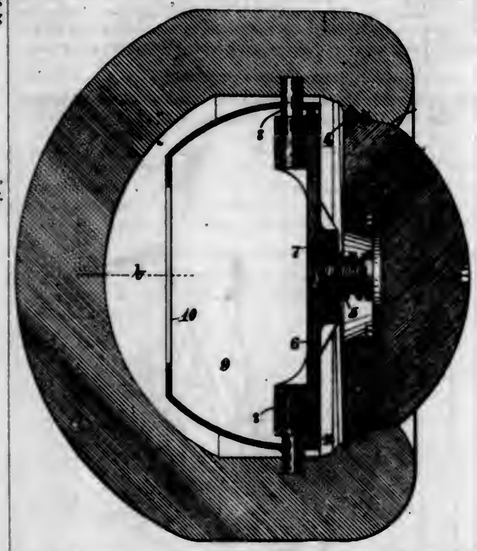
4. In a gas-producer, the combination of the walls A' inclosing a combustion-chamber, columns F supporting said walls, tubular shutter G, ash-hopper B, stationary table C, rotating ash-scraper D and an annular pan E arranged below the surface of said table, substantially as described.

5. In a gas-producer, the combination of a combustion-chamber, a stationary ash-supporting table below said chamber having a concentric journal-bearing, walls supporting said table and inclosing a pit beneath the table, a rotating scraper above said table provided with a hollow hub projecting above the scraper and a hollow hub projecting below the scraper and journaled in said concentric bearing of the table, means connected with the lower hub of said scraper for rotating the same, a conduit by which air is delivered to said pit and through the hubs of said scraper from said pit to the combustion-chamber and a receptacle outside the walls of the pit for the reception of ashes from said table, substantially as described.

575,306. SAFE. MOSES MOSLER, Cincinnati, Ohio, assignor to the Mosler Safe Company, New York, N. Y. Filed Aug. 21, 1896. Serial No. 603,438. (No model.)

Claim.—1. In a safe, the combination, substantially as set forth, of a shell having a threaded circular door-opening, a yoke mounted on pintles within said shell, and a door carried by said yoke and adapted for movement to and from the yoke and having a threaded periphery adapted to engage the threads of the door-jamb by screwing outwardly into the same.

2. In a safe, the combination, substantially as set forth, of a shell having a circular door-jamb provided with threads and having a tapering seat enlarging inwardly, a yoke mounted on pintles within the shell, and a door carried by said yoke and having its periphery provided with threads and a seating adapted to engage said jamb.



3. In a safe, the combination, substantially as set forth, of a shell having a circular door-jamb provided with a tapering thread enlarging inwardly, a yoke mounted on pintles within the shell, and a door carried by said yoke and having its periphery provided with a tapering screw to fit the threads of said jamb.

4. In a safe, the combination, substantially as set forth, of a shell having a circular threaded door-jamb, a door having its periphery provided with threads to engage said door-jamb by screwing outwardly thereinto, a yoke supported on pintles within the shell, and a screw projecting centrally from the door into engagement with said yoke and having a thread corresponding in pitch with the thread on the jamb.

5. In a safe, the combination, substantially as set forth, of a shell having a circular door-jamb of tapering character enlarging inwardly, a yoke supported on pintles within the shell, a rotary door connected with said yoke and having its periphery formed to fit said jamb, and a screw upon said door adapted to move the door inwardly from its jamb as the door is turned upon the axis of such screw.

6. In a safe, the combination, substantially as set forth, of a shell having a circular door-jamb, a yoke mounted upon pintles within said shell, a rotary door connected with said yoke and closing said jamb by moving outwardly thereinto, a screw upon the door for moving the door inwardly out of said jamb as the door is rotated upon the axis of said screw, a latch carried by the door within the shell and adapted to engage an obstruction in the shell and prevent the rotation of the door upon the axis of said screw, a time-lock carried by said yoke, and connections between said time-lock and latch.

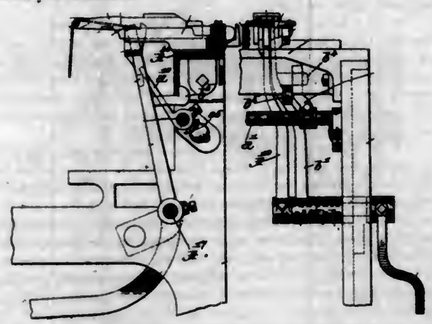
7. In a safe, the combination, substantially as set forth, of a shell having a circular door-jamb, a yoke mounted on pintles within the shell and carrying a treasure-chest, a rotary door carried by the yoke and adapted to close said jamb by moving outwardly thereinto, and a screw on said door for moving the door into engagement with said jamb as the door is turned upon the axis of said screw.

575,307. STOP-MOTION FOR LOOMS. JAMES H. NORTHROP, Hopedale, Mass., assignor to George Draper & Sons, same place. Filed Sept. 19, 1896. Serial No. 606,312. (No model.)

Claim.—1. In a loom, a starting-shaft to operate a change of filling, and having an attached finger, and a normally-inoperative actuating-arm to cooperate with said finger, combined with a weft-hammer, and means controlled by failure of the filling to connect the weft-hammer and actuating-arm to move in unison, substantially as described.

2. In a loom, a starting-shaft to operate a change of filling, a finger thereon, a normally-inoperative actuating-arm provided with a lug to engage said finger and turn the shaft, and a bifurcated shouldered head on said arm, the weft-fork, and its slide, combined with

a weft-hammer normally movable in the said head, the weft-fork tail being adapted to enter between the shouldered head and the weft-hammer upon failure of the filling, to move the actuating-arm, substantially as described.



3. In a loom, a starting-shaft to operate a change of filling, a normally-inoperative actuating-arm and connecting means to turn said shaft, a shouldered head on said arm, recessed to receive the weft-hammer, the weft-fork having a tail, and the weft-fork slide, combined with a weft-hammer having a convexed upper end, to lift and pass beyond the weft-fork tail upon its backward stroke, and a shoulder to engage the tail of said fork upon failure of the filling, whereby the actuating-arm is moved with the weft-hammer, the tail of the weft-fork being held between the hammer and the shouldered head of the actuating-arm, substantially as described.

4. In a loom, a starting-shaft to operate a change of filling, a normally-inoperative actuator and connecting means to turn said shaft, a stop to limit the movement of said actuator in one direction, combined with a positively-vibrated weft-hammer movable adjacent the actuator, and means controlled by the failure of the filling to operatively connect the weft-hammer and actuator, to move the latter and turn the starting-shaft, substantially as described.

5. In a loom, a starting-shaft to operate a change of filling, a normally-inoperative actuator and connecting means to turn said shaft, a weft-fork, and its slide, combined with a positively-vibrated weft-hammer, failure of the filling causing the weft-fork tail to operatively connect the hammer and actuator, to move the latter and turn the starting-shaft, substantially as described.

575,308. SHUTTLE-CHECK FOR LOOMS. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed Oct. 26, 1896. Serial No. 610,054. (No model.)



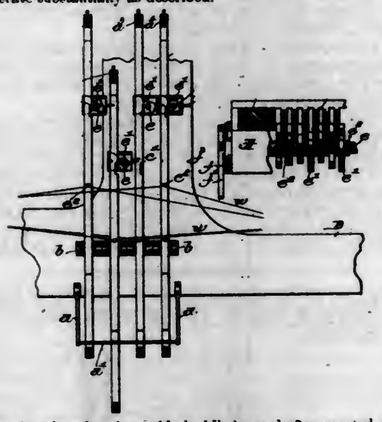
Claim.—A lay having a shuttle-box presenting a front plate and a slotted back plate, and a stop-rod having a finger, combined with a binder composed of a pivoted part having a swell and an inclined seat, and an end piece having a straight and an inclined part, the latter resting on said seat, and means to effect the adjustment of one part of said binder on the other part, substantially as described.

575,309. SHED-FORMING MECHANISM FOR LOOMS. JAMES RAILTON, New Bedford, and GEORGE O. DRAPER, Hopedale, Mass., assignors to George Draper & Sons, Hopedale, Mass. Filed Sept. 2, 1896. Serial No. 604,597. (No model.)

Claim.—1. In a shedding mechanism for looms, the following instrumentalities, viz: a reciprocable heddle-bar, a shaft carried thereby and provided with a series of locking devices, a series of metallic heddles adapted to slide transversely in said bars, and means to rotate said shaft step by step, said locking devices in one position or step of the shaft acting to lift some of said heddles with said bars, and at another position or step of said shaft acting to leave down said heddles when the bars are raised, substantially as described.

2. In a shedding mechanism for looms, the following instrumentalities, viz: a series of reciprocable heddle-bars, shafts mounted thereon, and provided with toothed locking devices, means to rotate said shafts intermittingly, a series of metallic heddles having warp-eyes and notches or projections, and guides for said heddles, to operate substantially as described.

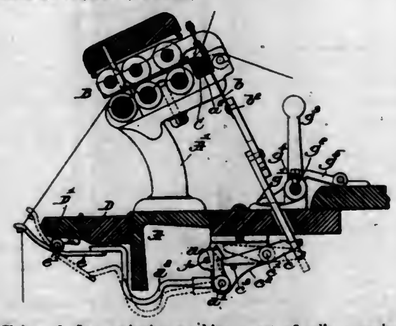
3. In a shedding mechanism for looms, the following instrumentalities, viz: a series of reciprocable heddle-bars, shafts mounted thereon and provided with toothed locking devices, the teeth of each series of said locking devices varying in number and location, means to rotate said shafts intermittingly, a series of metallic heddles having warp-eyes and notches or projections, and guides for said heddles, to operate substantially as described.



4. A series of reciprocable heddle-bars, shafts mounted on said bars and provided with toothed locking devices, means to rotate said shafts intermittingly at each descent of said bars, a series of notched heddles, and guides for said heddles, combined with a rest located below the ends of said heddles to support the same in case the warp-threads in their eyes break, substantially as described.

5. In a loom, the following instrumentalities, viz: a series of metallic heddles having warp-eyes to contain warp-threads, means to engage and lift any desired number of heddles in each set, and a rest to support the lower ends of those heddles of each set which are not engaged and lifted, substantially as described.

575,310. ROVING-CLAMP. ALONZO H. RHOADES, Hopedale, Mass., assignor to George Draper & Sons, same place. Filed Aug. 3, 1896. Serial No. 601,432. (No model.)



Claim.—1. In a spinning-machine, a set of rolls, a roving-bar adapted to guide the roving-roll, a vertically-sliding clamp cooperating therewith and adapted to clamp the roving when in its lowest position, and a guide-board, combined with a stop-lever pivotally mounted below said guide-board, a clamp-supporting lever on one end of which the lower end of said clamp rests, and a holding-lever interposed between said stop-lever and said clamp-supporting lever and located below the guide-board, the combination being and operating substantially as described, whereby the rising of the outer end of the stop-lever when a thread breaks, permits the holding-lever to turn in a direction to release the clamp-supporting lever and let the clamp drop to part the roving, as set forth.

2. In a spinning-machine a set of rolls, a roving-bar provided with a grooved trumpet-plate, a vertically-sliding clamp guided in the grooves of said plate and provided with a hole $b^{\times}$ for the reception of the roving, and a guide-board, combined with a stop-lever pivotally mounted below said guide-board, and intermediate devices between said stop-lever and the lower end of the said clamp to hold the latter up when the roving is unbroken, and to let said clamp drop when the thread breaks, the dropping of the clamp elevating the outer free ends of the stop-lever, to operate substantially as described.

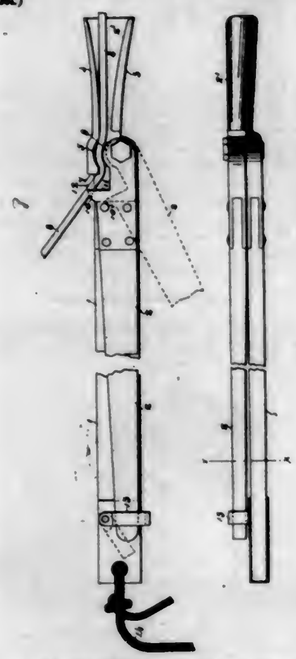
3. In a spinning-machine, a guide-board, a set of rolls, a roving-bar, a vertically-sliding roving-clamp having a loose joint between its

ends, the lower end of said clamp being extended below the top of the guide-board, said clamp being connected to and movable with said roving-bar, and a stop-lever, combined with a hook having an extended arm and a lever adapted to be engaged by said hook, the said stop-lever and hook being located below said guide-board, to operate substantially as described.

4. In a spinning-machine, a set of rolls, a roving-rod, and a roving-clamp made as a vertically-sliding bar, provided with a foot, combined with a rock-shaft having a toe cooperating with said foot to raise the said clamp, substantially as described.

5. In a spinning-machine, a set of rolls, a roving-bar, its attached trumpet-plate, a vertically-sliding clamp carried thereby and having a thread-guide 5× and a button pivotally mounted on the upper end of said clamp to temporarily hold the same elevated, combined with a stop-lever and means intermediate said stop-lever and the lower end of said clamp to retain the clamp elevated when the thread is unbroken and to effect the lowering of the clamp when the thread breaks to clamp and part the roving, substantially as described.

575,311. **DEVICE FOR PICKING UP LIVE WIRES.** HERBERT O. ROCKWELL, St. Louis, Mo. Filed Apr. 16, 1896. Serial No. 587,819. (No model.)



Claim.—1. In a device for picking up live wires, suitable levers pivoted to one another at one end, a scoop forming an extension of one of said levers for initially seizing the wire, means for gripping the wire after the same has been seized, and suitable means for locking the levers after the same have been closed and the wire gripped, substantially as set forth.

2. In a device for picking up live wires, suitable levers pivoted to one another at one end, a scoop forming an extension beyond the pivotal point of one of said levers, and suitable means for kinking and firmly gripping the wire after the end of the same has been scooped up or raised from the ground, substantially as set forth.

3. In a device for picking up live wires, suitable levers pivoted to one another at one end, a scoop forming an extension of one of said levers, said scoop expanding outwardly from the pivotal point of the levers to the free end of the scoop, a concave depression along one of the walls of the scoop, a cam or eccentric formed about the pivotal point of the second lever and located approximately opposite the concave depression of the scoop, a toe formed on the short lever and located at a suitable distance from the end of the coocave depression to allow for the free passage of the wire between the toe and said end of the depression, whereby upon the closing of the levers, the wire will be gripped between the cam-surface and depression and bent about the end wall of the concave depression, and means for retaining the levers in a locked position after once closed, substantially as set forth.

4. In a device for picking up live wires, a long lever having a scoop at one end, lateral walls for said scoop, a short lever pivoted to the first lever at the base of the scoop, and means carried by the short lever for gripping the wire after the same has been scooped up, substantially as set forth.

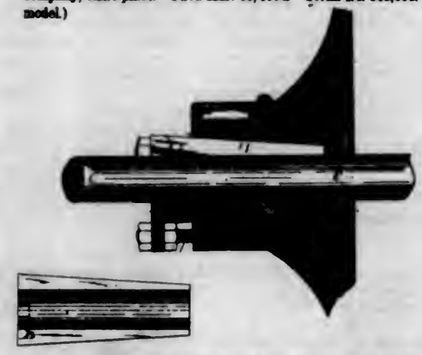
5. In a device for picking up live wires, a long lever, a scoop at one end thereof, a short lever pivoted to the long lever at the base of the scoop, means carried by the short lever for gripping the wire, means for locking the levers together after the same have been closed and the wire gripped, and a cord or rope secured to the long lever for suspending the device at any convenient point, substantially as set forth.

6. In a device for picking up live wires, suitable levers pivoted to one another at one end, means forming a part of one of the levers for initially picking up the wire, and suitable means carried by the levers for kinking and gripping the wire, substantially as set forth.

7. In a device for picking up live wires, suitable levers pivoted to one another at one end, means forming a part of one of the levers for initially picking up the wire, and suitable means carried by the levers for kinking the wire to different degrees according to the nature or thickness of the wire to be operated on, substantially as set forth.

8. In a device for picking up live wires, suitable levers pivoted to one another at one end, a cam disposed about the pivotal point of one of the levers, means for shifting the relative position of the pivotal point between said levers, whereby a variable kink may be made in the wire bent between said cam and walls carried by the opposite lever, substantially as set forth.

575,312. **JOURNAL-BEARING.** DANIEL T. ROOTS and EDGAR D. JOHNSTON, Connersville, Ind., assignors to the P. H. & F. M. Roots Company, same place. Filed Mar. 10, 1894. Serial No. 503,088. (No model.)

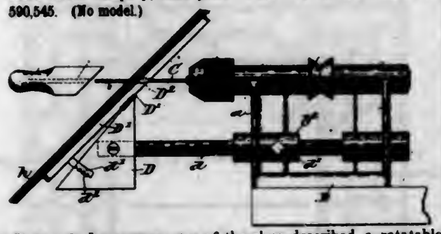


Claim.—1. The combination, substantially as hereinbefore set forth, of the end plate for the rotary blower, having a boss or journal support formed integral therewith, said boss being angularly recessed and tapered longitudinally, sectional bearings for the shaft having their exterior surfaces angularly formed and tapered counter to the recess in the boss, said sectional bearings having radially-projecting perforated lugs, bolts tapped into the ends of said boss and passing through the lugs, and tightening-nuts to adjust the bearings within the recess to compensate for wear.

2. The combination of the end plate of the blower-case having outwardly-projecting boss to form a journal-support, said boss being angularly recessed in cross-section and tapered longitudinally, sectional bearings having their exterior surfaces angular in cross-section, tapering counter to the recess in the boss, and having radial perforated lugs for each section of the bearing, a lining-seat interposed between the walls of the recess and the exterior of the sectional bearings, bolts secured in the ends of the bosses and passing through the perforated lugs, and the adjusting-nuts upon said bolts and upon opposite sides of the lugs to force the bearings inward to compensate for wear and hold said bearings in position, substantially as shown and described.

3. The combination of the blower end, having outwardly-projecting boss to form a support for the journal-bearings, said boss having recesses angular in cross-section and tapering longitudinally, said end being perforated to pass the piston-shaft, sectional bearings, three in number, for the boss, adapted to slide therein and being interchangeable, the lining or seat of Babbitt metal interposed between the inner walls of the recess and the exterior of the sectional bearings, oil-wells at the upper end of the boss, having a duct extending through the shell, the cap covering said duct, and means such as shown to adjust the sectional bearings independent of each other, substantially as shown and described.

575,313. **GRINDING APPARATUS.** CHARLES F. ROPER and CHARLES E. NUTTING, Hopedale, Mass., assignors to the Hopedale Machine Screw Company, same place. Filed May 7, 1896. Serial No. 590,545. (No model.)



Claim.—1. In an apparatus of the class described, a rotatable holder, a long cylindrical grinding-spindle mounted therein, an adjustable work-rest in front of said spindle, and means to adjust the angle of said rest relative to the spindle, substantially as described.

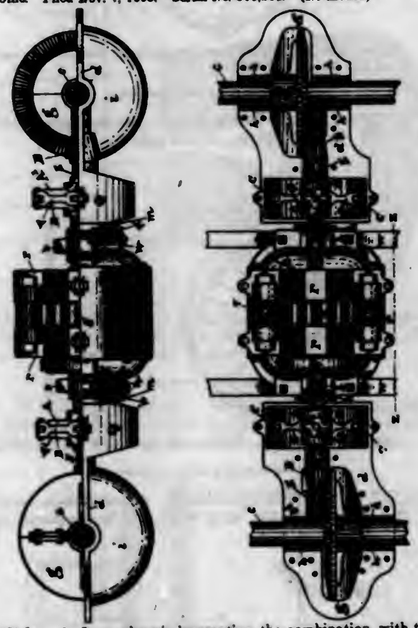
2. In an apparatus of the class described, a rotatable grinding-spindle having a length greatly in excess of its diameter, an adjustable inclined work-rest located transversely to and having an opening for said spindle, and means to adjust the angle of the said work-rest relative to the spindle, substantially as described.

3. In an apparatus of the class described, a rotatable grinding-spindle having a length greatly in excess of its diameter, and an inclined work-support located transversely to and having an opening for said spindle, substantially as described.

4. In an apparatus of the class described, a rotatable grinding-spindle, a work-support having an opening through which the spindle is extended, and a manually-controlled guide or presser for the free or outer end of the grinding-spindle, substantially as described.

5. In an apparatus of the class described, a rotatable grinding-spindle, an inclined work-support having an opening through which the spindle is extended, and a manually-controlled guide or presser for the free or outer end of the grinding-spindle, the inner end of the guide being beveled correspondingly to the work-support, substantially as described.

575,314. **ELECTRIC LOCOMOTIVE.** WILLIAM L. SILVEY, Dayton, Ohio. Filed Nov. 7, 1895. Serial No. 568,211. (No model.)



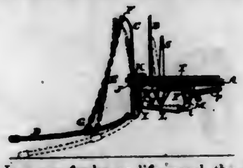
Claim.—1. In an electric locomotive, the combination, with the truck and an electric motor mounted thereon, a gear-wheel rigidly secured on one of the axles, a pinion-shaft flexibly coupled to the motor-shaft, and a pinion carried by the pinion-shaft and in mesh with the gear-wheel, of a gear-frame affording bearing for the pinion-shaft and including casings for the gear-wheel and shaft-coupling, the outer end of said frame being suspended from the axle at two points in such manner as to prevent its lateral movement, and its inner end yieldingly suspended at a single point through pivotal connection with a cross-beam of the truck-frame, said connection comprising a stud and a bearing therefor.

2. In an electric locomotive, the combination, with the truck and an electric motor mounted thereon, a gear-wheel rigidly secured on one of the axles, a pinion-shaft flexibly coupled to the motor-shaft, and a pinion carried by the pinion-shaft and in mesh with the gear-wheel, of a gear-frame affording bearing for the pinion-shaft and including casings for the gear-wheel and shaft-coupling, said frame having at its outer end two points of support on the axle, its inner end being yieldingly suspended at a single point through pivotal connection with a cross-beam of the truck-frame, said connection comprising a stud and a bearing therefor, the bearing being below and in vertical alinement with the motor-shaft.

3. In an electric locomotive, the combination, with the truck and an electric motor mounted thereon, a gear-wheel rigidly secured on one of the axles, a pinion-shaft flexibly coupled to the motor-shaft, and a pinion carried by the pinion-shaft and in mesh with the gear-wheel, of a gear-frame affording bearing for the pinion-shaft and including, at its outer and inner ends respectively, casings for the gear-wheel and shaft-coupling, the coupling-casing being provided on its inner end with a fixed stud, and a bearing-block secured to a motor-supporting cross-beam of the truck below and in vertical alinement with the motor-shaft, said stud being adapted to rest loosely in said block, thereby supporting the inner end of the gear-frame at a single point, the outer end of said frame having two points of support on the axle, one on each side of the gear-wheel.

REISSUES.

11,584. **LIFE-GUARD FOR STREET-CARS.** GEORGE A. PARMENTER, Cambridge, Mass. Filed Dec. 3, 1896. Serial No. 614,388. Original No. 558,659, dated Apr. 21, 1896.

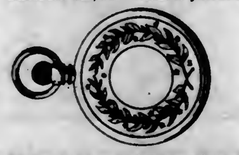


Claim.—1. In a car-fender or life-guard, the combination of a crank-shaft mounted in suitable bearings attached to the body of the car; a pair of elliptical springs secured to said shaft and projecting above and below said shaft with both the upper and lower ends thereof free to yield; a scoop pivoted to the lower ends of said springs and suspended from the top ends thereof; a lever rigidly connected to said crank-shaft and extending backwardly therefrom; a locking arm or tumbler to engage the free or movable end of said lever to lock said scoop in raised position; and means for tripping said locking arm or tumbler to permit said scoop to drop to the track.

2. The combination of the scoop D, two elliptical springs C, C, secured in a vertical position, and having their upper and lower ends free to yield, said scoop being pivoted to the lower ends of said springs, and suspended from the upper ends of said springs by suitable connections, the blocks K, K, secured to said springs C, C, and fixed to the crank-shaft I, the crank-shaft I, journaled in the hangers H, H, one or more horizontal arms L, rigidly secured to the crank-shaft I, and extending backwardly therefrom, the rock-shaft M, having one or more trippers *l*, secured thereto and engaging the arm L, the arm O, and lever S, connected by the link T, arranged as shown for releasing the arm L, substantially as described.

DESIGNS.

26,503. **WATCHCASE.** GEORGE PALMER, Washington, Ga. Filed Dec. 10, 1896. Serial No. 615,214. Term of patent 3½ years.



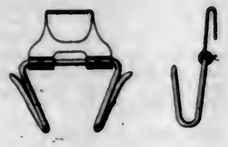
Claim.—The design for a watchcase, substantially as herein shown and described.

26,504. BOUQUET-HOLDER. ALWINA D. FOURNEY, Pleasanton, Tex. Filed Nov. 10, 1896. Serial No. 611,681. Term of patent 7 years.



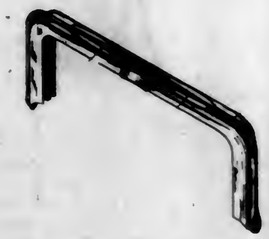
Claim.—The design for a bouquet-holder, substantially as herein shown and described.

26,505. BELT AND GARMENT HOOK. EMIL GUNDHEIM, New York, N. Y. Filed Oct. 27, 1896. Serial No. 610,333. Term of patent 3½ years.



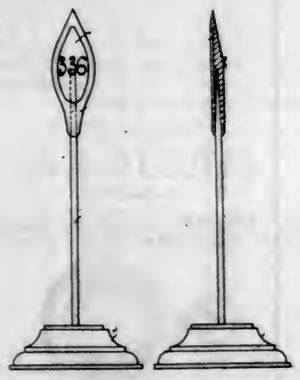
Claim.—The design for a belt and garment hook substantially as herein shown and described.

26,506. PURSE-FRAME. AUGUST GOERTZ, Newark, N. J. Filed May 5, 1896. Serial No. 590,376. Term of patent 3½ years.



Claim.—A design for purse-frames, substantially as herein shown and described.

26,507. IMPALING-PIN. CHARLES F. GREEN, Syracuse, and GEORGE V. GREEN, Fulton, N. Y. Filed Dec. 7, 1896. Serial No. 571,440. Term of patent 7 years.



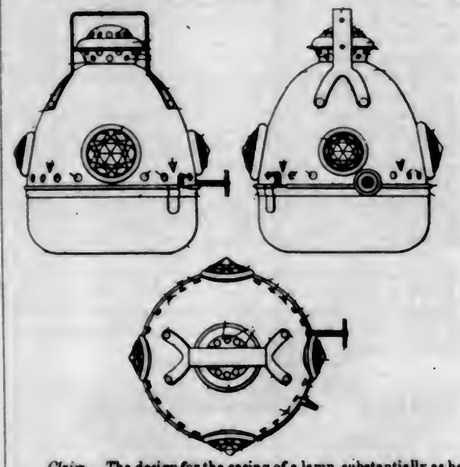
Claim.—The design for the tip of an impaling-pin wherein said tip is lance shape in outline and has a panel or depression in its face, substantially as shown and described.

26,508. MUSTACHE-GUARD CLIP. WILLIAM DAN DALGLEISH, Stamford, Conn. Filed Nov. 17, 1896. Serial No. 612,508. Term of patent 7 years.



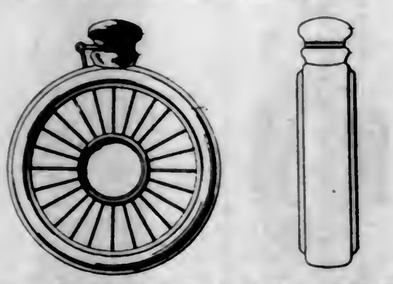
Claim.—The design for a mustache-guard clip herein shown and described.

26,509. LAMP. EDWIN L. KITCHELL, Newark, N. J., assignor to the Cycle Danger Signal Company, same place. Filed Nov. 7, 1896. Serial No. 611,412. Term of patent 7 years.



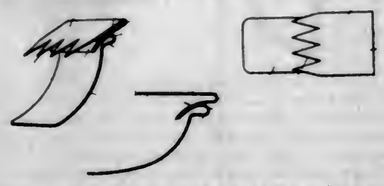
Claim.—The design for the casing of a lamp, substantially as herein shown and described.

26,510. FLASK. ROBERT M. WILCOX, Meriden, Conn. Filed Dec. 7, 1896. Serial No. 614,847. Term of patent 3½ years.



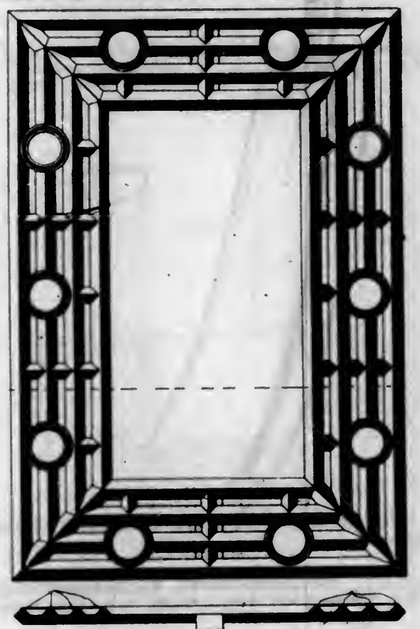
Claim.—The design for flasks as herein shown and described.

26,511. CUSPIDOR ATTACHMENT. CHARLES H. SHARP, Lockport, N. Y. Filed Dec. 10, 1896. Serial No. 615,217. Term of patent 7 years.



Claim.—The design for an attachment for dentists' cuspidors, substantially as herein shown and described.

26,512. PACKING FOR PIPES. HENRY P. WHALE, Boston, Mass. Filed Dec. 3, 1896. Serial No. 614,364. Term of patent 14 years.



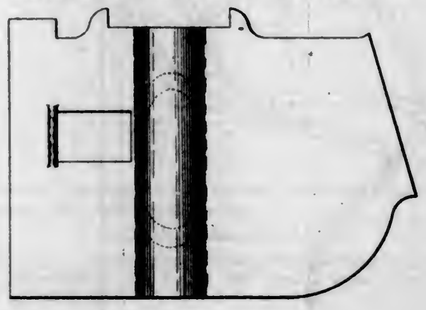
Claim.—The design for packings for pipes, as herein shown and described.

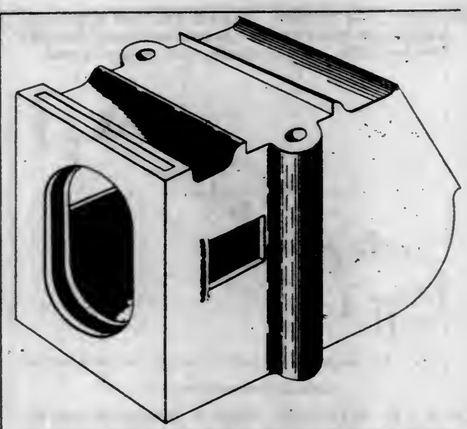
26,513. AX. JAMES P. KELLY, Alexandria, Ind. Filed Aug. 29, 1896. Serial No. 604,334. Term of patent 14 years.



Claim.—The design for an ax having the ornamental surface pattern described, the several portions thereof being of contrasting colors, substantially as shown and described.

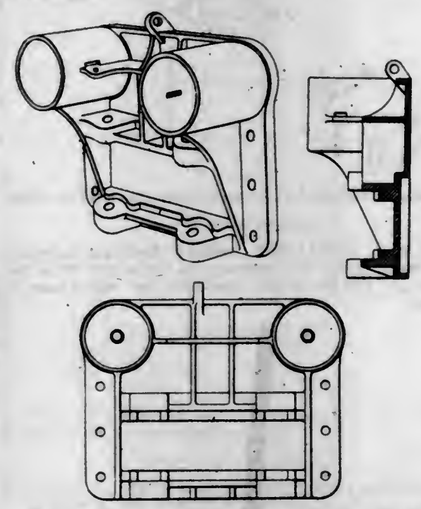
26,514. JOURNAL-BOX. THOMAS EUBANK, Little Rock, Ark., assignor to the Missouri Railway Equipment Company, St. Louis, Mo. Filed Nov. 23, 1896. Serial No. 613,207. Term of patent 14 years.





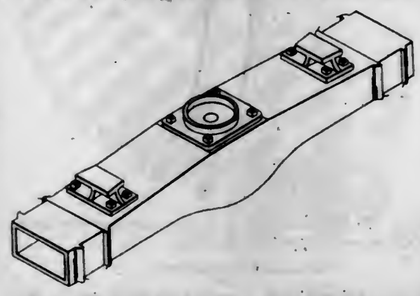
Claim.—The design for journal-boxes, substantially as herein shown and described.

26,515. BASE-PLATE FOR LOCOMOTIVE-BUFFERS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Dec. 7, 1896. Serial No. 614,853. Term of patent 14 years.



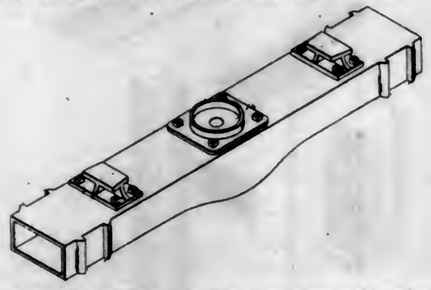
Claim.—The design for the base-plate of a locomotive-buffer, substantially as herein shown and described.

26,516. CAR-BOLSTER. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Nov. 2, 1896. Serial No. 610,835. Term of patent 14 years.



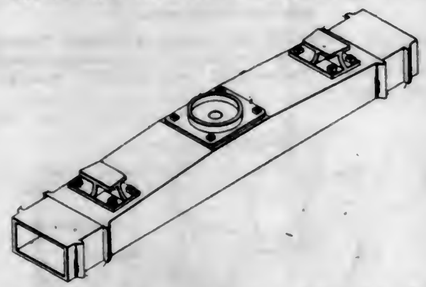
Claim.—The design for a car-bolster herein shown and described.

26,517. CAR-BOLSTER. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Nov. 2, 1896. Serial No. 610,886. Term of patent 14 years.



Claim.—The design for a car-bolster herein shown and described.

26,518. CAR-BOLSTER. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Nov. 2, 1896. Serial No. 610,887. Term of patent 14 years.



Claim.—The design for a car-bolster herein shown and described.

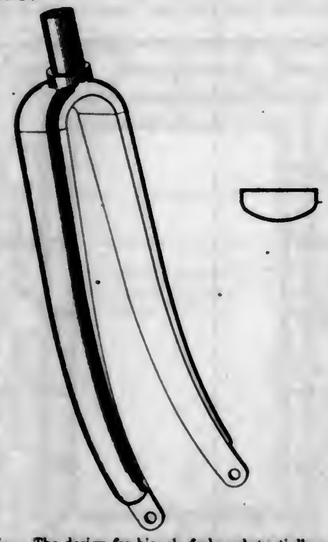
26,519. BICYCLE-FORK. ROBERT M. NORTON and FRANCHIS A. KERSHAW, Kenosha, Wis., assignors to the Sterling Cycle Works, Chicago, Ill. Filed Nov. 16, 1896. Serial No. 612,368. Term of patent 14 years.



Claim.—The design for a fork for bicycles and other velocipedes, substantially as herein shown and described.

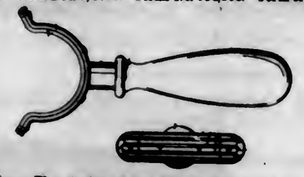
26,520. BICYCLE-FORK. CHARLES H. JENKINS, Chicago, Ill. Filed Dec. 7, 1896. Serial No. 614,850. Term of patent 3½ years.

26,520.



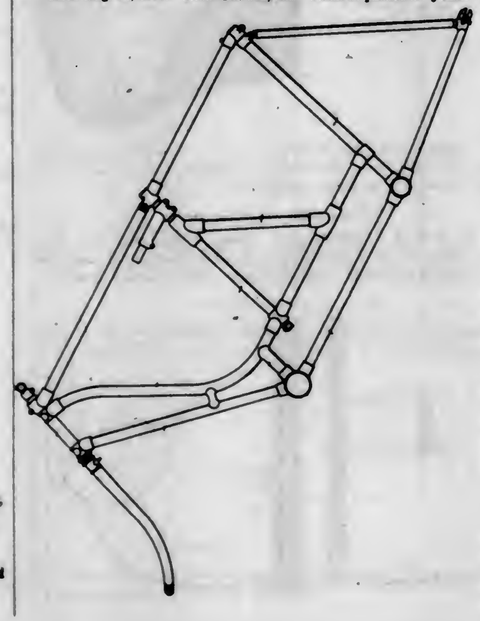
Claim.—The design for bicycle-forks substantially as shown and described.

26,521. BICYCLE-TIRE CLEANER. MAGULER BUTLER, Rochester, N. Y. Filed Dec. 3, 1896. Serial No. 614,368. Term of patent 3½ years.



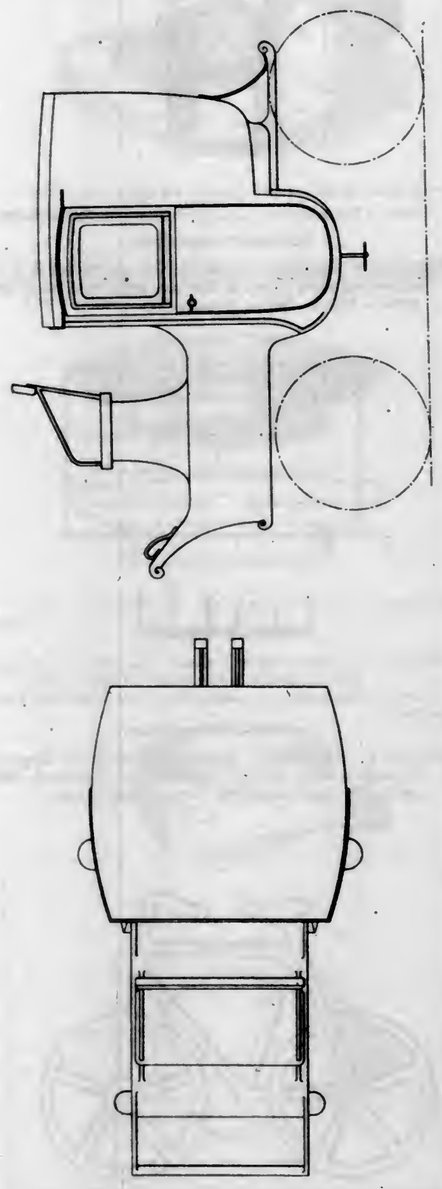
Claim.—The design for a bicycle-tire cleaner, substantially as shown and described.

26,522. BICYCLE-FRAME. JOHAN M. ANDERSEN, Boston, Mass. Filed Aug. 14, 1896. Serial No. 602,813. Term of patent 14 years.



Claim.—The design for a bicycle-frame substantially as herein shown and described.

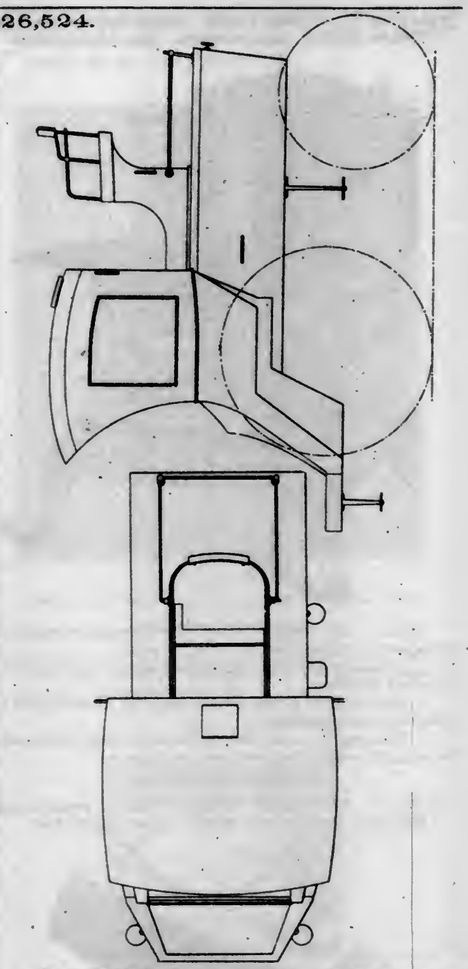
26,523. VEHICLE-BODY. HENRY G. MORRIS and PEDRO G. SALOM, Philadelphia, Pa. Filed Sept. 30, 1896. Serial No. 607,501. Term of patent 14 years.



Claim.—The design for a carriage-body as herein described and as shown in the accompanying drawings.

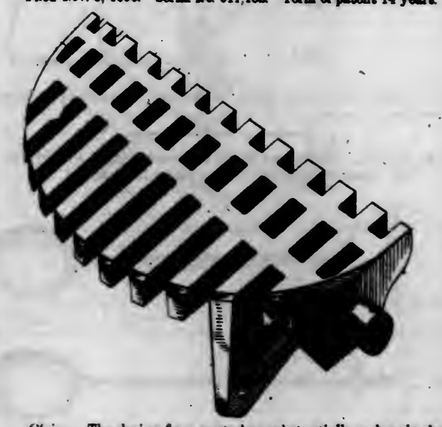
26,524. VEHICLE-BODY. HENRY G. MORRIS and PEDRO G. SALOM, Philadelphia, Pa. Filed Sept. 30, 1896. Serial No. 607,502. Term of patent 14 years.

26,524.



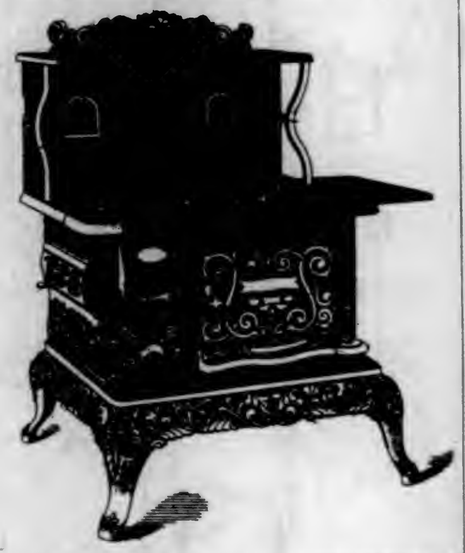
Claim.—The design for a carriage-body as herein described and as shown in the accompanying drawings.

26,525. GRATE-BAR. CARLETON W. MASON, New York, N. Y. Filed Nov. 5, 1896. Serial No. 611,182. Term of patent 14 years.



Claim.—The design for a grate-bar substantially as herein shown and described.

26,526. COOKING-RANGE. FRANK A. KLAINE, Newport, Ky. Filed Nov. 21, 1896. Serial No. 613,092. Term of patent 3½ years.



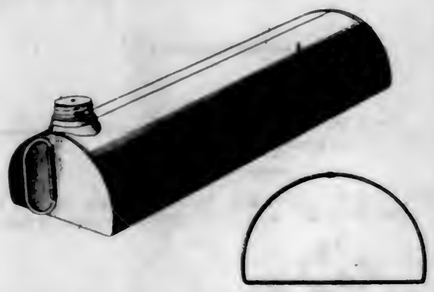
Claim.—1. The design for a cook stove or range substantially as herein shown and described.

2. In a design for a cook stove or range the oven-door as herein shown and described.

3. In a design for a cook stove or range the mantel-support as herein shown and described.

4. In a design for a cook stove or range the damper-slide herein shown and described.

26,527. BED-WARMER. WILLIAM G. RALSTON, Evansville, Ind. Filed Aug. 7, 1896. Serial No. 602,085. Term of patent 7 years.



Claim.—The design for a bed-warmer substantially as herein shown and described.

26,528. TOY. OSCAR MCDONALD, Jersey City, N. J. Filed Dec. 7, 1896. Serial No. 614,349. Term of patent 3½ years.



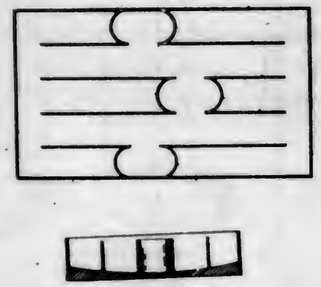
Claim.—The design for a toy herein shown and described.

26,529. PUZZLE-CARD. CHARLES A. WAY, Charlestown, N. H. Filed Nov. 7, 1896. Serial No. 611,411. Term of patent 7 years.



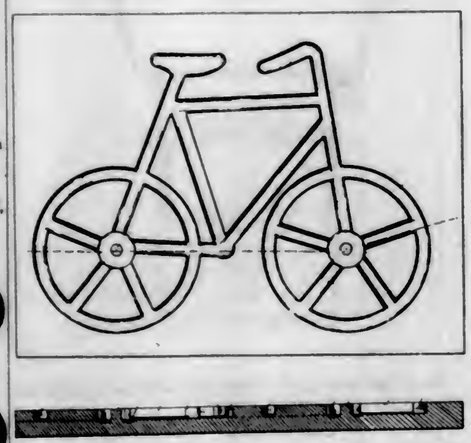
Claim.—The design for a puzzle-card herein shown and described.

26,530. PUZZLE-BOX. JAMES LESLIE DONALY, Newark, N. J., assignor of one-half to Shepard M. Mills, same place. Filed Dec. 10, 1896. Serial No. 615,216. Term of patent 3½ years.



Claim.—The design for a puzzle box or case herein shown and described.

26,531. GAME-BOARD. FRANK D. LINO, Chicago, Ill., assignor of two-thirds to Paul B. Lino and Thomas S. Quincy, same place. Filed Sept. 8, 1896. Serial No. 605,195. Term of patent 3½ years.



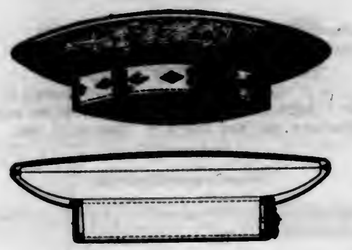
Claim.—The design for a game-board, substantially as herein shown and described.

26,532. FOOTHOLD. CHARLES J. BAILEY, Newton, Mass. Filed July 16, 1896. Serial No. 599,446. Term of patent 14 years.



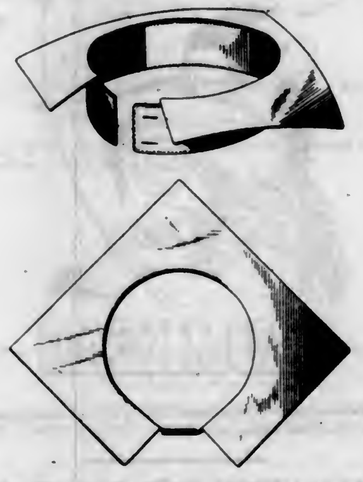
Claim.—The design for footholds substantially as herein shown and described.

26,533. CAP. JACOB FRANK, Philadelphia, Pa., assignor of one-half to John Frank, same place. Filed Dec. 9, 1896. Serial No. 615,059. Term of patent 3½ years.



Claim.—The design for a cap substantially as described and shown.

26,534. COLLAR. ROBERT C. FOLGER, Albany, N. Y. Filed Dec. 3, 1896. Serial No. 614,362. Term of patent 3½ years.



Claim.—The design for a collar substantially as herein shown and described.

26,535. BEDSPREAD. WILLIAM WHITE, Passaic, N. J., assignor to Clarence Whitman & Co., New York, N. Y. Filed Oct. 10, 1896. Serial No. 608,022. Term of patent 7 years.



Claim.—The design for a bedspread substantially as shown.

26,536. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to McCallum & McCallum, same place. Filed Dec. 4, 1896. Serial No. 614,496. Term of patent 3½ years.



Claim.—1. In a design for a carpet the body *a*, substantially as shown and described.

2. In a design for a carpet the border *b*, substantially as shown and described.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

TRADE-MARKS

REGISTERED JANUARY 12, 1897.

29,434. WATCH-MOVEMENTS AND PARTS THEREOF. AMERICAN WALTHAM WATCH COMPANY, Boston and Waltham, Mass. Filed Nov. 12, 1896.

ROYAL

Essential feature.—The word "ROYAL." Used since July 1, 1878.

29,435. MUSICAL BOXES AND DISKS. MERMOD FRÈRES, Ste. Croix, Switzerland. Filed Dec. 12, 1896.

Stella

Essential feature.—The word "STELLA." Used since April 9, 1896.

29,436. PAPER. L. L. BROWN PAPER COMPANY, Adams, Mass. Filed Dec. 15, 1896.

L L BROWN PAPER CO FINE

Essential feature.—A design formed by the arrangement of the words "FINE" and "L L BROWN PAPER CO," the latter printed across the face of the former in smaller type about midway from top to bottom thereof and projecting at both ends. Used since June 1, 1884.

29,437. INDELIBLE INKS. ARAMEL LYMAN WILLISTON, Northampton, Mass. Filed Dec. 2, 1896.

PAYSON'S

J. Payson Williston

Essential feature.—The word "PAYSON'S" associated with the facsimile signature of J. Payson Williston. Used since 1835.

29,438. ARTICLES, OTHER THAN SIDEROSTATS, RELATING TO PHOTOGRAPHIC BUSINESS. PAUL GAUTIER, Paris, France. Filed Aug. 13, 1896.



Essential feature.—A picture of a siderostat. Used since June, 1896.

29,439. KID AND SUEDE GLOVES. JORDAN, MARSH & Co., Boston, Mass. Filed Dec. 18, 1896.

Nielson

Essential feature.—The word "NEILSON." Used since January 1886.

29,440. SEAMLESS STOCKINET DRESS-SHIELDS. J. B. KLEINERT RUBBER COMPANY, New York, N. Y. Filed Dec. 15, 1896.

Ambassador

Essential feature.—The word "AMBASSADOR." Used since December 15, 1895.

29,441. COTTON GOODS AND FABRICS KNOWN AS BINDINGS OR FABRICS USED FOR BINDING OR COVERING BOOKS. LOUIS SIEGBERT & BRO., New York, N. Y. Filed Oct. 31, 1896.

The Crown Bindings

Essential feature.—The words "THE CROWN BINDINGS." Used since October 1, 1896.

29,442. COTTON SHEETING. NAUMKEAG STEAM COTTON COMPANY, Salem, Mass. Filed Dec. 18, 1896.



Essential feature.—The word "NAUMKEAG" and a picture of an Indian. Used since December, 1881.

29,443. LAGER-BEER. FRED FEIL, Philadelphia, Pa. Filed June 4, 1896.

Favorite

Essential feature.—The word "FAVORITE" and a representation of a file. Used since May 1, 1894.

29,444. WHEAT-FLOUR. THE KRATOCHWILL MILLING COMPANY, Dayton, Ohio. Filed Dec. 4, 1896.

KRATOCHWILL'S BEST

Essential feature.—The words "KRATOCHWILL'S BEST." Used since January 2, 1890.

29,445. WHEAT-FLOUR. PILLSBURY-WASHBURN FLOUR MILLS COMPANY, (LIMITED,) Minneapolis, Minn. Filed Dec. 14, 1896.

GERMOS

Essential feature.—The word "GERMOS." Used since October 1, 1896.

29,446. WHEAT-FLOUR. PILLSBURY-WASHBURN FLOUR MILLS COMPANY, (LIMITED,) Minneapolis, Minn. Filed Dec. 14, 1896.

Pillsbury's

Essential feature.—The word "PILLSBURY'S." Used since 1871.

29,447. TOMATOES. JOSEPH CAMPBELL PRESERVE COMPANY, Camden, N. J. Filed Dec. 14, 1896.



Essential feature.—The words "BEEF STEAK." Used since 1868.

29,448. FRUITS, VEGETABLES, AND SAUCES. JOSEPH CAMPBELL PRESERVE COMPANY, Camden, N. J. Filed Dec. 14, 1896.



Essential feature.—A pictorial representation of a gigantic tomato borne upon the shoulders of two men. Used since 1873.

29,449. PACKED SALMON AND CANNED FRUITS AND VEGETABLES. JOSEPH G. MEGLER, Brookfield, Wash. Filed July 29, 1895.

PANSY

Essential feature.—The word "PANSY." Used since February 1, 1895.

29,450. SOLIDIFIED BEEF. THE MASON-HEUBLEIN CO., Hartford, Conn. Filed Feb. 8, 1896.

Mason's Beef Lozenges

Essential feature.—The word "MASON'S" and the words "BEEF LOZENGES" depicted in ornamental letters arranged in a compound curve, with a perspective view of a short section of a solid cylinder located between and separating the word "BEEF" and the word "LOZENGES." Used since October 1, 1895.

29,451. SOUPS, ESSENCES OF MEAT, AND EXTRACTS OF MEAT AND VEGETABLES. OXINE LIMITED, London, England. Filed Nov. 30, 1896.

OXINE

Essential feature.—The word "OXINE." Used since November 14, 1895.

29,452. LAUNDRY STARCH. MOSELEY-HORNE COMPANY, Keokuk, Iowa. Filed Aug. 13, 1896.

IXL



Essential feature.—The letters "IXL" and a representation of a fluting-iron. Used since January 17, 1896.

29,453. SOAP. CURTIS DAVIS & Co., Cambridge, Mass. Filed Nov. 16, 1896.

1 PER CENT

Essential feature.—The phrase "ONE HUNDRED PER CENT.," represented in any desired way. Used since November 2, 1896.

29,454. BATH-POWDERS. MARIE GENEVIEVE LAVILLE, St. Louis, Mo. Filed Dec. 5, 1896.

Balneo-Therapique Salts of Laville.

Essential feature.—The words "BALNEO-THERAPIQUE SALTS OF LAVILLE," with the facsimile signature, "P. LAVILLE." Used since November 23, 1896.

29,455. ARTICLE FOR REMOVING PAINT, OIL, VARNISHES, WOOD STAINS, AND FINISHES, AND FOR CLEANING SURFACES. HARRISON BROTHERS & Co., Philadelphia, Pa. Filed Dec. 3, 1896.



Essential feature.—A conventional representation of the devil. Used since October, 1896.

29,456. FIXATEUR FOR GIVING PERMANENCY TO THE BOUQUET OF PERFUMES. P. MOTTET & CIE, Grasse, France. Filed Dec. 5, 1896.

MYRALDINE

Essential feature.—The word "MYRALDINE." Used since January, 1894

29,457. MEDICAMENT COMPRISING MENTHOL DISSOLVED IN MENTHOL ETHER OF VALERIC ACID. VEREINIGTE CHININFABRIKEN, ZIMMER & Co., GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Frankfort-on-the-Main, Germany. Filed June 26, 1896.

Validol

Essential feature.—The word "VALIDOL." Used since March 1, 1896.

29,458. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.



Essential feature.—The word "LEÃO" inclosed within a diamond-shaped figure. Used since September 15, 1896.

29,459. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

SICKLE BRAND



Essential feature.—The words "SICKLE BRAND" and a representation of a sickle. Used since October 15, 1896.

29,460. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

HARP BRAND



Essential feature.—The words "HARP BRAND" and a representation of a harp. Used since September 28, 1896.

29,461. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

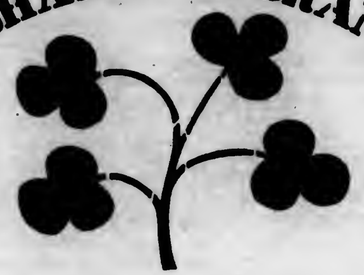
TIGER BRAND



Essential feature.—The words "TIGER BRAND" and a representation of a tiger. Used since October 2, 1896.

29,462. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

SHAMROCK BRAND



Essential feature.—The words "SHAMROCK BRAND" and a representation of a shamrock. Used since September 28, 1896.

29,463. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

DOGSHEAD BRAND



Essential feature.—The words "DOGS HEAD BRAND" and a representation of a dog's head. Used since October 15, 1896.

29,464. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

FLAG BRAND



Essential feature.—The words "FLAG BRAND" and a representation of a flag. Used since September 9, 1896.

29,465. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

STAR BRAND



Essential feature.—The words "STAR BRAND" and a representation of a star. Used since September 28, 1896.

29,466. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. GEO. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

LION BRAND



Essential feature.—The words "LION BRAND" and a representation of a lion. Used since September 30, 1896.

29,467. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. Geo. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

THREE STAR BRAND



Essential feature.—The words "THREE STAR BRAND" and a representation of three stars. Used since September 28, 1896.

29,468. INDIA-RUBBER, GUTTA-PERCHA, AND OTHER VULCANIZABLE GUMS. Geo. A. ALDEN & Co., Boston, Mass. Filed Dec. 18, 1896.

TWO STAR BRAND



Essential feature.—The words "TWO STAR BRAND" and a representation of two stars. Used since September 28, 1896.

29,469. PILLS. DAVID STEWART FLEMING, Cape Town, Cape Colony. Filed Dec. 12, 1896.



Essential feature.—A representation of a closed hand holding a magnetized rod from the end of which a pill is suspended. Used since October, 1896.

29,470. LOCKS AND BUILDERS' HARDWARE. THE YALE & TOWNE MANUFACTURING COMPANY, Stamford, Conn., New York and Buffalo, N. Y., Chicago, Ill., Philadelphia, Pa., Boston, Mass., and San Francisco, Cal. Filed Dec. 21, 1896.



Essential feature.—A representation of a trefoil figure. Used since 1889.

29,471. CORN-PLANTERS. UNION CORN PLANTER CO., Peoria, Ill. Filed Dec. 8, 1896.



Essential feature.—A representation of a circle inclosing a shield-like figure upon which are the words "UNION PLANTERS." Used since 1871.

29,472. PORCELAIN BUTTONS AND ORIENTAL PEARLS. THE FIRM OF FRED. SCHMETS, Aix-la-Chapelle and Herzogenrath, Germany. Filed Dec. 19, 1896.



Essential feature.—A representation of an escutcheon bearing an anchor with the date "1851," the initials "F. S.," and a square, the anchor surmounted by a Mercury's hat. Used since May, 1893.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of Ohio, Western Division.

DODGE *et al. v.* POST & CO. *et al.*

Decided October 23, 1896.

1. DODGE AND PHILION—SEPARABLE PULLEY—VALID AND INFRINGED.

Letters Patent No. 260,462, granted July 4, 1882, to Wallace H. Dodge and George Philion, for a separable pulley, examined in view of the prior art and *Held* valid and infringed.

2. PATENT—CONSTRUCTION OF—EFFECT OF STATEMENT IN SPECIFICATION.

The statement of the specification that the patented pulleys are to be made of wood governs the construction of the patent, subject only to the expressed exceptions stated in a subsequent part of the specification.

3. SAME—INVALIDATING—QUANTUM OF PROOF.

To invalidate a patent by prior invention or use, the proof must establish the fact beyond a reasonable doubt. This means that the defense must be established by proof as explicit and convincing as that required to convict a person charged with crime.

4. TESTIMONY—IMPROBABLE STORY.

The inherent improbability of the story is sufficient to negative the testimony of witnesses.

5. INVENTION—INDUSTRIAL AND COMMERCIAL SUCCESS AS EVIDENCE OF.

That an invention has readily overcome initial distrust and disfavor, has had a phenomenal growth, and has acquired widely-extended mechanical and commercial success are facts which testify powerfully to the novelty of the invention.

SUIT for infringement.

Mr. Lysander Hill for the complainants.

Mr. Charles M. Peck and *Mr. George B. Parkinson* for the defendants.

SAGE, *J.*:

Patent No. 260,462, for a separable pulley, on which this suit is based, was granted July 4, 1882, to Dodge and Philion. Only the first and third claims are alleged to be infringed. They are as follows:

1. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke-bar and hub are slightly separated, as described, combined with clamp-bolts G, whereby said hub is clamped upon the shaft, in the manner set forth.

3. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke-bar are slightly separated, and clamp-bolts G, combined with a separable split thimble interposed between said shaft and pulley, substantially as set forth.

When the parts of the pulley are united, the rim-segments are in contact at their meeting ends, while the two sections of the divided spoke-bars are united at their ends, but separated between the rims by an open space extending from rim to rim. A shaft-hole is provided in the spoke-bars at the center of the pulley—one-half in each section—and when the two parts are placed upon the shaft the clamp-bolts, which are near the hub and on each side thereof, are tightened to bind the hub to the shaft. The open space between the parts of the spoke prevents any interference with the tightening of the clamp-bolts or the binding effect of the entire inner surface of the thimble or bushing of the hub upon the shaft.

The specification states preliminary to the descriptive part thereof that the pulleys are to be made of wood. This statement must be considered as running through the entire specification and claims, saving two stated exceptions—first, that the construction referred to in the first claim is equally applicable to wooden and metallic pulleys, and, second, that the wood thimbles referred to in the third claim are equally applicable to metallic or wooden separable pulleys. There is no statement anywhere that the thimbles or bushings may be made of any substance other than wood, and hence the broad statement first above referred to applies to them without qualification. For the purpose for which thimbles or bushings are employed metal is not the mechanical equivalent of wood, because, first, being a yielding material, wood adapts itself to the irregular surface of the shaft, while metal does not; second, its adhesive or tractional power as compared with metal is as from ninety to one hundred to forty-one, hard maple being the best, and, third, it is lighter, cheaper, and more convenient to manufacture and handle.

It appears from the evidence that metal shafting is quite irregular in its contour, and the thimble to make it fit must be made of compressible material. Complainants have never used any material for the thimbles except wood, and the invention of their patent relates to wooden thimbles. Bushings of paper, leather, or cloth wound round the shaft are not the equivalent of the complainants' wooden bushings, nor are bushings of metal, unless the surface of the metal be so serrated or roughened as to yield and adjust itself to the irregularities of the shaft when under compression. Hence in order to anticipate the third claim there must be shown an anticipating device having its rim-segments in contact, a divided spoke united at the ends but separated between the rims of the pulley by an open space, and a hub provided with a split bushing of

wood or its equivalent and adapted to be clamped to its shaft by compression.

The defendants set up and have introduced evidence tending to prove twenty-nine instances of prior use. The complainants' testimony and exhibits-in-chief cover sixty-four printed pages, the defendants' thirteen hundred and fifty pages, and the complainants' in rebuttal nineteen hundred and seventy-nine pages, being in all three thousand three hundred and ninety-three pages, not including patents and illustrations covering four or five hundred pages in addition. This testimony is, in the main, pertinent to the case. It is full of evidence relating to disputed and hotly-contested questions of fact; but its great bulk renders it impracticable to enter largely into details and compels the court to limit its opinion almost entirely to statements of general conclusions.

The defense is want of patentable novelty in claims 1 and 3 and that they are wholly void in view of the prior state of the art as exhibited both by prior patents and publications and by numerous prior public uses and sales more than two years before the date of the application for the patent in suit. Ten patents and two publications are set up and introduced in evidence as anticipations. Defendants' expert testifies that wooden pulleys have been quite common, although pulleys are most frequently made of cast-iron accurately bored to fit the shaft and secured to it by set-screws put through the hub and forced against the shaft, so as to pinch it with their points. Such pulleys can be shifted along the shaft (which must be put up accurately in line) between the hangers; but if they are to be transposed or shifted beyond the hanger the shaft must be disconnected or taken down, so that the pulleys may be stripped off to make the desired change. It is necessary also to disconnect the journal-boxes of the hangers. Accordingly journal-boxes in two halves have been long in use to avoid the necessity of taking down the hangers or stripping off the boxes. Bushes or linings to save the box from wear are also old. There have been split pulleys, and it is testified that the idea of pulley-halves in contact only at the rim and open elsewhere, so that the clamp-bolts may draw the hub tightly to the shaft, is old; but examination of the patents and publications relied upon in support of this contention shows that none of them contain the combination or produce the results of the invention discovered by the complainants' patent. Take for illustration the patent of Schellkopf, No. 168,925, of 1876, which is referred to by defendants' expert as most closely approximating the structure of the patent in suit. That shows a wooden pulley in halves, the meeting ends of the rim not in contact, a solid iron center, not split or divided, no bushing, and the hub not held on the shaft by compression. None of the prior patents or publications anticipate the complainants' patent.

The testimony as to prior uses is to be considered with reference to the rules of law applicable. It is a fundamental principle of the patent law that to invalidate a patent by prior invention or use the proof must establish the fact beyond reasonable doubt.

The burden of proof rests upon him (the defendant) and every reasonable doubt should be resolved against him. (*Coffin* v. *Ogden*, 18 Wall., 120, 124; *Cantrell* v. *Wallick*, 117 U. S., 689, 696; *The Barbed Wire Patent*, 143 U. S., 275, 285.)

This means that—

this defense must be established by proof as explicit and convincing as that required to convict a person charged with crime. (*Cluett* v. *Claflin*, 30 F. R., 921, 922, Coxe, J.; *Ross* v. *Montana Co.*, 54 F. R., 424, 425, Knowles, J.; *Lalance & Grosjean Co.* v. *Haberman Co.*, 58 F. R., 375, 378.)

A fair doubt as to its reliability is always sufficient to dispose of testimony of this character. (*Mack* v. *Spencer Co.*, 52 F. R., 819, 821.)

The inherent improbability of the story is sufficient to negative the testimony of any number of witnesses. (*The Telephone Cases*, 126 U. S.)

It is hardly necessary to say that each defense must be considered independently of all the others, and so considered must fall unless it be established by proof beyond a reasonable doubt.

Four alleged prior uses are located at New Orleans, the first, of split wood pulleys at the Leeds foundry in 1876; but the spoke-bars of those pulleys were straight and flush with the ends of the rim-segments. The paper or leather which was wrapped about the shaft to prevent the slipping of the pulleys was not the equivalent of complainants' bushings. The split iron pulleys testified to had their halves in contact both at the rim and hub. There were other deficiencies; but these are sufficient to show that this prior use falls short of anticipation. As to the second use, Ex-Mayor Shakespeare, of New Orleans, who was examined for defendants, testified on cross-examination that the bushings were used to fill up the difference between the size of the shaft and the size of the hole in the pulley, so as to properly center the pulley on the shaft; that set-screws or keys were depended upon to keep the pulley from slipping; that if in any case there was a space left between the two parts of the hub or rim it was caused by sawing or splitting apart the pulleys when in contact by reason of having been made with half-patterns, and accidental, and that he never knew of an iron pulley, whole or split, to be fitted on a shaft for actual service by clamping alone; but they depended on the key or set-screw to hold the pulley in place. The third alleged prior use was by Sylvanus Noyes in 1857. Upon cross-examination it appeared that the bushings to which he referred in his testimony-in-chief were mere centering-rings, not intended or used for compression, but used in connection with keys or set-screws, and that prior to 1884 he never knew of bushings being used for any other purpose in split iron or split wooden pulleys. It was also developed in his cross-examination that defendants' model put in evidence to illustrate this prior use was false and misleading; that its wood bushings were obtained after 1884 from an agent for the sale of pulleys infringing complainants' patent. It further appeared that the so-called "bushings" in the pulley made and used in 1857 were large pieces of oak fastened to the arms of the pulley to serve as its hub. The fourth alleged prior use at New Orleans was by Wm. L. Cushing prior to 1880, and related to bush-

ings. It turned out that they were not bushings at all, but brass journal-bearings for use in sugar-mills, and the witnesses returned to the witness-stand and, explaining how the mistake occurred, retracted their former statements. Next comes the Sibley & Ware use, at South Bend, Ind., as early as 1876, of split iron pulleys with split iron bushings. The pulley produced is in contact both at the rim and hub, and the bushing is of iron without any provision for it to be conformed to the inequalities of the shaft, and therefore it is not the mechanical equivalent of complainants' bushing. Moreover, it appears that there was no bushing in the pulley prior to 1884 and that the bushing which is in the exhibit was made and put in to adapt the pulley to the shaft after a fire which had damaged the machinery and made it necessary to put in a new shaft which was smaller than the old one. An examination proved that the bore of the pulley was the size to fit the old shaft and the bore of the bushing of the size to fit the new and smaller shaft, and it was shown by the testimony that there was no bushing prior to the fire, which occurred in January, 1884, eighteen months after the date of complainants' patent.

The evidence of defendants' witnesses with reference to the Strayer-shop split wooden pulley is confused and contradictory, both in reference to dates and to the exhibit, which is a split wood pulley, not bushed, and there is testimony that it has been tampered with and altered at some comparatively recent period.

The testimony for defendants relating to the "Currey 1869 pulley," referred to in the brief for complainants as the Orwell defense, is quite as unsatisfactory. The evidence of the four witnesses for defendants is contradicted and overcome by that of nine witnesses examined by complainants, corroborated by the original shaft itself with the shingle-machine pulley-hub still remaining upon it. The next alleged prior use rests upon defendants' "Exhibit Coker & Smith wooden pulleys Nos. 1, 2, and 3" and their use in flouring-mills at Niles, Mich., in 1877 and 1878. Here too the witnesses called in support of the defense are in conflict. They are contradicted by the split wood bushing of pulley No. 2, which shows on inspection that it has never been used in a flour-mill nor clamped on a shaft for actual service, for there is no mill-dust in the open pores at its ends, but there is on its concave surfaces, which in use must have been tightly clamped upon the shaft, thus absolutely preventing the access of dust. Moreover, the bushing is bored on an incline, so that if used the pulley would not be perpendicular, or at right angles to the shaft, but upon an incline and wabble as to be practically incapable of carrying a belt. Still more, the concave surface of the bushing shows that it has never been subjected to compression, and the two halves of it do not match at their edges. Half a dozen witnesses for complainants testify that no such pulleys as are described by witnesses for defendants or as are shown by the exhibit were used in those mills until after the date of complainants' patent. In the Fulton defense (defendants' "Exhibit Nelson Genesee Mills, at Fulton") the integrity of the witnesses called for defendants is not questioned; but that they were altogether wrong in antedating complainants' patent was so conclusively shown as to entirely dispose of the defense. In the Aurora defense (defendants' "Exhibit Stedman & Co. invoice 1873") the pulleys and the bushings were iron and the pulleys were secured to their shafts by set-screws or keys. Split pulleys were never made except on special order, and then to fit the shaft, and bushings were used only to fill up the space when the shaft was not large enough to fit—in other words, were used only as centering-rings. In the Louisville defense the pulleys and bushings were of iron. It did not appear that the pulleys were clamped upon their shaft, nor that their rims were in contact and hubs apart, nor that the bushings were used for any other purpose than centering-rings.

The Mishawaka defenses—that is to say, the Furniture Co., the Woolen, and the Bostwick—the Allegheny defense, the Columbus, the Fairbank, the Creason, the Sellers, the Centennial, the Burt, and the Harrington defenses, are not dwelt upon in the brief for the defendants and they may be passed with the general finding that no one of them is sustained. This brings us to the only remaining defenses—the Taper Sleeve Pulley or Erie and the Saginaw—which are those upon which defendants place their main reliance and are argued at length in their brief.

The defendants claim that it is proven "beyond the shadow of a doubt" that continuously from 1877 to the present time wooden split pulleys were made at the Taper Sleeve Pulley Works, Erie, Pa., to be clamped upon shafts, some of them by compression alone, and that the predecessor of the company operating said works had made solid wooden pulleys held upon their shafts by compression alone, without the use of keys or set-screws, from 1874 to 1877, that pulley being generally known as the "taper-sleeve" pulley. Furthermore, it is claimed that this same concern at Erie made and sold as early as 1879 metal split bushings, so that their pulleys might be transferred from shafts of larger to those of smaller diameter.

The testimony with reference to this use is too voluminous to be considered in detail. Defendants' "Exhibit Erie split pulley cut" shows that the pulleys prior to 1881 were made in two solid semicircular halves, without arms or spokes, and with their meeting edges perfectly straight. It appears from testimony of defendants' witnesses that cast-iron flanges were bolted to them at their center; that other bolts extending from flange to flange were provided for fastening the two halves together when on the shaft; that dowel-pins along the meeting edges kept the two halves in line with each other; that the pulley-halves, held slightly apart, were bored with an auger the size of the shaft; that they would not come together on the shaft, but there would be an open space about an eighth of an inch wide between them through-

out their entire diameter; that links were applied near the rim to prevent the two halves from flying asunder; that the pulleys were fastened to their shafts by compression alone; that they were originally intended to be fastened by compression, but a good many customers had no faith in it and insisted upon set-screws. Two of defendants' witnesses were silent about set-screws. Until about 1884 or 1885 these pulleys were all made in the form of web-pulleys instead of with spoke-bars, but since then they have been made with arms. From complainants' evidence it appears that it was the custom to use compression and set-screws in combination; that in 1879 it was the custom to send cut split pulleys without set-screws, and that the center flanges were always provided with set-screws before they were used in pulleys. One witness testifies that from November or December, 1879, the split pulleys were all fastened with set-screws; another that from the spring of 1878 to May or June, 1882, they were all made with set-screws, and still another that the same was true as to all pulleys made from April, 1875, to the fall of 1880, and again another that they were made with set-screws, and their absence from a pulley indicated that it was not made there. The testimony for complainants is strongly fortified by the admitted fact that the pulleys were made with straight meeting edges, so that if bored to the exact size of the shaft their halves would be in contact and no effective compression could take place. If bored smaller than the shaft, or when slightly separated from each other, their halves would not be in contact either at rim or hub, and even if compressed equally on each side of the shaft they would not infringe complainants' patent, because the rims would still be separated. If compressed unequally—that is, brought nearer together on one side than on the other—the rims on one side of the pulley might be in contact, but the rims on the other side would be correspondingly separated, and the result would be neither an infringement of complainants' patent nor an operative pulley. In short, the complainants' patented pulley is the only one shown in the record in which compression to the shaft to any required degree—a compression bringing the entire inner surface of the hub to bear upon the shaft, and so constructed that it may be increased whenever necessary by reason of change of shaft or of wear or of any other cause—is so effected as to be superior to any other mode or means of fastening or attachment and to impart to the pulley its greatest mechanical power and yet leave it entirely separable into its own halves and from the shaft. To accomplish this result, there must be compression at the shaft and contact at the rim, and the inner side of the divided spoke-arm must be separated from rim to rim. Under such structural conditions compression at the hub tightens the clamp upon the shaft and at the same time makes firmer the contact at the rim, and the result is a union of pulley and shaft as nearly perfect as it can be made, the separated spoke-bars acting in response to the action of the clamping-bolts not only without straining the pulley at any point, but actually making it firmer and stronger and more durable. There are in evidence book-entries relating to orders for bushings for the Erie pulleys in a paragraph separate from that containing the order for pulleys and an entry showing that they were charged on the ledger, whereas the ledger contains no such charges. In order No. 466, dated June 17, 1879, the order for bushings is below the order for pulleys, and in newer ink, of a different color. In the other three orders (Nos. 475, 486, and 492) the orders for pulleys are in ink and the orders for bushings in pencil, and in each case the penciling has been rubbed, not by way of erasing, but so as to give rise to the suspicion that an effort has been made to destroy its freshness and make it look old. It is only necessary to say that these indications and the recurrence of indications at different times and places that pulleys put in evidence as exhibits of anticipating devices had been at some time and by somebody tampered with and altered tend greatly to weaken the case for the defendants and to emphasize the necessity and the importance of the rule that every reasonable doubt must be resolved against him who sets up the defense of prior invention or use. What is here said is not intended to reflect in the least upon defendants' counsel. Anything of that sort is expressly disclaimed by counsel for complainants and in the opinion of the court would be incredible by reason of their known integrity and high character. There is nothing to warrant the inference that it was stimulated by defendants themselves. The only motives suggested are, first, the unconscionable zeal of representatives of the defendants in connection with the preparation of the defense, and, second, the interest of witnesses who, it is hinted, may be held liable if complainants' patent is sustained. Two pulleys with bushings furnished to C. G. Hampton in August, 1879, are also referred to in the evidence. These also were straight-edge, and for reasons already stated do not anticipate. There are other considerations touching these pulleys which might be dwelt upon, but it is unnecessary.

Lastly, we have what are called the Saginaw defenses. Of these the first is the use at Edward Germain's mill at East Saginaw. This pulley, which is called the "Cowles" pulley, had its meeting edges straight and in contact. It was made solid and sawed in two. It does not anticipate. The next is the Feige pulley. It was made with a tapering shaft-hole and could not be practically used on commercial shafting. When on a shaft of the specified size, the rims do not come together. The testimony as to dates is uncertain and unsatisfactory. This pulley cannot be recognized as an anticipation. The Gould pulley has its halves in contact throughout their entire diameter, excepting only when the bushing keeps them apart. The testimony as to the Shaw & William pulley is much of it uncertain; but taken at its best it shows that its meeting edges were intended to be parallel, and hence would be entirely—rim and hubs—in contact or entirely out

of contact, and not an anticipation of complainants' pulley. Mayflower pulleys Nos. 1 and 2 do not anticipate, because the hubs and rims of No. 1 are either wholly in contact or wholly out of contact, and No. 2 is not a split pulley and does not have its hubs separated when on the shaft. These pulleys complete the list. Taken singly or altogether they do not impair, much less do they destroy, the validity of complainants' patent. Strongly corroborative of this view are the facts brought out in complainants' evidence concerning the introduction of their pulley at the New Orleans Exposition and the subsequent demand for it, both in this country and abroad. Mr. Wallace H. Dodge, one of the inventors, took two car-loads of pulleys to the New Orleans Exposition in the winter of 1884. He obtained a permit from the Exposition authorities to sell pulleys to exhibitors, but in the first two weeks was able to place hardly a single pulley, because the authorities were afraid they would slip on the shaft and annoy exhibitors. The official in charge of the shafting refused positively to allow any of the complainants' pulleys to be placed on the line-shafting, but intimated that if Mr. Dodge would induce exhibitors to use them on countershafts which they had to run and they proved successful he might allow him to put some on the line-shafts. He made unsuccessful efforts to induce exhibitors to use the pulleys; but nearly every one said he did not like to experiment with the bushing system. William L. Cushing, who testified for the defendants in this cause, was one of the exhibitors who refused to buy or use, because he had no faith in the pulleys and could not afford the risk to delay and annoyance, but finally through the influence of his own superintendent was induced to try them. After many delays and rebuffs Dodge finally succeeded in persuading an exhibitor who could not successfully operate his machinery with an iron pulley to try one of his wooden pulleys, and it drove the machine—a planer—with perfect success. Then the pulley was applied successfully to shafting for running some dynamo machinery. After that there was no trouble in introducing it anywhere in the Exposition, and nearly two car-loads of pulleys were sold and a New Orleans agency established. In 1881 a few pulleys were sold for trial, in 1882 about a thousand were sold, in 1883 about two thousand five hundred, and the number has steadily increased, so that in 1893 the number sold was over two hundred thousand. The capacity of complainants' works in 1894 was about one thousand pulleys per day. They have a manufacturing plant at Toronto, Canada, where they employ from seventy-five to one hundred men. They have an agency at Paris, France, and in most of the large cities in England, Germany, Switzerland, Russia, in fact all the countries of Europe, also in Mexico, and in Australia they have large sales. Their English trade amounted in 1894, the date of the testimony, to from five to eight thousand dollars per month.

The distrust and disfavor encountered and signally overcome at the New Orleans Exposition, where were congregated skilled operators of all kinds of machinery from a great number of localities, far and near, the phenomenal growth and widely-extended success of complainants' manufacture, and the constantly-increasing sales of their patented pulleys are facts which testify powerfully not only to their value, but also to their novelty. The attempt to explain this away by referring the extraordinary demand to the sudden and contemporaneous growth of the specialty manufacturing business will hardly do, for the Taper Sleeve Pulley Company at Erie was in the pulley-manufacturing business from 1877 and its predecessor from 1874, so that the business of manufacturing pulleys did not spring up about the time of or after complainants' invention, but had been carried on many years before then.

The evidence is clear that defendants are infringers.

The decree will be against them, with costs.

U. S. Circuit Court—Western District of Pennsylvania.

FOX SOLID PRESSED STEEL COMPANY *v.* SCHOEN *et al.*

Decided December 8, 1896.

1. CONTRACT—CONSTRUCTION OF.
   A court is always bound in construing a contract to look at the entire instrument, even though a conclusion derived therefrom may seem to antagonize the meaning of a particular paragraph of the instrument.
2. SAME—SECONDARY CLAUSE.
   A clause in an agreement regulating the manufacture of center plates in general which prohibits the manufacture of sheet-metal frames during the life of the agreement is secondary and incidental to the main agreement.
3. SAME—CONSTRUCTION OF.
   The fact that complainants are engaged in making frames of one species and defendants in making frames of another and that those of the species made by the defendants are those sought to be restrained, as well as the fact that complainants knew of such manufacture long before they objected, should be taken into consideration in interpreting the contract.
4. SAME—RESTRAINT OF TRADE.
   A clause which finally interdicts the manufacture of a portion of a patented article which may be needed in the repair of such article is in undue restraint of trade and will not be enforced.

Messrs. Cowen, Dickerson & Brown for the complainant.

Messrs. Strawbridge & Taylor and *Mr. John G. Johnson* for the defendants.

ACHESON, *J.*:

On and prior to October 10, 1891, the date of the written contract between the plaintiff as party of the first part and the defendants as parties of the second part, both parties were engaged in the manufacture of center plates for car-trucks under patents owned by them, respectively, the plaintiff at Chicago, Ill., and the defendants at Pittsburg, Pa. By the terms of the contract the plaintiff granted to the defendants the exclusive right to make center plates under the plaintiff's patents, and the defendants agreed to pay to the plaintiff seven and one-half per centum of the gross selling price of all center plates sold by them, and it was stipulated

that the plaintiff should have the right to make center plates—

for application [to pressed-metal truck-frames manufactured by it—

upon the payment of a named royalty, but should not otherwise engage in the manufacture of center plates. The contract contains this provision:

It is further agreed that the parties of the second part will not engage during the life of this agreement in the manufacture of truck-frames for moving vehicles or any part of such frames when made of pressed metal.

The present controversy grows out of a difference between the parties as to the meaning of this clause. The plaintiff contends that the clause prohibits the defendants not only from making pressed-metal truck-frames and parts of such frames, but also from making out of pressed metal any part of a truck-frame of whatsoever kind the truck-frame may be. The defendants maintain that the prohibition is against the making of pressed-metal truck-frames and parts of a pressed-metal truck-frame.

If the literal reading of the clause were determining, the plaintiff's construction might be entitled to preference; but in the interpretation of a particular clause of a contract the court is required to examine the entire instrument, and may also consider the relations of the parties, their connection with the subject-matter of the contract, and the circumstances under which it was made. (*Rock Island Railway* v. *Rio Grande Railroad*, 143 U. S., 596.) Moreover, the practical interpretation by the parties of an ambiguous clause of a contract is entitled to great if not controlling influence, (*Topliff* v. *Topliff*, 122 U. S., 121,) and such practical construction, though at variance with the literal meaning of the clause, will prevail. (*District of Columbia* v. *Gallaher*, 124 U. S., 505.) Let us apply these principles here and see with what result.

From an examination of the whole paper of October 10, 1891, it is very clear that its main purpose was to regulate the manufacture of center plates as between the parties. The clause in question is secondary and incidental. Its introduction at all into the paper would be inexplicable were it not that the plaintiff was engaged in the manufacture of pressed-metal truck-frames, as the contract itself discloses. That style of truck-frame was peculiar and was of comparatively recent origin and of limited use. The truck in ordinary use was and is the diamond truck, eighty-five or ninety per centum of all railroad freight-cars in the United States being provided therewith. The diamond truck-frame and the pressed-metal truck-frame are entirely different constructions. The plaintiff was not engaged in the manufacture of diamond truck-frames. Its business was the manufacture of pressed-metal truck-frames. The plaintiff was thus interested to avoid rivalry in that particular branch of business—the manufacture of pressed-metal truck-frames and parts of such frames. The parties entered into the contract with the Fox pressed-steel truck-frame before them and with reference to the plaintiff's manufacture thereof. To the extent, then, that the restrictive clause secured the plaintiff freedom from competition in the manufacture of pressed-metal truck-frames and parts thereof it may be regarded as having a basis in reason; but to carry the provision further would be unnecessary for the fair protection of the plaintiff and unreasonable.

Again, at the date of the contract the defendants were engaged in the manufacture of pressed-metal parts of diamond truck-frames, and thereafter the defendants continued such manufacture with the knowledge of the plaintiff's principal officials and without objection. This course of manufacture by the defendants was acquiesced in by the plaintiff until about the time of the filing of this bill on April 18, 1895. It is significant that the bill states that up until February, 1895, the defendants had complied with the terms of the contract. The occasion for the filing of the bill was that in February, 1895, the defendants began making and selling a pressed-steel truck-bolster. Whether the truck-bolster is any part of a truck-frame is a contested point. Now, without discussing the evidence, it is enough for me to say that, influenced by the weight of the testimony of the practical experts and from my inspection of the models, my conclusion is that the bolster is no part of a truck-frame. Moreover, no truck-bolster is used with a pressed-metal truck-frame. I am, then, quite unable to see how the plaintiff can justly claim that the manufacture of the bolster is within the prohibitory clause of this contract.

Upon the question of the proper construction of this clause my opinion, under all the circumstances of the case, accords with the view upon which the defendants insist.

But, finally, if, as the plaintiff contends, this clause really interdicts the defendants' manufacture out of pressed metal of any part of a diamond truck-frame, then the clause, in my judgment, is in unreasonable restraint of trade and not enforcible. (*Oregon Steam Navigation Co.* v. *Winsor*, 20 Wall., 64; *Gibbs* v. *Baltimore Gas Co.*, 130 U. S., 396, 409.) The public interest is much promoted by the use of pressed-metal parts in the repair or improvement of diamond truck-frames. Now, the plaintiff's business is the manufacture of pressed-metal truck-frames, and the evidence shows that its manufacturing capacity is fully taxed to meet the demand for that class of truck-frames. This prohibitory clause, it will be observed, is without limit as respects place. To enforce it by the injunction here sought would be to deprive the public of the defendants' needed industry, and this, too, without reasonable benefit to the plaintiff. The covenants in restraint of trade hitherto sustained have been those connected with the sale or purchase of a business and its good-will or some analogous subject-matter where the restraint was no more extensive than was reasonably necessary for the protection of the covenantee. (*Nester* v. *Continental Brewing Co.*, 161 Pa., 473, 481.) Here, however, there was no sale or purchase of any business relating to the manufacture of truck-frames and no circumstances existed to justify so sweeping a restriction as the plaintiff claims.

Let a decree be drawn dismissing the bill, with costs.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 78—No. 3. TUESDAY, JANUARY 19, 1897. Price—$5 per year.

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Amendment to the Rules of Practice.

The following regulations for the conduct of proceedings in the Patent Office are established:

65. An applicant will be considered to persist in his claim for a patent without altering his specification in case he fail to act in prosecution of the same for six months after the Office action thereon, and thereupon the Examiner will make a reëxamination of the case.

134. In appealable cases in which no limit of appeal is fixed, no appeal will be entertained by any tribunal in the Office unless taken within six months from the action which puts the case in condition for appeal, unless it be shown to the satisfaction of the Commissioner that such delay was unavoidable.

68. In every case pending before the Office more than five years, in which the record raises the presumption that there have been intentional delays in prosecution, the Examiner may require the applicant to show cause why the case was not more rapidly prosecuted, and at the hearing thereon, or upon failure of the applicant to appear, the Examiner will determine, under all the circumstances of the case, whether there have been intentional and unreasonable delays in prosecution, and upon finding the fact to be so, he will reject the case for that reason. Present Rules 65, 66, and 134 are repealed, and present Rule 68 is renumbered 66.

The foregoing rules will be in effect on and after April 15, 1895, and will affect pending cases as though the last Office action were upon said date.

Notice.

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

Preparation of Specifications and Amendments for the Printer.

The Examiners are directed before passing applications to issue to carefully examine all the papers and see that they are in such shape and condition as to avoid all possibility of error being made by the printers. Whenever interlineations or erasures have been made in the specifications or amendments which would lead to confusion and mistake, the Examiners should require the entire specification to be rewritten before passing the case to issue.

Foreign Patents and Publications.

The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library:

Austria-Hungary.	Malta.
Barbadoes.	Mauritius.
Belgium.	Mexico.
British Honduras.	Netherlands.
Canada.	New South Wales.
Ceylon.	New Zealand.
Denmark.	Norway.
Fiji.	Portugal.
Finland.	Queensland.
France.	Russia.
Germany.	South Australia.
Great Britain.	Spain.
Hawaii.	Straits Settlements.
India.	Sweden.
Italy.	Switzerland.
Jamaica.	Tasmania.
Japan.	Trinidad.
Leeward Islands.	Victoria.
Luxemburg.	West Australia.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Belgian Patents.

In reply to an inquiry from this Office notice has been received, through the Minister of the United States at Brussels, from the Belgian patent authorities, that it is not deemed advisable to publish their patents *in extenso*, and that no fuller description than that contained in the short abstract of the *Recueil Officiel* will be given. Complete copies may be obtained from the Belgian on Patent Office payment of the expense of reproduction.

Disbarred Attorneys.

(ORDER No. 1,108.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 14, 1896.

It is hereby directed that any person who has been disbarred from practice before the Patent Office by order of the Commissioner be denied access to the files of the Office, either in his own capacity or as the representative of any other person or firm.

JOHN S. SEYMOUR,
Commissioner.

Issue of January 19, 1897.

Patents	367	No. 575,315 to No. 575,681, inclusive.
Designs	18	No. 26,537 to No. 26,554, inclusive.
Trade-Marks	22	No. 29,473 to No. 29,494, inclusive.
Labels	None.	
Prints	None.	
Reissues	1	No. 11,585.
Total issue	408	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	4	.....	New Hampshire	2	.....
Arizona Territory	1	.....	New Jersey	20	.....
Arkansas	.....	.....	New Mexico Territ'y	.....	.....
California	6	.....	New York	63	6
Colorado	3	.....	North Carolina	.....	.....
Connecticut	8	1	North Dakota	.....	.....
Delaware	1	.....	Ohio	30	1
District of Columbia	2	.....	Oklahoma Territory	.....	.....
Florida	.....	.....	Oregon	4	.....
Georgia	2	1	Pennsylvania	30	3
Idaho	.....	.....	Rhode Island	6	.....
Illinois	24	1	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	1	.....
Indiana	5	1	Tennessee	2	.....
Iowa	8	.....	Texas	7	.....
Kansas	6	.....	Utah	.....	.....
Kentucky	4	.....	Vermont	1	.....
Louisiana	2	.....	Virginia	3	.....
Maine	2	.....	Washington	4	.....
Maryland	4	1	West Virginia	2	.....
Massachusetts	44	4	Wisconsin	17	.....
Michigan	15	.....	Wyoming	.....	.....
Minnesota	4	.....	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	12	1	Total to citizens of the United States	352	20
Montana	3	.....			
Nebraska	3	.....			
Nevada	2	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	.....	.....
Austria-Hungary	.....	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	1	.....
Belgium	.....	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Orange Free State	.....	.....
Canada	5	.....	Portugal	.....	.....
Canary Islands	.....	.....	Queensland	.....	.....
Cape Colony	.....	.....	Russia	.....	.....
Ceylon	.....	.....	Scotland	.....	.....
Chile, Republic of	.....	.....	South African Republic	.....	.....
Colombia	.....	.....	South Australia	.....	.....
Cuba	.....	.....	Straits Settlements	.....	.....
Denmark	.....	.....	Sweden	.....	.....
England	15	1	Switzerland	.....	.....
France	4	1	Victoria	1	.....
Germany	6	.....	West Australia	.....	.....
Guatemala	.....	.....			
India	.....	.....			
Ireland	.....	.....	Total to citizens of foreign countries	33	2
Italy	1	.....			

APPLICATIONS UNDER EXAMINATION.

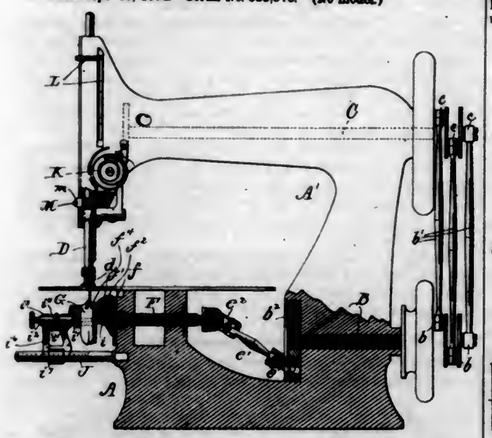
Condition at Close of Business January 12, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears.—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 14	Jan. 4	218
256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Dec. 12	Jan. 2	164
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Dec. 14	Dec. 24	170
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 14	Dec. 21	148
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 12	Dec. 21	128
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 14	Dec. 19	151
253	X. Carriages and Wagons	Dec. 14	Dec. 17	261
343	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Dec. 16	Dec. 15	129
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 15	Dec. 14	130
255	XII. Mechanical Engineering, Store-Service, etc.	Dec. 15	Dec. 14	238
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 14	Dec. 14	242
215	XVII. Paper Manufactures and Printing.	Dec. 12	Dec. 14	132
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 12	Dec. 14	148
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 12	Dec. 14	170
246	I. Tillage and Fences	Dec. 12	Dec. 14	196
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 12	Dec. 14	322
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Dec. 12	Dec. 13	179
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Dec. 12	Dec. 13	217
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Dec. 12	Dec. 12	250
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Dec. 12	Dec. 12	291
102	XIX. Stoves and Furnaces	Dec. 12	Dec. 12	350
106	II. Farm Stock, Products, etc	Dec. 12	Dec. 11	282
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Dec. 14	Dec. 9	313
221	XXIII. Instruments of Precision, Acoustics, etc.	Dec. 12	Dec. 9	283
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Dec. 15	Dec. 7	187
	Between one and two months.			
98	XXI. Textiles, etc	Dec. 4	Dec. 16	186
248	XVIII. Steam-Engineering, etc	Dec. 4	Dec. 15	135
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Dec. 7	Dec. 12	277
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Dec. 5	Dec. 7	409
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 4	Dec. 2	189
36	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 1	Dec. 2	382
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 1	Dec. 2	524
240	VII. Harvesters, Games and Toys, and Velocipedes.	Dec. 1	Dec. 1	989
	Total number of applications awaiting action			8,402
	Under one month in arrears.			
	Designs	Dec. 18	Jan. 2	169
	Trade-Marks	Jan. 12	Jan. 6	28

PATENTS

GRANTED JANUARY 19, 1897.

575,315. SEWING-MACHINE. EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Sept. 18, 1894. Serial No. 523,373. (No model.)



Claim.—1. In a lock-stitch sewing-machine, the combination with a needle and its operating mechanism, of a stationary device or bobbin-case from which the under thread is supplied, a laterally or endwise moving rotary shaft and a rotary hook carried by said shaft and provided with a loop-seizing beak and with an inclined peripheral rib rearward of said beak.

2. In a lock-stitch sewing-machine, the combination with a needle and its operating mechanism, of an endwise-movable rotary shaft, a rotating hook carried by said shaft, a stationary bobbin-case or device from which the under thread is supplied and which is provided with a transverse hole, and two reciprocating supporting-pins placed on opposite sides of said bobbin-case or device and one or the other of which is, in the operation of the machine, in engagement with the said bobbin-case or device, to support the latter vertically.

3. In a lock-stitch sewing-machine, the combination with a needle and its operating mechanism, of a rotating and endwise movable shaft, a hook carried by said shaft, a stationary bobbin-case or device from which the under thread is supplied and which is provided with a transverse hole, and two reciprocating supporting-pins placed on opposite sides of said bobbin-case or device and one or the other of which is, in the operation of the machine, in engagement with said bobbin-case or device, to support the latter vertically, said pins being of a form other than round, to hold said bobbin-case or device from turning.

4. In a lock-stitch sewing-machine, the combination with a needle and its operating mechanism, of the rotary and endwise movable hook-carrying shaft F, the shaft B having a crank or disk *b* and placed out of line from the shaft F, the link *e* pivoted to said crank or disk, the link e^4 pivoted to the rear end of said shaft F, and the pitman e^5 jointed to said links by pivots which are at right angles to the pivots by which links are connected to said crank or disk and said shaft F, respectively.

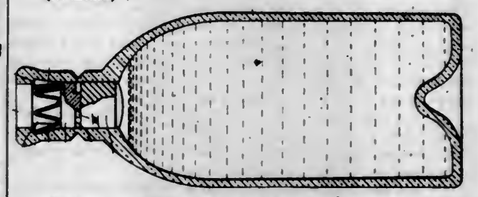
575,316. NAIL-FORMING DIE. GEORGE T. ANDERSON, Boston, Mass. Filed Mar. 9, 1896. Serial No. 582,329. (No model.)

Claim.—1. A pair of cutting-dies having reciprocal cutting edges which sever the nail from the nail-forming rod or wire; reciprocal edges which simultaneously split the head end of another nail; and reciprocal surfaces which encompass the nail-forming wire peripherally and compress a portion thereof peripherally to a finless-point end.

2. The combination in a nail-making machine, with a pair of reciprocating cutting-dies having reciprocal cutting edges which sever the nail from the nail-forming rod or wire; reciprocal edges which simultaneously split the head end of another nail; and reciprocal surfaces which encompass the nail-forming wire peripherally and compress a portion thereof peripherally to a finless-point end, of a reciprocating wing-forming die.



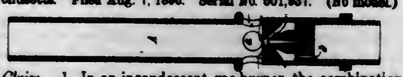
575,317. BOTTLE, DEMIJOHN, &c. JOHN H. BARRENDURG and FRANK M. DRAKE, Trenton, N. J. Filed Jan. 11, 1896. Serial No. 575,123. (No model.)



Claim.—1. A bottle, the neck whereof is reduced in thickness, a sealing device made of cork or other material, which may be manipulated by a corkscrew, located in the neck below said reduction, a guard-stopper above said reduction having a downwardly-projecting portion of less diameter than itself, which engages with the sealing device below, thus leaving a vacant chamber adjacent to the reduced portion of the neck, and metallic spring-fingers located in an annular recess on the guard-stopper, which project upwardly and laterally beyond the guard-stopper, whereby they engage with a shoulder on the neck of the bottle, for the purposes set forth.

2. A bottle having its neck reduced in thickness, a sealing device within the neck below the reduction, a guard-stopper made of material impervious to corkscrew or like device above said reduction, the lower portion whereof is provided with a projection adapted to rest upon the lower sealing device, thus producing a vacant space adjacent to the point of reduction of the thickness of the neck, metallic spring-fingers formed of corrugated spring-wire, the lower ends whereof are set in an annular recess in the guard-stopper, and the upper ends whereof project upwardly and laterally from the guard-stopper and engage with a shoulder on the neck of the bottle, for the purposes set forth.

575,318. GAS-BURNER. JOHN F. BARKER, Springfield, Mass., assignor to the Gilbert & Barker Manufacturing Company, of Massachusetts. Filed Aug. 7, 1896. Serial No. 601,637. (No model.)

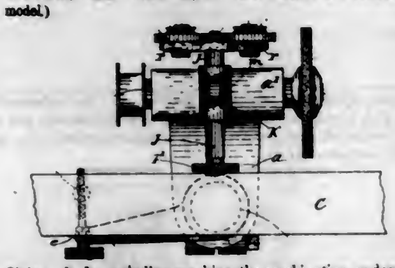


Claim.—1. In an incandescent gas-burner, the combination of a base having a perforated needle-point and perforations around such needle-point and a burner-pillar adapted to rotate and move vertically upon said base and provided with induction air-ports of fixed capacity and with a floor having a single perforation adapted to receive the needle-point of the base, substantially as and for the purposes set forth.

2. In an incandescent gas-burner, the combination of a fixed base, a burner-pillar adapted to rotate and move vertically upon the base, air-ports of fixed capacity in the burner-pillar, a needle-point carried by the base, an opening in the floor of the burner-pillar adapted to receive the needle-point and to be closed by the downward motion

of the burner-pillar upon the base and a permanently-open gas-passage, the capacity of which increases upwardly, through the needle-point to the burner-pillar substantially as and for the purposes set forth.

575,319. CUTTER AND REAMER GRINDER. HENRY G. BARR, Worcester, Mass. Filed July 27, 1896. Serial No. 600,600. (No model.)



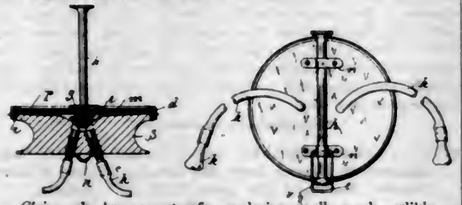
Claim.—1. In a grinding-machine, the combination, as described, of the supporting-stand, the bushing pivotally supported in the stand and having thereon a radially-projecting arm, as shown, means for rotatively retaining or releasing said bushing, the table pivotally supported within said bushing, and the adjusting-screw laterally connecting the outer end of the arm of the bushing with the projecting portion of the table, for operation in the manner set forth.

2. In a grinding-machine, the combination with the frame having the forward projection, the grinding-wheel, and grinding-wheel arbor mounted in the stand at the top of the frame; of the table and the bushing having an arm, said table and bushing pivotally mounted upon said forward projection with a common pivotal axis, a binder for securing said bushing, the adjusting-screw connecting said arm and table, and swiveling devices for the attachment of said screw to the connected parts, for the purposes set forth.

3. In a grinding-machine, in combination with the main grinding-wheel stand; the endwise-adjustable quill and spindle supported in said stand approximately at right angles to the main grinder-spindle, substantially as and for the purpose set forth.

4. In a grinding-machine, the combination with the endwise-adjustable quill and small grinder-spindle, mounted in the stand approximately at right angles to the main grinding-wheel arbor; of the friction-wheels and their attached sheaves, said friction-wheels oppositely acting against a wheel or surface on the end of said spindle, the brackets fixed to said quill, and the axial studs for said friction-wheels, supported in said brackets, substantially as set forth.

575,320. APPARATUS FOR RENDERING SMALL SOUNDS AUDIBLE. EUGENIO BASSI and AURELIO BIANCHI, Florence, Italy, assignors to Martin Wallach Nachfolger, Cassel, Germany. Filed Sept. 22, 1896. Serial No. 606,647. (No model.) Patented in Italy Mar. 19, 1895, No. 38,426; in Germany May 22, 1895, No. 85,784; in France May 27, 1895, No. 247,712; in England May 29, 1895, No. 10,223, and in Hungary June 22, 1895, No. 3,648.



Claim.—1. An apparatus for reudering small sounds audible on a magnified scale comprising a relatively inert and heavy disk or body, such as S, a light diaphragm *m* attached at its periphery to the edge of said disk, and means for transmitting the vibrations of the diaphragm, substantially as and for the purpose specified.

2. In an apparatus for rendering small sounds audible the combination with a relatively inert heavy disk or body, such as S, of a membrane attached at its periphery to said disk, a hollow space between said disk and membrane, a spring interposed between said disk and membrane, and means for transmitting the vibrations of a diaphragm, substantially as described.

3. In an apparatus for rendering small sounds audible the combination with a heavy disk or body, and a membrane, such as *m*, of a plate, such as *p*, secured over the membrane substantially as described.

4. In an apparatus for rendering small sounds audible the combination with a heavy disk or body, a membrane, such as *m*, and plate, such as *p*, of a rod *h* screwed into the plate, substantially as described.

5. In an apparatus for reudering small sounds audible the combination with a heavy disk or body and a membrane, of a plate having a central orifice, and a rod detachably inserted in said orifice, substantially as described.

575,321. ELECTROTYPE-PLATE AND PROCESS OF MAKING SAME. GILBERT H. BENEDICT, Ellenville, N. Y. Filed Aug. 17, 1896. Serial No. 603,043. (No model.)



Claim.—1. The process of treating electrotype or similar metallic shells to strengthen and stiffen the same, which consists in filling the cavities and depressions in the back of the shell with a plastic cement having a base of a metallic oxid, forming an amalgam of the metallic oxid and the rear face of the metallic shell, applying to the cement while in a plastic condition a fibrous backing, and incorporating the fibers of the backing in the cement.

2. The improved electrotype-plate consisting of an electrotype-shell having the cavities in its rear face filled with a plastic cement embodying a base of a metallic oxid, whereby the metallic oxid will form an amalgam with the face of the shell, and a fibrous backing applied to the filling of cement with the fibers of the backing incorporated in the cement.

3. The improved electrotype-plate consisting of a shell having applied to its back a filling consisting of a plastic cement having a base of oxid of zinc, and a backing of papier-mâché or analogous material applied to said filling.

575,322. INCANDESCENT-LAMP SOCKET. REUBEN B. BENJAMIN, Chicago, Ill. Filed Mar. 16, 1896. Serial No. 583,316. (No model.)



Claim.—1. In an incandescent-lamp socket, the combination with a base of insulating material having a recess in the end for the reception of the lamp-base, threads being formed in the walls of said recess to engage the threads upon the lamp-base, of a contact plate or terminal fitting in a slot upon one side of said recess and carrying a binding-screw, said base being provided with a recess in the side within which said binding-screw rests, a contact plate or terminal in the bottom of said recess and carrying a binding-screw, said base being provided with a recess in the side within which said binding-screw rests, and a shell surrounding said base and exposing said recesses containing the binding-screws when removed, substantially as described.

2. In an incandescent-lamp socket, the combination with a base of insulating material having a recess in the end for the reception of the lamp-base and provided with recesses in the side, of a pair of contact-terminals situated in said end recess and carrying binding-screws, one in each of said side recesses, and a shell surrounding said base and exposing said side recesses containing the binding-screws when removed, substantially as described.

3. In an incandescent-lamp socket, the combination with a base of porcelain or equivalent insulating material provided with a recess in the end for the reception of the lamp-base, and with lateral recesses in the sides for the binding-posts, of a contact plate or terminal *b* passing through an opening in said base, the end of said terminal being bent into a position parallel with the body of the plate and extending into the recess a^3, binding-screw *b'* passing through a hole in the body of plate *b* and through a hole a^4 in the base and engaging a tapped hole in the end of the plate *b*, contact-terminal *d* passing through an opening in the base, and having its end bent into a position parallel with the body portion thereof, and binding-screw *d'* passing through a hole in the end of terminal *d* through a hole in the base and engaging a tapped hole in the body of the plate, substantially as described.

4. In an incandescent lamp, the combination with a base of insulating material, having an enlarged end and uniformly tapered toward the small end and being provided with a recess in the small end for the reception of the lamp-base, of a shell for said base formed in two parts, one of said parts fitting over the larger end, the other part having a uniform taper conforming to the taper of the base, said parts being provided with screw-threads to permit the screwing of the same together end to end and bring the tapering part of the shell into engagement with the tapering walls of the base to thus secure the base between the two parts of the shell, substantially as described.

5. In an incandescent-lamp socket, the combination with the tapering base *a* having a recess in the end and lateral openings or recesses in the sides, of the contact-terminals *b* and *d* provided in said base, the binding-screws *b'* and *d'* securing said terminals respectively in position the upper shell or casing *c'* fitting upon the end of said base, and the lower tapering shell *c'* screwing into the end of the shell *c*, substantially as and for the purpose set forth.

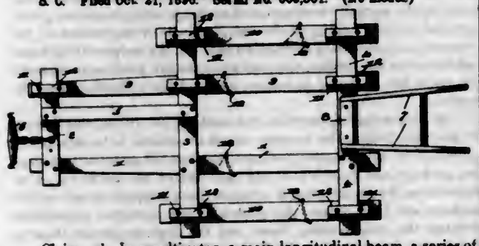
6. The combination with sections of a main-line conduit placed with their ends at a distance apart, of electrical conductors situated within said conduits and joined together the joints lying in the space between the ends of said conduits, each of said conduits being provided with a threaded end, and a longitudinally-movable sleeve provided with threads adapted to engage the threaded ends of said conduits and with a shoulder or stop at one end to limit the longitudinal movement of the same, whereby by unscrewing said sleeve and moving the same longitudinally access may be had to the joints of the conductors, substantially as described.

7. In a conduit, the combination with the pipes *f*, *f*, of the bushings *m m'* mounted upon the ends of said pipes, and the sleeve *l* screwing upon said bushings, one of said bushings *m'* being provided with a shoulder m^2 to limit the longitudinal movement of the sleeve, substantially as described.

8. The combination with a pipe or conduit having a threaded end, of a socket having a casing screwing upon said threaded end, a bell or shade fitting over the end of said casing, the end of said casing being provided with a thread upon the exterior, and a ring or nut screwing upon said exterior thread and against the shade, to hold the same in position, substantially as described.

9. In an incandescent-lamp socket, the combination with a metallic shell or casing, of a base of insulating material provided in the end with a recess for the reception of the lamp-base, and inclosed within said shell, said base being made in one piece with the end thereof extending some distance beyond the end of the shell whereby an insulating-partition is interposed between the shell and the lamp-base and an insulating-surface of considerable length is interposed between the lamp-base and the end of the shell, substantially as described.

575,323. COTTON-CULTIVATOR. WILLIAM BIBB, Westminster, S. C. Filed Oct. 21, 1896. Serial No. 609,581. (No model.)



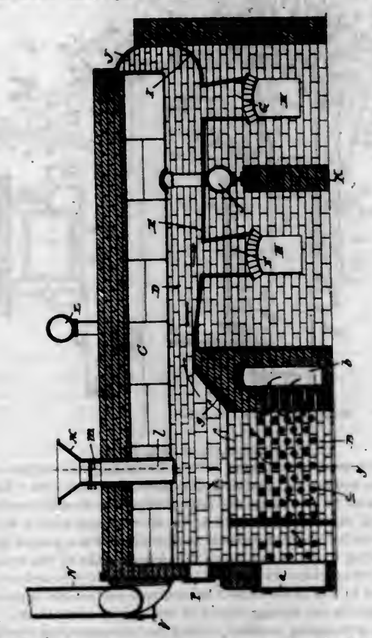
Claim.—1. In a cultivator, a main longitudinal beam, a series of transverse beams firmly and rigidly secured to the main longitudinal beam, a longitudinal brace parallel with the main beam and connecting the front transverse beam with the transverse beam immediately following, and having rigid connection with each, and a companion longitudinal beam having adjustable connection with the several transverse beams, substantially a sand for the purpose set forth.

2. In a cultivator, a main longitudinal beam, a series of parallel transverse beams having firm and rigid connection with the main longitudinal beam, a longitudinal brace rigidly connecting the front transverse beam with the transverse beam immediately following, a companion longitudinal beam having adjustable connection with the series of transverse beams, and side beams having adjustable connection with the rear transverse beam and the transverse beam immediately preceding, substantially as set forth.

3. In combination, a standard comprising side members and having its lower end bent to incline forwardly, a brace having an extension at its lower end to enter the space between the side members of the standard, and a bolt passing through an opening in the brace, the space between the side members of the standard, and an opening in the shovel and connecting these parts, substantially in the manner set forth.

575,324. BAGASSE-FURNACE. ERNEST BOUDREAUX, Albemarle, La. Filed Apr. 18, 1896. Serial No. 588,130. (No model.)

Claim.—1. The bagasse-furnace comprising the casing of masonry having the openings H, at intervals in one of its side walls, a furnace or combustion-chamber at the forward end of the casing, the horizontal flue-boilers arranged in the casing above the furnace or combustion-chamber, the transversely-disposed metallic plates serving in conjunction with the boilers, and the top and side walls of the casing to form the passage D, below the boilers and having the depending portions forming, in conjunction with the side walls of the casing, the chambers F, G, in communication with the door-openings H; the rear plate being curved so as to guide the smoke and particles of combustion into the rear ends of the boiler-flues, and the smoke-stack communicating with the opposite ends of the boiler-flues, all substantially as and for the purpose specified.



2. The bagasse-furnace described comprising the fire-chamber formed by the side walls of the casing and the transverse wall and having the door-opening in the front wall of the casing and also having the jambs U, of said door-opening flared, the blast-chamber formed in the side walls of the casing and the transverse wall and having the transversely-enlarged portions or recesses *d*, at the forward ends of its longitudinal portions, twyers connecting the transverse and longitudinal portions of the blast-chamber and the interior of the fire-chamber and also connecting the enlarged portions or recesses *d*, at the forward ends of the longitudinal portions so as to feed air to the front of the fire, and a suitable blast-creating device connected with the blast-chamber, substantially as and for the purpose specified.

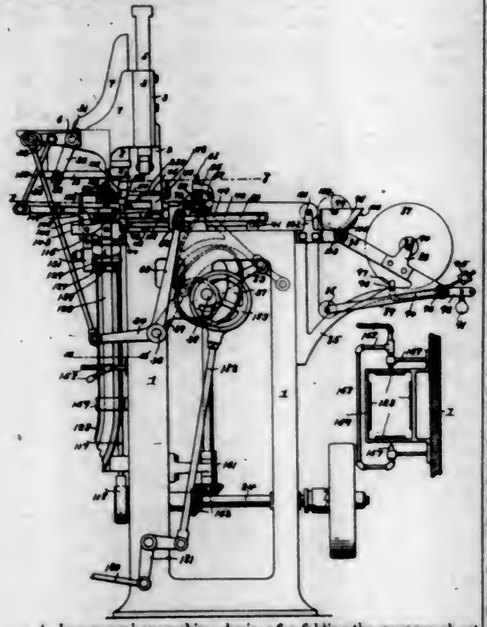
575,325. WRAPPING AND LABELING MACHINE. MARTIN E. BRIGHAM, Philadelphia, Pa. Filed Aug. 17, 1895. Serial No. 559,605. (No model.)

Claim.—1. In a wrapping-machine, devices for folding the wrapper about the article embracing a reciprocating frame provided with a folding projection on its upper edge and folding-fingers on its ends to act upon one side of the wrapper to fold down the tops and ends, and stationary folding devices arranged to act on the other side of the wrappers when the article and its wrapper are moved forward by the reciprocating frame.

2. In a wrapping-machine, devices for folding the wrapper about the article embracing a reciprocating frame provided with a folding projection on its upper edge and folding-fingers on its ends, and a stationary plate under which the article and its wrapper are pushed by the reciprocating frame to fold down the opposite sides, and end-folders between which the article and its wrapper are pushed to fold in the ends of the wrapper on the side opposite to those folded by the folding-fingers of the reciprocating frame.

3. In a wrapping-machine, devices for folding the wrapper about the article embracing a reciprocating frame provided with a folding projection on its upper edge and folding-fingers on its end to act upon one side of the wrapper to fold down the tops and ends, stationary folding devices arranged to act on the other side of the wrapper when

the article and its wrapper are moved forward by the reciprocating frame, and independent folders for folding down the ends of the wrapper at the top and bottom.



4. In a wrapping-machine, devices for folding the wrapper about the article embracing a reciprocating frame provided with a folding projection on its upper edge and folding-fingers on its end to act upon one side of the wrapper to fold down the tops and ends, a folding-plate 115 under which the article and its wrapper are pushed by the reciprocating frame to fold down the opposite side of the wrapper, and the folding-disks 119, 119 between which the article and wrapper are pushed to fold in the ends of the wrapper on the side opposite to those folded by the folding-fingers of the reciprocating frame.

5. In a wrapping-machine, folding devices embracing a reciprocating frame 51 provided with a forward projection 53 upon its upper edge and the end-folding fingers 52, 52, the auxiliary frame 54 having the folding edge 55 projecting above the projection 53, reciprocating with the frame 51, but for a less distance than said frame, and folding devices for acting on the wrapper when the article and its partially-folded wrapper are pushed forward by the frame 51.

6. In a wrapping-machine folding devices embracing a reciprocating frame 51 provided with a forward projection 53 upon its upper edge and with the end-folding fingers 52, 52 on its ends for folding in the sides of the wrapper upon the ends of the article at one side, the independent auxiliary frame 54, located in the rear of the frame 51 and having the forwardly-projecting folder 55 of a length substantially equal to the width of the wrapper, springs acting on the frame 54 to push it forward when the frame 51 is moved, and stops to limit the extent of movement of the frame 54 within the limit of the forward movement of the frame 51.

7. In a wrapping-machine folding devices embracing a reciprocating frame 51 provided with a forward projection 53 upon its upper edge and with the end-folding fingers 52, 52 on its ends for folding in the sides of the wrapper upon the ends of the article at one side, the independent auxiliary frame 54 located in the rear of the frame 51 and having the forwardly-projecting folder 55 of a length substantially equal to the width of the wrapper, springs acting on the frame 54 to push it forward when the frame 51 is moved, stops to limit the extent of movement of the frame 54 within the limit of the forward movement of the frame 51, the folding-plate 115 under which the article and partially-folded wrapper are pushed by the frame 51, and the folders 119, 119 below the plate 115 and adjacent to its ends adapted to act on the ends of the wrapper when the article is pushed under the plate 115.

8. In a wrapping-machine, the combination of means for pushing a package with its wrapper forward, folding devices carried by said means for pushing the package forward and moving therewith, embracing mechanism for folding down one side of the wrapper and the adjacent ends thereof, a plate under which the article and its wrapper pass when thus pushed forward for folding down the opposite side of the wrapper, and end-folders between which the partially-wrapped package is pushed for folding in the adjacent ends of the wrapper.

9. In a wrapping-machine, the combination of means to push the article and its wrapper onward, means for folding upon the article the top and end folds of the wrapper upon one side, carried by said means for pushing the article and its wrapper onward and moving therewith, and a plate under which the partially-wrapped package is pushed.

10. In a wrapping-machine, the combination of a reciprocating plunger provided on its ends with pivoted gripping-jaws, trips arranged to act on said gripping-jaws and open them when the plunger descends, and folding devices for folding the wrapper about the article when it has been released by the jaws of the plunger.

11. In a wrapping-machine, the combination of a table to support the article and its wrapper, devices for partially folding the wrapper about the article when supported on the table, means to push the partially-wrapped package onward over the table, and a plate under which the partially-wrapped package is pushed for folding down the opposite side of the wrapper, and a yielding piece 43 on the table under the said plate.

12. In a wrapping-machine, the combination of a table to support the article and its wrapper, devices for partially folding the wrapper about the article when supported on the table, means to push the partially-wrapped package onward over the table, a plate under which the partially-wrapped package is pushed for folding down the opposite side of the wrapper, and means to raise and lower the table.

13. In a wrapping-machine, the combination with folding devices for partially folding the wrapper about the article, of a guideway for the wrapped packages, intermittently-actuated stops independent of the guideway for holding the partially-wrapped package over the guideway, and a reciprocating frame acting on the partially-wrapped package for pressing it into the guideway and thereby folding up the unfolded ends of the bottom of the wrapper.

14. In a wrapping-machine, the combination with folding devices for partially folding the wrapper about the article, a guideway for the wrapped packages, stops independent of the guideway for temporarily supporting the partially-wrapped packages over the guideway, folders for folding down the unfolded ends of the top of the wrapper, and a reciprocating frame acting on the partially-wrapped package to force it into the guideway and thereby fold up the unfolded end of the bottom of the wrapper.

15. In a wrapping-machine, the combination with folding devices for partially folding the wrapper about the article, of a guideway for the wrapped packages, intermittently-actuated stops for holding the partially-wrapped package over the guideway, a reciprocating frame acting on the partially-wrapped package for pressing it into the guideway and thereby folding up the unfolded ends of the bottom of the wrapper, and connecting mechanism between the reciprocating frame and the stops for holding the package over the guideway, whereby the stops are retracted to release the package when the frame descends.

16. In a wrapping-machine, the combination with folding devices for partially folding the wrapper about the article to be wrapped, a guideway for the wrapped package, the dogs 129 adapted to engage the package and hold it over the open end of the guideway, a reciprocating frame carrying a pressure-plate adapted to act on the package and force it into the guideway, and operative connections between the reciprocating frame and the dogs to operate them to release the package when the frame is depressed.

17. In a wrapping-machine, the combination with folding devices for partially folding the wrapper about the article to be wrapped, a guideway for the wrapped package, the movable dogs 129 adapted to engage the package and hold it over the open end of the guideway, arms 143 carried by the dogs 129, faces 145 on the reciprocating frame adapted to act on the arms 143 and retract the dogs when the frames are depressed, and a reciprocating frame carrying a pressure-plate adapted to act on the package and force it into the guideway.

18. In a wrapping-machine, the combination of a table over which the article to be wrapped and its wrapper are moved, means for moving the article and wrapper over the table, folding devices for folding the wrapper about the article while it is being moved over the table except at the top and bottom projecting ends, a guideway arranged transversely to the table, and a transversely-movable frame for pushing the partially-wrapped package into the guideway and thereby folding up the unfolded projecting ends of the wrapper, and folders for folding down the unfolded projecting ends of the top of the wrapper before the package is forced into the guideway.

19. In a wrapping-machine, the combination of folding devices for folding the wrapper about the article, a guideway for the wrapped package, a frame 226 carried by the guideway, springs 227 carried by strips of the guideway unconnected with the frame 226, and adjusting-screws bearing on the springs 227 to put spring-pressure on the strips of the guideway which carry said springs.

20. In a wrapping-machine, the combination with a table to support the article and its wrapper, a reciprocating frame carried by said table and guided thereon, folding devices controlled by said reciprocating frame and moving therewith for folding the top and end folds on one side of the wrapper about the article, means to push the partially-wrapped package onward upon the table, and folding devices acting upon the partially-folded package when thus pushed onward.

21. The combination of a carrier for a wrapped package, means for applying a label to the package, a second carrier for carrying the package arranged at a level below the first carrier and adapted to receive the package as it drops from the first carrier, a trip 234 between said carriers for turning the package over as it passes from one carrier to the other, and means for applying a second label to said package when it has been turned over.

22. The combination of a carrier adapted to receive and carry a package, a paste-applying device to apply paste to a face of the package while it is carried, and a label-applying device for applying a label to the pasted face, embracing a suction head or box adapted to take up and apply the label.

23. The combination of a carrier adapted to receive and carry a package, a paste-applying device to apply paste to a face of the package while it is carried, and a label-applying device for applying a label to the pasted face, embracing a rotary suction head or box, a rocking frame carrying said rotary head or box, and means to rotate said head or box when the frame is rocked.

24. The combination of a carrier adapted to receive and carry a package, a paste-applying device to apply paste to a face of the package, a rocking frame, a holder to contain labels, a rotary suction-box carried by the rocking frame, and means to rotate the suction-box during the rocking of the frame to present its face to the holder to take a label therefrom and to the package to apply it to the pasted face thereof.

25. The combination of a carrier adapted to receive and carry a package, a paste-applying device to apply paste to a face of the package, a rocking frame, a holder to contain labels, a rotary suction-box carried by the rocking frame, a pinion carried by the rotary suction-box, and a toothed segment meshing therewith to rotate the box when its frame is rocked to present the face of the box to the holder to take a label therefrom and to the package to apply it to the pasted face thereof.

26. The combination of a carrier adapted to receive and carry a package, a paste-applying device to apply paste to a face of the package, a rocking frame, a holder to contain labels, a rotary suction-box carried by the rocking frame, a pinion carried by the rotary suction-box, and a toothed segment meshing therewith and consisting of the stationary portion 206, and the movable sections 207 and 208.

27. The combination with a carrier for a package, and means to apply paste to a face thereof, of a rocking frame, a rotary suction-box carried thereby, a pinion carried by the suction-box, a stationary toothed segment 206 meshing with the pinion, the movable toothed segmental sections 207 and 208 located one on each side of the segment 206, a spring or springs to normally return the sections 207 and 208 when moved, and a label-holder, combined and operating substantially in the manner described.

28. The combination with a carrier for a package and means to apply paste to a face thereof, of a label-holder, a rocking frame, a pinion carried by the shaft thereof, a segment meshing with the pinion, a rotary suction-box carried by the rocking frame and rotated when the frame is rocked to present its face to the label-holder to take a label therefrom and to the package to apply the label to the pasted face thereof.

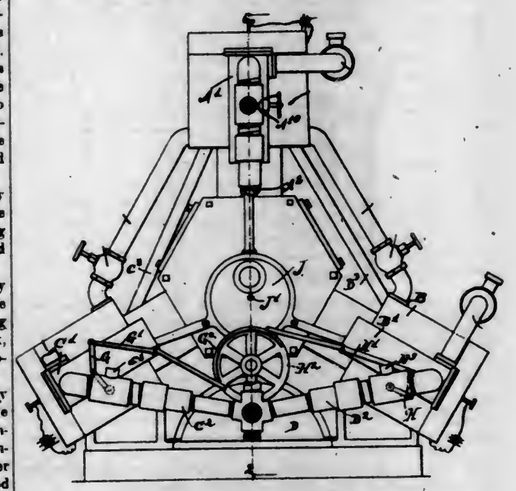
29. The combination with a label-holder and package-carrier, of a rocking frame, a suction-box journaled in the rocking frame and adapted to turn therein, and means to turn the suction-box in the rocking frame when the same is rocked.

30. The combination with a feeding guideway for packages, pasting and labeling devices to apply paste and labels to the package, a traveling package-carrier, guides for the package adjacent to the carrier inclined downward at their end and having their sides enlarged to form cheeks 176, the end of said guideway and its cheeks constituting a depression or pocket to receive the package.

31. The combination with a traveling package-carrier, pasting and label-applying devices, a second traveling package-carrier, pasting and label-applying devices adjacent to said second package-carrier, and a guideway adjacent to said carriers having a shoulder 234 between the said carriers by which the package is turned over.

32. The combination with a traveling package-carrier, pasting and label-applying devices, a second traveling package-carrier, pasting and label-applying devices adjacent to said second package-carrier, and a guideway adjacent to said carriers having a shoulder 234 between the said carriers by which the package is turned over a label-holder adjacent to each of said package-carriers, means to intermittently feed each of said label-holders, and power-transmitting connections between the feeding devices of the first label-holder and those of the second.

575,826. GAS-ENGINE. HARVEY S. BRISTOL, Chicago, Ill.
Filed Sept. 7, 1895. Serial No. 561,725. (No model.)



Claim.—1. The combination in a gas-engine of three cylinders mounted around a common center, a compressor associated with two of such cylinders and connected with the source of gas-supply, so that said cylinders may be charged with gas, a connecting device associated with each of said cylinders, pipes or passages connecting the three cylinders together, said pipes or passages so constructed and arranged that the exploded gas is conducted from the two cylinders into the third so as to be utilized in operating the piston of said third cylinder, a series of valves in said connecting-pipes provided with operating-arms, one or more wheels or disks operatively connected with the engine-shaft and provided with projecting lugs adapted to engage said disks and to operate the valves at predetermined times.

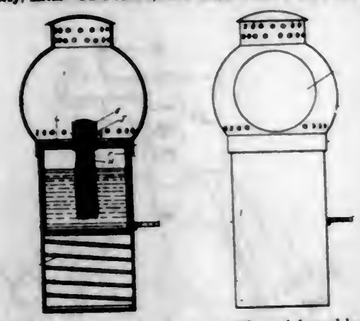
2. A gas-engine comprising three cylinders arranged around a common center, each cylinder provided with connections by which it may be connected with the source of gas-supply and adapted to have a charge of gas exploded therein at each revolution of the engine-shaft, connections between said cylinders, said connections provided with controlling-valves and so arranged that the engine may be easily and quickly changed from a simple triple-expansion engine to one in which there will be an explosion in each of the two cylinders at every other revolution of the engine-shaft, the exploded gas being exhausted through the third cylinder, substantially as described.

3. A gas-engine comprising three cylinders arranged around a common center, exhaust-pipes leading from two of said cylinders to the third, a valve associated with each of said exhaust-pipes and a valve-operating mechanism associated with said valves and actuated by the engine-shaft, whereby the exploded gas is alternately conveyed from the two cylinders to the third substantially as described and a disk-connecting device between said valve-operating mechanism and the engine-shaft whereby said mechanism may be rendered inoperative.

4. A gas-engine comprising three cylinders arranged around a common center, a compressor for two of said cylinders adapted to force gas therein, exhaust-pipes leading from said two latter cylinders to the third, a valve associated with each of said exhaust-pipes and with each of said compressors, and a valve-operating mechanism associated with each of said valves and actuated by the engine-shaft so as to open them at a predetermined point substantially as described.

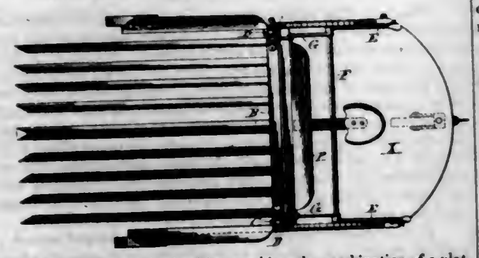
5. A gas-engine comprising three cylinders arranged around a common center, an exhaust-pipe leading from the inner end of each cylinder, a compressor associated with each cylinder and connected with a source of gas-supply, a valve associated with each of said compressors, a valve-operating mechanism connected with each of said valves adapted to operate them at a predetermined point, an exhaust pipe leading from the outer end of said latter two cylinders to the outer end of the third cylinder, a valve associated with each of said pipes, a valve-operating device connected with each of said valves and adapted to open them at a predetermined point, and a series of valves associated with the various cylinders whereby the engine may be operated as a triple-explosion engine or as an engine having an explosion every alternate revolution of the engine-shaft in two of its cylinders, the exploded gas being exhausted through the third cylinder, substantially as described.

575,327. BICYCLE HEADLIGHT-LANTERN. CHARLES M. BUMP, Bay City, Mich. Filed Mar. 9, 1896. Serial No. 582,354. (No model.)



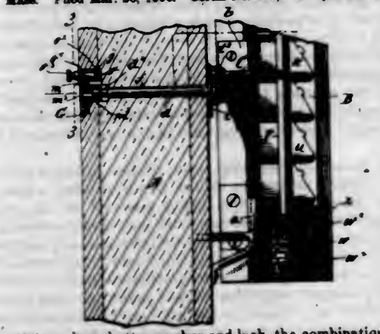
Claim.—An oil-receptacle provided with a wick and burner in combination with a cylindrical casing, closed at the bottom, within which the said receptacle is free to move up and down, a spring in the said casing under the said receptacle and supporting the latter, and a globe having a flanged bottom adapted to fit on the upper end of the said casing and limit the upward movement of the said oil-receptacle substantially as set forth.

575,328. GRAIN-SHOCKER. ALFRED CALHOUN, Millersburg, Ohio. Filed Jan. 31, 1896. Serial No. 577,643. (No model.)



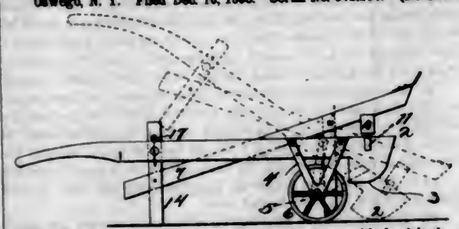
Claim.—In a grain-shocking machine, the combination of a platform, composed of fore-and-aft slats, the slats on opposite sides of the median line of the platform being inclined downward and outward toward the wheels, guides D D and means for moving the slatted platform vertically in the guides, substantially as described.

575,329. SHUTTER-WORKER. JAMES W. COLE, Northampton, Mass. Filed Mar. 20, 1896. Serial No. 584,113. (No model.)



Claim.—In a shutter worker and lock, the combination with the casing and blind, the gear, C, and the pinion, D, with the arbor, *d*, projected through a hole therefor in the window-casing, the annular bushing, G, secured within the inner face of the casing, and provided with the tubular hub, *i*, inwardly extended at one side of its axis, which hub has the cross-kerf, *j*, intersecting its axial bore, the disk, *m*, having the marginal notches, m^3, and the hub, m^2, in which the pinion-arbor has a non-rotatable engagement, the spindle, *o*, rotatable within said hollow hub, *i*, having the radial stud, o^2, to play in, and to be limited by the opposite base portions of, the said cross-kerf, *j*, and provided, outwardly, with the handle-knob, o^3, and having the recessed portion, o^4, next to the notched rim of the said disk, all substantially as and for the purpose set forth.

575,330. BARREL TRUCK AND RACK. WILLIAM F. COOK, Oswego, N. Y. Filed Dec. 16, 1895. Serial No. 572,236. (No model.)

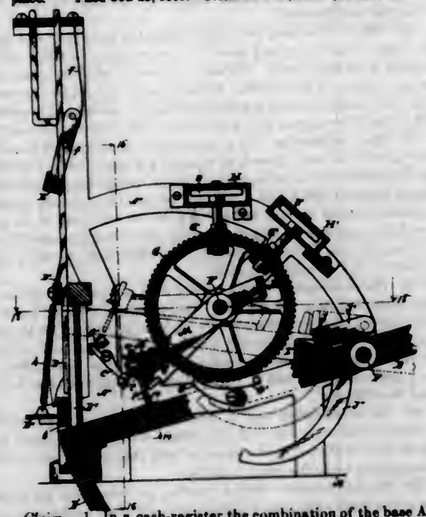


Claim.—1. A truck, having its side bars provided with the enlarged rounded heads, combined with a rack which is placed inside of the truck and secured thereto so as to form practically a part thereof, the forward end of the rack projecting above the truck at an angle, and its rear end extending below the handles of the truck, substantially as shown.

2. An inclined barrel-rack provided at its forward end with a cross-bar which has its ends projecting beyond the sides of the truck, and which projecting ends are provided with downwardly-extending flanges to catch over the edges of the truck, combined with a truck that fits over the rack, and means at the rear ends of the rack and truck for fastening them together; the front end of the rack being made to project above the truck, substantially as described.

3. A barrel-rack provided at its front end with a cross-bar 15, combined with a truck that fits over the outside of the rack, brackets secured to the truck, wheels secured between the brackets, arms secured to the inner ends of the wheel-spindles and catching over the cross-bar 15, and means for securing the rear ends of the truck and rack together, substantially as set forth.

575,331. CASH-REGISTER. LUKE COONEY, Jr., Kalamazoo, Mich., assignor, by mesne assignments, to Vernon T. Barker, trustee, same place. Filed Oct. 23, 1895. Serial No. 566,668. (No model.)



Claim.—1. In a cash-register the combination of the base A, carrying the frame A″, above; keys B, pivoted on shaft F, toward the front part of said frame A″, and having downwardly-projecting trailers B′, to the rear guided between suitable upright bars B^4, and having racks on the said downwardly-projecting trailers; a pivoted bar B″, to the rear of each set of said keys acting as a reversible pawl to compel the complete evolution of any key started; wedge-shaped bodies *t*; pivoted on said bars B^4, and retained by the hook-lugs *t′*, which limits their motion thereof to the width of a single key for arresting all of the remaining keys when any key is struck up; indicator-slides D, corresponding to said keys and above the same bearing indicator-tablets B‴, at the top and having catches D″, to their back side; detaining-bars E, E′, E″, for each section of said keys; lugs E‴, E⁴, on the bars E, E′, projecting to the rear of the bar E; a transverse union-bar I, pivoted on shaft F, and extending across all of the keys of said machine; a key B^3, called the "union-key" connected by a suitable hook I″, to the union-bar I, to actuate the union-key whenever any register-key is operated for a new registration; a lever C, pivoted in the central section of the casing A″, with a cam-lug C′, below at the lower end thereof; a cam-lug *a*, on the union-key B^3, for striking said lug C, when the union-key is raised to operate the lever C, to throw out the central detaining-bar E, to release all of the indicator-slides that are up; a rack on a downwardly-depending trailer to the rear of the key B^3; an independent reversible pawl *b*, for detaining the said union-key in the elevated position, until it has completed its stroke when it returns to its initial position; a drawer P, in the base A; a hooked lever P′, projecting upwardly and forwardly to retain said drawer; a cover A′, to said drawer carried on suitable rollers; a catch P‴, to said cover A′, for engaging a hole in the top of said base A; a lever Q, pivoted above the top of said base in position to strike the detaining-catch of the drawer; a link *z′*, connecting said lever to the union-bar I, to actuate said lever, when any registering-key is operated; an angular lever K, K′, pivoted at K″, above the drawer-cover one end of which projects downwardly across the path of said cover the other portion of which projects under the union-key with the pin *i*, for engaging the same so that when the drawer-cover opens the lever will operate and throw the union-key to its highest position so that it will fall when the drawer-cover is pulled to its first or normal position; gear-wheels G, pivoted above and in front of the shaft F, on the shaft F′, through the frame A″; arms M, M pivoted on said shaft or rod F′, standing at angles to each other; transverse graduated bar M″, connecting the rear ends of the arms M; and stop-bar M‴, connecting the front ends of the arms M; the dog S, on the graduated bar M′; the spring S′, for holding it out of engagement with the gear-wheel G; a sliding bar *r*, with lugs or ears *r″*, at each end thereof and downwardly-projecting cam-shaped hook portions *r′*, below supported on rollers *r‴*, through slots *r′*, therein; the bar *r*, on the pivots to rollers *r‴*, for retaining said bar in position; shouldered projections *u*, to the rear of each of said keys beyond a beveled portion to engage the cam-hooks *r′*; pawls *c*, *c*, on said frame A″, to engage the ears *r″*, on the bar *r*, pawl O; bar J, extending across each division of keys with a spring *y*, to depress it; an arm J″, connected therewith to strike on the pawl O, to lock the gear G; pinions G′, G″, actuated from teeth on the face of gear G; and adders H, H′, actuated from said pinions G′, G″ all substantially as described and coacting together for the purpose specified.

2. In a cash-register the combination of a group of register-keys B, pivoted toward the front of said register; downwardly-depending trailer portions B′, to the rear of said keys with racks formed thereon; a transverse flat horizontal pivoted bar B″, extending across the rear of the group of said keys positioned to engage the racks on the trailer portion of said keys; upwardly-projecting ears at the ends of said bars; springs attached to said ears and to the frame above to put tension upon the bar and retain it normally in the horizontal position so that the bar shall form a universal reversible pawl for the keys of the group which shall reverse automatically on the completion of the stroke of the key for controlling the action of each of said keys as specified.

3. In a cash-register the combination of a group of register-keys B, with downwardly-projecting trailer portions B′, to the rear ends thereof guided between suitable upright bars B^4; wedge-shaped bodies *t*, forked at the top and of a width at that point equal to the width of a key plus the width of a guide-bar B^4, supported point downward on said upright bars and secured in position by the hook-lugs *t′*, between the fork at the top to arrest the remaining keys of each section when any key is struck up for the purpose specified.

4. In a cash-register the combination of pivoted register-keys in groups or divisions; a common bar I, pivoted by lateral arms I′; and extending across all of the keys of all of the sections; a union-key B^3 connected to said bar I, by a suitable hook I″; indicator-slides D, corresponding in number to the register-keys and situated above the same, to be actuated thereby; indicator-tablets situated at the top of said indicator-slides; catches D″ to the rear of said indicator-slides; bars E, E′, E″, for each division of the machine suspended to the back of the indicator-slides of each group, the bar E, being within the bars E′, E″, projecting from the bar E′, E″, out back of the bar E, and at a little distance therefrom; a lever C, pivoted in the casing of said machine in position to act upon the central bar E, and throw it out; a cam-lug C′, to the lower end of said lever C; a cam-lug *a*, on the union-key B^3, in position to act upon the cam-lug C′, when the union-key is actuated; a downwardly-projecting trailer portion on the union-key with a suitable rack thereon; and reversible pawl *b*, in position to engage the ratchets retain the union-key in the elevated position until it is raised to the end of its stroke, all coacting together substantially as described.

5. In a cash-register the combination of pivoted keys; common bar I, extending across said keys; a union-key B^3 connected to said bar by suitable means; indicator-slides corresponding to said keys and adapted to be raised thereby; a detaining-bar for said indicator-slides; a lever C, pivoted in the casing of said machine in position to act upon the detaining-bars; cam-lug C′, to the lower end of said lever; cam-lug *a*, on the union-key in position to act upon the cam-lug C′, when the union-key is actuated; a rack on said union-key and a reversible pawl for acting upon the same for detaining said key, all coacting as specified.

6. In a cash-register the combination of suitable registering-keys; an independent union-key connected by suitable means to be actuated when any register-key is operated; indicator-slides to be raised by said register-keys; a detaining-bar for said indicator-slides; a lever pivoted in the casing of said machine to act upon the detaining-bar; a cam-lug on said lever; and a cam-lug on said union-key in position to act upon the cam-lug of the lever and to pass the same to move the detaining-bar to release the indicator-slides whenever a key is actuated for the purpose specified.

7. In a cash-register the combination of suitable register-keys; an independent union-key connected by suitable means to be actuated when any register key is to be actuated for a new registration; indicator-slides to be raised by said register-keys; a detaining-bar for said indicator-slides; and suitable connections from said detaining-bar to the independent union-key so that when the independent union-key is actuated the detaining-bar will be moved and release the indicator-slides for the purpose specified.

8. In a cash-register made up of suitable register-keys in sections or divisions, the combination of indicator-detaining devices for each section of indicator-slides; ears projecting from each sectional detaining device over the central section and at a little distance therefrom; a lever pivoted in the frame of said machine in position to act upon the central detaining-bar; a suitable independent union-key to act upon said lever when any register-key is actuated; and means connected with the drawer mechanism for holding said union-key in an inoperative position until the drawer is closed for the purpose specified.

9. In a cash-register made up of sections or divisions the combination of suitable register-keys for each section; indicator-slides for each section; separate detaining-bars for each section of indicator-slides one of said bars being inside the rest; ears projecting from the outer detaining-bar over the inner detaining-bar at a little distance therefrom; a suitable trip mechanism connected with registering-keys for throwing out the inner detaining-bar whenever a key of the register is operated; and connections with the cover for holding said tripping mechanism inoperative when the drawer is uncovered as specified.

10. In a cash-register made up of sections or divisions the combination of suitable register-keys for each section; indicator-slides for each section; separate detaining-bars for each section of indicator-slides one of said bars being inside the rest; ears or projections from the outer detaining-bars over the inner detaining-bars and at a little distance therefrom; a suitable tripping mechanism independent of said bars for tripping the inner detaining-bar at the beginning of each registration so that an indicator-slide can be struck up in each and any section at each registration without disturbing the indicator-slides of the other sections which have been struck up during that registration as specified.

11. In a cash-register the combination of the base A; the drawer P′ therein; forwardly and upwardly projecting hook-lever P″ to engage the back of said drawer; the cover A′, for the forward portion of the drawer riding on suitable rollers; forwardly-projecting rods *l*, from the rear of said base; coiled springs *l′*, supported thereby and connected to downwardly-projecting pins on the under side of said cover A′; a catch-lever P‴, pivoted to the under side of said cover and adapted to engage in a hole in the top of base A; lever Q, pivoted above the top of the base with a downwardly-projecting point to trip the catch of the drawer-cover; the common bar I, across all of the keys above and a suitable link *z′*, connecting said lever Q, to the common bar I, so that on the depression of any key the drawer-cover will be released and move back and uncover and unlock the drawer P, all substantially as described for the purpose specified.

12. In a cash-register the combination of the base A, with a drawer therein; cover A′, for the drawer riding on suitable rollers; and a spring connection for said cover; a catch pivoted on said cover to engage in the top of said base and retain said cover in a closed position; a lever above with a downwardly-projecting part to trip the catch on said cover; and connections from said lever to the keys above all coacting together for the purpose specified.

13. In a cash-register the combination of a suitable base; a money-drawer in said base; a cover for the front portion of said money-drawer; a hook-lever pivoted to the rear of said base in position to engage the back of said money-drawer and projecting upwardly across the path of the cover so that when the cover is opened the drawer will be released and can be drawn out if necessary as specified.

14. In a cash-register the combination of the base A, with a drawer therein; sliding cover for said drawer with means to open it when released by the action of the keys; a union-key B^3, actuated from the register-keys for releasing the indicator-slides of the machine; a bent lever K, K′, composed of parts pivoted above the path of said drawer-cover the part K′, projecting across the path of the

drawer-cover; a pin I, on part K, to engage under the union-key B^3, so that when the drawer comes open the lever will hold the union-key in the elevated position for the purpose specified.

15. In a cash-register the combination of a money-till; a cover for said till; an independent union-key connected to the register-keys of the machine to be actuated thereby and release the indicator-slides; and connections from said cover to said union-key to hold the same in an inoperative position when the drawer is opened for the purpose specified.

16. In a cash-register the combination of register-keys; an independent union-key connected therewith to be actuated by any one of them a part of its stroke; connections from said union-key to a trip mechanism for releasing the indicator-slides; a reversible pawl for retaining said union-key in its operated position so that it shall be inoperative until the pawl is released by completing its stroke for the purpose specified.

17. In a cash-register the combination of pivoted register-keys B, supported on a shaft F; a shaft F', parallel with said shaft F, and in front and above the same; gear-wheel G, on said shaft F', with suitable connections to numbering-wheels; arms M, M supported at an angle to each other on shaft F'; graduated bar M', supported on the rear ends of said arms transverse to said keys and in position to be actuated different distances by each of said keys; a dog attached to said bar for engaging the gear-wheel G; an angled stop-bar M'', on the front ends of said arms M, to strike against the keys in front of said shaft F', to stop the motion of the same and prevent overregistration as specified.

18. In a cash-register the combination of pivoted register-keys B, on shaft F, toward the front of said machine; the shaft F', in front of said shaft F; gear-wheel G, on said shaft F', at angles to each other; graduated bar M', supported on the rear ends of said arms M, in position to be actuated different distances by the different register-keys; a stop-bar M'', on the front ends of said bars M, to strike against the keys when they complete their stroke; a dog S, pivoted on arm M, in position to engage the gear-wheel G; a spring S', tending to throw dog S, out of engagement; sliding bar r, supported on rollers r'', on graduated bar M', in position to strike the dog S, and throw it into engagement with the gear G, bearing-lugs r', r'; bar c, for retaining said bar r, in position; downwardly-projecting cam-shaped hooks r', r', on the bar r, corresponding in number to the register-keys; shouldered lugs u, on said register-keys in position to engage in the hooks r', when a key is struck up and carry the bar to one side; and dogs c, supported on the frame of said machine to engage over the lugs r'', to hold the register mechanism locked until actuated by a key; a dog O, to engage said gear-wheel G; a bar J, pivoted by arms J', to be actuated by the register-keys with a spring y, for depressing the same; and curved arms J'', on said bar J, to strike the dog O, and lock the gear-wheel all coacting together substantially as described for the purpose specified.

19. In a cash-register the combination of pivoted register-keys B, on shaft F, toward the front of said machine; the shaft F', in front of said shaft F; gear-wheel G, on said shaft F', suitable number-wheels in position to be actuated by said gear-wheels; arms M, M on said shaft F', at angles to each other; graduated bar M', supported on the rear of said arms M, in position to be actuated different distances by the different register-keys; a stop-bar M'', on the front ends of said bars M, to strike against the keys when they complete their stroke; a dog S, pivoted on arm M, in position to engage the gear-wheel G; a spring S', tending to throw said dog S, out of engagement; sliding bar r, supported on rollers r'', on graduated bar M', in position to strike the dog S, and throw it into engagement with the gear G; bearing-lugs r', r''; bar c for retaining bar r in position; downwardly-projecting cam-shaped hooks r', r', on the bar r, corresponding in number to the register-keys; shouldered lugs u, on said register-keys in position to engage in the hooks r', when a key is struck up and carry the bar to one side; and dogs c, supported on the frame of said machine to engage over the lugs r'', to hold the register mechanism locked until actuated by a key; a dog O, to engage said gear-wheel G; substantially as described for the purpose specified.

20. In a cash-register the combination of pivoted register-keys B, on shaft F, toward the front of said machine; the shaft F', in front of said shaft F; gear-wheels G, on said shaft F', suitable number-wheels in position to be actuated by said gear-wheels; arms M, M on said shaft F', at angles to each other; graduated bar M', supported on the rear end of said arms M, in position to be actuated different distances by the different register-keys; a dog S, pivoted on arm M, in position to engage the gear-wheel G; a spring S', tending to throw said dog S, out of engagement; sliding bar r, supported on rollers r'', on graduated bar M', in position to strike the dog S, and throw it into engagement with the gear G, bearing-lugs r' r''; bar r, for retaining said bar r, in position; downwardly-projecting cam-shaped hooks r', r', on the bar r, corresponding in number to the register-keys; shouldered lugs u, on said register-keys in position to engage in the hooks r', when a key is struck up and carry the bar to one side; and dogs c, supported on the frame of said machine to engage over the lugs r'', to hold the register mechanism locked until actuated by a key; a dog O, to engage said gear-wheel G; substantially as described for the purpose specified.

21. In a cash-register the combination of pivoted register-keys B, on shaft F, toward the front of said machine; the shaft F', in front of said shaft F; gear-wheels G, on said shaft F', suitable number-wheels in position to be actuated by said gear-wheels; arms M, M on said shaft F', at angles to each other; graduated bar M', supported on the rear ends of said arms M, in position to be actuated different distances by the different register-keys; a dog S, pivoted on arm M, in position to engage the gear-wheel G; a spring S', tending to throw said dog S, out of engagement; sliding bar r, supported on rollers r'', on graduated bar M', in position to strike the dog S, and throw it into engagement with the gear G; bar c, for retaining said bar r, in position; downwardly-projecting cam-shaped hooks r', r', on the bar r, corresponding in number to the register-keys; shouldered lugs u, on said register-keys in position to engage in the hooks r', when a key is struck up and carry the bar to one side; a dog O, to engage said gear-wheel G; substantially as described for the purpose specified.

22. In a cash-register the combination of pivoted register-keys toward the front of said machine; gear-wheel G, supported on a suitable shaft; suitable number-wheels in position to be actuated by said gear-wheels; arms M, M, on said gear-wheel shaft standing at angles to each other; graduated bar supported on said arms in position to be actuated different distances by the different register-keys; downwardly-projecting hook portions on said graduated bar to engage the keys when they are struck against it to control the actuation of the keys and graduated bar together for the purpose specified.

23. In a cash-register the combination of pivoted register-keys toward the front of said machine; gear-wheel G, supported on a suitable shaft; suitable number-wheels in position to be actuated by said gear-wheel; arms M, M, on said gear-wheel shaft standing at angles to each other; graduated bar supported on said arms in position to be actuated different distances by the different register-keys; a sliding bar on said graduating-bar connected to be moved by the actuation of any key; a dog connected to said bar to engage said gear-wheel; for the purpose specified.

24. In a cash-register the combination of pivoted register-keys toward the front of said machine; gear-wheel G, supported on a suitable shaft; suitable number-wheels in position to be actuated by said gear-wheels; arms M, M, on said gear-wheel shaft standing at angles to each other; graduated bar supported on said arms in position to be actuated different distances by the different register-keys; a sliding bar on said graduating-bar connected to be moved by the actuation of any key; cam-hooks on said bar; a dog connected to said sliding bar in position to engage said gear-wheel; and a spring to throw said dog out of engagement for the purpose specified.

25. In a cash-register the combination of pivoted register-keys toward the front of said machine; gear-wheel G, supported on a suitable shaft; suitable number-wheels in position to be actuated by said gear-wheels; arms M, M, on said gear-wheel shaft standing at angles to each other; graduated bar supported on said arms in position to be actuated different distances by the different register-keys; a sliding bar on said graduating-bar connected to be moved by the actuation of any key; cam-hooks on said bar; a dog connected to said sliding bar in position to engage said gear-wheel; and a spring to throw said dog out of engagement; a projection on said sliding bar and a pawl or dog to engage it to lock the same after any registration for the purpose specified.

26. In a cash-register the combination of pivoted register-keys toward the front of said machine; gear-wheel G, supported on a suitable shaft; suitable number-wheels in position to be actuated by said gear-wheel; arms M, M on said gear-wheel shaft standing at angles to each other; graduated bar supported on said arms in position to be actuated different distances by the different register-keys; a sliding bar on said graduating-bar connected to move by the actuation of any key; cam-hooks on said bar; a dog connected to said sliding bar in position to engage said gear-wheel; and a spring to throw said dog out of engagement; a pawl to engage said sliding bar to lock the same after registration for the purpose specified.

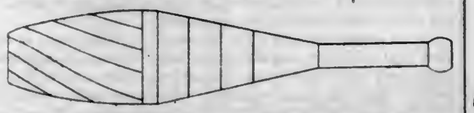
27. In a cash-register the combination of register-keys; a graduated bar to be actuated by said keys a movable bar on said graduated bar in position to be operated by said keys; a dog connected to said movable bar to engage the register-wheels positively; coacting as specified.

28. In a cash-register the combination of register-keys; a graduated bar in position to be actuated by said keys; a dog carried by said graduated bars; connections from the dog to be actuated by the keys to engage the register-wheels positively for the purpose specified.

29. In a cash-register, the combination of register-keys; a graduating-bar in position to be actuated by said keys; engaging devices on said bar to connect it with said keys; a register mechanism; a dog carried by said bar positioned to be actuated and locked by said keys into positive engagement with said register mechanism during actuation, as specified.

30. In a cash-register the combination of register-keys; a register mechanism, a pawl to prevent the return of said mechanism; a graduating-bar with a bar thereon to engage positively the register mechanism; catches on said graduating-bar to engage the register-keys and lock them severally to said bar whenever one is operated and suitable stops for said keys to prevent the operation of more than one at a time, as specified.

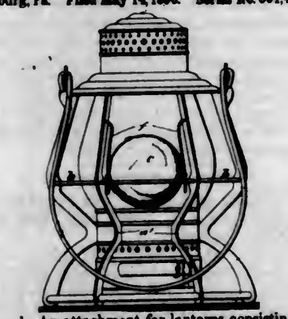
575,382. ELECTRICALLY-ILLUMINATED JUGGLERY APPARATUS. Morris Crosin, London, England. Filed Oct. 30, 1896. Serial No. 610,539. (No model.)



Claim.—1. Electric-light-transparency jugglery apparatus, consisting of electric-battery cells provided with expansible gas-receptacles over their filling-inlets said cells fixed to a foundation-plate of ebonite or the like having one or more electric glow-lamps fixed thereto, and an outer inclosing sheet-metal hollow frame made in detachable parts and within which the said foundation-plate is fixed, said frame having holes provided with colored transparent material and with a switch for turning the light on or off, substantially as set forth.

2. The combination of the electric-battery cells A provided with hollow rubber caps E on their filling-tubes D, the plate B to which the cells are fixed and which is provided with sockets F, the glow-lamp sockets G fixed therein and carrying the lamps H, the outer hollow perforated sheet-metal frame C' with screws B' and nuts B^3 for fixing the plate B thereto, the outer hollow perforated sheet-metal frame C detachably united to the hollow frame C', colored celluloid or the like covering the holes in the frame C C', and a switch I K, substantially as set forth.

575,388. ATTACHMENT FOR LANTERNS. David R. Davidson, Harrisburg, Pa. Filed May 14, 1896. Serial No. 591,471. (No model.)



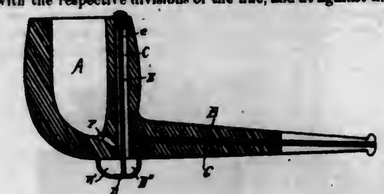
Claim.—1. An attachment for lanterns consisting of a lens supported by a metallic band secured to said lens and having lugs or extensions adapted to embrace the horizontal rib of a lantern, and spring-levers, pivoted to said band, and adapted to embrace the horizontal rib and the vertical ribs of a lantern, substantially as and for the purposes set forth.

2. An attachment for lanterns consisting of a lens, a metallic band secured thereto, pieces e secured to, or formed as a part of the metallic band, levers pivoted to the pieces e, and having their upper and lower ends cut out to embrace the vertical and horizontal ribs respectively of a lantern, substantially as described.

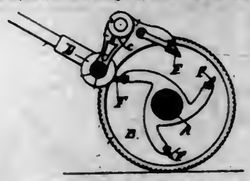
3. An attachment for lanterns consisting of a lens, a metallic band having a series of lugs formed therewith and adapted to embrace the lens, pieces e secured to said bands and levers pivoted to said pieces, substantially in the manner and for the purposes set forth.

575,384. TOBACCO-PIPE. George R. Davidson, Port Huron, Mich. Filed Mar. 30, 1896. Serial No. 585,415. (No model.)

Claim.—The tobacco-pipe described and shown consisting of the bowl, the tobacco-receptacle A having a vertical flue C extending entirely through the inner side wall thereof and having a downwardly-inclined passage-way F leading from the bottom of the tobacco-receptacle to said flue, the same projecting from said bowl opposite said flue C at a right angle and having a smoke-passage therethrough which communicates with said flue near the lower end thereof opposite the passage-way F, the blade E, adapted to be inserted in said flue to form separate compartments therein, and having an opening e therethrough near its upper end, the plug on the upper end of said blade adapted to fit the upper end of the bore of said flue and the drip-chamber on the lower end of said blade adapted to communicate with the respective divisions of the flue, and fit against the bowl.



575,385. LAWN-MOWER SHARPENER. George R. Davidson, Port Huron, Mich. Filed Apr. 6, 1896. Serial No. 586,490. (No model.)



Claim.—1. In a lawn-mower sharpener, the combination of the traction-wheel, the stationary disk forming the inner side thereof, the ear projecting from said disk, the arm pivoted to said ear, the shaft journaled in said arm, the grinding-roll on said shaft, the pinion also mounted on said shaft, said arm adapted to swing from its pivot, to bring said pinion in contact with said traction-wheel and the cutters adapted to rotate in a path that touches the surface of the roller.

2. In a lawn-mower sharpener, the combination of the traction-wheels, the stationary disks forming their inner sides, the ears projecting from said disks, the arms pivoted to said ears, the shaft journaled in said arms, the grinding-roll mounted on said shaft between said pivoted arms, the pinions mounted on said shaft outside of said arms, said pinions adapted to be brought in contact with the rims of the traction-wheels and the cutters adapted to rotate in a path that touches the surface of the roller, for the purpose set forth.

3. In a lawn-mower sharpener, the combination of the traction-wheels, the stationary disks forming their inner sides, the ears projecting from said disks, the arms pivoted to said ears, the shaft journaled in said arms, the pinions and grinding-roll mounted on said shaft, means for locking said arms in an extended position, and means for locking said arms in a retracted position with the pinions in engagement with the rim of the traction-wheels and the cutters adapted to rotate in a path that touches the surface of the roller, substantially as set forth.

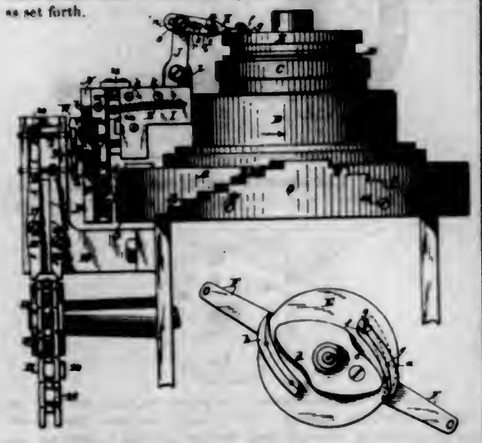
4. In a lawn-mower sharpener, the combination of the traction-wheels, the stationary disks forming the inner sides thereof, the ears projecting from said disks, the arms pivoted to said ears, the shaft journaled in said arms, the grinding-roll and pinion on said shaft, said arms adapted to be swung toward said traction-wheels to bring said pinions in mesh with the teeth on the face of said wheels, means for locking said arms in an extended as well as a retracted position, means for taking up the wear between the cutting-knives and the grind-roll and the cutters adapted to rotate in a path that touches the surface of the roller, substantially as set forth.

575,386. PATTERN-PRODUCING MECHANISM FOR KNITTING-MACHINES. Albert T. L. Dahl, Laconia, N. H., assignor to the Pepper Manufacturing Company, same place. Filed July 23, 1896. Serial No. 600,753. (No model.)

Brief.—For patterns made up of diamonds alternately composed of one-and-one rib and tuck stitches, two yarns of contrasting colors or grades being employed.

Claim.—1. The fixed bed-plate, rotary dial-cap, and rotary cylinder cam-ring of a circular independent-latch-needle knitting-machine having two yarn feeds, said dial-cap having two knitting-cams, one for each yarn, one of said cams being movable into and out of operation, in combination with a plurality of removable pattern-plates arranged around the periphery of the bed-plate, each pattern-plate having along its forward edge a series of cams arranged at different vertical heights and at varying circumferential positions, and each

pattern-plate having along its rear edge similarly-arranged steps, a radially-movable slide, means connecting said slide with said movable knitting-cam, a tappet mounted to move vertically on said slide, and adapted to cooperate with said pattern-plates, said tappet riding on the cams of said pattern plates to move said slide outwardly, a spring for moving said slide inwardly, a rack connected with said tappet, a star-wheel carried by said slide having a pinion engaging said rack, two radially-movable studs arranged respectively above and below the axis of said star-wheel, and movable into and out of the paths of the arms of said star-wheel, a pattern-chain, and mechanism between said pattern-chain and said studs, whereby the movement of said studs is controlled by said pattern-chain, substantially as set forth.



2. The movable knitting-cam, and the movable tappet having a step-by-step movement in one direction, and a reciprocating movement in a different direction, and mechanism between said tappet and cam whereby the said cam is moved into and out of operation by the reciprocating movement of said tappet, in combination with two pattern mechanisms, one for controlling the step-by-step movement of said tappet, and the other for controlling the reciprocating movement thereof, substantially as set forth.

3. The movable knitting-cam, and the movable tappet having a step-by-step movement in one direction, and a reciprocating movement in a different direction, and mechanism between said tappet and cam whereby the said cam is moved into and out of operation by the reciprocating movement of said tappet, in combination with means for effecting the step-by-step movement of said tappet, and a pattern-plate having a succession of cams for effecting the reciprocation of said tappet, said tappet being brought by its step-by-step movement successively into cooperative relation with said several cams, substantially as set forth.

4. The movable knitting-cam, and the movable tappet having a step-by-step movement in one direction, and a reciprocating movement in a different direction, and mechanism between said tappet and cam whereby the said cam is moved into and out of operation by the reciprocating movement of said tappet, in combination with means for effecting the step-by-step movement of said tappet, and a plurality of pattern-plates, each having a series of cams for effecting the reciprocation of said tappet, said tappet being brought by its step-by-step movement successively into cooperative relation with the corresponding cams of said several pattern-plates, substantially as set forth.

5. The rotary cam-plate of a circular-knitting machine having a radially-movable knitting-cam, and a movable tappet having three movements, first, a rotary movement with said cam-plate, second, a vertical step-by-step movement, and, third, a reciprocating radial movement, and mechanism between said tappet and cam whereby said cam is moved radially in and out in consonance with the radial reciprocation of said tappet, in combination with means for effecting the vertical step-by-step movement of said tappet, means for moving said tappet inwardly, and a pattern-plate having a series of cams along its forward edge at different vertical heights corresponding to the different vertical steps of said tappet, and arranged at different circumferential positions, said cams being in the several paths in which said tappet may travel, whereby said tappet is moved outwardly, and said pattern-plate having along its rear edge a series of steps corresponding to said cams, so that when said tappet passes one of said steps it is free to be moved to its inward position, substantially as set forth.

6. A pattern-plate having along its forward edge a series of cams differing in location from each other both horizontally and vertically, and having along its rear edge a corresponding series of steps, in combination with a tappet which moves along the face of said plate from one of said cams to one of said steps and is also moved from time to time up and down, means for securing the relative movement between said tappet and pattern-plate, a knitting-cam, and means intermediate between said tappet and knitting-cam by virtue of which said knitting-cam is moved in and out of action, substantially as set forth.

7. A pattern-plate for a circular-knitting machine having its outer face concentric with the axis of said machine, having along its forward edge a series of cams differing in location from each other both horizontally and vertically, and having along its rear edge a corresponding series of steps, in combination with a tappet which moves along the face of said plate from one of said cams to one of said steps and is also moved from time to time up and down, means for securing the relative movement between said tappet and pattern-plate, a knitting-cam, and means intermediate between said tappet and knitting-cam by virtue of which said knitting-cam is moved in and out of action, substantially as set forth.

8. A pattern-plate for a knitting-machine having along its forward edge a series of cams differing in location from each other both horizontally and vertically, and along its rear edge a corresponding series of steps, the face of said plate affording a path for a tappet from one cam to its corresponding step, in combination with said tappet which moves along the face of said plate from one of said cams to the corresponding step, and is also moved from time to time up and down, means for securing the relative movement between said tappet and pattern-plate, a knitting-cam, and means intermediate between said tappet and knitting-cam by virtue of which said knitting-cam is moved in and out of action, substantially as set forth.

9. The tappet P, equipped with rack T, and the star-wheel W, having pinion U, engaging said rack, in combination with the two studs Y, Z, located respectively above and below the axis of said star-wheel, and means for moving said studs into and out of the path of said star-wheel, substantially as set forth.

10. A plurality of yarn-feeds, and a plurality of knitting-cams, one of the knitting-cams being movable into and out of operation during each row of knitting, in combination with means for moving said movable cam in and out, and for varying the duration of its occupancy of its said inner and outer positions in knitting one row as compared with a preceding row, substantially as set forth.

11. A knitting-cam movable into and out of operation a plurality of times during each row of knitting, in combination with automatic means for moving said cam in and out a plurality of times during each row of knitting, and for varying the duration of its occupancy of its said inner and outer positions, substantially as set forth.

12. The knitting-cam *a*, movable into and out of operation, the tappet P, having an inner and outer position and being also vertically movable, and means intermediate between said tappet P, and cam *a*, by virtue of which said cam moves in correspondence with the inward and outward movements of said tappet, in combination with means for moving said tappet in and out, means for moving it vertically, and means for locking it in its outer position when it reaches its extreme vertical position, substantially as set forth.

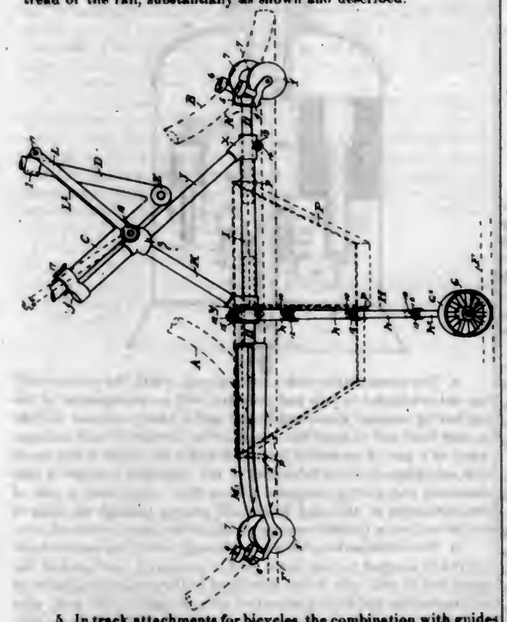
575,337. TRACK ATTACHMENT FOR BICYCLES. AUGUST G. DUBLIN and BENJAMIN C. CLARK, Seattle, Wash. Filed Sept. 10, 1896. Serial No. 605,378. (No model.)

Claim.—1. A track attachment for bicycles, comprising a pendent main frame, forward and rear extensions, bifurcated, and longitudinally adjustable therein, guide-wheels, transversely journaled between said furcations with flanges projecting below the tires of the bicycle-wheels, guide-rollers on each of said furcations projecting diametrically inward over said flanges and an adjustable side arm attached in said frame and carrying a steadier-wheel at its outer end, substantially as shown and described.

2. In track attachments for bicycles, the combination with the main frame thereof, adapted for suspension from the frame of a bicycle, of the forward and rear extensions adjustable in said frame, having bifurcations with flanged guide-wheels, journaled therebetween, adapted for contact with a rail of said track and guide-rollers projecting diametrically over said flanges, adapted for contact with the tires on the wheels of said bicycle, substantially as shown and described.

3. In track attachments for bicycles, the guides thereof, comprising a guide-wheel, flanged at each end, and a guide-roller over each of said flanges projecting diametrically inward, said wheel adapted to fit loosely over the tread of the track and said rollers at opposite sides of the tire of the bicycle-wheel, when said attachment is pendent from the bicycle-frame over said track, substantially as shown and described.

4. In track attachments for bicycles, the combination with the bicycle-wheel, of the guide-rollers journaled with the peripheries thereof, diametrically opposite, with reference to the tire, a flanged guide-wheel under said rollers, with the flange thereof projecting below said tire, said rollers adapted to engage the side of said tire, when the wheel shifts from alinement and said flanges adapted to contact with the track, when the bicycle leads from the center of the tread of the rail, substantially as shown and described.



5. In track attachments for bicycles, the combination with guides thereon, adapted to guide the bicycle upon a rail, and with the wheels of said bicycle; of the guide-rollers journaled, diametrically opposite with reference to the tire of said wheel and adapted to engage the side of the tire when turned from alinement, substantially as shown and described.

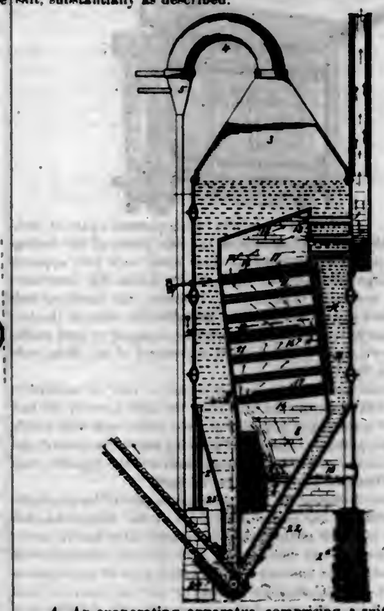
6. In track attachments for bicycles having a main frame, forward and rear bifurcated extensions and a side arm, the combination of the guides on said extensions adapted to guide the bicycle-wheels on one rail, and comprising a flanged wheel journaled between said bifurcations and guide-rollers journaled thereon and projecting diametrically inward over said flanges, with a steadier-wheel journaled at the end of said arm adapted for contact with the opposite rail, substantially as shown and described.

575,338. APPARATUS FOR MANUFACTURING SALT. HERMAN J. DEBUTS, EDWARD N. PERKINS, and JOSEPH T. DADE, Hutchinson, Kans. Filed July 18, 1896. Serial No. 599,759. (No model.)

Claim.—1. An evaporating apparatus, comprising a suitable magazine terminating at its lower end in downwardly-depending legs, and provided with an internal chamber and an external chamber, flues connecting the upper end of the internal chamber with said external chamber, a furnace communicating with the lower end of the internal chamber, brine-conducting pipes extending through said internal chamber and interposed between said furnace and said flues, and devices to force the brine to circulate through said tubes, substantially as described.

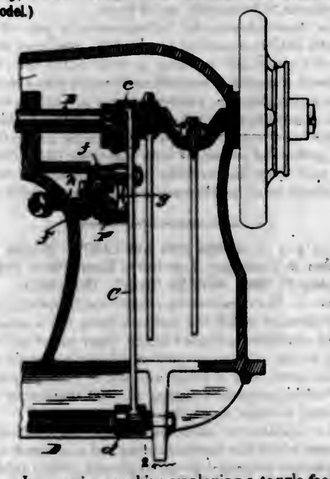
2. An evaporating apparatus, comprising a suitable magazine terminating at its lower end in downwardly-depending legs, and provided with an internal chamber and an external chamber, flues connecting the upper end of the internal chamber with said external chamber, a furnace communicating with the lower end of the internal chamber, brine-conducting pipes extending through said internal chamber and interposed between said furnace and said flues, and alternately-arranged baffle-plates within said internal chamber so as to cause the products of combustion in the furnace to follow a tortuous course, substantially as described.

3. An evaporating apparatus, comprising a suitable magazine terminating at its lower end in downwardly-depending legs, and provided with an internal chamber and an external chamber, flues connecting the upper end of the internal chamber with said external chamber, a furnace communicating with the lower end of the internal chamber, brine-conducting pipes extending through said internal chamber and interposed between said furnace and said flues, alternately-arranged baffle-plates within said internal chamber so as to cause the products of combustion in the furnace to follow a tortuous course, and an endless elevator communicating with the lower end of the depending legs of the magazine or receptacle to carry off the salt, substantially as described.



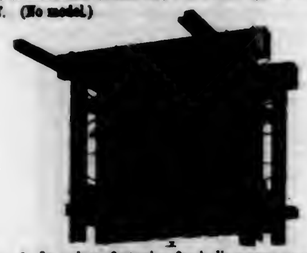
4. An evaporating apparatus, comprising a suitable magazine, terminating at its lower end in depending legs, and provided with an internal chamber and an external chamber, flues connecting the upper end of the internal chamber with said external chamber, a furnace communicating with the lower end of the internal chamber, brine-conducting pipes extending through said internal chamber and interposed between said furnace and said flues, and rotating spiral conveyers arranged within said brine-conducting pipes, to force the brine to circulate through said tubes, substantially as shown and described.

575,339. FEEDING MECHANISM FOR SEWING-MACHINES. PHILIP DIEHL, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Oct. 10, 1896. Serial No. 608,439. (No model.)



Claim.—In a sewing-machine employing a toggle-feed, the combination with the feed bar, the link C operatively connected with said feed-bar, and means for operating said link, of the regulating-lever F having a part provided with a V-shaped recess, as *f'*, an adjustable abutment, as screw *h*, projecting into said recess to limit the adjusting movement of said lever in either direction, the link *g* joining said lever to the operating-link C, and means for retaining said lever F in any position to which it may be moved.

575,840. DOOR-FASTENING FOR BALING-PRESSES. THEOPHILUS C. EISENHARDT, Anniston, Ala. Filed Apr. 23, 1896. Serial No. 588,717. (No model.)



Claim.—1. In a door-fastening for baling-presses, a pair of locking-bolts slidably supported on one of the side doors of the baling-chamber of a press and provided at their outer ends with approximately right-angularly-disposed catch-hooks, means for simultaneously drawing both bolts in an inward direction, and fastening-rods rigidly connected at one end with the opposite side door of the baling-chamber and having flexible connections engaged by said catch-hooks and drawn taut by the inward movement of the bolts, substantially as set forth.

2. In a door-fastening for baling-presses, a pair of oscillatory locking-bolts slidably supported on one of the side doors of the baling-chamber of a press and provided at their outer ends with catch-hooks, means for partially turning and drawing said bolts inward, and suitable connections between said catch-hooks and the opposite door of the baling-chamber, substantially as set forth.

3. In a door-fastening for baling-presses, a pair of locking-bolts slidably supported on one of the side doors of the baling-chamber of a press and provided at their outer ends with catch-hooks, means for partially turning and sliding said bolts inward, fastening-rods adjustably connected at one end with opposite ends of the opposite side door of the baling-chamber outside of the end doors of said chamber, and short connecting-chains connected with the free ends of said rods and adapted to also detachably engage with said catch-hooks, substantially as set forth.

4. In a door-fastening for baling-presses, a pair of horizontally-alined bolt-casings secured on the outer side of one of the side doors of the baling-chamber of a press at opposite ends thereof, each of said casings being open at one end for a portion of its length and provided in its outer side with a spiral slot, a locking-bolt mounted to slide in each of said casings and provided at an intermediate point with a pin working in said slot and at its outer end with a right-angularly-disposed catch-hook having a rounded side, means for sliding said bolts inward, and fastening-rods adjustably connected at one end with the opposite ends of the opposite side door and carrying at their free ends short connecting-chains adapted to detachably engage with said catch-hooks, substantially as set forth.

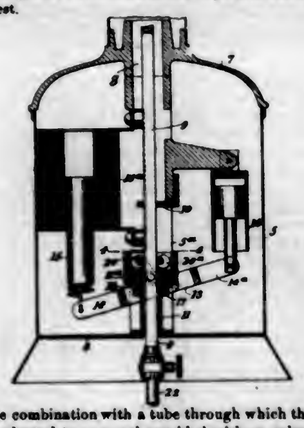
5. In a door-fastening for baling-presses, a pair of oscillatory locking-bolts slidably supported on one of the side doors of the baling-chamber of a press and provided at their outer ends with catch-hooks, suitable connections between said catch-hooks and the opposite door of the baling-chamber, a fastening-lever pivotally mounted at one end on one of said side doors below said bolts, suitable guides arranged between the inner ends of the two bolts, flexible connections passing over said guides and connected with said inner ends of the bolts and also with said lever, and suitable securing means for fastening the free end of said lever in different positions, substantially as set forth.

575,841. CLUTCH FOR ARC-LAMPS. EUGENE FINKELNBURG, Brooklyn, N. Y., assignor of one-half to Ernest Unger, New York, N. Y. Filed July 27, 1896. Serial No. 600,672. (No model.)

Claim.—1. In a regulator for electric-arc lamps, the combination with a tube through which the carbon-holding rod is adapted to pass, of a pair of eccentrics journaled at the upper end of said tube, levers fulcrumed to the respective spindles of said eccentrics and having slots in their outer ends, a device adapted to move vertically on said tube and having projections passing through the slots of said levers, and a pivoted carriage supporting said projections.

2. In a regulator for electric-arc lamps, the combination with a tube through which the carbon-holding rod is adapted to pass, of a pair of eccentrics journaled at the upper end of said tube, levers fulcrumed to the respective spindles of said eccentrics and having slots in their outer ends, a pair of pins suitably connected together to move vertically with relation to said tube and passing through the slots of said levers, and a pivoted carriage on which said pins are supported.

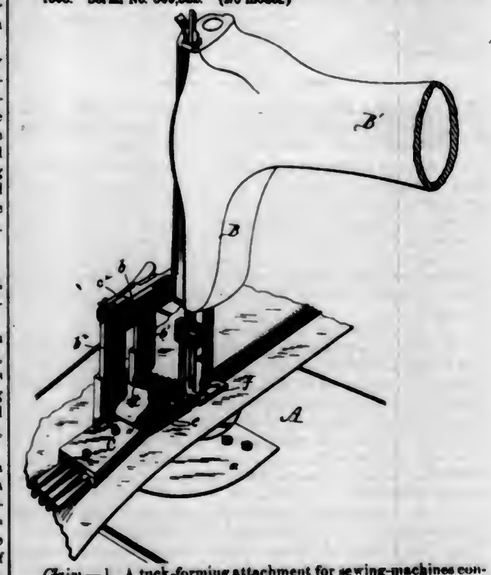
3. In a regulator for electric-arc lamps, the combination with a tube through which the carbon-holding rod is adapted to pass and a block adapted to slide on said tube, of a pair of eccentrics journaled at the upper end of said tube, a pair of levers fulcrumed to the spindles of said eccentrics and having slots in their outer ends, a pair of pins connected to aforesaid block in proper relation to said levers and passing through the slots thereof, and a pivoted carriage on which said pins rest.



4. The combination with a tube through which the carbon-holding rod is adapted to pass and provided with an enlargement at the top having recesses above and below, and a block adapted to slide on said tube and to enter the recess at the bottom of said enlargement, of a pair of eccentrics journaled within the recess at the top of said enlargement, levers fulcrumed to the respective spindles of said eccentrics and having elongated slots in their outer ends, a pair of pins connected to aforesaid block and passing through the slots of said levers, and a pivoted carriage on which the pins of said block rest.

5. The combination with a tube through which the carbon-holding rod is adapted to pass and a pair of eccentrics journaled at the upper end of said tube, levers fulcrumed to the respective spindles of said eccentrics and having elongated slots in their outer ends, pins pivotally connected together to move vertically with relation to said tube, a carriage pivoted to swing on the lamp-frame and supporting said pins and provided with end levers, a check or dash-pot connected with one of said levers and a helix and its core the latter connected to the other of said levers.

575,842. TUCK OR PLAIT FORMING ATTACHMENT FOR SEWING-MACHINES. CHARLES H. FOSTER, New York, N. Y., assignor to The Singer Manufacturing Company, of New Jersey. Filed Nov. 18, 1895. Serial No. 569,322. (No model.)

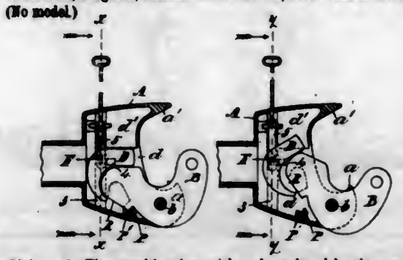


Claim.—1. A tuck-forming attachment for sewing-machines consisting of upper and lower flat corrugated plates having rearwardly converging intermeshing ribs and grooves extending in the direction of the feed of the work, or approximately so, combined with upper and lower intermeshing and partially-twisted guiding-blades arranged between the said corrugated plates and the presser-foot and stitch-forming devices of the machine.

2. A tuck-forming attachment for sewing-machines consisting of upper and lower corrugated plates the upper one of which is vertically movable, said plates having rearwardly-converging intermeshing ribs and grooves arranged to extend in the direction of the feed of the work, or approximately so, combined with upper and lower intermeshing and partially-twisted guiding and plait or tuck turning blades located between said corrugated plates and the presser-foot and stitch-forming devices of the machine.

3. A tuck-forming attachment for sewing-machines consisting of the combination with the plate a having the corrugated portions a' and the blades a^2, of the supporting arm or bracket b having the depending arms b', b^2, the plate or foot C having a corrugated lower face and provided with the shank c having a sliding connection with the said arm b^2, the link c' and lever c^2 for raising and lowering said plate or foot C, and the bracket d attached to the arm b' and provided with a series of guiding and turning blades e.

575,843. CAR-COUPLING. MICHAEL J. GRADY and RICHARD McMILLAN, Kingston, Canada. Filed Nov. 12, 1896. Serial No. 611,843. (No model.)



Claim.—1. The combination with a draw-head having an internal side recess d', and a pendent inclined face-lug 4, at the interior top, a swinging knuckle B, having a flange or filling R, at the heel, a guide-pin F, passing through the top and bottom of the draw-head, a gravitating locking-block or keeper D, sliding on said pin, and having a curved heel in continuous frictional engagement with said flange or filling, and a lever 5, fulcrumed within the draw-head to lift said locking-block against said lug, as set forth.

2. The combination with the draw-head having an internal side recess d', an inclined face-lug 4, pendent from the interior top, and a resistance block or post P, at the side, of the swinging knuckle B, having a flange or filling R, at the heel, and stopping against said post, a pin F, vertically within the draw-head, a gravitating locking-block or keeper D, sliding on said pin, and having a curved heel traversing said flange or filling in a continuous manner, as set forth for the purpose described.

575,844. SEWING-MACHINE EXTENSION-TABLE. JAMES G. GREENE, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Oct. 10, 1896. Serial No. 608,428. (No model.)



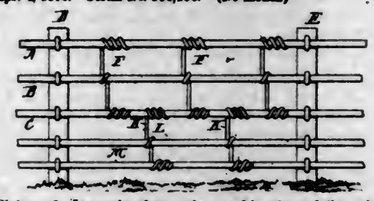
Claim.—1. An extension work-support for sewing-machine stands consisting of a table B provided at one end with means whereby it may be detachably secured to one end of the sewing-machine stand or table and thereby form a longitudinal continuation of the latter, the front and rear edges of said extension work-support being formed by rollers b.

2. An extension work-support for sewing-machine stands consisting of a table B provided with means whereby it may be detachably secured to a sewing-machine stand, the front and rear edges of said extension work-support being formed by rollers b, and the said rollers being of greater length than the said table B so as to overhang the latter.

3. An extension work-support for sewing-machine stands consisting of the table B provided at one end with means whereby it may be detachably secured to one end of a sewing-machine stand or table so as to form a longitudinal continuation or extension of the latter, the front and rear edges of said extension work-support being formed by rollers b, and the said table B being provided at its outer end, or the end which is to be farthest from the sewing-machine stand, with the hinged or folding leg D.

4. The combination with the sewing-machine stand or table A provided with the brackets a, of the extension-table B having the lugs or ears b', for detachable engagement with said brackets, the bearing-plates c, the bearing-brackets c', and the rollers b journaled in or supported by said plates and brackets at the opposite edges of said table B, and the latter being also provided with the hinged or folding leg D.

575,845. WIRE FENCE. JOHN W. GRENOUGH, Troy, N. Y. Filed Apr. 4, 1896. Serial No. 586,156. (No model.)

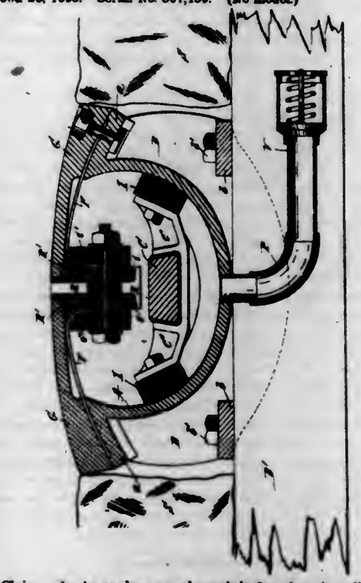


Claim.—1. In a wire fence, the combination of three longitudinal wires and a series of parallel transverse wires, each transverse wire being wrapped or twisted at its middle portion around the middle longitudinal wire and having its ends respectively wrapped or twisted around the outer wires, substantially as described.

2. In a wire fence, the combination of parallel longitudinal wires A, B, C, L, M, transverse wires F having each its middle portion wrapped or twisted around the wire B and its ends respectively wrapped or twisted around the wires A, C, and transverse wires K having each its middle portion wrapped or twisted around the wire L and its ends respectively wrapped or twisted around the wires C, M, substantially as described.

3. In a wire fence the combination of parallel longitudinal wires A, B, C, L, M, transverse wires F having each its middle portion wrapped or twisted around the wire B and its ends respectively wrapped or twisted around the wires A, C, and transverse wires K having each its middle portion wrapped or twisted around the wire L and its ends respectively wrapped or twisted around the wires C, M; the transverse wires K and transverse wires F alternating in position, substantially as described.

575,846. ELECTRIC RAILWAY. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor of one-half to Zalmon Goodsell, same place. Filed Oct. 28, 1895. Serial No. 567,139. (No model.)



Claim.—1. An underground conduit for electric railways, comprising a metal trough, having a flexible cover or top, composed of flexible metal plates each of which is secured to the sides of the

trough and to the depressible rail, said plates being curved inwardly at their adjacent edges, and securely bolted between strips of insulating material, between which is placed a depressible contact-rail on a level with the surface of the track, said conduit being also provided with a conductor situated in the bottom of the conduit and in proximity to said contact-rail, substantially as shown and described.

2. An underground conduit for electric railways comprising a metal trough having a flexible cover or top composed of flexible metal plates each of which is secured to the sides of the trough, and to the depressible rail, said plates being curved inwardly at their adjacent edges, and securely bolted between strips of insulating material, between which is placed a depressible contact-rail, said conduit being provided with a conductor situated in the bottom of the conduit, and in proximity to said contact-rail, said condnit being also provided with surface plates which are bolted to the sides of the trough over said flexible plates, and between which is a longitudinal slot into which the depressible contact-rail is adapted to project flush with said surface plates, substantially as shown and described.

3. An underground conduit for electric railways, comprising a metal trough having a flexible cover or top composed of flexible metal plates which are bolted to the sides of the trough, and to the contact-rail said plates being curved inwardly at their adjacent edges, and securely bolted between strips of insulating material, between which is placed a depressible contact-rail, said conduit being also provided with surface plates which are bolted to the sides of the trough over said flexible plates, and between which is a longitudinal slot into which the depressible contact-rail is adapted to project, the space at each side of said contact-rail and above the insulating-strips by which it is supported being filled in with asphaltum or similar material, substantially as shown and described.

4. A conduit for underground electrical conductors comprising a trough as A which is held in place by ribs as B, which are bolted to the cross-tie B', said trough being provided with a depressible cover composed of flexible strips each of which is bolted to the sides thereof and to the depressible rail, the adjacent edges of said strips being bent downwardly and passed between strips of insulating material, which are firmly held together and between the inner strip of which is placed a depressible contact-rail, adapted to contact therewith, and a conductor underneath said rail extending vertically therethrough and forming contact directly with the conductor and trolley-wheel, substantially as described.

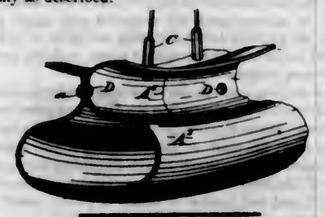
5. A conduit for underground electrical conductors, comprising a trough as A which is held in place by ribs as B, which are bolted to the cross-ties B', said trough being provided with a depressible cover composed of flexible strips, each of which is bolted to the sides thereof, and to the depressible rail the adjacent edges of said strips being bent downwardly and passed between said strips of insulating material which are firmly bolted together and between the inner strips of which is placed a depressible contact-rail, said trough being also provided with surface plates above said depressible cover which are bolted thereto at the sides thereof, and between which is a slot into which said depressible rail projects and a conductor underneath said rail and adapted to contact therewith, substantially as shown and described.

6. The combination with an underground conduit for electrical railways composed of a metal trough, which is held in place by ribs which are attached to the cross-ties, of means for carrying the conductor beneath a crossing, consisting of a pipe M, which is bolted to the bottom of the conduit and communicates therewith, said pipe being provided with an insulating-cable which connects with the respective ends of the conductor by a tubular head within the conduit, the ends of said conduit being closed by a cap or plate having flanges formed thereon, which inclose the end of the conductor and a discharge-pipe provided with a spring-actuated valve, substantially as shown and described.

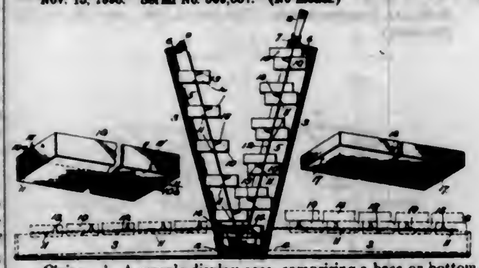
7. The combination with an underground conductor for electrical railways composed of a metal trough which is held in place by means of ribs which are attached to the cross-tie, of means for carrying the conductor beneath the crossing, consisting of a pipe as M, which is bolted to the bottom of the conduit and communicates therewith, said pipe being provided with an insulating-cable which connects with the respective ends of the conductor, within the conduit by means of a tubular head O and the ends of said conduit being closed by a cap or plate having flanges formed thereon, which inclose the end of the conductor, the ends of the conduit being also closed by means of a packing composed of rubber or similar material, and a chemical absorbing material, placed at intervals within the conduit, whereby the moisture or condensation accumulating within the conduit is absorbed, substantially as shown and described.

575,347. WHEEL FOR BICYCLES. WILLIAM HAMILTON, South Bend, Ind., assignor of one-third to Andrew J. Hamilton, Globe, Ariz. Filed May 28, 1896. Serial No. 593,483. (No model.)

Claim.—A combined wheel tire and rim formed of an end-welded sheet of steel drawn together and secured at its sides to form a hollow wheel-tube with its edges turned apart to provide inner spoke-flanges at each side and with its tread or outer peripheral surface roughened, ribbed, or corrugated transversely to prevent slipping, substantially as described.



575,348. SAMPLE-DISPLAY CASE. WILLIAM F. HAMMOND, Kansas City, Mo., assignor to Mary M. Hammond, same place. Filed Nov. 15, 1895. Serial No. 569,037. (No model.)

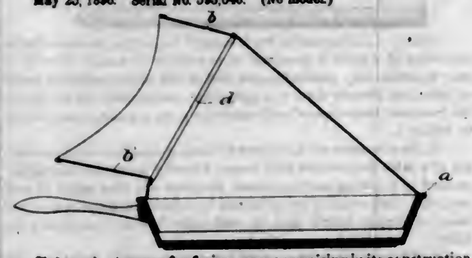


Claim.—1. A sample-display case, comprising a base or bottom, and two opposing sections, hinged at their lower margins to said bottom or base, a series of horizontal trays mounted pivotally in each section and projecting into the opposing sections so as to overlap or be superimposed with relation to each other when the case is closed, levers pivotally linking each series of trays together, and hinged or pivoted at their lower ends to the base or bottom, substantially as and for the purpose set forth.

2. A sample-display case, comprising a base and a pair of opposing sections hinged at their lower margins to said base, pins or axles projecting longitudinally inward of said sections, trays rotatably and detachably mounted upon said pins or axles, levers hinged at their lower ends to the bottom and pivotally connected each to a series of trays above and inward (with respect to the case) of their axes, and a series of auxiliary trays detachably mounted upon one of said first-mentioned series, and additional trays mounted upon the base between said sections, substantially as set forth.

3. A sample-display case, comprising a base or bottom, and two opposing sections hinged at their lower margins to said bottom or base, a series of horizontal trays mounted pivotally in each section and projecting into the opposing section so as to overlap or be superimposed with relation to each other when the case is closed, levers pivotally linking each series of trays together and hinged or pivoted at their lower ends to the base or bottom, a strap secured marginally to one section and bridging the joint between the same and the other section when the case is closed, a handle secured to said strap, and a lock for securing the sections in their closed positions, substantially as shown and described.

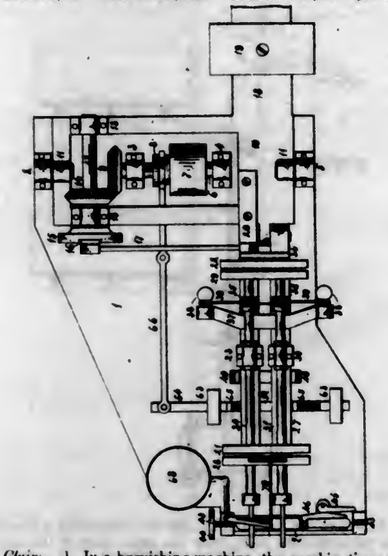
575,349. FRYING-PAN COVER. HERBERT O. HATCH, Cliftondale, Mass., assignor of one-half to George F. Tibbetts, same place. Filed May 25, 1896. Serial No. 593,046. (No model.)



Claim.—1. A cover for frying-pans comprising in its construction a substantially conical hood having a permanently open guard extending from one side of the hood, substantially as described.

2. A frying-pan cover consisting of the hood *a* having an inclined top, the upper end of which is nearly over the edge of the cover, said hood being curved from said top to the side portions, and the tubular guard *b b'* extending from the side of the hood, substantially as described.

575,350. BURNISHING-MACHINE. WILLIAM K. HERRINGTON, Rockford, Ill. Filed June 1, 1896. Serial No. 593,949. (No model.)



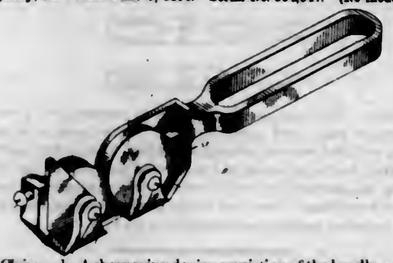
Claim.—1. In a burnishing-machine, the combination of a suitable supporting-frame, a shaft having a pivotal movement, a burnisher supported thereby, and means for imparting a bodily swinging movement to the shaft.

2. In a burnishing-machine, the combination of a suitable supporting-frame, a burnisher, and means for automatically imparting an oscillatory and bodily swinging movement to the burnisher.

3. In a burnishing-machine, the combination of a suitable supporting-frame, a shaft, a burnisher supported thereby and means for automatically imparting an oscillatory and bodily swinging movement to the shaft.

4. In a burnishing-machine, the combination of a suitable supporting-frame, a burnisher, means for automatically imparting an oscillatory and bodily swinging movement to the burnisher and for starting and stopping its movements.

575,351. SHARPENING DEVICE. GEORGE T. HETZEL, Allegheny, Pa. Filed June 9, 1896. Serial No. 594,847. (No model.)

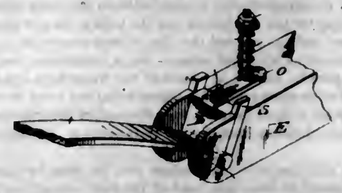


Claim.—1. A sharpening device consisting of the handle, a frame, said frame having a rear extension, and the upwardly-extending arms, the disks mounted within said frame, a guide secured between one of said disks and one of the upwardly-extending arms and fastening means adapted to secure said guide and the disks in the desired position, as set forth.

2. A sharpening device consisting of a handle, a frame having the rear extension and the upwardly-extending arms on one side thereof, a series of disks mounted within said frame, a guide between one of said disks and upwardly-extending arms, fastening means securing said guide and disks in the desired position and a wedge located in one end of said frame to prevent lateral or rotary movement of the disks, for the purpose set forth

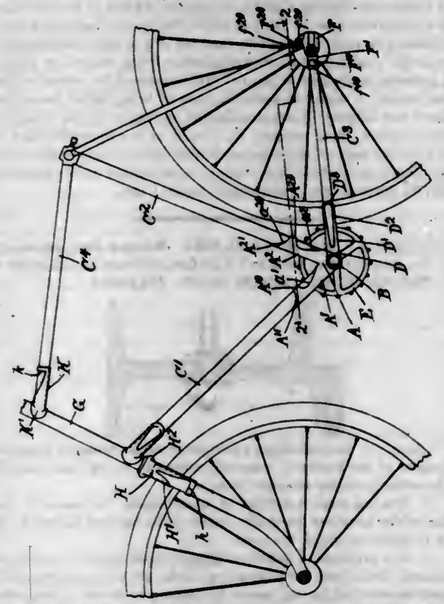
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575,352. THILL-COUPLING. CLARENCE O. HILL and PETER W. BLY, Lee, Ill. Filed Sept. 9, 1896. Serial No. 605,295. (No model.)



Claim.—In a thill-coupling, the combination, with a clip provided with a forwardly-projecting head, said head being provided with seats and an upwardly and rearwardly extending slot or recess leading from each seat of a less width than the diameter of the seat, a thill-iron, the end of which is provided with trunnions, a key, each side of which is provided with a way to sit within the slots of the head and the lower edge of which key rests upon the end of the thill-iron, and the upper edge is provided with two projections or stops, and a spring-actuated horizontally-rotatable lock upon the top of the head, the outer end of which extends over the top of the key and fits between the stops, substantially as set forth.

575,353. TUBULAR-FRAME JOINT. THOMAS B. JEFFERY, Chicago, Ill. Filed May 16, 1895. Serial No. 549,488. (No model.)



Claim.—1. In a velocipede-frame, a joint between two tubular arms comprising a tubular socket to receive one of the arms of the frame, such socket being partly cut away to taper it and to diminish its area gradually toward the end: and provided with an integral narrow clasp extending in a plane transverse to the tube and more than half around the latter near the end of the taper: substantially as set forth.

2. In a velocipede-frame, the joint between two tubular arms, comprising a tubular socket to receive one of the arms of the frame: such socket being partly cut away to taper it and diminish its area gradually toward the end and provided with an integral continuous clasp completely encircling the tube in a plane transverse thereto near the end of the taper: substantially as set forth.

3. In a velocipede, a joint between two tubular parts of the frame, one of which extends endwise toward the side of the other, in combination with such two tubular parts, a clip by which they are united comprising a seat for the side of one of said parts and a tubular socket which is adapted to receive the end of the other, said tubular socket being partly cut away between a point a short distance from the seat and a point a short distance from the end, whereby there is left standing of such socket a rudiment to receive the end of the tube, and a narrow clasp to embrace the tube near the end of the clip, and a suitable area for soldering diminishing transversely from the rudimentary

socket for a distance outward toward the end of the clip: substantially as set forth.

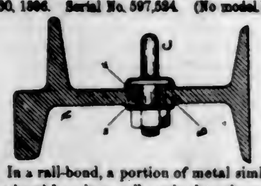
4. In a velocipede-frame, a joint between the cross-tube which affords bearing for the crank-axle and the tubular bars of the frame, which extend endwise toward the side of said cross-tube; comprising, in combination with said tubes, a clip A comprising two tubular sockets adapted to receive the ends of the frame-bars and a transverse seat for the cross-tube, said sockets being cut away at one side between a point a short distance from the seat of the cross-tube and a point a short distance from the end of the socket: substantially as set forth.

5. In a velocipede, in combination with the front fork-arms, the fitting H adapted to form the head of the fork comprising tubular sockets H' proceeding from the head H^3, and adapted to receive the fork-arms respectively, such sockets being cut away at the front, the cut extending on both sides, leaving the clamping-ring h and the tongue H': substantially as set forth.

6. In a velocipede-frame, the joint between the cross-tube B and either side arm of the rear fork, comprising, in combination with said parts, a clip having a tubular socket adapted to receive the end of the fork-arm, and a transverse seat for the cross-tube B, said sockets being partly cut away to diminish their area gradually toward the end to prevent the concentration of the breaking strain, the material removed for that purpose being cut away from the sides, whereby the increase of distance between the crank-arms is prevented: substantially as set forth.

7. In a velocipede-frame, a joint between the cross-tube B and either side of the rear fork, which comprises in combination with said parts a clip having a socket to receive the end of the side arm, and a transverse seat for the cross-tube, the socket being cut away to diminish its area gradually toward the end to prevent concentration of the breaking strain, such diminution being effected by removing material at the side to prevent the increase of the spread of the pedal-cranks; a complete encircling ring D^4 being left at the end to connect the tongues D^6 left standing by cutting away the sides, the tubular socket being notched at the end at two opposite points in line with the ends of said tongues respectively; whereby the encircling ring is prevented from causing concentration of the breaking strain on the fork-arm: substantially as set forth.

575,354. ELECTRIC RAIL-BOND. WILLIAM JEHL, Johnstown, Pa., assignor of two-thirds to T. C. Du Pont and Bruce Ford, same place. Filed June 30, 1896. Serial No. 597,594. (No model.)



Claim.—1. In a rail-bond, a portion of metal similar in nature to the metal of the bond-bar, integrally united to the rail and adapted to have the bond-bar attached thereto.

2. In a rail-bond, a portion of metal similar in nature to the metal of the bond-bar integrally united to the rail and having a surface to which to attach the bond.

3. In a rail-bond, a button or plug of metal similar in nature to the metal of the bond-bar inserted in a hole in the rail and integrally united thereto and having means for making electrical contact with the bond.

4. In a rail-bond, a button or plug, B, of metal similar in nature to the metal of the bond-bar inserted in a hole, 1, in the rail, A, and integrally united thereto, and having a hole, 2, in which to fasten the bond, C, into contact.

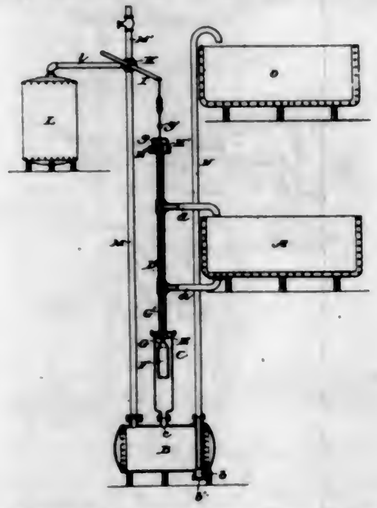
5. The combination of a rail having integrally united thereto a contact-piece of metal similar in nature to the metal of the bond-bar, and a bond-bar attached to said contact-piece.

6. The method of bonding rails by integrally uniting to each rail one or more contact-pieces of a metal similar in nature to the metal of the bond-bar, and connecting the bond-bars to said contact-pieces, substantially as set forth.

575,355. AUTOMATIC LIQUID-ELEVATING APPARATUS. WILLIAM M. KIDDER, Clifton, Ariz. Filed Dec. 23, 1895. Serial No. 573,083. (No model.)

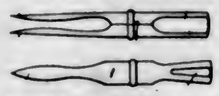
Claim.—1. In an apparatus for pumping liquids, the combination with a closed receiver, of an upright pipe connected therewith and rising above the source of supply and having an open upper end, a water seal or lute at said upper end of the pipe, a branch pipe connecting said upright pipe with the source of supply, and an overflow-pipe leading from said upright pipe back to the supply source from a point below the lute, substantially as described.

2. In an apparatus for pumping liquids, the combination with a closed receiver, of an upright pipe connected therewith and open at its upper end, a source of supply communicating with said pipe, a water seal or lute at the upper end of said pipe, a check-valve controlling the lower end of said pipe, a valve-rod rising through said pipe, and the cover of the lute, a collar on the rod within the cover, and a compressed-air supply for said receiver controlled by said rod, substantially as described.



3. An apparatus for pumping liquids, comprising a closed receiver, a valve-chamber rising from the upper part of the same, an upright supply-pipe rising above the valve-chamber to a point above the source of supply and having its upper end opening upwardly, a conical valve-seat at the lower end of said pipe within the valve-chamber, a conical float-valve in the chamber adapted to close against said seat, a delivery-pipe leading from the lower part of said receiver to an elevated receiving-tank, a source of compressed air, an air-pipe having one end open and the other end entering the top of the receiver, a branch pipe connecting said pipe with the source of compressed air, a three-way cock at the junction of the branch and main air-pipes, controlling the flow of compressed air into the receiver, and its escape through the same pipe into the open air, a rod attached to the float-valve and rising through and above the open supply-pipe to a point of attachment with the three-way cock, and a turnbuckle in said rod to permit relative adjustment of such valve and cock, substantially as described.

575,356. BLACKHEAD-TWEEZERS. JOHN KLOSS, Allegheny, Pa. Filed Dec. 14, 1896. Serial No. 572,174. (No model.)



Claim.—The herein-described tweezers consisting of a continuous piece of metal bent upon itself, the rounded end of its handle portion provided with an opening or aperture in the center, said handle portion having openings and recesses at each side of the central opening and interlocking projections and notches or recesses, and the clasp or band slipped upon said handle portion, holding the sections of the tweezers together, substantially as set forth.

575,357. EYEGLASS-CASE. JOHN G. KOEHEN, Mount Vernon, N. Y. Filed May 6, 1896. Serial No. 590,500. (No model.)



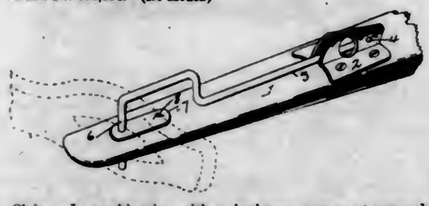
Claim.—As an article of manufacture an eyeglass-case comprising a concaved base-section A, and a convex cover B hinged at one edge to the base-section, said cover B being formed at the center with interior converging cam-surfaces b, b' to act on the eyeglass-guards for registering the glasses in the case and pinching the guards together in the act of closing the case, substantially as described.

575,358. NUT-LOCK. FREDERICK G. KOLLENBERG, Owensborough, Ky., assignor of one-half to James H. Hickman, same place. Filed May 22, 1896. Serial No. 592,674. (No model.)



Claim.—The combination with a bolt having screw-threads upon its outer end, and a longitudinal recess in the threaded portion thereof forming a shoulder, of a nut adapted to be screwed upon said bolt, having a recess in its inner surface, an unattached strip of metal fitting within said recess, a spring separate from said strip for normally urging the latter inwardly and a screw for forcing and positively holding said strip inwardly in engagement with the shoulder formed by the recess in said bolt, substantially as and for the purpose described.

575,359. TRACE-HOLDER. GODFRIED LAUBE, Huron, S. D., assignor of one-half to A. Vandenburg, same place. Filed Sept. 19, 1896. Serial No. 606,331. (No model.)



Claim.—In combination with a singletree, a support secured to the singletree, an arm provided with a loop terminating in a downward extension, a plate secured to the extension and extending inwardly and a spur formed with the plate at the free end, as and for the purpose described.

575,360. FISHING-NET-CONTROLLING DEVICE. THOMAS LINDSAY, Capitola, Cal. Filed Feb. 24, 1896. Serial No. 580,492. (No model.)



Claim.—1. A lead-line controller for fishing-nets, comprising a drag and a pair of sheaves attached to one end of the drag by pivoted carriers to swing laterally in a horizontal plane, each sheave being composed of two sections on separate axles, with a clear space between them, and means for adjusting one of such sections to and from the other, substantially as described.

2. In a lead-line controller for fishing-nets, the combination, of a drag: a sheave-carrier pivotally attached to said drag to swing laterally outward thereon, and composed of two arms or members one of which has provision for adjustment laterally to and from the other arm or member; a split sheave, the parts of which have independent bearings in the two members of said carrier; mechanism connecting the adjustable member thereof with the fixed member to move the former to and from the latter for the purpose of regulating the width of the opening between the two sheave-sections; and an operating-line attached to such adjusting mechanism to operate the same from above the surface of the water when the controller is resting on the bottom, substantially as described.

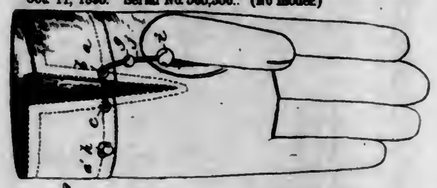
3. In a fishing-net controller, a lead-line formed of a rope having in the middle of its length a portion which is of smaller diameter than the main portion of the line; in combination with a drag and a pair of split sheaves mounted on said drag and through which the two ends of the said lead-line are passed from beneath upward, the sections of said sheaves being set at proper distance apart to let the reduced middle portion of the lead-line slip through and to stop the main portion of the lead-line, substantially as described.

575,361. POCKET-KNIFE. JOHN M. LIVINGSTON, Lorton, Nebr. Filed June 29, 1896. Serial No. 597,291. (No model.)

Claim.—The herein-described self-opening knife which consists of the combination with a handle or casing, of blades pivotally mounted in one end thereof, having cam-shaped bearing-surfaces, which are grooved and formed with depressions and shoulders therein, springs secured along the outer edge of said casing, engaging the cam-shaped portions of said blades, a rock-shaft extending transversely through said casing whose crank portions are adapted to engage the under side of said blades when the latter are in their closed position and a handle on the outer end of said rock-shaft, substantially as, and for the purpose described.

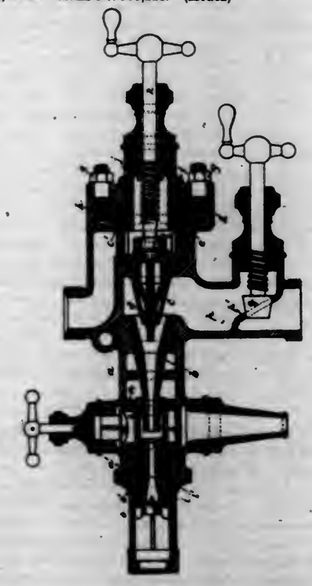


575,362. GLOVE-FASTENER. JUSTUS P. LUTHER and SARAH L. LUTHER, Berlin, Wis., assignors, by mesne assignments, of one-half to Henry D. Slayton, Duane Doty, and Lucius H. Curtis, same place. Filed Oct. 11, 1895. Serial No. 565,356. (No model.)



Claim.—As a new article of manufacture, a glove having its wristlet provided with the eyelets b, c, which are attached to the sides a, a' thereof and arranged closely adjacent to the respective edges of said sides, a, a'; the hook-like stud, h, fastened to one of the sides of the wristlet at a point farther back from the edge than the eyelet c adjacent thereto, said eyelets and hook-like stud arranged in a line extending straight across the wristlet at right angles to the length of the glove; the draw-string having a knotted end, d, secured in the eyelet, c, and passing through eyelet b; the pull-ball, i, attached to the draw-string near its free end, and a stop-ball, g, attached to the draw-string at a point between the eyelet b and the stop-ball and of a size larger than the opening in the stud h, for the purposes described, substantially as set forth.

575,363. INJECTOR. WILLIAM B. MACK, Boston, Mass. Filed Dec. 6, 1895. Serial No. 571,225. (Model.)



socket for a distance outward toward the end of the clip: substantially as set forth.

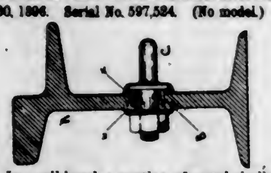
4. In a velocipede-frame, a joint between the cross-tube which affords bearing for the crank-axle and the tubular bars of the frame, which extend endwise toward the side of said cross-tube; comprising, in combination with said tubes, a clip A comprising two tubular sockets adapted to receive the ends of the frame-bars and a transverse seat for the cross-tube, said sockets being cut away at one side between a point a short distance from the seat of the cross-tube and a point a short distance from the end of the socket: substantially as set forth.

5. In a velocipede, in combination with the front fork-arms, the fitting H adapted to form the head of the fork comprising tubular sockets H' proceeding from the head H^3, and adapted to receive the fork-arms respectively, such sockets being cut away at the front, the cut extending on both sides, leaving the clamping-ring h and the tongue H': substantially as set forth.

6. In a velocipede-frame, the joint between the cross-tube B and either side arm of the rear fork, comprising, in combination with said parts, a clip having a tubular socket adapted to receive the end of the fork-arm, and a transverse seat for the cross-tube B, said sockets being partly cut away to diminish their area gradually toward the end to prevent the concentration of the breaking strain, the material removed for that purpose being cut away from the sides, whereby the increase of distance between the crank-arms is prevented: substantially as set forth.

7. In a velocipede-frame, a joint between the cross-tube B and either side of the rear fork, which comprises in combination with said parts a clip having a socket to receive the end of the side arm, and a transverse seat for the cross-tube, the socket being cut away to diminish its area gradually toward the end to prevent concentration of the breaking strain, such diminution being effected by removing material at the side to prevent the increase of the spread of the pedal-cranks; a complete encircling ring D^2 being left at the end to connect the tongues D^3 left standing by cutting away the sides, the tubular socket being notched at the end at two opposite points in line with the ends of said tongues respectively; whereby the encircling ring is prevented from causing concentration of the breaking strain on the fork-arm: substantially as set forth.

575,354. **ELECTRIC RAIL-BOND.** WILLIAM JEBB, Johnstown, Pa., assignor of two-thirds to T. C. Du Pont and Bruce Ford, same place. Filed June 30, 1896. Serial No. 597,584. (No model.)



Claim.—1. In a rail-bond, a portion of metal similar in nature to the metal of the bond-bar, integrally united to the rail and adapted to have the bond-bar attached thereto.

2. In a rail-bond, a portion of metal similar in nature to the metal of the bond-bar integrally united to the rail and having a surface to which to attach the bond.

3. In a rail-bond, a button or plug of metal similar in nature to the metal of the bond-bar inserted in a hole in the rail and integrally united thereto and having means for making electrical contact with the bond.

4. In a rail-bond, a button or plug, B, of metal similar in nature to the metal of the bond-bar inserted in a hole, 1, in the rail, A, and integrally united thereto, and having a hole, 2, in which to fasten the bond, C, into contact.

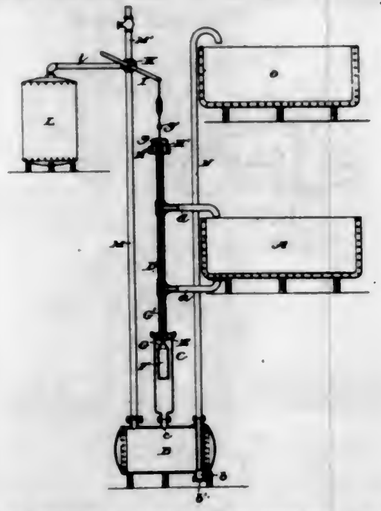
5. The combination of a rail having integrally united thereto a contact-piece of metal similar in nature to the metal of the bond-bar, and a bond-bar attached to said contact-piece.

6. The method of bonding rails by integrally uniting to each rail one or more contact-pieces of a metal similar in nature to the metal of the bond-bar, and connecting the bond-bars to said contact-pieces, substantially as set forth.

575,355. **AUTOMATIC LIQUID-ELEVATING APPARATUS.** WILLIAM M. KIDDIE, Clifton, Ariz. Filed Dec. 23, 1895. Serial No. 573,082. (No model.)

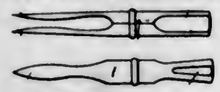
Claim.—1. In an apparatus for pumping liquids, the combination with a closed receiver, of an upright pipe connected therewith and rising above the source of supply and having an open upper end, a water seal or lute at said upper end of the pipe, a branch pipe connecting said upright pipe with the source of supply, and an overflow-pipe leading from said upright pipe back to the supply source from a point below the lute, substantially as described.

2. In an apparatus for pumping liquids, the combination with a closed receiver, of an upright pipe connected therewith and open at its upper end, a source of supply communicating with said pipe, a water seal or lute at the upper end of said pipe, a check-valve controlling the lower end of said pipe, a valve-rod rising through said pipe, and the cover of the lute, a collar on the rod within the cover, and a compressed-air supply for said receiver controlled by said rod, substantially as described.



3. An apparatus for pumping liquids, comprising a closed receiver, a valve-chamber rising from the upper part of the same, an upright supply-pipe rising above the valve-chamber to a point above the source of supply and having its upper end opening upwardly, a conical valve-seat at the lower end of said pipe within the valve-chamber, a conical float-valve in the chamber adapted to close against said seat, a delivery-pipe leading from the lower part of said receiver to an elevated receiving-tank, a source of compressed air, an air-pipe having one end open and the other end entering the top of the receiver, a branch pipe connecting said pipe with the source of compressed air, a three-way cock at the junction of the branch and main air-pipes, controlling the flow of compressed air into the receiver, and its escape through the same pipe into the open air, a rod attached to the float-valve and rising through and above the open supply-pipe to a point of attachment with the three-way cock, and a turnbuckle in said rod to permit relative adjustment of such valve and cock, substantially as described.

575,356. **BLACKHEAD-TWEEZERS.** JOHN KLOSS, Allegheny, Pa. Filed Dec. 14, 1895. Serial No. 572,174. (No model.)



Claim.—The herein-described tweezers consisting of a continuous piece of metal bent upon itself, the rounded end of its handle portion provided with an opening or apertnre in the center, said handle portion having openings and recesses at each side of the central opening and interlocking projections and notches or recesses, and the clasp or band slipped upon said handle portion, holding the sections of the tweezers together, substantially as set forth.

575,357. **EYEGLASS-CASE.** JOHN G. KOENEN, Mount Vernon, N. Y. Filed May 6, 1896. Serial No. 590,500. (No model.)



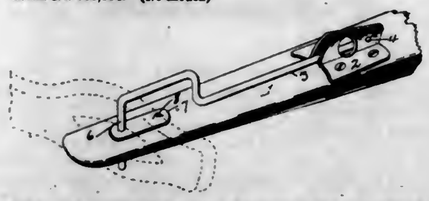
Claim.—As an article of manufacture an eyeglass-case comprising a concaved base-section A, and a convex cover B hinged at one edge to the base-section, said cover B being formed at the center with interior converging cam-surfaces b, b' to act on the eyeglass-guards for registering the glasses in the case and pinching the guards together in the act of closing the case, substantially as described.

575,358. **NUT-LOCK.** FREDERICK G. KOLLENBERG, Owensborough, Ky., assignor of one-half to James H. Hickman, same place. Filed May 22, 1896. Serial No. 592,674. (No model.)



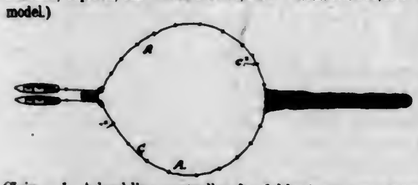
Claim.—The combination with a bolt having screw-threads upon its outer end, and a longitudinal recess in the threaded portion thereof forming a shoulder, of a nut adapted to be screwed upon said bolt, having a recess in its inner surface, an unattached strip of metal fitting within said recess, a spring separate from said strip for normally urging the latter inwardly and a screw for forcing and positively holding said strip inwardly in engagement with the shoulder formed by the recess in said bolt, substantially as and for the purpose described.

575,359. **TRACE-HOLDER.** GODERIED LAUBE, Huron, S. D., assignor of one-half to A. Vandenburg, same place. Filed Sept. 19, 1896. Serial No. 606,331. (No model.)



Claim.—In combination with a singletree, a support secured to the singletree, an arm provided with a loop terminating in a downward extension, a plate secured to the extension and extending inwardly and a spur formed with the plate at the free end, as and for the purpose described.

575,360. **FISHING-NET-CONTROLLING DEVICE.** THOMAS LINDSAY, Capitola, Cal. Filed Feb. 24, 1896. Serial No. 580,492. (No model.)



Claim.—1. A lead-line controller for fishing-nets, comprising a drag and a pair of sheaves attached to one end of the drag by pivoted carriers to swing laterally in a horizontal plane, each sheave being composed of two sections on separate axles, with a clear space between them, and means for adjusting one of such sections to and from the other, substantially as described.

2. In a lead-line controller for fishing-nets, the combination, of a drag; a sheave-carrier pivotally attached to said drag to swing laterally outward thereon, and composed of two arms or members one of which has provision for adjustment laterally to and from the other arm or member; a split sheave, the parts of which have independent bearings in the two members of said carrier; mechanism connecting the adjustable member thereof with the fixed member to move the former to and from the latter for the purpose of regulating the width of the opening between the two sheave-sections; and an operating-line attached to such adjusting mechanism to operate the same from above the surface of the water when the controller is resting on the bottom, substantially as described.

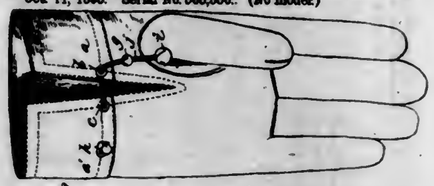
3. In a fishing-net controller, a lead-line formed of a rope having in the middle of its length a portion which is of smaller diameter than the main portion of the line; in combination with a drag and a pair of split sheaves mounted on said drag and through which the two ends of the said lead-line are passed from beneath upward, the sections of said sheaves being set at proper distance apart to let the reduced middle portion of the lead-line slip through and to stop the main portion of the lead-line, substantially as described.

575,361. **POCKET-KNIFE.** JOHN M. LIVINGSTON, Lorton, Nebr. Filed June 29, 1896. Serial No. 597,291. (No model.)

Claim.—The herein-described self-opening knife which consists of the combination with a handle or casing, of blades pivotally mounted in one end thereof, having cam-shaped bearing-surfaces, which are grooved and formed with depressions and shoulders therein, springs secured along the outer edge of said casing, engaging the cam-shaped portions of said blades, a rock-shaft extending transversely through said casing whose crank portions are adapted to engage the under side of said blades when the latter are in their closed position and a handle on the outer end of said rock-shaft, substantially as, and for the purpose described.

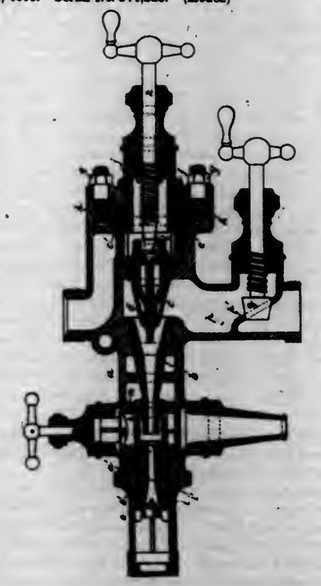


575,362. **GLOVE-FASTENER.** JUSTUS P. LUTHER and SARAH L. LUTHER, Berlin, Wis., assignors, by mesne assignments, of one-half to Henry D. Slayton, Duane Doty, and Lucius H. Curtis, same place. Filed Oct. 11, 1895. Serial No. 565,356. (No model.)



Claim.—As a new article of manufacture, a glove having its wristlet provided with the eyelets b, c, which are attached to the sides a, a' thereof and arranged closely adjacent to the respective edges of said sides, a, a'; the hook-like stud, h, fastened to one of the sides of the wristlet at a point farther back from the edge than the eyelet c adjacent thereto, said eyelets and hook-like stud arranged in a line extending straight across the wristlet at right angles to the length of the glove; the draw-string having a knotted end, d, secured in the eyelet, c, and passing through eyelet b; the pull-ball, i, attached to the draw-string near its free end, and a stop-ball, g, attached to the draw-string at a point between the eyelet b and the stop-ball and of a size larger than the opening in the stud h, for the purposes described, substantially as set forth.

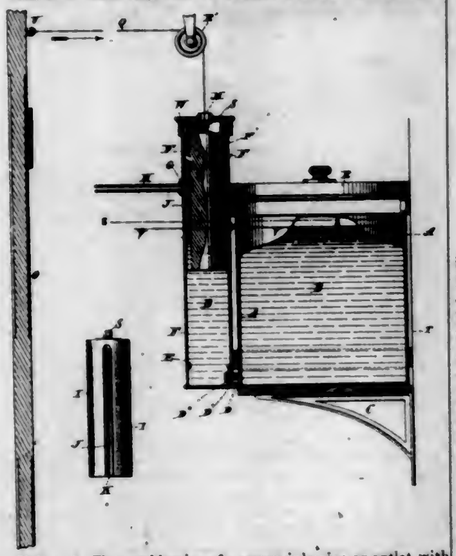
575,363. **INJECTOR.** WILLIAM B. MACK, Boston, Mass. Filed Dec. 6, 1895. Serial No. 571,225. (Model.)



Claim.—1. In an injector, the combination with the casing *a*, of the cone *c* and valve-stand *j* formed integral with each other and having an external shoulder, the gland *f*, and packing *e*, substantially as described.

2. An injector having the water-inlet provided with an inclined partition and valve-seat, and a valve fitted to said seat, the inclination being substantially at an angle of forty-five degrees so as to afford a substantially direct passage for the water, substantially as described.

575,364. DISINFECTING APPARATUS. HERMAN MAYER, New York, N. Y. Filed Aug. 15, 1896. Serial No. 602,839. (No model.)



Claim.—1. The combination of a reservoir having an outlet, with another vessel into which said outlet opens, a weight in said second vessel so arranged that it may be raised and lowered as desired, said weight fitting snugly into said second vessel, and provided with a groove running along the side thereof from the bottom of said weight, almost to the top thereof, an outlet-pipe placed on the side of said vessel, along which said groove runs in said weight and above the highest point of the contents in the reservoir; and a device for maintaining said weight above the said outlet-opening into the second vessel from the said reservoir, substantially as and for the purposes described.

2. A disinfecting device consisting of a reservoir A for containing a disinfectant B, having a pipe D' which said pipe D' leads into a vessel F, a plug E in said vessel F, placed therein at a point higher than the outlet D'', a weight I connecting by means of a connecting medium Q, passing through the eye S of said weight I through the opening M in the cap W of said vessel F, with an opening and closing device O, said weight I fitting snugly in said vessel F, so that its outer periphery will be contiguous with the wall F'' of the vessel F, said weight I having a groove L which runs from the bottom K of the weight I almost to the top of said weight I along one side of the inner wall F' of the vessel F, on which side of said vessel F is an outlet G opening into a discharge-pipe H, said outlet G being made in said vessel F, at a point above the highest point of the contents of the reservoir A, substantially as and for the purposes herein set forth.

3. An apparatus for discharging liquid from the holder of said liquid, consisting of a weight, the outer surface of said weight being contiguous with the wall of the holder of said liquid, said weight being provided with a groove, adapted to register with an outlet in the wall of said holder of said liquid, and said weight being susceptible of being raised and lowered, substantially as and for the purposes herein set forth.

575,365. DISINFECTING APPARATUS. HERMAN MAYER and CHARLES G. F. WAHLE, New York, N. Y. Filed Aug. 24, 1896. Serial No. 603,673. (No model.)

Claim.—1. In a disinfecting and deodorizing apparatus the combination of a reservoir having a discharge-pipe, with a lever pivoted at its fulcrum, carrying on one arm an adjustable weight and on the other arm a receiving-pan, which said receiving-pan when empty, weighs less than said weight, a plug to keep said receiving-pan, when empty, in position beneath said discharge-pipe of said reservoir, and a discharge-pipe below said lever, substantially as and for the purposes herein set forth.



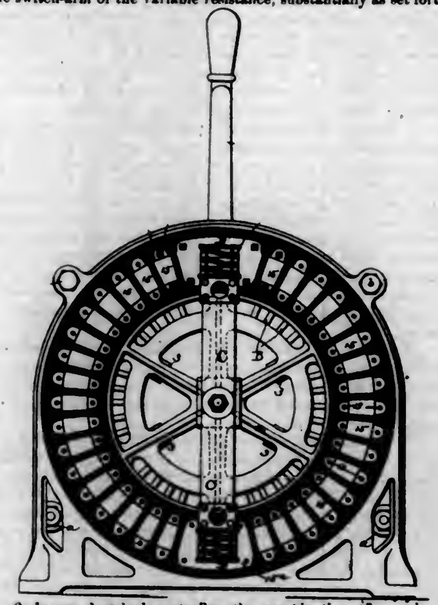
2. In a disinfecting and deodorizing apparatus a vessel B, having a wall consisting of the netted portion C between solid bands B' B'', an opening J' in the bottom T of said vessel B, opening into a discharge-pipe J, in combination with supports K, K', K'', said vessel B having a cover W, in which is an opening W' capable of being closed by the screw I, which screw I has a plug I' fitting the discharge-pipe J, said opening W' entering a chamber V' in said vessel B, which said chamber V' is formed by the wall D consisting of a solid portion D' having a perforated portion D'' near the top thereof, said wall D being placed some distance from the wall of the vessel B, all in combination with an absorbent Y so arranged that it will rest against the netted portion C and the netted portion D'' of the wall D and an absorbent X placed on the bottom T of said chamber V' over the opening J', substantially as and for the purposes described.

3. In a disinfecting and deodorizing apparatus a vessel A, containing a support M to which is attached a lever L' said lever L' carrying on one arm a weight O, adjustable on said arm, and carrying at the other arm a receiver P', said receiver P' weighing less when empty than said weight O and so arranged as to maintain its equilibrium until said receiver P shall hold material sufficient in weight to overbalance said weight O, and provided with an aperture Q opening into a discharge-pipe Q' in the bottom L of said vessel A, an absorbent U placed over the bottom L, an aperture Q of said vessel A, with apertures R, a foraminated cover G, and a fastening device F, substantially as and for the purposes set forth herein.

4. A disinfecting and deodorizing apparatus consisting of a vessel A having a perforated cover G and a fastening device F, a bottom L in which is an aperture Q opening into a discharge-pipe Q' in which vessel A are apertures R, an absorbent U placed over the bottom L of said vessel A covering the aperture Q therein, a support M in said vessel A to which is attached a lever L' pivoted at M', said lever L' carrying on one arm a weight O adjustable thereon and carrying on the other arm a receiver P', said receiver P' weighing, when empty, less than said weight O and so arranged as to maintain its equilibrium until said receiver P shall hold sufficient material in weight to overbalance said weight O, all in combination with an interior vessel B whose wall consists of a netted portion C, between solid bands B' B'', having a bottom T in which is an opening J' discharging into the pipe J, said vessel B being in combination with the supports K, K', K'' and having a cover W in which is an opening W', capable of being closed by a screw I which said screw I has a plug I' so made as to fit the discharge-nozzle J, said opening W' entering a chamber V' in said vessel B, which said vessel B, has a wall D composed of a solid portion D' and a perforated portion D'' near the top of said wall D, said wall D of said vessel B being placed some distance from the wall of the vessel A, all in combination with an absorbent Y so arranged that it will rest against the netted portion C and also the netted portion D'' of the wall D and an absorbent placed over the bottom T, and opening J' in said vessel B substantially as and for the purposes herein set forth.

575,366. ELECTRICAL CONTROLLER. WILLIAM H. MORGAN, Alliance, Ohio. Filed Sept. 4, 1895. Serial No. 561,455. (No model.)

Claim.—1. The combination with a frame, of a variable resistance therein, a shaft mounted in the frame, a switch-arm for said variable resistance secured to said shaft, a series of contacts mounted on the frame, a hub mounted loosely on the shaft, a series of switch-arms radiating from said hub and cooperating with said contacts to produce a reversing-switch, a bifurcated arm projecting from said hub, a pivoted lever, a pin on said lever, cooperating with said bifurcated arm to operate the reversing-switch, a pinion carried by said shaft, and a rack on the lever, cooperating with said pinion to operate the switch-arm of the variable resistance, substantially as set forth.



2. In an electrical controller, the combination of a series of wedges or plates, a hub or projection on each plate or wedge, a binding post or arm on each plate or wedge, a resistance having insulating material interposed between its convolutions, coiled on each hub or projection and electrically connected thereto, the free ends of the coils being connected with the binding posts or arms of the adjacent plates or wedges, and lugs on the plates or wedges bearing against the coils for spacing them apart, substantially as set forth.

3. In an electrical controller, the combination with an open main frame, of an annular open frame within the main frame, and an annular series of resistance-coils spaced apart and supported on said annular open frame, substantially as set forth.

4. In an electrical controller, the combination with a main frame made in two parts and having ventilating-opening therein, of an annular open frame disposed between the parts of the main frame and a series of resistance-coils supported on said annular frame, substantially as set forth.

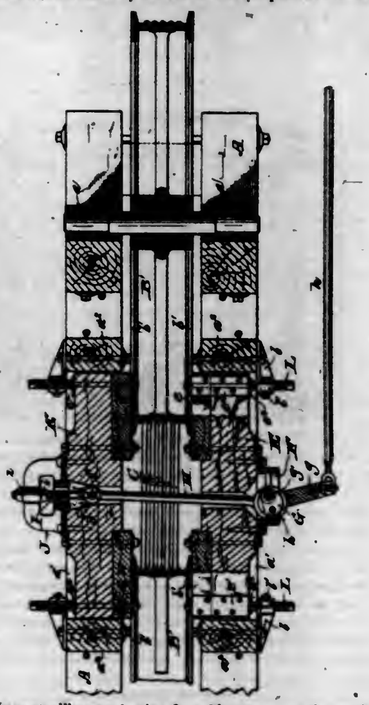
5. In an electrical controller, the combination with a frame, of trays of insulating material mounted thereon, contact-plates located on said trays, a shaft, a hub mounted on the shaft, contact-arms projecting from said hub and cooperating with the contact-plates to produce a reversing-switch, a variable resistance, a switch-arm therefor secured to said shaft, and a lever adapted to turn the shaft and operate the reversing-switch at a single movement in either direction from its normal position, substantially as set forth.

575,367. CONTROLLING MECHANISM FOR CABLE CONVEYERS. ERNST J. MULLER, Butte, Mont. Filed Dec. 2, 1895. Serial No. 570,792. (No model.)

Claim.—1. In controlling mechanism for cable conveyers, the combination with suitable framework of two rotary drums supported therein and brake shoes or blocks arranged in pairs on opposite sides of said drums and a lever connected therewith and arranged to force said shoes against opposite faces of both drums with the same pressure, substantially as and for the purposes set forth.

2. In controlling mechanism for cable conveyers, the combination with suitable framework of two rotary drums supported therein in the same plane with each other and each having a number of separate parallel grooves in its periphery and lateral friction-faces on both sides, two laterally-movable brake-beams arranged on opposite sides of said drums and provided opposite their friction-faces with shoes or blocks which are adapted to exert the same pressure on opposite sides of both drums when brought into engagement therewith, and a lever having suitable operating connections with said brake-beams, substantially as and for the purposes set forth.

3. In controlling mechanism for cable conveyers, the combination with a suitable frame, of two drums around which the cable passes from one to the other, mounted in said frame in the same plane with each other and having lateral friction-faces, two brake-beams loosely held and guided in said frame on opposite sides of said drums and transversely to their axes, means of moving said beams laterally toward and from said drums into and out of engagement with the lateral faces of said drums, and stops for limiting the outward movement of said beams, substantially as and for the purposes set forth.



4. In controlling mechanism for cable conveyers, the combination with a suitable frame, of two drums around which the cable passes from one to the other, mounted in said frame in the same plane with each other and having lateral friction-faces, two brake-beams loosely supported and guided in said frame on opposite sides of said drums transversely to their axes, a lever fulcrumed to one of the brake-beams and connected with the other midway between their friction-faces so as to move them toward and from each other and equalize their pressure on both sides of the drums, and adjustable stops on the frame arranged to limit the outward movement of said beams, substantially as and for the purposes set forth.

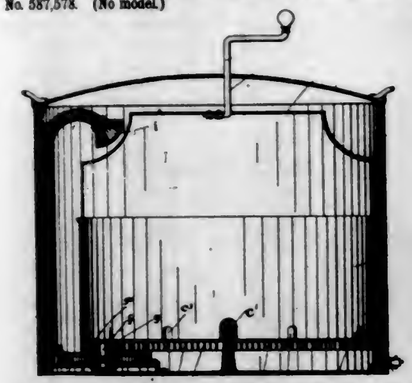
5. In controlling mechanism for cable conveyers, the combination with a suitable frame, of two drums around which the cable passes from one to the other, mounted in said frame in the same plane with each other, two brake-beams loosely held and guided in said frame on opposite sides of said drums, and transversely to their axes, a lever fulcrumed to one of said beams and adjustably connected by a rod with the other between said drums, and adjustable stops on the frame adapted to engage with said beams at or near their outer ends, and to limit their outward movement, substantially as and for the purposes set forth.

6. In controlling mechanism for cable conveyers, the combination with a suitable frame, of two drums around which the cable passes from one to the other, mounted in said frame in the same plane with each other, two brake-beams loosely held and guided in said frame on opposite sides of said drums and transversely to their axes, and provided on their inner sides opposite each other and the rims of the interposed drums, with shoes or blocks adapted to engage with the lateral faces of said rims, a lever fulcrumed to one of said beams and adjustably connected with the other by a rod between said shoes, and adjustable stop-screws threaded in brackets attached to said frame and adapted to limit the outward movement of said beams, substantially as and for the purposes set forth.

7. In controlling mechanism for cable conveyers, the combination with a suitable frame, of two drums around which the cable passes from one to the other, mounted in said frame in the same plane with each other, and having rims with extended lateral faces in planes transverse to the axes of the drums, two brake-beams loosely held and guided in said frame on opposite sides of said drums, transversely

to their axes, and provided with shoes or blocks adapted to engage with the lateral faces of said rims, and a lever connected with said beams between said shoes so as to move them toward and from each other, and to equalize the pressure of the shoes on both sides of the drums, substantially as and for the purposes set forth.

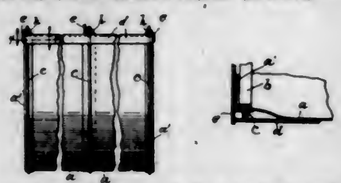
575,368. DISH-CLEANER. JOHN H. NOLEN, Jr., Columbus, Ohio, assignor to Carrie L. Nolen, same place. Filed Apr. 15, 1896. Serial No. 587,578. (No model.)



Claim.—1. In a dish-washing device the combination with an external case, an internal rotatable case therein and a rack carried thereby, of a rotary pump arranged in said external case, said pump being provided with an operating gear-wheel and means whereby said pump is rotated by motion contributed to said gear-wheel from said rack, substantially as and for the purpose specified.

2. In a dish-washing device the combination with an external cylinder, an internal rotatable cylinder or case and a circular rack carried thereby, of a centrifugal rotary pump arranged in the lower portion of said external case, a spout leading therefrom and discharging into said inner case, an operating gear-wheel on said pump and an idle-wheel gearing therewith, said idle-wheel having an engagement with the teeth of said rack, substantially as and for the purpose specified.

575,369. SHEET-METAL TANK. LA VERNE W. NOYES, Chicago, Ill. Filed May 1, 1896. Serial No. 589,844. (No model.)



Claim.—1. In a sheet-metal tank, the combination with a bent or curved sheet, of an end sheet having a flange or rim, said flange and the end of said bent sheet being overlapped, an exterior and an interior band resting upon opposite sides of said overlapped portions and clamping the same together to form a water-tight joint, a cross-piece extending between the upper ends of said bands, the upper edge of said end sheet being arranged to lie against said cross-piece whereby the end piece is reinforced by said cross-piece, substantially as described.

2. In a sheet-metal tank, the combination with bent or curved sheets placed together with the ends overlapping, of an exterior and an interior band resting upon opposite sides of said overlapping ends and clamping the same together to form a water-tight joint, a longitudinal stringer joining the ends of the pairs of bands to impart rigidity to the tank, the upper edges of said curved sheets being arranged to lie against said longitudinal stringer when subjected to pressure to thus reinforce the metal sheets, substantially as described.

3. In a sheet-metal tank, the combination with a bent or curved sheet, of an end sheet having a flange or rim, said flange and the end of said curved sheet being overlapped, an exterior and an interior band resting upon opposite sides of said overlapping portions and clamping the same together to form a water-tight joint, a cross-piece extending between the upper ends of said bands, said cross-piece being in the form of an angle-bar having one flange horizontal and resting above the upper edge of the end piece and the other flange vertical and extending downward to rest upon the exterior of the upper edge of said end piece to support the same, substantially as described.

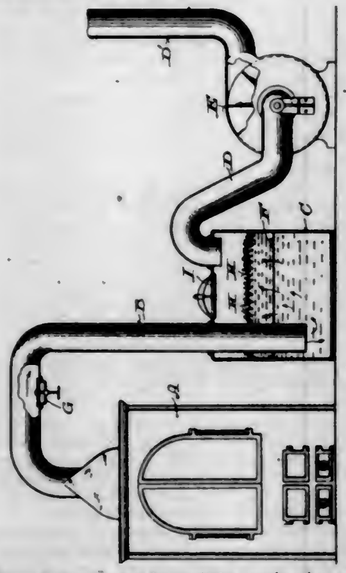
4. In a sheet-metal tank, the combination with bent or curved sheets placed together with the ends overlapping, of an exterior and an interior band resting upon opposite sides of said overlapping ends and clamping the same together to form a water-tight joint, a longitudinal stringer joining the ends of the pairs of bands to impart rigidity to the tank, said stringer being in the form of an angle-bar having one flange horizontal and resting above the upper edges of said curved sheets and the other flange vertical and extending downward to rest upon the exterior of the upper edges of said curved sheets to support the same, substantially as described.

5. In a sheet-metal tank, the combination with the curved or bent sheets overlapping at the ends and the end sheets provided with flanges or rims, said rims and the ends of the adjacent curved sheets overlapping, an exterior and an interior band at each of said joints, said overlapping portions being clamped between said bands to form water-tight joints, cross-pieces joining the ends of said bands, longitudinal stringers joining the ends of the pairs of bands, said cross-pieces and stringers being formed of angle-bars having one flange horizontal and resting above the upper edges of said sheets and the other flange vertical and extending downward to rest upon the exterior of the upper edges of the sheets to support the same, substantially as described.

6. In a sheet-metal tank, the combination with the sheets overlapping at the ends, of the inner bands, the longitudinal stringers resting thereon and having the edges turned down to form stops for the ends of said inner band, the outer bands, and the cross-pieces, substantially as described.

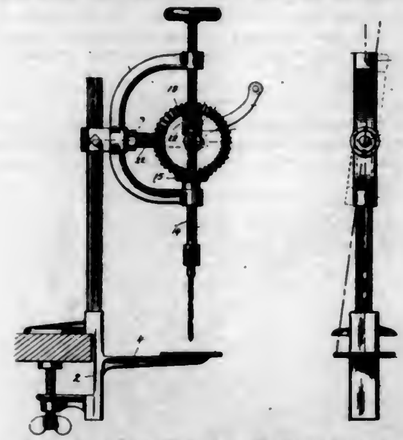
7. In a sheet-metal tank the combination with the overlapping curved sheets *a a*, of the end sheets *a' a'* provided with overlapping rims, the flat-faced inner bands *b*, the round outer bands *c* provided with threaded ends, the longitudinal stringers *d d* formed of angle-bars and having downwardly-extending flanges acting as supports for the sheets and provided with the turned-down edges to act as stops for the inner bands, the angle-bar cross-pieces *e e* at the ends of the tank having downwardly-extending flanges serving as supports for the end sheets, the intermediate cross-pieces *e* having upwardly-extending flanges, and the nuts screwing upon the ends of the outer bands, substantially as described.

575,370. PURIFYING SMOKE. LILLA L. PARKS, executrix of CHARLES R. PARKS, deceased, Watertown, Wis. Filed Aug. 21, 1896. Serial No. 603,051. (No model.)



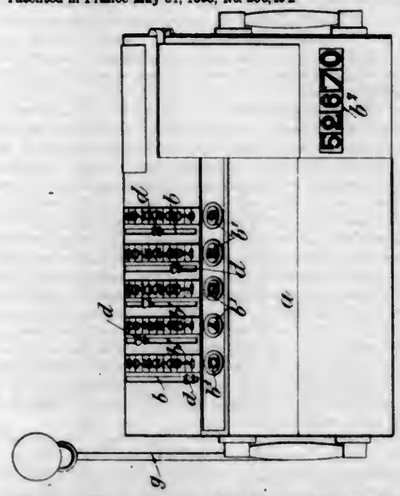
Claim.—In an apparatus for purifying smoke, the combination with a fuel-consuming device, a closed fluid-tank provided with a horizontal screen, and a suction-fan, of a smoke-flue, formed in three sections, of everywhere equal diameter, the first section extending from the fuel-consuming device to and within the fluid-tank below said screen, the second section extending from said fluid-tank to one side of the casing of said suction-fan, and the third section extending from the other side of the casing of said suction-fan and leading to the open air, and the first section having a valve for the admission of outside air thereto, substantially as set forth.

575,371. HAND-DRILL. JACOB PICKEL and WILLIAM SCHNALZ, Baltimore, Md. Filed Apr. 18, 1896. Serial No. 588,190. (No model.)



Claim.—In a device of the character described a standard having formed therewith at its lower end a clamp adapted to be secured to a bench or the like, a bracket provided with a circular plate projecting from the standard, a collar adjustably slidable on the standard, a stud formed on the collar, a yoke adjustably secured thereon, hubs on the yoke, a spindle journaled in one hub, a screw threaded in the other hub, a pinion splined to the spindle, a collar secured to the spindle and swiveled to the screw, a shaft carrying a gear journaled in an arm of the yoke, said gear meshing with the pinion, a crank on the shaft and means for turning the screw as and for the purpose described.

575,372. CASH REGISTER AND RECORDER. HENRY POTTIN, Paris, France. Filed Feb. 4, 1896. Serial No. 578,003. (No model.) Patented in France May 31, 1893; No. 230,494.



Claim.—1. The combination of an operating-lever and a three-armed lever carried by the shaft thereof with two pawls pivoted on one of the said arms of the latter lever, a rotatory stud-plate engaged by one or the other of the said pawls according to the upward or downward motion of the said lever, a spring-drum having its spring attached to the said stud-plate so as to be wound thereby, the main driving-shaft of a cash-register, a cam-plate B' carried thereby, means for enabling the two other arms of the three-armed lever to lock and release at the proper time the said cam-plate and main shaft, gearing whereby the latter shaft is driven, and the usual rack-and-pinion mechanism and intervening connections for exhibiting the figures substantially as set forth.

2. In combination with the operating-lever of a cash-register and the driving-shaft and the actuating-spring of the same, a cam-plate carried by the said driving-shaft; a sector provided with notches, and a pair of levers, acted on by the cams of the said plate, having beveled faces adapted to engage with the said notches to prevent the reverse motion of the said operating-lever, whether rising or falling, until the highest or lowest point is reached, substantially as set forth.

3. In a cash register and recorder a device for recording the sums successively cashed and for stamping bills consisting of a shaft, in combination with a frame oscillating thereon, two rolls of paper f^3 and f^4 arranged respectively for winding and unwinding and mounted in the said frame, a rubber-covered roller f^2, segments f^9 opposite the latter roller and provided with raised numerals for printing, a driving-shaft B carrying cams *j* and K and means between cam K and the unwinding-roller f^4 for feeding the paper, and mechanism operated by the cam *j* to cooperate therewith, the said cam *j* being arranged to act on the said frame and thereby cause the said rubber-covered roller to force the paper against the raised figures on the segments for printing thereon the amount of the payment substantially as set forth.

4. For the purpose of totalizing the sums registered the series of ten-toothed pinions *l* moving intermittently into gear with the teeth *c'* of the registering-disks *f*, the spring-drums *m'* and cams *m* integral with the said pinions respectively, the longitudinal shaft L on which the said drums, cams and pinions are mounted and the necessary actuating and connecting mechanism for the said mechanism, each set of devices *l m m'* being independent of every other substantially as set forth.

5. The bell-crank levers *o* and the springs o^3 acting thereon, in combination with the cams *m* arranged for contact with the said levers, the disks m^6 carrying studs m^5 and m^7 arranged to engage attachments of the said levers, the drums *m'* and pinions *l* arranged in sets with the said cams as described, the shaft L on which the said cams disks and pinions are mounted, the totalizing-disks *f* and actuating and intermediate devices, the disks m^6 being allowed to make in each instance a complete revolution when the spur m^7 is set free by the lever *o* substantially as set forth.

6. In combination with the mechanism for indicating each payment, means for returning the same to its first position, and means for temporarily locking the said indicating mechanism until such return then releasing it for return and finally moving the locking device into loose contact with a part of the indicating mechanism, in order that it may be ready for the next locking operation substantially as set forth.

7. In combination with the mechanism for indicating each payment, a rotary cam provided with three cam-faces, a locking device engaging a part of the said indicating mechanism and intermediate devices whereby the said faces of the cam actuate the said locking device to lock the said indicating mechanism, to release it, and to hold the said device loosely in engagement therewith, not locking the said mechanism, substantially as set forth.

8. In combination with disks *f* carrying the indicating-segments and provided with peripheral teeth c^4, the spring-pressed locking-rollers h^6 adapted to engage the said teeth, the rotating cam H provided with the three cam-faces 1 2 and 3, and intervening mechanism actuated by said cam for holding the said rollers successively in the three positions stated substantially as set forth.

575,373. HOISTING AND CONVEYING APPARATUS. PETER RASCH, Cleveland, Ohio. Filed Apr. 25, 1896. Serial No. 589,000. (No model.)

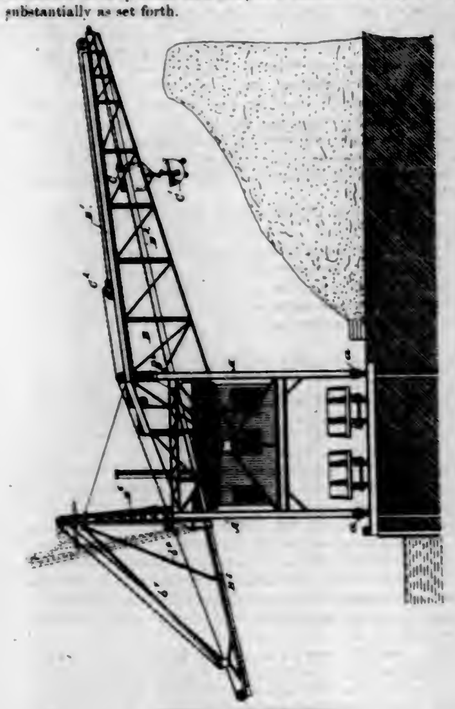
Claim.—1. In hoisting and conveying apparatus, the combination with a pier structure, of two or more bridges solely supported by and adapted to have lateral motion upon said structure, substantially as set forth.

2. In hoisting and conveying apparatus, the combination with a pier structure, of two or more cantaliver bridges solely supported by and separately pivoted upon said structure, whereby they may be swung to vary the distance between their ends, substantially as set forth.

3. In hoisting and conveying apparatus, the combination of a pier structure, two or more cantaliver bridges solely supported by and separately pivoted, and adapted to have independent motion upon said structure, whereby the distance between the supply ends of the bridges may be varied, a driving mechanism supported on said pier structure, and carriers traveling upon said bridges connected to be operated from said driving mechanism, substantially as set forth.

4. In hoisting and conveying apparatus, the combination of a pier having roller-guides at the ends of the cross-beam of the rear upright frame and having two parallel cross-beams at the upper end of the forward upright frame, with a bridge pivoted upon a king-bolt at the middle of the cross-beam of the rear upright frame of the pier, antifriction-rollers interposed between the bridge and the roller-guides, and antifriction-rollers journaled upon the bridge and having play between the parallel cross-beams of the forward upright frame of the pier.

5. In hoisting and conveying apparatus, the combination of a pier structure mounted on wheels and having two upright piers and an engine-house arranged between said piers, two bridges respectively pivoted to swing laterally upon the piers and having pivoted jibs at the forward ends, and carriers traveling upon said bridges and connected to be operated from the power source in the engine-house, substantially as set forth.

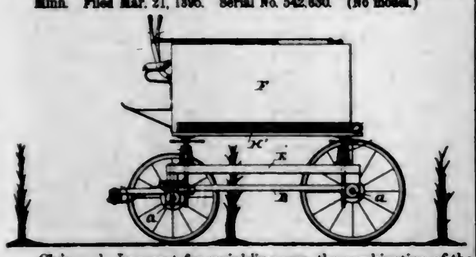


575,374. FENCE-POST. WILLIAM L. RECK, Gettysburg, Ohio. Filed Apr. 4, 1896. Serial No. 586,240. (No model.)



Claim.—The combination of a fence-post having a cross-sectionally angular upper portion for the attachment of fence-runners and a spirally-twisted or auger-shaped lower portion for engagement with the soil, the upper extremity of the twisted portion being adapted to be arranged below the surface of the soil, and a vertical anchor-plate having upstruck angularly-disposed lips adapted to engage and bear against the exterior surfaces of the cross-sectionally angular portion of the post below the surface of the soil, and adapted to rest upon the upper extremity of the twisted or auger portion, whereby both rotary and vertical movement of the post without the previous upward removal and disengagement of the anchor-plate are prevented, substantially as specified.

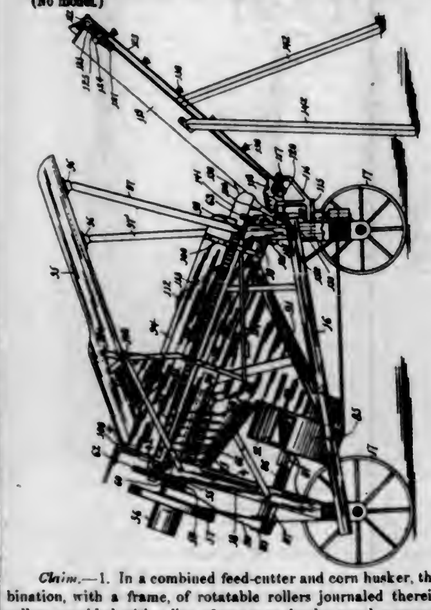
575,375. WATERING-CART. ROSELLA R. REILLY, Newhouse, Minn. Filed Mar. 21, 1896. Serial No. 542,630. (No model.)



Claim.—1. In a cart for sprinkling corn, the combination of the trucks, the planks connecting the trucks, a water-tank, the jack-screws at the ends of each plank to support the tank and adjust it in height, the rear pipes and the side pipes, as set forth.

2. In a cart for sprinkling corn, the combination of the trucks, the planks connecting the trucks, a water-tank, the jack-screws at the ends of each plank to support the tank and adjust it in height, the rear pipe and the side pipes, the pipe-valves and the valve-levers, all substantially as set forth.

575,376. CORN-HUSKER AND FODDER-SHREDDER. ADOLF ROSENTHAL, Milwaukee, Wis. Filed May 11, 1896. Serial No. 591,189. (No model.)



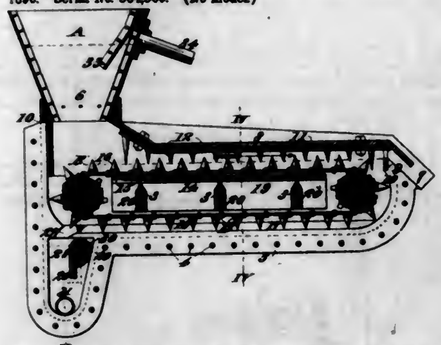
Claim.—1. In a combined feed-cutter and corn husker, the combination, with a frame, of rotatable rollers journaled therein, said rollers provided with a line of transversely-elongated recesses, forming a series of ribs therebetween, said recesses having a raised portion projecting therefrom.

2. In a combined feed-cutter and corn-husker, the combination, with a frame, of a series of rotatable rollers journaled therein, said several rollers provided at their feed ends around a portion of the periphery thereof with radially-projecting teeth, the rows of teeth of each adjacent roller alternating with each other, and the portions of the feed ends not provided with the teeth forming plain or smooth surfaces, and said feed ends of the several rollers having spaces between the adjacent rollers, which spaces gradually narrow inwardly, and the portions of the inner rollers in advance of the feed ends provided with a series of husking-pins, and having a space therebetween sufficient to allow the pins of one inner roller to clear the other inner roller, and the portions of the outer rollers of the series in advance of the feeding ends thereof contacting with the inner rollers, and provided with recesses to receive the husking-pins of said inner rollers, as the series of rollers revolve, and also provided longitudinally along one portion with transversely-elongated recesses, and at diametrically opposite points of said transversely-elongated recesses, and near their feed ends, with a series of fine creases.

3. In a combined feed-cutter and corn-husker, the combination, of a frame, a bracket pivotally secured to the front of the frame, a shaft journaled in said bracket, and having a sprocket-wheel mounted thereon, and formed or provided at one end with a yoke, a conveyer-trough secured at its inner end to the bracket, and adapted to receive material from the frame of the machine, a shaft mounted in bearings at the outer end of the trough, said shaft having a sprocket-wheel mounted thereon, a sprocket-chain connecting the two sprocket-wheels, said chain passing into the conveyer-trough, and adapted to carry the material upwardly therein, a bearing adjustably secured to the frame, a shaft mounted therein, said shaft carrying a gear-wheel, and provided at one end with a yoke pivotally connected to the yoke of the other shaft, and oppositely-rotating gear-wheels, with either one of which the gear of the shaft which is mounted in the adjustable bearing, is adapted to mesh.

4. In a combined feed-cutter and corn-husker, the combination, of a frame, a bracket pivotally secured to the front of the frame, a shaft supported by the arms of said bracket and having a sprocket-wheel mounted thereon, a yoke adapted to be removably secured to either end of this shaft, a supplemental bracket provided with bearings for the shaft, a conveyer-trough secured at its inner end to the bracket, and adapted to receive the material from the frame, a shaft mounted in bearings at the outer end of the trough, said shaft having a sprocket-wheel mounted thereon, a sprocket-chain connecting the two sprocket-wheels, said chain passing into the conveyer-trough, and adapted to convey the material upwardly therein, a bearing adjustably secured to the frame, a shaft mounted in the adjustable bearing, said shaft carrying a gear-wheel, and provided at one end with a yoke adapted to be pivotally connected to the yoke on either end of the other shaft, and oppositely-rotating gears, with either one of which the gear of the shaft which is mounted in the adjustable bearing, is adapted to mesh.

575,377. GOLD-SEPARATOR. ALBION M. ROUSE, Denver, Colo., assignor to the Miners Relief Association, same place. Filed Mar. 23, 1896. Serial No. 584,509. (No model.)

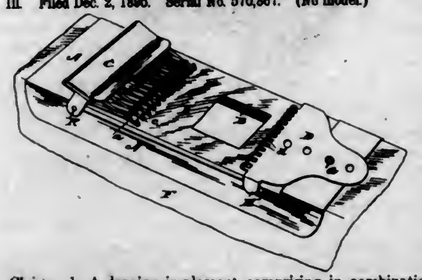


Claim.—1. In a gold-separator, the combination of a tank for containing the separating liquid having a top provided with downwardly-projecting points or bosses and a bottom provided with ribs forming channels, endless chains arranged within the tank and provided with points or bosses arranged to pass between the points or bosses on the top and in the channels on the bottom, and means for moving the chains, a chamber at one end of the tank and communicating through means of an opening with the channels, and a valve for closing said opening, substantially as set forth.

2. In a gold-separator, the combination of a tank containing the separating liquid, having its bottom provided with a series of ribs forming channels, endless chains provided with points working in said tank, said points being adapted to pass through said channels and force the precipitated gold through them, and a chamber in communication with the channels adapted to receive the precipitated gold, and a valve for controlling said communication, substantially as shown and described.

3. In a gold-separator, the combination of a tank having a top with downwardly-projecting points, endless chains located within the tank and provided with points, means for moving the chains, ribs located at the bottom of the tank and providing channels through which said chain-points pass, and strips 19 located within the tank and held a distance apart, substantially as and for the purpose set forth.

575,378. DARNING IMPLEMENT. MARY S. SCHAFER, Chicago, Ill. Filed Dec. 2, 1895. Serial No. 570,867. (No model.)



Claim.—1. A darning implement comprising in combination a table having an opening in its upper surface, a frame fitting over the table having an opening registering with the opening thereof and adapted to clamp the goods upon the table, a set of stationary hooks carried by the frame at one end of the opening therein, a warp-head adjustably mounted on the frame having a set of hooks arranged at the opposite side of said opening and a pivoted plate carrying the third set of hooks adapted to work in the interspaces between the stationary set of hooks and to alternately raise and depress one set of the warp-threads as said plate is rocked upon its pivot, the set of stationary hooks and the set of hooks on the pivoted plate having their points laterally inclined at an angle to their bodies but in opposite directions, substantially as described.

2. A darning implement comprising in combination, a table having an opening in its top, a frame adapted to embrace the sides of the table and to clamp the fabric to be mended thereon and provided with an opening in its upper surface registering with that of the table, an adjustable warp-head carrying a set of hooks at one end of the table-opening, a set of hooks formed integrally with the frame and projecting into the opening thereof and having their points turned laterally at an angle with their bodies and a pivoted plate mounted on the frame and having a series of hooks adapted to work in the interspaces between the said set of stationary hooks and having their points turned laterally at an angle to their bodies but in the opposite direction to the points of the set of stationary hooks with which they coöperate, substantially as and for the purposes described.

3. A darning implement comprising in combination, a table composed of sheet metal having an opening in its body, a skeleton frame also composed of sheet metal and having flanged sides adapted to embrace the sides of the table and having an opening adapted to register with the opening of the table and a series of hooks formed integrally with the frame and projecting into the plane of said opening, a warp-head mounted to slide upon the frame at the opposite end of said opening and having a series of apertures therein, a hook or lug upon said frame adapted to engage the apertures and providing a fastening for the warp-head in the adjusted position and a plate formed of sheet metal doubled upon itself pivoted upon the frame and having integrally formed therewith a series of hooks to engage one set of the warp-threads and adapted by its oscillation to carry said set of warp-threads alternately above and below the warp-threads carried by the stationary hooks, substantially as and for the purposes described.

575,379. BUILDING MATERIAL AND PROCESS OF MAKING SAME. GOTTLOB SCHOPF, Stuttgart, Germany. Filed Mar. 21, 1896. Serial No. 584,330. (No specimens.)

Claim.—1. A process for making artificial building material which consists in adding soluble glass to heated liquid glue and continuing the heating, then adding powdered clay and whiting and continuing the heating of the mixture, then adding an organic substance, and finally molding the composition into the desired form, substantially as described.

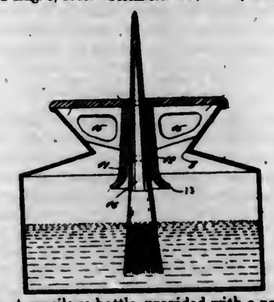
2. A process for making artificial building material which consists in adding soluble glass to heated liquid glue and continuing the heating, then adding powdered clay and whiting and continuing the heating of the mixture, then adding an organic substance, next molding the composition into form, then drying and finally coating the articles with soluble glass and whiting, substantially as described.

3. A composition for building material, consisting of liquid glue, soluble glass, powdered clay, whiting and organic substances, substantially as described.

4. A composition for building material consisting of three parts liquid glue, one part soluble glass, three parts powdered clay, two parts whiting and six to eight parts of organic substances, substantially as described.

5. A composition for building material consisting of a mixture of liquid glue and soluble glass, with clay, whiting, asbestos and organic substances, substantially as described.

575,380. MUCILAGE-BOTTLE. ALFRED SHACKLETON, Merlin, Oreg. Filed Aug. 8, 1896. Serial No. 602,177. (No model.)

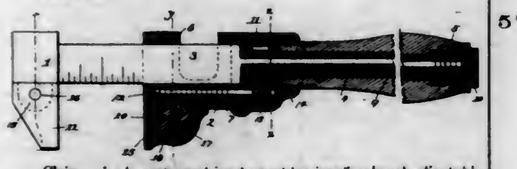


Claim.—1. A mucilage-bottle, provided with a neck the walls of which are outwardly and upwardly inclined, so as to form an annu-

lar inwardly-directed projection at the lower end thereof, a removable cap or cover for said neck, provided with a central depending tubular attachment, and a brush, the handle of which is adapted to be inserted through said tubular attachment, and to be held therein, by friction, said tubular attachment or the central bore thereof, being provided with annular packing-rings of rubber or similar material, by which the handle of the brush is held in position, said cap or cover being provided with radial ribs which are formed thereon, and connect with the central tubular attachment, substantially as shown and described.

2. A mucilage-bottle, provided with a neck, the walls of which are outwardly and upwardly inclined, so as to form an annular inwardly-directed projection at the lower end thereof, and a removable cap or cover for said neck, which is provided centrally with a downwardly-directed tubular extension, through which the handle of a mucilage-brush is adapted to be inserted from the lower end thereof, said tubular extension being also provided with packing rings or bands through which the handle of the brush is inserted, and by means of which it is held in said tubular extension, substantially as shown and described.

575,381. COMPOUND METAL-WORKING TOOL. NATHANIEL E. SMITH, Jersey City, N. J. Filed Aug. 5, 1896. Serial No. 601,787. (No model.)



Claim.—1. A compound implement having fixed and adjustable heads, a reversible attachment arranged on one side of the fixed head and having different-sized thread-cutters in its opposite sides, and means for detachably connecting the reversible attachment and the fixed head; the said reversible attachment being designed to be used in conjunction with an attachment adapted to be arranged on one side after the adjustable head and having one of its ends provided with a thread-cutter corresponding in size to the larger of the thread-cutters of the attachment on the fixed head, and being also designed to be used in conjunction with another attachment adapted to be used on the adjustable head interchangeably with the other attachment and having one of its ends provided with a thread-cutter corresponding in size to the smaller of the thread-cutters of the reversible attachment on the fixed head, substantially as specified.

2. A compound implement having fixed and adjustable heads provided with flat sides and lugs extending from said flat sides and having apertures, removable attachments arranged on the said heads and having flat sides engaging and bearing, throughout their length and width, flat against the flat sides of the heads and also having sockets corresponding in size to and snugly receiving the lugs of said heads and apertures formed in the walls of the sockets in alinement with the apertures of the lugs, and removable pins extending through the apertures of the attachments and the apertures of the lugs, substantially as specified.

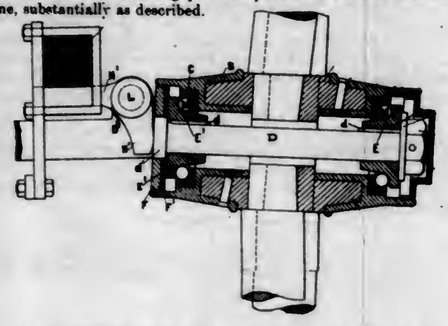
3. The improved compound implement comprising the fixed head having the angular shank 3, and integral cylindrical shank 4, having its outer end threaded and slidably arranged upon the angular shank, 3, and the screw-tapped aperture 7, the revoluble handle arranged upon the cylindrical shank 4, the nut 10, for securing the same on the shank, the socket 11, having the side guards 11^a, the pinion on the toothed wheel 14, within the socket and on the inner end of said handle, the threaded rod 12, arranged within the screw-tapped aperture of the slidable head, the pinion or toothed wheel secured to one end of said rod within the socket and in engagement with the pinion on the handle, and attachments detachably connected to the fixed and adjustable heads, substantially as and for the purpose set forth.

575,382. BALL-BEARING. WILLIAM R. SMITH, London, England. Filed June 9, 1896. Serial No. 594,811. (No model.)

Claim.—1. In a ball-bearing, the combination with the cups, of the slidable cones, and means for causing the weight of the load to exert pressure laterally upon said cones, substantially as described.

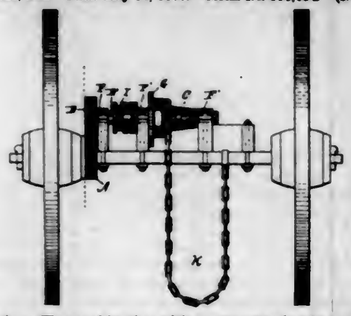
2. In combination with the wheel and axle, the cups, the cones splined upon the axle and the two-armed lever pivoted upon a fixed support and having one end adapted to receive the weight of the load and transmit said weight through the other arm laterally against the cones, substantially as described.

3. In combination with the wheel, the cups therein, the axle, the cones splined thereon, the two-armed lever adapted to receive vertical pressure from the load and transmit it laterally to the movable cones, and a shock-resisting pad interposed between said lever and cone, substantially as described.



4. In combination with a wheel, cups therein, the axle, the cones splined thereon, the two-armed lever adapted to receive vertical pressure from the load and transmit it laterally to the cones and the thrust-plate and buffer interposed between the lever and cones, substantially as described.

575,383. LOG-HOIST FOR LOG-CARTS. THOMAS E. SPOTSWOOD, Fairford, Ala., assignor of one-half to the Union Iron Works Company, Selma, Ala. Filed May 11, 1896. Serial No. 591,154. (No model.)



Claim.—The combination with a cart or truck, of a gear mounted on one of the wheels, a counter-shaft carrying a gear meshing with said gear, a hoisting-drum carrying a ratchet-wheel and a clutch-section, a pawl, a hoisting-chain, and a movable clutch-section on said counter-shaft, substantially as described.

575,384. FOLDING PAPER BOX. ISIDOR TAHL, New York, N. Y. Filed June 17, 1896. Serial No. 595,909. (No model.)



Claim.—1. A four-sided folding box having bottom flaps and lock therefor, top flaps with means for holding the same closed, and end sections having extensions projecting below the box proper and adapted to form supports for the same when set up.

2. A four-sided folding box formed of a main blank having bottom flaps and lock therefor, and top flaps with means for holding the same closed, together with auxiliary pieces attached to the end sections of the main blank and extending below the same and adapted to form supports for the box when it is set up.

3. A four-sided folding box formed of a main blank having bottom flaps and lock therefor, and top flaps with means for holding the same closed, together with auxiliary pieces attached, face to face, to the end sections of the main blank and extending below the same and adapted to form supports for the box when it is set up.

4. A four-sided folding box formed of a main blank having bottom flaps and lock therefor, and top flaps with means for holding the same closed, together with auxiliary pieces attached, face to face, to the end sections of the main blank and extending both below and above the same and adapted to form supports for the box when it is set up.

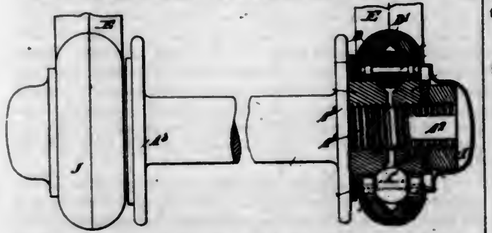
575,385. PENHOLDER. WILLIAM THOMAS, Washington, D. C., assignor to Marvin C. Stone, same place. Filed Sept. 30, 1896. Serial No. 607,457. (No model.)



Claim.—1. As a new article of manufacture, a penholder comprising a paper tube provided with a holder proper for the pen, consisting of a filling of a plastic cement inserted in and completely filling the end of said tube and provided with a socket for the pen.

2. As a new article of manufacture, a combined pen and penholder consisting of a paper tube having inserted in one end a plug or filling of a plastic cement and a pen having its rear end embedded in said filling; whereby on hardening, the pen will be held firmly in place and when removed a perfectly-formed socket will be left.

575,386. JOURNAL-BEARING. WILLIAM J. TRIPP, New York, N. Y. Filed Dec. 21, 1895. Serial No. 572,892. (No model.)



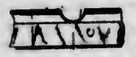
Claim.—1. A journal-bearing comprising two annular bearing-surfaces made V-shaped in cross-section and arranged opposite each other to form an approximately annular path, square in cross-section, balls mounted to travel on said annular bearing-surfaces, axles on which said balls are journaled, and rings arranged parallel one to the other and made in sections flexibly connected one with the other, substantially as shown and described.

2. A journal-bearing, comprising two collars forming between them a V-shaped bearing-surface, an annular series of balls arranged to run in the bearing-surface between the collars, axles on which the balls are journaled, and rings connected to the ends of the axles and extending parallel to each other, said rings being made in sections flexibly connected together, substantially as set forth.

3. In a bearing the combination with a stationary dust-cap held stationary in the framework, of a rotative hub, two inner collars adjustable toward and from each other on the hub and having their adjacent faces inclined to form between them a V-shaped bearing-surface, an outer ring mounted to turn in the said dust-cap and having on its inner face a V-shaped bearing-surface opposite to the first-mentioned bearing-surface, and a series of balls between the said outer ring and the said inner collars and arranged to run in the said V-shaped bearing-surfaces, substantially as shown and described.

4. In a bearing, the combination of two inner collars adjustable toward and from each other and having their adjacent faces inclined to form a V-shaped bearing-surface between them, an outer ring surrounding the collars and having on its inner face a V-shaped bearing-surface corresponding in position to the first-mentioned bearing-surface, a series of balls between the outer ring and the collars and arranged to run in said bearing-surfaces, axles on which the balls are journaled, and rings connected to the opposite ends of the axles and arranged parallel with each other, said rings being made in sections loosely connected at their ends, substantially as set forth.

575,387. LACING-STRIP FOR SHOES, &c. MARY H. BOETTER, Grand Rapids, Mich. Filed Feb. 28, 1896. Serial No. 581,105. (No model.)

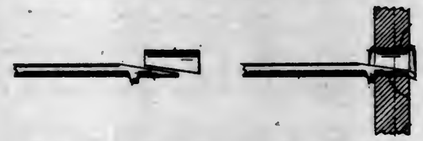


Claim.—1. The combination with a flexible lacing-strip having along one margin segmental notches, of the rigidly-attached beads, or half-eyelets, covering the margins of the notches and the immediately adjacent portions of the edge in which the notches are cut.

2. The combination with the flexible tubular casing provided with the notches along one margin, of the narrow band inserted in the casing between the inner limits of the notches and the opposite side of the casing.

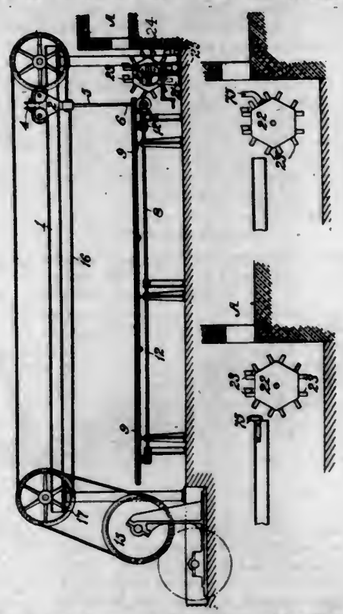
3. The combination with the flat tubular casing having the segmental notches cut in one margin, of the beads covering and uniting the edges formed by such cutting, and the band filling the internal space between said beads and the opposite side of the casing.

575,388. RAIL BOND AND CONNECTION. MENARD K. BOWEN, Chicago, Ill. Filed Oct. 9, 1895. Serial No. 565,134. (No model.)



Claim.—A rail-bond comprising a conductor of relatively small cross-section with one end cut away so as to form an inclined surface, said conductor provided with a lateral projection near the end thereof, a large portion or end normally separate from said bond and provided with inclined surfaces, the two adapted to engage each other when forced together within the walls of the web of the rail so as to form a bond of relatively small cross-section having enlarged ends in contact with the rail, substantially as described.

575,389. DRAW-BENCH FOR MANUFACTURING PIPE. PETER BOYD, Wheeling, W. Va., assignor to the Riverside Iron Works, same place. Filed Apr. 27, 1896. Serial No. 589,201. (No model.)



Claim.—1. In an apparatus for welding and bending pipe, the combination of a die or bell holder, a draft mechanism stationary as against lateral movement, a laterally-movable bench and a draft-bar carried by and movable laterally on the draft mechanism by the movable bench, substantially as set forth.

2. In an apparatus for welding or bending pipe, the combination of a rotatable drum provided with a series of two or more die or bell holders, a draft mechanism and means for rotating the drum, substantially as set forth.

3. In an apparatus for welding or bending pipe, the combination of a rotatable drum provided with a series of two or more die or bell holders, a draft mechanism and means operated by the draft mechanism for rotating the drum, substantially as set forth.

4. In an apparatus for welding or bending pipe, the combination of a draft mechanism stationary as against lateral movement, a laterally-movable bench, a rotatable die or bell holder mounted on the bench and a draft-bar carried by and laterally movable on the draft mechanism, substantially as set forth.

5. In an apparatus for welding or bending pipe, the combination of a draft mechanism stationary as against lateral movement, a laterally-movable bench, a die or bell holder mounted on the bench and

a draft-bar carried by and movable laterally on the draft mechanism by the bench, substantially as set forth.

6. In an apparatus for welding or bending pipe, the combination of a rotatable drum provided with a series of two or more die or bell holders arranged out of line with each other, means for rotating the drum and a draft mechanism, substantially as set forth.

7. In an apparatus for welding or bending pipe, the combination of a bench and mechanism operating automatically to shift the bench laterally, substantially as set forth.

8. In an apparatus for welding or bending pipe, the combination of a bench, mechanism for effecting a predetermined step-by-step lateral movement of the bench in one direction, and an independent mechanism for effecting a continuous movement of the bench laterally in the opposite direction to its original position, substantially as set forth.

9. In an apparatus for welding or bending pipe, the combination of a bench, mechanism for shifting said bench in either direction, mechanism to control said shifting mechanism to effect a predetermined step by-step lateral movement of the bench in one direction, and independent mechanism to control said shifting mechanism to effect a continuous movement of the bench laterally in the opposite direction to its original position, substantially as set forth.

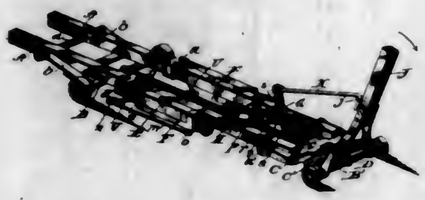
10. In an apparatus for welding and bending pipe, the combination of a bench, mechanism for shifting the bench laterally in either direction, mechanism for actuating the shifting mechanism to effect a predetermined step-by-step movement of the bench in one direction, and an independent mechanism for actuating the shifting mechanism to effect a continuous movement of the bench in the opposite direction to its original position, substantially as set forth.

11. In an apparatus for welding or bending pipe, the combination of a bench, mechanism operating automatically to effect a step-by-step movement of the bench in one direction, and mechanism operating automatically to effect a return movement of the bench, substantially as set forth.

12. In an apparatus for welding or bending pipe, the combination of a bench, mechanism for shifting the bench in one direction, mechanism for shifting the bench in the opposite direction, and means controlled by the movement of the bench for alternately shifting said mechanisms into operation, substantially as set forth.

13. In an apparatus for the manufacture of pipe, the combination of bells or dies, and a gage arranged in the rear of bells or dies, substantially as set forth.

575,890. **STOVE-TRUCK.** CHARLES R. BURNETT, Fairville, N. Y. Filed Apr. 4, 1896. Serial No. 586,154. (No model.)



Claim.—1. In a stove-truck, the combination with a main framework having transverse rods therethrough, links pivoted at one extremity to the rearmost rod, and a rear axle connected to the other extremity of said links and carrying wheels at its ends; of a yoke pivoted on the other rod, a second yoke connected by a fifth-wheel with the first yoke, an axle through the second yoke having wheels at its extremities, a main handle connected with this axle, and a longitudinal rod connecting the two axles, as and for the purpose set forth.

2. In a stove-truck, the combination with a main framework having transverse rods therethrough, links pivoted at one extremity to the rearmost rod, and a rear axle connected to the other extremity of said links and carrying wheels at its ends; of a yoke pivoted on the other rod, a second yoke connected by a fifth-wheel with the first yoke, an axle through the second yoke having wheels at its extremities, a main handle connected with this axle, a longitudinal rod connecting the two axles, a toothed arm rising rigidly from the first yoke and connected with said handle, a cross-rod on the framework, and a link pivoted thereon and carrying a pawl engaging the teeth on said arm, as and for the purpose set forth.

3. In a stove-truck, the combination with a main framework having transverse rods therethrough, a pair of axles having wheels at their extremities, connections whereby said axles turn bodily around said transverse rods, and a longitudinal rod connecting said axles to cause them to move in unison; of a toothed arm rising rigidly from the connection of the front axle, a handle pivoted to this axle and having an eye, a hook linked to the arm and with its hooked end engaging said eye, a cross-rod through the framework, a link pivoted on said rod and spanning such arm, a pawl pivoted in the link with its tip engaging the teeth in such arm, and a spring connecting the other end of the pawl with the link, as and for the purpose set forth.

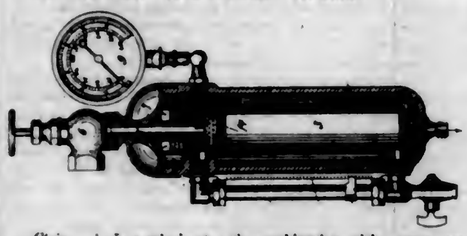
4. In a stove-truck, the combination with a framework, main axles thereunder having wheels at their extremities, and a longitudinally-movable rod connecting said axles in pairs and having oblique braces; of arms pivoted to swing laterally from the main framework, legs hinged beneath such arms and having caster-wheels at their outer extremities, and links connecting said oblique braces with the legs, as and for the purpose set forth.

5. In a stove-truck, the combination with a main framework, two main axles thereunder having wheels at their extremities, connections between said axles and framework whereby the former can be moved bodily under the latter to raise it when desired, an operating-handle connected with one axle, and a link connected with the framework and having a pawl for holding such framework in elevated position; of a longitudinal rod connecting the axles and having oblique braces projecting therefrom, arms pivoted to swing laterally from the main framework, legs hinged beneath such arms and having caster-wheels at their outer extremities, and links connecting said oblique braces with the legs, as and for the purpose set forth.

6. In a stove-truck, the combination with a main framework having transverse rods therethrough, a pair of connected axles having wheels at their extremities, links pivotally connecting one axle with one rod, yokes pivotally connecting the other axle with the other rod, an operating-handle rising from the latter axle, and a toothed arm rising from the yoke and connected with said handle; of a link pivoted on a third rod in the framework and having an eye, a spring-actuated pawl carried by this link and engaging the teeth in said arm, and a wire connected with the pawl and passing through said eye, the wire having an angle in its body, as and for the purpose set forth.

7. In a stove-truck, the combination with a main framework, a yoke pivoted thereto and having an arm rising rigidly from its pivot and provided with teeth, and a main handle for manipulating said yoke and arm; of a link pivoted to the framework and having an eye, a spring-actuated pawl carried by this link and engaging the teeth in said arm, and a wire connected with the pawl and passing through said eye, the wire having an angle in its body, as and for the purpose set forth.

575,891. **SEPARATING-CALORIMETER.** ROLLA C. CARPENTER, Ithaca, N. Y., assignor to Schaffer & Budenberg, New York, N. Y. Filed Feb. 7, 1896. Serial No. 578,321. (No model.)



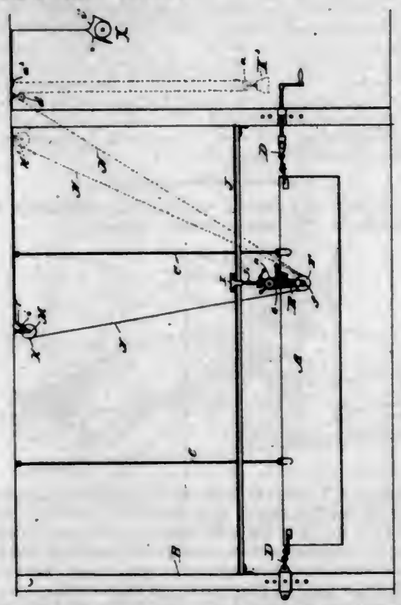
Claim.—1. In a calorimeter, the combination, with a steam-separator, means for collecting the moisture separated, and an orifice through which the dry steam escapes, of a pressure-gage connected with the calorimeter and adapted to indicate the quantity of dry steam flowing through said orifice, substantially as described.

2. In a calorimeter, the combination, with a steam-separator, means for collecting the moisture separated, a steam-jacket surrounding said separator and arranged to receive the dry steam therefrom, and an orifice in said jacket through which the dry steam may escape, of a pressure-gage connected with said jacket, and adapted to indicate the quantity of steam flowing therefrom, substantially as described.

3. In a steam-separator, the combination, with a separating-chamber, open at one end, and a steam-pipe projecting into the open end of said chamber, of a cup fitting into the end of said chamber and inclosing the end of said steam-pipe, having perforations through which moisture may pass into the separating-chamber, and having in its sides projecting burs arranged to catch the moisture thrown to the outside of the current of steam, substantially as described.

4. In a steam-separator, the combination, with a separating-chamber, open at the top, and a steam-pipe projecting downwardly into said chamber, of a cup suspended from the sides of said chamber and surrounding the end of said steam-pipe, having perforations through which moisture may pass into the separating-chamber, and having on its sides projecting burs arranged to catch the moisture thrown to the outside of the ascending current of steam, substantially as described.

575,892. **APPARATUS FOR SEWING CARPETS.** PHILIP DIEHL, Elizabeth, and EDWIN H. BENNETT, Jr., Bayonne, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Filed Mar. 3, 1892. Serial No. 423,637. (No model.)



Claim.—1. The combination with means for supporting long sections of fabrics edgewise vertically, of a traveling sewing-machine adapted to be fed along on said fabrics, and provided with an electric motor operatively connected with the driving-shaft of the said machine, a track or support parallel with the said fabrics, a trolley or carriage traveling on said track or support, an elastic connection between said trolley or carriage and said traveling sewing-machine, a conductor having suitable electrical connections with said motor, and a take-up device to control the slack of said conductor.

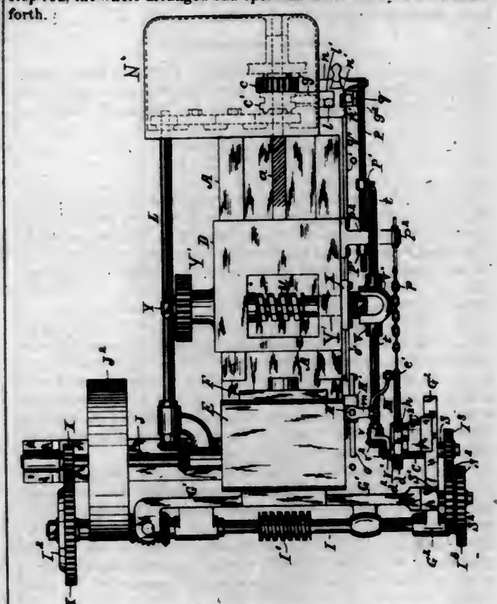
2. The combination with means for supporting long sections of fabrics in an edgewise vertical position, of a traveling sewing-machine provided with a feeding mechanism for moving the same along on said fabric edges, an electric motor forming part of said sewing-machine and operatively connected with the driving-shaft thereof, said motor being mounted at the lower part of the frame of said machine, and thus serving not only as a driving medium therefor, but serving also to counterbalance the same in its vertical position, a flexible conductor having suitable electrical connections with said motor, and a take-up device to control the slack of said conductor and thereby keep the same out of the way of the operator.

575,893. **GEAR-CUTTING MACHINE WITH SAFETY-STOP.** ULRICH EBERHARDT, HENRY E. EBERHARDT, and FRED L. EBERHARDT, Newark, N. J. Filed June 9, 1896. Serial No. 594,827. (No model.)

Claim.—1. In a gear-cutter, the combination, with a cutter-head and reversing-gear having a clutch-shifter, of change-wheels and a stop-disk rotated thereby, and having a circular periphery with notch in the edge, and a pawl suitably connected to the clutch-shifter and provided with a tooth to engage the notch, and adapted to rest upon the circular periphery of the stock-disk, and to thereby hold the clutch-shifter in a neutral position throughout the entire rotation of the disk until the tooth enters such notch, substantially as herein set forth.

2. In a gear-cutter, the combination, with a cutter-head and reversing-gear having a clutch-shifter, of change-wheels and a stop-disk rotated thereby, and having circular periphery with notch in the edge, a pawl suitably connected to the clutch-shifter and provided with a tooth to engage the notch and with the arm *f*, and a cam rotated with the stop-disk and adapted by pressure upon the arm to force the pawl-tooth into the said notch to positively arrest the disk, substantially as set forth

3. In a gear-cutter, the combination, with a cutter-head and reversing-gear having a clutch-shifter, of change-wheels and stop-disk rotated thereby and having circular periphery with notch *d'* in the edge, a pawl with tooth to rest upon the edge of such disk and engage the notch, and a stop-rod controlled by said pawl, and a slide linked to the clutch-shifter and having a projection to engage the stop-rod, the whole arranged and operated substantially as herein set forth.



4. In a gear-cutter, the combination, with a cutter-head and reversing-gear having a clutch-shifter, of the mandrel-head F with change-wheels and stop-disk carried thereby, a vertical stop-rod supported adjacent to the stop-disk, a horizontal slide connected with the clutch-shifter and provided with a projection to engage the stop-rod, a pawl fitted to bear upon the edge of the stop-disk, a loose collar upon the stop-rod and a link to move the same with the pawl, and an adjustable dog upon the stop-rod to contact with the loose collar in various positions of the mandrel-head, substantially as herein set forth.

5. In a gear-cutter, the combination, with a cutter-head and reversing-gear having a clutch-shifter, of the mandrel-head F with change-wheels and stop-disk carried thereby, a vertical stop-rod supported adjacent to the stop-disk, a horizontal slide connected with the clutch-shifter and provided with a projection to engage the stop-rod, a pawl fitted to bear upon the edge of the stop-disk; a loose collar upon the stop-rod, a link to move the same with the pawl, an adjustable dog upon the stop-rod to contact with the loose collar in various positions of the mandrel-head, and a spring applied to the link to balance the same and normally lift the stop-rod, as and for the purpose set forth.

6. In a gear-cutter, the combination, with the bed A, column E, and mandrel-head provided with frame G' carrying the worm-spindle I change-wheels and stop-shaft S, of cutter-head D provided with cutter-spindle Y, and a single hobbing-shaft connected at its opposite ends by suitable gearing to the contiguous ends of the stop-shaft and cutter-spindle, substantially as set forth.

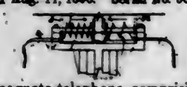
7. In a gear-cutter, the combination, with the bed A, column E, and mandrel-head provided with frame G' carrying the worm-spindle I change-wheels and stop-shaft S, of cutter-head D provided with cutter-spindle Y, and a stud adjacent to the spindle, a gear upon the spindle and an auxiliary gear upon the stud, and a hobbing-shaft connected with the stop-shaft and with the auxiliary gear upon the stud by swivel-bearings and bevel-gears, substantially as herein set forth.

8. In a gear-cutter, the combination, with a cutter-head and reversing-gear having a clutch-shifter, of change-wheels and a stop-disk rotated thereby and having notch in the edge, a pawl suitably connected to the clutch-shifter and provided with a tooth to engage the notch, a detent pivoted adjacent to the pawl and provided with a spring-shank, a connection from the detent to the cutter-head to pull the detent, and a cam rotated with the stop-disk and operating upon such detent to detach it from the pawl before the disk has completed one revolution, substantially as herein set forth.

9. In a gear-cutter, the combination, with a cutter-head and reversing-gear having a clutch-shifter, of change-wheels and a stop-disk rotated thereby and having circular periphery with notch in the edge, a pawl suitably connected to the clutch-shifter and provided with a tooth to engage the notch, a cam-groove rotated with the stop-disk, and a projection from the pawl to engage such groove, the

entire motion of the pawl being effected by such cam, and the clutch being thereby held in a neutral position until the disk is wholly rotated, substantially as herein set forth.

575,394. **MAGNETO-TELEPHONE.** STEPHEN D. FIELD, Stockbridge, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed Aug. 11, 1896. Serial No. 602,387. (No model.)



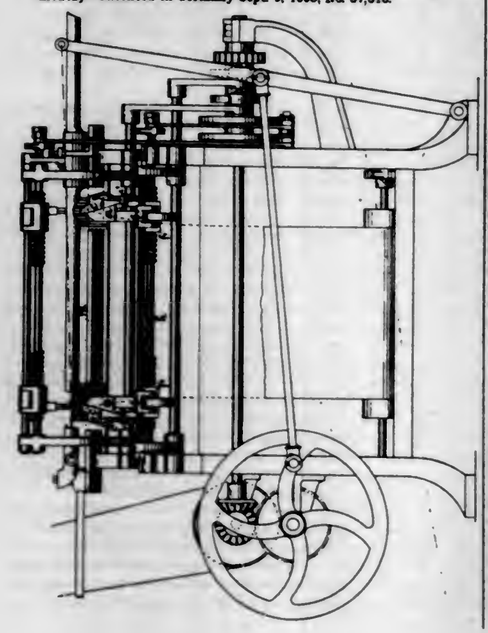
Claim.—1. A magneto-telephone comprising in combination a diaphragm, a magnet, a pole-piece therefor, as described, and two oppositely wound or connected magnetizing or exciting helices of equal magnetizing power, but dissimilar inductance, associated with the said pole-piece, the said helices being in parallel or multiple arc with one another between the instrument-terminals, and adapted thereby to be connected in parallel in the same working circuit.

2. A differential-inductance magneto-telephone having its magnet pole-piece or core associated with two oppositely wound or connected exciting or actuating coils connected in parallel with each other, one of the said coils being formed of a relatively short and coarse wire, and the other of a relatively long and fine wire, and both having such proportions that when the current of the working circuit divides between them, their ampere-turns shall be the same; substantially as and for the purposes specified.

3. The combination in a magneto-telephone, of the magnetized soft-iron core or pole-piece, with two independent electromagnetic helices of equal and opposite magnetizing power, but unequal inductance, surrounding the said core, in such manner as to excite opposite magnetizations therein, under the influence of the said working current, and thereby facilitate the required magnetic changes thereof, the said helices being in separate parallel branches of the same circuit.

4. In a magneto-telephone, the combination substantially as described, of the vibratory diaphragm and inducing-magnet, with a forked pole-piece for the said magnet having an iron bridge-piece uniting its ends, and forming therewith a soft-iron parallelogram, having a central pole projecting close to the diaphragm center, and two oppositely wound or connected exciting or actuating helices in parallel circuit with each other, surrounding the said bridge-piece one on each side of the central polar projection; the said helices being of similar magnetizing power when submitted to the same steady current, but of dissimilar inductance.

575,395. **NARROWING APPARATUS FOR KNITTING-MACHINES.** FRIEDRICH H. GRÄNZ, Chemnitz, Germany, assignor to Friedrich Rabe, same place. Filed Aug. 5, 1896. Serial No. 601,764. (No model.) Patented in Germany Sept. 9, 1895, No. 87,818.

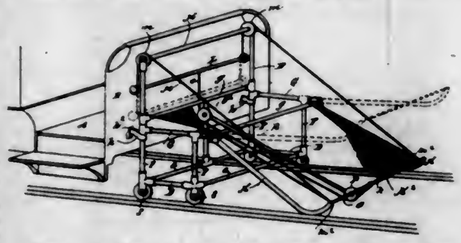


Claim.—1. A needle-operating device for narrowing-machines comprising a plate *a* adapted to push the needles forward and a second plate moving therewith and also movable laterally in relation thereto to engage the heels of the needles, substantially as described.

2. A needle-operating device for narrowing-machines, comprising a pushing-plate and a retracting-plate, said retracting-plate reaching over the needles to engage the heels, substantially as described.

3. A needle-operating device for narrowing-machines, comprising the plate *a* having the edge *b* to engage the needles and the notch or projection *d* adapted to let the latch of one needle remain open and the retracting-plate *e* pivoted to the plate *a*, movable therewith and means for swinging the plate *e* in relation to the needles and to the plate *a*, substantially as described.

575,396. **CAR-FENDER.** THOMAS E. GREGG, Marlborough, N. Y. Filed Dec. 31, 1895. Serial No. 573,886. (No model.)



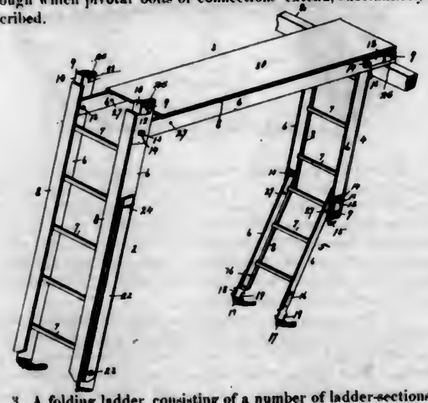
Claim.—1. A fender or guard for a tramway-car comprising a main frame which is adapted to be detachably connected with the end of a car, and to be supported adjacent to, or upon the rails of the track, a supplemental frame pivotally connected with the upper portion of the main frame, and adapted to be projected in front thereof, so that the forward end thereof will rest upon, or adjacent to the rails of the track said main frame being also provided with an upwardly-extended back, and an operating-rod adjacent to said back, each end of which is provided with a cord or chain which extends over pulleys connected with the upwardly-extended back of the main frame, and the opposite ends of which are connected with the forward part of the supplemental frame, and said operating-rod being also provided centrally with another cord or chain which extends beneath a pulley mounted on the rear end of a bar pivoted to the back of the main frame, and beneath another pulley mounted at the forward end of said bar which extends forward of the main frame said cord or chain being then secured to the forward part of the supplemental frame, substantially as shown and described.

2. A fender or guard for a tramway-car comprising a main frame which is adapted to be detachably connected with the end of a car, and to be supported adjacent to, or upon the rails of the track, a supplemental frame pivotally connected with the upper portion of the main frame, and adapted to be projected in front thereof, so that the forward end thereof will rest upon, or adjacent to the rails of the track, said main frame being also provided with an upwardly-extended back, and an operating-rod adjacent to said back, each end of which is provided with a cord or chain which extends over pulleys connected with the upwardly-extended back of the main frame, and the opposite ends of which are connected with the forward part of the supplemental frame, and said operating-rod being also provided centrally with another cord or chain which extends beneath a pulley mounted on the rear end of a bar pivotally connected to the back of the main frame, and beneath another pulley mounted at the end of said bar which extends forward of the main frame, said cord or chain being then secured to the forward part of the supplemental frame, and said main frame being provided with wheels or rollers at each side thereof which are adapted to rest upon the rails of the track, substantially as shown and described.

575,397. **FOLDABLE LADDER.** RYERSON W. HILLIKER, Kansas City, Kans. Filed Mar. 16, 1896. Serial No. 583,389. (No model.)

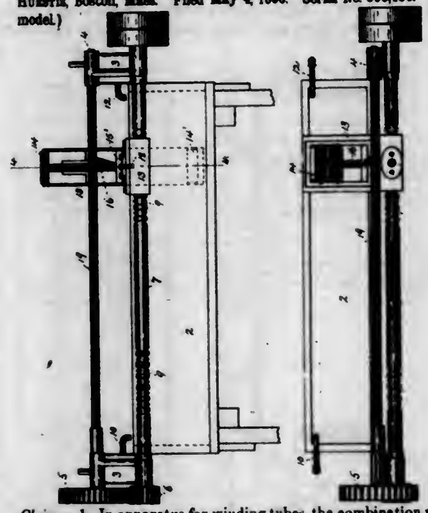
Claim.—1. A folding ladder comprising a number of sections provided at their upper ends with angle-plates which project inwardly beyond the side bars of the sections; said sections diminishing in width from the base or lower section successively to the topmost section, and the lower end of each section being pivotally connected to and within the side bars of the section immediately below, and below the plane of the inwardly-projecting arms of said angle-plates whereby when the ladder is straightened out or unfolded the said angle-plates will provide bearings above their pivots for said sections, substantially as described.

2. A folding ladder comprising a number of sections provided at their upper ends with angle-plates which project inwardly beyond the side bars of the sections; said sections diminishing in width from the base or lower section successively to the topmost section, and the lower ends of each section being pivotally connected to and within the side bars of the section immediately below, and below the plane of said angle-plates, whereby when the ladder is straightened out or unfolded, the said angle-plates will provide bearings above the pivots for said sections, and reinforcing-plates of metal interposed between said angle-plates and the outer sides of the side bars of the sections, through which pivotal bolts or connections extend, substantially as described.



3. A folding ladder, consisting of a number of ladder-sections of successively-diminishing width, and pivoted together so as to be conveniently folded to various positions, and plates secured to the sides of the topmost section and provided with notches 17, 18 and 19, substantially as shown and described.

575,398. **APPARATUS FOR WINDING TIRES.** FREDERICK W. HUESTIS, Boston, Mass. Filed May 4, 1896. Serial No. 590,136. (No model.)



Claim.—1. In apparatus for winding tubes, the combination with a revoluble mandrel and a vat to contain a rubber-bath, of a traveling carriage, a plurality of thread-conveying rolls mounted upon the carriage, and means to cause reciprocations of said carriage, substantially as specified.

2. In apparatus for the manufacture of tires, a revoluble mandrel, and a vat to contain a rubber-bath, combined with a carriage mounted upon and traveling lengthwise of the vat, two sets of thread-conveying rolls affixed to said carriage, one set being immersed in the bath, and mechanism to cause reciprocations of the carriage through the bath, substantially as stated.

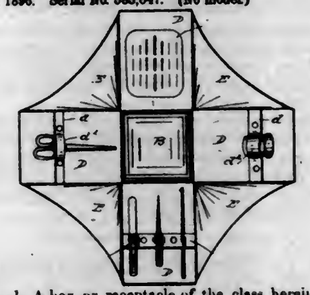
3. In apparatus for the manufacture of tires, a vat to contain a rubber-bath, a carriage mounted upon and adapted to reciprocate lengthwise of said vat, two sets of thread-conveying rolls, a receiving-comb, a delivery-comb, and a revoluble mandrel about which the threads are wrapped, substantially as explained.

4. In combination with a vat adapted to contain a rubber-bath, means to regulate the consistency of said bath, and a revoluble mandrel lengthwise of said bath, a reciprocating carriage adapted to travel in part through the bath, a plurality of thread-conveying rolls mounted on the carriage, a spirally-grooved rotating shaft to actuate said carriage, and interconnecting mechanism from the carriage to the shaft, substantially as set forth.

5. In apparatus for the manufacture of tires the combination with a mandrel, a vat for a rubber-bath, a carriage traveling on the vat, and two sets of thread-conveying rolls mounted on the carriage, of a receiving-comb, a swiveled delivery-comb, both affixed upon the carriage, a spirally-grooved carriage-actuating shaft, and mechanism to rotate the shaft and likewise the mandrel, substantially as described.

6. In apparatus for winding rubber tubes, a revoluble mandrel, a vat to contain a rubber-bath, a carriage mounted upon and reciprocating within the vat, a plurality of thread-conveying rolls attached to said carriage, combined with a receiving-comb, a delivery-comb, a spirally-grooved shaft, and mechanism to cause the shaft and mandrel to revolve at different rates of speed whereby the threads are laid obliquely about the mandrel, as set forth and specified.

575,399. **BOX.** WLADYSLAUS JERCHER, Brooklyn, N. Y. Filed Mar. 27, 1896. Serial No. 585,047. (No model.)

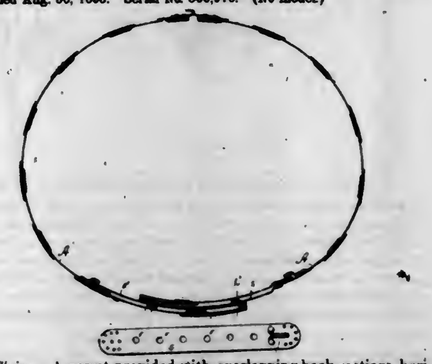


Claim.—1. A box or receptacle of the class herein described, comprising a base, a plurality of pivoted or hinged plates connected with the top thereof, and adapted to be folded together so as to inclose a space designed to receive various articles, said plates being connected by flexible corner-pieces, and a cap or cover which is adapted to be placed thereover, when the plates are folded, substantially as shown and described.

2. A work-case, comprising a bottom, or base, having a central cushion formed thereon, which is rectangular in form, side plates hinged to, or flexibly connected therewith, at the base of said cushion, and adapted to be folded by flexible corner-pieces, and a removable cap or cover, which is adapted to be placed over said side plates, when so folded, substantially as shown and described.

3. A work-case, comprising a bottom, or base, having a central cushion formed thereon, which is rectangular in form, side plates hinged to, or flexibly connected therewith, at the base of said cushion, and adapted to be folded upwardly, said side plates being connected by flexible corner-pieces, and a removable cap or cover, which is adapted to be placed over said side plates, when so folded, and each of said side plates being provided with means for holding various articles, such as scissors, thimbles, needles, and the like, substantially as shown and described.

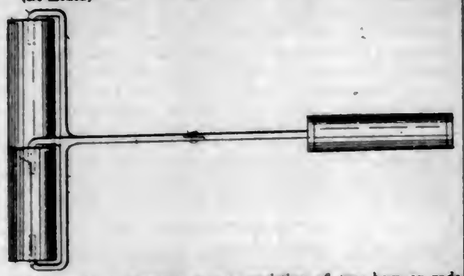
575,400. **CORSET.** WILHELM LECKEBUSCH, Dusseldorf, Germany. Filed Aug. 30, 1895. Serial No. 560,976. (No model.)



Claim.—A corset provided with overlapping back sections, horizontal stays secured to the outer side of the inner back section, hori-

zontal stays secured to the inner side of the outer back section, and fastening devices for connecting the stays, substantially as specified.

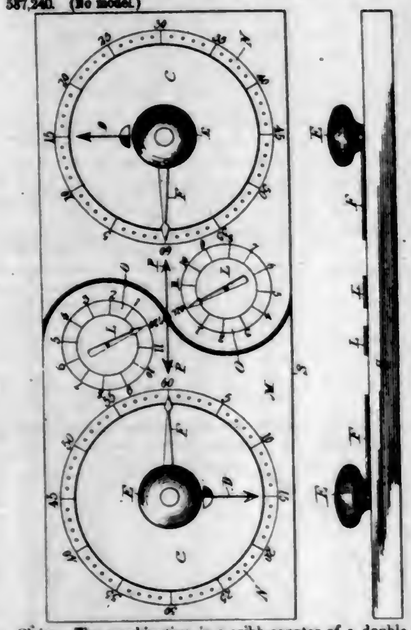
575,401. TROUSERS-CREASER. LEO LOEBENBERG and DANIEL H. MORRIS, New York, N. Y. Filed Oct. 2, 1895. Serial No. 564,414. (No model.)



Claim.—1. A trousers-creaser consisting of two bars or rods crossed and pivoted together at about their centers, each provided with a handle on one end and with a smooth cylindrical roller on the other end, one of said rollers being longer than the other and both being devoid of gearing attachments, substantially as herein shown and described.

2. A trousers-creaser, consisting of two pivoted bars having curved central portions, one end of said bars being provided with cylindrical handles of non-conducting material, the outer end of each of said bars being provided with a yoke portion in which is revolubly mounted a cylindrical roller, one of which is shorter than the other, substantially as and for the purpose set forth.

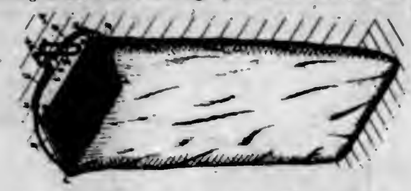
575,402. CRIBB-COUNTER. WILLIAM H. MARTIN, National Military Home, Los Angeles County, Cal. Filed Apr. 11, 1896. Serial No. 587,240. (No model.)



Claim.—The combination in a cribb-counter of a double set of ratchet-wheels A each having a tooth B spur-wheels K carrying indicators L, actuated by said teeth, secured wheel-covers C having painted indicators D, knobs E for operating said covers, stems X carrying counting-indicators F, dogs G driving said ratchets A, pawls I carrying hammers, gongs J adapted to be struck by said hammers, all inclosed in a case having a cover M with dials thereon coöperating with indicators D, F and L all substantially as described.

575,403. BAG-HOLDER. MARTIN W. MORTON, Kalamazoo, Mich. Filed Feb. 21, 1896. Serial No. 580,189. (No model.)

Claim.—1. In a bag-holder, the combination of the extended spring-wire bows, B, B, with downwardly-pointing hooks, *r*, *r*, formed at the outer ends and looped hook, D, formed at the center; shorter bows, C, C, coiled around the shank of the hook, D, at the center and extended along said bows, B, and coiled around the same at *u*, and extended outwardly and forwardly and formed into downwardly-pointing hooks, *n*, *n*, all coacting together substantially as described.

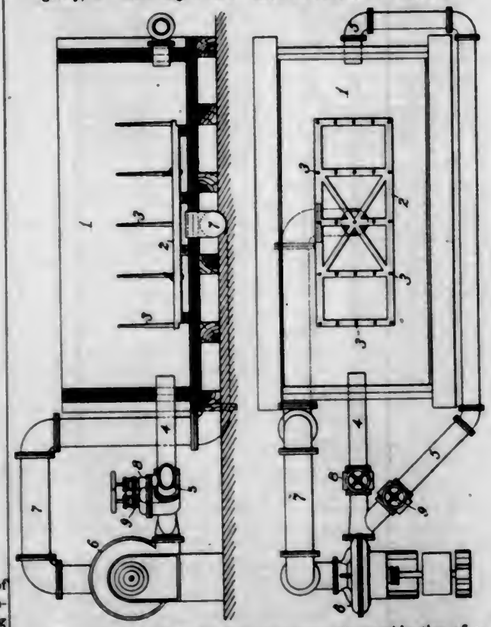


2. In a bag-holder, the combination of the extended spring-wire bows, B, B, with hooks, *r*, *r*, formed at the outer ends and looped hook, D, formed at the center; loops, B', B', formed in said bows, B, B to engage the handles of a truck; shorter bows, C, C, coiled around the shank of the hook, D, at the center and extended along said bows, B, and coiled around the same at *u* and extended outwardly and forwardly and formed into hooks, *n*, *n*, all coacting together substantially as described.

3. The combination of spring-bows, B, B, the outer ends of which are adapted to engage the inside of a sack; and shorter bows, C, C, extending parallel with the inner portions of said bows, B, B, with hooks formed thereon which extend downwardly and outwardly to engage a sack and hold it in place; and suitable means of supporting the double spring-bows together, as specified.

4. A bag-holder, formed with a central hook for supporting the same; doubled spring-wires toward the center thereof coupled together with downwardly and outwardly projecting prongs at the ends of the spring-wires to support a bag by projecting downwardly and flaringly into the month thereof, as specified.

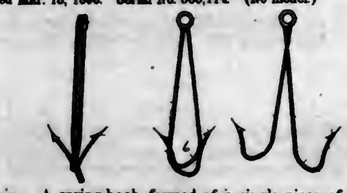
575,404. PICKLING APPARATUS. GEORGE G. MCMURTRY, Allegheny, Pa. Filed Aug. 1, 1896. Serial No. 601,313. (No model.)



Claim.—1. In a sheet-pickling apparatus, the combination of a tank or vat, a pump having supply and discharge pipes so connected to the tank or vat as to produce a movement of liquid therethrough and means for supporting the sheets in a vertical position parallel to the line of movement of the liquid through the tank, substantially as set forth.

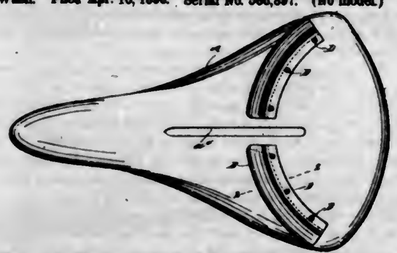
2. In a sheet-pickling apparatus, the combination of a tank having two supply-pipes connected with opposite ends of the tanks, a discharge-pipe connected to the tank, a pump connected to the supply and discharge pipes, valves arranged in the supply-pipes and means for supporting the sheets in the tank in a vertical position parallel with the line of flow of the liquid through the tank, substantially as set forth.

575,405. SPRING FISH-HOOK. BERT W. PUNCHES, Toledo, Ohio. Filed Mar. 13, 1896. Serial No. 583,114. (No model.)



Claim.—A spring-hook formed of a single piece of wire with body portions of different lengths, each end of each body portion being bent inwardly toward each other to form hooks, and bent outwardly upon each side to form connecting portions, whereby the body portions may be interlocked by engagement with each other, due to the pressure exerted by the inherent spring of the wire and separated by the interposition of an object between the curvatures of the hooks.

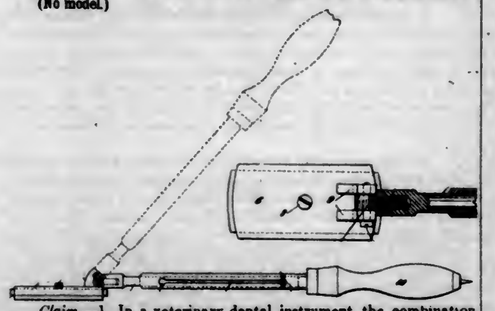
575,406. BICYCLE-SEAT. CHARLES R. WHEELAND, Seattle, Wash. Filed Apr. 10, 1896. Serial No. 586,897. (No model.)



Claim.—1. The combination with a bicycle-seat of the usual form, of segmentally-curved cushions or supports which are secured to the top thereof, at each side, and the convex surfaces of which are directed forwardly, substantially as shown and described.

2. The combination with a bicycle-seat as A, which is of the usual form, and provided with a central longitudinal slot or opening, of two segmentally-curved cushions which are connected therewith at each side of said slot, the convex surface of the cushions being directed forwardly, substantially as shown and described.

575,407. VETERINARY DENTAL FILE-CARRIER. LOUIS WIESCHING, New York, N. Y. Filed July 28, 1896. Serial No. 600,799. (No model.)



Claim.—1. In a veterinary dental instrument, the combination with a suitable casing adapted to receive a tool, and provided with jaws as 9, on the back thereof, of a handle provided with a tubular sleeve which is mounted on a shaft provided with a tubular head, said tubular head being pivotally connected with said jaws, substantially as shown and described.

2. In a veterinary dental instrument, the combination with a suitable casing adapted to receive a tool, and provided with jaws as 9, which are formed on the back thereof, of a handle provided with a tubular sleeve which is mounted on a shaft provided with a tubular head, said tubular head being pivotally connected with said jaws, by means of a screw-threaded shaft provided with a head which is pivoted within said jaws, substantially as shown and described.

3. In a veterinary dental instrument, the combination with a suitable casing, in which is mounted a file, and which is provided with jaws formed thereon, of a handle provided with a tubular sleeve which is mounted in a shaft provided with a tubular head, said tubular head being pivotally connected with said jaws by means of a screw, the head of which is pivoted between said jaws, said sleeve being longitudinally adjustable on said shaft, and said handle being adapted to be held in a horizontal position with reference to said casing or at an angle thereto, substantially as shown and described.

4. The herein-described veterinary dental instrument, which consists of a suitable casing adapted to receive a suitable tool, and provided at one end with jaws between which the handle is pivoted, said handle consisting of a shaft provided with a tubular head, the central bore of which is screw-threaded, and adapted to receive a screw, the head of which is pivoted between said jaws, substantially as shown and described.

575,408. DRAWING-PEN. FERDINAND A. ALTENDER, Philadelphia, Pa. Filed Nov. 21, 1896. Serial No. 612,922. (No model.)

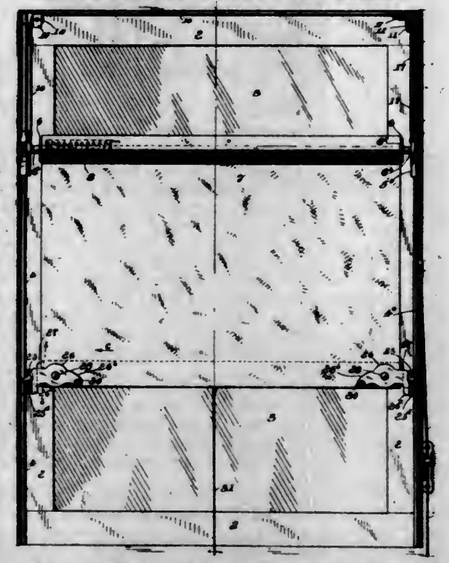


Claim.—1. A drawing pen in which are embodied two blades and an adjusting screw threading into one of said blades, and provided with a turning head, and with a stop upon its shank, which stop, in the application of the screw to the blades, is intermediate of said blades,—substantially as and for the purpose set forth.

2. A drawing pen in which are embodied a fixed blade, a movable blade, and an adjusting screw threading into one of said blades, and provided with a turning head, and with a stop upon its shank which stop, in the application of the screw to the blades, is intermediate of said blades,—substantially as and for the purpose set forth.

3. In a drawing pen, in combination with the blades, an adjusting screw provided with a thread which engages with a threaded aperture within one of the blades, and which is provided with a turning head located beyond the other of said blades, and with a stop or lug intermediate of said blades,—substantially as and for the purpose set forth.

575,409. CURTAIN-FIXTURE. FRED H. BASSETT, Waterbury Conn. Filed Oct. 28, 1895. Serial No. 567,053. (No model.)

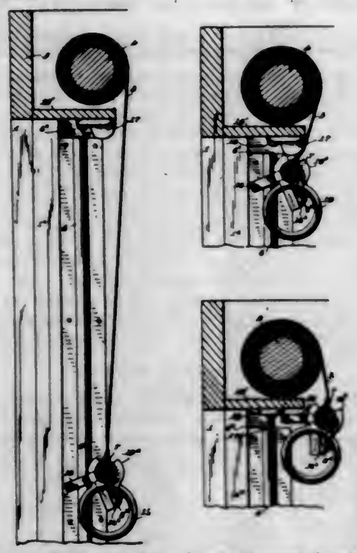


Claim.—1. The combination with the bottom slat of a window-curtain of vertical side guide-rods attached to the sides of the window-casing, clutches engaging therewith, a trip-plate on each end of said slat, said clutches independently journaled to said plates, means on said plates, so that, when the lower edge of said slat is laterally tilted, toward the clutches, said clutches will release their grip on the guide-rods, by reason of the trip on said plates engaging therewith, so that, the lower end of the curtain will be drawn up by the action of the spring in the curtain-roller, and when the said slat is released it will assume its normal position and the clutches will drop by their own weight and reëngage with the guide-rods, as described.

2. In a curtain-fixture, carrying a pawlless spring-roller and side guide-rods, the combination, with the lower slat and guide-rods, of a clutch adapted to engage said rods, a tripping device attached to such lower slat and engaging with said clutch so as to release its hold on the guide-rods and thereby bring the lower end of the curtain under the influence of the roller-spring, substantially as set forth.

3. The combination, in a curtain-fixture, having a vertically-movable curtain-roller and supports therefor, of cord-pulleys located at the upper and opposite corners of the window-casing, said pulleys supported in brackets made from a single piece of sheet metal and bent in the form substantially as shown so that, one of said brackets will support a vertical and a horizontal pulley so as to carry the overhead, or horizontal, cord close to the upper surface of the casing and to the vertical pulley in the opposite corner thereof, substantially as set forth.

575,410. CURTAIN-FIXTURE FOR CAR-WINDOWS. FRED H. BASSETT, Waterbury, Conn. Filed Nov. 1, 1895. Serial No. 567,662. (No model.)



Claim.—1. In a curtain-fixture, of the character described, the combination with the curtain—whose roll is journaled at the upper part of the casing—of an adjustable stop, a support therefor, said stop adapted to limit the upward movement of the curtain, when desired to retain it in its normal operative position, or adjusted so as to permit a temporary removal of the same, for the purpose set forth.

2. In a curtain-fixture whose roll is journaled at the upper part of the casing and carrying a curtain whose lower free end is maintained in its vertical position by suitable side guides located along the side uprights of the casing, and adapted to sustain such curtain in any position within its vertical range, of a stop adapted to limit the upward movement of said curtain, in its normal operative position, or adjusted so as to permit a temporary removal of such curtain, for the purpose specified.

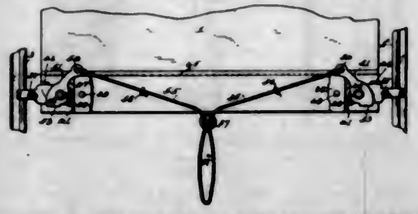
3. The herein-described curtain-fixture, comprising in combination, a curtain-roll carrying a curtain, said roll journaled at the upper part of the casing, side guide-rods, clutches, and trips, as shown, an adjustable stop to limit the upward movement of the curtain, or be adjusted to temporarily release the said curtain from its guide-rods, for the purpose set forth.

4. The herein-described curtain-fixture, comprising in combination, a curtain-roll journaled at the upper part of the casing, the free end of the curtain carrying trips and clutches to engage the side guide-rods, said rods shortened sufficient to permit the disengagement of the clutches, temporarily, therefrom, combined with a stop adapted to limit the upward movement of the curtain, or adjusted so as to permit the curtain to extend its upward travel sufficient to disengage the clutches from the guide-rods, as described.

5. In a curtain-fixture, of the character described, comprising in combination, the tubular curtain-rod, slotted ends therefor, a trip-plate adapted to enter said rod and slots to prevent rotation; one of said trip-plates made longitudinally adjustable to accommodate windows of different widths, and means connected with said trip-plates for locating the shade in any position within the limit of its travel, substantially as shown.

6. The combination with the curtain-rod, of the trip or bearing plates, one in each end thereof, a slot in the end of such rod to admit such plates, the end of the rod having a step face so as to give a better support for the bearing-plate, in the longitudinal adjustment, a tightening-screw to exert a transverse pressure on said bearing-plate so as to secure it in any of its adjusted positions, substantially as set forth.

575,411. CURTAIN-FIXTURE. FRED H. BASSETT, Saranac Lake, N. Y. Filed June 15, 1896. Serial No. 595,530. (No model.)



Claim.—1. In a curtain-fixture, of the character described, having cord-roller brackets located at each upper corner of the casing, said brackets made from the same sheet-metal blank and bent in the forms as shown, viz: the part *c* folded upon the part *g* to form the supporting-floor, the parts *c* and *d* bent at right angles thereto to form the vertical supporting-walls for the pulleys, the part *g* having the hole 36 to embrace the side guide-rod, and bent at right angles to the said vertical walls and equal to the overhang of the part *f* substantially as set forth.

2. The combination, in a curtain-fixture, having a pawlless spring-roller and side guide-rods, of clutches connected to the lower curtain-slat and adapted to engage with such rods, said clutches pivotally supported on such slat and adapted to have both a longitudinal and a radial movement on their supports to accommodate for different widths of casings, and to engage the guide-rods, trips, and means whereby such trips are caused to engage such clutches to release their grip on the guide-rods so as to bring the lower part of the curtain under the control of the roller-spring, a stop to limit the upward movement of such clutches so that the openings therein will slide freely over such rods, and when said trips are released, they will, together with the clutches, fall of their own gravity and such clutches reengage with the guide-rods, as described and set forth.

3. The combination, in a curtain-fixture, having a pawlless spring-roller and side guide-rods of clutches on the lower curtain-slat adapted to engage such rods in the manner substantially as shown, a base-piece on which such clutches are pivotally supported and adapted to have both a horizontal and a radial movement thereon, for the purpose described, trips and means for operating them, said trips mounted on the pivotal support of said clutches, means on said trips for engaging said clutches whereby said clutches are disengaged from the guide-rods, stops on the base-pieces for limiting the upward movement of such clutches so as to permit of their free movement over the guide-rods, as set forth.

4. The combination, in a curtain-fixture, having a pawlless spring-roller and side guide-rods, of clutches to engage such rods, said clutches pivotally supported on the curtain-slat, and having a longitudinal and a radial movement on such supports, for the purpose described, trips also mounted on the pivotal supports of such clutches, an operating-cord attached to said trips, said cord brought to the central portion of the curtain-slat and depending therefrom, for the purpose, as set forth.

5. The combination, in a curtain-roller, of the character described, with the curtain-roller and an internal spring-rod carrying a tension-spring, of an end plate made of a single piece of metal anchored in the end of said roller, means on said plate to secure the free end of the tension-spring, a cup-shaped cap embracing the end of said roller and spring-plate, a central bearing therein for the spring-rod, and also to receive the end thrust thereof, an end bearing-support for the curtain-roller, a laterally-projecting winding-arm on such end support whereby the said tension-spring is wound, a supporting-bearing in said cup-shaped cap for the shank of the said end support, as described and for the purpose set forth.

575,412. SHOESTRING-FASTENER. JOHN M. BLOOM, Butte, Mont. Filed May 25, 1896. Serial No. 592,943. (No model.)

Claim.—1. In a shoestring-fastener, the combination with upper and lower clamping members, of spring-arms secured to one of the members and adapted to grasp the shoestrings, and means for holding said members together, substantially as described.

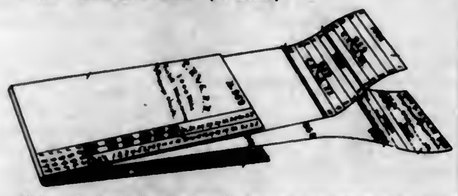
2. In a shoestring-fastener, the combination with upper and lower clamping members, of a coil-spring secured to one of the members and adapted to grasp the shoe-strings between its spirals, and means for holding the members together, substantially as described.



3. In a shoestring-fastener, the combination with a lower member, and an open coil-spring secured thereto, and adapted to pinch the shoestrings between its coils of an upper member pivoted to the lower member and provided with an opening through which said coil-spring is adapted to pass when the upper member is clamped down on the lower members, and catch mechanism for holding the members together, substantially as described.

4. In a shoestring-fastener, the combination with upper and lower members pivoted together, of a cleat secured to one of the members, spring-arms connected to one of the members, both the cleat and the spring arms being adapted to receive the shoestrings, and mechanism for holding the members locked together, substantially as described.

575,413. RAILROAD PASSENGER-TICKET AND BAGGAGE-CHECK COMBINED. EDMUND J. BOWMAN, Wichita, Kans. Filed Oct. 7, 1895. Serial No. 564,858. (No model.)

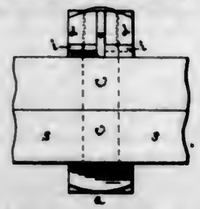


Claim.—1. In the herein-described passenger-ticket consisting of mileage-coupons, printed on one side of one end of a long strip of paper, in combination therewith, an excess and baggage check printed on the opposite end, and the opposite side of said long strip of paper.

2. A mileage, excess and baggage check printed on one long strip of paper, in combination therewith a cover provided with a middle leaf substantially as shown and described.

3. A mileage, excess and baggage check printed on one long strip of paper, a cover provided with a middle leaf, and the back lid of said cover having the strip 5, substantially as shown and described.

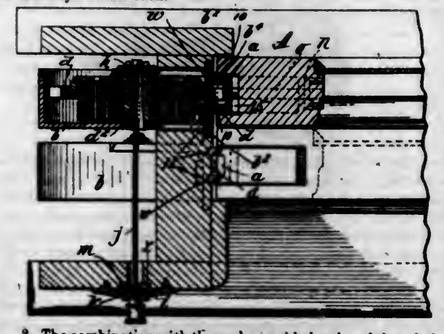
575,414. NUT-LOCKING DEVICE. JAMES P. BROWN, Pawtucket, R. I. Filed Oct. 5, 1896. Serial No. 607,828. (No model.)



Claim.—A nut-locking device consisting of a washer underneath the nut provided with its interior lug *h* adapted to fit into a longitudinal groove in the side of the bolt, and having the slot *n* and notch *r*, the latter registering with a corresponding angular groove in the side of the nut, together with an angular-sided key to be inserted in said slot and fitted into the angular groove and notch aforesaid: all of said parts being constructed and used in the manner and for the purposes substantially as shown and described.

575,415. SASH-FASTENER. JAMES W. COLE, Northampton, Mass. Filed Mar. 20, 1896. Serial No. 584,112. (No model.)

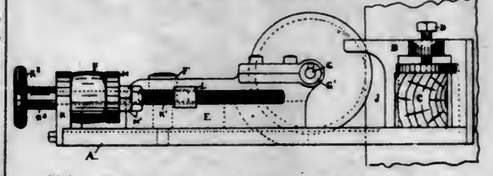
Claim.—1. The combination with the window-casing and the sash having a rack-bar along its edge, of a gear-wheel rotatably mounted within the casing and meshing into the rack-bar, and having a series of ratchet-teeth and a hollow hub, a pawl-carrying bar having a spring-pressure to normally maintain its pawl in engagement with the ratcheted gear, and a rod playing within the window-casing and said hollow hub which has a bearing against the pawl-carrying bar, substantially as described.



2. The combination with the rack-provided sash and the window-casing having the rack-engaging gear-wheel which is ratcheted, of a pawl-carrying member, a rod mounted in the window-casing and having a sliding movement to force the pawl-carrier for the disengagement of the pawl from the ratcheted gear, and a means for temporarily holding said rod in its inwardly-thrust position for correspondingly temporarily leaving the gear-wheel free to be rotated in either direction, substantially as described.

3. The combination with a rack for the sash, of the gear for the casing having the ratchet-teeth, the pawl-carrying bar, *h*, and pawl, *g*, the thrust-rod provided with the stud, *m*, and the face-plate, *i*, through which the extremity of the rod protrudes and which overlies a recess, *x*, which is in a portion of the window-casing and to which said plate is secured, and having the niche, *k*, in its inner face, substantially as and for the purposes set forth.

575,416. SAW-GUIDE. JOHN CONNELL, Rochester, N. Y. Filed Nov. 23, 1895. Serial No. 569,929. (No model.)



Claim.—1. In a sawing-machine, the combination with the saw and a table or support in rear thereof, of the frame resting loosely on the support, and a roller to contact with the saw carried by the frame, the movable adjusting-screw entering a threaded part of the frame and having a rigid collar thereon engaging the support, and a spring arranged between an abutment on the screw and the frame, whereby the position of the roller may be changed without varying the tension of the spring, substantially as described.

2. The combination with the support, and the abutment thereon, the frame movable on the support and the roller carried by the frame and adapted to engage a saw, of the movable adjusting-screw engaging and passing through the abutment on the support and entering a threaded portion of the frame, the adjustable collar on the screw, and the spring between the collar and the abutment on the support, substantially as described.

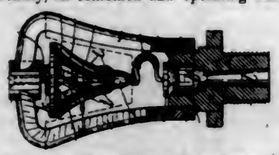
3. The combination with the support having the yokes and the blocks therein, of the frame E having the slot E', and the roller thereon adapted to engage the back of the saw, the bracket K, the screw K', the block L, collar M, nut M', and spring N, substantially as described.

575,417. AUTOMATIC SPRINKLER. FREDERICK H. CYRENIUS, Oswego, N. Y. Filed Aug. 9, 1895. Renewed June 18, 1896. Serial No. 596,067. (No model.)

Claim.—1. In a sprinkler, the combination with a nozzle, of a revoluble spreader or distributer of an inverted-cone shape provided peripherally with radial curved ribs, a spindle forward of and in line with the aperture of the nozzle and suitably supported away therefrom, and carrying the revoluble spreader, said spindle projecting slightly beyond the truncated vertex of the mounted spreader and terminating in a pointed extremity, substantially as described.

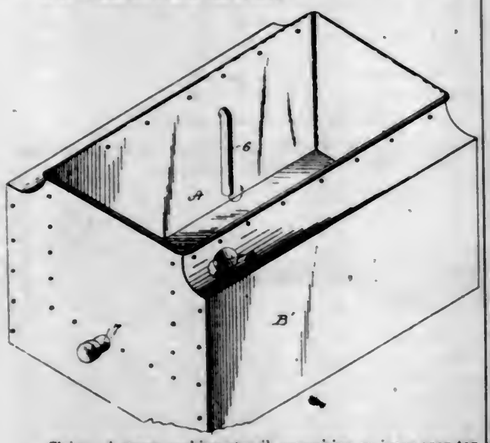
2. In a sprinkler, a nozzle, a spindle suitably supported in line with the aperture of aforesaid nozzle and away therefrom, a revoluble

spreader of inverted-cone shape and peripherally concaved and having radial curved ribs, operatively mounted on the spindle, said spindle beyond the truncated end of the spreader terminating in a protuberant pointed extremity, all combined and operating substantially as described.



3. The combination, in a sprinkler, of a nozzle provided at its discharge with a valve mounted in a valve-seat, a collar secured to the nozzle, and provided with means for upholding a longitudinal spindle above and lineally with the passage of the nozzle, an inverted-cone-like protuberance terminating the spindle at a moderate distance from the nozzle and lineal with its aperture, a revolnble spreader or distributer journaled on said spindle and supported away from the nozzle by the protuberance aforementioned, which last stated is adapted to divide into a tubular-like stream the jet of fluid issuing from the nozzle, said priorly-stated spreader being of an inverted conical-like shape, peripherally concaved, and provided with oblique or spiral flanges, and means extending from the terminating protuberance of the spindle to the valve closing the passage of the nozzle retaining the valve under normal conditions on its seat, substantially as described.

575,418. CULINARY UTENSIL. EDWARD B. DEAL, Rome, Iowa, assignor of one-half to David C. Deal, Belleville, Kans. Filed Feb. 13, 1896. Serial No. 579,119. (No model.)



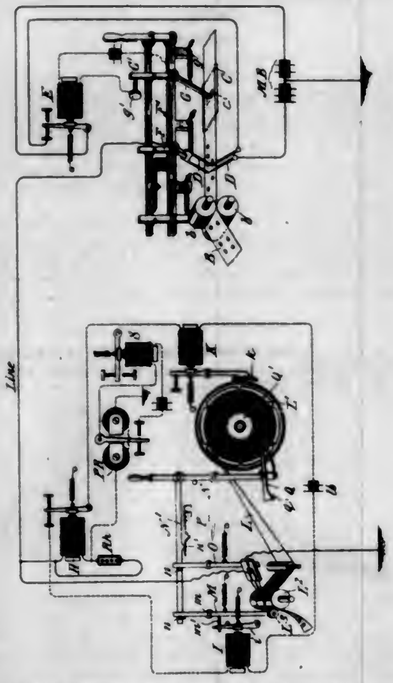
Claim.—A steam cooking utensil, comprising an inner open-top rectangular vessel, having the end pieces extended laterally in both directions to form closures for the ends of the water-jacket, steam conduit-pipes arranged in the inner vessel with their upper ends leading from the steam-space and extending to and opening adjacent to the bottom of the inner vessel, an outer vessel extending under the bottom and along the sides only of the inner vessel forming a water-space between the vessels, and having its ends secured to the lateral extension of the end pieces of the inner vessel and its top edges bent over and hermetically secured to the top edges of the inner vessel, a drawing-off tube to take the water from the inner vessel, a filling-tube to supply water to the water-space and a cover for the inner vessel.

575,419. TELEGRAPHY. PATRICK B. DELANY, South Orange, N. J. Filed Apr. 21, 1896. Serial No. 588,481. (No model.)

Claim.—1. In an automatic transmitter adapted to be operated by a prepared tape or ribbon to send successive signaling impulses into the line, the combination of the contact devices controlled by the tape, to make and break connection of the battery with the line and to close the circuit of the battery after the passage of the tape, the main battery, and means for automatically preventing the short-circuiting of the battery at the transmitting-station when the transmission of the message is completed.

2. In an automatic transmitter, the combination of the opposed contact-fingers, which come in contact through openings or perforations in the transmitting-tape, and also after the passage of the tape, the main battery connected with such contact-fingers, and means for automatically preventing the short-circuiting of the main battery at the transmitting-station when the transmission of the message is completed.

3. The combination of the opposed contact-fingers adapted to make contact through the openings or perforations in the transmitting-tape and also after the passage of the tape, one set of the fingers being connected with the line and the other set respectively with the opposite poles of the split main battery, and means for preventing the short-circuiting of the main battery at the transmitting-station when the transmission of the message is completed.



4. In an automatic transmitter, the combination, substantially as set forth, of the main battery, the contact devices controlled by the transmitting-tape, the magnet included in the local circuit, and means for causing such magnet to effect the opening of one side of the circuit of the main battery at the transmitting-station when the transmission of the message is completed.

5. In an automatic transmitter, the combination of a transmitting-tape having two lines of perforations, one for transmitting impulses of one polarity representing dots, and the other for transmitting impulses of another polarity representing dashes, a divided main battery, two contact-fingers on one side of the tape and respectively in line with the lines of perforations and respectively connected with opposite poles of the divided battery, a contact upon the opposite side of the tape connected with the line and with which either of the first-named contact devices is adapted to make contact through the perforations in the tape, and also after the passage of the tape, and means for preventing the short-circuiting of the battery through the local circuit established after the passage of the transmitting-tape.

6. In an automatic telegraph, the combination of the transmitter adapted to send successive signaling impulses, and at the termination of the transmission of the message a prolonged impulse over the line, of a receiving instrument having means for drawing the paper receiving-tape independently of received signaling impulses and means for automatically stopping the strain upon the receiving-tape and arresting the reel thereof on the reception of such prolonged impulse.

7. In an automatic telegraph, the combination of a transmitter adapted to send successive signaling impulses, and at the termination of the transmission of a message a prolonged impulse over the line, means for drawing the paper receiving-tape independently of the received signaling impulses of a relay or magnet irresponsive to such signaling-currents, but responsive to such prolonged currents, a local circuit controlled by said magnet, and electromagnetic devices therein for stopping the strain upon the receiving-tape and arresting the rotation of the reel.

8. In a telegraph-receiver in which the received message is recorded upon a tape, the combination of means for imparting an impulse of rotation to the reel, and means for at the same time throwing into effective action the drawing or feeding devices by which the tape is drawn from the reel.

9. In an automatic telegraph, a receiving instrument having a magnet irresponsive to the rapid signaling impulses, but responsive to a prolonged impulse received over the line, means for drawing the paper receiving-tape independently of the received signaling impulses and means for stopping the strain or draft upon the receiving-tape and arresting the rotation of its reel upon the actuation of the magnet by such prolonged impulse.

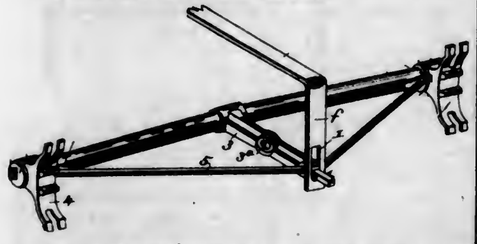
10. In an automatic telegraph, a receiving instrument having a magnet irresponsive to the rapid signaling impulses, but responsive to a prolonged impulse received over the line, and means for stopping the strain or draft upon the receiving-tape and arresting the rotation of its reel upon the actuation of the magnet by such prolonged impulse, in combination with means for imparting an impulse of rotation to the reel of the receiving-tape and at the same time throwing into effective operation the draft or feeding devices that draw the tape from the reel.

11. In an antomatic telegraph receiving instrument, the combination of the receiving-tape and its reel, the drawing or feeding devices for drawing the tape from the reel, means for automatically stopping the effective strain of the drawing or feeding devices upon the tape, and at the same time arresting the rotation of the reel, and means for throwing the receiving-tape again into operation, consisting of devices whereby an impulse of rotation is imparted to the reel and the feeding or drawing devices thrown into effective action, substantially as set forth.

12. In a chemical telegraph system in which signaling-currents of both polarities are transmitted, a receiver, comprising the combination with separate styluses for recording dots and dashes and the circuit in which they are located, of a polarized relay in shunt circuit therewith, and responding to the changes in polarity of the transmitted signaling impulses to serve as a telltale or indicator.

13. In a chemical telegraph system in which signaling-currents of both polarities are transmitted, a receiver, comprising the combination with separate recording-styluses for recording dots and dashes and the circuit in which they are included, of a polarized electromagnetic device in derived or shunt circuit to the stylus-circuit of such character as to be responsive to the changes in polarity of the transmitted signaling impulses, and therefore to act as a telltale or indicator, and of such self-induction as to neutralize the tailing effects of the received signaling impulses.

575,420. BRAKE-BEAM. JAMES FARLEY, Waukesha, Wis., assignor to the Chicago Railway Equipment Company, Chicago, Ill. Filed July 25, 1896. Serial No. 600,511. (No model.)



Claim.—1. The combination with a brake-beam having a projecting pin or finger, of a slotted support with which the projecting pin or finger of the beam engages: substantially as and for the purposes specified.

2. The combination with a brake-beam having a projecting pin or finger, of a resilient slotted support with which the projecting pin or finger of the beam engages; substantially as and for the purposes specified.

3. The combination with a suspended brake-beam, of a resilient arm or support therefor which engages the beam intermediate of its hangers, said resilient arm being supported from the truck between the axles, whereby the endwise movement of the beam is prevented and the brakes are "held off:" substantially as and for the purposes specified.

4. In a brake-beam the combination with the beam of a collar or bearing for the brake-head, a brake-head rotatable on said beam, an end plate which confines the brake-head, and a tension-rod which confines the end plate and forces the head against the bearing or collar of the beam; substantially as and for the purposes specified.

5. In a brake-beam, the combination of a compression member having a collar or bearing for the brake-head, an end plate, brake-head rotatable on the compression member and interposed between the collar thereof and the end plate, one of said parts having a limit-lug and a second having a recess in which the limit-lug rests, and a tension-rod which confines the parts and forces the head against the bearing-collar on the compression member; substantially as and for the purposes specified.

6. In a trussed brake-beam having a strut or post and a tension-rod, the combination therewith of a tubular compression member having at its end depressions or indented channels for the reception of the ends of the tension member; substantially as and for the purposes specified.

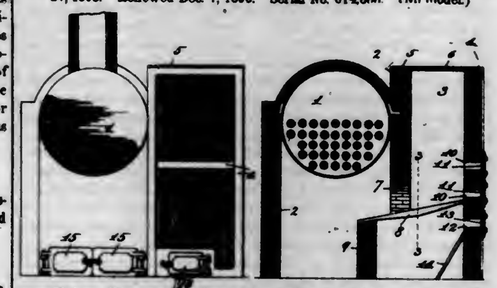
7. In a trussed brake-beam having a strut or post and a tension-rod, the combination therewith of a tubular compression member having indentations at its ends for the reception of the ends of the tension member, brake-heads, and end plates, which confine the brake-heads and through which the ends of the tension-rod pass; substantially as and for the purposes specified.

8. In a trussed brake-beam, having a strut or post and a tension-rod, the combination therewith of a tubular beam having at its ends indentations to receive the ends of the tension-rod, end caps (or cups) which include the ends of the compression member and the ends of the tension member, and end plates through which the ends of the tension member pass; substantially as and for the purposes specified.

9. The combination with a brake-beam and its end suspension-hangers, of an intermediate resilient combined third suspension-hanger and release or "take-off" spring of rectangular form; substantially as and for the purposes specified.

10. The combination with a brake-beam and its end hangers, of a resilient intermediate combined hanger and take-off or release spring of rectangular form supported from the truck between the axles, substantially as and for the purposes specified.

575,421. FURNACE. FRED G. GIETANNER, St. Louis, Mo., assignor to the Kochersperger-Hallam Heating Co., Kansas City, Mo. Filed Dec. 27, 1895. Renewed Dec. 7, 1896. Serial No. 614,833. (No model.)



Claim.—The combination with a boiler 1 set between the walls 2, 2, in the usual manner, of a furnace comprising the rectangular magazine 3, located to one side of the front end of the boiler-setting and composed of a suitable wall parallel with the walls 2, 2, of the boiler-setting, the metallic straps 4 to hold said magazine together, the plate 5 on top of said magazine, the hinged door 6 in said plate, the dividing-wall 2 having the arched opening 7, the grate-bars 8 embedded at one end in the outside wall of said magazine and extending from thence downwardly through the arched opening 7, and into the chamber beneath the boiler 1, the wall 9 supporting the inner ends of said grate-bars, the dampers 11 closing the apertures 10 in the outside wall of the magazine 3 and above the end of said grate-bars 8, the damper 13 closing the apertures 12 in said wall and below the ends of said grates, the inclined plate 14 embedded in the inner face of the outside wall of the magazine, the pair of doors 15 in the front wall of the furnace at a point immediately below the boiler, the door 16 in the front wall of the magazine at a point below the grate-bars 8, and suitable front and rear walls to said furnace and magazine substantially as and for the purposes stated.

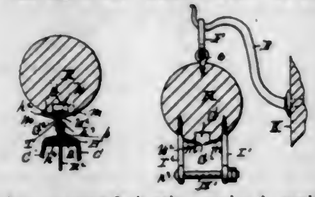
575,422. UNDERGARMENT. ISAIAS GOLDBERGER, Cleveland, Ohio. Filed June 24, 1896. Serial No. 596,791. (No model.)



Claim.—An undergarment comprising a body portion having a neck-opening and a body-opening extending from said neck-opening to the waist-line of the garment, and two closing-flaps located over the body and overlapping each other from the neck-opening to the

waist-line, each closing-flap extending from one side to the middle of the neck-opening and diagonally down from the middle of the neck-opening to the waist-line at the opposite side so as to provide two thicknesses of material at the body-opening, the flaps being stitched together from side to side at the waist-line, substantially as described.

575,423. CURTAIN-HANGING APPARATUS. PAUL GOLDSMITH, Troy, N. Y. Filed Aug. 10, 1896. Serial No. 602,214. (No model.)



Claim.—1. In an apparatus for hanging curtains, the combination with a slideway having a slot in its under side: of riders or travelers entered within said slideway: a shank making a swiveled connection with each of said riders or travelers and arranged to depend therefrom within said slot: a depending ring formed integrally with the lower end of each of said shanks; a washer on the latter between the ring and the slot: hooks each having a downwardly and laterally projected prong, and a depending ring with each of said hook-prongs, adapted to be passed through a curtain at intervals with the latter resting on the hook-rings, and with each of the hooks hooked into the depending ring of one of the travelers or riders, substantially in the manner as and for the purposes set forth.

2. The combination with a bar provided with a groove having a slot in its under side, of travelers or riders, each provided with a head arranged within said groove to straddle said slot, and each having a shank making a swiveled connection with the head, and depending therefrom within said slot, and at its lower end below the slot, each provided with a depending ring: a washer arranged on the travelers or riders between the shank and the sides of the slot: curtain-hooks each provided with a hook having a downwardly and laterally projected prong, and at the lower end of the shank provided with a ring: a disk-form washer threaded onto each of the hook-shanks above the ring thereon, with each of said hooks adapted to have a curtain passed on over it to the rest on the disk-form washer, with the hooks each hooked into one of the traveler or rider rings, substantially in the manner as and for the purposes set forth.

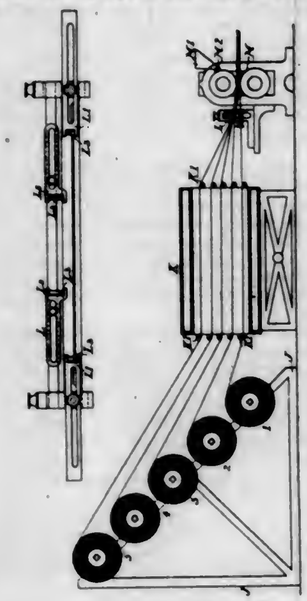
3. The combination with the groove G, made with the slot G^3, forming the slideway w^2; of the riders or travelers T, each made with a swivel-head A, shank A^2, swivel-washer A^3, and ring A^4, entered within said slideway with their heads interiorly straddling the same and their shanks and rings depending therefrom: the hooks H, each having a hook proper at its upper end made with an offset prong *p*, and at its lower end provided with the ring R^2, with the hooks proper each adapted to be passed through the curtain C, with the latter resting upon the ring R^2, and the hooks proper each hooked into one of the rings upon each of the riders or travelers, substantially in the manner as and for the purposes set forth.

4. The combination with the rod or bar R, having the slideway w^2, formed therein, and provided with the slide-rollers N' and N^2, each downwardly projected from one of its opposite ends of the travelers or riders T, each provided with a head having a swiveled head adapted to interiorly straddle said slideway when inserted therein with the shank of the rider or traveler within the slot G^2, and depending therefrom and having a ring on its lower end; the hooks H, each provided with a hook proper at its upper end having an offset point on its prong *p*, and at its shank end with the ring R^2: the curtain C, at its upper end depending from said hooks; the cord M', passed over the roller N', to connect with the adjacent front edge of the curtain, and the cord M^2, passed over the roller N', and the roller N^2, and carried horizontally to connect with the curtain at its front edge near its top, substantially as and for the purposes set forth.

5. In a curtain-hook, the combination with the hook proper of a downwardly and laterally extended prong: a ring formed integrally with the hook-shank at the lower end of the latter, and a disk-form washer on the hook-shank, between the ring and the hook-prong, substantially as and for the purposes set forth.

575,424. MACHINE FOR MANUFACTURING MACHINE-BELTING. CHRISTIAN H. GRAY, Silvertown, England. Filed July 11, 1896. Serial No. 598,864. (No model.) Patented in England Feb. 1, 1896, No. 2,333.

Claim.—In the manufacture of coated-fabric belting for machinery, the combination of a rack supporting a number of rolls of coated fabric of equal width, and an additional roll of coated fabric about double the width of the others, a heated chamber through which the coated fabrics are passed as they are unwound from the rolls, a compound gage receiving and guiding the fabrics of equal width in one part thereof, and the wider fabric in another part, doubling-rolls for uniting all of said fabrics together by adhesion of their surfaces, an additional heated chamber through which the united fabrics are passed, a die for turning the edges of the wider fabric around the edges of the narrower ones, and a pair of finishing-rolls for applying a strip of material to the meeting edges of said wider fabric, substantially as described.



575,425. TAILPIECE AND GUARD FOR STRINGED MUSICAL INSTRUMENTS. CHARLES W. HUTCHINS, Springfield, Mass. Filed Sept. 15, 1896. Serial No. 605,876. (No model.)



Claim.—1. The combination in a string musical instrument of the character described, provided with an opening or depression in its wall at the rear where the pins are usually located—of an independent plate provided with string-holding pins and a surrounding flange, substantially as shown, secured to the inner surface of the wall by its flange to recess the pins within said opening and leave them accessible from the outside of the instrument—whereby the outer surfaces of the pins are prevented from projecting beyond the outer surface of the instrument-wall, as and for the purpose set forth.

2. A tailpiece comprising a plate provided with a central recess in its face, and a series of string-holding pins located over said recess; faced to bear upon the inner wall of the shell and with an upper edge combined with the top or similar stop to prevent rotation—in combination with a shell provided with an opening therethrough closed by the plate to leave the pins accessible from the outside of the instrument through said opening.

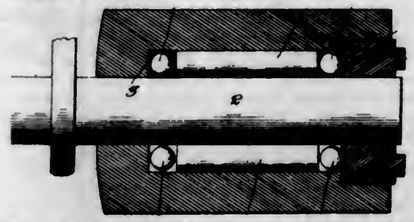
3. A plate provided with a series of string-holding pins in its face, and with a recess in rear of the pins, a shell with an opening adapted to be closed from the inside by the plate and expose the pins through said opening—and a clamp-screw from the outside of the instrument combined with the shell, and with the pin-plate as a nut.

4. A musical instrument of the character described and provided with an end opening through its shell for seating the pins, a pin-plate for closing said opening from the rear and seating the pins therein, means for preventing the plate from rotating within the shell, a screw-hole in said plate forming of it in effect a nut, a clamp-screw having its stem from the outside of the bowl engage the nut—and a guard

provided with an opening in its shank-plate adapting it to pass over the stem of the clamp-screw and rest thereon to be clamped directly against the bowl, substantially as shown and described.

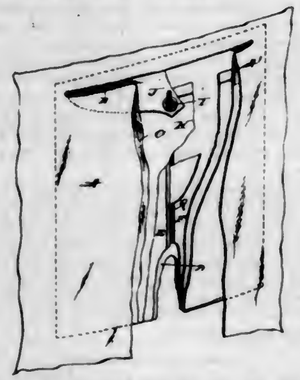
5. An instrument provided with an opening or depression in the rear of its shell, and a plate comprising a bearing-flange, a rack of cord-holding pins framed within the same, and a recess in rear of the pins: the flange of the plate bearing upon the shell on the perimeter of the opening therein, and the pins coming opposite said opening, as and for the purpose set forth.

575,426. ANTIFRICTION JOURNAL-BEARING. RICHARD INGRAM and WILLIAM R. COULBOURN, Roanoke, Va., assignors of one-sixth to James D. Price, same place. Filed May 19, 1896. Serial No. 592,151. (No model.)



Claim.—In a journal-bearing, a journal box having a cylindrical cavity therein and end closures therefor, a journal extending through said cavity, in combination with a circular series of loosely-arranged antifriction-rollers having flat ends and surrounding said journal within the box for sustaining the weight of the load, and a series of antifriction-balls loosely arranged in the spaces between the ends of the rollers and the end closures of the box, said balls working in circular paths independently of the rollers and also adapted to impinge directly against the ends of the rollers and the end closures of the box for taking the end thrusts of the rollers, said balls each having a diameter less than that of the rollers as and for the purpose described.

575,427. POCKET. HERMAN KAUFMAN, St. Louis, Mo. Filed July 10, 1896. Serial No. 598,744. (No model.)

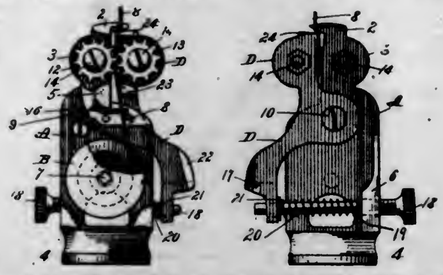


Claim.—As an article of manufacture, the herein-described pocket comprising inner and outer walls, partitions between said walls, the outermost one of which is solid, and the innermost one slitted vertically from top to bottom, a button connected to the upper end of the solid partition, and a flap connected to the inner wall and adapted to fasten over said button.

575,428. BRAIDING-MACHINE RACER. ORLAND E. MOORE, Westfield, Mass. Filed Oct. 29, 1896. Serial No. 610,492. (No model.)

Claim.—1. A braiding-machine racer comprising a body, two jaws and a tension-screw-supporting stud on said body, combined with a rough-faced tension-roller journaled on said body between said jaws, a tension-roller support pivotally hung on said body having jaws thereon, a rough-faced tension-roller journaled on said support opposite said first-named roller, tension devices supported on said stud and engaging one end of said support, whereby the position of one of said tension-rollers is made variable relative to the other, and a bobbin for braiding material supported revolubly on said body, substantially as set forth

2. A braiding-machine racer comprising a body, two jaws and a tension-screw-supporting stud on said body, combined with a rough-faced tension-roller journaled on said body between said jaws, a roller-support pivotally hung on said body having jaws thereon, a rough-faced tension-roller journaled on said support between the jaws thereon and opposite said first-named roller, a tension-spring and screw acting between said stud and engaging one end of said support, whereby one of said tension-rollers is moved toward and from the other, and a bobbin for braiding material supported revolubly on said body, substantially as set forth.

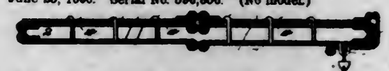


3. A braiding-machine racer comprising a body, two jaws and a tension-screw-supporting stud, said jaws and stud being integral with said body, combined with a grooved tension-roller journaled on said body between said jaws, a tension-roller support pivotally hung on said body having jaws thereon, and a slotted lower extremity, a grooved tension-roller journaled on said support between the said jaws thereon, and opposite said first-named roller, a tension-screw engaging said stud and extending through said slotted lower extremity of said roller-support, a spring on said screw compressible by the latter against said support, whereby the latter is vibrated and one of said tension-rollers is adjusted toward and from the opposite roller, a bobbin for braiding material supported revolubly on said body, and a restraining-spring for frictional contact with said bobbin, substantially as set forth.

4. A braiding-machine racer comprising a body A, two jaws 3 and 5, and a tension-screw stud 6, combined with a tension-roller support D, pivotally journaled on said body and having the jaws 23, and 24, thereon, a slotted lower extremity opposite said stud, and the arm 22, two longitudinally-grooved tension-rollers 12 and 13, journaled respectively on said body, and on said support D, the tension-screw 18, engaging said stud 6, and extending through the slot in said pivotally-hung support, a spring 20, on said screw compressible by the latter against the lower extremity of said support, whereby the latter is vibrated and one of said fluted rollers is moved toward and from the other, a bobbin B, for braiding material supported revolubly on said body, and a restraining-spring for frictional contact with said bobbin, substantially as set forth.

5. A braiding-machine racer, comprising a body having one or more jaws thereon, combined with a rough-faced tension-roller journaled on said body near said jaw or jaws, a tension-roller support pivotally hung on said body having one or more jaws thereon, a rough-faced tension-roller journaled on said support opposite said first-named roller, a spring between a fixed part of said body and one end of said roller-support, whereby the said roller on the latter is forced constantly toward said body-supported roller, and a bobbin for braiding material supported revolubly on said body, substantially as set forth.

575,429. MAIL-BAG. GEORGE A. PILE, Jennerstown, Pa. Filed June 25, 1896. Serial No. 596,856. (No model.)

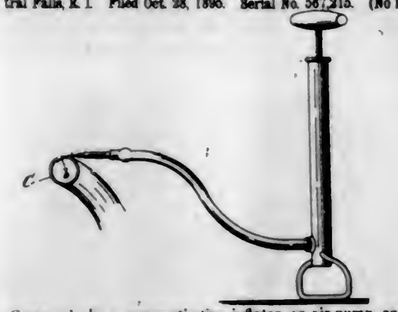


Claim.—1. The combination of a hinged mouth-frame, composed of hinged parts folding flat, the front of said frame having hooks thereon and the rear of the frame having apertures therein, hinged slides upon the rear of the frame having apertures adapted to receive the hooks, an eye upon the front of the bag, a hasp pivoted to the slides and adapted to move the slides, a spring having its opposite ends secured to the said frame and slides, and adapted to throw the slides upon the release of the hasp, and a spring-lock contained within the material of the bag and adapted to lock one of the slides to the adjoining part of the frame.

2. In a mail-bag, the combination with a bag provided at its upper end with a channel, of a locking device seated in said channel and consisting of a sliding bar designed to engage flanged fingers, a coiled spring connected to said sliding arm, the opposite end bearing against the frame in the channel of the bag, and a safety-catch located in a

slot in the frame having one end secured to said frame, the opposite end working freely in a slot in the sliding locking-bar, and a lug on the catch to engage the end of the sliding locking-bar.

575,430. PNEUMATIC-TIRE INFLATER. JOSEPH SAVOIE, Central Falls, R. I. Filed Oct. 28, 1895. Serial No. 567,215. (No model.)

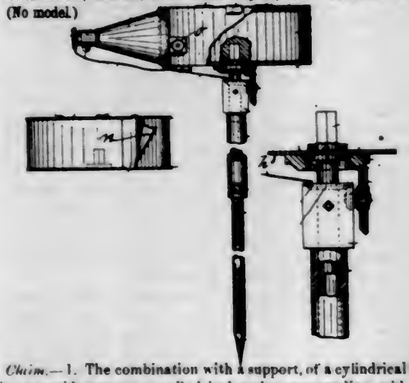


Claim.—1. In a pneumatic-tire inflater, an air-pump, and a cement-holder, combined with a hollow needle having a series of openings *b*, out of line with each other, and a channel *c*, extending beyond the openings toward the point of the needle, substantially as shown.

2. In a pneumatic-tire inflater, the combination of an air-pump, a hollow needle having lateral perforations, and a cement-holder intermediary between said pump and said needle, as set forth.

3. In a pneumatic-tire inflater, the combination of a hollow needle with a cement-holder adapted to connect with said needle and also with an air-pump, substantially as shown.

575,431. PANORAMIC CAMERA. EMIL P. SCHOENFELDER and EMIL KEHLE, Newark, N. J. Filed July 29, 1896. Serial No. 600,974. (No model.)



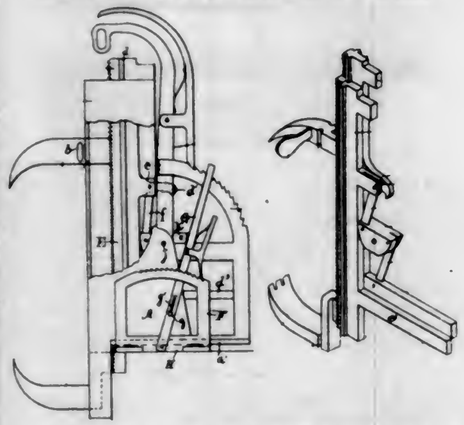
Claim.—1. The combination with a support, of a cylindrical film-holder on said support, a cylindrical casing surrounding said film-holder and loosely mounted on said support and provided with a vertically-arranged slot, a lens-carrying funnel surrounding said slot and projecting horizontally from the casing, a shutter carried by said funnel, and means for revolving the casing, all said parts, substantially as and for the purposes described.

2. The combination with a support, of a cylindrical film-holder on said support, a cylindrical casing surrounding said film-holder and loosely mounted on said support and provided with a vertically-arranged slot, a funnel surrounding the slot and projecting horizontally from the casing, a tube projecting from said funnel, a lens-holder adjustably arranged in said tube, a shutter carried by said lens-holder, means for revolving the casing, and means for simultaneously controlling the shutter and the casing-revolving means, all said parts, substantially as and for the purposes described.

3. The combination with a support, of a cylindrical film-holder on said support, a cylindrical casing surrounding said film-holder and loosely mounted on said support and provided with a vertically-arranged slot, a lens-carrying funnel surrounding the slot and projecting horizontally from the casing, a spring-motor on the support and adapted to revolve the casing, a horizontally-arranged wheel connected with and operated by said spring-motor and provided with an opening, a pin adapted to engage said opening, a flat spring carrying said pin and secured to the casing, an elastic ball between the casing and said spring and adapted to be controlled thereby, and the pneumatic shutter carried by the funnel and controlled by said elastic ball, all said parts, substantially as and for the purposes described.

4. The combination with a support, of a cylindrical film-holder on said support, a cylindrical casing surrounding said film-holder and loosely mounted on said support and provided with a vertically-arranged slot, a lens-carrying funnel surrounding the slot and projecting from the casing, a spring-motor on the support, a horizontally-arranged shaft operated by said spring motor, a beveled gear mounted on said shaft, a beveled gear—in engagement therewith—arranged on the casing, a wheel arranged horizontally and connected with and operated by the spring-motor and provided with an opening, a pin adapted to engage said opening, a flat spring carrying said pin and secured to the casing, a pneumatic shutter carried by the funnel, and an elastic ball controlling said shutter and arranged between the casing and the flat spring, all said parts, substantially as and for the purposes described.

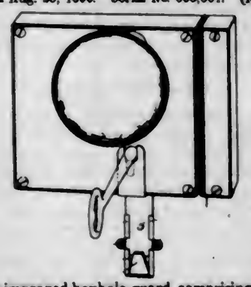
575,432. SAWMILL-DOG. FRED A. J. SMART, Portland, Me., assignor of one-fourth to Walter Fickett and Edward L. Milliken, Stroudwater, Me. Filed Oct. 5, 1896. Serial No. 607,954. (No model.)



Claim.—1. The herein-described sawmill-dog consisting of a carriage, a pair of jaws and a pair of racks so locked together as to permit a vertical movement, one on the other, the said jaws and the said racks being mounted in vertical guides in said carriage, the said jaws being provided with teeth for engaging said racks, a cam for pressing said racks forward horizontally into engagement with said jaws, a hook on one of said racks adapted to engage said cam when the latter is turned backward, for retracting said racks, and links connecting said cam with said racks for moving them vertically in opposite directions.

2. The herein-described sawmill-dog consisting of a carriage, a pair of jaws and a pair of racks so locked together as to permit a vertical movement, one on the other, the said jaws and the said racks being mounted in vertical guides in said carriage, the said jaws being provided with teeth for engaging said racks, a cam for pressing said racks forward horizontally into engagement with said jaws, links for connecting said cam with said racks for moving them in opposite directions and means for disengaging said racks from said jaws by a backward movement of said cam.

575,433. KEY-FASTENER. BENJAMIN F. SMITH, Stewart, Ohio, assignor of two-thirds to Edward S. Byron and Milton J. Charlton, same place. Filed Aug. 25, 1896. Serial No. 603,881. (No model.)



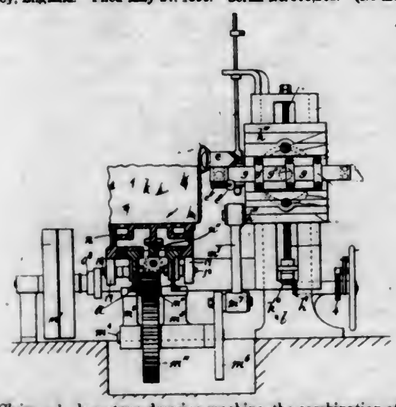
Claim.—An improved keyhole-guard, comprising a plate adapted to be secured to a door adjacent to its keyhole, and provided with guide-flanges and a spring-tongue, and a slide adapted to move between said flanges and cover a portion of the keyhole and be locked in that position by the spring-tongue, substantially as shown and described.

575,434. CULTIVATOR. DE WANE B. SMITH, Deerfield, N. Y. Filed Dec. 7, 1895. Serial No. 571,347. (No model.)



Claim.—The combination in a cultivator of the frame having a middle frame-bar, teeth secured to the frame and particularly one on the rear end of the middle frame-bar, a pair of handles secured to the middle frame-bar, a wheel-adjusting lever pivoted adjacent to the rear end of the middle frame-bar, a lead-wheel, a lead-wheel hanger a connection between the lead-wheel hanger and the wheel-adjusting lever, a curved sliding wheel-hanger attached at its upper end to the adjusting-lever, a sleeve or eye secured to the frame back of the said rear tooth, a wheel carried by said curved hanger close behind the tooth and a catch for securing the adjusting-lever, substantially as set forth.

575,435. STONE-DRESSING MACHINE. JOHN SPENCER, Keighley, England. Filed May 27, 1896. Serial No. 593,265. (No model.)



Claim.—1. In a stone-dressing machine, the combination of a rotary cutter, a spindle upon which said cutter is mounted, pivotal bearings for supporting said spindle, swivel-bearings for supporting said pivotal bearings, means for effecting a traverse of the cutter over the work, and means for automatically turning the said pivotal and swivel bearings on their respective pivots on the completion of the traverse of the cutter in each direction, substantially as and for the purpose described.

2. In a stone-dressing machine, the combination of a rotary cutter, a spindle upon which said cutter is mounted, a pivotal bearing supporting said spindle, a swivel-bearing supporting said pivotal bearing, an arm or lever applied to said swivel-bearing, a worm and wheel applied to the pivotal bearing with an arm or lever on the worm-shaft, a sliding rod for operating upon said arms or levers, and means for reciprocating said rod.

3. In a stone-dressing machine, the combination of a rotary cutter, a spindle upon which said cutter is mounted, pivotal bearings for supporting said spindle, swivel-bearings for supporting said pivotal bearings, means for operating said pivotal and swivel bearings, an adjustable supporting-bar, for supporting said cutter and its bearings, and a sliding holder to which said bar may be detachably secured substantially as specified.

4. In a stone-dressing machine, the combination of a saddle movably mounted on suitable supports and having arc-shaped slots, a box pivoted on said saddle and carrying bolts engaging said slots, said box having a slideway extending diametrically across its face, a sliding holder engaging said slideway, means for adjusting said holder in the slideway, and a tool-supporting bar carried by said holder.

5 In a stone-dressing machine, the combination of a saddle movably mounted on suitable supports and having arc-shaped slots, a box pivoted on said saddle and carrying bolts engaging said slots, said box having a slideway extending diametrically across its face, a sliding holder engaging said slideway, a bar detachably mounted on said holder, a bearing swiveled to said bar, a bearing pivoted to said swiveled bearing, a cutting-tool journaled in said pivoted bearing, and means for adjusting said bearings, substantially as described.

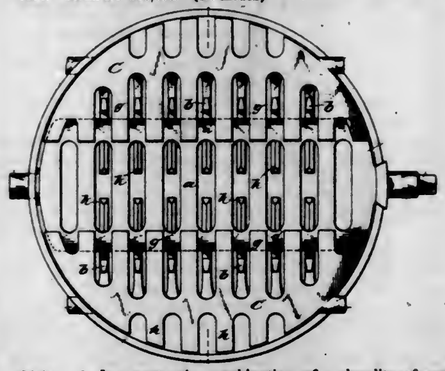
6. In a stone-dressing machine, the combination of a saddle movably mounted on suitable supports and having arc-shaped slots, a box pivoted on said saddle and carrying bolts engaging said slots, said box having a slideway extending diametrically across its face, a sliding holder engaging said slideway and provided with a longitudinal recess, means for adjusting said holder, a bar square in cross-section for engagement with said recess in any one of four positions, means for confining the bar in the recess, and a cutting-tool carried by said bar.

7. In a stone-dressing machine, the combination of a saddle movably mounted on suitable supports, a box pivotally mounted on said saddle and having a slideway extending across its face, a sliding holder engaging said slideway and provided with a longitudinal recess, means for adjusting said holder, a bar square in cross-section for engagement with said recess in any one of four positions, means for confining the bar in the recess, and a cutting-tool carried by said bar.

8. In a stone-dressing-machine, the combination of a reciprocating table for supporting the stone, a crank-and-pitman mechanism for reciprocating said table, a rod connected with the pitman and mounted to slide in suitable bearings on the table and having abutments, a sliding bushing surrounding the rod and extending through one of the bearings, said bushing engaging at one end with one of the abutments on the rod and being shouldered at the other end to abut the bearing, and a spring interposed between the other abutment on the rod and the shouldered end of the bushing, substantially as and for the purpose described.

9. In a stone-dressing machine the combination of rotary cutters, means for supporting these cutters, mechanism for automatically operating said cutters, sliding bearings upon which the cutters' supports are mounted, means for operating said sliding bearings a table mounted to reciprocate in proximity with said sliding bearings, adjustable trunnions for supporting said table, and means for imparting reciprocatory motion to said table substantially as herein specified.

575,436. GRATE. JOSEPH STELNER, Piqua, Ohio. Filed July 13, 1896. Serial No. 598,651. (No model.)



Claim.—1. In a grate, the combination, of a plurality of oscillating grids, one grid carrying two sets of fingers or bars, with one set resting on the other grid and the other set extending downwardly underneath the longitudinal openings in said grid, and means for oscillating this grid to oscillate the other in the opposite direction, substantially as shown and described.

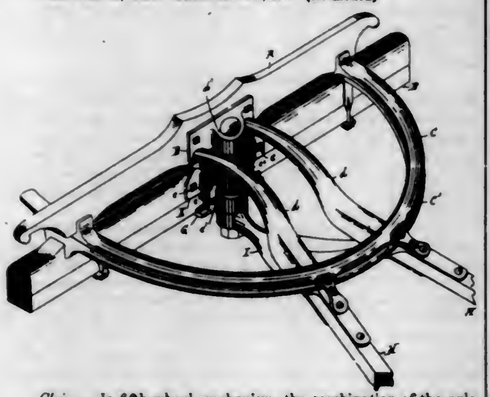
2. In a grate, the combination, of a plurality of oscillating grids provided with intermeshing fingers and bars, one set resting on the grid carrying the other set, and an additional set of fingers extending downwardly from one grid under the longitudinal openings in the other grid, with means for oscillating this grid to oscillate the other in the opposite direction, substantially as shown and described.

3. In a grate, the combination, with central and side oscillating grids, provided with intermeshing bars, the inwardly-extending side bars of the side grids resting on the frame of the central grid, of supplemental fingers extending downwardly and inwardly from the side grids under the longitudinal openings in the central grid, and means for oscillating the central grid to oscillate the others in opposite directions, substantially as shown and described.

4. In a grate, the combination, with central and side oscillating

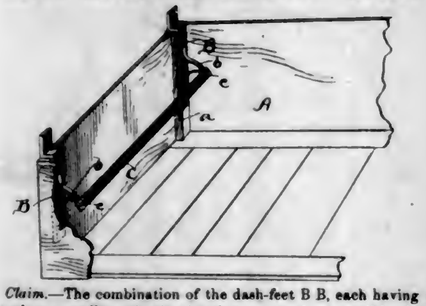
grids, provided with intermeshing bars, the side bars resting on the frame of the central grid, of supplemental fingers extending downwardly and inwardly from the side grids under the longitudinal openings in the central grid, cam on the central grid to contact with one of the intermeshing bars of one other grid to sustain said grid when the grate is dumped and means for oscillating the central grid to oscillate the others in opposite directions, substantially as shown and described.

575,437. FIFTH-WHEEL. HENRY C. SWAN, Oshkosh, Wis. Filed Feb. 13, 1896. Serial No. 579,165. (No model.)



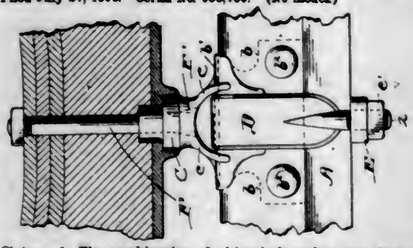
Claim.—In fifth-wheel mechanism, the combination of the axle, an angle-plate E lying against the top and rear side of the axle, having a rearwardly-extended and vertically-perforated lug integral with the vertical part of said angle-plate, with a yoke-plate G which lies against the bottom of the axle and is provided with a rearwardly-extended and vertically-perforated lug *g* which interlocks with the lug *e*, and vertical bolts which connect said plates E and G in front of and behind the axle, substantially as and for the purpose specified.

575,438. TOE-RAIL FOR VEHICLES. HENRY C. SWAN, Oshkosh, Wis. Filed July 27, 1896. Serial No. 600,707. (No model.)



Claim.—The combination of the dash-feet B B, each having an integral rearwardly-projecting bracket-arm, and a toe-rail having a longitudinal slot in its end, and bolts for connecting the toe-rail and brackets, one of said bolts passing through said slot, substantially as and for the purpose specified.

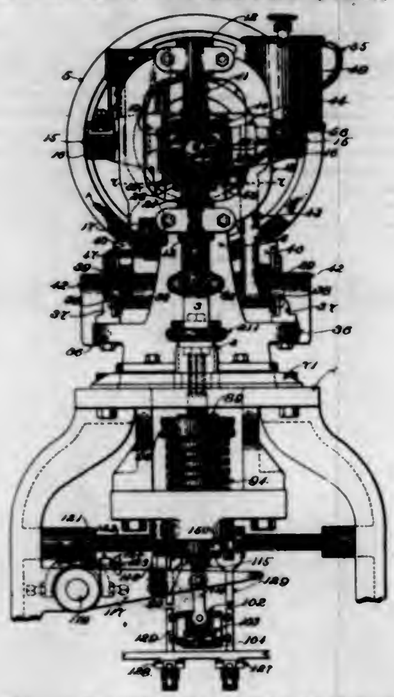
575,439. KING-BOLT SOCKET. HENRY C. SWAN, Oshkosh, Wis. Filed July 27, 1896. Serial No. 600,709. (No model.)



Claim.—1. The combination of a king-bolt socket, two diverging arms, and a plate adapted to fit upon the axle, which said parts are formed integral with each other, combined with the axle, and a clip which passes between said arms and embraces said plate and axle substantially as and for the purpose specified.

2. A combination of a plate B having a vertical portion adapted to lie against one vertical face of the axle, and a curved part adapted to lie upon the axle; two arms extending upward from said curved part, and a vertical king-bolt socket supported upon said arms, all of said parts being integral with each other, with a king-bolt secured in said king-bolt socket, and a clip which passes between said arms, and embraces said plate and axle, substantially as and for the purpose specified.

575,440. HEEL-MAKING MACHINE. BOSMER H. TAYLOR, Lynn, Mass. Filed Mar. 23, 1896. Serial No. 584,304. (No model.)



Claim.—1. The combination with the die, of the block or anvil, the plunger carrying the said block or anvil, a frame in which the plunger has longitudinal movement, means to reciprocate longitudinally the plunger in the said frame, and means connected with the said frame to impart a lateral movement thereto at each action of the plunger and thereby place the block or anvil in a retracted position to uncover the die each time it is elevated and also cause it to have a forward sweep in each downward movement thereof, substantially as described.

2. The combination with the die, of the block or anvil, the plunger carrying the said block or anvil, a frame in which the plunger has longitudinal movement, an operating-shaft, a crank thereon having operative connection with the said plunger whereby to reciprocate the latter, a cam on the said shaft, and operative connections between the said shaft and the said frame whereby to move the said frame laterally, substantially as described.

3. The combination with the block or anvil, and the plunger carrying the said block or anvil, of the cylindrical block fitted to slide lengthwise and also to turn in the said plunger, an operating-shaft having a crank-pin passing through the said block, a frame in which the plunger is mounted to move longitudinally, and means to impart a lateral movement to the said frame, substantially as described.

4. The combination with a block or anvil, and the plunger carrying the said block or anvil, of the cylindrical block fitted to slide lengthwise and also to turn in the said plunger, an operating-shaft having a crank-pin passing through the said block, a frame in which the plunger is mounted to move longitudinally, a cam on the said shaft, and operative connections between the said cam and the said frame whereby to impart a lateral movement thereto, substantially as described.

5. The combination with the die, and the block or anvil, of actuating means for the latter having provisions whereby the elevated block or anvil is given a retracted position and in its descent moves with substantially a horizontal sweep forward to a position over the die, whereby to brush off any object overlying the latter, substantially as described.

6. The combination with the die, the nailing devices, and the block or anvil, of the plunger carrying the said block or anvil, means to reciprocate said plunger, and means to communicate a lateral movement to said plunger whereby the elevated block or anvil is given a retracted position and in its descent moves with a substantially horizontal sweep forward to a position over the die, whereby to brush off any object overlying the latter, substantially as described.

7. The combination with the block or anvil, and the plunger carrying the same, of the block 10 free to move transversely of the said plunger, the actuating-shaft, its crank pin engaging said block, and means operated from the said transversely-movable block 10 to intermittingly rotate the said block or anvil, substantially as described.

8. The combination with the block or anvil, the plunger carrying the same, the block 10 free to move transversely of the said plunger and provided with a cam, the actuating-shaft, and its crank-pin engaging said block, of the shaft 25, its arm actuated by the cam on the block 10, and an intermittent clutch device to transmit movement from shaft 25 to the block or anvil, substantially as described.

9. The combination with the anvil or block, and the disk 221 applied thereto, of the clenching-block having a stem passed through the said disk and the anvil or block and securing the disk to the latter, and securing means applied to the inner end of the said stem, substantially as described.

10. The combination with the nail-drivers, the sleeve 86 having the nail-drivers at one end thereof, the sleeve 88 at the other end of said sleeve 86, and the hollow post containing said sleeves and in screw-threaded engagement with the sleeve 88, whereby the position of sleeve 86 and the nail-drivers may be adjusted, substantially as described.

11. The combination with the die, the nail-holder, the rod 100 supporting the nail-holder, and the nail-drivers, of the sleeves 86 and 88 through which said rod passes, the sleeve 86 having the nail-drivers applied at the upper end thereof, and a support surrounding said sleeves and having the sleeve 88 in screw-threaded engagement therewith, whereby the position of the sleeves and nail-drivers may be adjusted, substantially as described.

12. The combination with the block or anvil, and the die, of a spring-supported stop which determines the amount of material to be received and retained within the die and reacts to eject the surplus material, substantially as described.

13. The combination with the block or anvil, the die, and a follower movable within the die as the material is received in the latter, of the spring-supported stop 86, which determines the amount of material to be retained within the die and ejects surplus material, and also yields to prevent breakage, substantially as described.

14. The combination with the die, the nail-holder, the rod 100 supporting the nail-holder, and the nail-drivers, of the sleeve 86 through which the rod 100 passes, a support for said sleeve, and a spring to sustain said support, substantially as described.

15. The combination with the die, the nail-holder, the rod 100 supporting the nail-holder, and the nail-drivers, of the sleeves 86 and 88 through which the said rod passes, the said sleeve 88 having an external screw-thread, the hollow post 89 having an internal screw-thread, and an elastic support for post 89, substantially as described.

16. The combination with the nail-drivers, the sleeve 86 having the nail-drivers at one end thereof, the sleeve 88 at the other end of said sleeve 86 and having a screw-threaded exterior, and a hollow post containing said sleeves and having an internal screw-thread to engage with that of the sleeve 88 of devices in operative connection with said sleeve 88 whereby to rotate the same to adjust the parts into position for clenching, substantially as described.

17. The combination with the nail-drivers, the sleeve 86 having the nail-drivers at one end thereof, support for the said sleeve, and screw-threaded adjusting devices applied to the said support and sleeve to enable the position of the sleeve relatively to the support to be varied, said adjusting devices having a rotatable part, of devices in operative connection with the said rotatable part whereby to move the same to the position required for adjusting the nail-drivers into position to effect the clenching, substantially as described.

18. The combination with the nail-drivers, the sleeve 86 having the nail-drivers at one end thereof, the sleeve 88 at the other end thereof and the hollow post containing said sleeves and having the sleeve 88 in screw-threaded engagement therewith, of the rack in engagement with the said sleeve 88, and means to actuate the said rack to adjust the nail-drivers into position for clenching, substantially as described.

19. The combination with the block or anvil, means for actuating the same, the die, the nail-holder, the rod 100 supporting the nail-holder, and the nail-drivers, of the sleeves 86 and 88 through which the said rod passes, the said sleeve 86 having the nail-drivers applied at the upper end thereof, and a support surrounding said sleeves and having the sleeve 88 in screw-threaded engagement therewith, of means to rotate the sleeve 88 to thereby adjust the nail-drivers into the position for clenching, and means connected with the said rod 100 to actuate the same and effect the ejection of a completed heel from the die, substantially as set forth.

20. The combination with the die, and a follower within the same, of an arm operatively connected with the said follower, a shaft on which said arm is fixed, clutch devices comprising an oscillatory member normally free to move independently of the said shaft, and a member splined to the said shaft, means to actuate the said oscillating member, and means to move the said splined member into engagement with the oscillating member when it is required to eject a completed heel from within the die, substantially as described.

21. The combination with the die, and a follower therein, of an arm operatively connected with the said follower, a shaft on which said arm is mounted, and a frictional brake to resist the turning of the said shaft as the follower is depressed within the die, substantially as described.

22. The combination with the block or anvil, actuating devices therefor including a clutch and clutch-operating devices, the die, nail-driving devices, clenching devices, and ejecting devices, of two treadles, connections between the said clutch-operating devices and one of the said treadles whereby on movement being given to the latter the block or anvil is caused to act, and connections intermediate the other treadle and the said clutching devices, clenching devices, and ejecting devices, whereby on the actuation of the second treadle the block or anvil is operated to apply the last layer of material and subsequently the clenching devices and ejecting devices successively are brought into action, substantially as described.

23. The combination with the block or anvil, and actuating devices therefor, the die, the nail-holder, the nail-drivers, a backing or support for the said nail-drivers, and height-adjusting devices for said backing or support having a rotatable member, of the rack in engagement with the said rotatable member, an arm operatively connected with the said nail-holder, a rock-shaft on which said arm is fixed, a clutch member splined to the said rock-shaft, a clutch member loose on the said rock-shaft, means to oscillate said loose clutch member, a shifter for the said splined clutch member, and means to operate the said rack and shifter, whereby to raise the nail-drivers into position for clenching and raise the nail-holder to eject the completed heel, substantially as set forth.

24. The combination with the die, the block or anvil, and actuating devices for said block or anvil including a clutch, of a shaft 132, an arm 135 mounted loosely on the said shaft, the clutch-operating device 7 operatively connected with the said arm, a spring acting to move the said arm 135 in one direction, levers 130 and 131 mounted on said shaft 132, the former loose and the latter fast thereon, dogs or pawls carried by the said levers to engage with teeth or projections on the said arm 135, two treadles respectively connected with the levers 130 and 131, a shipper-arm connected with the shaft 132, a rock-shaft 118, a clutch member splined to the said rock-shaft and engaged by the said shipper-arm, a clutch member loose on the said rock-shaft, means to oscillate the said loose clutch member and to trip the said pawls or dogs at each movement of the oscillating clutch member in one direction, and ejecting devices connected with the said rock-shaft, substantially as described.

25. The combination with the die, the nail-holder, and the nail-drivers, of the die-filler 80, having pockets 801 for the reception of tacks to secure a rand in place, a series of tack-drivers 803, 803, applied to the said die-filler and movable vertically relatively thereto, and a stop or abutment with which the said tack-drivers come in contact in the descent of the die-filler, substantially as described.

26. The combination with the anvil or block having an orifice or orifices in the acting face thereof for the discharge of adhesive material, of the plunger having a passage therethrough in communication with the said discharge orifice or orifices of the block or anvil, means of supplying adhesive material to the said passage, a valve controlling the discharge of the adhesive material, valve-operating devices actuated by the transverse movement of the plunger, and means to communicate both a longitudinal and a transverse movement to the plunger, substantially as described.

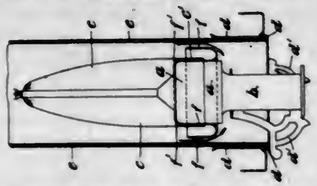
27. The combination with the anvil or block having an orifice or orifices in the acting face thereof for the discharge of adhesive material, of the plunger having a passage therethrough in communication with the said discharge orifice or orifices of the block or anvil, a closed reservoir to contain the adhesive material and in communication with the said passage in the plunger, and an air-pump whereby to produce air-pressure within the reservoir, a valve controlling the discharge of the adhesive material through the said orifice or orifices, and valve-operating devices actuated by the movement of the plunger, substantially as described.

28. The combination with the block or anvil 3, the clenching-block applied thereto having a discharge orifice or orifices 62 and a

central chamber 61, the plunger having a central passage communicating with the said chamber 61, means of supplying an adhesive material to the said central passage, a check-valve in the said chamber 61, a rod or stem connected with the said check-valve and contained in the central passage of the plunger, and operating devices connected with the said stem or rod and actuated by the movement of the plunger, substantially as described.

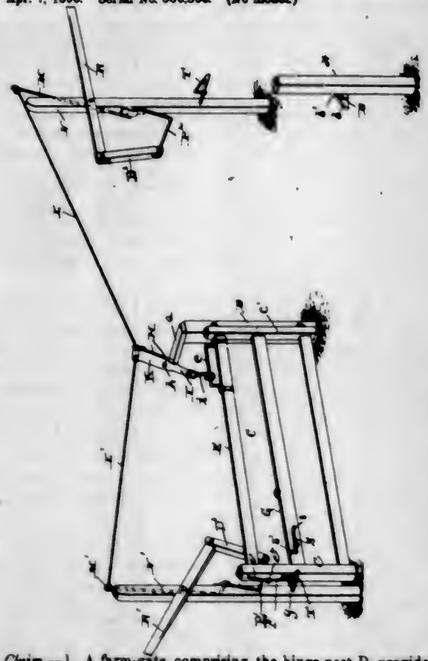
29. The combination with the plunger having a central passage through its lower portion, of the sleeve 112 applied to the said lower portion and rotatable thereon, means whereby to intermittingly rotate the said sleeve on the said lower portion, the block or anvil 3 applied to the lower end of the said sleeve, the clenching-block applied to the said block or anvil and having a discharge orifice or orifices 62 and a central chamber 61 with which the central passage of the plunger communicates, a check-valve within the said central chamber, a valve-operating rod within the said central passage of the plunger, and valve-operating devices connected with the said rod or stem and actuated by the movement of the plunger, substantially as described.

575,441. **INCANDESCENT GAS LAMP OR BURNER.** HARRY TEE, Liverpool, England. Filed Nov. 30, 1895. Serial No. 570,654. (No model.) Patented in England Jan. 25, 1894, No. 1,605.



Claim.—In combination, the burner-head *a*, the mantle supported therefrom and an annular trough-shaped device *f*, loosely fitting the burner-head, the trough-shaped lower portion inclosing the lower edge of the mantle, substantially as described.

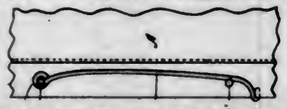
575,442. **FARM-GATE.** ALVIN W. TERPENING, Utah, Ill. Filed Apr. 7, 1896. Serial No. 586,563. (No model.)



Claim.—1. A farm-gate comprising the hinge-post D, provided with the rearwardly-projecting arm *a*; the gate proper C, carrying upon its upper rail the oscillating shaft E having the elongated double crank *e* and the depending arm *e'*; in combination with the connecting-rod F; the spring-latch G; the horizontal lever H fulcrumed on arm *a*; the rigid hook *i* depending from said lever and engaging crank *e*; rock-lever M, and hand-lever R secured to post N; and rods L and D^2 respectively connecting the upper and lower ends of lever M with levers K and R, substantially as and for the purpose set forth.

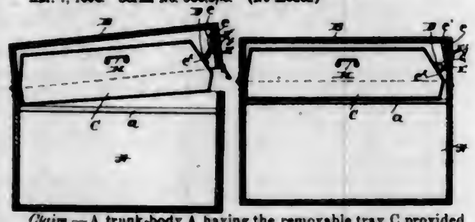
2. A farm-gate comprising the hinge-post D, provided with the rearwardly-projecting arm *a*; the gate proper C carrying the oscillating shaft E, having the elongated double crank *e* and the depending arm *e'*; the rod F; the spring-latch G; the hand-lever S, fulcrumed to one of the rails of said gate, and adapted to operate said latch; the horizontal lever H fulcrumed on arm *a*; the rigid hook *i* depending from said lever and engaging crank *e*; rock-lever M and hand-lever R fulcrumed on post N, and rods L and D^2, respectively connecting the upper and lower ends of lever M with levers K and R, substantially as and for the purpose set forth.

575,443. **CORSET-STEEL REINFORCE.** CHLOE F. TILTON, San Francisco, Cal. Filed Jan. 30, 1896. Serial No. 577,410. (No model.)



Claim.—In combination with a corset clasping-steel provided with fixed hooks or studs, a protector or strengthener provided at one end with an eye removably and pivotally engaging one of said studs, and provided at the other end with a bend for removably securing it to the steel, substantially as described.

575,444. **TRUNK.** MARTIN L. TINKCOM, Eau Claire, Wis. Filed Apr. 7, 1896. Serial No. 586,586. (No model.)



Claim.—A trunk-body A having the removable tray C provided with arms *c c* and the staple D, in combination with the hinged lid B, provided with the bracket *c* having the hinged hook E formed with an inwardly-projecting end e^4 and the flat spring *e'* secured to said bracket *c* and adapted to normally keep the end of the hinged hook out of engagement with the staple on the lid except when operated by the push-button F, substantially as and for the purpose set forth.

575,445. **RUBBER TIRE.** ELIAS L. TOY and ALBERT T. HOLT, Akron, Ohio. Filed Sept. 26, 1896. Serial No. 607,021. (No model.)



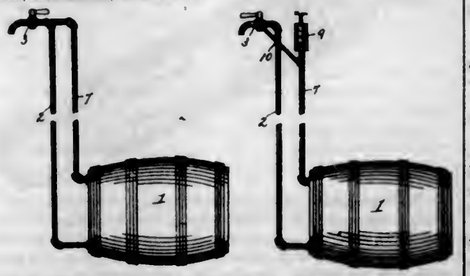
Claim.—1. In a rubber tire or cushion for vehicle-wheels having longitudinal apertures for the retaining-wires, the combination of connecting and supporting links provided with openings or eyes at each end which serve as a core-support and also to maintain the retaining-wires and prevent their displacement when in use substantially as described.

2. In a rubber tire or cushion transverse connecting-links having apertures within which the retaining-wires are threaded through the longitudinal openings in the tires as and for the purposes shown and described.

3. The transverse links B combined with the molding-wires B' to prevent displacement of the core in formation of the tire substantially as shown and described.

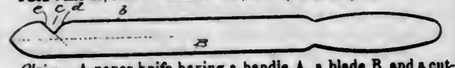
575,446. **LIQUID-DISPENSING APPARATUS.** FRANK H. TRUMBULL, Palmyra, N. Y., assignor of one-half to W. J. Hennessy, same place. Filed Mar. 2, 1896. Serial No. 581,547. (No model.)

Claim.—1. In combination with a holder for a liquid under pressure above the normal, a draw-off pipe extending upwardly from said barrel, a faucet having a discharge-passage continuously in or extending below the plane of the faucet and provided with a cock having ports whereby the draw-off pipe can be alternately put in communication with the said horizontal faucet-discharge and with a pipe leading to the barrel above the liquid therein, and means for equalizing the pressure in the barrel and above the liquid in said pipe, said means consisting of a pressure-equalizing conduit connected to communicate through the faucet-cock with the barrel whereby the interior of the barrel above the liquid and the upper portion of the liquid-discharge pipe immediately at the faucet-cock may be made to communicate and whereby the discharge-conduits on both sides of the faucet may be emptied of their liquid contents by a simple manipulation of the cock, substantially as described.



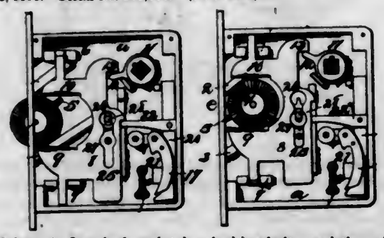
2. In combination with a holder for liquid under pressure above the normal, a draw-off pipe extending upwardly from said barrel, a faucet having a discharge-passage continuously in or extending below the plane of the faucet and provided with a three-way cock, a pipe having a horizontal faucet-discharge conduit and connecting said cock with the upper part of the barrel, a pipe connecting the same cock with the draw-off pipe, said cock being adapted to simultaneously close the faucet-discharge and open communication between said pipes through its ports, and a supplementary pipe provided with a cock and connecting the two first-named pipes above the barrel and adjacent the draw-off cock, substantially as described.

575,447. **PAPER-CUTTER.** MAYNARD F. TYLER, Seattle, Wash. Filed June 20, 1896. Serial No. 596,300. (No model.)



Claim.—A paper-knife having a handle A, a blade B, and a cutting edge *b*, said cutting edge being provided, at a point near the extremity of the blade, with a recess *c*, consisting of a portion *d*, extending inwardly from said edge, and a rectilinear blunted portion *e*, extending from the inner end of said inwardly-extending portion outwardly to said edge, substantially as set forth.

575,448. **LOCK AND LATCH.** JAMES R. WELLS, Syracuse, N. Y., assignor of three-eighths to Herbert S. Fulmer, same place. Filed Dec. 28, 1895. Serial No. 573,066. (No model.)



Claim.—1. In a lock or latch, a locking-bolt, consisting of a circular disk having one side beveled and suitable parallel ways between which it is mounted to roll upon the lower one as it is being projected and to roll against the upper one as it is being retracted.

2. In a lock or latch, a casing comprising a body, sides, and face-plate, and parallel inclined ways upon the inner face of one or both sides, in combination with a beveled circular bolt, mounted between said ways and adapted to roll upon a lower way while being projected and to roll against an upper one while being retracted to unlock or unlatch.

3. In a lock or latch, a casing comprising a body, sides, and a reversible face-plate to change from a right to a left hand lock or latch, in combination with a beveled roller locking-bolt adapted to project through a mortise in the face-plate to lock the lock or latch, and to be reversed when the face-plate is reversed.

4. In a lock or latch a casing comprising a body, sides and face-plates suitably mortised, and parallel inclined ways upon one or both sides, in combination with a locking-bolt consisting of a beveled disk rolling on the lower way when the bolt is being projected, and rolling against the upper one when it is being retracted, and a vertically-vibratory arm engaging with said bolt to raise it into contact with the upper way and cause it to roll against it to be retracted and to lower it onto the lower one to roll outward thereon until projected.

5. In a lock or latch a casing, inclined ways therein and a rotary beveled circular bolt guided by said ways, in combination with a vertically-vibratory arm engaging with said bolt to raise it and rotate it through its engagement with one of said ways, and to release it to gravitate down the other one of said ways.

6. In a latch or lock a casing, inclined ways therein and a rotary beveled circular bolt guided by said ways, in combination with a knob-spindle, a rotatable tumbler receiving it an arm upon said tumbler, or retractor engaged by said arm and an arm upon said retractor whereby said bolt is retracted or projected by the rotation of said knob-spindle.

7. In a latch or lock a casing, parallel inclined ways therein and a rotary beveled circular bolt alternately guided by said ways in combination with a retractor having an arm engaging with said bolt, and a slide having an arm engaging with said retractor to lift it when a key is inserted into the casing and turned.

8. In a latch or lock a casing, inclined ways therein and a rotary beveled circular bolt guided by said ways, in combination with a retractor engaging with said bolt and provided with a slot of varying width and a cam journaled in said casing and adapted to be rotated to lock said retractor and bolt.

9. In a lock or latch a casing, a beveled circular bolt, ways by which it is guided, a retractor engaging with said bolt, and a knob-spindle tumbler rotatably mounted in said casing and engaging with said retractor, in combination with a knob-spindle channeled longitudinally and rounded on one end, a knob rotatably mounted upon said rounded end and having recesses in it exterior to the spindle, a knob secured upon the other end of said spindle and having a slot through its shank, and a reciprocatory slide inserted through said slot, channel and tumbler and adapted to be shifted longitudinally into engagement with said loose knob to lock it to the spindle, or out of such engagement to release it.

10. In a latch or lock, the combination with a spindle grooved longitudinally and rounded on one end, of a knob rotatably mounted upon said rounded end, and having recesses in its shank, another knob secured upon the other end of said spindle and provided with a slot in its shank, and a slide inserted through said slot and into said groove and adapted to be reciprocated longitudinally therein to bring it into or out of engagement with one of said recesses in said loose knob, a knob-tumbler, a rotating bolt and intermediate mechanism whereby the bolt is operated when the spindle is turned.

11. In a latch or lock, the combination with a suitable casing, and a bolt mounted therein, of a vertically-reciprocated slide and means to connect it to said bolt and a gravity-tumbler suspended from a pivot and normally locking said slide and with which a key, inserted into the casing engages when turned to swing it away from and release said slide.

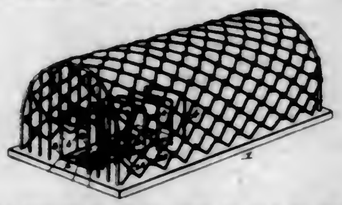
575,449. **TELEGRAPH-BATTERY JAR.** ANDREW L. WERNER, Delano, Pa. Filed June 20, 1896. Serial No. 597,273. (No model.)



Claim.—A battery-jar provided with an integral spout and having its rim formed into outwardly-projecting hand-grasp flanges which extend almost completely around the jar but leave a blank portion.

575,450. **TRAP.** LLOYD F. WILLIAMS, Clarksville, Tex. Filed June 20, 1896. Serial No. 597,043. (No model.)

Claim.—1. In a trap, the combination of a body having an entrance-passage, an upwardly-swinging door hinged at its outer end and normally arranged at the bottom of the passage, a pair of rods depending within the passage at opposite sides thereof, and the platform arranged at the inner end of the door and provided at opposite sides thereof with outwardly-extending arms fulcrumed intermediate of their ends on the lower terminals of the depending rods and pivoted at their outer ends to the door at a point between the ends thereof, substantially as described.



2. In a trap, the combination, with the body thereof provided with an opening, of an entrance-passage arranged within said body and extending from said opening, a door disposed in said passage and adapted to close the same, said door comprising a U-shaped frame having offsets in the sides and provided with spaced prongs secured to the cross-piece of said U-shaped frame and lying parallel with the sides thereof, said door being also provided with a tread-plate secured on the U-shaped frame, and a tilting platform yieldingly fulcrumed within said passage, said platform comprising a frame covered by a plate and having its sides extended from the outer end of said plate and lying along the outside of the U-shaped frame of the door, said sides being looped around the offsets of the frame of the door and forming a hinged connection between the latter and the platform, whereby the door may be closed when said platform is operated by the animal or fowl within the trap, substantially as set forth.

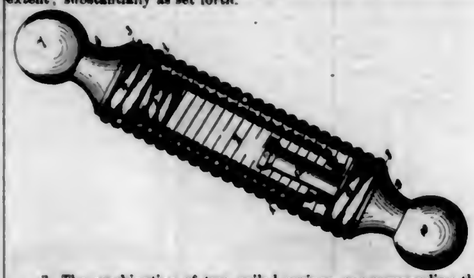
3. In a trap, the combination, with the body thereof provided with an opening, of an entrance-passage arranged within said body and extending from said opening, said passage comprising a series of inverted-U-shaped frames arranged in alinement with each other and having their lower ends secured in the bottom of the trap, a door disposed in said passage and adapted to close the same, said door comprising a U-shaped frame having offsets in its sides and provided with spaced prongs secured to the cross-piece of said U-shaped frame and lying parallel with the sides thereof, the inner ends of said prongs and sides being pointed, said door being also provided with a tread-plate secured on the U-shaped frame, a tilting platform suspended within the passage, said platform comprising a frame covered by a plate and having its sides extended from the outer end of said plate and lying along the outside of the U-shaped frame of the door, said sides being looped around the offsets of the frame of the door and forming a hinge connection between the latter and the platform, whereby the door may be closed when said platform is operated by the animal or fowl within the trap, and fulcrum-rods connected at their upper ends to the top of the passage in the body of the trap and each having its lower end forming an eye adapted to receive and hold the extended sides of the platform-frame, said eyes forming yielding fulcrum-points for said extended sides, substantially as set forth.

4. In a trap, the combination of a body having an opening, an inwardly-extending passage located at the opening and comprising a series of inverted-U-shaped frames arranged in alinement and located at intervals, an upwardly-swinging door hinged at its outer end and normally arranged at the bottom of the passage, a pair of depending fulcrum-rods provided at their upper and lower ends with eyes, the upper eyes receiving the transverse portion of one of the U-shaped frames, and a platform arranged in rear of the door and provided at opposite sides of the same with arms passing through the lower eyes of the fulcrum-rods and pivotally connected with the door between the ends thereof, substantially as described.

575,451. SPRING. GEORGE W. N. YOST, New York, N. Y.; C. Godfrey Patterson, Charles W. Yost, and Sophia C. Yost, executors of said George W. N. Yost, deceased; said Patterson and Charles W. Yost assignors to E. & H. Densmore, same place. Filed June 23, 1894. Serial No. 515,987. (No model.)

Claim.—1. A compound distention-spring comprising two separate coiled springs arranged one within the other, one of said springs being provided with a device for acting upon the other, and the arrangement being such that upon the distention of one of said springs to a given or predetermined extent the other of said springs is then acted upon and distended to increase the resistance.

2. The combination of two coiled springs, one surrounding the other, the said springs being held in a fixed relation to each other at one end and in a movable relation to each other at the opposite end, and a connector rigidly attached to the free end of one of said springs and provided with a device for acting upon the other spring when the first spring shall have been distended to a given or predetermined extent; substantially as set forth.



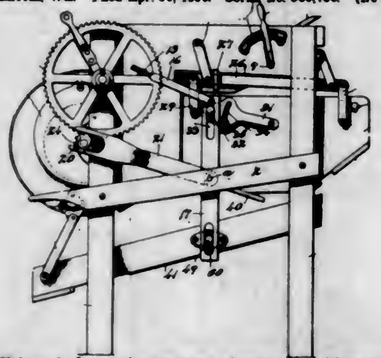
3. The combination of two coiled springs, one surrounding the other, a device attached to each end of the outer spring, a device attached to one end of the inner spring, and a movable pulling device within the other end of the inner spring, connected to the outer spring and having lost motion, whereby the inner spring may be distended after the distention of the outer spring and by the force applied thereto, substantially as set forth.

4. The combination of the two coiled springs, the screw 4, the screw 5, the screw 11, and the shoulder or abutment, substantially as set forth.

5. The combination of the two coiled springs, the screws 4, 5 and 11, the elongated stem, the shoulder or abutment, the heads or flanges, and the balls or other connecting devices, substantially as set forth.

6. The combination of the two separate, independent, coiled springs wound in opposite directions and arranged one within the other, a device attached to each end of the outer spring, a device attached to one end of the inner spring, and a movable pulling device within the other end of the inner spring and connected to the outer spring: substantially as set forth.

575,452. FANNING-MILL. JOHN ALBRIGHT and LOUIS ALBRIGHT, Lincoln, Wis. Filed Apr. 30, 1896. Serial No. 589,706. (No model.)



Claim.—1. In a grain-separator, a hopper comprising oppositely-inclining pieces forming a bottom, and having a discharge-opening between their lower edges, one of the pieces having an extension whose top side is about in the plane of the bottom side of the piece from which it projects, a bar supported upon said extension, and means for reciprocating the bar laterally upon the extension toward and from the discharge-opening, whereby the grain is agitated and forcibly fed through the said opening, substantially as set forth.

2. In a grain-separator, a hopper comprising an inclined bottom piece having an extension at its lower edge, and having the top side of the extension about in the plane of the bottom side of the said inclined piece, a bar supported upon the extension, a second bar parallel with the first bar and located below the inclined piece, and having its end portions projecting through slots in the sides of the hopper, short bars connecting the parallel bars, vibrating levers, and links connecting the projecting ends of the said second bar with the vibrating levers, substantially as and for the purpose set forth.

3. In a grain-separator, the combination of a frame, horizontally-disposed bars at the sides of the frame, links having pivotal connection at their lower ends with the said horizontal bars and at their upper ends with the frame, other links having pivotal connection at their upper ends with the horizontal bars and pendent therefrom, a shoe having pivotal connection with the lower ends of the pendent links and supported thereby, actuating mechanism for vibrating the shoe, and means for adjusting the aforesaid horizontal bars and securing them in an adjusted position to vary the height and amplitude of movement of the shoe, substantially as set forth.

4. In a grain-separator, the combination of a frame, horizontally-disposed bars at the sides of the frame, links having pivotal connection at their lower ends with the said horizontal bars and at their upper ends with the frame, other links having pivotal connection at their upper ends with the horizontal bars and pendent therefrom, a shoe having pivotal connection with the lower ends of the pendent links, means for imparting a vibratory movement to the shoe, and clamp-plates for securing the aforesaid horizontal bars in an adjusted position, whereby the elevation and amplitude of movement of the shoe are regulated, substantially as set forth.

5. In a grain-separator, the combination of a shoe, vertically-disposed vibrating levers, longitudinally-disposed plates having pivotal connection with the shoe and adjustable connection with the vibrating levers, and means to admit of the longitudinal plates being shifted to change their point of attachment with the vibrating levers for varying the throw of the shoe and securing the said plates in an adjusted position, substantially as set forth.

6. In a grain-separator, the combination of a shoe, vertically-disposed vibrating levers having longitudinal slots, horizontally-disposed plates pivoted at one end to the shoe and having lateral extensions at their other end to enter the slots of the vibrating levers, and having transverse arcuate slots intermediate of their ends, and binding-screws operating through the arcuate slots of the horizontal plates to secure the latter in a located position, substantially as and for the purpose set forth.

7. In a grain-separator, the combination of a fan, a shoe comprising side pieces and a separating-screen, the latter being vertically adjustable at its outer end, a tie-rod and hand-nut for clamping the screen between the side pieces of the shoe, a blast-board pivoted to and movable with the separating-screen, one pivot entering a notch in the screen-frame, and a plate secured to the screen-frame and extending over the notch to retain the pivot in place, substantially as and for the purpose set forth.

8. In a grain-separator, the combination of a force-feeder located in the hopper, a shoe, a lower separating-screen, vertically-disposed levers fulcrumed intermediate of their ends, connections between the said levers and the force-feeder, shoe and lower separating-screen, arms secured to the vertical levers and having their outer or rear ends notched, and a shaft having eccentrics to operate in the notched ends of the said arms, substantially as and for the purpose set forth.

575,458. BICYCLE-SUPPORT. CHARLES L. BENEDICT, Amherst, Canada. Filed July 18, 1896. Serial No. 599,677. (No model.)

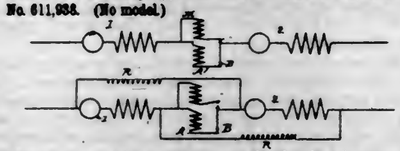


Claim.—1. A bicycle-support comprising among its members an attaching device adapted to be detachably secured to the bicycle-frame, the hollow supporting-rod pivotally secured to said attaching device and provided with a longitudinal slot, a hook-arm pivoted with said rod adjacent to one end of said slot, and having its other end provided with a spoke-engaging hook, adapted to enter said slot and lie wholly within said hollow rod when the latter is not in operative position, a clip adapted to be detachably secured to the bicycle-frame, provided with spring-arms for holding said rod when not in use and means for forcing said hook within said hollow rod when the latter is moved out of operative position and into engagement with the said spring-arms, substantially as described.

2. A bicycle-support comprising among its members, a clamping-collar, the hollow supporting-rod hinged thereto a hook-arm pivoted within said rod, and having a spoke-engaging hook at its free end, said rod being provided with a longitudinal slot, to permit said hook to lie within said rod when out of operative position and a link connecting said hook-arm and said collar, substantially as described.

3. A bicycle-support comprising among its members a clamping-collar, the hollow supporting-rod hinged thereto, provided with a longitudinal slot, a hook-arm pivoted within said hollow rod and having a spoke-engaging hook at its free end, said hook-arm being adapted to lie within said hollow rod when the latter is not in operative position, a link connecting said hook-arm and said collar and a lock secured to the outer end of the hook-arm having a movable bolt, adapted to engage a portion of the hook to retain the spoke within said hook, substantially as described.

575,454. SERIES-MULTIPLE CONTROLLER FOR ELECTRIC MOTORS. EDWARD M. BENTLEY, Lawrence, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 13, 1896. Serial No. 611,938. (No model.)



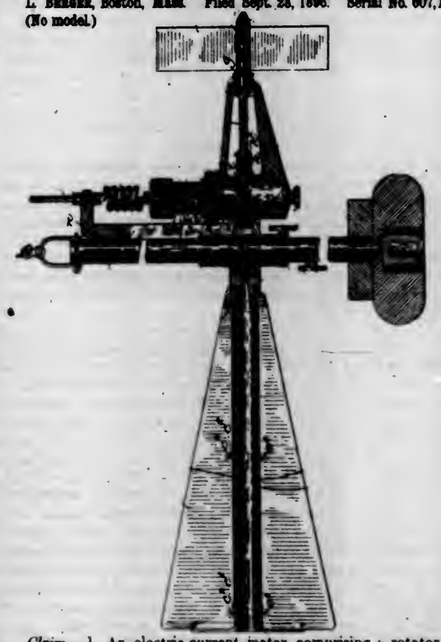
Claim.—1. A series-multiple controller for electric motors, comprising a shunt for the two motors containing a resistance, an automatic circuit-breaker placed in the series circuit between the two inner terminals of the shunts and dependent on the volume of current passing therein, substantially as described.

2. A series-multiple controller for electric motors comprising a shunting-resistance for each motor, an electromagnet in the bridge-circuit between the two motors at a point between the inner terminals of the two shunts and a circuit-breaker in the said bridge-circuit controlled by the said magnet, substantially as described.

3. A series-multiple controller for electric motors comprising two shunting-resistances R R and suitable contact-plates C C′ and D D′ for controlling said resistances and connecting them in shunt-circuits around the respective motors, magnet M in the bridge-circuit between contact-fingers E′ and E¹⁴, a circuit-breaker in the said bridge-circuit controlled by the said magnet and means for restoring the armature of the said magnet in the reverse movement of the controller, substantially as described.

4. The combination in a series-multiple controller of shunting-resistances for each motor, a magnet in the bridge-circuit at a point between the inner terminals of the two shunts, a circuit-breaker in the same circuit controlled by the said magnet and a supplementary coil on the said magnet shunting the said circuit-breaker and adapted to be connected in parallel with the other magnet-coil during the reverse movement of the controller, substantially as described.

575,455. DEEP-SEA ELECTRIC-CURRENT METER. CHRISTIAN L. BERGER, Boston, Mass. Filed Sept. 28, 1896. Serial No. 607,159. (No model.)



Claim.—1. An electric-current meter, comprising a rotator, its shaft, bearings therefor and electrical make-and-break devices, combined with an oil-well for the latter, said make-and-break devices

being mounted in the upper portion of said oil-well and the latter having an extended lower portion open freely below said make-and-break devices, substantially as described.

2. An electric-current meter, comprising a rotator, its shaft, bearings therefor and electrical make-and-break devices, combined with an oil-well for the latter, a portion of said make-and-break apparatus being mounted on said shaft and a portion on a cap secured removably to the upper end of said oil-well, substantially as described.

3. An electric-current meter, comprising a rotator, a shaft, make-and-break apparatus, an oil-well containing and supporting said make-and-break apparatus, a circuit-terminal, said terminal being held by means of a spring-plug secured in the top of said oil-well, substantially as described.

4. In an electric-current meter, a rotator and its shaft, combined with a vertically-elongated oil-well, electric make-and-break apparatus being mounted in the upper portion of said oil-well, a cap provided for the upper end of said oil-well supporting a portion of said apparatus, said cap containing a metal plug centrally perforated and radially split for a portion of its length to receive a circuit-terminal, and having one or more shoulders, an insulating-block surrounding said plug within said cap and engaging the shoulder or shoulders of said plug, and means to securely clamp said parts to the lower end of said cap, substantially as described.

5. In an electric-current meter, a rotator and its shaft, combined with a vertically-elongated oil-well, electric make-and-break apparatus being mounted in the upper portion of said oil-well, a cap provided for the upper end of said oil-well supporting a portion of said apparatus, said cap containing a metal plug centrally perforated and radially split for a portion of its length to receive a circuit-terminal, and having one or more shoulders, an insulating-block surrounding said plug within said cap and engaging the shoulder or shoulders of said plug, means to securely clamp said parts to the lower end of said cap, a gland within said cap above said parts, and means to compress said gland against said parts, substantially as described.

6. In an electric-current meter, a rotator, its shaft, said shaft having a conical tapered end, and having an end bearing for said shaft, said bearing comprising an end plate of iridium to receive said conical end and having an annulus to receive the adjacent portion of the shaft, one of the cooperating surfaces of said shaft and annulus being curved in cross-section, and the other of said surfaces being formed to contact therewith tangentially, thereby reducing the amount of frictional contact, substantially as described.

7. In an electric-current meter, a rotator, its shaft, said shaft having a conically-tapered end and a spheroidal portion adjacent said end, and a bearing therefor, said bearing comprising an end plate of hard non-corrosive material to receive said conical end, and an annulus to receive the contacting surface of said spheroidal portion, substantially as described.

8. In an electric-current meter, a rotator, its shaft, said shaft having a conically-tapered end, and a spheroidal portion adjacent said end, and a bearing therefor, said bearing comprising an end plate of hard non-corrosive material to receive said conical end, and an annulus to receive the contacting surface of said spheroidal portion, said bearing being removably mounted in the apparatus by means of a screw-socket, substantially as described.

9. In an electric-current meter, a rotator, its shaft, an oil-well, electric make-and-break apparatus supported in said well, an end bearing for said shaft mounted in the rear wall of said oil-well, an intermediate bearing for said shaft supported by a bracket projecting from the front wall of said oil-well, said oil-well being perforated to receive said shaft, and collars on said shaft, one collar being adjustable adjacent said intermediate bearing and the other collar being adjustable adjacent the perforation in the front wall of the oil-well, substantially as described.

10. In an electric-current meter, a rotator, its shaft, an oil-well, electric make-and-break apparatus supported in said well, an end bearing for said shaft mounted in the rear wall of said oil-well, an intermediate bearing for said shaft supported by a bracket projecting from the front wall of said oil-well, the latter being perforated to receive said shaft and collars on said shaft, one collar being adjustable adjacent said intermediate bearing and the other collar being adjustable adjacent said perforation in the front wall of the oil-well, the abutting surfaces of said perforation and said collar being annularly curved to fit one within the other, substantially as described.

11. A current-meter, comprising a rotator, a rudder, means connecting the same, and a support therefor, combined with an adjustable pendulum extension having a weight at its lower end and adapted to be secured to said apparatus for the purpose of steadying the same, and means for adjusting said extension up and down relatively to said apparatus, whereby accuracy of operation may be maintained in different currents and depths, substantially as described.

12. A current-meter, having a rotator, a rudder, means connecting the same, and a support therefor, means for adjusting said rudder toward and from said rotator, for the purpose of balancing the same, and means for rigidly securing the same in said adjusted position, substantially as described.

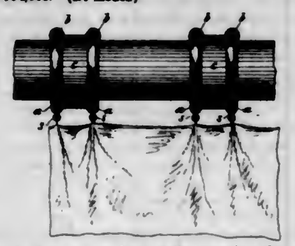
13. In a current-meter, a rudder comprising vertical plates and horizontal plates, said horizontal plates being removable, independently of said vertical plates, substantially as described.

14. In a current-meter, a rotator, a rudder, and connections between the same, said rudder being mounted telescopically on an extension from said intermediate connection, and means to fixedly adjust said rudder along said extension, substantially as described.

15. In an electric-current meter a rotator, an electric make-and-break apparatus, adapted to record the rotations of said rotator, an electric terminal for said apparatus, and a bracket mounted rigidly and immovably on said meter and provided at its upper end with a clamp to receive said terminal and hold the same clamped immovable relatively to said meter, substantially as described.

16. In a current meter, a rotator, its shaft, supporting-arms for said shaft, a rudder, and a connection between said arms and said rudder, said arms being pivotally mounted on said connection, substantially as described.

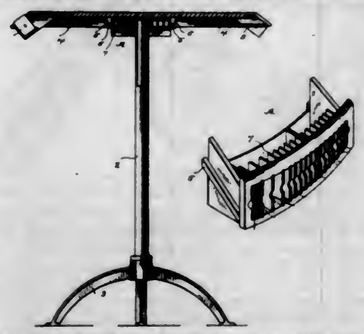
575,456. RUNNER OR SUPPORT FOR CURTAINS. ROBERT H. BISHOP and WILLIAM DOWN, London, England. Filed June 3, 1896. Serial No. 594,165. (No model.)



Claim.—1. A runner or hanger for curtain-poles consisting of a tube having an eye at each end for the reception of a curtain-hook, and two antifriction-rollers having a contour conforming to the inner circumference of said tube and arranged one at each end thereof directly over the said eyes, substantially as herein described.

2. The combination in a runner or hanger for curtain-poles of two rings *a a* having grooves in their opposite faces and each furnished with an eye *a*, a connecting-cylinder *c* placed between said rings with its ends in said grooves, and two antifriction-rollers *b* having a contour conforming to the inner circumference of said rings and arranged one within each of said rings, directly above its eyes, substantially as herein described.

575,457. DUPLICATE-WHIST TABLE. GEORGE S. BOUTWELL, Waterbury, Conn. Filed Feb. 5, 1896. Serial No. 578,114. (No model.)



Claim.—1. A duplicate-whist apparatus comprising a table-top provided with four equidistant sets of guides under its edge, card-racks fitted to slide in said guides, each of said racks being divided by vertical partitions into two series of compartments of different widths, said compartments being open at their forward or front sides.

2. A duplicate-whist apparatus comprising a table-top having a plurality of sets of card racks or pockets in its edge and having openings in the top of the table and finger-recesses formed in the edges of the partitions between said card-pockets.

3. A duplicate-whist apparatus comprising a table-top having four sets of card racks or pockets in its edge and having openings in the top of the table, the edges of the partitions between the card-pockets being substantially flush with the portions of the table between-

the racks and having finger-recesses to facilitate the grasping of the cards.

4. A detachable rack for card-tables, provided with a plurality of compartments to receive the hands of cards and being of a size substantially equal to the size of the cards, the said compartments being open in front and the partitions separating such compartments provided with finger-recesses to render the cards accessible when the rack is in its normal position under the table-top, the said rack being provided with cleats or projections adapted to coöperate with supporting means below the table-top to retain the rack in position.

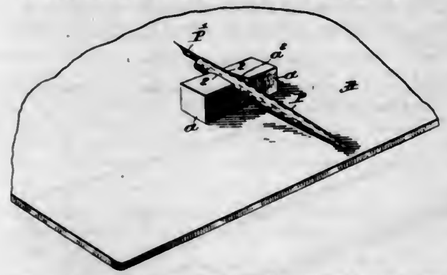
5. A duplicate-whist apparatus comprising a table-top having a plurality of sets of card racks or pockets and having openings in the top of the table and finger-recesses formed in the edges of the partitions between said card-pockets.

6. A duplicate-whist apparatus comprising a table-top having openings in the top thereof and detachable sets of card racks or pockets the partitions between said pockets being provided with finger-recesses for convenience in grasping the cards.

7. A duplicate-whist table having a series of compartments extending through the top thereof, with a groove intersecting the said compartments and supports for the compartments beneath the table, substantially as described.

8. A duplicate-whist table having a rotatably-mounted top provided with a series of compartments, with an intersecting groove and supports for the compartments beneath the table, substantially as described.

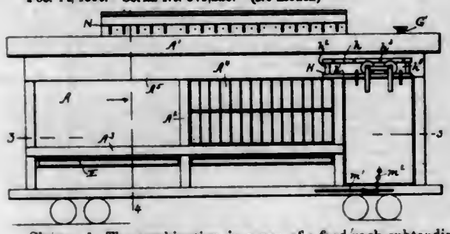
575,458. PEN-REST. FREDERICK C. CANFIELD, Fall River, Mass. Filed Nov. 16, 1896. Serial No. 612,199. (No model.)



Claim.—1. As a new article of manufacture, a pen-rest comprising a body portion having an integral soft under surface or base, and having in its top a transverse recess the walls of which diverge from a point between its ends to receive the handle or holder of a pen, substantially as described.

2. As a new article of manufacture, a portable pen-rest comprising a body portion having a transverse recess in its top, the sides of the recess being laterally yielding, and converging from their ends to an intermediate point to receive and grasp the holder or handle of a pen, substantially as described.

575,459. STOCK-CAR. WILLIAM CLINE, Lancaster, Pa. Filed Feb. 14, 1896. Serial No. 579,223. (No model.)



Claim.—1. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between one edge of the feed-rack and the car-body and located on one side of the subtended angle, and a detachable connection between the other edge of the feed-rack and the car-body and located on the other side of said subtended angle, the detachable edge of the feed-rack being adapted to be swung back into the car, for the purpose specified.

2. The combination, in a car of a feed-rack subtending an upper angle of the car, a hinged connection between one edge of the feed-rack and the car-body and located on one side of the subtended angle, and a detachable connection between the other edge of the feed-rack and the car-body and located on the other side of said subtended angle, the detachable edge of the feed-rack being adapted to be swung back into the car, said detachable edge of the feed-rack having a pocket or receptacle formed on the inner side thereof, for the purpose specified.

3. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed-rack being adapted to be swung back into the car, the upper portion of the feed-rack being constructed of sheeting and the lower portion of slats, for the purpose specified.

4. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed rack being adapted to be swung back into the car, the upper portion of said feed-rack being constructed of downwardly-curved sheeting and the lower portion of slats forming a continuation of the curve of the sheeting, for the purpose specified.

5. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed-rack being adapted to be swung back into the car, and a projection or plate on the inner side of the lower edge of the rack, for the purpose specified.

6. The combination, in a stock-car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed-rack being adapted to be swung back into the car, the upper portion of the feed-rack being constructed of sheeting and the lower portion of slats, a projection or plate on the inner side of the lower edge of the feed-rack, and a transverse plate closing each end of said feed-rack, for the purpose specified.

7. In a stock-car, a feed-rack comprising intermediate ribs, end ribs extending below the intermediate ribs, a hinge connection between the upper ends of said ribs and the car-body, a horizontal bar connecting the lower extremities of the end ribs, sheeting secured to the ribs adjacent to the hinges thereof, and slats having their ends fixed in the lower edge of the sheeting and in said horizontal bar, the lower edge of the feed-rack being adapted to swing back into the body of the car, in combination with means for detachably securing said lower edge of the feed-rack to a wall of the car, for the purpose specified.

8. The combination, in a stock-car, of a hay-loft arranged in the top of the car and having a side thereof opening into the car, a feed-rack having its upper edge located adjacent to the bottom of the hay-loft in front of the opening therein, a hinge connection between the upper portion of the feed-rack and the car-body, the lower edge of the feed-rack being adapted to swing back into the body of the car, and means for detachably securing said lower edge of the feed-rack to a wall of the car, for the purpose specified.

9. The combination, in a stock-car, of a hay-loft arranged in the top of the car and having a side thereof opening into the car, a feed-rack having its upper edge adjacent to the bottom of the hay-loft in front of the opening therein, a hinge connection between the upper portion of the feed-rack and the car-body, an extension from the bottom of the hay-loft over the upper edge of the feed-rack, the lower edge of the feed-rack being adapted to swing back into the body of the car, and means for detachably securing said lower edge of the feed-rack to a wall of the car, for the purpose specified.

10. In a stock-car, a hay-loft arranged longitudinally of the center of the car, feed-racks comprising downwardly-curving ribs hinged to the joists of the car on each side of the hay-loft, the end ribs of each feed-rack extending below the intermediate ribs, horizontal bars connecting the lower extremities of the end ribs, sheeting secured to the ribs, the upper edges of the sheeting being adjacent to and somewhat below the floor of the hay-loft, slats forming a continuation of the curves of the sheeting and having their ends secured in the lower edges of said sheeting and in said horizontal bars, projections or plates attached to the horizontal bars and constructed to form bottoms for the feed-racks when the same are swung back into the body of the car, and transverse walls closing the ends of the feed-racks, in combination with extensions from the bottom of the hay-loft over the upper edges of the sheeting, and means for detachably securing the lower edges of the feed-racks to the walls of the car, substantially as and for the purpose specified.

11. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, a plate secured to the bottoms of said troughs and adapted to engage the posts when the troughs are upturned between said posts, and means for securing the troughs in such upturned position, for the purpose specified.

12. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, a plate secured to the bottoms of the troughs and adapted to engage the posts when the troughs are upturned between the same, pipes connecting said troughs, and means for securing the troughs in such upturned position, for the purpose specified.

13. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, a plate secured to the bottoms of said troughs, and adapted to engage the posts when the troughs are upturned between the same, and pipes connecting the troughs and located in recesses in said plates, for the purpose specified.

14. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, sheeting on said posts below the watering-troughs, and a plate of the thickness of said sheeting secured to the bottoms of the troughs and adapted to engage the posts when the troughs are upturned between the same, for the purpose specified.

15. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, sheeting on said posts below the watering-troughs, a plate secured to the bottom of the troughs and adapted to engage the posts when the troughs are upturned and to bear against the sheeting when said troughs are in position for use, for the purpose specified.

16. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, sheeting on said posts below the watering-troughs, a plate of the thickness of said sheeting secured to the bottoms of the troughs, said plate being adapted to engage the posts when the troughs are upturned and to bear against the sheeting when said troughs are in position for use, pipes connecting the troughs and located in recesses in said plate, and means for securing the troughs in an upturned position, for the purpose specified.

17. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging perforations in the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said studs, a grooved roller located in the space between said horizontal bars and resting upon the lower one thereof, a door constructed to be moved into and out of the doorway, and a strap connecting the spindle of the roller and the door for the purpose specified.

18. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging perforations in the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said studs, a grooved roller located in the space between said horizontal bars and resting upon the lower one thereof, a door constructed to be moved into and out of the doorway, a strap connecting the spindle of the roller and the door, and a rod secured to the door and having a hook on the end thereof taking over and above a bar of said frame, for the purpose specified.

19. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging perforations in the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said studs, grooved rollers located in the space between said horizontal bars, both said bars engaging the grooves in the rollers, a rigid bar connecting the spindles of the rollers, a door constructed to be moved into and out of the doorway, and straps connecting the spindles of the rollers and the door, for the purpose specified.

20. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said studs, grooved rollers located in the space between said horizontal bars, both said bars engaging the grooves in the rollers, a rigid bar connecting the spindles of the rollers, a door constructed to be moved in and out of the doorway, straps connecting the spindles of the rollers and the door, a horizontal rod secured to the car below the door, and an extensible, movable connection between the door and the rod, substantially as and for the purpose specified.

21. The combination, in a car, of a clearstory having ports in the side walls thereof, the top of the clearstory extending out beyond said side walls, longitudinal curtains attached to the sides of said top and depending in front of the ports, and swinging deflectors having their upper ends hinged between the side walls and said curtains, for the purpose specified.

22. The combination, in a car, of a clearstory having ports in the side walls thereof, the top of the clearstory extending out beyond said side walls, longitudinal curtains attached to the sides of said top and depending below said ports, and swinging deflectors having their upper ends hinged in the side walls and said curtains and extending below the curtains, for the purpose specified.

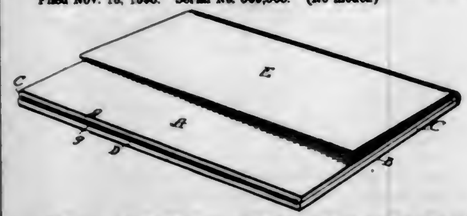
23. The combination, in a car, of a clearstory having ports in the side walls and adjacent to the top thereof, the top of the clearstory extending out beyond said side walls, longitudinal curtains attached to the sides of said top and depending below the ports, swinging deflectors having their upper ends located between and below said ports, said upper ends of the deflectors being hinged in said side walls and curtains and depending below the curtains, stops between the swinging ends of the deflectors to limit the movement thereof, and plates closing the ends of the channels between the side walls and the depending curtains, substantially as and for the purpose specified.

575,460. INSOLE. EDWARD M. COLE, Chicago, Ill., assignor of four-fifths to George R. Milner, same place. Filed Nov. 12, 1895. Serial No. 568,733. (No model.)



Claim.—As an improved article of manufacture, an insole comprising a body of leather, a lip and feather formed by splitting the outer edge of the body in the usual manner, and a continuous reinforcing-covering secured to the central portion of the bottom of the sole, indented over the lip, and terminating upon and secured to the bottom of the feather upon opposite sides of the sole, substantially as described.

575,461. PAPER BOX. WILLIAM A. COOKE, Jr., Brooklyn, N. Y. Filed Nov. 18, 1895. Serial No. 569,305. (No model.)



Claim.—1. In paper boxes a flexible exterior case having the bottom and ends creased to adapt them to form gusset-folds and a stiff lining at the front and back and bottom and ends—the back and front linings adhesively secured to the case, and the ends and bottom left free and adapted to be folded to permit the box to be collapsed or extended against the ends and bottom of the case to set the box up, substantially as specified.

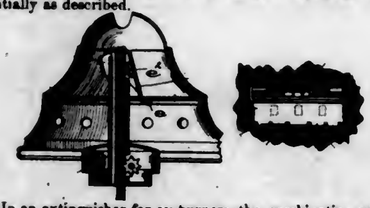
2. In paper boxes a flexible exterior case having the bottom and ends creased to adapt them to form gusset-folds and a stiff lining at the front and back, and bottom and ends, the front and back linings adhesively secured to the case, and the ends and bottom left free and their exterior surfaces coated with an adhesive substance, the bottom and ends being adapted to be folded to permit the box to be collapsed or extended against the ends and bottom of the case and secured thereto to set the box up, substantially as specified.

3. In a paper box the combination of an exterior case and a stiff lining therefor comprising front and back parts in separate pieces, and the bottom and end parts forming integral parts of the back lining—the front edge of the bottom lining bearing against the front lining to hold the same open at the bottom, and the front and bottom edges of the ends bearing against both the bottom and front linings, whereby the box is prevented from collapsing, and a solid box formed, substantially as specified.

4. In paper boxes a flexible exterior case A, B, C, having in the ends and bottom a creased line 1 1 to adapt them to form a gusset-fold *g*, and a stiff lining composed of front *h*, back *h'* bottom *i* and ends *i' i²*—the back and front linings *h h'* adhesively secured to the case, and the ends *i' i²* and bottom *i* left free and adapted to be folded to permit the box to be collapsed or extended against the ends and bottom of the case to set the box up, substantially as specified.

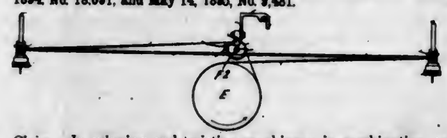
575,462. LAMP-BURNER. JEAN B. DAUDELIN, Fall River, Mass. Filed Sept. 4, 1896. Serial No. 604,856. (No model.)

Claim.—1. In an extinguisher for oil-burners, the combination with the wick-tube having its upper end beveled, of the pivoted extinguisher-plate provided with an inwardly-extending projection between its top edge and its point of pivoting for engaging the wick, substantially as described.



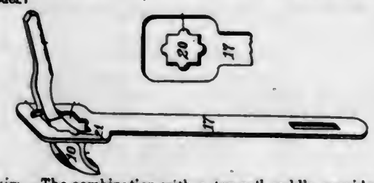
2. In an extinguisher for oil-burners, the combination with the beveled wick-tube, of a pivoted extinguisher-plate provided with retaining-arms extending around portions of said tube and having inwardly-extending wick-engaging projections between the top edge of said plate and its point of pivoting, substantially as described.

575,463. SPINNING AND TWISTING MACHINERY. JOHN DAWSON and ROBERT S. DAWSON, Bradford, England. Filed Apr. 17, 1896. Serial No. 587,922. (No model.) Patented in England Oct. 3, 1894, No. 18,691, and May 14, 1895, No. 9,481.



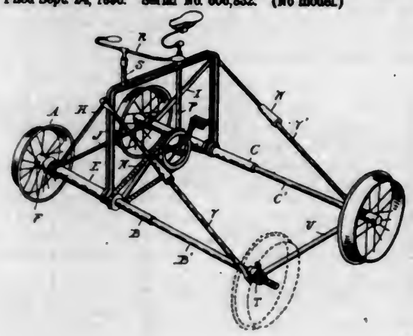
Claim.—In spinning and twisting machinery, in combination, an angular tension-bracket having a part adapted to extend practically horizontal with a bearing near the outer end of this part and a part adapted to extend practically vertical with a bearing near the lower end of this part, a support loosely connected with the bearing near the end of the horizontal part of the bracket, and a tension-pulley supported by the bearing near the end of the vertical part of the bracket, substantially as described and for the purpose specified.

575,464. TOP-ROLL SADDLE AND WEIGHT-STIRRUP. EZRA DIXON, Bristol, R. I. Filed Apr. 19, 1894. Serial No. 508,135. (No model.)



Claim.—The combination with a top-roll saddle provided with an outward-extending projection, of a weight-stirrup having an opening through which the saddle may be readily passed and a notch, forming an extension of the opening of the stirrup, of a shape closely registering with the outwardly-extending projection on the saddle and located so that the saddle must be turned in the stirrup from its normal position until the projection registers with the notch, whereby accidental separation of the saddle and stirrup during handling is prevented, as described.

575,465. RAILWAY-VELOCIPEDE. JAMES DONOVAN, Three Rivers, Mich., assignor to the Roberts, Throp & Company, same place. Filed Sept. 24, 1896. Serial No. 606,832. (No model.)



Claim.—1. In a four-wheeled railway-velocipede, the combination of front and rear axles composed of telescoping sections and a seat-supporting frame with which said axles when extended form the tie-rods of a collapsible truss supporting the frame directly upon the wheels.

2. In a four-wheeled railway-velocipede, the combination of a front and a rear axle, each carrying a wheel at one end and provided with an extension member, carrying the wheel at the other end, a seat-supporting frame connected by collapsible braces with the ends of the extension members of the axles, said seat-supporting frame, braces and axles forming complementary parts of axle-trusses of which said axles are the tie-rods when said axles are in their extended conditions.

3. In a four-wheeled railway-velocipede, the combination of front and rear axles, each provided at one end with an extension member carrying one of the wheels, a seat-supporting frame in fixed relation with said front and rear axle and collapsible braces connecting said frame with the extension members of the axles and constituting complementary members of axle-trusses in the extended condition of the axles.

4. In a four-wheeled railway-velocipede, the combination of front and rear axles composed of tubular sections in fixed relation with the wheels on one side and of telescopic sections carrying the wheels on the other side, a seat-supporting frame in fixed relation with the tubular sections and collapsible braces connecting the seat-frame with the telescoping section of the axles, said seat-supporting frame, braces and axles forming complementary members of a collapsible truss-frame.

5. In a four-wheeled railway-velocipede, the combination of telescopic front and rear axles carrying the wheels on opposite sides in adjustable relation to each other, and a seat-supporting frame having collapsible connections with the telescopic members of the axles, said frame and connections being complementary members of axle-trusses in the extended condition of said axles.

6. In a four-wheeled railway-velocipede, the combination of front and rear axles, each composed of a fixed tubular and a telescopic adjustable section, carrying the wheels on opposite sides in fixed relation with their outer ends, a sleeve secured in end bearings upon the fixed section of the front axles, a seat-supporting frame in rigid connection with said sleeve and with the fixed section of the rear axle and provided with braces uniting it with the outer ends thereof, folding braces uniting the seat-frame with the outer ends of the telescopic sections of the axles and connecting-bars uniting the corresponding ends of the rear axle, said seat-supporting frame with said sleeve and braces forming in connection with the axles a collapsible truss.

7. In a four-wheeled railway-velocipede, the combination of front and rear axles, composed of fixed tubular sections, and telescopic adjustable sections carrying respectively the wheels on opposite sides, a sleeve secured by end bearings upon the fixed portion of the front axles, the yoked reach rigidly uniting the sleeve with the rear axles, the foot propelling mechanism mounted thereon and folding braces connecting said reach with the ends of the adjustable members of the axles.

8. In a four-wheeled railway-velocipede, the combination of the front axles composed of telescopic sections B B' and C C' the sleeve E mounted upon the front axle, the yoked reach formed of two bent T-bars uniting the sleeve with the rear axles by means of flanged collars around which said bars are bent and secured thereto, the foot propelling mechanism and seat mounted upon said frame, fixed braces connecting said reach with the ends of the axle-sections B and C and folding braces connecting it with the axle-sections B' C' and provided with locking-sleeves.

575,466. PAPER-CUTTER. GEORGE H. EDWARDS, Johnston, R. I. Filed Nov. 6, 1896. Serial No. 611,212. (No model.)



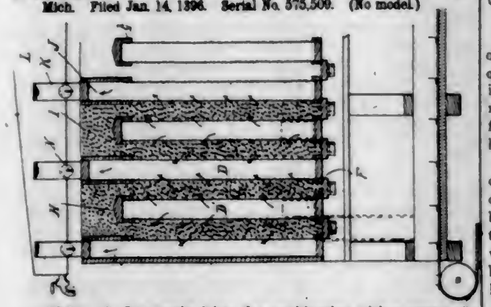
Claim.—In a compound device of the nature described, the combination with the sheet-metal plate 5, of the spring-plate 6 provided with the cutting edges 7 and 8 and the straight edge 9 secured to the plate 5 so as to extend beyond one edge, as described.

575,467. PROCESS OF TREATING COMPLEX SULFID ORES. FRANCIS ELMENHAUSEN, London, England. Filed Sept. 5, 1896. Serial No. 605,023. (No specimens.)

Claim.—1. The described process for simultaneously separating the zinc (in the form of oxid of zinc) and obtaining the lead and precious metals from complex sulfid ores, such process consisting in rapidly heating the crushed ore (to which a sufficient quantity of fluxing material has been added to prevent oxidation) to red heat in a sump in a reverberatory furnace and, then adding to the mixture, kept in a heated state, a sufficient quantity of molten metallic iron to effect the desulfurization of the ore, substantially as hereinbefore described.

2. The described process for simultaneously separating the zinc and obtaining the lead and precious metals from complex sulfid ores, which consists in preparing a bath of molten lead, introducing the ore into said bath with a fluxing material, heating it to red heat and then adding to the mixture kept in a heated state a sufficient quantity of molten metallic iron to effect the desulfurization of the ore, substantially as described.

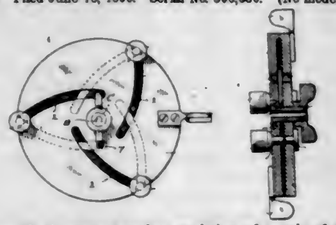
575,468. DRYING APPARATUS. BENJAMIN F. EWING, Detroit, Mich. Filed Jan. 14, 1896. Serial No. 575,509. (No model.)



Claim.—1. In a grain-drier, the combination with a casing of a series of like open-ended frames having perforated side walls, and arranged across the casing, means for securing the frames in the casing and spacing the same substantially equidistant apart, closing-caps for alternate frames, inverted-trough-shaped ducts fitted on the upper ends of the remaining frames, means for supplying air to the alternate frames, air-outlets from said ducts, and outlet-doors for the material at the base of the casing between the frames, substantially as described.

2. An imperforate casing open at top and bottom, a series of frames arranged parallel having perforated sides and extending across the casing from side to side forming an alternate series of air-chambers and grain-chambers, inverted-trough-shaped caps for the alternate or exit air-chambers extending above the top of the intermediate or inlet air chambers, caps for such intermediate air-chambers, outlet doors or valves for the bottoms of the grain-chambers, valved air-inlets to the inlet-chambers and exits from the exit-chambers.

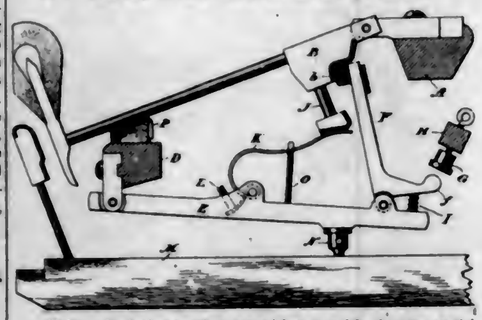
575,469. CENTER-TEMPLET. EDGAR F. FANCHER, East Norwalk, Conn. Filed June 18, 1896. Serial No. 596,036. (No model.)



Claim.—1. A center-templet consisting of a pair of disks provided with grooved slots which incline in opposite directions, a central stud fixed in one disk and upon which the other turns freely, said stud having a central opening to serve as a drill-guide, holders for the article to be centered having shanks engaging slots in the respective disks and a thumb-nut engaging the central stud by which the disks and the holders are locked in position after adjustment.

2. A center-templet consisting of a pair of disks adapted to oscillate relatively to each other and provided with a central opening and with curved slots inclined in opposite directions from the radii of the disks, holders projecting from the face of one of the disks to grasp the piece to be centered and provided with shanks engaging slots in the respective disks, means for locking the disks and holders in position after adjustment and finger-pieces projecting from the disks and adapted to overlap or abut against each other for limiting the oscillation of the disks in moving the holders outward so as to prevent the shanks from being thrown out of the slots.

575,470. PIANO-ACTION. TORQUATO T. FISCHER, New York, N. Y. Filed May 11, 1896. Serial No. 590,964. (No model.)



Claim.—1. A piano-action comprising, a rocking key supporting one end of a pivotally-mounted whip, a jack spring-actuated and pivotally mounted at one end of the whip; the upper end of said jack bearing normally under the hammer-butt and against a shoulder thereon, means for tripping said jack, a spring K mounted on the whip, the free end of said spring bearing against the under side of the hammer-butt rearward of said shoulder, substantially as described.

2. A piano-action comprising a rocking key, loosely supporting one end of a pivotally-mounted whip, a jack spring-actuated and pivotally mounted at one end of the whip, the upper end of said jack bearing normally under the hammer-butt and against a shoulder thereon, means for tripping said jack, a spring K mounted on the whip, the free end of said spring bearing against the under side of the hammer-butt rearward of said shoulder, and a guide for said spring K, substantially as described.

3. A piano-action comprising a rocking key loosely supporting one end of a pivotally-mounted whip, a spring-actuated jack pivotally supported toward the same end of said whip, the upper end of said jack bearing normally under the hammer-butt and against the forward face of a shoulder thereon, means for tripping said jack when the whip is raised, a spring K mounted at a point intermediate in the length of the whip, and an adjusting-screw therefor, the free end of said spring K bearing against the under side of a catcher extension on the hammer-shank and rearward of the whip-engaging shoulder thereon, and a guide for said spring K.

575,471. DOOR-KNOB FASTENER. HERBERT FLANDERS, Manchester, N. H., assignor of one-half to Charles E. Stearns, same place. Filed Apr. 24, 1896. Serial No. 588,885. (No model.)

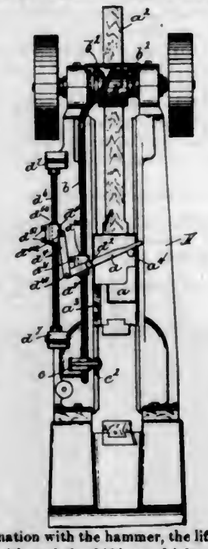


Claim.—In a snap-lock, a knob having a slot in its shank extending transversely through and communicating directly with the shank, spindle-opening, a spindle provided with a recess registering with the said shank-slot, a cam and casing each having a slot registering with the spindle-recess and a key sliding in the recess and adapted to pass through the opening of an escutcheon of usual form and to lock the spindle to the casing, substantially as described.

575,472. DROP-HAMMER. CHARLES T. FLETCHER, Worcester, Mass., assignor to John C. Speirs, same place. Filed May 25, 1896. Serial No. 593,006. (No model.)

Claim.—1. In a drop-hammer provided with a lifting-board and a pair of shiftable lifting-rolls adapted to coöperate therewith, and a weighted rod adapted by its movement to shift said rolls, the herein-described releasing device comprising a lever pivoted to said rod, a movable fulcrum for said lever, and an engaging portion of the hammer adapted to coöperate with said lever, substantially as described.

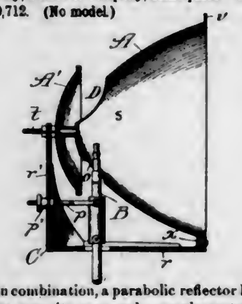
2. The combination with the hammer, the lifting-board and its rolls and the shifting rod *b* adapted to coöperate with said rolls, of the lever *d* pivotally connected to said lifting-rod, and extending into the path of the hammer or an extension therefrom, and the links d^4 pivotally connected at one end to a portion of the frame, and at the other end to the said lever, substantially as described.



3. The combination with the hammer, the lifting-board, the rolls coöperating therewith, and the shifting rod *b* for the said rolls, of the lever *d* having a pivotal connection with said shifting rod, the links d^4 pivotally connected to one end of said lever, and the adjustable support for said links, substantially as described.

4. The combination with the hammer provided with a lifting-board, friction-rolls and a shifting rod coöperating with said rolls, of the lever *d* pivotally connected to a slide adjustable along said shifting rod, the links d^4 connected to said lever, and the support for said links adjustably secured to the frame of the machine, substantially as described

575,473. REFLECTOR. HENRY F. FULLER, Chicago, Ill., assignor to the Walmsley, Fuller & Company, same place. Filed Oct. 31, 1896. Serial No. 610,712. (No model.)



Claim.—1. In combination, a parabolic reflector having an upper ventilating-opening near its apex and a supplemental reflector adjacent to and behind the said apex to complete the reflecting-surface, substantially as described.

2. In combination, a reflector having a lower opening for the burner, and an upper ventilating-opening, said openings being located near the apex of the reflector, and a supplemental reflector located behind said apex, and having a diameter in excess of that of the reflector at the forward ends of said openings, thereby extending beyond the confines thereof, substantially as and for the purpose set forth.

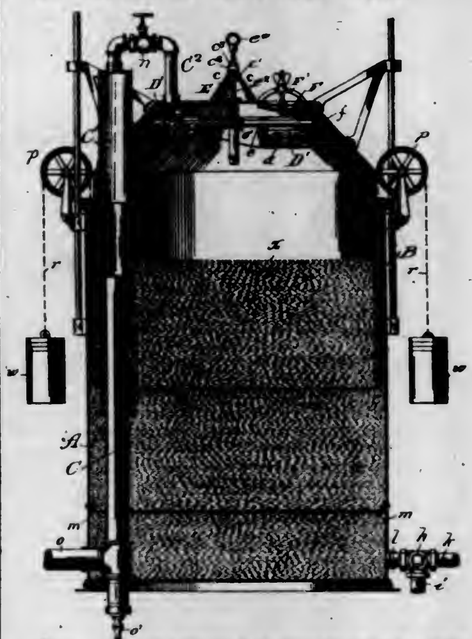
3. In combination with a supporting-frame, a reflector A secured on said frame and having a base-opening *o* for the burner and an upper ventilator-opening D, and a supplemental reflector A' rotatably supported behind said ventilator-opening, substantially as and for the purpose set forth.

4. In combination, a reflector having an upper ventilating-opening near its apex, and a supplemental reflector adjacent to and behind the said apex, provided with a reflecting-surface the area of which is in excess of that of the ventilating-opening and mounted to be shifted to present different portions thereof to the said opening, substantially as described.

5. In combination with a reflector provided with an opening in its wall, a pivotally-supported burner extending through said opening, and means for adjusting the burner on its pivotal support to vary the focus, substantially as described.

6. In combination with a supporting-frame, a reflector A secured on said frame, and having an opening in its wall, a pivotally-supported burner B extending through the opening into said reflector, and a rod connection *p* between the burner and frame, provided with an operating-nut *p'*, substantially as and for the purpose set forth.

575,474. GAS-GENERATOR FOR ACETYLENE. HENRY F. FULLER, Chicago, Ill., assignor to the Walmsley, Fuller & Company, same place. Filed Nov. 2, 1896. Serial No. 610,850. (No model.)



Claim.—1. In a gas-generator of the character described, a holder for the solid material, comprising a shelf having partitions at intervals on its upper side forming compartments, said shelf inclining downward within the generator with relation to the liquid-level therein, substantially as and for the purpose set forth.

2. In a gas-generator of the character described, a holder for the solid material, comprising a shelf rotatably supported in the generator with relation to the manhole thereof and inclining downward with relation to the liquid-level in the generator, substantially as and for the purpose set forth.

3. In a gas-generator of the character described, a holder for the solid material, comprising a shelf having a helically-inclined open-work base, substantially as and for the purpose set forth.

4. In a gas-generator of the character described, a holder for the solid material, comprising a shelf having a helically-inclined open-work base and partitions provided at intervals to form compartments, substantially as and for the purpose set forth.

5. In a gas-generator of the character described, a holder for the solid material, comprising a shelf having a helically-inclined open-work base and rotatably supported in the generator with relation to the manhole thereof, substantially as and for the purpose set forth.

6. In a gas-generator of the character described, a holder D for the solid material, comprising an open-work base *d* extending helically about a center *g*, the outer and inner circumferential flanges *f* and *f'* and the radial partitions f^3, a frame connected with said holder, a stem e^2 extending from the center of the frame through the top of the generator, and a bearing E on the top of the generator in which said stem is supported, substantially as and for the purpose set forth.

575,475. MANHOLE-COVER SEATING. HENRY F. FULLER, Chicago, Ill., assignor to the Walmsley, Fuller & Company, same place. Filed Nov. 2, 1896. Serial No. 610,853. (No model.)

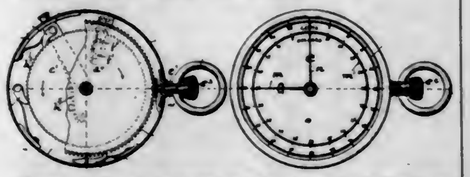
Claim.—1. In combination with a manhole, an annular transversely-concave packing-seat, a cover having an annular flange the

under side of which is of slight transverse convexity as compared with the degree of concavity of the seat, forming with said seat a concavo-convex recess, and an elastic packing within said recess adapted by pressure to conform thereto and to be centrally compressed in the manner and for the purpose substantially as described.



2. In combination with a manhole, an annular transversely-concave packing-seat having its concavity formed on a circle of one radius, an elastic packing in said seat, and a cover having a flange transversely convex on its under side on a circle of greater radius, whereby its pressure upon the elastic packing will cause the same to be compacted toward its center, substantially as described.

575,476. **POCKET CASH-REGISTER.** JAMES F. GOODRIDGE, Boston, Mass., assignor to Charles J. Rolfe, Concord, Mass. Filed Dec. 13, 1895. Serial No. 571,990. (No model.)



Claim.—1. A pocket register containing cents and dollars registering wheels, with connecting devices whereby predetermined rotation of the cents-wheel causes automatic predetermined ultimate rotation of the dollars-wheel and two accessible manual actuators in constant operative relation to and for operating said cents and dollars wheels respectively, movement of one of said actuators causing rotation of said cents-wheel and thereby of said dollars-wheel, movement of the other of said actuators causing rotation of said dollars-wheel independently of and without rotation of said cents-wheel, whereby there are presented to the operator at all times operable means for independently registering cents or dollars, substantially as described.

2. A pocket register containing a plurality of registering-wheels with connecting devices whereby predetermined rotation of one wheel causes automatic predetermined rotation of another wheel and two accessible manual actuators in constant operative relation to and for operating said first and last named wheels respectively, movement of one of said actuators causing rotation of said first-named wheel and thereby of said last-named wheel, movement of the other of said actuators causing rotation of said last-named wheel independently of and without rotation of said first-named wheel, whereby there are presented to the operator at all times, ready for operation, means for independently rotating said first and last named registering wheels, substantially as described.

3. The described pocket register, comprising an inclosing case, a plurality of registering-wheels arranged therein, a rotatable actuator protruding through the edge of said case and arranged to engage and rotate one of said wheels, a swinging actuator also protruding through the edge of said case and arranged to engage and move another of said wheels, independently of said first-named wheel, said last-named wheel being however operated at the end of a predetermined rotation of said first-named wheel, substantially as described.

4. The described pocket register comprising a case, a plurality of registering-wheels arranged side by side therein, a rotatable actuating-stem projecting from the edge of said case and arranged when rotated about its own axis to rotate one of said wheels and an independent actuator for another of said wheels said independent actuator also projecting to the edge of said case and made rotatable about the axis of said last-mentioned wheel, substantially as described.

575,477. **BICYCLE-CHAIN.** ARTHUR W. GREGORY, Morristown, N. Y. Filed June 23, 1896. Serial No. 596,663. (No model.)

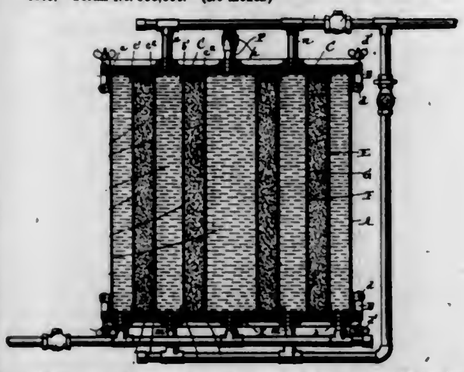


Claim.—1. A link for a chain, and a covering of rawhide applied thereto, combined with blocks applied to opposite sides of the link to hold the covering in position, and a fastening bolt or screw which is passed through the parts to hold them in position, substantially as shown.

2. A link for a bicycle-chain, and a covering of rawhide applied thereto, combined with clamping-blocks secured to opposite sides of the link, and curved upon their inner sides so as to conform to the shape of the link and hold the covering in close contact therewith, and a screw-rod which is passed through the parts to secure them together, substantially as described.

3. A link for a bicycle-chain, and a covering of rawhide applied thereto, combined with blocks applied to opposite sides of the link, and which blocks conform to the shape of the link and have roughened sides, and a screw for securing the parts together, substantially as set forth.

575,478. **FILTER.** CARL HAEFNER, Chicago, Ill., assignor to the National Filter and Carbonating Company, same place. Filed June 17, 1895. Serial No. 553,066. (No model.)



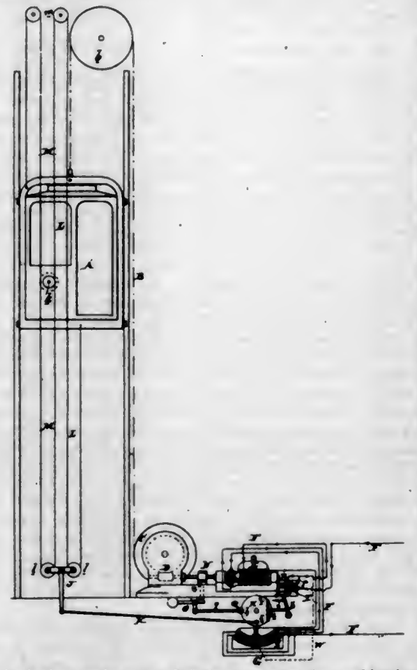
Claim.—1. A filter comprising a vertical drum or casing having top and bottom plates, two sets of vertical perforated supports within said drum and between which the filtering material is held, said supports and said filtering material serving to divide the filter into an outer chamber for unfiltered beer, a central chamber for unfiltered beer and an intermediate chamber for filtered beer, an inlet-pipe leading to the bottom of the chambers for unfiltered beer and a single outlet-pipe having branches leading from the filtered-beer chamber at both top and bottom of said chamber and suitable cocks for said branch outlet-pipes, substantially as described.

2. A filter comprising the combination with a drum or casing having top and bottom plates, of two sets of concentric removable cylinders for retaining the filter mass, said sets of cylinders being supported at a distance from each other to form a chamber for the filtered beer, the inner set of said cylinders forming a central chamber for unfiltered beer, and the outer set of said cylinders being located at a distance from the vertical walls of the drum or casing to form an outer chamber for the unfiltered beer, an inlet-pipe leading to the bottom of both of said unfiltered-beer chambers, suitable outlets for the filtered beer leading from both the top and bottom of the filtered-beer chamber, and an outlet leading from the central chamber for unfiltered beer whereby the beer may be admitted to the bottom of said unfiltered-beer chambers and may be withdrawn from both the top and bottom of the filtered-beer chamber and whereby also if the unfiltered beer is admitted to the chamber adjacent the outer wall of the drum or casing the beer may be caused to pass through both filter masses and may be withdrawn from the central chamber.

575,479. **ELECTRIC ELEVATOR OR HOISTING-MACHINE.** RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Apr. 5, 1894. Serial No. 506,389. (No model.)

Claim.—1. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, and an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor moving in a magnetic field and provided with flexible means to vary the speed or movement of the said conductors extending to and controllable from the cage or moving part of the elevator or hoisting apparatus.

2. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor moving in a magnetic field and provided with means to vary the speed or movement of the said conductors, and connecting devices extending to the cage or elevating device for controlling the counter electromotive force from a distance.



3. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor moving in a magnetic field and provided with means to vary the speed or movement of the said conductors, connecting devices extending to the cage or elevating device for controlling the counter electromotive force from the said cage, and a reversing-switch to reverse the motor from the cage to reverse the movement thereof.

4. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor moving in a magnetic field and provided with means to vary the speed or movement of the said conductors, connecting devices extending to the cage or elevating device for controlling the counter electromotive force from the said cage, a reversing-switch to reverse the motor from the cage to reverse the movement thereof, at a time when the counter-electromotive-force generator has been caused to generate its greatest counter electromotive force, and a brake also controlled from the cage for arresting the movement of the motor when the cage is at rest and when the counter-electromotive-force generator is generating the greatest counter electromotive force and adapted to be thrown out of action when the cage is moved.

5. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor as an entirety and moving in a magnetic field, and means extending to a distance to vary the speed of movement of the conductors for producing a difference in speed thereof to vary the supply-current to the motor.

6. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor moving in a magnetic field and provided with movable brushes to vary the speed of movement of the conductors, and hand-operated devices extending to the cage for shifting the brushes of the counter-electromotive-force generator into different positions relatively to the field-poles to vary the current flowing through the power-motor.

7. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receive a current from a source of electrical energy, with a counter-electromotive-force generator consisting of electric conductors in series with the motor moving in a magnetic field and provided with means to vary the speed of movement of the conductors, field-magnet coils of high resistance to maintain a constant field in the generator supplied with current independently of the current traversing the moving electric conductors of the generator, a reversing-switch to reverse the direction of rotation of the motor, controlling devices extending to the cage for operating the reversing-switch, and means for timing the several parts whereby the reversing-switch cannot be shifted when the conductors of the counter-electromotive-force generator are moving slowly and the counter electromotive force generated thereby is low.

8. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a counter-electromotive-force generator consisting of electric conductors in series with the motor and revolving within a magnetic field, means to shift the position of the magnetic poles produced by the revolving electric conductors within the field, and controlling devices extending to the cage for operating the said pole-shifting devices.

9. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric power-motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a counter-electromotive-force generator to control the operation of the electric motor consisting of a revolving armature operating within a magnetic field and in series with a power-motor, and hand-control devices for varying the speed of the counter-electromotive-force-regulating armature from the moving cage or elevating device.

10. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric power-motor mechanically connected to operate the power device and receiving current from a source of electrical energy a counter-electromotive-force generator to control the operation of the electric power-motor consisting of a revolving armature operating within a magnetic field and in series with a power-motor, hand-control devices for varying the speed of the counter-electromotive-force-regulating armature from the moving cage or elevating devices, and means to reverse the direction of rotation of the motor also operated from the cage or elevating device.

11. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, a slow-speed power electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a high-speed generating-motor for generating a counter electromotive force, electric circuits connecting the armatures of the two motors in series, mechanical devices for shifting the magnetic poles of the armature of the high-speed or generating motor relatively to the field-poles thereof to vary the counter electromotive force thereof for the purpose of controlling the current delivered to the slow-speed or power motor, and controlling devices extending to the cage or elevating device for operating the said mechanical devices.

12. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, a slow-speed electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a counter-electromotive-force-generating motor having its revolving element electrically connected in series with the revolving element of the power-motor, means to maintain a substantially constant magnetic field in the vicinity of the generating-motor irrespective of the counter electromotive force of its revolving element, devices for shifting the poles of said revolving element relatively to the poles of the magnetic field in said last-mentioned or generating motor whereby its counter electromotive force is varied and opposes the initial electromotive force of the operating-current of electricity to vary the speed of the power-motor, and means extending to the cage for operating the pole-shifting devices from the cage to vary the speed of the elevator-cage or elevating device.

13. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a counter-electromotive-force-generating motor having its revolving element electrically connected in series with the power-motor, means to maintain a substantially constant magnetic field in the vicinity of the generating-motor irrespective of the counter electromotive force of its revolving element, devices for shifting the poles of said revolving element relatively to the poles of the magnetic field in said last-mentioned or generating motor whereby its counter electromotive force is varied and opposes the initial electromotive force of the operating-current of electricity to vary the speed of the power-motor, and means extending to the cage for operating the poles, shifting devices from the cage to vary the speed of the elevator, and a current-reversing switch for the power-motor also controlled from the cage.

14. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a regulating-generator having its armature connected in series with the power-motor, and flexible means to vary the speed of rotation extending to the cage or elevating device.

15. In an electric elevator, or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a controlling-generator for generating counter electromotive force having a revolving element connected in series with the power-motor and moving in a magnetic field, a rack-and-pinion device for shifting the poles of said generator, a movable slide to move the rack, a rotary disk having pins or projections for moving the slide similarly for a rotation of the disk in either direction, and controlling devices extending to the cage or elevating device for moving the said disk.

16. The herein-described method of reversing the movement of an electrically-operated elevator which consists in supplying current to an electric power-motor, producing by magnetic induction in the motor-circuit an induced counter electromotive force independent of that of the power-motor to control the speed of movement of the said power-motor, gradually increasing the counter electromotive force to cause the power-motor to slow its speed and ultimately to stop, then reversing the current in one of the elements of the power-motor to reverse its rotation, and finally gradually reducing the induced counter electromotive force to increase the speed of the power-motor.

17. The herein-described method of reversing the movement of an electrically-operated elevator which consists in supplying currents to a power-motor, producing by a magnetic induction in the motor-circuit an induced counter electromotive force independent of that of the power-motor to control the speed of movement of the said power-motor, gradually increasing the counter electromotive force to cause the power-motor to slow its speed and ultimately to stop, then reversing the current in one of the elements of the power-motor to reverse its rotation, finally gradually reducing the induced counter electromotive force to increase the speed of the power-motor, and controlling the said operations from the moving cage irrespective of its movement.

18. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a controlling-generator for generating counter electromotive force having a revolving element connected in series with the power-motor and moving in a magnetic field, means for shifting the poles of said generator to vary the counter electromotive force independent of the action of the power-motor, means extending to the elevator-cage for shifting said poles for the purpose of increasing the speed of the counter-electromotive-force generator until its counter electromotive force substantially equals the initial electromotive force of the line-current, means for reversing the current in the power-motor when the counter electromotive force of the regulator is at its highest for the purpose of reversing the power-motor, and means extending to the cage for shifting the poles of the counter electromotive force for the purpose of operating the power-motor in the reverse direction.

19. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a controlling generator for generating counter electromotive force having a revolving element connected in series with the power-motor and moving in a magnetic field, means for increasing and decreasing the counter electromotive force of said controlling-generator, a reversing-switch for the power-motor, and controlling devices between the moving cage of the elevator and the current-reversing switch, and means for increasing and decreasing the counter electromotive force of the controlling-generator whereby the counter electromotive force is at its maximum when the current in the power-motor is reversed.

20. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a controlling-generator for generating counter electromotive force having a revolving element connected in series with the power-motor and moving in a magnetic field, means for increasing and decreasing the counter electromotive force of said controlling-generator, a reversing-switch for the power-motor, controlling devices between the moving cage of the elevator and the current-reversing switch, means for increasing and decreasing the counter electromotive force of the controlling-generator whereby the counter electromotive force is at its maximum when the current in the power-motor is reversed, and a mechanical brake acting upon the power-motor for the purpose of arresting its rotation when the counter electromotive force is at its maximum.

21. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a controlling-generator for generating counter electromotive force having a revolving element connected in series with the power-motor and moving in a magnetic field, means for increasing and decreasing the counter electromotive force of said controlling-generator, a reversing-switch for the power-motor, controlling devices between the moving cage of the elevator and the current-reversing switch, means for increasing and decreasing the counter electromotive force of the controlling-generator whereby the counter electromotive force is at its maximum when the current in the power-motor is reversed, and means for interrupting the current in the power-motor in the act of reversing it when the counter electromotive force is at its highest.

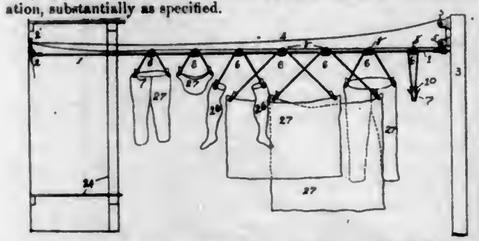
22. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a controlling-generator for generating counter electromotive force having a revolving element connected in series with the power-motor and moving in a magnetic field, means for varying the counter electromotive force of the controlling-generator, a switch for cutting the power-motor out of circuit, and connecting devices extending to the moving cage or elevating device whereby the electric circuit to the power-motor is broken when the counter electromotive force is at its maximum.

23. In an electric elevator or hoisting apparatus, the combination of a vertically-moving cage or elevating device, power devices for raising or lowering the same, an electric motor mechanically connected to operate the power device and receiving current from a source of electrical energy, a controlling-generator for generating counter electromotive force having a revolving element connected in series with the power-motor and moving in a magnetic field, means for varying the counter electromotive force of the controlling-generator, a switch for cutting the power-motor out of circuit, connecting devices extending to the moving cage or elevating device whereby the electric circuit to the power-motor is broken when the counter electromotive force is at its maximum, and means to reverse the current in the power-motor prior to changing the counter electromotive force of the controlling-generator.

24. The herein-described method of operating electric hoisting or elevating machines, consisting in supplying to the power-motor an electric current, opposing to said current an induced counter electromotive force produced by magnetic induction independent of that of the power-motor, and gradually increasing or decreasing the regulating counter electromotive force from the moving cage or elevating device to vary the speed and power of the power-motor and the movement of the cage or elevating device.

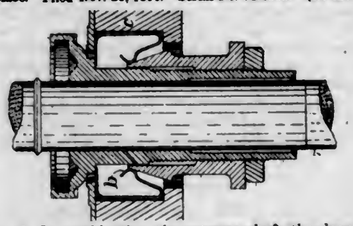
575,480. CLOTHES-DRYING APPARATUS. ADOLF JOSEPHS and LOUIS FELDMAN, Scranton, Pa. Filed July 22, 1896. Serial No. 600,098. (No model.)

Claim.—1. In a clothes-drying apparatus, of the kind described, the combination of a taut line having a series of wire-stretchers, suspended therefrom, the said stretchers constructed each, from a length of wire coiled at its middle portion, so as to form a loop, to which a cord may be attached, in addition to a coiled portion which serves as a spring, tending to hold the two ends of the wire at a distance apart, and said coiled spring, also adapted to serve as an eye, by means of which, the said stretchers may be strung upon the taut line, a cord running parallel with the taut line and having the said stretchers attached to it at regular intervals, the ends or legs of the said stretchers also being each provided with a spring-clamp adapted to be opened and closed with the thumb and finger, and to be used for clasping and holding articles of clothing, all arranged for joint operation, substantially as specified.



2. In a clothes-drying apparatus, a stretcher constructed from a single piece of wire, bent at its middle portion into a coiled spring, adapted to spread its two ends to a distance apart, each of the said ends being provided with a spring-clamp adapted to hold garments, and the said stretcher adapted to be strung on a tant line, through the eye formed by the coiled spring, substantially as and for the purposes set forth.

575,481. ROTARY-SHAFT BEARING. PERLEY I. KIMBALL, Bellows Falls, Vt., assignor to the Vermont Farm Machine Company, same place. Filed Nov. 23, 1896. Serial No. 613,095. (No model.)



Claim.—1. In combination, the rotatory shaft, the sleeve-bearing encircling said shaft, the spring-pressure regulator encircling said sleeve-bearing, and the springs, all substantially as described and for the purposes set forth.

2. In combination, the rotatory shaft, the sleeve-bearing encircling said shaft, the spring-pressure regulator encircling said sleeve-bearing and connected thereto by coöperating screw-threads, and the springs, all substantially as described and for the purposes set forth.

3. In combination, the rotatory shaft, the sleeve-bearing encircling said shaft, the spring-pressure regulator, encircling said sleeve-bearing, the lock-nut, and the springs, all substantially as described and for the purposes set forth.

575,482. BARREL-WASHER. CHARLES L. KLINE, New York, N. Y. Filed June 6, 1896. Serial No. 594,615. (No model.)

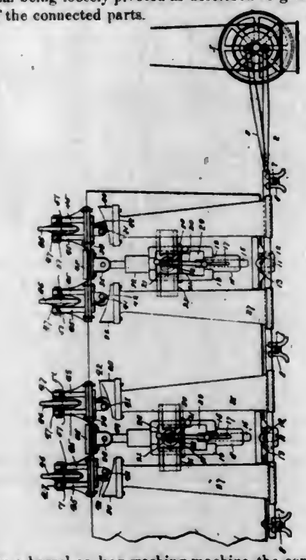
Claim.—1. The combination with a carrier of supports therefor a reciprocating bar, suitable intermediate mechanism, and coupling devices for uniting the said intermediate mechanism to the said reciprocating bar, one part of the said coupling devices being a sliding rod and the other part being a pivoted or rocking box, as described.

2. The combination with a carrier of supports therefor a reciprocating bar, a pivoted frame connected with the said carrier, a sliding rod connected with the said pivoted frame, and a tilting or rocking box on the said reciprocating bar, the said rocking box having a socket for receiving the said rod, as and for the purpose set forth.

3. The combination with a carrier of supports therefor a reciprocating bar, a frame connected with the said carrier and joined by a wrist connection with a suitable shaft or support, a sliding rod mounted in the said frame, means for shifting the said sliding rod, and a rocking or tilting box coöperating with the said rod to form a coupling device, as set forth.

4. In a keg-washing machine, a carrier mounted upon sloping rails and joined to a frame which is centrally pivoted, a reciprocating bar in line with the farther end of the said frame, and coupling devices for connecting the frame and the reciprocating bar, the said reciprocating bar being adapted to move back and forth in a straight line, as and for the purpose set forth.

5. In a barrel or keg washing machine, the combination of one or more barrel-holding devices, supports therefor a reciprocating bar, intermediate mechanism for transmitting motion from the reciprocating bar to the barrel-holding device or devices, and coupling mechanism for throwing the intermediate mechanism into and out of connection with the reciprocating bar, one element of the coupling mechanism being loosely pivoted as described to give freedom to the action of the connected parts.



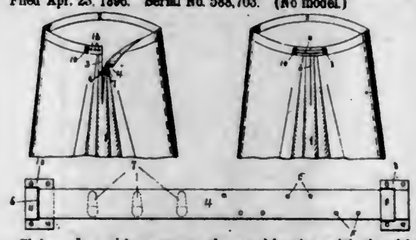
In a barrel or keg washing machine, the combination of one or more barrel-holding devices, supports therefor a reciprocating bar traveling back and forth in a straight line, intermediate mechanism for transmitting motion from the reciprocating bar to the barrel-holding mechanism, such intermediate mechanism consisting of a frame centrally pivoted so as to have a wrist motion, the said frame having also a wrist connection with the support for the barrel-holding device or devices, together with coupling mechanism for uniting the said reciprocating bar and the said frame.

7. In a keg-washing machine, a carrier mounted upon rails which slope downward and have also a horizontal curve, rollers bearing on the upper faces of the said rails and other rollers bearing on the side faces of one or more of the said rails, the carrier being suitably connected with reciprocating mechanism, as set forth.

8. In a keg-washing machine, a pair of standards besides a cleansing-vat, the said standards carrying suitable rails, a carrier with rollers resting on the said rails and a frame joined to the said carrier by a wrist-joint, the said frame being connected to a split box, as shown, the said split box surrounding a suitable shaft supported in cross-pieces which are secured to the said standards, as set forth.

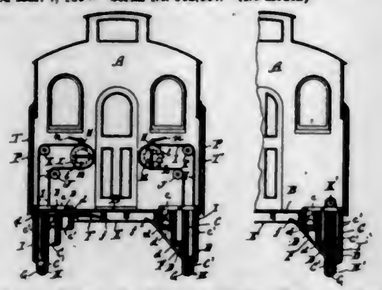
9. A coupling device for joining a reciprocating bar with a carrier-frame, the said coupling device consisting of a rod or pin sliding in a slotted tube, a pin connected with the said rod and passing through the tube, a link connected with the said pin, and a crank-arm joined to the said link and pivoted at a point intermediate between its ends, as set forth.

575,483. SKIRT-SUPPORT. MINERVA P. KYLE, Birmingham, Ala. Filed Apr. 23, 1896. Serial No. 588,703. (No model.)



Claim.—In a skirt-support, the combination with the skirt of a metallic plate 4 partly attached to the waistband thereof, a securing-plate 8 engaging the end of the support, the free end of the support provided with an inwardly-turned hook 6, and a series of vertical hooks 7, the skirt provided with an eye-plate 10 adapted to engage the hook 6, and a series of loops 13 adapted to engage the vertical hooks 7, substantially as and for the purpose described.

575,484. VESTIBULE-CAR. HOSEA W. LIBBEY, Boston, Mass. Filed Mar. 7, 1894. Serial No. 502,667. (No model.)

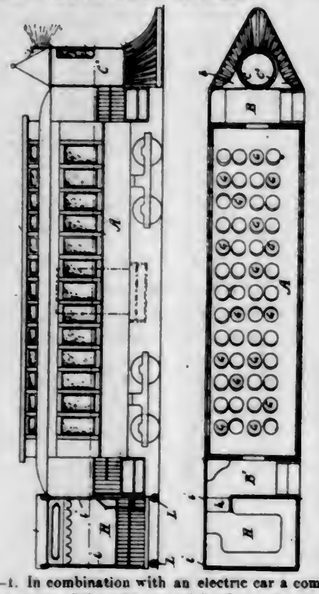


Claim.—1. In a car, step-hangers consisting of an upper cross-bar and a series of vertical bars forming slots, steps having rollers at their ends to work in said slots in combination with elevating-bars a track under the platform for the upper end of said bars to run in, a sprocket-chain to which the ends of said bars are attached and suitable sprocket-wheels to carry said chains and means for operating same as set forth.

2. In a vestibule-car, step-hangers C, secured to the under side of the platform, steps D, having rollers *d*, at each end working in said hangers, tracks E, secured to the under side of the platform, elevating-bars F, carried at their upper ends by said tracks, shafts G, supported in brackets from the step-hangers, sprocket-wheels H, H', mounted upon the ends of the shafts G, sprocket-wheels L, K', guide-wheels J, K, and a ratchet-wheel M at the rear of the sprocket-wheel L, a pawl N, and endless sprocket-chains I, I', all arranged and operating substantially as set forth.

3. In combination with a car having steps capable of being raised and lowered a sliding door for closing the side entrance to the platform, said door being suspended from an overhead track secured to the outside of the car-body, a rope or chain secured to the top of the door and passing over pulleys secured to the side of the car one end of said rope or chain being secured to the lower step and a weight attached to its other end whereby the door is opened when the steps are lowered and shut when the steps are raised and a casing secured to the car-body to inclose the door when open substantially as set forth.

575,485. STREET-CAR. HOSEA W. LIBBEY, Boston, Mass. Filed Dec. 10, 1894. Serial No. 531,431. (No model.)

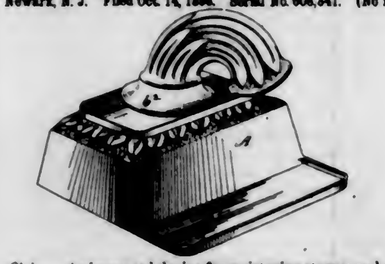


Claim.—1. In combination with an electric car a compartment for the motorman consisting of two semicircular sections working in tracks or ways, the lower track being supported by the platform and the upper track by bars secured to the roof, one of said sections sliding inside the other as set forth.

2. In an electric car a circular extension on the platform upon which is constructed a compartment for the motorman, consisting of a track or way secured thereon and a track, supported from the roof of the car by bars, above the lower track in combination with two semicircular pieces fitted with wheels at their upper and lower ends which wheels work in said tracks substantially as and for the purposes set forth.

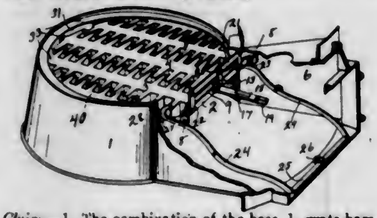
3. In combination with an electric or street car, an annex the floor of which is below the level of the car-platform, steps hinged to the platform of the car the lower ends of which are fitted with rollers resting and free to work upon the floor of said annex, said steps forming a gangway between the car-platform and the annex substantially as set forth.

575,486. STAMP AND ENVELOP MOISTENER. GEORGE LINDE, Newark, N. J. Filed Oct. 14, 1896. Serial No. 608,841. (No model.)



Claim.— An improved device for moistening stamps and envelops, comprising a body or base portion forming a closed reservoir and provided with an opening in its top having a groove or recess interiorly formed in its wall, and a removable neck having an end corresponding to and fitting in said top opening and provided with an annular shoulder resting upon the top surface of the reservoir surrounding said opening, said neck being provided with a key upon its insertible end extending downwardly from said annular shoulder and received by said groove or recess, the neck being curved and projecting over the side of the reservoir to an outlet end and being adapted to carry a wick or absorbent material extending from the reservoir and act as a siphoo to carry water from the reservoir to the outlet end, substantially as and for the purpose set forth.

575,487. GRATE. RUDOLPH A. MAY, Akron, Ohio. Filed May 8, 1896. Serial No. 590,757. (No model.)



Claim.—1. The combination of the base 1, grate-bars provided with balls or heads upon their rear ends, sockets to receive the balls or heads, the bar 2, carrying the free ends of the grate-bars, levers located below the bar 2, means for holding the grate-bars in an elevated position, and means for rotating the grate-bars in unison, substantially as and for the purpose specified.

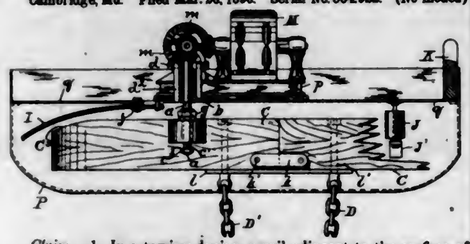
2. The combination of grate-bars journaled at one end to the base and their opposite ends journaled to a bar supporting the grate-bars, the shaft 18, provided with the crank member 17, the thimble 16, the crank member 13, provided with the recess 14, the head 15, located upon the thimble 16, the cranks 22, and 23, and the connecting-bar 21, substantially as and for the purpose specified.

3. The combination of a base provided with the side grate-bars 40, provided with notched flanges 44, and notched flanges secured to the base, and dogs 45, substantially as and for the purpose specified.

4. The combination of a number of grate-bars having their rear ends journaled to a base, the bar 2, carrying the front ends of the grate-bars and provided with antifriction-rollers, levers 24, provided with inner curved portions and means for holding the levers 24, in a position to elevate the grate-bars, substantially as and for the purpose specified.

5. The combination of the base 1, grate-bars provided with balls or heads upon their rear ends, sockets to receive the balls or heads, a plate provided with recesses and secured adjacent to the sockets, the bar 2, provided with antifriction-rollers and carrying the free ends of the grate-bars, the levers located below the bar 2, and means for holding the grate-bars in an elevated position, substantially as and for the purpose specified.

575,488. FLOATING TRACTION DEVICE. THOMAS P. MILLIGAN, Cambridge, Md. Filed Mar. 26, 1896. Serial No. 584,922. (No model.)



Claim.—1. In a towing device, a rail adjacent to the surface of the water, a boat carrying a suitable motor, a traction device connected with the motor and provided with rolls arranged to grip the rail, and a suitable connection for towing the load, substantially as herein set forth.

2. A towing device comprising a rail adjacent to the surface of the water, a series of spiles suitably connected to the rail to hold it in an operative position, a boat carrying a suitable motor, a traction device operated thereby and having rolls to grip the rail, and a suitable connection for towing the load, substantially as herein set forth.

3. In a towing device, a rail adapted to float upon the water, a boat carrying a suitable motor, and a traction device connected with the motor and arranged and operated to grip the rail, as and for the purpose set forth.

4. In a towing device, a rail adapted to float upon the water, a catamaran-boat with a hull floating upon each side of the rail, a suitable motor upon the deck of the catamaran, and wheels projected below the deck to grip the floating rail, as and for the purpose set forth.

5. In a towing device, a rail adapted to float upon the water, a catamaran-boat with a hull floating upon each side of the rail, a suitable motor upon the deck of the catamaran, vertical shafts driven by the motor and projected below the deck of the same with wheels to press the opposite sides of the rail, and auxiliary guide-wheels between the catamaran and rail, to aline the catamaran therewith, substantially as herein set forth.

6. In a towing device, a rail adapted to float upon the water, an electric motor with driving-wheels arranged to grip the said rail, a trolley-wire sustained adjacent to the rail, and a trolley-wheel and connections from the same to the motor, substantially as herein set forth.

7. A rail adapted to float upon the water, a boat carrying an electric motor with driving-wheels arranged to grip the said rail, a trolley-wire sustained adjacent to the rail, and a trolley-wheel and connections from the floating motor to the said trolley-wheel, substantially as herein set forth.

8. A towing device comprising a rail adapted to float upon the water, a series of spiles with flexible connections to the said rail, an electric motor with driving-wheels arranged to grip the said rail, a trolley-wire sustained by brackets upon the said spiles and a trolley-wheel and connections from the floating motor to the said trolley-wheel, substantially as herein set forth.

9. A canal, having a floating wooden rail with a series of flexible anchor connections holding the same movably adjacent to the side of the canal, a boat carrying a suitable motor and a traction device operating upon the said rail, substantially as herein set forth.

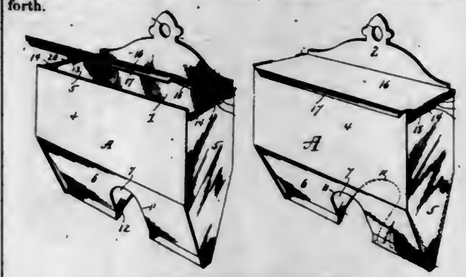
10. The means for towing in a canal, consisting of a floating rail, with a series of flexible anchor connections holding the said rail movably adjacent to the side of the canal, a boat carrying a suitable motor, a traction-motor having wheels to grip the said rail, and a tow-rope for hauling the load, substantially as herein set forth.

11. The means for towing, in a canal having a lock in the same, consisting of a floating rail adjacent to the side of the canal, a continuation of such rail sustained within the lock, and a traction-motor having wheels to grip the said rail, and a tow-rope for hauling the load, substantially as herein set forth.

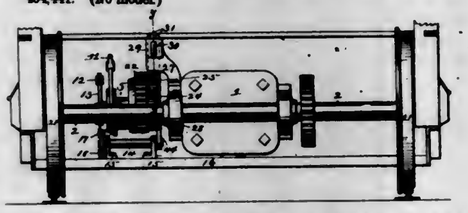
12. The means for towing, in a canal having a lock in the same consisting of a floating rail adjacent to the side of the canal, a continuation of such rail sustained within the lock, with means for guiding it vertically as the water is drawn from the lock, and sections of the said rail secured to the adjacent leaves of the lock-gates, with a traction-motor having wheels to grip the said rail and a tow-rope for hauling the load, substantially as herein set forth.

575,489. MATCH-BOX. ZACHARIAH D. MORROW, Franklin, Ill.; J. C. Widenham administrator of said Morrow, deceased. Filed Mar. 2, 1896. Serial No. 581,504. (No model.)

Claim.—In a match-box, the combination with the body portion having flanges at the upper edges of its ends, said flanges being cut to form stops between their ends, of a lid, and flanges on the ends of said lid adapted to engage the flanges on the box, so that when the lid is partially off the box it can be inclined whereby to facilitate the insertion of matches into the box in quantity, substantially as set forth.



575,490. MEANS FOR OPERATING ELECTRIC MOTORS. JAS. F. MCLAUGHLIN, Philadelphia, Pa. Filed Sept. 1, 1891. Serial No. 404,441. (No model.)



Claim.—1. The combination with an electric motor, of a clutch for coupling it to the work, a brake for the motor-armature, and connections between the clutch and armature-brake for operating them in succession, substantially as described.

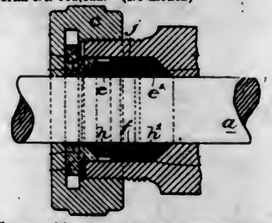
2. The combination with an electric motor of a clutch for coupling the motor to the work, one member of said clutch being constantly geared to the motor-armature and provided with a smooth bearing-face; a brake in operative relation to said bearing-face, and connections between the clutch and brake for operating them in succession, substantially as described.

3. The combination, in an electric-motor car, of an electric motor, a clutch for coupling the motor-armature with and uncoupling it from the driving-wheels, a brake for the armature, and operating mechanism actuating the clutch and armature-brake in succession, substantially as described.

4. The combination, in an electric-motor car, of an electric motor, a clutch for coupling the motor-armature with and uncoupling it from the driving-wheels, a brake for the armature, brakes for the car-wheels, and operating mechanism actuating the clutch, armature-brake, and wheel-brakes in succession, substantially as described.

5. The combination, in an electric-motor car, of an electric motor, a clutch between the same and the driving-wheels, a brake for the armature, brakes for the car-wheels, a system of links and levers connecting the clutch, armature-brake and wheel-brakes, and a single operating-lever for the same, substantially as described.

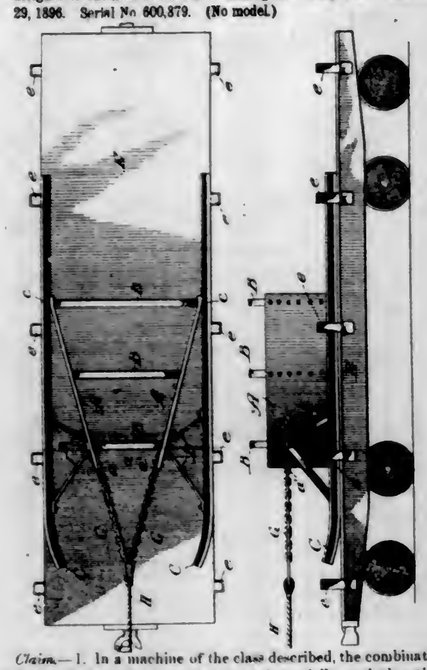
575,491. METALLIC PACKING FOR PISTON-RODS. MILTON P. MCLAUGHLIN, Somerville, Mass., assignor of two-thirds to Philip M. Hammett, Melrose, and Sam W. Simonds, Boston, Mass. Filed Aug. 7, 1896. Serial No. 602,022. (No model.)



Claim.—The combination with an externally-threaded casing having a bevel, a nut threaded upon the casing, and a stuffing-ring having a bevel opposite the bevel of the casing of an inner metallic packing-ring formed of two sections with abutting beveled edges, the outer edges of said ring having bevels corresponding to the bevels of the

stuffing-ring and the casing, an outer packing-ring encircling the inner ring, both of said packing-rings being formed in halves and breaking joint with each other, and a strong metallic spring encircling the said packing-rings.

575,492. CAR-UNLOADER. MICHAEL O'DOWD, Chillicothe, Ill., assignor of one-half to Charles F. Resseguie, Chicago, Ill. Filed July 29, 1896. Serial No. 600,879. (No model.)

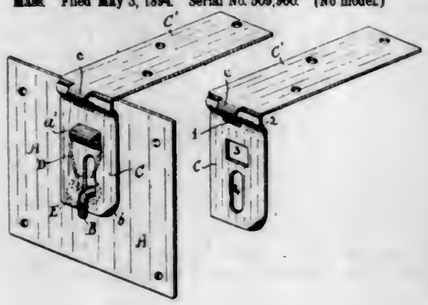


Claim.—1. In a machine of the class described, the combination of a discharging portion formed of two substantially vertical sections arranged at an acute angle with relation to each other and to provide a substantially central passage so that a portion only of a load is discharged, and mechanism for guiding the structure in the desired position along a car and from car to car, substantially as described.

2. In a machine of the class described, the combination of discharge portion formed of two substantially vertical sections arranged at an acute angle with relation to each other and to provide a central passage therethrough, overhead arched trusses for securing the parts together, and guide-rails, one arranged at each side of the structure and exceeding the length of the discharge-sections for the purpose of guiding the structure in the desired position along a car or from car to car, substantially as described.

3. In a machine of the class described, the combination of a discharging portion formed of two substantially vertical sections arranged at an acute angle with relation to each other, truss mechanism for securing the sections together, and guide-rails, one at each side of the discharging portion formed of railway metallic rails of a length exceeding the length of the discharging-section and having their front portions bent upwardly and inwardly, and truss mechanism for securing the front portion of the discharge-sections to the guide-rails, substantially as described.

575,493. HASP-FASTENER. CHARLES C. RICHMOND, Boston, Mass. Filed May 3, 1894. Serial No. 509,960. (No model.)



Claim.—A seal-lock consisting of a plate A, having an eye *a'*, formed by cutting down and curling the central upper portion of said plate and a pivoted fastener B, attached to said plate A below the eye *a'*, in combination with a hasp C, having an opening 3, for the eye *a'*, to pass through and an opening 4, for the fastener B, to pass through and a hasp-plate C', fulcrumed to said hasp C, substantially as and for the purpose set forth.

575,494. ASH-SIFTER. ROBERT L. RILEY, Newburg, N. Y. Filed Oct. 31, 1896. Serial No. 610,747. (No model.)



Claim.—1. The herein-described ash-sifter which comprises an annular base, a main cylindrical casing formed thereon, and provided with vertical slots in its opposite side walls which open upwardly, and with a hinged cover, said cylindrical casing being also provided with an ash-receiver which is circular in form, and provided with a perforated or reticulated bottom, and at its top with side arms which project through the slots in the casing, and a support and means for operating said ash-receiver, consisting of a ring which passes around the top thereof, below said arms, and which is connected at different points with wires or rods which are carried downwardly beneath the bottom of the receiver and upwardly on the opposite side, and again connected with the ring, said wires or rods being provided centrally of the bottom of the receiver with loops or eyes through which is passed a shaft, the ends of which are carried upwardly, and passed outwardly, through the opposite sides of the main cylindrical casing, and one end of said shaft being provided with a crank, substantially as shown and described.

2. The herein-described ash-sifter which comprises an annular base, a cylindrical casing formed thereon, and provided with vertical slots in its opposite side walls, and with a hinged cover, said cylindrical casing being also provided with a perforated or reticulated bottom, and at its top with side arms which project through the slots in the casing, and means for moving said receiver vertically and for oscillating the same, consisting of a wire supporting-frame in which the receiver is mounted, and which is provided with transverse wires at the bottom thereof, through which passes a shaft the ends of which are bent upwardly and passed out through the sides of the cylindrical casing, substantially as shown and described.

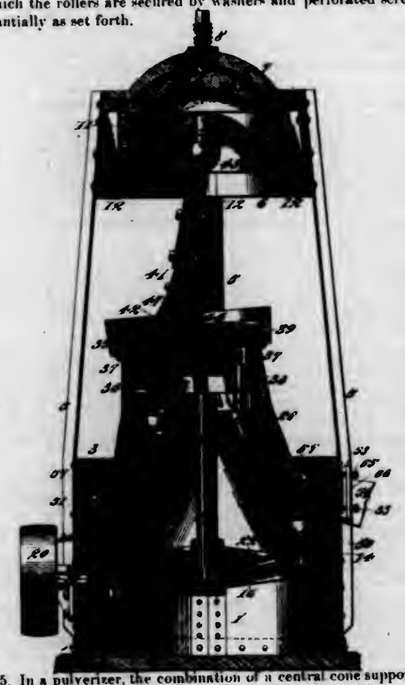
575,495. GYRAL PULVERIZER. ALBION M. ROUSE, Denver, Colo., assignor to the Miners Relief Association, same place. Filed Jan. 25, 1896. Serial No. 576,814. (No model.)

Claim.—1. In a pulverizer, the combination of a central cone, a gyrating cone located over the central cone, and provided with a shoe at its lower edge, a die supported by the cental cone beneath said shoe, a feed-head located on said gyrating cone, a strut fitted eccentrically to said head, a head bearing against the upper end of said strut under the influence of a series of springs bearing against said head, substantially as set forth.

2. In a pulverizer, the combination of a central cone supporting a die, a gyrating cone located over the central cone, means for imparting movement to the gyrating cone, a feed-head mounted on the last-mentioned cone, a strut fitted eccentrically at its lower end to said head, and springs bearing upon the upper end of said strut, substantially as set forth.

3. In a pulverizer, the combination of a central cone supporting a die, a gyrating cone located over the central cone, a shaft passing through the central cone and having a crank on its upper end above the central cone, rollers journaled to said crank and adapted to bear against the gyrating cone, a head located on the gyrating cone and connected by pins to said crank, and a spring-pressed strut fitted eccentrically to said head, substantially as and for the purpose set forth.

4. In a pulverizer, the combination of a central cone supporting a die, a gyrating cone located over the central cone, a shaft passing through the central cone and provided with a crank at its upper end above said central cone, rollers journaled to said crank and adapted to bear against the gyrating cone, a head located on the gyrating cone, a pin-and-socket connection between said head and crank, and a spring-pressed strut eccentrically fitted to said head; said rollers being provided with cavities and oil-cups, and being secured to said crank by means of perforated journals, over which the rollers fit and to which the rollers are secured by washers and perforated screws, substantially as set forth.



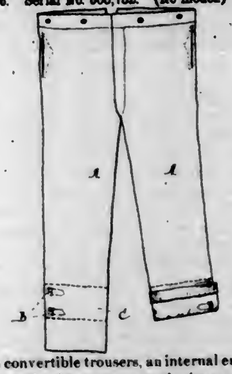
5. In a pulverizer, the combination of a central cone supporting a die, a gyrating cone fitting over the central cone, means for imparting movement to the gyrating cone, a feed-head mounted on the gyrating cone, a strut fitted eccentrically at its lower end to said feed-head, and means for applying pressure to the upper end of said strut, consisting of two movable heads, springs placed between the heads, and a set-screw bearing upon the upper one of said last-mentioned heads, substantially as set forth.

6. In a pulverizer, the combination of a hoop or drum, a central cone having a flange secured to said hoop, a die resting upon said flange, a gyrating cone fitting over the central cone and to which is secured a shoe, a spider secured to a vertical flange formed upon said central cone, a driving and a vertical shaft journaled in said spider, a gear connection between said shafts, a crank on the upper end of said vertical shaft, rollers journaled to said crank and adapted to bear against said gyrating cone, a feed-head located on the gyrating cone, ball-bearings between said feed-head and gyrating cone, pins fitted to said crank and entering sockets in said feed-head, a strut fitted eccentrically to said feed-head, and a spring-pressed head having a ball-and-socket joint with the upper end of said strut, substantially as set forth.

7. In a pulverizer, the combination of a drum-base, a die carried by the drum, a cone working on the die and adapted to be given a gyratory movement, suitable means for imparting said gyratory movement to said cone consisting of a crank eccentrically mounted on a shaft, rollers carried by the crank which bear against the cone, a head carried on the cone and having connection with the crank, and means for applying pressure to said head consisting of a hoop supported from the drum by means of uprights, a cap carried by the hoop a yielding head in the cap and a thrust-bar between said head and the head on the cone, substantially as shown and described.

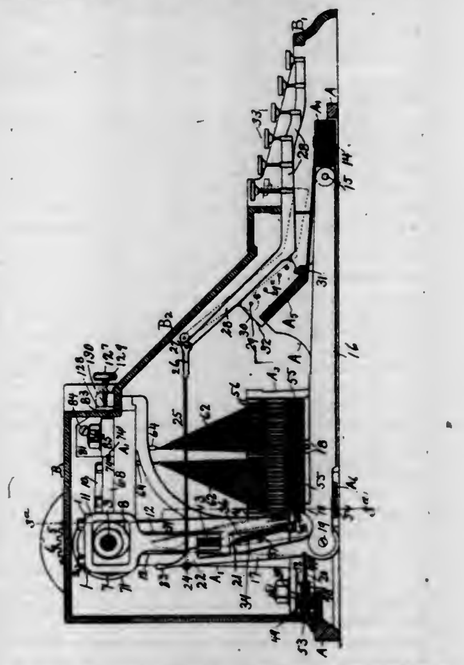
8. In a pulverizer, the combination of a central cone, a gyrating cone located over the central cone, means for imparting movement to the gyrating cone, a feed-head fitting on the gyrating cone, and a spring-pressed strut fitted eccentrically to said feed-head; said feed-head having a rib 45 with a socket 42 and flange 46 to receive said strut, and said feed-head having cavities 44 and openings 48; said strut being provided with a shield 47, substantially as set forth.

575,496. TROUSERS. SIMON M. SILVERMAN, Chicago, Ill. Filed Sept. 14, 1896. Serial No. 605,752. (No model.)



Claim.—In convertible trousers, an internal encircling cuff united to each leg below the knee to cover the inseams and constitute a contrasting band; said cuff having suitable fasteners *e. g.*, straps and buckles thereon and being located above the bottom of the leg so that on plural reversion of the trousers end the final roll renders the cuff external *i. e.*, causes it to face outward and the trousers-leg is shortened to present the finished appearance of knickerbockers, on securing the fasteners, substantially as described.

575,497. PERFORATOR. EDWIN R. STORM, New York, N. Y. Filed July 12, 1895. Serial No. 555,727. (No model.)



Claim.—1. The combination, in a perforator, of normally inoperative punches adapted to punch holes in different combinations in a ribbon to represent different characters, keys corresponding to such different characters, assembling-bars each having a different combination of projections corresponding to one of the characters, parts moved by said projections rendering selected punches operative, power devices for operating the perforator with its assembling-bars, and distinct from the keys but brought into coöperation with certain combinations of punches by operation of any key, whereby on the movement of a key a complete character, letter, syllable or word, represented by a combination of holes, will be automatically formed.

2. The combination, in a perforator, for perforating a strip, of a series of punches adapted to punch holes in different combinations to represent different characters, which characters vary in length longi-

tudinally on the strip, separate feed-hole punches occupying a line parallel with the direction of movement of the strip in front of the punches, operated simultaneously with the character-punches, keys corresponding to the different characters, devices for operating the perforator, controlled by the keys, means for operating more or less of the feed-hole punches to correspond to the length of character punched.

3. The combination in a perforator for punching a strip, of a series of punches adapted to punch holes in different combinations to represent different characters, which characters vary in length longitudinally on the strip, separate feed-hole punches occupying a line parallel with the direction of movement of the strip in front of the punches operated simultaneously with the character-punches, keys corresponding to the different characters, power devices distinct from the keys but brought into operation by the keys for operating the perforator, and means for operating more or less of the feed-hole punches to correspond with the length of the character punched.

4. The combination in a perforator for perforating a strip, of a series of punches adapted to punch holes in different combinations to represent different characters, which characters vary in length longitudinally on the strip, separate feed-hole punches occupying a line parallel with the direction of movement of the strip in front of the punches, operated simultaneously with the character-punches, keys corresponding to the different characters, devices for operating the perforator controlled by the keys, means for operating more or less of the feed-hole punches to correspond to the length of character punched, and the strip or ribbon feeding mechanism.

5. The combination, in a perforator, of a plurality of punches movable in different combinations, keys corresponding to such combinations, separate feed-hole punches, means for operating more or less of the successive feed-hole punches, according to the number required by the length of the character formed, and power devices normally inoperative on the perforator, and a clutch between the power devices and the perforator mechanism, said clutch being controlled by operation of any key.

6. The combination with a rotating wheel, of a shaft normally at rest, carrying operating devices, a clutch thereon, carrying a bolt adapted to engage with the rotating wheel, and a bifurcated trip, substantially as described.

7. The combination with a rotating wheel, of a shaft normally at rest, carrying operating devices, a clutch thereon carrying a bolt adapted to engage with the rotating wheel, a bifurcated trip one member of which is stationary and adapted to engage and partially withdraw the bolt, the other member of the trip being movable and adapted to complete the withdrawal of said bolt, and one or more keys operating said movable member of the trip, substantially as described.

8. The combination, in a perforator, with a rotating wheel of a shaft normally at rest, carrying operating devices, a clutch, the shaft carrying a bolt adapted to engage with the rotating wheel, a bifurcated trip one member of which is stationary and adapted to engage and partially withdraw the bolt, the other member of the trip being movable and adapted to complete the withdrawal of said bolt, several keys each of which is adapted to move said movable part of the trip, and punches rendered operative by said keys.

9. The combination, in a perforator, with a rotating wheel, of a shaft, a clutch thereon having a longitudinally-movable part 43, carried around by the shaft when it turns, a fixed trip-piece, 41', and a movable trip-piece 41, both trip-pieces being arranged to engage part 43.

10. The combination, in a perforator, with a rotating wheel of a shaft a clutch thereon having a longitudinally-movable part and fixed and movable trip-pieces, the fixed trip-piece having a groove or way in which the movable trip-piece moves.

11. The combination of a plurality of punches movable in different combinations, a key for each combination, a punch-operating block or head normally not operative on the punches, and longitudinally-movable blocks controlled by said keys and movable between the punches and the operating-block in the desired combinations, feed-hole punches, and means for operating more or less of the feed-hole punches in succession according to the length of the character formed, so that the movement of the operating-block will punch a corresponding combination of character-holes and feed-holes.

12. The combination of a plurality of punches normally inoperative, blocks movable behind the punches in different combinations to render them operative, a key corresponding to each combination, and assembling bars operated by power independent of the keys brought into operation by the keys and acting to bring corresponding blocks behind the punches.

13. The combination of a plurality of punches normally inoperative, blocks movable behind the punches in different combinations, a key corresponding to each combination, assembling devices brought into operation by the keys and acting to bring corresponding blocks behind the punches, and a power-driven device for operating said punches and assembling devices independently of power applied to the keys.

14. The combination of a plurality of punches normally inoperative, blocks movable behind the punches in different combinations, a key corresponding to each combination, and adapted by suitable intermediate parts to connect an assembling-bar to power-driven devices, assembling-bars actuated by power independent of the keys, each having projections corresponding to one combination, and means operated thereby causing the corresponding blocks to be moved behind the corresponding punches.

15. The combination of punches normally inoperative, blocks movable in desired combinations to render punches operative, keys and assembling devices corresponding to such combinations, power-driven devices arranged to move the selected blocks and then to operate the corresponding punches, and means operated by the key moved to connect the selected assembling device to the power.

16. The combination of punches, blocks movable behind the same in different combinations, assembling devices, keys operatively connected to the assembling devices, means operative through the assembling devices for moving the corresponding blocks behind the punches, a moving or lifting device operated by suitable power, and means operated by the keys to connect the assembling devices and the moving or lifting device.

17. The combination of punches, means for rendering them operative in different combinations, including blocks, assembling devices and keys, a lifting or moving device operated by power, and catch or engaging devices operated by the keys for connecting the assembling and lifting or moving devices.

18. The combination of punches, means for rendering them operative in different combinations, including blocks, assembling-bars, parallel bars operated by the assembling-bars and rods movable with the parallel bars and blocks moved by said rods, whereby certain blocks are moved by each assembling-bar, catch-bars and keys corresponding to the assembling-bars, and a lifting-bar, the catch-bars being moved by the keys.

19. The combination of punches, means for rendering them operative in different combinations, including blocks, assembling-bars, parallel bars operated thereby, pivoted bars operated by the parallel bars, rods movable with the parallel and pivoted bars for actuating the blocks.

20. The combination, in a perforator, of punches, blocks movable in line with the punches to render them operative in different combinations, means for moving the punches, a power device normally disconnected from said means, a trip operation of which connects said means and power device, spindle 35 having one or more arms 36 fixed thereto, means for moving said arms to turn the spindle, and means operated by movement of the spindle to render the power operative on the perforator.

21. The combination, in a perforator, of a driven wheel, a shaft, and an intermediate clutch, a trip operation of which engages the clutch, spindle 35, having arms 36 fixed thereto, and plates 34 adapted to be moved against said arms to turn the spindle.

22. The combination, in a perforator operated by power, of punches, blocks movable behind them in different combinations, to render them operative, assembling, lifting and catch bars, keys for operating the latter, a spindle 35, arm 36, plate 34 adapted to be moved against arm 36, and a projection on the catch-bar in position to move against plate 34 and to release the latter when the catch is raised, and means for returning arm 36 and attached parts to the original positions when the plate is thus released, and a trip moved by said spindle.

23. The combination, in a perforator, of punches normally inoperative, controlling-keys, a shaft, a cam thereon, a lifting device moved by the cam, assembling-bars, means operated by the keys for connecting selected assembling-bars to the lifting device, and means operated by the assembling-bars for rendering selected punches operative.

24. The combination of punches normally inoperative and controlled by several keys, a shaft, a cam thereon, a lifting-bar or device operated thereby, means operated by the lifting-bar to render selected punches operative, said cam being formed, as described, to first move said bar forward, then to hold it stationary, and then to return it.

25. The combination of punches normally inoperative, keys, a shaft, a cam thereon, a lifting bar or device operated thereby, and intermediate parts moved by the lifting bar to render some of the punches operative, said cam being formed as described to first advance said bar, then hold it stationary, and then to retract it, a punch-moving device, and a cam on the shaft for moving it.

26. The combination of punches normally inoperative, keys, a shaft, a cam thereon, a lifting bar or device operated thereby, and intermediate means operated thereby to render some of the punches operative, said cam being formed as described to first advance said bar, then hold it stationary, and then to retract it, a punch-moving device, a cam on the shaft for moving it, a paper-feeding device and a cam for moving it

27. The combination, in a machine having a ribbon to be advanced by steps of varying lengths, of a feed-wheel, a propelling pawl or device, a movable body carrying the same, a series of pivoted levers for determining the lengths of movement of said body, a series of rods operating said levers, a series of finger-keys, and means brought into use thereby to operate said rod and levers.

28. The combination, in a machine having a ribbon to be advanced by steps of varying lengths, of a feed-wheel, a propelling pawl or device, a movable body carrying the same, a series of pivoted levers for determining the lengths of movement of said body, a series of rods operating said levers, a series of finger-keys, a series of parallel bars and pivoted links to which the rods are connected and intermediate devices between the keys and bars.

29. The combination of several punches, means for operating them in different combinations, keys for selecting the combinations, a frame, a pawl thereon, a ribbon-feed wheel engaged by said pawl, and several levers of different lengths operating on said frame to move it, and means connecting the keys and levers, whereby the levers moved and the length of movement of the frame depend upon the key operated.

30. The combination of frame 94, a pawl thereon, a ribbon-feeding wheel, levers of different lengths in position to operate on said frame to move it in one direction, keys and intermediate connections controlling the movement of the desired levers and hence the length of movement of the frame, and means for returning the frame, the pawl engaging the feeding-wheel and advancing it a distance corresponding to the movement of the frame.

31. The combination of frame 94, a pawl thereon, a ribbon-feeding wheel, means operating on said frame to move it the desired distance, keys and intermediate connections for controlling such movement, a lever in position to move said frame backward, and means for moving said lever.

32. The combination of frame 94, pawl 98, feed-wheel 116, means for moving the frame forward, lever 105, a part 111 moved by said lever, and a cam 9 adapted to operate on said part to return the frame and to turn the feed-wheel.

33. The combination of frame 94, pawl 98, feed-wheel 116, means for moving the frame forward, lever 105, a cam adapted to operate said lever to return the frame and to turn the feed-wheel, block 74 also moved with said frame, and punches rendered operative by said block.

34. The combination with a movable frame 94, of levers 88 of graduated lengths pivoted at 91 and recessed, and having adjusting-screws at the tops of the recesses, operating-rods extending into said recesses, bearing against the screws, means for operating the rods, said levers, 88, operating said movable frame a distance which depends on the length of the longest of said levers moved at any one time.

35. The combination of bars 55, pivoted links 56, rods 63, levers 88, and a ribbon-feed moved thereby.

36. The combination of bars 55, links 56, rods 63, levers 88, punches, block 74, and means moved by levers 88 for moving block 74 behind the punches.

37. The combination of bars 55, links 56, rods 63, levers 88, a ribbon-feed wheel, block 74, punches behind which said block is movable, an intermediate device between levers 88 and the block 74 and the feed-wheel, keys, and means operated thereby moving bars 55 in desired combinations.

38. The combination with frame 94 a feed-wheel, means carried by the frame for moving the feed-wheel, keys and means brought into use by the keys for moving the frame different distances, of arm 110, roller 111, cam 9, link 109, and lever 105 for returning the frame to its first position, thereby moving the feed-wheel the desired distance.

39. The combination of a stationary punch-head supporting both character and feed-hole punches, an operating punch-block and means for moving it, said block being not normally adapted to reach said punches, blocks movable between the punch-block and the character-punches in different combinations, a block movable between the punch-block and more or less of the feed-hole punches in regular succession and a draw-back plate moved by the punch-block and operating both on the character and feed-hole punches to withdraw them.

40. The combination of character-forming punches, movable in different combinations, a row of punches for forming feed-holes, means for operating the desired combination of character-punches, and means for automatically operating a number of the feed-hole punches in regular order sufficient to make a row of feed-holes equal in length to the character formed plus the space between two characters.

41. The combination of character-punches, movable in different combinations, feed-hole punches, means whereby certain of the character-punches may be rendered operative, means for operating the required number of feed-hole punches in regular succession, and keys controlling the operation of the punches.

42. The combination of punches suitably supported, a head or block for moving the punches but normally not adapted to reach them, said head having openings in which fit blocks movable behind some of the punches to operatively connect the head and such punches, and a separate block moving at right angles to the other blocks and behind another series of punches.

43. A punch-operating head having openings therein, blocks, 66, therein, a way or socket 73, and a block 74 movable in said way, in combination with punches in position to be moved by said head.

44. A punch-operating head having openings therein, sliding blocks therein in two series adapted to extend to different heights, a sliding block in a plane between the planes of the tops of the first-mentioned blocks when they are moved forward, the latter block being movable at right angles to the first-mentioned blocks.

45. A punch-operating head having openings therein, blocks 66 therein, in two series adapted to extend to different heights, a block 74 on a level between the tops of blocks 66 when they are moved forward and movable at right angles to block 66, in combination with punches in position to be moved by said head.

46. In a machine having banks of keys, key-levers and parts operated thereby, as a perforator, the combination of key-tips in banks successively farther from the front of the machine, a block with pivot-bearings at different heights, means for holding said block in an inclined position, key-levers carrying said tips, the levers of the first bank of tips being pivoted at the lowest pivot-bearings, the key-levers of the second bank of tips being pivoted at the next higher pivot-bearings, and so on for the other banks and levers, each bank of tips having its lever-pivots at the same level with the tips, and means for securing said block to the machine.

47. The combination of punches, and means including power-operated assembling-bars controlled by keys, and means moved by the bars for rendering the punches operative in different combinations.

48. The combination of a stationary punch-head supporting character-punches and feed-hole punches, an operating punch-block containing movable blocks for the character-punches, and a single movable block for the feed-hole punches, said punch-block being incapable of reaching said punches until said movable blocks are moved between the punch-block and the punches.

49. The combination of punches, a punch-block out of reach of the punches, frame 94, a block moved by said frame into the space between the punch-block and punches, means for moving said frame forward, an operating-cam for returning it, means moved more or less into the field of the cam by the forward movement of said frame for communicating movement of the cam to the frame to return it.

50. The combination of character-punches, blocks movable behind them in different combinations, a series of feed-hole punches, a movable block movable behind a greater or less number of successive punches in the feed-hole series and a punch-block, said movable block having a movement with the punch-block and also an independent movement.

51. The combination, in a perforator, with several catch-bars, of a separate retracting-spring for each bar, an adjusting device for each spring, whereby the springs can be adjusted separately, and means consisting of a bar with adjusting-screws, whereby the springs can be simultaneously adjusted.

52. The combination of a catch-bar with a semicircular channel in its rear side, and a hole from said semicircular channel through the bar, a rod 25 passing through the hole, said rod being threaded at one end for adjustment of its length, and having at the other end an eyelet or circular head fitting into the semicircular channel and working therein as a bearing, said semicircular channel serving also as a lock to prevent the loss of adjustment of the rod by turning, a piece 26 with which the screw-threaded end of rod 25 makes connection, and a controlling-key.

53. The combination of catch-bars, having engaging hooks and trip projections, a power-operated moving device therefor, means normally holding the catch-bars out of engagement with the moving device, keys for putting the catch-bars in engagement with the moving device, and means operated by each key to render the power device operative to advance and then to return the moving device, carrying with it the catch-bar.

54. The combination of a power-shaft, a clutch normally out of engagement, a trip for throwing the clutch in engagement, keys, catch-bars thrown into engagement by the keys, a moving device operated from the power-shaft and in position to be engaged by the catch-bars when the latter are moved by the keys, a spindle carrying a body against which the catch-bars bear when moved forward, thereby turning the spindle, a connection between said spindle and the trip, whereby the trip is withdrawn when the spindle is turned, projections on the catch-bars against which said body on the spindle rests when in normal position, said projections on the catch-bars occupying such positions that the said body on the spindle will fall beneath them when the catch-bars are moved by the moving device,

allowing the trip to go to its normal position whether the finger-key is released or not.

55. The combination of catch bars, a power-operated moving device therefor, means for normally holding the catch-bars out of engagement with the moving device, keys for putting the catch-bars in engagement with the moving device, and means operated by each key to render the moving device operative to advance and then to return the moving device.

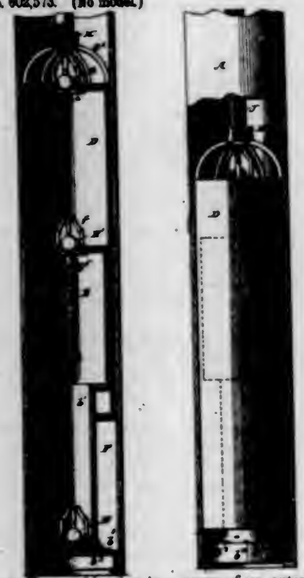
56. The combination, in a perforator having several punches, and power-operating devices, of bars 55 so movable that the edges thereof shall remain parallel to their original positions, assembling or selecting devices acting on said bars, and means moved by bars 55 rendering corresponding punches operative.

57. The combination of punches, block 74, means for moving it forward a greater or less distance according to the number of punches to be operated, and means, as cam 9, and parts moved thereby, for returning said block.

58. The combination with a feed-wheel, of an operating pawl or device, a reciprocatory body carrying the same, keys, means operated by power independent of the keys but brought into operation by them for moving the pawl and body forward a greater or less distance according to the amount of feed required, and means, as cam 9, and parts moved thereby, for returning the pawl and body to their original positions.

59. The combination with a ribbon-feeding device, of a ribbon-tension device consisting of a plate 128, which is adapted to rest against the ribbon, and having a pin 129 extending therefrom into a hollow screw 127, a spring pressing said plate forward, and a fixed surface against which the ribbon is pressed by said plate and spring.

575,498. **PUMP.** WILLIAM J. WRIGHT, Pittsburg, Pa., assignor of one-half to Dickson, Kerr & Co., same place. Filed Aug. 12, 1896. Serial No. 602,573. (No model.)

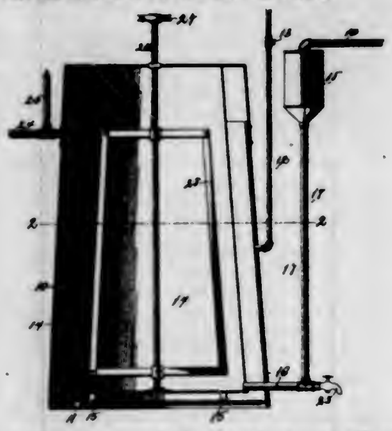


Claim.—1. The combination in a pump of an outer tube open at the bottom and a standing barrel held therein having valved openings at the top and bottom, said barrel having a portion reduced whereby an annular fluid-space is provided between it and the outer tube, the lower end of such barrel having openings communicating with such space and a working barrel movable between the standing barrel and the outer tube, said working barrel having a valved outlet in the top, and a horizontal portion projected into the annular fluid-space at the bottom, all substantially as shown and described.

2. In an oil-pump mechanism, the combination with the outer tubing, of a standing barrel, having a valved inlet and outlet opening, and an apertured foot portion of a diameter fitting the outer barrel or tubing, and having a portion of a reduced diameter, whereby an annular fluid-holding chamber is formed, said foot portions having openings b^2, and a movable barrel, surrounding the inner barrel, extended above the said inner barrel provided with a valved outlet at the upper end and a horizontal internal flange at the lower end, said outer valve having a limited free movement on the inner valve and provided with a plunger member operating in the annular fluid-chamber as set forth.

3. The combination with the outer barrel or tubing, and the inner barrel, having valved inlets and outlets, said inner barrel valve having a lower or pendent portion of reduced diameter, terminating in an annular apertured foot portion of a diameter to fit the bore of the outer tubing, and the movable barrel held to slide between the inner barrel and the outer tubing, its upper end being extended above the inner barrel and provided with a valved outlet and a lift-rod, its lower end being apertured for the passage of the reduced end of the inner barrel said lower end having a fluid-passage all arranged substantially as and for the purposes described.

575,499. **MILK-HEATER.** JULIUS ANDERSEN, Kimballton, Iowa. Filed Jan. 13, 1896. Serial No. 575,207. (No model.)



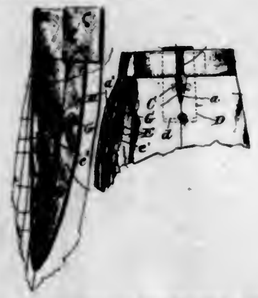
Claim.—An apparatus for heating and conveying milk comprising a casing, means for feeding steam to said casing, a receptacle for milk located within said casing, a milk-ingress pipe 16 communicating with the lower portion of the milk-receptacle and extended through and out of the steam-casing, a down-pipe 17 communicating with the outer end portion of the pipe 16, a milk-reservoir mounted on and communicating with the upper end of the pipe 17 independent of the separator, an ingress-pipe 19 leading to said reservoir, a float-valve arranged to close the communication between the ingress-pipe 19 and the reservoir, rods positioned transversely of the reservoir to limit the descent of the float-valve, an overflow-pipe 24 leading from the upper portion of the milk-receptacle through and out of the steam-casing, an agitator vertically positioned in the milk-receptacle and means for operating said agitator.

575,500. **BUGGY-TOP SUPPORT.** JOHN W. BRITTINGHAM and LAWRENCE A. STERLING, Hale, Mo., assignors of one-half to J. R. Hereford, same place. Filed Mar. 4, 1896. Serial No. 581,766. (No model.)



Claim.—A buggy-top support comprising a sectional two-part clamping-collar adapted to embrace the rear bow of a carriage-top and provided in one side with a recess and a bolt-opening leading into said recess, a pair of bolts detachably connecting the two members of the collar together, an elongated compoundly-curved leaf-spring having a sliding connection at one end with the bow, and formed at its other end with an inturned straight terminal portion 9, folded or bent from the body portion of the spring at an abrupt angle thereto to form a brace for such body portion, said straight terminal portion 9 of the spring extending under the bow parallel therewith and having its tip end seated within the recess of the collar, and a bolt 12 engaging the tip end of the spring-terminal 9 and secured in the bolt-opening in the collar leading to said recess, substantially as set forth.

575,501. **SKIRT.** CHARLES COHN, Baltimore, Md. Filed Aug. 1, 1896. Serial No. 601,305. (No model.)



Claim.—1. As a new article of manufacture, a lady's skirt, having within its placket a reinforcing-strip, the inner fold of which is stitched to the inner fold of the placket, throughout its entire length, while the outer fold is stitched only at the top and bottom, leaving the remaining portion of said outer fold free or unstitched, which free portion together with the outer fold of the placket, constitutes a pocket-opening, in which a pocket is secured, substantially as and for the purpose shown.

2. As a new article of manufacture, a lady's skirt having within its placket, a reinforcing-strip, the inner fold of which is stitched to the inner fold of the placket, throughout its entire length, while the outer fold is stitched only at the top and bottom, leaving the remaining portion of the strip free or unstitched, which free portion together with the outer fold of the placket, constitutes a pocket-opening, in which a pocket is secured, and a placket-fastener consisting of buttons secured to the inner fold of the reinforcing-strip and buttonholes provided in the free portion of the outer fold thereof, that extend through said strip, so that when the fastener is in use, the buttons will lie in the mouth of the pocket, substantially as and for the purpose described.

3. A lady's skirt having a waistband, the band being divided into three sections, the rear division registering with the placket-opening and having a fastening device, the two other or side divisions being provided with pockets in their meeting ends, which receive and contain a strip of elastic material, whose ends are fastened therein some distance away from the said meeting ends, the skirt having its side seams immediately below and in line with the side divisions of the band open for a short distance and provided with small elastic cords, that act in conjunction with the elastic strip in the band-divisions to form a yielding connection between the divided parts, substantially as and for the purpose described.

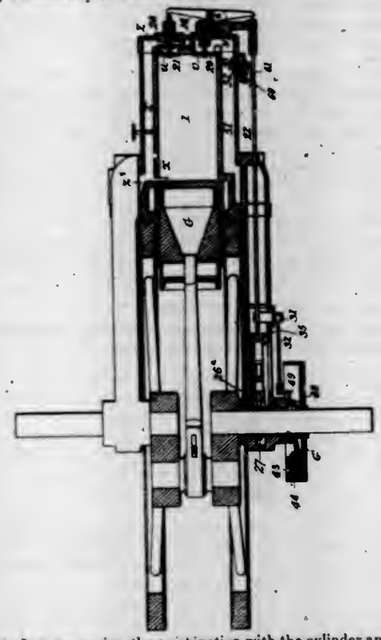
4. A lady's skirt having a waistband, the band being divided into three sections, each of which is constructed of a single piece of material, which is folded to form a double band, between the lower edges of which is stitched the upper part of the skirt, the rear division registering with the placket-opening and being provided with a fastening device, the two other divisions being so disposed as to lie upon the hips of the wearer and having a strip of elastic material extending between and into the double band-sections, where its ends are securely fastened some distance away from the ends of such divisions, the skirt having its side seams immediately below and in line with side divisions of the band open for a short distance and provided with small elastic cords, which act in conjuction with the elastic strips in the band, to form a yielding connection between such parts, substantially as and for the purpose shown and described.

575,502. **GAS-ENGINE.** WALKER L. CROUCH, New Brighton, Pa., assignor to the Pierce-Crouch Engine Company, same place. Filed Nov. 22, 1895. Serial No. 569,829. (No model.)

Claim.—1. The combination with a valve of a gas-engine and with a rod for operating the same, of devices for actuating said rod, and a governor controlling such devices to prevent movement of the valve-rod during the time the engine is running above normal speed and to actuate the rod to open the valve at the next backward stroke succeeding the stroke at which the engine attains its normal speed, substantially as described.

2. The combination with a valve of a gas-engine and with a rod for operating the same having a shoulder, of a reciprocating slide provided with a shoulder adapted to be moved into and out of contacting position with the shoulder of the rod, a governor, and devices operated thereby for shifting one of the parts to bring said shoulders into contacting position on the next backward stroke of the piston succeeding the stroke at which the engine regains its normal speed, substantially as described.

3. In a gas-engine, the combination with the cylinder and piston, of an inlet and an exhaust port and valves therefor, a governor, and means controlled by the governor for holding the exhaust-valve closed when the engine reaches a predetermined speed and for opening the exhaust-valve upon a back stroke of the piston to permit the expulsion of the gases from the cylinder when the speed of the engine decreases below a predetermined speed, and means for supplying the cylinder with a new charge upon the next forward movement of the piston succeeding the stroke at which the engine attains its normal speed, substantially as described.



4. In a gas-engine, the combination with the cylinder and piston, of inlet and exhaust ports, and valves therefor, and a governor and connections for actuating the exhaust-valve to open the same at regular intervals during the normal operation of the engine, to maintain the same closed when the speed of the engine is in excess of the normal, and to open the same upon the next backward stroke succeeding the stroke at which the engine regains its normal speed, substantially as described.

5. In a gas-engine, the combination with the cylinder and piston, of inlet and exhaust ports and valves therefor, connections intermediate the exhaust and inlet valves for operating the same, and a governor controlling said connections for holding the exhaust-valve closed when the engine reaches a predetermined speed and for opening the inlet and exhaust valves upon the next backward stroke succeeding that at which the engine regains its normal speed, substantially as described.

6. In a gas-engine, the combination with the cylinder and piston, of inlet and exhaust ports and valves therefor, a check-valve intermediate the inlet-valve and cylinder, connections intermediate the exhaust and inlet valves for operating the same, and a governor controlling said connections to cause them to open the inlet and exhaust valves at regular intervals during the normal operation of the engine, to maintain said valves in their closed positions when the speed of the engine is excessive and to open said valves at the next backward stroke of the piston succeeding that at which it regains its normal speed, substantially as described.

7. In a gas engine, the combination with a valve and a rod for actuating the same provided with a shoulder, a reciprocating part provided with a shoulder for engaging that of the valve-rod, means for carrying the reciprocating part laterally to different positions to insure or prevent the contact of the two shoulders, and a governor for controlling said means arranged to prevent the contact of the shoulders when the speed of the engine is excessive and to insure the contact of the shoulders at the next backward stroke of the piston succeeding that at which the engine regains its normal speed, substantially as described.

8. In a gas-engine, the combination with a valve and a rod for actuating the same provided with a shoulder, a reciprocating part provided with a shoulder, said part being capable of lateral move-

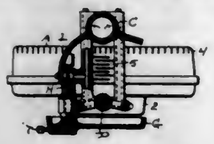
ment to insure or prevent the contact of the two shoulders, a lifter adapted to shift the reciprocating part laterally, a governor adapted to actuate the lifter, and a dog, and means for operating the same to bring it alternately intermediate the lifter and reciprocating part and to one side of the lifter, substantially as described.

9. The combination with a valve and its operating-rod, devices for actuating said rod, a governor, and mechanism intermediate the governor and the devices for actuating the valve-rod for throwing them into and out of operative position, said governor comprising a wheel and its shaft, an angular pendulum provided with an elongated opening for reception of the shaft, and having one of its arms flexibly connected to the wheel and the other provided with a weight, and a spring adapted to move the pendulum in one direction, substantially as described.

10. The combination of the sliding rod 25, valve-rod 22, and shoulders 23, 24 adapted to make contact, lifter 29 controlled by a governor, and dog 33, and means for bringing the said dog alternately first above and then to one side of the lifter during the vibrations of the latter, substantially as and for the purpose set forth.

11. The combination with the valve-rod 22, reciprocating rod 25, and shoulders adapted to engage each other, of a lifter and intermediate devices, and a governor, and connections between the governor and the lifter, the governor provided with an annular rib, a strap upon the said rib connected with the lifter connections, all arranged to throw the rib and strap out of center as the speed decreases and into center as the speed increases, substantially as set forth.

575,503. GASOLENE-BURNER. IRA CULVER, Cleveland, Ohio. Filed Mar. 6, 1896. Serial No. 582,075. (No model.)



Claim.—1. The generator described, a horizontally-movable drip-pan pivoted thereon and an initial lighting-valve rigid with said pan and forming its pivot, whereby when said pan is moved outward the said valve is opened, substantially as described.

2. In vapor-burners, a generator substantially as described, a rotating drip-pan and a threaded initial lighting-valve rigid with one end of said pan and forming the turning-point therefor, substantially as described.

3. A vapor-generator, a rotating initial lighting-pan, and an oil inlet valve connected with and controlled by said pan, substantially as described.

4. In the generator described, an initial lighting-valve, a drip-pan connected with and actuating said valve, and an apron above said valve to deflect the oil or vapor inward, whereby when said valve is open it serves for initial lighting or as a subflame for the burner, substantially as described.

575,504. CORN-HARVESTER. ELMER T. DEATH, Greenville, Ohio. Filed July 31, 1895. Serial No. 557,753. (No model.)

Claim.—1. In a harvesting-machine, the combination with a shock-former, of a butter, locking means for securing the butter in working relation and draft-rods operatively connected with the said butter and adapted when the latter is released to raise the said butter into an operative position for squaring the butt-end of the shock, substantially as set forth for the purpose described.

2. In a harvesting-machine, the combination with a shock-former, of a butter, a shaft having crank portions, one of which has connection with the butter, and a draft-rod connected with the other crank portion, substantially as set forth for the purpose described.

3. In a harvesting-machine, the combination with a shock-former, of a butter, a shaft having crank portions, a link connecting one of the crank portions with the butter, a draft-rod having connection with the other crank portion, an operating-lever pivoted upon the base or platform and having connection with the said link, and a hand-latch carried by the said lever to engage with a notched segment to hold the butter in the required position against draft, substantially as set forth for the purpose described.

4. In a harvesting-machine, the combination with the platform, and a shock-former, of a plate independent of and adjustably mounted upon the said platform, and a butter having a hinge connection with the said plate, substantially as set forth for the purpose described.

5. In a harvesting-machine, the combination with the shock-former, of a plate having adjustable connection with the platform, a butter hinged to the said plate, a shaft journaled in bearings upon the platform and having oppositely-disposed crank portions, links connecting one set of crank portions with the opposite ends of the butter, draft-rods having connection with the other crank portions, a notched segment, a lever pivoted to the notched segment and having connection with one of the said links, and a hand-latch upon the lever to engage with the teeth of the notched segment to hold the butter in the required position against the action of the draft, substantially as set forth.



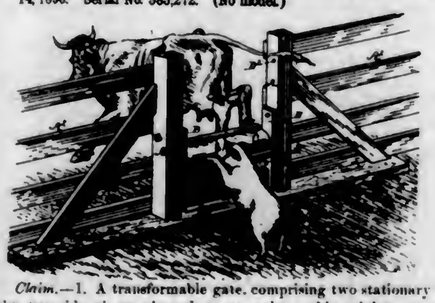
6. In a harvesting-machine, the combination with the platform having cutting-knives and a shock-former, of a butter for evening the grain in the shock-former, movable with respect to the platform and shock-former, and having cutting portions adapted to coöperate with the said cutting-knives, substantially as set forth for the purpose described.

7. In a harvesting-machine, the combination with the platform having inwardly-converging passages, and cutting-knives arranged to project inwardly into the said passages and a shock-former, of a butter for evening the stalks in the shock-former located between the said passages and having cutting portions to extend thereover and coöperate with the aforesaid cutting-knives, and means for raising and lowering the butter, substantially as set forth for the purpose described.

8. In a harvesting-machine, the combination with a shock-former, of a plate having bent end portions embracing the longitudinal bars of the shock-former and having intermediate portions between the bent extremities, a rope or cord having connection with one of the intermediate portions, and a lever pivotally connected with the other intermediate portion and having a plate secured to its side for engagement therewith of the said cord or rope, substantially as specified.

9. In a harvester, the combination with the platform provided with cutting mechanism, and a shock-former, of a tubular standard secured to the platform, a crane having a vertical spindle journaled in the tubular standard and provided at the extremity of its horizontal arm with a bearing-sleeve, and a spindle mounted in the said bearing-sleeve and having pivotal connection with the shock-former, the parts coöperating in the manner set forth for the purpose specified.

575,505. ADJUSTABLE GATE FOR STOCK-YARDS. CASSIUS C. DONNEL, Otley, and GEORGE W. DICKEY, Des Moines, Iowa. Filed Mar. 14, 1896. Serial No. 583,272. (No model.)



Claim.—1. A transformable gate, comprising two stationary uprights two side pieces pivoted at one end to said uprights, a cross-piece pivoted between said side pieces, a cross-piece for closing the space between the pivoted cross-piece and the other end of the side pieces, and means for securing the gate when extended either upwardly or downwardly from its pivotal point, for the purposes stated.

2. A transformable gate, comprising two stationary uprights, two side pieces pivoted at one end to the said uprights, a cross-piece having ridges extended longitudinally thereof eccentrically pivoted between said side pieces, a cross-piece fixed to the other end of said side pieces and means for holding the gate in an upwardly or downwardly extended position, constructed and arranged substantially as, and for the purposes stated.

575,506. MOUNT FOR FIELD-ARTILLERY. LOUIS L. DRIGGS, Washington, D. C. Filed Mar. 20, 1896. Serial No. 584,167. (No model.)



Claim.—1. In a mount for artillery, the combination with a gun, of a saddle supporting said gun, an elevating-screw carried by said saddle, and a training-screw also carried by said saddle, substantially as described.

2. In a mount for artillery, the combination with a gun, of a saddle supporting said gun, a compound elevating-screw carried by said saddle, and means for turning the same, and a training-screw also carried by said saddle, substantially as described.

3. In a mount for artillery, the combination with a gun provided with a spherical band thereon, of a saddle provided with a concave support for said band, an elevating-screw carried by said saddle and connected to said gun and a training-screw also carried by said saddle with mechanism operated thereby for swinging said gun laterally in said saddle, substantially as described.

4. In a mount for artillery, the combination with a gun provided with a convex band thereon, of a saddle provided with a concave support for said band, a compound elevating-screw carried by said saddle and connected to said gun, means for turning the said screw, and a training-screw with mechanism operated thereby for swinging said gun laterally in said saddle, substantially as described.

5. In a mount for artillery, the combination with a gun provided with a convex band thereon, with a longitudinal groove cut in the surface of said band, of a saddle provided with a concave support for said band, and a pin projecting from said saddle into said groove, substantially as described.

6. In a mount for artillery, the combination with a gun provided with a convex band thereon, with a longitudinal groove cut in the surface of said band, of a saddle provided with a concave support for said band and also provided with a detachable cap, and a pin projecting through said cap into said groove, substantially as described.

7. In a mount for artillery, the combination with a gun provided with a convex band thereon, with a longitudinal groove cut in the surface of said band, of a saddle provided with a concave support for said band, and also provided with a detachable cap, and a pin projecting through said cap into said groove, an elevating-screw carried by said saddle and connected to said gun and a training-screw also carried by said saddle with mechanism operated thereby for training the gun, substantially as described.

8. In a mount for artillery, the combination with a gun provided with a convex band thereon, with a longitudinal groove cut in the surface of said band, of a saddle provided with a concave support for said band, and also provided with a detachable cap and a pin projecting through said cap into said groove, a compound elevating-screw carried by said saddle and connected to said gun, and a training-screw also carried by said saddle with mechanism connecting the same to said elevating-screw, and concentric hand-wheels with mechanism operated thereby for operating said elevating and training screws, substantially as described.

9. An apparatus for elevating and depressing guns, comprising a compound screw having the inner member attached to the gun, and the outer member externally screw-threaded and longitudinally slotted, a nut secured to the gun-carriage and engaging said outer screw-threads, a gear-wheel splined on said outer member but permitting the longitudinal motion of said outer member therein, a pinion meshing in said gear-wheel, and a shaft and hand-wheel for turning said pinion, substantially as described.

10. An apparatus for elevating and training guns, comprising a compound screw having the inner member attached to the gun and the outer member externally screw-threaded and longitudinally slotted, a nut pivotally secured to the gun-carriage and engaging said outer screw-threads, a gear-wheel splined on said outer member but permitting the longitudinal motion of the said member therein, a pinion meshing in said gear-wheel, a shaft and hand-wheel for turning said pinion, and mechanism for moving said nut laterally on the gun-carriage, substantially as described.

11. An apparatus for elevating and training guns, comprising a compound screw having the inner member attached to the gun and the outer member externally screw-threaded and longitudinally slotted, a nut pivotally secured to the gun-carriage and engaging said outer screw-threads, a gear-wheel splined on said outer member, a pinion meshing in said gear-wheel, a shaft and hand-wheel for turning said pinion, a frame inclosing said pivoted nut, and a training-screw and hand-wheel for moving said frame laterally, substantially as described.

12. In an apparatus for elevating and training guns, the combination with a compound screw having the inner member attached to the gun and the outer member externally screw-threaded and longitudinally slotted, a nut pivotally secured to the gun-carriage and engaging said outer screw-threads, a gear-wheel splined on said outer member, a pinion meshing in said gear-wheel, a shaft and hand-wheel for turning said pinion, a frame inclosing said pivoted nut, and a training-screw and hand-wheel concentric with the shaft and hand-wheel for operating the elevating-screw, whereby the said frame may be moved laterally, substantially as described.

13. In a mount for field-artillery, the combination with a trail, a slide secured thereto and a saddle supporting the gun and adapted to move longitudinally in said slide, of an axle supporting said slide and trail, and bracket-plates rigidly secured to said slide and projecting outward and downward and provided with sleeves fitting snugly over said axle near the hubs of the wheels, substantially as described.

14. In a mount for field-artillery, the combination with a slide, of a saddle supporting the gun and adapted to move longitudinally in said slide, recoil-cylinders in said saddle with piston-rods secured to said slide, an axle supporting said slide and the parts carried thereby, and bracket-plates rigidly secured to said slide and projecting outward and downward and provided with sleeves fitting snugly over said axle near the hubs of the wheels, substantially as described.

15. An apparatus for elevating and depressing guns comprising an elevating-screw longitudinally slotted, a nut secured to the gun-carriage and engaging said screw, a gear-wheel splined on said screw but permitting the longitudinal motion of said screw therein, a pinion meshing in said gear-wheel, and a shaft and hand-wheel for turning said pinion, substantially as described.

16. An apparatus for elevating and training guns, comprising an elevating-screw longitudinally slotted, a nut pivotally secured to the gun-carriage and engaging said screw, a gear-wheel splined on said screw, a pinion meshing in said gear-wheel, a shaft and hand-wheel for turning said pinion, and mechanism for moving said nut laterally on the gun-carriage, substantially as described.

17. An apparatus for elevating and training guns, comprising an elevating-screw, longitudinally slotted, a nut pivotally secured to the gun-carriage and engaging said screw, a gear-wheel splined on said screw, a pinion meshing in said gear-wheel, a shaft and hand-wheel for turning said pinion, a frame inclosing said pivoted nut and a training-screw and hand-wheel for moving said frame laterally, substantially as described.

18. An apparatus for elevating and training guns, comprising an elevating-screw, longitudinally slotted, a nut pivotally secured to the gun-carriage and engaging said screw, a gear-wheel splined on said

screw, a pinion meshing in said gear-wheel, a shaft and hand-wheel for turning said pinion, a frame inclosing said pivoted nut and a training-screw and hand-wheel concentric with the shaft and hand-wheel for operating the elevating-screw whereby the said frame may be moved laterally, substantially as described.

19. In a mount for field-artillery, the combination with a gun provided with a convex band thereon, with a longitudinal groove cut in the surface of said band, of a saddle provided with a concave support for said band, and also provided with a detachable cap and a solid body held partly in said cap and partly in said groove, and adapted to prevent said gun from rotating on its axis, substantially as described.

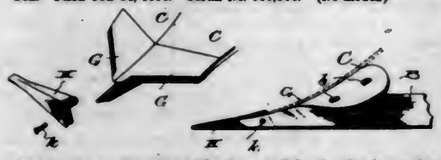
20. In a mount for field-artillery, the combination with a trail, a slide secured thereto, and a saddle supporting the gun and adapted to move longitudinally in said slide, of an axle supporting said slide and trail, bracket-plates rigidly secured to the said slide and projecting outward and downward, and provided with sleeves fitting snugly over said axle near the hubs of the wheels, and brake mechanism carried by said sleeves for locking the wheels against backward motion when desired, substantially as described.

21. In a mount for field-artillery, the combination with a trail, a slide secured thereto, and a saddle supporting the gun and adapted to move longitudinally in said slide, of an axle supporting said slide and trail, bracket-plates secured to said slide and projecting outward and downward and provided with sleeves fitting snugly over said axle near the hubs of the wheels, a spring-operated pawl carried by each of said sleeves, and a ratchet-wheel rigidly attached to the hub of the wheel and engaging said spring-operated pawl and locking the wheel against backward rotation when desired, substantially as described.

22. In a mount for field-artillery the combination with a trail, means for supporting the gun connected to said trail, of an axle connected to said trail, bracket-plates extending from the gun-support outward and downward and provided with sleeves fitting snugly over the axle near the hubs of the wheels, substantially as described.

23. In a mount for field-artillery, the means for preventing the wheels from rotating backward when desired, which comprise a ratchet-wheel attached rigidly to the hub of each wheel, a spring-operated pawl M mounted in the framework of the carriage and adapted to engage said ratchet-wheel, a spring M′ normally pressing said pawl forward, a retracting-eye *m* for drawing said pawl backward and a pin *m′* adapted to fit in the corresponding ratchet when the pawl is in engagement and to bear against the face of the frame when the pawl is drawn out of engagement with the ratchet-wheel, substantially as described.

575,507. CULTIVATOR-PLOW. DE WITT C. HAYNIE, Circleville, Tex. Filed Oct. 21, 1896. Serial No. 609,566. (No model.)



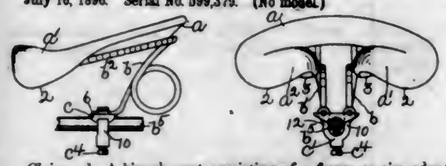
Claim.—In combination with the bar B having its forward end inclined and apertured, the socket K having two parallel downwardly-projecting portions forming between same a channel adapted to receive the inclined end of the bar B, the said downwardly-extending portions being bent outward at right angles thereto, the lower inner walls of which socket are flush with the inclined edge of the said bar when the two are fastened together, substantially as shown and for the purpose set forth.

575,508. OIL-FILTER. DAVID C. HUNT, Cincinnati, Ohio. Filed July 3, 1896. Serial No. 598,043. (No model.)



Claim.—In a filter for cleansing oil and the like, the combination of an outer shell or casing having a raised bottom which is supplied with a drain-cock, and partially filled with water or other similar cleansing and buoyant medium; a horizontal, perforated partition or disk supported within said shell, above its bottom with the water-chamber intervening; a central internal cylinder mounted on said perforated disk, within said shell; a fabric bottom and a cotton-waste filling within said internal cylinder; a fabric bottom and cotton-waste filling within the annulus surrounding said internal cylinder; a perforated ring on the cotton-waste filling in said annulus; a strainer, placed initially in the top of said internal cylinder; a dome-cover and cap; and suitable discharge-cock and gage devices; the whole constructed, arranged, and adapted to operate, substantially as herein set forth.

575,509. BICYCLE-SEAT. OTIS K. NEWELL, Boston, Mass. Filed July 16, 1896. Serial No. 599,379. (No model.)



Claim.—1. A bicycle-seat consisting of a frame or rim adapted to be sat into by the rider and comprising a back portion downwardly inclined toward the front portion of the seat to embrace the buttocks of the rider, and the said front portion consisting of arms extended inwardly from the back portion and downwardly and rearwardly inclined toward the rear portion of the said seat, substantially as described.

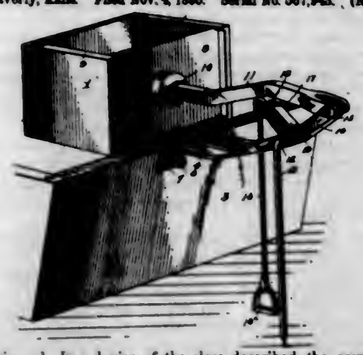
2. A bicycle-seat consisting of an open frame or rim adapted to be sat into by the rider, and comprising a back portion adapted to embrace the buttocks of the rider, and a front portion consisting of inwardly-extended arms separated at their adjacent ends and inclined rearwardly toward the said back portion to form a substantially wide bearing or seat proper when the legs of the rider are extended over the front edges of the said arms, substantially as described.

3. The combination with a bicycle-seat comprising a back portion downwardly inclined from its upper edge toward the front portion of the seat to embrace the buttocks of the rider, and the said front portion composed of inwardly-extended arms attached to the back portion and inclined downwardly and rearwardly from their upper edges over which the legs of the rider extend toward the back portion of the seat and separated at their adjacent ends, of springs secured to the back portion and having their free ends extended downwardly and under the center portion of the seat, substantially as described.

4. A bicycle-seat consisting of an open frame or rim adapted to be sat into by the rider and comprising a curved back portion *a* to embrace the buttocks of the rider and form a brace for the back of the rider, and arms *a′ a²* extended inwardly and inclined rearwardly and downwardly from their upper edges to afford a substantially wide bearing for the seat-bones or ischial tuberosities to rest upon, substantially as described.

5. A bicycle-seat consisting of an open frame or rim adapted to be sat into by the rider and comprising a back portion adapted to embrace the buttocks of the rider, and a front portion consisting of inwardly-extended arms inclined rearwardly toward the said back portion to form a substantially wide bearing or seat proper for the seat-bones or ischial tuberosities to rest upon, substantially as described.

575,510. MOP OR CLOTHES WRINGER. WILLIAM R. RAMEY, Waverly, Kans. Filed Nov. 4, 1895. Serial No. 567,943. (No model.)



Claim.—1. In a device of the class described, the combination of a compression-box having means for detachably securing it to the edge of a tub, provided at its bottom with slots or openings and having at the upper edges of its sides inwardly-extending horizontal

flanges terminating short of the back of the compression-box, a plunger arranged within the compression-box, retained against upward movement of the said flanges and adapted to be introduced into and removed from the compression-box through the spaces between the rear end of the flanges and the back of the box, said plunger being provided with a threaded socket, a centrally-arranged plunger-rod having a threaded inner end detachably fitting in the said socket and adjustably connected with the plunger, and means for reciprocating the plunger-rod, substantially as and for the purpose described.

2. In a device of the class described, the combination of a compression-box, a horizontally-movable plunger arranged within the box, a bifurcated arm extending forward from the bottom of the compression-box, a brace supporting the outer end of the arm and provided with a pivot extending across the bifurcation, a bell-crank lever fulcrumed at its angle on said pivot and having its lower arm notched, a plunger-rod connected with the plunger and with the upper arm of the bell-crank lever, the plunger-rod and the upper arm of the bell-crank lever forming a pair of toggle-levers, a link connected with the knee of the toggle-levers, extending inward therefrom and arranged to be supported by the notched end of the lower arm of the bell-crank lever, and an operating-rod depending from and connected with the link, substantially as and for the purpose described.

3. In a device of the class described, the combination of a compression-box, a horizontally-movable plunger arranged within the box, a bifurcated arm extending forward from the bottom of the compression-box, a brace supporting the outer end of the arm and provided with a pivot extending across the bifurcation, a bell-crank lever fulcrumed at its angle on said pivot and having its lower arm notched, a plunger-rod connected with the plunger and with the upper arm of the bell-crank lever, the plunger-rod and the upper arm of the bell-crank lever forming a pair of toggle-levers, a link connected with the knee of the toggle-levers, extending inward therefrom and arranged to be supported by the notched end of the lower arm of the bell-crank lever, an operating-rod depending from and connected with the link, and a spring provided, intermediate of its ends with a coil arranged on the pivot of the brace, said spring having one end connected with the knee of the toggle-levers, and its other end connected with the bifurcated arm, substantially as described.

4. In a device of the class described, the combination of a compression-box, a horizontally-movable plunger arranged within the compression-box, a plunger-rod extending outward therefrom and disposed substantially horizontally, a bell-crank lever fulcrumed at its angle on a suitable support and having its upper arm connected with the plunger-rod and coöperating with the same to form a pair of toggle-levers, the lower arm of the bell-crank lever being notched, a link extending inward from the knee of the toggle-levers and arranged to be supported by the notched arm of the bell-crank lever, and an operating-rod depending from the link, substantially as and for the purpose described.

575,511. SAFETY-RAZOR. FRANZ VOOS, Solingen, Germany, assignor to MAX KLAAS, New York, N. Y. Filed Sept. 26, 1896. Serial No. 607,115. (No model.)



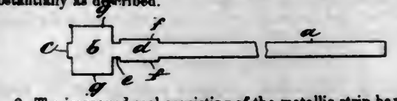
Claim.—1. The combination in a safety-razor, of a frame having a pair of guide-rails, a pair of rearwardly-extending lugs, and a toothed lower edge, with a clamp having rearwardly-extending hooks that engage the said rails, and with a pair of screws that adjustably connect the frame-lugs with the clamp-hooks, substantially as specified.

2. A safety-razor composed of a U-shaped clamp having a longitudinal bead *c′*, a set-screw passing transversely through said bead, a guard engaged by the clamp, and set-screws for adjustably connecting the guard with the clamp, substantially as specified.

3. The combination of a guard having guide-rails a^4, and perforated lugs a^4, with a clamp having bead *c′*, and laterally-projecting hooks c^2, that engage the guide-rails, a set-screw *d*, engaging the bead, and a pair of set-screws *e*, engaging the lugs a^3, and the hooks c^2 substantially as specified.

575,512. SEAL. FRANK W. WOOD, New York, N. Y. Filed Aug. 6, 1896. Serial No. 601,573. (No model.)

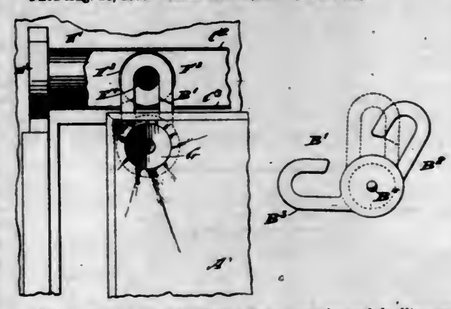
Claim.—1. The improved seal consisting of the metallic strip having the hook at one end and the hook-engaging box at the other end, said box formed of the wide section doubled back on the strip with its lips consisting of portions of its lateral extensions folded over both edges and on the surface of the imperforate back of the portion of the strip over which the said wide section is folded, and said box having an opening in one end adapted to admit the hooked end of the strip and containing a hook for engaging said hooked end of the strip substantially as described.



2. The improved seal consisting of the metallic strip having the hook at one end, and the hook-engaging box at the other end, said box formed of the wide section produced by extension of both edges of the strip and doubled back over the strip with its lips folded over each edge of the imperforate back of the strip and on the surface of the said back, and having an opening adapted to admit the hooked end of the strip, and the extension of the strip beyond said wide section forming the short rigid box-hook to engage the inserted hooked end of the strip substantially as described.

3. The improved seal consisting of the metallic strip having the hook at one end, and the hook-engaging box at the other end, said box formed by doubling the section *b*, having the lips *g g*, over the section *d* and having lips *f f*, said lips *f f* and *g g* being bent upward and then turned over to form the seams *h h*, and said box having an opening adapted to admit the hooked end of the strip, and the extension of the strip beyond the wide section forming the short rigid hook to engage the hooked end of the strip substantially as described.

575,513. SUPPORT FOR SLIDING DOORS, CURTAINS, &c. WILLIAM ABRAHAM, Fairchild, and WILLIAM SCHRODER, Augusta, Wis. Filed Aug. 28, 1896. Serial No. 604,243. (No model.)

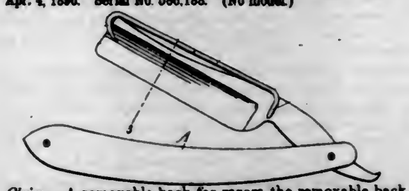


Claim.—1. A support for sliding doors, curtains and the like, comprising a slotted tube forming a track, a grooved ball traveling in the said tube and having its groove registering with the slot of the tube, and a hanger formed of overlapping hook-shaped members engaging said grooved ball and extending through the said slot to carry the door, curtain or the like, substantially as shown and described.

2. In a support for sliding doors, curtains and the like, the combination of a slotted tube forming a track, a grooved ball traveling in the tube, and a hanger formed of two members pivoted together and provided with oppositely-projecting hooks extending up through the slot of the tube and engaging the groove of the ball, substantially as described.

3. A support for doors or curtains, provided with a hanger having two hooked members adapted to engage a grooved ball, a pivot for the said members, and a washer on said pivot, to clamp the door or curtain in place between the washer and the pivot end of the hook members, substantially as shown and described.

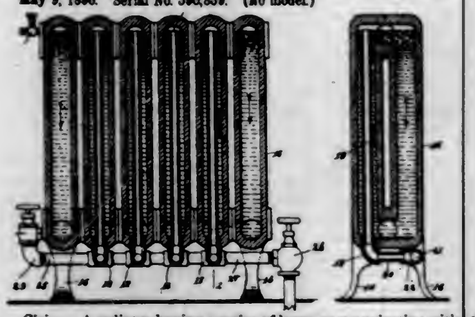
575,514. REMOVABLE BACK FOR RAZORS. SAMUEL H. BARRETT, WALLACE GROVES, and JEST C. BROWN, Woodhull, N. Y. Filed Apr. 4, 1896. Serial No. 586,188. (No model.)



Claim.—A removable back for razors, the removable back having a bar capable of lying along the upper side of the permanent back of the razor and having its side edges projecting beyond the lateral

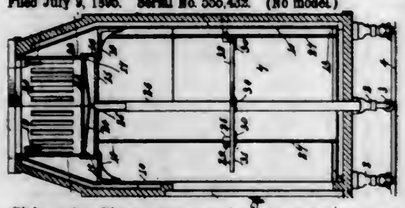
extremities of the said permanent back, the rear end of the bar having two spring-fingers extending downwardly from the bar and the forward end of the bar being bent downward to form a stud from the sides of which two spring-hooks project, each hook extending downward and rearward and the hooks being respectively capable of bearing on the sides of the razor and against the lower shoulders of the permanent back and the fingers being capable of engaging the front edge of the razor, substantially as described.

575,515. RADIATOR. FREDERICK BASON, Chicago, Ill. Filed May 9, 1896. Serial No. 590,839. (No model.)



Claim.—A radiator having a series of loops, communicating with each other and having an air-outlet orifice at the upper portion of one loop, a series of leading-pipes extending longitudinally through the rear run of a number of the loops, the leading-pipes extending downwardly through the lower portions of the loops, elbows beneath the radiator with which the leading-pipes respectively communicate, the elbows turning forwardly from the leading-pipes, a pipe running longitudinally beneath the forward portion of the radiator, the pipe having communication with the elbows, an additional pipe in communication with the said longitudinal pipe, the additional pipe communicating directly with the lower portion of the interior of the radiator, and a valve for said additional pipe, substantially as described.

575,516. REFRIGERATOR. JOSEPH BELL, New York, N. Y. Filed July 9, 1896. Serial No. 598,432. (No model.)



Claim.—A refrigerator, comprising a casing having a door in three of its sides and having an opening at its top provided with a cover, brackets arranged in the upper portion of the casing, a drip-pan resting on said brackets, an ice-box resting on the vertical wall of said drip-pan, a tube extending vertically through the casing and communicating with the interior of the drip-pan, rods extended vertically in the casing, and blocks adjustably mounted on the rods and adapted to support shelves, substantially as specified.

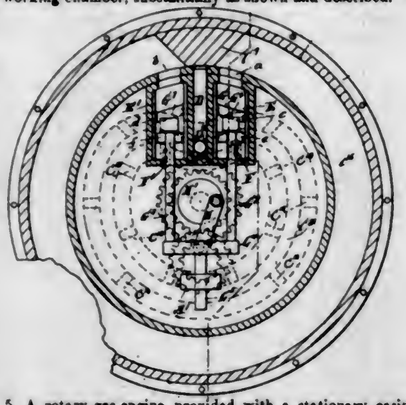
575,517. ROTARY GAS-ENGINE. JOHN D. BLAGDEN, Wood's Holl, Mass. Filed Aug. 12, 1896. Serial No. 602,502. (No model.)

Claim.—1. A rotary gas-engine, provided with a stationary casing forming a compressed-air reservoir, and a cylinder revoluble on and inclosing the said reservoir, substantially as shown and described.

2. A rotary gas-engine, provided with a stationary casing forming a compressed-air reservoir, and a cylinder revoluble on and inclosing the said reservoir, said cylinder or projection thereof being the power transmitter, as set forth.

3. A rotary gas-engine, comprising a stationary cylindrical casing forming a compressed-air reservoir, a cylinder revoluble on and inclosing said reservoir and having an abutment extending in the working chamber between the cylinder-rim and the casing-rim, and a piston fitted to slide in said casing and adapted to pass into the said working chamber, substantially as shown and described.

4. A rotary gas-engine, comprising a stationary cylindrical casing forming a compressed-air reservoir, a cylinder revoluble on and inclosing said reservoir and having an abutment extending in the working chamber between the cylinder-rim and the casing-rim, a piston fitted to slide in said casing and adapted to pass into the said working chamber, and chests held in the said casing on opposite sides of the said piston, and provided with ports and valves for regulating the admission of the gas and air and the discharge of the products of combustion, said chests being connected with the interior of the said working chamber, substantially as shown and described.



5. A rotary gas-engine, provided with a stationary casing inclosed within a revoluble cylinder, chests held in the said casing and in communication with the working chamber, valves fitted to slide in the said chests, and control ports for the admission of the air and gas and the discharge of the products of combustion, substantially as shown and described.

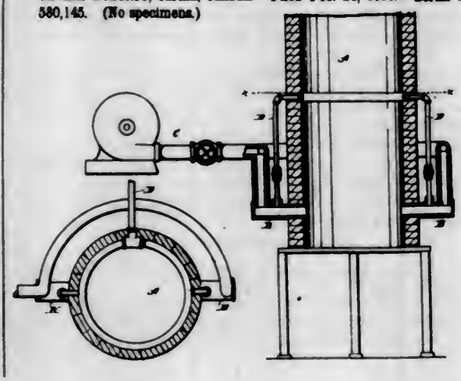
6. A rotary gas-engine, provided with a stationary casing inclosed within a revoluble cylinder, chests held in the said casing and in communication with the working chamber, valves fitted to slide in said chests, and control ports for the admission of the air and gas and the discharge of the products of combustion, said valves having one full stroke to two revolutions of the cylinder, substantially as shown and described.

7. A gas-engine, having a stationary circular casing, an annular cylinder turning around the periphery of the casing and having an interior abutment engaging the periphery of the casing, a piston slidable in the casing and operated by the movement of the cylinder, and valves within the casing, the valves controlling the supply of gas and being also driven by the movement of the cylinder, substantially as described.

8. A gas-engine, having a casing with a compressed-air chamber and two valve-chests communicating with the air-chamber, an annular cylinder turning on the casing and having a cam-groove and also having an abutment engaging the periphery of the casing, a piston sliding in the casing and between the valve-chests, the piston being actuated by the cam-grooves of the cylinder, a valve for each valve-chest, and means for driving the valves in unison and from the movement of the cylinder, substantially as described.

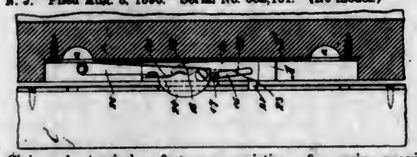
9. In a gas-engine, the combination of a stationary casing, a piston moving radially in the casing, and an annular cylinder turning around the casing and provided with an abutment coacting with the piston, the cylinder also having an eccentric groove receiving a portion of the piston to actuate the piston in unison with the cylinder, substantially as described.

575,518. PROCESS OF PRODUCING MALLEABLE CAST-IRON. THOMAS DOHERTY, Sarnia, Canada. Filed Feb. 21, 1896. Serial No. 580,145. (No specimens.)



Claim.—1. The process of producing a cast-iron approaching in quality to malleable cast-iron or mild steel, but retaining some of the characteristics of cast-iron, consisting in charging a cupola with fuel and metal, raising the heat of the contents of the cupola to a high heat and liquefying the metal with the aid of an air-blast, injecting steam in connection with the air-blast through the metal, and regulating the steam-jet until the flames above the molten iron show a distinct hydrogen color, substantially as described.

575,519. WINDOW-FASTENER. WILLIAM GARDINER, Elizabeth, N. J. Filed Aug. 8, 1896. Serial No. 602,161. (No model.)



Claim.—1. A window-fastener, consisting of a casing provided with an inclined slot, a block mounted to slide on an inclined guide in the said casing and provided with a projection engaging the said inclined slot, the said block at one point in its movement extending beyond the front face of the casing and at another point being substantially flush with the said front face of the casing, a device for operating the said block, and a latch adapted to be engaged by the projection on the said block and operated when the block is carried to its withdrawn position, as and for the purpose set forth.

2. A window-fastener, consisting of a casing having an opening in its front face, a block mounted to slide in the said casing, and which at one point in its movement extends beyond the front face of the casing and at another point is substantially flush with the said front face of the casing, a latch operated by the movement of the said block, and a cam operating upon the said block, as and for the purpose set forth.

3. A window-fastener, consisting of a casing having an opening in its front face, and provided with an inclined slot, a block mounted to slide in the said casing, and which at one point of its movement extends beyond the front face of the casing and at another point is substantially flush with the said front face of the casing, the said block being provided with a stud engaging the said inclined slot in the casing, and a cam engaging the said stud for operating the block, as and for the purpose described.

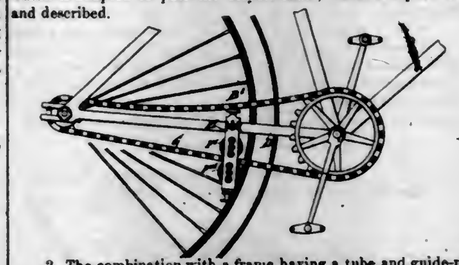
4. A casing having an inclined slot and provided with a sliding frictional surface, which surface at one point in its movement is beyond the front face of the casing and at another point is withdrawn from the said front face, the said frictional surface being provided with a projection engaging the said slot in the casing, a latch having an inclined surface adapted to be engaged by the said projection, the said latch being operated by the movement of the frictional surface when carried to its withdrawn position, and a cam operating upon the surface, as and for the purpose set forth.

5. A window-fastener consisting of a casing having an opening in its front face, a pin having a downward and inward inclination and extending longitudinally of the said front opening in the casing, a sliding friction-face having movement on the said pin, the outer portion of the said friction-face being parallel with the outer face of the casing, a latch operated by the movement of the friction-face, and a cam operating upon the said friction-face, as and for the purpose set forth.

6. A window-fastener consisting of a casing having an opening in its front face and provided with an inclined slot, a pin having a downward and inward inclination and extending longitudinally of the said front opening in the casing, a sliding friction-face having movement on the said pin and provided with a stud working in the slot of the casing, the outer portion of the said friction-face being parallel with the outer face of the casing, a latch operated by the movement of the friction-face, a cam operating upon the stud of the said friction-face, a spring having bearing against the friction-face and compressed when the said face is operated by the said cam, and a tension device connected with the latch, operating to normally force the latch outward beyond the casing, the said projecting portion of the latch being adapted for engagement with a keeper, and the friction-face being adapted for engagement with a surface opposed to the front face of the casing, as and for the purpose specified.

575,520. BICYCLE-CHAIN CLEANER. ENEY GRUPELLI, New York, N. Y., assignor of one-half to Pasquale Nardi, same place. Filed Apr. 11, 1896. Serial No. 587,174. (No model.)

Claim.—1. A bicycle-chain cleaner, comprising a main frame made in parts and provided [illegible] a clip adapted to engage a part of the bicycle-frame, a right-h[illegible]nd left-hand screw-rod journaled in the said main frame, shafts provided with nuts engaging said screw-rods, and revoluble brushes journaled on said shafts and between which is adapted to pass the bicycle-chain, substantially as shown and described.

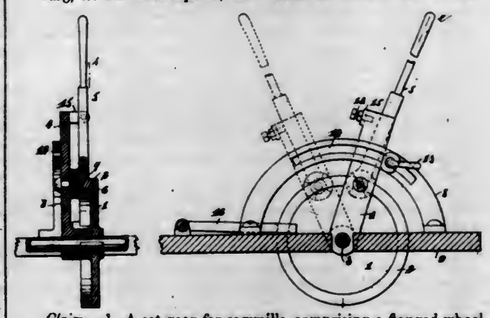


2. The combination with a frame having a tube and guide-plate arranged parallel with each other and having slots therein, of two shafts extending across from the plate to the tube and movable in the slots thereof, a differentially-threaded rod running longitudinally through the tube and extending outside of the same, a nut connected to each shaft and through which nuts the rod is passed, and a brush mounted on each shaft, the brushes being arranged to have a chain passed between them whereby the chain is cleaned, substantially as described.

3. A chain-cleaning device having a clip, a tube having one end removably connected to the clip, the tube extending downward from the clip and having longitudinal slots in its side, a bent plate having its upper end removably connected to the clip and having its bent lower portion connected to the tube, the plate having slots corresponding to the slots in the tube, two shafts mounted in the slots and extending across from the plate to the tube, a nut carried by each shaft and located within the tube, a threaded rod running longitudinally through the tube and mounted revolubly therein, the threaded rod passing through the nuts whereby to adjust the shaft, and a brush carried by each shaft, substantially as described.

4. A chain-cleaning device having a clip, a tube removably connected to and extending downward from the clip, a threaded rod running longitudinally through the tube, a plate removably connected to the clip at one end of the plate and having its remaining end connected to the tube, and two brushes mounted between the plate and tube and having nuts running on the threaded rod whereby the brushes may be adjusted, substantially as described.

575,521. SET-GEAR FOR SAWMILLS. JOHN B. HART, Clarksburg, W. Va. Filed Apr. 14, 1896. Serial No. 587,454. (No model.)



Claim.—1. A set-gear for sawmills, comprising a flanged wheel, an arm fulcrumed at the axis of said wheel, a lever pivoted to said arm, jaws on said lever opposite the pivotal point thereof and engaging the flange of the wheel, the space between said jaws being greater than the thickness of the flange, and a gripper engaging the wheel for preventing a backward movement of the wheel, substantially as specified.

2. A set-gear for sawmills, comprising a flanged wheel, an arm fulcrumed on the shaft of said wheel, a lever having pivotal connection with the arm at a point opposite the flange, jaws on said lever opposite the pivotal point thereof and engaging the flange, an adjustable stop for the lever and arm, and a horizontally-disposed dog pivoted at one end and having jaws to engage the flange of the wheel, the space between said jaws being greater than the thickness of the flange, substantially as specified.

3. A set-gear for sawmills, comprising a flanged disk, an arm fulcrumed on the shaft thereof, a lever pivoted to the arm opposite the flange of the wheel and having spaced jaws opposite the pivotal point thereof and engaging the flange of the wheel, an adjustable abutment

for the lever carried by the arm, a sector adjacent to the arm, a fixed stop on said sector, an adjustable stop on the sector, and a gravity-dog having spaced jaws to engage the flange of the wheel, substantially as specified.

4. In a set-gear for sawmills, the combination with a flanged wheel secured to a shaft, of an arm fulcrumed on the said shaft, a lever pivoted to the arm opposite the flange of the wheel and provided opposite its pivotal point with fixed jaws, between which the flange of the wheel projects, and an adjustable stop on the arm with which the lever is adapted to engage, substantially as described.

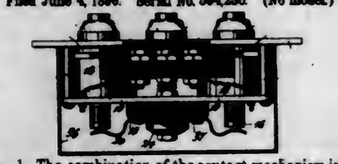
575,522. **PORTE-MONNAIE.** JONAS LANGFELD, New York, N. Y. Filed Mar. 10, 1896. Serial No. 582,564. (No model.)



Claim.—1. A porte-monnaie having a handkerchief-receiving pocket, the same being open at its upper side, closed at one end and open at the other end, substantially as described.

2. A porte-monnaie having therein, an additional pocket, which is open at one end and upper side, and closed at the other end, forming a receptacle for a handkerchief which is exposed at said end, when the book is closed, and removable at said end and said upper side when the book is open, substantially as described.

575,523. **PUSH-BUTTON.** CYPRIEN O. MAILLOUX, New York, N. Y. Filed June 4, 1896. Serial No. 594,230. (No model.)



Claim.—1. The combination of the contact mechanism in a push-button or a collection of push-buttons, a case inclosing the same, the circuit-terminals of said mechanism located exteriorly to said case, and a removable face-plate covering said terminals.

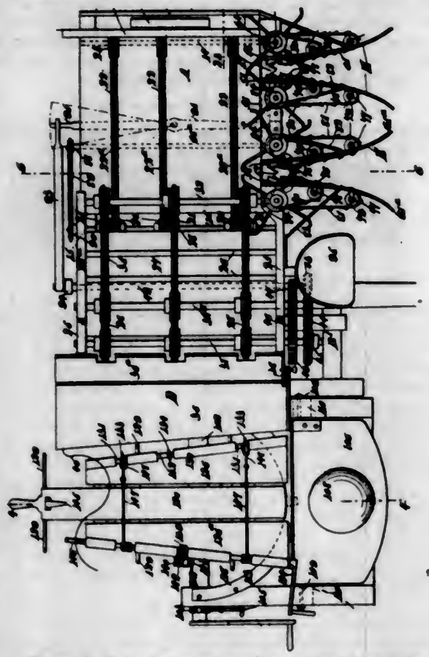
2. The combination with a supporting-frame, of one or more push-buttons mounted therein, a block of insulation mounted on said frame, circuit-terminals located in said block, a casing fitted to said frame and to the insulation to inclose the contact mechanism, and a removable face-plate covering the frame, the insulation and the circuit-terminals.

3. The combination with the frame having the notched top plate, of the push-buttons mounted in the frame, the block of insulation mounted under and closing the notches in the top plate, the circuit-terminals mounted in the insulation and accessible from the upper side thereof, a casing inclosing the contact mechanism, and a face-plate removably secured to the upper plate of the frame and covering the circuit-terminals.

4. The combination with the frame having a laterally-notched top plate for securing the frame in place and provided with projecting perforated bosses, of push-buttons mounted in the frame and having stems protruding through said bosses, circuit-terminals located in the notches of the top plate, and a removable face-plate covering the terminals and bearing designations for each push-button and perforated to receive said bosses.

5. The combination with the frame having a bottom plate and a laterally-notched top plate by which the frame is secured in place, of one or more electromagnetic self-holding push-buttons mounted in said frame, the stem of each protruding through the bottom plate and having a contact-piece thereon, a push-button having a normally-closed contact in the return-circuit of said self-holding push button or buttons, contact-springs mounted on and insulated from the bottom plate of the frame and coöperating with said contact-pieces on the push-button stems, circuit-terminals mounted on insulation in the notches of the top plate, a casing inclosing the electro magnet or magnets and the contact mechanism, and a face-plate removably secured to said top plate.

575,524. **CORN-HARVESTER.** MILLARD F. MYERS, Greenville, and WILLIAM C. CHOATE, Columbus, Ohio. Filed Feb. 7, 1896. Serial No. 578,308. (No model.)



Claim.—1. A shocker, a rock-shaft supporting the said shocker, the shocker being so arranged on the said shaft that the preponderance of the weight of a shock contained therein will be beyond one side of the center of the shaft, thereby effecting a dumping of the shocker by the weight of the said shock, a pivotal connection between the rock-shaft and the shocker, the connection being such that the shocker may be revolved upon the rock-shaft, and locking devices, substantially as shown and described, for locking the shocker on the shaft, and a locking device for the said shaft, as and for the purpose specified.

2. The combination, with a platform, a rock-shaft journaled therein, the said platform being provided with an upper segmental guide and an opposing inclined groove, of a shocker mounted upon the said rock-shaft and provided with a groove to receive the said guide, and an extension to travel in the said inclined groove, as and for the purpose specified.

3. The combination, with a platform, of a rocking support carried by the platform, a shocker rotatably mounted upon the rocking support, and a latch adapted to lock the rocking support to the shocker when the latter is in a predetermined position, as and for the purpose specified.

4. The combination, with a platform having a wheeled support, of a rock-shaft mounted in the said platform, a lever connected with the said shaft, and a locking device engaging with the shaft, a shocker pivotally mounted on the rock-shaft, and a latch connection between the rock-shaft and the shocker, as and for the purpose specified.

5. The combination, of a shocker, a support for the shocker and a pivoted shaping-plate capable of engagement with the butt-end of the shock contained in the shocker, the pivot of the shaping-plate being adjustable toward and from the shocker whereby to variously shape the base of the shocker, as and for the purpose specified.

6. A shocker, consisting of a bottom section, jaws having a hinged connection therewith, a winding-shaft supported by one of the jaws, pins mounted on a shaft to slide in the opposite jaw, the slideways for the pins being angular, and binding cables or bands attached to the winding-shaft and adapted for connection with the said pins, as and for the purpose specified.

7. A shocker, having a base, jaws hinged to the base, supports limiting the outward movement of the said jaws, a winding-shaft carried by one of the jaws, a ratchet-wheel secured upon the said shaft, a detent for the ratchet-wheel, pins on a shaft having sliding movement in the opposing jaw, being likewise capable of a rotary movement, and cables or bands connected with the winding-shaft and adapted for connection with the said pins, as and for the purpose set forth.

8. A shocker, the same consisting of a base or bottom and tapering jaws having a hinged connection with the said base or bottom, a winding-shaft carried by one of the jaws, pins secured to a shaft having sliding and rotating movement in the opposing jaw, a shifting device for the pins, and tie bands or cables attached to the winding-shaft and adapted for engagement with the aforesaid pins, as and for the purpose specified.

9. In a shocker, the combination of the bottom section thereof, jaws having a hinged connection with the said bottom section, a shaft mounted to turn in one of the jaws, the said shaft being provided with a ratchet, a detent attached to the jaw and engaging with the said ratchet, a lever controlling the said detent, a shaft having sliding and rocking movement in the opposing jaw, pins carried by the shaft and having movement in slots formed in the jaw, and a shifting lever connected with the said pin-carrying shaft, as and for the purpose specified.

10. The combination with a shocker-frame, of a rock-shaft mounted on the frame, a shocker having pivotal movement on the rock-shaft, a pivotally-mounted butt-plate carried by the shocker-frame and capable of movement upward to engage the butt of the shocker and of movement downward to rest on the frame, the butt-plate having an offset, and a spring carried by the shocker-frame and engaging the offset, the spring being capable of holding the butt-plate in a raised or lowered position, substantially as described.

11. The combination with a shocker-frame having a curved guide, of a rock-shaft mounted on the shocker-frame and a shocker pivotally carried by the rock-shaft and having a part movable within the guide of the frame, the shocker being capable of rocking with the rock-shaft and of movement in a semicircular line by which its disposition may be changed, substantially as described.

12. The combination with a shocker-frame, of a rock-shaft mounted on the frame, a shocker pivotally carried by the rock-shaft, a latch carried by the shocker, means engaging the latch whereby the shocker may be locked at a certain position on the rock-shaft, and a pin carried by the frame, the pin and latch being relatively located so that the latch may move with the shocker to engage the pin and be thus released from engagement with the rock-shaft, substantially as described.

13. The combination with a shocker-frame, of a rock-shaft mounted on the shocker-frame, a shocker pivotally carried by the rock-shaft, a spring-pressed latch carried by the shocker, a latch-plate fixed to the rock-shaft and projecting centrally and forwardly therefrom, with which latch-plate the latch may lock, and a pin carried by the shocker-frame and located adjacent to the latch plate, the rock-shaft and shocker being capable of movement to engage the latch with the pin whereby to disengage the latch and latch-plate, substantially as described.

14. The combination with a body portion having a semicircular recess at its rear side, of a rock-shaft extending transversely across the rear of the recess and carried by the frame, and a shocker pivotally mounted on the rock-shaft, the pivot of the shocker being concentric to the arc-shaped edge of the recess, the shocker being capable of a movement with the rock-shaft, and of movement on the pivot and independently of the rock-shaft to change the position of the shocker, one end of the shocker having sliding connection with the arc-shaped edge of the recess as the shocker turns on its pivot, substantially as described.

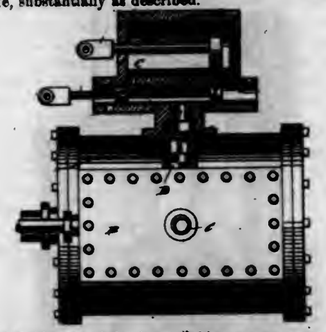
15. The combination with a shocker-frame, of a shocker mounted thereon and a butt-plate having hinged connection with the body portion and capable of movement to engage the butt of the shocker, the hinged connection with the butt-plate being capable of movement toward and from the shocker whereby to change the angle which the butt-plate may have with reference to the shocker and thus regulate the form given the butt of the shock, substantially as described.

16. The combination with a shocker-frame, of a shocker mounted on the frame and comprising two pivoted jaws, one of which is formed with an angular slot, a shaft rockable and slidable on the jaw having the slot, a pin carried by the shaft and confined within the angular slot, a shaft revoluble on the remaining jaw, a flexible connection attached to the latter shaft and capable of connection with the pin, and means for operating the latter shaft, substantially as described.

17. The combination with a frame, of a rock-shaft mounted on the frame, a pin rigidly carried by the frame and adjacent to the rock-shaft, a base shocker-section pivotally mounted on the rock-shaft, jaws hinged to the base shocker-section, a spring-pressed latch carried by the base shocker-section, and a latch-plate fixed to the rock-shaft and coöperating with the latch of the base shocker-section, substantially as described.

575,525. **FLUID-PRESSURE MOTOR AND BRAKE.** JOHN MCINTYRE, Jersey City, N. J. Filed Oct. 9, 1896. Serial No. 608,377. (No model.)

Claim.—1. A fluid-pressure brake and a fluid pressure motor having its exhaust connected with the said brake to directly actuate the latter by the exhaust fluid from the motor as the motive agent for the brake, substantially as described.



2. A fluid-pressure brake, a fluid-pressure motor and a valved exhaust connection from the said motor to the brake to cause the exhaust fluid of the motor to directly actuate the said brake, substantially as described.

3. A fluid-pressure motor, a fluid-pressure brake, and a valved connection between the said motor and the said brake, for releasing the brakes by the exhaust motive agent from the said motor, substantially as shown and described.

4. A fluid-pressure motor, a fluid-pressure brake, an exhaust-pipe connecting the said motor with the said brake, and a check-valve in the said exhaust-pipe to prevent the pressure in the motor from falling below the pressure in the brake-cylinders, substantially as shown and described.

5. A fluid-pressure motor, a fluid-pressure brake, an exhaust-pipe connecting the said motor with the said brake, a check-valve in the said exhaust-pipe, and a live-fluid supply for the said brake, the said check-valve preventing the live fluid from passing into the said motor, substantially as shown and described.

575,526. **SAFETY-GUARD FOR HOLLOW BODIES.** JOHN MCINTYRE, Jersey City, N. J. Filed Feb. 7, 1896. Serial No. 578,332. (No model.)



Claim.—1. A hollow body and a pressureless emergency-guard within the said hollow body, substantially as shown and described.

2. A hollow body and an internal emergency-guard forming a space between the guard and body, the space being in communication with the interior of the guard, to insure an equal pressure on both the inside and outside of the guard, substantially as shown and described.

3. A hollow body and an emergency-guard consisting of a perforated shell within the said body, and spacing-pieces or minute protuberances between the inner surfaces of the said body and the exterior surface of the said shell, substantially as shown and described.

4. A hollow body provided with an emergency-guard consisting of a perforated shell within the said body and having overlapping sides, substantially as shown and described.

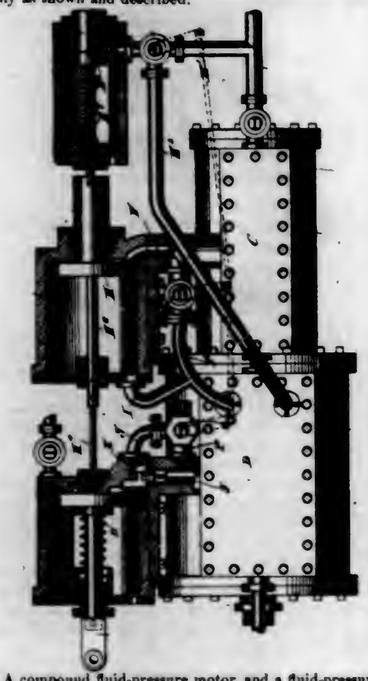
5. A hollow body and an emergency-guard, consisting of a perforated shell within the body and forming a space between said body and guard, the said shell being provided with an adjustable head or heads, substantially as shown and described.

575,527. **FLUID-PRESSURE COMPOUND MOTOR AND BRAKE.** JOHN MCINTYRE, Jersey City, N. J. Filed Oct. 9, 1896. Serial No. 608,378. (No model.)

Claim.—1. A compound fluid-pressure motor and a fluid-pressure brake, arranged to discharge its motive agent into the said motor to do further work, substantially as shown and described.

2. A compound fluid-pressure motor, and a fluid-pressure brake actuated by fluid-pressure and having its exhaust forming part of the

motive agent for the low-pressure cylinder of the said motor, substantially as shown and described.



3. A compound fluid-pressure motor, and a fluid-pressure brake connected with the exhaust of the high-pressure cylinder, to apply the brakes and discharge into the low-pressure cylinder of the said motor, substantially as shown and described.

4. A compound fluid-pressure motor, and a fluid-pressure brake interposed in the connection between the high and low pressure cylinders of the said motor, substantially as shown and described.

5. A compound fluid-pressure motor, a fluid-pressure brake, and a valved connection between the said brake and the said motor, for utilizing the exhaust of the brake as part of the motive agent for the said motor, substantially as shown and described.

6. A compound fluid-pressure motor, a fluid-pressure brake, and a valved connection between the said brake and the high-pressure cylinder of the said motor, for actuating the said brake, to apply and release the brakes, substantially as shown and described.

7. A compound fluid-pressure motor, a fluid-pressure brake, a valved connection between the said brake and the high-pressure cylinder of the said motor, for actuating the said brake, to apply and release the brakes, and a connection between the said valved connection and the low-pressure cylinder, for passing the exhaust from the brake-cylinder into the said connection and to the low-pressure cylinder, substantially as shown and described.

8. A compound fluid-pressure motor, a fluid-pressure brake, a live-fluid supply for the said brake and the high-pressure cylinder of the said motor, and a connection between the said brake and the low-pressure cylinder of the said motor, to pass the exhaust of the brake into the said low-pressure cylinder, substantially as shown and described.

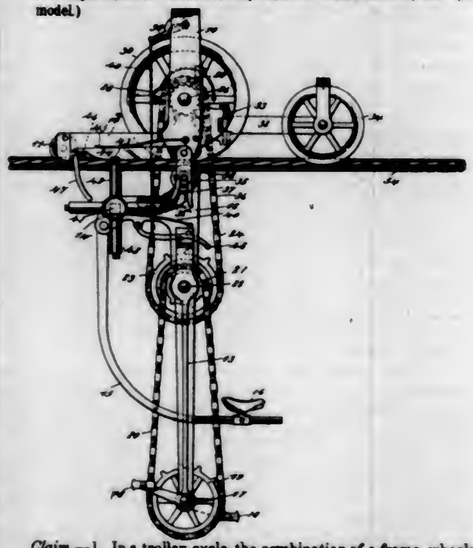
9. A compound fluid-pressure motor, a fluid-pressure brake, a live-fluid supply for the said motor and brake, an exhaust connection between the said fluid-pressure brake and the low-pressure cylinder of the said motor, to pass the exhaust of the brake into the said low-pressure cylinder, and a second fluid-pressure brake interposed in the connection between the high and the low pressure cylinders, substantially as shown and described.

10. A compound fluid-pressure motor, a fluid-pressure brake, a live-fluid supply for the said motor and brake, an exhaust connection between the said fluid-pressure brake and the low-pressure cylinder of the said motor, to pass the exhaust of the brake into the said low-pressure cylinder, a second fluid-pressure brake interposed in the connection between the high and the low pressure cylinders, and means for connecting the said brakes with each other to operate the same in unison, as set forth.

11. A compound fluid-pressure motor, a fluid-pressure brake, a live-fluid supply for the said motor and brake, an exhaust connection between the said fluid-pressure brake and the low-pressure cylinder of the said motor, to pass the exhaust of the brake into the said low-pressure cylinder, a second fluid-pressure brake interposed in the connection between the high and the low pressure cylinders, and a third fluid-pressure brake in the exhaust of the low-pressure cylinder of the motor, substantially as shown and described.

12. A compound fluid-pressure motor, a fluid-pressure brake, a live-fluid supply for the said motor and brake, an exhaust connection between the said fluid-pressure brake and the low-pressure cylinder of the said motor, to pass the exhaust of the brake into the said low-pressure cylinder, a second fluid-pressure brake interposed in the connection between the high and the low pressure cylinders, a third fluid-pressure brake in the exhaust of the low-pressure cylinder of the motor, and means for connecting the said brakes with each other, to operate the same in unison, as set forth.

575,528. **TROLLOCIPEDE.** PETER C. SHALLWOOD, Louella, Mo. Filed Apr. 16, 1896. Renewed July 30, 1896. Serial No. 599,910. (No model.)



Claim.—1. In a trolley-cycle, the combination of a frame, wheels journaled therein with their peripheries adapted to bear respectively, at the upper and lower sides of the track, said frame extending across the space between the wheels at one side, whereby the device is held against removal from the track in one direction, and a movable latch device mounted on said frame and extending across the space between the wheels at the side opposite the frame, substantially as set forth.

2. In a trolley-cycle or the like, the combination of a frame, wheels journaled therein with their peripheries adapted to bear above and below the track, one of said wheels being movable toward and from the other to overcome inequalities in the track and having a projecting journal, said frame extending across the space between the wheels at one side, whereby the device is prevented from removal in one direction, and a guide-bar pivoted on the frame and extending across the space between the wheels at the side opposite the frame, said bar having a forked end adapted to receive and guide the said journal, substantially as set forth.

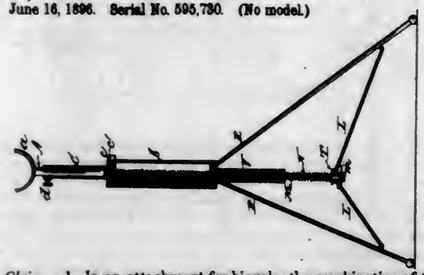
3. In a trolley-cycle or the like, the combination of a frame, wheels journaled therein with their peripheries adapted to bear above and below the track, one of said wheels being movable toward and from the other to overcome inequalities in the track, said frame extending across the space between the wheels at one side thereof, whereby the device is prevented from removal from the track in one direction, and a latch device comprising two independently-movable parts mounted on the frame and extending across the space between the wheels at the side opposite the frame, substantially as set forth.

4. In a trolley-cycle or the like, the combination of a frame, two wheels journaled therein and adapted to bear on the track at top and bottom, one wheel being movable toward and from the other, said frame extending across the space between the wheels at one side, a shaft journaled in the frame, a block on the shaft having flattened sides, a spring adapted to bear on the sides of the block, arms on said shaft extending across the space between the wheels at the side opposite the frame, a notched lever pivoted to the frame with its notch adapted to engage and hold one of the arms on said shaft, a crank-shaft, a cam thereon in engagement with said lever and adapted to move the same to disengage the arm from the notch therein, and a crank-arm on said shaft extending across the space between said wheels, substantially as set forth.

5. In a trolley-track, the combination with a support having an arm provided with a block at its end, of a cable composed of strands, said cable having its strands separated and secured to opposite sides of said block, substantially as set forth.

6. In a trolley-track, the combination of supports having arms, each having a block at its extremity, a cable composed of strands, said cable having its strands separated at said blocks, and housings secured to opposite sides of said blocks and extending between the same, said housings being connected to the respective stranda of the cable, substantially as set forth.

575,529. **BICYCLE.** JOHN C. STEPHENS, New York, N. Y. Filed June 16, 1896. Serial No. 595,730. (No model.)

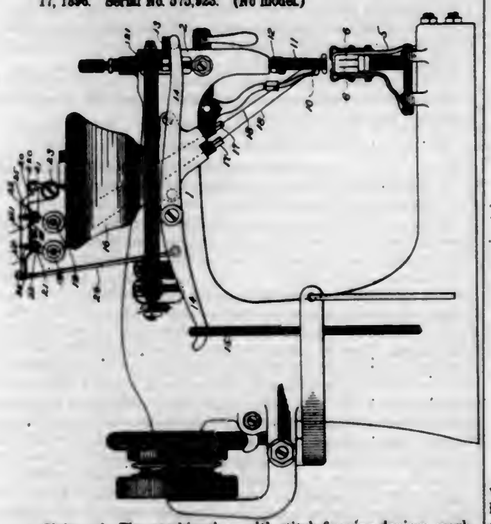


Claim.—1. In an attachment for bicycles the combination of the tube S, pivotally connected with the frame of the machine, the sleeve V, two or more lateral brace-rods R, pivotally connected to said sleeve, the rod M, provided with the collar *m*, at its outer end, the traveler T, and the links L, connecting said traveler with the brace-rods R, substantially in the manner and for the purpose described.

2. In an attachment for bicycles the combination of the tube S, pivotally connected with the frame of the machine, the sleeve V, two or more lateral brace-rods R, pivotally connected to said sleeve, the rod M, provided with the collar *m*, at its outer end, the traveler T, the links L, connecting said traveler with the brace-rods R, and the spring N, the whole arranged and operating substantially in the manner and for the purpose described.

3. In an attachment for bicycles the combination of the stem A, having the socket *a*, the extension-tube C, and binding-screw *d*, the tube S, pivotally connected to the extension C, the sleeve V, and the stay-rods R, pivotally connected thereto, for the purpose and substantially in the manner described.

575,530. **THREAD-GRIPPING DEVICE FOR WAX-THREAD SEWING-MACHINES.** FRANK W. MERRICK, Boston, Mass. Filed Jan. 17, 1896. Serial No. 575,923. (No model.)

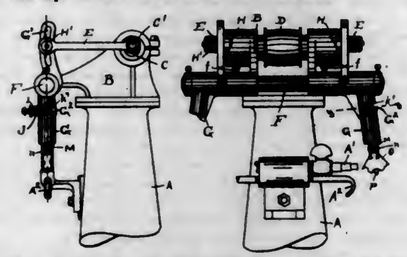


Claim.—1. The combination, with stitch-forming devices, work-holding and releasing devices, and thread-holding devices, of means whereby the operation of the work-holding devices to release the work operates the thread-holding devices to hold the thread and arrest the supply, substantially as described.

2. The combination with the stitching devices, a presser-bar and presser-foot, and means to raise the said presser-bar and presser-foot by foot-power or hand-power to release the work and permit it to be withdrawn from the said stitching devices, of thread-gripping devices, operated by the said means to hold the thread to arrest the supply, substantially as described.

3. The combination with stitching devices, the presser-bar and presser-foot, and the lifting-lever 14, of a thread gripping device connected with the said lever 14 and actuated thereby when the said lever is moved to raise the presser-bar and presser-foot, substantially as described.

575,531. **EDGE-SETTER.** CLAY M. NEWCOMB, Rochester, N. Y. Filed Apr. 17, 1896. Serial No. 587,960. (No model.)

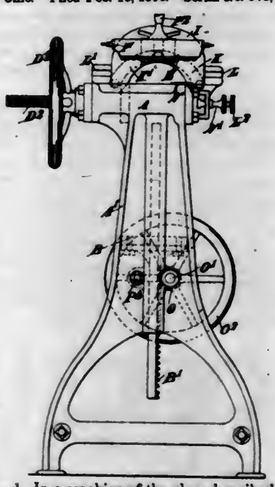


Claim.—1. In an edge-setting machine, the combination with the vibratory arm having the longitudinal recess, the rotary sleeve, and means for locking it, the spindle longitudinally movable in the sleeve but prevented from independent rotary movement, the spring projecting the spindle, and the reversible tool on the spindle, substantially as described.

2. In an edge-setter, the combination with the vibratory arm having the longitudinal recess, the rotary sleeve, and locking devices therefor, of the spindle, the tool thereon, the slot-and-pin connection between the sleeve and spindle, and the spring for projecting the latter, substantially as described.

3. The combination with the vibratory arm having the longitudinal recess and lateral slot, the sleeve having the projecting arm and the locking device thereon, the spindle and the slot-and-pin connection between it and the sleeve, the collar M on the spindle, the spring N, the catch on the spindle, and the reversible tool having two operating-faces and held by the catch, substantially as described.

575,532. **BOOK-FINISHING MACHINE.** DANIEL NITSCHKE, Toledo, Ohio. Filed Feb. 10, 1896. Serial No. 578,778. (No model.)



Claim.—1. In a machine of the class described, the combination with a support, of a plate mounted to rock on the support and having guided movement thereon, and a type-holder adjustably secured to said plate, substantially as described.

2. In a machine of the class described, the combination with a support, of a plate mounted to rock on the support and having guided

movement thereon, and a vertically and laterally adjustable type-holder carried by the said plate, substantially as described.

3. In a machine of the class described, the combination with a support, of a plate mounted to rock on the support and having guided movement thereon, a block adjustable on the plate, and a type-holder adjustably secured to the said block, substantially as described.

4. In a machine of the class described, the combination with adjustable clamping-plates, of an adjustable support, a type-holder mounted in the said support, and a connection between the support and clamping-plates, whereby they will be simultaneously adjusted, substantially as described.

5. A machine of the class described, comprising two longitudinal clamping-plates, one of which is transversely adjustable, said clamping-plates being adapted to engage the covers of a book, and a centering-plate fitted to slide transversely and connected with said clamping-plates, so as to assume at all times a central position relatively to the clamping-plates, substantially as shown and described.

6. A machine of the class described, comprising two longitudinal clamping-plates, one of which is transversely adjustable, said clamping-plates being adapted to engage the covers of a book, a centering-plate fitted to slide transversely and connected with said clamping-plates, so as to assume at all times a central position relatively to the clamping-plates, and a block adapted to receive the type-holder and adjustably held in a plate mounted to rock transversely on said centering-plate, substantially as shown and described.

7. A machine of the class described, comprising clamping-plates for engaging the covers of a book, a centering-plate connected with said clamping-plates and held in a central position relatively to said clamping-plates, and a block mounted to rock transversely on said centering-plate, substantially as shown and described.

8. A machine of the class described, comprising longitudinal plates adapted to clamp a book in position, bearings adjustably held on said clamping-plates, and a centering-plate fitted to slide transversely in said bearings and connected by arms with said clamping-plates, substantially as shown and described.

9. A machine of the class described, comprising longitudinal plates adapted to clamp a book in position, bearings adjustably held on said clamping-plates, and a centering-plate fitted to slide transversely in said bearings and connected by arms with said clamping-plates, said arms being pivotally connected with a block fitted to slide vertically on said centering-plate, substantially as shown and described.

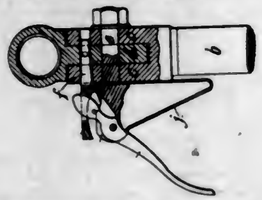
10. A machine of the class described, provided with a centering-plate having two cross-slots and a V-shaped slot, a plate having pivot-pins engaging said slots, and a block held on said plate and adapted to receive a type-holder, substantially as shown and described.

11. A machine of the class described, provided with a centering-plate having two cross-slots and a V-shaped slot, a plate having pivot-pins engaging said slots, a block held on said plate and adapted to receive a type-holder, and means, substantially as described, for adjusting said block on said plate, as set forth.

12. In a machine of the class described, the combination with clamping-plates, and a type-holder mounted to rock in a support fitted to slide on the said clamping-plates, of type arranged on the top of one of the clamping-plates, said type serving to indicate the size of type and the space the lines are to be apart, substantially as described.

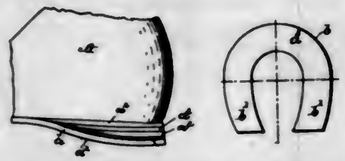
13. A machine of the class described, comprising a longitudinally-extending fixed clamping-plate, a transversely-adjustable clamping-plate, bearings held on said clamping-plates, a centering-plate fitted to slide transversely on said bearings, arms pivotally connected at their lower ends with said bearings, and a block fitted to slide vertically in said centering-plate, and pivotally connected with the free ends of said arms, substantially as shown and described.

575,533. **HANDLE-BAR JOINT FOR CYCLES.** JAMES P. OTTAWAY, Bournemouth, England, assignor to Henri Nelson Harness, London, England. Filed Dec. 28, 1895. Serial No. 573,621. (No model.) Patented in England June 20, 1894, No. 11,931.



Claim.—The combination with the upright or steering bar provided with the fork having the transverse slot, of the pivoted handle-bar provided with the lug or tenon having the two corresponding slots approximately at right angles to each other, the transversely-sliding bolt or wedge working in the slot in said fork and adapted to enter either of the slots in said lug or tenon, and the locking-screw fitted in a tapped hole in said lug or tenon and adapted to engage with said sliding bolt or wedge when the handle-bar is in its perpendicular position, substantially as and for the purposes above specified.

575,534. **SPRING-HEEL BOOT OR SHOE AND METAL PLATE OR LIFT THEREFOR.** FREDERICK P. RAYMOND, 2d, Newton, Mass., assignor to James W. Brooks, Petersham, and John Brooks, Cambridge, Mass., trustees. Filed June 15, 1889. Serial No. 314,481. (No model.)



Claim.—1. As an improved article of manufacture, a spring-heel boot or shoe having a continuous outer sole from the heel end to the toe end of the shoe, the heel end of which is held from the insole by one or more thicknesses of leather or similar material, and a metallic or similar maintaining-plate inserted between the heel end of the outsole and the said thickness, the outer edge of which is flush or very nearly flush with the outer edge of the sole, and which acts to maintain the shape of the heel and distribute the wear upon the sole as indicated.

2. The combination in a spring-heel boot or shoe of the outsole extending from the heel end to the toe end of the shoe, and separated from the heel end, one or more thicknesses of leather or suitable material *a* inserted between the heel end of the outsole and the insole, and a thin conformable metallic plate interposed between the inner surface of the outsole and the said leather thickness, the outer edge of which is flush or very nearly flush with the edge of the outsole, all as and for the purposes specified.

3. As an improved article of manufacture a spring-heel sole, the heel end of which provides the outer or wearing section of the heel of the shoe with one or more lifts of the character specified and a maintaining-plate inserted between the lift or lifts and the under surface of the outsole, and provided with means for temporarily securing the lift or lifts and outsole together before the sole and lifts are permanently attached to the insole of the shoe.

4. The combination in a spring-heel shoe of an outsole extending from the heel end to the toe end of the shoe and forming a continuous wearing-surface separated from the insole at the heel end, one or more leather or like lifts inserted between the inner surface of said outsole and insole at the heel end of the shoe, a metallic maintaining-plate placed between the inner surface of the outsole and said leather lift or lifts, and fasteners extending through the outsole, maintaining-plate, lift or lifts and insole for permanently securing them together and clamping the maintaining-plate between the outsole and the lifts, as and for the purposes described.

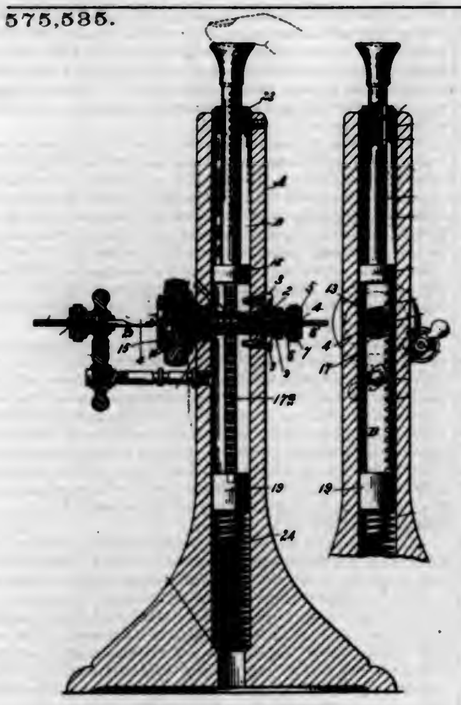
5. A maintaining-plate of the character specified, having inclined sections for directing the course of the attaching-nails employed in securing the outsole to the insole.

575,535. **WATCHMAKER'S TOOL.** ALBERT F. ROBBINS, Orange, Mass., assignor of one-half to Kendrick & Davis, Lebanon, N. H. Filed June 25, 1896. Serial No. 596,969. (No model.)

Claim.—1. The within-described mechanism for turning the staffs of balance-wheels for watches or analogous parts, consisting of a suitable standard, two adjustable members supported therein for revolubly holding a balance-wheel or other work, a hollow spindle within which one of said members is located, a face-plate which has an engagement with said balance-wheel or other work, a revoluble member on said hollow spindle rotated by a vertically-moving member, and means between said revoluble member and said face-plate for rotating the latter in one direction, only, substantially as described.

2. The within-described mechanism for turning the staffs of balance-wheels for watches or analogous parts, consisting of a suitable standard, a rack having a vertically-reciprocating movement therein, a hollow spindle supported in a position at right angles to said rack, a pawl-disk having a long sleeve thereon, on which teeth are provided for engagement with said rack, a pawl on said pawl-disk engaging with a face-plate for rotating the latter in one direction only on said hollow spindle, means for holding the staff of said balance-wheel in line axially with said hollow spindle, and means of engagement between said face-plate and said balance-wheel for rotating the latter, substantially as described.

575,536.



575,536. **TOURIST'S BICYCLE-BAG.** JAMES A. SWANSON, Everett, Mass., assignor of one-half to Axel W. Franklin, Malden, Mass. Filed July 6, 1896. Serial No. 598,119. (No model.)



Claim.—The herein-described bicycle-bag, consisting of a case or holder G having a smooth unbroken interior, and having grooves *g*, *g*, *g*, formed on the exterior of its sides and end for receiving the bicycle-frame, means for fastening said case to the frame, in combination with a detachable box H having a hinged cover *h* at one end and fitted within the case or holder G, substantially as described.

575,537. **SMOKE-CONSUMING FURNACE.** WILLIAM C. WETMORE, Buffalo, N. Y. Filed Mar. 30, 1896. Renewed Dec. 23, 1896. Serial No. 616,948. (No model.)

Claim.—1. In a boiler-furnace, a nozzle suspended within and above the fuel of the furnace and a steam-supply valve, in combination with a fluid-pressure-operated motor for opening and closing said valve, means for controlling said motor connected to the furnace-door and pivoted shutters in said door operated in both directions by said motor.

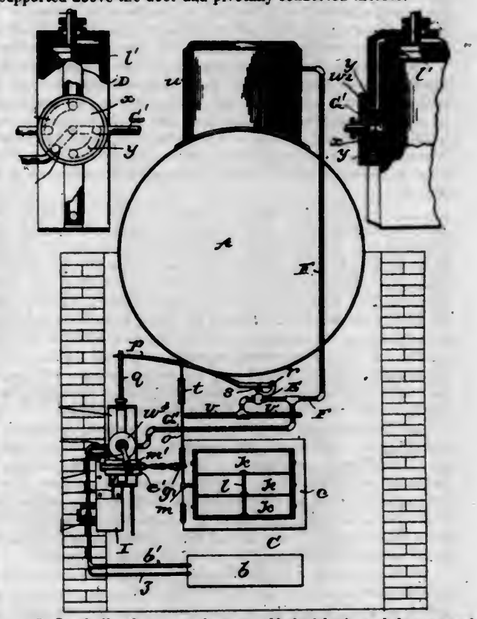
2. In a boiler-furnace, means for supplying steam above the door of the furnace and pivoted shutters in the door for supplying air to the furnace, in combination with a fluid-pressure-operated motor and a connection with the furnace-door and the valve of said motor for automatically controlling the supply of steam and air to said furnace.

3. In a boiler-furnace, means for supplying steam and means for supplying air to the furnace, in combination with a fluid-pressure-operated motor, a steam-operated time mechanism and a connection with the furnace-door for automatically controlling the supply of steam and air to the furnace and steam to the motor operating the time mechanism.

4. In a boiler-furnace, means for supplying steam and means for supplying air to the furnace, in combination with a motor for operating said means and a telescopic connection containing a spring attached to the furnace-door and to the valve controlling said motor.

5. In a boiler-furnace, a door provided with pivoted shutters and a grate, in combination with a superheating-grate adjacent and connected to the door.

6. In a boiler-furnace, a door provided with pivoted shutters and a grate through which air is admitted to the furnace, in combination with a grate in a plane parallel to the grate in the door, pivotally supported above the door and pivotally connected thereto.

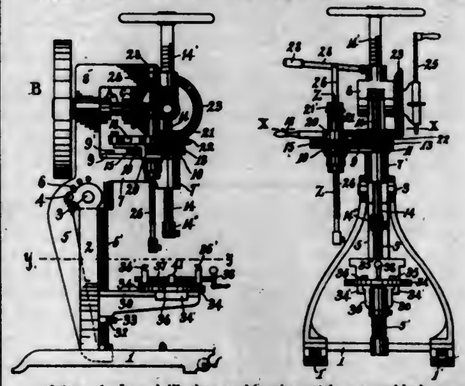


7. In a boiler-furnace, a door provided with pivoted shutters and a motor for operating said shutters, in combination with a valve, a cross-head connected to the valve and means for connecting the cross-head to the furnace-door.

8. In a boiler-furnace, means for supplying steam and air to the furnace, a motor for operating said means and an extensible connection between the valve of the motor and the furnace-door, in combination with a time mechanism comprising a motor, worm-gear, a ratchet-wheel and pawls.

9. In a boiler-furnace, means for supplying steam and air to the furnace, a motor for operating said means and an extensible connection between the valve-operating mechanism of the motor and the furnace-door, said connection being provided with an inclosed coiled spring and ball-and-socket joints in combination with a steam-operated time mechanism to control the means for shutting off the steam and air to the furnace.

575,538. **DRILL AND TAP MACHINE.** WILLIAM WILLIAMSON, Saginaw, Mich. Filed Apr. 11, 1896. Serial No. 587,131. (No model.)



Claim.—1. In a drill, the combination with a movable base, upwardly-extending arms from the base having pivoted between them the drill-frame, of the drill-frame pivoted as specified, the rod 5 secured in the drill-frame and having adjustably clamped thereto the

drill-table support, and means for clamping the drill-table support to the rod as specified, and the drill-table support as described, and means for moving the drill-table radially along its support, substantially as specified.

2. A drill, comprising the drill-spindle and tool, journaled in a pivoted frame, wheels in train operating the drill, propelled by any power, and a laterally and circularly adjustable table secured to the pivoted frame and movable with it, and adjustable vise on the adjustable table, the vise adjustable radially and circularly, as described.

3. A combined drilling and tapping machine, comprising a drill-spindle and tool journaled in the main frame, and propelled from the main shaft, and a tapping tool and spindle journaled in a supplemental frame supported on the main frame and carrying wheels in train journaled on a lever pivoted to the supplemental frame, one or more of the wheels in train adapted to be thrown, by the movement of the lever, in and out of gear with the drill-operating mechanism, as described.

4. A combined drilling and tapping machine, comprising a drill and tool spindle, and a tapping tool and spindle, the drill-spindle journaled in a main frame, the tapping-spindle journaled in a movable frame at the side of the drill-spindle a lever pivoted to the movable frame and carrying wheels in train, means connecting one of the wheels in train with a pinion on the tapping-spindle, whereby when the lever is moved in one direction the wheel in the train connected to the pinion on the tapping-pinion will engage a pinion on the drill-spindle, and the pinion on the tapping-spindle and when moved in the opposite direction the other of the wheels in train will engage the drill spindle and thereby reverse the motion of the tapping-spindle, and means for turning the drill-spindle, as described.

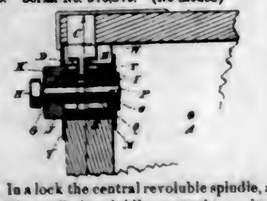
5. An attachment for drills, comprising a frame adapted to be secured to the main frame and support the tapping tool and spindle near the drill tool and spindle, a lever pivoted in the detachable frame and carrying pinions in train, either of said pinions adapted to engage the pinion on the drill-spindle, as the lever is moved, one of the pinions engaging the pinion on tap-spindle whereby as either of the pinions on the lever is moved into engagement with the pinion on the drill-spindle, the tap-tool will be operated as specified.

6. In a drill, the combination with the frame of a drill tool and spindle carrying a pinion, journaled in the frame, and means for operating the drill, of a frame adapted to be removably secured to an arm of the frame, a tap tool and spindle journaled in the removable frame, the spindle carrying a pinion, a lever pivoted to the removable frame, and carrying two pinions in train, one of the pinions held in constant engagement with the pinion on the tap-spindle, and adapted to be moved into engagement with the pinion on the drill-spindle by a movement of the lever, the other pinion adapted to be moved into engagement with the pinion on the drill-spindle by the opposite movement of the lever, and a tap-tool-feeding lever, fulcrumed to the main frame, and engaging the tap-spindle whereby the tap-spindle may be depressed, as described.

7. In a feed mechanism for a tapping-machine, a gear-wheel on the tap-spindle and having a long hub, journaled in the frame, a spring within the hub and around the spindle and resting upon the lower end of the hub, a collar on the spindle within the hub and resting upon the top of the spring, a retaining-cap on top of the hub, and a lever engaging the top of the spindle, and fulcrumed to the frame, whereby the spindle and tool may be depressed, as described.

8. In a combination drill and tap machine, the combination with the base having rollers, a pivoted frame, a drill-spindle journaled in the frame, a driving mechanism secured to the frame, a pinion on the drill-spindle engaging the driving mechanism, of a frame removably secured to the main frame and having journaled therein a gear-wheel carrying a tap-spindle and means for feeding the tap, a lever pivoted to the removable frame and carrying two pinions in train, one of the pinions constantly in engagement with the pinion of the tap and adapted to be moved into engagement with the drill-pinion whereby the tap-tool may be reversed, and a vertically, laterally, circularly adjustable table, and an adjustable vise on the table, as described.

575,539. LOCK. ALEXANDER J. WOLFF, New York, N. Y. Filed Jan. 22, 1896. Serial No. 576,379. (No model.)



Claim.—1. In a lock the central revoluble spindle, and the flanged and recessed locking-cylinder rigidly secured upon its inner end and having its flange turned outward, combined with the independently revoluble flanged and recessed locking-cylinder on the outer end of said spindle and having its outer closed end fully exposed and its flange turned inward, and a hasp adapted to enter said recesses and be secured within said cylinders, said hasp having the two oppositely-projecting bars or arms, and said cylinders being entirely independent of each other and capable of independent operation; substantially as shown and set forth.

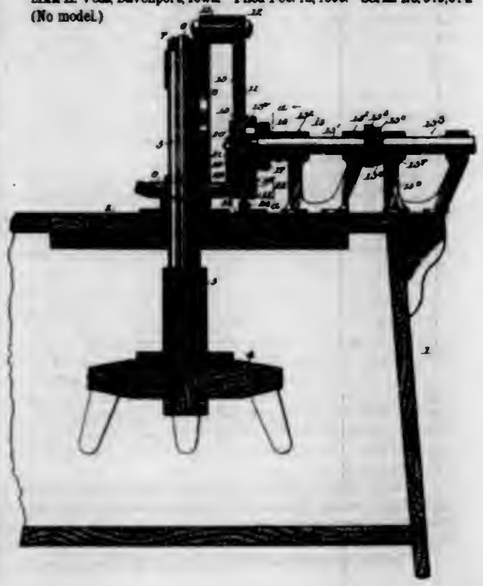
2. In a lock the central revoluble spindle having the indexed exposed head, and the flanged and recessed locking-cylinder rigidly secured upon the inner end of said spindle and having its flange turned outward, combined with the independently-revoluble flanged and recessed locking-cylinder on the outer end of said spindle and having an index on its fully-exposed closed end, and having its flange turned inward, and a hasp adapted to enter said recesses and be secured within said cylinders, said hasp having the two oppositely-projecting bars or arms, and said cylinders being entirely independent of each other and capable of independent operation; substantially as shown and set forth.

3. In a lock the central revoluble spindle having an exposed head, and the flanged and recessed locking-cylinder rigidly secured on the inner end of said spindle and having its flange turned outward, combined with the independently-revoluble flanged and recessed locking-cylinder on the outer end of said spindle and fully exposed at its outer end and having its flange turned inward, the sleeve on said spindle between said cylinders, and the hasp adapted to enter the recesses of said cylinders and be secured within the latter, said cylinders being entirely independent of each other and capable of independent operation, and said hasp having the two oppositely-projecting bars or arms; substantially as shown and set forth.

4. In a lock, the central revoluble spindle having an indexed exposed head, and the flanged and recessed locking-cylinder rigidly secured upon the inner end of said spindle and having its flange turned outward, combined with the independently-revoluble flanged and recessed cylinder on the outer end of said spindle and having an index on its exposed end and having its flange turned inward, the indexed plate exterior to said exposed end, and the hasp having the oppositely-projecting bars or arms adapted to enter the recesses of said cylinders and be secured within the latter, said cylinders being entirely independent of each other and capable of independent operation; substantially as shown and set forth.

5. In a lock, the central revoluble spindle G having upon its outer end the knob H and upon its inner end the washer I, combined with the revoluble recessed locking-cylinder J loosely mounted on the outer end of said spindle and having the exposed solid head K, and having its flange turned inward, the recessed locking-cylinder M rigidly secured upon the inner end of said spindle and having its flange turned outward and having also the sleeve O, and the plate T mounted on the sleeve O between the said washer I and the solid end of said cylinder; substantially as shown and set forth.

575,540. WASHING-MACHINE. HENRY F. BRAMMER and WILLIAM H. VOSS, Davenport, Iowa. Filed Feb. 12, 1896. Serial No. 579,014. (No model.)



Claim.—In a washing-machine the combination with the rubber-shaft, of the pinion thereon, a segmental frame pivoted at its upper end on a horizontal axis, and formed with a central vertical guiding-slot, a series of teeth on the rear face of said segmental frame engaging the pinion, a vertically-movable plate provided on its rear face with a rib extending in the guiding-slot, a washer fixed to said plate at the rear side of the segmental frame with its ends extending beyond the sides of the slot, a series of pins projecting forwardly from the front face of the plate and a driving-pinion engaging said pins.

575,541. FENCE. HERMAN H. BRANDS and FRED W. HIRSHINUS, Corydon, Ky., assignors of one-half to Thomas J. O'Nan and Christian Schnabel, same place. Filed June 26, 1896. Serial No. 597,022. (No model.)



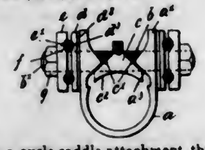
Claim.—1. A fence-stay having transverse grooves or runner-seats terminating in upstruck lips adapted to engage the surfaces of the runners, and means for engaging the runners between said lips, substantially as specified.

2. A stay provided with transverse grooves or runner-seats having depressed central portions, and means, as tongues, located contiguous to said depressed portions of the grooves or seats to engage the runners and bow the same thereinto, substantially as specified.

3. A stay provided with transverse grooves or runner-seats and having upstruck tongues arranged upon opposite sides of said grooves or runner-seats, said tongues being of different lengths and the longer tongue being adapted to fold over and bear upon the exterior surface of the shorter tongue, substantially as specified.

4. A stay provided with upper and lower upstruck tongues of different lengths adapted to be folded over a runner arranged in contact with the stay between said tongues, the longer tongue being adapted to be folded over to bear against the exterior surface of the shorter tongue and being engaged at its extremities in the opening from which the shorter tongue is struck, substantially as specified.

575,542. CYCLE-SADDLE ATTACHMENT-BOSS. JOHN B. BROOKS, Birmingham, England, assignor to J. B. Brooks & Co., Limited, same place. Filed Sept. 19, 1896. Serial No. 606,390. (No model.) Patented in England Sept. 24, 1894, No. 18,090.

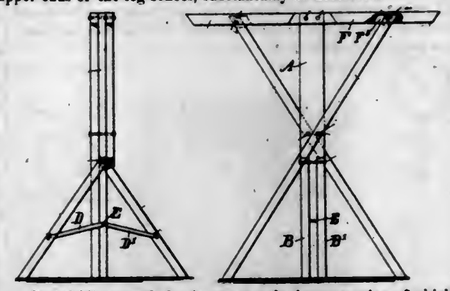


Claim.—1. In a cycle-saddle attachment, the combination of the band-clip *a* provided upon the inner adjacent faces of its free ends with inclined planes a^3, the cross-pin *b* passing through said ends of the clip and provided with nuts tapped over its ends for drawing the ends of the clip toward one another, means for attaching a saddle-frame to said clip, and a pressure-block *c* carried by said cross-pin and provided with inclined planes c' which are engaged by the inclined planes a^3 when the ends of the clip are clamped and the pressure-block thereby caused to grip the saddle-support, substantially as described.

2. In a cycle-saddle attachment, the combination of the band-clip *a* provided upon the inner adjacent faces of its free ends with inclined planes a^3, the cross-pin *b* passing through said ends of the clip, a pressure-block *c* carried by said cross-pin and provided with inclined planes c' which are engaged by the inclined planes a^3 on the clip, washers arranged on the opposite ends of the cross-pin and grooved on their adjacent faces for grasping the saddle-frame and nuts tapped over the threaded ends of said cross-pin outside said washers and operating when screwed up to cause said washers to grasp the saddle-frame and cause the inclined planes to force the pressure-block against the saddle-support in the clip, substantially as described.

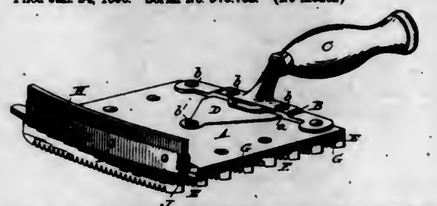
575,548. FOLDING TRESTLE. THOMAS A. CLARKE, Portland, Oreg. Filed Mar. 25, 1896. Serial No. 584,862. (No model.)

Claim.—1. A trestle having a post, the lower portion of which is formed with two oppositely-arranged recesses, a leg pivotally mounted in each recess, the legs moving on alined axes, the two leg-braces also pivotally mounted on the post and having axes at right angles to the axes of the first legs, the lower ends of the leg-braces forming legs proper and the upper ends forming braces, and two arms pivotally connected to the upper end of the post, the arms extending outwardly and oppositely and being respectively supported by the upper ends of the leg-braces, substantially as described.



2. A folding trestle having a post, the lower portion of which is formed with two recesses, two legs respectively pivoted within the recesses, and two leg-braces pivoted to the post and having axes at angles to the axes of the legs, the lower ends of the leg-braces forming legs proper and the upper ends of the leg-braces being extended toward the level of the upper end of the post so as to form braces proper, substantially as described.

575,544. CURRYCOMB. ALEXANDER C. DECKER, Keokuk, Iowa. Filed Jan. 24, 1896. Serial No. 576,702. (No model.)



Claim.—1. In a currycomb, the combination of the closed back formed of spring metal; and the tooth-sections formed of like material secured thereto; each of said sections comprising two side bars connected by cross-bars G G at their top at each end, the intermediate edges of the upper portions of the bars being below the back, whereby a space is formed between said back and the tooth-sections, as and for the purposes set forth.

2. In a currycomb, the combination of the closed back formed of spring metal; a reinforcing-plate D also formed of spring metal secured to the upper face thereof; and spring toothed sections secured to the under face of the back, said sections consisting of the two side bars connected by cross-bars G G at their top at each end, the intermediate edges of the upper portions of the bars being below the back, whereby a space is formed between said back and the toothed sections as and for the purposes described.

3. In a currycomb, the combination of the closed back formed of spring metal; a reinforcing-plate D formed of like material and secured to the upper face of said back; a shank or handle, provided with a seat or recess in its lower face adapted to receive one end of plate D; and a series of toothed sections E secured to the under face of said back, each section comprising two bars F F, connected at their top at each end by the cross-bars G G, substantially as and for the purposes described.

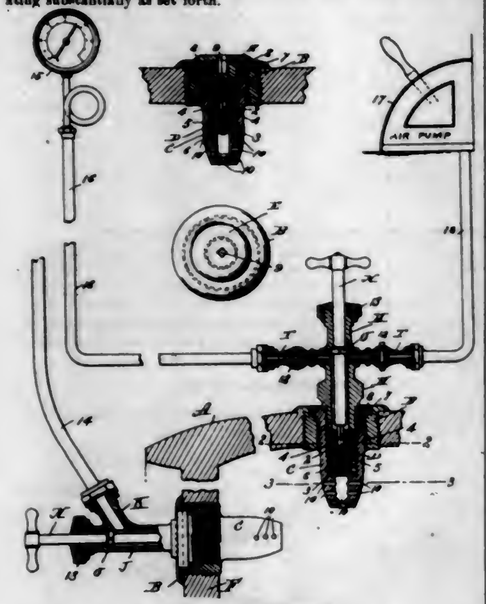
4. As a new article of manufacture, a tooth-section E for currycombs, comprising the bars F connected at their upper ends by the cross-bars G, said section being formed of spring sheet metal bent to form.

5. In a currycomb, the combination of the closed back formed of spring metal; a reinforcing-plate D formed of like material and secured to the upder face of the back; a shank or handle, provided with a seat or recess in its lower face adapted to receive one end of the plate D; a series of toothed sections E secured to the under face of the back, each section comprising two bars F F, connected at their top at each end by the cross-bars G G, said cross-bars being above the top of the side bars F F; whereby an open space is formed between the back and the side bars; and a clearing device secured to the back of the comb, substantially as described.

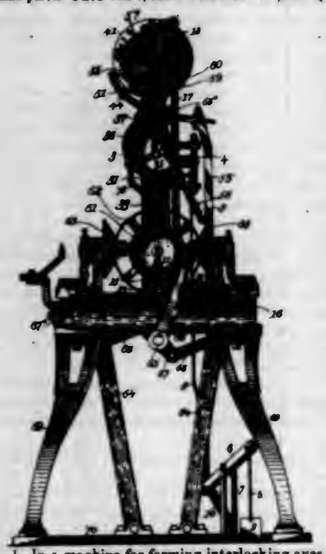
575,545. AIR AND BEER CONNECTION FOR BEER-CASKS. PETER E. DUNN and WILLIAM H. PANTRIDGE, Holyoke, Mass. Filed Jan. 11, 1896. Serial No. 575,061. (No model.)

Claim.—The improved system of air-pressure and beer-drawing connections for beer-casks herein described, consisting of the two

valve-cases C, C, with their spindles N, N, and valves D, D, the hubs H, and J, and their branches T and K, the air-pump 17, and gage 15, pipes 18 and 16, connecting said gage and pump with said branches T, and a delivery-pipe 14, connected to said branch K, combined and operating substantially as set forth.



575,546. MACHINE FOR MAKING CHECK-ROW WIRE. ROBERT FARIES, Decatur, Ill., assignor to the Faries Manufacturing Company, same place. Filed Oct. 6, 1896. Serial No. 607,963. (No model.)



Claim.—1. In a machine for forming interlocking eyes, the combination of a mandrel, a twister-head journaled in bearings that permit rotary motion and preclude all but a slight degree of endwise motion, and means for rocking the twister-head back and forth.

2. In a machine for forming interlocking eyes, the combination of a mandrel, a twister-head, a pair of twister-fingers pivoted one to each side of the head, and bearings on the head against which the fingers rest while the head is turned forward and from which they may swing when the head is turned backward.

3. In a machine for forming interlocking eyes, the combination of a mandrel, a twister-head, a pair of fingers pivoted one to each side of the head, bearings on the head against which the fingers rest while the head is turned forward and from which they may swing when the head is turned backward, and springs tending to hold the fingers against the bearings.

4. In a machine for making check-row wire, the combination of a mandrel, a support for the wires, and a twister-head journaled above the support for the wires, held constantly in operative relation thereto, and having the central part of its under surface recessed, or cut away, to permit passage of completed knots.

5. In a machine for making check-row wire, the combination of a wire-support having a vertical bore, an axially-bored twister-head journaled above the support and held constantly in operative relation thereto, and a reciprocating mandrel in the head adapted to penetrate the bore of the wire-support, whereby interlocks may be formed by rocking the head back and forth and the knots may be withdrawn when the mandrel is raised.

6. In a machine for forming interlocking eyes, the combination of a shaft having a twister-head on one end and a pinion on the other end, wire-engaging fingers pivoted on the head, and reciprocating gear in mesh with the pinion.

7. In a machine for forming interlocking eyes, the combination of a shaft having a twister-head on its lower end and a pinion on its upper end, a bearing for the shaft having a cam-surface adapted to slightly raise and depress the head as the shaft is moved back and forth on its axis, and reciprocating gear for rocking the pinion.

8. A twister-head for a machine for forming interlocking eyes, such head having central bore 27, side grooves 26, pivot-pins 29, fingers 28 pivoted on pins 29 and resting normally in the grooves, and springs 30 tending to press the fingers into the grooves.

9. In a machine for forming interlocking eyes, the combination of a mandrel, a twister-head having a drive-pinion, reciprocating mechanism adapted to rock the pinion, and an automatically-detachable clutch for stopping the reciprocating gear after each back-and-forth operative motion.

10. In a machine for forming interlocking eyes, the combination of a mandrel, a twister-head, a pinion on the shaft of the twister-head, a rocking segment of gear-wheel in mesh with the pinion, a crank-shaft, a pitman connecting the crank of the shaft with the segment of gear-wheel, a continuously-rotating pulley journaled loosely on the crank-shaft and supplied with ratchet pins or teeth, a pawl on the crank-shaft resting normally in engagement with the pins of the pulley, and a detent having an incline in the path of the pawl, whereby the pawl is disengaged from the pulley when the detent is encountered.

11. In a machine for forming interlocking eyes, the combination of a drive-shaft for the interlocking mechanism, such shaft having a longitudinal recess, a continuously-rotating pulley journaled loosely on the shaft and equipped with ratchet pins or teeth, a bracket fixed on the shaft adjacent to the pulley, a pawl pivotally connected with the bracket and adapted to engage the pins of the pulley, a spring in the recess of the pulley-shaft tending to draw the pawl toward the pulley, and a detent having an incline normally in the path of the pawl.

12. In a machine for forming interlocking eyes, the combination of a drive-shaft for the interlocking mechanism, a continuously-rotating pulley journaled loosely on the shaft, such pulley having ratchet pins or teeth, a pawl on the shaft normally engaging the pins of the pulley, a detent for the pawl, an arm for the detent having two pins extending laterally from its swinging end in different radial lines, a trip-bar having tangential motion with relation to the swing of the arm, the end of such bar resting normally against one of the pins of the arm and an edge thereof against the other pin, and a spring tending to draw the bar toward the pivot of the arm.

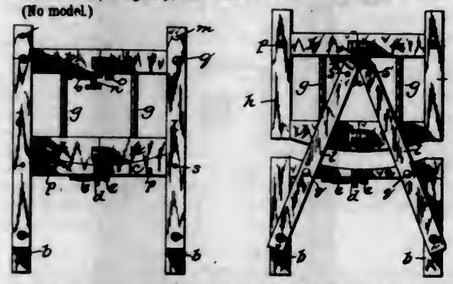
13. In a machine for forming interlocking eyes, the combination of an axially-bored kinker-shaft adapted to be rocked axially and having studs on opposite sides of the bore, an axially-bored twister-head journaled in constant operative relation to the kinker-shaft and having the central part of its surface nearest the kinker-shaft cut away, and a reciprocating mandrel in the head adapted to penetrate the bore of the kinker-shaft.

14. In a machine for forming interlocking eyes, the combination of a kinker-shaft having a central mandrel and studs on opposite sides thereof, an arm connecting with the kinker-shaft, a cam adapted to rock the arm, and a drive-wheel connected with the cam through clutch mechanism, whereby the kinker-shaft may be rocked back and forth at intervals.

15. In a machine for forming interlocking eyes, instrumentalities in combination as follows: an axially-rocking kinker-shaft, an axially-bored and axially-rocking twister-head, actuating mechanism for the kinker-shaft and the twister-head, one element of which is an automatically-detachable clutch, a mandrel-rod longitudinally movable in the twister-head, a lever adapted to raise and lower the mandrel-rod, and a clutch-shifter connected with the lever of the mandrel-rod, whereby the act of lowering the mandrel to an operative position starts the drive mechanism of the kinker-shaft and twister-head.

16. In a machine for forming interlocking eyes, the combination of interlocking mechanism, driving mechanism including a clutch, an automatic throw-out and stop for the clutch, a friction-wheel in the drive mechanism between the clutch and the interlocking mechanism, a shoe on the friction-wheel, and means for regulating the pressure of the shoe on the wheel, whereby the jar incident to stopping the clutch and the interlocking mechanism may be controlled.

575,547. COMBINED FOLDING BED AND CRADLE. JOSEPH V. FITZSIMMONS, Allegheny, Pa. Filed Oct. 15, 1896. Serial No. 608,910. (No model.)



Claim.—1. In a combination folding bed and cradle, a bed-frame, the cross-pieces of said frame being hinged at the center, a T-bolt secured to said cross-pieces, a supporting-frame consisting of side rails, legs and cross-pieces, said cross-pieces hinged at the center and to the legs, standards pivotally secured to the legs and adapted to engage the T-bolt to support the bed-frame and permit same to rock, substantially as shown and described.

2. In a combined folding bed and cradle, a bed-frame, cross-pieces hinged to fold inwardly, a supporting-frame having cross-pieces hinged at their center and to the legs, standards pivoted to the legs of the supporting-frame, a locking-bolt on the cross-pieces of the supporting-frame, a T-bolt secured on the cross pieces of the bed-frame, and a locking-bolt to engage the standards and a plate on the cross-piece or supporting-posts and lock the same in the desired position, substantially as shown and described.

575,548. STAMP SHOE AND DIE AND METHOD OF MAKING SAME. HENRY D. HIBBARD, High Bridge, N. J., assignor to the Taylor Iron and Steel Company, same place. Filed June 19, 1895. Serial No. 553,206. (No model.)



Claim.—1. A water-toughened cast-manganese-steel stamp shoe or die, provided with a vertical heat-equalizing hole, extended partially therethrough from its face, whereby the uniformity of heating and cooling of the mass is increased, substantially as described.

2. A water-toughened cast-manganese-steel stamp shoe or die, provided with a vertical heat-equalizing hole, whereby the uniformity of heating and cooling of the mass is increased, said hole being permanently stopped thereafter, substantially as described.

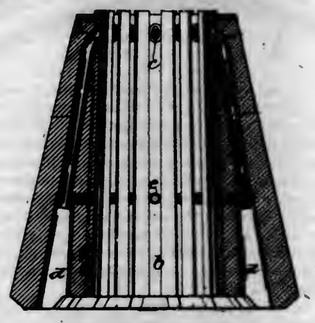
3. A water-toughened cast-manganese-steel stamp shoe or die, provided with a vertical heat-equalizing hole, whereby the uniformity of heating and cooling of the mass is increased, said hole being permanently stopped with metal thereafter, substantially as described.

4. The herein-described method of making uniformly-heat-treated manganese-steel stamp shoes or dies, which consists in casting the shoe or die about a metallic pipe and forming thereby a heat-equalizing hole, said pipe extended partially through said shoe or die, and then water-toughening the said casting containing this hole, the said hole equalizing the heating and cooling throughout the mass, substantially as described.

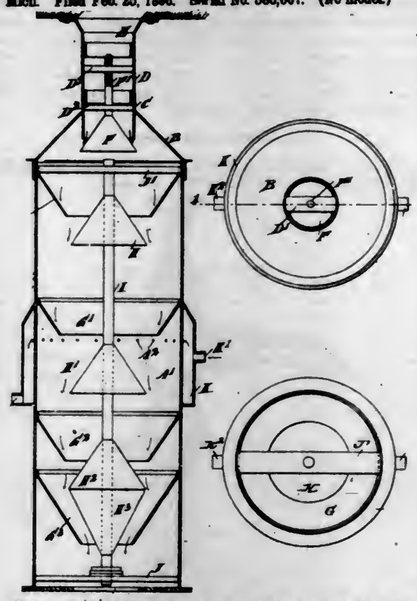
575,549. CRUSHER-HEAD. HENRY D. HIBBARD, High Bridge, N. J., assignor to the Taylor Iron and Steel Company, same place. Filed Oct. 2, 1895. Serial No. 564,400. (No model.)

Claim.—1. A water-toughened manganese-steel crushing-head for gyratory stone-crushers, having a central cavity, and a circular row of holes extending from about midway of the thickness of the metal at the base of the cone or head to its central cavity, substantially as described.

2. A water-toughened manganese-steel crushing-head for gyratory stone-crushers, having a central cavity, and a circular row of holes within the wall of the head formed wholly or in part by metallic pipes, said holes extending from about midway of the thickness of the metal at the base of the cone or head to the central cavity thereof, substantially as and for the purpose described.



575,550. WHEAT-STEAMER. WILLIAM L. MATHEWS, Marlette, Mich. Filed Feb. 25, 1896. Serial No. 580,667. (No model.)

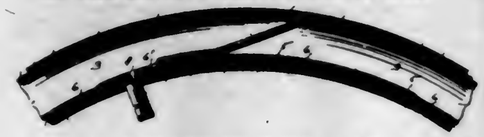


Claim.—1. A wheat-steamer, comprising a casing having a cap supporting a central feed-pipe, a regulating-pipe mounted to turn on said feed-pipe and provided with a cross-piece, a non-rotary screw-threaded rod engaging in a tapped opening in said cross-piece, a regulating-cone on the lower end of the rod, a series of annular hoppers arranged one above another in said casing, a deflecting-cone below and for each hopper, and an inverted cone in the lower hopper of the series to prevent clogging, substantially as shown and described.

2. A wheat-steamer, comprising a casing having a cap supporting a central feed-pipe, a regulating-pipe mounted to turn on said feed-pipe and provided with a cross-piece, a screw-rod screwing in said cross-piece, means for preventing a rotary movement of the screw-rod and a cone fitting into the lower end of said feed-pipe and secured to said rod, to permit of regulating the feed-opening between the cone and feed-pipe upon turning said regulating-pipe, substantially as shown and described.

3. A wheat-steamer, comprising a casing having a cap supporting a central feed-pipe, a regulating-pipe mounted to turn on said feed-pipe and provided with a cross-piece, a screw-rod screwing in said cross-piece, a cone fitting into the lower end of said feed-pipe and secured to said rod, to permit of regulating the feed-opening between the cone and feed-pipe upon turning said regulating-pipe, and a fixed cross-piece in which the said rod is fitted to slide but prevented from turning, substantially as shown and described.

575,551. PNEUMATIC TIRE. GEORGE C. MOORE, Worcester, Mass., assignor to the American Tire Company, Limited, Toronto, Canada. Filed Sept. 26, 1896. Serial No. 563,755. (No model.)



Claim.—1. A tire, comprising an inner air-tube, a textile tube extending over said inner tube, said textile tube consisting of a self-shaped tube, composed of two unequal segments, the large segment having its greatest length at mid-width, and its minimum length in its marginal portions at both sides of such length, and an endless shoe or cover which incloses said textile tube, said shoe or cover consisting of a self-shaped tube split longitudinally, and composed of two unequal longitudinal segments, the large segment having its greatest length at mid-width, and its minimum length in its marginal portions at both sides of such length, and having free edges, which are inserted between the edges of the rim and the textile tube, to secure the tire to the rim, substantially as set forth.

2. A tire, comprising an inner rubber air-tube with sealed ends adapted to overlap each other, and one end extended and provided with an opening or hole through which the valve extends to connect said ends, a self-shaped textile jacket or tube for said inner tube made separate therefrom, with the ends adapted to overlap each other, and provided at their inner portion with holes through which the valve extends, to connect said ends, and a self-shaped endless shoe or cover to inclose said inner tube and jacket, said shoe or cover having a self-shaped textile lining, and free edges adapted to be inserted between the edges of the rim and the jacket of the inner tube, to secure the same to the rim, substantially as set forth.

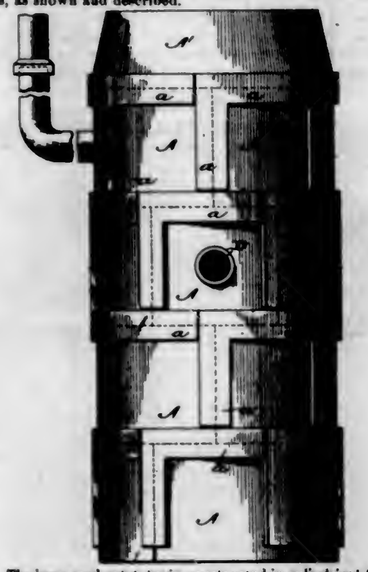
575,552. FAUCET. GEORGE S. MURPHY, Sulphur Springs, Tex. Filed July 20, 1896. Serial No. 599,962. (No model.)



Claim.—In a faucet, a valve-seat consisting of a cylinder having an internal shoulder, a tubular valve operating within said cylinder and below said shoulder, a packing-ring carried by said valve and engaging said shoulder, a piston-rod attached to said valve for operating the same, and a drop-valve in the lower end of said tubular valve, substantially as specified.

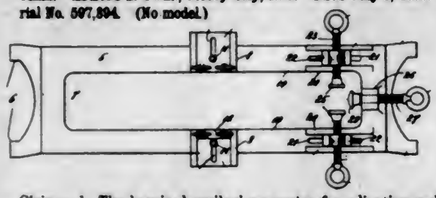
575,553. CATCH-BASIN. MARTIN J. NELLES, Chicago, Ill. Filed June 10, 1896. Serial No. 595,057. (No model.)

Claim.—1. The improved catch-basin constructed in sections composed of tiles cemented together and arranged in horizontal tiers, or rows, each tile having communicating grooves in its top and one side edge, whereby the tiles are connected at their sides, and each tier or row has a continuous top groove and a continuous bottom tenon adapted to engage the grooves and tenons of tiles of adjacent tiers or rows, as shown and described.



2. The improved catch-basin constructed in cylindrical form, and composed of tiers of tiles of like construction, shape, and dimensions; the same being curved transversely and provided on two adjacent edges with ribs having grooves that communicate and form a continuous socket, the opposite edges being adapted to enter such grooves; and a top portion, whose lower edge fits in the annular groove formed by the connected tiles of the upper tier; as shown and described.

575,554. APPARATUS FOR REPAIRING WHEELS OF BICYCLES. EDMUND B. OWEN, Jersey City, N. J. Filed July 2, 1896. Serial No. 597,894. (No model.)



Claim.—1. The herein-described apparatus for adjusting and repairing the wheels of bicycles, and similar vehicles, which consists of a suitable frame, provided with a top, having an oblong slot or opening therein, sliding blocks mounted on the opposite sides thereof, and provided with notches or recesses, adapted to receive the ends of the axle of the wheel, devices for securing said ends of the axle in position, and means connected with one end of the frame for adjusting the position of the rim of the wheel, substantially as shown and described.

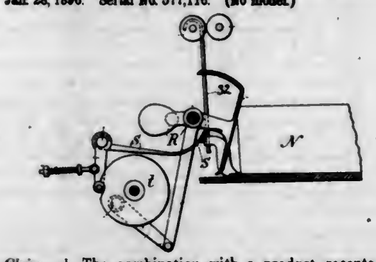
2. The herein-described apparatus for adjusting and repairing the wheels of bicycles and similar vehicles, which consists of a suitable frame, provided with a top, having an oblong slot or opening therein, sliding blocks mounted on the opposite side thereof, and provided with notches or recesses adapted to receive the ends of the axle of the wheel, devices for securing said ends of the axle in position, and means connected with one end of the frame for adjusting the position of the rim of the wheel, consisting of transverse screw-threaded bolts which are mounted in sliding blocks, and which are provided at their inner ends with heads adapted to engage with the rim of the wheel, substantially as shown and described.

3. The herein-described apparatus for adjusting and repairing the wheels of bicycles and similar vehicles which consists of a suitable frame, provided with a top, having an oblong slot or opening therein, sliding blocks mounted on the opposite side thereof, and provided with notches or recesses adapted to receive the ends of the axle of the wheel, devices for securing said ends of the axle in position, and means connected with one end of the frame for adjusting the position of the rim of the wheel, consisting of transverse screw-threaded bolts which are mounted in sliding blocks, and which are provided at their inner ends with heads, adapted to engage with the rim of the wheel, and a longitudinally-movable bolt, at the end of the frame, which is also provided with a head at its inner end by which the rim of the wheel may be forced inwardly, substantially as shown and described.

4. In an apparatus for repairing the wheels of a bicycle or similar vehicle, the combination with a suitable frame in which the wheel is adapted to be mounted, and which is provided with transversely mounted and movable bolts for adjusting the position of the rim thereof, of a jack which is adapted to be connected with the axle or shaft of the wheel, by means of which the rim thereof, may be forced outwardly substantially as shown and described.

5. In an apparatus for repairing the wheels of a bicycle or similar vehicle, the combination with a suitable frame in which the wheel is adapted to be mounted, and which is provided with transversely mounted and movable bolts for adjusting the position of the rim thereof, of a jack which is adapted to be connected with the axle or shaft of the wheel, by means of which the rim thereof, may be forced outwardly, said jack consisting of plates which are adapted to be mounted on the ends of the shaft or axle of the wheel, and provided at their opposite sides with outwardly-curved arms, and rods which are pivotally connected therewith, and provided at their outer ends with heads which are adapted to engage with the inner surface of the rim, substantially as shown and described.

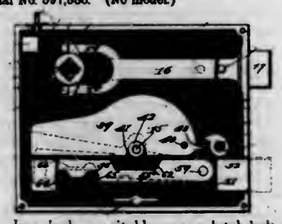
575,555. MEANS FOR DELIVERING AND PACKING FOLDED SHEETS. WALTER SCOTT, Plainfield, N. J. Original application filed May 12, 1896, Serial No. 474,018. Divided and this application filed Jan. 28, 1896. Serial No. 577,116. (No model.)



Claim.—1. The combination with a product-receptacle, of a packer formed of a series of plates, a tubular cross-bar to which the packer-plates are connected, a crank passing through the tubular cross-bar and giving motion to the same, means for guiding the packer in its movements, fingers between the packer-plates and upon which the folded product is delivered, and means for raising the fingers periodically to elevate one of the folded products each time the desired number of products passes into the receptacle, substantially as set forth.

2. The combination with the product-receptacle, of vertical guides at the end of the product-receptacle, packers between the guide-bars, and a crank for actuating such packers, fingers between the guide-bars and the packers, a cross-shaft for carrying the fingers and mechanism acting periodically for elevating the fingers and supporting one product in every given number of products while being pressed forward into the product-receptacle, substantially as set forth.

575,556. LOCK. HENRY W. TEAL, Girard, Ill. Filed June 29, 1896. Serial No. 597,380. (No model.)

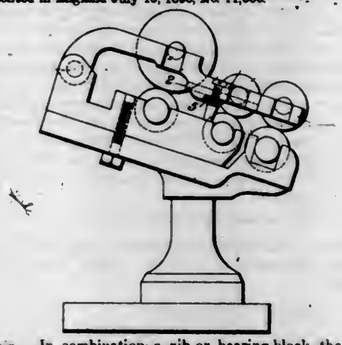


Claim.—1. In a lock, a suitable case, a latch-bolt mounted for reciprocation within said case, a dog pivotally mounted within said case, a leaf-spring attached to said dog and engaging said latch-bolt, a gravity-tumbler pivotally mounted within said case, and a lug attached to said gravity-tumbler and engaging the free end of said dog, substantially as specified.

2. In a lock, a suitable case, a latch-bolt mounted for reciprocation within said case, a dog pivotally mounted within said case, a leaf-spring attached to said dog and engaging said latch-bolt, a gravity-tumbler pivotally mounted within said case, a lug attached to said gravity-tumbler and engaging the free end of said dog, and means for locking said latch-bolt in its latched position, which means consists of a shaft mounted adjacent to the rear end of said latch-bolt, a handle upon said shaft for manually operating the same, and an arm projecting from said shaft and designed to engage the rear end of said latch-bolt and hold the same securely in position when desired and to be turned out of engagement with said latch-bolt when it is desired to have said bolt operate freely, substantially as specified.

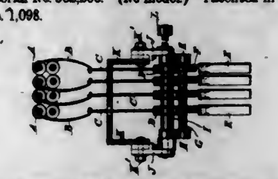
3. In a device of the class described, a suitable case, a lock-bolt mounted for reciprocation within said case, a lever pivotally connected to said lock-bolt, a weight upon the free end of said lever, a pin transversely positioned under said lever, said lever having notches designed to engage said pin as required to hold said lock-bolt in its locked or unlocked position, as desired, a gravity-tumbler pivotally mounted within said case and above said lock-bolt and resting upon said lever, a latch-bolt slidingly mounted within said case, a dog pivotally mounted within said case, a leaf-spring attached to said dog and engaging said latch-bolt, and a lug upon said gravity-tumbler and designed to be engaged by the free end of said dog, substantially as specified.

575,557. MOUNTING TOP ROLLERS. EDMUND TWEEDALE, Manchester, England. Filed Mar. 7, 1896. Serial No. 582,284. (No model.) Patented in England July 15, 1890, No. 11,006.



Claim.—In combination; a nib or bearing-block, the front top roller, resting in same, an angular finger with its upper edge in the form of an inverted V rigidly attached to said nib, a bracket provided with fixed nibs, the rollers supported in said fixed nibs, means for supporting said bracket, an angular groove on one of the surfaces of the bracket adapted to receive the angular finger and means bearing on the exposed surface of the finger for holding said angular finger in the position in which it is set in the groove substantially as described.

575,558. DRAWING-FRAME. EDMUND TWEEDALE, SAMUEL TWEEDALE, and JOSEPH SHALLEY, Manchester, England. Filed Mar. 7, 1896. Serial No. 582,288. (No model.) Patented in England Jan. 18, 1894, No. 1,098.



Claim.—In a drawing-frame the combination with the top rollers and their weight-carrying hooks and screwed adjusting-rods, of bent metal hooks D, a pin M in each hook connecting the side of same, an opening in one side of each hook beneath the pins, bars F, one passing through each hook beneath said pins, the opening in said bar being of a size to enable the hook to be drawn out from same, weights carried at the extremities of said hooks, a rod G at either end of the bars F to connect them all and passing through holes near the upper edge of same, a link H at each end of each rod G, an eccentric shaft situated over each rod and passing through the two links of same, means for carrying such shafts and handles for turning same to raise the rods and thereby bring the bars F against the pins M to raise the weights, substantially as described.

575,559. SHOE. JOSEPH S. WALLNER, Brockport, N. Y. Filed Apr. 18, 1896. Serial No. 588,101. (No model.)

Claim.—1. A bicycle-shoe having a rear upward extension, the front of which is cut out from its top to the side edges of the shoe-quarter, combined with suitable means connecting only the top of the

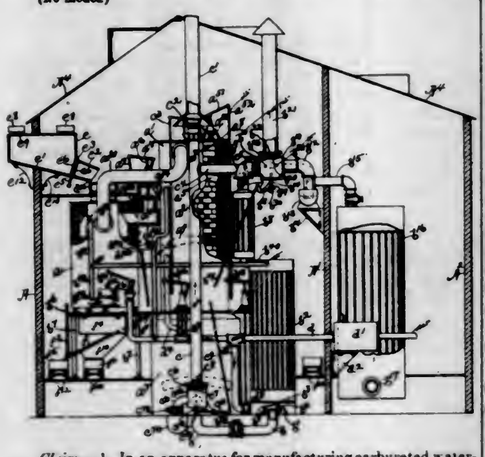
extension around the ankle, and the elastic webbing in the shoe-quarter having one end secured contiguous with the front edge of the said extension, whereby the latter and the webbing may cooperate by the action of the ankle and foot, as set forth.



2. In a shoe for bicycle-riders, a shoe having an upward extension in the rear, adapted to cover the rear of the ankle, and open at the front, in combination with a strap attached to the upper edge of said extension, and means of fastening the same around the ankle of the wearer alternately, either around the clothing, or within the clothing, substantially as and for the purpose set forth.

3. In a bicycle-shoe, the combination of the laced-shoe quarter having elastic webbing upon each side of the lacing and extending from near the toe to the top edge of the quarter, with a rear upward extension having a strap and buckle only at its top, the front edge of which extension being curved rearwardly and downwardly from its top to the quarter to form a clothes-opening, said front edges being secured to the quarter contiguous to the said webbing, whereby the latter and the extension may cooperate by the action of the foot and ankle, as set forth.

575,560. CARBURETED-WATER-GAS APPARATUS. WALTER R. ADDICKS, Brookline, Mass. Filed Nov. 15, 1895. Serial No. 569,040. (No model.)



Claim.—1. In an apparatus for manufacturing carbureted water-gas, the combination of the following instrumentalities, viz: a gas-generator, a fixing-chamber communicating therewith for the passage therethrough of the gases created in said generator, a boiler or steam-generator, a gas-outlet pipe for the fixing-chamber extended into and terminating within the said boiler to leave a normally open end within the said boiler, a cover for the open end of the gas-outlet pipe normally removed therefrom but adapted to be secured thereto gas-tight to permanently close said pipe, a valve in said gas-outlet pipe adapted to cut off the said boiler preparatory to securing the said cover in place, a separate gas-outlet for the fixing-chamber and a valve to control said separate gas-outlet, substantially as described.

2. In an apparatus for manufacturing carbureted water-gas, the combination of the following instrumentalities, viz: a gas-generator, a fixing-chamber communicating therewith for the passage of the gases created in said generator, a hydraulic main, a boiler or steam-generator intermediate of the said hydraulic main and the said fixing-chamber and connected to the said hydraulic main, a gas-outlet pipe for the fixing-chamber extended into and terminating within the boiler to leave a normally open end within the boiler, a cap or cover normally removed from the open end of the said gas-outlet pipe but adapted to be secured thereto gas-tight, a valve in the said gas-outlet pipe to cut off the boiler while the gas-tight cap is secured in position, a separate gas-outlet for the fixing-chamber connecting the latter with the said hydraulic main, and means to control the passage of the gases through the separate outlet for the said fixing-chamber, substantially as described.

3. In an apparatus for manufacturing carbureted water-gas, the combination of the following instrumentalities, viz: a gas-generator, a fixing-chamber communicating therewith for the passage of the gases created in said generator, a hydraulic main, a boiler or steam-generator intermediate of the said hydraulic main and the said fixing-chamber and connected thereto for the passage of the gases from the fixing-chamber through the boiler to the hydraulic main, a separate gas-outlet pipe c for the fixing-chamber adapted to communicate with the atmosphere, a pipe c^4 connecting the pipe c to the said hydraulic main, a valve controlling the communication of the separate outlet with the atmosphere, a valve in the pipe c^4 controlling the communication of the separate outlet with the hydraulic main, an auxiliary hydraulic main connected with the fixing-chamber, means to cut off the said auxiliary hydraulic main from the said fixing-chamber, and means to cut off the boiler from the fixing-chamber, substantially as described.

4. In an apparatus for manufacturing carbureted water-gas, the combination of the following instrumentalities, viz: a gas-generator, and a structure comprising a mixing-chamber located at one end, a fixing-chamber located at the opposite end, and an intermediate chamber, a valved pipe connection between the generator and the intermediate chamber for the passage through the intermediate and fixing chambers of the blast gases, and a valve pipe connection from the generator to the mixing-chamber for the passage of water-gas into the top of the single structure comprising the said chambers, a boiler, a gas-outlet pipe for the fixing-chamber extended into and terminating within the boiler to leave a normally open end, a cap or cover adapted to be secured to the open end of the said gas-outlet pipe gas-tight, a valve in said outlet-pipe to cut off said boiler from the fixing-chamber preparatory to closing the end of the said pipe by the said cover, and a gas-outlet from said fixing-chamber normally not in operation while the boiler is connected to the fixing-chamber but which is brought into operation when the boiler is detached from the fixing-chamber, substantially as described.

5. In an apparatus for manufacturing carbureted water-gas, the combination of the following instrumentalities, viz: a gas-generator, and a structure comprising a mixing chamber, a fixing-chamber, and an intermediate chamber, a pipe connection between the said generator and mixing-chamber, and an expansible and contractible pipe connection between the said generator and intermediate chamber, substantially as and for the purpose specified.

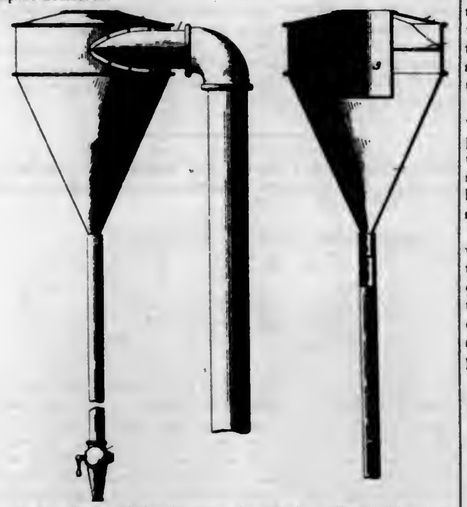
6. In an apparatus for manufacturing carbureted water-gas, the combination of the following instrumentalities: a generator, a fixing-chamber communicating therewith, a boiler, a gas-outlet pipe for the said fixing-chamber connected to the said boiler, a hydraulic main, a gas-outlet pipe for the boiler communicating with the hydraulic main, a valve-casing in the gas-outlet pipe for the boiler and provided with a gas-outlet port, a pipe or stack communicating with the atmosphere and connected to said valve-fitting, and a valve to control the said port, whereby the gases after passing through the boiler may be caused to pass off to the atmosphere or to the hydraulic main, substantially as described.

7. In an apparatus for the manufacture of carbureted water-gas, the combination of the following instrumentalities, viz: a water-gas generator, a single structure comprising a hydrocarbon-mixing chamber, a fixing-chamber and an intermediate chamber, pipe connections between the said generator and the mixing-chamber, and between the generator and the intermediate chamber, a boiler communicating with the fixing-chamber and adapted to be disconnected therefrom, a feed-water heater communicating with the boiler, a gas-outlet pipe leading from said feed-water heater and provided with a port or gas-outlet, a pipe or stack connected to said gas-outlet pipe to communicate with said port and communicating with the atmosphere, a valve to control the passage of gas from the said outlet-pipe to the said stack, and a hydraulic main connected to the said valve-casing, substantially as described.

8. In an apparatus for manufacturing carbureted water-gas, the combination with a fixing-chamber and a hydraulic main, of a gas-outlet pipe for the fixing-chamber communicating with the hydraulic main and provided with a valve casing or fitting having a steam-inlet port, a pipe or stack connected to said valve-casing and communicating with the atmosphere, and a valve to control the passage of gas into the said pipe or stack, substantially as described.

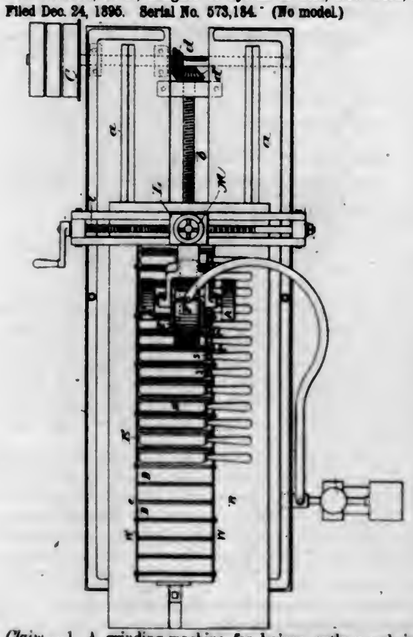
575,561. STEAM-EXHAUST HEAD. ROBERT BINGHAM, Philadelphia, Pa. Filed Jan. 17, 1896. Renewed Nov. 25, 1896. Serial No. 613,470. (No model.)

Claim.—1. In a device of the character described, a cylindrical head, an exhaust-inlet tangential thereto, a discharge-pipe passing through the center of the head and terminating below the level of the bottom of the head, an inverted cone closing the bottom of the head having a drip-pipe leading therefrom, and a partition within the head between its wall and the discharge-pipe, said partition being of a helical shape and beginning just behind the exhaust-inlet whereby the steam passes nearly around the head and secures increased centrifugal action before striking the helical partition, as and for the purpose described.



2. In a device of the character described, a cylindrical head, an exhaust-inlet to said head, a discharge-pipe passing through the head, an inverted cone closing the bottom of the head, a helical partition between the wall of the head and the discharge-pipe and beginning just behind the exhaust-inlet whereby the steam passes nearly around the head and secures increased centrifugal action before striking the helical plate.

575,562. CUTLERY-GRINDING MACHINE. BERTHOLD BLOCH, New Rochelle, N. Y., assignor to Sylvan R. Bier, New York, N. Y. Filed Dec. 24, 1895. Serial No. 573,184. (No model.)



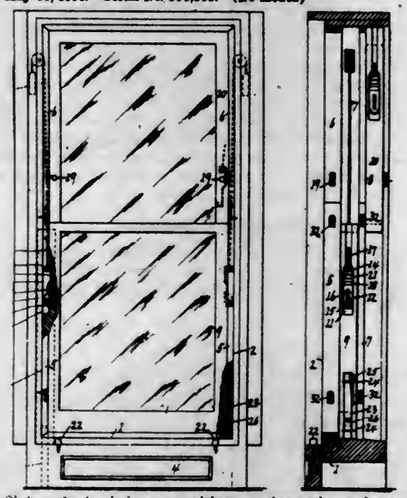
Claim.—1. A grinding-machine for knives, cutlery and similar articles, which consists of a revolving grinder, mechanism for imparting revolution thereto and mechanism for supplying moisture thereto, a transversely-channeled traveling bed, spring-cushioned chucks inserted in said channels adapted to receive and support the articles to be ground in such way as to present a full grinding-surface to said grinder and mechanism for feeding said bed under said grinder, substantially as and for the purposes specified.

2. A grinding-machine for knives, cutlery and similar articles, which consists of a revolving grinder, mechanism for imparting revolution thereto and mechanism for supplying moisture thereto, a transversely-channeled traveling bed, spring-cushioned chucks suitably fitted to the shape of the blade of the article to be ground and adapted to be secured to said article and to be inserted in said channels and to hold said article therein in such way as to present a full grinding-surface thereof to said grinder and mechanism for feeding said bed under said grinder, substantially as and for the purposes specified.

3. In a knife-grinding machine, a spring-cushioned chuck provided with devices for securing the article to be ground thereto and provided with a level surface for supporting the edge of the article to be ground and a shoulder, against which the back of the blade is supported and with the upper surface of said chuck hollowed out below said shoulder, so as to present a tapering surface lengthwise of said chuck, substantially as and for the purposes specified.

4. In a knife-grinding machine, a spring-cushioned chuck provided with devices for securing the article to be ground thereto and the top of which is hollowed out to receive a portion of the blade of the article to be ground in such way as to taper at one edge from tip to bolster and form a wall, against which the back of the blade can rest; the surface of said chuck on each side of said hollow being substantially at the same level, substantially as described and for the purposes specified.

575,563. WINDOW. RICHARD CULLEN, New York, N. Y. Filed May 13, 1896. Serial No. 591,395. (No model.)



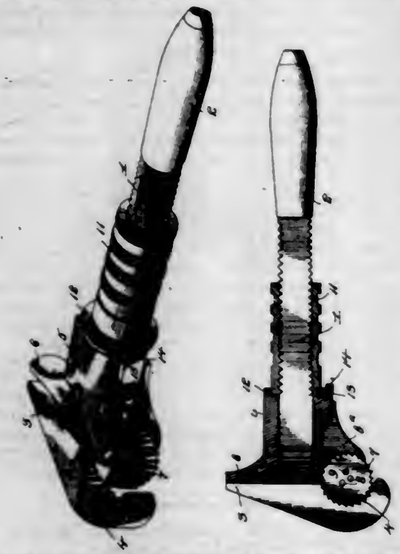
Claim.—1. A window comprising a casing and a sash provided with a hook or fastening, combined with a sash cord or connection having an attachment for engaging said hook, said sash having a seat or recess for the attachment and said attachment comprising a base or body portion adapted to engage the hook, and flanges adapted to sit or slide against the window-casing, said attachment being detachably engaged to said hook and said flanges being located at opposite end portions of the attachment so as to steady the attachment on the hook as the sash slides or moves, substantially as described.

2. A removable window-sash combined with a frame having its sill provided with a lug between which and a frame side the sash can be inserted or held, said sash being provided with a seat or recess, a foot or rest adapted to slide in said recess, and a locking spring or catches for the foot substantially as described.

575,564. COMBINED PIPE AND NUT WRENCH. CHARLES H. DRIVER, Valdosta, Ga. Filed Nov. 30, 1896. Serial No. 570,643. (No model.)

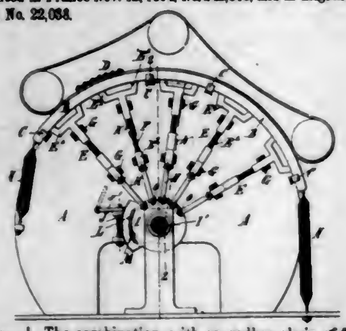
Claim.—1. In a wrench, the combination of a threaded shank provided with a pipe-engaging jaw, a sliding jaw mounted on the shank and provided with a lip disposed longitudinally of the shank and having a recess at its inner side, a pipe-engaging wheel provided with a series of eccentrically-arranged perforations and adjustably

mounted on the sliding jaw, and a nut engaging the shank and provided with an annular flange fitting in the recess of said lip, substantially as and for the purpose described.



2. In a wrench, the combination of a shank, a head arranged at one end of the shank or bar and projecting from opposite sides thereof and forming a nut-engaging jaw 3 and a pipe-engaging jaw 4 having a curved engaging face, a sliding jaw mounted on the shank and provided at one side with a nut-engaging portion and having at the opposite side ears, a pipe-engaging wheel pivotally mounted between the ears and provided with a series of eccentric perforations for the reception of the pivot and conforming to the configuration of the curved engaging face of the jaw 4 and adapted to fit snugly therein, and a nut mounted on the shank and connected with and operating the sliding jaw, substantially as described.

575,565. CARD WITH REVOLVING FLATS. GEORGES FAUQUET, Rouen, France. Filed June 12, 1895. Serial No. 552,521. (No model.) Patented in France Nov. 12, 1894, No. 242,310, and in England Nov. 14, 1894, No. 22,038.



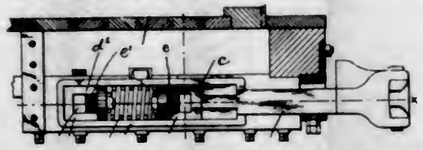
Claim.—1. The combination, with an endless chain of flats, of a flexible bend, radially-guided arms the outer ends of which support the bend, each arm being composed of two sections and a dowel-screw having threads of different pitch for connecting said sections and adjusting each arm individually as to its length, a crank-disk concentric with said bend, pivot-links connecting the inner ends of the radial arms with said disk, and means for turning said disk, whereby all of the supporting-arms are simultaneously adjusted, substantially as set forth.

2. The combination, with an endless chain of flats, of a flexible bend, radial arms the outer ends of which support said bend, each arm being formed of two sections and a dowel-screw having threads of different pitch for connecting said sections and adjusting said arm individually as to its length, keepers for guiding said arms in radial direction, a centrally-journaled disk having a toothed peripheral portion, pivot-links connecting the inner ends of the radial arms with the disk, and a worm-screw meshing with the toothed portion of the disk for turning the same, substantially as set forth.

3. In a card having an endless chain of flats and a flexible bend, radial arms the outer ends of which support said bend, each arm being formed of two sections and a dowel-screw provided with screw-threads of the same direction but of different pitch and engaging correspondingly screw-threaded sockets in the adjacent ends of said sections, substantially as set forth.

4. In a card having an endless chain of flats and a flexible bend, radial arms the outer ends of which support the bend, each arm being formed of two sections and a dowel-screw provided with a polygonal head and with screw-threads of the same direction but of different pitch at opposite sides of said head, and engaging correspondingly screw-threaded sockets in the adjacent polygonal ends of said sections, and a sleeve having an interior polygonal shape adapted to slide over the adjacent ends of said arm-sections and the head of said dowel-screw or clear the same for permitting the adjustment of the arm, substantially as set forth.

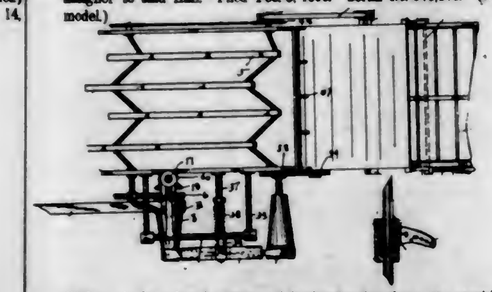
575,566. DRAFT-RIGGING FOR CONNECTING COUPLINGS TO CARS. EDWARD GRAFSTROM, Columbus, Ohio. Filed Nov. 18, 1896. Serial No. 612,532. (No model.)



Claim.—1. In a draft-rigging for connecting couplers to cars the combination with a car-frame, its draft-timbers, a draw-bar extending between said timbers, and a strap-frame engaging with said draw-bar, of mortised followers arranged in said strap-frame, a spring or springs between said followers and transverse bars *c* and *c'*, detachably connected with the framework, said bars passing loosely through said follower-mortises, substantially as and for the purpose specified.

2. In a draft-rigging for connecting couplers to cars the combination with a car-frame, a draw-bar and a strap-frame connected with said draw-bar, of separated spring-actuated followers arranged in said strap-frame, transverse bars secured in the framework, said bars supporting and engaging with said followers, substantially as and for the purpose specified.

575,567. BAND-CUTTER AND FEEDER FOR THRESHERS. JOSEPH R. HALL and JOHN J. GAYNOR, Indianapolis, Ind.; said Gaynor assignor to said Hall. Filed Feb. 5, 1896. Serial No. 578,171. (No model.)



Claim.—1. In a band-cutter and feeder for threshers, the combination of a conveyer, a pair of reverse cone-pulleys, one of said pulleys driving the conveyer, suitable mechanism to drive the other pulley, a belt connecting the pulleys, a ball-governor actuated from the drive mechanism, a sleeve that is moved up and down by the governor, a belt-shifter, and a bell-crank pivoted in the framework of the machine with one end connected up with such sleeve and the other connected to the belt-shifter.

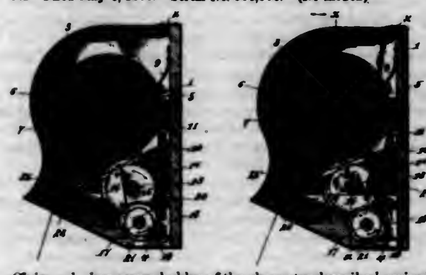
2. In a band-cutter and feeder for threshers, the combination with the conveyer, a pair of reverse cone-pulleys, one of such pulleys to drive the conveyer, an idler mounted adjacent to a pulley, a belt and suitable drive mechanism whereby the conveyer-pulleys are driven, of a ball-governor mounted on a suitable rotary shaft geared up with the drive mechanism, a sliding sleeve on the governor-shaft so connected up with the balls as to be reciprocated by them, a belt-shifter to shift the belt from the idler to the pulley and vice versa, and a bell-crank mechanism connecting the belt-shifter with the sliding sleeve on the governor-shaft.

3. In a band-cutter and feeder for threshers, the combination of a conveyer, a pair of reverse cone-pulleys, one of said pulleys driving the conveyer, suitable mechanism to drive the other pulley, a belt connecting the two pulleys, a governor actuated from the drive mechanism, a belt-shifter mounted so as to reciprocate on a rod, and shift the belt, a bell-crank that is actuated at one end by the governor and at the other end reciprocates the belt-shifter, and a spiral spring mounted on the belt-shifter rod that tends to cause the shifter to shift the belt into its idle position.

4. In a band-cutter and feeder for threshers, the combination with a hinged hood and knife-guard, of a pair of vertically-movable standards pivotally connected to the hood at their upper ends and provided with a rack at their lower ends, suitable guideways for such standards a shaft extending through the framework horizontally and provided at each end with a cogged segment to engage the racks on the lower ends of such standards, and means for rotating such shaft.

5. In a band-cutter and feeder for threshers, the combination with a hinged hood and knife-guard pivoted at its rear to the framework, of a pair of standards pivoted at their upper ends to the hood and provided with a rack at their lower ends, a shaft extending through the framework having on each end a cogged segment to engage such racks, a hand-lever for rotating the shaft, means for holding the hand-lever in any desired position, and friction-wheels on each side of the framework that hold the standards in place against the cogged segments.

575,568. PAPER-HOLDER. HARRY F. HAVILAND, Philadelphia, Pa. Filed July 8, 1896. Serial No. 598,398. (No model.)



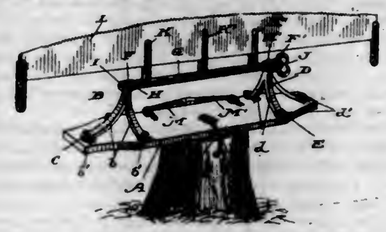
Claim.—1. In a paper-holder of the character described, swinging arms adapted to carry a roll of paper, a swinging frame, feed-wheels journaled in said frame against which the roll of paper is adapted to bear, a friction-wheel carried upon the same shaft with said feed-wheels, said friction-wheel having a cut-away portion, a segmental gear adapted to revolve in unison with said friction-wheel, a roll with which said cut-away portion is adapted to engage, said roll being adapted to support the friction-wheel, a ratchet-gear carried with the friction roll and adapted to mesh with the segmental gear, a cutter supported by the casing of the device, and a presser bar carried by the swinging frame, substantially as and for the purpose set forth.

2. In a paper-holder of the character described, a suitable casing for the support of the operating parts of the device, a pair of swinging arms pivoted to said casing, a rod 6 carried by said arms adapted to act as a journal for a roll of paper, a swinging frame pivoted to the casing, a shaft 13 journaled within said frame, feed-wheels carried by said shaft adapted to feed the paper from the roll, a friction-wheel 15 mounted upon the shaft 13, said wheel having a cut-away portion, a segmental gear 16 carried in unison with the wheel 15, a shaft 17 suitably mounted within the casing, a roll 19 carried upon said shaft, a ratchet-gear 21 also carried by the shaft 17 and adapted to operate the segmental gear 16, a serrated cutter carried by the casing, and a presser-bar carried by the swinging frame so arranged as to force the paper into contact with the cutter when the frame is dropped, substantially as and for the purpose set forth.

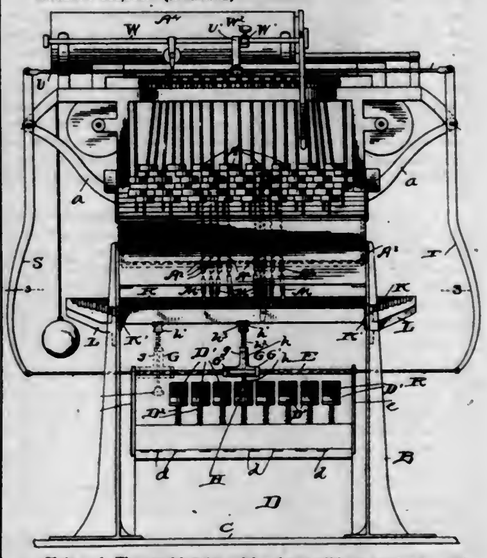
3. The herein-described combination of a suitable casing, a hinged cover therefor, a pair of pivoted arms arranged within said casing, a rod carried by said arms adapted to act as a journal for a roll of paper, a swinging frame pivoted within said casing, a shaft 13 journaled within said frame, feed-wheels carried by said shaft, a friction-wheel 15 also carried by said shaft, said friction-wheel having a cut-away portion 20, a segmental gear 16 carried by said friction-wheel, a shaft 17 journaled within the casing, a roll 19 carried by said shaft, said roll adapted to act in conjunction with the friction-wheel 15, a ratchet-gear carried by the shaft 17 and adapted to revolve the segmental gear and elevate the same, whereby the swinging frame will be lifted, a serrated cutter carried upon a suitable cross-bar of the casing, and a presser-bar carried by the swinging frame adapted to force the paper into contact with the cutter, substantially as and for the purpose set forth.

575,569. SAW-VISE. HARRY C HAWKINS, Blind River, Canada. Filed July 21, 1896. Serial No. 600,044. (No model.)

Claim.—A saw-vise consisting of two oppositely-opposed standards, a shaft journaled in the said standards, a series of bifurcated arms carried by the shaft adapted to hold the saw-blade, and a jam-nut to lock the shaft in any adjusted position, a base to which the standards are connected, and a series of hooks connected to the base adapted to be driven into a stable object to temporarily hold the saw-vise, substantially as specified.



575,570. COMBINED TYPE-WRITING AND COMPUTING MACHINE. HOLMES MARSHALL, Cleveland, Ohio. Filed Apr. 22, 1896. Serial No. 588,538. (No model.)



Claim.—1. The combination with a depressible operating-key of a type-writer and a depressible operating-key of an adding or computing machine; of a plunger arranged above and adapted to be moved over said last-mentioned key, and mechanism interposed between said plunger and the aforesaid type-writer key and capable of depressing the computing-machine key simultaneously with the depression of the type-writer key, substantially as and for the purpose set forth.

2. The combination with a depressible key of a type-writer and a depressible key of an adding or computing machine arranged a suitable distance below the type-writer: of a plunger arranged above and adapted to be moved over said last-mentioned key; a spring acting to retain said plunger in its upper or normal position; a lever for depressing the plunger against the action of said spring; a spring acting to retain said lever in its normal position, and mechanism establishing operative connection between said lever and the type-writer key, substantially as and for the purpose set forth.

3. The combination with a depressible key of a type-writer and a depressible key of an adding or computing machine: of an upwardly and downwardly movable plunger arranged above and adapted to be moved over said last-mentioned key, and having an upwardly-extending stem terminating at its upper end in a head; a spring acting to retain the plunger in its upper or normal position; a lever for depressing said head and the connected plunger; a spring acting to retain said lever in its normal position, and mechanism establishing operative connection between said lever and the type-writer key, substantially as and for the purpose set forth.

4. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine having several rows

of depressible operating-keys: of a suitably-supported plunger-carriage arranged above and adapted to be moved over any one of said rows of keys, and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid key-rows upon the actuation of the plunger-carriage over the respective key-row; different levers for depressing the different plungers, respectively; mechanisms establishing operative connection between the different levers and the aforesaid different type-writer keys, respectively; means acting to retain said plungers and levers in their normal position; mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for operating said plunger-carriage-actuating mechanism during the leftward longitudinal movement of said type-writer carriage, substantially as set forth.

5. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine having several parallel rows of depressible operating-keys: of a suitably-supported plunger-carriage arranged above and adapted to be moved over any one of said rows of keys, and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid key-rows upon the actuation of the plunger-carriage over the respective key-row, each plunger having an upwardly-extending stem terminating at its upper end in a head, and the plunger-carriage being provided with a lateral bearing for each plunger; a spiral spring confined upon each plunger-stem and acting to retain the plunger in its upper or normal position; different levers for depressing the different plunger-stem heads, respectively; springs acting to retain the levers in their normal position: mechanisms establishing operative connection between the different levers and the aforesaid different type-writer keys, respectively; mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for operating said plunger-carriage-actuating mechanism during the leftward longitudinal movement of said type-writer carriage, substantially as set forth.

6. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine having several rows of depressible operating-keys: of a sliding plunger-carriage arranged above and adapted to be slid over any one of said rows of keys and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid rows of keys upon the actuation of the plunger-carriage over the respective key-row: any suitable number of slideways for the plunger-carriage: different levers for depressing the different plungers, respectively; springs acting to retain the said plungers and levers in their normal position: mechanism establishing operative connection between the different levers and the aforesaid different type-writer keys, respectively: mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for operating the plunger-carriage-actuating mechanism during the longitudinal movement of said type-writer carriage, substantially as set forth.

7. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine located below the type-writer and having several parallel rows of depressible operating-keys: of two horizontal and parallel bars E E arranged a suitable distance above and widthwise of the computing-machine: a plunger-carriage slidably mounted upon said bars and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid rows of keys upon the actuation of the plunger-carriage over said row of keys; different levers for depressing the different plungers, respectively; means acting to retain said plungers and levers in their elevated or normal position, mechanism establishing operative connection between each of said levers and the required type-writer key; mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for actuating said plunger-carriage-actuating mechanism during the longitudinal movement of said type-writer carriage, substantially as set forth.

8. The combination with the keyboard of an adding or computing machine, and keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage movable laterally over the different key-rows of the computing-machine and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each key-row of the computing-machine; a longitudinally-movable bar or rod arranged longitudinally of and adjacent to the paper-carriage and provided with an arm; a member on the paper-carriage arranged to engage said arm and thereupon actuate the arm-bearing rod or bar during the longitudinal movement of the paper-carriage, and mechanism for actuating the plunger-carriage laterally and operatively connected with the aforesaid bar or rod, substantially as and for the purpose set forth.

9. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage movable laterally over the different key-rows of the computing-machine, and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each key-row of the computing-machine; a longitudinally-movable bar or rod arranged forward and longitudinally of the paper-carriage and provided with an upright arm: a forwardly-projecting dog or member on the paper-carriage arranged to engage the right-hand side of said arm and thereupon actuate said rod or bar during the leftward movement of the paper-carriage, and mechanism for actuating the plunger-carriage laterally and operatively connected with the aforesaid bar or rod, substantially as and for the purpose set forth.

10. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage arranged between the computing-machine and type-writer and movable laterally over the different key-rows of the computing-machine and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each of the aforesaid key-rows: a longitudinally-movable bar or rod arranged longitudinally of and adjacent to the paper-carriage and provided with an arm: a member on the paper-carriage arranged to engage the right-hand side of said arm and thereupon actuate the arm-bearing rod or bar during the leftward movement of the paper-carriage; two vertically and laterally tilting levers arranged at opposite sides, respectively, of the type-writer, said levers, at their upper ends, being operatively connected with opposite ends, respectively, of the aforesaid bar or rod and being operatively connected, at their lower ends, with the plunger-carriage, substantially as and for the purpose set forth.

11. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage arranged between the computing-machine and type-writer and movable laterally over the different key-rows of the computing-machine and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each of the aforesaid key-rows; a longitudinally-movable rod or bar arranged longitudinally of and adjacent to the paper-carriage and provided with an arm; a member on the paper-carriage for engaging said arm and thereupon actuating the arm-bearing rod or bar during the leftward movement of the paper-carriage, and said paper-carriage member being shiftable out of line with the aforesaid arm, and mechanism for actuating the plunger-carriage from left to right and operatively connected with the aforesaid rod or bar, substantially as and for the purpose set forth.

12. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage movable laterally over the different key-rows, and leftward of the computing-machine's keyboard a sufficient distance to accommodate the shifting of the plungers leftward beyond said keyboard; a longitudinally-movable rod or bar arranged longitudinally of and adjacent to the paper-carriage and provided with an arm: a member on the paper-carriage for engaging the right-hand side of said arm and thereby actuating the arm-bearing rod or bar during the leftward movement of the paper-carriage, said paper-carriage member being shiftable out of line with the aforesaid arm, and mechanism for actuating the plunger-carriage from left to right and being operatively connected with the aforesaid bar or rod, substantially as and for the purpose set forth.

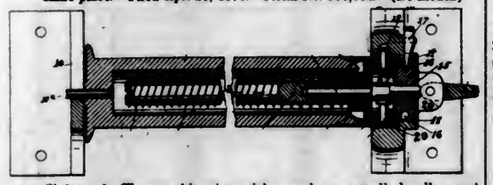
575,571. BROOM-HEAD. MERTON H. MCCORMICK, Lake Odessa, Mich., assignor of one-half to Edwin A. Bush, same place. Filed May 11, 1896. Serial No. 591,109. (No model.)



Claim.—1. In a broom-head, the combination of a stick having a tapering extremity, a tapering ferrule B, having suitable orifices, and bars C having pairs of threaded orifices near each end, said stick having its substance cut away to permit the passage of said bars, yokes having elongated orifices near each end, and clamping-screws E adapted to be passed through the elongated orifices of said yokes and to engage the threaded orifices in said bars, substantially as described.

2. In a broom-head, the combination of a stick having a tapering end provided with a longitudinal recess, *d*, a tapering ferrule having suitable orifices, bars C having pairs of threaded orifices near each end, yokes having elongated orifices near each end, clamping-screws E adapted to be passed through the elongated orifices of said yokes and to engage the threaded orifices in said bars, substantially as described.

575,572. WINDOW-SHADE ROLLER AND BRACKET THEREFOR. GEORGE M. PARSONS, Carson, Nev., assignor to Henry C. Cutting, same place. Filed Apr. 25, 1896. Serial No. 589,054. (No model.)



Claim.—1. The combination with a spring-controlled roller, and bracket-supports for the same, one of said brackets being provided with an offset member having an opening to receive one end of the roller, the offset member being provided with an annular collar formed on its exterior or outer face, of a ratchet-wheel mounted to turn partially within the said collar and having a flange formed at the periphery of its inner face and bearing against the outer side wall of the opening in the offset member, the said ratchet-wheel being connected with the winding-spindle of the roller-spring, and a pawl located on the bracket and engaging with the teeth of the said ratchet-wheel, as and for the purpose specified.

2. The combination with a spring shade-roller provided with a chamber at one of its ends, and pins loosely held in openings formed in the wall of the said chamber, the openings extending from the chamber to the exterior of the roller, of a bracket in which the pin-carrying portion of the roller is mounted to turn, the said bracket being provided with means for engaging the said pins when forced outward from the periphery of the roller, as and for the purpose set forth.

3. The combination with a spring shade-roller having a chamber at one of its ends, and pins held to slide in openings extending from the chamber to the exterior of the roller, of a bracket in which the pin-carrying section of the roller is mounted to turn, the said bracket being provided with means for engaging the said pins when forced outward from the periphery of the roller, and a ratchet-wheel connected with the spring of the roller and adapted to regulate the tension of the same, as and for the purpose specified.

4. The combination, with a spring shade-roller provided with a chamber at one of its ends, and pins loosely contained in openings extending from the chamber to the exterior of the roller, of a bracket in which the pin-carrying section of the roller is mounted to turn, the said bracket being provided with an opening to loosely receive the said roller, a portion of the wall of the said opening having a tapering groove made therein, so located as to receive the pins of the roller when forced outward beyond its periphery, the bracket being further provided with a slot having a contracted section, the said slot being located at the wider end of the groove in the said bracket and in communication with the said groove, as set forth.

5. The combination, with a spring shade-roller having a chamber at one of its ends, and pins held to slide in the material of the roller between the chamber and the outside of the roller in either direction, of a bracket adapted to receive the chambered end of the said roller, the receiving-opening of the bracket having a tapering groove therein and an outlet-opening communicating with the groove and having a contracted section, the outlet-opening and the aforesaid groove being in position to receive the pins when forced outward beyond the periphery of the roller, a ratchet-wheel connected with the spring of the roller, adapted to regulate the tension of the same, means for turning the said ratchet-wheel while the roller is still in the bracket, and a pawl carried by the bracket and engaging with the aforesaid ratchet-wheel, as and for the purpose specified.

575,573. ELECTRICAL CONTROLLING APPARATUS. OSCAR H. PIEPER and ALPHONSE P. PIEPER, San José, Cal. Filed Dec. 19, 1895. Serial No. 572,824. (No model.)

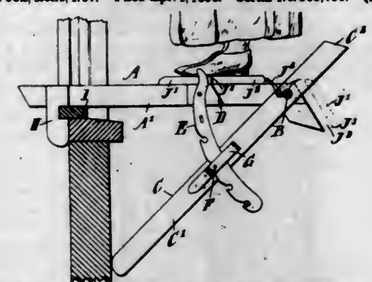
Claim.—1. In an electric-motor-controlling apparatus, the combination with the main containing-case, of a vertical spindle, a fixed switch-bar on said spindle, a series of contacts surrounding the spindle, contact-segments O^{10} and O^{11}, whereby integral brush P short-circuits the armature-terminals when approaching the central position.

2. In an electric-motor-controlling apparatus, the combination with the main containing-case, of a vertical spindle, a fixed switch-bar on said spindle, a series of contacts surrounding the spindle, contacts O^{9} and O^{11} of greater width than the adjoining ones, so that the field-magnets remain at full strength sufficiently long to bring the armature to a stop before brush *m* reaches neutral segment O^{10}.



3. In an electric controlling apparatus, an oscillating spindle, a fixed switch-bar on said spindle, integral brushes *m* and *p* and an insulated brush *n* on said switch-bar, a series of contact-plates surrounding the spindle, and a lever for operating the spindle, so that when the actuating-pedal is in its central or neutral position the field-magnets remain at full strength.

575,574. EXTENSION-LADDER AND WINDOW-JACK. JOHN M. PUGH, Reno, Nev. Filed Apr. 1, 1896. Serial No. 585,739. (No model.)



Claim.—1. A device of the class described, comprising a ladder consisting of a bottom section provided with a platform and a brace-section, the sections being pivotally connected with each other to permit of placing the sections at angles to one another for an ordinary step-ladder or for a window-jack, or to bring the sections in alinement to form an extension-ladder, the brace-section having its side pieces located at the outer faces of the side pieces of the bottom section, the side pieces of the brace-section projecting beyond the pivot point and beveled at their ends, and blocks on the outer faces of the side pieces of the bottom section, the said blocks having their upper faces beveled to engage the beveled ends of the brace-section, whereby the sections are held in alinement, substantially as shown and described.

2. A device of the class described, provided with a ladder-section having shoes for engagement with the window-sill, and a top step made in two pieces hinged together at their rear ends and adapted to fold one on top of the other, the forward end of one of the said pieces being connected by links with the sides of the section, whereby the pieces forming the step can be swung forward to rest on the side pieces of the section to form a floor or platform, substantially as shown and described.

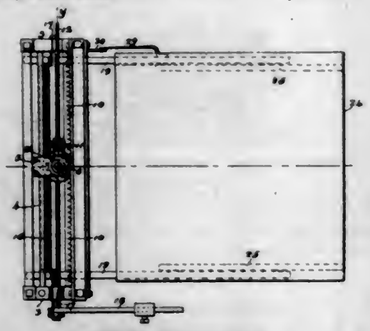
3. A device of the class described, comprising a ladder made in sections pivotally connected with each other, connecting-braces pivoted on one section and adapted to engage pins on the other section, shoes held on one of the sections and adapted to engage the window-sill, and a floor for the section carrying the shoes and formed of two pieces pivotally connected with each other and connected by links with the sides of said section, substantially as shown and described.

4. A device of the class described, comprising a ladder made in sections pivotally connected with each other, connecting-braces pivoted on one section and adapted to engage pins on the other section, shoes held on one of the sections and adapted to engage the window-sill, a floor for the section carrying the shoes and formed of two pieces pivotally connected with each other and connected by links with the sides of said section, and brackets held on said section and adapted to form a rest for said pieces, substantially as shown and described.

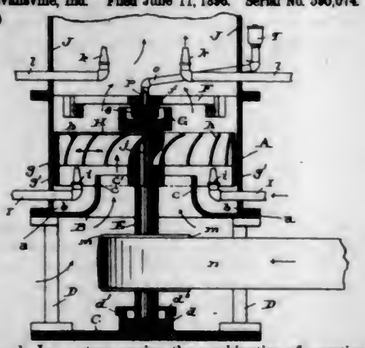
575,575. MACHINE FOR BEVELING PLATE-GLASS. ROBERT A. SCHLEGEL, St. Louis, Mo. Filed May 8, 1895. Serial No. 548,514. (No model.)

Claim.—In a machine for beveling plate-glass, a suitable reciprocating and rotating grinding-disk, means for reversing the rotation thereof with each reciprocation of the same, a tilting table for the plate, a cam-shaft at one end of the table, said shaft and table adapted

to simultaneously support the plate, and a weighted arm controlling the rotation of the cam-shaft during the grinding of the plate, whereby the plate is kept in constant engagement with the grinding device, substantially as set forth.



575,576. STEAM-ENGINE. JOEL C. SLAUGHTER, Dallas, Tex., assignor of one-fifth to Edward R. Davis, same place, and Willis M. Copeland, Evansville, Ind. Filed June 11, 1896. Serial No. 595,074. (No model.)



Claim.—1. In a rotary engine, the combination of a vertical cylinder open at the top; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim—said rim extending down below the blades; an inlet-head below the cylinder and provided at its center with an open funnel-rim which projects up within the said downward-extending part of the wheel-rim; and steam-discharge nozzles pointing upward toward the wheel-blades and located between the said funnel-rim and the wheel-rim.

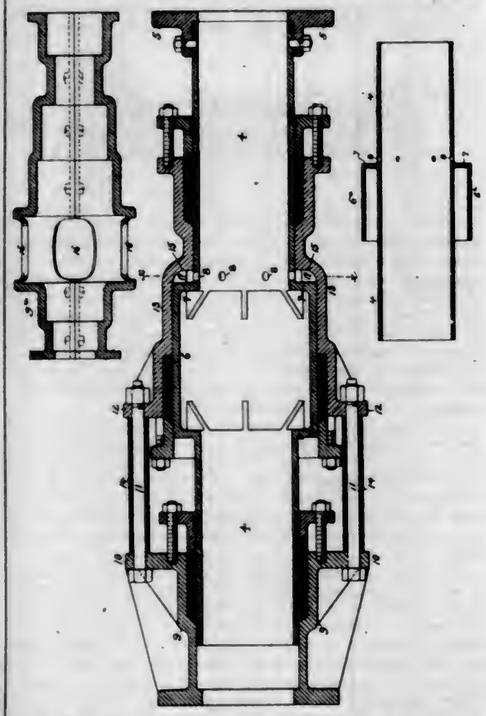
2. In a rotary engine, the combination of a vertical cylinder open at the top; a base-plate; standards resting on said base-plate and supporting the said cylinder; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim; an upright shaft whose lower spindle end is stepped in a bearing and carries said wheel; an inlet-head below the cylinder and provided at its center with an open funnel-rim which surrounds the upright shaft; and steam-discharge nozzles pointing upward toward the wheel-blades.

3. In a rotary engine, the combination of a vertical cylinder open at the top; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim; an upright shaft whose lower spindle end is stepped in a bearing and carries said wheel and whose upper spindle end, *e*, has bearing, *f*, in a cross-bar; a cup, G carried on the said upper spindle end taking up under and surrounding said bearing; an inlet-head below the cylinder and provided at its center with an open funnel-rim which surrounds the upright shaft; and steam-discharge nozzles pointing upward toward the wheel-blades.

4. In a rotary engine, the combination of a vertical cylinder open at the top; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim; an open inlet-head below said cylinder; steam-discharge nozzles below the wheel and pointing upward toward the wheel-blades; a stack mounted above the open top of the cylinder; and steam-discharge nozzles in the stack and above the said wheel.

575,577. BALANCED EXPANSION-JOINT FOR PRESSURE-PIPES. SOMMERS N. SMITH, Newport News, Va. Filed Apr. 1, 1896. Serial No. 585,809. (No model.)

Claim.—1. The within-described balanced expansion-joint for pressure-pipes, said joint consisting of a tube having an enlarged portion forming an external annular shoulder, a sleeve encircling said tube and having an internal shoulder opposed to that of the tube and forming therewith a chamber open to the pressure within the pipes, a second sleeve encircling the tube beyond the shouldered portion, means for connecting the two sleeves, and external, exposed stuffing-boxes whereby tight joints are formed between the sleeves and the tube upon which they are mounted, substantially as specified.



2. The within-described balanced expansion-joint for pressure-pipes, said joint consisting of a tube having an enlarged portion forming an external annular shoulder, a sleeve encircling said tube and having an internal shoulder opposed to that of the tube and forming therewith a chamber open to the pressure within the pipes, a second sleeve encircling the tube beyond the shouldered portion, bolts connecting flanges on the two sleeves, and external, exposed stuffing-boxes whereby tight joints are formed between the sleeves and the tube, substantially as specified.

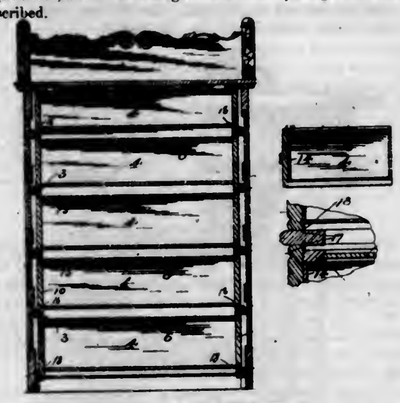
3. The within-described balanced expansion-joint for pressure-pipes, said joint consisting of a tube having an enlarged portion forming an external annular shoulder, a sleeve encircling said tube and having an internal shoulder opposed to that of the tube and forming therewith a chamber open to the pressure within the pipes, a second sleeve encircling the tube beyond the shouldered portion, bolts connecting flanges on the two sleeves, distance-pieces interposed between the two flanges, and stuffing-boxes whereby tight joints are formed between the sleeves and the tube, substantially as specified.

4. The within-described balanced expansion-joint for pressure-pipes, said joint comprising a tube connected to one section of the pressure-pipe and having an external annular shoulder and perforations adjacent thereto, an encircling sleeve connected to the opposite section of the pressure-pipe and having an internal shoulder whereby opposed annular counterbalancing surfaces are presented, and stops to limit the approach of the shoulders and prevent closing of the perforations of the tube, substantially as specified.

575,578. CHIFFONNIER. AUSTIN E. THAYER, Philadelphia, Pa. Filed July 30, 1896. Serial No. 599,864. (No model.)

Claim.—The combination with a chiffonnier provided with drawer-openings at the front and formed with transverse grooves in the inner sides of the side walls, the horizontal rails at the front of the chiffonnier formed with horizontal grooves in the upper and lower sides and the flexible and elastic strips located in said grooves, of the closed drawers of insect-proof material provided with a stationary and

a hinged cover, and a front fitting in the drawer-openings, substantially as described.



575,579. HARROW. MARQUIS J. TODD, Corning, N. Y., assignor to the National Harrow Company, Utica, N. Y. Filed Dec. 22, 1890. Serial No. 375,457. (No model.)



Claim.—1. The combination with a harrow-frame having zigzag frame-bars and a harrow-tooth, of a tooth-support rigidly secured between the angles of the frame-bars and provided with a depending portion having a curved bottom forming a curved seat for the tooth, a clip having a curved upper face resting against the under side of the tooth and having vertical side walls which rest against the sides of the tooth-support, and adapted to be adjusted along the seat and a clamping-bolt whereby the clip and the tooth are firmly secured to the tooth-support, substantially as set forth.

2. The combination with the harrow-frame and a harrow-tooth, of a tooth-support depending below the frame and provided on its bottom or under side with a curved seat for the tooth, a clip provided with a curved face and a rear shoulder which bears against the rear end of the tooth, and having vertical side walls which rest against the sides of the tooth-support and adjustable along the seat, and a clamping-bolt whereby the clip and the tooth are firmly fastened to the tooth-support, substantially as set forth.

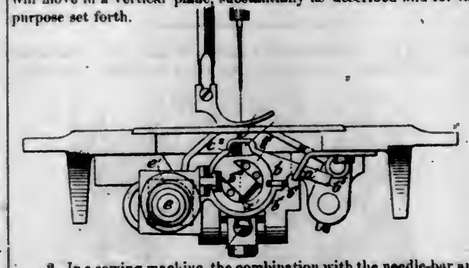
3. The combination with a harrow-frame and a harrow-tooth, of a tooth-support depending below the frame and provided on its bottom or under side with a curved seat for the tooth and above said curved seat with a transverse opening, of a clip having a curved face adapted to bear against the under side of the tooth, and vertical side walls which rest against the sides of the tooth and the tooth-support, and tooth and clip adjustable along the curved face of the support, and a clamping-bolt passing through the opening in the support and connecting the vertical sides of the clip, substantially as set forth.

4. The combination with a harrow-frame and a harrow-tooth, of a tooth-support depending below the frame and provided on its under side or bottom with a curved seat for the tooth, of a clip having a curved face adapted to bear against the under side of the tooth, a rear shoulder which bears against the rear end of the tooth, and vertical side walls which extend above the sides of the tooth and the tooth-support, and having inwardly-bent shoulders overlapping the tooth-support and a clamping-bolt connecting the vertical sides of the clip, substantially as set forth.

5. In a harrow, the combination of a frame, a tooth-support depending beneath the frame and formed at its lower extremity with a curved seat and with an opening above the curved seat, a tooth, a clip having its central portion beneath the tooth and having side walls extending upwardly above the curved face, an inwardly-extending offset on the side walls for engaging the support at a point above the curved seat, and a bolt extending through the opening in the support and engaging said side walls of the clip for drawing the same together, substantially as set forth.

575,580. SEWING-MACHINE. JASPER VANDETTE, Tiffin, Ohio, assignor to the Standard Sewing Machine Company, Cleveland, Ohio. Filed Sept. 3, 1895. Serial No. 561,194. (No model.)

Claim.—1. In a sewing-machine, the combination with the needle-bar and needle and their operating mechanism, of a bobbin-case and bobbin, a loop-taker for carrying the needle-thread loop around the bobbin, a vertically-moving bobbin-case supporter loosely supporting said bobbin-case and bobbin, means for actuating said bobbin-case supporter so as to give it a vertical movement independent of the supported bobbin-case throughout part of its downward movement, whereby the bobbin-case and bobbin may be supported and held stationary by the bobbin-thread at the beginning of the descent of the supporter, to provide an open space or passage beneath the same for the passage of the needle-thread loop thereunder, and means for supporting and guiding said bobbin-case supporter whereby it will move in a vertical plane, substantially as described and for the purpose set forth.



2. In a sewing-machine, the combination with the needle-bar and needle and their operating mechanism, of a bobbin-case and bobbin, a loop-taker for carrying the needle-thread loop around the bobbin, a vertically-moving bobbin-case supporter carrying said bobbin-case and bobbin, consisting of two connected rings provided with bearing-surfaces between which the bobbin-case is retained, the space vertically between said bearing-surfaces being greater than the diameter of the bobbin-case, whereby the bobbin-case and bobbin may be supported and held stationary by the bobbin-thread at the beginning of the descent of the supporter, to provide an open space or passage beneath the same for the passage of the needle-thread loop thereunder, a driving-shaft provided with a cam or eccentric thereon for engaging with said supporter or a connected part thereof, and means for engaging with the supporter or a connected part thereof, acting in combination with said cam or eccentric to support and guide the said supporter whereby it will move in a vertical plane, substantially as and for the purpose set forth.

3. In a sewing-machine, the combination with the needle-bar and needle and their operating mechanism, of a bobbin-case and bobbin, a loop-taker for carrying the needle-thread loop around the bobbin, a vertically-moving bobbin-case supporter loosely supporting said bobbin-case and bobbin, provided with an arm or extension thereon, means for engaging with said arm or extension so as to support and guide the connected bobbin-case supporter whereby it will move in a vertical plane, and a rotating shaft provided with a cam or eccentric thereon for operating the said supporter, substantially as described and for the purpose set forth.

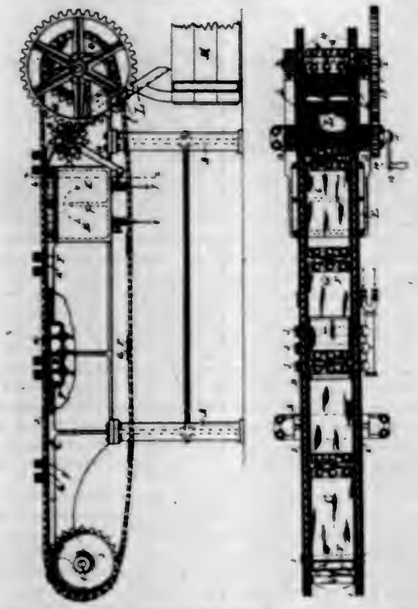
575,581. CHURN. WILLIAM L. WRIGHT and WILLIAM H. STRACKNER, Bettles, Tex. Filed Aug. 12, 1896. Serial No. 602,562. (No model.)



Claim.—The combination with a supporting-frame provided with vertical guides, and a dasher-staff mounted for rotary and reciprocatory movement in said guides, of a driven pulley arranged coaxially with the dasher-staff and held from vertical movement, the same being

provided with an angular bore through which a contiguous angular portion of the dasher-staff extends, a driven pulley having a horizontal axis, a belt-wheel having a horizontal axis arranged between the driving and driven pulleys with its upper side approximately in the plane of the driven pulley, a belt connecting the driving and driven pulleys and having its lower side carried over the intermediate belt-wheel, to arrange both sides of the belt contiguous to the driven pulley in the plane of the latter, an oscillatory arm fulcrumed at one end upon the frame and having a swiveled connection at the other end with the dasher-staff, and a pitman connecting the belt-wheel with said arm, substantially as specified.

575,582. MACHINE FOR SOLDERING TIN CANS. OTTO ASCHE, Paris, France. Filed Sept. 18, 1894. Serial No. 523,409. (No model.)



Claim.—1. In an apparatus for soldering tin cans, the combination of a heat-conducting support for the cans, a heated surface, a cooling surface, and means substantially as described for moving the can-support over said surfaces consecutively, substantially as and for the purpose set forth.

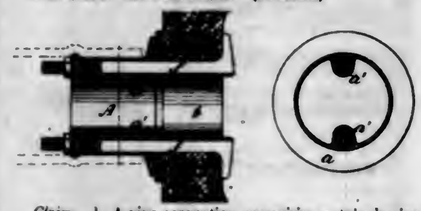
2. In an apparatus for soldering tin cans, the combination of a heater, a cooler, a can-support, consisting of thin plates of heat-conducting material, and means substantially as described whereby the can-support is moved over the heater and cooler in the order named and for the purpose set forth.

3. In a can-soldering machine, the combination of a heated slab, a cooled slab, a thin sheet of heat-conducting material supporting the can, and means whereby the said heat-conducting can-support is first superposed upon the heated slab and afterward upon the cooled slab, whereby the heat from the slabs is conducted through the support to first melt and afterward solidify the solder of the can, substantially as set forth.

4. A can-soldering machine embodying in its construction a thin sheet of heat-conducting material on which the can is to be placed and held by any suitable means or pressure, the said sheet supporting and separating the can from two slabs placed one in advance of the other, one slab to be heated and the other to be cooled by any suitable means and means for carrying said sheet and the can over said slabs in the order named, these parts being combined substantially as described whereby the heat from the hot slab is conducted through the sheet to melt the solder of the can and the cold slab acts to solidify said solder when the sheet and can are passing over it, all as set forth

5. The combination in an apparatus for soldering tin cans, of a table provided with three parts, each part having a flat top, the second and third parts, provided, respectively, with means substantially as described, for heating and cooling the same, with carriages of flat thin metal secured to endless chains, and means for operating the chains so that carriage-loads of cans shall be conveyed along the top of the table, and the cans of the different loads successively soldered, substantially as set forth.

575,583. PIPE-COUPLING FOR WATER-CLOSET BOWLS, &c. JOHN ATKINSON and CHRISTOPHER P. PLUNKETT, New York, N. Y. Filed Feb. 8, 1896. Serial No. 578,489. (No model.)

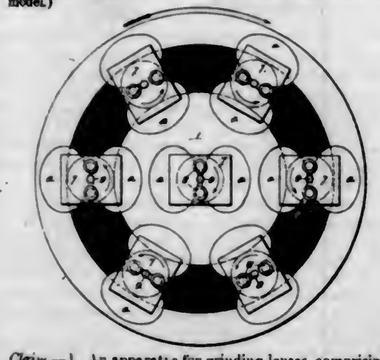


Claim.—1. A pipe connection comprising a tube having guides therein in combination with hooks, having stems adapted to pass through the guides, but not free to turn therein, the ends of the stems being threaded and securing-nuts therefor substantially as set forth.

2. A pipe connection comprising a tube having guides of polygonal shape, in combination with hooks having stems of the same cross-section as the guides, the ends of the stems being threaded and securing nuts therefor substantially as set forth.

3. A pipe connection comprising a tube having projections cast therewith to form guides of polygonal shape, in combination with hooks having stems of the same cross-section as the said guides, the ends of the stems being threaded and securing-nuts therefor substantially as set forth.

575,584. LENS-GRINDING APPARATUS. CONWAY W. AYRES and JOHN G. DUNTON, Kansas City, Mo., assignors to R. G. Rhodes and A. J. Rhodes, same place. Filed Jan. 27, 1896. Serial No. 576,922. (No model.)



Claim.—1. An apparatus for grinding lenses, comprising a rotating disk provided centrally with a circular opening or recess, and a lens-holder, provided with a circular disk or roller which fits within the opening or recess of the disk and frictionally engages the wall of the same, substantially as and for the purpose set forth.

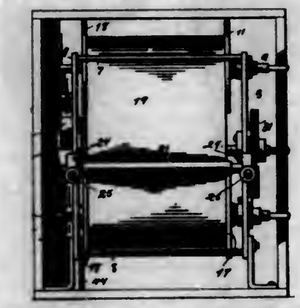
2. An apparatus for grinding lenses, comprising a rotating disk provided with a circular groove, and a holder comprising a pair of plates between which the lenses are firmly secured: one of said plates being in the form of a disk or roller which fits within said groove and frictionally engages one or the other wall of the same, whereby the lenses resting upon the grinding-face of the disk are revolved, substantially as described.

3. In a lens-grinding apparatus, the combination with a grinding-disk provided with a circular opening or groove, of a lens-holder, consisting of an apertured disk or roller which fits within said opening or groove, a plate arranged above the same and provided with pins which engage said holes or apertures, lenses secured immovably between and relative to said plate and said disk or roller, and a pin axially engaging said holder to maintain it in its proper position relative to the rotating grinding-disk, substantially as described.

575,585. STATION-INDICATOR. WILLIAM M. BAKER, Cincinnati, Ohio. Filed July 3, 1896. Serial No. 598,435. (No model.)

Claim.—1. In a station-indicator for railway-cars, the combination with a casing having an opening therein, of a framework upon the inside of said casing, a pair of shafts mounted in said casing, drums or rollers loosely mounted upon said shafts, spring connections between said drums and the shafts to which they are respectively attached, a roll or strip wound upon said drums or rollers and having the names of the different stations printed thereon in consecutive order and visible one at a time through the openings in said casing and means for automatically imparting to said strip or roll a step-by-step movement, substantially as and for the purpose described.

2. In a station-indicator, the combination with a suitable casing having an opening therein, of a framework on the inside of said casing, made up of a pair of side bars or plates suitably connected together, a pair of drums or rollers mounted to rotate in said framework, spring connections between said drums and the shafts to which they are respectively attached, a strip or roll wound upon said drums or rollers and having the names of stations printed in successive order upon the outer face thereof, a pair of gripping-rollers between which said strip or roll passes and means for automatically operating said gripping-roller to impart a step-by-step movement to said strip or roll, substantially as and for the purpose described.



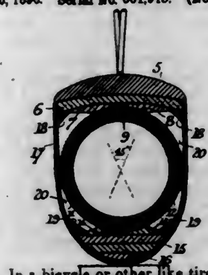
3. In a station-indicator, the combination with a suitable casing having an opening therein, of a framework on the inside of said casing, made up of a pair of side bars or plates suitably connected together, a pair of drums or rollers mounted to rotate in said framework, a strip or roll wound upon said drums or rollers and having the names of stations printed in successive order upon the outer face thereof, a pair of gripping-rollers between which said strip or roll passes, a main drive-shaft connecting said side plates or bars located between said drums or rollers, a spring for operating said shaft, an escapement connected thereto and controlling the movements thereof, connections between said drive-shaft and one of said gripping-rollers and automatic means for tripping said escapement for turning said shaft and imparting a step-by-step movement to said strip or roll, substantially as and for the purpose described.

4. In a station-indicator, the combination with a suitable casing having an opening therein, of a framework on the inside of said casing, made up of a pair of side bars or plates suitably connected together, a pair of drums or rollers mounted to rotate in said framework, a strip or roll wound upon said drums or rollers and having the names of stations printed in successive order upon the outer face thereof, a pair of gripping-rollers between which said strip or roll passes, a main drive-shaft connecting said side plates or bars located between said drums or rollers, a spring for operating said shaft, an escapement pawl or lever acting in engagement therewith, a cog-wheel upon the outer end of said drive-shaft meshing with a pinion upon the outer end of one of said gripping-rolls and means for automatically tripping said escapement for imparting a step-by-step movement to said strip or roll.

5. In a station-indicator, the combination with a suitable casing having an opening therein, of a framework on the inside of said casing, made up of a pair of side bars or plates suitably connected together, a pair of drums or rollers mounted to rotate in said framework, a strip or roll wound upon said drums or rollers and having the names of stations printed in successive order upon the outer face thereof, a pair of gripping-rollers between which said strip or roll passes, a main drive-shaft connecting said side plates or bars located between said drums or rollers, a spring for operating said shaft, a ratchet-wheel upon said shaft, an escapement pawl or lever acting in engagement therewith, a cog-wheel upon the outer end of one of said gripping-rolls, a trip-lever adapted to engage one end of said escapement pawl or lever, release mechanism on the under side of the car in which said indicator is mounted and connections between said trip-lever and said releasing mechanism, the said releasing mechanism being adapted to operate from the track-rail, substantially as and for the purpose described.

6. In a station-indicator, the combination with a suitable casing having an opening therein, of a framework on the inside of said casing, made up of a pair of side bars or plates suitably connected together, a pair of drums or rollers mounted to rotate in said framework, a strip or roll wound upon said drums or rollers and having the names of stations printed in successive order upon the outer face thereof, a pair of gripping-rollers between which said strip or roll passes, a main drive-shaft connecting said side plates or bars located between said drums or rollers, a spring for operating said shaft, a ratchet-wheel upon said shaft, an escapement pawl or lever acting in engagement therewith, a cog-wheel upon the outer end of one of said gripping-rolls, a trip-lever adapted to engage one end of said escapement pawl or lever, a bell-crank lever fulcrumed on the under side of the car in which said indicating mechanism is mounted, a pitman connecting the outer end of said trip-lever with one arm of said bell-crank lever and a lug or projection on the track-rail with which the other arm of said bell-crank lever is adapted to engage, substantially as and for the purpose described.

575,586. BICYCLE-TIRE. HENRY BINGHAM, Melbourne, Victoria. Filed Aug. 6, 1896. Serial No. 601,915. (No model.)

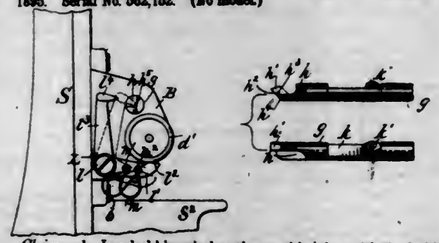


Claim.—1. In a bicycle or other like tire, the circular cover 17 having the circular lips 18 and 19, in combination with the foundation 6 7 and the puncture-shield 13 15, said foundation and puncture-shield each having recesses with which said lips engage all substantially as described and for the purposes set forth.

2. In a wheel-tire, the combination with the rim, of a foundation-piece composed of flattened layers of different kinds of elastic material around the periphery of the rim, an elastic cover attached to said rim and having inwardly-projecting lips engaging said layers of elastic material; inwardly-projecting lips on the inside of said cover near the tread portion thereof, said lips made integral with said cover, a puncture-shield composed of flattened layers of different kinds of elastic material held inside of said cover between the tread portion thereof and the said lips, a circular canvas casing held between the elastic material carried by the rim and the said puncture-shield, and an endless inflated tube carried within said casing, substantially as described.

3. In a wheel-tire the combination with the rim, of a layer of cork around the periphery of said rim, a layer of celluloid on top of the cork, a waterproof cement uniting the two, a rubber cover attached to the rim and having inwardly-projecting lips engaging the said cork and celluloid, inwardly-projecting lips on the inside of said cover near the tread portion thereof, a puncture-shield composed of a plurality of layers of cork and celluloid held within said cover between said lips and the tread portion of said cover, a circular endless casing-tube held between the celluloid and cork carried by the wheel-rim, and the puncture-shield carried next to the tread-surface of the outer covering, and an inflated rubber tube inside of said casing cemented to the latter, substantially as described.

575,587. AUTOMATIC BOBBIN-WINDER FOR SEWING-MACHINES. STOCKTON BORTON, Providence, R. I., assignor to the Willcox & Gibbs Sewing Machine Company, New York, N. Y. Filed Sept. 11, 1895. Serial No. 562,152. (No model.)



Claim.—1. In a bobbin-winder, the combination with the bobbin-shaft, of a guide-rod having its end beveled or cut across at an oblique angle to the axis of the rod and provided with a thread-eye near the beveled surface and with a cut or thread-inlet from said surface to said eye, and means for imparting a reciprocating movement from said shaft to said rod, substantially as described.

2. In a bobbin-winder, the combination with the bobbin-shaft, of a guide-rod recessed or cut away at its end, a lug on the rod beneath the recess, the end of the rod and lug being beveled or cut across at an oblique angle to the axis of the rod, and the lug being provided with a thread-eye and a cut or thread-inlet from the beveled surface to said eye, and means for imparting a reciprocating movement from said shaft to said rod, substantially as described.

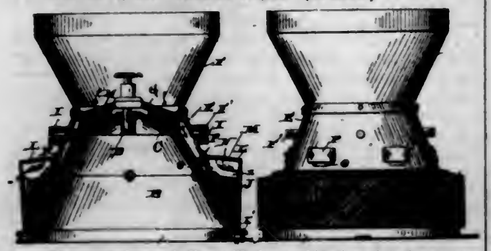
3. In a bobbin-winder, the combination with the bobbin-spindle, of a thread-guide, a thread-severing device, a spring for actuating the same connected at one end to said device and at the other to a stationary part, and means actuated by the full bobbin to reverse the position of the spring and cause the descent of the thread-severing device upon the thread, substantially as described.

4. In a bobbin-winder, the combination of the bobbin-spindle means for holding a bobbin thereon, a guide-rod a two-arm lever, a spring normally pressing one arm of said lever against the thread as it is wound on the bobbin, and a hammer carried by the other arm of the lever, said spring being connected at its respective ends to the lever and to a stationary part, so that as the lever is tilted by the accumulation of thread on the bobbin, the pressure of the spring is at a predetermined point reversed, causing the descent of the hammer to sever the thread against the guide-rod, substantially as described.

5. In a bobbin-winder, the combination of the bobbin-spindle the guide-rod, means for reciprocating the same, the automatic cutter and means actuated by the accumulation of thread on the bobbin for causing the descent of said cutter, to sever the thread against the side of the guide-rod, substantially as described.

6. In a bobbin-winder, the combination with the bobbin spindle, of the thread-guide, the thread-severing device in the form of a hammer, and means actuated by the full bobbin for causing the descent of the hammer upon the thread-guide to sever the thread, substantially as described.

575,588. **FEED-GRINDER.** DAVID W. BOYER, Waterloo, Iowa. Filed Mar. 3, 1896. Serial No. 581,623. (No model.)



Claim.— 1. In a grinding-mill, the combination of the inner cone-shaped grinder, a rotatable shell, a grinder movable therewith and depending adjacent to the cone-shaped grinder, and the vertically-adjustable grinding-wall arranged adjacent to and inclosing the movable grinder, substantially as shown and described.

2. In a grinding-mill, the combination of the grinding-cone, the rotatable shell, the depending grinder carried thereby and adapted to rotate adjacent to the grinding-cone, the shell being provided with outlets over the movable grinder, whereby the grain is adapted to feed outward from the shell and over said grinder, the stationary outer grinding-wall, the surrounding ring projected inward from its upper end, and the deflectors depending from the under side of said ring to throw the grain between the outer surface of the rotary grinder and outer grinding-wall, substantially as shown and described.

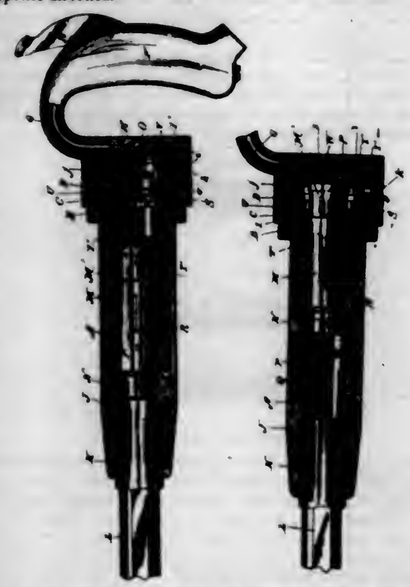
3. In a grinding-mill, the combination of the grinding-cone, the rotary shell having openings, dampers for controlling said openings, a grinder depending from the shell beneath said openings and adapted to rotate around the grinding-cone, an outer grinding-wall adjustable vertically whereby the substantially wedge-shaped space between the inner and outer grinding-walls may be contracted or enlarged, the inturned ring at the upper end of the outer grinding-wall, and the curved deflectors depending therefrom and overhanging the rotary grinder for the purpose, substantially as shown and described.

575,589. **PNEUMATIC HAMMER.** JOSEPH BOYER, St. Louis, Mo. Filed Sept. 4, 1896. Serial No. 604,825. (No model.)

Claim.—1. In a pneumatic hammer, a valve for controlling the movements of the piston, consisting of a cylindrical shell located in the piston-chamber and adapted to have the piston pass through it, and provided with opposing pressure areas against which the motive fluid acts to shift the valve in opposite directions.

2. In a pneumatic hammer, a valve for controlling the movements of the piston, consisting of a cylindrical shell located in the piston-chamber and adapted to have the piston pass through it, and provided with opposing pressure-surfaces of different areas, against the smaller of which the motive fluid constantly acts, to press the valve in one direction, and to the larger of which the motive fluid is intermittently admitted, to move the valve in the opposite direction.

3. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the piston-chamber and consisting of a cylindrical shell through which the piston passes, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, and a passage controlled by the piston for intermittently admitting the motive fluid to the larger pressure area to move the valve in the opposite direction.



4. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, and a passage controlled by the piston and opened by the latter at its forward stroke to admit motive fluid to the larger area of the valve.

5. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve forward, and a passage controlled by the piston and opened by the latter at its forward stroke to admit motive fluid to the larger area of the valve, to move the valve rearward.

6. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve forward, and a passage controlled by the piston and opened by the latter at its forward stroke to admit motive fluid to the larger area of the valve, to move the valve rearward, said valve when moved forward by the constantly-acting pressure against its smaller area opening an annular port around its rear end to admit the motive fluid to the rear end of the piston-chamber, and when moved in the opposite direction by the intermittent pressure admitted to its larger area opening a passage leading to the front end of the piston-chamber.

7. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve for controlling the movements of the piston, consisting of a cylindrical shell located in the piston-chamber and adapted to have the piston pass through it, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston and opened by the latter at its forward stroke to admit motive fluid to the larger area of the valve, and an exhaust-passage leading from said larger area of the valve and opened by the piston at its rearward stroke.

8. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve having differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston for intermittently admitting motive fluid to the larger area of the valve to move the latter in the opposite direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and a passage leading from the larger area of the valve to one end of the piston-chamber through which the motive fluid admitted by the auxiliary passage may pass to said end of the piston-chamber and drive the piston toward the opposite end of the chamber.

9. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve having differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve forward, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve and move the latter rearward, an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and a passage leading from such larger area of the valve to the front end of the piston-chamber, through which the motive fluid supplied by the auxiliary passage may be admitted to the front end of the piston-chamber to drive the piston rearward.

10. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve having differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve and move the latter in the opposite direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and a passage leading from such larger area of the valve to the front end of the piston-chamber, through which the motive fluid supplied by the auxiliary passage may be admitted to the front end of the piston-chamber to drive the piston rearward, the capacity of the aforesaid auxiliary passage being greater than the combined capacity of the other two passages communicating with the larger area of the valve.

11. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve having differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a live-air passage leading directly from the source of supply to the piston-chamber, through the wall of the latter and independently of the piston and a passage leading from the piston-chamber to the larger area of the valve, the piston operating to close communication between said passages except when it approaches one end of its stroke and then place said passages in communication with each other, to thereby admit the motive fluid to the larger area of the valve.

12. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve having differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a live-air passage leading directly from the source of supply to the piston-chamber through the wall of the latter and independently of the piston, a passage leading from the piston-chamber to the larger area of the valve, the piston operating to close communication between said passages and being provided with a circumferential groove which places said passages in communication with each other as the piston approaches its forward limit of stroke, to thereby admit the motive fluid to the larger area of the valve, and an exhaust-passage from the larger area of the valve opened by the piston at the forward end of its stroke.

13. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve having opposing pressure areas to which the motive fluid is admitted for shifting the valve in opposite directions, a passage controlled by the piston, for intermittently admitting motive fluid to one of the pressure areas of the valve, to move the latter in one direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit an additional supply of motive fluid to said area of the valve, and a passage leading from said area of the valve to one end of the piston-chamber, through which motive fluid supplied by the auxiliary passage may be admitted to said end of the piston-chamber to move the piston toward the opposite end of said chamber.

14. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the piston-chamber and consisting of a cylindrical shell through which the piston passes, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston for intermittently admitting the motive fluid to the larger pressure area of the valve, to move the latter in the opposite direction, and an auxiliary passage opened by the last-mentioned movement of the valve to admit an additional supply of motive fluid to the larger area of the valve.

15. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve for controlling the movements of the piston, consisting of a cylindrical shell located in the rear end of the piston-chamber and adapted to have the rear end of the piston pass through it at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve, to move the latter in the opposite direction, and an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply.

16. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the piston-chamber and consisting of a cylindrical shell through which the piston passes, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve and move the latter in the opposite direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and an exhaust-passage leading from said larger area of the valve and opened by the piston at its rearward stroke, said exhaust-passage being of larger area than the auxiliary passage by which the motive fluid is admitted to the larger area of the valve.

17. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve for controlling the movements of the piston, consisting of a cylindrical shell located in the piston-chamber and adapted to have the piston pass through it, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to said larger area of the valve and move the latter in the opposite direction, and an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, said auxiliary passage exceeding in area the said passage controlled by the piston.

18. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the piston-chamber and consisting of a cylindrical shell through which the piston passes, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston for intermittently admitting the motive fluid to the larger area of the valve to move the latter in the opposite direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and a passage leading from the larger area of the valve to one end of the piston-chamber through which the motive fluid admitted by the auxiliary passage may pass to said end of the piston-chamber and drive the piston toward the opposite end of the chamber.

19. In a pneumatic hammer, the combination with the piston-chamber and piston, of a valve for controlling the movements of the piston, consisting of a cylindrical shell located in the rear end of the piston-chamber and adapted to have the rear end of the piston pass through it at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve and move the latter in the opposite direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and a passage leading from such larger area of the valve to the front end of the piston-chamber, through which the motive fluid supplied by the auxiliary passage may be admitted to the front end of the piston-chamber to drive the piston rearward.

20. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve in one direction, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve and move the latter in the opposite direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and a passage leading from such larger area of the valve to the front end of the piston-chamber, through which the motive fluid supplied by the auxiliary passage may be admitted to the front end of the piston-chamber to drive the piston rearward, such passage leading to the front end of the piston-chamber being of less capacity than the aforesaid auxiliary passage, whereby the necessary pressure against the larger area of the valve may be maintained by the motive fluid admitted through the auxiliary passage notwithstanding the escape of motive fluid through the passage leading to the front end of the piston-chamber.

21. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve forward, a passage controlled by the piston for intermittently admitting the motive fluid to the larger area of the valve, to move the latter rearward, and an auxiliary passage opened by such rearward movement of the valve to admit an additional supply of motive fluid to the larger area of the valve.

22. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve forward, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve, to move the valve rearward, an auxiliary passage opened by such rearward movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and an exhaust-passage communicating with the larger area of the valve and opened by the piston at its rearward stroke.

23. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve forward, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to the larger area of the valve, to move the valve rearward, an auxiliary passage opened by such rearward movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, and a passage leading from the larger area of the valve to the front end of the piston-chamber, through which the motive fluid supplied by said auxiliary passage may be admitted to the front end of said chamber to drive the piston rearward.

24. In a pneumatic hammer, the combination, with the piston-chamber and piston, of a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell through which the rear end of the piston passes at the end of its rearward stroke, and provided with differential-pressure areas against the smaller of which the motive fluid constantly acts to press the valve forward, a passage controlled by the piston and opened by the latter at its forward stroke, to admit motive fluid to such larger area of the valve, to move the valve rearward, an auxiliary passage opened by such rearward movement of the valve to admit motive fluid to the larger area of the valve directly from the source of supply, a passage leading from the larger area of the valve to the front end of the piston-chamber, through which the motive fluid supplied by said auxiliary passage is admitted to the front end of said chamber to drive the piston rearward, and an exhaust passage leading from the larger area of the valve and opened by the rearward movement of the piston.

25. In a pneumatic hammer, the combination of a cylinder, a cylinder-head, a valve-block interposed between the cylinder and head and having a longitudinal bore forming a continuation of the piston-chamber in the cylinder, and a valve located in said valve-block and consisting of a cylindrical shell adapted to have the piston pass through it at the end of its rearward stroke, and provided with opposing pressure areas to which the motive fluid is admitted for shifting the valve in opposite directions.

26. In a pneumatic hammer, the combination of a cylinder, a cylinder-head, a valve-block interposed between the cylinder and head and having a longitudinal bore forming a continuation of the piston-chamber in the cylinder, and a valve located in said valve-block and consisting of a cylindrical shell adapted to have the piston pass through it at the end of its rearward stroke and provided with differential-pressure areas to the smaller one of which the motive fluid is constantly admitted through an inlet in the cylinder-head and to the larger one of which the motive fluid is intermittently admitted through a passage controlled by the piston.

27. In a pneumatic hammer, the combination of a cylinder, a cylinder-head, a valve-block confined between the cylinder and head and having a longitudinal bore forming a continuation of the piston-chamber in the cylinder, and a valve located in said valve-block and consisting of a cylindrical shell adapted to have the piston pass through it at the end of its rearward stroke, and provided with differential-pressure areas, to the smaller rear one of which the motive fluid is constantly admitted through a series of ports registering with a circular groove in the cylinder-head, and to the larger forward one of which the motive fluid is intermittently admitted through a passage controlled by the piston.

28. In a pneumatic hammer, the combination of a cylinder having an external annular flange at its rear end, a cylinder-head having a forwardly-projecting cylindrical cap provided with screw-threads, a threaded coupling-sleeve engaging said cap and provided at its front end with an internal annular flange engaging the external flange upon the rear end of the cylinder, a cylindrical valve-block fitting within the coupling-sleeve and cap and confined by them between the cylinder and cylinder-head, said valve-block having a longitudinal bore forming a continuation of the piston-chamber in the cylinder, and a valve located in said valve-block and consisting of a cylindrical shell adapted to have the piston pass through it at the end of its rearward stroke and provided with opposing pressure areas to which the motive fluid is admitted to shift the valve in opposite directions.

29. In a valve mechanism for controlling the movements of a piston, a valve provided with differential-pressure areas to the smaller one of which the motive fluid is constantly admitted to press the valve in one direction, and to the larger one of which the motive fluid is intermittently admitted, to move the valve in the opposite direction, and a passage leading from said larger area of the valve to one end of the piston-chamber, through which motive fluid supplied by the auxiliary passage may be admitted to said end of the piston-chamber to move the piston toward the opposite end of said chamber.

30. In a valve mechanism for controlling the movements of a piston, a valve consisting of a cylindrical shell located in the piston-chamber and adapted to have the piston pass through it, and provided with opposing pressure areas to which the motive fluid is admitted to shift the valve in opposite directions.

31. In a valve mechanism for controlling the movements of a piston, a valve consisting of a cylindrical shell located in position to have the piston pass through it and provided with differential-pressure areas to the smaller one of which the motive fluid is constantly admitted to press the valve in one direction, and to the larger one of which the motive fluid is intermittently admitted, to move the valve in the opposite direction.

32. In a valve mechanism for controlling the movements of a piston, a valve located in the piston-chamber and consisting of a cylindrical shell adapted to have the piston pass through it, and provided with differential-pressure areas to the smaller one of which the motive fluid is constantly admitted, to press the valve in one direction, and to the larger one of which the motive fluid is intermittently admitted, to move the valve in the opposite direction, and an auxiliary passage opened by the last-mentioned movement of the valve to admit an additional supply of motive fluid to the larger area of the valve.

33. In a valve mechanism for controlling the movements of a piston, a valve located in the piston-chamber and consisting of a cylindrical shell adapted to have the piston pass through it, and provided with differential-pressure areas to the smaller one of which the motive fluid is constantly admitted, to press the valve in one direction, and to the larger one of which the motive fluid is intermittently admitted, to move the valve in the opposite direction, an auxiliary passage opened by the last-mentioned movement of the valve to admit an additional supply of motive fluid to the larger area of the valve, and an outlet-passage from the larger area of the valve for conveying to one end of the piston-chamber motive fluid supplied by said auxiliary passage.

34. In a valve mechanism for controlling the movements of a piston, a valve located in the rear end of the piston-chamber and consisting of a cylindrical shell adapted to have the piston pass through it at the end of its rearward stroke, and provided with differential-pressure areas, to the smaller one of which the motive fluid is constantly admitted, to press the valve forward, and to the larger one of which the motive fluid is intermittently admitted through a passage controlled by the piston, to move the valve rearward, said valve when moved forward by the constantly-acting pressure against its smaller area opening an annular port around its rear end to admit the motive fluid to the rear end of the piston-chamber, and when moved in the opposite direction by the intermittent pressure admitted to its larger area opening a passage leading to the front end of the piston-chamber.

35. The herein-described valve, consisting of the cylindrical shell O having the ring *b* provided with the ports *l*, and the differential-pressure areas *c d*.

36. The herein-described valve, consisting of the cylindrical shell O having the circumferential groove *a*, the projecting ring *b* provided with the ports *l*, and the differential-pressure areas *c d*.

37. The combination of the valve-block having the internal circumferential groove *h* open to the exhaust, of the valve located in said block and consisting of the cylindrical shell O having opposing pressure areas to which the motive fluid is admitted, to shift the valve in opposite directions, and provided with the ring *b* having the ports *l* adapted to register with the exhaust-groove *h* when the valve is in one position.

38. The combination of the valve-block having the internal circumferential groove *h* open to the exhaust, of the valve located in said block and consisting of the cylindrical shell O having opposing pressure areas to which the motive fluid is admitted to shift the valve in opposite directions, and provided with the ring *b* having the ports *l* adapted to register with the exhaust-groove *h* when the valve is in one position, said valve when in its opposite position cutting off communication with the exhaust-groove *h* and opening the annular port *p* around its end to admit the motive fluid to its interior.

39. The combination, with the valve-block, of the valve located therein and consisting of the cylindrical shell O having the ring *b* provided with the ports *l*, and the differential-pressure areas *c d*, and said valve-block having the circumferential exhaust-groove *h* coöperating with the ports *l* in the valve, the inlet-passage U and exhaust-passage P communicating with the pressure area *c* of the valve, and the inlet-ports W communicating with the pressure area *d* of the valve.

40. The combination, with the valve block, of the valve located therein and consisting of the cylindrical shell O having the ring *b* provided with the ports *l*, and the differential-pressure areas *c d*, and said valve-block having the circumferential exhaust-groove *h* coöperating with the ports *l* in the valve, the pressure area *c* of the valve, the inlet-ports W communicating with the pressure area *d* of the valve, and the auxiliary passage X communicating at one end with the inlet-ports W and at its other with the space *e* adjacent the pressure area *c* of the valve.

41. The combination, with the valve-block, of the valve located therein and consisting of the cylindrical shell O having the ring *b* provided with the ports *l*, and the differential-pressure areas *c d*, and said valve-block having the circumferential exhaust-groove *h* coöperating with the ports *l* in the valve, the inlet-passage U and exhaust-passage P communicating with the pressure area *c* of the valve, the inlet-ports W communicating with the pressure area *d* of the valve, the auxiliary passage X communicating at one end with the inlet-ports W and at its other with the space *e* adjacent the pressure area *c* of the valve, and the outlet-passage S leading from the space *e* to the piston-chamber.

42. The combination, with the valve-block, of the valve located therein and consisting of the cylindrical shell O having the external circumferential groove *a*, the differential-pressure areas *c d*, and the ring *b* provided with the ports *l*, and said valve-block having the circumferential grooves *m n* and passages R and *o* coöperating with the groove *a* of the valve, the circumferential exhaust-groove *h* coöperating with the ports *l* in the valve, the inlet-passage U and exhaust-passage P communicating with the larger area *c* of the valve, and inlet-ports W communicating with the smaller area *d* of the valve.

43. The herein-described valve-block, composed of the part I bored to different diameters, and the part I′ fitting against the end of the part I and provided with the projecting annular flange or ring I″ fitting the larger bore of the part I, the part I being provided in its larger bore with the circumferential groove *h* communicating with the exhaust-ports *i*, and the part I′ being provided with the inlet-ports W.

44. The herein-described valve-block, composed of the part I bored to different diameters, and the part I′ fitting against the end of the part I and having the projecting annular flange I″ entering the larger bore of the part I, the part I being provided with the circumferential grooves *m n* in its smaller bore and the circumferential groove *h* in its larger bore, the grooves *n* and *h* communicating with exhaust-ports, the part I being also provided with the passages P U communicating with its larger bore, and with the passage R communicating with the groove *m*, and the part I′ being provided with the inlet-ports W.

45. The herein-described valve-block, composed of the part I bored to different diameters, and the part I′ fitting against the end of the part I and having the projecting ring I″ entering the larger bore of the part I, and having the inlet-ports W opening through said ring, the part I having the circumferential grooves *m n* in its smaller bore and the circumferential groove *h* in its larger bore, the passage R communicating with the groove *m*, the exhaust-port *o* communicating with the groove *n*, and the exhaust-port *i* communicating with the groove *h*, the passages U P S communicating with the larger bore of the part I, and the passage X communicating with the inlet-port W.

46. A pneumatic hammer provided at its front end with a tool-receiving bore opening into the front end of the piston-chamber and adapted to receive and be closed by the shank of the removable working tool, and having a passage for admitting the motive fluid to the front end of said piston-chamber, whereby the shank of the working tool is made to form part of the end wall of the piston-chamber against which the motive fluid acts to force the piston rearward.

47. A pneumatic hammer having a piston-chamber whose front end is partially closed by an annular shoulder surrounding an opening adapted to receive the shank of the removable working tool, and having a passage for admitting the motive fluid to the front end of said piston-chamber, whereby the shank of the tool is made to form part of the end wall of the chamber against which the motive fluid acts to force the piston rearward.

48. A pneumatic hammer having a piston-chamber whose front end is partially closed by an annular shoulder surrounding an opening adapted to receive the shank of the removable working tool, so that said tool forms part of the end wall of the piston-chamber against which the motive fluid acts to force the piston rearward, in combination with a piston provided upon its front end with a projecting stem adapted to enter and fit said tool-receiving opening when the absence of the working tool from position to receive the blows of the piston permits the latter to make an abnormal forward stroke, whereby the piston is cushioned at the ends of such strokes and not permitted to strike the end of the piston-chamber.

49. A pneumatic hammer having a piston-chamber whose front end is partially closed by the integral annular shoulder J surrounding the opening which receives the shank of the removable working tool L, and having the passage R for admitting the motive fluid to the front end of the piston-chamber where it may act upon the shoulder J and shank of the tool L to force the piston rearward.

50. A pneumatic hammer whose piston-chamber is partially closed at its front end by the integral annular shoulder J surrounding the tool-receiving opening, and whose front end is provided with a bore into which is driven the chisel-sleeve, and which is provided with the passage R for admitting motive fluid to the front end of said piston-chamber, the chisel-sleeve and the opening surrounded by the shoulder J being adapted to receive the shank of the removable working tool L, whereby the latter is made to form part of the end wall of the piston-chamber against which the motive fluid acts to drive the piston rearward.

51. A pneumatic hammer whose piston-chamber is partially closed at its front end by the annular shoulder J adapted to receive the shank of the removable working tool L, and which has the passage R for admitting motive fluid to the front end of said chamber, in combination with the piston M having the stem N adapted to enter and fit the opening surrounded by the shoulder J when the absence of the tool L from working position permits the piston to make an abnormal forward stroke, whereby the piston is cushioned at the ends of such strokes, and prevented from striking the shoulder J.

52. The combination, with the coupling-sleeve having the internal serrated flange, of a locking member seated in a recess beneath said flange and pressed outward into locking engagement with the flange by means of a spring, said locking member being adapted to be depressed out of engagement with the flange and turned in its recess, and means for holding it in such disengaged position.

53. The combination with the coupling-sleeve having the internal serrated flange, of a locking member seated in a recess beneath the flange and pressed outward into locking engagement with the flange by means of a spring, said locking member being provided with a shoulder and being adapted to be pressed inward out of engagement with the flange and turned in its recess, and means coöperating with its shoulder, when so depressed and turned, to hold the member out of engagement with the flange.

54. The combination, with the cylinder A having the annular flange B, and the coupling-sleeve C provided with the internal flange coöperating with the flange B and serrated upon its inner edge, of the locking-block Y seated in a recess in the wall of the cylinder A and provided upon its upper or outer end with one or more teeth to coöperate with the serrations of the coupling-sleeve, the spring Z beneath said locking-block, and the pin *b′* coöperating with the shoulder *d′* of the locking-block to maintain the latter out of engagement with the serrations of the coupling-sleeve, substantially as and for the purpose described.

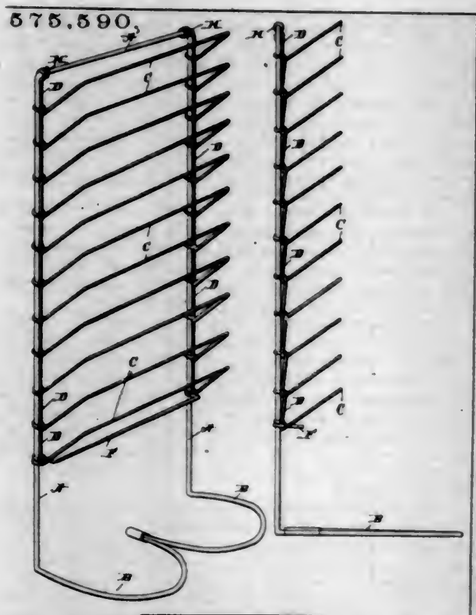
575,590. PAPER-RACK. WILLIAM M. BRIGHTMAN, Corry, Pa. Filed Jan. 8, 1896. Serial No. 574,708. (No model.)

Claim.—1. The combination of two uprights, letter-supporting devices formed of wire and projecting laterally from the uprights, each device having its ends turned upward in line with the uprights, with the terminals of said upturned portions twisted about the angles formed by the lower ends of the upturned portions of the supporting device next above it, thereby securing the said next device to the uprights, substantially as shown and described.

2. The combination of the uprights, the wire letter-supports arranged in parallel lines but extending ontward obliquely from the uprights, each device having its ends turned upward in line with the uprights and twisted at its extremities to secure the upturned portion of the device next above to the uprights, and a transverse wire at the base of the supports, said wire being twisted at its ends to secure the lowermost support to the uprights, substantially as shown and described.

3. In a rack, the combination of two uprights, wire supporting devices projected from the uprights, each device having its ends turned to extend parallel with the uprights, the terminals of said upturned portions uniting the uprights and the upturned portions of the device next adjacent, substantially as shown and described.

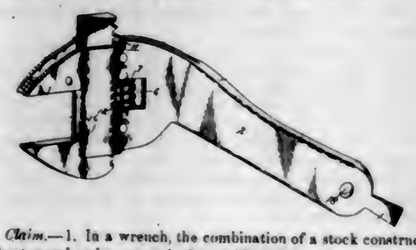
575,590.



575,591. METHOD OF RENOVATING FABRICS. CHARLES F. BROADBENT, Baltimore, Md., assignor to the Plush Renovating Company, same place. Filed Apr. 11, 1896. Serial No. 587,211. (No specimens.)

Claim.—The within-described process of cleaning and retoning plush, consisting first in applying to the surface of the plush a solution of oxalic acid and nitrate of potash; while the plush is wet scrubbing the same; then removing the dirt by applications of clean water and wiping as dry as possible; and finally applying a solution of alum and anilin dye to retone, as set forth.

575,592. WRENCH. PHILIP B. CANFIELD, Cortland, N. Y. Filed Mar. 18, 1896. Serial No. 583,791. (No model.)



Claim.—1. In a wrench, the combination of a stock constructed of sheet metal and composed of two sides having their edges folded over each other, said stock consisting of a handle and a head provided with an opening and having a rigid jaw, a sliding jaw mounted on the head and having a transversely-disposed toothed shank, and a screw journaled in the opening of the head and meshing with the teeth of the shank, substantially as described.

2. In a wrench, the combination of a stock constructed of sheet metal composed of two sides and provided with a head having a transverse opening or way formed by offsetting the sides or sections, a stationary jaw arranged at one side of the head, an adjustable jaw provided with a toothed shank arranged in the transverse opening or way, and a screw mounted on the head and engaging the toothed shank, substantially as described.

3. In a wrench, the combination of a head constructed of sheet metal and provided with a transverse way, a stationary jaw arranged at one end of the way and composed of two sides having their inner engaging edges bent inward forming shoulders and offsetting the sides, the outer edges of the sides being arranged at an angle and provided with teeth, an adjustable jaw having a shank disposed transversely of the head and arranged in the opening or way, said adjustable jaw being capable of reversal to enable it to coöperate with the inner and outer edges of the stationary jaw and being of a thickness to enter the space between the sides of the stationary jaw, and means for operating the adjustable jaw, substantially as described.

4. In a wrench, the combination with a head provided with a transverse way, a stationary jaw located at one end of the opening or way and provided with an inner nut-engaging edge and an outer angularly-disposed toothed or notched edge adapted to engage a pipe, a reversible and adjustable jaw having a shank arranged in the opening or way and adapted to coöperate with either of the engaging edges of the stationary jaw, and means for operating the adjustable jaw, substantially as described.

5. In a wrench, the combination of a stock constructed of sheet metal or similar material folded longitudinally to provide two sides, and secured at the sides by suitable fastening devices, said sides being oppositely offset and forming a transverse opening or way, a stationary jaw, a movable jaw cooperating with the stationary jaw and provided with a shank arranged in said transverse opening or way, and means for engaging the shank, whereby the movable jaw is secured in its adjustment, substantially as described.

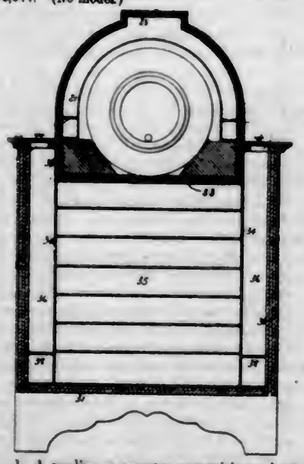
575,593. CARRIER FOR FEED-CUTTERS. JAMES M. COOK and JAMES E. MATHER, Mount Gilead, Ohio. Filed Feb. 24, 1896. Serial No. 580,495. (No model.)



Claim.—1. In a carrier for feed-cutters, the combination of the base comprising the fixed portion S and the movable portion T, the gear-wheel R, the center pin *t*, the balls *r*, the shaft *f* mounted in the fixed portion, the wheel F, the gear-wheel R^2 meshing with the wheel R, the shaft *f'*, the wheel F', the gear-wheel R^3 meshing with the wheel R, the carrier mounted on said base, the elevating-carrier operatively connected to said carrier, and suitable means whereby said wheel F may be driven, substantially as shown and described.

2. In a carrier for feed-cutters, the combination of the base, the lower fixed portion of which has an annular ball-bearing groove at the upper side of its bottom and a raised annular flange around its bottom; the horizontal gear-wheel having at its under side an annular ball-bearing groove and at its upper side bevel gear-teeth; balls in said grooves; a central pin on which the horizontal wheel is mounted; a shaft mounted horizontally in said lower portion; a bevel gear-wheel mounted on said last-mentioned shaft and engaging said horizontal gear-wheel; the upper portion of said base supported rotatably upon said lower portion; a shaft mounted horizontally thereiu; a bevel gear-wheel on the inner end of the latter shaft and engaging said horizontal gear-wheel, and suitable wheels at the outer ends of said shafts whereby motion may be received by the lower and transmitted by the upper of said wheels, substantially as shown and described.

575,594. REFRIGERATING APPARATUS. JOSEPH H. COOLEY and HERMAN A. GOEBEL, San Antonio, Tex. Filed Apr. 10, 1896. Serial No. 586,977. (No model.)



Claim.—1. A cooling apparatus comprising a lower casing composed of outer walls built up of superimposed layers and inner walls providing a chamber for the substances to be cooled, and a surrounding ice-chamber, the latter being provided with openings for the cooling mixture, and with supporting perforated plates above the bottom,

a rectangular recess in the upper portion of said lower casing formed of the inner walls, and a false top below the top of said casing; and an upper casing removably fitting said recess and supported on said false top and having inner and outer walls providing an inner chamber for the reception of a beer-keg and a surrounding ice-chamber having a supply-opening, perforated plates near the bottom of said ice-chamber, and outlets from below said plates.

2. In combination with a refrigerating device for liquids having trunnions on its sides, a support comprising a base and two triangular frames having at their upper ends recesses for the trunnions, one side of each frame being in two pieces jointed together whereby the support may be collapsed, and a hook carried by the device and having adjustable connection with the support, all substantially as described.

575,595. CARBURETER. HARRY R. CORBIN, Hampton, Iowa, assignor of two-thirds to John F. Teake and A. C. Hine, Waverly, Iowa. Filed Feb. 24, 1896. Serial No. 580,600. (No model.)



Claim.—1. A multilocular carbureter consisting of a reservoir, means for charging the same with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

2. A multilocular carbureter, consisting of a reservoir, means for charging the same with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

3. A multilocular carbureter, consisting of a reservoir, means for charging the same with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with a central air-pipe extending to the cup, means for forcing air through the same, and means for drawing the carbureted air from the space above the liquid.

4. A multilocular carbureter, consisting of a carbureting-reservoir, a storage-tank for the carburetant, and means for automatically charging the carbureting-reservoir from the storage-tank, an inverted-cup-shaped part supported near the bottom of the carbureting-reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

5. A multilocular carbureter, consisting of a carbureting-reservoir, a storage-tank for the carburetant, and means for automatically charging the carbureting-reservoir from the storage-tank, an inverted-cup-shaped part supported near the bottom of the carbureting-reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

6. A multilocular carbureter, consisting of a reservoir surrounded by a water-jacket, means for charging the reservoir with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

7. A multilocular carbureter, consisting of a reservoir surrounded by a water-jacket, means for charging the reservoir with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

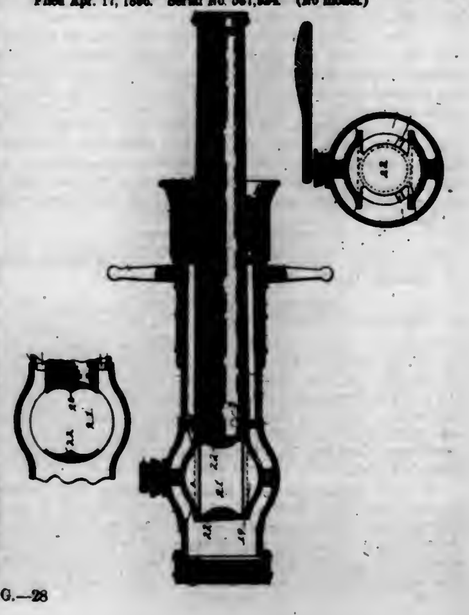
8. A multilocular carbureter, consisting of a reservoir surrounded by a water-jacket, means for charging the reservoir with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with a central air-pipe extending to the cup, means for forcing air through the same, and means for drawing the carbureted air from the space above the liquid.

9. A multilocular carbureter, consisting of a carbureting-reservoir, surrounded by a water-jacket, a storage-tank for the carburetant, and means for automatically charging the carbureting-reservoir from the storage-tank, an inverted-cup-shaped part supported near the bottom of the carbureting-reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the top of the reservoir.

10. A multilocular carbureter, consisting of a carbureting-reservoir surrounded by a water-jacket, a storage-tank for the carburetant, and means for automatically charging the reservoir from the tank, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup and means for drawing off the carbureted air from the top of the reservoir.

11. A multilocular carbureter, consisting of a carbureting-reservoir surrounded by a water-jacket, a storage-tank for the carburetant, and means for automatically charging the reservoir from the tank, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with a central air-pipe extending to the cup, means for forcing air through the same, and means for drawing the carbureted air from the top of the reservoir.

575,596. SPRAY-NOZZLE. PHILIP J. DOYLE, Memphis, Tenn. Filed Apr. 17, 1896. Serial No. 587,934. (No model.)



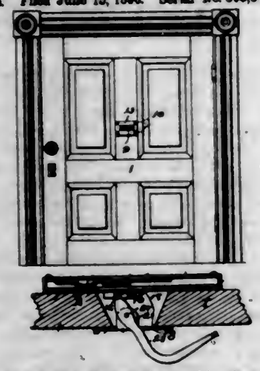
Claim.—1. In a nozzle of substantially the character specified the combination of a tube, a casing for said tube having a head provided with a series of inclined perforations and a central opening for the passage of the tube, a valve for said tube and a sliding sleeve for opening and closing the perforations, substantially as shown and described.

2. In a nozzle the combination of a tube, a casing inclosing said tube and provided with a central opening for the passage of a tube and a head having perforations, a valve for said tube and a sliding sleeve having a bell-mouth for said perforations, substantially as shown and described.

3. In a nozzle the combination of a tube, a casing for said tube a head secured to said casing and provided with a central opening for the passage of the tube and a series of inclined perforations, a valve for said tube, a sliding sleeve for said perforations, and suitable means for adjustably moving said cover consisting of a threaded portion on the cover engaging a threaded portion on the tube, substantially as shown and described.

4. A nozzle comprising a tube for a solid stream of water, a casing inclosing said tube having perforations therein for spraying water, a valve for said tube a sleeve for said perforations and suitable independent means for operating the valve and sleeve, as explained.

575,597. **OFFICE-INDICATOR.** EDWARD DUNDON, Fort Leavenworth, Kans. Filed June 15, 1896. Serial No. 595,573. (No model.)



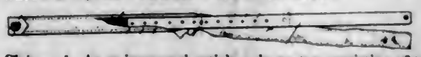
Claim.—1. In a door-indicator, the combination with a door, of a movable indicator-slide carried thereby, and a lever which is pivoted connected to the slide and pivoted to the door, said lever extending transversely through the latter and provided with a free handle.

2. In a door-indicator, the combination with a door, of a movable indicator-slide carried thereby, and a bell-crank lever which has one of its arms connected to the slide, and its other arm projecting transversely through the door and provided with a free handle, said lever being pivoted to the door.

3. The herein-described door-indicator comprising the combination with a movable indicator-slide and a housing therefor which is provided with a sight-opening, of mechanism for moving the slide to any desired extent, and springs adapted to coact with the slide and retain it in position after any degree of adjustment has been effected.

4. In a door-indicator, the combination with a door-plate and a housing-plate having a sight-opening, of an indicator slide movable between the housing-plate and door-plate, ribbon-springs bearing on the indicator-slide and serving to hold it in position after adjustment, and an operating-lever connected to the indicator-slide, substantially as described.

575,598. **DRESS-STAY.** BENJAMIN T. DURFEE, Wichita, Kans. Filed Jan. 13, 1896. Serial No. 575,314. (No model.)



Claim.—1. As an improved article a dress-stay consisting of two flexible and resilient stiffeners, the inner ends of which overlap and are movable upon each other, each having a hole near its outer end and a series of holes near its inner end, the two series being so located as to register with each other and the casing or pocket of textile material in which said sections are located, permanently secured to one of said sections but disconnected from the other section, substantially as described.

2. As an improved article a dress-stay consisting of two flexible and resilient sections, the inner ends of which overlap and are movable upon each other and formed with a hole near the outer ends and with a series of registering holes at the inner or overlapping ends, the casing or pocket of textile material in which said sections are located, permanently secured at one end to one of said sections but the other end free or disconnected from the other section and means for temporarily securing the free sections to the casing, substantially as described.

3. In a dress-stay, the combination with the overlapping sections movable upon each other and having a series of holes at their inner ends and a hole near their outer ends, of the casing or pocket of textile material in which said sections are located, the eyelet at one end thereof passing through the hole at the outer end of one of said sections, the eyelet passing through the intermediate hole and the opposite end of said casing closed but not connected with the other section, substantially as described.

575,599. **DEVICE FOR PRINTING ON SIDEWALKS.** DAVID J. ETLY, Louisville, Ky. Filed Jan. 10, 1896. Serial No. 575,000. (No model.)



Claim.—1. A device for printing advertisements on paved streets, &c., embodying a casing, a pivoted handle therefor, a brush, and a movable box carrying inking and printing rollers and connected with said handle, so that it may be raised without elevating said casing.

2. The combination with a carpet or analogous sweeper embodying a wheeled casing, a brush therein, and a propelling-handle; of a printing attachment thereto, comprising a box, movable relatively to said casing and supported at the rear end of and outside the same, and a printing-roller and inking means therefor, both carried by said box, substantially as described and for the purpose specified.

3. A device for printing advertisements on paved streets, &c., embodying a casing, a handle therefor, a brush, a box supported at the rear end of the casing and open at its top and bottom, a second box, movably supported within said box and connected with said handle, a printing-roller journaled in the inner box and projecting below the lower end thereof so as to imprint upon the surface swept by said brush, and an inking-roller journaled in said inner box and engaged by said printing-roller.

4. In a device for printing advertisements on paved streets, &c., the combination of the casing, and the brush, of the pivoted propelling-handle, and printing means connected with said handle.

5. In a device for printing advertisements on paved streets, the combination of the casing, the brush therein, the propelling-handle, an open-ended box supported rearward of said casing, a box movably fitted within the same and connected with said handle, printing means carried by said inner box, rollers on the front end of said casing, and means for holding the inner box immovably in the outer box when desired.

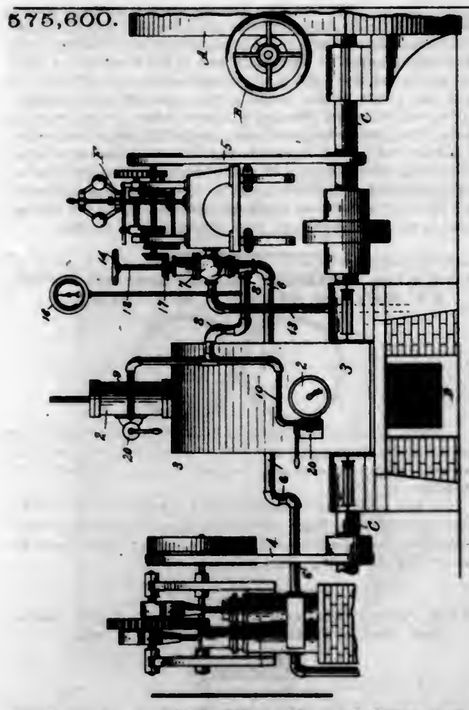
6. In a device for printing advertisements on paved streets, the combination with the casing, the brush, and the propelling-handle, of arms projecting rearward from the casing, a box supported by said arms and open at its top and bottom, a box movably fitted within the same and connected with said handle, and printing means carried by said inner box.

575,600. **WOOD-PULP-GRINDING MECHANISM.** WILLIAM R. FARNSWORTH and PORTER FARWELL, Turner's Falls, Mass. Filed June 4, 1896. Serial No. 594,286. (No model.)

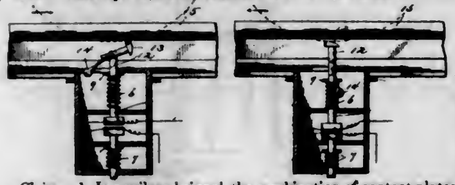
Claim.—1. The within-described wood-pulp-grinding mechanism consisting of a main shaft, a grindstone mounted thereon, hydraulic feeding-cylinders located in operative relation to said stone, a pump for supplying water to said cylinders and said stone, a valve for regulating the said water-supply, a governing device driven by said main shaft and suitable means of connection between said governing device and said valve for operating the latter, substantially as described.

2. The within-described wood-pulp-grinding mechanism consisting of a main shaft, a grindstone mounted thereon, hydraulic feeding-cylinders located in operative relation to said stone, a pump for supplying water to said cylinders and said stone in excess of the amount required by said feeding-cylinders and stone, a valve for regulating the discharge of said surplus water, a governing device driven by said main shaft and suitable means of connection between said governing device and said valve for operating the latter, substantially as described.

575,600.



575,601. **RAILROAD-SIGNAL.** WILLIAM F. FRENCH, Omaha, Nebr. Filed Apr. 23, 1896. Serial No. 588,733. (No model.)



Claim.—1. In a railroad-signal, the combination of contact-plates yieldingly mounted for linear movement in alinement with each other and provided with resilient means whereby their movement in a common direction is resisted, and a tread operatively connected with one of said contact-plates and arranged in the path of car-wheels whereby when the tread is encountered by a wheel the contact-plate connected therewith is moved into contact with the other plate against the tension of said resilient means, and the second contact-plate yields to cushion the movement of the parts, substantially as specified.

2. In a railroad-signal, the combination of contact-plates arranged in an electrical circuit, spring-actuated pins carrying said contact-plates and normally holding them out of contact, an arm pivotally mounted upon one of the pins and carrying a tread arranged in the path of wheels, and means, adapted to yield in one direction, for holding said arm in its operative position, substantially as specified.

3. In a railroad-signal, the combination of contact-plates arranged in an electrical circuit and adapted to yield in a common direction, a spring-actuated pin connected to the upper plate and adapted when depressed against the tension of its actuating-spring to be brought into contact with the lower plate, and an arm pivotally mounted upon said pin and having a tread arranged in the path of wheels, said arm being weighted to yieldingly hold it in its operative position, said arm being adapted to yield in one direction, substantially as specified.

4. In a railroad-signal, the combination with a box or case provided with intermediate partitions, alined vertical pins mounted in said box or case and provided at their contiguous ends with contact-plates arranged in an electrical circuit, springs connected with said pins to normally hold the contact-plates elevated and out of contact, a tread operatively connected with the upper pin and adapted when depressed to bring the plates into contact, arms on the box or case adapted to extend under a track-rail, and means for securing said arms to the rail, substantially as specified.

575,602. **TYPE-WRITER ATTACHMENT FOR DESKS.** JOHN GRANKLEPACHER, Jasper, Ind. Filed Apr. 30, 1896. Serial No. 589,748. (No model.)



Claim.—1. In a desk or cabinet, the combination with a movable bed or table, of a hinged leaf or flap connected to the front edge thereof and adapted to be folded upward to constitute a drop-front for the space immediately above said bed or table, and to be folded downward into the plane of said bed or table to form a continuation or extension thereof, and a sliding shelf on said table adapted to recede inside of the plane of the flap when up and to slide outward on said flap when in its horizontal position, substantially as described.

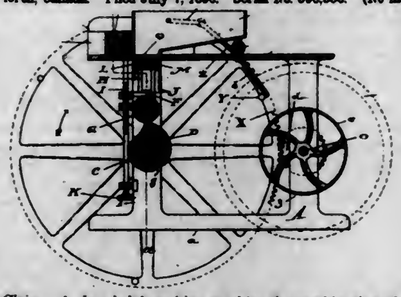
2. In a desk or cabinet, the combination with a movable bed or table mounted on arms or links so as to swing upward and forward while remaining horizontal, of a hinged leaf or flap connected to the front edge of the bed or table and adapted to be folded upward, said flap or leaf constituting a drop-front for the space immediately above the movable bed or table, substantially as described.

3. In a desk or cabinet, the combination with a movable bed or table mounted on arms or links and adapted to swing upward and forward, of a hinged leaf or flap attached to the front edge thereof, a sliding shelf arranged on said bed or table and adapted to be drawn forward upon the leaf or flap, means for limiting the forward movement of the sliding shelf, and a catch for holding said shelf in its operative position, substantially as described.

4. The combination with a movable supporting-table, of a flap or leaf connected thereto, an arc-shaped stay connecting the inner edge of said flap or leaf to said table and adapted to permit the same to fold, and a sliding shelf arranged on said table and adapted to slide outward on said flap when the latter is extended, substantially as described.

5. The combination with a movable supporting-table, of a flap or leaf hinged thereto, a hinge having an arc-shaped stay the ends of which are movable through slots in the leaves of the hinge, and the sliding shelf arranged on said table and grooved in its under side to engage said stay which also constitutes a guide for the shelf, substantially as described.

575,603. **BRICK-MAKING MACHINE.** FRANK GUTTERIDGE, Seaforth, Canada. Filed July 7, 1896. Serial No. 598,338. (No model.)



Claim.—1. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, substantially as specified.

2. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted

on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, and a cross-bar connected to the hopper to temporarily close the opening through the table, substantially as specified.

3. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, and molds carried by the framework located below the said opening through the table, substantially as specified.

4. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cross-bar connected to the hopper to temporarily close the opening through the table, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, and molds carried by the framework located below the said opening through the table, substantially as specified.

5. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cross-bar connected to the hopper to temporarily close the opening through the table, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, molds carried by the framework located below the said opening through the table, and an adjustable stop, to limit the fall of the plunger, substantially as specified.

6. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a spur-wheel mounted on the cross-shaft, a series of pins connected to the side face of the spur-wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cross-bar connected to the hopper to temporarily close the opening through the table, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, molds carried by the framework located below the said opening through the table, a driving-shaft journaled in the framework, a spur-wheel mounted on the driving-shaft, meshing with the spur-wheel on the cross-shaft, a pulley mounted on the driving-shaft to impart motion and power to the said driving-shaft, and a balance-wheel mounted on the driving-shaft to develop a centrifugal force, substantially as specified.

7. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cross-bar connected to the hopper to temporarily close the opening through the table, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, molds carried by the framework located below the said opening through the table, an adjustable stop, to limit the fall of the plunger, a driving-shaft journaled in the framework, a spur-wheel mounted on the driving-shaft meshing with the spur-wheel on the cross-shaft, a pulley mounted on the driving-shaft to impart motion and power to the said driving-shaft, and a balance-wheel mounted on the driving-shaft to develop a centrifugal force, substantially as specified.

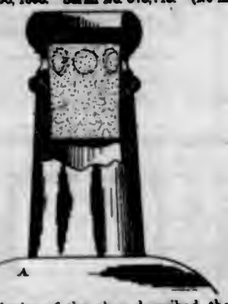
575,604. FINGER-RING. EDWARD P. HENDRICKSON, New York, N. Y. Filed June 22, 1896. Serial No. 596,361. (No model.)



Claim.—1. As a new article of manufacture, a two-part ring formed from a single continuous piece of wire doubly coiled with the respective ends near each other between the rings, substantially as specified.

2. As a new article of manufacture, a two-part ring for two fingers formed from a single continuous piece of spring-wire doubly coiled with the respective ends in juxtaposition to each other at the center between the rings, substantially as specified.

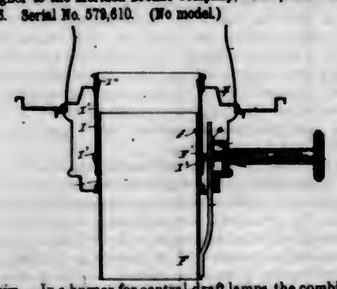
575,605. BREAKABLE BOTTLE. MARTIN V. B. HOWE, Gardner, Mass. Filed Dec. 30, 1896. Serial No. 573,713. (No model.)



Claim.—1. In a device of the class described, the combination of a glass bottle, a head fragilely connected to said bottle, a cork fitting both into the head and neck of the bottle so that the fragile connection will be located below the top of the cork, and a plurality of metallic retaining-disks sprung into position above said cork, said disks being of different hardness so as to prevent the same from being drilled out, substantially as described.

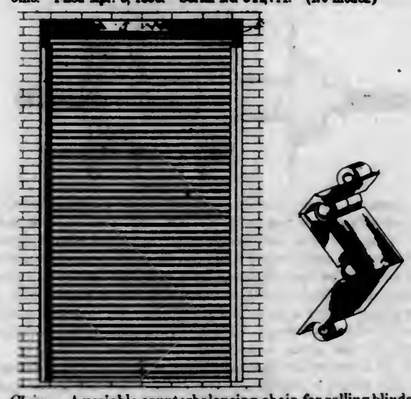
2. A glass bottle provided with a head fragilely connected to the neck thereof, a groove formed in the inside of said head, a metallic disk sprung into said groove, a steel disk laid on said metallic disk, and another metallic disk sprung into said groove on top of the steel disk, substantially as described.

575,606. LAMP-BURNER. AUGUSTUS H JOHNS, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Feb. 17, 1896. Serial No. 579,610. (No model.)



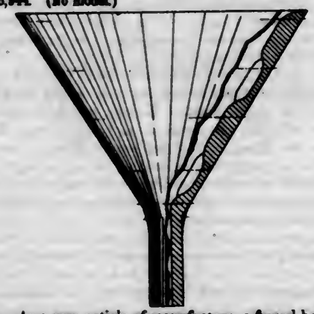
Claim.—In a burner for central-draft lamps, the combination with a burner-body, of an outer wick-tube secured by its lower end thereto and rising centrally therein, a vertically-movable gallery comprising a depending bearing-tube fitting over the upper end of the said outer wick-tube and having lighting-openings, a tubular wick-carrier fitting within the said onter wick-tube and adapted to engage with a wick, a rack secured by its lower end to the said carrier and extending upward into the said burner-body in position so that when the bearing-tube is moved up and down it will clear the said rack, and so that when the rack is moved up and down it will clear the said bearing-tube, and a horizontally-arranged spindle mounted in the burner-body, and provided at its inner end with a pinion located within the burner-body and meshing into the said rack for raising and lowering the same and hence the carrier, substantially as set forth.

575,607. ROLLING BLIND. WILLIAM R. KINNEAR, Columbus, Ohio. Filed Apr. 6, 1896. Serial No. 544,711. (No model.)



Claim.—A variable counterbalancing-chain for rolling blinds constructed of metallic blocks of parallelepiped form having the beveled abutting shoulders extending entirely across their ends, and eyes and pintles for connecting the blocks located centrally on the adjoined ends of the blocks as and for the purpose explained.

575,608. FUNNEL FOR FILTERING LIQUIDS. HUGO KROCKER, Berlin, Germany. Filed Apr. 2, 1895. Renewed June 25, 1896. Serial No. 596,944. (No model.)



Claim.—As a new article of manufacture, a funnel having its inner surface provided with several horizontal rows of converging vertical ribs, the ribs of the several rows being in different vertical lines, and each rib having a V-shaped vertical bearing, thereby insuring an uninterrupted outflow of the filtered liquid, substantially as set forth.

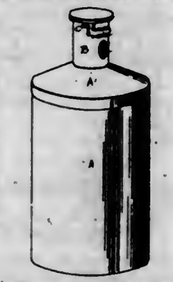
575,609. MACHINE FOR MOLDING BREAD, CAKES, &c. CHARLES LUETKE, Greencastle, Ind. Filed June 26, 1896. Serial No. 597,009. (No model.)



Claim.—1. In a machine for molding bread, cakes, &c., the combination of a support, a pair of feed-rollers located at one end of the support, the lower roller having its upper surface about flush with the top of the support, a rotary cutter located above the support in the rear of the feed-rollers for subdividing the dough longitudinally, an endless carrier passing between the feed-rollers and between the rotary cutter and the support for advancing the dough to the said rollers and cutter, a rock-shaft, a cutter having connection with the rock-shaft, a trip secured to the rock-shaft, a spring having connection with the trip for returning the rock-shaft and the cutter carried thereby to a normal position, a tappet for operating the trip, and actuating mechanism for the operating parts, substantially as set forth.

2. A machine for molding bread, cakes, &c., comprising a support, a pair of rollers at one end of the support, the upper surface of the lower roller being about flush with the top of the support, a rotary cutter in the rear of the pair of rollers and above the support, a rock-shaft, a cutter attached to the rock-shaft and operating in the rear of the rotary cutter and above the said support, an endless carrier having its upper portion passing over the aforesaid support and between it and the cutters, and between the pair of rollers, a trip secured to one end of the rock-shaft, a spring for normally returning the rock-shaft and the cutter carried thereby to a normal position, a changeable-speed gearing, a tappet having connection with and operated by means of the changeable-speed gearing for actuating the rock-shaft and its cutter, and mechanism for operating the endless carrier, the said pair of rollers, and the rotary cutter at about a uniform rate of speed substantially as set forth.

575,610. TOOTH-POWDER RECEPTACLE. PHILIP S. MALCOLM, Portland, Oreg. Filed July 23, 1896. Serial No. 600,268. (No model.)



Claim.—The herein-described holder for toilet powders and the like, comprising a receptacle capable of being inverted, and having a hollow cylindrical neck portion which communicates with the interior of the can through an opening at one side of the bottom wall of said neck portion, said portion having also a side opening, and an internal outwardly-offset groove extending partially around its circumference and terminating at one end in a vertical extension, and a hollow plug rotatably seated in said neck portion, said plug having a projection which engages the said groove, a flanged outer end, and also side and bottom openings, said openings being adapted to register respectively with the side and bottom openings of the said neck portions, but so disposed with relation thereto that when the side openings are in registering positions the bottom openings are in non-registering positions, and reversely, substantially as specified.

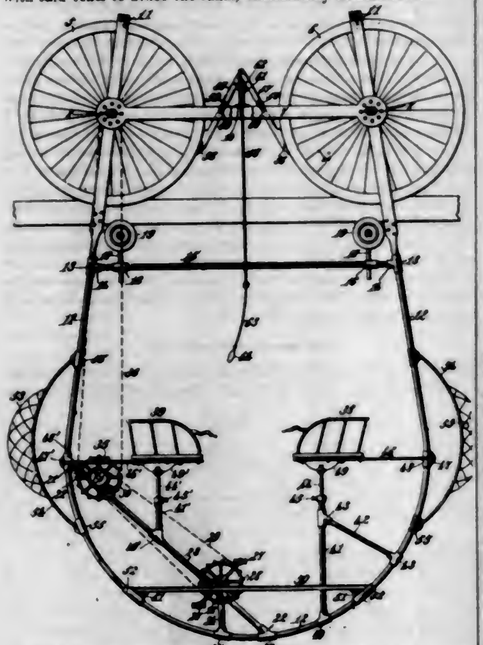
575,611. ELEVATED-TRACK CYCLE. WILLIAM H. MARTIN, Mobile, Ala. Filed May 5, 1896. Serial No. 590,263. (No model.)

Claim.—1. In an elevated-track cycle, the combination with the traction-wheels, a frame connecting the axles of said wheels, and arched straps extended over said wheels and downward on one side thereof and mounted on the wheel-axles, of a depending U-shaped frame fastened to the depending arms of said arched straps, vertically-adjustable guide-wheels adapted to engage the under side of a track-rail and supported from a brace-rod extended between the upper arms of said depending frame, a diagonally-placed rod supported on sleeves secured to the lower portion of the depending frame, sprocket-gearing mounted on said rod and connected with sprocket-gearing on the hub of a traction-wheel, and one or more seats supported from said depending frame, substantially as described.

2. In an elevated-track cycle, the combination with the traction-wheels, a frame connecting the axles of said wheels, and a depending U-shaped frame carried by said axles, of a vertically-adjustable seat supported in said depending frame, and a seat-frame secured to the under side of the seat and having a hinged connection with a vertical arm of the U-shaped depending frame, substantially as described.

3. In an elevated-track cycle, the combination with the traction-wheels, a frame connecting the axles of said wheels, and a depend-
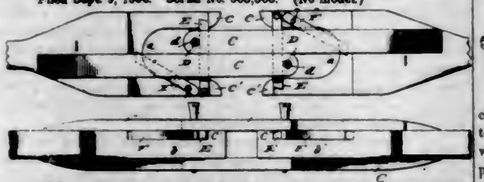
ing U-shaped frame carried by said axles, of a diagonally-placed rod supported in the lower portion of said depending frame, gearing supported from said diagonally-placed rod and connected with gearing on the hub of a traction-wheel, one or more vertically-adjustable seats, one of which is supported from said rod and the others from the frame that carries said rod, and hinge-supported frames connected with said seats to brace the same, substantially as described.



4. In an elevated-track cycle, the combination with the traction-wheels, of a yoke-frame connecting the axles of said wheels and composed of two horizontal bars bent toward each other at the center and there connected by a bridge-piece having a vertical perforation, a brake-rod extended through said perforation and having a pull-cord on its lower end, brake-arms pivoted to the upper end of said rod and each provided with a slot, pins supported by the yoke-frame and engaged in the slots of the brake-arms, and a spring normally supporting the brake-rod to hold the brakes away from the traction-wheels, substantially as described.

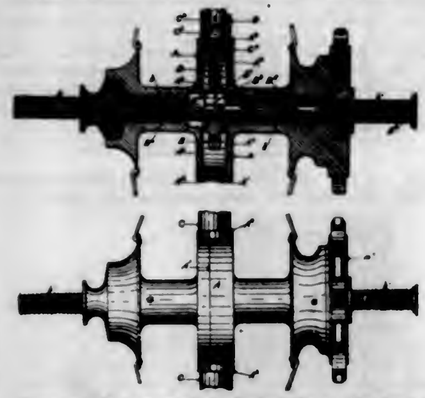
5. In an elevated-track cycle, the combination of the traction-wheels, a yoke-frame connecting the axles of said wheels, a depending U-shaped frame carried by said axles, the seats and driving-gearing supported in said depending frame, foot-bars supported horizontally at the lower part of said frame, a horizontal brace-rod between the upper portions of the said depending frame, vertically-adjustable guide-wheels adapted to engage the under side of a track rail and supported from said brace-rod, and cushions provided with curved supports attached to the depending U-shaped frame at points intermediate the attachment of the foot-bars and the brace-rod that supports the guide-wheels, substantially as described.

575,612. CAR-COUPLING. LOUIS MENDELSON, San Diego, Cal. Filed Sept. 9, 1896. Serial No. 605,305. (No model.)



Claim.—In a car-coupler, the forked draw-head provided with a pin-receiving recess and with an apertured rigid arm C which projects forwardly beyond the forked part of the draw-head, combined with a latch pivoted to one arm of the draw-head and arranged to span the recess therein, a detent pivoted to the draw-head adjacent to the pivotal point of the latch, and a pin fitted in the apertured arm C and arranged to strike a latch and detent on an approaching draw-head, substantially as described.

575,613. PNEUMATIC-TIRED WHEEL. WILLIAM MERTON, Marrickville, New South Wales, assignor to Keiso King, Sydney, New South Wales. Filed Oct. 1, 1896. Serial No. 607,564. (No model.)



Claim.—1. In a pneumatic-tired wheel, the combination with a non-revoluble axle having thereon a cam adapted to be made fast or loose upon said axle, and the wheel-hub provided with a circular enlargement or casing surrounding the axle-cam, of an air-pump cylinder mounted on and communicating with said casing, said pump-cylinder being also in communication with the pneumatic tire, the pump-piston having a piston-rod provided at one end with a roller in contact with the axle-cam, a spring surrounding the piston-rod, and a casing for said spring, substantially as described.

2. In a pneumatic-tired wheel, the combination with a non-revoluble axle having a longitudinal bore or chamber open at one end of said axle and a slot in one side of said axle-bore, of a sliding key-piece mounted in the axle-bore and movable in the axle-slot, a stem attached to one side of said key-piece and inclosed in the axle-bore, a spring at the opposite side of said key-piece, a push-piece inserted in the open end of the axle-bore in contact with the key-piece stem to push back said key-piece against the action of its spring, a cam loosely mounted on the axle and having a keyway to be engaged by the sliding key-piece under the action of its spring when the push-piece is withdrawn, and a wheel-hub having mounted thereon a pump-cylinder in communication with the pneumatic tire and provided with a piston adapted and arranged to be operated from the cam on the non-revoluble axle when said cam is engaged by the sliding key-piece, substantially as described.

3. In a pneumatic-tired wheel, the combination of a non-revoluble axle provided with a sliding key-piece, a cam loosely mounted on said axle and provided with a keyway, means for controlling the engagement of the key-piece with the said cam to make the cam fast or loose on the axle, the wheel-hub provided with a casing for the said axle-cam, a pump-cylinder mounted on said casing in communication therewith and with the pneumatic tire, the pump-piston having its piston-rod in contact with the axle-cam, and a spring for said piston, substantially as described.

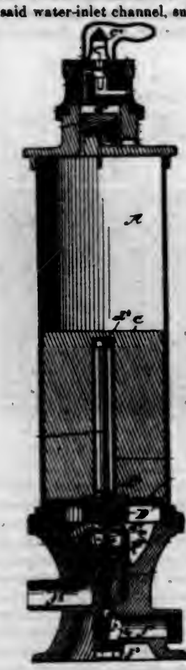
4. In a pneumatic-tired wheel, the combination of the non-revoluble axle having a sliding spring-key mounted therein, a cam on said axle, devices adapted to be operated from one end of the axle to engage or disengage the said key and cam, the wheel-hub provided with a hollow enlargement or casing to inclose the axle-cam, and one or more air-pumps communicating with said casing and with the pneumatic tire and adapted to be operated from the cam on the non-revoluble axle when the said cam and the sliding key are engaged, substantially as described.

575,614. HYDRAULIC AIR-PUMP. ADOLPH G. NOACK, Brooklyn, N. Y., assignor to the Berner-Mayer Company, of Ohio. Filed Oct. 30, 1895. Serial No. 567,439. (No model.)

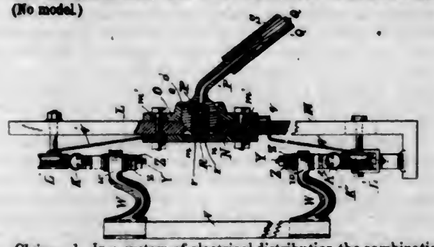
Claim.—1. In a hydraulic air-compressor, the combination of a chamber having air inlet and outlet valve mechanism, a traveler actuated by the water within such chamber, a water-inlet channel, a water-outlet channel, a valve-stem connected to said traveler and passing through said water-inlet channel, a water-inlet valve and a water-outlet valve respectively connected to different points of such valve-stem, substantially as set forth.

2. In a hydraulic air-compressor, the combination of a chamber having air inlet and outlet valve mechanism, a traveler actuated by the water within such chamber, a water-inlet channel, a water-outlet channel, a valve-stem connected to said traveler and passing through said water-inlet channel, such stem carrying a water-inlet valve that seats against the water-entrance end of said water-inlet channel, and

also carrying a water-outlet valve attached thereto adjacent to the discharge end of said water-inlet channel, substantially as set forth.



575,615. ELECTRIC MOTOR AND DEVICE FOR CONDUCTING CURRENTS THERETO. DAVID N. ORTON, Newark, Ohio, assignor to J. A. Jeffrey, Columbus, Ohio. Filed Oct. 17, 1889. Serial No. 327,268. (No model.)



Claim.—1. In a system of electrical distribution the combination with the positive and negative conductors of an insulating-support V, the brackets secured thereto for the conductors respectively, and the reversible holders interposed between the conductors and the brackets, and detachable from the conductors substantially as set forth.

2. The combination of the positive and negative conductors, the support V, for them in common, brackets, W, conductor-holders X adapted to be secured either above or below said brackets, detachably secured to the conductors and means substantially as described for fastening the holders to the brackets as set forth.

3. The combination of the stationary conductors, the contacts traveling on said conductors, the supports for said contacts, supplemental contacts, as at N, O on said support, the movable section of a branch circuit having contacts having collecting-surfaces held against the contact-surfaces at N, O, as set forth whereby they can be moved relatively to the last said surfaces, said movable section being adapted to convey current from said conductors to a motor or other translating device, substantially as described.

4. The combination of the movable contact-carriage, having conductor-plates N O, insulation M between them, conductors R and P movable axially relatively to conductors N and O, and held against them and insulation P^2 between conductors R and P, substantially as set forth.

5. In an electric circuit the combination of conductors N O, insulation M between them, conductors R and P, insulation P^2 between them, and spring r^2, arranged substantially as set forth to hold the positive conductors and the negative conductors respectively in contact.

6. The combination with relatively stationary conductors N O of conductors P and R universally jointed to conductors N O, insulation P^2, conductors Q Q' and a protecting-hose S connected to one of the conductors P, R, substantially as set forth.

7. In an electric-railway system having a car and an overhead electric conductor, the combination of a trolley moving in contact with said conductor, a motor on the car having an insulated terminal, a socket inclosing and insulated from said terminal, a bar or arm detachably fitted to the said socket and vibratable therein and having an inclosed terminal arranged to contact with the terminal in the socket, there being between the trolley and said terminal in the detachable arm a conductor-section passing through the said detachable bar or arm, substantially as set forth.

8. In an electric-railway system having a car and an overhead electric conductor, the combination of a trolley moving in contact with said conductor, a motor on the car having an insulated terminal, a socket inclosing and insulated from said terminal, a bar or arm detachably fitting said socket and containing a tubular terminal adapted to fit around the terminal in the socket, and a portable section of electric conductor extending from said tubular terminal to the aforesaid trolley, substantially as set forth.

9. In an electric-railway system having a car and an overhead electric conductor, the combination of a trolley moving in contact with said conductor, a motor on the car, an outward-projecting tubular socket or stand rigid with the motor and having centrally arranged therein an insulated terminal of the motor-circuit, a bar or handle detachably fitting said socket and movable axially therein, a terminal in said bar or handle to fit against the aforesaid central terminal in the socket, and an electric-conductor section extending from the said terminal to the trolley, substantially as specified.

10. In an electric-railway system having a car and an overhead electric conductor, the combination of a trolley moving in contact with said conductor, a motor on the car, a socket or stand thereon containing a terminal of the motor-circuit, a relatively short arm or bar detachably fitting the said socket and having a terminal opposed to that aforesaid and having a movable section of conductor-circuit passing therethrough and extending therefrom to the trolley, and means for supporting that part of the movable electric circuit which is outside of the said relatively short socket arm or bar, said supporting means being universally adjustable relatively to said socket or stand, whereby the trolley can be drawn in any direction by the said arm without interrupting the circuit at the terminals in said socket, substantially as set forth.

11. In an electric-railway system having a car and an overhead electric conductor, the combination of a motor on the car, a socket or stand on the car containing terminal of the motor-circuit, an arm or bar detachably fitted to the said socket and carrying a terminal, a trolley moving in contact with said overhead conductor, a traveling support or carrier on which the said trolley is journaled, a conductor-wire secured to said trolley-support and extending to the terminal in the said socket arm or bar, and a universal joint interposed between the said trolley-support and the motor-terminal, whereby the electric conductor can be extended in either direction from the car without interrupting the circuit at the motor-terminal, substantially as set forth.

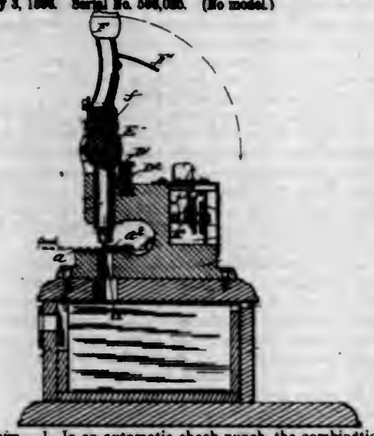
12. In an electric-railway system having a car and an overhead electric conductor, the combination of a motor on the car, a trolley-wheel moving on the said overhead conductor, a portable-conductor section detachably connected to the terminal of the motor on the car and extending to the said trolley, a support for the said portable-conductor section by which it is firmly supported between the trolley and the motor, said portable conductor having a socketed part and an arm or bar mounted in the socket in the said part and adapted to freely vibrate or rock therein, the conductor-section passing through the said arm or bar, substantially as specified.

13. In an electric-railway system having a car and an overhead electric conductor, the combination of a motor on the car, a trolley-wheel moving on the said overhead conductor, a portable-conductor section extending downward from the said trolley and detachably connected with a terminal on the motor-circuit, a non-conducting support for the trolley and its portable circuit, said support having therein a socketed part with a terminal at its inner end or bottom, and a convex or journal-like part fitted in the socketed part, and having a terminal bearing against the aforesaid terminal, and having an arm or bar through which passes a part of the portable electric circuit, said arm or bar and journal-like part being adapted to rock or vibrate freely in said socketed part, substantially as set forth.

14. In an electric-haulage system for mines, a track, an overhead conductor, a car on said track, an electric motor on said car having a socket containing one or more terminals, and a movable-conductor section having a trolley-wheel for traveling along said overhead conductor, a holder at the lower end of the trolley adapted to be inserted in said socket and a joint interposed between the motor-terminals in said socket, and the trolley-wheel, said joint being inter-

posed between two parts of the movable-conductor section and adapted to permit one of them to swing or rock as to the other without interrupting the circuit, substantially as set forth.

575,616. SELF-REGISTERING CHECK-PUNCH. CARL T. PAINTER, Chattanooga, Tenn., assignor to George M. Bradt, same place. Filed July 3, 1896. Serial No. 598,025. (No model.)



Claim.—1. In an automatic check-punch, the combination with a punching-die, of an actuating-cam, a lever pivoted thereto and provided with a projecting cam, a slotted plate having division-plates thereon to guide the projecting cam, and registering mechanism operated by the projecting cam simultaneously with the punching operation, substantially as described.

2. In a self-registering check-punch, the combination with a spring-provided punching device, of a cam operating thereon, a lever pivoted to the cam and provided with a projecting cam, a slotted plate having division-plates thereon to guide the projecting cam, registering mechanism, consisting essentially of a sliding plate and registering-wheels operated thereby, all arranged so that the cam of the lever may shift the sliding plate simultaneously with the punching operation, substantially as described.

3. The combination of a punching device provided with a spring, a pivoted cam operating on said device, a lever pivoted to the cam and having a projecting pin engaging a slotted plate affixed to the cam, said lever being also provided with a projecting pointed cam, and registering mechanism, consisting essentially of the horizontally-sliding plate and registering-wheels operated by said sliding plate, all arranged so that the projecting pointed cam on the lever may slide the plate, substantially as described.

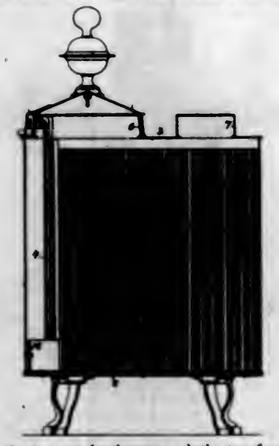
4. The combination of the punching device, the operating-cam thereof, a lever pivoted to the cam and having a projecting cam, a slotted plate having inclined division-plates secured thereto, a sliding plate arranged beneath the latter plate, a train of registering-wheels operated by said sliding plate, all arranged so that the sliding plate may be actuated by the lever-cam simultaneously with the punching operation, substantially as described.

5. The combination with the punching device, its actuating-cam, and the operating cam-provided lever, the slotted plate having guiding division plates, the slotted horizontally-sliding plate arranged beneath the latter plate, a train of registering-wheels, a lever pivoted to the sliding plate and provided with a retracting-spring, and a feed-pawl whereby the motion of the sliding plate is communicated to the train of registering-wheels, substantially as described.

6. The combination with the punching device, its actuating-cam and the cam-provided operating-lever, of the registering mechanism, consisting essentially of the stationary slotted guide-provided plate, the horizontally-sliding plate beneath the latter adapted to be operated by the action of the lever-cam, a train of registering-wheels, a rod pivoted to the sliding plate and having a retracting-spring, a pawl-carrying plate pivoted to said rod and supported upon the shaft of the units-wheel, together with a casing for the registering mechanism, substantially as described.

7. The combination of the punching device, its actuating-cam provided with a slotted plate, the cam-provided operating-lever pivoted to said cam and having a projection in the aforesaid slotted plate, and the registering mechanism, consisting essentially of the horizontal slotted plate having numerals delineated thereon indicative of the amounts punched, the sliding plate beneath the said slotted plate, said sliding plate being itself slotted and engageable by the cam-lever, together with the train of registering-wheels operated by said sliding plate, substantially as described.

575,617. WOOD-BURNING STOVE. CLARENCE V. ROBERTS, Philadelphia, Pa., assignor to the Thomas, Roberts, Stevenson Company, same place. Filed Nov. 30, 1896. Serial No. 614,014. (No model.)



Claim.—1. A stove having around the top feed-opening a projecting flange with draft-opening therein, an internal flue-plate inclosing that portion of said flange in which the opening is formed, and a lid or cover fitting snugly to said flange and having an opening which by rotative adjustment of the cover may be caused to open the upper end of the flue to any desired extent, substantially as specified.

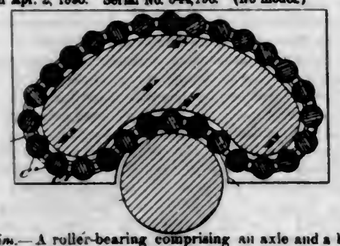
2. The combination in a stove, of a drum or body of sheet metal, a top plate having a feed-opening with upwardly-projecting flange surrounding the same and having a draft-opening therein, a cast-metal flue-plate bridging the body near one end of the same and extending up into said flange so as to inclose the draft-opening therein, and a lid or cover fitting snugly to the flange and also having an opening therein, substantially as specified.

3. The combination of the stove having a sheet-iron drum or body, a bottom plate, a top plate with stovepipe-collar and feed-opening with upwardly-projecting flange surrounding the same and having an opening therein, a transverse cast-metal flue-plate secured to the sheet-metal drum or body, and projecting up into the flange so as to inclose the opening therein, a detachable lid or cover fitted to said flange and also having an opening and a corrugated lining bounding the combustion-chamber of the stove, substantially as specified.

4. The combination of the sheet-metal drum or body of the stove, the transverse flue-plate removable through the feed-opening in the top of the stove and having edge flanges secured to said drum or body of the stove, and the lining-plate having its front edges confined in place by the flanges of said flue-plate, substantially as specified.

5. The combination of the drum or body of the stove, the flue-plate, the lining, and the guard-plate located beneath said flue-plate, substantially as specified.

575,618. ROLLER-BEARING. HUBERT SCHON, Allegheny, Pa. Filed Apr. 2, 1895. Serial No. 544,198. (No model.)

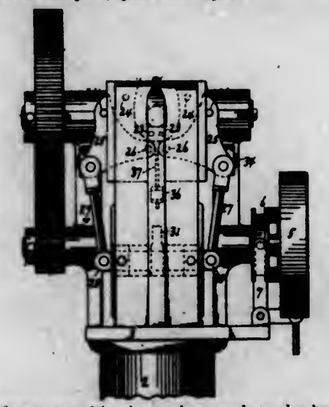


Claim.—A roller-bearing comprising an axle and a bearing-box having a continuous bearing-surface, and a roller-chain engaging the said bearing-surface, the bearing-box being provided with flanges whose main portions project outwardly beyond the rollers, while adjacent to the axle the flanges are of reduced length to allow the rollers to project beyond the flanges to engage the axle, substantially as described.

575,619. SHAPING-MACHINE. JACOB R. SCOTT, New York, N. Y. Filed Feb. 27, 1896. Serial No. 580,934. (No model.)

Claim.—1. A shaper comprising jaws, an ejector and wipers made

to play between said jaws, and actuating mechanism substantially as described for said jaws, ejector and wipers.



2. A shaper comprising jaws, wipers made to play between the jaws, a holder for the material operated on, and a stop or lock for the wipers substantially as described.

3. The combination with jaws and an actuator for one of the jaws, of a spring or cushion between the actuator and its jaw, a holder comprising a pin (one or more) seated against the cushion, wipers made to play between the jaws, and a wiper-stop comprising pins seated against the jaw-actuator and made to pass by or through the cushion substantially as described.

4. The combination with jaws and an actuator for one of the jaws, of a spring or cushion between the actuator and its jaw, a holder or holding-pins seated against the cushion, wipers made to play between the jaws, and wiper stop-pins seated against the jaw-actuator, said wipers having eyes or engaging parts for the stop-pins substantially as described.

5. A shaping-machine comprising jaws and wipers, one of said jaws being movable from and toward the other jaw, an actuator for said movable jaw provided with a dovetailed or channeled plate or face onto which said jaw is slipped or to which the jaw is engaged, and a jaw-seat on which the movable jaw is made to rest during its movements by the actuator substantially as described.

6. A machine for shaping or molding articles of leather, comprising jaws and wipers, and a lock for the wipers, combined with actuating mechanism substantially as described for causing the wipers to shape the blank or article and to be locked, and then causing the jaws to press or mold the article confined by said locked wipers substantially as described.

575,620. ROTARY FAN. JAMES M. SEYMOUR, Newark, N. J. Filed Dec. 18, 1888. Serial No. 293,954. (No model.)

Claim.—1. In a rotary fan, the combination of a fan-shaft having a collar or its equivalent near the upper end thereof, and a fan-hub having a chamber for receiving said collar, and closed by a cover, substantially as described.

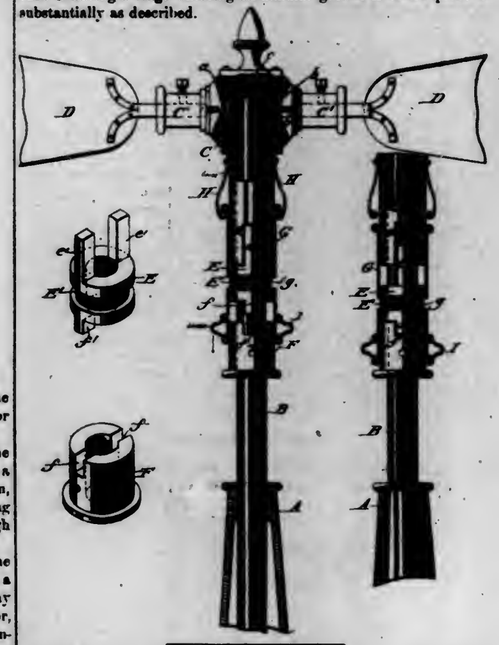
2. In a rotary fan, the combination of the vertical shaft having a collar on the upper end, a fan-hub having a chamber to receive said collar, a cover for said chamber which partially enters the same, and an intermediate plate between the cover and shaft end, substantially as described.

3. In a column-fan, the combination of the vertical fan-shaft, the loose fan-hub thereon having slots, and the clutching mechanism for connecting the hub and shaft to move together, consisting of a movable tubular clutch-piece having upper and lower projections thereon, and a slotted part rigid on the shaft, said movable piece being adapted to have its projections enter the slots, substantially as described.

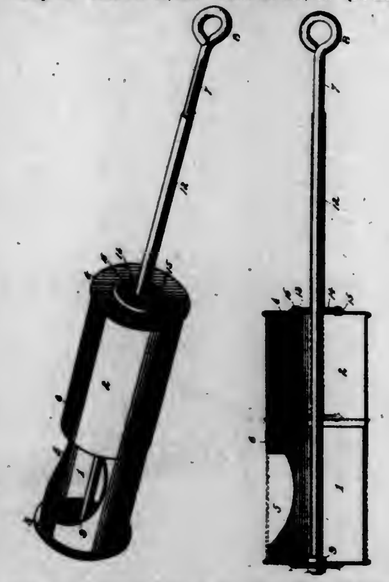
4. The combination of the fan-shaft, the loose hub C thereon having slots *e e*, the rigid part F on the fan-shaft having slots *f f*, and the movable clutch-piece E having upper projections *e' e'* adapted to enter slots *e e* and the lower projections *f' f'* adapted to enter slots *f f*, all substantially as described.

5. The combination of the fan-shaft, the loose hub thereon, having vertical slots, the clutching mechanism consisting of a slotted rigid part on the fan-shaft, and a movable tubular clutch-piece having projections that enter the slots in the hub and in the rigid part, and a covering-tube for the clutching mechanism, substantially as described.

6. The combination of the fan-shaft B, the loose hub C thereon, having slots *e e*, the rigid part F on the fan-shaft having slots *f f*, the movable clutch-piece E having projections adapted to enter slots *e e*, and other projections adapted to enter slots *f f*, and the covering-tube G having a ridge entering an annular groove E' in the piece E substantially as described.



575,621. CORN-POPPER. SETH H. SMITH and ABEL S. SMITH, Hillsdale, Mich., assignors to the Hillsdale Manufacturing Company, same place. Filed Oct. 31, 1896. Serial No. 610,746. (No model.)



Claim.—1. A corn-popper having a receptacle provided with means for giving access to its interior, an operating-rod attached to and adapted to be turned to impart rotary movement to the receptacle, and a sleeve mounted upon the operating-rod and revolubly connected to the receptacle to form a handhold during the rotation of the receptacle, substantially as specified.

2. A corn-popper having a receptacle comprising telescoping sections of which the interior section is provided with an opening adapted to be exposed when the sections are extended, and an operating-rod extending axially through the receptacle and fixed to one of the sec-

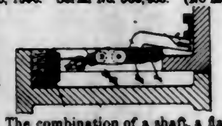
tions, whereby the other is adapted to be moved independently of the rod to expose said opening, substantially as specified.

3. A corn-popper having a receptacle comprising telescoping interior and exterior sections, the former being provided with an opening adapted to be closed by the latter, an operating-rod extending axially through the receptacle and terminally attached to the outer end of one of the sections, and a sleeve mounted to slide upon the rod and revolubly connected with the other section, whereby the sections may be extended and closed by simultaneous opposite movement of the operating-rod and sleeve, substantially as specified.

4. A corn-popper having a receptacle comprising interior and exterior telescoping sections, of which the former is provided with an opening and the latter with a stop pin or stud arranged to engage one side of said opening to limit the extension of the sections, an operating-rod extending axially through the receptacle and secured terminally to the closed outer end of the interior section, a socket-plate secured to the inner end of the exterior section concentric with the operating-rod, and a tubular sleeve fitted upon the operating-rod and having a flared or flanged extremity engaging said socket-plate and thereby revolubly connected with the receptacle, substantially as specified.

5. A corn-popper having a receptacle comprising telescoping exterior and interior sections, an operating-rod terminally attached to the remote end of one of the sections, and a sleeve fitted to slide upon said operating-rod and attached to the contiguous end of the other section, substantially as specified.

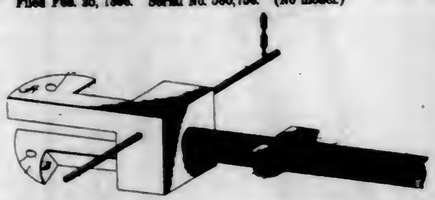
575,622. FRICTION-CLUTCH. PHILIP STEUERWALD, Chicago, Ill. Filed Apr. 28, 1896. Serial No. 589,403. (No model.)



Claim.—1. The combination of a shaft, a flanged pulley loose on the shaft, a spider fixed to the shaft, a brake-shoe pivoted at one end to one arm of the spider and having at the opposite end a slotted portion contiguous to a laterally-projected bracket, a fork attached to the brake, a link pivotally connected to the fork, a three-armed lever fulcrumed to one arm of the spider and having one arm connected to the link, a collar sliding on the shaft to which the second arm of the lever is connected, and a second link connected with the third arm of the lever and to the spider, substantially as described.

2. The combination of a driven shaft, a flanged pulley loose on the shaft, a spider fixed to the shaft, the spider having a recess adjacent to a longitudinal slot, a brake-shoe having one end pivoted to one of its arms and having its opposite end slotted and provided with a laterally-projecting bracket, a fork attached to the bracket, a link pivoted to the fork, a three-armed lever to one arm of which the link is connected, the lever being located in the recess of one of the arms and fulcrumed in the slot thereof, a collar sliding longitudinally with the shaft and connected to the second arm of the lever, and a second link connected to the third arm of the lever and to the spider, substantially as described.

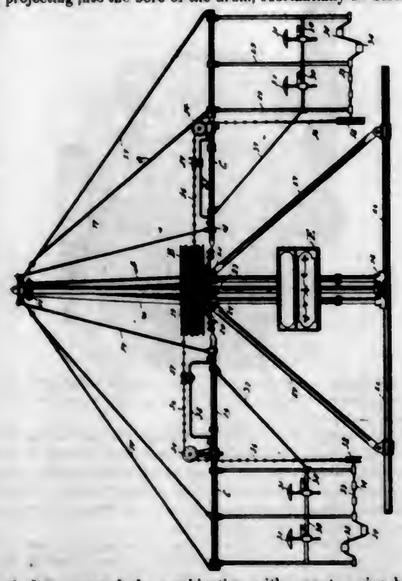
575,623. CAR-COUPLING. CLEMENT G. TURRAUS, Marion, Ind. Filed Feb. 25, 1896. Serial No. 580,756. (No model.)



Claim.—In an automatic car-coupler, the combination of a rotary draw-bar, a draw-head having curved surfaces, a lever attached to said head and projecting toward the sides of the car, actuating means attached to said lever and extending to the top of the car, plates fastened to the bottom of the car, plates disposed on the draw-bar, and springs disposed between the plates on the car and on the draw-bar.

575,624. CAROUSEL. MILTON T. WESTON, Kenton, Ohio, assignor to the Halcyon Cycle Company, same place. Filed Aug. 22, 1894. Serial No. 590,970. (No model.)

Claim.—1. In a carousel, a mast comprising a plurality of tubes, a top coupling provided with sockets, a bottom coupling provided with sockets, and a center coupling in the form of a plate provided with openings for the passage of the tubes, and with a marginal rib or flange on its upper surface, in combination with a drum resting upon the said central coupling the rib or flange of the said coupling projecting into the bore of the drum, substantially as described



2. In a carousel, the combination, with a mast, a ring held to revolve around the mast, arms connected with the said ring, and carriages pendent from said arms, a cap pivoted upon the mast, and braces connecting the cap with the said arms, of a hub secured to the mast, wheels held to revolve around the said hub, having the inner faces of their hubs provided with beveled recesses, spacing-rings intervening between the hubs of the wheels, spring-controlled latches carried by the spacing-rings and adapted to enter the recesses in the wheel-hubs, fastening devices whereby the spacing-rings are held in stationary connection with the hub, driving-shafts located in the carriages, and belts connected with said shaft and likewise each belt with one of the wheels, substantially as shown and described.

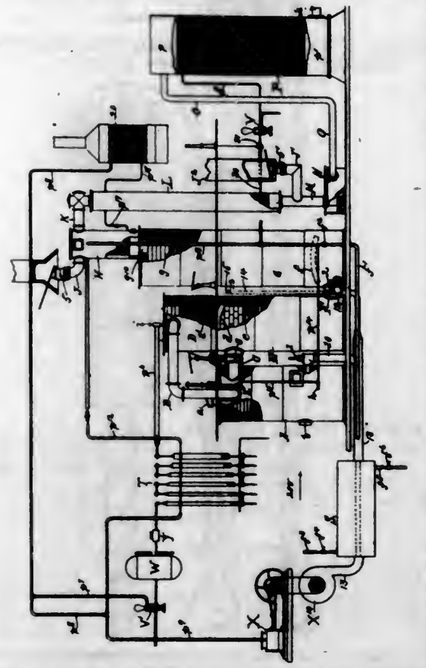
3. In a carousel, a multiple drum, comprising a plurality of flanged spacing-rings provided with apertured lugs and spring-pressed bolts, a plurality of wheels having inclined recesses, on the inner faces of their hubs, a top plate provided with apertured lugs registering with the lugs of the spacing-rings, and bolts passing through said lugs, substantially as shown and described.

4. In a carousel, the combination with a mast, a ring around the mast, arms carried by the said ring, and provided with carriages, and means for causing the arms to turn around the mast of a bracket carried by the mast, an arm fitting loosely in the bracket, shafts mounted in each end of the arm, the upper shaft carrying a pulley at one end and a friction-wheel at the other, and the lower shaft provided with a pulley at each end, a spring supporting the said arm, and a belt connecting the pulleys on one end of the said shafts, the friction-wheel engaging the ring of the arms and one of the pulleys of the lower shaft being adapted to be connected by a belt with an organ, substantially as described.

575,625. METHOD OF AND APPARATUS FOR PRODUCING WATER-GAS. WALTER R. ADDICKS, Boston, Mass. Filed Aug. 19, 1893. Serial No. 483,499. (No model.)

Claim.—1. In an apparatus for producing carbureted water-gas, the combination with a gas-generator, and a chamber containing refractory material in communication with the said generator for the passage of the products of combustion or blast-gases, of a hydrocarbon-mixing chamber provided with an oil-supply, and connected with the generator for the admission of water-gas, and located above and communicating with the said chamber containing refractory material for the passage of the mixed water-gas and hydrocarbons and for the gravitation into said chamber of the heavier hydrocarbons, for the purpose specified.

2. That improvement in the method of manufacturing water-gas, which consists in the following steps, viz: generating producer-gas, passing the said producer-gas through a chamber containing refractory materials to absorb the specific heat of the said gas, commingling air with the said producer-gas after its specific heat has been absorbed to effect complete combustion of the said producer-gas, passing the gaseous products of complete combustion through a chamber containing refractory material to absorb the heat resulting from said complete combustion, bringing the products of complete combustion into contact with material heated to steam temperatures, that is, at or above the boiling-point of water to absorb further quantities of the specific heat of said gases, and then bringing the products of complete combustion into contact with materials at a temperature below the boiling-point of water to further absorb the specific heat of the said gases, substantially as and for the purpose specified.



3. The improvement in the method of manufacturing carbureted water-gas, which consists in the following steps, viz: generating blast-gas, and internally heating chambers containing refractory material by passing said blast-gases through them; then generating water-gas, enriching said water-gas with oils or hydrocarbons by admitting water-gas into a mixing-chamber containing refractory or baffling material and into which chamber the said oils or hydrocarbons are admitted, to effect a mixing of water-gas and hydrocarbons and thereby raise the temperature of said hydrocarbons by the specific heat of the water-gas, and form a mixture of water-gas and oils or hydrocarbons and vapors of same, the temperature of which mixture is greater than that of the original oils and less than that of the water-gas previous to the mixing described; passing water-gas admixed with hydrocarbons into one of the internally-heated chambers in communication with the said mixing-chamber and into which internally-heated chamber the heavier hydrocarbons gravitate from said mixing-chamber, thereby further raising the temperature of mixed water-gas and oils or hydrocarbons; and then passing said heated mixture through a second of the internally-heated chambers to still further heat the said mixture and effect a final fixing of the carbureted water-gas, substantially as described.

4. In an apparatus for producing carbureted water-gas, the combination with a water-gas generator, a heated fixing-chamber, and a chamber E, provided with refractory material and intermediate of the said generator and fixing-chamber and communicating therewith, and a hydrocarbon-mixing chamber provided with an oil-supply and connected with the generator for the admission of water-gas, and communicating with the intermediate chamber E for the passage of mixed water-gas and hydrocarbons, substantially as described.

5. In an apparatus for producing carbureted water-gas, the combination with a gas-generator, a fixing-chamber, and a chamber containing refractory material and intermediate of the fixing-chamber and generator, of a hydrocarbon-mixing chamber adapted to communicate with the gas-generator and with the said intermediate chamber, substantially as described.

6. In an apparatus for producing carbureted water-gas, the combination with a gas-generator, a fixing-chamber provided with refractory material, of an intermediate structure consisting of a chamber E communicating with the generator and with the fixing-chamber and containing refractory material, and a mixing-chamber D provided with refractory material and communicating with the chamber E and adapted to communicate with the generator, substantially as described.

7. In an apparatus for producing carbureted water-gas, the combination with a gas-generator and fixing-chamber, and a chamber E provided with refractory material and intermediate of the said generator and fixing-chamber, of a hydrocarbon-mixing chamber communicating with the gas-generator for the admission of water-gas from the said generator into said mixing-chamber and with the said intermediate chamber for the passage from said mixing-chamber of a mixture of water-gas and hydrocarbons, and a boiler communicating with the interior of the fixing-chamber and through which the gas fixed in the said fixing-chamber is passed, substantially as described.

8. In an apparatus for producing carbureted water-gas, the combination with a gas-generator, a fixing-chamber and an intermediate chamber E provided with refractory material, of a hydrocarbon-mixing chamber communicating with the gas-generator and for the admission of water-gas from the said generator into said mixing-chamber and with the said intermediate chamber for the passage from said mixing-chamber of a mixture of water-gas and hydrocarbons, a boiler communicating with the interior of the fixing-chamber, and a feed-water heater L for said boiler connected therewith to afford a passage for the gas from the boiler, substantially as described.

9. In an apparatus for producing carbureted water-gas, the combination with a gas-generator, a fixing-chamber and an intermediate chamber E, of a hydrocarbon-mixing chamber connected to the gas-generator for the admission of water-gas into the said mixing-chamber and with the said intermediate chamber for the passage of water-gas and hydrocarbons into the said intermediate chamber, a boiler communicating with the interior of the fixing-chamber, and a feed-water heater L for said boiler connected therewith to afford a passage for the gas from the boiler, a gas-delivery pipe for said heater, and a branch escape-pipe connected to said gas-delivery pipe, substantially as described.

10. In an apparatus for producing carbureted water-gas, the combination with a water-gas generator, a fixing-chamber provided with refractory material, and a chamber E provided with refractory material and intermediate of the said fixing-chamber and generator and connected thereto for the passage of gas from the generator to the fixing-chamber, and a hydrocarbon-mixing chamber containing refractory mixing material and communicating with the gas-generator and with the intermediate chamber, of air-admission pipes connected to the said generator and fixing-chamber only, substantially as and for the purpose specified.

11. The improvement in the method of manufacturing carbureted water-gas, which consists in the following steps, viz: generating blast-gas, and internally heating chambers containing refractory material by passing said blast-gases through them; then generating water-gas, enriching said water-gas with oils or hydrocarbons by admitting water-gas into a mixing-chamber containing refractory or baffling material and into which chamber the said oils or hydrocarbons are admitted, to effect a mixing of water-gas and hydrocarbons and thereby raise the temperature of said hydrocarbons by the specific heat of the water-gas, and form a mixture of water-gas and oils or hydrocarbons and vapors of same, the temperature of which mixture is greater than that of the original oils and less than that of the water-gas previous to the mixing described; passing water-gas admixed with hydrocarbons into one of the internally-heated chambers in communication with the said mixing-chamber and into which internally-heated chamber the heavier hydrocarbons gravitate from said mixing-chamber, thereby further raising the temperature of mixed water-gas and oils or hydrocarbons; and then passing said heated mixture through a second of the internally-heated chambers to still further heat the said mixture and obtain a maximum temperature of the mixed water-gas and hydrocarbons; then passing said mixture of water-gas and hydrocarbons into contact with materials heated to the boiling-point of water; thence into contact with materials heated to a temperature below the boiling-point of water, and lastly passing said mixture through water, substantially as and for the purpose specified.

12. The improvement in the method of manufacturing carbureted water-gas, which consists in the following steps, viz: generating blast-gas, and internally heating a chamber containing refractory material by passing said blast-gas through it; then generating water-gas, admixing water-gas and oils or hydrocarbons in a chamber containing baffling or refractory material located above and communicating with said internally-heated chamber for the gravitation of the heavier hydrocarbons from the said mixing-chamber into said internally-heated chamber, substantially as and for the purpose specified.

575,626. CLUTCH. JOHN A. BARNES, Wadsworth, Ohio. Filed Mar. 27, 1896. Serial No. 585,107. (No model.)



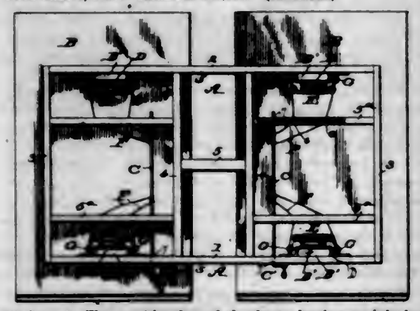
Claim.—1. In a clutch, the combination with a disk, a curved flange projecting therefrom and a lug at one end of said curved flange, of a clutch-ring having a lug disposed coincident with the lug on the flange, adjusting-screws passing through the lug on the curved flange and adapted to bear against the lug on the clutch-ring, a screw passing loosely through the lug on the clutch-ring and entering a screw-threaded socket in the lug on the curved flange, a beveled lug projecting from said clutch-ring, and a wedge between the beveled lug and the end of said curved flange, substantially as set forth.

2. In a clutch, the combination with a disk and a curved flange projecting therefrom, of a clutch-ring having a lug to bear against one end of said curved flange, a beveled lug projecting from the clutch-ring, a wedge between the beveled lug and the end of the curved flange, a shank projecting from said wedge and passing through the disk, a lip or lug at the rear end of said shank, a pocket on the disk, a spring in said pocket bearing at one end against said lip or lug of the wedge-shank, and a pin passing through the walls of said pocket against which the other end of the spring bears, and means for moving said wedge forwardly, substantially as set forth.

3. In a clutch, the combination with a disk and a curved flange projecting therefrom, of a clutch-ring adapted at one end to engage said curved flange and having a beveled lug at its other end, a wedge entering between said beveled lug and the curved flange, a lip projecting from said wedge, a pocket on the disk, and a spring in said pocket having a bearing at one end within the pocket and at the other end against said lip on the wedge, substantially as set forth.

4. In a clutch, the combination with a disk and two curved flanges projecting from said disk, of a clutch-ring disposed within said curved flanges and made in two sections, a lug at one end of each section of the clutch-ring disposed coincident with one end of each curved flange, a beveled lug at the other end of each section of the clutch-ring, wedges between said beveled lugs and the ends of the curved flanges and two levers pivotally connected with the disk and adapted to operate the respective wedges whereby to contract the clutch-ring and cause it to clutch a hub projecting within it, substantially as set forth.

575,627. BOOK-SUPPORT. WILLIAM A. BARNES, Lampasas, Tex. Filed June 5, 1896. Serial No. 594,384. (No model.)



Claim.—1. The combination of the frame having upright keepers, the platforms each having near its opposite ends upright bars operating in said keepers, detents engaging said upright bars and the windlass-shafts one for each platform and connected with and adapted to release both detents of their respective platforms substantially as shown and described.

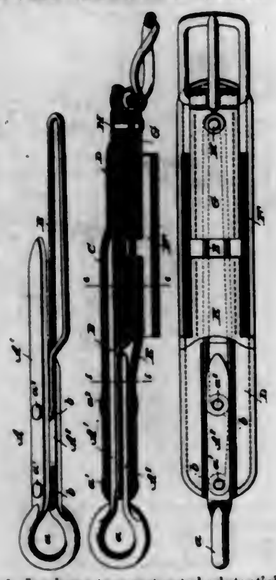
2. A book-support composed of a frame having guide loops or keepers, a central back-rest, the platforms on opposite sides of said central back-rest, the upright bars held to said platforms and movable up and down in the keepers of the frame, and detent devices by which to secure said platforms in different adjustments, and means for simultaneously releasing the several detents of said platforms substantially as shown and described.

3. The combination of the frame having upright keepers, the opposite platforms having depending bars fitting in said keepers, the detents engaging said bars, the shafts extending longitudinally beneath the platforms, and connections between said shafts and the detents, substantially as shown and described.

4. The book-supporting apparatus, consisting of the platforms having depending rack-bars, the frame, having guides for said rack-bars, the pawls engaging said bars, the windlass-shafts, the connections between said shafts and pawls, and guides for said connections substantially as shown and described.

5. The book-support herein described consisting of the platforms having depending rack-bars, the frame having the central seats for the book-back and provided with the end sections, the box-loops fixed in said sections and forming guides for the rack-bars, the pawls pivoted to the box-loops, the windlass-shafts, and connections between the same and the pawls substantially as shown and described.

575,628. HAME-TUG. WILLIAM O. BARNETT, Americus, Ga. Filed Sept. 3, 1896. Serial No. 604,735. (No model.)



Claim.—1. In a hame-tug constructed substantially as shown and described, the combination, of the clip A and bar B, said bar being bent upon itself and having its terminals connected to the clip at different points by rivets.

2. In a hame-tug, the combination, of the clip A, a bar B bent upon itself to present members which are substantially parallel, said members being given a double bend at the end of the short member of the clip, and eyes formed at the terminals of the members by which said bar is secured to the clip.

3. In a hame-tug, the combination, of the clip A, and looped bar B the terminals of which are bent into eyes through which rivets pass for securing said bar to said clip, an intermediate portion of the looped bar being given a double bend, the clip and bar being held in engagement with the straps or leather parts of the hame-tug by a single rivet located near the trace-buckle.

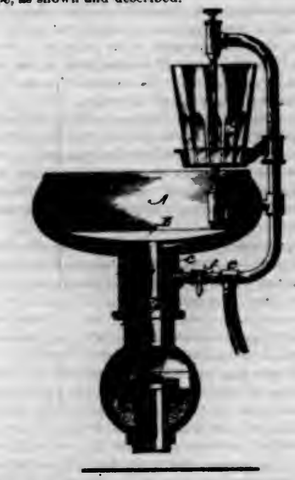
4. As an improved article of manufacture, a hame-tug comprising a loop carrying a trace-buckle, a clip A and looped bar B connected thereto; together with the covering-strap, box-loop and intermediate filling-strap arranged substantially as shown, and a rivet H passed through the straps to engage the looped portion of the bar B, said rivet being located adjacent to the end of the hame-tug farthest from the eye, for the purpose set forth.

575,629. FOUNTAIN-SPITTOON. JOHN C. BLAIR, Louisville, Ky. Filed Sept. 17, 1896. Serial No. 606,061. (No model.)

Claim.—1. In a fountain-spittoon, the combination, with centrally-apertured bowl having a pendent tubular neck, and the disk-like false bottom having a similar aperture and neck, of a detachable apertured plug which closes the space between said necks, and forms an escape for waste water, as shown and described.

2. In a fountain-spittoon, the combination with the bowl and false bottom, having central apertures and pendent tubular necks, arranged one within the other, but separated as specified, of the detachable tubular plug having a vertical extension that receives the neck of the false bottom, and is connected with the bowl-neck by a screw-joint, and water-conducting pipes attached to the bowl-neck and plug, respectively, as shown and described.

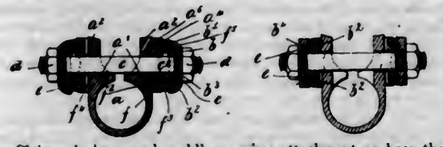
3. In a fountain-spittoon, the combination, with the bowl and its false bottom, separated from each other and provided with pendent tubular necks, of the removable plug having a tubular socket that receives the false-bottom neck and supports the latter, and an exterior screw-thread that engages the bowl-neck, and an adjacent circumferential rib forming an abutment for said bowl-neck, and having also a threaded lower portion that adapts the plug for attachment of a waste-pipe, as shown and described.



575,630. METHOD OF TREATING INFERIOR GRADES OF SPELTER OR ZINC. RALPH W. BOOTH, New Brunswick, N. J. Filed Sept. 24, 1895. Serial No. 563,526. (No specimens.)

Claim.—An alloy consisting of one hundred pounds of an inferior grade of spelter or zinc having incorporated therewith ten ounces of aluminium, substantially as specified.

575,631. CYCLE-SADDLE ATTACHMENT-BOSS. JOHN B. BROOKS, Birmingham, England, assignor to the J. B. Brooks & Company, Limited, same place. Filed Sept. 19, 1896. Serial No. 606,389. (No model.) Patented in England May 28, 1894. No. 10,235.



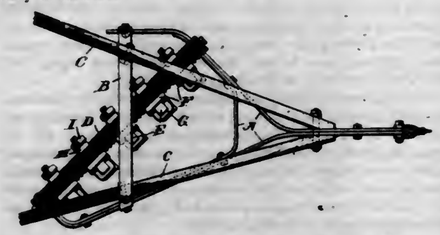
Claim.—1. In a cycle saddle-securing attachment or boss, the combination of the spring-clip *a* provided on the adjacent inner faces of its ends with lugs a^3, the pin or bolt *c* fitted in sockets or holes a^4 formed in the ends of said clip, washers *f* arranged on the ends of the pin in juxtaposition to the sides of the clip, outer washers *b* arranged on said pin outside the washers *f*, registering grooves formed on the adjacent faces of said washers, and nuts for clamping the washers and the ends of the clip on said pin, substantially as described.

2. In cycle-saddle-securing attachments or bosses, the combination and arrangement of the spring-clip *a*, with the pin or bolt *c*, fitting into the sockets or holes a^4, the washers *f*, the outer washers *b*, the frame sides *e*, and the nuts *d*, all substantially as and for the purposes described and set forth.

3. In a cycle-saddle-securing attachment or boss, the combination of the spring clip *a*, the pin or bolt *c* fitted in sockets or holes a^4 formed in the ends of the clip, washers *f* arranged on the ends of the pin and provided on their inner faces with teeth adapted to engage the outer faces of the clip and provided on their outer faces with keep-grooves for the reception of the frame sides, frame sides *e* seated in said keep-grooves, and nuts arranged on the threaded ends of the pin, substantially as described and for the purpose specified.

575,632. SIDE HARROW. URI H. BROWN, Zanesville, Ohio, assignor to the Mansur & Tebbetts Implement Company, St. Louis, Mo. Filed Sept. 16, 1896. Serial No. 605,957. (No model.)

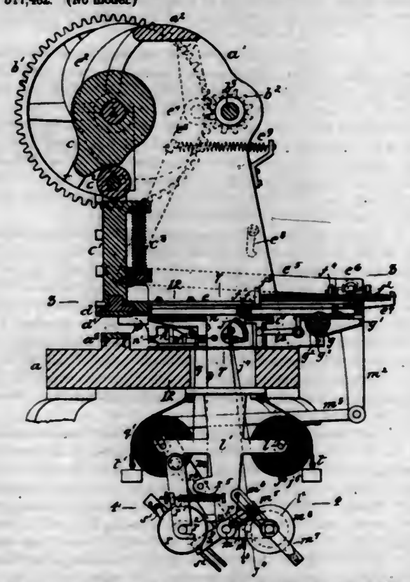
Claim.—1. In a side harrow, the combination with a slotted frame which is notched in its forward edge, of a tooth-seat notched on its inner face to engage the notches of the frame, said tooth-seat being provided with inwardly-extending lips above and below the frame and formed with projections on its outer face between which the tooth is afforded a seat, a tooth, an eyebolt which embraces the tooth, said eyebolt passing through a slot in the tooth-seat, a clip through which the rear end of the eyebolt passes, and a nut which is received on the outer end of the eyebolt for clamping the parts together; substantially as described.



2. In a side harrow, the combination with a slotted frame D of a tooth E, an eyebolt G through which said tooth E passes, the rear end of said eyebolt passing through a clip H, flanges *h* on said clip which project above and below the same, flanges *h'* on said clip which extend into the slot of frame D to brace the same, and a nut I which is adapted to be screwed upon the rear end of the eyebolt G and impinge against the clip H for securing the parts together; substantially as described.

3. In a side harrow, the combination with a slotted frame which is serrated at its forward edge, of a tooth-seat which is serrated on its inner face to engage the serrations of the frame, said tooth-seat being provided with inwardly-extending lips above and below the frame for preventing vertical displacement, projections on the outer face of said tooth-seat, between which the tooth is adapted to be received, a tooth, an eyebolt through which the tooth passes, said eyebolt passing through a slot in the tooth-seat, a clip through which the rear end of the eyebolt passes, lips on said clip which extend above and below the frame, flanges on said clip which extend into the slot of the frame, and a nut which is received on the outer end of the eyebolt for clamping the parts together; substantially as described.

575,633. DIE STAMPING AND EMBOSSING MACHINE. JOHN CARSON, Brooklyn, N. Y., and ALFRED SHEDLOCK, Jersey City, N. J.; said Shedlock assignor to said Carson. Filed July 13, 1894. Serial No. 517,482. (No model.)



Claim.—1. In a die stamping and embossing machine, the combination of a vertically-reciprocating plunger, a horizontally-reciprocating carriage, a die-holder adapted to be attached to the plunger and the carriage and removed from either one by the other, spring-actuated catches on the plunger for securing the die-holder thereto, and similar spring-actuated catches on the carriage.

2. In a die stamping and embossing machine, the combination of a vertically-reciprocating plunger, a horizontally-reciprocating carriage, a die-holder adapted to be attached to the plunger and the carriage and removed from either one by the other, spring-actuated catches on the plunger having their upper bearing-faces more acute than their lower bearing-faces for securing the die-holder thereto, similar spring-actuated catches on the carriage, the plunger spring-actuated catches having sufficient holding power on the die-holder to cause the carriage spring-actuated catches to engage with and hold the die-holder as the plunger ascends, and the carriage-catches having sufficient power to cause the plunger-catches to engage with and hold the die-holder as the plunger descends.

3. In a die stamping and embossing machine, the combination of a vertically-reciprocating plunger, a horizontally-reciprocating carriage, a die-holder adapted to be attached to the plunger and the carriage and removed from either one by the other, spring-actuated catches on the plunger for securing the die-holder thereto, similar spring-actuated catches on the carriage, and guide-stops on the carriage for locking the plunger-catches during the time the carriage-catches are engaging with the die-holder.

4. In a die stamping and embossing machine, the combination of a vertically-reciprocating plunger, a horizontally-reciprocating carriage, a die-holder adapted to be attached to the plunger, and the carriage, and removed from either one by the other, spring-actuated catches on the plunger for securing the die-holder thereto, similar spring-actuated catches on the carriage, and cams on the main shaft of the machine for actuating the plunger and the carriage in such manner that the carriage is held stationary while the die-holder is being attached to it or detached from it.

5. In a die stamping and embossing machine, the combination of a vertically-reciprocating plunger, a horizontally-reciprocating carriage, a die-holder adapted to be attached to the plunger and the carriage and removed from either one by the other, spring-actuated catches on the plunger for securing the die-holder thereto, similar spring-actuated catches on the carriage, and flanges or ledges on the carriage acting as a positive stop to the upward movement of the die-holder when the plunger is being released thereof.

6. In a die stamping and embossing machine, the combination of a die, an ink-receiving surface or pad, an inking-roller for applying ink to the pad, and means for bringing the die and pad together by a combined flatwise and sliding movement, whereby ink is uniformly imparted to the die from the pad.

7. In a die stamping and embossing machine, the combination of a die, an ink-receiving surface or pad, having its contour approximating that of the design of the die, adapted to make contact with the die, means for bringing the pad against the die with a combined flatwise and lateral movement, and an inking-roller for applying ink to the ink-receiving surface or pad.

8. In a die stamping and embossing machine, the combination of a die, an ink-receiving surface or pad, adapted to make contact with the die, an inking-roller for applying ink to the ink-receiving surface or pad, a carriage to which the die, by its holder, is attached and by which the die is brought over the inking-pad, a sliding frame moving at right angles to the travel of the carriage and to which the pad is attached and means for causing the pad to come in contact with the die while the carriage is completing its movement to bring the die over the pad whereby the ink on the pad is applied to the die by a combined flatwise and lateral movement.

9. In a die stamping and embossing machine, the combination of a die, an ink-receiving surface or pad, adapted to make contact with the die, an inking-roller for applying ink to the ink-receiving surface or pad, a carriage to which the die by its holder is attached actuated to carry the die over the pad, a sliding frame moving at right angles to the travel of the carriage and to which the pad is attached, a lug on the carriage, a bell-crank lever joined by one of its arms to the sliding frame and actuated to raise said frame and the pad by the lug on the carriage coming in contact with its other arm when the die is just about over the pad, thereby bringing the pad in contact with the die while the die is moving.

10. In a die stamping and embossing machine, the combination of a die, an ink-receiving surface or pad, adapted to make contact with the die, an inking-roller for applying ink to the ink-receiving surface or pad, a carriage to which the die, by its holder is attached, and by which the die is brought over the inking-pad, a sliding frame to which the pad is attached, means for causing the pad to come in contact with the die, a frame fitted to slide in the carriage and to which the ink-roller is journaled, a spring for holding the frame at the end of the carriage, an ink-fountain roller against which the inking-roller makes contact and a stop for determining the position of the inking-roller in relation to the fountain-roller.

11. In a die stamping and embossing machine, the combination of a die, an ink-receiving surface or pad, adapted to make contact with the die, an inking-roller for applying ink to the ink-receiving surface or pad, a carriage to which the die, by its holder, is attached, and by which the die is brought over the inking-pad, a sliding frame to which the pad is attached, means for causing the pad to come in contact with the die, a frame fitted to slide in the carriage and to which the ink-roller is journaled, a spring for holding the frame at the end of the carriage, an ink-fountain roller against which the inking-roller makes contact and a stop for determining the position of the inking-roller in relation to the fountain-roller, and an adjustable ink-fountain carrying the fountain-roller.

12. In a die stamping and embossing machine, the combination of a die, a surplus-ink-removing device constructed so that its active surface will press into the deep parts of the design, an underlay with raised portions of flexible material corresponding to the deep parts of the die, an absorbent covering on the surplus-ink-removing device, and means for moving the absorbent covering.

13. In a die stamping and embossing machine, the combination of a die, an inking device, a surplus-ink-removing device constructed so that its active surface will press into the deep parts of the design and act solely on the ink therein, an absorbent covering on the surplus-ink-removing device, an impervious backing for the absorbent covering, and means for moving the absorbent covering and the impervious backing.

14. In a die stamping and embossing machine, the combination of a die, a surplus-ink-removing device constructed so that its active surface will press into the deep parts of the design, an underlay with raised portions of flexible material corresponding to the deep parts of the die, an absorbent covering on the surplus-ink-removing device, an impervious backing for the absorbent covering, and means for moving the absorbent covering and the impervious backing.

15. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die attached thereto by its holder, a surplus-ink-removing device having a cylindrical form and journaled in the frame of the machine, a rack on the reciprocating carriage, a segmental gear-wheel on the axle of the ink-removing device and with which the rack meshes during the forward movement of the carriage, and a recoil-spring connected to the ink-removing device.

16. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die attached thereto by its holder, a surplus-ink-removing device having a cylindrical form and journaled in the frame of the machine, a rack on the reciprocating carriage, a segmental gear-wheel on the axle of the ink-removing device with which the rack meshes during the forward movement of the carriage, a recoil-spring connected to the ink-removing device, and a buffer-spring for holding the ink-removing device in position for the rack to engage with the wheel.

17. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die attached thereto by its holder, a surplus-ink-removing device having a cylindrical form and journaled in the frame of the machine, a rack on the reciprocating carriage, a segmental gear-wheel on the axle of the ink-removing device and with which the rack meshes during the forward movement of the carriage, a recoil-spring connected to the ink-removing device, an absorbent covering, means for moving the same, and guide-rollers for the covering in the ink-removing device.

18. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die attached thereto by its holder, a surplus-ink-removing device having a cylindrical form and journaled in the frame of the machine, a rack on the reciprocating carriage, a segmental gear-wheel on the axle of the ink-removing device and with which the rack meshes during the forward movement of the carriage, a recoil-spring connected to the ink-removing device, guide-rollers in the ink-removing device, an absorbent covering, a feeding-roller for drawing the covering over the ink-removing device, retention-pawls between which and the feeding-roller the covering is clamped and means for intermittently rotating the feeding-roller.

19. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die attached thereto by its holder, a surplus-ink-removing device having a cylindrical form and journaled in the frame of the machine, a rack on the reciprocating carriage, a segmental gear-wheel on the axle of the ink-removing device and with which the rack meshes during the forward movement of the carriage, a recoil-spring connected to the ink-removing device, guide-rollers in the ink-removing device, an absorbent covering, a feeding-roller for drawing the covering over the ink-removing device, retention-pawls between which and the feeding-roller the covering is clamped, a ratchet-wheel on the feed-roller shaft and an arm provided with a pawl rocking on the shaft, a lever connected by a link to the reciprocating carriage, a slotted arm connected to or forming part of this lever and an adjustable pin joining this arm to the pawl-arm.

20. In a die stamping and embossing machine, a reciprocating carriage, a die carried thereby, a wiping device consisting of a bed with rounded edges and a movable covering adapted to be moved against the die as it partly or wholly comes over the bed, means for so raising the bed and thus causing the surplus ink to be wiped off the surface of the die, and means for further raising the bed to cause the covering on the rounded edge of the bed to move over the rear edge of the die, and partly up the rear side thereby thoroughly cleaning the die.

21. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die carried thereby, slides fitted in the frame of the machine so as to move at right angles to the travel of the carriage, a wiping-bed attached to these slides, levers or arms connected to a common shaft and provided with studs extending into slots in the slides, an arm also connected to the shaft and having a roller at its end, a ledge adjustably attached to the carriage and located so that one of its sides will act on the roller on the arm when the die is over or partly over the wiping-bed during its forward motion.

22. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die carried thereby, slides fitted in the frame of the machine so as to move at right angles to the travel of the carriage, a wiping-bed attached to these slides, levers or arms connected to a common shaft and provided with studs extending into slots in the slides, an arm also connected to the shaft and having a roller at its end, a ledge adjustably attached to the carriage and located so that one of its sides will act on the roller on the arm when the die is over or partly over the wiping-bed during its forward motion, and so as to engage with the roller at its other side when the die is moving backwardly, and a spring acting on the arm to hold the roller in position to be caught by the ledge as it moves in the two directions.

23. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die carried thereby, slides fitted in the frame of the machine so as to move at right angles to the travel of the carriage, a wiping-bed attached to these slides, levers or arms connected to a common shaft and provided with studs extending into slots in the slides, an arm also connected to the shaft and having a roller at its end, a ledge adjustably attached to the carriage and located so that one of its sides will act on the roller on the arm when the die is over or partly over the wiping-bed during its forward motion, and so as to engage with the roller at its other side when the die is moving backwardly, a spring acting on the arm to hold the roller in position to be caught by the ledge as it moves in the two directions, and another adjustable ledge arranged and formed to act on the roller when the rear edge of the die is about to leave the wiping-pad and so raise the pad as to cause its rounded end to sweep over the rear edge of the die.

24. In a die stamping and embossing machine, the combination of a reciprocating carriage, a die carried thereby, slides fitted in the frame of the machine so as to move at right angles to the travel of the carriage, a wiping-bed attached to these slides by means of adjustable guide-rods, springs between the slides and the bed, levers or arms connected to a common shaft and provided with studs extending into slots in the slides, an arm also connected to the shaft and having a roller at its end, a ledge adjustably attached to the carriage and located so that one of its sides will act on the roller on the arm when the die is over or partly over the wiping-bed during its forward motion.

25. The combination of a winding-up roller, a retention pawl or pawls, against which the roller or paper thereon bears, spring-actuated bearings carrying the roller, and means for intermittently rotating the roller.

26. The combination of a winding-up roller, a retention pawl or pawls, against which the roller or paper thereon bears, spring-actuated bearings carrying the roller, means for intermittently rotating the roller, the direction of pressure of the pawl or pawls being on one side of the line of travel of the axis of the roller.

27. The combination of a winding-up roller, a retention pawl or pawls, against which the roller or paper thereon bears, spring-actuated bearings carrying the roller, a slotted arm fitted to work on the axle of the roller, a feeding-pawl carried thereby, a disk or wheel on which the feeding-pawl acts, and a stud or pin adapted and set to be moved through a uniform distance and to act in different parts of the slot in the arm as the roller moves away from the stud or pin.

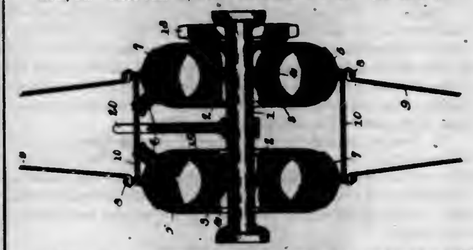
28. The combination of a winding-up roller, a retention pawl or pawls, against which the roller or paper thereon bears, spring-actuated bearings carrying the roller, a slotted arm fitted to work on the axle of the roller, a feeding-pawl carried thereby, a disk or wheel on which the feeding-pawl acts, and a stud or pin adapted and set to be moved through a uniform distance and to act in different parts of the slot in the arm as the roller moves away from the stud or pin, the wiping-bed of a die stamping-machine, and the wiping-paper moved over the bed by the winding-up roller.

29. In a die stamping and embossing machine, a reciprocating carriage, a die carried thereby, a wiping device consisting of a bed with rounded edges and a movable covering adapted to be moved against the die as it partly or wholly comes over the bed, means for so raising the bed and thus causing the surplus ink to be wiped off the surface of the die, means for further raising the bed to cause the covering on the rounded edge of the bed to move over the rear edge of the die, and partly up the rear side, thereby thoroughly cleaning the die, a winding-up roller for controlling the movable covering of the bed, a rocking arm, feeding connection between this arm and the winding-up roller attached thereto, a lever connected or forming part of this arm, and a link connecting the lever to the reciprocating carriage.

30. In a die stamping and embossing machine, the combination of a vertically-reciprocating plunger, a horizontally-reciprocating carriage, a die-holder alternately carried by the plunger and the carriage, an inking device, a rolling surplus-ink-removing device constructed so that its active surface will press into the deep part of the design and act solely on the ink therein, and a wiping device.

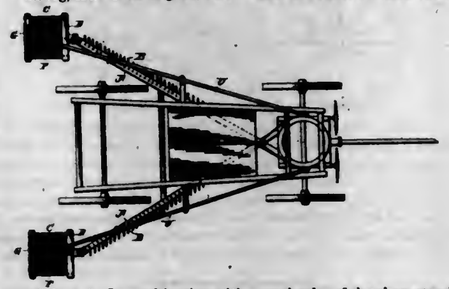
31. In a die stamping and embossing machine, the combination of a vertically-reciprocating plunger, a horizontally-reciprocating carriage, a die-holder alternately carried by the plunger and the carriage, an inking-pad, an ink-fountain, a roller for carrying ink from the fountain to the pad, means for moving the pad vertically, a rolling surplus-ink-removing device, an absorbent covering therefor, a wiping-bed and removable wiping-surface therefor, and means for moving the wiping-bed vertically.

575,684. PNEUMATIC HUB. HARRY R. COLLINS, South Bethlehem, Pa. Filed Jan. 16, 1896. Serial No. 575,730. (No model.)



Claim.—In a pneumatic hub for wheels, the combination with the hub proper, of spaced annular saddles surrounding the same and rigid thereon, pneumatic tubes extending around and seated on said saddles, spaced spoke-rings arranged outside of said pneumatic tubes, transverse tie-braces rigidly connecting said spoke-rings, and an arm rigidly connected to the hub proper between the saddles and having its outer end forked, whereby it is adapted to straddle and slidingly engage one of said tie-braces, substantially as described.

575,685. DRAG-RAKE FOR ROAD-BEDS. ALBERT DAGGETT, Strong, Me. Filed Aug. 22, 1896. Serial No. 603,583. (No model.)



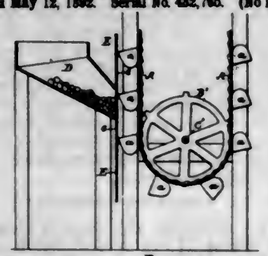
Claim.—1. In combination with a road-rake of the character described, a drag-rake attached to the rear end of each of the rails of the first-named rake adapted to gather the material left by said rake and place it in piles, as shown and described.

2. In combination with a rake of the character described, one or more drag-rakes adapted to be attached to the rear ends of the rails of the first-named rake, said drag-rake consisting of two runners, and a series of rods, the lower ends of which are curved and adapted to come into contact with the road-bed over which they have passed, substantially as and for the purpose set forth.

3. A drag-rake for use in connection with a road-rake of the character described, consisting of the runners K, a cylinder G supporting said runner, a head D also supporting said runners, and spring-rods attached to said head and coiled about said cylinder, their lower ends being curved and adapted to engage the surface of the road-bed over which they are drawn, substantially as and for the purpose set forth.

4. The herein-described combination of a drag-rake consisting of the runners K, uprights I and J, cylinder G, a head D, rods F attached to said head and coiled once around said cylinder, the lower ends of said rods being curved, a flexible strap M through which said rods pass, with the hooks Q having shanks P, a cam for elevating said shanks, and a lever U loosely attached to the rail W and connected by the rod X to the cylinder, all arranged substantially as and for the purposes set forth.

575,686. **ELEVATING MECHANISM.** JAMES M. DODGE, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed May 12, 1892. Serial No. 432,765. (No model.)

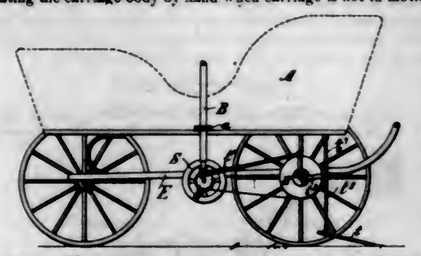


Claim.—1. The combination in an elevator, of a side feed-chute, a bucket elevator receiving material from said chute, a driven slide-valve at the mouth of the chute and means for driving said slide-valve up through the material, said valve allowing the material to be fed to the elevator intermittently so that each bucket will be properly charged, thus preventing the overflowing of the buckets and jamming of the material, substantially as described.

2. The combination in an elevator, of the side feed-chute, the bucket elevator receiving material from said chute, with a disk having a series of openings, said disk being driven at the same speed as the buckets and in the same direction allowing the intermittent discharge of the material from the chute into the buckets, substantially as set forth.

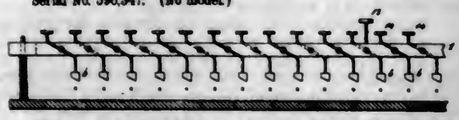
575,687. **FAN FOR BABY-CARRIAGES.** CARL DOLD, Brooklyn, N. Y. Filed Dec. 31, 1895. Serial No. 573,892. (No model.)

Brief.—Fan mechanism may be actuated by the treadle or by vibrating the carriage-body by hand when carriage is not in motion.



Claim.—The combination with a baby-carriage or similar vehicle, of a driving-shaft provided with a pulley designed to be driven by the vehicle-wheels and with a crank adapted to receive a suitable driving-rod, a vertically and horizontally adjustable fan carried by the vehicle and geared to the crank-shaft through intermediate mechanism, and clutch mechanism for throwing the pulley into or out of engagement with the shaft, whereby the fan may be actuated by the vehicle-wheels or by other power through a common driving-shaft.

575,688. **HARP.** RUDOLF DOLGE, New York, N. Y., assignor to the C. F. Zimmermann Company, Dolgeville, N. Y. Filed May 5, 1896. Serial No. 590,347. (No model.)



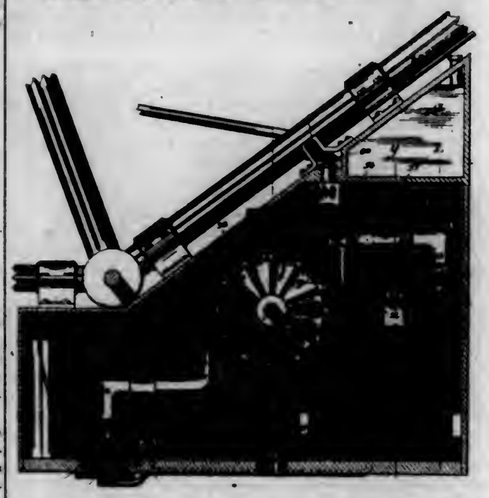
Claim.—1. A support bar or manual made movable toward and from the strings of an instrument, and provided with dampers or contactors each movable independently of all the others and each provided with an individual handle substantially as described.

2. A support bar or manual provided with dampers or contactors each movable independently of all the others and alternately arranged on opposite sides of the bar or manual substantially as described.

3. A support bar or manual provided with dampers or contactors having their handles on different levels and each movable independently of all the others substantially as described.

4. A support bar or manual provided with dampers or contactors having their handles on different levels and variously colored and each movable independently of all the others substantially as described.

575,689. **VEHICLE-MOTOR.** GEORGE W. FOTE, Philadelphia, Pa. Filed Apr. 28, 1896. Serial No. 589,421. (No model.)



Claim.—1. In a device of the character described a casing, a motor-wheel journaled therein, right-angular tubular extensions formed on the opposite sides of the casing, a cylindrical valve slidable in an arm of each extension, said valve being hollow with one end closed and an opening near that end adapted to register with the other arm of the extension and means for operating the valves and wheel by expanded gases as and for the purpose described.

2. In a device of the character described a casing, a motor-wheel journaled therein, means for operating the wheel by expanding gases, a fan formed on said wheel adapted to circulate air through the casing and an exhaust-pipe leading from the casing having an internal nozzle through which the air escapes and carries with it by suction the expanded gases as and for the purpose described.

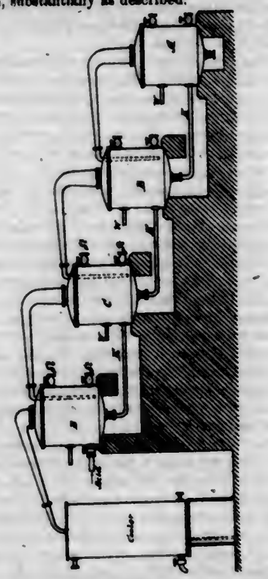
3. In a device of the character described, a casing, a motor-wheel journaled therein, tubular extensions formed on said casing, valves sliding in said extensions, projections on said valves sliding in openings of the casing, springs located in said openings bearing on the projections said extensions having ports leading to the motor-wheel adapted to be opened by the movement of the valve and means for operating the valve by expanding gases, as and for the purpose described.

4. In a device of the character described, a casing, a motor-wheel journaled therein, tubular extensions formed on said casing, valves sliding in said extensions, ports in the extensions leading to the motor-wheel adapted to be operated by the movement of the valves, means for operating the valve by expanding gases, a fan formed on the motor-wheel adapted to circulate air through the casing, and an exhaust-pipe leading from the casing having a nozzle through which air escapes and carries with it the expanding gases, as and for the purpose described.

575,640. **PROCESS OF OBTAINING ETHER.** PAUL FRITZSCHE, Basen, Germany. Filed Apr. 2, 1896. Serial No. 585,943. (No specimens.)

Claim.—1. The method herein described of obtaining ether from gases containing ethylene, which consists in washing the gases after the removal of tar, ammonia, benzol and sulfureted hydrogen with dilute sulfuric acid to remove hydrocarbons of condensation, then treating the same with concentrated sulfuric acid at a temperature of from 100° to 140° centigrade to absorb the ethylene, and after dilution subjecting the resulting ethyl sulfuric acid to distillation and passing the resulting vapors of ether, alcohol and water, according to their ether contents, through ethyl sulfuric acid of varying degrees of dilution, substantially as set forth.

2. The method of obtaining ether free from alcohol which consists in passing the alcoholic-ether vapors arising from the boiling of ethyl sulfuric acid with water according to their contents of alcohol and ether through quantities of sulfuric acid of various degrees of concentration, substantially as described.



575,641. **WIRE-COUPLING.** WALTER GERARD, St. Bernard, and JOHN H. LAWRENCE, Bond Hill, Ohio. Filed Nov. 23, 1896. Serial No. 613,092. (No model.)



Claim.—1. A wire-coupling consisting substantially of a sleeve having two bores, one entering at each end and both centrally in line with each other, each of said bores being substantially of one dimension in one direction or plane while in the other they become wider, forming two walls 14 diverging toward the inner ends of the sleeve and two serrated jaws with flat backs in each bore occupying, when a wire end is introduced, the spaces at each side of the latter and between it and walls 14 against which latter they lie with their flat backs.

2. A wire-coupling consisting substantially of a sleeve having two bores, one entering at each end and both centrally in line with each other, two serrated jaws in each bore held therein prior to their engagement with a wire end and in proper position for the purpose of enabling such engagement by spring-pressure and openings in the sleeve to permit introduction of these jaws.

3. A wire-coupling consisting substantially of a sleeve having two bores, one entering at each end and both centrally in line with each other, each of said bores having two walls 14, converging toward the outer ends of the sleeve and two serrated jaws in each bore occupying, when a wire end is introduced, the spaces at each side of the latter and between it and walls 14, said jaws held in place prior to their engagement with a wire end and in proper position for the purpose of enabling such engagement by spring-pressure and openings in the sleeve to permit introduction of these jaws.

4. A wire-coupling consisting substantially of a sleeve having two bores, one entering at each end and both centrally in line with each other, each of said bores having two walls 14, converging toward the outer ends of the sleeve and two serrated jaws in each bore occupying, when a wire end is introduced, the spaces at each side of the latter and between it and walls 14, said jaws connected to or forming part of a spring 11 whereby they are held in a position substantially parallel and with the teeth opposite each other.

5. A wire-coupling consisting substantially of a sleeve having two bores, one entering at each end and both centrally in line with each other, each of said bores having two walls 14, converging toward the outer ends of the sleeve and two serrated jaws in each bore occupying, when a wire end is introduced, the spaces at each side of the latter, between it and the walls 14 and openings 17 near the inner ends of the bores for the purpose described.

575,642. **HARROW.** LEROY H. GIFFIN, Mount Ida, Wis. Filed June 19, 1895. Serial No. 553,332. (No model.)



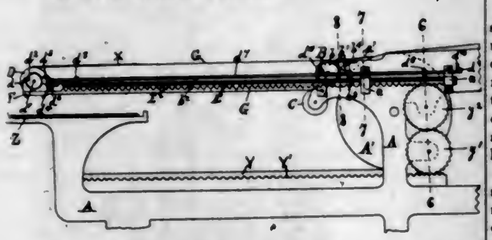
Claim.—1. In a harrow, the combination of a front beam, fixed side bars 2 secured to the extremities of the front beam and extending rearwardly therefrom, a front tooth-bar journaled in the rear ends of the side bars, a series of revolubly flexibly-connected tooth-bars arranged in rear of the front tooth-bar, a sectional hand-lever having a stock secured to the front tooth-bar, and a handle pivotally connected to the stock and terminating near the rear tooth-bar whereby it may be reached by an attendant walking in rear of the harrow, connections between the stock of the lever and the tooth-bars in rear of that to which said lever is secured, whereby they may be simultaneously adjusted to arrange the teeth in the desired positions, a locking device for securing the handle and stock at the desired relative adjustment, and means for locking the stock to hold the tooth-bars at the desired adjustment, substantially as specified.

2. The combination with a harrow having rotary tooth-bars and a fixed front beam, of a supporting-arm 6 secured to and extending rearwardly from the front beam, a segment 7 carried by said supporting-arm, a hand-lever operating contiguous to the segment and secured to the front tooth-bar which is mounted in rigid arms extending rearwardly from the front beam, the hand-lever comprising a

stock carrying a perforated quadrant 18 and having means to engage the segment, and a handle pivotally connected to the stock and having a perforated extremity traversing the quadrant, means for engaging registering perforations of the extension and the quadrant, and flexible connections between the hand-lever and the tooth-bars in rear of that to which said lever is secured, substantially as specified.

3. The combination of harrow-sections, each section having a front beam, fixed side bars secured to the extremities of the front beam, a series of tooth-bars connected by pivotal links, the front tooth-bar being mounted in bearings in said side bars, a lever secured to the front tooth-bar, means for locking the lever at the desired adjustment, connections between the hand-lever and the tooth-bars in rear of the front tooth-bar, said connections including arms attached to the tooth-bars, rods connecting the arms in series, rings encircling the tooth-bars contiguous to said arms and arranged between the arms and contiguous clamps secured to the tooth-bars, and brace-rods connecting the rings, said arms being arranged upon the tooth-bars at points between the journals of the latter and the brace-rods being adapted to prevent yielding of the tooth-bars when the teeth carried thereby come in contact with obstructions, without preventing the free rotary movement of the tooth-bars, substantially as specified.

575,643. SHEET-DELIVERY MECHANISM FOR PRINTING-PRESSES. ROBERT W. JAMIESON, Rochester, N. Y. Filed Sept. 30, 1896. Serial No. 607,510. (No model.)



Claim.—1. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, and a delivery mechanism comprising a discontinuous traveler, two rollers having fixed bearings and to which the ends of said traveler are attached, mechanism for winding said traveler on said two rollers, and a movable roller engaging said traveler and adapted to extend the same from said impression-cylinder and to unwind said traveler from said two rollers.

2. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, and a delivery mechanism comprising a discontinuous traveler, two rollers having fixed bearings to which the ends of said traveler are attached, mechanism for winding said traveler on said two rollers, and means for unwinding said traveler from said two rollers and at the same time extending the same from the impression-cylinder to the delivery-table.

3. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, and a delivery mechanism comprising a discontinuous traveler, two rollers having fixed bearings and to which the ends of said traveler are attached, mechanism for winding said traveler on said two rollers, mechanism for locking one of said rollers against rotation, means for unwinding said traveler from said two rollers and extending the same to the delivery-table from the impression-cylinder without movement with reference to the means for so extending the same.

4. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table and a delivery mechanism, comprising a discontinuous traveler, two rollers having fixed bearings to which the ends of said traveler are attached, a traveling carriage having a roller thereon engaging said traveler and adapted to extend the same to and from said two rollers, means for intermittently holding one of said two rollers with fixed bearings against rotation, and means for holding the roller upon said traveling carriage against rotation.

5. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table and a delivery mechanism comprising a discontinuous traveler, two rollers having fixed bearings to which the ends of said traveler are attached, a traveling carriage having a roller thereon engaging said traveler and adapted to extend the same to and from the impression-cylinder, means for intermittently holding one of said two rollers with fixed bearings, means for intermittently holding the roller on said carriage against rotation, and means for revolving said two rollers with fixed bearings to wind said traveler thereon.

6. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, two rollers adjacent to said impression-cylinder having fixed bearings and to which the ends of said traveler are attached, mechanism for winding said traveler on said two rollers, and a traveling carriage having a roller thereon engaging said traveler and adapted to extend the same to and from the impression-cylinder by winding the said traveler off said rollers with fixed bearings.

7. In a sheet-delivery apparatus, the combination of an impression cylinder, a delivery-table, a discontinuous traveler, two rollers adjacent to the impression-cylinder having fixed bearings and to which the ends of said traveler are attached, spur-wheels on the axes of said rollers, rack-bars engaging said spur-wheels, springs for actuating said rack-bars to rotate said spur-wheels to wind said traveler upon said rollers, a traveling carriage having a roller thereon engaging said traveler adapted to extend the same from the impression-cylinder and to unwind said traveler from said two rollers, means for holding the roller upon said traveling carriage against rotation while the same is moving from the impression-cylinder, and means for holding the upper one of said two rollers having fixed bearings against rotation during a part of the return of said movable roller and while the sheet is being delivered from said traveler upon the delivery-table.

8. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discoutinuous traveler, a movable roller engaging said traveler intermediate its ends and adapted to extend the same from the impression-cylinder to the delivery-table, and means adjacent to the impression-cylinder for alternately retracting the two ends of said traveler and for permitting the traveler to be extended by said movable roller.

9. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, a movable roller engaging said traveler intermediate its ends and adapted to extend the same from the impression-cylinder to the delivery-table, means adjacent to the impression cylinder for alternately retracting the two ends of said traveler and for permitting the traveler to be extended by said movable roller, and means for holding said movable roller against rotation while the same is moving toward the delivery-table.

10. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, a movable roller engaging said traveler intermediate its ends and adapted to extend the same from the impression-cylinder to the delivery-table, means adjacent to the impression-cylinder for alternately retracting the two ends of said traveler and for permitting the traveler to be extended by said movable roller, means for holding said movable roller against rotation while the same is moving toward the delivery-table, and mechanism for holding said traveler stationary at the points where the sheet is resting thereon while said movable roller is moving toward the impression-cylinder.

11. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table and a delivery mechanism comprising a discontinuous traveler, two rollers having fixed bearings and to which the ends of said traveler are attached, one of said rollers being set in a higher plane than the other, a movable roller over which said traveler runs from one of said two rollers to the other, means for moving said movable roller to and from the two rollers having fixed bearings, mechanism for holding the movable roller against rotation while the roller is moving from the impression-cylinder, means for releasing said roller to permit it to rotate during its return toward the impression-cylinder, mechanism for holding the upper of said two rollers against rotation while the movable roller is making the first portion of its return movement toward the impression-cylinder and then for releasing the same, and means for rotating said two rollers having fixed bearings to wind said traveler thereon.

12. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, and a delivery mechanism comprising a discontinuous traveler, two rollers B and C having fixed bearings and to which the ends of said traveler are attached, a movable roller D over which said traveler runs, means for moving said movable roller to and from the rollers B C, a ratchet-wheel d^3 and dog d^4 for holding the roller D against rotation, means for throwing said dog into engagement with the ratchet-wheel when the roller D begins to move from the impression-cylinder, means for disengaging said dog from said ratchet-wheel when said roller D reaches its extreme position of extension, a ratchet-wheel b and a dog b' for holding and releasing the roller B, and means for holding said dog b' in engagement with said ratchet-wheel b while the roller D is making the first portion of its return movement toward the impression-cylinder, means for disengaging said dog b' from said ratchet-wheel b during the latter part of the movement of said roller D toward the impression-cylinder, a spur-wheel upon the axes of each of said rollers having fixed bearings and a spring-actuated rack for engaging each spur-wheel.

13. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, and a delivery mechanism comprising a discontinuous traveler, two rollers B and C having fixed bearings and to which the ends of said traveler are attached, a movable roller D over which said traveler runs, means for moving said movable roller to and from the rollers B C, a ratchet-wheel d^3 and dog d^4 for holding the roller D against rotation, means for holding said dog in engagement with the ratchet-wheel while the roller D is moving from the impression-cylinder, means for disengaging said dog from said ratchet-wheel when said roller D reaches its extreme position of extension, a ratchet-wheel b and a dog b' for holding and releasing the roller B, and means for holding said dog b' in engagement with said ratchet-wheel b while the roller D is making the first portion of its return movement toward the impression-cylinder, means for disengaging said dog b' from said ratchet-wheel b during the latter part of the movement of said roller D toward the impression-cylinder, and means for rotating said rollers B and C to wind said traveler thereon.

14. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, and a delivery mechanism comprising a discontinuous traveler, two rollers B and C having fixed bearings and to which the ends of said traveler are attached, a movable roller D over which said traveler runs, means for moving said movable roller to and from the rollers B C, a ratchet-wheel d^3 and dog d^4 for holding the roller D against rotation, means for holding said dog in engagement with the ratchet-wheel while the roller D is moving from the impression-cylinder, means for disengaging said dog from said ratchet-wheel when said roller D reaches its extreme position of extension, a ratchet-wheel b and a dog b' for holding and releasing the roller B, and means for holding said dog b' in engagement with said ratchet-wheel b while the roller D is making the first portion of its return movement toward the impression-cylinder, means for disengaging said dog b' from said ratchet-wheel b during the latter part of the movement of said roller D toward the impression-cylinder, spur-wheels B' and C' upon the axis of said rollers B and C, rack-bars H and H' engaging said spur-wheels and springs h^3 h^3 compressed by the unwinding of the traveler from said rollers B and C and winding said traveler upon said rollers by expansion of said springs.

15. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table and a delivery mechanism comprising a discontinuous traveler, two rollers having fixed bearings and to which the ends of the traveler are attached, a movable roller engaging said traveler between its ends and adapted to reciprocate to and from the impression-cylinder and to unwind said traveler from said two rollers, means for winding said traveler upon said two rollers, a reciprocating type-bed, and means connecting said type-bed and said movable roller for reciprocating the same.

16. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table and a delivery mechanism comprising a discontinuous traveler, two rollers having fixed bearings and to which the ends of the traveler are attached, a movable roller engaging said traveler between its ends and adapted to reciprocate to and from the impression-cylinder and to unwind said traveler from said two rollers, means for winding said traveler upon said two rollers, a rack attached to said movable roller for reciprocating the same, a reciprocating type-bed, a rack on said type-bed and gearing between said two racks.

17. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, means for independently retracting each end of the traveler and reciprocating means acting upon said traveler between its ends for extending the traveler from the impression-cylinder to the delivery-table.

18. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, means for independently retracting each end of the traveler, and positively-actuated reciprocating means acting upon said traveler between its ends for extending the traveler from the impression-cylinder to the delivery-table.

19. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, means for independently retracting each end of the traveler, and reciprocating means acting upon said traveler between its ends for extending the traveler from the impression-cylinder to the delivery-table, a reciprocating type-bed, and means connecting said type-bed and said reciprocating means for operating the same.

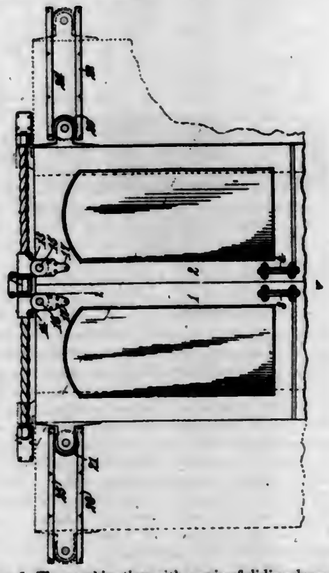
20. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, a tension device for independently retracting each end of the traveler, and reciprocating means acting upon said traveler between its ends for extending the traveler from the impression-cylinder to the delivery-table.

21. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, a stationary tension device for retracting each end of the traveler, and reciprocating means acting upon said traveler between its ends for extending the traveler from the impression-cylinder to the delivery-table.

22. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, means for independently retracting each end of the traveler, reciprocating means acting upon said traveler between its ends for extending the traveler from the impression-cylinder to the delivery-table and devices co-operating with one of said retracting means whereby the same is alternately restrained from and brought into action.

23. In a sheet-delivery apparatus, the combination of an impression-cylinder, a delivery-table, a discontinuous traveler, means for independently retracting each end of the traveler, reciprocating means acting upon said traveler between its ends for extending the traveler from the impression-cylinder to the delivery-cable, and devices for restraining one of said retracting means from operation during movement of said reciprocating means to the delivery-table and until the sheet is delivered from said traveler and then bringing said retracting means into operation whereby the retraction of the two ends of the traveler is equalized.

575,644. SLIDING-DOOR-OPERATING MECHANISM. WALTER A. HEATH, ABRAHAM I. JACOBS, and ALBERT M. KING, Wilmington, Del.; said Heath assignor to said Jacobs and King. Filed Feb. 27, 1896. Serial No. 580,977. (No model.)



Claim.—1. The combination with a pair of sliding doors, of a right and left hand screw-threaded shaft, right and left hand internally-screw-threaded nuts engaging said shaft, and jointed connections between the nuts and the upper ends of the doors, whereby the lower end of either door is susceptible of yielding in a plane parallel with the motion of the doors to prevent binding between the nuts and the shaft, substantially as described.

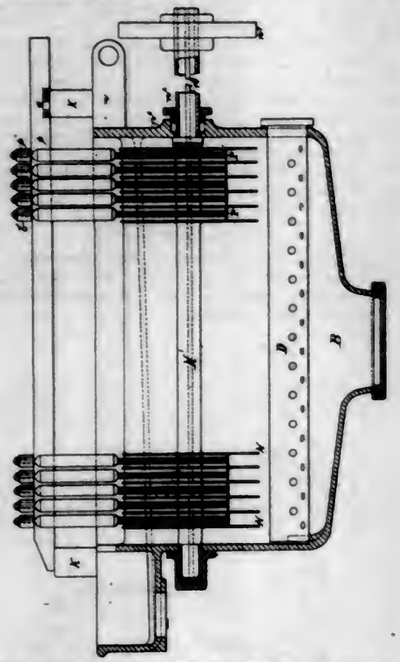
2. The combination with two sliding doors, of a right and left hand screw-threaded shaft, right and left hand internally-screw-threaded nuts engaging said shaft and serving to rotate the same when moved longitudinally thereof, door-hanger plates secured to the upper ends of the doors, and pivot-pins arranged at right angles to the line of motion of the doors and pivotally connecting the door-hanger plates with the screw-threaded nuts, substantially as and for the purposes described.

3. The combination with two sliding doors, of a right and left hand screw-threaded shaft, screw-threaded nuts engaging said shaft and constructed with pendent tailpieces, and door-hanger plates secured to the upper ends of the doors and pivotally connected with the said pendent tailpieces of the screw-threaded nuts, whereby the motion of either nut serves to rotate the shaft and either door is susceptible of yielding in a plane parallel with the plane of motion of the doors, substantially as and for the purposes described.

575,645. APPARATUS FOR PURIFYING OR DISINFECTING. EUGÈNE HERMITE, Paris, France. Filed Jan. 17, 1894. Serial No. 497,148. (No model.) Patented in France Feb. 26, 1887, No. 181,832, and Sept. 7, 1887, No. 185,690; in England Apr. 13, 1887, No. 5,393, and in Belgium Nov. 24, 1887, No. 79,699, and July 3, 1893, No. 105,383.

Claim.—1. The mode herein described of disinfecting consisting in electrolyzing a solution containing chlorid of magnesium and sub-

jecting the material to be disinfected to the action of the electrolyzed solution, substantially as set forth.



2. The mode herein described of disinfecting, consisting in electrolyzing a solution containing a mixture of chlorid of magnesium and chlorid of sodium, such as sea-water or mother liquors from salt-works for instance, and subjecting the material to be disinfected to the action of such electrolyzed solution, substantially as described.

3. An apparatus for the electrolysis of solutions of chlorid of magnesium or of a mixture of chlorid of magnesium and chlorid of sodium, consisting of a vat in which are arranged one or several revolving shafts carrying a series of zinc disks and constituting the negative electrode, in combination with the positive electrodes situated between these disks and consisting of rods or tubes of glass, crystal or other insulating material having platinum cloth thereon, substantially as hereinbefore described.

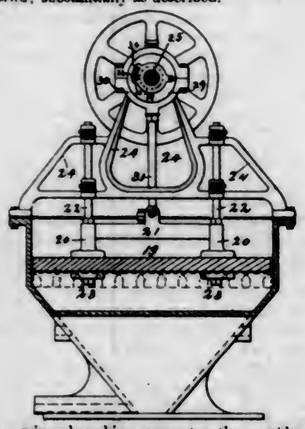
4. In electrolytic apparatus, the positive electrode consisting substantially of a rod or tube of glass, crystal, or other insulating material, covered with a platinum cloth, in combination with a tube of copper or any other conducting metal, slotted at its lower end to receive the top end of the tube or rod of glass and of the platinum web, with a compression-ring around the conducting-tube, with a wire of lead or other soft conducting material wound around the end of the platinum cloth, and with a view of insuring the perfect compression and contact between the conducting-tube and the platinum cloth, and in combination with means for preserving the conducting-tube and the joint of this tube with the platinum cloth from contact with the liquid to be electrolyzed, substantially as hereinbefore described.

5. A positive electrode having a glass tube with a platinum covering, a glass insulating-casing R, fused or welded at its lower extremity to the glass tube, supporting the platinum cloth, so as to include this in the weld and form a tight joint at this point, substantially as hereinbefore described.

575,646. JIG FOR MINERAL OR ORE WASHING. CHARLES J. HODGE, Houghton, Mich. Filed June 29, 1896. Serial No. 597,424. (No model.)

Claim.—1. In a mineral-washing apparatus of the character described, the combination with the alternately-operating plungers, the reciprocating cross-heads provided with vertical sockets, the guide-rods passing through said sockets and plungers, the securing-nuts, the stationary cross-heads through which said rods pass and the pitmen connected with said reciprocating cross-heads: substantially as described.

2. In a mineral-washing apparatus of the character described, the combination with the alternately-operating plungers, the vertically-reciprocating cross-heads connected therewith provided with sockets at each end, the vertical guide-rods passing through said sockets and plungers, the securing-nuts, the stationary cross-heads through which said rods pass, the pitmen connected with said reciprocating cross-heads, the eccentric straps or bands and the adjustable eccentrics; substantially as described.



3. In a mineral-washing apparatus, the combination with the tanks, having converging lower ends and vertical upper ends, the transverse partitions dividing the upper part of each of said tanks into two compartments and formed with shoulders at the lower ends, the sieves located in the outer compartments and supported by said shoulders and the outwardly-extending inclined deflecting-plates at the lower ends of said partitions, of the alternately-operating plungers, the reciprocating cross-heads provided with vertical sockets, the guide-rods passing through said sockets and plungers, the stationary cross-heads through which said rods pass, and the pitmen connected with said reciprocating cross-heads, substantially as described.

575,647. BICYCLE GARMENT. FREDERICK HOOPER, London, England. Filed Sept. 5, 1896. Serial No. 605,016. (No model.)



Claim.—As a new article of manufacture, a bicycle garment consisting of drawers or trousers divided vertically at the back and detachably fastened together and provided with a posterior falldown-flap detachably fastened to said divided portions, and a skirt attached to the drawers or trousers at the waistband only, said skirt being divided at the rear through its length from top to bottom and having its divided edges wholly unattached, substantially as described.

575,648. COMPOSITION FOR REPAIRING LEAKS IN PNEUMATIC TIRES. CHARLES S. HOWE and JOHN W. LANGLEY, Cleveland, Ohio. Filed May 19, 1896. Serial No. 592,233. (No specimens.)



Claim.—1. A liquid for repairing leaks in pneumatic vehicle-tires, consisting of a heavy non-oleous liquid containing a mineral gelatinous substance in suspension, substantially as set forth.

2. A liquid for repairing leaks in pneumatic vehicle-tires, consisting of glycerin containing a mineral gelatinous substance in suspension, substantially as set forth.

3. A liquid for repairing leaks in pneumatic vehicle-tires, composed of a heavy non-oleous liquid consisting partly or entirely of glycerin and containing a gelatinous mineral substance in suspension, substantially as set forth.

4. A liquid for repairing leaks in pneumatic vehicle-tires, consisting of a heavy non-oleous liquid containing gelatinous particles of silica in suspension, substantially as set forth.

5. A liquid for repairing leaks in pneumatic vehicle-tires, composed of a heavy non-oleous liquid consisting partly or entirely of glycerin, and containing gelatinous particles of silica in suspension, substantially as set forth.

6. A liquid for repairing leaks in pneumatic vehicle-tires, consisting of glycerin containing gelatinous particles of silica in suspension, substantially as set forth.

7. A liquid for repairing leaks in pneumatic vehicle-tires, consisting of a mixture of glycerin and a solution of water-glass, said mixture being approximately neutralized by an added acid, substantially as set forth.

575,649. VEHICLE-HUB ATTACHMENT. MARTIN V. B. HOWE, Gardner, Mass. Filed Apr. 20, 1896. Serial No. 589,597. (No model.)



Claim.—1. The combination of an axle 13, a grooved sleeve 14 journaled near the outer end of the axle, a nut 16 for holding the sleeve in place, a hub 10, flat, transverse springs 20 and 21 mounted in said hub, and arranged to engage opposite sides of the grooved sleeve 14 to detachably secure the hub upon the axle, and a cover rotatably mounted upon the hub, and having pins for releasing the flat springs from the grooved sleeve, substantially as described.

2. The combination of an axle, a sleeve rotatably mounted on said axle, a nut or bolt threaded onto the axle for keeping the sleeve in place, a hub, means mounted in the hub for detachably engaging said sleeve, and a part or bridge-piece carried by the hub and arranged to substantially engage with the end of the axle to prevent the nut or bolt from unscrewing, substantially as described.

3. The combination of an axle, a grooved sleeve rotatably mounted on said axle, a nut or bolt threaded onto the axle for keeping the sleeve in place, a hub, flat transverse springs mounted in the hub for engaging the grooved sleeve, a part or bridge-piece mounted in the hub, and arranged to substantially engage with the end of the axle to prevent the nut or bolt from unscrewing, and a rotatable cap or cover for the hub having pins for engaging with and releasing the transverse springs, substantially as described.

575,650. TEMPORARY CARTRIDGE-HOLDER. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 28, 1896. Serial No. 607,133. (No model.)

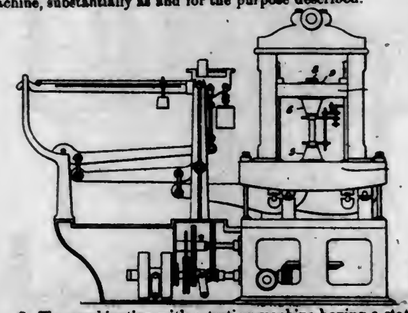


Claim.—1. A temporary cartridge-holder, having its open bottom provided with one or more yielding longitudinal cartridge-retaining ribs, and one or more locating-flanges, and furnished at its lower portion of its forward end with an inwardly-projecting deflecting projection which retards the bullet ends of the cartridges and causes their head ends to issue from the holder in advance of their bullet ends.

2. A temporary cartridge-holder formed of sheet metal, having its top and rear and front ends closed, and furnished at its open lower end with two yielding cartridge-retaining ribs, and two diverging locating-flanges extending below the said ribs, and provided at the lower end of its front wall with an inwardly-extending deflecting-finger which retards the bullet ends of the cartridges, and causes their head ends to issue from the holder in advance of their bullet ends.

575,651. COMPRESSION-MICROMETER FOR TESTING-MACHINES. EDGAR KIDWELL, Houghton, Mich. Filed June 19, 1896. Serial No. 596,149. (No model.)

Claim.—1. The combination with a testing-machine having a stationary platform, a movable draw-head, and means for indicating the stress or compression exerted upon the specimen operated upon, of a pair of blocks attached respectively to said platform and said draw-head, laterally-extending arms on said blocks, a vertically-disposed rod adjustably secured in the lower of said arms and slidingly connected with, but electrically insulated from the other of said arms, a lateral arm adjustably secured to the upper ends of said rod, a micrometer-screw in the outer end thereof having a graduated head acting in engagement with a graduated scale-bar, a set-screw in the outer end of the arm secured to the upper of said blocks, located just beneath said micrometer-screw, an electric battery, a bell, and circuit-wires connecting the screw located beneath said micrometer and a stationary part of the framework of said testing-machine, substantially as and for the purpose described.



2. The combination with a testing-machine having a stationary platform, a movable draw-head, and means for indicating the stress or compression exerted upon the specimen operated upon, of a pair of blocks attached respectively to said platform and draw-head, pressure-blocks secured to the adjacent ends thereof, arms extending downwardly in opposite directions from each of said pressure-blocks, vertically-disposed rods adjustably secured in the lower of said arms by set-screws passing through the outer ends of said arms and engaging the boxes through which said rods pass, the said rods being slidingly connected with, but insulated from the upper pair of said arms, laterally-extending arms secured to both of said rods and adjustable thereon, micrometer-screws in the outer ends thereof having divided heads which act in engagement with graduated scale bars, set-screws in the outer ends of the arms attached to the upper of said pressure-blocks and located directly beneath said micrometer-screws, an electric battery, a bell, and connections between said battery and said rods and screws, whereby upon the contact of the lower ends of the micrometer-screws with the upper ends of said set-screws the circuits will be closed and the bell actuated, substantially as and for the purpose described.

3. The combination with an arm, of a rod slidingly connected therewith, an arm adjustably secured to said rod, the outer ends of said arms being bifurcated and formed with grooves or recesses upon their upper and lower surfaces, boxes fitting between the bifurcated ends of said arms, clips surrounding the ends thereof and having inturned flanges adapted to fit within the recesses in said arms, a set-screw in the outer end of one of said arms, and a micrometer-screw in the outer end of the other of said arms, whereby said set-screw and said micrometer-screw may be released, substantially as and for the purpose described.

575,652. CONTROLLER FOR AIR-MOTORS. WALTER H. KNIGHT, New Brighton, N. Y. Filed Jan. 15, 1896. Serial No. 575,546. (No model.)

Claim.—1. In a motor provided with fluid-actuated main and cut-off valves, and a fluid chest or holder, a controller-valve comprising a throttle-valve and cut off controller-valve, substantially as set forth.

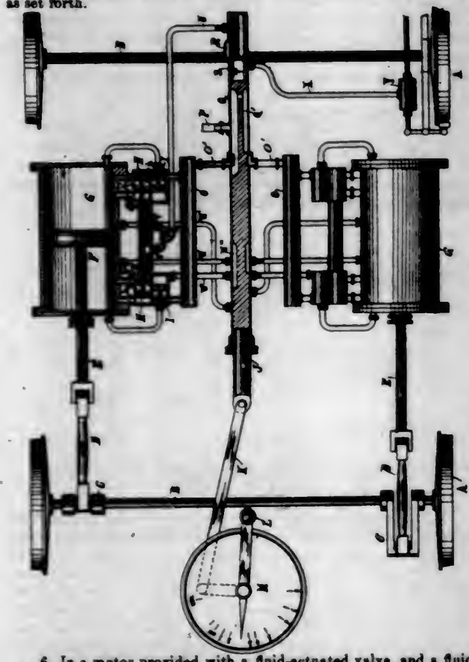
2. In a motor provided with fluid-actuated main and cut-off valves and a fluid chest or holder, a controller-valve comprising a throttle-valve, a reversing controller-valve and a cut-off controller-valve, substantially as set forth.

3. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve comprising a throttle, valve and a reversing controller-valve.

4. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve comprising a throttle and reversing valve and adapted to close the throttle when in its "off" position and operate the reversing mechanism in a backward movement therefrom, substantially as set forth.

5. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve comprising a throttle and reversing valve which is adapted to close the throttle in its initial position, operate the reversing mechanism in a backward movement therefrom,

and open the throttle in a forward movement therefrom, substantially as set forth.



6. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve comprising a throttle and reversing valve which is adapted to close the throttle in its initial position, operate the reversing mechanism in a backward movement therefrom, and in a forward movement from the initial position, first open the pressure to one part of the engine and second to more than one part, substantially as set forth.

7. In a motor provided with fluid-actuated main and cut-off valves, and a fluid chest or holder, a controller-valve comprising a throttle, a reversing-valve and a cut-off controller-valve, said controller-valve being adapted to close the throttle in its initial position, operate the reversing mechanism in a backward movement therefrom, and in its forward movement from the initial position, first open the throttle and second change the cut-off from a lesser to a greater portion of the stroke, substantially as set forth.

8. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve comprising a throttle and reversing valve, and a single handle for operating it, said controller-valve being adapted to open the throttle by a movement of the handle in one direction, and operate the reversing mechanism by a movement of the handle in the opposite direction.

9. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve comprising a throttle and reversing valve, in combination with an operating-handle at each end of the vehicle, each of the handles being adapted to produce similar results by similar movements, substantially as set forth.

10. In a motor provided with fluid-actuated main and cut-off valves and a fluid chest or holder, a controller-valve provided with a throttle adapted to first admit pressure gradually to one part of the motor so as to give a degree of wiredrawing, and then to two or more parts of the motor with a like gradual degree of wiredrawing, substantially as set forth.

11. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve provided with a reversing port and a closed chamber or casing, for holding a definite quantity of compressed air, the controlling-valve being adapted to charge said chamber in one position, and discharge the same to operate the reversing mechanism in another position, substantially as set forth.

12. In a motor provided with a fluid-actuated valve, and a fluid chest or holder, a controller-valve provided with a closed chamber or casing for holding a definite quantity of compressed air, and a reversing-port, said controller-valve being adapted to admit compressed air to the said closed chamber or casing in one position of the valve, and in another position to discharge the contents of said chamber through the reversing-port leading to the main valve, so as to reverse the main valve and cause a reversal of the motor, substantially as set forth.

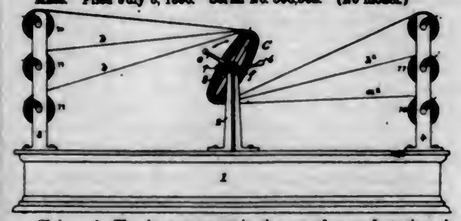
13. A fluid-pressure motor having a fluid-actuated valve, a reversing-port communicating with said valve, and a closed chamber or casing holding a definite quantity of compressed air, in combination with a controller-valve adapted to bring said chamber into communication with a source of fluid-pressure in one position, and cut off said communication and place said chamber in communication with the reversing-passage in another position, so as to reverse the main valve, substantially as set forth.

14. A fluid-pressure motor having a fluid-actuated valve, a reversing-port communicating with said valve, an air-brake, and a controller-valve which is adapted in one position to close the throttle and in another position to reverse the engine, and in an intermediate position to admit air to the air-brakes, substantially as set forth.

15. The combination of a fluid-pressure motor having a fluid-actuated valve, and a reversing-port communicating with said valve, an air-brake, and a controlling-valve which is adapted in one position to open the throttle to said motor, and in another position to close said throttle, and in another position to admit air to the air-brakes, and in still another position to reverse the motor, substantially as set forth.

16. The combination of a fluid-pressure motor having a fluid-actuated valve, an air-brake, and a controlling-valve which is adapted in one position to open the throttle to the motor, and in another position to close the throttle, and in another position to admit air to the air-brake, substantially as set forth.

575,658. **ELECTRICAL CONDENSER.** JOHN C. LEE, Brookline, WILLIAM R. WHITCOTT, Cambridge, and ERNEST C. ROBBS, Medford, Mass., assignors to the American Bell Telephone Company, Boston, Mass. Filed July 8, 1896. Serial No. 598,392. (No model.)



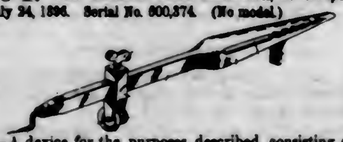
Claim.—1. The improvement in the art of manufacturing electrical condensers, which consists in winding strips of the material constituting the plates, such as metal foil, and of the dielectric, such as paraffined paper, in alternate layers into a flat roll; in heating the roll for a suitable time at a temperature sufficiently high to drive off moisture and to soften the dielectric without injuring the same; and in subjecting the roll to pressure great enough to compress it into a flat, rectangular solid having rounded ends, as set forth.

2. The herein-described method or process of manufacturing electric condensers, which consists in simultaneously unwinding long strips of the material constituting the plates and the dielectric from rolls of the same, and in continuously winding them together in alternate layers into a flattened roll: then heating the roll to a temperature sufficiently high to remove the moisture and to soften the dielectric; and finally forming it by pressure into a flat rectangular solid having rounded ends, as set forth.

3. The herein-described method or process of manufacturing electric condensers, which consists in winding strips of the material constituting the plates and of the dielectric, in layers into a flattened roll, and in subjecting it to pressure whereby the material of the dielectric is caused to yield, and the strips constituting the plates and dielectric are brought into intimate contact and caused to cohere, thereby forming the roll into a thin, flat, rectangular solid having rounded ends, as set forth.

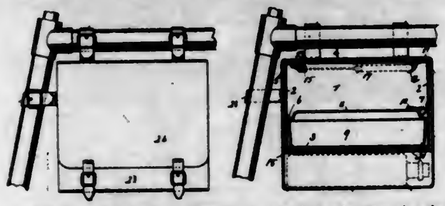
4. As an article of manufacture, an electrical condenser in the form of a flat rectangular solid having rounded ends, and composed of alternate layers of a conductor and a non-conductor, wound together to constitute plates and dielectric of like contiguity throughout, the conductor-layers being provided with suitable terminal attachments, substantially as described.

575,654. **CAN-OPENER.** FRITZ LISCHINSKI, Philadelphia, Pa. Filed July 24, 1896. Serial No. 600,374. (No model.)



Claim.—A device for the purposes described, consisting of the body portion formed at one end with a point and a lateral lug and a broadened portion with a longitudinal slit, a point held in the other end and having an offset, and a bar adjustable on the body portion and carrying a rotary cutter and a guide-wheel, all substantially as and for the purpose specified.

575,655. **BICYCLE LUNCH-BOX.** EDWARD N. LOMAS, Mount Vernon, N. Y. Filed July 9, 1896. Serial No. 598,601. (No model.)



Claim.—A rigid open-top box or receptacle having therein a lug and catch located below its top for the retention of a dish in the lower part of the box, and provided with a rigid flanged cover having holding-strips, said box being surrounded by a leather or soft casing extended below the bottom of the box so as to form a lower compartment, a soft or padding strip being extended across the box-bottom within the lower compartment to form a soft top for the latter, said casing having flaps for covering the cover and a side of the box and for closing the lower compartment, said casing having attaching straps or loops at its top and front substantially as described.

575,656. **CAR-COUPLING.** HENRY M. LUCHIA, Lynn, Mass., assignor to himself and Joseph Langlois, same place. Filed Apr. 22, 1896. Serial No. 588,566. (No model.)



Claim.—1. In a car-coupling, the combination of a chambered draw-head, a knuckle pivoted thereto and provided with a cam-faced lug, a locking-lever provided with a cam-hook adapted to engage said lug for holding the knuckle in closed position, an ejecting-lever pivoted on said locking-lever and adapted to open said knuckle when released, and means for actuating said ejecting-lever.

2. In a car-coupling, the combination of a chambered draw-head provided with a cam, a knuckle pivoted thereto and provided with a cam lug, a vertically-oscillating locking-lever provided with a cam-hook adapted to engage said lug for holding the knuckle in closed position, an ejecting-lever pivoted to said locking-lever and adapted to engage said cam when said locking-lever is operated to release the knuckle.

3. In a car-coupling, the combination of a chambered draw-head provided with a cam, a knuckle pivoted to said draw-head and provided with a cam-faced lug, a vertically-oscillating lever pivoted to said draw-head and provided with a cam-hook automatically engaging said cam-faced lug for holding the knuckle in closed position, an ejecting-lever pivoted to said vertically-oscillating lever and engaging said cam on the draw-head on the release of said locking-lever for swinging out the knuckle and a spring for normally holding said locking-lever in locked position.

4. In a car-coupling, the combination of a chambered draw-head, a knuckle pivoted thereto, and provided with a cam-faced lug, a locking-lever pivoted to said draw-head and provided with a cam-faced hook adapted to engage said cam-lug, an arm connected with said draw-head, a spring interposed between said arm and said locking-lever, a cam on the interior of said draw-head, and an ejecting-lever pivoted on said locking-lever and engaging said knuckle at one end and said cam at the other and operating to open said knuckle when the locking-lever is operated to release it.

5. In a car-coupling, the combination of a knuckle provided with a cam-lug, a spring-pushed lever having a cam-hook engaging said lug, an ejecting-lever pivoted to said spring-pushed lever and having an arm working against a cam in said head, its opposite end engaging an arm of the knuckle and acting to rock said knuckle when released from the spring-pushed lever.

575,657. **SLEIGH ATTACHMENT FOR VEHICLES.** CHARLES LUETED, Sr., Lafayette, La. Filed Jan. 30, 1896. Serial No. 577,395 (No model.)



Claim.—1. In a sleigh attachment for vehicles, the combination with an axle, of bearing-brackets mounted thereon, runners provided with upper and lower radially-disposed arms pivoted to the bearing-brackets eccentrically of the axle, a transverse rock-shaft journaled on the bearing-brackets, located beneath the axle and provided with arms, and the inclined link-bars pivoted to the arms of the rock-shaft and to the upper arms of the runners and forming a toggle connection between the runners and the rock-shaft, substantially as described.

2. In a sleigh attachment for vehicles, the combination of a bearing-bracket provided with a vertical opening to form two sides and having horizontally-disposed arms extending rearward from the bearing-bracket, adapted to embrace an axle and provided with openings, a tapering key arranged in the openings of the arms and adapted to secure the bearing-bracket to the axle, a runner, provided with arms pivoted in the vertical opening of the bracket, a rock-shaft journaled on the bracket and having an arm, and a link-bar connected with the arm of the rock-shaft and an arm of the runner, substantially as described.

3. In a sleigh attachment, the combination of a runner provided with a perforation, a shoe having a hook-shaped projection passing through the perforation of the runner and interlocked with the latter, said shoe being provided at opposite sides with flanges receiving the runner and adapted to embrace a wheel, and a fastening device for securing the shoe to the runner, substantially as described.

575,658. **GALVANIC ATTACHMENT FOR EYEGLASSES.** ABRAHAM MAYER, New York, N. Y. Filed June 3, 1896. Serial No. 594,067. (No model.)

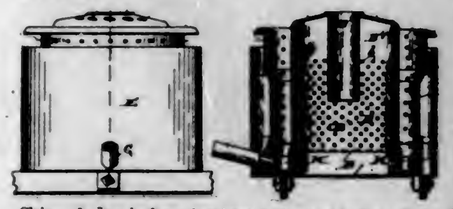


Claim.—1. In an eyeglass having a galvanic attachment, a means for producing a main therapeutic circuit through a portion of the body in combination with means for producing one or more local circuits at the metallic terminals of said main therapeutic circuit, substantially as described.

2. In a battery-cell for eyeglasses a nose-piece consisting of a case of metal, an insulating-rim of corrugated material fitting said case, a central electrode fitting said rim of corrugated material, and an excitant between said case and said electrode, substantially as described.

3. In an eyeglass two contact-batteries each composed of a metallic case carrying a central electrode insulated therefrom and an excitant between the case and electrode the case of one contact-battery being of a different metal from that in the other and each battery-case being electrically connected to the eyeglass-frame, substantially as described.

575,659. HYDROCARBON-BURNER. EDWIN G. MUMBREY, Detroit, Mich., assignor of one-fourth to John Hutton, William G. Hastie, and H. S. Wright, same place. Filed Nov. 27, 1896. Serial No. 613,693. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of a base provided with an annular vaporizing-channel, and foraminous walls of equal height located thereabove forming a combustion-chamber between them, one of the foraminous walls constructed so as to admit more air into the combustion-chamber than is admissible through the other foraminous wall, and being imperforate at its upper end, for the purpose set forth.

2. In a hydrocarbon-burner, the combination of a base provided with an annular vaporizing-channel, and foraminous walls located thereabove forming a combustion-chamber between them, the inner foraminous wall constructed to admit more air into the combustion-chamber than is admissible through the outer foraminous wall, for the purpose set forth.

3. In a hydrocarbon-burner, the combination of a base provided with an annular vaporizing-channel, an inner and an outer foraminous wall located thereabove forming a combustion-chamber between them, the inner wall provided with a greater number of openings throughout its perforated surface which openings are located nearer together than the openings in the outer wall, for the purpose set forth.

4. In a hydrocarbon-vapor-generating burner, the combination of a base formed with an annular vapor-generating channel which is closed at the bottom and open at the top, and inner and outer separable foraminous walls located thereabove forming a combustion-chamber between them, the inner wall made imperforate toward its upper end, the outer wall extending upward about the imperforate end of the inner wall and provided with openings which extend to the top thereof, said walls being of substantially the same height.

5. In a hydrocarbon-vapor-generating burner, the combination of a base provided with an annular vapor-generating channel, and foraminous walls located thereabove forming a combustion-chamber between them, the inner foraminous wall made imperforate toward its upper end and formed with an inwardly-projecting cap above the imperforate portion of said wall, the outer wall extending upward about the imperforate end of the inner wall to substantially the same height and provided with openings which extend to the top thereof for the purpose set forth.

6. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel, and foraminous walls located thereabove forming a combustion-chamber between them, the outer foraminous wall offset toward its upper end to widen the upper portion of the combustion-chamber, for the purpose set forth.

7. In a hydrocarbon-vapor-generating burner, the combination of a base provided with a single annular vaporizing-channel, foraminous walls located thereabove forming a single combustion-chamber between them, the inner wall made imperforate toward its upper end and provided with an inwardly-projecting cap and with an air-draft pipe depending from said cap and opening therethrough, the outer wall extending upward about the imperforate end of the inner wall to substantially the same height, and provided with openings which extend to the top thereof, for the purpose set forth.

8. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel, a feed-pipe communicating therewith, foraminous walls located above said channel forming a combustion-chamber between them, and a vertically-corrugated ring located within the vaporizing-channel, substantially as and for the purpose described.

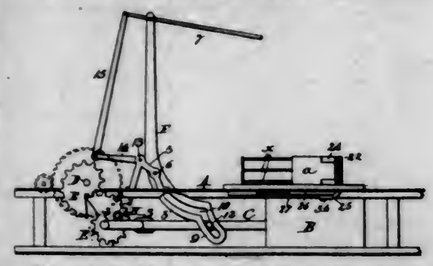
9. In a hydrocarbon-burner, the combination of a base provided with an annular vaporizing-channel, and foraminous walls located thereabove forming a combustion-chamber between them, the inner wall formed with openings toward its lower end more closely spaced one from another than the openings of the outer wall, the upper portion of said inner wall being imperforate, for the purpose described.

10. In a hydrocarbon-burner, a base provided with a vaporizing-channel, and a ring located in said channel provided with vertical corrugations or projections around its margin forming a series of pockets or depressions, for the purpose set forth.

11. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel, and foraminous walls located thereabove forming a combustion-chamber between them, said foraminous walls spaced a greater distance the one from the other at the top than at the bottom thereof, for the purpose set forth.

12. In a hydrocarbon-burner, the combination with a base provided with a vaporizing-channel, of a ring situated in said channel, and having a series of side pockets or depressions, substantially as set forth.

575,660. BALING-PRESS. MOSES C. NIXON, Omaha, Nebr. Filed May 31, 1894. Serial No. 513,022. (No model.)



Claim.—1. In a baling-press, the combination, with a suitable supporting-frame, of a reciprocating plunger, a feeder-bar pivotally secured to said supporting-frame provided with an end having a slot therein, a pin secured to said plunger-bar and working within said slot, an auxiliary shaft connected to said main supporting-frame and provided with an outwardly-extending arm, a feeder pivotally secured within the end of said feeder-bar and a connecting-rod securing said feeder to the arm of said auxiliary shaft, all substantially as and for the purpose set forth.

2. In a baling-press, the combination, with a suitable supporting-frame, of a reciprocating plunger, a condenser mounted above said plunger and provided with two pivoted movable wings, said wings being provided with outwardly-extending interlocking fingers, said wings further being secured to the plunger and being actuated by the same to open and close, all substantially as and for the purpose set forth.

3. In a baling-press the combination with a suitable supporting-frame of a condenser, said condenser comprising two pivoted wings, extensions from said wings, a plunger-head, said wings and plunger-head being movably connected so that as the plunger-head reciprocates the pivoted wings are actuated, substantially as and for the purpose set forth.

4. In a baling-press, the combination, with a supporting-standard, A, of the reciprocating plunger-bar, C, provided with the plunger-head, B, a condenser comprising the stationary portion, 22, and the movable wing portions, *a*, *a*, provided with the interlocking fingers, *x*, the shaft, 23, provided with the curved ends, 25, securing said movable wings to the stationary portion, the pivoted levers, 26, being provided with the terminal slots, 29, and 31, said slots 29, being adapted to engage a projecting pin, 28, forming part of the plunger-head, and said slots, 31, adapted to engage the curved ends, 25, of the shaft, 23, all arranged substantially as and for the purpose set forth.

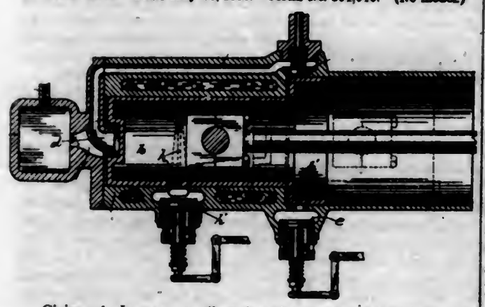
5. In a mechanical movement, the combination, with two mating scroll-gears, a pin upon one of said gears, of a projecting arm provided with a shoe having two curved faces, said faces being adapted to engage said pin upon the mating scroll-gear, so that said scroll-gears are securely and snugly locked while making the change in speed, all substantially as and for the purpose set forth.

6. In a baling-press, the combination, with a suitable supporting-frame of a condenser comprising an upwardly-extending sill, having two pivoted wings secured to said sill, said wings having downwardly-extending arms, said wings being provided with interlocking fingers, of two slotted arms pivotally secured to the frame and having one end thereof secured to said arms, and a pin secured within the plunger-head and working within said arms to actuate said fingers, all substantially as and for the purpose set forth.

7. In a baling-press, the combination, with a main supporting-frame, of a condenser comprising an upwardly-extending sill, 22, provided with the terminal shafts, 23, the hinged wings, *a*, the rack-fingers, *x*, secured to each of said shafts, 23, being provided with the curved lower stem 25, the slotted levers, 26, working in conjunction with said curved stems, 25, said levers being pivotally secured to the main supporting-frame, a reciprocating plunger-head provided with an upwardly-extending pin adapted to reciprocate within the slotted openings, 29, of the arms, 30, to actuate said arms, all substantially as and for the purpose set forth.

8. The combination, with two scroll-gears, of a mechanical means to catch and guide the teeth of said scroll-gears into proper contact at the moment of the change of speed, all substantially as and for the purpose set forth.

575,661. GAS OR OIL ENGINE. WALTER F. TROTTER, Marshalltown, Iowa. Filed May 18, 1896. Serial No. 591,919. (No model.)



Claim.—1. In a gas or oil engine, the combination with a working cylinder, of a mixing or explosion chamber having walls adapted to be highly heated to vaporize and ignite the explosive mixture and communicating with said working cylinder by a constricted passage, an air-feeding cylinder, a passage or duct affording communication between said air-feeding cylinder and said working cylinder and opening into the end of the latter, means for maintaining said duct open during the return stroke and closed during the forward stroke, a fuel-inlet for said chamber for supplying fuel directly to said chamber, an exhaust-port situated at an intermediate portion of the cylinder and means for closing said exhaust-port at a predetermined point in the return stroke whereby air is drawn into the air-feeding cylinder on the forward stroke and on the return stroke the air assists the working piston in driving out the burned gases during part of the stroke and during the remainder of the stroke both pistons act in forcing fresh air into the combustion-chamber, substantially as and for the purpose described.

2. The combination with a working cylinder and a piston moving therein, of an air-feeding cylinder and a piston moving therein, a pipe or duct affording communication between said cylinders and opening into the working cylinder at the end thereof, means for maintaining said duct closed during the forward stroke and open during the return stroke, a mixing or explosion chamber communicating with the end of the working cylinder by a passage of constricted area, means for admitting fuel directly into said mixing-chamber, an exhaust-port situated at a distance from the end of the working cylinder to permit the expulsion of the exploded gases by the joint action of the returning pistou and the freshly-admitted air, and means for closing said exhaust-valve before the end of the return stroke to force the air into the mixing-chamber to cause the same to commingle with the fuel, substantially as described.

3. In a pump for oil or gas engines, the combination with a barrel and a pressure-regulating chamber communicating therewith, of a plunger moving in said barrel, an inlet-duct and an exit-duct, said exit-duct being sealed and unsealed by the movement of said plunger, and means for automatically varying the length of the stroke of said plunger to vary the quantity of oil or gas pumped into the engine, substantially as described.

4. In a pump for oil or gas engines, the combination with a barrel and a pressure-regulating chamber communicating therewith, of a plunger moving in said barrel and having end portions of different diameter to thereby force a portion of the fuel into the pressure-regulating chamber as the plunger advances, and an intermediate portion of less diameter than the smaller of said end portions, an inlet-duct, an outlet-duct sealed and unsealed by said smaller end portion, and means for automatically varying the length of the stroke of said plunger to vary the quantity of fuel fed to the engine, substantially as described.

5. In a pump for oil or gas engines, the combination with a barrel and a pressure-regulating chamber communicating therewith, of a plunger moving in said barrel and having end portions of different diameters to thereby force a portion of the fuel into the pressure-regulating chamber as the plunger advances, and an intermediate portion affording a duct or passage between the barrel and the exit-duct in one position of the plunger, said exit-duct, the same being sealed and unsealed by said smaller end, and an inlet-duct, substantially as described.

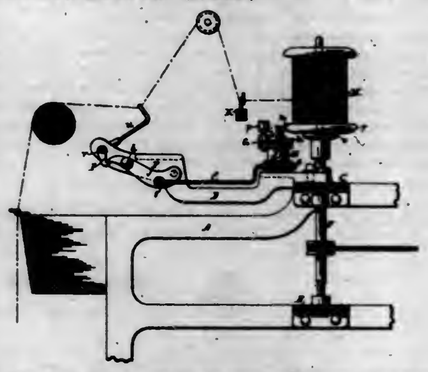
575,662. HEEL-PLATE. HANS P. ANDERSEN, Seattle, Wash. Filed Aug. 5, 1896. Serial No. 601,785. (No model.)

Claim.—1. The heel-plate described comprising the body having the central recess in its under side and also having the offset recesses of dovetail form in cross-section closed at their outer ends and communicating at their inner ends with the central recess, calks having bases shaped in conformity to and arranged in the offset recesses of the body, and the calk-retaining plate arranged in the central recess of the body and connected to said body, substantially as and for the purpose set forth.



2. The heel-plate described comprising the body having the central recess in its under side and also having the offset recesses of dovetail form in cross-section closed at their outer ends and communicating at their inner ends with the central recess, and further having the undercut recesses 11, also communicating with the central recess, calks having bases shaped in conformity to and arranged in the offset recesses of the body, and the calk-retaining plate arranged in the central recess of the body and connected to said body and having lugs arranged in the recesses 11, of the body substantially as and for the purpose set forth.

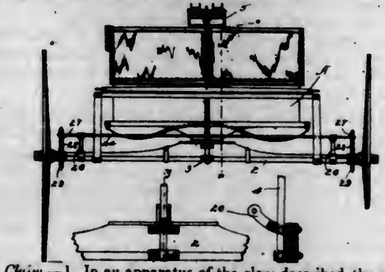
575,663. STOP-MOTION FOR SPOOLING-MACHINES. GEORGE P. BOSWORTH, Pawtucket, R. I. Filed Apr. 6, 1893. Renewed Feb. 4, 1895. Serial No. 537,306. (No model.)



Claim.—1. In a stop-motion for spooling-machines, the combination of the upright sleeve, with the lifting-head attached to the sleeve and adapted by its forcible lateral contact with the rounded head of the spool to lift the spool from its seat, the friction-head carried by the sleeve, and adapted to act upon the edge of the elevated spool, and means for actuating the lifting and friction heads to engagement with the head of the spool substantially as described.

2. In a stop-motion for spooling-machines, the combination of the upright sleeve, with the lifting-head attached to the sleeve and adapted by its contact with the rounded head of the spool to lift the spool from its seat, the adjustable arm carried by the sleeve and provided with a friction-head adapted to act upon the edge of the spool, and the drop-lever connected with the sleeve to rotate the same on the breakage of the thread, substantially as described.

575,664. RUNAWAY-HORSE CHECK. AARON GRUENBERG, Minneapolis, Minn., assignor to George J. Gruenberg, same place. Filed Sept. 1, 1894. Serial No. 521,947. (No model.)



Claim.—1. In an apparatus of the class described, the combination with the shaft having operative connection with the vehicle-wheels, and the reels mounted loosely upon said shaft, of the controlling mechanism secured to said clutches, the springs actuating said controlling mechanism to hold said clutches in engagement with said reels, and the catch upon said controlling mechanism adapted to engage a suitable lug to hold the clutches in disengaged position against the tension of said spring.

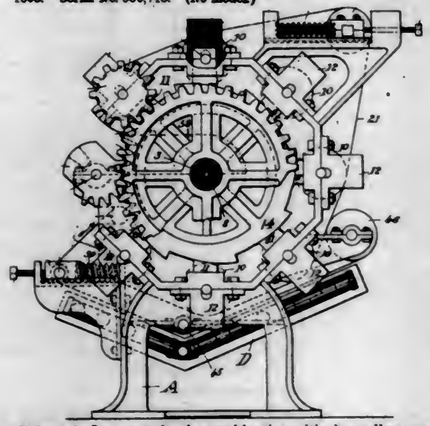
2. In an apparatus of the class described, the combination with the reel-carrying shaft independent of the vehicle-axle, and the reels turning freely on said shaft, of the clutches slidably mounted upon said shaft intermediate of said reels, means for simultaneously throwing said clutches into engagement with said reels, means for holding them in disengaged position, the shaft intermediate of said reel-carrying shaft and the running-gear of the vehicle, the connection between said shafts, and the connection between said intermediate shaft and running-gear.

3. In an apparatus of the class described, the combination with the buggy and the reel-carrying frame attached thereto, the reels turning freely upon a shaft mounted in said frame, of the clutches slidably journaled upon said shaft, the spring-controlled mechanism normally holding said clutches out of engagement with said reels, the means for locking said mechanism in restraining position, and the operative connection between said clutches and the running parts of the vehicle.

4. In an apparatus of the class described, the combination with the buggy and the reel-carrying frame connected thereto, the rein-carrying reels turning loosely upon a shaft in said frame, of the clutches having sliding connection with said shaft, the means for throwing said clutches into engagement with said reels, the sprocket keyed to said shaft and the gear connection between said sprocket and other sprockets geared to the wheels of the vehicle.

5. In an apparatus of the class described, the combination with the buggy and the reel-carrying frame attached thereto, the rein-carrying reels turning loosely upon said shaft in said frame, the clutches journaled upon and turning with said shaft, of means for throwing said clutches into engagement with said reels, the shaft intermediate of said reel-carrying shaft and the wheels of the vehicle, the gear connection between said shafts, and the gear connection between said second shaft and the wheels of said vehicle.

575,665. MANGLE. CHRISTIAN JENSEN, St. Paul, Minn., assignor of one-half to Thomas Wiltbank, Minneapolis, Minn. Filed Jan. 30, 1896. Serial No. 576,713. (No model.)



Claim.—1. In a mangle, the combination with the endless apron and its carrying-rolls, of the non-rotative tension cylinder or bar, its tension-springs and the adjustable means at each end of the bar for independently limiting the action of the adjacent spring.

2. In a mangle, the combination with the endless apron, of the non-rotative cylinder or bar for said apron, the tension-springs for said bar and the counteracting screws therefor, by the adjustment of which the angular position of the bar may be varied

3. In a machine of the class described, the combination with the heating-drum, the series of apron-carrying rolls arranged symmetrically around the same, and mounted in radially-slidable bearings and the means for simultaneously and uniformly adjusting the position of said rolls to and from said drum, of the train of gearing connecting one of said rolls to a source of power, the sprocket-chain operatively connecting the said first-named roll with all of the other rolls, and the automatic tension device for said chain.

4. In a machine of the class described, the combination with the heating-drum, of the series of rolls arranged symmetrically around the same, their radially-slidable bearings, the means for simultaneously and uniformly adjusting the position of said rolls to and from said drum, the train of differential gear connecting said drum and one of said rolls to a common source of power, the chain operatively connecting said roll with all of the other of said rolls, and the automatic tension device for said chain.

5. In a machine of the class described, the combination with the heating-drum and the series of rolls arranged around the same, of the radially-slidable bearings for said rolls, the springs tending to thrust said bearings inward, the cam-wheels engaging said bearings, the segmental gear upon each of said wheels, the connected segmental pinions engaging each of said gears, the lever for turning said pinions, and the dog-and-ratchet-retaining device for said pinions.

6. In a mangle, the combination with the smoothing-drum, of the series of apron-carrying rolls surrounding and radially adjustable to and from the same, the springs for holding said rolls at the inner limit of adjustment, the cam-wheel at each end of the machine for simultaneously and uniformly engaging the bearings of the rolls and thrusting said rolls outward, and means for simultaneously and uniformly operating said wheels to adjust the position of said bearings.

7. In a mangle, the combination with the heating-drum, of the series of apron-carrying rolls surrounding the same, the cams for uniformly and simultaneously adjusting the radial position of said rolls with reference to said drum, the sprocket-wheels carried by said rolls, the chain for driving said sprocket-wheels, and the automatic tension device for said chain.

8. In a mangle, the combination with the heating-drum, of the series of rolls surrounding the same, their radially-slidable bearings, the cams for engaging and uniformly and simultaneously adjusting said bearings to and from said drum, the differential driving-gear connecting the source of power with said drum and one of said rolls, whereby they may be operated at will at the same or different speeds, the chain-and-sprocket connection between the first-named roll and the other rolls of the series, whereby they are all driven positively at a uniform speed, and the automatic tension device for said chain.

9. In a mangle, the combination with the heating-drum, of the series of rolls surrounding the same, their radially-slidable bearings, the springs tending to thrust said bearings toward said drum, the cam-wheels engaging said bearings, the gears carried by said cam-wheels, the segmental pinions engaging said gears fixed upon a counter-shaft, means for turning said counter-shaft and for holding it in adjusted positions, and adjustable means for driving said rolls from the source of power at the same or different peripheral speed, as that of said drum.

575,666. PLOW-POINT. CHARLES LA DOW, Albany, N. Y. Filed Nov. 21, 1896. Serial No. 612,921. (No model.)



Claim.—1. As a new article of manufacture, a plowshare having a cast-metal point integral therewith, and a wrought-metal strip cast in the metal of the point only, substantially as set forth.

2. A cast-metal plow-point having a wrought-metal strip embedded in one of its faces, substantially as shown and described.

3. A cast-metal plow-point having one face provided with a wrought-metal strip extending lengthwise thereof, and having cast-metal borders at opposite sides of said strip.

4. A cast-metal plow-point having a wrought-metal strip embedded in one face, and retained therein by the cast metal overlapping its edges.

5. A cast-metal plow-point having a wrought-metal strip embedded in one face and held in position by projecting portions of the cast metal entering cavities or openings in the wrought metal.

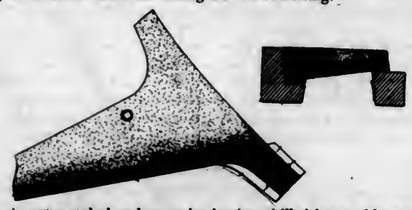
6. A cast-metal plow-point having a wrought-metal strip embedded in one face; the strip being tinned roughened, or indented to cause the cast metal to engage with and prevent it from moving relatively thereto.

7. A cast-metal plow-point combined with a strip of soft metal conforming to the contour of the face of the point and cast therein.

575,667. PLOW SHARE AND POINT. CHARLES LA DOW, Albany, N. Y. Filed Dec. 15, 1896. Serial No. 615,785. (No model.)

Claim.—1. As a new article of manufacture, a cast-metal plowshare having its point composed of vertical or substantially vertical strata of alternately hard and soft metal disposed lengthwise therein, the edge strata thereof being hard, substantially as and for the purpose set forth.

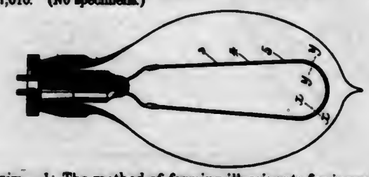
2. A cast-metal plowshare-point having its lower marginal portions hardened by chilling, and the intervening portion kept normally soft by its contact with sand during the act of casting.



3. A cast metal plowshare-point having chilled lower side marginal portions, and an unchilled lower intervening portion substantially as described whereby the greater friction or abrasion to which its corners are subjected is compensated for by their greater hardness, and the rate of receding wear of the chilled and unchilled portion is made more nearly equal.

4. A cast-metal plowshare-point having its lower side arched substantially as described, the under side of the top of said arch being composed of soft metal and the lower parts thereof of hard metal thereby forming runners which elevate the soft portion, whereby the greatest wear of the under side of the point is made to come on the hardest portions thereof.

575,668. ILLUMINANT FOR INCANDESCENT LAMPS. ALEXANDER DE LODYGUINE, Pittsburg, Pa. Filed Apr. 10, 1894. Serial No. 507,010. (No specimens.)



Claim.—1. The method of forming illuminants for incandescent lamps which consists in imparting the desired shape to a conducting-fillet, immersing said fillet in a mixture of hydrogen and a gaseous chlorin compound of a refractory metal, and heating the fillet while so immersed, substantially as described.

2. The method of forming illuminants for incandescent lamps, which consists in imparting the desired shape to a conducting-fillet, immersing said fillet in a mixture of hydrogen and a gaseous oxychlorid of refractory metal, and heating the fillet so immersed, substantially as described.

3. The method of forming illuminants for incandescent lamps which consists in imparting the desired shape to a conducting-fillet, immersing said fillet in a mixture of hydrogen and a gaseous oxychlorid of a refractory metal, and passing an electric current through said fillet of sufficient volume to heat the same to such a temperature as to cause the deposition of the metal from the gaseous mixture, substantially as described.

4. The method of forming illuminants for incandescent lamps, which consists in imparting the desired shape to a conducting-fillet, immersing said fillet in a mixture of hydrogen and molybdenum oxychlorid, and heating the fillet so immersed, substantially as described.

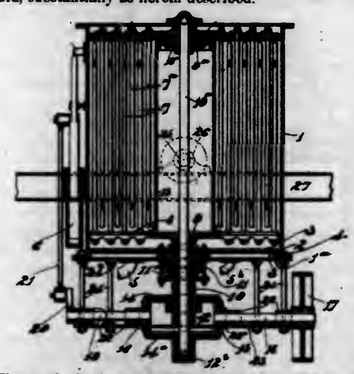
5. The method of forming illuminants for incandescent lamps which consists in imparting the desired shape to a conducting-fillet, passing gaseous hydrochloric acid over heated molybdic acid, mixing the gas so formed with hydrogen, heating said fillet and immersing it in the mixture while hot, substantially as described.

6. An illuminant for electric lamps composed exclusively of an incandescing body of molybdenum, substantially as described.

7. An illuminant for electric lamps composed of an incandescing body of molybdenum, and containing a platinum fillet, substantially as described.

575,669. SEPARATION OF METALS AND METALLIC COMPOUNDS FROM ORES OR OTHER SUBSTANCES. GEORGE ROBSON, Dolgelly, England, assignor to himself, and Samuel Crowder, London, England. Filed July 18, 1894. Serial No. 517,937. (No model.) Patented in England Jan. 8, 1894, No. 427; in Transvaal Apr. 2, 1894, No. 617; in France July 5, 1894, No. 239,619; in Germany Nov. 24, 1894, No. 82,722; in Victoria Oct. 29, 1895, No. 12,628; in New South Wales Oct. 31, 1895, No. 6,163; in South Australia Oct. 31, 1895, No. 3,075, and in New Zealand Nov. 5, 1895, No. 3,035.

Claim.—1. The herein-described mode of separating and recovering finely-divided metal and metallic compounds from finely-divided substances, which consists in intimately and thoroughly mixing said substances with a diluent liquid containing a fatty substance so that the metallic portions are taken up by the fatty substance then removing the oily liquid with metallic matter from the said finely-divided substances and then separating the metallic matter from said oily liquid, substantially as herein described.



2. The method of recovering metals and metallic compounds from finely-divided substances, which consists in thoroughly and mechanically agitating and mixing a fatty oil with said substances while the same are in a moist or plastic state due to admixture of water therewith, then drawing off the fatty oil carry the metal particles, and metallic compounds from said subetances, and then separating the metals and metallic compounds from the oil, substantially as described.

3. The herein-described mode of recovering metals and metallic compounds from finely-divided substances in a moist state, which consists in passing oil through the mass of finely-divided material so that the oil floats off the metallic portions against the force of gravity, and removing the oil carrying said metallic particles and separating the metallic portions therefrom, subetantially as described.

4. The herein-described method of separating and recovering finely-divided metal and metallic compounds from finely-divided substances which consists in forming said finely-divided substances into a moist or pasty mass by admixture therewith of water, floating off finely-divided metallic compounds from said mass by agitating the same with an oily liquid, drawing off the oily liquid, and separating therefrom the metallic matter carried off thereby, substantially as described.

5. The herein-described method of washing out metals and metallic compounds from finely-divided substances, which consists in causing an oily liquid to flow in a practically continuous stream through the said substances while the same are in a stirred or agitated state, separating the metallic matter from the oily liquid by gravity after it has been removed from the said substances, and afterward again bringing the oily liquid into contact with the said substances for reuse, substantially as herein described.

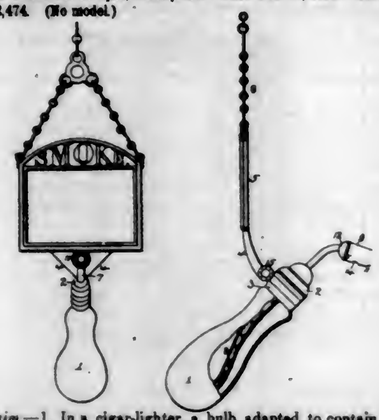
6. The combination of the horizontal supporting-beams, the closed separating vessel having the inlet and outlet pipes and the driving gear at its lower end, said vessel having the lateral trunnions journaled in said beams and the lateral arms 28 and 28ª above and below the planes of the beams as and for the purposes described.

7. The combination of the outer casing, the vertical shaft passing therethrough and at one end of the casing, having the disk provided with stirring-arms extending longitudinally of the casing, a sleeve on said shaft and turning oppositely thereto, a disk in the casing on the sleeve having the stirring-arms extending longitudinally of the shaft and between the first-mentioned stirrer-arms, brackets at the lower end of the casing having bearings for the lower ends of the sleeve and shaft, and gears on the sleeve and shaft provided with means for driving them in opposite directions, substantially as described.

8. For separating and recovering metallic matter from finely-divided substances containing the same, apparatus comprising a pivoted vessel having a perforated or reticulated false bottom and inlet and outlet passages for oily liquid, stirrers arranged within said vessel, a pump carried by said vessel and adapted to cause oily liquid to flow therethrough and mechanism carried by said vessel for driving said stirrers and pumps substantially as herein described.

9. In a separator, the combination of the cylindrical casing, the central longitudinal shaft therein, the disk on the shaft at one end of the casing having the stirrers, the sleeve turnable on the shaft, the disk on said sleeve in the opposite end of the casing having the stirrers extending between and parallel with the opposite stirrers, the central closed longitudinal cylinder 15, between and engaging said disks, and gearing rotating the sleeve and shaft in opposite directions, substantially as described.

575,670. CIGAR-LIGHTER. SAMUEL J. TURNER, Minneapolis, Minn., assignor of three-fourths to Henry J. Glasser, Charles T. Glasser, and Thomas P. Jumper, same place. Filed Dec. 17, 1895. Serial No. 572,474. (No model.)



Claim.—1. In a cigar-lighter, a bulb adapted to contain oil, a tube extending therefrom, and a wick extending from the bulb through the tube, combined with a burner having a small central orifice, and into which the outer end of the wick extends, the burner being applied to the outer end of the tube and adapted to have heat applied thereto for the purpose of generating gas; and means for suspending the lighter so that the burner will be slightly over the flame, substantially as shown.

2. In a cigar-lighter, a bulb adapted to contain oil, a tube extending therefrom, and a burner applied to the outer end of the curved end of the tube, combined with a wick which extends through the tube into the burner and a flame-protector applied to the burner, and having an opening for the escape of the flame, the burner being tilted forward so that it is slightly over the flame, substantially as described.

3. In a cigar-lighter the combination of a bulb adapted to contain oil, a burner provided with an opening adapted for the escape of gas, a wick adapted to conduct oil to the burner, a flame-protector provided with an opening adapted for the escape of the flame at its forward end and an auxiliary opening on the under side of the protector near the outer end of the burner, substantially as herein set forth.

4. In a cigar-lighter the combination of a bulb, a burner with an opening therein, a tube leading from the bulb to the burner, said tube inclosing a wick adapted to conduct oil from the bulb to the burner, a flame-protector provided with an opening adapted for the escape of the flame at its forward end, an auxiliary opening on the under side of the protector near the outer end of the burner, and means for suspending the whole, substantially as specified.

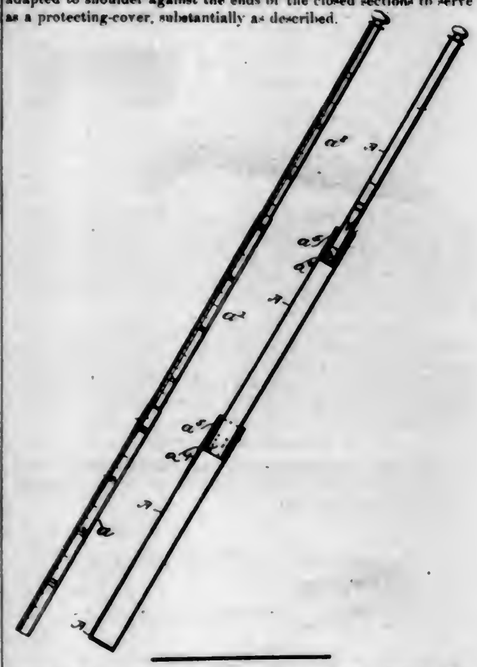
5. In a cigar-lighter the combination of a bulb, a burner provided with an opening adapted for the escape of gas, a tube leading from the bulb to the burner, said tube inclosing a wick adapted to conduct oil to the burner, a flame-protector composed of wire-gauze provided with an opening adapted for the escape of the flame from its outer end, an auxiliary opening on the under side of the protector near the outer end of the burner, and means for suspending the whole in such manner that the burner is slightly over the flame of the lighter, substantially as herein shown and described.

6. In a cigar-lighter, the combination of a burner with an opening therein adapted for the escape of gas, a flame-protector provided with an opening adapted for the escape of the flame at its forward end and an auxiliary opening on the under side of the protector near the outer end of the burner, and means for suspending the whole, substantially as shown and described.

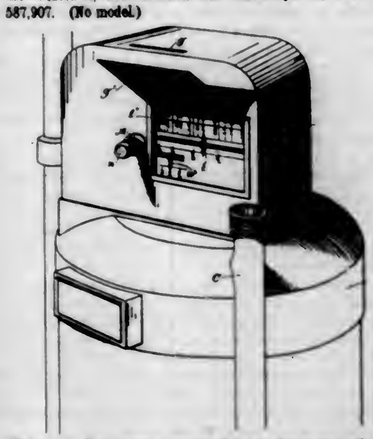
575,671. TELESCOPIC MEASURING-RULE. GEORGE W. WATTS and JAMES B. SMITH, Brooklyn, N. Y. Filed May 23, 1895. Serial No. 550,315. (No model.)

Claim.—1. A measuring-rule comprising telescopic sections, spring-fingers extended from a collar on one of the sections, the edges of which are flush with the edges of the collar, said spring-fingers being adapted to engage against the inner surface of the outer section, and stop-collars secured within the end of the outer section and against which the collar on the inner section may make contact to prevent the separation of the sections, substantially as described.

2. A measuring-rule comprising sections and a pencil friction-tight in the inner section, whereby the sections may be drawn out longitudinally with relation to each other by pulling on the pencil, said pencil having its outer end shaped to form a handle and a shield, that projects beyond the end of the inner section, the shield being adapted to shoulder against the ends of the closed sections to serve as a protecting-cover, substantially as described.



575,672. PREPAYMENT ATTACHMENT FOR METERS. HUGH W. WILLIAMS, San Leandro, Cal. Filed Apr. 17, 1896. Serial No. 587,907. (No model.)



Claim.—1. In prepayment attachments for meters, the combination, of a normally-closed valve for controlling the meter connection, a means, dependent upon the deposit of a coin, for opening said valve, and means for holding the valve open and permitting it to close at the expiration of a given time, comprising a rotatable screw, a lever connected with the valve and a spring-actuated slidable finger adapted to engage said screw and hold the lever to maintain the valve open during said engagement and to allow the valve to close when said engagement terminates by the rotation of the screw.

2. In prepayment attachments for meters, the combination of a normally-closed valve for controlling the meter connection and a means, dependent upon the deposit of a coin, for opening said valve, consisting of a coin-chute, having one of its walls composed of a movable plate, a push-rod for forcing the coin against said plate to move it, and a lever connected with the plate and with the valve, to open the latter upon the movement of the former.

3. In prepayment attachments for meters, the combination of a normally-closed valve for controlling the meter connection, a means, dependent upon the deposit of a coin, for opening said valve, consisting of a coin-chute, having one of its walls composed of a movable plate, a push-rod for forcing the coin against said plate to move it, and a lever connected with the plate and with the valve, to open the latter upon the movement of the former, and a rotating screw and devices controlled thereby for holding said valve open and permitting it to close at the expiration of a given time.

4. In prepayment attachments for meters, the combination, of a normally-closed valve for controlling the meter connection, a means, dependent upon the deposit of a coin, for opening said valve, a rotatable screw and a spring-actuated slidable finger controlled thereby for holding said valve open and permitting it to close at the expiration of a given time, and power-transmitting connections from the operating parts of the meter, to rotate the screw.

5. In prepayment attachments for meters, the combination of a normally-closed valve for controlling the meter connection, a means dependent upon the deposit of a coin for opening said valve, comprising a coin-chute having a movable wall, and means for forcing the coin against said wall and for opening the valve upon the movement of said wall, a rotating screw, and a sliding finger in the valve-opening connections adapted to engage said screw and hold the said connections to keep the valve open during said engagement and to allow the valve to close when said engagement terminates by the rotation of the screw.

6. In prepayment attachments for meters, the combination of a normally-closed valve for controlling the meter connection, a means dependent upon the deposit of a coin for opening said valve, consisting of a coin-chute with its movable wall or plate and push-rod, and the lever of the plate connected with the valve, a rotating screw, and the spring-controlled sliding finger carried by connections from the lever, said finger being normally pressed back by the screw end, until lifted by the lever, and then engaging the screw-threads and holding the valve open during the continuance of said engagement.

7. In prepayment attachments for meters, the combination of a spring-controlled sliding finger adapted by its position to hold the controlling-valve of the meter connection open, and a rotating screw adapted to engage and to maintain the position of said finger and feed it to its disengagement to permit the valve to close.

8. In prepayment attachments for meters, the combination of a spring-controlled sliding finger adapted by its position to hold the controlling-valve of the meter connection open, and a screw and means for rotating it from the meter and adapted to engage and to maintain the position of said finger and to feed it to its disengagement to permit the valve to close.

9. In prepayment attachments for meters, the combination, of a normally-closed valve for controlling the meter connection, a means, dependent upon the deposit of a coin, for opening said valve, a rotating screw and a spring-actuated slidable finger controlled thereby for holding said valve open and permitting it to close at the expiration of a given time, and means for varying the position of the screw relatively to the devices it controls, whereby the length of time the valve is kept open may be varied.

10. In prepayment attachments for meters, the combination, of a coin-chute having a swinging wall, a push-rod for forcing the coin against said wall to move it, a lever connected with the plate and a normally-closed valve connected with the lever and controlling the meter connection, means for holding the valve open and a movable rest-bar adapted to partially traverse the chute and by its movement to narrow or widen the same to receive and temporarily support different sizes of coins.

11. In prepayment attachments for meters, the combination of a spring-controlled sliding finger adapted by its position to hold the controlling-valve of the meter connection open, a rotary and slidable screw adapted to engage and maintain the position of said finger and to feed it to its disengagement to permit the valve to close, and means for sliding the screw, to vary the length of time of its engagement with said finger.

12. In prepayment attachments for meters, the combination of a spring-controlled sliding finger adapted by its position to hold the controlling-valve of the meter connection open, a rotary and slidable screw adapted to engage and maintain the position of said finger and to feed it to its disengagement to permit the valve to close, and means for sliding the screw, to vary the length of time of its engagement with said finger, and to visibly indicate its adjustment.

13. In prepayment attachments for meters, the combination of a normally-closed valve for controlling the meter connection, a means dependent upon the deposit of a coin for opening said valve, a rotating screw composed of a plurality of distinct sections, devices controlled by the screw and its rotation for holding said valve open and permitting it to close at the expiration of a given time, and means for varying the position of the screw relatively to the devices it controls, whereby any of its sections may be brought into operative relation with said devices.

14. In prepayment attachments for meters, the combination of a spring-controlled sliding finger, adapted by its position to hold the controlling-valve of the meter connection open, a rotary and slidable screw adapted to engage and maintain the position of said finger and to feed it to its disengagement, to permit the valve to close, said screw being composed of a plurality of distinct sections, and means for sliding the screw to bring any of its sections into operative relation with said finger.

15. In prepayment attachments for meters, the combination of a spring-controlled sliding finger, adapted by its position to hold the controlling-valve of the meter connection open, a rotary and slidable screw adapted to engage and maintain the position of said finger and to feed it to its disengagement, to permit the valve to close, said screw being composed of a plurality of distinct sections, means for sliding the screw to bring any of its sections into operative relation with said finger, an indicator operated by the sliding of the screw and a plurality of distinct scales over which the indicator plays, whereby the sliding movement of the screw may be varied in accordance with the correspondence of its sections with said distinct scales.

16. In prepayment attachments for meters, the combination, of a normally-closed valve for controlling the meter connection and a means, dependent upon the deposit of a coin, for opening said valve, consisting of a coin-chute, having one of its walls composed of a movable plate, a push-rod for forcing the coin against said plate to move it, a lever connected with the plate and with the valve, to open the latter upon the movement of the former, and a movable rest-bar adapted to partially traverse said chute and by its movement to narrow or widen the chute to receive and temporarily support different sizes of coins.

17. In prepayment attachments for meters, the combination of a normally-closed valve for controlling the meter connection, a coin-chute having a movable wall, a push-rod adapted to move said wall upon the interposition of a coin, a movable rest-bar partially traversing the coin-chute to provide by its adjustment for the temporary support of different sizes of coins, a lever connected with the movable wall and connected with the controlling-valve, a spring-controlled sliding finger carried by the lever and a rotating screw with which said finger engages to hold the lever and keep the valve open, said finger being fed by the screw to its disengagement to close the valve upon the expiration of a given time.

18. In prepayment attachments for meters, the combination of the spring-controlled sliding finger adapted by its position to hold the controlling-valve of the meter connection open, and the rotating screw between the threads of which the finger is fed to its disengagement to permit the valve to close, said screw having the extremity of its spiral groove formed with a descending inclined plane whereby the finger is gradually fed down the incline to cause a gradual closing of the controlling-valve.

575,673. RECOIL-PAD. JACOB R. WHITERS, Clinton, Mo. Filed Sept. 8, 1896. Serial No. 605,112. (No model.)



Claim.—1. A shoulder recoil-pad having a base provided with means for securing the same to the arm of a person, and a pneumatic cushion secured to the base, the lower end of the base being formed with an upward curve, as and for the purposes stated.

2. As an article of manufacture, a recoil-pad having a base and side flaps made of a single piece, fastening devices secured to the side flaps, and a pneumatic cushion secured to the base, the lower end of the base being formed with an upward curve.

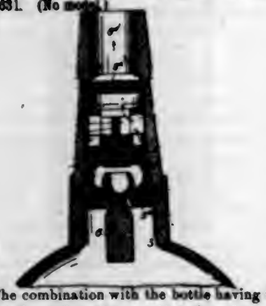
575,674. LINE-FASTENING SINKER. AMBROSE W. WOODWARD, Lancaster, Pa., assignor of one-half to Byron G. Dodge, same place. Filed May 29, 1896. Serial No. 593,596. (No model.)



Claim.—A sinker having a central shaft with ball ends at the extremities thereof and outwardly-vanishing side notches at the juncture of said ball ends with the extremities of said shaft, two body portions or members sleeved upon the shaft and provided with out-

wardly-flaring bore ends for close engagement with the ball ends of said shaft, and a coiled spring between the body portions with its extremities in engagement with adjacent faces of said portions whereby their outer flaring ends are kept in close contact with the ball ends of said shaft, all substantially as described and for the purpose hereinbefore set forth.

575,675. BOTTLE. WILLIAM VON BOKERN, Denver, Colo., assignor of one-half to Herbert Heatley, same place. Filed Mar. 24, 1896. Serial No. 584,631. (No model.)



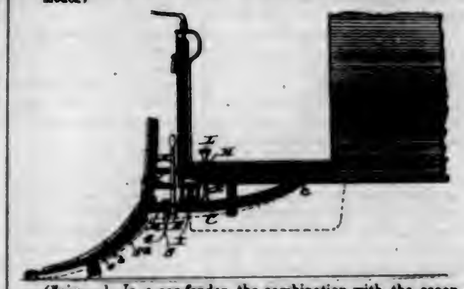
Claim.—1. The combination with the bottle having the integral valve-seat formed in its neck, and a movable valve adapted to engage said seat, of the detachable nozzle provided with the diaphragm formed integral therewith, and one or more passage-ways to allow the liquid to flow from one side of the diaphragm to the other, the movable safety device located in the nozzle between the neck and the diaphragm and normally resting on the neck which projects upward into the nozzle above the valve-seat, said device having zigzag passages, whose upper extremities register with the passages in the diaphragm, the outer wall of the safety device and the inner wall of the nozzle being formed correspondingly polygonal in cross-section to maintain the said relative position of the passage-ways in the safety device and the diaphragm, and suitable means for connecting the neck and nozzle, substantially as described.

2. The combination with a bottle having an integral valve-seat formed in its neck and a shoulder surrounding said valve-seat, a washer engaging said shoulder, a valve adapted to engage said seat, a nozzle having a diaphragm formed integral therewith, and one or more passages to allow the liquid to pass from one side of the diaphragm to the other, and suitable means for connecting the neck and nozzle, of the movable safety device located in the nozzle between the diaphragm and the neck, said device being provided with zigzag passages, and having a short stem on its lower extremity, a packing-ring surrounding said stem and resting on the neck, which projects upward into the nozzle above the valve-seat, said ring closing the passages in the safety device from below, the nozzle opening around the lower part of the safety device being formed considerably larger than said device, while the upper extremity of the latter fits closely in the nozzle, substantially as described.

3. The combination with the bottle having an integral valve-seat and a shoulder surrounding said seat, a washer engaging said shoulder, a valve adapted to engage said seat, a nozzle engaging the washer around the valve-seat, said nozzle having a diaphragm formed integral therewith, and one or more passages to allow the liquid to pass from one side of the diaphragm to the other, and suitable means for connecting the neck and nozzle, of the movable safety device located between the neck and the diaphragm of the nozzle, said device being formed with zigzag passages adapted to register with the passages in the diaphragm, and having a short stem on its lower extremity, a packing ring surrounding said stem and resting on the neck which projects upward into the nozzle above the valve-seat, said ring closing the passage ways in the safety device from below, the nozzle opening around the lower part of the safety device being formed considerably larger than said device, while the upper extremity of said device fits closely in the nozzle, the safety device and the inner wall of the nozzle being formed correspondingly polygonal in cross-section to maintain the relative position of the passages in the safety device and diaphragm substantially as described.

4. The combination with a bottle having a valve-seat formed in its neck, a suitable valve and a detachable neck having a diaphragm formed integral therewith, and one or more passages to allow the liquid to pass from one side of the diaphragm to the other, of a movable safety device located between the top of the neck and the diaphragm of the nozzle, said device having zigzag passages adapted to register with the passages in the diaphragm, the outer wall of the safety device and the inner wall of the nozzle being correspondingly polygonal in cross-section to maintain the said relative position of the passages in the safety device and diaphragm, substantially as described.

575,676. CAR-FENDER. MILEY P. CRAWFORD, Roanoke, Va., assignor, by direct and mesne assignments, to the Roanoke Car Fender Company, same place. Filed Jan. 29, 1896. Serial No. 577,296. (No model.)

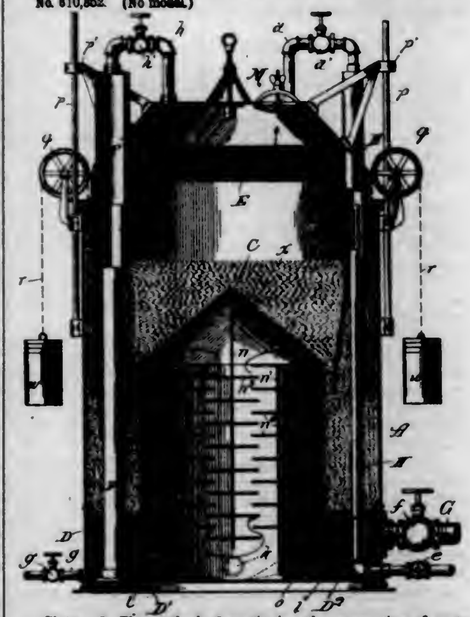


Claim.—1. In a car-fender, the combination with the scoop or fender proper, of the supporting arms or levers, and the upper fixed sections and the lower hinged section, the spring-supports for said arms or levers, the presser-bar and foot-piece, all arranged substantially as shown and described.

2. The combination with the scoop or fender proper composed of the upper fixed section, and the lower hinged section, and the rebounding rod arranged upon the bottom of said section, and depending rods attached to the car, substantially as shown and set forth.

3. In a car-fender the combination with the depending rods, said rods attached to the car, the rod or bolt projecting upward from the arms or levers, the plates mounted upon the depending rod, the coil-spring arranged between said plates, the presser-bars, the foot-piece, the fender and hanging brackets, the lug for limiting the movement of the lower section of the frame, the rebounding rod, and the spring-latch, all arranged substantially as shown.

575,677. METHOD OF AND APPARATUS FOR GENERATING ACETYLENE GAS. HENRY F. FULLER, Chicago, Ill., assignor to the Walmsley, Fuller & Company, same place. Filed Nov. 2, 1896. Serial No. 610,852. (No model.)



Claim.—1. The method of continuing the generation of acetylene gas from calcium carbid and water after an initial generation, which consists in conveying the generated gas through a conduit immersed in a body of water, thereby vaporizing the water by the heat of generation in the gas, and bringing the vapor thus obtained into contact with calcium carbid, substantially as described.

2. The herein-described method of producing acetylene gas which consists in bringing water into contact with calcium carbid, and thereafter conveying the generated gas through a conduit immersed in a body of water, thereby vaporizing the water by the heat of generation in the gas, and bringing the vapor thus obtained into contact with calcium carbid, substantially as described.

3. The method of continuing the generation of acetylene gas from calcium carbid and water, after an initial generation, which consists in scrubbing the gas and thereby abstracting its heat of generation, conducting the abstracted heat into water, thereby vaporizing the same, and bringing the vapor thus obtained into contact with calcium carbid, substantially as described.

4. In a gas-generator of the character described, the combination with the outer tank for containing water, and an inner movable tank, of a holder for the solid material supported in the upper part of the inner tank, an outlet for the generated gas, a telescoping stand-pipe communicating with the upper portion of the inner tank and communicating by a tortuous passage within the water and below the normal level thereof with said outlet, substantially as described.

5. In an apparatus for generating acetylene gas from water and calcium carbid, the combination of the outer tank and the inner tank, a scrubber having a conical top and immersed in the body of water contained in the apparatus, an outlet for the generated gas, and a telescoping stand-pipe communicating with the upper portion of the inner tank and with said outlet through the scrubber, substantially as described.

6. In an apparatus for generating acetylene gas from water and calcium carbid, the combination of the outer tank and the inner tank, a holder for the solid material in the upper part of the inner tank, an outlet for the generated gas, a telescoping stand-pipe communicating with the upper portion of the inner tank and communicating by a tortuous passage within the water and below the normal level thereof with said outlet, and extending through said tanks, and a telescoping combined air-vent and safety-pipe communicating with the upper end of the inner tank and leading through said tanks out of the apparatus, substantially as described.

7. In a gas-generator of the character described, the combination with the outer tank for containing water, and the inner, movable tank, of a holder for the solid material supported in the upper part of the inner tank, a conduit communicating with the upper part of the inner tank, a gas-holding tank secured within the lower tank, forming with the wall thereof a water-space, and into which said conduit leads, and an outlet for the generated gas leading from said gas-holding tank, substantially as described.

8. In a gas-generator of the character described, the combination with the outer tank for containing water and an inner movable tank, of a holder for the solid material supported in the upper part of the inner tank, a conduit communicating with the upper portion of the inner tank, a scrubber C provided with deflecting-plates, secured within the lower tank and extending below the normal water-level and into which said conduit leads, and an outlet for the generated gas leading from said scrubber, substantially as described.

9. A gas-generator comprising, in combination, the water-tank A having the hopper-shaped bottom D, provided with a discharge-outlet, the gas-outlet G and the condensation-outlet *g*, the scrubber C rising from the base of the water-tank, stand-pipe F communicating from near its lower end with the gas-outlet through said scrubber, the inner movable tank carrying the pipe F' telescoping with said stand-pipe and having a valve-controlled pipe connection *h* with said inner tank through its top, a valve-controlled pipe H extending upward in the generator from near its base, and a pipe H' carried by the inner tank and telescoping with said pipe H and having a valve-controlled pipe connection *d* with said inner tank through its top, the whole being constructed and arranged to operate, substantially as described.

575,678. METHOD OF METAL-COLORING. JOSEPH A. GARDE, Waterbury, Conn., and ARTHUR B. BRUNELL, Worcester, Mass., assignors to the Carrara Electro-Marbleizing Company, of New Jersey. Filed Mar. 24, 1896. Serial No. 584,666. (No specimens.)

Claim.—1. The method of marbleizing metal which consists in applying to unequal and irregularly-shaped parts of the surface of a silver or a silver-plated body chemical mixtures containing two acids, or an acid and an alkali, and in removing or neutralizing the acids after the marbleizing has been effected and before the surface has been etched, substantially as described.

2. The method of marbleizing metal which consists in sprinkling upon the surface of a silver or a silver-plated body chemical mixtures containing two acids, or an acid and an alkali, and in removing or neutralizing the acids after the marbleizing has been effected and before the surface has been etched, substantially as described.

3. The method of marbleizing metal which consists in dipping a silver or a silver-plated body in a preliminary neutralizing-bath, applying a mixture containing two acids or an acid and an alkali to the surface, and removing or neutralizing the mixture, substantially as described.

4. The method of marbleizing metal which consists in dipping a silver or a silver-plated article in a preliminary bath consisting of a metallic salt or an alkali, sprinkling a mixture of sulfuric acid and nitric acid, or sulfuric acid and nitrate of soda or potash upon the surface of the article, and removing or neutralizing the mixture, substantially as described.

5. The method of marbleizing metal which consists in subjecting unequal and irregularly-shaped parts of the surface of a silver or a silver-plated body to chemical action, whereby the color of such parts will be changed, and electrically depositing upon the same streaks of copper so as to produce red veins of color, substantially as described.

6. As an article of manufacture, a silver or silver-plated body presenting a marbleized or variegated surface of various colors, such body having irregular and unequal parts of its integral surface film composed of portions which have different chemical constitutions and which are variously colored.

575,679. MAGNETIZING-BOX. CHARLES A. HUBBEY, New York, N. Y., assignor to the Electric Hardware Manufacturing Company, same place. Filed Aug. 10, 1895. Serial No. 558,823. (No model.)



Claim.—1. A containing case, box or receptable having a metallic bottom and magnetized upturned ends, adapted to magnetize an article placed in the box, substantially as set forth.

2. An oblong containing case, box or receptacle adapted to receive and support in proper position articles such as hair-pins to be magnetized, and formed with a metallic bottom part having magnetized upturned ends, adapted to magnetize such articles, substantially as set forth.

575,680. NON-CONDUCTING HOOD. JOHN WILKERSON, Kansas City, Mo. Filed Sept. 19, 1896. Serial No. 606,453. (No model.)



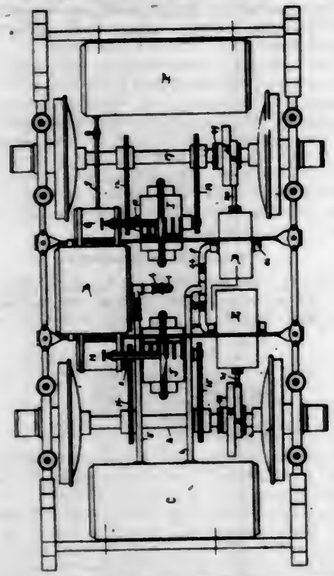
Claim.—A non-conducting hood consisting of sloping sides and an arched top, a knob located upon said top, a dovetail groove extending around the bottom of the hood, and a pneumatic cushion having a solid portion adapted to fit said groove, in combination with a hemispherical receptacle provided with a threaded stem which is screwed into the under side of the top portion of the hood, substantially as shown.

575,681. MOTOR SYSTEM. MERRILL R. CLARK, Worcester, Mass., assignor of one-half to William P. Searls, same place. Filed Oct. 24, 1895. Serial No. 566,653. (No model.)

Claim.—1. In a motor system, the combination of a receiver for storing compressed air, an engine attached to the vehicle, adapted to be actuated by the air in said receiver and operatively connected with the axles of the vehicle, a plurality of air-compressors adapted to be operated by the axles, and suitable connecting and operating mechanism whereby any or all of said compressors may be worked when the brake is applied, and at other times may be at rest, substantially as described.

2. In a motor system, the combination of a receiver for storing compressed air, an engine attached to the vehicle adapted to be actuated by the air in said receiver and operatively connected with the axles of the vehicle, a plurality of air-compressors adapted to be operated by the axles, suitable connecting and operating mechanism whereby any or all of said compressors may be worked when the brake is applied, and at other times may be at rest, a receptacle for

storing gas, a chamber heated by said gas through which air may be conveyed to said engine, substantially as described.



3. In a motor system, the combination of a receiver for storing compressed air, an engine attached to the vehicle adapted to be actuated by the air in said receiver and operatively connected with the axles of the vehicle, an air-compressor adapted to be operated by the axles, means for carrying the exhaust from the engines into the jacket of the air-compressor, and suitable connecting and operating mechanism whereby the compressor may be worked when the brake is applied, and at other times may be at rest, substantially as described.

4. In a motor system, the combination of a gas-supply, an air-compressor actuated by the explosion of said gas in a cylinder, suitably constructed and located, a receiver for storing said compressed air, an engine attached to the vehicle adapted to be actuated by the air in said receiver and operatively connected with the axles of the vehicle, a second air-compressor adapted to be operated by said axles, and suitable connecting and operating mechanism whereby the compressor may be worked when the brake is applied, and at other times may be at rest, substantially as described.

5. In a motor system, the combination of a gas-supply, an air-compressor actuated by the explosion of said gas, in a cylinder, suitably constructed and located, a receiver for storing said compressed air, an engine attached to the vehicle, adapted to be actuated by the air in said receiver, and operatively connected with the axles of the vehicle, a plurality of air-compressors adapted to be operated by the axles and suitable connecting and operating mechanism, whereby any or all of said compressors may be worked when the brake is applied, and at other times may be at rest, substantially as described.

REISSUES.

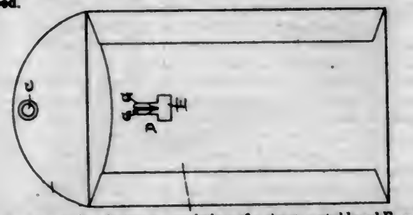
11,585. **ENVELOP-FASTENER.** OSCAR A. LOGAN, Chicago, Ill. Filed Nov. 12, 1896. Serial No. 611,883. Original No. 558,823, dated Apr. 21, 1896.

Claim.—1. An envelop-fastener, consisting of a rectangular sheet-metal head, attaching-spurs projecting from opposite edges and at diagonally opposite corners of said head and a bendable tongue projecting from one edge of said head and at the central section thereof, said tongue being adapted to pass through an opening in the seal-flap of an envelop, substantially as described.

2. An envelop-fastener, consisting of a head, means for attaching said head to the body of an envelop and a bendable tongue projecting from said head, said tongue being weakened on a line passing obliquely across said tongue, in order to cause the tongue to bend on an oblique line, substantially as described.

3. An envelop-fastener, consisting of a head, means for attaching said head to the body of an envelop, a bendable tongue projecting from said head, said tongue having notches in its opposite edges, whereby said tongue is weakened on an oblique line, substantially as described.

4. An envelop-fastener, consisting of a sheet-metal head, means for attaching said head to the body of an envelop and a pair of parallel bendable tongues projecting from one edge of said head, said tongues lying in the same plane as said head and being separated from each other by a narrow slit and adapted to pass through an opening in the seal-flap of an envelop and be bent obliquely, whereby the ends of said tongues when bent are divergent, substantially as described.

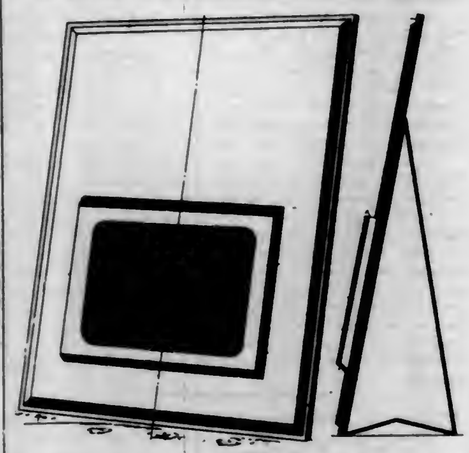


5. An envelop-fastener, consisting of a sheet-metal head E, means for attaching said head to the body of an envelop, a pair of parallel bendable tongues projecting from one edge of said head, said tongues being separated by a narrow slit and lying in the same plane as said head and each of said tongues being weakened on oppositely inclined lines in order to cause them to bend in divergent directions.

6. In an envelop-fastener, the combination of a head E, means for attaching said head to the body of an envelop, tongues G, G, extending from one edge of said head and lying in the same plane, said tongues being adapted to pass through an opening in the seal-flap of an envelop, and said tongues being provided with notches G^3, G^3, whereby said tongues are weakened on an oblique line, substantially as described.

DESIGNS.

26,537. **CALENDAR.** HENRY W. PITZ, Philadelphia, Pa. Filed Nov. 21, 1896. Serial No. 613,029. Term of patent 14 years.



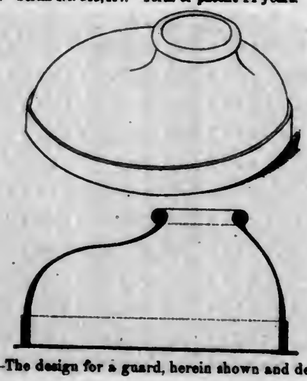
Claim.—The design for a calendar substantially as described and shown.

26,538. **ORNAMENTAL CARD.** WILLIAM R. HERON, Great Falls, Mont. Filed Dec. 5, 1896. Serial No. 614,653. Term of patent 7 years.



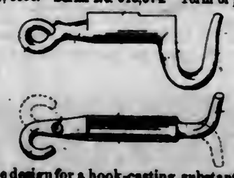
Claim.—The design for a card, substantially as shown and described.

26,539. **BEER-KEG GUARD.** ALEXANDER H. SOHRAM, Oregon City, Oreg., assignor of one-half to Mary E. Moore, same place. Filed Dec. 11, 1896. Serial No. 615,417. Term of patent 14 years.



Claim.—The design for a guard, herein shown and described.

26,540. **HOOK-CASTING.** JAMES C. COVERT, Watervliet, N. Y. Filed Dec. 17, 1896. Serial No. 616,074. Term of patent 14 years.



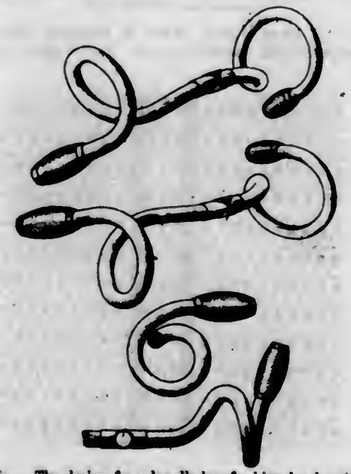
Claim.—The design for a hook-casting, substantially as shown and described.

26,541. **KEEPER-SPRING.** JAMES C. COVERT, Watervliet, N. Y. Filed Dec. 17, 1896. Serial No. 616,075. Term of patent 14 years.



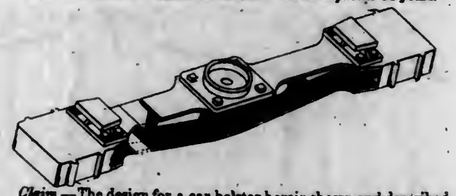
Claim.—The keeper-spring, substantially as shown and described.

26,542. **BICYCLE-HANDLE.** ULYSSES F. HENDERSON, New Lebanon, Pa. Filed Dec. 16, 1896. Serial No. 615,962. Term of patent 7 years.



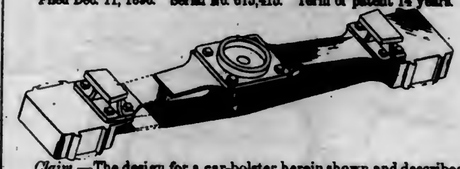
Claim.—The design for a handle-bar for bicycles herein shown and described.

26,543. **CAR-BOLSTER.** JOHN M. HARRISON, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Dec. 11, 1896. Serial No. 615,414. Term of patent 14 years.



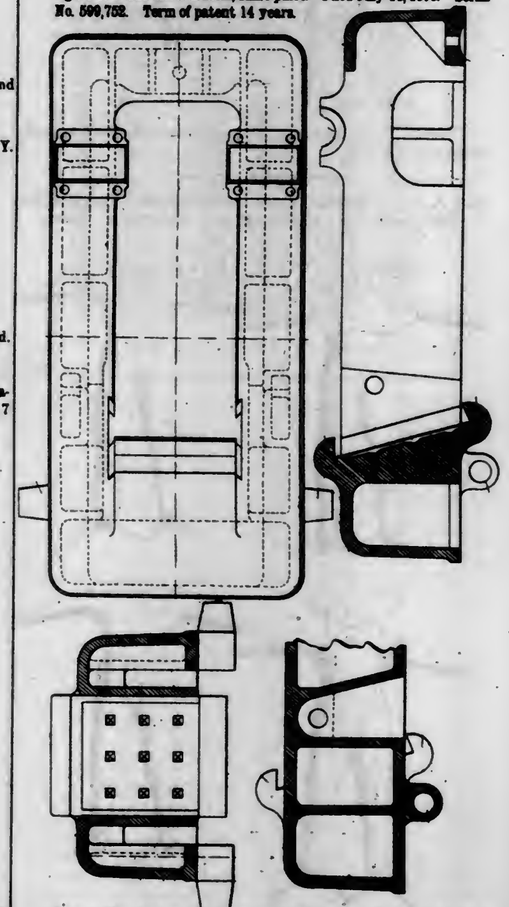
Claim.—The design for a car-bolster herein shown and described.

26,544. **CAR-BOLSTER.** JOHN M. HARRISON, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Dec. 11, 1896. Serial No. 615,415. Term of patent 14 years.



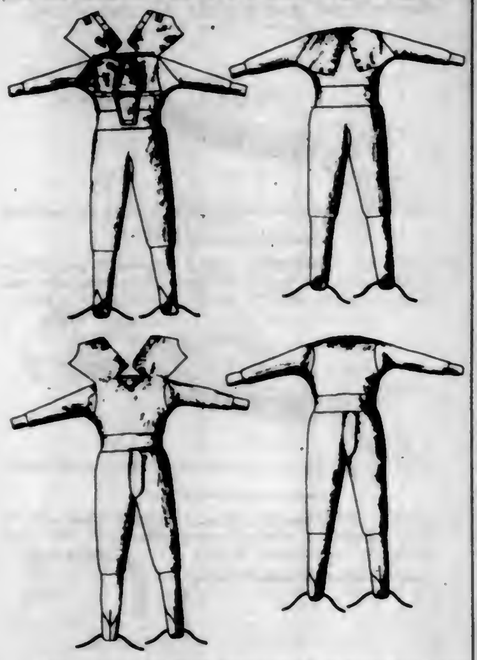
Claim.—The design for a car-bolster herein shown and described.

26,545. **CRUSHER-BED.** MELKER J. RICHNORR, Chicago, Ill., assignor to Frederick C. Austin, same place. Filed July 18, 1896. Serial No. 599,752. Term of patent 14 years.



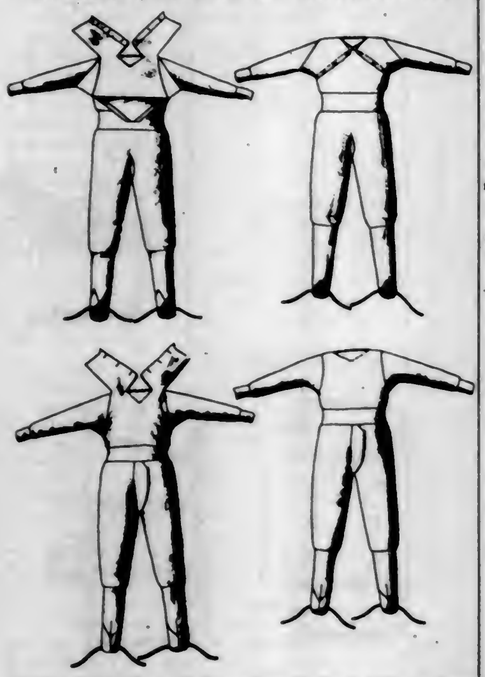
Claim.—The design for a crusher-bed, substantially as herein shown and described.

26,546. UNDERGARMENT. ISAIAS GOLDBERGER, Cleveland, Ohio.
Filed July 21, 1896. Serial No. 600,072. Term of patent 14 years.



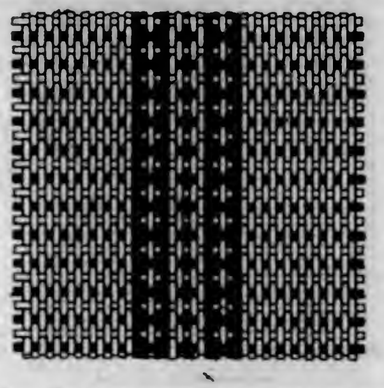
Claim.—The design for an undergarment, substantially as herein shown and described.

26,547. UNDERGARMENT. ISAIAS GOLDBERGER, Cleveland, Ohio.
Filed Dec. 23, 1896. Serial No. 616,814. Term of patent 14 years.



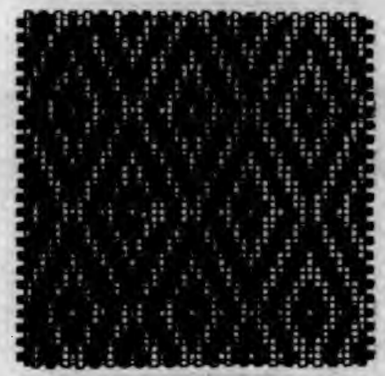
Claim.—The design for an undergarment, substantially as herein shown and described.

26,548. CANE FABRIC. HENRY M. COLLESTER, Gardner, Mass.
Filed Dec. 11, 1896. Serial No. 615,405. Term of patent 7 years.



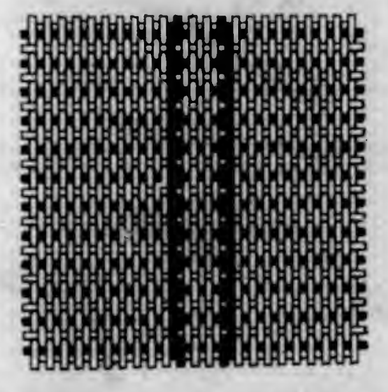
Claim.—The design for cane fabric, as herein shown and described.

26,549. CANE FABRIC. HENRY M. COLLESTER, Gardner, Mass.
Filed Dec. 11, 1896. Serial No. 615,406. Term of patent 7 years.



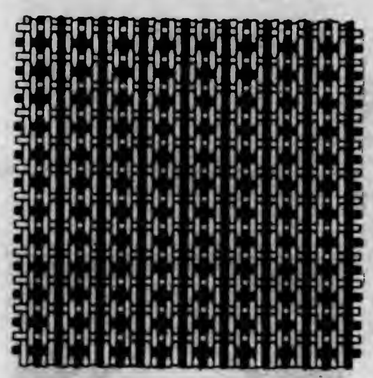
Claim.—The design for cane fabric, as herein shown and described.

26,550. CANE FABRIC. HENRY M. COLLESTER, Gardner, Mass.
Filed Dec. 11, 1896. Serial No. 615,407. Term of patent 7 years.



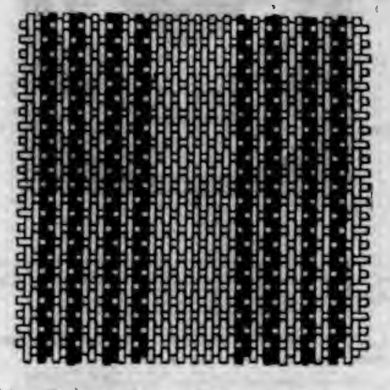
Claim.—The design for cane fabric, as herein shown and described.

26,551. CANE FABRIC. HENRY M. COLLESTER, Gardner, Mass.
Filed Dec. 11, 1896. Serial No. 615,408. Term of patent 7 years.



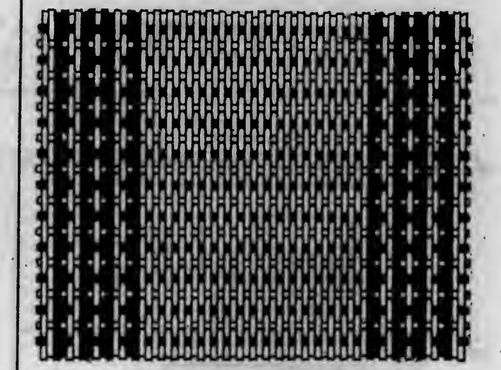
Claim.—The design for cane fabric, as herein shown and described.

26,552. CANE FABRIC. HENRY M. COLLESTER, Gardner, Mass.
Filed Dec. 11, 1896. Serial No. 615,409. Term of patent 7 years.



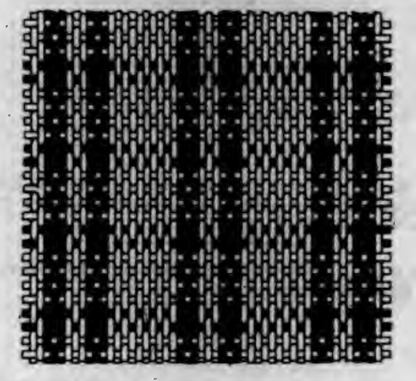
Claim.—The design for cane fabric, as herein shown and described.

26,553. CANE FABRIC. HENRY M. COLLESTER, Gardner, Mass.
Filed Dec. 11, 1896. Serial No. 615,410. Term of patent 7 years.



Claim.—The design for cane fabric, as herein shown and described.

26,554. CANE FABRIC. EDWARD G. WATKINS, Gardner, Mass.
Filed Dec. 11, 1896. Serial No. 615,413. Term of patent 7 years.



Claim.—The design for cane fabric, as herein shown and described.



TRADE-MARKS

REGISTERED JANUARY 19, 1897.

29,473. WATCHES AND WATCH-MOVEMENTS. AMERICAN WALTHAM WATCH COMPANY, Waltham, Mass. Filed Dec. 23, 1896.

TRAVELER

Essential feature.—The word "TRAVELER." Used since August 6, 1896.

29,474. WRITING FLUIDS AND BOTTLES, WELLS, AND STANDS FOR SAME. BERT DAVIS, New York, N. Y. Filed Oct. 21, 1896.



Essential feature.—A representation of an official seal having mounted thereon a representation of an ink-bottle or inkstand. Used since October 9, 1891.

29,475. MEN'S SACK SUITS. KUH, NATHAN & FISCHER COMPANY, Chicago, Ill. Filed Dec. 5, 1896.

CROMWELL

Essential feature.—The word "CROMWELL." Used since September 1, 1896.

29,476. WOOL BOOTS AND LUMBERMEN'S SOCKS. MISHAWAKA WOOLEN MANUFACTURING COMPANY, Mishawaka, Ind. Filed Dec. 8, 1896.



Essential feature.—The compound word "BALL-BAND." Used since October 15, 1891.

29,477. SHEETING, DRILLING, CALICO, AND MUSLIN. THE ABE STEIN COMPANY, New York, N. Y. Filed Nov. 27, 1896.



M.K.

Essential feature.—The association with the representation of an aboriginal carrying a spear and shield of the letters "M. K." Used since November 18, 1896.

29,478. COTTON SHEETINGS. NAUMKEAG STEAM COTTON COMPANY, Salem, Mass. Filed Dec. 14, 1896.



Essential feature.—The words "NAUMKEAG TWILLED COTTONS" and a pictorial representation of a bull's head. Used since October, 1870.

29,479. COTTON SHEETINGS. NAUMKEAG STEAM COTTON COMPANY, Salem, Mass. Filed Dec. 14, 1896.



Essential feature.—The words "PEQUOT TWILLED COTTONS" and a pictorial representation of a bull's head. Used since February 19, 1876.

29,480. COTTON FABRICS. NAUMKEAG STEAM COTTON COMPANY, Salem, Mass. Filed Dec. 22, 1896.



FALCON

Essential feature.—The word "FALCON" or the pictorial representation of a falcon. Used since January 15, 1896.

29,481. SEINE-TWINE. CHARLES EDWARD BROWNELL, Moodus, Conn. Filed Dec. 19, 1896.



Essential feature.—A pictorial representation of a condor and landscape background, representing a range of mountains. Used since July 1, 1896.

29,482. LAGER-BEER. THE JOHN EICHLER BREWING COMPANY, New York, N. Y. Filed Dec. 26, 1896.



Essential feature.—A representation of a shield, which is surmounted and partially covered by an eagle with spread wings, holding a pendant in its beak in form of a seal, upon which seal appears the letter "E." Used since January 1, 1876.

29,488. COCOA AND SPICES. PEEK BROTHERS & WIRGH, LIMITED, London, England. Filed Mar. 6, 1896.



Essential feature.—A representation of three camels being led by a man. Used since January, 1869.

29,484. SYRUP. EBERHART, CONRAD & Co., Hanover, Pa. Filed Dec. 21, 1896.

SWEET CLOVER

Essential feature.—The words "SWEET CLOVER." Used since November 13, 1896.

29,485. MOLASSES. P. DUFF & SONS, Pittsburg, Pa. Filed Dec. 4, 1896.



Essential feature.—The word "DUFF'S" when printed or stamped upon the top of a can or package, which is given a color strongly contrasting with the color of the body of the can or package. Used since October 9, 1896.

29,486. SOAP FOR THE COMPLEXION, TOILET, BATH, NURSERY, AND ALL CUTANEOUS AFFECTIONS. CHARLES F. MILLER, Lancaster, Pa. Filed Dec. 5, 1896.



Cutaneous Soap

Essential feature.—Representations of a wreath, a letter "M," and a crown, and the words "CUTANEOUS SOAP." Used since August, 1895.

29,487. LYE. WILLIAM H. PRIESMEYER, St. Louis, Mo. Filed Dec. 23, 1896.



Essential feature.—A pictorial representation of a bull-dog or the words "BULL DOG," or both together. Used since May 11, 1895.

29,488. ILLUMINATING-OILS REFINED FROM PETROLEUM. STANDARD OIL COMPANY OF NEW YORK, New York, N. Y. Filed Dec. 11, 1896.

VICTORIA

Essential feature.—The word "VICTORIA." Used since 1881.

29,489. SERUMS. PAUL YVON, Paris, France. Filed Dec. 7, 1896.

I.P.

Essential feature.—The letters "I. P." Used since June 30, 1896.

29,490. REMEDIES FOR HEADACHE, NEURALGIA, RHEUMATISM, AND DYSPEPSIA, AND ESSENCES AND EXTRACTS FOR COOKING PURPOSES. CHARLES FREDERICK STOFFREGEN, Baltimore, Md. Filed Nov. 14, 1896.

"NO-MORE."

Essential feature.—The words "NO-MORE," inclosed by quotation-marks and joined by a hyphen. Used since November 1, 1896.

29,491. DIURETIC MEDICINE. LAMAR & RANKIN DRUG COMPANY, Atlanta, Ga. Filed Dec. 17, 1896.



Essential feature.—A portrait of J. W. Rankin. Used since November 10, 1878.

29,492. WELDLESS STEEL TUBING. THE AMERICAN WELDLESS STEEL TUBE COMPANY, Toledo, Ohio. Filed Dec. 1, 1896.



Essential feature.—A representation of a series of tubes of gradually-decreasing diameters and increasing length, one within another, constituting a pyramidal nest. Used since November 14, 1896.

29,493. HARDWARE, TOOLS, AGRICULTURAL IMPLEMENTS, SCYTHE-STONES, AND SLATES. HAMMACHER, DELIUS & CO., New York, N. Y. Filed Nov. 26, 1896.



Essential feature.—The words "THE GREAT AMERICAN FLAG." Used since July 1, 1871.

29,494. HARNESS-SNAPS. JAMES C. COVERT, West Troy, N. Y. Filed Sept. 21, 1896.

DERBY

Essential feature.—The word "DERBY." Used since August 5, 1896.

THE NORRIS PETERS CO. PHOTO-LITH WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Third Circuit.

ROSE *v.* HIRSH *et al.*

Decided November 9, 1896.

1. ROSE—TUBULAR UMBRELLA-STICK—VALID—INFRINGED.
   Letters Patent No. 504,944, issued September 12, 1893, to John Rose, for improvements in tubular umbrella-sticks, *Held* to be valid and infringed.
2. SAME—UMBRELLA-CASE—NOT INFRINGED.
   Letters Patent No. 504,945, issued September 12, 1893, to John Rose, for improvements in umbrella-cases, construed and *Held* not infringed.
3. SAME—DISSENTING OPINION.
   Acheson, J., dissented from the conclusion which the majority of the court reached with respect to Patent No. 504,945.

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Before ACHESON, BUTLER, and WALES, Judges.

Mr. Arthur v. Briesen and *Mr. Henry E. Everding* for the appellant.

Messrs. Strawbridge & Taylor for the appellees.

BUTLER, *J.*:

The suit is for infringement of the first and second claims of Letters Patent No. 504,944, granted to John Rose, and of the first claim of Letters Patent No. 504,945, granted John Rose.

Claims 1 and 2 of the first of these patents read as follows:

1. A tubular metal stick for umbrellas or parasols, said stick being drawn down near one end so that the tubular end portion of the stick is reduced in diameter and increased in thickness as compared with the body of the stick, substantially as specified.
2. The combination of the tubular metal stick drawn down near one end so that the tubular end portion of the stick is of less diameter than the body, with the notch applied to said reduced tubular portion of the stick, and the ribs hung to the notch and fitted snugly against the enlarged body of the stick, substantially as specified.

The second claim covers nothing new; the first embraces the entire invention. The "stick" is for use in an umbrella, and consequently the claim covers its combination with the other parts of the structure—the circular "notch," ribs, and canvas top. The "notch" is fitted to the reduced circumference of this "stick," just as it was previously fitted to the sticks formerly used. The second claim does not, therefore, add anything to the scope of the first.

The infringement of the latter is proved beyond doubt. The defense urged rests on a denial of its validity.

Is this defense sound?

We do not think the allegation that metal tubes with tapering ends, containing an equal quantity of metal throughout their length, thus having an increased thickness of walls in the tapering ends, is satisfactorily proved. That metal tubes with tapering ends were old may be conceded; but that the walls of the ends were so thickened is not clear. The uses for which these tubes were designed did not require such strengthening of the ends and the surplus metal used to produce the thickened walls would be simply wasted. If any such tubes were previously manufactured, it must have resulted as an unintentional incident of the method employed in their manufacture and not from design. Granting, however, that such tubes were previously made, the fact does not seem important. They did not constitute umbrella-sticks nor suggest adaptability to this use. What Rose did was to invent and construct a metal umbrella-stick having a new and useful feature—a tapering end so drawn down as to diminish the diameter of the tip and part to which the "notch" is attached, without diminution of the metal, thus allowing the ribs and canvas to be folded closer than formerly and materially increasing the strength of the "stick" where the strain upon it is greatest. We think this is more deserving of a patent than much that has been adjudged patentable. If metal tubes such as the defendants' witnesses describe existed, they did not, as before stated, suggest the conception embraced in this "stick." At most they only assisted in embodying it. The invention exists in the conception and its embodiment. The existence of the old tube might have aided in the latter—certainly nothing more—and that would be unimportant. The evidence shows, however, that it did not do this; that Rose had no knowledge of the existence of such tubes, but accomplished the construction of those he required through experiment. For the reasons stated we cannot doubt the validity of the patent. The defendants did not doubt it, but admitted it by the purchase and sale of umbrellas under the patent until dissatisfaction and dispute arose respecting the prices they should pay. The admission is not, of course, an estoppel; but in view of the defendants presumed familiarity with the art such an expression of judgment is evidence, and worthy, probably, of as much weight as that now expressed by their experts.

Claim 1 of the second patent reads as follows:

1. The within-described umbrella-case, the same consisting of a tube of leather slitted and provided with fastening devices at the upper end and having at the lower end an internal socket extending throughout the length of the projecting end of the umbrella-stick, and fitting snugly thereto, and a ferrule applied to the lower end of said stick, substantially as specified.

"Umbrella-cases consisting of a tube" constructed of various kinds of material, "slitted and provided with fastening devices" at the upper end, were old at the date of the patent. Whether the "socket" and "ferrule" described were also old need not be decided. The device covers these three elements. Whether the patent is valid or not, it is not infringed by the defendants' case, from which the "socket" is omitted.

The object of this element in Rose's case is to increase its circumference over the tip, and thus make it correspond there with the circumference at the "notch," rendering the case uniform and smooth throughout. The defendants' case is intended for their own peculiar umbrella, the tip of which is covered permanently with wood, so as to make its circumference correspond with that of the "notch," thus dispensing with the necessity for a socket within the case. This wooden cover is not an equivalent for the omitted element in Rose's case, for it is not a part of the case, but of the peculiar umbrella manufactured by the defendants. The defendants' case cannot be substituted for Rose's. It can only be employed advantageously on the peculiar umbrella described. It thus appears that the two cases are entirely dissimilar in the respect stated; that the one cannot be used advantageously where the other is applicable. The defendants no doubt employ the wooden covers on their tip to dispense with the necessity of using Rose's case. That they thus do it to avoid his monopoly does not, however, afford just grounds of complaint. They have a right to increase the size of their tip in this manner or any other and thus dispense with the use of his case. If Rose had taken a patent for his umbrella and case combined, a different question would be presented. He did not do this, however, but took a separate patent for the case, because he desired and intended to obtain a monopoly in cases, not simply for the peculiar umbrella manufactured under his previous patent, but for all others to which it could be applied. The effort now made to read the patents together and to treat them substantially as one, covering the umbrella and case combined, is, of course, unjustifiable. The patent for the case must stand alone, as issued, and so considered it clearly does not cover any case from which either of its essential elements is omitted. The plaintiff's argument in this respect, if sustained, would prohibit any modification in the form of the old umbrella which served to make the old cover fit it smoothly and tightly from end to end, as the plaintiff's fits upon those to which it is applicable.

The decree is reversed and the record remitted to the circuit court, with directions to enter a decree in accordance with this opinion.

DISSENTING OPINION.

ACHESON, *J.*, (concurring in part and dissenting in part:)

I concur in the opinion of the court so far as it relates to the Patent No. 504,944 for the tubular umbrella-stick.

I am, however, constrained to express a dissent from the conclusion which the majority of the court has reached with respect to the umbrella-case patent, No. 504,945. In determining the question of infringement here we ought not to lose sight of the fact that the object of this invention is to convert an umbrella, when the cover is applied thereto, into an operative and useful cane. The function of the "internal socket" is thus stated in the specification:

The socket B completely fills the space between the casing A and the projecting stick and ferrule of the umbrella so as to render the end portion of the case perfectly rigid, as is necessary in order to properly simulate a cane.

The first claim of the patent does not require that this socket shall be immovably attached to the leather casing or to the ferrule at the lower end of the leather casing, whatever may be the limitations of the second and third claims, which are not here involved. Now, the defendants, instead of placing the socket in the first instance within the leather casing, put the socket, under the name of a tip, upon the projecting end of the umbrella-stick; but when the umbrella with the false tip thereon is inserted into the leather casing we have the identical structure of the first claim of the patent. The evidence is conclusive that this false tip subserves no useful purpose whatever to the umbrella itself. Incontestably the sole object in thus using the false tip is to fill the space between the leather casing and the projecting stick and ferrule of the umbrella when the latter is put into the casing. In my judgment the contrivance to which the defendants have resorted in order to defeat the plaintiff's patent is a mere subterfuge and should not avail them as a defense. (*Hoyt* v. *Horne*, 59 O. G., 1764; 145 U. S., 302, 309; *Devlin* v. *Paynter*, 69 O. G., 1365; 28 U. S. App., 115.)

Court of Appeals of the District of Columbia.

GRISWOLD *v.* SEYMOUR, COMMISSIONER OF PATENTS.

Decided December 8, 1896.

1. GRISWOLD—IMPROVEMENTS IN BALE-TIES—PATENT REFUSED.

Claims for improvements in what the applicant designates as an "adjustable single-loop wire bale-tie," consisting, substantially, in forming the eye or loop out of the tie, or, as expressed in the specification, "integral" therewith, and of peculiar shape, whereby the free end of the tie is gripped and wedged in the eye upon the expansion of the bale, *Held* anticipated by the prior art.

2. SAME—SAME—AGGREGATION.

The use in the same wire band of two features separately old in wire bands to effect the identical functions performed separately by each of them in the prior devices *Held* not to constitute patentable novelty.

Mr. Park Benjamin and *Mr. E. H. Brown* for the appellant.

Mr. Levin H. Campbell for the Commissioner of Patents.

HAGNER, *J.:*

This application was filed in the Patent Office on the 28th of November, 1893. On the 8th of January, 1894, the application was examined and rejected by Principal Examiner Townsend. On the 31st of January, 1894, the counsel for the applicant filed a request for a reconsideration of the case, accompanied by a careful argument. In compliance with the request the Examiner considered the counsel's argument and affirmed his former decision, and finally rejected the application on the 6th of February, 1894. An appeal was taken from this order on the 7th of February, 1894, to the Examiners-in-Chief and was argued before the Board, and the decisions below were affirmed on the 6th of March, 1894. Thereupon an appeal was taken by the applicant to the Commissioner of Patents in person, and on the 25th of June, 1895, after argument before him, the Commissioner affirmed the ruling of the Board of Examiners. From this last decision the present appeal was taken to this court.

A careful examination of the record and argument of counsel for the applicant have failed to disclose any sufficient reason for reversing these repeated rulings by the authorities of the Patent Office, all to the same effect.

Testimony that carries thorough conviction is essential to justify a reversal of such repeated decisions by the appellate court upon matters of fact. (*Morgan* v. *Daniel*, 67 O. G., 811; 153 U. S., 120.)

In his application Mr. Griswold claims—

to have invented a new and useful improvement in bale-ties, of which the following is a specification.

The object of my invention is to improve the construction of that form of adjustable wire bale-tie known as the "single-loop" tie, by giving to it a holding capacity far in excess of any that it has hitherto possessed; and this is without increasing, in any wise, materially its cost of manufacture.

His claims are stated in four forms, somewhat differing from each other, as follows:

I claim—

1. A wire-band fastener consisting of a closed wire loop or eye formed with an angle adapted to receive the free end of said band and to hold the same by the wedging of said end in said angle, substantially as described.

2. A wire-band fastener consisting of an elongated, closed wire loop or eye, having its sides converging toward one end, to form an angle adapted to receive the free end of said band and to hold the same by the wedging of said end in said angle, and diverging near the opposite end; said sides being constructed to be drawn inward to exert a pinching or grasping effect upon said wedged free end, when strain is applied to said fastener.

3. In combination with a wire band and integral therewith, a closed wire loop or eye formed with an angle adapted to receive a free end of said band and to hold the same by the wedging of said end in said angle.

4. In combination with a wire band and integral therewith, a closed wire loop or eye formed with an angle adapted to receive a free end of said band and to hold the same both by the wedging of said end in said angle and by the pinching or grasping action upon said end due to the drawing inward of the sides of said loop under strain.

The applicant's device was in the form of a wire band or tie one end of which is twisted into an oval loop formed of the wire itself, the lower end of the loop being narrowed into an angle no larger than the diameter of the wire. In use the free end of the wire band or tie, after being brought around the bale or parcel and introduced into the loop, is then pulled or jerked down into the lower part of the loop, so as to occupy the entire space of the angle, and is then wrapped around and upon the wire itself.

The chief use ascribed to the invention was to secure the contents of bales of hay, cotton, etc., by efficient and cheap ties or bands. At the time of the application there were several methods in use of accomplishing this result. The simplest was to surround the bale with a cord of hemp, wire, or other flexible material having no loop or attachment at either end and to fasten the parcel by using as much of the cord as might be required for the particular parcel, cutting off what was not needed, and tying the ends of the remaining cord together. This was evidently a costly and slow method, which was apt to be insecure when applied to bulky or heavy bales, and all the contrivances mentioned in the record in this case were designed to remove or diminish some or all of these disadvantages.

One of the improvements was in the use of bands or cords of wire or similar material, of definite lengths, adapted to the varying sizes of the bales as they came from the different cotton or hay presses, and hence were known as "dimension-ties." At the two ends of such bands fixtures were attached representing the parts of the clasps or buckles of a belt. As these bands could only be used for bales of dimensions conforming to their several lengths, they were inconvenient, while the addition of the metallic fastening rendered them troublesome and costly.

A great desideratum was to obtain some device by which the same band could be applied indifferently to small or large bales, using only as much of it as might be found necessary for the particular parcel and cutting off whatever was in excess, and forming the fastening or clamping parts out of the cord itself, thus utilizing the entire cord, and thereby greatly diminishing the cost of the tie, while insuring greater security and convenience in its use.

The applicant claimed to have accomplished these results by his invention, which he insists is an original and useful improvement upon the state of the art at the time of his application.

All of the decisions in the Patent Office on the application recited above denied the validity of these claims upon the ground that the alleged invention was not patentable as a new and useful device.

First. Perhaps the most important of the claims of the applicant is that the closed eye or loop of his invention is formed out of the wire itself, or, as expressed in the specification, is "integral" with the wire. Undoubtedly this feature would possess a great advantage in strength, convenience, and economy over a band having a loop made of a piece of foreign metal attached to the wire similar to what is described by the applicant in his application as having been a feature of his previous invention and patent which, as he says, consisted of a "wire band having at one end an eye formed by twisting," in which he arranged—

a grooved saddle or thimble of steel, made V shape, so that when the free end is inserted in this saddle, etc.

The novelty of this feature of the applicant's device cannot be admitted after an examination of

the numerous models and specifications filed in this cause.

In the Lenox patent of April 4, 1876, (No. 7,026,) the loops are formed by bending the wire upon itself, and this peculiarity thus distinctly claimed as far back as 1876 appears in the reissue upon a Lenox patent of December 21, 1869. The same arrangement appears in the Lenox patent of August 3, 1880, No. 230,789, and in the patent of Frank B. Griswold of July 21, 1885, No. 322,442. Evidently the applicant was not entitled to claim this particular feature as a novel invention in November, 1893.

Second. The remaining feature of novelty claimed by the applicant consists of the peculiar form of the loop therein described.

The form of the loop in the Foote patent is essentially the same as that presented by the applicant, and the differences insisted on in the argument introduced into the application seem to us to be rather ingenious and imaginary than real.

The device for the loop in the Kilmer patent exhibits less claim to identity; but its similarity in form and results is so great that it was properly said by the Board of Examiners-in-Chief in their opinion—

to anticipate the present device in all essentials, structurally and functionally.

In the Foote patent the loop is not "integral" with the wire of which the band is made; but in the application in that case the same "wedging" and "pinching" of the cord is claimed as resulting from the peculiar form of the loop. Foote's specification says:

The free end of the cord, being carried around the bundle and through the enlarged part of the holder, (as the loop is termed in the case,) is then drawn as tight as may be desired—to bind the grain—and when released the cord of itself slides down between the converging sides B B, and is pinched by them in proportion to the strain, and held with great firmness. The convergence of these sides must not be too rapid. The more nearly they approach to parallelism the stronger will they hold the cord. The drawing shows a proper convergence for the cord used.

It will be seen that by this construction any tendency which the converging sides may have to separate or be forced apart when the cord is drawn in tightly between them (and which would be fatal to their successful operation) is prevented. The action of the cord on the overlapping ends tends to draw the converging sides more closely together as the strain is increased; and thus it is seen that however tightly the cord may be drawn, the fastening, with reference to the stiffness of the wire, will be secure and firm.

The Kilmer specification also describes the lower part of the loop as forming a "pinching-angle" and takes pains to insist upon the particular form shown in the model and drawing, using this language:

The pressure of the bale on the band constantly tends to force the end a' down to the angle b, pinching it somewhat, as indicated in Fig. 2, the angle being smaller than the wire of end a'.

This last expression is singularly like the following language of the applicant in this case when insisting upon the importance of constructing the angle of the loop in exact accordance with his description:

The condition that the distance between the ends of the eye at the wedging-angle must be a little less than the diameter of the inserted end B, so that the grip or wedging can be very quickly gained, is essential.

The United States Court of Appeals of the Second Circuit in April, 1895, decided a contest between the holders of a second patent of Kilmer, No. 372,375, issued November 1, 1887, and those of the patent of Frank B. Griswold before referred to, No. 322,442, dated July 21, 1885. (*Kilmer Manfg. Co.* v. *Griswold et al.*, 72 O. G., 1786.)

The counsel for the complainant in the present cause appeared in that case for the defendants and gained the case.

The Kilmer Company, under the specification of his second patent of 1887, had claimed the exclusive right to use a particular form of loop which added a gripping action to the wedging action by that loop of the free end of the band; but the Griswolds (one of whom bears the same initials with the complainant here) claimed that this particular form of loop and the effect so described was comprehended in the specification and patent of Frank B. Griswold of July 21, 1885, No. 322,442; that therefore the claim of the Kilmer Company was untenable.

The language of this part of the opinion of the circuit court is as follows:

The specification of the Griswold patent, No. 322,442, after describing the method of passing the end of the wire P through the loop and the eye, says:

"When the parts are thus connected, and any strain is brought upon the tie-union, such strain tends to close in the side of the eye E, so as to more firmly hold the wire P in its clutch, and hence the latter need only be secured beyond the eye E by any means that will keep it where bent toward the loop L, so as to rest on the bale or against itself."

With this patent on the prior art, it is difficult to see how there could be patentable invention merely in adding a gripping action to the wedging action in a clasp which, in all its other details, was covered by the first Kilmer patent, and that addition is all that is described or claimed in this second Kilmer patent.

It is clear that the formation of the loops from the "integral wire" and the peculiar form of the loop with the gripping and wedging action were each known and in use at the time the present application was made. The combination of the two features in the same wire band intended to effect the identical function which was performed at that time by each of the existing devices does not constitute a patentable novelty.

Without going into a fuller discussion of the case and of our conclusions upon the ingenious arguments presented in behalf of the applicant, which would involve the repetition to a considerable extent of the careful opinion of the Commissioner, we agree that the decision below shall be affirmed, and it is so ordered.

Court of Appeals of the District of Columbia.

HIEN *v.* PUNGS.

Decided January 4, 1897.

MOTIONS FOR REHEARING CONDEMNED.

Though there may be cases in which rehearing may well be had, the endeavor of the court is always to bring to a case in the first instance the best judgment which it possesses in the interests of justice, that the determination, when made, should have the element of stability. It is not just to the court or to parties that argument should be held back by counsel until after decision upon the chance that the judgment may be favorable nevertheless.

ON motion for reinstatement of appeal.

Mr. W. H. Singleton for the appellant.

No appearance for the appellee.

Mr. W. A. Megrath (law-clerk) for the Commissioner of Patents.

MORRIS, *J.:*

The appeal in this case, which was from a decision of the Commissioner of Patents in an interference

proceeding, was recently dismissed by this court (77 O. G., 1600) on the ground that it had not been taken in due time, more than eighteen months having been allowed to elapse after the Commissioner's decision before the appeal was sued out, notwithstanding that the rule of this court prescribed that appeals should be taken within forty days after decision rendered. It was sought to evade the application of this rule upon the ground that the decision here appealed from had been rendered before the promulgation of the rule in question; but we held that, inasmuch as the aggrieved party might have appealed within the forty days after the promulgation of the rules and had given no explanation of his failure to do so or of his unusual delay, we could not now entertain the appeal.

The appellant now files a motion for the reinstatement of the appeal, basing it on the alleged invalidity of the rule of the court which prescribes a limitation of time for appeal, and which he claims to have been made without warrant of law and in violation of the limitation of two years prescribed by section 4894 of the Revised Statutes of the United States for the prosecution of applications for patents in the Patent Office, and leave is requested both to file briefs on the subject and to submit oral argument.

We do not deem any argument, either oral or written, to be necessary, and we might have contented ourselves with the mere denial of the motion for reinstatement of the appeal were it not that this seems to us to be an appropriate occasion to animadvert upon a practice that has been growing in this court and which we cannot sanction.

Counsel in this court seem frequently to regard it as their duty to file motions for a rehearing, which the present motion virtually is, just as they file motions for a new trial in a *nisi prius* court. Counsel should not regard themselves under obligation to file such motions. While there are undoubtedly cases in which, from their great importance or the novel or doubtful character of the questions involved, rehearing may well be had and may properly be sought, yet it should be understood that the court always seeks in the first instance to bring the best judgment which it possesses, aided by all the lights which counsel give it in their briefs and arguments, to bear upon the causes submitted to it for its determination. If in such determination it commits error, the mistake is one of judgment, to which all human action is liable; but it is expedient in the interests of justice that the determination when made should have the element of stability. Nor is it just to the court or to parties that argument should be held back until after decision upon the chance that the judgment of the court might be favorable without consideration of the questions raised upon rehearing. There is a time assigned for argument, and all the questions legitimately proper to be raised should be raised at that time and not subsequently.

As we have intimated, we cannot sanction the indiscriminate practice of filing motions or petitions for a rehearing. We do not question the good faith of counsel in the present case, for the question which they raise is a fair and legitimate question, although it should not have been postponed to the present time; but we think the practice which this motion illustrates is not one to be encouraged, and such motions in the future will receive but scant consideration unless it is made very plainly to appear that the questions raised by them could not well have been raised at an earlier stage of the proceedings or that the cause of substantial justice could not be subserved without their consideration.

With reference to the motion here interposed, we are of opinion that this court under the statute which created it had ample authority to frame rules to limit the time in which appeals might be taken from the decisions of the Commissioner of Patents and that the rule limiting the time for taking such appeals to forty days is a valid and appropriate rule, binding alike upon the court and upon parties.

We must therefore deny the motion of the appellant for the reinstatement of his appeal.

Court of Appeals of the District of Columbia.

SNYDER *v.* FISHER, ACTING COMMISSIONER OF PATENTS.

Decided January 5, 1897.

1. SNYDER—TEACHING-CHART—ALLOWABLE.

Application of Louise Snyder examined in view of references cited thereto and *Held* allowable.

2. INVENTION—ORIGINAL THOUGHT—EXTENT OF MENTAL PROCESS.

Invention must extend beyond the merely novel and useful and into the domain of original thought, though the extent of the mental process is immaterial.

3. RESULT—REFERENCES—INVENTION.

Result considered in connection with references may indicate that degree of thought that rises to the dignity of invention.

Mr. J. C. Pennie and *Mr. J. A. Goldsborough* for the appellant.

Mr. W. A. Megrath (law-clerk) for the Commissioner of Patents.

BRADLEY, *J.:*

This is an appeal from the decision of the Commissioner of Patents rejecting two of the claims in an application of the appellant for Letters Patent.

The invention is denominated a "teaching-chart," for use in schools in the instruction of young children. It is described as consisting of a number of leaves held together at their upper edge by a binder of suitable construction, which is provided with an appliance for hanging the chart upon a wall or to a proper frame or stand. Some one or more of these leaves are entire and contain printed or written words or reading matter. Others are divided crosswise of the reading-lines, and the printed or written matter is so arranged that when certain sections of the same leaf are brought into sidewise registration with each other or with sections of other leaves the words exposed in reading-line will form a sentence or make sense. The object is stated to be to counteract the tendency of young children to memorize locality and sequence rather than words, and by changing subjects, objects, and verbs in the

turning of parts of the slitted leaves, thus substituting a new subject, object, or verb to compel the pupil to learn words from their individuality rather than from their locality or association.

The appellant asked the allowance of the following claims:

1. A chart or book comprising a plurality of slitted sectional leaves bound together at one edge, and containing words or reading matter, the slit or slits of one leaf registering with those of all the other leaves, whereby when one or more sections of one leaf are turned up the reading matter thus exposed on the section or sections of the underlying leaf will be in reading registration with the matter contained on the unturned portion of the leaf first mentioned.
2. A chart or book comprising a plurality of leaves containing reading matter and bound together at their upper ends, each of said leaves being slitted or divided vertically or crosswise of the reading-lines to form sections so that any section of one leaf may be turned independently of the other section of the same leaf to bring the reading matter of one or more of said other sections into reading registration with the reading matter on the leaf-section below said turned or raised section.
3. As an article of manufacture, a chart or book comprising one or more entire or undivided leaves containing words or symbols, and a plurality of slitted or sectional leaves, all of said leaves containing words or reading matter, the slit or slits of one leaf registering with those of all the other slitted leaves, whereby when one or more sections of one slitted leaf are turned up the reading matter thus exposed on the section or sections of the underlying leaf will be in reading registration with the matter contained on the unturned portion of the slitted leaf first mentioned; substantially as described.

The third claim was allowed. The others were rejected, as anticipated by patents to Gilmore, dated May 10, 1892, No. 474,732; Robertson, dated October 2, 1883, No. 286,152; British patent No. 17,105 of 1890, Bean, and a Japanese picture-puzzle.

The Gilmore patent is for an invention having the same object as that of appellant. The inventor uses a frame containing a number of vertical belts or bands stretched tightly upon rollers, the belts being arranged side by side and each one operated by a turning-knob located at one side of the frame. Upon these belts strips bearing printed words or figures are buttoned. Some of the strips contain the verbs, others the subjects or objects. By turning the knobs the strips are adjusted in reading relation, so that sentences are formed, any words of which can be changed by raising or lowering the belt with the strip bearing the word. Each strip contains a limited number of words. Increasing the variety of subjects, objects, or verbs is accomplished by adding to the number of strips and by the removal and substitution of the one for the other. This invention is involved in much mechanism liable to get out of order. It is complex in manipulation.

The Acting Commissioner of Patents says of this reference in his decision:

It shows a reading-chart the face of which is slitted crosswise of the reading-lines.

This appears to be inaccurate. The reading-chart is composed of a series of adjustable belts, to which are buttoned removable strips containing words. Each strip is distinct, composing an element of the chart only when placed in its position upon an adjustable belt of the machine. The expression quite as aptly could be applied to separate letter or word blocks arranged in juxtaposition to form words or sentences.

The appellant has accomplished the object sought by Gilmore in a more simple, complete, cheap, and useful manner. The means used are entirely different and the operation is totally dissimilar.

Of the other references, the Robertson patent is for two complete books bound in one cover, one containing words and the other tunes for hymn-singing, the purpose being that given words and a given tune may be brought the one above the other for simultaneous use, thus obviating the inconvenience of handling two books.

The subject-matter of the British patent is sufficiently indicated by the claims, which read:

1. Making children's story and like books with illustrations on side leaves foldable to a center and affixed to a cover.
2. Illustrating both sides of foldable leaves the outer edges of which meet when folded inwardly and so that any two leaves when so folded present a picture of an amusing character.

This reference does not appear to be relied upon by the Acting Commissioner.

The Japanese puzzle-picture is very similar in character and purpose to the British patent. It consists of four sets of leaves, each set secured at one edge to a stiff back, so that the lines of the secured edges form a square or rectangle and opposite leaves, each of which contains a half-picture, fold toward each other, meet edge to edge at a central line, and form completed pictures. Its primary object is not apparent, but amusement and entertainment evidently enter into its purpose. The only feature common to this puzzle-picture and to appellant's invention is the binding together at one edge of each set of leaves, a common expedient centuries old.

It is conceded that appellant's device is not anticipated in any one of the references; that it is novel and useful; but it is claimed that in view of these references the requisite element of invention is lacking, and that therefore it is not patentable. Just where the line of invention lies in an accomplished result is frequently difficult for the courts to determine. That it must extend beyond the merely novel and useful and into the domain of original thought has been determined. The extent of the mental process, however, is immaterial. The result may come out of long consideration or it may be the revelation of a flash of thought.

Appellant's invention, viewed from the standpoint of achievement, appears so simple that it may be difficult to put finger upon the precise point at which the inventive faculty was exercised; yet it appears to us to be clear that the result, considered with the references cited in support of the rejection of the application, indicates that degree of thought that rises to the dignity of invention.

The apparent simplicity of a new device often leads an experienced person to think that it would have occurred to any one familiar with the subject; but the decisive answer is that, with dozens and perhaps hundreds of others laboring in the same field, it had never occurred to any one before. (*Potts* v. *Creager*, 155 U. S., p. 608.)

The rejected claims should have been allowed, and therefore the decision of the Commissioner of Patents is reversed, and this decision and the proceedings in the case shall be certified to the Commissioner of Patents.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Extracts from the Rules of Practice in Relation to the Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

45. The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

74. When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1888, to October 1, 1892. One volume, 16 pages. Paper covers, 25 cents.

Appendix No. 2, October 1, 1892, to March 1, 1895. One volume, 28 pages. Paper covers, 25 cents.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Privileges of the Scientific Library.

Persons who are not employees of the Office may, under the supervision and direction of the Librarian, make extracts, in pencil, from descriptions and drawings contained in the Scientific Library, such extracts, when in the nature of copies, not to exceed one-third of the descriptions or drawings from which the copies are made. Violation of this order will subject all persons and parties concerned in the violation to exclusion from thereafter making any such extracts or copies whatever.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.	Netherlands.
Argentine Republic.	Norway.
Belgium.	Peru.
Brazil.	Portugal.
Costa Rica.	Russia.
Denmark.	San Salvador.
Haiti.	Servia.
Honduras.	Sweden.
Italy.	Switzerland.
Mexico.	

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Notice.

On the 9th day of February, 1893, the President approved "An act to establish a Court of Appeals for the District of Columbia, and for other purposes," which contains the following:

Sec. 9. That the determination of appeals from the decision of the Commissioner of Patents, now vested in the general term of the Supreme Court of the District of Columbia, in pursuance of the provisions of section seven hundred and eighty of the Revised Statutes of the United States, relating to the District of Columbia, shall hereafter be and the same is hereby vested in the Court of Appeals created by this act; and in addition, any party aggrieved by the decision of the Commissioner of Patents in any interference case may appeal therefrom to said Court of Appeals.

Sec. 17. That all acts and parts of acts inconsistent herewith are hereby repealed.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

INDEX TO FRENCH PATENTS, 1791 to 1879, inclusive, (subject-matter,) one volume, 985 pages, bound in cloth.....$10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1892, (subject-matter,) one volume, 190 pages—

Bound half-turkey 2 50
Bound in cloth..... 1 25
Paper covers..... 1 00

Issue of January 26, 1897.

Patents	400—	No. 575,682 to No. 576,081, inclusive.
Designs	20—	No. 26,555 to No. 26,574, inclusive.
Trade-Marks	45—	No. 29,495 to No. 29,539, inclusive.
Labels	None.	
Prints	None.	
Reissues	1—	No. 11,586.
Total issue	466	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	2	.....	New Hampshire	.....	1
Arizona Territory	.....	.....	New Jersey	18	1
Arkansas	.....	.....	New Mexico Territ'y	.....	.....
California	12	.....	New York	69	5
Colorado	7	.....	North Carolina	1	.....
Connecticut	17	11	North Dakota	3	.....
Delaware	.....	.....	Ohio	23	1
District of Columbia	2	.....	Oklahoma Territory	.....	.....
Florida	1	.....	Oregon	3	2
Georgia	2	.....	Pennsylvania	21	2
Idaho	.....	.....	Rhode Island	6	.....
Illinois	55	1	South Carolina	.....	.....
Indian Territory	1	.....	South Dakota	.....	.....
Indiana	11	.....	Tennessee	2	1
Iowa	5	.....	Texas	3	.....
Kansas	2	1	Utah	2	.....
Kentucky	4	.....	Vermont	1	.....
Louisiana	.....	.....	Virginia	2	.....
Maine	2	.....	Washington	.....	.....
Maryland	7	.....	West Virginia	2	.....
Massachusetts	47	9	Wisconsin	9	.....
Michigan	10	.....	Wyoming	.....	.....
Minnesota	7	.....	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	.....	.....
Missouri	14	5			
Montana	.....	.....	Total to citizens of the United States	375	40
Nebraska	1	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	1	.....
Australia	.....	.....	Netherlands	.....	.....
Austria-Hungary	.....	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	.....	.....
Belgium	.....	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Orange Free State	.....	.....
Canada	3	.....	Portugal	.....	.....
Canary Islands	.....	.....	Queensland	.....	.....
Cape Colony	.....	.....	Russia	1	.....
Ceylon	.....	.....	Scotland	1	.....
Chile, Republic of	.....	.....	South African Republic	.....	.....
Colombia	.....	.....	South Australia	.....	.....
Cuba	.....	.....	Straits Settlements	.....	.....
Denmark	1	.....	Sweden	1	1
England	20	3	Switzerland	1	.....
France	5	1	Victoria	.....	.....
Germany	9	.....	West Australia	.....	.....
Guatemala	.....	.....			
India	.....	.....			
Ireland	1	.....	Total to citizens of foreign countries	45	5
Italy	1	.....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 19, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Dec. 19	Jan. 9	175
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 19	Jan. 6	240
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 19	Jan. 2	150
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 21	Dec. 31	155
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Dec. 19	Dec. 31	219
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 19	Dec. 30	126
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 19	Dec. 30	168
215	XVII. Paper Manufactures and Printing.	Dec. 21	Dec. 26	144
243	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Dec. 21	Dec. 23	130
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Dec. 19	Dec. 23	200
258	X. Carriages and Wagons	Dec. 19	Dec. 22	258
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 22	Dec. 21	161
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Dec. 21	Dec. 21	177
98	XXI. Textiles, etc	Dec. 21	Dec. 21	203
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 19	Dec. 21	306
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 19	Dec. 19	230
231	XXIII. Instruments of Precision, Acoustics, etc.	Dec. 19	Dec. 17	274
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Dec. 21	Dec. 16	306
106	II. Farm Stock, Products, etc	Dec. 19	Dec. 16	284
102	XIX. Stoves and Furnaces	Dec. 19	Dec. 14	343
253	XII. Mechanical Engineering, Store-Service, etc.	Dec. 21	Dec. 10	234
	Between one and two months.			
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Dec. 16	Dec. 21	229
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Dec. 17	Dec. 19	205
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Dec. 12	Dec. 18	320
248	XVIII. Steam-Engineering, etc	Dec. 9	Dec. 16	159
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 15	Dec. 15	156
246	I. Tillage and Fences	Dec. 14	Dec. 14	183
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 14	Dec. 14	413
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 2	Dec. 14	496
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Dec. 17	Dec. 8	268
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Dec. 5	Dec. 7	590
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 11	Dec. 2	191
240	VII. Harvesters, Games and Toys, and Velocipedes.	Dec. 1	Dec. 1	975
	Total number of applications awaiting action			8,603
	Under one month in arrears.			
	Designs	Dec. 26	Jan. 8	156
	Trade-Marks	Jan. 7	Jan. 6	54

PATENTS

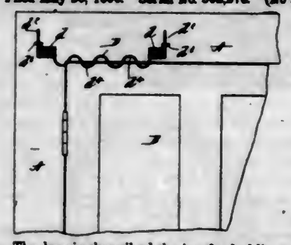
GRANTED JANUARY 26, 1897.

575,682. SHOE-LACE FASTENER. SAMUEL J. ADAMS, Detroit, Mich. Filed Sept. 3, 1895. Serial No. 561,236. (No model.)



Claim.—A shoe provided with a front opening, a double lace for the flaps of said opening, two or more eyelets in a line along the top of each of the flaps so arranged that when the ends of said lace are tied with a double-bow knot the free ends of the lace may be passed inside of the flaps, then out through the loops, then back to the inside to secure the loops in position, substantially as and for the purpose set forth.

575,683. DOOR-ADJUSTER. MINNIE ANNELL, Chattanooga, Tenn. Filed May 20, 1896. Serial No. 592,573. (No model.)

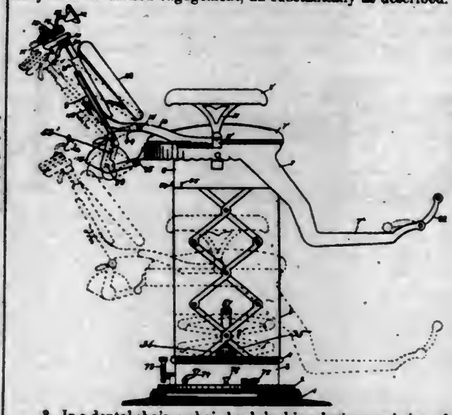


Claim.—The herein-described device for holding a hinged door or window in an open position, which consists of semicircular wire bent to form vertical coils or convolutions and provided at each end with spiral coils adapted to be secured to the frame of the door or window, substantially as shown and described.

575,684. DENTAL CHAIR. JAMES BAXTER, Fort Wayne, Ind. Filed Sept. 23, 1893. Serial No. 486,054. (No model.)

Claim.—1. In a dental chair, a chair-body mounted upon a suitable support, in combination with a pair of lazy-tongs rigidly connected, and having a segmental-gear connection at both ends to steady the chair-body when elevated, the lower end of said lazy-tongs being connected to a supporting-base, and the upper end being connected to the said chair-body, the said lazy-tongs being provided with a pivotally-mounted yoke for the purpose specified, a proper chair-base, a vertically-movable plunger adapted to engage the said yoke for the purpose of vertically expanding and contracting the said lazy-tongs, and means for operating the said plunger to raise and lower the chair-body, and a turn-table rotatably mounted in said chair-base, as described, and having means for locking the same, all substantially as described.

2. In a dental chair, a chair-body pivotally mounted upon a suitable support, in combination with a pair of lazy-tongs having a segmental-gear connection at both ends to steady the chair-body when elevated, the lower end of said lazy-tongs being connected to a supporting-base, and the upper end being connected to the chair-body, the said lazy-tongs being provided with a pivotally-mounted yoke for the purpose specified, a proper chair-base, a vertically-movable plunger adapted to engage the said yoke for the purpose of vertically expanding and contracting the said lazy-tongs, means for operating the said plunger to raise and lower the chair-body, a supporting-pedestal a turn-table rotatably mounted in the pedestal as described, and provided with means for locking the same, and a series of alternately-arranged pulleys pivotally mounted upon the said lazy-tongs as described, having a cord or cable mounted thereon, connected at one end with a pedal-lever in the said turn-table, and at the other end with the lever-arm 86 pivotally mounted in the chair-body support, as shown, adapted to engage the rigid rack 90 on said chair-body, the said cord being adapted by its operation to release the said chair-body from its locked engagement, all substantially as described.



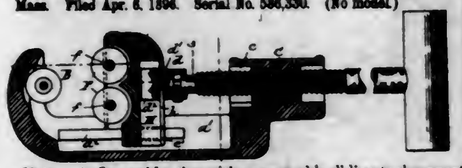
3. In a dental chair, a chair-back-locking device consisting of the described hangers pivotally supported upon a suitable rod loosely mounted in the chair-back frame having a pivotal connection with the said chair, as shown, and having an integral eccentric 54', a segmental disk inclosed by and having a pivotal connection with the said hangers, and also pivotally connected with the chair-body as shown, and a friction-piece 49 pivotally mounted upon the said rod between the said hangers and adapted to bear upon the perimeter of the said disk under the influence of the said eccentric, all as and for the purpose set forth and described.

4. In a dental chair, a head-rest consisting of a supporting-bar 21 having longitudinal flanges upon both sides thereof and a longitudinal central aperture for the head-rest rod, and a longitudinal slit 22' in the lower end thereof, as shown, the said bar being adapted for a vertical adjustment in a longitudinally-grooved back-frame 21' and provided upon its upper end with a screw threaded nut adapted to lock simultaneously all the adjustable parts of said head-rest, as described, a head-rest-supporting rod 22 vertically adjustable in the said central aperture of said bar, and having a cone-shaped termination on its free end whereby elevating the said rod in the said aperture of the bar 21 by the said nut, will lock the said bar in the back-frame 21' by spreading the slitted end thereof, a longitudinally-recessed bar 16 pivotally mounted on said rod, having the lugs 17 and 26 as shown, and a bar 19 fulcrumed therein adapted for engagement with the said locking-nut, the parallel levers 15 and 15' fulcrumed at their center and mounted upon said lugs as described, and a head-rest-supporting rod 13 having a ball-and-socket connection with said parallel levers and having a proper head-rest pad, all substantially as described.

5. In a dental chair, a turn-table-locking device consisting of a vertical shaft loosely mounted in the turn-table, as described, and provided with the eccentric 80 adapted to actuate a locking-bar, a pedal lever 75 rigidly mounted upon the upper end of the said shaft, the locking-bar 79 loosely mounted in said turn-table, and adapted to lock the same by engaging the inner surface of the pedestal when actuated by the said eccentric, in combination with the pedestal upon which the said turn-table is rotatably mounted, all substantially as described.

6. In a dental chair, a turn-table rotatably mounted in a proper pedestal, provided with means for locking the same and having a pedal-lever 42 adapted to disengage the tilting chair body from its locked adjustment by means of a connecting-table as shown, a pair of lazy-tongs having a segmental-gear connection at both ends to steady the chair-body, the lower end thereof being connected to a supporting-base, and the upper end being connected to the chair-body the said lazy-tongs being provided with a pivotally-mounted yoke for the purpose specified, a proper chair base or pedestal, a vertically-movable plunger adapted to engage the said yoke for the purpose of vertically expanding and contracting the said lazy-tongs, means for operating the said plunger to raise and lower the chair-body, in combination with a tilting chair-body provided with a suitable rack 90 rigidly mounted thereon as shown, and a horizontal shaft 88 loosely mounted in the chair-body support and provided with the rigidly-fixed lever-arm 86 adapted to rotate the said shaft, and the pawl 89 also rigidly mounted upon the said shaft and adapted for engagement with the said rack, and the cord or cable 37 connecting the said lever-arm 86 with the said pedal-lever, and adapted to release the said pawl from its engagement with the said rack, all substantially as described.

575,685. COMBINATION PIPE-TOOL. ATWATER E. BROCKETT, Everett, Mass., assignor of one-half to William G. Nixon, Braintree, Mass. Filed Apr. 6, 1896. Serial No. 586,330. (No model.)

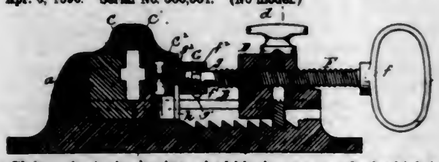


Claim.—1. In combination with a removable sliding tool-support carrying one or more rotary tools, a yoke having a back-rest at one end and a post at the other end and containing a chamber adapted to receive said tool-support and in which one of said rotary tools may partially revolve, the walls of said chamber being provided with inwardly-projecting ribs shorter than the length of said chamber and serving both to strengthen said walls and also as ways for said tool-support and said post carrying a screw-handle adapted to engage with and operate said tool-support, all as and for the purposes set forth.

2. A support for carrying rotary tools having two side portions *e* suitably connected and each provided on its front face with sockets adapted to receive a tool-spindle, in combination with an angle-piece G pivoted to said tool-support and forming one side of said spindle-socket and closing the end thereof and provided with means whereby it may be locked in position to hold said spindles in place, all as set forth.

3. A combination-tool having a back-rest carrying a rotary tool and a post carrying a screw-handle, said back-rest and post being connected by a chamber having suitable ways running a portion of the length of said chamber, in combination with a pair of vise-jaws, one of which is chambered and adapted to rest against said back-rest without engaging with its rotary tool and to slide upon and be removable from said ways, and the other adapted to engage with said screw-handle and be adjusted toward and from its mate upon said ways, all as set forth.

575,686. PORTABLE VISE. ATWATER E. BROCKETT, Everett, Mass., assignor of one-half to William G. Nixon, Braintree, Mass. Filed Apr. 6, 1896. Serial No. 586,331. (No model.)



Claim.—1. A vise having a bed-block, at one end of which is a stationary jaw, said bed-block being chambered and provided with ways located therein and having a rack located in its floor, in combination with a movable jaw and a movable post, said post being provided with a vertically-sliding pawl adapted to engage with said rack and carrying an adjusting-screw adapted to engage with and adjust said adjustable jaw, all as set forth.

2. In a vise having jaws, one stationary and the other adjustable, an adjusting-screw adapted to engage with and adjust said adjustable jaw, means for connecting said screw with said adjustable jaw consisting of a key-piece carrying a key adapted to lie in a suitable socket in said adjustable jaw, and a neck connecting said key with a head, said neck lying in a slot in the side of said socket and the end of said adjusting-screw engaging with said head and adapted to be rotated in relation thereto, all as set forth.

575,687. PORTABLE VISE. ATWATER E. BROCKETT, Everett, Mass., assignor of one-half to William G. Nixon, Braintree, Mass. Filed Apr. 6, 1896. Serial No. 586,332. (No model.)



Claim.—1. The vise above described consisting of a stationary jaw and a movable jaw adapted to be moved toward and from it, in combination with an adjusting screw-handle mounted in a suitable post and connected with said adjustable jaw, the thread of said screw-handle being undercut as described, said post carrying a pawl adapted to engage with the thread of said screw-handle, all as and for the purposes set forth.

2. In a tool, one member of which is adjustable, the adjusting mechanism above described consisting of a screw-handle provided with an undercut screw adapted to slide within an opening in a suitable slotted post, in combination with a pawl pivoted on said post and adapted to pass through the slot in said post into said thread, and engage therewith, all as and for the purposes set forth.

575,688. PIPE-CUTTER. ATWATER E. BROCKETT, Everett, Mass., assignor of one-half to William G. Nixon, Braintree, Mass. Filed Apr. 6, 1896. Serial No. 586,333. (No model.)

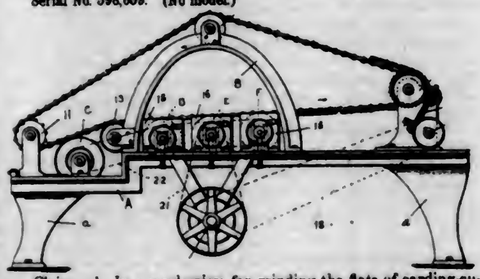


Claim.—1. In a pipe-cutter provided with a chambered bed-piece having a back-rest and a suitable post carrying a tool-handle, a double-sided reversible tool-carriage carrying two sets of tools, said carriage being detachably attached to said tool-handle and adapted to be moved thereby toward and from said back-rest, and to have its position on said handle reversed whereby either set of tools in said carriage may be used at will, all as set forth.

2. In a pipe-cutter having a tool-carrying back-rest and a post, a screw-handle lying in said post and provided at the front end with a forked piece, in combination with a double-faced tool-support carrying two sets of tools and adapted to be detachably held between the prongs of said forked piece, whichever set of tools is in action, all as set forth.

3. A tool-holder carrying a rotary tool and having sockets for the spindle of said tool, one of which is angular, and a tool-spindle, one end of which is angular and adapted to fit said socket, in combination with a flange-piece mounted on said tool-support and adapted to close one side of one of said sockets, all set forth.

575,689. MACHINE FOR GRINDING FLATS OF CARDING-ENGINES. EDWIN BROWN, Worcester, Mass. Filed July 10, 1896. Serial No. 598,659. (No model.)



Claim.—1. In a mechanism for grinding the flats of carding-engines, the combination of movable grinding-tables, a grinding-wheel, means for feeding a series of flats along the grinding-tables so that they will assume substantially the same position as when carding, and mechanism actuated by the forward movement of the flats for raising the grinding-tables, substantially as described.

2. In a mechanism for grinding the flats of carding-engines, the combination of a movable grinding-table, means for feeding the flats along over the grinding-table, a grinding-roll, and a cam-wheel for moving the grinding-table, said cam-wheel having projections or pins extending up in position to be engaged by the forward edges of the flats, as they move along over the grinding-table, substantially as described.

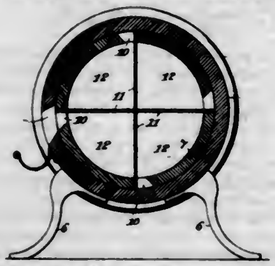
3. In a mechanism for grinding the flats of carding-engines, the combination of a longitudinally-slotted, pivoted grinding-table, means for adjusting the pivot of said grinding-table, means for feeding flats along over said grinding-table, and a cam-wheel having projections for moving the grinding-table, and a corresponding series of pins extending up through the slot in the grinding-table in position to be engaged by the forward edges of the flats as they move along over the grinding-table, said parts being arranged so that a set of flats may be ground in substantially the same position as when in use, substantially as described.

4. In a mechanism for grinding the flats of carding-engines, the combination of inclined, vertically-movable grinding-tables, a grinding-wheel, means for feeding a series of flats over the grinding-wheel and along the inclined tables so that the flats may be ground while in substantially the same position which they assume when carding, and mechanism actuated by the forward movement of the flats for raising the grinding-tables, substantially as described.

5. The combination of a plurality of successive, vertically-movable grinding-tables, a plurality of successive grinding-wheels, means for feeding a series of flats over said grinding-wheels and along the tables so that the flats may be ground in substantially the same position that they assume when carding, and mechanism actuated by the forward movement of the flats for raising the grinding-tables, substantially as described.

6. In a mechanism for grinding the flats of carding-engines, the combination of a plurality of inclined movable grinding-tables, means for feeding flats along over the grinding-tables, grinding-wheels for engaging the flats, and cam-wheels for moving the grinding-tables, said cam-wheels having projections or pins extending up in position to be engaged by the forward edges of the flats as they move along over the grinding-tables, substantially as described.

575,690. MATCH-SAFE. HUGH H. BROWN, Orange Bluff, Fla. Filed Aug. 11, 1896. Serial No. 602,411. (No model.)

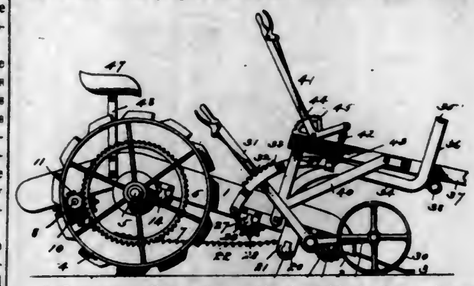


Claim.—1. A match-safe consisting of an outer cylindrical casing, and inner supplemental cylindrical casing which is revolubly mounted therein and which is provided at its sides with longitudinal slots, and said outer casing being provided at one side with a slot or opening through which the matches are discharged, and said inner casing being provided with longitudinal partition-plates by which the interior thereof, is divided into separate compartments, in each of which is formed one of the longitudinal slots or openings, substantially as shown and described.

2. A match-safe consisting of an outer cylindrical casing, and an inner, supplemental, cylindrical casing, which is revolubly mounted therein, and which is provided at its sides with longitudinal slots, and said outer casing being provided at one side with a slot or opening, and also with a receiver which is arranged below said slot or opening, and said inner casing being provided with longitudinal partition-plates, by which the interior thereof, is divided into separate compartments, in each of which is formed one of the longitudinal slots or openings, substantially as shown and described.

575,691. POTATO-DIGGER. PETER BROWN, Greeley, Colo. Filed Dec. 26, 1894. Serial No. 532,961. (No model.)

Claim.—1. In a potato-digger, the combination with the main drive-wheels, the frame, and the endless carrier or separator, of the cog-wheels connected with the main drive-wheels, the shaft for sustaining a portion of the carrier or separator and provided with pinions engaging said cog-wheels, and journal-boxes for said shafts, said boxes being formed with cavities in their outer and inner faces to receive a suitable fibrous material to exclude dust and sand from the journal-boxes where said shaft passes through the boxes, substantially as and for the purposes described.



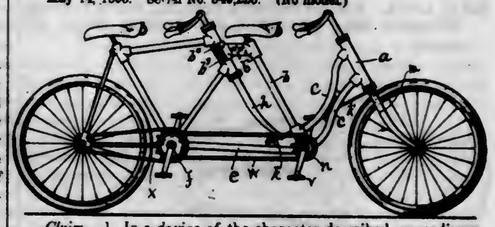
2. In a potato-digger, the combination with the frame, the end sprocket-wheels, and the endless carrier receiving motion from said sprocket-wheels, of the shaft extending transversely of the frame and located between the middle portion and front end of the frame and provided with sprocket-eccentrics engaged by the endless carrier and having rotary motion imparted thereto by said carrier, and the removable journal-boxes for the ends of said shaft located outside of the frame of the machine to be free from falling dirt, and removable to permit one form of eccentric to be substituted for another, substantially as and for the purposes described.

3. In a potato-digger, the combination with the frame, of an endless carrier or separator formed of a series of transverse rods, each having a hook and eye at its opposite ends, said hooks and eyes being formed of folded portions of the metal to form a double thickness at the hook and at the eye, the folded eye portion extending parallel with the transverse rod, substantially as and for the purposes described.

4. In a potato-digger, the combination with the frame and the tongue, of the draw-bar 34 secured at its rear to the sides of the frame and curved inwardly to bring its sides adjacent to the tongue, then extended forwardly along opposite sides of the tongue, then bent upwardly to a point above the tongue and connected by a cross-piece or neck, substantially as and for the purposes described.

5. In a potato-digger, the combination with the frame, gage-wheels and tongue, of the draw-bar secured at its ends to the sides of the frame and then curved inwardly and extended forwardly along the tongue and then bent upwardly and extended by a cross-piece, and the lever fulcrumed at the rear portion of the tongue and connected by a chain with a part of the draw-bar to lift the frame and gage-wheels free of the ground, substantially as and for the purposes described.

575,692. BICYCLE. COLIN S. BUELL, New London, Conn. Filed May 14, 1895. Serial No. 549,223. (No model.)

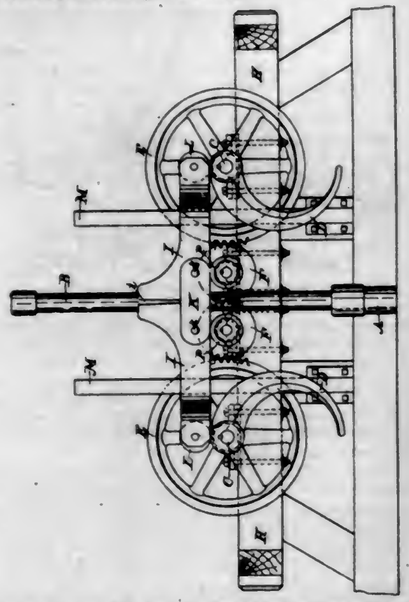


Claim.—1. In a device of the character described, an ordinary bicycle-frame, a supplemental frame adapted to be secured thereto, a fork journaled in the supplemental frame and means for connecting the fork of the supplemental frame to the fork of the ordinary frame, so that both forks will work in unison, as and for the purpose described.

2. In a device of the character described, an ordinary bicycle-frame, a supplemental frame adapted to be clamped thereto, a yoke pivoted to the supplemental frame and adapted to have its arms connected to the fork of the ordinary frame and a rod connecting said yoke to the fork of the supplemental frame, as and for the purpose described.

575,693. WELL-DRILLING MACHINE. MORTON G. BUNNELL and THOMAS G. CHAPMAN, Chicago, Ill., assignors to Frederick C. Austin, same place. Filed Dec. 24, 1894. Serial No. 532,903. (No model.)

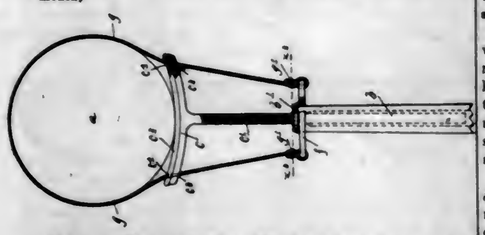
Claim.—1. In a device of the kind described, the horizontal shafts C C, carrying the cams, D, D, and means for driving the shafts in opposite directions at a uniform speed, in combination with the connected gripping-jaws, I, I, means for guiding the jaws in the vertical plane of the cams, and stops near the inner ends of the jaws for limiting their fall, substantially as set forth.



2. In a device of the kind described, the horizontal shafts, C C, driven in opposite directions at a uniform rate of speed by the cog-wheels E, E, and their intermediate connections, and the cams, D, D, rigidly secured to the shafts and revolving in a vertical plane, in combination with the gripping-jaws, I, I, connected by the links, K, K, means for retaining the jaws in the plane of the cams and stops near the inner ends of the jaws for limiting their downward movement.

3. In a device of the kind described, the horizontal shafts, C C, the cog-wheels, E, E, the driven pinions, F, F, meshing with the cog-wheels and driving the shafts in opposite directions at a uniform speed, the cams, D, D, rigidly secured to the shafts and revolving in a vertical plane, in combination with the connected gripping-jaws, I, I, means for retaining the said jaws in the plane of the cams, and stops near the inner ends of the jaws for limiting their downward movement.

575,694. HOLDER FOR JARS, CANS, &c. OLIVER A. BURNS, Minneapolis, Minn. Filed May 4, 1896. Serial No. 590,127. (No model.)



Claim.—1. The combination with a handpiece, of a draw plate or piece swiveled on said handpiece, a wire loop the ends of which are secured to said draw-plate, and a clamping-head provided with perforations through which the end portions of said wire loop work, and having a fixed stem which works with screw-threaded engagement into said handpiece, substantially as described.

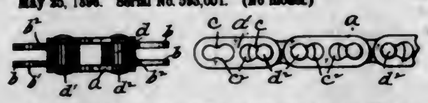
2. The combination with the handpiece *b* provided with the fixed collar *b'*, of the draw-plate *f* swiveled on said handpiece, the clamping-head *c* with perforations c^3 and screw-threaded stem *c'* engaging internal screw-threads of said handpiece *b*, and the clamping-loop formed by the wire strand *g* the ends of which work through said perforations c^3 and are rigidly secured to the ends of said draw-plate *f*, substantially as described.

575,695. NUT-LOCK. PHILIP BURNS, Norwich, Conn. Filed May 25, 1896. Serial No. 593,050. (No model.)



Claim.—In combination with a bolt and nut, a ball supported loosely in said nut in a hole that is tangential to the bolt-hole, as set forth and a screw in said hole forming an abutment for the said ball, for the purpose stated.

575,696. DRIVE-CHAIN. PHILIP BURNS, Norwich, Conn. Filed May 25, 1896. Serial No. 593,051. (No model.)



Claim.—1. In a bicycle-chain, in combination, side links having slots with enlargements *c'* at each end, as set forth, center links, and pins for hinging together said side and center links; said pins being formed at each end with annular channels and with flattened portions *e e* that are located in different planes, substantially as and for the purpose specified.

2. In a bicycle-chain, in combination, side links having slots with enlargements *c'* at each end and with an enlargement c^3 located at one side of the center of said links, as set forth, center links, and pins for hinging together said side and center links; said pins being formed at each end with annular channels and with flattened portions *e e* that are located in different planes, all being substantially as and for the purpose specified.

575,697. PROCESS OF AND DEVICE FOR REPAIRING ASPHALT PAVEMENTS. JOHN W. BUSSARD, Chicago, Ill., assignor to Emory B Perkins, same place. Filed June 26, 1896. Serial No. 597,089. (No model.)



Claim.—1. A pavement-repairing device comprising a case or box adapted to be placed over the opening to be repaired, said case or box having a projecting strip of asbestos or the like extending around its lower edge and upon which the box or case is supported, a box or receptacle adapted to be placed within said box or case, and provided with a woven or latticed bottom, the whole so constructed that when molten lead or the like is poured into said inner box, it will pass through the bottom and enter the opening in the pavement and conform to the irregularity thereof.

2. The method of repairing or resurfacing pavements which consists in softening the same by the application thereto of a molten material, then removing the molten material when it is hardened, then smoothing and finishing the softened surface.

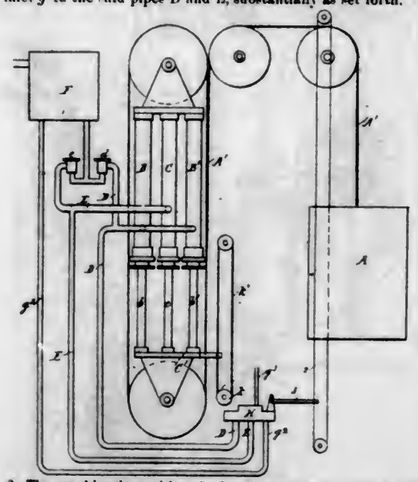
3. The process of preparing asphalt pavements for resurfacing which consists in applying to the part to be repaired a molten material, retaining such material in contact with the part until such part has been softened or heated and the molten material has been partially hardened, then applying heat to said partially-hardened material until the part to be repaired becomes sufficiently heated and softened, then removing such hardened material and finishing the surface.

4. The method of repairing asphalt pavements which consists of subjecting the spot to be repaired to a heated molten material, removing such material when the spot to be repaired has been sufficiently heated, adding new material and smoothing and burnishing.

5. A pavement-repairing apparatus comprising a case or box adapted to be placed over the opening to be repaired and provided at the bottom with a flexible portion, a box or receptacle adapted to be placed within said box or case, said receptacle adapted to receive molten material and provided with a perforated bottom which allows said molten material to pass through said receptacle and enter the opening in the pavement, the molten material adhering to the said receptacle when cool, so that it can be easily and quickly removed.

575,698. HYDRAULIC LIFTING MACHINERY. ROBERT CAREY, London, England. Filed Mar. 13, 1895. Serial No. 541,563. (No model.)

Claim.—1. The combination, with a hydraulic elevator provided with a cylinder having an inlet-pipe E, and two cylinders having a common inlet-pipe D: of a power-setting valve H connected to the said pipes and provided with a piston *h* and a slide *h'* connected together, and an inlet *g'*; a ratchet-bar secured to the said piston, a wheel operatively connected with the elevator and revolving when the elevator commences to move, and a pivoted pawl normally supported by the said wheel and arranged to drop into the said ratchet-bar when the said wheel commences to revolve, the said slide being operated by the said piston and controlling the passage of water from the inlet *g'* to the said pipes D and E, substantially as set forth.



2. The combination, with a hydraulic elevator provided with a cylinder having an inlet-pipe E, and two cylinders having a common inlet-pipe D: of a power-setting valve H connected to the said pipes and provided with a slidable rod, a rack, a slide *h'* and a piston *h* all connected together, and an inlet *g'*; a pivoted pawl for engaging with the said rack and arresting the motion of the said slide, and trip mechanism connected with the said elevator and operating to hold the pawl clear of the rack until the elevator commences to move, substantially as set forth.

3. The combination, with a power-setting valve H provided with pipes D and E, a non-return exhaust-valve h^2 connected with the pipe D, an inlet and exhaust pipe *g'*, and a slide *h'* controlling the admission of water to the pipes D and E: of a controlling-valve G connected to the said pipe *g'*, and provided with inlet and exhaust passages, and a slide *g* controlling the passage of water to and from the said pipe *g'*, substantially as set forth.

575,699. ELECTROMECHANICAL MOVEMENT. EDWIN D. CHAPLIN, Cambridge, and HENRY G. HALLORAN, Boston, Mass., assignors to the Chaplin Company, Kittery, Me. Filed Mar. 21, 1896. Serial No. 584,257. (No model.)

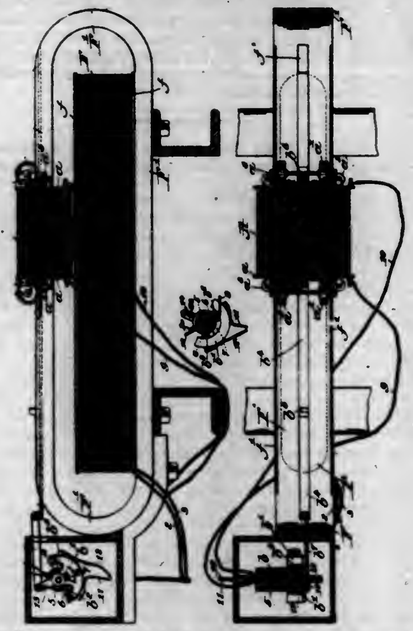
Claim.—1. In an apparatus of the class described, an electro field-magnet and a coil-armature wholly exterior to the coil of said magnet one of which is reciprocable relatively to the other, the lines of force of the field intersecting the coils of the armature, means to produce a current in the field and armature, and means to change the direction of current of one of them, in accordance with the relative reciprocation of one to the other, substantially as described.

2. In an apparatus of the class described, an electro field-magnet, an armature wholly exterior to the coils thereof and reciprocable in its field and intersecting the lines of force thereof, means to produce a current in the armature, and a device for reversing the direction of the current at each stroke, substantially as described.

3. In an apparatus of the class described, an electro field-magnet, an armature reciprocable exterior to the coils thereof but intersecting the lines of force of the magnetic field, means to produce a current in the field and armature, and means to reverse the current of one at each stroke of the armature, substantially as described.

4. In an apparatus of the class described, an electro field-magnet, including an elongated coil, an armature reciprocable exterior to and in the direction of the length of the coil and in the magnetic field thereof, means to produce a current in the field and armature, and means to change the direction of current in one of them as the armature is reciprocated, substantially as described.

5. In an apparatus of the class described, a magnet having an extended pole to form an armature-directrix, a coil-armature to reciprocate on said directrix exteriorly to the body of the maguet, means to produce a current in the coil-armature, and means to reverse the direction of the current in accordance with the reciprocation of said coil-armature, substantially as described.



6. In an apparatus of the class described, a magnet having an extended pole to form an armature-directrix, a coil-armature to reciprocate on said directrix, means to produce a current in the coil-armature, and means controlled by said coil-armature to reverse the direction of current therein and thereby change its direction of movement, substantially as described.

7. An electromechanical movement comprising an electromagnet having one elongated pole, to form an armature-directrix, an armature-coil reciprocable on said directrix, the said coil cutting the lines of force of the field, means to produce a current in the field and armature coils, and means to change the direction of the current in one of them at each stroke of the armature, such reversal of current causing reciprocation of the latter, substantially as described.

8. An electromechanical movement comprising an electro field-magnet, an armature reciprocable exterior to the coils of said magnet and intersecting the lines of force thereof, means to produce a current in the field-magnet and armature, and means operated by the armature to change the direction of current of the field-magnet or armature at each stroke, the change of direction of current causing reciprocation of the armature, substantially as described.

9. In an apparatus of the class described, a field-magnet, a coil-armature reciprocable in the field thereof, and a metallic directrix for the said armature, combined with a magnetically-controlled device carried by the armature, tending to neutralize the pressure of the armature on the directrix, substantially as described.

10. In an apparatus of the class described, a field-magnet, a coil-armature reciprocable in the field thereof, and a metallic directrix for the said armature, combined with a magnetically-controlled device carried by the armature, tending to neutralize the pressure of the armature on the directrix, means to produce a current in the coil-armature, and means to reverse the current thereof, substantially as described.

11. In an apparatus of the class described, a field-maguet, a plurality of coil-armatures reciprocable in the field thereof and electrically connected therewith, and means to positively reciprocate one of said coil-armatures in the field to control the direction of current and thereby the direction of movement of the other armatures, substantially as described.

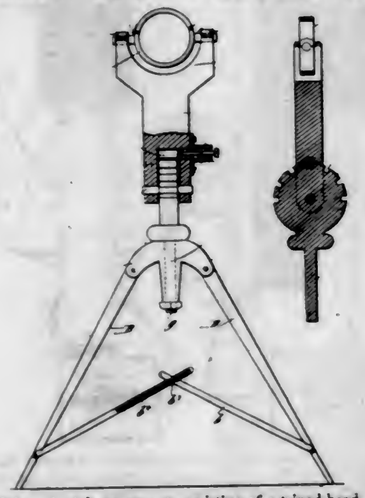
12. A plurality of field-magnets and their armatures, each field-magnet and its armature being relatively reciprocable, means to produce a current in said fields or armatures, and means to reverse the current in accordance with the relative reciprocation of the field-magnets and armatures, substantially as described.

13. In an apparatus of the class described, a field-magnet and a coil-armature, one of which is reciprocable relatively to the other, the

lines of force of the field intersecting the coil of the armature, means to produce a current in the coil, and means to reverse the direction of current in the coil, in accordance with the relative reciprocation of field-magnet and armature, substantially as described.

14. In an apparatus of the class described, a field-magnet and a coil-armature, one of which is reciprocable relatively to the other, the lines of force of the field intersecting the coil of the armature, means to produce a current in the coil, and means controlled by such relative reciprocation to govern the direction of current in the coil-armature, substantially as described.

575,700. **FIRE-HOSE SUPPORT.** JOSEPH O. CHARBONNEAU, Cranston, R. I. Filed Apr. 6, 1896. Serial No. 586,653. (No model.)



Claim.—1. A hose-support consisting of a tripod-head, which is provided with pivoted legs, a circular vertical head pivotally connected therewith, and adapted to swing in a horizontal plane, a support mounted on said circular head, and free to swing in a vertical plane, said support being provided at its upper end with a yoke in which is mounted a band or clamp which is also free to swing in a vertical plane, substantially as shown and described.

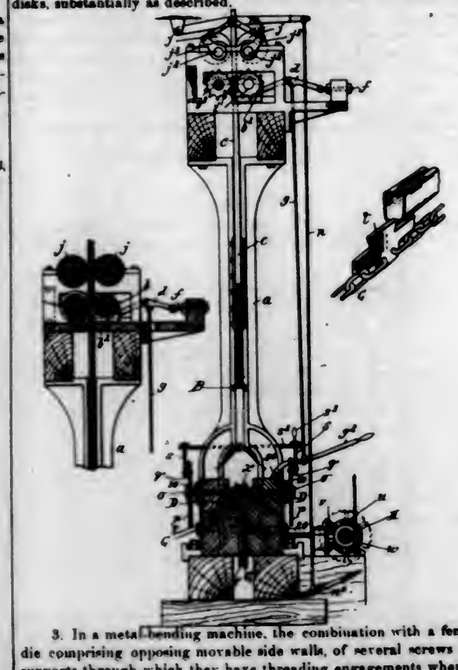
2. A hose-support consisting of a tripod-head, which is provided with pivoted legs, a circular vertical head pivotally connected therewith, and adapted to swing in a horizontal plane, a support mounted on said circular head, and free to swing in a vertical plane, said support being provided at its upper end with a yoke in which is mounted a band or clamp which is also free to swing in a vertical plane, and means for locking said support to said circular head, so that the support cannot swing in a vertical plane, substantially as shown and described.

3. A hose-support consisting of a tripod-head, which is provided with pivoted legs, a circular vertical head pivotally connected therewith, and adapted to swing in a horizontal plane, a support mounted in said circular head, and free to swing in a vertical plane, said support being provided at its upper end with a yoke in which is mounted a band or clamp which is also free to swing in a vertical plane, and means for locking said support to said circular head so that the support cannot swing in a vertical plane, consisting of ratchet-teeth formed on the upper part of said circular head, and a spring-operated locking-bolt which passes through one side of said support, and is adapted to engage with said teeth, substantially as shown and described.

575,701. **MACHINE FOR BENDING AND FORMING SHEET METAL.** LEMUEL COBURN and WILLIAM J. SUMNER, Holyoke, Mass. Filed Sept. 7, 1895. Serial No. 561,734. (No model.)

Claim.—1. In a metal-bending machine, the combination with the hammer having the upwardly-projecting bar, C, of the pair of rolls, *b*, *b*, between which said bar extends, one thereof being movable toward and from the face of the bar, means for rotating said rolls, means for forcing the movable roll against the face of the bar, the pair of eccentrically-pivoted cylinders between which said bar also extends, and means for imparting to said cylinders rotational movements in given directions, whereby they will release the bar, all substantially as and for the purposes set forth.

2. In a metal-bending machine, the combination with a female die comprising a movable side wall, of two or more screws, and supports through which they have threading engagements whereby they bear by their inner ends against said movable wall, disks secured on the outer ends of said screws, and connecting-rods secured to said disks, substantially as described.



3. In a metal-bending machine, the combination with a female die comprising opposing movable side walls, of several screws and supports through which they have threading engagements whereby they bear by their inner ends against the outer sides of said movable die-walls, disks secured on the outer ends of said screws, rods connecting the side sets of the disks, the longitudinally-ranging levers, and the cross-lever, substantially as and for the purposes set forth.

4. In a metal-bending machine, the combination with a female die, comprising opposing movable side walls, of adjusting-screws, supports through which the screws pass, operating mechanism for the screws: an endless chain, wheels around which the chain passes, and ejector-dogs secured to the chain and projecting upwardly into the way between the dies, substantially as described.

5. In a metal-bending machine, the combination with a female die, comprising opposing movable side walls, of adjusting-screws, supports through which the screws pass and operating mechanism for the screws: an endless chain, wheels around which the chain passes, ejector-dogs secured to the chain, and projecting upwardly into the way between the dies, a mechanism for operating the chain, and a clutch mechanism for throwing the chain out of operation, substantially as specified.

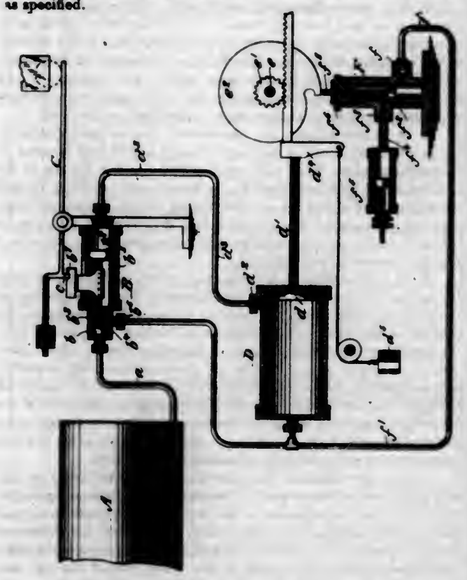
575,702. **AUTOMATIC FLUID-PRESSURE MACHINE.** ARTHUR W. COLE, Brooklyn, N. Y., assignor, by mesne assignments, to the Automatic Photograph Machine Company, of West Virginia. Filed Dec. 17, 1896. Serial No. 572,410. (No model.)

Claim.—1. The combination of a reservoir, a motor, a valve controlling communication between same and comprising two pistons of different areas on a common stem, an independent supplemental motor, and a valve governed by the main motor and controlling said supplemental motor, substantially as described.

2. The combination of a reservoir for fluid-pressure, a main motor, a valve controlling communication between the same and comprising two pistons of different areas on a common stem, an independent supplemental motor, a shaft rotated by the main motor, and a valve operated by said shaft and governing said supplemental motor, substantially as described.

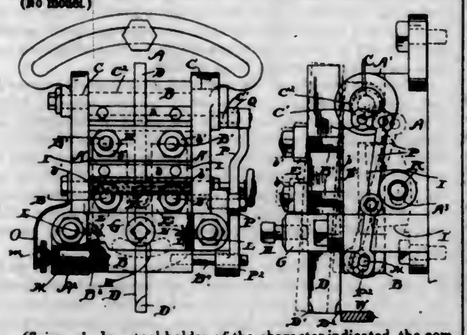
3. The combination of a reservoir for fluid-pressure, a main motor, a valve comprising two pistons of different areas, a passage connecting said reservoir and main motor and controlled by one piston of said valve, an escape-port for said main motor leading to the other piston of said valve, a supplemental motor, and a valve operated by the main motor and controlling the supplemental motor, substantially as described.

4. The combination of a reservoir, a motor operated by fluid-pressure, a valve for controlling communication between the said reservoir and motor, and which consists of two pistons having different areas, a detent for locking the valve which when released will permit the valve automatically to open communication between the reservoir and the motor, and a passage-way opened by the movement of the motor, to the fluid-pressure, thereby effecting a return of the valve to the position in which it is locked by the detent, substantially as specified.



5. The combination of a reservoir for fluid-pressure, a main motor, a valve governing communication between them and containing two pistons of different areas on a single stem, a coin-actuated detent for said valve, an exhaust-port for said main motor controlled by its piston and leading to said valve, a series of supplemental motors, and a series of distributing-valves governing said supplemental motors and operated by the main motor, substantially as described.

575,703. **METAL PLANING OR CUTTING MACHINE.** JOSEPH A. COSTELLO, Cleveland, Ohio. Filed May 11, 1896. Serial No. 591,060. (No model.)



Claim.—1. In a tool-holder of the character indicated, the combination of the tool-bearing apron capable of being swung forwardly and rearwardly of its perpendicular or normal position, and having its tool provided with two cutting edges D′ and D², arranged at the forward extremity and rear extremity, respectively, of the tool's lower end; means for limiting the forward sweep of the apron; two suitably-supported wedges arranged a suitable distance apart at the rear side of the apron, with their smaller ends facing each other, and with their forward sides converging rearwardly toward each other and sloping, also, rearwardly in a downward direction, suitable means for adjusting the wedges apart, and the arrangement of parts being substantially as and for the purpose set forth.

2. In a tool-holder of the character indicated, the combination with the tool-bearing apron capable of being swung forwardly and rearwardly of its perpendicular or normal position, and having its cutting-tool provided with two cutting edges D′, D², formed at the forward extremity and rear extremity, respectively, of the tool's lower end, and the rear side of the apron having the two rearwardly-converging surfaces B³: of means for limiting the apron's forward sweep; two wedges I I arranged rearward of the different surfaces B³, respectively, with their smaller ends facing each other, and with their forward sides converging rearwardly and sloping, also, downwardly in a rearward direction; a stationary right and left handed screw for adjusting the wedges apart, and the parts being arranged substantially as and for the purpose set forth.

3. In a tool-holder of the character indicated, the combination with the tool-bearing apron capable of being swung forwardly and rearwardly of its perpendicular or normal position, and having its tool provided with two cutting edges, D′ D², formed at the forward extremity and rearward extremity, respectively, of the tool's lower end, and the apron's rear side comprising two rearwardly-converging surfaces B³: of two suitably-supported wedges I I arranged rearward of said different converging surfaces, respectively, and arranged with their smaller ends facing each other, and with their forward sides converging rearwardly and sloping, also, rearwardly in a downward direction; means for adjusting the wedges toward and from each other, and means instrumental in establishing parallelism between the forward sides of the wedges and adjacent sloping surfaces of the apron in the rearwardly-swung position of the apron in readjusting the wedges, substantially as and for the purpose set forth.

4. In a tool-holder of the character indicated, the combination with the upright plate A and the tool-bearing apron supported from and at the forward side of said plate, and capable of being swung fowardly and rearwardly of its perpendicular or normal position, and having a tool provided with two cutting edges formed at the forward extremity and rear extremity, respectively, of the tool's lower end, and the rear side of said apron comprising two rearwardly-converging surfaces B³: of means for limiting the apron's forward sweep; two wedges I I rearward of the different sloping surfaces, respectively, of the apron, and movable upwardly and downwardly of the forward side of the aforesaid plate, said wedges being arranged with their smaller ends facing each other, and having their forward sides converging rearwardly and sloping, also, downwardly in a rearward direction; means for adjusting the wedges toward and from each other; a stationary downwardly and inwardly inclined member at the forward side of each wedge and having its rear side engaging the forward extremity of said wedge, an arm on the latter engaging the forward side of said inclined member, and the parts being so arranged and the trend of the opposing surfaces of the aforesaid plate and wedges being such that parallelism between the forward sides of the wedges and adjacent sloping surfaces of the apron is established in the rearwardly-swung position of the apron in readjusting the wedges, substantially as and for the purpose set forth.

5. In a tool of the character indicated, the combination of the upright plate A concave upon its forward side and having two forwardly-projecting flanges A′ arranged a suitable distance apart; the tool-bearing apron hung between the upper ends of said flanges and capable of being swung rearwardly and forwardly of its perpendicular or normal position and having a tool provided with two cutting edges formed at the forward extremity and rear extremity, respectively, of the tool's lower end, and said apron's rear side having two rearwardly-converging surfaces B³; a wedge I arranged rearward of each of said sloping surfaces, and the two wedges arranged with their smaller ends facing each other, and with their forward sides converging rearwardly, and sloping, also, downwardly in a rearward direction, and having their rear sides convex to render the wedges capable of sliding upwardly and downwardly of the aforesaid concave surface of the apron-supporting plate; means for adjusting the wedges toward and from each other; a plate L secured to the inner side of each of the aforesaid flanges and provided with a downwardly and inwardly inclined flange L′ having its rear side engaging the adjacent wedge, and the latter having an arm I′ engaging the forward side of said inclined flange, substantially as shown, for the purpose specified.

6. In a tool-holder of the character indicated, the combination with the suitably-suspended tool-bearing apron capable of being swung rearwardly and forwardly of its perpendicular or normal position and provided, in one of its edges, with a recess or hole having its forward and rear side walls converging inwardly; of a suitably-supported pin movable endwise and extending into the aforesaid hole, and having the forward and rear sides of its inner end converging inwardly, and a spring acting to retain said pin in the latter's inner position, substantially as and for the purpose set forth.

7. In a tool-holder of the character indicated, the combination with the suitably-suspended tool-bearing apron capable of being swung rearwardly and forwardly of its perpendicular or normal position and provided, in one of its edges, with a recess or hole having its forward and rear side walls converging inwardly; of a suitably-supported pin movable endwise and arranged to extend centrally into the aforesaid hole in the apron's normal position and having the forward and rear sides of its inner end converging inwardly and having

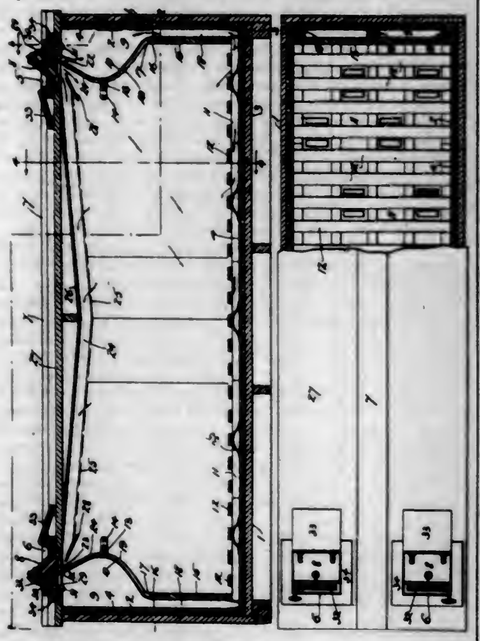
its outer portion externally screw-threaded; a nut engaging the pin's threaded portion, and a spring bearing against the outer end of the nut, substantially as and for the purpose set forth.

8. In a tool-holder of the character indicated, the combination of a suitably-supported horizontally-arranged oscillating shaft provided with a cam; the tool-bearing apron mounted, at its upper end, upon the cam; mechanism for raising and lowering the apron, said mechanism being operatively connected with the aforesaid shaft, and the arrangement of parts being such that the apron shall be lowered or elevated, according as it is swung forwardly or rearwardly of its normal position, substantially as and for the purpose set forth.

9. In a tool-holder of the character indicated, the combination of a suitably-supported horizontally-arranged oscillating shaft C provided with a crank C' and a cam C^2; the tool-bearing apron mounted, at its upper end, upon the cam, and lever mechanism operatively connecting the lower end of the apron with the aforesaid crank, and the arrangement of parts being such that the apron shall be lowered or elevated according as it is swung forwardly or rearwardly of its normal position, substantially as and for the purpose set forth.

10. In a tool-holder of the character indicated, the combination of a suitably-supported horizontally-arranged shaft C provided with a crank C' and a cam C^2: the tool-bearing apron mounted, at its upper end, upon the cam; a forwardly and rearwardly vertically-tilting lever P operatively connected, at its lower end with the apron's lower end, and the link Q' operatively connecting the upper end of said lever with the wrist of the aforesaid crank, and the arrangement of parts being such that the apron shall be lowered or elevated according as it is swung forwardly or rearwardly of its normal position, substantially as and for the purpose set forth.

575,704. CAR-VENTILATOR. JOHN M. DALY, Chicago, Ill. Filed Sept. 11, 1896. Serial No. 605,464. (No model.)



Claim.—1. In a car-ventilator, the combination of the car having an opening at each end and near the upper portion thereof, an air-passage extending under the roof of the car from one of said openings to the other and communicating with the interior thereof, an air-passage extending lengthwise of the car and adjacent to the floor thereof, an air-passage extending downwardly at each end of the car and communicating with said second air-passage, and means for trapping the air and directing it into said air-passages, substantially as set forth.

2. In a car-ventilator, the combination of the car having a false roof and a false floor, an air-inlet near the roof and end thereof and means for dividing the air entering said inlet into three separate currents one passing above said false roof, one entering the body of the car and the third passing along under the false floor of the car, substantially as set forth.

3. In a car-ventilator, the combination of a car having an air-inlet at its upper portion, a false roof provided with openings and forming an air-space, a false floor having openings and forming an air-space, and a passage leading down the end of the car to said false floor, and means for directing the air from said inlet into said passage and air-spaces, substantially as set forth.

4. In a car-ventilator, the combination with a car having an opening in or near the roof thereof at each end, a false roof forming an air-space extending from the opening at one end to the opening at the other end of the car, a false floor, an air-passage leading downwardly at each end of the car from each of said openings to said false floor, and means for directing the air through said openings and into said air-space and passages, substantially as set forth.

5. In a car-ventilator, the combination of a car having an opening in or near the roof at each end thereof, a false roof forming an air-space extending from said opening at one end of the car to the opening at the other end thereof, a partition or wall dividing the said opening at each end of the car and forming with said false roof three separate passages for the air, and a false floor forming an air space having a communicating passage with said opening at each end of the car, substantially as set forth.

6. In a car-ventilator, the combination of a car having an opening at each end near the upper end thereof, a false roof forming an air-space extending from the opening at one end of the car to the opening at the other end, an air-passage leading downwardly from the opening at each end of the car, a false floor forming an air-space communicating at each end with one of said downwardly-extending air-passages and means for directing the air into said air space and passages, the downwardly-extending air-passage at each end of the car being located at a distance from the end of the air-passage under the roof whereby a third passage or current leading down into the interior of the car is formed, substantially as set forth.

7. In a car-ventilator, the combination of a car having an air-inlet at the end and upper part thereof, air-passages extending lengthwise of the car and adjacent to the roof and floor respectively and having communication throughout their length with the interior of the car, a partition or wall projecting across said opening and extending downwardly to the passage at the lower side of the car, said passage under the roof having its mouth arranged adjacent to said opening whereby air entering said opening will be divided into separate currents entering said passages respectively, substantially as set forth.

8. In a car-ventilator, the combination of a car having an air-inlet at the end and upper part thereof, air-passages extending lengthwise of the car and adjacent to the roof and floor respectively, and having communication throughout their length with the interior of the car, a partition or wall projecting across said opening and extending downwardly to the passage adjacent to the floor, said passage under the roof having its month arranged adjacent to said air-inlet and said partition or wall being bowed or bent inwardly toward the center of the car and having its lower end carried outwardly toward the adjacent end of the car, whereby the air entering said inlet will be divided into separate currents entering said passages respectively, substantially as set forth.

9. In a car-ventilator, the combination of a car having an air-inlet at the end and upper part thereof, air-passages extending lengthwise of the car and adjacent to the roof and floor respectively and having communication throughout their length with the interior of the car, a partition or wall projecting across said air-inlet and extending downwardly to the passage adjacent to the floor, said passage adjacent to the roof having its mouth arranged contiguous to said air-inlet but at a distance from said partition whereby a third passage is formed for admitting air to the body of the car, substantially as set forth.

10. In a car ventilator, the combination of a car having an air-inlet at the end and upper part thereof, air-passages extending lengthwise of the car and adjacent to the roof and floor respectively and having communication throughout their length with the interior of the car, a partition projecting across said air-inlet and extending downwardly to the passage adjacent to the floor, said passage adjacent to the roof having its mouth arranged contiguous to said inlet but at a distance from said partition, and a deflector 28 arranged between its said mouth and said partition, substantially as set forth.

11. In a car-ventilator, the combination of a car having an air-inlet at the end and upper part thereof, the upwardly-inclined trap 8 for trapping the air and forcing it into the said inlet, air-passages extending into the car and having their ends arranged adjacent to said air-inlet, an adjustable deflector for directing the air into one of said passages and adapted to be extended upwardly into said air-inlet, substantially as set forth.

12. In a car-ventilator, the combination of a car having an air-inlet at the upper portion thereof and being provided with air-passages for distributing the air throughout the car, an adjustable deflector adapted to be projected upwardly into said air-inlet for directing the air into one of said passages, the hinged trap for trapping the air and forcing it into said inlet, and an operative connection between said trap and deflector whereby the deflector will be automatically raised with the trap, substantially as set forth.

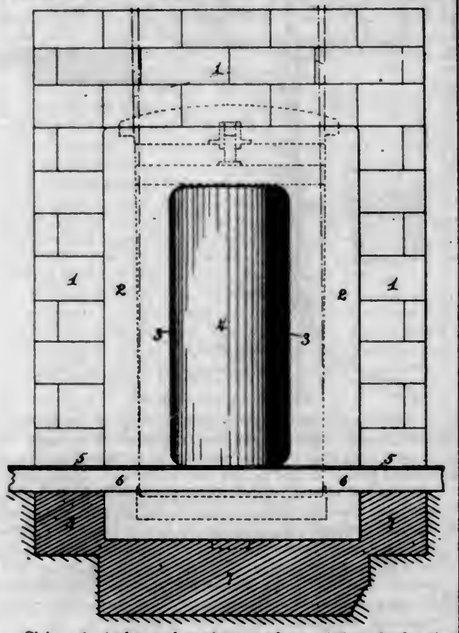
13. In a car-ventilator, the combination of a car having an air-inlet at or near the top thereof, and a removable partition 10 extending across said inlet and projecting downwardly into the car, substantially as set forth.

14. In a car-ventilator, the combination of a car having an air-inlet in its top or roof, the removable partition 10 extending across said inlet and projecting downwardly into the car, the wall 15 detachably secured to said partition and being removably secured in the car and having the ribs 18 supported against the end of the car, substantially as set forth.

15. In a car-ventilator, the combination of a car having an air-inlet at each end thereof, an air-passage extending under and adjacent to the roof of the car and communicating at its opposite ends with said inlets respectively and being downwardly inclined toward the mid-length of the car and having communication throughout its length with the interior of the car, substantially as set forth.

16. In a car-ventilator, the combination of a car having a slatted false bottom, a number of deflectors secured to the under side of said bottom for directing the air upwardly into the car, and means for forcing an air-current under said false bottom, substantially as set forth.

575,705. CLOSURE FOR SAFES OR VAULTS. GEORGE L. DAMON, Boston, Mass. Filed July 25, 1895. Serial No. 557,121. (No model.)



Claim.—1. A closure for safes or vaults consisting of a housing having a conical bore and a rotatable plug having a conical periphery; said housing and plug having diametric openings to be brought into and out of coincidence for opening or closing the safe or vault; and means for moving the plug axially within the housing for binding one within the other by their conical surfaces, as explained.

2. A vestibule-closure for safes or vaults consisting of a housing having a conical bore, and a rotatable plug having a conical periphery; said housing and plug having each two diametric openings to be brought into and out of coincidence for opening or closing two doorways of the safe or vault; and means for moving the plug axially within the housing for binding one within the other by their conical surfaces, as explained.

3. In a closure for safes or vaults the combination of the outer housing having a conical bore and the conical plug fitting in said bore, said housing and plug having openings to be brought into and out of coincidence as explained, means for moving the plug axially within the housing, and means substantially as described, for preventing rotation of the plug when seated in the housing, as explained.

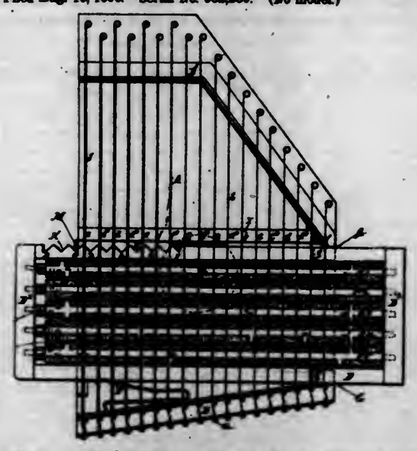
4. In a closure for safes or vaults, the combination of the outer housing, the inner barrel mounted to rotate, also to move axially in said housing, and locking devices consisting of pins and sockets secured respectively to the fixed and moving parts and adapted to be brought into engagement by axial movement and prevent rotary movement of the barrel as explained.

575,706. GRINDING-MACHINE. DELOS A. DAVPORTS, Elkhart, Ind. Filed Feb. 20, 1896. Serial No. 580,064. (No model.)



Claim.—In a grinding-machine of the class described the combination of the main frame and the driving-shaft mounted in the upper end thereof, a driving gear and pinion on said shaft, a movable frame pivotally connected at its upper end to the shaft and having a grindstone mounted in its lower end, said frame comprising two arms each of which has a bifurcated lug having bolt connection with a cross-brace connecting both arms, a shaft journaled on one of the arms and having thereon a gear-wheel meshing with the pinion, and a crank-disk, a pitman pivotally fixed to the main frame and having pivotal connection with said disk, and a pinion on the grindstone-spindle meshing with the driving-gear.

575,707. AUTOHARP. ELWELL V. DEXTER, Worcester, Mass. Filed Aug. 10, 1896. Serial No. 602,289. (No model.)



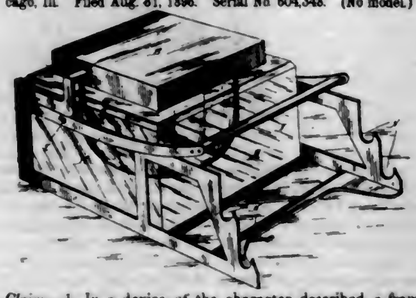
Claim.—1. The rocking damper-bars of segmental cross-section form, having damping-strips upon both front and rear edges, and provided with rigidly-attached upwardly-projecting thumb-plates upon their ends, said bars pivotally supported at their ends within the removable rectangular frame and adapted for operation between the strings and sound-boards, and means for retaining one end of said frame at its sides, as at G G, while permitting its endwise adjustment and the edgewise movement of its other end, and tilting operation of the damper-bars by the hand at the frame end D', for the purpose set forth.

2. In combination with the body and strings in an autoharp, the endwise-adjustable damper-carrying frame confined edgewise between the bridges or guides at G G, and arranged to swing at its other end, said frame provided on its rear edge, near the end, with a series of lugs or notches corresponding with the various key-notes, the upright stop or detent M attached to the body of the instrument for engaging said notches, and the spring P disposed against the opposite edge of said frame and normally pressing said frame toward said detent, all substantially as and for the purpose set forth.

3. In an autoharp, cithern or similar instrument, the combination as described, of the endwise-movable frame carrying the series of rocking damper-bars having damper-strips upon the top at their front and rear edges, respectively notched to represent the series of chords as specified; said frame and dampers inserted between the strings and face of the sound-board, and adapted to have endwise adjustment and edgewise movement at its left-hand end, the upwardly-projecting

thumb-plates fixed on said damper-bars, and return-springs therefor, the series of engaging notches on the rear edge of said frame corresponding to different key-notes, the upright detent on the body, and the resilient presser acting against the front edge of said frame for normally pressing it backward and retaining said notches and detents in engagement, all constructed and combined for operation substantially as shown and described.

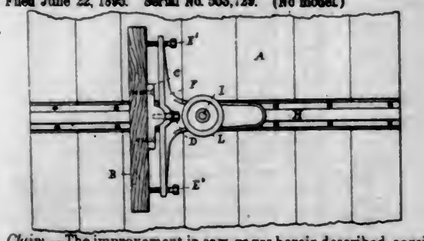
575,708. DUST-PROOF INK-WELL. RALPH G. DORRANCE, Chicago, Ill. Filed Aug. 31, 1896. Serial No. 604,348. (No model.)



Claim.—1. In a device of the character described, a frame, a lever pivoted thereto carrying a cap, a lever pivoted to the frame having its heel engaging and operating the first-named lever, said heel extending nearly to the pivot of the cap-carrying lever and being beveled to limit the movement of the cap, substantially as described.

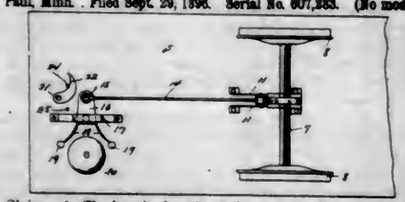
2. In a device of the character described, a suitable frame, levers carrying a cap pivoted to the frame, a second series of levers pivoted to the frame having beveled heels engaging the first-named levers near their pivotal supports, as and for the purpose described.

575,709. SAW-GAGE. GEORGE W. DREW, San Francisco, Cal. Filed June 22, 1895. Serial No. 553,729. (No model.)



Claim.—The improvement in saw-gages herein described, consisting of a wooden table-top, a rectangular groove formed transversely therein, a T-shaped guide-rail set in said groove flush with the top of the table, in combination with a vertical clamping-bolt having jaws J engaging with the top of the T-headed rail, a hand-wheel for operating the said clamping-bolt, a main gage member F with sleeve M integral therewith, ledges G, adjusting-screws E' E², swiveling plate C, and gage-bar B, all substantially as and for the purpose specified.

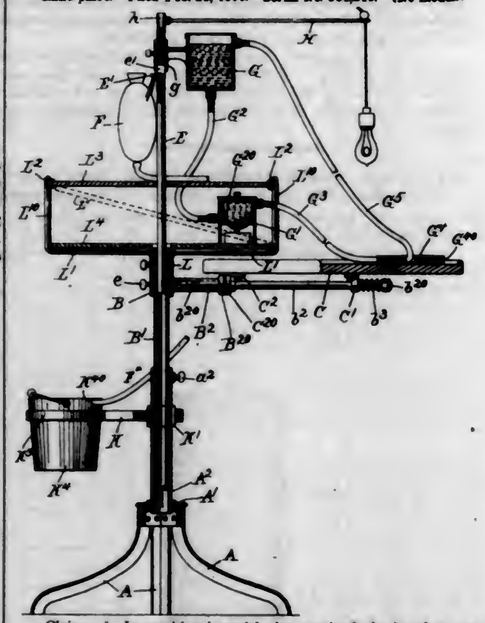
575,710. AUTOMATIC CAR-SIGNAL. EDWARD DE HAAS, St. Paul, Minn. Filed Sept. 29, 1896. Serial No. 607,383. (No model.)



Claim.—1. The herein-described alarm device for tramway-cars, which consists of a gong or bell supported beneath the platform of the car, a lever pivotally supported adjacent thereto, and provided with knockers, a rod pivotally connected with said lever, and projecting backwardly, devices connected with one of the axles of the car, and with the rear end of said rod for moving said rod backwardly and forwardly, as the axle revolves, and means for locking the rod in its rearmost position, consisting of a shaft which passes through the platform of the car, adjacent to the forward end of the rod, and which is provided with a dog at its lower end, substantially as shown and described.

2. The combination with the bottom of the platform of a car, of an alarm device, which consists of a gong or bell supported beneath the platform of the car near the front end thereof, a lever pivotally supported adjacent thereto, and provided at one end with knockers, a longitudinal rod pivotally connected with the opposite end of said lever, and projecting backwardly, and devices connected with one of the axles of the car and with the rear end of said rod for moving said rod backwardly and forwardly as the axle revolves, and means for locking said rod in its rearmost position, consisting of a rod which passes upwardly through the platform of the car, and which is provided at its lower end with a dog which is adapted to bear on the end of the lever with which said longitudinal rod is connected, substantially as shown and described.

575,711. COMBINATION-STAND. FRED H. HALEY, Batavia, Ill., assignor, by mesne assignments, to the Combination Stand Company, same place. Filed Feb. 28, 1896. Serial No. 581,219. (No model.)



Claim.—1. In combination with the standard, the bracket rotatably mounted thereon; the horizontally-extended single arm b^2, adapted to be rigid with the bracket, and the table C supported and adapted to slide on and to rock over said arm; a spring stopped on said arm and reacting against a stop on the table tending to set the table inward on the arm, one of the pivotal supports of the table on the arm constituting one part and the end of the bracket B^2 constituting the counterpart of a two-part clutch adapted to be engaged by the inward tendency given to the table by the spring, said two parts of said clutch being engageable at a plurality of positions and disengageable by sliding the table outward on the arm against the tension of the spring.

2. In combination with the standard, the bracket-arm B^2, rotatably mounted thereon and having a horizontal socket; the single arm b^2 detachably secured in said socket; the table having brackets by which it is supported and adapted to slide on and to rock over said arm b^2; a spring stopped on the arm and reacting against one of the table-brackets tending to set the table inward on the arm toward the end of the socketed arm B^2, the innermost of said table-brackets and said arm B^2, being at their proximate faces correspondingly notched and adapted to be held in engagement by the inward tendency given by the spring and to be disengaged to permit the table to be rocked on the arm by sliding the table outward on the latter against the tension of the spring.

3. In combination with the standard and the table supported thereby, the rod E telescoping within the standard down past the level of the point of support of the table on the latter and extending above the level of the table, a detachable fountain supported at the upper end of the telescoping rod, and the basin having its holder K removably attached to the standard below the table.

4. In combination with the standard, a table having a tubular spindle or stem telescoping within the standard and having its tubular aperture extending from its upper end down past the level of the upper end of the standard when the stem is telescoped therein; the stem or rod E telescoping within said tubular stem down past the level of the attachment of the table thereto: a fountain supported at the upper end of said stem or rod, and a basin-holder K, removably and adjustably attached to the standard below the table.

5. In combination with the standard, a stem or spindle vertically adjustable with respect to the standard: a table supported thereby, said stem or spindle being tubular, and a rod or stem E telescoping within the same and adapted to be depressed down past the level of the connection of the table to said stem and without limit by reason of such connection, and adapted normally to extend above the level of said table, said rod or stem having the slot e' and the hook E' pivoted to the rod and adapted to fold up into said slot and to be stopped at the lower end of the slot when it is thrown outward: substantially as set forth.

6. In combination with the standard, the table-supporting bracket having a spindle or stem telescoping within the standard, and a rod E telescoping within said spindle or stem down past the level of the table-supporting device, and the light-crane rotatably connected to said rod at the upper end thereof, and suitable means for connecting said parts in adjustment with respect to each other.

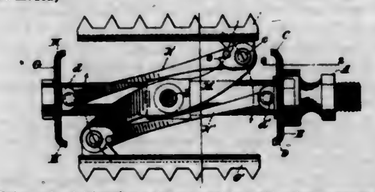
7. In combination with the standard, a table rotatably supported thereby: the rod E vertically adjustable penetrating the table-supporting device on the standard at the upper end in axial line with the standard, and adapted to telescope therethrough and within the standard, and the light-supporting crane rotatably supported on said rod.

8. In combination with the standard, a table supported thereby, the rod E telescoped within the standard extending above the level of the table; a fountain carried by the rod and vertically adjustable therewith; a water-heater adapted to be supported on the table; a surgical pad having its coil suitably connected to the heater and to the fountain, and a flexible pipe connection between the fountain and the heater: substantially as set forth.

9. A combination-stand for hospital and surgical use comprising the standard, the table C and its supporting-bracket rotatably and vertically adjustable with respect to the standard; the surgeons platens supported on the bracket centrally with respect to the table and with respect to the standard and rotatable at such support; the rod E telescoping within the bracket-stem and standard and extending through the platens and provided with means for supporting the syringe-fountain and the water-circulating fountain; and the light-crane pivotally supported at the extremity of the rod, and the slop-basin holder adjustably and detachably secured to the exterior of the standard below the table C, all substantially as set forth.

10. In combination with the standard, a spider having the hub L, the arms L'; the corner-posts L^{10}; in combination with the metal shelf adapted to be lodged on the spider-arms and retained between the corner-posts, and the glass shelf having clips adapted to be secured to the corner-posts respectively, substantially as set forth.

575,712. BICYCLE-PEDAL. RICHARD F. HAMILTON and JULIUS WODIENKA, New York, N. Y. Filed Feb. 10, 1896. Serial No. 578,635. (No model.)



Claim.—1. A bicycle-pedal comprising side plates one at least of which is capable of sliding bodily in a transverse direction, foot-clamps on said side plates and movable foot-sustaining treads, and connections between the treads and one or more of the side plates to communicate movement from the treads to one or more of the side plates to clamp the foot in place.

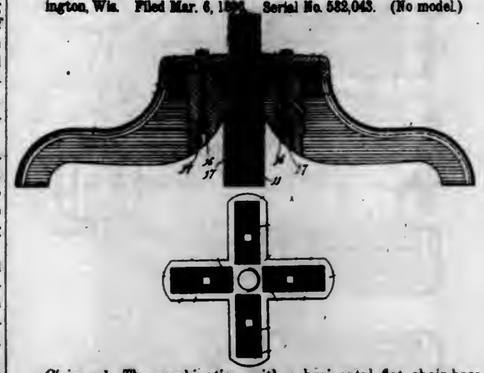
2. A pedal comprising side plates one at least of which is capable of sliding bodily in a transverse direction, foot-clamps forming part of each of said side plates, movable foot-sustaining treads and an operating-lever intervening between the treads and the side plates to operate one or more of said side plates to clamp the sole of the shoe.

3. A pedal, comprising movable foot-clamps, telescoping guides connected with said foot-clamps, a movable tread and connections between the tread and foot-clamps, whereby a movement of the tread will cause a corresponding movement of the foot-clamps.

4. A pedal comprising the following instrumentalities in operative relation, namely: a pedal-stem, foot-clamps, a centrally-pivoted operating-lever, a plurality of treads and links intervening between the foot-clamps and treads, substantially as described.

5. A pedal comprising movable treads, side plates having foot-clamps thereon, telescoping guides between said side plates, centrally-pivoted operating-levers connecting said treads and links intervening between the treads and the side plates.

575,713. CHAIR IRON AND LEG. MILES A. HANSON, Port Washington, Wis. Filed Mar. 6, 1896. Serial No. 582,043. (No model.)



Claim.—1. The combination, with a horizontal flat chair-base provided upon its under side with a series of lateral independent recesses, each recess having opposite end walls and opposite side walls, and said base also provided with a post extending upwardly for a desired distance above the base and for a slight distance below said base, the portion extending below the base forming the inner end walls of the lateral recesses, of chair-legs having vertical tongues at their upper ends, said tongues fitting in the recesses and being so formed as to provide at their bases opposite side shoulders and outer shoulders, the side shoulders of each tongue supporting the lower edges of the side walls of the recesses, and the outer shoulders the end walls of the recesses.

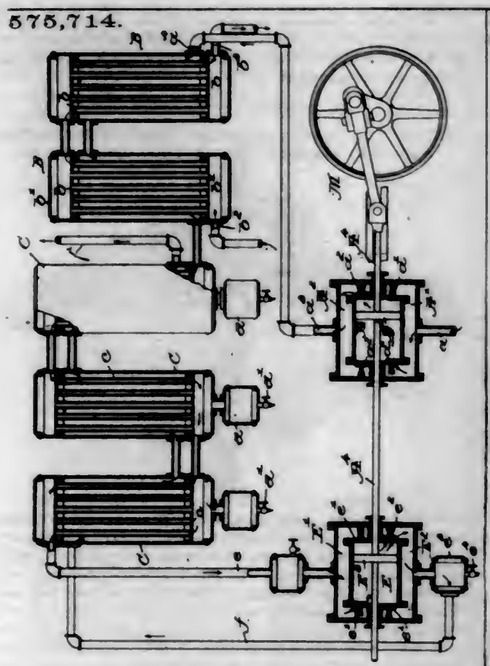
2. The combination, with a horizontal flat chair-base provided with a series of independent lateral wings formed with recesses upon their under sides, each recess having opposite end walls and opposite side walls, and said base also provided with a post extending upwardly for a desired distance above the base, and for a slight distance below said base, the portion extending below the base forming the inner end walls of the lateral recesses, of chair-legs having vertical tongues at their upper ends, said tongues fitting in the recesses and being so formed as to provide at their bases opposite side shoulders and outer shoulders, the side shoulders of each tongue supporting the lower edges of the side walls of the recesses and the outer shoulders the end walls of the recesses.

3. The combination with a horizontal flat chair-base provided upon its under side with a series of lateral independent recesses, each recess having opposite end walls and opposite side walls, and said base also provided with a post extending upwardly for a desired distance above the base, and for a slight distance below said base, the portion extending below the base forming the inner end walls of the lateral recesses, of chair-legs each of a sigmoidal form longitudinally the lower curve being upward and the upper curve downward, said upper curve merging into a straight vertically-extending extremity, the edge of said vertically-extending extremity provided with a tongue, the tongues of the several legs fitting in the recesses, and being so formed as to provide at their bases opposite side shoulders and an outer shoulder, the side shoulders of each tongue supporting the lower edges of the side walls of the recesses, and the outer shoulders the end walls of the recesses.

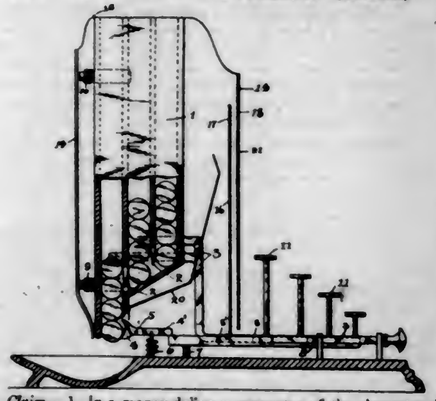
575,714. PROCESS OF RECOVERING VOLATILE SUBSTANCES FROM AIR OR OTHER GASES. CHRISTIAN HEINRERLING, Frankfort-on-the-Main, Germany. Filed Dec. 28, 1893. Serial No. 494,997. (No specimens.) Patented in England July 4, 1892, No. 12,390; in Belgium Feb. 15, 1893, No. 103,463, and in Austria-Hungary Aug. 29, 1893, No. 10,893.

Claim.—The herein-described process for separating and recovering easily-volatile substances from air or other gas, which consists in compressing the air or other gas containing the substance to be recovered; reducing its temperature indirectly by water while compressed; further reducing its temperature by indirect contact with previously-expanded portions of the air or gas, a portion of the volatile substances being separated by the latter reduction of temperature; and finally permitting the air or gas to expand to substantially normal pressure, whereby the remaining volatile substances are separated, substantially as described.

575,714.



575,715. CASH APPARATUS. RAFAEL HERTZBERG, Helsingfors, Russia. Filed Dec. 11, 1895. Serial No. 571,756. (No model.)

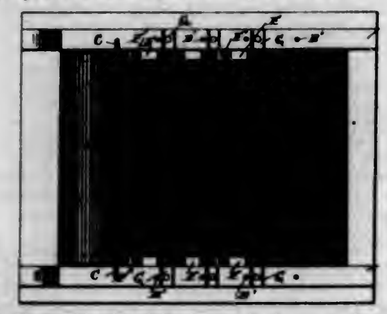


Claim.—1. In a money-delivery apparatus of the character described, one or more magazines, provided with coin-passages, the lower ends of which are provided with blocking devices, and which unite at the bottom, partitions between said passages, revoluble tongues to operate on the coin in said passages, said tongues when in one position retaining the coins in one of the adjacent passages and when in the other position permitting the coins to fall to the blocking device, and sliding bars to actuate said tongues, all constructed and arranged substantially as herein shown and described.

2. A money-delivering apparatus of the character described, consisting of a number of tubes having double passages formed therein, which join the first passage, the partitions between said passages being placed edge to edge and having at the lower ends thereof revoluble tongues to retain the coins adjacent to the passages or to permit the coins to fall upon the blocking attachment, and sliding bars to actuate said tongues and the levers 8 joined to a single lever, whereby by one depression of the key coins of different values are delivered, making the desired amount, substantially as described.

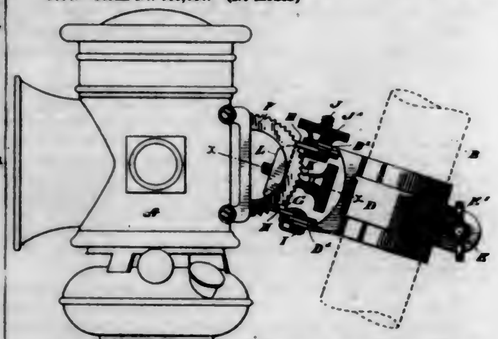
575,716. FANNING-MILL SIEVE. CHARLES HEITZ, Macomb, Mich. Filed June 7, 1895. Serial No. 552,399. (No model.)

Claim.—1. The combination of the sieve, the support or bar C having its bearings in the sides of the frame of said sieve, projections F on the inner sides of the side bars of the sieve, and projections G on the tops of said side bars, substantially as set forth.



2. The combination of the sieve, projections secured to the inner sides of the side bars and having inclined faces, supports having bearings in the upper faces of the frame, and flaps secured thereto, said flaps normally standing in an inclined position and resting against the inclined faces of the projections, substantially as and for the purpose set forth.

575,717. LAMP-BRACKET. WILLIAM C. HOHAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 10, 1896. Serial No. 615,069. (No model.)



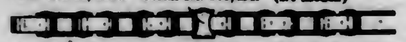
Claim.—1. In a lamp-bracket, clamping-arms carrying a bearing-plate, said plate being adjustably connected directly to one of said arms, an intermediate block, and a clamping-block adjustably connected to said intermediate block and adjustable upon a plate carried by the body of the lamp.

2. In a lamp-bracket, clamping-arms pivotally connected toward their upper and lower edges, an intermediate block G carrying end plates H H pivotally connected to the bearing-plates of the clamping-arms, means for adjustably securing all of said plates in a fixed position, a clamping-block L adjustably connected to the block G said clamping-block L and plates H H cooperating with segmental plates carried by the body of the lamp.

3. In a lamp-bracket, clamping-arms D D carrying bearing-plates D' D' toward their upper and lower edges, each set of bearing-plates having independent pivotal connections, said pivotal connections also carrying bearing-plates H H connected to an intermediate block G, a set-screw K passing loosely through said intermediate block G and carrying on its threaded extremity a clamping-block L, plates H and block L cooperating with segmental plates F carried by the lamp A to permit the vertical adjustment of the lamp, substantially as described.

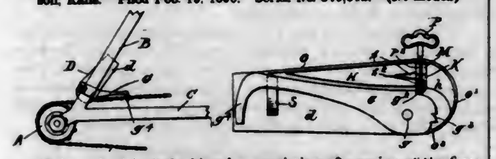
4. In a lamp-bracket a segmental plate carried by the body of a lamp, a clamping-block L and a bearing-surface H oppositely disposed to and adjustable on said plate, clamping means therefor, and means for attaching said device to the frame of a bicycle or other vehicle.

575,718. SCREW-LOCK. GEORGE W. KAENNERER, Norwich, Conn. Filed Oct. 11, 1896. Serial No. 585,431. (No model.)



Claim.—In a device of the character described, a bicycle-chain having one of the outer link-sections threaded, the central link of the opposite end being secured between said outer links, a screw for securing them in combination a spring having a reduced center and its ends bent at right angles to the body, to form spring-plates, one of said plates having a square aperture to fit over the square head of the screw and the opposite plate having a circular aperture to receive the threaded end of the screw, said spring being secured in place with the central portion extending above the surface of the chain, as and for the purpose described.

575,719. BICYCLE-LOCK. FRANKLIN H. LARRABEE, Hutchinson, Kans. Filed Feb. 19, 1896. Serial No. 579,812. (No model.)



Claim.—1. A lock for bicycles, consisting of a casing of the form shown and described, said casing being adapted to be secured to the frame adjacent to the drive-chain, and being provided with a lever which is pivoted therein at one end thereof, the free end of said lever being provided with a depending hook or arm, and the pivoted end thereof, being provided with a circular head in which are formed notches or recesses, and said casing being provided with a spring-operated sliding bolt, which is adapted to operate in connection with said notches or recesses, substantially as shown and described.

2. A lock for bicycles, consisting of a casing of the form shown and described, said casing being adapted to be secured to the frame adjacent to the drive-chain, and being provided with a lever which is pivoted therein, at one end thereof, the free end of said lever being provided with a depending hook or arm, and the pivoted end thereof, having a circular head in which are formed notches or recesses, and said casing being provided with a spring-operated sliding bolt, which is adapted to operate in connection with said notches or recesses, and said bolt being provided with a longitudinal slot at one end, and with a transverse aperture or opening with which said slot communicates, said slot and opening being adapted to receive a key, substantially as shown and described.

3. The combination with a frame of a bicycle, of a lock connected therewith, and adapted to connect with the sprocket-chain thereof, said lock consisting of a casing on one end of which is formed a block d^1 having a segmental recess formed therein, provided with a segmental jaw d^3 to secure the casing to the frame and a lever G, pivotally mounted within said casing and having circular head in which is formed a stop-shoulder g^2, the opposite end of said lever being provided with a hook or extension g^4, said casing being provided with two blocks H and h, between which is mounted a spring-actuated sliding bolt M, having a longitudinal slot, communicating with an opening m^2 and a key adapted to operate the lock-bolt M and a spring S to retain the free end of the lever G within the case, substantially as described.

575,720. GAS-ENGINE. JOSEPH LEDERT, Baltimore, Md. Filed July 1, 1896. Serial No. 597,660. (No model.)

Claim.—1. In a gas-engine, the combination of a vertical piston provided with an annular peripheral water-chamber at its upper end, a cylinder having a water-inlet at its corresponding end, or at any other convenient place, and valve or similar mechanism for controlling the admission of water to the cylinder.

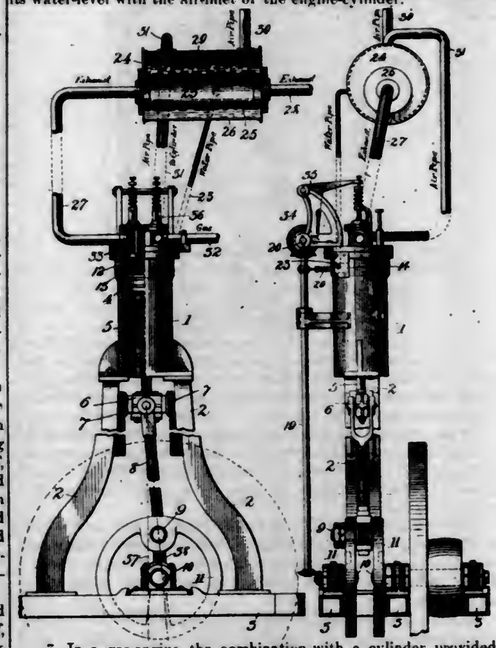
2. In a gas-engine, the combination of a vertical cylinder having a water-inlet, a piston provided with a peripheral water groove or channel at its upper end, and a valve or similar mechanism operated to admit water into the cylinder when the piston is at the convenient position of its throw.

3 In a gas-engine, the combination of a vertical piston having an annular water-chamber at its upper end, a cylinder provided with an inlet for delivering water into said cylinder, a valve-casing on the cylinder, a slide-valve or similar mechanism controlling the supply of water to the cylinder, and a water-supply communicating with the valve-casing.

4. In a gas-engine, the combination of a vertical piston provided at its upper end with an annular water-chamber, of means for automatically admitting water to said chamber when the piston is at the convenient point of its stroke, whereby the water follows the piston in its downward movement and is distributed in a thin sheet or layer upon the inner surface of the cylinder.

5. In a gas-engine, the combination of a cylinder, provided with a water-inlet near its upper end, a piston having an annular water-chamber, a valve-casing arranged proximate to the cylinder and communicating with said inlet, a hollow slide-valve or similar mechanism working in said casing, a water-supply communicating with the inlet of the casing, and means for throwing said valve into communication alternately with the inlet into the cylinder from the casing and the water-inlet from the source of supply to the casing.

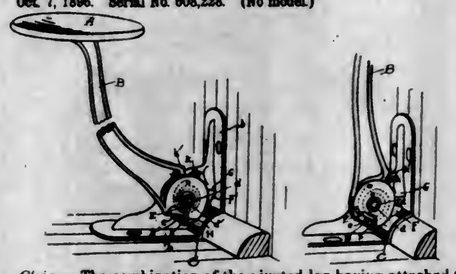
6. In a gas-engine, the combination with a cylinder provided with an air-inlet, and an exhaust for spent gases, of a water-heater comprising an inner cylinder communicating with the exhaust and receiving the heated products of combustion therefrom, while the outer cylinder serves as a water-chamber and communicates above its water-level with the air-inlet of the engine-cylinder.



7. In a gas-engine, the combination with a cylinder provided with an air-inlet and an exhaust-opening, of a water-heater, through which the products of combustion pass, and provided with a water-chamber, and inlet and outlet connections, whereby the air enters the water-chamber and commingles with the heated water therein, and then escapes through the air-outlet to the engine-cylinder.

8. In a gas-engine, the combination of the cylinder, the air-inlet, the exhaust for the spent charge, and a water-heater provided with a water-chamber, the exhaust-pipe passing through the heater so as to form steam from the water therein, and the pipe supplying air to the engine-cylinder leading from the steam-space of said heater.

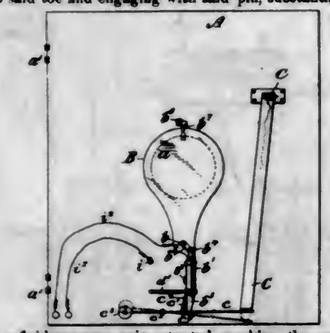
575,721. COUNTER-STOOL. AARON A. LUND, Canton, Ohio. Filed Oct. 7, 1896. Serial No. 608,228. (No model.)



Claim.—The combination of the pivoted leg having attached to its upper or free end the seat A, and provided at its bottom or lower end with the thimble or bearing a, the base C, provided with the attaching-flanges b, and the concave portion c, and the bearing D, the clamp-bolt d, located in the bearing D, the flange e, formed upon the base C, and the flange f, formed upon the bottom or lower end of the leg B, the spring E, connected at one end to the pin g', and at its other end to the rib g, the stop F, and the flanges H, and H', substantially as and for the purpose specified.

575,722. AUTOMATIC FLUID-PRESSURE MACHINE. RENICIO LO FORTE, New York, N. Y., assignor to the Automatic Photograph Machine Company, of West Virginia. Filed Jan. 23, 1896. Serial No. 576,480. (No model.)

Claim.—1. In a fluid-pressure, coin-controlled machine, the combination of a motor for the machine, a casing, an opening in the casing, a shutter for said opening, a motor for the shutter carried thereon, a coin-lever governing said shutter and provided with a pin, a toe or projection formed integral with the shutter, and a pawl pivotally secured to said toe and engaging with said pin, substantially as described.



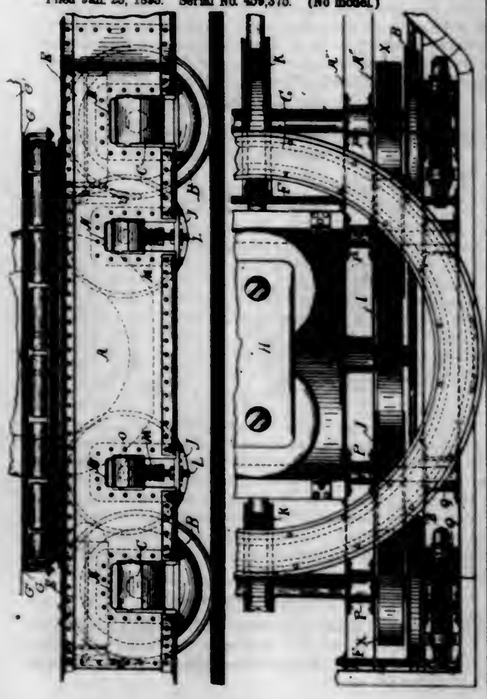
2. In a fluid-pressure, coin-actuated machine, the combination of a casing, an opening therein, a shutter pivotally secured to the casing and carrying a fluid-pressure motor thereon, a coin-lever governing said shutter, and a flexible supply-pipe for the motor, substantially as described.

3. In a fluid-pressure, coin-actuated machine, the combination of a shutter, a coin-actuated lever for the shutter provided with a projection, and a finger for said projection pivotally secured to said shutter and adapted to retain the lever in its release position, substantially as described.

4. In a fluid-pressure, coin-actuated machine, the combination of a casing, an observation-aperture therein, a shutter, a fluid-pressure motor secured to said shutter, a coin-actuated detent for the shutter, and electric contacts governed by said shutter, substantially as described.

5. In a fluid-pressure, coin-actuated machine, the combination of the shutter B, the toe b^3 formed integral with the shank of said shutter, the coin-lever *c* governing said shutter, the pawl c^4 pivotally secured to said toe, and the pin c^3 engaging with said pawl, substantially as described.

575,723. RAILROAD-TRUCK. ALONZO C. MATHER, Chicago, Ill. Filed Jan. 23, 1893. Serial No. 459,375. (No model.)

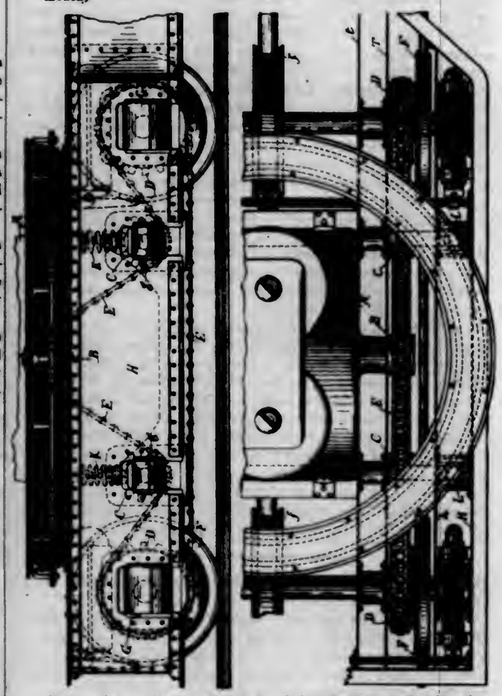


Claim.—1. A car-truck constructed of parallel plates of iron or steel, stiffened by angle-iron on their top and bottom edges, and castings between said plates for carrying the journal-boxes, the ends of the trucks being closed by plates of the same material, substantially as shown and described.

2. An electric-motor truck, having the motor mounted on top of the truck, and projecting into the car-body above it, and having connections and bearings between the truck and the car-body, said connections and bearings being continuous and encircling said motor, substantially as shown and described.

3. An electric-motor truck having the motor mounted on top and in the center of said truck, with the bearings and connections between the body of the car and the truck, said bearings and connections being continuous and surrounding said motor, and a train of wheels connecting from its armature-shaft to a suitable pinion on the axles of the wheels of the truck, substantially as shown and described.

575,724. GEARING FOR ELECTRIC-CAR MOTORS. ALONZO C. MATHER, Chicago, Ill. Filed Dec. 1, 1893. Serial No. 492,590. (No model.)



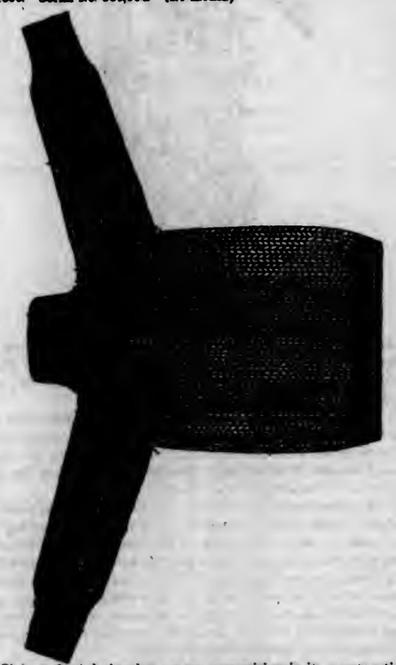
Claim.—In combination, a car-truck bearing for connecting the car-body to the truck, said bearing encircling an electric motor, said motor mounted with its armature-shaft horizontal, pinions on the shaft of said motor, sprocket-wheels on the axle of the truck, a link chain, two toothed tighteners, and springs, one on each side of the armature-shaft, substantially as shown and described.

575,725. CHANGEABLE GEAR FOR BICYCLES. CHRISTIAN A. MEISTER, Allentown, Pa. Filed Sept. 14, 1895. Serial No. 562,519. (No model.)

Claim.—In a bicycle, the combination of a frame having a vertical brace-bar, the lower end of which is forked and provided with a perforation extending through it, a driving-wheel having sprocket-wheels at opposite sides, a crank-shaft mounted to turn in the lower ends of the forks of the vertical bars of the frame and having pedal-cranks, sprocket-wheels loose on the ends of the crank-shaft and provided with clutch-faces on their inner sides, chains passing over the sprocket-wheels on the crank-shaft and driving-wheel, the sprockets at opposite sides of the bicycle being differently proportioned, a clutch-sleeve keyed on and slidable along the crank-shaft between the sprocket-wheels and provided at its ends with clutch-faces arranged when the sleeve is moved to engage the clutch-faces on the inner sides of the sprocket-wheels, said sleeve being provided with a central circular groove, a collar loose in said groove, pins projecting from opposite sides of the collar, a lever extending up along the vertical brace-bar of the frame and having its lower end engaging one pin, said lever being provided with a pivot-pin extending through the perforation in the frame, and an arm on said pivot-pin on the side of the frame opposite to the lever, said arm being arranged to move with the lever and being in engagement with the other pin on the collar, the upper end of said lever being elastic and being provided with a handle arranged to be held by the elasticity of the lever in engagement with the opposite sides of the vertical brace-bar of the frame when the lever is moved pivotally, substantially as set forth.



575,726. KNITTED GARMENT. FREDERICK H. MOOS, Hyde Park, Mass., assignor to The Summit Knitting Co., same place. Filed Apr. 8, 1896. Serial No. 586,694. (No model.)

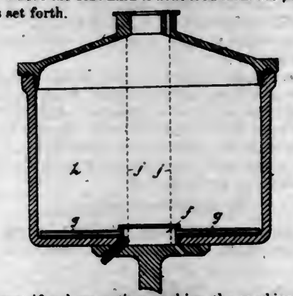


Claim.—1. A knitted garment, comprising in its construction, a body portion formed of an inelastic knitted fabric, a yoke connected to said portion, and formed of an elastic knitted fabric, arm-eyes formed in said body portion and yoke, and sleeves joined to the edges of said arm-eyes, and a suitable opening in said yoke for the neck of the wearer.

2. A knitted garment, comprising in its construction, a body portion formed of an inelastic knitted fabric, a yoke connected to said portion, and formed of an elastic knitted fabric, arm-eyes formed in said body portion and yoke, and sleeves joined to the edges of said arm-eyes, a suitable opening in said yoke for the neck of the wearer, and a hem knitted to the lower end of said body formed of an elastic knitted fabric.

575,727. CENTRIFUGAL SEPARATING-MACHINE. OLOF OHLSON, Newark, N. J. Filed Feb. 19, 1894. Serial No. 500,627. (No model.)

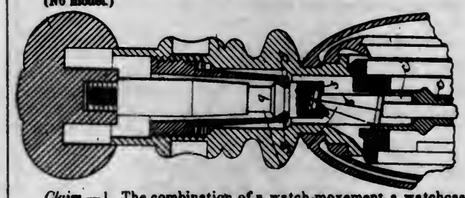
Claim.—1. In a centrifugal separating-machine, the combination with the rotary separating-bowl of means for guiding the blue milk from near the periphery of the bowl toward the axial line thereof, and an inclined tubular screw seated in the bowl and forming a blue-milk-outlet port communicating with the interior of the bowl near its axial line where the blue milk is delivered from the periphery, substantially as set forth.



2. In a centrifugal separating-machine, the combination with the rotary separating-bowl, of an outlet-port for the blue milk comprising an inclined tubular screw seated in the bowl and communicating with the interior thereof near its axial line, and one or more ducts for the blue milk leading from near the periphery of the bowl to said outlet-port, substantially as set forth.

3. In a centrifugal separating-machine, the combination with the rotary separating-bowl having, at the bottom, a blue-milk chamber, *f*, and a duct for blue milk leading from the outer or peripheral portion of the bowl into said chamber, of an inclined, adjustable and tubular or hollow screw, *i*, seated in threaded bearings of said bowl and extending from the outside of the bowl upward and inward into said blue-milk chamber, substantially as set forth.

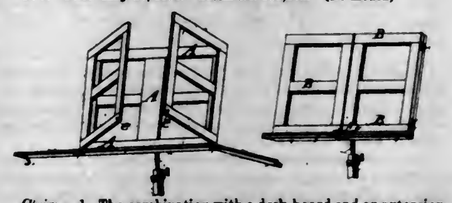
575,728. WINDING-BAR FOR STEM-WINDING WATCHES. OLOF OHLSON, Waltham, Mass. Filed Mar. 14, 1896. Serial No. 583,159. (No model.)



Claim.—1. The combination of a watch-movement, a watchcase having provision for supporting the movement with the axis of its winding pinion or arbor out of alinement with the center of the case-pendant, and a winding-bar comprising an outer member rotatively connected with the pendant, an inner member engaged at its inner end with the winding pinion or arbor, and a flexible connection between said members whereby the inner member is enabled to stand at an angle with the outer member and with the winding pinion or arbor.

2. A watchcase having a winding-bar comprising an outer member rotatively engaged with the case-pendant, a winding pinion or arbor engaging inner member, and a flexible or jointed connection between said members, the said inner member having provision for rotative engagement with and endwise movement in a winding pinion or arbor the axis of which is out of alinement with the said outer member.

575,729. EXTENSION-DESK. THEODORE J. PALMER, Hackensack, N. J. Filed May 27, 1896. Serial No. 593,272. (No model.)



Claim.—1. The combination with a desk-board and an extension-flap so hinged thereto as to be capable of being spread laterally therefrom or of folding over the front thereof, of a return-piece for said flap so hinged to said board as to be capable of folding under the lower edge of said board when the flap is folded and of being extended under said flap when said flap is spread, substantially as herein described.

2. The combination with a desk-board and an extension-flap so hinged to either side thereof as to be capable of being folded thereon or of being spread laterally therefrom, of an extension return-piece hinged to said board to be folded under the lower edge thereof or spread lengthwise therefrom, and a fastening for connecting said flap and return-piece together when both are spread, substantially as herein described.

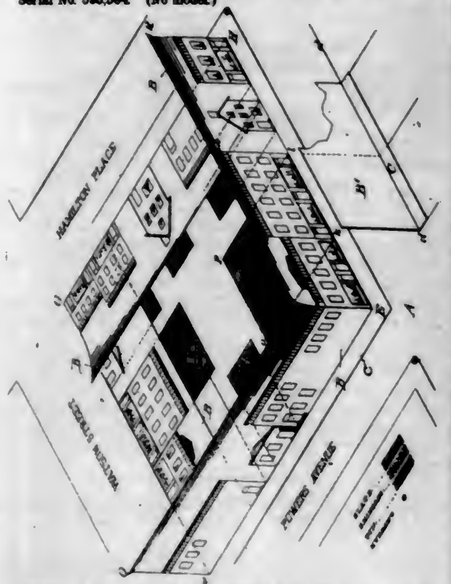
3. The combination with a desk-board and an extension-flap so hinged to either side thereof as to be capable of being folded thereon or spread laterally therefrom, of an extension return-piece hinged to the said board to be folded under the lower edge thereof or spread lengthwise therefrom, and a fastening for connecting said return-piece with the back of said board when the said flap and return-piece are folded, substantially as herein described.

575,780. REELING AND SEVERING DEVICE. HENRI A. PÉRAUT, Paris, France. Filed Oct. 30, 1896. Serial No. 610,537. (No model.)



Claim.—The combination, in a reeling and severing device, of a roll upon which a strip of gummed paper is adapted to be wound or reeled, two disks supporting the sides of said roll, a bail in which the disks and roll are pivoted, and a curved plate carried by said bail and adapted to rest upon the reeled paper on the roll, said plate having cutting edges adapted to sever the paper from the roll, substantially as described.

575,781. INSURABLE-PROPERTY CHART. CHARLES N. POWERS and MADISON R. WATSON, Bennington, Vt. Filed June 15, 1896. Serial No. 596,584. (No model.)



Claim.—1. A topographical chart having attached thereto on the boundary-lines of structures or other objects topographically delineated thereon, coupons containing views in elevation of those parts respectively of such structures or objects as abut upon or stand immediately behind said boundary-lines.

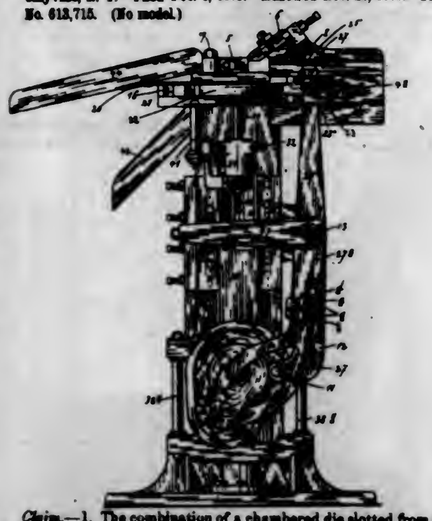
2. A topographical chart having displayed thereon ground plans of buildings or other objects and having attached thereto coupons which are adapted to fold down onto the face of the chart and contain views in elevation of said buildings or other objects.

3. A topographical chart having attached thereto coupons containing views in elevation of objects of which the ground plans are delineated on the chart.

4. A coupon for the uses specified which shows in panoramic style a view of all the elevated structures and objects along one side of a block or square of a city or village, in combination with a topographical map or chart of said block or square, said coupon consisting of a single strip or piece which coincides in length with the length on said map or chart of the block illustrated.

5. A chart for the use of assessors, insurance agents, real-estate dealers and others similarly interested in and connected with real property, having inscribed thereon boundaries of lands, highways, streets, buildings, local provisions such as hydrants, reservoirs, standpipes, water-mains, engine-houses &c., for the prevention or extinguishment of fires, or any of such inscriptions, having attached thereto views in elevation of any of said objects impressed on flexible sheets which are affixed to said chart opposite the boundaries of the objects so delineated, and adapted to be folded down upon the face of the chart, substantially as specified.

575,782. FERRULE-SLOTTING MACHINE. CHARLES T. PRATT, Clayville, N. Y. Filed Feb. 1, 1895. Renewed Nov. 27, 1896. Serial No. 613,715. (No model.)



Claim.—1. The combination of a chambered die slotted from the top into the chamber, a movable holding device entering the chamber, a tool operating in the slot of the die, and mechanism for operating the tool, substantially as set forth.

2. The combination of a die having a chambered recess from one side, a transverse slot from the opposite side of the die entering the chambered recess, a movable holding device operating in the chamber, a tool capable of advancing in the slot, and mechanism for operating the tool, substantially as set forth.

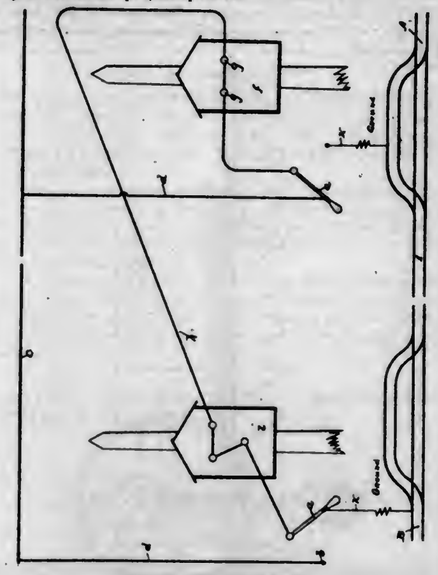
3. The combination of a rotary disk having pockets arranged around its pivotal point, mechanism for intermittently moving the disk, a plate or table on one side of the disk having a discharge-opening with which the pockets are adapted to register, an upwardly-moving plunger operating through the perforation in the plate or table and through the pocket and hole into which the plunger operates, and cutting mechanism arranged to operate transversely to the plunger through the die and means for operating the plunger and cutting mechanism, substantially as set forth.

4. A two-part slide-operating lever having small rollers introduced between the contiguous ends of the two parts, bolts for securing the two parts together with the rollers introduced between them, constituting a rupturable joint as a safety device, substantially as set forth.

5. The combination in a ferrule-slotting machine, of a reciprocating slide 34 carrying a plunger 30 and a feeding-pin 41, a disk or bed-plate 21 having perforations through which the pin and plunger operate, a feeding-disk having pockets arranged around its pivotal point and adapted to coincide with the pin and plunger openings in the bed-plate, a chambered holding-die into which the plunger operates, having a transverse slot in its upper side, a tool or chisel operating in the slot and mechanism for operating the slide, the feeding-disk and tool or chisel, combined, substantially as set forth.

575,788. SYSTEM FOR ELECTRIC SIGNALING. WILLIAM M. RAMSEY, Allegheny, Pa., assignor to James R. Williamson, same place. Filed Aug. 9, 1894. Serial No. 519,849. (No model.)

Claim.—In a signal system for railways, a trolley or feed wire having a branch at each station, a line-wire having a signal and a terminal switch at each station, and a return-circuit; the switches cooperating with the return and branch circuits alternately, substantially as and for the purpose specified.



575,784. DRILLING OR SIMILAR TOOL. JOHN M. RAUHOFF, Chicago, Ill. Filed Apr. 4, 1896. Serial No. 586,223. (No model.)



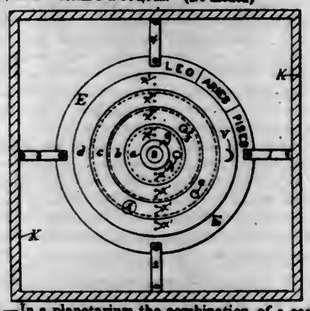
Claim.—1. In a machine of the class described, the combination of a rotatable spindle provided with right-hand helical grooves on one portion and left-hand helical grooves on another portion, a main reciprocating portion on the spindle, two clutches interposed between the main portion and the spindle to engage the main portion and transform its reciprocating motion into a continuous rotary motion of the spindle, and a second or supplemental portion on the main portion for throwing the proper clutch into action during the reciprocations of such portions and transforming the reciprocating motion of the same into a continuous rotary motion of the spindle in the opposite direction, substantially as described.

2. In mechanisms of the class described, the combination of a rotatable spindle provided with right-hand helical grooves on one portion and left-hand helical grooves on another portion, a main reciprocating cylindrical portion, two clutches interposed between the main cylindrical portion and the spindle adapted to engage the main portion and transform its reciprocating motion into a continuous rotary motion, and a supplemental cylindrical sleeve portion surrounding the main portion and arranged to operate the parts and throw the proper clutch into engagement during its reciprocations and transform its reciprocating motion into a continuous rotary motion of the spindle in an opposite direction, substantially as described.

3. In a machine of the class described, the combination of a rotatable spindle provided with right-hand helical grooves on one portion and left-hand helical grooves on another portion, a cylindrical reciprocating portion surrounding the spindle, two friction-clutches one near each end of the cylindrical portion, each consisting of a sleeve portion mounted on the rotating spindle and provided with balls resting in the helical grooves thereof, a segmental collar on the sleeve portion adapted to be expanded during the movements of the sleeve portion, a circular spring for keeping the segmental collar in the smallest diameter and balls interposed between the segmental collar and the sleeve portion, the whole acting to transform the reciprocating movements of the main cylindrical portion into a continuous rotary motion of the spindle, substantially as described.

4. In a machine of the class described, the combination of a rotatable spindle provided with right-hand helical grooves on one portion, and left-hand helical grooves on another portion, a main reciprocating cylinder portion, two friction-clutches one near each end of the cylindrical portion, each consisting of a sleeve portion mounted on the rotating spindle and provided with balls resting in the helical grooves thereof, a segmental collar on the sleeve portion adapted to be expanded during the movements of the sleeve portion, a circular spring for keeping the segmental collar in the smallest diameter and balls interposed between the segmental collar and the sleeve portion, the whole acting to transform the reciprocating movements of the main cylindrical portion into a continuous rotary motion of the spindle, an inner tubular sleeve surrounding a portion of the rotating spindle between the two clutches, an outer cylindrical sleeve connected with the inner sleeve so as to operate the parts and cause engagement or disengagement of the proper clutch and transfer the reciprocating movements of the cylindrical portion into a continuous rotary motion of the spindle portion in an opposite direction, substantially as described.

575,785. PLANETARIUM. LEWIS REBER, Chicago, Ill. Filed June 10, 1896. Serial No. 594,912. (No model.)

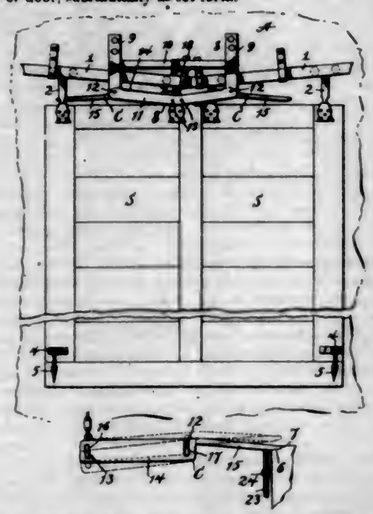


Claim.—In a planetarium the combination of a casing; a fixed stud in the rear of said casing, a series of superimposed sleeves supported by the said stud, a series of annular rings in sliding contact with each other at the top of said casing supporting means extending from the said sleeves to the said rings, a glass plate provided with representations of the signs of the zodiac and covering said rings; a hole in each of said rings and a means to revolve the said sleeves to rotate the rings whereby, when a light is placed in the interior of said casing its rays passing through the said holes in the annular rings will represent various planets, substantially as described.

575,786. MEANS FOR OPERATING SHUTTERS, &c. LEWIS F. RICE, Brookline, Mass. Filed Apr. 8, 1896. Serial No. 586,731. (No model.)

Claim.—1. The combination with a shutter or door adapted, when released, to close automatically, of a frame, pins projecting from said frame, a latch having elongated slots through which said pins pass, said latch being adapted to engage the shutter or door,

and means for retaining the latch normally in engagement with the shutter or door, substantially as set forth.



2. The combination with a shutter or door adapted, when released, to close automatically, of a frame independent of the shutter or door, pins projecting from said frame, a latch having a weighted portion, the lighter portion of said latch being adapted to engage the shutter or door, said weighted portion having elongated slots at its respective ends, through which slots said pins pass loosely, and a thermostatic device connected with the weighted end of the latch whereby to retain the lighter end thereof normally in engagement with the shutter or door, substantially as set forth.

3. The combination with a shutter or door adapted, when released to close automatically, of a fixed latch-frame and pins projecting from said frame, a latch having a weighted portion and a latch-finger, the latter being adapted to engage and rest on the shutter or door, said weighted portion of the latch also having transverse elongated slots through which said pins pass, and a suspending device attached to the free end of the latch whereby said latch will be supported at its ends, substantially as set forth.

4. The combination with a track, and a shutter or door suspended therefrom, adapted to close automatically when released, of a fixed frame having a cross-bar, pins projecting from said cross-bar, a weighted latch having transverse elongated slots through which said pins pass loosely, the forward or lighter end of said latch being adapted to engage the shutter or door, and a thermostatic device attached at one end to the heavy end of the latch and at the other end to said fixed frame, substantially as set forth.

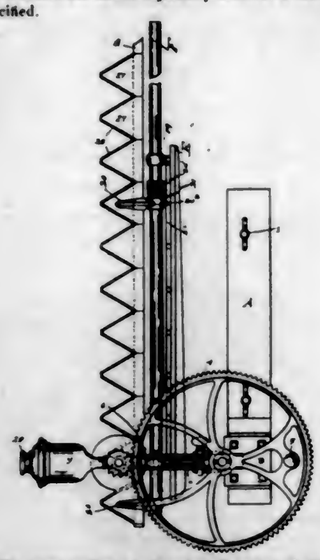
5. The combination with a window or door frame, and a shutter or door, of a weighted latch supported over said shutter or door and adapted to engage the same whereby to retain it open, and a rod mounted in the window or door frame for releasing the shutter or door, said rod being of such shape that, when rotated, its upper end will protrude beyond said frame in line with the end of the latch which engages the shutter or door, substantially as set forth.

575,737. MACHINE FOR GRINDING KNIVES OF CUTTER-BARS. ALBERT S. ROBINSON, Albany, N. Y. Filed Feb. 5, 1896. Serial No. 537,391. (No model.)

Claim.—1. The combination of a stationary socket, 2, having a spindle, 3, projecting laterally therefrom and forming a permanent part thereof, a journal-bearing, 7, formed parallel to the line of said spindle and having a pendent stem, 8, vertically adjustable in the socket 2, an abrading-wheel, C, secured to a shaft, 10, that is fitted to revolve in said journal-bearing, a pinion, 11, secured to said shaft, and a spur-wheel, 4, fitted to revolve loosely on the spindle 3 and to mesh into gear with the pinion 11; whereby a change of speed of the abrading-wheel C can be effected by changing the spur-wheel 4, as herein specified.

2. The combination of a stationary socket, 2, an adjustable socket, D, arranged to be moved from and toward said stationary socket, and a bracket, E, fitted to temporarily carry a cutter-bar and adjustably attached to said adjustable socket; said bracket being vertically adjustable and fitted to receive a partial rotative movement in the socket D to bring it to a required degree of angularity on a horizontal plane, as and for the purpose specified.

3. The combination of a bracket, E, provided with eyes, 18 and 19, at its opposite ends and with a notched bar, 25, arranged between said eyes, and a sliding bar or tube, F, fitted to be moved longitudinally and rocked laterally in said eyes and provided with forks, 20, in which a cutter-bar can be adjustably secured, as and for the purpose specified.



4. The combination of a bracket, E, provided with a notched bar, 25, a sliding bar, F, fitted to be moved longitudinally and rocked laterally on said bracket and provided with means—substantially as specified—for securing a cutter-bar thereto, and a torsion-spring, 24, attached to said sliding bar and provided with a radially-projecting end, 21, arranged to slide upon the unbroken edge of the notched bar; said spring being arranged to effect a rocking movement of the sliding bar and to normally lock the latter to said notched bar, as herein specified.

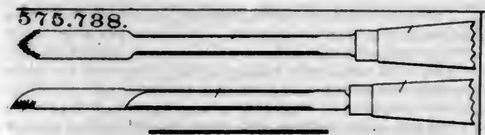
5. In a machine for grinding knives of cutter-bars, the combination, with a journal-bearing, 7, which carries a water-supply cup, 9, that is arranged to deliver water to said bearing, a shaft, 10, arranged to revolve in said bearing and having a longitudinal water-passage, 12, formed therein; said water-passage having its opposite ends closed and having a water-inlet opening leading from the periphery of said shaft into one end of said water-passage and a water-outlet passage leading from the outer end of said water-passage to the periphery of said shaft where it will remain constantly open; the open end of said water-inlet opening forming an intermittent communication with the opening at the bottom of said water-cup, of a porous abrading-wheel secured to said shaft and provided with a central water-chamber, 13, which has a constantly open communication with the water-outlet opening of said shaft, and a closure, 14, which covers the outer face of said water-chamber; whereby intermittent charges will be received from said water-cup and automatically delivered into the water-passage 12, and thence into the water-chamber 13 and percolated through said abrading-wheel, as herein specified.

6. The combination of an abrading-wheel, a bracket which is vertically adjustable—in respect to the center of said abrading-wheel—and horizontally adjustable to different angles—in respect to the outer plane face of the abrading-wheel, a notched bar on said bracket, a sliding bar fitted to be moved longitudinally and rocked laterally on said bracket; said sliding bar being provided with means—substantially as specified—for securing a cutter-bar thereon, a spur on said sliding bar adapted to engage—non-simultaneously—in either notch of said notched bar, and a torsion-spring attached to said sliding bar and arranged to press the cutting edge of the knives of a cutter-bar against the plane face of the abrading-wheel and to effect the locking of said spur in either notch of the notched bar, as and for the purpose specified.

575,738. STONE-BORER. HERMANN SCHWARTZENHAUER, Berlin, Germany. Filed Mar. 11, 1896. Serial No. 582,758. (No model.)

Claim.—A rock-drill, having a longitudinal flute in its half-round body, closed at the end and having teeth on the outside edge of its extremity by which drilling may be accomplished by a forward and backward rotating motion as set forth.

575,738.

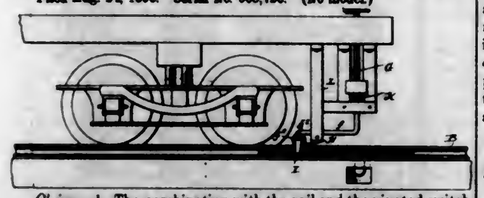


575,739. PROCESS OF EXTRACTING AND PURIFYING GUTTA-PERCHA. HIPPOLYTE R. SÉRULLAS and FELIX R. HOURANT, Suresnes, France. Filed June 5, 1896. Serial No. 594,440. (No specimens.) Patented in France Nov. 4, 1895, No. 251,417, and in Belgium Dec. 18, 1895, No. 118,844

Claim.—1. A process of extracting and purifying gutta-percha, which consists in pulverizing the leaves or other parts of gutta-percha plants, dissolving this powder in a hydrocarbon solution, and then precipitating the three principal constituents of gutta-percha, namely, gutta-hydrocarbon, fluavil and alban.

2. A process of extracting and purifying gutta-percha, which consists in pulverizing the leaves or other parts of gutta-percha plants, dissolving this powder in a hydrocarbon solution, and then adding acetone which will precipitate the gutta-hydrocarbon, the fluavil and the alban.

575,740. RAILWAY-SWITCH. HENRY P. SPAIN, Buchanan, Ga. Filed Aug. 24, 1896. Serial No. 603,723. (No model.)

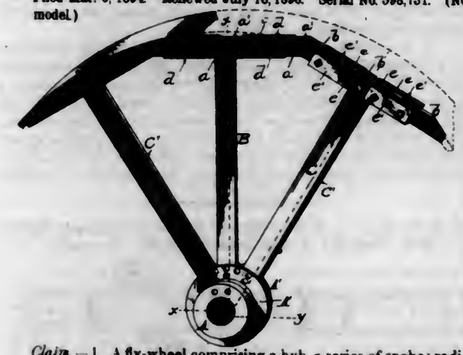


Claim.—1. The combination with the rail and the pivoted switch on a spring-arm arranged alongside the rail and inclined outward, and having its other end passed through the rail and engaging the switch, and the spring acting to normally force the switch against the rail, substantially as described.

2. The combination with the rail and a pivoted switch on a spring-arm arranged alongside the rail and inclined outward, and having its other end passed through the rail and engaging the switch, and a spring mounted to act upon the switch to normally force it against the rail, and the plates carried by the switch and covering the slot through which its arm works, substantially as described.

3. The combination with the rail and a pivoted switch on an inclined arm having an end passed through the rail and mounted to act upon the switch, and a spring acting to normally force the switch against the rail, and a rod on the car having a portion to engage said arm, and a spring acting upon said rod to normally hold it in its uppermost position, substantially as described.

575,741. FLY-WHEEL. SYLVESTER N. STEWART, Brooklyn, N. Y. Filed Mar. 6, 1894. Renewed July 10, 1896. Serial No. 598,731. (No model.)

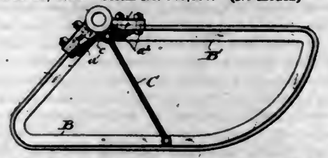


Claim.—1. A fly-wheel comprising a hub, a series of spokes radiating therefrom, and a rim connected to the spokes, said rim composed of a series of straight, flat bars of wrought iron or steel.

2. A fly-wheel having its rim composed of a series of independent straight, flat bars of wrought iron or steel.

3. A fly-wheel having a rim composed of a series of straight, flat bars of wrought iron or steel, the greater diameter of thickness of said bars being in a plane at right angles to the axis of the wheel.

575,742. VEHICLE-RUNNER. OLE O. STORLE, Burlington, Wis. Filed Feb. 20, 1896. Serial No. 579,999. (No model.)

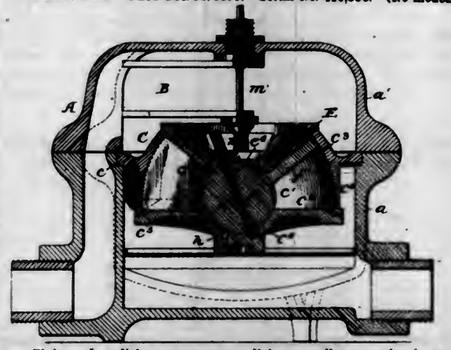


Claim.—1. A runner for wheeled vehicles, consisting of a cast-iron hub formed on opposite sides with perforated ears or attachment-plates, and a bar bent to form a runner, fender and knee in one piece, and bolted at the ends to said ears or plates, substantially as and for the purposes set forth.

2. A runner for wheeled vehicles, consisting of a cast-iron hub formed on opposite sides with perforated ears or attachment-plates, and on the under side, at or near one end, with a perforated ear, a bar bent to form in a single piece the runner proper, fender and knee, and bolted at the ends to the ears or plates on opposite sides of said hub, and a brace attached at its lower end to the runner proper and at its upper end to the ear on the under side of the hub, substantially as and for the purposes set forth.

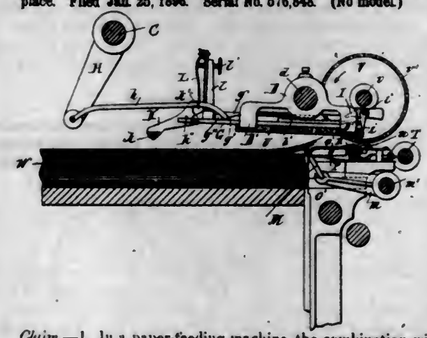
3. A detachable runner for wheeled vehicles, consisting of a cast-iron hub adapted to receive and turn on the spindle of a vehicle-axle, and formed on opposite sides with perforated flanged ears or attachment-plates, a bar bent to form the runner proper, fender and knee in one piece, and seated in and bolted at the ends to the flanged plates on said hub, and a brace attached at its lower end to the runner proper and extending upwardly and rearwardly therefrom obliquely to the plane of the runner to the outer end of the hub to which it is attached, substantially as and for the purposes set forth.

575,743. WATER-METER. JAMES A. TILDEN, Hyde Park, Mass., assignor to the Hersey Manufacturing Company, Portland, Me., and Boston, Mass. Filed Dec. 30, 1891. Serial No. 416,550. (No model.)



Claim.—In a disk water-meter, a disk normally operating in gyratory equilibrium, combined with a mechanical control to prevent abnormal operations, substantially as described.

575,744. PAPER-FEEDING MACHINE. WENTWORTH G. TREVETT, Chicago, Ill., assignor of one-half to Lucius W. Winchester, same place. Filed Jan. 25, 1896. Serial No. 576,848. (No model.)



Claim.—1. In a paper-feeding machine, the combination with a stationary separator having a hard-rubber covering, of a plate adapted

to be brought down into contact with the top sheet of paper and moved forward to advance said top sheet through the machine, and provided with a soft-rubber facing, substantially as described.

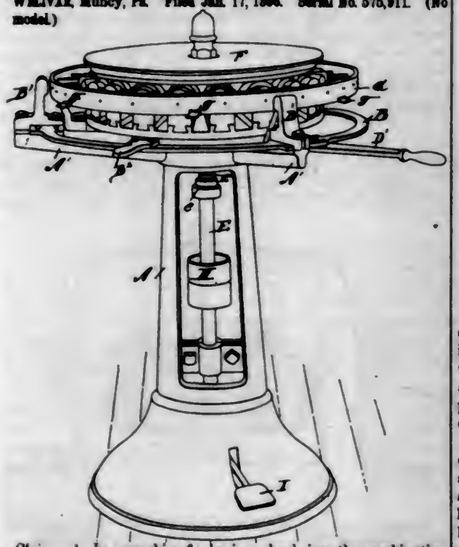
2. In a paper-feeding machine, the combination of a stationary separator provided with a hard-rubber covering, and means for advancing the top sheet of paper having a soft-rubber contact-face adapted to engage the top sheet of paper, substantially as described.

3. In a paper-feeding machine, the combination with a separator provided with a hard-rubber face, of advancing means having a soft-rubber contact-face adapted to be brought down into engagement with the top sheet of paper and operating in a plane parallel with the separator to advance said top sheet through the machine, substantially as described.

4. In a paper-feeding machine, the combination of a stationary separator provided with a hard-rubber face and advancing means adapted to reciprocate back and forth in different planes parallel with the separator and having a soft-rubber contact-face to engage the top sheet of paper, substantially as described.

5. In a paper-feeding machine, the combination of a substantially stationary separator provided with a hard-rubber face and horizontally-reciprocating means for advancing the top sheet of paper, said means being provided with a soft-rubber contact-face to engage the top sheet, substantially as described.

575,745. MACHINE FOR BORING WHEEL-RIMS. DAVID R. WELIVER, Muncy, Pa. Filed Jan. 17, 1896. Serial No. 575,911. (No model.)



Claim.—1. In a machine for boring wheel-rims, the combination of a series of drills, friction-rolls for operating the drills, friction crown driving-disk for operating the rolls, a spring for holding the crown-wheel in contact with the rolls, and means for lifting said crown-wheel against the action of said spring out of contact with the rolls, substantially as described.

2. In a machine for boring wheel-rims, the combination of a series of drills, inclined and arranged radially, friction-rolls for operating the drills, a friction crown driving-disk for operating said rolls, means for feeding said drills to their work simultaneously, and means for holding said crown driving-disk in contact with the rolls, and means for lifting said crown driving-disk out of contact with the rolls, substantially as described.

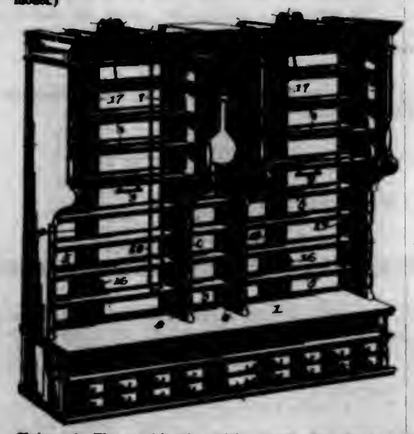
575,746. ADJUSTABLE HANDLE-BAR. ORRIN A. WHEELER, Chicago, Ill., assignor to the Indiana Novelty Manufacturing Company, Plymouth, Ind. Filed May 6, 1896. Serial No. 590,454. (No model.)



Claim.—1. The ram's-horn handle-bar for bicycles, comprising in combination the following parts: a handle-bar-post stem having two integral hollow half-globe seats furnished with serrated rims, two curved wood arms having handles at their outer ends, two metal socket-pieces receiving said wood arms and having each an integral hollow half-globe seat furnished with a serrated rim fitting the corresponding seat in said stem, and clamp-bolts for securing together said half-globe seats in pairs, substantially as specified.

2. The ram's-horn handle-bar for bicycles consisting in the combination with a handle-bar-post stem having two serrated circular seats, of two curved wood arms having handles at their outer ends, and two metal socket-pieces receiving said wood arms furnished with serrated circular seats fitting said seats on said stem, and clamp-bolts for securing said seats on said metal socket-pieces to the seats on said stem, substantially as specified.

575,747. ADJUSTABLE SHELVING. WILLIAM O. WHITNEY, Glens Falls, N. Y. Filed Nov. 25, 1895. Serial No. 570,103. (No model.)

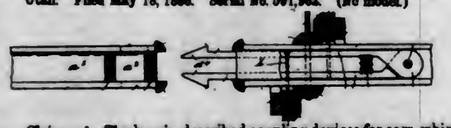


Claim.—1. The combination with a vertically-adjustable tier of shelves, of a counterbalance-weight, an expansible pulley, a cable passing around said pulley and connected with the weight, a cable extending around said pulley and connected with the tier of shelves, and means within reach of the attendant whereby the diameter of the pulley may be varied, substantially in the manner and for the purpose described.

2. The combination with a vertically-adjustable tier of shelves, of a counterbalance-weight, an expansible pulley, a cable passing around said pulley and connected with the weight, a cable extending around said pulley and connected with the shelves, an adjusting-pulley mounted on the same shaft with the expansible pulley and adapted by its rotation to expand or contract the expansible pulley, and an endless chain or its equivalent passing around said adjusting-pulley and arranged within reach of an attendant, substantially as and for the purpose described.

3. The combination with a vertically-adjustable tier of shelves, of a counterbalance-weight, an expansible pulley, a cable connecting the tier of shelves and the weight and running over said pulley, a grooved adjusting-pulley having a swiveled connection with one of the expansible pulley-sections and a threaded engagement with the shaft of the main pulley, and a cable running over the adjusting-pulley, whereby the diameter of the main pulley may be increased or diminished at a point remote therefrom, substantially as described.

575,748. CAR-COUPLING. MARTIN A. WILLIAMSON, Murray, Utah. Filed May 18, 1896. Serial No. 591,962. (No model.)



Claim.—1. The herein-described coupling devices for cars, which consist of two separate similar boxes or cases, which are adapted to be connected with the cars to be coupled, and each of which is provided with openings in their outer ends, the openings in one of said boxes or cases being beveled or bell-shaped and said box or case being provided with openings in the top and bottom, and the other being provided with two pivotally-connected plates, the outer ends

of which project therefrom, and are provided with wedge-shaped heads, having outwardly-directed shoulders or projections, said plates being also provided with a strong spiral spring by which they are separated, and said heads being adapted to be driven into the opposite box or case in the operation of coupling the cars so that the shoulders or projections thereon, will enter the said openings in the top and bottom thereof, and devices for drawing said plates together so as to release the shoulders or projections on the heads thereof, from said openings when it is desired to uncouple the cars, substantially as shown and described.

2. The herein-described coupling devices for cars, which consist of two separate similar boxes or cases, mounted in suitable bearings in which are placed buffer-springs and one of which is connected with each of the cars to be coupled, said boxes or cases being each provided with openings in their outer ends, the openings in one of said boxes or cases being beveled or bell-shaped and said box or case being provided with openings in its top and bottom, and the other being provided with two pivotally-connected plates, the outer ends of which project therefrom, and are provided with wedge-shaped heads, having outwardly-directed shoulders or projections, said plates being also provided with a strong spiral spring by which they are separated, and said heads being adapted to be driven into the opposite box or case in the operation of coupling the cars so that the shoulders or projections thereon will enter the said openings in the top and bottom thereof, and devices for drawing said plates together so as to release the shoulders or projections on the heads thereof, from said openings, and which are adapted to be operated from the top of the car, substantially as shown and described.

3. The herein-described coupling devices for cars which consist of two separate similar boxes or cases, which are adapted to be connected with the cars to be coupled, and each of which is provided with openings in their outer ends, the openings in one of said boxes or cases being beveled or bell-shaped and said box or case being provided with openings in its top and bottom, and the other being provided with two pivotally-connected plates, the outer ends of which project therefrom, and are provided with wedge-shaped heads having outwardly-directed shoulders or projections, said plates being also provided with a strong spiral spring by which they are separated, and said heads being adapted to be driven into the opposite box or case in the operation of coupling the cars so that the shoulders or projections thereon, will enter the said openings in the top and bottom thereof, and devices for drawing said plates together so as to release the shoulders or projections on the heads thereof, from said openings, consisting of a shaft which passes through the box or casing on which said plates are mounted, and through said plates, said shaft being provided at each side of the box or casing with a beveled gear-wheel, said beveled gear-wheels being adapted to operate corresponding gears, which are formed on pulley-wheels, which are suitably connected with said box or casing and each of said pulley-wheels being provided with a chain or other device which passes through the adjacent side of the box or casing, and through the adjacent plate, and is connected with the opposite plate, substantially as shown and described.

575,749. DOLL. MARGARETTE R. WILMER, Brooklyn, N. Y. Filed July 9, 1896. Serial No. 598,565. (No model.)

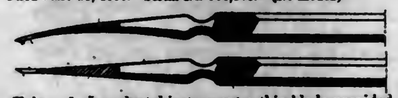


Claim.—1. A doll or toy which is formed by first stamping a front and back view of the figure to be formed on a suitable sheet of paper or similar material in such manner that said front and back views are connected at one point, and may be cut out and folded together so as to form the front and back of the figure, said front and back consisting of a head, body portion, and a portion of the arms, said sheet being also provided with representations of the arms and legs, or the lower portion thereof, said arms and said legs being provided at the ends thereof, which represent the elbows and the knees with circular heads or disks and the back view of said figure being provided with circular or crescent-shaped marks in that portion of the arms which are formed thereon, and with similar marks in the lower portion of the body or skirt, substantially as shown and described.

2. A doll or toy which is formed by stamping a front and back view of the figure upon a sheet of paper or similar material, said front and back views each comprising the body portion, the head, and the upper portion of the arms, and being connected at the top of the head, said back view being also provided in that portion of the arms connected therewith, with curved or semicircular marks, and at the lower portion of the body with similar marks, said sheet being also provided with representations of the lower portions of the arms and legs, which are provided at the ends which represent the elbows and the knees with circular heads or disks said circular heads or disks being adapted to be inserted when cut out through slots formed at the points where the curved or segmental marks are made in the back portion or view, after said back and front portions have been cut out and folded together, substantially as shown and described.

3. A doll, comprising front and back portions cut from a sheet of paper, and connected at one point, and adapted to be folded together, said front and back portions comprising the body, the head and the upper portion of the arms, the lower portion of the arms and legs being also cut from said sheet of paper, and provided at the ends thereof, which represent the elbows and knees with circular heads or disks which are inserted through slots, substantially as shown and described.

575,750. DENTAL TOOL. GEORGE H. WINKLER, New York, N. Y. Filed June 26, 1896. Serial No. 596,873. (No model.)



Claim.—1. In a dental instrument a thin blade provided with a cutting edge toward its lower extremity, and a perforation in said blade closely adjacent to said cutting edge, substantially as and for the purposes described.

2. In a dental instrument a thin blade having an upwardly-directed cutting edge, and a perforation or clearance-opening through said blade adjacent to said cutting edge.

3. In a dental instrument a blade having a cutting or chisel edge formed at its outer extremity, a perforation through said blade closely adjacent to said cutting edge and forming an upwardly-directed cutting edge directly adjacent thereto, substantially as described.

575,751. WAGON-NUT. GERHARD ZELSTRA, Grand Rapids, Mich., assignor of one-half to A. V. Schenck, same place. Filed Feb. 5, 1896. Serial No. 578,078. (No model.)



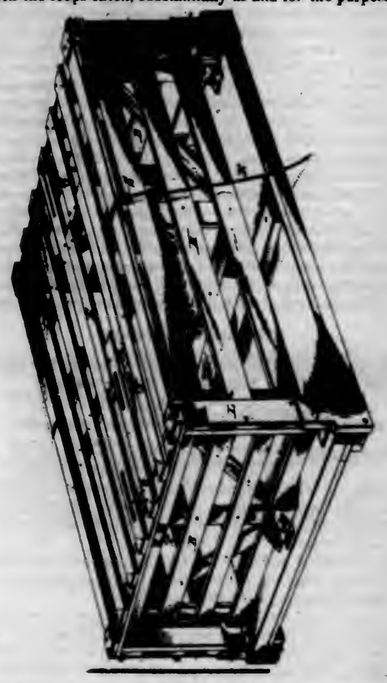
Claim.—A spindle or bolt provided with a screw-threaded portion in which is formed an annular groove, and the nut provided with a screw-threaded bore adapted to be secured upon said screw-threaded portion of the spindle or bolt, said nut having a slot in which is mounted a spring-actuated bell-crank lever, the free end of which is flared or enlarged and it is adapted to engage the annular groove in the end of the spindle or bolt, to securely lock the bolt in position thereon, substantially as described.

575,752. POULTRY-CRATE. JOHN H. ARTHOBUS, Ottumwa, Iowa. Filed Mar. 28, 1896. Serial No. 585,163. (No model.)

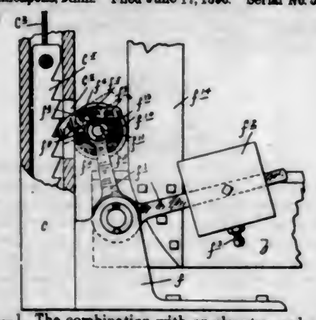
Claim.—1. A poultry crate consisting of a suitable bottom or base having metal corner-brackets, end sections hinged thereto and having at their top flanged fastening-plates, and side sections and a top section, one of the side sections connected to the top section by means of a double-hinge device, and the opposite side section having secured thereto and to the brackets hinged plates having tongues at their upper ends, and slotted plates on the top section for engaging therewith, substantially as and for the purpose set forth.

2. A poultry-crate consisting of a suitable bottom or base, metal corner-brackets secured thereto, hinged end sections provided with flanged fastening-plates, side sections provided with pull-cords and suitable guides upon the sections through which the cords pass, double-hinged devices for connecting one of the side sections to the top section and to the corner-brackets, the opposite side section having secured thereto suitable plates which are hinged to the corner-brackets and provided at their upper ends with tongues, and slotted plates upon the top section with which the tongues engage, substantially as and for the purpose specified.

3. A poultry-crate consisting of folding sections, the bottom of the plate having corner-brackets secured thereto, the hinged end sections having flanged plates secured upon the outer sides and upper ends thereof, and gravity-locks for fastening the top section and bottom together, said locks consisting of pivoted loops and curved pins over which the loops catch, substantially as and for the purpose described.



575,758. GATE-CONTROLLER FOR ELEVATORS. EDWIN CARLSON, Minneapolis, Minn. Filed June 17, 1896. Serial No. 595,930. (No model.)



Claim.—1. The combination with an elevator and a self-closing entrance-gate having a ratchet-faced counterweight, of a gate-controller comprising a bell-crank lever, on the floor, normally held by gravity in its idle position, a pivoted dog on the upper arm of said lever, and a cam-shoe on the car operating on said bell-crank for causing the dog to engage the gate-weight and lock the gate in its raised position while the car is in loading position, substantially as described.

2. The combination with an elevator and self-closing entrance-gate having the ratchet-faced counterweight c^3, moving in a suitable guide c, of the bell-crank lever f', on the floor, the weight f^3 on the lower arm of said lever, the pivoted dog f^7 on the top of said lever, the bolt or stud-shaft f^{11} carried by the upper arm of said lever, the roller f^{10} on the shaft f^{11} and the cam-shoe f^{14} on the car, all cooperating substantially as described.

575,754. CULTIVATOR. FRANK R. DAVIS, La Crosse, Wis. Filed Aug. 26, 1895. Serial No. 560,613. (No model.)

Claim.—1. In a cultivator of the class described, the combination with a wheeled frame, of a shovel-beam or drag-bar pivoted thereto, a yielding connection between the wheeled frame and drag-bar, said connection comprising essentially a spring, a link, a hand-lever, and a rod pivotally connecting said hand-lever with the drag-bar and a stop for limiting the movement of the link in the downward movement of the shovels, substantially as described.



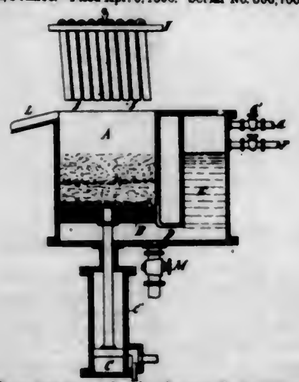
2. In a cultivator, the combination with a wheeled frame, of a shovel-beam or drag-bar pivotally connected thereto at its forward end and a yielding connection between the frame and the drag-bar in the rear of its pivot, said connection comprising a pivoted hand-lever, a spring, and a link pivotally connecting the hand-lever and the spring, a stop for limiting the movement of the link and the pivots on the hand-lever being so arranged that the pivotal connection of the link may be carried below a plane passing through the pivotal connection of the hand-lever to its support and the point of attachment of the spring to the frame, whereby to constitute a lock under ordinary pressure, substantially as described.

3. In a wheeled cultivator, the combination with a wheeled frame, of a drag-bar pivoted thereto, standards mounted upon the wheeled frame, hand-levers pivoted to said standards, springs connected to the wheeled frame in front of the standards, links pivotally connecting the hand-levers and the springs and connections between the hand-levers and the drag-bars, substantially as described.

4. In a cultivator, the combination with a wheeled frame, of drag-bars pivoted thereto, standards carried by the wheeled frame, a cross-bar connecting said standards, hand-levers pivoted to the standards, springs connected to the frame and links connected to said springs and pivotally connected to the hand-levers in rear of their connections to the standards, substantially as described.

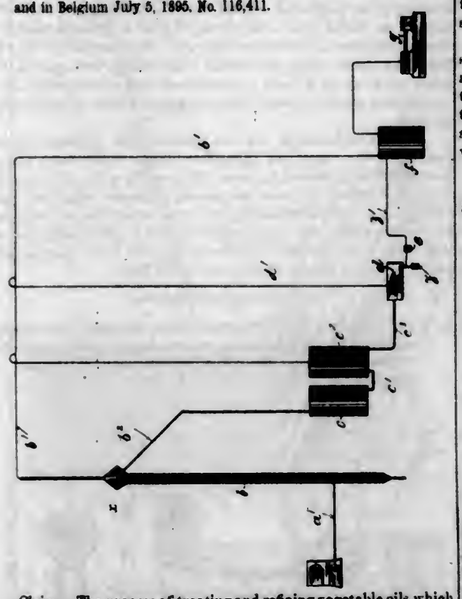
5. In a cultivator, the combination with a wheeled frame, of drag-bars pivotally connected thereto, standards mounted upon the frame and connected at their upper ends, springs connected to the frame, hand-levers pivoted to the standards and links connected at one end to the springs and curved rearwardly over the connection between the standards and pivotally connected to the hand-levers whereby the standard connection is adapted to constitute a stop, and rods connecting the hand-levers with the drag-bars, substantially as described.

575,755. APPARATUS FOR SIMULTANEOUSLY CONCENTRATING, CLASSIFYING, AND AMALGAMATING GOLD ORES. JULES GARNIER, Paris, France. Filed Apr. 8, 1896. Serial No. 586,700. (No model.)



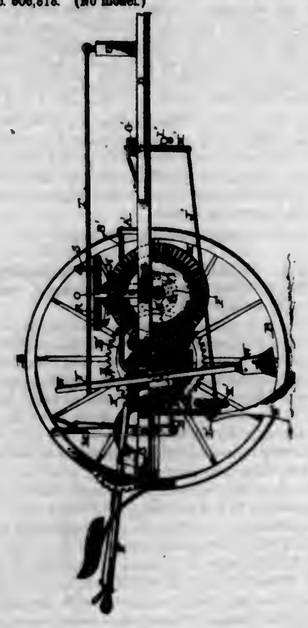
Claim.—In an apparatus for simultaneously concentrating, classifying and amalgamating gold ores, the combination of a main tank, a second closed tank communicating with the main tank, a perforated bottom in the main tank for receiving the gold ores in suspension in a liquid body, means for raising and lowering the said bottom and a removable cover for the said main tank provided with depending amalgamated plates, substantially as described and for the purposes set forth.

575,756. PROCESS OF REFINING VEGETABLE OILS. GEORGE MITCHELL, London, England. Filed Nov. 29, 1895. Serial No. 570,528. (No specimens.) Patented in England May 5, 1896, No. 9,153; in Italy June 21, 1895, No. 39,115/211; in France June 24, 1895, No. 248,402 and in Belgium July 5, 1895, No. 116,411.



Claim.—The process of treating and refining vegetable oils which consists in expressing the oil from the seeds or other material, submitting it to the action of a vacuum in a suitable vessel wherein it is freed from any air or moisture it may contain, removing any impurities by mechanical means, such as filtering under a vacuum, ultimately allowing the purified oil to pass to a receiver, and then while subject to a vacuum drawing it off into bottles from which the air has previously been exhausted, substantially as described.

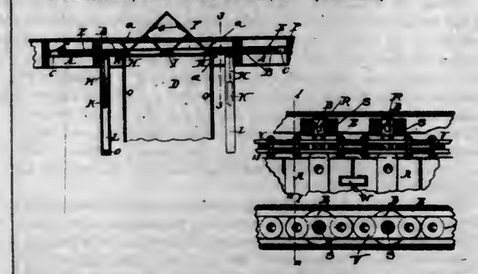
575,757. COMBINED CULTIVATOR AND COTTON-CHOPPER. EDWARD D. MCMILLIAN, Wade, Ind. Ter., assignor of two-thirds to Felix G. Williams and Enoch A. White, same place. Filed Sept. 24, 1896. Serial No. 606,818. (No model.)



Claim.—1. In combination with the shaft G carrying pinion F, geared wheel E, the slotted sleeve in which an end of the said shaft G is journaled, the spring J adapted to bear against the shaft to hold the pinion F in contact with the wheel E and a lever for throwing the pinion F into and out of gear, substantially as shown and described.

2. In a cotton-chopper, a double vertically-adjustable frame X, supporting and guiding rods B' connected to opposite ends thereof, and an adjusting-lever by means of which the frame is adjusted vertically, combined with a chopping-lever which extends up through the frame, springs connected to the frame for bearing against opposite sides of the lever, and an operating mechanism for rocking or vibrating the chopping-lever in its frame, substantially as described.

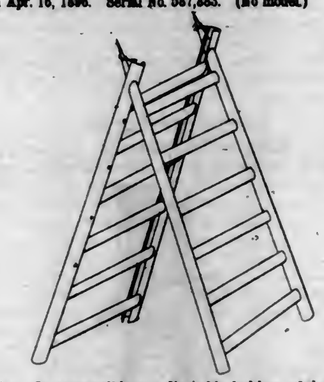
575,758. ELEVATOR. ROBERT L. PARKER, Los Angeles, Cal. Filed Mar. 21, 1896. Serial No. 584,801. (No model.)



Claim.—1. The combination of an elevator-car, a pair of sliding hatchway-doors, ways E for said doors, rollers carried by said doors and working in ways E, rollers H mounted in the adjoining edges of the doors, curved springs *a* carried by each door, each spring being mounted adjacent a roller H and extending over said roller as described, weights K connected to the doors by cables M, and frames F carried by the car and adapted to engage springs *a* and rollers H, substantially as described and for the purpose set forth.

2. The combination of an elevator-car, frames F secured thereto, a pair of hatchway-doors, each of said doors consisting of a series of parallel slats, means for loosely connecting the adjacent edges of the slats, a roller mounted on each end of each slat, chains extending along the edges of the doors between the rollers and the ends of the slats, the axles of the rollers extending through the links of the chain, whereby the chains are not rigidly connected to the slats and the slats may have a pivotal or vibrating motion independent of the pivotal movement of the links of the chain, ways E in which the rollers on the door work and weights K connected to said doors, substantially as and for the purpose set forth.

575,759. LADDER. ARTHUR G. PERKINS, Coventry, England. Filed Apr. 16, 1896. Serial No. 587,883. (No model.)



Claim.—In convertible or adjustable ladders of the class herein described, a ladder formed in two sections one section having side rails which slide in grooves in the side rails of the other section or part, bolts or pins passing through suitable apertures in said side rails for the purpose of maintaining the sections in any desired position, there being apertures at or about the end of one section, in which the ends or projections upon the other section engage when for use as a step-ladder, a clip for securing same in position all in combination substantially as described and illustrated herein.
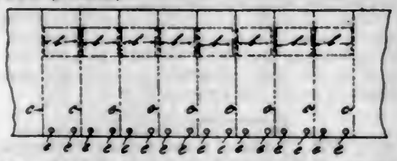
575,760. KNITTING-MACHINE. JOHANN SCHMITT, Cologne, Germany, assignor of two-thirds to Jean Baptist Cobliener, Cobleuz, Germany. Filed Sept. 26, 1896. Serial No. 606,973. (No model.) Patented in Germany May 21, 1894, No. 79,263; in Sweden June 7, 1894, No. 6,613; in France June 7, 1894, No. 238,111; in Belgium June 7, 1894, No. 110,223; in Switzerland June 27, 1894, No. 8,895; in Italy June 27, 1894, No. 36,671; in England June 27, 1894, No. 12,434; in Hungary Sept. 11, 1894, No. 1,091; in Austria Oct. 24, 1894, No. 44/5,607, and in Denmark Mar. 26, 1896, No. 479.



Claim.—1. In a knitting-machine having a rotating spiral for holding and transporting the meshes, and a reciprocating thread-guide for catching up the meshes dropped by the one end of said spiral, and hanging new meshes upon the other end of the same, the combination with the said spiral, and with said thread-guide, of a projection a^3 arranged at the head and upon the front surface of the same, and containing the eye for the thread; and of a rearwardly-bent-off portion c^3 forming the point proper of the first winding of the spiral, and being situated in front of the said thread-guide, and adapted to take around the projection a^3 of the same, substantially and for the purpose as described.

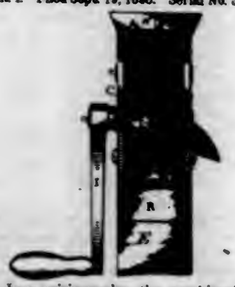
2. In a knitting-machine having a rotating spiral for holding and transporting the meshes, and a reciprocating thread-guide for catching up the meshes dropped by the one end of said spiral, and hanging new meshes upon the other end of the same, the combination with the said spiral, and with said thread-guide, of a projection a^3 arranged at the head and upon the front surface of the same, and containing the eye for the thread; and of a rearwardly-bent-off point c^3 forming the end proper of the first winding of the spiral, and being adapted to take around said projection; an end portion c' forming the connection between said point c^3 and the other portion of said first winding, and being situated in a vertical plane standing in front of the front surface of the said thread-guide, substantially and for the purpose as described.

575,761. MEANS FOR EXHIBITING CONSECUTIVE PICTURES. HENRY W. SHORT, London, England. Filed June 26, 1896. Serial No. 596,910. (No model.)



Claim.—A strip or band for book-form kinetoscopes, one edge of which carries views, pictures or representations, and the other edge a row of perforations, the pictures and the perforations being in exact alinement, and the perforations having the same relation to the different pictures, for the purpose of positioning the latter, substantially as described.

575,762. RAISIN-SEEDING MACHINE. CHARLES L. SPENCER, Providence, R. I. Filed Sept. 19, 1896. Serial No. 562,999. (No model.)

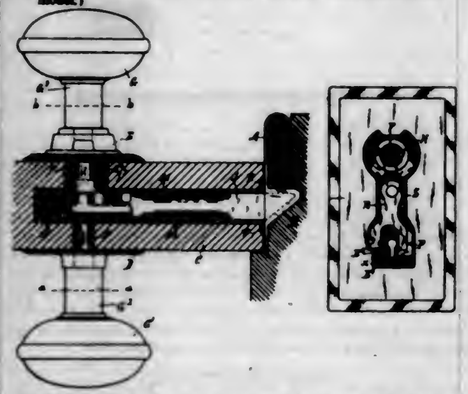


Claim.—1. In a raisin-seeder, the combination of a frame, the upper end of which is provided with a perforated web or flange, of plates secured to said perforated portion, said plates being provided with flanges, which abut against each other and form a hopper, each of said plates being further provided with perforations forming bearings, an elastic roller journaled in two of said bearings, the periphery of which is provided with longitudinal corrugations, a crank-shaft in the other bearings, gear-wheels and washers alternately secured on said shaft, a clearer, and a shedder, substantially as set forth.

2. In a raisin-seeder, the combination with a frame, of plates secured to the upper end thereof, said plates being provided with a hopper, an elastic roller and a series of geared wheels journaled between said plates, a clearer provided with wings secured to the plates below the elastic roller, the portion of the clearer between the wings being cut away on a curve to correspond with the curvature of the wheels, and secured adjacent thereto, and a shedder, substantially as set forth.

3. In a raisin-seeder, the combination, with a frame, of plates secured to the upper end thereof, an elastic roller and a series of geared wheels journaled between the plates, a series of washers arranged alternately between the wheels, a clearer below the elastic roller, and a shedder secured between the lower portion of the plates below the wheels, the upper edge of said shedder being provided with teeth to fit between the wheels, and the lower portion being provided with a spout, substantially as set forth.

575,763. MORTISE-LOCK. ADNA WILDERS, London, Canada, assignor to John Wildern, John Brockest, George B. Deacon, and David C. Wilcox, same place. Filed May 11, 1896. Serial No. 549,094. (No model.)

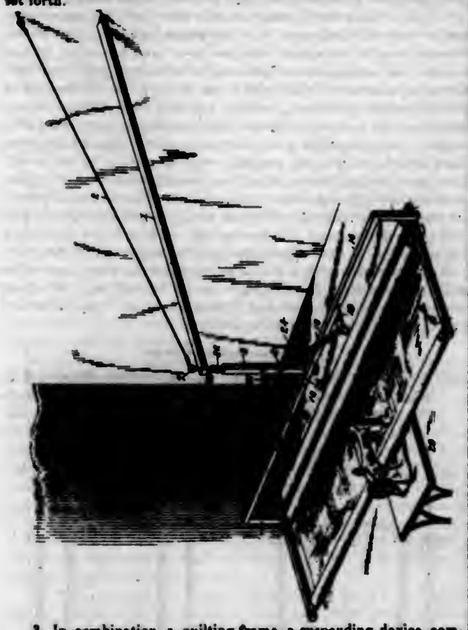


Claim.—In a lock of the character described, the combination with the bolt, a grooved spindle for retracting the same, and a keeper mounted on such spindle and having an interior tongue taking into said groove and an exterior recess; of a case secured to the face of the door and having a keyhole, a shoulder within the case projecting toward the side of such keyhole, a locking-bolt sliding in the case and having an end for engaging the recess of said keeper, key-shoulders, and a flange; and provided with a stud; a lever having an opening in its upper end journaled on said stud and a forked lower end with a key-receiving recess between the arms of the fork and a notch in the outer edge of one arm engaging said shoulder on the case when the locking-bolt is retracted; and a spring attached at one end to the lever, bearing against said flange on the locking-bolt, and pressing the notched end of the lever normally toward said shoulder, as and for the purpose set forth.

575,764. QUILTING ATTACHMENT FOR SEWING-MACHINES. ELIZA WILSON, Willow Springs, Mo. Filed Jan. 6, 1896. Serial No. 574,461. (No model.)

Claim.—1. In a quilting attachment for sewing-machines, the combination of a quilting-frame, suspending means therefor comprising a crane and a suspending device having connection with the quilting-frame near one side, arms having rigid connection with the said suspending device and projecting from the plane thereof toward the far side of the quilting-frame, and elastic or spring connections for counterbalancing the quilting-frame attached at their upper ends to the suspending means and having positive attachment at their lower ends with the extremities of the said arms, for sustaining the quilting-frame in an approximately horizontal position under all conditions, substantially as and for the purpose set forth.

2. In combination, a quilting-frame, a suspending means having connection with the quilting-frame near one side, arms having rigid connection with the suspending means and extending therefrom toward the far side of the quilting-frame, and springs united at their upper ends and having sliding connection with the said suspending means, and having positive connection at their lower ends with the extremities of the said arms for maintaining the quilting-frame in a substantially horizontal position under all conditions, substantially as set forth.



3. In combination, a quilting-frame, a suspending device comprising an arch secured to the quilting-frame near a side, arms extending from the arch toward the far side of the quilting-frame, and elastic or spring connections having attachment at their ends with the said arms and slidingly supported at an intermediate point, substantially in the manner and for the purpose specified.

4. In combination, a quilting-frame having an arch at or near one end, a suspension-bar having adjustable connection with the arch, arms extending forwardly of the arch, a connection having positive and slidable connection with the suspension-bar intermediate of its ends, and springs interposed between the terminals of the said connection and the front ends of the said arms, substantially as shown and for the purpose specified.

575,765. MANUFACTURE OF GUNPOWDER. GEORGE G. ANDRÉ, Glenlean Sandbank by Greenock, Scotland, assignor to Charles Herbert Curtis, London, England. Filed Oct. 31, 1892. Serial No. 450,502. (Specimens.) Patented in England Nov. 4, 1891, No. 19,063; in Norway Sept. 27, 1892, No. 3,201, and in Canada Jan. 11, 1893, No. 41,534.

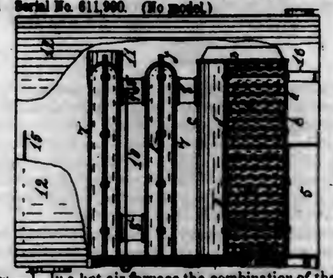
Claim.—1. In the manufacture of explosives the improvement which consists in granulating or reducing to pellets a compound of trinitro and dinitrocellulose, subjecting the granules or pellets to the action of a solvent capable of dissolving the dinitrocellulose without affecting the trinitrocellulose, whereby the particles of trinitrocellulose become coated with and are cemented together by the dissolved dinitrocellulose, then hardening the granules or pellets by removal of the solvent, substantially as set forth.

2. In the manufacture of explosives, the improvement which consists in intimately mixing or combining trinitro and dinitro cellulose in about the proportions set forth, granulating or reducing the mixture to pellets, subjecting the granules or pellets to the action of a vaporizable solvent capable of dissolving the dinitrocellulose without affecting the trinitrocellulose, whereby the particles of the latter become coated with and are cemented together by the dissolved dinitrocellulose, and hardening the said granules or pellets by removal of the solvent, substantially as set forth.

3. In the manufacture of explosives, the improvement which consists in intimately mixing trinitro and dinitro cellulose in about the proportions set forth, dividing the compound while wet into pellets or granules, drying the same, cementing together the particles of trinitrocellulose in the pellets or granules by dissolving or gelatinizing the dinitro constituent thereof by means of a solvent holding nitroglycerin in solution, which solvent will not affect the trinitro constituent, and hardening the pellets or granules by removal of the solvent after dissolution or gelatinization of the dinitrocellulose, for the purpose set forth.

4. In the manufacture of explosives, the improvement which consists in granulating or reducing to pellets, in a wet state, a compound of dinitro and trinitro cellulose, subjecting the granules or pellets to the action of a solvent capable of dissolving the dinitrocellulose only, whereby the particles of trinitrocellulose become coated with and are cemented together by the dissolved dinitrocellulose, and then hardening the granules or pellets by removal of the solvent, substantially as set forth.

575,766. HOT-AIR FURNACE. GEORGE O. BERGSTROM, Neenah, Wis., assignor to Bergstrom Bros. & Co., same place. Filed Nov. 13, 1896. Serial No. 611,900. (No model.)



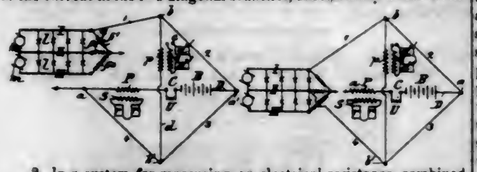
Claim.—1. In a hot-air furnace the combination of the following instrumentalities, a furnace-front having suitable doors for feeding fuel thereto and for removing soot and ashes therefrom, a wall, or case connected with said front and inclosing the fire-pot and radiators and being provided with suitable fresh-air-supply and warm-air-distributing openings, a fire-pot connected to said front consisting of an inclosure having greater length than breadth and having a longitudinally-oval-shaped top and sides, the latter having a series of corrugations transversely thereof over their entire length, two radiators having greater length than thickness arranged one over the other over said fire-pot, each having an open space midway its ends and sides extending through the same in the direction of said thickness, one end of said radiators being open, connected to said front around a door therein, and said radiators extending at right angles with said front over said fire-pot, openings near each end of said radiators for the admission of the products of combustion from the fire-pot and for the escape of the same, connecting-pipes arranged, one for connecting the two radiators near their forward end, one between the fire-pot and lower radiator near their rear end, and one directly over the last-named pipe for connecting the radiators one to the other, said last-named pipe having a damper therein which when closed will direct the products of combustion as they leave the fire-pot and enter the lower radiator toward the furnace-front, thence upward to the upper radiator and toward its rear end and out of the smoke-pipe, substantially as described.

2. A radiator for a hot-air furnace consisting of an inclosure having greater length than thickness, and having an open space midway its ends and sides extending through the same in the direction of said thickness for the circulation of air through said space, one end of the radiator being open and fitted for connection with the furnace-front around an opening therein which is adapted for closure at will, said radiator being provided with openings near each end thereof for the admission of the products of combustion from the fire-pot and for the escape of the same, substantially as set forth.

3. In a hot-air furnace, the combination with the fire-pot of a plurality of radiators arranged one over the other, over said fire-pot, and being open at one end and adapted for connection with the furnace-front at right angles with it and around an opening therein which is adapted for closure at will, said radiators having greater length than thickness and each having an open space midway its ends and sides extending through the same in the direction of said thickness for the circulation of air through said space, a pipe leading from the fire-pot to the lower radiator at its rear end, pipes connecting the radiators at each end thereof, a damper in their connecting-pipe at their rear end having means for its operation, whereby, the damper being open the products of combustion will pass from the fire-pot into and across the radiators and thence out of the smoke-pipe, but if closed will pass through the length of all of said radiators before its escape through the smoke-pipe, substantially as described.

575,767. APPARATUS FOR DETERMINING ELECTRICAL RESISTANCES CONTAINING ELECTROMOTIVE FORCES. OSCAR FRÖLICH, Charlottenburg, Germany, assignor to Siemens & Halske, Berlin, Germany. Filed May 11, 1895. Serial No. 548,994. (No model.) Patented in Germany Sept. 12, 1894, No. 83,994; in France Apr. 11, 1895, No. 246,560; in Austria Apr. 12, 1895, No. 46/1,145; in England May 2, 1895, No. 8,810, and in Hungary June 6, 1895, No. 3,555.

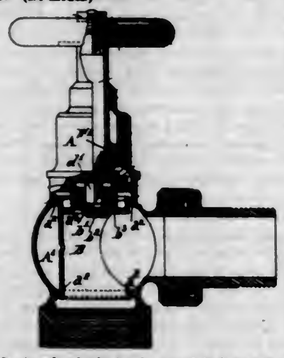
Claim.—1. In a system for measuring an electrical resistance combined with an electromotive force acting therein, the combination with a Wheatstone-bridge system including the said resistance in one of its lateral branches, of means for causing variations in the current flowing through one of the diagonal branches of the said bridge system, and means for measuring the ratio of the variations of the current in the two diagonal branches, substantially as set forth.



2. In a system for measuring an electrical resistance combined with an electromotive force acting therein, the combination with a Wheatstone-bridge system including the said resistance in one of its lateral branches, of means for causing variations in the current flowing through one of the diagonal branches of the said bridge system, two coils operatively connected with the respective diagonal branches, and an indicating device such as a galvanometer-needle controlled by the said two coils, substantially as set forth.

3. In a system for measuring an electrical resistance combined with an electromotive force acting therein, the combination with a Wheatstone-bridge system including the said resistance in one of its lateral branches, of a switch C and a resistance U for causing variations in the current flowing through one of the diagonal branches of the said bridge system, two primary coils P and *p* included in the respective diagonal branches, two secondary coils S and *s* operatively arranged with respect to the said primary coils, a switch *c* in circuit with the coil *s* and moving isochronously with the switch C, coils *r* and *d'* included in circuit with the coils S and *s* respectively, and a galvanometer-needle controlled by the said coils *r* and *d'*, substantially as set forth.

575,768. **VALVE.** JOHN N. MURPHY, Springfield, Ill., assignor to the Packless Valve Company, same place. Filed Jan. 20, 1896. Serial No. 576,135. (No model.)

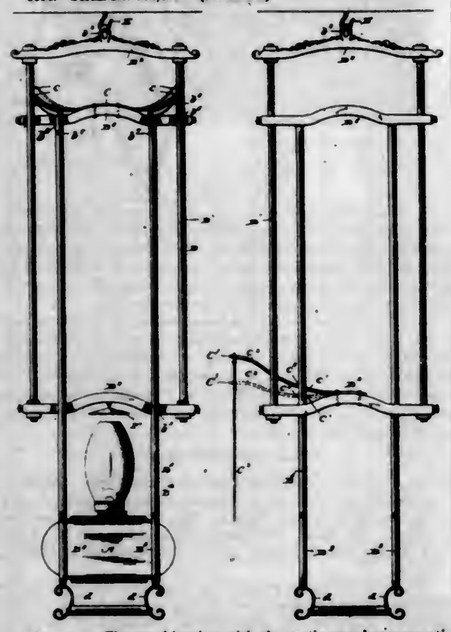


Claim.—1. A valve-body having a globular part provided with internal annular projections and an integral cylindrical part having an internal annulus, also having a diaphragm separating said parts said diaphragm being provided with an annulus having an inclined seat at its lower end; in combination with an internal valve having a screw fitting in the annulus on said diaphragm and having at the base of said screw a conical surface seating on the inclined surface of said annulus, also having a socket in said screw; a valve-stem provided with a packing-ring plate and having a squared end fitting in said socket; a packing-ring connected with said packing-ring plate; a union-sleeve inclosing said valve-stem and having in its end a conical cavity on which said packing-ring seats, said union-sleeve being also adapted to seat on the annulus within the cylindrical part of the valve-body; a nut screwing in the valve-top and bearing on said union-sleeve and a hand-wheel connected with said valve-stem, the upper end of said union-sleeve abutting against the under side of said hand-wheel; as set forth.

2. In a valve, a valve-stem provided with a packing-ring plate and having its upper and lower ends squared, also having its upper end screw-threaded, in combination with a packing-ring, a screw-ring connecting said packing-ring with said packing-ring plate, a union-sleeve seating on an annulus within the valve-body and having in its lower end a conical recess in which said packing-ring seats, a hand-wheel, a plate connected with said hand-wheel and fitting on the upper squared part of the valve-stem, a dished washer supported on said hand-wheel and a nut working on the screw at the upper end of said valve-stem and in contact with said washer; as set forth.

3. In a valve the combination of a valve body having an upper and a lower part, separated by a diaphragm, said lower part having internal annular projections and said upper part having an internal annulus, also having diametrically opposite channels, said diaphragm having an annulus provided with a seat at its lower end, also having an upwardly-projecting lug, a valve screwing into said annulus and seating on the under side thereof, said valve being provided with a socket, a valve-stem fitting in said socket and having a packing-ring plate provided with a lug, adapted to engage with a lug on the diaphragm, a packing-ring, a screw-ring connecting said packing-ring with the packing-ring plate, a union-sleeve seating on the annulus in the upper part of the valve-body and having a conical recess on which said packing-ring seats, also having lugs working in the channels in the valve-body, a hand-wheel fitting on the upper end of the valve-stem and provided with a plate against which the upper end of the union-sleeve abuts, a dished washer on said hand-wheel, a nut on the valve-stem working against said washer and a nut in the valve-body bearing on said union-sleeve: as set forth.

575,769. **HANGING LAMP.** BENJAMIN PORTER, Ellendale, N. D., assignor of one-half to Fred L. Walker, same place. Filed Mar. 11, 1896. Serial No. 582,806. (No model.)



Claim.—1. The combination with the stationary hanger-section having parallel rods upper and lower cross-pieces of the sliding lamp-supporting hanger-section also having parallel connected rods and a plate-spring secured to one hanger-section projecting at an upward incline toward a rod of the other section and engaging said rod with sufficient force to hold the lamp at any desired adjustment and yet yield to a downward pull on the lamp, and means for disengaging the spring from the said rod when the lamp is to be raised or pushed up, substantially as set forth.

2. The combination with the upper or stationary hanger-section having parallel connected rods, of the lower or lamp-supporting section having parallel rods in sliding engagement with said upper section; said rods having a limited sliding movement of their own independent of their movement on the said upper section, and a clutch or grip on the upper end of the lower section, engaging the upper section and in the path of the upper end of said sliding rods, to be released thereby when the lower section is pushed up and given its independent sliding movement, substantially as set forth.

3. The combination with the upper or stationary hanger-section having connected parallel rods, of the lower or lamp-supporting hanger-section having parallel rods in sliding connection with said upper section, a cross-piece connecting the upper ends of said sliding rods and in which said upper ends have a limited sliding movement, a spring secured to the upper side of said cross-piece and frictionally engaging with its opposite ends the stationary parallel rods; the upward movement of the sliding rods causing their upper ends to bear against the lower side of said spring and press the ends of the spring out of engagement with said stationary rods, substantially as set forth.

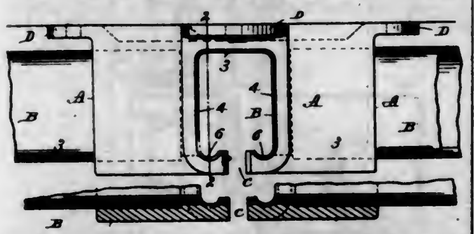
4. The combination with the upper or stationary hanger-section having upper and lower connecting cross-pieces, of the lower or lamp-supporting hanger-section having parallel rods in sliding connection with said upper section and connected at their upper ends by a cross-piece sliding on the stationary rods and through which cross-piece the upper ends of said sliding rods have a limited sliding movement, heads on the upper ends of the sliding rods and projecting toward the stationary rods, a spring secured at its middle to the middle of the upper side of said sliding cross-piece with its ends projecting ontwardly and upwardly into engagement with the stationary rods just above said heads, substantially as and for the purposes set forth.

5. The combination with the upper or stationary hanger-section and means for suspending it, of the lower hanger-section having parallel rods in adjustable sliding connection with said upper section, lamp-receiving loops or yokes at the lower ends of the sliding rods and a transverse handle-bar, rigidly connecting the lower ends of said loops, substantially as set forth.

6. A hanging lamp consisting in the upper or stationary hanger-section having means for suspending it from a ceiling and provided with depending parallel rods connected at their lower ends by an apertured cross-piece, the lower or sliding hanger-section having parallel rods sliding through said apertured cross-piece and provided at their upper ends with a cross-piece sliding on said stationary rods and in which cross-piece the upper ends of said sliding rods have a limited sliding movement, heads on the upper extremities of the sliding rods, a spring secured to the sliding cross-piece above said heads to be raised thereby and engaging with its opposite ends the said stationary rods, a lamp-bowl secured to the lower ends of the sliding rods, and a handle-bar beneath the bottom of the lamp and spaced therefrom, substantially as set forth.

7. The combination with the upper hanger-section having depending parallel rods, of the lower, lamp-supporting hanger-section having vertical parallel rods and a cross-piece connecting their upper ends and sliding on the first-named rods, and a spring secured at its middle to the said sliding cross-piece and in frictional engagement at its opposite free ends with said depending stationary rods to hold the lamp-supporting section at any desired height, substantially as set forth.

575,770. **TROLLEY-TRACK FROG.** WILLIAM J. SUMNER, Holyoke, Mass., assignor to the Coburn Trolley Track Manufacturing Company, same place. Filed Mar. 25, 1896. Serial No. 584,782. (No model.)

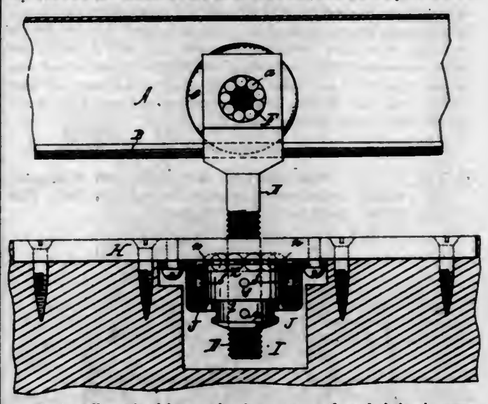


Claim.—1. A trolley-track frog made in a single casting, and having hollow supports or extensions extending outwardly from opposite sides to receive the ends of intersecting trolley-tracks, each extension or support having a slot through its base, a trolley-wheel runway upon each side of the slot, and a protecting flange D upon its top, the frog being provided with a central chamber covered over at its top, and having its bottom formed by the wheel-runways, substantially as described.

2. A trolley-track frog made in a single casting, and having the four box-shaped or hollowed arms extending therefrom, each one having a slot C made through its bottom, and a wheel-runway 6, upon both sides of the slot, a central chamber 8, runways 9 forming the bottom of the chamber, and a protecting-flange D, which forms the cover for all the arms or extensions, substantially as set forth.

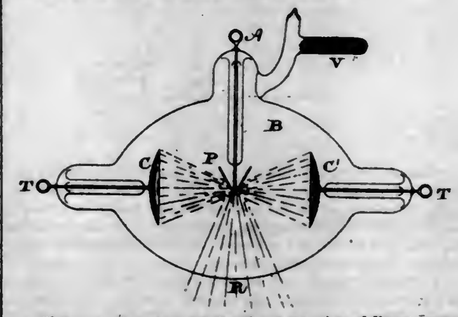
575,771. **DOOR-HANGER.** WILLIAM J. SUMNER, Holyoke, Mass., assignor to the Coburn Trolley Track Manufacturing Company, same place. Filed Mar. 25, 1896. Serial No. 584,783. (No model.)

Claim.—1. A trolley-wheel hanger consisting of a screw-threaded shank, bearing-wheels applied to the upper end of the shank, and the track upon which the wheels run, combined with a perforated plate applied to the top edge of the door, a nut applied to the screw-threaded shank after its end has been passed through the plate, the ball-bearings between the plate and the nut and the lugs for preventing any endwise movement of the shank and nut, substantially as shown.



2. A trolley-wheel hanger having a screw-threaded shank, combined with a plate for connection with a door or similar object, through a perforation in which said shank passes freely, and having a concentric ball-groove surrounding said perforation therein, a bearing-nut screwing onto said shank under said plate having a like ball-groove therein to that in said plate, balls applied in said grooves, and a set-nut on said shank screwing against said bearing-nut, substantially as set forth.

575,772. **ROENTGEN-RAY TUBE.** ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Aug. 21, 1896. Serial No. 603,447. (No model.)



Claim.—1. An apparatus for the generation of Roentgen rays, comprising a chamber having a Crookes vacuum and provided with a pair of concave electrodes both of which face upon a bombarded metal piece situated in substantially the focus of their concavities.

2. In an apparatus for the generation of Roentgen rays, a closed chamber having a Crookes vacuum, provided with terminals carrying concave disk cathodes focused to nearly a common point, and a bombarded metal piece, such as a piece of platinum, situated at the common focus of the cathodes and connected to a third terminal.

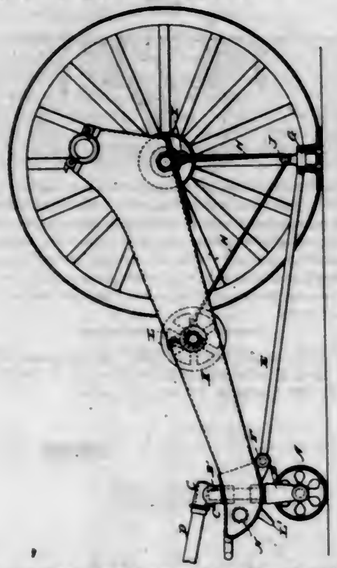
3. In an apparatus for the generation of Roentgen rays, a chamber within which a Crookes vacuum is maintained, having terminals carrying concave disk cathodes focused to nearly a common point, and a bombarded metal piece composed of a wedge-shaped piece of platinum mounted in the common focus of the cathodes and connected to a third terminal.

4. In an apparatus for the generation of Roentgen rays, an exhausted chamber having a pair of concave cathodes facing upon a bombarded metal piece in their common focus: in combination with means for adjusting the vacuum, consisting of a substance inclosed within or in an extension of the chamber adapted to alter its vapor tension by a change in temperature, and means for suitably adjusting the temperature of the apparatus.

5. In an apparatus for the generation of Roentgen rays, a closed chamber inclosing a Crookes vacuum, having terminals carrying concave cathodes focused to approximately a common point, and a bombarded metal piece located at the common focus of the cathodes and connected to a third terminal: in combination with a vacuum-adjuster comprising a tube extending out from the chamber and containing vaporizable or volatile material adapted to change the vapor tension in the tube by change of temperature.

6. In an apparatus for the generation of Roentgen rays, a closed chamber inclosing a Crookes vacuum, having terminals carrying concave cathodes focused to approximately a common point, and a bombarded metal piece located at the common focus of the cathodes and connected to a third terminal; in combination with a vacuum-adjuster comprising a tube extending out from the chamber and containing vaporizable or volatile material adapted to change the vapor tension in the tube by change of temperature, and means for changing the temperature of the apparatus.

575,773. GUN-CARRIAGE. EDWARD W. VERY, Washington, D. C., assignor to the American Ordnance Company, same place. Filed Aug. 3, 1896. Serial No. 601,531. (No model.)



Claim.—1. In a gun-carriage and in combination with the carriage a fixed emplacement pintle or stud, a holdback pivotally connecting the carriage-trail and said pintle and a holddown vertically connecting and binding the pintle and carriage-axle and connecting diagonally and binding the pintle and the carriage-cheeks, whereby during the firing the carriage is caused to retain a fixed position.

2. The combination, with a gun-carriage the trail-tread whereof has a vertical bore provided with bearings, a trail-wheel mounted to swivel within said bearings and having a double socket-piece keyed upon the upper end of the wheel-pivot for the purpose stated.

3. The combination, with a gun-carriage, of a pivotally-mounted trail-wheel, a rod pivoted at one end to the trail, the other end of said rod pivotally engaging a pintle or stud secured in fixed position beneath and centrally of the carriage-axle, and a rope connecting the pintle and the axle and the carriage-cheeks, substantially as described and for the purpose specified.

4. In a gun-carriage, and in combination with the carriage, a recoil-resisting device centrally pivoting said carriage and pivotally connecting its trail and a fixed emplacement-hook, of a holddown consisting of a rope engaging the axle and the fixed hook and adjustably connected to the carriage-cheeks, substantially as described.

5. In a gun-carriage and in combination with the carriage, a fixed emplacement-stud, a recoil-resisting device pivotally connecting said stud and the carriage-trail and a fixed hook formed upon the stud, and a holddown engaging the axle, the emplacement-hook and a winding connection on the trail-cheeks, substantially as described.

6. In a gun-carriage, and in combination with the carriage, and a fixed emplacement pintle or stud, of a holdback pivotally connecting the said pintle and the carriage-trail, and a holddown-rope connecting the carriage-axle, the pintle and the carriage-cheeks in rear of the axle whereby the carriage is bound firmly to the platform against recoil and against jumping or lifting under the shock of recoil.

7. The combination with the gun-carriage and its mounting-wheels, a pintle or stud fixed in the platform and a swiveling trail-wheel, of a winch or windlass mounted between the trail-cheeks, and a rope connecting the windlass, the fixed pintle and the carriage-axle, substantially as described.

8. In a gun-carriage, and in combination with the carriage, and a fixed emplacement pintle or stud, of an unyielding holddown vertically connecting and binding the pintle and carriage-axle and diagonally connecting and binding the pintle and the carriage-cheeks, whereby the carriage is held down at its axle and at its trail end from the same fixed point.

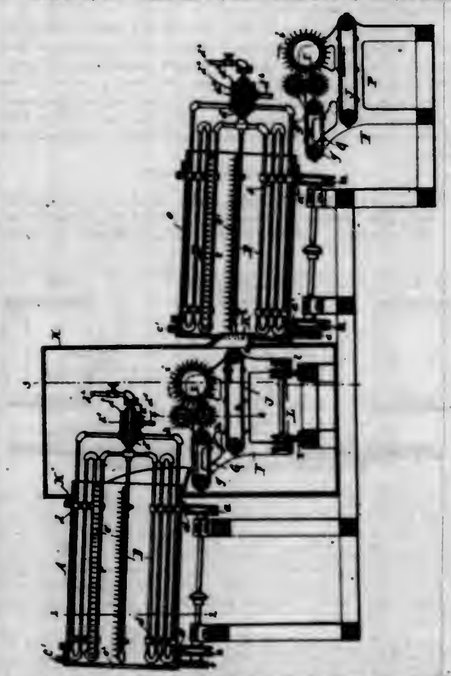
9. The combination, with a gun-carriage, of a rigid device having its ends pivotally connecting the trail of the carriage and a pintle or stud fixed in the emplaced platform, whereby to retain the carriage securely against recoil, and a flexible holddown connection freely engaging a hook on the said fixed pintle or stud and looped to the carriage-axle and a windlass mounted upon the carriage-trail whereby the said windlass is caused to maintain said holddown taut to prevent the carriage from jumping or lifting under the shock of recoil.

10. The combination, with a gun-carriage, a winch or windlass mounted between the carriage-cheeks, of a pintle or stud adapted to be fixed in the platform, a holddown-rope connecting the carriage-axle, the said pintle and the windlass, and suitable means connecting the pintle and carriage for preventing its recoil.

11. In a gun-carriage, and in combination with the carriage, a recoil-resisting device centrally pivoting the carriage to the platform and pivotally connecting the carriage-trail, and a holddown device connecting the axle and the carriage-cheeks to said central platform-pivot, whereby the holddown is caused to exert a direct holding force upon the axle and upon the trail-cheeks, substantially as described.

12. In a gun-carriage, and in combination with the carriage and a fixed emplacement pintle or stud, of an unyielding holddown having a direct connection with the carriage the trail-cheeks and with the said fixed pintle, whereby to form a binder holding the carriage down in two directions from a fixed point.

575,774. METHOD OF AND APPARATUS FOR DISENTANGLING CUT TOBACCO. OSCAR W. ALLISON and CAROLINE ALLISON, Rochester, N. Y. Filed May 11, 1896. Serial No. 591,196. (No model.)



Claim.—1. The herein-described method of loosening the fibers of cut tobacco which consists in heating the fibers and carding, combing or disentangling the fibers while in a heated condition, substantially as set forth.

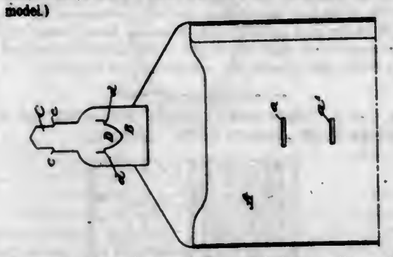
2. The combination with a heating-drum having an inlet and a discharge for the cut tobacco, of a combing-machine which receives the heated tobacco from said drum, substantially as set forth.

3. The combination with a heating-drum having an inlet and a discharge for the cut tobacco, of a combing-machine which receives the heated tobacco from said drum, and a housing which incloses the delivery end of said heating-drum and said combing-machine, substantially as set forth.

4. The combination with a heating-drum having an inlet and a discharge for the cut tobacco, of a combing-machine which receives the heated tobacco from said drum and a secondary heating-drum which receives the tobacco from said combing-machine, substantially as set forth.

5. The combination with a heating-drum having an inlet and a discharge for the cut tobacco, of a combing-machine which receives the heated tobacco from said drum, a secondary heating-drum which receives the tobacco from said combing-machine and a housing connecting said drums and inclosing said combing-machine, substantially as set forth.

575,775. FASTENER FOR ENVELOPS, &c. EDWARD L. CALAHAN, Brooklyn, N. Y. Filed Sept. 19, 1896. Serial No. 606,423. (No model.)



Claim.—1. An envelop or similar article having slits *a a'* in the body thereof, and a part as B having locking-tongues C D extending in opposite directions, and adapted to oppositely engage the slits *a a'*, substantially as set forth.

2. An envelop or similar article having slits *a a'* in its body, and a fastening part as B having fastening-tongues C D respectively formed with limiting-shoulders *c c* and *d d*, and adapted to engage said slits in opposite directions, substantially as described.

3. In an envelop-fastening, the combination with the envelop having slits *a a'* in its side, of a fastener B separately formed and attached to the closing-flap of the envelop, and having locking-tongues C D projecting in opposite directions, and adapted to oppositely engage the slits *a a'*.

4. In an envelop-fastening, the combination with the envelop having slits *a a'* in its side, of a fastener B separately formed and attached to the closing-flap of the envelop, and having locking-tongues C D projecting in opposite directions and formed with shoulders, and adapted to oppositely engage the slits *a a'*.

575,776. LAMP-BURNER. FREDERICK DIETZ, New York, N. Y., assignor to The R. E. Dietz Company, same place. Filed Feb. 7, 1896. Serial No. 578,378. (No model.)

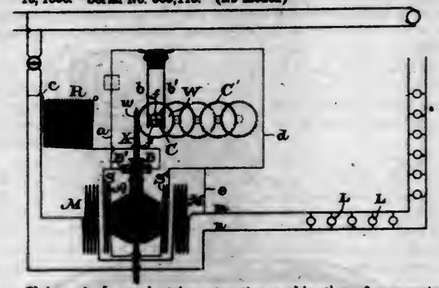


Claim.—1. The combination with an oil-pot and a screw-threaded burner, of a burner-socket having a screw-threaded lower portion which receives the threaded portion of the burner, a horizontal shoulder extending outwardly from the upper end of said screw-threaded portion, a cylindrical upper portion surrounding the burner at a distance therefrom, an external bulge forming an internal annular recess and arranged at the junction of said shoulder with said upper portion of the socket, and a washer resting on said shoulder and confined with its marginal portion in said recess, substantially as set forth.

2. The combination with an oil-pot and a screw-threaded burner, of a burner-socket having a screw-threaded lower portion which receives the threaded portion of the burner, a horizontal shoulder extending outwardly from the upper end of said screw-threaded portion, a cylindrical upper portion surrounding the burner at a distance therefrom, an external bulge forming an internal annular recess and arranged at the junction of said shoulder with said upper portion of the socket, a shoulder extending inwardly from the lower end of said screw-threaded portion, a washer resting on said upper shoulder and confined with its marginal portion in said recess, and a washer resting on said lower shoulder within the lower threaded part of the socket, substantially as set forth.

3. The combination with an oil-pot and a burner having a wick-raiser shaft which projects on both sides beyond the cylindrical wall of the burner, of a burner-socket secured to said oil-pot and having its upper portion composed of a cylindrical wall which surrounds the burner at a distance therefrom and upon which the wick-raiser shaft rests on both sides of the burner, substantially as set forth.

575,777. ELECTRIC METER. WALTER C. FISH, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Oct. 16, 1896. Serial No. 609,115. (No model.)



Claim.—1. In an electric meter, the combination of an armature, a field-coil therefor, recording mechanism actuated by the armature, and means for weakening the field periodically, or at intervals, as set forth.

2. In an electric meter, an armature in shunt to the mains, an initial-energy coil and means for periodically or intermittently weakening the initial-energy coil during the movement of the meter, as set forth.

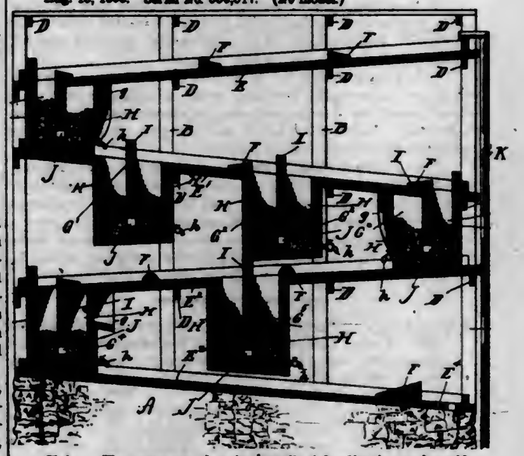
3. In an electric meter, an armature in shunt to the mains, a non-inductive resistance in the shunt-circuit, an initial-energy coil, and means for periodically or intermittently weakening the initial-energy coil, as set forth.

4. In an electric meter, an armature in shunt to the mains, a non-inductive resistance in the armature-circuit, a field-coil, and means for periodically or intermittently weakening the field, as set forth.

5. In an electric meter, an armature in shunt to the mains, a field-coil, and means for periodically or intermittently weakening the field during the movement of the meter, as set forth.

6. In an electric meter, an armature arranged in shunt to the mains, field-coils in the main circuit, supplemental field-coils in shunt to the mains, a non-inductive resistance in the armature-circuit, and means for periodically or intermittently weakening the field, as set forth.

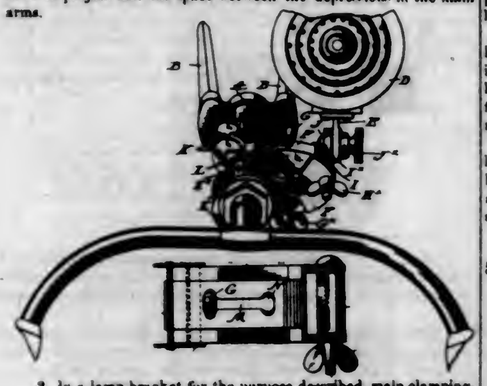
575,778. PROCESS OF AND APPARATUS FOR PURIFYING AND FILTERING LIQUIDS. SAMUEL GILSTON, New York, N. Y. Filed Aug. 15, 1895. Serial No. 559,317. (No model.)



Claim.—The apparatus herein described for filtering and purifying water, which consists of a supply-pipe K, a series of inclined runways in communication with one another, said runways being provided with riffles thereon, a series of filters in the bed of each of said runways, each filter consisting of a box or receptacle divided by a pierced partition, whereby the water to be purified may be caused to traverse the runways and filters in series, and a reservoir in communication with the last of said runways for finally storing the water, substantially as described.

575,779. LAMP-BRACKET. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 5, 1896. Serial No. 614,872. (No model.)

Claim.—1. In a lamp-bracket for the purpose described, main clamping-arms having depressions adapted to engage the vehicle-frame, supplemental arms on said clamping-arms provided with suitable depressions, said supplemental arms being adapted to be turned so as to project into the space between the depressions in the main arms.



2. In a lamp-bracket for the purpose described, main clamping-arms provided with curved depressions adapted to engage rounded surfaces, adjustable supplemental arms at the extremities of said main clamping-arms, angular depressions in said supplemental arms adapted to engage the surfaces of angular bodies when said supplemental arms are turned to project into the space between the curved depression in the main clamping-arms.

3. In a lamp-bracket for the purpose described, main clamping-arms provided toward one end with curved depressions, supplemental arms pivoted to said main clamping-arms, angular depressions in said supplemental arms, which, when the latter are turned so as to project into the space between the depressions in the main arms, are presented for engagement with surfaces of angular bodies, and means for drawing together said clamping members.

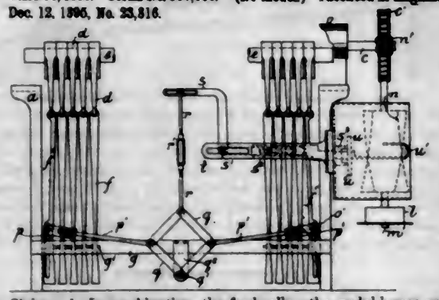
4. In a lamp-bracket for the purpose described, main clamping-arms, supplemental clamping-arms pivotally connected thereto, connections K′ between each set of supplemental clamping-arms, said main clamping-arm and supplemental clamping-arm coöperating to engage an angular body, when the latter are turned so as to project into the space between said main clamping-arms.

5. In a lamp-bracket for the purpose described, main clamping-arms, supplemental clamping-arms pivotally connected thereto, connections K′ between each set of supplemental arms and ears K^3, substantially as and for the purpose described.

6. In a lamp-bracket for the purpose described, main clamping-arms, and supplemental internally-acting clamping-arms pivoted thereto, means for operating said clamping members and an extension I, pivotally mounted on the bolt H, and means for adjustably holding said extension I in the desired position.

7. In a lamp-bracket for the purpose described, main clamping-arms pivotally connected at H, supplemental clamping-arms pivotally connected at the free ends of said main clamping-arms, depressions in said supplemental clamping-arms, said clamping members coöperating to engage either rounded or angular surfaces, means for drawing said clamping members toward each other, and means for attaching said bracket to the body of a lamp, substantially as described.

575,780. **EVENING MECHANISM FOR OPENERS AND SCUTCHERS.** WALTER LORD and WILL LORD, Todmorden, England. Filed June 30, 1896. Serial No. 597,606. (No model.) Patented in England Dec. 12, 1895, No. 23,816.



Claim.—1. In combination, the feed-roller, the pedal-levers engaging the same, the depending fish-tail levers, the guide-box therefor, the laterally-movable levers f' one at each end of the row of fish-tail levers, the toggle-levers arranged between the levers f', the connecting-rods p' between the toggle-levers and the levers f', the driving-cones and strap, and the shifting mechanism therefor, comprising the lever and the rod connecting said lever with the toggle-levers, substantially as described.

2. In combination, the feed-roller, the pedal-levers and fish-tail levers, the guide-box therefor, the driving-cones, the lever mechanism for shifting the strap thereon and means for operating the said lever mechanism comprising the toggle-levers, the connection therefrom to the fish-tail levers, and the connection to the shifting-lever mechanism, substantially as described.

3. In combination, the feed-roller, the pedal-levers, the fish-tail levers, the guide-box, the shifting driving mechanism, the toggle-levers pivotally connected to the guide-box to be supported thereby and the connections from the toggles to the fish-tail levers and the shifting mechanism respectively, substantially as described.

575,781. **CHECK-BOOK.** ROBERT W. MORGAN, New York, N. Y. Filed Oct. 6, 1896. Serial No. 608,080. (No model.)



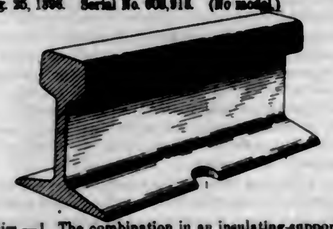
Claim.—1. A check-book comprising the covers, the series of leaves inclosed therein and each having on the one face the stub, the hinged section, hinged at its outer edge and adapted to fold inward within said covers, and the pad of checks secured to and carried by said hinged section and being on the outside face of said hinged section, whereby, when said covers are opened with said hinged section folded inward in normal position, both said checks and stubs are fully exposed; substantially as shown and described.

2. A check-book comprising the covers, the stub-leaves and the hinged section hinged at its outer edge and adapted to fold inward within said covers, combined with the check-holding frame applied to said hinged section and having the flange which holds the checks at their edges and a spring which exerts a tension against the checks to bind them within said flange, said flange and pad of checks being on the outside face of said hinged section, whereby when said covers are opened with said hinged section folded inward in normal position, both said checks and stubs are fully exposed; substantially as set forth.

3. A check-book comprising the covers, the stub-leaves and the hinged section hinged at its outer edge and adapted to fold inward within said covers, combined with the check-holding frame adapted to pass upon the edges of said hinged section and having the check-holding flanges at three of its edges, and the springs at its opposite ends to exert a tension against said checks, said flanges and said pad of checks being on the outside face of said hinged section, whereby when said covers are opened with said hinged section folded inward in normal position, both said checks and stubs are fully exposed; substantially as shown and described.

4. A check-book comprising the covers, and the catches H secured thereto and having at their exposed ends the loops of the character described, combined with the series of leaves, and the staples securing said leaves together and adapted to engage said loops for detachably securing the leaves within said covers; substantially as set forth.

575,782. **RAIL-SUPPORT.** WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 25, 1896. Serial No. 603,918. (No model.)



Claim.—1. The combination in an insulating-support for a third rail, of a body of insulating material carrying a metallic cap, the cap provided with lugs adapted to register with notches in the rail-flange.

2. As a new article of manufacture, an insulating-support for a railway-rail, comprising a body of insulating material, a metallic cap secured thereto, and oppositely-placed radial lugs upon the metallic cap adapted to register with notches in the rail-flange.

3. The combination with an insulator, comprising a body of insulating material and a metallic cap provided with lugs, of a rail having notches in its flange registering with the lugs upon the insulator.

575,783. **WHEEL-TIRE.** EDWARD K. QUIMBY, Orange, N. J., assignor to the North British Rubber Company, Limited, Edinburgh, Scotland. Filed Dec. 1, 1894. Serial No. 530,563. (No model.)



Claim.—1. A tire of flexible material in arched form, having on its exterior convex surface and near each edge, two parallel ribs or projections, substantially as described.

2. The combination of a wheel-rim provided with a circumferential recess having in each of its walls or sides two channels, the transverse distance between the sides of the inner channels nearest the axis of the wheel being less than the transverse distance between the sides of the outer channels, a tire of flexible material provided with ribs adapted to be seated in said channels and an inflatable tube within said tire serving when inflated to hold the ribs of the said tire to their respective seats in the said channels, substantially as described.

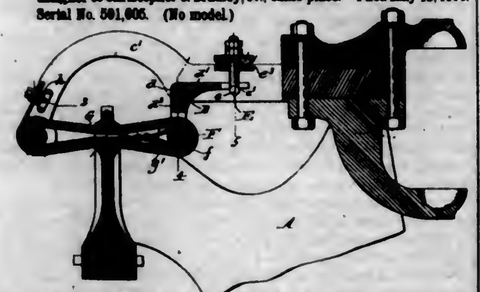
3. The combination of an annular tire of flexible material having near each of its edges two parallel ribs or projections, a wheel-rim having a recess with its walls grooved and channeled to receive said ribs and an inflatable tube within said tire serving when inflated to hold the ribs of the said tire to their respective seats in the said channels, substantially as described.

4. A tire of flexible material adapted to assume a U-shaped form in cross-section and to be applied to a wheel-rim, said tire having on its exterior convex surface and near each edge angular projections or ribs d' and adjacent to said projections angular projections or ribs d^2, said ribs d' and d^2 respectively at each side of said tire having their homologous sides parallel, substantially as described.

5. A wheel-rim having a circumferential recess, the said recess being in the form of a double dovetail $b\ b$, $c\ c$ with outwardly-converging sides, the distance between the sides $b\ b$ being less than the distance between the sides $c\ c$, substantially as described.

6. The combination, as herein set forth, of an annular wheel-rim presenting upon its convex side a circumferential recess, the side walls of which are provided with concentric grooves V-shaped in their cross-sections, a tire of flexible material approximately U-shaped in cross-section and provided near its edges on each side with two parallel ribs approximately triangular in cross-section and adapted to be seated in the said V-shaped concentric grooves in the side walls of the said circumferential recess in the wheel-rim and an inflatable annular tube contained within the said rubber tire and serving when inflated to compress the ribs of said tire into their respective seats in the said concentric grooves.

575,784. **POWER-HAMMER.** FRANK RAYMOND, Syracuse, N. Y., assignor to Christopher C. Bradley, Jr., same place. Filed May 15, 1896. Serial No. 591,605. (No model.)



Claim.—1. The combination with the hammer-head and the helve provided with supports on opposite sides of said head, of a connecting-strap having an attaching device at the end of its innermost layer and being coiled around said supports and having another attaching device at the end of its outermost layer, substantially as set forth.

2. The combination with the hammer-head and the helve provided with supports on opposite sides of said head, of a connecting-strap coiled around said supports and secured with the end of its innermost layer to one support and with the end of its outermost layer to the helve, substantially as set forth.

3. The combination with the hammer-head and the helve provided with supports on opposite sides of said head, of a connecting-strap coiled around said supports and secured with the end of its innermost layer to one of said supports, and a clamping device connecting the end of the outermost layer of the strap to the helve, substantially as set forth.

4. The combination with the hammer-head and the helve, of an adjusting-lever mounted on the helve on one side of the hammer-head and provided with a strap-support, a strap-support carried by the helve on the opposite side of the hammer-head, a connecting-strap coiled around said supports, and attaching devices whereby the ends of the innermost and outermost layers of said strap are separately attached, one directly to the helve and the other to the adjusting-lever, substantially as set forth.

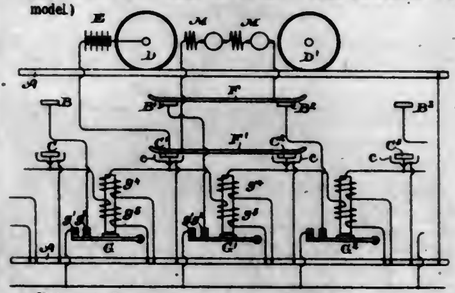
5. The combination with the hammer-head and the helve, of an adjusting-lever mounted on the helve, a strap carrying the hammer-head and attached to said lever, and a clamping device whereby the outer end of said strap is adjustably secured substantially as set forth.

6. The combination with the hammer-head and the helve, of an adjusting-lever pivoted to said helve in rear of the hammer-head, a strap carrying said head and attached with its rear end to said adjusting-lever, and an adjustable clamping device whereby the front end of the strap is attached to the helve, substantially as set forth.

7. The combination with the hammer-head and the helve, of an adjusting-lever pivoted to said helve in rear of the hammer-head, a strap carrying said head and attached with its rear end to said adjusting-lever and with its front end to said helve, a plate pivoted on said helve, a spring mounted on said plate, and a bolt connecting the spring with said adjusting-lever, substantially as set forth.

8. The combination with the hammer-head and the helve, of an adjusting-lever pivoted to said helve in rear of the hammer-head and consisting of a downwardly-projecting lower arm and a rearwardly-projecting upper arm, a strap carrying said hammer-head and connected with its front end to said helve and with its rear end to the lower arm of the adjusting-lever, a supporting-plate provided with trunnions which are journaled in bearings on the helve, a spring mounted on said plate, and an adjusting-bolt provided at its lower end with a cross-bar which is pivoted on the upper arm of the elbow-lever and at its upper end with a washer which bears against said spring, substantially as set forth.

575,785. **CLOSED-CONDUIT ELECTRIC RAILWAY.** EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 31, 1896. Serial No. 610,682. (No model.)



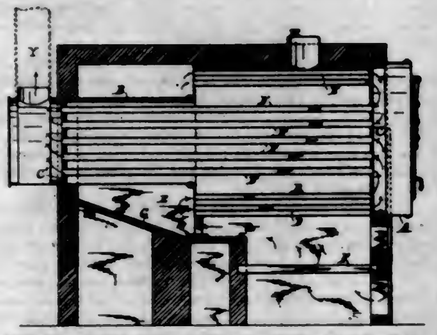
Claim.—1. In a surface-contact or closed-conduit electric-railway system, an independent ground connection adjacent to the pick-up-magnet contacts and adapted to protect the coils on the pick-up magnets from extraneous or leakage currents, substantially as set out.

2. In a surface-contact or closed-conduit electric-railway system, a metal box surrounding the low-potential pick-up-magnet contact and insulated therefrom, with an independent ground connection from the box, the whole adapted to protect the pick-up-magnet coils from extraneous or leakage current.

3. In a surface-contact or closed-conduit electric-railway system provided with sectional conductors and grounded coils upon the pick-up magnets connected to the sectional conductors, an independent shunt-circuit to ground for leakage-current, interposed between the high-potential studs and the contacts connected to the magnet-coils.

575,786. **STEAM-BOILER.** JAMES R. VANCE, Geneva, N. Y. Filed Nov. 17, 1896. Serial No. 612,406. (No model.)

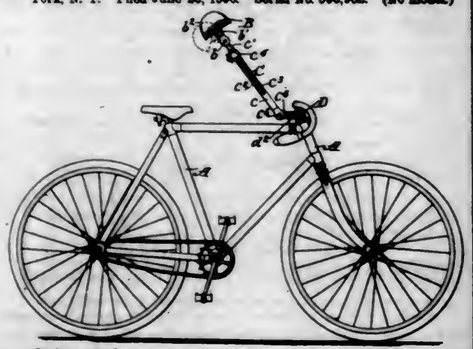
Claim.—1. In a steam-boiler, the combination of a horizontal cylinder, a smaller horizontal cylinder concentric with and projecting from one end of the first cylinder, fire-tubes extending through each cylinder, a chamber at one end of the large cylinder communicating with all the tubes, one end of each of the tubes in the larger cylinder opening into the furnace, and a chamber at the end of the smaller cylinder communicating with its tubes and the chimney, substantially as described and shown.



2. In a steam-boiler, the combination of a horizontal cylinder, a smaller horizontal cylinder concentric with the first cylinder and projecting from one end of the latter, said cylinders being of substantially the same length, the larger cylinder having substantially twice the diameter of the smaller cylinder, fire-tubes extending through each cylinder, a chamber at one end of the large cylinder communicating with all the tubes, one end of each of the tubes in the larger cylinder opening into the furnace, and a chamber at the end of the smaller cylinder communicating with its tubes and the chimney, substantially as described and shown.

3. In a steam-boiler, the combination of a horizontal cylinder, a smaller horizontal cylinder joined to one end of the larger cylinder and concentric therewith, partitions C and C', fire-tubes extending through the cylinders and supported by the partitions, short fire-tubes extending through the large cylinder and supported by one of the partitions and the end of the cylinder, a furnace inclosing the boiler having the grate below the large cylinder, and a flue leading back beneath the small cylinder having an inclined surface, substantially as and for the purpose specified.

575,787. ATTACHMENT FOR BICYCLES. JOHN S VOITEN, New York, N. Y. Filed June 26, 1896. Serial No. 596,982. (No model.)



Claim.—1. In a device of the character described, the combination of a clamp to be secured to a bicycle-frame, a rod connected to said clamp by a loose or free hinge-joint, a block secured to the upper end of said rod by a loose or free hinge-joint, and a support secured to said block, substantially as shown and described.

2. In a device of the character described, the combination of a clamp to be secured to a bicycle-frame, a block secured to said clamp by a loose or free hinge-joint, with a substantially vertical pivot, a rod secured to said block by a loose or free hinge-joint with a substantially horizontal pivot, and a support secured to the upper end of said rod, substantially as shown and described.

575,788. ELECTRIC SMELTING. THOMAS L. WILLSON, New York, N. Y. Filed Feb. 20, 1895. Serial No. 539,143. (No model.)

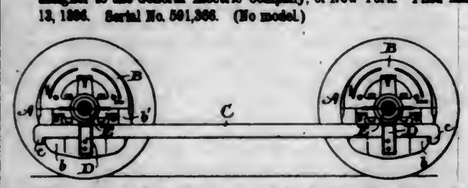
Claim.—1. The process of electric smelting which consists in subjecting the material to be treated in pulverulent condition to the continued action of an electric arc formed between separated electrodes, by feeding such material into the immediate neighborhood of the arc, and maintaining the arc by an alternating current of a frequency adapted to set the mass of material into vibration, whereby by the pulsations of the arc the material is progressively drawn within its influence.

2. The process of electric smelting which consists in subjecting the material to be treated in pulverulent condition to the continued action of an electric arc formed between separated electrodes, consisting the one of a pool of molten material beneath and the other of a carbon electrode above, so that the interpolar space is approximately horizontal, by feeding such material upon such pool, around the carbon electrode and into the immediate neighborhood of the arc, and maintaining the arc by an alternating current of a frequency adapted to set the mass of material into vibration, whereby by the pulsations of the arc the material is progressively drawn within its influence.

3. The process of recovering aluminium from its ores or compounds, which consists in feeding the aluminous material and carbonaceous material in a pulverulent condition into the neighborhood of an electric arc formed between separated electrodes by an alternating current of appropriate volume and frequency adapted to set the mass of material into vibration, whereby by the pulsations of the arc the materials are progressively drawn within its influence.

4. The process of producing an aluminium alloy, which consists in feeding alumina and carbon in pulverulent condition into the neighborhood of an electric arc formed by an alternating current between a molten bath of base metal and a carbon electrode above and out of contact with said bath, the alternating current being of appropriate volume and frequency adapted to set the mass of material into vibration, whereby by the pulsations of the arc the materials are progressively drawn within its influence.

575,789. BRAKE-SHOE. FRANK R. CASE, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 13, 1896. Serial No. 591,366. (No model.)



Claim.—1. A disk electromagnet brake-shoe, having a disk mounted on a car-axle, and provided on its face with sets of lugs and a retaining-plate intermediate of said lugs; in combination with a locking-bar located in said lugs and held in position by said plate, the bar being secured to prevent rotation of the shoe, as herein set forth.

2. A pair of disk electromagnetic brake-shoes, each mounted on a separate car-axle and each having lugs and a retaining-plate, in combination with a locking-bar engaging said lugs on both shoes.

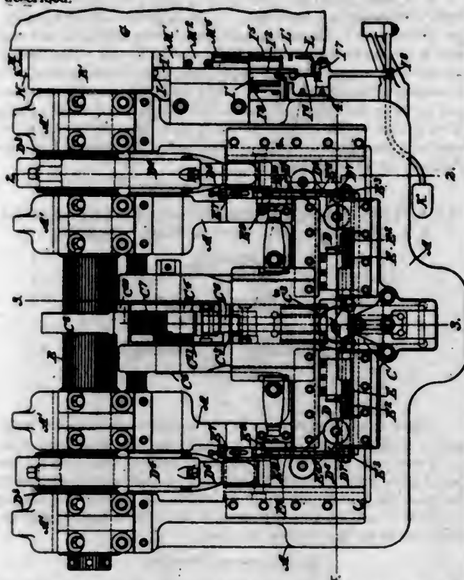
3. In combination, a brake-shoe provided with lugs having a recess between them, a bar in the recess, a plate for retaining the bar in position, and a spring for taking up the play of the parts.

575,790. FORGING-MACHINE. CHARLES DE LOS RIOS, Hartford, Conn. Filed Dec. 11, 1895. Serial No. 571,760. (No model.)

Claim.—1. In a forging-machine, the combination of a sliding-die holder, a rocking frame supported upon an axis in line with said die-holder and having an eccentric bearing-point, a link intermediate said die-holder and rocking frame and constituting with said rocking frame a toggle-lever, a hand-lever connected to said rocking frame to shift the same, and a cam in line with said die-holder and the axis of said rocking frame and adapted to act upon the bearing-point of said rocking frame and to effect a further movement thereof after the action of a hand-lever, substantially as shown and described.

2. In a forging-machine, the combination of a sliding-die holder, a rocking frame supported upon an axis in line with said die-holder, a link intermediate said die-holder and rocking frame and constituting with said rocking frame a toggle-lever, a cam in line with said die-holder and the axis of said rocking frame and adapted to act upon said rocking frame, and a bearing-point on said rocking frame for said cam out of the line of the axes of the rocking frame and cam, substantially as shown and described.

3. In a forging-machine, the combination of a sliding-die holder, a rocking frame supported upon an axis in line with said die-holder and having an eccentric bearing-point, a link intermediate said die-holder and rocking frame and constituting with said rocking frame a toggle-lever, a shaft in line with said die-holder and the axis of said rocking frame, a cam on said shaft adapted to bear upon said eccentric bearing-point of said rocking frame out of line with the axes of said frame and shaft to thrust said die-holder forward, and a toe-cam on said shaft adapted to strike upon a projection from said rocking frame and to withdraw said die-holder, substantially as shown and described.



4. In a forging-machine, the combination of a stationary-die holder, a movable-die holder, means for actuating said movable-die holder, retaining-fingers standing normally in front of the stationary-die holder and adapted to hold an article temporarily in position between themselves and the stationary die, a movable carrier for said retaining-fingers and a device actuated by the operating means of the movable-die holder to shift said carrier and withdraw said fingers as the movable-die holder moves forward, substantially as shown and described.

5. In a forging-machine, the combination of a stationary-die holder, a movable-die holder, means for actuating said movable-die holder, retaining-fingers adapted to hold an article temporarily in position, a carrier for said retaining-fingers, a hinged support to which said carrier is secured, and a rod adapted to be actuated by the operating means of the movable-die holder to swing said hinged support and withdraw the retaining-fingers, substantially as shown and described.

6. In a forging-machine, the combination of a stationary-die holder, a movable-die holder, means for actuating said movable-die holder, a stripper standing normally in front of the stationary-die holder and adapted to engage the forging and to eject it from the stationary die, a reciprocating part, a hooked rod to engage said reciprocating part, and intermediate means whereby said stripper is actuated by the movement of said hooked rod, substantially as shown and described.

7. In a forging-machine, the combination of a stationary-die holder, a movable-die holder, means for actuating said movable-die holder, a rock-shaft, a stripper secured to said rock-shaft and standing normally in front of the stationary-die holder and adapted to engage the forging to eject it from the stationary die, an arm secured to said rock-shaft, a reciprocating part, a hooked rod to engage said reciprocating part and connections from said hooked rod to said rock-shaft, substantially as shown and described.

8. In a forging-machine, the combination of a stationary-die holder, a movable-die holder, means for actuating said movable-die holder, a stripper-finger mounted to oscillate in front of the stationary-die holder and adapted to engage the forging and to eject it from the stationary die, a reciprocating part and a hooked rod connected to the stripper-finger to oscillate the same and adapted to engage a projection on said reciprocating part, substantially as shown and described.

9. In a forging-machine, the combination of a stationary-die holder, a movable-die holder, means for actuating said movable-die holder, a stripper adapted to engage the forging and to eject it from the stationary die, a reciprocating part and a hooked rod connected to the stripper to actuate the same and adapted to engage a projection on said reciprocating part and having also an incline to cooperate with a fixed pin whereby in the continued movement of the reciprocating part the hooked rod is disengaged therefrom, substantially as shown and described.

10. In a forging-machine, the combination of a stationary-die holder, a movable-die holder, means for actuating said movable-die holder, a stripper adapted to engage the forging and eject it from the stationary die, a reciprocating part, an adjustable bar mounted on said reciprocating part and having a lip, and a hooked rod connected to the stripper to actuate the same and adapted to engage the lip on said reciprocating part, substantially as shown and described.

11. The combination of a shaft, a clutch member carried with said shaft, a driving-wheel, a ring mounted loosely on the hub of said driving-wheel and constituting the second member of said clutch, said ring and wheel having coöperating projections, and a cushion interposed between said coöperating projections, substantially as shown and described.

12. The combination of a shaft, a clutch member carried with said shaft, a driving-wheel, a ring mounted loosely on the hub of said driving-wheel and constituting the second member of said clutch, said ring and wheel having coöperating projections, a cushion interposed between said coöperating projections, and a driver carried by said wheel and engaging said ring but permitting movement of said ring with respect to said wheel to a limited extent, substantially as shown and described.

13. The combination with the two members of a clutch, of a dog carried by one member and adapted to engage the other member, a cam adapted normally to engage said dog in its revolution and to withdraw it from engagement with the second member of the clutch, a sliding bar carrying said cam, a lever connected to said sliding bar, a tripping-blade carried by said lever, a tripping-dog carried with the continuously-rotating member of the clutch, and means to shift said blade into the path of said tripping-dog, whereby the continued movement of the tripping-dog will further shift said lever and withdraw said sliding bar and cam, substantially as shown and described.

14. The combination with two members of a clutch, of a dog carried by one member and adapted to engage the other member, a cam adapted normally to engage said dog in its revolution and to withdraw it from engagement with the second member of the clutch, a sliding bar carrying said cam, a supplementary bar mounted upon the first-named bar and having a loose connection therewith, a lever connected with said sliding bar, a tripping-blade carried by said lever, a tripping-dog carried with the continuously-rotating member of the clutch, and means to shift said lever and supplementary bar to bring the tripping-blade into the path of the tripping-dog, whereby the continued movement of the tripping-dog will further shift said lever and withdraw said sliding bar and cam, substantially as shown and described.

575,791. SASH-FASTENER. WILLIAM W. SMITH and JACOB M. ISERIG, Traverse City, Mich. Filed Mar. 18, 1896. Serial No. 583,789. (No model.)



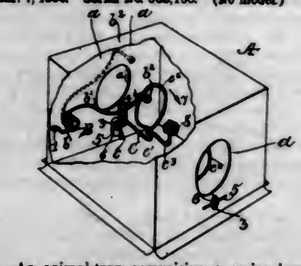
Claim.—1. In a sash-lock, the combination with a rod secured within the window-frame, as described, of a clutch, comprising a stationary plate attached to the window-sash, a pivoted clutch proper fulcrumed on said plate, and a lock-plate arranged between the stationary plate and the pivoted clutch, for locking said clutch in engagement with the rod, substantially as described.

2. In a sash-lock, the combination with the rod secured within the window-frame as described, of a clutch secured to the window-sash, said clutch comprising a stationary plate attached rigidly to the sash and having an opening for the rod and also provided adjacent to said opening with an inclined lip or cam-surface, a pivoted clutch proper fulcrumed intermediate its ends upon said plate and provided with an opening for said rod, and a vibratory lock-plate having an opening for the rod and adapted to coöperate with the said inclined lip or cam-surface for locking the pivoted clutch, substantially in the manner and for the purpose described.

3. In a sash-fastener, the combination with a vertical rod secured within the window-casing as described, of a clutch attached to the window-sash and engaging said rod, said clutch comprising a plate having its main body bent to form a loop or eye, or provided with a loop or eye for the rod, the said plate being also divided and having its divided portions bent to form bearings, the clutch proper having oppositely-projecting lateral trunnions arranged in said bearings and

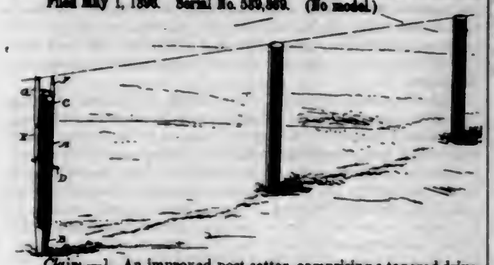
also having an opening for the rod, and a spiral spring surrounding the rod and interposed between the loop or eye of the plate and the clutch proper, substantially as and for the purpose described.

575,792. ANIMAL-TRAP. ALONZO T. SULLIVAN, Malcolm, Nebr. Filed Mar. 7, 1896. Serial No. 582,180. (No model.)



Claim.—An animal-trap comprising a casing having apertures through the walls thereof, spring-pressed choking rings or loops upon the inner surface of the said casing, inwardly-projecting pins adapted to engage the said choking rings or loops, in combination with the angular trip-levers C, comprising upright portions c, having loops 3 and 4, and rods 5, the said loops 3 passing outwardly through apertures 6 in the side walls of the casing whereby the levers are fulcrumed and free to move to a limited extent.

575,793. POST-SETTER. GEORGE W. SWIGER, Brown, W. Va. Filed May 1, 1896. Serial No. 589,869. (No model.)



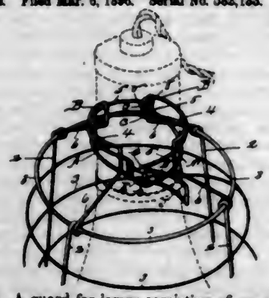
Claim.—1. An improved post-setter, comprising a tapered drive-post having a pointed metallic ferrule at the lower end, the metallic band at the upper end, the lift-pin, and the pivoted bail all arranged substantially as shown and described.

2. An improved post-setter, consisting of a drive-post constructed as described, the bail pivoted to the upper portion of said post, and the sight-pieces carried by said bail, substantially as shown and described.

3. An improved post-setter, comprising a drive-post constructed as described, the U-shaped bail pivoted to the upper portion of said post, the sight-pieces attached to said bail, one of said sight-pieces being bifurcated at the upper end, while the opposite one is pointed, substantially as shown and described.

4. An improved sighting device adapted to be attached to the post, consisting of a U-shaped bail, the bifurcated member attached to one side of the bail, and the pointed member attached to the opposite side, substantially as shown and described.

575,794. WIRE GUARD FOR LAMPS. PHILO R. WAGER, Springfield, Mass. Filed Mar. 6, 1896. Serial No. 582,133. (No model.)



Claim.—1. A guard for lamps consisting of an open-work wire body, combined with two yokes pivotally connected to the open end of said body on opposite sides thereof, two curved open links A, A', hinged by one end to one of said yokes, and inclosing the upper portion of said yokes simultaneously, and a link-uniting lever pivoted on the free end of one of said links, and having, by its short arm, an engagement with the free end of the opposite link, substantially as set forth.

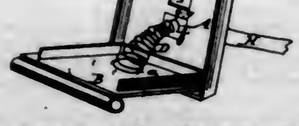
2. A guard for lamps consisting of an open-work wire body, combined with two wire yokes, each consisting of two arms 6, 6, an upper curved part 4, and two parts 5, 5, connecting said arms and said part 4, the extremities of the arms 6, of each of said yokes having pivotal connections with the upper open end of said guards, two curved open links A, A', hinged to said part 5, of one of said yokes, and inclosing the upper portions of both thereof, and a link-uniting lever pivoted on the free end of one of said links and having by its short arm an engagement with the free end of the opposite link, substantially as set forth.

575,795. LAMP ATTACHMENT. CHARLES B. WEBSTER, Amenia, N. D. Filed May 21, 1896. Serial No. 592,460. (No model.)



Claim.—In a lamp-burner of the character described, a wick-tube, a wick, means for moving said wick, the said tube being made up of two parts parallel with each other, each of said parts consisting of a flat sheet of metal with flanges at each end, the flanges of one part fitting within those of the other, and a spring for holding the parts of said wick-tube in contact one with the other, substantially as and for the purpose described.

575,796. DEVICE FOR REGULATING POSITION OF ARMS OF VIOLIN-PLAYERS. GERHARD WEIS, Copenhagen, Denmark. Filed Dec. 16, 1895. Serial No. 572,351. (No model.)



Claim.—An arm-support for violin-players consisting of a box with a hinged lid provided on its interior with a spring one end of which is secured to the box and the other free end having attached thereto a plate, the lid of the box having cavities in either of which the free end of the spring may be adjusted by means of the plate.

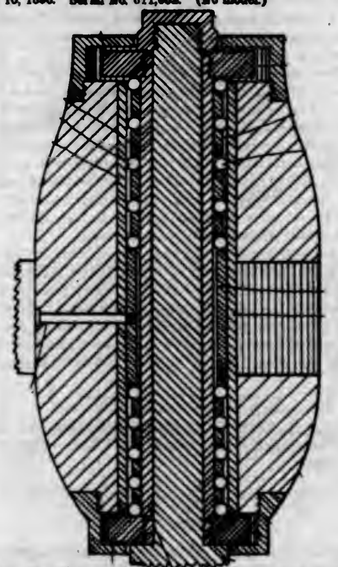
575,797. ELASTIC TIRE. CHARLES K. WELCH, Coventry, England, assignor to the Pneumatic Tyre Company, Limited, Dublin, Ireland. Filed Oct. 8, 1895. Serial No. 564,978. (No model.) Patented in England June 2, 1894, No. 10,719; in France Sept. 3, 1895, No. 250,081; in Belgium Sept. 9, 1895, No. 117,345; in Italy Sept. 12, 1895, XXX, 38,757, and in Denmark Sept. 6, 1895, No. 732.



Claim.—1. In an elastic tire, the combination with an outer cover, of an inner tube containing jelly or the like gelatinous substance, and an elastic chamber or chambers containing air under pressure and operative to put the jelly under compression, substantially as described.

2. In an elastic tire, the combination with an outer cover of a chamber or chambers containing air under pressure, jelly or like gelatinous substance between the said chamber or chambers and the said cover, and a dividing-strip between the jelly and the said tube or tubes, substantially as described.

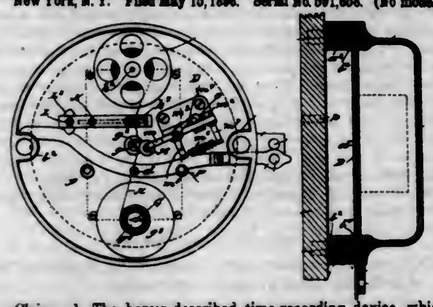
575,798. BALL-BEARING. JOSEPH B. BAKER, Naples, Tex. Filed Nov. 10, 1896. Serial No. 611,632. (No model.)



Claim.—1. A journal provided with two concentric thimbles, a plurality of rows of balls surrounding the inner thimble and having bearings against the inner surface of the outer thimble, rings fitting closely the outer surface of said inner thimble and adapted to hold said rows of balls in place, a shorter thimble fitting closely the interior of said outer thimble and attached to the central portion of the said thimble, said thimble being provided with a plurality of recesses in the outer side thereof, making said thimble adjustable at different positions, said thimble being held in place by set-screws, a hub inclosing all of said parts, and caps screwed on said hub.

2. An axle having a journal square in cross-section, a thimble inclosing said journal and having a hardened outer surface, a plurality of rows of balls surrounding said thimble, a series of rings fitting closely said thimble and adapted to hold said rows in place, a thimble having a hardened inner surface surrounding said balls, a shorter thimble fitting closely the inner surface of said last-mentioned thimble and attached to the central portion thereof, said thimble having a plurality of recesses, making said thimble adjustable at different positions, said first-mentioned thimble having an annular flange on one end and a nut screwed on the other end, and a hub provided with end caps and inclosing all of said parts.

575,799. WATCHMAN'S TIME-REGISTER. SIGMUND BOWER, New York, N. Y. Filed May 15, 1896. Serial No. 591,868. (No model.)



Claim.—1. The herein-described time-recording device, which consists of a suitable casing, on one side of which is placed a clock mechanism, and on the other suitable time-recording devices, said casing being provided on its opposite sides, with suitable holes or sockets, which are adapted to receive posts, secured to a door or other support, said casing being also provided with a pivoted lever, which is adapted to engage with the inner ends of said posts, and which is adapted to be locked in connection therewith, substantially as shown and described.

2. The herein-described time-recording device, which consists of a suitable casing, on one side of which is placed a clock mechanism, and on the other suitable time-recording devices, said casing being provided on its opposite sides with suitable holes or sockets, which are adapted to receive posts, secured to a door or other support, said casing being also provided with a pivoted lever, which is adapted to engage with the inner ends of said posts, and which is adapted to be locked in connection therewith, said clock mechanism and said time-recording devices being located on opposite sides of a partition-plate, to which a lever is pivoted, and said mechanism and said devices being in operative connection, substantially as shown and described.

3. The herein-described time-recording device, which consists of a suitable casing, on one side of which is placed a clock mechanism, and on the other suitable time-recording devices, said casing being provided on its opposite sides with suitable holes or sockets, which are adapted to receive posts, secured to a door or other support, said casing being also provided with a pivoted lever, which is adapted to engage with the inner ends of said posts, and which is adapted to be locked in connection therewith, said clock mechanism and said time-recording devices being located on opposite sides of a partition-plate, to which the lever is pivoted, and said mechanism and said devices being in operative connection, and said time-recording devices being also provided with a tape, which is mounted on a drum at one side of said casing, and on a shaft at the other side, which is operated by the clock mechanism, and said recording devices being also provided with suitable means for puncturing said tape, which are adapted to be operated by a key inserted through the door, substantially as shown and described.

4. In a time-recording device, the combination with a suitable casing, provided with a partition-plate, of a clock mechanism mounted on one side of said plate, and in operative connection with time-recording devices on the opposite side, said time-recording devices comprising a suitable tape, and which is mounted on a suitable drum, and adapted to be wound on a shaft connected with the clock mechanism, and which passes through friction-rolls, one of which is mounted on a shaft connected with the clock mechanism, and the other on a spring-operated sliding plate or bar, substantially as shown and described.

5. In a time-recording device, the combination with a suitable casing, provided with a partition-plate of a clock mechanism mounted on one side of said plate, and in operative connection with time-recording devices, on the opposite side, said time-recording devices comprising a suitable tape, and which is mounted on a suitable drum, and adapted to be wound on a shaft connected with the clock mechanism, and which passes through friction-rolls, one of which is mounted on a shaft connected with the clock mechanism, and the other on a spring-operated sliding plate or bar, and devices which are adapted to be operated, by a key inserted through the door or support for puncturing said tape, substantially as shown and described.

575,800. PAINT FOR SHIPS' BOTTOMS. GEORGE L. BURNHAM, Providence, R. I. Filed Aug. 17, 1896. Serial No. 602,923. (No specimens.)

Claim.—A paint for the bottoms of ships, consisting of kelp, which is ground while green and wet, in oil, and compounded with litharge, sugar of lead, turpentine and linseed-oil, in the proportions hereinbefore set forth.

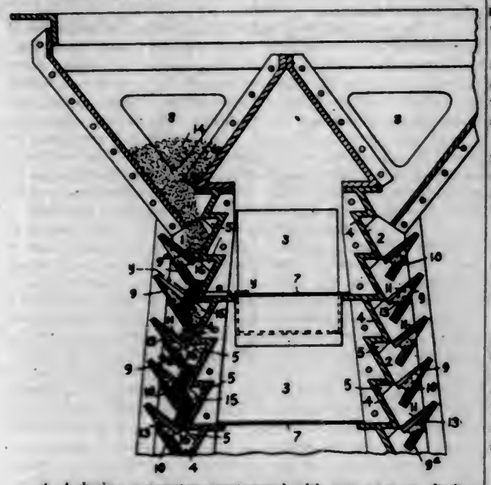
575,801. CHAR-DRIER. FRANCIS D. CANFIELD, Jr., Yonkers, N. Y. Filed Jan. 3, 1896. Serial No. 574,217. (No model.)

Claim.—1. A drying apparatus having one or more drying-chambers, with the outer wall of each chamber formed as a series of shelves, having vapor-escape flues which project into the space through which the descending char travels, substantially as described.

2. A drying apparatus having one or more drying-chambers, with the outer wall of each chamber formed as a series of shelves, having vapor-escape flues with convex tops contracted toward their inner ends, which project into the space through which the descending char travels, substantially as described.

3. A drying apparatus constructed with one or more drying-chambers, each provided with one side wall having overhanging portions forming reëntrant angles maintaining lateral spaces at one face of a layer of char or other substance passing through the drying-chamber, the opposing wall of said chamber having an open construction giving free air circulation to the char layer, combined with a series of flues having concaved lower faces and sustained in the path

of the char layer with their ends next the projecting angles of the reëntrant-angle wall of the drying-chamber and maintaining openings through and through the moving char layer for free escape of vapors from the reëntrant-angle spaces of the drying-chamber walls, substantially as described.



4. A drying apparatus constructed with one or more drying-chambers, each provided with one side wall having overhanging portions forming reëntrant angles maintaining lateral spaces at one face of a layer of char or other substance passing through the drying-chamber, the opposing wall of said chamber having an open construction, giving free air circulation to the char layer, combined with a series of flues having concaved lower faces and laterally-sloping upper faces and sustained in the path of the char layer with their ends next the projecting angles of the reëntrant-angle wall of the drying-chamber and maintaining openings through and through the moving char layer for free escape of drying-vapors from the reëntrant-angle spaces of the drying-chamber wall while laterally tumbling the char particles during their passage through the drying-chamber, substantially as described.

5. A drying apparatus having one or more drying-chambers, with the inner wall of each chamber formed as a series of reëntrant angles, and the outer wall of each chamber formed as a series of shelves having vapor-escape flues, which project into the space through which the descending char travels immediately below said reëntrant angles, substantially as described.

6. A drying apparatus having one or more drying-chambers, with the inner walls of each chamber formed of a series of reëntrant angles, and the outer wall of each chamber formed of a series of vapor-escape flues with convex tops contracted toward their inner ends, which project into the space through which the descending char travels below said reëntrant angles, substantially as described.

7. A drying apparatus having one or more chambers, with the inner walls of each chamber formed as a series of reëntrant angles, and the outer wall of each chamber formed as a series of shelves having vapor-escape flues, which project into the space through which the descending char travels, and said flues relatively staggered upon the succeeding shelves, substantially as described.

8. A drying apparatus having one or more drying-chambers provided with one inner side wall next a source of heat and having overhanging or reëntrant-angle portions maintaining lateral spaces behind a layer of char, or other substance descending through the drying-chamber, the opposing outer side wall of said chamber comprising a series of separated inclined plates giving free vapor and air circulation between them, and each provided with a series of vapor-escape flues projecting toward the inner side wall, and maintaining through the descending char layer a series of openings, establishing communication between the aforesaid inner lateral spaces behind the char layer and the atmosphere, substantially as described.

9. A drying apparatus having one or more drying-chambers provided with one inner side wall next a source of heat, and having overhanging or reëntrant angle portions maintaining lateral spaces behind a layer of char, or other substance descending through the drying-chamber, the opposing outer side wall of said chamber comprising a series of separated inclined plates giving free vapor and air circulation between them and each provided with a series of vapor-escape flues projecting toward the inner side wall, and maintaining through the descending char layer a series of openings, establishing communication between the aforesaid inner lateral spaces behind the char layer and the atmosphere, said flues having concavo-convex or sloping top walls which laterally tumble the descending char particles, substantially as described.

10. The combination in a drying apparatus of a zigzag wall 4, next a source of heat, an opposing wall formed of a series of inclined shelves carrying removable vapor-escape flues 11, which when in position project into the char space, substantially as described.

11. The combination, in a drying apparatus, of a zigzag wall 4, next a source of heat, and an opposing open wall comprising a series of inclined plates 9, having lower lateral portions 9^a, and provided with vapor-escape flues 11, sustained from the plate by parts 12, 13, substantially as described.

12. The combination in a drying apparatus of a zigzag wall 4, next a source of heat, an outer wall consisting of a series of inclined shelves, and a series of vapor-escape flues which project into the char-space, mounted on said shelves, and end walls for said drying-chambers having vapor-escape openings 5, substantially as described.

13. The combination, in a drying apparatus, with inclined plates forming one wall of a drying-chamber, of detachable flues applied to said wall-plates, and maintaining vapor-escape openings through a layer of char or other substance passing through the drying-chamber, substantially as described.

14. A drying apparatus having one or more drying-chambers provided at one side wall with reëntrant angles maintaining lateral spaces behind a layer of char, or other substance passing through the drying-chamber, the opposing wall of said chamber formed of a series of inclined plates, and detachable flues applied thereto, and maintaining vapor-escape openings through the layer of char, which communicate with the lateral spaces behind the char, substantially as described.

575,802. FASTENING DEVICE FOR CUFFS, &c. JAMES CLELAND, Ballinahinch, Ireland. Filed Aug. 7, 1896. Serial No. 601,973. (No model.)



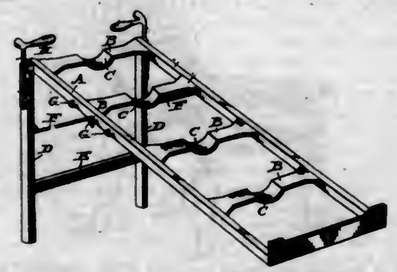
Claim.—1. A fastening device for cuffs and other articles, consisting of a disk or plate having a tubular shank on one side thereof, a cross-head provided with a shaft, which passes through said disk or plate, and through said tubular shank, a button or head provided with a tubular shank which is adapted to enter the tubular shank on the disk or plate, a spring mounted between the inner end of the tubular shank on the button or head, and the disk or plate, and a spiral coil or screw formed on the outer end of the shank which is connected with the cross-head, and which enters a chamber formed in said button or head, substantially as shown and described.

2. A fastening device for cuffs and other articles, consisting of a disk or plate having a tubular shank on one side thereof, a cross-head provided with a shaft, which passes through said disk or plate, and through said tubular shank, a button or head provided with a tubular shank which is adapted to enter the tubular shank on the disk or plate, a spring mounted between the inner end of the tubular shank on the button or head, and the disk or plate, and a spiral coil or screw formed on the outer end of the shank which is connected with the cross-head, and which enters a chamber formed in said button or head, said disk or plate being also provided on its outer side or surface with radial grooves or recesses, and said cross-head being provided at its ends with knobs which are adapted to rest therein, substantially as shown and described.

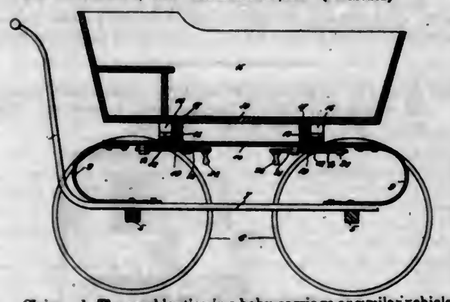
3. A fastening device for cuffs and other articles, consisting of a disk or plate having a tubular shank on one side thereof, a cross-head provided with a shaft, which passes through said disk or plate, and through said tubular shank, a button or head provided with a tubular shank which is adapted to enter the tubular shank on the disk or plate, a spring mounted between the inner end of the tubular shank on the button or head, and the disk or plate, and a spiral coil or screw formed on the outer end of the shank which is connected with the cross-head, and which enters a chamber formed in said button or head, said disk or plate being also provided on its outer side or surface with radial grooves or recesses, and said cross-head being provided at its ends with knobs which are adapted to rest therein, and the tubular shank on said disk or plate, being provided with side arms or braces, which connect therewith, and with said disk or plate, substantially as shown and described.

575,803. BOOK-SUPPORT. HERMAN C. COOK, Rosston, Pa. Filed July 28, 1896. Serial No. 600,831. (No model.)

Claim.—As an improved article of manufacture, a book-supporting device comprising side bars, cross-bars permanently connected thereto and between their ends provided with depressions upon curved lines, the lower cross-piece being extended vertically to form a book-supporting flange, uprights pivotally connected to the upper ends of the side pieces and hooks mounted thereon adapted to engage means on the side bars, sockets secured upon the outer faces of the uprights and hook-holding clasps mounted for rotation in said sockets and at their upper ends provided with thumb-levers, all substantially as described.



575,804. BABY-CARRIAGE. THOMAS A. EVANS, Jersey City, N. J. Filed Nov. 3, 1896. Serial No. 610,933. (No model.)



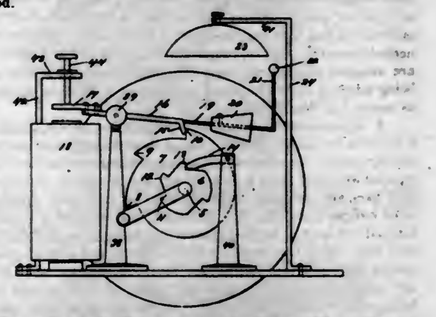
Claim.—1. The combination in a baby-carriage or similar vehicle, of a supporting plate or board, provided with transverse slots or openings, and supported by springs connected with the frame of the vehicle, a bed or body for the vehicle mounted above said supporting plate or board, and provided with rockers, springs connected with said rockers, and provided with transverse strips which are pivotally connected therewith, and adapted to be supported in said slots or openings, and on which the rockers are adapted to rest, and means for holding said strips in said slots or openings, substantially as shown and described.

2. The combination in a baby-carriage or similar vehicle, of a supporting plate or board, provided with transverse slots or openings, and supported by springs connected with the frame of the vehicle, a bed or body for the vehicle mounted above said supporting plate or board, and provided with rockers, springs connected with said rockers, and provided with transverse strips which are pivotally connected therewith, and adapted to be supported in said slots or openings, and on which the rockers are adapted to rest, and means for holding said strips in said slots or openings, consisting of locking-yokes, which are passed through keepers connected with the bottom of the supporting plate or board, substantially as shown and described.

3. The combination with the frame of a baby-carriage, or similar vehicle, of a suitable support connected therewith by means of springs, said support being provided with transverse slots or openings, a bed or body adapted to be supported thereover, and provided with rockers, which are adapted to pass through said slots or openings, said rockers being provided with spiral springs which are pivotally connected therewith and to the lower end of which are pivotally connected strips which are adapted to be supported in said slots or openings, substantially as shown and described.

575,805. ELECTRICAL SIGNAL SYSTEM. PAUL FREEMAN, New York, and RICHARD R. SLATER, Montrose, N. Y. Filed May 25, 1896. Serial No. 593,047. (No model.)

Claim.—1. In an electrical railway signal system, adapted for use in connection with a railway-track, which is divided into blocks or sections, the rails of which are insulated at the ends of said blocks or sections, the combination therewith, of a signal apparatus, one of which is located at the beginning of each block or section, said apparatus being provided with a plurality of longitudinal rows of springs which are arranged in pairs, and a shaft provided with wedges by which connection is made between the springs of each pair, said wedges and said springs being also insulated from each other and the springs of each pair being also provided with binding-posts, and magnets suitably mounted, and provided with an armature, which is connected with a lever, which is adapted to operate in connection with said shaft, or a ratchet-wheel mounted thereon, and means connected with said shaft for releasing or locking, locking-tappets, or similar devices which control the signal-levers, substantially as shown and described.



2. In an electrical railway signal system, adapted for use in connection with a railway-track, which is divided into blocks or sections, the rails of which are insulated at the ends of said blocks or sections, the combination therewith, of a signal apparatus, one of which is located at the beginning of each block or section, said apparatus being provided with a plurality of longitudinal rows of springs which are arranged in pairs, and a shaft provided with wedges by which connection is made between the springs of each pair, said wedges and said springs being also insulated from each other, and the springs of each pair being also provided with binding-posts, and magnets suitably mounted, and provided with an armature, which is connected with a lever, which is adapted to operate in connection with said shaft, or a ratchet-wheel mounted thereon, and means connected with said shaft for releasing or locking, locking-tappets or similar devices which control the signal-levers, said springs which are arranged in pairs being connected by suitable circuits, with batteries, and the apparatus at each block or section of the road being under the control of separate operators, substantially as shown and described.

3. In an electrical railway signal system, the combination with the rails of a track, which are divided into blocks or sections, the rails of each block or section being insulated from those of the adjoining blocks or sections, and each block or section being also provided with a short insulated section at the beginning thereof, of a signal apparatus which is placed adjacent to the signal-towers, one of which is arranged adjacent to the end of each block or section, each of said signal apparatus being the same in construction, and each being provided with a revoluble shaft, which can turn in but one direction, each being also provided with a set of controller-magnets, and with a plurality of rows of springs, which are arranged in pairs, and insulated from their supports, each spring being also provided with a binding-post, and said shafts being provided with wedges, which are adapted to connect the springs of each pair, and said magnets being also provided with an armature, which is provided with a dog, which operates in connection with a wheel mounted on said shaft, and provided with teeth which correspond in number with the rows of springs, and said binding-posts of the separate apparatus being connected by suitable conductors, and being also in connection with the rails of the main blocks or sections, and with the short insulated blocks or sections, substantially as shown and described.

4. In an electrical railway signal system the combination with the rails of a track, which are divided into blocks or sections, the rails of each block or section being insulated from those of the adjoining blocks or sections, and each block or section being also provided with a short insulated section at the beginning thereof, of a signal apparatus which is placed adjacent to the signal-towers, one of which is arranged adjacent to the end of each block or section, each of said signal apparatus being the same in construction, and each being provided with a revoluble shaft, which can turn in but one direction and being also provided with a set of controller-magnets, and with a plurality of rows of springs which are arranged in pairs, and insulated from their supports, each spring being also provided with a binding-post, and said shafts being provided with wedges, which are adapted to connect the springs of each pair, and said magnets being also provided with an armature which is provided with a dog, which operates in connection with a wheel mounted on said shaft, and provided with teeth which correspond in number with the rows of springs, and said binding-posts of the separate apparatus being connected by suitable conductors, and being also in connection with the rails of the

main blocks or sections, and with the short insulated blocks or sections, and said apparatus being each also in connection with home and distant signals, substantially as shown and described.

5. In an electrical railway signal apparatus, the combination with a suitable frame, of a shaft passing therethrough, and revolving in one direction, a plurality of suitably-supported insulated bars mounted parallel with said shaft, a plurality of pairs of springs, connected with said bars, and pointing in the direction of said shaft, suitably-insulated wedges connected with said shaft, and adapted to contact with said pairs of springs, binding-posts connected with each of said springs, said shaft being also provided with a crank, and a locking-rod connected therewith, said locking-rod being composed of sections, which are adapted to slide one upon the other, and one of said sections being adapted to be connected with the signal devices, substantially as shown and described.

6. In an electrical railway signal apparatus, the combination with a suitable frame, of a shaft passing therethrough, and revolving in one direction, a plurality of suitably-supported insulated bars mounted parallel with said shaft, a plurality of pairs of springs, connected with said bars, and pointing in the direction of said shaft, suitably-insulated wedges connected with said shaft, and adapted to contact with said pairs of springs, binding-posts connected with each of said springs, said shaft being also provided with a crank, and a locking-rod connected therewith, said locking-rod being composed of sections, which are adapted to slide one upon the other, and one of said sections being adapted to be connected with the signal devices, said frame being also provided with magnets, and a suitably-supported lever, on one end of which is mounted an armature, adapted to operate in connection with said magnets, said lever being provided with a dog which is adapted to operate in connection with a number of teeth formed on a wheel mounted on said shaft, substantially as shown and described.

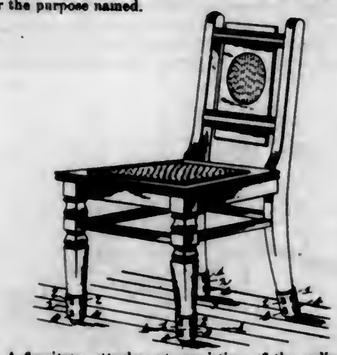
7. In an electrical railway signal apparatus, the combination with a suitable frame, of a shaft passing therethrough, and revolving in one direction, a plurality of suitably-supported insulated bars mounted parallel with said shaft, a plurality of pairs of springs, connected with said bars, and pointing in the direction of said shaft, insulated wedges connected with said shaft and adapted to contact with said pairs of springs, binding-posts connected with each of said springs, said shaft being also provided with a crank, and a locking-rod connected therewith, said locking-rod being composed of sections, which are adapted to slide one upon the other, and one of said sections being adapted to be connected with signal devices, said frame being also provided with magnets, and a suitably-supported lever, on one end of which is mounted an armature, adapted to operate in connection with said magnets, said lever being provided with a dog which is adapted to operate in connection with a number of teeth formed on a wheel mounted on the shaft, and said lever being also weighted at the end opposite the armature and provided with an arm having a clapper or knocker mounted thereon, which is adapted to operate in connection with a bell or gong, substantially as shown and described.

8. In an electrical railway signal apparatus, the combination with a suitable frame, of a shaft passing therethrough, and revolving in one direction, a plurality of suitably-supported insulated bars, mounted parallel with said shaft, a plurality of pairs of springs connected with said bars, and pointing in the direction of said shaft; suitably-insulated wedges, connected with said shaft, and adapted to contact with said pairs of springs, binding-posts connected with each of said springs, said shaft being also provided with a crank, and a locking-rod connected therewith, and said locking-rod being adapted to be connected with the signal device, and an indicator connected with said shaft which is designed to indicate the position of the blocks or section, substantially as shown and described.

9. In an electrical railway signal apparatus, the combination with a suitable frame, of a shaft passing therethrough, and revolving in one direction, a plurality of suitably-supported insulated bars mounted parallel with said shaft, a pair or pairs of springs connected with said bars, and pointing in the direction of said shaft, suitably-insulated wedges connected with said shaft, and adapted to contact with said pairs of springs, binding-posts connected with each of said springs, said shaft being also provided with a crank, and a locking-rod connected therewith, and adapted to operate signal devices, said locking-rod being composed of separate sections, and adapted to operate by gravity, and said shaft being also provided with an indicator, which is designed to indicate the condition of the blocks or sections of the track, substantially as shown and described.

575,806. FURNITURE ATTACHMENT. EDWARD A. GARVEY, Credit River, Minn. Filed July 18, 1896. Serial No. 599,734. (No model.)

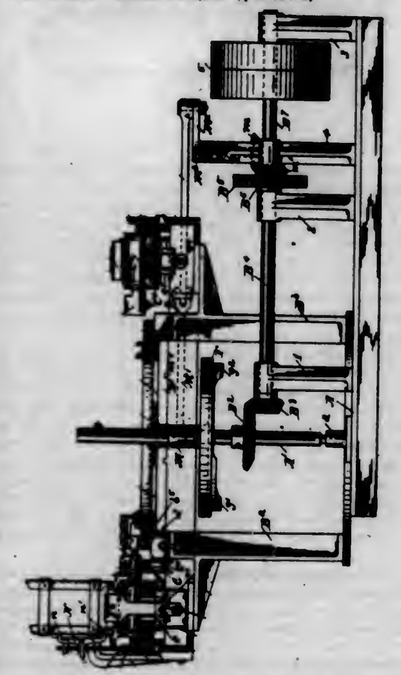
Claim.—1. A furniture attachment consisting of the cylindrical body, having formed integrally therewith, inwardly-inclined arms and the inwardly-extending friction-points, substantially as described and for the purpose named.



2. A furniture attachment consisting of the cylindrical body, having the inwardly-inclined arms; the inwardly-extending friction-points, and the rubber cushion mounted in the lower end, substantially as described and for the purpose named.

3. An article of manufacture, consisting of the body 1, friction-points and spring-arms attached to said body and a rubber cushion mounted in the lower end of the body, as and for the purpose set forth.

575,807. CAN-SOLDERING MACHINE. AXEL JOHNSON, Oakland, Cal., assignor of two-thirds to Charles Josselyn, Woodside, Cal. Filed Nov. 11, 1896. Serial No. 568,542. (No model.)



Claim.—1. In a machine for soldering the side seam of cans, the combination with a rotatable can-carrying table having a series of can-openings cut therein, of the clamping-disks secured and working within the can-openings of the rotatable can-carrying table for holding the can therein, of devices for moving the clamping-disks toward and from each other so as to clamp and release the can, of mechanism for imparting a step rotation to the can-carrying table, and the flux-applying and soldering mechanism.

2. In a machine for soldering the side seam of cans, the combination with the rotatable can-carrying table having a series of can-openings cut therein, of the clamping-disks located within the can-openings of the rotatable can-carrying table for holding of cans therein, devices for moving one of said clamping-disks toward and from the end of the can and devices for rotating the opposite disk in order that the can may be rotated so as to bring the side seam in line with the soldering-irons, of a movable finger with which the side seam of the can engages when in proper position, and of the flux-applying and soldering mechanism.

3. In a machine for soldering the side seam of cans, the combination with the rotatable can-carrying table, of a series of can-openings cut therein, of movable devices for holding the cans within the can-openings while being soldered and releasing the same after being soldered, of mechanism for imparting a step rotation to the can-carrying table, and of the flux-applying and soldering mechanism.

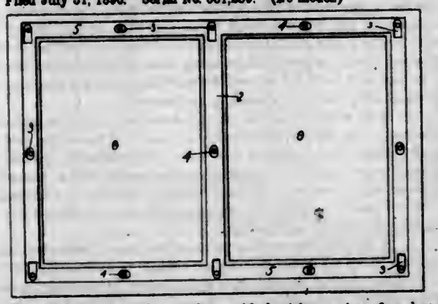
4. In a machine for soldering the side seam of cans, the combination with the rotatable can-carrying table having a series of can-openings cut therein, of the clamping-disks secured within the can-openings, of devices for moving the clamping-disks so as to grasp and release the cans, of the clamping-jaw working within the can-opening of the can-carrying table, devices for throwing the clamping-jaw toward and from the can, mechanism for imparting a step rotation to the can-carrying table, and of the flux-applying and soldering mechanism.

5. In a can-soldering machine, the combination with the soldering mechanism, of the wire-solder-feed mechanism, the knife for cutting the solder, the shield upon which the cut piece of solder falls, and the guard-plate which receives the cut piece of solder and places the same upon the seam of the can.

6. In a machine for soldering the side seam of cans, the combination with the feed-chute for the cans, of the rotatable can-carrying table, mechanism for imparting a step rotation to the can-carrying table, a series of can-openings cut in the can-carrying table, devices located within said can-openings which hold the cans therein and revolve the same so as to place the side seam in position to be acted upon by the soldering-irons, of a device for engaging the side seam of the can so as to hold the can in proper position, and of the flux-applying and soldering mechanism.

7. In a machine for soldering the side seam of cans, the combination with the can-feed chute, of the rotatable can-carrying table, of a series of can-openings cut in the can-carrying table, the can-rest secured below the can-carrying table in line with the feed-chute for supporting the can as received from the can-feed chute into the can-opening of the can-carrying table, of devices for engaging the can and securing the same within the can-opening of the can-carrying table, and of mechanism for imparting a step rotation to the can-carrying table.

575,808. WINDOW-SASH. ALONZO D. NELSON, Costello, Pa. Filed July 31, 1896. Serial No. 601,259. (No model.)



Claim.—1. In a window-sash provided with a series of pockets, the combination with a window-pane, of a fastening-strip abutting on the pane and having lugs that are provided with screw-threaded pockets, said lugs projecting into the pockets of the sash, and screws passing through the sash and into the pockets of the lugs.

2. In a widow-sash provided with a series of pockets, the combination with a window-pane, of a fastening-strip having a depending portion which abuts against the pane, a strip of packing connected to said depending portion, lugs connected to the strips and provided with screw-threaded pockets, said lugs projecting into the pockets of the sash and screws passing through the sash and into the pockets of the lugs.

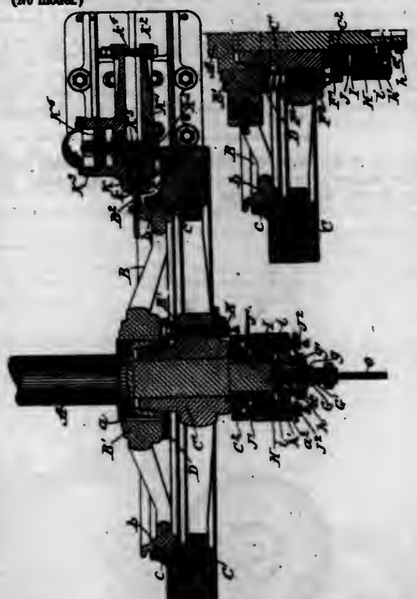
575,809. COMBINED BOOK AND PURSE. JOHN B. O'RIVA, New York, N. Y. Filed June 19, 1896. Serial No. 596,172. (No model.)

Claim.—1. The combination with a book having a recess in the cover thereof, of a sliding receptacle for engagement with said recess, said receptacle having a tongue connected therewith which is cemented to the inner surface of the cover, substantially as shown and described.

2. The combination of a book having a recess formed in the cover thereof and a sliding receptacle located within said recess, said receptacle comprising a flat plate having a folded end wall and folded side walls thereon, and a tongue which is cemented to the inner surface of the cover of a book, and a spring for automatically distending the said walls, substantially as shown and described.



575,810. STARTING OR STOPPING MECHANISM. CHARLES DE LOS RIOS, Hartford, Conn. Filed Feb. 5, 1896. Serial No. 578,069. (No model.)



Claim.—1. In a clutch mechanism, the combination with a driven part and a driver movable into or out of working contact, a brake for said driven part, a hydraulic piston and cylinder for operating said brake, a hydraulic piston and cylinder to press said driver and driven part into working contact, a single valve and independent connections to said cylinders, and means to actuate said valve whereby pressure may be applied to one or the other of said pistons, substantially as shown and described.

2. In a clutch mechanism, the combination with a driven part and a driver movable into or out of working contact, a brake for said driven part, a hydraulic piston and cylinder for operating said brake, a hydraulic piston and cylinder to press said driver and driven part into working contact, a single valve and independent connections to said cylinders, a lever for shifting said valve to admit pressure to one or the other of said cylinders and means actuated by said driven part to shift said lever, substantially as shown and described.

3. The combination with a shaft, a hydraulic piston and cylinder to control the movement of said shaft, a valve and connections to control the application of pressure to said piston, a lever connected to said valve to shift the same and an eccentric projection carried by said shaft and adapted to shift said lever as the shaft is rotated, substantially as shown and described.

4. The combination with a valve having a shifting lever connected thereto, of a longitudinally-reciprocating rod free to swing and having a projection to engage said lever and means to swing said rod into or out of proximity to said lever, substantially as shown and described.

5. The combination with a valve having a shifting lever connected thereto, of a longitudinally-reciprocating rod free to swing and

having a projection to engage said lever, a slide to which said rod is connected, a spring connected to said slide to swing said rod away from said lever, and means to swing said rod toward said lever, substantially as shown and described.

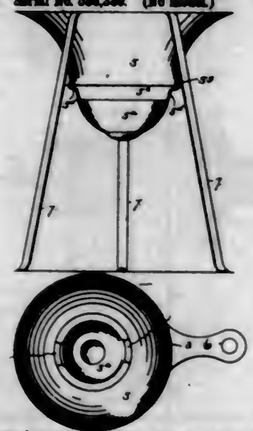
6. The combination with a valve having a shifting lever connected thereto, of a longitudinally-reciprocating rod free to swing and having a projection to engage said lever, a treadle and connections to swing said rod toward said lever, and a spring interposed in said connections whereby said rod is permitted to yield, substantially as shown and described.

7. The combination with a wheel mounted to rotate and a relatively short plate secured thereto parallel with the plane of rotation, of brake-jaws arranged on opposite sides of the path of said plate and means to force said jaws together to clamp said plate between them, substantially as shown and described.

8. The combination with a wheel mounted to rotate and a plate secured thereto parallel with the plane of rotation, of brake-jaws arranged on opposite sides of the path of said plate, a hydraulic cylinder carried by one of said jaws and a piston and connection to the other of said jaws whereby said jaws may be forced together to clamp said plate between them, substantially as shown and described.

9. The combination with a wheel mounted to rotate and a plate secured thereto parallel with the plane of rotation, of a standard fixed in proximity to said wheel, a brake-jaw rigidly supported by said standard, a movable brake-jaw supported by said standard, said brake-jaws being adapted to clamp said plate between them, a cylinder carried with said rigid brake-jaw, and a piston for said cylinder connected to said movable jaw, substantially as shown and described.

575,811. EGG-SEPARATOR. FREDERICK H. SMITH, Denver, Colo., assignor of one-half to Douglas D. Merritt, same place. Filed Apr. 6, 1896. Serial No. 586,289. (No model.)

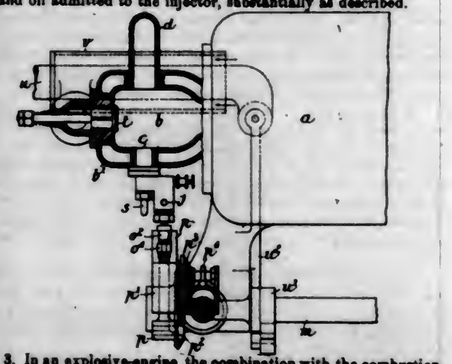


Claim.—As an improved article of manufacture the egg separator herein described comprising a receptacle 5, having a cell 5^a in its bottom and one or more slots 5^c formed between the cell and the upper part of the device, said slot or slots extending nearly around the device, the separator being so shaped that the diameter of the device measured across the lower edge of the slots is considerably less than when measured at the upper edge of the slots, whereby the latter have considerable width in a horizontal plane, the lower edge of the slots being straight and the upper edge being bent outwardly to facilitate the escape of the white portion of the egg substantially as described.

575,812. EXPLOSIVE-ENGINE. FREDERICK C. SOUTHWELL, Grantham, England. Filed May 13, 1895. Serial No. 549,122. (No model.)

Claim.—1. In an explosive-engine, the combination with the combustion-chamber, an injector communicating therewith, means for supplying oil to said injector, an air-supply for said injector, an operating device operated by the engine for intermittently admitting air and oil to said injector, a governor operated by the engine and an operative connection between the said operating device and the governor for varying the amount of air and oil admitted to the injector, substantially as described.

2. In an explosive-engine, the combination with the combustion-chamber, of an injector communicating therewith, an oil-supply communicating with said injector provided with a movable controlling-valve, an air-supply communicating with said injector and provided with a controlling device, an operating-shaft driven by the engine, operative connections between said shaft and the controlling devices for the oil and air supplies, a governor operated by the engine, operatively connected with said connecting devices for varying the amounts of air and oil admitted to the injector, substantially as described.



3. In an explosive-engine, the combination with the combustion-chamber, of an injector communicating therewith, an oil-supply for said injector provided with a controlling-valve, an air-supply for said injector provided with a controlling device, an operating-shaft driven by the engine and provided with a cam, a lever in the path of said cam operatively connected with the controlling devices for the oil and air supplies, a governor operated by the engine and an operative connection between the governor and said lever substantially as described.

4. In an explosive-engine the combination with the combustion-chamber, of an injector communicating therewith, air and oil inlets for said injector and controlling devices for said inlets, an operating-shaft driven by the engine, a pivoted lever operatively connected with said controlling devices and adapted to engage a part connected with said shaft, a movable support carrying the fulcrum of said lever, a governor operated by the engine, and operative connections between the governor and said movable support for shifting the fulcrum of said lever to vary the movements of said controlling devices, substantially as described.

5. In an explosive-engine the combination with the combustion-chamber, of an injector therefor, an oil-supply for said injector provided with a controlling-valve, an air-pump communicating with said injector, a cam-shaft driven by the engine, a lever operatively connected with the oil-controlling valve and with said air-pump, said lever having a part in operative relation to said cam-shaft, a governor operated by the engine and operating connections between the governor and said lever for varying the movements of said air-pump and oil-controlling valve, substantially as described.

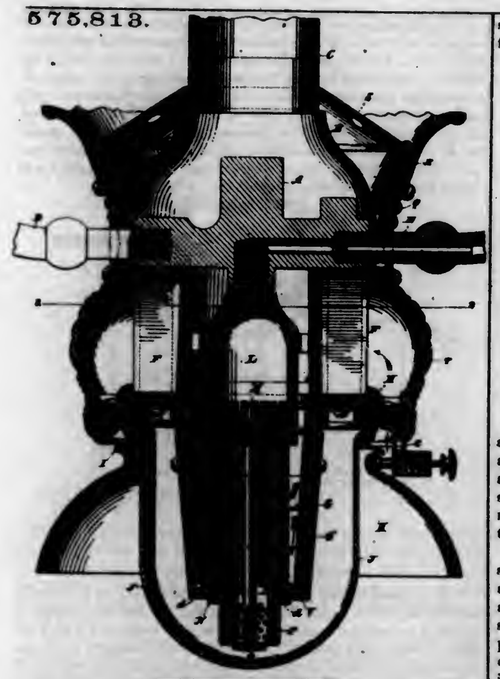
6. In an explosive-engine, the combination with the combustion-chamber, of an oil-supply therefor, a controlling-valve for said oil-supply, means for operating said valve intermittently, including a pivoted lever, a governor operated by the engine, and a connection between said governor and the fulcrum of said lever, whereby the stroke of said lever and the movement of said controlling-valve are varied, substantially as described.

7. In an explosive-engine the combination with the combustion-chamber, of an oil-supply therefor provided with a controlling device, an air-pump communicating with said injector, a cam-shaft operated by the engine, an operating-lever pivoted to a movable support having a part engaging the cam on the cam-shaft, and parts operatively connected with said air-pump and the oil-controlling device, a governor operated by the engine, and a connection between said governor and the said movable support, whereby the fulcrum of said lever may be changed to vary the amount of oil and air admitted to the injector, substantially as described.

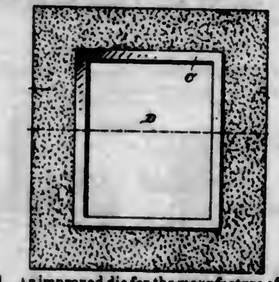
575,818. LAMP. MERRON P. STEVENS, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, New York, N. Y. Filed Mar. 20, 1896. Serial No. 584,021. (No model.)

Claim.—The combination of a distributing expansion-chamber, burner-tubes spaced apart and entered into the expansion-chamber for a portion of their length, a spreader extending from within the circle formed by the burner-tubes to a level below the lower end of the burner-tubes, a removable combined reflector and casing surrounding the said burner-tubes and extending to a point at or near the lower ends thereof, and air-ducts leading into the combined reflector and casing, whereby the gas may be evenly distributed to the flame by the distributing expansion-chamber and both sides of the flame be fed with air from the inside of the reflector, the air contacting with the expansion-chamber on its passage into the lamp and passing around the outside of the reflector on its passage from the lamp, substantially as described and for the purposes set forth.

575,813.



575,814. DIE FOR MANUFACTURING CARDS FOR PHOTOGRAPHIC MOUNTS. PAUL J. STUPARICH, San Francisco, Cal. Filed Oct. 21, 1896. Serial No. 609,554. (No model.)



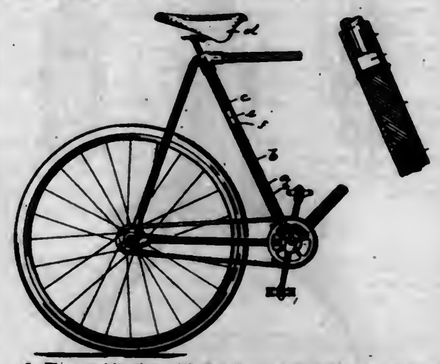
Claim.—1. An improved die for the manufacture of photographic mounts and art-panels, consisting of a card or base having a central panel-space, a separate roughened surface secured to said card or base and a separate hard rim surrounding the periphery of the panel-space and secured to said card or base.

2. A die for the production of photographic card-mounts and art-panels, consisting of a card or base having an independent surface of roughened material secured thereto, a central panel formed by removing a portion of the roughened material, and a previously-formed and separate hard rim disposed around the periphery of the panel, whereby an exterior roughened surface and interior panel and intermediate depressed channel are formed upon the card when exposed to the pressure of the die.

575,815. BICYCLE. WALTER TODD, Paterson, N. J. Filed June 29, 1896. Serial No. 597,329. (No model.)

Claim.—1. The combination with the diagonal of a bicycle, of a spiral spring in said diagonal, a longitudinally-slotted saddle-post slidingly arranged in said diagonal and resting on said spring, and a pin penetrating the slot in the saddle-post and adjustably secured in the diagonal to thus allow an adjustment of the spiral spring, substantially as described.

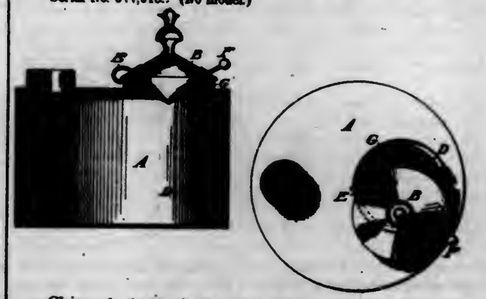
2. The combination with the diagonal of a bicycle, of a spiral spring in said diagonal, a saddle-post slidingly arranged in said diagonal and resting on the spiral spring, and provided with an elongated slot, a pin penetrating the slot and adjustably secured in the diagonal to thus allow an adjustment of the spiral spring, and a spiral spring within the slot and bearing on said pin, substantially as and for the purposes described.



3. The combination with the diagonal of a bicycle, of a spiral spring in said diagonal, a longitudinally-slotted saddle-post slidingly arranged in said diagonal, said diagonal being provided with slots arranged diametrically opposite and in alinement with the slot in the saddle-post, and a pin vertically adjustable in the slots of the diagonal and penetrating the slot in the saddle-post, all said parts, substantially as and for the purposes described.

4. The combination with the diagonal of a bicycle, of a spiral spring in said diagonal, a longitudinally-slotted saddle-post slidingly arranged in said diagonal, said diagonal being provided with slots arranged diametrically opposite and in alinement with the slot in the saddle-post, a pin vertically adjustable in the slot of the diagonal and penetrating the slot in the saddle-post, and a spiral spring in the slot of the saddle-post and bearing against its upper end and the penetrating pin respectively, all said parts, substantially as and for the purposes described.

575,816. STOVE. OTTAWA H. VAN GILDER, Borden, Ind., assignor of one-half to Harman Shoemaker, same place. Filed Feb. 3, 1896. Serial No. 577,915. (No model.)



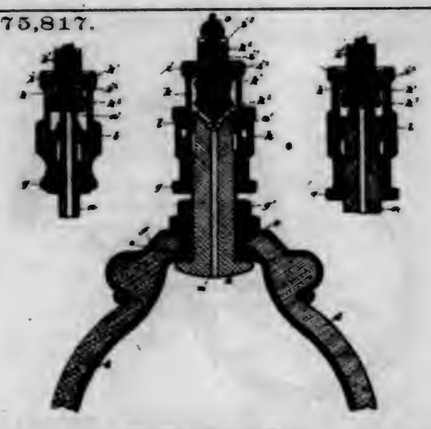
Claim.—1. A stove having a level top supporting a flanged ring sufficiently large to permit the insertion of fuel, through it into the stove; the said ring supporting a combined lid and damper with a conical base, and attached to said ring by a hook, which passes around the flange of the ring, and permits a rotary motion of the damper around its center and likewise around the hook as a pivot, all substantially as described.

2. The drum-stove A with level top through which is a large circular opening, surrounded by a flanged ring G upon which rests a combined door and damper B, with a conical base, a hook E attaching it to said flanged ring, but allowing a free rotatory movement, a handhold F for actuating said damper, all substantially as described.

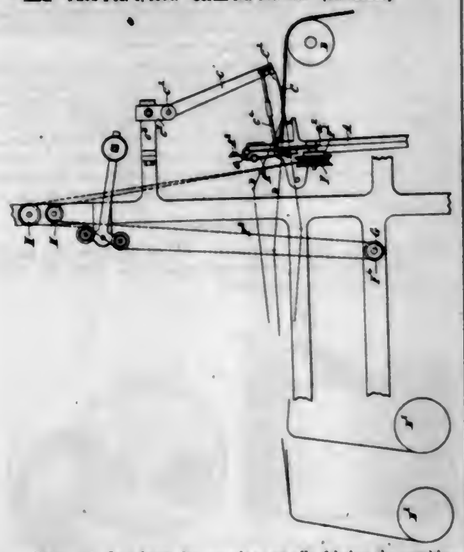
575,817. VALVE FOR TIRES OF VELOCIPEDES. FRIEDRICH VEITH, Offenbach-on-the-Main, Germany. Filed Oct. 2, 1896. Serial No. 607,644. (No model.)

Claim.—In a cycle-wheel valve, the combination of the valve proper *k* placed externally upon a hollow stem *a* with the nut or sleeve *g* embracing the said stem *a* and with a casing or nut *i* bearing against the said nut or casing *g* and an intermediate packing *l* all arranged so that on a stem or socket of small diameter a comparatively large valve is applied and so that the entire casing can after pumping be screwed toward the escape-opening or valve-seat *a'* of the stem, thereby producing a perfect and durable closure by the inner end k^4 of the valve

575,817.



575,818. PILE-FABRIC LOOM. ALBERT WEBB, Worcester, England. Filed Feb. 8, 1896. Serial No. 578,510. (No model.)



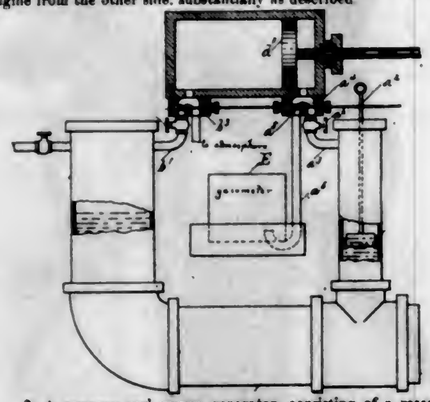
Claim.—1. In a loom for weaving cut-pile fabrics, the combination with the slay and harness, of a set of pile-wires arranged lengthwise of the loom, a bar carrying said wires and connected with and deriving motion from the slay, a false reed carried by the slay and means of giving a transverse reciprocating motion to said reed relatively to the slay for deflecting the face warp-threads as actuated by the harness to the right and left of said wires to lay pile-loops thereon, and an automatic cutting device for disengaging the woven fabric from the pile-wires, substantially as herein described.

2. The combination with the slay, of the rock-shaft c' arranged transversely in the loom and fixed bearings c^3 for said rock-shaft, the arms c attached to said rock-shaft, the clamping-bar C carried by said arms, the pile-wires C carried by said bar, and links connecting said arms with the slay to give motion to said bar and the pile-wires; substantially as herein described.

575,819. POWER AND HEAT GENERATOR. GEORGE WHITE, Jersey City, N. J., assignor to James R. Hatmaker, New York, N. Y. Filed Mar. 28, 1896. Serial No. 585,209. (No model.)

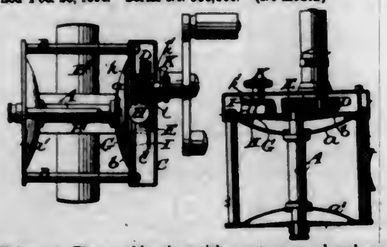
Claim.—1. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a tubular connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air in the other of said reservoirs, and by the expansive property of the gas to condense the air, in the other of said reservoirs, substantially as described.

2. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a tubular connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air in the other of said reservoirs, and by the expansive property of the gas to condense the air, and means to expand the air thus condensed through an engine to operate the same from one side, and means to expand such gas thus generated through said engine from the other side, substantially as described.



3. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a tubular connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air into the other of said reservoirs and by the expansive property of the gas to condense air, and means to expand the air thus condensed through an engine, to operate the same from one side, and means to expand said gas thus generated through said engine from the other side, and to exhaust said gas from the engine into a gasometer, substantially as described.

575,820. FISHING-REEL. CHARLES F. WILSON, Brooklyn, N. Y. Filed Feb. 26, 1896. Serial No. 580,880. (No model.)

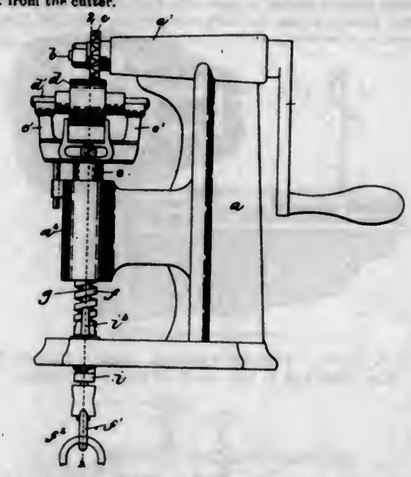


Claim.—1. The combination with a rotary spool and means for operating it, of a roller free to travel in a curved path along the end of the spool, and a spring adapted to press the roller toward the end of the spool, the said spring being so arranged that the rotary movement of the spool in one direction tends to wedge the roller between the spring and the spool and its motion in the opposite direction tends to set the roller free, substantially as set forth.

2. The combination with a rotary spool and means for operating it, of a roller free to travel in a curved path along the end of the spool, a spring adapted to press the roller toward the end of the spool and means for adjusting the spring toward and away from the end of the spool, substantially as set forth.

575,821. PINKING-MACHINE. HAROLD F. BLAKE, Haverhill, Mass. Filed Dec. 4, 1893. Serial No. 492,712. (No model.)

Claim.—1. In a pinking-machine, the combination of the supporting-frame having a fixed bearing a' and a fixed guide a^3; a shaft b journaled in said bearing and provided with a rotary cutter having isolated cutting-dies formed to cut through a piece of work; a slide e fitted to move in said guide; a bed-roll affixed to a shaft supported by bearings on said slide; a spring f interposed between the slide and an adjustable support i on the frame of the machine and acting to press the bed-roll against the cutter; and a downwardly-projecting rod affixed to the slide, whereby the latter may be depressed to separate the bed-roll from the cutter and permit the separation of the work from the cutter.



2. In a pinking-machine, the combination with a rotary cutter having projecting dies, of a segmental adjustable stripper having its outer portion located outside the circle of the outer ends of the dies and its inner end within said circle, whereby the stripper is enabled to separate from said dies the material pinked or perforated thereby, as set forth.

3. In a pinking-machine, the combination with a rotary wheel having projecting dies, of a segmental adjustable stripper composed of two parts or prongs located at opposite sides of the dies, the outer portion of the stripper being outside of the circle of the outer end of the dies while the acting ends of said prongs are within said circle, as set forth.

4 In a pinking-machine, the combination of the pinking-wheel having projecting dies, the fixed stripper composed of the parts 2 3 adjustable toward and from each other, and means for adjusting said stripper, the outer portion of the stripper being outside the circle of the outer ends of the dies, and its inner end within said circle, as set forth.

575,822. GARMENT-HOOK. CHARLES C. BLOMSOM, Brooklyn, N. Y. Filed Jan. 31, 1896. Serial No. 577,544. (No model.)



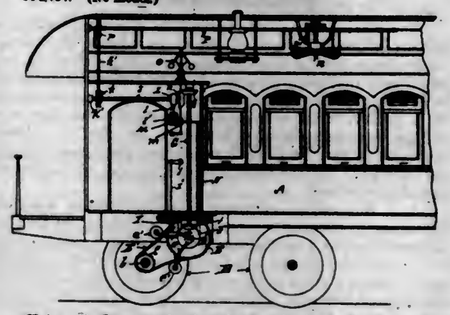
Claim.—1. As a new article of manufacture, a garment-hook consisting of a three-barred shank provided with loops for attachment, the said hook having its free end curved in a forward direction and a bow which is extended from the inner bar of the said shank to a distance coincident with the end of said hook, said bow being extended in a rearward direction from the bend of said hook and from the curve of its free end respectively, substantially as shown and described.

2 The combination of a three-barred shank having loops thereon and a hook proper which is extended parallel with the two side bars of the said shank which has its free end bent outwardly forming a guard thereon; with a rearwardly-directed spring-bow which is projected from the central bar of the shank and which has its free end extended forwardly to meet the curve of the bend of the hook for the purpose of affording free inlet of an eye to the hook, said end terminating upon a line to the rear of the onter end of the hook but not back or to the rear of the curved inner surface thereof, whereby when the bow is operated, its free end will not be forced beyond the end of the said hook, substantially as shown and described.

3. In a garment-hook, the combination of the hook proper having a guard to protect the garment from contact with the free end of the bow said guard being formed by bending the free end of the hook outwardly; with the three-barred shank and the two loops, said three-barred shank having a spring-bow projected rearwardly from the bend of the lower end of its inner bar, which bow does not contact with the said bar and has its free end projected outwardly to the inner edge of the curve of the hook, which end terminates back of the line of the outer edge of the hook, whereby it will not be permitted to pass beyond the end of the hook when being operated, and contact with the surface of the garment being hooked will be obviated, substantially as shown and described.

4. In a garment-hook, the combination of the three-barred shank, with the two loops and a hook having its free end curved in a forward direction, and the bow which is extended from the inner bar of the shank coincident with the bend of the said hook, the said bow being extended in a rearward direction respectively from the bend of the hook and from the curve of its free end, substantially as shown and described.

575,823. MECHANISM FOR VENTILATING RAILWAY PASSENGER-CARS. HERBERT P. CALDWELL, Irvine, Pa., assignor of one-half to Hyatt W. Need, same place. Filed June 8, 1896. Serial No. 594,757. (No model.)



Claim.—1. In a mechanism for ventilating railway passenger-cars, a vertical shaft, a bevel friction-pulley on the upper end of said shaft, a horizontal shaft, a bevel friction-pulley on said shaft adapted to engage and be driven by the friction-pulley on the vertical shaft, a bearing for said horizontal shaft adjacent to the friction-pulley thereon, a piston operating in a cylinder for supporting said bearing, a pipe communicating with the air-brake pipe supplying air to said cylinder under said piston, an escape-valve on said cylinder, and a rotating governor for operating said valve, substantially as and for the purpose set forth.

2. The combination in a mechanism for ventilating railway passenger-cars, of a sprocket-wheel C on one of the truck-axles, a sprocket-chain E' running to and driving a sprocket-wheel E on a transverse shaft D' on the car-body, a spring-actuated tightener e' on said sprocket-chain, bevel friction-pulleys F F' on said shaft, a vertical shaft G having a bevel friction-pulley f thereon adapted to be alternately actuated by the pulleys F F', means for moving the shaft D' longitudinally in its bearings, a bevel friction-pulley g on the upper end of the shaft G, a horizontal shaft J, a bevel-pulley on the end of said shaft adapted to engage and be actuated by the friction-pulley g, a bearing L for said shaft J adjacent to the friction-pulley K thereon, air-actuated piston mechanism supporting said bearing, escape-valve mechanism m on said air-cylinder, and governor mechanism O for actuating said valve, a driving-belt pulley k on said shaft J, a fan-driving shaft P, belt connection k' between the shaft J and the shaft P, ventilating-fans R in the upper part of the car, and driving-belt mechanism connecting said fans with the fan-driving shaft P, substantially as and for the purpose set forth.

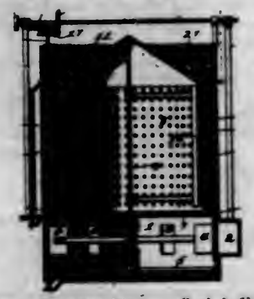
3. The combination, with two driving-shafts, intergearing friction-wheels secured on the said shafts, and a fan operated by the said parts; of a stationary air-cylinder provided with a piston and a piston-rod, a bearing for one of the said shafts carried by the said rod, and a compressed-air-supply pipe connected to the said cylinder, whereby the said wheels are pressed into driving contact, substantially as set forth.

575,824. DUST ARRESTER AND COLLECTOR. JOHN M. CASE, Cincinnati, Ohio. Filed July 3, 1896. Serial No. 598,016. (No model.)

Claim.—1. A dust-catcher comprising a stationary wall of air-filtering material through which the dust-laden air is passed and an agitating device located within the said wall in a restricted portion thereof for separating the dust taken up by the wall from the latter; substantially as described.

2. A dust-catcher comprising a filtering-body through which the dust-laden air is forced and by which the dust in said air is arrested, an agitator, located within the said filtering-body in a restricted portion thereof for agitating the component parts of the filtering-body

surrounding it, to permit the escape of the dust arrested thereby, and means for producing a relative movement between the agitator and the body of filtering material, whereby all parts of the latter are successively relieved of their dust, as explained.



3. A dust-catcher comprising a wall of air-filtering material, an agitator located within and operating upon a restricted portion of the filtering material to produce relative movement between the component parts and release the arrested material therefrom and permit its discharge by the current of air, a conducting-passage corresponding in position to the agitator and receiving and conducting away the dust released by the latter, and means for effecting a relative movement between the body of material and the agitator and conducting-passage whereby all parts of said material are successively treated, as explained.

4. A dust-catcher comprising a settling-chamber, means for delivering a current of dust-laden air into said settling-chamber in a manner to produce a vortical movement and cause the settling of the larger particles suspended in the air, a filtering-wall through which the air bearing the finer particles is subsequently forced and by which said finer particles are removed from the air as explained, and an agitator located within the wall in a restricted portion thereof.

5. In a dust-catcher, the combination of a circular chamber having double perforated walls, a body of filtering material located between said walls, an agitator comprising a shaft having projections which tend to feed the material relatively to the shaft when the latter is rotated and means substantially as described for rotating said shaft as explained.

6. In a dust-catcher, the combination of a circular chamber formed of double perforate walls and having a space between them filled with a filtering medium made up of small component parts, a shaft mounted concentrically in said chamber and a shaft projecting radially from said concentric shaft, projecting into the body of filtering material, having projections which agitate said material, and adapted to be moved progressively through said material, by the concentric shaft, as explained.

7. In a dust-collector the combination of a chamber formed of double walls perforated for the escape of air from the chamber and having a space between them filled with a filtering medium made up of small parts, a shaft mounted to rotate concentrically in the chamber, an agitator geared to the concentric shaft and projecting radially from the same, into the body of filtering material between the walls, and provided with projections which cause a progressive movement of the shaft through the material when rotated, as explained.

8. In a dust-collector the combination of a chamber formed with double walls perforated for the passage of air through them and having a space between them filled with a filtering medium of small component parts, a central shaft in the chamber, an agitating-shaft receiving movement from the central shaft and projecting from the latter into the body of filtering material and a brush moving over the face of the inner wall of the chamber to clear the same and receiving motion from said central shaft, as explained.

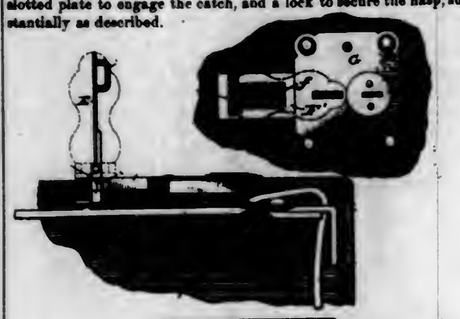
9. In a dust-collector the combination of a hood formed with double perforated walls, and supplied between said walls with a layer of material and an agitator located within the material in a restricted portion thereof, said hood being adapted to be placed over the air-outlet of an ordinary centrifugal dust-collector, whereby the fine particles of dust are arrested, as explained.

575,825. TRUNK FASTENING OR LOCK. RODOLPHE CLAUSSEN, Washington, D. C. Filed Sept. 5, 1896. Serial No. 604,964. (No model.)

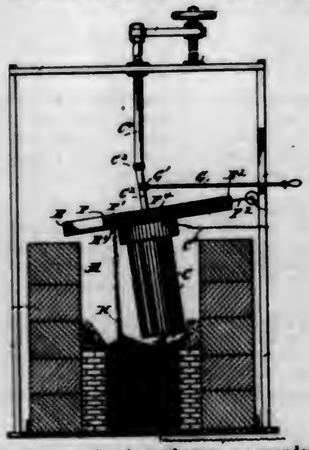
Claim.—1. The combination with the strap, sleeve and pivoted catch, of the slotted plate, and means for uniting the catch and plate, substantially as described.

2. The combination with the strap, sleeve and pivoted catch having recesses, of the slotted plate, the sides of which are adapted to enter the recesses in the catch, substantially as described.

3. The combination with the strap, the sliding sleeve, and catch pivoted thereto having recesses, of a hasp pivoted to the catch, a slotted plate to engage the catch, and a lock to secure the hasp, substantially as described.



575,826. ELECTRIC FURNACE. JAMES A. DEUTHER, Boston, Mass. Filed Aug. 21, 1896. Serial No. 603,471. (No model.)



Claim.—1. In an electric-arc furnace, a suspended electrode, a mechanism for vibrating said electrode, and a feed mechanism for feeding the material to be treated within the path of the electric arc during the interval between a back and a forth movement of said electrode.

2. In an electric-arc furnace, a suspended electrode, a mechanism for vibrating said electrode, and a feed mechanism connected with said electrode and adapted to be operated by the movement of the same to feed the material to be treated within the path of the electric arc.

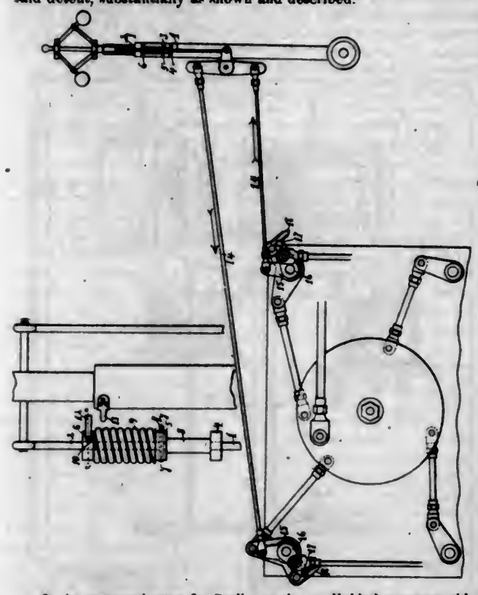
3. In an electric-arc furnace, a suspended electrode, a mechanism for vibrating said electrode, and a feed mechanism connected with the said electrode and adapted to be operated by the movement of the same to intermittently feed the material to be treated within the path of the electric arc.

4. In an electric-arc furnace, a lower electrode, an upper electrode, mechanism for vibrating said upper electrode to expose the lower electrode to receive the material to be treated, mechanism for increasing the distance between said electrodes to accommodate the material to be treated, and a feed mechanism operated by the movement of said upper electrode for feeding the material to be treated onto the lower electrode and within the path of the electric arc.

575,827. STOP FOR ENGINES. CHARLES R. EDGAR, St. Joseph, Mo. Filed June 12, 1896. Serial No. 595,334. (No model.)

Claim.—1. An automatic stop for Corliss engines, consisting of a divided governor side rod, a spring-actuated connection between the divided portions of said rod, means for holding the spring under tension when the rod is extended and means for releasing the spring to shorten the rod, substantially as shown and described.

2. An automatic stop for Corliss engines, consisting of the combination with the governor having a divided side rod of a sleeve, provided with fixed collars secured to one portion of the said divided rod and adapted to telescope with the other portion thereof, a collar on said sleeve adapted to slide thereon connected with one portion of said rod, a detent adapted to engage a recess in said portion while the rod is extended, a spring on said sleeve adapted to shorten the rod when said detent is released, a keeper to retain said detent in engagement in said recess, and a trip to trip said keeper and release said detent, substantially as shown and described.



3. An automatic stop for Corliss engines a divided governor side rod, and a spring-actuated connection between the divided portions of said side rod, substantially as shown and described.

4. In a Corliss engine the combination with the valve-gear, the regulator, the governor and a divided side rod of a sleeve connecting the divided portions of said rod, a spring connected with said sleeve and with one portion of said rod, a detent for holding said divided portions in operative position and holding said spring under tension a keeper controlling the engagement of said detent, and a trip adapted to control the engagement of said keeper with said detent, substantially as shown and described.

5. An automatic stop for Corliss engines, consisting of the combination with a governor having a divided side rod of a sleeve secured to one portion of said rod and adapted to telescope with the other portion thereof, a collar adapted to slide on said sleeve connected with said telescoping portion of said rod, a spring on said sleeve, a detent in said sleeve adapted to engage a recess in said telescoping portion of said rod, a keeper to retain said detent in engagement in said recess, and a trip to control the engagement of said keeper with said detent, substantially as shown and described.

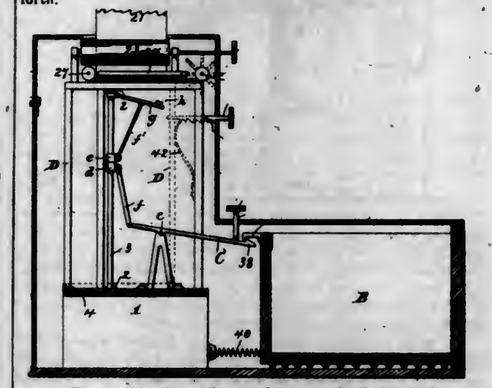
6. An automatic stop for Corliss engines, consisting of a divided side rod, a sleeve secured to one portion of said rod and adapted to telescope with the other portion thereof, a slot in said sleeve, a collar adapted to slide on said sleeve, a key connecting said collar with the telescoping portion of said side rod, a spring on said sleeve, a detent to maintain said rod in operative extension, a keeper for controlling said detent, and a trip to control the relation of said keeper to said detent, substantially as and for the purpose set forth.

575,828. COMBINED CASH RECEIVER AND RECORDER AND TYPE-WRITING MACHINE. GEORGE P. GASTON, Silver Creek, N. Y. Filed July 23, 1896. Serial No. 600,281. (No model.)

Claim.—1. The combination with a frame, a pad and printing devices connected with said frame, of a carriage constructed and adapted to carry strips of paper and supply the same under the pad, an inking device and means for moving said carriage in a direction at right angles to the movement of the paper strips, substantially as and for the purpose set forth.

2. The combination with a casing and a sliding carriage, of devices for printing on a strip of paper passing over said carriage, rollers mounted on said carriage and between which said strip of paper is fed from the machine, type on one of said rollers for printing a business-card on said strip, a removable dating-block carried by said roller and an inking-pad attached to the casing for supplying ink to the type on said roller, substantially as set forth.

3. The combination with a casing and a sliding carriage, of two strips of paper mounted on said carriage, means for moving said carriage in a direction at right angles to the movement of the paper strips, devices for printing a business transaction on both strips simultaneously, means for feeding said strips of paper independently of the movement of the carriage and retaining one of them within the machine for a record of a transaction, and devices for ejecting the printed portion of the other strip from the machine and simultaneously print a business-card and a date thereon, substantially as set forth.



4. The combination with a fixed frame and printing devices connected therewith, of a movable frame or carriage, devices mounted on said movable frame or carriage for carrying and feeding strips of paper, and a toothed rod connected to said movable frame or carriage, said toothed rod projecting through the casing of the machine and provided with a knob or handle, substantially as set forth.

5. The combination with a fixed frame and type-writing devices connected therewith, of a movable frame, devices mounted on said movable frame for carrying and feeding strips of paper to be printed, rollers carried by the movable frame and adapted to receive one of said strips of paper between them, printing-types on one of said rollers, a knob connected to the shaft of the printing-roller, a rod or bar connected to the movable frame and a knob on said rod or bar, substantially as set forth.

6. The combination with a fixed frame and printing or type-writing devices connected with said fixed frame, of a movable frame having an opening in its top, a pad carried by the fixed frame, over the opening in the movable frame, two paper-supply rolls, strips of paper from said rolls passing under said pad, a spring-drum on which one of said strips is wound, means for preventing said drum from unwinding, rollers between which the other strip passes, means for rotating said rollers, and printing devices on one of said rollers, substantially as set forth.

7. The combination with a fixed frame and printing devices connected therewith, of a movable frame carrying strips of paper, guide-rollers on the movable frame, for one of said strips, a receiving-drum for one of said strips of paper, rollers between which the other strip passes, and means for turning said drum and rollers, substantially as set forth.

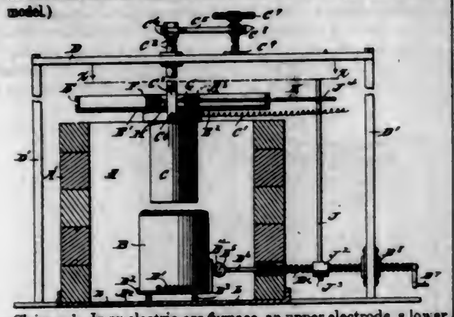
8. The combination with a casing, a frame, a strip of paper on said frame, and a series of key-levers, of types connected with said key-levers, a spring-actuated drawer, a catch on said drawer, a latch on one of said key-levers and adapted to engage the catch on the drawer, and a type on the key-lever having the latch, adapted to print a character on the paper strip indicating that the drawer has been opened, substantially as set forth.

9. The combination with a guide-bar and two movable collars thereon, of a key-lever connected with one of said sleeves and a pivoted type bar connected with the other sleeve, substantially as set forth.

10. The combination with a guide-bar and two movable sleeves thereon, of a type-bar pivotally connected at the upper end of the guide-bar, a link connecting said type-bar with one of the collars, a pivoted key lever and a link connecting said key-lever with the other collar, substantially as set forth.

11. The combination with suitable framework, of a series of key-levers, type-bars connected with said key-levers, said type-bars being provided with type adapted to print figures and letters indicating "debit" and "credit," a carriage, two paper strips mounted on said carriage, means for feeding said strips, means for moving said carriage in a direction at right angles to the movement of the paper strips whereby debit and credit accounts can be printed on said strips and means for ejecting the printed portions of one of said paper strips, whereby to render a debit and credit account to a customer, substantially as set forth.

575,829. **ELECTRIC FURNACE.** JOHN JOYCE, Andover, and JAMES A. DRUITHS, Boston, Mass. Filed Oct. 13, 1896. Serial No. 608,536. (No model.)



Claim.—1. In an electric-arc furnace, an upper electrode, a lower electrode, a mechanism for moving said electrode from its normal position to expose the same to receive the material to be treated, a mechanism for returning said lower electrode to its normal position, and a feed mechanism for feeding the material to be treated onto said lower electrode during the interval between the movements of the lower electrode from and to its normal position.

2. In an electric-arc furnace, an upper electrode, a lower electrode, mechanism for moving said lower electrode from its normal position to expose the same to receive the material to be treated, and a feed mechanism operated by the said movement of said lower electrode for feeding the material to be treated onto said lower electrode.

3. In an electric-arc furnace, an upper electrode, a lower electrode, mechanism for moving said lower electrode from its normal position to expose the same to receive the material to be treated, and an intermittent feed mechanism connected to the upper electrode and adapted to be operated by the said movement of the lower electrode to intermittently feed the material to be treated onto said lower electrode.

4. In an electric-arc furnace, an upper electrode, a lower electrode, mechanism for varying the distance between said electrodes, mechanism for moving said lower electrode from its normal position to expose the same to receive the material to be treated, and a feed mechanism connected to said upper electrode and adapted to be operated by the movement of the said lower electrode to intermittently feed the material to be treated onto said lower electrode.

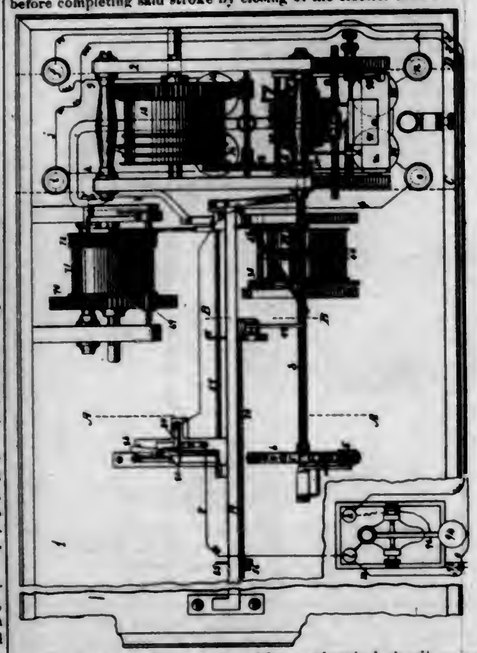
575,830. **PRINTING-TELEGRAPH.** OSCAR L. KLEBER, Pittsburg, Pa. Filed July 18, 1896. Serial No. 556,393. (No model.)

Claim.—1. In a printing telegraphic apparatus, the combination, consisting of a type-wheel, suitable selecting-disks, a pivoted finger adapted to move from one disk to the other and thereby control rotation of said type-wheel, an electric circuit, an electromagnet in said circuit, a message-transmitting key, a paper-feeding device adapted to move a sheet of paper across the periphery of said type-wheel, an electric switch, a printing-hammer that by full forward stroke will close said switch, and thereby establish an electric circuit through said electromagnet to withdraw the pivoted finger from the selecting-disks.

2. A printing-telegraph, comprising an electrical circuit, an electromagnet in said circuit, a message-transmitting key, a revoluble type-wheel, a series of concentrically-arranged selecting-disks, a pivoted finger which will move from one disk to the other and thereby control the action of the type-wheel, an automatically-acting paper-feeding device, a printing-hammer, a toothed wheel which by its rotation will operate and govern the strokes of said hammer, and an electrically-controlled escapement-lever to control the movements of said toothed wheel, whereby the hammer will be liberated to make a forward stroke on each opening of said circuit and can be arrested before completing its stroke by closing the circuit.

3. In a printing telegraphic apparatus, the combination, consisting of a type-wheel and suitable selecting-disks affixed on a revoluble shaft, a pivoted finger adapted to shift from one selecting-disk to the other and thereby control the movements of said type-wheel, an electric circuit, an electromagnet in said circuit, a message-transmitting key, an automatically-acting paper-feeding device, a printing-hammer, a wheel with radial projections that in their revolutions operate and govern said hammer, an escapement-lever which controls said wheel, and an electromagnetic armature that in its upward movement will liberate a tooth of said wheel, and in its downward movement liberate the next or succeeding tooth.

4. A printing-telegraph comprising an electrical circuit, a revoluble type-wheel, a series of selecting-disks, a pivoted finger which will move from one disk to the other and thereby control the action of the type-wheel, a message-transmitting key for sending electric impulses through said circuit, a paper-feeding device, a printing-hammer operated by the revolutions of an escapement-wheel, an escapement-lever controlled by said electric impulses to permit and arrest rotation of said wheel, whereby the hammer may be liberated to make a forward stroke on each opening of said circuit and arrested before completing said stroke by closing of the electric circuit.



5. A printing-telegraph comprising an electrical circuit, a message-transmitting device, a revoluble type-wheel, a number of selecting-disks, a finger that will shift from one disk to the other and control the movement of the type-wheel, a paper-feeding mechanism, a printing-hammer, an escapement-wheel liberated by transmitted electrical impulses, and means for controlling the action of said escapement-wheel and hammer.

6. A printing-telegraph consisting of an organized mechanism comprising an electrical circuit, a message-transmitting key, a revoluble type-wheel, a number of concentrically-arranged selecting-disks, a finger that will shift from one disk to the other and control the movement of the type-wheel, an automatically-acting paper-feeding device, a printing-hammer, a wheel provided with teeth or projections that govern said hammer, an escapement-lever that controls said toothed wheel, and an electromagnetic armature that in its upward movement will liberate one tooth of said wheel and in its downward movement liberate the next succeeding tooth.

7. In a printing-telegraph, the combination of an electrical circuit, a message-transmitting key, a revoluble type-wheel, a number of concentrically-arranged selecting-disks, a finger that will shift from one disk to the other and control the movement of the type-wheel, an automatic paper-feeding device, a printing-hammer, a wheel provided with projecting teeth, an electromagnetic armature, an escapement-lever operating on the teeth of said wheel in such a manner as that one tooth is liberated on each upward movement of said armature and in its downward movement the next succeeding tooth is liberated.

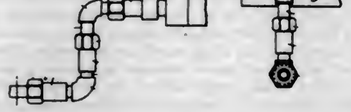
8. In a printing-telegraph, the combination of a type-wheel affixed on a revoluble shaft, a number of selecting-disks, and spacing-wheels on the same shaft, a hammer attached to a rock-shaft, a spring for imparting to said hammer a forward stroke, a laterally-extending arm or trip on said rock-shaft, a wheel provided with teeth that successively act on said trip to draw back the hammer and release the same, an escapement-lever to govern rotation of said wheel, an electromagnetic armature that in each up-and-down movement will act on the escapement-lever and release said wheel tooth by tooth, a pivotal lever which, on each downward movement of the armature, will come in contact with the arm of the rock-shaft thereby preventing the hammer from making a full forward stroke during such time.

9. In a printing-telegraph, the combination, consisting of a stationary frame, a carriage adapted to slide thereon, a toothed rack provided with a worm-wheel to move said carriage in one direction a certain distance and release the same, a cord and suspended weight attached to said carriage whereby it will rapidly travel in a reverse direction and cause the worm-wheel to reengage its rack, a circular ratchet on a shaft having at each end a plain roll adapted to operate in conjunction with an adjacent roll, between which the paper is inserted, a long lever and suitable pawl pivoted to said circular ratchet, and a stationary inclined bar upon which said long lever is made to slide as the carriage completes its rapid travel, whereby said circular ratchet and connected rolls are given a partial rotation and correspondingly move a sheet of paper in the bite of said rolls.

10. In a printing-telegraph which has a type-wheel and suitable selecting-disks affixed on a revoluble shaft and a finger adapted to move from one selecting-disk to the other and engage them separately, in combination with a carriage adapted to move a sheet of paper across the periphery of the said type-wheel, a pivoted hammer adapted to strike the paper against an adjacent letter on the type-wheel, a toothed wheel an electric circuit and an electromagnetic armature, that on closing of said circuit will release a toothed wheel which will draw the hammer back and release the same, a lever that on closing of said circuit will interpose and prevent a complete forward stroke of said hammer, and withdraw on opening of said circuit to permit said full forward stroke.

11. In a printing telegraphic apparatus which has a type-wheel and suitable selecting-disks affixed on a revoluble shaft, and a finger adapted to move from one selecting-disk to the other and engage them separately, in combination with a carriage adapted to move a sheet of paper across the periphery of said type-wheel, a pivoted hammer adapted to strike the paper against an adjacent letter on said type-wheel, an electric circuit and an electromagnetic armature, a toothed wheel that will draw the hammer back and release the same, a lever that will interpose and prevent a complete stroke of the hammer during the time said circuit remains closed, and withdraw, on opening of said circuit, to permit a full forward stroke of the hammer, an escapement-lever that by closing of said circuit will liberate the toothed wheel and intercept the hammer.

575,831. **FLEXIBLE STEAM-CONDUIT.** MILTON P. MCLAUGHLIN, Somerville, Mass., assignor of one-half to Sam Simonds, Boston, Mass. Filed Apr. 16, 1896. Serial No. 587,774. (No model.)



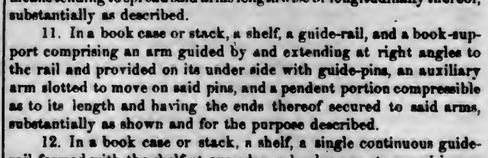
Claim.—1. A flexible steam-conduit composed of a series of telescopic portions, and elbows connecting the same in an angular series, each telescopic portion comprising an external socket member having a packing-abutment, an internal pipe member having a packing-abutment, one member being rotatable and movable endwise relatively to the other, and a non-expansible packing-ring interposed between said abutments and sustaining the endwise pressure exerted by the steam in the conduit.

2. A flexible steam-conduit comprising two telescopic end portions extending substantially parallel with each other, one of said portions being out of alinement with the other, an intermediate telescopic portion extending at an angle with said end portions and directly connecting them, and elbows connecting the said intermediate and end portions, each telescopic portion comprising an external member or socket having a packing-nut at one end, an internal or pipe member fitted to turn and move endwise in said external member and provided with a shoulder, and a non-expansible packing-ring interposed between the said nut and shoulder.

575,832. **BOOK-SUPPORT.** RICHARD PRATT, Jamestown, N. Y., assignor to the Fenton Metallic Manufacturing Company, same place. Filed June 27, 1896. Serial No. 597,215. (No model.)

Claim.—1. In a book case or stack, a shelf having a guide-rail, a pendent book-support extending transversely of the shelf on the under side thereof, and suspended wholly by one of its ends upon the rail, and means for effecting an engagement of this end of the support with the rail, substantially as described.

2. In a book case or stack, a shelf having a single guide-rail at one of its edges only, a pendent book-support extending transversely of the shelf on the under side thereof, and suspended wholly by one of its ends upon the rail, and means for effecting a frictional engagement of this end of the support with the rail, substantially as described.



3. In a book case or stack, a shelf having a guide-rail, a pendent book-support extending transversely of the shelf on the under side thereof and comprising an arm and an auxiliary arm each suspended wholly by one of its ends upon the rail, and means for effecting an engagement of these ends of the arms with the rail, substantially as described.

4. In a book case or stack, a shelf, a guide-rail, a book-support comprising an arm and an auxiliary arm, each supported by and extending at right angles to the said rail, and means for automatically effecting an engagement of one end only of the arms with the rail, substantially as described.

5. In a book case or stack, a shelf, a guide-rail, a book-support comprising a movable arm and an auxiliary arm guided by and extending at right angles to the said rail, and means for spreading the arms apart for effecting a yielding, frictional engagement of the said arms with the rail, substantially as described.

6. In a book case or stack, a single continuous guide-rail constituting a part of the shelf and being carried around to within the edge of the shelf, a pendent book-support extending transversely of the shelf on the under side thereof, and suspended wholly by one of its ends upon the rail, and means for effecting a frictional engagement of this end of the support with the rail, substantially as described.

7. In a book case or stack, a shelf, a guide-rail, a book-support comprising an arm extending transversely of the shelf and supported by one end only upon the rail, and means exerting a lifting action upon the arm to maintain the same in close contact with the under side of the shelf, substantially as described.

8. In a book case or stack, a shelf, a guide-rail, a book-support comprising an arm extending transversely of the shelf and supported by one end only upon the rail, means effecting an engagement of the arm with the rail, and means exerting a lift to the arm to maintain the same in close contact with the under side of the shelf, substantially as described.

9. In a book case or stack, a shelf, a guide-rail, a book-support comprising an arm extending transversely of the shelf and supported by one end only upon the rail, and wedges exerting a lift to the arm, substantially as shown and described.

10. In a book case or stack, a shelf, a guide-rail, a book-support comprising an arm extending at right angles to the rail and guided thereby; and formed on its sides with inclined flanges, and bent to conform to the inner surface of the said rail, an auxiliary arm moving between said flanges and similarly bent at its corresponding end, and means tending to spread said arms lengthwise or longitudinally thereof, substantially as described.

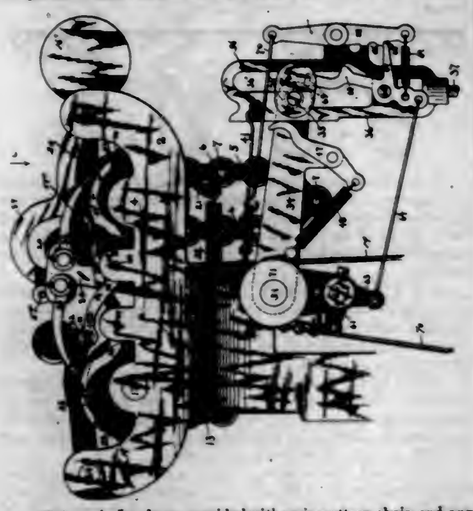
11. In a book case or stack, a shelf, a guide-rail, and a book-support comprising an arm guided by and extending at right angles to the rail and provided on its under side with guide-pins, an auxiliary arm slotted to move on said pins, and a pendent portion compressible as to its length and having the ends thereof secured to said arms, substantially as shown and for the purpose described.

12. In a book case or stack, a shelf, a single continuous guide-rail formed with the shelf at one edge, a book-support comprising an arm guided by and extending at right angles to the rail and having one of its ends bent in conformity with the inner curvature of the rail, an auxiliary arm movable with respect to said main arm and having its end bent corresponding to the opposite curved surface of the said rail, and means normally spreading the said arms apart longitudinally, substantially as shown and for the purpose described.

13. In a book case or stack, a shelf, a guide-rail, a book-support comprising an arm and an auxiliary arm guided by and extending at right angles to the rail, and a pendent portion, and means normally tending to spread said arms apart longitudinally thereof, substantially as described.

14. In a book case or stack, a shelf, a guide-rail, a book-support comprising a main and an auxiliary arm, the two being movable with respect to each other, means for effecting an engagement of the said arms with the said rail, a pendent portion to bear upon the books, and wedges for maintaining the said support in close contact with the under side of the shelf, substantially as shown and for the purpose described.

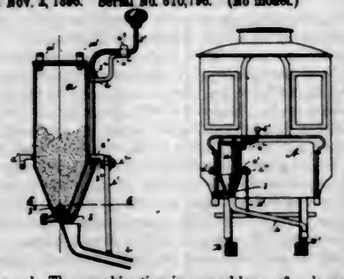
575,833. MULTIPLIER MECHANISM FOR LOOMS. WILLIAM WATTER, Worcester, Mass., assignor to the Knowles Loom Works, same place. Filed Feb. 13, 1896. Serial No. 579,137. (No model.)



Claim.—1. In a loom provided with main-pattern-chain and auxiliary-pattern-chain mechanisms, the combination with said mechanisms, of a supplemental mechanism, consisting of a supplemental indicating-lever, a supplemental indicating-surface, to engage said lever in advance of the engagement of the other indicating-surfaces on the main-pattern-chain cylinder with their respective indicating-levers, and connections from said supplemental indicating-lever to automatically disengage the mechanism which operates the main and auxiliary pattern-chain cylinders, and mechanism to automatically connect and put in operation the mechanism which operates the main and auxiliary pattern-chain cylinders, substantially as set forth.

2. In a loom provided with main-pattern-chain and auxiliary-pattern-chain mechanisms, the combination with said mechanisms, of a supplemental pattern-operating mechanism for automatically stopping the mechanism which operates said pattern-chains, and for automatically starting said mechanisms to operate said chains, said supplemental mechanism consisting of a supplemental indicating-lever adapted to be engaged by a supplemental indicating-surface on the main-pattern-chain cylinder in advance of the engagement of the other indicating-surfaces on said cylinder with their respective indicating-levers and said indicating-surface, and main-pattern-chain cylinder, and connections from said supplemental indicating-lever, to automatically disengage the mechanism which operates the main and auxiliary pattern-chain cylinders, and mechanism connected with the cloth-take-up roll to automatically connect and put in operation the mechanism which operates the main and auxiliary pattern-chain cylinder and said cloth-take-up roll, substantially as set forth.

575,834. SAND-BOX. JOSEPH GOROBOVSKY, New York, N. Y. Filed Nov. 2, 1896. Serial No. 610,796. (No model.)

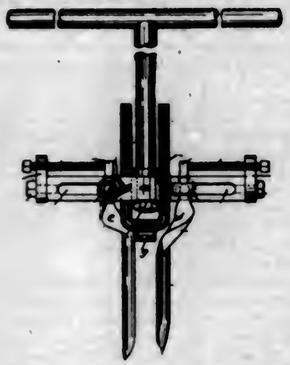


Claim.—1. The combination in a sand-box, of a hopper with a valve, a handle connected thereto, an arm, and an adjustable stop adapted to engage said arm and to limit the play of the handle, substantially as specified.

2. The combination in a sand-box, of a hopper with a valve, a handle and foot-bar connected thereto, and a delivery-pipe projecting partly under the hopper and adapted to convey part of the charge to the opposite rail, substantially as specified.

3. The combination in a sand-box, of a hopper with a valve, a crank-handle and foot-bar connected thereto, adjustable means for limiting the play of the valve, a delivery-pipe, and means for attaching such pipe to either side of the hopper substantially as specified.

575,835. WHEEL-HUB-DRILLING DEVICE. HENRY GRUNER, Paterson, N. J. Filed July 6, 1896. Serial No. 598,108. (No model.)



Claim.—1. A hub-drilling device, consisting of a T-shaped handle-bar, an arm secured to said handle-bar and provided at each side with an elongated slot, a block adjustably arranged in each slot, a guide vertically adjustable in one of said blocks, and a cutter vertically adjustable in the other block, all said parts, substantially as and for the purposes described.

2. A hub-drilling device consisting of an arm provided at each side of its center with an elongated slot, a block adjustably arranged in each of said slots and provided with a vertical slot or opening, a guide adjustably arranged in the vertical slot of one of said blocks, and a cutter adjustably arranged in the vertical slot of the other block, all said parts, substantially as and for the purposes described.

3. A hub-drilling device, consisting of an arm provided at each side of its center with an elongated slot, a block adjustably arranged in each of said slots, a guide vertically adjustable in one of said blocks, a cutter vertically adjustable in the other block, a plate adjustably arranged at each end of the arm, and a set-screw in each of said plates and engaging the guide and cutter respectively, all said parts, substantially as and for the purposes described.

4. A hub-drilling device, consisting of an arm provided at each side of its center with an elongated slot, a block adjustably arranged in each of said slots, a guide vertically adjustable in one of said blocks, a cutter vertically adjustable in the other block, and a gage vertically adjustable in the arm, all said parts, substantially as and for the purposes described.

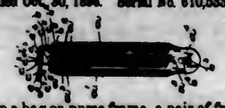
5. A hub-drilling device, consisting of an arm provided at each side of its center with an elongated slot, a block adjustably arranged in each of said slots, a guide vertically adjustable in one of said blocks, a cutter vertically adjustable in the other block, a cutting-blade horizontally adjustable in the cutter, and a gage vertically adjustable in the arm, all said parts, substantially as and for the purposes described.

575,836. DAMPENING-MACHINE. WILLIAM A. R. HENRICI, Chelsea, Mass. Filed Feb. 15, 1895. Serial No. 538,533. (No model.) Patented in England Mar. 2, 1895, No. 4,457.



Claim.—In a dampening-machine, a perforated roll having stationary bearings, a superposed perforated roll, and means to move it toward or from the lower roll, combined with distributer-pipes extended axially into and to deliver water into the interior of said rolls, an equalizing device rigidly connected to one and by a telescopic joint to the other of said pipes, said equalizing device being constructed to automatically cause equal flow of water into the respective pipes and rolls, whatever may be the amount or pressure of water entering said equalizer, and means to rotate the rolls, substantially as described.

575,837. BAG OR PURSE FRAME AND CATCH. CHRISTIAN HERRING, Clinton, N. J., assignor to the J. R. Mergott Company, Irvington, N. J. Filed Oct. 30, 1896. Serial No. 610,533. (No model.)



Claim.—1. In a bag or purse frame, a pair of frame-sections, having ears at their free ends, and a holding-tongue connected with the ends of one of said frame-sections, adapted to be pivotally connected with the other frame-section and turned over against the same, to form an operative hinge-joint, substantially as and for the purposes set forth.

2. In a bag or purse frame, the combination, with a pair of frame-sections having perforated ears at their free ends, of a pair of edge or ornamental frame-pieces b and b', each having a tongue b^3 formed integral therewith, said tongues being adapted to be arranged in said perforated ears and turned over to form an operative hinge-joint, substantially as and for the purposes set forth.

3. In a bag or purse frame, the combination, with a pair of frame-sections having perforated ears at their free ends, of a pair of edge or ornamental frame-pieces b and b', each having a tongue b^3 formed integral therewith, said tongues being adapted to be arranged in said perforated ears and turned over to form an operative hinge-joint, and a holding-catch pivotally arranged between said frame-pieces and connected therewith, substantially as and for the purposes set forth.

4. In a bag or purse frame, the combination, with a pair of frame-sections having perforated ears at their free ends, of a pair of edge or ornamental frame-pieces b and b', each having a tongue b^3 formed integral therewith, said tongues being adapted to be arranged in said perforated ears and turned over to form an operative hinge-joint, said frame-pieces having angular end portions b^4, and stop-pieces b^5 having inclined sides b^7, and a holding or locking catch having end pieces c^3 pivotally arranged on said sides b^7, substantially as and for the purposes set forth.

5. In a bag or purse frame, the combination, with a pair of hinged frame sections, of a pair of edge or ornamental frame-pieces secured to one of said frame-sections, said frame-pieces having angular end portions b^4 and stop-pieces b^5 having inclined sides b^7, and a holding or locking catch pivotally connected with said end portions b^4, substantially as and for the purposes set forth.

6. In a bag or purse frame, the combination, with a pair of hinged frame-sections, of a pair of edge or ornamental frame-pieces secured to one of said frame-sections, said frame-pieces having angular end portions b^4 and stop-pieces b^5 having inclined sides b^7, and a holding or locking catch pivotally connected with said end portions b^4, consisting, essentially, of a plate c having holding parts c^4, c^5 and c^6, a plate e arranged and secured between said parts, end pieces c^8 on said plate e, and a spring d, all of said parts being arranged and operating, substantially as and for the purposes set forth.

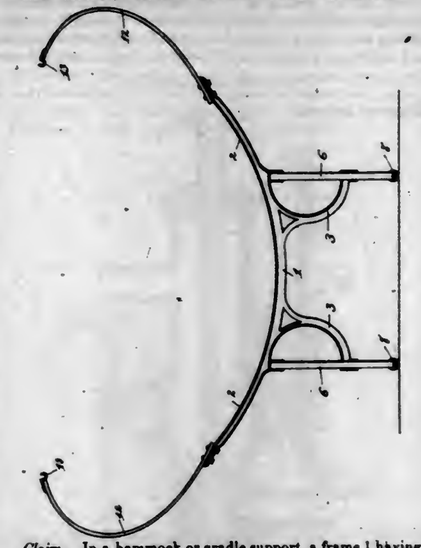
7. In a bag or purse frame, the combination, with a pair of hinged frame-sections, of a catch pivotally connected with one of said frame-sections, consisting, essentially, of a plate c, having the holding parts c^4, c^5 and c^6, a plate e arranged and secured between said parts, end pieces c^8 on said plate e, and a spring d having its free ends operatively connected with one of said frame-sections, substantially as and for the purposes set forth.

8. In a bag or purse frame, the combination, with a pair of hinged frame-sections, of a catch pivotally connected with one of said frame-sections, consisting, essentially, of a plate c, having holding parts c^4, c^5 and c^6, a plate e arranged and secured between said parts, end pieces c^8 on said plate e, and a spring d having its free ends operatively connected with one of said frame-sections, a projection c^7 formed on said plate c, and a holding portion a^6 on the other frame-section, said projection c^7 and the holding portion a^6 being adapted to be forced into holding or locked engagement, substantially as and for the purposes set forth.

9. The herein-described catch, comprising therein, a plate c, having holding portions c^4, c^5 and c^6, a plate e, having an upwardly-extending part c' and end portions c^8, said plate e being arranged and secured between said parts c^4, c^5 and c^6, and said plate c having an opening c^9, and a spring d arranged between said plates c and e, said spring having a curved portion d' arranged in said opening c^9, and said spring also having the oppositely-projecting ends d^2, substantially as and for the purposes set forth

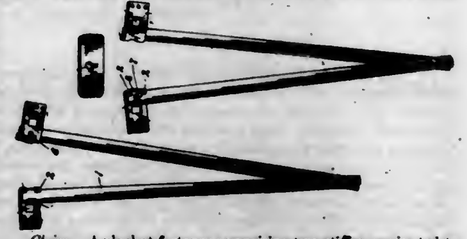
10. In a purse or bag frame, the combination, with a pair of hinged frame-sections, of ornamental edge or frame pieces, as b and b', having holding-lugs b^2 which pass into and through perforations in one of said frame-sections, and a bolt or holding-bar, as f, on the under side of said frame-section, around which said holding-lugs b^2 are forced to secure said ornamental edge or frame pieces b and b' against said frame-section, substantially as and for the purposes set forth.

575,838. HAMMOCK-SUPPORT. ADOLPH HOFFMAN, Columbus, Ohio. Filed Sept. 28, 1896. Serial No. 607,172. (No model.)



Claim.—In a hammock or cradle support, a frame 1 having arms 2, 2 and 3, 3, formed in one piece with squared studs 4 and 5, leg-frames 6, 6, formed in one piece having sockets to fit upon said studs 4 and 5 with means for securing said leg-frames to said studs, substantially as shown and described.

575,839. PLACKET-FASTENER. FRANK A. JAPERS, New Philadelphia, Ohio. Filed Oct. 8, 1896. Serial No. 608,313. (No model.)



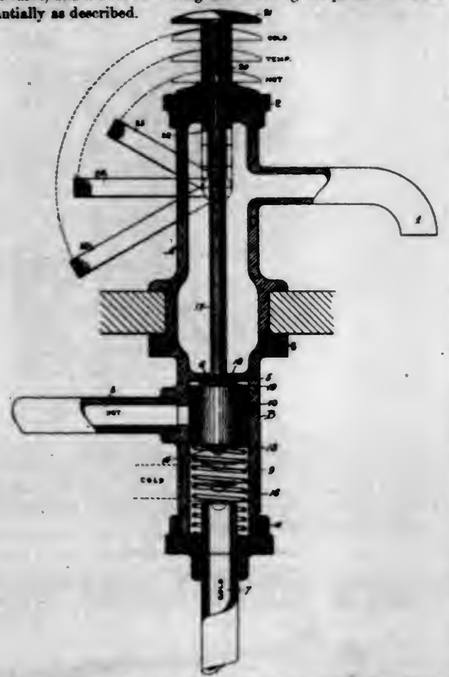
Claim.—A placket-fastener comprising two stiffeners pivoted together at one of their ends, and provided at their opposite ends with fastening-plates secured thereto by integral lips on said plates, one of said plates having an aperture and the other a hook for engagement therewith, a stud projecting from the face of one of the stiffeners, and a slotted plate adapted to be attached to the waist for engagement with said stud, substantially as described.

575,840. FAUCET. GEORGE T. KENLY, Baltimore, Md. Filed May 21, 1896. Serial No. 592,424. (No model.)

Claim.—1. In a faucet the combination with a spigot provided with a cylindrical chamber and a partition extending across the chamber and provided with an opening, of a depressible piston-valve movable in the chamber, said valve being provided with a channel or channels extending therethrough, a hot-water pipe leading into the chamber, a cold-water pipe extending up through the bottom of the chamber, a coil-spring encircling the projecting portion of the cold-water pipe and pressing against the piston-valve, and washer-valves connected to the upper and the lower faces of the piston-valve, substantially as described.

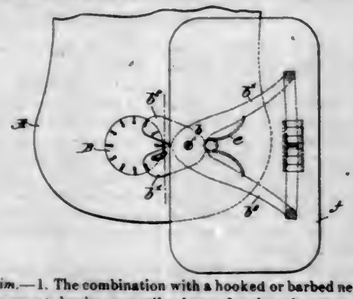
2. In a faucet the combination with a spigot provided with a cylindrical chamber, and a partition extending across said chamber and provided with an opening, of hot and cold water delivery pipes leading into a chamber, a spring-pressed piston-valve freely movable in the chamber, said valve being provided with a channel or channels extending therethrough but normally seated to prevent the delivery of water, a depressible plunger connected to the piston-valve, and a series of pivoted bails of different length adapted to engage with the plunger, substantially as described.

3. In a faucet the combination of a spigot provided with a cylindrical chamber and a partition extending across the chamber and provided with an opening, of a depressible piston-valve movable in the chamber, said valve being provided with a channel or channels extending therethrough, a hot-water pipe leading into the chamber, a cold-water pipe extending up through the bottom of the chamber, washer-valves connected to the upper and the lower faces of the piston-valve, and means for raising and lowering the piston-valve, substantially as described.



4. In a faucet the combination with a spigot provided with a cylindrical chamber and a partition extending across the chamber and provided with an opening, of a depressible piston-valve movable in the chamber, said valve being provided with a channel or channels extending therethrough, a plunger connected to the piston-valve, a hot-water pipe leading into the chamber, a cold-water pipe extending up through the bottom of the chamber, a coil-spring encircling the projecting portion of the cold-water pipe and pressing against the piston-valve, washer-valves connected to the upper and lower faces of the piston-valve and means for locking the plunger at different heights, substantially as described.

575,841. THREAD-CUTTING MECHANISM FOR SEWING-MACHINES. ARTHUR H. KINDER, Boston, Mass. Filed Aug. 3, 1896. Serial No. 602,169. (No model.)

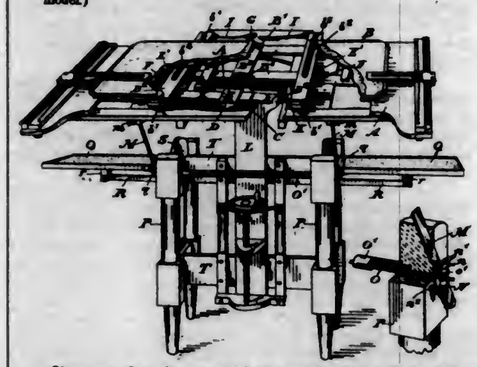


Claim.—1. The combination with a hooked or barbed needle, and a work-support, having a needle-plate, of a thread-cutter composed of two blades, one of which has a wiping edge over which the thread is bent and a cutting edge behind it to cut the thread at a distance from the wiping edge, substantially as described.

2. The blade b^2, having a cutting edge 3, combined with the blade b' having a wiping edge, and back of it a slot and a cutting edge to operate, substantially as described.

3. The combination with a hooked or barbed needle, and a work-support, of a thread-cutter composed of two blades, one of which has a wiping edge over which the thread is bent, and a cutting edge behind it to cut the thread at a distance from the wiping edge, and a supplemental work-support to shield part of said thread-cutter, substantially as described.

575,842. DRAWING-TABLE. SAMUEL J. LAUGHLIN and JAMES HOUGH, Guelph, Canada. Filed Aug. 28, 1895. Serial No. 560,756. (No model.)



Claim.—1. In a drawing-table the combination with the top and a rectangular board rotatably supported thereon, c^6 a protractor secured in position in the top of the table and extending forwardly of the front edge of the board and a pointer on the front side of the board extending downwardly into proximity with the protractor as and for the purpose specified.

2. The combination with the top frame and a rectangular board rotatably supported thereon, of rollers E and E' secured beneath the drawing-board, the catches F and G secured to the frame and the spring-wire rods I each provided with an end block J having a central notch j all arranged as and for the purpose specified.

3. The combination with the drawing-board and catches, of the spring-rods I each provided with an end block J with notch j and nut i on the threaded end of the rod abutting the block as and for the purpose specified.

4. The combination with the drawing-board and catches, of the spring-rods I each provided with an end block J with notch j and set-screw i' extending through the block J to the rod as and for the purpose specified.

5. In combination, the rotatable frame B', the stationary stops on one side thereof, the stops upon the other side seated in grooves in the frame and adjustable thereon toward and from the stationary stops and the clamping means carried by the adjustable stops, substantially as described.

6. In combination, the frame having a slotted cross-bar B^3, the stationary block secured at one end thereof, the shiftable angle-plate, the horizontal portion of said plate fitting within a recess in said cross-bar, a binding-screw extending through said horizontal portion of said plate and through said slot and carrying a nut b^8 for clamping said angle-plate against movement, and a set-screw arranged at right angles to said binding-screw extending through and being adjustable in the vertical portion of said plate, substantially as described.

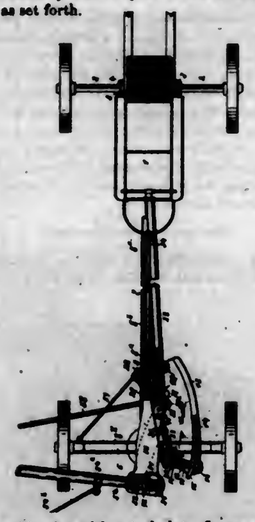
575,848. BALING-PRESS. WINFIELD S. LIVINGOOD, Kansas City, Mo., assignor to the Duvol-Livingood Manufacturing Company, same place. Filed Apr. 17, 1895. Serial No. 546,067. (No model.)

Claim.—1. The combination with a pitman and a recessed foot-plate connected therewith, of a traverser independent of the pitman having a hollowed forward face, adapted to receive said foot-plate on the pitman, and overreaching flanges on the traverser to retain the foot-plate in engagement with the traverser and permit a rotary movement of the pitman upon the traverser, substantially as set forth.

2. The combination with a pitman of a cap loosely mounted on the forward end thereof, means for retaining said cap on the pitman and a pitman-head adapted to be removably connected with said cap, substantially as set forth.

3. A bed-plate having upwardly-extending flanges forming a guideway for the pitman, a curved guide-bar pivoted to the bed-plate and forming with one of the flanges a continuous curved surface and terminating at its forward end in an abruptly-curved surface and a tension-spring connected with said bar, substantially as set forth.

4. The combination with a bed-plate, flanges on the bed-plate forming a guideway for the pitman, a curved guide-bar pivoted to the bed-plate and forming with one of said flanges a continuous curved surface and terminating at its forward end in an abruptly-curved surface, a tension-spring connected with said bar and a vertical power-shaft having oppositely-projecting power-arms provided with antifriction-rollers at their ends; of a pitman carrying an antifriction-roller at its vibratory end adapted to travel along said guideway, substantially as set forth.



5. The combination with a bed-plate, flanges on said bed-plate, a curved guide-bar pivoted to the bed-plate and forming with one of said flanges a continuous curved surface and terminating at its forward end in an abruptly-curved surface, said bar and flanges forming a guideway for the pitman, and a vertical power-shaft having oppositely-projecting power-arms provided with antifriction-rollers at their ends, of a pitman carrying an antifriction-roller at its vibratory end adapted to travel along said guideway, a cap loosely mounted on the vibratory end of the pitman having its inner side formed with a beveled surface, means for securing said cap to the pitman and a pitman-head adapted to be removably connected with said cap and formed with a concave forward face with an extension at its outer corner.

6. The combination with a vertical power-shaft, a yoke mounted thereon and a flange on said yoke forming a recess at one end thereof, of a bearing-block mounted in said recess, a draft-pole connected to said bearing-block, means for securing said draft-pole and bearing-block to the yoke and a stay-rod connecting the opposite end of the yoke with the draft-pole, substantially as set forth.

7. The combination with a vertical power-shaft, a yoke mounted thereon and a flange on the yoke forming a recess at one end thereof, of a bearing-block mounted in said recess, having an opening adapted to receive the draft-pole, a draft-pole engaged in said opening, means for yieldingly securing said draft-pole and bearing-block to the yoke and a stay-rod connecting the opposite end of the yoke with the draft-pole, substantially as set forth.

8. The combination with a vertical power-shaft, a yoke mounted thereon and a flange on the yoke forming a recess at one end thereof, of a bearing-block mounted in said recess having an opening adapted to receive the draft-pole, a draft-pole engaged in said opening, a bolt passing through said draft-pole and bearing-block and through said yoke, a spring on said bolt bearing against the yoke, and a stay-rod connecting the opposite end of the yoke with the draft-pole, substantially as set forth.

9. The combination with a pitman of a cap loosely mounted on the forward end thereof, a rod connecting said cap with the pitman toward the rear end thereof, a wedge-shaped block interposed between said rod and the pitman and plates secured to said block and adapted to clamp upon the pitman to secure said block to the pitman, substantially as set forth.

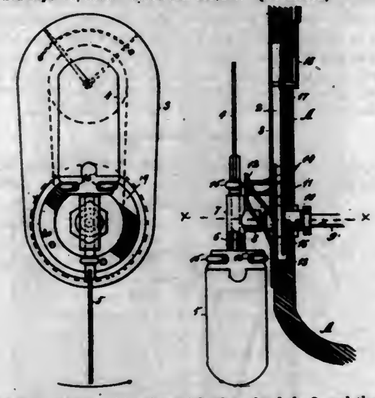
10. The combination with a pitman having a cap provided with suitable flanges on its forward end, of a pitman-head having suitable flanges adapted to engage said flanges on said cap and thereby removably connected with the pitman, substantially as set forth.

11. A pitman-head consisting of a body, flanges thereon adapted to engage suitable flanges on the forward end of the pitman, a cap on said head overlapping the recesses formed by the flanges thereon, and adapted to retain the engagement of the flanges on the head with the flanges on the forward end of the pitman, a concave forward face thereon and an extension at the outer corner thereof, substantially as set forth.

575,844. PROCESS OF PRODUCING WHITE-LEAD PIGMENT, &c. ALICE MACDONALD, London, England. Filed Nov. 30, 1896. Serial No. 613,968. (No specimens.)

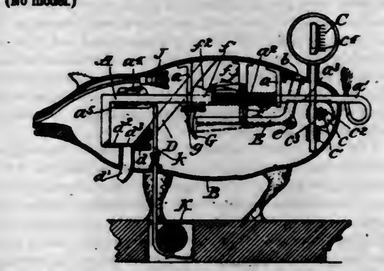
Claim.—The process described for producing white-lead pigment and separating metallic lead from lead sulfid by fusing the sulfid and directing air and steam currents on the surface of the fluid.

575,845. PADDLE-WHEEL. RANDALL MITCHELL, Detroit, Mich. Filed Sept. 11, 1896. Serial No. 605,477. (No model.)



Claim.—The combination with the wheel-shaft and the herein-described recess in the side of a vessel, of the submerged paddles, fixed at right angles each to the other, and rigidly united by a shaft journaled in a sleeve having a right-angled extension attached to the wheel-shaft; the disk rotatably attached to the stuffing-box of the wheel-shaft, the circular cam-plate attached to the disk and adapted to engage antifriction-rollers mounted on the shoulders of the paddles; the sprocket-wheels, the belt or chain connecting the same and the latch-lever whereby the feathering action of the paddles may be instantly reversed or their relative positions otherwise adjusted as desired, substantially as described.

575,846. AUTOMATIC DISTRIBUTING APPARATUS. JOHN MILO, New York, N. Y. Filed June 23, 1896. Serial No. 596,664. (No model.)



Claim.—1. In a coin-controlled apparatus, the combination of a vertical movable bar having a pad or buffer, a lever upon one end of which said bar is supported, a rod connected to said lever, a spring applied to said rod to resist the movement of said bar, an indicator to show the extent of compression of said spring, a latch to prevent movement of said bar, and a coin-controlled device to disengage said latch from said bar, substantially as shown and described.

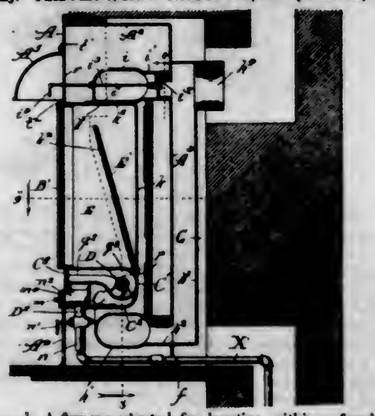
2. In a coin controlled apparatus, the combination of a coin-tube having a substantially horizontal arm and poised upon a pivot, said tube being tilted by the weight of the coin in the tube, a lever projecting into the path of the coin in the tube to be moved by the impact of the coin and to check the further movement of the coin, and means to move said lever farther and to permit the coin to roll farther in said tube, substantially as shown and described.

3. In a coin-controlled apparatus, the combination of a movable bar, a lever having a latch to engage said bar, a spring in proximity to said lever but normally out of contact therewith, a coin-tube having a substantially horizontal arm and poised upon a pivot, the end of said lever entering the path of the coin in the tube, whereby the impact of a coin delivered through said tube against said lever shall move the same against said spring and disengage said latch and the weight of the coin shall tilt the tube, and a cam upon said bar, whereby

upon the movement of said bar said lever is moved farther against said spring to release the coin and permit it to roll farther in said tube, substantially as shown and described.

4. In a coin-controlled apparatus, the combination of a longitudinally-movable bar having a handle, a spring applied to said bar to resist movement thereof in one direction, a latch to engage said bar, a vertically-movable bar having a pad or buffer, a spring to resist movement of said vertically-movable bar, a latch to prevent movement of said vertically-movable bar, a coin-tube having a substantially horizontal arm and poised upon a pivot to be tilted by the weight of the coin, said first-named latch projecting into the path of the coin in the tube to be moved by the impact of the coin to release the longitudinally-movable bar, and means to move said first-named latch farther to permit the coin to roll farther in the tube and to strike the second-named latch to move the same and release the vertically-movable bar, substantially as shown and described.

575,847. FIREPLACE-FURNACE. DONALD MCDONALD, Louisville, Ky. Filed June 9, 1896. Serial No. 594,813. (No model.)



Claim.—1. A furnace adapted for location within a fireplace-opening and to cover the same, and provided with a front having an opening and a transparent closure therefor, and provided also with an air-inlet at its base and an air-outlet near its top and also with air-openings below said closure, an approximately gas-tight combustion-chamber, having for its front wall said transparent closure, a draft-chamber communicating with said air-openings and having a burner therein, a circuitous passage for the products of combustion leading from the combustion-chamber, and a passage for air extending from the said inlet upward and around the combustion-chamber and the circuitous passage for the products and terminating in the discharge-outlet, substantially as described.

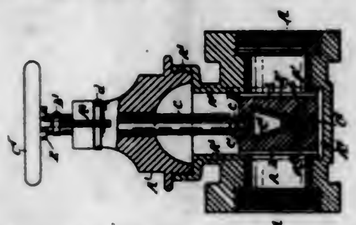
2. A fireplace-furnace adapted to be set with its front alone exposed and having in combination a combustion-chamber rendered approximately gas-tight by a transparent closure, a passage for the products of combustion leading from said combustion-chamber, a draft-chamber below said combustion-chamber and having valved openings for air, a burner within said draft-chamber, and a passage for air having an inlet in the base of the furnace and extending upward and around the sides and rear of said combustion-chamber, and the passage for the products of combustion but have no connection therewith, and having a discharge-outlet immediately above said chamber and in the front of the furnace, substantially as described.

3. In a fireplace-furnace, a front having an air-inlet at its lower end and an air-discharge outlet at its upper end, and an opening intermediate thereof, controlled by a transparent approximately gas-tight closure, a combustion-chamber having for its front wall the said closure, a draft-chamber below said combustion-chamber having valved openings for the admission of air, a burner in said draft-chamber, a passage for the products of combustion leading from said combustion-chamber downwardly at each side of the latter, and thence upwardly at the rear thereof, and a passage for air extending from said inlet upward and around the said combustion-chamber, and the passage for the products of combustion and terminating in the discharge-outlet, substantially as described.

4. A fireplace-furnace adapted to be set with its front alone exposed and having in combination a combustion-chamber rendered approximately gas-tight by a transparent closure, an inclined wall in the combustion-chamber having an asbestos facing, a draft-chamber below said combustion-chamber having valved openings for the admission of air, a hydrocarbon-burner in said chamber, a passage for the products of combustion leading from said combustion-chamber, and a passage for air having an inlet in the base of the furnace and extending upward and around the sides and rear of said combustion-chamber, and the passage for the products of combustion but having no connection therewith, and having a discharge-outlet immediately above said combustion-chamber and in the front of the furnace, substantially as described.

5. A fireplace-furnace adapted to be set with its front alone exposed and having in combination a combustion-chamber rendered approximately gas-tight by a transparent closure, a draft-chamber adjacent to and below said combustion-chamber and having outlets q^4 to said combustion-chamber and an air-inlet located in the furnace-front and provided with a damper, a burner-tube in the draft-chamber having outlets p registering with the outlets q^4, a mixing-chamber communicating with the burner-tube, an air-supply tube for said mixing-chamber, a gas-supply pipe leading to the mixing-chamber and means for controlling the gas-supply and the air-supply, substantially as and for the purpose set forth.

575,848. STRAIGHTWAY VALVE. FREDERICK W. O'BRIEN, Detroit, Mich. Filed Mar. 30, 1896. Serial No. 585,322. (No model.)



Claim.—1. In combination, the valve-case, the valve-plates formed with an intermediate chamber b, and an intermediate chamber b', a valve-stem formed with a conical-shaped portion C located in the chamber b, a nut located in the chamber b', having a threaded engagement with the lower extremity of the valve-stem, and means to hold the nut from rotating relatively to the valve-plates, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

2. In a valve, the combination of the case formed with a valve-chamber, having vertically-parallel valve-seats, a cap, valve-plates formed with an intermediate chamber b, and an intermediate chamber b', a valve-stem reciprocatory through the cap of the valve-case formed with a conical-shaped portion C located in the chamber b, and a nut located in the chamber b', having a threaded engagement with the valve-stem, and means to hold the nut from rotating relatively to the valve-plates, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

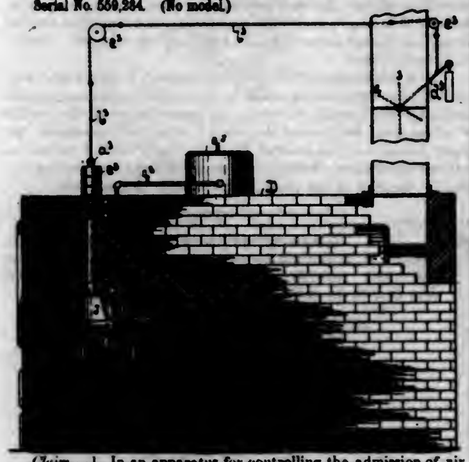
3. A valve having in combination, a case, valve-plates, a nut held in place between the valve-plates, and a valve-stem having a threaded engagement with the nut, said valve-stem formed with a conical-shaped portion C located intermediate the valve-plates, whereby the valve-plates may be quickly adjusted and locked in any desired position, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

4. A valve having in combination, a case, the valve-plates, the nut held in place between the valve-plates, a stem reciprocatory through the cap of the valve-case, and having a threaded connection with said nut, said stem formed with a conical-shaped portion C, located between said valve-plates whereby the valve-plates may be adjusted and locked in any given position, a gage to indicate the position of the valve-plates, and means to hold the nut from rotating relatively to the valve-plates, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

5. A valve having in combination a case, valve-plates, a nut held in place between the valve-plates, and a valve-stem having a threaded engagement with the nut, said valve-stem formed with a conical-shaped portion C located intermediate the valve-plates, said plates formed with shoulders projecting over the upper edge of the conical-shaped portion C, whereby the valve-plates may be quickly adjusted and locked in any desired position, and whereby the valve-stem will be held in engagement with the nut while the valve-plates are in position within the case, said plates engageable with the inclined sides of the cone on the stem, substantially at set forth.

6. A valve having in combination a case, provided with vertically-parallel valve-seats, and with vertically-parallel ribs A^4 above the valve-seats, valve-plates, a nut held in place between the valve-plates, and a valve-stem having a threaded engagement with the nut, said valve-stem formed with a conical-shaped portion C located intermediate the valve-plates, whereby the valve-plates may be quickly adjusted and locked in any desired position, said plates engageable with the inclined sides of the cone on the stem, substantially as set forth.

575,849. APPARATUS FOR CONTROLLING ADMISSION OF AIR TO FURNACES. CHARLES C. PARKER, Baltimore, Md., assignor of three-fourths to John A. Dushane, same place. Filed Aug. 14, 1896. Serial No. 602,284. (No model.)



Claim.—1. In an apparatus for controlling the admission of air to a boiler-furnace, a water-cylinder having a piston and rod, the latter indirectly connected to the chimney-damper, so as to operate it, a second water-cylinder underneath the first, having a piston and a rod which rod passes into the first cylinder and comes in contact with the piston or its rod therein, a chest having water ways and ports leading to the two cylinders, a valve whereby water is admitted to and discharged from the upper cylinder, a diaphragm one side of which is exposed to the gases in the furnace and the other to the atmosphere, with means to connect it to the said valve, a second valve or one to control the water-passages leading to and from the lower cylinder, a diaphragm operated by pressure in the boiler and means to connect it with the second valve, combined substantially as specified.

2. In an apparatus for controlling the admission of air to a furnace, a water-cylinder having a piston and rod, the latter indirectly connected to the chimney-damper so as to operate it, and provided with an inclined longitudinally-extending deflecting-surface, a chest and valve whereby water is admitted into and discharged from the cylinder, a diaphragm one side of which is exposed to the gases in the furnace and the other to the atmosphere, a stem leading from the said diaphragm, a lever which connects the said stem with the valve mechanism, a roller at the end of the lever, a weighted lever resting on the said roller, a stem pivoted to cylinder, an arm at the upper end of the said stem, which engages with the inclined surface of the piston-rod, and at its lower end is pivoted to the weighted lever, so as to be deflected from its normal position in the rise and fall of the piston-rod, and thereby change the effective weight on the roller and alter the position of the controlling-valve, combined, substantially as specified.

3. In an apparatus for controlling the admission of air to a furnace, a water-cylinder having a piston therein whose rod is connected indirectly to the chimney-damper and whose full or complete stroke will entirely open or close the said damper, a second water-cylinder having a piston therein whose rod is adapted to enter the first cylinder and form a seat for the piston therein and which, when in such position, will reduce the stroke of the piston in the first cylinder to such an extent as to prevent the full closing of the damper, valve mechanism to admit water to the said cylinders to operate the pistons, and means to give movement to the said valve mechanism, combined substantially as specified.

4. In an apparatus for controlling the admission of air to a boiler-furnace, the combination of a water-cylinder having a piston and a rod which latter is indirectly connected to the chimney-damper so as to operate it, a second water-cylinder underneath the first having a piston and a rod which latter enters the first cylinder and serves as a sustaining device for the first piston, a diaphragm one side of which is exposed to the gases in the furnace and the other to the atmosphere, with valve mechanism operated from the said diaphragm to control the admission of and the discharge of water from the first cylinder, a second sustained diaphragm the unsustained side of which is exposed to the steam in the boiler, mechanism to connect the said diaphragm with valve mechanism so that upon the sustaining devices of the second diaphragm being overcome, water is allowed to escape from under both pistons and the first piston to have its full stroke and thereby entirely close the chimney-damper, substantially as specified.

575,850. TUNING-PIN SOCKET. CLARANCE W. PEIRCE, Athens, Pa. Filed Nov. 8, 1895. Serial No. 568,207. (No model.)



Claim.—1. A frame for a musical instrument having tuning-pin sockets provided at one side with angularly-disposed plane or flat bearing-surfaces arranged to form a reëntrant angle, and a diametrically opposite concave bearing-surface, substantially as specified.

2. A frame having tuning-pin sockets comprising a cylindrical opening, and a friction-plug fitted in said opening and having plane surfaces arranged to form a reëntrant angle arranged opposite the exposed portion of the wall of the cylindrical opening, substantially as specified.

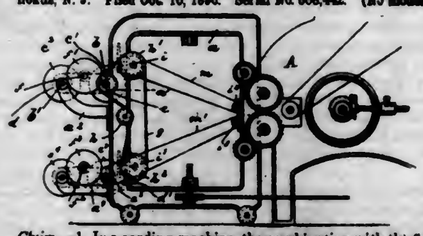
575,851. TAKE-UP ROLLER FOR CONDENSERS OF CARDING-MACHINES. WILLIAM D. ROBERSHAW, Hoboken, N. J. Filed May 21, 1896. Serial No. 592,433. (No model.)



Claim.—1. In a carding-machine, the combination with the frame, of the drum or delivery-roller mounted in said frame, a series of parallel guide-brackets projecting from said frame and longitudinally and transversely adjustable therein, said guide-brackets having their upper portions bent outward and a series of rollers or tubes loosely mounted on said bent-outward portions of adjustable guide-brackets, said rollers or tubes being independent of each other and in frictional contact with said drum or delivery-roller, all said parts, substantially as and for the purposes described.

2. In a carding-machine, the combination with the frame, of a drum or delivery-roller mounted in said frame, a cross-bar or bridge traversing said frame and secured thereto, parallel with said drum, and provided with an elongated slot, a series of guide-brackets, provided at their lower ends with elongated slots, which guide-brackets are adjustably arranged by means of their elongated slots in the slot of the cross-bar, and having their upper portions bent outward, and a series of rollers or tubes loosely mounted on said bent-outward portions of the guide-brackets, and in frictional contact with said drum or delivery-rollers, all said parts, substantially as and for the purposes described.

575,852. CARDING-MACHINE. WILLIAM D. ROBERSHAW, Hoboken, N. J. Filed Oct. 10, 1896. Serial No. 608,442. (No model.)



Claim.—1. In a carding-machine, the combination with the frame of its condenser and the roving-delivery apron arranged therein, of a

sectional drum or delivery-roller mounted in said frame and in front of the apron, a sectional drum also mounted in said frame and in front of said drum or roller and parallel thereto, and a series of tubes or rollers loosely arranged on said sectional drum and roller and in frictional contact therewith, all said parts, substantially as and for the purposes described.

2 In a carding-machine, the combination with the frame of its condenser, and the roving-delivery apron arranged therein, of a sectional drum or delivery-roller mounted in said frame and in front of the apron, a sectional drum also mounted in said frame and in front of said drum or roller and parallel thereto, a series of tubes or rollers loosely arranged on said sectional drum and roller and in frictional contact therewith, and a head or flange on the ends of each tube or roller and engaging between adjoining sections of the drum and frictional roller, all said parts, substantially as and for the purposes described.

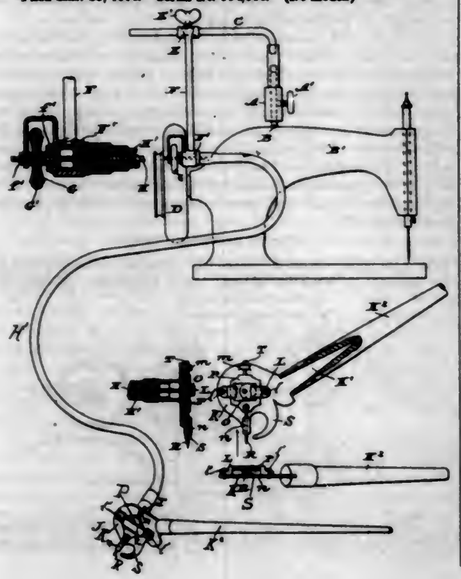
3. In a carding-machine the combination with the frame of its condenser, and the roving-delivery apron arranged therein, of a shaft in front of said apron and mounted in the frame, a sectional drum or delivery-roller secured on said shaft, a shaft in front of said sectional drum or roller and parallel thereto, a sectional drum secured on said parallel shaft, and a series of tubes or rollers loosely arranged on said sectional drum and roller and in frictional contact therewith, all said parts, substantially as and for the purposes described.

4. In a carding-machine the combination with the frame of its condenser, and the roving-delivery apron arranged therein, of a shaft in front of said apron and mounted in the frame, a sectional drum or delivery-roller secured on said shaft, a shaft in front of said sectional drum or roller and parallel thereto, a sectional drum secured on said parallel shaft, a series of tubes or rollers loosely arranged on said sectional drum and roller and in frictional contact therewith, and a head or flange on the ends of each tube or roller and engaging between adjoining sections of the drum and frictional roller, all said parts, substantially as and for the purposes described.

5. In a carding-machine, the combination with the frame of its condenser, of a sectional drum or delivery-roller mounted in said frame, a sectional drum also mounted in said frame in front of the said drum or roller and parallel thereto, and a series of tubes or rollers loosely arranged on said sectional drum and roller and in frictional contact therewith, all said parts, substantially as and for the purposes described.

6. In a carding-machine, the combination with the frame of its condenser, of a sectional drum or delivery-roller mounted in said frame, a sectional drum also mounted in said frame in front of said drum or roller and parallel thereto, a series of tubes or rollers loosely arranged on said sectional drum and roller and in frictional contact therewith, and a head or flange on the ends of each tube or roller and engaging between adjoining sections of the drum and frictional roller, all said parts, substantially as and for the purposes described.

575,853. **PERFORATING-MACHINE.** EDWIN H. RUPPERT, New York, N. Y., assignor of one-half to Thomas R. Stewart, same place. Filed Mar. 25, 1896. Serial No. 584,881. (No model.)

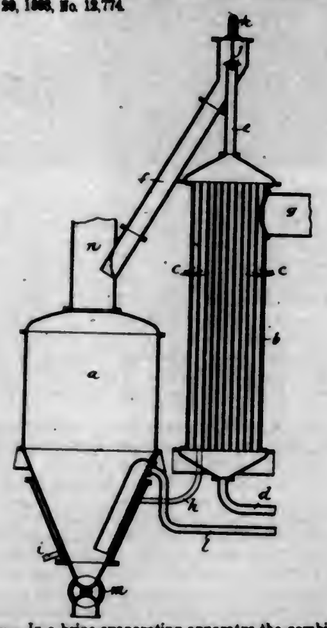


Claim.—1. In combination, in a perforating device, a face-plate formed with a spur and a handle-tang extending laterally therefrom, a reciprocating frame placed upon the face of the plate, guides on the plate for the frame, said frame having an open center and carrying the needle, the eccentric therein and the shaft extending through the face-plate and carrying the eccentric, substantially as described.

2. In combination a face plate having upper and lower guides, an open frame having the tool passing through one guide and a pin extending through the other guide, an eccentric working in the open frame and having its shaft extending through the face-plate and the strap L extending across the open frame and the eccentric, substantially as described.

3. In combination, with a sewing-machine having a spool-support B, a bracket C, having means for attachment to the said support and extending laterally therefrom, the depending arm F, the bracket F' at the lower end thereof, the wheel D of the sewing-machine, the shaft journaled in the bracket F' and having a wheel G to bear on the sewing-machine wheel D to be driven thereby and the tool carried by the shaft of the wheel G, substantially as described.

575,854. **BRINE-EVAPORATOR.** FRANK W. SCOTT and FRANK W. SCOTT, Jr., London, and HENRY G. SCOTT, Liverpool, England. Filed July 7, 1896. Serial No. 598,347. (No model.) Patented in England June 29, 1896, No. 12,774.



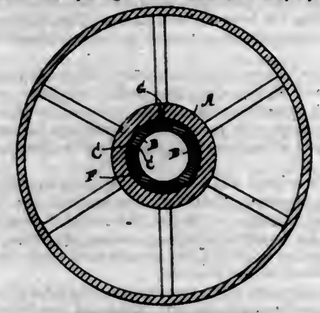
Claim.—In a brine-evaporating apparatus the combination with the evaporating vessel provided with a water-jacket, of a separate heating vessel provided with steam-circulating passages, means for supplying brine to said heating vessel, a pipe connecting the heating vessel with the evaporating vessel, a spring-actuated valve in said pipe for maintaining the brine in said heating vessel under pressure to prevent crystallization therein, a pipe connecting the steam-passages of said heating vessel with the said water-jacket for conducting the water of condensation to said water-jacket and a discharge-pipe for said water-jacket, substantially as described

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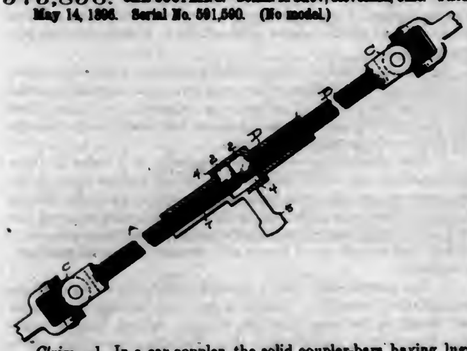
575,855. **BEARING.** JOHN W. SERRAD and JOHN DOWE, Blackpool, England. Filed June 17, 1895. Serial No. 553,005. (No model.) Patented in England Aug. 24, 1894, No. 16,114, and in Canada Apr. 27, 1896, No. 52,109.

Claim.—A bushing for pulleys, wheels, and cylinders, consisting of a series of segmental strips all substantially uniform in cross-section and each having smooth adjacent edges bearing against the edges of the adjoining strips, two of such strips having the adjacent outer and inner longitudinal corner edges beveled to form recesses C, C, extending longitudinally between such two strips, there being an inlet-opening F formed in the edge of and extending through another strip, and a band E encircling such strips, the whole in the form of a circle and adapted to be arranged within an encircling pulley-hub formed with a centripetal projection or shoulder D, against which the ends

of the strips abut and also having a lubricating-passage with which the recesses C C and opening F communicate, for the purpose set forth.



575,856. **CAR-COUPLING.** SØREN R. SKOV, Cleveland, Ohio. Filed May 14, 1896. Serial No. 591,560. (No model.)

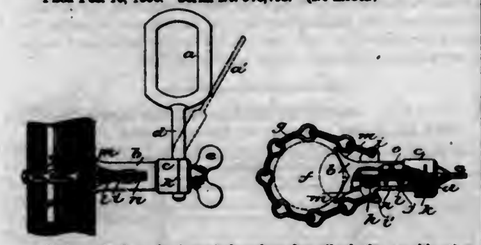


Claim.—1. In a car-coupler, the solid coupler-bars having lugs on their meeting ends, and a weighted sleeve inclosing the said ends made in halves longitudinally and having a chamber at its middle for the said lugs and a slot leading into said chamber from one end of the said sleeve, whereby one of said bars can be uncoupled and the other retained, substantially as described.

2. The coupler-bars having lugs on top at their meeting ends, in combination with a sleeve weighted at one side and supporting the ends of said bars and having a central annularly-enlarged portion 4 engaging the shoulders of said lugs and holding the ends of said bars together, substantially as described.

3. The coupler-bars having each a lug at its top on its outer end, in combination with a sleeve having a central annular enlargement in which said lugs are engaged and an open slot at one end extending into said enlargement and a weighted projection to hold the sleeve by gravity in working position, substantially as described.

575,857. **LANTERN-BRACKET.** SIDNEY L. SLY, Jordan, Minn. Filed Feb. 10, 1896. Serial No. 578,793. (No model.)



Claim.—1. In a device of the class described, the combination, with the shell or casing, of the thumb-bolt arranged therein, the sliding nut carried by said bolt, and a chain or metal band having its opposite ends attached to said sliding nut, for the purpose set forth.

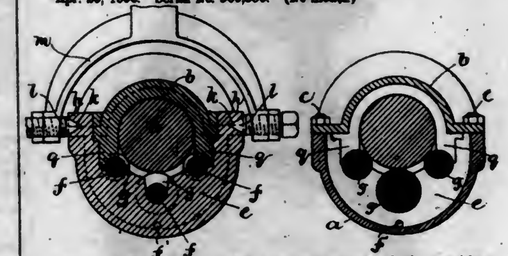
2. In a device of the class described, the combination, with the thumb-bolt of the nut arranged thereon, the chain or cord connected to said nut, the friction-washer carried by said thumb-bolt, and the standard or bracket supported by said friction-washer, substantially as described.

3. In a device of the class described, the combination, with the shell or casing, having the spreading legs *m* and slots *n*, the thumb-bolt within said casing, the nut carried by said bolt and having lugs extending through said slots *n*, a chain or metal band having its ends attached to said lugs a friction-washer carried by said thumb-bolt and provided with a transverse slot, and the standard supported within an opening provided in said washer, substantially as described.

4. In a device of the class described, the combination, with the casing or shell, the thumb-bolt within the same, the friction-washer, the standard supported within an opening provided in said washer, the sliding bolt provided on said thumb-bolt, the chain or metal band having its ends attached to said nut and adapted to clasp the bicycle-frame, whereby when said thumb-bolt is operated, said chain or metal band will be tightened and said standard clamped simultaneously; substantially as described.

5. In a device of the class described, the combination, with the shell or casing, of the thumb-bolt within the same, the chain or metal band having its ends attached to said nut and adapted to encircle the bicycle-frame, a friction-washer carried by said thumb-bolt, and a spring carried by said thumb-bolt and arranged between said nut and said friction-washer, for the purpose set forth.

575,858. **ANTIFRICTION-BEARING.** ANDREW Y. SMALL, Brockton, Mass., assignor of fifty-one one-hundredths to William Rapp, same place, Rhen B. Page, Boston, and Albert Herbert, Newton, Mass. Filed Apr. 29, 1896. Serial No. 589,559. (No model.)



Claim.—1. In a bearing of the character specified, the combination of an oil-reservoir having bearings for a plurality of rollers, anti-friction-rollers journaled in said bearings and arranged to support the shaft and to transfer oil thereto from the reservoir, a fixed support for said reservoir, and complemental bearings on said reservoir and support whereby the reservoir is permitted to oscillate longitudinally to maintain its rolls in parallelism with the shaft.

2. The combination with the oil-reservoir having the central ears, of the cross-bars or ribs, a plurality of antifriction-rollers mounted in said bars, and the yoke-bracket or hanger having trunnion engagement with said ears.

3. The combination with the oil-reservoir having central ears, of the cross-bars or ribs forming bearings, antifriction-rollers mounted in said bearings, the cover having lugs extending down inside of the reservoir, said lugs to bear on the trunnions of the rollers, and the bracket or hanger having trunnion connections with said ears.

4. The combination with the oil-reservoir, of a plurality of anti-friction-rollers mounted therein, and the cap or cover secured to said reservoir and having lugs extending down inside thereof and fitted to the trunnions or axles of the rollers.

5. The combination with the oil-reservoir *a* having ears *h*, of the cross-bars or ribs having three sets of bearings *f*, the cover *b* bolted to the reservoir, the rollers *g* in the bearings *f*, and the yoke-bracket *m* having trunnions *l* fitted to said ears *h*, substantially as and for the purpose set forth.

575,859. **IRONING-MACHINE.** ERNST G. SMITH, Columbia, Pa. Filed July 23, 1895. Serial No. 556,899. (No model.)

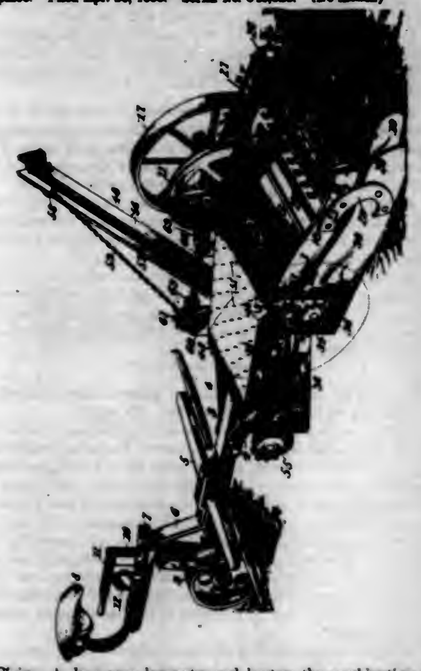
Claim.—1. In an ironing-machine, the combination with the ironing-roll, of a longitudinally-movable sleeve having a feather-and-spline connection therewith, a fixed collar on said roll, gear-wheels journaled on said sleeve, a hand-wheel for moving said sleeve into frictional engagement with the hub of either one of said wheels, an adjustable collar having a screw-threaded connection with said roll and formed with facial grooves or depressions corresponding with similar grooves or depressions in the end of the ironing-roll, and a detachable key or locking-plate in engagement with the grooves of the roll and hand-wheel, providing for the adjustment of said collar longitudinally of the roll and its retention at the desired point, substantially as specified.

2. In an ironing-machine, the combination with the ironing-roll, and the padded roll adjustable toward and away from the ironing-roll and journaled in swinging arms, of a pressure-rod pivotally connected at one end to one of said arms, a rock-shaft journaled in the machine-frame, a U-shaped yoke having one end extended under the rock-shaft

and pivotally connected to a crank-arm on said shaft and provided with a sleeve surrounding the pressure-rod so as to allow the latter to move longitudinally therethrough, a coiled spring surrounding the lower end of said pressure-rod beneath the sleeve of the yoke, and provision for adjusting the tension of said spring and correspondingly adjusting the pressure of the padded roll against the ironing-roll, the yoke being extended under the rock-shaft in such manner that its pivotal point of connection with the crank on the rock-shaft will pass across and beyond a line drawn through the rock-shaft and the point of connection between the pressure-rod and swinging arm, thereby serving to lock and hold the padded roll against the ironing-roll, substantially as described.



575,860. CORN HARVESTER AND HUSKER. WILLIAM H. SMITH, Whiting, Iowa, assignor of one-half to George A. Olson, same place. Filed Apr. 20, 1895. Serial No. 546,553. (No model.)



Claim.—1. In a corn harvester and husker, the combination of stripping-fingers, an upwardly-inclined elevator in the rear of the stripping-fingers having its receiving end lower than the rear end thereof, a revolving rake located above the rear end of the stripping-fingers and above the receiving end of the elevator and comprising pivoted claws to act jointly with the stripping-fingers to snap the ears of corn from the stalks and move them onto the elevator, and means for raising and lowering the front end of the stripping-fingers without moving the elevator or revolving rake, substantially as set forth.

2. In a corn-harvester, the combination with the stripping mechanism, of a revolving rake comprising a roller, or cylinder, and claws having pivotal connection with the said roller, or cylinder, and arranged to coöperate with the stripping mechanism and relieve the same of the ears of corn detached from the stalks, substantially as set forth.

3. The combination with a husking-table, and a toothed husking-belt operating thereover, of husking-rollers mounted upon the husking-table at an inclination to the line of travel of the husking-belt, which inclination departs slightly from a transverse position, whereby the ears are moved across the table simultaneously with the husking operation, substantially as described.

4. The combination with a husking-table, of a series of individual husking devices disposed in alternate relation and oppositely inclined, substantially as described for the purpose set forth.

5. The combination with a husking-table, of a series of individual husking devices of graduated length disposed in alternate relation and at different relative angles, substantially as described for the purpose set forth.

6. The combination with a husking-table, of a husking device comprising a series of three rollers arranged in substantially parallel relation, the rear, or third, roller being disposed in a higher plane than the other two and a toothed husking-belt to act jointly with the said rollers, substantially as set forth.

7. The combination with a husking-table, of a series of three husking-rollers, the front roller having its top surface about in the same plane as the top of the husking-table, the second roller having its upper surface in a higher plane than the said table-top, and the third roller being located entirely above the plane of the table and a toothed husking-belt to act jointly with the said rollers, substantially as set forth.
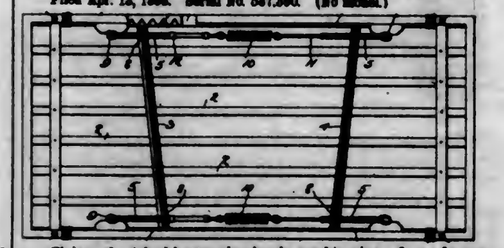
8. The combination with a husking-table, of a series of three husking-rollers disposed in parallel relation and tapering throughout their length in the same direction, the rear, or last, husking-roller being located in a higher plane than the other two rollers and a toothed husking-belt to act jointly with the said rollers, substantially as set forth.

9. The combination with a husking-table, and a husking-belt, of a husking-roller inclining to the line of travel of the husking-belt and having teeth inclining away from the delivery end of the husking-roller, substantially as and for the purpose described.

10. The combination with a husking-table provided with a series of individual husking devices of varying length and disposed in alternate relation and at different relative angles, each husking device comprising a series of three tapering rollers placed in parallel relation, the third, or rear, roller occupying a position above the table-top and having teeth, of a husking-belt having a series of teeth and adapted to coöperate with the said husking devices to divest the ears of corn of the husks, substantially as set forth.

11. In a corn harvester and husker, the combination of a stripping mechanism, an upwardly and rearwardly inclined elevator in the rear of the stripping mechanism, a rake adapted to move the ears of corn from the stripping mechanism onto the said elevator and comprising a roller having pivoted claws, a downwardly and rearwardly inclined husking-table to receive the ears of corn from the elevator, and provided with husking devices, and an elevator to receive the ears of corn after they have been cut and load the same into a wagon or receptacle, substantially in the manner set forth.

575,861. SPRING BED-BOTTOM. WILLIAM STOVER, Elgin, Ill. Filed Apr. 13, 1896. Serial No. 587,260. (No model.)



Claim.—1. A bed-bottom having in combination a frame for supporting the mattress, spring-actuated levers for supporting the opposite sides of said frame, and means for adjusting the point of support of said frame upon said levers, substantially as set forth.

2. A bed-bottom having in combination a frame for supporting the mattress, spring-actuated levers at opposite sides of said frame, and adjustable supports arranged on said levers and supporting said frame, substantially as set forth.

3. A bed-bottom having in combination a frame for supporting the mattress, spring-actuated levers having horizontal arms arranged under said frame, and adjustable bars resting upon said arms and supporting said frame, substantially as set forth.

4. A bed-bottom having in combination a frame for supporting the mattress, a pair of levers at each side of said frame and upon which said frame is supported, an elastic connection between said levers, and means for varying the tension of said elastic connection, substantially as set forth.

5. A bed-bottom having in combination a frame for supporting the mattress, spring-actuated levers, adjustable bars projecting across and under said frame and resting upon said levers, and notches carried by said frame for holding said bars in place, substantially as set forth.

6. A bed-bottom having in combination a frame for supporting the mattress, bell-crank levers secured under said frame each with one arm horizontal, transverse bars arranged under said frame and being adjustably supported upon said horizontal arms and an elastic connection between the vertical arms of said levers, substantially as set forth.

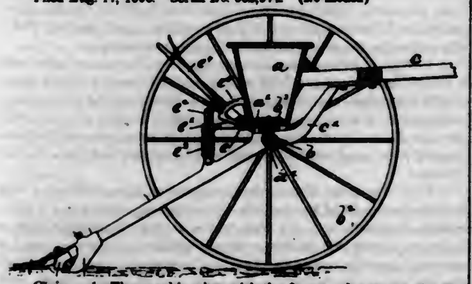
7. A bed-bottom having in combination a frame for supporting the mattress, the rigid frame 1, bell-crank levers pivoted to said frame and each having one arm horizontal, adjustable bars resting upon said horizontal arms and supporting said frame, an elastic connection between the vertical arms of said levers, and means for limiting the upward movement of said horizontal arms, substantially as set forth.

575,862. METHOD OF MAKING SHEET-METAL TUBING. DANIEL C. STOVER, Freeport, Ill., assignor to the Stover Bicycle Manufacturing Company, same place. Filed Dec. 16, 1895. Serial No. 572,208. (No specimens.)



Claim.—The method of uniting the meeting edges of a sheet-metal tube which consists in bending the edges inwardly and back upon themselves, slipping over said edges a retaining-strip adapted to embrace the same, inserting between the strip and the edges spelter or other suitable solder in a solid form, forcing the strip and edges down into compact shape by means of pressure and heating the joint; substantially as described.

575,863. SHEDDER. ISAAC F. STUDEBAKER, Tippecanoe City, Ohio. Filed Aug. 17, 1896. Serial No. 602,974. (No model.)



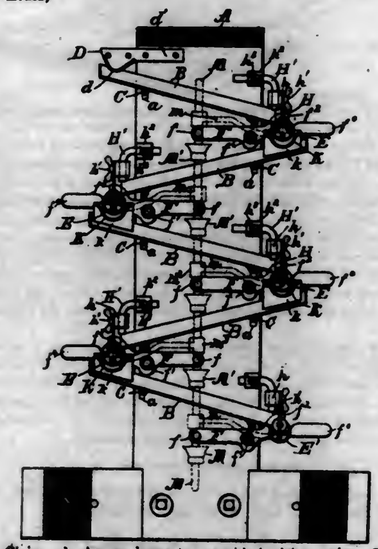
Claim.—1. The combination with the frame, a hopper, and a stationary shaft in said frame, carrying-wheels on the ends of said shaft, of a series of backwardly-extending conduits, each of said conduits being formed with laterally-extending bearings to fit on said shaft, and a lateral opening in proximity to said bearings, and a removable furrow-opener at the other end of said conduit, substantially as specified.

2. The combination with the hopper and an axle, carrying-wheels supporting said axle, of a series of conduits having a laterally-extending sleeve journaled on said axle with the ends of the sleeves of adjacent conduits in contact as described, a lateral opening in each of said conduits in proximity to said sleeve, and a detachable furrow-opener at the opposite end of said conduit from said sleeve, substantially as specified.

3. The combination with the frame and hopper, an axle supporting said frame, and carrying-wheels supporting said axle, a distributer in said hopper, and a conduit pivoted directly on said axle and provided with a lateral opening connected to said distributer, a furrow-opener on the opposite end of said conduit, and an intermediate lug or projection on said conduit, and a yielding connection from said lug or projection to a raising and lowering device, substantially as specified.

4. The combination with the hopper, an axle secured thereto, a distributer in said hopper, a pivoted conduit having laterally-extended bearings to fit on said axle, a lateral opening in one side of said conduit in proximity to said bearings, and a detachable furrow-opener having a sleeve adapted to fit over the end of said conduit, said furrow-opener being formed with a grain-channel at the rear end thereof extending downwardly from said sleeve, substantially as and for the purpose specified.

575,864. AMALGAMATOR. JAMES J. TINKER, Portland, Oreg. Filed Apr. 4, 1895. Renewed June 20, 1896. Serial No. 597,483. (No model.)



Claim.—1. An amalgamator provided with a series of amalgamated plates arranged zigzag one above the other, troughs containing mercury interposed between said zigzag plates, at the lower end of one plate and at the upper end of the plate below, pipes for drawing off the heavier liquid at the bottom of said troughs, perforated tubes longitudinally arranged in said troughs, a supply-pipe for chemicals connected to said perforated tubes, and means for feeding ore to said amalgamator and for supplying chemicals to said supply-pipe, substantially as described.

2. An amalgamator provided with a transverse trough with perforations in the bottom thereof and extending across the upper portion of said amalgamator, a series of amalgamated plates arranged zigzag one above the other and receiving the ore from said perforated trough, troughs containing mercury interposed between said zigzag plates, at the lower end of one plate and at the upper end of the plate below, pivoted hand-levers supporting said troughs, and means for clamping the said levers in any desired position, and means for drawing off the heavier liquid at the bottom of said troughs, substantially as described.

3. An amalgamator provided with a plurality of vertically-adjustable transverse amalgamated plates, arranged zigzag, and one above the other, with troughs containing mercury placed at the lower end of one plate and the upper end of the plate below, and in the path of the auriferous material, pivoted hand-levers supporting said troughs, and means for clamping said levers in any desired position, and means for feeding the ore to the upper plate, substantially as described.

4. An amalgamator provided with a plurality of vertically-adjustable transverse amalgamated plates, arranged zigzag and superimposed one above the other, with troughs containing mercury arranged between the said plates, and in the path of the auriferous material, lugs on the ends of said troughs, pivoted hand-levers having a forked arm engaging said lugs, means for adjustably clamping said lugs in said forked arms, and for clamping said levers at any desired position, substantially as described.

5. An amalgamator provided with a plurality of vertically-adjustable transverse amalgamated plates, arranged zigzag one above

the other, with troughs containing mercury arranged at the lower end of one plate and at the upper end of the plate below, and in the path of the auriferous material, lugs on the ends of said troughs, pivoted hand-levers having a forked arm engaging said lugs, means for adjustably clamping said lugs in said forked arms and for clamping said levers at any desired position, amalgamated splasher-plates projecting into said troughs, bent arms supporting said splasher-plates and adjustably connected thereto and to the framework, and means for feeding the ore to the upper inclined plate, substantially as described.

575,865. SALES BOOK OR PAD. HAMILTON H. WEBBER and SAMUEL J. BUSHER, Mansfield, Ohio. Filed Mar. 19, 1896. Serial No. 583,996. (No model.)



Claim.—1. An improved sales book or pad, comprising a base, a series of detachable leaves connected to the base at one end, the alternate leaves being of different colors, the space-block at the opposite end of the base, and the carbon and protecting sheets connected to the space-block, substantially as shown and described.

2. An improved sales book or pad, comprising a base, the cross-strip at one end of said base, a series of leaves detachably secured to the base, a space-block at the free end of such leaves, said space-block, cross-piece and leaves being of uniform thickness whereby to produce a pad of regular or uniform thickness, the carbon the protecting-sheet and the cover secured to the upper face of the space-block all being arranged substantially as shown and for the purposes described.

3. An improved sales book or pad, comprising a base, a series of leaves attached thereto, each having a row of perforations near one edge, said leaves being of different colors and arranged alternately as described, the space-block at the opposite end of the base, the protecting-sheet, the carbon-sheet, and the top cover, all connected to said space-block, substantially as shown and described.

575,866. LADDER. WILLIAM WILDPRETT, Providence, R. I. Filed July 3, 1896. Serial No. 597,969. (No model.)

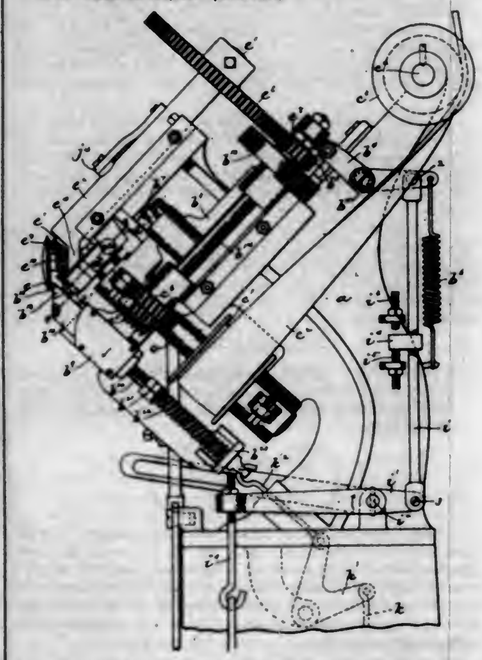


Claim.—1. The combination with a carriage having an outwardly-extending arm, and a latching or holding device, of a ladder pivotally connected with the carriage and furnished with a portion adapted to bear against the carriage-arm when the ladder is in a position for use and to be engaged and held by the holding device when the ladder is brought into position therefor.

2. The combination with an upper and a lower track, and carriages mounted to travel thereon, of a ladder pivotally supported between the carriages.

3. The combination with the track-carriage 9 having the depending member 12, the arm 13 and the catch 14, and a carriage comprising the wheel 21 mounted in the frame 22, of the ladder having the side 15 provided with the frames 16 and 24 pivoted respectively to the member 12 and to the frame 22, and the side 15' provided with the stud 18, as and for the purpose described.

575,867. SOLE CHANNELING AND TRIMMING MACHINE. HENRY H. ARNOLD, Rockland, Mass., assignor, by mesne assignments, to the Eppler Welt Machine Company, Boston, Mass. Filed June 18, 1896. Serial No. 596,063. (No model.)



Claim.—1. In a machine of the character specified, the combination of a rotary cutter-head provided with sole-edge-trimming knives, a feed-wheel movable toward and from the axis of the cutter-head, means for rotating the feed-wheel, and knife-carrier also movable toward and from the axis of the cutter-head, and provided with a channeling-knife and means for oscillating said carrier.

2. In a machine of the character specified, the combination with a rotary cutter-head provided with sole-edge-trimming knives, and a feed-wheel adjacent thereto, of a knife-carrier provided with a channeling-knife, a lever supporting said carrier, a slide to which said lever is pivoted, means for oscillating said lever, and means for moving the slide to adjust the channeling-knife toward and from the cutter-head.

3. In a machine of the character specified, the combination with a rotary cutter-head having sole-edge-trimming knives and a feed-wheel adjacent thereto, of a knife-carrier having a channeling-knife, a lever supporting said carrier, a slide to which said lever is pivoted, a rotating cam adjacent to the lever and arranged to cooperate with the feed-wheel in oscillating the lever and channeling-knife, and means for moving the slide to adjust the channeling-knife toward and from the cutter-head.

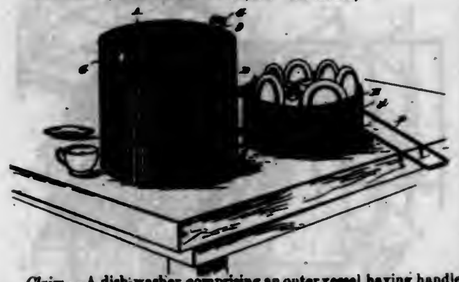
4. In a machine of the character specified, the combination with a rotary cutter-head, having sole-edge-trimming knives and a channeling-knife and its holder or carrier adjacent thereto, of a feed-wheel, a sliding or movable support in which said wheel is journaled, means for rotating said wheel, and means for moving the said slide to adjust the feed-wheel toward and from the cutter-head.

5. In a machine of the character specified, the combination of a feed-wheel, a knife-carrier having a channeling-knife, an oscillatory lever supporting the knife-carrier, and a rotating cam arranged to act on said lever, the lever and cam being relatively arranged so that there is no operative engagement between them when the work is not moved by the feed-wheel, substantially as and for the purpose specified.

6. In a machine of the character specified, a rotary cutter-head having longitudinally and reversely inclined cutting edges.

7. In a machine of the character specified, a rotary cutter-head having longitudinally and reversely inclined cutting edges which are also inclined laterally.

575,868. DISH-CLEANER. BUELL C. ATWELL, Alexandria, Va. Filed Mar. 30, 1896. Serial No. 584,143. (No model.)



Claim.—A dish-washer comprising an outer vessel having handle members provided with undercut portions *g*, and a perforated dish-holder movable vertically within the outer vessel and having handle members D, hinged thereto, said handle members adapted to be swung over the upper edges of the outer vessel and adapted to be moved into engagement with the undercut portions of the handle members substantially as shown and described.

575,869. TELEPHONE-TRANSMITTER. RUSSELL S. BARNUM, Chicago, Ill. Filed June 1, 1896. Serial No. 593,780. (No model.)



Claim.—1. A telephone-transmitter in which is combined a carbon block constituting one electrode having a recess formed in its face the edges of which above and below are brought into close proximity to the diaphragm, an obliquely and forwardly depending tongue having its rear end loosely secured to said block within said recess, a diaphragm constituting the opposite electrode, and loose particles of conducting material partially surrounding said tongue and in contact therewith and with said block and diaphragm, substantially as described.

2. In a telephone-transmitter, the combination with a diaphragm constituting one electrode and suitable electrical connections with a line and source of electricity, of a carbon block forming the opposite electrode, said block having a recess therein adjacent to the diaphragm, a tongue of conducting material loosely hinged within said recess and arranged so that its forward end may touch said diaphragm and its rear end said block, and loose particles of conducting material contained within and partially filling said recess, substantially as described.

3. The combination in a telephone-transmitter, of a diaphragm and carbon block forming opposite electrodes with respect to each other, said block being provided with a recess in its face adjacent to the diaphragm, a hinged tongue, and loose particles of conducting material arranged within said recess so as to partially cover said tongue, a source of electricity, and suitable electric connections, substantially as described.

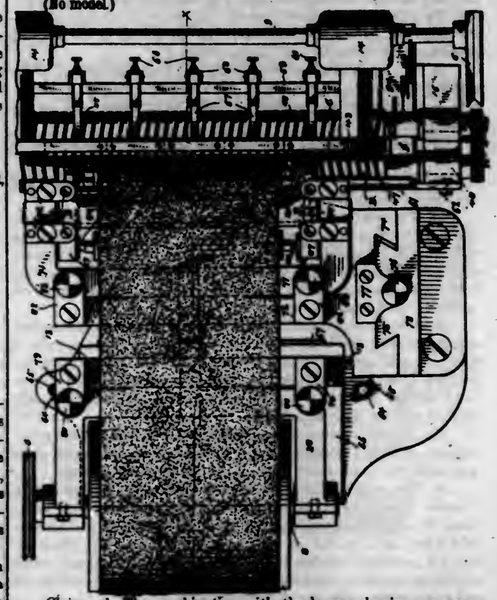
4. The combination in a telephone-transmitter of a diaphragm and a carbon block forming opposite electrodes, said carbon block having a series of recesses within its face adjacent to the diaphragm, the edges of which recesses are brought into such close proximity to said diaphragm as to prevent the passage of loose particles from one compartment to another, loose tongues of conducting material hinged within said recesses, loose particles of like material also arranged therein so as to partially cover said tongues, a source of electricity and suitable electrical connections, substantially as described.

5. The combination in a telephone-transmitter of a diaphragm and a carbon block forming opposite electrodes, said carbon block having a series of recesses formed within its face with overhanging ledges, the edges of which are in sufficiently close proximity to the diaphragm to prevent the passage of granules from one compartment to another, a plurality of loose tongues composed of conducting material, means for suspending or hinging the same so that their axes may be oblique to the plane of the diaphragm, and loose particles of conducting material placed within said separated compartments, as and for the purposes specified.

6. In a telephone-transmitter, a diaphragm and a carbon block constituting two electrodes and a mass of granulated conducting material, of an obliquely-disposed tongue in electrical contact with both electrodes, one end of said tongue being projected into the mass of granulated conducting material and in electrical contact with the diaphragm, while the opposite end of said tongue is caused to extend above the mass of granulated conducting material and into contact with said carbon-block electrode, substantially as shown and described.

7. In a telephone, a diaphragm and carbon block constituting two electrodes, and a mass of granulated conducting material, an obliquely-disposed carbon tongue hinged to one, and in electrical contact with both of the said electrodes, said tongue projecting into but only partially surrounded by said granulated conducting material, substantially as described.

575,870. MACHINE FOR POINTING NEEDLES. PHILO M. BEERS, Bridgeport, Conn. Filed Dec. 21, 1895. Serial No. 572,890. (No model.)



Claim.—1. The combination with the hopper having a passage 18 leading therefrom, slots 23 extending into the passage and a slot 26 intersecting the passage, of a rock-shaft carrying fingers which normally lie in slots 23 and an arm 29 and a cut-off slide in slot 26 carrying an arm which engages arm 29 near its center of oscillation so that when the forward movement takes place the fingers will be moved faster than the cut-off slide and permit a blank to be expelled by the cut-off slide.

2. The combination with the hopper having a passage leading therefrom, slots 23 extending into the passage and a slot 26 through the lower portion of the hopper intersecting with the passage, of a rock-shaft carrying fingers which normally lie in slots 23, a spring 34 bearing upon one of the fingers to hold them at their normal position, a cut-off slide in slot 26 and mechanism for reciprocating the cut-off slide and for oscillating the rock-shaft.

3. The combination with the hopper having a passage 18, slots 23 and a slot 26, of a rock-shaft carrying fingers which normally lie in slots 23 and an arm 29, a cut-off slide in slot 26 which carries an arm engaging arm 29 to actuate the rock-shaft, lever 30 which engages the cut-off slide, a cam 34, lever 32 carrying a roller engaging said cam and a spring 39 acting to hold the roller in engagement with the cam and lever 30 in engagement with the cut off slide whereby forward movement is imparted to the cross-slide, said spring serving as a cushion to prevent breakage should the blanks become clogged.

4. The combination with a back feed-screw which turns forward and a front feed-screw which turns backward of a friction-roller which also turns backward whereby the needle-blanks are retained in the screws.

5. The combination with a back feed-screw in which the butts of the needle-blanks lie, and a front feed-screw in which the reduced

portions of the blanks lie, of friction-roller 42 on which the shanks of the needle-blanks rest and mechanism for rotating the back feed-screw toward the front and for rotating the front feed-screw and the friction-roller toward the back.

6. The combination with a back feed-screw which turns forward and a front feed-screw and friction-roller which turn backward, of feeding mechanism which delivers needle-blanks to the screws singly.

7. The combination with the feed-screws and the friction-roller, of the rolling-belt which rotates the needle-blanks axially as they are carried along by the screws.

8. The combination with feeding mechanism for delivering one needle-blank at each actuation, of the back and front feed-screws, the friction-roller and rolling-belt 43.

9. The combination with the back and front feed-screws and the friction-roller, of the rolling-belt, pressure-plate 56 and means for adjusting said plate to determine the pressure of the belt on the needle-blanks as they are carried along by the screws.

10. The combination with the back and front feed-screws, of the grinding-belt and means substantially as described and shown for oscillating said belt laterally relatively to the feed-screw.

11. The combination with the back and front feed-screws, of the grinding-belt and means substantially as described and shown for tilting said grinding-belt relatively to the feed-screws in a transverse vertical plane whereby either the first or the last portion of the grinding operation may be made more or less effective.

12. The combination with the back and front feed-screws, of the grinding-belt and a friction-roller by which the needle-blanks are held in position in the feed-screws while being acted upon by the grinding-belt.

13. The combination with the back and front feed-screws, of rest 61, the grinding-belt and the friction-roller.

14. The combination with the back and front feed-screws and the rolling-belt, of the grinding-belt and the friction-roller.

15. The combination with the feed-screws and the grinding-belt, of drum 11 over which one end of said belt passes, a yoke 38 in which said drum is journaled, a bracket 13 by which the yoke is carried, means for tilting said yoke relatively to the bracket and for locking it in position and means for adjusting the bracket, yoke and drum relatively to the feed-screws.

16. The combination with the feed-screws, and the grinding-belt, of roller 70 over which the operative end of said belt passes, yoke 71 by which said roller is carried, bracket 72 by which the yoke is carried and means for tilting said yoke and the grinding-belt in a transverse vertical plane relatively to the bracket and for locking said parts in position after adjustment.

17. The combination with the bed, the feed-screws and the grinding-belt, of plate 3 pivoted so as to oscillate in the horizontal plane and means for locking said plate to the bed after adjustment.

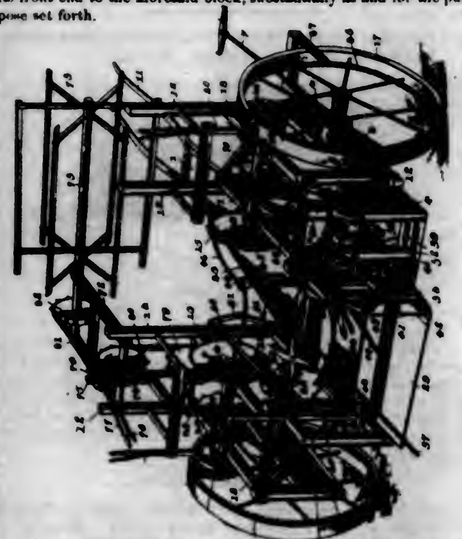
18. The combination with the feed-screws and the grinding-belt, of roller 70 over which the operative end of the grinding-belt passes, frame D in which the roller is journaled, roller 88 also journaled in said frame and bearing on the grinding-belt, yoke 71 in which the frame is journaled, bracket 72 by which said parts are carried, means for tilting the frame relatively to the yoke and means for tilting the yoke and frame relatively to the bracket.

19. The combination with the back feed-screw which turns forward and the front feed-screw which turns backward, of the grinding-belt, the friction-roller which turns backward and a chute 94 into which the blanks drop butts foremost as they pass off the friction-roller.

575,871. CORN-HARVESTER. HENRY BOESE, Crozier, Iowa, assignor to Theresa Boese, same place. Filed July 8, 1895. Serial No. 555,253. (No model.)

Claim.—1. In a corn-harvester, the combination of a platform gradually increasing in width from the front toward its rear end, oppositely-disposed guards forming converging passages at the sides of the platform, cutters operating at the inner ends of the passages, a block secured upon the rear portion of the platform and having passages between its sides and the aforesaid guards, the front portion of the block sloping to the plane of the platform and having its corners rounded, and the rear portion having its top side extending in substantially a horizontal plane and semicircular in outline, and its rear and side walls substantially vertical and packers journaled vertically in the said block and operating thereover, and constructed to move the stalks rearwardly through the passages at the sides of the said block, substantially as set forth.

2. In a corn-harvester, the combination of a platform, cutting apparatus, a block located at the inner or rear end of the platform and having passages at its sides, packers journaled vertically in the said block to move the stalks through the passages and form them into a shock, a tilting platform immediately in the rear of the main platform, shafts journaled vertically at the rear ends of the side passages and having coacting arms to retain the stalks, actuating mechanism under the control of the driver to throw the said shafts in gear to actuate them for positively discharging the shock, and a spring-rod extending rearwardly over the tilting platform and secured at its front end to the aforesaid block, substantially as and for the purpose set forth.



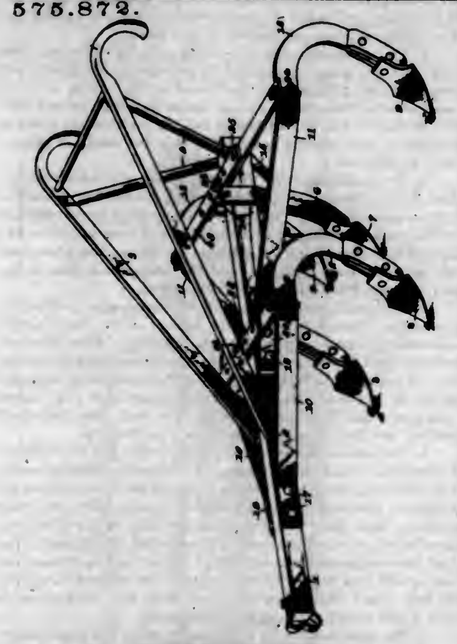
3. In a corn-harvester, the combination with the platform, the cutting apparatus, and packers for forming the shock, of shock-holders, a shaft operatively connected with the shock-holders for actuating the latter, a locking mechanism to secure said shaft against rotation, whereby the shock-holders will sustain the stalks during the formation of the shock, a mutilated gear mounted upon and having a ratchet-and-pawl connection with the said shaft and provided with a stop to limit its movement in one direction, a returning-spring operatively connected with the mutilated gear to return it to a normal or operative position, and a movable frame provided with a power-driven gear-wheel which is adapted to be brought in mesh with the mutilated gear, whereby the shock-holders are positively operated to deposit the shock upon the ground, substantially in the manner set forth.

4. In a corn-harvester, the combination of the platform having passages at its sides, cutters operating at the inner ends of the passages, packers journaled vertically and adapted to move the stalks rearwardly, shock-holders disposed in the rear of the packers, and comprising vertical shafts and coacting arms, a transversely-disposed shaft operatively connected with the shock-holders and having a ratchet portion, a detent-lever to be engaged with the ratchet-teeth of the said shaft to secure the shock-holders against turning, a mutilated gear-wheel having a limited turning movement upon the said shaft, and having a ratchet-and-pawl connection therewith, means for returning the mutilated gear to a normal position, and actuating mechanism to be thrown in mesh with the said mutilated gear-wheel for positively operating the shock-holders to deposit the shock upon the ground, substantially as set forth.

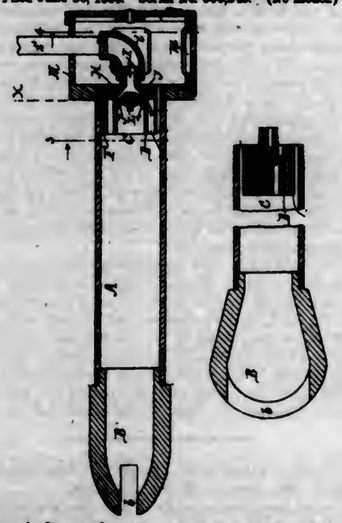
575,872. CULTIVATOR. JAMES F. BOLLINGER, Hickory, N. C. Filed July 21, 1894. Serial No. 518,237. (No model.)

Claim.—A cultivator comprising a sectional draft-beam having attached handles and carrying a plow-standard adjustable longitudinally of the draft-beam and provided with means for clamping it at the desired adjustment, pairs of transversely opposite plow-beams detachably secured by common bolts to opposite sides of the draft-beam, each plow-beam being provided at its front end with an ear approximately parallel with the draft-beam, engaged by said bolts, and adapted to be deflected from the plane of the plow-beam by the insertion of a wedge block, a rearwardly and outwardly deflected body portion, and a rear portion parallel with the draft-beam and terminating in a plow-standard, either of the opposite plow-beams being detachable independently of the other to provide the desired number of plow-standards, and transverse braces comprising relatively-adjustable sections terminally attached to the plow-beams contiguous to said rear portions and secured at their overlapping inner extremities by engaging bolts which are also engaged with the draft-beam, either section of said transverse braces being adjustable independently of the other, and also being removable independently of the other to suit the number and locations of the plow-beams, substantially as specified.

575,872.



575,873. SMOKE-CONSUMER. CHARLES C. BRUCKNER, Chicago, Ill. Filed June 30, 1896. Serial No. 596,943. (No model.)



Claim.—1. In a smoke-consumer, the combination with a mixing-tube, a superheating-nozzle on one end of said tube, of a steam-nozzle in the other end of said tube, comprising an outer tube arranged in the mixing-tube to provide a space between said tube and the mixing-tube, an inner tube leaving a space between itself and the outer tube, a bridge-wall provided with a hollow extension and ports leading from said hollow extension to the space between the inner and outer tubes, and a steam-pipe communicating with said extension, substantially as described.

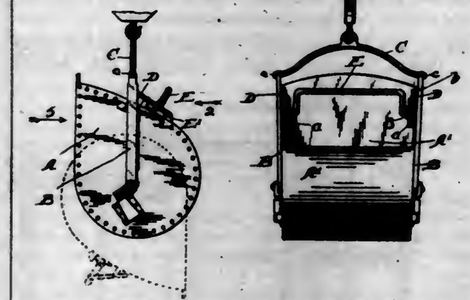
2. In a smoke-consumer, the combination with a mixing-tube, having a superheating-nozzle on one end thereof, of a steam-nozzle adapted to be arranged in the other end of said mixing-tube, and comprising a bridge-wall having a hollow extension, an inner tube and an outer tube connected to said bridge-wall, and having a space between them, ports leading from the hollow extension to said space between the tubes, a steam-pipe communicating with said hollow extension, and ribs on the outer side of the outer tube adapted to fit snugly within the end of the mixing-tube, and thereby provide a space between the outer tube and the mixing-tube, substantially as described.

3. In a smoke-consumer, the combination with a mixing-tube, having a superheating-nozzle on one end thereof, of a steam-nozzle secured in the other end of said tube, and consisting of an outer tube, the ribs on said outer tube adapted to fit between said tube and the mixing-tube, thereby providing a space between said tubes, an inner tube arranged within the outer tube and providing space between said inner and outer tubes, a bridge-wall, a hollow extension on said bridge-wall, ports in the bridge-wall leading from the hollow extension and opening in the space between the inner and outer tubes and on opposite sides of the nozzle, a steam-pipe communicating with said hollow extension, a plug closing the inner end of said extension, and adapted to be adjusted to control the amount of steam passing into the ports, and a perforated cap removably secured on the outer end of said mixing-tube, substantially as described.

4. In a smoke-consumer, the combination with a mixing-tube, a superheating-nozzle on one end of said tube, a steam-nozzle fitted in the other end of the tube and comprising an outer tube, an inner tube, a bridge-wall having a hollow extension and ports leading from said extension to a space between the tubes, a steam-pipe communicating with said extension, of a cap, arranged on the tube and over the steam-nozzle and provided with openings therein and a damper-plate pivotally secured on the cap and provided with openings to register with the openings in the cap, substantially as described.

5. In a smoke-consumer, the combination with a mixing-tube, a superheating-nozzle on one end thereof, of a steam-nozzle in the other end of the tube provided with a hollow extension, an elbow secured on the extension, a steam-pipe on the elbow, a cap provided with top and side openings and secured to the tube, and a damper-plate pivotally secured on the cap and provided with openings to register with the openings in the cap, substantially as described.

575,874. EXCAVATING-SCOOP. DANIEL I. CALHOUN, Chicago, Ill., assignor to the Calhoun Excavating Company, same place. Filed Sept. 30, 1895. Serial No. 564,089. (No model.)



Claim.—1. The combination with the scoop and the bars pivoted to its side pieces and provided with suitable means for draft, of a vertically-swinging lever pivoted to the side piece of the scoop and adapted to abut against the corresponding pivoted bar or an attachment thereof and a cranked lever supported by the side pieces of the scraper and provided with a foot impinging upon said vertically-swinging lever, the movement of the crank-lever in one direction being adapted to swing said vertically-moving lever out of engagement with said pivoted bar; substantially as and for the purpose set forth.

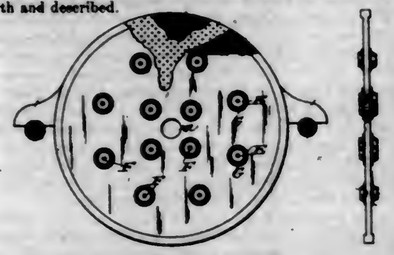
2. The combination with the scoop, of the bars, B, B, pivoted to the side pieces thereof and provided with means for draft, the levers, D, D, adapted to abut against said bars and the cranked lever, E, provided with feet, E', E', impinging upon the levers, D, D, and adapted in a certain movement of the crank-lever to disengage the levers, D, D, from the bars, B, B, and permit inversion of the scoop.

3. The combination with the scoop, of the bars, B, B, the locking-levers, D, D, adapted to abut against said bars, the cranked lever, E, provided with feet, E', E', impinging upon the levers, D, D, and springs, S, S, adapted to hold the locking-levers, D, D and cranked levers, E, E, in their normal position.

575,875. FILTER-PRESS PLATE. HORACE P. CHAMBERLAIN, Buffalo, N. Y. Filed Nov. 5, 1895. Serial No. 567,960. (No model.)

Claim.—As an improved article of manufacture a filter-press plate consisting, essentially, of a central disk having centrally an aperture and provided at diametrically opposite points with lugs, of two perforated disks located one on each side of said central disk, canvas

covers on the outer sides of said perforated disks, a series of separating-disks upon said canvas covers and canvas washers under said separating-disks, said separating-disks being secured to the plates and covers by bolts having countersunk heads in one of the said series of separating-disks, and angular nuts embedded in corresponding recesses in the opposite series of separating-disks, all as hereinbefore set forth and described.

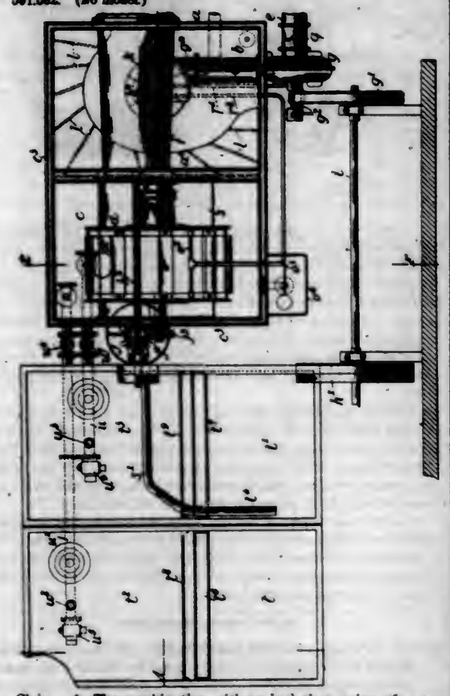


575,876. **DRILL-CHUCK.** WILLIAM CHATTAWAY, West Bromwich, England, assignor to the Boston Forge Company, Boston, Mass. Filed June 11, 1896. Serial No. 595,173. (No model.) Patented in England Aug. 3, 1893, No. 14,880.



Claim.—A drill-chuck comprising a body or holder having a cylindrical cavity screw-threaded at its outer portion, and two annular sections constituting a drill-socket in said cavity, the inner section having segmental grooves or recesses in its outer portion, while the outer section is screw-threaded to engage the thread of the holder and is provided with longitudinal grooves which communicate with the segmental grooves in the inner section.

575,877. **APPARATUS FOR PURIFYING SMOKE OR GASES.** HARRY R. CRUSS, London, England. Filed May 11, 1896. Serial No. 591,062. (No model.)



Claim.—1. The combination with an inclosing casing of a revoluble drum located therein provided with an inlet-aperture adjacent to its central portion and discharge-apertures adjacent to its periphery, a filling of comminuted material in said drum between its axis and periphery and means for maintaining said material continuously in a wetted condition, substantially as described.

2. The combination with an inclosing casing of a revoluble drum located therein comprising among its members an outer perforated cylindrical casing and an inner perforated casing, a filling of comminuted material between said casings, means for passing gaseous products through said perforated casings and said material and means for maintaining said material continuously in a wet condition, substantially as described.

3. The combination with the inclosing casing, of a revoluble perforated drum therein provided with a filling of comminuted material, a fluid-receptacle located below the lowest portion of said drum, an endless carrier provided with buckets passing over said drum, having a portion depending below the drum and into said fluid-receptacle and means for passing gaseous products through said drum in contact with said filling, substantially as described.

4. The combination with the inclosing casing, of a revoluble perforated drum therein, having an inlet adjacent to its central portion and discharge-apertures adjacent to its periphery, a filling of comminuted material in said drum, a fluid-receptacle below the lowest portions of said drum, a trough above said fluid-receptacle inclosing a portion of said drum, and an endless carrier provided with buckets passing over said drum and depending below said drum and trough and into said fluid-receptacle, substantially as described.

5. The combination with the inclosing casing, of a revoluble perforated drum located in said casing provided with a filling of comminuted material, said drum having an inlet adjacent to its center and peripheral discharge-apertures, a fluid-receptacle below the lowest portion of said drum, a trough above the fluid-receptacle and surrounding a portion of said drum, a filtering and settling tank, a passage communicating from said trough to said tank, a passage connecting said tank with said fluid-receptacle and means for supplying the fluid in said fluid-receptacle to said drum at a point above the level of said trough, substantially as described.

6. The combination with the inclosing casing, of a revoluble perforated drum located in said casing provided with a filling of comminuted material, said drum having an inlet adjacent to its center and peripheral discharge-apertures, a fluid-receptacle below the lowest portion of said drum, a trough above the fluid-receptacle and surrounding a portion of said drum, a filtering and settling tank, a passage communicating from said trough to said tank, a passage connecting said tank with said fluid-receptacle and an endless carrier provided with buckets passing over said drum, and depending below said drum and trough and into said fluid-receptacle, substantially as described.

7. The combination with an inclosing casing provided with a receiving-chamber and a filtering-chamber, a revoluble drum in said filtering-chamber, a filling of comminuted material, means for maintaining said material continuously in a wet condition, a centrifugal device in said receiving-chamber, means for introducing gaseous products into said centrifugal device, and means for passing said products from the receiving-chamber through said drum in contact with said filling, substantially as described.

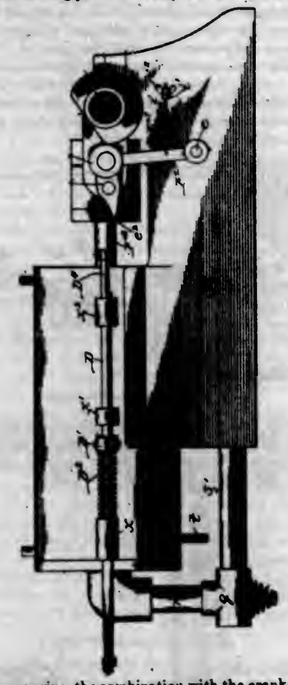
8. The combination with an inclosing casing provided with a receiving-chamber and a filtering-chamber, a revoluble perforated drum in said filtering-chamber having an axial inlet-passage communicating with said receiving-chamber and provided with a filling of comminuted material, means for maintaining said material continuously in a wetted condition, a centrifugal settling device in said receiving-chamber and a forcing device communicating with said centrifugal device for forcing gaseous products into said receiving-chamber through said centrifugal device, substantially as described.

575,878. **GAS-ENGINE.** FREDERICK W. CORE, Chicago, Ill. Filed May 14, 1896. Serial No. 591,465. (No model.)

Claim.—1. In a gas-engine, the combination with the crank-shaft and piston, of a cylinder having a gas inlet port, an exhaust-port and a vent-port opened and closed by the piston, a normally closed valve at the said inlet-port, a normally open valve at the said exhaust-port, and closing means for said exhaust-port valve actuated from the said crank-shaft, substantially as and for the purpose set forth.

2. In a gas-engine, the combination with the crank-shaft and piston, of a cylinder having a gas-inlet port, an exhaust-port and a vent-port opened and closed by the piston, a normally closed valve at the said inlet-port, a normally open valve at the said main exhaust-port, a connection between the said valves operating to lock the inlet-port valve against opening when the exhaust-port valve is open, and closing means for the said exhaust-port valve actuated from the said crank-shaft, substantially as and for the purpose set forth.

3. In a gas-engine, the combination with the crank-shaft and piston, of a cylinder having a gas-inlet port, an exhaust-port, and a vent-port opened and closed by the piston, a normally closed valve at the said inlet-port, a valve at the exhaust-port, spring mechanism connected with the said exhaust-port valve and tending to hold the same normally open, a cam upon the crank-shaft, and governor mechanism between the said cam and spring mechanism operated by the said cam to move the said spring mechanism and close the exhaust-port valve intermittingly, substantially as and for the purpose set forth.



4. In a gas-engine, the combination with the crank-shaft and the cylinder provided with an exhaust-port, of a normally open valve at said exhaust-port, closing means for said valve, a cam on the crank-shaft and governor mechanism actuated by the said cam to intermittingly engage and operate the said valve-closing means to close said valve and means for regulating the pressure of engagement between the cam and governor, whereby when the cam rotates faster than a predetermined speed, the governor will jump upon the cam and thereby fail to engage and operate the valve-closing means, substantially as and for the purpose set forth.

5. In a gas-engine, the combination with the crank-shaft and the cylinder provided with an exhaust-port, of a valve at said exhaust-port, a reciprocatory bar connected with the said exhaust-port valve, a spring at the bar tending to hold the same normally in the position of opening said valve, a cam on the crank-shaft, governor mechanism actuated by the said cam to intermittingly engage and move said bar to close said valve, and means for regulating the pressure of engagement between the cam and governor, whereby when the cam rotates faster than a predetermined speed, the governor will jump upon the cam and thereby fail to engage and move the said bar, substantially as and for the purpose set forth.

6. In a gas-engine, the combination with the crank-shaft and the cylinder provided with an exhaust-port, of a valve at said exhaust-port, a reciprocatory bar connected with the said exhaust-port valve, a spring at the bar tending to hold the same normally in the position of opening said valve, a cam on the crank-shank, governor mechanism actuated by the said cam to intermittingly engage and move said bar to close said valve, comprising a pivotal lever F provided with the cam-engaging roller and a swinging rod-engaging finger F^3, a spring pressing the lever at its roller against the cam, and tensioning means for the spring, the parts being constructed and arranged to operate substantially as and for the purpose set forth.

7. In a gas-engine, means for governing the opening and closing of an inlet or exhaust valve, comprising a cam rotated by the crank-shaft, a bar connected with the valve and movable to open and close the same, a spring at the bar holding the same normally in one position, and governor mechanism actuated by the said cam to intermittingly engage and move said bar against the resistance of its spring, and means for regulating the pressure of engagement between the cam and governor, whereby when the cam rotates faster than a predetermined speed, the governor will jump upon the cam and thereby fail to engage and move the bar, substantially as described.

575,879. **ADJUSTABLE HANDLE-BAR.** FRANK K. DUNN, Chicago, Ill. Filed May 18, 1896. Serial No. 591,976. (No model.)



Claim.—1. The combination of two handle-bars each provided with a pivot-aperture and with an elongated slot located between the pivot-aperture and the inner end of the bar, with a handle-bar frame comprising two rigidly-connected plates, bolts for pivotally mounting the handle-bars between said plates, and means engaging said slots for uniting the inner ends of the said bars together, and at the same time securing them in any desired position to said plates.

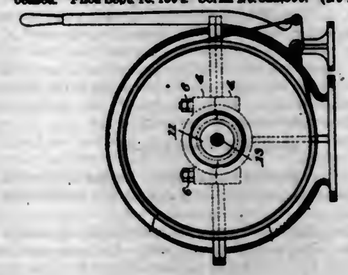
2. The combination of two handle-bars having overlapping, inner end portions and each provided with a pivot-aperture and with an elongated slot located between the pivot-aperture and the inner end of the bar, with a handle-bar frame comprising two rigidly-connected plates, bolts for pivotally securing the handle-bars to the frame with the interfitting ends located between said plates, and means engaging said slots for adjustably uniting said inner end portions together, and at the same time securing them in any desired position to said plates.

3. The combination of two handle-bars having overlapping inner end portions and each provided with a pivot-aperture and with an elongated slot located between the pivot-aperture and the inner end of the bar, with a handle-bar frame adapted to be secured to a bicycle-steering post or the like, comprising two upwardly-extending rigidly-connected plates, bolts for pivotally securing the handle-bars to the frame with the overlapping ends located between said plates, and means engaging said slots for adjustably uniting said ends together, and at the same time securing them in any desired position to said plates.

4. The combination with two handle-bars having a pivotal aperture in their adjacent ends, and provided with elongated slots located between the pivot-aperture and the inner end of the bar, the inner apertured end portions of the bars being of reduced thickness so as to overlap each other, of a frame secured at its lower end to a bicycle-steering post or the like, comprising front and rear plates, rigidly connected at their lower ends, arranged parallel with each other and provided with opposite, vertical, elongated, centrally-arranged openings, pivot-bolts extending through said plates at opposite sides of said central openings, and a clamping-bolt passing through the central opening in the plates and through the elongated slots in the handle-bar ends, whereby said ends may be secured together and to the said frame-plates in any desired position.

5. The combination with two handle-bars having pivotal apertures in their adjacent ends, and provided with elongated slots located between the pivot-apertures and their inner ends, said apertured ends of the bars being of reduced thickness so as to overlap, of a frame secured at its lower end to a bicycle-steering post or the like, said frame comprising front and rear plates, rigidly attached at their lower parts and arranged parallel with each other, and provided with opposite, vertical, elongated, centrally-arranged openings, pivot-bolts extending through said plates at opposite sides of said openings and through said bars, and a clamping-bolt passing through the central opening in the plate and through the elongated slots in the said inner ends of the handle-bars, whereby said ends may be secured together and to the said frame-plate in any desired position, the outer face of one of the said plates adjacent to the central slot, and the inner face of the bolt-head in contact therewith being corrugated, substantially as described.

575,880. **DIFFERENTIAL GEAR.** RUDOLF EICKEMEYER, Yonkers, N. Y.; Rudolf Eickemeyer, Jr., executor of Rudolf Eickemeyer, deceased. Filed Sept. 10, 1894. Serial No. 522,599. (No model.)



Claim.—1. A reversible differential gear, comprising a driving-shaft, a driven shaft, a gear-wheel concentrically mounted on the driven shaft, a compound gear-wheel eccentrically mounted on the driving-shaft and having three sets of teeth, two gears mounted concentrically with the driving-shaft, and brake devices for such gears, substantially as described.

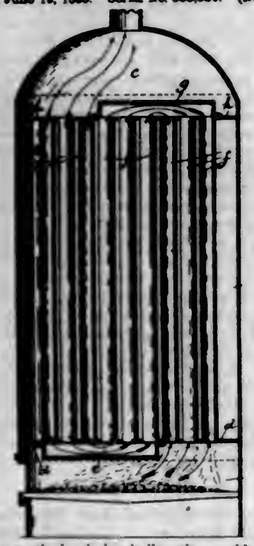
2. A reversible differential gear, comprising a driving-shaft, and a driven shaft, an external gear concentrically mounted on the driven shaft, a compound gear-wheel eccentrically mounted on the driving-shaft and having two internal gears and one external gear, two gears concentrically mounted with reference to the driving-shaft having, respectively, internal and external gears, and brake devices connected to the said concentric gears, substantially as described.

3. A reversible differential gear, having a driving-shaft, a compound gear-wheel eccentrically mounted on the driving-shaft, the said compound gear-wheel being provided with three separate sets of teeth, a driven shaft having a gear engaging one set of teeth, and two gears respectively engaging the other sets of teeth, and means for holding stationary either of said two gears, substantially as described.

4. A reversible differential-gear device comprising a housing having bearings in its sides, a driven shaft carrying a gear having external teeth, a driving-shaft having a crank, a compound gear-wheel mounted on said crank and having three sets of teeth, shafts concentric with the driving-shaft each carrying a gear, the teeth of each of which engage one of the sets of teeth of the compound gear-wheel, and brake devices connected to said concentric shafts and arranged exterior to the casing, substantially as described.

5. A reversible differential-gear device, comprising a driving-shaft, a driven shaft, an external gear concentrically mounted on the driven shaft, a compound gear-wheel eccentrically mounted on the driving-shaft and having three sets of teeth, and two hollow shafts embracing the driving-shaft and each provided with a brake-wheel and with a gear-wheel, said gears engaging an internal and external set of teeth on the compound gear-wheel, substantially as described.

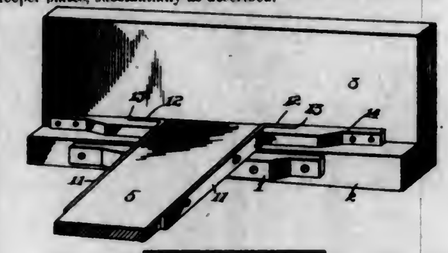
575,881. STEAM-BOILER. DANIEL P. F. CARDOSO, New York, N. Y. Filed June 19, 1895. Serial No. 553,329. (No model.)



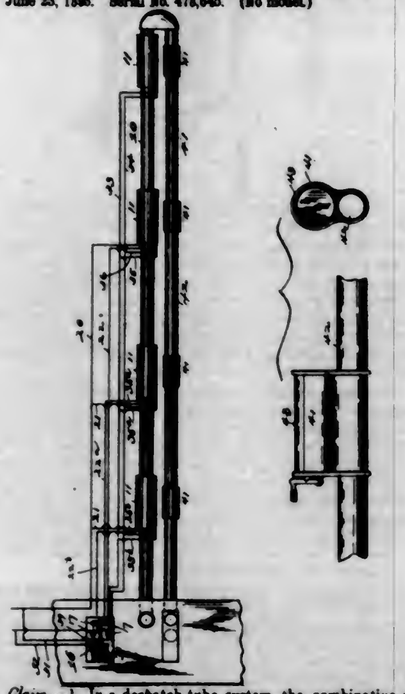
Claim.—In a vertical tubular boiler, the combination with the dome, fire-box, and interposed tubes and tube-heads, of boxes respectively attached to the tube-heads, and formed to cover some of the tubes to act as a communicating passage between them, the exposed or uncovered tubes at either end of the boiler being part of those covered by the box at the other end, the box at the lower or furnace ends of the tubes forming a roof for the fire-box and the box at the upper ends of the tubes being inclosed by the dome.

575,882. BED-SLAT FASTENER. CHARLES S. FIELDING and JOHN R. GROGAN, Quitman, Tex. Filed July 8, 1896. Serial No. 598,605. (No model.)

Claim.—In a bedstead-fastener, the combination with a side rail provided with a slat-supporting cleat, and a slat arranged on the upper face of the cleat and fitting squarely against the inner face of the side rail, of a continuous keeper 1 secured to the side face of the cleat, arranged below the slat and provided with a longitudinal opening and having a recess at its upper edge, a T-shaped hook secured to the lower face of the slat and comprising a shank arranged in the recess of the keeper, and a depending head extending laterally from the shank, arranged in the opening of the keeper and fitting against the side face of the cleat, the keeper-plates arranged on the upper face of the cleat and secured directly to the side rail and provided at their inner ends with recesses located at opposite sides of the slat, and the L-shaped plates secured to the side faces of the slats and having short arms fitting against the face of the side rail, extending laterally from the end of the slat and engaging the recesses of the keeper-plates, substantially as described.



575,883. ELECTRIC CONTROLLING APPARATUS FOR PNEUMATIC-DESPATCH TUBES. EDMOND A. FORDYCE, Chicago, Ill., assignor to The Bostedo Package and Cash Carrier Company, same place. Filed June 23, 1893. Serial No. 478,645. (No model.)



Claim.—1. In a despatch-tube system, the combination with a tube having a plurality of receiving-boxes, switches controlling the entrance to said boxes, magnets for moving said switches, said magnets being included in separate electric circuits or branches of an electrical circuit, a circuit-controlling key for each circuit or branch, means for locking said keys in position to close the circuit and a circuit-breaker at each receiving-box adapted to be operated by the carrier being discharged whereby to break the circuit and permit the keys to return to their normal position, substantially as described.

2. In combination with a pneumatic-despatch-tube system having receiving and despatch tubes, a series of receiving-boxes arranged along said despatch-tube, switches controlling the entrance to said boxes, an electrical circuit including controlling-magnets for said switches and spring-controlled valves in the boxes, said valves being adapted to be operated by the carrier being discharged whereby to control the electric circuit, substantially as described.

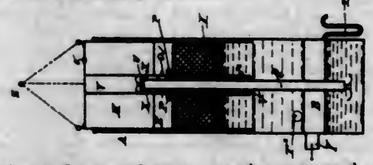
3. In a despatch-tube system, the combination with the despatch-tube having receiving-boxes therein, switches controlling the entrance to said boxes, spring-controlled valves adapted to be moved by the carrier being discharged and a controlling-magnet for each switch, said magnets being included in separate electrical circuits or the branches thereof and each circuit or branch having a controlling-key, means for locking the key after its circuit-closing actuation and the valve at each box being adapted when actuated to break the circuit whereby to release the locking mechanism and deenergize the switch-controlling magnet, substantially as described.

4. A despatch-tube system, comprising in combination a despatch-tube having a series of receiving-boxes, switches controlling the entrance to said boxes, controlling-magnets for said switches, a circuit-controlling key for each switch, means for locking the keys, a magnet controlling the locking mechanism, and a correction-key controlling the circuit of said magnet whereby to release the locking mechanism, substantially as described.

5. In combination with a pneumatic-despatch-tube system having a receiving and despatch tube, a series of receiving-boxes arranged along said despatch-tube, switches controlling the entrance to said boxes, controlling-magnets for said switches, separate electric circuits each including one of said controlling-magnets, a circuit-controlling key for each circuit, a locking mechanism for said keys and a second electric circuit normally open and adapted to be closed by the discharge of the carrier, and a releasing-magnet included in said second electric circuit and adapted when energized to release the circuit-controlling keys, substantially as described.

6. In combination with a pneumatic-despatch-tube system having a receiving and despatch tube, a series of receiving-boxes arranged along said despatch-tube, switches controlling the entrance to said boxes, controlling-magnets for said switches, separate electric circuits each including one of said controlling-magnets, a circuit-controlling key for each circuit, a locking mechanism for said keys, a second electric circuit normally open and adapted to be closed by the discharge of the carrier, a releasing-magnet included in said second electric circuit and adapted when energized to release the circuit-controlling key and a local electric circuit having a correction-key whereby to actuate the releasing-magnet thereby allowing the key to return to its normal position, substantially as described.

575,884. APPARATUS FOR PRODUCING ACETYLENE GAS. MAURICE C. A. FOURCHOTTE, Paris, France. Filed June 27, 1896. Serial No. 597,114. (No model.)

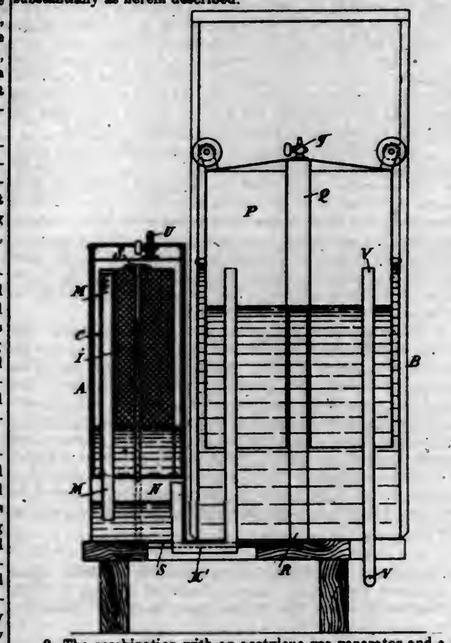


Claim.—1. In an acetylene-gas-generating apparatus, the combination of a water-reservoir, a bell entering the water in the said reservoir, a basket for the reception of carbid affixed in the interior of the bell in such manner as to rise and fall with it, a gas-exit tube debouching within the bell, a valve applied to and partly closing the said tube when the bell is lowered, and means for connecting the said valve with the bell for completely opening the tube when the bell is raised to a certain height, substantially as and for the purpose herein described.

2. In an apparatus for generating acetylene gas, the combination of a water-reservoir, a bell entering the water in the said reservoir, a removable basket for the reception of carbid suspended within the bell in such manner as to rise and descend with it, a gas-exit tube serving as a guide to the bell, a perforated valve resting on the said tube to partly close it when the bell is lowered, a guide-tube affixed to the bell and sliding freely around the valve, and tappets affixed to the latter tube to raise the valve during the rise of the bell, substantially as herein described.

575,885. APPARATUS FOR PRODUCING ACETYLENE GAS. MAURICE C. A. FOURCHOTTE, Paris, France. Filed June 27, 1896. Serial No. 597,115. (No model.)

Claim.—1. The combination with an acetylene-gas generator and a gasometer consisting of a water-reservoir and a bell to which the gas from said generator is delivered, of a U-tube of which one of the branches debouches in the generator and the other is immersed in the water of the reservoir, and a tube having a closed upper end and affixed to the bell and inclosing the open upper end of the latter branch in such manner as to confine above the water in the said branch a volume of air or of gas which will be compressed and expanded respectively during the descent and ascent of the bell to produce or stop the flow of water from the U-tube into the generator, substantially as herein described.



2. The combination with an acetylene-gas generator and a gasometer consisting of a water reservoir and a bell to which the gas from said generator is delivered, of a U-tube of which one of the branches debouches in the generator and the other branch rises through the water in the reservoir and is pierced with holes above the level of said water, and a tube having a closed upper end and affixed to the bell and inclosing the upper end of the latter branch in such manner as to confine above the water in the said branch a volume of air or of gas which will be compressed and expanded respectively during the descent and ascent of the bell to produce and stop the flow of water from the U-tube into the generator: substantially as herein described.

3. The combination with an acetylene-gas generator and a gasometer consisting of a water-reservoir and a bell to which the gas from said generator is delivered, of a U-tube of which one of the branches debouches in the generator and the other branch is immersed in the water of the reservoir, and a tube attached to the bell and having holes at a suitable point in its height and covering the upper end of the latter branch in such manner as to confine and compress above the water in said branch during the descent of the bell a volume of air or of gas for the purpose of producing the flow of water from the U-tube into the generator; substantially as herein described.

4. The combination with an acetylene-gas generator and a gasometer consisting of a water-reservoir and a bell to which the gas from said generator is delivered, of a U-tube of which one of the branches debouches in the generator and the other branch rises through the water of the reservoir and is pierced with holes below the level of said water and a tube attached to the bell having holes at a suitable point in its height and covering the upper end of the latter branch in such manner as to confine and compress above the water in said branch during the descent of the bell a volume of air or of gas for the purpose of producing the flow of water from the U-tube into the generator; substantially as herein described.

5. The combination with an acetylene-gas generator and a gasometer consisting of a water-reservoir and a bell for the reception of the gas from said generator, of a U-tube of which one of the branches debouches in the generator and the other branch is immersed in the water of the reservoir, and a tube fixed in the interior of the bell to cover the upper end of the latter branch and having its own upper end closed but provided with an escape-cock for confining above the water in the latter branch a regulated volume of air or of gas which will be compressed and expanded respectively during the descent and ascent of the bell to produce and stop the flow of water from the U-tube into the generator; substantially as herein described.

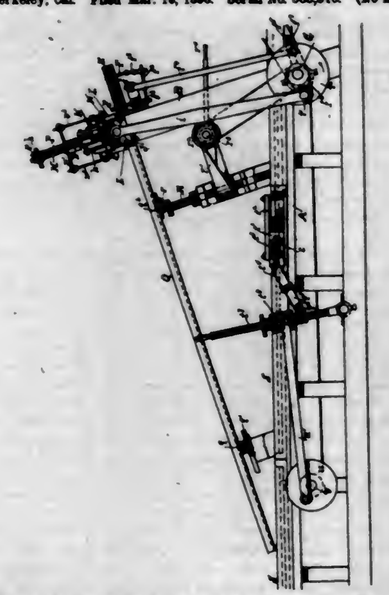
6. The combination with an acetylene-gas generator and a gasometer consisting of a water-reservoir and a bell to which the gas

from said generator is delivered, of a U-tube of which one of the branches debouches in the generator while the other branch rises through the water of the reservoir and is pierced with holes below the level of the said water, and a tube affixed in the interior of the bell to cover the upper end of said branch and having its own upper end closed but provided with an escape-cock for confining above the water in the latter branch a regulated volume of air or of gas which will be compressed or expanded respectively during the descent and ascent of the bell to produce and stop the flow of water from the U-tube into the generator; substantially as herein described.

7. The combination with an acetylene-gas generator and a gasometer consisting of a water-reservoir and a bell to which the gas from said generator is delivered, of a U-tube of which one of its branches debouches in the generator and the other branch of which is immersed in the water of the reservoir and a tube fixed to the interior of the bell and having holes in its sides and covering the latter branch in such manner as to confine and compress above the water in that branch during the descent of the bell a volume of gas for the purpose of producing the flow of the water from the tube into the generator; substantially as herein described.

8. The combination with an acetylene-gas generator and a gasometer consisting of a water-reservoir and a bell to which the gas from the generator is delivered, of a U-tube of which one of the branches debouches in the generator and the other branch rises through the water of the reservoir and has lateral openings below the level of the water therein, and a tube with lateral openings in its upper part fixed to the interior of the bell of the gasometer and covering the upper end of said branch in such manner as to confine and compress above the water of the U-tube during the descent of the bell a volume of gas for the purpose of producing the flow of the water from the tube into the generator, substantially as herein described.

575,886. FRUIT PITTING AND SPREADING MACHINE. JAMES HARRISON, Vacaville, Cal., assignor of one-third to James T. Foster, Berkeley, Cal. Filed Mar. 16, 1896. Serial No. 583,310. (No model.)



Claim.—1. In a fruit pitting and spreading machine, the combination of a vertically reciprocating knife for severing the fruit and forcing its pit out, a pair of auxiliary knives converging downwardly and movable with the main knife and adapted to enter the fruit from above, and means engaging the upper portions of the auxiliary knives for separating the lower edges thereof, whereby the fruit is opened from its top downward and the sections laid on their backs.

2. In a fruit pitting and spreading machine, the combination, of a reciprocating knife to sever the fruit and force out its pit, a pair of downwardly-converging pivotally-hung auxiliary cutters whose lower edges are adapted to enter, from above, the cut made by the main knife, cranks at the upper portions of the auxiliary knives, and means engaging said cranks and turning the auxiliary knives about their pivots whereby their lower edges separate and force the severed sections apart, and lay them on their backs, and means for advancing the sections to the trays.

3. In a fruit pitting and spreading machine having means for severing the fruit and forcing out its pit, a pair of auxiliary cutters operating with the main cutter, converging downwardly and having cranked upper ends, and means engaging said upper ends to cause the lower edges of the cutters to separate after they have entered the cut made by the main knife and thereby lay the severed sections on their backs.

4. In a fruit pitting and spreading machine having a knife or cutter for severing the fruit and forcing out its pit, a pair of converging auxiliary knives pivotally hung above the fruit, one on each side of the main knife or cutter, and means for engaging the auxiliary knives or cutters at points above their pivots whereby their opposite or converging edges are caused to separate in opposite directions and force the sections apart and lay them on their backs.

5. In a fruit pitting and spreading machine, the combination of knives for severing the fruit and forcing its pit out, a pair of converging, pivotally-hung auxiliary knives or cutters and mechanism engaging their upper ends to cause them to rock on their pivots and separate at their edges, for laying the severed sections on their backs, an inclined shaking table adapted to receive the laid-out severed sections of the fruit and advance them down the incline, and a series of advancing trays adapted to receive said sections.

6. In a fruit pitting and spreading machine, the combination of an inclined feeding device adapted to automatically and successively supply the fruit, a suitable seat for receiving the fruit, knives for severing the fruit and forcing its pit out, a pair of auxiliary knives or cutters for each main knife, pivotally hung at their upper portions, means engaging the auxiliary knives above their pivots whereby they rock about said pivots and separate at their lower ends, for laying the severed sections on their backs, an inclined shaking table adapted to receive the laid-out severed sections of the fruit and advance them, and a series of advancing trays adapted to receive said sections from the inclined table.

7. In a fruit pitting and spreading machine, the combination of a suitable seat to receive the fruit, a vertically-reciprocating knife for severing the flesh of the fruit and forcing its pit out, oppositely-inclined auxiliary knives pivotally secured at their upper ends and arranged one on each side of the splitting-knife, and means engaging the auxiliary knives above their pivots for causing said auxiliary knives to enter the split fruit and separate outwardly away from the splitting-knife, in order to lay out the severed sections of the fruit upon their backs.

8. In a fruit pitting and spreading machine, the combination of a suitable seat for the fruit, a vertically-reciprocating knife for splitting the fruit and forcing its pit out, the inclined auxiliary knives on each side of the splitting-knife, and a means for operating said auxiliary knives to cause them to enter the fruit and separate therein, consisting of cam-slots in which said auxiliary knives play and are pivoted, and devices for moving said knives in said cam-slots.

9. In a fruit pitting and spreading machine, the combination of suitable seats for receiving the fruit, a vertically-movable plate, a splitting-knife carried thereby for severing the fruit and forcing its pit out, plates carried by the vertically-movable plate and having cam-grooves therein, auxiliary knives on each side of the splitting-knife and pivoted and playing in said cam-grooves, and the means for operating said auxiliary knives consisting of a framework with depending rods connected with the pivots of said auxiliary knives, a spring for normally holding said framework up, a rack-sleeve carrying said framework, a segmental gear engaging with said rack-sleeve and a rod connected with the segmental gear and adapted to be stopped by a fixed bar as the main carrying-plate moves down, whereby motion is communicated through the segmental gear and rack-sleeve to force the auxiliary knives down in their cam-slots whereby they are moved into the fruit and then separated to lay out its sections.

10. In a fruit pitting and spreading machine, the combination of a bar having suitable fruit-receiving seats, a cross-plate vertically movable above said bar, a main shaft and connections for reciprocating said plate, a splitting and pit-forcing-knife carried by the plate and operating over the fruit whereby the fruit is severed and its pit driven out, plates fixed to said vertically-movable plate and having cam-grooves therein, auxiliary knives on each side of the splitting-knife and pivoted and playing in said cam-grooves, and the means for operating said auxiliary knives consisting of a framework with depending rods connected with the pivots of said auxiliary knives, a spring for normally holding said framework up, a rack-sleeve carrying said framework, a segmental gear engaging with said rack-sleeve and a rod connected with the segmental gear and adapted to be stopped by a fixed bar as the main carrying-plate moves down whereby motion is communicated through the segmental gear and rack-sleeve to force the auxiliary knives down in their cam-slots, whereby they are moved into the fruit and then separated to lay out its sections.

11. In a fruit pitting and spreading machine, the means for advancing the trays consisting of a clutch-plate at the side of the tray, having a shank, a sliding block in which said shank is carried and adapted to slide, a pivoted lever connected with said shank and adapted to force inwardly and to withdraw the clutch-plate, and connections for operating said lever.

12. In a fruit pitting and spreading machine, the means for advancing the trays consisting of a clutch-plate at the side of the tray, having a shank, a sliding block in which said shank is carried and adapted to slide, a pivoted lever connected with said shank and adapted to force inwardly and to withdraw the clutch-plate and connections for operating said lever, consisting of a swinging handle and a connecting-rod therefrom to said lever.

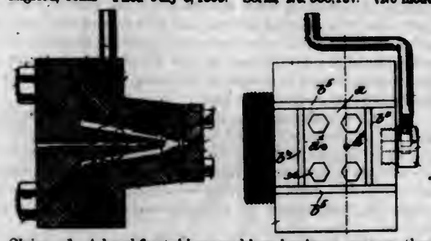
13. In a fruit pitting and spreading machine, the means for advancing the trays consisting of a clutch-plate at the side of the tray, having a shank, a sliding block in which said shank is carried and adapted to slide, a pivoted lever connected with said shank and adapted to force inwardly and to withdraw the clutch-plate and connections for operating said lever, consisting of a swinging handle, a vertically-adjustable nut thereon, a rod connecting said handle with said lever, and means for automatically operating the handle consisting of a driving-shaft, a crank-disk thereon and a connecting-rod from said disk to the nut on the handle.

575,887. MICROPHONE. PAUL HARDESEN, Berlin, Germany. Filed May 28, 1896. Serial No. 593,440. (No model.)



Claim.—In combination in a microphone, the vibrating diaphragm, the electrode and the connection between the electrode and the diaphragm consisting of the flexible ring of material forming with said electrode and diaphragm a chamber for the granular material and serving to support the electrode on the plate to permit vibration of the same, substantially as described.

575,888. HEAD FOR TUBING-MACHINES. WALTER HILL, Wallingford, Conn. Filed July 8, 1895. Serial No. 555,187. (No model.)



Claim.—1. A head for tubing-machines having a passage therethrough for the plastic material, a fixed centering device for the core or mandrel extended into said passage, and a pressure-regulator nonadjacent the passage-exit, to control the progress of the plastic material, as a whole through the head, substantially as described.

2. A head for tubing-machines having therein a passage for the plastic material having an inlet-opening at one end and an outlet at the other end, a fixed centering device projecting into said passage toward the outlet, said device having a core or mandrel passage therein in alinement with the outlet, and a pressure-regulator in communication with the passage through the head, to control the progress of the plastic material as a whole through the head, substantially as described.

3. In a head for tubing-machines, a nose having a converging passage therethrough, an inlet-throat communicating with the said passage, a fixed tongue projecting into the passage in the nose and correspondingly converging toward its tip, said tongue having one or more core or mandrel passages therein, a die adapted to be attached to the nose at the outer end of the passage therein and provided with one or more apertures in alinement with the passages in the tongue, and a pressure-regulator to control the passage of plastic material through the die, substantially as described.

4. A separable head for tubing-machines, one of the members thereof having a recess in its inner face, and a delivery-nose having a passage communicating with said recess, the other member having an integral centering device or tongue projecting from its inner face and adapted to enter said recess and nose-passage when the members are assembled, and an opening communicating with said recess, to receive plastic material, substantially as described.

5. A separable head for tubing-machines, comprising two members one of which has a tongue integral therewith to enter an inlet-throat and delivery-passage in the other, said tongue having a plurality of core-passages therethrough, a threaded half-hub on each member, to form the throat-opening, a relief-valve communicating with the interior of the head, a die having a plurality of exit-openings, located at the outer end of the delivery-passage, and means to clamp the members together, substantially as described.

6. In a machine for covering a continuous core, a head to receive plastic material under pressure, a centering device therein through which the core is drawn, an exit-aperture through which the plastic material is discharged about the core, means to draw the covered core from the head at uniform speed, and a pressure-regulator to control the progress of the plastic material as a whole through the head, substantially as described.

575,889. APPARATUS FOR REPAIRING PNEUMATIC TIRES. CALVERT C. HINES and JAMES A. WILLARD, Baltimore, Md., assignors to the New York Bicycle Equipment Company, New York, N. Y. Filed Feb. 12, 1896. Serial No. 579,192. (No model.)



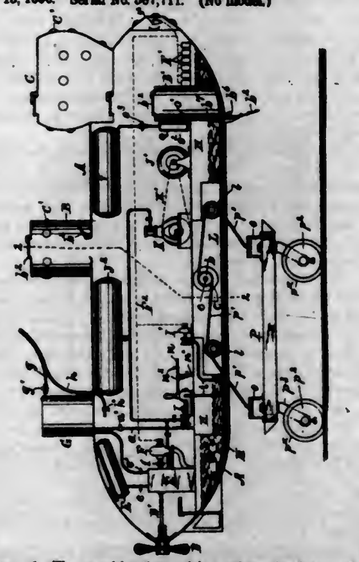
Claim.—1. In a tool for repairing pneumatic tires, the combination with an interiorly-threaded cup provided with expansible nozzle-halves and means for contracting and expanding said nozzle-halves, of a plunger of relatively greater length than the cup and provided with a screw-cap to force cement through the nozzle.

2. In a tool for repairing pneumatic tires, the combination of two side bars carrying intermediate of their length a pendent expansible nozzle, a spring connected to said bars at one end and adapted to expand the bars and nozzle, a screw-stem at the opposite end of the bars to contract said bars and nozzle, and a plunger, substantially as and for the purpose described.

3. In a tool for repairing pneumatic tires, the combination of two side bars carrying intermediate of their length a pendent expansible interiorly-threaded cup-nozzle, a spring connected to said bars at one end and adapted to expand the bars and nozzle, a screw-stem at the opposite end of the bars to contract said bars and nozzle, and a plunger provided with a screw-cap to force cement through the nozzle.

4. In a tool for repairing pneumatic tires, the combination of two side bars carrying intermediate of their length a pendent expansible nozzle, a spring at one end thereof to expand the bars and nozzle, a screw-stem at the opposite end to contract the bars and nozzle, and a plunger of relatively greater length than said nozzle, and coacting therewith in the manner and for the purpose herein shown and described.

575,890. SUBMARINE WRECKING-BOAT. WILLIAM R. HIMDALE, Orange, N. J., assignor to Carroll P. Bassett, Summit, N. J. Filed Apr. 15, 1896. Serial No. 587,711. (No model.)



Claim.—1. The combination, with a submarine boat, of a traveling weight provided with wheels to run upon the bottom of the ocean,

and connected with the boat by two hoist-ropes, the boat being adapted to lift and carry the weight when required, and provided with mechanism for winding and unwinding the ropes at pleasure, substantially as herein set forth.

2. The combination, with a buoyant submarine boat, of a traveling weight provided with wheels to run upon the bottom of the ocean, and connected with the boat by two hoist-ropes having their ends forked and connected each at two points with the weight as described, and the boat being provided with mechanism for winding the ropes and holding the weight at an adjusted distance from the bottom of the boat, as and for the purpose set forth.

3. The combination, with a buoyant submarine boat, of a movable or traveling weight attached to the boat and provided with caster-wheels, to support the weight movably upon the ocean-bottom, substantially as herein set forth.

4. The combination, with a submarine boat having cylindrical body, of a movable or traveling weight connected with the boat by two hoist-ropes, and provided with concave saddles adapted to fit the bottom of the boat and support the same, as and for the purpose set forth.

5. A submarine boat having cylindrical body, with a hollow longitudinal keel adapted to carry water ballast, at each side of the center line, the keels also serving to steady the boat when resting upon the bottom, substantially as herein set forth.

6. The submarine boat having cylindrical body, with a hollow longitudinal keel adapted to carry water ballast, at each side of the center line, a longitudinal water-tank within the shell above each of the said keels and communication between each of the said tanks and the keel below it, as and for the purpose set forth.

7. The combination, with a submarine boat having cylindrical body, with a hollow keel projected downwardly at each side of the center, of a traveling weight connected with the boat by two hoist-ropes, and provided with concave saddles of suitable length to fit endwise between the keels and support the boat, as and for the purpose set forth.

8. The combination, with a submarine boat, of journals upon its outer side, with a mandrel supported in said journals parallel to the side of the boat, a disk saw secured upon such mandrel with its edge projected outwardly from the boat, and means for rotating the saw at pleasure, substantially as herein set forth.

9. A submarine boat having a circular saw supported in bearings upon its outer side, means for rotating the saw, and means adjacent to the saw for grappling a wreck and pressing the saw into the same, substantially as set forth.

10. A submarine boat having a circular saw supported in bearings upon its outer side, means for rotating the saw, and electromagnets supported adjustably, adjacent to the saw, for magnetically grappling an iron wreck and pressing the saw thereinto, substantially as herein set forth.

11. A submarine boat having a circular saw supported in bearings upon its outer side, with means for adjusting the saw in various positions, a motor within the boat and gearing connecting the saw through the shell of the boat, with said motor, substantially as set forth.

12. In a submarine boat, the combination, with the shell and an engine for generating power within the same, of an exhaust-tank attached to the shell, with connection to the exhaust-pipe of the engine, and a hose extended upward from such exhaust-tank, and provided with a float to support the end upon the water, substantially as herein set forth.

13. In a submarine boat, the combination, with the shell and an engine for generating power within the same, of an exhaust-tank attached to the shell, with connection to the exhaust-pipe of the engine, an exhaust-hose extended upward from such exhaust-tank, with a float to support the end upon the water, and said hose being provided with a check-valve to prevent the accidental entrance of water, substantially as set forth.

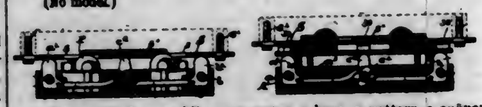
14. In a submarine boat, the combination, with the shell and an engine for generating power within the same, of an exhaust-tank attached to the shell, with connections to the exhaust-pipe of the engine, an exhaust-hose extended upward from such exhaust-tank, with a float to support the end upon the water, and a ventilating-hose extended upward from the shell with the exhaust-hose, with its end supported by the same float, as and for the purpose set forth.

15. In a submarine boat, the combination, with the shell and an engine for generating power within the same, of an exhaust-tank attached to the shell, with connection to the exhaust-pipe of the engine, a hose extended upward from such exhaust-tank to the surface of the water, a drainage-pipe connecting the lower part of the tank with a ballast-tank, and a pump to discharge the excess of water from such ballast-tank, the whole arranged and operated substantially as set forth.

16. The combination, with a submarine boat, of an oblong weight connected near its opposite ends with two hoist-ropes, supporting-rolls for such ropes at different distances from the bow of the boat, and means for winding the ropes independently and throwing the whole or any desired portion of the said weight upon one of the rolls, to vary the inclination of the boat, substantially as herein set forth.

17. The combination, with a submarine boat, of an oblong weight connected near its opposite ends with two hoist-ropes, supporting-rolls in the bottom of the boat for such ropes, and two drums upon the same shaft with central dividing-flange and having the ropes secured to their outer ends so as to wind toward such flange, as and for the purpose set forth.

575,891. PORTABLE MOLDING APPARATUS. WILLIAM H. HOOPER, Hopedale, Mass. Filed June 3, 1896. Serial No. 594,748. (No model.)



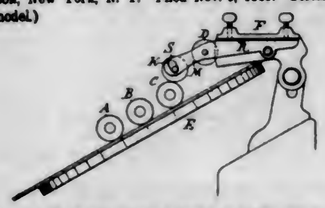
Claim.—1. In a molding apparatus, a base, a pattern, a cooperating stripper-plate, rock-shafts at opposite sides of the apparatus, and an intermediate actuating-shaft, said rock-shafts and intermediate shaft each being provided with a plurality of controlling-cams, said cams standing vertically over their shafts when in supporting position, and links to rock said rock-shafts and cams over toward each other out of supporting position, said links being pivoted to said cams and to said intermediate shaft, substantially as described.

2. In a molding apparatus, a base, a pattern, a cooperating stripper-plate, rock-shafts at opposite sides of the apparatus, and an intermediate actuating-shaft, said rock-shafts and intermediate shaft each being provided with a plurality of controlling-cams, said cams standing vertically over their shafts when in supporting position, and links to rock said rock-shafts and cams over toward each other out of supporting position, said links being pivoted to said cams and to said intermediate shaft, one or more recesses A× being formed in said base to receive said intermediate cams as stops therefor, substantially as described.

3. In a molding apparatus, a base, a pattern, a cooperating stripper-plate, rock-shafts at opposite sides of the apparatus, and an intermediate actuating-shaft, said rock-shafts each being provided with a plurality of controlling-cams, said cams standing vertically over their shafts when in supporting position, and links to rock said rock-shafts and cams over toward each other out of supporting position, said links being pivoted to said cams and to said intermediate shaft and oppositely bent to extend in substantial alinement when in said supporting position, substantially as described.

4. In a portable molding apparatus, a box-like base having an open top, rock-shafts mounted therein, controlling-cams adjustably secured to the rock-shafts, an external operating device for said shafts, a removable stripper-plate having guide-studs on its under side, a removable pattern-plate, and detachable supports for the stripper-plate, adapted to form guides for the pattern-plate, substantially as described.

575,892. INK-FOUNTAIN AND INK DISTRIBUTION. HENRY JOHNSON, New York, N. Y. Filed Nov. 6, 1885. Serial No. 182,058. (No model.)



Claim.—1. In combination, a fountain-roller, one or more swinging form-rollers, a spreading or distributing roller, spreading the ink upon a carriage-roller, and a revolving disk, substantially as shown and described.

2. The combination of the spreader, or distributing-roller S, with the fountain-roller D, and the swinging carriage-roller C, for the purpose of spreading the ink on such carriage-roller prior to spreading the same upon the revolving disk.

3. In combination, the following devices for distributing ink, in a printing-press: first, an ink-fountain; second, a fountain-roller; third, one or more swinging form-rollers; fourth, an intermediate distributing-roller or spreader distributing or spreading the ink upon one or more swinging carriage-rollers; and, fifth, a revolving ink disk or plate.

4. In combination, the following elements: first, an ink-fountain provided with arms R R; second, a fountain-roller supported by the arms R R and receiving the ink from the ink-fountain; third, a swinging carriage-roller; fourth, an intermediate distributing-roller or spreader supported by the arms R R; and, fifth, a revolving ink disk or plate.

5. In combination, the following elements: first, an ink-fountain; second, a fountain-roller receiving the ink from the ink-fountain; third, a swinging carriage-roller; fourth, an intermediate distributing roller or spreader supported on or by the ink-fountain and arranged to roll automatically upon the swinging carriage-roller through its contact therewith; and, fifth, a revolving ink disk or plate.

6. In combination, a weighted spreader, or distributing-roller, a fountain-roller and a swinging carriage-roller upon which such distributing-roller intermittently rests and by which it is intermittently revolved for the purpose of distribution, first upon the carriage-roller and thereafter upon an ink-disk.

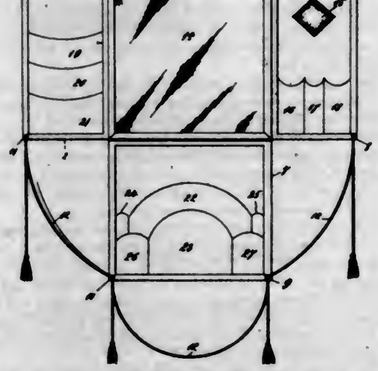
7. In combination, a hinged ink-fountain, a fountain-roller, and a spreading or distributing roller spreading the ink upon one or more carriage-rollers preparatory to spreading the same upon a revolving ink-disk, one or more form-rollers and an ink-disk.

8. In combination, the following elements: first, an ink-fountain; second, a fountain-roller; third, an intermediate distributing-roller or spreader having its bearings in elongated sockets and suspended over the path of the swinging carriage-roller so as to make contact therewith during its vibratory motion and revolve upon the same; fourth, a swinging form-roller; and, fifth, a revolving ink disk or plate.

9. The combination of a spreader, or distributing-roller, the bearings of which are movable in elongated sockets, with the fountain-roller D, and with one or more swinging carriage-rollers, for the purpose of spreading the ink on such carriage roller or rollers prior to spreading the same upon the revolving disk, and the revolving disk.

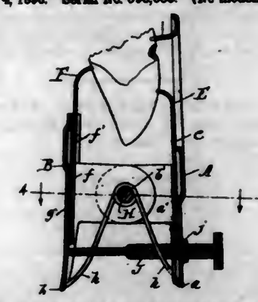
10. A vibrating carriage-roller actuating a second and independent roller located in the path of vibration, to effect preliminary, independent distribution, and effecting secondary distribution upon a revolving ink-disk, at the same time, with the same vibration, all in combination for these purposes.

575,893. CASE OR RECEPTACLE FOR USE BY TOURISTS OR OTHERS. EFFIE E. JOHNSTON, Angel's Camp, Cal. Filed July 15, 1896. Serial No. 599,272. (No model.)



Claim.—As a new article of manufacture a case or receptacle for stationery, toilet, and other articles adapted for the use of travelers or tourists, consisting of a case or receptacle of rectangular form having a central portion, side portions secured thereto, and in connection with the bottom of said central portion is a supplemental portion of corresponding form as of the said central portion, the lower corners of said portion being engaged by cords or chains adapted to serve as paper-files or any other similar and desirable purpose, a similar rope or chain secured to the upper outer corners of said main frame, adapted to support the said receptacle, a mirror on the front surface of said central portion, a pincushion on the upper part of one of the said side portions, and a plurality of pockets secured to the said other portions and adapted to contain or hold therein other articles of toilet as may be used by said tourists, and a flange secured to the back of said receptacle, all of said parts being combined substantially as and for the purposes described.

575,894. DENTAL CLAMP. JAMES R. KEEFE, Chicago, Ill. Filed May 4, 1896. Serial No. 590,068. (No model.)



Claim.—1. In a dental clamp, the combination of two members suitably connected together, a jaw carried by one member, a rack on the other member, and an adjustable plate carried by said member and provided with a jaw and means for engaging said rack whereby the jaw can be adjusted on the member, substantially as described.

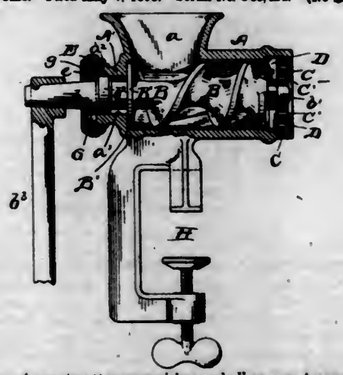
2. In a dental clamp, the combination of two members suitably connected together, the shoulders *c* on one member, a plate adjustably secured on the under side of said member by said shoulders and carrying a jaw at its outer end, a rack on the other member, the inwardly-turned lugs *f*″ and a plate operating in said lugs and carrying a jaw and provided with a spring-section to engage said rack, substantially as and for the purpose described.

3. In a dental clamp, the combination of two members pivotally secured together, an adjustable jaw carried by each of said members, a spiral spring adapted to operate upon the rear ends of the members to force the jaws on the clamp in contact with the tooth and a tightening-screw operating through a threaded boss upon one member and engaging the under side of the other member to tighten the clamp upon the tooth after it has been adjusted and held in its adjusted position by the spring, substantially as described.

4. In a dental clamp, the combination of two members suitably pivoted together, a rigid jaw and an adjustable jaw carried by one member, a rack on the other member, and an adjustable jaw carried by said member and provided with a spring-section adapted to engage said rack, and means for securing the clamp upon a tooth, substantially as described.

5. In a dental clamp, the combination of two members suitably pivoted together, a rigid jaw on one member, a shoulder on said member, a plate operating within said shoulder and carrying a jaw, a rack on the other member, a plate secured to said member and provided with a spring-section adapted to engage said jaw, a jaw on said plate, a spring adapted to clamp the said jaws on a tooth and a tightening-screw, substantially as described.

575,895. MEAT-CUTTER. WILLIAM KOEHLER, Cleveland, Ohio, assignor to Henry C. Rice, Charles F. Lay, and H. C. Sherwood, Fremont, Ohio. Filed May 7, 1896. Serial No. 543,421. (No model.)



Claim.—A meat-cutter comprising a shell or case A provided between its ends with a mouth *a* and provided with the perforated discharge-head C at one end, and terminating at the opposite end in the head A′ that is centrally perforated at *a*′ and has its outer end externally screw-threaded, and is provided with a recess *a*³ internally; the suitably-operated screw or worm B having trunnions *b* and *b*′ and the annular enlargement or collar *b*³; knives or cutters operatively connected with the screw or worm; a nut E mounted upon the threaded

end of the aforesaid threaded head, and provided with the internal flange *c*; the collar G, loosely surrounding trunnion *b* and interposed between said flange and the aforesaid annular enlargement or collar *b*¹, and provided, upon its periphery, with the tongue *g* engaging the aforesaid recess, substantially as shown, for the purpose specified.

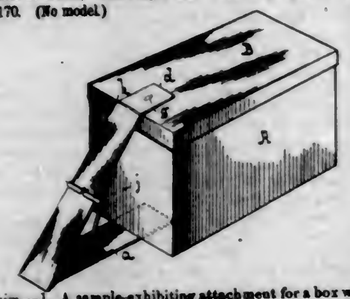
575,896. TELEPHONIC TRANSMITTER. MAXIMILIAN KOTYRA, London, England. Filed Nov. 17, 1896. Serial No. 612,413. (No model.) Patented in England Apr. 1, 1895, No. 6,654.



Claim.—1. A granular telephone-transmitter comprising a vibratory helical case, carbon blocks at each end of the case, and granular microphonic material between the blocks.

2. A granular telephone-transmitter comprising a vibratory helical case, conducting-blocks at its ends, granular microphonic material between said blocks, and pressure adjusting and regulating devices therefor.

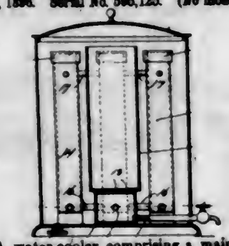
575,897. SAMPLE-EXHIBITING ATTACHMENT FOR BOXES. THOMAS E. LEWIS, Vicksburg, Miss. Filed Aug. 3, 1896. Serial No. 602,170. (No model.)



Claim.—1. A sample-exhibiting attachment for a box which consists in the following elements in combination, viz., a horizontal base, an inclined sample-holder and a flap all hinged together, and a suspensory hook on the inclined holder, substantially as specified.

2. In combination with a box and its lid, a sample-exhibiting attachment, which consists of a horizontal base, an inclined sample-holder hinged to the base, a sample-sustaining hook on the inclined holder, and a flap hinged to the inclined holder and provided with means for its attachment to the lid of the box, substantially as specified.

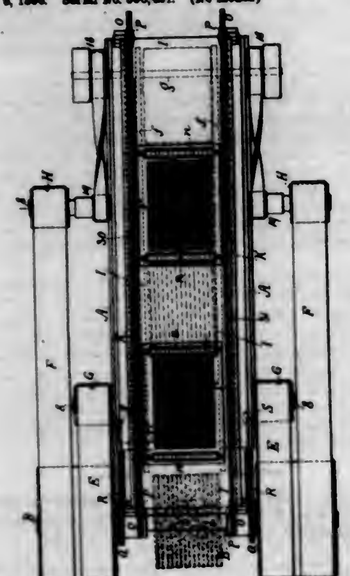
575,898. WATER-COOLER. JOSEPH MELTZER, New York, N. Y. Filed June 11, 1896. Serial No. 595,125. (No model.)



Claim.—1. A water-cooler comprising a main casing or receptacle having a removable cover, a central casing or receptacle in the bottom thereof, which is provided with a pipe which projects through the side of the main casing or receptacle, a plurality of water vessels arranged around said central chamber or receptacle, and which are placed in communication at the bottoms thereof, and also in communication with said central chamber or receptacle, and a central removable casing or receptacle, which is open at its top, and perforated at its bottom, and adapted to rest upon said central chamber or receptacle, substantially as shown and described.

2. A water-cooler comprising a main casing or receptacle, having a removable cover, a central casing or receptacle in the bottom thereof, which is provided with a pipe which projects through the side of the main casing or receptacle, a plurality of water vessels arranged around said central chamber or receptacle, and which are placed in communication with said central chamber or receptacle, and a central removable casing or receptacle, which is open at its top, and perforated at its bottom, and adapted to rest upon said central chamber or receptacle, substantially as shown and described.

575,899. SHINGLE-SAWING MACHINE. WILLIAM H. MYERS, Brooklyn, N. Y., assignor to Grant B. Schley, New York, N. Y. Filed May 6, 1896. Serial No. 590,621. (No model.)



Claim.—1. The combination in a machine for sawing shingles, of two gangs of saws, a track and a carriage supported by that track, dogs supported by the carriage and means for clamping the dogs against the block of wood, means for moving the carriage and block of wood along progressively on the track, and means for moving the dogs and block of wood at one end laterally between the first and second gangs of saws, so that the incisions made by the first gang of saws are diagonal to the incisions made by the second gang of saws, substantially as set forth.

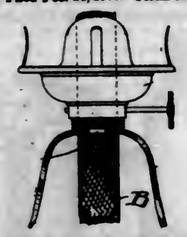
2. The combination in a machine for sawing shingles, of two gangs of rotary saws, carriages having hanging dogs and means for pressing the dogs against the block of wood to be sawed, the pivotal connections between the carriage and the clamping devices near one end, rollers near the other end of the clamping devices, and parallel cam-bars for holding the parts during the sawing operations and for shifting the position of the clamping devices between one sawing operation and the next, substantially as specified.

3. The combination with the gangs of saws and the elevated track, of a carriage and rollers running on the elevated track, clamping-plates and hanging dogs for holding the block of wood, the pivot for connecting the clamping-plates to the carriage, rollers and cam-bars for guiding the clamping-plates and shifting the dogs and block between one sawing operation and the next, and endless chains for moving the carriages along progressively from one end of the machine to the other, substantially as specified.

4. The combination with the gangs of saws and the elevated track, of a carriage and rollers running on the elevated track, clamping-plates and hanging dogs for holding the block of wood, the pivot for connecting the clamping-plates to the carriage, rollers and cam-bars for guiding the clamping-plates and shifting the dogs and block between one sawing operation and the next, and endless chains for moving the carriages along progressively from one end of the machine to the other, and sprocket-wheels and endless chains for driving the sprocket-wheels and chains that act upon the carriages, substantially as set forth.

5. The combination with the circular saws, of a tube receiving such saws, intermediate washers and a clamping-nut, a shaft passing through the tube, tubular bushings passing through the bearings upon the frame of the machine, and driving-pulleys and a removable shaft passing through the tubular bushings, and the tube carrying the gang of saws for separating the gang of saws from the machine by withdrawing the shaft, substantially as set forth.

575,900. LAMP BURNER AND WICK. THOMSON McGOWAN, Cleveland, Ohio. Filed Feb. 21, 1896. Serial No. 580,164. (No model.)

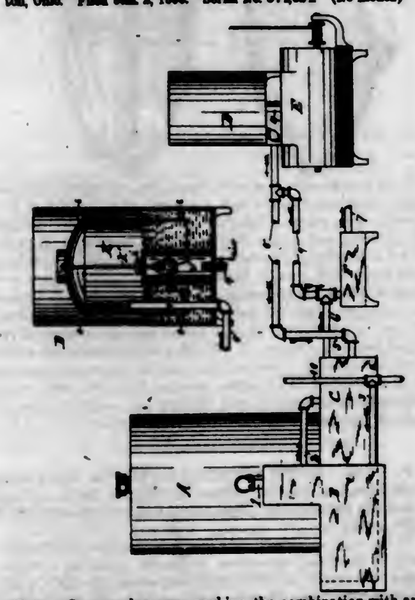


Claim.—1. In a lamp-burner, the combination with a main wick which passes through and is operated in the wick-tube of the burner, of an auxiliary or feed wick having a longitudinal slit through which is passed the main wick, substantially as and for the purpose described.

2. In a lamp-burner, the combination with a main wick, of an auxiliary or feed wick provided with a centrally-located longitudinal slit through which is passed the main wick, substantially as and for the purpose described.

3. In a lamp-burner, the combination with a main wick, of an auxiliary or feed wick provided with a centrally-located longitudinal slit through which is passed the main wick, and clamps or clips for supporting the feed-wick, substantially as and for the purpose described.

575,901. GASOLENE-GAS MACHINE. WILLIAM McKNIGHT, Dayton, Ohio. Filed Jan. 2, 1896. Serial No. 574,094. (No model.)

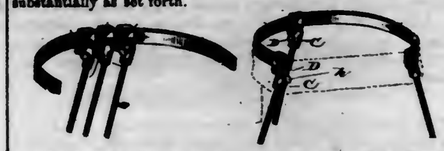


Claim.—In a gasolene-gas machine, the combination with an oil-reservoir, a carburetor, and a cut-off tank having a communication at its upper end with said reservoir, and a communication at its lower end with said carburetor, of a float attached to a lever having one end pivoted to the interior of said tank, a needle-valve mounted on said lever at a point between the said float and the pivotal point of the lever, the said valve adapted to control the inlet from said reservoir, guides projecting from the side of said tank in which the said valve is guided, an inclined trough carried on the upper end of the said valve, a second trough attached to the side of the tank, and a pipe below said second trough communicating with the carburetor.

575,902. SACK-SUPPORT. ABRAHAM R. NICHOLAS, Indianapolis, Ind., assignor to The American Buncher Manufacturing Company, same place. Filed Apr. 10, 1896. Serial No. 586,919. (No model.)

Claim.—1. The combination, in a sack-support, of a curved bar, three legs, and couplings mounted on said legs and adapted to slide around on said bar.

2. The combination in a sack-support of a curved bar of spring metal having sliding clips thereon which join supporting-legs thereto, substantially as set forth.



3. The combination, in a sack-support, of a curved bar, legs thereto, couplings uniting said legs to said bar, which couplings are adapted to slide on said bar, and locking devices whereby said couplings can be secured at the desired positions on said bar, substantially as set forth.

4. The combination, in a sack-support, of a curved bar having notches in one edge, legs thereto, couplings secured to the upper ends of said legs and slidably mounted on said bar, and locking devices mounted in bearings in said couplings adjacent to the notched edge of the bar and provided with tongues adapted to enter the notches and thus secure the legs to adjusted position, substantially as shown and described.

575,903. MINER'S SAFETY-LAMP. WILLIAM PATTERSON, Scranton, Pa. Filed Apr. 23, 1896. Serial No. 588,845. (No model.) Patented in England Nov. 17, 1890, No. 18,510.



Claim.—1. In a miner's safety-lamp, a bonnet having attached thereto at its lower end a case-top with an inwardly-extending flange forming a shoulder, a gauze having a ring with an outwardly-extending flange adapted to abut against said shoulder and the case-top, and means for receiving the upper end of the glass of the lamp adapted to be prevented by said gauze-ring from entering said bonnet, the said glass normally passing through said case-top.

2. In a miner's safety-lamp, a bonnet having a case-top with an inwardly-extending flange forming a shoulder, a gauze with a ring secured to its base having an outwardly-extending flange adapted to abut against said shoulder, and a gauze having a ring with an outwardly-extending flange adapted to be seated on a shoulder in the ring on the first-mentioned gauze, the glass of the lamp which abuts against said second gauze-ring being normally adapted to pass through the case-top of said bonnet if the first gauze be omitted.

575,904. BLACK AZO DYE. CHRISTOPHER RIS, Basle, Switzerland, assignor to John R. Geigy & Co., same place. Filed Aug. 13, 1896. Serial No. 602,569. (Specimens.)

Claim.—1. The process herein described of producing new black azo colors, which consists in combining the tetrazo compound of a paradiamin, such as paradiamidoditolylamin with beta, alpha, amidonaphtholbeta, sulfo-acid and with a metadiamin, substantially as described.

2. The new black azo coloring-matter derived from the reaction of a paradiamin with beta, alpha, amidonaphtholbeta, sulfo-acid and a metadiamin, and which forms a black powder, soluble in water with bluish-black color, soluble in concentrated sulfuric acid with blue color, and which is transformed by complete reduction into a colorless solution, substantially as set forth.

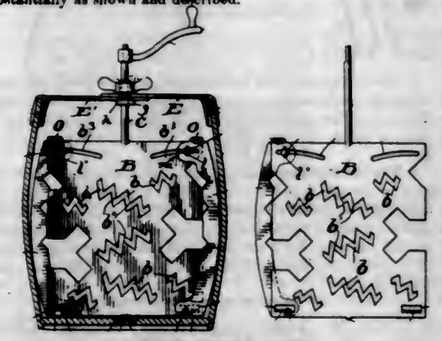
575,905. PAINT-MIXER. JACOB P. J. SAXER, Cleveland, Ohio. Filed June 1, 1896. Serial No. 593,780. (No model.)

Claim.—1. A paint-mixer comprising a dasher provided with a suitable shaft and a bearing therefor, said dasher being also provided with auxiliary side pieces adjustably secured to the dasher at both ends, substantially as and for the purpose set forth.

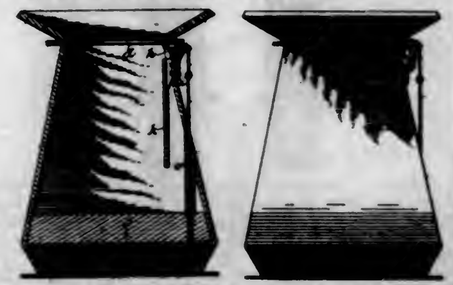
2. A paint-mixer comprising in its construction a dasher provided with a suitable shaft cast integral therewith and openings of zigzag form thus providing points which cut the lead, said dasher being also provided with side pieces which are adjustable at both ends and an adjustable cross-head supporting a bearing for the dasher-shaft, all operating substantially as shown and described.

3. In a paint-mixer, the combination with the dasher provided, at its upper corners, with curved slots, and at its lower corners with

toothed slots, of side pieces, each provided, at its upper end, with an opening registering with the curved slot of the dasher, and at its lower end with a lug for engaging the teeth of the lower corner of the dasher, and a suitable bolt for fastening the upper end whereby said side pieces may be adjusted at both the upper and lower ends, substantially as shown and described.



575,906. CUSPIDOR. GOTTFRIED SCHÄFER, Pittsburg, Pa. Filed Apr. 24, 1896. Serial No. 588,869. (No model.)



Claim.—1. In a device of the character described a suitable body having a mouth and a false bottom, a door for closing the mouth, a rod connected with the door, a spring located below the false bottom operating the rod, a button on the spring protruding through the bottom to engage the floor as and for the purpose described.

2. In a device of the character described, a body having a mouth, an apertured bottom, a false bottom, and a chamber formed between the false bottom and the bottom proper, a spring lying in the chamber, a button secured to the spring protruding through the bottom, a casing extending through the outer wall into the false bottom, a rod operating therein and connected to the spring and a door operated by the rod when the body is tilted as and for the purpose described.

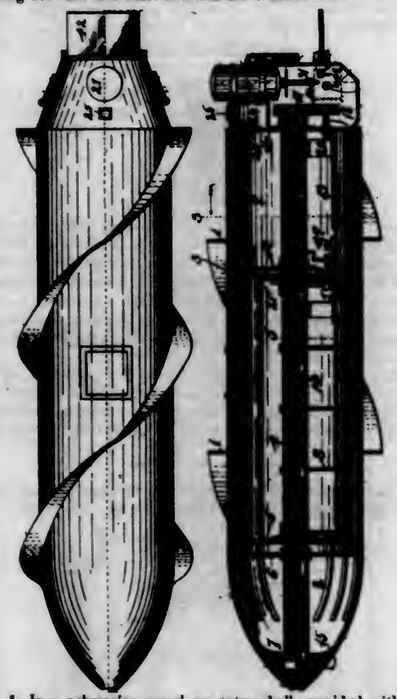
575,907. SUBMARINE VESSEL. JOHN SCHMIDECK, Chicago, Ill. Filed Mar. 9, 1896. Serial No. 582,450. (No model.)

Claim.—1. In a submarine vessel, an outer shell or casing provided with spiral propeller-blades, a tube rotatably mounted within said outer shell or casing, an inner casing rigidly mounted upon said tube adjacent the rear end thereof, a hollow shaft rotatably mounted within said tube and rigidly secured to said outer casing at its forward end, a motor within said inner casing, gearing between said motor and said hollow shaft, and a receptacle for the propelling energy pendent from said tube at about its middle portion and rigid with relation thereto.

2. In a submarine vessel, a hollow shaft rigidly connected with an outer casing provided with spiral propeller-blades, an opening in said outer casing adjacent the point at which said hollow shaft is connected therewith and in alinement with the opening in said shaft, and a lens fitted to said opening in said outer casing.

3. In a submarine vessel, an outer shell or casing provided with spiral propeller-blades on its outer face, a tube mounted in bearings within said outer shell and carrying a casing containing the drive mechanism, a drive-shaft mounted in bearings within said tube and secured at its outward end to said outer casing, and gearing between said drive-shaft and said drive mechanism.

4. In a submarine vessel, an outer shell provided with spiral propeller-blades on its outer face, a tube mounted in bearings within said shell, a casing mounted upon said tube and adapted to contain the drive mechanism, a hollow shaft mounted in bearings within said tube and secured at its forward end to said outer casing, an opening in the prow of said outer casing in alinement with the opening in said shaft, a glass or lens mounted within said opening in said prow, and gearing between said shaft and said drive mechanism.



5. In a submarine vessel an outer shell provided with spiral propeller-blades on its outer face, a tube mounted in bearings within said outer shell, a casing mounted upon said tube within said outer shell or casing and movable with relation thereto, a drive-shaft mounted in bearings within said tube and secured at its forward end to said outer shell, gearing between said drive-shaft and a motor situated within said inner casing, and a rearward extension upon said inner casing provided with rudders on each side thereof for steering said vessel in a horizontal plane, a rudder having a horizontal plane mounted upon the rear end of said rearward extension and adapted to steer said vessel in a vertical plane, means for operating said rudders, an anchor-box and windlass mounted upon said rearward extension, means for operating said windlass, and a vertically-movable pilot-house mounted within said rearward extension.

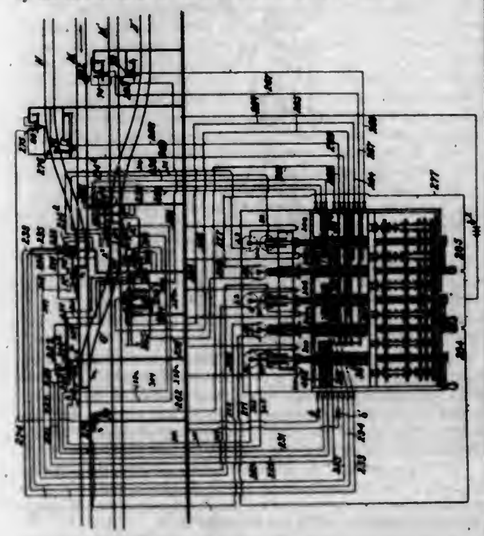
575,908. SWITCH AND SIGNAL APPARATUS. JESSE G. SCHREIBER, Edgewood Park, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed Sept. 21, 1895. Serial No. 563,230. (No model.)

Claim.—1. In a switch and signal apparatus, the combination of a series of electrically-controlled motors for operating a series of switches and signals, or other appliances connected with a track, a series of make-and-break mechanisms controlling the circuits leading to the motors, and mechanical interlocking mechanisms arranged to interlock the switch and signal make-and-break mechanisms, substantially as set forth.

2. In a switch and signal apparatus, the combination of a series of electrically-controlled motors for operating a series of switches and signals, or other appliances connected with a track, a series of make-and-break mechanisms controlling the circuits leading to the motors, and mechanical interlocking mechanisms arranged to interlock the switch and signal make-and-break mechanisms of any given route, and also with the corresponding mechanisms of any opposing route, substantially as set forth.

3. In a switch and signal apparatus, the combination of a series of shafts having rollers formed of insulating material secured thereon, and provided with metallic bands, a bed of insulating material arranged under the rollers and provided with metallic strips, a mechanical interlocking mechanism controlling the operation of said rollers, the interlocking mechanism and rollers being arranged on opposite sides of a plane passing through the axes of the rollers, thereby permitting access to the mechanical interlocking mechanism without disturbing the rollers and bed, substantially as set forth.

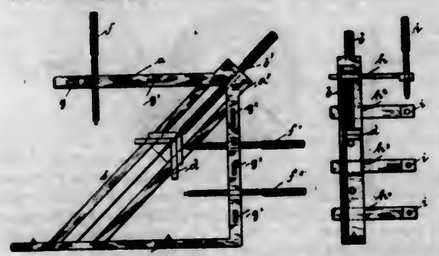
4. In a switch and signal mechanism, the combination of a series of shafts having secured thereon rollers formed of insulating material, and provided with metallic bands, a bed formed of insulating material arranged adjacent to and parallel with the axes of said rollers, and provided with metallic strips, a second series of shafts arranged at an angle to those of the first series and operatively connected thereto by suitable gearing, and an interlocking mechanism operated by the second series of shafts, substantially as set forth.



5. In a switch and signal apparatus, the combination of a revoluble shaft, a sleeve provided with a collar of insulating material loosely mounted on the shaft, a driver secured to the shaft and adapted to impart an initial rotary movement to the sleeve, a spring arranged to complete the movement of the sleeve, a metallic band partially surrounding the insulating-collar, springs arranged on opposite sides of the shaft and adapted to be brought into contact with the band by the rotation of the sleeve, substantially as set forth.

6. In a switch and signal apparatus, the combination of a series of two or more signals, electrically-controlled mechanisms for operating the signals, make-and-break mechanisms in the circuits of the operating mechanisms, electrically-controlled locks for said make-and-break mechanisms in the operating-circuits, a series of make-and-break mechanisms in the lock-circuits controlled by the signals, and a make-and-break mechanism also in the lock-circuit and controlled by the make-and-break mechanisms in the signal-operating circuit, whereby the lock-circuit is held open while the signal-operating mechanisms are in normal position, substantially as set forth.

575,909. ARRANGEMENT FOR GLUING LEDGES OR MOLDINGS TO CUPBOARDS OR WARDROBES. JOHANN SCHULER and MICHAEL WÜRZL, Schwabach, Germany. Filed May 6, 1896. Serial No. 590,447. (No model.)



Claim.—In a mitering-tool, the combination of an angular guide-frame provided with slots or openings, slides guided in said openings transversely of the frame, setting-screws i arranged in the outer ends of said slides, a clamping-jaw, means for guiding the same, a screw-threaded spindle passing through the angle of said frame and actuating the said clamping-jaw, and setting-screws passing through the side portions of the frame at right angles to the slides, substantially as set forth.

575,910. BICYCLE. WILLIS M. SHERMAN, Chicago, Ill., assignor of two-thirds to Martin W. Sherman and Frank M. Hoyt, Milwaukee, Wis. Filed Apr. 11, 1896. Serial No. 587,161. (No model.)



Claim.—The combination with the tubular portion of a bicycle having an opening therefor of a cap fitting in said opening and a lock and key for securing it therein, said cap containing a pocket and clasp as and for the purpose set forth.

575,911. BAKER'S OVEN. GEORGE F. SMITH, Baltimore, Md. Filed Oct. 3, 1896. Serial No. 607,737. (No model.)



Claim.—A bake-oven having in combination the furnace, A, having at two sides a wall, B, extending rearward; a lower horizontal flue, E, at each outer side of said two walls; a rear open passage, *d*, connecting the central furnace-passage around the ends of the said walls, B, to each of the lower flues; an oven-chamber; a longitudinal flue, H, below the bottom of the oven-chamber; a longitudinal flue in the top of the oven-chamber; a vertical flue, *z*, at the front communicating from the lowermost flue to the uppermost flue in the top; a flue, *j*, connecting the said lowermost flue, E, with the flue below the bottom of the oven-chamber, and a vertical flue, *t*, communicating from the last-named flue to the flue in the top of the oven-chamber.

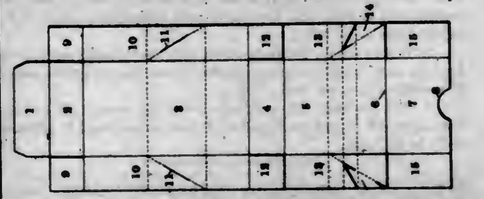
575,912. BICYCLE-SKIRT. WILLIAM R. SMITH, Birmingham, Ala. Filed July 6, 1896. Serial No. 598,067. (No model.)



Claim.—1. A combination bicycle and walking skirt, having a front width enlarged in the center, a fold formed in the enlarged part thereof, an extension attached to the upper part of the fold, the extension provided with a hook adapted to engage or disengage with an eye, to shorten or lengthen the front part of the skirt as desired, substantially as described.

2. A bicycle and walking skirt, having an enlarged front width with a fold formed therein, to adapt the front part of the skirt to be lengthened or shortened at will, an apron formed to cover the fold and rigidly attached to the skirt in the center at both edges thereof, the head of the apron provided with detachably-secured slits, the lower part of the apron secured with cords and loops, substantially as and for the purpose described.

575,913. PAPER BOX. AARON D. STERN, Chicago, Ill. Filed May 15, 1896. Serial No. 591,624. (No model.)



Claim.—1. A blank for a box, formed of a single piece of paper or like material, having cuts therein forming laps 10, 13, 15; flaps 9,

12, at the ends of the laps 10; an extension, 1, 2, between the flaps 9; and a score 6, connecting the cuts which divide the laps 13 from their companion laps 15; all adapted to fold in the form of a complete box and cover, substantially as described.

2. A blank for a box formed of a single piece of paper or like material, having longitudinal creases forming side laps 10, 13, 15; cuts forming flaps 9 and 12 at the ends of the laps 10; an extension 1, 2 between the flaps 9; a lateral cut dividing each lap 13 from its companion lap 15; and a score 6 connecting said lateral cuts; all adapted to fold in the form of a complete box and cover, substantially as described.

3. A blank for a box formed of a single piece of paper or like material having cuts therein forming the laps 10, 13, 15 with the flaps 9 and 12, a lateral cut dividing each lap 13 from its companion lap 15, a longitudinal extension 1, 2, at the opposite end of the material, and cuts forming relative interlocking parts in the laps 10 and 13, all adapted to fold in the form of a complete box-cover, substantially as described.

4. A blank for a box formed of a single piece of paper or like material having cuts therein forming the laps 10, 13, 15 with the flaps 9 and 12, a lateral cut dividing each lap 13 from its companion lap 15, a longitudinal extension 1, 2, at the opposite end of the material, and cuts forming relative interlocking parts in the laps 10 and 13, extensions on the laps 15, cuts therein and in the flaps 9, forming relative interlocking parts, all adapted to fold in box form, substantially as described.

5. A box formed of a single piece of paper or like material having overlapping sides with a flap at the lower end of each outer lap extending inwardly and held between the lower edge of the inner lap and the bottom or corresponding wall of the box, and a flap at the upper end of each outer lap adapted to be pressed over the upper edge of the inner lap, a lateral cut dividing each inner lap, a score across the wall connecting said lateral cuts, and an upper extension of the wall adjoining the outer laps adapted to be turned over said upper flaps, and inserted between same and the opposite wall.

575,914. GAS-LAMP. AARON P. STORMS, Owego, N. Y. Filed June 15, 1896. Serial No. 595,515. (No model.)



Claim.—1. The combination with a gas-burner, of a yielding spring-support and an inclosing elastic bulb, substantially as set forth.

2. The combination with a gas-burner, of a guided yielding spring-support, and an inclosing elastic bulb, substantially as set forth.

3. In a gas-lamp, a yielding spring-support in combination with a rocking head upon which the burner is mounted, substantially as set forth.

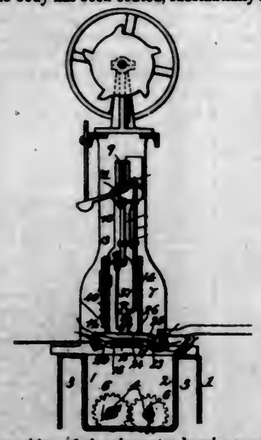
4. In a gas-lamp, the combination with a spring-support guided so as to be capable only of a vertical movement, a rocking head connecting such support with the burner, and an inclosing elastic bulb, substantially as set forth.

5. In a gas-lamp, the combination with the inclosing elastic bulb I, of the base C, guided spring-spindle D, and the adjustable sleeve F, substantially as set forth.

6. In a gas-lamp, the combination with the elastic bulb I of the base C, spindle D, springs *d g*, sleeve F, and rocking head H, substantially as set forth.

575,915. MACHINE FOR COATING CONFECTIONERY. JOHN R. VAN DERVEER, New York, N. Y. Filed Dec. 26, 1896. Serial No. 573,266. (No model.)

Claim.—1. In a machine of the character herein specified, the combination with drop-dipping mechanism, of a device for automatically applying a ridge or marking of the coating material to each drop, after the body has been coated, substantially as shown and described.



2. In a machine of the character herein specified, a vertically-reciprocatable drop-support, a device for automatically moving the drops from said support after dipping, and a device for marking the surface of each drop by a deposit of the coating material, after the body has been coated, the whole combined and arranged to operate substantially as shown and described.

3. In a machine of the character herein specified, the combination with a vertically-reciprocatable drop-dipping support, of a series of coating-material carriers and appliers, located above the drop-support, substantially as shown and described.

4. In a machine of the character herein specified, the combination with a vertically reciprocatable drop-dipping support, having a fixed horizontal portion, of a tiltable portion at the front of the fixed portion, and a series of coating-material carriers and appliers located above the point of meeting of the said two parts, substantially as shown and described.

5. In a machine of the character herein specified, the combination with a vertically-reciprocatable drop-dipping support, of a series of adjustable coating-material carriers located above said support; means for holding the drops in place upon the support, moving them over and off of the support, and a brushing device located in front of the drop-holder, substantially as shown and described.

6. In a machine of the character herein specified, a series of coating-material carriers and appliers located above the drop-dipping support, and carried by said support, substantially as shown and described.

7. In a machine of the character herein specified, a device for automatically marking the drops by the application of superposed coating material, after the body of the drop has been coated, substantially as shown and described.

575,916. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to The Wyckoff, Seamans & Benedict, Elon, N. Y. Filed May 16, 1896. Serial No. 591,727. (No model.)



Claim.—1. In a type-writing machine, the combination with a platen, of a card-holder secured directly to the surface of the platen and provided at one edge, outstanding from the surface of the platen, with an undercut and with a projecting ledge, thereby forming a seat or pocket between the surface of the platen and the under side of said ledge for the leading edge of the card.

2. In a type-writing machine, the combination with a platen, of a plate provided at one edge with a ledge overhanging the surface of the platen, and screws for holding said plate on the surface of the platen.

3. In a type-writing machine, the combination with a platen, of a curved plate having an undercut and a ledge overhanging the surface of the platen, and screws passing through said plate and securing the same to the surface of the platen.

4. In a type-writing machine, the combination of a platen comprising a hollow core and a cover, a perforated plate having an undercut and a ledge, screws passing through said plate, cover, and core, and nuts within said core for the inner ends of said screws to engage with.

5. In a type-writing machine, the combination with a platen, of a circumferentially-adjustable card-holder secured to the surface of the platen, and provided with an overhanging ledge.

6. In a type-writing machine, the combination of a platen, a card-holder having a ledge which hangs over the surface of the platen and forms with the latter a pocket for the leading edge of the card, and means for securing the said card-holder to the platen, the said securing means being adapted and arranged to be loosened to permit the card-holder to be adjusted circumferentially of the platen, and then to be retightened thereupon to fix the card-holder in its new position.

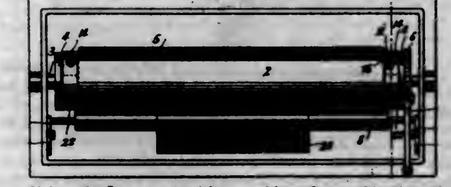
7. In a type-writing machine, the combination with a platen and its ratchet-wheel and detent, of a card-holder, and means for effecting a relative adjustment between the card-holder and the ratchet-wheel.

8. In a type-writing machine, the combination with a platen and a ratchet-wheel and its detent, of a card-holder secured to said platen and adjustable circumferentially of the same and with respect to the said ratchet-wheel.

9. In a type-writing machine, the combination with a platen, of a card-holder comprising a perforated plate having an undercut and a ledge, screws for securing said plate on the surface of the platen, said screws passing through enlarged holes in the platen and engaging nuts at their inner ends whereby the card-holder may be adjusted circumferentially of the platen.

10. In a type-writing machine, the combination of a platen comprising a hollow core and a cover, perforations extending radially through said members, a concentric plate having perforations, an undercut, and a ledge, screws passing through said perforations, and a bar within said core provided with a series of threaded apertures to receive the threaded ends of said screws.

575,917. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to The Wyckoff, Seamans & Benedict, Elon, N. Y. Filed May 16, 1896. Serial No. 591,733. (No model.)



Claim.—1. In a type-writing machine, the combination of a platen having clasps or catches secured at its ends, and a card-holder on the surface of the platen provided at its ends with means for engaging said clasps or catches.

2. In a type-writing machine, the combination of a platen having circular recesses or depressions at its ends, clasps or catches secured thereat, and a card-holder adapted to bear against the peripheral cover of the platen and provided at its ends with devices to engage said clasps or catches.

3. In a type-writing machine, the combination of a platen provided at its ends with circumferentially-adjustable clasps or catches, and a card-holder provided at its ends with engaging devices therefor.

4. In a type-writing machine, the combination of a platen provided at its ends with attaching means consisting of shanks and overhanging clasps, and a card-holder provided at its ends with engaging tongues.

5. In a type-writing machine, the combination of a platen having attaching devices at its ends, and a card-holder on the surface of the platen having a longitudinal ledge and provided at its ends with attaching devices to cooperate with those secured at the ends of the platen.

6. In a type-writing machine, the combination of a platen provided at its ends with spring-clasps, and a card-holder on the surface of the platen provided at its ends with tongues adapted to frictionally engage said clasps.

7. In a type-writing machine, the combination of a platen having a circular depression at each end, an attaching device adjustable on said platen, and a card-holder consisting of a plate provided with a ledge extending lengthwise thereof and provided at each end with a tongue to engage its associated clasps.

8. In a type-writing machine, the combination with a platen and its ratchet-wheel and detent, of adjustable clasps secured to the platen, and a card-holder adapted to be engaged with and disengaged from said adjustable clasps.

575,918. BRUSH-CARRIER FOR DYNAMO-ELECTRIC MACHINES. SCHUYLER S. WHEELER, New York, N. Y., assignor to the Crocker-Wheeler Electric Company, of New Jersey. Filed May 26, 1896. Serial No. 593,160. (No model.)



Claim.—1. In a dynamo-electric machine, the combination of rings insulated from each other and mounted on the frame of the machine at the inner end of the commutator, brush-carriers on the rings extending over the commutator, and brushes mounted on the carriers, substantially as described.

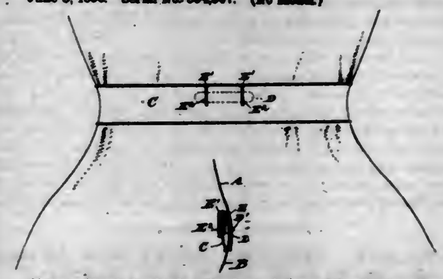
2. In a dynamo-electric machine, the combination of rings insulated from each other and mounted on the frame of the machine at the inner end of the commutator, brush-carriers on the rings extending over the commutator, brushes mounted on the carriers, and means for moving the rings around to set the brushes, substantially as described.

3. In a dynamo-electric machine, the combination of rings insulated from each other and mounted on the frame of the machine at the inner end of the commutator, brush-carriers on the rings extending over the commutator, brushes mounted on the carriers, means for moving the rings around to set the brushes, and means for lifting all of the brushes at once, substantially as described.

4. In a dynamo-electric machine the combination of brush-carriers, brushes mounted on the carriers, supports in which the brush-carriers are journaled, levers attached to the brush-carriers, and connecting-rods between the levers, the two ends of each connecting-rod being of separate pieces of metal united by a turnbuckle of insulating material, substantially as described.

5. In a dynamo-electric machine the combination of rings insulated from each other and mounted on the frame of the armature at the inner end of the commutator, brush-carriers on the rings extending over the commutator-brushes mounted on the carriers, levers attached to the brush-carriers and connecting-rods between the levers, the two ends of each connecting-rod being of separate pieces of metal, united by a turnbuckle of insulating material, substantially as described.

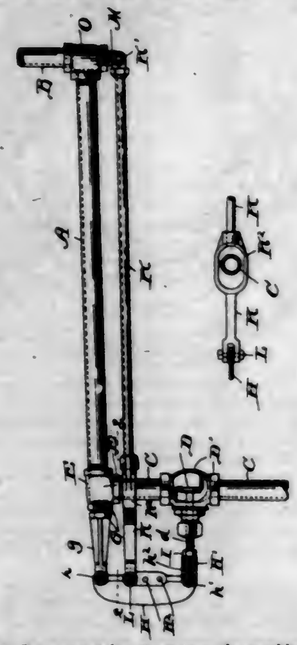
575,919. BELT-PIN. ANNA C. KAUB, New York, N. Y. Filed June 5, 1896. Serial No. 594,967. (No model.)



Claim.—The belt-pin described consisting of the flat bar D, and sharpened pin D', knuckle *d* and keeper D^2 arranged longitudinally as shown on the rear face of the bar, in combination with the wires E joined to the said bar on said rear face and extending upwardly therefrom at right angles in straight lines, the curves E', and straight

portions E^3 extending downwardly below the lower edge of the bar and parallel with the plane front face of the latter at a distance therefrom to receive the upper edge of a belt and serving as hooks to hold the belt in place relatively to a waist and skirt joined by said sharpened pin, all substantially as herein specified.

575,920. EXPANSION STEAM-TRAP. JOHN E. CRAPER, Cleveland, Ohio. Filed May 13, 1896. Serial No. 549,038. (No model.)



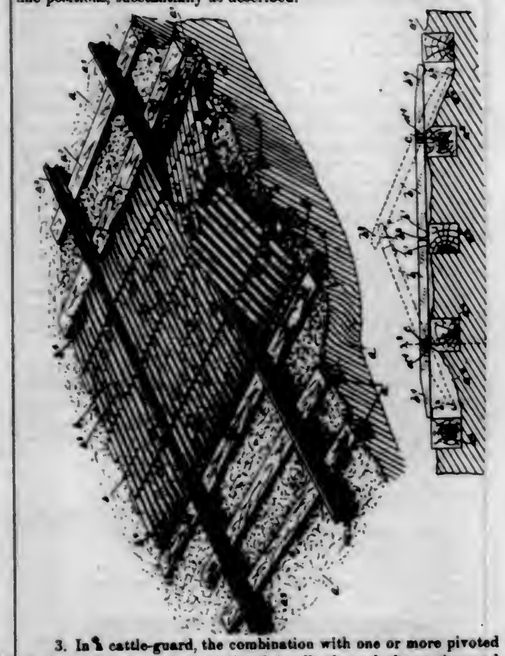
Claim.—1. In an expansion steam-trap, the combination of the almost horizontally-arranged but inclined pipe A; the steam-pipe communicating with the upper end of said inclined pipe; the drain-pipe leading downwardly from the lower end of said inclined pipe; the bracket *g* rigid with the drain-pipe and inclined pipe at the junction of said pipes and arranged in line, or approximately in line, with the inclined pipe; the valve for controlling communication through the drain-pipe and provided with a stem arranged parallel or approximately parallel with the aforesaid bracket; the lever H depending from and fulcrumed to the outer end of the bracket and operatively connected, at its lower end, with the valve-stem, and the rod K operatively connected with said lever between the latter's fulcrum and lower end, and suitably connected with the upper end of the inclined pipe, and said rod being provided with a loop embracing the drain-pipe, substantially as shown, for the purpose specified.

2. In an expansion steam-trap, the combination of the almost horizontally-arranged but inclined pipe A; the steam-pipe communicating with the upper end of said inclined pipe; the drain-pipe leading downwardly from the lower end of said inclined pipe; the bracket *g* rigid with the drain-pipe and inclined pipe at the junction of said pipes and arranged in line, or approximately in line, with the inclined pipe; the valve for controlling communication through the drain-pipe and provided with a stem arranged parallel or approximately parallel with the aforesaid bracket; the lever H depending from and horizontally fulcrumed to the outer end of the bracket, said lever being operatively connected, at its lower end, with the valve-stem, and having the series of lateral holes H^3 between its fulcrum and lower end; the rod K pivoted horizontally to the upper end of the inclined pipe and arranged below and longitudinally of the inclined pipe, and a bolt or pin connecting said rod with the lever at one of the aforesaid holes, substantially as shown, for the purpose specified.

575,921. CATTLE-GUARD. CHARLES H. COMPTON, New Albany, Ind. Filed Mar. 24, 1896. Serial No. 584,607. (No model.)

Claim.—1. A cattle-guard, comprising one or more pairs of pivoted grate-like sections, each of which sections has an elongated or projecting bar which engages the cooperating section of the pair, whereby said sections are given simultaneous movements, substantially as described.

2. A cattle-guard, comprising one or more pairs of sections, disposed longitudinally of the track and mounted on independent transverse pivots, but adapted for simultaneous movements, by means of positive connections between the same, whereby, if an animal steps on the outer end of either section, the inner ends of both sections will be thrown upward beyond the horizontal, or if one of said pivoted sections is struck by a passing train, both of the cooperating pivoted sections will be forced into their horizontal or normal straight-line positions, substantially as described.



3. In a cattle-guard, the combination with one or more pivoted sections, of a pivot-shaft passing laterally through the section, and two-part pivot-blocks for said shafts, comprising each, one piece which engages said shaft and holds the same from endwise movement, but permits upward displacement of the same, and another piece which holds the shaft from upward movement, but permits longitudinal displacement, but which two bearing-pieces, in cooperation with each other, hold said shaft from displacement, in all directions.

4. In a cattle-guard, the combination with one or more pivoted sections, of the pivot-shaft c extending transversely through said section and formed on its projecting ends with grooves *c'*; the two-part bearings, engaging the ends of said shaft *c*, comprising, each, the angle-piece *d* securable to the tie and provided with the vertical slot *d'* and with the spike-hole d^3, and to the angle-piece d^4 having the bearing-perforation d^5 and spike-hole d^6; and the spike d^9 working through said spike-holes d^3 and d^6, said parts operating substantially as described.

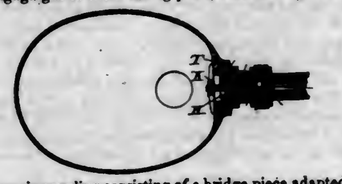
575,922. TRUNK-HANDLE. GEORGE CROUCH, New York, N. Y. Filed Nov. 15, 1896. Serial No. 569,004. (No model.)



Claim.—The combination with a trunk-handle having slots near its ends and rivets passing through such slots, of cases of rawhide or similar material having flanges attached to the trunk and metal bridges outside of and protecting the cases, the rivets that go through the slots in the handle passing through both the metal bridges and the cases of rawhide or similar material, substantially as set forth.

575,923. REPAIR-COUPLING FOR WATER-CLOSET BOWLS. PATRICK W. DOYLE, Denver, Colo. Filed Feb. 4, 1896. Serial No. 577,311. (No model.)

Claim.—1. A repair-coupling consisting of a bridge-piece to span the orifice, a hollow coupling-piece, a connecting-piece extending from the bridge to the coupling, and means independent of the coupling-piece for engaging it to the coupling-piece, substantially as described.



2. A repair-coupling consisting of a bridge-piece adapted to span the orifice, a hollow bridge-piece at the farther end of the coupling-piece, a connecting-piece between the bridge-piece at the bowl and the bridge-piece at the coupling, and means for engaging the connecting-piece to the bridge-piece at the coupling, substantially as described.

3. A repair-coupling the walls of which are imperforate consisting of a hollow coupling adapted to cover the orifice and means for holding said coupling-piece to the bowl consisting of one or more connecting-pieces shaped at one end to engage the bowl and provided on the other end with means for engaging the interior wall of the hollow coupling-piece, substantially as described.

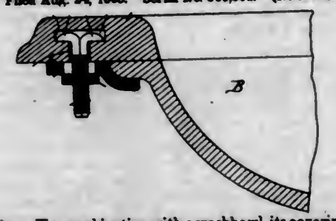
4. A repair-coupling consisting of a nipple adapted to cover the orifice, an apertured bar across the nipple, a T-shaped screw-threaded bolt adapted to engage by its head the inner walls of the bowl and to project outwardly through the orifice and the bar-aperture, and a nut for engaging the outer end of the bolt, substantially as described.

5. A repair-coupling consisting of a hollow coupling-piece and means for connecting the coupling-piece to the bowl consisting of two pieces each provided with a projecting arm for engaging the bowl and each provided with means on the opposite end for engaging the coupling-piece, substantially as described.

6. A repair connection consisting of a hollow coupling-piece, and means for connecting the coupling-piece to the bowl consisting of two pieces semicircular in cross-section, each provided with a projecting arm for engaging the bowl and with screw-threads to receive the nut for engaging the connecting-piece to the coupling-piece, substantially as described.

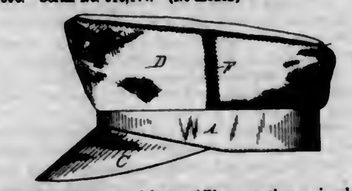
7. A repair-coupling consisting of a hollow coupling-piece provided on its interior with a bridge-piece G, two connecting-pieces J each provided with a projecting arm P and with screw-threads on the opposite end to receive the nut L, substantially as described.

575,924. WASHBOWL-FIXTURE. THOMAS E. DOYLE, Chicago, Ill. Filed Aug. 24, 1896. Serial No. 580,392. (No model.)



Claim.—The combination with a washbowl, its covering-slab, and the clip for engaging the bowl, of a bolt for connecting the clip to the slab consisting of two portions semicircular in cross-section each having a lateral projection on its end brought together to form the complete bolt, said portions inserted in a bore or recess in the slab and each projection coming to a bearing in a lateral enlargement of said bore or recess, substantially as described.

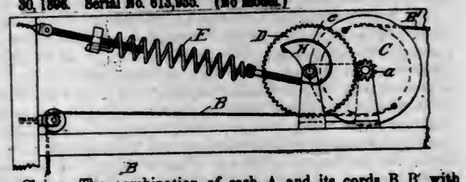
575,925. CAP. WILLIAM N. FELDMAN, Detroit, Mich. Filed Oct. 27, 1896. Serial No. 610,177. (No model.)



Claim.—1. A cap, comprising a stiff base-section, a circular crown-section, a collapsible rim-section between the base-section and crown-section, an annular ventilating-strip between and connecting the crown and rim sections whereby when the cap is collapsed on the head of the wearer an air-space is formed in front of and below the top of the base-section, and side ventilating-strips in the rim-section.

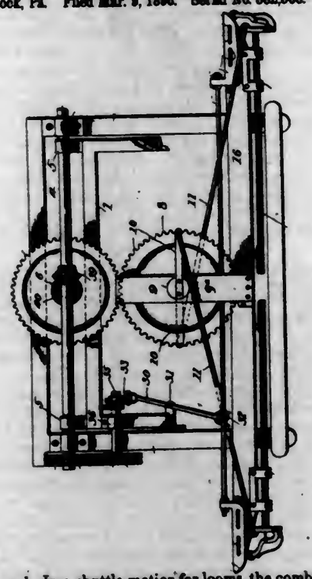
2. A cap comprising a stiff base-section, a crown-section, a collapsible rim-section between the base-section and crown-section, a ventilating-strip between and connecting the crown and rim sections, whereby when the cap is collapsed on the head of the wearer an air-space is formed in front of and below the top of the base-section.

575,926. SASH-BALANCE. ROBERT A. GRANT, Cambridge, Mass., assignor of one-half to Elijah A. Shaw, Lexington, Mass. Filed Nov. 30, 1896. Serial No. 613,935. (No model.)



Claim.—The combination of sash A and its cords B B' with drum C, wheel D; cam H mounted on wheel D and spring E one end of which is fast to the window-casing and the other to cam H; all combined to allow spring E to exert its power to turn drum C and thereby raise the sash, substantially as described.

575,927. SHUTTLE-MOTION FOR LOOMS. CHARLES H. HEINDEL, Glen Rock, Pa. Filed Mar. 9, 1896. Serial No. 582,368. (No model.)



Claim.—1. In a shuttle-motion for looms, the combination of the continuously-rotatable cog-wheel provided with oppositely-extending crank-arms, the two shuttle-bars, the rods directly connected at one end to said shuttle-bars and at the other end to said crank-arms, so that the crank-arms will make a complete revolution in reciprocating the shuttle-bar rods, and means for rotating said cog-wheel continuously in one direction, substantially as and for the purposes described.

2. In a shuttle-motion for looms, the combination of the two shuttle-bars, the shuttle-catches, the rods connected to said bars, means for actuating said rods to reciprocate the shuttle-bars, the levers connected with the shuttle-bars, the rods connected to said levers and extending through the shuttle-bars for the purpose of releasing the shuttle-catches, the single reciprocating rod provided with cam-blocks to engage with said levers to actuate the shuttle-releasing rods, and means for reciprocating the rod which carries the cam-blocks, substantially as and for the purposes described.

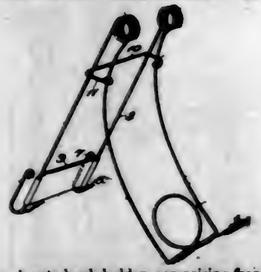
3. In a shuttle-motion for looms, the combination of the shuttle-bars, the shuttle-catches, levers pivotally connected with said bars, means for actuating the shuttle-bars, the rods for releasing the shuttle-catches extending through the shuttle-bars and connected to said levers, the springs bearing against said levers to restore said rods to their normal positions, the horizontally-reciprocating single rod pro-

vided with the cam-blocks arranged to contact with said levers in the reciprocation of the blocks, the oscillating lever connected with the reciprocating rod, and a cam for moving said lever back and forth, substantially as and for the purposes described.

4. In a shuttle-motion for looms, the combination with the shuttle-bars, shuttle-catches, means for actuating the shuttle-bars, and shuttle-catch-releasing rods, of the single reciprocating rod provided with cam-blocks to actuate the shuttle-catch-releasing rods, the oscillating lever connected with the said reciprocating rod, the shaft provided at one end with a cam to engage said lever and at the other end with a power-communicating wheel, and the driven shaft provided with a power-wheel of smaller diameter than said other wheel and meshing therewith, substantially as and for the purposes described.

5. In a shuttle-motion for looms, the combination of the continuously-rotatable cog-wheel provided with crank-arms, the drive-shaft provided with a cog-wheel meshing with the crank cog-wheel, the shuttle-bars, the shuttle-catches, the rods connecting said bars with said crank-arms, the shuttle-catch-releasing rods, pivoted levers connected to the outer ends of said rods, the reciprocatlng rod provided with cam-blocks to engage said levers for actuating the shuttle-catch-releasing rods, the lever connected to the rod provided with the cam-blocks, the shaft having at one end a cam to engage said lever and at the other end provided with a cog-wheel, the shaft provided with a bevbled pinion meshing with a beveled pinion on the drive-shaft and provided with a cog-wheel meshing with the wheel on the cam-shaft, the several parts being arranged to operate, substantially as and for the purposes described.

575,928. NOTE-BOOK HOLDER. WALTER T. IVES, Brooklyn, N. Y. Filed Nov. 20, 1896. Serial No. 612,857. (No model.)

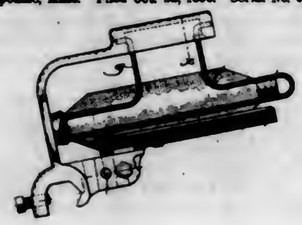


Claim.—1. A note-book holder, comprising front standards having upwardly-turned clip portions at the lower end, brace-rods having a spring-yielding connection with said standards, a spring-clip at the lower portion of the said brace-rods, and a holding-bar adapted to slide longitudinally of the standards and of the brace-bars to hold them as adjusted, substantially as described.

2. A note-book holder, comprising a single strip of metal forming front standards having upwardly-turned lower ends, brace-rods having coiled-spring engagement with the standards, a spring-yielding clip formed at the lower portion of the said brace-rods, a plate connecting the lower ends of the standards, and a sliding holding-bar having rearwardly-extended arms provided with eyes engaging loosely around the brace-rods, substantially as described.

3. A note-book holder, consisting of a single strip of resilient wire bent to form front standards having upwardly-turned keepers at their lower ends, coils at the upper ends of the said standards, brace-rods extended from said coils and connected at the lower end by a cross-piece curved to form a substantially ring-shaped clip, a holding-bar engaging loosely with the standards and also loosely engaged with the brace-bars, and a plate connecting the lower ends of the standards, the upper part of the said plate being transversely rounded or curved, substantially as described.

575,929. BOBBIN-HOLDER. HENRY LAWRENCE, Milford, and ALONZO R. REGADER, Hopedale, Mass., assignors to George Draper & Sons, Hopedale, Mass. Filed Oct. 22, 1896. Serial No. 609,665. (No model.)

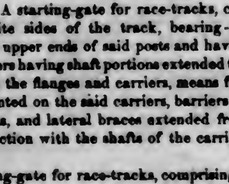


Claim.—1. In a bobbin-holder, an upper overhanging arm, a bracket, a rest or pan, and means to adjust said rest or pan longitudinally on said bracket to adapt it for the reception of bobbins of different lengths and diameter, substantially as described.

2. In a bobbin-holder, an upper overhanging arm, a bracket, a rest or pan, and means to adjust said rest or pan longitadinally on said bracket to adapt it for the reception of bobbins of different lengths and diameter, and pivoted guards, substantially as described.

3. In a bobbin-holder, a bobbin-holding rest or pan provided with a central depression and having flattened side wings extended from the edges of said depression, combined with guards to act upon the sides of the bobbin supported by said pan, substantially as described.

575,930. WATER-CLOSET. MIGUEL MORELL, Santa Barbara, Cal. Filed Sept. 17, 1896. Serial No. 606,064. (No model.)



Claim.—1. In a water-closet, the combination of a casing having the flush and discharge pipes connected thereto, with an interior case or pan fitting closely therein but removable therefrom, said interior case or pan containing a central receiving-basin, a discharge-opening and flushing passages and openings, substantially as described.

2. In a water-closet, the combination of a casing having the flush and discharge pipes connected thereto, with an interior casing or pan fitting closely therein but removable therefrom, said interior casing or pan having a central receiving-basin, and a discharge-opening registering with the discharge-opening of the outer case, and having also water-passages within the body of the same surrounding the basin, and an inlet for said water-passages registering with the flush-pipe connection of the outer case, substantially as described.

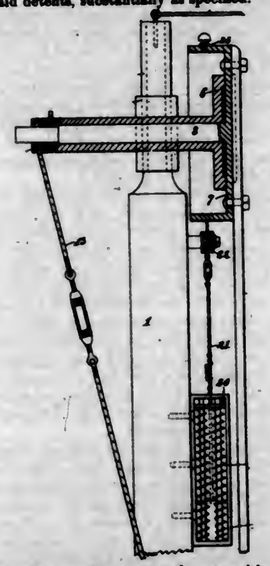
3. In a water-closet, the combination of a casing having the flush-pipe and discharge-pipe connected thereto, an open-top passage around the bottom thereof connected at one end to the discharge-pipe, an open-topped well within the casing, connected to the other end of this passage by an opening which is at the bottom thereof, with an interior casing or pan fitting closely in the exterior casing but removable therefrom, said pan containing a central receiving-basin, a discharge-opening registering with the well in the outer casing, water-passages surrounding the basin and connected thereto by jet-openings and to the flush-pipe by an opening registering therewith, substantially as described.

4. In a water-closet, the combination of a casing having the flush-pipe and discharge-pipe connected thereto, an open-top circular passage around the bottom thereof connected at one end to the discharge-pipe, an open-topped well within the casing, connected to the other end of this circular passage by an opening which is at the bottom thereof, with an interior casing or pan fitting closely in the exterior casing but removable therefrom, said pan containing a central receiving-basin, a discharge-opening registering with the well in the outer casing, water-passages surrounding the basin and connected thereto by jet-openings and to the flush-pipe by an opening registering therewith, and a sheet of compressible material placed between the bottom of the inner case and over the top of the circular passage in the outer case, substantially as described.

575,931. STARTING-GATE FOR RACE-TRACKS. PHILIP MCGINNIS, Brooklyn, N. Y. Filed Apr. 23, 1896. Serial No. 588,748. (No model.)

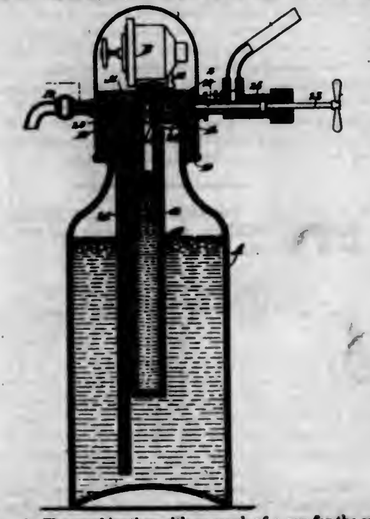
Claim.—1. A starting-gate for race-tracks, comprising posts located at opposite sides of the track, bearing-sleeves removably mounted on the upper ends of said posts and having flanges at their inner ends, carriers having shaft portions extended through the sleeves, detents between the flanges and carriers, means for releasing the detents, arms mounted on the said carriers, barriers secured to the free ends of the arms, and lateral braces extended from the ends of the arms to a connection with the shafts of the carriers, substantially as specified.

2. A starting-gate for race-tracks, comprising side posts located at opposite sides of the track, bearing-sleeves having removable connection with the upper ends of the posts and extended transversely thereof, flanges on the inner ends of the sleeves, carriers having a bearing against said flanges and provided with shafts extended through the sleeves, arms extended from the carriers, lateral braces for said arms, barriers connected with the arms, a counterbalance for the arms, a connection between said counterbalance and the carriers, a detent between the carriers and the flanges on the sleeves, and means for releasing said detents, substantially as specified.



3. A starting-gate for race-tracks, comprising posts located at the sides of the track, sleeves mounted transversely on said posts, flanges on the inner ends of said sleeves, carriers having shaft portions extended through the sleeves and adapted to rotate therein, dogs pivoted to the inner sides of the carriers, lugs on the periphery of the flanges adapted to be engaged by said dogs, pull-wires having connection with said dogs, ropes or wires having connection at one end with the carriers and at the other end with spring-counterbalances, lateral braces on the arms, and barriers supported on the arms, substantially as specified.

575,932. SIPHON-RECEPTACLE. JOHN HASELDINER, New York, N. Y. Filed May 16, 1896. Serial No. 591,753. (No model.)



Claim.—1. The combination with a vessel, of a cap for the same having a central opening, the said vessel being provided with a siphon-tube and controlling outlet-faucet, a cylinder adapted to receive liquid carbonic-acid gas and communicating at its upper end with the central opening in the cap, a casing-cylinder of a non-corrosive material surrounding and tightly fitting the gas-receiving cylinder, a regulator connected with the gas-receiving cylinder and with the interior of the main receptacle, and a valve located in a valve-chamber formed in the said cap and controlling the inlet to the said gas-receiving cylinder, as and for the purpose specified.

2. The combination with a vessel, of a cap for the same provided with a central opening, the said vessel being provided with a siphon-tube and controlling outlet-faucet, a cylinder adapted to receive liquid carbonic-acid gas and communicating with the central opening in the said cap, the said cylinder being surrounded by a casing-cylinder of a non-corrosive material, a regulator having its inlet sleeve or nozzle connected with the central opening of the cap and having its outlet connected by a tube with a nipple secured in the said cap and communicating by means of an aperture extending through the cap with the interior of the main receptacle, a valve-chamber formed in the said cap and connected by a channel with the central opening in the cap, a valve controlling the inlet through said channel to the gas-receiving cylinder, and means for controlling the said valve from the exterior of the said cap, as and for the purpose specified.

3. In a siphon-receptacle, the combination with a cap for said receptacle provided with a valve-chamber having its walls threaded and a screw-valve in said chamber controlling the inlet of a gas to the receptacle, of a filler provided with a body-tube having an inlet for the reception of gas and an outlet adapted for communication with the said valve-chamber, the said body-tube being provided at its outlet end with a loosely-mounted screw-threaded sleeve, adapted to be screwed into the outer portion of the valve-chamber, and a device located in the body portion of the filler and extending beyond the exterior thereof and arranged for turning engagement with the said screw-valve, as and for the purpose specified.

4. A filler for the purpose described, consisting of a body-tube having a branch for connection with a source of supply, the said body-tube being provided at its discharge end with an externally-threaded sleeve adapted to be connected with the receptacle to be filled and loosely mounted on the said body-tube, and said tube being swiveled in its relation to the receptacle whereby the said tube may be turned in any desired direction, and a screw-driver mounted to turn in the body of the filler, as and for the purpose specified.

5. A cap for a siphon-receptacle having an interiorly-threaded valve-chamber 22 of two diameters with a valve-seat between them, a conical screw-valve 24 adapted to close on said seat and provided with a channel extending longitudinally and transversely through the same, and a seat for a screw-driver in its outer end, a tube 26 detachably connected to the valve-chamber and having a stuffing-box at its outer end and a lateral inlet 27, and a valve-adjusting screw-driver 28 arranged within the tube 26, operated from the exterior of the same, and made detachable with it from the chamber substantially as shown and described.

6. The combination of the cap having interiorly-threaded valve-chamber 22 of two diameters with a seat between them, the carbonic-acid filling-tube 26 having terminal flange and swiveling sleeve 30 exteriorly threaded and detachably screwing into the valve-chamber of the cap and provided with a lateral inlet 27, the conical and exteriorly-threaded valve 24 having longitudinal and transverse channel and screw-driver seat in its outer end, and a valve-adjusting screw-driver tightly packed in the filling-tube and made detachable with it, whereby the filling-tube may be rotated after connection to bring its inlet-tube into convenient relation to the carbonic-acid-reservoir connection, substantially as and for the purpose described.

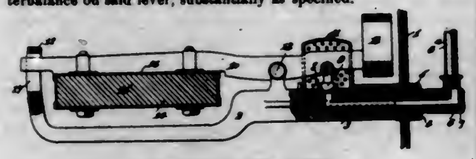
7. The combination with a siphon-receptacle, of a cap 11 having a central passage-way 13 interiorly threaded, a valve-chamber 22 of two diameters communicating laterally with the central passage-way and having a channeled and conical screw-valve, a pendent carbonic-acid cylinder attached to the cap at the lower end of the central passage-way, a regulator arranged vertically above and communicating with said central passage-way, and an external concentric inclosing cap, substantially as and for the purpose set forth.

8. The combination with a siphon-receptacle, of a cap for the same having a pendent carbonic-acid receptacle extending down into the siphon-receptacle and provided with a closely-fitting exterior jacket or covering, of non-corrosive material, said jacket and carbonic-acid receptacle being wholly sustained in a pendent position by the cap, substantially as and for the purpose described.

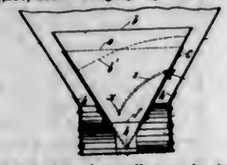
575,933. INDICATOR FOR STEAM-BOILERS. JOHN PARKER, Bradford, England, assignor of two-thirds to Harry Parker, Tullahoma, Tenn. Filed Oct. 23, 1895. Serial No. 566,560. (No model.) Patented in England Oct. 3, 1894, No. 18,706.

Claim.—The combination with a boiler, of a frame extended horizontally therein and having a guide-slot at the inner end, a tubular portion of said frame having its end reduced and threaded, the said reduced, threaded end being engaged through a tapped hole in the boiler-shell, a coupling provided with a small vent screwing onto the outer end of said tubular portion, a pipe extended from said coupling to carry away the greater portion of the discharge from the boiler, the lesser portion of said discharge being through the vent, to

cause an alarm, a lever fulcrumed to the frame within the boiler and having one end passing through the guide-slot at the end of the frame, a valve on said lever for controlling an opening leading into the tubular portion of the frame, a float on said lever, and a counterbalance on said lever, substantially as specified.



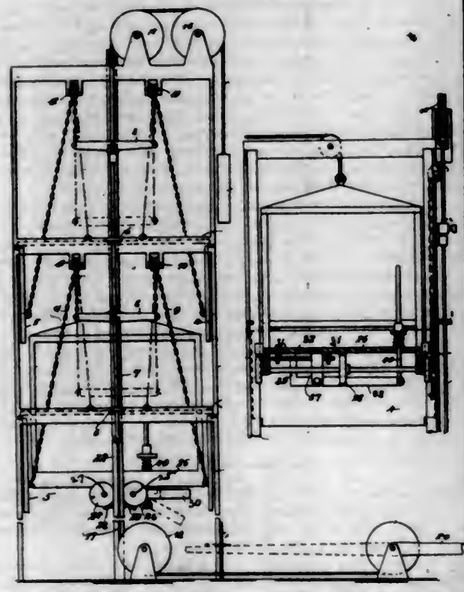
575,934. **FUNNEL FOR DUST-COLLECTORS.** FRANZ PROKUPEK, Milan, Italy. Filed Sept. 3, 1896. Serial No. 604,737. (No model.) Patented in Italy Jan. 18, 1894, No. 35,444; in Switzerland Jan. 25, 1894, No. 8,249; in England Jan. 27, 1894, No. 1,853; in Germany Mar. 13, 1894, No. 73,771; in France Apr. 16, 1894, No. 236,799; in Austria Sept. 4, 1894, No. 3,230, and in Hungary Sept. 4, 1894, No. 36,996.



Claim.—1. A funnel for dust-collectors, having vanes capable of breaking the air-current, a fixed truncated cone, a flexible cone, within the fixed cone and capable of being deformed so as to gradually contract or completely obstruct the lower orifice of the fixed truncated cone.

2. A funnel for dust-collectors, having a shell or body, a plurality of vanes held within the body and breaking the current of air passing through the same, a truncated cone supported on the vanes, and a flexible cone adapted to receive atmospheric pressure, and adjustably held within the truncated cone, substantially as described.

575,935. **OPERATING MECHANISM FOR ELEVATOR-SHAFT DOORS AND SAFETY DEVICES.** LUCIUS N. REED, Fulton, Ill. Filed Aug. 7, 1896. Serial No. 601,965. (No model.)



Claim.—1. A mechanism for operating elevator-shaft doors, comprising a vertically-movable rod at one side of the elevator-shaft, a chain or similar flexible connection between said rod and a door, a sheave over which said chain or flexible connection passes, a pulley arranged at the base of the elevator-shaft, a cable extended from the operating-rod around said pulley, another pulley arranged at the base of the elevator-shaft and to which the end of said cable is attached, and an operating-lever on the shaft of the last-named pulley, substantially as specified.

2. In an elevator-shaft, a series of doors for the floor-openings thereof, each door consisting of two sections, a rod extended upward and movable through guideways at one side of the elevator-shaft, cross-heads on said rod, flexible connections between said cross-heads and the door-sections, sheaves arranged above the door-sections and over which said flexible connections extend, a pulley arranged at the lower end of the shaft, another pulley arranged outside the shaft, a cable extended from the rod around the first-named pulley to a connection with the last-named pulley, and an operating-lever for said last-named pulley, substantially as specified.

3. The combination, with an elevator-shaft and doors for the floor-openings thereof, each door consisting of two hinged sections, of an operating-rod extended upward at one side of the elevator-shaft, cross-heads secured to said rod, chain connections between the cross-heads and the door-sections, sheaves over which said chains extend, pulleys arranged at the upper end of the shaft, a cable extended from the upper end of the operating-shaft over said pulleys, a counterbalance-weight at the opposite end of said cable, a pulley arranged at the base of the shaft, another pulley arranged at the base of the shaft, but outside thereof, a cable extended from the lower end of the operating-rod around the first-named pulley at the base of the shaft to a connection with the last-named pulley, an operating-lever on the shaft of the last-named pulley, and a locking device for said lever, substantially as specified.

4. The combination, with an elevator-shaft and a car therein, of brake-strips extended upward at opposite sides of the elevator-shaft, rotary shafts carried by the elevator-car, eccentrics on said shafts, for engaging with the brake-strips, segment-gears on said shafts meshing one with the other, a weighted extension on one of said segment-gears, and a holding device for said extension, comprising a pivoted plate operated by atmospheric pressure, substantially as specified.

5. The combination, with an elevator-shaft and a car therein, of brake-strips arranged at opposite sides of the shaft, eccentrics mounted on shafts carried by the car and adapted for engagement with the brake-strips, a segment-gear on each of said shafts and meshing one with the other, a weighted extension on one of said segment-gears, a latch or hook carried by said extension, an air-pressure plate pivoted at one edge to rods extended along the under side of the car, and a latch-hook depending from said plate and adapted for engagement with the latch-hook carried by the extension of the segment-gear, substantially as specified.

6. The combination, with an elevator-shaft and a car therein, of brake-strips arranged at opposite sides of the shaft, eccentrics mounted on shafts carried by the car and adapted for engagement with the brake-strips, a segment-gear on each of said shafts and meshing one with the other, a weighted extension on one of said segment-gears, a latch or hook carried by said extension, an air-pressure plate pivoted at one edge to rods extended along the under side of the car, a latch-hook depending from said plate and adapted for engagement with the latch-hook carried by the extension of the segment-gear, a lever fulcrumed to a hanger depending from the bottom of the car and having one end in free engagement with the under side of the pivoted plate, and a rod extended from the opposite end of said lever to the floor of the car, substantially as specified.

575,936. **COMBINED ADJUSTABLE HANDLE-BAR AND BRAKE FOR BICYCLES.** MANUEL A. ROSO, New York, N. Y. Filed Jan. 24, 1896. Serial No. 576,710. (No model.)



Claim.—1. The combination of a handle-bar having a tubular stem, a casing at the upper end of the stem, tubular arms projecting from opposite sides of the casing, a bar mounted to turn in the tubular arms and having its ends projecting beyond the outer ends of the said arms, handles on the ends of the said bar, fixed serrated collars at the inner ends of said handles, spring-pressed bolts carried by the said arms and normally engaging the serrations on the collars, sleeves serving to hold the said spring-pressed bolts in place, a brake-lever having a shoe to engage the wheel-tire, and means for actuating the lever by the turning of the said bar, substantially as set forth.

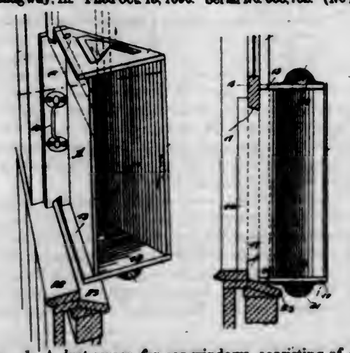
2. The combination of a handle-bar having a tubular stem, a casing at the upper end of the stem, arms projecting from opposite sides of the casing, a bar journaled in the arms, handles secured to opposite ends of the bar, serrated collars secured on the handles, recessed collars secured on the ends of the arms opposite the serrated collars, bolts in the recesses of the collars on the arms, springs arranged to hold the said bolts normally engaged with the serrations of the collars on the handles, sleeves inclosing the collars on the arms and handles, a brake-lever having a shoe to engage the wheel-tire, and means to actuate the brake-lever by the turning of the bar, substantially as set forth.

3. The combination of a handle-bar having a tubular stem and arms projecting from its opposite sides, a bar mounted to turn in the arms and provided with handles at its ends, collars secured on the ends of the bar and provided with rounded serrations, bolts carried on the arms and having rounded ends to engage the serrations of the collars, springs to hold the rounded ends of the bolts in engagement with the serrations of the collars, sleeves encircling the bolts and collars, and a brake device actuated by the turning of the bar, substantially as set forth.

4. The combination of a handle-bar having a tubular stem and arms projecting from its opposite sides, a bar mounted to turn in the arms, handles secured to opposite ends of the bar, serrated collars secured on the handles and having rounded serrations 17, bolts carried on the arms and having rounded ends to engage the rounded serrations of the collars, springs to hold the bolts engaged with the serrations of the collars, sleeves encircling the bolts and collars, and a spring-catch carried on one handle and normally engaging one of the sleeves, substantially as set forth.

5. The combination of a frame having a hollow head portion and a lower brace-bar, and provided with a crank-box and rear forks, a tie connecting the rear forks, a steering-post mounted in the head-bearing and having an aperture alined with the joint between the head-bearing and the lower brace-bar of the frame, a handle-bar having a horizontal rotative part carrying a gear-wheel and provided with a stem secured to the steering-post, a brake-lever pivoted on the brace, connecting the rear forks of the frame and provided with a shoe to engage the tire of the driving-wheel, and a strap connected with the brake-lever and provided with openings adapted to be engaged by the teeth of the gear-wheel on the rotative part of the handle-bar the said strap extending down through the hollow of the handle-bar stem, the steering-post, and the lower brace-bar and the crank-box of the frame, substantially as set forth.

575,937. **DUST-SCREEN FOR WINDOWS.** HUGH B. SMITH, Shawneetown, Ill., assignor of one-third to Winfield S. Phillips and Dent Reid, Ridgway, Ill. Filed Oct. 13, 1896. Serial No. 608,702. (No model.)



Claim.—1. A dust-screen for car-windows, consisting of a box-body having its outer side inclined outwardly from the front edge of the body, the ends of the body being provided with escape-openings, and hoods located over the escape-openings, being secured to the outer faces of the ends of the box-body, the said hoods being open at their rear ends and otherwise closed, the box-body being likewise open at its rear end, as and for the purpose set forth.

2. A dust-screen for car-windows, consisting of a box-body angular in cross-section, its rear or expanded portion being open and the ends of the body provided with escape-opening and hoods located over the outside of the openings, which hoods are contracted at their forward ends and open at their rear or expanded ends, and a fastening device for attaching the screen to a car, substantially as described.

3. A dust-screen for car-windows, consisting of a box-body, angular in cross-section and provided at the top and at the bottom with escape-openings, and hoods shaped correspondingly to the box-body, and secured to the outer faces of the ends of the box over the escape-openings, the box being open at its wider portion and closed at its contracted portion and the hoods having corresponding portions also closed and open, and means, substantially as described, for attaching the screen at either side of a window-frame, as and for the purpose set forth.

4. A dust-screen for car-windows, consisting of a box-body, angular in cross-section and provided at the top and at the bottom with escape-openings, and hoods shaped correspondingly to the box-body and secured to the outer faces of the ends of the box over the escape-openings, the box being open at its wider portion and closed at its contracted portion, and the hoods having corresponding portions also closed and open, an upright secured to the inner front portion of the box-body, the said upright being provided with a rib upon its forward face, adapted to enter a sash-groove in a window-frame, and the ends of the upright being recessed to receive the bottom rail of a window-sash, as and for the purpose specified

575,938. **BICYCLE-BRAKE.** WILLIAM L. STEWART, Wilmerding, Pa. Filed July 18, 1896. Serial No. 599,603. (No model.)



Claim.—1. A brake for bicycles or the like, comprising a brake-cylinder, a bearing-block extended longitudinally therein, friction-rollers supported in said block and engaging the inner surface of the brake-cylinder, a yoke engaging with trunnions extended from the ends of said block, and an operating-rod extended upward from said yoke, substantially as specified.

2. A brake for bicycles or the like, comprising a cylinder, a bearing-block arranged longitudinally therein and having semicylindrical seats formed in its lower side, friction cylinders or rollers in said seats, a spring attached to the upper side of said block and engaging its free end with the interior of the brake-cylinder, and a yoke having its downwardly-extended members engaged with trunnions extended from the said block through openings in the ends of the brake-cylinder, substantially as specified.

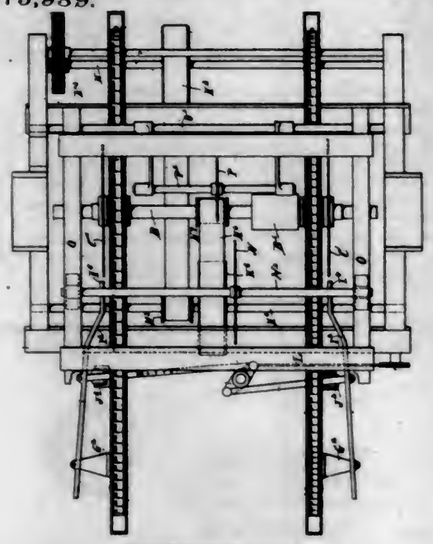
3. A brake for bicycles or the like, comprising a cylinder, a bearing-block arranged longitudinally therein and having transverse curved seats in its lower side, friction-rollers engaging in said seats and engaging the interior of the brake-cylinder, a spring for forcing said block and friction-rollers yieldingly downward with relation to the brake-cylinder, an operating-rod having engagement with trunnions extended from said bearing-block through openings in the end of the brake-cylinder, and a cover of yielding material on the brake-cylinder, substantially as specified.

4. A bicycle-brake, comprising a cylinder, a cover of yielding material on the outer side thereof, a bearing-block extended longitudinally in said cylinder and having trunnions extended outward through openings in the end of said cylinder, friction-rollers loosely mounted in transverse curved seats formed in the under side of said bearing-block, a yoke having its downwardly-extended members engaged with the trunnions, means for preventing a rotary motion of said block relatively to the yoke, and an operating-rod extended upward from said yoke, substantially as specified.

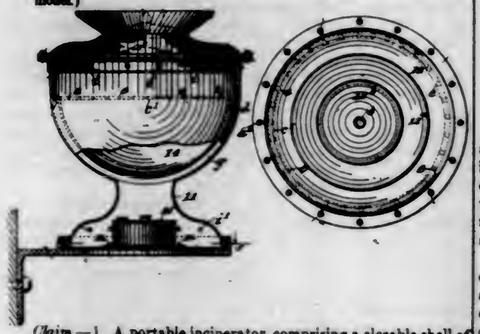
575,939. **FEEDING ATTACHMENT FOR SAWING-MACHINES.** DANIEL J. TAFT, Leon, Ky. Filed May 26, 1896. Serial No. 593,169. (No model.)

Claim.—A sawing-machine having a frame, two chain-guides fixed to the frame and projecting beyond the forward end of the frame, each chain-guide having two parallel sides forming a longitudinal passage, pulleys adjacent to the chain-guides, a chain running in each chain-guide and over the respective pulleys, each chain having a lug for engaging the work, a bracket projecting laterally from the forward portion of each chain-guide, a work-guide having its forward portion pivoted to each bracket; the work-guides respectively extending approximately parallel with the chain-guides and rearwardly to a point over the frame, a roller carried by the outer side of each chain-guide and at a point adjacent to the frame, each chain-guide having an opening adjacent to the respective rollers, a link resting on each roller and movable through the respective openings of the chain-guides, the links being respectively pivoted to the work-guides, means for sliding the links whereby the work-guides are shifted, and a saw carried by the frame, substantially as described.

575,939.



575,940. CONTAGIOUS-GERM INCINERATOR. HELEN S. WESTON, Fruitvale, Cal. Filed May 13, 1896. Serial No. 591,991. (No model.)



Claim.—1. A portable incinerator, comprising a closable shell of metal having a spheroidal lower portion and a widened hollow base, a spheroidal-shaped chafing-dish hung in said shell so as to afford a draft-passage around its outer surface, and a source of heat located in the base of the shell adapted to impinge flame and heat currents on the bottom of the chafing-dish, substantially as described.

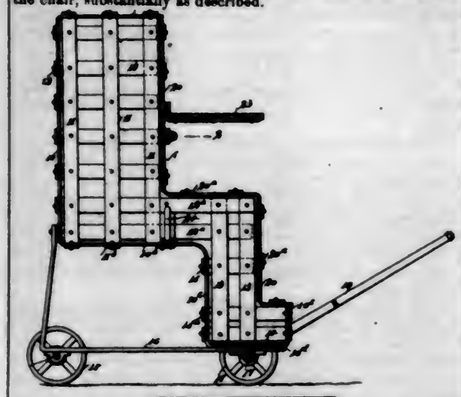
2. A portable incinerator, comprising a hollow shell rounded in its lower portion, and having a hollow base, a lid for said shell, centrally apertured to permit access to the interior of the shell and having a flaring wall that converges to the aperture, the base and top of the incinerator having draft-passages therein, a cover for the aperture of the lid, a thin-walled chafing-dish hung concentric within the shell and having an annular draft-passage around it, and a source of flame and heat located in the base of the incinerator-shell, substantially as described.

575,941. PUNITIVE CHAIR. SANFORD J. BAKER, Oakland, Me. Filed Sept. 16, 1896. Serial No. 605,954. (No model.)

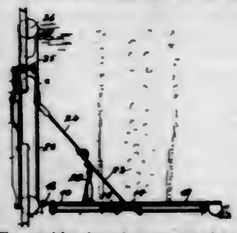
Claim.—1. A punitive chair constructed with openings, rendering the occupant visible from the sides as well as the front; said chair comprising a back, sides, a leg-rest, a seat, a post projected upward from the seat, and a lattice-door conforming to the shape of the chair at the front and extending from a point above the seat over the leg-rest, substantially as described.

2. A punitive chair having a body with two side sections, a back and a seat, a leg-rest connected with the body, vertical post held adjacent to the seat and adapted to be straddled by the occupant of the chair, and a door closing the front of the chair and extending from a point above the seat to and over the leg-rest and conforming to the shape of the chair-front, substantially as described.

3. A punitive chair having a body with a horizontal seat portion, a vertical back portion arising from the rear of the seat portion, a leg-rest extending downwardly from the front of the seat portion, two sides for the chair, and a door closing the front of the chair and having a double angular form whereby to conform to the shape of the chair, substantially as described.



575,942. GATE. ARON W. CHILCOTT, Stewartsville, Mo. Filed Aug. 22, 1896. Serial No. 603,616. (No model.)



Claim.—1. The combination of a gate, a locking-lever fulcrumed at one end to a support independent of the gate, a crank-shaft having crank-arms at angles to one another, a link connection between one of the crank-arms and the locking-lever, a second link connected with the opposite crank-arm and pivotally attached to an extension from the gate, and means for raising and lowering the lock-lever, substantially as described.

2. The combination of a gate, a locking-lever fulcrumed at one end to a support independent of the gate, a crank-shaft having crank-arms at angles to one another, a link connection between one of the crank-arms and the locking-lever, a second link connected with the opposite crank-arm and pivotally attached to an extension from the gate, and means for raising and lowering the lock-lever, the said extension being attached to the central portion of the gate at the side at which the gate opens, projecting in direction of the crank-shaft and diverging from the gate at that end which is connected with the link, as and for the purpose set forth.

3. The combination of a swing-gate, a lock-lever, a crank-shaft having one of its crank-arms in link connection with an extension from the gate, a locking-link connecting the lock-lever with the second arm of the crank-shaft, shifting-arms extending beyond opposite sides of the gate, supports for the said arms, and a link connection between the two arms and the lock-lever at a point near where the said lever is connected with the locking-link, as and for the purpose set forth.

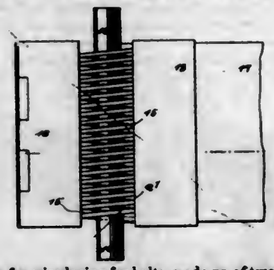
4. The combination of a pivotally-mounted gate, a lock-lever, a duplex crank-shaft, one arm of which is connected with the lock-lever, means for swinging the lock-lever, and a connection between the second arm of the crank-shaft and the gate, substantially as described.

575,943. GAGE FOR SEWING BELTS. JOHN GREGORY, Newark, N. J. Filed Sept. 28, 1896. Serial No. 607,136. (No model.)

Claim.—1. A gage for wire lacing for belts, consisting of two sections, each section comprising a front and a rear plate and bars connecting the plates, the bars being outwardly arched and arranged diagonally between the plates, as and for the purpose specified.

2. A gage for wire lacing for belts, consisting of two sections, each section comprising a front and a rear plate and bars connecting the plates, the bars being outwardly arched and arranged diagonally between the plates, the bars of the upper plate being carried in an opposite direction to the bars of the lower plate, as and for the purpose specified.

3. A gage for wire lacing for belts made up of two sections, each section consisting of a tubular slotted central portion, the slots whereof are arranged to form a thread, and supports for the said slotted portions of the sections, as and for the purpose set forth.

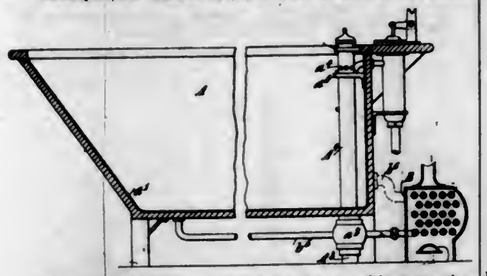


4. A gage for wire lacing for belts, made up of two sections, each section comprising a tubular slotted central portion, the slots whereof are arranged to form a thread, and supports for the said slotted portions of the sections, and gage-bars fitted to the opposing faces of the slotted portions of the said sections, as and for the purpose specified.

5. A gage for the wire lacing of belts, comprising two sections having a hinged connection, each section consisting of a front and a rear plate, and bars connecting the front and rear plates, the bars being outwardly arched and diagonally placed, the bars on one section extending in a reverse direction to the bars of the opposing section and the arrangement of the two sets of bars being such as to produce the effect of a thread, as and for the purpose specified.

6. A gage for the wire lacings of belts, comprising two sections having a hinged connection, each section consisting of a front and a rear plate, and bars connecting the front and the rear plates, the bars being outwardly arched and diagonally placed, the bars on one section extending in a reverse direction to the bars of the opposing section, and the arrangement of the two sets of bars being such as to produce the effect of a thread, the aforesaid gage-bars having flat under faces and convexed outer faces, the said gage-bars being fitted to the arched portions of the aforesaid gage-sections, as and for the purpose specified.

575,944. WATER-HEATER FOR BATH-TUBS. WILLIAM GUNN, Indianapolis, Ind. Filed Nov. 30, 1895. Serial No. 570,598. (No model.)

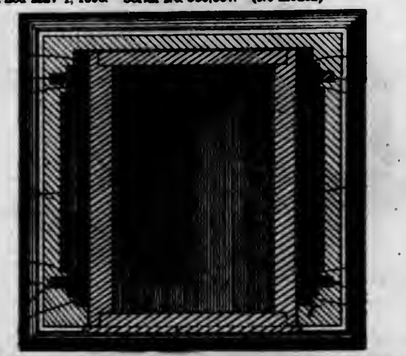


Claim.—1. The combination with a bath-tub and its waste-pipe, of a heater comprising a series of straight water-tubes communicating with water-chambers, the outer walls of which are removable, a cold-water pipe leading from the bottom of the tub to the lower portion of the heater, a drain-pipe leading from the cold-water pipe to the waste-pipe, and a pipe leading from the upper portion of the heater to the interior of the tub, substantially as specified.

2. The combination with a bath-tub and a waste-pipe having a bulb portion, of an overflow-pipe in the tub and adapted to be moved into said bulb and serve as a cut-off or a drain for the tub, a heater comprising water-tubes, a cold-water pipe extended from the bottom of the tub to the lower portion of the heater, a drain-pipe leading from said cold-water pipe to the bulb, and a pipe leading from the upper portion of the heater to the interior of the bath-tub, substantially as specified

3. The combination with a bath-tub, a discharge-pipe and a bulb connection between the pipe and tub, said bulb connection having a gasket in its lower portion, a vertically-movable overflow-pipe in the tub and having its lower end resting upon the gasket in the bulb connection of the discharge-pipe, a heater having water-tubes, a pipe leading from the lower part of the heater through the bottom of the tub, a pipe leading from the upper part of the heater through the end wall of the tub, and a drain-pipe leading from the pipe entering the bottom of the tub to the bulb connection, substantially as herein shown and described.

575,945. DRAWER-GUIDE. TORVALD HARBOR, Eau Claire, Wis. Filed May 1, 1896. Serial No. 589,857. (No model.)

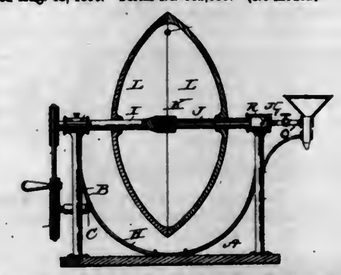


Claim.—1. The combination with a case and the slidable drawer therefor, of lateral guide-strips for said drawer loosely contacting with the same, said strips having threaded studs projecting therefrom, contact-bars attached to said case having apertures for the reception of said studs, and means for adjustably holding said studs in said apertures, as and for the purpose described.

2. A guiding device for slidable drawers, comprising guide-strips, adjusting-studs projected from the sides of said guide-strips and having threaded bodies, nuts on the studs, and contact-bars in the case at each side, and whereon the nuts are adapted to bear, substantially as described.

3. A guiding device for slidable drawers comprising guide-strips on each side of the drawer having threaded adjusting-studs projecting therefrom, contact-bars attached to the case having apertures therein designed to loosely receive said projecting studs, nuts secured on said studs between said contact-bars and said guide-strips whereby said strips may be laterally adjusted, as and for the purpose described.

575,946. AIR-PUMP. RUSH R. HARRIS, Bloomingville, Ohio. Filed Aug. 13, 1896. Serial No. 602,653. (No model.)



Claim.—1. A globe for the purpose described, composed of two hemispheres each having an axle one of which is hollow and the two connected together with an opening from the hollow portion into the interior of the globe, as set forth.

2. The combination of the one portion of the globe having a solid axle with a hollow threaded end, of the other portion having a hollow axle with threaded end to engage in the threaded end of the first-mentioned part and coincident openings in the connected ends, as shown and described.

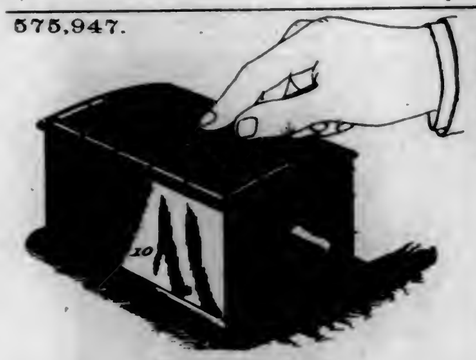
3. The combination with the globe having an opening near its periphery and an axle having an opening at its center, of a hollow bearing and a pipe connected therewith and an automatic valve controlling said pipe, as set forth.

4. The combination with the globe and the means for revolving the same, of a hollow bearing communicating with the interior of the globe, a pipe leading therefrom a receiver and a valve between the receiver and hollow bearing, as set forth.

575,947. PENCIL-SHARPENER. GEORGE D. HART, Lynn, Mass. Filed May 12, 1896. Serial No. 591,244. (No model.)

Claim.—A pencil-sharpener comprising a box having an open top covered with a perforated fixed arc-shaped rubbing-surface composed of fine-mesh wire-gauze adapted to sharpen by abrasion a crayon or pencil rubbed thereon, and a drawer beneath said wire-gauze top for receiving the abraded material.

575,947.



575,948. BRIDGE-WALL FOR BOILERS. GEORGE W. HATTON, Brooklyn, N. Y., assignor of one-half to Isidor Braveman, New York, N. Y. Filed May 1, 1896. Serial No. 589,903. (No model.)



Claim.—1. A bridge-wall for boilers, comprising a series of bricks having their faces provided respectively with projections and recesses, whereby they are adapted to interlock with each other, a key-brick provided with grooves in its faces adapted to register with corresponding grooves in adjacent bricks, and keys adapted to be driven into said registering grooves, substantially as shown and described.

2. A bridge-wall for boilers, comprising end bricks, intermediate bricks having their faces interlocked with the said end bricks, a key-brick fitted between the intermediate bricks, and keys inserted between the faces of the key-brick and the adjacent intermediate bricks, substantially as shown and described.

3. A bridge-wall for boilers, comprising end bricks, intermediate bricks having their faces interlocked with the said end bricks, a key-brick fitted between the intermediate bricks, and keys inserted between the faces of the key-brick and the adjacent intermediate bricks, the said keys extending in grooves formed in the adjacent faces from the upper front corner toward the lower rear corner, substantially as shown and described.

575,949. CUTTING ATTACHMENT FOR MUZZLES OF REVOLVERS. JUAN HERNANDEZ, San Luis Potosi, Mexico. Filed Apr. 13, 1896. Serial No. 587,310. (No model.)

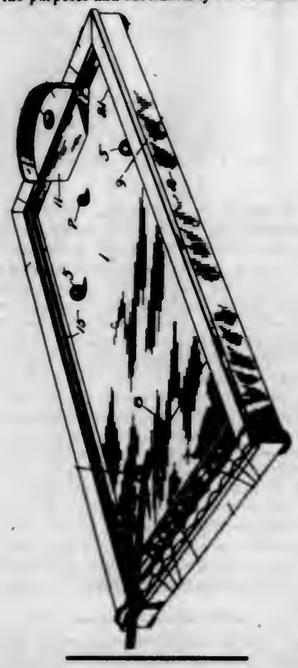


Claim.—A cutting attachment for a revolver consisting of a knife having a shank extending along the barrel of the revolver, a cutting edge on said shank, means at the inner end of said shank for securing the same to the revolver, said shank provided on its outer end with a screw-threaded ring, corresponding screw-threads on the outer end of said barrel to engage said ring, and a blade formed on and extending from said ring and having a plurality of cutting edges, substantially as described.

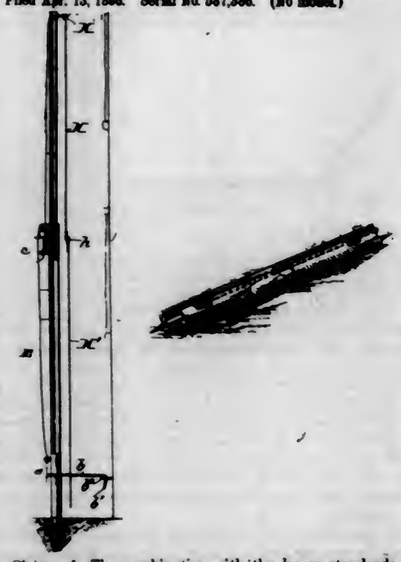
575,950. GAME APPARATUS. ALBERT HEIN, Malden, Mass. Filed Nov. 20, 1895. Serial No. 569,497. (No model.)

Claim.—1. A game apparatus comprising a board having sides each provided with an elastic strip or cushion, an end having centrally thereof an inclined way, and also provided with an elastic strip or cushion extending at each side of said inclined way, a level portion at the upper end of the incline having a single depression therein, and a curved upwardly-projecting wall inclosing said upper level except at the entrance side, substantially as set forth.

2. A game apparatus comprising a board provided with side portions each having an elastic strip or cushion, an end portion having centrally thereof an inclined way, a level portion at the upper end of the incline having a single depression therein, and an upwardly-projecting wall inclosing said upper level except at the entrance side, also having an elastic strip or cushion at each side of said inclined way, and an end portion 3 having a series of depressions formed thereon, for the purposes and substantially as set forth.



575,951. FIRE-SHIELD. PRESTON L. HOLCOMB, Vandiver, Ala. Filed Apr. 13, 1896. Serial No. 587,386. (No model.)



Claim.—1. The combination with the lower standards pointed as described, of the collars and hooked arms, the upper standards, the pulleys and ropes, and the upper and lower sheets of asbestos, substantially as shown and described.

2. An improved fire-shield comprising a sheet of asbestos or other material and the supporting-frame comprising the telescopic standards, means for raising the same consisting of pulleys attached to the said standards, pulleys, ropes working in said pulleys, and a guide-pin *c*, substantially as set forth.

3. The combination with the telescopic standards, of the cords and pulleys for operating said standards, the sheet of asbestos and means for connecting said sheet to the standards, a rope E connected at one end with the guide-pin *c*, a ring *e* at opposite end thereof, substantially as set forth.

575,952. INSULATOR. FRANK HOOVER, Paducah, Ky., assignor of two-thirds to William Lundy Bennett and David Gamble Murrell, same place. Filed May 19, 1896. Serial No. 592,237. (No model.)



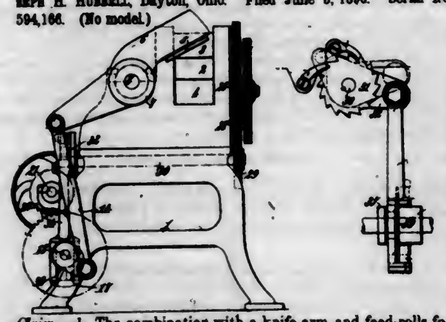
Claim.—1. In an insulator, a cross arm or timber having a circular recess or opening formed with a socket in the center, of the top, a top insulating-block having a central lug adapted to fit the socket, and the bottom insulating-block adapted to fit under the upper block within the circular recess or opening, substantially as shown and described.

2. In an insulator, a cross arm or timber having a transverse circular recess or opening provided with a central socket in the top, the upper insulating-block having a projecting lug adapted to fit the socket, the lower face of said block having a longitudinal groove to receive the line-wire, and the lower insulating-block for securing the line-wire, substantially as shown and described.

3. In an insulator, the cross arm or timber having a transverse recess essentially circular in shape and open at the bottom, said recess having a central socket in the top, the upper insulating-block having a lug adapted to fit the socket, and the longitudinal groove to receive the line-wire, and the lower insulating-block adapted to bind the wire upon the upper block, substantially as shown and described.

4. The combination with the cross-arm having a transverse circular recess open at the bottom, and provided with a socket in the top, of the upper insulating-block having a projecting lug adapted to fit the socket, and the longitudinal groove adapted to receive the line-wire, the lower insulating-block adapted to fit in the recess under the bottom of the upper block, and line-wire, said block having a longitudinal groove on the bottom, and the fastening-wire, all arranged and adapted to operate, substantially as shown and described.

575,953. MACHINE FOR CUTTING OR SLICING TOBACCO. JOSEPH H. HUBBELL, Dayton, Ohio. Filed June 3, 1896. Serial No. 594,166. (No model.)



Claim.—1. The combination with a knife-arm, and feed-rolls for feeding material into the plane of the knife, of a transverse shaft provided with a ratchet-wheel and geared to the feed-rolls, a pawl for engaging the ratchet-wheel, a pivoted pawl-carrier, a rotary shaft having a cam, a vertically-movable yoke actuated by said cam and connected with the pawl-carrier to oscillate the same, a crank on the said cam-shaft, and a connection between the crank and the knife-arm, substantially as described.

2. The combination in a cutting and slicing machine, of two feed-rolls geared together, a transverse shaft geared to one of the feed-rolls, a pivoted, swinging knife-arm having a cutting-knife, a rotary cam-shaft having a cam, a link connecting the cam-shaft with one end of the knife-arm, a yoke engaging the cam and moved vertically thereby, a pawl-carrier pivotally connected to the yoke and having a pawl, a ratchet-wheel secured to said transverse shaft and rotated intermittingly by the pawl of the pawl-carrier, and means for operating said cam-shaft, substantially as described.

3. The combination of a pivoted swinging knife-arm having an attached cutting-knife, feed-rolls for feeding the material into the plane of the knife, a transverse shaft provided with a ratchet-wheel and geared to the feed-rolls, a pawl for operating the ratchet-wheel, a pawl-carrier on which the pawl is mounted, a longitudinal rotary shaft having a cam, a vertically-movable yoke actuated by said cam and connected with the pawl-carrier, a crank on said longitudinal shaft, and a link connecting said crank with one end of said knife-arm for swinging the same on its pivot, substantially as described.

4. The combination of a pivoted swinging knife-arm having an attached cutting-knife, feed-rolls for feeding the material into the plane of the knife, a transverse shaft having a ratchet-wheel and geared to the feed-rolls, a pawl for operating the ratchet-wheel, a pawl-carrier on which the pawl is mounted, a counter-shaft provided with a cam and a crank, a link connecting the crank with one end of the pivoted knife-arm, a vertically-movable yoke actuated by the cam of the counter-shaft and connected with the pawl-carrier, and a main driving-shaft geared to said counter-shaft, substantially as described.

5. The combination with a vibratory knife arm or carrier, and feed-rolls for feeding material into the plane of the knife, of a transverse, horizontal shaft geared to one of the feed-rolls and provided with a ratchet-wheel, an oscillatory pawl-carrier having a pawl engaging the ratchet-wheel, a rod or yoke connected with the pawl-carrier, a rotary shaft having a cam for reciprocating the rod or yoke, a crank mounted on said rotary cam-shaft and connected with the knife arm or carrier, and means for rotating said cam-shaft, substantially as described.

6. The combination of a pivoted knife-arm having at one end a slot, and a countersink which is of a diameter greater than the width of the slot, a bolt having a shoulder intermediate its ends adapted to seat in said countersink and when withdrawn therefrom to move through the slot out of connection with the knife-arm, a connecting-rod mounted on said bolt, and means for operating said connecting-rod for vibrating the knife-arm, substantially as described.

7. The combination with a vibrating knife-arm, and feed-rolls for feeding material into the plane of the knife, of a shaft geared to one of the feed-rolls and provided with a ratchet-wheel, a pawl-carrier having a pawl engaging the ratchet-wheel, a rod or yoke having a longitudinal slot and opposite offsets, a shaft extending through the slot of the rod or yoke, and a cam having a sleeve mounted on said shaft and provided with two opposite collars between which the slotted end of the rod or yoke is arranged, substantially as described.

575,954. BOTTLE. OLIVER P. M. HUFFMAN, Portland, N. D. Filed May 20, 1896. Serial No. 592,243. (No model.)



Claim.—1. A bottle formed with a tube extending into the same and its outer end closed and adapted to be bent across the mouth of the bottle, as set forth.

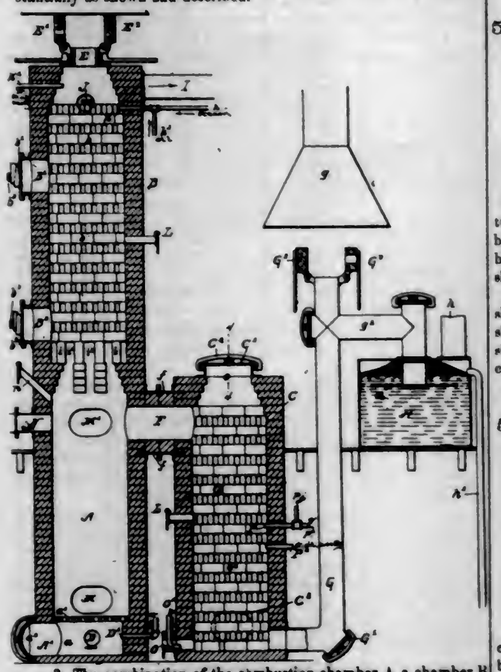
2. A bottle having a tube extending within the same to or near the bottom with its inner end open and its other end closed and extended through the bottle and of a length sufficient to extend across the mouth of the bottle when bent, substantially as and for the purpose specified.

575,955. APPARATUS FOR MANUFACTURING GAS. JOHN L. JANEWAY, Oaks, Pa.; Price W. Janeway and Thomas L. Hodge, administrators of said John L. Janeway, deceased, assignors to the Phœnix Gas and Improvement Company, Philadelphia, Pa. Filed Aug. 27, 1895. Serial No. 560,690. (No model.)

Claim.—1. The combination of the combustion-chamber, a second chamber filled with checker-work fire-brick and in direct communication with said combustion-chamber, an outlet leading from the upper portion of said second chamber, an air-blast pipe leading into the upper part of the combustion-chamber, a fixing-chamber, checker-work fire-brick therein, an escape-pipe leading from the lower portion, of the fixing-chamber for the escape of the manufactured gas, steam and oil pipes provided midway and steam and air pipes at lower end of said fixing-chamber, and a passage-way leading into and directly connecting the upper end of both the combustion-chamber and the fixing-chamber, substantially as shown and described.

2. The combination of the lower chamber A, having at its upper end arching fire-brick, an air-blast pipe leading into the upper end of said chamber, fire-brick *i* resting on the arched fire-brick in such manner as to permit the free flow of gases, an upper chamber B, fire-brick *b* therein supported by the fire-brick *i*, a chamber C, steam and

oil pipes provided midway and steam and air pipes at the lower end of chamber C, an escape-pipe leading from the lower portion of said chamber C for the escape of the manufactured gas, and a communicating passage-way leading into and directly connecting the upper end of both the combustion-chamber and the fixing-chamber, substantially as shown and described.



3. The combination of the combustion-chamber A, a chamber B placed directly above and in communication with the chamber A, checker-work *b* in said upper chamber, an escape E at the upper end of the chamber B, a valve E' having a passage *e* adapted to said escape, a closing-valve E², a fixing-chamber C, and a communicating passage-way F extending between the combustion-chamber and the fixing-chamber, substantially as specified.
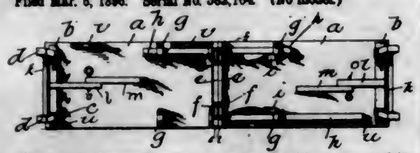
4. The combination of the combustion-chamber A, having a lower ash-pit *a*, and a grate *a'* between the ash-pit and the main body of the chamber, an ash-door A', and air-pipe D and a steam-pipe D', all extending into the ash-pit, doors M, M', opening into said chamber, an air-pipe N at the upper end of said chamber, a superposed chamber B having an escape E for the products of combustion, and an escape I for the manufactured gas, a steam and oil pipe *k*, *k'*, and an air-pipe J, all situated in the upper end of the chamber B, a chamber C, a passage-way F extending between the combustion-chamber and the chamber C, steam and oil pipes provided midway of said chamber, steam and air pipes at the lower end of said chamber, and an escape-pipe G situated at the lower end of the chamber C for the escape of the manufactured gas, substantially as specified.

575,956. **BRAKE FOR SLEIGHS.** CHARLES R. JENSEN and JAS. HANSEN, Randolph, Utah. Filed Apr. 4, 1896. Serial No. 586,206. (No model.)



Claim.—The combination in a sleigh, of the runners, the vertical prongs, the brakes pivoted thereto each comprising the curved forks embracing the runner, the arm formed integral with said forks, the link pivotally connected therewith, the arm with which said link is also connected, the transverse rock-shaft located underneath the sleigh-body, provided with a hand-lever, and the clip for supporting said shaft, comprising a recessed plate, a top plate, means for securing them together and the yoke, substantially as described.

575,957. **FOLDING TABLE.** RICHARD KAISER, Hoboken, Pa. Filed Mar. 6, 1896. Serial No. 582,104. (No model.)



Claim.—1. In combination a sectional table, connected by apertured braces at the inner end of each section, hinges connecting the braces, slotted slides *h*, *h*, operating through the apertures in the braces, and springs having angular ends engaging in the slots in the slides, as and for the purpose described.

2. A table having suitable legs and braces having apertures, slotted slides arranged in the apertures of the braces, keepers for the slides, and springs secured to the keepers and having angular extensions engaging in the slots of the slides and an extension similarly connected and joined to the table as and for the purpose described.

575,958. **AUTOGRAPHIC REGISTER.** WILLIAM H. KELLY, New York, N. Y. Filed Apr. 16, 1896. Serial No. 587,530. (No model.)

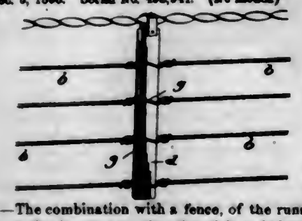


Claim.—1. In an autographic register, the combination, with the casing or frame and the paper rest or support, the angular tearing-bar and the spring-arms, with said tearing-bar axially hung between their upper ends and having their opposite ends bearing in said casing, said spring-arms being fulcrumed intermediately of their ends in said casing, substantially as set forth.

2. In a cash-recorder, the combination with the paper rest or support and the casing, of the angular tearing-bar, the arms carrying said bar and having intermediate lateral springs seated in the sides of said casing, with their inner projecting portions engaging the inner surface of said sides, substantially as specified.

3. In an autographic register, the combination, with the casing or frame, of the slip or paper winding rolls and the shafts, the intermediate one having a disk thereon, between said rolls, and the end shafts being slitted and provided with means for turning said rolls, substantially as set forth.

575,959. **WIRE FENCE.** MARION R. KESSNER, Wabash, Ind. Filed Dec. 6, 1893. Serial No. 492,941. (No model.)



Claim.—The combination with a fence, of the running-wires secured thereto, the heavy top wire, the pickets independent of the ground and arranged at intervals and connecting all of said wires except the top wire, the approximately U-shaped metal straps, each straddling the top wire with their legs passing down on opposite sides of the picket and secured thereto, and the short wires securing each picket to each running-wire by passing around the pickets with their ends coiled around the running-wires, for the purpose set forth.

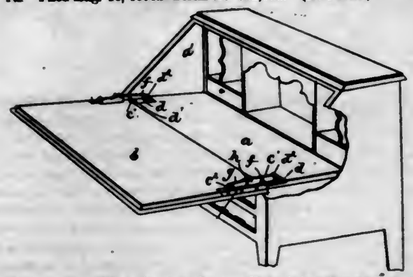
575,960. **CARPET-SWEEPER.** CHARLES KING, Grand Rapids, Mich. Filed Jan. 25, 1896. Serial No. 576,902. (No model.)

Claim.—1. In combination with the case and dust-pans of a carpet-sweeper, levers pivoted one to each side of the case, an arm projecting upwardly from each lever, the handle-bow of the sweeper connected at its ends with said arms through slots in the case, lateral arms projecting from each side of the levers, each connected with the inner edge of the pan adjacent to it, and spring-supports for the outer edges of the pans, substantially as shown and described.



2. The combination with the case and dust-pans of a carpet-sweeper, levers pivoted one to each side of the case, an arm projecting upwardly from each lever, the handle-bow of the sweeper connected at its ends with said arms through slots in the case, lateral arms projecting from each side of the levers, each connected with the inner edge of the pan adjacent to it, revoluble bearings passing through apertures in the ends of the case and levers attached to the outer ends thereof, arms each pivoted at one end to the outer edges of the pans and secured, at the other end, to one of said revoluble bearings, and arms on the inner ends of said revoluble bearings and springs attached thereto and to the case and adapted to return the pans to their normal position, substantially as and for the purpose set forth.

575,961. **DESK-LID SUPPORT.** BURTON R. KIPP, Philadelphia, Pa. Filed Aug. 10, 1896. Serial No. 602,311. (No model.)



Claim.—1. A hinge having the two links jointed together and of different lengths, and pivoted respectively to the members of the hinge so that the joint between the links is arranged to one side of the hinge-joint, substantially as described.

2. A hinge having a link pivoted to one member and arranged to rest on the same and over the hinge-joint upon the other member, and a link pivoted to the opposite member, and arranged to rest on the same, said two links pivoted together at adjoining ends to brace the hinge when its two members are in continuation of each other, substantially as described.

3. A hinge having the two links at opposite ends pivoted to the opposite hinge members, respectively, and pivoted together at adjoining ends so that the links bear down longitudinally on the members when the members are in continuation of each other, the joint between the links being arranged in a plane above the plane of the pivotal points of the links with the members, substantially as described.

4. A hinge having a link pivoted to one hinge member and extending over the hinge-joint upon the other hinge member and formed with a recess to receive the hinge-joint, and a short link pivoted to said first-mentioned link and to the opposite hinge member, substantially as described.

5. In a lid-desk, the combination of a shelf, a swinging lid, hinges uniting the shelf and lid, the shelf member of each hinge having an upwardly-projecting eye, a link pivoted to said eye and extending above the plane of the hinge, and another link at one end pivoted to the outer end of said first-mentioned link, and at its opposite end pivoted to the lid-hinge member, substantially as described.

6. In a lid-desk, the combination of the desk-shelf, the swinging lid, a hinge uniting the lid and shelf, a lid-brace comprising a link at its inner end pivotally joined to the desk so as to be held down approximately to and parallel with the plane of the shelf and lid and extend longitudinally over the hinge and its joint, and the short link lapping the outer end of and pivotally joined to said first-mentioned link, the lid-hinge member having an upright eye with the outer end of the short link arranged beside and pivoted thereto, substantially as described.

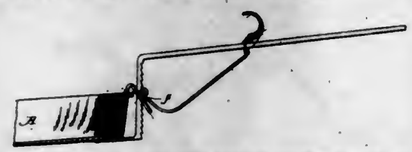
7. In a lid-desk, the combination of a shelf, a swinging lid hinged thereto, and a lid-brace comprising a swinging link at its inner portion pivotally joined to the desk so as to be held down approximately to the plane of and parallel with both the shelf and lid and extend over and beyond the meeting edges of the shelf and lid, and a short link pivotally joined to the first-mentioned link and in continuation of the first-mentioned link and held down to the lid, substantially as described.

8. In a lid desk the combination of a shelf, a lid pivotally joined thereto, a member rigid within itself and at its inner end pivotally confined to the desk so as to be held down to the plane of and parallel with both the shelf and lid and extend over and beyond the meeting edges of the shelf and lid, and a short loose link connecting the outer end of the said member and the lid and holding the outer end of said member down parallel with the lid and being itself held down in continuation of said member, substantially as described.

9. In a lid-desk, the combination of the desk ends, the shelf, the vertically-swinging lid, a long link at its inner end pivotally confined to the desk, and a short link at its inner end pivotally joined to the outer end of the long link and at its outer end pivotally joined to the lid, said links so arranged as to lie horizontally in continuation of each other and just above the plane of the shelf and lid when the lid is down, with the long link extending over and beyond the meeting edges of the shelf and lid and the pivot between the links in a higher plane than that in which the pivots at the opposite ends of the links are arranged, substantially as described.

10. A two-leaf hinge wherein the leaves are pivoted together, in combination with a long link at one end pivoted to one leaf and extending over the joint between the leaves onto the other leaf, and a short link pivoted to the other leaf and to said long link so that when the hinge is opened with the leaves in continuation of each other, said links will lie down against the upper faces of the leaves with the pivot between them above the plane of the pivots uniting their ends to the leaves, substantially as described.

575,962. **DISH-LIFTER.** JOHN F. KRIMS, Charleston, W. Va. Filed Sept. 1, 1896. Serial No. 604,525. (No model.)



Claim.—1. A dish-lifter comprising the platform portion, the vertical portion having a horizontally-extending handle, and the retaining-plate movably carried upon the vertical portion, to slide thereon, and means sliding on the handle for operating said plate substantially as described.

2. A dish-lifter comprising the platform portion, the vertical portion having the horizontally-extending handle, the retaining-plate movably carried upon the vertical portion independent of the handle, and independent means for moving said retaining-plate from the handle, substantially as described.

3. A plate-lifter comprising a platform portion and a handle with the vertical portion between a retaining-plate having an opening in its body portion, said plate being held on the vertical portion by having said vertical portion pass through the opening in the retaining-plate and means connected with the retaining-plate and extending to the handle to operate said plate, substantially as described.

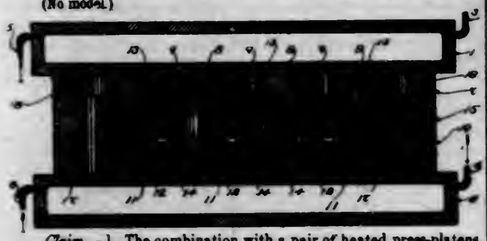
4. A plate-lifter comprising the horizontal platform portion, the vertical portion having a serrated part, the angular retaining-plate freely movable on the vertical portion adapted to directly engage the teeth and to be clamped in place solely by the weight of the dish, substantially as described.

5. In combination with the handle having the platform portion and the vertical portion, the angular retaining-plate movable vertically on said vertical portion, one arm of the retainer being on the front of the vertical portion and the other arm extending to the rear where it engages teeth on the rear side of said vertical portion.

6. A dish-lifter comprising the platform portion, the vertical portion, the horizontally-extending handle, the retaining-plate movable upon the vertical portion, and having a hooked edge, and the operating-carrier pivotally connected with the retaining-plate and having its rear end slidably connected with the handle substantially as described.

7. A dish-lifter comprising the platform portion, the vertical portion having a serrated rear face, the handle, the retaining-plate having an opening to travel upon said vertical portion and having a hooked edge to engage with the dish edge, the carrier pivotally connected by its forward end to the said plate, the rear end of said carrier being provided with a loop to receive and slide upon the handle, substantially as described.

575,968. DEVICE FOR MAKING COVERED EYELETS. FRANK N. LOOR, Northampton, Mass. Filed June 19, 1896. Serial No. 596,235. (No model.)



Claim.—1. The combination with a pair of heated press-platens, and a pair of mold-plates adapted to be interposed between the said platens, of an intermediate plate 15 separating the said mold-plates from each other, and adapted to come in contact with both of such plates, substantially as described.

2. The combination with a pair of heated press-platens, and a pair of mold-plates 7 and 10 which are constructed to receive the uncovered eyelets and the portions of plastic material which are to constitute the molded coverings as described, of the intermediate plate 15 having holes therein to receive the projecting ends of the said eyelets and the said portions of plastic material, said plate being adapted to come in contact with both of the said mold-plates, substantially as set forth.

575,964. COMBINED PENCIL-SHARPENER AND ERASER-CLEANER. PERCY L. LORD, Riverside, Cal. Filed Sept. 17, 1896. Serial No. 606,146. (No model.)



Claim.—1. A machine of the class described having a rotary abrading member and means for communicating motion thereto, and a holder having a combined swinging and pivotal movement, the swinging movement being in a path eccentric with relation to said rotary member, and the pivotal movement being about an axis perpendicular to the axis of said swinging movement, substantially as specified.

2. A machine of the class described having a rotary abrading member and means for communicating motion thereto, a swinging arm or bracket mounted eccentrically with the abrading member, and a pencil-holder pivotally mounted upon said arm or bracket with its axis at right angles to the same, substantially as specified.

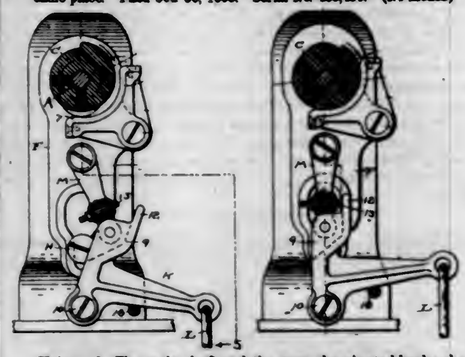
3. A machine of the class described having a rotary abrading member and means for communicating motion thereto, a swinging arm or bracket mounted eccentrically with the abrading member, and a pivotal pencil-holder mounted upon the arm or bracket with its axis at right angles to that of said arm or bracket, and means for securing the arm or bracket at the desired adjustment to vary the interval between the holder and the contiguous point of the surface of the abrading member to necessitate greater or less pivotal movement of said holder to bring an engaged pencil in contact with said surface, substantially as specified.

4. A machine of the class described having a rotary abrading member and means for communicating motion thereto, a swinging arm or bracket mounted eccentrically with the abrading member, a pencil-holder pivotally mounted upon the arm or bracket for swinging movement in a plane at right angles to the same, said holder having a tubular rotary member, and means for operating the rotary member, substantially as specified.

5. A machine of the class described having a rotary abrading member and means for operating the same, and a pencil-holder mounted for a combined swinging and pivotal movement to vary the angular position of an engaged pencil with relation to the surface of the abrading member, said holder having a friction-ring, and an adjusting device for varying the compression of said ring to regulate its frictional contact with an engaged pencil, substantially as specified.

6. A machine of the class described having a rotary member and means for communicating motion thereto, a swinging arm or bracket and means for securing the same at the desired adjustment, a pencil-holder comprising a bearing-sleeve pivotally mounted upon the extremity of said arm or bracket, and a tubular member mounted for rotation in the bearing-sleeve for the reception of a pencil, said tubular member having a compressible friction-ring and an axially-adjustable nut for varying the compression thereof, and means connected with the operating devices of the abrading member for communicating rotary motion to the tubular member of the holder, substantially as specified.

575,965. BRAKE OR STOP MECHANISM. WILLIAM A. MACK, Cleveland, Ohio, assignor to the Standard Sewing Machine Company, same place. Filed Oct. 30, 1893. Serial No. 489,459. (No model.)



Claim.—1. The main shaft and the cam, the pivoted brake-shoe and the slidable support therefor, the lever and the part connecting the lever to the said slidable support, substantially as described.

2. Stop-mechanism comprising the main shaft and the cam fixed thereon, the brake-shoe to engage said cam, the supporting-piece carrying the brake-shoe, the treadle-operated lever and the link pivoted to said lever and to said supporting-piece, substantially as described.

3. The main shaft, the adjustable cam on said shaft, the pivoted brake-shoe for the cam having a curved engaging surface, the slidable support for said shoe engaged over the main shaft at its upper end, and the mechanism for operating said shoe, substantially as described.

4. The main shaft, and the rotarily-adjustable cam on said shaft, in combination with the brake for the cam, a support on which the brake is pivoted, and mechanism to operate said brake consisting of a treadle and toggle-link connections, substantially as described.

5. The shaft with the cam thereon, a slidable member and a brake-shoe pivoted on said member for engaging said cam, and mechanism for operating the brake consisting in a treadle-lever and arm rigid with each other, a link pivoted to said arm and to said slidable member at its ends and an adjustable stop at the pivot between said arm and said link, substantially as described.

6. The main shaft and the fixed and the slidable pulleys, respectively, thereon having inclined working sides, in combination with mechanism to brake the rotation of the main shaft when the drive power is relieved, said mechanism consisting in a cam on said shaft, a slidable member, a brake-shoe pivoted on said member, and toggle-link-operating mechanism for said slidable member, substantially as described.

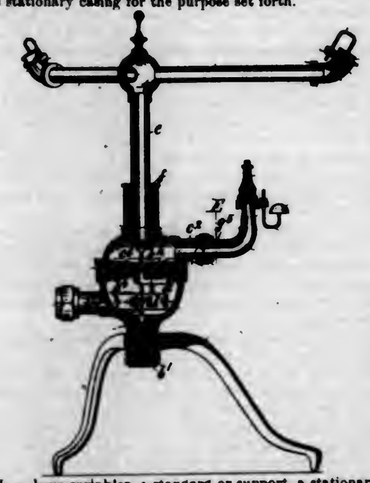
7. The mechanism for tightening and operating the belt, consisting of the shaft and the fixed and the free pulleys, respectively, having an engaging surface for the operating-belt, a pivoted arm to press the free pulley toward the fixed pulley and a spool with differential diameters to hold said pulleys together, substantially as described.

8. The main shaft and the fixed pulley thereon having a hub-sleeve, a free pulley on said hub-sleeve, a spool with differential diameters and pins in said pulleys engaging said spool, and a movable part to bear against said movable pulley, substantially as described.

575,966. LAWN-SPRINKLER. JACOB F. MAIN, Boston, Mass. Filed Sept. 16, 1895. Serial No. 562,536. (No model.)

Claim.—1. In a lawn-sprinkler, a standard or support, a stationary casing thereon, an inlet in said casing to communicate with a supply of water, a rotatable casing attached to the stationary casing, a discharge-nozzle from the rotatable casing, and internal differential gears one on each of said casings, a pinion meshing into said gears, a fan or wheel located within the flow of water through the sprinkler turned thereby, and connected mechanism between the fan and pinion, whereby the rotatable casing is slowly rotated upon the stationary casing for the purpose set forth.

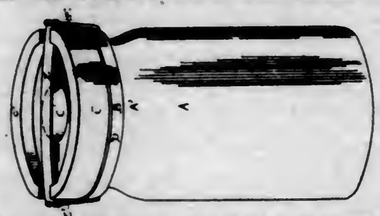
2. In a lawn-sprinkler, a standard or support, a stationary casing thereon, an inlet in said casing to communicate with a supply of water, a rotatable casing attached to the stationary casing, a discharge-outlet from said rotatable casing, internal gears upon each casing the number of teeth in each gear differing from that in the other, a pinion meshing into both gears and mechanism substantially as described to cause said pinion to rotate bodily around the surface of said gears whereby the rotatable casing is caused to slowly rotate upon the stationary casing for the purpose set forth.



3. In a lawn-sprinkler, a standard or support, a stationary casing attached thereto, an inlet in said casing to communicate with a supply of water, a rotatable casing attached to the stationary casing, discharge-outlet from said rotatable casing, internal gears upon each of said casings the number of teeth in each gear differing from that in the other, a pinion meshing into both gears, a crank-arm carrying said pinion, a shaft upon which the crank-arm is firmly mounted, a fan or wheel upon the shaft located within the flow of water through the sprinkler and acted upon thereby, for the purpose set forth.

4. In a lawn-sprinkler, a standard or support, two casings mounted thereon one stationary and the other rotatable upon the stationary casing, an inlet to the stationary casing, an outlet to the rotatable casing, and internal mechanism operated by the flow of water through the sprinkler whereby the rotatable casing is slowly rotated, combined with a stand-pipe and radiating arms having nozzles thereon which are rapidly rotated by the force of the discharge of water from said arms, for the purpose set forth.

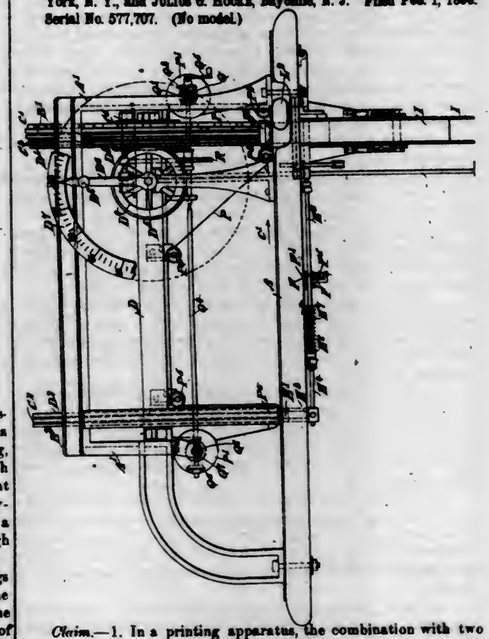
575,967. FRUIT-JAR AND FASTENING THEREFOR. JOHN MIRACLE, Woodview, Ohio, assignor of one-half J. C. Miracle, De Graff, Ohio. Filed June 13, 1896. Serial No. 595,465. (No model.)



Claim.—1. The combination with the jar having the surrounding flange a short distance below its neck, and the cover having a marginal vertical flange upon both faces thereof, that upon its upper face being notched or cut away at opposite points, said cover having also upon its upper face a central boss or projection, of a clamp comprising a spring bar or strap designed to extend across the said cover at the notched portions thereof, and to bear upon said boss or projection, and a hooked clamp-lug hinged or pivoted to each end portion of said bar or strap and designed to engage underneath the flange of the jar, said clamp and cover being without projections above the plane of the upper edge of the upper marginal flange of said cover, whereby the jar may rest upon the cover in inverted position substantially as specified.

2. The combination with the jar having the surrounding flange B, a short distance below the mouth, and with the cover C, having the flanges *c c'* and the boss C' said flange *c'* having a broad flat upper edge and being cut away or notched at opposite points, of the clamp comprising a thin spring-metal strap E arranged to seat across the top of the jar upon the boss C' and in the notches thereof, below the upper edges of the flange *c'* and the hooked clamp-lugs E' hinged or pivoted one to each end of said strap, said clamp and cover being without projections above the plane of the upper edge of the upper marginal flange of said cover, whereby the jar may rest upon the cover in inverted position substantially as specified.

575,968. PRINTING APPARATUS. JOSEPH B. MOCKRIDGE, New York, N. Y., and JULIUS G. HOCKE, Bayonne, N. J. Filed Feb. 1, 1896. Serial No. 577,707. (No model.)



Claim.—1. In a printing apparatus, the combination with two sets of type-wheels, each comprising a series wheel, a consecutive-numbering wheel, and an indicating-wheel, the corresponding wheels being connected with each other to rotate in unison, of a rod adapted to be actuated by the operator, mechanism for connecting the said rod with one of the said consecutive-numbering wheels to actuate the said consecutive wheels on the upward movement of the said rod, two platens mounted to swing toward and from the said sets of type-wheels and actuated from the said rod on the downward motion of the latter, and intermediate mechanism for connecting the said rod with the said platens to impart motion to the latter, as set forth.

2. In a printing apparatus, the combination with a set of type-wheels comprising a series wheel, a consecutive-numbering wheel, and an indicating-wheel, of a rod under the control of the operator and connected with the said consecutive-numbering wheel to impart motion to the latter, and the said series wheel on the upward movement of the said rod, a paper-feed mechanism adapted to feed the paper under the said set of type-wheels, and intermediate mechanism for actuating the said paper-feed mechanism from the said rod, substantially as shown and described.

3. In a printing apparatus, the combination with a set of type-wheels, comprising a series wheel, a consecutive-numbering wheel, and an indicating-wheel, of a rod under the control of the operator and connected with the said consecutive-numbering wheel to impart motion to the latter, and the said series wheel on the upward movement of the said rod, a paper-feed mechanism adapted to feed the paper under the said set of type-wheels, intermediate mechanism for actuating the said paper-feed mechanism from the said rod, and a platen actuated from the said rod and adapted to press the paper onto the said set of type-wheels, substantially as shown and described.

4. In a printing apparatus, the combination with a rod under the control of the operator, of a paper-feed mechanism adapted to be actuated from the said rod, and a bar mounted to slide and also connected with the said paper-feed mechanism to actuate the latter independent of the said rod, substantially as shown and described.

5. In a printing apparatus, the combination with a rod under the control of the operator, of a paper-feed mechanism adapted to be ac-

tuated from the said rod, a bar mounted to slide and also connected with the said paper-feed mechanism to actuate the latter independent of the said rod, and intermediate mechanism for connecting the said rod with the said paper-feed mechanism, and intermediate mechanism for connecting the said bar with the said feed mechanism, substantially as shown and described.

6. In a printing apparatus, the combination with a platen and a spring-pressed arm carrying the said platen and mounted to swing, of a hook adapted to engage a lug on the said arm, a second arm mounted to swing and on which the said hook is pivoted, and means substantially as described, for imparting a swinging motion to the said second arm, so that the hook causes the first-named arm to swing, substantially as set forth.

7. In a printing apparatus, the combination with a platen and a spring-pressed arm carrying the said platen, and mounted to swing, of a hook adapted to engage a lug on the said arm, a second arm mounted to swing and on which the said hook is pivoted, means, substantially as described, for imparting a swinging motion to the said second arm so that the hook causes the first-named arm to swing, and means for disconnecting the said hook from the said lug on the downward-swinging motion of the said second arm, substantially as shown and described.

8. In a printing apparatus, the combination with a spring-pressed shaft, arms secured to the said shaft and platens supported from the said arms, of a pivotal hook adapted to engage a lug on the said arms, a second arm mounted to swing and on which the said hook is pivoted, means for imparting a swinging motion to the said second arm, and an extension-arm projecting from the said hook and adapted to engage a fixed lug, substantially as shown and described.

9. In a printing-machine, the combination of three sleeves fitted revolubly within each other, a type-wheel fixed to each end of each sleeve, a dial geared with one sleeve, two pawls respectively connected with the remaining sleeves, and means for operating the pawls, substantially as described.

10. In a printing-machine, the combination of a printing-wheel a paper-feed mechanism and two independently-operative devices for operating the paper-feed mechanism, one of said devices being capable of direct manual operation and the other set being connected to operate concurrently with the operation of the type-wheel, substantially as described.

11. In a printing-machine the combination of a printing-wheel, a pawl for moving the printing-wheel, a paper-feed mechanism, a manually-operative rod connected with the paper-feed mechanism, a pawl connected with the paper-feed mechanism and capable of operating the same, and a connection between the two pawls, substantially as described.

12. In a printing-machine, the combination of a type-wheel, a paper-feed mechanism, means for advancing the type-wheel, means for operating the paper-feed mechanism, the two means being connected to operate in unison, and a rod connected with the paper-feed mechanism and capable of manual operation to operate said mechanism, substantially as described.

13. In a printing-machine, the combination of a type-wheel, paper-feed mechanism, a knife, means for synchronously operating the knife, the paper-feed mechanism and the type-wheel, and a rod capable of manual operation to operate the paper-feed mechanism independently of the means for synchronously operating the same, substantially as described.

14. The combination with a table having an operated type-wheel thereon, of a pivotally-mounted arm, a platen carried by the arm, a spring tending to force the platen into engagement with the type-wheel, a rockably-mounted arm having a spring-pressed hook thereon, the hook being capable of engaging the first arm to move the platen away from the type-wheel, and a connection between the rockably-mounted arm and the type-wheel, substantially as described.

15. The combination with a table, of an operated type-wheel, a mounted platen capable of movement toward and from the type-wheel, means for pressing the platen toward the type-wheel, and a rockably-mounted arm connected to coöperate with the type-wheel and capable of drawing the platen away from the type-wheel and against the tendency of the said means, substantially as described.

16. The combination with a table, of an operated type-wheel, a mounted platen capable of movement toward and from the type-wheel and having a tendency toward the same, and means coöperating with the type-wheel, such means being capable of temporarily drawing the platen away from the type-wheel, substantially as described.

17. The combination with a frame, of a mounted type-wheel, means for operating the type-wheel, a mounted platen capable of movement toward and from the type-wheel and having a tendency toward the same, and means in connection with the means for operating the type-wheel, the latter means being capable of drawing the platen away from the type-wheel, substantially as described.

18. The combination with a frame, of an operated type-wheel, a platen capable of movement toward and from the type-wheel and having a tendency toward the type-wheel, a rockably-mounted arm coöperating with the type-wheel, and a spring-pressed hook carried by the arm and capable of drawing the platen away from the type-wheel, substantially as described.

19. The combination with a frame, of an operated type-wheel, a platen capable of movement toward and from the type-wheel and having a tendency toward the same, means for moving the platen away from the type-wheel, paper-feed mechanism, and a connection between the paper-feed mechanism and the platen-moving mechanism, such connection coöperating with the type-wheel and being capable of synchronously operating the platen and the paper-feed mechanism, substantially as described.

20. The combination with a frame, of an operated type-wheel, a platen capable of moving toward and from the type-wheel and having a tendency toward the type-wheel, a rockably-mounted arm capable of moving the platen away from the type-wheel, paper-feed mechanism, and a rod in connection with the paper-feed mechanism and the rockably-mounted arm, the rod coöperating with the type-wheel to synchronously operate the platen and paper-feed mechanism, substantially as described.

21. The combination with a frame, of an operated type-wheel, a platen capable of movement toward and from the type-wheel, paper-feed mechanism, and means for synchronously operating the platen and paper-feed mechanism, such means coöperating with the type-wheel to operate the platen upon the movement of the type-wheel, substantially as described

22. The combination with a frame, of an operated type-wheel, a shaft rockably mounted on the frame, two arms fixed to the shaft, a platen carried by the arms, a rockably-mounted arm carried by the frame, a spring-pressed hook pivoted to the rockably-mounted arm and capable of engagement with the platen-carrying parts to move the same away from the type-wheel, a spring pressing the platen toward the type-wheel, and a rod connected to the rockably-mounted arm and coöperating with the type-wheel, substantially as described.

23. The combination with a frame, of an operated type-wheel, a platen capable of movement toward and from the type-wheel and having a tendency toward the type-wheel, a rockably-mounted arm, means for moving the arm, a spring-pressed hook carried by the arm and capable of engagement to move the platen away from the type-wheel, and a projection engaged by the hook and capable of moving the hook to release the platen, substantially as described.

24. The combination with a frame, of an operated type-wheel, a platen movable toward and from the type-wheel and having a tendency toward the type-wheel, an operated arm, a hook carried by the arm and capable of moving the platen away from the type-wheel, and a projection capable of being engaged by the hook and of causing the hook to release the platen, substantially as described.

25. The combination with a frame, of a printing-wheel, a paper-feed mechanism, two independently-operative devices for operating the paper-feed mechanism, one of said devices being capable of direct manual operation and the other being connected to operate concurrently with the type-wheel, and a mounted paper-severing knife capable of operation from the manually-operative devices, substantially as described.

26. The combination with a frame, of an operated printing-wheel, a platen movable toward and from the printing-wheel and having a tendency toward the printing-wheel, paper-feed mechanism, a paper-severing knife, a manually-operative means capable of synchronously operating the paper-feed mechanism and the paper-severing knife, an additional means also capable of operating the paper-feed mechanism and independently of the manually-operative means, means for moving the platen away from the type-wheel, and a connection between said additional means and the means for moving the platen away from the type-wheel and coöperating with the type-wheel, substantially as described.

27. The combination with a frame, of a shaft carried thereby, a wheel loose on the shaft, two sleeves also loose on the shaft, the sleeves being located one on each side of the wheel and having pawl-and-ratchet connection therewith, a manually-operative rack-bar, a gear fixed to one of the sleeves and meshing with the rack-bar, a ratchet-wheel fixed to the second sleeve, a pivotally-mounted arm, a pole carried by the arm and engaging the ratchet-wheel, a printing-wheel, and a connection for the arm, the connection coöperating with the printing-wheel, substantially as described.

28. The combination with a frame, of a shaft carried thereby, a wheel loose on the shaft, two sleeves loose on the shaft and located respectively on each side of the wheel, the sleeves having pawl-and-ratchet connection with the wheel, a printing-wheel, means capable of turning one of the sleeves, such means coöperating with one of the printing-wheels, and a manually-operative means coöperating with the remaining sleeves, substantially as described.

29. The combination with a frame, of a shaft carried thereby, a wheel rotatably mounted on the shaft, two sleeves loose on the shaft, the sleeves being respectively on each side of the wheel and having pawl-and-ratchet connection with the wheel, a manually-operative means capable of turning one of the sleeves, a ratchet-wheel fixed to the remaining sleeve, a pawl engaging the ratchet-wheel and capable of turning the same, means for operating the pawl, and an operated type-wheel with which said means coöperate, substantially as described.

30. The combination with a shaft, a wheel loose on the shaft, two sleeves carried loosely by the shaft and having pawl-and-ratchet connection with the wheel, and means for independently turning the sleeves, substantially as described.

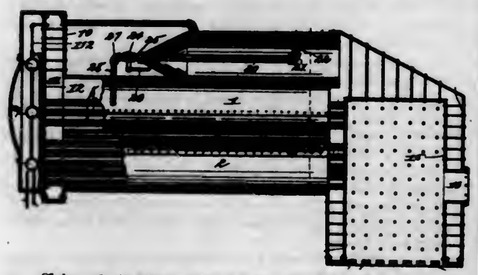
31. The combination of a shaft, a wheel loose on the shaft, two sleeves also loose on the shaft and respectively having pawl-and-ratchet connection with the wheel, a printing-wheel, means for turning one of the sleeves, such means coöperating with the printing-wheel, and a manually-operative means capable of turning the second sleeve, substantially as described.

32. The combination of a shaft, a wheel loose on the shaft, two sleeves loose on the shaft and having independent connection with the wheel, and means for independently turning the sleeves, substantially as described.

33. The combination with a table, of a paper-feed mechanism, a lever fulcrumed on the table, a knife carried by the lever, a bell-crank lever having one arm engaged with the first lever, and means for operating the paper-feed mechanism, such means being also capable of engagement with the bell-crank lever, substantially as described.

34. The combination with a table, of a type-wheel, a platen capable of movement toward and from the type-wheel and having a tendency toward the type-wheel, means for moving the platen away from the type-wheel, a paper-feed wheel, a movable paper-severing knife, an arm pivotally carried by the table, a pawl carried by the arm, means for transmitting movement from the pawl to the type-wheel, a rod connected to the arm having the pawl and to the means for moving the platen away from the type-wheel, the rod coöperating with the type-wheel, a sliding bar capable of turning the type-wheel, means for transmitting movement from the bar to the type-wheel by which the type-wheel may be operated independently of the pawl, and a lever capable of being engaged by the sliding bar and of operating the paper-severing knife, substantially as described.

575,969. LOCOMOTIVE. DANIEL W. MCCALLUM, St. Louis, Mo., assignor of two-thirds to William R. Kuhlhoff, Fort Worth, and Jeff L. Finley, Denison, Tex. Filed Apr. 3, 1896. Serial No. 586,658. (No model.)



Claim.—1. In a locomotive, a series of water-shells each containing a series of fire-flues, a feed-water heater, a pipe discharging water from said feed-water heater into the lower ones of said water-shells and a pipe discharging steam from said feed-water heater into the upper ones of said water-shells, substantially as specified.

2. In a locomotive, a series of water-shells, each containing a series of fire-flues, a feed-water heater, a pipe discharging water from said feed-water heater into the lower ones of said water-shells, a pipe discharging steam from said feed-water heater into the upper ones of said water-shells, and a double-action plunger-pump connected to and operated by the cross-head of the engine for the purpose of feeding water to the feed-water heater, substantially as specified.

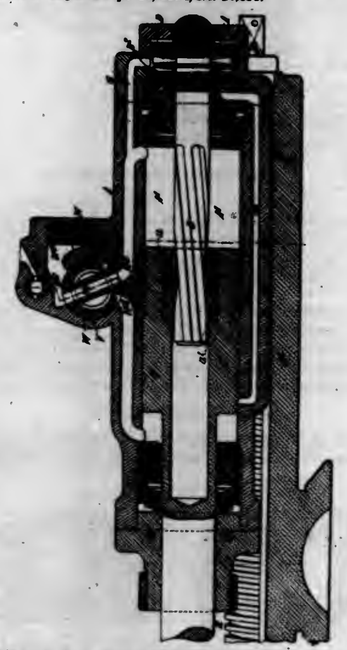
3. In a locomotive, a series of water-shells, each containing a series of fire-flues, a feed-water heater, a pipe discharging water from said feed-water heater into the lower ones of said water-shells, a pipe discharging steam from said feed-water heater into the upper ones of said water-shells, a double-action plunger-pump connected to and operated by the cross-head of the engine for the purpose of feeding water to the feed-water heater, and pipes discharging the exhaust from the steam-chest into said feed-water heater, substantially as specified.

4. In a locomotive, a series of shells, each containing a series of fire-flues, a feed-water heater, a double-action plunger-pump supplying said feed-water heater, said pump being operated by connections with the cross-head of the engine, pipes discharging the exhaust from the steam-chests into said feed-water heater, pipes discharging the exhaust from said feed-water heater into the smoke-stack, auxiliary feed-water heaters located in the base of the smoke-stack, a pipe discharging the water from the first-mentioned heater into said auxiliary heater, and pipes discharging the steam from said auxiliary heaters into the upper ones of said water-shells and a pipe discharging the water from said auxiliary heaters into the lower of said water-shells, substantially as specified.

5. In a locomotive, a series of water-shells, each containing a series of fire-flues, a feed-water heater discharging water into said shells, a shell, constituting the steam-dome, above said shells, pipes leading from said steam-dome, steam-chests at the outer ends of said pipes, cylinders connected to said steam-chests, pistons in said cylinders, connecting-rods attached to the piston-rods, a shaft positioned transversely under the rear ends of said shells, crank-arms upon the ends of said shaft and connected to said connecting-rod, a pair of sheaves upon said shaft, a pair of sheaves upon the shaft of the central truck of the locomotive and in alinement with the first-mentioned pair of sheaves, chains connecting said sheaves, a second pair of sheaves upon the shaft of said truck, a pair of sheaves upon the axle of the front truck and in alinement with said second pair of sheaves, chains connecting said second pair of sheaves with the last-mentioned pair of sheaves, substantially as specified.

6. In a locomotive, a series of water-shells, each containing a series of fire-flues, a feed-water heater discharging water into said shells, a shell above said water-shells, and constituting the steam-dome, steam-pipes leading from said steam-dome, steam-chests at the ends of said steam-pipes, steam-cylinders connected to said steam-chests, pistons in said steam-cylinders, connecting-rods attached to the piston-rods, a shaft positioned transversely of the locomotive, crank-arms upon the ends of said shaft and connected to said connecting-rod, a pair of sheaves upon said shaft, a second pair of sheaves upon the axle of the center truck, chains connecting the first and second pair of sheaves, a third pair of sheaves upon the axle of said truck, a fourth pair of sheaves upon the axle of the forward truck, chains connecting said third and fourth pairs of sheaves, a fifth pair of sheaves upon the ends of the axle of the center truck, a sixth pair of sheaves upon the ends of the axle of the rear truck, and chains connecting said fifth and sixth pairs of sheaves, substantially as specified.

575,970. ROCK-DRILL. JAMES MCCULLOCH, Wolverhampton, England. Filed Sept. 30, 1895. Serial No. 564,185. (No model.) Patented in England Sept. 17, 1894, No. 17,059.



Claim.—1. In a rock-drill, the combination with the casing, and the drill-spindle, of a twist-bar capable of a rotary and a limited axial movement in the casing, a toothed gear fixed on the rear end

of said twist-bar, and a non-rotatable, stationary gear D supported in the casing and adapted to lock the twist-bar when the latter is pushed backward, and to become disengaged therefrom when said twist-bar is pushed forward or outward, substantially as described.

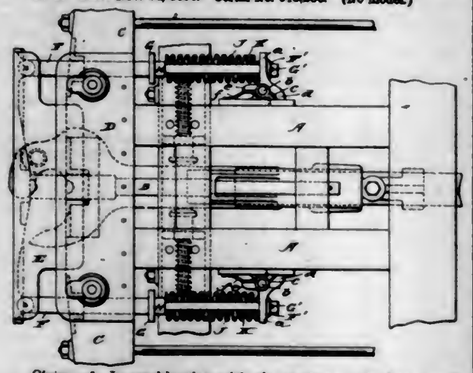
2. In a rock-drill, a tool-holder consisting of a head E furnished with a taper-keyway E' smallest at the forward end, and a wedge or key J which projects from the head at the forward end and has a prolongation J' at the rear end projecting through an opening in the rear end of the head, substantially as described.

3. In a rock-drill, the combination with the casing and cradle, of a clamp having a keyway M in the opening P for the drill-bar, the key N, the fixed jaw L, the movable jaw L' having in its back the recess L^3, and the bolt O working in the lugs O' to support and adjust said movable jaw between which and the fixed jaw is received the foot of the cradle, substantially as described.

4. In a rock-drill, the means for taking up slack due to the wear of the feed-screws, guides and bushes, and for preventing jar at the handle of the operating mechanism, said means consisting of split conical feed-nuts Q for the feed-screw and bushes for the guides, received in conical lugs formed on the drill-casing and having their large ends facing each other, and a spiral spring interposed between said large ends substantially as described.

5. In a rock-drill, a balanced circular valve V adapted to oscillate in a valve-chamber without gland or bushing about an axis at right angles to the axis of the working cylinder, wings or arms integral with the valve, pistons *c*, *c'* adapted to control the said arms but not connected thereto, cylinders Z, Z' in which the pistons work, and ports or passages forming communications between the said cylinders Z, Z' and the working cylinder A', said ports being opened and closed alternately by the movements of the main piston C, substantially as described.

575,971. BUFFER-PLATFORM FOR CARS. THOMAS L. MCKEEN, New York, N. Y., assignor to the Trojan Car Coupler Company, Troy, N. Y. Filed Nov. 24, 1896. Serial No. 613,288. (No model.)



Claim.—1. In combination with the stationary platform, auxiliary buffer-platform and side buffer-stems pivoted to the buffer-platform as described, the equalizing-brackets *a* formed with heel *d* and pivoted to lugs *c*, and the equalizing-springs for restoring the brackets to their normal positions, substantially as and for the purposes set forth.

2. In combination with the stationary platform, auxiliary platform and side buffer-stems pivoted to the buffer-platform as described, the equalizer-brackets *a* formed with heel *d*, toe *e* and pocket *i*, and pivoted to the lugs *c*, and the coil-springs *h* interposed between the toe *e* and lug-plate, substantially as and for the purposes set forth.

575,972. CAR-COUPLING. WILLIAM J. MCKELVY, South Pittsburg, Tenn. Filed Apr. 25, 1896. Serial No. 589,095. (No model.)



Claim.—In a car-coupling, the combination of a draw-head, a knuckle pivoted to the draw-head and provided on its arm with a series of serrations or teeth, and a pivoted catch mounted in the draw-head, engaging the arm of the knuckle and provided with similar serrations or teeth, whereby the catch is interlocked with the arm and is prevented from being accidentally thrown upward and releasing the knuckle, substantially as and for the purpose described.

575,978. PROCESS OF SOLIDIFYING WOOD. JOHN MCLACHLAN, Chicago, Ill., assignor to John McLachlan and Frank P. Stone, same place. Filed July 9, 1894. Serial No. 517,099. (No specimens.)

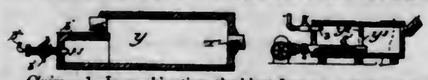
Claim.—1. The art of compressing cured wood which consists in saturating it with an oleaginous liquid under heat, then subjecting it in a hot state to powerful direct mechanical pressure, exerted in a direction transversely only of its fibers until its bulk in that direction is greatly reduced; then locking it in its so-compressed condition and subjecting it while so locked to a cooling operation whereby its fibers become set and fixed in the highly-compressed state.

2. The art of compressing wood which consists in depriving the wood of its sap by subjecting it to the action of a hot fluid, then saturating it with an oleaginous liquid under heat, then subjecting it in a hot state to powerful direct mechanical pressure, exerted in a direction transversely only of its fibers, until its bulk in that direction is greatly reduced, then locking it in its so-compressed condition and subjecting it while so locked to a cooling operation whereby its fibers become set and fixed in the highly-compressed state.

3. The process herein described of treating wood, consisting in depriving the wood of its sap, then saturating it with cotton-seed oil, then subjecting it to pressure and dry heat simultaneously, and finally cooling it while still under pressure.

4. A hard, compressed waterproof wooden block consisting of an integral structure composed of solidified cotton-seed oil and the naturally-united fibers of the wood transversely flattened and compacted and having their natural length and direction, the flattened fibers and their intermixed cotton-seed oil being set, substantially as set forth.

575,974. BLAST APPARATUS FOR FURNACES. JOHN W. NESBITT, Denver, Colo., assignor to the Colorado Iron Works Company, same place. Filed Apr. 9, 1896. Serial No. 586,836. (No model.)



Claim.—1. In combination, the blast-furnace, a stove comprising a heating-chamber and a burner therein, an air-blast conduit extending beyond the burner-outlet and arranged to carry the air-blast beyond the flame in the chamber, a connection between the stove and furnace and means for applying to the burner a greater pressure than to the air-blast, substantially as described.

2. In combination, the blast-furnace, a stove comprising a heating-chamber and a burner therein, an air-blast conduit extending beyond the burner-outlet and arranged to carry the air-blast beyond the flame in the chamber, and a connection between the stove and furnace, the said burner and air-blast having independent sources of supply, substantially as described.

3. In combination, the blast-furnace, a stove comprising a heating-chamber with a burner-pipe terminating therein, an air-conduit extending beyond the burner-outlet and arranged to carry the air-blast to a point beyond the flame before commingling and a connection between the stove and the furnace.

4. In combination, with a blast-furnace, the stove comprising a heating-chamber with a burner-pipe terminating therein, an air-blast conduit leading into the stove and extending beyond the burner-outlet to carry the air-blast, to a point beyond the flame before commingling with the same, means for protecting the flame in the stove from the said air-blast, and a connection between the stove and furnace, substantially as described.

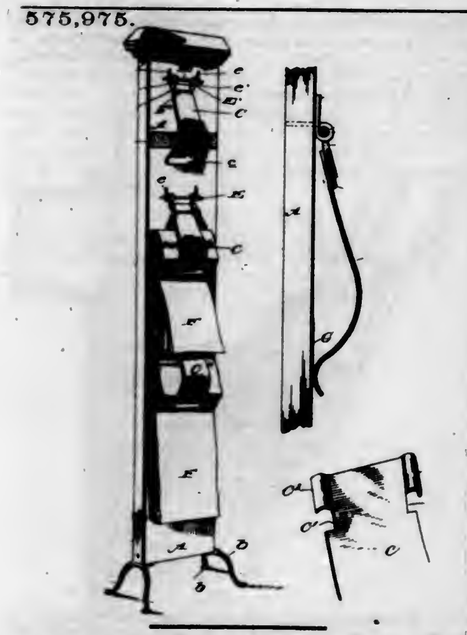
5. In combination, the blast-furnace, a stove comprising a heating-chamber with burner-pipe terminating therein, an air-blast pipe arranged to carry the air-blast to a point beyond the flame in the stove and a connection between the stove and furnace, the said pipes being arranged to direct their blasts parallel with each other at the point of commingling, substantially as described.

575,975. RAG-HOLDER. ORREN G. HOOKER, Sheldon, Ill., assignor to Charles M. Coats and Charles R. Coriett, Aurora, Ill. Filed Sept. 21, 1896. Serial No. 606,545. (No model.)

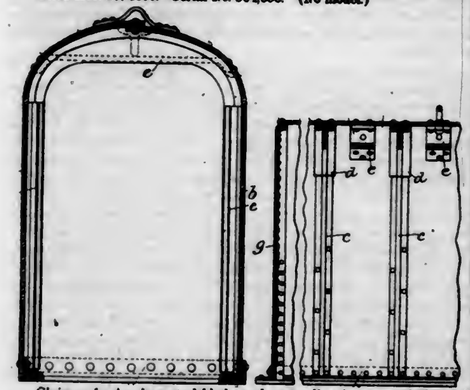
Claim.—1. The combination with a rod, of a wire having its ends coiled thereabout, and a spring-plate having notches and parallel portions bent to engage over the parallel portions of said wire; substantially as described.

2. The combination with a rod, of a wire having its ends coiled thereabout, and a spring-plate having notches and parallel portions bent to engage over the parallel portions of said wire and having its lower end curved and bent outwardly; as set forth.

575,975.



575,976. ANNEALING-BOX. JOHN H. ORWIG, Alliance, Ohio. Filed Mar. 25, 1896. Serial No. 584,838. (No model.)



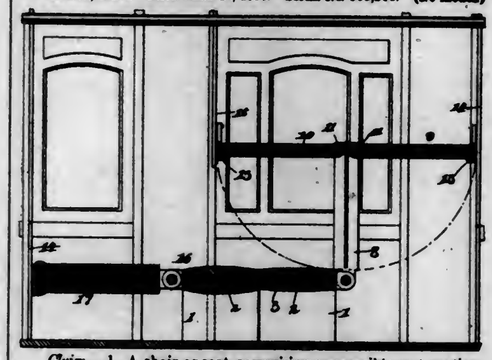
Claim.—1. An inverted-U-shaped annealing-box, consisting of two plates forming the side walls and arch, said plates longitudinally joined on top, front and rear heads, each provided with an inwardly-projecting flange and riveted to the body of the box, internal vertical braces riveted to the side walls, and arch-braces rigidly secured to the arched portion of the box, substantially as described.

2. An inverted-U-shaped annealing-box, consisting of two plates forming the side walls and arched top, said plates longitudinally joined on top, end heads each provided with an inwardly-projecting flange and riveted to the body of the box, internal vertical braces riveted to the side walls, arch-braces rigidly secured to the arched portion of the box, tie-rods, *e*, between the arch-braces, internal and external longitudinal and transverse braces around the bottom of the box, substantially as described.

3. An inverted-U-shaped annealing-box, consisting of two plates forming the side walls and arched top, said plates longitudinally joined on top, end heads, each provided with an inwardly-projecting flange and riveted to the body of the box, internal vertical braces riveted to the side walls, arch-braces rigidly secured to the arched portion of the box, tie-rods, *e*, between the arch-braces, external longitudinal and transverse braces aronnd the bottom of the box, substantially as described.

4. An inverted-U-shaped annealing-box, consisting of two plates forming the side walls and arched top, said plates longitudinally joined on top, end heads, each provided with an inwardly projecting flange and riveted to the body of the box, internal vertical braces riveted to the side walls, arch-braces rigidly secured to the arched portion of the box, tie-rods, *e*, between the arch-braces, internal longitudinal and transverse braces around the bottom of the box, substantially as described.

575,977. CONVERTIBLE CHAIR OR SEAT. JAMES M. OSGOOD, Boston, Mass. Filed June 12, 1896. Serial No. 595,206. (No model.)



Claim.—1. A chair or seat, comprising a reversible seat portion, and an adjustable back pivotally connected to one edge of said reversible seat portion, substantially as specified.

2. A chair or seat, comprising a frame, a seat portion adapted to swing on its center in said frame, a back frame having pivotal connection with said seat, and means for clamping said back frame as adjusted, substantially as specified.

3. A chair or seat, comprising a rotary seat portion, a back frame having pivotal connection therewith, means for locking said back frame as adjusted in relation to the seat, and back portions pivotally connected to the upper portion of the back frame, substantially as specified.

4. A chair or seat, comprising a seat-frame, a seat portion upholstered on both its sides and mounted to rotate in said seat-frame, a back frame pivotally connected to the seat portion, the said back frame being recessed at its opposite sides, an upholstered back section in each of said recesses and pivotally connected with the upper portion of the back frame, whereby they may be swung into and out of the recesses to form backs or a berth, and means for supporting the same when extended horizontally to form a berth, substantially as specified.

5. A chair or seat, comprising a seat-frame, seat portions arranged at right angles one to the other, link connections between the angled portion of said seat portions and the frame, and an adjustable back for said seat portion, substantially as specified.

6. A car-seat, comprising two sections each adapted for independent rotary motion, a back frame pivotally connected to each section, and independent locking means for each back frame, substantially as specified.

575,978. METHOD OF PRESERVING FOODS. ELIAS H. L. OSTERMANN, Hamburg, Germany. Filed June 1, 1896. Serial No. 593,911. (No specimens.)

Claim.—1. The method of preserving food and other organic substances which consists in applying to the surface of said substance a compound containing oxyquinolin dissolved in gelatin, substantially as described.

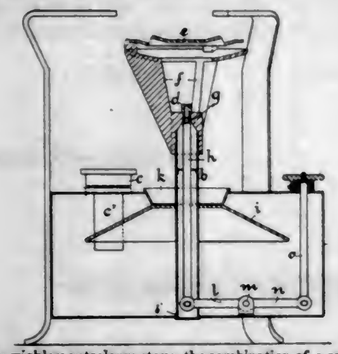
2. The method of preserving food and other organic substances which consists in applying to the substance a solution of gelatin and an innocuous salt of oxyquinolin, substantially as described.

575,979. PETROLEUM-STOVE. CARL ÖSTLUND and AXEL E. MALMSTRÖM, Stockholm, Sweden. Filed June 17, 1895. Serial No. 553,044. (No model.)

Claim.—1. In a wickless petroleum-stove, the combination of a reservoir adapted to contain petroleum in its lower part only and air in its upper part, a pipe opening into the bottom of the reservoir and having a burner at its upper part, and means for heating the air in said upper part of the reservoir, substantially as and for the purpose set forth.

2. In a wickless petroleum-stove, the combination of a reservoir, having a feed-tube extending down into the same to leave a closed air-chamber in the reservoir, a pipe, opening into the bottom of the reservoir and having a burner at its upper part, and means for heating the air in said chamber, substantially as and for the purpose set forth.

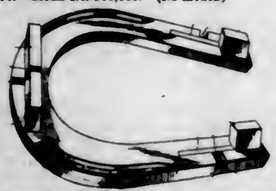
3. In a wickless petroleum-stove, the combination of a reservoir, having a feed-tube extending down into the same to leave a closed air-chamber in the reservoir, a pipe opening into the bottom of the reservoir and having a burner at its upper part, a heat-conducting disk or plate within said chamber and means for heating said disk or plate, substantially as and for the purpose set forth.



4. In a wickless petroleum-stove, the combination of a reservoir adapted to contain petroleum in its lower part only, and air in its upper part, a pipe opening into the bottom of the reservoir and having a burner at its upper part, and a valve-spindle extending through said pipe and out at the bottom of the reservoir, substantially as and for the purpose set forth.

5. In a wickless petroleum-stove, the combination of a reservoir adapted to contain petroleum in its lower part only, and air in its upper part, a pipe opening into the bottom of the reservoir and having a burner at its upper part, and a valve-spindle extending through said pipe and out at the bottom of the reservoir, and a nut for said valve-spindle, situated above the reservoir, substantially as and for the purpose set forth.

575,980. **HORSESHOE.** TOM H. PARKER, Newark, N. J. Filed July 14, 1896. Serial No. 599,106. (No model.)



Claim.—A horseshoe having undercut recesses and connecting-grooves, removable and interchangeable calks provided with dovetailed recessed malleable webs seated in the undercut recesses, the toe-calk having a central depression for the purpose described, and the heel-calks being set at one side of their webs to render them interchangeable, reversible, and adjustable at various points on the shoe, to prevent interfering or to correct the gait of the animal, substantially as described.

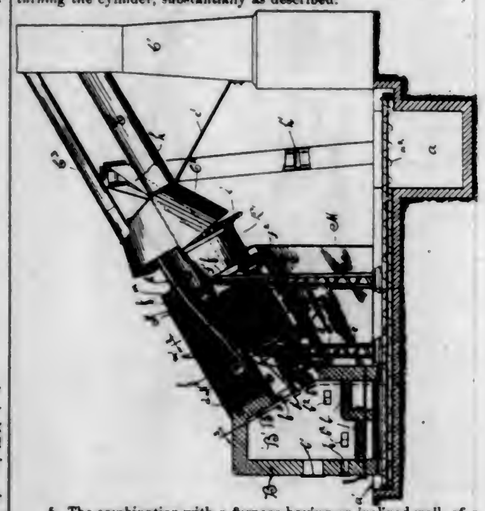
575,981. **GARBAGE-BURNER.** WILLIAM G. PARR, Chicago, Ill., assignor to Jacob A. Patton, same place. Filed Mar. 9, 1896. Serial No. 582,366. (No model.)

Claim.—1. The combination with a furnace, of a partly-foraminated and revolvable cylinder communicating therewith, a flue communicating with the furnace and passing through the cylinder, a series of spirally and longitudinally arranged bars on the interior of the cylinder, and a mechanism to operate the cylinder, substantially as described.

2. The combination of a furnace having an inclined wall, with antifriction-rollers journaled on the outer surface of said wall, a revolvable and inclined cylinder communicating with the furnace and resting on said rollers, and means for turning the cylinder, substantially as described.

3. The combination with a furnace having an inclined wall, of antifriction-rollers journaled on the outer surface of said wall a revolvable and foraminated cylinder communicating with the furnace and resting on said rollers, a flue communicating with the furnace and passing through the cylinder, and means for turning the cylinder, substantially as described.

4. The combination of a furnace having an inclined wall, with antifriction-rollers journaled on the outer surface of the wall, a partly-foraminated and revolvable cylinder supported in an inclined position and resting on said rollers, a series of spirally and longitudinally arranged bars on the interior of the cylinder, a flue communicating with the furnace and passing through the cylinder, and means for turning the cylinder, substantially as described.



5. The combination with a furnace having an inclined wall, of a number of antifriction-rollers, on the outer surface of said wall, a cylinder composed partly of sheet metal and partly of rings located a slight distance apart, supports provided with rollers for the cylinder, a jacket over the cylinder, projections extending from said jacket between the rings, and means for turning the cylinder, substantially as described.

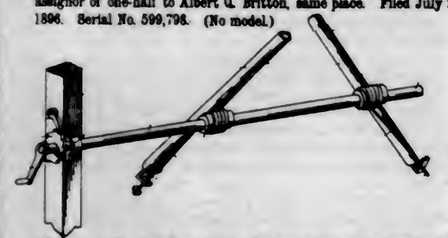
6. The combination with a furnace having an inclined wall, of antifriction-rollers on its outer surface, a cylinder composed partly of sheet metal and partly of rings located a slight distance apart, guideways around the cylinder, supports provided with rollers for the said guideways on the cylinder, a jacket over the cylinder, projections extending from the jacket between the rings, a series of spirally and longitudinally arranged bars on the interior of the cylinder, a flue communicating with the furnace and passing through the cylinder, a piece secured to one of the spiral bars and extending to near the said flue, and means for turning the cylinder, substantially as described.

7. The combination with a furnace, of a revolvable cylinder communicating therewith, composed of rings secured a slight distance apart, a number of projections secured at the exterior of the cylinder and extending between the rings thereof, substantially as described.

8. The combination with a furnace, of a revolvable cylinder communicating therewith, composed partly of rings secured a slight distance apart and partly of sheet metal, a number of projections secured at the exterior of the cylinder and extending between said rings, substantially as described.

9. The combination with a furnace, of a revolvable cylinder communicating therewith, composed partly of rings secured a slight distance apart, and partly of sheet metal, a flue communicating with the furnace and passing through the cylinder, a series of spirally and longitudinally arranged bars on the interior of the cylinder, a piece or scraper secured to one of said bars, and extending to near the surface of the flue, substantially as described.

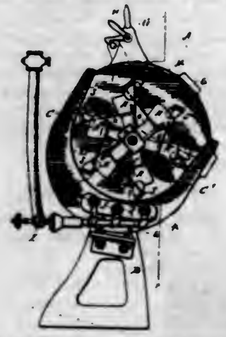
575,982. **TRANSOM-LIFTER.** SELAH N. PECK, Toledo, Ohio, assignor of one-half to Albert G. Britton, same place. Filed July 20, 1896. Serial No. 599,798. (No model.)



Claim.—1. In a sash-operator for greenhouses, a longitudinal shaft, means for revolving the same, drums secured thereon, arms secured to the sash and depending therefrom in proximity to the drums, ropes or cables wound around the drums and secured to the arms above and below the drums.

2. In a sash-operator for greenhouses, a longitudinal shaft, means for revolving and holding the same in any desired adjustment, drums secured upon the shaft, arms pivotally secured to the sash and depending therefrom in close proximity to the drums, ropes or cables wound around the drums, the upper ends thereof being secured to the arms, and the lower ends secured to screw-bolts adjustably arranged in the lower end of the arms.

575,983. **COFFEE-ROASTER.** HENRY D. PERKY, Worcester, Mass. Filed Feb. 7, 1896. Serial No. 578,396. (No model.)



Claim.—1. In a coffee-roaster, the combination with the frame having the fixed hollow casing open at its upper portion, of a semicylindrical forwardly-inclined roasting-pan pivotally supported therein so as to be capable of tilting with reference thereto, the rotary shaft extending longitudinally through the said pan, a series of scrapers carried thereby, and means whereby said pan may be secured against pivotal movement, substantially as specified.

2. In a coffee-roaster, the framework having the fixed casing-walls open at the upper portion, the longitudinal, semicylindrical roasting-pan pivotally supported in said casing-walls so as to be capable of tilting with reference thereto, the rotary shaft extending longitudinally through the said roasting-pan and having its projecting end portions journaled in bearings of the said framework, and the longitudinal scraping-paddles and stirring-blades carried by the said shaft, substantially as specified.

3. In a coffee-roaster, the combination with the pivotally-supported semicylindrical roasting-pan, of the rotary shaft extending longitudinally therethrough, the several sets of angular arms attached to said shaft, and having their inner portions in radial relation thereto, and their outer portions at substantially right angles to their inner portions, and longitudinally-extending scraper-blades carried by said arms and inclined backward from their contact edges with reference to their radial planes, said arms being so disposed that the blades of one set are out of line with those of the next set, substantially as specified.

4. In a coffee-roaster, the combination with the framework having the hollow casing open at its upper portion, and inclined forwardly, the front portion of said casing having a slide, the semicylindrical roasting-pan pivotally and eccentrically supported in said casing and closing the open portion thereof, the cover for said pan, and means for securing the pan against pivotal movement and for releasing the same, together with the heating devices below said pan and within the casing, substantially as specified.

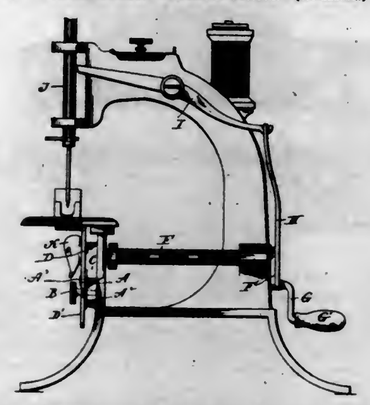
5. In a coffee-roaster, the framework having the casing walls open at the top, and at the lower portion, the front portion of said walls being a slide, the semicylindrical roasting-cylinder movably supported in said walls, and having handles and a cover, means for holding said cylinder in position, and for releasing the same, and means for heating said cylinder, substantially as specified.

6. In a coffee-roaster, the combination with the framework having the fixed casing-walls, of the semicylindrical roasting-pan movably supported therein and capable of tilting with reference thereto, said pan having handles, and a cover, supporting and releasing devices for said pan, the rotary shaft extending longitudinally through the said pan, and carrying scraping and stirring paddles and blades, and means for heating said pan, substantially as specified.

7. In a coffee-roaster, the combination with the framework having the standard B, B, and the casing-walls C, C, whereof the portion C' is a slide, of the semicylindrical roasting-pan supported within said walls, in forwardly-inclined position, and having at its ends elongated slotted journals which pivotally engage bearings of said standards, and an agitator-shaft extending through said pan and journaled in said boxes, substantially as specified.

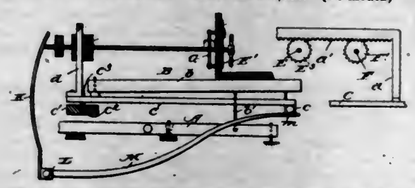
8. In a coffee-roaster, the combination with the framework having the hollow casing of approximately U shape, with open portions at top and bottom, the forwardly-inclined, tiltable roasting-pan supported eccentrically in said casing and closing the open portion at the top thereof, the heating-burners within the open portion of said casing at the bottom, and an adjustable frame which supports said burners, substantially as specified.

575,984. **FEEDING DEVICE FOR SEWING-MACHINES.** ROBERT PIERPONT, New Haven, Conn., assignor to J. Willis Downs, same place. Filed Dec. 23, 1895. Serial No. 573,058. (No model.)



Claim.—In an adjustable feeding device for sewing-machines, the combination with a part of the machine formed with a vertical guideway, of a vertically-arranged oscillating feed-plate constructed with a longitudinal slot and with a cam-opening located at a point above the said slot, a main driving-shaft, a cam secured to the said shaft and located in the said cam-opening in which it revolves for the oscillation of the feed-plate, means for operating the said shaft, a looping-hook connected with the extreme outer end of the shaft in front of the said cam, an adjustable fulcrum-lever provided with a pin entering the slot in the plate and constituting the center upon which the same oscillates, and also entering the said guideway, and means for fixing the said fulcrum-lever in any position within the range of its adjustment, substantially as described.

575,985. **MOVABLE KEYBOARD.** JULIUS E. PITRAT, Gallipolis, Ohio. Filed Feb. 11, 1896. Serial No. 578,882. (No model.)



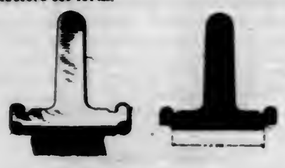
Claim.—1. The combination with the movable and fixed keyboards, of the frame carrying said movable board, the rack-bar mounted thereon, the pinion and shaft for moving said frame, and the lifting mechanism operated by said shaft to lift the movable keyboard-frame, substantially as shown and described.

2. The combination with the fixed and movable keyboards of the movable frame, the rack-bar thereon, the pinions and shafts, the dial mounted upon the end of one shaft, the handle upon the end of the opposite shaft, the feather or lug, the notched plate, said shaft being longitudinally movable, the rock-shaft, the arm carried thereon adapted to engage the longitudinally-movable shaft, and the lifting-arms all arranged, substantially as shown and described.

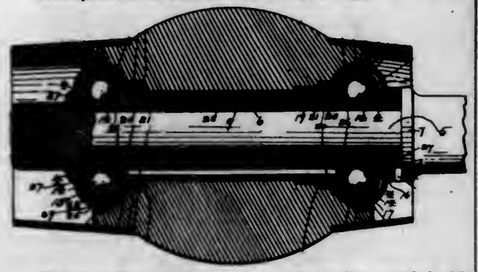
575,986. **FASTENING CARD-CLOTHING TO TOP-FLATS.** JAS. C. POTTER, Pawtucket, R. I. Filed Nov. 20, 1896. Serial No. 612,887. (No model.)

Claim.—The card-clothing or foundation-cloth having metal-bound edges, in combination with a top-flat having seats for the reception of said metal-bound edges and metallic clips or fasteners for

holding the flat and clothing together, substantially as and for the purposes hereinbefore set forth.



575,987. BALL-BEARING. WILLIAM C. QUIGLEY, Marion, Ohio. Filed Apr. 20, 1896. Serial No. 588,353. (No model.)



Claim.—1. The combination in an axle-bearing provided with antifriction devices and means for holding said antifriction devices therein, of a journal rigidly fixed on the arm of an axle and supporting said antifriction devices, said journal enlarged circumferentially in the form of a curve at each of its ends to form the outer side of races wherein said antifriction devices run, substantially as shown and described.

2. The combination in an axle-bearing provided with antifriction devices therein, of a supporting-journal having races formed therewith and thereon, said journal formed of annular sections and rigidly held together on the arm of an axle, substantially as shown and described.

3. The combination in an axle-bearing for vehicles consisting of antifriction devices supported in a sleeve fitted in a hub near each end of said hub and running in annular races therein, of a journal fixed to the arm of an axle, said journal supporting said antifriction devices in races formed near each end thereof and provided at each of its ends with annular flanges curving inward from the ends of said journal and forming housings for said antifriction devices at each end of said sleeve, substantially as shown and described.

4. The combination in an axle-bearing provided with antifriction devices supported in annular races in a sleeve inserted in the hub of a wheel, of a journal fitted to the arm of an axle, said journal formed in annular separable sections, a section at each end of said journal enlarged circumferentially to form the bottom and a part of the outer side of the annular races wherein antifriction devices run and are supported when said wheel is revolved and means for holding said journal in a fixed position on the arm of said axle, substantially as shown and described.

5. In a ball-bearing for vehicles, the combination in ball-bearing chambers, of circular ball-races formed on the circumference of a journal rigidly fixed to the arm of an axle, said races having bushing-rings adjustably supported in connection therewith and forming a part of the inner sides of said races, said bushing-rings having annular recesses in the ends of the walls thereof formed opposite the horizontal axis of said balls running in said races, substantially as shown and described.

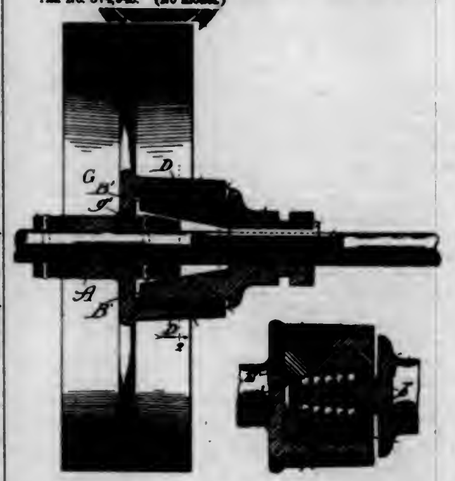
6. In a ball-bearing, the combination with a removable sleeve fitted in the hub of a wheel having its ends flared to receive ball-chambers therein, of a ball-chamber having a circular groove or race carrying balls fitted in the end of said sleeve, said balls supported in contact with a journal fitted to the arm of an axle, said journal rising at the outside of said balls to form a section of the side of the race wherein said balls run to support the lateral motion of said wheel revolving thereon, substantially as shown and described.

7. In a ball-bearing for vehicles, the combination with a sleeve flared at each of its ends and supported in the hub of a wheel and forming the roof of a ball-bearing chamber, of ball-chambers having annular ball-races therein corresponding in cross-section to the contour of the balls, said races formed by enlarging the circumference of the ends of a journal supported on the arm of an axle to form a part of the bottom and one-half of the outer side of said races, the top and inner side of said races formed with an annular cap provided with a neck projecting from the side thereof and of a bushing-ring fitted in said neck, substantially as shown and described.

8. The combination in an axle-bearing provided with antifriction-balls supported on a journal fixed to the arm of an axle and running in a race thereon, of a ball-chamber surrounding said balls consisting of a cap provided with a semicircular groove in the inner circumference thereof forming a race wherein said balls run, said cap provided with a neck projecting from the side thereof, said neck having fitted therein a bushing-ring for regulating the diameter of said ball-race, said bushing-ring provided with a flange abutting against an annular shoulder in a sleeve fitted in the hub of a wheel, said cap provided with an annular flange abutting against the end of said sleeve, and said cap and bushing-ring supported in said sleeve out of contact with said journal, substantially as shown and described.

9. The combination in an axle-bearing for vehicles provided with antifriction-balls and means for supporting said balls in a race formed on the circumference of a journal rigidly fixed on the arm of an axle, of a ball-bearing chamber supported in the end of a sleeve fixed in the hub of a wheel, said chamber formed of an annular cap provided with a circular groove on the inner circumference thereof, a neck projecting from the side of said cap, the inner circumference of said neck threaded and fitted to the outer circumference of a bushing-ring correspondingly threaded forming a part of said race, said cap and said ring held out of contact with said journal and provided with an annular recess opposite the horizontal axis of said balls in said race, substantially as shown and described.

575,988. CLUTCH. JOHN M. RAUHOFF, Chicago, Ill., assignor of one-half to James Saunders, Marietta, Ga. Filed Jan. 10, 1896. Serial No. 574,943. (No model.)



Claim.—1. In a clutch, the combination of a movable shaft, a sleeve mounted upon such shaft, a split collar mounted upon such sleeve, a spring for normally holding the split collar in its smallest diameter, and a series of balls interposed between the split collar and the sleeve to lessen the friction and adhesion of the parts, substantially as described.

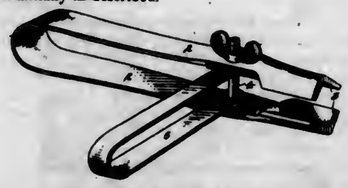
2. In a clutch, the combination of a shaft, a sleeve longitudinally movable upon such shaft, and provided with at least two taper projecting prongs, a split collar mounted upon such prongs and provided with a spring to normally hold a collar at its smallest diameter, a series of balls interposed between the split collar and the taper projecting prongs to facilitate the operation of the parts, and adjacent mechanism provided with a circular recess adapted to receive the split collar and be engaged thereby when such collar is expanded, substantially as described.

575,989. WRENCH. JOHN J. REINHART, Logootee, Ind., assignor of one-half to William Houghton, same place. Filed Oct. 12, 1896. Serial No. 608,694. (No model.)

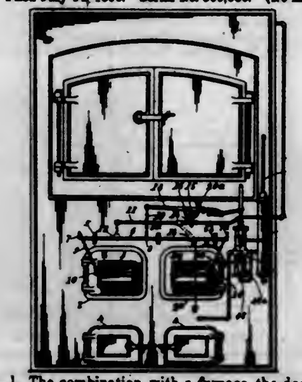
Claim.—1. A wrench consisting of two U-shaped spring members pivoted upon a single bolt, one of said members having opposing jaws at its free ends, and the other member adapted to be swung outward to serve as an operating-handle, or to fold out of the way within the other member, substantially as described.

2. A wrench comprising spaced connected arms having nut-engaging jaws at their ends, in combination with a bolt connecting said arms for operating the jaws, and an auxiliary handle fulcrumed on said bolt and adapted to fold, substantially as described.

3. A wrench comprising connected spaced arms having nut-engaging jaws at their ends, in combination with a bolt connecting said jaws, and an auxiliary handle fulcrumed on said bolt between said arms, said auxiliary handle being in the form of a loop and comprising spring terminal portions which operate upon the aforesaid arms, substantially as described.



575,990. SMOKE-CONSUMER. JOHN H. SCHMAHL and OTTO E. WESTPHAL, Buffalo, N. Y., assignors of one-third to John Roehrer, same place. Filed July 14, 1896. Serial No. 599,060. (No model.)



Claim.—1. The combination, with a furnace, the doors of which are provided with dampers, of a steam-pipe projecting into the furnace, a valve in the pipe, an arm for controlling the valve and the dampers, a piston between the door and the arm, the rod of which operates the arm, a valve for the piston provided with a perforated arm, a rod pivotally secured to the door and having its free end projected through the perforation in the valve-arm, and collars adjustably secured upon the rod for engaging with the valve-arm, substantially as set forth.

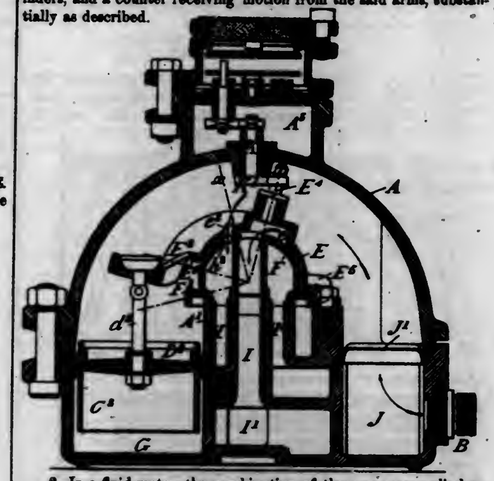
2. The combination, with a furnace, the doors of which are provided with dampers, of a steam-pipe projecting into the furnace, a valve in the pipe, a support on the valve-case, provided with a shoulder, an arm pivotally secured to the support, an end portion pivotally secured to the arm, a sliding catch connected with the end portion, and means for moving the catch when the end portion is turned upon its pivotal point, and a motor connected with the door and with the end portion, substantially as set forth.

3. The combination with a furnace, of a steam-pipe connected with the boiler and carrying steam-jet nozzles, a valve connected with said pipe, an arm pivoted to a support on said valve for operating the valve, means connecting said arm with dampers located in the furnace-doors for opening or closing them, a locking-tooth at the opposite side of said valve, a spring-catch connected with the opposite end of said arm for engaging said tooth, and an arm pivoted to the pivoted arm and connected by a chain for operating said catch, for the purposes described.

4. The combination with a furnace, of a steam-pipe communicating with the boiler and provided with steam-jet nozzles, a valve connected with said pipe having a support on one side carrying a pivoted arm, having at one side means connecting with the dampers for opening and closing them, a locking-tooth and support at the opposite side of said valve, a spring-catch mounted so as to be movable longitudinally on the pivoted arm and adapted to engage with the locking-tooth, an arm jointed to the pivoted arm and connected thereto by a chain for disengaging the spring-catch, and means connected with the furnace-doors for operating said arm, substantially as described.

575,991. FLUID-METER. WILLIAM A. G. SCHÖNHEYDER, London, England. Filed June 15, 1896. Serial No. 595,647. (No model.) Patented in England Mar. 6, 1894, No. 4,702.

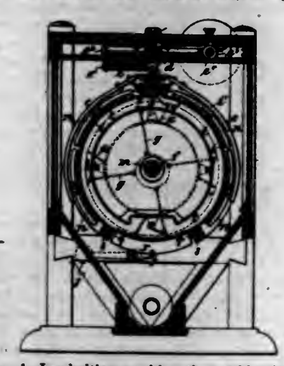
Claim.—1. In a fluid-meter, a slide-valve with spherical working face working on a spherical valve-seat, within a closed chamber supplied with fluid, cylinders with pistons arranged around such valve and seat, ports and passages leading from such cylinders to the valve-seat, arms connected on the one hand to the said slide-valve and on the other hand to the pistons of the cylinders and adapted to receive a rolling motion from the latter which motion is imparted to the slide-valve so as to alternately cover and uncover the ports in the seat and thereby to control the passage of liquid to and from the cylinders, and a counter receiving motion from the said arms, substantially as described.



2. In a fluid-meter, the combination of three or more cylinders with pistons arranged within a closed casing round a central pillar having ports and passages leading to and from the said cylinders and having a hemispherical head on which fits a hemispherical slide-valve, actuated by arms connected to the pistons of the said cylinders, which slide-valve governs the ports leading to the cylinders whereby these are put successively in communication with a discharge-passage the fluid-pressure supplied to the casing being made to move the pistons so as to successively discharge the fluid previously admitted and to admit a fresh charge, while the motion of the pistons and the slide-valve is imparted by suitable means to a counter, substantially as described.

3. In a fluid-meter, the combination of a casing A, supplied with fluid-pressure cylinders C' C³ C⁵ with pistons D' D³ D⁵ arranged round a central pillar A having passages H' H³ H⁵ leading to and from the cylinders, an exhaust-passage I communicating with a discharge B', a hemispherical head F having ports h' h³ h⁵ communicating with the passages in the pillar, a hemispherical slide-valve E connected by arms E' to the rods of the pistons D, said slide-valve receiving a rolling motion upon the head F whereby it is made to control the supply of liquid to and its discharge from the cylinders, while a rotary motion is imparted thereby to a shaft K substantially as described.

575,992. BOLTING-MACHINE. HEINRICH SEOK, Dresden, Germany. Filed June 25, 1896. Serial No. 596,915. (No model.)

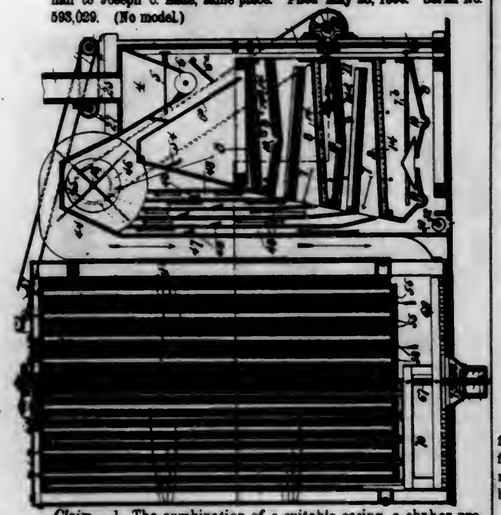


Claim.—1. In a bolting-machine, the combination with a stationary outer frame and its bolting-cloth covering, of an inner rotatable frame provided with oscillatory elevating-wings *b* and rigidly-attached propelling-wings *a*, the said elevating-wings being adapted to ap-

proach the bolting-cloth and seize the material to be bolted and then deliver it to the propelling-wings that throw said material against the bolting-cloth, substantially as described.

2. In a bolting-machine, the combination with a stationary outer frame having a bolting-cloth covering and normally held locked in a stationary position, of means for unlocking and swinging around the said frame, a reciprocating brush in contact with the outer surface of the bolting-cloth on the said normally stationary frame, and a rotatable inner frame provided with elevating-wings and propelling-wings, substantially as described.

575,993. PURIFIER, GRADER, AND DUST-COLLECTOR FOR FLOUR-MILLS. GEORGE W. T. SEIFERT, Duquoin, Ill., assignor of one-half to Joseph C. Eads, same place. Filed May 26, 1896. Serial No. 593,029. (No model.)



Claim.—1. The combination of a suitable casing, a shaker provided with a series of screens, a series of hoppers beneath the screens, and a series of return-boards beneath the hoppers, a series of independent flues leading from above the tail of each screen and above each return-board, a fan, a housing for the fan, with which the series of flues connect, a chute extending from the fan-housing, and a shaker-operating mechanism; substantially as described.

2. The combination of a suitable casing, a shaker provided with a series of screens, a series of hoppers beneath the screens, a series of return-boards beneath the hoppers, a series of independent flues leading from above the tail of each screen, and above each return-board the slatted front frames having upwardly-inclined inlets through which currents of air are directed obliquely against the screens, a fan, a housing for the fan with which a series of flues connect, and a chute extending from the fan-housing, and a shaker-operating mechanism; substantially as described.

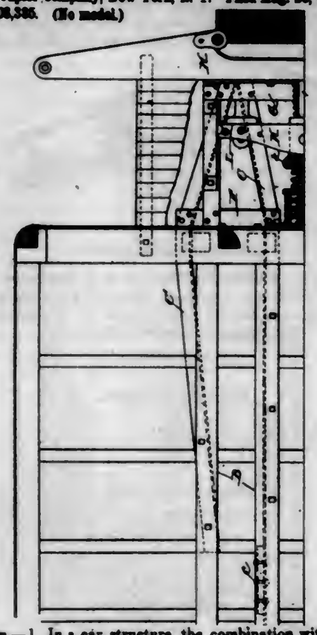
3. The combination of a suitable casing, a shaker provided with a series of screens, a series of hoppers beneath the screens, a series of return-boards beneath the hoppers, and a cut-off above the lowest hopper, a series of independent flues leading from above the tail of each screen, and above each return-board, a fan, a housing for the fan with which the series of flues connect, a chute extending from the housing and a shaker-operating mechanism; substantially as described.

4. The combination of the vertical dust-collector tubes located one within the other, the rings located at the top and bottom of the tubes by which the tubes are alternately closed at the top and bottom, the central vertical shaft, the sweep secured to the lower end of the shaft, the frame located on the sweep, and the vertical brushes located on the frame and traveling between the tubes; substantially as described.

5. In a purifier, grader and dust-collector, the combination of a housing, a dust-collector composed of a series of tubes arranged one within another and having their ends alternately open and closed, and adjustable stretcher-bars on the outside of each tube adapted for employment to distend said tubes; substantially as described.

6. In a purifier, grader and dust-collector, the combination of a dust-collector composed of a series of tubes arranged one within another, and having their ends alternately open and closed, a sweep located in the lower end of said dust-collector, a driving-shaft by which said sweep is carried and brushes carried by said shaft, said brushes being arranged to travel in and to clean said tubes, substantially as described.

575,994. METALLIC PLATFORM AND BUFFER FOR RAILWAY-CARS. HENRY H. SIMMONS, Chicago, Ill., assignor to the Standard Coupler Company, New York, N. Y. Filed Aug. 20, 1896. Serial No. 603,326. (No model.)



Claim.—1. In a car structure, the combination with the body-framing, of the platform-framing formed by lateral trusses projecting from the car-framing, the members composing the trusses being arranged at an angle with relation to each other and having their ends brought into proximity to each other, substantially as described.

2. In a structure, such as described, the combination with the framing for the car-body having the end sill, of the beams forming the framing for the platform extending on both sides of said end sill, united by the car-framing at their inner ends and having their outer ends exteuded at an angle to the said sill brought into proximity to each other and united to form trusses for arresting lateral distortions; substantially as described.

3. In a structure, such as described, the combination with the framing for the car-body, the bars forming the framing for the platform having their outer portions arranged angularly with relation to each other and their ends brought into proximity and united to form trusses and the bars uniting said bars adjacent the body-framing; substantially as described.

4. In a structure, such as described, the combination with the framing for the car-body, the bars forming the framing for the platform having their inner ends united to the body-framing and their outer ends brought into proximity and united to form trusses and a bar extending between and uniting the ends of the trusses; substantially as described.

5. In a structure, such as described, the combination with the framing for the car-body, of the bars united thereto and projecting therefrom with their ends brought into proximity and united to form trusses, the draft-beam supported on the ends of said bars and a connecting-bar immediately in rear of said beam rigidly affixed to the trusses; substantially as described.

6. In a structure, such as described, the combination with the framing of the car-body, the bars projecting therefrom and united thereto having their extremities arranged at an angle to each other to form trusses and a buffer-beam supported on said trusses, of a vertically-arranged front carrier-yoke having flanged ends uniting the ends of said trusses; substantially as described.

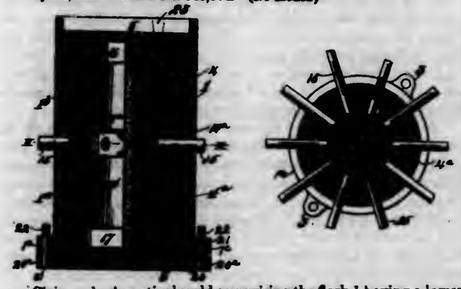
7. In a structure such as described, the combination with the framing for the car-body having the centrally-arranged longitudinal sills, the bars forming extensions of said sills having their inner ends united thereto and their outer ends deflected away from each other and the outer bars united at their inner ends to said body-framing and having their outer ends deflected toward each other and connected to the central bars, the buffer-beam supported on the ends of said bars and the buffer mechanism supported in a vertical plane extending between the central bars; substantially as described.

8. In a structure, such as described, the combination with the car-body framing having the centrally-arranged longitudinal sills, the bars connected at their inner ends to said sills and having their outer ends deflected away from each other, the outer bars having their inner ends connected to said car-body framing and their outer ends deflected toward each other, the front carrier-yoke connecting the ends of said bars to form connected trusses, of the draft mechanism supported on said carrier-yoke between the central bars; substantially as described.

9. In a structure, such as described, the combination with the framing for the car-body having the centrally-arranged longitudinal sills and end sills, of the trusses formed by bars connected at their inner ends to said longitudinal beam supported on the ends of said trusses, the angle-bar connecting said trusses and forming a seat for the buffer-beam and the angle-bars connecting said trusses and seating against the framing and the car-body; substantially as described.

10. In a structure, such as described, the combination with the framing for the car-body and platform framing, of the front carrier-yoke having the rearwardly-extending flanges united to the platform-framing and the central opening for the draft mechanism having rearwardly-extending flanges; substantially as described.

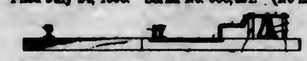
575,995. MOLD FOR CASTING METAL HUBS. CEYLON SMITH, Quincy, Ill., assignor to the Electric Wheel Company, same place. Filed Apr. 1, 1896. Serial No. 585,974. (No model.)



Claim.—1. A vertical mold comprising the flask 1 having a lower section 1^a, and an upper section 1^b, the bottom 20, the inner pattern 11, having a shoulder 19, the lower upwardly-tapering pattern 9, the central pattern 7, the upper upwardly-tapering pattern 8, the outer pattern 10 formed with groove 10^a and the centering dowel-pins 12; substantially as described.

2. A vertical mold comprising the flask 1 having a lower section 1^a formed with lugs 1^a and an upper section 1^b, the bottom 20, formed with lugs 20^a, the inner sand core 6, the spokes 15, the green-sand body having a lower portion 4^a and an upper portion 4, the upwardly-tapering central sand core 13, and the outer sand core 5; substantially as described.

575,996. RAILWAY ALARM-BELL. NEWELL J. SMITH, Meriden, Conn. Filed July 24, 1896. Serial No. 600,481. (No model.)



Claim.—In a railway alarm or signal, the combination with a rail, of a beam provided with a longitudinally-extending groove, a rod or shaft received in said groove and provided on its inner end with a tripping-arm which extends up alongside of the rail, and at its other end with a crank-arm, straps for holding the rod in the groove, a bell provided with a clapper, brackets connected to the bell, and provided with depressed portions which receive the crank, and cap-plates which are connected to the bracket and fit over the crank, said parts being so disposed and related that when the tripping-arm is struck the shaft or rod is turned and the bell agitated.

575,997. EYEGLASSES. JOHN S. SPENCER, New York, N. Y. Filed Sept. 15, 1896. Serial No. 605,864. (No model.)



Claim.—1. A pair of eyeglasses comprising the lenses, the hinged nose-guard frames, and the rigid bar connecting said lenses and affording a support for said nose-guard frames, said bar being extensible at its ends beyond the points of its connection with said frames; substantially as set forth.

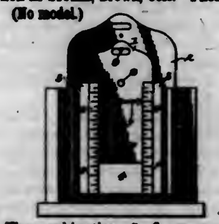
2. A pair of eyeglasses comprising the lenses, the hinged nose-guard frames, and the rigid bar connecting said lenses and affording a support for said nose-guard frames, said bar having at its ends the interposed loops of substantially rigid material; substantially as set forth.

3. A pair of eyeglasses comprising the lenses, the hinged nose-guard frames, and the rigid bar connecting said lenses and affording a support for said nose-guard frames, said bar having at its ends the interposed ring-loops of substantially rigid material; substantially as set forth.

4. The eyeglasses comprising the connected lenses, the hinged nose-guard frames, and the nose-guards secured thereto, said frames having the bars rigidly secured to their lower ends, and the nose-guards having the slotted backs and flanged edges, the latter retaining the pads, the said bars being inclosed within said backs between said flanged edges and beneath said pads; substantially as shown and described.

5. The eyeglasses comprising the connected lenses, the hinged nose-guard frames, and the nose-guards secured thereto, said frames having at their lower ends the heads I and rigid bars I, and the nose-guards having the slotted backs and the flanged edges, the latter retaining the pads, the said bars J being inclosed within said backs between said flanged edges and beneath said pads, the whole being constructed and arranged as shown and described.

575,998. WATER-GATE FOR FLUMES, CISTERNS, OR THE LIKE. ARTHUR H. STOKES, Brown, Colo. Filed Feb. 29, 1896. Serial No. 581,363. (No model.)



Claim.—1. The combination of a flume or waterway provided at opposite sides with vertical ways, a vertically-movable water-gate 2 mounted in said ways and provided at its bottom with an aperture, vertical ways 3 mounted on the water-gate and located at opposite sides of the aperture, a slide mounted on the water-gate, arranged in the ways 3 and provided with a laterally-disposed pointer, and a vertical scale mounted on the water-gate, substantially as described.

2. The combination of a flume or waterway provided at opposite sides with vertical ways, a water-gate 2 arranged in said ways, capable of vertical movement and provided at its bottom with an aperture, vertically-disposed L-shaped flanges mounted on the water-gate 2 at opposite sides of the aperture and having graduations forming scales, a vertically-movable slide mounted in the ways formed by the L-shaped flanges, means for securing the slide in its vertical adjustment, and a pointer mounted on the slide, disposed horizontally and having its terminals arranged adjacent to the graduations of the L-shaped flanges, substantially as described.

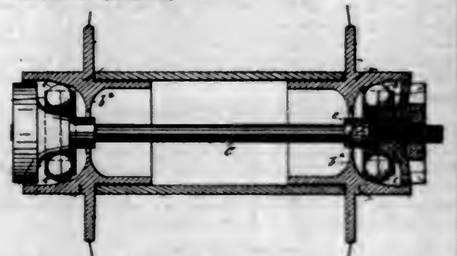
575,999. BOILER-FURNACE. JACOB J. STORER, New York, N. Y., assignor of two-thirds to Emma C. Eaton, same place, and Frank Martin, Townsend, Mont. Filed Mar. 12, 1896. Serial No. 582,905. (No model.)



Claim.—1. A boiler-furnace constructed substantially as herein shown and described, comprising a fireplace with inclined jambs and arched roof, a fire-bridge, a concave hearth beneath the boiler, ovoidal side walls to the flame or combustion chamber, a deflecting-wall fixed transversely across the hearth, near the rear end thereof, and an arch-supported wall sprung from the sides of said chamber with its crown nearly or quite touching the boiler at its rear end, all combined and arranged as and for the purposes set forth.

2. In a boiler-furnace, the combination with the arched fireplace-roof, fire-bridge and concave combustion-chamber hearth, of ovoidal side walls in said chamber, a deflecting-wall fixed across the hearth near its rear end and an arch-supported wall with crown nearly or quite touching the boiler at its rear end all combined and arranged substantially as herein shown and described.

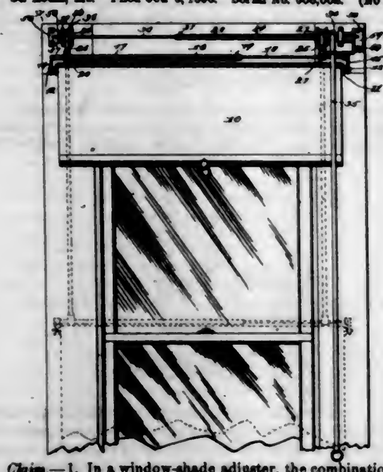
576,000. WHEEL-HUB. GUSTAVUS R. STRAUSS, New York, N. Y., and EMIL KLAHN, West Hoboken, N. J. Filed Sept. 15, 1896. Serial No. 605,993. (No model.)



Claim.—1. A hub for wheels comprising a tube and two end sleeves having each an inwardly-extending projection which is integral with the sleeve and forms therewith a curved or conical wall of a ball-chamber, said projection being substantially central of the length of the sleeve, the inner end of which is secured in the tube, in combination with an axle having on one end a cone, a conical screw-nut screwed upon the other end of the axle, and balls in the chambers, substantially as set forth.

2. The combination of a hub comprising a tube and two end sleeves inserted into the same and attached thereto, the sleeves having each an outwardly-extending flange, for bearing the spokes, and an extension forming with an inner flange a conical wall, with two washers composed of two flat rings provided with corresponding excavations and balls in the said excavations which project beyond the inner and outer rims of the washers, one washer being placed upon each inner conical wall of the said extensions of the sleeves, an axle having a flange and on one end a cone, a conical screw-nut screwed upon the other end of the axle and being provided with a threaded excavation, incisions in the excavated portion and traversing-holes, pins in the traversing-holes, and a second screw-nut in the excavation of the conical screw-nut pressing the said pins upon the flange of the axle, the cone and conical screw-nut and the inner conical walls of the sleeves inclosing the ball-bearing washers, substantially as shown and described.

576,001. WINDOW-SHADE ADJUSTER. HERBERT M. STURGIS, St. Louis, Mo. Filed Oct. 6, 1896. Serial No. 608,002. (No model.)



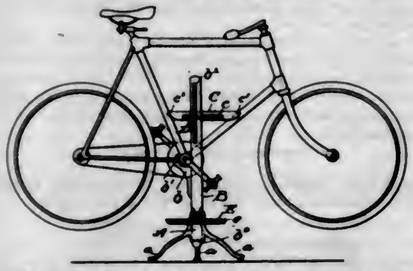
Claim.—1. In a window-shade adjuster, the combination with a spring-actuated roller carrying a shade, of movable brackets engaging the spindles of said roller, an adjustable extension-rod connecting said brackets, brackets attached to the window-casing, a rod rotatably mounted in said fixed brackets, the pulley 27 and the pulley 34 formed integral side by side and fixed upon the last-mentioned rod, the spindle 46 inserted in the end of said rod, the collar 47 loosely mounted upon said spindle, means of holding said collar from rotation, the disk 49 attached to the outer face of said pulley 34 and holding said collar in position, the gravity-pawls 53 and 54 attached to said disk in position to engage the notches in said collar, a pulley upon the opposite end of said rod and corresponding to the pulley 27, tapes connecting said pulleys to said extension-rod and a tape attached to said pulley 34, substantially as specified.

2. In a window-shade adjuster, a spring-actuated roller carrying a window-shade, movable brackets engaging the spindles of said roller, a suitable connection between said movable brackets, fixed brackets attached to the framework of the window, the extension-rod 28 having the tubular section 29, the pulley 27 and the pulley 34 formed integral side by side and fixed upon the outer end of said tubular section 29, the spindle 46 inserted in the end of said tubular section, the collar 47 loosely mounted upon said spindle, means of holding said collar from rotation, the disk 49 attached to the outer face of said pulley 34 and holding said collar in position, the gravity-pawls 53 and 54 attached to said disk in position to engage the notches in said collar, the pulley 26 upon the opposite end of said extension-rod 28 from the pulley 27, tapes connecting said pulleys 26 and 27 with the curtain-roller and a tape attached to said pulley 34, substantially as specified.

3. In a window-shade adjuster, the pulley 27 and the pulley 34 formed integral side by side, the tubular section 29 supporting said pulleys, the spindle 46 inserted in the end of said tubular section, the collar 47 loosely mounted upon said spindle, the disk 49 attached to the outer face of said pulley 34 and holding said collar in position, and the gravity-pawls 53 and 54 attached to said disk in position to engage the notches in said collar, substantially as specified.

4. In a window-shade adjuster, the pulley 27 and the pulley 34 formed integral side by side, the tubular section 29 supporting said pulleys, the spindle 46 inserted in the end of said tubular section, the collar 47 loosely mounted upon said spindle, the disk 49 attached to the outer face of said pulley 34 and holding said collar in position, the gravity-pawls 53 and 54 attached to said disk in position to engage the notches in said collar, and the tongue 64 projecting from the bracket 33 and engaging one of the slots in said collar 47, substantially as specified.

576,002. BICYCLE-SUPPORTING STAND. THEODORE TERRELL, Yonkers, N. Y. Filed Feb. 21, 1896. Serial No. 580,161. (No model.)



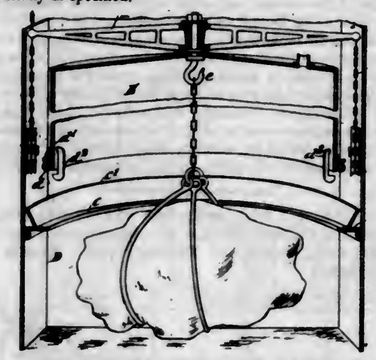
Claim.—1. A bicycle-stand, comprising a suitable base, an upright secured therein, a bracket upon the upright in position to support the crank-hanger of a bicycle, a brace adjustably secured to the upright in position to engage the seat-post tube and lower front tube of the bicycle-frame and means for clamping the brace to the upright, substantially as set forth.

2. A bicycle-supporting stand, comprising a suitable base, an upright secured therein, a bracket secured to the upright in position to support the crank-hanger of a bicycle, a rotary and longitudinally-adjustable brace having a vertical adjustment with respect to the upright, the said brace being adapted to engage the seat-post tube and front lower tube of the bicycle-frame and means for securing the brace to the upright in any of its adjustments, substantially as set forth.

3. A bicycle-supporting stand, comprising a suitable base, an upright secured therein, a bracket on the upright adapted to support the crank-hanger of a bicycle, a cross-brace adapted to engage the seat-post tube and front lower tube of the bicycle-frame, the said upright and cross-brace having elongated slots therein and a clamping device passing through the said elongated slots for locking the cross-brace to the upright, substantially as set forth.

576,003. MINING-CAISSON. JAMES M. THORP, College Park, Cal., assignor of two-thirds to Frank D. Wolfe and Mitchell Phillips, San José, Cal. Filed Feb. 19, 1896. Serial No. 579,942. (No model.)

Claim.—1. A caisson comprising a casing having a working chamber consisting of a fixed section and a vertically-movable section, a platform on which the casing is supported, a frame on which the platform is movably mounted, and floats upon which the frame is movably mounted at right angles to the movement of the platform, substantially as specified.



2. A caisson, comprising an outer casing having in its lower portion a working chamber formed of a fixed chamber-section, and a vertically-movable chamber-section, whereby a single chamber capable of separation will be formed, substantially as and for the purpose set forth.

3. A caisson, comprising a casing formed with a chamber in its lower portion, a vertically-movable chamber portion in the casing above the chamber thereof and forming therewith a working chamber, and a sealing-cushion between the lower end of the movable chamber and the upper end of the fixed chamber, substantially as described.

4. A caisson comprising an outer casing having a working chamber in its lower portion, consisting of a fixed section, the side walls of which are formed by said outer casing, and a vertically-movable section, and means for attaching a boulder-grappling to said movable section, substantially as specified.

5. A caisson, comprising a casing formed with a chamber in its lower portion, a vertically-movable chamber in the casing above the chamber thereof and forming therewith a working chamber, the vertically-movable chamber being of less diameter than the casing forming a space around said movable chamber for the reception of water, and a sealing-cushion between the lower end of the movable chamber and the upper end of the fixed chamber, substantially as described.

6. A caisson comprising a casing having a working chamber in its lower portion, consisting of a fixed section and a movable section, locking devices for the sections, and a cushion between a seat at the upper portion of the fixed section and the lower portion of the movable section, substantially as specified.

7. A caisson comprising an outer casing having a working chamber at its lower portion, consisting of a fixed section and a movable section, a bar having a rocking pivotal connection with the movable section, and hoisting-cables connected to said bar, substantially as specified.

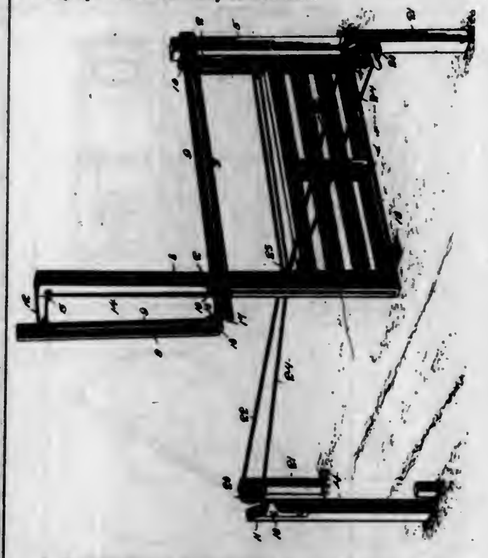
8. A caisson comprising a casing, a platform supporting the same, pulleys arranged in pairs and geared together on the platform, cables connected to the upper and lower portions of the casing and engaging around the pulleys, and means for driving the pulleys, substantially as specified.

9. A caisson comprising a casing having a working chamber in its lower portion consisting of two sections, bucket-shafts opening at the bottom into the working chamber and terminating at the top in practically air-tight chambers and chutes communicating with said air-tight chambers and having end closures, substantially as specified.

576,004. GATE. WILLIAM L. THROCKMORTON, Bardolph, Ill. Filed June 26, 1896. Serial No. 597,082. (No model.)

Claim.—1. The combination of a supporting-frame, a horizontal track-bar provided with a hinged section arranged over the gateway, a sliding gate suspended from the track-bar, means for swinging the hinged section of the track-bar upward; and a resilient supporting-arm mounted on a supporting-frame and arranged to receive the hinged section of the track-bar when the same is swung upward, substantially as described.

2. The combination of a horizontal track-bar provided with a hinged section adapted to be swung upward and arranged over the gateway, posts supporting the track-bar, one of the posts having its upper end beveled and provided with a bracket receiving the outer portion of the hinged section-bar, an upright supporting the track-bar at a point intermediate of its ends, a sliding gate suspended from the track-bar, and a horizontally-disposed resilient supporting-arm mounted on the upright and provided with an L-shaped portion arranged to receive the hinged section of the track-bar when the same is swung upward, substantially as described.



3. The combination of a supporting-frame comprising posts 4 and 5, an upright located between the posts and extending above the same, and a horizontal track-bar composed of a stationary body portion connecting the upright and the post 5 and provided at its inner end with a recess and an upwardly-swinging section resting upon and supported by the post 4 and provided at its inner end with a projection fitting within the said recess to support the joint, a hinge arranged on the upper edge of the track-bar and connecting the sections, a rail composed of two sections secured to the sections of the track-bar, a sliding gate arranged beneath and suspended from the rail, and means for swinging the hinged section of the track-bar from a horizontal to a vertical position, substantially as described.

576,005. APPARATUS FOR TREATING BLAST-FURNACE GASES. BENJAMIN H. TWAITE, London, England, assignor of one-half to Frank Lacroix Gardner, same place. Filed July 20, 1896. Serial No. 599,907. (No model.)

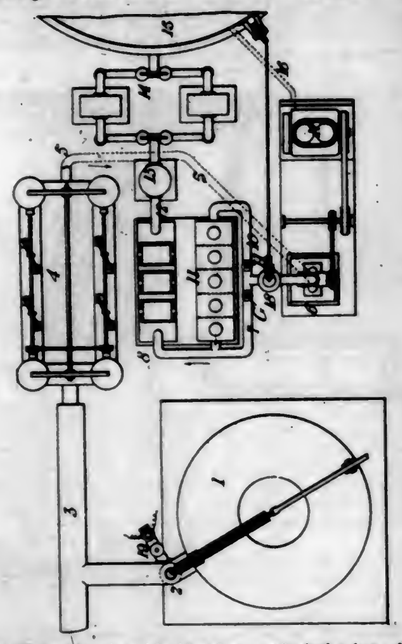
Claim.—1. The combination with a blast-furnace, of a dust-collecting apparatus connected therewith, a washing and cooling apparatus connected with the dust-collecting apparatus, a scrubber connected with the washing apparatus, a filter connected with the scrubber, a gas-holder for collecting the gas as it leaves the filter, a gas-engine and a duct leading from the gas-holder to the engine, substantially as described.

2. The combination with a blast-furnace, of a dust-collecting apparatus connected therewith, a washing and cooling apparatus connected with the dust-collecting apparatus, a scrubber connected with the washing apparatus, a filter connected with the scrubber, a gas-holder for collecting the gas as it leaves the filter, a gas-engine, a duct leading from the gas-holder to the engine, a relief-valve interposed between the blast-furnace and the holder, and means for automatically opening said relief-valve when the gas-holder is full, substantially as described.

3. The combination with a blast-furnace having a valved feed-hopper, of gas-purifying apparatus, a duct leading from said furnace to the gas-purifying apparatus a double-acting valve normally operating to lead the gas from the furnace to said purifying apparatus, and means operating when the feed-hopper valve is opened to actuate said double-acting valve to close the communication between the furnace and purifying apparatus and lead the furnace-gases to an escape-pipe, substantially as described.

4. The combination with a blast-furnace, of a duplex dust-collecting apparatus connected therewith and consisting of two chambers having a gas inlet and outlet, screens arranged in each of said chambers, valves controlling said inlets and outlets, and means for simultaneously operating the valves of both said chambers to permit the

passage of the gas through one of the chambers and prevent its passage through the other chamber, substantially as described.

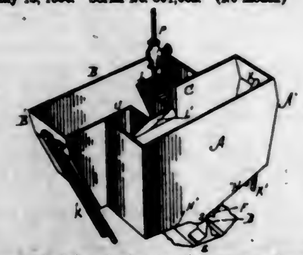


5. The combination with a blast-furnace, of a duplex dust-collecting apparatus connected therewith and consisting of two chambers, vibrating screens arranged in said chambers, and means for alternately causing the gas from the furnace to pass through first one and then the other of said chambers, substantially as described.

6. The combination with a blast-furnace, of a duplex dust-collecting apparatus connected therewith and consisting of two chambers, vibrating screens arranged in said chambers, depending partitions disposed between said screens, and means for alternately causing the gas from the furnace to pass through first one and then the other of said chambers, substantially as described.

7. The combination with a blast-furnace, gas-purifying apparatus and gas-holder, of a cylinder adapted to contain a liquid subjected to the pressure of the gas passing from the furnace to the purifying apparatus, two normally broken electric signaling-circuits, a float arranged in said cylinder and a circuit-closing device carried by said float and operating to close one or the other of said circuits as the float rises and falls, substantially as described and for the purpose specified.

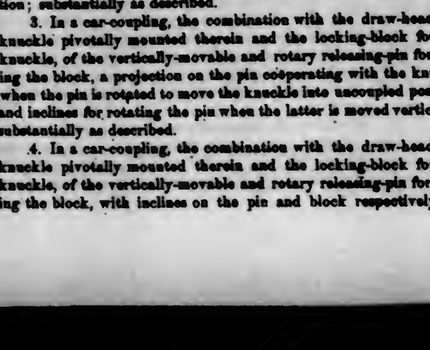
576,006. SIPHON-TANK. GEORGE T. TILDEN, Milton, Mass. Filed May 15, 1896. Serial No. 591,602. (No model.)



Claim.—1. A siphon-tank, comprising two tanks or receptacles adapted to hold liquid and rigidly secured to or integral with each other; a common support therefor of such a character that the opposite ends may be alternately tilted or moved up or down, said tanks or receptacles being of such shape and so set with relation to each other that the admission of liquid into one tends to overbalance the other; a siphon or siphons secured to one tank at one side of the point of common support, and to the other tank at the opposite side thereof; and a liquid-supplying apparatus set substantially over said point of support and adapted to discharge only into the tank whose end containing the siphon is uppermost, said siphons being arranged to commence to discharge at the moment when the end at which they are placed is moved down, substantially as described.

2. The herein-described siphon-tank, consisting of the two tanks or receptacles A, B rigidly connected by the common wall C, said tanks being set reversely and with their outer ends A' and B' extending beyond the opposite ends of the tanks B and A respectively, and said wall C being formed with the guideways or troughs L, L' extending into the tanks B and A respectively; the support consisting of a base provided with the edge D and lower rests E', E'' on opposite sides of said edge; a liquid-supplying apparatus placed centrally over the tanks and adapted to supply the tanks alternately by means of said guideways or troughs as said tanks tilt on the edge D; and one or more siphons secured within the tanks at their projecting ends and extending therefrom, whereby siphonic action is induced in the tanks alternately by the tilting thereof, substantially as set forth.

576,007. WEB ASSOCIATING AND FOLDING APPARATUS. GEORGE B. TINKWORTH, Plainfield, N. J., assignor to the Potter Printing Press Company, same place. Filed July 25, 1891. Serial No. 400,674. (No model.)



Claim.—1. The combination of the transverse supporting-bar having at its forward side one of its portions in advance of the other portion, two independent turning-bars with their abutting ends inclined, and a pair of parallel links for each bar and pivoted to the bars, whereby each bar may be independently adjusted and moved in parallel planes one forward and the other backward with respect to their normal axial alinement, as set forth.

2. The combination of the transverse supporting-bar having at its forward side one of its portions in advance of the other portion, two independent turning-bars with their abutting ends inclined, a pair of parallel links for each bar, and pivoted to the bars, whereby each bar may be independently adjusted and moved in parallel planes one forward and the other backward with respect to their normal axial alinement, and two vibrating folders cooperating with said turning-bars to centrally fold sheets of different widths without adjustment of the folders, as set forth.

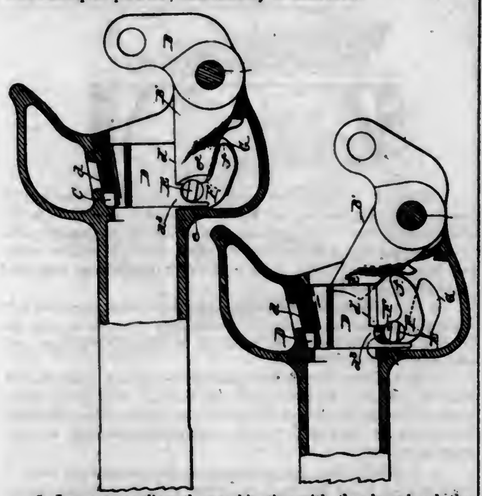
576,008. CAR-COUPLING. ROSMER G. TURNBULL, Bridgeport, Conn., assignor to the Standard Coupler Company, New York, N. Y. Filed Oct. 1, 1896. Serial No. 607,596. (No model.)

Claim.—1. In a car-coupling, the combination with the draw-head and knuckle pivotally mounted therein, with independent means for locking the knuckle in coupled position, of the vertically-movable and rotary releasing-pin, a projection rigidly connected with the pin and cooperating with the knuckle when the pin is rotated to throw the knuckle open and inclines for rotating said pin when the latter is moved longitudinally, substantially as described.

2. In a car-coupling, the combination with the draw-head the knuckle pivotally mounted therein and the locking-block for the knuckle, of the vertically-movable and rotary releasing-pin for raising the block and a projection on the pin cooperating with the knuckle when the pin is rotated to move the knuckle into uncoupled position; substantially as described.

3. In a car-coupling, the combination with the draw-head, the knuckle pivotally mounted therein and the locking-block for the knuckle, of the vertically-movable and rotary releasing-pin for raising the block, a projection on the pin cooperating with the knuckle when the pin is rotated to move the knuckle into uncoupled position, and inclines for rotating the pin when the latter is moved vertically; substantially as described.

4. In a car-coupling, the combination with the draw-head, the knuckle pivotally mounted therein and the locking-block for the knuckle, of the vertically-movable and rotary releasing-pin for raising the block, with inclines on the pin and block respectively, for rotating the pin as it is raised and a projection on the pin cooperating with the knuckle when the pin is rotated to move the knuckle into uncoupled position; substantially as described.



5. In a car-coupling, the combination with the draw-head, the knuckle pivotally mounted therein and the locking-block pivoted to swing in a vertical plane, of the vertically-movable and rotary releasing-pin for raising the block, a projection on the pin cooperating with the knuckle when the pin is rotated to move the knuckle into uncoupled position and rotating mechanism for the pin; substantially as described.

6. In a car-coupling, the combination with the draw-head, the knuckle pivotally mounted therein and the locking-block for the knuckle, of a vertically-movable and rotary pin for raising the block and turning the knuckle into uncoupled position with means for holding the pin against rotation until the block is moved out of the path of the knuckle, substantially as described.

7. In a car-coupling, the combination with the draw-head the knuckle pivotally mounted therein and the locking-block for the knuckle, of a vertically-movable and rotary pin, projections having cooperating inclines on the pin and block whereby the block is raised and the pin turned, a projection on the pin cooperating with the knuckle to move the same when the pin is rotated and a bearing on the draw-head cooperating with the projection on the pin for preventing the rotation of the pin until the block is out of the path of the knuckle, substantially as described.

576,009. HOSE-REEL. RICHARD VOELKER, St. Louis, Mo. Filed Aug. 22, 1896. Serial No. 603,563. (No model.)

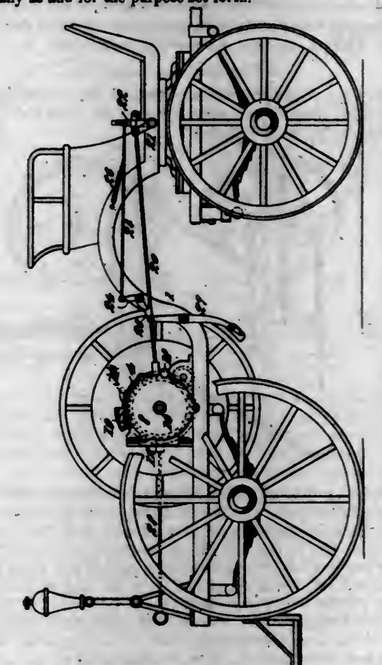
Claim.—1. In a hose-reel, the combination of the reel-spool, a reel-shaft, a spring-containing case arranged to be moved to or from a side of said reel, a spring within said case, an arbor to which said spring is connected, said arbor being arranged for engagement with said reel-shaft, and means arranged to lock said reel-shaft from rotation, substantially as and for the purpose set forth.

2. In a hose-reel, the combination of a reel-spool, a reel-shaft, a toothed wheel carried by said shaft, a locking-rod arranged to engage said toothed wheel, a spring-containing case arranged to be moved to or from a side of said reel, a spring within said case, and an arbor to which said spring is connected, said arbor being arranged for engagement with said reel-shaft, substantially as and for the purpose set forth.

3. In a hose-reel, the combination of a reel-spool, a reel-shaft, a toothed wheel carried by said shaft, a ratchet-wheel carried by said reel-shaft, a pawl carried by said reel-spool and arranged to engage the teeth of said ratchet-wheel, means for engaging and locking said toothed wheel, a spring-containing case, a spring within said case, and means whereby said spring may be thrown into connection with said reel-shaft, substantially as and for the purpose set forth.

4. In a hose-reel, the combination of a reel-spool, a reel-shaft, a spring-containing case, a spring within said case, an arbor to which said spring is attached, said case being adapted to be moved to throw said arbor into and out of engagement with said reel-shaft, and means for holding said case in either position, substantially as and for the purpose set forth.

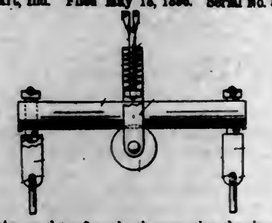
5. In a hose-reel, the combination of a reel-spool, a reel-shaft provided with a socket in one of its ends, a spring containing case provided with a hinge-support to said shaft, a spring in said case, an arbor to which one end of said spring is attached, a ratchet-wheel having its teeth upon its side on said arbor, and a spring-actuated dog pivoted to said case having a point arranged to engage the teeth of said ratchet-wheel and a heel adapted to be struck to trip said dog when said arbor is thrown into engagement with said reel-shaft, substantially as and for the purpose set forth.



6. In a hose-reel, the combination of a reel-spool, a reel-shaft, a spring arranged to impart movement to said spool a toothed wheel carried by said reel-shaft, a locking-rod arranged to engage said toothed wheel, a treadle for operating said locking-rod, a trigger arranged to engage with said rod, and a trip-rod arranged to release said trigger from engagement with said rod, substantially as and for the purpose set forth.

7. In a hose-reel, the combination of a reel-spool, a reel-shaft, a spring arranged to impart movement to said spool, a toothed wheel carried by said reel-shaft, a locking-rod arranged to engage said toothed wheel, a treadle for operating said locking-rod, a trigger arranged to engage with said rod, a trip-rod arranged to release said trigger from engagement with said rod, and a brake provided with connection with said locking-rod, substantially as and for the purpose set forth.

576,010. ANCHOR FOR CHECK-ROW WIRES. WILLIAM R. WAGGONER, Art, Ind. Filed May 18, 1896. Serial No. 592,078. (No model.)



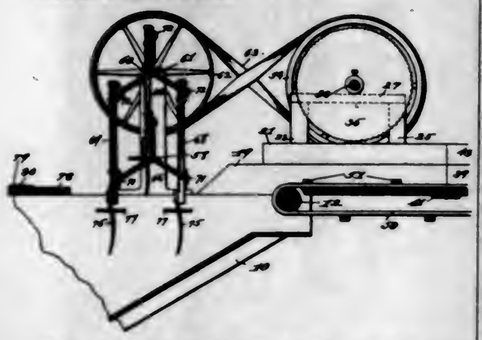
Claim.—1. An anchor for check-row wires having two stakes, stays on said stakes, a hollow track-rod provided with an aperture near each end, a rod secured to said stays and adapted to enter said apertures and turn therein, thereby pivotally connecting said stays and track-rod, and means on said track-rod to engage the check-row wire, substantially as described.

2. An anchor for check-row wires composed of two stakes provided with means to aid in setting and releasing the same, adjustable stays on said stakes, a track-rod, pivotal connections for said rod and stays, a pulley on said rod and a spring-tension hook secured in the frame of said pulley, substantially as and for the purpose described.

3. In combination with the track-rod and its pivotal supports, a pulley adapted to travel on said rod, the pulley-frame embracing said rod, a claw-hook entering the inner end of said frame, a spiral spring surrounding said hook within said frame, and means on said hook to retain said spring and to regulate the tension thereof, substantially as described.

4. In an anchor for check-row wires, in combination with a track-rod and stakes, stays pivotally connected to said rod and having arms to engage said stakes, and a clamping-support on said stakes to adjust the height of said stays, substantially as described.

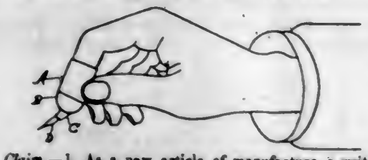
576,011. BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES. HARRY WAPPALHORST, St. Charles, Mo. Filed Sept. 14, 1896. Serial No. 605,755. (No model.)



Claim.—1. In a band-cutter and feeder, two crank-shafts rotatably mounted one above the other, bars connecting the cranks of one shaft with the corresponding cranks of the other shaft, forks attached to the lower ends of said bars, guards positioned transversely of the tines of said forks and at the upper ends thereof and means for rotating said shafts, which means consists of the shaft 30 mounted in position parallel with said crank-shafts, the belt-wheel 17 upon the end of the cylinder-shaft, the belt-wheel 33 upon the end of said shaft 30 and in alinement with said belt-wheel 17, the crossed belt 34 connecting said belt-wheels 17 and 33, the belt-wheel 54 upon the end of said shaft 30, the belt-wheel 62 upon the end of one of said crank-shafts and the crossed belt 63 connecting said belt-wheels 54 and 62, substantially as specified.

2. In a band-cutter and feeder, the crank-shafts 58 and 61 mounted in parallel positions, pitchforks connecting and operated by said shafts 58 and 61, each of which pitchforks consists of the bar 70, the bearings 71 and 72 connecting said bar to the respective shafts, the block 74 attached to the lower end of the bar 70, the tines 75 projecting from said block and formed integral therewith, and the guards 77 mounted horizontally and rigidly fixed to the upper ends of the tines 75, substantially as specified.

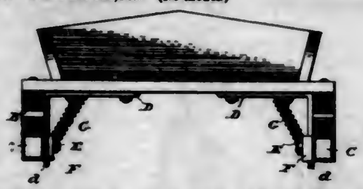
576,012. PENHOLDER. GEORGE C. WARD, Fort Worth, Tex. Filed Oct. 5, 1896. Serial No. 607,857. (No model.)



Claim.—1. As a new article of manufacture, a writing implement adapted to fit on the end of the finger and consisting of an open-ended tapering thimble A, a reversible cap-piece B, adapted to have either end fitted into the thimble, said cap-piece being hollow and provided with an open, and a closed end, and an outwardly-projecting stud C formed integral with the solid end of said cap-piece and arranged to receive a pen-point, substantially as described.

2. As a new article of manufacture, a writing implement adapted to fit on the end of the finger and consisting of an open-ended hollow thimble A, one end of which is provided on its interior with a shoulder R, a reversible cap-piece B adapted to have either end fitted into the end of the thimble, said cap-piece being hollow and provided with an open, and a closed end, an annular collar or flange on the cap-piece arranged to limit its inward thrust, and an outwardly-projecting stud C formed integral with the solid end of said cap-piece, and provided with a cut or groove to receive a pen-point, substantially as described.

576,013. WAGON-SEAT. CLIFTON R. WEEDIN, Burns, Mo., assignor of one-half to J. Huston Meadly, Lebanon, Mo. Filed Oct. 26, 1896. Serial No. 610,145. (No model.)



Claim.—1. A wagon-seat supported at its ends upon springs, in combination with two angular braces or guides, D, D, secured to the under side of the seat at each end, and having the downwardly-disposed, slotted legs, *d*, *d*, the bolts, E, passing through the slots in the said legs, and the keepers, F, through which the said legs pass, substantially as set forth.

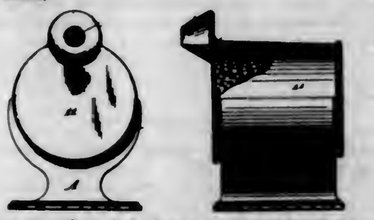
2. In combination with a wagon-seat, the springs upon which it rests, and springs connected with the seat and arranged to resist the rebound of the seat under the action of its supporting-springs, substantially as set forth.

3. In combination with a wagon-seat, the springs upon which it rests, and coiled springs connected with the seat, such springs being arranged to resist the rebound or upward movement of the seat whenever it moves far enough to endanger the supporting-springs, substantially as set forth.

4. In combination with a wagon-seat, the springs upon which it rests, and the coiled springs, G, connected with the seat and extending from their connections therewith downward and outward whereby they serve both to prevent the rebound of the seat, and also sidewise or swaying movements thereof, substantially as set forth.

5. The combination, with the seat, of the elliptical springs, B, upon which it is supported, the spring-bars, the angular braces or guides, D, secured to the seat, two at each end, and having the downward-disposed, slotted legs, *d*, the bolts, E, which pass through the slots in the said legs, the keepers secured to the spring-bars, and through which the legs, *d*, of the braces pass, and the coiled springs, G, connected at their upper ends to the seat, and at their lower ends to the spring-bars, substantially as set forth.

576,014. FOUNTAIN FOR INK OR OTHER FLUIDS. SAMUEL R. WHARTON, West Superior, Wis. Filed Apr. 15, 1896. Serial No. 587,627. (No model.)



Claim.—1. A fountain for liquids, consisting of a receptacle having an outlet near its edge, and a funnel-mouth surrounding with its larger end the receptacle-mouth, and the contracted portion of said mouth extending outward, as and for the purpose specified.

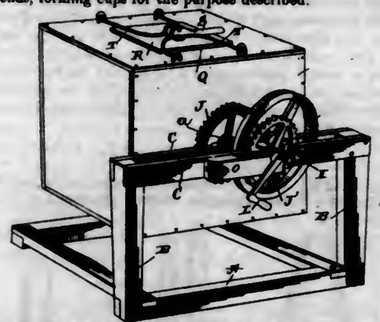
2. A fountain for liquids, consisting of a receptacle provided with an outlet near its edge, and a funnel-mouth contracted at its outlet surrounding the receptacle-outlet, the said funnel-mouth extending beyond the periphery of the said receptacle at an angle to the said peripheral surface, as and for the purpose specified.

3. The combination, with a base, of a receptacle mounted to turn in the said base, provided with an outlet at one end near its edge, and a funnel-mouth surrounding the said opening, the contracted portion of the said mouth being the outlet of the same, substantially as and for the purpose set forth.

4. The combination, with a base, of a receptacle mounted to turn in the said base, provided with an outlet at one end near its edge, and a funnel-mouth surrounding the said outlet, the contracted portion of the said mouth being the outlet of the same, the said receptacle being of the greatest diameter at that end at which the aforesaid funnel-mouth is located, as and for the purpose specified.

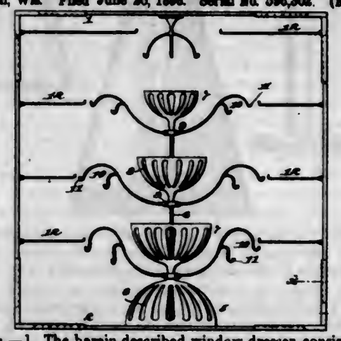
576,015. WASHING-MACHINE. DAVID F. WHITEHAM, Oregon City, Oreg. Filed Oct. 10, 1896. Serial No. 608,495. (No model.)

Claim.—1. A washing-machine comprising a rotating body having a plurality of separated strips on the inner side thereof and extending in the direction of rotation, forming circulating-spaces between the strips under the clothes in the direction of rotation, said strips having a plurality of circumfentially-closed cavities, with open outer ends, forming cups for the purpose described.



2. A washing-machine comprising a rotating body having a plurality of separated strips on the inner side thereof and extending in the direction of rotation, forming circulating-spaces between them under the clothes in the direction of rotation, said strips having throughout their length a plurality of transversely-extending projections, the projections having a plurality of circumferentially-closed cavities with open outer ends, substantially as shown and described

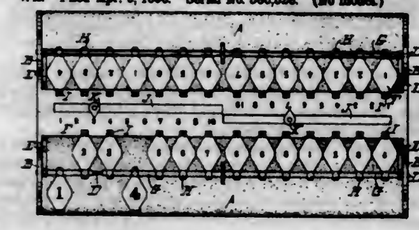
576,016. WINDOW-DRESSING DEVICE. ELISHA P. WOOD, Glen Haven, Wis. Filed June 20, 1896. Serial No. 596,302. (No model.)



Claim.—1. The herein-described window-dresser, consisting of a frame made up of extensible upright and cross bars adapted to fit a window of any size, a base-piece secured to the lower cross-bar of said frame, a rod or bar rising upwardly from the center of said base-piece, a series of bowls in ornamental shape strung upon said rod or bar and arms extending outwardly from said rod, provided with fingers having hooks or pins upon their outer ends, substantially as and for the purpose set forth.

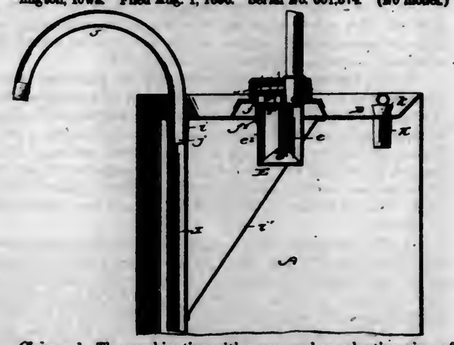
2. The herein-described window-dresser, consisting of a frame made up of extensible upright and cross bars adapted to fit a window of any size, a base-piece secured to the lower cross-bar of said frame, a rod or bar rising upwardly from the center of said base-piece, a series of bowls in ornamental shape strung upon said rod or bar, arms extending outwardly from said rod, provided with fingers having hooks or pins upon their outer ends and supports for dress goods or other material projecting inwardly from the side bars of said frame and adapted to be folded down out of the way when not in use, substantially as and for the purpose set forth.

576,017. GAME-COUNTER. RICHARD G. ZIEFUSS, Milwaukee, Wis. Filed Apr. 6, 1896. Serial No. 586,328. (No model.)



Claim.—A score-register, consisting in the combination of a base-plate provided with raised slotted flanges, rods supported therein, springs for elastically connecting said rods with the base-plate, and a series of indicating-plates or counters pivotally attached to said rods and provided with rearward projections adapted to raise said rods by contact with the base-plate, substantially as described.

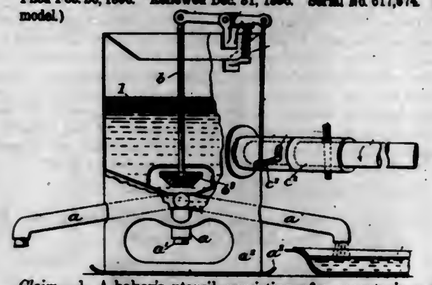
576,018. DISPENSING-CAN. THEOPHILUS W. ALEXANDER, Burlington, Iowa. Filed Aug. 1, 1896. Serial No. 601,374. (No model.)



Claim.—1. The combination with a can, and an eduction-pipe, of a filling-nozzle, a cap attachable to said nozzle, an elbow-shaped air-tube fastened at one end to said cap and having its other end carried or extended upwardly toward the cap, retaining-fingers on the upturned end of said air-tube, an automatic check-valve confined within said fingers and adapted to seat itself on the open end of the air-tube, and an attachable pressure-pipe, substantially as described.

2. The combination with a can, and a liquid-eduction pipe, of an elbow-shaped air-pressure pipe having one arm attached to the can-head to open through the same and its other, upturned arm terminating inside of said can-head, a blowpipe fitted removably in the open end of the air-pressure pipe, retaining-fingers on the upturned end of said air-pipe, and a check-valve confined within the retaining-fingers of said air-pipe, as and for the purposes described.

576,019. BAKER'S DIPPER. JOHN M. ANDERSON, Boston, Mass. Filed Feb. 26, 1896. Renewed Dec. 31, 1896. Serial No. 617,674. (No model.)



Claim.—1. A baker's utensil, consisting of a receptacle, a discharge-pipe in connection with the bottom thereof, a false bottom to elevate the receptacle and the end of the pipe above the level of the article being filled, a valve mechanism in operative connection with the discharge-pipe, manipulating devices, consisting of a pole-socket secured to the receptacle, a pole detachably secured in such socket, and connecting devices between the valve mechanism and the pole, whereby upon the operation of the latter the fluid within the receptacle is controllably discharged through the pipe, substantially as and for the purposes described.

2. A baker's utensil, consisting of a receptacle, a discharge-pipe in connection with the bottom thereof, a false bottom to elevate the receptacle and the end of the pipe above the level of the article to be filled, a vertically-disposed valve rod, having its lower end provided with a suitable passage-closing portion, a horizontal lever connected with the upper portion of the rod, a spring controlling the rear of the lever, a fixed pole-socket secured to the receptacle, a movable pole-socket adapted to rotate in the fixed socket, a pole detachably secured to the movable socket, a rod connecting the rear of the valve-lever to a pin secured upon the movable pole-socket, whereby, upon the partial rotation of the pole, the valve is operated and the contents of the receptacle controllably discharged through the pipe, substantially as and for the purpose described.

576,020. BED-COUCH. FRANCIS P. BAILEY, Indianapolis, Ind. Filed Feb. 3, 1896. Serial No. 577,571. (No model.)



Claim.—1. In a bed-couch, the combination with the main frame adapted to support a spring-mattress, of a pair of independent bars pivoted to said main frame and adapted to receive and support the ends only of a second spring-mattress, the arrangement being such that said last-mentioned mattress may be folded on top of said first-mentioned mattress, all substantially as described.

2. In a bed-couch, the combination with the main frame, the upper surface of said frame being adapted to support a spring-mattress, of a pair of independent bars pivoted to said main frame and adapted to receive and support the ends of a second spring-mattress, a pair of latches pivoted, one to each end of the main frame, and a pair of pins secured, one to each bar, in a position to be engaged by the free ends of the latches, whereby, when the parts are folded together to form a couch, the said latches act as braces for the said bars, substantially as set forth.

3. The combination with a support for the ends of a spring-mattress, of a support for the middle portion of said mattress, consisting of the transverse and longitudinal braces secured to each other and to the binding-wire of the mattress, and a series of supporting-legs removably secured to said braces, as and for the purpose set forth.

4. In a bed-couch, the combination of a main frame the upper surface of which is adapted to support a spring wire mattress, a pair of standards secured to said main frame, a similar pair of standards pivoted to said first-mentioned standards, a pair of independent bars secured to the free ends of said last-mentioned standards, a spring wire mattress secured at its ends to said bars, and means for supporting the outer ends of said bars when the parts are in position to form a bed, substantially as set forth.

5. In a bed-couch, the combination of a main frame the upper surface of which is adapted to support a spring-mattress, a pair of standards secured to said main frame, a similar pair of standards pivoted to said first-mentioned standards, a pair of bars secured to the free ends of said last-mentioned standards, a spring wire mattress secured at its ends to said bars, means for supporting the outer ends of said bars when the parts are in position to form a bed, and one or more supplemental legs removably secured to said spring-mattress for supporting the under surface of said mattress when in position to form a bed, substantially as and for the purpose set forth.

6. In a bed-couch, the combination of the bars 11 and 12, having the upturned flanges 14, corner-pieces 13 detachably connecting said bars, standards 23 secured to two of said corner-pieces and projecting upward therefrom, standards 24 detachably pivoted to the upper ends of standards 23, bars 26, provided with flanges 27, secured to the free ends of standards 24, a spring-mattress resting at its ends upon flanges 27 and secured thereto, means for supporting the outer ends of bars 26, and latches 34 pivoted to bars 12 and adapted to engage with pins 36 carried by bars 26, all combined and arranged to cooperate substantially as and for the purpose set forth.

576,021. DISH-CLEANER. ALFRED BEERS, Denver, Colo. Filed Oct. 16, 1896. Serial No. 609,046. (No model.)



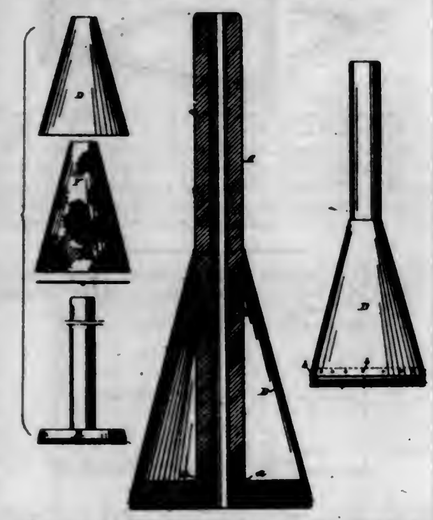
Claim.—1. In a dish-washer, the combination with the outer pan, of an inner pan rotatably supported in the outer pan and having an integral bottom consisting of sector-shaped inclined blades, formed by cutting radial slits in a circular piece of sheet metal and bending the blades to a suitable inclination, their inner extremities being left fast to the central portion of the bottom, and their outer extremities being secured to the vertical wall of the pan, substantially as described.

2. In a dish-washer, the combination with the outer pan having a central pivot in its bottom and a wire attached to its inner wall near the top thereof, and the inner pan having an integral bottom, comprising a central portion 6^a, the bottom of the pan around this central portion being formed into sector-shaped blades, whose inner extremities are fast to said central portion, said blades being bent to a suitable inclination, their outer extremities being secured to the vertical wall of the pan, the central portion of the inner pan's bottom having a socket which the pivot of the outer pan engages, substantially as described.

3. In a dish-washer, the combination with an outer pan, of an inner pan rotatably mounted and having an integral bottom composed of a central portion and radial inclined blades, whose outer extremities are secured to the vertical wall of the pan, and a device adapted to hold the plates apart while washing, substantially as described.

4. In a dish-washer, the combination with an outer pan, of an inner pan rotatably mounted and having an integral bottom, comprising a central portion and radial inclined blades whose outer extremities are secured to the vertical wall of the pan, and a detachable screen engaging the bottom of the inner pan, as and for the purpose set forth.

576,022. BOBBIN. RICHARD BLACKBURN, Nottingham, England. Filed June 12, 1895. Serial No. 552,599. (No model.)

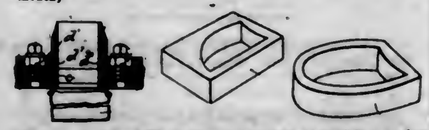


Claim.—1. A bobbin consisting of a tubular wooden stem, a wooden base secured thereto, a sheet-metal cone surrounding the lower portion of the stem at its base, and secured to the latter, and a textile envelop for said cone, substantially as specified.

2. A bobbin consisting of a tubular wooden stem, a wooden base fitted thereto, a sheet-metal cone surrounding the lower portion of the same and partly overlapping the wooden base to which it is secured, and a textile envelop inclosing said sheet-metal cone and projecting below the same so as to be secured directly to that portion of the wooden base which is below the lower edge of the metal cone, substantially as specified.

3. The within-described bobbin consisting of a tubular stem of wood, a wooden base fitted to said stem, a sheet-metal cone surrounding the lower portion of said stem and partly overlapping the base to which it is secured, and a textile envelop inclosing said sheet-metal cone and projecting above and below the same, the projecting upper portion of said envelop being secured to the wooden stem of the bobbin, and the projecting lower portion of the envelop being secured to the wooden base of the same, substantially as specified.

576,023. HEEL-LIFT-CUTTING APPARATUS. WHEDDON P. DOSWORTH, Brockton, Mass. Filed Jan. 28, 1896. Serial No. 576,753. (No model.)



Claim.—1. A heel-lift-cutting apparatus comprising a plate or table having a series of orifices, die-beds removably inserted in said orifices, dies resting on said beds, and means for detachably securing the dies in position above the beds.

2. A heel-lift-cutting apparatus comprising a plate or table having a series of orifices, die-beds removably inserted in said orifices, dies resting on said beds and provided with orifices, and lugs having slotted shanks attached to the plate by bolts on which said shanks are movable, the lugs being formed to enter the orifices in the dies.

576,024. SLIDING FISH-PLATE. JOHN R. BROOKS, Calumet, Pa. Filed Sept. 5, 1896. Serial No. 604,905. (No model.)



Claim.—1. A fish-plate consisting of a base having upturned and inwardly-extending or overhanging side flanges along the side edges and a longitudinal rib between said flanges, substantially as described.

2. The combination, with the meeting ends of railroad-rails having longitudinal grooves in their lower faces, and a fish-plate for coupling said ends consisting of a base having upturned side flanges embracing the flanges of the rail and a longitudinal rib situated within said longitudinal grooves, substantially as described.

576,025. LAMP-BURNER. GEORGE T. BROWN, Baltimore, Md., assignor of one-half to the McCormick & Company, same place. Filed Oct. 6, 1896. Serial No. 608,056. (No model.)

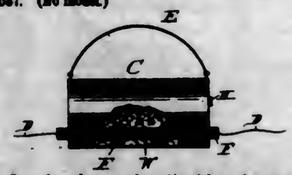


Claim.—1. The herein-described lamp-burner and chimney-holder, consisting of the base-plate provided with upstanding fingers on its periphery bent at a point above the base-plate so as to form both a chimney seat and clamp for supporting and retaining the chimney above the base-plate; combined with a wick-raiser rod journaled in two of the spring-fingers which support the chimney, and the wick-raiser on said rod, substantially as and for the purpose described.

2. The herein-described lamp-burner and chimney-holder, consisting of the base-plate provided with upstanding fingers on its periphery bent at a point above the base-plate so as to form both a chimney seat and clamp for supporting and retaining the chimney above the base-plate; combined with a wick-raiser rod journaled in two of the spring-fingers which support the chimney, and the wick-raiser on said rod; and a plug surrounding the wick-tube below the base-plate, adapted to fit into the neck of a bottle or other oil-receptacle and secure the burner thereto, all substantially as and for the purpose set forth.

3. The herein-described lamp-burner consisting of a base-plate having an annular flange on its periphery and spring-fingers rising from said flange bent as at b to constitute a chimney seat and clamp substantially as described; a wick-tube extending through and secured to the base-plate, a wick-raiser rod journaled in two of the spring-fingers which support the chimney, and the wick-raiser on the rod substantially as described; with the plug surrounding the portion of the wick-tube below the base-plate, having a venting-groove in its side, all substantially as and for the purpose described.

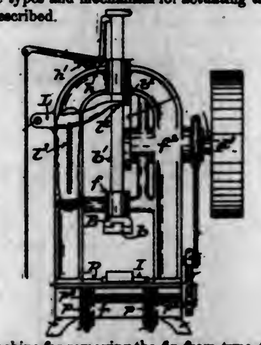
576,026. FIRE ALARM AND EXTINGUISHER. IRA S. BUNKER and ABRAHAM W. KINSEY, Nevada, Mo. Filed July 17, 1896. Serial No. 599,587. (No model.)



Claim.—In a fire alarm and extinguisher the combination with a closed water-tight tank C, of a tube F adapted to contain an explosive extending through opposite walls of said tank, and fuses connected one to each end of said tube, as and for the purpose described.

576,027. MACHINE FOR REMOVING FIN FROM TYPE. WILLARD C. CRANE, Lynn, Mass., assignor of one-half to Charles H. Hastings, same place. Filed Jan. 28, 1896. Serial No. 577,151. (No model.)

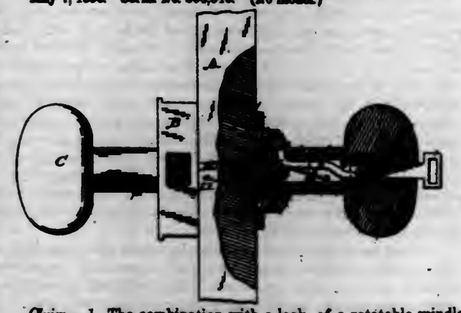
Claim.—1. In a machine for removing fin from type, the combination with a suitable support for the type of a movable hammer arranged to strike the printing-face of the type, a striking-face upon the hammer of yielding material as distinguished from bristles and sufficiently hard to bend down or break off the fin, and sufficiently yielding to permit the face of the type to embed itself in the substance thereof without injury, said striking-face having a substantially flat portion of such area as to contact with the entire surface of one or more types and mechanism for actuating the hammer, substantially as described.



2. In a machine for removing the fin from type, the combination with a suitable support for the type of a movable hammer arranged to strike the printing-face of the type, the said striking-face of the hammer consisting of continuous yielding material sufficiently hard to bend down or break off the fin, and sufficiently yielding to permit the face of the type to embed itself in the substance thereof without injury, said striking-face having a substantially flat portion of such area as to contact with the entire surface of one or more types and mechanism for actuating the hammer, substantially as set forth and described.

3. In a machine for removing fin from type, the combination with a suitable supporting-bed for the type, constructed and adapted to support the type or galley of type face upward and present it to the hammer, of a reciprocating hammer mounted above the bed, a striking-face upon said hammer of yielding material as distinguished from bristles, a feed mechanism to move the type along the bed, and means for actuating the hammer to strike and embed the face of the type in such yielding material of the hammer, to remove or bend down the fin, said striking-face having a substantially flat portion of such area as to contact with the entire surface of one or more types substantially as described.

576,028. LOCK. THOMAS CHURCHILL, Halleborough, Va. Filed May 7, 1896. Serial No. 590,510. (No model.)



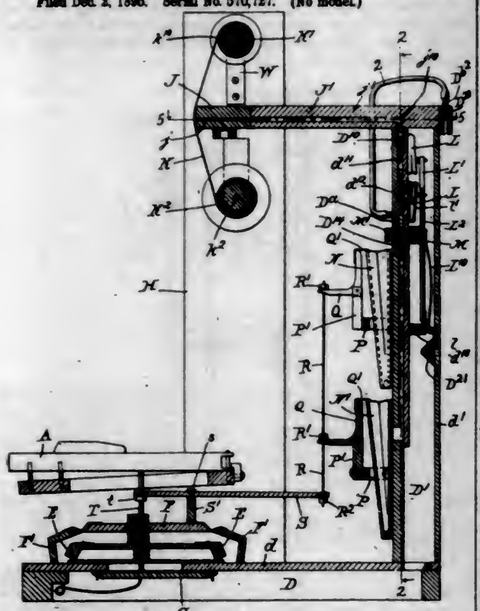
Claim.—1. The combination with a lock, of a rotatable spindle for operating said lock, a stationary spindle in which the rotatable spindle is adapted to turn, a door-knob loose on the stationary spindle, a locking-lever pivoted to the rotatable spindle and having a portion projecting through the stationary spindle and adapted for engagement with the door-knob, and means for operating said locking-lever.

2. The combination with a lock, of a rotatable spindle for operating said lock, a stationary spindle loosely encircling the rotatable spindle, a door-knob loose on the stationary spindle, a locking-lever pivoted to the rotatable spindle, a spring which normally exerts a tendency to engage the locking-lever with the door-knob, and a key-cylinder received in the stationary spindle and adapted to actuate the locking-lever.

3. The combination with a lock, of a rotatable spindle for operating said lock, a stationary spindle loosely encircling the rotatable spindle being provided with a slot, a door-knob adapted to freely turn on the stationary spindle and having a notch or recess, a spring-pressed locking-lever pivoted to the rotatable spindle, and a rotatable key-cylinder located in the stationary spindle which is provided with a cam adapted to engage with the locking-lever.

576,029. PNEUMATIC ORGAN. MELVILLE CLARK, Chicago, Ill.

Filed Dec. 2, 1895. Serial No. 570,727. (No model.)



Claim.—1. In combination with a reed-organ having a manual-action, a vertical pneumatic chamber at the rear and pneumatics in a plurality of rows mounted on the forward side of such pneumatic-chamber; and lever connections from the pneumatics respectively arranged in parallel vertical fore-and-aft planes extending respectively to the pitmen of the manual action.

2. In combination with a reed-organ having manual-action, a vertical pneumatic-chamber at the rear, the principal pneumatics mounted on the forward side of such chamber, and lever connections from the exterior of such pneumatics extending in parallel vertical planes to the pitmen of the manual-keys respectively.

3. In combination with an organ having manual-action, a pneumatic vacuum-chamber erected vertically at the rear; the primary pneumatics mounted upon the inner side of the forward wall of said chamber, and the secondary or principal pneumatics mounted upon the exterior of said wall, said primary pneumatics being arranged in a plurality of horizontal rows whose corresponding individuals are offset laterally, the ducts to said primary pneumatics being all parallel and formed in said forward wall and opening at the upper end thereof; the horizontal board J′ having ducts j', and cross-ports j'^{0} in a single transverse row communicating with said ducts j', respectively, and adapted to register with the upper mouths of the primary-pneumatic ducts; and the tracker-range abutting and secured at the forward edge of the board J′, and having its ducts registering with the ducts j': substantially as set forth.

4. In a pneumatic organ, in combination with the vertical pneumatic vacuum-chamber having principal or secondary pneumatics mounted upon the outer side of one wall; additional secondary or principal pneumatics mounted upon the opposite wall; cross-ports through one wall, and a plurality of ducts leading from said cross-ports, one duct leading to the pneumatics mounted on said wall, and the other leading to the outer side of the wall, and flexible tubes connected at said last-mentioned ducts and extending to the additional pneumatics; the reed-chambers pertaining to said additional pneumatics, and suitable mechanical connections from the latter to the valves of said chambers: substantially as set forth.

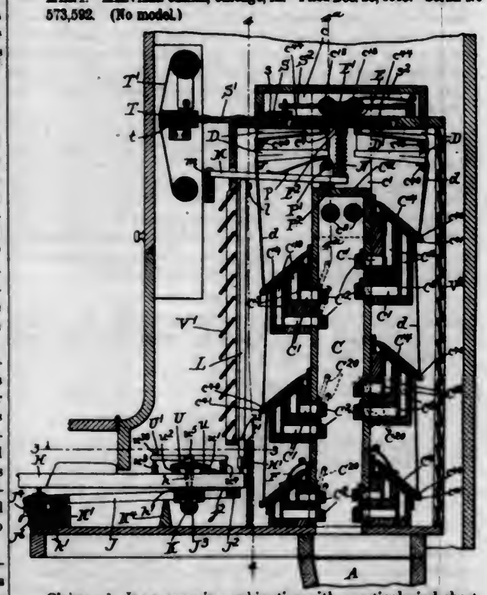
5. In a pneumatic organ, in combination with the vertical pneumatic vacuum-chamber having principal or secondary pneumatics mounted upon the outer side of one wall; additional secondary or principal pneumatics mounted upon the opposite wall; cross-ports through one wall and a plurality of ducts leading from said cross-ports; one duct leading to the pneumatics mounted on said wall, and the other leading to the outer side of the wall; and flexible tubes connected at said last-mentioned ducts and extending to the additional pneumatics also mounted on the vertical pneumatic-chamber, and suitable mechanical connections from said additional pneumatics also mounted on the vertical pneumatic-chamber, and suitable mechanical connections from said additional pneumatics to the valves of their respective reed-chambers: substantially as set forth.

6. In a pneumatic organ, in combination with the upright pneumatic vacuum-chamber, the horizontal tracker-range forward of said chamber, and the ducts leading from said tracker-range rearward to the wall of the pneumatic vacuum-chamber; the primary pneumatics within said chamber; the valves which they respectively actuate, and the ports through the forward wall of said chamber controlled by said valves; ducts in said walls from said cross-ports, and secondary or principal pneumatics mounted on said walls to which said ducts respectively lead; additional ducts in said wall leading from said cross-ports respectively, and terminating at their other ends at the outer side of said wall; additional pneumatics mounted upon the rear of said upright pneumatic vacuum-chamber, and suitable ducts leading into said additional pneumatics respectively, and flexible tubes connected at one end at the outer end of the additional ducts in the forward side of the pneumatic vacuum-chamber, extending thence up between the ducts leading from the tracker-range, and thence over the upper end of the pneumatic vacuum-chamber and connected at the ports leading into said additional pneumatics, respectively: substantially as set forth.

7. In a pneumatic organ, in combination with the pneumatic vacuum-chamber and the ports D^{0} leading through its wall and the valves which control such ports and means for operating such valves, a plurality of ducts leading into said ports, and plurality of pneumatics connected with such ducts respectively, and reeds corresponding to such pneumatics respectively having their respective valves operated thereby: substantially as set forth.

8. In combination with a manual action of a reed-organ, the upright pneumatic-chamber at the rear, and the horizontal forwardly-projecting tracker-range mounted at the upper end of the pneumatic-chamber; the primary pneumatics within the chamber, and principal or secondary pneumatics mounted on the forward side of the chamber; bell-crank levers having their fulcrums supported in front of the pneumatics respectively; the levers S operating at their forward ends upon the pitmen of the manual-action respectively, and connecting-rods R from the rear ends of said levers to the horizontal arms of the bell-cranks, and links from the vertical arms of the bell-cranks to the oscillating ends of the secondary pneumatics respectively: substantially as set forth.

576,030. PNEUMATICALLY-OPERATED MUSICAL INSTRUMENT. MELVILLE CLARK, Chicago, Ill. Filed Dec. 28, 1895. Serial No. 573,592. (No model.)



Claim.—1. In an organ in combination with a vertical wind-chest; reed-chambers mounted upon the vertical sides of the wind-chest in vertical rows, exterior valves for said reed-chambers respectively; pneumatic-motors located exterior to the wind-chest in line with the vertical rows respectively of reed-chamber valves provided with connections to the several valves in their respective rows; said pneumatic-motors communicating with the wind-chest; valves which control said communications respectively, and suitable means for operating said valves.

2. In an organ in combination with the manual; reed-chambers mounted upon the vertical sides of the wind-chest in vertical rows, exterior valves for said reed-chambers respectively; pneumatic-motors located exterior to the wind-chest in line with the vertical rows respectively of reed-chamber valves provided with connections to the several valves, said pneumatic-motors communicating with the wind-chest; valves which control said communications respectively, and mechanical connections from said valves to the keys respectively of the manual.

3. In an organ in combination with reed-chambers mounted upon the vertical sides of the wind-chest in vertical rows, exterior valves for said reed-chambers respectively; pneumatic-motors located exterior to the wind-chest in line with the vertical rows respectively of reed-chamber valves and above the same and provided with connections downward to the several valves in the rows beneath them respectively, said pneumatic-motors communicating with the wind-chest, and valves which control said communications respectively.

4. In an organ in combination with the wind-chest erected vertically; reed-chambers mounted upon the sides thereof in vertical rows; and downwardly seating valves for said reed-chambers respectively; pneumatics mounted exteriorly on said wind-chest in line with the said vertical rows respectively and above the same; connections from the pneumatic of each row to the uppermost valve of the row and from each valve successively to the one below it whereby the pneumatic actuates all the valves in the row and a spring acting upon the lowest valve tending to seat the same.

5. In an organ in combination with the manual; a wind-chest erected vertically at the rear of the manual; reed-chambers mounted upon the vertical sides of the wind-chest in vertical rows exterior valves for said reed-chambers respectively; pneumatic-motors located exterior to the wind-chest in line with the vertical rows respectively of reed-chamber valves and above the same and provided with connections downward to the several valves in the rows beneath them respectively; said pneumatic-motors communicating with the wind-chest; valves which control said communications respectively, and mechanical connections from said valves to the keys respectively of the manual.

6. In an organ in combination with the manual, a wind-chest erected vertically at the rear thereof and having at its upper side a horizontal extension front and rear; reed-chambers mounted upon the front and rear sides of the wind-chest underneath said front and rear horizontal extension; pneumatic-motors mounted upon the under side of said horizontal extension above the reed-chambers respectively; downwardly-seating valves for said reed-chambers, and direct connections therefrom to said pneumatics above them respectively; said pneumatics communicating with the wind-chest and valves which control their respective communications and suitable means for operating said valves.

7. In an organ in combination with the manual, a wind-chest erected vertically at the rear of the manual and having at its upper end a supplemental portion extended horizontally fore and aft beyond the front and rear planes of the main vertical portion; reed-controlling valves mounted upon the front and rear sides of said vertical portion; and pneumatic-motors arranged in pairs, the individuals of which are located above the front and rear reed-controlling valves, respectively, and mounted on the horizontally-extended supplemental portion of the wind-chest and communicating therewith; a valve for each pair of pneumatics controlling the communication of both individuals of the pair with the wind-chest and mechanical connections from the keys of the manual to said valves respectively.

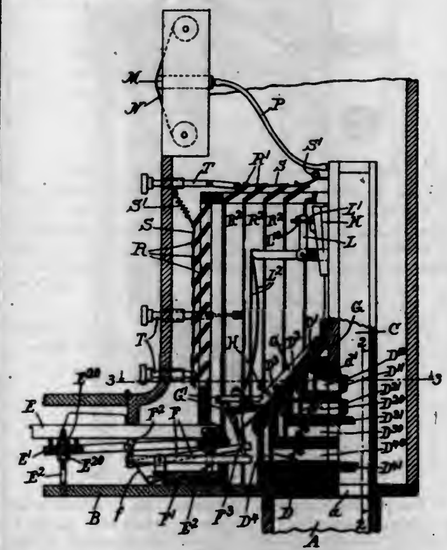
576,031. REED-ORGAN. MELVILLE CLARK, Chicago, Ill. Filed Mar. 26, 1896. Serial No. 584,976. (No model.)

Claim.—1. In a reed-organ, a reed-block having formed in it a plurality of chambers for reeds pertaining to the same set; such chambers being controlled by separate valves at the speaking side of the reed, and merging at the opposite of the reeds in a common throat leading from the reeds to the wind-chest.

2. In a reed-organ, a reed-block having formed in its chambers for reeds pertaining to a plurality of sets, the reeds of each set having extended groups of contiguous chambers merging in a common throat which extends from the reeds to the wind-chest, and mutes which control said passages at their emergence into the wind-chest.

3. In a reed-organ, a reed-block having individual chambers for reeds pertaining to a plurality of sets, corresponding individuals of such sets having their chambers having openings at an exterior surface of the block in transverse rows, and valves which control said rows, respectively, of openings; the chambers pertaining to the several sets of reeds having extended groups of their contiguous individuals merging at the side of the reeds toward the wind-chest in throats or passages common to all the individuals of such groups respectively, and extending from the reeds thereof to the wind-chest, and mutes which control said throats at their openings into the wind-chest.

4. In a reed-organ, in combination with the wind-chest, a reed-block mounted thereon and having chambers for reeds pertaining to a plurality of sets; those of the several sets being arranged in rows which are successively more and more remote from the wind-chest, the throats or passages from the inner ends of said reed-chambers leading to the wind-chest; extended groups of the reed-chambers of the several sets respectively having a common or single throat or passage-way whose lateral extent is total the lateral extent of all the reed-chambers of such group.



5. In a reed-organ, in combination with the wind-chest erected vertically, a reed-block mounted upon one of the vertical sides thereof, having its upper end beveled or sloping down from the wall of the wind-chest; reed-chambers pertaining to a plurality of sets of reeds formed vertically in such block and arranged set by set in rows which are successively more and more remote from the wind-chest, such chambers emerging through such sloping surface, and throats or passages from their lower ends respectively leading into the wind-chest; extended groups of contiguous reed-chambers in the respective sets having their throats or passages to the wind-chest merged in one, commencing directly at the side of the reeds toward the wind-chest.

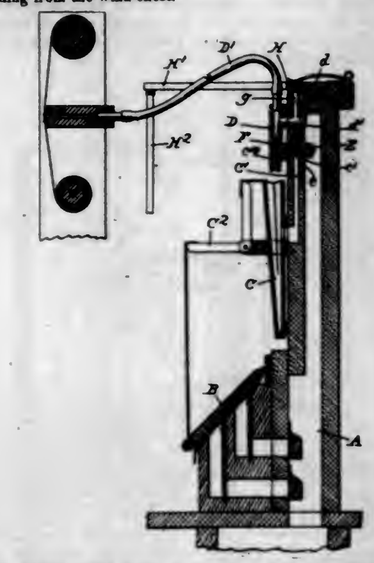
6. In a reed-organ, in combination with the manual, the wind-chest erected vertically at the rear thereof; the reed-blocks mounted upon the forward side of the wind-chest and having upper sloping sides, through which the reed-chambers emerge, and the valves seating by gravity thereon, said valves having rigid fingers extending forwardly; the levers operated by the keys of the manual having rigid fingers extended upwardly against said forwardly-extending fingers of the valves, the contact-point between said lever-fingers and valve-fingers being approximately in the plane which contains the fulcrums of the levers and the pivots of the valves, whereby the swinging movement of said levers and valves about their respective pivots causes the minimum sliding movement of the fingers upon each other at the point of contact.

7. In a reed-organ, in combination with the manual, the wind-chest erected vertically at the rear thereof; the reed-block mounted at the forward side of the wind-chest and the valve seating by gravity on the reed-block, the levers actuated by the keys of the manual and actuating the valves by an upward stroke, and the elastically-cushioned check-bar extending above the valves adapted to limit the opening movement of the same and reflect them back to their seats elastically.

576,032. PNEUMATIC MUSICAL INSTRUMENT. MELVILLE CLARK, Chicago, Ill. Filed July 27, 1896. Serial No. 600,654. (No model.)

Claim.—1. In a pneumatic organ, in combination with an exhaust wind-chest, a primary pneumatic and a motor-pneumatic both exterior to the wind-chest and communicating therewith for exhausting and with the outer air for venting said pneumatics; the valves which control the exhaust and vent ports of the motor-pneumatic being connected to and operated by the primary pneumatic to exhaust the motor-pneumatic when the primary pneumatic is vented, and to vent said motor-pneumatic when the primary pneumatic is exhausted;

connections from the motor-pneumatic by which the sound-producing devices are caused to speak when said motor-pneumatic is collapsed, and suitable means for uncovering the vent of the primary pneumatic; the vent-valve of the motor-pneumatic being at its seat normally under the influence of gravity when free from any influence proceeding from the wind-chest.



2. In a pneumatic organ, in combination with an exhaust wind-chest, a primary pneumatic and a motor-pneumatic both exterior to the wind-chest and communicating therewith for exhausting and with the outer air for venting said pneumatics; the valves which control the exhaust and vent ports of the motor-pneumatic being connected to and operated by the primary pneumatic to exhaust the motor-pneumatic when the primary pneumatic is vented, and to vent said motor-pneumatic when the primary pneumatic is exhausted; connections from the motor-pneumatic by which the sound-producing devices are caused to speak when said motor-pneumatic is collapsed, and suitable means for uncovering the vent of the primary pneumatic; the vent-valve of the motor-pneumatic and its connection to the primary pneumatic being exterior to the wind-chest, said primary pneumatic being adapted normally under the influence of gravity and when free from any influence proceeding from the wind-chest to stand expanded and in position to hold said valve at its seat.

3. In a pneumatic organ, in combination with an exhaust wind-chest, a primary pneumatic and a motor-pneumatic both exterior to the wind-chest and communicating therewith for exhausting and with the outer air for venting said pneumatics; the valves which control the exhaust and vent ports of the motor-pneumatic being connected to and operated by the primary pneumatic to exhaust the motor-pneumatic when the primary pneumatic is vented, and to vent said motor-pneumatic when the primary pneumatic is exhausted; connections from the motor pneumatic by which the sound-producing devices are caused to speak when said motor-pneumatic is collapsed, and suitable means for uncovering the vent of the primary pneumatic; said primary pneumatic being adapted normally when vented and thereby relieved from the influence of the wind-chest, to expand by the action of gravity on its moving wall to the extent necessary to hold the exhaust-valve of the motor-pneumatic off its seat and the vent-valve of said pneumatic at its seat.

4. In a pneumatic organ, in combination with an exhaust wind-chest, a primary pneumatic and a motor-pneumatic both exterior to the wind-chest and communicating therewith for exhausting and with the outer air for venting said pneumatics; the valves which control the exhaust and vent ports of the motor-pneumatic being connected to and operated by the primary pneumatic to exhaust the motor-pneumatic when the primary pneumatic is vented, and to vent said motor-pneumatic when the primary pneumatic is exhausted; connections from the motor-pneumatic by which the sound-producing devices are caused to speak when said motor-pneumatic is collapsed, and suitable means for uncovering the vent of the primary pneumatic; the exhaust communication of the primary pneumatic with the wind-chest being restricted relatively to the vent of said primary pneumatic, and the vent-valve of the motor-pneumatic being adapted normally, under the influence of gravity, when the primary pneumatic is vented, to stand at its seat.

5. In a pneumatic organ, in combination with an exhaust wind-chest, a primary pneumatic and a motor-pneumatic both exterior to the wind-chest and communicating therewith for exhausting and with the outer air for venting said pneumatics; the valves which control the exhaust and vent ports of the motor-pneumatic being connected to and operated by the primary pneumatic to exhaust the motor-pneumatic when the primary pneumatic is vented, and to vent said motor-pneumatic when the primary pneumatic is exhausted; connections from the motor-pneumatic by which the sound-producing devices are caused to speak when said motor-pneumatic is collapsed, and suitable means for uncovering the vent of the primary pneumatic; the moving wall of the primary pneumatic being pendulous and at normal position under the influence of gravity, when said pneumatic is vented and freed from the influence of the wind-chest, adapted to hold the motor-pneumatic vent-valve at its seat.

6. In combination with the wind-chest, a primary pneumatic and a motor-pneumatic whose communication with the wind-chest is controlled by the primary pneumatic; the valve which effects such control having its stem tubular and constituting a communicating duct between the wind-chest and the primary pneumatic.

7. In combination with the wind-chest, a primary pneumatic and a motor-pneumatic having its communication with the external air controlled by the primary pneumatic, the valve which effects such control having its stem tubular and constituting the communicating passage between the wind-chest and the primary pneumatic.

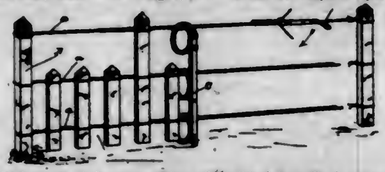
8. In combination with the wind-chest, the primary pneumatic exterior thereto and a motor-pneumatic whose communication is controlled by the primary pneumatic; the valve which effects such control having a stem tubular and constituting a communicating duct between the wind-chest and the primary pneumatic.

9. In combination with the wind-chest, a primary pneumatic exterior thereto; a motor-pneumatic also exterior thereto; valves which control the communication of the motor-pneumatic with the wind-chest and with the external air being operated by the primary pneumatic and being mounted on a common stem, said stem being tubular and constituting the communication between the wind-chest and the primary pneumatic.

10. In combination with the wind-chest, and an exterior primary pneumatic, a tube which is attached to the fluctuating wall of the pneumatic and which extends into the wind-chest and constitutes the means of communication between the wind-chest and the pneumatic; and a pallet or valve within the pneumatic adapted to be seated over the inner port of said tube when the pneumatic is collapsed.

11. In combination with the wind-chest, a primary pneumatic exterior thereto and a motor-pneumatic whose communication with the wind-chest and with the outer air is controlled by the primary pneumatic; the valve which effects such control having its stem tubular and constituting the communicating duct between the wind-chest and the pneumatic; and a pallet or seat within the primary pneumatic on which the inner port of said duct seats when the pneumatic is collapsed.

576,083. **HAND FENCE-MACHINE.** MATTHEW F. CONNETT, Jr., St. Paul, Minn. Filed Aug. 5, 1896. Serial No. 601,667. (No model.)

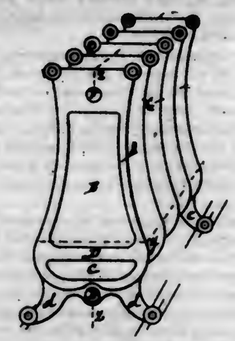


Claim.—1. A fence-machine of the kind described, comprising a series of wire-holders, the upper-wire holder being capable of up-and-down movement independently of the remainder of the wire-holders, whereby the upper-wire holders may be operated during the time the lower ones are at rest, and a continuous twist imparted to the upper wires above short pickets when pickets of different lengths are used, substantially as described.

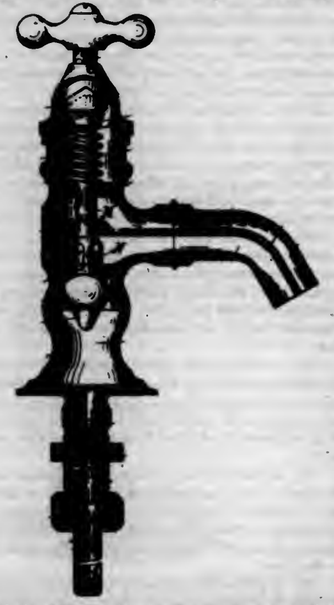
2. A fence-machine of the kind described, comprising a plurality of wire-holders, the upper-wire holder being capable of up-and-down movement independently of the remainder of the wire-holders, a bar for supporting the wire-holders, means for attaching the upper-wire holder to the bar and for disconnecting it therefrom, whereby the upper-wire holder may be operated during the time the lower-wire holders are at rest and simultaneously therewith, thereby producing a continuous twist in the upper wires above short pickets when pickets of different lengths are used, substantially as described.

576,084. **HEATING-STOVE.** GEORGE W. CORE, Detroit, Mich., assignor to Ralph M. Dyar, same place. Filed May 18, 1895. Serial No. 549,808. (No model.)

Claim.—A heating-stove, consisting of a front section having a fire-door on one side and open throughout on its opposite side, a rear section having a closed side provided with a draft-hole and open throughout on the other side, a plurality of intermediate sections all in unobstructed communication at their contiguous sides, tie-rods extending through the front, rear, and intermediate sections, and a grate made in sections, each section of the stove being provided with its own grate-section, substantially as described.



576,085. **SELF-CLOSING BASIN-FAUCET.** WILSON G. CORNELL, Chicago, Ill. Filed Sept. 22, 1896. Serial No. 606,394. (No model.)



Claim.—A self-closing faucet having a sectional casing, one section of which has partitions forming at the ends thereof pressure and dry chambers respectively and intermediate receiving and reservoir chambers, a valve with stem closely fitting in said partitions, a spring in said dry chamber for seating said valve, a cap-section, means having a bearing in said cap-section for operating said stem and valve, and a nozzle on said first-mentioned section with a partition therein forming passages leading from said receiving and said reservoir chambers respectively, said partition extending to the outer end of said nozzle and being continuous of the partition between said receiving and reservoir chambers, substantially as and for the purpose set forth.

576,086. **MEANS FOR SECURING AND PROTECTING STAY-BOLTS.** JOSEPH COOK, Chicago, Ill. Filed Sept. 16, 1896. Serial No. 606,055. (No model.)

Claim.—1. In combination, a boiler-furnace sheet provided with stay-bolt openings, flared by being depressed or swaged away from the fire side and a stay-bolt secured in an opening of the sheet and having its inner end remote from the fire side of the said sheet, substantially as and for the purpose set forth.

2. In combination, a boiler-furnace sheet provided with a stay-bolt opening flared by being depressed or swaged away from the fire side, a stay-bolt secured in said opening and having its end portion upset, a knob snugly fitting the flaring portion immediately surrounding the stay-bolt opening, and a dowel connecting the knob with the stay-bolt, substantially as set forth.



3. The combination with a boiler-furnace sheet having an opening flared by being depressed or swaged away from the fire side, and a stay-bolt secured in the said flaring opening, of a protector having a concave depression to receive the inner end of the stay-bolt, and a beveled rim portion to fit against the flaring portion of the boiler-furnace sheet surrounding the bolt-opening, substantially as set forth.

576,087. **NUT-LOCK.** CLIFFORD C. CUTLER, Arago, Oreg. Filed Nov. 12, 1896. Serial No. 611,833. (No model.)



Claim.—1. A nut-lock comprising the nut having the usual threaded opening, a key passage-way extending through the nut transverse the threaded opening and passing through one side of the threaded opening and communicating therewith, of a key adapted to pass through the said key-opening and having at one end a fin, and intermediate its ends a cut-away portion a distance from the head equal to the distance from the outside of the nut to a central line drawn through the nut transverse the key, substantially as and for the purpose described.

2. A nut-lock comprising a nut having the usual threaded opening, a key opening extending transverse a threaded opening and communicating therewith, a slit extending throughout the length the key-opening and at one side of the threaded opening, and a key having an intermediate cut-away portion for the purpose described, and a fin or projection at one end adapted to register with the said slit, substantially as described.

3. A nut-lock comprising a nut having the usual threaded opening, a key-opening extending transversely the threaded opening and communicating therewith, a slit extending longitudinal the key-opening, a key having an intermediate cut-away portion, at one end a head and at the opposite end a fin or projection adapted to engage the slit, the fin being a distance from the head equal to the width of the nut, whereby the turning of the key will lock the nut in position and also the key against removal, substantially as described.

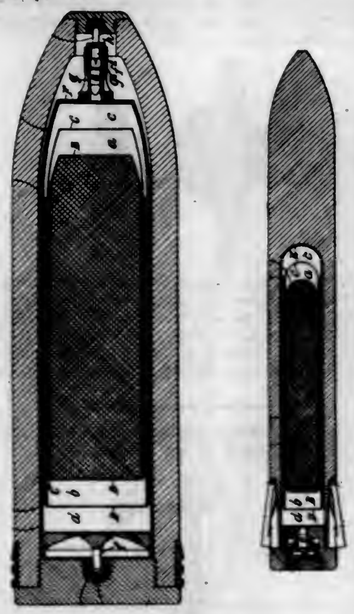
576,088. **HIGH-EXPLOSIVE PROJECTILE.** HENRY J. W. DAM, London, England. Filed Feb. 1, 1896. Serial No. 577,718. (No model.)

Claim.—1. The combination, with a shell, of a case supported therein by pivots at its ends, its wall or periphery being out of contact therewith, longitudinally-sliding protective tubes or cases open at one end and closed at the other end, arranged one within another, and a longitudinally-sliding charge-case inclosed in the innermost protective case, all being so arranged as to leave air-cushions between the ends of the several cases, for the purposes above specified.

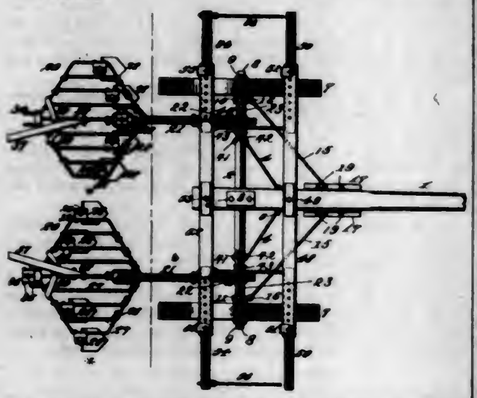
2. An explosive projectile or shell or torpedo, comprising longitudinally-sliding protective tubes or cases open at one end and closed at the other end, arranged one within another, and a longitudinally-sliding charge-case inclosed in the innermost protective case, all being so arranged as to leave air-cushions between the ends of the several cases, substantially as hereinbefore described and for the purposes specified.

3. A burster-case for an explosive projectile or shell or torpedo, provided with central end pivots, longitudinally-sliding protective tubes or cases arranged one within another and inclosed in said burster-case, and a longitudinally-sliding charge-case inclosed in the

innermost protective case, air-cushions being provided at the ends between said cases, substantially as hereinbefore described and for the purposes specified.



576,039. CULTIVATOR. CHARLES W. DAVIS and MORTON R. DAVIS, near Peotone, Kans. Filed Oct. 16, 1896. Serial No. 609,161. (No model.)



Claim.—1. A cultivator comprising an arch, ground-wheels connected to the arch by means of adjustable axles, and a pair of shovel-carrying frames secured to the axles between the wheels and which extend in the rear of and outwardly beyond the line of the wheels, substantially as set forth.

2. A cultivator comprising an arch, ground-wheels connected to the arch by means of adjustable axles, and a pair of shovel-carrying frames adjustably secured to said axles between the wheels and which extend in the rear of and outwardly beyond the line of the wheels, substantially as set forth.

3. A cultivator comprising an arch, ground-wheels connected to the arch, adjustable axles secured to said arch, and a pair of shovel-carrying frames secured to the axles, between the wheels and which extend outwardly beyond the line of the wheels, said frames each having a border and intermediate bars to which the shovels are attached, substantially as set forth.

4. A cultivator comprising an arch, ground-wheels connected to the arch by means of axles laterally adjustable on said arch, and a pair of shovel-carrying frames secured to the axles between the wheels and which extend outwardly beyond the line of the wheels, said frames consisting each of a border and intermediate bars to which the shovel-shanks are attached by means of clamps and distance-blocks, substantially as set forth.

5. In a cultivator, an arch, ground-wheels connected to the arch by means of axles, and shovel-carrying frames secured to the axles and which extend outwardly beyond the line of the wheels, said frames each having a forward and a rear socket to receive the shank of the central shovel, and each having a border and intermediate bars to which the non-circular shanks of the shovels are attached, substantially as set forth.

6. A cultivator comprising an arch, ground-wheels connected to the arch by means of axles, and a pair of shovel-carrying frames secured to the axles between the wheels, and counterbalance-springs connected to the beams of the shovel-carrying frames and which are made fast to said arch by means of arms clamped to the arch and extending inwardly and outwardly therefrom, said springs having loops, or sockets which fit over the inner or outer extensions of said arms at will and tightening-bolts for said loops or sockets substantially as set forth.

7. In a cultivator, an arch, ground-wheels connected to the arch by means of axles, shovel-carrying frames secured to the axles, a draft-tongue secured to said arch, an evener and an equalizing-bar pivoted to said tongue, and each having a section pivoted to each of its ends, hangers depending from the ends of the sections of the evener and provided with means for adjustable attachment to single-trees, and rods extending from the ends of the sections of the equalizing-bar to said hangers, substantially as set forth.

8. In a cultivator, an arch, ground-wheels connected to the arch by means of axles, shovel-carrying frames secured to the axles, a draft-tongue secured to the arch, an evener and an equalizing-bar pivoted to said tongue, and each having an adjustable section at each of its ends, hangers depending from the ends of the sections of the evener and having means for the attachment of singletrees, and rods extending from the ends of the sections of the equalizing-bar to said hangers substantially as set forth.

9. In a cultivator, the combination of an arch, a draft-tongue secured to the arch, ground-wheels secured to the arch by means of axles upon which the wheels are adjustably mounted and held from inward movement by means of collars surrounding said axles, brace-rods extending from said collars to said tongue and adjustably-slotted plates to which said brace-rods are pivoted and by which said rods are connected to said tongue, substantially as set forth.

10. In a cultivator, the combination of an arch, a draft-tongue secured to the arch, ground-wheels secured to the arch by means of axles upon which the wheels are adjustably mounted, brace-rods shiftable with the wheels and which are adjustably connected at their upper ends to said tongue, by means of slotted angle-plates having transverse flanges in which said rods are pivoted, substantially as set forth.

11. In a cultivator, the combination of an arch, ground-wheels secured to the arch by axles, a pair of shovel-frames connected to said axles, a section of axle constructed for attachment and detachment between the ends of said wheel-axles, and an additional gang-frame connected with said detachable section, substantially as set forth.

12. A cultivator comprising an arch, a tongue secured to the arch, an evener having adjustable extensions, an equalizer having adjustable extensions, axles adjustable in the arch, shovel-carrying frames adjustable on the axles, and spring-supports for the shovel-carrying frames adjustable laterally and vertically on the arch, substantially as described.

13. A cultivator comprising an arch, an axle or a transverse bar divided for straddle-row cultivating, shovel-carrying frames attached to said transverse bar or axle, and a removably-secured central section 57, for making said transverse bar or axle continuous for the attachment of a shovel-carrying frame, to cover the whole space.

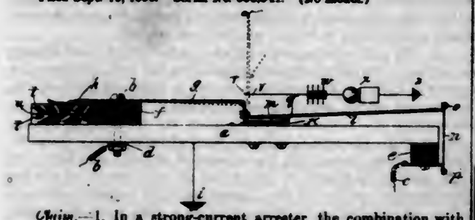
14. A cultivator comprising an arch, the upper transverse bars and lower axles each projecting inwardly and outwardly on the arch, shovel-carrying frames connected with the axles and counterbalancing-springs mounted on the upper bars; said bars and axles being also respectively adapted to receive the said frames and springs within the arch, as explained.

15. In a cultivator, a shovel-carrying frame formed with a shovel-socket located at one end of the middle line, substantially as explained and for the purpose set forth.

16. In a shovel-carrying frame constructed with a shovel-socket at each end of its middle line and with suitable border and intermediate bars whereby a central shovel may be arranged at either front or back, and the remaining shovels spread outwardly therefrom, as herein explained and for the purpose set forth.

17. In a cultivator, a shovel-carrying frame, comprising a suitable border and intermediate bars secured to the border and adapted to have shovels attached thereto; the middle bar being formed with a socket, substantially as and for the purpose set forth.

576,040. FUSE-HOLDER. WILLIAM W. DEAN, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed Sept. 19, 1896. Serial No. 606,341. (No model.)



Claim.—1. In a strong-current arrester, the combination with the heavy flat spring *g* of lever *l* engaging the said spring, fulcrum *m* provided for said lever near the point of its engagement with the spring, part *c*, the said part and lever forming the terminals of the protected circuit, and a conductor adapted normally to close the circuit between the lever and the second circuit-terminal against the tension of the heavy spring which tends to maintain the circuit-terminals in widely-separated positions, substantially as described.

2. In a fuse-holding device, the combination with a ground connection of a heavy spring adapted to effect contact therewith, a lever formed of spring-like material engaging the same at a short distance from its fulcrum, the said spring-like lever constituting one of the circuit-terminals, a second circuit-terminal, and a fuse adapted to be connected between the said terminals thereby flexing the lever and heavy spring and normally opening the circuit to ground, substantially as described.

3. In a fuse-holder, the combination with lever *l* forming one terminal of the protected circuit, of grounding-spring *g* engaging said lever near the fulcrum *m*, ground connection *a*, circuit-terminal *c*, and fuse *n* adapted to be connected between the said terminals when the lever *l* is depressed, by which a tension is imparted to said fuse and spring *g* is raised from its ground-contact, substantially as described.

4. The combination with a heavy spring *g* of lever *l* formed of spring-like material engaging the same constituting one terminal of the protected circuit, part *c* constituting the second terminal thereof, and a fuse *n* adapted to be inserted between the said terminals against the tension of the lever *l* and spring *g*, whereby the circuit is completed during the normal flow of current, substantially as described.

5. In a fuse-holder, the combination with the grounding-spring *g* of the ground connection *a* adapted to be engaged thereby, the lever *l* engaging the said spring near the fulcrum *m* and adapted to raise the spring and break the ground connection thereof, said lever forming one terminal of the protected circuit, a fuse, and means for securing the same to the end of the lever remote from said spring, and a second circuit-terminal to which the fuse is adapted to be attached, thus depressing the lever *l*, maintaining a tension upon said fuse, and raising the spring from its ground connection, substantially as described.

576,041. INHALER. CHARLES DENISON, Denver, Colo. Filed Mar. 20, 1894. Serial No. 504,362. (No model.)



Claim.—1. In an inhaler and exhaler, the combination with a casing constituting a medicament-chamber, of an induction-tube secured to one end thereof, a valve-chest secured to the other end of the casing and provided with an exhaling-opening, a valve within the valve-chest, a mouthpiece secured to the outer end of the valve-chest, and a threaded valve-adjusting device between the valve-chest and the mouthpiece.

2. The combination with the valve-chest, and medicament-chamber, of an induction-tube secured to the latter, a detachable mouthpiece, an adjustable valve within the valve-chest, a threaded adjusting device between the valve-chest and the mouthpiece, and an exhaling-tube communicating with said valve-chest, and provided with an adjustable valve.

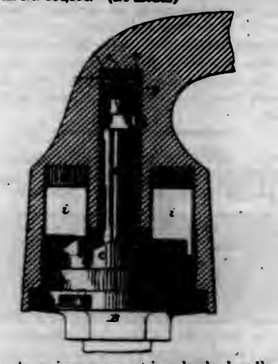
3. The combination with the medicament-chamber, and valve-chest, of a mouthpiece secured to the outer end of the valve-chest, an adjustable valve within the valve-chest, a threaded valve-adjusting device between the valve-chest and the mouthpiece, and an exhaling-tube provided with means for regulating the exhalations.

576,042. NON-REFILLABLE BOTTLE. CORNELIUS T. DRISCOLL, Mission San José, Cal. Filed Apr. 6, 1896. Serial No. 586,373. (No model.)

Claim.—The combination with a bottle having a neck formed with an interior groove, of a metal case inserted in the neck of the bottle, spring-arms held in said case and connected by an arched portion, the ends of said arms being extended laterally and projecting from the sides of the case and adapted to enter the said groove of the neck of the bottle, a cork inserted in the lower portion of the neck beneath said groove and a cork inserted in the neck beyond and bearing upon said metal case, substantially as described.



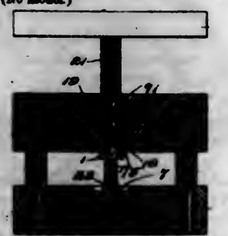
576,043. BRAKE-HANDLE. PLATO C. EMERY, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Dec. 3, 1896. Serial No. 614,350. (No model.)



Claim.—1. As an improvement in a brake-handle, a handle portion, a hub portion and a mechanism adapting the brake-handle, when rotated in one direction, to be operative upon the brake staff or rod, but to revolve loosely in the opposite direction, or around upon the brake-staff, without effecting movement of the latter, combined with friction-reducing devices interposed between the brake-handle and its pivotal supports, substantially as set forth.

2. As an improvement in a brake-handle, a handle portion, a hub portion and a mechanism adapting the brake-handle, when rotated in one direction, to be operative upon the brake staff or rod, but to revolve loosely in the opposite direction, or around upon the brake-staff, without effecting movement of the latter, combined with a ring or bearing rigidly attached to the brake-handle, and friction-reducing devices interposed between said ring or bearing and the brake-staff, substantially as set forth.

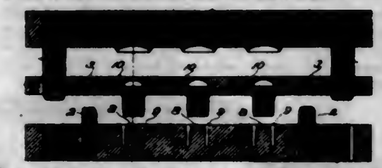
576,044. DEVICE FOR MAKING COVERED EYELETS. ALANSON C. ESTABROOK, Northampton, Mass. Filed Nov. 18, 1895. Serial No. 569,292. (No model.)



Claim.—1. In combination, a mold having an eyelet-receiving hole, and an eyelet-retainer applied to said mold and consisting of a split ring into which the body of the eyelet may pass, the said ring clasping the exterior of the said body, substantially as set forth.

2. In combination, a mold having an eyelet-receiving hole, an eyelet-retainer consisting of a split ring into which the body of the eyelet may pass, the said ring clasping the exterior of the said body, and the ejecting-pin 21, substantially as set forth.

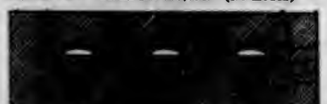
576,045. DEVICE FOR COVERING LACING-HOOKS WITH PLASTIC MATERIAL. ALANSON C. BUTTERBROOK, Northampton, Mass. Filed May 23, 1896. Serial No. 592,702. (No model.)



Claim.—1. A device for covering lacing-hooks with plastic material, comprising a base plate having a series of openings therein with pins centrally located in said openings, said pins serving to locate the hooks in the dies, and their upper ends receiving thereon the under surface of the die-strip and supporting said die-strip during the operation of molding, and projections at one side of said openings, a lower die-strip containing a series of lower dies each for the reception of the neck and crown of a lacing-hook, and a series of upper dies cooperating therewith and corresponding in shape to the crown of the covered hook, substantially as set forth.

2. In a device for covering lacing-hooks with plastic material the combination with a plate having an opening to receive the barrel or attaching portion of the hook and a fixed projection against which the neck of the hook bears to position the latter and hold it in proper position in the dies, of a lower die to receive the neck and crown of the hook and the covering material and an upper die cooperating therewith to mold the material on the crown of the hook, substantially as set forth.

576,046. DEVICE FOR COVERING LACING-HOOKS WITH PLASTIC MATERIAL. ALANSON C. BUTTERBROOK, Northampton, Mass. Filed May 25, 1896. Serial No. 593,053. (No model.)



Claim.—1. A device for covering lacing-hooks with plastic material comprising a base-plate having a series of openings therein with guiding and supporting pins in said openings, a series of hook-holding strips, one edge of each strip being provided with a series of recesses each adapted to receive the neck of a hook, the opposite edge of said strip serving as a retaining-wall in molding the plastic material around the necks of the hooks on the adjoining strip, a lower die-plate having a series of apertures therein for the crowns of the lacing-hooks on the hook-holding strips and an upper die-plate having a series of upper dies, substantially as set forth.

2. In a device for covering lacing-hooks with plastic material, the combination with an upper die-plate having a series of upper dies therein, of a base-plate having a series of sockets or openings therein to receive the barrel of the hook, a series of hook-holding strips having recesses at one side thereof to receive the necks of a series of hooks and the lower die-plate placed above said hook-holding strips and having a series of openings therein for the crowns of the hooks on the hook-holding strips, said hook-holding strips being placed side by side, the edge of one strip forming the backing for the plastic material which is molded on the necks of the hooks on the adjoining strip, substantially as set forth.

576,047. METHOD OF PRODUCING PHOTOGRAPHS IN RELIEF. HARRY C. FAIRCHILD, Sandy Hook, Conn. Filed Oct. 22, 1896. Serial No. 609,639. (No specimens.)



Claim.—1. The method of producing embossed photographs which consists in cutting into the rear face of a plain photograph a furrow in the outline of the picture on the print, and then pressing the portions of the mount inclosed by said furrow outward with the print to form the embossing, substantially as herein described and set forth.

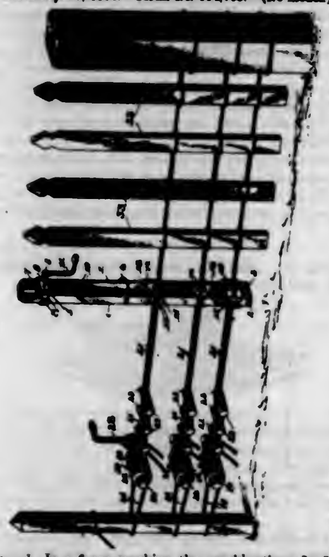
2. The method of producing photographs in relief which consists in cutting in the mounted photograph from the rear side thereof a furrowed outline of the portion to be put in relief, providing a separate open mask of said furrowed-outline portion, dampening the furrowed-outline portion of the photograph to be put in relief, inclosing in a frame the last-mentioned photograph and the open mask, the open mask being placed on top so that the open mask and the furrowed-outline portion of the photograph shall register with each other, and molding into relief the furrowed portion through the open mask, substantially as herein described and set forth.

3. The method of producing photographs in relief which consists in cutting in the mounted photograph from the rear side thereof a furrowed outline of the portion to be put in relief and furrows interior to said outline, providing an open mask of said outline portion, dampening the furrowed-outline portion and the furrows interior thereto of the photograph to be put in relief, inclosing in a frame the last-mentioned photograph face uppermost and the open mask, the open mask being placed on top so that the open mask and the furrowed-outline portion of the photograph shall register with each other, and molding into relief the furrowed portion through the open mask, substantially as herein described and set forth.

4. The method of producing photographs in relief which consists in cutting in the mounted photograph from the rear side thereof a furrowed outline of the portion to be put in relief, providing an open mask of said furrowed-outline portion in a duplicate mounted photograph, dampening the furrowed-outline portion of the photograph to be put in relief, inclosing the first-mentioned photograph face uppermost and the duplicate photograph having the open mask in a frame, the duplicate photograph being placed on top so that the open mask thereof and the furrowed portion of the other photograph shall register with each other molding into relief with an embossing-tool the furrowed portion through the open mask, filling the portion so molded into relief with a plastic material to retain it in position and backing the photograph, substantially as herein described and set forth.

5. As a new article of manufacture an embossed photograph comprising the print and mount, the latter in its rear face having a furrow cut into it along the outlines of the picture on the print and the portions of said mount encompassed by said furrow being pressed outward with the print, substantially as herein described and set forth.

576,048. FENCE-MACHINE. HARMAN H. FELDMAN, St. Clement, Mo. Filed Sept. 3, 1896. Serial No. 604,765. (No model.)



Claim.—1. In a fence-machine, the combination of a frame comprising side bars or strips, and mountings for the operating parts, comprising parallel plates having their terminal portions flanged to embrace or overlap the outer sides of the frame-bars, and bolts for connecting the plates and clamping them against the edges of the frame-bars, the said bolts touching the inner sides of the frame-bars and acting jointly with the flanged ends of the plates to hold the said plates in fixed relation, substantially as and for the purpose set forth.

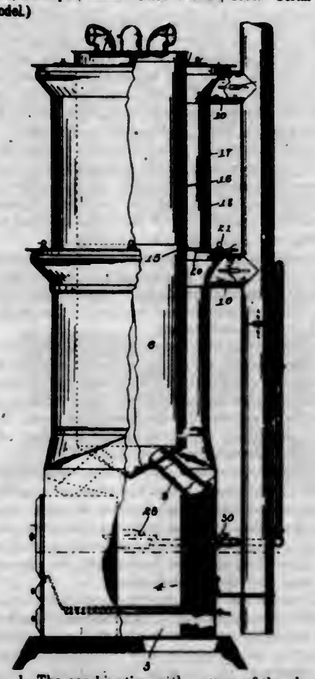
2. In a fence-machine, the combination of a frame comprising side bars or strips, twisting-wheels, plates forming mountings for the twisting-wheels, a direction-sprocket journaled between the plates a short distance from the twisting-wheels, and a drive-chain engaging with the twisting-wheels and guided by the direction-sprockets, substantially as set forth.

3. In a fence-machine, the combination of a frame comprising side bars or strips, similar plates diagonally disposed and having their opposite corners truncated and flanged to embrace or overlap the outer side of the frame-bars, bolts connecting the plates and clamping them against the edges of the frame-bars and touching the inner sides of the latter, a twisting-wheel journaled between the plates, direction-sprockets journaled between the diagonally-opposite corners of the said plates, and a drive-chain in engagement with the direction-sprockets and the twisting-wheel, substantially as and for the purpose set forth.

4. In means for constructing wire-and-picket fencing, a tension device comprising a bar or plate having a series of projections between which the wires are to be rove, and having a bearing-head at one end, a shaft journaled in and having its ends projecting beyond the ends of the bearing-head, a wire loop or similar connection having its terminals extending through openings in the projecting ends of the shaft to hold the latter in place and adapted to be wound thereon, and a pin passing through an opening in the aforesaid bearing-head and engaging with the shaft, substantially as and for the purpose specified.

5. In means for constructing wire-and-picket fencing, a tension device having a bearing-head, a shaft journaled in the bearing-head and extending beyond the ends thereof, a connection adapted to be wound upon the projecting end portions of the shaft, and a pin adapted to be passed through an opening in the bearing-head and engaged with the shaft to hold the latter against rotation, substantially as and for the purpose set forth.

576,049. DOUBLE-DRUM SECTIONAL HEATING-STOVE. JAS FLEMING, Shakopee, Minn. Filed Oct. 16, 1896. Serial No. 609,061. (No model.)

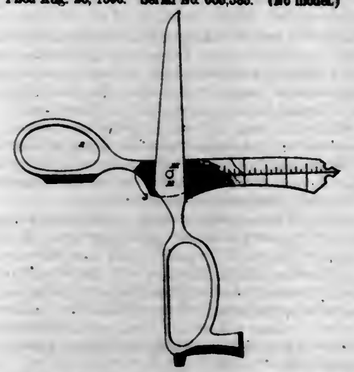


Claim.—1. The combination with a stove of the class described, having a rectangular fire-box and a centrally-arranged air-chamber above the same forming an annular air-space between it and the outer wall of the stove, of the extension-section detachably fitted to the top of the stove, and having a central air-chamber and surrounding space, registering with the air-chamber and annular space in the stove-body, the connection between the annular space in the stove-body and the smoke-pipe, the connection between the similar space in the extension-section and the smoke-pipe, and the damper interposed between said spaces, whereby the products of combustion may be permitted to circulate through both the stove and section, or may be cut off from said section by the closing of the intermediate damper.

2. The combination with a stove of the class described, provided with a rectangular fire-box, the centrally-arranged air-chamber arranged above the same, and the annular space around the same connected with the fire-box, and also having connection with the smoke-outlet, of the extension-section adapted to be detachably fitted to the top of the stove, said section being provided with a central air-chamber registering with the air-chamber of the stove, and with an annular space between said chamber and its outer wall corresponding with the similar space between the chamber and the wall of the stove, the valve interposed between said annular spaces, the valve-controlled openings in the crown-sheet of the extension-section, and the cap removably fitted over the top of the central air-chamber of said extension-section, and provided with heat-conducting pipes.

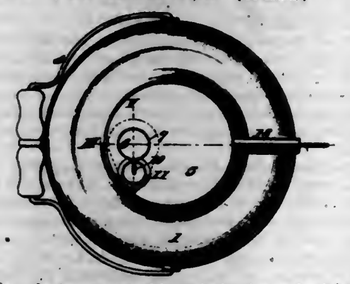
3. The combination with a stove of the class described, having an air-chamber centrally arranged above the fire-box forming an annular space between it and the outer wall of the stove connecting with the fire-box, of the extension-section adapted to be detachably fitted to the top of the stove, and having a central air-chamber and a surrounding annular space, registering with the air-chamber and surrounding space in the stove-body, the damper-controlled opening between said annular spaces, the damper-controlled openings in the crown-sheet of said section at the top of its annular space, the cap adapted to removably fit over the top of the central air-chamber of said section, and provided with heat-conducting pipes, and the damper-controlled openings in the wall of said cap.

576,050. SCISSORS OR SHEARS. BENJAMIN F. FORD, New Castle, Me. Filed Aug. 20, 1896. Serial No. 603,383. (No model.)



Claim.—In a combination-tool, the combination with the blades having the notched and pointed ends, the bows, the screw-driver and hammer-head formed integral with one of said bows, and said blades formed with mortised shoulders, of the rivet for holding said blades together screw-threaded at one end and the other end provided with an awl formed with a shoulder and a cylindrical portion intermediate said ends, and said screw-threaded end passing through one of said blades and engaging with a screw-threaded aperture in the other blade, the combination being such that when said blades are opened to their farthest extent the cutting edges thereof will be at right angles to each other forming a square, substantially as described.

576,051. SPOUTED CAN. ROBERT W. GILLESPIE, St. Louis, Mo. Filed Jan. 27, 1896. Serial No. 577,039. (No model.)



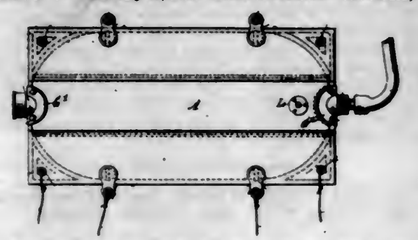
Claim.—1. A can comprising a body, the top having an inlet-opening and fitting over the body, a plate valve located within the top beneath the inlet-opening, a wire on which the plate-valve is supported, extending through the top and provided with a loop at its outer end; substantially as described.

2. A can comprising a body, the top having an inlet-opening and fitting over the body, a plate-valve located within the top beneath the inlet-opening, a flange surrounding the inlet-opening providing a receptacle for sealing composition, a wire, on which the plate-valve

is supported, extending through the top and provided with a handle at its outer end; substantially as described.

3. In a can, the combination of a top provided with an inlet-opening, a valve arranged to close said opening, a wire secured to said valve, and movably seated in said top, said wire being provided with a loop by means of which said valve may be operated, a flange surrounding said inlet-opening, and a ring surrounding said loop, substantially as and for the purpose set forth.

576,052. RAISING SUNKEN VESSELS. JOHN R. GRAFF, New York, N. Y. Filed July 30, 1895. Serial No. 557,591. (No model.)



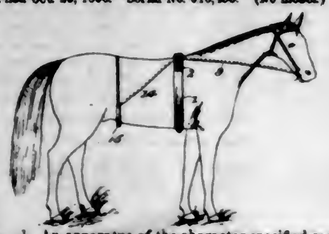
Claim.—1. A bag for raising sunken vessels, said bag having an inlet-orifice internally threaded and an inlet-tube, the same having its inner end perforated and having near its outer end an enlarged and externally-threaded portion fitting within the inlet-orifice whereby the tube is secured in place, substantially as described.

2. A bag for raising sunken vessels, the bag having an inlet-orifice, and a reinforce-plate secured over said orifice, the reinforce-plate having a nipple alining with the inlet-orifice in the bag, said nipple being internally and externally threaded, said external threads adapted to receive a cap, substantially as described.

3. A bag for raising sunken vessels, the bag being composed of an inner and outer shell of fabric and the bag having an orifice, two reinforce-plates respectively secured to the inner and outer sides of the bag and having orifices matching with the orifice in the bag, a rubber gasket for each reinforce-plate, the gaskets being respectively interposed between the plates and the adjacent shells, means for pressing the reinforce-plates toward each other, and a boss formed on the outer reinforce-plate and surrounding the opening therein, substantially as described

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576,053. ELECTRIC APPLIANCE FOR HORSES. LOWRY A. GRAY, Arlington, Md., assignor of one-half to Edward Lippa, Baltimore, Md. Filed Oct. 29, 1896. Serial No. 610,455. (No model.)



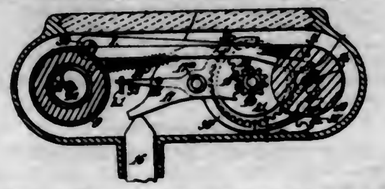
Claim.—1. An apparatus of the character specified consisting of a girth having a source of electric energy and an induction-coil, a circuit-closer adapted to maintain an open circuit and to be secured upon the abdomen of the horse, a primary circuit, and a secondary circuit including the circuit-closer, a metal in electrical contact with the horse and the intervening portion of the body, substantially as described.

2. As apparatus of the character specified, comprising a source of electric energy, a circuit-closer adapted to lie against and be insulated from the abdomen of the horse, and an automatic switch consisting of a non-conducting receiver containing a suitable movable conducting material, the switch-terminals being within the receiver in such position as to be both in contact with the conducting material when the horse stands and to have but one terminal in contact when the horse is lying down, substantially as described.

3. An apparatus of the character specified, consisting of a source of electric energy and an induction-coil adapted to be secured upon the body of a horse, a circuit-closer forming part of the secondary circuit of the induction-coil and adapted to lie against and be insulated from the abdomen, an automatic switch arranged upon the base-plate of the induction-coil and consisting of a non-conducting receiver having terminals of the primary circuit entering the ends of said receiver, and a secondary circuit including the circuit-closer, a metal in electrical contact with the body, such as the bit, and the intervening portion of the body, substantially as described.

4. An apparatus of the character specified, consisting of an induction-coil secured to a girth so as to rest directly over the horse's back, two dry batteries one upon each side of the induction-coil and connected in the primary circuit, a circuit-closer consisting of a conducting-strip carried by and insulated from a strap adapted to be fastened to the abdomen, an automatic switch consisting of a cylindrical receiver on the base-plate of the induction-coil and having terminals of the battery-wires entering its ends, the receiver containing a body of mercury to make contact with both terminals when the horse stands and with but one when lying down, and a secondary circuit including the circuit-closer, the bridle-bit and the intervening part of the body, substantially as described.

576,054. ADVERTISING ARM-CHAIR. LOUIS T. HAGAR, Winchester, Ky., assignor, by direct and mesne assignments, to The National Manufacturing Company, same place. Filed Mar. 14, 1896. Renewed Dec. 31, 1896. Serial No. 617,675. (No model.)



Claim.—1. The combination with a chair, of a chair-arm pivotally mounted on the chair above the chair-seat and containing an advertisement-carrier, mechanism located within and carried by said pivotally-mounted chair-arm and in operative connection with said advertisement-carrier for moving the same, and a device mounted on a part of the chair for operating said mechanism when the chair-arm is moved on its pivotal point, substantially as described.

2. The combination with a chair, having a depressible chair-arm provided with a sight-opening, rollers mounted within the chair-arm, an advertising-web connected at its ends with the rollers, and mechanism located in the chair-arm and operated by the depression of the same for positively rotating one of the rollers to wind and unwind the advertising-web, substantially as described.

3. The combination with a chair, of a pivoted, depressible chair-arm having a sight-opening, an advertising-web arranged wholly in the pivoted chair-arm, and mechanism located in said chair-arm and operated by the depression thereof to impart a traveling motion to the web, substantially as described

4. The combination with a chair having a depressible chair-arm, of rollers mounted within the chair-arm, a web arranged in the chair-arm and connected at its ends with the rollers, a lever geared to one of the rollers, and a device mounted on a part of the chair and acting to move the lever when the chair-arm is depressed, for the purpose of imparting rotary motion to one of the rollers to wind and unwind the web, substantially as described.

5. The combination with a chair having a depressible chair-arm provided with a sight-opening, and an advertising-web arranged within the chair-arm, of mechanism located within the chair-arm and operated by the depression thereof to impart a traversing motion to the web in one direction, and automatic reversing mechanism located within said depressible chair-arm for changing the direction of motion of the web, substantially as described.

6. The combination with a chair having a depressible chair-arm, of an advertising-web arranged in the chair-arm, mechanism actuated by the depression of the chair arm for imparting a traversing motion to the web in one direction, and reversing mechanism located within said chair-arm for changing the direction of motion of the web, substantially as described.

7. The combination with a chair having a depressible chair-arm, of rollers mounted in the chair-arm, an advertising-web arranged in said chair-arm and connected at its ends with the rollers, a pivoted lever geared to one of the rollers, and means for vibrating the lever on its pivot to positively rotate one of the rollers and thereby wind the web on one roller and unwind it from the other roller, substantially as described.

8. The combination of a depressible chair-arm, with rollers mounted within the chair-arm, an advertising-web arranged in the chair-arm and connected at its ends with the rollers, a lever geared to one of the rollers, a device for swinging the lever when the chair-arm is depressed to positively rotate one of the rollers, and reversing mechanism located in the said chair-arm for reversing the direction of motion of the web, substantially as described.

9. The combination with a chair-arm, of two rollers mounted within the chair-arm, an advertising-web arranged in said chair-arm and connected at its ends with the rollers, a lever geared to one of the rollers, means for moving the lever as the chair-arm is depressed for rotating one of the rollers to wind and unwind the web, and reversing mechanism located in said chair-arm for changing the direction of motion of the web, substantially as described.

10. The combination of a depressible chair-arm, two rollers mounted within the chair-arm, an advertising-web arranged in said chair-arm and connected at its ends with the rollers, a vibrating lever geared to one of the rollers to positively rotate the same, and an arm or lug which acts against and moves the lever when the chair-arm is depressed to wind the web on one roller and unwind it from the other roller, substantially as described.

11. The combination of a depressible chair-arm, two rollers mounted thereon, a web having its ends connected with the rollers, an actuating-lever, a pawl-and-ratchet mechanism geared with said lever and with one of said rollers, an arm or lug which acts against and moves the lever when the chair-arm is depressed for positively rotating one of the rollers and moving the web in one direction, and automatically-operating reversing mechanism for moving the web in the opposite direction, substantially as described.

12. The combination of two rollers, one of which is provided with a pinion and a stop-pin, a web having its ends connected with the rollers, an actuating-lever having a toothed portion, a pawl-and-ratchet mechanism geared with the toothed portion of the lever and with the pinion of the roller, a reversing-pinion geared to the pinion of the roller and actuated at intervals thereby, a trip-lever having lugs or teeth and operated by the reversing-pinion to throw the pawl into and out of engagement with the ratchet of the pawl-and-ratchet mechanism, a stop-pawl adapted to strike the pin of the roller to arrest the rotary motion of the latter, a spring for rotating the other roller, and means for vibrating the lever, substantially as described.

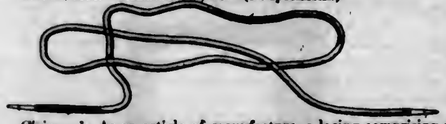
13. The combination of an unwinding-roller, a winding-roller having a pinion and a stop-pin, an actuating toothed lever, means for vibrating the toothed lever, a pawl-and-ratchet mechanism geared with the toothed lever and with the pinion of the roller, a reversing-pinion turned at intervals by the pinion of the roller and having a pin, a tripping-lever operated by the pin of the reversing-pinion for throwing the pawl into and out of engagement with the ratchet of the pawl-and-ratchet mechanism, means for retaining the tripping-lever in the position to which shifted by the reversing-pinion, a spring acting to rotate the unwinding-roller, and a stop-pawl arranged in the path of the pin on the winding-roller and shifted out of the path of said pin by the action of the actuating-lever, substantially as described.

576,055. TRACK-SANDING APPARATUS FOR LOCOMOTIVES. THOMAS J. HENNESSEY, Jackson, Mich., assignor of one-half to Walter W. Smith, Detroit, Mich. Filed Nov. 12, 1896. Serial No. 611,901. (No model.)



Claim.—The sand-box A provided with the lateral sand-ducts 2 2 in combination with the plate C, provided with the integral aligned lugs a a and a^3 a^3, and the integral lug a' arranged at a right angle to said aligned lugs, the blast-pipe F supported in the lug a' and provided with the T E, the adjustable nipples B B secured in the lugs a a by the jam-nuts c c in combination with the discharge-pipes D D, having their inner threaded ends adjustably secured in the lugs a^3 a^3 by the jam-nuts e e, substantially as shown and described.

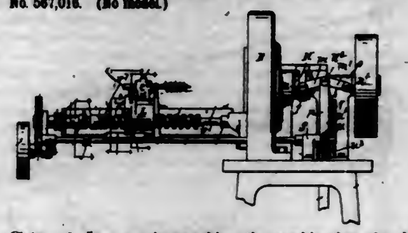
576,056. LACING. ELEAZER KEMPSHALL, Newton, Mass. Filed Nov. 21, 1896. Serial No. 612,978. (No specimens.)



Claim.—1. As an article of manufacture, a lacing comprising a tubular woven body or sheath, tips affixed to the ends thereof, and a continuous flexible core attached at its ends to the tips and extending through the tubular sheath.

2. As an article of manufacture, a lacing comprising a tubular woven body or sheath, a continuous non-metallic flexible core within the sheath, and tips interlocked with the ends of the core and sheath.

576,057. FEEDING MECHANISM FOR SWAGING-MACHINES. ANTOINE J. LANGELIER, Providence, R. I. Filed Oct. 26, 1895. Serial No. 567,016. (No model.)



Claim.—1. In a swaging-machine, the combination of a sliding head, and the chuck for holding the wire to be swaged, with the feeding-screw provided with a circumferential groove or thread, adapted to provide a resting-point in the movement of the sliding head, and means for engaging the sliding head with the screw, substantially as described.

2. In a swaging-machine, the combination of a sliding head, and the chuck for holding the wire to be swaged, with the feeding-screw provided with a circumferential groove or thread, adapted to provide a resting-point in the movement of the sliding head, the bolt adapted for engagement with the feeding-screw, and the cam for disengaging the bolt at the completion of the movement of the sliding head, substantially as described.

3. In a swaging-machine, the combination of a sliding head, and the chuck for holding the wire to be swaged, with the feeding-screw provided with a circumferential groove, adapted to provide a resting-point in the movement of the sliding head, the bolt adapted for engagement with the groove of the feeding-screw, and the switch-tongue, adapted to guide the engaging bolt from the circumferential groove, of the feeding-screw, substantially as described.

4. In a swaging-machine, the combination of a sliding head, and the chuck for holding the wire to be swaged, with the feeding-screw provided with a circumferential groove, adapted to provide a resting-point in the movement of the sliding head, the bolt adapted for engagement with the groove of the feeding-screw, the switch-tongue adapted to guide the engaging bolt from the circumferential groove of the feeding-screw, and the cam for disengaging the bolt, substantially as described.

5. In a swaging-machine, the combination of a sliding head, and a chuck for holding the wire to be swaged, with the feeding-screw provided with a circumferential groove, or thread, adapted to provide a resting-point in the movement of the sliding head, the bolt adapted for engagement with the screw, the cam for disengaging the bolt, and the catch for holding the bolt in its disengaged position, substantially as described.

6. In a swaging-machine, the combination of a sliding head, and the lever-actuated chuck for holding the wire to be swaged, with the feeding-screw provided with a circumferential groove or thread adapted to provide a resting-point in the movement of the sliding head, the bolt adapted for engagement with the feeding-screw, the pivoted arm adapted to cause the opening of the jaws of the chuck, and a stop for engagement with the pivoted arm, to cause the engagement of the said arm with the opening-lever of the chuck, substantially as described.

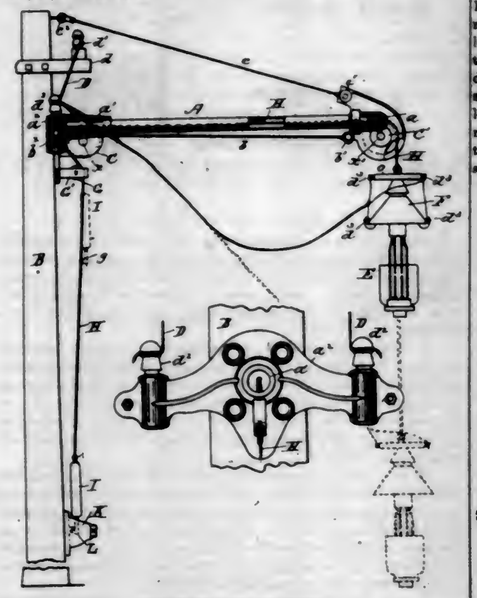
7. In a swaging-machine, the combination of a sliding head, provided with a bolt adapted to engage with a feeding-screw, and a chuck for holding the wire to be swaged, with the holding-bracket, the sleeve held therein, and the feeding-screw held in the sleeve, and means for adjusting the sleeve longitudinally in the holding-bracket, substantially as described.

8. In a swaging-machine, the combination of the swaging-dies adapted for opening and closing movement while the machine is in operation, means for causing the closing movement of the said dies at the will of the operator, a catch for holding the dies in their closed position and the disengaging arm operatively connected with the catch, with the chuck for holding the wire to be swaged, the sliding head, means for imparting movement to the sliding head, the rotating cam for effecting the disengagement of the catch from its holding-notch, and the arm pivoted to the sliding head and adapted to enter the space between the revolving cam, and the catch-disengaging arm, substantially as described.

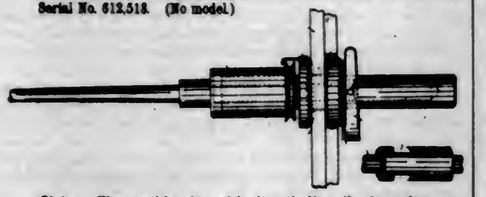
576,058. MAST-ARM AND ATTACHMENT THEREFOR. ORVIS P. PHILBRICK, Somerville, Mass., assignor of three-fourths to Orson S. Philbrick, same place. Filed Jan. 22, 1894. Serial No. 497,604. (No model.)

Claim.—In a mast arm device for lowering electric lamps the locking device herein described consisting of the shell K, the catch

A', the screw-nut k, and the hook L, combined substantially as and for the purposes set forth.

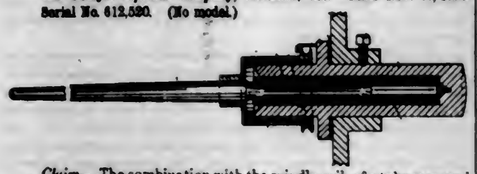


576,059. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,518. (No model.)



Claim.—The combination with the spindle-rail, of a tube—containing step and bolster bearing—penetrating said rail, an annular flange projecting from said tube and above the rail, an elastic washer between said flange and the rail, an elastic washer surrounding the tube and bearing against the under side of the rail, the tube being provided with grooves and recesses, a tong-shaped key adapted to engage said recesses, a metallic washer between said key and the elastic washer, a tightening-screw in said key, and a whirl-driven spindle in the tube, all said parts, substantially as and for the purposes described

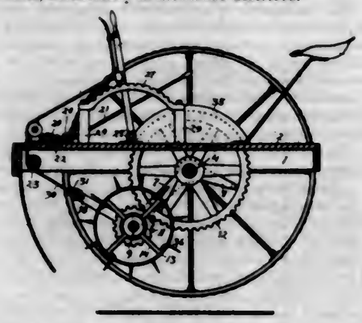
576,060. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Sawyer Spindle Company, Portland, Me. Filed Nov. 17, 1896. Serial No. 612,520. (No model.)



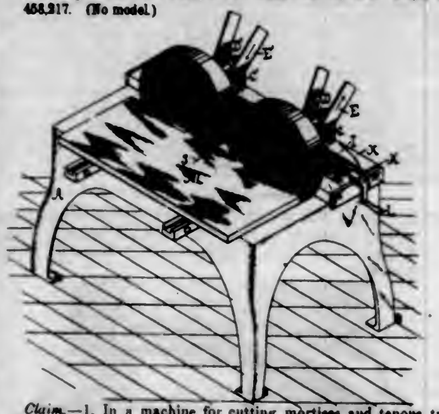
Claim.—The combination with the spindle-rail, of a tube mounted in said rail and extending above and below the same, a sleeve revolubly arranged in said tube and extending below the spindle-rail, and a whirl-driven spindle secured with its lower portion to and within said sleeve, and having the adjoining portion of smaller diameter than the internal diameter of the sleeve and its step bearing in the tube and below the spindle-rail, substantially as and for the purposes described.

576,061. ROTARY HARROW. LEONARD SPANGLER, Lafayette, Ind. Filed Oct. 19, 1896. Serial No. 609,311. (No model.)

Claim.—In a rotary harrow, the combination of a platform having the boxes 5, the axle 4 mounted therein, the ground-wheels loosely mounted upon the ends of said axle respectively, the driving-gears 12 rigidly mounted upon said axle, the swinging hangers loosely mounted upon said axle, said hangers having the arms 8 adapted to limit their rearward movement, the shaft 9 mounted in said hangers, the gears 11 rigidly mounted upon said shaft and adapted to be driven by the gears 12, the toothed cylinder 13 mounted upon said shaft, means for raising and lowering said cylinder, the clutches 15 loosely keyed upon the axle 4 and adapted to be thrown into engagement with the ground-wheels and also to be shifted therefrom and thrown into engagement with the boxes 5, and means for shifting said clutches, substantially as shown and described.



576,062. MORTISE-AND-TENON MACHINE. ANDREW P. SUNDBERG and CHARLES F. SUNDBERG, Long Island City, N. Y., assignors to Sundberg & Co., New York, N. Y. Filed Jan. 13, 1893. Serial No. 458,317. (No model.)



Claim.—1. In a machine for cutting mortises and tenons two barrel-saws arranged side by side and parallel with each other operating together substantially as described.

2. The combination of the two barrel-saws B B' side by side, a bed-plate in front thereof and means for adjusting the saws substantially as and for the purpose shown and described.

3. In a machine for cutting tenons and mortises, the two barrel-saws B and B' side by side in combination with the carriers G and G', adjusting-bar I and means for operating the saws substantially as and for the purpose shown and described.

576,063. CAN-OPENER. EARL P. TYRRELL, Severance, N. Y., assignor of one-half to Scott A. Smith, Schroon Lake, N. Y. Filed June 12, 1896. Serial No. 595,246. (No model.)



Claim.—A can having an inwardly-extending horizontal flange at its upper end forming a circular filling-opening, in combination with a cover, soldered or otherwise secured along its outer edge to said cam and provided with an annular groove upon its under side adjacent to its outer edge located directly above the annular flange

on said can, a strip of wire triangular in cross-section resting upon said flange and fitting within the groove in said cover, and a handle formed upon said wire, normally folded down into contact with the top surface of said cover and adapted to be drawn outwardly, substantially as and for the purpose described.

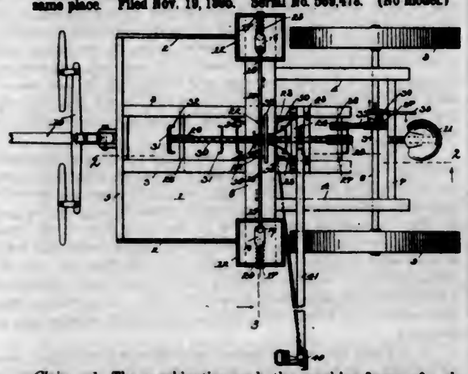
576,064. DISINFECTING APPARATUS. JAMES EVETTS, Chicago, Ill. Filed Oct. 23, 1895. Serial No. 567,208. (No model.)



Claim.—1. In a disinfecting apparatus, the combination with a reservoir a adapted to contain disinfecting fluid, of a wick a', a cylindrical body of absorbent material b, communicating with said reservoir a through the medium of said wick a', a perforated or netted support c for said absorbent material, a trough-like receiver or collector d placed beneath said absorbent material, and an outlet e in said collector, communicating with the urinal, closet, or similar place requiring disinfecting, substantially as described.

2. In a disinfecting apparatus, the combination with the reservoir a adapted to contain disinfecting fluid, of a cylindrical wick or similar body of absorbent material b, a wick a' adapted to convey disinfecting fluid to said absorbent material b, a perforated or netted support c for said absorbent material, a trough-like receiver or collector placed beneath said absorbent material, and adapted to collect the surplus disinfecting fluid after its passage through said absorbent material, lips d' d' provided upon the edges of said collector, and an outlet e, at a point substantially opposite that where the absorbent material b receives its supply of disinfecting fluid from wick a', thereby preventing stagnation of such fluid in the absorbent material, and securing effective circulation of the fluid, substantially as described.

576,065. CORN-PLANTER. WILLIAM S. EUSTER, Ottawa, Ill., assignor of one-fourth to Jason F. Richardson, Jr., and Ben F. Brady, same place. Filed Nov. 19, 1896. Serial No. 592,473. (No model.)



Claim.—1. The combination with the machine-frame of a depending bracket secured thereto, a lever 46 having a contact portion adapted to be struck by traveling strikers, springs for supporting and retracting said lever, and a marker-bar 51 secured to said lever, substantially as set forth.

2. The combination with the depending tilting lever 46 of a marker-bar 51 secured to said lever, twisted at the point 52 and provided with a hooked outer end 53, substantially as set forth.

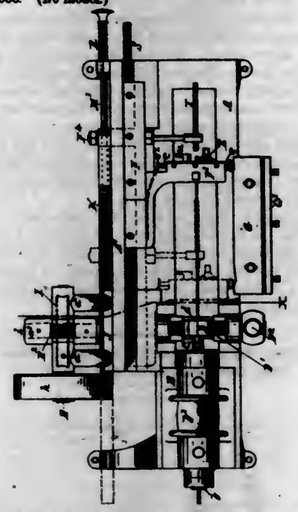
3. The combination with the rods 16 and their operating-springs of the endless chain and spreaders, the marking-bar 51 and its lever 46, said lever being arranged to be struck by one of the under, rearwardly-moving spreaders, as the rods 16 are operated by another of the spreaders traveling toward the front of the machine on the upper side of the chain, substantially as set forth.

576,066. FASTENING ATTACHMENT. JOHN HOGGS, Toronto, Canada. Filed Jan. 11, 1896. Serial No. 575,147. (No model.)

Claim.—A fastening attachment for horse-blankets, comprising two skeleton plates, the upper plate being ornamented and the lower plate provided with two concave cross-bars arranged parallel to each other; both of said plates tapering gradually from a wide portion at one end to a point at the other end, a prong or spur projecting from the central portion of each of said cross-bars, each spur or prong being projected through the fabric and buckle-strap and also through slots in the upper plate arranged directly in a line with each other, and each spur bent over upon the upper surface of said plate, in opposite directions, the entire inner lowermost face of the upper plate being serrated to securely grip the fabric between the plates, whereby an extended gripping-surface is provided between the plates, and the buckle-strap and fabric firmly secured by the prongs or spurs which latter are arranged in the line of the strain to which the blanket is subjected, substantially as specified.



576,067. MACHINE FOR TURNING SPECTACLE-TEMPLES. ALBERT E. JOHNSON, Southbridge, Mass. Filed Aug. 27, 1896. Serial No. 604,060. (No model.)



Claim.—1. In a temple-turning machine, the combination as hereinafter described, of the horizontal bed-frame having the head-stock and spindle supported thereon, the guideway-frame arranged above the rear part of the bed-frame in upright position along the back of the machine with its guides parallel with the bed and spindle-axis and rigidly supported upon said bed-frame, and the forwardly-projecting cutter-carrier having its sliding base supported on said guideway-frame, and its cutter-holding devices overhanging the bed-frame in line with the head-stock axis, and means for controlling said cutter-holding device, substantially as set forth.

2. In a temple-turning machine, the combination as described, of the bed-frame having the head-stock with hollow rotating spindle mounted thereon, the pattern-support and pattern-plate at the front of said bed-frame, the guideway-frame supported in lateral upright position at the back of said bed-frame, the cutter-carrier mounted on said guideway-frame, and projecting forward opposite said pattern-plate, the horizontally-reciprocating cross-slide having the cutter thereon, mounted in the forwardly-projecting part of said carrier, and engaging said pattern, and mechanism for effecting and controlling the movement of said cutter-carrier arranged upon said guideway-frame.

3. In a temple-turning machine, and in combination, the guideway-frame, the cutter-carrier slide mounted thereon and carrying a cutter and cutter-adjusting devices, the rack connected with said slide, the pinion matching said rack, the worm-gear on the pinion axis, an operating-shaft with the worm-screw thereon engaging said worm-gear, and means for putting said rack into engagement with said pinion, and for automatically releasing the rack from the pinion, for the purpose set forth.

4. The combination with the upright guideway-frame, the cutter-carrier slide mounted thereon, the rack pivotally connected with

said slide, the pinion and worm-wheel, the operating-shaft having a worm-screw that meshes with said worm-wheel, the drop-piece supporting said rack, the endwise-movable quoin having an incline engaging said drop-piece, the starting-rod and its reaction-spring, the spring-pressed latch for engaging said quoin and a trip-finger attached to said cutter-carrier slide, for the purposes set forth.

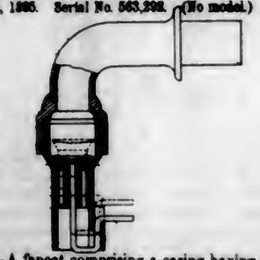
5. In a temple-turning machine, the combination with the head-stock, the spindle and pattern appliances, of the guideway-frame, the cutter-carrier slide movable thereon; the rack pivoted to said slide, the pinion matching said rack, means for rotating said pinion, a quoin or wedge-bar supported upon a stationary ledge beneath the rack, the spring pressed drop-piece supporting the rack upon the incline of said quoin, the starting-rod connected with said quoin and provided with a handle and the reacting spring, a spring-pressed lock-bolt intercepting for said quoin and the trip-finger adjustably attached to said carrier-slide and adapted for throwing off said lock-bolt, substantially as set forth.

6. In a machine of the character described, in combition with the tubular externally-tapered slitted chuck; a chuck-closer ring having an internal opening to fit over the end of the chuck, and formed with a spherical outer surface, revolubly supported within a partible socket having side pivots or trunnions axially in line with the center of said ring, a support having bearings for said socket and movable for carrying said socket and ring onto and from the end of the chuck, substantially as set forth.

7. In a temple-turning machine provided with the hollow revoluble head-stock spindle carrying the tubular slitted chuck; and in combination therewith as described, the chuck-closing mechanism comprising the externally-spherical closing member, or ball, having the tapered opening therethrough, the spherically-chambered socket consisting of two connected sections embracing said ball, and having opposite side trunnions thereon, the bifurcated rocker with upwardly-projecting arms carrying said trunnions, its lower end pivotally supported in bearings on the bed-frame transversely to the spindle-axis, and the hand-lever rigidly connected with said rocker for operating the same, all substantially as set forth.

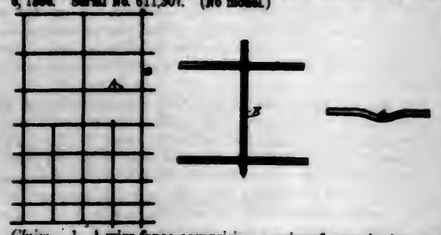
8. In a temple-turning machine, the combination with the cutter-carrier slide, of its operating rack and gearing, a spring-pressed starting-rod provided with a quoin for holding the rack in engagement with the gearing, a spring-pressed latch for locking the starting-rod and a latch-tripping device; said latch being provided with a ring or handle for actuation by hand.

576,068. FAUCET. PATRICK K. O'LALLY, Boston, Mass. Filed Sept. 23, 1895. Serial No. 563,292. (No model.)



Claim.—A faucet comprising a casing having a valve-seat, a delivery-nozzle extending downwardly from the said valve-seat, a valve arranged to bear downwardly on said seat, a valve-opening rod loosely engaged with the valve and extending downwardly therefrom and thence laterally to the exterior of the nozzle, a guide for the rod in its vertical movements, and a shoulder on the nozzle to support the rod in elevated position, substantially as described.

576,069. WIRE FENCE. JOHN C. PERRY, Joliet, Ill. Filed Nov. 6, 1896. Serial No. 611,307. (No model.)



Claim.—1. A wire fence comprising a series of strand-wires, and a series of stay-wires arranged connecting and welded to said strand-wires, substantially as set forth.

2. A meshed wire fence welded at each intersection of the wires, substantially as set forth.

3. A wire fence comprising a series of parallel wires and a series of cross-wires welded together at each intersection of the wires, substantially as set forth.

576,070. BICYCLE-SADDLE. MARTIN L. DEITELER, Harrisburg, Pa. Filed June 9, 1896. Serial No. 594,829. (No model.)



Claim.—1. A frame for velocipede-seats comprising the forwardly-extending attaching-tongue, coils at opposite sides of the rear ends of the tongue, arms extending forwardly from said coils parallel with each other and entirely disconnected from end to end, and open horizontally-extending seat-supports at the outer sides the said arms terminating in front of said coils, substantially as described.

2. A frame for bicycle-seats comprising a forwardly-extending attaching-tongue formed of wire or similar material, coils at opposite sides of the rear end of said tongue, independent seat-supports formed of wire or similar material the inner sides of said supports extending forwardly from the coils and having a space between them and a cross or binding wire or rod connecting the independent seat-supports and resting upon the inner sides of said supports, substantially as described.

3. The combination with the seat-supporting frame comprising a forwardly-extending attaching-tongue formed of wire or similar material, coils at opposite sides of the rear end of said tongue, independent seat-supports formed of wire or similar material the inner sides of said supports extending forwardly from the coils and having a space between them and a cross or binding wire or rod connecting the independent seat-supports and adapted to rest upon the inner sides of said supports, and independent seats adjustably secured on said supports, substantially as described.

4. A frame for bicycle-seats, formed of a single length of wire bent to form the horizontal attaching-tongue a, terminating at the rear end of its two members in the outwardly-extending forwardly-coiled springs a' a', the spaced parallel forwardly-projecting arms a^2, a^2, extending from the upper members of said coils disconnected throughout their length, the wires at the front ends of said arms a^2 being bent outwardly then rearwardly as at a^4 a^4 and then inwardly and across the arms a^2 in front of the coils as at a^5, substantially as described.

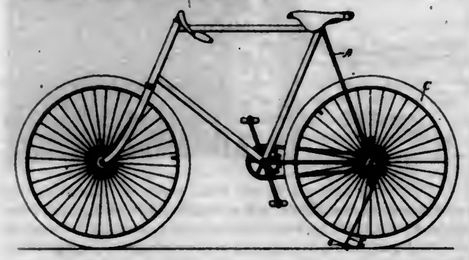
5. The combination with the seat-support having a horizontal attaching-tongue, oppositely-projecting coil-springs integral with the rear ends thereof and from the upper ends of the outer coils of which project the spaced parallel, disconnected members or arms a^2 a^2, and the open rectangular seat-supports at the outer sides of the arms a^2 a^2 and terminating in front of said coils, of the separate and independent seats provided on their under sides with front and rear adjusting clamps or retainers engaging the front and rear members of the respective seat-supports; whereby the width of the unobstructed open space in the middle of the seat may be varied, substantially as described.

6. A frame for velocipede-seats comprising a forwardly-extending attaching-tongue, coils at opposite sides of the rear end of the tongue, arms extending forwardly from the upper ends of said coils parallel with each other and entirely disconnected from end to end, open horizontally-extending seat-supports at the outer sides of said arms terminating in front of said coils and a separate and independent seat on each of said supports, each seat being provided on its under side with front and rear clamps sliding on the front and rear bars or sections of said supports, and set-screws passing through said clamps into engagement with the bars or sections, substantially as described.

7. A frame for velocipede-seats comprising an attaching-tongue, and two independent spring-seat supports upon opposite sides of the central line of the tongue, and a continuous cross or binding wire extending between said supports and attached to and forming a part of said seat-supports, each seat being adjustably clamped upon said continuous cross or binding wire; substantially as described.

576,071. BICYCLE-SUPPORT. ALBERT H. HOLADAY, New Haven, Conn., assignor of one-half to Hobart B. Ives, same place. Filed Jan. 7, 1896. Serial No. 574,562. (No model.)

Claim.—1. In a support for bicycles, in combination with an attaching-head having a portion provided with a stop-shoulder, a rod having a pivot provided with a projecting stop, and journaled in the head, so as to be capable of being rocked and moved longitudinally, and a spring tending to move the pivot longitudinally, to bring the projecting stop upon it into position to engage the stop-shoulder, substantially as and for the purpose specified.



2. In a support for bicycles, in combination with an attaching-head provided with ears, and a lug having a stop-shoulder, a rod having a rocking and longitudinally-movable pivot, journaled in the ears, and provided with a projecting stop, and a spring tending to move the rod-pivot, to carry the stop thereon toward the shouldered lug, substantially as and for the purpose shown

3. In a support for bicycles, in combination with an attaching-head, provided with ears and with a lug having two stop-shoulders, a rod having a rocking and longitudinally-movable pivot journaled in the ears, and provided with a projecting stop, and a spring tending to move the rod-pivot, to carry the stop thereon toward the shouldered lug, substantially as and for the purpose set forth.

4. In a support for bicycles, in combination with an attaching-head provided with ears, and a lug having two stop-shoulders, a rod, having a portion bent at an angle to the body of the rod, and journaled in the ears on the attaching-head, a pin projecting on opposite sides of such rod, and a spring tending to move the pivotal portion of the rod, to carry the pin toward the shouldered lug on the head, substantially as and for the purpose described.

5. In a bicycle-support, in combination with an attaching-head provided with ears and a shouldered lug, a rod having a pivotal portion bent at an angle to the rest of the rod, journaled in the ears on the attaching-head, and provided with a projecting stop, and a spring tending to move the pivotal portion of the rod longitudinally, to carry the stop on the rod toward the shouldered lug, substantially as and for the purpose specified.

6. In a bicycle-support, in combination with an attaching-head, provided with ears and with a shouldered lug, a rod having a pivotal portion bent at an angle to the rest of the rod, journaled in the ears on the attaching-head, a pin passing through the pivotal portion of the rod, and a spring on such portion between the pin, and one of the ears on the attaching-head, substantially as and for the purpose shown.

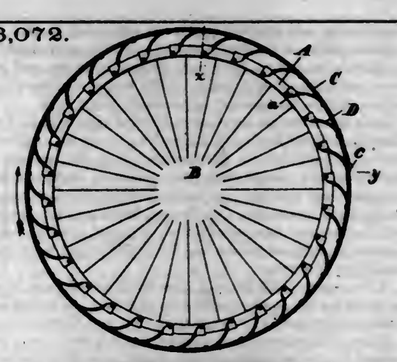
7. In combination with a bicycle, a support consisting of an attaching-head secured to the bicycle, provided with ears and a shouldered lug, a rod, having a curved portion to engage one of the branches of the bicycle-frame, and a pivotal portion journaled in the ears on the attaching-head, and capable of longitudinal movement through such ears, a stop on such pivotal portion, and a spring to move such portion, to carry the stop toward the shouldered lug, substantially as and for the purpose described.

8. In combination with a bicycle, a support having an attaching-head secured to the bicycle, provided with the ears and the shouldered lug, a rod having a portion bent to form a foot, and to engage a branch of the bicycle-frame, when the rod is swung up out of its bicycle-supporting position, and a pivoted portion bent at an angle to the rest of the rod, journaled in the ears of the attaching-head, so as to be longitudinally movable therein, and provided with a projecting stop, and a spring tending to move the pivotal portion of the rod longitudinally to carry its projecting stop toward the shoulders on the head, substantially as and for the purpose specified.

576,072. VEHICLE-WHEEL TIRE. ERASMUS HOUDERSHIT, Cincinnati, Ohio. Filed Aug. 15, 1896. Serial No. 602,576. (No model.)

Claim.—An elastic, vehicle-wheel tire composed of a flexible outer ring C, a rigid inner rim A rectangular in cross-section, and a circumferential series of resilient spring-arms D interposed between said ring and rim tangential to the latter, each of said spring-arms having a pair of ears a a constructed at its inner end, which ears straddle said wheel-rim A and are pivotally connected therewith, and each of said spring-arms being rigidly connected at their outer ends to the flexible ring C, substantially as herein set forth.

576,072.

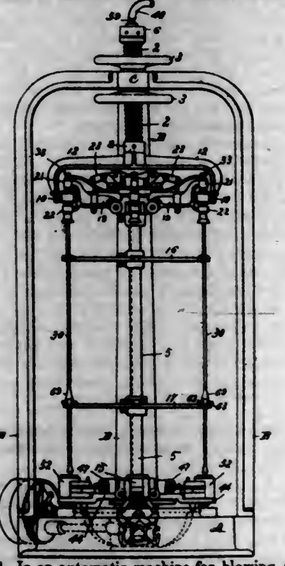


576,073. DUST-PAN. EMILY O. MASON, Brooklyn, N. Y. Filed June 26, 1896. Serial No. 597,062. (No model.)



Claim.—A dust-pan comprising a rectangular base, ends having straight and rounded edges and secured to the opposite edges of the base along their straight edges, guides provided along a portion of the rounded edges of said ends, a cover composed of a rigid curved portion having one of its straight edges secured to the edge of the base intermediate the ends, and its curved edges secured to the ends, a handle secured to said rigid cover portion, and a movable curved cover portion comprising two quadrant-shaped ends pivotally secured to the ends aforesaid adjacent to the edges of the base, a curved portion provided with a knob, said curved portion being secured along its curved edges to the rounded edges of the quadrant-shaped ends, and adapted when opened to be concealed beneath the rigid cover portion, and when closed down upon the base to have its straight edge meet that of the base, substantially as specified.

576,074. GLASS-BLOWING MACHINE. MICHAEL J. OWENS and HENRY J. COLBURN, Toledo, Ohio, assignors to the Toledo Glass Company, same place. Filed Apr. 24, 1896. Serial No. 588,855. (No model.)



Claim.—1. In an automatic machine for blowing glass, a main shaft containing an air-conduit, a mold, a blow-iron, means for supporting the blow-iron on said shaft in operative relation to the mold.

air conducting and controlling devices supported on said shaft in operative relation to the blow-iron, and to said air-conduit, and means for adjusting said shaft, blow-iron support, blow-iron, and air conducting and controlling devices, simultaneously, to different vertical positions relative to the mold, substantially as set forth.

2. In an automatic machine for blowing glass, a main shaft containing an air-conduit, a mold, a blow-iron, means for supporting the blow-iron on said shaft in disconnection from said conduit, and in operative relation to said mold, and mechanism interposed between said conduit and said iron, and means intermittently to connect and disconnect said mechanism with the iron, forming an intermittent air-conduit connection between said iron and said conduit, and means for actuating said mechanism and for rotating said blow-iron, substantially as set forth.

3. In a machine for blowing glass, an air-conduit, a mold, a blow-iron supported in operative relation to the mold, and to said conduit, and means interposed between said conduit and blow-iron whereby the degree of pressure of air against the interior of an article in process of formation in said mold is variable, substantially as set forth.

4. In an automatic machine for blowing glass, a main shaft, an air-conduit in said shaft, a blow-iron, means for supporting the blow-iron on said shaft, an arm pivoted on said main shaft, a revoluble hollow shaft hung on said arm having an air-passage therethrough in communication with said conduit, and a socket for receiving the end of said blow-iron, a valve interposed between said conduit and said hollow shaft, means for operating said valve whereby the supply of air to the hollow shaft is controlled, means for swinging said arm whereby the hollow shaft is engaged with, and separated from, the end of the blow-iron, and means for rotating said hollow shaft, substantially as set forth.

5. In an automatic machine for blowing glass, a main shaft, an air-conduit in said shaft, a blow-iron, means for supporting the blow-iron on said shaft, an arm pivoted on said main shaft, a revoluble hollow shaft hung on said arm having an air-passage therethrough in communication with said conduit, and a socket for receiving the end of said blow-iron, a valve interposed between said conduit and said hollow shaft, means for operating said valve whereby the supply of air to the hollow shaft is controlled, means for swinging said arm whereby the hollow shaft is engaged with, and separated from, the end of the blow-iron comprising a cam 26, fixed around said main shaft, a lever 23, engaging said cam and connected to said pivoted arm, means for rotating said main shaft, and the friction-ring 10, with which a pulley on the hollow shaft engages and is thereby revolved, substantially as set forth.

6. In a glass-blowing machine, the posts B, of the machine having a hub between their upper converging ends, a screw-threaded sleeve adjustably supported in said hub, the main shaft passing through said sleeve and secured against endwise movement therein, the friction-ring 10, pivoted arms 19, and operating devices, for the arms, revoluble shafts 28, and disks thereon, and one or more blow-iron-holding spiders secured to said shaft, and the hand-wheels 3, having screw engagement with said sleeve, substantially as set forth.

7. In a glass-blowing machine, means for adjusting the sections of the molds thereof for coinciding action in closing, comprising the slide 43, provided with the bolt 47, and the bolt 54ª, combined with the arms 49, pivoted on said bolt 47, in said slide and each having a slot engaging said bolt 54ª, and connections uniting said arms and the mold-sections, substantially as set forth.

8. In a glass-blowing machine, the mold-supporting devices comprising the carrier 44, having the grooved borders, the slide 43, engaging said grooves having bolt 47, and bolt 54ª, thereon, the roll 46, on said slide, and the cam 45, which said roll engages, combined with the arms 49, pivoted on said bolt 47 and having slot engagement with said bolt 54ª, the sectional mold, and the connections 50, between said arms and the sections of said mold, substantially as set forth.

9. In an automatic machine for blowing glass, a mold, a mold-carrier, means for imparting a circular movement to said mold and carrier in a horizontal plane, a wheel 9, supporting said carrier and mold having a gear 60, on one face thereof, combined with a revoluble mold-bottom having a gear connection with said gear 60, whereby the said movement of the mold-carrier imparts a rotary motion to said mold-bottom beneath the same, substantially as described.

576,075. BRUSH. ROBERT R. WALKER, Beaver Falls, Pa., assignor of one-half to Charles Rube, same place. Filed Nov. 4, 1896. Serial No. 611,081. (No model.)

Claim.—1. A brush having a ferrule within which the bristles are set, braces on the ferrule, and a clamping-bar having anchoring-pieces which extend between the braces and are secured by cross-pins.

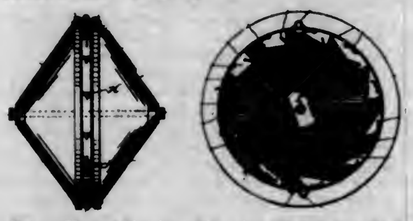
2. A brush having a ferrule within which the bristles are set, cross-braces on the ferrule, and a clamping-bar having anchoring-pieces which extend between the braces and are secured by cross-pins, said cross-braces having heads against which the clamping-pieces have a bearing.

3. A brush having a ferrule within which the bristles are set, cross-braces on the ferrule, and a clamping-bar having anchoring-pieces which extend between the braces and are secured by cross-pins, said cross-braces extending only part way across the ferrule and having heads against which the clamping-pieces have a bearing.



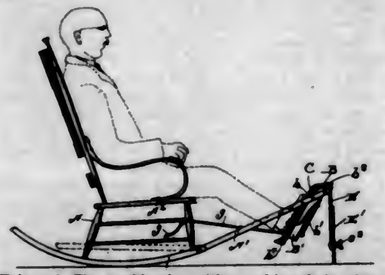
4. A brush having a ferrule within which the bristles are set, cross-braces on the ferrule, and a clamping-bar having anchoring-pieces which extend between the braces and are secured by cross-pins, said anchoring-pieces having an inclined or wedge bearing against the cross-braces.

576,076. FERTILIZER-DISTRIBUTER AND SEED-PLANTER. LEROY M. CREMER, near Marietta, Ga., assignor of two-thirds to Wm. H. Gilbert and Robert H. Holland, Marietta, Ga. Filed July 6, 1896. Serial No. 598,268. (No model.)



Claim.—The combination with a plow, of the rotatable hopper comprising the rims, the band secured thereto, provided with a series of holes, the rotatable ring-gage fitting on said band provided with corresponding holes and with handles, and the triangular cups secured to said band, open at the large ends and closed at the small ends and said small ends located over the holes in the band and the oppositely-extending tongues located in said cups, substantially as described.

576,077. CONVERTIBLE ATTACHMENT FOR CHAIRS. ALEXANDER S. HENDERSON, Chicago, Ill. Filed Apr. 20, 1896. Serial No. 588,393. (No model.)



Claim.—1. The combination with a rocking-chair, of an adjusting-support pivotally secured thereto, a main board or platform on said support, an extensible leg pivoted to the platform at its outer portion and resting on the floor, and a connection uniting the lower part of the platform and the chair, substantially as described.

2. The combination with a chair, of an adjusting-support pivotally secured thereto, a main board or platform on said support, a box hinged at its upper end to the lower surface of the platform and fastened thereto at its other end, a pair of arms pivoted on the box and adapted to rest on the adjusting-support and to hold the frame at any desired angle, substantially as described.

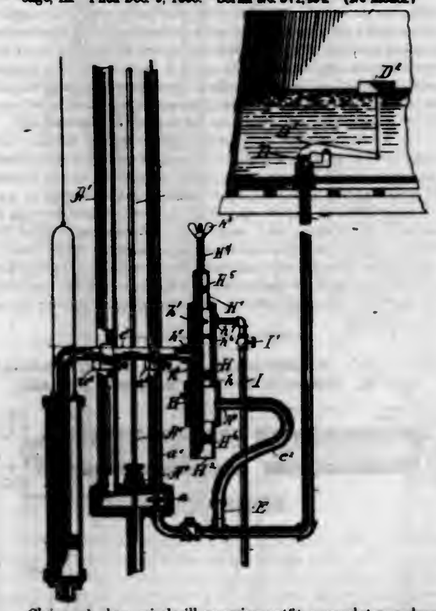
3. The combination with a chair, of a pair of adjusting-standards pivotally secured thereto and having recesses in their opposite surfaces, a main board or platform having pins on its sides to rest in the recesses on one of the surfaces of the standards, and carrying pivoted arms adapted to rest in the recesses on the opposite surfaces of the standard, substantially as described.

4. The combination with a rocking-chair, of a pair of adjusting-standards pivotally secured thereto and having recesses in their opposite surfaces, a main board or platform having pins on its sides to rest in the recesses on one of the surfaces of the standards, and carrying pivoted arms adapted to rest in the recesses on the opposite surfaces, a connection uniting the lower part of the platform and the chair, an extensible leg pivoted on the platform to support it as a foot-rest, substantially as described.

5. The combination with a chair, of an adjusting-support pivotally secured thereto, a main board or platform on said support, a box hinged at one of its ends to the platform, means to secure the said box in a horizontal position on the adjusting-support, a removable cover having on its sides hinged leaves, and at its other ends oppositely-extending projections adapted to lie on the top of the box, when in a horizontal position, and to form a baby-seat or cradle, and a pair of straps secured at one of their ends to the platform, and adapted to engage the leaves of the removable cover, substantially as described.

6. The combination with a chair, of an adjusting-support pivotally secured thereto, the board or platform B on the support, the box B', hinged at one of its ends to the platform, and adapted to be placed and secured at right angles thereto, the removable cover C, having the hinged leaves c^2, at its sides, and the projecting portion c, said cover adapted to lie on the box, when in a horizontal position, and to form a baby-seat or cradle, substantially as described.

576,078. WINDMILL-REGULATOR. SEYMOUR A. ROUSE, Chicago, Ill. Filed Dec. 9, 1895. Serial No. 571,464. (No model.)

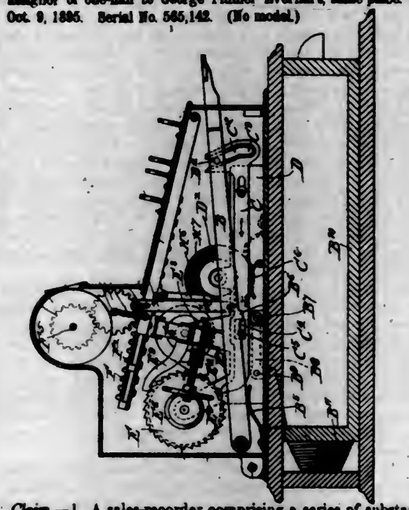


Claim.—1. In a windmill pumping outfit, a regulator embracing a hydraulic cylinder and plunger operatively attached to the pull-out mechanism of the mill, a supply-passage leading to said cylinder from the service-pipe which connects the pump and tank and means for controlling the flow of water to and from the hydraulic cylinder, comprising a casing provided at its ends with cylindric portions, pistons fitting said cylinders and attached to a common stem, an adjustable spring applied to the valve-stem in opposition to one of the pistons, ports between the two pistons leading to the hydraulic cylinder and service-pipe, a valve on said stem normally closing communication between said ports, a normally open exhaust-passage communicating with the hydraulic cylinder and a valve for closing said passage when the first valve opens.

2. In a windmill pumping outfit, a regulator embracing a hydraulic cylinder and plunger operatively attached to the pull-out mechanism of the mill, a valve for shutting off the discharge of the service-pipe in the tank when the water in the latter reaches a predetermined limit, and a controlling-valve comprising a casing provided at its ends with cylinders of differing diameters, differential pistons fitting said cylinders and attached to a common valve-stem, an adjustable spring applied to said valve-stem in opposition to the larger piston, valve-plates on said stem cooperating with valve-seats in the casing, a port between the valve-seats communicating with the cylinder, a port between one valve-seat and the larger piston communicating with the service-pipe and an exhaust-port between the other valve-seat and the smaller piston, substantially as described.

3. In a windmill pumping outfit, the combination with a pump and its upwardly-extending pipes, the tank and its service-pipe and valve, of a transverse pipe clamped to a pump-pipe and provided with a downwardly-projecting terminal and hollow plunger at the end of said terminal, a regulator-cylinder fitting over said terminal and plunger and connected with the mill pull-out, and a regulator-valve rigidly secured to the opposite end of said transverse pipe comprising a central casing having terminal cylinders of greater and less diameter, differential pistons in said cylinders on a common valve-stem, an adjustable spring applied to said valve-stem in opposition to the larger piston, valve-seats in the casing above and below the transverse pipe, valve-plates in the stem cooperating with said valve-seats, a flexible connection leading from a point below the lower valve-seat and the longer piston to the service-pipe and an exhaust-pipe leading from a point between the upper valve-seat and the smaller piston.

576,079. SALES-RECORDER. CHARLES T. SLEEPER, Chicago, Ill., assignor of one-half to George Plumer Everhart, same place. Filed Oct. 9, 1895. Serial No. 565,142. (No model.)



Claim.—1. A sales-recorder comprising a series of substantially rigid reciprocating bars, each carrying a number of the characters by which the registrations are made, a surface with which said characters are adapted to make contact, said surface so constructed and arranged that each character may be separately brought into contact therewith, a movable operating arm or lever connected with said bars so as to move them toward said contact-surface, and a connection between said lever and said contact-surface whereby said surface is moved each time the recorder is operated, so as to present a new surface to the characters on the reciprocating bars.

2. A sales-recorder comprising one or more rollers carrying the paper upon which the registrations are made, a reciprocating bar associated with one of said rollers so as to engage it when reciprocated and move the paper forward by a step-by-step feed, a second reciprocating bar associated with one of said rollers and adapted to engage it once during each revolution, an operating arm or lever connected with both of said bars so as to reciprocate them when the arm is moved, and a supporting device carrying a series of numbers or characters adapted to be moved by the movement of said operating-arm so as to make contact with the paper on said roller or rollers.

3. A sales-recorder comprising a series of rollers carrying the paper upon which the registrations are made, a reciprocating bar associated with one of said rollers so as to engage it each time the bar is reciprocated and move the paper forward by a step-by-step feed, and a pivoted arm or lever engaging said bar so as to reciprocate it when said arm is moved, a supporting device carrying a series of numbers or characters adapted to be moved by the movement of said operating-arm, so as to make contact either singly or combined with the paper on said roller, and an inked tape passing between said numbers or characters and the said paper and connected with one of said rollers so as to be moved along the surface of the paper when the rollers are moved, whereby the desired numbers or characters are printed upon the paper when the operating-lever is moved.

4. A sales-recorder comprising a series of rollers carrying the paper upon which the registrations are made, a series of figures or characters adapted to be brought into contact with said paper, a supporting device for said characters, a reciprocating bar associated with one of said rollers so as to engage it when reciprocated and move the paper forward by a step-by-step feed, whereby a space is made between the successive registrations on the paper, a second reciprocating bar associated with one of said rollers and adapted to engage it at one point in its revolution so as to move the paper forward a greater distance than when moved by said first-mentioned bar, and provide an enlarged space between the registrations at every revolution of said roller, an operating arm or lever connected with said bars so as to reciprocate them when said arm is moved, a series of projecting pins or points extending across the surface of one of said rollers, said pins so positioned as to perforate the paper at the end of each enlarged space thereon whereby the paper may be separated into strips provided at the end with a blank space substantially as described.

5. A sales-recorder comprising a series of rollers carrying the paper upon which the registrations are made, a series of reciprocating bars opposed to one of said rollers and carrying the figures or characters to be recorded, a pivoted frame to which said bars are connected so as to be moved thereby, a reciprocating bar associated with one of said rollers so as to engage it when reciprocated and move the paper forward by a step-by-step feed, whereby a space is made between the successive registrations on the paper, a second reciprocating bar associated with one of said rollers and adapted to engage it at one point in its revolution so as to move the paper forward a greater distance than when moved by said first-mentioned bar, and provide an enlarged space between the registrations at every revolution of said roller, an operating arm or lever operatively connected with the said frame, said operating-lever connected with said last-mentioned bars so as to reciprocate them when said arm is moved, a series of projecting pins or points extending across the surface of one of said rollers, said pins so positioned as to perforate the paper at the end of each enlarged space thereon, whereby the paper may be separated into strips provided at the end with a blank space substantially as described.

6. A sales-recorder comprising a series of rollers carrying the paper upon which the registrations are made, a series of reciprocating bars opposed to one of said rollers and carrying the figures or characters to be recorded, a pivoted frame to which said bars are connected, said frame being connected to the operating arm or lever so as to be moved thereby, a connection between said bars and a series of disks carrying characters similar to those on said bars adapted to be exposed through openings in the case, and a connection between said operating-arm and said rollers whereby the paper is moved forward each time said operating-lever is moved.

7. A sales-recorder comprising one or more rollers carrying the paper upon which the registrations are made, a reciprocating bar associated with one of said rollers so as to move it when reciprocated and move the paper forward by a step-by-step feed, a slot in the end of said bar and an operating arm or lever provided with a pin adapted to work in said slot whereby said bar is reciprocated when said operating-lever is moved, said slot consisting of two portions, one at an angle with the direction of movement of said operating-arm, the other portion being parallel with said movement so that the bar is not moved during the latter part of the movement of said operating-arm.

8. A sales-recorder comprising a series of rollers carrying the paper upon which the registrations are made, a series of reciprocating bars opposed to one of said rollers and carrying the figures or characters to be recorded, a reciprocating bar associated with one of said rollers so as to move said roller when reciprocated and move the paper forward by a step-by-step feed, a slot in the end of said reciprocating bar, an operating arm or lever provided with a pin adapted to work in said slot so as to reciprocate the bar when the operating-lever is moved, said slot so constructed that the bar is not moved by the movement of said operating-arm when near the downward limit of its movement, and a connection between said operating-lever and the reciprocating bars carrying the characters, said connection so constructed that said latter reciprocating bars are moved only when the operating-arm is near the limit of its downward movement.

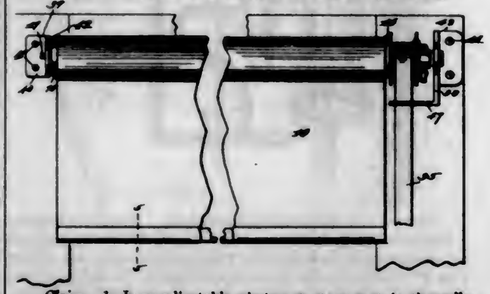
9. A sales-recorder comprising a series of rollers carrying the paper upon which the registrations are made, a series of reciprocating bars opposed to one of said rollers and carrying the figures or characters to be recorded, a reciprocating bar associated with one of said rollers so as to move said roller when reciprocated and move the paper forward by a step-by-step feed, a slot in the end of said reciprocating bar, an operating arm or lever provided with a pin adapted to work in said slot so as to reciprocate the bar when the operating-lever is moved, said slot so constructed that the bar is not moved by the movement of said operating-arm when near the downward limit of its movement, and a connection between said operating-lever and the reciprocating bars carrying the characters, said connection so constructed that said latter reciprocating bars are moved only when the operating-arm is near the limit of its downward movement, a locking device for the money-drawer adapted to be engaged by said operating-lever, so as to be moved to release said drawer, and a locking device for said operating-lever which prevents it from being moved so as to unlock said money-drawer until the recorder is set to record a sale.

10. A sales-recorder comprising a series of rollers carrying the paper upon which the registrations are made, a series of reciprocating bars opposed to one of said rollers and carrying the figures or characters to be recorded, a reciprocating bar associated with one of said rollers so as to move said roller when reciprocated, and move the paper forward by a step-by-step feed, a slot in the end of said reciprocating bar, an operating arm or lever provided with a pin adapted to work in said slot so as to reciprocate the bar when the operating-lever is moved, said slot so constructed that the bar is not moved by the movement of said operating-arm when near the downward limit of its movement, and a connection between said operating-lever and the reciprocating bars carrying the characters, said connection so constructed that said latter reciprocating bars are moved only when the operating-arm is near the limit of its downward movement, a locking device for the money-drawer adapted to be engaged by said operating-lever, so as to be moved to release said drawer, and a locking device for said operating-lever which prevents it from being moved so as to unlock said money-drawer until the register is set to record a sale, said latter locking device controlled and operated by the reciprocating bars carrying the characters to be recorded.

11. A sales-recorder comprising a paper-holding device, a supporting device carrying a series of characters by which the registrations are made, an operating-arm, and a connecting device between said operating-arm and said paper-holding device adapted to move said paper forward step by step so as to leave a space between the successive registrations, said connecting device so constructed that said paper-holder is moved an increased amount at regular intervals so as to leave an enlarged space between the successive registrations.

12. A sales-recorder comprising a paper-holding device, a supporting device carrying a series of characters by which the registrations are made, an operating-arm, and a connecting device between said operating-arm and said paper-holding device adapted to move said paper forward step by step so as to leave a space between the successive registrations, said connecting device so constructed that said paper-holder is moved an increasing amount at regular intervals so as to leave an enlarged space between the successive registrations, and a perforating device associated with said paper-holder and adapted to perforate the paper between the registrations separated by said enlarged space.

576,080. WINDOW-SHADE ROLLER. HERBERT M. STUBBS, St. Louis, Mo. Filed Oct. 6, 1896. Serial No. 608,008. (No model.)



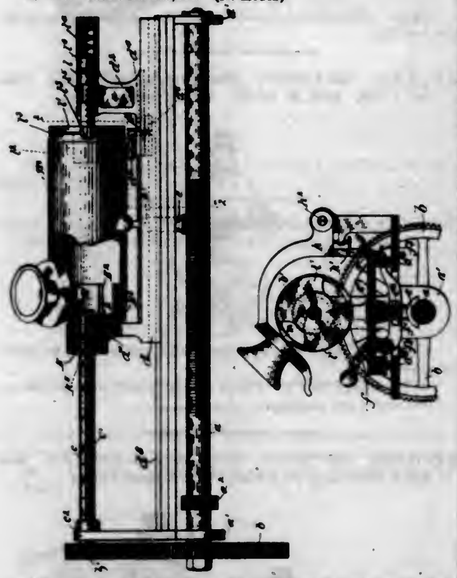
Claim.—1. In an adjustable window shade or curtain, the pulley 19, the flange 21 formed integral with said pulley, the pin 22 formed integral with said pulley, there being an annular recess in the end of said pulley and around said pin 22, the collar 23 loosely mounted upon said pin 22 with the flange 24 of said collar in said recess, the disk 30 attached to the outer face of the flange 21 and holding said collar in position, gravity-pawls pivotally connected to said disk 30 and in position to engage the grooves in said collar 23, substantially as specified.

2. In an adjustable window shade or curtain, a roller having the caps 15 and 16 upon its ends, the shade or curtain attached to said roller and the lower edge of said shade or curtain being turned up and stitched to itself, the stiffening-stick 12 inserted through the loop thus formed, the rod 13 inserted through said loop and through the groove in the lower side of said stiffening-stick, the disk 18 against the face of the cap 16, the pulley 19 against the face of said disk 18 and having the pin 20 inserted through said disk 18 and through said cap and into the end of the roller, the flange 21 formed integral with said pulley 19, the pin 22 formed integral with said pulley 19 and having an annular recess formed around said pin and in the end of said pulley, the collar 23 upon said pin 22 and having the flange 24 engaging the recess in the end of the pulley, the disk 30 attached to the outer face of said flange 21 and holding said flange 24 in position, gravity-pawls pivotally attached to said disk 30 and in position to engage the grooves in said collar 23, substantially as specified.

3. In a window shade or curtain, the collar 23 consisting of the flange 24, the cylindrical portion 25 projecting outwardly from said flange and the rectangular portion 26 projecting outwardly from said cylindrical portion, the longitudinal grooves 27 and 28 formed in opposite sides of said cylindrical portion and said rectangular portion, and the bore 29 extending through said collar, substantially as specified.

4. In an adjustable window shade or curtain, the combination with the end of the roller carrying a shade or curtain, of the pulley 19, the web 35 attached to said pulley, the pin 22 extending from the end of said pulley, the collar 23 upon said pin and rotatably connected to said pulley 19, gravity-pawls connected to said pulley 19 and in position to engage the grooves in said collar 23, and the bracket 38 engaging said collar 23, substantially as specified.

576,081. PHONOGRAPH. LEWIS W. BRIGGS and DANIEL E. BOSWELL, Chicago, Ill.; said Briggs assignor to said Boswell. Filed Sept. 21, 1896. Serial No. 562,177. (No model.)



Claim.—1. In a phonograph, the combination with a traveling carriage, of ways whereon the said carriage rests permitting the movement thereof only in a plane parallel with the axis of the phonograph, a phonograph-cylinder rotatably mounted upon the said carriage, a non-traveling diaphragm-needle engaging said cylinder, a driving-shaft for rotating the cylinder, a threaded shaft or screw, meshing gear-wheels connecting the said driving-shaft and screw adapted to rotate the latter at a lower rate of speed, a threaded nut or other part carried upon the traveling carriage normally engaging the said screw and imparting to the said carriage a lateral movement directly proportional to the rate of rotation of the said phonograph-cylinder, substantially as described.

2. In a phonograph, the combination with a traveling carriage, of a hollow phonograph-cylinder mounted thereon, a non-traveling diaphragm-needle engaging said phonograph-cylinder, a driving-shaft for rotating said cylinder having one end journaled in a stationary bearing and the other end movable longitudinally in a bearing carried upon said carriage, the end of said shaft projecting into the interior of said hollow cylinder as the carriage advances, a threaded shaft or screw mounted in stationay bearings, reducing-gears between said driving-shaft and said screw to cause the shaft to rotate at a higher rate than the screw, a nut or part carried upon the carriage and engaging said screw to propel the carriage as the screw rotates, and means for moving the diaphragm-needle out of engagement with the cylinder and for moving the nut out of engagement with the screw; substantially as described.

3. In a phonograph, the combination with a carriage, of a pair of face-plates mounted upon said carriage, a phonograph-cylinder adapted to be held between said plates, a driving-screw for moving said carriage and a driving-shaft splined to one of said face-plates and geared to said driving-screw; substantially as described.

4. In a phonograph, the combination with a traveling carriage of a pair of face-plates journaled to rotate in standards carried upon said carriage, one of said face-plates being yieldingly pressed toward the other, a phonograph-cylinder adapted to be held between said plates, a rotating screw for driving said carriage, and a driving-shaft geared to said driving-screw and splined to one of said face-plates; substantially as described.

5. In a phonograph, the combination with a traveling carriage, of a pair of face-plates journaled in standards carried upon said carriage, one of said standards being adjustably movable toward and from the other phonograph-cylinder adapted to be held between said plates, a rotating screw for driving said carriage, and a driving-shaft geared to said screw and splined to one of said face-plates; substantially as described.

6. In a phonograph, the combination with a traveling carriage, of a phonograph-cylinder adapted to be supported thereby, a driving-screw, a nut carried upon the carriage and adapted to engage said driving-screw, a lever adapted when rocked to disengage said nut from said driving-screw, and means operated by the rocking of said lever for raising the diaphragm-needle from engagement with the phonograph-cylinder; substantially as described.

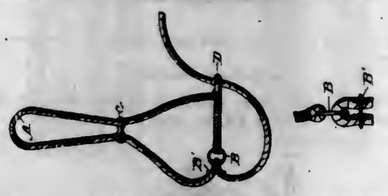
7. In a phonograph, the combination with the carriage *d* of the driving-screw *a*, the nut *e* carried upon said carriage and adapted to engage said screw, pivoted lever *f* connected with said nut *e*, pivoted arm *h* carrying the phonograph-diaphragm, and the bar *g* linked to the carriage and adapted when raised by the end of the pivoted lever *f* to engage and rock the arm *h* to move the diaphragm-needle out of engagement with the phonograph-cylinder; substantially as described.

8. In a phonograph, the combination with the carriage *d*, carrying the standards d' d^2, of the surface-plate l' mounted in said standard d^2 and having a yielding longitudinal movement therein, said standard d^2 being adjustably movable toward and from the standard d', the face-plate k' mounted in the standard d', the shaft *c* splined to said face-plate K', driving-screw *a* and gears *b* b' connecting screw *a* and shaft *c*.

9. In a phonograph, the combination with two face-plates between which the hollow phonograph-cylinder is adapted to be held, of openings in one or both of said face-plates to permit the insertion of the finger to facilitate the placing of the phonograph-cylinder in position; substantially as described.

REISSUES.

11,586. ROPE HALTER. THOMAS DOBLE, Binghamton, N. Y., assignor of one-half to J. Monroe Lyons, same place. Filed Oct. 26, 1894. Serial No. 535,575. Original No. 522,406, dated July 3, 1894.



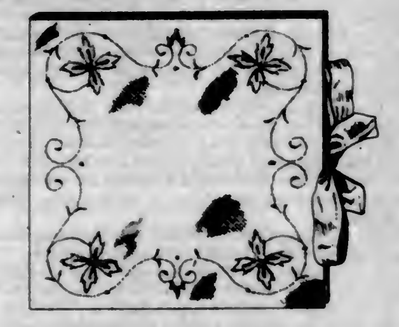
Claim.—1. A halter comprising a loop A, a ring B at the end of one limb of the rope, the loop or eye D intermediate of the terminal ring B and the loop A, the other limb of the rope passing through the terminal ring B and through the intermediate loop D, substantially as described.

2. A halter comprising a loop A, a ring B at the end of one limb of the rope, the loop D intermediate of the terminal ring and the loop A, the other limb of the rope passing through the ring B and the loop D, the movable ring C for adjusting the loop A and the movable locking-ring B' to act in conjunction with the ring B, substantially as described.

3. In combination, a rope or strap, a ring upon one end thereof, and a second single ring loose upon the rope or strap, said single ring having its interior diameter smaller than the exterior of the first ring and being arranged at right angles to the first ring and centrally thereof and bearing against the outer periphery of said first ring, the rope or strap passing through the loose ring to one side of the terminal ring, through the terminal ring and again through the loose ring upon the opposite side, substantially as described.

DESIGNS.

26,555. BOOK. HENRY BRISTOW, Brooklyn, N. Y. Filed Nov. 25, 1896. Serial No. 613,463. Term of patent 7 years.



Claim.—The design for a book herein shown and described.

26,556. CLOCK-CASE. CHARLES D. GOLDEN, Chicago, Ill. Filed Dec. 18, 1896. Serial No. 616,193. Term of patent 3½ years.



Claim.—The design for a clock-case, substantially as shown and described.

26,557. CLOCK-CASE. CHARLES D. GOLDEN, Chicago, Ill. Filed Dec. 18, 1896. Serial No. 616,195. Term of patent 3½ years.



Claim.—The design for a clock-case, substantially as shown and described.

26,558. LAMP ATTACHMENT. FRANK FOY, Des Moines, Iowa, assignor to the Des Moines Incubator Company, same place. Filed Nov. 7, 1896. Serial No. 611,409. Term of patent 7 years.



Claim.—The design for an attachment for lamp-burners as shown and described.

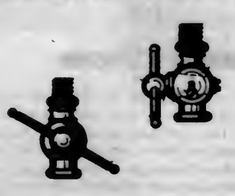
26,559. GAS-FIXTURE. ERNST LINDNER, New York, N. Y. Filed Dec. 5, 1894. Serial No. 530,927. Term of patent 7 years.



Claim.—1. The design for a gas-fixture substantially as shown and described.

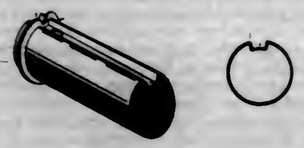
2. In a design for a gas-fixture the projecting piece A substantially as shown and described.

26,560. GAS-FIXTURE. ERNST LINDNER, New York, N. Y. Filed Jan. 6, 1896. Serial No. 574,549. Term of patent 7 years.



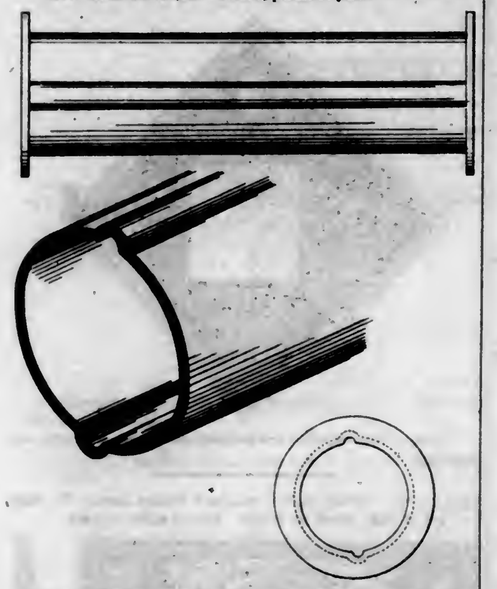
Claim.—The design for a gas-fixture substantially as herein shown and described.

26,561. TIP FOR SHADE-ROLLERS. WILLIAM R. SHAW, Brooklyn, N. Y. Filed Nov. 23, 1896. Serial No. 613,229. Term of patent 14 years.



Claim.—The design for a shade-roller tip, substantially as herein shown and described.

26,562. TUBE. CHARLES F. PIKE, Philadelphia, Pa. Filed Oct. 21, 1896. Serial No. 609,621. Term of patent 14 years.



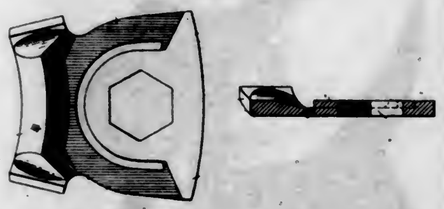
Claim.—The design for a tube substantially as herein shown and described.

26,563. BOLT-WASHER. WILLIAM HEISER, Buffalo, N. Y. Filed Dec. 4, 1896. Serial No. 614,494. Term of patent 14 years.



Claim.—The design for a bolt-washer, herein shown and described.

26,564. SWITCH CONTACT MEMBER. MONROE GUETT, Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, same place. Filed Oct. 20, 1896. Serial No. 609,470. Term of patent 14 years.



Claim.—The design for a switch contact member, substantially as described and shown.

26,565. SWITCH-HANDLE. GERALD W. HART, West Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, Hartford, Conn. Filed Nov. 30, 1896. Serial No. 614,010. Term of patent 14 years.



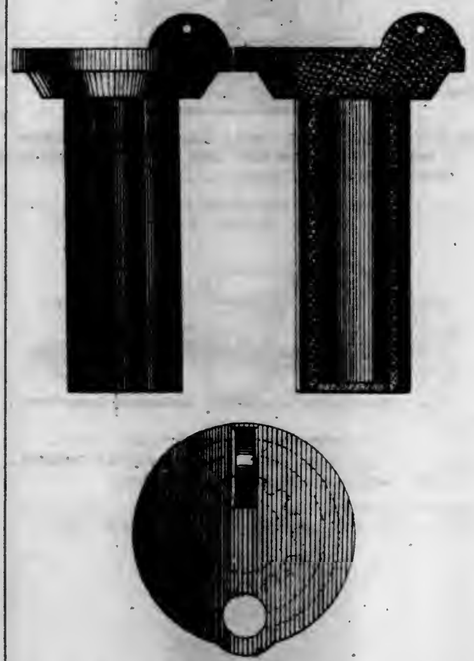
Claim.—The design for a switch-handle substantially as described and shown.

26,566. CASING FOR ENGINES. JOHN W. RAYMOND, Racine, Wis. Filed Jan. 13, 1896. Serial No. 575,383. Term of patent 3½ years.



Claim.—The design for an engine-casing herein shown and described.

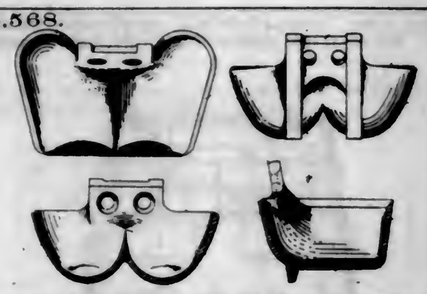
26,567. BATTERY ELEMENT. WILLIAM MILLS, Elizabeth, N. J. Filed Nov. 30, 1896. Serial No. 614,012. Term of patent 14 years.



Claim.—The design for a battery element, substantially as herein shown and described.

26,568. WATER-WHEEL BUCKET. EDWARDS P. JOHNS, Alameda, Cal., assignor to the Risdon Iron and Locomotive Works, San Francisco, Cal. Filed Nov. 14, 1896. Serial No. 612,375. Term of patent 14 years.

26,568.



Claim.—The design for a water-wheel bucket, substantially as shown and described.

26,569. RADIATOR. ALBERT W. FOOTE, Jr., Buffalo, N. Y., assignor to John Heider, Albert W. Foote, and Joseph Scherer, same place. Filed Oct. 21, 1896. Serial No. 609,616. Term of patent 3½ years.



Claim.—The design for a radiator-section, substantially as herein shown and described.

26,570. HAND-TRUCK. EMIL A. HOEFER, Freeport, Ill., assignor to George W. Warner, same place. Filed May 20, 1896. Serial No. 593,669. Term of patent 7 years.



Claim.—The design for a hand-truck substantially as shown and described.

26,571. TOY CHAIR. PETER F. PIA, New York, N. Y. Filed Oct. 1, 1896. Serial No. 607,618. Term of patent 7 years.



Claim.—1. In a design for a toy chair, the back of essentially the configuration shown.

2. The design for a toy chair herein shown and described.

26,572. HALL-RACK. CHARLES D. GOLDEN, Chicago, Ill. Filed Dec. 18, 1896. Serial No. 616,192. Term of patent 3½ years.



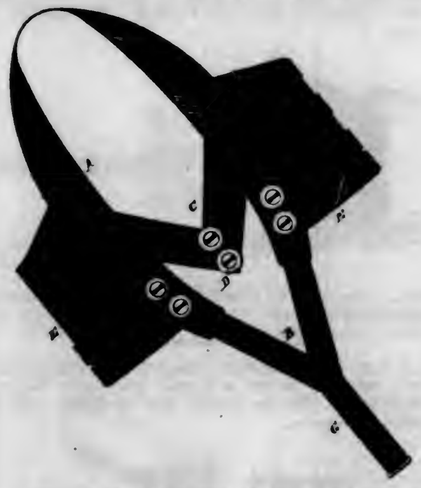
Claim.—The design for a hall-rack, substantially as shown and described.

26,573. TOWEL-RACK. CHARLES D. GOLDEN, Chicago, Ill. Filed Dec. 18, 1896. Serial No. 616,194. Term of patent 3½ years.



Claim.—The design for a towel-rack, substantially as shown and described.

26,574. UNDERWAIST. FRANK KERR, Mattoon, Ill. Filed May 8, 1896. Serial No. 590,779. Term of patent 14 years.



Claim.—The design for an underwaist having the closed elliptical part A and the V-shaped termination B at the other end, and the intermediate V-shaped part C disposed toward the V-shaped end B, the two V-shaped parts being located one above the other in the same vertical plane, and arranged with their projecting points in the same direction.

TRADE-MARKS

REGISTERED JANUARY 26, 1897.

29,495. ENVELOPS. THE THOMPSON & NORRIS COMPANY, Brooklyn, N. Y. Filed Dec. 16, 1896.

Photomailer

Essential feature.—The word "PHOTOMAILER." Used since December 1, 1896.

29,496. SHIRTS. COHEN, Coon & Co., Troy, N. Y. Filed Jan. 2, 1897.

&

Essential feature.—The word "COON." Used since December 15, 1896.

29,497. SHOES, BOOTS, HATS, COATS, CAPS, PANTS, VESTS, GLOVES, AND SIMILAR ARTICLES OF APPAREL. THOMAS F. BYRNE, Emporia, Kans., and Chicago, Ill. Filed Oct. 27, 1896.



Essential feature.—The words "ALL THE YEAR ROUND." Used since October 15, 1896.

29,498. BOOTS AND SHOES HAVING CUSHIONS UPON THEIR INSOLES. ADAM REED, St. Joseph, Mo. Filed Jan. 5, 1897.



Essential feature.—A representation of a shoe and a cushion. Used since December, 1894.

29,499. MEN'S AND BOYS' SHOES. TOOTLE, WHEELER & MOTTER, St. Joseph, Mo. Filed Dec. 12, 1896.



Essential feature.—The words "SEGO LILY SHOE." Used since September 15, 1894.

29,500. WOMEN'S, MISSES', AND CHILDREN'S SHOES. TOOTLE, WHEELER & MOTTER, St. Joseph, Mo. Filed Dec. 12, 1896.



Essential feature.—The word and figures "DISTRICT 76." Used since January 15, 1894.

29,501. TAPESTRY BRUSSELS AND TAPESTRY VELVET CARPETS. ROXBURY CARPET COMPANY, Boston, Mass. Filed Dec. 5, 1896.



Essential feature.—A straight line of color extending longitudinally of the fabric of a carpet, from end to end, and at the back of the same. Used since 1878.

29,502. RUBBER BELTING, HOSE, PACKING, AND UTENSILS MADE OF RUBBER. THE PEERLESS RUBBER MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 7, 1896.

[redacted]

Essential feature.—The word "RAINBOW." Used since November 10, 1890.

29,503. BROOMS. JOHN W. WILLARD, Boston, Mass. Filed Nov. 3, 1896.



Essential feature.—The word "NU." Used since December 12, 1896.

29,504. FISHING-RODS. MONTAGUE CITY ROD COMPANY, Montague, Mass. Filed Dec. 30, 1896.

STEEL VINE

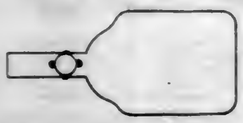
Essential feature.—The words "STEEL VINE." Used since November, 1894.

29,505. CRUTCHES AND PARTS THEREOF. CALLEY & CURRIER, Bristol, N. H. Filed Jan. 2, 1897.



Essential feature.—A conventional representation of the globe with portions of crutches extending radially from it and a pair of human legs and feet extending downward therefrom. Used since December 19, 1896.

29,506. EYEGLASSES AND SPECTACLES AND PARTS THEREOF. SHORT, HERSEY & Co., Attleborough, Mass. Filed Dec. 12, 1896.



Essential feature.—Lines illustrating the form of a tag. Used since January 1, 1895.

29,507. LINIMENT. THE BRANDRETH COMPANY, Sing Sing, N. Y. Filed Oct. 16, 1896.

CYCLE-CEA

Essential feature.—The hyphenated word "CYCLE-CEA." Used since January 2, 1895.

29,508. LINIMENTS. CHARLES NELSON, Kansas City, Mo. Filed Sept. 12, 1896.



Essential feature.—The word "SCANDIA" upon a parallelogram having serrated edges. Used since September 1, 1896.

29,509. REMEDY FOR WOMEN'S DISEASES. GEORGE G. POWERS, New Haven, Conn. Filed Aug. 31, 1896.

Carter's Relief for Women

Essential feature.—The words "CARTER'S RELIEF FOR WOMEN." Used since May 20, 1888.

29,510. CERTAIN NAMED MEDICINES. BENJAMIN J. LAUER, Chicago, Ill. Filed Aug. 6, 1896.

AGNEW

Essential feature.—The word "AGNEW." Used since March 1, 1893.

29,511. PREPARATIONS FOR SKIN DISEASES, INCLUDING OINTMENTS, CREAMS, POWDERS, AND SOAPS. THE ZOMELA CO., Handsworth, England. Filed Nov. 23, 1896.

ZOMELA

Essential feature.—The word "ZOMELA." Used since December 1, 1895.

29,512. PILLS AND PELLETS. BROWN MANUFACTURING COMPANY, Greeneville, Tenn. Filed Dec. 23, 1896.

RAMON'S TONIC

Essential feature.—The words "RAMON'S TONIC." Used since 1890.

29,513. POLISHES FOR METALS. ANNIE A. FOWLER, East Orange, N. J. Filed Sept. 30, 1896.



Essential feature.—A vignette of a dog's head or a head shown detached from or without the body of the dog. Used since May, 1892.

29,514. LEATHER DRESSING AND POLISH. GOODRICH POLISH MANUFACTURING CO., Campello, Mass. Filed Dec. 29, 1896.

TRILBY

Essential feature.—The word "TRILBY." Used since June 6, 1895.

29,515. LEATHER DRESSING AND POLISH. GOODRICH POLISH MANUFACTURING CO., Campello, Mass. Filed Dec. 29, 1896.



Essential feature.—The abbreviation and word "20TH CENTURY." Used since October 15, 1895.

29,516. SOAP. THE M. WERK COMPANY, Cincinnati, Ohio. Filed Dec. 28, 1896.



Essential feature.—The word "FALCON" and a representation of a bird supported by a hand. Used since February 29, 1896.

29,517. SOAP FOR CLEANSING AND DYEING PURPOSES. THE MAYPOLE SOAP SYNDICATE, LIMITED, London, England. Filed Nov. 13, 1896.

MAYPOLE

Essential feature.—The word "MAYPOLE." Used since November 16, 1895.

29,518. SALERATUS, SODA, AND SAL-SODA. CHURCH & DWIGHT COMPANY, New York, N. Y. Filed Dec. 22, 1896.



Essential feature.—A representation of an arm and hammer. Used since 1874.

29,519. BEESWAX. WILLIAM H. BOWDLEAR, Boston, Mass. Filed Dec. 31, 1896.

W. H. B.

Essential feature.—The letters "W H B." Used since October 1, 1870.

29,520. CANNED SALMON. SEUBERT BROTHERS COMPANY, The Dalles, Oreg. Filed Nov. 19, 1896.



Essential feature.—The words "ANNIE'S FAVORITE" and a front view of the body, head, and arms of a woman. Used since March 1, 1896.

29,521. CANNED SALMON. SEUBERT BROTHERS COMPANY, The Dalles, Oreg. Filed Nov. 19, 1896.

[redacted]



Essential feature.—The word "TENINO" and a representation of an Indian chief. Used since March 1, 1896.

29,522. PEPTONE OF MEAT. LIEBIG'S EXTRACT OF MEAT COMPANY, LIMITED, London, England, and Antwerp, Belgium. Filed Dec. 28, 1896.

PEPTARNIS

Essential feature.—The word "PEPTARNIS." Used since 1896.

29,523. MALT EXTRACT. WELDE & THOMAS BREWING COMPANY, Philadelphia, Pa. Filed Oct. 15, 1896.

Sanitonic

Essential feature.—The word "SANITONIC." Used since May 1, 1896.

29,524. WHISKY. ALEXR. YOUNG CO., LIMITED, Philadelphia, Pa. Filed Dec. 19, 1896.

·Y·P·M·

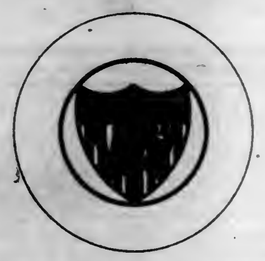
Essential feature.—The initials "Y. P. M." Used since 1856.

29,525. BRANDY. PROTOT & DUCOUT, Jeune, Paris, France. Filed Dec. 29, 1896.

MOUSCO

Essential feature.—The word "MOUSCO." Used since September 3, 1896.

29,526. SEWING-MACHINES. WHEELER & WILSON MANUFACTURING COMPANY, Bridgeport, Conn. Filed Dec. 7, 1896.



Essential feature.—A shield within a circle, with perpendicular bars and a horizontal row of stars, and bearing thereon the monogram W & W. Used since 1871.

29,527. PETROLEUM-STOVES AND SOLDERING APPARATUS. R. A. HJORTH & Co., Stockholm, Sweden. Filed Nov. 17, 1896.

PRIMUS

Essential feature.—The word "PRIMUS." Used since September, 1896.

29,528. HEATERS, RANGES, AND STOVES. MAJESTIC MANUFACTURING COMPANY, St. Louis, Mo. Filed Dec. 26, 1896.

MAJESTIC

Essential feature.—The word "MAJESTIC." Used since February 15, 1891.

29,529. HOES. D. & H. SCOVIL, Higganum, Conn. Filed Dec. 19, 1896.



Essential feature.—A pictorial representation of a hoe-blade bearing the capital letter "S." Used since 1875.

29,530. GUNS AND PISTOLS. MARY ELIZABETH JOHNSON, Fitchburg, Mass., executrix of Iver Johnson, deceased. Filed Dec. 30, 1896.

CHAMPION

Essential feature.—The word "CHAMPION." Used since January 1, 1882.

29,531. GUNS AND PISTOLS. MARY ELIZABETH JOHNSON, Fitchburg, Mass., executrix of Iver Johnson, deceased. Filed Dec. 30, 1896.

DEFENDER

Essential feature.—The word "DEFENDER." Used since January 1, 1882.

29,532. CERTAIN NAMED EDGE-TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.



Essential feature.—A pictured representation of a crown, arm, and hammer. Used since December, 1875.

29,533. CERTAIN NAMED EDGE-TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.



Essential feature.—The words "COLLINS & CO. HARTFORD." Used since 1826.

29,534. CERTAIN NAMED EARTHWORKING-TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.



Essential feature.—A pictured representation of a crown, arm, and hammer. Used since December, 1875.

29,535. CERTAIN NAMED EARTHWORKING-TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.

Essential feature.—The word "COLLINS." Used since 1826.

29,536. CERTAIN NAMED EARTHWORKING-TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.



Essential feature.—The words "COLLINS & CO., HARTFORD." Used since 1826.

29,537. SLEDGES, HAMMERS, WRENCHES, SHOES, DIES, AND SAWS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.



Essential feature.—The word "COLLINS." Used since 1826.

29,538. SLEDGES, HAMMERS, WRENCHES, SHOES, DIES, AND SAWS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.



Essential feature.—A pictured representation of a crown, arm, and hammer. Used since December, 1875.

29,539. SLEDGES, HAMMERS, WRENCHES, SHOES, DIES, AND SAWS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 18, 1896.



Essential feature.—The words "COLLINS & CO. HARTFORD." Used since 1826.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Sixth Circuit.

STANDARD CARTRIDGE COMPANY *et al. v.* PETERS CARTRIDGE COMPANY.

Decided December 8, 1896.

1. LIGOWSKY—CARTRIDGE-LOADING MACHINE—PRIORITY.
The action of the Patent Office and of the circuit court in adjudging priority in favor of George Ligowsky in the interference *Ligowsky* v. *Peters* v. *Hisey*, Cartridge-Loading Machine, *Held* correct.

2. PRIORITY—DECISION OF THE PATENT OFFICE PRIMA FACIE CONTROLLING IN SUIT, UNDER REVISED STATUTES 4915.
A decision of the Patent Office as to priority of invention must be accepted as controlling upon that question of fact in any subsequent suit between the parties, unless the contrary is established by testimony which carries thorough conviction. (Citing *Morgan* v. *Daniels*, 67 O. G., 811; C. D., 1894, 285; 153 U. S., 124, 125.)

3. EVIDENCE—QUANTUM NECESSARY IN A SUIT UNDER REVISED STATUTES 4915.
It is not enough to justify a court in saying that the Patent Office was in error in a decision upon a question of priority that the declarations and admissions of the successful contestant cast discredit upon him as a witness. The evidence in the nature of admissions must make it clear that the evidence supporting the action of the Office cannot be true.

4. SUIT UNDER REVISED STATUTES 4915—BURDEN OF PROOF SHIFTED UPON SENIOR APPLICANT WHEN JUNIOR HAS OBTAINED A PATENT.
When the decision of the Office is in favor of a junior applicant and a patent issues to him, in a subsequent suit under Revised Statutes 4915 the burden of proof is shifted, and it then devolves upon the senior applicant to show either that his invention antedates that of the patentee or that the latter never made the invention.

5. SUIT UNDER REVISED STATUTES 4915—EVIDENCE THEN FIRST INTRODUCED—EFFECT WEAKENED.
Evidential weight of alleged declarations of one contestant in favor of his opponent, in a suit under Revised Statutes 4915, is much impaired by the fact that, though accessible, they were not introduced during the interference proceedings.

6. EVIDENCE—SIGNATURE TO DRAWING OF INVENTION.
The fact that one contestant witnessed the signature of a second contestant, as inventor, to a drawing made by the latter and disclosing the invention in controversy may be overcome by testimony in behalf of the first contestant that said drawing was intended to disclose as the invention of the second contestant an improvement merely and by additional facts tending to show conception by the first contestant and then disclosure by him to the second.

7. CONCEPTION—REDUCTION TO PRACTICE—PRIORITY.
If ineffectual efforts were made to give an idea form, but were abandoned before reaching such a stage of completion as to require only ordinary mechanical skill to carry the conception to success, the claim of priority of conception cannot be sustained against a later independent conception carried into practical form at an earlier date.

8. CONCEPTION—IMPERFECTION OF SKETCHES NOT A VITAL DEFECT.
The fact that sketches relied upon to establish conception are rude and imperfect and do not show a working machine is not a vital defect if skilled operators could from such sketches construct a machine embodying the improvement in dispute.

9. SKETCHES—DATE OF CONCEPTION.
The doctrine announced in *Webster Loom Co.* v. *Higgins*, (21 O. G., 231; 105 U. S., 586; C. D., 1882, 285,) to the effect that that which is common and well known in the art may be understood as if written out in the specification of a patent, applies with even greater force to the adequacy of sketch drawings when the question is one of carrying back the date of an invention to the time of a first conception.

APPEAL from the Circuit Court of the United States for the Western Division of the Southern District of Ohio.

STATEMENT OF THE CASE.

This is a bill in equity filed under section 4915, Revised Statutes of the United States. It involves a question of priority of invention between Charles S. Hisey, who has assigned his invention to the complainant, the Standard Cartridge Company, and George Ligowsky, who has assigned the same invention to the Peters Cartridge Company.

Hisey first constructed an organized machine embodying the invention now in controversy and first filed an application for a patent thereon. Before the Patent Office had acted upon the matter Ligowsky filed his application for a patent upon the same novel improvements claimed by Hisey. An interference was declared upon certain claims embraced in each application. The issues upon this interference were as follows:

1. In a cartridge-loading machine, the combination, with shell-loading devices, of an endless belt, band or carrier suitably actuated, said belt, band or carrier being provided with shell-cases secured thereto and projecting therefrom.

2. In a cartridge-loading machine, the combination, with an endless belt, band or carrier provided with shell-cases secured thereto and projecting therefrom, of loading and ejective devices arranged and located over, above and in line with said endless belt, band or carrier, and mechanism for giving the carrier intermittent motion and for operating the loading and ejecting devices.

3. In a cartridge-loading machine, the combination, with an endless belt, band or carrier provided with shell-cases secured thereto and projecting therefrom, of a shell-delivery device located in the path of the carrier.

Much evidence was taken upon the questions of priority thus put in issue. The Examiner of Interferences decided the issues in favor of Ligowsky. Upon an appeal to the Examiners-in-Chief the decision of the Examiner of Interferences was reversed and priority awarded to Hisey. From this an appeal was taken to the Commissioner, who again awarded priority of invention to Ligowsky and reversed the decision of the Examiners-in-Chief. (*Ligowsky* v. *Peters* v. *Hisey*, 57 O. G., 1593.) In accordance with this judgment a patent was issued to Ligowsky's assignee, the Peters Cartridge Company. That patent is dated December 8, 1891, and is numbered 464,883.

To reverse this action of the Department and to have Charles S. Hisey declared the only and first

inventor of the improvements patented to the assignee of Ligowsky is the object of this suit. The entire record upon the interference issue in the Patent Office, together with the opinions filed upon the several and independent hearings accorded upon the interference issues, was by stipulation filed in the circuit court and made part of the record. Both parties took additional evidence, and upon a record thus made up of more than thirty-three hundred printed pages the cause was heard in the court below by the Hon. George R. Sage, district judge, who again awarded priority of invention to Ligowsky. In an opinion found in the transcript sent to this court that able and experienced patent judge said:

The opinion of this court, after having heard the arguments of counsel, examined their briefs and the record, and considered the whole case, is that, independently of the rule as to the burden of proof, the decision of the Commissioner of Patents is right, that Ligowsky was the inventor, and that the attempt of Hisey to appropriate the invention was fraudulent. (*Standard Cartridge Co. et al.* v. *Peters Cartridge Co.*, 72 O. G., 742; 69 Fed. Rep., 408.)

In accordance with this conclusion the bill of the complainant was dismissed. From this decree an appeal has been perfected and errors assigned.

Before TAFT, LURTON, and HAMMOND, Judges.

Mr. E. M. Marble and *Mr. R. H. Parkinson* for the appellants.

Mr. Frank T. Brown for the appellee.

Having made the foregoing statement of facts, the opinion of the court was delivered by LURTON, Circuit Judge.

Though the issue is one of priority of invention between Charles S. Hisey and George Ligowsky, its solution under this proceeding does not depend upon the mere preponderance of evidence. That department of Government charged with the duty of originally hearing and determining questions of priority arising under conflicting applications of inventors has, upon evidence and full consideration, determined the controversy between those parties against the contention of the present complainant and awarded a patent to the assignee of George Ligowsky. But for the provision made by Congress and found in section 4915 of the Revised Statutes the conclusion of the executive department of Government that Hisey was not entitled to a patent upon improvements which he claims to have invented in cartridge-loading machines would be fatal to his claim. The statute referred to is the sole foundation for the jurisdiction now invoked. In considering the weight to be attached to the action of the Patent Office in a like case where there had been an interference issue between rival claimants of the same invention the Supreme Court said:

It is an application to the Court to set aside the action of one of the executive departments of the Government. The one charged with the administration of the patent system had finished its investigations and made its determination with respect to the question of priority of invention. That determination gave to the defendant the exclusive rights of a patentee. A new proceding is instituted in the courts—a proceeding to set aside the conclusions reached by the administrative department, and to give to the plaintiff the rights there awarded to the defendant. It is something in the nature of a suit to set aside a judgment, and as such is not to be sustained by a mere preponderance of evidence. * * * Upon principle and authority, therefore, it must be laid down as a rule that where the question decided in the Patent Office is one between contesting parties as to priority of invention, the decision there made must be accepted as controlling upon that question of fact in any subsequent suit between the same parties, unless the contrary is established by testimony which in character and amount carries thorough conviction. (*Morgan* v. *Daniels*, C. D., 1894, 285; 67 O. G., 811; 153 U. S., 124, 125.)

Tested by this rule, has the complainant made such a case as to justify this court in canceling the patent issued to Ligowsky's assignee and requiring one to be issued to Hisey instead?

Machines for automatically loading cartridge-shells with powder, wads, and shot had been long known in the art before either Hisey or Ligowsky claim to have made the improvements now in controversy. Many patents for such cartridge-loading machines have been filed in this record to illustrate the history of the art before the attention of either was attracted to such machines. In most of these patents cartridge-shells were loaded with powder, shot, and wads automatically and then ejected from the machine. In most, if not all, of them to which attention has been particularly called the carrier conveying the empty shell to the different loading-tools traversed a circular path. The location of the loading-tools necessarily conformed to the structure of the shell-carrier, and were therefore arranged in a cluster. The circular arrangement of the loading-tools and the circular character of the table or disk carrying the empty shells to the loading-tools in proper succession characterized all of the machines of the old art, and are therefore known as "round-table machines." The radical point of departure from this old round-table type of machine covered by the conflicting claims put in issue by the interference proceeding lies in the substitution of an endless belt, band, or carrier, suitably actuated and provided with shell-cases secured thereto and projecting therefrom, for the old round-table disk carrier of the old type of machine. The change from a rigid disk carrier traversing a circular path to an endless-belt carrier moving in a straight line made necessary a readjustment of the location of the loading-tools and their arrangement in a straight line above the belt shell-carrier, as well as the adaptation of a device for delivering the shells properly located in the path of the carrier. This substitution of an endless-belt shell-carrier, properly actuated, for the old round-table carrier and the necessary relocation and proper adaptation of the loading-tools and other devices already known to the art to the new form of carrier constituted the real substance of the improvements on the old machines described in the interference issues.

The case for Hisey as the first and sole inventor of these improvements on the old type of machine is substantially this:

First. That during the summer and fall of 1887 he had been engaged in overhauling and truing up two round-table machines for the Peters Cartridge Company and in constructing two other machines of the round-table type for the same company. He claimed that he made many improvements in the mechanism of these machines, which claim, as we shall hereinafter see, became subsequently the subject of another interference contest between himself and G. M. Peters, of the Peters Cartridge Company, the issues in that contest being finally decided against him. He says that the knowledge thus acquired of the clumsiness and

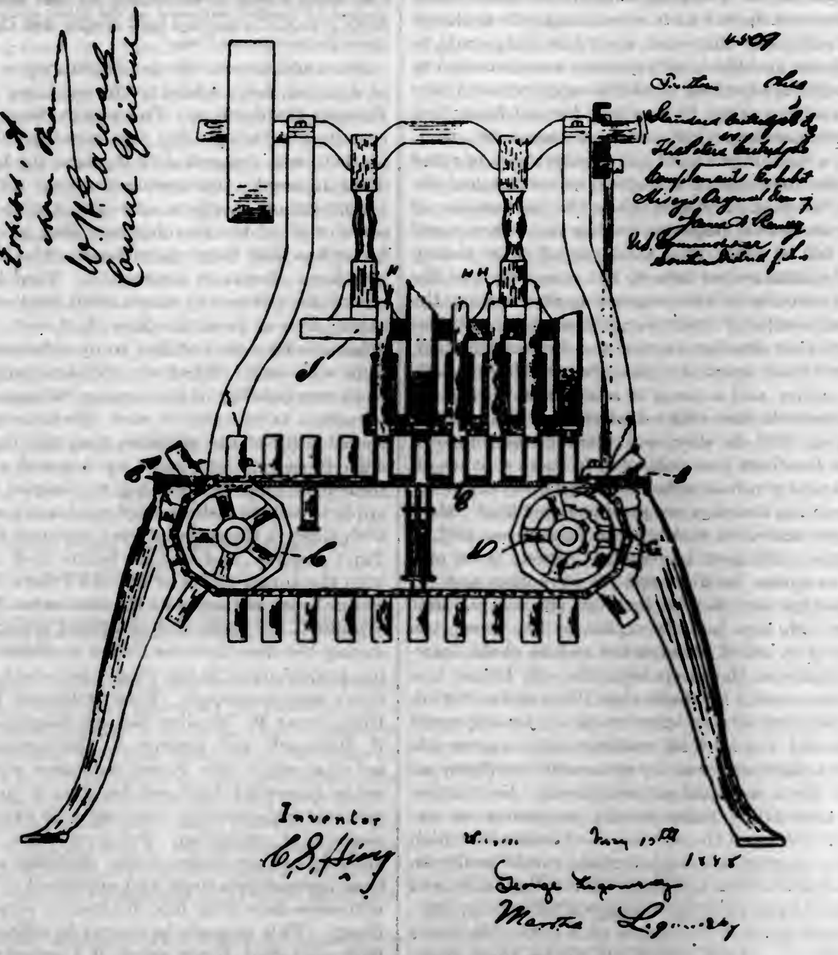
slowness of these old round-table machines led him to thinking, and that in the month of April, 1888, the idea of an endless-chain carrier occurred to him, being suggested by—

observing a bicycle go by that had an endless chain to transmit the power.

He says he followed the thought up by experiment with a chain "on a prismatic disk * * * to view its motion." He then says:

After determining in my own mind that I could make it work, I made a drawing showing the connections as they occurred to me, having its tools on a table above the chain and in line with the chain, and showing a device for intermittently moving the chain.

Second. The drawing mentioned is produced and filed and bears date May 10, 1888. It is signed by Hisey as inventor and by George Ligowsky and Martha Ligowsky as witnesses. The word "Inventor" above the signature of Hisey was written by George Ligowsky, and the word "Witness" above the signatures of George Ligowsky and Martha Ligowsky is also in the handwriting of George Ligowsky. As to the authenticity of this original Hisey drawing there is no dispute.



COMPLAINANTS' EXHIBIT HISEY'S ORIGINAL DRAWING

Third. That in August, 1889, complete detailed working drawings were made and an organized machine shortly thereafter constructed.

Fourth. That September 8, 1889, an application was filed in the Patent Office for a patent upon these improvements applied to a cartridge-loading machine for loading bullet-cartridges, and on June 24, 1889, he filed a second application for the same novel features applied to a machine for loading cartridges with shot.

Fifth. That photographs of the organized machine constructed in the summer and fall of 1888, at Berlin, Germany, by Hisey, or under his plans and direction, were sent from Berlin in January, 1889, by one Armin Tenner, for whom the machine was built, to George Ligowsky at Cincinnati.

Sixth. Between the date of Hisey's original drawing, May 10, 1888, and his arrival in Berlin in June, 1888, where he went to construct certain cartridge-loading machines for Armin Tenner, it is shown

that he exhibited a section of endless chain and his original drawing to several persons and claimed the machine shown in the drawing as his invention.

This summary of the evidence favorable to Hisey's claim is met upon the other side as follows:

First. By the testimony of George Ligowsky that while Hisey was working on the Peters Cartridge Company's round-table machines in the shops of the Cincinnati Screw and Tap Company he, Ligowsky, was having built by the same company a certain automatic irrigating-machine of his own invention and upon which he subsequently took out a patent; that this work took him frequently to the shops, and there his attention was attracted to the cartridge-loading machines upon which Hisey was working; that in that way he and Hisey first met each other and soon became intimate; that, being a machinist and of an inventive turn of mind and the inventor of a number of mechanical devices, he became interested in the mechanism of these machines, (this was during the summer and early fall of 1887;) that his study of these round-table machines led him to the conception of the novel features of the improvements forming the subject-matter of controversy between himself and Hisey; that during August and September, 1887, he produced seven sketches showing the endless-belt carrier and a mode of adaptation to the old loading-tools and other devices, and that during the year 1887 he disclosed these novel improvements to others and exhibited to them some or all of his said seven sketches and explained his ideas. These seven sketches are produced and filed. Most of them bear date in August or September, 1887, in the handwriting of Ligowsky. Among those persons to whom he disclosed his invention and exhibited his sketches he includes the complainant Hisey. He says he fully explained his conception to Hisey by aid of his sketches and by chalk drawings made in the shop with the old Peters machines present. He states that Hisey did not think the old round-table carrier could be improved upon and thought an endless-chain carrier too liable to derangement by wear and too flimsy an affair for a mechanical movement. He further says that Hisey subsequently suggested an improvement upon the driving mechanism by which the tool-carrier and endless chain would be driven from below instead of from above the table and embodied this proposed change in location of driving mechanism in the sketch of May 10, 1888, above referred to. Hisey very flatly denies these statements, so far as they affect him, and a sharp question of veracity is to be settled. The same issue of fact arose upon the proceedings in the Patent Office and was decided by the Examiner of Interferences in favor of the truth of Ligowsky's story. The Examiners-in-Chief, upon appeal, thought the weight of evidence with Hisey; but the Commissioner of Patents, on final appeal, agreed with the Examiner of Interferences and held that Ligowsky had drawn the sketches exhibited at the time claimed and disclosed his invention fully to others, including Hisey. The latter in his opinion, filed with the interference record, says:

> If there be in the case a material allegation of fact, resting upon oral evidence, which is better supported by proof than any other, it is, that during the year 1887 Ligowsky produced seven sketches, showing the novel parts of the improvements in controversy, and during that year made disclosures of those novel features to others.

As to whether Ligowsky during that year disclosed his conception to Hisey, he said, in view of the admitted intimacy of these men and their association at the shops where these Peters machines were being constructed, that—

> "the strong natural probabilities in the case, taken with the amount of positive testimony on the point, compel it to be found as matter of fact that prior to April, 1888, Ligowsky disclosed the invention to Hisey."

Some additional evidence bearing upon this issue of fact has been added to the evidence since the Patent Office decision. This new evidence is merely cumulative, though the new proof on the whole tends to add somewhat to the case for Ligowsky. That Ligowsky did during the year 1887 disclose his invention to others and did exhibit to others some or all of the sketches now filed is testified to by no less than fourteen witnesses, who have in no way been effectively impeached. That Hisey was one of the persons to whom such disclosures were made, or was present when they were made to others, is likewise testified to by substantially the same witnesses. Whatever criticism may be made as to unreliability of the memory of some of these witnesses as to dates of such disclosures, or as to the identity of the sketches they saw during 1887 with those now exhibited by Ligowsky, or as to their bias from relationship or interest, does not apply to certain disinterested mechanics associated with Hisey in the shops of the Cincinnati Screw and Tap Company, and familiar before such disclosure with the construction of the old Peters machines. Several such witnesses fix the time when Ligowsky explained his ideas and exhibited his sketches as during the time that the Peters machines were being worked upon in the shop where both they and Hisey were employed. These witnesses, Frederick Holz, Oscar W. Muellar, George Engleheardt, W. P. Hummell, and George A. Muenzenmair, each say that while the Peters machines were in the shops Ligowsky disclosed his idea of an endless-belt cartridge-loading machine and explained its method of operation. Some of these witnesses identify one or more of the sketches as having been there shown them and explained. The same witnesses show that like disclosures were made to Hisey. This is made to appear in different ways. Holz says that Hisey asked if Ligowsky had explained his idea of an endless-belt machine to him, and when told that he had expressed the opinion that his idea was not good and his machine would be of no account. From a conversation with Hisey he says he gathered that Hisey thoroughly understood Ligowsky's conception. Muellar says that Ligowsky explained his idea and exhibited to him one of his sketches, and that he did the same to Hisey, because Hisey told him so and expressed the opinion that Mr. Peters would not adopt the idea after so much labor on his own machines.

William G. Engleheardt says Ligowsky talked to Hisey about these improvements in his presence "a couple of times;" says Hisey favored the old rotating table. William P. Hummell says he heard Ligowsky and Hisey talking about this endless-chain improvement. Muenzenmair says he heard him talking to Hisey about his endless-belt idea and that Hisey did not seem to take much interest in the conception. Orrin E. Peters, of the Peters Cartridge Company, and familiar with cartridge-loading machines, says that while the Peters machines were being overhauled in the shops of the Cincinnati Screw and Tap Company he was there examining the work going on; that he was accompanied by his brother, G. M. Peters; that while standing watching the machines Frederick Holz, the president of the Screw and Tap Company, introduced him to George Ligowsky; that Ligowsky then explained his plan for doing away with the round-table carrier and putting in an endless-belt carrier and urged its advantages. He says Hisey was standing close by him at the time and heard the conversation and said, after Ligowsky had walked around to the other side of the machine, that "the principle of a chain or belt was not a good one;" that it would not be rigid enough, and made other objections. G. M. Peters, the inventor of the Peters machine, says that Hisey more than once during 1887 spoke about Ligowsky's endless-belt idea.

Charles Biendinger testifies that in 1888, on the same day Hisey was to start for Europe, he and Ligowsky came to his place of business together; that Ligowsky said:

> Hisey is going to Europe and has come to say good-bye;

that he was going over to build—

> those round-table machines in connection with Tenner, and that I have been advising him all day to drop that round-table machine and take up my endless-belt-chain device; that he would be more successful with it.

William C. Jeidinston, a disinterested mechanical draftsman, says that Ligowsky, in October, 1887, showed him sketches Nos. 1 and 6 and explained his conception; that this occurred in the shop of the Screw and Tap Company; that he advised him to take out a patent and replied that he would do so as soon as he had some other matters off of his hands. Ligowsky was at the time perfecting his irrigating-machine, then under construction at the shops, when the witness saw the sketch drawings referred to.

The other witnesses who testify to Ligowsky's disclosure of his device to Hisey and others are August Ligowsky, Martha Ligowsky, Ernstine Ligowsky, and Fred Ligowsky, all closely related to George Ligowsky and subject to the natural bias of relationship.

Complainants insist that this evidence of Ligowsky, supported as it is by so many witnesses corroborating him in its essential parts, is overthrown by certain evidence claimed to be in the nature of admissions by Ligowsky inconsistent with his present position. These matters relied on as admissions of Hisey's claim to priority may be summarized as follows:

First. Alleged declarations of Ligowsky during 1888 touching Hisey's inventions and improvements in cartridge-loading machines and the fame and fortune which were sure to come to him from his inventions in that line. Concerning this line of evidence it may fairly be said that its evidential weight is much impaired from the fact that, though accessible, it was not introduced during the interference proceedings. Before a final decision had been reached in the Patent Office Ligowsky died, and thus the defendants have lost all opportunity of getting Ligowsky's explanations or denial. None of the witnesses making this evidence, except certain close relations of Hisey, make Ligowsky speak specifically of the endless-belt carrier as any part of Hisey's improvements. The significance of this will appear later.

Second. They rely upon certain references in a correspondence between Ligowsky and Tenner to Hisey's inventions in cartridge-loading machines and to the absence of any reference in the same correspondence to his own invention until after he had received from Tenner photographs of an endless-belt machine built at Berlin by Hisey for Tenner. This correspondence began early in 1888, after Tenner's return to Berlin, and continued through 1888, while Hisey was in Europe.

Third. They rely upon Ligowsky's conduct in laying aside his sketches after he says he made them in August and September, 1887, and taking no steps to perfect his invention or protect it by patent until after Hisey had perfected an organized and operative endless-belt-carrier machine and applied for Letters Patent covering these very improvements. This conduct they compare with Hisey's activity in pushing his conception, constructing an organized machine, and applying for a patent as early as September, 1888.

Fourth. They rely upon two contracts made June 4, 1888, between Ligowsky and Hisey and insist that Hisey, by these contracts, is recognized by Ligowsky as the inventor of the improvements now in dispute. These agreements are claimed to be dependent one on the other and that the consideration for the one is the other. These contracts are as follows:

To all whom it may concern:

Witnesseth that I, Charles Hisey, of Cincinnati, county of Hamilton, State of Ohio, United States of America, do hereby agree, in consideration of services rendered, to pay or otherwise secure or place to the credit of George Ligowsky, of the same place, ten per cent. of my shares of all values that have accrued or shall accrue from all manufacturies or commercial enterprises that have realized or shall realize values on a cartridge-loading machine, which is my invention. This contract to relate only to European countries.

In witness whereof I have set hereunto my hand and seal this fourth day of June, 1888.

C. S. HISEY.

To all whom it may concern:

Witnesseth that I, George Ligowsky, of Cincinnati, county of Hamilton, State of Ohio, United States of America, do hereby agree, in consideration of services rendered, to pay or otherwise secure or place to the credit of Charles Hisey, of the same place, ten per cent. of my shares of all values that have accrued or shall accrue from all manufacturies or commercial enterprises that have realized or shall realize values on an irrigating-machine, which is my invention. This contract to relate only to European countries.

In witness whereof I have set hereunto my hand and seal this fourth day of June, 1888.

GEORGE LIGOWSKY.

Fifth. They rely upon Ligowsky's attestation of Hisey's original drawing of May 10, 1888, as an admission that the latter was the original and sole inventor of the endless-chain-carrier idea shown therein.

The matters thus relied upon as admissions tending to establish Hisey's claim to be the first and sole inventor of the improvements in cartridge-loading machinery here involved must be judged in the light of the fact that at the time Hisey was claiming certain other improvements in automatic cartridge-loading machines in no way involving the endless-carrier idea.

In 1887 and prior to that time G. M. Peters, of the Peters Cartridge Company, had been engaged in the perfecting of certain improvements upon the old round-table type of machine, for which he obtained a patent March 29, 1887, upon an application filed March 26, 1886. That patent is numbered 360,043. The device thus patented related to improvements in machines for loading cartridge-shells and was described as consisting—

primarily, of a circular table peculiarly actuated and revolving within a stationary table, the revolving table being provided with the shell-holding cases, the filling devices being supported by the stationary table.

Two machines built under the claims of this patent were in use in the summer of 1887 at the mills of the Peters Cartridge Company. These machines did not work satisfactorily. To remedy their defects and improve their mechanism, they were sent to the shops of the Cincinnati Screw and Tap Company in the summer of 1887. Hisey was a mechanic employed by that company to overhaul them and make them operative. That job gave Hisey his first acquaintance with such machines and was also the occasion for Ligowsky's becoming interested in that line of invention. After the overhauling of the two old machines the same company was employed to build two new Peters machines, and Hisey was again selected for this work. Certain improvements were made in the mechanism of these machines, which Hisey subsequently claimed credit for as an inventor. These improvements in no wise involved a change in the type, for the new machines constructed for the Peters Company were round-table machines, constructed under the G. M. Peters patent, with certain improvements not involving the endless-belt-carrier idea in the remotest degree. The improvements in these machines were claimed by Hisey as of his own conception, and this claim was credited by Ligowsky. Subsequently these improvements, or certain of them, became the subject of controversy between G. M. Peters, the patentee of the Peters cartridge-machines, and Hisey, and became the subject of a heated interference contest between them, the issue being decided in favor of Peters, to whom a patent was issued. Precisely how wide the claims made by Hisey were does not definitely appear. Certain it is that when one Armin Tenner, a German manufacturer, visited this country in the winter of 1887–88 he was introduced to Hisey by Ligowsky as the inventor of improved cartridge-loading machinery. So much impressed was Tenner with Hisey's claims that he entered into a contract with Hisey, dated February 17, 1888, in which it was recited that Charles S. Hisey—

has invented a certain novel and useful automatic shotgun-cartridge-loading machine, for which he is desirous of securing patents in the European countries.

By this contract Hisey authorized and empowered Tenner to apply for and obtain Letters Patent in Great Britain, the German Empire, and such other European countries as he may deem advisable, and Hisey agreed to furnish complete sketches of the machine embodying his invention and such information as should be necessary or desirable for the use of patent solicitors or in securing such patents, and Tenner agreed—

to apply for and, if possible, obtain at his own expense Letters Patent of Great Britain and of the German Empire, and to use his best endeavors to dispose of said Letters Patent by sale, license, or otherwise on advantageous terms, and to pay to Hisey one-half the entire proceeds from sale of said Letters Patent in European countries.

At the time Hisey was making his broad claims to improvements—claims broad enough, in his judgment, to justify describing himself as the inventor of—

a certain novel and useful automatic shotgun-cartridge-loading machine—

he had not, according to his own admission, conceived the endless-belt-carrier idea. That invention, he admits, was not made until April, 1888. That Ligowsky should refer to the improved machine claimed by Hisey, and which Tenner was to aid in pushing, as a "great success" or "a great invention" and as "Hisey's machine" or "Hisey's new machine" is quite probable and altogether natural. In the face of the strong independent evidence that Ligowsky in 1887 claimed to have himself made the endless-belt-carrier invention and that he disclosed that invention to Hisey and others during that year it is clear that no declarations by Ligowsky made in 1888, whether oral or written, should be regarded as conflicting with his claim to be the inventor of the endless-belt idea which do not specifically attribute that specific idea to Hisey.

We have before mentioned that the oral declarations of Ligowsky supposed to be inconsistent with his claim to have himself invented the endless-chain-carrier idea were not introduced on the interference proceedings, nor until after Ligowsky's death; but in respect of the other matters, in the nature of admissions, we are not left to conjecture as to his explanation. The contracts of June 4, 1888, were in evidence on the interference proceeding, and Ligowsky was examined about them. The original drawing of Hisey's of May 10, 1888, was not produced on that trial, but its existence was proven as a lost instrument. Hisey's evidence made it a much more detailed drawing of an endless-belt cartridge-loading machine than was borne out by its actual appearance when produced on the trial below. Neither did Ligowsky deny that it was made by Hisey nor that he had signed it as a witness. The explanation of both of these documentary pieces of evidence made by Ligowsky on the interference proceeding lies in his insistence that both himself and Hisey were then willing to combine or conjoin the several novel features of their independent improvements in cartride-loading machines for the purpose of obtaining European patents and of pushing their inventions in Europe. This did not interfere with the right of each to obtain distinct patents in the United States, as both knew that in Europe a patent need not be applied for, as in this country, in the name of the first and sole inventor. On the interference proceedings Ligowsky testified as follows:

The contract with Mr. Hisey relating to catridge-loading machinery was due to a desire on Mr. Hisey's part to strengthen his European patent, and he thought, and I was of the same opinion, it was advisable to cover the principle of an endless-chain cartridge-loading machine in Europe, so as to strengthen the other patents which he intended to secure. Mr. Hisey expressed himself as desirous of patenting the endless-chain machine abroad, and we settled on ten per cent. of his entire profits on cartridge-loading machinery as a compensation for utilizing my idea abroad.

He adds, touching the claim that the one contract was the consideration for the other—

that the contract about the irrigating-machine was to compensate Mr. Hisey for any efforts, in my behalf, in the way of assistance to be rendered when this machine should be introduced over there in case I was absent.

The drawing bears date May 10, 1888, and the contract he refers to is dated June 4, 1888; but that they both had their origin in a purpose to conjoin their improvements for European purposes is a most probable solution of Ligowsky's signature to Hisey's drawing. Indeed, Ligowsky said, in the same evidence, that the contract between himself and Hisey appertaining to the profits anticipated from European patents upon their conjoined inventions was verbally agreed upon "long before Hisey went to Europe," which was not later than June 11, 1888. Touching his signature to that drawing he said:

Hisey showed me a drawing, not of his endless-belt-chain cartridge-loading machine, but of my machine. He told me that he had invented an improvement on my construction, consisting, as he claims, of a driving mechanism, which was to impart motion to the machine from beneath. He explained to me at my house, and in the presence of several witnesses, the advantages that would arise from driving this machine from below instead of from the top, as I had proposed. His method of doing this, I remember, was not definitely drawn, and he intended, as he said, to work it out more in detail. He wanted me to witness this as his improvement, and put my signature on it, and also requested my sister, who was present, to put her name to it.

He proceeds:

We witnessed the drawing as an improvement, so claimed, on the construction of the machine that Hisey and myself had agreed to patent in Europe.

That it was a dangerous step to witness such a drawing without explaining how far it was intended to illustrate Hisey's independent invention in a way to leave nothing open to future fraud or mistake is very evident. The mistake in this particular then made by Ligowsky is most probably the potent cause of this expensive and protracted litigation. It is to be remembered, however, that at that time these two men were very intimate and reposed in each other great confidence. That Hisey should carry to Europe with him some evidence that would entitle him to European patents was reasonable. That Ligowsky was not entirely frank about how he came to sign this drawing must be admitted. That he signed it only to show Hisey's improvement in the location of the driving machinery is not altogether credible. A close comparison of Ligowsky's sketches made in 1887 with this Hisey drawing leaves room for doubt as to whether such a change or improvement is indicated by the drawing. It is a matter, however, about which skilled experts, examined in this case, have differed in opinion. It is to be noticed, moreover, that this Hisey drawing was not then present and had not been seen by Ligowsky for several years. That something was said about a change in the location of the driving mechanism is likely. Several witnesses, all closely related to Ligowsky however, do in substance state this. It is not an improbable conclusion that this sketch was witnessed as a drawing of an endless-chain machine which Hisey and Ligowsky had agreed to patent in Europe in Hisey's name.

It must be conceded that the combined effect of the evidence we have been considering, oral and documentary, would greatly discredit Ligowsky's testimony that he made this invention in 1887. The explanations made by him of how he came to sign the Hisey drawing and enter into the agreement of June 4, 1888, though plausible and probable in the light of the other inventions which Hisey claimed, would, in connection with his long delay in perfecting his invention or applying for a patent, in contrast with Hisey's steady persistence in pushing his claim and earlier application, incline one strongly to the opinion that Ligowsky's claim to priority of conception was not supported. But the case does not stand that way. If we set aside Ligowsky's evidence entirely, there is left in the case a mass of independent evidence tending to establish that in 1887 Ligowsky made claim to the invention in controversy and that during that year he exhibited the sketches he now files as embodying a novel invention which he disclosed and explained to them and to Hisey. A suggestion that these witnesses are corrupt is not to be tolerated. That they may be mistaken as to when these disclosures were made or as to the identity of the sketches they saw and as to what they heard Hisey say during that year about Hisey's endless-belt-carrier idea is, of course, possible. But which is more probably true—the story that Ligowsky tells as to how he came to witness Hisey's drawing and what the purpose of the contract of June 4, 1888, was, or that all this mass of independent evidence establishing Ligowsky's prior invention is false or based upon error of date or identity of the invention? There is nothing intrinsically improbable in Ligowsky's explanations of acts apparently inconsistent with his claims. His explanation affords a solution of all the hard problems growing out of the contradictory evidence in the case. The best that can be said in favor of complainant's case is that the evidence in the nature of admissions by Ligowsky raises a doubt as to whether the conception in question originated with himself or with Ligowsky. That it is not a case of independent contemporaneous invention is clear. Either Hisey is undertaking to appropriate Ligowsky's invention or Ligowsky has successfully availed himself of disclosures made to him by Hisey. In this state of the evidence complainants on this part of the case must fail.

The evidence does not produce that clear conviction which would justify a court in saying that the Patent Office was in error in its decision of this question of priority. It is not enough that the

declarations of Ligowsky and his admissions, either oral or documentary, cast discredit upon him as a witness for himself. This evidence in the nature of admissions must be sufficiently cogent to make it clear that the independent evidence supporting the action of the Patent Office cannot be true. This is not the state of mind reached by us upon the questions we have been considering, and we must hold, as did the Patent Office and the court below, that during 1887 Ligowsky did produce the seven sketches found in this record, and did claim the invention here involved, and did disclose to others, including the complainant Hisey, the novel features of the improvements now claimed by the latter.

Finally, it has been zealously urged that if it be admitted that Ligowsky did and said all that witnesses ascribe to him and at the time they say they heard such disclosures or saw his sketch drawings that the evidence of such witnesses and the disclosure made by Ligowsky's drawings of 1887 do not establish that Ligowsky had so far developed or perfected the idea of an endless-chain carrier as an element in an automatic cartridge-loading machine as to entitle him to the attitude and right of the first and sole inventor of the improvements here involved.

It is said that the question here to be determined is not who first conceived the idea of an endless-chain shell-carrier, nor who first talked about inventing a cartridge-loading machine which should utilize an endless chain as one of its constituents, nor who first made ineffectual efforts to show how such a chain might become an element in an operative machine, but, rather, who first embodied in practical form the operative combination of which such an endless-belt carrier was an element. This argument has been rested upon a technical criticism by experts of the Ligowsky sketches made in 1887 and a like criticism of the testimony of witnesses as to the disclosures made to them and others during that year. But if it be once assumed that Ligowsky made the seven sketches referred to, in 1887, and exhibited them to the witnesses who have so testified, and also made the explanations of his sketches to which they testify in a general way, it must not be overlooked that the same witnesses prove that Hisey himself was one of the persons to whom the sketches were shown and to whom Ligowsky explained his conception. Now, Hisey has in a most circumstantial way affirmed as the very foundation of his claim to priority of invention that he never saw Ligowsky's sketches until they were produced on the interference proceeding and never heard from Ligowsky or any other person anything touching the endless-chain-carrier idea. But he does not stop with a mere denial that he got his idea from Ligowsky, but affirmatively and circumstantially fixes the time when the idea of an endless belt or chain carrier came to him as in April, 1888. He fixes the very place of the birth of the idea by saying that it was suggested to him while standing upon a particular street-corner and observing the operation of an endless chain upon a bicycle passing by. From an idea thus suggested he says he went to experimenting at once, and as a result produced a section of endless chain and the drawing called "Hisey's original drawing," and in the summer of the same year made the working drawings by which was constructed in Germany the first operative machine embodying that idea. This whole story must be discredited if we once assume that during 1887 Ligowsky had shown him his drawings and explained his plan for incorporating an endless-chain carrier as an element in such machines. If Hisey is thus discredited as a witness and Ligowsky supported, we must accept Ligowsky's story wherever he comes in conflict with Hisey and is not otherwise contradicted or discredited.

The case is not one of two independent but identical inventions. If Ligowsky is able to show that in 1887 he conceived the improvements here in controversy and actually gave such substantial expression to the invention as that without the further exercise of the inventive faculty one familiar with the construction and operation of the old type of machine could construct a new machine embodying the novel features, it must follow, if the case be determined upon the assumption of the truth of Ligowsky's account of the matter, that he made a full disclosure of his invention to Hisey, and that the latter is not entitled to the attitude of one whose conception is later, but who first constructed an organized machine and first applied for a patent. In other words, if Ligowsky ever invented the improvements involved, he did so in 1887, and disclosed his conception the same year to Hisey. If, in fact, Ligowsky had in 1887 such a full and adequate conception of this invention, and disclosed it to Hisey, the question as to whether he used reasonable diligence in perfecting his drawings or building a machine or applying for a patent is a matter of no importance as the matter now stands on this bill. Hisey's case must stand or fall upon the question as to whether he is the sole and first inventor. If, in fact, he has only appropriated the conception of Ligowsky, it is of no moment that he made the first machine or filed the first application for a patent. Ligowsky's neglect to push his conception to completion at an earlier date or file an application more promptly is of no avail to the complainants if Hisey derived his knowledge of the improvements here involved from Ligowsky.

Upon the proceedings in the Patent Office priority of application operated most favorably for Hisey. The burden was thereby thrown upon Ligowsky to show one of two things—either that Hisey had never at any time made the invention he claimed or that his own conception antedated that of Hisey, and thus entitled him to carry back the question of priority to the date of first conception. That burden is now, by reason of the action of the Patent Office, shifted, and it now devolves upon the assignee of Hisey to show that in point of fact Hisey's conception antedated that of Ligowsky or that the latter never at any time made the discovery in controversy. For the purpose of this branch of the case we shall assume that Ligowsky

disclosed to Hisey during 1887 all that he had done or conceived about the construction of a cartridge-loading machine embodying an endless-belt carrier. If Ligowsky's conception was at that time sufficiently developed and perfected to enable one familiar with the construction and operation of the old type of machine to construct a cartridge-loading machine embodying the novel features described in the interference issues by the exercise of mechanical skill and without further invention, he, and he alone, is the first inventor, and Hisey is merely attempting to appropriate the conception of Ligowsky. On the other hand, if Ligowsky had only an inchoate idea that in some way an endless-belt carrier, suitably actuated, might be devised, which could be substituted for the old rigid circular carrier, but did nothing toward developing and demonstrating the utility of his conception, he would not be an inventor at all. The mere existence of an intellectual notion that a certain thing could be done, and, if done, might be of practical utility, does not furnish a basis for a patent or estop others from developing practically the same idea. (*Agawan Co.* v. *Jordan*, 7 Wall., 583–602; *Christie* v. *Seybold*, 64 O. G., 1650; 6 U. S. A., 544.)

So if ineffectual efforts were made to give the idea form, through drawings, models, or machines, but were abandoned before reaching such a stage of completion as to require only ordinary mechanical skill to carry the conception to success, the claim of priority of invention could not be sustained against a later independent conception carried into practical form at an earlier date. (*Reed* v. *Cutter*, Fed. Cas., No. 11,645.)

The solution of the contention of complainant's counsel now under consideration must depend upon the answer to the question we now reach, which is this: Did Ligowsky in 1887 have such a complete and adequate conception of this invention as to enable a skilled mechanic familiar with the construction and operation of the old-type machine to construct a machine embodying the novel features of this controversy from the description he disclosed to Hisey and others without further invention? All that Hisey did and said during that year is competent evidence to show how far he had then developed his idea and what he then claimed to be his invention. Whatever he said as to the nature of his invention, mode of operation, etc., is competent upon the question as to the sufficiency of his prior conception to enable him to carry back his later construction or later application to the time of his first conception.

It was said by this court in *Christie* v. *Seybold*, heretofore cited—

> that the man who first reduces an invention to practice is *prima facie* the first and true inventor, but that the man who first conceives, and in a mental sense first invents a machine, art or composition of matter, may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part so that they are substantially one continuous act. The burden is on the second reducer to practice to show the prior conception and to establish the connection between that conception and his reduction to practice by proof of due diligence.

That burden may be met by the exhibition of drawings and by oral explanations of his conception antedating the first reduction to practice by another. (*P. & T. R. R. Co.* v. *Stimpson*, 14 Pet., 448; *Reed* v. *Cutter*, cited above; *McCormick Machine Co.* v. *Minneapolis Harvester Works*, 51 O. G., 1130; 42 Fed. Rep., 152.)

That Ligowsky did not construct a machine during 1887 or at any other time is not vital to this question. It was said in *Webster Loom Co.* v. *Higgins*, by Justice Bradley, (21 O. G., 231; 105 U. S., 594,) that—

> an invention relating to machinery may be exhibited either in a drawing or in a model so as to lay the foundation of a claim of priority, if it be sufficiently plain to enable those skilled in the art to understand it.

In *McCormick Machine Co.* v. *Minneapolis Harvester Machine Co.* (51 O. G., 1130; 42 Fed. Rep., 152) a question of priority of invention was settled upon proof of oral explanations of certain improvements touching harvesting-machines made by the inventor in the presence of an old machine, the inventor orally explaining the scope of his proposed improvement and how he proposed to apply it in terms sufficiently clear to enable a good mechanic familiar with such machines to construct the device from the description given.

That Ligowsky had such an adequate conception of his invention in 1887 and made such full disclosure, through his drawings and by oral explanations, sometimes by aid of his sketches and sometimes in the very presence of the old Peters machines, as to enable persons skilled in such machines to have constructed and applied his improvements without further exercise of the inventive faculty was one of the facts found in favor of Ligowsky in the interference proceedings by the Examiner of Interferences. Upon appeal the Board of Examiners-in-Chief were of a contrary opinion; but on final appeal to the Commissioner in person the decision of the Examiner of Interferences was affirmed, the Commissioner distinctly deciding that—

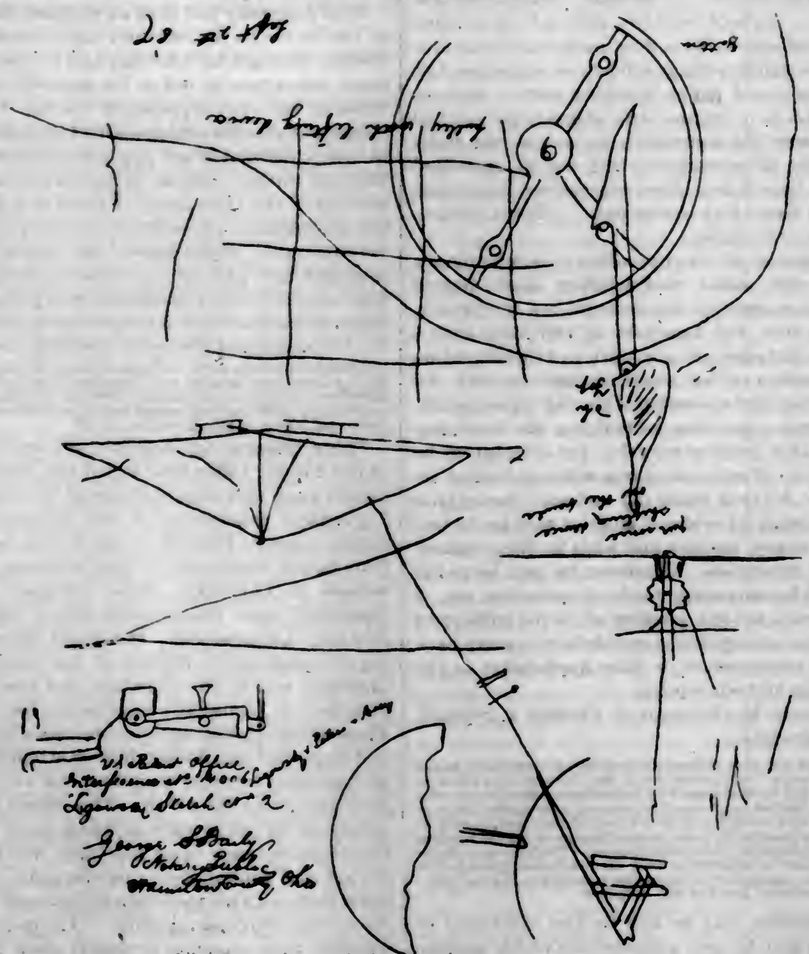
> Ligowsky's sketches show the endless-band mechanism for giving it intermittent motion and a suitable shell delivery. They therefore (said the Commissioner) disclose the improvement in controversy sufficiently to entitle him to properly claim that he had a conception of that invention in 1887.

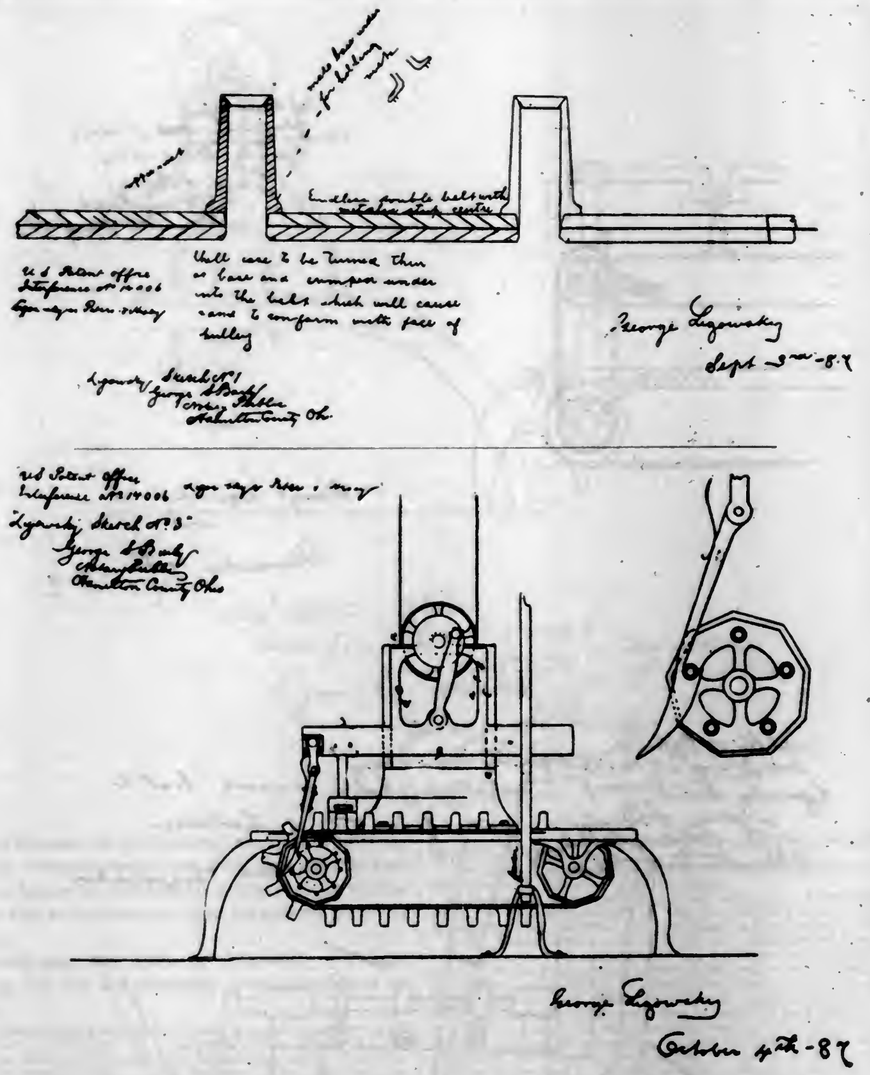
These differing conclusions of the several Boards of the Patent Office who heard the evidence submitted upon this vital question of the adequacy of Ligowsky's conception of this invention in 1887 clearly indicate that the question was one not free from doubt, although the final conclusion was favorable to Ligowsky. Some evidence has been submitted upon this question which was not before the Commissioner. It consists principally in expert opinion and criticism of Ligowsky's sketch drawings and of the drawings and specifications attached to Ligowsky's application for a patent. These seven original sketches are undoubtedly rude and imperfect and do not show or attempt to show an organized working machine; but we do not regard this as a vital defect. The claims put in interference do not involve anything more than certain improvements upon machines well known in the art and contemplate a combination of certain novel features with the loading-tools and other devices of the old Peters machine. The question as to whether these sketches so clearly show the novel

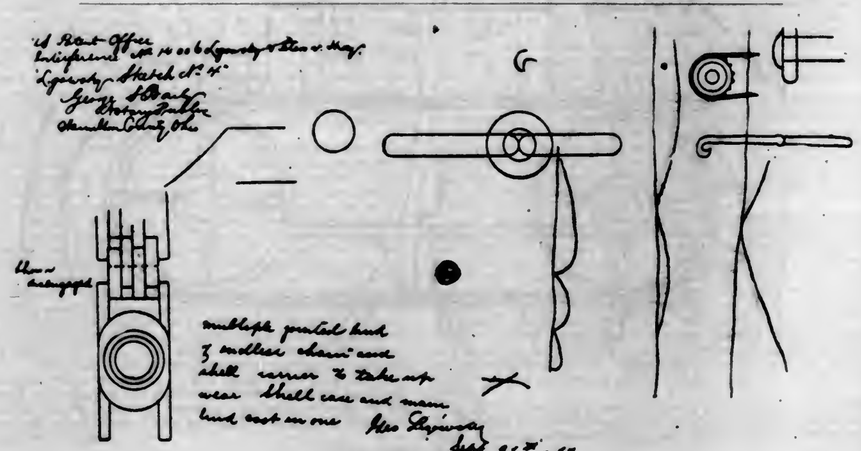
features as that one familiar with the construction and operation of the Peters machine could from these construct a machine embodying the endless-belt feature is one addressed to persons possessing a mass of information about the old art. If such persons from these sketches could construct a machine containing the improvements conceived by Ligowsky without the further exercise of the inventive faculty, then it is very clear that Ligowsky must be held to have had a sufficient conception in 1887 to entitle him, on a question of priority, to carry the date of his invention back to the date of these drawings. That they are incomprehensible to one unacquainted with such machinery or to a mechanic unaware of what they purported to be is no answer. That they do not in all respects show the relation of the novel features to the old loading-tools, nor describe precisely the mode of attachment, nor with scientific exactness show other details of the combination is not fatal if the absent features are such as would be readily supplied by a mechanic familiar with the subject and without requiring further invention. The well-known statement of the doctrine touching the sufficiency of description in the specifications and drawings of an application for a patentable novelty by Justice Bradley in *Webster Loom Co.* v. *Higgins* (C. D., 1882, 285; 21 O. G., 231; 105 U. S., 586) applies with even greater force to the adequacy of such sketch drawings when the question is one of carrying back the date of an invention to the time of first conception. In the case referred to Justice Bradley, for the Court, said:

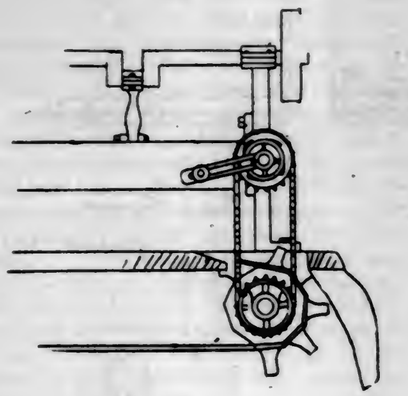
> If a mechanical engineer invents an improvement on any of the appendages of a steam-engine, such as the valve-gear, the condenser, the steam-chest, the walking-beam, the parallel-motion, or what not, he is not obliged, in order to make himself understood, to describe the engine, nor the particular appendage to which the improvement refers, nor its mode of connection with the principal machine. These are already familiar to others skilled in that kind of machinery. He may begin at the point where his invention begins, and describe what he has made that is new, and what it replaces of the old. That which is common and well known is as if it were written out in the patent and delineated in the drawings.

The seven drawings made by Ligowsky are not a connected series. Neither do they or any one of them delineate a fully-organized machine. Some of them represent one feature and some another, and all show that they were experimental in character and indicate but roughly the progress of the idea in the inventor's mind. We here set them out, prefacing that the one appearing to be No. 6 is the first made in order of time.



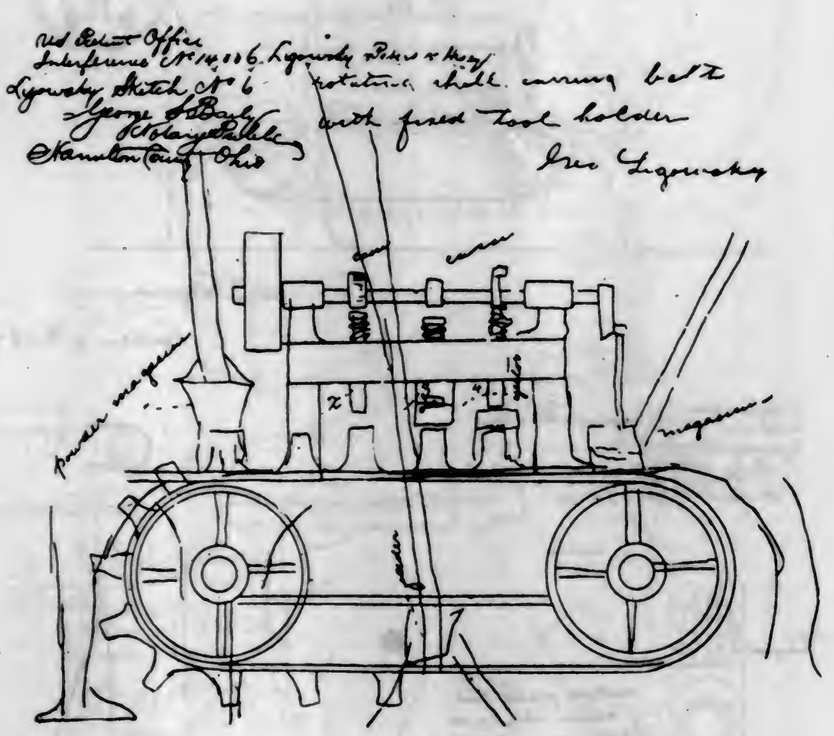


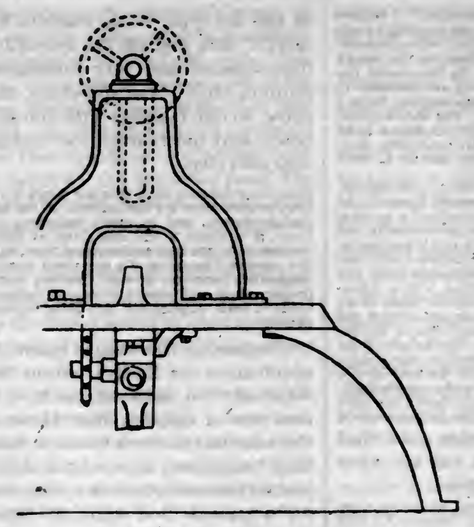




US Patent Office
Interference No 14006
Ligowsky Pulley & Lifter
Ligowsky Sketch No 5
George S Baily
Notary Public
Hamilton County Ohio

George Ligowsky
November 7th -87





US Patent Office
Interference No 14006
Ligowsky v Peters v Hess
Ligowsky Sketch No 7
George S Baily
Notary Public
Hamilton County Ohio

The explanations and notes found on them were generally contemporaneous with the sketch and are to be taken as constituting evidence as to the state of the conception in the inventor's mind at the time.

The explanation made by Ligowsky of these drawings on the interference proceeding was as follows:

Q. 25. Please look at sketch No. 1, and state what it is intended to represent. A. Sketch No. 1 shows a double endless leather belt, with a centrally-inserted thin metal steel band, riveted together with copper rivets. Upon the outer face of this belt are mounted metallic shell cases or carriers, whose bore coincide with a hole cut in said endless belt, so as to allow the empty shells to be inserted. On said drawing I observe notes written in my handwriting, explaining the details and manner of making such a belt. The first note reads: "Shell-case to be turned thin at base, and crimped under into the belt, and which will cause same to conform with face of pulleys." Second quotation: "Endless double belt with metallic-strip center." Last note reads: "Make base wider for holding rivet." This referred to a method of stiffening the shell-case on the belt.

Q. 26. State when these notes quoted in your last answer were put on the drawing. A. My recollection is that these notes were added to the drawing a day or two after it was made. There was some difficulty in securing this case firmly on the leather, and various ideas occurred to me, but the crimping under of the thin end of the case prevailed with me and in order not to have it slip my memory I made a note of same upon the drawing.

Q. 27. Please look at sketch No. 2 and describe what it is intended to represent. A. Sketch No. 2 shows a pulley for driving an endless belt in combination with an actuating device. This actuating device consists of a can-nosed link and hook, which was to be driven from above by an eccentric or cam wheel, which would impart a reciprocating motion to the same to the link. The operation of this link, which was pendent from a knee-joint, shown just below the word "Top," and above the red line of the sketch, is as follows: The link in its downward stroke comes in contact with a pin and roller mounted in the spokes of the pulley, engaging itself with the pin and roller by sliding along on same until the portion of the link representing the barb or hook of the link is reached, whereupon being pendent it drops into engagement by its own weight.

(There is a note on here which I will read, "Pulley with lifting device for an endless belt.")

(The note is on the right hand of the drawing, at the bottom, just below my signature and the date.)

Q. 28. In whose handwriting is the note, and when was the same put on the drawing? A. The handwriting is my own, and it was executed together with the date on September 3, 1887.

Q. 29. Please look at sketch No. 3, and describe the construction and intended operation of the machine there illustrated. A. Sketch No. 3 represents a sketch made by me of a shell-loading device, consisting of two polygonal wheels or pulleys carrying an endless chain, with shell cases or carriers on the individual links, and said chain mounted in position on a frame. The combination of the frame and reciprocating tool-carrier is shown and the method of attaching the actuating-link to the driving polygonal pulley. The tool-carrier is shown in position in a guiding-frame and in connection with an eccentric disk by means of a short pitman. In rear of this eccentric disk is shown a driving pulley and belt. The guide for the tool-carrier is undercut and hangs over the center of the table which holds the chain. To the right, and marked by the word "Feeder," is shown the feeding-tube in position and mounted on the supporting spider or rest. On the right-hand upper corner is shown a detail view of the actuating-pulley and driving-link.

Q. 30. Please look at sketch No. 4, and state what it is intended to represent. A. Sketch No. 4 is a sketch made by me on September 26, 1887, which is best explained by an accompanying note written in my handwriting, and which reads as follows: "Multiple-jointed links of endless chain and shell-carrier to take up wear. Shell-case and main link cast in one." This link was intended to be made with an intermediate short link, and double-pinned, so as to reduce its wear.

Q. 31. Please look at sketch No. 5, and state what the same is intended to represent. A. Sketch No. 5, bearing my signature and dated November 7, 1887, represents a sketch of one end of the driving end of my cartridge-loading device, showing an improved method of driving same by means of a combined sprocket-and-chain and pawl-and-ratchet movement, said pawl-and-ratchet movement being driven from the tool-carrier by the means of a slide-link and roller, the pawl being inserted at one end of the link, near the axis of the sprocket-wheel, and engaging into the teeth of the ratchet-wheel, which is set before the sprocket-wheel. This engagement is accomplished either by a light inward pressure, produced by a spring, or by a gravity-pawl.

Q. 32. Please look at sketch No. 6, and state what it represents. A. Sketch No. 6 represents a cartridge-loading device, bearing my name and note written in my handwriting. The note reads:

"Rotating shell-carrying belt with fixed tool-holder." I believe this sketch to be my first idea of an endless-belt cartridge-loading device, said sketch bearing evidence of having been executed at the Screw and Tap Co.'s shop, being drawn on the heavy peculiar drawing-paper used at this place. In this sketch the tool-carrier is stationary, and the loading-tools are intended to be driven through a fixed rest, by cam or crank motion, from a shaft running parallel with the tool-carrier. The shell-feeding tube or device, marked with the word "Feeder," is shown in its proper position on this sketch. Also the powder-magazine, shot-magazine, wad-cutting device, and the ejector, shown in their relative positions.

Q. 32. Please look at sketch No. 7, and state what it represents. A. Sketch No. 7 represents a scrap which I recently found in the drawer of my drafting-table. Evidently by accident a portion of this sketch was torn off. Whether this sketch originally had any date or signature, I cannot positively state, but it was made, I am positive, about the same time the other completer sketches were made. The visible portion of this sketch shows the end view of an endless-chain cartridge-loading device, with a differently-arranged tool-rest guide. This guide is in the form of an arch, with a port or aperture underneath, through which the chain would run. Underneath is shown an end view of the polygonal driving-wheel carrier lying around it. To the left of the polygonal-wheel-driving shaft is shown the sprocket-wheel, driving the polygonal wheel and chain. On top of the tool-carrier guide is shown the location of the bearings for the crank-shaft, for driving the tool-carrier. In dotted lines is shown the path of travel of the ends of the tool-carrier and of the driving-pulley.

To show the wide difference of opinion as to what is shown by these drawings, we set out the view Hisey took of them upon the same trial:

A. After examining the sketches Nos. 1 and 7, inclusive, I am unable to see a machine in an organized form. Sketch No. 3, in so far as I can see, shows an endless band, a cross-head and connections to a crank-wheel and a bracket or housing over and above the main table, and a device for moving said chain, which, from my experience as a mechanic, would not give the band or chain an accurate motion, as there is no device shown to stop the chain or band at its proper place. The momentum which the device, as shown in sketch No. 3, gives the band would carry it past its proper place; and this sketch showing no device or tool for placing the powder, no wad devices nor shot device and no wad-rammers, but shows some kind of a device near the driving prismatic disk and on top of the main table that I do not understand. Sketch No. 6, I am unable to say what it represents. Sketch No. 1 shows in part and in straight line possibly meant for a band, but as it is shown solid throughout the view I cannot see how it could be used in an endless-band cartridge-loading machine. Sketch No. 5 shows a portion of a crank-shaft and a connection to a piece that I am unable to say what it represents, this crank shaft or piece having a bracket-support and bearing as shown in sketch, and a device with an endless sprocket-chain, but cannot see what it is intended to perform. It also shows a portion of a leg and a portion of a table and a portion of a band. Sketch No. 2 shows a wheel or pulley with some kind of a hook device similar to that in sketch No. 3. Sketch No. 4 shows a sprocket-wheel and a piece of chain wrapped around it. The rest of the sketches on sketch No. 4 I am unable to make out what they are. And sketch No. 7 shows, I should judge, in part, an end view, in part; but I am unable to make out what it represents.

Two technical experts, Mr. Melville E. Dayton and Mr. James W. See, were examined for the complainant. Their testimony was of great length, and their cross-examination equally as elaborate. It must be said as to both of these witnesses that, while they show great critical capacity, neither has any practical experience in the construction or operation of cartridge-loading machines. Their evidence is in substance an elaborate argument for the purpose of showing that the sketches of Ligowsky left unsolved many mechanical questions which were of such dignity, in their opinion, as to require invention to carry into practical effect the endless-belt idea indicated by these drawings. Upon the other hand, the soundness of the judgment of the Patent Office as to the adequacy of these sketches has been supported by the opinion of certain other mechanical experts who have the clear advantage of being thoroughly acquainted in a practical way with the construction and operation of cartridge-loading machines. These witnesses are Franklin L. Chamberlain and Fred. Holz. Mr. Chamberlain had been in the business of designing, constructing, and operating cartridge-loading machines for about twenty years and was the patentee of two machines of the old type, being Patents Nos. 295,980, issued April 1, 1884, and 320,219, issued June 16, 1885. This disinterested and very intelligent witness was of opinion that these drawings, taken together, do show, to one familiar with the subject, the endless chain and mechanism for moving the same. He also said that—

they show further than this is a rough view or sketch, which is a very proper term for the papers, of the ideas of an inventor, as plainly shown, and in many instances written in words that show, in addition to the idea given by their form, what parts of the machine are represented, and that, taken together, we have the essential features of a complete machine, showing powder-magazine, rammer, powder-feeder, wad-strip, ejector, shell-feeder, cones and cranks, but not duplicating rammers or wad-feeders, such duplication not being necessary in an inventor's sketch.

Comparing the claims made by Tenner in his application for British patent No. 12,140, on substantially the same claims now in issue, this witness was of opinion that these sketches show all the essential features found in that patent and that they adequately represent and illustrate all the essential features covered by Ligowsky's application for a patent filed June 20, 1889. The practical knowledge of this witness entitles him to a great deal of weight, and the very clear way in which, under a very trying and prolix cross-examination, he vindicated his technical knowledge of the matters here involved serves to give his testimony additional weight.

Mr. Frederick Holz was likewise a practical machinist and acquainted with the old-form machine, both in construction and mode of operation. He was the superintendent of the Cincinnati Screw and Tap Company, and Hisey's work in remodeling the old Peters machines was done under his supervision. Mr. Holz was of opinion that any skilled mechanic technically acquainted with the old form of machine could, aided by these Ligowsky sketches, construct a machine embodying the endless-belt idea and adapt the same to the old loading-tools and other devices of the old art. He thought that he himself would have no difficulty to overcome in building such a machine which could not be removed by the exercise of purely mechanical skill and technical knowledge.

William S. Bates, a mechanical expert of considerable experience, has also testified favorably to the adequacy of these sketches as a guide in the construction of a machine when supplemented by a technical acquaintance with the Peters machines and mere mechanical skill. This witness was also of opinion that the photographs of the machine made by Hisey and Tenner in Germany, and which were confessedly used by Ligowsky and the draftsman who aided in the preparation of his drawings and specifications for his application for a patent, show substantially the devices indicated by Ligowsky's sketches, in combination with the loading-tools and other devices found in the old Peters machine, the loading-tools of the Peters machine being arranged in a cluster, while in both Ligowsky's sketches and the photographs of Hisey's machine they are in a straight line.

It is deemed unnecessary to enter upon a critical consideration of the alleged defects in these

sketches, whatever they are, although some of them seem quite serious. The experts examined in favor of complainant's view of the case have strongly presented the reasons in support of an opinion that these sketches are so imperfect and vague as to require one undertaking to construct such a machine by their guidance to further exercise the inventive faculty. On the other hand, the opposing experts are equally clear in opinion that the sketches are sufficiently clear and complete to enable one familiar with the old art to construct such a machine and properly arrange the loading-tools and other devices of the Peters machine in combination with the novel features illustrated by the sketches and covered by the claims of Ligowsky put in interference.

It has been asked why Ligowsky laid aside his sketches and ceased to work out his conception, and the suggestion is made that he found himself confronted with mechanical problems which he could not solve, and had therefore abandoned his conception as not practical. This suggestion has its weight, but is seemingly met by his own account of the matter, which in substance is this:

First. That he endeavored to interest the Peters Company in his invention without result, his information from Holz being that they were not likely to throw away all their labor on their own invention to try another experiment.

Second. He was a poor man, without capital to construct a machine or push his invention.

Third. He was, on his evidence, steadily endeavoring to get Hisey to take up the conception and combine it with what he then supposed to be Hisey's new round-table machine. That Hisey knew all that Ligowsky had developed is true on Ligowsky's evidence and is in accord with what we should expect from a knowledge of human conduct. They were both speculative inventors, exceedingly intimate as a consequence of their interest in cartridge-loading machinery. That they should fully discuss all the advantages and disadvantages of this new idea is just what we should expect and just what occurred, according to Ligowsky. The latter says that he explained his conception to Hisey, with the old machine present, and illustrated his conception with chalk sketches made at the shop. To a quick, smart mechanic like Hisey such an oral explanation, aided by the exhibited sketches, or by chalk sketches, was quite sufficient to put him in full possession of the whole idea. There is a sense in which Hisey's original drawing, No. 1, of May 10, 1888, is properly to be regarded as an expression by Ligowsky of his conception. If that was drawn as an expression of Ligowsky's plan, only changing the location of the driving-power, then it is but another document illustrating the progress of the inventor and the clearness and fullness with which he had disclosed his conception to one who, in a sense, was but a draftsman acting for him.

The line between that which is invention and that which is but the exercise of mere mechanical skill is sometimes difficult to trace; but we have come from the reading of the arguments of counsel and the disquisitions of the experts with a more or less decided impression that that which remained imperfect in the Ligowsky sketches was remediable by the exercise of the technical knowledge of mechanics familiar with the construction and operation of the old Peters machine. It certainly is not clear that the defects which are observable in those sketches are greater than would be found in any rough experimental drawings of complicated machinery—drawings not intended to do more than suggest what was then in the mind of the inventor. This impression requires that that which has been done shall stand. The complainant has not produced that "thorough conviction" that he is the first inventor of these improvements which he must do to justify a decree annulling the deliberate and well-considered action of the Patent Office. The assumption that Ligowsky did and said all that is ascribed to him leads to the conviction that all the knowledge which Hisey had when he produced his original drawing of May 10, 1888, or his working drawings in the summer of that year, was derived from Ligowsky, and that the disclosures to him were sufficiently full and clear to enable him, as a good mechanic, to complete that which was defective and construct a machine upon the description which had been given him.

There are many inexplicable things tending to cast a doubt as to who is the first inventor. Some of them we have stated and others have not been specifically referred to. On the whole case, however, we lean to the correctness of the judgment of the circuit court and of the action of the Patent Office.

This mental attitude is one which requires that the decree of the circuit court shall stand. It is therefore affirmed, with costs.

U. S. Circuit Court of Appeals—Second Circuit.

IMPERIAL CHEMICAL MANUFACTURING COMPANY *v.* STEIN *et al.*

Decided December 8, 1896.

1. INFRINGEMENT—PROTEST—LACHES.
The mere fact of even long-continued infringement without protest on the part of complainant does not of itself constitute such laches as should defeat a recovery.

2. LACHES—CIRCUMSTANCES.
The fact that the composition of the infringing article could not readily be determined, that its trade-name gave no indication of its composition, and that there were many other articles of the same class upon the market are to be considered in determining laches.

Mr. Arthur v. Briesen for the appellant.
Mr. Samuel Greenbaum for the appellees.

PER CURIAM:

The circuit court decreed for the complainant, adjudging the validity of the patent in suit and that it had been infringed by the defendants; but while granting a perpetual injunction against the defendants the court refused the complainant an accounting for damages or profits, upon the theory that there had been such laches on the part of the

owner of the patent in asserting the rights secured thereby as to preclude such relief. From that part of the decree denying the accounting the complainant has appealed, and the question now involved is whether such laches on the part of the owner of the patent were shown as to make it inequitable to require the defendants to respond for their past acts of infringement.

The patent was for a process of dyeing hair and the chemical preparations constituting the dye-bath. It was granted September 16, 1884. Immediately upon the issue of the patent the title became vested in Maria Louisa Kellogg. She continued to be the owner until March, 1890, when she sold and transferred the patent to the complainant. That corporation commenced the present suit in June, 1891. By their answer to the bill of complaint the defendants, besides alleging the invalidity of the patent because of want of novelty, denied infringement and specifically asserted that the preparation made and sold by them had been manufactured and sold for many years previously by one Shaw, their assignor and predecessor in business, and that as made and sold by Shaw and by themselves it was composed of different ingredients and effected a different result from the patented invention. The laches imputed to the complainant arise solely from the manufacture and sale by Shaw, during the period when the title of the patent was in Maria Louisa Kellogg, of the preparation thus alleged in the answer to have been unlike that of the patent. The learned judge of the circuit court was of the opinion that, because for several years prior to the bringing of the suit Shaw—

> advertised and sold said infringing dye in the same form and under the same name as that now used by the defendants, and no claim of infringement was ever made until after the defendants had bought out said business,

the delay in seeking relief should preclude the complainant from the right to an account for past profits; but because there was—

> no evidence of non-user, surrender to the public, or knowledge of infringement, except such as may be inferred from the fact of said sales without any protest on the part of complainant's assignor, the principle of laches should not be so applied as to deprive the complainant of the right to an injunction.

The proofs show that Shaw was a dealer, at New York city, in human hair, cosmetics, hair-dyes, etc., selling many different kinds of hair-dyes. During 1876 he sold, among other hair-dyes, small quantities of one called "Auburnine." From 1876 to about 1885, although the dye was occasionally used in Shaw's business, it was not sold. In 1885 the sale was resumed, the dye being then labeled "Improved Auburnine," and was continued, in what quantities does not appear, until the spring of 1891. At that time the defendants purchased the general business and stock in trade of Shaw, including an inconsiderable quantity of "Improved Auburnine" then on hand. Marshall, who made the "Auburnine" and "Improved Auburnine," testified that both were the same preparation and were sold in the same form, except the former was put up two bottles in a box and the latter three bottles in a box, the extra bottle of the latter containing an additional ingredient. The circulars in which the preparation was inclosed when put up did not disclose or suggest in any way the ingredients of which it was composed. During the period of the sales there were numerous hair-dyes in the market composed of chemical ingredients quite similar to Shaw's and to that of the patent. It may be presumed that during the period of those sales complainant's assignor resided in the city of New York, because the recital in the instrument transferring to her the title to the patent is that at its date she was a resident of that city, and in the absence of any testimony to the contrary the legal inference is that she has since continued to reside there. Aside from this there is no evidence in the record as to the situation or circumstances of the complainant's assignor.

We think the learned judge was in error in adopting the view that the mere fact of the infringement of the patent by Shaw without protest on the part of the complainant's assignor constituted such laches as should defeat a recovery against the present defendants for damages or profits. The theory that she was aware of the sales by Shaw is purely conjectural. In a large city like New York there are a great number of dealers in hair-dyes, and unless she was engaged in the business herself or was actively asserting her rights under her patent it might well happen that a particular hair-dye might be sold for years without attracting her attention. If, however, it could be legitimately assumed that she was aware of the sales, the circumstances repel any presumption that she was or should have been aware that the preparation was an infringement of her patent. Its formula was not advertised in any way, it was not sold by a name which conveyed any information as to its ingredients, in general characteristics it assimilated to many other hair-dyes which were not infringements, and in the answer in the cause the present defendants assert that it was not the hair-dye of the patent. Unless it was her duty to cause a chemical analysis to be made from time to time of various hair-dyes being sold in New York city to ascertain if any person was infringing her patent, there is no reason for imputing knowledge to her of the infringement upon the theory that she did not avail herself of the opportunity of acquiring knowledge. We cannot conceive that such a duty was incumbent upon her.

We do not deem it necessary to discuss the scope and application of the doctrine of laches as it obtains in courts of equity. It is not pretended that Shaw supposed the complainant's assignor to be aware that her patent was being infringed or was influenced in the slightest degree by any implied acquiescence on her part. Much less can it be pretended that the present defendants have in any way been influenced by such a belief. Their answer is inconsistent with such a theory. There is not an element of equitable estoppel in the case as disclosed by the proofs.

The decree is reversed as to the part appealed from, with costs, with instructions to the circuit court to decree for an accounting, together with the costs of the suit.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 78—No. 5. TUESDAY, FEBRUARY 2, 1897. PRICE—$5 per year.

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Price of Printed Copies of Specifications and Drawings.

(ORDER No. 1,094.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 25, 1896.

It is hereby ordered, pursuant to an amendment of section 493 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1896.

JOHN S. SEYMOUR,
Commissioner.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electrical Engineer, New York, a weekly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1895.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Amendment to the Rules of Practice

The following regulations for the conduct of proceedings in the Patent Office are established:

65. An applicant will be considered to persist in his claim for a patent without altering his specification in case he fail to act in prosecution of the same for six months after the Office action thereon, and thereupon the Examiner will make a re-examination of the case.

134. In appealable cases in which no limit of appeal is fixed, no appeal will be entertained by any tribunal in the Office unless taken within six months from the action which puts the case in condition for appeal, unless it be shown to the satisfaction of the Commissioner that such delay was unavoidable.

68. In every case pending before the Office more than five years, in which the record raises the presumption that there have been intentional delays in prosecution, the Examiner may require the applicant to show cause why the case was not more rapidly prosecuted, and at the hearing thereon, or upon failure of the applicant to appear, the Examiner will determine, under all the circumstances of the case, whether there have been intentional and unreasonable delays in prosecution, and upon finding the fact to be so, he will reject the case for that reason. Present Rules 65, 69, and 134 are repealed, and present Rule 68 is renumbered 69.

The foregoing rules will be in effect on and after April 15, 1896, and will affect pending cases as though the last Office action were upon said date.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

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Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 63 pages. In paper covers, $1.50.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Issue of February 2, 1897.

Patents	447	No. 576,082 to No. 576,528, inclusive.
Designs	37	No. 26,575 to No. 26,611, inclusive.
Trade-Marks	21	No. 29,540 to No. 29,560, inclusive.
Labels	None.	
Prints	None.	
Reissues	3	No. 11,587 to No. 11,589, inclusive.
Total issue	508	

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India	.....	.....			
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APPLICATIONS UNDER EXAMINATION.

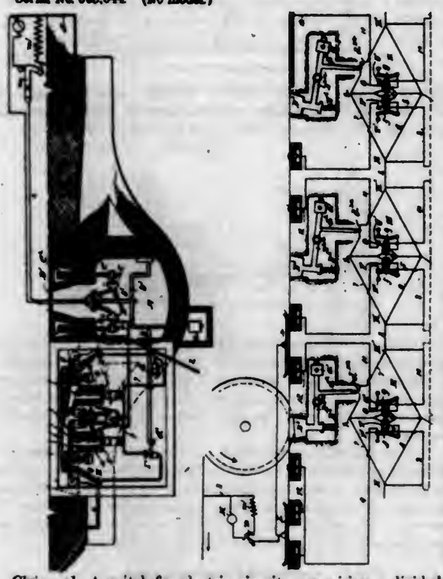
Condition at Close of Business January 26, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
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	Designs	Jan. 7	Jan. 16	158
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PATENTS

GRANTED FEBRUARY 2, 1897.

576,082. **AUTOMATIC SWITCH.** JOHN P. ALEXANDER, Jackson, Tenn., assignor to Henry W. McCorry, same place. Filed May 29, 1896. Serial No. 593,644. (No model.)



Claim.—1. A switch for electric circuits comprising a divided and balanced circuit, switching devices connected in a bridge across said balanced circuit, mechanical means for disturbing the balance of the balanced circuit, and connections controlled by the switching devices for closing a supply-circuit whenever the balance of the balanced circuit is disturbed.

2. A switch for electric-railway systems comprising a divided and balanced circuit, switching devices connected in a bridge across said balanced circuit, mechanical means connected with the vehicle traveling along the railway for actuating and disturbing the balanced circuit and energizing the switches in a bridge between them, and connections between a supply-conductor and working conductor of the railway, said connections including the switches and adapted to be opened or closed thereby.

3. In an electric-railway system, the combination with a sectional working conductor, of feeding connections therefor, a main supply-conductor having a divided and balanced portion, automatic switching devices bridging the divided circuit for connecting the main supply and feeder connections, and means for disturbing the balance of the divided circuit and thereby energizing the automatic switches.

4. A switch for an electric-railway system comprising a divided and balanced main supply-circuit, automatic switching devices connected in a bridge across said balanced circuit, and mechanical means for closing the supply-circuit of the conductor through said box by disturbing the balance of the supply-circuit passing therethrough.

5. In an electric-railway system having a sectional or disconnected working conductor, a main supply-circuit, feeder connections for the sectional or disconnected working conductor and automatic switching devices between the main supply and feeder connections, and means carried by the car for momentarily disturbing the electrical conditions of the automatic switching devices and closing the circuit between the main supply and feeder connections.

6. In an electric railway having a sectional or disconnected main conductor, an automatic switching device for supplying one or more of said sections or disconnected conductors, and comprising a divided and balanced circuit passing through said box, automatic switching devices adapted to connect the main supply-circuit with the conductor to be supplied, and automatic means for energizing the switching devices by disturbing the balance of the divided switch-actuating conductor.

7. The combination in an electric railway having a sectional or divided conductor, of a main supply-circuit, automatic switching devices, feeder connections to the conductor to be supplied, a divided and balanced circuit passing through two or more of the switch-boxes of the railway, automatic means operated by the passage of a car to disturb the balance of the divided switch-box circuit, whereby a portion of the current traversing the same is shunted through the switching devices, and the same become energized to close the supply-circuit upon the feeder connections, a resistance in the car-circuit and a switch arranged to connect either the motor or the switch with the working circuit.

8. The combination in an electric-railway system of an automatic switching device, feeder connections to the conductor to be supplied, a divided and balanced circuit between the sides by which the automatic switching devices are connected, mechanical means carried by the car for disturbing the balance and energizing the switches, a resistance upon the car and switch in the working circuit on the car adapted to connect with either the motor or the resistance, whereby a constant flow of current is maintained upon the active working conductor until the car passes to another section.

9. A sectional track-contact comprising a succession of succeeding rails separated at their ends by insulating material, a metallic box into which each of the succeeding rails is secured by solid insulating material surrounding said rails, but leaving their upper sides exposed and a stationary support for said containing-boxes from which support the said boxes are movable.

10. The combination with an electric-railway car, of a rotatably-mounted trailing frame, a contact device hinged and pivoted at the rear part of said frame, so that it will trail behind the pivotal connection, a contact-cleaning device in advance of said contact, a rotatably-mounted broom in advance of said contact-cleaning device, a frictional driving apparatus engaging the contact-cleaning device, and mechanical connections between the contact-cleaning device, said friction-driver, and the axis of the broom.

11. The combination with a car, of a suitable support pivotally connected therewith at its front end, a contact device pivotally attached to the rear end thereof, a contact-cleaning roller, of the contact-cleaning roller a revolving broom in advance thereof, and mechanical connections between the roller and the broom for rotating the same.

12. An automatic switch-box comprising a circuit passing therethrough and divided into equal balanced sides, a circuit-breaker included in one side of said circuit and comprising a pair of oppositely-acting spring-arms provided with contacts of similar material, a stationary block of contacting material against which said contacts normally rest to complete the circuit, and a mechanically-actuated arm extending between said contacts and adapted when the same is moved to push one or the other of the contacts away from the stationary block and thereby open the circuit.

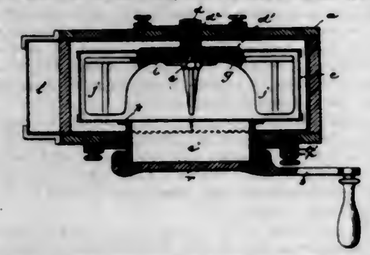
576,083. **FLY-FAN.** WILLIAM P. ANDREWS, Brierfield, Va. Filed Aug. 19, 1896. Serial No. 603,312. (No model.)

Claim.—The combination with a chair, of a bracket comprising a horizontal plate 5 provided at its inner portion with a recess and secured to the lower face of the seat of the chair with the shoulder of the recess abutting against the side edge of the seat, said plate extending outward beyond the seat, and a vertical bearing-socket 7 formed integral with the outer end of said plate and arranged on the upper face thereof, an oscillating socket provided with an integral depending journal 8 arranged in vertical alinement with the oscillating socket and removably stepped in the socket 7 of the bracket, the depending S-shaped arm 9 formed integral with the oscillating socket and extending downward and outward from the same to a point below the said bracket, a fan-staff secured within the oscillating socket, and a pitman connected with the lower end of the depending arm at

a point below the bracket and designed to be operated by a treadle, said pitman inclining downward from the said arm, whereby the strain incident to the operation of the fan will serve to retain the journal 8 in the socket 7.



576,084. ICE-CREAM FREEZER. HENRY W. ATWATER, East Orange, N. J. Filed Feb. 3, 1894. Serial No. 498,944. (No model.)



Claim.—1. The improved ice-cream machine herein described, in which is combined a box, a rotary freezing-cylinder, arranged in said box, and a cream-pan arranged beneath said cylinder, and provided with inwardly-projecting scraping-flanges, adapted to scrape the cream from the sides of the said cylinder into said pan, substantially as and for the purposes set forth.

2. The improved ice-cream machine herein described, in which is combined with the box and cylinder, a cream-pan, *l*, having a concaved bottom and vertical sides on which are secured inwardly-projecting scraping-flanges, *m*, which serve to scrape superfluous cream from the sides of the cylinder into the said pan, substantially as set forth.

3. The combination with the box, a cylinder, having stop projections thereon, and a cap, *r*, provided with a handled crank serving to turn the cylinder, and to turn the cap to its closed position on said cylinder, said cap being adapted to close the opening into said cylinder, of the pawl, or keeper, *p*, adapted to prevent rotation of said cylinder when opening or closing the same, substantially as set forth.

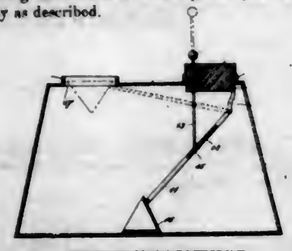
4. The combination with the box, a cylinder having a hollow journal through which the ice may be inserted and having stop projections, of a pawl, *p*, secured to said box adjacent to said hollow journal and adapted to engage said projections, and a handled cap, substantially as set forth.

5. In an ice-cream machine, the combination with the box, cylinder and cream-pan, of a journal-clamping plate having a mixing finger or fingers, and a bolt, substantially as set forth.

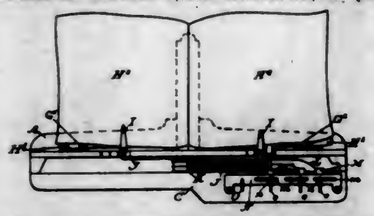
6. In an ice-cream machine, the combination with the cylinder, of a casting secured at one side of the interior of said cylinder and having a mixing finger or fingers *j*, near the periphery of said cylinder, substantially as set forth.

576,085. BOTTLE OR STAND FOR MUCILAGE OR INK. WALDO R. AYER, Delaware, Ohio. Filed Nov. 6, 1896. Serial No. 611,283. (No model.)

Claim.—An ink or mucilage bottle, having a top thereon provided in one side with a circular opening therein, a rim formed thereabout, a plug or stopper adapted to be placed therein, an annular band on the lower end of said plug; a downwardly-directed arm secured to said band, a lever pivoted to said arm and provided with a longitudinal slot therein, a rod passing through said plug and engaging said lever, a knob on the upper end of said rod, and a hollow conical receptacle secured to the free end of said lever adapted to fit into an opening also formed in said top, said parts being combined substantially as described.



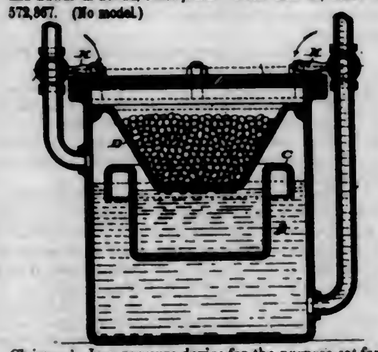
576,086. MUSIC-TURNING DEVICE. JOHN F. BLABAUF, San Francisco, Cal. Filed Mar. 11, 1896. Serial No. 582,746. (No model.)



Claim.—1. In a music-turning device, a series of swinging clamps or clips mounted on radial bars or levers, in the manner described, a corresponding series of sliding bars J, having curved and slotted ends and impelling-pins Q to move the swinging bars or levers with like force at all points in the arc described, in the manner substantially as described.

2. In a music-turning device, the combination of stationary and movable clamps or clips to hold the outer and inner leaves or sheets, in the manner described, swinging bars on which the movable clamps or clips are mounted, and slotted sector-headed sliding bars that move in a curved path about the axis on which the swinging bars are mounted, in the manner substantially as described.

576,087. PRESSURE DEVICE FOR BEER, &c. HENRY A. BRAUN, Philadelphia, Pa., assignor of two-thirds to John R. McFetridge, Jr., and Edwin L. Braun, same place. Filed Dec. 21, 1895. Serial No. 572,867. (No model.)



Claim.—1. In a pressure device for the purpose set forth, a tank provided with a vessel, adapted to float in said tank, and a chamber supported in said tank and adapted to have said floating vessel rise above and recede from the bottom of said chamber, said chamber being perforated, and the parts combined substantially as described.

2. A pressure device for the purpose set forth, consisting of a closed tank provided with water-inlet and gas-outlet pipes, a vessel in said tank adapted to float, and a perforated stationary chamber supported in said tank, said stationary chamber being adapted to have said floating vessel rise above and recede from the bottom of the same, said parts being combined substantially as described.

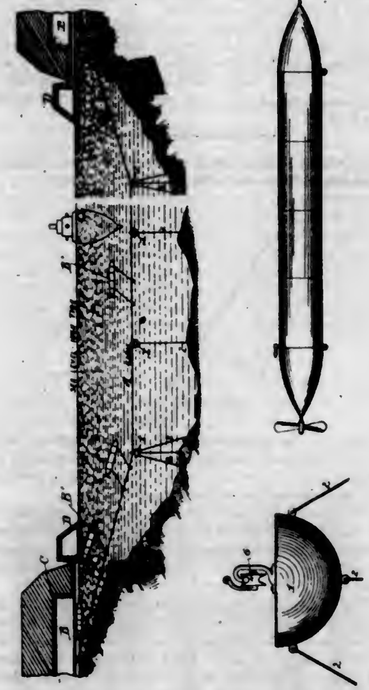
3. A closed tank containing a stationary perforated chamber, adapted to contain suitable gas-generating material, a floating vessel in said tank, below said chamber and adapted to contain gas-generating material, a liquid-supply column connected with the lower part of said tank, and a gas-discharge pipe connected with the upper part of the said tank, said parts being combined, substantially as described.

4. In a pressure device, a closed tank, provided with liquid-supply and gas-discharging pipes, and cocks in said pipes, said cocks having their handles located adjacent to the lid of said tank so as to be operated to close the cocks by the removal of the said lid, substantially as described.

5. A pressure device for the purpose stated, having a closed tank, a stationary perforated chamber and a floating vessel, the latter being provided with an air-chamber rim, and being adapted to move to and from the bottom of said stationary chamber, said parts being combined, substantially as described.

6. In a pressure device, a closed tank, a water-supply tank with a pipe leading to said closed tank, a gas-outlet pipe leading from said closed tank, a floating vessel in said closed tank, a perforated tank supported in said closed tank above said floating vessel, and valves in said inlet and outlet pipes, said parts being combined substantially as described.

576,088. APPARATUS FOR OPERATING SUBMARINE TORPEDOES. WILLIAM F. BREWSTER, New York, N. Y. Filed Mar. 11, 1896. Serial No. 582,797. (No model.)



Claim.—1. In a submarine-torpedo system, a submerged cable constructed and adapted to constitute a track for guiding and controlling a torpedo in transit, and a torpedo connected thereto, substantially as set forth.

2. In a torpedo system, the combination with a submerged track or cable, of a self-propelling torpedo connected with the track and guided thereby.

3. In a torpedo system the combination with a submerged continuous track, or cable, of a self-propelling torpedo connected with the track and guided thereby.

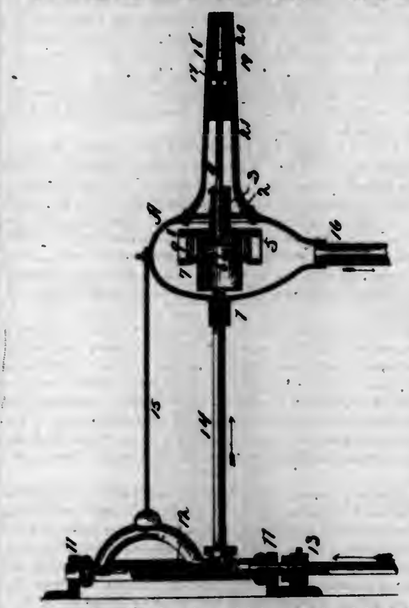
4. In a torpedo system, the combination with a submerged track or cable, of a trolley adapted to travel thereon, and a torpedo to which the trolley is connected, substantially as set forth.

5. In a torpedo system, the combination with a submerged track or cable, of an automobile torpedo, and a trolley connected with the torpedo and traveling on the track or cable, substantially as set forth.

6. The combination with a series of submerged floats, of a track or cable secured to and supported by these floats, substantially as set forth.

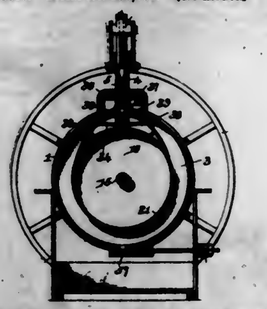
7. The combination with a cable, and a buoyant torpedo, of a trolley attached to the torpedo and held against the lower side of the cable by the buoyancy of the torpedo, substantially as set forth.

576,089. DENTAL ENGINE. ARMIRO H. BUTTERFIELD, Stamford, N. Y. Filed June 17, 1896. Serial No. 593,011. (No model.)



Claim.—In a dental engine, a driving-wheel, a rigid shaft extending therefrom, and provided with a groove, and a lug on its outer end, the inclosing extension 21 extending from the casing for the wheel, and the chambered cap 20, combined with the endwise-moving slotted sleeve 19, placed on the end of the driving-shaft, a rigid rod connected to the sleeve, and a flexible shaft operated by the rigid rod, substantially as set forth.

576,090. ROTARY ENGINE. ROLLIN S. CASE, Pasadena, Cal. Filed Apr. 23, 1896. Serial No. 588,769. (No model.)



Claim.—1. In a rotary engine, the combination of a cylinder having a pocket and a tube projecting from the pocket, an abutment or valve slidably mounted in the pocket and having a guide-rod operating in the said tube, a spring mounted upon the guide-rod and located within the aforesaid tube, steam-pipes placed upon each side of the pocket and communicating with the cylinder upon opposite sides of the abutment, other pipes in communication with the steam-pipes, steam-chests having connection with the last-mentioned pipes, supply and exhaust pipes connecting with the steam-chests, independent valves operating in the steam-chests, and a single lever for operating the valves, substantially as and for the purpose set forth.

2. In a rotary steam-engine, the combination with the cylinder and piston, of steam-pipes communicating with the cylinder for supplying and exhausting the steam, a second set of pipes connecting with the steam-pipes, steam-chests having connection with the second set of pipes, steam supply and exhaust pipes having communication by Y connections with the respective steam-chests, a series of four independent valves operating in the steam-chests for controlling the entering and the exhausting of the steam from the engine, and a lever for simultaneously actuating the several controlling-valves, substantially as and for the purpose set forth.

3. In a rotary engine, the combination with the cylinder and piston, of a pair of pipes communicating with the cylinder, steam-chests having connection with the said pipes, steam supply and exhaust pipes communicating by Y connections with the respective steam-chests, independent valves operating in the steam-chests for controlling the entering and the exhausting of the steam from the engine, approximately L-shaped links having connection with the valve-stems, and a lever having the L-links attached thereto, substantially in the manner set forth for the purpose described.

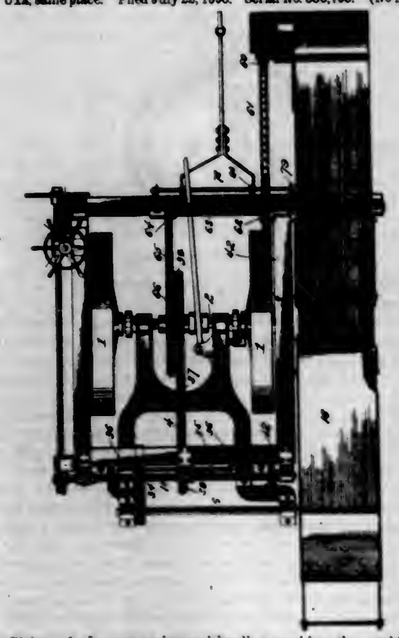
4. In a rotary engine, the combination of a cylinder having a pocket projecting from a side thereof, an abutment slidably mounted within the pocket and having a projecting stem, a lever comprising similar members located upon opposite sides of the pocket in parallel relation and having each member operatively connected with the stem of the abutment, a lifter-bar having connection with the lever, and a plate mounted upon the shaft of the piston and having a cam to engage with the lifter-bar to actuate it and move the abutment within its pocket, substantially in the manner set forth for the purpose described.

5. In a rotary engine, the combination of a cylinder having a pocket, an abutment slidably mounted within the pocket and having a stem operating therethrough, a cross-head secured to the projecting end of the stem, a lever comprising similar members placed upon opposite sides of the pocket in parallel relation, links connecting the individual members of the lever with the terminal portions of the cross-head, a lifter-bar, and a cam rotating with the piston-shaft and adapted to actuate the lifter-bar, substantially as and for the purpose specified.

6. In a rotary engine a hub having a longitudinal enlargement at one side which is hollow and forms a piston, the latter comprising portions separated by longitudinal spaces, end plates connecting the ends of the piston with the ends of the hub, a bar portion connecting the separated parts of the piston intermediate of its ends, and plates placed between the hub and the longitudinally-separated portions of the piston, substantially as and for the purpose set forth.

7. In a rotary engine, the combination of a cylinder, a hub located within the cylinder and having a longitudinal enlargement at one side which is hollow and forms a piston, the latter having portions separated by longitudinal spaces, plates connecting the separated portions of the piston with the hub, and a sliding abutment having its inner or engaging edge of greater width than the spaces between the separated portions of the piston, and adapted to span and close said spaces, substantially in the manner set forth for the purpose described.

576,091. STREET-SWEEPER. CHARLES CHRISTOPH, St. Louis, Mo., assignor of three-fifths to John Dieterich, Jr., and Charles Enoch Uxa, same place. Filed July 23, 1895. Serial No. 556,793. (No model.)



Claim.—1. In a sweeping and loading machine, the combination of a frame and ground-wheels, a pivoted arm, a brush supported by said arm, a housing inclosing said brush, a conveyer, a housing inclosing said conveyer, said housings being supported by the running-gear of the machine, and a bolt passing through said housings arranged to hinge them together, substantially as described.

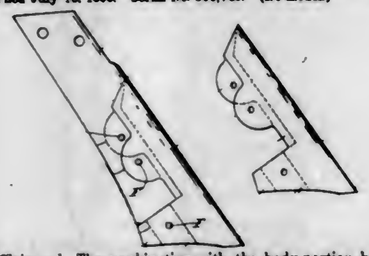
2. In a sweeping and loading machine, the combination of a running-gear, a brush supported by said running-gear, a conveyer, a block supported by said running-gear, a screw-shaft supported in the frame of said conveyer and arranged to operate in said block, a pinion on said screw-shaft, and a shaft provided with a pinion arranged to engage the pinion on said screw-shaft, substantially as described.

3. In a sweeping and loading machine, the combination of a rotary brush formed of sections, the brush-shaft on which said sections are supported, a frame on said shaft, links having pivotal connection with said frame and said brush-sections, plates having pivotal connection with said frame and said brush connections and springs arranged to bear against said plates, substantially as described.

4. In a sweeping and loading machine, the combination of a rotary brush formed of sections, the brush-shaft on which said sections are supported, a frame on said shaft, links having pivotal connection with said frame and said brush-sections, shafts mounted on said frame, plates mounted on said shafts, said plates having pivotal connections with said brush-sections, springs attached to said shafts and said plates, and locking-plates arranged to prevent the turning of said shafts, substantially as described.

5. In a sweeping and loading machine, the combination of a frame and ground-wheels, a conveyer-housing, a conveyer, a block supported by said frame, a screw-shaft supported in said housing and arranged to work in said block, a shaft supported in said housing, and pinions on said screw-shaft and said shaft, substantially as and for the purpose set forth.

576,092. PLOW-COLTER. GEORGE COSLEY, Cassville, Mich. Filed July 10, 1896. Serial No. 598,746. (No model.)



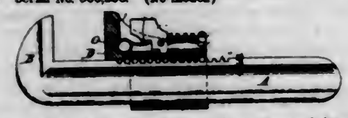
Claim.—1. The combination with the body portion having the concavities in different transverse planes, of the point having a socket to receive the end of the body portion and depending portions fitted to said concavities, substantially as described.

2. The combination with the body portion having the concavities, of the point having a socket to receive the end of the body portion and depending portions fitted to said concavities, and detachable means for securing the point to the body portion, substantially as described.

3. The combination with the body portion having the concavities, of the point having a socket to receive the end of the body portion and depending portions fitted to said concavities, and detachable means for securing the point to the body portion, said concavities being in different transverse planes, substantially as described.

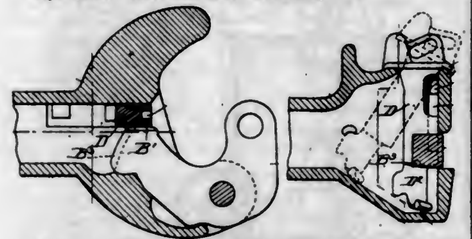
4. The combination with the body portion having the concavities, of the point having a socket to receive the end of the body portion and depending portions fitted to said concavities, and detachable means for securing the point to the body portion, said concavities being in different transverse planes, and the inner faces of the depending portions being convex, substantially as described.

576,093. NUT-WRENCH. CHARLES W. CUTTER, Denver, Colo., assignor of one-half to Carl A. Freeman, same place. Filed Apr. 4, 1896. Serial No. 586,263. (No model.)



Claim.—The combination in a wrench of a wrench-bar having a fixed jaw, a thread rack cut in one edge of said wrench-bar, a second jaw having a sleeve portion adapted to slidably fit said wrench-bar, an extension of the jaw above the said sleeve portion and said thread-rack, a transverse recess in said jaw, a longitudinal recess bisecting said transverse recess, a worm-nut seated in said transverse recess, a push-lever pivoted in said longitudinal recess and arranged to pivotally support said worm-nut, an elongated hole supporting the end of the worm-supporting end of said push-lever, and an expansive spring seated in said longitudinal slot and arranged to resiliently hold said worm-nut in detachable and normal engagement with said thread-rack, as herein set forth and described.

576,094. CAR-COUPLING. HENRY DEITZ, Chicago, Ill. Filed Sept. 2, 1896. Serial No. 604,615. (No model.)

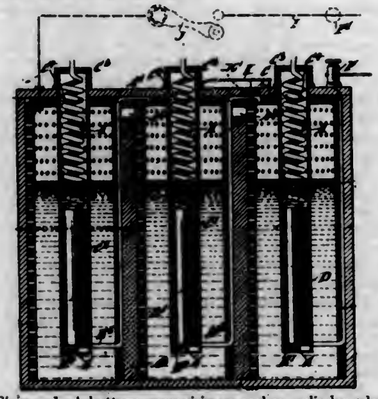


Claim.—1. The combination with a draw-head and a horizontally-swinging knuckle pivoted therein, of a vertically-movable locking-pin normally obstructing the path of said knuckle, but not when partially raised, devices whereby the pin if partially raised while the knuckle is closed is prevented from automatically descending until the knuckle opens, and means whereby completing the raising of the pin throws the knuckle open.

2. The combination of a vertical lifting locking-pin, of a lip on the lower end thereof, of means for inclining the lower end of the pin when the pin is lifted, whereby the lip on the end of the pin is swung underneath the end of the knuckle, with an inclined way on the end of the knuckle-piece for the purpose of being engaged by the lip on the pin whereby the knuckle is thrown open as described.

3. The combination of a vertical lifting locking-pin, of a lip on the lower end thereof, of a slot in the body of the pin engaging the projection on the main casting of the coupler, the lower end of said slot inclined as described, for the purpose of inclining the bottom of the pin, with an inclined way on the end of the knuckle-piece adapted to be engaged by the lip on the lower end of the pin whereby the knuckle is thrown open, substantially as shown and described.

576,095. BATTERY. WALTER S. DOE, Brooklyn, N. Y., assignor of one-half to Henry Thompson, same place. Filed Feb. 29, 1896. Serial No. 581,290. (No model.)



Claim.—1. A battery, comprising a carbon cylinder adapted to receive an exciting fluid, a perforated non-conducting tube suspended in said cylinder, a cartridge in said tube comprising a cylindrical anode having an outward opening and a depolarizer in the anode, and a contact with which the anode engages, substantially as specified.

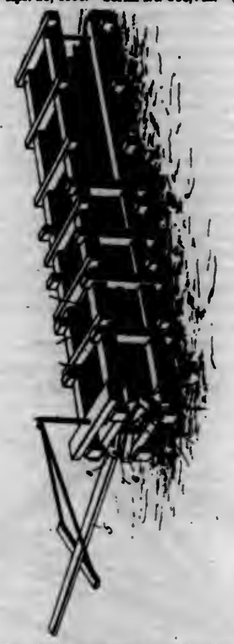
2. A battery comprising a hollow cathode, a perforated tube of non-conducting material suspended therein, an anode in said tube having a side opening, a depolarizer in said anode, a conductor-wire for engagement with said anode, and means for yieldingly holding the anode against said wire, substantially as specified.

3. A battery, comprising a casing formed with a number of compartments, a carbon cylinder in each compartment and adapted to receive exciting fluid, a perforated non-condneting tube in each cylinder, a split zinc cylinder held in each tube, a depolarizer in each zinc tube and an electrical connection between a zinc cylinder and the next carbon cylinder, substantially as specified.

4. A battery-casing, comprising a number of compartments, a battery in each compartment, the several batteries being connected in series and each battery comprising a carbon cylinder, a non-conducting perforated tube suspended therein, and having its upper end projected through the cover of the casing, a cover for said projected end, a zinc cylinder removably fitted in the tube and having an outward opening and a depolarizing chemical in the zinc cylinder, substantially as specified.

5. A battery comprising a carbon cylinder adapted to receive an exciting medium, and having grooves formed in its top, a non-conducting perforated tube suspended from said top and having perforations registering with the grooves, a split zinc cylinder in the tube, a depolarizing agent in the zinc cylinder, and a contact-wire for engaging with the zinc cylinder, substantially as specified.

576,096. BALING-PRESS. CHARLES W. DRAKE, Huntsville, Ala., assignor of one-half to the National Manufacturing Company, same place. Filed Apr. 23, 1896. Serial No. 588,742. (No model.)



Claim.—1. In a baling-press, the combination with a rebounding plunger having a pivotal stem, a swinging sweep, and an oscillatory head mounted coaxially with, and provided with spaced stops adapted to be alternately engaged by, the sweep, and having a limited movement independently thereof, of a segmental tumbler pivotally mounted upon the head for reversal to occupy a position upon either side thereof and having a sliding connection with the plunger-stem, substantially as specified.

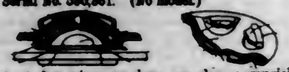
2. In a baling-press, the combination with a rebounding plunger, of an oscillatory head provided with spaced stops and a forwardly-extending arm, a sweep or tongue mounted coaxially with the head between said stops and capable of movement independently of the head, a tumbler pivotally mounted at an intermediate point upon the extremity of said arm and adapted to be folded in contact with either side thereof, and a sliding connection between the plunger-stem and the tumbler, the outer extremity of the tumbler in either position being in alinement with the said arm, substantially as specified.

3. In a baling-press, the combination with a rebounding plunger, of an oscillatory head provided with spaced stops and a forwardly-extending arm, a sweep or tongue mounted coaxially with the head between said stops and capable of movement independently of the head, a slotted tumbler pivotally mounted at an intermediate point upon the arm for swinging movement in the plane thereof and adapted to occupy a position in contact with either side of the arm, and a pin carried by the extremity of the plunger-stem and operating in the slot of the tumbler, substantially as specified.

4. In a baling-press, the combination with a rebounding plunger, of an oscillatory head provided with spaced stops and a forwardly-

extending arm, a sweep or tongue mounted coaxially with the head between said stops and capable of movement independently of the head, a slotted tumbler mounted at an intermediate point of its side upon the extremity of said arm and adapted to occupy a position in contact with either side of the arm, and a pin carried by the extremity of the plunger-stem and operating in said slot, substantially as specified.

576,097. CLASP OR FASTENING DEVICE. WILLIAM B. DRAPER, Malden, Mass., assignor to Warren B. Page, Newton, Mass. Filed May 9, 1896. Serial No. 590,861. (No model.)



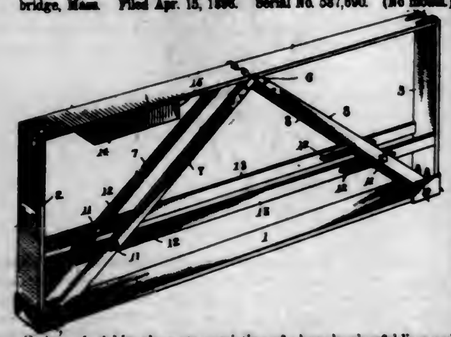
Claim.—1. A fastening or clasp member comprising a circular plate having a central cup or depression, a raised margin surrounding said depression, and tongues cut from the material of the depressed portion and projecting over the same to grasp the shank of a headed fastening member.

2. A fastening or clasp member comprising a circular plate having a central cup or depression, a raised margin surrounding said depression, and tongues cut from the material of the depressed portion and projecting over the same, said tongues being ribbed or corrugated to increase their resilience.

3. A fastening or clasp member comprising a circular plate having a central cup or depression, a raised margin surrounding said depression, and tongues cut from the material of the depressed portion and projecting over the same to grasp the shank of a headed fastening member, said plate having a central boss or projection, and a cup-shaped washer attached at its margin to said plate and having a central orifice coinciding with said projection.

4. A fastening or clasp member comprising a circular plate having a central cup or depression, a raised margin surrounding said depression, and tongues cut from the material of the depressed portion and projecting over the same to grasp the shank of a headed member, and a cup-shaped washer attached at its margin to said plate and having supplemental tongues arranged to support or reinforce the said grasping-tongues.

576,098. FOLDING BICYCLE-CRATE. MILES R. DUNBAR, Stockbridge, Mass. Filed Apr. 15, 1896. Serial No. 587,690. (No model.)



Claim.—1. A bicycle-crate consisting of a base having folding end and top pieces hinged thereto, in combination with side pieces, foldable in the vertical plane of said sides and connectible with said top, substantially as described.

2. A bicycle-crate substantially as herein shown and described, consisting of a base, and pieces hinged to said base, top pieces hinged to said end pieces, means for connecting said top pieces, side pieces foldable in their vertical plane and connectible with said top.

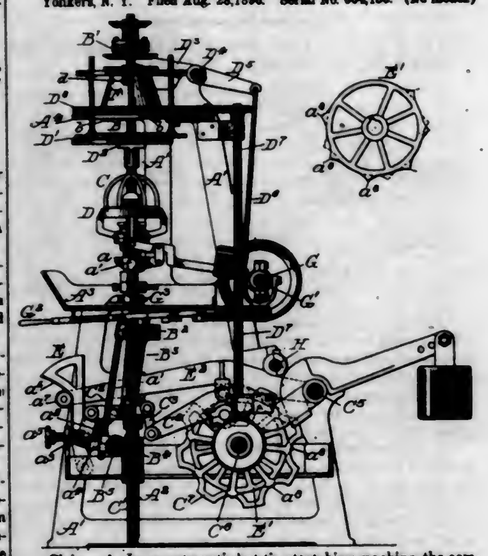
3. A bicycle-crate, consisting of a folding frame, comprising a base, end, and top pieces in combination with side braces hinged to said base and connectible with the top, longitudinal bars pivotally connected to said braces and adapted to fold therewith upon the base aforesaid.

4. A folding bicycle-crate comprising a base, end pieces hinged thereto and provided with a sectional top, connected together about midway of its length, braces hinged to the base and having their free ends adapted to register with the connection of the top pieces, means for locking said connecting top pieces and braces together.

5. A folding bicycle-crate, consisting of a frame comprising a base, end, and top sections, sides connected to said frame, a single means whereby the free ends of said frame and side pieces are united at a single point.

6. A folding bicycle-crate, consisting of a frame comprising a base, end and top pieces, sides connected to said frame, a tool-box attached to said frame, means whereby said box is locked simultaneously with the uniting of the free ends of the frame and side pieces.

576,099. HAT-STRETCHING MACHINE. CARL RICKMEYER, Yonkers, N. Y. Filed Aug. 28, 1896. Serial No. 604,153. (No model.)



Claim.—1. In an automatic hat-tip-stretching machine, the combination, substantially as hereinbefore described, with tip-stretching fingers and means for rapidly reciprocating them; a ribbed former cooperating with said fingers as a portion of the stretching devices; a constantly-rotative brim-clamp which engages with a hat-body interposed between the ribbed former and the fingers, and mechanism which lifts or controls the clamp and lowers the ribbed former intermittingly during the stretching operation, for briefly releasing the hat-body from the action of the stretching devices and obviating liability of distortion of the hat-body by the constant rotation of the brim-clamp.

2. In an automatic hat-tip-stretching machine, the combination substantially as hereinbefore described, of the tip-stretching devices, consisting of the vibrative stretching-fingers and the ribbed former; a constantly-rotative brim-clamp; a notched cam which during the stretching operation progressively lifts the ribbed former into cooperating relations with the stretching-fingers and intermittingly lowers said former, and a cam which lifts or controls the brim-clamp for releasing the hat-body from the stretching devices and enables the clamp to constantly operate for rotating a hat-body during the entire stretching operation without liability of distorting the hat-body.

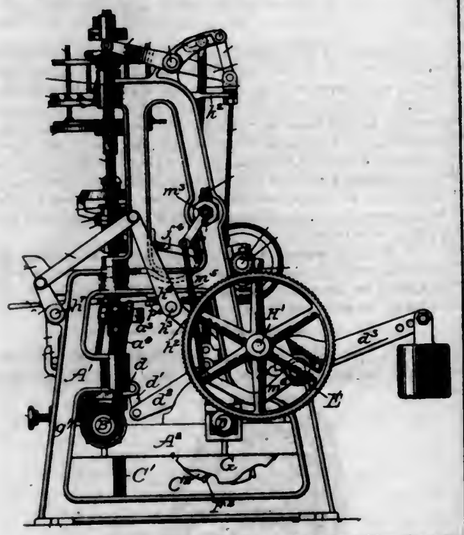
3. In an automatic hat-tip-stretching machine, the combination with a rotative hat-clamp, of rapidly vibrative stretching-fingers, a ribbed former, and a cam having a series of lifting-faces which gradually raise the ribbed former into closer relations with the stretching-fingers, and having a notch between each two of said faces which briefly drop and raise the ribbed former from and to its working position, and also having faces which gradually lower the ribbed former while still cooperating with the stretching-fingers, and still further having other notches for briefly dropping and raising said ribbed former during said gradual lowering, and means for causing the clamp to release the hat-body from the ribbed former, at each of the brief dropping movements, substantially as described.

4. In a hat-tip-stretching machine, the combination with a ribbed former upon which the tips of hat-bodies are supported during the stretching operation, of a set of adjustable hinged stretching-fingers having their upper or inner ends closely grouped and the edge at each inner end of each finger curved in the arc of a circle of which the hinging-pin of the finger is the center, substantially as described, whereby regardless of the variations in the adjustment of said fingers for properly cooperating with ribbed formers of different sizes and in working upon hat-bodies of all sizes, a space will be assured beneath said grouped finger ends, that will conform to the apex of the ribbed former and enable the fingers and ribs to perform full stretching duty closely adjacent to the center of the tip.

5. In a hat-stretching machine, the combination with hinged stretching-fingers and their adjusting-links, of a steam-dome or bell provided with an induction-pipe, for supplying it with steam, and overlying and surrounding the stretching-fingers and their links, substantially as described, whereby during the stretching action of the fingers upon an underlying felted hat-body, the exterior of the hat-body may be kept hot and moist, and the fingers kept well heated and lubricated by moisture at their points of contact with the felt, and enabling the stretching operation to be rapidly conducted with safety to the hat-body.

6. In a hat-stretching machine, the combination with the spindle and the operative mechanism by which the ribbed former is carried, lifted and lowered, and with a brim-clamping ring carried by said spindle but provided with a bell-crank lever and links which may impart to said ring independent vertical movements, and also provided with a pendent yoke which engages with the free arm of said bell-crank lever, of a vertical lever E, which engages with said yoke and is provided with a cam-face at its upper end, an actuating-cam E' and a hinged lever E^3, resting on said cam and in engaging contact at its free end with the cam-face on said lever E, substantially as described, for imparting to said lever a vibrative movement and securing to the brim-clamp its independent vertical movements.

576,100. HAT-STRETCHING MACHINE. RUDOLF RICKMEYER, Jr., Yonkers, N. Y., executor of Rudolf Rickmeyer, deceased. Filed Aug. 8, 1895. Serial No. 558,623. (No model.)



Claim.—1. In an automatic hat-tip-stretching machine, the combination with tip-stretching devices, of brim-clamping rings; a ratchet-wheel and pawl mechanism, operatively coupled to one of said rings the other being free to rotate; and a cam which is operatively connected with said mechanism and intermittingly operates it substantially as described, for imparting to both of the clamping-rings sufficient rotary movement to enable the presentation of various portions of the tip of a clamped hat-body to the action of the tip-stretching devices.

2. In an automatic hat-tip-stretching machine, the combination with tip-stretching devices, of a brim-clamp, and means for rotating it, and a cam which lifts and lowers said brim-clamp at intervals and while the stretching devices are inoperative, substantially as described, whereby a hat-body carried by the clamp is wholly freed from the hat-supporting portion of the stretching devices preparatory to rotation.

3. In a hat-tip-stretching machine, the combination with a ribbed former and its spindle, of a cam, which during each rotation intermittingly lifts and lowers said former; an upper clamping-ring; a lower brim-clamping ring concentric to said former, and adapted to support an overlying clamping-ring with an interposed hat-body, and a cam which intermittingly lifts said clamping-rings, substantially as described.

4. In a hat-tip-stretching machine, the combination substantially as hereinbefore described, of a ribbed former, a lower brim-clamping ring vertically adjustable with relation to the ribbed former, and an upper brim-clamping ring which when clamping a hat-body is carried by the lower ring, whereby hat-bodies of all sizes may not only be properly clamped by the one pair of rings, but each hat-body be properly seated upon the ribbed former.

5. In a hat-tip-stretching machine, the combination with a ribbed former carried on a slidable spindle, of a slidable sleeve on said spindle, a brim-clamping ring slidable on said sleeve and concentric with said former, and means for variably locating said sleeve vertically on the spindle, substantially as described, for enabling said clamping-ring and its upper cooperating weighted ring, to properly cooperate with ribbed formers of various sizes, and to properly clamp hat-bodies of all sizes.

6. In a hat-tip-stretching machine, the combination with the slidable spindle which carries the ribbed former, and the main cross-head by which said spindle is coupled to its controlling mechanism, of a brim-clamping ring, and a sleeved cross-head carrying said ring and slidably mounted on said spindle; a bell-crank lever on said main cross-head; links coupling said lever with the sleeved cross-head, and a cam with appropriate mechanism between it and the bell-crank lever, substantially as described, for vibrating the lever, and controlling the lifting and lowering of the clamping-ring, independently of the vertical movements of the spindle and ribbed former.

7. In a hat-tip-stretching machine, the combination with the ribformer, its spindle and the main cross-head by which the spindle is coupled to its actuating mechanism, of a brim-clamping ring, a sleeved cross-head carrying said ring and slidably mounted on said spindle; a bell-crank lever on the main cross-head; links which couple the horizontal arm of said lever to the sleeved cross-head; a pendent hinged yoke on the main cross-head; an adjusting-screw in said yoke which engages with the pendent arm of said lever for adjustably raising and lowering the clamping-ring, and an abutment for said yoke which prevents its movement during the lifting adjustment of the clamping-ring.

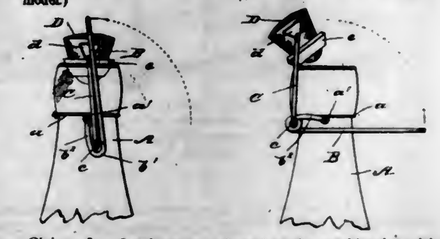
8. In a hat-tip-stretching machine, the combination of a sleeve slidably mounted and variably adjustable at fixed positions on the spindle which carries the ribbed former; a brim-clamping ring slidably mounted on said sleeve; a collar slidably mounted below said ring on said sleeve and supported on a lever which is fulcrumed on said sleeve and carries at its free end an adjustable weight, which maintains the collar and clamping-ring at the upper end of said sleeve.

9. In a hat-tip-stretching machine, the combination with stretching-fingers, a ribbed former, and its slidable spindle, of a spindle-actuating cam provided with a series of lifting-faces having progressively greater lifting capacities, and also provided with intermediate carrying and lowering faces, substantially as described.

10. In a hat-tip-stretching machine, the combination with the stretching-fingers the ribbed former and its spindle, of a cam having a series of lifting and carrying faces, which during each rotation, intermittingly lifts the spindle and places the ribbed former into cooperative relations with the stretching-fingers for stretching the tip of a hat-body, and also having a terminal carrying-face lower than the preceding face, which at the completion of the stretching operation carries the spindle and former at a slightly-lowered position, substantially as described, for enabling the stretching-fingers to lightly operate upon the stretched tip of a hat-body for removing the creases incident to the stretching operation.

11. In an automatic hat-tip-stretching machine, the combination with a lower brim-clamping ring, of an upper brim-clamping ring, an intermittingly-rotated wheel to which said ring is coupled, an annular cross-head on which said upper ring is normally supported, and controlling mechanism for said cross-head, substantially as described, whereby the upper ring is automatically lowered from its elevated normal position for placing it into, and leaving it in cooperative clamping relations with the lower ring, and then lifted by said cross-head to its normal position at the completion of each stretching operation.

576,101. BOTTLE-STOPPER FASTENING. WILLIAM J. EISENHARDT, Baltimore, Md. Filed Apr. 22, 1896. Serial No. 588,630. (No model.)



Claim.—In a bottle-stopper fastening, the combination with the collar-wire *a* provided with eyes *a'*, of the locking-lever B having the return-arms b^3 extending parallel, or approximately so, to the body of the said lever, said arms being provided with the inturned ends or trunnions *b*, and said lever, at the junction of the said arms

with the body thereof, being coiled to form the eyes *b'* and the yoke or bail C carrying the stopper and consisting of a loop which is wider than the loop of the said lever B, so as to serve as a stop for the said lever when the latter is in its locked position, said yoke being provided at its ends with inturned portions or hooks *c* engaging the said eyes *b'*, and the length of the said lever B, from the eyes *b'* to end of said lever, being greater than the length of the said yoke C; whereby when said lever is in its locked position it will project considerably above said stopper and will be securely retained in its locked position by toggle action, substantially as set forth.

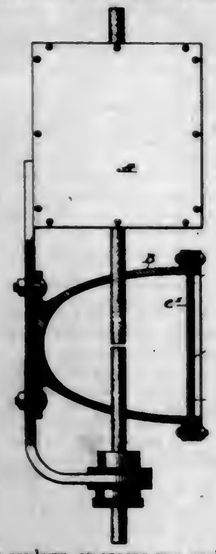
576,102. BOTTLE-STOPPER. WILLIAM J. EISENHARDT, Baltimore, Md. Filed June 18, 1896. Serial No. 595,976. (No model.)



Claim.—1. A bottle-stopper consisting of the combination of a button, as D, provided with a projection *d'* having an enlargement d^2, a cork hollowed out or recessed for the reception of said projection and its enlargement, and a rubber washer or gasket placed adjacent to the flange of the said button and tightly encircling the upper portion of said cork so as to compress said portion around the neck of said projection and thus secure the cork to the button, said washer projecting peripherally beyond the said cork and being thus adapted to come in contact with the top of the mouth of the bottle when the stopper is in operative position.

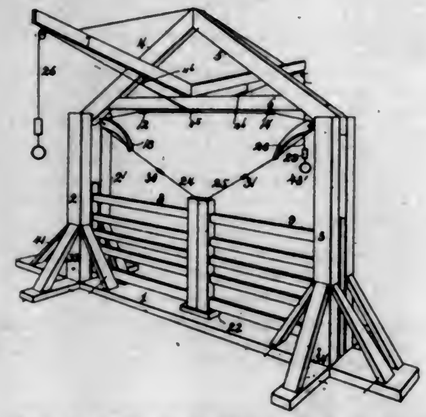
2. A bottle-stopper consisting of the combination of a button, as D, provided with a projection *d'* having an enlargement d^2, said button having also an eye or opening *d*, a cork hollowed out or recessed for the reception of said projection and its enlargement, a rubber washer or gasket placed adjacent to the flange of the said button and tightly encircling the upper portion of said cork so as to compress said portion around the neck of said projection and thus secure the cork to the button, said washer projecting peripherally beyond the said cork and being thus adapted to come in contact with the top of the mouth of the bottle when the stopper is in operative position, and a swing stopper-fastening the bail or yoke of which passes through the said eye or opening of the said button.

576,103. ELECTRIC-ARC LAMP. PHILIP H. FIELDING, New York, N. Y. Filed Apr. 23, 1896. Serial No. 588,734. (No model.)



Claim.—In an arc-lamp, an opaque case made of heat-resisting material having a reflector formed on its inner surface and provided with a transparent window, openings in the case to admit the carbons, said openings being substantially air-tight and the case being hermetically sealed at all other points, whereby the life of the carbons is prolonged and the heat of the arc does not tend to injure the case, substantially as described.

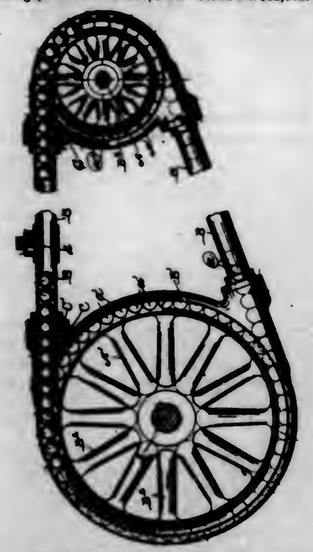
576,104. TILTING GATE. LEWIS C. FISHER and ARTHUR C. RATLIFF, Mansfield, Ohio. Filed Nov. 23, 1894. Serial No. 529,730. (No model.)



Claim.—1. A tilting gate comprising uprights, the arch provided with a cross-piece, the beam extending transversely of the cross-piece, having a guide-rod secured thereto, the ring carried by the guide-rod, the pulleys located on the cross-piece, the pulleys suspended from the ends of the arch, the pulleys on the end of the beam, the pivoted fingers embracing the pulleys on the ends of the arch and suspended from their supports, the gates pivoted to the uprights, and the operating-ropes having stops for engaging the fingers, and connected with the gates, extending therefrom over the arch-pulleys, between the cross-piece pulleys, through the ring and over the beam-pulleys; substantially as described.

2. The combination with the operating-ropes of a tilting gate; of the suspended pivoted fingers bearing on the ropes, and the stops located on the ropes and engaging the fingers for carrying the gates positively beyond their centers; substantially as described.

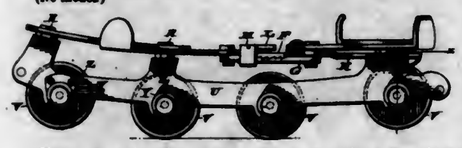
576,105. MEANS FOR TRANSMITTING POWER. JOHN FLINDALL, Chicago, Ill. Filed Mar. 9, 1896. Serial No. 582,372. (No model.)



Claim.—1. The means for transmitting power comprising a pair of wheels axially mounted and provided with pockets and a groove cutting through the pockets, a tubular way about the wheels having beveled portions in conjunction with the wheels, a series of impinging balls in the tubular way engaging the pockets, and shipping tongues in the grooves extended from the inner side of the bevel of the tubes at their junction with the wheels to the bottom of the pockets for the purposes specified.

2. The means of transmitting power comprising a pair of wheels axially mounted and provided with pockets and a groove cutting through the pockets, a rim forming a semicircular cover over the pockets to a segment of the wheels terminating in tangential tubular projections to said wheels and provided with couplings, tongues extending in the groove through the pockets from the inside of the tubular junction with the wheels, parallel with the opposite wall of the tube, to the bottom of the pockets, tubular connections intermediate the tangential projections, and a series of balls filling the segment of the rim and tubular connections and engaging the pockets as specified.

576,106. SKATE. FREDERICK FRANKENBERG and FREDERICK OSTENDORFF, Philadelphia, Pa. Filed Mar. 11, 1896. Serial No. 582,709. (No model.)



Claim.—1. A skate having front and rear foot-plates, foot-clamps connected with said plates, ratchet-bars adjustable on each other and pivotally attached to said clamps, and means for clamping said bars together, one of said bars having its connection with the clamps eccentrically mounted thereon, said parts being combined substantially as described.

2. A skate having front and rear foot-plates, pivoted front and rear foot-clamps, connected with said foot-plates, a ratchet-bar pivotally connected at one end to said front clamps, a ratchet-bar having an end pivotally connected with an eccentric mounted on the rear clamps and adapted to open or close the same, a yoke with cam-lever for clamping said ratchet-bars together, said parts being combined substantially as described.

3. In a skate, front and rear foot-clamps, ratchet-bars connected with said clamps, a yoke embracing said bars, a lever with a cam-head pivoted on said yoke, one of said bars having a longitudinal slot therein, and a pin on said cam-head adapted to move in said slot, bearing against the other bar, said head being wider than said slot said parts being combined, substantially as described.

4. A skate having a foot-rest provided with a slot of different widths therein, and a stringer or runner having a threaded socket rising therefrom, a vertically-adjustable screw fitted in said socket and having a head and neck, said head being above the foot-plate, and said neck entering said slot and a clamping-nut which is fitted on the screw below the foot-plate, said parts being combined, substantially as described.

5. In a skate, a stringer having a vertical groove therein, with vertical slots in the side walls thereof, journal-boxes, having necks in said slots and wheels in said grooves with journals on said boxes, said parts being combined substantially as described.

576,107. CHAIN-LINK. JOHN W. GARLAND, Pittsburg, Pa., assignor to the Garland Chain Co., same place. Filed Apr. 11, 1894. Serial No. 507,122. (No model.)

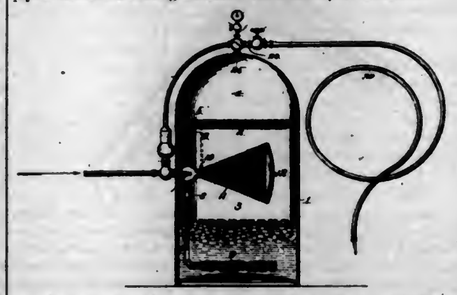


Claim.—1. A chain link made of a single rod or wire, bent to form a loop whose sides are laterally separate and do not cross each other at the center, one side of the loop being constituted by a continuous portion of the metal, the free ends being brought together at the middle of the other side and twisted together to form a cross-bar which extends across the loop and is bent about the continuous side: substantially as described.

2. A chain-link made of a single rod or wire, bent to form a loop whose sides are laterally separate and do not cross each other at the center, one side of the loop being constituted by a continuous portion of the metal, the free ends being brought together at the middle of the other side, and twisted together to form a single cross-bar which extends transversely to the continuous side.

576,108. CARBURETER. THOMAS H. GIBSON, Argentine, Kans. Filed Feb. 24, 1896. Serial No. 580,612. (No model.)

Claim.—1. A gas-manufacturing apparatus, comprising a suitable tank, a partition dividing the same into a lower chamber and an upper chamber, which communicate, a mixing-chamber within the lower chamber, an evaporator arranged to receive the discharge from said mixing-chamber, a pipe communicating with the mixing-chamber and submerged in oil at its lower end, a hollow casting divided by a perforated diaphragm into two chambers, an air-supply pipe communicating with one of them, an air-discharge nozzle communicating with the other and projecting into the mixing-chamber, a hollow connection between the upper or gas chamber and the casting provided with the diaphragm, a stem therein, which is provided with a valve at one end and a piston at the other, whereby, when the pressure of the gas reaches a certain point it operates upon said piston and causes the valve to close the perforation of said diaphragm and cut off the supply of air to the mixing-chamber, substantially as set forth.



2. A gas-manufacturing apparatus, comprising a suitable tank, a partition dividing the same into a lower chamber and an upper chamber, which communicate, a mixing-chamber within the lower chamber, an evaporator arranged to receive the discharge from said mixing-chamber, a pipe communicating with the mixing-chamber and submerged in oil at its lower end, a hollow casting divided by a perforated diaphragm into two chambers, an air-supply pipe communicating with one of them, an air-discharge nozzle communicating with the other and projecting into the mixing-chamber, a hollow connection between the upper or gas chamber and the casting provided with the diaphragm, a stem therein, which is provided with a valve at one end and a piston at the other, which, when the pressure of the gas reaches a certain point it operates upon said piston and causes the valve to close the perforation of said diaphragm and cut off the supply of air to the mixing-chamber, substantially as described

3. A gas-manufacturing apparatus, comprising a suitable tank, a partition dividing the same into a lower chamber and an upper chamber, which communicate, a mixing-chamber within the lower chamber, an evaporator arranged to receive the discharge from said mixing-chamber, a pipe communicating with the mixing-chamber and submerged in oil at its lower end, a hollow casting divided by a perforated diaphragm into two chambers, an air-supply pipe communicating with one of them, an air-discharge nozzle communicating with the other and projecting into the mixing-chamber, a hollow connection between the upper or gas chamber and the casting provided with the diaphragm, a stem therein, which is provided with a valve at one end and a piston at the other, whereby when the pressure of gas reaches a certain point it operates upon said plunger and causes the valve to close the perforation of said diaphragm and cut off the supply of air to the mixing-chamber, a hollow pipe provided with a gage connected to the gas-chamber, and a valve-controlled pipe also connected to the same and provided with a flexible hose having a jet or burner at its free end, substantially as described.

576,109. WRENCH. WILLIAM C. GILMOUR, Oakland, Oreg., assignor of one-half to J. C. Hunt, same place. Filed Jan. 27, 1896. Serial No. 577,045. (No model.)



Claim.—The combination with a fixed jaw and its shank having teeth on a lower plane than the upper face of the shank near the parallel arms with a portion of said bar cut out upon its inner face adjacent to said teeth, of the parallel arms extending at right angles from the shank, a movable jaw having a toothed shank adapted to slide between said arms and the lever pivotally mounted in and between the outer ends of said arms and having an enlargement upon its pivot adapted to bear against the shank of the movable jaw and press the same against the teeth of the shank of the fixed jaw, the parts being constructed and arranged substantially as described, whereby when said lever is in a position at right angles to the shank, the teeth on the shank of the movable jaw will spring away from the teeth on the shank of the fixed jaw and when the said lever is brought

parallel with the shank of the fixed jaw, the free end of the toothed shank of the movable jaw is sprung into engagement with the teeth on the shank of the fixed jaw, substantially as set forth.

576,110. **BRACKET.** JOHN GRAVES, Brooklyn, N. Y. Filed Sept. 21, 1896. Serial No. 563,161. (No model.)



Claim.—As a new article of manufacture, a complete bracket formed of a single piece of sheet metal comprising arms B and C bent at an angle to each other, a rounded corner D at the juncture of the aforesaid arms, a base C' of approximately the length of the bracket having a rearwardly-bent reinforcing-flange E extending entirely around the edge thereof, and a central, longitudinal rib or reinforce F of approximately the length of the base C' struck up therefrom, said rib or reinforce being arranged wholly within the outline of the base C', and made largest in cross-section at the rounded corner D, and becoming gradually smaller as it approaches the ends of the arms B and C, near both of which ends it loses itself substantially as specified.

576,111. **TORCH.** JOHN H. GREEN, Laurium, Mich., assignor of one-half to Joseph W. Burnham, same place. Filed Mar. 25, 1896. Serial No. 584,777. (No model.)



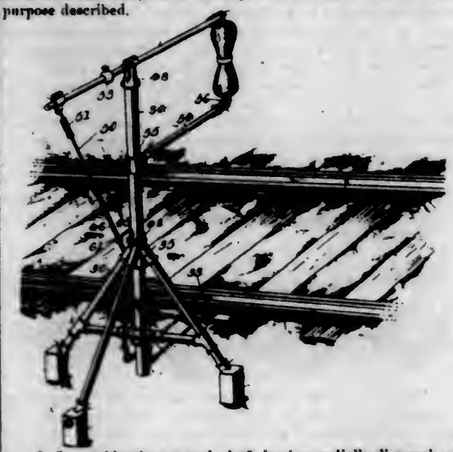
Claim.—1. The combination with a torch, which consists of a tubular head, adapted to receive a handle, and provided with upwardly-directed side arms, between which is pivotally supported a lamp, of a transparency-frame, which is detachably connected with said side arms so as to inclose said lamp, substantially as shown and described.

2. In a torch, the combination of a tubular head or socket adapted to receive a handle, of upwardly-directed side arms connected therewith, a lamp-reservoir pivoted between said side arms and provided with a wick-tube, and transparency-frames which are connected with said side arms, consisting of wire frames which are provided with downwardly-directed yokes, which are adapted to slide within guides or ways, secured to or formed on the arms between which the reservoir is pivoted, substantially as shown and described.

576,112. **AUTOMATIC MAIL-CATCHER.** MARTIN J. GROSS and CASPER ELDON, Emporia, Kans. Filed Oct. 30, 1895. Serial No. 567,435. (No model.)

Claim.—1. In a mechanism for catching mail-bags, the combination of a plate to be secured to the draft-bar of a truck, a socket adjustably connected with the plate to be turned into a vertical position, and a vertically-movable bar mounted in the said socket and operatively connected with the mail-hook and carrying a hammer to be projected within the path of a trip along the track, substantially as and for the purpose set forth.

2. In a mechanism for catching mail-bags, the combination of plates having grooves in their opposing faces to receive the opposite sides of a draft-bar and to be clamped to the latter, a vertically-disposed socket adjustably connected with one of the plates, a hammer-carrying bar mounted in the socket and adapted to be projected within the path of a tappet disposed along the side of the track, a vertically-movable rod operatively connected with the hammer-bar, and a mail hook or catcher for actuating the said vertical rod to project the hammer within the path of the trip, substantially as set forth for the purpose described.



3. In combination, a rock-shaft having radially-disposed arms extending at different relative angles, a vertically-movable hammer operatively connected with one of the arms, a vertically-movable rod connected with the other of the said arms, a spring for holding the hammer and rod elevated, and a mail hook or catcher having a tappet to be brought into forcible contact with the said vertical rod to lower it and the hammer when throwing the mail hook or catcher into an operative position, substantially as and for the purpose set forth.

4. In combination, a rock-shaft mounted in bearings beneath the sill of the car and having cranks at its ends, vertically-disposed rods extending parallel with and contiguous to the jambs of the door-opening and having connection at their lower ends with the said cranks, a mail hook or catcher having tappets to engage with the upper ends of the said vertical rods to depress the latter when throwing the said catcher into an operative position, a vertically-movable hammer operatively connected with the said rock-shaft, and a spring for holding the rock-shaft in a normal position and maintaining the hammer and the aforesaid vertical rods in an elevated position, substantially as and for the purpose set forth.

5. In a mail-catching mechanism, the combination of vertically-disposed rods extending parallel with and contiguous to the jambs of the door-opening, a hammer actuated by means of the said rods, a rod having pivotal connection at one end with one of the vertical rods and extending across the doorway, and adapted to be detachably connected at the opposite end with the other vertical rod, and a mail hook or catcher having tappets to be brought into forcible contact with the upper ends of the aforementioned vertical rods, substantially as set forth for the purpose described.

6. In combination, a vertical socket secured to the draft-bar of a truck, a rock-shaft having a radial arm between its ends and cranks at its extremities, a hammer-bearing bar movable in the said socket, a cord secured to the upper end of the hammer-bar, passing over a guide-pulley secured to the car-sill, and having its upper end connected with the said radial arm, vertically-disposed bars extending parallel with and contiguous to the jambs of the door-opening and having inturned extensions at their upper ends, one of the said extensions having a fork, a rod pivotally connected to one of the inturned extensions and having its free end detachably connected with the said fork, a spring for maintaining the vertical bars and hammer in an elevated position, and a mail hook or catcher having tappets to engage with the inturned extensions of the vertical bars, substantially as set forth for the purpose described.

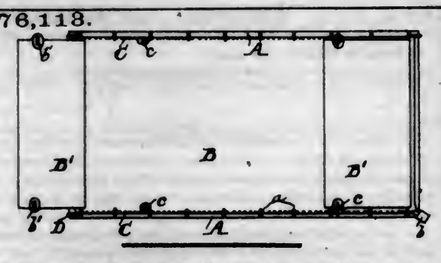
576,113. **BOOK-REST.** GEORGE C. GUNN, Burlington, N. J. Filed Mar. 8, 1894. Renewed Oct. 19, 1896. Serial No. 609,367. (No model.)

Claim.—1. The combination of a base-board with an air-cushion and adjustable connections between the edges of the said cushion and the said base-board, the whole constituting an adjustable book-rest, substantially as set forth.

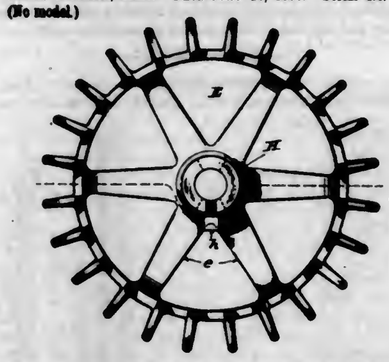
2. A book-rest consisting of an inflated cushion mounted upon a base-board, strip C secured to said cushion and connected to the base-board by means of rings *a a'* and cord D, substantially as set forth.

3. In a book-rest the combination of the inflated cushion B flaps B' with the base-board A rings *a* and *a'* and cords D substantially as set forth.

576,118.



576,114. **CHANNEL-FLAP-LAYING MACHINE.** JOHN R. HADAWAY, Brockton, Mass. Filed June 16, 1896. Serial No. 595,786. (No model.)



Claim.—1. In a channel-flap-laying machine the combination of a rotary tool, and means for actuating said tool having provision for a yieldingly-controlled rotary and longitudinal movement of said tool, substantially as described.

2. In a channel-flap-laying machine the combination of a rotary tool, and means for actuating said tool having provision for a yieldingly-controlled rotary movement of said tool, substantially as described.

3. In a channel-flap-laying machine the combination of a rotary shaft, a tool mounted thereon, and a longitudinally-yielding connection between said shaft and tool, substantially as described.

4. In a channel-flap-laying machine the combination of a rotary tool, and a fixed inclined projection and elastic means cooperating therewith to control the rotary movement of the tool, substantially as described.

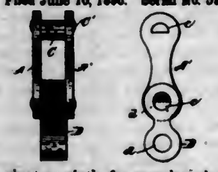
5. In a channel-flap-laying machine the combination of a rotary tool, mechanism for actuating said tool, and connections between said tool and its actuating mechanism having provision for allowing a yielding movement of said tool in a direction opposite to that of its rotation, substantially as described.

6. In a channel-flap-laying machine the combination of a rotary shaft, a tool mounted thereon, opposed projections carried by said shaft and tool, and means for holding said projections in contact, substantially as described.

7. In a channel-flap-laying machine the combination of a rotary shaft, a tool loosely mounted thereon, an inclined projection carried by the shaft and yielding means for holding said tool in contact with said projection, substantially as described.

8. In a channel-flap-laying machine the combination of a rotary shaft, a tool loosely mounted thereon, an inclined projection carried by the shaft, an inclined recess upon the tool, and a spring acting to keep said projection in engagement with said recess, substantially as described.

576,115. **SPROCKET-CHAIN.** JOSEPH C. HAUGER, Shepherdstown, W. Va. Filed June 10, 1896. Serial No. 594,995. (No model.)



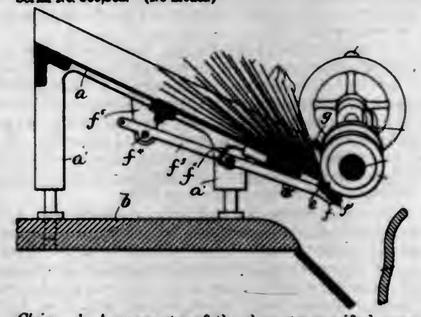
Claim.—1. A pivot or pintle for sprocket-chains formed in two parts, accurately fitted to each other on a longitudinal dividing-section, the external surfaces being cylindrical, one portion being hard on its cylindrical surface to resist wear, and the other portion being of softer material capable of being upset, headed or riveted, projecting beyond the former portion at both ends to form rivet ends, substantially as specified.

2. In a pivot for sprocket-chains, the combination of a semicylinder of hard material on its cylindrical surface, and a semicylindrical rivet of material capable of being upset, headed or riveted on its extremities, which project beyond the ends of the hardened portion a suitable distance for riveting when assembled in a chain, the said semicylindrical portions when assembled forming an entire cylinder, completely filling the cylindrical aperture they are designed to occupy, all substantially as specified.

3. A sprocket-chain comprising side links A A', with non-circular perforations c c, auxiliary links D with hard wearing-surfaces, and pivots C C' composed of two parts accurately fitted together on a longitudinal dividing-section, cylindrical on their external surfaces, one portion being hard on its cylindrical surface to resist wear, and the other portion being of softer material capable of being upset, headed or riveted, projecting beyond the former portion and secured in the side links A A' to hold the parts firmly together, substantially as specified.

4. In a sprocket-chain, the combination of side links A A' with non-circular perforations c c, auxiliary links D with hard wearing-surfaces, semicylindrical pivot portions C, hard upon their external surfaces, semicylindrical rivet portions C' fitted to the said pivot portions on their flat surfaces, projecting beyond the latter to form rivet ends, said rivet ends securely fastened in the perforations of the side links A A' to hold the parts securely together and prevent rotation, and located externally to the pivot portions with relation to the sprocket-tooth spaces, whereby the strain is borne by the said rivet portions, and the wear by the said pivot portions, substantially as specified.

576,116. **LETTER-FEEDING ATTACHMENT FOR MAIL-MARKING MACHINES.** JOHN S. HANEN, Medford, Mass., assignor to the American Postal Machines Company, Portland, Me. Filed Apr. 29, 1896. Serial No. 589,582. (No model.)



Claim.—1. An apparatus of the character specified, comprising a feed-table inclined at an angle whereby articles placed thereon will slide down by their own weight, a feed-roll adjacent to the forward edge of the table and arranged to bear on the front member of a pack of letters thereon, the peripbery of said roll extending below the edge of the said table, and separated therefrom by a narrow throat or outlet which permits of the detachment of the lowest letter of the pack by rotation of the feed-roll, and a yieldingly-supported stop or guard located below the said table and adapted to normally obstruct said throat or outlet to prevent the passage of a letter except when the latter is forced downwardly through the said throat by the rotation of the said feed-roll and a rigid stop-bar arranged in rear of the feed-roll whereby only the lower edge of each letter is presented thereto.

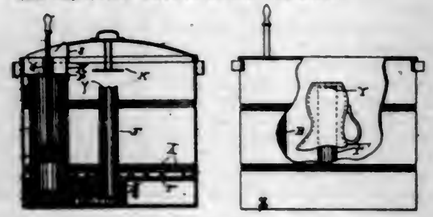
2. An apparatus of the character specified, comprising a feed-table inclined at an angle whereby articles placed thereon will slide down by their own weight, a feed-roll adjacent to the forward edge of the table and arranged to bear on the front member of a pack of letters thereon, the periphery of said roll extending below the edge of the said table and separated therefrom by a narrow throat or outlet which permits of the detachment of the lowest letter of the pack by rotation of the feed-roll, a strip covered with rubber, and a frame pivoted to the said table for supporting said strip which latter is arranged tangentially to the said roll to obstruct the said throat but which is adapted to yield to a letter forced downwardly from the pack through said throat by rotation of the feed-roll.

3. An apparatus of the character specified, comprising a feed-table inclined at an angle to receive letters placed thereupon at an inclination thereto, and a stop-bar arranged in rear of the forward edge of the table, in combination with a feed-roll adjacent to the said

edge of the table and separated therefrom by a narrow throat or outlet which permits of the detachment of the lowest letter of the pack, and a stop or guard located below the throat or outlet, and constructed to yield bodily to allow the feed-roll to draw a letter through the outlet.

4. An apparatus of the character specified comprising a feed-table inclined at an angle to receive letters placed thereupon at an inclination thereto, and a stop-bar arranged in rear of the forward edge of the table, in combination with a feed-roll adjacent to the said edge of the table and separated therefrom by a narrow throat or outlet which permits of the detachment of the lowest letter of the pack, and a stop or guard located below the throat or outlet, and constructed to yield bodily to allow the feed-roll to draw a letter through the outlet, said stop or guard being mounted on a frame pivoted below the table.

576,117. DISH-CLEANER. DANIEL W. HAWKES, Deering, and FRED D. HARDING, Baldwin, Me.; said Harding assignor to said Hawkes. Filed July 3, 1896. Serial No. 597,973. (No model.)



Claim.—1. In a dish-washer, in combination, a tank, a pump having a vertical delivery-spout mounted therein, and a cover to said tank having a pendent water-spreader on its under side supported by a rod lying wholly between the cover and back of the spreader and so located that, when the cover is in position, the face of said spreader will be directly over the open end of said spout, substantially as and for the purposes set forth.

2. In a dish-washer, a suitable tank having its bottom in two parts at different elevations, the lower elevation including somewhat more than half of the tank, a pump secured in said tank consisting of a barrel extending into the lower part of the tank, a delivery-spout having a horizontal part lying wholly within said lower part and a vertical part substantially at the center of and concentric with the tank, and a cover having attached thereto a spreader so located that when in position it is directly over the open delivery end of the spout, substantially as and for the purposes set forth.

3. In a dish-washer, in combination, a suitable tank, a cover therefor provided with a reëntrant cut, a downwardly-extending flange and a water-spreader, and a pump provided with a piston, a piston-rod delivery-spout and a removable cap, said cap being provided with a sleeve to guide the piston-rod and with a guard to engage said flange to prevent the escape of steam or water from the tank through the reëntrant cut in the cover, substantially as and for the purposes set forth.

576,118. MEANS FOR EXTRACTING GOLD AND SILVER FROM SEA-WATER. WILLIAM F. HEATHMAN, Santa Ana, Cal., assignor of forty-nine one-hundredths to Zephaniah B. West, same place. Filed Apr. 1, 1895. Serial No. 544,121. (No model.)



Claim.—1. A tank arranged in position to be filled on the inflow of a tide and having an inwardly-opening valve or gate adapted to close on the reflux of the tide, said tank being provided at its bottom with openings and a carbonaceous filtering medium, substantially as described.

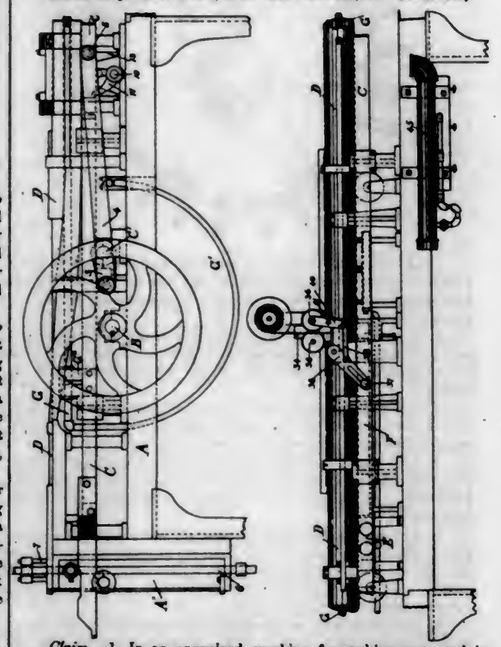
2. A tank mounted on suitable supports and provided in its side with an inwardly-opening valve or gate, said tank having a perforated bottom, and a filtering medium arranged on the bottom and comprising alternating layers of coarse and fine carboo, a layer of wire-cloth, and a perforated top covering, substantially as shown and for the purpose described.

576,119. HOSE-COUPLING. JOHN H. HUBE, Milwaukee, Wis., assignor of one-half to Theodor Boll, same place. Filed Aug. 29, 1896. Serial No. 604,266. (No model.)



Claim.—In a hose-coupling, the combination, of a hose-section, a tube inserted therein, said tube provided with a lug or lugs, a clamp consisting of two similar half-sections hinged together at their meeting edges, and provided at their outer edges with outstanding projections having registering apertures, said sections adapted to embrace the hose, and provided at their outer ends with right-angular inwardly-extending shoulders adapted to engage back of the lug or lugs of the tube, a thumb-screw passing through the registering apertures of the outstanding projections of the hinged sections, and a nut engaging the tube, and adapted for engagement with another part.

576,120. CAN-MAKING MACHINERY. ROBERT D. HUME, Gold Beach, Oreg. Filed Dec. 1, 1894. Serial No. 530,590. (No model.)



Claim.—1. In an organized machine for making cans and in combination, can-body-forming mechanism, can-heading mechanism, can-head-soldering mechanism, means for propelling can-bodies to the heading mechanism, means for discharging cans from the heading mechanism and into the soldering mechanism, and connected mechanical devices for operating the several parts of the machine, substantially as set forth.

2. In combination with a former or horn and carriers for impelling can-bodies successively along such horn, a heading mechanism, and a movable ram or extension to the horn for placing can-bodies within and driving them through the heading mechanism, substantially as set forth.

3. A machine for making cans, consisting of a can-body-forming mechanism, can-head-forming mechanism, can-head-feeding mechanism, can-heading mechanism, and connections between all of said mechanisms, whereby can-bodies after being formed are headed simultaneously at both ends, substantially as described.

4. An automatic can-making machine consisting of a can-body-forming mechanism, can-heading mechanism, and can-head-soldering mechanism, such mechanisms being arranged longitudinally in line so as to operate successively upon each can, and a reciprocating driving-bar connected to each of such mechanisms.

5. In an automatic can-making machine, and in combination, a horn or former for can-bodies, side seaming and soldering devices, a can-heading chamber in line with such former, a crimper for crimping the can-head flanges upon the can-bodies and having receiving and discharge openings in line with the heading-chamber, and a can-head-soldering mechanism, in line with the crimper and receiving the headed cans directly from said crimper, substantially as described.

6. In an automatic machine for making complete cans from flat blanks by a continuous operation, and in combination, a horn or former for can-bodies, a chamber provided with heading mechanism, mechanism for forming can-heads from flat blanks, chutes connected to said can-head-forming mechanism and to said heading-chamber for delivering can-heads to such chamber in line with the can-bodies, a crimper for crimping the can-head flanges upon the can-bodies and having receiving and discharge openings in line with the heading-chamber, a can-head-soldering mechanism in line with the crimper, and driving mechanism, substantially as described.

7. In a can-making machine, the combination with the horn or former, adapted to hold a can-body, of a frame within the former carrying a stationary die, a vertically-moving block beneath said former and carrying the lower die, a reciprocating side rod, a shaft carrying an oscillating arm connected to said side rod, and a cam on said shaft for giving the vertical motion to said block and lower die, substantially as described.

8. In combination with a hollow slotted horn or former, an independent frame in said slot supported by the horn, in combination with side-seaming dies, and with a thrust-plate in line with said frame, whereby the strain in side-seaming is taken by said frame and thrust-plate, substantially as described.

9. In a can-making machine, the combination with a hollow horn or former having upper and lower slots in line, of a frame supported in the upper slot and coinciding with the adjacent external configuration of the horn, a seaming-die carried by said frame, a thrust-plate above said frame, and a movable seaming-die below the former, substantially as described.

10. In a can-making machine, the combination with a hollow horn or former, of a frame held in slots in the horn and carrying a seaming-die, a vertically-sliding block beneath the horn carrying the other seaming-die, yielding blocks in said frame and in said block for bearing on the edges of the seam during compression, and a rigid thrust-plate above said frame, substantially as described

11. The combination with the solder-tank, of a soldering-iron, set in the tank and composed of a flat bar, cut away at intervals entirely through its thickness, whereby integral soldering projections are produced entirely separated from each other as to their working surfaces, substantially as set forth.

12. In a can-making machine, and in combination with the soldering-tank, a solder-cutter, comprising a sliding knife, a shaft having an eccentric connected to said knife, a swinging arm on said shaft, connected to the reciprocating side bar of the machine, feed-rollers for solder-wire, intermeshing gears in the shafts of said rollers, and connections between said swinging arm and said gears, whereby the solder is fed and cut at each forward stroke of the side bar, substantially as set forth.

13. In a can-making machine, the combination with a forming-horn, and with seam-soldering mechanism, of separate air and water supply pipes having adjacent nozzles in proximity to the horn, forming a spray or atomizer for cooling the side seam, substantially as described.

14. In a can-making machine, the combination with the tubular slotted horn, of a frame supported within the horn and having gas-passages and burner-orifices, a gas-pipe connected to said frame and one or more inside-soldering irons secured to said frame independently of the horn, substantially as described.

15. In a can-making machine, the combination with the tubular slotted horn, of a movable frame within the horn, having gas-passages and burner-holes, one or more soldering-irons secured to said frame, and means for reciprocating said frame and soldering-irons, substantially as described.

16. In a can-making machine, the combination with the horn or former, of an independent movable extension thereof, forming a ram, and a combined gas-supply pipe and connecting-rod for operating said extension, substantially as set forth.

17. In a can-making machine, the combination with the horn or former and the reciprocating side bar, of an independently-movable extension of said horn forming a ram, a combined gas-pipe and connecting-rod for transmitting motion to said extension, connected to said side bar, and having a flexible section, whereby it is permitted to reciprocate, substantially as set forth.

18. In a can-making machine, and in combination, the hollow horn or former having an independently-movable extension or ram, a reciprocating two-part gas-supply pipe connected to said ram, a reciprocating side bar connected to said pipe, and a movable inside-soldering device within the horn connected to both parts of said gas-pipe, and having gas-passages, substantially as set forth.

19. Can-heading apparatus consisting of a chamber, open at both ends and having means for supporting a can-body and two can-heads in line, a single plunger, and means for causing said plunger to enter and traverse said chamber, whereby at a single stroke, one head is pushed upon the body, the body is pushed into the other head, and the body with both heads is pushed out of the unobstructed end of the chamber, substantially as described.

20. In a can-making machine, a heading-chamber, having heading-rings, and adapted to contain a can-body, and two can-heads in line with the same, in combination with a ram, adapted to enter said chamber and by a single stroke to head both ends of the can and drive it out of the chamber, substantially as described.

21. In combination with a can-body former and with a heading-chamber and heading devices, a movable extension of the former for carrying can-bodies into said heading-chamber, and yielding latches for holding said can-bodies from backward movement while on the extension, substantially as described.

22. In a can-making machine, a heading-chamber adapted to receive a can-body and having slots or passages for receiving two can-heads, one at each end, in combination with heading-rings, and with a reciprocating ram for forcing a can-body into said chamber and for forcing said can-body and heads through said chamber and heading-rings, substantially as described.

23. In a can-making machine, the combination with the heading-chamber, of a telescopic forming-horn for placing can-bodies in such chamber, passages for admitting can-heads, and a yielding stop-plate at the inlet end of such chamber for preventing the withdrawal, with the horn, of the can-bodies, substantially as described.

24. In combination with the heading-chamber, the forming-horn having a movable extension for carrying can-bodies into such chamber, and the frame 63, secured within such chamber, and having the sectional stop-plate 62, substantially as and for the purposes set forth.

25. In combination with the heading-chamber, and the reciprocating ram, passages for admitting can-heads to said chamber and beveled rings at opposite ends of the chamber for swaging both heads upon the can-body at one stroke of said ram substantially as set forth.

26. A heading-chamber having interior heading mechanism and forming a support for two can-heads, and for a can-body, in combination with a reciprocating ram adapted to enter said chamber and place a can-body in position for heading, and by the same movement to force the preceding can-body and heads through the said heading mechanism, and out of said chamber, substantially as described.

27. In combination with the heading-chamber and with the reciprocating ram adapted to enter said chamber and place can-bodies therein, a swaging-ring in said chamber having the yielding latches 59, substantially as and for the purposes set forth.

28. In combination with the heading-chamber having a passage or slot at each end for holding a can-head, chutes for supplying can-heads to both passages, a sliding cut-off for alternately and simultaneously opening and closing said passages, a reciprocating side bar and connections from said side bar to said cut-off, substantially as described.

29. In combination with a hollow heading-chamber adapted to receive can-bodies, the reciprocating side bar having a depression in its upper edge, a pivoted dog resting upon said side bar, can-head-feeding chutes communicating with passages or slots at the ends of the chamber, a sliding cut-off for both passages and a rod connected to said cut-off, and bearing on said dog, whereby at each forward stroke of the side bar, the passages are closed and at each backward stroke of the same, are opened to admit two can-heads simultaneously.

30. In a heading mechanism for cans, and in combination, a heading-chamber having a slot: a reciprocating side bar; can-body-feeding mechanism; can-head chutes communicating with said chamber: a cut-off for alternately opening and closing said chutes; a dog operated by the side bar for controlling the movement of said cut-off; and a latch projecting through the slot in the chamber and connected to said dog: whereby, when no can-body is in the chamber, said latch falls, said dog is disengaged, and the can-head chutes are closed, substantially as described.

31. In combination with the heading-chamber, and can-head-feeding chutes, a sliding cut-off between said chamber and said chutes, and stop-pins connected together, and to said cut-off for alternately retaining and releasing each can-head in each chute, substantially as set forth.

32. In combination with the heading mechanism, the can-head-feeding chutes, the sliding cut-off 66, a movable frame or cross-head, carrying stop-pins 84, 85, and a connection between said frame and cut-off substantially as and for the purposes set forth.

33. A device for crimping can-head flanges upon can-bodies, consisting of a series of revolving and rotating cylinders from which the ends of the cans project, in combination with a circular crimping-rim adapted to bear upon the can-heads in said cylinders, substantially as described.

34. A crimping device for crimping can-head flanges upon can-bodies consisting of a fixed frame having crimping edges, a loose center roller within said frame, and tubular can-holding chambers, having axial rotation and revolution around said center roller, substantially as described.

35. A device for crimping can-head flanges upon can-bodies, consisting of a series of can-holding cylinders, means for revolving said cylinders step by step around a center of revolution, means for independently rotating said cylinders and fixed crimping-rims adapted to bear upon the can-head flanges, substantially as described.

36. In combination with can-body forming and can-heading mechanism, a circular crimping-frame, having continuous stationary crimping edges secured within it, an inner drum or barrel, means for intermittently revolving said barrel, a central friction-roller, and can-holding cylinders carried by said barrel, in contact with the central roller and with the circular crimping-frame, substantially as set forth.

37. In a can-making machine, the combination with the reciprocating side bar C of a rotary crimper, for crimping can-head flanges upon can-bodies consisting of intermittently traveling and rotating can-holding cylinders, circular fixed crimping-rims, concentric with the line of travel of said cylinders, and connections from the side bar, for causing the intermittent revolution of said cylinders, substantially as set forth.

38. In combination with the reciprocating side bar C, the stationary crimping-frame, a skeleton drum composed of two disks having openings in line for supporting can-holding cylinders, a series of notches in the edge of one of such disks, a swinging arm carrying a pawl and connections between said arm and said bar, whereby the reciprocation of the side bar transmits an intermittent motion to the drum and can-holding cylinder, substantially as set forth.

39. In combination, to form a device for crimping can-head flanges upon can-bodies, the outside stationary crimping-frame having circular crimping-rims, the movable inner disks M, M', having openings in line, a central shaft or pin, a friction-wheel upon said pin, and can-holding cylinders supported by said movable disks in contact with said friction-wheel and with the outside frame, substantially as set forth.

40. In combination with the stationary crimping-frame and crimping edges having openings for receiving and discharging cans, a notched carrier for can-holding cylinders, means for causing said carrier to travel intermittently within said crimping-frame, and a spring-bolt in said frame adapted to engage with the said notches successively, substantially as and for the purposes set forth.

41. In can-making machinery, mechanism for soldering can-heads to can-bodies, consisting of a series of rotating and traveling can-receivers or tubes from which the ends of the cans project, in combination with a soldering-trough, substantially as described.

42. In can-making machinery, mechanism for soldering can-heads to can-bodies consisting of a separate solder-trough for applying solder to each can-head, in combination with a series of rotating, traveling and tilting tubular can-receivers, and mechanism for imparting said rotary, traveling, and tilting movements to said can-receivers, substantially as described.

43. In a can-making machine, and in combination with can-body-forming, and can-head-attaching mechanism, a series of rotating, traveling, and tilting can-receivers, means for bringing such receivers successively into line with the heading mechanism to receive headed cans, and soldering devices in the line of travel of said receivers, substantially as described.

44. In a can-head-soldering mechanism, a carrying-ring, means for giving said ring an intermittent motion, tilting can-receivers mounted in said ring and each composed of a pivoted outer shell containing a rotary inner cylinder, and inner and outer concentric guide-tracks for said can-receivers, substantially as described.

45. In combination with an intermittently-moving carrying-ring, a series of can-receivers, each composed of an outer cylinder having trunnions mounted in said carrying-ring, and an inner cylinder having a peripheral gear extending through the outer cylinder and a centrally-mounted and intermittently-driven gear engaging with the gears throughout the series of can-receivers, all constructed and arranged so that said can-receivers derive an intermittent revolution, and their inner cylinders a continuous rotation, substantially as set forth.

46. In a can-making machine and in combination, a can-body former, a can heading and crimping device, a reciprocating side bar, a rotary head-soldering mechanism in line with the crimping device so as to receive the headed cans successively and directly from said crimper and connections from the side bar for operating the head-soldering mechanism, substantially as set forth.

47. In a can-head-soldering machine, and in combination, a device for applying solder, a carrying-ring having an intermittent or step-by-step motion, a series of can-holders mounted in said ring, each having a peripheral gear, a driving-gear engaging with all the gears of the said can-holders, and having an intermittent motion in the opposite direction to that of said ring and while said ring is stationary; whereby the can-holders are continuously rotated in the same direction substantially as described.

48. In a can soldering machine, a table, an intermittingly-rotating ring or carrier, a series of two-part can-receivers, one part being an outer shell mounted in the ring so as to tilt, and the other and inner cylinder loose in the outer shell and adapted to hold a can-body, concentric guide-tracks for alternately tilting said can-receivers, away from and toward the center of said ring, and separate soldering-troughs arranged relatively to the ring so as to apply solder to both heads, substantially as set forth.

49. In a can-making machine, and in combination with can-body-forming and can-heading mechanisms, dies for forming can-heads from flat blanks, and a discharge-passage from said dies communicating with said heading mechanism, substantially as described.

50. In a can-making machine, and in combination with can-body-forming and can-heading mechanisms, dies for forming can-heads from flat blanks, chutes for supplying such can-heads to the heading mechanism, and a passage from said dies communicating with said chutes, substantially as described.

51. In can-making machinery, a stationary die and a movable die for pressing can-heads, a feeding-passage for delivering blanks to said dies, and a discharge-passage for the pressed can-heads, both passages being arranged substantially at right angles to the line of movement of the movable die, substantially as set forth.

52. In a can-making machine, the combination with the fixed female die having a closed rear end, a pressing-recess and a discharge passage or slot, a male die having a recessed face, and a yielding plate in said recess adapted to bear against the female die while the male die is in the pressing-recess, and to remain in contact with the female die until the male die is disengaged from such recess, substantially as and for the purposes set forth.

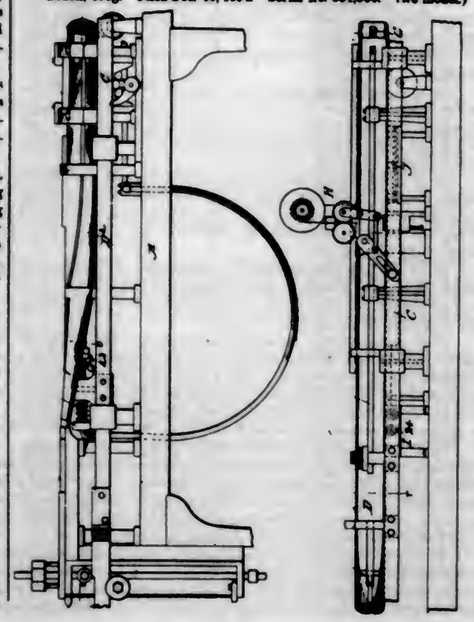
53. In a can-making machine, a press for forming can-heads, a holder adapted to contain a supply of blanks, adhesive cups for withdrawing such blanks singly and successively, and a passage between the dies of the press having a movable support for the lower edges of such blanks, substantially as described.

54. In combination with can-body-forming and can-heading mechanisms, presses for forming can-heads, operated through movable clutch mechanism, chutes for delivering such can-heads to the heading mechanism, a cut-off for controlling the feeding of the can-heads to said heading mechanism and connections between said cut-off and said clutch mechanisms, substantially as described.

55. In a can-making machine, the combination with the fixed female die having a closed rear end, a pressing-recess and a discharge-passage, of yielding pins in said pressing-recess and a movable die adapted to enter said recess, substantially as described.

56. In combination with can-heading mechanism, die-presses for forming can-heads, chutes for feeding such can-heads into the heading mechanism, cut-offs in said chutes for regulating the feed of such can-heads, and endless carriers or elevators for transferring the can-heads from the presses to said chutes, substantially as described.

576,121. **CAN-MAKING MACHINE.** ROBERT D. HUBB, Gold Beach, Oreg. Filed Dec. 10, 1894. Serial No. 531,280. (No model.)



Claim.—1. In a can-making machine, the combination with a former or horn of angular cross-section, of carriers for propelling can-bodies successively along said horn, and a movable shaping-ring surrounding the horn and of a cross-section corresponding to that of the horn, substantially as described.

2. In a can-making machine, and in combination, a blank-feeding mechanism, a tapering former or horn and a surrounding sheath for bending the blanks into a tubular form, mechanism for side-seaming the can-body, a prolongation of the horn of angular cross-section, a movable shaping-ring surrounding said angular part of the horn, and carriers for moving the cans in succession upon the horn, substantially as set forth.

3. In a can-making machine and in combination, a stationary horn of angular cross-section, a blank-feeding mechanism, reciprocating carriers for moving said blanks along said horn successively and intermittently, a movable shaping-ring fitting upon and around the horn, and a reciprocating side bar connected to said shaping-ring, substantially as described.

4. In a can-making machine, the combination with the horn or former, of the reciprocating side bar, the movable shaping-ring surrounding said former and connected to the side bar, and carriers secured to and moving with said shaping-ring, substantially as described.

5. In a can-making machine, the combination with a stationary and tapering horn or former, having spiral grooves, of carriers reciprocating in such grooves, such carriers being composed of two or more sections swiveled together, substantially as and for the purposes set forth.

6. In a can-making machine, the combination with a stationary and tapering horn or former, having spiral grooves, of recessed carrier-blocks, spring-latches in said recesses, and rods or links swiveled to said blocks, whereby said blocks and latches are self-adjusting in said grooves, substantially as and for the purposes set forth.

7. In a can-making machine, the combination with a former or horn having its top, bottom and sides formed on inwardly-curved lines in cross-section, of a movable shaping-ring having an inner edge of corresponding cross-sectional curvature, substantially as and for the purposes set forth.

8. In a can-making machine, the combination with a former or horn having its top, bottom, and sides, formed on inwardly-curved lines in cross-section, of a shaping-ring surrounding said horn and having an inner edge of corresponding curvature, and a reciprocating side bar connected to said shaping-ring, substantially as described.

9. In a can-making machine, a former or horn having a flat rear upper surface, merging first into a tapered portion, thence into cylindrical cross-section, and thence into angular cross-section, in combination with a sheath inclosing the tapered portion, a separate movable shaping-ring inclosing and conforming to the angular portion, and carriers for impelling flat blanks and can-bodies along such horn or former, substantially as described.

10. In a can-making machine, a hollow horn or former, stationary soldering-irons within said horn, a gas-pipe extending through the horn, and branching into two pipes adjacent to said soldering-irons, and means for reciprocating said gas-pipe and branches, substantially as described.

11. In combination with the former or horn having at one end a sliding extension, a reciprocating side bar, a gas-pipe rod connected loosely to said side bar, and an adjustable stop on said gas-pipe for regulating the length of the stroke derived from said side bar, substantially as described.

12. In combination with the former or horn, a sliding gas-pipe, a reciprocating side bar connected by a cross-head to said gas-pipe, a spring on the gas-pipe adjacent to said cross-head, and a stop on the gas-pipe, whereby the gas-pipe derives a reciprocating stroke relatively shorter than that of the side bar, substantially as described.

13. A mechanism for heading cans comprising an open-ended heading-tube adapted to receive and hold a can-body and can-heads in line, in combination with reciprocating heading-rams and connections for operating such rams successively, whereby the can-heads are placed successively upon the ends of the can-body, substantially as set forth.

14. In combination with a heading-tube, having means for holding a can-body and two can heads or covers in line, two heading-rams, adapted to act independently and successively upon the respective heads or covers, substantially as described.

15. In a can-making machine, and in combination, a heading chamber or tube; a reciprocating plunger for placing can-bodies within such tube and for heading one end of such can-bodies; can-head-feeding passages into said heading-chamber for placing can-heads in positions in line with said can-bodies; a heading-ram for heading the other end of said can-bodies; a driving-shaft, and independent connections from said driving-shaft to the plunger and to the heading-ram, whereby they are successively operated to head both ends of the can and to discharge the headed can, substantially as described.

16. In a can-making machine and in combination, a heading chamber or tube; a reciprocating plunger or ram for placing can-bodies within such tube and for heading one end of such can-bodies; can-head-feeding passages into said heading-chamber; a heading-ram for heading the other end of said can-bodies; a driving-shaft; a connecting-rod for operating said plunger, and a cam for operating said ram, all substantially as described.

17. In a can-making machine, a can-body former having a telescopic extension, in combination with a heading-tube, can-head-feeding mechanism, a heading-ram, and driving means for causing the following consecutive operations: the introduction of a can-body into the heading-tube by the forward stroke of the telescopic extension; the withdrawal of said extension; the feeding of two can-heads into line with the can-body; the securing of one can-head upon the can-body by the advancement of the heading-ram; the placing of the other head upon the can by the next forward stroke of the telescopic extension, and the discharge of the headed can from the tube by the same stroke of said extension, substantially as set forth.

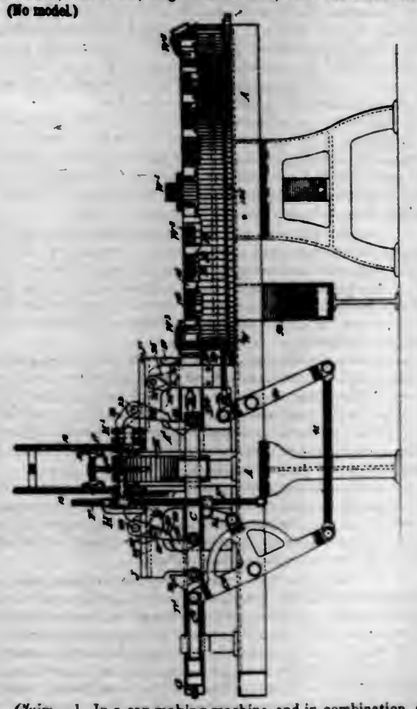
18. In a can-making machine, the combination with the heading-tube, having can-head-feeding passages communicating therewith, of a heading-ram, a sliding cut-off, an arm for opening said cut-off, normally in the path of said ram, and a safety-latch connected to said arm, adapted when no can-body is in the heading-tube to fall and thereby remove said arm from the path of the ram, substantially as and for the purposes set forth.

19. In a machine for making cans of angular cross-section, the combination with a heading-tube and with can-body and can-head supplying devices, of a heading-ram having crimping-sections and means for forcing such sections together so as to surround and bear upon the rim of the can-head, substantially as set forth.

20. In a can-making machine the combination with the heading-tube, of a two-part heading-ram, crimping-sections, a cam for moving said two-part ram as one for placing a can-head upon a can-body in the heading-tube, and a cam for moving one part of said ram independently for operating the crimping-sections, substantially as set forth.

21. In a can-making machine, a heading-tube, can-head-crimping sections, a reciprocating heading-ram, having an independently-movable plunger, beveled pins in said plunger, and beveled recesses in said crimping-sections, all constructed and arranged to operate substantially as described and shown.

576,122. **CAN HEADING AND SOLDERING MACHINE.** ROBERT D. HUBB, Gold Beach, Oreg. Filed Feb. 21, 1895. Serial No. 539,949. (No model.)



Claim.—1. In a can-making machine and in combination, a rotary carrier having receptacles for can-bodies, a plunger for placing

can-bodies within and discharging cans from said receptacles, heading-rams on opposite sides of said carrier, and a connected mechanism for operating said plunger and said rams, and for rotating said carrier, substantially as described.

2. In a can-making machine, a rotating disk having chambers for holding can-bodies, a plunger adapted to enter said chambers successively, and heading mechanism arranged relatively to the disk, whereby each can-body placed in the disk is carried around by the rotation of the disk, is headed while in the disk, and is discharged by the said plunger, substantially as described.

3. In a machine for making cans, a can-body-forming horn, a movable extension thereof constituting a reciprocating plunger, reciprocating heading-rams, and a rotary disk having chambers adapted to be brought successively into line with said plunger, and successively into line with said heading-rams, substantially as described.

4. An organized machine for making cans, consisting of a can-body former, an extension of said former, constituting a reciprocating plunger, a rotary disk or carrier having can-holding chambers, heading-rams, can-head-soldering mechanism, a passage in line with said plunger leading to said soldering mechanism, and a reciprocating side bar having connections for operating said plunger, said disk, said carrier, said rams, and said soldering mechanism, substantially as described.

5. In combination with a rotating disk or carrier, having chambers for can-bodies, can-head-feeding chutes, stops for controlling the feed of can-heads therein, a shoe adjacent to said disk and connected to said stops, and movable projections in said disk extending into said can body-holding chambers, substantially as and for the purposes set forth.

6. In a can-making machine, the combination with a reciprocating side bar, of a vertically-sliding rod connected thereto, and having a slotted bracket, a pawl in said bracket, a rotary circular can-carrier having notches in its periphery, and an oscillating arm swinging on the axis of said disk and connected to said pawl, substantially as described.

7. In combination with the reciprocating side bar C, two simultaneously-acting heading-rams, slides carrying said rams, and connections from said side bar for moving both rams simultaneously but in opposite directions by one and the same stroke of the side bar, substantially as described.

8. In combination with the frame A', the slides J J', the rams H H', the side bar C, having projections 19, 20, and 21, the cams 25, 26, and 32, 33, pivoted in the said slides, and the cams 28, 29, and 35, 36, pivoted in the said frame, substantially as described and shown.

9. In combination with the rotary can-carrier having peripheral projections, the feed-chutes 13, 13, for can-heads, the upper and lower can-head stops 18, 18, and 17, 17, pivoted so as to alternately project into and withdraw from upper and lower openings in the respective chutes, and the shoe 16, connected to all of said stops, so as to operate them simultaneously, substantially as described.

10. In combination with a rotary disk, having can-holding chambers, projections entering said chambers and pressed inwardly by springs, can-head-feeding chutes having stops for controlling said feed, and a shoe connected to said stops; whereby, when can-bodies are in said chambers, said projections will be forced outward so as to strike said shoe, but not when said chambers are empty.

11. In combination with an intermittingly-moving carrying-ring, a series of can-receivers, each composed of an outer cylinder having trunnions mounted in said carrying-ring, and an inner cylinder or can-holder having projections; and a guide-track having pins in the path of said projections; whereby a partial rotation is given said inner cylinder at each contact between said pins and said projections, substantially as described.

12. In a can-head-soldering mechanism for cans of oblong shape, the combination of a solder-trough, an intermittingly-moving carrying-ring, a series of can-receivers traveling with said ring upon guide-tracks, a series of depressions in said track deep and shallow relatively to one another in alternation, and means for turning said can-receivers from each depression to the next depression, substantially as described, and for the purposes set forth.

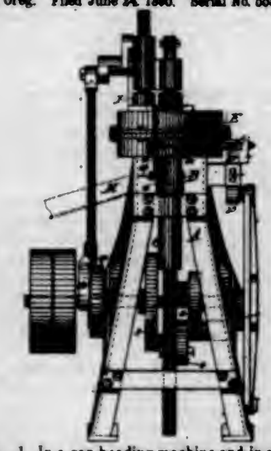
13. In a can-head-soldering mechanism, the combination with a series of traveling can-receivers, of a reciprocating bar for imparting motion to said series, and an auxiliary rod connected to said bar and having a plunger adapted to enter said can-receivers successively, substantially as and for the purpose set forth.

14. In combination with the traveling ring W', the radial can-receivers carried thereby, and the side bar C for giving motion to said ring; the oblique passage 61, and the plunger 60, connected to said side bar, substantially as described and for the purpose set forth.

15. In can-making machinery, the combination with adhesive cups for lifting body-blanks, singly, from a pile, of hinged doors for confining the pile of blanks, and teeth carried by said doors, substantially as and for the purposes set forth.

16. In can-making machinery, the combination with adhesive cups for lifting body-blanks singly from a pile, of hinged doors adapted to close against the pile, and serrated spring-plates attached to said doors, substantially as and for the purposes set forth.

576,123. CAN-HEADING MACHINE. ROBERT D. HUNE, Gold Beach, Oreg. Filed June 24, 1895. Serial No. 553,550. (No model.)



Claim.—1. In a can-heading machine and in combination, a can-feeding plunger, an oppositely-acting heading-ram, an intermittently-rotating can holder and carrier, and a crimping-rim surrounding said holder and carrier, substantially as described.

2. In a can-heading machine and in combination, a can-feeding plunger, an oppositely-acting heading-ram, a casing carrying a circular crimping-rim, and an intermittingly-moving can holder and carrier alternately stationary and movable, substantially as described.

3. In a can-heading machine and in combination, a can-feeding plunger, an oppositely-acting heading-ram, an intermediate can holder and carrier alternately stationary and movable, independently-rotatable can-chambers in said carrier and a crimping-rim, substantially as described.

4. In a can-heading machine, and in combination, a fixed casing having openings in line, oppositely-acting plungers working through said openings, a can holder and carrier having independent chambers adapted to register successively with said openings, means for moving said holder and carrier intermittingly, and a circular crimping-rim, secured to said casing, substantially as described.

5. In a can-heading machine, the combination with oppositely-acting feeding and heading plungers, of an intermediate can-holder, and a fixed swaging-ring having a convex inner periphery, substantially as and for the purposes set forth.

6. In a can-heading machine and in combination, a feeding-plunger, a heading-ram in line therewith, an intermediate movable can holder and carrier, having tubular chambers adapted to be alined with said plungers, a crimping-rim, and connections for causing the following operations: the feeding of a can into and partly through one of said chambers and the placing of a can-head in line therewith; the withdrawal of the feeding-plunger to the entrance-opening of said chamber and its momentary stoppage there, and the simultaneous advance of the heading-ram in its heading movement; the partial rotation of the can-carrier, and the complete withdrawal of both plunger and heading-ram, substantially as described.

7. In a can-heading machine, a table, a crimper-casing mounted thereon and having a continuous crimping-rim, a can holder and carrier within said casing intermittingly movable, a can-feeding plunger, a heading-ram, a discharging-plunger, a driving-shaft, and connections from said shaft for operating said plungers and for moving said carrier, substantially as described.

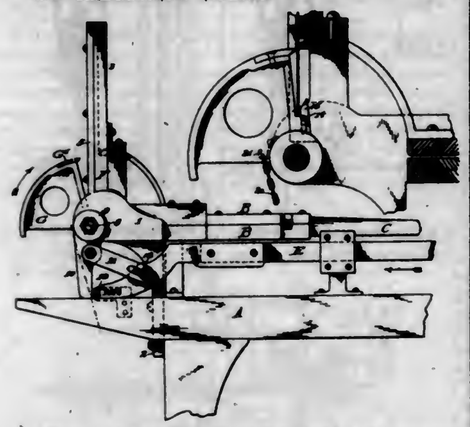
8. In combination with a casing E having a crimping-ring, and a friction-ring, a central friction-roller, a can-carrier, and tubular can-holders loose in said carrier and having a bearing upon said friction-roller and friction-ring, substantially as described.

9. In a can-heading machine and in combination, a frame or table, a hollow sleeve supported thereby, a casing having an interior crimping-rim, a friction-roller having a bearing on said sleeve, and a rotary can-carrier within the casing having independently-rotatable can-chambers bearing upon said casing and said friction-roller, substantially as described.

10. In combination with the rotary can-carrier, and with heading and crimping mechanism acting in conjunction therewith, a driving-shaft, an oscillating lever, a swinging arm carrying a yielding pawl, and a universal connection between said lever and said arm for transferring the direct oscillation of the lever to an arc swing of said arm, substantially as described.

11. In combination, the rotary can-carrier, heading and crimping mechanism operating in conjunction therewith, a driving-shaft, an oscillating lever, a reciprocating slide having a roller connection with said lever, a swinging arm having a roller connection with said slide, and a yielding pawl connected to said swinging arm, substantially as described.

576,124. MACHINE FOR CUTTING AND DELIVERING SHEET-METAL BLANKS. ROBERT D. HUNE, Gold Beach, Oreg. Filed Feb. 24, 1896. Serial No. 580,477. (No model.)



Claim.—1. A machine for cutting metal blanks from a sheet comprising a sheet-holder to allow the end thereof to protrude and an oscillating cutter-head provided with a support for the edge of the protruding sheet, said support holding the blank after being cut and conveying it in the movement of the cutter to a delivery point, substantially as described.

2. A machine for cutting and delivering sheet-metal blanks, comprising a sheet-holder, an oscillating cutter having a support for the edge of the sheet protruding from the holder, said support holding the blank after being cut and conveying it by the movement of the cutter to a delivery-point, and a moving carrier to receive and convey the blanks from the cutter, and means for operating the cutter and carrier.

3. A machine for cutting blanks continuously from a sheet of metal, comprising a vertical open-ended holder, an oscillating cutter-head having a support for the edge of the sheet in the holder, and oscillating past the open end of the holder, whereby the cutter severs the blank while the sheet is held vertically, and by the same stroke carries the severed blank to a horizontal position and there leaves it, substantially as described.

4. A machine for cutting and delivering sheet-metal blanks, comprising a sheet-holder, an oscillating cutter having a support for the edge of the metal sheet, a moving carrier with means for operating the carrier and the cutter, said support on the cutter serving to convey the blank to the carrier by a continuation of its cutting stroke, substantially as described.

5. A machine for cutting and delivering sheet-metal blanks comprising an open-bottomed sheet-holder, an oscillating cutter-head, having a support to receive the lower edge of a sheet in the holder, and means for oscillating the cutter-head below the sheet-holder, whereby the sheet is severed below the holder, and is carried forward and delivered by the continuation of the severing stroke of the cutter-head, substantially as described.

6. A self-feeding blank-cutter comprising an open-ended sheet-holder, which permits the sheets to drop by gravity, a pivoted cutter-head, having a shoulder near its center of oscillation to receive the dropped sheet, and means for oscillating such cutter-head past the open end of the holder; whereby such cutter severs a blank from the sheet and removes it while the cutter-head closes the open end of the sheet-holder, substantially as described.

7. In a machine for cutting and delivering sheet-metal blanks, and in combination, an open-ended sheet-holder, an oscillating cutter pivoted below said holder, and having a support for a sheet in the holder, a reciprocating carrier which receives the severed blanks from the cutter-head, and a reciprocating side bar, connected to said carrier, and to said cutter-head, substantially as described.

8. In a machine for cutting blanks from sheets of metal, the combination with a sheet-holder, of an oscillating cutter-head, having a support for the sheet on the holder, an arm projecting from said cutter-head, a reciprocating side bar and a slotted link connecting said side bar to the arm on the cutter-head, substantially as described.
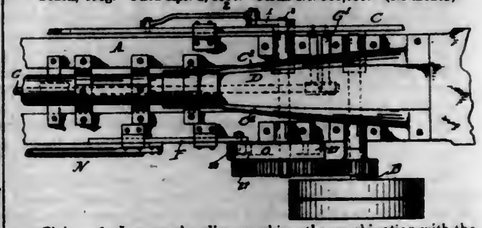
9. In a blank-cutting machine and in combination, an open-ended sheet-holder, adapted to allow the sheet to protrude; an oscillating cutter-head; means for oscillating said cutter-head past the open end of the sheet-holder, said means having a loose connection with the cutter-head to sever the protruding part of the sheet, and to close the sheet-holder; and a spring for imparting initial motion in the opposite direction to said cutter-head, in order to quickly open the sheet-holder, said motion being continued and completed by the main means for operating said cutter-head, substantially as described.

10. In a machine for cutting blanks, and in combination, a sheet-holder, having an open end through which such sheets fall, and provided with guide-strips terminating above the open end; and a cutter-head oscillating past the open end of said holder, and having a support for the sheets which fall through the open holder; whereby each blank severed from a sheet is removed by the cutter-head, which, at the same time, closes the open end of the holder; and whereby, also, after the cutting of the last blank from any sheet, the strip or margin left is discharged beneath said strips 5, while the holder is closed by the cutter-head, substantially as described.

11. In a blank-cutting machine, and in combination, an open-ended holder for metal sheets through which the sheets are permitted to drop freely, a cutter-head, sector-shaped, in end view, and caused to oscillate past the open end of such sheet-holder on an arc of approximately ninety degrees, whereby a severed blank is carried from a vertical to a horizontal position by said cutter-head, during which motion the cutter-head keeps the sheet-holder closed, substantially as described.

12. A machine for cutting metal blanks continuously from metal sheets, comprising an open-ended sheet-holder, a support below said holder for the edge of the sheet, and a cutter-head oscillating below the open end of the holder and against the exposed part of the metal sheet, substantially as described, and for the purposes set forth.

576,125. CAN-HEADING MACHINE. ROBERT D. HUNE, Gold Beach, Oreg. Filed Apr. 2, 1896. Serial No. 585,935. (No model.)



Claim.—1. In a can-heading machine, the combination with the heading-chamber of a plunger adapted to enter said chamber, a can-head feed, a movable abutment for closing the opposite end of the chamber, and a driving-shaft for operating said plunger and said abutment, substantially as described.

2. In a can-heading machine the combination with the heading-chamber, of a plunger, adapted to enter and pass through said chamber, a can-head, a movable abutment having a yielding disk, a driving-shaft and connections for operating said plunger and said abutment, substantially as described.

3. In a can-heading machine, and in combination, a combined can-body feeding and heading plunger; a can-heading chamber, having open ends and devices for feeding can-heads to said chamber; a movable abutment adapted to alternately close and open one end of the heading-chamber, and means for moving said plunger and abutment so that the following operations take place automatically: the entrance of the plunger into said chamber, and its withdrawal leaving a can-body therein; the descent of a can-head to a position in line with the plunger, and advance of the abutment to close the discharging end of the chamber; the advance of the plunger placing the said head upon the said can-body, and driving the headed can through the chamber, and the simultaneous withdrawal of the abutment, while the headed can is held between the plunger and the abutment, substantially as described.

4. In a can-heading machine, and in combination with a heading-chamber and can-head-feeding devices; a plunger having a constant reciprocation into and out of one end of said chamber, a movable abutment, having an inconstant reciprocation toward and away from the other end of said chamber, and a cam for imparting such movement to the abutment; whereby after the can is headed the plunger and abutment move simultaneously carrying and supporting the can

between them out of the heading-chamber, and then release it, substantially as described.

5. In a can-heading machine, a longitudinally-movable can-body-feeding plunger of cylindrical cross-section slightly flattened on opposite sides substantially as and for the purposes set forth.

6. In a can-making machine, a body-forming horn, prolonged and having at its end a movable extension, a heading-chamber, a can-head feed, and a movable abutment, and means for operating said extension and said abutment, whereby said abutment closes the heading-chamber while the head is being placed upon the can-body, and afterward, in connection with the extension, forms a movable clamp for the headed can being pushed out of the heading-chamber, substantially as described.

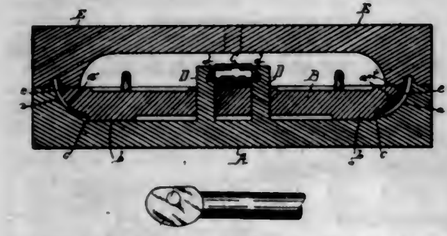
7. In combination with the main frame and heading-chamber supported thereby, guides J, a slide K, carried thereby, and having a yielding disk K', a cam-wheel O, and connecting-rods from said cam-wheel to said slide, and imparting an inconstant reciprocation to said slide, substantially as described.

8. In a can-heading machine, the combination with a reciprocating feeding and heading plunger, of a roller supporting said plunger, and a stop on the axis of said roller held in contact with said plunger, substantially as described.

9. In a can-heading machine, the combination with the heading-chamber and with the can-head feed-chute, of a pivoted lever having two arms adapted to alternately enter the chute, a dog projecting from such lever into the heading-chamber, and a movable plunger which is a combined can-body carrier and heading-ram, substantially as described.

10. In combination with a reciprocating plunger having the yielding stop 16, the heading-chamber, and the grooved guide 17 for said stop, substantially as described.

576,126. **MECHANISM FOR FORMING STOVE-BANDS.** DAVID M. IRELAND, Detroit, Mich. Filed Sept. 25, 1896. Serial No. 606,990. (No model.)



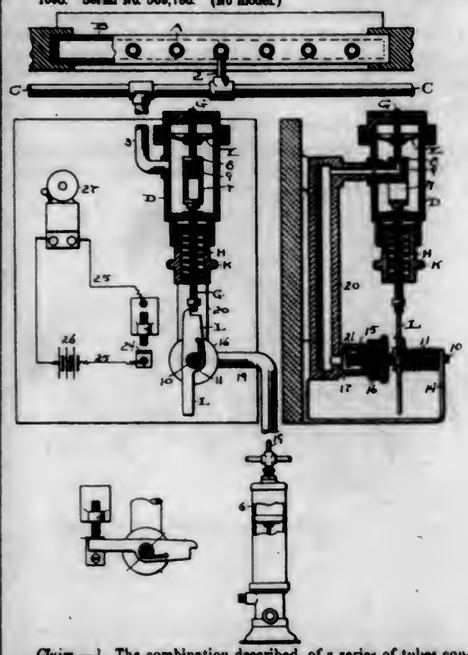
Claim.—1. In a machine for forming rings or bands, the combination with a female die having a downwardly and inwardly curved wall; of a male die having its edge curved on a line concentric with that of said wall of the female die, a lock for holding the dies together so as to produce a way between said curved faces which is of the same width throughout, and a follower for forcing a metal ring into the way, as and for the purpose set forth.

2. In a machine for forming rings or bands, the combination with a female die having a downwardly and inwardly curved wall, and a male die having its edge curved on a line concentric with that of the wall of the female die; of posts projecting from one die toward the other, the latter having apertures through which said posts pass when the dies are in working position and said posts having curved slots in their corresponding sides, a cam-lever, and lateral studs on the head of the lever removably engaging said slots, as and for the purpose set forth.

3. In a machine for forming rings or bands, the combination with a female die having a downwardly and inwardly curved wall; of a male die having its edge *a'* curved on a line concentric with that of the wall and provided at one point with a notch or recess *a''*, a lock for holding said dies together so as to produce a way between their curved faces which is of the same width throughout, and means for forcing into this way a metal ring having a reinforcing-plate which enters said notch, as and for the purpose set forth.

4. In a machine for forming rings or bands, the combination with a female die A having a downwardly and inwardly curved wall *a* terminating in an upright shoulder *c* next the flat base of the die; of a male die B having its edge *a'* curved on a line concentric with that of the wall *a*, a depending ring *b* on the male die whose outer edge fits within said shoulder *c* and whose thickness is such as to form between the curved faces, when this ring rests on the base of the female die, an annular way of the same width throughout, means for locking the dies together, and devices for forcing the ring into said way, as and for the purpose set forth.

576,127. **SAFETY APPLIANCE FOR PRISONS, &c.** ANDREW JACKSON and JOHN C. BRIGLER, Cleveland, Ohio, assignors of one-half to Francis C. McMillin and Joseph W. Roof, same place. Filed Nov. 22, 1895. Serial No. 569,786. (No model.)



Claim.—1. The combination described, of a series of tubes connected at one end by a passage common to all said tubes, a chamber connected by pipes with said passage, a piston in said chamber and an actuating-rod therefor, a pump connected with said chamber and a passage from said pump opening into said chamber, and a valve in said piston-rod to close said passage, substantially as described.

2. The chamber and an air-pump, a passage-way from the pump to the chamber and a valve in said chamber to close said passage-way and a piston in said chamber to actuate said valve, substantially as described.

3. The chamber and the pump and a passage-way between them, a valve in said chamber to close the said passage-way, a piston to actuate said valve having a rod extending outside said chamber and a second valve outside said chamber in position to close said passage-way and operating mechanism connecting said valve with said piston-rod, substantially as described.

576,128. **TOOL-POST.** WILLIAM K. JAEGER, Chester, Pa. Filed Apr. 18, 1896. Serial No. 588,105. (No model.)

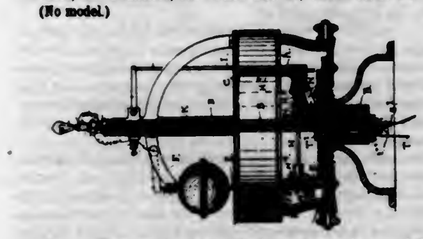


Claim.—1. The combination with a tool-post proper, which is adapted to be rigidly secured in a slot or other machine and to have a reciprocating motion imparted to it, the said post being longitudinally bored and provided with a polygonal depression at its lower end, of a head-piece having a spindle passing through said post provided with threads upon its upper end, a nut engaging said threads, a polygonal enlargement at the lower end thereof and means for securing the tool in the head-piece, substantially as described.

2. The combination with a tool-post proper, which is adapted to be rigidly secured in a slot or other machine and to have a reciprocating motion imparted to it, the said post being longitudinally bored and provided with a polygonal depression at its lower end, of a head-piece formed with a shoulder which is adapted to bear against the lower end of said post and having a spindle passing through said post provided with threads upon its upper end, a nut engaging said threads, a polygonal enlargement at the lower end thereof and means for securing the tool in the head-piece, substantially as and for the purpose described.

3. The combination with a tool-post proper, which is adapted to be rigidly secured in a slot or other machine and to have a reciprocating motion imparted to it, the said post being longitudinally bored and provided with a polygonal depression at its lower end, of a head-piece having a spindle passing through said post provided with threads upon its upper end, a nut engaging said threads, a polygonal enlargement between said shoulder and said spindle, the said head being further provided with a transverse slot through which the tool is adapted to be passed, substantially as and for the purpose described.

576,129. **ELECTRICAL ADVERTISING DEVICE.** LEOPOLD JULIE, San Francisco, Cal. Filed Dec. 26, 1895. Serial No. 573,304. (No model.)



Claim.—The combination, with the stationary base and the table rotatable thereon; of the revoluble globe on an upright spindle which is also a conductor, the stationary magnets, the vibrating armature-lever carrying on one end an armature arranged to move across the field of said magnets, the rotatable shaft one end of which is geared into the globe-spindle and the opposite end connected to the armature-lever by a crank and pitman, the commutator on said shaft, the stationary arm and the commutator-brushes secured thereto one brush arranged in working relation with the cut-away portion of the commutator and the other brush set to make continual contact with the cylindrical portion of the shaft next the commutator, the conducting-ring with which the lower end of the globe-spindle is in electric contact, the contact-spring connecting the commutator-brushes with such ring, and the contact-spring completing the connection electrically between the said brushes and the central post of the structure, and the springs and connections completing the circuit through the said parts between the wires from the two poles of an electric battery, constructed for operation as set forth.

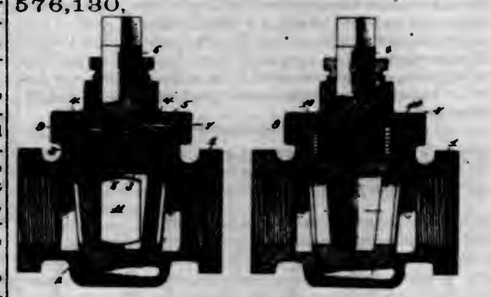
576,130. **VALVE.** HARRY R. KEYES, Homestead, Pa. Filed Jan. 17, 1896. Serial No. 575,886. (No model.)

Claim.—1. In a valve of the character described, a casing provided with a cover, a stem projecting through the cover, a flange formed on the stem and threaded in the casing, a tapering plug seated in the casing, a sliding connection between the plug and the flange and adjustable bearing-surfaces on the flange adapted to press the plug tightly into its seat as and for the purpose described.

2. In a valve of the character described, a casing provided with a cover a stem projecting therethrough, a flange formed on the stem and threaded to the casing, a tapering plug seated in the casing, lugs on the plug fitting in apertures of the flange, screws threaded in the flange bearing on the plug and a spring seated in the flange adapted to press the plug into its seat as and for the purpose described.

3. The herein-described combination of the casing 1, provided with a suitable cover, a stem 6, projecting through said cover, a flange 5, formed with said stem and having formed upon its circumference threads 7, adapted to engage with suitable threads in said casing, tapered plug 2, fitted in a seat within said casing, pins 3, for engagement with said flange whereby rotary motion is imparted from the stem to said plug and screws 10, threaded through said flange for adjusting the contact between said flange and plug, substantially as and for the purposes set forth.

576,130.



576,131. **SPRING-HINGE.** GUSTAV KOENNEMANN, Argentine, Kans., assignor of one-half to Harry M. Herr, same place. Filed May 15, 1896. Serial No. 591,675. (No model.)

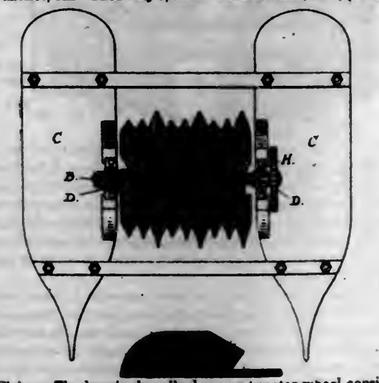


Claim.—1. A hinge, comprising two plates stepped together and each provided with a hemispherical socket which are arranged oppositely to each other to form a spherical socket, each socket being provided with one or more slots, and a second member of the hinge provided with a neck which extends through one or the other of said slots and is provided with a spherical head or ball which fits loosely within the socket formed by said hemispherical sockets, substantially as described.

2. A hinge comprising two plates stepped together and each provided with a hemispherical socket which are arranged oppositely to each other to form a spherical socket, each socket being provided with one or more slots, and a second member, provided with a neck which extends through one or the other of said slots and is provided with a spherical head or ball which fits loosely within the socket formed by said hemispherical sockets, one of said first-named plates having a tubular extension, a plug closing its rear end, a rod extending through said first-named plates and pivotally connected to the spherical head of the second member of the hinge and a retractile spring connecting said rod and said plug, substantially as described.

3. A hinge, comprising a pair of plates stepped together and each provided with a hemispherical socket which conjointly form a spherical slotted socket, one of said sections also being provided with a tubular extension provided with ratchet-teeth at its rear end, a second member of the hinge with a neck extending through the slotted spherical socket and provided with a spherical slotted head fitting loosely within said socket, a pivot-rod extending through said head at right angles to its slot, a rod pivotally connected thereto and extending through said first-named plates into said tubular extension, and a retractile spring connecting said rod and said plug, substantially as described.

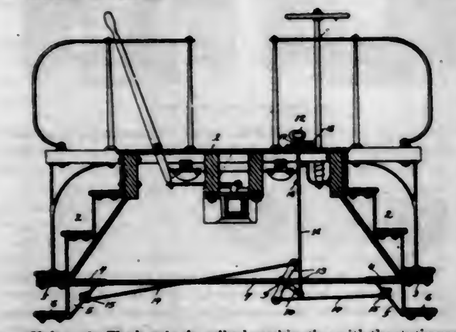
576,132. **CURRENT WATER-WHEEL.** ADOLPH KRUSE, San Francisco, Cal. Filed May 5, 1896. Serial No. 590,299. (No model.)



Claim.—The herein-described current water-wheel consisting of a horizontal shaft mounted to rotate in boxes across the open space between two supporting-floats rigidly connected together, buckets secured to said shaft in spiral lines one behind and to one side of the

other, each bucket being constructed of two flat sides joined together at an acute angle and forming a V-shaped bottom, a spoke or arm fixed in the shaft at right angles to the axis thereof to which the said sides are rigidly secured along the V-shaped bottom with equal flare or projection, a closed back united to the said sides at the inner end of the bucket, and the outer or leading end having rounded edges, as set forth.

576,133. ADJUSTABLE CAR-STEP. HENRY W. LEMMING and HENRY PICKARD, Philadelphia, Pa. Filed Apr. 20, 1896. Serial No. 588,364. (No model.)



Claim.—1. The herein-described combination with the stationary steps of a car, guide-bars consisting of slotted rods extending from one set of steps to the other, brackets slidable in the slots thereof, a step on each bracket and means for operating the brackets as and for the purpose described.

2. The herein-described combination with the stationary steps of a car, guide-bars secured to the under side of the bottom step of each pair, brackets guided by said bars so as to slide to and fro, a step supported by each of said brackets, a crank-shaft journaled in said bars, a lever secured thereon, rods 14 connecting said brackets and lever, a crank 10 carried by said shaft, and a suitable rod for operating said shaft to bring about the movements of the adjustable steps in unison, substantially as shown and for the purposes set forth.

3. The herein-described combination with the stationary steps of a car, guide-bars consisting of slotted rods extending from one set of steps to the other, brackets slidable in the slots thereof, a step supported by each of said brackets, a crank-shaft journaled in said bars, a lever secured thereon, rods connecting the brackets and lever, a crank carried by said shaft, a hand-rod connected to the crank and extending above the platform, lugs on the rods, a plate on the platform having walls to engage said lugs and means for pressing said lugs into engagement with the plate as and for the purpose described.

576,134. BALL-BEARING. WILLIAM MERKER, Washington Court-House, Ohio. Filed Mar. 7, 1896. Serial No. 540,876. (No model.)



Claim.—1. In a ball-bearing wheel, the combination of the axle X, having at its rear the groove J, and the circle of balls I fitting therein and the movable rings F, F, and at the forward portion of the axle, the reduced portion K, sleeve L rotatable around the axle and having the groove L^2, a circle of balls I entering said groove, the movable rings F, F, of the hub forming a groove, and the cap G thereof, and the inner cap M secured to the axle, substantially as and for the purposes specified.

2. In a ball-bearing wheel, the hub and axle, a sleeve on the front end of the axle and a sleeve on the rear portion of the axle, the sleeves having annular grooves and rotatable around the axle, and a series of balls, one series for each groove, and rings of the hub forming opposing grooves, and means for preventing the axle and hub from slipping longitudinally as respects one another, substantially as and for the purposes specified.

3. In a ball-bearing wheel, the hub, and axle, a sleeve on the front end of the axle and a sleeve on the rear portion of the axle, the sleeves rotatable around the axle and having annular grooves, and series of balls, one series for each groove, and sliding rings carrying opposing grooves, and supported by the hub, and means for preventing the axle and hub from slipping longitudinally as respects each other, substantially as and for the purposes specified.

4. In a ball-bearing wheel, the hub, and axle, a sleeve on the front end of the axle and a sleeve on the rear portion of the axle, the sleeves rotatable around the axle and having annular grooves, and series of balls, one series for each groove, and annular portions of the hub having grooves respectively opposing the grooves of the sleeves, the axle having a fixed groove J, and the hub having a groove H, opposed to groove J, and a series of balls for the latter groove, substantially as and for the purposes specified.

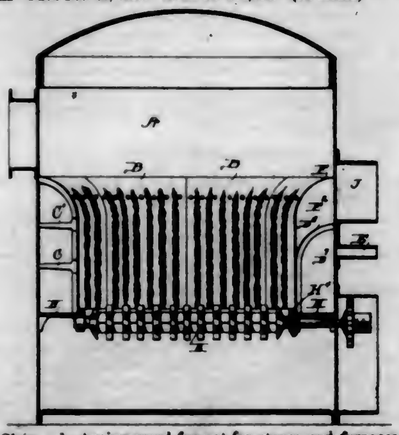
5. In a ball-bearing wheel, the hub, and axle, a sleeve on the front end of the axle and a sleeve on the rear portion of the axle, the sleeves rotatable around the axle and having annular grooves, and series of balls, one series for each groove, and annular portions of the hub forming opposing grooves, and a cap M screwed to the end of the axle just beyond the forward sleeve, substantially as and for the purpose specified.

6. In a ball-bearing wheel, the hub, and axle, a sleeve on the front end of the axle and a sleeve on the rear portion of the axle, the sleeves rotatable around the axle and having annular grooves, and series of balls, one series for each groove, and opposing grooves furnished by the mechanism of the hub, and a cap as M screwed to the end of the axle just beyond the forward sleeve, the axle being provided with groove J, and the adjacent surrounding portion of the hub provided with a groove being opposite to said groove J, substantially as and for the purposes specified.

7. In a ball-bearing wheel, the combination of the axle and certain annular portions of the hub forming a groove H and one of which portions is removable, and the axle having a groove J opposed to the groove H and a series of balls located in the said groove, the rings F, F having the radial opening P, and the stopple-opening through the hub and the stopple N secured therein, substantially as and for the purposes specified.

8. In a ball-bearing wheel, the combination of the axle and certain annular portions of the hub forming a groove H and one of which portions is removable, and the axle having a groove J opposed to the groove H and a series of balls located in the said groove, the rings F, F, having the radial opening P, and the stopple-opening through the hub and the stopple N secured therein, and sleeve L on the rear portion of the axle in front of the groove J, and a shoulder of the axle tightly embracing the axle so as to be capable of rotating thereon except under extraordinary strain, having a groove therein, and a series of balls in the groove and rolling also in an opposing groove provided in the encircling mechanism of the hub, substantially as and for the purposes specified.

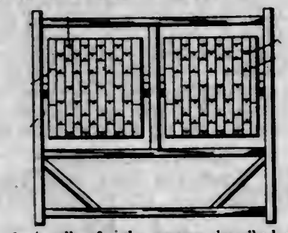
576,135. FURNACE. FRANK MEYER and GEORGE HARMS, Peoria, Ill. Filed Dec. 10, 1895. Serial No. 571,692. (No model.)



Claim.—1. An improved fire-pot for stoves and furnaces comprising a series of sections adapted to rest upon a flat surface and project upward, said sections being square-ended at their lower end portions and perforated and curved outward at their upper ends and having outward extensions at different points of elevation, the extensions and the top of the sections terminating in the same vertical planes and engaging the inside surface of the cylinder, forming communicating air-chambers which extend horizontally, mating sections having integral side portions adapted to produce a doorway and to close the ends of the upper air-chamber and to also produce an air-chamber under the doorway communicating with the lowest horizontal air-chamber, a flat ring supporting said sections, and a cylinder engaging the outer edges of the upper portion of the sections and the horizontal flanges, and supporting said ring.

2. In a fire-pot for furnaces, the section D having a vertical portion D^2, a horizontal extension D^3, and an inclined portion D^4, the section F, having a vertical portion F^2, the abutting extension D^5, and the section D^6, in combination with a series of sections B having lateral extensions C, C', and provided with perforations at their curved end portions, a flat ring to support said sections and a cylinder to inclose all of said sections, as shown and described to produce a doorway and communicating chambers extending horizontally from the chamber under the doorway for the purposes stated.

576,136. ROLLER. JOHN W. MICHAEL, Rockville, Ind. Filed Mar. 27, 1896. Serial No. 585,128. (No model.)



Claim.—1. A roller for the purpose described composed of a plurality of sectional rings, and end pieces upon the outer sides thereof and secured to and binding the rings in position, the sections of the rings being arranged to break joints, substantially as described.

2. A roller for the purpose described composed of a plurality of sectional rings, and end pieces upon the outer sides thereof and secured to and binding the rings in position, the sections of the rings being arranged to break joints, and corner-blocks filling the spaces at the angles of the end pieces and secured to the rings, substantially as described.

576,137. BICYCLE-BELL. NORMAN T. MILLS, Everett, Mass. Filed Mar. 28, 1896. Serial No. 585,200. (No model.)



Claim.—1. In a bell of the class described, a central post, a hammer-carrier rotatable thereon and having an attached pinion: a locking-plate to at times engage and hold the pinion: a vibratable actuator having a segmental gear, and gearing intermediate it and the pinion, the actuator on returning to normal position engaging and moving the locking-plate into operative position, substantially as described.

2. In a bell of the class described, a central post; a hammer-carrier rotatable thereon and having an attached pinion provided with a beveled hub; a locking device to at times engage and hold the beveled hub; a vibratable actuator, and gearing between it and the pinion, to rotate the latter, the actuator on its return to normal position engaging and moving the locking device into operative position, substantially as described.

3. The base, an upright post erected thereon, a hammer-carrier rotatable thereon and having an attached pinion; a vibratable actuator having a segmental gear; a pinion in engagement therewith and loose on the post; a locking device to engage and lock said pinions when the actuator is at rest, and connecting-gearing between said pinions, substantially as described.

4. The base, an upright post thereon: a hammer-carrier rotatable thereon and having an attached pinion provided with a downwardly-extended hub; a vibratable actuator having a segmental gear; a pinion in mesh therewith, loose on the post and having an upwardly-extended hub; a movable locking-plate to at times engage the hubs of said pinions from rotation; and gearing intermediate the pinions, said locking-plate being moved into operative position by the actuator when in normal position, substantially as described.

5. In a bell of the class described, a rotatable hammer-carrier, actuating mechanism to rotate it, a locking-plate to normally engage and prevent rattling of said mechanism, and means to release the plate when the bell is rung, substantially as described.

6. A rotatable hammer-carrier having an upturned lug, and a hole at one end, a headed stud extended loosely through said hole and the hammer, a substantially triangular hammer having a convex base, and a spring secured to the lug and interposed between it and the hammer, to bear upon the convex base of and normally press the hammer and stud outwardly and maintain the hammer-apex extended radially, substantially as described.

7. A rotatable hammer-carrier, a pinion having its hub extended therethrough, a retaining-ring on the hub above the carrier and provided with an upturned lug, a hammer pivotally mounted near the end of the hammer-carrier, and a hammer-spring connected at one end to said lug and interposed between it and the hammer, substantially as described.

8. A rotatable hammer-carrier, a hammer having a convexed base and outwardly-converging sides, mounted on said carrier and having a radial and a partially rotative movement thereon, and a controlling-spring held at its inner end on the hammer-carrier and pressing upon but unconnected with the convexed inner side of the hammer, to retain it yieldingly in normal position, substantially as described.

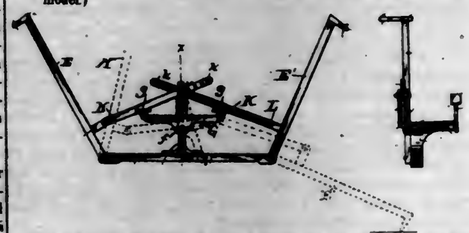
9. A rotatable hammer-carrier, a triangular hammer having a convex base, mounted to move radially and rotatively thereon, a headed stud extended loosely through the hammer-carrier and through the hammer near its convex base, and a controlling-spring for the hammer adapted to bear upon the convex base substantially at its center, to return it to normal position, after rotative movement upon the stud, substantially as described.

576,138. LEMON-SQUEEZER. FREDERICK R. MINER, Los Angeles, Cal. Filed July 16, 1896. Serial No. 599,419. (No model.)



Claim.—A lemon-juice extractor of the character described, consisting of two interhinged blocks, the free ends of which are provided with handles, one of said blocks having a depression formed therein with which communicate transverse openings, the opposite side of the block above said depressions being provided with an annular groove to receive the rim of the receiving vessel, the other block having secured thereon a knife-blade adapted to enter a groove in the sides of the depressions when the blocks are folded, the last-mentioned block being provided on the side opposite the knife-blade with a hinged door, and a bar pivoted at one side of the door and adapted to swing over the same and engage a catch on the opposite side, to retain the door in a closed position and to swing outwardly permitting the door to open and allow the passage of part of the lemon therethrough as shown and described.

576,139. MARKER FOR SEEDERS AND PLANTERS. WILLIAM L. MIDDEY, Bellevue, Ohio, assignor of one-half to the Ohio Cultivator Company, same place. Filed Aug. 15, 1896. Serial No. 602,901. (No model.)



Claim.—1. In a marking attachment for planters, the combination with the supporting-frame of a planter, of a marker comprising swinging arms located at opposite sides of the machine, a toggle connection between the arms, and means for moving the toggle consisting of a shaft, a crank thereon connected with the toggles, and a lever fixed to the shaft, substantially as described.

2. A marker attachment for seeders and planters consisting of a base-bar, marker-arms pivoted to the opposite ends of the bar, toggles connecting the arms, a lever for actuating the toggles arranged at the inner ends of the links thereof, and means for detachably securing the base-bar to a machine, substantially as described.

3. In a marking attachment for seeders and planters, the combination with a base, of marking-arms pivotally secured to the opposite ends thereof, toggle-levers connecting the arms, a bearing, a shaft journaled therein, a crank on the shaft having its outer end connected

to the toggles, and a lever on the shaft extending in opposite directions, and having rests at its ends, substantially as described.

4. In a marking attachment for seeders and planters, the combination with a base-bar, of marker-arms pivotally secured to the opposite ends thereof, projections on the arms, links connected to the projections, a crank-arm connected to the inner ends of the links, and a lever for actuating the crank-arm, substantially as described.

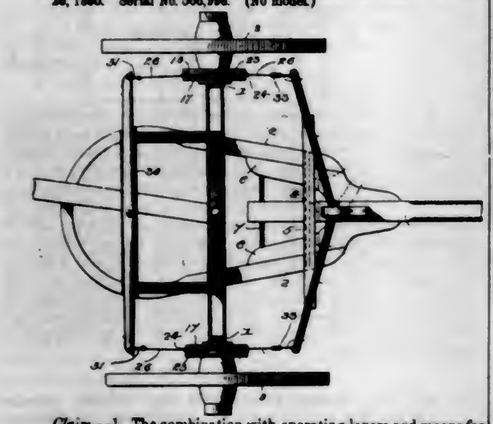
5. In a marking attachment for seeders and planters, the combination with a base-bar, of marker-arms pivotally connected to the opposite ends thereof, a central crank-arm, links connecting the crank with the marker-arms, a shaft on which the crank is mounted, a horizontal bearing for the shaft, and an actuating-lever rigid on the opposite end of the shaft, substantially as described.

6. In a marking attachment for seeders and planters, the combination with a swinging marker-arm, of a shaft, a bearing for the shaft, a connection between the shaft and arm, and a lever fixed on the shaft extending in opposite directions and having rests on its ends, substantially as described.

7. In a marking attachment for seeders and planters, the combination with two oppositely-arranged pivoted marker-arms, a toggle connection between the arms, a shaft intermediate the arms, a crank on the shaft, an adjustable connection between the crank and the toggle, and a foot-lever on the shaft for shifting the arms, substantially as described.

8. In combination with oppositely-arranged pivoted marker-arms, of a crank, links connecting the crank with the arms, and a foot-lever for actuating the crank, substantially as described.

576,140. AUTOMATIC BRAKE FOR VEHICLES. Otto C. Muehler, Henderson, and Ira V. Whiteman, Lamberton, Minn. Filed Oct. 26, 1895. Serial No. 566,966. (No model.)



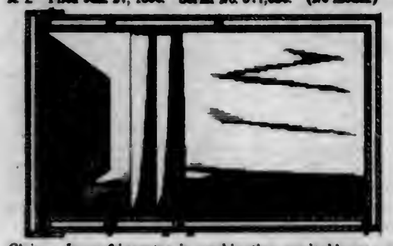
Claim.—1. The combination with operating-levers and means for communicating motion thereto, of brake mechanisms having contractible shoes, a pivotal equalizing-lever, and flexible connections between the extremities of the operating and equalizing levers and encircling said contractible shoes, substantially as specified.

2. The combination with operating-levers and means for communicating motion thereto, of brake mechanisms having contractible shoes, an equalizing-lever, said operating and equalizing levers being arranged, respectively, in advance and in rear of the brake mechanisms, and flexible connections between the extremities of the operating and equalizing levers and encircling said contractible shoes, the flexible connections consisting of continuous wires attached at their front extremities to the ends of the operating-levers, passing around the contractible shoes, and attached at their rear ends to the equalizing-lever, substantially as specified.

3. The combination with a brake mechanism having a contractible annular shoe provided at its outer periphery with a plurality of registering guides, a flexible connection coiled around or encircling said shoe, said connection being of spring-wire and being passed through the registering guides on the shoe, and means for straining or increasing the tension of the connection, substantially as specified.

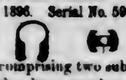
4. The combination of a fixed clutch member adapted to be secured to a wheel and having parallel side seats and an intermediate clutch-face, a loose clutch member mounted upon said fixed clutch member and provided with inwardly-extending flanges mounted in said seats, said loose clutch member having in its outer side a flanged shoe-seat, a shoe fitting said shoe-seat, and means for contracting the shoe, the loose clutch member having a removable annular side plate to facilitate the dismounting of the same from the fixed clutch member, substantially as specified.

576,141. REFRIGERATOR. Gustave A. Muenchinger, Newport, R. I. Filed Jan. 27, 1896. Serial No. 577,086. (No model.)



Claim.—In a refrigerator, in combination, a suitable case, a hinged top for giving access to the upper portion thereof, an ice-pan removably supported in such upper portion and removable through the top of the case and comprising four converging side walls the upper edges of which terminate in horizontal flanges which rest on the top edges of the side walls of the case, a second ice-pan removably fitted in the case below the first pan and provided with cross-bars at its top forming rests, a removable tray supported directly on the rests of said lower ice-pan and located beneath the upper ice-pan, and a side door located below the plane of the upper ice-pan for permitting the introduction and removal of said tray and lower ice-pan, substantially as described.

576,142. RUBBER-DAM CLAMP. Daniel Mullins, Holyoke, Mass. Filed June 19, 1896. Serial No. 596,163. (No model.)

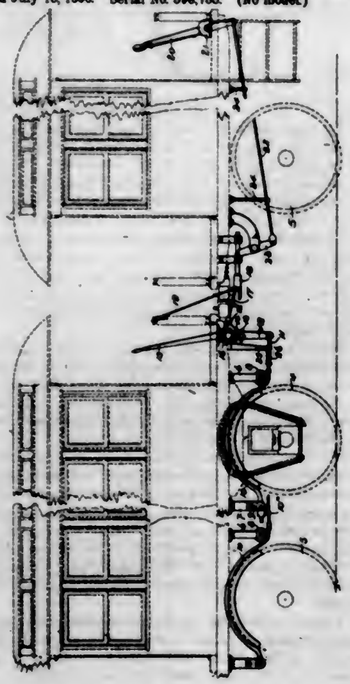


Claim.—1. A clamp comprising two substantially semicylindrical members connected together by a member having its outer faces in alinement with the outer faces of said semicylindrical members.

2. A clamp comprising two concavo-convex members connected together by a spring member, each of said concavo-convex members having an exterior groove for the reception of a rubber dam.

3. A clamp comprising two curved or substantially semicylindrical members having their lower edges inwardly bent or curved to form clamping-jaws and also having such lower edges transversely curved and exteriorly beveled, and a spring member connecting said curved members and having its outer side faces in alinement with the outer side faces of the curved members.

576,143. CAR-BRAKE. Maurice D. Murphy, Johnstown, Pa. Filed July 10, 1896. Serial No. 598,733. (No model.)



Claim.—1. The combination with a car mounted upon a suitable truck and wheels, of standards secured to said truck, one located upon each side of said wheels, a pulley in one of said standards, a link in the other of said standards, a brake-shoe, having a circular bearing-surface and an outwardly-bent forward end, pivoted at its rear end to said link and passing beneath said pulley, and means for forcing said brake-shoe forwardly.

2. The combination with a car mounted upon a suitable truck and wheels, of standards secured to said truck, one located upon each side of said wheels, a pulley in one of said standards, a link in the other of said standards, a brake-shoe, having a circular bearing-surface and an outwardly-bent forward end, pivoted at its rear end to said link and passing beneath said pulley, and automatic means for forcing said brake-shoe forwardly.

3. The combination with a car mounted upon a suitable truck and wheels, of standards secured to said truck, one located upon each side of said wheels, a pulley in one of said standards, a link in the other of said standards, a brake-shoe, having a circular bearing-surface and an outwardly-bent forward end, pivoted at its rear end to said link and passing beneath said pulley, an operating-lever having a toothed lower end, a segmental rack with which said lever engages, and a pitman connecting said brake-shoe with said rack, substantially as and for the purpose described.

4. The combination with a car mounted upon a suitable truck and wheels, of standards secured to said truck, one located upon each side of said wheels, a pulley in one of said standards, a link in the other of said standards, a brake-shoe, having a circular bearing-surface and an outwardly-bent forward end, pivoted at its rear end to said link and passing beneath said pulley, an operating-lever having a toothed lower end, a segmental rack with which said lever engages, a pitman connecting said brake-shoe with said rack, a guide through which said pitman passes, and a spring attached to said guide and to said pitman for holding the latter normally in its rearward position.

5. The combination with a car mounted upon a suitable truck and wheels, of standards secured to said truck, one located upon each side of said wheels, a pulley in one of said standards, a link in the other of said standards, a brake-shoe, having a circular bearing-surface and an outwardly-bent forward end, pivoted at its rear end to said link and passing beneath said pulley, an operating-lever having a toothed lower end, a segmental rack mounted upon a transverse shaft on the under side of said car with which said lever engages, a rod or bar attached to said rack, and a pitman connecting said brake-shoe with one arm of said rod or bar.

6. The combination with a car mounted upon a suitable truck and wheels, of standards secured to said truck, one located upon each side of said wheels, a pulley in one of said standards, a link in the other of said standards, a brake-shoe, having a circular bearing-surface and an outwardly-bent forward end, pivoted at its rear end to said link and passing beneath said pulley, an operating-lever having a toothed lower end, a segmental rack mounted upon a transverse shaft on the under side of said car with which said lever engages, a rod or bar attached to said rack, a pitman connecting said brake-shoe with one arm of said rod or bar, and a forwardly-extending push-bar, pivoted to the other arm of said rod or bar and adapted to engage a stop upon the car next adjacent thereto.

7. The combination with two cars constituting a train, the rear car having a brake thereon adapted to be thrown into operation by a push-bar extending forwardly therefrom, of a stop secured to the outer end of a lever fulcrumed in the forward car, an operating-lever within reach of the motorman on the forward car, and a pitman connecting the free arms of said levers, whereby the position of said stop may be adjusted, substantially as and for the purpose described.

576,144. DEVICE FOR AUTOMATICALLY LOCKING ELEVATORS. Josiah C. McManus, Allegheny, Pa., assignor, by direct and mesne assignments, to the Eureka Lock and Improvement Company, Pittsburg, Pa. Filed Dec. 5, 1895. Serial No. 571,142. (No model.)

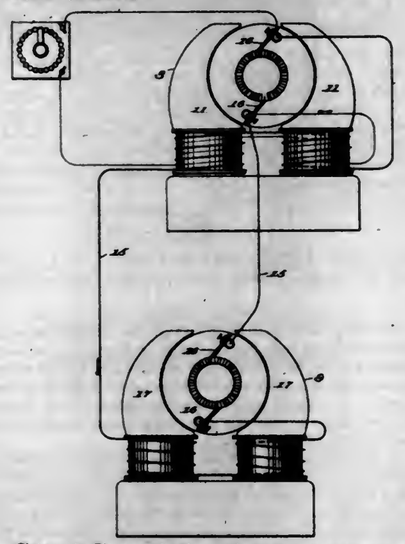


Claim.—1. In a locking device for elevators, the combination of an elevator-shaft; a vertical rod extending from the bottom to the top substantially of the shaft, and provided with a series of arms projecting substantially at right angles therefrom, and a series of bars adapted to engage the motor-controlling rope or chain; doors each having an inclined plane adjacent to one of said arms, and adapted to engage against said arm and transmit motion to said rod, substantially as and for the purpose set forth.

2. In a locking device for elevators, the combination of a vertical rod having a series of arms, and a series of clutch-bars, substantially at right angles to said arms; doors each having an inclined plane adjacent to one of said arms, and adapted when being opened, to impinge against said arm and transmit motion to said vertical rod; a motor-controlling rope or chain having series of stops thereon, whereby said rod is caused to rotate and the clutch-bars thereon to engage the motor-controlling rope or chain between the stops thereon, substantially as described.

3. In a device for automatically locking and releasing elevator-doors, the combination of a rod or shaft extending from the bottom to the top substantially of the elevator-shaft, and having a series of arms, and a series of clutch-bars; a door, adapted when being opened, to rotate said rod in one direction; a counterweight connected to said rod, and adapted to rotate said rod in an opposite direction; a motor-controlling rope or chain having a series of stops thereon, adapted to be engaged or clutched by the clutch-bars on said vertical rod, substantially as herein described.

576,145. METHOD OF AND APPARATUS FOR ELECTRIC PROPULSION. Lewis H. Nash, South Norwalk, Conn., assignor to the National Motor Company, New York, N. Y. Filed Nov. 16, 1895. Serial 569,147. (No model.)



Claim.—1. The combination with an electric generator run at a substantially constant speed, of a translating device constructed and arranged to translate into work a constant energy in watts at varying potential and current said generator having on its field-magnets shunt and series coils wound in opposite directions whereby constant watts at varying potential and current are supplied to the work-circuit as the resistance of that circuit varies.

2. The combination of a vehicle, an electric generator having on its field-magnet shunt and series coils, the currents through which flow in opposite directions with a series-wound motor.

3. The combination with an electric generator run at a substantially constant speed of a series-wound motor, said generator having on its field-magnets shunt and series coils wound in opposite directions whereby constant watts at varying potential and current are supplied to the work-circuit as the speed of said motor varies and a variable resistance in said shunt-circuit of said dynamo.

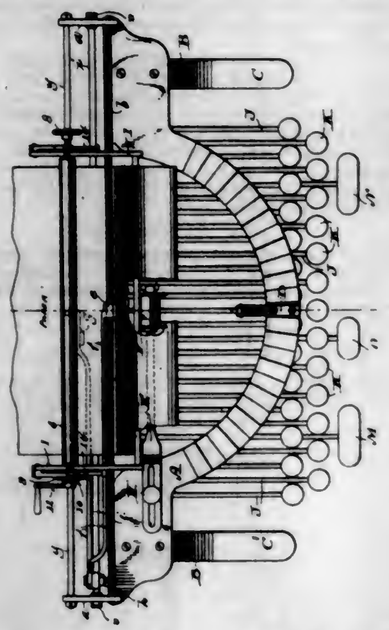
4. The combination with a vehicle of a prime mover, and dynamo operating at a determined speed, an electric motor and means for automatically varying in inverse ratio both the amperes and volts supplied to the motor as the work imposed upon it varies.

5. The method of propelling a vehicle consisting in developing a constant energy in watts in a prime mover carried on the vehicle and of interposing between said prime mover and wheels or other driven element a motor adapted to utilize a constant energy in watts at different speeds.

6. The combination of an electric generator having on its field-magnets shunt and series coils wound in opposite directions whereby constant watts are supplied to the work-circuit under variations of resistance in said circuit, a manually-operated resistance in said shunt-

circuit for varying the output of the generator in watts and a translating device constructed and arranged to translate into work a given energy in watts at varying potential and current.

576,146. TYPE-WRITING MACHINE. CHARLES S. NICKERSON, Racine, Wis. Filed July 17, 1896. Serial No. 598,215. (No model.)



Claim.—1. In a type-writing machine, the combination, with converging type-levers each carrying type upon which more than one character is engraved, of a laterally-movable anvil against which the type strike, having a face about the length and breadth of the largest character to be printed, capable of being shifted so as to present its face to any character upon the type, in the manner, and for the purposes substantially as described.

2. In a type-writing machine, the combination of the vertically-movable anvil *e*, actuated by the impact of the type upon its face, with the forked lever *f*, hinged to the sliding rod *i*, held down by the spring *f'*, and having upon its lower extremity the pallets *j*, *j*, which engage the teeth of rack 4 of the paper-carriage, in the manner and for the purposes substantially as described.

3. In a type-writing machine the combination of the type-bars and their operating devices, with the anvil *e*, the vertically-oscillatory forked lever supporting said anvil, the retracting-spring *f''*, the vertically-sliding lever *k* connected to the forked lever *f* and provided with an operating-pawl, and a spindle *m*, carrying a ribbon-spool and provided with wheel *l* adapted to be engaged by the pawl on the lever *k*, all substantially as described.

4. The combination of the space-key, the sliding lever *k*, provided with a pawl, the ribbon-spindle having a ratchet-wheel adapted to be engaged by said pawl, the lever *f* carrying the escapement-dogs, and the carriage provided with the feed-rack, the space-key being adapted to operate to feed the carriage and rotate the ribbon-spool without operating the printing mechanism, all substantially as described.

5. In a type-writing machine the combination of the sliding rod *i*, carrying the forked lever *f* and the ribbon-shield *z*, held in a central position by the springs *v*, *v*, with the levers *w* and *x*, space-keys M and O to operate said levers to move the sliding rod *i*, longitudinally in either direction, in the manner and for the purposes substantially as described.

6. In a type-writing machine, the combination with a laterally-movable anvil of a ribbon-shield having a slot opposite the face of the anvil, designed to be shifted laterally along with the anvil, substantially as described.

7. In a type writing machine the combination with the revolving rack 4 of the lever 12, the ratchet 10, the pawl 13, the spring 11, and the wheels 9, 17, designed by the revolution of the rack 4, to release the teeth of said rack from the pallets *j*, *j*, and to produce the line-spacing, substantially as described.

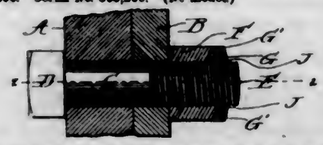
576,147. BICYCLE BALL-BEARING. MANASSEH PATTERSON, Almonte, Canada. Filed Aug. 10, 1896. Serial No. 602,233. (No model.)



Claim.—1. The combination with the tubular hub A, of the shaft or journal B, having collars B', B², each provided with a recessed portion B³, having an annular bearing or V-groove B⁴, for the balls; a ring H, screwing within the hub and filling said recess in collar B² and provided with an annular V-groove H', said grooves B⁴, and H', forming annular ball-races; balls K, in said races, and a locking-ring L, screwing on said ring H, as set forth.

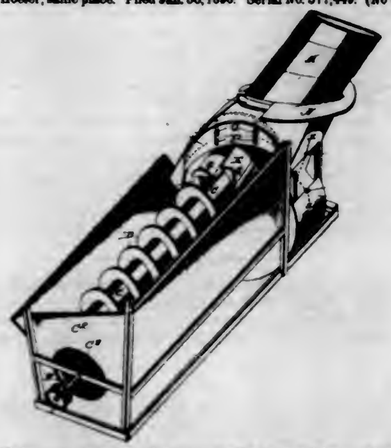
2. The combination with the hub A, having a V-groove in a closed end, of a journal B, having collars B', B², each provided with a recessed annular portion B³, having an annular V-groove B⁴, a ring H, screwing into the open end of said hub and provided with an annular V-groove H', balls K, in said grooves, a locking-ring L, screwing on said ring H, and a washer M, as set forth.

576,148. NUT-LOCK. JOHN PEARSON, Chicago, Ill. Filed May 27, 1896. Serial No. 593,260. (No model.)



Claim.—As a nut-lock, the bent or curved plate G of elastic metal, provided with the aperture H, and with the screw-threads I I, on two opposite sides of said aperture, adapted normally to register with the threads on the bolt, and to be thrown out of registry as the nut-lock plate is flattened by pressure against the nut, the two remaining sides of the aperture in the nut-lock plate not engaging with the bolt, substantially as shown and described.

576,149. PNEUMATIC STACKER. GUSTAVUS A. RAASCH and HENRY FAHRENKER, Higginsville, Mo.; said Raasch assignor to Charles Hoefer, same place. Filed Jan. 30, 1896. Serial No. 577,449. (No model.)



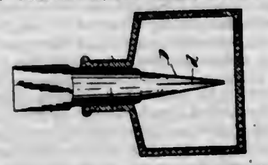
Claim.—1. A pneumatic straw-stacker, comprising a suitable receiver, a circular casing communicating therewith at one end, provided with a discharge-tube, a rotating shaft arranged axially of the receiver and the casing, a spiral conveyer mounted rigidly upon the shaft within the receiver, a fan mounted rigidly upon the shaft within the casing, and having its blades extending at an angle to the axis of the shaft and bent forwardly or in the direction of rotation, as at *G*, at the ends adjacent to the conveyer, and a disk or flange at the opposite end of said blades, substantially as shown and described.

2. In a pneumatic straw-stacker, the combination with a suitable receiver, a casing communicating with one end of the same, a rotating shaft extending longitudinally of the receiver and axially of the casing, a spiral conveyer mounted rigidly upon said shaft within the receiver, a fan within the casing and also mounted upon the shaft, and an adjustable gage-board secured to the casing and adapted to regulate the volume of air and straw passing from the receiver to the casing, substantially as set forth.

3. In a pneumatic straw-stacker, the combination with a suitable receiver, a casing communicating with one end of the same, a rotating shaft extending longitudinally of the receiver and axially of the casing, a spiral conveyer mounted rigidly upon said shaft within the receiver, a fan within the casing and arranged to turn with said shaft, clamping-bolts projecting from the casing, and a slotted gage-board mounted upon the clamping-bolts projecting from the casing, substantially as and for the purpose set forth.

4. In a pneumatic straw-stacker, the combination with a suitable receiver and a casing communicating with one end of the same and provided with a discharge-tube, of a rotating shaft arranged longitudinally of the receiver and axially of the casing, a spiral conveyer and a fan upon said shaft, the conveyer being located within the receiver and the fan within the casing, and a detachable guard-plate closing an opening in the casing and projecting inwardly thereof adjacent to said fan, so as to prevent the straw being carried beyond the mouth of the tube of the casing, substantially as set forth.

576,150. MUCILAGE-BOTTLE. CHAUNCEY M. RATHBUN, Fredonia, N. Y. Filed June 25, 1896. Serial No. 596,921. (No model.)



Claim.—The combination with a mucilage-bottle, of a stopper composed of soft rubber, said stopper being provided with a head, which is adapted to serve as a handle, and the lower end thereof, being extended, and wedge-shaped in form, said extended end being also divided or slitted, substantially as shown and described.

576,151. COIN-CONTROLLED RECEPTACLE. ARTHUR A. REASER and JOSEPH H. MCLAUGHLIN, Lincoln, Nebr. Filed July 11, 1896. Serial No. 598,869. (No model.)



Claim.—1. In a device of the class described, the combination of a casing provided with a curved front having a door-opening, a curved spring-actuated door arranged at the front of the casing and adapted to open automatically when released, a coin-operated lever consisting of a horizontally-disposed L-shaped portion pivoted at one end, and having its other end engaging the door to lock the latter in its closed position, and a depending arm adapted to be engaged by a coin, a coin-chute arranged adjacent to the said depending arm, and a push-bar located adjacent to the coin-chute and adapted to force a coin into contact with the said depending arm, substantially as and for the purpose described.

2. In a device of the class described, the combination of a casing having a continuously-curved front and top and provided with a door-opening, transverse partitions arranged within the casing, disposed at opposite ends of the door-opening and having upper front edges separated from the casing, a curved door operating in the space between the partitions and the casing and provided with radial arms pivoted to the partitions, a coin-chute arranged within the casing, a spring-actuated coin-operated lever located at one side of the coin-chute and engaging the adjacent arm of the door, whereby the latter is locked in its closed position, and a push-bar located at the opposite side of the coin-chute, substantially as described.

3. In a device of the class described, the combination of a casing having a continuous curved front and top, transverse partitions, a curved door provided with radial arms pivoted to the partitions springs mounted on the pivots and connected with the arms for automatically opening the door, a coin-chute arranged within the casing, a beveled lug mounted on the adjacent arm, a spring-actuated coin-operated lever fulcrumed on the coin-chute and arranged to engage the said lug, and a push-bar located at the opposite side of the front chute, substantially as described.

4. In a device of the class described, the combination of a casing having a door-opening and provided at the top thereof with a recess, a spring-actuated door having a lug forming a finger-piece and arranged to enter the said recess when the door is opened, a cushion extending around the recess and adapted to be engaged by the lug, and coin-operated mechanism for controlling the opening of the door, substantially as described.

576,152. FURNACE FOR HEATING METAL RODS. DANIEL H. REDMOND, Philadelphia, Pa. Filed Jan. 31, 1896. Serial No. 577,545. (No model.)



Claim.—The combination in a furnace for heating rods and the like, of a combustion-chamber, a heating-chamber having communication at one end with the combustion-chamber through the side wall of the latter, an offtake communicating with the other end of the heating-chamber through an opening in its floor, inclined ways located in the heating-chamber and slanting upward from over the offtake and terminating at the other end of the heating-chamber, and doorways disposed in the side wall of the heating-chamber intermediate of its ends and of the ends of the ways, substantially as described.

576,153. CURTAIN-POLE AND BRACKET. DAVID M. REID, Ashtabula, Ohio. Filed Aug. 17, 1896. Serial No. 603,081. (No model.)



Claim.—In a curtain-pole and bracket, the pole adapted to form a support for the curtain, the clamping-strip formed to fit the contour of the upper side of said pole, the bracket adapted to be fastened to a window-casing, the spindle on said bracket, the apertures through said pole, the clamping-strip adapted to receive said spindle and said pole and clamping-strip adapted to be clamped thereon by a suitable nut, as set forth.

576,154. HYDRAULIC APPARATUS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 6, 1896. Serial No. 586,342. (No model.)

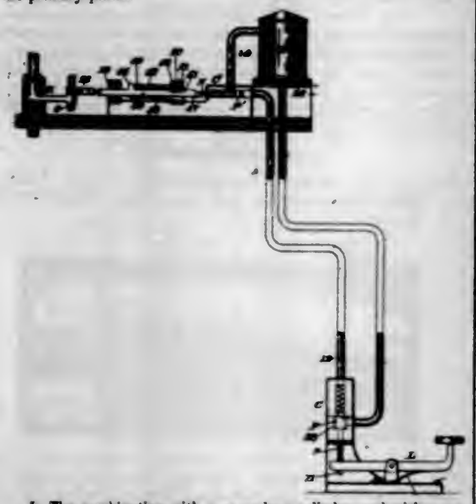
Claim.—1. The combination with a latch, of a fluid-actuated device for releasing the same; an oscillatory key or lever; connections operated by said key-lever for conveying fluid to the latch-actuating device; and means for resetting the latch.

2. The combination with a latch, and with means for projecting the same; of a latch-releasing piston; a service-conduit; a piston for forcing fluid against said latch-releasing piston and a key-lever for operating the piston.

3. The combination with a secondary cylinder, and with a secondary piston in said secondary cylinder; of a fluid-conveyer having a service-conduit communicating at its forward end with the rear end of said secondary cylinder; a primary cylinder communicating at its forward end with the rear end of said service-conduit; a primary piston carried in said primary cylinder for forcing fluid through the conduit and the secondary cylinder and thereby actuating the secondary piston; and an actuator for the primary piston.

4. The combination with a secondary cylinder, and with a secondary piston in said secondary cylinder; of a fluid-conduit communicating at its forward end with the rear end of the secondary cylinder; a fluid-conveyer having a fluid-supply conduit normally in communication with said service-conduit; a primary cylinder communicating at its forward end with the rear end of said service-conduit; a primary piston carried in said primary cylinder for forcing fluid through said service-conduit and the secondary cylinder and

thereby actuating the secondary piston, and embodying a valve operative for cutting off the flow from the supply-conduit during the working stroke of the primary piston; and an actuator for operating the primary piston.



5. The combination with a secondary cylinder, and with a secondary piston in said secondary cylinder; of a fluid-conveyer having a service-conduit communicating at its forward end with the rear end of the secondary cylinder; a fluid-conveyer having a fluid-supply conduit opening into the primary cylinder and normally in communication with said service-conduit through the valve of the primary piston; a primary cylinder communicating at its forward end with the rear end of said service-conduit; a primary piston carried in said primary cylinder for forcing fluid through said service-conduit and the secondary cylinder and thereby actuating the secondary piston, and embodying a valve normally connecting the fluid-supply conduit and the service-conduit and operative for cutting off the flow from the supply-conduit during the working stroke of the primary piston; and an actuator for operating the primary piston.

6. The combination with a secondary cylinder, and with a reactive secondary piston in said secondary cylinder; of a fluid-conveyer having a service-conduit communicating at its forward end with the rear end of the secondary cylinder; a fluid-conveyer having a fluid-supply conduit opening into the primary cylinder, and normally in communication with said service-conduit; a primary cylinder communicating at its forward end with the rear end of said service-conduit; a reactive primary piston carried in said primary cylinder for forcing fluid through said service-conduit and the secondary cylinder and thereby actuating the secondary piston, and embodying a valve operative for cutting off the flow from the supply-conduit during the working stroke of the primary piston; and an actuator for operating the primary piston.

7. The combination of a cylinder; a fluid-conveyer provided with a pair of fluid-conveying conduits communicating with the cylinder at longitudinally-separated points respectively in said cylinder; a reciprocatory piston operative in said cylinder, and embodying a valve adapted during one stroke of the piston to permit communication between the aforesaid fluid-conveying conduits, and during the other stroke of the piston to cut off communication between said conduits; and means for reciprocating said piston.

8. The combination with a cylinder; of a fluid-conveyer having a service-conduit communicating at one end with the cylinder at a point in the rear of the piston, and also having an outlet-port between the ends of said cylinder; a piston operative in said cylinder, and embodying a relief-valve adapted for connecting the service-conduit and the outlet-port at a predetermined point in the working stroke of the piston; and means for forcing fluid through the conduit and the cylinder for actuating the piston.

9. The combination with a secondary cylinder; of a fluid-conveyer having a service-conduit communicating at its forward end with the secondary cylinder at a point in the rear of the secondary piston, and also having an outlet-port between the ends of said cylinder; a secondary piston operative in said secondary cylinder, and embodying a relief-valve adapted for connecting the service-conduit and the outlet-port at a predetermined point in the working stroke of the secondary piston; a primary cylinder communicating at its forward end with the rearward end of the service-conduit; a primary piston carried in said primary cylinder for forcing fluid through said service-conduit and secondary cylinder and thereby actuating the secondary piston; and an actuator for operating the primary piston.

10. The combination with a secondary cylinder; and a service-conduit communicating at its forward end with the secondary cylinder at a point in the rear of the secondary piston, and also having an outlet-port between the ends of the secondary cylinder; of a secondary piston operative in said secondary cylinder, and embodying a relief-valve adapted for connecting the service-conduit and the outlet-port during the last part of the working stroke of the secondary piston; a primary cylinder communicating at its forward end with the rearward end of the service-conduit; a primary piston carried in said primary cylinder for forcing fluid through said service-conduit and the secondary cylinder and thereby actuating the secondary piston; and an actuator for operating the primary piston.

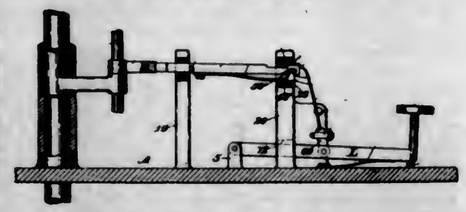
11. The combination with a latch, and with means for replacing the same; of a secondary cylinder; a piston carried in said cylinder and adapted for actuating said latch; a fluid conveyer having a service-conduit communicating with the secondary cylinder; a primary cylinder communicating with the service-conduit; a piston carried in said primary cylinder for forcing fluid through the conduit and the secondary cylinder and thereby actuating the secondary piston; and an actuator for operating the primary piston.

12. The combination with a latch having a cam-face; and with means for replacing the latch; of a secondary cylinder; a piston carried in said cylinder and provided with a tripper adapted for riding over said cam-face to actuate the latch; a fluid-conveyer having a service-conduit communicating with the secondary cylinder; a primary cylinder communicating with the service-conduit; a primary piston carried in said primary cylinder for forcing fluid through the conduit and the secondary cylinder and thereby actuating the secondary piston; and an actuator for operating the primary piston.

13. The combination with a latch having a cam-face, and with means for replacing the latch; of a secondary cylinder; a reactive secondary piston carried in said cylinder, and provided with a tripper in position and adapted for riding over said cam-face to actuate the latch; a fluid-conveyer having a service-conduit communicating at its forward end with the rear end of the secondary cylinder; a primary cylinder communicating at its forward end with the rear end of the service-conduit; a reactive primary piston carried in said primary cylinder for forcing fluid through the conduit and the secondary cylinder and thereby actuating the secondary piston; and an actuator for operating the primary piston.

14. The combination with a secondary cylinder; of a fluid-conveyer having a service-conduit communicating at its forward end with the secondary cylinder at a point in the rear of the secondary piston; a fluid-conveyer having a fluid-return conduit communicating with the reservoir, and also communicating with the secondary cylinder at a point between the ends of said cylinder; a secondary piston operative in said secondary cylinder, and having a relief-valve adapted for connecting the service-conduit and the fluid-return conduit at a predetermined point in the working stroke of the secondary piston; a fluid-conveyer having a fluid-supply conduit leading from the reservoir and opening into the primary cylinder, and normally in communication with the service-conduit; a fluid-reservoir for supplying fluid to the fluid-supply conduit; a primary cylinder communicating at its forward end with the rear end of the service-conduit; a primary piston carried in said primary cylinder for forcing fluid through the service-conduit and the secondary cylinder and thereby actuating the secondary piston, and embodying a valve adapted for cutting off the flow from the supply-conduit during the working stroke of the primary piston; and an actuator for operating the primary piston.

576,155. LATCH. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 6, 1896. Serial No. 586,343. (No model.)



Claim.—1. The combination with a suitable latch-support, and with a pair of fixed catches thereon; of a latch mounted for transverse movement at one of its ends, and having two catches, one normally in engagement with one of said first-mentioned catches when the latch is in its normal retracted position, and the other in position and adapted to engage the other of said first-mentioned catches when the latch is in its non-operative, retracted position.

2. The combination with a suitable support, and with a pair of fixed catches thereon; of a latch mounted for transverse movement at one of its ends, and having a fixed catch normally in engagement with one of said first-mentioned catches when the latch is in its normal, retracted position, and having also a movable catch in position and adapted to engage the other of said first-mentioned catches when the latch is in its non-operative, retracted position.

3. The combination with a suitable support, and with a pair of fixed catches thereon; of a latch mounted for transverse movement at one of its ends, and having a fixed catch normally in engagement with one of said first-mentioned catches when the latch is in its normal, retracted position, and also having a spring-catch in position and adapted to engage the other of said first-mentioned catches when the latch is in its non-operative, retracted position.

4. The combination with a suitable support, and with a pair of fixed catches thereon; of a latch mounted for transverse movement at one of its ends, and having two alternately-effective catches, one normally spring-held in engagement with one of said first-mentioned catches when the latch is in its normal, retracted position, and the other in position and adapted to engage the other of said first-mentioned catches when the latch is in its non-operative, retracted position.

5. The combination with a suitable support, and with a pair of catches; of a latch mounted for transverse movement at one of its ends, and having a catch normally spring-held in engagement with one of said first-mentioned catches when the latch is in its normal, retracted position, and also having a spring-catch in position and adapted to engage the other of said first-mentioned catches when the latch is in its non-operative retracted position, and said latch also having a stop in position and adapted for releasing the spring-catch on the return of the latch from its non-operative, retracted position, to its normal, retracted position.

6. The combination with a suitable support, and with a catch; of a latch mounted for transverse movement at one of its ends, and having a catch normally in engagement with said first-mentioned catch; and an actuator in position and adapted for actuating said latch, and having a movement operative for transversely actuating the latch to release said latch from said first-mentioned catch, and also having a transverse movement operative for moving the latch.

7. The combination with a suitable support, and with a catch; of a latch mounted for transverse movement at one of its ends, and having a catch normally in engagement with said first-mentioned catch; and a combined tripper and actuator in position and adapted for actuating said latch, and operative for actuating the latch by a pull for thereby releasing the latch from said first-mentioned catch, and also operative for moving the latch by a push.

8. The combination with a suitable support, and with a pair of fixed catches thereon; of a longitudinally-reciprocatory latch having two alternately-effective catches, one in position and adapted to engage one of said first-mentioned catches when the latch is in its non-operative, retracted position, and the other in position and adapted to engage the other of said first-mentioned catches to hold the latch in a normal, retracted position in advance of its non-operative, retracted position on the return of the latch from its non-operative, to its normal, retracted position; and means for normally holding the latch in its normal, retracted position.

9. The combination with a latch-support, and with a catch; of a latch, and a latch tripper and actuator having means in position for bearing on the latch to first release and then move forward the same.

10. The combination with a support for a latch, and with a catch; of a longitudinally-reciprocatory latch carried by the support for transverse movement at one end for unhooking said catch; and a resilient latch tripper and actuator having its working movement transversely of the latch, and having an incline in position for bearing on the latch to first move the latch transversely to unhook the same from said catch, and to move the latch longitudinally by the resilience of the actuator.

11. The combination with a support for a latch, and with a catch; of a longitudinally-reciprocatory latch carried by the support for transverse movement at one end for unhooking said catch; and a latch tripper and actuator having its working movement transversely of the latch, and held itself against transverse movement longitudinally of the latch at a point remote from a latch-operating incline thereon; and a latch-operating incline on said actuator in position for bearing on the latch to move the latch transversely to unhook the same from said catch, and to be itself simultaneously actuated transversely by the latch to put the tripper under compression, and so subsequently move the latch longitudinally by the reaction of the tripper.

12. The combination with a latch-support and with a latch positively movable thereon in both directions, of a latch tripper and actuator having means in position for bearing on the latch to first release and then positively move the same; and a device for positively returning the latch to its normal position.

13. The combination with a latch-support having an opening, through which the latch is movable, of means for first releasing the latch from its engagement with said support, and then positively projecting the same.

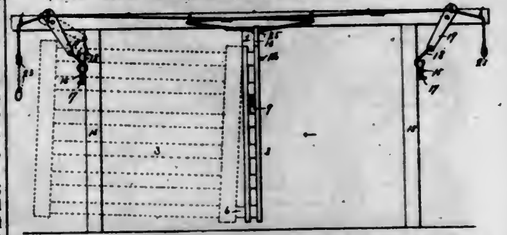
14. The combination with a latch positively movable in both directions and having two catches one fixed and the other movable, said catches being adapted to engage fixed catches of the latch-support, of means for positively projecting the latch; and a movable arm for positively retracting the same.

15. A latch having a fixed catch on one side and a movable catch on the other side, and provided with a stop adapted to engage and positively raise the movable catch, when the latch is operated.

16. A latch provided with a fixed catch; a movable catch; and a hook-shaped stop adapted to engage the movable catch.

17. A latch having its upper side channeled to form a fixed shoulder or abutment and provided with a hook-shaped end, said latch also having a spring-catch with a deflected portion adapted to engage said hook-shaped end, and a spring adjacent to said spring-catch.

576,156. GATE. THOMAS R. RICKETTS, Liberty, Mo. Filed July 9, 1896. Serial No. 598,616. (No model.)



Claim.—1. The combination of a gate, a post to which it is hinged, posts at opposite sides of the hinge-post, dogs pivoted to said posts, levers linked to said dogs, guide-loops projecting from said levers above their pivotal points, and cords or cables extending through said guide-loops and adapted, when pulled downwardly, to operate said levers and consequently said dogs, substantially as described.

2. The combination of a gate, a hinge-post carrying the same, a latch-hook-carrying post, a lever pivoted to the gate, provided with a latch engaging said hook, a gate-loop for said lever, posts at opposite sides of the hinge-posts, a bar connecting them at their upper ends, guides carried by said bars, cables extending through said guides and having their free ends at opposite sides of the gate and their opposite ends attached to the upper end of the gate-lever, dogs pivoted to the posts at opposite sides of the hinge-post, stop-pins below the same, levers pivoted to said bar and linked to said dogs, and loops projecting from said levers above their pivotal points, through which said cables extend, all arranged substantially as shown and described.

576,157. TOBACCO-PIPE. CHARLES S. ROGERS, Far Rockaway, N. Y., assignor of one-half to Walter A. Burke, New York, N. Y. Filed Sept. 12, 1895. Serial No. 562,230. (No model.)



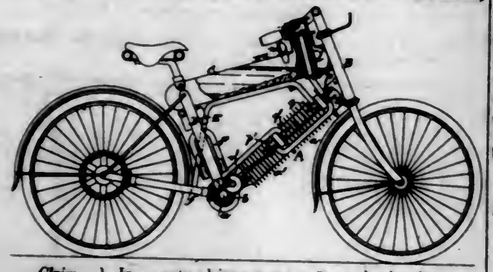
Claim.—1. A pipe having a stem and the base of its bowl constructed in two sections separated from each other on a horizontal plane, the bowl of the pipe being provided with a downwardly-extending shoulder located on its under side at a point beyond its axial line and on the opposite side from the stem against which shoulder the outer end of the lower separable portion abuts, the smoke-canal and the outlet into the bowl from said canal being entirely surrounded by a packing of cork located above the lower level of said canal, substantially as shown and described.

2. A pipe having a stem and the base of its bowl constructed in two sections separated from each other on a horizontal plane, the bowl of the pipe being provided with a downwardly-extending shoulder located on its under side at a point beyond its axial line and on the opposite side from the stem against which shoulder the outer end of the lower separable portion abuts, the smoke-canal and the outlet into the bowl from said canal being entirely surrounded by a packing of cork located above the lower level of said canal, the outer ends of the separable parts being screw-threaded and held together by a screw-threaded mouthpiece, in combination with a clamp consisting

of a split sleeve and means for securing said split sleeve about the body of the stem, substantially as shown and described.

3. A pipe having its stem and the base of its bowl constructed in two separable parts divided on a horizontal plane, the outer end of the lower separable part extending to a point beneath the outlet from the smoke-channel into the bowl of the pipe and abutting against a shoulder integral with the base of the pipe, said shoulder being located on the under side of the bowl of the pipe at a point beyond its axial line and on the opposite side thereof with relation to the stem, in combination with a storage-chamber of greater diameter than the smoke-channel, said storage-chamber and smoke-channel and the outlet therefrom into the pipe being entirely surrounded by a packing of cork embedded in the lower part, and means for securing said separable parts together and to a detachable mouthpiece, substantially as described.

576,158. MOTOR-DRIVEN VELOCIPEDE. LUDWIG RÖR, Augsburg, Germany. Filed May 8, 1896. Serial No. 590,784. (No model.)



Claim.—1. In a motor-driven cycle, a frame having its upper member formed of a benzin-reservoir C and having its lower front member composed of a tandem motor A, said reservoir and tandem motor being connected at their front ends to the steering-post and at their rear ends respectively to the saddle-pillar bracket and to the pedal-crank-shaft bracket of said frame.

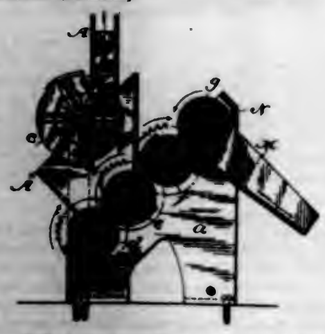
2. In a motor-cycle the combination of a longitudinally-placed benzin-reservoir C, a mixing-chamber thereon, a wire-sieve basket *l* provided with a long wick before the entrance to the mixing-chamber and an exhaust-tube *v* under the reservoir in order to obtain a larger surface for the level of the benzin to diminish the sinking of the level and to warm the benzin in order to obtain a good and uniform evaporation.

3. In a motor-cycle, the combination of a longitudinally-placed motor with a connecting-rod and fly-disks *c c'* on the motor-axle, and a double-cone ball-bearing in two rows for connecting said connecting-rod and fly-disks.

4. In a motor-cycle the combination of a frame, a motor comprising part of said frame, a back wheel provided with a heavy hub replacing a fly-wheel, the tooth-gearing *d e g h* connecting said motor and back wheel and the tube-shaft *f* supported by the frame-tube.

5. In a motor-cycle an explosive motor, an electrical lighting device and a brake-lever *y* in combination with a movable electrical contact *x* for the purpose of closing or interrupting the current of the electrical force used for the lighting device by operation of the brake-lever.

576,159. APPARATUS FOR TREATING AND DRYING SOAP. FRADUS S. RUTZEBUSH, Philadelphia, Pa. Filed Apr. 9, 1896. Serial No. 585,966. (No model.)



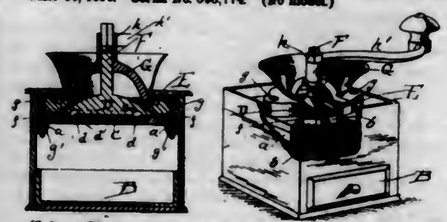
Claim.—1. In an apparatus for treating soap, a hopper, a rotary cutter having knives with alternating corrugations on their edges, the rollers *d* and *e* below said hopper, and the rollers *f* and *g* above said rollers *d* and *e*, operating mechanism for rotating said roller *e* at a greater rate of speed than said roller *d*, and for rotating said roller *f* at a greater rate of speed than said roller *e*, and a chute M leading from said rollers *f* and *g*, said roller *g* having a peripheral groove therein, said parts being combined substantially as described.

2. In an apparatus for treating soap, a hopper with a rotary cutter therein, a pair of rollers below said hopper, a pair of rollers above said first rollers, the upper one of which has a peripheral groove, mechanism for moving said rollers at different rates of speed, a chute leading from the upper pair of rollers, a chamber with a series of zigzag aprons below said chute, and an air-flue adjacent to said chamber having an apron passing from the said chamber through the same, said parts being combined substantially as described.

3. In an apparatus for treating soap, a rotary cutter, a series of parallel rollers below said cutter, mechanism for operating each of said rollers at a greater speed than the one immediately below it, and a chute leading from between the upper two rollers of said series, the upper roller having circumferential grooves in its periphery, said parts being combined substantially as described.

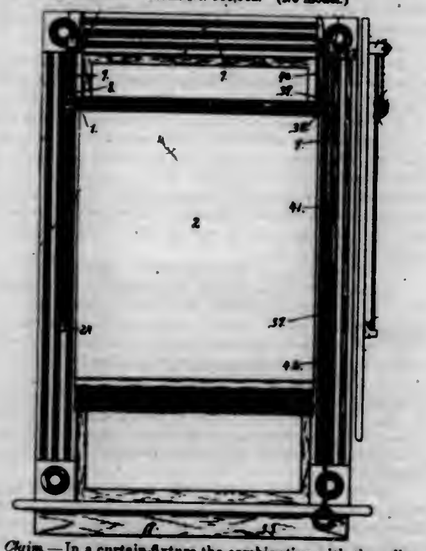
4. An apparatus for treating hard soap, consisting of mechanism for cutting said soap into strips, a heating-chamber into which said cutting mechanism discharges, a series of alternating horizontal aprons on which said strips are carried, a hot-air blast in the floor of the heating-chamber, a cooling-chamber adjacent to and on the side of said heating-chamber, and having one of said aprons projecting therein, and a blower in said cooling-chamber, said parts being combined substantially as described.

576,160. COFFEE-MILL. HUGH G. SANNOM, Canton, Ohio. Filed June 16, 1896. Serial No. 595,774. (No model.)



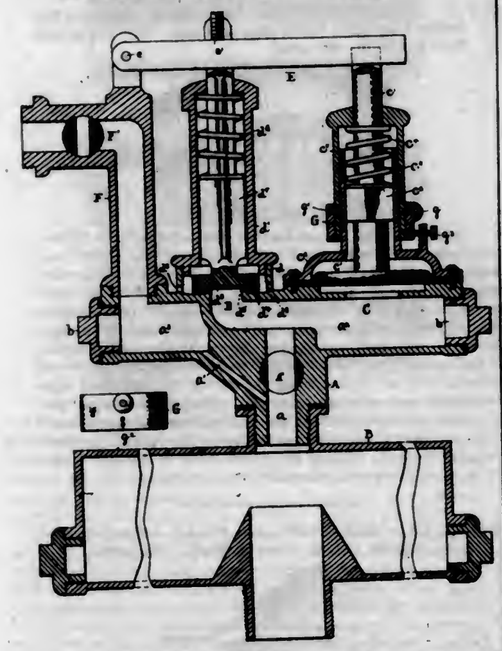
Claim.—The combination of a box or casing provided with a drawer, the bars *a*, secured to the casing, the base C, provided with openings and the annular groove *d*, the grinding-disk D, provided with the annular groove *e*, the antifriction-balls *d'* located in the grooves, the shoulders *f*, the grinding-shell E, and the clamp-bolts *g*, passed through the base C, and the bars *a*, substantially as and for the purpose specified.

576,161. CURTAIN-FIXTURE. JOHN W. SARGENT, Buffalo, N. Y. Filed Apr. 21, 1896. Serial No. 588,502. (No model.)



Claim.—In a curtain-fixture the combination with the roller and its shade, of the movable hangers to which the ends of the roller are removably attached, the guide-rod on one side of the window-frame upon which one of the hangers slides, a single-pulley bracket on one side of the window-frame, a double-pulley bracket on the opposite side of the window-frame, separate chains attached to the hangers and passing over separate pulleys in the brackets, a single chain to which the separate chains are secured at a common point, a claw for securing the single chain at any desired point, and a hook attached to the double-pulley bracket and extending between the separate chains, to prevent them from twisting and stop their upward movement substantially as and for the purpose stated.

576,162. SAFETY-VALVE FOR BEER-CASKS. JOHN C. SCHAEFER, New York, N. Y., assignor to William Burckhardt, same place, and the Eastwood Wire Manufacturing Company, Belleville, N. J. Filed Nov. 16, 1895. Serial No. 569,144. (No model.)



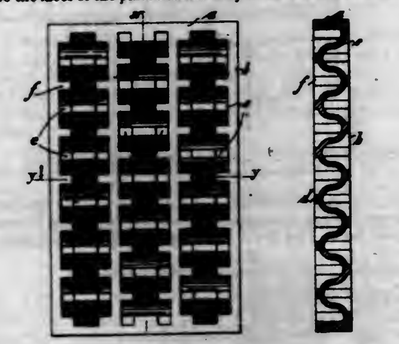
Claim.—1. In safety-valves for beer-casks, the combination with a relief-valve, of a diaphragm and plunger operated by the pressure of the gas within the cask for opening said valve, and means for adjusting said diaphragm and plunger for various pressures, said means consisting of a spring seated between the plunger and a cap, a graduated loose ring carried by said cap and adapted to be clamped thereto, and a set-screw for locking said ring and cap in position, substantially as set forth.

2. In a safety-valve for beer-casks, the combination with a relief-valve, of a lever operatively connected with the stem of said valve, a diaphragm and coöperating rod engaging with said lever and actuated by the pressure within the cask to open the relief-valve, a spring tending to hold the relief-valve to its seat, a spring for the diaphragm-rod, which spring is seated between a shoulder on said rod and an adjustable cap through which said rod projects, said cap being provided with graduation-marks indicating the different pressures for which the valve may be set, and means for locking said cap in its adjusted position, substantially as set forth.

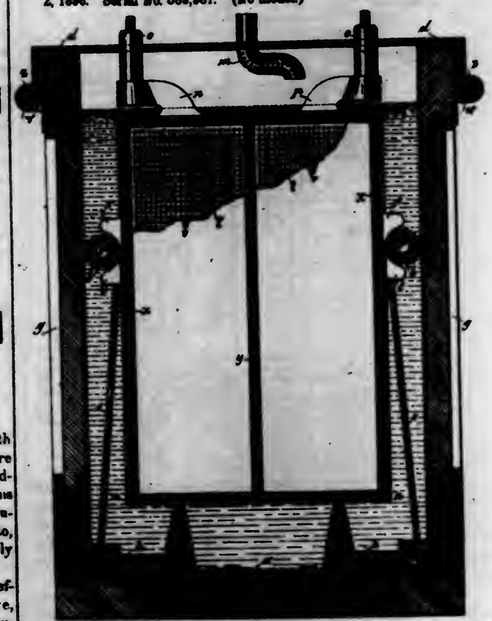
3. In a safety-valve for beer-casks, the combination with a relief-valve, of a lever operatively connected with the stem of said valve, a diaphragm and coöperating rod engaging with said lever and actuated by the pressure within the cask to open the relief-valve, a spring tending to hold the relief-valve to its seat, a spring for the diaphragm-rod, which spring is seated between a shoulder on said rod and an adjustable cap through which said rod projects, an adjustable ring on said cap provided with graduation-marks, and means for locking said ring and said cap in their adjusted positions, substantially as set forth.

576,163. PASTE-CARRYING MACHINE FOR ELECTRIC ACCUMULATORS. FRIEDRICH W. SCHNEIDER, Triberg, Germany. Filed Jan. 13, 1896. Serial No. 575,296. (No model.)

Claim.—A paste-carrying plate for electric accumulators consisting of a frame *a* and parallel bars *b* therein having lateral projections *f* and being connected each to the next by bridges *c* in form of undulating or zigzag bands said bridges having respectively on their front and rear sides lateral openings *e* and central projections *d* perpendicular to the faces of the plate substantially as described and illustrated.



576,164. CONSTRUCTION OF CELLS FOR ELECTRIC ACCUMULATORS. FRIEDRICH W. SCHNEIDER, Triberg, Germany. Filed May 2, 1896. Serial No. 589,961. (No model.)



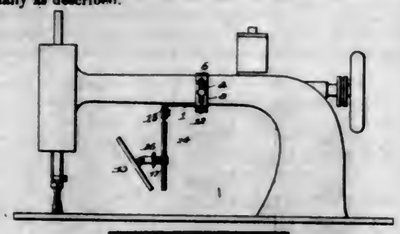
Claim.—1. The combination with the exterior vessel *g* of a resilient insulating-plate *a* in the base thereof, angular bars *h* on said plate *a*, negative electrodes having noses *f* and positive electrodes having noses *e*, perforated insulated plates between said electrodes, said perforated plates and electrodes resting on bars *h* and rods covered with elastic insulating material between said noses *e*, *f* and the sides of vessel *g* for the purpose set forth.

2. The combination with an outer vessel *g* of electrodes therein, terminal connections *o*, *o* for said electrodes and an elastic rubber cover *d* adapted to be stretched over the mouth of vessel *g*, having holes for passage of connections *o*, *o*, and having a thickened and strengthened edge *w* and a tube for outlet of gases in said cover.

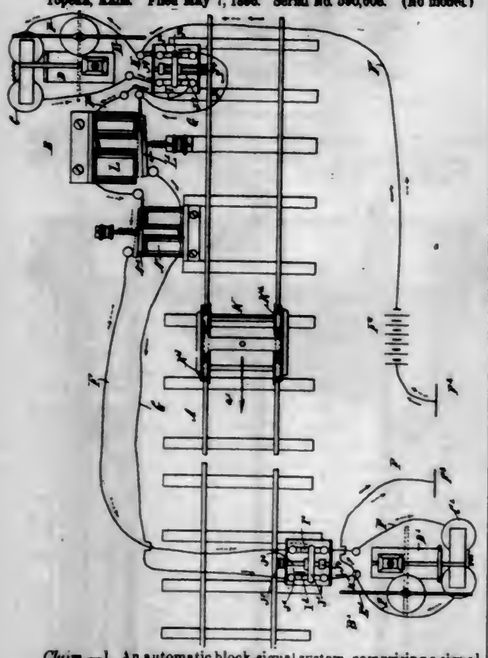
576,165. SEWING-MACHINE REFLECTOR. ALFRED SHELVERTON, Paducah, Ky. Filed June 29, 1896. Serial No. 597,298. (No model.)

Claim.—An adjustable reflector, and means for clamping the same to a sewing-machine or other device, consisting of a supporting-bar having an arm at one end with a flange extending upwardly therefrom provided with an elongated slot, a plate acting in engagement with said flange, a thumb-screw for adjusting the relative positions

of said plate and flange, a rod pivoted to the opposite end of said supporting-bar, and a reflector adjustably connected to said rod, substantially as described.



576,166. AUTOMATIC BLOCK SYSTEM. JUDSON SHOEMAKER, Harveyville, Kans., assignor to the Western Railway Signal Company, Topeka, Kans. Filed May 7, 1896. Serial No. 590,608. (No model.)



Claim.—1. An automatic block-signal system, comprising a signal at each end of a block-section, a closed electric circuit comprising a ground-wire containing a battery and the signal-magnets, a second wire connected at each signal system with the ground-wire, and a relay in each of said wires of which the armature forms part of the other wire, substantially as specified.

2. An automatic block system, provided with a closed electric circuit comprising a ground-wire containing a battery and the signal-magnets, and a second wire connected with the ground-wire at the station at the end of the section, each wire containing a relay, of which the armature forms part of the other wire, substantially as shown and described.

3. An automatic block system, provided with a closed electric circuit comprising a ground-wire containing a battery and the signal-magnets, a second wire connected with the ground-wire at the station at the end of the section, each wire containing a relay, of which the armature forms part of the other wire, and two circuit-breakers at each station and connected with the said wires and controlled by the locomotive entering or leaving the section, substantially as shown and described.

576,167. FIFTH-WHEEL FOR VEHICLES. ANGUS W. SMITH, Union Church, Miss. Filed Aug. 25, 1896. Serial No. 603,880. (No model.)

Claim.—1. A vehicle running-gear, comprising the bolster and coupling-pole, the fifth-wheel secured thereto, the axle, the rocker mounted thereon, and provided with semicircular roller-recesses 7 7, having end bearings 8 8, provided with oil-ducts 12, communicating with an oil-reservoir 13, the rollers 10 10 journaled in said recesses and forming a support for the fifth-wheel, and the king-pin 3, constructed and arranged substantially as shown and described



2. The bolster provided with the roller-recess 7 having end bearings 8 8 and the oil-reservoir 13 provided with ducts 12 12, in combination with the roller 10 and the dust-guard 14, substantially as shown and described.

576,168. BICYCLE-TIRE. THOMAS SMITH, Jacksonville, Fla., assignor of one-half to Charles Blum, same place. Filed Feb. 10, 1896. Serial No. 578,748. (No model.)



Claim.—In a tire, the combination with a rim provided at intervals along its inner surface and centrally thereof with inwardly-extending threaded projections, of a continuous coiled flat ribbon-spring having the edges of its contiguous coils in contact with each other and seated directly in and bearing against the rim and extending longitudinally around the same, screws passing through the rim from the inside and engaging threaded openings at intervals in the coils of said spring, a resilient covering passing continuously around and inclosing both the rim and spring and having its longitudinal edges overlapping each other upon the inner surface of the rim and provided with registering perforations for engaging said projections, and nuts on said threaded projections for binding the edges of the covering against the rim, whereby the covering may be removed for giving access to the spring, substantially as described.

576,169. SCREW-PROPELLER. PHILIP D. STEAD, Pelhamville, N. Y. Filed Nov. 15, 1895. Serial No. 569,065. (No model.)



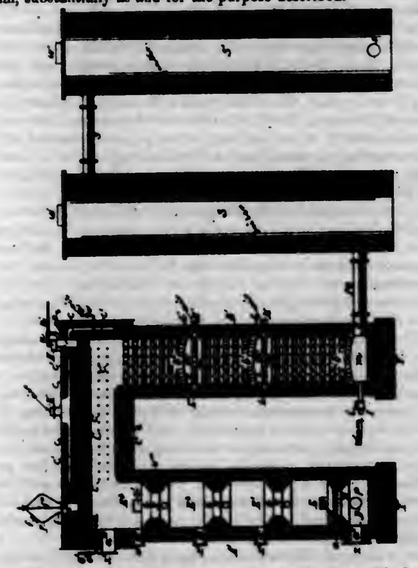
Claim.—A screw-propeller having two diametrically-opposed blades, consisting of a relatively flat part at the rear, in a longitudinal plane of the axis, from which flat part the opposite blades extend forward helically along the axis, the pitch and diameter of the blades gradually increasing from their leading to their rear ends, substantially as set forth.

576,170. APPARATUS FOR MANUFACTURING GAS. JOHN L. STEWART, San Francisco, Cal., assignor to Thomas A. McIntyre, New York, N. Y. Filed Jan. 13, 1893. Serial No. 458,304. (No model.)

Claim.—1. A closed cupola gas-generator having a gas-escape pipe and constructed with a vertical series of connecting coking-chambers having intermediate circumferential solid hearths or ledges, provided with central openings for the passage of coke, said chambers being free from internal obstructions, and the walls of said chambers having stoking-openings, provided with tight-fitting lids above said hearths, for the insertion of bars to break up the coke and work it down through the central openings, whereby the coal, as coked, may be worked down into the chambers below and blasted with air, and the gaseous products directed from the side walls into the central portion of the body or bodies of fuel for better conversion into fixed combustible gas, substantially as described.

2. A cupola gas-generator constructed with a vertical series of connected coking-chambers having solid circumferential hearths or ledges between them, provided with central openings for the passage of coke, the side walls of said chambers having stoking-openings for the insertion of bars to break up the coke and also having air-supply pipes opening into the chambers below said inwardly-projecting hearths, substantially as and for the purpose described.

3. A cupola gas-generator constructed with a series of circumferential brickwork hearths as *v*, *v'*, *v''*, *v'''*, projecting inward from the walls of the cupola and provided with central openings *y*, and forming a vertical series of connected coking-chambers, E, E', E², E³, said chambers being provided with stoking-openings as *a'*, having tight-fitting lids, and with pipes for supplying them with air and steam, substantially as and for the purpose described.

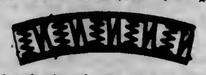


4. In a gas-generating apparatus, the combination with the fuel and decomposing chamber and the fixing-chamber containing refractory material, of a combustion-flue, C, connecting them at the top and constructed with double walls forming an annular air-space, *c*, the interior wall being formed of perforated brick and spaced apart from the outer wall by means of spacing-brick, *k*, and an air-pipe connecting with space *c*, substantially as and for the purpose described.

5. In a gas-generating apparatus, two fuel and decomposing chambers, each constructed with a vertical series of coking chambers or apartments, having intermediate circumferential solid hearths, the walls of said chambers having stoking-openings, and a valved pipe, D, connecting the chambers at the bottom, in combination with two fixing-chambers, the combustion-flues, C, connecting such fixing-chambers with the fuel-chambers at the top and constructed with double walls forming an annular air-space, *c*, and the interior wall being perforated, and the gas-take-off pipes, P and Q, provided respectively with valves, *p'* and *q'*, leading from the fixing-chambers, substantially as described.

6. In combination with the two fuel and decomposing chambers and their connected fixing-chambers, a pipe D, having a valve, *d*, connecting the fuel-chambers at the bottom, gas-take-off pipes P and Q having valves, *p'* and *q'*, and leading from the fixing-chambers and the gas-take-off pipes D', D^2, having valves, *d'*, *d''*, connecting with the cross-pipe D, substantially as and for the purpose set forth.

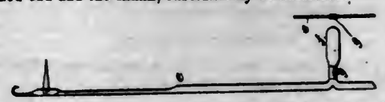
576,171. BICYCLE-TIRE. PETER G. STORNER, Johnstown, Pa. Filed June 6, 1896. Serial No. 594,585. (No model.)



Claim.—In a bicycle-tire, the combination with an outer tubing of rubber or other suitable material, of an inner tube of canvas or other suitable material and a spring inclosed by said inner tube, the same being made up of a series of coils running longitudinally of the radii of the wheel to which the tire is attached and a second series of coils at right angles thereto, substantially as and for the purpose described.

576,172. KNITTING-MACHINE NEEDLE. EDWARD H. STURTEVANT, Franklin, N. H., assignor to the Franklin Needle Company, same place. Filed June 12, 1896. Serial No. 595,324. (No model.)

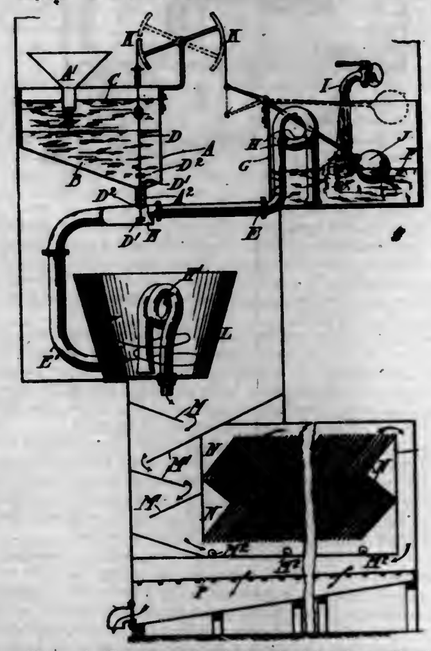
Claim.—1. A knitting-machine needle formed wholly of round stock and flattened at the desired points, and having its heel provided with integral lateral projections formed of unflattened portions of the round stock, and extending from both sides of the heel between its flattened end and the shank, substantially as described.



2. A knitting-machine needle having a heel formed by doubling the stock upon itself, and with a portion of the original stock left untouched in the flattening process so as to provide lateral projections from both sides of the heel near the point where it extends from the body of the needle and back of the flattened point, substantially as described.

3. A knitting-machine needle having a heel formed by doubling the stock of the needle upon itself, the heel being flattened at its end and having a portion of the stock unflattened to form lateral projections from both sides of the heel near its point of projection from the body of the needle, the parts of the heel being brazed or otherwise rigidly united, substantially as described.

576,173. PROCESS OF PRECIPITATING PRECIOUS METALS FROM THEIR SOLUTIONS. HENRY L. SULMAN, London, England. Filed Feb. 25, 1895. Serial No. 539,647. (No specimens.) Patented in England Feb. 7, 1895. No. 2,730.



Claim.—1. The process herein described for the purification of zinc for use in the precipitation of precious metals from their solutions, which consists in combining and intimately mixing with granulated or powdered zinc an ammoniacal substance.

2. The process herein described for the recovery of precious metals from their ores, the same consisting in purifying zinc fumes or dust, of oxids, by intimately mixing with the same, an ammoniacal substance, and then mixing a quantity of said fumes or dust, so purified, with the solution.

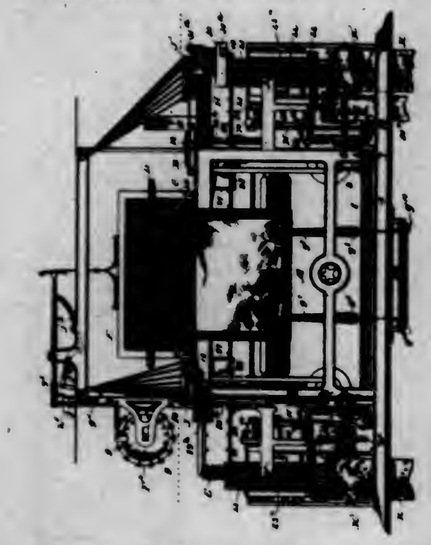
3. The process herein described for the recovery of precious metals from their ores, the same consisting in purifying the fumes or dust of zinc, of oxids, by the admixture therewith of an ammoniacal substance, and then mixing with the solution a predetermined and regulated quantity of said fumes or dust, so purified.

4. The process herein described for the recovery of precious metals from their ores, which consists in purifying the fumes or dust of zinc, of oxids, by the admixture therewith of an ammoniacal substance, then mixing or combining with the solution a quantity of such fumes or dust, so purified, and agitating the mixture, and finally precipitating or depositing the metals from the solution.

5. The combination of the vessel A, provided at its lower end with a suitable pocket closed by valves, a channel leading from said pocket, a vessel into which said channel leads, means for operating

the valves, a supply-tank, delivering the precious metals to said channel, and means for depositing the metals from their solutions, substantially as and for the purpose described.

576,174. LOOM. WILLIAM WEAVER, Norwalk, Conn. Filed Sept. 16, 1893. Serial No. 485,717. (No model.)



Claims.—1. In a loom, the combination of one or more thread-shifters, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier, means for moving the thread shifter or shifters bodily toward the edge of the warp, a thread-carrier and means for reciprocating the thread-carrier across the warp, substantially as described.

2. In a loom, the combination of the thread-shifters arranged one on each side of the warp, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier means for moving said thread-shifters bodily alternately toward the edge of the warp, and a thread-carrier and means for reciprocating the thread-carrier across the warp, substantially as described.

3. The combination in a loom of one or more thread-shifters arranged one on each side of the warp, mechanism for shifting the same to present a proper thread to the thread-carrier, means for moving said thread shifter or shifters bodily at a variable speed toward the edge of the warp, a thread-carrier, and means to reciprocate the thread carrier across the warp, substantially as described.

4. In a loom, the combination of the thread-shifters arranged one on each side of the warp, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier, devices for supporting the thread-shifters, means for reciprocating said supporting devices, whereby the thread-shifters are brought bodily to the edge of the warp alternately, a thread-carrier, and means for reciprocating it across the warp, substantially as described.

5. The combination in a loom, of a slide, the thread-shifters supported thereon, one on each end thereof, means for moving said slide to bring the thread-shifters bodily to the edges of the warp alternately, and a thread-carrier and means for reciprocating the thread-carrier across the warp, substantially as described.

6. The combination in a loom, of a slide, the thread-shifters supported one on each end thereof, the cams and their shaft, mechanism connecting said cams and slide, whereby the latter is caused to reciprocate to bring the thread-shifters bodily to the edges of the warp alternately, and a thread-carrier and means for reciprocating the thread-carrier across the warp, substantially as described.

7. A loom provided with one or more thread-shifters arranged one on each side of the warp, a thread-carrier and means for reciprocating the same across the warp, a perforated primary pattern-belt, a perforated cylinder upon which said belt is supported, intermediate mechanism between the thread-shifters and the primary pattern-belt for shifting the thread-shifters to cause a proper thread to be presented to the thread-carrier, a secondary or director pattern-belt, a cylinder upon which said belt is supported, devices between said secondary and primary pattern-belts whereby the movement of the latter is controlled by the former, substantially as described.

8. A loom, provided with one or more thread-shifters arranged one on each side of the warp, primary pattern devices means for imparting movement to the primary pattern devices, mechanism intermediate of the thread-shifters and the primary pattern devices, pattern-controlled devices adjacent to the primary pattern devices for throwing the same out of movement to cause a thread of one color or character to be repeatedly fed to the thread-carrier and for throwing them into movement to cause a thread of a different color or character to be fed to the thread carrier, a thread-carrier and means for reciprocating the same across the warp, substantially as described.

9. In a loom, the combination of the cutters arranged upon each side thereof adjacent to the edge threads of the warps, thread-shifters arranged one on each side of the warp, a thread-carrier, means for reciprocating it across the warps, and devices for moving the thread-shifters alternately to the edges of the warps, simultaneously with the movement of the thread-carrier toward the opposite side thereof and for maintaining them in said position until the thread-carrier starts on its return movement, substantially as described.

10. In a loom, the combination of one or more thread-shifters, a series of independently-movable slides, devices between the slides and thread-shifters adapted to be acted upon by any one of said series of slides, mechanism for moving said slides to cause the thread-shifters to be shifted, pattern devices, and devices intermediate of the pattern devices and slides whereby the latter are thrown into engagement with their moving mechanism, substantially as described.

11. A loom provided with one or more thread-shifters arranged one on each side of the warp and each supporting a series of threads of different colors or characters, a thread-carrier and means for reciprocating it across the warp, a primary pattern-belt provided with parallel series of perforations, a series of needles for engaging the perforations of the primary pattern-belt, devices between the needles and thread-shifters, a secondary or director pattern-belt, a needle-bar for engaging said belt, means for moving said needle-bar into and withdrawing it from engagement with the director pattern-belt and devices intermediate of the needle-bar and primary pattern-belt whereby the movement of the latter is controlled by that of the former, substantially as described.

12. A loom provided with one or more thread-shifters arranged one on each side of the warp and each supporting a series of threads of different colors or characters, pattern devices, mechanism intermediate of the thread-shifters and the pattern devices adapted to be operated by the said pattern devices and to be operated independently thereof, means for operating said mechanism independently of the pattern devices to shift the thread-shifters, a thread-carrier and means for reciprocating it across the warp, substantially as described.

13. In a loom, the combination of one or more thread-shifters arranged one on each side of the warps, mechanism for shifting the thread-shifters to present a proper thread to the thread-carrier, a primary pattern-belt, a series of needles for engaging said belt, devices for elevating said needles out of engagement with said pattern-belt, mechanism intermediate of said needles and thread-shifter for shifting the latter, secondary or director pattern devices for regulating the movement of the primary pattern-belt, devices between the primary pattern devices and secondary pattern devices, and a thread-carrier and means for reciprocating it across the warp, substantially as described.

14. In a loom, provided with one or more thread-shifters, a series of slides, mechanism between the slides and thread-shifters for shifting the latter to cause a proper thread to be presented to the thread-carrier, a primary pattern-belt, devices between the slides and pattern-belt for operating said slides, and director pattern devices for regulating the movement of said primary pattern-belt, a thread-carrier and means for reciprocating it across the warp, substantially as described.

15. A loom, provided with one or more thread-shifters arranged one on each side of the warp and each supporting a series of threads of different colors or characters, primary pattern devices, mechanism intermediate of the thread-shifters and primary pattern devices, said mechanism adapted to be operated by said pattern devices and to be operated independently thereof, means for operating said intermediate mechanism independently of the primary pattern devices to shift the thread-shifters, director or secondary pattern devices, devices between the secondary and primary pattern devices whereby the movement of the latter is controlled by that of the former, a thread-carrier and means for reciprocating it across the warp, substantially as described.

16. In a loom, the combination of the thread-shifters arranged one on each side of the warps, means for shifting the same to cause a proper thread to be presented to the thread-carrier, mechanism for moving the thread-shifters bodily to the edge of the warps, cutters arranged on each side of the warp, a thread-carrier and means for reciprocating it across the warp.

17. In a loom, the combination of the thread-shifters arranged one on each side of the warp, means for shifting the same to cause a proper thread to be presented to the thread carrier, mechanism for

moving the thread-shifters when in their shifted position bodily to the edge of the warp, means for returning the thread-shifters from their shifted to their initial positions, cutters on each side of the warp, a thread-carrier and means for reciprocating it across the warp, substantially as described.

18. In a loom, the combination of the thread-shifters arranged one on each side of the warp, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier, means for moving said thread-shifters alternately bodily toward the edge of the warp, cutters arranged one on each side of the warp, means for alternately operating said cutters, a thread-carrier and means for reciprocating it across the warp, substantially as described

19. In a loom, the combination of the thread-shifters arranged one on each side of the warp, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier, means for moving the thread-shifters toward the edge of the warp, cutters arranged on each side of the warp, a lathe and mechanism for reciprocating it toward the cutters, a thread-carrier carried upon the lathe, and means for reciprocating it across the warp, substantially as described.

20. A loom provided with one or more thread-shifters arranged one on each side of the warp, guides on the thread-shifters extending upon each side of the thread for preventing the deflection thereof, a thread-carrier having grippers adapted to be thrust between said guides to grip the thread, and means for reciprocating the thread-carrier across the warp, substantially as described.

21. In a loom, the combination of the thread-carrier, the gripper-jaws thereon which normally rest together, a depressing-plate also carried upon the thread-carrier and connections between the depressing-plate and gripper-jaws whereby said jaws are forced apart when the depressing-plate is depressed, and means for depressing said plate as the thread-carrier reaches a terminal of its movement, substantially as described.

22. In a loom, provided with one or more thread-shifters arranged one on each side of the warp, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier, guides on the thread-shifters extending upon each side of the thread for preventing the deflection of the thread to insure its being gripped by the grippers of the thread-carrier, a thread-carrier having grippers adapted to be thrust between said guides to grip the thread, means for opening and closing the grippers and means for reciprocating the thread-carrier across the warp, substantially as described.

23. A loom, provided with one or more thread-shifters, a cross-plate and devices between the cross-plate and thread-shifters, a series of independently-movable slides, each provided with a vertical arm for engaging said cross-plate, and with a lug, a reciprocating cross-head for engaging said lugs, means for reciprocating said cross-head, and pattern-controlled mechanism for lifting said slides into position to be engaged by the said cross-head, substantially as described.

24. In a loom, the combination of the thread-shifters, arranged one on each side of the warp, a cross-plate, devices for connecting the cross-plate with the thread-shifters, pattern devices, a series of independently-movable slides adapted to engage the cross-plate, a reciprocating cross-head and means for moving the same, and a series of jacks and needles engaging the slides and pattern-belt of the pattern devices respectively, substantially as described.

25. In a loom, the combination of one or more thread-shifters, arranged one on each side of the warp, a series of slides capable of independent vertical and horizontal movement, and mechanism between the slides and thread-shifters for moving the latter by the horizontal movement of the former, a pattern-belt, devices between the slides and pattern-belt for elevating the slides, and mechanism for imparting a horizontal movement thereto, substantially as described.

26. A loom, provided with one or more thread-shifters, arranged one on each side of the warp, pattern devices, mechanism between the pattern devices and thread-shifter for shifting the latter, and devices independent of the shifting mechanism of the thread-shifters for returning said thread-shifters from their shifted to their normal position, substantially as described.

27. In a loom, provided with one or more thread-shifters, a series of independently-movable slides arranged below the same, devices between the slides and thread-shifter for shifting the latter, pattern devices, a cross-head and means for reciprocating the same, and mechanism between the pattern devices and slides for lifting said slides into the path of movement of the cross-head, substantially as described.

28. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, a series of independently-movable slides, a cross-plate adapted to be acted upon by any one of said series of slides, devices between the cross-plate and thread-shifters, a reciprocating cross-head adapted to move said slides, means for reciprocating said cross-head and pattern devices for throwing the slides into engagement with the reciprocating cross-head, substantially as described.

29. In a loom, the combination of the thread-shifters, arranged one on each side of the warp, the cross-plate, and devices between the cross-plate and thread-shifters, a series of slides capable of vertical and horizontal movement, mechanism for moving said slides vertically, a reciprocating cross-head for moving said slides horizontally, and means for reciprocating said cross-head, substantially as described.

30. A loom provided with a thread-shifter, a series of slides, each slide being capable of vertical and horizontal movement independent of the others, only one of the slides being movable at the same time, devices intermediate the thread-shifter and said slides adapted to be engaged by the latter to actuate the thread-shifter, and mechanism for moving said slides vertically and horizontally, substantially as described.

31. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, mechanism for shifting the thread-shifters to cause a proper thread to be presented to the thread-carrier, means for locking the thread-shifters in their shifted positions for a predetermined time, and for releasing them at the end of such period, a thread-carrier and means for reciprocating it across the warp, substantially as described.

32. In a loom, the combination of the thread-shifters, arranged one on each side of the warp, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier, means for locking the thread-shifters in their shifted position for a predetermined time and for releasing them at the end of such period, cutters arranged on each side of the warp, a thread-carrier and means for reciprocating it across the warp, substantially as described.

33. In a loom, the combination of the thread-shifters arranged one on each side of the warp, mechanism for shifting the same to cause a proper thread to be presented to the thread-carrier, means for locking the thread-shifters in their shifted position for a predetermined time and means for releasing them at the end of such period, devices for moving the thread-shifters to the edge of the warp, cutters arranged on each side of the warp, a thread-carrier and means for reciprocating it across the warp, substantially as described.

34. In a loom, the combination of one or more thread-shifters, a perforated primary pattern-belt, a plurality of needles, means for throwing said needles into engagement with the perforations of said belt, devices for elevating said needles above the primary pattern-belt at regular intervals, mechanism between the needles and the thread-shifters, director pattern devices adapted to control the movement of the primary pattern-belt whereby the shifting mechanism of the thread-shifter is caused to continue shifting the thread-shifters to one position in order that a thread of one color or character may be repeatedly fed to the thread-carrier, and to throw the primary pattern-belt into movement when it is desired to change the color or character of the thread, a thread-carrier and means for reciprocating it across the warp, substantially as described.

35. In a loom, the combination of one or more rotary reciprocating thread-shifters arranged one on each side of the warp, mechanism for shifting said thread shifter or shifters to cause a proper thread to be presented to the thread-carrier, the springs for returning said thread-shifters from their shifted to their normal positions, a thread-carrier and means for reciprocating it across the warp, substantially as described.

36. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, mechanism for shifting the thread shifter or shifters to cause a proper thread to be presented to the thread-carrier, means for locking the thread-shifters for a predetermined time when the desired thread has been brought in position to be gripped by the thread-carrier and for retaining the thread-shifters in their shifted position until the thread-carrier has traveled to the opposite side of the warp, a thread-carrier and means for reciprocating it across the warp, substantially as described.

37. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, mechanism for shifting the thread-shifters to cause a proper thread to be presented to the thread-carrier, means for locking the thread-shifters when the desired thread has been brought in position to be gripped by the thread-carrier and for retaining the thread-shifters in their shifted position while the thread-carrier is traveling to the opposite side of the warp, devices for releasing the thread-shifters at the end of such period, means for returning them from their shifted to their normal position, a thread-carrier and means for reciprocating it across the warp, substantially as described.

38. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, a series of independently-movable slides, provided with the lugs 16 and 18, devices between the slides and thread shifters adapted to be acted upon by any one of said series of slides, mechanism adapted to engage the lugs of the slides to reciprocate the same, and pattern-controlled mechanism for throwing said slides into position for the lugs thereof to be engaged by their reciprocating mechanism, substantially as described.

39. In a loom, the combination of one or more thread-shifters, arranged one on each side of the warp, each provided at its under side with teeth, means for shifting the thread-shifters to cause a proper thread to be presented to the thread-carrier, a spring-pressed pawl for engaging the teeth of the thread-shifter to hold it against rearward movement, devices for releasing said pawl from engagement with the teeth of the thread-shifter at a predetermined time, means for returning the thread-shifter to its normal position, a thread-carrier and means for reciprocating it across the warp, substantially as described.

40. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, primary pattern devices, secondary pattern devices, intermediate mechanism between the thread-shifters and primary pattern devices a needle-bar for engaging said secondary pattern devices, means for reciprocating said needle-bar, and devices between the needle-bar and primary pattern devices whereby the operation of the primary pattern device is controlled, substantially as described.

41. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, a primary pattern-belt, provided with a parallel series of perforations, mechanism between the primary pattern-belt and thread-shifters, a director pattern-belt, provided with a single series of perforations, a needle-bar for engaging the director pattern-belt, means for reciprocating said needle-bar and intermediate devices between the said needle-bar and primary pattern-belt whereby the movement of the latter is controlled by the former, substantially as described.

42. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, a series of independently-movable slides provided with lugs 16 and 18 the lugs on each slide being of different relative distances apart, devices between the slides and thread-shifters adapted to be acted upon by any one of said series of slides, mechanism adapted to engage the lugs of the slides to reciprocate the same, and pattern-controlled mechanism for throwing said slides into position for the lugs thereof to be engaged by their reciprocating mechanism substantially as described.

43. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, a perforated primary pattern-belt, a plurality of needles adapted to engage the perforations of the primary pattern-belt, means for moving said needles into engagement with the perforations of the primary pattern-belt, devices for elevating said needles above the primary pattern-belt at regular intervals, means for imparting a step-by-step progressive movement to the primary pattern-belt, intermediate mechanism between the needles and the thread-shifters, a director pattern-belt and means for imparting a continuous step-by-step progressive movement thereto, and devices under the control of the director pattern-belt whereby the progressive movement of the primary pattern-belt may be arrested or continued as desired, substantially as described.

44. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, primary pattern devices for controlling the movement thereof, devices intermediate of the thread-shifters and primary pattern devices, a director pattern-belt, the swinging frame N carrying the pawls 73 and 56, means for swinging said frame, the ratchet-wheels 74 and 57, the plate 58 for elevating the pawls 56, the needle-bar 52 adapted to engage the director pattern-belt, means for reciprocating said needle-bar, the slide 53 for lifting the pawl 73 out of engagement with the ratchet 74, and the link 55 connecting the needle-bar 52 and the slide 53, substantially as described.

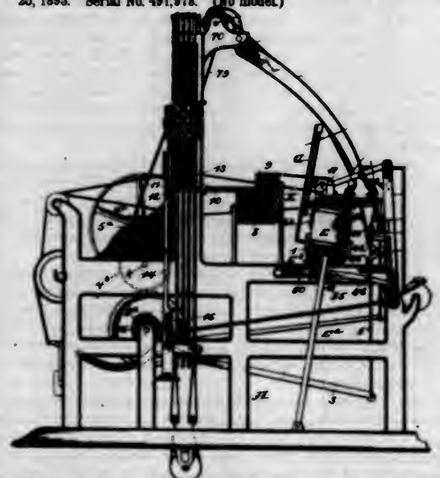
45. In a loom, the combination of one or more thread-shifters arranged one on each side of the warp, means for shifting the same to cause a proper thread to be presented to the thread-carrier, a thread-carrier having thread-grippers, and a depressing-plate for opening said grippers, means for reciprocating the thread-carrier across the warp, the arm 88 the slide 89 connected to said arm and having an L-shaped slot therein, the lever 91 carrying a pin for engaging said slot, the spring 94 and means for imparting a reciprocating movement to the lever 91, substantially as described.

46. In a loom, the combination of the thread-carrier consisting of the gripper-jaws 8, 8' normally resting together, the arms 86 pivoted in the thread-carrier and carrying tapering pins adapted to be forced between the opposing faces of the gripper-jaws 8, 8' to open the same, a depressing-plate 87 on the thread-carrier for depressing said arms, devices for engaging the depressing-plate to open the gripper-jaws of the thread-carrier and devices for closing the jaws, substantially as described.

47. The combination with the primary and director pattern devices, a bar for engaging the director pattern devices, means for positively lifting said bar from engagement with the said director pattern devices at regular intervals, devices intermediate the bar and the primary pattern devices whereby the operation of said primary pattern devices may be suspended or continued, substantially as described.

48. The combination with the primary and director pattern-cylinders and their attached ratchet-wheels, of the swinging frame, pawls carried by the swinging frame for engaging the ratchet-wheels of the director and primary pattern-cylinders respectively, a reciprocating bar engaging the director pattern-cylinder, a reciprocating slide, and a link connecting the slide and reciprocating bar whereby the slide is projected beneath or withdrawn from beneath the pawl of the primary ratchet-wheel, substantially as described.

576,175. LOOM. WILLIAM WEAVER, Norwalk, Conn. Filed Nov. 26, 1893. Serial No. 491,978. (No model.)



Claim.—1. In a loom, the combination of a thread-carrier, means for reciprocating it across the warp and mechanism for automatically and positively feeding the thread as the thread-carrier travels across the warp, substantially as described.

2. In a loom, the combination of a thread-carrier, means for reciprocating it across the warp and mechanism for automatically and positively feeding the thread at the same rate of speed as that at which it is carried by the thread-carrier, substantially as described.

3. In a loom, the combination of a thread-carrier, means for reciprocating it across the warp, mechanism for automatically and positively feeding the thread as the thread-carrier travels across the warp and a cutting device arranged on one side of the warp adjacent to the feeding mechanism, substantially as described.

4. In a loom, the combination of a thread-carrier, and its reciprocating mechanism, an electric motor for driving said reciprocating mechanism and devices for automatically throwing said motor into and out of operation at a predetermined time, substantially as described.

5. In a loom, the combination of a thread-carrier and its reciprocating mechanism, an electric motor for driving said mechanism and devices for throwing said motor out of operation as the thread-carrier reaches the terminal of its movement and for throwing it into operation to move the thread-carrier across the warp, substantially as described.

6. In a loom, the combination of a lathe, means for imparting an oscillating movement thereto, a thread-carrier supported on the lathe, mechanism for reciprocating the thread-carrier across the lathe, a motor for driving the reciprocating mechanism of the thread-carrier and devices for throwing the motor out of operation at each forward movement of the lathe and for throwing it into operation when the lathe returns to its normal position, substantially as described.

7. In a loom, the combination of a lathe, means for imparting an oscillating movement thereto, a thread-carrier carried upon the lathe, an electric motor also carried upon the lathe and devices intermediate of the thread-carrier and motor operated by the latter for reciprocating the thread-carrier, substantially as described.

8. In a loom, the combination of a thread-carrier, means for reciprocating it across the warp-threads, a take-up wheel at one side of the warp-threads, means for rotating the take-up wheel in one direction to pay off the weft-thread as the thread-carrier travels across the warp-threads to the opposite side thereof, and for rotating it in the opposite direction to draw the end of the thread released by the thread-carrier to the edge of the warps, substantially as described.

9. In a loom, the combination of a thread-carrier, means for reciprocating it across the warp-threads, a selvage-shuttle arranged at one side of the warp-threads for feeding a shuttle-thread through a loop in the weft-thread, a take-up wheel at the opposite side of the warp, means for rotating the take-up wheel in one direction to pay off the weft-thread as the thread-carrier travels across the warp-threads and for rotating it in the opposite direction to draw the loop of the weft-thread to the edge of the warp after the shuttle-thread has been fed therethrough, substantially as described.

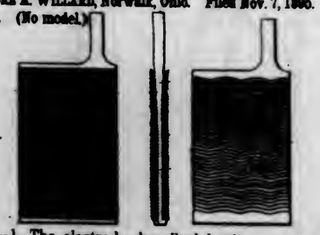
10. In a loom, the combination with a thread-carrier, and means for reciprocating it across the warp-threads, of suitable feeding devices at one side of the warp-threads adapted to feed a filling-strip to the thread-carrier, a selvage-shuttle and cutting device, arranged intermediate the feeding devices and the edge of the warp, and feeding and take-up mechanism arranged at the opposite side of the warp, substantially as described.

576,176. FURNACE FOR GENERATION OF HEAT OR POWER. GEORGE WHITE, Jersey City, N. J., assignor to James R. Hatmaker, New York, N. Y. Filed Mar. 26, 1896. Serial No. 585,210. (No model.)

Claim.—1. In a furnace for the generation of heat and power, the combination of a closed retort adapted to sustain pressure and heat, and provided with suitable ports, and an exhaust, and means to generate a spark or flame within the retort, with reservoirs adapted to contain gaseous fluids, provided with suitable valves, and means to introduce calcium carbid or other similar compound into one of said reservoirs, and to bring the same into contact with water, and means to introduce air into the other of said reservoirs, with a tubular connection between said reservoirs to contain a liquid, such as water to act as a balance between the pressure in the reservoirs, also a tubular connection between each reservoir and the retort, and valves interposed in said connection to control the introduction of combustible fluids into the retort, substantially as described.

2. In a furnace for the generation of heat and power, the combination of a closed retort, provided with suitable ports to admit elements of combustion, and valves interposed in said ports arranged to permit such pressure to be admitted, but prevent such pressure from escaping from the retort; with reservoirs for the storage of combustible fluids under pressure, and a tubular connection between said reservoirs to contain a liquid, such as water to act as a balance between the pressure in the reservoirs, and means to supply the combustible material from the reservoirs to the retort, and to control said supplies, and means to ignite the elements of combustion within the retort; an exhaust-port leading from the retort to a gas-receiver, and means to control said exhaust, substantially as described.

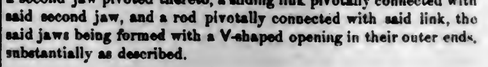
576,177. ELECTRODE FOR STORAGE OR OTHER BATTERIES. THEADORE A. WILLARD, Norwalk, Ohio. Filed Nov. 7, 1895. Serial No. 568,177. (No model.)



Claim.—1. The electrode described having a series of shaved leaves of uniform thickness from edge to base and formed in undulating lines the full depth of the leaf, whereby the active material is confined, substantially as described.

2. A plate for batteries having its sides shaved into thin leaves and a central supporting portion increasing in thickness toward the top thereof, substantially as described.

576,178. BATTERY-PLATE. THEADORE A. WILLARD, Cleveland, Ohio. Original application filed May 4, 1896, Serial No. 570,176. Divided and this application filed Aug. 26, 1896. Serial No. 603,944. (Specimens.)



Claim.—1. A battery-plate having its sides provided with extremely thin parallel shaved leaves of equal thickness from the extreme edge to the base thereof and with a uniform space between the said leaves from their extreme edge to their base in which the material is enabled to form and expand, substantially as described.

2. A battery-plate having its sides provided with extremely thin parallel shaved leaves of equal thickness from their extreme edge to their base and with uniform space between said leaves from their extreme edge to their base in which the material is enabled to form and expand, and supporting-ribs at intervals between the said leaves, substantially as described.

576,179. PIPE-DRAWING TONGS. JOHN WOOD, Middletown, Pa., assignor to A. S. Matheson and R. C. Neal, receivers of the American Tube and Iron Company. Filed June 11, 1896. Serial No. 595,169. (No model.)

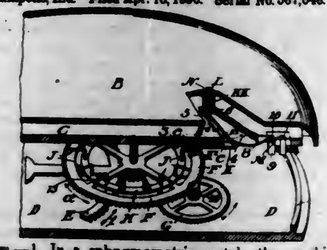
Claim.—1. In a pair of tongs, a body having a jaw projecting therefrom, a second jaw pivoted thereto, a sliding link fulcrumed on said body pivotally connected with said second jaw and an operating-rod pivotally connected with said link, substantially as described.

2. In a pair of tongs, a body having a jaw projecting therefrom, a second jaw pivoted thereto, a sliding link connected with said body by a fulcrum-bearing, and an arm projecting from said second jaw and having a pivotal connection with said sliding link, and an operating-rod pivotally connected with said sliding link, substantially as described.

3. In a pair of tongs, a body having a jaw projecting therefrom, a second jaw pivoted thereto and having an arm extending therefrom, an operating-bar, and a sliding link pivotally connecting said arm and bar, the said link having a slot therein through which projects a pin from the body of the tongs, on which said link slides, substantially as described.

4. In a pair of tongs, a body having a jaw projecting therefrom, a second jaw pivoted thereto, a sliding link pivotally connected with said second jaw, and a rod pivotally connected with said link, the said jaws being formed with a V-shaped opening in their outer ends, substantially as described.

576,180. CHRONOSPHYGMOMETER. ORSON H. WOODWORTH, Indianapolis, Ind. Filed Apr. 10, 1896. Serial No. 587,048. (No model.)



Claim.—1. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a series of tripping devices carried by a wheel in the train of the movement, and a lever pivotally secured to a plate of said movement, and having one arm engaged in succession by said tripping devices, said lever carrying a needle projecting through said aperture, substantially as described.

2. In a sphygmometric watch, the combination of a watch-movement, an apertured cap of the casing thereof, a lever pivotally secured to a plate of said movement, the same comprising an axis mounted in bearings on said plate, a long arm extending substantially at right angles to said axis and parallel to said plate, and a short arm extending outward from said axis, a series of tripping devices mounted on a wheel in the train of the watch-movement, and adapted to engage the short arm, and a needle carried by the long arm and projecting through said aperture, substantially as described.

3. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a lever pivotally secured to a plate of said movement and carrying a needle projecting through said aperture, an auxiliary wheel mounted on a wheel in the train of the watch-movement, and a series of tripping devices, each provided with a radially-extending trip-finger adapted to engage an arm of said lever, and actuate said needle, substantially as described.

4. In a sphygmometric watch, the combination of a watch-movement, an apertured inner casing therefor, a plate, as C, correspondingly apertured, and a needle-tube extending between said apertures, a series of tripping devices carried by a wheel in the train of the watch-movement, and a lever pivotally secured on a plate of the watch-movement, and having one arm engaged in succession by said tripping devices, said lever carrying a needle reciprocable in said needle-tube, substantially as described.

5. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a series of tripping devices carried by a wheel in the train of the movement, a lever pivotally secured on a plate of the movement, and having one arm engaged in succession by said tripping devices, said lever projecting through said aperture, and a spring actuating said lever to project said needle, substantially as described.

6. In a sphygmometric watch, the combination of a watch-movement, an apertured inner cap of the casing thereof, a lever pivotally secured to a plate of the movement, said lever comprising an axis mounted in bearings on said plate, a long arm extending subtantially at right angles to said axis and parallel to said plate, and a short arm extending outward from said axis, a series of tripping devices mounted on a wheel in the train of the watch-movement, and adapted to engage the short arm, a needle carried by the long arm and projecting through said aperture, and a spring actuating said lever to project said needle, substantially as described.

7. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a lever pivotally secured on the watch-movement, and carrying a needle projecting through said aperture, an auxiliary wheel mounted on a wheel in the train of the watch-movement, a series of tripping devices, each provided with a radially-extending trip-finger adapted to engage an arm of said lever and withdraw said needle and a spring for projecting said needle, substantially as described.

8. In a sphygmometric watch, the combination of a watch-movement, an apertured inner casing therefor, a plate B, correspondingly apertured, and a needle-tube extending between said apertures, a series of tripping devices carried by a wheel in the train of the watch-movement, a lever pivotally secured on a plate of said movement, and having an arm engaged in succession by said tripping devices, said lever carrying a needle reciprocable in said needle-tube, and a spring projecting said needle, substantially as described.

9. In a sphygmometric watch, the combination of a watch-movement, a series of tripping devices carried by a wheel in the train of the movement, a lever pivotally secured on a plate of said movement, and having one arm engaged in succession by said tripping devices, said lever carrying a needle projecting through a needle-tube extending from a plate of the movement through an aperture in the inner casing thereof, a spring projecting said needle, and means for adjusting said spring, substantially as described.

10. In a sphygmometric watch, the combination of a watch-movement, an apertured cap of the casing thereof, a lever pivotally secured to a plate of said movement and comprising an axis mounted in bearings on said plate, a long arm extending substantially at right angles to said axis and parallel to said plate, and a short arm extending outward from said axis, a series of tripping devices mounted on a wheel in the train of the watch-movement and adapted to engage the short arm, a needle carried by the long arm and projecting through said aperture, a spring projecting said needle, and means for adjusting said spring, substantially as described.

11. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a lever pivotally secured on said movement and carrying a needle projecting through said aperture, an auxiliary wheel mounted on a wheel in the train of the watch-movement, a series of tripping devices, each provided with a radially-extending finger adapted to engage an arm of said lever and withdraw the needle, a spring for projecting said needle, and means for adjusting said spring, substantially as described.

12. In a sphygmometric watch, the combination of a watch-movement, an apertured inner casing therefor, a plate B, of the movement, correspondingly apertured, and a needle-tube extending between said apertures, a series of tripping devices carried by a wheel in the train of the watch-movement, a lever pivotally secured on a plate of the movement, and having an arm engaged in succession by said tripping devices, said lever carrying a needle reciprocable in said tube, a spring projecting said needle, and means for adjusting said spring, substantially as described.

13. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a tripping device carried by a wheel in the train of the movement, and a lever pivotally secured on said movement, and having one arm engaged periodically by said tripping device, said lever carrying a needle projecting through said aperture, substantially as described.

14. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a tripping device carried by a wheel in the train of the movement, a lever pivotally secured on said movement, and having one arm engaged periodically by said tripping device, said lever carrying a needle projecting through said aperture, and a spring actuating said lever to project said needle, substantially as described.

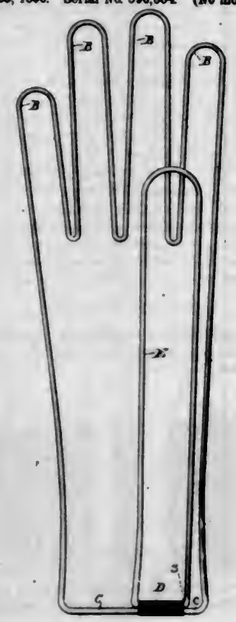
15. In a sphygmometric watch, the combination of a watch-movement, an apertured casing therefor, a tripping device carried by a wheel in the train of the movement, a lever pivotally secured on said movement and having one arm engaged periodically by said tripping device, said lever carrying a needle projecting through said aperture, a spring actuating said lever to project said needle, and means for adjusting said spring, substantially as described.

16. In a sphygmometric watch, the combination of the watch-movement, the auxiliary wheel H, the trip J, the lever K having the arms K^2 K^3, the pulse-timing needle K K, the inner cap B and upper plate C, and the needle-tube between said cap and plate, substantially as described.

17. In a sphygmometric watch, the combination of a watch-movement, an apertured inner casing therefor, a tripping device carried by a wheel in the train of the movement, a needle projecting through the aperture in said casing, means for reciprocating said needle in said aperture, said means being engaged periodically by said tripping device to reciprocate the needle, substantially as described.

18. In a sphygmometric watch, the combination of a watch-movement, an apertured inner casing therefor, a tripping device carried by a wheel in the train of the movement, a needle projecting through the aperture in said casing, means for withdrawing said needle in said aperture, said means being engaged periodically by said tripping device, and a spring for projecting said needle, substantially as described.

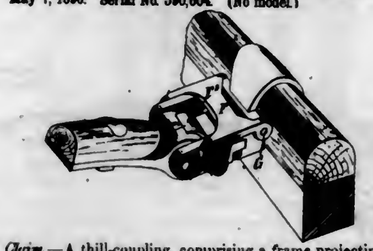
576,181. GLOVE-STRETCHER. MINNIE G. WUSTUM, Racine, Wis. Filed June 25, 1896. Serial No. 596,884. (No model.)



Claim.—1. A glove stretcher and holder constructed of elastic wire and comprising a principal skeleton frame of a single piece of wire conforming in general outline to the shape of the fingers, hand and wrist of a glove, and an auxiliary or thumb frame of a single piece of elastic wire hinged at its rear extremity to the principal frame in such manner as to be capable of swinging from and toward the principal frame, and projecting forwardly therefrom to a distance substantially equal to the length and position of the thumb of a glove with reference to the fingers and hand thereof.

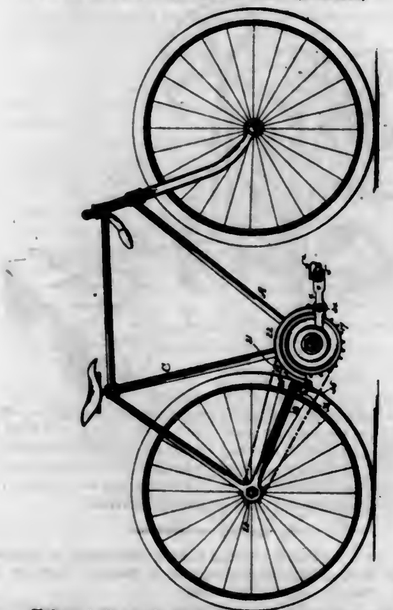
2. A glove stretcher and holder, comprising a principal skeleton frame for the fingers, hand and wrist made of a single piece of elastic wire the extremities of which at the rear end are bent transversely toward each other and meet opposite the base of the thumb, an auxiliary or thumb frame also of a single piece of elastic wire, the rear ends of which are bent transversely toward each other, and a ferrule enveloping and secured to the ends of the principal frame and forming a socket in which the transversely-disposed extremities of the thumb-frame are hinged.

576,182. THILL-COUPLING. BERTUS J. YEAGER, Montague, Mich., assignor of one-half to Thomas J. McKinstry, same place. Filed May 7, 1896. Serial No. 590,604. (No model.)



Claim.—A thill-coupling, comprising a frame projecting from a clip and having a rigid side, a pivoted arm at the other side of the frame, a bolt extending from the rigid side of the frame to be engaged at its free end by said pivoted arm, a locking-plate pivoted on the bolt-frame and provided with lugs for engaging the sides of the clip-frame, and a spring forming part of said locking-plate and extending into said clip-frame and adapted to engage with its free end the eye of the shaft, substantially as shown and described.

576,183. VELOCIPEDE. WALTER S. AUSTIN, Standish, Mich. Filed Nov. 19, 1895. Serial No. 569,416. (No model.)



Claim.—1. In a velocipede, the combination with the frame, and propelling-shaft, of a foot-lever operating in connection with the shaft to propel the latter, and brake connected at one end with the frame and at the other with the lever, whereby the latter is operated to apply the brake to the shaft, substantially as set forth.

2. In a velocipede, the combination with a frame, a propelling-shaft, and drums secured to the shaft, of two independent foot-levers, and brakes connected to the frame and lever, and operating in connection with the drums to apply friction to each drum independently, alternately or simultaneously, substantially as set forth.

3. The combination with the driving-shaft of a velocipede, and a brake-wheel thereon, of a pedal-lever connected with the driving-shaft and a strap-brake secured at one end to the frame of the velocipede and at the other end to said pedal-lever, substantially as set forth.

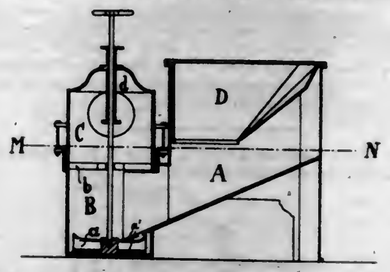
4. The combination with the driving-shaft of a velocipede and a pedal-lever connected therewith, of a brake wheel or disk secured to the driving-shaft, and a brake-band secured at one end to the velocipede and at the other end to the pedal-lever, substantially as set forth.

5. The combination with the driving-shaft of a velocipede and a pedal-lever connected therewith, of a brake-wheel secured to the driving-shaft, and a brake-band having pivotal adjustable connection at one end with the frame of the velocipede and secured at its other end to the pedal-lever, substantially as set forth.

6. The combination with the driving-shaft of a velocipede and a pedal-lever connected therewith, of a brake-wheel secured to the driving-shaft, a bracket pivoted to the frame of the machine, an arm projecting from said bracket, a screw passing through said arm and engaging the frame, a brake-band secured to said bracket, and a pin on the pedal-lever to which the other end of said brake-band is connected, substantially as set forth.

7. The combination with the driving-shaft of a velocipede and a pedal-lever connected therewith, of a brake-wheel secured to the driving-shaft, a bracket connected to the frame of the machine, said bracket having an elongated slot, a brake-band adjustably secured to said bracket and a pin on the pedal-lever to which the other end of said brake-band is connected, substantially as set forth.

576,184. WATER-CLOSET. LUDWIG BRANDIS, Essen-on-the-Ruhr, Germany. Filed Feb. 24, 1896. Serial No. 580,444. (No model.) Patented in Germany May 12, 1894, No. 79,067; in England Aug. 18, 1894, No. 15,740, and in Belgium Aug. 24, 1894, No. 111,541.



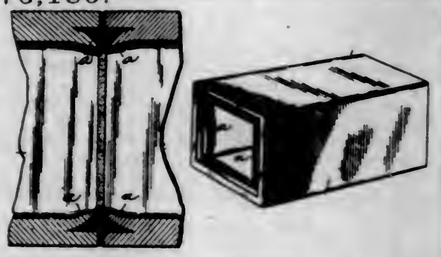
Claim.—1. In a water-closet, the combination of a funnel or hopper, a pan beneath the latter having an inclined bottom, a receiver to receive the soil from the pan, a cover over the receiver, a vertically-movable rod extending through the receiver and the cover and adapted to be operated from the exterior, a grate attached to the lower end of the rod and movable therewith, a second grate fixedly arranged within the receiver above the first grate and adapted to cooperate with the latter in the manner described, and a waste-pipe connected with the cover above the fixed grate, as specified.

2. In a water-closet the combination, of a funnel or hopper, a pan beneath the latter adapted to receive the soil, a receiver for the soil from the pan, a waste-pipe in communication with the receiver, a vertically-movable rod extending through the receiver, a grate carried by and movable with the rod, and a second grate fixedly arranged within the receiver above the first grate and with which latter it is adapted to cooperate in the manner described.

576,185. BUILDING-BRICK. WILLIAM H. BUBB, Brazil, Ind. Filed Feb. 11, 1896. Serial No. 578,904. (No model.)

Claim.—As a new article of manufacture, a hollow building-brick, having clefts formed in the ends, the outer sides whereof are parallel with the surfaces of the brick, and the inner sides inclined inwardly, thus forming inclined lips on the interior of said hollow brick, with crevices running around the end thereof, substantially as shown and described.

576,185.



576,186. BUTTON. SHELDON CARY, Brooklyn, N. Y. Filed July 6, 1896. Serial No. 598,085. (No model.)



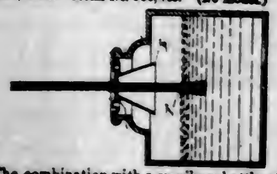
Claim.—1. A button provided with means substantially as set forth for securing it to the goods on which it is to be used, an opening leading through from a point on one side of the intended inner line of the goods to a point on the opposite side of the intended outer line of the goods, a top located over and covering said opening and a passage between said top and the said intended outer line of the goods, all substantially as set forth.

2. A button composed of a hollow body portion, means for securing it to a fabric substantially as set forth, a shank extending above the intended line of the outer side of the fabric, a top covering the hollow of the body and apertures in said shank above the said intended line of the fabric and below said top, opening from the hollow body into the outer air, all substantially as set forth.

3. A button composed of a hollow tube, a flange-washer near the bottom, a second washer above the first, lugs above the second washer, apertures in the body above the second washer and a top covering the tube, all substantially as set forth.

4. A button composed of a hollow body, means for securing it to the fabric, substantially as set forth, a shank extending above the intended line of the outer side of the fabric, apertures in said shank above said line, a flange or lip between the said line and the upper extremity of the apertures and a top covering the tube but not closing the apertures, all substantially as set forth.

576,187. MUCILAGE-BOTTLE. HELEN M. RATON, Omaha, Nebr. Filed Feb. 24, 1896. Serial No. 580,448. (No model.)



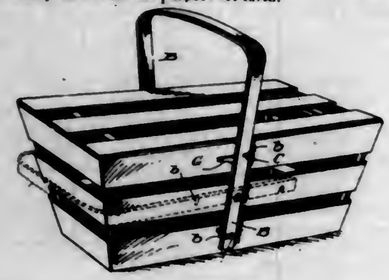
Claim.—The combination with a mucilage-bottle of a removable centrally-apertured cap having formed therein annular grooves in its upper and under surfaces, the groove in the upper surface being of a greater diameter than that in the under surface, and a disk encircling the shank of the brush, said disk being adapted to rest in an annular shouldered recess formed in said cap, said cap having also a conical casing depending centrally into the bottle, all substantially as shown and described.

576,188. BASKET OR CRATE. JOHN H. FITCH, Wesley, Mich. Filed Nov. 3, 1896. Serial No. 610,970. (No model.)

Claim.—1. A crate or basket having a pivoted handle thereon provided with slots on opposite sides thereof, lugs on the sides of the basket adapted to engage in said slots, and means for holding the handle open, substantially as shown and described.

2. A crate or basket, having in combination therewith, a pivoted handle with slots in the edges thereof, lugs designed to engage in said slots, and a spring-actuated plate provided to hold the handle open, substantially as shown and described.

3. In combination with a basket or crate, a handle pivoted as described, a spring-actuated plate having an inclined edge, and mounted in a recess and in the path of the folding handle, whereby the said handle is allowed to pass over the spring-actuated plate, when opened up, but prevented from closing until the plate is caused to be depressed, substantially as and for the purpose set forth.

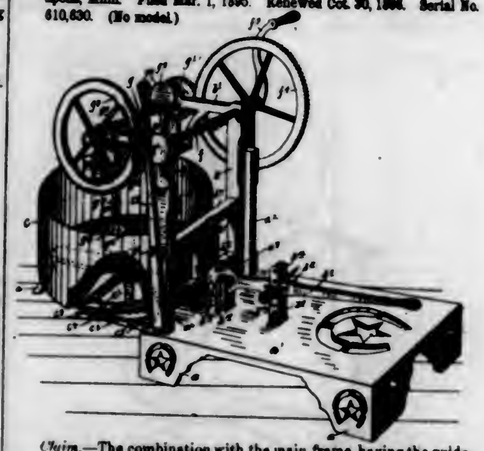


576,189. BEER-TAPPING APPARATUS. EMIL HARMIG, San Antonio, Tex. Filed Apr. 11, 1896. Serial No. 587,141. (No model.)



Claim.—In a beer-tapping apparatus, the fitting D composed of an inlet *d* and an outlet E, and a compartment H with a partition I, the air-pipe K with its upper end fixed into the partition I, and with its lower end by an elbow L inside the tapping-pipe B, the outlet-opening being below the bung A, substantially as described.

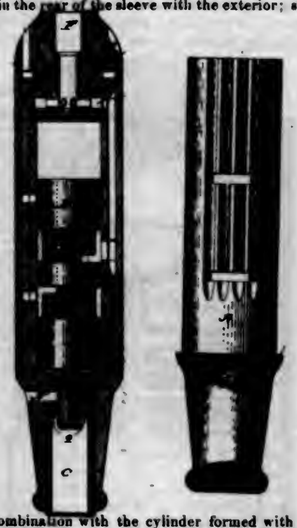
576,190. WASHING-MACHINE. CLARENCE D. HANNON, Minneapolis, Minn. Filed Mar. 1, 1895. Renewed Oct. 30, 1896. Serial No. 610,630. (No model.)



Claim.—The combination with the main frame, having the guide-standards a^8, of the washing vessel *e*, on said frame, the main shaft *f*, the plunger-shaft *g*, the shaft-frame *b b'* adjustable on the standards a^8, as guides, the vertical rack b^7 on said frame, the pivoted hand-lever b^8 having a ratchet-head b^{14}, engaging said rack b^7, and the rest-post b^{15}, all arranged and operating substantially as described.

576,191. ENGINE. THOMAS B. HILL, Philadelphia, Pa., assignor to the Chouteau Manufacturing Company, of Missouri. Filed July 15, 1896. Serial No. 599,282. (No model.)

Claim.—1. The combination with the cylinder, of a piston formed with a stem on its forward end, and a sleeve or bushing having an internal flange at its rear end, the opening in the rear end of said sleeve being of larger diameter than the stem of the piston so as to leave a space between the two, and an opening in the cylinder connecting said opening in the rear of the sleeve with the exterior; substantially as described.



2. The combination with the cylinder formed with a shoulder near its front end, of a sleeve which abuts against said shoulder, said sleeve being formed with a recess in its forward end for receiving a pin seated in a recess in the cylinder, a head threaded in the rear end of the cylinder, a shoulder formed on the head for abutting against the sleeve and clamping it in position, and a spring-pressed locking-bolt arranged in the head and adapted to engage a notch in the rear end of the sleeve; substantially as described.

3. The combination with the cylinder, of a sleeve surrounding the same, a head for engaging said parts, there being a chamber formed between the end of the cylinder and head, into which chamber leads the exhaust, and two or more holes formed in the head leading from said chamber, whereby, the escape of the exhaust may be controlled; substantially as described.

4. The combination with the cylinder, of a sleeve surrounding the same, a head which fits into the rear end of the cylinder, and also engages the sleeve, there being a chamber formed between the end of the cylinder and head, into which chamber leads the exhaust, and a reduced portion in the front end of the head, which forms a chamber for the motive fluid; substantially as described.

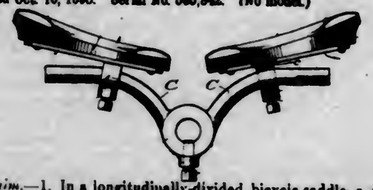
5. The combination with a cylinder, of a head which fits into the rear end of the same, said head being formed with an inlet-passage, which leads to a chamber formed in the front end of the head, said head having its diameter reduced to form the chamber; substantially as described.

6. The combination with the cylinder which is formed with corrugations on its outer periphery to which lead ports from the interior, and a sleeve surrounding said cylinder; substantially as described.

7. The combination with the cylinder which is grooved longitudinally, said grooves being separated by a rib or partition, a port or ports leading from the interior and connecting with said grooves, and a sleeve which surrounds said cylinder, said sleeve having practically a continuous bearing around the cylinder; substantially as described.

8. The combination with the cylinder whose periphery is grooved, said grooves being grouped, ports connecting said groups with the interior, and all of the grooves of a group together, and a sleeve surrounding the cylinder; substantially as described.

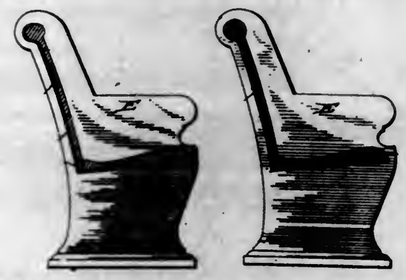
576,192. BICYCLE-SADDLE. FRANK M. HOYT, Milwaukee, Wis. Filed Oct. 16, 1895. Serial No. 565,842. (No model.)



Claim.—1. In a longitudinally-divided bicycle-saddle, a pair of pads adjustable to have more or less tilt toward the center of said saddle.

2. In a bicycle-saddle, a support comprising a pair of upwardly-curved and horizontally-extended divergent arms, and a pair of pads in rotatory clamp connection with the arms, these clamps being laterally adjustable on said arms to vary intervening space as well as tilt toward the center of the saddle.

576,193. PEW. ROBERT W. IRWIN and JAMES STILES, Grand Rapids, Mich., assignors to the Grand Rapids School Furniture Company, same place. Filed May 21, 1896. Serial No. 592,446. (No model.)



Claim.—1. In a pew or like seat, an end piece, having a dovetail groove, in combination with a seat back or bottom having plain ends and with stay-pieces, substantially as described.

2. In a pew or like seat, an end piece having a dovetail groove, in combination with seat back or bottom having plain ends, with stay-pieces, and a bead, all substantially as described.

3. In a pew or like seat, an end piece having a dovetail groove, in combination with a seat back and bottom having plain ends entering said grooves, stay-pieces disposed at intervals in the groove between the seat and back and the walls of the groove, and the continuous bead covering the stay-pieces and groove, substantially as described.

576,194. TIRE FOR BICYCLES. JOEL JENKINS, Montclair, N. J. Filed June 5, 1896. Serial No. 594,353. (No model.)



Claim.—1. A tire for bicycles, &c., having an outer case or covering and an inner flexible chain of independent leaf-springs loosely connected one with another, substantially as shown and described.

2. The combination with a wheel-rim and a tubular case or cover of a chain of separate springs loosely connected together and inserted through said tubular case or cover and independently operating, substantially as shown and described.

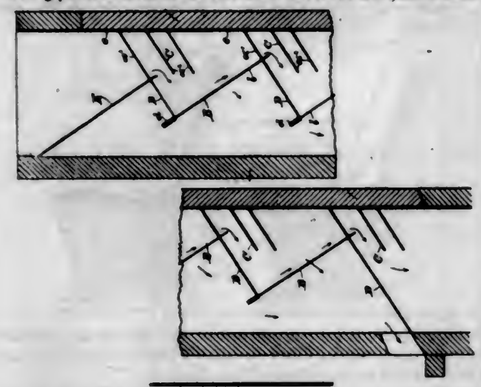
3. A yielding, resilient support for the tread of a tire for bicycles, &c., consisting of a flexible chain of V-shaped springs having one member to rest against the wheel-rim and the other member to support the tread of the tire, said springs being loosely connected, substantially as shown and described.

4. A yielding, resilient support for the tread of a tire for bicycles, &c., consisting of a flexible chain of V-shaped springs having one member to rest against the wheel-rim and the other to support the tread of the tire, the first-named member of each spring having a tongue to enter and engage a slot in the corresponding member of the next spring, substantially as shown and described.

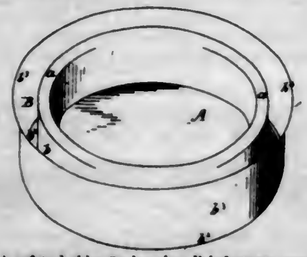
576,195. SEPARATOR. ROBERT W. JUDSUP, Los Angeles, Cal., assignor of one-half to Fairfax H. Wheelan, San Francisco, Cal. Filed Mar. 23, 1896. Serial No. 584,269. (No model.)

Claim.—1. In a separator for grain and small seeds, the combination of a screen composed of parallel spaced needles having a fixed connection at one end and thence extending separate and independent to the other end, and free at said end, said needles being pliant and springy and adapted to vibrate under the contact of the material and its passage over them, an inclined directing-plate in front of screen, to deliver the material to it, and an inclined stop-plate behind the screen to keep apart the separated materials.

2. In a separator for grain and small seeds, the combination of a series of screens, each screen being composed of parallel spaced needles, of a pliant and springy character, plates to which said needles are fixed at one end, and thence extend separate and independent to the other end, and free at said end, whereby they are adapted to vibrate under the contact and flow of the material, said plates traversing the spaces between the adjacent ends of the screens and forming stops to keep the separated particles apart, and inclined directing-plates in front of the screens to direct the material to them.



576,196. SAFETY-HOLDER FOR BURNING SULFUR. ROBERT W. JOHNSON, New Brunswick, N. J. Filed Apr. 10, 1894. Serial No. 507,053. (No model.)

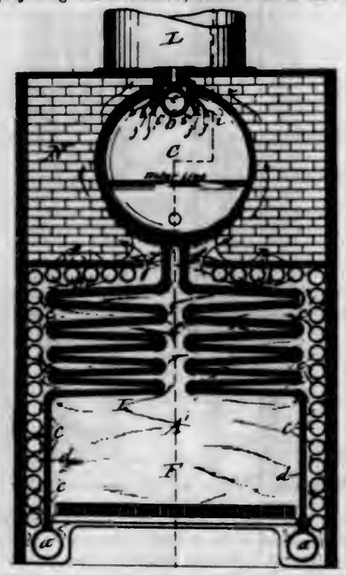


Claim.—A safety-holder for burning disinfectants consisting of a pan supported by an encircling annular well integral therewith, the bottom of said pan being on a higher level than the bottom of the annular well, and the outer edge of said well being on a higher level than the upper edge of the pan, substantially as described.

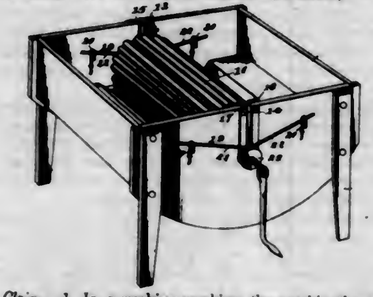
576,197. STEAM-BOILER. ROBERT JOY, Oswego, N. Y., assignor to Thomson Kingsford, same place. Filed Mar. 18, 1896. Serial No. 583,656. (No model.)

Claim.—1. The combination of two parallel water-walls formed with upward-extending throats and constituting the front and rear ends of the boiler, a combined water and steam drum mounted on and communicating with said walls, two series of longitudinal water-tubes connecting the two water-walls at corresponding ends throughout the heights thereof and along the top portions to the aforesaid throats, and two series of water-tubes located within the space surrounded by said longitudinal tubes, the tubes of each of said inner series consisting of vertical portions extending from the base of the aforesaid space part way the height thereof and thence in zigzag direction in a vertical plane parallel with the aforesaid end walls and part way toward the center of the aforesaid space and terminating with vertical extensions connected to the aforesaid combined water and steam drum as set forth.

2. The combination of two parallel water-walls formed with upward-extending throats and constituting the front and rear ends of the boiler, a combined water and steam drum mounted on and communicating with said walls, two series of longitudinal water-tubes connecting the two water-walls at corresponding ends throughout the heights thereof and along the top portions to the aforesaid throats, two series of water-tubes located within the space surrounded by said longitudinal tubes, the tubes of each of said inner series consisting of vertical portions extending from the base of the aforesaid space part way the height thereof and thence in zigzag direction in a vertical plane parallel with the aforesaid end walls and part way toward the center of the aforesaid space and terminating with vertical extensions connected to the aforesaid combined water and steam drum, a dry-pipe extending along the top of the interior of the aforesaid drum and provided with longitudinal steam-induction ports in opposite sides of the center of its top, shields projecting laterally from said ports, and fins projecting from the shields, as set forth and shown.



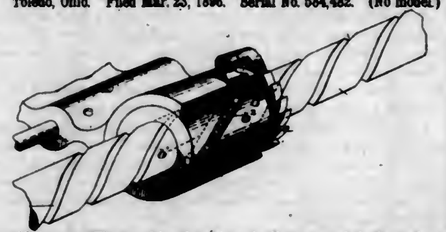
576,198. WASHING-MACHINE. EDWIN KAIN, Camden, N. J. Filed May 24, 1894. Serial No. 512,354. (No model.)



Claim.—1. In a washing-machine, the combination of a body, transverse cleats secured to the body at the ends thereof, located near the bottom of the same and provided at their terminals with vertical recesses extending downward from their upper edges, transversely-disposed curved springs secured to the faces of said cleats and having short end portions spanning the recesses and capable of upward and downward movement, and a rubber provided at opposite sides with depending longitudinally-disposed strips having their ends resting upon said springs and guided in the said recesses and held against lateral movement by the same, substantially as described.

2. In a washing-machine, the combination of a body provided at opposite sides with vertically-disposed slots having ways at one side arranged at opposite sides of the adjacent slot, a stationary plate 15 secured to the outer face of the outer side of the body and closing the adjacent slot, a vertically-movable plate arranged in the said ways and closing the adjacent slot, a removable rotating rubber provided with journals, one of the journals being loosely arranged in the slot adjacent to the stationary plate, and the other journal passing through a perforation of the vertically-movable plate and carrying the latter with it, grooved disks provided with bearing-openings and mounted on the said journals, permitting a free rotation of the same and located at the inner face of one side of the washing-machine body and at the outer face of the other, springs comprising oppositely-disposed arms extending outward from the journals, and central coils formed integral with the arms and arranged in the grooves of the disks, whereby the springs are adapted to force the rubber downward without binding against the journals thereof, and inverted hooks mounted on the washing-machine body, engaging the arms of the springs and detachably securing the same to the body, substantially as described.

576,199. BALL-BEARING MECHANISM FOR CONVERTING RECIPROCATORY INTO ROTARY MOTION. CHARLES M. KIMBALL, Toledo, Ohio. Filed Mar. 23, 1896. Serial No. 584,482. (No model.)

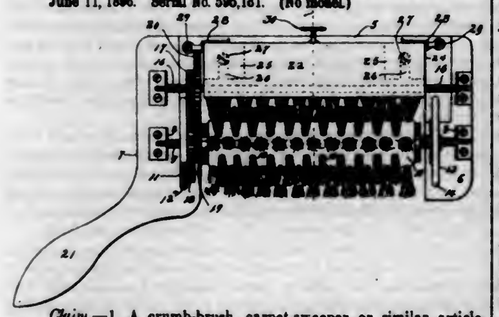


Claim.—1. The combination of a spirally-grooved shaft; a sleeve embracing said shaft and grooved in its interior surface on the same pitch as said shaft and having a back channel extending spirally on the same pitch as and communicating at its ends with the interior groove forming therewith an endless raceway spiral throughout its extent; and a set of antifriction-balls filling said channel and the channel formed between the interior groove and the shaft-groove.

2. The combination of a spirally-grooved shaft; a sleeve embracing said shaft and spirally grooved in both its interior and exterior surfaces on the same pitch as the shaft and formed with ports connecting the ends of said interior and exterior grooves to form an endless raceway; antifriction-balls filling said raceway and engaging the shaft-groove; and a cylindrical casing fitting over the sleeve and closing the exterior groove therein.

3. The combination of a spirally-grooved shaft; a driving-sleeve embracing the same and adapted to be reciprocated thereon, said sleeve having interior and exterior grooves extending spirally to correspond with the shaft-groove, and ports connecting said grooves to form an endless raceway; antifriction-balls filling said raceway and engaging the shaft-grooves; and a cross-head having a cylindrical part embracing the sleeve and closing the exterior groove therein.

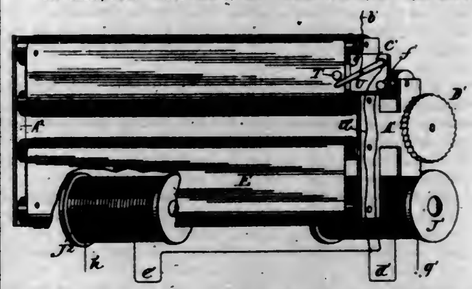
576,200. BRUSH. ALFRED R. KNAPP, Crewkerne, England. Filed June 11, 1896. Serial No. 595,181. (No model.)



Claim.—1. A crumb-brush, carpet-sweeper or similar article, consisting of a suitable top plate having forwardly-directed projections at each end, a handle connected with one of said projections, said projections being also provided on their under side with a shaft which is mounted in hangers connected therewith, and on which is mounted a brush or broom head, and said shaft being also provided at each end with wheels which are adapted to be pressed upon the surface to be cleaned, and by which the shaft is revolved, and said device being also provided rearwardly of the brush or broom head with a detachable receptacle which is open at the front, and into which the crumbs, dust and other articles are adapted to be swept, and said device being also provided beneath the top plate with another shaft which is mounted in hangers connected therewith, one end of which is provided with a pinion which operates in connection with a large gear-wheel, which is secured to one of the wheels on the shaft of the brush or broom head, said pinion being also provided with a large gear-wheel which operates in connection with a pinion secured to the end of the brush or broom head, and by which the brush or broom head is revolved, much more rapidly than the shaft on which it is mounted, substantially as shown and described.

2. A broom or brush for cleaning table-cloths, carpets and the like, consisting of a top plate 5, and having end pieces or projections 6 and 7, one of said projections being extended to form a handle, hangers 8 secured to said projection, shaft 9, mounted in the forward hangers, a brush or broom head 10, revolubly mounted on said shaft, a wheel 11, mounted on one end of said shaft and provided with rubber tires, a similar wheel 13, mounted at the opposite end thereof, said projections being provided with segmental grooves 15 through which said wheels pass, a shaft 16 mounted in the rear of the shaft 9, and provided with a pinion 17, which operates in connection with a gear-wheel 18, connected to the wheel 11, and a large wheel 20, secured to the pinion 17, and adapted to operate in connection with a pinion 19 carried by the brush, substantially as described.

576,201. AUTOMATIC STREET OR STATION INDICATOR AND ADVERTISING MEDIUM. MAJOR R. LEECH and ARTHUR R. BULLOCK, Cleveland, Ohio. Filed June 2, 1896. Serial No. 594,055. (No model.)



Claim.—1. The combination in a street or station indicator of six or more longitudinal rollers carrying a film or ribbon of celluloid or other flexible material, together with sprocket-wheels C' and C³ and ratchet-wheels D' and D³, together with their pawls N' and N³ and two electrical solenoids J' and J³ in combination with electrical switch Q, all as substantially set forth.

2. In an automatic street or station indicating instrument, the combination of two electrical solenoids J' and J³, together with their plungers K' and K³, two pawls N' and N³ and two ratchet-wheels D' and D³ in combination with automatic switch Q, all as substantially set forth and described.

3. In a street or station indicating instrument, the combination of a span-wire bracket V with a stationary projecting arm W, connected with a contact-finger Y by means of a gimbal or universal joint X, spiral spring Z and contact-plate a', for the purposes specified.

4. In a street or station indicating instrument the combination of a film or ribbon E having advertising-signs on one side of said film or ribbon and street-names or station-names and house-numbers on the other side of said film or ribbon, together with six or more rollers, two sprocket-wheels, two ratchet-wheels with their pawls and two electrical solenoids for the uses and purposes herein described.

5. In a street or station indicating instrument a film or ribbon E in combination with sprocket-wheels C' and C², together with rollers G', G², G³, G⁴, G⁵, G⁶, and pulleys H' and H⁴, together with belt I for the uses specified.

6. In a street or station indicating instrument, the combination of film or ribbon E, shaft B, ratchet-wheels D' and D³, sliding pawls N' and N³, angle-pulleys M', M¹, M² and M⁴, and spiral spring P in combination with electrical solenoids J' and J³, substantially for the purposes set forth and described.

576,202. RHEOSTAT. HARRY W. LEONARD, East Orange, N. J. Filed July 30, 1896. Serial No. 601,090. (No model.)



Claim.—1. The method of making apparatus in which an electrical conductor is applied to a metal surface, which consists in coating the metal surface with a layer of infusible insulating material applied as a powder and made by heat into a coherent layer adhesive to the metal support, and placing the conductor upon said layer, substantially as set forth.

2. The method of making apparatus in which an electrical conductor is applied to a metal surface, which consists in coating the metal surface with a layer of infusible insulating material applied as a powder and made by heat into a coherent layer adhesive to the metal support, glazing said layer with a coating of glass, and placing the conductor upon said layer, substantially as set forth.

3. The method of making apparatus in which an electrical conductor is applied to a metal surface, which consists in coating the metal surface with a layer of infusible insulating material applied as a powder and made by heat into a coherent layer adhesive to the metal support, and then attaching the conductor to the infusible layer by means of glass applied in powdered form and made adherent to the conductor and infusible layer by heat, substantially as set forth.

4. The method of making apparatus in which an electrical conductor is applied to a metal surface, which consists in coating the metal surface with a layer of infusible insulating material applied as a powder and made by heat into a coherent layer adhesive to the metal support, glazing said layer with a coating of glass, and then attaching the conductor to the infusible layer by means of glass applied in powdered form and made adherent to the conductor and infusible layer by heat, substantially as set forth.

5. The method of insulating electrical conductors from supports, which consists in applying to the support by successive firings several coatings of powdered material, which coatings become at a red heat, hard, coherent, insulating and pottery-like, and placing the conductor in contact with the thick coating so formed, substantially as set forth.

6. The method of insulating electrical conductors from supports, which consists in applying to the support by successive firings several coatings of powdered material, which coatings become at a red heat, hard, coherent, insulating and pottery-like, glazing the surface of the last coating, and placing the conductor in contact with the thick coating so formed, substantially as set forth.

7. The method of insulating electrical conductors from supports, which consists in applying to the support by successive firings several coatings of powdered material, which coatings become at a red heat, hard, coherent, insulating and pottery-like, and then attaching the conductor to the pottery-like material by means of glass applied in powdered form and made adherent to the conductor and the pottery-like layer by heat, substantially as set forth.

8. The method of insulating electrical conductors from supports, which consists in applying to the support by successive firings several coatings of powdered material, which coatings become at a red heat, hard, coherent, insulating and pottery-like, glazing the surface of the last coating, and then attaching the conductor to the pottery-like material by means of glass applied in powdered form and made adherent to the conductor and the pottery-like layer by heat, substantially as set forth.

9. The method of insulating conductors from metallic supports while attaching them thereto, which consists in first forming upon the support an adherent, solid layer of non-vitreous insulating material, and then attaching the conductor to the non-vitreous layer by means of a layer of vitreous material made by heat adherent to the first layer, substantially as set forth.

10. The method of insulating conductors from metallic supports while attaching them thereto, which consists in first forming upon the support an adherent solid layer of non-vitreous insulating material, glazing the surface of said non-vitreous layer by a thin layer of vitreous material, and then attaching the conductor to the glazed non-vitreous layer by means of a layer of vitreous material made by heat adherent to the first layer, substantially as set forth.

11. The method of making apparatus in which an electrical conductor is applied to a metal surface, which consists in applying a ground coat, placing powdered glass on said coat while hot to produce a glaze thereon, allowing the metal and said coatings to cool, then placing the conductor upon the glazed ground coat and applying a glass coat, and fusing the glass to cause the same to adhere to the glazed ground coat and to adhesively secure the conductor in position, substantially as set forth.

12. The combination of a metallic support, covered by a layer of infusible insulating material applied as a powder and made by heat into a coherent adhesive layer, and a conductor attached to said infusible layer by glass applied as a powder and made by heat adhesive to said infusible layer, substantially as set forth.

13. The combination of a metallic support, covered by a layer, of infusible insulating material applied as a powder and made by heat into a coherent adhesive layer, a glazing of glass on said infusible layer, and a conductor attached to said glazed infusible layer by glass applied as a powder and made by heat adhesive to said infusible layer, substantially as set forth.

14. The combination of a metallic support, covered by a layer of infusible non-vitreous insulating material applied as a powder and made by heat into a coherent adhesive layer, a glazing of glass on said infusible layer, and a conductor attached to said glazed infusible layer by glass applied as a powder and made by heat adhesive to said infusible layer, substantially as set forth.

15. The combination of a cast-iron support, a conductor, and a layer of infusible material and a layer of glass, the whole forming a coherent mass, substantially as set forth.

16. The combination of a cast-iron support, a conductor, and a layer of non-vitreous infusible material and a layer of glass between said support and conductor, the whole forming a coherent mass, substantially as set forth.

17. The combination of a cast-iron support, a layer of infusible material thereon applied as a powder and made by heat into a solid coherent adhesive layer, a conductor placed thereon, and a layer of glass applied as a powder and made by heat into a solid coherent adhesive to the infusible layer and securing the conductor in position, substantially as set forth.

18. The combination of a cast-iron support, a layer of infusible material thereon applied as a powder and made by heat into a solid coherent adhesive layer, a glazing of glass on said layer, a conductor placed thereon, and a layer of glass applied as a powder and made by heat into a solid layer adhesive to the glazed infusible layer and securing the conductor in position, substantially as set forth.

19. The combination of a cast-iron support, a layer of infusible material thereon applied as a powder and made by heat into a solid coherent adhesive layer, a conductor placed thereon, and a layer of glass applied as a powder and made by heat into a solid layer adhesive to the infusible layer and securing the conductor in position, substantially as set forth.

20. The combination of a cast-iron support, a layer of infusible non-vitreous material thereon applied as a powder and made by heat into a solid coherent adhesive layer, a glazing of glass on said layer, a conductor placed thereon, and a layer of glass applied as a powder and made by heat into a solid layer adhesive to the glazed infusible layer and securing the conductor in position, substantially as set forth.

21. In a rheostat, the combination of a cast-iron plate or support, a layer of infusible material thereon, a conductor, and a layer of insulating material adherent to the infusible layer and securing the conductor in position, substantially as set forth.

22. In a rheostat, the combination of a cast-iron plate or support, a layer of pottery-like material adherent thereto, a conductor thereon, and a layer of glass adherent to the pottery-like layer, and securing the conductor in position, substantially as set forth.

23. In a rheostat, the combination of a cast-iron plate or support, a layer of infusible material thereon, and a conductor embedded in a layer of glass adherent to the infusible layer, substantially as set forth.

24. In a rheostat, the combination of a cast-iron plate or support, a layer of infusible material thereon, a glazing of glass thereon, and a conductor embedded in a layer of glass adherent to the glazed infusible layer, substantially as set forth.

25. In a rheostat, the combination of a cast-iron plate or support, a layer of infusible insulating material adherent to said support, and a conductor partially embedded in a layer of glass which attaches the conductor to the infusible layer, substantially as set forth.

26. In a rheostat, the combination of a cast-iron plate or support, a layer of infusible insulating material adherent to said support, and a ribbon-like conductor partially embedded in a layer of glass which attaches the conductor to the infusible layer, substantially as set forth.

27. The method of insulating two metal bodies from each other consisting in applying to the surface of one of the bodies a layer of powdered material which by heat is caused to become a solid body of insulating material and to adhere to the metal surface, glazing said material with a layer of insulating material, and placing the other metal body upon said glazed surface, substantially as set forth.

28. The method of insulating two metal bodies from each other consisting in applying to the surface of one of the bodies a layer of powdered material which by heat is caused to become a solid body of insulating material and to adhere to the metal surface, glazing said material with a layer of insulating material, and attaching the other metal body thereto by a layer of glassy material, whereby the two metal bodies are secured together but insulated from each other, substantially as set forth.

29. The combination of a metal body, a layer of infusible insulating material applied thereto and made by heat into a coherent, adhesive layer, a glazing of glass on said layer, and a metal body placed upon said glazed surface, substantially as set forth.

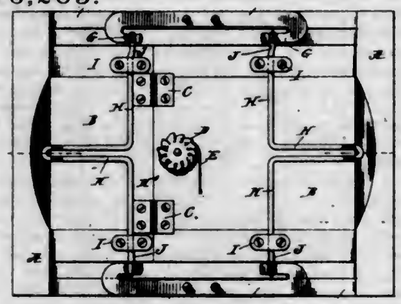
30. The combination of a metal body, a layer of infusible insulating material applied thereto and made by heat into a coherent, adhesive layer, a glazing of glass on said layer, and a metal body placed upon said glazed surface and attached thereto by glass made adhesive by heat, substantially as set forth.

576,208. PHOTOGRAPHIC-PRINTING FRAME. WILLIAM H. LEWIS, Huntington, N. Y., assignor to Mary L. Lewis, same place. Filed Oct. 16, 1896. Serial No. 608,136. (No model.)

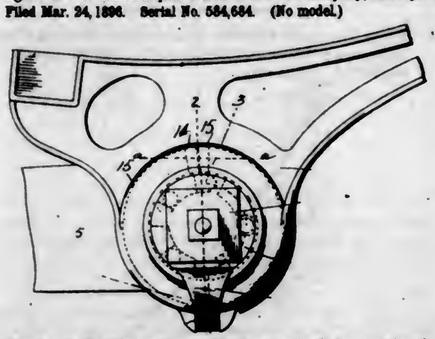
Claim.—1. The combination of a printing-frame, a back plate or pressure-board therefor, composed of two parts, hinges connecting the two parts, a bell-crank lever fulcrumed upon each of said parts, and two springs at each side of the frame adapted to engage with the respective ends of said bell-cranks, for the purposes set forth.

2. The combination of a printing-frame, a back plate or pressure-board therefor, and spring-actuated, compressing devices, located at or near the edges of the back plate, for the purposes set forth.

576,208.



576,204. SEAT-HINGE. ALLEN D. LINN, Grand Rapids, Mich., assignor to the Grand Rapids School Furniture Company, same place. Filed Mar. 24, 1896. Serial No. 584,684. (No model.)



Claim.—1. In combination with the standard the seat-bracket and plate yieldingly connected, the two sets of arc-shaped channels arranged with reversely-located inclines, and the balls located in said channels, one of said balls serving as a gradual stop to limit the movement of the seat in one direction, and the other serving to limit gradually the movement of the seat in the other direction, substantially as described.

2. In combination with the standard and plate, the interposed seat-bracket, a bolt connecting said three parts and forming a hinge upon which the bracket pivots, a fixed stop located between the standard and bracket and traveling in a groove in the adjacent part, arc-shaped channels in the adjacent faces of the seat-bracket and plate, said channels having inclined ends, balls located in said channels, and a spring-washer surrounding the bolt and exerting a yielding pressure upon the plate, substantially as described.

3. In combination the standard and seat-bracket having annular channels in their adjoining faces, a stop projecting from each part into the channel of the adjoining part, a plate located upon the opposite side of the seat-bracket with means for holding it against turning, channels in the adjoining faces of the bracket and plate, said channels having inclined ends, a bolt and spring-washer for holding said parts yieldingly together, and a plurality of balls located in the channels between said plate and bracket, one of said balls serving as a rolling stop to limit the upward movement of the seat, another as a rolling stop to gradually limit the downward movement, and another acting as an idler, substantially as described.

576,205. FOOT-BOARD FOR CHAIRS. ALLEN D. LINN and ROBERT W. IRWIN, Grand Rapids, Mich., assignors to the Grand Rapids School Furniture Company, same place. Filed May 21, 1896. Serial No. 592,444. (No model.)



Claim.—1. In combination with a standard having a recess in its rear and adapted to receive the foot-board, a holding device for closing the open side of said recess, and a wedge-piece located between the foot-board and the standard, substantially as described.

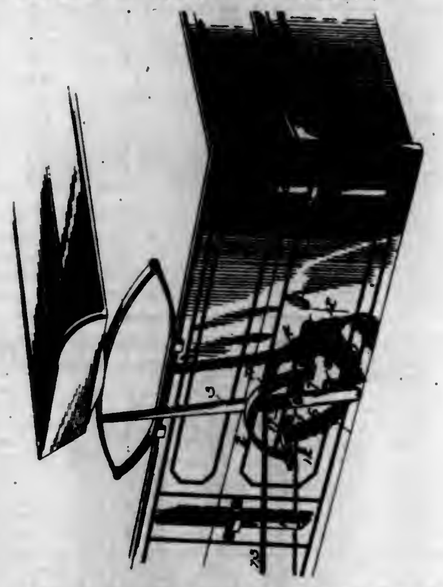
2. In combination with the standard having a recess in its rear adapted to receive the foot-board, flanges upon said standard above and below the recess, said flanges having reduced portions, and a holding-bar for closing the open side of the recess having flanges adapted to grip the edges of the flanges upon the standard, substantially as described.

576,206. BACK-LOCK FASTENING FOR CHAIRS. ALLEN D. LINN and ROBERT W. IRWIN, Grand Rapids, Mich., assignors to the Grand Rapids School Furniture Company, same place. Filed May 21, 1896. Serial No. 592,445. (No model.)



Claim.—In combination, a standard having a front flange and an extending web, seat-backs fitted to the angle formed at the juncture of said flange and web and locking-lugs engaging a slot in the standard and overlapping each other, substantially as described.

576,207. WAGON-BRAKE. CALVIN C. LOUG, Washington, Iowa. Filed June 29, 1896. Serial No. 597,418. (No model.)



Claim.—1. The combination with a lever adapted to be attached at the side of a wagon, of a lever-frame provided with a horizontally-projecting stud on which the lever is fulcrumed, said stud having a concaved exterior adapted to enter a corresponding hole in the lever, said lever being provided with longitudinal, tapering edges, and an arc-shaped ratchet disposed below the fulcrum of the lever as and for the purposes set forth.

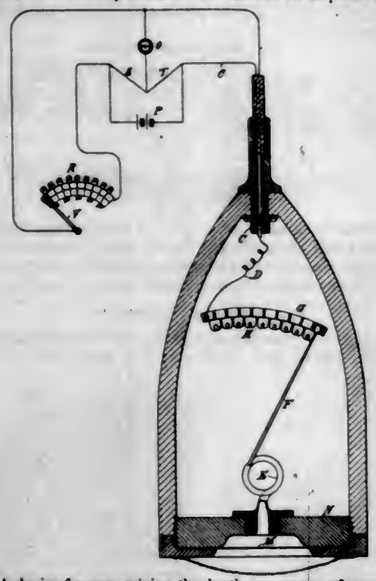
2. The combination in a wagon-brake, of a frame adapted to be secured to the side of the wagon-body, said frame consisting of a horizontal bar provided with a stud, an arc-shaped bar rising from horizontally-extending arms, an arc-shaped ratchet secured to and projecting downwardly from said arms, and a lever fulcrumed in the frame, and having the longitudinal edges of its lower end beveled to engage the ratchet, substantially as described.

576,208. SOUNDING APPARATUS. ARTHUR M. LOCKER, New York, N. Y. Filed Apr. 24, 1896. Serial No. 588,862. (No model.)

Claim.—1. A sounding apparatus comprising in combination a sinker containing a device which is moved by variations of hydrostatic pressure, a rheostat varied by the movement of said device, a circuit extending through the sounding-line and including said rheostat, and electrical devices therein adapted to respond to variations of resistance in said circuit, as set forth.

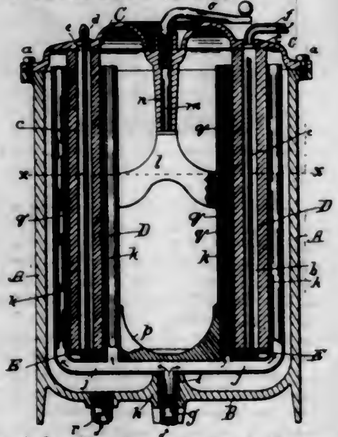
2. The combination with a sounding-line containing the conductors of an electric circuit and a sinker attached thereto, of a device such as a Bourdon tube and a rheostat operated thereby, both carried by a sinker, a galvanometer, a rheostat and battery, connected with the conductors from the sounding-line, the rheostats, battery and galvanometer being arranged to form a bridge, so that the hydrostatic

pressure and corresponding depth of the sinker may be ascertained by the adjustment and position of the rheostat on shipboard, as set forth.



3. A device for ascertaining the depth or pressure of water consisting of a device moved by variations in hydrostatic pressure, a rheostat varied by the same, a device for indicating variations of resistance due to the operation of the rheostat, and a circuit connecting such rheostat and indicating instrument, as set forth.

576,209. FILTER. ELMORE P. LYNN, Cincinnati, Ohio, assignor to the Lynn Filter Manufacturing Company, same place. Filed Feb. 27, 1896. Serial No. 581,057. (No model.)



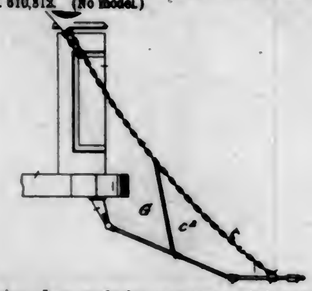
Claim.—1. In a filter, the combination of a filtering vessel, a filtering medium therein in the form of a true cylinder with one or more self-contained escape-chambers extending longitudinally of the same and connected with the exhaust-chamber for the filtered water, water-tight connections between said filtering vessel and filtering medium, and cleansing mechanism applied to the exterior and interior surfaces of said filtering medium with means for rotating said cleansing mechanism around the filtering medium, substantially as described.

2. In a filter, the combination of a filtering vessel, a filtering medium therein in the form of a true cylinder with one or more self contained escape-chambers extending longitudinally of the same and communicating with an exit-channel for the filtered water, water-tight connections between said filtering vessel and filtering medium, and scraping-bars applied to the exterior and interior surfaces of said filtering medium with means for rotating said bars around the filtering medium, substantially as described.

3. In a filter, the combination of a filtering vessel, a filtering medium therein in the form of a true cylinder with one or more self-contained escape-chambers extending longitudinally of the same and communicating with an exit-channel for the filtered water, water-tight connections between said filtering vessel and filtering medium, inflow-pipes extending longitudinally of the filtering medium on both its interior and exterior surfaces and provided with perforations adjacent to the filtering medium, yielding scraper-bars carried by said pipes, and means for rotating said pipes and bars, substantially as described.

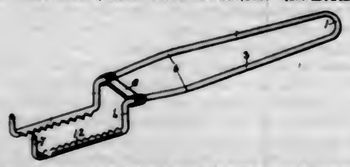
4. The herein-described filter composed of the vessel, A, with removable cap, C, having channel, *c*, the filtering medium, D, suspended in said vessel from the cap, C, by means of the tie-rods, *e*, and ring, E, said filtering medium being provided with escape-chambers, *b*, communicating with the channel, *c*, the tubular frame composed of the pipes, *j*, *k*, journaled in the vessel, A, and receiving the inflowing water, the pipes, *k*, being provided with perforations, the yielding scraper-bars, *u*, bearing against both surfaces of the filtering medium and carried by the pipes, *k*, and means for rotating said tubular frame, substantially as and for the purpose specified.

576,210. CAR-FENDER. FRANK P. MAIER, WILLIAM H. CONRAD, and FRANK H. WAMPLER, Philadelphia, Pa. Filed Nov. 2, 1896. Serial No. 610,812. (No model.)



Claim.—In a car-fender, an apron consisting of thin cord or rope meshed, matted or plaited, the sides and front of which are secured to stout rope, a guard or shield of netting secured to and projecting upward at an angle to said apron and connected with side chains, the sides of said guard or shield being bound with stout rope, a framework pivoted at its rear end to the car and consisting of side and cross bars of tubing, clamps securing the cross and side bars to said apron and shield or guard, two-part castings located at the front corners of said apron and framework, and said chains connecting said castings and cross-bars of said shield or guard with said car, substantially as and for the purposes described.

576,211. GRIDDLE-GREASER. GEORGE C. MARTIN, Omaha, Nebr. Filed Nov. 6, 1893. Serial No. 490,155. (No model.)

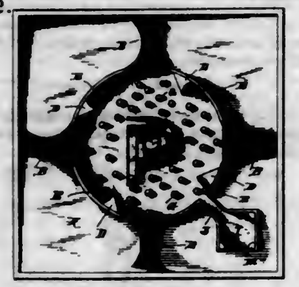


Claim.—As a new article of manufacture a griddle-greaser comprising an elongated U-shaped spring-wire blank each of the stems being bowed slightly outward then continuing at right angles a suitable distance then extending at right angles and in a plane similar to the main stems but in an opposite direction this latter extension being serrated and finally terminating in an upward extension preferably parallel to and in the same plane but in an opposite direction to said first right-angled portion, a sliding collar adapted to embrace said two main stems at the bowed portion all substantially as and for the purpose set forth.

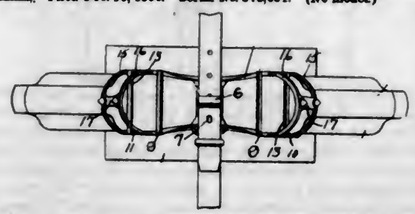
576,212. PUZZLE. WILLIAM F. MATTHEWS, New York, N. Y. Filed July 20, 1896. Serial No. 599,908. (No model.)

Claim.—The puzzle described consisting of a box, a circular inclosure therein with diametrically opposite pockets having contracted passages with coverings over the same, curves adjacent thereto, a passage in the form of the letter P at the center, and a box leading from the inclosure and having rounded blocks at the corners, substantially as shown and described.

576,212.



576,213. HARNESS-SADDLE. JOHNSTON MEALEY, Howard Lake, Minn. Filed Feb. 10, 1896. Serial No. 578,651. (No model.)



Claim.—1. The combination with the metallic saddletree, comprising the main or fixed portion, and the side portions hinged thereto, the straps passing over the tree and removably secured thereto, and the loops provided on the sides of the tree, for the purpose set forth.

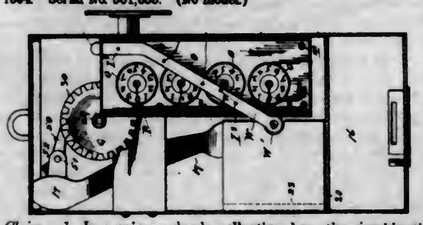
2. In a device of the class described, the combination, with the curved tree provided with the cross-bars connecting the opposite sides thereof, of the straps passing over said tree and between said bars, and the pins or lugs provided on said bars for entering holes provided in said straps, substantially as described.

3. The combination with the metallic saddletree, comprising a fixed portion, the movable portions hinged thereto, the cross-bars connecting the opposite sides of said tree upon its inner and outer surface whereby a space is provided between two sets of bars, the straps adapted to pass over said tree between said bars, and the pins or lugs provided on said bars for the purpose set forth.

4. The combination with the metallic saddletree, of the straps passing over the same and secured thereto, the cross-bars connecting the opposite sides of the tree, the hooks provided on said bars, the felt portion provided beneath the tree, and said felt portion being provided on its outer surface with a band of flexible material to be looped over said hooks, for the purpose set forth.

5. A harness-saddle comprising a metallic tree having movable sides, the rein-loops arranged thereon, the hook arranged upon the top of the tree, the roller above the same, the cross-bars connecting the opposite sides of the tree and alternately arranged upon its inner and outer surface whereby a space is provided between the opposite bars, the straps adapted to pass over the tree between the bars, the inwardly-projecting pins or lugs provided on said bars to enter holes in said straps, the laterally-extending hooks on said bars, the flexible material provided beneath said tree, and the band provided upon the outer surface of said flexible material for securing the same to said hooks, substantially as described.

576,214. COMBINED COIN OR CHECK COLLECTING BOX AND REGISTER. JOHN A. MEHLING, Cleveland, Ohio, assignor, by mesne assignments, to the Mehling Manufacturing Company. Filed Feb. 27, 1894. Serial No. 501,655. (No model.)



Claim.—1. In a coin or check collecting box, the combination with the final-deposit receptacle, of a conduit provided with a series of independent automatically-interlocking dogs or blocks, substantially as described.

2. In a coin or check collecting box, the combination with a final-deposit receptacle of a zigzag conduit, provided with a series of independent automatically-interlocking dogs, substantially as set forth.

3. In a coin or check collecting box having the receiving-opening in or near its upper end and the final-deposit receptacle formed in the lower part thereof, a zigzag conduit extending from said opening to said receptacle and containing a series of automatically-interlocking dogs or blocks and a movable chute adjacent to a window and the slotted part of said receptacle, in combination with suitable mechanism for operation of said chute, substantially in the manner as and for the purpose set forth.

4. In a coin or check collecting box, the combination with the final-deposit receptacle, of a conduit provided with a series of independent automatically-interlocking dogs or blocks and a movable chute adjacent to a window and the slotted part of said receptacle, the said chute being operated substantially in the manner as and for the purpose set forth.

5. In a coin or check collecting box, the combination with the final-deposit receptacle, of a conduit extending in close proximity to the part containing the receiving-opening and terminating in a movable chute or trap controlling the access to said receptacle, a bell and a register, a key projecting through one side of said box, and suitable mechanism mechanically connected with said chute, bell, register and key, whereby the chute, the bell, and the register can be simultaneously operated from without the box, substantially as and in the manner specified.

6. In a coin or check collecting box, the combination with the final-deposit receptacle, of a conduit terminating in a movable chute or trap controlling the access to said receptacle, a bell, suitable mechanism in operative connection with said chute and bell, and a key passing through the box-casing, whereby said mechanism can be set in motion and the bell and chute simultaneously operated from without the box, substantially as set forth.

7. In a coin or check collecting box, the combination with the final-deposit receptacle, of a conduit comprising a movable chute or trap which controls the access to said receptacle, a register, a key passing through the wall of said box, and intermediate mechanism mechanically connecting the movements of the key with the register and chute or trap, whereby the register can be operated simultaneously with the movement of the trap from without the box, substantially as described.

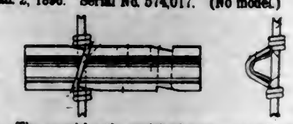
8. In a coin or check collecting box, a zigzag conduit containing opposite rows of pivotal independent dogs or blocks and extending in open relation with or to an inspection-chamber, in combination with a trap controlling communication of said chamber and the final-deposit receptacle and suitable mechanism for actuating said trap, substantially in the manner as and for the purpose set forth.

9. In a coin or check collecting box, the combination with the final-deposit receptacle, of a zigzag conduit containing opposite rows of pivotal independent dogs or blocks and terminating in an inspection-chamber, a trap controlling access to said receptacle and suitable mechanism to operate said trap, substantially in the manner as and for the purpose set forth.

10. In a coin or check collecting box having the receiving-opening in or near its upper end and the final-deposit receptacle formed in the lower part thereof, a zigzag conduit leading from said opening to an inspection-chamber and containing opposite rows of pivotal independent dogs or blocks in combination with a trap interposed between said chamber and said receptacle, and suitable mechanism to actuate said trap, substantially in the manner as and for the purpose set forth.

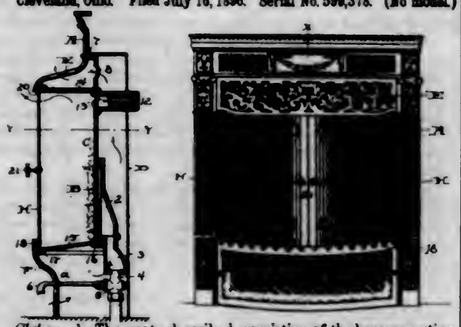
11. In a coin or check collecting box, the combination with the final-deposit receptacle, of a zigzag conduit containing a series of automatically-interlocking dogs or blocks and terminating in a chamber having a transparent face and comprising a trap which controls the opening to said final-deposit receptacle, and suitable mechanism for operating said trap, substantially as and for the purpose set forth.

576,215. WIRE FENCE. HENRY D. MILLER, Greenville, Ohio. Filed Jan. 2, 1896. Serial No. 574,017. (No model.)



Claim.—The combination with the runners of a wire fence of a metallic stay or fence-post, having marginal edges; which edges are notched by cuts, one made inwardly and longitudinally, and another at right angles with the length of the stay or post, so as to form shoulders or stops against which the straddle-wire rests, said shoulders or stops being arranged in pairs, the shoulders of each pair lying in different horizontal planes and facing in reverse directions, as set forth.

576,216. GAS-GRATE FOR PARLORS, &c. PETER I. MILLER, Cleveland, Ohio. Filed July 16, 1896. Serial No. 599,378. (No model.)

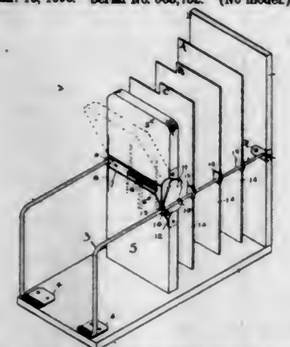


Claim.—1. The grate described, consisting of the burner portion proper, the fresh-air chamber at the rear thereof, the open-work hood at the top of the grate and the reflector-plate 14 beneath the same and a passage for the air from said fresh-air chamber into the space between said plate and hood, said fresh-air chamber above the burner being separated by a perforated wall from the space behind the open-work hood, substantially as described.

2. The burner portion proper, the hood and the base-plate curved on the segment of a circle from side to side and having their front edges in the same vertical plane, and the top and bottom reflector-plates 14 and 15 lying within the edges of the said hood and base-plate, substantially as described.

3. The grate described, consisting of the burner curved outwardly at its center, the hood E at the top of the grate and the base-plate F curved from side to side on substantially the same curvature as the said burner, said base-plate having a ledge 17 on its inside, the bottom reflector resting on said ledge, the top reflector-plate shouldered about its front edge behind the said hood and the curved doors H sliding on the said ledge 17 and behind said hood, substantially as described.

576,217. FILE-BOX. AMERICUS C. MILLS, Jr., Rochester, N. Y. Filed Mar. 18, 1896. Serial No. 583,752. (No model.)



Claim.—1. In a file, the combination with the side rods, of a follower movable on the rods, and the friction-spring arranged between one side of the follower and one of the rods, substantially as described.

2. In a file, the combination with the side rods, of a follower movable on the rods, and the friction-spring arranged between one side of said follower and one of the rods, having the grasping portions serving as a handle for the follower, substantially as described.

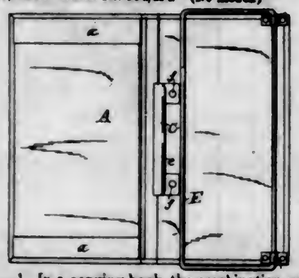
3. In a file, the combination with the side rods, of a follower movable on the rods, having the two perforated ears on one side through which one of the rods passes, the spring having the extended ends arranged between the lugs and engaging the rod and follower, substantially as described.

4. In a file, the combination with the side rods, of a follower, the plate secured thereon having one perforated ear on one side and the two perforated ears on the other for the passage of the rods, and the spring arranged between the two ears and engaging the rod, substantially as described.

5. The combination with the rod, of a board having the two perforated ears through which the rod passes, and the doubled spring having the grasping ends and arranged between the ears and engaging the board and rod to clamp the former to the latter, substantially as described.

6. In a file-box, the combination with the rods, of the follower composed of the two sections, a spring connecting them, one section sliding on the rods, and a clamp for securing the follower to the rods, substantially as described.

576,218. MEMORANDUM-BOOK. ISAAC MOORE, Toronto, Canada, assignor to the Carter-Crume Company, Niagara Falls, N. Y. Filed June 20, 1895. Serial No. 554,434. (No model.)



Claim.—1. In a copying-book, the combination with a tablet or series of leaves bound together, of a cover having a flexible back, a spring-clamp having substantially a C shape in cross-section and secured to the cover, to one side of the flexible back, to hold the tablet to the cover, a rectangular frame pivoted on one side near the edge of the cover and adapted to lie with its opposite side near the clamp, and a carbon-sheet attached to the side of the frame near the clamp, substantially as shown and described.

2. In a copying-book, the combination with a tablet or series of leaves bound together by staples, *c*, *c*, of a cover having a flexible back, a spring-clamp having substantially a C shape in cross-section and secured to the cover, to one side of the flexible back, ears at each end of the clamp to hold the tablet to the cover, a rectangular frame pivoted on one side near the edge of the cover and adapted to lie with its opposite side near the clamp, and a carbon-sheet attached to the side of the frame near the clamp, substantially as shown and described.

3. In a copying-book, the combination with a series of originals, duplicates and stubs separated by lines of perforations, *d*, and, *d'*, the stubs being suitably bound together, of a cover having a flexible back, a spring-clamp formed of one piece of sheet metal and secured to the cover on one side of the flexible back to bind the said stubs to the latter, eyes secured to the inner side of the cover at two corners thereof, a swinging frame of rectangular shape having one of its sides pivoted in said eyes, and a carbon-sheet secured to the opposite side of the frame, the latter side of the frame lying parallel with said clamp substantially as described and shown.

576,219. COPYING-BOOK. ISAAC MOORE, Toronto, Canada, assignor to the Carter-Crume Company, Niagara Falls, N. Y. Filed Aug. 3, 1896. Serial No. 601,464. (No model.)

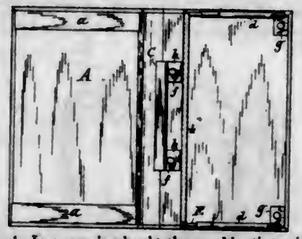


Claim.—1. In a copying-book, the combination with the tablet and the cover, of a spring-clamp secured to the cover and holding the tablet at its bound end, said clamp having a pivotal bearing therein, a three-sided frame having one of its sides extending through the said pivotal bearing and the opposite parallel side being flattened and forming one of the members of the carbon-sheet holder, a bar pivoted at one end at a corner of the frame and extending to the open side thereof, and the carbon-sheet held at its rear edge between the bar and frame as set forth.

2. In a copying-book, the combination with the tablet and the cover, of a spring-clamp secured to the cover and holding the tablet at its bound end, said clamp having a pivotal bearing therein, a three-sided frame having one of its sides extending through the said pivotal bearing and the opposite parallel side being flattened and forming one of the members of the carbon-sheet holder, a bar U-shaped in cross-section, pivoted at one end to a corner of the frame and extending to the open side of the frame, the said bar being adapted to inclose the flattened side of the frame and hold the carbon-sheet between the parts, as set forth.

3. In a copying-book, the combination with the tablet and the cover, of a spring-clamp formed of sheet metal having a cylindrical pivotal bearing at its heel, the lower side of the clamp being extended beyond the upper side and provided with spurs integral with the flat side, said spurs extending through the cover and securing it to the clamp, the upper side being arched and bearing with its edge upon the tablet, a three-sided frame having one of its sides extending through the said pivotal bearing and the opposite parallel side flattened and forming one of the members of the carbon-sheet holder, a bar pivoted at one end at a corner of the frame and extending to the open side thereof, and the carbon-sheet held at its rear edge between the bar and the frame, as set forth.

576,220. COPYING-BOOK. ISAAC MOORE, Toronto, Canada, assignor to the Carter-Crume Company, Niagara Falls, N. Y. Filed Sept. 10, 1896. Serial No. 605,404. (No model.)



Claim.—1. In a copying-book, the combination with a cover, a series of memorandum-leaves bound together and held in said cover, and a carbon-sheet, of a frame hinged to the cover, and a clamp for the carbon-sheet on one side of the frame, said frame having extensible sides for moving the carbon-sheet toward and from the hinged ends of the frame, as and for the purpose described.

2. In a copying-book, the combination with a cover, a series of memorandum-leaves bound together and held by a clamp to said cover, and the carbon-sheet, of a swinging rectangular frame pivoted to the cover, and a clamp on the free side of the frame to hold the carbon-sheet, said frame having tubular and extensible sides whereby the clamp for the carbon-sheet may be moved to different distances from the pivotal points of the frame, as set forth.

3. In a copying-book, the combination with a cover, a series of memorandum-leaves bound together and held in said cover, and a carbon-sheet, of a swinging rectangular frame, having three sides hinged at its ends to the cover, a clamp for the carbon-sheet on the free side of the said frame, the other sides of the frame being extensible and comprising tubular parts and solid parts movable in the tubular parts, as set forth.

4. In a copying-book, the combination with a cover, a series of memorandum-leaves bound together and held in said cover, and a carbon-sheet, of a pair of tubes hinged to the cover, a rectangular rod extending between the said tubes and having its ends entering the tubes to slide therein, slots in the ends of the rod, pins passing through the sides of the tubes and entering the slots to form stops, and springs within the tubes to move the parts within the tubes, as set forth.

5. In a copying-book, the combination with a cover, a series of memorandum-leaves bound together and held in said cover, and a carbon-sheet, of a pair of tubes hinged to the cover, a rectangular rod extending between the said tubes and having its ends entering the tubes to slide therein, coiled springs to operate the parts, and a hinged clamp to engage the central portion of the rod extending between the tubes to secure the edge of the carbon-sheet, substantially as described and shown.

576,221. NON-FRICTION JOINT. NELSON MOORE, Butte, Mont. Filed July 18, 1896. Serial No. 599,659. (No model.)



Claim.—1. In a device of the character set forth, the combination with a pitman or other operative part of a piece of machinery having a V-shaped extension at one end, of a second operative part having a V-shaped recess in its outer end into which said extension is adapted to fit and whose edges lie at a greater angle to one another than the edges of said extension, triangular lugs upon the outer sides of the part containing said recess, and clamping-plates adapted to fit over said parts and provided with triangular-shaped openings in which said lugs are adapted to fit and move, substantially as and for the purpose described.

2. In a device of the character set forth, the combination with a pitman or other operative part of a piece of machinery having a V-shaped extension at one end, of a second operative part having a V-shaped recess in its outer end into which said extension is adapted to fit and whose edges lie at a greater angle to one another than the edges of said extension, triangular lugs upon the outer sides of the part containing said recess whose apices are in line with the apex of said V-shaped recess, and clamping-plates adapted to be secured to the sides of said parts, having triangular slots or openings therein within which said lugs are adapted to fit and move, and whose sides lie at a greater angle to one another than the sides of said lugs, substantially as and for the purpose described.

3. In a device of the character set forth, the combination with a pitman or other operative part of a piece of machinery having a transverse slot therein, a V-shaped extension upon its forward end and shoulders having concaved faces upon each side of said extension, of a second operative part having a V-shaped recess in its outer end in which said extension is adapted to fit, whose edges lie at a greater angle to one another than the edges of said extension and said part being formed with a rounded end adapted to bear against said shoulder, triangular-shaped lugs upon the outside of said part whose apices are in line with the apex of said triangular recess, clamping-plates upon the sides of said parts, having rectangular slots therein which register with the transverse slot in said pitman and having triangular slots or openings in which said lugs are adapted to fit and move and whose sides lie at a greater angle to one another than the sides of said lugs, and a key fitting the alined slots in said plates and pitman, substantially as and for the purpose described.

576,222. RHODAMIN DYE. CARL O. MÜLLER, Basle, Switzerland, assignor to Basle Chemical Works Bindschedler, same place. Filed June 30, 1896. Serial No. 597,643. (Specimens.) Patented in France Mar. 6, 1895, No. 245,593, and in England Mar. 8, 1895, No. 4,985.

Claim.—1. The improvement in the manufacture of rhodamin dyes, consisting in the production of a coloring-matter by the condensation of one molecule of a dialkylamidoöxybenzoyl-benzoic acid derived from one molecule anhydrous phtalic acid and one molecule of a dialkylmetaämidophenol, with one molecule of an alkyl derivative of metaämidophenol, as described.

2. The improvement in the manufacture of rhodamin dyes, consisting in the production of a coloring-matter by the condensation of one molecule of a dialkylamidoöxybenzoyl-benzoic acid derived from one molecule anhydrous phtalic acid and one molecule of a dialkylmetaämidophenol, with one molecule of a dialkylmetaämidophenol, as described.

3. As a new article of manufacture the herein-described unsymmetrical dimethyldiethyl rhodamin dyestuff, constituting green crystals, dyeing wool, silk and cotton a fine red, soluble in water, dissolving in alcohol with brick-red fluorescence and dissolving in concentrated sulfuric acid and in hydrochloric acid with yellow coloration, which turns to red on adding water, the said dyestuff being precipitated from its aqueous solutions by an addition of hydrochloric acid.

576,223. RHODAMIN DYE. CARL O. MÜLLER, Basle, Switzerland, assignor to Basle Chemical Works Bindschedler, same place. Filed June 30, 1896. Serial No. 597,644. (Specimens.) Patented in France Mar. 6, 1895, No. 245,593, and in England Mar. 8, 1895, No. 4,985.

Claim.—1. The improvement in the manufacture of rhodamin dyes consisting in the production of an alkylester of the unsymmetrical coloring-matter resulting from the condensation of one molecule of a dialkylamidoöxybenzoyl-benzoic acid with one molecule of metaamidophenol or of its alkyl derivatives, by boiling this coloring-matter with alcohol and hydrochloric acid, as described.

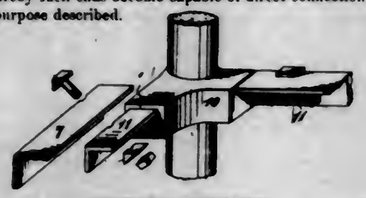
2. The improvement in the manufacture of rhodamin dyes, consisting in the production of an alkylester of the dimethyldiethyl rhodamin resulting from the condensation of one molecule of dimethylamidoöxybenzoyl-benzoic acid with one molecule diethylmetaämidophenol, by boiling this rhodamin with alcohol and hydrochloric acid, as described.

3. As a new article of manufacture, the described alkylester of the unsymmetrical dimethyldiethyl rhodamin, which constitutes a green powder with metallic luster, dyes cotton, silk and wool in a blue red, dissolves in concentrated sulfuric acid with yellow coloration and in water, alcohol and ether with splendid red coloration.

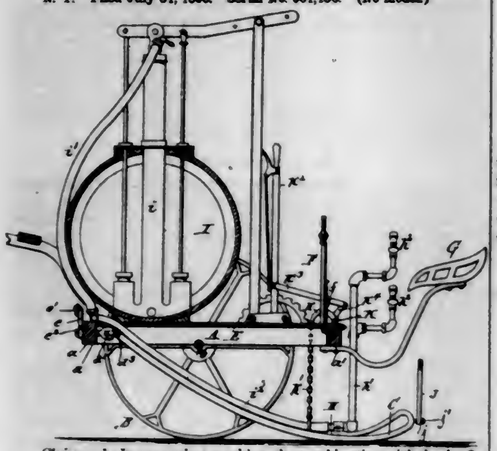
576,224. RAIL-JOINT FOR METAL BEDSTEADS. SAMUEL NEWMAN and HENRY R. BOTHWELL, Cincinnati, Ohio; said Bothwell assignor to said Newman. Filed Jan. 9, 1896. Serial No. 574,798. (No model.)

Claim.—In a joint for connecting the side rails to the corner-posts of the ends of a metal bedstead, the combination of brackets secured to said posts having angle-shaped projections 11, angle-shaped side

rails which fit and lap over these projections, a bolt passing diagonally through the overlapping parts of which each is provided with a hole for such purpose and a triangular washer which fits into the angle of projections 11 and provides with its outwardly-turned side, a surface for the nut of the bolt to rest against, projections 11 of one end adapted to fit into the corresponding projections of the opposite end, whereby such ends become capable of direct connection as and for the purpose described.



576,225. SPRAYING-MACHINE. JOSEPH H. POTTER, Batavia, N. Y. Filed July 31, 1896. Serial No. 601,158. (No model.)



Claim.—1. In a spraying-machine, the combination with the draft-frame provided with supporting-wheels, of a supporting-shoe adapted to trail on the ground and pivotally connected at its front end with the draft-frame in front of the axis of the wheels and a spraying device mounted on the rear portion of the supporting-shoe, substantially as set forth.

2. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe carrying a spraying device, a transverse rocking bar connected at its ends by horizontal pivots with said shoe and a horizontal swivel-rod journaled lengthwise in the draft-frame and connected by a vertical pivot with the central portion of the rocking bar, substantially as set forth.

3. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe carrying a spraying device and pivotally connected with the front portion of the draft-frame, a hand adjusting-lever arranged on the rear portion of the draft-frame and intermediate mechanism connecting said hand-lever with the pivot of the supporting-shoe, substantially as set forth.

4. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe carrying a spraying device and connected at its front portion with a longitudinal swivel-rod which is journaled in the front portion of the draft-frame, a longitudinal-rock-shaft journaled in the draft-frame and provided at its front end with an arm which is connected by a link with an arm on said swivel-rod and a hand adjusting-lever connected with the rear end of the rock-shaft, substantially as set forth.

5. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe pivotally connected with the draft-frame and adapted to trail on the ground, an upright supply-pipe mounted on the supporting-shoe and provided at its upper end with a laterally-projecting spray-nozzle and a hand adjusting-lever which is connected with said shoe and whereby the nozzle can be shifted laterally, substantially as set forth.

6. In a spraying-machine, the combination with the draft-frame, of two supporting-shoes arranged side by side and pivotally connected with the draft-frame, a spraying device mounted on each of said supporting-shoes and a hand adjusting-lever connected with each of said shoes and permitting each spraying device to be adjusted independent of the other spraying device, substantially as set forth.

7. In a spraying-machine, the combination with the draft-frame, of two supporting-shoes connected with the draft-frame and carrying spraying devices and a bar connecting said shoes, substantially as set forth.

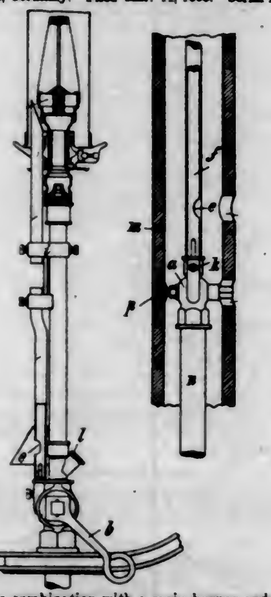
8. In a spraying-machine, the combination with the draft-frame, of two supporting-shoes trailing on the ground with their rear portions and pivotally connected with the draft-frame at their front ends, a spraying device mounted on each of said shoes, and a sectional connecting-bar having the outer ends of its sections pivotally connected with the rear portions of the shoes and their inner overlapping ends adjustably connected by a bolt passing through openings in the sections, substantially as set forth.

576,226. STEAMER FOR CANNING FRUITS OR VEGETABLES. THOMAS H. RANEY, Rialto, N. C. Filed July 30, 1896. Serial No. 601,065. (No model.)



Claim.—A device of the class described, comprising a boiler provided with vertical bars extending above it and having series of notches, a basket or receptacle arranged within the boiler and provided with a bail, and a horizontal bar secured to and extending from opposite ends of the bail, engaging the notches of the vertical bars and provided beyond the same with handles, substantially as described.

576,227. LIGHTING APPARATUS FOR GAS-LAMPS. WILHELM RITTER, Cologne, Germany. Filed Mar. 11, 1895. Serial No. 541,292. (No model.)



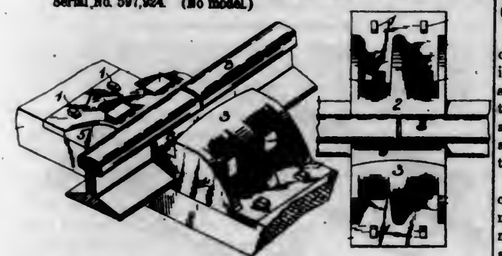
Claim.—1. The combination with a main burner and a gas-supply pipe therefor, of an igniter-burner distant from the main burner, an imperforate duct inclosing the igniter-burner and leading to the main burner, said duct interrupted at a point or points intermediate of the two burners, and an air and igniting opening in said duct immediately opposite the tip of the igniter-burner, substantially as and for the purpose set forth.

2. The combination with a main burner, a gas-supply pipe an igniter-burner and a regulating-valve constructed to admit gas to either or both burners, of an imperforate flame-conveying pipe inclosing the igniter-burner and provided with an air and igniting port above said igniter-burner, said pipe extending to the main burner and composed of two sections arranged to leave a hiatus between them, substantially as and for the purpose set forth.

3. The combination with a main burner, a gas-supply pipe an igniter-burner, and a regulating-valve constructed to admit gas to either or both burners, of an imperforate flame-conveying pipe inclosing the igniter-burner and provided with an air and igniting port above said igniter-burner, said pipe extending to the main burner and composed of two sections arranged to leave a hiatus between them, said sections adjustable toward and from each other, substantially as and for the purpose set forth.

4. The combination with a main burner, an incandescing hood thereon, a gas-supply pipe, an igniter-burner distant from said main burner, and a regulating-valve constructed to admit gas to one or both burners, of an imperforate conduit inclosing the igniter-burner and extending therefrom to the main burner, said pipe composed of two sections arranged to leave a hiatus between them, the upper section having its end proximate to the incandescing hood and burner cut away slantingly to form an enlarged outlet, substantially as and for the purpose set forth.

576,228. RAIL-JOINT. WILLIAM M. ROBINSON, Dillmer, Pa., assignor of one-half to N. H. Minor, same place. Filed July 3, 1896. Serial No. 597,924. (No model.)

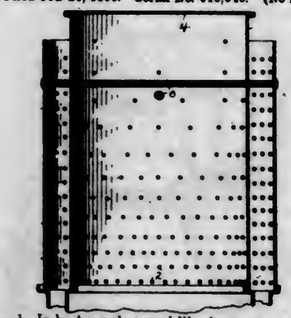


Claim.—1. In a rail-joint, the combination with a casting, of rail-sections received therein, and bolts which pass through the casting and the rail-sections and which are provided with shoulders which abut on said rails.

2. The combination with a casting, of rail-sections received therein, and bolts having enlarged portions which extend through part of the casting, and reduced portions which extend through the rail-sections and the remainder of the casting, thereby providing shoulders which abut on the rail-sections.

3. In a rail-joint, the combination with a casting, of rail-sections fitted into said casting and which sections are provided with elongated slots, and bolts provided with reduced portions thereby forming shoulders, which bolts pass through the casting and have their reduced portions received in the slots and their shoulders abutting against the rail-sections.

576,229. HYDROCARBON-BURNER. HENRY RUPPEL, Cleveland, Ohio. Filed Oct. 26, 1896. Serial No. 610,046. (No model.)



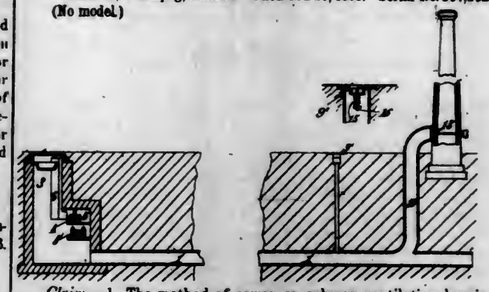
Claim.—1. In hydrocarbon and like burners, a combustion-tube constructed with air-inlet openings having an aggregate inlet area relatively greater at the bottom than toward the top of the tube, substantially as described.

2. A set of combustion-tubes for vapor and gas burners, and the inner tube provided with air-inlet passages in which the aggregate area of the said passages gradually diminishes from the bottom toward the top of the tube, substantially as described.

3. A set of perforated combustion-tubes for gas and vapor burners provided with air-inlet openings, and the inner of said tubes having its principal inlet area about the bottom thereof and substantially closed across its top, substantially as described.

4. The combustion-tube substantially as shown and described, said tube provided with air-inlet openings gradually decreasing in number from the bottom toward the top of the tube, substantially as described.

576,230. VENTILATION OF SEWERS OR DRAIN-PIPES. HENRY N. RUTTAN, Winnipeg, Canada. Filed Oct. 29, 1895. Serial No. 567,262. (No model.)



Claim.—1. The method of sewer or subway ventilation herein described, which consists in positively forcing air from the exterior into the main sewer, or subway, and into each contributory sewer, separately, reinforcing the air-pressure within said main and contributory sewers by positively forcing air into each by positive means at a plurality of different points separated by suitable intervals one from another, and maintaining a substantial uniformity of air pressure throughout the system, substantially as described.

2. The described method of ventilating sewers or subways which consists in positively forcing air from the exterior directly into the main and contributory sewers, reinforcing the air-pressure within said main and contributory sewers by positively forcing air into each at a plurality of different points separated from each other by suitable intervals heating the air between the surface of the street and the points where it enters the sewers, and positively exhausting the air from said main and contributory sewers at the points of exit, substantially as described.

3. The process of sewer-ventilation hereinbefore described, which consists in positively forcing and exhausting the interior air at the entrances and exits of the sewers, supplementing the air-forcing action at a plurality of suitable points between the entrances and exits, relieving excessive pressure at points where it occurs, and heating the entering air-currents, substantially as described.

4. In a ventilating system for sewers, the combination with fan-blowers placed at the entrances to both main and contributory sewers, of positive means for operating said fan-blowers to force air into the sewers at the points named, similar fan-blowers arranged at suitable points between the entrance and exit end and driven by positive means to force the interior air toward the exit end, or ends, fan-blowers arranged at the exit, or exits, from said sewers, positive mechanism to operate said fans to exhaust the air from the sewers, air-heaters arranged between the fan-blowers and the entrance ends of the sewers to heat the blast, and suitable air-valves arranged at suitable points intermediate of the said fan-blowers to equalize the air-pressure, substantially as described.

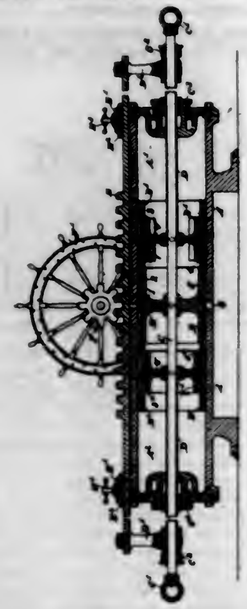
576,231. STEAM STEERING-GEAR. FREDERICK F. SCHOFIELD, Everett, Wash. Filed Mar. 5, 1896. Serial No. 581,958. (No model.)

Claim.—1. The combination in a steam steering-gear of a power-cylinder, a piston therein connected to and moving the rudder, a hollow cylinder connected to and moving with the piston, the piston having longitudinal passages connected with the supply and exhaust pipes and ports communicating therefrom to opposite ends of the power-cylinder, with valves movable by the steering-wheel and adapted to simultaneously uncover a steam and an exhaust port upon opposite sides of the piston, substantially as shown and described.
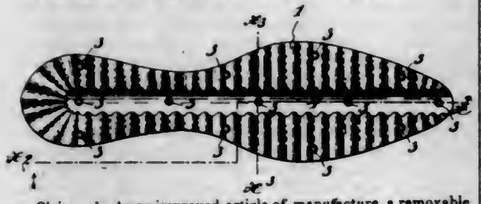
2. In a steam steering-gear the combination of a power-cylinder, a piston therein connected to and moving the rudder, and having longitudinal supply and exhaust passages therein and ports connecting therefrom to hollow or cup-shaped ends of the piston, with valves within said cupped ends and upon opposite sides of the piston controlling said ports, sleeves surrounding the piston-rod attached to the valves upon their inner ends and extending outside the cylinder, and positive connections from the steering-wheel to said sleeves, substantially as shown and described.

3. In a steam steering-gear the combination of a power-cylinder, a piston connected to and operating the rudder and having supply and exhaust ports therein connecting with opposite sides of the piston, with valves movable with the piston and controlling the said ports, sleeves surrounding the piston-rod and connected at their inner

ends with said valves, a rack-bar movable longitudinally the cylinder in guides, a pinion meshing therewith and controlled from the steering-wheel, and connections from the rack-bar to the outer ends of the valve-sleeves, substantially as shown and described.



576,232. REMOVABLE INSOLE. ADOLF SLOMKA, New York, N. Y. Filed June 24, 1896. Serial No. 596,677. (No model.)



Claim.—1. As an improved article of manufacture, a removable insole comprising a corrugated base-sheet of thin material, and a piece of soft material, as specified, applied to the upper face of said base-sheet and united thereto, said insole having in it perforations or apertures for the purpose of ventilation and said corrugations forming air-passages between the insole and the soft covering material.

2. As an improved article of manufacture, a removable insole comprising a corrugated base-sheet of thin material, a piece of sheepskin with the wool on applied to the upper face of said base-sheet, and eyelets extending through the two plies of material, said eyelets serving to secure the two plies together and to form ventilating-apertures and said corrugations forming air-passages between the insole and said sheepskin.

3. As an improved article of manufacture, a removable insole comprising the base-sheet 1, having a plain or uncorrugated strip 4 along its middle and corrugations 5 extending from said strip to the margins of the sheet, a piece of sheepskin 2, with the wool on applied to the upper surface of said sheet 1, and united thereto, said insole having ventilating-apertures, as set forth.

576,233. CAR-COUPLING. BALLARD R. SMITH, Rush Run, W. Va. Filed June 30, 1896. Serial No. 597,634. (No model.)



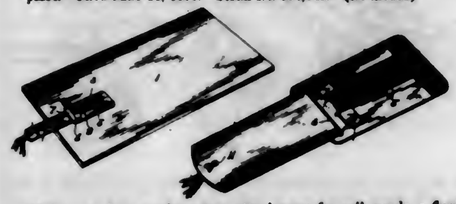
Claim.—1. A coupling for mining-cars, comprising a link and a hook, draw-bars having eyes by which the hook and link are connected thereto and a bearing-surface between said eyes, the hook and link being provided with portions which extend forward between the eyes of the draw-bar, substantially as shown and for the purpose set forth.

2. In a coupling for mining-cars, the combination, of the continuous draw-bar the ends of which are bent upon themselves or looped and cut away centrally to present eyes with a bearing-surface between; together with the hook and link having their ends bent to engage the eyes and their terminals extended forward, substantially as shown and for the purpose set forth.

3. In a coupling for mining-cars, the combination, of a continuous draw-bar having terminal portions bent upon themselves and cut away centrally to present eyes CC; together with a link the ends of which engage with the eyes C of the draw-bar, and a hook similarly connected to the other end of the draw-bar, substantially as shown and for the purpose set forth.

4. In a mining-car, the combination, of the continuous draw-bar having its ends bent as shown, a hook and a link connected to said bent ends; and the floor of the car extended at its ends on each side of the coupling devices to provide bumpers *a a*, the said bumpers projecting sufficiently to prevent the hook and link from engaging with the ends of the drawbar when the cars come together.

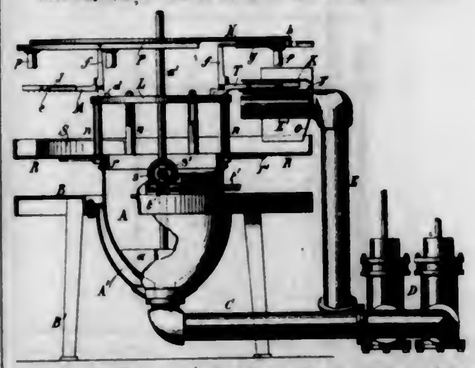
576,234. MARKING-TAG FOR ROLLED GOODS. WALTON D. SMITH, Prophetstown, Ill., assignor of one-half to Fred L. Adams, same place. Filed June 26, 1896. Serial No. 597,045. (No model.)



Claim.—1. In a marking-tag attachment for roll goods, a flexible paster-body provided with guide-slits and on one side with an adhesive or gum coating, and a movable marking-card slidably engaging with the guide-slits of said paster-body, substantially as set forth.

2. In a marking-tag attachment for roll goods, a flexible paster-body provided with a pair of spaced parallel longitudinal guide-slits, a single transverse slit near one end and an adhesive or gum coating on one side, and a narrower marking-card sliding through the transverse slit of the paster-body and having at opposite sides, near its inner end, reëntrant cuts forming a T-head, which head is provided with short oppositely-disposed lateral tongues or wings slidably projecting through said longitudinal slits, substantially as set forth.

576,235. METHOD OF AND MACHINE FOR COATING CHOCOLATES. JOHN R. STOUT and WILLIS N. HARTSHORN, Brooklyn, N. Y. Filed July 9, 1896. Serial No. 598,527. (No model.)



Claim.—1. The process of coating confections which consists in passing the cores while spaced apart to leave passages between them, through a flowing stream of coating material which circulates through said passages and thereby coats all portions of the cores.

2. The process of coating confections which consists in passing the cores while spaced apart to leave passages between them, horizontally through a vertically-flowing stream of coating material.

3. The process of coating confections which consists in passing the cores horizontally while spaced apart to leave passages between them, through an upwardly-flowing stream of coating material, and diverting said stream laterally just above the cores to cause it to flow over and coat the upper sides of the cores.

4. A machine for coating confections comprising a nozzle, means for forcing a stream of coating material through said nozzle, a tray for holding the cores to be coated spaced apart to leave passages between them, and means for carrying such tray transversely across said nozzle and through said stream.

5. A machine for coating confections comprising a nozzle, means for forcing a stream of coating material through said nozzle, a plate for diverting said stream laterally, and means for carrying the cores between the nozzle and plate.

6. A machine for coating confections comprising a nozzle, means for forcing a stream of coating material through said nozzle, two plates between which the stream from said nozzle is confined, and means for carrying the cores between the plates.

7. A machine for coating confections comprising an upturned nozzle, means for forcing a stream of coating material through said nozzle, a plate through which said nozzle opens, a higher plate arranged to divert laterally the stream from said nozzle, and means for carrying the cores between said plates.

8. A machine for coating confections comprising a nozzle, means for forcing a stream of coating material through said nozzle, means for carrying the cores through said stream, and a grating over the path of the cores adapted to prevent the upward displacement of the cores by the coating material.

9. A machine for coating confections comprising a nozzle F, means for forcing a stream of coating material through said nozzle, a deflecting-plate H, a grating K, and means for moving core-carrying trays J between the nozzle F, and the plate H and grating K.

10. A machine for coating confections, comprising a vessel A for the coating material, a pump D, a nozzle F and connecting-pipes, trays J for carrying the cores to be coated, means for moving the trays past said nozzle, and means for collecting the surplus coating material and returning it to said vessel.

11. A machine for coating confections, comprising a vessel A for the coating material, a pump D, a nozzle F and connecting-pipes, trays J for carrying the cores to be coated, a revolving carrier for carrying said trays, and a table beneath said trays for catching the surplus coating material.

12. The combination with a continuously-rotating carrier for a succession of trays J, of means at one point in the endless path of the trays for coating the cores carried by them, and means located subsequently in the path of the trays for repeatedly lifting and dropping said trays to jar off the surplus coating, whereby the trays revolve continuously and are jarred during their travel.

13. The combination of a turn-table, levers carried thereby, trays for holding the cores to be coated, carried by said levers, a coating mechanism for coating the cores as they pass, and a cam having teeth adapted to repeatedly lift and drop said levers and thereby jar the trays, to remove the surplus coating.

14. The combination of a turn-table, levers carried thereby, trays for holding the cores to be coated, carried by said levers, parallel-motion guides engaging said trays at a certain level, a cam engaging said levers for lifting the trays to said level, coating mechanism for coating the cores as they pass around at said level, a cam acting subsequently on said levers for repeatedly lifting and dropping the trays while keeping them within such levels as to be retained under control of said parallel-motion guides, and a cam for finally lowering said levers and trays to free the latter from said guides.

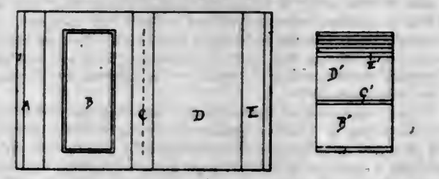
15. The combination of a turn-table, levers carried thereby, trays for holding the cores to be coated, pivoted to said levers, guides for engaging said trays and bringing them to a horizontal position, means for retaining them horizontal, a coating mechanism for coating the cores as they pass around, and a cam for repeatedly lifting and dropping the trays to jar off the surplus coating.

16. The combination of a turn-table, levers M fulcrumed thereto, and having arms *f*, rods *g* jointed thereto, carried by said turn-table, trays J pivoted to said levers, cam P having inclines $P' P^2$ for acting on said rods *g* to raise and lower the trays, stops for limiting the descent of the levers, and a coating mechanism for covering the cores with coating material in their passage.

17. The combination of vessel A, revolving table R thereon, turn-table L supported on said table, trays J supported from said turn-table, a pump for drawing coating material from said vessel and forcing it to a nozzle F, and said nozzle arranged to discharge said material into said trays in their passage.

18. The combination of a turn-table, levers M fulcrumed thereto, trays J pivoted to said levers and having cross-heads *u*, brackets T carried by said turn-table and having parallel-motion guides *u'*, guides U V for engaging the trays and bringing them to horizontal positions, and cam P for lifting said levers and thereby lifting the trays until their cross-heads are restrained by said guides *u'*.

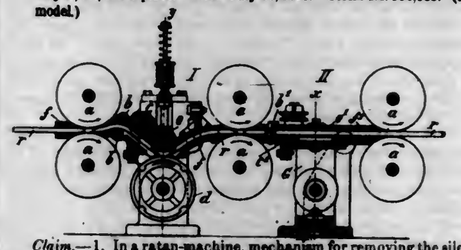
576,236. BOOK-COVER. GEORGE W. SUSS, Omaha, Nebr. Filed Mar. 23, 1896. Serial No. 584,534. (No model.)



Claim.—1. The combination with a book, of an endless cover comprising a back adapted to lap over the back of the book then continuing to form an outer cover continuing to form a central strip of a width corresponding to the thickness of the book, then extending to form the second cover of the book, then extending to form a double outer back adapted to lap over so that the cover will embody a double back and provide a double thickness at the hinge-points of the covers substantially as and for the purpose set forth.

2. The combination with a book of a cover, the said cover having its ends united and overlapped to form an open-ended continuous cover, said cover being secured at or near its overlapped portions to the back of said book, substantially as and for the purpose set forth.

576,287. APPARATUS FOR TREATING RATAN. JOHANN G. A. SUHL, Harburg-on-the-Elbe, Germany, assignor to The Firm of H. C. Meyer, Jr., same place. Filed July 16, 1895. Serial No. 556,185. (No model.)



Claim.—1. In a ratan-machine, mechanism for removing the silex from ratan, comprising a plurality of pairs of breaking-rolls contiguous pairs of such revoluble on horizontal and vertical axes respectively and having their nips in different planes, in combination with feed and delivery rolls having their nips substantially in the plane of the nip of the vertically-arranged rolls, for the purpose set forth.

2. In a ratan-machine, mechanism for removing the silex from ratan, comprising a plurality of groups of rolls, each composed of a pair of drawing and a pair of breaking rolls having their nips in different planes, and an intermediate deflecting-roll, the rolls of the contiguous groups revolving on horizontal and vertical axes respectively and having their nips in different planes, for the purpose set forth.

3. In a ratan-machine, mechanism for removing the silex from ratan comprising a plurality of pairs of breaking-rolls contiguous pairs of such revoluble on horizontal and vertical axes respectively, each alternate pair of rolls adapted to be shifted relatively to the preceding or succeeding pairs of rolls, for the purpose set forth.

4. In a ratan-machine, mechanism for removing the silex from ratan, comprising a plurality of sets of breaking-rolls revoluble on horizontal and vertical axes alternately, each alternate pair of such rolls composed of a pressure-roll provided with a series of peripheral grooves and a bed-roll covered with a yielding or elastic material, the intermediate pairs of rolls composed of plain-surfaced rolls, said intermediate rolls adjustable jointly in a plane at right angles to their axes of rotation, for the purpose set forth.

5. In a ratan-machine, mechanism for removing the silex from ratan, comprising a plurality of sets of breaking-rolls revoluble on horizontal and vertical axes alternately, each alternate pair of such rolls composed of a pressure-roll provided with a series of peripheral grooves and a bed-roll covered with a yielding or elastic material, the intermediate pairs of rolls composed of plain-surfaced rolls, said intermediate rolls adjustable jointly in a plane at right angles to their axes of rotation for the purpose of varying the distance between the plane of the nip of said intermediate rolls and the plane of the nips of the preceding or succeeding rolls; in combination with feed and delivery rolls revoluble on horizontal axes and having their nip in substantially the same plane, for the purpose set forth.

6. In a ratan-machine, mechanism for removing the silex from ratan, comprising a plurality of sets of breaking-rolls revoluble on horizontal and vertical axes alternately, each alternate pair of such rolls composed of a pressure-roll provided with a series of peripheral grooves and a bed-roll covered with a yielding or elastic material,

the intermediate pairs of rolls composed of plain-surfaced rolls, said intermediate rolls adjustable relatively to the preceding or succeeding pairs of rolls jointly in a plane at right angles to their axes of rotation; in combination with feed and delivery rolls revoluble on horizontal axes and having their nip in substantially the same plane but in a plane different from that of the breaking-rolls, and suitable guiding devices for guiding the ratan to the different sets of rolls, for the purpose set forth.

7. In a ratan-machine, mechanism for removing the silex from ratan, comprising at least two groups of rolls one of which is composed of a pair of breaking-rolls consisting of a pressure-roll provided with a series of peripheral grooves, a cooperating bed-roll covered with a yielding or elastic material, a pair of drawing-rolls on the feed side of the breaking-rolls and an intermediate deflecting-roll also provided with a series of peripheral grooves corresponding with those in the aforesaid pressure-roll, all of said rolls revoluble on horizontal axes, the second group composed of similar but plain-faced rolls all revoluble on vertical axes, said second group of rolls adjustable in the plane of the axis of rotation of the rolls of the first group, for the purpose set forth.

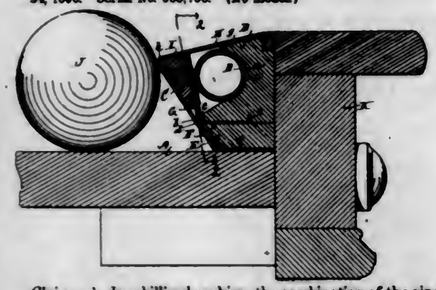
8. In a ratan-machine, mechanism for removing the silex from ratan, comprising at least two groups of rolls one of which is composed of a pair of breaking-rolls consisting of a pressure-roll provided with a series of peripheral grooves, a cooperating bed-roll covered with a yielding or elastic material, a pair of drawing-rolls on the feed side of the breaking-rolls and an intermediate deflecting-roll also provided with a series of peripheral grooves corresponding with those in the aforesaid pressure-roll, all of said rolls revoluble on horizontal axes, the second group composed of similar but plain-faced rolls all revoluble on vertical axes, said second group of rolls adjustable in the plane of the axis of rotation of the rolls of the first group; in combination with a pair of feed-rolls on the feed side of the first group, a pair of delivery-rolls on the delivery side of the second group, said feed-rolls of the same length as the rolls of the first group and revoluble on horizontal axes with their nip in subetantially the same plane, for the purpose set forth.

9. In a ratan-machine, mechanism for removing the silex from ratan, comprising at least two groups of rolls each composed of a pair of breaking-rolls consisting of a pressure-roll provided with a series of peripheral grooves and a cooperative bed-roll covered with a yelding or elastic material, a pair of drawing-rolls on the feed side of said breaking-rolls, an intermediate deflecting-roll also provided with a series of peripheral grooves corresponding with those in the aforesaid pressure-roll, all of said rolls revoluble on horizontal axes, and a guide for the ratan on the feed and delivery side of said group, said guides adjustable in the plane of the axis of rotation of said rolls, the second group composed of similar but plain-faced rolls revoluble on vertical axes, and a guide on the feed and delivery side of said second group of rolls, the latter together with its guides adjustable in the plane of the axis of rotation of the rolls of the first group, for the purpose set forth.

10. In a ratan-machine, mechanism for removing the silex from ratan comprising at least two groups of rolls each composed of a pair of breaking-rolls consisting of a pressure-roll provided with a series of peripheral grooves and a cooperative bed-roll covered with a yielding or elastic material, a pair of drawing-rolls on the feed side of said breaking-rolls, an intermediate deflecting-roll also provided with a series of peripheral grooves corresponding with those in the aforesaid pressure-roll, all of said rolls revoluble on horixontal axes, and a guide for the ratan on the feed and delivery side of said group, said guides adjustable in the plane of the axis of rotation of said rolls, the second group composed of similar but plain-faced rolls revoluble on vertical axes, and a guide on the feed and delivery side of said second group of rolls, the latter together with its guides adjustable in the plane of the axis of rotation of the rolls of the first group; in combination with feed-rolls of the same length as those of the first group, one pair of feed-rolls on the feed and delivery side of each group, said feed-rolls revoluble on horizontal axes with their nip in substantially the same plane, for the purpose set forth.

11. In a ratan-machine, mechanism for removing the silex from ratan, comprising at least two groups of rolls each composed of a pair of breaking-rolls consisting of a pressure-roll provided with a series of peripheral grooves and a cooperative bed-roll covered with a yielding or elastic material, a pair of drawing-rolls on the feed side of said breaking-rolls, an intermediate deflecting-roll also provided with a series of peripheral grooves corresponding with those in the aforesaid pressure-roll, all of said rolls revoluble on horizontal axes, and a guide for the ratan on the feed and delivery side of said group, said guides adjustable in the plane of the axis of rotation of said rolls, the second group composed of similar but plain-faced rolls revoluble on vertical axes, and a guide on the feed and delivery side of said second group of rolls, the latter together with its guides adjustable in the plane of the axis of rotation of the rolls of the first group; in combination with feed-rolls of the same length as those of the first group, one pair of feed-rolls on the feed and delivery side of each group, said feed-rolls revoluble on horizontal axes with their nip in substantially the same plane but in a plane different from that of the rolls in either group of such, for the purpose set forth.

576,238. PNEUMATIC BILLIARD-CUSHION. WALTER R. TAFT, Providence, R. I., assignor to John A. Carter, same place. Filed Aug. 24, 1896. Serial No. 603,758. (No model.)

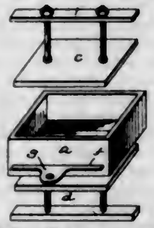


Claim.—1. In a billiard-cushion, the combination of the air-tube, with the pivotally-held engaging strip arranged in front of the air-tube, substantially as described.

2. In a billiard-cushion, the combination of the air-tube, with the pivotally-held engaging strip arranged in front of the air-tube, and the flexible fabric for holding the engaging strip in contact with the air-tube, substantially as described.

3. In a billiard-cushion, the combination of the air-tube, with the pivotally-held engaging strip arranged in front of the air-tube, the flexible fabric for holding the engaging strip in contact with the air-tube, and the outer covering of the cushion, substantially as described.

576,239. BRICK-MACHINE. JOHN TREPPET, Courtney, Pa. Filed July 8, 1896. Serial No. 598,397. (No model.)



Claim.—1. In brick-making apparatus, the combination of a mold, a removable plate, means for compacting the clay on said plate within said mold, and a portable support below said plate and on which said plate rests, substantially as set forth.

2. In brick-making apparatus, the combination of a mold, plungers adapted to enter said mold from above and below, a removable plate, and a portable support below said plate and resting upon the lower plunger, substantially as set forth.

3. In brick-making apparatus, the combination of a mold open at both ends, plungers adapted to enter said mold from each end, a support on the lower plunger, and a removable plate on said support, substantially as set forth.

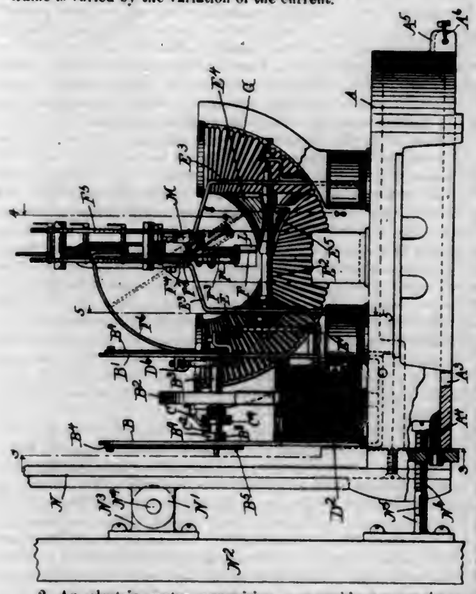
4. In brick-making apparatus, the combination of a mold open at both ends, plungers adapted to enter said mold from each end, a support on the lower plunger, and a sliding plate on said support, substantially as set forth.

5. In brick-making apparatus, the combination of a mold open at both ends and having a slot formed in its walls, a sliding plate fitting in said slot, plungers adapted to enter said mold from each end, and a support on the lower plunger, substantially as set forth.

6. In brick-making apparatus, the combination of a mold open at both ends and having a slot formed in its walls, a sliding plate fitting in said slot, a lever connected to said plate, plungers adapted to enter said mold from each end, and a support on the lower plunger, substantially as set forth.

576,240. ELECTRIC METER. JOHN R. TUCKER and CHARLES C. HINCKLEY, Aurora, Ill. Filed Jan. 25, 1896. Serial No. 576,883. (No model.)

Claim.—1. An electric meter comprising a movable contact-surface, a motor for operating the same, a planimeter-wheel adapted to engage said contact-surface, said planimeter-wheel connected with a movable frame adapted to be moved about an axis, a pinion connected with said planimeter-wheel so as to be operated thereby, a registering mechanism provided with a second pinion adapted to engage said first-mentioned pinion at a point substantially at the axis of rotation of said movable frame, and a connecting device between said movable frame and a device responsive to the current to be measured, said connecting device so constructed that the position of the frame is varied by the variation of the current.



2. An electric meter comprising a movable non-continuous curved contact-surface, a motor for operating same, the curve of said surface being substantially the arc of a circle, a planimeter-wheel adapted to bear upon said surface and connected with a movable support, said support adapted to be rotated about an axis, so that the periphery of said planimeter-wheel is free to move laterally in the arc of a circle, a registering mechanism connected with said planimeter-wheel so as be operated by said wheel in all its various positions, and a connection between said planimeter-wheel and a device responsive to the current to be measured, said connecting device so constructed that the position of the planimeter-wheel is varied by the variation of the current, said contact-surface divided into parts separated by spaces, so that said planimeter-wheel is freed therefrom at intervals in order that it may assume a position corresponding to the strength of the current in the circuit, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is substantially always at right angles to the line of such edge.

3. An electric meter comprising a movable non-continuous curved contact-surface, varying in width from one end toward the other, a motor for operating same, a planimeter-wheel adapted to engage said contact-surface and connected with a movable frame adapted to be rotated or rocked about an axis, a regulating device associated with said frame whereby the pressure exerted between said planimeter-wheel and said contact-surface may be regulated, a connecting device connecting said planimeter-wheel with a device responsive to the current to be measured, said connecting device so constructed that the position of the planimeter-wheel varies with the current, and a registering device connected with said planimeter-wheel so as to be operated thereby.

4. An electric meter comprising a balance-wheel, a circuit making and breaking device associated with said balance-wheel so as to be operated thereby, an electromagnet connected with said circuit making and breaking device, and to a source of electrical supply, said electromagnet associated with said balance-wheel so as to act upon it and move it when the magnet is energized, a spring or the like associated with said balance-wheel so as to act against said electromagnet, a contact-surface connected with said balance-wheel so as to be moved thereby, a planimeter-wheel adapted to engage said contact-surface and connected with a device responsive to the current so that its position is varied with the variation of the current, and a registering device connected with said planimeter-wheel so as to be operated thereby, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is substantially always at right angles to the line of such edge.

5. An electric meter comprising a balance-wheel made of non-magnetic material, but having a piece of magnetic material connected therewith, a circuit making and breaking device associated with said balance-wheel so as to be operated thereby, an electromagnet connected in circuit with said circuit making and breaking device and to a source of electrical supply, said magnet associated with said balance-wheel so as to act upon said magnetic material connected therewith when said maguet is energized and move said wheel, a spring or the like associated with said balance-wheel so as to act against said electromagnet, a contact-surface connected with said balance-wheel so as to be moved thereby, a planimeter-wheel adapted to engage said contact-surface and connected with a device responsive to the current so that its position is varied with the variation of the current, and a registering device connected with said planimeter-wheel so as to be operated thereby, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is subtantially always at right angles to the line of such edge.

6. An electric meter comprising a movable non-continuous curved contact-surface, a motor for moving the same, a planimeter-wheel adapted to be brought into contact with said surface, one or more pieces of magnetic material associated with said planimeter-wheel and acting as cores for one or more solenoids in the circuit carrying the current to be measured, the parts so constructed that the position of the planimeter-wheel is varied by the variation of the current flowing through said solenoid or solenoids, and a registering mechanism connected with said planimeter-wheel so as to be operated thereby, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is subtantially always at right angles to the line of such edge.

7. An electric meter comprising a movable contact-surface, a motor for operating same, a planimeter-wheel adapted to engage said contact-surface, said planimeter-wheel connected with a movable frame adapted to be moved about an axis, a pinion connected with said planimeter-wheel so as to be operated thereby, a registering mechanism provided with a second pinion at a point subetantially at the axis of rotation of said movable frame, one or more solenoids connected in the circuit carrying the current to be measured, the core or cores of said solenoid or solenoids connected with said movable frame so as to vary its position as the current in the circuit to be measured varies.

8. An electric meter comprising a movable contact-surface, a motor for operating same, a planimeter-wheel adapted to engage said contact-surface, said planimeter-wheel connected with a movable frame adapted to be moved about an axis, a pinion connected with said planimeter-wheel so as to be operated thereby, a registering mechanism provided with a second pinion at a point substantially at the axis of rotation of said movable frame, one or more solenoids connected in the circuit carrying the current to be measured, the core or cores of said solenoid or solenoids connected with said movable frame so as to vary its position as the current in the circuit to be measured varies, and a regulable weight associated with said movable frame and adapted to counteract the force of the solenoid or solenoids as the position of the core or cores of said solenoid or solenoids is varied.

9. An electric meter comprising a movable contact-surface, a motor for operating same, a planimeter-wheel adapted to engage said contact-surface, said planimeter-wheel connected with a movable frame adapted to be moved about an axis, a pinion connected with said planimeter-wheel so as to be operated thereby, a registering mechanism provided with a second pinion at a point substantially at the axis of rotation of said movable frame, one or more solenoids connected in the circuit carrying the current to be measured, the core or cores of said solenoid or solenoids connected with said movable frame so as to vary its position as the current in the circuit to be measured varies, a regulable weight associated with said movable frame and adapted to counteract the force of the solenoid or solenoids as the position of the core or cores of said solenoid or solenoids is varied, and a second regulable weight associated with said frame so as to counteract the weight of the core or cores of said solenoid or solenoids.

10. An electric meter comprising a balance-wheel of non-magnetic material, with a piece of magnetic material connected with the frame thereof, a circuit making and breaking device associated therewith so as to be operated thereby, an electromagnet connected in circuit with said circuit making and breaking device and to a source of electrical supply, said magnet so associated with said balance-wheel that when the parts are in their normal position, the circuit is completed through the said electromagnet, so as to cause it to act upon the magnetic part of said balance-wheel and move the same, a

spring associated with said balance-wheel and adapted to act against said electromagnet, the whole so constructed that the balance-wheel is oscillated back and forth, a shaft associated with said balance-wheel so as to be continuously rotated in one direction, a curved contact-surface connected with said shaft, a planimeter-wheel adapted to engage said contact-surface, a connection between said planimeter-wheel and a device responsive to the current to be measured, said connection being such that the relative position of said planimeter-wheel and said contact-surface varies with the current, and a registering device connected with said planimeter-wheel so as to be operated thereby, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is substantially always at right angles to the line of such edge.

11. An electric meter comprising a balance-wheel of non-magnetic material, with a piece of magnetic material connected with the frame thereof, a circuit making and breaking device associated there with so as to be operated thereby, an electromagnet connected in circuit with said circuit making and breaking device and to a source of electrical supply, said magnet so associated with said balance-wheel that when the parts are in their normal position, the circuit is completed through said electromagnet so as to cause it to act upon the magnetic part of said balance-wheel and move the same, a spring associated with said balance-wheel and adapted to act against said electromagnet, the whole so constructed that the balance-wheel is oscillated back and forth, a shaft associated with said balance-wheel so as to be continuously rotated in one direction, a curved contact-surface connected with said shaft, a planimeter-wheel adapted to engage said contact-surface, a connection between said planimeter-wheel and the circuit carrying the current to be measured, said connection being such that the relative position of said planimeter-wheel and said contact-surface varies with the current, and a registering device connected with said planimeter wheel so as to be operated thereby, said contact-surface consisting of parts separated by spaces, so that said planimeter-wheel is freed therefrom at predetermined intervals, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is substantially always at right angles to the line of such edge.

12. An electric meter comprising a balance-wheel of non-magnetic material, with a piece of magnetic material connected with the frame thereof, a circuit making and breaking device associated therewith, so as to be operated thereby, an electromagnet connected in circuit with said circuit making and breaking device and to a source of electrical supply, said magnet so associated with said balance-wheel that when the parts are in their normal position, the circuit is completed through the said electromagnet, so as to cause it to act upon the magnetic part of said balance-wheel and move the same, a spring associated with said balance-wheel and adapted to act against said electromagnet, the whole so constructed that the balance-wheel is oscillated back and forth, a shaft associated with said balance-wheel so as to be continuously rotated in one direction, a curved contact-surface connected with said shaft, a planimeter-wheel adapted to engage said contact-surface and connected with a movable frame adapted to be moved about an axis, a registering device connected with said planimeter-wheel so as to be operated thereby, one or more solenoids connected in the circuit carrying the current to be measured, said solenoid or solenoids provided with a core or cores connected with said movable frame so as to vary its position when the current in the solenoid or solenoids is varied, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is substantially always at right angles to the line of such edge.

13. An electric meter comprising a balance-wheel of non-magnetic material, with a piece of magnetic material connected with the frame thereof, a circuit making and breaking device associated therewith so as to be operated thereby, an electromagnet connected in circuit with said circuit making and breaking device and to a source of electrical supply, said magnet so associated with said balance-wheel that when the parts are in their normal position, the circuit is completed through the said electromagnet, so as to cause it to act upon the magnetic part of said balance-wheel and move the same, a spring associated with said balance-wheel and adapted to act against said electromagnet, the whole so constructed that the balance-wheel is oscillated back and forth, a shaft associated with said balance-wheel so as to be continuously rotated in one direction, a curved contact-surface connected with said shaft, a planimeter-wheel adapted to engage said contact-surface and connected with a movable frame, a pinion operatively connected with said planimeter-wheel, a rotatable shaft to which said frame is connected, a pinion operatively connected with said planimeter-wheel, a registering device provided with a pinion adapted to engage said first-mentioned pinion, the shaft carrying the movable frame being cut away so that said pinions engage each other substantially at the axis of the shaft, one or more solenoids connected in the circuit carrying the current to be measured and provided with movable cores, said cores being connected with said shaft so as to move the same when the current passing through the solenoids is varied.

14. An electric meter comprising a balance-wheel of non-magnetic material, having a piece of magnetic material connected therewith, rigidly connected with a rotatable shaft, a contact-point associated with said shaft and electrically connected with one branch of an electric circuit, a spring-contact carried by an arm and supported in proximity with said first-mentioned contact and adapted to engage it at predetermined intervals when the balance-wheel is oscillated, an electromagnet connected with said spring-contact and with a source of electrical supply, the core of said electromagnet normally in proximity to the magnetic part of said balance-wheel, the balance-wheel and contacts so arranged that the circuit is completed through said contacts when the balance-wheel is at rest, and is broken by the movement of the balance-wheel, a spring associated with said balance-wheel and adapted to act in opposition to said electromagnet, a shaft provided with a ratchet-wheel, a pawl associated with said balance-wheel and adapted to engage said ratchet-wheel so as to rotate same, a contact-surface connected with said shaft so as to be rotated by the same, a planimeter-wheel adapted to engage said contact-surface, a connection between said planimeter-wheel and a device responsive to the current to be measured, said connection being such that the position of the planimeter-wheel upon said surface is varied as the current varies, and a registering device connected with said planimeter-wheel so as to be operated thereby, the planimeter-wheel driven over the contact-surface, and the contact-surface curved so that the line of travel in which the planimeter-wheel strikes the edge of the surface is substantially always at right angles to the line of such edge.

15. An electric meter comprising a balance-wheel of non-magnetic material, having a piece of magnetic material connected therewith, rigidly connected with a rotatable shaft, a contact-point associated with said shaft, and electrically connected with one branch of an electric circuit, a spring-contact carried by an arm and supported in proximity with said first-mentioned contact and adapted to engage it at predetermined intervals when the balance-wheel is oscillated, an electromagnet connected with said spring-contact and with a source of electrical supply, the core of said electromagnet normally in proximity to the magnetic part of said balance-wheel, the balance-wheel and contacts so arranged that the circuit is completed through said contacts when the balance-wheel is at rest, and is broken by the movement of the balance-wheel, a guiding device for the frame carrying the spring-contact, said guiding device so constructed that the spring-contact is only connected with its associated contact once during each complete oscillation of the balance-wheel.

16. The combination with an electric meter of a base upon which it is supported, having an upwardly-projecting part connected therewith, a frame adapted to be permanently connected with a wall or other support, said frame adapted to be removably connected with the upwardly-projecting part associated with the meter, one or more leveling instruments associated with the base of said meter and adapted to bear against said frame so as to control the position of the meter substantially as described.

17. The combination with an electric meter of a base upon which the same is supported, said base hollowed out to receive the terminals of the meter, a frame adapted to be permanently connected with a wall or other support and adapted to be removably connected with said meter-frame, one or more leveling-screws connected with the meter-frame so that the ends by which they are controlled project within the hollow part thereof, said leveling-screws adapted to bear against said frame, and a base-plate adapted to be connected with said frame so as to completely inclose the terminals and leveling-screws.

18. A balance-wheel for operating a train of mechanism, comprising a wheel rotatably mounted upon a supporting device, a contact-point associated with said wheel so as to move therewith, a spring-contact arm connected with a supporting device and adapted to make contact with said contact-point at certain predetermined times, said spring-contact having an arm connected thereto, a guide for said arm associated with said wheel so as to move therewith, said contact point and spring-contact being connected with an electric circuit, an electromagnet also connected with said circuit and associated with said wheel so as to oscillate the same, and a spring connected with said wheel so as to act against said magnet, the whole so arranged that the electric circuit is alternately broken and completed.

19. A balance-wheel for operating a train of mechanism, comprising a wheel rotatably mounted upon a supporting device, a contact-point associated with said wheel so as to move therewith, a spring-contact arm connected with a supporting device and adapted to make contact with said contact-point at certain predetermined times, said spring-contact having an arm connected thereto, a guide for said arm consisting of a disk connected with said wheel so as to be moved thereby, said disk being provided with a groove in its side, a projection on said arm adapted to pass along said groove when said disk is moving in one direction, the disk being constructed so that the projection will move along the periphery of the disk when said disk is moving in the opposite direction, said contact-point and spring-contact being connected with an electric circuit, an electromagnet also connected with said circuit and associated with said wheel so as to oscillate the same, and a spring connected with said wheel so as to act against said magnet, the whole so arranged that the electric circuit is alternately broken and completed.

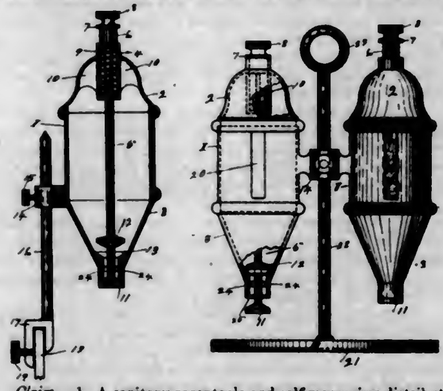
20. A balance-wheel for operating a train of mechanism, comprising a wheel rotatably mounted upon a supporting device, said balance-wheel composed of non-magnetic material and provided on its periphery with a piece of magnetic material, a contact-point associated with said wheel so as to move therewith, a spring-contact arm connected with a supporting device and adapted to make contact with said contact-point at certain predetermined times, said spring-contact having an arm connected thereto, a guide for said arm associated with said wheel so as to move therewith, said contact-point and spring-contact being connected with an electric circuit, an electromagnet also connected with said circuit and provided with a core normally opposed to said magnetic portion of the wheel, and a spring connected with said wheel so as to act against said magnet, the whole so arranged that the electric circuit is alternately broken and completed.

21. An electric meter comprising an interrupted curved movable contact-surface, a motor to drive the same, a planimeter-wheel rotating upon such interrupted surface so as to reach the line of interruption always substantially at right angles thereto, a register connected with so as to be driven by such planimeter-wheel, and a device actuated by the current to be measured and adapted to vary the position of the wheel on the surface.

22. An electric meter comprising an interrupted curved, movable contact-surface, a motor to drive the same, a planimeter-wheel rotating upon such interrupted surface, and always striking the interruption-line substantially at right angles, a support for the same, so that the point of contact of the wheel with the surface is always equally distant from the pivotal point of such support, a register connected with so as to be driven by such planimeter-wheel, and a device actuated by the current to be measured and adapted to vary the position of the wheel on the surface.

23. An electric meter comprising an interrupted, curved, movable contact-surface, bell-shaped on its exterior surface, a motor to drive the same, a planimeter-wheel rotating upon such interrupted surface so as to reach the line of interruption always substantially at right angles thereto, a register connected with so as to be driven by such planimeter-wheel, and a device actuated by the current to be measured and adapted to vary the position of the wheel on the surface.

576,241. SANITARY RECEPTACLE AND DISTRIBUTER. WALES R. VAN ANE, Fort Wayne, Ind., assignor of one-half to Louis A. Centlivre, same place. Filed Nov. 9, 1896. Serial No. 611,463. (No model.)

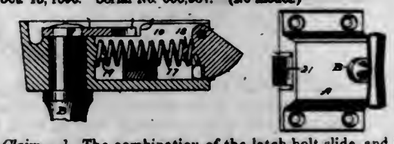


Claim.—1. A sanitary receptacle and self-measuring distributer for saponaceous liquids comprising a shell or receptacle 1 having a valved discharge-opening in the lower end thereof, with annular valve-seats at each end of said opening, and an integral vertically-apertured supporting-lug upon the side thereof; a removable bell-shaped lid 2 tightly fitting the top thereof and provided with a pendent integral centrally-arranged open-topped tube 4 having its lower end apertured for the valve-stem; and a vertical valve-stem 5 loosely mounted in said tube and in said discharge-opening, as shown, having upon its upper end a nut 6 and a retracting-spring 9 arranged in said tube as shown; and having upon its lower end the said discharge-valve 11 and the check-valve 12 adapted to close said discharge-opening as described, all substantially as described.

2. In a sanitary self-measuring receptacle the combination of the receptacle 1 having a conical bottom 3 provided with a prolonged discharge-opening having an annular valve-seat at each end thereof, and an integral supporting-lug 14 apertured as shown for the supporting-standard; a conical cap or top 2 removably mounted on said receptacle and provided with a pendent integral tube 4 for the purpose specified; a spring-pressed valve-stem 5 arranged as shown, having upon its upper end the nut 6 and the retracting-spring 9, and upon its lower end the outlet-valve 11 seated as shown, and the adjustable check-valve 12 arranged as described and having a seat 13 at the inner end of said discharge-opening whereby the liquid contents can be automatically discharged in predetermined quantities for sanitary purposes, all substantially as described.

3. The combination in a sanitary receptacle of a body or shell having a valved discharge-opening in the base thereof and provided with a removable top or lid having a vertical valve-stem loosely mounted therein as shown; a spring-pressed valve-stem 5 arranged as shown having upon its upper end an operating-nut and a retracting-spring, and having upon its lower end a removable outlet-valve adapted to normally close the outer end of said discharge-opening, and an adjustable check-valve adapted to close the inner end of said opening; and means for supporting said receptacle in an upright position, all substantially as described.

576,242. LATCH. HENRY G. VOIGHT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Oct. 15, 1896. Serial No. 608,937. (No model.)



Claim.—1. The combination of the latch-bolt slide, and beveled nose pivoted thereto, with devices for moving the complete latch-bolt inwardly, stop devices for preventing the slide from moving inwardly under endwise pressure, means for withdrawing said stop devices upon attempting to draw the said slide inwardly by its operating-handle and a spring substantially as described.

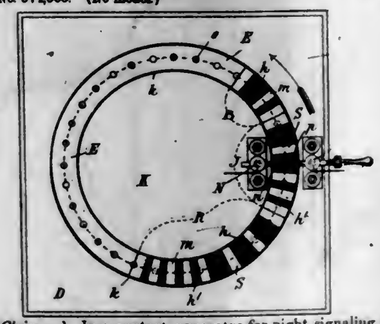
2. The combination of a case, the latch-bolt slide having stop-shoulders, the beveled nose pivoted to said slide, a spring, a knob or thumb-turn, a hub operated by said thumb-turn and having latch-operating arms and stop-arms acting in connection with said slide substantially as described.

3. In a latch, a latch-bolt consisting of a slide and a beveled nose having the axis on which the said nose swings mounted on said slide, the said slide, nose and axis being arranged to move together bodily for withdrawing the latch-bolt from the keeper substantially as described.

4. In a latch the combination of the case, a latch-bolt slide, a beveled nose having the axis on which it swings mounted on said slide, and a spring exerting its pressure between said case and the inner face of said beveled nose substantially as described

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576,243. CONTACT APPARATUS FOR TELEGRAPHING. CORNELIS VERKADE, Rotterdam, Netherlands. Filed Jan. 6, 1896. Serial No. 574,503. (No model.)



Claim.—1. In a contact apparatus for night signaling and telegraphing, the combination with an electric circuit normally interrupted, a source of electrical supply, a support, a ring rotatably

mounted on said support, segmental strips of non-conducting material removably secured to the ring, conducting-strips carried by the segmental strips, said conducting-strips being of varying widths as specified, and being separated electrically from each other, and electrical contacts adapted to come in contact with the different conducting-strips when the ring is rotated, and close the electric circuit, in the manner set forth.

2. In a contact apparatus for night signaling and telegraphing, the combination with an electric circuit normally interrupted, a source of electrical supply, a support, a ring rotatably mounted on said support, segmental strips of non-conducting material carried by the ring, conducting-strips carried by the segmental strips, and being separated electrically from each other, and electrical contacts adapted to come in contact with the different conducting-strips when the ring is rotated and close the electric circuit in the manner set forth.

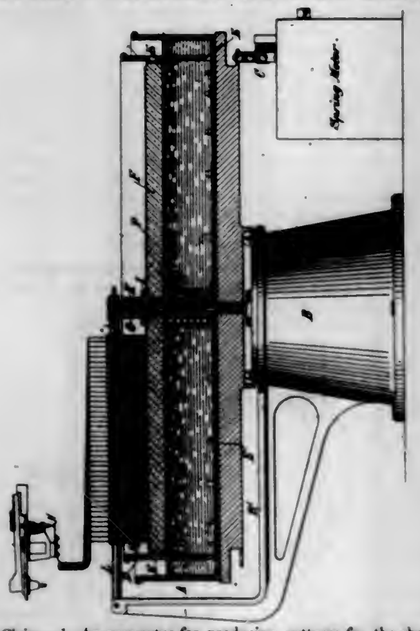
3. In a contact apparatus for night signaling and telegraphing, the combination with an electric circuit normally interrupted, a source of electrical supply, a support, a ring rotatably mounted on said support, segmental strips of non-conducting material removably secured to the ring, a motor or operating shaft, gearing between the latter and the ring, conducting-strips carried by the segmental strips, the conducting-strips being separated electrically from each other, and electrical contacts adapted to come in contact with the different conducting-strips when the ring is rotated and close the electric circuit in the manner set forth.

576,244. CURLING-IRON. FRED D. WILLIAMS, Cooperstown, N. D. Filed May 16, 1896. Serial No. 591,867. (No model.)



Claim.—As an improved article of manufacture a curling-iron comprising handles consisting of two like parts, a spring connecting the same at their outer ends, one of said parts carrying at its inner end a tubular bearing, a mandrel rotatably mounted therein, and a pinion carried at the inner end of said mandrel, and a rack-bar carried by the inner end of the other part, adapted to engage said pinion to rotate the mandrel.

576,245. MUSIC-RECORDING APPARATUS. ERNEST K. ADAMS, New York, N. Y. Filed Oct. 21, 1896. Serial No. 609,517. (No model.)



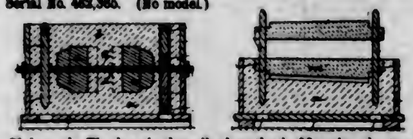
Claim.—1. An apparatus for producing patterns for the sheets of Regina music-boxes, comprising in combination a conducting-platform for receiving a circular pattern-sheet and vertically adjustable to permit the immersion of the sheet in a chemical solution which is discolored by an electric current, a motor for moving said support and sheet similarly to the movement of the finished sheet in a music-box, a series of contact-trailers resting on the paper sheet in a radial line, and electric circuit connections with said trailers controlled by the keys of a piano or organ, as set forth.

2. The combination with a rotary tank for containing a chemical solution of the kind described, a motor for rotating the same, a disk or platform for a paper sheet mounted in the tank and capable of depression therein for moistening the paper, a series of contact-trailers carried by a cross-bar extending radially across the tank and independent circuit connections between said trailers and the keys of a piano or organ, as set forth.

3. The combination with the tank and a motor for rotating the same, of a platform for a paper sheet mounted therein, a spring supporting the platform and permitting its depression in the tank, and a series of contact-trailers resting upon a radial line on said platform, or a sheet of paper placed thereon, as set forth.

4. The combination with a tank divided by an annular partition into concentric compartments, said partition having perforations near the bottom and top, of a motor for revolving the tank, a circular platform or disk for a paper sheet mounted in the inner compartment and capable of depression therein, a series of contact-trailers bearing on a radial line on said disk and circuit connections to said trailers, as and for the purpose set forth.

576,246. METHOD OF AND APPARATUS FOR FORMING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Feb. 15, 1893. Serial No. 462,365. (No model.)



Claim.—1. The herein-described method of forming the two-part molds and guiding the parts to place, consisting in forming the guiding means within the bodies of the mold parts when molding the same, and guiding the one mold part onto the other mold part by pins projecting from the one mold part and entering holes in the other mold part, and then forcing the guide-pins through the bottom of the completed mold, substantially as set forth.

2. In sand molding apparatus, the combination of a two-part flask, and a pattern-plate carrying the pattern of the article to be molded and guide-patterns on each side thereof in line with each other and entering within the flask parts, substantially as set forth.

3. In sand molds, the combination of one mold part having guide-holes formed therein provided with sleeve-linings and another mold part having guide-pins fitting in such lined guide-holes of the one mold part, such sleeve-linings having closed ends whereby they may be forced out of the finished mold, substantially as set forth.

4. In sand molds, the combination of one mold part having guide-holes formed therein provided with sleeve-linings, and another mold part having guide-pins adapted to enter such lined guide-holes of the one mold part and to act as guides for bringing the other mold part to place, such sleeve-linings being provided with longitudinally-extending wings to sustain the same within the body of the mold, substantially as set forth.

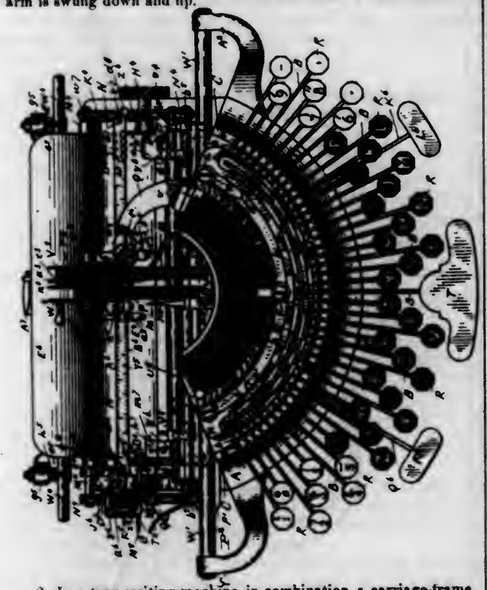
5. In sand molds, the combination of the two mold parts each having guiding-holes formed in the sand thereof in line with each other, guiding-pins fitting in such guide-holes and a bottom board supporting the lower mold part and having openings therein to permit the withdrawal of such guiding-pins, substantially as set forth.

6. In sand molds, the combination of the two mold parts each having guiding-holes formed therein in line with each other, guiding-pins fitting in such guide-holes, a bottom board supporting the lower mold part and having holes therein to permit the withdrawal of such guiding-pins, and a plunger adapted to force such guiding-pins through the body of the mold, substantially as set forth.

7. In sand molds, the combination of the two or more mold parts inclosed within flask parts, each mold part having guide-holes formed therein in line with each other, guiding-pins fitting in such guide-holes, and a vertical guide-frame for the flask parts adapted to bring the guide-holes approximately in line with the guide-pins, substantially as set forth.

576,247. TYPE-WRITING MACHINE. WALTER J. BARROW, Brooklyn, N. Y., assignor to the Franklin Typewriter Manufacturing Company, of Maine. Filed Apr. 10, 1893. Serial No. 469,778. (No model.)

Claim.—1. In a type-writing machine, in combination, a paper-platen carriage-frame arranged to slide back and forth on a suitable guideway, a rod secured to a support, a series of notches on one side of said rod and an arm adapted to swing on said rod and slide back and forth thereon in the pathway of said frame, the edge of said arm being arranged to engage and disengage with said notches as the arm is swung down and up.



2. In a type-writing machine, in combination, a carriage-frame, a rod on which said carriage-frame is arranged to rest and run back and forth, a spring secured to the carriage-frame and a roll in its free end to bear up against the under side of said rod for the purpose specified.

3. In a type-writing machine, a carriage-frame adapted to slide on suitable supports, two hook-arms pivoted thereto, a paper roll or platen frame adapted to be connected to said swinging hooks, and movable guards or latches on said swinging hook-arms to hold the paper roll or platen frame in connection therewith.

4. In a type-writing machine, a platen arranged to rotate in a suitable frame, a vertical swinging frame, to and on an arm of which above its pivot said platen-frame is supported, a rod connected to the other arm of said swinging frame, a lever engaging with said rod, and a lever engaging with said rod-lever and extending to the front of the machine for operation thereof.

5. In a type-writing machine, in combination, a paper roll or platen carriage, a swinging frame on which said carriage is supported, a rod connected thereto, an adjustable shoulder or block on said rod, a spring bearing on said rod to engage with said shoulder or block, two levers arranged to engage with said shoulder or block, one between said spring and the rod and two levers engaging with said levers respectively and extending to the front of the machine for operation thereof.

6. In a type-writing machine, a paper roll or platen carriage, a swinging frame on which said carriage is supported, a rod connected thereto, an adjustable shoulder or block on said rod, a spring bearing on said rod to engage with said shoulder or block, and a lever engaging with said lever and extending to the front of the machine for operation thereof.

7. In a type-writing machine, a paper roll or platen carriage, a swinging frame to which said carriage is connected and supported, a rod connected to said swinging frame, levers connected to said rod for operation thereof, and a spring connected to said rod and a screw in the supporting-frame and connected to said spring.

8. In a type-writing machine, a paper-roll carriage-frame, a swinging frame to which said carriage is connected and on which it is adapted to run, a bar secured to said carriage-frame, a swinging arm pivoted to said bar and a hook end on said arm to engage with the under side of a bar of said swinging frame.

9. In a type-writing machine, a paper or platen roll, a frame on which said platen is supported and adapted to rotate, a feed-roll bearing on said platen, spring-arms to which the feed-roll is pivoted, said spring-arms being connected to said frame, and a lever pivoted to a suitable support adapted to bear against the shaft of said feed-roll for the purpose specified.

10. In a type-writing machine, in combination, a swinging frame, a paper-platen frame connected to said frame, a rod connected to said frame and to means for operating said rod, a spring connected to said rod and to a screw adapted to screw in a suitable support.

11. In a type-writing machine, a paper roll or platen, a swinging frame on which said platen is supported, a rod connected to said swinging frame, a head or screw-nut on its outer end and a spring on said rod between said head and the frame supporting the parts of the machine.

12. In a type-writing machine, in combination, a paper roll or platen, a shaft to said platen, a flat strip extending along and over said roll, two scales on said strip, one on each edge, arms to said strip one to each end, extending down by the ends of the roll and attached to said shaft so as to rock thereon.

13. In a type-writing machine, in combination, a paper roll or platen adapted to turn in a suitable support, a gear on the end of said platen, a pawl engaging with said platen-gear, a lever pivoted to a suitable support adapted to operate said pawl and a hook on said lever, engaging with the under side of the arm of said pawl to insure its return after being operated by the lever.

14. In a type-writing machine, in combination, a paper roll or platen, a frame in which it is adapted to rotate, a carriage-frame on which said frame is supported, a swinging latch or hook pivoted to said carriage-frame adapted to engage with the said paper-platen frame, and a movable guard to said hook.

15. In a type-writing machine, in combination, a paper roll or platen, a frame in which it is adapted to rotate, a carriage-frame on which said frame is supported, a swinging latch or hook pivoted to said carriage-frame adapted to engage with the said paper-platen frame, and a movable guard to said hook, provided with arms embracing the sides of the hook to guide it in its movements, and a slot and screw passing through said slot and securing the guard to the hook.

16. In a type-writing machine, in combination, a paper roll or platen frame arranged on a suitable swinging support, a rod connected thereto, a cone or block on said rod adapted to screw thereon, a lever adapted to bear upon said cone for operation of said rod and a spring arranged to engage with said cone.

17. In a type-writing machine, in combination, a paper roll or platen frame arranged on a suitable swinging support, a rod connected thereto, an adjustable cone or block on said rod, a lever adapted to bear upon said cone for operation of the rod and a spring arranged to engage with said cone.

18. In a type-writing machine, in combination, a paper roll or platen adapted to rotate in a suitable frame, a curved plate pivoted to a rod of said frame, and extending partially around said platen, a feed-roll adapted to rotate in arms of said plate one at each end and in spring-arms secured to said frame.

19. In a type-writing machine, in combination, a finger-key pivoted to a suitable support having a concave bearing on its edge, a vertical wire having a transverse groove in its end the face of the groove being convex and adapted to fit said concave bearing, its sides extending over the sides of the key, a shoulder on said wire and a spring on said wire bearing on said shoulder and against a suitable support.

20. In a type-writing machine, in combination, a paper roll or platen, a shaft on which said platen is supported and adapted to rotate, a flat strip along said platen, arms to said strip attached to the shaft of said platen to rock thereon, a scale on said strip and a spring attached to said strip and to a support.

21. In a type-writing machine, in combination, a paper roll or platen, a shaft on which said platen is supported and adapted to rotate, a flat strip along said platen, arms to said strip attached to said platen-shaft to rock thereon, a scale on said strip, and a pointer or index for said scale secured to a suitable support.

22. In a type-writing machine, in combination, a paper roll or platen, a shaft on which said platen is supported and adapted to rotate, a flat strip along said platen, arms to said strip attached to said platen-shaft to rock thereon, a scale on said strip, and a spring on a suitable support to engage with said strip when moved forward.

23. In a type-writing machine, in combination, a rock-shaft, a plate secured thereto having two ratchet-teeth in its edge, a plate having a slot in one end pivoted to said shaft, a spring bearing on said pivoted plate, said pivoted plate having two ratchet-teeth on its edge, and adapted to move in guideways on said shaft, and a ratchet-tooth bar on a movable carriage-frame adapted to engage with the teeth of said plates.

24. In a type-writing machine, in combination, a rock-shaft, a horizontal bar connected to said shaft, a vertical rod connected to said bar, two antifriction-rolls pivoted to a suitable support, between which said vertical rod passes, and a lever pivoted to a suitable support arranged to operate said vertical rod.

25. In a type-writing machine, in combination, two spools arranged to turn on a suitable support, an ink-ribbon adapted to wind or run from one to the other, a lever pivoted to a suitable support, two spring pawls or fingers on said lever adapted by the swinging of the lever to engage with first one and then the other of said ribbon-

spools, an arm or plate arranged to move back and forth on a suitable support, and adapted to engage with the ink-ribbon to move it sidewise in the operation of the arm or plate, said arm being connected to the lever for operation thereof.

26. In a type-writing machine, in combination, two spools adapted to turn on a suitable shaft and secured thereto, an ink-ribbon on said spools, and a plate between the two spools having spring radial arms.

27. In a type-writing machine, in combination, a type-bar adapted to swing on a pivot, a rod or support having a slot therein into which the type-bar projects in its operation, a spring secured to said support and projecting into said slot for the purpose specified.

28. In a type-writing machine, in combination, a pivoted type-bar, a spring secured to a suitable support and arranged to extend by its free end into an opening or slot in which the type-bar is moved as its type is printing.

29. In a type-writing machine, in combination, a pawl having a slot in one end and by such slot pivoted to a suitable support, a bearing for the free end of said pawl, a wire or stem to said pawl near its slot end extending backward therefrom, and a spring connected to the outer end of said wire and to a suitable support.

30. In a type-writing machine, in combination, a pawl having a slot in one end and by such slot pivoted to a suitable support, a bearing for the free end of said pawl, a wire or stem to said pawl near its slot end extending backward therefrom and a spring connected to the outer end of said wire, and extending diagonally back and connected to a suitable support.

31. In a type-writing machine, in combination, a finger-key pivoted to a suitable support having a concave bearing on its edge, a vertical wire or rod having a transverse groove in its end, the face of the groove being convex and adapted to fit said concave bearing, a shoulder on said rod and a spring bearing on said shoulder and against a suitable support.

576,248. **WATER-METER.** GEORGE B. BARRETT, Buffalo, N. Y. Filed Aug. 5, 1895. Serial No. 558,325. (No model.)



Claim.—1. In a disk water-meter, a disk-chamber having its end or ends provided with a multiplicity of recesses, each of small circumferential extent, to form a water-packing and to prevent sand or other sediment from catching between the web of the disk and the end wall or walls of the disk-chamber, the walls of said recesses being rigid or unyielding.

2. In a disk water-meter, a disk-chamber having its end or ends provided with recesses and radial or nearly radial rigid or unyielding ribs, substantially as and for the purpose described.

3. In a disk water-meter the combination with a nutating measuring-disk the web of which has a smooth surface, of a disk-chamber having its end or ends provided with a multiplicity of recesses, the walls of said recesses being rigid and unyielding, substantially as set forth.

4. In a disk water-meter, the combination with a nutating measuring-disk the web of which has a smooth surface, of a disk-chamber having its ends provided with radial or nearly radial rigid or unyielding ribs, substantially as and for the purpose described.

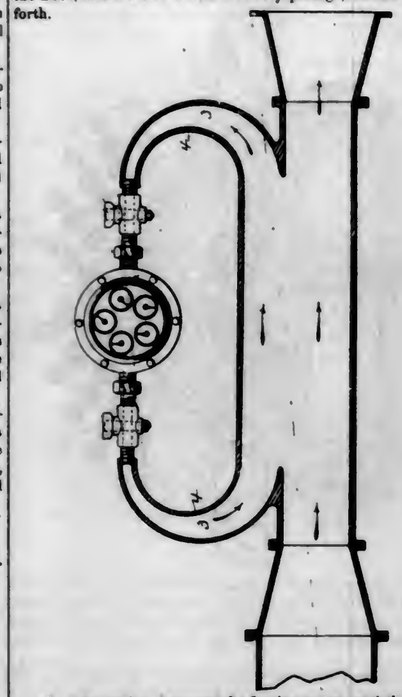
5. In a disk water-meter, the combination with a disk-chamber having the inner walls of its end or ends provided with a multiplicity of recesses each of small circumferential extent, the walls of said recesses being rigid and unyielding, of a disk the web of which has a smooth surface which latter is adapted to come in contact or nearly in contact with the outer surfaces of the walls of said recesses, substantially as and for the purpose set forth.

6. In a disk water-meter, the combination with a disk-chamber having its end or ends provided with radial or nearly radial rigid or unyielding ribs, of a disk having a web with a smooth surface which latter is adapted to come in contact or nearly in contact with the top or outer surfaces of said ribs, substantially as set forth.

7. In a disk water-meter, a disk-chamber having the inner walls of its end or ends provided with a multiplicity of recesses, the walls of said recesses being rigid and unyielding, substantially as set forth.

576,249. **WATER-METER.** GEORGE B. BARRETT, Buffalo, N. Y. Filed June 15, 1896. Serial No. 596,055. (No model.)

Claim.—1. The combination with a water-main, of an auxiliary passage so arranged with respect to the main that water will be made to flow continuously through it in the opposite direction from that of the water in the main by attrition of the water flowing through the main, and a meter in said auxiliary passage, substantially as set forth.



2. A measuring apparatus for flowing water consisting of a main passage, an auxiliary passage communicating with the main passage, said passages being so arranged with respect to each other that water passing through the main passage will cause a continuous circulation of water in the auxiliary passage by attrition in the opposite direction from that of the water in the main and a meter in said auxiliary passage, substantially as set forth.

3. In a measuring apparatus for flowing water, the combination with a main passage adapted to communicate with a water-main, of an auxiliary passage communicating with said main passage and through which water is forced in the opposite direction from that in the main and having an extended communication therewith, and a meter in said auxiliary passage, substantially as set forth.

4. The combination with a water-main, of an auxiliary passage having an extended communication with the water-main and through which water is forced in the opposite direction from that in the main, and a meter in said auxiliary passage, substantially as set forth.

5. The combination with a water-main, of an auxiliary passage so arranged with respect to the main that water passing through the main will cause a continuous circulation of water in the auxiliary passage by attrition, and a meter in said auxiliary passage said auxiliary passage being smaller where it communicates with the meter than where it receives water from the main, substantially as set forth.

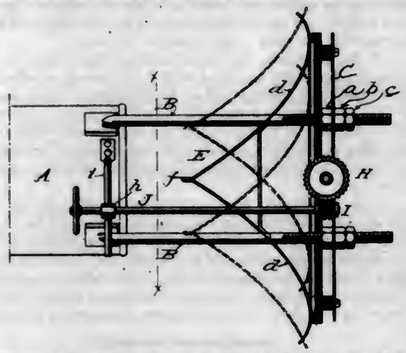
6. The combination with a water-main, of an auxiliary passage having an extended communication with the water-main, the respective ends of said auxiliary passage being curved in reverse directions and toward each other, and a meter attached between said curved ends and forming part of the auxiliary passage, substantially as set forth.

7. The combination with a water-main, of an auxiliary passage having an extended communication with the water-main, the respective ends of said auxiliary passage being curved and made tapering, and a meter between the smaller ends of said curved tapering parts of the auxiliary passage, substantially as set forth.

8. The combination with a water-main, of an auxiliary passage having an extended communication with the main longitudinally thereof and through which water is forced in an opposite direction from that in the main, said auxiliary passage having curved ends, a meter disposed between said curved ends of the auxiliary passage, and devices in said auxiliary passage for regulating the flow of water through said auxiliary passage, substantially as set forth.

9. The combination with a water-main, of an auxiliary passage having an extended communication with the main, longitudinally thereof, and through which the water is forced in an opposite direction from that in the main said auxiliary passage having curved ends, a meter between said curved ends, valves between said meter and the curved ends of the auxiliary passage, the casings of said valves having cups in which the stems of said valves terminate, substantially as set forth.

576,250. **HYDRAULIC DREDGER.** LUDOW W. BATES, Chicago, Ill. Filed June 12, 1896. Serial No. 595,328. (No model.)



Claim.—1. In combination with the discharge-pipe of a dredge, a baffle-plate adapted to receive the impact or the pressure of the outflowing current from said pipe at variable angles, substantially as and for the purpose set forth.

2. In combination with the discharge-pipe of a dredge, an adjustable deflector or baffle-plate adapted to receive the pressure of the steam delivered by said pipe, and thereby to determine the position of the pipe.

3. In combination with the discharge or delivery pipe of a dredge, a baffle-plate or deflector having diverging faces, and adapted to divide the stream flowing from the delivery-pipe, and to direct the same to opposite sides thereof.

4. In combination with the discharge-pipe of a dredge, an adjustable deflector having diverging surfaces and adapted to be adjusted laterally across or relatively to the discharge end of the pipe, whereby the outflowing stream may be divided and caused to pass to opposite sides in any desired proportions.

5. In combination with the discharge-pipe of a dredge, a deflector having a central dividing rib or edge *f*, and diverging curved faces *d*.

6. In combination with the discharge-pipe of a dredge, an adjustable deflector having a central dividing rib or edge *f* and diverging curved faces *d*.

7. In combination with the discharge-pipe of a dredge, a deflector having a central dividing rib or edge and diverging curved faces with forwardly-turned edges, substantially as and for the purpose set forth.

8. In combination with the discharge-pipe of a dredge, a laterally-adjustable deflector having a central dividing rib or edge and diverging curved faces with forwardly-turned edges, substantially as and for the purpose set forth.

9. In combination with the discharge-pipe of a dredge, a series of rods projecting rearwardly therefrom, and a plate secured upon said rods and adjustable to varying angles relatively to the axis of the discharge-pipe.

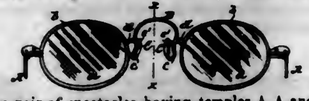
10. In combination with the discharge-pipe of a dredge, a series of rods projecting rearwardly therefrom, and a plate secured upon said rods in a plane transverse to the axis of the discharge-pipe, and adjustable toward and from said pipe.

11. In combination with discharge-pipe A, rods B, plate C carried by said rods, and guides or ways upon said plate: deflector E mounted upon said guides or ways; and means substantially as shown for moving the deflector upon said ways.

12. In combination with discharge-pipe A, rods D, and plate C provided with guides or ways; deflector E provided with rack-bar *f*; shaft G provided with pinion *g* and worm-wheel H; and shaft J provided with worm or screw I, all subtantially as shown.

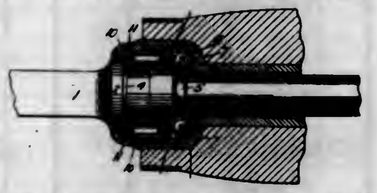
576,251. **SPECTACLES.** GEORGE BAUSCH, Syracuse, N. Y. Filed May 28, 1896. Serial No. 593,409. (No model.)

Claim.—1. In a pair of spectacles having temples A, A, the bridge B of rigid ductile metal secured to the lens-frames *b b*, by rigid studs *d d*, and extended below said studs, the said extended ends of the bridge B being bent inward and upward and each provided with an inwardly offset nose-guard C; substantially as described.



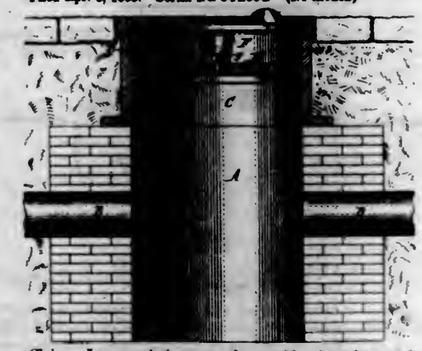
2. In a pair of spectacles having temples A A and lens-frames *b b*, the combination therewith of the bridge B of rigid ductile metal soldered or otherwise secured to the posts *d d*, and extended below the posts, the said extended ends being bent inward and upward and the terminals thereof curved and flattened to form offset and adjustable nose-guards, substantially as described.

576,252. **JOURNAL-BEARING.** CURT R. VON BIEDENFELD, Chicago, Ill., assignor to the Imperial Ball Bearing Axle Company, same place. Filed Apr. 24, 1896. Serial No. 588,859. (No model.)



Claim.—The combination with an axle having a cone thereon and an axle-box surrounding said axle and containing antifriction-balls bearing upon said cone and said box being provided with screw-threads at its extremity, of a dust-excluding collar screwing into said screw-threads of the box and being provided with an internal annular groove, the packing-ring 11 let into and carried by said groove so as to move back and forth with said collar when the latter is adjusted, the shoulder 2 on the axle having a beveled edge against which said packing-ring abuts and said shoulder being surrounded by said collar, substantially as set forth.

576,253. **MANHOLE-COVER.** CHARLES F. BUCHAN, Buffalo, N. Y. Filed Apr. 8, 1895. Serial No. 544,834. (No model.)



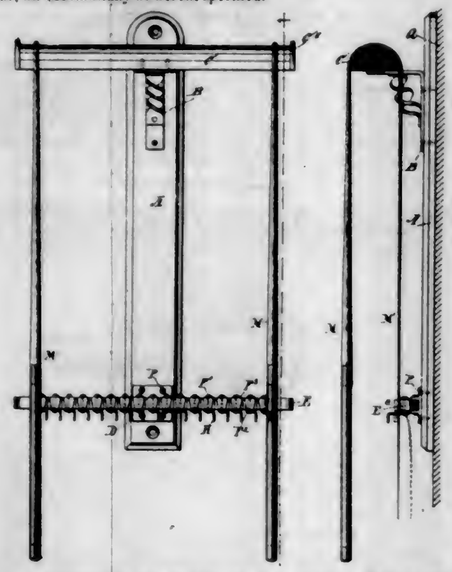
Claim.—In a manhole-cover, the combination with a casing having in its top a ventilating or gas-escape opening, of a removable diaphragm arranged in said casing and having a gas-escape tube extending above the upper surface of the diaphragm and connecting the portions of the casing on opposite sides of the diaphragm and an automatic check-valve arranged in said tube and permitting the escape of gas upwardly through said tube while preventing the entrance of the atmosphere into the chamber below the diaphragm, substantially as set forth.

576,254. **WHIP-RACK.** FRANK BORTLIK, New York, N. Y. Filed Sept. 29, 1896. Serial No. 607,322. (No model.)

Claim.—1. In a whip-rack, the upright A, bracket B and cross-bar C, the latter having a rounded upper surface, and provided with the end rim C' adapted to receive a number of whips, together with means for engaging the pendent whip-lashes as herein specified.

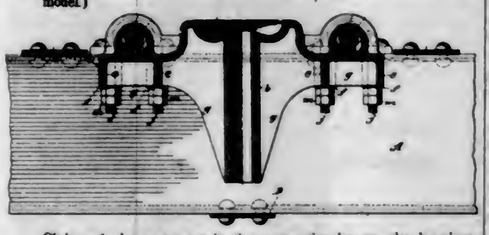
2. In a whip-rack, the upright A and the two cross-bars C and E connected as specified, the cross-bar C having a rounded upper surface adapted to receive the bows of the whips, and the cross-bar E having notches *e* adapted to receive the lashes of the whips, all arranged for joint operation substantially as herein specified.

3. The whip-rack described having two horizontal bars held at the proper distance one above the other, the lower bar being provided with notches, in combination with devices for clamping whip-lashes in the several notches while the bows of the whips rest on the upper bar, all substantially as herein specified.



4. The whip-rack described, having an upper bar C provided with a semicylindrical upper surface and a lower bar E held at the proper distance apart by an upright A, the lower bar provided with notches *c*, in combination with the dogs H adapted to turn with gentle but reliable friction and to serve relatively to a suspended whip and its lash, as herein specified.

576,255. CENTER BEARING FOR CAR-TRUCKS. EDWARD CLIFF, Newark, N. J. Filed Oct. 30, 1896. Serial No. 610,522. (No model.)



Claim.—1. In a car-truck, the supporting-beams, the bearings supported thereby, and the shafts whose ends are retained in said bearings, combined with the center-bearing frame or body having bearings at its ends receiving the middle portions of said shafts and being out of central alinement with said first-mentioned bearings and of a bore in diameter greater than the diameter of said shafts; substantially as set forth.

2. In a car-truck, the supporting-beams, the end bearings supported thereby, and the shafts whose ends are retained in said bearings, combined with the center-bearing frame or body having bearings at its ends receiving the middle portions of said shafts and being out of central alinement with said end bearings, the latter bearings having a bore in diameter greater than the diameter of said shafts; substantially as set forth.

3. In a car-truck, the supporting-beams, the end bearings supported thereby, and the shafts whose ends are retained in said bearings and whose diameter is substantially less than the diameter of the bore of said bearings, combined with the center-bearing frame or body having bearings at its ends to receive the middle portions of said shafts and having a bore in diameter substantially greater than the diameter of said shafts; substantially as set forth.

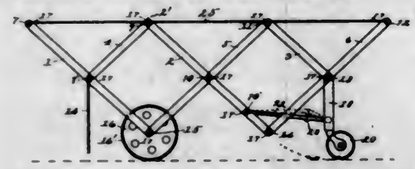
4. In a car-truck, the supporting-beams, the end bearings supported thereby, and the shafts whose ends are retained in said bearings and in diameter are substantially less than the diameter of the bore of said bearings, combined with the center-bearing frame or body having end bearings receiving and substantially greater in diameter than the middle portions of said shafts, the said end bearings and the said bearings on said frame or body being out of alinement with one another; substantially as set forth.

5. For car-trucks having the supporting-beams extending transversely across from one side to the other of the truck, the center-bearing frame or body suspended on and intermediate said beams and having at its ends the bearings, combined with the transverse shafts or rollers in said bearings and on which said center-bearing frame or body is loosely suspended, and the bearings on said beams loosely receiving the ends of said shafts or rollers and being at the opposite ends of but out of central alinement with said bearings on the center-bearing frame or body; substantially as set forth.

6. For car-trucks, the center-bearing frame or body having the bearings at its ends, combined with the transverse shafts or rollers held within said bearings and on which shafts or rollers said frame or body is loosely suspended, and the rigid bearings supported from the truck-frame to loosely receive the ends of said shafts or rollers and being at the opposite ends of but out of central alinement with the said bearings on the center-bearing frame or body; substantially as set forth.

7. In a car-truck, the supporting-beams, the bearings thereon, and the transverse roller-shafts loosely confined in said bearings, combined with the center-bearing frame having the bearings loosely receiving the middle portions of said shafts, said center-bearing frame being a casting comprising the central vertical sleeve, the upper bearing-plate, the transverse end depending flanges and the web-flanges connecting said sleeve-flanges and plate; substantially as set forth.

576,256. CASKET-TRUCK. WILLIAM CLOUSER, Greenfield, Ohio. Filed Feb. 24, 1896. Serial No. 580,559. (No model.)



Claim.—1. A casket-truck having at either side two parallel side-bars, one in front of the other, extending forward and downward, two parallel side-bars, one in front of the other, extending forward and upward, each of said bars which extends forward and downward being pivotally connected at its lower end to a corresponding bar extending forward and upward, cross-bars connecting the side-bars at their upper and lower ends, the main wheels, a caster depended from said bars, means to hold said caster in position and means to prevent the upper ends of said side-bars from separating or lengthening out too far and sinking down, substantially as set forth.

2. In a casket-truck, the combination of the side-bars 1 and 2 extending forward and downward, the side-bars 5 and 6 extending forward and upward, the cross-bars 7 9 11 12 13 and 10′, the bolts 14 and the axle 15 connecting said side-bars pivotally together, the bent cross-bar 18 depended from said cross-bar 13 and carrying the caster 20, and the brace-bar 22, jointed at 23, connecting said cross-bars 18 and 10′, substantially as set forth.

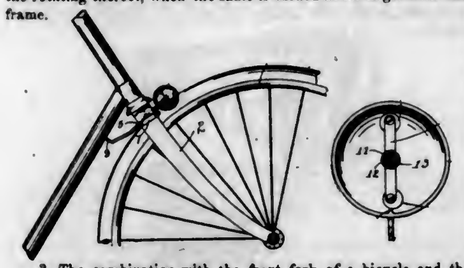
3. In a casket-truck, the combination, of the side-bars and cross-bars, the strap 25, the wheels 16, the depended cross-bar 18, the short bar 19, and the caster 20, with shank extending up through said bars 18 and 19, and a brace-bar 22, substantially as set forth.

4. In a casket-truck, the combination of the side-bars pivotally connected and arranged to fold together, the cross-bars connecting said side-bars, and two of said side-bars being sharp-pointed at their upper ends to prevent the casket or coffin from slipping, substantially as set forth.

576,257. BICYCLE-BELL. JOSEPH K. COLE and ROBERT COLE, St. Paul, Minn. Filed June 12, 1896. Serial No. 595,341. (No model.)

Claim.—1. The combination with the bicycle and its front fork, of the bell-carrying attachment pivoted to said fork adjacent the tire of the wheel, said attachment being engaged by the bicycle-frame so as to be held out of contact with the tire when the wheel is in line with the bicycle-frame, and the bell-actuating means adapted to be engaged by the tire to sound an alarm when the wheel is turned at an angle with the frame.

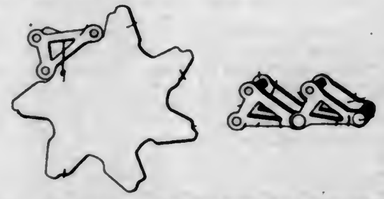
2. The combination with the bicycle-frame, of the bell-carrying attachment pivoted thereto adjacent the forward wheel, said attachment being engaged by the frame when the wheel is in line therewith, to hold it tilted away from the wheel, and the bell-actuating means adapted to be engaged by the wheel, and to be operated by the rotating thereof, when the same is turned at an angle with the frame.



3 The combination with the front fork of a bicycle and the wheel journaled therein, of the bell-carrying attachment pivotally secured to said fork adjacent the wheel-tire, being normally engaged by the frame and thereby held out of contact with the tire, but adapted to drop into contact with the tire when the wheel is turned out of line with the frame, and to be actuated by rotation thereof to sound an alarm.

4. The combination with the front fork of a bicycle, of the bell-carrying attachment pivoted thereto, its bell and connected roll, the means adapted to be engaged by the bicycle-tubing to hold said roll out of contact with the tire when the forward wheel is in line with the frame, but adapted to be released from the frame to allow said roll to bear against the tire and actuate the bell when the wheel is turned out of line with the frame.

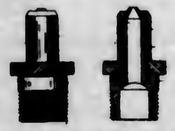
576,258. BICYCLE-CHAIN. LEWIS COOK, Ravenna, Ohio. Filed June 4, 1896. Serial No. 594,271. (No model.)



Claim.—1. The combination, with a sprocket-wheel having radial teeth thereon, each formed with a notch or cut-away portion on one side near its outer end, of a sprocket-chain consisting of a series of links pivotally connected together, each link made up of a pair of parallel triangular plates or webs and a bolt connecting each pair of webs at their apices, which bolt is adapted to fit within and be engaged by the cut-away portion on the ends of said teeth, substantially as and for the purpose set forth.

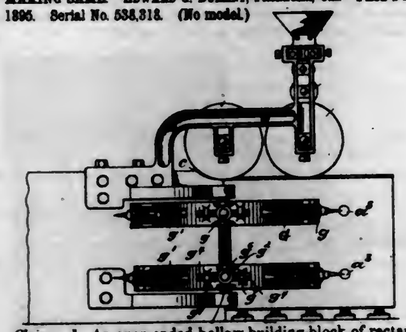
2. The combination with a sprocket-wheel having radial teeth thereon, each formed with a notch or cut-away portion on one side near its outer end, of a sprocket-chain, consisting of a series of links pivotally connected together, each link made up of a pair of parallel triangular plates or webs, a bolt connecting each pair of webs at their apices and a sleeve or roller surrounding each of said bolts, the said sleeve or roller being adapted to fit within and to be engaged by the cut-away portion on the outer ends of said teeth, substantially as and for the purpose set forth.

576,259. GAS TIP OR NOZZLE. JAMES H. DIAMOND, Allegheny, Pa., assignor to Mary R. McClelland, same place. Filed July 10, 1895. Serial No. 555,591. (No model.)



Claim.—In a gas-nozzle substantially as described, the combination of a nozzle the lower end of which is larger in cross-section than the upper, and externally screw-threaded, to admit of its being connected with a gas-supply pipe; the upper end of said nozzle terminating in a cone-shaped point, having an orifice therein and provided with a number of inclined openings in the sides thereof near the base of said cone-shaped point; and a thimble freely movable upon the upper end of said nozzle, and having an opening in the top thereof, the sides of which are correspondingly beveled with the cone-shaped point of said nozzle, substantially as described.

576,260. HOLLOW BUILDING-BLOCK AND MACHINE FOR MAKING SAME. EDWARD G. DURANT, Pasadena, Cal. Filed Feb. 14, 1895. Serial No. 538,318. (No model.)



Claim.—1. An open-ended hollow building-block of rectangular form provided with perforations in its upper and lower faces or walls forming vertical passages through the block, said perforations being located midway between a transverse central line and the ends of the upper and lower faces of said block, substantially as shown and described.

2. An open-ended hollow building-block of rectangular form, provided with ribs on the inner faces of its top and bottom walls to form seats for joint-strips to be inserted endwise within said block when laid in a wall, substantially as shown and described.

3. A joint-strip having its ends beveled or inclined in opposite direction from the center, in combination with the hollow open-ended building-block provided with internal ribs, substantially as and for the purpose set forth.

4. In a machine for forming hollow building-blocks, the combination of a former-die having a core constructed to form a clay tube, and a perforating-wheel journaled to project into a recess in the side of the die-shell, said wheel having cutters supported on its periphery adapted to have longitudinal and rocking movements in the plane of the wheel, substantially as shown and described.

5. In a machine for forming hollow building-blocks, a perforating-wheel having pairs of ears upon its periphery parallel with the plane of the wheel, and provided with longitudinal slots, said wheel having lugs adjacent to the ears formed with slots in the plane of the wheel, a tubular cutter and a socket for said cutter formed with trunnions adapted to both rock and slide in the slots of said ears, and having laterally-projecting arms engaging in the slotted lugs, and springs arranged to hold said cutter normally midway between said ears and allow it to yield or move with the clay as the same is forced from the die, substantially as shown and described.

6. In a machine for forming hollow building-blocks, the combination with a tubular forming-die, an embossing-roller at the discharge end of said die, and a roller having a pattern on its face corresponding with that of the embossing-roller, arranged to apply coloring-matter to the embossed face of the block as the latter is forced from the die, substantially as shown and described.

576,261. BELT AND SKIRT FASTENER. GEORGE P. FARMER, Montclair, N. J. Filed June 11, 1896. Serial No. 595,092. (No model.)

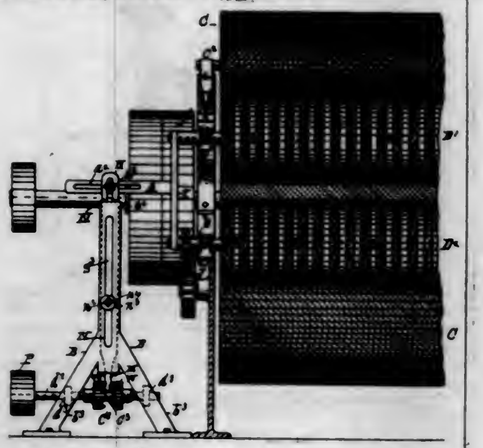


Claim.—In a device of the character described, the combination of a loop having doubled wire members, the end portions of said doubled wire members being bent outwardly in opposite directions, a plate secured to said end portions, and a safety-pin hinged to said plate, substantially as shown and described.

576,262. MECHANISM FOR VIBRATING DOFFER-ROLLS. JOHN FENNESSY and JOHN M. PILLING, Cohoes, N. Y. Filed Apr. 15, 1896. Serial No. 587,605. (No model.)

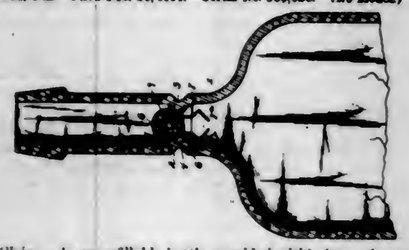
Claim.—1. In an apparatus for horizontally vibrating doffer-rollers, the combination with a standard that is vertically slotted, and has downwardly and outwardly projected legs provided with bearings; of a driving-shaft having a two-part wheel mounted thereon and provided with cams on its inner surfaces; a vertically-arranged bar provided with an adjustable fulcrum connection with the slot in said standard, and its lower end adapted to be vibrated by said cams;

a horizontal bar making a connection with said vertical bar; and doffer-rollers provided with shafts on which to turn and reciprocatingly move horizontally, said shafts connecting with said horizontal bar, substantially as and for the purposes set forth.



2. The combination with the doffer-rollers D', and D^2, each having the spacing-rings R, and provided with shafts having bearings on which to turn and be reciprocated horizontally, of the arm I, connected to said doffer-roller shafts; a horizontal bar A, connected to said arm I; the standard B, provided with the slot S^2; the vibratory bar N, adjustably connected pivotally to the bar A, at its upper end; the two-part wheel W, constructed with the cams C^2, on its inner surface; making a connection with the lower end of the bar N, and the driving-shaft d^3, constructed and arranged to be operated, substantially in the manner as and for the purposes set forth.

576,263. ANTIREFILLING BOTTLE. CEPHAS GILBERT, Branford, Fla. Filed Feb. 20, 1896. Serial No. 580,023. (No model.)

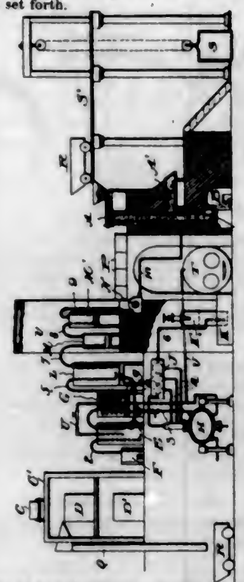


Claim.—A non-refillable bottle provided within its neck portion with an annular rib 3 having oppositely-inclined upper and lower faces, the upper face being ground to constitute a valve-seat and the lower face forming a stop for the valve, a ball-valve or stopper consisting of a glass sphere having a single piece of spring-wire bent centrally to form a $\sqcap$-shaped connecting portion 9 secured within the ball, parallel portions 7 projecting outward from said ball to permit limited movement to the valve, and the terminal ends of said wire being bent oppositely outward and then inward to form the spring stops 7^a, said valve being designed for insertion within the neck of the bottle, and the wire arms to be pressed inward to pass the rib 3 to permit a limited movement when the bottle is tipped and prevent removal of the valve, substantially as described.

576,264. PROCESS OF MAKING CYANIDS. JAMES D. GILMOUR, Glasgow, Scotland. Filed Oct. 9, 1893. Serial No. 487,631. (No specimens.) Patented in England Dec. 31, 1892, No. 24,116.

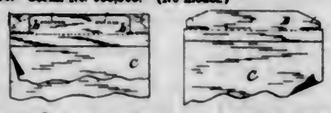
Claim.—1. In the art of manufacturing cyanogen compounds, the herein-described process which consists in passing carbon dioxid and atmospheric nitrogen through a solution of a cyanid, forming hydrocyanic acid and a carbonate of the base of the cyanid, substantially as set forth.

2. In the art of manufacturing cyanogen compounds, the herein-described process which consists in passing carbon dioxid and atmospheric nitrogen through a solution of a cyanid, forming hydrocyanic acid and a carbonate of the base of the cyanid, then separating such acid and carbonate, drying the carbonate and mixing it with carbonaceous material and passing through such mixture, while maintained at a high temperature, the nitrogen freed from the said carbon dioxid, substantially as set forth.



3. In the art of manufacturing cyanogen compounds, the herein-described process which consists in treating a mixture of carbonaceous material and an alkali at a high temperature with nitrogen forming a cyanid, lixiviating such cyanid, passing through the solution of the cyanid carbon dioxid and nitrogen while the solution is at a high temperature, forming hydrocyanic acid and a carbonate of the base of the cyanid, separating the said acid and carbonate, purifying the vapors which pass through the said solution to leave the nitrogen practically free, and passing this nitrogen through the said mixture of carbonaceous material and alkali, while the latter is maintained at a high temperature substantially as set forth.

576,265. COPYING-BOOK. JOHN A. GRAHAM, Chicago, Ill., assignor to the Carter-Crume Company, Niagara Falls, N. Y. Filed Sept. 10, 1896. Serial No. 605,396. (No model.)



Claim.—1. In a copying-book, the combination with the leaves, of a back secured to the bound end of the leaves and provided with a pair of parallel apertures in one end, a carbon-sheet, and a piece secured to one end of the carbon-sheet, and provided with a pair of tongues extending in opposite directions to enter said apertures and hold the piece to the back, as set forth.

2. In a copying-book, the combination with the leaves, of a back secured to the bound end of the leaves, one end of the back being turned over upon the upper side of the leaves and having therein a pair of slits lying parallel with each other and with the side edges of the leaves, a carbon-sheet, and a piece secured to the carbon-sheet having a pair of tongues to enter the said slits, as set forth.

3. In a copying-book, the combination with the leaves, of a back secured to the bound end of the leaves, one end of the back being turned over upon the upper side of the leaves and having therein a pair of apertures, a carbon-sheet, and a flexible piece secured to the end of the carbon-sheet having a pair of tongues extending outwardly in opposite directions to enter the said apertures, as and for the purpose described.

4. In a copying-book, the combination with the original and duplicate leaves and stubs bound together at the stub end by staples, a back having one end turned over and lying upon the upper side of the stub end and bound to the leaves by the said staples, said turned-over end of the back having a pair of slits extending parallel with the side edges of the leaves, a carbon-sheet, and a flexible piece secured to the end of the carbon-sheet having a pair of tapered tongues extending outwardly in opposite directions and entering the said slits, as and for the purpose described.

576,266. ADVERTISING DEVICE. HENRY GREEN, Hartford, Conn. Filed Feb. 8, 1896. Serial No. 578,492. (No model.)



Claim.—1. An incandescent-light globe having a capped or coated surface and provided with a letter or character on one or more of its sides and also on its end, whereby parts of said globe are rendered opaque by such surface.

2. An advertising device comprising an incandescent-light globe having its end provided with a capped or coated surface, thereby covering a relatively large area of said globe and rendering such end opaque, said globe also having a letter or character formed thereon by having a part of such capped or coated surface removed.

3. An advertising device consisting of a series of incandescent-light globes, each of said globes having a series of letters or characters thereon, whereby the same or a different advertisement can be read from different directions.

4. An advertising device comprising a series of removable and interchangeable incandescent electric-light globes, each of said globes having its end provided with a capped or coated surface, thereby covering a relatively large area of said globe and rendering the same opaque, each of said globes also having a letter or character formed thereon at its end, of lesser area than the capped or coated surface, by having a part of such surface removed, and said globes being so disposed relatively to each other that the letters or characters will form a symbol, sign, word, or advertisement.

5. An incandescent-light globe having substantially flat sides and a substantially flat end and having a capped or coated surface and provided with a letter or character on each of its sides and end, whereby parts of said globe are rendered opaque by such surface.

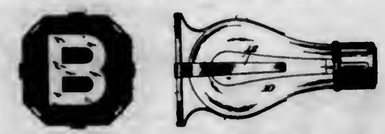
6. An advertising device consisting of an electric-light globe and a removable cap having a letter or character cut or formed therein and fitting on and engaging the exterior surface of the globe, to thereby render opaque parts of said globe, and thus permit said letter or character to be illuminated.

7. An advertising device consisting of an electric-light globe and a removable cap having a letter or character cut or formed therein at one or more of its sides and at its end and fitting on and engaging the exterior surface of said globe, to thereby render opaque parts of said globe, and permit said letters or characters to be illuminated at such side or sides and end of the globe.

8. An advertising device consisting of an electric-light globe and a removable cap having spring clamping-arms, and having a letter or character cut or formed thereon and adapted to be clamped on and to engage said globe, to thereby render opaque parts of said globe, and permit said letter or character to be illuminated.

9. An advertising device consisting of a series of incandescent electric filament lamps or globes disposed in position side by side, and each of said lamps or globes having one or more letters thereon, whereby when assembled they will constitute an advertisement, word, or character.

576,267. ADVERTISING DEVICE. HENRY GREEN, Hartford, Conn. Filed May 2, 1896. Serial No. 590,010. (No model.)



Claim.—1. An incandescent-electric-light globe in combination with a freely-removable device having one or more letters or characters thereon and provided with means for directly engaging the bulb of said globe.

2. An advertising device comprising a series of incandescent-electric-light globes and a series of interchangeable and removable devices, each of said devices having one or more letters or characters thereon and provided with clamping means for engaging said globe.

3. An advertising device comprising an incandescent-electric-light globe and a freely-removable letter-plate having means for directly engaging said globe, whereby said plate will be secured in position relatively thereto.

4. An advertising device comprising an incandescent-electric-light globe and a letter-plate having clamping-arms adapted to engage the globe.

5. An advertising device comprising an incandescent-electric-light globe and a letter-plate having spring clamping-arms adjustably and removably engaging said globe.

6. An advertising device comprising an incandescent-electric-light globe, a letter-plate, and clamping-arms removably secured to the letter-plate and adjustably and removably engaging the globe.

7. An advertising device comprising an electric-light globe; a device having a letter or character thereon, and provided with a spring clamping skeleton frame adapted to engage the globe at its ends or sides for securing the plate in position relatively thereto.

8. An advertising device comprising an electric-light globe; a letter or character plate; and clamping means comprising a series of spring clamping-arms shaped to engage the globe, and having a recessed rim or member into which the edge of the letter-plate fits.

9. An advertising device comprising an incandescent-electric-light globe; a letter or character plate; and clamping-arms engaging the globe and having recessed portions engaging the edge of the plate.

10. An advertising device comprising an incandescent-electric-light globe; a letter or character plate; and clamping means comprising clamping-arms adapted to engage the globe and having a rim adapted to engage the edge of the plate, said rim being provided with devices for holding said plate in position.

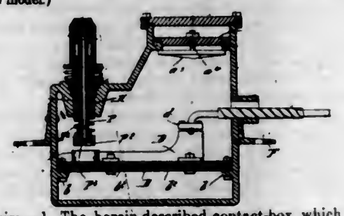
11. An advertising device comprising a series of incandescent-electric-light globes and a series of removable and interchangeable devices, each of said devices having one or more letters or characters cut or formed thereon, and having clamping means directly engaging one of the incandescent-light globes, whereby said devices can be interchanged with each other to form different advertisements.

12. An advertising device comprising an incandescent-electric-light globe, and a device having clamping-arms engaging said globe and having a letter or character thereon.

13. An advertising device comprising an incandescent-electric-light globe, and a letter or character cap or plate covering the end of said globe and having spring clamping-arms engaging said globe.

14. An advertising device comprising a series of incandescent-electric-light globes and a series of removable and interchangeable letter or character caps or plates covering the ends thereof, each of said caps or plates having spring clamping-arms for removably holding the same on its respective globe.

576,268. CONTACT-BOX FOR DEPRESSIBLE CONDUCTOR-RAILS. WILLIAM GRUHOW, Jr., Bridgeport, Conn., assignor of one-half to Zalmon Goodsell, same place. Filed May 8, 1896. Serial No. 590,787. (No model.)



Claim.—1. The herein-described contact-box, which is adapted for use in connection with electrical railways, provided with a depressible contact-rail, said box or casing being provided with a suitable cap or cover, and near the bottom thereof with a transverse non-conducting partition plate or bar, provided with perforations and on which is mounted a conducting-bar with one end of which a cable or conductor is connected, said box being also provided with a vertically-movable insulated shaft which is adapted to make contact with the opposite end of said bar, and which is adapted to be depressed by the depressible rail, substantially as shown and described.

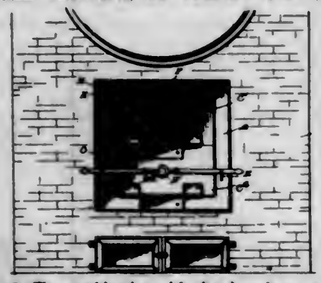
2. The herein-described contact-box, which is adapted for use in connection with electrical railways, provided with a depressible contact-rail, said box or casing, being provided with a suitable cap or cover, and near the bottom thereof, with a transverse non-conducting partition plate or bar, provided with perforations and on which is mounted a conducting-bar, with one end of which a cable or conductor is connected, said box being also provided with a vertically-movable insulated shaft which is adapted to make contact with the opposite end of said bar, and forced downwardly against the action of the spring thereon and which is adapted to be depressed by the depressible rail, and said shaft being mounted in a vertically-movable sleeve from which it is insulated, and adapted to move therewith, and said sleeve being spring-supported, substantially as shown and described.

3. The herein-described contact-box, which is adapted for use in connection with electrical railways, provided with a depressible contact-rail, said box or casing being provided with a suitable cap or cover, and near the bottom thereof, with a transverse non-conducting

partition plate or bar, on which is mounted a conducting-bar, with one end of which a cable or conductor is connected, said box or casing being also provided with a vertically-movable insulated shaft which is adapted to make contact with the opposite end of said bar, and which is adapted to be depressed by the depressible rail, and said shaft being mounted in a vertically-movable sleeve from which it is insulated, and adapted to move therewith, and said sleeve being spring-supported, and said shaft being provided at its lower end, with a spring-cushioned sleeve which is adapted to slide thereon, substantially as shown and described.

4. The herein-described contact-box, which is adapted for use in connection with electrical railways, provided with a depressible contact-rail, said box or casing being provided with a suitable cap or cover, and near the bottom thereof, with a transverse non-conducting partition plate or bar, on which is mounted a conducting-bar, with one end of which a cable or conductor is connected, said box or casing being also provided with a vertically-movable insulated shaft which is adapted to make contact with the opposite end of said bar, and which is adapted to be depressed by the depressible rail, and said shaft being mounted in a vertically-movable sleeve from which it is insulated, and adapted to move therewith, and said sleeve being spring-supported, and said shaft being provided on its lower end with a spring-cushioned sleeve which is adapted to slide thereon, and said partition plate or bar being perforated, substantially as shown and described.

576,269. **LOCOMOTIVE TRAP-DOOR.** FRANCIS I. HORSFOOT, Ogden, Utah. Filed Feb. 15, 1896. Serial No. 579,463. (No model.)



Claim.—1. The combination with the door-frame, of the door hinged thereto and comprising the upper and lower sections hinged together, the locking-levers pivoted upon the lower section the inner ends of said levers connecting with each other, the catches carried upon the door-frame and adapted to engage the outer ends of the locking-lever and the locking-catch arranged upon the upper section of the door substantially as shown and described.

2. The combination with the door-frame and door, said door comprising the upper and lower sections, the deflector-plate G, permanently attached to the inner side of the lower section of the door, the adjustable deflector-plate H, attached to a transverse bar journaled in the door-frame substantially as shown and described.

576,270. **THRESHING-MACHINE.** EDWARD HUBER, Marion, Ohio. Filed Apr. 2, 1896. Serial No. 585,853. (No model.)

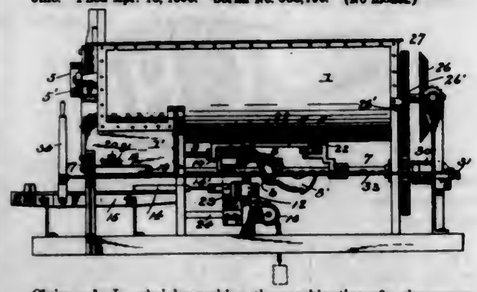


Claim.—1. In a threshing-machine, the combination with two or more shaker-bars forming the sides of the separator-frame having a plurality of offsets or teeth upon their lower edges, and two series of slats or bars arranged upon the offsets, one of which series is adapted to project below the other to arrest the straw.

2. In a threshing-machine, the combination of two or more shaker-bars forming the sides of the separator-frame, having a plurality of offsets or teeth upon their lower edges, and two series of slats or bars arranged in pairs upon the inclined faces of the offsets or teeth, one of which series is adapted to extend below the other for the purposes described.

3. A grain-separating device for threshing-machines, comprising two or more shaker-bars, provided, upon their lower edges, with a plurality of offsets or teeth having inclined faces as described, cross-bars or slats in pairs, spaced from each other as described, arranged upon each inclined face, the lower bar of each pair extending below the spaces to form a stop for the straw, substantially as described.

576,271. **BRICK-MACHINE.** JOHN P. KINKEAD, Upper Sandusky, Ohio. Filed Apr. 18, 1896. Serial No. 588,196. (No model.)



Claim.—1. In a brick-machine, the combination of a clay-receptacle having a press-box, said box containing a shaft 2 with blades for feeding the clay to the press-box, a plunger 3 in the press-box, a lever 5 having an elliptical opening and connected with said plunger, a cam or arm 6 on shaft 2 engaging the elliptical opening to operate said lever, a second plunger 4 in the press-box standing at angles to the plunger 3, and a shaft 7 outside the press-box having a cam to operate the plunger 4, substantially as described.

2. In a brick-machine, the combination of a clay-receptacle having a press-box, said box containing a shaft 2 with blades for feeding the clay to the press-box, a plunger 3 in the press-box, a lever 5 having an elliptical opening and connected with said plunger, a cam or arm 6 on shaft 2 engaging the elliptical opening to operate said lever, a second plunger 4 in the press-box at angles to the plunger 3, a molding-table, a mold-pusher 14, a shaft 7 outside the press-box, and a screw-cam on shaft 7 having actuating-surfaces of different pitch adapted to operate the plunger 4 and mold-pusher 14, substantially as described.

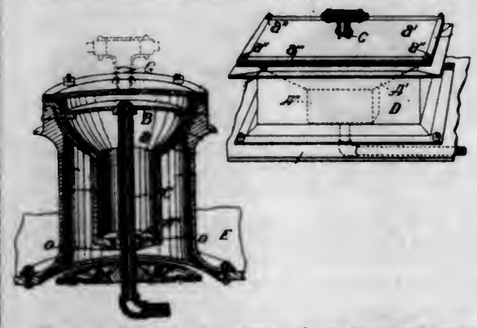
3. In a brick-machine, the combination of a clay-receptacle having a press-box, said box containing a shaft 2 with blades for feeding the clay to the press-box, a plunger 3 in the press-box, a lever 5 having an elliptical opening and connected with said plunger, and a cam or arm 6 on said shaft engaging the elliptical opening to operate lever 5, substantially as described.

4. The combination of a clay-receptacle having a press-box, a horizontal plunger in said box, a molding-table, a pusher, and a shaft 7 provided with a screw-cam having actuating-surfaces of different pitch adapted to actuate the plunger and pusher, substantially as described.

5. In a brick-machine, a clay-receptacle and press-box, a horizontal plunger in said box, a molding-table, a mold-pusher, a shaft 7 having screw-cams 8 and 8', the cam 8 having actuating-surfaces *a* and *b* of different pitch whereby a reciprocating motion is imparted to the plungers by parts 8 and 8' and a motion to the pusher in one direction by the part 8, substantially as described.

6. In a brick-machine, a clay-receptacle and press-box, a horizontal plunger in said box, a molding-table, a mold-pusher, and a shaft having a screw-cam 8 having spiral or screw surfaces of different pitch for actuating the plunger and pusher.

576,272. **HYDROCARBON-BURNER.** JOHN R. LARSON, Los Angeles, Cal. Filed Feb. 19, 1896. Serial No. 579,543. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of a retort having its bottom inclined toward the center and having a centrally-arranged well provided with an outlet; an imperforate spreader-plate arranged in the chamber of the retort to spread the hydrocarbon and deliver it upon the inclined bottom of the retort; and means for feeding hydrocarbon upon the spreader-plate.

2. In a hydrocarbon-burner, a retort provided with an outlet and having its bottom inclined from all sides toward the center; a spreader-plate arranged above the bottom of the retort and sloping from its center outward; and means for feeding hydrocarbon upon the center of the spreader-plate.

3. In a hydrocarbon-burner, the combination of a retort having its bottom sloping toward the center, and provided with a centrally-arranged well having outlets; a spreader-plate arranged in the chamber of the retort; a feed-pipe passing through the well and upward through the spreader-plate; and a cap arranged to form the top of the retort.

4. In a hydrocarbon-burner, the combination of a retort provided with a sloping bottom and a centrally-arranged well; a spreader-plate situated in the retort and adapted to spread hydrocarbon upon the sloping bottom thereof; a feed-pipe passing through the well and the spreader-plate; a flue surrounding the well and open at top and bottom; and a draft-plate secured upon the feed-pipe and arranged to regulate the air admitted to the flue.

5. In a hydrocarbon-burner, the combination set forth of a retort-base having its bottom sloping from all sides toward the center, and provided with a central well and discharge-openings leading therefrom; a feed-pipe screwed through the bottom of the well, passing up through the well and having its top screw-threaded; a spreader-plate screwed upon the top of the feed-pipe; a cap secured to the body of the retort to form the top thereof; a flue surrounding the well and the bottom of the retort and flaring outwardly at top and bottom; and a draft-plate arranged upon the feed-pipe below the bottom of the well and adapted to screw therealong to regulate the admission of air into the flue.

6. In a hydrocarbon-burner, the combination set forth of a retort having its bottom sloping from all sides toward the center, and provided with a centrally-arranged well and discharge-openings; a spreader-plate situated in the chamber of the retort and sloping from the center outward; means for feeding hydrocarbon upon the center of the spreader-plate; a cap arranged to form the top of the retort; and a flue, open at top and bottom and surrounding the well and the bottom of the retort.

7. In a hydrocarbon-burner, the combination set forth of a hemispherical retort provided at its bottom with a well having the openings leading therefrom; a spreader-plate arranged in the chamber of the retort; means for feeding hydrocarbon upon the spreader-plate; and a flue, open at top and bottom and surrounding the well and the bottom of the retort

8. In a hydrocarbon-burner, the combination set forth of a retort having an outlet; and a reversible spreader-plate having one side sloping from the center outward, and its other side sloping from the outside to the center, and means for feeding hydrocarbon oil upon the spreader-plate, as and for the purpose set forth.

9. In a hydrocarbon-burner having downwardly-discharging outlets, an initial-burner plate arranged in the path of the flame discharged from the outlets and having its center portion flaring downwardly and outwardly and its outer portion provided with pits or pockets and draft-openings passing through the plate.

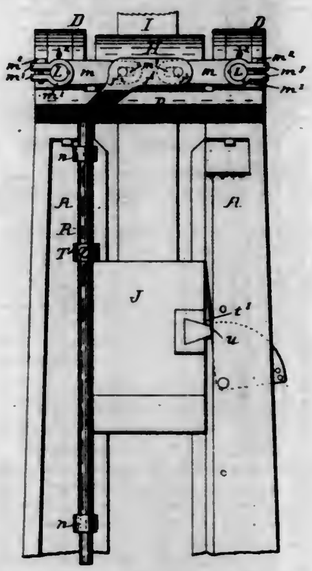
10. A hydrocarbon-burner comprising a retort having its bottom sloping toward the center, and a vaporizing and spreading plate arranged in the chamber and having its upper face sloping from its center to its circumference to spread the oil and to deliver it upon the upper portion of the sloping bottom of the retort; and a pipe arranged to feed oil upon the center of the plate.

11. In a hydrocarbon-burner, the combination set forth of a retort having downwardly-discharging outlets; a spreader-plate situated in the retort; means for feeding hydrocarbon upon the spreader-plate; a flue surrounding the retort; an initial-burner plate arranged in the path of the flame discharged from the outlets and having its center portion flaring downwardly and outwardly and its outer portion provided with pits or pockets, and draft-openings passing through the plate.

576,273. **DROP-HAMMER.** FRANK LOMBARD, Hartford, Conn. Filed Oct. 6, 1896. Serial No. 608,019. (No model.)

Claim.—1. In drop-hammers, the combination of the head or frame, a hammer and friction-board, a pair of friction-rolls, boxes supporting the shafts of the rolls, and mounted in the head or frame, one of said rolls and its boxes being movable horizontally in the frame, a pair of screw-shafts journaled in the frame or head secured against end play therein, and having their inner ends screw-threaded, nuts formed or secured upon the boxes, having the threaded ends of the screw-shafts screwed therein, levers secured upon the ends of the screw-shafts, a trip-rod mounted upon the frame, and engaging the said levers by a pin-and-slot connection, whereby the vertical movement of the rod is adapted to move the friction-roll and its boxes horizontally in the head, substantially as and for the purpose specified.

2. In drop-hammers, the combination of the head or frame, a hammer and friction-board, a pair of friction-rolls, boxes supporting the shafts of the rolls and mounted in the head or frame, one of said rolls and its boxes being movable horizontally in the head or frame, a pair of screw-shafts journaled in the frame at right angles to the shafts of the rolls, and secured against endwise movement in their bearings, screw-threads formed upon the inner ends of the screw-shafts, each of said screws having its pitch in the opposite direction to that of the other, nuts secured upon the said movable boxes and receiving the threaded ends of the screws, levers secured upon the outer ends of the screw-shafts, and extending toward each other a trip-rod guided on the frame and pivoted or connected to the outer ends of said levers, and means for elevating the trip-rod by the action of the hammer, substantially as and for the purpose specified.



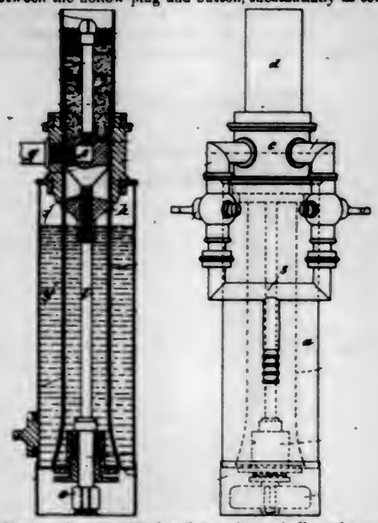
3. In drop-hammers, the combination of the head or frame B, uprights A, hammer J and friction-board 1, the boxes F, mounted in the head, and the boxes F' mounted in the head and movable horizontally therein, friction-rolls having their shafts journaled in said boxes, the screw-shafts l^3 journaled in the head-frame, and secured against endwise motion therein, and screw-threaded at their inner ends, the threads of each screw having their pitch opposite to that of the other, the nuts *f'* secured to the boxes F, the levers *m* secured upon the outer ends of the boxes, the trip-rod R pivoted to the ends of said levers, means for elevating said trip-rod by the action of the hammer, and latch mechanism for holding the hammer in elevated position, substantially as and for the purpose specified.

576,274. **OIL-LAMP FOR REMOVING PAINT, &c.** JAMES MACDONALD, Edinburgh, Scotland. Filed Dec. 26, 1895. Serial No. 573,242. (No model.) Patented in England July 18, 1895, No. 13,717.

Claim.—1. In a lamp for removing paint, plumbers' work, and for other like purposes, the combination with an oil-container adapted to be grasped in the hand like a torch, a hollow plug secured in the end of the container and a mixing-chamber secured in the end of said hollow plug, of a cylindrical wick extending from the container, through said hollow plug into the mixing-chamber, a block fitted in said hollow plug, within the wick, and having a channel extending through it and a vertical groove or passage in its upper part, and two tubes fitted to the container and adapted to be connected to an air-blast device and terminating respectively in said channel and vertical groove and to deliver two blasts of air under pressure to the inside of the wick, substantially as set forth.

2. The combination with the oil-container, a hollow plug secured in the end of said container and a mixing-chamber secured in the end of said hollow plug, of a cylindrical wick extending from the container into the mixing-chamber, a block fitted in said hollow plug within the wick, and provided with two independent channels, a tubular nipple fitted in the top of said block in communication with one of its channels and extending through the mixing-chamber and a bifurcated air-blast pipe one branch of which is in communication with the channel of the block with which said tubular nipple communicates and the other branch is fitted into the channel of the block opening into the mixing-chamber, substantially as set forth.

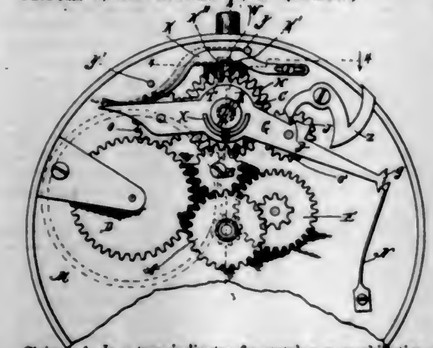
3. The combination with the oil-container, a hollow plug secured in the end of the container and a mixing-chamber secured in the end of said hollow plug, of a cylindrical wick extending from the container through the hollow plug into the mixing-chamber, means for supplying an air-blast to the mixing-chamber within the cylindrical wick, a button or stop-piece arranged within the wick below said hollow plug, and means connected to said button and extending through the bottom of the container for adjusting the button to clamp the wick between the hollow plug and button, substantially as set forth.



4. The combination with the oil-container, a hollow plug secured in the end of the container, a mixing-chamber secured in the end of the hollow plug and a cylindrical wick extending from the container through the hollow plug into the mixing-chamber, of a block fitted within the wick in the hollow plug and provided with channels and with a tubular nipple extending through the mixing-chamber, a bifurcated air-blast pipe arranged to deliver air through said tubular nipple and also into the bottom of the mixing-chamber, and means for regulating the supply of oil through the wick to the mixing-chamber, substantially as set forth.

5. The combination with the oil-container, a hollow plug secured in the end of said container and a mixing-chamber secured in the end of the hollow plug and containing cotton-waste or the like, of a tubular wick extending from the container through said hollow plug into the mixing-chamber, a block fitted in said hollow plug, within the wick, and provided on its bottom with a screwed projection, a stop-piece or button screwed on said projection, an adjusting-rod connected to said stop-piece and extending through the bottom of the container, and means for supplying air to the mixing-chamber, substantially as set forth.

576,275. **TIME-INDICATOR.** JOHN W. NUNAMAKER, Chicago, Ill. Filed Jan. 30, 1895. Serial No. 536,692. (No model.)



Claim.—1. In a time-indicator for watches in combination with the winding mechanism a loose wheel C operated by the mainspring and provided with a locking device to engage with the crown-wheel H, substantially as described.

2. The combination in a time-indicator for watches of the winding mechanism, and the crown-wheel H, provided with the shoulder T, the loose wheel C provided with the slot S, and intermediate wheel B, geared into the hour-wheel A, and loose wheel C, substantially as shown.

3. In a time-indicator for watches in combination with the winding mechanism the crown-wheel H, and loose wheel C, both provided with a locking device and loose wheel C, operated by the mainspring and the yoke G provided with the ratchet *g*, and the spring N, substantially as described.

4. In a time-indicator for watches in combination with the winding mechanism, the crown-wheel H provided with the shoulder T, to engage with the slot S of the loose wheel C, and the click-spring K, provided with the slot W for reception of shoulder T, substantially as described.

5. In a time-indicator for watches in combination with the winding mechanism the crown-wheel H and loose wheel C, both provided with a locking device and the latter operated by the mainspring, the yoke G provided with the ratchet *g*, and shoulder J, the yoke lever Z, and spring N, substantially as described.

6. In a time-indicator for watches in combination with the winding mechanism, the crown-wheel H provided with the shoulder T, the loose wheel C, provided with the slot S, the intermediate wheel B, geared into the hour-wheel A, and loose wheel C, the yoke G, provided with the ratchet *g*, shoulder J, and finger-spring X, the yoke-spring K provided with the slot W, the pins *y*, and *y'* and yoke-lever Z, substantially as described.

576,276. **MULTICOLOR-PRINTING MACHINE.** JOHN W. OSBORNE, Washington, D. C. Filed Mar. 25, 1893. Serial No. 467,581. (No model.)



Claim.—1. In a multicolor-press, the combination with a moving impression-surface of a printing group, such group consisting of a plurality of form-cylinders associated together, each cylinder carrying a printing-form on part of its surface, the length of the entire form-surface of such group being equal to the circumference of one of the form-cylinders, and the forms being arranged to print successively against the impression-surface; substantially as described.

2. In a multicolor-press, the combination with a moving impression-surface of a plurality of printing groups, each group consisting of a plurality of form-cylinders associated together, each cylinder carrying a printing-form on part of its surface, the length of the entire form-surface of each group being equal to the circumference of one of the form-cylinders, and the forms and groups being arranged to print successively against the impression-surface; substantially as described.

3. In a multicolor-press, the combination with a moving impression-surface of a plurality of printing groups, each group consisting of a plurality of form-cylinders associated together, each cylinder carrying a printing-form on part of its surface, the length of the entire form-surface of each group being equal to the circumference of one of the form-cylinders, and the forms and groups being arranged to print successively against the impression-surface, with inking apparatus for each group adapted for inking the forms thereof with the necessary color; substantially as described.

4. In a multicolor-press, the combination with a moving impression-surface of a plurality of printing groups, each group consisting of a plurality of form-cylinders associated together, each cylinder carrying a definitely-removable printing-form on part of its surface, the length of the entire form-surface of each group being equal to the circumference of one of the form-cylinders, and the forms and groups being arranged to print successively against the impression-surface; substantially as described.

5. In a multicolor-press adapted for web-printing, the combination with the impression-cylinder carrying the web of a plurality of printing groups, each group consisting of a plurality of form-cylinders associated together, each cylinder carrying a definitely-removable form covering part of the surface thereof, and attached to a sleeve fitted to its cylinder; the length of the entire form-surface of each group being equal to the surface of one of the form-cylinders, and the forms and groups being arranged to print successively and in register upon the web of paper carried by the impression-cylinder; substantially as described.

6. In a multicolor-press adapted for web-printing, the combination with the impression-cylinder carrying the web of a plurality of printing groups, each group consisting of a plurality of form-cylinders associated together, each cylinder carrying a definitely-removable form covering part of the surface thereof, and attached to a sleeve mutilated substantially as described and fitted to its cylinder; the length of the entire form-surface of each group being equal to the surface of one of the form-cylinders, and the forms and groups being arranged to print successively and in register upon the web of paper carried by the impression-cylinder; substantially as described.

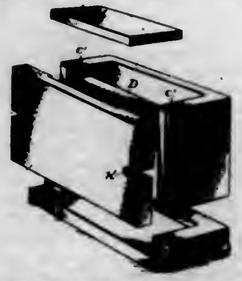
7. An apparatus for bringing into register multicolored-forms for rotary presses before placing them in printing position, consisting of means whereby the form and its support may be held to revolve under the same conditions as when in the press; and register-adjusting apparatus so located with respect to the form-supporting devices that each form of a multicolor series may be brought into such relation to its support that when all the forms and supports are properly mounted and held in the press the forms will print in register; substantially as described.

8. An apparatus for adjusting forms for rotary presses before placing them in printing position, consisting of an axle turning in suitable bearings and carrying a form-supporting sleeve or stock which corresponds to the supporting sleeve or stock of each form-cylinder in the press; register-adjusting apparatus so placed with respect to the axle and supporting-sleeve that each form when attached thereto may be given its due position with reference to said axle and sleeve; and consequently to the corresponding axles and form-supports in the press, so that all the forms so adjusted shall print in register when mounted and held in the press; substantially as described.

9. An apparatus for adjusting forms for rotary presses before placing them in printing position, consisting of an axle turning in suitable bearings and carrying a form-supporting sleeve or stock which corresponds to the supporting sleeve or stock of each form-cylinder in the press; with register-adjusting apparatus consisting of a divided measuring-bar provided with pointers, and connected with or attachable to the axle which carries the form and its support; whereby the position of each form may be determined with reference to the axle and cylindrical support which carries it, and with reference to the other forms in the multicolor series which will register accordingly when the same are returned to position in the press; substantially as described.

10. In a multicolor-press the combination of the following elements; an impression-cylinder free upon an axis and provided with two bearers coincident with the face of the packed surface between them; a plurality of form-cylinders carrying relief-forms in operative relation thereto, each provided with two bearers coincident with the face of the form-surface between them; and means for driving said form-cylinders, and in consequence the common impression-cylinder likewise, by the metallic frictional contact of the form-cylinder bearers with those of the impression-cylinders; substantially as described.

576,277. **MOLD.** WILLIAM S. PARKER, Austin, Tex., assignor of two-thirds to Otto Bergstrom and Robert M. Armstrong, same place. Filed Mar. 25, 1896. Serial No. 584,866. (No model.)



Claim.—1. In a mold for the purpose described, the combination with the base, having an inwardly-projecting raised portion, of the body portion, the former-block and face-plate, and means for connecting said parts, substantially as shown and described.

2. In a mold for the purpose described, the combination with the base, having an inwardly-projecting raised portion, the body portion, the face-plate, the top piece, and the former-block; said top piece resting upon the former-block and projecting outwardly over the sides thereof, but not in contact with the body portion; and means for uniting all of said parts, substantially as shown and described.

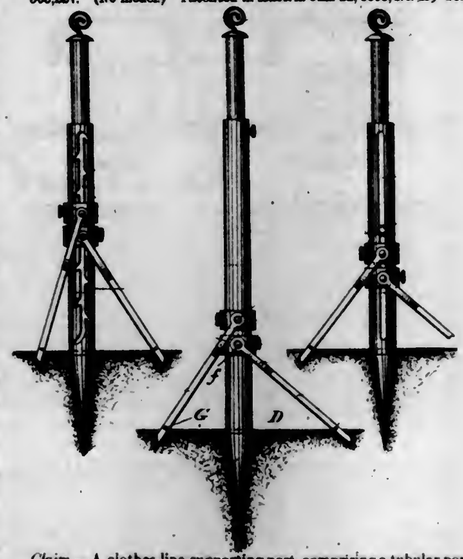
3. In a mold for the purpose described, the combination with the base, having a raised portion, of the body portion, the former-block, the face-plate, and top piece; said top piece being of an area greater than the former-block, but not in contact with the body portion; the locking-band and bolt, the spacing-sleeve and handle nuts, all arranged substantially as shown and described.

4. In a mold for the purpose described, the combination with the base, constructed as described, of the body portion, the interior corners of which are rounded, the former-block, the corners of which are rounded or curved, the face-plate having recesses to receive the edges of the body portion and former-block, the locking-band and bolts, the spacing-sleeve and handle-nuts, and the top piece resting upon the former-block, but not in contact with the body portion, said top piece being of an area greater than the former-block, substantially as shown and described.

576,278. **PROCESS OF REFINING COCOANUT-OIL.** MARIE C. A. RUFFIN, Paris, France. Filed Feb. 7, 1896. Serial No. 578,396. (No specimens.)

Claim.—The within-described method of purifying cocoanut-oil and its crystalline product of their contained fat acids, consisting in first heating said oil or product to the melting-point, next adding lime and water thereto to produce an emulsion and afterward subjecting this emulsion to evaporation and agitation *in vacuo* at a low temperature whereby the water is expelled and the lime and the fat acids are caused to be precipitated in the form of lime soap, substantially as described.

576,279. **EXTENSION CLOTHES-LINE POST.** REINHOLD SCHLEHER, Wennebostel, Germany. Filed Oct. 10, 1895. Serial No. 565,227. (No model.) Patented in Austria Jan. 22, 1895, No. 45/382.

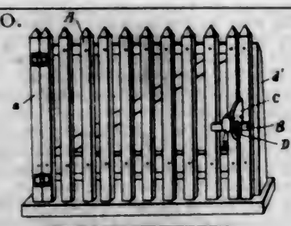


Claim.—A clothes-line-supporting post, comprising a tubular portion having a penetrating point at its base, an adjustable section secured therein, a transverse cross-bar at the head of the penetrating point, and a plurality of collars fitted to the said tubular section and independently adjustable thereon, and brace-bars having forked or bail-shaped upper ends pivoted to the adjustable collars and penetrating points for entering the ground at varying angles, substantially as described.

576,280. **GATE-LATCH.** JOSEPH M. SCHNEIDER, Canton, Ohio, assignor of one-half to Elmer Hicks, same place. Filed June 8, 1896. Serial No. 594,664. (No model.)

Claim.—The combination of the catch-bar B, provided with the curved flange or arm *b*, the housing C, provided with the attaching bar or rib *d*, having the elongated slots d^1, the ring D, and the cross bar or pin *f*, all arranged substantially as and for the purpose specified.

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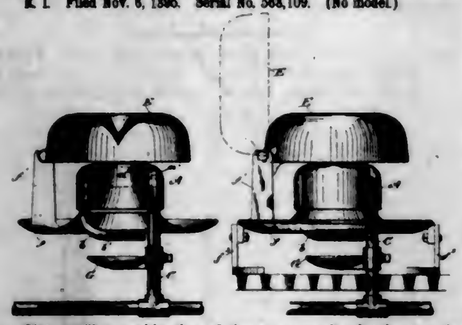


576,281. MEAT-POUNDER. ALBERT B. SCHOFIELD, Brooklyn, N. Y. Filed Feb. 29, 1896. Serial No. 581,240. (No model.)



Claim.—A meat-pounder provided with a series of ridges upon each of two opposite faces, the ridges upon one face extending at an angle to the ridges on the other face, the said ridges being separated from another by uninterrupted channels, substantially as set forth.

576,282. OIL-GAS GENERATOR. WILLARD A. SMITH, Providence, R. I. Filed Nov. 6, 1895. Serial No. 568,109. (No model.)



Claim.—The combination of the generator-head A having the central opening for the passage of gas and air and a retort-chamber *a'* having a vented burner-tube *b* and a supply-tube *c*, a deflector E above the generator-head having a concave surface presented to the flame ascending from said generator-head, and deflecting the same downward, and a heating-plate *f* having a concave surface presented to the flame deflected from the deflector and heated by said flame, said heating-plate also registering with the central air and gas opening and being on substantially the same level as the gas-vent, whereby said heating-plate forms a heated conduit for the passage of air to the point of ignition, substantially as described.

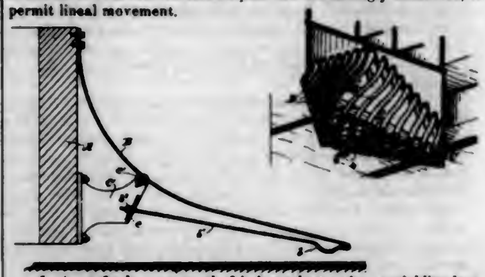
576,283. CAR-FENDER. IRA O. STEPHENS, Oakland, Cal., assignor of one-half to Charles L. Clough, San Francisco, Cal. Filed Oct. 29, 1896. Serial No. 610,415. (No model.)

Claim.—1. A car-fender composed of independent spring or yielding bars, the forward ends of which extend to within proper proximity with the road-bed, rearwardly-extending pieces from the forward ends of said bars, and slidable connections at the rear ends of said pieces for permitting the forward ends of the bars to move down, but holding them from rising.

2. A car-fender composed of independent spring or yielding bars, the forward ends of which are bent under and thence pass backwardly as rear extensions, and a slidable connection at the rear ends of said rear extensions for permitting the forward ends of the bars to move down, but holding them from rising.

3. A car-fender composed of independent spring or yielding bars, the forward ends of which extend to within proper proximity with the road-bed, rearwardly-extending pieces from the forward ends of said bars, and a fixed guide-bar through which the rear extremities of said pieces pass and are slidingly connected, permitting lineal movement.

4. A car-fender composed of independent spring or yielding bars, the forward ends of which are bent under and thence pass backwardly as rear extensions, and a fixed guide-bar through which the rear extremities of said rear extensions pass and are slidingly connected, to permit lineal movement.

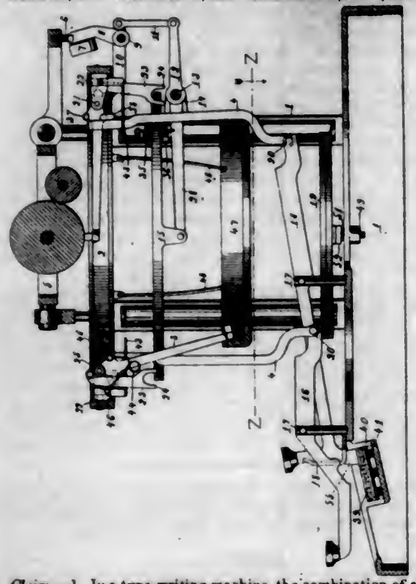


5. A car-fender composed of independent spring or yielding bars having the underlying rear extensions slidably connected at their rear extremities and formed with bearing-shoes near their forward ends.

6. A car-fender composed of independent spring or yielding bars having the underlying rear extensions, and the fixed bracket having the front bar with holes in which the rear extremities of said rear extensions play lineally and are limited by stops.

7. A car-fender composed of independent spring or yielding bars having the underlying rear extensions, and the fixed bracket having the front bar with holes in which the rear extremities of said rear extensions play lineally and are limited by stops, said bracket having a top bar to which the bars are secured above.

576,284. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Elizabeth, N. J. Filed June 12, 1895. Serial No. 552,542. (No model.)



Claim.—1. In a type-writing machine, the combination of a key-lever, a trip pivoted thereto, and a type-bar, the trip being arranged to first contact with and actuate the type-bar, and then to release the same just previous to the impact of the type against the platen, substantially as set forth.

2. In a type-writing machine, the combination of a circular series of type-bars, a series of key-levers the terminations of which occupy or fall within a circle beneath the type-bars, and trips directly connecting the key-levers and type bars, substantially as set forth.

3. In a type-writing machine, the combination of a key, a trip and a type-bar, the trip first actuating and then releasing the type-bar, and a spring connected at one end to some fixed portion of the machine and fastened at the other end to the type-bar, for holding the same in normal position, substantially as set forth.

4. In a type-writing machine, the combination of a finger-key, and a trip actuated by the key and adapted to actuate a type-bar, the type-bar being provided with a projection wherewith the trip engages when actuating the type-bar, and with another projection adapted to contact with the trip to disconnect it from the type-bar, substantially as set forth.

5. In a type-writing machine, the combination of a key, a type-bar, an intermediate trip adapted to actuate said type-bar and release it, and a moving projection normally out of contact with said trip but adapted to come into contact therewith during the depression of the key and force said trip out of active engagement with the type-bar during its ascent to the platen, substantially as set forth.

6. In a type-writing machine, the combination of a key-lever, a trip pivoted thereto and adapted to actuate a type-bar, and a moving striker arranged to contact with the trip and vibrate it to release the type-bar, substantially as set forth.

7. In a type-writing machine, the combination of a finger-key, a type-bar, and a vertical trip arranged alongside of said type-bar and in advance of its pivot, the said type-bar being provided with a lateral pin or projection to be engaged by the trip for the purpose of elevating the type-bar, and also being provided with another lateral pin or projection for forcing the trip out of engagement with the first-mentioned pin or projection, substantially as set forth.

8. In a type-writing machine, the combination of a key-lever, a type-bar, and a vertically-arranged trip having the weight on one side of its pivot and directly connecting the type-bar and key-lever, the said trip being adapted to actuate and release said type-bar and then to return at once by gravity to its initial position or place of rest when the key-lever is relieved from pressure, substantially as set forth.

9. In a type-writing machine, a key-lever of the first order, bearing a key at one end and a trip at the other, the trip being adapted to actuate and release a type-bar and return by gravity to normal position, the weight of the trip giving the trip a vibrating movement and giving the key-lever a downward movement, substantially as set forth.

10. In a type-writing machine, the combination of a type-bar, a swinging trip arranged in a plane parallel to that of the type-bar and pivoted to a lever at its lower end, and at its upper end adapted to engage the type-bar by means of a lateral projection, and means for disengaging the trip from the type-bar, substantially as set forth.

11. In a type-writing machine, the combination of a type-bar provided with a lateral projection, a swinging trip arranged in a plane parallel to that of the type-bar and whose upper end is adapted to engage said lateral projection and elevate the type-bar, and means for disengaging the upper end of the trip from the lateral projection, substantially as set forth.

12. In a type-writing machine, the combination of a type-bar provided with a lateral projection, a swinging trip arranged in a plane parallel to that of the type-bar and whose upper end is adapted to engage said lateral projection and elevate the type-bar, and a second lateral projection as a means for disengaging said trip from the type-bar, substantially as set forth.

13. In a type-writing machine, the combination of a circular series of type-bars, a series of radially-arranged trips, and a series of key-levers bent to radiate at their rear ends and pivotally connected to the trips at the radial bends, substantially as set forth.

14. In a type-writing machine, a series of key-levers, a series of vertically-arranged trips loosely pivoted to the rear ends thereof and adapted to actuate a circular series of type-bars, the type-bars being provided with means to disengage the trips, a universal bar arranged to be actuated by any of said type-bars and connected to the carriage-feeding mechanism, and means for restoring the trips to normal position upon release of the finger-keys from pressure, substantially as set forth.

15. In a type-writing machine, the combination of a series of type-bars arranged in a circle, a series of key-levers arranged thereunder, a series of trips radially arranged from the center of the type-bar system, the said trips being loosely pivoted at their lower ends to said key-levers and extending directly to the type-bars to swing and then part company with them, the pivotal connections of said trips to the key-levers for all key-levers excepting those at the center being made so that said trips have each an angular arrangement with respect to the plane of vibration of its associated key-lever, whereby the side trips may vibrate in vertical planes at varying angles to the planes of vibration of their associated key-levers without causing the latter to bind in their guides or imposing a strain upon them; and means for vibrating said trips on their key-levers and restoring engagement with the type-bars after the key-levers have been relieved from pressure, the said vibrating and restoring means being disconnected from and independent of said key-levers, substantially as set forth.

16. In a type-writing machine, the combination of a universal bar, a series of type-bars, a series of links pivoted thereto, and means for holding the inactive links free from the universal bar during its depression, whereby the universal bar is enabled to descend without frictional contact with said links, substantially as set forth.

17. In a type-writing machine, the combination of a universal bar, a type-bar, and a link attached to the type-bar and adapted to actuate the universal bar, but normally supported out of contact therewith, substantially as set forth.

18. In a type-writing machine, the combination of a type-bar, a universal bar, and a link attached to the type-bar and forked at its lower end to bestride the universal bar, substantially as set forth.

19. In a type-writing machine, the combination of a key-lever bearing a pivoted thrust-trip and a type-bar provided with means between its pivot and the type to engage said thrust-trip, and with a short arm on the other side of its pivot from which depends a link in position to actuate the universal bar, substantially as set forth.

20. In a type-writing machine, a parallel-motion annular universal bar, in combination with four supports extending to or arranged at the four quarters of said universal bar, and connected thereto at the said quarters, so as to permit the necessary bodily movement of said universal bar, substantially as set forth.

21. In a type-writing machine, a universal bar loosely hung in two bails which are connected to the universal bar at the four quarters thereof, substantially as set forth.

22. In a type-writing machine, a universal bar loosely hung in two bails set at a right angle to each other which are connected to the universal bar at the four quarters thereof, substantially as set forth.

23. In a type-writing machine, the combination of a circular series of depending type-bars with an annular universal bar provided with vibrating supports by which it is permitted to move in parallel planes, the universal bar with its supports being arranged outside the system of type-bars and in proximity to the type-bar ring or hangers, and a series of links pivoted to the type-bars and depending therefrom in position to actuate the universal bar substantially as set forth.

24. In a type-writing machine, the combination of a depending type-bar, a platen arranged above it, and a spring attached to the type-bar and arranged to normally hold the type-bar in its depending position, but to diminish its resistance to the finger-touch during the printing motion of the type-bar, substantially as set forth.

25. In a type-writing machine, the combination of a depending type-bar, a platen arranged above it, and a spring adapted to first resist and afterward assist the type-bar during its printing motion, substantially as set forth.

26. In a type-writing machine, the combination of a depending type-bar, a platen arranged above it, the type-bar being pivotally supported and adapted to swing to the platen to make the impression and provided with a spring arranged to bear first on one side of its pivot and then on the other side, whereby the spring first resists and afterward assists the printing action of the type-bar, substantially as set forth.

27. In a type-writing machine, the combination of a key, a type-bar, and a releasing means arranged between the key and the type-bar, and a spring arranged to retain the type-bar in its normal position and to diminish its resistance to the finger-touch during the printing motion of the type-bar, substantially as set forth.

28. In a type-writing machine, the combination of a circular series of depending type-bars and a bodily-flexible loosely-supported type-bar basket retained in place by the pressure of the type-bars, substantially as set forth.

29. In a type-writing machine, the combination of a series of key-levers of the first order, a series of individual fulcra for said levers, the key portions of said levers all being arranged at the front of the machine and their rear portions terminating in a circle under the type-bar system, and an annular support for the rear portions of the said key-levers, substantially as set forth.

30. In a type-writing machine, the combination of a series of levers whose ends terminate in a circle, a series of vertical trips directly connecting them to a series of type-bars, and an annular support for the ends of the levers, substantially as set forth.

31. In a type-writing machine, a loosely-supported type-bar rest or basket, the type-bar-bearing portion of which consists of a continuous, bodily-flexible, distortable material.

32. In a type-writing machine, the combination with a series of finger-keys, a series of type-bars, and means for disconnecting the keys from the type-bars, of a yieldingly-supported plate bearing a pad, for arresting the keys on the downstroke when the type-bars have been released, substantially as set forth.

33. In a type-writing machine, the combination, with a series of key-levers, a series of type-bars, and a series of trips pivoted to the key-levers and extending directly to the type-bars, of a stationary device mounted in the framework, to arrest the key-levers and trips on their return movements, the said device being constructed for vertical movement to adjust the trips with reference to the type-bars, substantially as set forth.

34. In a type-writing machine, the combination with a series of key-levers of the first order, and a series of vertical trips pivoted to the key-levers and extending directly to the type-bars and a series of radially-arranged type-bars, substantially as described, of a verti-

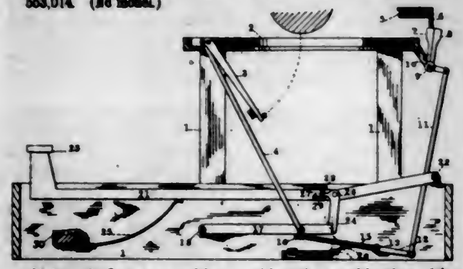
cally-adjustable cushion or pad stop made in ring form and underlying the rear ends of said key-levers for adjusting the trips with reference to the type-bars, substantially as described.

35. In a type-writing machine, in combination with a fixed arresting-pad, a key-lever having a depending projection or foot-piece arranged to stand normally at an angle to the pad and when the key-lever is depressed to strike or contact with the same simultaneously for its whole length, substantially as described.

36. In a type-writing machine, in combination with a fixed arresting-pad, a key-lever having a depending projection or foot-piece arranged when depressed to strike or contact with the pad, substantially as described.

37. In a type-writing machine, in combination with a type-bar having an integral lateral projection, a vertically-arranged pivoted trip extending to said projection and a key-lever of the first order, the key-lever and the trip being adapted to descend together independently of the type-bar, and the trip having also simultaneously a vibratory movement outwardly to automatically reengage said lateral projection at the cessation of the movement, substantially as described.

576,285. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Elizabeth, N. J. Original application filed July 23, 1892, Serial No. 441,464. Divided and this application filed June 17, 1896. Serial No. 593,014. (No model.)



Claim.—1. In a type-writing machine, the combination with a type-bar of a type-bar-operating lever connected thereto, and a key-lever carrying a vibratory trip and a stop and a spring, the said trip in the descent of said lever being held rigidly by said spring and stop and contacting with said type-bar-operating lever, and the said trip also vibrating in an arc about the pivot of the said key-lever, until by divergence it parts company with said type-bar-operating lever, substantially as set forth.

2. In a type-writing machine, the combination with a type-bar of a lever for operating the same and a key-lever carrying a pivoted trip adapted to actuate the type-bar-operating lever and to detach itself therefrom by divergence, and means for holding said pivoted trip rigid during the time it is actuating said type-bar-operating lever and detaching itself therefrom, substantially as set forth.

3. In a type-writing machine, the combination of a type-bar, a lever connected thereto, and a key-lever, the said key-lever and the said type-bar lever having each separate fulcrums, and the key-lever having a part adapted to contact with the type-bar lever, the said part and the said type-bar lever vibrating in arcs which intersect each other, and the said part separating from said lever in the downward movement at the point of intersection of said arcs, substantially as set forth.

4. In a type-writing machine, the combination of a lever connected to a type-bar, a key-lever having a trip jointed thereto and adapted to bear at one end upon said type-bar lever, the said trip being held rigidly during the downward movement of the key-lever and operating to depress the type-bar lever and to slide along and off the same, whereby the type-bar and its associated lever may return to normal position independently and in advance of the key-lever, and whereby during the return of the key-lever to its normal position said trip may vibrate and resume its proper position relatively to the type-bar lever, substantially as set forth.

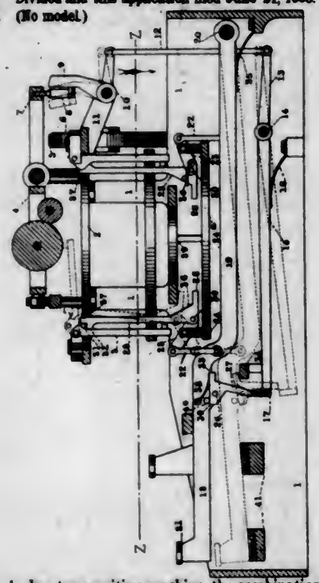
5. In a type-writing machine, the combination with a circular series of type-bars of a series of rods attached at one end to the type-bars and at the other end to a series of operating-levers, the lower ends of the rods being arranged in a straight line, and a series of key-levers separably connected to said type-bar-operating levers, substantially as set forth.

6. In a type-writing machine, the combination with a circular series of type-bars of a series of rods depending therefrom and terminating in line transversely of the machine and connected at their lower ends to a series of operating-levers pivoted at one end and having uniform motion, a series of key-levers, and a series of trips between the key-levers and the type-bar-operating levers, substantially as set forth.

7. In a type-writing machine, the combination with a circular series of type-bars of a series of rods depending therefrom and terminating in line transversely of the machine and connected at their lower ends to a series of operating-levers pivoted at one end and having uniform motion, a universal bar of the spacing mechanism adapted to be actuated by said levers, a series of key-levers, and a series of trips between the key-levers and the type-bar-operating levers, substantially as set forth.

8. In a type-writing machine, the combination with a circular series of type-bars of a series of rods depending therefrom and terminating in line transversely of the machine and connected at their lower ends to a series of operating-levers pivoted at one end and having uniform motion, a series of key-levers, a series of pivoted trips between the key-levers and the type-bar-operating levers, and means for holding the trips rigidly upon their levers during the releasement of the type-bar-operating levers from the key-levers, substantially as set forth.

576,286. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Elizabeth, N. J. Original application filed Feb. 17, 1886, Serial No. 462,689. Divided and this application filed June 21, 1895. Serial No. 553,507. (No model.)



Claim.—1. In a type-writing machine, the combination of a type-bar, a type-bar-operating lever connected to a key-lever, a trip pivoted to the type-bar-operating lever and extending therefrom directly to the type-bar to actuate the same, and positively-acting means for operating said trip to release the type-bar, the construction and arrangement being such that the trip vibrates the type-bar from its normal position toward and nearly to the platen and is then forcibly disengaged from the type-bar before the imprint is made, and the construction and arrangement being also such that upon returning to normal position the trip positively reëngages the type-bar to the type-bar-operating lever, substantially as set forth.

2. In a type-writing machine, the combination of a swinging type-bar, a type-bar-operating lever, a trip pivoted to said lever and extending therefrom directly to the type-bar and adapted to actuate and release said type-bar, means constantly acting on said trip to cause its free operative end to swing into direct reëngagement with the type-bar, means for causing the disengagement of the operative end of said trip from said type-bar, and a key-lever connected to said type-bar-operating lever, the combination being such that when the key-lever is depressed the type-bar-operating lever is caused to move the trip and the trip in turn to swing the type-bar to make its impression and to also release the same so that it may return to its normal position in advance of said trip, and the construction and arrangement being also such that the said trip on its return movement may ride along under pressure in contact with said type-bar and then by turning on its pivot under said pressure automatically reëngage said type-bar or be restored to operative position relatively thereto independently of its operating-lever, substantially as set forth.

3. In a type-writing machine, the combination of a type-bar-operating lever, a key-lever connected thereto; a type-bar, a vertical trip extending from the type-bar-operating lever directly to the type-bar and an abutment for causing the release of the type-bar during the printing stroke, substantially as set forth.

4. In a type-writing machine, the combination of a type-bar, a type-bar-operating lever, a key-lever connected to the latter, a trip pivoted to the type-bar-operating lever at one end, and at its other end directly engaging the type-bar, and an abutment arranged in the path of the trip to vibrate it independently of its operating lever during its type-bar-driving movement, substantially as set forth.

5. In a type-writing machine, the combination of a swinging type-bar, a type-bar-operating lever, a vertically-arranged trip pivoted at one end to said lever and at its other end directly engaging the type-bar and provided with an angularly-arranged arm or contact device, as 28, and an abutment arranged normally in the path of the latter to vibrate said trip during its printing stroke, substantially as set forth.

6. In a type-writing machine, the combination of a series of type-bar-operating levers, a series of type-bars, a series of trips directly connecting the levers to the type-bars, and a bar common to all of said trips for intercepting them and releasing the type-bars during the printing stroke, substantially as set forth.

7. In a type-writing machine, the combination of a swinging type-bar having a lateral pin or projection, a type-bar-operating lever, a vertically-arranged trip pivoted thereto and provided at its upper end with a lug and with a shoulder to engage said pin or projection on the type-bar and at its lower end with an arm, and an abutment in the path of said arm, substantially as set forth.

8. In a type-writing machine, the combination of a type-bar, a spring-actuated type-bar-operating lever, a trip pivoted to said lever and having a lug to engage a lateral projection on a type-bar, and having also an arm, as 28, an abutment for contacting with said arm, and a separate spring adapted to independently vibrate said trip about its own pivot during the return stroke and thereby cause it to automatically reengage with the previously-returned type-bar, substantially as set forth.

9. In a type-writing machine, the combination with a type-bar and the universal bar of the carriage-spacing mechanism, of a key-actuated lever, a tripping means between said lever and said type-bar, and an independent tripping means between said lever and said universal bar, substantially as set forth.

10. In a type-writing machine, the combination of a series of type-bars, a series of type-bar-operating levers connected to a series of key-levers, a letter-spacing mechanism including a universal bar, a series of trips between the type-bar-operating levers and the type-bars, and a series of trips between the key-levers and the universal bar, substantially as set forth.

11. In a type-writing machine, the combination of a type-bar, a key-lever, a universal bar, a type-bar-operating lever, a pivoted independently spring-pressed trip on said lever, an abutment therefor, a second pivoted independently spring-pressed trip on said key-lever to actuate the universal bar, and an abutment arranged in the path of said trip, substantially as set forth.

12. The combination of a series of swinging type-bars, a series of radially-arranged type-bar-operating levers below the series of type-bars, a series of vertically and radially arranged trips pivoted at their lower ends to said type-bar-operating levers and directly engaging the type-bars at their upper ends, a series of key-levers arranged below the type-bar-operating levers, and a series of vertical links directly uniting said key-levers and said type-bar-operating levers, substantially as set forth.

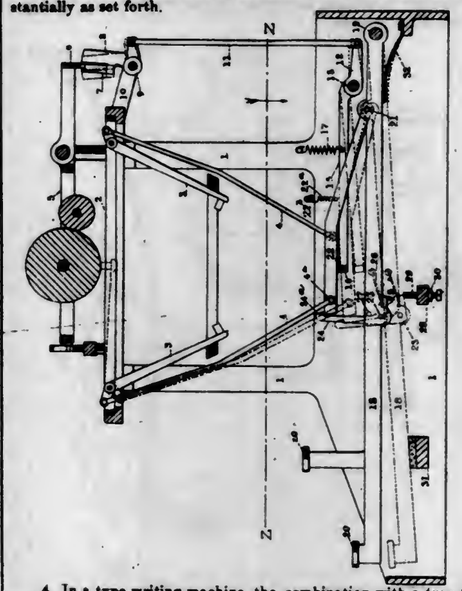
13. In a type-writing machine, the combination of a series of type-bars, a series of type-bar-operating levers terminating in a circle below the type-bars and connected to a series of key-levers, a series of vertical trips pivoted at their lower ends to the operating-levers and directly engaging the type-bars at their upper ends, means for disengaging said trips from the type-bars, and means for reëngaging said trips with the type-bars, substantially as set forth.

576,287. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Elizabeth, N. J. Filed June 26, 1895. Serial No. 553,944. (No model.)

Claim.—1. In a type-writing machine, the combination with a type-bar of a lever carrying an arm, said arm being connected to the type-bar, the arm and the lever moving together during the printing stroke of the type-bar, and means for releasing the arm and permitting it and the type-bar to return to normal position in advance of the return of the lever to normal position, substantially as set forth.

2. In a type-writing machine, the combination with a type-bar of a lever to which is pivoted a type-bar-actuating arm and to which is also pivoted a trip, the trip normally locking the arm to the lever, and means for vibrating the trip about its pivot to release the arm, substantially as set forth.

3. In a type-writing machine, the combination with a type-bar of a lever to which is pivoted a type-bar-actuating arm and to which is also pivoted a trip, the trip normally locking the arm to the lever and having a projection, and an abutment arranged in the path of the projection to vibrate said trip on the downstroke of the lever, substantially as set forth.



4. In a type-writing machine, the combination with a type-bar of a lever carrying an arm, said arm being connected to the type-bar and also engaging the universal bar of the spacing mechanism, the arm, the lever and the universal bar moving together during the printing stroke of the type-bar, and means for releasing the arm and permitting it and the type-bar and universal bar to return to normal position in advance of the return of the lever to normal position, substantially as set forth.

5. In a type-writing machine, the combination with a series of type-bars of a series of key-levers bearing a series of arms, said arms being arranged above the key-levers and connected by rods to the type-bars, a universal bar arranged beneath said arms and above the key-levers, and a series of trips arranged to releasably connect the arms to the key-levers, substantially as set forth.

6. In a type-writing machine, the combination of a series of key-levers, a series of arms pivoted thereto and projecting forwardly, a series of type-bars connected to said pivoted and forwardly-projecting arms, a series of trips connecting said arms and said key-levers, and means for actuating said trips on the downward stroke of the key-levers and effecting a separation between the key-levers and the pivoted arms carried thereby, substantially as set forth.

7. In a type-writing machine, the combination of a series of key-levers, a series of arms pivoted thereto and projecting forwardly above the levers, a series of type-bars connected to said pivoted and forwardly-projecting arms, a universal bar of the spacing mechanism arranged above the levers and in the path of said pivoted and forwardly-projecting arms, a series of trips connecting said arms and said key-levers, and means for actuating the said trips on the downward stroke of the key-levers and effecting a separation between the key-levers and the pivoted arms carried thereby, substantially as set forth.

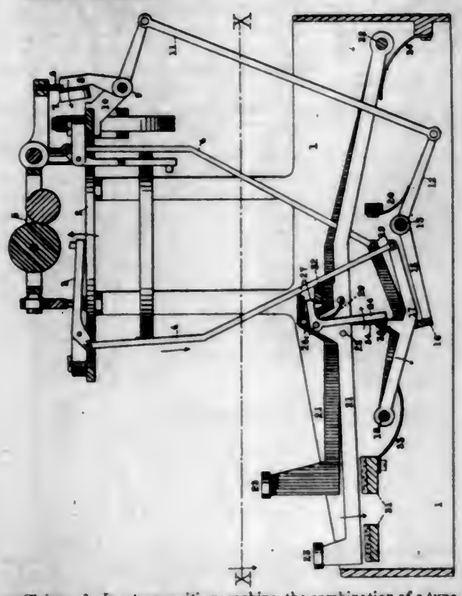
8. In a type-writing machine, the combination with a series of type-bars, a letter-spacing mechanism including a universal bar, and a series of operating-keys connected to the type-bars and the universal bar, of a series of pivoted trips and adjustable means for arresting and vibrating said trips and thereby regulating the time at which the tripping action shall take place, substantially as set forth.

9. In a type-writing machine, the combination with a series of type-bars and a series of operating-keys connected thereto of a series of pivoted trips and a bar, as 28, carrying a series of independently-movable stops arranged in the path of said trips for arresting and vibrating said trips and thereby adjusting or regulating the action of the trips, substantially as set forth.

10. In a type-bar tripping action, the combination of the pivoted trip 24, having the projection 25, and the adjusting-screw 29, substantially as set forth.

11. In a type-writing machine, the combination with a type-bar of a key-lever, the arm 22 pivoted thereto and connected to the type-bar, the trip 24, the spring 26, the stop 27, the projection 25 and the abutment 29, substantially as set forth.

576,288. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Elizabeth, N. J. Original application filed Feb. 17, 1893, Serial No. 462,689. Divided and this application filed Feb. 26, 1896. Serial No. 580,945. (No model.)



Claim.—1. In a type-writing machine, the combination of a type-bar, a finger-key operatively connected thereto, and an intermediate trip for moving the type-bar toward the platen during the depression of the key, the trip being also forced to release the type-bar from the key by and during the said depression of the latter, whereby the type-bar is not only impelled toward the platen but is positively released from its key before the key finishes its downstroke and before the type strikes the paper, substantially as set forth.

2. In a type-writing machine, the combination of a type-bar, a finger-key, a stop for arresting said key, and a trip operated by and during the depression of the finger-key for releasing the type-bar from the finger-key when the former is in proximity to the platen but prior to actual contact of the type with the paper on the platen, the construction and arrangement being such that after such release and prior to the contact of the finger-key with its stop the trip is carried beyond the releasing or escaping point, substantially as set forth.

3. In a type-writing machine, the combination of a type-bar, a finger-key, and a trip operated by and during the depression of the finger-key to move and also release the type-bar from the finger-key when the former is in proximity to the platen but prior to actual contact of the type with the paper on the platen, substantially as set forth.

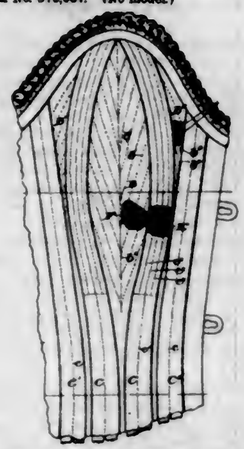
4. In a type-writing machine, the combination of a type-bar, a finger-key operatively connected thereto, and a trip under the control of the finger-key and adapted to release the type-bar before the type strikes the paper on the platen, and adapted to be held in its tripped or abnormal position by the pressure on the finger-key, whereby the trip is positively held out of operative relation to the type-bar, in order that the latter may return to its normal position without liability of obstruction or interferance by said trip, substantially as set forth.

5. In a type-writing machine, the combination of a type-bar, a key and a tripping mechanism, wherein the type-bar is positively disconnected from the finger-key by, during and under the finger-pressure on said key, before the type strikes the paper and before the key finishes its downward stroke, and wherein during the terminal portion of the key stroke the type makes its impression by inertia and the parts which coact in the tripping operation are by such terminal movement of the finger-key positively carried to a position of safety, that is to say, one in which the engaging and reëngaging parts of the tripping contrivance are prevented from reëngagement or reunion before the type-bar has returned to its normal position, substantially as set forth.

6. In a type-writing machine, a paper-carriage, a feed mechanism therefor including a universal bar, a type-bar, a finger-key for operating the universal bar and the type-bar, and a trip arranged to release the universal bar and the type-bar simultaneously from the finger-key when the type-bar is in proximity to the platen but prior to actual contact of the type with the paper on the platen, substantially as set forth.

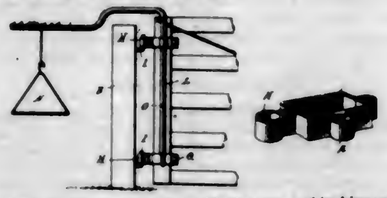
7. In a type-writing machine, the combination of a key, a type-bar, means for releasing the type-bar from the key when the type-bar is in proximity to the platen but prior to the actual contact of the type with the paper on the platen, and a cushion for arresting the descent of the key after the release of the type-bar, substantially as set forth.

576,289. CORSET. JAMES STONE, Aurora, Ill. Filed Jan. 27, 1896. Serial No. 576,987. (No model.)



Claim.—A corset having bust portions which differ in the character of their stiffening from other parts of the corset, and consisting of sections, each section consisting of two layers of cloth, said sections extending from top to bottom of the corset and being widened at their upper ends to form said bust portions and joined at their edges by stitching, and vertical cloth strips of uniform width, extending from top to bottom of the corset over the seams joining the sections, said strips being secured to the sections by means of parallel longitudinal lines of stitching which form bone-pockets and of which those at the upper parts of the strips are more numerous, and spaced at closer intervals, than those at the lower parts of said strips, said cloth layers which form the bust portion being also provided with parallel lines of stitches forming bone-pockets in their parts between said vertical strips, stiffening-strips inserted in the pockets in the lower parts of the vertical strips and terminating below the bust portions, and narrower stiffening-strips for the bust portions of the corset inserted in the pockets in the upper parts of said vertical strips and in the cloth sections between said strips, said narrower stiffening-strips being uniform in character and more flexible than the wider ones in the lower parts of the vertical strips.

576,290. GATE. JOHN F. THOMAS, Rushville, Ohio. Filed Oct. 1, 1896. Serial No. 607,592. (No model.)



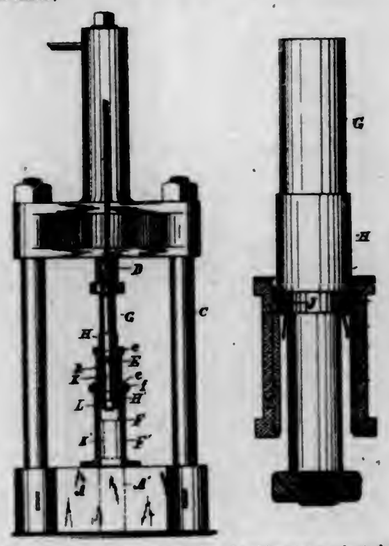
Claim.—1. The combination with the gate and its hinge-post, of the hinges attached to the rear batten of the gate, and provided with guide-eyes, the rod arranged in said guide-eyes, and the balancing-lever attached to the upper end of said rod, substantially as shown and described.

2. In a gate of the kind described, a hinge having the eye at the end adapted to fit upon the pintle and an eye at the side adapted to receive a rod carrying the balancing-lever, substantially as shown and described.

3. In a gate of the kind described, a hinge comprising a rectangular frame composed of two sections one of the sections carrying the eye, H, at the end, and the eye, K, at the side, substantially as shown and described.

4. In a gate of the kind described, the combination with the gate and its hinge-post, of the hinges constructed as described, the rod journaled in the guide-eyes of said hinges, the balancing-lever attached to the upper end of said rod, the adjustable-weight receptacle and the set-screw for holding the rod in place with reference to the batten of the gate, substantially as shown and described.

576,291. APPARATUS FOR DRESSING TUBULAR BORES. CHAS. F. UEBELACKER, Newark, N. J. Filed Oct. 16, 1896. Serial No. 609,068. (No model.)



Claim.—1. A drift having a reduced guide-stem projected from the nose, and a detachable broach secured upon the stem adjacent to the nose, substantially as herein set forth.

2. The combination-tool comprising a drift with broach adjacent to the nose, and a common shank projected from the upper end of the drift to force the same through the tubular bore upon which it operates, substantially as herein set forth.

3. A round-nose drift having a reduced guide-stem projected from the nose with an annular seat adjacent to the nose, and a broach secured upon said seat, as and for the purpose set forth.

4. The cylindrical drift having a broach adjacent to its nose, a reduced guide-stem projecting from the broach, and a guide-collar larger than the drift upon the end of such guide-stem, substantially as herein set forth.

5. The cylindrical drift H provided with shank G and having a reduced guide-stem projected from its nose, with a seat J adjacent to the nose, a broach secured upon said seat, and a guide-collar larger than the drift secured detachably upon the end of such guide-stem, as and for the purpose set forth.

6. The apparatus for drifting Babbitt bearings, comprising the standard F provided with means for centering the bearing upon the top of the same, and with tubular guide F', a broach or drift provided with shank and guide-stem, and means for forcing the broach or drift through the bearing, as and for the purpose set forth.

7. The means for drifting Babbitt bearings, comprising the standard F having tapering socket A and tubular guide F', the conical clamps adapted to fit the exterior of the bearing and to set within the socket A, the combined drift and broach provided with shank and guide-stem, and means for forcing the tool through the bearing, as and for the purpose set forth.

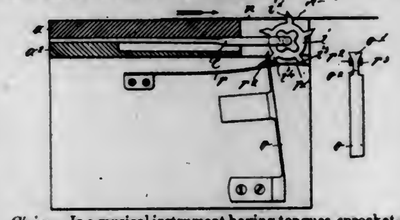
576,292. BABY-CARRIER. EDWARD L. VANDERBURGH, Bayonne, N. J. Filed Apr. 7, 1896. Serial No. 586,537. (No model.)

Claim.—1. A baby-carrier comprising in combination a basket substantially as described, a rigid bail attached to the sides or edges near the forward end, an eye or ring near the rear end and a strap or band the ends of which are connected to the said eye or ring and to the center of the bail, as set forth.

2. In a baby-carrier, the combination of a wicker basket or receptacle having a stout wire running through it longitudinally and bent near the rear end to form an eye or ring, a rigid bail detachably attached to the sides or edges near the forward end and formed with an eye or ring at its center, and a strap the ends of which engage with said eyes or rings, as set forth.

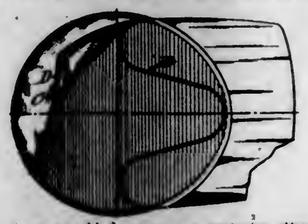


576,293. MUSICAL INSTRUMENT. ALEXIS VERNAZ, Ste. Croix, Switzerland, assignor to Mermod Frères, same place. Filed Sept. 26, 1896. Serial No. 607,106. (No model.)



Claim.—In a musical instrument having tongues, sprocket-wheels for operating said tongues, and a perforated note plate or plates for operating said sprocket-wheels, the combination with the said tongues, of damping-springs r r' having bent-off portions r^2 r^3, and a slot r^4 between said portions; the tongues taking through said slots, and having each a broadened portion o' adapted to be caught up between and by said bent-off portions r^2 r^3; said damping-springs being arranged so as to be adapted to be operated by the said sprocket-wheels, for the purpose as described.

576,294. MILITARY CAP. HENRY WALLNER and JOSEPH WALLNER, New York, N. Y. Filed Nov. 19, 1896. Serial No. 612,689. (No model.)



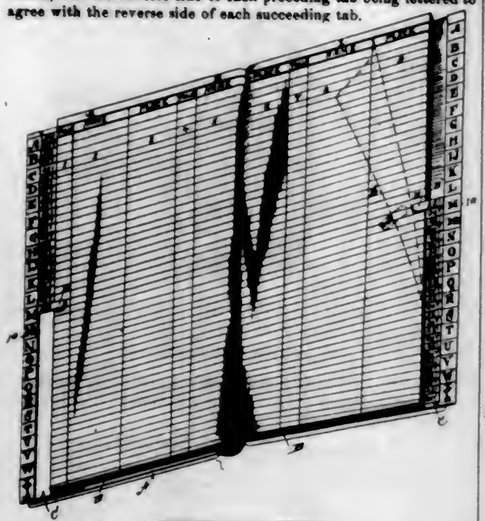
Claim.—A cap provided with an ear-protector attached to the rear of the cap-body and adapted to fold therein, a sweat-band secured to the front of said body and free to spring away from the rear thereof, and a band-spring secured to the rear portion of said sweat-band and operating to hold said band in vertical position and to firmly clamp said ear-protector against the body of the cap when folded therein.

576,295. INDEX. CHARLES J. WATTS and FRANK J. WRAGG, Springfield, Ohio. Filed Mar. 18, 1896. Serial No. 583,745. (No model.)

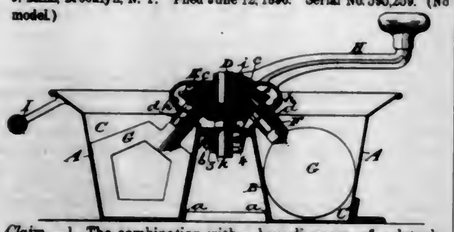
Claim.—1. In an index-book, a double index consisting of a plurality of alphabetical groups arranged so as to face the eye no matter where the book is opened, a suitable number of leaves ruled to constitute pages, and tabs for each page lettered on their obverse and reverse sides, there being one or more tabs for each letter of either alphabetical group, the obverse side of each preceding tab being lettered correspondingly with the reverse side of the succeeding tab.

2. In an index-book, a double index consisting of two alphabetical groups each placed at or near the inside of the rack or cover of

the book and composed of letters "A" to "Z," inclusive, and leaves ruled to form sheets each having a tab lettered on both sides, there being one or more tabs for each letter of either group of alphabetical letters, and the obverse side of each preceding tab being lettered to agree with the reverse side of each succeeding tab.



576,296. KNEADING-MACHINE. GEORGE M. BALL and FREDERIC J. BALL, Brooklyn, N. Y. Filed June 12, 1896. Serial No. 595,259. (No model.)



Claim.—1. The combination with a kneading-pan, of a detachable rotary kneading apparatus comprising a central pivot, a fixed support within the pan for the said kneading apparatus, and a locking device between said central pivot and said support for attaching said kneading apparatus to the pan, substantially as herein described.

2. The combination of a rotary gear-box having a directly-attached hand-crank, a center gear and side gears geared together within said box, the said side gears having kneading-blades dependent from them below the box, a kneading-pan having a central support for said box, and a shaft for said center gear constituting a pivotal connection between said gear-box and the pan, substantially as herein described.

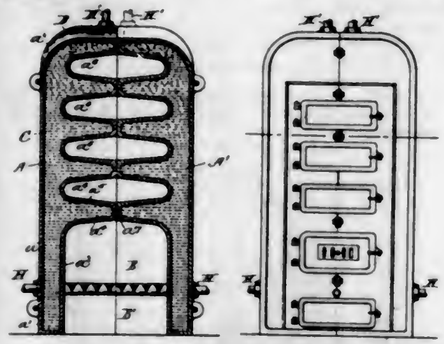
3. The combination of a pan having within it a central fixed standard, a detachable rotary gear-box supported on said standard and containing a central shaft and side shafts geared with said central shaft, kneading-blades attached to said side shafts, the said central standard containing a bearing for the lower portion of said central shaft which projects through the bottom of the gear-box, substantially as herein described.

4. The combination of a kneading-pan having within it a fixed central standard, a rotary kneading apparatus supported on said standard and comprising a central shaft about which said apparatus rotates, a bearing in the crown of said standard for the lower part of said shaft, and a locking device between said shaft and standard consisting of a lateral projection on said shaft below said bearing and a downward projection on the bottom of said bearing, substantially as herein described.

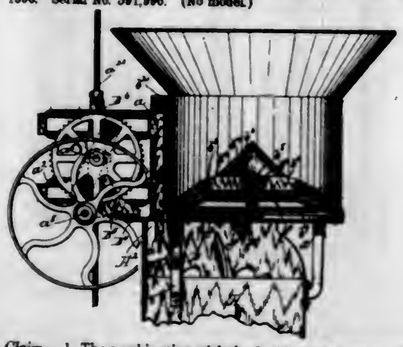
576,297. HOT-WATER HEATER. WILLIAM M. BARBER, Somerville, Mass. Filed Apr. 13, 1896. Serial No. 587,309. (No model.)

Claim.—1. The combination in a hot-water heater of the sections A, A', each having the outer wall a, the inner wall a^2 with the inwardly-curved surfaces a^4, a^5 and the straight surfaces a^7, the said surfaces a^7 of each section being adapted to be brought into contact with the corresponding surfaces a^7 of the other section, as and for the purposes described.

2. In a hot-water heater the combination of the sections A, A', each having the outer wall a, the inner wall a^2 with the inwardly-projecting walls a^4, a^5, the said walls a^4, a^5 being made of a less length horizontally than the wall a and the openings b', as and for the purposes described.



576,298. DEVICE FOR FEEDING FIBER TO FIBER-TREATING MACHINES. JAMES M. BLAISDELL, Winthrop, Mass. Filed May 18, 1896. Serial No. 591,996. (No model.)



Claim.—1. The combination with the feed-hopper having an opening through the bottom near the periphery thereof, of a stirring device comprising a rotating carrier within said hopper having wings or blades adapted to carry material therein from the middle toward the periphery thereof, and a feeding device for positively feeding said material into said opening, substantially as described.

2. The combination with the feed-hopper, of oppositely-reciprocating plungers movable longitudinally through an opening at or near the periphery of said hopper, a stirring device consisting of a rotating carrier within said hopper, and a series of transverse blades extending from said carrier toward the periphery of the hopper, substantially as described.

3. The combination with a feed-hopper adapted to contain fibrous material and provided with a feed-opening through the bottom and near the periphery thereof; of a stirring device comprising a rotating carrier having a series of blades or wings along the periphery thereof and extending therefrom substantially to the periphery of the hopper, a centrally-located deflecting-surface adapted to deflect the contents of the hopper toward said wings or blades, and a feeding device for positively feeding said contents into the feed-opening, substantially as described.

4. The combination with a substantially cylindrical feed-hopper having a portion of its wall extended beyond the periphery of a true cylinder, of a stirring device comprising a rotatable carrier having wings or blades extending radially from the center of said hopper to the periphery of the main portion thereof, a spindle coaxial with said hopper upon which said stirring device is mounted, and a feed-opening from the hopper adjacent to said extended portion of the wall thereof, substantially as described.

5. The combination with the hopper provided with a feed opening near the periphery thereof, of a floor or surface for said hopper sloping upward from the periphery toward the center thereof, a stirring device comprising the rotating carrier having a conical deflecting-surface rising above said sloping floor, a series of wings or blades extending outward from said conical deflector toward the periphery of the hopper, said blades being bent or inclined to the rear with relation to the direction of rotation of said carrier, and a feeding device for positively feeding material into the said feed-opening, substantially as described.

6. The combination with a hopper, of a feed-opening therein, a reciprocating plunger or plungers movable into and out of said opening, a stirring device consisting of a series of blades or wings adapted to carry the material within said hopper toward said feed-opening, a rotating carrier for said blades within said hopper and connecting mechanism whereby said plungers are reciprocated, and said carrier rotated, substantially as described.

7. The combination with the feeding-machine comprising a hopper having a feed-opening near the periphery thereof, stirring devices adapted to carry material in the said hopper from the center to the periphery thereof, feeding devices proper, and operating mechanism therefor, substantially as described, of a supporting-bracket therefor adapted to be secured to the machine to which fiber is to be fed, the said feeding device being movable along said bracket to and from its operative position, substantially as described.

8. The combination with a hopper, of a feed-opening therein, a reciprocating plunger or plungers movable into and out of said opening, a stirring device consisting of a series of blades or wings adapted to carry the material within said hopper toward said feed-opening, a rotating carrier for said blades, an inwardly-projecting portion of the wall of the hopper beyond the feed-opening in the direction of rotation of said stirring device, and a hook or projection projecting inward over said blades, substantially as described.

576,299. HEATING-STOVE. HENRY H. BROWN, ALBERT S. GLASCOCK, RICHARD S. QUINN, and JAMES W. BROWN, Washington Court-House, Ohio, assignors to The Wonder Manufacturing Company, same place. Filed Jan. 4, 1896. Serial No. 574,387. (No model.)



Claim.—1. The combination with the fuel-chamber and the heating-chamber, of a pocket in said heating-chamber, a draft-tube extending into said pocket, said draft-tube being open at its upper end and extending downwardly through said heating-chamber and communicating with said fuel-chamber at or near the bottom thereof, substantially as specified.

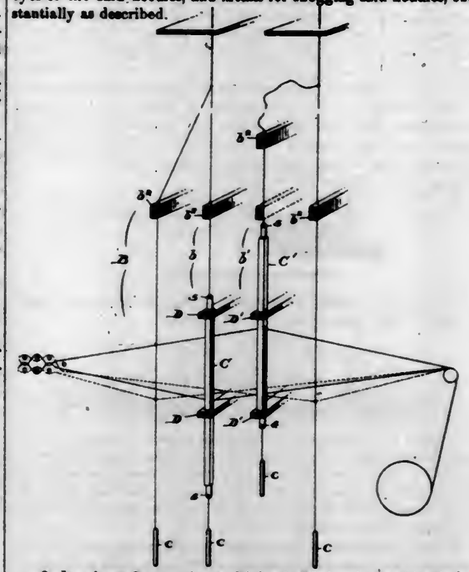
2. The combination with the fuel-chamber and the heating-chamber, of a pocket in said heating-chamber, a draft-tube extending into said pocket, said draft-tube being open at the top and tapered from the top downwardly and communicating with said fuel-chamber at or near the bottom thereof, substantially as specified.

3. The combination with the fuel-chamber and the heating-chamber, of a draft-tube in said heating-chamber, the upper end of said draft-tube communicating with the upper part of said heating-chamber, and the lower end of said draft-tube communicating with the lower portion of said fuel-chamber, said draft-tube being tapered from the top downwardly and provided with means for regulating the air-supply thereto, substantially as specified.

4. The combination with the fuel-chamber, the heating-chamber, and a pocket in said heating-chamber, a draft-tube extending into said pocket and having means for regulating the supply thereto, said draft-tube being tapered from the top downwardly and communicating with said fuel-chamber at or near the bottom thereof, substantially as specified.

576,300. LOOM FOR CROSS-WEAVING. JAMES BUCKLER, Philadelphia, Pa., assignor, by mesne assignments, to John M. Russell, Worcester, Mass. Filed Feb. 3, 1896. Serial No. 577,856. (No model.)

Claim.—1. In a loom for weaving multiple-ply fabric, the combination of a plurality of sets of harness for the warp-threads of one ply, a plurality of sets of harness for the warp-threads of another ply, adjacent sets thereof including heddles wherein the needles of one set are in advance of and oppositely disposed in respect to those of the other set and wherein elongated guide-openings are provided between the adjacent needles of each set, so as to extend above and below the eyes of the said needles, and means for shogging said heddles, substantially as described.



2. In a loom for weaving multiple-ply fabrics the combination of a plurality of oppositely-disposed sets of independent heddles for warp-threads for the respective plies, horizontally-reciprocative frames in which said heddles are guided and supported, means for longitudinally reciprocating said heddles, and means for shogging the frames, substantially as described.

3. In a loom for weaving multiple-ply fabric, the combination of two oppositely-disposed sets of independent heddles for controlling warp-threads for the respective plies, horizontally-reciprocative frames in which said heddles are guided and supported, a lever connecting the ends of said frames, means for reciprocating said frames, and means for longitudinally reciprocating said heddles, substantially as described.

4. In a loom for weaving multiple-ply fabric, the combination of a plurality of oppositely-disposed sets of independent heddles for warp-threads for the respective plies, horizontally-reciprocative supports for said heddles, means for longitudinally reciprocating said heddles, and means for bodily shogging the supports, substantially as described.

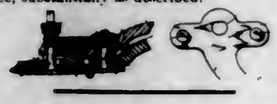
5. In a loom for weaving multiple-ply fabric, the combination of a plurality of sets of harness for the warp-threads of one ply, a plurality of sets of harness for the warp-threads of another ply, adjacent sets thereof including independent heddles wherein the needles of one set are in advance of and oppositely disposed in respect to those of the other set and wherein elongated guide-openings are provided between the adjacent needles of each set, horizontally-reciprocative supporting and guiding frames for the heddles, means for oppositely reciprocating said frames, journals for the respective sets of heddles, connections between said heddles and the journals, and means for bodily raising the journals, substantially as described.

6. In a loom for weaving multiple-ply fabric, the combination, with the outer sets of harness, of a plurality of intermediate sets of heddles for controlling warp-threads for the respective plies, the needles of one of said sets of heddles being in advance of and oppositely disposed in respect to the needles of another set, and guides being interposed between the adjacent needles of each set, so as to extend above and below the eyes of said needles supports for said heddles, and means for horizontally reciprocating the same, substantially as described.

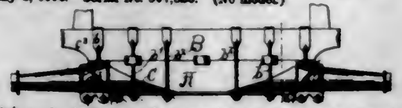
7. In a loom for weaving multiple-ply fabric, the combination of a plurality of sets of harness for the warp-threads of one ply, a plurality of sets of harness for the warp-threads of another ply, said several sets being arranged in successive order, and adjacent sets thereof including oppositely-disposed independent heddles comprising each two outer guiding members with an intermediate needle, means for supporting and guiding said heddles, and means for shogging the same, substantially as described.

576,301. HAIR-CLIPPER. GEORGE H. COATES, Worcester, Mass. Filed May 10, 1895. Serial No. 548,815. (No model.)

Claim.—The combination of a stationary cutting-plate provided with holes to receive the spurs of a stationary handle, a stationary handle provided with wings A^2 A^2 and spurs A^3 A^3 entering the holes in said stationary cutting-plate, said handle having a segmental hole A^4, sleeve E having one end fitting said segmental hole and provided with a shoulder E' bearing against the upper side of said stationary handle, a movable handle journaled on the upper end of said sleeve, a washer resting upon the upper end of said sleeve, a bolt D passing through said sleeve and said stationary cutting-plate and a nut G carried by said bolt, whereby said stationary cutting-plate and said stationary handle are held together and said movable handle is retained in place, substantially as described.



576,802. **WAGON-AXLE.** MARTIN CONRAD, Chicago, Ill. Filed July 2, 1896. Serial No. 597,823. (No model.)

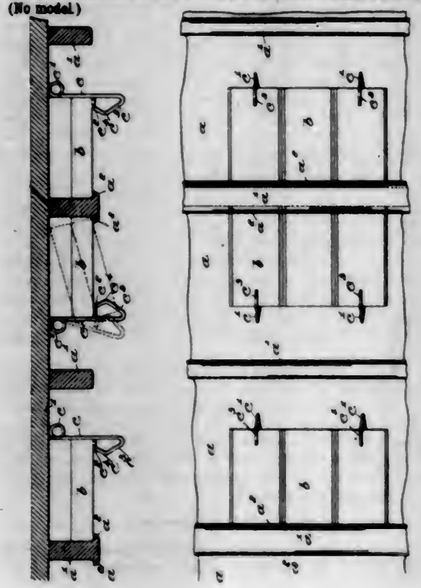


Claim.—1. A wagon-axle comprising a wooden part or body, metal skeins attached to the ends of the body and provided with shoulders at their upper surfaces, a flat metal truss-bar secured by clips against the lower surface of the axle and obliquely-arranged tie-rods engaging the shoulders of the skeins and connected with the ends of said bar, substantially as described.

2. The combination with a wooden axle, of metal skeins secured to the ends of the same and provided with shoulders at their upper surfaces, a flat metal truss-bar in contact with the lower surface of the axle, said bar being secured to the axle by clips arranged at intervals along the same, and oblique tie-rods engaging the said skeins and the ends of the bar, said ends of the bar being bent downwardly to form holding-lugs and the ends of the tie-rods being engaged by cross-bars, which engage said lugs, substantially as described.

3. The combination with a wooden axle, of metal skeins attached to the ends of said axle, and provided with shoulders at their upper surfaces, a flat metal truss-bar in contact with the lower surface of the axle, clips connecting the bar with the axle, arranged at intervals along the same, oblique tie-rods engaging the shoulders of the skeins and cross-bars engaging the ends of the truss-bar, said cross-bar having holes in its ends for the passage of said tie-rods and an oblique bearing-surface for the nuts on the ends of said tie-rods, substantially as described.

576,803. **LIFE-PRESERVER SUPPORT FOR VESSELS.** JOHN P. COFFIN, Melrose, Mass. Filed Jan. 2, 1896. Serial No. 574,120. (No model.)



Claim.—1. As a means for hanging life-preservers, the combination with a suitable edge support for one edge of the life-preserver, of one or more yielding hangers holding the opposite edge of said life-preserver, constructed to yield when the life-preserver is pressed against the same to enable the preserver to be readily withdrawn for use, substantially as described.

2. As a means for hanging life-preservers, the combination with a suitable support for one edge of a life-preserver, of one or more yielding hangers pressing against the opposite edge of said life-preserver, said hanger or hangers being suspended and provided with free hooked ends for the support of said life-preserver, substantially as described.

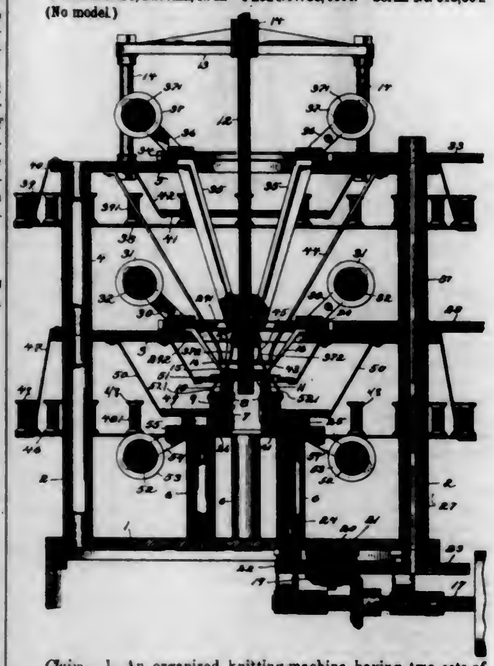
3. As a means for supporting life-preservers, the combination with a continuous edge support, of one or more yielding hangers arranged opposite said support and adapted to yield for and by insertion and removal of the life-preserver, substantially as described.

4. The combination with the deck and the carlines supporting the same, of life-preserver supports arranged on and carried by the said carlines to support one of the edges of life-preservers and the yielding hangers engaging the opposite edges of said life-preservers, substantially as described.

5. The combination with the deck and carlines supporting the same, of life-preserver supports connected therewith and arranged to hold the life-preservers between the carlines and with one of the edges of said preservers separated from the adjacent carline, the said supports being adapted to release the life-preservers on a downward pull on the latter substantially as described.

6. The combination with the deck and its carlines, of spring supports for the life-preservers, and means to cause said spring-supports to yield automatically to release the life-preservers under the action of a pull thereupon substantially as described.

576,804. **MACHINE FOR KNITTING HYDRAULIC HOSE, &c.** WILLIAM BETT, Laconia, N. H. Filed Nov. 23, 1896. Serial No. 613,804. (No model.)



Claim.—1. An organized knitting-machine having two sets of needles, and means to deliver knitting-yarn to the said needles, whereby to produce a foundation rib fabric, means to deliver a separate set of warp-threads upon each side of the said foundation rib fabric between the vertical lines of stitches thereof, and means to lay weft or filling threads outside the said sets of warp-threads in position to be bound by the loops of knitting-yarn that are formed by the needles, substantially as described.

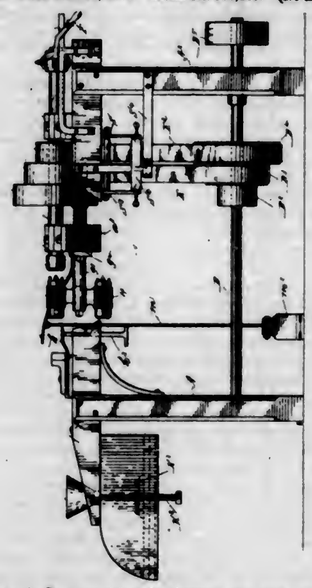
2. An organized knitting-machine having guides for two sets of warp-threads, carriers to lay weft or filling threads at the outer side of one of the said sets of warp-threads and at the inner side of the other set of warp-threads; a carrier or carriers to lay a knitting thread or threads between the said sets of warp-threads, and two sets of knitting-needles engaging the knitting thread or threads between the two sets of warp-threads to form a foundation rib fabric having the warp-threads and weft-threads bound to the opposite faces thereof, substantially as described.

3. A knitting-machine comprising a needle-cylinder and its needles, a cam-cylinder, guides for an outer series of warp-threads, means to actuate said cam-cylinder from within the circle described by the said outer series of warp-threads, guides for an inner series of warp-threads, a needle dial and its needles, a dial-cam plate, means for supporting said needle-dial and dial-cam plate, and also actuating the latter from above and within the circle described by the said inner series of warp-threads, inner and outer filling-carriers, and one or more knitting-yarn carriers delivering to the two sets of needles between the two series of warp-threads, substantially as described.

4. A knitting-machine comprising a needle-cylinder and its needles, the cam-cylinder, guides for the outer series of warp-threads, guides for the inner series of warp-threads, the needle-dial and its needles, the dial-cam plate, the ring 29 carrying a guide or guides for laying knitting-yarn between the two series of warp-threads and having the central opening through which the inner series of warp-threads passes, and the inner and outer filling-carriers, substantially as described.

5. A knitting-machine having a needle-dial and its needles, the dial-cam carrier, a rod on the lower end of which the said needle-dial and dial-cam carrier are mounted, a carrier for a knitting-yarn, a carrier for a weft or filling yarn, guides for a series of warp-threads, rotating arms as 35 to drive the dial-cam carrier, and a rotating ring upon which the said carrier for the knitting-yarn is mounted and through the opening in which the said warp-threads pass on their way to the needles, the said rod and arms also projecting through the opening of the said ring, substantially as described.

576,805. **MACHINE FOR DRILLING TIRES AND FELLIES OF WHEELS.** ELBRIDGE S. FELTCH and CHARLES E. STONE, Amesbury, Mass. Filed Jan. 23, 1896. Serial No. 577,109. (No model.)



Claim.—1. In a machine for drilling the tires and fellies of a wheel, the combination of a driving spindle or shaft, a revoluble turret mounted in front thereof, and provided with drill-heads which are adapted to be brought in line therewith, said machine being also provided with a wheel-cup which is adapted to receive the hub of a wheel and to support the wheel in horizontal position in such manner, that the tire thereof, will be in line with the driving or drill shaft, and said frame being also provided with an adjustable plate provided with a block or head which is adapted to press upon the inner side of the felly of the wheel, and said frame being also provided at each side of said adjustable plate with vertically-adjustable supports for the tire of the wheel, and with a plate-spring which is adapted to press upon the upper side of the tire, and a rod pivotally connected therewith and with a foot-pedal, substantially as shown and described.

2. In a tire-drilling machine, the combination of a longitudinally-movable driving spindle or shaft, and means for operating the same, of a plurality of drilling-heads each of which is connected with a central head which is revolubly mounted on a spindle, and each of which is provided with a drilling-spindle, with which a drill or other tool may be connected, and each of said drilling-heads being also adapted to be brought in line with the driving spindle or shaft, and said central head with which the drilling-heads are connected, being also longitudinally movable, and the spindle by which it is supported being passed through a plate provided with a sleeve or tubular extension, and which is connected with the frame of the machine, substantially as shown and described.

576,806. **CHECKING OR UNCHECKING DEVICE.** LOUIS R. FOURNIER, Evansville, Ind. Filed Dec. 1, 1896. Serial No. 614,041. (No model.)



Claim.—1. In a checking and unchecking device, the combination with the saddle and its check-hook, of an open frame having an attaching device at its forward end, guide-rings secured to the sides of the frame, an actuating-strap secured to the rear of the frame extending rearward, and means for supporting the strap on a rein, substantially as described.

2. In a checking and unchecking device, the combination with a saddle, of an open oblong frame located above the saddle, an attaching device at the forward end of the frame, guides secured at the sides of the frame through which the reins pass, a strap connected to the rear of the frame, and a connection between the strap and one of the reins, substantially as described.

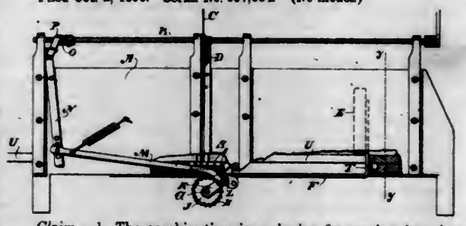
3. A checking and unchecking device, consisting of an open frame having a securing device at its forward end, and guides at its sides, an actuating-strap, an adjustable connection between the same and frame, and means for securing the strap to a rein, substantially as described.

4. The combination with the open oblong frame having an upturned forward end and a securing device at the end, guide-rings on the sides of the frame, an attaching device on the rear of the frame, an actuating-strap, a ring secured to the forward end thereof, a connection between the ring and rear attaching device, and a slotted plate on the rear of the strap, substantially as described.

576,807. **LUBRICANT.** CHARLES S. GILBERT and JAMES F. THOMPSON, Millersburg, Pa. Filed Nov. 21, 1895. Serial No. 569,634. (No specimens.)

Claim.—The composition herein described, consisting of as follows: one gallon of mineral oil, of low specific gravity, one gallon of mineral oil of high specific gravity, one gallon of lime-water, one quart of rosin-oil, one pound of sulfate of soda, one pound of black antimony, and one-half a pound of magnesium, said parts being mixed and combined substantially as described.

576,808. **BREAD-CUTTER.** JULES HABRIK, San Francisco, Cal. Filed Oct. 2, 1896. Serial No. 607,664. (No model.)



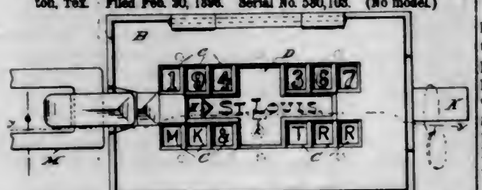
Claim.—1. The combination in a device for cutting bread and like substances, of a trough or guide to receive the bread, a shaft journaled longitudinally above the trough, a cam-shaped cutting-blade fixed to the shaft, transverse guides secured at opposite ends to the frame and spanning the trough, and between which the blade is movable, a feed-board projecting upwardly into the trough behind the loaf having a rack fixed to it, a transverse shaft, a pinion on one end thereof to engage the rack, a ratchet-wheel fixed upon the opposite end of the shaft, a spring-actuated pawl engaging the ratchet-wheel, a cam fixed upon the main shaft and intermediate mechanism actuated by the cam whereby the pawl is oscillated backward and forward in relation to the ratchet-wheel.

2. In a device for cutting bread and like substances, the combination, with a trough or guide for the substances to be cut, a rotatable shaft having a cam-shaped knife, adapted to be drawn across said trough, a feed-bar movable in the trough, a transverse shaft having a pinion to engage the rack-bar, and a ratchet-wheel on said transverse shaft, of means for operating the feed-bar consisting of an arm loosely mounted on the transverse shaft, and provided with a pawl to engage the ratchet-wheel, a rod extending from the arm, a pair of levers fulcrumed between their ends and connected together, and a cam on the main shaft to engage the free end of one of said levers, said rod being adjustably connected with the free end of the other lever to increase or decrease the thickness of the slice to be cut.

3. An improved slicing-machine consisting of a trough, a longitudinal shaft above the same, a cam-shaped knife on said shaft, spaced transverse plates spanning the trough and serving as a guide and brace for the knife; a feed-bar in the bottom of the trough, a shaft journaled transversely below the trough having a pinion on one end, to engage the feed-bar, and a ratchet-wheel on the opposite end, an arm loose on the transverse shaft, and provided with a pawl to engage the ratchet-wheel, a rod extending from said arm, a cam on the main shaft, a lever fulcrumed between its ends and having one end intermittently engaged by said cam, a second lever fulcrumed between its ends having one end connected with the opposite end of the first-named lever, and having its opposite end adjustably connected with the outer end of the said rod, to adjust the length of the feed and the thickness of the slice to be cut, and a spring fixed to the frame so as to form contact with the feed-bar and stop it when it has reached the end of its travel.

4. In a slicing-machine having a trough and means for feeding the substance therethrough, a rotatable cutter journaled above the trough so that its cutting edge sweeps across the trough in a plane just above and out of contact with its bottom, whereby the slices are left connected at their lower edges and a removable false bottom upon which the substance is placed when the slices are to be entirely severed.

576,309. **SEAL-LOCK.** FRED H. HALEY, Batavia, Ill., assignor to Charles H. Haley and Ida M. Haley, same place, and G. B. Collins, Denton, Tex. Filed Feb. 20, 1896. Serial No. 580,103. (No model.)



Claim.—1. In combination with the case and a cover for the same, a locking-bolt adapted to engage the cover when the latter is closed and the locking-bolt is in locking position; devices for securing said bolt in locking position: a movable guard-plate which protects said bolt-securing devices from exterior manipulation: a rupturable seal, and means for holding it in engagement with the movable guard-plate and the cover: substantially as set forth.

2. In a car seal-lock, in combination with the locking-bolt and devices for securing the same in locking position, a sliding plate which guards said devices against manipulation from the exterior: a fixed plate and a cover and a rupturable seal secured between the fixed plate and cover by the closing of the cover, said sliding plate being adapted to engage the rupturable seal and rupture the same when the plate is caused to slide to uncover the locking devices.

3. In a car seal-lock, the case and a cover for the same; a locking-bolt adapted to engage the cover when the bolt is in locked position, and an auxiliary bolt adapted to engage the locking-bolt, the latter having two recesses suitable for such engagement, one of said recesses being in position to be engaged as soon as the locking-bolt has moved far enough to secure the cover, and the other being in position to be engaged after the said bolt has been fully shot home.

4. In a car seal-lock, in combination with a case and a cover for the same, a locking-bolt and an auxiliary bolt adapted to secure the locking-bolt in locking position: a sliding guard-plate to secure the auxiliary bolt from manipulation: a rupturable seal interposed between the guard-plate and the cover, the former being adapted in its sliding movement to engage and rupture the seal, the locking-bolt being adapted to come into engagement with the cover when moving into locking position when the cover is closed, and to secure it closed; the auxiliary bolt being adapted to engage said locking-bolt after the latter has moved to the cover-securing position.

5. In a car seal-lock, a case and a hinged cover for the same: a sliding locking-bolt having a part adapted to engage the cover and secure the same in closed position when the bolt is in locking position; an auxiliary bolt for securing the locking-bolt; a movable guard-plate which secures said auxiliary bolt from manipulation, and a seal adapted to be ruptured by the movement of said guard-plate.

6. In a car seal-lock, in combination with the case, a hinged cover for the same having a longitudinal aperture; a sliding locking-bolt which engages and secures the cover in closed position when the bolt is in locking position; an auxiliary bolt which secures the locking-bolt in locking position; a sliding plate which guards said auxiliary bolt from manipulation, located below the cover and having a finger projecting up through the aperture in the cover; a paper seal secured between the sliding plate and the cover and penetrated by the finger of the former, whereby the longitudinal movement of the sliding plate necessary to give access to the auxiliary bolt causes the finger of said plate to rupture the seal before the sliding locking-bolt can be disengaged from the cover.

7. In a car seal-lock, in combination with the case, a cover for the same adapted to be secured thereon by an overhanging stop at one edge; a locking-bolt having a projection adapted to overhang and stop the cover at one edge when said bolt is in locking position; an auxiliary bolt adapted to secure the locking-bolt in locking position; a sliding plate to guard said auxiliary bolt from exterior manipulation, the case having a fixed ledge or plate beneath the cover provided with projections which protrude up into the cover; a paper seal secured at its edges between said ledge and the cover and engaged by the projections of the former, and at its middle portion located between the guard-plate and the cover, the cover having a longitudinal aperture and the guard-plate having a finger which projects through the seal and into said longitudinal opening; whereby the seal is retained at its edges and adapted to be ruptured at its middle when the guard-plate is moved to uncover the auxiliary bolt.

8. In a car seal-lock, in combination with the case and the cover, the locking-bolt adapted at locking position to secure the cover; an auxiliary bolt adapted to secure the locking-bolt in locking position; a guard-plate adapted to protect the auxiliary bolt from manipulation; a seal adapted to be ruptured by the movement of the guard-plate, the latter having an oblique shoulder on its under face and the auxiliary bolt having a projection engaged by said shoulder, whereby the movement of the guard-plate which ruptures the seal releases the locking-bolt from the auxiliary bolt.

9. In a car seal-lock, in combination with a case, the cover, the locking-bolt, the means for securing the locking-bolt in locking position and the cover in closed position; a sliding guard-plate which protects the locking-bolt-securing devices from manipulation; a paper seal secured between the sliding guard-plate and the cover; the case having a ledge or plate between which and the cover the margins of the seal are grasped: the sliding guard-plate having prick-points projecting through the seal, and the under side of the cover having longitudinal channels in which said prick-points move when the guard-plate slides, whereby such movement tears the seal.

10. In a car seal-lock, in combination with a case, the cover; the locking-bolt; the means for securing the locking-bolt in locking position and the cover in closed position; a sliding guard-plate which protects the locking-bolt-securing devices from manipulation; a paper seal secured between the sliding guard-plate and the cover; the case having a ledge or plate between which and the cover the margins of the seal are grasped, the cover being apertured at intervals to disclose the seal and having longitudinal channels on its inner face laterally beyond such apertures; the sliding guard-plate having prick-points which penetrate the seal and travel in said channels when the plate is moved longitudinally, whereby such movement ruptures the seal beyond the exposed portions.

11. In a car seal-lock in which the locking-bolt-securing devices are guarded from manipulation by a sliding plate, and in which a paper seal is secured above said sliding plate and between the same and the cover; the cover having detached apertures to expose portions of the seal; the sliding guard-plate provided on its upper surface with recesses or cavities corresponding to, and on opposite sides of the paper seal from, the apertures in the cover respectively, and ridges between said recesses adapted to clamp the seal against the under side of the cover.

576,310. **BICYCLE-SADDLE.** MARY F. HENDERSON, Washington, D. C. Filed Nov. 24, 1896. Serial No. 613,238. (No model.)



Claim.—1. An improved bicycle-cushion with two soft cushion-lobes in connection with a depression in the center of the seat, and a firmer border of yielding material.

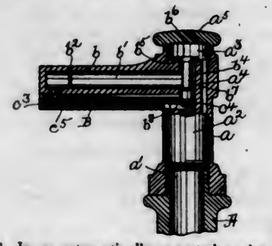
2. An improved bicycle-cushion with two or more firm but yielding edges made near together, for especially hard use, substantially as described.

3. An improved saddle-frame consisting of a wire bent at one end into an eye for the reception of a screw on one side of the central line, curved downwardly and upwardly to the pommel where a second eye is formed, then returned toward the cantle, and shaped to conform to the contour of the leg of the rider, and curved also to form the cantle, then curved in a similar manner, on the opposite side of the central line to form a complete frame.

4. An improved saddle-frame consisting of a wire bent in a slightly-curved line first downward and then upward, from the cantle to the pommel and thence extending rearwardly and shaped to conform to the leg of the rider, and curved to form the cantle, the wire being then so bent as to duplicate the just-described construction to form the second half of the saddle-frame.

5. A metallic cantle-plate for a bicycle-saddle, formed of the general shape of the rear portion of a saddle, and provided with at least three depending ribs or flanges approximitely parallel extending therearound, and with the space between two of the flanges serving as an extra support and as a seat of a wire saddle-frame substantially as described.

576,311. **GAS-BURNER.** EDWARD HEYMANN and FRANK W. HEYMANN, Boston, Mass. Filed Feb. 19, 1896. Serial No. 579,888. (No model.)



Claim.—1. In an automatically-operated gas-burner, the combination of the following instrumentalities, viz: a casing adapted to communicate with a gas-supply pipe and provided with a gas-chamber in direct communication with the said gas-supply pipe, a tip or arm extended at an angle from the said casing and provided with a gas-outlet passage and with a gas-outlet communicating with the atmosphere, a port or passage adapted to connect the gas-chamber of the casing with the gas-outlet passage of the tip or arm, a valve controlling said port or passage and normally seated by the gas-pressure in said casing, and a thermostatic strip secured at one end to the said tip or arm and operatively connected at its other end to the said valve, substantially as described.

2. In an automatically-operated gas-burner, the combination of the following instrumentalities, viz: a casing adapted to communicate with a gas-supply pipe, an arm or tip extended from said casing at an angle thereto and provided with a gas-outlet passage communicating with the atmosphere, a valve controlling the passage of gas from said casing to said tip or arm, and a thermostatic strip connected at one end to the arm below the gas-outlet thereof and at its other end to said valve to operate, substantially as described.

3. In an automatically-operated gas-burner, the combination of the following instrumentalities, viz: a casing adapted to communicate with a gas-supply pipe, an arm or tip extended from said casing at an angle thereto and provided with a gas-passage adapted to communicate with the said casing, a valve controlling the passage of gas from said casing to said tip or arm, and a thermostatic strip connected to the under side of the tip or arm and having its other end connected to the said valve, substantially as described.

4. In an automatically-operated gas-burner, the combination of the following instrumentalities, viz: the casing a provided with the chambers a^2 a^3 and the connecting-passage a^4, the arm or tip b provided with a gas-outlet passage, the gas-passage b^4 connecting the said gas-outlet passage with the chamber a^3, a valve movable in the passage b^4, and the thermostatic strip B secured at one end to the tip or arm b and at its other end to the said valve, substantially as described.

5. In an automatically-operated gas-burner, the combination of the following instrumentalities, viz: the casing a provided with the chambers a^2 a^3 and the connecting-passage a^4, the arm or tip b provided with a gas-outlet passage, the gas-passage b^4 connecting the said gas-outlet passage with the chamber a^3, a valve movable in the passage b^4, and the thermostatic strip B secured at one end to the tip or arm b and at its other end to the said valve, and a removable covering for the thermostat B secured to the said tip or arm, substantially as described.

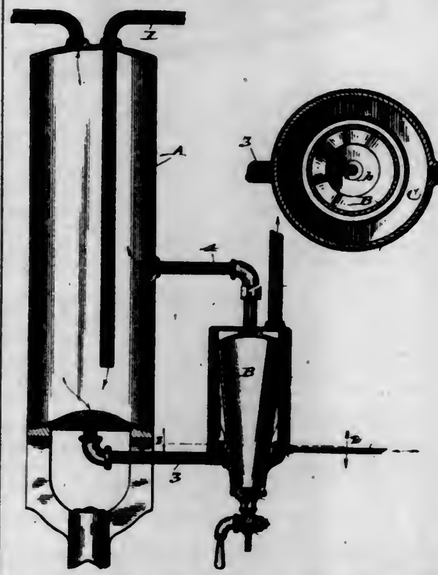
6. In an automatically-operated gas-burner, the combination of the following instrumentalities, viz: a casing provided with a partition-wall forming chambers on opposite sides thereof, a passage connecting said chambers, a second gas-passage in the said partition-wall adapted to communicate with only one of said chambers, a valve to close said second passage, an arm or tip extended from the casing at an angle thereto and provided with a gas-passage communicating with the valve-controlled passages in the partition-wall, a gas-outlet in the said arm or tip connecting the passage therein with the atmosphere, and a thermostatic strip secured at one end to the tip away from the gas-outlet therein and having its other end connected to said valve, substantially as and for the purpose specified.

576,312. **MEANS FOR DECOLORING GLASS.** MAX HIRSCH, Radeberg, Germany. Filed Oct. 8, 1895. Serial No. 565,047. (No specimens.) Patented in Germany Jan. 13, 1895, No. 88,615, and in England Sept. 25, 1895, No. 17,931.

Claim.—1. The within-described process of decoloring glass which consists in the admixture of selenium with the glass in suitable proportions while the latter is in a molten state.

2. In the process of decoloring molten glass by means of selenium compounds, first dissolving a selenium compound in the molten glass and afterward adding to the molten mass an agent for the setting free of the selenium therein, as herein described.

576,313. **HEATING APPARATUS FOR HOT-WATER BOILERS.** CHARLES L. HOLDEN, Indianapolis, Ind. Filed Feb. 11, 1896. Serial No. 578,911. (No model.)



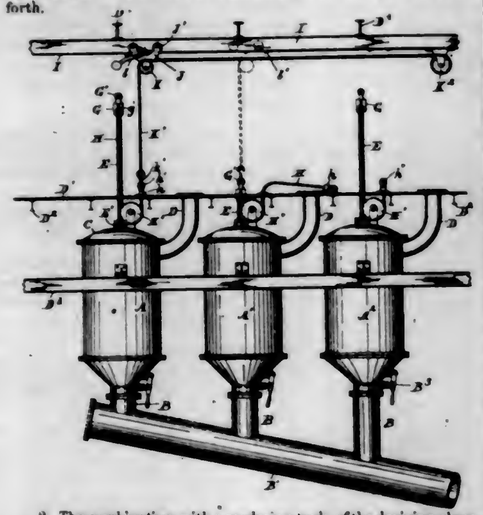
Claim.—1. The combination, with a water-boiler, of a separate heating apparatus consisting of a chamber, circulating-pipes connecting said boiler and said chamber, and a burner surrounding said chamber at a point some distance above its lower end, whereby the lower end below said burner may serve as a settling-chamber and not be in direct contact with the fire, substantially as described and for the purposes specified.

2. The combination with a boiler of a heating apparatus consisting of a chamber, a heater above the lower end of the same, circulation-pipes connecting said boiler and chamber, the pipe leading into said chamber being connected therewith below said heater, substantially as set forth.

3. The combination with a boiler of a heating apparatus consisting of a tapered heating-chamber arranged with its large end upward, its lower end forming a settling-chamber with discharge devices, a burner surrounding said chamber above said lower end, and circulation-pipes connecting said boiler and chamber, substantially as set forth.

576,314. **APPARATUS FOR RENDERING AND PRESSING.** EMIL HOLTHAUS, Canarsie, N. Y., assignor to Cyrus C. Currier, Newark, N. J. Filed Aug. 11, 1896. Serial No. 602,415. (No model.)

Claim.—1. The combination, with a cylindrical rendering-tank, of a cylindrical grating, lining the tank, and formed of separate vertical bars, with intervening vertical slots expanded outwardly between said bars, a draining-chamber between such grating and the wall of the tank, a piston movable within the grating, and a pipe or pipes having connections with the draining-chamber to alternately inject steam and draw off the tank-water, substantially as herein set forth.



2. The combination, with a rendering-tank, of the draining-chamber at the side of the same with an outlet-pipe for the liquid, and a vertical valve-opening extended into the tank, a piston movable vertically in the tank, and a slide-valve adjustable in the opening to drain the water from the tank, as and for the purpose set forth.

3. The combination, with a rendering-tank having a draining-chamber at the side of the same, with a vertical valve-opening extended into the tank, of a piston movable vertically in the tank, and a slide-valve movable with the piston to close the said opening below the level of the piston, and an outlet from the said chamber, as and for the purpose set forth.

4. The combination, with a cylindrical rendering-tank, of a cylindrical grating lining the tank and formed of separate vertical bars with intervening vertical slots expanded outwardly between said bars, a draining-chamber between such grating and wall of the tank, a vertical valve-opening in such grating, a piston movable vertically in the tank, and a slotted valve adjustable in the opening to drain the water from the tank, as and for the purpose set forth.

5. The combination, with a rendering-tank having a vertical chamber on the side of the same, with an outlet from said chamber, a vertical opening from the chamber to the interior of the tank, a piston movable vertically in the tank, a stuffing-box in the bottom of the tank in a line with the said opening, and a slide-valve extended through the said stuffing-box and adjustable in the said opening, as and for the purpose set forth.

6. The combination, with a series of rendering-tanks provided each with a piston and piston-rod, of a track extended above all of said tanks, a carriage movable upon the said track with a hoisting-rope depending therefrom, a reversing-pulley upon the rendering-tank, a head upon the piston-rod with reversing-rope extended from such head around the reversing-pulley, and means for connecting the hoisting-rope in turn with the head and with the reversing-rope, to reciprocate the piston, substantially as herein shown and described.

7. The combination, with a rendering-tank having a piston movable vertically therein, and provided in the shell with a vertical aperture throughout the movement of the piston, of a grating fixed in such aperture, a draining-box secured upon the shell of the tank outside of such grating with an outlet for the liquid, and a movable plate fitted to the outer side of the grating and having corresponding perforations, and connected with a handle exterior to the draining-box to adjust such movable plate, the whole arranged and operated substantially as herein set forth.

8. The combination, with a rendering-tank having a piston movable vertically therein, and provided in the shell with a series of vertical apertures extending throughout the movement of the piston, gratings applied to the said apertures, and draining-boxes outside of the said gratings to form water-chambers, with separate outlets for the water from each of the said chambers, the whole arranged and operated as set forth.

576,315. SHADING-PEN. AKEI O. HOOTON, Bridge, Oreg., assignor of one-half to Benjamin F. Hill, same place. Filed June 13, 1896. Serial No. 595,422. (No model.)

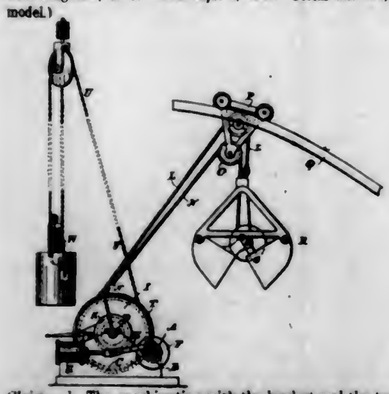


Claim.—1. In a shading-pen, the combination with a reservoir and holder, of a penholder detachably connected therewith, the outer end of which is flattened and provided with a slot or opening, and a spring-operated pen mounted in said holder, and adapted to be projected through the slot or opening, substantially as shown and described.

2. In a shading-pen, the combination with a reservoir and holder, of a penholder detachably connected therewith, the outer end of which is flattened and provided with a slot or opening, and a spring-operated pen mounted in said holder, and adapted to be projected through the slot or opening, said holder being provided at the opposite edges of the slot with inwardly-directed shoulders or flanges, and the outer end of said pen being beveled and adapted to strike against said shoulders or flanges, substantially as shown and described.

3. In a shading-pen, the combination with a reservoir and holder, of a penholder detachably connected therewith, the outer end of which is flattened and provided with a slot or opening, and a spring-operated pen mounted in said holder, and adapted to be projected through the slot or opening, said holder being provided at the opposite edges of the slot with inwardly-directed shoulders or flanges, and the outer end of said pen being beveled and adapted to strike against said shoulders or flanges, and the end of the reservoir or holder opposite the penholder being provided with a reduced screw-threaded extension, in which is formed an air-vent, and a cap which is adapted to be mounted thereon, and by which the air-vent may be closed, substantially as shown and described.

576,316. HOISTING MACHINERY. CHARLES W. HUFF, West New Brighton, N. Y. Filed Apr. 9, 1896. Serial No. 586,801. (No model.)



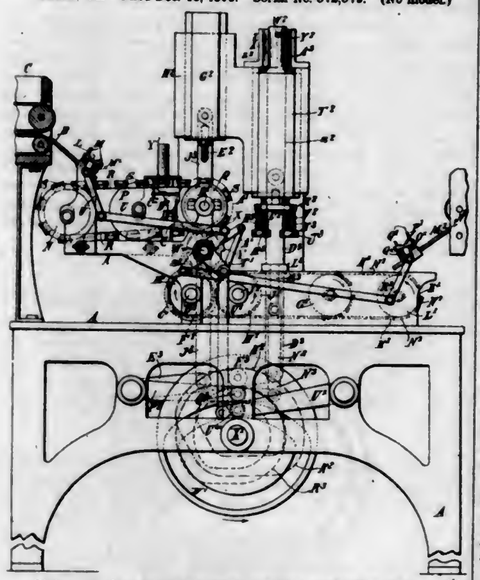
Claim.—1. The combination with the bucket and the two chains for actuating the same, of a motor and two chain-drums driven by the motor, such chains winding with one convolution outside the other, a conical drum also rotated by the power, a counterweight and a chain acted upon by such counterweight and attached to the larger part of the conical drum, so that the chain is wound from the larger to the smaller part of the drum as the bucket is lowered, substantially as specified.

2. The combination with the bucket and the two chains for actuating the same, of a motor and two chain-drums driven by the motor, such chains winding with one convolution outside the other, a conical drum also rotated by the power, a counterweight and a chain acted upon by such counterweight and attached to the larger part of the conical drum, so that the chain is wound from the larger to the smaller part of the drum as the bucket is lowered, and frictional devices for controlling the drums and chains to the bucket, substantially as specified.

3. The combination with a motor, of a drum, a flat-link chain connected at one end to the drum so as to be wound thereon with one convolution outside the other, a second chain or rope and drum adjacent to the main drum and controlled by friction, a spiral drum upon a shaft connected with the shaft of the main drum, a counterweight and a chain to the same, one end of such chain being connected so that the chain is wound upon the spiral drum and the counterweight raised as the receptacle is lowered, substantially as set forth.

4. The combination with a motor, of a shaft and drum driven by the motor, a chain connected at one end and wound upon the drum with one convolution of the chain upon the other, a receptacle connected with the chain and to be raised or lowered thereby, a counterweight and spiral drum, a chain connected with the spiral drum and extending to the counterweight, the parts being arranged so that the counterweight is raised by the power as the receptacle is lowered to receive the weight, and such counterweight acts with varying force in aid of the motor in raising the weight, and a clutch for connecting the spiral drum to the hoisting-drum or disconnecting the same, substantially as set forth.

576,317. BUTTON-MAKING MACHINE. MICHAEL KIRSHNER, Salem, Va. Filed Dec. 18, 1895. Serial No. 572,579. (No model.)



Claim.—1. In a button-making machine, a feeding device with a rotary brush at the base thereof, a horizontal endless apron below the outlet of said hopper, a longitudinally-fluted roller adapted to receive the contents of said apron, aprons below said fluted roller and a feed-chute receiving the material from between said latter-mentioned aprons, said parts being combined substantially as described.

2. In a button-making machine, a feeding device having a hopper, an endless apron below the outlet of said hopper, a longitudinally-fluted roller receiving the articles from said apron, upper and lower endless aprons below said fluted roller, said lower apron extending at one end beyond the upper apron, and a separate roller outside of said aprons, and above said extended portion of the lower apron, said parts being combined substantially as described.

3. In a button-machine, a frame, the inclined pulleys N and P and the vertical pulley Q journaled thereon, the endless apron R passing around said pulleys, forming two lengths, cups on said belt, a feeding-tube for the cups on one of said lengths, and a plunger for the cups on the other length, said parts being combined substantially as described.

4. In a button-making machine, a continuous two-length apron, having its lengths aside of each other, cups on said apron, a filling-tube for the cups on one of said lengths, and a plunger for the cups on the other length, said parts being combined substantially as described.

5. In a button-making machine, a revolving endless apron having two lengths, cups on said apron, a filling-tube for the cups on one of said lengths, a plunger for the cups on the other length, and a detaching device below the plunger end of said apron for loosening the contents of said cups therefrom, said parts being combined substantially as described.

6. In a button-making machine, an endless apron having a cup thereon, with a slot in its base, an oscillating plate adapted to enter said slot and mechanism for imparting a reciprocating motion to said parts, said parts being combined, substantially as described.

7. In a button-making machine, an endless apron with cups thereon, a feeding-tube and a plunger for said cups, a detaching device for the contents of said cups, an endless apron with cups to receive the contents detached from the cups of the first-mentioned apron, and an endless apron parallel to said second-mentioned apron and provided with cups, two plungers having a common rotating head and stem above said parallel aprons, and two plungers opposite said last two plungers and below said parallel aprons, said parts being combined substantially as described.

8. In a button-making machine, a revolving apron with cups thereon, having slots in their sides, an oscillating shaft having a pinion and a plate thereon, and a pivoted lever having a segmental rack engaging said pinion, said parts being combined substantially as described.

9. In a button-making machine, two parallel endless aprons with cups thereon, two plungers above said aprons having a common rotating head and stem with rollers thereon, two plungers opposite said first plungers and below said belt, and a boss with spiral grooves in which said rollers work for rotating said stem and connected plungers, said parts being combined substantially as described.

10. In a button-making machine, the plunger M^3, the endless belt F' and the cup thereon, and the bed L^3 above said cup, said plunger being adapted to pass through said belt cup and bed, in combination with the plunger U^3 having concave working face, said plunger being over the plunger U^3, the portion of the bed around said plunger M^3 being recessed as at T^3 substantially as described.

11. In a button-making machine, two endless aprons with cups, a stationary table above one of said aprons, and having an opening therein, two plungers above said aprons having a common head and stem, means for rotating said stem, and two plungers opposite said first plungers and below the upper length of said aprons, said parts being combined substantially as described.

12. An endless belt running in two lengths and two parallel endless belts respectively at the ends of said two lengths, in combination with cups on said belts, a shank-forming plunger, and a wad-forcing plunger over the two lengths, a carrying-plunger over one of the parallel belts, and a clamping-plunger over the other parallel belt, said parts being combined substantially as described.

13. In a button-forming machine, a head carrying a plunger, and two endless cup-carrying belts beneath the same, a rotary shaft connected with said head, a rising-and-falling bearing for said shaft, and a boss on the frame of the machine having two reversely spiral cams for engagement of said shaft, whereby rotation is imparted to the head, and the plungers shifted from one belt to the other, substantially as described.

14. Endless belts with cups thereon, in combination with a shank-forming plunger, a wad-forcing plunger, and additional belts with a carrying and clamping plunger thereover, and rising-and-falling plungers below the last-named plungers, and cams and intermediate mechanism for operating the several plungers, substantially as described.

15. In a button-making machine, a frame two parallel endless aprons, each having cups thereon, mechanism for revolving said aprons, a table having an opening therein, above one of said aprons, two plungers having a common head and a stem with rollers thereon, a rising-and-falling support for said stem, and a stationary boss with spiral grooves engaged by said rollers, said parts being combined substantially as described.

16. In a button-making machine, two plungers having a common head and stem, rollers on said stem, a rising-and-falling support for said stem and a stationary boss having spiral grooves engaged by said rollers, so that during a portion of rising and falling it is rotated, said parts being combined substantially as described.

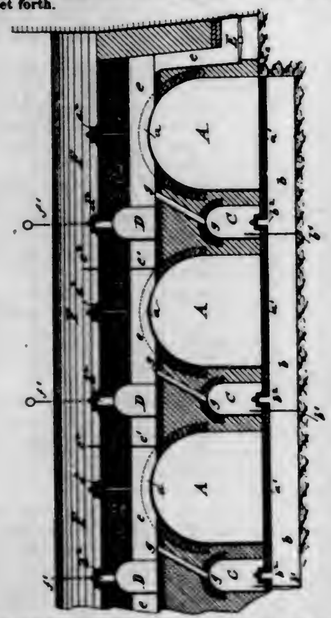
576,318. BRICK-KILN. CHARLES KLOSE, Doniphan, Nebr., and ALOIS KLOSE, Robesonia, Pa. Filed Feb. 27, 1896. Serial No. 581,048. (No model.)

Claim.—1. The combination of a series of arched chambers, each chamber being provided with crown-openings and floor-openings, longitudinal bottom flues connecting the floor-openings of the different chambers, longitudinal caloriducts extending above the crowns of said chambers and communicating therewith through said crown-openings, register-vaults between said chambers provided with fuel-openings at the bottom for use in bottom firing, said openings establishing communication with the longitudinal bottom flues, transverse draft-flues located above the register-vaults, a main smoke-flue extending along the rear ends of the transverse draft-flues, and dampers connecting said transverse draft-flues with the main smoke-flue, substantially as set forth.

2. The combination of a series of chambers, provided with crown-openings and rows of floor-openings, register-vaults located between said chambers, and provided with fuel-openings and registers alongside of said fuel-openings, longitudinal caloriducts extending above the crowns of said chambers, registers in said caloriducts, transverse draft-flues located above the register-vaults and provided with fuel-openings, and ash-chutes extending from the caloriducts into the register-vaults, substantially as set forth.

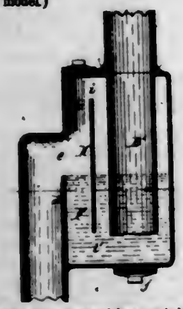
3. The combination of a series of chambers, having crown-openings and rows of floor-openings, longitudinal bottom flues connecting

the floors of the chambers, register-vaults between said chambers, longitudinal caloriducts extending above the crowns of the chambers, transverse draft-flues located above said register-vaults, the bottom flues and the transverse draft-flues being provided with fuel-openings for permitting the starting of top and bottom fires, substantially as set forth.



4. The combination of a series of chambers, having crown-openings and rows of floor-openings, fireplaces arranged at one end of the kiln, longitudinal caloriducts connected with said fireplaces and extending over the crowns of said chambers, registers in said caloriducts, transverse draft-flues arranged intermediately between the crowns of the chambers and provided with top fuel-openings, fuel-openings in the floors of the register-vaults, longitudinal bottom flues below the floors of the chambers, registers in said bottom flues, a smoke-flue extending along one end of the transverse draft-flues, and dampers for opening or closing the openings connecting the draft-flues with the smoke-flue, substantially as set forth.

576,319. **WASTE-TRAP.** FRANK B. MEYERS, Buffalo, N. Y., assignor of one-half to Joseph Irr, same place. Filed Apr. 9, 1896. Serial No. 586,830. (No model.)

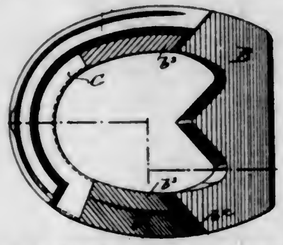


Claim.—1. A waste-trap comprising an inlet-chamber or reservoir, an inlet which opens into the lower portion of the reservoir, a discharge-pipe having its inlet arranged between the upper and lower ends of the reservoir, an ascending water-passage arranged below the inlet of said discharge-pipe and leading from the lower portion of the reservoir to the discharge-pipe inlet, and a descending air-passage arranged above the discharge-pipe inlet and leading from the upper portion of the reservoir to the last-named inlet, said descending air-passage and ascending water-passage being both arranged between said reservoir and said discharge-pipe, whereby the discharge-pipe has no direct connection with the reservoir or main chamber of the trap, substantially as set forth.

2. A waste trap comprising an inlet-chamber or reservoir having a lateral extension or enlargement, an inlet-pipe which opens into the lower portion of the reservoir, a discharge-pipe having its inlet connected with said enlargement between the upper and lower ends thereof, and an upright partition arranged in said enlargement and extending upwardly above the upper edge of the inlet of the discharge-pipe and separated at its lower end from the bottom of the enlargement by an intervening space, forming a descending air-passage arranged above the inlet of the discharge-pipe and leading from the upper portion of the enlargement to the discharge-pipe inlet and an ascending water-passage arranged below the discharge-pipe inlet and leading from the lower portion of said enlargement to the discharge-pipe inlet, said ascending water-passage and descending air-passage being both located between the reservoir of the trap and said discharge-pipe, substantially as set forth.

3. A waste-trap comprising a reservoir, an inlet composed of an outer lead pipe connected with the top of the reservoir and an inner copper pipe terminating near the bottom of the reservoir, a discharge-pipe having its inlet arranged between the upper and lower ends of the reservoir, an ascending water-passage arranged below the inlet of said discharge-pipe and leading from the lower portion of the reservoir to the discharge-pipe inlet and a descending air-passage arranged above the discharge-pipe inlet and leading from the upper portion of the reservoir to the last-named inlet, said descending air-passage and ascending water-passage being both arranged between said reservoir and said discharge-pipe, whereby the discharge-pipe has no direct connection with the reservoir or main chamber of the trap, substantially as set forth.

576,320. **HOOF-PAD.** NICHOLAS G. MOONEY, Sing Sing, N. Y. Filed Nov. 13, 1896. Serial No. 611,984. (No model.)



Claim.—1. A hoof-pad, consisting of an elastic cushion of U shape, the connecting portion of which is much thicker than the side portions, said side portions being recessed to form tongues or fins at the upper surface of the cushion, and a sole-plate secured to the cushion and provided with a central opening conforming nearly in size to the space within the shoe, substantially as set forth.

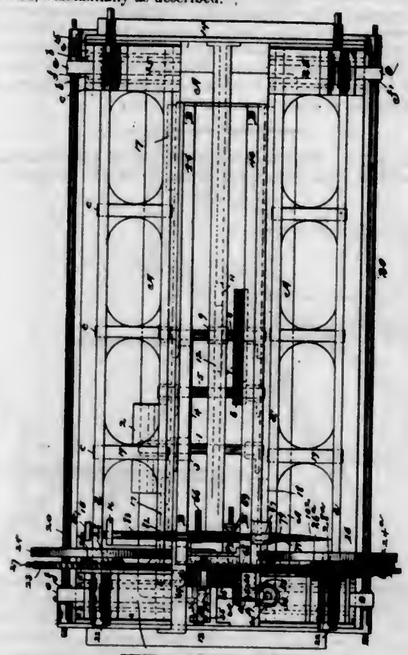
2. A hoof-pad, consisting of an elastic cushion thickened at its rear part and provided with tapering forwardly-extending tongues or fins, and with tapering ribs at the inner edges of the said tongues or fins, and a sole-plate attached to the cushion and provided with a central opening, substantially as set forth.

576,321. **STATUARY-DUPLICATING MACHINE.** ROBERT MORGENRIES, Winona, Minn., assignor to the American Carving and Manufacturing Company, same place. Filed Apr. 22, 1896. Serial No. 471,822. (No model.)

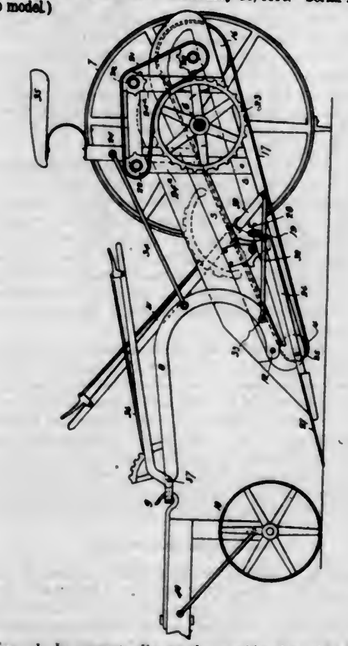
Claim.—1. In a statuary-duplicating machine, the combination with a series of revoluble and reciprocal cutters, of a series of reciprocal guide-fingers connected therewith and adapted to control the movements thereof, and rotatable pattern and material holders, sliding tables whereon said holders are mounted, gearing for causing the reciprocation of said tables, said last-mentioned gearing being adapted to actuate the rotating mechanism, substantially as described.

2. In a statuary-duplicating machine, the combination with rotatable pattern and material holders, sliding tables upon which said material and pattern holders are mounted respectively, said tables being rigidly connected, a driving-shaft having a cam for reciprocating the sliding tables, a worm-gear for rotating the pattern and material holders and an intermittently-acting pawl-and-ratchet mechanism whereby upon the completion of a reciprocal movement of the tables a partial rotative movement of the pattern and material holders is effected, substantially as described.

3. In a statuary-duplicating machine, the combination with a reciprocal and revoluble cutter, of a reciprocal guide-finger and a lever pivotally connecting said guide-finger and cutter, a rod whereon said lever is pivoted, said rod being adjustable through fixed bearings whereby the cutter and guide-finger may be advanced or retracted, substantially as described.



576,322. **POTATO-DIGGER.** WALKER B. MYERS, Catherin, Colo., assignor of five-eighths to Edward Stauffacher, same place, and Lindsay S. Stropey, Basalt, Colo. Filed May 18, 1896. Serial No. 592,091. (No model.)

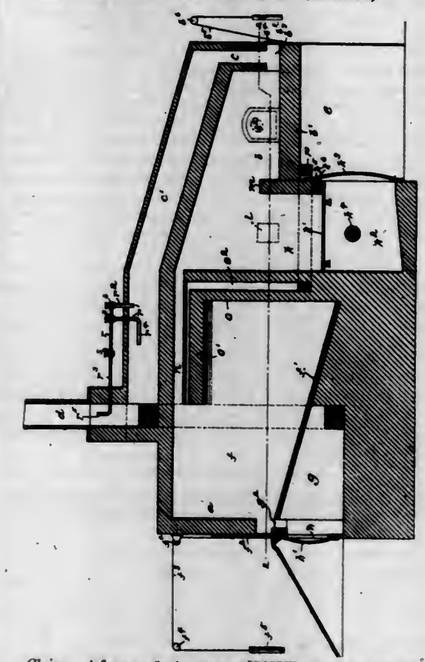


Claim.—1. In a potato-digger, the combination with the frame, the axle journaled therein, the drive-wheels, the draft-bars and the truck, of the levers 26 fulcrumed in the forward part of the frame, the plow or digger attached to the levers forward of the fulcrum, a rock-shaft having cranks attached to the rear extremities of the levers, and a suitable hand-lever attached to the rock-shaft for regulating the inclination of the plow, substantially as described.

2. In a potato-digger, the combination with the drive-wheels, the axle, the frame pivoted on the axle, the truck, and the draft-bars connecting the truck with the forward extremity of the frame, of the levers 26 fulcrumed on the front part of the frame, the plow attached to the forward extremities of the levers, the rock-shaft having cranks connected with the rear extremities of the levers, rods 32 connecting the draft-bars with other cranks on the rock-shaft, and a hand-lever attached to the rock-shaft, substantially as described.

3. In a potato-digger the combination with the frame, the axle journaled therein, the drive-wheels, the draft-bars and the truck, of the levers 26 fulcrumed in the forward part of the frame, the plow or digger attached to the levers forward of the fulcrum, a rock-shaft having cranks attached to the rear extremities of the levers, a suitable hand-lever attached to the rock-shaft for regulating the inclination of the plow, the elevator suitably supported on the frame, a shaft 15 journaled in the rear extremity of the frame, sprocket-wheels fast on said shaft and engaging the elevator, the sprockets 20 attached to the shaft 15, chains 21 engaging the sprockets 20 and further supported by idlers on the frame, sprockets on the axle engaging the chains 21, and a shaft carrying diamond-shaped agitating-sprockets engaging the elevator, substantially as described.

576,323. **METALLURGICAL FURNACE.** WILLIAM S. MCKENNA, Pittsburg, Pa., assignor of one-half to Joseph W. Keffer, same place. Filed June 22, 1896. Serial No. 596,525. (No model.)

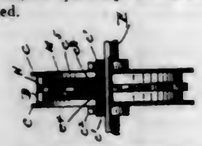


Claim.—A furnace for heating metals having a pair-heating chamber and a sheet-heating chamber, a fire-chamber intermediate of said chambers, bridge-walls separating said fire-chamber from said chambers, an arch extending into the sheet-heating chamber from the upper end of the bridge-wall separating said chamber from the fire-chamber, said pair-heating chamber having a flue leading from the bottom thereof to a flue just above the top of said furnace, said pair-heating chamber and sheet-heating chamber communicating with a common chimney, substantially as set forth.

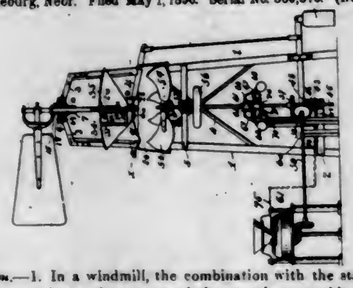
576,324. **LIFTING-WHEEL FOR DROP-PRESSES.** JOHN MCWILLIAMS, Providence, R. I. Filed June 4, 1896. Serial No. 594,270. (No model.)

Claim.—In a drop-press, the combination of the drop E and strap D, of the wheel C, made in two sections, each having a tubular hub by which they are rotatably mounted on a shaft, and also having a peripheral flange c, the centrally-perforated circular block c^3 with radial sockets c^4, the angular frame or bars c^5 having apertures or openings and connected with said central block by the braces c^6, the radially-arranged arms M, movably mounted in the sockets of said central block and in the openings of said angular frame, spiral springs

m' surrounding said arms M respectively, and having their inner bearing against said central block and their outer bearing against pins m^3 in said arms M, and a roller N, rotatably mounted at the outer end of each radial arm M, all operating substantially as shown and for the purpose specified.



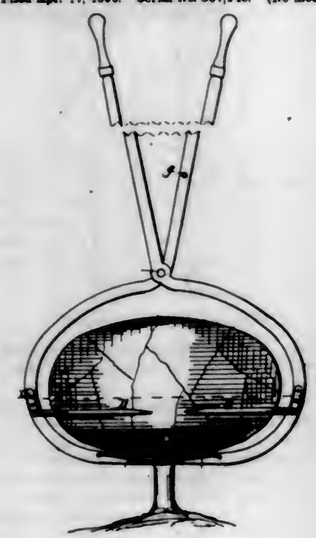
576,325. WINDMILL. ANDREW G. OLSON and JOHN S. LINDQUIST, Swedeburg, Nebr. Filed May 1, 1896. Serial No. 589,876. (No model.)



Claim.—1. In a windmill, the combination with the standards, the stationary ring or drum secured thereto, the rotatable driving-shaft and the horizontal wind-wheel secured thereto, of the vertical tubular shaft, the wind-vane, the arms pivoted to the lower end of said shaft, the slotted-wind guide or deflector with which said arms are connected, the links pivoted to said guide or deflector, the collar pivotally connected therewith, the vertically-movable shaft to which said collar is secured working in the lower end of said tubular shaft, the nut on the end thereof, the horizontal lever pivoted to said drum, the vertical connecting-rod and the horizontal operating-lever connected therewith, substantially as described.

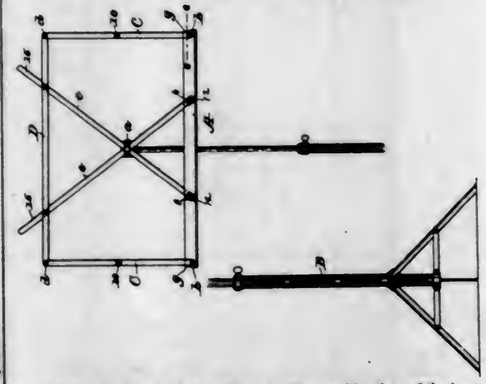
2. In a windmill of the character described, the combination with the rotatable driving-shaft, the bevel-gear secured thereto, the intermeshing bevel-gear and the shaft to which it is secured for driving a grinding-mill, of the sleeve secured to said driving-shaft formed with a slot, the vertically-movable sleeve having a pin projecting through said slot and a peripheral flange at the lower end, the levers pivoted to the fixed sleeve, the balls, the links connected with said levers and pin, the elbow-lever having a notch engaging with the said flange, the rod connected with the other end of said lever and the feed gate or valve of the grinding-mill connected with said rod, substantially as described.

576,326. CABBAGE-HARVESTER. DANIEL M. REED, Brockport N. Y. Filed Apr. 17, 1896. Serial No. 587,940. (No model.)



Claim.—In a cabbage-harvester, the combination, with the pivoted jaws having curved lower ends to pass around the cabbage, of knives attached to the ends of said jaws, arranged to engage together and produce a shearing cut, said knives being notched in V form to embrace the stem; and guards attached to the jaws, said guards consisting of fingers curved outward laterally and projecting forward parallel with the jaws, and forming a receptacle for holding the cabbage when cut, as herein shown and described.

576,327. FOLDING MUSIC-RACK. JOSEPH ROCKWELL, Stoughton, Mass. Filed July 14, 1896. Serial No. 599,165. (No model.)



Claim.—1. In a folding music-rack, the combination of the base-bar, the jointed side bars pivoted to the opposite ends of the base-bar, the top bar having the upper ends of the side bars pivoted thereto, and the diagonal crossed bars or braces each composed of a single piece and pivoted to the top bar on each side of its center and having their lower portions loosely connected with the base-bar, whereby they are permitted to slide thereon in the direction of their length during the operation of opening or folding up the rack, substantially as described.

2. In a folding music-rack, the combination of the base bar, the jointed side bars pivoted to the opposite ends of the base-bar, the top bar having the upper ends of the side bars pivoted thereto, and the diagonal crossed bars or braces pivoted to the top bar on each side of its center and having their lower portions connected with the base-bar by guides pivoted to the latter, said diagonal bars sliding through said guides during the operation of opening or folding up the rack, substantially as described.

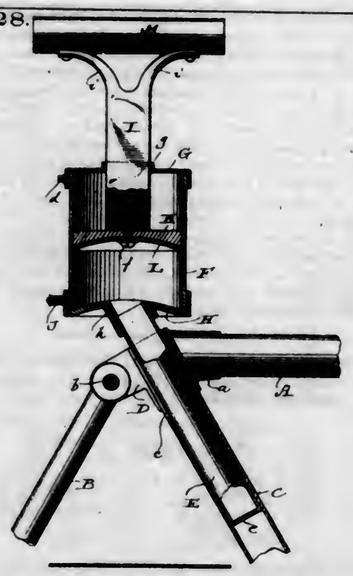
3. In a folding music-rack, the combination of the base-bar, the jointed side bars pivoted to the opposite ends of the base-bar, the top bar having the upper ends of the side bars pivoted thereto, the diagonal crossed bars or braces pivoted to the top bar on each side of its center and having their lower portions loosely connected with the base-bar, whereby they are permitted to slide therson in the direction of their length during the operation of opening or folding up the rack, and the lips or projections g, g, at the ends of the base-bar forming stops to limit the outward movement of the side bars, substantially as set forth.

4. In a folding music-rack, the combination of the base-bar A composed of a single piece, the jointed side bars C, C, pivoted to the ends of the base-bar, the top bar D composed of a single piece and having the upper ends of the side bars pivoted thereto, and the diagonal crossed bars or braces e, e, each composed of a single piece and pivoted to the top bar on each side of its center and loosely connected with the base-bar by guides secured thereto, said diagonal bars sliding on said guides during the operation of opening or folding up the rack and being provided with extensions 15, adapted to project above the top bar when the rack is opened, substantially as described.

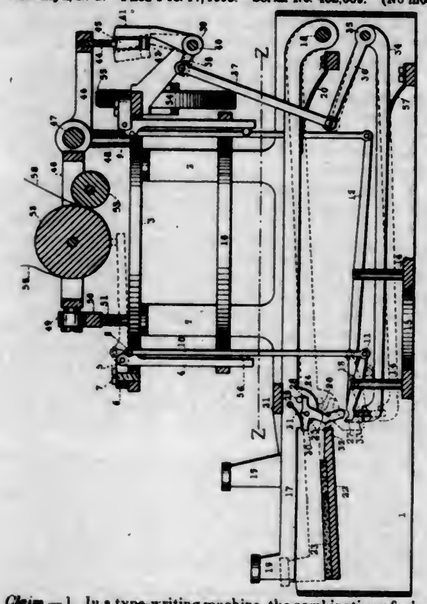
576,328. PNEUMATIC SPRING-SEAT. EUGENE F. SPAULDING, Rose Lawn, Wis. Filed July 13, 1895. Serial No. 555,894. (No model.)

Claim.—In a pneumatic spring-seat, the combination with a cylinder for compressed air having a screw-threaded flanged detachable base, of a vertically-movable piston within said cylinder, and an air-inlet valve having exterior screw-threads meshing with interior screw-threads in registering transverse openings through said base-flange and the adjacent lower part of the side wall of the cylinder, whereby said valve performs the double function of admitting air to the cylinder, and preventing the premature or accidental separation of the cylinder and its base, substantially as set forth.

576,328.



576,329. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Brooklyn, N. Y. Filed Feb. 17, 1893. Serial No. 462,689. (No model.)



Claim.—1. In a type-writing machine, the combination of a lever having a key or head at its forward end, a trip pivoted upon the body of said lever, a type-bar, and means for swinging said type-bar, said means being arranged in the path of and adapted to be actuated by and released from said trip, substantially as set forth.

2. In a type-writing machine, the combination of a lever having a key or head at its forward end, a trip pivoted upon the body of said lever, a type-bar, a universal bar of the spacing mechanism, and means between said key-lever and said type-bar for actuating both the type-bar and the universal bar, said means being arranged in the path of and adapted to be actuated by and released from said trip, substantially as set forth.

3. In a type-writing machine, the combination with a type-bar and a lever, as 12, operatively connected thereto, of a key-lever and a trip vibrating in a plane substantially parallel with said key-lever and extending from one said lever to the other and arranged to act directly upon the type-bar-actuating lever when the key-lever is depressed, substantially as set forth.

4. In a type-writing machine, the combination of a series of key-levers, a series of type-bar-operating levers connected to a series of type-bars, and a series of trips pivoted to the key-levers and extending therefrom directly to the type-bar-operating levers so as to actuate them upon depression of the key-levers, substantially as set forth.

5. In a type-writing machine, the combination, with a type-bar, of a type-bar-operating lever, and a key-lever having a part that extends directly to said type-bar-operating lever and that bears and slides upon and off from the type-bar-operating lever, thereby actuating and releasing the same, substantially as set forth.

6. In a type-writing machine, the combination of a paper-carriage, a feeding mechanism therefor including a universal bar, a series of type-bars, a series of operating-levers connected to said type-bars and also operatively connected to said universal bar, a series of key-levers, and a series of trips operatively connected to said series of type-bar-operating levers, whereby when any key-lever is depressed its associated trip acts upon its associated type-bar-operating lever and upon the universal bar and then releases the said universal bar, the said type-bar-operating lever and its connected type-bar, substantially as set forth.

7. In a type-writing machine, the combination of a series of substantially parallel key-actuated levers carrying each a pivoted trip, each said trip being arranged to vibrate in a plane substantially parallel with the lever to which it is pivoted, a universal stop-bar, as 32, extending transversely of the machine to act upon said trips, a series of type-bars, and connections between the type-bars and the trips, substantially as set forth.

8. In a type-writing machine, the combination of a series of key-actuated levers carrying each a pivoted trip, a universal stop-bar, as 32, extending transversely of the machine to act upon said trips, a series of type-bars, a series of connecting-rods, a series of type-bar-operating or sub levers, and a transverse universal bar extending under the forward ends of said type-bar-operating or sub levers and connected to the escapement mechanism, substantially as set forth.

9. In a type-writing machine, the combination with a series of circularly-arranged type-bars, of a set of levers for operating the same, a set of key-levers, both said sets of levers being arranged beneath the type-bars and lengthwise of the machine, one set of the levers being arranged above the other set, and a series of trips arranged between the two sets of levers, substantially as set forth.

10. In a type-writing machine, the combination of a circular series of type-bars, a series of horizontally-arranged levers of varying lengths, a series of rods connected at their upper ends to the type-bars and at their lower ends to the rear ends of the said horizontally-arranged levers of varying lengths, a series of key-levers and a series of trips attached thereto and adapted to act upon the forward ends of the said horizontally-arranged levers of varying lengths, substantially as set forth.

11. In a type-writing machine, the combination of a series of longitudinally-arranged key-levers, a series of type-bars arranged in a circle, a series of connecting-rods also arranged in a circle, a series of type-bar-operating levers of varying lengths terminating at one set of their ends in a circle and pivotally connected thereat to the said connecting-rods, and terminating at the other set of their ends in substantially a straight line transversely of the machine, and a series of trips arranged between the series of key-levers and the series of type-bar-operating levers and also arranged in substantially a straight line transversely of the machine and coincident with the free ends of the type-bar-operating levers extending from side to side of the machine, substantially as set forth.

12. In a type-writing machine, the combination of a series of key-levers, a series of levers connected to a series of type-bars to operate them, a series of trips, and a straight transverse universal bar adapted to be operated by all of the said type-bar-operating levers and connected to the spacing mechanism of the paper-carriage, substantially as set forth.

13. In a type-writing machine, the combination of a paper-carriage, a letter-spacing mechanism, a series of key-levers, a series of levers connected to a series of type-bars to operate them and all extending in substantially the same direction and terminating in substantially a straight line transversely of the machine, a transverse universal bar of the spacing mechanism, and a series of trips, each of said trips being arranged to release both its associated type-bar and the universal bar, substantially as set forth.

14. In a type-writing machine, the combination of a paper-carriage, a letter-spacing mechanism, a series of type-bars, a series of levers for operating the type-bars, a series of key-levers, detachable connections between the key-levers and the type-bar-operating levers, and a universal bar of the spacing mechanism coincident with the series of detachable connections and with the type-bar-operating levers, substantially as set forth.

15. In a type-writing machine, the combination of a paper-carriage, a letter-spacing mechanism, a circular series of type-bars, a

circular series of vertical thrust-rods connecting them to the ends of a series of horizontal operating-levers of the first order, the free ends of said levers having a uniform motion, a series of key-levers, a series of trips, and a universal bar of the spacing mechanism, the trips and universal bar being arranged coincident with said free ends of the type-bar-operating levers, substantially as set forth.

16. The combination of a carriage, a letter-spacing mechanism including a universal bar, a type-bar, a lever, and a trip pivoted thereon and adapted to transmit the motion of said lever to both the universal bar and the type-bar and to then release them, substantially as set forth.

576,330. SPECTACLE-FRAME. SAMUEL N. STONE, Attleborough, Mass. Filed Apr. 17, 1896. Serial No. 587,397. (No model.)

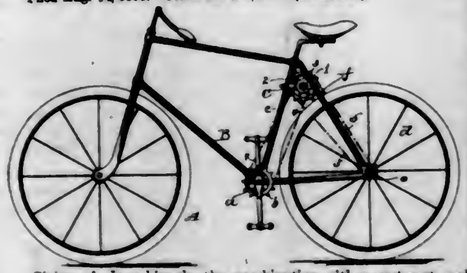


Claim.—1. A spectacle-frame having in combination with the lens-frames, an upper joint-block, an auxiliary upper joint-block, a lower joint-block constructed to correspond in extent and contour with the combined extent and contour of said upper joint-blocks, said auxiliary joint-block being separate from said upper and lower joint-blocks, said lower joint-block provided with a pintle near its outer extremity, said auxiliary joint-block having a depression adapted to admit said pintle, said auxiliary joint-block and said lower joint-block possessing relatively thicker and thinner portions, and each joint-block provided with suitable orifices for the reception of binding-screws, substantially as described.

2. A spectacle-frame having in combination with the lens-frames, an upper joint-block, an auxiliary upper joint-block, a lower joint-block constructed to correspond in extent and contour with the combined extent and contour of said upper joint-blocks, said auxiliary joint-block being separate from said upper and lower joint-blocks, said lower joint-block provided with a pintle near its outer extremity, said auxiliary joint-block having a depression adapted to admit said pintle, said auxiliary joint-block and said lower joint-block possessing relatively thicker and thinner portions, each joint-block provided with suitable orifices for the reception of binding-screws, a temple-carrying block having recesses, a disk portion and orifices, and a temple-wire adapted for pivotal connection with said block, substantially as described.

3. A spectacle-frame having in combination with the lens-frames, an upper joint-block, an auxiliary upper joint-block, a lower joint-block constructed to correspond in extent and contour with the combined extent and contour of said upper joint-blocks, said auxiliary joint-block being separate from said upper and lower joint-blocks, said lower joint-block provided with a pintle near its outer extremity, said auxiliary joint-block having a depression adapted to admit said pintle, said auxiliary joint-block and said lower joint-block possessing relatively thicker and thinner portions, each joint-block provided with suitable orifices for the reception of binding-screws, a temple-carrying block having recesses, a disk portion and orifices, means for limiting the movement of said block with relation to said joint-blocks, a temple-wire adapted for pivotal connection with said block, and means for limiting the movement of said block with relation to said temple-wire, substantially as described.

576,331. BICYCLE. GEORGE W. TALLMAN, New York, N. Y. Filed Aug. 14, 1895. Serial No. 559,237. (No model.)

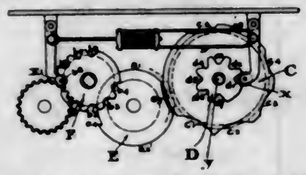


Claim.—1. In a bicycle, the combination with a seat-post, and rear arms, said parts inclining and converging toward each other at their upper ends in the usual manner, of an extensible bracket located in the space between the seat-post and these arms, and clips removably secured to the bracket outside of the post and arms for retaining the bracket in place, an axle journaled in the bracket and carrying sprocket-wheels and chains extending from these wheels to one on the pedal-shaft and one on the rear axle, substantially as set forth.

2. In a bicycle, the combination with the frame, the crank-shaft and the rear wheel, of an extensible bracket disposed between and secured to the seat-post or central brace and the rear bars of the frame, a clamp for securing the bracket in place, a counter-shaft mounted in said bracket, and gearing between said counter-shaft and the crank-shaft and rear wheel, substantially as set forth.

3. A bracket for supporting the counter-shaft of supplemental gearing for a bicycle, consisting of a sleeve to receive said counter-shaft, a flange or enlargement on said sleeve adapted to be secured to the rear bars of the frame, and an arm projecting from the sleeve and adapted to be secured to the seat-post or central brace of the frame, said arm being made in two parts adjustably connected together, substantially as set forth.

576,332. LOCKING DEVICE FOR ELECTRIC CONTROLLERS. GUSTAF VALLEY, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Nov. 10, 1896. Serial No. 611,596. (No model.)



Claim.—1. In an electric controller, a locking device comprising two contiguous rotatable disks, one of said disks having a plurality of lunes about its periphery, the other of said disks having a plurality of suitably-connected concentric arcs composing its periphery, all substantially as, and for the purpose, set forth.

2. In a locking device for electric controllers, in combination, the plate C encircling the shaft of a reversing and cut-out switch and having about its periphery a plurality of lunes, and the plate E encircling the shaft of the operating-drum and having the lune c^4 and the lug c^4 formed by its periphery, all substantially as, and for the purpose, set forth.

3. In an electric controller, in combination, the controlling-switch and a disk rotatable with the movement thereof, an auxiliary switch and a second disk rotatable with its movement, said second disk having a plurality of lunes about its periphery, said lunes corresponding in number to, and circumferentially with, the operating positions of said auxiliary switch, one of the arcs forming each of said lunes being substantially parallel to some portion of the periphery of the first-mentioned disk when in a particular position relative thereto.

4. In a locking device for electric controllers, in combination, a rotatable disk, as C, having a plurality of lunes about its periphery, some of said lunes extending nearer the center of said disk than others of said lunes, a rotatable disk, as E, contiguous to said disk C and having a periphery composed substantially of two concentric arcs connected in any suitable manner, all substantially as, and for the purpose, set forth.

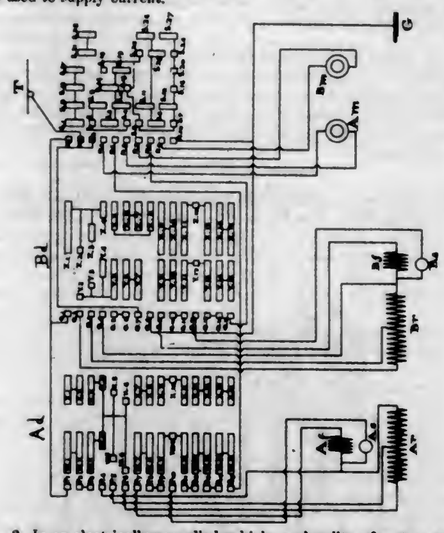
5. In an electric controller, in combination, two electric switches, each having a disk secured to it and rotatable with it, said disks constituting the locking device for said switches, one of said disks, as C, having a plurality of lunes about its periphery through any one of which lunes the periphery of the other of said disks, as E, is adapted to pass, a lug, as c^4, upon said disk E adapted to contact with the periphery of said disk C when some of the said lunes are in use, while being adapted to pass through others of said lunes.

6. In a locking device for electric controllers, a rotatable disk, a second rotatable disk contiguous thereto and having a periphery composed substantially of concentric arcs connected to each other, one of the connections forming a lune through which the periphery of the first-mentioned disk may pass when said lune is in the desired position therefor.

7. In an electric controller, in combination, a rotatable switch, a lever to operate said switch, a lug upon the lower side of said lever, a spring-pressed pawl adapted to engage the said lug, all substantially as, and for the purpose, set forth.

576,333. ELECTRIC CONTROLLER. GUSTAF VALLEY, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Nov. 10, 1896. Serial No. 611,597. (No model.)

Claim.—1. In an electric controller, in combination, two movable groups of contacts adapted to regulate the course of the current by engagement with fixed contacts, and an electric switch which affords means by which either group alone or both of said groups may be used to supply current.



2. In an electrically-propelled vehicle, a plurality of motors, an electric controller having two operating groups of movable contacts, part of said motors and one of said groups being in the same electric circuit, the rest of said motors and the other of said groups being in another electric circuit, and a switch having a plurality of operative positions, some of said positions cutting out one of said circuits, others of said positions cutting out the other of said circuits, and a third set of said positions cutting out neither of said circuits.

3. In a controller for electric railways, two operating-drums and an electric switch which affords means whereby either drum alone or both drums together may be used to supply electric current for propelling the vehicle.

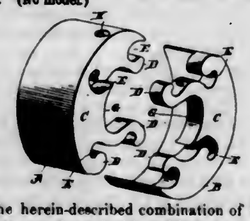
4. An electric controller containing two operating-drums and a reversing and cut-out switch by the use of which either of said drums may be used to regulate the current to part of the motors, the other of said drums being inoperative.

5. An electric controller comprising two operating-drums and a reversing and cut-out switch, said switch having a plurality of operative positions, some of said positions cutting one drum out of the working circuit, others of said positions cutting the other of said drums out of the working circuit, and a third set of said positions putting both of said drums in the working circuit.

6. In an electrically-propelled vehicle, a plurality of motors, an electric controller having two operative drums, part of said motors and one of said drums being in the same electric circuit, and the rest of said motors and the other of said drums being in another electric circuit, and a switch having a plurality of operative positions, some of said positions cutting out one of said circuits, others of said positions cutting out the other of said circuits, and a third set of said positions cutting out neither of said circuits.

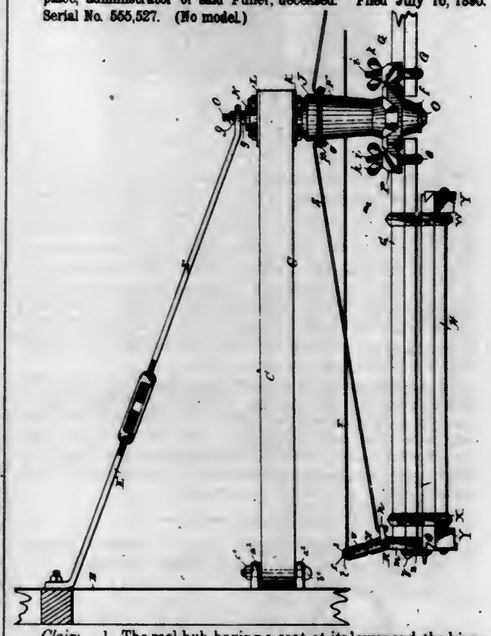
7. In a controller for electric railways, in combination, a reversing and cut-out switch having seven operative positions substantially as, and for the purpose, set forth, and two operating-drums each connected to parts of the electrical apparatus carried by the car for the purpose set forth.

576,334. GUARD FOR REVOLVING SET-SCREWS. GEORGE W. WRIGHT and ALBERT E. FIELDEN, Philadelphia, Pa., assignors of one-third to Henry M. Schadewald, same place. Filed Apr. 21, 1896. Serial No. 588,462. (No model.)



Claim.—The herein-described combination of the halves A and B, tongues and grooves formed with said halves adapted to interlock so as to hold said halves in their proper relative positions upon a shaft, and a screw J threaded through suitable holes in said halves, whereby the latter are held in longitudinal alinement and prevented from slipping upon the shaft, substantially as and for the purpose set forth.

576,335. CLOTHES-DRIER. FRANK J. BAILEY, Brattleborough, Vt., assignor to Levi K. Fuller, same place; R. L. Waterman, same place, administrator of said Fuller, deceased. Filed July 10, 1895. Serial No. 555,527. (No model.)



Claim.—1. The reel-hub having a seat at its lower end, the king-post extending through said reel-hub, said king-post having a bearing at its lower end adapted to said seat, and said king-post having a longitudinal bore therethrough and being exteriorly screw-threaded at its upper end, a cap-plate screwing onto the upper end of said king-post and having an annular peripheral flange embracing the rim or verge of said hub, and a king-bolt extending through said longitudinal bore, in combination with two side bars and a stay-rod of a reel-supporting frame, each of said side bars having an upper pivot-plate and a lower pivot-plate secured thereto and fitting over and turning upon said king-post, a spacing and clamping sleeve surrounding said king-post and located between the upper and lower pivot-plates of said side bars, a cap-nut screwing upon the upper end of said king-post and seating upon the uppermost of said pivot-plates, and locking-nuts upon the upper projecting end of said king-bolt securing said stay-rod thereto, substantially as set forth.

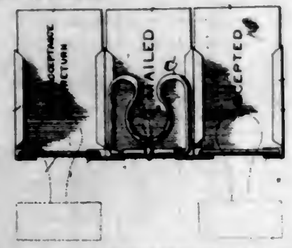
2. The king-post, and the reel-hub carried and turning thereon, in combination with the cap-plate secured on said king-post above the reel-hub, the two side bars of the supporting-frame, each having an upper and a lower pivot-plate turning upon said king-post, a spacing-sleeve surrounding the king-post between said upper and lower pivot-plates, and a cap-nut screwing on the king-post above the uppermost of said pivot-plates, substantially as set forth.

3. The radial reel-arm having a bracket secured to the outer end thereof, said bracket having an upwardly-extending post with an eye therein, in combination with a peripheral line extending through said eye, and two sleeves around said post beneath said eye, said sleeves having their adjacent edges cam-shaped, and the upper of said sleeves having holes for the reception of said wire, substantially as set forth.

4. The radial reel-arm having a bracket secured to its outer end, said bracket having an upwardly-extending post with an eye therein, in combination with a peripheral wire extending through said eye, and two sleeves upon said post having their adjacent edges cam-shaped, with reciprocally-engaging notches and heels for holding the upper sleeve in its elevated position, said upper sleeve having holes for the reception of said wire, substantially as set forth.

5. The reel-hub having a projecting flange, said flange having a cross notch or recess and an aperture intersecting said recess, in combination with a radial reel-arm seating upon said flange, and a strap surrounding said radial reel-arm entering said cross notch or recess and having a stud-post extending through said aperture, and a nut fitting upon said stud-post, substantially as set forth.

576,336. HAND-STAMP HOLDER. CHARLES L. BENEDICT, Amherst, Canada. Filed Mar. 2, 1896. Renewed Dec. 17, 1896. Serial No. 616,095. (No model.)

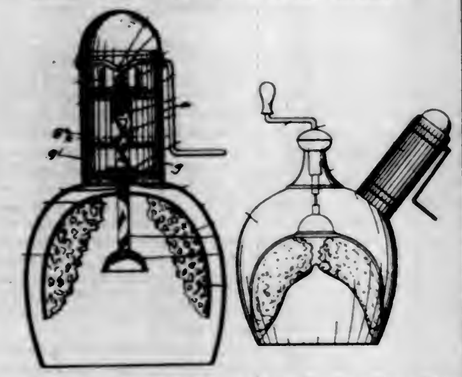


Claim.—1. A holder for hand-stamps comprising among its members, a plate provided with projecting supporting shoulders, and a stamp-holding frame hinged to said plate and adapted to engage and be supported by said shoulders, said frame having forwardly-extending arms provided with inwardly-extending spring portions adapted to engage the stem of a hand-stamp, substantially as described.

2. A holder for hand-stamps comprising among its members, a supporting device, a stamp-supporting frame secured thereto and a hinged device for removably holding a card whereby said stamp-holding frame can be folded upon the card-holding device, substantially as described.

3. A holder for hand-stamps including among its members a supporting device, a stamp-supporting device secured thereto formed in one piece, having forwardly-extending looped portions having their outer ends closely approaching each other, and having inwardly-extending curved ends, for engaging the stem of a hand-stamp, of a plate hinged to said stamp-supporting device and provided with card-retaining flanges, substantially as described.

576,337. CUPPING DEVICE. JAMES H. BEVINGTON, Columbus, Ohio. Filed Sept. 14, 1896. Serial No. 605,686. (No model.)



Claim.—1. In a cupping device the combination with a cylinder or stem portion *a* and a cup projecting from and communicating therewith, of a sponge-carrying frame depending within said cup and means for imparting an oscillatory or rotary motion to said sponge-frame, substantially as and for the purpose specified.

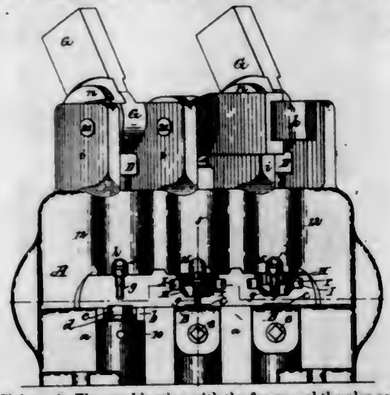
2. In a cupping device the combination with a cup, a stem portion projecting therefrom and a shaft journaled in said stem portion, said shaft carrying a sponge-holding frame within said cup and a crank on its outer end portion, of a vacuum-pump mechanism also connected and communicating with said cup, substantially as and for the purpose specified.

3. In a cupping device the combination with a pump-cylinder, a plunger-head contained therein and means for imparting a reciprocating motion to said plunger-head, of a cup connecting and communicating with said cylinder and a sponge-carrying frame rotatably supported in said cup, substantially as and for the purpose specified.

4. In a cupping device the combination with a cylinder, a reciprocating plunger contained therein and means for operating the same, of a cup communicating with and supported from said cylinder, a shaft journaled in the lower portion of said cylinder and projecting within said cup and cylinder, a sponge-carrying frame on said shaft within said cup and means whereby an oscillatory or rubbing movement is imparted to said sponge-frame when said pump-plunger is operated, substantially as and for the purpose specified.

5. In a cupping device the combination with a pump-cylinder, a reciprocating pump-plunger arranged therein, a plate g^6 supported from said plunger and a slotted opening in said plate, of a cup supported from and communicating with said cylinder, a shaft journaled in the bottom of said cylinder projecting within said cup, a sponge-carrying frame supported on the lower end of said shaft within said cup and a spiral or screw extension on said shaft which passes through said plate-slot and means for imparting a reciprocating motion to said plunger within said pump-cylinder, substantially as and for the purpose specified.

576,338. METAL-PUNCHING MACHINE. RICHARD A. BRINE, Revere, Mass. Filed Mar. 3, 1896. Serial No. 581,701. (No model.)



Claim.—1. The combination with the frame and the plunger having an overhanging bifurcated hook on its upper end, of the pivoted lever extending through the hook bifurcation and provided within the hook with a cam-head, the full lower cam-surface of which bears on the upper end of the plunger to project said plunger; the said cam-head being provided at opposite sides with auxiliary cam-surfaces engaging the under side of the hook at opposite sides of its slot or bifurcation, substantially as set forth.

2. The combination with the frame having parallel diagonally-arranged ears, of the reciprocating plunger having a horizontally-extending, bifurcated, open hook on its upper end between said ears, a lever extending down through the hook bifurcation and provided within the hook with a cam-head, the lower cam edge of which bears upon the upper end of the plunger to project it; said cam-head having auxiliary cam surfaces or shoulders on its opposite sides and engaging the under side of the overhanging hook at both sides of its slot, and a transverse pin extending through said ears and cam-head, substantially as set forth.

3. The combination with the cylindrical stripper, of a horizontal U-shaped support embracing said stripper and having an attaching member, and interlocking connections between the arms of said support and the said stripper, whereby the stripper may be inserted and removed through the open end of its support, substantially as set forth.

4. The combination with the horizontal U-shaped support provided with projections on the upper sides of its arms and having a slotted attaching member at right angles to said arms, of the cylindrical stripper fitting between the arms of said U-shaped support and having recesses in its opposite sides receiving the said projections, substantially as set forth.

5. The combination with the frame, its punch and die, of a vertically-adjustable, horizontal U-shaped support mounted on the frame with its arms extending at opposite sides of the punch, a tubular or cylindrical stripper embraced by said U-shaped support and held firmly, but removably, against the under side of the upper portion of the frame by the upward adjustment of said U-shaped support; the lower edge of the tube or cylinder serving to strip the work from the punch, substantially as set forth.

6. The combination with the frame, its punch and die, of the horizontal U-shaped support straddling the punch and having an upwardly-projecting slotted arm, a set-screw extending through said slot for adjusting the support toward and from the under side of the upper portion of the frame, a tubular or cylindrical stripper seated removably upon the said U-shaped support, with its upper edge clamped thereby to the frame and its lower annular edge next to the die, to engage the work and strip it from the punch, substantially as set forth.

7. The combination with the frame, its punch and die, of the U-shaped holder, the removable tubular stripper, seated in and held firmly to the under side of the upper portion of the frame by said holder and having its lower end tapered downwardly and inwardly to engage the work as close to the punch as possible, substantially as set forth.

8. The combination with the frame having a die-recess *b* extending inwardly from the front side, and a punch thereabove, of a flanged die in said recess, horizontal adjusting-screws, extending inwardly into the die-recess from the rear side of the frame, and an adjustable horizontal U-shaped holder fitting the frame-recess and embracing the front side of the die above its flange, and clamping it down to the frame, substantially as set forth.

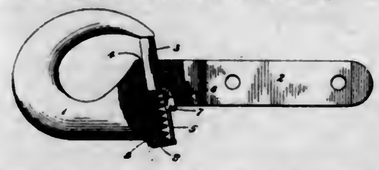
9. The combination with the frame and its die-recess extending inwardly from the front side, and the punch thereabove, of the flanged die in the recess, the horizontal set-screws entering the rear end of the recess, and engaging the rear side of the die above its flange, and the angular holder having a horizontal member fitting the front end of the die-recess and engaging the die-flange and a depending member resting against the front of the frame and secured removably thereto by a screw or bolt, substantially as set forth.

10. The stripper H in the form of a tube having a tapering lower end and provided with opposite recesses 25 in its outer side, substantially as set forth.

11. The stripper-support comprising a horizontal U-shaped member I, having lugs 24 on the upper side and between the ends of its two arms and an upwardly-projecting longitudinally-slotted attaching-arm at its closed end, substantially as set forth.

12. The combination with the frame comprising a base portion having a series of dies on its upper side, and a top portion connected at its ends only with the ends of the base and having a series of pairs of diagonally-arranged ears on its upper side, of a series of punch-plungers mounted in the top portion of the frame over the dies, and a series of cam-levers pivoted between the said ears and operatively connected with the upper ends of the plungers to throw them positively in both directions, substantially as set forth.

576,339. TRACE-HOOK. JOHN W. CLAYTON, Chattanooga, Tenn. Filed Mar. 28, 1896. Serial No. 585,262. (No model.)

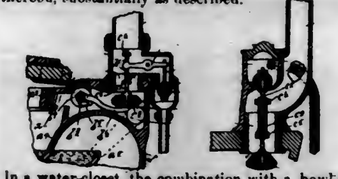


Claim.—A trace-hook comprising a shank 2 consisting of a plate adapted to be secured to a trace and extended downward at its inner end and provided with an opening to form a housing, the latter being disposed substantially perpendicular to the shank, and the extension being slotted at its front beneath the shank, a curved hook formed integral and extending rearward from the shank and curved upward over the rear end thereof, the point of the hook being located directly above the top of the housing, the locking-pin arranged in the housing, disposed perpendicular to the shank and abutting against the end of the hook to close the mouth thereof, the upper end of the locking-pin being of less area than the point of the hook to prevent the locking-pin from being accidentally operated, the finger-piece formed integral with the lower end of the locking-pin and composed of a web projecting through the slot of the said extension and normally arranged in a recess of the lower edge of the shank, and lugs projecting laterally from the lower end of the web engaging the lower edge of the shank to form a stop, and projecting laterally therefrom to be engaged by the fingers to operate the locking pin, and a coiled spring for engaging the lower end of the locking-pin, substantially as described.

576,340. AUTOMATIC WATER-CLOSET. JOHN P. COURTNEY, Minneapolis, Minn. Filed Nov. 1, 1895. Serial No. 567,621. (No model.)

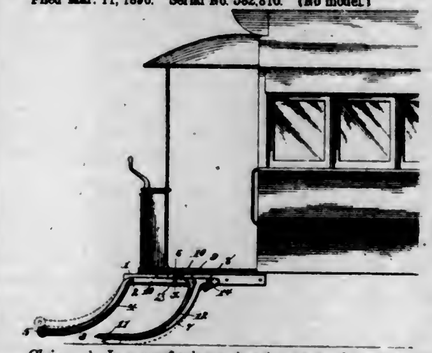
Claim.—1. In a water-closet, the combination with the bowl and seat pivoted thereto, of a flushing-valve seat opening directly into the recess of the bowl-body, a charging-valve seat in communication with said flushing-valve seat, a charging-valve and a flushing-valve connected for reverse movements, and a lever having its fulcrum on the seat's pivot, operative within a recess of said bowl-body, underlying the flushing-valve and operative thereon to close the flushing-valve and open the charging-valve, when a person sits on the seat, substantially as described.

2. In a water-closet, the combination with a bowl having a recess back of the seat, of a pivoted seat having its pivot-rod extending into said recess, of a flushing-valve seat opening directly into said bowl-recess, a charging-valve seat in communication with said flushing-valve seat, a charging-valve and a flushing-valve connected for reverse movements, a lever fulcrumed on said seat's pivot-rod, within said recess, and underlying said flushing-valve, and connections from said seat to said lever for operating said lever under the downward movement of said seat, but permitting the seat to be raised without action thereon, substantially as described.



3. In a water-closet, the combination with a bowl having a recess back of the seat, of a pivoted seat having its pivot-rod, extending into said recess through water-tight joints in the walls thereof, an angular lug on said pivot-rod within said recess, a lever loose on said rod and overlying said lug, means for holding the forward end of the seat normally above the bowl, and the charging and flushing valves and valve-seats, with the valves connected for common movement, in reverse order, and arranged so that the flushing-valve is normally open by gravity, and the charging-valve is normally closed, by gravity and pressure from the main, but that the flushing-valve becomes subject to said loose lever and seat, when the weight of a person is on the seat, substantially as described.

576,341. CAR-FENDER. GEORGE W. CRESSMAN, Barren Hill, Pa. Filed Mar. 11, 1896. Serial No. 582,810. (No model.)



Claim.—1. In a car-fender, a bracket secured to a car, a main frame hinged thereto, a rearwardly-projecting arm on said frame, a block to limit the upward movement of said arm, a spring-catch located in the block and adapted to engage and retain it in its lowered position, a secondary frame also hinged to the bracket, a projection formed on the secondary frame adapted to be engaged by the end of the arm and thereby keep the secondary frame in an elevated position until the main frame is raised, as and for the purpose described.

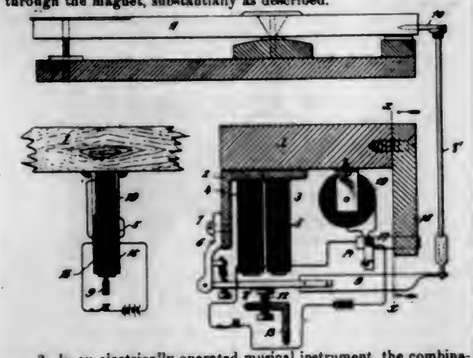
2. In combination with a car, a pair of brackets secured to one end thereof; a primary fender composed of two side bars pivoted to said brackets; a buffer-roll journaled in the outer ends of said side bars; heels formed with said side bars and extending rearward; stop-blocks for arresting the upward-swinging movement of said heels; a secondary fender also composed of two curved arms pivoted to the brackets; a foot-board connecting the outer ends of the last-named arms; toes formed with said arms and adapted to engage said heels, and latches for holding the primary fender in an elevated position whereby the secondary fender is held in a lower position, as shown and described.

576,342. ELECTRICALLY-OPERATED MUSICAL INSTRUMENT. GEORGE H. DAVIS, New York, N. Y. Filed Mar. 25, 1896. Serial No. 584,762. (No model.)

Claim.—1. In an electrically-operated musical instrument, the combination with a key, of an armature connected to said key, an electromagnet for actuating said armature, a source of electrical energy for energizing said magnet, a resistance, and means operated by the armature when the latter is attracted by its magnet for cutting the resistance into the circuit to reduce the current passing through the magnet, substantially as described.

2. In an electrically-operated musical instrument, the combination with a key, of an armature connected to said key, an electromagnet arranged in a normally open circuit for actuating said armature, means for closing the circuit, a resistance, and means operated

by the armature when the latter is attracted by its magnet for cutting the resistance into the circuit to reduce the current passing through the magnet, substantially as described.



3. In an electrically-operated musical instrument, the combination with a key, of an armature connected to said key, an electromagnet arranged in a normally open circuit for actuating said armature, means for closing the circuit, a resistance arranged in a circuit in series with the magnet-coils, and means operated by the armature when the latter is attracted by its magnet for cutting the resistance into the circuit to reduce the current passing through the magnet, substantially as described.

4. In an electrically-operated musical instrument, the combination with a key, of a pivoted armature connected at its free end to said key, an electromagnet arranged in a normally open circuit for actuating said armature, means for closing the circuit, a resistance arranged in a circuit in series with the magnet-coils, and connected at its terminals to the normally closed members of a knife-switch operating to cut out said resistance, and a wedge carried by the armature operating when the armature is attracted by its magnet to separate the members of the knife-switch and cut the resistance into the magnet-circuit to reduce the current passing through the magnet, substantially as described.

5. In an electrically-operated musical instrument, the combination with a key 11, of a pivoted armature 8, provided with a non-conducting extension 9, a striker-rod 8' connecting the corresponding ends of said key and extension, an electromagnet 5 arranged in a normally open circuit for actuating said armature, a resistance 19 arranged in a circuit in series with the magnet-coils and connected at its terminals to the normally closed members 15, 16 of a knife-switch 14, said members being included in the magnet-circuit but insulated from each other, and means for closing said circuit, all constructed and arranged in the manner described, whereby when the circuit is closed the armature is attracted by its magnet to actuate the key, and the members 15, 16 are separated by the non-conducting extension 9, thus cutting the resistance into circuit and reducing the current passing through the magnet, for the purpose specified.

576,343. **LOOM-SHUTTLE THREADER.** JOHN E. DOLBER, Manchester, N. H. Filed June 13, 1896. Serial No. 595,414. (No model.)

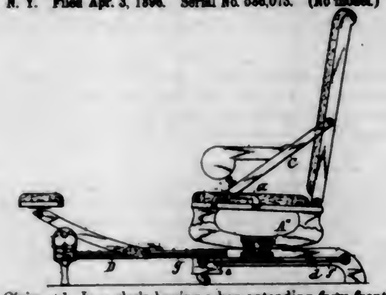


Claim.—1. In a loom-shuttle threader, a spring-actuated yarn-clamp adapted to enter the eye of a shuttle, and a spring-actuated feeding-arm adapted to feed the yarn into said clamp.

2. In a loom-shuttle threader, a bifurcated arm formed of spring metal, and a spring-actuated arm having its free end flattened and adapted to enter the bifurcated arm, substantially for the purpose set forth.

3. In a loom-shuttle threader, a bifurcated arm formed of spring metal and having its upper adjacent edges grooved or cut away at a point near its end, and a spring-actuated arm having its free end flattened for readily entering the bifurcated arm and provided with a V-groove at its extreme end, all substantially for the purpose set forth.

576,344. **ROCKING-CHAIR.** S. SPENCER ECCLESTON, Syracuse, N. Y. Filed Apr. 3, 1896. Serial No. 586,073. (No model.)



Claim.—1. In a chair having a bar extending from front to rear of the base thereof, a horizontal flat bar with grooves in its sides secured at one end to the base-bar to slide thereon, a support for the opposite end of the horizontal bar, a bar above the horizontal bar and extending at right angles thereto, a block on the horizontal bar to slide in the grooves of the latter, a pair of bars pivoted to the said block, a foot-rest pivoted on the ends of said bars and supported entirely by the latter, and means for holding the block at various points along the horizontal bar, as set forth.

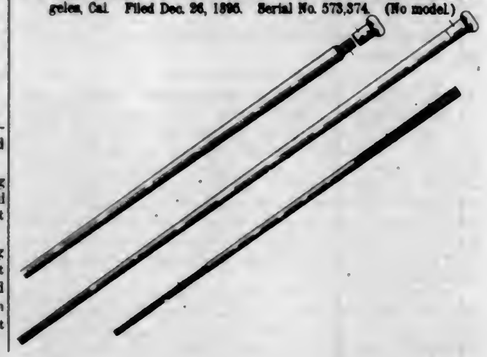
2. In a chair having a bar extending from front to rear of the base thereof, a horizontal flat bar secured at one end to the base-bar to slide thereon, a support for the opposite end of the horizontal bar, a bar above the horizontal bar and extending at right angles thereto, a block on the horizontal bar to slide in the latter, a pair of bars pivoted to the said block, a foot-rest pivoted on the ends of said bars and supported entirely by the latter, and means for holding the block at various points along the horizontal bar, as set forth.

3. In a chair having a bar extending from front to rear in the center of the base, a horizontal flat bar secured at one end to the base-bar to slide thereon, a support for the opposite end of the horizontal bar, a cross-bar above the latter, a block to slide on the horizontal bar, a pair of bars pivoted to the block and adapted to slide on the cross-bar, and a rest for the feet secured to the opposite ends of the pair of bars, substantially as described and shown.

4. In a rocking-chair having a bar extending from front to rear and in the center of the base thereof, a horizontal flat bar with grooves in its sides, an inverted-U-shaped piece secured to the lower side of the horizontal bar and engaging the base-bar to slide thereon, a support for the opposite end of the horizontal bar, a cross-bar above and extending at right angles to the horizontal bar, a block on the horizontal bar to slide in the grooves of the latter, a pair of bars pivoted to opposite sides of the block and bearing on said cross-bar, a rest pivoted to the ends of the pair of bars, a rack on the horizontal bar, and a dog on the block to engage the rack, as and for the purpose described.

5. In a chair, the combination with the seat, of a back pivoted to the rear of the seat, braces pivoted at one end to each side of the back, tapering round bars having their terminals bent downward and secured to the seat and having their largest ends toward the back, clamps on the bars, secured to the braces, each having a pair of curved and tapering jaws adapted to fit one within the other, a threaded stem on one jaw extending through the other, a nut having a round portion for the brace to turn on and a small projection on one of the jaws, as and for the purpose described.

576,345. **STOOL AND CANE.** CHARLES V. GORDON, East Los Angeles, Cal. Filed Dec. 26, 1896. Serial No. 573,374. (No model.)



Claim.—1. In a combined cane and stool, the combination of a seat-post having a bore, a rod slidably mounted within the said bore, supporting-bars and braces pivotally connected together, flanged plates having radial slots secured, respectively, to the adjacent ends of the rod and seat-post, split rings fitting within the flanges of the said plates and having the ends of the bars and braces, respectively, strung thereon, and other plates secured within the flanges of the first-mentioned plates and having radial slots corresponding with the radial slots thereof for the adjacent ends of the rods or bars to operate in, substantially as shown and described.

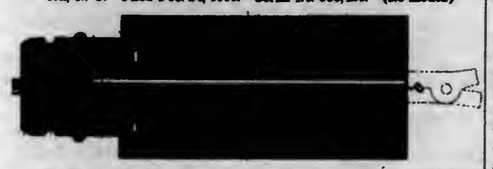
2. In a combined cane and stool, the combination of a seat-post having a bore extending therein from each end, rods slidably mounted within the bores and having a limited movement therein, supporting-bars and braces pivotally connected together, flanged plates having radial slots secured, respectively, to the ends of the rods and seat-post, split rings located within the flanges of the plates and having the ends of the bars and braces, respectively, strung thereon, other plates secured within the flanges of the aforesaid plates and having radial slots corresponding with the radial slots of the said flanged plates, and folding stays interposed between and having pivotal connection with the braces at the lower end of the seat-post, substantially as shown for the purpose described.

576,346. **BICYCLE-SUPPORT.** WILLIAM C. JEROME and BYRON D. BROWN, Mayfield, N. Y. Filed Mar. 30, 1896. Serial No. 585,448. (No model.)



Claim.—In a bicycle-support, a tubular member slotted longitudinally, and the locking-staples at the lower and upper ends, the spring supporting-rods, the sliding key having a loop or handle, and means for securing said loop or handle to the upper or lower staple, substantially as shown and described.

576,347. **ELECTRIC HEATER.** FREDERIC A. JOHNSON, Binghamton, N. Y. Filed Feb. 24, 1896. Serial No. 580,620. (No model.)

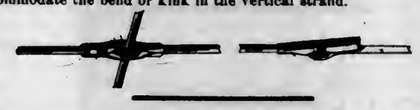


Claim.—1. A magnetic-induction heater, comprising a case having an opening to receive the article to be heated, a coil surrounding the opening, a laminated magnetic shell surrounding the coil and a connector, whereby the heater may be connected to an ordinary alternating-current circuit, and the article to be heated applied in the opening and heated in the manner set forth.

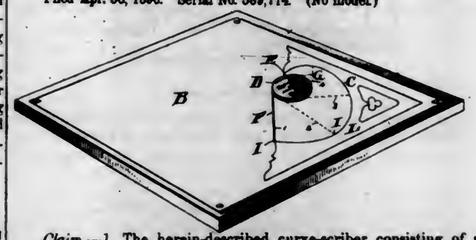
2. A magnetic-induction heater comprising a case of insulating material, consisting of a spool and an outer covering, a coil of insulated copper wire surrounding the spool, a shell of laminated iron surrounding the coil and inclosed in the case, terminals of the coil in the form of segments on the exterior of the case, a connector of insulating material applied to the case and having terminal pins bearing on the segments, and provided with contacts adapted to fit the ordinary lamp-sockets, substantially as described.

576,348. **FENCE-WIRE CLAMP.** WILLIAM M. JONES and ROBERT P. JONES, Vaughnsville, Ohio. Filed Oct. 15, 1896. Serial No. 608,912. (No model.)

Claim.—The combination with the intersecting strands of a wire fence, of a clamp consisting of an oblong body having its sides turned toward each other and pinched tightly around the vertical strand above and below the horizontal strand and having notches at the centers of said edges adapted to engage the horizontal strand and bind on the same, the corners of said notches being cut away to accommodate the bend or kink in the vertical strand.



576,349. **CURVE-SCRIBER.** WILLIAM S. MALLARD, Darien, Ga. Filed Apr. 30, 1896. Serial No. 589,714. (No model.)



Claim.—1. The herein-described curve-scriber consisting of a circular directing member adapted to be secured upon a center, having a band or wire attached thereto and a pencil carried directly by the wire, independently of any other support, substantially as described.

2. The herein described curve-scriber consisting of a circular directing-disk, a band or wire attached thereto, and adapted to be wound around the disk, and a holder for a marking instrument secured directly to the wire, whereby the marking instrument is carried in said holder directly by the wire independently of any other support, substantially as described.

3. The herein-described curve-scriber, consisting of a circular directing-disk, a band or wire attached at one end to the periphery of the disk, and adapted to be wound around the disk, a holder for a marking instrument secured to the said wire and adapted to be readily removed therefrom, substantially as described.

4. The herein-described curve-scriber, consisting of a directing-disk provided with a groove on its periphery, a wire or band attached at one end to said disk and adapted to be wound around the disk, the groove of which guides the said wire around the same, and a holder for a marking instrument secured directly to said wire independently of any other support, substantially as described.

5. The herein-described curve-scriber, consisting of a directing-disk, provided with a centering-pin, and having a perforation to one side of the center, a pin or tack adapted to pass through the said perforation, whereby the said disk may be rigidly held in position on the work, and a band or wire attached at one end to the periphery of the disk, and provided with means for holding a marking instrument, substantially as described.

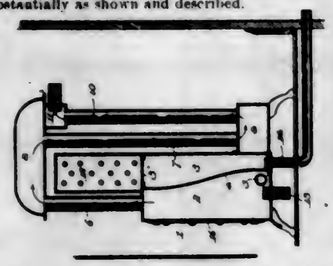
6. The herein-described curve scriber, consisting of a directing-disk provided with a central aperture, a pin adapted to pass through said aperture to center the disk, said disk being also provided with an aperture to one side of the center, and a pin or tack adapted to pass through said aperture into the work to hold the disk rigidly in position, a wire or band attached at one end thereof to the periphery of the disk, and a holder for a marking instrument provided with a clamp for removably securing it to said wire or band, substantially as described.

7. The herein-described curve-scriber, consisting of a circular directing member, a band or wire attached at one end to the periphery of the directing member, means for holding the disk rigidly in position on the work, a holder for a marking instrument provided with a clamping device for removably attaching the holder to the wire, substantially as described.

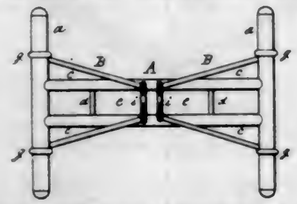
576,350. **GAS-STOVE.** HIRAM M. MUNK, Columbus, Ohio. Filed Apr. 27, 1896. Serial No. 589,272. (No model.)

Claim.—A gas heating-stove comprising a heating-chamber 1 having two independent compartments 2 and 3, one for the burner and the other for heating fresh air, the burner-pipe 5 located at the bottom of compartment 2, a foul-air pipe 13 having its inlet or lower end near the floor and its outlet terminating in compartment 2 and in close proximity to the burner, a fresh-air pipe 14 having its inlet outside the room and its outlet in the air-heating compartment 3 and near the burner, the perforated drum or chamber 12 connected with compartment 3 of the heating-chamber, a comparatively large independent chamber or head 8 above drum 12, a series of radiating-pipes 6 connecting compartment 2 and chamber 8, the chamber 9 at or near the bottom of the stove, a series of radiating-pipes 7 connect-

ing chamber 8 and chamber 9, the chamber 11 at or near the top of the stove, and the series of radiating-pipes 10 connecting chambers 9 and 11, substantially as shown and described.

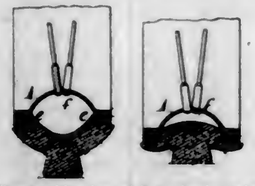


576,351. BICYCLE-STAND. CHARLES R. PENFIELD, Minneapolis, Minn. Filed June 29, 1896. Serial No. 597,485. (No model.)



Claim.—The combination in a bicycle-stand, of a frame, having the sills *a*, *a*, fashioned with the feet *b*, *b*, the parallel rods *c*, *c*, connecting the said sills and the parallel ties *d*, *d*, connecting the said rods: with supports having the lugs *f*, coils *g*, and loops *i*, substantially as shown, whereby the said supports may be folded upon the said frame, as specified.

576,352. ELASTIC TIRE FOR WHEELS. PIERRE ANNIÓRN COMTE DE SPARRE, Paris, France. Filed Dec. 2, 1895. Serial No. 570,824. (No model.)



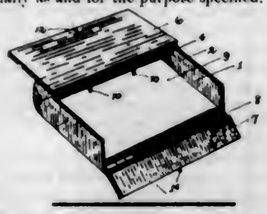
Claim.—1. The combination with a wheel-rim having a central groove or channel, bearing portions at each side of said channel, parallel to the axis of the wheel, and lateral retaining-flanges perpendicular to said bearing portions of a cushion-tire having a body arch-shaped in cross-section, the lateral edges of said body being angular and adapted to engage the said bearing portions and retaining-flanges of said rim, said body having a central tread narrower than the channel in said rim, an integral strip of flexible material disposed in several overlapping folds, transversely of the wheel and embedded in each of the lateral edges of said tire, substantially as described.

2. The combination with a wheel-rim, of a cushion-tire having a solid, molded, arch-shaped main body and a tread portion projecting therefrom, having a broad earth-engaging face, said tread portion being narrower at its junction with said arch portion than at its outer surface, substantially as described.

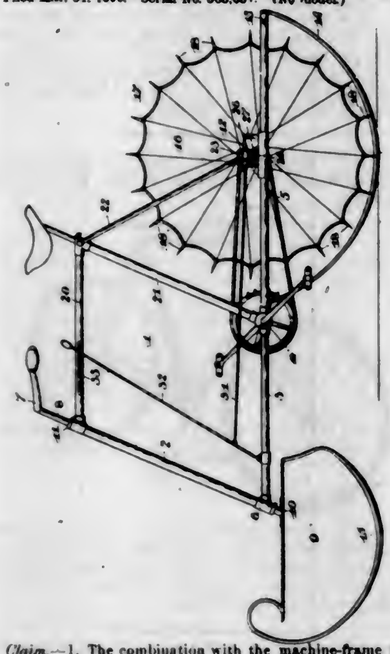
3. The combination with a wheel-rim, of a cushion-tire having a solid, molded, arch-shaped main body, thickest along its central portion and slightly thinner adjacent to the rim-engaging portions, and having a projecting tread portion having a broad earth-engaging face, said tread portion being narrower at its junction with said arch portion than at its outer surface, substantially as described.

576,353. COMBINED FILE-CASE AND CIGAR-RECEPTACLE. EDWARD W. SWINKER and CHARLES G. GUNTER, Columbus, Ohio. Filed Mar. 19, 1896. Serial No. 584,009. (No model.)

Claim.—In a combined letter-file case and cigar receptacle the combination with the case 1, a hinged top lid and hinged front side, letter-separating sheets arranged one above the other within said receptacle and pins 10 passing loosely through the rear portions of said sheets, of a partition 16 consisting of a bar 17 and end pieces 18, said partition being adapted to fit and slide between the ends of said box and between the separating-sheets and the upper side of said box, substantially as and for the purpose specified.



576,354. ICE-VELOCIPEDE. CHARLES E. VOSE, Pittsfield, Vt. Filed Mar. 31, 1896. Serial No. 585,631. (No model.)



Claim.—1. The combination with the machine-frame provided with runners as described, of a driving-wheel having its rim scalloped to form clearance-spaces, a pair of spaced and transversely-alined radial spurs located at each vertex of said rim, and means for actuating said wheel, substantially as described.

2. The combination with the machine-frame, provided with runners as described of the vertically-adjustable driving-wheel, sliding wedges for raising and lowering the same with a positive movement, and means for actuating said wedges, substantially as described.

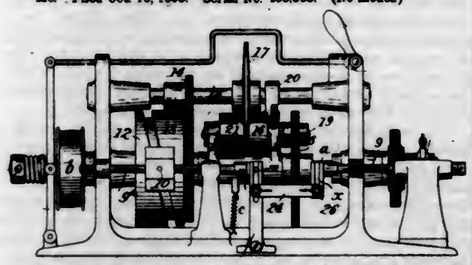
3. The combination with the machine-frame provided with the runners, of the driving-wheel having its axle mounted in vertically-sliding boxes, sliding wedges coacting with said boxes both to raise and lower the wheel positively, and means for operating the wedges, substantially as described.

4. The combination with the machine-frame, provided with runners and having vertically-slotted brackets, of the driving-wheel having its axle mounted in boxes sliding within said bracket, sliding wedges operating directly against said boxes for positively raising and lowering the same, and means for operating said wedges, substantially as described.

5. The combination with the machine-frame having the runners as described, of the driving-wheel having its axle mounted in vertically-adjustable boxes, the wedges having the inclined slots in which said boxes lie and slide, and means for sliding said wedges, substantially as described.

6. The combination with a frame having centrally-disposed and longitudinally-alined runners as described, of a driving-wheel having its rim located directly over and approximately equal in width with one of said runners, pairs of spaced transversely-alined spurs which straddle and operate respectively upon opposite sides of the plane of said runner, each pair being constructed of a single blank, of which the terminals form the spurs, while the intermediate connecting portion provides means of attachment to the rim, and means for actuating said wheel, substantially as specified.

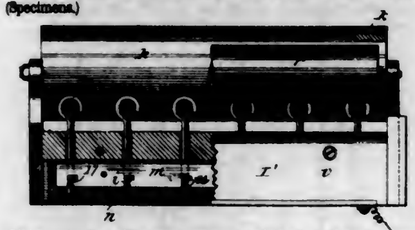
576,355. COP-WINDING MACHINE. SIMON W. WARDWELL, Jr., Boston, Mass., assignor to the Universal Winding Company, Portland, Me. Filed Oct. 16, 1893. Serial No. 488,305. (No model.)



Claim.—1. The combination with a cop shaft and holder, thread-guide, and mechanism imparting rotation to the holder, and the cam and connections for reciprocating the guide, of a friction-disk connected with the guide-reciprocating mechanism, and friction-cone connected with the cop shaft, and adjusting devices for changing the relative longitudinal positions of the disk and cone, substantially as described.

2. The combination in a cop-winding machine, of a cop-holder, rotating shaft for driving the holder, a cam operating independently of the shaft, a guide operated by said cam, a friction-disk and friction-cone between the cam and the holder to rotate the former independently of the shaft, and means for adjusting the relative longitudinal positions of the disk and cone to vary the extent of the independent movement of the cam, substantially as described.

576,356. COP AND COP-WINDING APPARATUS. SIMON W. WARDWELL, Jr., Boston, Mass. Filed Dec. 8, 1894. Serial No. 531,241. (Specimens.)



Claim.—1. A multiwound cop consisting of a thread composed of a series of strands, the thread in spirals at a pitch which insures their retention in the position in which they are laid, each spiral bent back at the end forming a reverse spiral, the spirals parallel to adjacent spirals and the bends succeeding each other at the periphery, and the strands in each spiral, and in the bends thereof, all parallel to each other, substantially as described.

2. A multiwound cop in which the thread composed of two or more strands is in concentric layers each consisting of a series of reverse coils, the thread of each coil bent back at the ends of the cop and the strands of the thread being at all points parallel to each other, substantially as described.

3. The combination with the rollers *l* and *r*, of electric switches, each having a movable part *n*, with an eye to receive one of the strands of a series of threads, and means for securing the said parts independently in position out of contact with the other part of the switch, substantially as set forth.

576,357. CENTRIFUGAL CREAMER. OSCAR ANDERSON, Newark, N. J. Filed Apr. 18, 1895. Serial No. 546,173. (No model.)

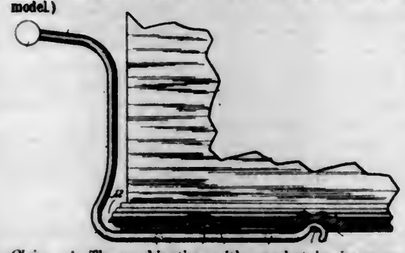


Claim.—1. In combination with the rotary bowl, an annular series of vertically-disposed, separate partitions, each forming a chamber and adapted to carry new milk through the bowl at right angles to the direction of centrifugal force, the chambers being open to allow an outflow of cream from the new milk passing therethrough to the cream-wall and to allow an outflow of blue milk at the end opposite that receiving said new milk to the chamber, *m*, in which said partitions are stationed, a milk-reservoir, *d*, having ducts leading to the chamber of each partition and a partition, *t*, at one end of the group of partitions, open at the center and near the inner wall of the bowl to allow a passage for cream and blue milk, the said parts being disposed to occasion a flow of new milk through the chamber of each of the said partitions and an out-passage of cream therefrom during such flow and also an out-passage of blue milk from the chamber of each partition into a common blue-milk chamber and a movement of said blue milk in a direction opposite that taken by the new milk, and finally an imposition of cream from said blue milk upon the outer walls of said partitions during the return passage of the blue milk toward the outlet-duct, and suitable eduction passages or ducts for blue milk and cream at the end of the group of partitions at which said new-milk reservoir is stationed, substantially as set forth.

2. The combination with the rotary bowl, of a series of partitions forming chambers *p*, and having open tops, plugs or covers for closing said tops, a milk receptacle or reservoir, ducts leading therefrom to and through said plugs and separable from said bowl and partitions with said reservoir and plugs, and ducts for the cream and blue milk, substantially as set forth.

3. In a centrifugal creamer, the combination with a rotary bowl having suitable inlet and outlet ducts, of partitions arranged in a series around the axial center of the bowl, said partitions being each bent to form an independent chamber capable of admitting an opposite flow of new milk apart from the outside blue milk of the bowl, said chamber opening toward the center of the bowl to allow a flow of cream to the cream-wall and opening at one end to the chamber, *m*, to allow an outflow of milk from which the cream has been partially separated into said chamber *m*, the new-milk-inlet ducts to the chambers within the partitions and the outflow-passages from the chamber, *m*, being at the same end of the bowl to occasion the opposite flows, substantially as set forth.

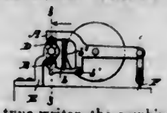
576,358. DETACHABLE CARRIER FOR BURIAL-CASES. WILLIAM H. ANTES, Evansville, Wis., assignor of one-fourth to Allen W. Dibble, same place. Filed Nov. 14, 1895. Serial No. 568,895. (No model.)



Claim.—1. The combination, with a casket having a recess or recesses and securing means on its under side, of a carrier consisting of a vertical portion extending parallel with the end of the casket, and forming a handle, and a horizontal portion extending beneath the end of the casket, the latter provided with an upwardly-extending lug or lugs engaging the recess or recesses, and having a detachable swiveled end connection with the securing means, substantially as described.

2. The combination, with a casket provided upon its under side, near its end, with recesses, and also at a point or points farther inward with a staple or staples, of a carrying device, consisting of a vertical portion comprising two arms extending parallel with the ends of the casket, and formed with a handle, and a horizontal portion extending beneath the end of the casket, said horizontal portion comprising two side members having upwardly-extending lugs adapted to engage the recesses, and also provided with a hook or hooks adapted to engage the staple or staples, substantially as described.

576,359. TYPE-WRITING MACHINE. CHRIS S. BOOTH, Camp Point, Ill. Filed Mar. 30, 1893. Serial No. 468,394. (No model.)



Claim.—1. In a type-writer, the combination of a main frame, a grooved rail pivotally supported on or near its axial line in bearings on the frame, a platen-carriage having oppositely-grooved tracks, and opposing sets of balls lying in the grooves of the rail and tracks substantially as hereinbefore set forth.

2. In a type-writer, the combination of a main frame, a platen-carriage, an oppositely-grooved rail, oppositely-grooved tracks on each side of the rail, opposing sets of balls in the grooves of the rail and tracks, one of the tracks being rigidly supported while the other is movable relatively to it with springs to press the movable track toward the rigid one substantially as set forth.

3. In a type-writer the combination of the main frame, an oppositely-grooved rail supported therefrom, the platen-carriage, the grooved tracks on opposite sides of the rail and the opposing sets of balls lying in the grooves, one of the tracks being rigidly connected to the platen-carriage to which the other track is connected by pivoted arms, with means for drawing the tracks together substantially as set forth.

4. In a type-writer, the combination of the main frame, the grooved rail pivotally supported on or near its axial line in bearings on the frame, the platen-carriage, the grooved track-bars, one of which is rigid with the carriage and the other supported by arms pivoted to the carriage, with springs for drawing the tracks together and the opposing sets of balls in the grooves all arranged substantially as and for the purpose set forth.

576,360. WINDOW-PANE CLASP. JOHN F. BOWMAN, Lakeville, Mass. Filed Sept. 2, 1896. Serial No. 604,641. (No model.)



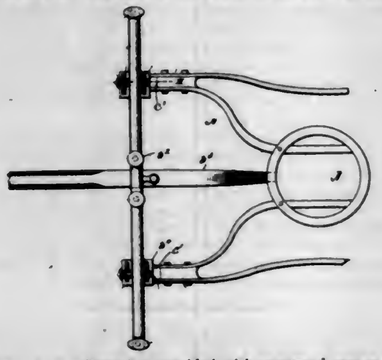
Claim.—1. A frame for the purpose described consisting of the side bars provided with spurs, and the jointed end bars connected thereto and provided with spurs, substantially as and for the purpose specified.

2. A frame for the purpose described consisting of side bars having permanently-affixed spurs projecting laterally therefrom, and end bars provided with spurs extending laterally therefrom, each end bar comprising a number of sections joined together and pivotally connected to the ends of the side bars, substantially as described.

3. A frame for the purpose described having side bars and means for connecting the ends thereof for spreading said bars and retaining the glass in position, substantially as described.

4. A frame for the purpose described comprising side bars with spurs and end portions, having spurs, and pivotally connected to the side bars, and composed of pivotally-united sections, substantially as described.

576,361. SPLINTER-BAR FOR VEHICLES. EDWARD BYRNES, New York, N. Y. Filed Sept. 16, 1896. Serial No. 605,959. (No model.)



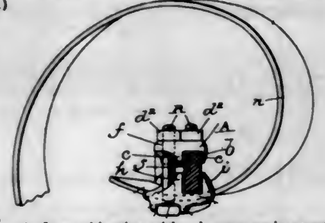
Claim.—1. A splinter-bar provided with apertured ears or projections arranged on opposite sides of its longitudinal center and extending outwardly therefrom; said ears or projections having means for adjustably securing the splinter-bar on opposite sides of the draft-pole to the forwardly-projecting arms or securing portions of the running-gear of a vehicle; whereby the splinter-bar is adapted to be readily applied and removably secured to different vehicles, some of which may have their projecting arms or other portions for connecting with the splinter-bar arranged farther apart or nearer together than the corresponding parts of the other vehicles, substantially as described.

2. A splinter-bar provided on opposite sides of its longitudinal center with apertured ears or projections extending outwardly therefrom and adapted to receive the fastening-bolts by which it may be removably secured to the running-gear of a vehicle, whereby an adjustable connection is provided for attaching the bar on opposite sides of the draft-pole to different vehicles, some of which may have their projecting arms or other portions for connecting with the splinter-bar arranged farther apart or nearer together than the corresponding parts of the other vehicles, substantially as described.

3. A splinter-bar comprising a suitable wooden bar having a metallic bottom plate rigidly secured thereto; the latter having ears or projections formed integrally therewith and extending outwardly therefrom on the forward and rear sides thereof on opposite sides of its longitudinal center; said ears or projections being provided with elongated slots, and bolts fitting the said slots to adapt the bar to be removably secured to carriages or other vehicles; whereby the splinter-bar is adapted to be readily applied and removably secured to different vehicles, some of which may have their projecting arms or other portions for connecting with the splinter-bar arranged farther apart or nearer together than the corresponding parts of the other vehicles, substantially as described.

4. The combination with a vehicle running-gear, of a splinter-bar comprising a wooden bar, a metallic bottom plate rigidly secured thereto, means for securing the traces, and ears or projections formed integrally with said bottom plate on the forward and rear sides thereof on opposite sides of its longitudinal center, suitable clamping-plates, blocks interposed between the bottom plate and the clamping-plates immediately below the ears or projections, bolts having their body portions passed through the slots of the ears or projections so as to adjustably hold the blocks and clamping-plates to the splinter-bar, and means for removably securing the blocks to the running-gear, substantially as described.

576,362. HARROW-SPRING-TOOTH FASTENING. GEORGE B. DAVISON, Utica, N. Y. Filed Apr. 13, 1896. Serial No. 587,303. (No model.)

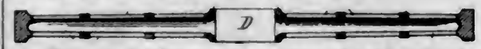


Claim.—1. In combination with a harrow spring-tooth, a fastening for said tooth consisting of a clip having a lower plate with end lugs, and a curved and diagonal crossed space between said lugs, to form a seat for the shank of the tooth, an upper plate having a diagonal slot on its under surface, a bar resting on said shank and held in said slot and between the said lugs on the lower plate, and bolts to unite said plates, said bolts passed through said lugs and plates at opposite ends, and opposite sides of said bar, substantially as described.

2. In combination with a harrow-frame section and a harrow-tooth, a fastening for said tooth composed of two parallel plates longitudinally placed on said frame-section, means on said plates to receive and hold said frame-section, bolts to unite said plates on opposite sides of said frame-section and inclosing said tooth crossing one of the plates diagonally and held between said plate and the frame-section, substantially as described.

3. In combination with a harrow-frame and a spring-tooth, a fastening for said tooth composed of two plates and two bolts for uniting said plates, the upper plate having a diagonal seat for the frame-section, the lower plate having its upper surface channeled diagonally and curved to conform to the shape of the tooth and to form a seat therefor, said tooth placed on said seat under said section and biting said section at diagonally opposite corners of said seat, substantially as described.

576,363. GRATE. CHARLES H. GADEY, Chicago, Ill., assignor of one-half to the Brown Brothers Manufacturing Company, same place. Filed Oct. 14, 1895. Serial No. 565,558. (No model.)



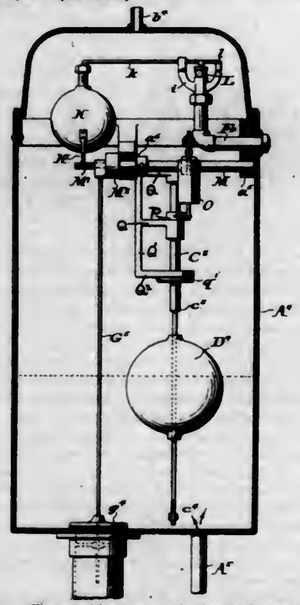
Claim.—1. A hollow grate-bar consisting of an integral casting comprising a top wall or fire-supporting surface and downwardly-extending side walls, said top wall being supported above the side walls by connections at either end thereof, so as to form between the same and the side walls on either side a continuous slot for the exit of air,

a stiffening-rib depending from the lower side of the top wall between the side walls, and an opening in said bar through which air may be directed to the hollow interior thereof.

2. A hollow grate-bar consisting of an integral casting, comprising a top wall or fire-supporting surface and downwardly-extending side walls, said top wall being supported above the side walls by connections at either end thereof, so as to form between the same and the side walls on either side a continuous slot for the exit of air, vertical ribs connecting the top and side walls, a stiffening-rib extending from the lower side of the top wall between the side walls, and an opening in said bar through which air may be directed to the hollow interior thereof.

3. In combination with a grate composed of a plurality of hollow grate-bars arranged side by side, and provided with apertures in their sides adjacent to the top for the exit of air, openings in each bar registering with those of the other bars and arranged to form a conduit extending transversely through the grate, and means for supplying air to said conduit, of central depending ribs in the interior of said bars arranged to obstruct a current of air directed into said conduit to break it up and deflect it to the several bars.

576,364. AIR-COMPRESSING DEVICE. WILLIAM U. GRIFFITHS and HENRY NIEDERMAYER, Philadelphia, Pa. Filed Apr. 15, 1895. Serial No. 545,739. (No model.)



Claim.—1. The combination, with the tank provided with a water-inlet, a valved water-outlet, an air-inlet valve and a compressed-air outlet; of a float-actuated opening and retaining mechanism connected with the water-outlet valve; an auxiliary float to impart initial opening movement to the air-inlet valve, to vent the tank; and operative connections between the main-float mechanism and the air-inlet valve to complete the opening thereof and hold it open so long as the water-outlet valve is held open; the main float serving to restore valve mechanisms to their closed positions, when the water reaches a sufficiently low level; substantially as herein shown and described.

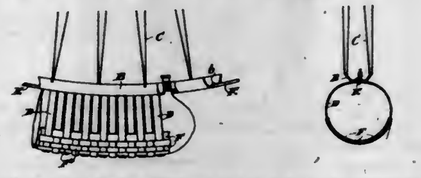
2. The combination, with the tank provided with water and air inlets and water and air outlets, a rock-shaft, a valve-rod operated thereby and provided with a valve closing the water-outlet, a vertically-movable float-rod for rocking said shaft, a float sliding on the float-rod to raise and lower it, and means for holding the rock-shaft in the position given it by the upward throw of the float-rod; of a valve closing the air-inlet and provided with an auxiliary float to impart the initial opening movement thereto; and means for further raising the auxiliary float from the rock-shaft and holding it raised till the main float descends and reverses the rock-shaft to close the water-outlet valve; substantially as herein shown and described.

3. The combination, with a tank having a water-inlet, a compressed-air outlet, a valve-controlled air-inlet and a valve-controlled water-outlet, of a movable rod; a float sliding thereon; a counterweighted lever connected with said rod; a rock-shaft, carrying said lever; a crank upon said rock-shaft; a connecting-rod attached to said crank and to the water-outlet valve; and an auxiliary float operatively connected with the air-inlet valve and supported by said crank, substantially as and for the purposes set forth.

4. The combination with the tank having the water-outlet in its bottom, the air-inlet and the air-outlet in the upper end, and a water-inlet; a valve for the air-inlet, and an auxiliary float mounted on the valve-arm in the upper end of the tank, of a transverse counterweighted rock-shaft below and operatively connected with said float to fully raise it and hold it raised; a valve-rod depending from a crank on said shaft and having a valve on its lower end closing the water-outlet; a vertically-sliding rod operatively connected at its upper end with said rock-shaft, and provided with upper and lower stops; and a main float sliding on the rod between its stops; the whole operating substantially as herein shown and described.

5. The combination with the tank having the water-outlet in its bottom, the air-inlet and air-outlet in its upper end, and a water-inlet, a downwardly-closing valve for the air-inlet and an auxiliary float mounted on the valve arm or lever in the upper end of the tank, and provided on its lower portion with a finger; of a counterweighted rock-shaft having a crank provided with a pin engaging said finger; a rod depending from said crank and provided at its lower end with a valve for the water-outlet; a depending bracket having horizontal guide-arms; a vertical operating-rod sliding through apertures in said arms, said rod being linked to the rock-shaft to operate the same and being provided with an upper and lower stop; a main float sliding on said rod between its stops, and a buffer on the under side of the lowest guide-arm; substantially as herein shown and described.

576,365. SPRING-TIRE. PETER C. HEWITT, New York, N. Y. Filed Oct. 20, 1893. Serial No. 488,691. (No model.)



Claim.—1. A spring-tire consisting of a helix D secured to the felly or rim B, and circumferential bands of strands F interwoven therewith, substantially as and for the purposes set forth.

2. A spring-tire consisting of a helix D secured to the felly or rim B, and circumferential bands or strands F interwoven therewith, and an inflation-tube confined within the said helix, substantially as and for the purposes set forth.

3. In combination with a felly or rim provided with a central circumferential channel or recess *b* therein, a tire mounted upon the said felly or rim and a tie wire or band E extending through the said tire and fitted to the said recess, the said wire or band E confining a portion of the said tire within the said recess by tensile or circumferential force only and thereby holding the said tire to the said felly or rim, substantially as set forth.

4. In combination, a felly or rim having its face convex in cross-section, a circumferential channel or recess therein, a hollow tire, and a tension-wire confining the said tire against the said convex face along the said channel or recess, substantially as set forth.

5. In combination a hollow tire of rounded cross-section, a convex felly or rim, and a tie-wire or other fastening device securing the said tire to the said felly or rim in substantially a single line of contact, substantially as set forth.

6. In combination, a convex felly or rim and a pneumatic or spring tire secured thereto in substantially a single line of contact.

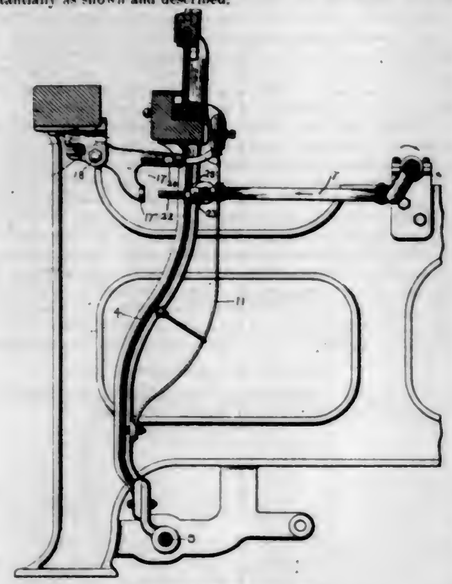
7. In combination, a helix or convolutions D, an inflated tube therein under great pneumatic or other expanding pressure, a felly or rim therefor to which the said helix or convolutions is or are secured, and one or more circumferentially-extending tension supporting devices resisting the longitudinal or circumferential expansive force, substantially as set forth.

8. In combination in a spring-tire, convolutions D and circumferential bands or strands F interwoven therewith, substantially as and for the purposes set forth.

576,366. LOOSE-REED MOTION FOR LOOMS. GEORGE F. HUTCHINS, Worcester, Mass., and JAMES NIGHTINGALE, Summit, N. J. Filed May 21, 1896. Serial No. 592,396. (No model.)

Claim.—1. In a loom, the combination with a spring-reed, of mechanism for stopping the forward movement of the reed on the forward motion of the lay, and mechanism for releasing the reed, substantially as shown and described.

2. In a loom provided with a spring-reed, the combination with the reed having an arm thereon extending down below the reed, of a knock-off lever or arm pivotally supported in front of the lay, and provided with a finger adapted to engage the arm on the reed to stop the forward movement of the reed on the forward motion of the lay, and also provided with a projection adapted to be engaged by a screw or pin on the lay-sword on the forward movement of the lay, to move down said knock-off lever or arm, and release the reed, substantially as shown and described.



576,367. DETACHABLE HANDLE FOR SMELTING-LADLES. JOSEPH IDELL, Elizabeth, N. J. Filed Nov. 2, 1896. Serial No. 610,833. (No model.)



Claim.—1. A detachable handle for ladles comprising a hollow socket, adapted to receive the stem of a ladle, a hollow trunk and a handle, a stop-pin set in the socket and projecting into its cavity, a latch-hook hinged in a slot of the socket and having on its forward end a nose adapted to engage a corresponding notch provided in the stem of the ladle and its rear end bent upwardly, a push-knob, set in the opposite end of the handle, a connecting-rod, connecting the upwardly-bent rear end of the latch-hook to a push-knob, and the spiral spring slid on the connecting-rod and pressing the push-knob outward in the ring of the handle-piece.

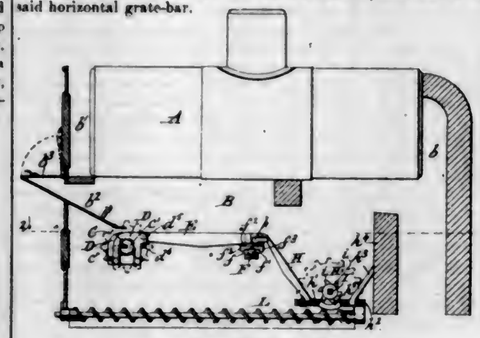
2. The combination with a detachable handle for smelting-ladles having a hollow socket adapted to receive the stem of the ladle, of a stop-pin projecting into this cavity, and of a spring-actuated latch-hook, pivoted in a slot of the socket, and having its rear end bent upwardly, a push-knob set in the opposite end of the handle and a connecting-rod, connecting the latch-hook with the push-knob.

576,368. GRATE FOR FURNACES. AARON JAY, Chicago, Ill. Filed Mar. 19, 1896. Serial No. 584,012. (No model.)

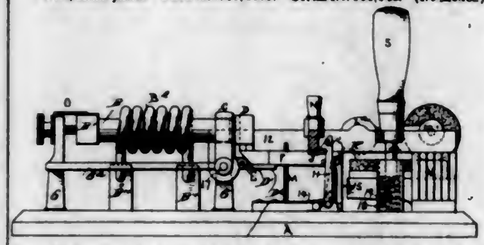
Claim.—1. In a furnace, a movable carriage, a grate-bar sustained thereby at one end, a yoke attached to the other end of said grate-bar, an eccentric engaging with said yoke, a block seated in the open end of said yoke and bearing against said eccentric, and mechanism for rotating said eccentric.

2. In a furnace, a movable carriage, a horizontal grate-bar sustained at one end thereby, an inclined grate-bar pivoted at an end to a stationary part of the furnace and hinged at the other end to the end of the horizontal grate-bar supported by the carriage, and a mechanism connected with the free end of the horizontal grate-bar to move the same

3. In a furnace, a movable carriage, a horizontal grate-bar sustained at one end thereby, a mechanism connected with the other end of the said grate-bar to move the same horizontally, and an inclined grate-bar pivoted at one end and hinged at the other to the said horizontal grate-bar.



576,369. AUTOMATIC ELECTRIC CUT-OUT. CHARLES C. KRITZER, Newaygo, Mich., assignor, by mesne assignments, to Nancy Runnels, same place. Filed Nov. 13, 1895. Serial No. 568,848. (No model.)



Claim.—1. An automatic electric cut-out, consisting of an electromagnet an armature responding to the action of an abnormal current, main contact-plates, a stationary high resistance supplemental contact-plate, and a roller of like material as the stationary supplemental contact-plate resting, when in normal position, upon the stationary supplemental contact-plate and adapted to roll along the said supplemental plate thereby increasing the resistance gradually until the roller is separated from the supplemental plate which is after the separation of the main contact-plates, substantially as described.

2. The combination in an automatic electric cut-out of an electromagnet in the circuit, an armature therefor adapted to be actuated by an abnormal current, main contact-plates adapted to be separated by the action of the armature, and a pair of supplemental carbon contact-bodies to receive and retard the current after the separation of the main contact-plates, said carbon contacts consisting of a stationary plate or block of carbon and a carbon roller adapted to be pressed against the surface of a carbon plate and to be drawn over the plate to gradually increase the length of the resistance medium before separation, substantially as described.

3. The combination in an electric cut-out of main contact-plates, a movable support carrying one of said contact-plates, a pair of high-resistance supplemental contact-bodies, one of said supplemental contacts consisting of a roller carried by said movable part and pressed upon the stationary supplemental contact and adapted to roll along the surface thereof, thereby gradually increasing the resistance until the roller passes from its corresponding high-resistance surface, substantially as described.

4. In an automatic cut-out, the combination of an electromagnet in the main circuit, an armature adapted to respond to any predetermined abnormal current, main contact-plates in the circuit adapted to be separated when released by the action of the armature, and supplemental carbon contact-bodies adapted to be separated subsequently to the main contact-plates, one of said carbon contact-bodies being stationary and the other consisting of a carbon roller supported on a moving arm and pressed against the face of the stationary carbon contact-body and carried by the movable arm so as to roll along the carbon contact-surface until it passes from contact therewith, substantially as described.

5. The combination of an electromagnet in the main circuit, an armature adapted to be actuated by the presence of an abnormal current, a swinging frame, a spring adapted to operate the frame when released by the action of the armature, a pair of main contact-plates, one of them carried by said frame, a pair of carbon contacts, one of them stationary and one of them consisting of a carbon roller carried by the swinging frame, an arm on the frame to support the carbon roller, and a spring adapted to press the roller in contact with the

surface of the stationary carbon contact-body and to lessen the pressure as the frame is raised and the roller moved from its carbon contact-body, substantially as described.

6. In a circuit-interrupting device, the combination of an electromagnet in the circuit, an armature therefor adapted to be operated by the presence of an abnormal current, main contact-plates adapted to be separated by the action of said magnet, and a pair of high-resistance supplementary contacts, one of said supplementary contacts consisting of a roller adapted to roll from the other high-resistance contact, substantially as described.

7. The combination of an electromagnet in the main circuit, an armature adapted to respond to an abnormal current, a spring-actuated frame pivoted at one end, contact-plates on the base-plate, contact-plates mounted on the free end of said frame, a hook to hold the frame, and a latch released by the action of the armature said hook being carried by the latch, substantially as described.

8. The combination of an electromagnet in the main circuit, an armature adapted to respond to an abnormal current, main contact-plates, a swinging frame carrying the main contact-plates, supplemental high-resistance contact-bodies, one of said supplemental contacts carried by the swinging frame, and consisting of a roller supported on an arm attached to the swinging frame, a spring acting on said arm to press the roller-contact upon its corresponding contact and to assist in moving the swinging frame, and a spring adapted to give the initial impulse to the swinging frame when released by the action of the armature, substantially as described.

9. In an electric cut-out the combination of a magnet, an armature to be moved by an abnormal current, an arm or projection from the armature, a swinging frame carrying contact-plates in position to close the circuit when the frame is closed, a latch pivoted to a support on the base-plate and having a free end adapted to engage with a stop on the armature projection, a catch pivoted to said latch below the point where the latch is pivoted to its support and at one side thereof, the free end of said catch adapted to engage with said swinging frame and to be released therefrom when the movement of the armature releases the free end of the latch, substantially as described.

10. In an electric cut-out the combination of a magnet, an armature adapted to be moved by an abnormal current, an arm or projection from the armature, a swinging frame carrying contact-plates in position to close the circuit when the frame is closed, a latch pivoted to a support on the base-plate and having a free end adapted to engage with a stop on the armature projection, a catch pivoted to said latch below the point where the latch is pivoted to its support and at one side thereof, the free end of said catch adapted to engage with said swinging frame and to be released therefrom when the movement of the armature releases the free end of the latch, and a spring to throw out the frame, substantially as described.

11. In an electric cut-out the combination of a magnet, an armature adapted to be moved by an abnormal current, an arm or projection from the armature, a swinging frame carrying contact-plates in position to close the circuit when the frame is closed, a latch pivoted to a support on the base-plate and having a free end adapted to engage with a stop on the armature projection, a catch pivoted to the latch below and at one side of its pivotal point, the free end of said catch adapted to engage with said swinging frame and to be released therefrom when the movement of the armature releases the free end of the latch, and a spring adapted to throw out the frame, said spring being located at or near the free end of the swinging frame, substantially as described.

12. In an electric cut-out the combination of a magnet, an armature adapted to be moved by an abnormal current, an arm or projection from the armature, having pins projecting from its side, a swinging frame carrying contact-plates in position to close the circuit when the frame is closed, a latch pivoted to a support on the base-plate and normally engaged by one of the pins on the arm a hook pivoted to the latch below its point of pivotal support and at one side thereof, the free end of said catch adapted to engage with said swinging frame and to be released therefrom when the movement of the armature releases the free end of the latch, a spring to throw out the frame, and a spring to return the armature to normal position as soon as the swinging frame has been released, substantially as described.

13. In an automatic cut-out, the combination with stationary and movable main contact-plates, of a movable frame carrying the movable plates, a plurality of stationary high-resistance contact-bodies separated from each other by insulating material, a movable high-resistance contact-body carried by said frame and normally resting upon one of the stationary contact-bodies, and means for holding said movable contact-body upon the stationary contact on which it rests and upon the adjacent stationary contact-body until the main contact-plates have completely separated, substantially as described.

14. In an automatic electric cut-out, the combination with stationary and movable main contact-plates, of a movable frame carrying the movable contact-plates, a plurality of fixed carbon contact-bodies separated from each other by insulating material and having their contact-faces in the same plane, a movable carbon contact carried by the movable frame and normally resting, when the main contacts are together, upon one of the carbon contact-bodies, and independent means for holding said movable contact upon the fixed carbon contact and for moving it on said carbon contact over the insulation and upon the adjacent carbon contact, during the movement of the frame which separates the main contact-plates, substantially as described.

15. In an electric cut-out, the combination with an armature of an electromagnet, a swinging latch pivoted to the base, a swinging catch pivoted to said latch below the pivotal point of the latch and out of the vertical line of said point and a suitable stop for arresting the movement of the latch until the same is detached by the movement of the said armature, substantially as described.

576,370. POLISHING AND ABRADING MATERIAL. ERNEST P. LOECH, New York, N. Y. Filed Apr. 8, 1896. Serial No. 586,835. (Specimens.)

Claim.—A sheet of abrading material made of pulp with an abrasive incorporated therein, and having a non-adhesive finishing substance applied to its surface to prevent the sheets from sticking together, substantially as described.

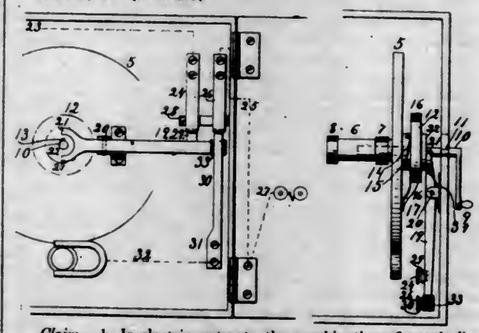
576,371. TUBULAR WHEEL-TIRE. JAMES LYALL, New York, N. Y. Filed Apr. 25, 1895. Serial No. 547,113. (No model.)



Claim.—1. The improved bicycle-tire composed of a woven fabric having threads closely laid in one direction and threads laid in the other direction that are open at nearly uniform distances apart and serve to maintain the proper relative positions of the closed threads and coated with rubber, and two strips cut diagonally of the fabric and laid together with the close threads crossing each other substantially at right angles and formed up into a circular wheel-tire, substantially as specified.

2. A tire-cover having a plurality of layers of bias fabric, such fabric having the threads in one direction closely placed and those in the other direction sparse, adjacent layers of such fabric being cut or placed opposite ways of the bias of the fabric, substantially as set forth.

576,372. AUTOMATIC ELECTRIC CUT-OUT FOR MAGNETO-BELLS. JOHN Z. MILLER, Baltimore, Md. Filed Sept. 23, 1896. Serial No. 606,746. (No model.)

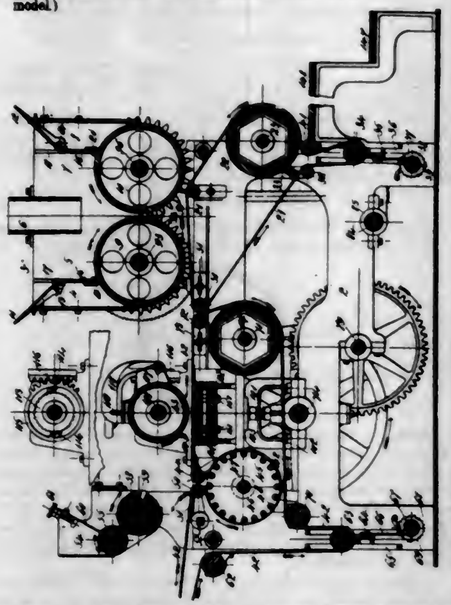


Claim.—1. In electric cut-outs, the combination of a main line parted: each of the parted ends provided with a spring contact-point: a metallic shunt-piece normally in contact with the said spring-points: a third spring located opposite to one of the said two springs and electrically connected with one terminal of a magneto-generator: a lever electrically connected with the other terminal of the said generator and provided with a contact-point located opposite to the other of the said two springs, and further provided with an insulated shield opposite to the third spring; a magneto-generator drive-wheel and a crank therefor having a shaft loosely connected therewith; a cam-wheel mounted upon the crank-shaft to be rotated therewith but with free longitudinal movement thereon, the adjacent faces of

the cam and drive wheel being cam-shaped, a spring freely connecting the said wheels, and an arm of the aforesaid lever bearing against the end of the cam-wheel, substantially as described.

2. In electric cut-outs, the combination of a magneto-generator drive-wheel; a crank provided with a shaft loosely connected with the drive-wheel; a cam-wheel loosely mounted upon the shaft to rotate therewith, the adjacent faces of the cam and drive wheel being cam-shaped; a lever bearing against one end of the cam, and connections substantially as described.

576,373. MACHINE FOR SHEETING DOUGH. JAMES H. MITCHELL, Philadelphia, Pa. Filed July 30, 1894. Serial No. 518,965. (No model.)



Claim.—1. In a machine of the character herein specified, a stamping or kneading roll having a simultaneous vertical, and a rotary motion, substantially as shown and described.

2. In a machine of the character herein specified, a stamping or kneading roll having a simultaneous vertical and rotary motion, in combination with a yielding bed located therebeneath, substantially as shown and described.

3. In a machine of the character herein specified, a pair of sheeting-rolls and an independent kneading or stamping roll having a simultaneous rotary and vertical motion, in combination with means for conveying the dough sheet, substantially as shown and described.

4. In a machine of the character herein specified, the combination with the sheeting-rolls, of means for dusting the top of the dough sheet, as set forth, and for applying flour to the carrier by means of a hollow drum having openings therein, and around which the carrier passes, substantially as shown and described.

5. In a dough-sheeting machine of the character herein specified, an endless sheet-carrier, in combination with a hollow, rotatable drum, around which the carrier passes, said drum moving with the carrier, and being arranged to contain flour which is applied to the surface of the carrier, substantially as shown and described.

6. In a machine of the character herein specified, the combination with preliminary sheeting-rolls, of a carrier for receiving the sheet, and a single kneading or stamping roll having a simultaneous eccentric and revolving motion beneath which said carrier passes, and a support beneath said single roll and the carrier, substantially as shown and described.

576,374. CUE-TIP CLAMP. JACOB N. MCINTIRE, New York, N. Y., assignor to the Brunswick-Balke-Collender Company, same place. Filed Aug. 20, 1896. Serial No. 603,294. (No model.)

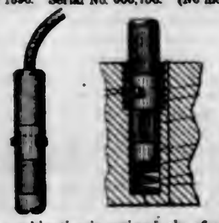
Claim.—1. A billiard-cue-tip clamp, composed of a series of cue-encircling loops, or eyes; a device connecting them which operates automatically to make them grip the cue, or stick, as specified; and a tip-clamping device, permanently connected to said series of eyes; all substantially as and for the purpose set forth.

2. A cue-tip clamp, composed of two cue-embracing eyes, A and B, connected by a device C, which operates to cause said eyes to grip the cue, as specified; and a tip-clamping device D, which is connected to the said eyes by means of a spring-arm E; as and for the purpose set forth.



3. A cue-tip clamp composed of a single part, one portion of which is adapted to automatically grip the body of the cue latterly, irrespective as to whether the other part be placed in an operative position relatively to the cue; and the other part of which, when placed in a proper position relatively to the cue, operates automatically to press down and hold the leather tip against the end of the cue; all substantially as hereinbefore set forth.

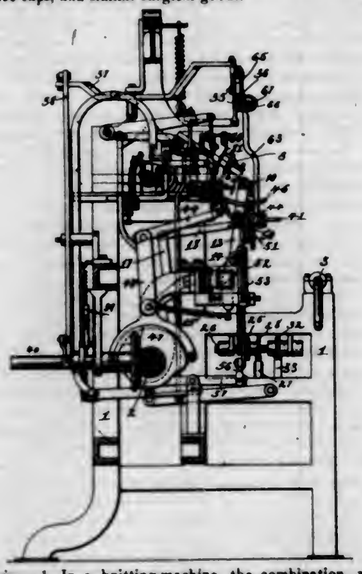
576,375. SPRING-JACK. WILLIAM S. PACA, Baltimore, Md. Filed Sept. 23, 1896. Serial No. 606,758. (No model.)



Claim.—The combination in spring-jacks of a switch-plug having one or more laterally-projecting lugs connected with line-wires a switchboard provided with a socket to receive the said plug freely, the said socket having longitudinal slots with sidewise recesses to receive the said lugs; a longitudinally-acting spring within the socket, and electric connections for the socket and spring substantially as described.

576,376. STRAIGHT-KNITTING MACHINE. FREEMAN RAVEN, Philadelphia, Pa., assignor to James R. Kendrick, same place. Filed Mar. 9, 1895. Serial No. 541,075. (No model.)

Brief.—For knitting "rubber-weft" fabrics, such as elastic stockings, knee-caps, and similar surgical goods.



Claim.—1. In a knitting-machine, the combination, with the needles and their supporting parts, of the point-bearing bar, its supporting-levers, and means for automatically reciprocating said bar longitudinally, substantially as described.

2. In a knitting-machine, the combination, with the needles and their supporting parts, of the point-bearing bar, its supporting-levers, a rocking lever, means whereby it is connected with one end of the point-bearing bar, a cam acting upon said rocking lever, and means for actuating the cam, substantially as described.

3. In a knitting-machine, the combination, with the needles and their supporting parts, of the point-bearing bar, its supporting-levers, a rocking lever, a latch thereon detachably connecting the lever with one end of the point-bearing bar, a cam acting upon said rocking lever, and means for actuating the cam, substantially as described.

4. In a knitting-machine, the combination, with the needles and their supporting parts, of the point-bearing bar, its supporting-levers, a rocking lever, means whereby it is connected with one end of the point-bearing bar, a cam acting upon said rocking lever, the shaft for said cam, the ratchet-wheel on said shaft, the pawl coacting with said wheel, the lever supporting the pawl, and the cam on the main shaft coacting with said lever, substantially as described.

5. In a knitting-machine, the combination, with the needles and their supporting parts, of the point-bearing bar, its supporting-levers, and means for automatically oscillating said levers, substantially as described.

6. In a knitting-machine, the combination, with the needles and their supporting parts, of the point-bearing bar, its supporting-levers, the main shaft, the cam thereon, and mechanism intermediate said cam and the levers whereby the latter are reciprocated, substantially as described.

7. In a knitting-machine, the combination, with the needles and their supporting parts, of the point-bearing bar, its supporting-levers, means for automatically reciprocating said bar longitudinally, and means for automatically oscillating the levers, substantially as described.

8. In a knitting-machine, the combination, with the needles, their supporting parts, and the jack-frame, of transversely-reciprocative heads connected with said frame, a vertically-reciprocative bar fitted to said heads, means for vertically reciprocating said bar, a thread-carrier having a sliding connection with said bar, and means for longitudinally reciprocating said carrier, substantially as described.

9. In a knitting-machine, the combination, with the needles, their supporting parts and the jack-frame, of the forwardly-projecting track-arms, the horizontally-reciprocative heads thereon, means connecting said heads with the jack-frame, the vertically-reciprocative bar fitted to said heads, means for operating said bar, a thread-carrier having a sliding connection with said bar, and means for longitudinally reciprocating said carrier, substantially as described.

10. In a knitting-machine, the combination, with the needles, their supporting parts, and the jack-frame, of transversely-reciprocative heads connected with said frame, a vertically-reciprocative bar fitted to said heads, means for vertically reciprocating said bar, a thread-carrier having a sliding connection with said bar, the bar 35, the reciprocative thread-carrier-operating plate thereon, means for reciprocating said plate, means connecting said plate with the thread-carrier, and adjustable stops on the ends of said latter bar, substantially as described.

11. In a knitting-machine, the combination, with the needles, their supporting parts, and the jack-frame, of transversely-reciprocative heads connected with said frame, a vertically-reciprocative bar fitted to said heads, means for vertically reciprocating said bar, a thread-carrier having a sliding connection with said bar, the bar 35, the reciprocative thread-carrier-operating plate thereon, means for reciprocating said plate, means connecting said plate with the thread-carrier, longitudinally-reciprocative stops on the respective ends of the said latter bar, and means for simultaneously advancing or retracting said stops step by step, substantially as described.

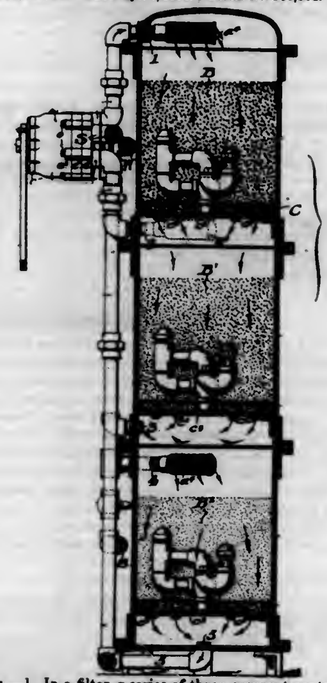
12. In a knitting-machine, the combination, with the needles, their supporting parts, and the jack-frame, of transversely-reciprocative heads connected with said frame, a vertically-reciprocative bar fitted to said heads, a guide for said bar, a lever to which said bar is connected, a rocking lever, a link connecting said levers, a cam for actuating said rocking lever, the shaft for said cam, the thread-carrier having a sliding connection with said bar, and means for longitudinally reciprocating said carrier, substantially as described.

576,377. NECK-YOKE RETAINER. WILLIAM H. RAYMOND, Marshall, Mich. Filed Aug. 31, 1896. Serial No. 604,440. (No model.)

Claim.—The herein-described neck-yoke retainer, the same consisting of a block having an opening for the reception of the ring upon the neck-yoke and a slot extending from the upper face of the block downward and communicating with the said opening at an angle to the direction of the length of the opening, the hame-strap loops formed of a single piece of wire bent around the block as described, the outer casting covering the sides and bottom of the block and the means, as the rivets *a*, for holding the parts together, substantially as described.



576,378. FILTER AND FILTER-VALVE. WILLIAM D. ROBBINS, Philadelphia, Pa. Filed Apr. 7, 1896. Serial No. 586,501. (No model.)



Claim.—1. In a filter, a series of three compartments, a controlling-valve, provided with a liquid-supply inlet and a drain-outlet for dirty liquid, in addition to ducts connecting each of said compartments with said valve, the relation of said members being such, that the filtered liquid in the last compartment of the series, in communication with the delivery-pipe leading from the filter, may be shut off from the supply of unfiltered liquid and said liquid be simultaneously diverted from its normal course, to cleanse either of the other compartments of the series, and thence directed to the outlet for dirty liquid, substantially as set forth.

2. In a filter a series of three compartments a controlling-valve, provided with a liquid-supply inlet and a drain-pipe, an auxiliary valve for said drain-pipe, and ducts connecting each of said compartments with said controlling-valve, the relation of said members being such, that by the manipulation of said controlling-valve, the liquid filtered through the first two compartments may be reversely directed to cleanse the third compartment and by the manipulation of said auxiliary valve, be discharged into the said drain-pipe, during the continuous delivery of pure filtered liquid from the apparatus, substantially as set forth.

3. In a valve, a casing having a plurality of external orifices, a valve-plug chamber a plurality of ports opening into said chamber, a plug fitted to rotate in said chamber and provided with a port, adapted to register with said chamber-ports, a plane member of the valve-casing adapted to permanently connect a predetermined pair of said chamber-ports, by a passage-way in said plane casing member, substantially as set forth.

4. In a valve, a casing having seven external orifices, a plug-chamber, twelve ports opening into said plug-chamber, a plug fitted to rotate in said chamber, and provided with two ports, adapted to register with said chamber-ports, two plane members of said casing

each adapted to permanently connect predetermined pairs of said chamber-ports by passage-ways in said plane members of the casing, substantially as set forth.

576,379. SALICYL PARAPHENETIDIN. ISRAEL ROSS, Frankfort-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed May 10, 1894. Serial No. 510,788. (Specimens.) Patented in England Feb. 25, 1893, No. 4,191.

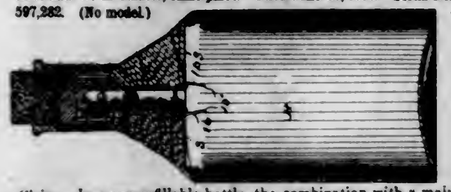
Claim.—1. The process herein described of producing the ortho-oxybenzyliden-alkyl derivatives of amidophenol, which consists in condensing salicylaldehyde with an alkyl derivative of amidophenol, substantially as described.

2. As a new article of manufacture, the orthooxybenzyliden-alkyl derivative of amidophenol, being insoluble in water, easily soluble in alcohol, ether and benzene, and having the formula

$$Alk.OC_6H_4N(CHC_6H_4OH)$$

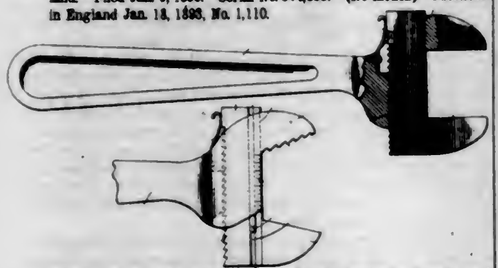
substantially as described.

576,380. NON-REFILLABLE BOTTLE. DAVID R. SAUNDERS, Houston, Tex., assignor, by mesne assignments, of one-half to A. P. Root and W. H. Palmer, same place. Filed June 29, 1896. Serial No. 597,282. (No model.)



Claim.—In a non-refillable bottle, the combination with a main neck comprising a lower section having a shoulder at its lower end, and a passage extending therethrough, and arms extending up from said section, and an upper section of the neck separated from the arms by an annular face, of an auxiliary neck comprising a tube having a vent, an inner shoulder and a head provided with an annular hood which protects the vent, a ball-valve rollable in the tube, and locking-springs connected to the lower end of the tube, said tube being adapted for reception in the passage of the main neck and the spring to lock against the shoulder of the latter, and the hood lying in the space between the opening and the upper section of the main neck, and a cork or stopper located on the main neck above the head of the tube.

576,381. WRENCH. LAURANCE SEAGER, Sittingbourne, England. Filed Jan. 9, 1896. Serial No. 574,535. (No model.) Patented in England Jan. 18, 1893, No. 1,110.



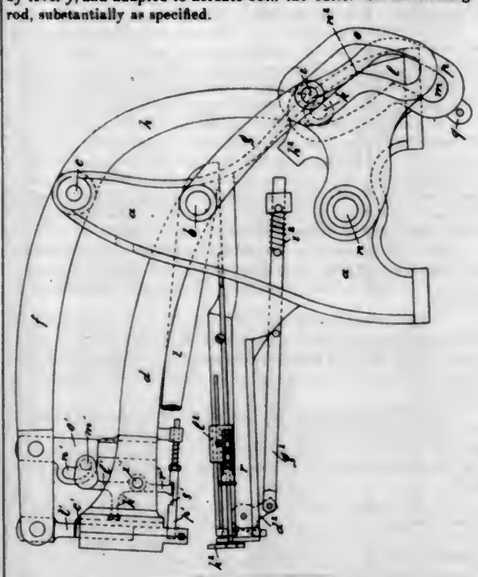
Claim.—A wrench consisting of a handle having a jaw formed thereon, and through said jaw a slot having a toothed surface, a movable jaw provided with a toothed arm working in said slot, a plate-spring for holding said jaws in engagement, and a wedge sliding in a slot in the movable jaw for securing the jaws in position when engaged, substantially as shown and described.

576,382. BOX-STAPLING MACHINE. FRIEDRICH T. SPECKSÖTEL, Hamburg, Germany. Filed Feb. 19, 1896. Serial No. 579,883. (No model.)

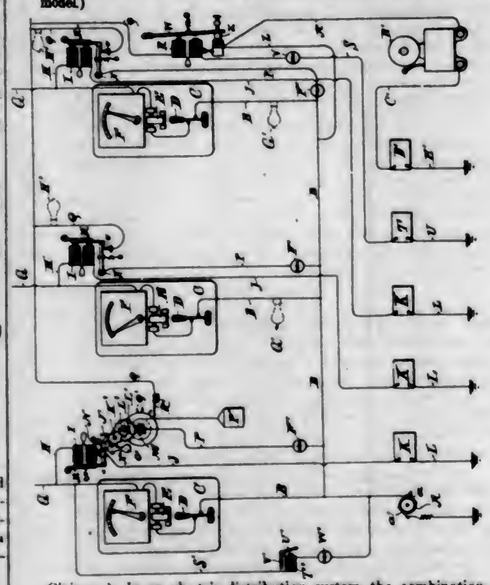
Claim.—1. In a box-stitching machine, the combination of a cutter with a lever *f*, a slotted rod *a'*, connected thereto, and a lever *i'*, engaging the slotted rod and adapted to actuate the cutter, substantially as specified.

2. In a box-stitching machine, the combination of a wire-feed with a cutter, a stamper engaging the same, a bending-rod, and a three armed lever adapted to actuate both the cutter and the bending-rod, substantially as specified.

3. In a box-stitching machine the combination of a pair of levers *f*, *d*, with a stamper connected to lever *f*, a wire-feed, cutter and bending-rod connected to lever *d*, and a three-armed lever oscillated by lever *f*, and adapted to actuate both the cutter and the bending-rod, substantially as specified.



576,383. ALARM FOR ELECTRIC CIRCUITS. CHARLES R. STERLING, New York, N. Y. Filed June 24, 1896. Serial No. 593,794. (No model.)

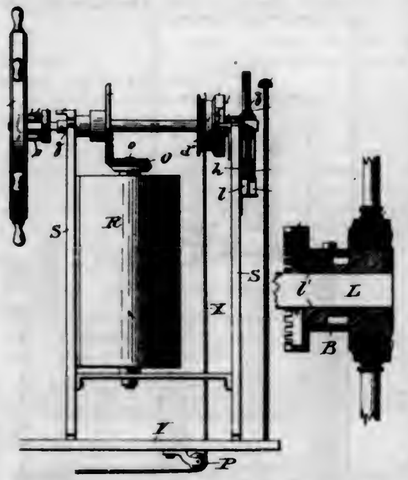


Claim.—1. In an electric distribution system, the combination of a conductor from a generator to a distant point, a circuit maker and breaker for said line, a shunt around the said circuit maker and breaker, an electromagnet, controlling an indicator, in said shunt, a branch circuit including the circuit maker and breaker and a return-conductor to the generator, an electromagnet in said branch, a circuit-closer operated by the last-named magnet, and means in the circuit closed by said circuit-closer for sounding an alarm when the circuit of the branch is broken through the circuit maker and breaker of the main line, substantially as and for the purpose described.

2. In an electric distribution system, the combination of a conductor from a generator to a distant point, a circuit maker and breaker for said line, a shunt around the said circuit maker and breaker, an electromagnet, controlling an indicator, in said shunt a branch circuit including the circuit maker and breaker and a return-conductor to the generator, an electromagnet in said branch for controlling the sounding of an alarm when the circuit of the branch is broken through the circuit maker and breaker, and a device for identifying the circuit which is broken, substantially as and for the purpose described.

3. In an electric distribution system, the combination of a conductor from a generator to a distant point, a circuit maker and breaker for said line, a shunt around the said circuit maker and breaker, an electromagnet, controlling an indicator, in said shunt, a branch circuit including the circuit maker and breaker and a return-conductor to the generator, an electromagnet in said branch for controlling the release of a mechanically-operated apparatus for sounding an alarm when the branch circuit is broken, substantially as and for the purpose described.

576,384. BRAKE MECHANISM AND CONTROLLER FOR ELECTRIC CARS. WALTER D. THOMAS and LEIGH R. GIGNILLIAT, Savannah, Ga. Filed June 2, 1896. Serial No. 594,038. (No model.)



Claim.—1. In a controlling device for electric cars, the combination with the regulator or controller, and brake-operating devices, of an actuating-shaft rotatably mounted in suitable bearings and held against longitudinal movement therein, and clutch mechanism located between said actuating-shaft and brake-operating devices, with means for automatically causing the clutch mechanism to connect and release the actuating-shaft and brake-operating devices at predetermined points in the rotation of the shaft, the said means being operated solely through the rotation of the actuating-shaft, substantially as described.

2. In a controlling device for electric cars, the combination with the regulator or controller for the current, of an actuating-shaft, connections between said actuating-shaft and controller or regulator, a brake-drum loosely mounted on the shaft for operating the brakes, clutch mechanism operated solely by the rotation of the shaft and located between said shaft and drum for automatically connecting the drum to and releasing it from the shaft at predetermined points in its rotation, substantially as and for the purpose set forth.

3. In a controlling device for electric cars, the combination with the regulator or controller shaft provided with a bevel-gear, of a horizontal shaft provided with a hand-wheel for operating the same, a mutilated bevel-gear mounted on said shaft and meshing with the bevel-gear on the controller-shaft, the said gears being so timed that by a single revolution of the actuating-shaft the current may be turned off and reversed, substantially as and for the purpose specified.

4. In a controlling device for electric cars, the combination with an actuating-shaft provided with a suitable hand-wheel for operating the same, a regulator-shaft having a gear on its upper end, a gear on said actuating-shaft having teeth on one-quarter of its periphery, meshing with the gear on the regulator-shaft, said actuating-shaft gear being twice the diameter of the regulator-gear, a brake-drum mounted on the actuating-shaft, with clutch-mechanism between said drum and shaft for automatically locking said drum to and unlocking it from the shaft at predetermined points in its rotation, substantially as specified.

5. In a controlling device for electric cars, the combination with an actuating-shaft mounted in suitable bearings, the regulator and brake mechanism, connections between said shaft and regulator, and connections between said shaft and brake mechanism, of a hand-wheel slidably mounted on the actuating-shaft, with means for rigidly locking the said hand-wheel and through it the shaft against rotation, substantially as described.

6. In a controlling device for electric cars, the combination with the regulator, of an actuating-shaft, connections between said regulator and said actuating-shaft, brake mechanism and connections between the same and said actuating-shaft, a hand-wheel having lugs projecting from its face and slidably mounted on the shaft, a crown-wheel similarly mounted on the shaft and connected at will to hand-wheel by a set-screw or pin passing through a projection on the face of crown-wheel and working between lugs projecting from hand-wheel and the face of said hand-wheel whereby the hand-wheel may cause the crown-wheel to move longitudinally, substantially as described.

7. In a controlling device for electric cars, the combination with the actuating-shaft mounted in suitable bearings, means for regulating the current operated by said shaft, and means for controlling the brakes operated from said shaft and a crown-wheel mounted on said shaft, of a hand-wheel connected at will with the crown-wheel, a fixed lug or pin secured to one of the bearings of the shaft adapted to engage the teeth of the crown-wheel when the wheel is moved longitudinally on the shaft for the purpose of locking the shaft against rotation, substantially as described.

8. In a controlling device for electric cars, the combination with the regulator-shaft provided with a bevel-gear on its upper end, of an actuating-shaft mounted in suitable bearings and provided with a bevel-gear, having interrupted teeth adapted to mesh with the bevel-gear of the regulator-shaft, the said gears being so timed as to control the various connections of the circuits during a single rotation of the actuating-shaft, substantially as described.

9. In a controlling device for electric cars, the combination with the horizontal actuating-shaft mounted in suitable bearings, of the regulator for controlling the current, connections between said actuating-shaft and regulator for operating the same, with a vertical dial-wheel having indicating-teeth projecting from its periphery connected to the actuating-shaft in front of the operator for indicating different positions of the regulator, during the rotation of the actuating-shaft, substantially as described.

10. In a controlling device for electric cars, the combination with the regulator, for controlling the current, of a horizontal actuating-shaft, the brake mechanism and connections betweeen said mechanism and actuating-shaft for operating the brakes, of a vertical dial-wheel having indicating-teeth projecting from its periphery located in front of the operator and connected with the operating-shaft for indicating the different positions of the regulator and the brakes during the rotation of the shaft, substantially as described.

11. In a controlling device for electric cars, the combination with the regulator for controlling the current, of an actuating-shaft, connections between said actuating-shaft and regulator, brake mechanism for operating the brakes, and connections between the shaft and the said brake mechanism, of a dial-wheel mounted on the actuating-shaft and provided with visual indicating devices on its face, for indicating the different positions of the regulator and brakes, and audible alarms corresponding to the indicating devices on the face of the dial operated by the dial-wheel during the rotation of the shaft, substantially as described.

12. In a controlling device for electric cars, the combination with the regulator, of an actuating-shaft mounted in suitable bearings, connections between said shaft and regulator for operating the same, of a dial-wheel mounted on the shaft in front of the operator for indicating the various positions of the regulator as the shaft is turned and provided with a series of teeth on its periphery, with a pawl adapted to contact with the teeth as the shaft and dial are turned, whereby an audible alarm is given at each change of the regulator, substantially as described.

13. In a controlling device for electric cars, the combination with an actuating-shaft mounted in suitable bearings, of the regulator, connections between the regulator and actuating-shaft, the brake mechanism and connections between the actuating-shaft and said brake mechanism, of an audible and visual indicator located in front of the operator and connected with the operating-shaft, whereby the different positions of the brake and regulator are indicated during the rotation of the shaft, substantially as described.

14. In a controlling device for electric cars, the combination of an actuating-shaft and regulator, for controlling the current, connections between the regulator and actuating-shaft, brake mechanism and connections between the same and actuating-shaft, of a dial-wheel mounted on the actuating-shaft in front of the operator and provided with two sets of teeth corresponding with the different positions of the regulator and the brakes, respectively, and two spring-pawls adapted to contact with two separate sets of teeth as the shaft and dial-wheel rotate, substantially as and for the purposes set forth.

15. In a controlling device for electric cars, the combination with the actuating-shaft and the regulator, and with connections between the shaft and regulator, of a brake-drum loosely mounted on a shaft and provided with a projecting flange, a collar fixed to the actuating-shaft, a spring-operated plunger carried by the collar and arranged to lock the drum and collar together, with means for pressing the plunger toward the shaft at predetermined points in its rotation for the purpose of releasing said drum from the shaft, substantially as described.

16. In a controlling device for electric cars, the combination with the actuating-shaft mounted in suitable bearings, of the brake-drum loosely mounted on said shaft, a collar fixed to the shaft and provided with a socket or tube, a plunger in said socket or tube and provided with a projection or pin on its side and normally pressed outward in engagement with the brake-drum, thereby locking the same to the shaft, and a cam located in the path of the projection on the plunger during its rotation, and adapted to press the plunger inward toward the shaft and out of engagement with the drum, substantially as specified.

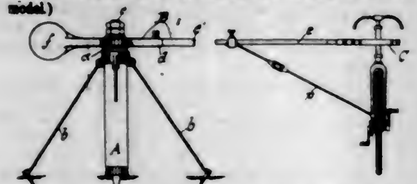
17. In a controlling device for cars, the combination with an actuating-shaft for the brakes, of a brake-drum loosely mounted on said shaft, mechanism between the drum and shaft for locking the drum to and releasing it from the shaft, at predetermined points in the rotation of the shaft, and a stop for stopping the recoil of the drum after it is released, substantially as described.

18. In a controlling device for cars, the combination with an actuating-shaft, of a brake-drum loosely mounted therein, automatic clutch mechanism for locking the drum to and releasing it from the shaft at predetermined points in the rotation of the shaft, a spring-stop for stopping the recoil of the drum when released at a fixed point in the rotation of the drum, substantially as described.

19. In a controlling device for cars, the combination with an actuating-shaft, of a brake-drum loosely mounted thereon, and having a lug or pin projecting from its periphery, automatically-operated clutch mechanism between the drum and shaft for locking the drum to and releasing it from the shaft at predetermined points in the rotation of the shaft, and a spring-stop located in the path of the lug or pin on the drum as the latter rotates, said spring being of sufficient tension to stop and hold the drum as it recoils when released, but permitting the said drum to rotate with the shaft when locked thereto, substantially as described.

20. In a controlling device for electric cars, the combination with an actuating-shaft, of a brake-drum loosely mounted thereon, a regulator-shaft, connections between said regulator-shaft and actuating-shaft for controlling the current, clutch mechanism between said brake-drum and actuating-shaft for locking said drum to and releasing it from the shaft at predetermined points in the rotation of the shaft, and a stop for stopping the recoil in the brake-drum when released, but permitting said drum to rotate with said shaft when locked thereto, substantially as described.

576,885. BALANCING-FRAME FOR BICYCLES. DAVID H. VALENTINE, Brooklyn, N. Y. Filed July 21, 1896. Serial No. 600,028. (No model.)



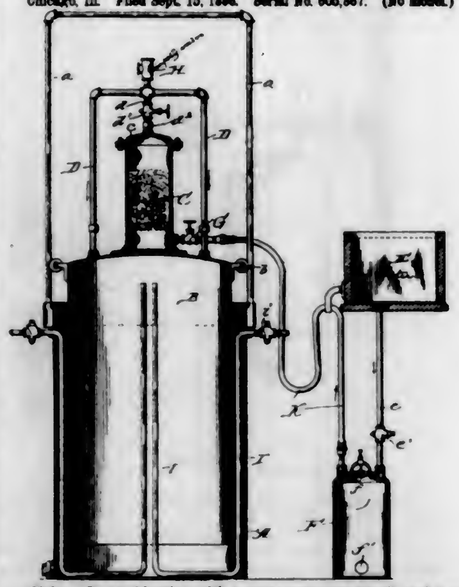
Claim.—1. In a balancing-frame for bicycles, the combination, with a supporting-frame, comprising a standard, secured in vertical position, a pivot, set in the top of the standard, a weighted butt set on the pivot, roller-bearings supporting the butt, and an extensible bar, secured to the butt, of a clamp secured to the extensible bar and having jaws adapted to hold the fork-stem of a bicycle, and of means for elastically pressing the jaws together.

2. A clamp for securing the fork-stem of a bicycle to a balancing bar, consisting of a frame composed of two bars, flanged on their inner sides and of blocks set one on each end between the bars with bolts passing through the bars and through the blocks and holding the frame together; of jaws, snugly fitted to slide in the flanges between the bars and having semicircular notches lined with rubber, recoiling springs, composed of several spiral springs of different lengths and diameters, slid one in another and held by bushings and pins in relative positions between the blocks and the jaws, pressing the jaws together, and reacting against deviations of the fork-stem caused by the instability of the rider, thereby assisting him to regain a balanced position.

3. In a balancing-frame for bicycles the combination with balanced extensible bar, rotatably secured to a standard, of a clamp, consisting of a longitudinal frame, jaws, having semicircular notches adapted to hold the fork-stem of the bicycle, snugly fitted in the frame and adapted to slide therein, and of recoiling springs, composed of several spiral springs of different lengths and diameters, slid one in another, set in the frame to press the jaws together, and reacting against deviations of the fork-stem caused by the instability of the rider, thereby assisting him to regain a balanced position.

4. In a clamp for securing the fork-stem of a bicycle to a balancing-frame, the combination with gripping-jaws, sliding between flanged bars, of compounded recoil-springs, set behind the gripping-jaws and consisting of several springs of different lengths and diameters slid one in another, the springs rendering the grip of the jaws more yielding within certain limit and increasing the resistance of the clamp in proportion to the strain tending to dislocate the bicycle, thus clamped, from balanced position.

576,886. ACETYLENE-GAS GENERATOR. EMILE P. VOMARD, Chicago, Ill. Filed Sept. 15, 1896. Serial No. 605,867. (No model.)



Claim.—In combination with a gasometer water-tank and gas-holder, a removable generator placed above the gas-holder adapted to receive and hold carbid of calcium, gas-pipes communicating with the generator, a water-supply tank, a calcium-residue receptacle, means for introducing water from the water-supply tank into the calcium-residue receptacle, and means for introducing water from the calcium-residue receptacle into the generator in contact with the carbid of calcium, substantially as described.

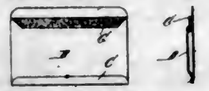
576,887. CAR-COUPLING. WILLIAM C. WATSON, Paterson, N. J. Filed May 29, 1896. Serial No. 593,534. (No model.)



Claim.—The combination with the draw-head and a coupling-piece of elbow or knuckle form pivoted thereto, of a locking-dog pivoted to the said head and having a tailpiece projecting downward through and below said head, and a two-pronged bolt of which one prong forms the pivot between the coupling-piece and the head and the other prong engages with said tailpiece for operating the said dog to disengage the coupling-piece, substantially as herein described.

576,888. ENVELOP. FRANKLIN S. WHEELER, Bridgeport, Conn. Filed June 30, 1896. Serial No. 596,304. (No specimens.)

Claim.—1. An envelop composed of a blank which is cut into the proper form, said blank being composed of a body portion, and parts which are adapted to be folded thereover to form the back, said parts being adapted to be sealed together, and said back being provided with a part which is gummed on its outer side and to which the flap may be sealed, in such manner that the edge of the flap will abut against the edge of the back, and be flush therewith, substantially as shown and described.

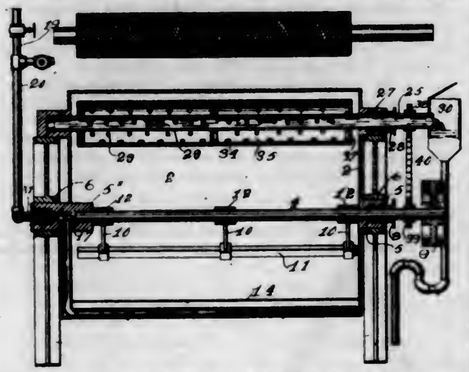


2. An envelop composed of a blank, and consisting of a body portion, and folding parts which are adapted to be folded thereover, and sealed together so as to form the back of the envelop, said body portion being also provided with a flap and said back with a part which is formed thereon, or secured thereto, and to which the flap is adapted to be sealed in such manner that when the envelop is sealed the flap will be flush with the back, substantially as shown and described.

3. An envelop composed of a blank, which consists of a body portion having a folding side, and folding end pieces, and a flap, said side being provided with an extension which is adapted to be folded inwardly, and then outwardly, and said extension being gummed on its outer surface, and said ends being gummed on their inner surfaces, substantially as shown and described.

4. An envelop composed of a blank, consisting of a body portion having folding sides, a folding end portion, and an end flap, said sides being triangular in form and the wider ends thereof being in opposite directions, one of said sides being gummed on its inner surface, and adapted to be sealed to the other side, and said folding end being adapted to be folded over said sides, and to be sealed thereto, and one of said sides being also provided with an extension which is adapted to be folded inwardly and then outwardly, and which is gummed on its inner side, and said flap being adapted to be sealed to said extension, substantially as shown and described.

576,889. MACHINE FOR WASHING FILTER MATERIAL. SIEGMUND T. WIEDENBECK, ARMIN L. NEUBERT, and MICHAEL J. SIETZ, Minneapolis, Minn. Filed Mar. 25, 1896. Serial No. 584,741. (No model.)



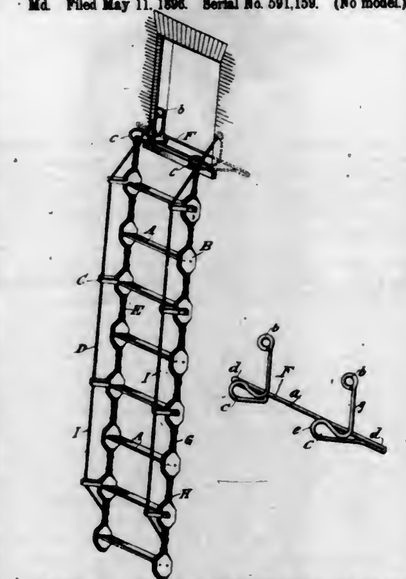
Claim.—1. In a machine for washing filter material, the combination, with a tank or vat, of a frame wherein the same is trunnioned and is adapted to be tilted to empty the tank of its contents, a shaft extending into the tank or vat through the trunnions thereof, stirring-arms provided thereon, a water-inlet pipe through one trunnion, and means for driving the stirrer-shaft, substantially as described.

2. In a machine for washing filter material, the combination, with a tank or vat, of a trough provided in the bottom of said tank, a water-inlet pipe provided therein, a screen provided across the top of said trough, a revoluble screen provided in the upper part of the tank, the shaft supporting said screen, said shaft being hollow and perforated and extending through the end of the tank as an overflow-pipe, a trap or head into which the hollow shaft discharges, and means for driving said hollow or screen shaft, substantially as described.

3. In a machine for washing filter material, the combination, with a tank or vat, of a frame wherein the same is trunnioned and adapted to fit, a longitudinal shaft having bearings in the trunnions of the tank, stirring-arms or slats provided upon said shaft, the water-supply pipe, one of the trunnions of the tank being hollow, said water-pipe having a swivel connection therewith, and a connection leading from the trunnion into the tank for the supply of water to the lower part thereof, substantially as described.

4. In a machine for washing filter material, the combination, with a tank or vat, of a frame wherein the same is trunnioned and adapted to tilt, a cover or lid for the tank, a cord attached thereto and provided with the counterbalance-weight, said cord passing over a pulley, substantially as described.

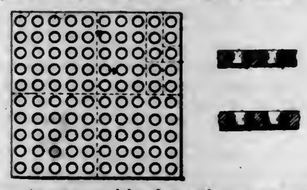
576,890. FIRE-ESCAPE. ROBERT WILLIAMS, Havre de Grace, Md. Filed May 11, 1896. Serial No. 591,159. (No model.)



Claim.—1. A support for a fire-escape ladder the same consisting of a metallic rod bent so as to form a horizontal rail *a*, with outwardly-projecting arms *e* and vertical arms *g*, substantially as and for the purpose specified.

2. A fire-escape comprising a support adapted to be secured within a window-casing, and having outwardly-projecting and vertical arms, a ladder constructed of blocks bound at suitable intervals between ropes, as described; brackets secured to said blocks having perforations in their outer ends, and ropes adapted to pass through said perforations and to be secured at their upper ends to the vertical arms of the support, and at their lower ends to the ladder, so as to form hand-rails, substantially as described.

576,891. PERCUSSION-CAP CARD. THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Oct. 26, 1896. Serial No. 610,023. (No model.)



Claim.—As a new article of manufacture, a percussion-cap card formed with a plurality of cap-retaining cells arranged side by side in closely contiguous parallel rows, extending transversely through the card, adapted in size to frictionally retain the caps in them and equaling or exceeding the length of the caps, the said card also being formed with one or more weakened tearing-lines providing for its division into smaller units, and having a retaining-sheet applied to one side of it to close one end of all of the cells.

576,892. INSULATOR. HARRY R. BILLINGS, Hartford, Conn., assignor to the Billings & Spencer Company, same place. Filed Nov. 21, 1896. Serial No. 612,919. (No model.)

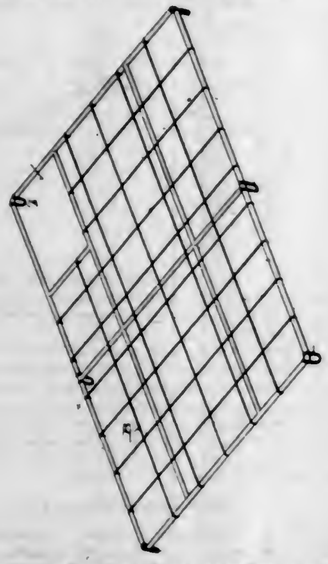
Claim.—1. An insulator comprising a body portion having a tapered, transverse opening extending therethrough; a cap for closing the large end of said opening; a deflector carried by the body portion of the insulator; and a unitary line-wire-supporting insulator-

stud having a screw-threaded end, a head tapered toward its shank to correspond with the taper of the opening in the body, a polygonal head between said screw threaded end and the tapered head and adapted to be engaged by a wrench or similar tool, and an insulating medium of high resistance surrounding said tapered head and similarly tapered and adapted to fill the space between such head and the walls of the tapered opening.



2. In a trolley-hanger, the combination, with a line-wire-supporting insulator-stud, of a screw-threaded cap having a circuit of ratchet crown-teeth; a screw-threaded body portion having a spring-pressed stop-pawl adapted to engage one of said teeth, to prevent loosening of the cap; and a deflector carried by said body portion and surrounding the insulator-stud.

576,393. CULINARY UTENSIL. KARL BÖS, Milwaukee, Wis. Filed Nov. 30, 1896. Serial No. 613,886. (No model.)



Claim.—1. A culinary utensil consisting of an open-work rack provided with legs and a spoon-aperture, said rack being proportioned to set within a pan or pot as a support for material to be cooked.

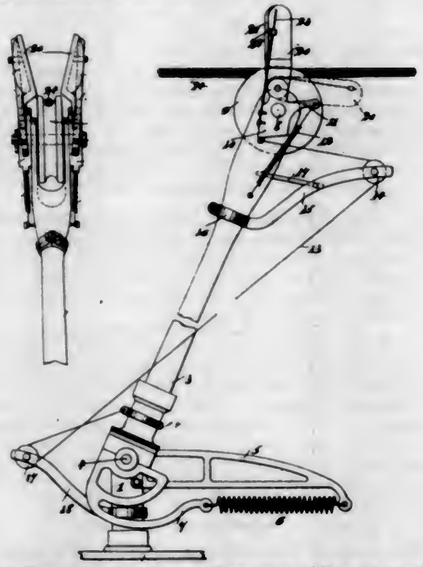
2. A culinary utensil consisting of a stiff wire frame, and a web of woven wire made fast to the frame to cover all but so much of the same as will permit the use of a basting-spoon in a pan or pot containing the rack, the latter serving as a support for material to be cooked.

576,394. TROLLEY FOR ELECTRIC CARS. GEORGE L. CAMPBELL, Shunk, Pa., assignor of one-half to Anthony B. Kilmer, same place, and Blake R. Gamble, Forksville, Pa. Filed Mar. 18, 1896. Serial No. 583,691. (No model.)

Claim.—1. The combination of a post, a trolley-pole pivotally mounted thereon, a trolley-wheel carried by the pole, an arm pivotally mounted on the pole, a spring in connection with the arm and pole, a flexible connection actuating said arm, the connection being attached to the pole, and an idler-pulley carried by the post and over which the connection passes, substantially as described.

2. The combination of a pivotally-mounted trolley-pole, a block pivotally mounted on the trolley-pole, an arm pivotally carried by the block, a spring carried by the block and sustaining the arm, a second spring connected to the block and to the pole, a flexible connection attached to the block, an idler-pulley rigid with the pole and over which said connection passes, said connection being attached to the pole, a stationary idler-pulley off the pole and a trolley-wheel carried by the pole, substantially as described.

3. The combination of a post, a trolley-pole pivotally mounted thereon, an arm rigidly carried by the post, a retractile spring connected to the arm and to the pole, a trolley-wheel carried by the pole, an arm pivotally carried on the pole, and means for controlling said arm, said means comprising a flexible connection, and also comprising an idler-pulley carried by the post and over which said connection passes, substantially as described.



4. The combination of a pivotally-mounted trolley-pole, a trolley-wheel carried by the pole, a block pivotally mounted at each side of the trolley-pole, a spring connected to each block and to the pole, an arm pivotally mounted on each block, a spring sustaining each arm upright on the blocks, and means for moving the blocks against the tendency of their springs, substantially as described.

5. The combination of a mounted trolley-pole, a trolley-wheel carried by the pole, an arm pivotally mounted on the pole and adjacent to the wheel, a stationary idler-pulley mounted off the pole, a second idler-pulley carried by the pole and a flexible connection connected to the pole and to the arm, the flexible connection being passed over the two idler-pulleys, substantially as described.

576,395. ICE-CREAM MOLD AND DISHER. ALFRED L. CRALLE, Pittsburg, Pa. Filed June 10, 1896. Serial No. 595,016. (No model.)



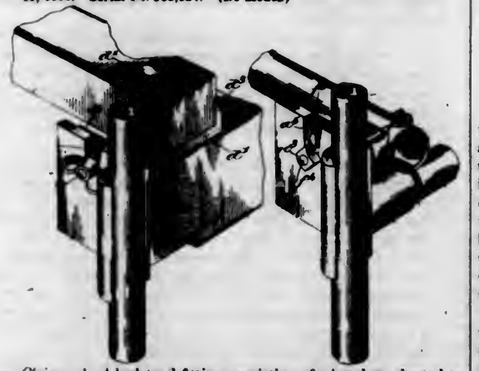
Claim.—1. In an ice-cream mold and disher, the combination of the mold, a rack thereon, and a handle, said handle formed in two portions pivotally secured together, cutters secured to an arm upon one portion of the handle, and a segmental rack upon the other portion of said handle engaging the rack on said mold, as and for the purpose described.

2. In an ice-cream mold and disher, the combination of the mold, a rack thereon, and a handle, said handle formed in two portions pivotally secured together, cutters secured to an arm upon one portion of the handle, and a segmental rack upon the other portion of the handle engaging the rack on the mold and a spring secured between the portions of the handle as and for the purpose described.

3. In an ice-cream mold and disher, the combination of the mold, a rack thereon, and a handle, said handle formed in two portions pivotally secured together, cutters pivotally secured in the apex of the mold, said cutters overlapping the rim of said mold and secured to a band encircling the mold, one of said portions of said handle secured to the band and to the cutters at the apex of the mold, a segmental rack secured to the other portion of the handle adapted to engage the rack on said mold and a spring secured between the portions of the handle as and for the purpose described.

4. In an ice-cream mold and disher, the mold, a rack thereon, cutters pivotally secured in the apex of said mold and to a band encircling the mold, a handle, said handle formed in two portions pivotally secured together, one of said portions secured to said band and to the cutters at the apex of said mold, a rack secured to the other portion adapted to engage the rack on said mold as and for the purpose described.

576,396. BEDSTEAD-FITTING. EDWARD CULHAN, Cambridge, Mass., assignor of one-half to M. L. Hannum, same place. Filed Mar. 19, 1896. Serial No. 583,927. (No model.)



Claim.—1. A bedstead-fitting consisting of a bracket adapted to be secured to a corner-standard and having an upright bearing portion, a cooperating side-rail bracket provided with an upright bearing portion, and a stud extended at right angles from the bearing portion of one bracket, to enter a vertical open-ended slot in the other bracket, the two upright portions bearing one against the other, substantially as described.

2. A bedstead-fitting comprising two brackets or castings, adapted to be secured respectively to a corner-standard and a side rail, each bracket having a laterally-extended upright bearing portion, one of which is slotted vertically, a cooperating threaded stud extended from the other upright portion to enter the slot, and a nut for the said stud, to prevent separation of the two brackets when in operative position, substantially as described.

3. A bedstead-fitting comprising a bracket having a concaved body to receive a corner-standard, a laterally-extended upright bearing-wing, having an upright slot with inclined sides, and a cooperating side-rail bracket having an upright bearing-wing, a stud extended at right angles from the outer face thereof and threaded at its end, and a retaining-nut therefor, to prevent separation of the brackets when in use, substantially as described.

4. A two-part bedstead-fitting, consisting of a bracket having an upright, laterally-extended and ribbed bearing provided with an open upright slot, and a cooperating bracket having also a laterally-extended bearing, a stud extended therefrom at right angles, to enter the open slot, and a positioning-lip to rest on the top of the wing of the other bracket, substantially as described.

5. A bedstead-fitting consisting of a vertically-concaved body to receive a corner-standard, a laterally-extended wing on said body, to form a bearing, a cooperating member having an extended bearing-wing, seats for the side rail and cross-rail, means to secure them to the bracket, a stud extended at right angles from one bearing to enter an open slot in the bearing of the other member, and a retaining-nut for the stud, substantially as described.

576,397. LINOTYPE-MACHINE. PHILIP T. DODGE, New York, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed Sept. 14, 1896. Serial No. 605,725. (No model.)

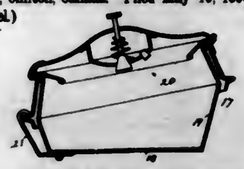


Claim.—1. In a linotype-machine, a melting-pot having a delivery-mouth in combination with an adjustable metallic device closing said mouth for a portion of its width.

2. In a linotype-machine and in combination with the melting-pot having a delivery-mouth, the adjustable closing device *e*, substantially as described.

3. In a linotype-machine a melting-pot and a removable perforated mouthpiece therefor, in combination with a movable closing device, *e*, inserted between the mouthpiece and the pot proper, substantially as shown.

576,398. PORTABLE COMMODE AND BED-PAN. THOMAS L. FORTUNE, Clinton, Canada. Filed May 19, 1896. Serial No. 592,181. (No model.)



Claim.—1. The combination of the receptacle having the bottom wall, the upwardly and outwardly inclined side wall of greater width at one side of the receptacle than at the opposite side thereof, and the inwardly-inclined side wall of corresponding width throughout its length fixedly secured upon the upper edge of the outwardly-inclined wall, the top receiving the receptacle and comprising the side wall having the upwardly and outwardly inclined portion 5, and also having the flange 6, between said portions 4, and 5, the wall connected to the upper edge of the side wall and having an opening of suitable shape and size, and a lid therefor, and the pail receiving the receptacle and the portion 5, of the top, substantially as specified.

2. The combination of the receptacle having the bottom wall, the upwardly and outwardly inclined side wall of greater width at one side than at the opposite side thereof and the inwardly-inclined side wall of corresponding width throughout its length fixedly secured upon the upper edge of the outwardly-inclined wall, the top receiving the receptacle and comprising the side wall having the upwardly and inwardly inclined portion 4, and the downwardly and inwardly inclined portion 5, and the flange 6, between said portions 4, and 5, the wall connected to the upper edge of the side wall and having an opening of suitable shape and size, and a lid, and the clasps 21 connected in a hinged manner to the receptacle and adapted to engage the flange 6, of the top, substantially as specified.

576,399. NUT-LOCK. MICHAEL FROEHLICH, Pittsburg, Pa. Filed July 13, 1896. Serial No. 598,947. (No model.)



Claim.—1. A nut-lock consisting of a washer, a casing formed with said washer and to one side thereof, a spring-pressed bolt secured in the casing, the end of the bolt being inclined to engage a nut, the lower side of the casing being prolonged and against which the bolt is adapted to bear, as and for the purpose described.

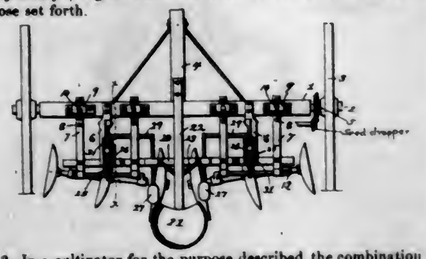
2. A nut-lock consisting of a washer adapted to be interposed between the nut and fish-plate, a casing formed with said washer and to one side thereof, the lower side of the casing being extended, a bolt fitted in the casing, a shank formed on the bolt and projecting rearward through the end of the casing, a spring encircling the shank and pressing said bolt outward, the end of the bolt being inclined to engage the side of a nut, said bolt being adapted to be wedged between the lower side of the casing and the nut, substantially as set forth.

3. In a nut-lock, the combination of a washer fitted over the bolt a casing formed with the washer, the lower side of the casing being extended, a bolt operating in the casing and having an inclined outer end, said bolt having a notch cut in its outside face, a shank formed with the bolt and protruding through the end of the casing, a spring encircling the shank and pressing the bolt outward, said bolt being wedged against the lower side of the casing and the nut, as and for the purpose described.

576,400. CULTIVATOR. SAMUEL FULTON, Alma, Nebr., assignor of one-half to Walter C. Murray, same place. Filed July 20, 1896. Serial No. 599,924. (No model.)

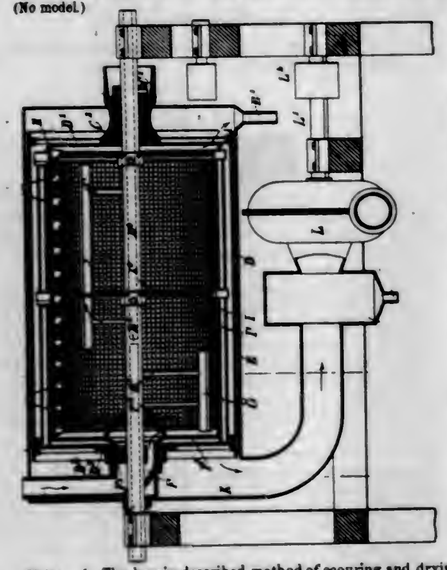
Claim.—1. In a cultivator for the purpose described, the combination of an axle having traveling wheels at its ends, the bars 6, fixedly connected to and extending rearwardly from the axle, the bars 7, connected to the axle in such manner as to permit of their rear ends being moved vertically, the cross-bar 20, connected to the several bars 7, the driver's seat connected with said cross-bar 20, the bails having horizontal cross-bars connected to the rear ends of the bars 7, and also having depending arms provided with bearings at

their lower ends, the shafts journaled in said bearings and carrying disks, the bell-crank levers fulcrumed on the bars 6, and connected to the cross-bars of the bails 11, segments 26, fixed to said levers, the pedal-levers 29, fulcrumed in advance of the bell-crank levers and extending rearwardly to a position adjacent to the driver's seat and having pedals, the chains connected to the bell-crank levers and taking over the segments and connected to the pedal-levers, and means for adjustably fixing the bell-crank levers, substantially as and for the purpose set forth.



2. In a cultivator for the purpose described, the combination of an axle having traveling wheels at its ends, vertically-movable bearings connected with the axle and arranged in rear thereof, shafts journaled in said bearings and carrying disks, a driver's-seat support connected with and extending rearwardly from the axle and carrying a driver's seat at rear end, a connection between said seat-support and the vertically-movable bearings of the disk-shafts, the bell-crank levers connected with the vertically-movable bearings and fulcrumed on supports connected to the axle, the segments fixedly connected to the bell-crank levers, the pedal-levers connected to the bell-crank levers, the pedal-levers connected to supports in rear of the axle and extending to the points adjacent to the driver's seat, and chains connecting the bell-crank levers and pedal-levers and taking over the segments, substantially as and for the purpose set forth.

576,401. WASHING, SCOURING, AND DRYING GRAIN. MILTON T GIBBS, Mayville, N. D. Filed Mar. 31, 1896. Serial No. 585,563. (No model.)



Claim.—1. The herein-described method of scouring and drying grain, consisting in first subjecting the grain while in motion to the action of jets of water to loosen the impurities on the kernels, then moving the grain upward and delivering it by centrifugal force against a sieve, then subjecting the grain while on the sieve to the action of an air-blast, forcing the water charged with the impurities of the grain through the sieve to be disposed of, the grain rolling down on the sieve for further scouring, all as set forth.

2. An apparatus of the class described, comprising a revoluble drum, a stationary screen or sieve inclosed in said drum, and a scraper adapted to remove the grain from the inner surface of said drum, and to guide the grain to the sieve, all substantially as shown and described.

3. An apparatus of the class described, comprising a revoluble drum adapted to receive the grain at one end, a scraper in engagement with the inner surface of said drum, to remove the grain from the inner surface of the drum, said scraper being provided with spirally-arranged blades, and a stationary casing within said drum and formed with an inner face of netting upon which discharges said scraper, substantially as shown and described.

4. An apparatus of the class described, comprising a revoluble drum, a water-spout extending within said drum and connected with a water-supply to subject the grain passing into the drum to jets of water and an air-pipe arranged within said drum to subject the previously-wetted grain to the action of an air-blast, substantially as shown and described.

5. An apparatus of the class described, comprising a revoluble drum, a water-spout extending longitudinally within said drum and connected with a water-supply, to subject the grain passing into the drum to jets of water, and a compressed-air spout arranged longitudinally within said drum, to subject the previously-wetted grain to the action of a compressed-air blast, substantially as shown and described.

6. An apparatus of the class described, comprising a revoluble drum provided at one end with a grain-inlet, a scraper arranged within the drum and in contact at one end with the inner surface of the drum to remove the grain therefrom, said scraper being provided with spirally-arranged blades, a fixed segmental casing within said drum and having its inner face formed of wire-netting, the rear end of the scraper discharging the grain on the upper end of said netting, a longitudinal water-spout within said drum near one end thereof, and a longitudinal compressed-air spout within said drum and extending toward the other end of the drum and pointing toward said netting, substantially as shown and described.

7. An apparatus of the class described, comprising a revoluble drum provided at one end with a grain-inlet, a scraper arranged within the drum and in contact at one end with the inner surface of the drum, to remove the grain therefrom, said scraper being provided with spirally-arranged blades, a fixed segmental casing within said drum and having its inner face formed of wire-netting, the rear end of the scraper discharging the grain on the upper end of said netting, a longitudinal water-spout within said drum near one end thereof, a longitudinal compressed-air spout within said drum and extending toward the other end of the drum and pointing toward said netting, and a suction-fan connected with one end of said casing, to remove the impurities therefrom, substantially as shown and described.

8. An apparatus of the class described, provided with a fixed casing, a revoluble drum inclosed in said casing with an air-space between said drum and casing, a receptacle connected with said space by a flue or pipe, and extending below said flue and a suction-fan connected with said receptacle, and flue substantially as shown and described.

9. An apparatus of the class described, provided with a stationary casing within a revoluble drum, said casing being provided with an inner face of wire-netting and with one end open to connect with a suction-fan, substantially as shown and described.

576,402. MUSICAL INSTRUMENT. JOHN C. GRAHAM, Jr., New York, N. Y. Filed Oct. 27, 1896. Serial No. 610,218. (No model.)



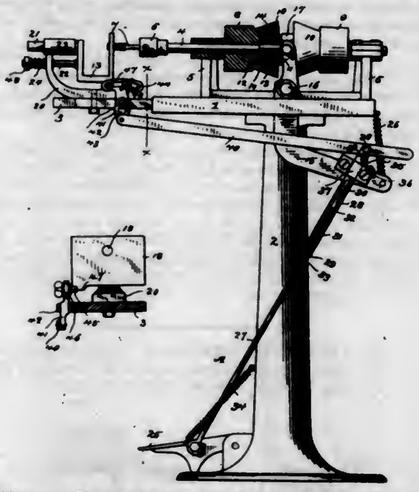
Claim.—In a stringed musical instrument, the combination with the board having transverse guide-slots, the end pieces secured thereto and projecting above the same, the sound-board, the bridges and the strings, of the key-board located above the strings, the headed keys passing therethrough and through the sound-board and projecting into said guide-slots, the brushes or felts secured to said keys intermediate their ends, and the coiled springs interposed between the heads of the keys and the keyboard, substantially as described.

576,403. ADHESIVE. CHARLES M. HIGGINS, Brooklyn, N. Y. Filed Nov. 12, 1896. Serial No. 611,904. (No specimens.)

Claim.—1. The described process of making an adhesive compound, viz., dissolving dextrine in hot water and then allowing the solution to cool and then adding borax or its equivalent and causing it to dissolve in and combine with said cool solution, substantially as and for the purpose set forth.

2. An adhesive compound consisting of borax, dextrine and water combined together with alcohol added thereto, substantially as herein set forth.

576,404. AUTOMATIC TAPPING-MACHINE. HARVEY HUBBELL, Bridgeport, Conn. Filed Oct. 17, 1896. Serial No. 609,195. (No model.)



Claim.—1. The combination with the spindle, belt-pulleys and hollow cones, of a sleeve rotating with said spindle, and having longitudinal movement thereon and carrying cones adapted to engage the hollow cones respectively, a lever carrying a shoe the opposite faces of which engage the cones on the sleeve, a treadle-rod detachably connected to said lever, a sliding work-carrier and mechanism intermediate the work-carrier and the treadle-rod for disconnecting the treadle from the lever, substantially as described.

2. In a machine of the character described the combination with a chuck, spindle and tap, of a sliding work-carrier, a lever 41 carrying an adjustable stop adapted to be engaged by said carrier, reversing mechanism and mechanism whereby the latter is caused to act the instant the tap has reached the depth to which the stop is set.

3. In a machine of the character described the combination with the work-carrier, lever 41 carrying a stop engaged by the work-carrier, and rod 40 pivoted to said lever, of reversing-lever 15, spring 26 for returning said lever, a treadle and a treadle-rod connected to rod 40 and detachably secured to the reversing-lever so that when the work-carrier engages the stop lever 41 will be tilted, the treadle-rod will be disengaged from lever 15 and spring 26 will return the latter to its normal position.

4. The combination with the work-carrier, lever 41 carrying an adjustable stop adapted to be engaged by the work-carrier and a rod 40 pivoted to said lever, of a reversing-lever 15, treadle 25, springs for returning said parts to their normal position and a two-part treadle-rod consisting of a part 27 which passes through ears on a part 28, a collar 32 on part 27 and a spring bearing on said collar and upon one of the ears, said treadle being connected to rod 40 and detachably connected to lever 15, substantially as described.

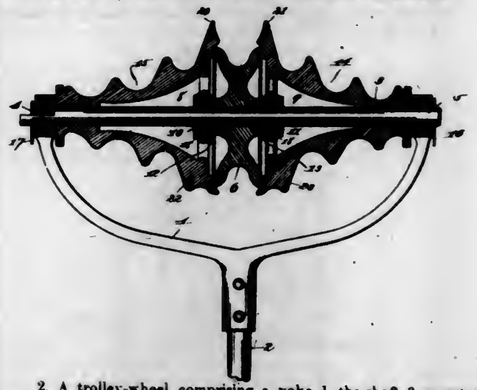
5. The combination with the work-carrier, lever 41 carrying an adjustable stop adapted to be engaged by the work-carrier and a rod 40 pivoted to said lever, of a reversing-lever 15 having a plate 36 and guard 37, a treadle 25, springs for returning said parts to their normal position and a treadle-rod the upper end of which is connected to rod 40 and which is provided with a shoulder adapted to engage the plate.

6. The combination with the work-carrier, lever 41 carrying a stop adapted to be engaged by the work-carrier and a rod 40, pivoted to said lever, of a reversing-lever 15, a treadle, and a two-part yielding treadle-rod which is connected to rod 40 and detachably connected to lever 15.

7. In a machine of the character described the combination with a chuck, spindle and tap, of a sliding work-carrier, having a lug 47, a lever 41 carrying an adjustable stop adapted to be engaged by said lug, reversing mechanism and mechanism whereby the latter is caused to act the instant the tap has reached the depth to which the stop is set.

576,405. SPIRAL TROLLEY-WHEEL. CHARLES A. LANGFORD, St. Louis, Mo., assignor of three-fourths to Henry Langford, James Langford, and Herman F. Nesiage, same place. Filed May 25, 1896. Serial No. 593,023. (No model.)

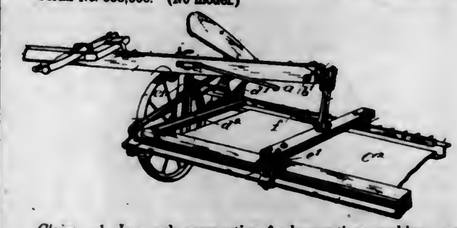
Claim.—1. A trolley-wheel, comprising a wheel having an annular groove in its periphery, a stationary shaft supporting said wheel, a yoke supporting the ends of said shaft, wheels, having spiral grooves, mounted upon said shaft, one upon each end of said first-mentioned grooved wheel, said spiral grooves being designed to throw the trolley-wire toward said first-mentioned grooved wheel by the frictional contact of said trolley-wire with said grooves, said spirally-grooved wheels being overbalanced so that the inner ends of their spirals will normally be at the top of said wheels, substantially as specified.



2. A trolley-wheel, comprising a yoke 1, the shaft 3 mounted rigidly in the ends of said yoke, the grooved wheel 6 rotatably mounted upon the center of said shaft, the spirally grooved wheel 8 mounted upon said shaft at one side of said grooved wheel, the spirally-grooved wheel mounted upon the said shaft and upon the opposite side of said grooved wheel, said wheels 8 and 9 being overbalanced so that the edges 20 and 21 are normally at the top of said wheels, substantially as specified.

3. A trolley-wheel, comprising the yoke 1, the shaft 3 rigidly mounted in the ends of said yoke, the grooved wheel 6 rotatably mounted upon the center of said shaft, the spiral wheels 8 and 9 rotatably mounted one upon each side of said grooved wheel, the bushings 10 and 11 in the ends of said spiral wheels, the flanges 12 and 13 projecting outwardly from the inner ends of said bushings and forming bearing-surfaces for the ends of the hubs of said grooved wheels, substantially as specified.

576,406. POLE CONNECTION FOR HARVESTERS. JOHN W. LATIMER and JAMES A. GRAHAM, Milwaukee, Wis., assignors to the Milwaukee Harvester Company, of Wisconsin. Filed June 24, 1895. Serial No. 553,800. (No model.)



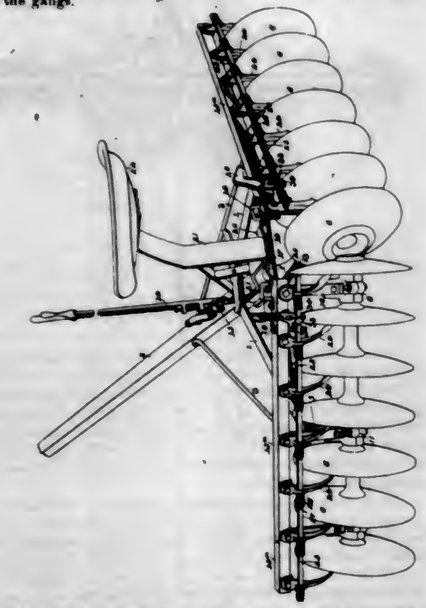
Claim.—1. In a pole connection for harvesting-machines, a part on the machine for the attachment of the pole, a hook upon the pole provided with a pivoted latch for connecting and disconnecting it with the machine, a cross-bar having fastenings for attachment to the finger-bar and rear sill of the platform and provided with a standard for the attachment of the pole, and an adjustable block adapted to secure the pole to the grain-wheel end of the machine, and a draw-rod for connecting the cross-bar with the adjustable block, substantially as and for the purposes set forth.

2. In a pole connection for harvesting-machines, a cross-bar having a connection for attachment of the pole and provided at one end with a block adapted to pass over one of the guard-fingers and embrace the finger-bar, and at the opposite end with a fastening for attachment to the rear-platform sill, an automatic fastening for connecting the pole with said cross-bar, and means for securing said pole to the grain-wheel end of the platform, substantially as shown and described.

576,407. DISK HARROW. AUGUST LINDGREN, Moline, Ill., assignor to the Moline Plow Company, of Illinois. Filed Mar. 21, 1896. Serial No. 584,289. (No model.)

Claim.—1. In a disk harrow the combination with the draft-

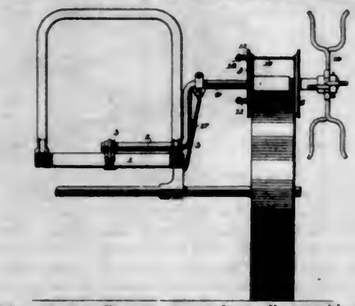
frame of the two disk gangs jointed thereto to move in a horizontal plane, a strap seated on the inner ends of the gangs and loosely connecting the same, whereby they are movable to a limited extent vertically at their inner ends, and a seat-standard fixed to the draft-frame extending rearwardly therefrom and resting loosely on the connecting-strap; whereby the inner ends of the gangs may be moved horizontally back and forth with relation to the seat-standard, and whereby the weight of the driver will tend to depress the inner ends of the gangs.



2. In a disk harrow, the combination with the frame of the two disk gangs jointed thereto, a strap loosely connected with the inner ends of said gangs and formed with two upwardly-extending shoulders and an intermediate flat bearing-surface, and a seat-standard rigidly secured to the frame and resting loosely on the bearing-surface of the strap.

576,408. CHECK-WIRE REEL FOR SEEDING-MACHINES.

August Lindeberg, Moline, Ill., assignor to the Moline Plow Company, of Illinois. Filed Nov. 16, 1896. Serial No. 612,305. (No model.)



Claim.—1. A reeling attachment for seeding-machines comprising a friction device consisting of two members adapted to yieldingly embrace the edges of the ground-wheel and receive motion therefrom, and a reel adapted to receive the coils of the check-wire and operatively connected to the friction device.

2. A reeling attachment for seeding-machines comprising an axle or support adapted to be connected to the machine, a friction device comprising two members mounted to revolve on said axle and connected together to yieldingly embrace the edge of the ground-wheel and a reel operatively connected to said friction device.

3. A reeling attachment for seeding-machines comprising an axle adapted to be connected to the framing of a machine, a friction device consisting of two disks provided with hubs encircling said axle and telescoping at their adjacent ends, devices yieldingly connecting said disks and a reel operatively connected to said friction device.

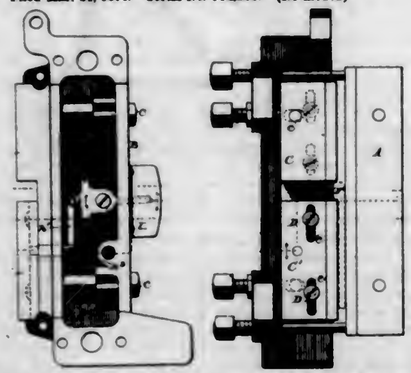
4. In a reeling attachment the combination with the supporting-axle adapted to be connected to the machine, of two friction-disks mounted loosely on the axle-bolts connecting said disks, springs encircling the bolts and tending to force the disks toward each other and a reel connected to one of said disks.

5. In a reeling attachment the combination with the axle, of the two disks mounted to revolve thereon, bolts connecting said disks, nuts on the ends of the bolts, spiral springs encircling said bolts between the adjacent disk and the nuts, and a reel connected to one of said disks.

6. The combination with the supporting-axle adapted to be connected to the machine, of an inner friction-disk loosely encircling the axle and provided with an outwardly-extending sleeve or hub, an outer friction-disk also encircling the axle and provided with a hub, the inner end of which extends in the adjacent end of the hub on the first-named disk, a series of bolts extending from one of the disks through the other and beyond the same, nuts on said bolts, spiral springs encircling the bolts between the disk and the nuts and a reel fixed to the outer end of the hub of the outer disk.

576,409. LINOTYPE-MACHINE.

James MacKirdy, Brooklyn, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed Mar. 21, 1896. Serial No. 584,280. (No model.)



Claim.—1. In a linotype-machine a divided slug-trimming knife having one section mounted to slide endwise in the direction of the length of the slug, substantially as described.

2. In a linotype-machine, a slug-trimming knife mounted to slide in the direction of its length in combination with an adjusting-lever and spring connections tending to hold the same in an intermediate position.

3. In a linotype-machine, a slug-trimming knife mounted to move in the direction of its length in combination with adjusting devices therefor and a scale or indicator substantially as described.

4. In a linotype-machine, a trimming-knife consisting of two sections both mounted for independent longitudinal adjustment.

576,410. NON-REFILLABLE BOTTLE.

Albert Metzler, Etna, Pa. Filed May 25, 1896. Serial No. 592,996. (No model.)

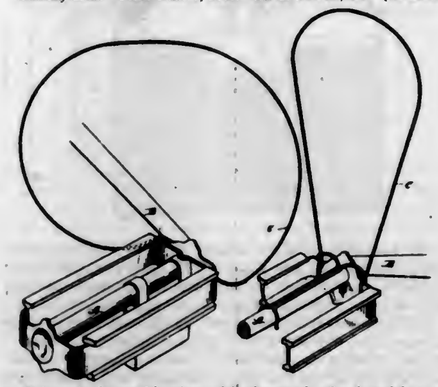


Claim.—1. In a non-refillable bottle, the neck having an oval-shaped bulb near the base thereof, an exterior annular flange above the bulb, an interior groove extending into said flange, a similar groove formed near the top of said neck, a valve-seat formed at the base of the bulb, a spherical valve to fit in said seat, a cork adapted to fit in the neck between the first groove and the bulb, a spring-plunger having spring-arms adapted to engage in said interior grooves and prevent the withdrawal of the stopper as and for the purpose described.

2. In a non-refillable bottle, the neck having an oval-shaped bulb formed near its base, an exterior annular flange above the bulb an interior annular groove extending into said flange, a similar groove formed near the top of said neck, a valve-seat formed at the base of the valve, a spherical valve adapted to fit said seat, a cork fitting in said neck between the first groove and the bulb, a spring-plunger consisting in a plate having upwardly-extending arms with coils thereon adapted to fit in the interior grooves and prevent the withdrawal of the stopper as and for the purpose described.

576,411. PANTS-GUARD FOR BICYCLES.

Francis A. McGinnis, Detroit, Mich. Filed June 6, 1896. Serial No. 594,527. (No model.)



Claim.—1. In combination with the crank of a foot driven vehicle, a guard adapted to be interposed between the garment of the leg of the rider and the mechanism, and attached to the crank-spindle, with means for keeping the guard uppermost during the revolutions of the crank, substantially as described.

2. As a new article of manufacture a guard for a foot-driven vehicle consisting of a shield with means for attaching it to the crank-spindle of a bicycle, and means for holding the shield in an upright position, substantially as described.

3. In combination with a guard adapted to be attached to the spindle of a pedal, and a weight attached to the guard to hold the guard upright with respect to the pedal, substantially as described.

576,412. CENTRIFUGAL MACHINE.

Thomas T. Oliver, Chicago, Ill. Filed Feb. 26, 1896. Serial No. 580,804. (No model.)

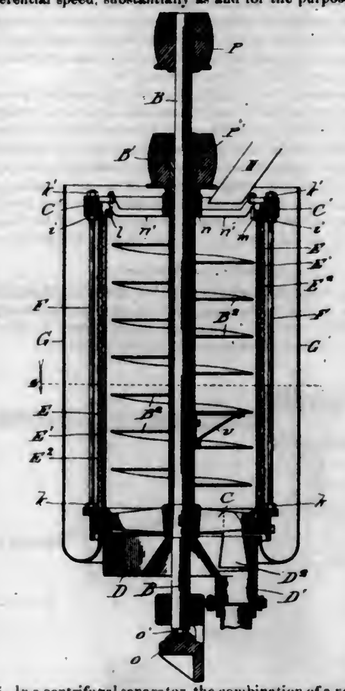
Claim.—1. In a centrifugal separator, the combination of a vertical rotary filtering-screen, a vertical rotary spiral conveyer in said filtering-screen affording a gravity-feed space between the edges of the conveyer-blades and the screen, and means for simultaneously rotating said screen and conveyer at differential speed, substantially as and for the purpose set forth.

2. In a centrifugal separator, the combination of a vertical rotary shaft carrying and surrounded by a filtering-screen, a hollow rotary shaft loosely surrounding said vertical shaft and carrying spirally-arranged conveyer-blades affording a gravity-feed space between the edges of said blades and the screen, and means for simultaneously rotating said shafts in the same direction at differential speed, substantially as and for the purpose set forth.

3. In a centrifugal separator, the combination of a vertical rotary shaft carrying and surrounded by a filtering-screen, a casing surrounding said screen and having a discharge-outlet at its base, a trough at the base of said screen and having a discharge-spout, a hollow rotary shaft loosely surrounding said vertical shaft and carrying spirally-arranged conveyer-blades affording a gravity-feed space between the edges of said blades and the screen, and means for simultaneously rotating said shafts in the same direction at differential speed, substantially as and for the purpose set forth.

4. In a centrifugal separator, the combination of a vertical rotary filtering-screen comprising an inner cylinder of filtering-cloth and outer wire-screen cylinders of differential mesh, a vertical rotary spiral conveyer in said filtering-screen affording a gravity-feed space between the edges of the conveyer-space and the screen, and means for simultaneously rotating said screen and conveyer at differential speed, substantially as and for the purpose set forth.

5. In a centrifugal separator, the combination of a vertical rotary shaft carrying and surrounded by a filtering-screen comprising an inner cylinder of filtering-cloth and outer wire-screen cylinders of differential mesh, a casing surrounding said screen and having a discharge-spout, a hollow rotary shaft loosely surrounding said vertical shaft and carrying spirally-arranged conveyer-blades, a gravity-space between the edges of the conveyer-blades and said screen and means for simultaneously rotating said shafts in the same direction at differential speed, substantially as and for the purpose set forth.

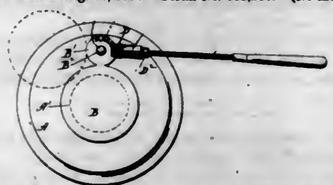


6. In a centrifugal separator, the combination of a vertical rotary filtering-screen, a vertical rotary spiral conveyer in said screen affording a gravity-feed space between the edges of the conveyer-blades and screen, a spider at the lower end of the screen having spirally-arranged arms affording a species of delivery screw and means for simultaneously rotating said screen and conveyer at differential speed, substantially as and for the purpose set forth

7. A centrifugal separator comprising, in combination with a supporting-frame, a shaft B journaled in vertical position in said frame, and carrrying a lower annular head C provided with a shovel D^4, a hollow shaft B' loosely surrounding said shaft B and carrying the spirally-arranged conveyer-blades B^3, an annular trough D below said head, having an outlet-spout D', an annular head C' loosely surrounding said hollow shaft, concentric filtering-cylinders E, E' and E^2 extending between and connecting said annular heads, rods F supporting the upper head from the lower head and provided with means for raising the upper head to stretch said cylinders, a casing G surrounding said cylinders and having an outlet in its base, and means for driving said shafts simultaneously in the same direction at differential speed, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

576,413. LID FOR ALCOHOL-LAMPS.

William A. Penfield, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed Aug. 10, 1896. Serial No. 602,239. (No model.)



Claim.—1. A removable lid for alcohol-lamps, having a central opening: an auxiliary lid pivoted to the said removable lid so as to

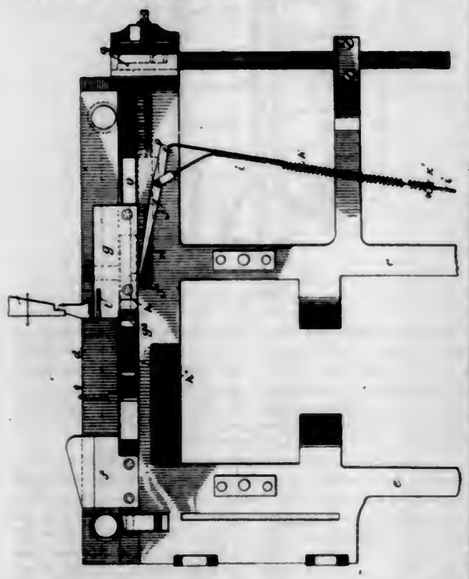
swing in a plane parallel with the plane thereof; a handle made independent of both of said lids; a bearing permanently located upon the said removable lid and receiving the inner end of the handle the main portion of which extends outward beyond the edge of the removable lid; and connection between the inner end of the said handle and the said auxiliary lid for oscillating the latter so as to expose and cover the said opening, when the handle is rotated on its longitudinal axis.

2. A removable lid for alcohol-lamps, having a central opening; an auxiliary lid pivoted to the said removable lid so as to swing in a plane parallel with the plane thereof, a rotatable handle having bearing in the main lid, and rack-and-pinion connection between the handle and auxiliary lid for the oscillation of the latter.

3. A removable lid for alcohol-lamps, having a central opening, an auxiliary lid pivoted to the said removable lid so as to swing in a plane parallel with the plane thereof, and formed with an extension by means of which it is pivoted to the said removable lid, and which is provided with a segmental rack, a bearing permanently secured to the said removable lid, a handle mounted in the said bearing for rotation therein, and a pinion located at the inner end of the bearing, and meshing into the said rack, whereby the rotation of the handle is used to swing the auxiliary lid so as to close or expose the said opening.

576,414. MOLDING MECHANISM FOR LINOTYPE-MACHINES.

JOHN PLACE, London, England, assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed Sept. 5, 1896. Serial No. 604,971. (No model.) Patented in England Dec. 21, 1894. No. 24,870.



Claim.—1. In a linotype-machine, the combination of the slotted mold, and a movable matrix-clamping jaw having a liner to enter the mold and determine the length of its operative portion.

2. In a linotype machine, a mold having a slot wherein the linotypes are formed, in combination with a liner to determine the operative length of the slot, and automatic mechanism for advancing the liner endwise to the casting position and retracting it therefrom after the casting action.

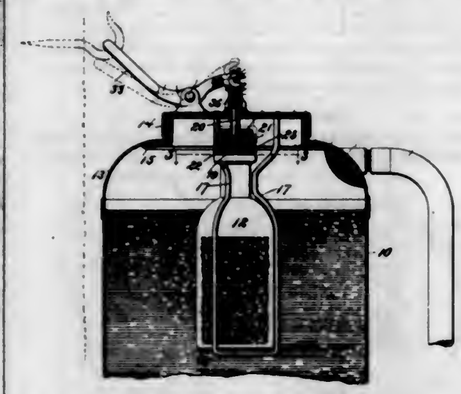
3. In a linotype-machine, a mold having a slot wherein the linotypes are formed, a liner to determine the operative length of the mold, mechanism for causing the liner to alternately enter and leave the slot, and mechanism for automatically advancing the liner to and withdrawing it endwise from the casting position.

4. In a linotype-machine, the combination of an adjustable vise-jaw, and a liner fixed thereon and having its operative face alined with that of the jaw, and a mold-block having a cavity adapted to receive said liner.

576,415. FIRE-EXTINGUISHER.

EDWARD SCHAEFER, St. Louis, Mo. Filed Oct. 12, 1896. Serial No. 608,641. (No model.)

Claim.—1. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidingly connected with the upper end of said bolt, and a spring operating to pull said stopper away from the mouth of said bottle, substantially as specified.



2. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, handles upon said cap for operating the same, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidingly connected with the upper end of said bolt, and a spring operating to pull said stopper away from the mouth of said bottle, substantially as specified.

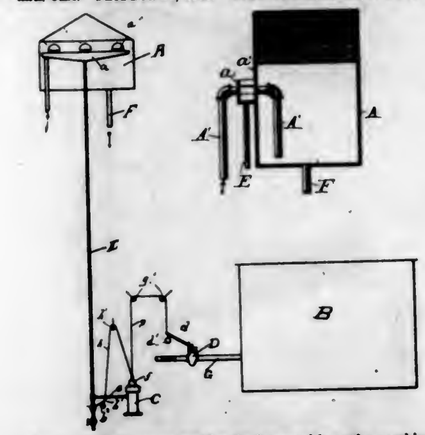
3. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidingly connected with the upper end of said bolt, a handle upon the free end of said lever for depressing said stopper, and a spring operating to pull said stopper away from the mouth of said bottle, substantially as specified.

4. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidingly connected with the upper end of said bolt, a spring operating to pull said stopper away from the mouth of said bottle, and a gasket upon said sliding bolt and in position to close the joint between said bolt and the bearing through which said bolt operates when the stopper is in its elevated position, substantially as specified.

5. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, handles upon said cap for operating the same, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidingly connected with the upper end of said bolt, a handle upon the free end of said lever for depressing said stopper, a spring operating to pull said stopper away from the mouth of said bottle, and a gasket upon said sliding bolt and in position to close the joint between said bolt and the bearing through which said bolt operates when the stopper is in its elevated position, substantially as specified.

576,416. WATER-PURIFIER FOR ICE-MACHINES.

THOMAS SHIPLEY, Pittsburg, Pa., assignor of one-half to Louis J. Dolle, Cincinnati, Ohio. Filed Dec. 26, 1895. Serial No. 573,400. (No model.)



Claim.—1. In a water-purifier for ice-machines, the combination of the skimming-tank, a pipe to convey the distilled water to said tank, the reservoir, a discharge-pipe leading from the tank to the reservoir, a gate or valve in said pipe, an overflow dish or trough at the upper end of the skimming-tank, a trap having a piston therein, an overflow-pipe connecting the skimming-dish and trap, and means such as shown for connecting the piston of the trap with the supply-valve for the reservoir, whereby said valve is automatically opened by the skimmed water flowing into the trap, and closed when the trap is drained, substantially as shown and described.

2. The combination of the reboiler or skimming-tank, an overflow-pipe connected thereto near its upper end, a valve in the overflow-pipe, a trap having a piston connected to the overflow-pipe between the valve and skimming-tank, a reservoir, a pipe for the distilled water from the skimming-tank to the reservoir, a valve within said pipe, and connections between the trap-piston and the valves, substantially as described.

3. The skimming-tank, an overflow-pipe, leading therefrom, a valve arranged in the lower end of said pipe, a regulating-cock below said valve, a trap connected with the overflow-pipe above the valve, a storage tank or reservoir, a pipe to convey the distilled water from the skimming-tank to said reservoir, a valve in said pipe, and connections between the trap and the respective valves, combined and arranged substantially as set forth.

4. The combination of the reboiler or skimming-tank; the trap having a piston therein, an overflow-pipe connecting the upper end of said tank and trap, a storage tank or reservoir, a supply-pipe for the distilled water from the skimming-tank to said reservoir, a valve within said pipe, a weighted lever to open said valve, a pulley above said lever, a chain passing over said pulley and having one end connected to a lever and the opposite end to the piston of the trap, whereby the valve is opened when the piston is elevated and closed by the weight of the piston when it falls to its lower position, substantially as shown and described.

576,417. BOTTLE-CLOSURE.

HENRY STILL, Baltimore, Md. Filed June 14, 1895. Serial No. 552,842. (No model.)



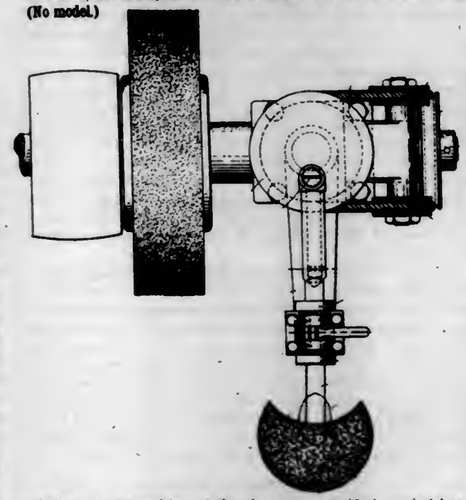
Claim.—1. In a bottle-closure the combination of a cap provided with a diaphragm closing the mouth of the bottle, said diaphragm being provided with an aperture, a reception-chamber above the diaphragm, which is provided with an opening for pouring the liquid out and a valve for closing the aperture in the diaphragm mounted upon a rod which is provided with a spring for seating the valve and a locking device upon its upper end to lock the valve upon its seat.

2. In a bottle-closure the combination of a cap provided with a diaphragm closing the mouth of the bottle said diaphragm being provided with an aperture, a reception-chamber above the diaphragm, which is provided with an opening for pouring the liquid out and a valve for closing the aperture in the diaphragm mounted upon a rod which is provided with a spring for seating the valve and having a thumb-piece secured to the top of the rod provided with projecting lugs, and inclines upon the cap with which said lugs engage to lock the valve.

3. In a bottle-closure the combination of a cap provided with a diaphragm closing the mouth of the bottle, said diaphragm being provided with an aperture, a reception-chamber above the diaphragm which is provided with an opening for pouring the liquid out, a valve for closing the aperture in the diaphragm mounted loosely upon a rod and having a spring below it surrounding the rod and pressing the valve upward and a locking device upon the upper end of the closure to lock the valve upon its seat.

576,418. BUFFING OR POLISHING MACHINE.

HAROLD A. WEBSTER, Haverhill, Mass. Filed Nov. 20, 1896. Serial No. 612,896. (No model.)



Claim.—1. A machine of the character specified comprising a flexible pad having two substantially flat supporting-faces, a cover formed to receive said pad, and having two similarly-shaped acting sides or faces, an arm supporting said pad, and mechanism for moving the arm to give the pad an orbital movement in the plane of its faces.

2. A machine of the character specified, comprising a flexible pad having a cover with two acting faces, an arm supporting said pad, means for moving the arm to give the pad an orbital movement in the plane of its acting face, and means for partly rotating the arm and pad to interchange the acting faces of the pad.

3. As an article of manufacture, a pad-cover composed of two crescent-shaped pieces of abrasive material united along their salient curves, their reëntrant curves forming the edges of a contracted mouth which is shorter than the greatest width or diameter of the cover.

4. An appliance of the character specified, comprising a flexible pad having a curved edge and a device for yieldingly expanding said edge, and a cover formed as a pocket to receive said pad and having a mouth of less than the greatest normal width or diameter of the pad.

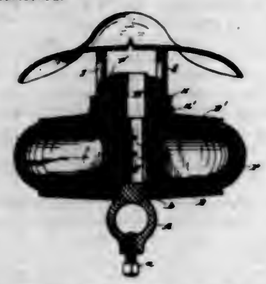
5. As an article of manufacture an abrasive pad-cover composed of two similarly-shaped side pieces, collectively forming a pocket having a mouth between said side pieces.

576,419. VEHICLE-SEAT.

JOHN F. WILMOT, Detroit, Mich. Filed June 27, 1896. Serial No. 597,166. (No model.)

Claim.—1. In combination with a seat for vehicles, a bearing-plate and means for securing said plate to the seat, a tube projecting centrally downward from said plate, a second bearing-plate provided with a central post projecting upward and adapted to engage within

said tube, means for engaging the lower bearing-plate to a saddle-arm, and a pneumatic cushion interposed between said plates, substantially as described.

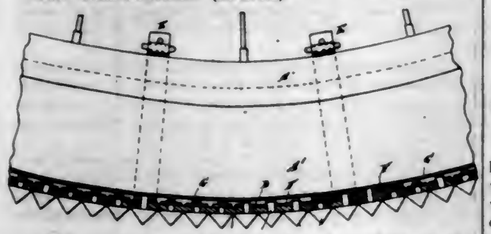


2. The combination of the bearing-plate B', provided with central tube E, clip-pieces K, K', and nut N, a bearing-plate B provided with means whereby it may be secured to a vehicle, and with a central post adapted to engage the tube E, and a pneumatic cushion interposed between said plates B, B', substantially as described.

3. In a vehicle-seat, the combination with a circular pneumatic cushion, of a lower bearing-plate adapted to engage the under side of said cushion, a central post arranged to project upward through the center of the cushion, and having its lower end rigidly secured to said lower bearing-plate, a tube adapted to telescope over said central post, and provided with an external thread at its upper end, means adapted to engage with the central post whereby the telescoping movement of said post and tube is limited, an upper bearing-plate adapted to engage the upper side of said cushion provided with a central opening to fit over and firmly engage said tube at a point about midway between its two ends, a clip consisting of two parts each of which is provided with an opening adapted to fit over the threaded portion of the tube, said two parts being formed to receive between them the seat-frame, and a nut adapted to fit the upper end of said threaded tube whereby said clip is firmly secured, substantially as described.

4. As an article of manufacture, the combination of a cushion, bearing-plates arranged to engage the upper and lower sides of said cushion, means for securing the lower plate to a vehicle-frame, and means for engaging said bearing-plates whereby they are allowed a limited vertical movement, with an externally-threaded stem rigidly secured to and projecting above said upper bearing-plate, a clip-piece provided with a central opening to fit over and engage snugly said stem and upper bearing-plate, a second clip-piece provided with a central opening to fit loosely over said stem, and a nut upon the upper threaded portion of the stem whereby a seat-frame is firmly clamped between said clip-pieces, substantially as described.

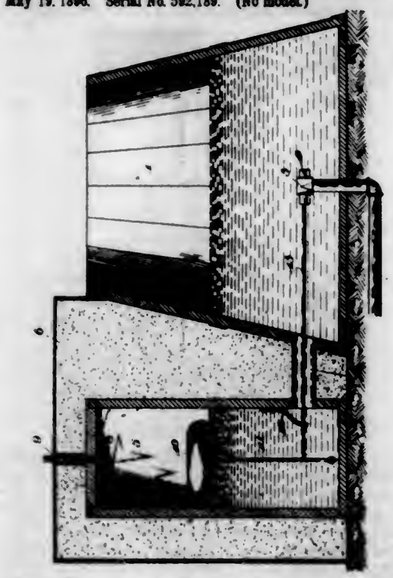
576,420. REMOVABLE ICE-TIRE FOR BICYCLES. JEFFERSON L. ATKINSON and LEONARD BRANCHAUD, Potsdam, N. Y. Filed Oct. 14, 1896. Serial No. 608,793. (No model.)



Claim.—1. A removable ice-tire for bicycles, consisting of a flexible belt of less length than the circumference of the inflated tire, means for joining the ends of the belt together, metal spikes or spurs fixed to the belt, non-flexible bars or plates attached to the under side of the belt and bent to the curve of the tire-section, and straps attached at frequent intervals to the belt and passing about the tire and rim, substantially as described.

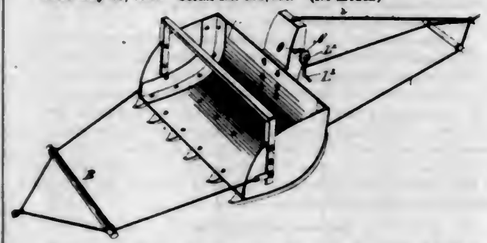
2. A removable ice-tire for bicycles, consisting of a flexible belt having a metal plate on each end, crimped or turned back upon itself and forming a lock, the same being of curved cross-section to fit the tire and of the full width of the said belt, said belt being of less length than the inflated tire, metal spikes or spurs fixed to and projecting from the belt, metal plates attached at intervals to the under side of the belt and bent to the curve of the tire-section, and straps attached at frequent intervals to the belt and passing about the tire and rim, substantially as described.

576,421. MEANS FOR CONTROLLING SUPPLY OF WATER TO TANKS, CISTERNS, &c. WILLIAM S. AUDSLEY, De Witt, Mo. Filed May 19, 1896. Serial No. 592,189. (No model.)



Claim.— In combination, a tank for receiving a supply of water, a reservoir located at a distance from and in communication with the tank by means of a pipe and embedded in sawdust, manure, or like matter so as to prevent the freezing of the water contained therein, a pipe for supplying water to the tank, terminating at its discharge end in a valve-casing, a plug-valve rotatably fitted in the casing, a rod or stem having connection at one end with the plug-valve passing through the connecting-pipe and terminating at its opposite end in a radius-arm which is located in the said reservoir, and a float arranged within the reservoir and having its stem connected with the said radius-arm, substantially in the manner set forth for the purpose described.

576,422. STEAM-SCRAPER. JOHN AUSTIN, San Francisco, Cal. Filed May 23, 1896. Serial No. 592,741. (No model.)



Claim.—1. A steam-scraper, comprising a scoop, a pulling or head line for the scoop, a holdback-line, a dumping line or cable connected with the holdback-line in the rear of the scoop and also connected with the said scoop, and means for tightening and slacking the said dumping-line, whereby the scoop may be held in position for filling or be released so that it can be swung to a dumping position, substantially as shown and described.

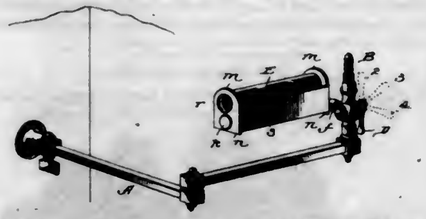
2. A steam-scraper, comprising a scoop-carrying drum, a pulling or head line for the scoop, a holdback-line for the scoop, and a dumping line or cable adapted to wind upon the drum carried by the scoop and connected with the holdback-line, substantially as shown and described.

3. A steam-scraper provided with a scoop, a drum journaled on the said scoop, a pulling or head line connected with the scoop, a holdback-line also connected with the scoop, a dumping line or cable connected with the holdback-line in the rear of the said scoop and adapted to wind upon the said drum, and means for rotating the said drum and locking the same in place, substantially as shown and described.

4. A steam-scraper, comprising a suitable drum-hoisting engine, a scoop, a head-line extending from the front end of the scoop to one of the drums of said engine, a holdback-line connecting the rear end of the scoop with the other drum on the said engine, and a dumping-line connected with the said holdback-line and with the drum on the said scoop, substantially as shown and described.

5. A steam-scraper, comprising a suitable drum-hoisting engine, a scoop, a head-line extending from the front end of the scoop to one of the drums of said engine, a holdback-line connecting the rear end of the scoop with the other drum on the said engine, a dumping-line rigidly connected with the said holdback-line and with the drum on the said scoop, and means, substantially as described, for locking the said drum in place, as set forth.

576,423. HEATER FOR CURLING TONGS OR IRONS. FREDERICK K. BARNHART, Oswego, N. Y. Filed Mar. 9, 1896. Serial No. 582,421. (No model.)



Claim.—1. The combination, in a heater for curling tongs or irons, of a burner-tube having jet-orifices, an oven adapted to exclude the flames from its interior, a frame for said oven supported by said burner-tube, and side shields supported by said frame for directing the flames onto the exterior of said oven, substantially as described.

2. The combination, with a heater for curling tongs or irons, of an illuminating-gas burner having an opening intersecting the gas-aperture therein, an aperture formed through the wall of said opening, a plug or valve formed with a groove encircling it near one end, a groove extending partly around said plug, a groove connecting said circumferential grooves, and a channel for connecting the gas-aperture and the circular groove formed in the wall of the transverse opening, substantially as described.

3. The combination, in a heater for curling tongs or irons, of a burner-tube formed with jet-orifices, an oven, and a frame for supporting the oven from the burner-tube consisting of end pieces adapted for connecting the oven and the tube, and side shields for the jet orifices connecting said end pieces, substantially as described.

4. The combination, in a heater for curling tongs or irons, of a burner-tube formed with jet-orifices, an oven, and a frame, for supporting said oven from said burner-tube, consisting of a single sheet of metal bent to form side shields for said jet-orifices and end supports for said oven, substantially as described.

5. The combination, in a heater for curling tongs or irons, of a burner-tube formed with jet-orifices, an oven, and a frame consisting of a single sheet of metal bent to form the end pieces of the frame and side shields for the jet-orifices, and having openings in the end pieces for the burner-tube, and openings flanged to receive the ends of the oven thereover, substantially as described.

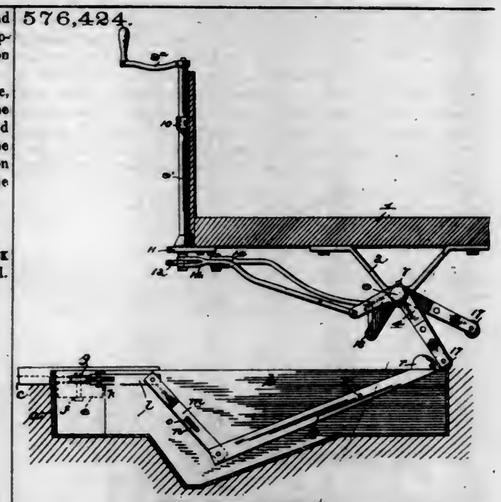
576,424. RAILWAY AND RAILROAD SWITCH. GEORGE B. BARROW, Easton, Pa. Filed Apr. 28, 1896. Serial No. 589,440. (No model.)

Claim.—1. The combination with a switch-frog, of a pusher independent thereof and means for operating the same including an obliquely-extending lever eccentrically pivoted whereby the longer portion thereof will overbalance the shorter, a horizontal link pivoted to the pusher, and a vertically-sliding link connected to said horizontal link at one end and to said heavier portion of said lever at its opposite end whereby a weighed part is formed to automatically return all the parts to normal position after each operation, substantially as described.

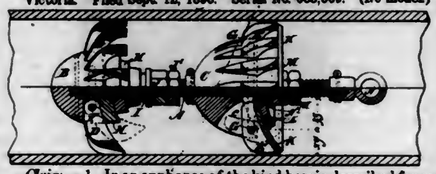
2. The combination with a switch-frog, of the pushers, the horizontal link secured thereto, the vertically-sliding link pivoted to said horizontal link, the lever carrying the projection pivoted to said vertical link and extending laterally therefrom, said lever being pivoted above the center thereof whereby the weight of the lower end of the same and said sliding link will automatically return said parts and the pusher to normal position after each operation, substantially as described.

3. The combination with the pivoted switch of the pusher comprising the bell-crank, the sliding links, the pivoted link connecting the same to said bell-crank lever, and the pivoted lever carrying the projection, said lever being connected to said sliding link.

576,424.



576,425. APPLIANCE FOR SCRAPING INTERIORS OF WATER MAINS OR PIPES. HENRY J. I. BILTON and THOMAS TINNING, Malvern, Victoria. Filed Sept. 12, 1896. Serial No. 605,869. (No model.)



Claim.—1. In an appliance of the kind herein described for scraping the interior of water or other mains or pipes the combination of a series of radial pivoted cutters with one or more resilient washers or disks together with an adjusting nut or nuts in the manner and for the purposes substantially as set forth.

2. In an appliance of the kind herein described for scraping the interior of water or other mains or pipes the combination with a series of pivoted radial cutters of a leather disk forced against said cutters by the pressure of water or other fluid in the pipe or main whereby said fluid is used to force the cutters outward against the interior of said pipe or main in addition to its ordinary use as a propelling force substantially as set forth.

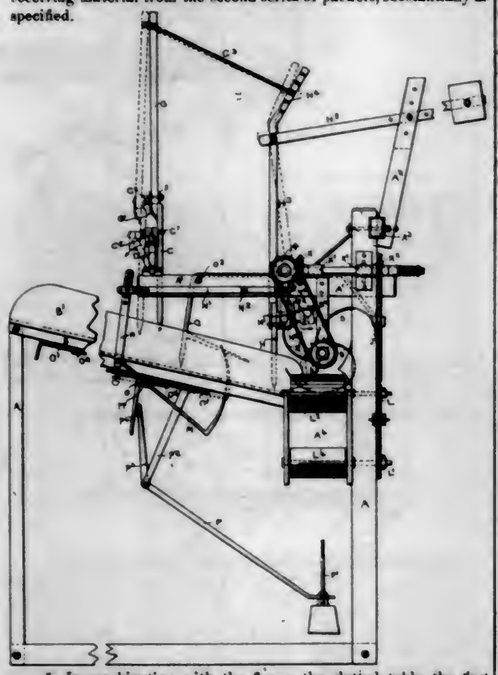
576,426. FEEDER FOR HAY-CUTTERS. GEORGE W. BISCHOF, Mallala, South Australia, assignor of one-half to John Felix Martin, Gawler, South Australia. Filed Apr. 19, 1895. Serial No. 546,353. (No model.)

Claim.—1. In a device for feeding material to a chaff-cutting machine, the combination with a slotted table, and driving mechanism, of two series of packers having a vertical and a back-and-forth motion, the movements of one series alternating with the movements of the other series, the stop-arms movable through the slots in the table, the series of holding-rods arranged above the table between the packers and stops, each of said holding-rods having an arm projecting forward of the stops, a receiving-trough at the front end of the table and an endless carrier movable therein, substantially as specified.

2. In combination with the inclined slotted table, the series of packers, mechanism comprising a crank-shaft for imparting a vertical and back-and-forth movement to said packers, the stop-arms movable through the slots in the table, vertically-movable holding-rods arranged between the packers and stops above the table and having the forwardly-projecting portions, a second series of packers forward of the stops, mechanism comprising a crank-shaft for imparting a vertical and back-and-forth movements to said second packers, the movements of the second packers alternating with those of the packers first named, and the endless carrier, substantially as specified.

3. In combination with the inclined slotted table, the packers and the holders, of the endless carrier at the front of the table, the feeding-rollers, the stops movable through the slots in the table and connections between one of the feed-rollers and the stops for automatically adjusting the stops with relation to the packers, substantially as specified.

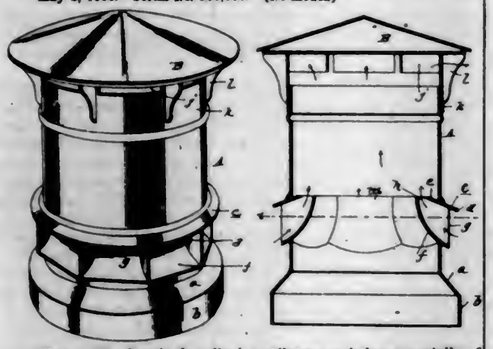
4. The combination with the slotted table, of the stops movable through said slots, a series of packers mounted on a crank-shaft, the bar extending upward from the crank-shaft, a second series of packers mounted on a crank-shaft, a bar extended upward from said crank-shaft and having a forwardly-inclined upper portion, a link having a pivotal connection with the bar extended from the first-named crank-shaft and having its opposite end adjustable along the inclined portion of the second-named bar, and an endless carrier for receiving material from the second series of packers, substantially as specified.



5. In combination with the frame, the slotted table, the first series of packers and the stops, of the second series of packers, a crank-shaft carrying said second series of packers, the series of holding-rods each comprising a body portion extended longitudinally of the frame, a downwardly-extended portion and a bar extended forward therefrom, the ends of the body portions of the holding-rods having pivotal connection with the frame and a vertical motion being imparted thereto by the crank-shaft of the second series of packers, and a stop-rod for limiting the downward movement of the holding-rods, substantially as specified.

6. In the combination with an inclined table and mechanism substantially such as described for carrying material forward thereon, of a receiving-trough, a spring-yielding board on the outer upper edge thereof, an endless carrier in the trough, and feed-rollers, substantially as specified.

576,427. VENTILATOR. JOHN BONNER, Tiburon, Cal. Filed May 2, 1896. Serial No. 589,966. (No model.)



Claim.—The herein-described ventilator consisting essentially of the cylindrical body A, having the base adapted to be secured to the top of a car and also having the circumferential opening adjacent to said base, the continuous circular wall *f*, connected at an intermediate point of its width to the edge of the body A, at the bottom of the circumferential opening thereof and curved upwardly and inwardly within the body so as to form a central contracted portion *m* within the body, the continuous flat and circular wall *e*, connected at an intermediate point of its width to the edge of the body A, at the top of the circumferential opening thereof and inclined upwardly and inwardly toward the center of the body A, and the thin vertical partitions *g*, arranged between and connected at their lower and upper edges to the walls *f*, *e*, respectively and serving in conjunction with said walls to form a plurality of induction-openings each with an enlarged mouth or outer end and a contracted throat or inner end; the whole being arranged so as to direct air-currents from all points into a central volume within the body A, the top arranged upon the upper end of the body A, and having its peripheral edge projected laterally therefrom and elevated as shown so as to form the continuous passage *j*, beneath the top, and the vertical stripe supporting said top, substantially as and for the purpose set forth.

576,428. HAIR STRUCTURE. JAMES Y. BORDEN, Philadelphia, Pa. Filed May 15, 1896. Serial No. 591,655. (No model.)



Claim.—1. As a new article of manufacture, a hair structure having a center piece of netting with hair attached to the upper face thereof and having loops of hair weft attached to the edge thereof, the hair of said loops forming the main body of the hair structure.

2. The combination in a hair structure, of the central strip of net, hair attached to the upper surface thereof, a border secured thereto, hair attached to the upper face of the border, with a series of loops composed of hair weft, said loops attached to the border and forming the body of the hair structure, substantially as described.

3. The combination of a narrow strip of netting forming the center of the hair structure, hair attached to the upper surface thereof sufficient to cover the netting, with a series of looped sections of hair weft attached at intervals along each side of the said strip, each section composed of one or more loops and the said sections forming the main body of the hair structure.

576,429. CIGAR-BUNCHING MACHINE. JACOB BRISTOL, Detroit, Mich. Filed Feb. 25, 1896. Serial No. 580,664. (No model.)

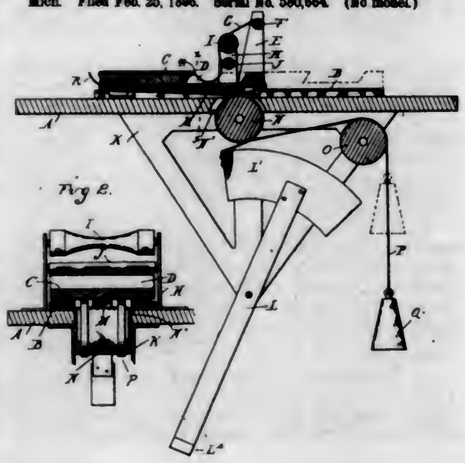
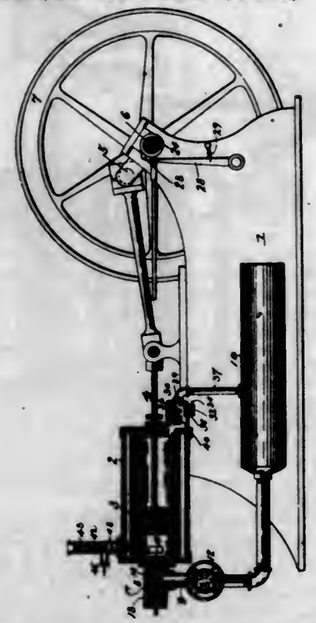


Fig 2.

Claim.—1. In a cigar-bunching machine, the combination with a horizontal table A having horizontal guides thereon, of a bunching-table mounted on the guides, a single oscillating device projecting through the table A at a point midway the length of the guides, flexible straps or the like attached to the opposite ends of the bunching-table extending in opposite directions directly to and engaging respectively the opposite sides of the oscillating device, a lever having a segment at its end for moving the oscillating device, and means for restoring the oscillating device and table to their normal positions.

2. In a cigar-bunching machine, the combination with the table A of the horizontal slideways B thereon, the bunching-table C on said slideways, the brackets K depending from the under side of the table A, the rolls or drums N and O the former projecting above the table A, and lever L journaled in the frame, the segment L′ on the lever L, the flexible connections M and P secured respectively to the forward and rear ends of the table C and passing oppositely around the drum N, the former being secured to the segment L′ and the latter passing over the roll O, and the weight Q attached to the connection P.

576,430. EXPLOSIVE-ENGINE. FRANK BURGER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, same place. Filed Mar. 23, 1895. Serial No. 542,976. (No model.)



Claim.—1. In an explosive-engine, the combination with a cylinder, the valve-chamber and supply-valve at one end thereof, the lever connected with said valve, the horizontal rod pivoted to said lever and having a roller at the opposite end and a cam intermediate its ends and an ignition-valve operated thereby, of the driving-shaft, the slidable sleeve having a wedge-shaped cam, the governor and the spring-actuated exhaust-valve, the bell-crank lever, the connecting-rod and the cam on the driving-shaft, for actuating said valve, substantially as described.

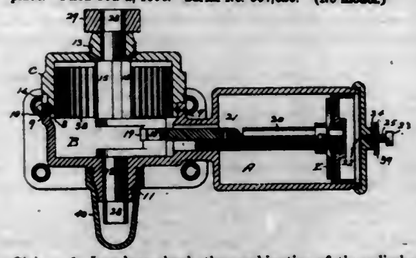
2. In an explosive-engine, the combination with the cylinder, the valve-chamber, the valve and piston located therein of differential areas, the valve-stem, the pipe and reservoir, of the lever connected with said stem, the rod provided with a cam, the ignition-valve and bell-crank lever, the slidable sleeve on the driving-shaft having a wedge-shaped cam, and the governor; substantially as described.

3. In an explosive-engine, the combination with the cylinder, the piston, the reservoir for compressed gas, the passage connecting said cylinder and reservoir, and the air and gas inlet valves, of the valve-chamber connected with said passage, the reservoir delivery-valve located therein and so constructed as to be opened by the forward stroke of the piston and closed by the return stroke, and the relief-valve, connected with said delivery-valve, substantially as described.

4. In an explosive-engine, the combination with the cylinder, the piston, the reservoir for compressed gas, the passage connecting said cylinder and reservoir, and the air and gas inlet valves, of the valve-chamber connected with said passage, the reservoir delivery-valve located therein and so constructed as to be opened by the forward stroke of the piston and closed by the return stroke, and the spring-actuated and adjustable relief-valve connected with said delivery-valve, substantially as described.

5. In an explosive-engine, the combination with the driving-shaft, the cylinder, the piston, the valve-chamber and the pressure and relief valves, the pipe leading to said valve-chamber and the reservoir, the exhaust-valve and lever, the rod and the cam on the driving-shaft, of the valve-chamber at the rear end of the cylinder, the valve and piston, the pipe leading from the reservoir, the valve-stem, the lever connected therewith, the rod having a cam, the bell-crank lever and ignition-valve, the slidable sleeve having a wedge-shaped cam and the governor; substantially as described.

576,431. DOOR-CHECK. CHARLES M. BURGESS, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Oct. 2, 1896. Serial No. 607,629. (No model.)

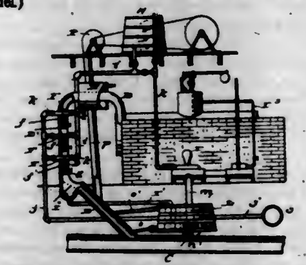


Claim.—1. In a door-check, the combination of the cylinder, the crank-chamber, the spring-chamber rotatably mounted on said crank-chamber and having a series of ratchet-teeth, the pawl pivoted on the case of said crank-chamber, the spring with its outer end secured to said spring-chamber, the crank-shaft connected to the inner end of said spring and to the piston, and means for connecting the said parts with a door and its casing, substantially as described and for the purpose specified.

2. In a door-check the combination of the cylinder, the crank-chamber, the spring-chamber rotatably mounted on said crank-chamber, the spring with its outer end secured to said spring-chamber, the crank-shaft connected with the inner end of said spring and with the piston, and the stop for limiting the movement of the crank under the influence of the spring, substantially as described and for the purpose specified.

3. In a door-check the combination of the cylinder end having a boss provided with an interiorly-threaded vent-hole and a transverse groove across the face of said boss, that extends from one side of said boss into said vent-hole, the vent-screw fitted to said threaded vent-hole and having the longitudinal vent-groove in its periphery and the set-nut on said vent screw, one broad side of the said set-nut being arranged to rest firmly upon the grooved face of said boss while the groove therein is open at the ends, substantially as described and for the purpose specified.

576,432. MEANS FOR OVERCOMING SMOKE NUISANCES. CORY I. BUSH, Kansas City, Mo. Filed Apr. 20, 1896. Serial No. 588,311. (No model.)



Claim.—1. In an apparatus for destroying, or dispensing with, smoke, the combination with a furnace, of the condensing-pipe coupled at one end by the smoke-pipe B to the furnace and provided with a series of internal ledges or seats, a series of spray-nozzles within said condensing-pipe and arranged with their discharge-mouths facing toward said ledges or seats, to discharge the liquid sprays against the ledges or deflectors therein, and a fluid-supply connected to the spray-nozzles, as and for the purposes described.

2 In an apparatus for destroying, or dispensing with, smoke, the combination with a furnace, of a condensing pipe or conduit having a series of ledges or seats within itself, a smoke-pipe between the

furnace and condensing pipe or conduit, a series of spray-nozzles situated within the condensing-pipe and arranged with their discharge-mouths facing toward said seats or ledges to discharge against the same, an elevated tank, a pump, and pipe connections between said tank, pump and the spray-nozzles, substantially as and for the purposes described.

3. In an apparatus for the destroying, or dispensing with, smoke, the combination with a furnace, of the condensing pipe or conduit connected to the smoke-space of the furnace and leading to a suitable place of discharge, a series of spray-nozzles within the condensing pipe or conduit, an elevated tank, a pump, a water-main, and valved connections between the spray-nozzles and said tank, pump and water-main, as and for the purposes described.

4. In an apparatus for the destroying or dispensing with smoke, the combination with a furnace, of the condensing pipe or conduit provided with a series of internal seats or ledges and connected with the smoke-space of the heater, a series of spray-nozzles within said condensing-pipe, and a fan or blower having its wind-trunk connected to the condensing-pipe below the seats or ledges therein, substantially as described.

5. The combination with a furnace, of the condensing-pipe connected with the smoke-space of the furnace and leading to a suitable place of discharge, and having the internal seat or ledge, an elevated tank, a spray-nozzle within the condensing-pipe, in proximity to the seat or ledge therein, a supply-pipe between said tank and the spray-nozzle, a waste-tank connecting with the condensing-pipe, and a pump connected with the elevated and waste tanks, and spray-nozzles, substantially as and for the purposes described.

6. The combination with a condensing-pipe, of a spray device located therein, a pump, a supply-pipe intermediate of the spray device and pump, a waste-tank, a settling or tray chamber adapted to discharge to said waste-tank and also connected to the condensing-pipe below the spray device, and a pipe connection between the waste-tank and the pump, substantially as described.

7. The combination with a condensing-pipe, of a spray device located therein and having a suitable liquid-supply connected to the same, a pump, a waste-tank having a receiving connection, as I with the condensing-pipe and the overflow and discharge connections o, o', with said condensing-pipe, and a pipe between the waste-tank and pump, substantially as described.

8. The combination with a furnace, of a condensing-pipe connected to the furnace and leading to a place of discharge, as a sewer or body of water, a smoke-pipe coupled to the condensing-pipe and furnace, a spray within the condensing-pipe, a suitable pipe to the nozzle, a cistern connected to the condensing-pipe below the spray-nozzle therein, and a pump or tank connected to the supply-pipe and cistern, substantially as described.

9. The combination with a furnace, of a condensing-pipe having the interior seat, a spray-nozzle fitted in the condensing-pipe and having its end provided with the flared mouth, a longitudinally-movable stem, located in front of the nozzle and provided with the conical head, and the operating-shaft for adjusting the stem, substantially as and for the purpose described.

10. The combination of a condensing-pipe provided with an internal seat or ledge, a regulator-valve, a shaft which is movable with the regulator-valve toward and from the flared mouth of said nozzle, a support fixed within the condensing-pipe and receiving the shaft of said regulator-valve and a stem passing through the condensing pipe and operatively connected with the shaft for the valve, substantially as and for the purposes described.

11. The combination with a condensing-pipe, of the internal seat on the inner surface of said pipe and arranged to flare inwardly and downwardly in a direction toward the axis of said pipe, and a spray-nozzle situated in the pipe, with its flared discharge-mouth facing toward the flared seat or ledge, and said nozzle arranged to leave a smoke-passage between itself and said seat, as and for the purposes described.

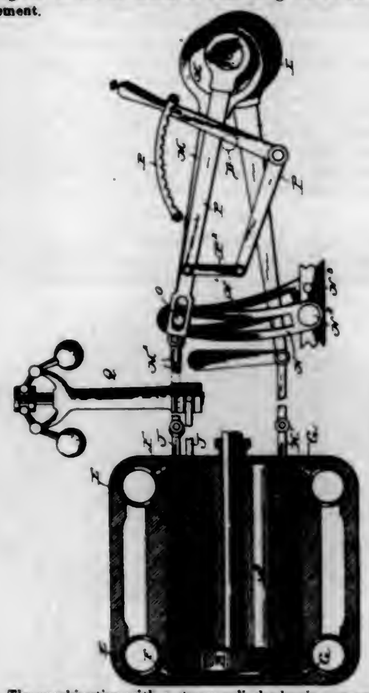
12. The combination with a condensing-pipe having a seat or ledge, and a spray-nozzle, of a valve-stem arranged in axial alinement with the nozzle and carrying a valve-head, and an operating-spindle geared to the valve-stem and adapted to move the same and its valve endwise toward or from the discharge-nozzle, as set forth.

13. The combination with a condensing-pipe having an internal seat, and a spray-nozzle of an endwise-movable valve-stem carrying a valve, an operating-spindle having a worm and a worm-gear meshing with the worm and connected by a slidable joint with the valve-stem, as and for the purposes described.

576,433. STEAM-ENGINE. HENRY L. DICKSON, Greenville, Tex. Filed July 14, 1896. Serial No. 599,100. (No model.)

Claim.—1. The combination with the eccentric-rod bearing the link-pin, of the independently-pivoted slotted links engaged by the pin, the rods connecting the links respectively to devices controlling the engine-valves, and means for varying the distance of said pin from the link-pivots.

2. The combination with the steam-chest and the rotary valves leading therefrom, of springs arranged to resist rotary movement of the valves, trip-arms projecting from the valve-stems, bars arranged to reciprocate alongside the trip-arms and provided with lugs for engaging the latter, and means for controlling the extent of such engagement.



3. The combination with a steam-cylinder having separate inlet-valves, of separate sliding bars each provided with devices to engage, open and release the corresponding valve, an eccentric, a rod reciprocated by the eccentric and connected to both bars to slide them simultaneously, and means for at will varying the distances of the two bars from the eccentric.

4. The combination with the cylinder having separate inlet-valves, of distinct reciprocating bars bearing devices arranged to engage, open and release the corresponding valves as the bars move forward and back, an eccentric-rod connected to the bars to reciprocate them simultaneously, and means for at will varying the relative distances of the bars from the eccentric and the distance through which the latter moves them.

5. The combination with a steam-cylinder having distinct inlet-valves, of bars mounted to reciprocate together alongside said cylinder, one of said bars being provided with devices to engage, open and release one valve as the bars move forward, and the other with devices to actuate the remaining valve in like manner as the bars return, and means for at will varying the distance between the devices operating the two valves, respectively.

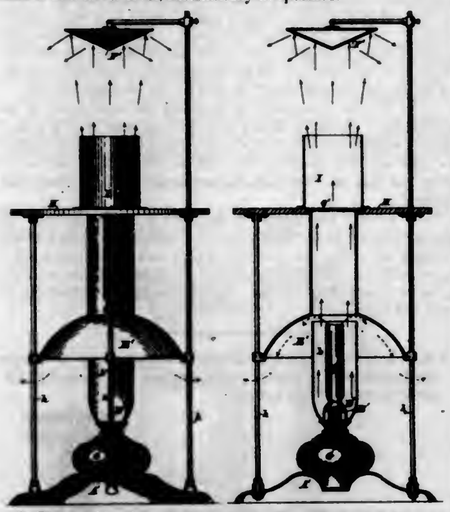
6. The combination with the valve-stems provided with the cam-like heads and the trip-arms, of the springs embracing said heads and offering yielding resistance to their rotary movement, and devices arranged to engage the trip-arms at suitable intervals and compel such movement.

7. The combination with the reciprocating bars having the valve-operating projections, of the eccentrics supporting said bars, the centrally-pivoted lever having its arms pivoted to the eccentrics, and a governor arranged to rock said lever upon its central pivot as the speed of the governor varies.

576,434. HEATER AND ILLUMINATOR. EDWARD DUNNER, Auburndale, Mass. Filed Mar. 17, 1896. Serial No. 583,636. (No model.)

Claim.—1. The combination of a burner, a transparent or translucent heat deflector or radiator situated above the burner, and a reflector situated below the burner and adapted to reflect the light toward the deflector or radiator, whereby the light from the flame at the burner will be reflected upward through the heat deflector or radiator, and the heated air will be deflected and the heat radiated at a lower level, substantially as specified.

2. The combination of a burner, a transparent or translucent heat deflector or radiator, and two reflectors, said burner, deflector or radiator and reflectors being so situated with reference to each other that the light from a flame at the burner will be reflected by one reflector upward through the deflector or radiator and onto the other reflector, and the heated air will be deflected and the heat radiated at a lower level, substantially as specified.



3. The combination of a burner, an adjustable heat deflector or radiator which is transparent or translucent, and two adjustable reflectors one above and the other below the burner and the deflector or radiator, so that the light from the flame at the burner will be reflected by one reflector upward through the deflector or radiator onto the other reflector, and the heat and air heated by the flame will be thrown out at a lower level, substantially as specified.

4. The combination of a burner, a chimney for the current of air heated by a flame at the burner, a transparent or translucent deflector above the chimney and burner to throw out laterally the heated air, a reflector to reflect the light upward through the deflector, and another reflector above the deflector to receive and reflect said light, substantially as specified.

5. The combination of a burner, a heat deflector or radiator above the burner to throw out laterally the air heated by the flame at the burner, and provided with a removable transparent or translucent part, and a parabolic light-reflector at the burner to reflect the light from said flame upward through said transparent or translucent part of the heat deflector or radiator, substantially as specified.

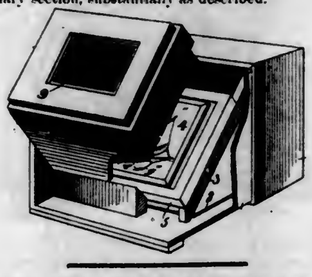
6. The combination of a table having an opening, a burner below the opening, a heat deflector or radiator situated below the table and above the burner, a part of the deflector or radiator coinciding with said opening and being transparent or translucent and a light-reflector at the burner to reflect the light upward through said opening and through the deflector or radiator, substantially as specified.

7. The combination of a table having an opening, a burner below the opening, a heat deflector or radiator situated below the table and above the burner, a part of the deflector or radiator coinciding with said opening and being transparent or translucent, a light-reflector at the burner to reflect the light upward through said opening and through the deflector or radiator, and a light-reflector above said table in position to receive and reflect the said light, substantially as specified.

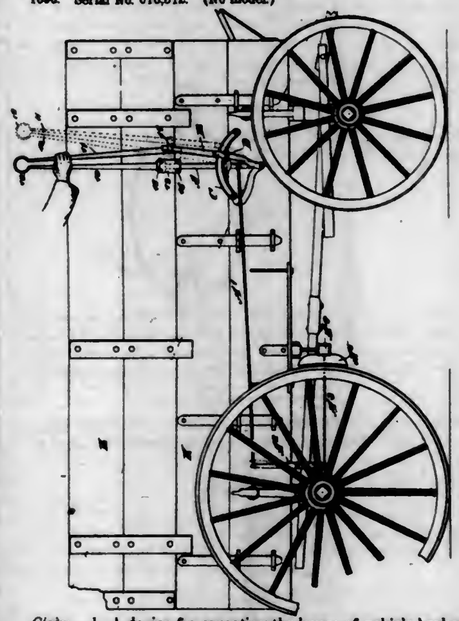
576,435. NEGATIVE-SLIDE AND FILM-ILLUMINATOR AND CAMERA OBSCURA. WILLIAM A. EDDY, Bayonne, N. J. Filed Mar. 13, 1896. Serial No. 583,092. (No model.)

Claim.—1. The combination of the box having an outwardly-movable rear wall or cover provided with an aperture in its upper portion, an inclined apertured support at the front end of the box, and a mirror located at the bottom of the box and arranged to throw the light entering through the aperture in the rear wall on an article placed on said apertured support, substantially as described.

2. The combination of the box having a rear wall or cover provided with an aperture in its upper portion, an inclined apertured support at the front end of the box, a mirror located at the bottom of the box and arranged to throw the light entering through the aperture in the rear wall on an article placed on said apertured support, a stationary closed section extending upwardly in front of said inclined support, and an outwardly-movable sight-section sliding on said stationary section, substantially as described.



576,436. ATTACHMENT FOR VEHICLE-BRAKES. JOSHUA H. EDWARDS and WILLIE W. EDWARDS, Stephenville, Tex. Filed Oct. 28, 1896. Serial No. 610,312. (No model.)



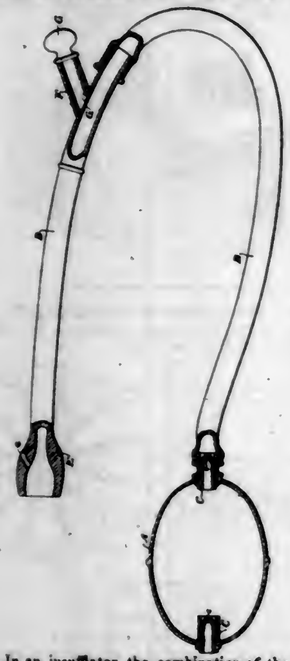
Claim.—1. A device for operating the levers of vehicle-brakes, consisting of two connected members, each member terminating in a socket, one socket being adapted to receive the back lever and the other socket the front lever of the brake, as and for the purpose specified.

2. A handle attachment for the levers of vehicle-brakes, the said attachment consisting of two connected members arranged one alongside of the other, one member being provided with a socket and fastening devices, the socket being adapted to receive the back lever of the brake, the other member of the handle having a loop formed thereon of such dimensions as to loosely receive the front lever of the brake, as and for the purpose specified.

3. A handle for vehicle-brake levers, consisting of two substantially parallel members having a flexible connection at the top, one of the members terminating in a socket provided with clamping devices, the said socket being adapted to receive a brake-lever connected with the brake-shoes, and the other member of the attachment terminating in a loop adapted to receive the lever of the brake operating the locking device, the said loop being of such dimensions as to fit loosely on the lock-lever of the brake, as and for the purpose specified.

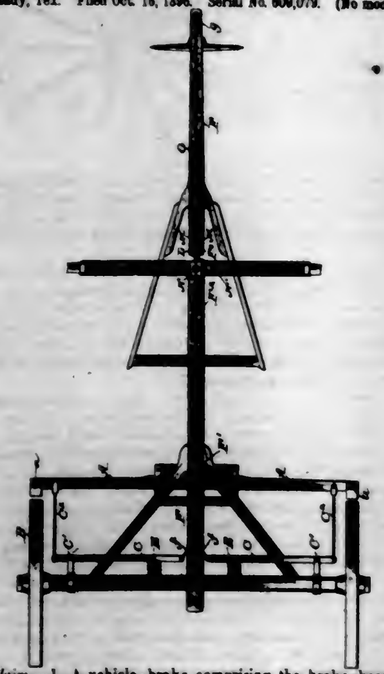
4. In a vehicle-brake, the combination, with the lever connected with the brake-shoes and the lever carrying the locking device for the brake, of an extension-handle comprising two members connected at the top, one member terminating in a socket provided with clamping devices, the said socket being arranged to receive the brake-lever connected with the brake-shoes, the other member of the extension-handle terminating in a loop which loosely receives the upper portion of the brake-lever carrying the locking device for the brake, as and for the purpose specified.

576,437. INSUFFLATOR. FRANCIS M. ELLIOTT, Aurora, Ill. Filed Apr. 1, 1896. Serial No. 585,818. (No model.)



Claim.—In an insufflator, the combination of the valved bulb, the tube connected therewith having a discharge-nozzle, the branch of said tube inclining inward and forward, and a removable, hollow stopper for said branch, substantially as and for the purpose specified.

576,438. AUTOMATIC WAGON-BRAKE. JOSEPH S. ELLIOTT, Eddy, Tex. Filed Oct. 16, 1896. Serial No. 609,079. (No model.)



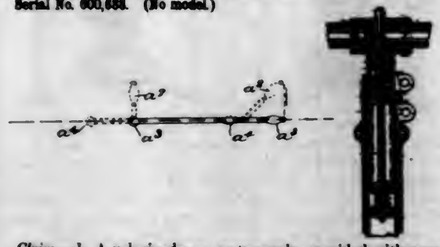
Claim.—1. A vehicle-brake comprising the brake-beam, the brake-setting rod having a bolt or projection, connections between said rod and the brake-beam, a stop consisting of the side arms united at their rear ends, pivotally supported at such end and curved upwardly at their forward ends in advance of the normal position of the bolt or projection of the brake-setting rod, and movable at such end upward into position for engagement by the said bolt whereby to limit the forward movement of the brake-setting rod, substantially as shown and described.

2. The combination of the vehicle-frame, the brake-beam, the brake-setting rod having a bolt or projection, a hook bracket or support secured to the vehicle, and a stop looped at its rear end and suspended on said hook and having side arms extended alongside the brake-setting rod, bent upwardly at their forward ends and movable at such ends into position for engagement by the bolt or projection on the rod all substantially as and for the purpose set forth.

3. In a brake substantially as described the combination of the brake devices, the brake-setting rod, or connection having lateral bolts or projections and movable longitudinally and the stop having side arms movable alongside the brake-setting rod in position to engage the pins or projections thereof substantially as shown and described.

4. In a brake substantially as described the combination of the brake devices, the brake-setting rod or connection movable forward in setting the brake and provided with a bolt or projection and a stop movable into position to engage said bolt or projection and limit the forward movement of said rod or connection substantially as shown and described.

576,439. VELOCIPEDE OR MOTOR-CYCLE. JOHN R. EVERED and DEMOSTHENES G. PAPPA, London, England. Filed July 27, 1896. Serial No. 600,683. (No model.)



Claim.—1. A velocipede, or motor-cycle, provided with means for turning its handle-bar so as to cause it to lie lengthwise of the machine with the handles in a vertical or nearly vertical position and for enabling it to be pushed back through the T-piece, together with means for turning the pedals inward to cause them to be out of the way, and for disengaging them from the chain-wheel, substantially as described.

2. In a velocipede, or motor-cycle, the combination of a handle-bar rotatably mounted in a T-piece, a clutch, one part of which is secured to said T-piece, and the other part to the steering-post of the front wheel, a spring for holding the parts of said clutch in engagement and means for preventing rotation of said handle-bar relatively to the T-piece, while said clutch is in engagement, substantially as described.

3. In a velocipede, or motor-cycle, the combination of a handle-bar, a T-piece carrying the same, a spring-clutch for engaging said T-piece with the steering-post of the front wheel, a fixed rod or pin secured in said steering-post and engaging in holes in said handle-bar, means for locking the rod and T-piece together, and means for permitting endwise movement of said handle-bar through the collar of said T-piece, substantially as described.

4. In a velocipede, or motor-cycle, the combination of a handle-bar, a T-piece carrying the same, a spring-clutch connection between said T-piece and the steering-post of the front wheel, means for locking said handle-bar against rotation while the clutch is in engagement, a sleeve on said handle-bar fitting in said T-piece, and a pin-and-groove detachable connection between said T-piece and sleeve, substantially as described.

5. In a velocipede, or motor-cycle, the combination of a handle-bar, a T-piece carrying the same, a spring-clutch for engaging said T-piece with the steering-post of the front wheel, a fixed rod or pin secured on said steering-post and engaging holes in said handle-bar, an internally-screw-threaded ring in rotary connection with the movable part of the clutch and adapted to engage a screw-thread on the fixed part of said clutch, substantially as described.

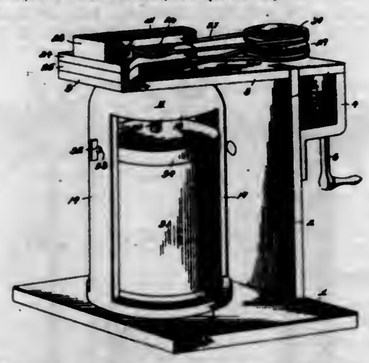
6. In a velocipede, or motor-cycle, the combination of a pedal-crank, a pedal hinged or pivoted to said crank, a chain-wheel mounted loose on the axle of such pedal-crank, and a locking-lever pivoted on the crank and serving both to lock the pedal, and also to form a movable connection between the crank and chain-wheel, substantially as described.

7. In a velocipede, or motor-cycle, the combination of a pedal-crank, a pivoted pedal, a chain-wheel mounted loose on the axle of such pedal-crank, a locking-lever in a groove or recess on the inner side of said crank, adapted to engage said wheel near the rim thereof, and a boss on the pedal pin or spindle to engage said locking-lever and prevent the pedals turning under the strain of pedaling, substantially as described.

8. In a velocipede, or motor-cycle, the combination of a pedal-crank having a forked extremity, a pedal having its pin or spindle pivotally mounted in said forked extremity, a pivoted locking-lever carried by said crank, and a spring acting on said locking-lever and tending to keep it in the working position, substantially as described.

9. In a velocipede, or motor-cycle, the combination of a pedal-crank having a forked extremity, a pedal having its pin or spindle pivotally mounted in said forked extremity, a pivoted locking-lever carried by said crank, a spring acting on said locking-lever and tending to keep it in the working position, and a removable spring-pin for securing it in such working position, substantially as described.

576,440. CHURN. JOSEPH BYERHARD, Round Rock, Tex. Filed Jan. 19, 1895. Serial No. 535,504. (No model.)



Claim.—In a churn, the combination with a stationary supporting-frame having a lower base portion, and an upper bearing 18, of a rotary frame permanently mounted within the stationary frame and having a base-disk provided with a depending trunnion stepped in the base portion of the stationary frame, and opposite open sides to permit of the ready introduction and removal of an ordinary receptacle adapted to be seated upon and to turn with the base-disk, said rotary frame also having an upper cap portion 13 provided with an integral centrally-located tubular trunnion 17, turning in the bearing 18 of the stationary frame, and a horizontal pulley 19, formed on the upper side of and integral with said trunnion, fastening means for securing the receptacle within the rotary frame so that it will turn therewith, suitable gearing having a belt connection with said pulley 19, and a suitably-operated dasher-staff having a bearing in the tubular trunnion 17 of the rotary frame, substantially as set forth.

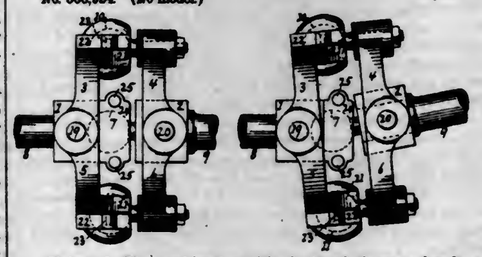
576,441. NASAL EXPANDER. GEORGE B. FARMER, Perth, Canada. Filed June 5, 1896. Serial No. 594,395. (No model.)



Claim.—1. A nasal expander, comprising a spring-yoke, and suction-cups secured to the ends of the yoke, with their concavities facing in opposite directions, said cups having flexible rims and adapted to engage the inner surfaces of the nasal wings, substantially as described.

2. A nasal expander, comprising a yoke made of a piece of spring-wire bent in U form, and suction-cups secured to the ends of the said yoke with their concavities facing in opposite directions, each suction-cup being formed with a hard center and an annular flexible rim, substantially as shown and described.

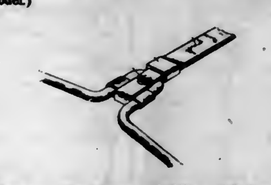
576,442. OPERATING MECHANISM FOR PRINTING-PRESSES. GEORGE P. FERRIS, New London, Conn. Filed Apr. 24, 1896. Serial No. 588,924. (No model.)



Claim.—1. The combination with shafts, of pieces or heads secured to the shafts, links for jointing said heads together, and a swinging bell-crank support for one of the shafts, said support having one of its arms provided with bearings for its shaft and having the other arm journaled or rotatively supported substantially as described.

2. A joint comprising shafts 8 and 9, heads 1 and 2 rigidly fixed to the respective shafts, and two pairs of links, one pair being jointed to and oppositely extended from each head, said links having forked ends and blocks pivoted in said forked ends for uniting the links of each head to those of the other head substantially as described.

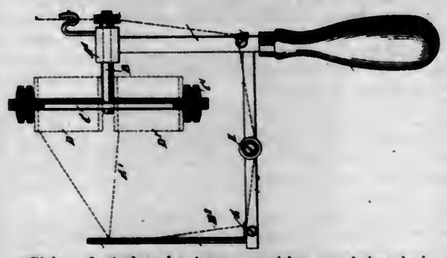
576,443. BLINKER-BRACE FOR BRIDLES. AUGUST FOSS, Buffalo Center, Iowa. Filed Oct. 12, 1896. Serial No. 608,614. (No model.)



Claim.—1. In a harness-bridle, a blinker-brace deflected intermediate of its ends to form a loop, a band encircling the loop, a billet folded about the band and closed end of the loop, and a fastening connecting the parts of the billet and coming between the closed end of the loop and the said band, substantially as set forth.

2. In a harness-bridle, a blinker-brace having a loop intermediate of its ends, a band encircling the loop, a billet folded about the band and closed end of the loop, a fastening connecting the side pieces of the billet at a point intermediate of the closed end of the loop and the band, and a keeper adapted to slide upon the side portions of the billet and hold them together above the aforesaid loop, substantially as and for the purpose set forth.

576,444. BOBBIN THREAD-TWISTER. EDWARD C. GERSTENBERGER, Brooklyn, N. Y. Filed Sept. 15, 1896. Serial No. 605,896. (No model.)



Claim.—1. A thread-twister comprising a twisting device and means for actuating the said device through the medium of the twisted thread, substantially as shown and described.

2. A thread-twister provided with a twisting device actuated by the twisted thread and comprising a spool-carrier and a twisting-eye, substantially as described.

3. A bobbin thread-twister, comprising an arm mounted to revolve and adapted to carry the spools, a fixed eye for gathering the threads from the spools, and a driving device for the said arm and actuated by the twisted thread, substantially as shown and described.

4. A bobbin thread-twister, comprising an arm mounted to revolve and adapted to carry the spools, a fixed eye for gathering the

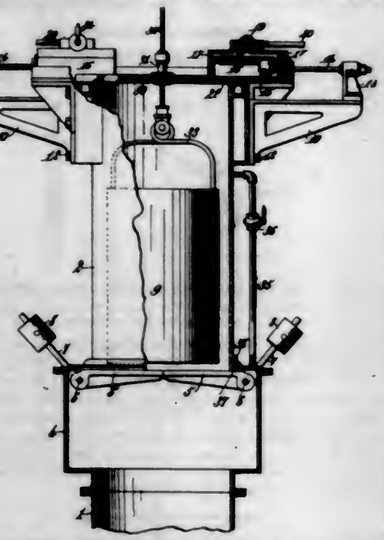
threads from the said spools, and a pulley secured on the shaft for the said arm and engaged by the twisted thread formed by the threads from the said spools, substantially as shown and described.

5. A bobbin thread-twister, comprising an arm mounted to revolve and adapted to carry the spools, a fixed eye for gathering the threads from the said spools, a pulley secured on the shaft for the said arm and engaged by the twisted thread formed by the threads from the said spools, and a guiding device for the said twisted thread from the eye to the pulley, substantially as shown and described.

6. A bobbin thread-twister, comprising an arm mounted to revolve and adapted to carry the spools, a fixed eye for gathering the threads from the said spools, a pulley secured on the shaft for the said arm and engaged by the twisted thread formed by the threads from the said spools, a guiding device for the said twisted thread from the eye to the pulley, and a friction device for the said twisted thread between the eye and the pulley, substantially as shown and described.

7. A bobbin thread-twister, comprising a frame, an arm journaled in the said frame and carrying a pulley engaged by the twisted thread, an arm removably secured to the said shaft, and L-shaped arms pivoted on the free ends of the said arm and adapted to carry the spools, substantially as shown and described.

576,445. AIR-LOCK FOR CAISSONS, &c. RICHARD S. GILLESPIE, New York, N. Y. Filed July 20, 1896. Serial No. 599,933. (No model.)



Claim.—1. The combination with an air-lock casing having guides at its top portion, and doors slidable in engagement with said guides, of cylinders mounted upon the exterior of the doors outside the air-lock, stationary piston-rods held rigid outside the air-lock and having pistons arranged in said cylinders, and pipe connections for supplying a working fluid to the cylinders at either side of the fixed pistons to slide the cylinders longitudinally and thereby open or close the doors, substantially as described.

2. The combination with an air-lock casing, having guides at its top portion, of slidable doors or valves having cylinders mounted on and secured to their upper sides and sliding back and forth therewith, stationary pistons arranged in the cylinders, and a cross-bar adapted to lie between and against which the doors or valves close, substantially as described.

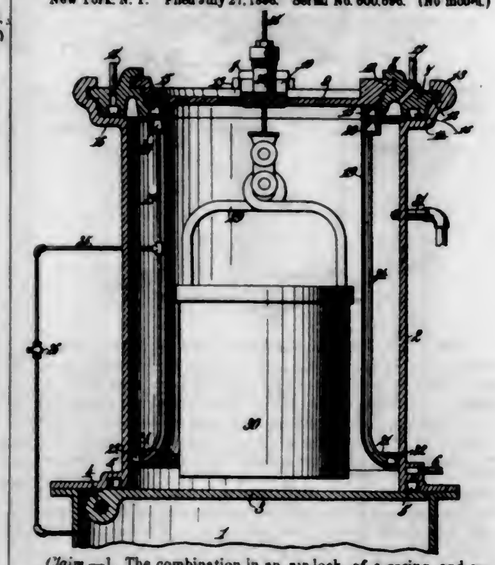
3. The combination with an air-lock casing, having guides at its top portion, of doors or valves slidable in engagement with said guides, and having cylinders mounted thereupon, fixed thereto, and sliding therewith, a cross bar or plate adapted to lie between and against which the doors close, and a stuffing-box mounted on the cross bar or plate and through which the bucket-hoisting cable extends, substantially as described.

4. The combination with an air-lock casing, having guides at its top portion, of doors or valves slidable in engagement with said guides and having cylinders mounted thereupon, fixed thereto, and sliding therewith, stationary pistons arranged in the cylinders, means for supplying a working fluid to either side of the fixed pistons to slide the cylinders and thereby open or close the doors, a bucket-hoisting cable, and a cross bar or plate swiveled on the cable and against opposite sides of which the doors or valves close when the cylinders are slid toward each other, substantially as described.

5. The combination with an air-lock casing, having upper and lower opening and closing doors, of an annular expansible packing-ring inserted into the lower portion of the air-lock casing to form an air-tight joint with the lower doors or valves when they are closed, and means for introducing a fluid into said ring to expand the same, substantially as described.

6. The combination with an air-lock casing, having parallel guides 22, 23, 25 and 26, and segmental guides 27 and 28, at its top portion, of doors or valves slidable in engagement with said parallel guides, and having cylinders mounted thereupon, fixed thereto, and sliding therewith, a cross bar or plate for engaging the segmental guides, brackets or supports extending from and rigidly connected to the upper portion of the casing, stationary piston-rods connected with and supported by said brackets or supports, pistons fixed to the inner ends of the piston-rods and arranged in the cylinders, and means for supplying a working fluid to the cylinders at either side of the fixed pistons to slide the cylinders longitudinally and thereby open or close the doors or valves, substantially as described.

576,446. AIR-LOCK FOR CAISSONS, &c. RICHARD S. GILLESPIE, New York, N. Y. Filed July 27, 1896. Serial No. 600,696. (No model.)



Claim.—1. The combination in an air-lock, of a casing, and an opening and closing door, one of the parts having an annular groove, with a continuous packing-ring arranged in said groove, seated against the opposite walls of the same so that a solid annular part will effect the air-tight closure of the door, and a fluid-conveying channel leading to said continuous packing-ring introducing a fluid which uniformly expands the said solid annular part of the packing-ring to secure an air-tight joint between the casing and the door, substantially as described.

2. The combination in an air-lock, of a casing, and a removable and replaceable door constructed to enter into and fit the upper end of said casing, one of the parts being constructed with an annular groove, with a continuous packing-ring arranged in said groove, seated against the opposite walls of the same so that a solid annular part will effect an air-tight closure of the door, and a fluid-conveying channel for introducing a fluid which uniformly expands the said annular solid part of the packing-ring and secures an air-tight joint between the air-lock casing and the door inserted thereinto, substantially as described.

3. The combination with the door or cover and the casing of an air-lock mounted on a caisson or tunneling apparatus, of a packing interposed between the door or cover and the casing, and a fluid-conveying channel or conduit supplied from the interior of the caisson or tunneling apparatus and leading to the said packing for causing the fluid under pressure to act directly against the packing, substantially as described.

4. The combination with an air-lock casing having upper and lower opening and closing doors, of a lining inserted into the interior of the casing between said upper and lower doors and having its upper and lower ends connected air-tight with top and bottom portions of said casing, for diminishing the bucket-space and reducing the loss or waste of compressed air when the air-lock is opened at its upper end, substantially as described.

5. The combination with an air-lock casing having upper and lower opening and closing doors, of a lining inserted into said casing between said upper and lower doors and having its upper and lower ends provided with packings which make air-tight connections with upper and lower portions of said casing, for diminishing the bucket-space and reducing the loss or waste of compressed air when the air-lock is opened at its upper end, substantially as described.

6. The combination with an air-lock casing having upper and lower opening and closing doors, of a lining inserted into the interior of the casing for diminishing the bucket-space thereof, and having its upper and lower ends connected air-tight with top and bottom portions of said casing, and thereby reducing the loss or waste of compressed air when the air-lock is opened, and packings arranged at the upper and lower ends of said lining to prevent the passage of compressed air into the space between the lining and the air-lock casing, substantially as described.

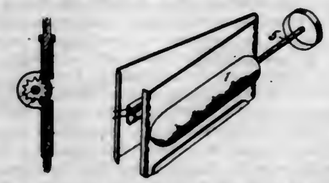
7. The combination with the casing of an air-lock, of a lining provided at its upper and lower ends with packings and inserted into said casing to reduce the bucket-space thereof, and means for introducing a fluid under pressure to said packings for pressing the same against parts of the air-lock to prevent the passage of air into the space between the lining and the air-lock casing, substantially as described.

8. The combination with an air-lock casing, of a cylindrical lining arranged therein and provided at its upper and lower ends with expansible packings, whereby the bucket-space of the air-lock is diminished, loss or waste of compressed air is reduced, and the passage of compressed air into the space between the lining and the casing is avoided, substantially as described.

9. The combination with an air-lock casing having upper and lower opening and closing doors, of a lining inserted into the casing to reduce the bucket-space and having air-tight connections with the top door and with the internal surface of the casing, substantially as described.

10. The combination with an air-lock casing, of a ring-shaped frame detachably engaged with the upper end of the casing, a cover-plate detachably engaged with the ring-shaped frame, and expansible packings for securing air-tight connections between the casing and the ring-shaped frame and between said frame and the cover-plate, substantially as described.

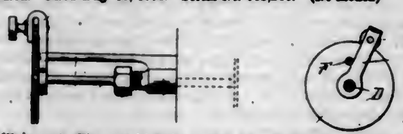
576,447. WICK-TUBE. FRANK P. GLASIER, Chelsea, Mich. Filed Feb. 24, 1896. Serial No. 580,473. (No model.)



Claim.—1. A wick-tube consisting of a singe piece of metal bent to form a tube one section having the longitudinal housing 1, and the directly opposite side section being bent inward parallel with the housing to form an inwardly-extending longitudinal rib, and a wick-raiser between the housing and rib, substantially as set forth.

2. A wick-tube comprising two flat sides, one of which has a longitudinal depression in its inner face, and the directly opposite side section having longitudinal flanges bent up from the metal of the side and arranged parallel with the depression, and a wick-raiser interposed between the depression and the flanges, substantially as set forth.

576,448. WICK-RAISING DEVICE. FRANK P. GLASIER, Chelsea, Mich. Filed Aug. 19, 1896. Serial No. 603,206. (No model.)

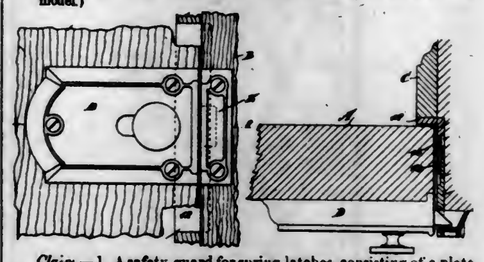


Claim.—1. The combination with the wick-raising shaft and its wheel, of a stop, an arm provided with a U-shaped end portion the legs of which engage the wheel on opposite sides and a screw for clamping said end portion upon the wheel, said arm adapted to engage said stop.

2. The combination with the wick-raising shaft and its wheel of a stop projecting in proximity to the wheel, an arm loose on the shaft in the path of the stop and means for securing it to the wheel, to stop the rotation of the shaft at any desired point.

3. The combination with the wick-raising shaft and its wheel, of a stop projecting in proximity to the wheel, an arm loose on the shaft in the path of the stop, a U-shaped end portion on the arm embracing the wheel, and a screw for clamping this end portion upon the wheel for the purpose described.

576,449. SAFETY-GUARD FOR SPRING-LOCKS. MAX B. GUENTHER, New York, N. Y. Filed Nov. 10, 1896. Serial No. 611,618. (No model.)

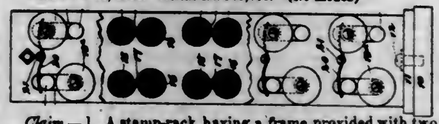


Claim.—1. A safety-guard for spring-latches, consisting of a plate adapted for attachment to a door-jamb and provided with a flange adapted for engagement with the stop-bead of the jamb, and a keeper provided with a face-plate on which the said safety-guard is adjustable, whereby the device may be readily adapted to doors of different thicknesses, as and for the purpose set forth.

2. The combination with the keeper of a lock, the said keeper being provided with a recessed face-plate, of a guard-plate provided with a flange at one of its edges and a recessed extension at the side of the plate opposite that at which the flange is located, the said recessed extension being adapted for engagement with the recessed portion of the face-plate of the keeper, as and for the purpose set forth.

3. The combination, with the keeper of a lock, the said keeper being provided with a face-plate projected from one of its sides, which face-plate is recessed longitudinally at the front and provided with series of apertures at each side of its center, of a safety-guard consisting of a plate provided with a flange at one of its sides, standing at a right angle to the body of the plate and provided at its opposite side with an extension recessed on the back, the said extension being adapted for engagement with the recessed portion of the face-plate of the keeper, the extension of the safety guard-plate being likewise provided with openings adapted to register with the series of openings in the face-plate of the keeper, the front and back of the keeper being in substantially the same plane as the front and the back of the guard-plate, as and for the purpose set forth.

576,450. STAMP-RACK. DAVID S HAINES, Sandy Hill, N. Y. Filed Feb. 18, 1896. Serial No. 579,709. (No model.)



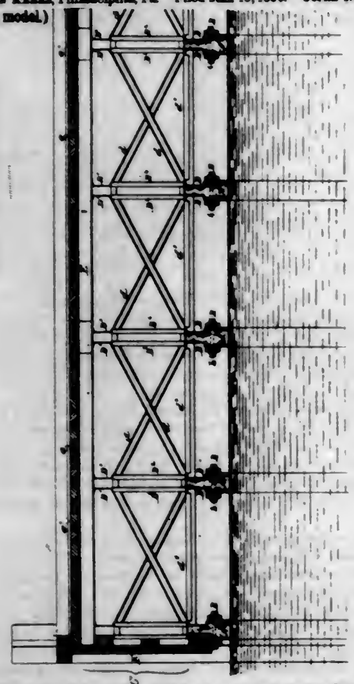
Claim.—1. A stamp-rack having a frame provided with two uprights, each formed with two vertical slots horizontally alined with each other, two pairs of rollers extending horizontally across from one upright to the other and having trunnions received within the slots, each slot receiving two trunnions, a spring secured at an intermediate point to each upright, each spring having its ends free and having such ends bearing on the trunnions of the two upper rollers, and an apron oppositely wound over the rollers, substantially as described.

2. A stamp-rack having a frame provided with two uprights, each having two vertical slots horizontally alined with each other, two pairs of rollers extending horizontally from one upright to the other and having their trunnions journaled in the slots, each slot receiving two trunnions, a knob secured to one trunnion of each roller by which the rollers may be turned, a spring for each upright, each spring being secured to the respective uprights at an intermediate point on the spring and the terminals of the springs being free and bearing downwardly upon the trunnions of the upper rollers, and an apron oppositely wound over the rollers, substantially as described.

3. A stamp-rack having a frame provided with two uprights, each formed with two vertical slots, all of the slots being horizontally

alined, two pairs of rollers extending horizontally from one upright to the other and having their trunnions journaled in the slots, two trunnions being received in each slot and the trunnions being projected beyond the respective uprights, two springs respectively secured to the outer sides of the uprights and having their terminals free and respectively bearing on the trunnions of the two upper rollers, and aprons oppositely wound on the rollers, substantially as described.

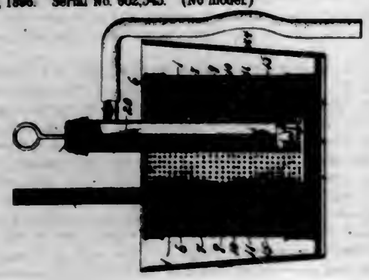
576,451. WHARF STRUCTURE. WILLIAM W. HARRISON and JOHN KERRS, Philadelphia, Pa. Filed Jan. 15, 1896. Serial No. 575,579. (No model.)



Claim.—1. The combination in a pier structure of a series of wooden piles extending to or slightly above low water, said piles being arranged in rows, the heads of the piles being reduced, metallic beams secured to the reduced portion of the heads of the piles, metallic standards extending from said beams, the upper beams mounted on said standards and forming a support for the floor above high water and braces for the metallic structure thus formed, substantially as described.

2. The combination of the piles, extending to or slightly above low water, wooden stringers extending from one pile to the other and firmly secured to the several piles, the heads of the piles being reduced, metallic beams secured to the reduced portion of the heads of the piles, metallic standards extending from said beams, the upper beams mounted on said standards and forming a support for the floor above high water and braces for the metallic structure thus formed, substantially as described.

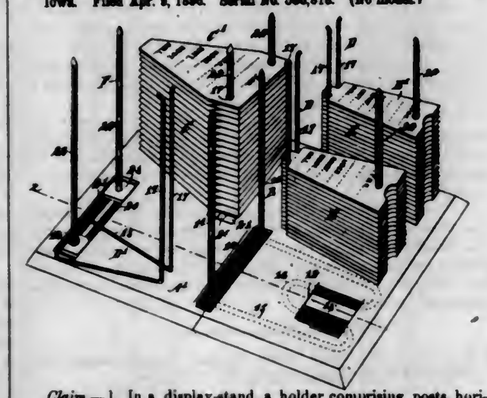
576,452. WATER-FILTER. JOHN W. HART, Guthrie, Okla., assignor to John McBrine and Frank W. Hewit, same place. Filed Aug. 12, 1896. Serial No. 602,545. (No model.)



Claim.—1. A filtering apparatus having an interiorly accessible shell or casing, inner and outer concentric walls arranged at intervals, a filtered-water chamber arranged within and concentric with the inner wall, filtering mediums interposed between said walls and between the shell and filtered-water chamber and said walls, and means for withdrawing the contents of the chamber, said inner and outer walls and the body portion of the shell or casing being detachably secured to the top or cover of said shell or casing, to provide for exposing the spaces between the parts or members of the apparatus, substantially as specified.

2. A filtering apparatus having an exterior shell or casing comprising a cylindrical body portion and top and bottom caps connected by bayonet-joints with said cylindrical body portion, a concentric inclosed filtered-water chamber secured to and carried by the top cap, inner and outer walls interposed between the filtered-water chamber and the shell or casing and provided at their upper edges with lateral ears engaging open-sided clips or keepers on the under surface of the top cap, whereby the engagement and disengagement of said cap with the inner and outer walls are accomplished by rotary movement thereof, a bail or handle rising from the top cap to facilitate the submersion of the shell or casing in a receptacle, and a siphon having one leg arranged within the filtered-water chamber, substantially as specified.

576,453. DISPLAY-STAND. DANIEL HENDERSON, Kingsley, Iowa. Filed Apr. 9, 1896. Serial No. 586,818. (No model.)



Claim.—1. In a display-stand, a holder comprising posts, horizontal spring-arms connecting the posts, and a support to which the arms are attached and on which the posts have movement to and from each other, substantially as shown and described.

2. In a display-stand, the combination, with a support having openings therein at angles to one another, and flanges formed at the sides of the openings below the plane of the upper surface of the support, of a holder constructed of spring material and comprising parallel posts extending out through one of the openings in the said support, engaging with the flange of the same, horizontal base-arms extended from the base beneath the support, and an arched connection between the said arms, the members of the connecting-arch being supported by the flanges formed at the second openings in the support, as and for the purpose specified.

3. In a display-stand, the combination, with a standard, of a holder connected therewith, comprising a base-section and standards projected upward in parallel lines from one end of the base-section in front of the said standard, the holder being constructed of a spring material, and capable with the posts of holding ledger-plates, substantially as described.

4. A display-stand having a support a post carried by the support, and a holder having two upright rods and a triangular bottom portion, the bottom portion having an eye at the point opposite the rods and the eye receiving the post, substantially as described.

5. A display-stand having a support formed with two slots extending angularly to each other, one slot being adjacent to two flanges on the support, the flanges being extended below the support, and a holder having two posts and also having a base provided with two side portions to which the posts are respectively connected, the side portions of the base being joined by a curved or arched portion held by the flanges, substantially as described.

6. A display-stand having a supporting-post rising from the support and a holder having a base pivotally connected to the post, the holder also having two posts rising from the base, substantially as described.

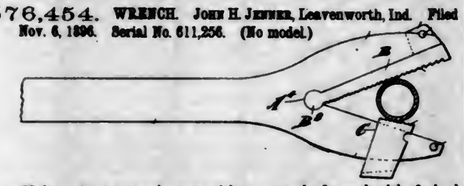
7. A display-stand having a support, a post adjustable horizontally on the support, and a holder having a base pivotally connected with the post and having two posts rising therefrom, substantially as described.

8. A display-stand having a support, a post rising from the support, and a holder having a base provided with an eye loosely receiving the post, and two posts rising from the base, substantially as described.

9. A display-stand having a support formed with a slot, the edges of which are bent to form two flanges extending out from the support, and a holder having a post and also having a base, the base having two connected side portions and the side portions being respectively embraced and held by the flanges, substantially as described.

10. A display-stand having a support formed with a slot, the material at the edges of the slot being bent outwardly to form a groove, a collar having plane sides and snugly fitting and slidable within the groove, the collar being incapable of turning in the groove, a post fixed to the collar and movable with the same, the post being extended through the slot, and a nut on the side of the support opposite the collar and cooperating with the post to clamp the same with the support, substantially as described.

576,454. WRENCH. JOHN H. JENNER, Leavenworth, Ind. Filed Nov. 6, 1896. Serial No. 611,256. (No model.)



Claim.—1. A wrench, comprising a stock formed with forked members, a jaw removably held on one of the said members, and a second jaw in the form of a casing loosely mounted to slide upon the other member and having its gripping-face inclined toward the inner end thereof, substantially as shown and described.

2. A wrench, comprising the stock formed with forked members, a jaw formed at its inner end with an offset arranged to fit in a correspondingly-shaped recess in the stock at the apices of the forked members and at its outer end with a lug received in a recess in one of said members, a pin inserted through apertures in the aforesaid member and in said lug, and a second jaw in the form of a casing mounted to slide on the other member of the stock which is provided at its forward end with a pin arranged to limit the outward movement of the said jaw, as and for the purpose described.

576,455. FENCE-STAPLE. FREDERICK JOHNSON, Washington D. C. Filed Dec. 18, 1896. Serial No. 616,171. (No model.)



Claim.—1. A wire fastener consisting of a single strand of wire bent to form a bifurcated head, each arm of the bifurcated head being formed with a bearing, substantially as described.

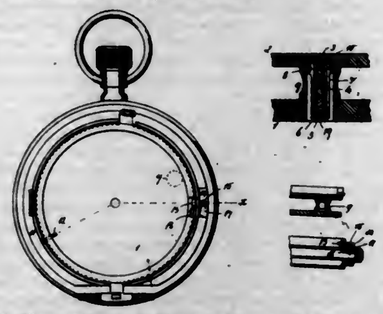
2. A wire-fastener consisting of a single strand of wire bent to form a bifurcated head and two separated shanks, each arm of the bifurcated head being formed with a bearing, substantially as described.

3. A wire-fastener consisting of a single strand of wire bent to form a bifurcated head, and two bearings, one of the bearings extending above the plane of the head from one arm thereof and the other extending below the plane of the head from the opposite arm thereof, substantially as described.

576,456. WATCH-PLATE. DAVID KAMERMAN, New York, N. Y. Filed July 9, 1896. Serial No. 598,583. (No model.)

Claim.—1. In a watch, the combination with the front and back frame-plates, 1 and 2 one of said plates as 2, being recessed and the other plate as 1, having a corresponding aperture, as shown, of an open-ended sleeve 9 secured at one end in the aperture in plate 1 and provided at its other end with an internal shoulder 8, a tapered stem 4 tapped at one end in the recessed portion of the plate 2 and nicked at its other end for engagement by a tool, a split tube 7 secured at one end on the free end of the stem and provided at its other end with a circumferential groove which is engaged by the shoulder 8, the free end of said tube projecting into the recess in the plate 2 and the free end of the sleeve 9 bearing against the face of said plate whereby the said frame-plates are held fixed at a determined distance apart, substantially as described.

2. In a watch, the combination with the front and back frame-plates 1 and 2, one of said plates, as 2, being recessed, and the other plate, as 1, having a corresponding aperture, as shown, of an open-ended sleeve 9 secured at one end in the aperture in plate 1 and provided at its other end with an internal shoulder 8, a tapered stem 4 tapped at one end in the recessed portion of the plate 2 and provided with a flange 10 seating firmly against the bottom of said recess, a split tube 7 secured at one end on the free end of the stem and provided at its other end with a circumferential groove which is engaged by the shoulder 8, the free end of said tube projecting into the recess in the plate 2, and the free end of the sleeve 9 bearing against the face of said plate whereby the plates are held fixed at a determined distance apart, substantially as described.



3. The combination with a watchcase having a case-center provided with a slitted face 11, of two slides 14 16 respectively disposed on the opposite sides of said face and connected by a stem 15 extended through said slit, a projection 13 formed on one of said slides, and a frame-plate provided with a pin 12 adapted to fit a corresponding recess formed in the face 11 and also provided with a peripheral recess 18 arranged to permit said frame-plates being slipped over the projection 13, said projection when the slides 14 16 are moved in the proper direction, extending over the edge of the frame-plate and operating to lock the latter in place, substantially as described.

576,457. SHOW-STAND. HENRY KLEIN, New Lexington, Ohio. Filed July 24, 1896. Serial No. 600,340. (No model.)



Claim.—The show-stand for curtain-shades, herein described, consisting of the approximately circular base and top, the radiating partitions extending between said base and top and forming a series of triangular compartments provided at their upper ends with front plates closing their outer sides and the doors hinged at one edge and adapted to close the outer sides of the compartments at their lower ends all substantially as described whereby the shades will be prevented from tipping or falling out of the compartments when they are entirely or partially filled, substantially as described and shown.

576,458. WEATHER-STRIP. ELI KOCH, Harrisburg, Pa. Filed Sept. 18, 1896. Serial No. 606,294. (No model.)

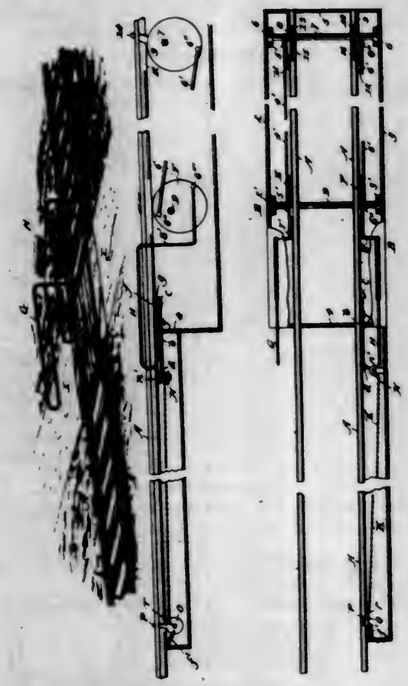


Claim.—1. A weather-strip for attachment to the outer face of a door consisting of a molding having its under edge recessed to form a housing, a sliding and tilting strip hinged thereto, said strip held normally with its lower edge tilted and its end projecting beyond the end of the housing wherein it is supported, by a coiled spring having one of its ends supported diagonally in said housing and its opposite end secured diagonally in said strip, substantially as shown and described.

2. A weather-strip, for attachment to the outer face of a door, consisting of a molding recessed on its lower edge to form a housing, a sliding and tilting strip secured thereto by hinges formed with spaces between the knuckles on the pintles of said hinges to permit of a sliding motion; said strip held normally tilted and with one of its ends projecting beyond the end of said molding by a coiled spring having its ends supported in diagonal apertures in said molding and said strip, a projection in one end of said strip adapted to engage with the casing to which said door is hinged, and a catch for attachment to the opposite casing to engage with the end of said strip at the free edge of said door, substantially as shown and described.

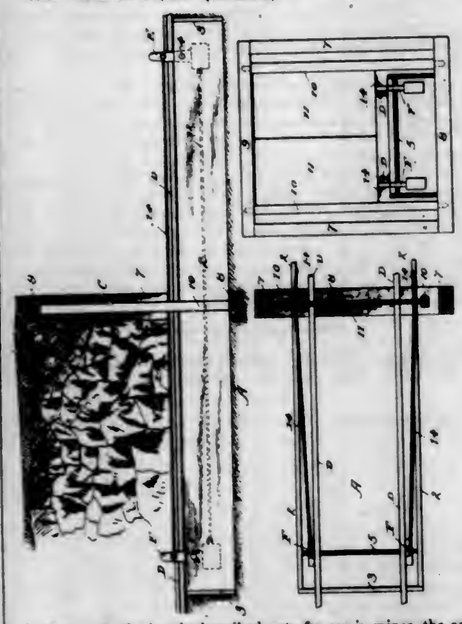
3. In a weather-strip for double doors, the combination with moldings for attachment to the outer face of the doors, said moldings recessed to form housings, of a tilting strip hinged to one of the moldings and a tilting and longitudinally-sliding strip hinged to the other of said moldings, said sliding strip held normally tilted and with one of its ends projecting beyond one of the ends of the molding to which said strip is hinged by a coiled spring having each of its ends resting in diagonal apertures in the edge of said strip and said molding, said tilting strip held normally tilted by a coiled spring resting in apertures in said strip and the edge of said molding, a draw-bar pivotally secured to said tilting strip and provided with means to engage with the edge of the door-sill to draw the lower edge of said strip in contact therewith, and means attached to said tilting strip to engage said tilting and longitudinally-sliding strip to depress it when the door is closed, substantially as shown and described.

576,459. AUTOMATIC RAILWAY-GATE. GEORGE G. LEWIS, Athens, Ohio. Filed July 27, 1896. Serial No. 600,703. (No model.)



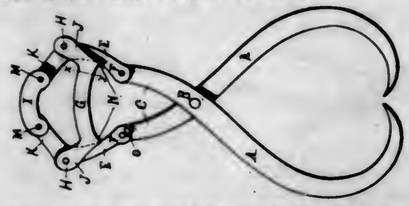
Claim.—A railway-gate comprising the shaft D, provided with the eccentrically-mounted disks E and F, the shaft 7 provided with the eccentrically-mounted disks 8 and 9 having radial arms 13 and 14, the rods 4' and 6' connecting said disks, in combination with the gate G H formed with bent arms 7' 8' pivoted to said disks D and E, the spring-catch J, the chain K, and the disk O provided with radial projecting arm *p*, substantially as shown and described.

576,460. GATE. GEORGE G. LEWIS, Athens, Ohio. Filed Nov. 5, 1896. Serial No. 611,148. (No model.)



Claim.—In the herein-described gate for use in mines, the combination with a casing, shafts journaled therein, rails, levers keyed to said shafts and situated on each side of the said rails, connecting-rod 12, connecting the bottom of the said levers, a casing situated in the mine, upright shafts journaled in said casing, gates secured to said shafts, connecting-rods 14 connecting the upper ends of the said levers and the gate, substantially as set forth.

576,461. ICE-TONGS. WILLIAM LOUDEN, Fairfield, Iowa. Filed Mar. 18, 1896. Serial No. 583,829. (No model.)



Claim.—1. The combination of a handle, substantially horizontal in position levers centrally pivoted to the opposite ends of said handle, tines pivoted together and their upper ends pivoted to the lower ends of the levers, and a pressure-bar connected to the upper ends of the levers above the handle so as to spread apart the lower ends of the levers and open the tines, substantially as described.

2. The combination of a handle having forked ends, levers pivoted in said forked ends, tines pivoted together and their upper ends pivoted to the lower ends of the levers, and a pressure-bar connected to the upper ends of the levers so as to spread apart the lower ends of the levers and open the tines, substantially as described.

3. The combination of a handle having forked ends and a central part semicircular in cross-section, levers pivoted in said forked ends, tines pivoted together and their upper ends pivoted to the lower ends of the levers, and a pressure-bar connected to the upper ends of the levers so as to spread apart the lower ends of the levers and open the tines, substantially as described.

4. The combination of a handle having upwardly-extending ends, levers centrally pivoted to said upwardly-extended ends, tines pivoted together and their upper ends pivoted to the lower ends of the levers, the upper ends of the levers being inwardly extended so that a downward pressure thereon will spread apart their lower ends and open the tines, substantially as described.

5. The combination of a handle having forked and upwardly-extended ends, levers pivoted in said ends, tines pivoted together and their upper ends pivoted to the lower ends of the levers, the upper ends of the levers being inwardly extended so that a downward pressure thereon will spread apart their lower ends and open the tines, substantially as described.

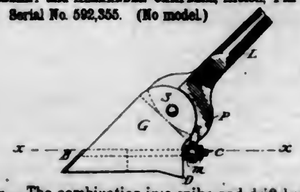
6. The combination of a handle having forked and upwardly-extended ends, and downwardly-extending portions N, levers pivoted in said forked ends and adapted to strike against the portions N, tines pivoted together and their upper ends pivoted to the lower ends of the levers, the upper ends of the levers being inwardly extended so that a downward pressure thereon will spread apart their lower ends and open the tines substantially as described.

7. The combination of a handle, levers pivoted to the ends of said handle, tines pivoted together and their upper ends pivoted to the lower ends of the levers, the upper ends of the levers being inwardly extended and a pressure-bar connected to said inwardly-extended ends by sliding pivots, substantially as described.

8. The combination of a handle, levers pivoted to the ends of said handle, tines pivoted together and their upper ends pivoted to the lower ends of the levers, the upper ends of the levers being inwardly extended and a pressure-bar adapted to fit over and pivotally connect said ends substantially as and for the purpose set forth.

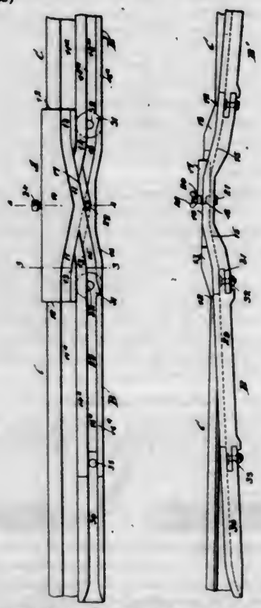
9. The combination of a handle having its lower edge rounded, levers pivoted to the ends of said handle, tines pivoted together and their upper ends pivoted to the lower ends of the levers, and a pressure-bar having its upper edge rounded and connected to the upper ends of the levers, substantially as described.

576,462. SPIKE AND DRIFT-BOLT PULLER. LAWRENCE C. LOUNSBERRY and ALEXANDER CAMPBELL, Albion, Fla. Filed May 20, 1896. Serial No. 592,355. (No model.)



Claim.—The combination in a spike and drift-bolt puller of the foot-piece G, made with the heel-piece D, fitted with converging jaws B which move in slots *y*, the converging jaws being connected to and operated by a lever L, which is pivotally connected to the foot-piece G.

576,463. DEVICE FOR REPLACING TRAM-CARS. JAMES H. MALONEY, New York, N. Y. Filed Aug. 13, 1896. Serial No. 602,606. (No model.)



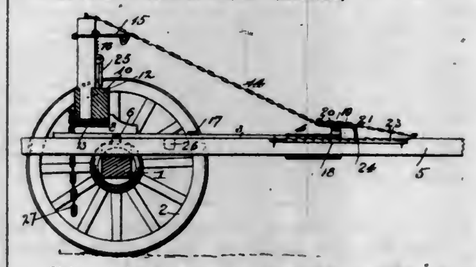
Claim.—1. A device for replacing cars on tracks, comprising a body having clamps for attachment to a rail and provided with a main channel extending through from end to end, collateral channels communicating with the main channel at each side of its center, and lateral or branch rails having a hinge connection with the end portions of the body, the said branch or lateral rails being capable of lateral movement and each branch rail being provided with a channel arranged for registry with the collateral channel in the body, substantially as shown and described.

2. A device for replacing cars on tracks, comprising a body having clamps for attachment to a rail and provided with a main channel extending through from end to end, collateral channels communicating with the main channel at each side of its center, and lateral or branch rails having a hinge connection with the end portions of the body, the said branch or lateral rails being capable of lateral movement and each branch rail being provided with a channel arranged for registry with the collateral channel in the body, a switch-tongue removably placed across one of the collateral channels at its connection with the main channel of the body, closing the lateral channel to which it is applied and forming a continuation of one side wall of the opposing collateral channel, as and for the purpose specified.

3. In a device for replacing cars upon tracks, a body-section provided with clamps for attachment to a rail and having its under face arranged to be supported on the rail, a portion of the body extending beyond the side of the rail, said body having a central table and its ends tapered to meet the rail to which the device is applied, the body being also provided in its main portion with a channel extending from end to end and in its projecting portion with collateral channels, communicating with the main channel near its center, and lateral rails or branches constructed in detachable sections and pivotally connected with the main section, each branch rail being capable of lateral movement and being provided with a channel communicating with a collateral channel on the main section, as and for the purpose specified.

4 In a device for replacing cars upon tracks, a body-section provided with clamps for attachment to a rail, and having its under face arranged to be supported on the rail, said body having a central table and its ends tapered to meet the rail to which the device is applied, the body being also provided in its main portion with a channel extending from end to end, and in its projecting portion with collateral channels, communicating with the main channel near its center, lateral rails or branches constructed in detachable sections and pivotally connected with the main section, each branch rail being capable of lateral movement and being provided with a channel communicating with a collateral channel on the main section, and a switch-tongue arranged to close either of the collateral channels where it communicates with the main channel of the body, as and for the purpose specified.

576,464. LOG-CART. ROBERT G. MOON, Village Mills, Tex. Filed June 29, 1896. Serial No. 597,421. (No model.)

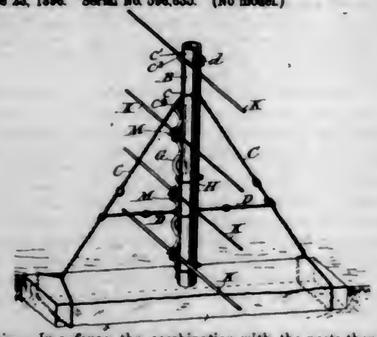


Claim.—1. In a log-cart, the combination, with the axle, the slidable tongue, the block, the trunnions and the bar, of the lugs secured to said tongue, the dog pivoted thereto having its front end bent downwardly, the roller journaled to the other end of said dog, the chain secured to said block, passing between said roller and pawl and pressing upon the front end of the dog and secured to the tongue, and the rack-bar secured to the tongue, substantially as described.

2. In a log-cart, the combination with the axle, the hounds, the slidable tongue having a slot therein, the block having trunnions eccentrically secured thereto, and the bar, of the chain secured to said bar and tongue, and the pin pivoted to said bar and adapted to engage with the slot in the tongue; substantially as described.

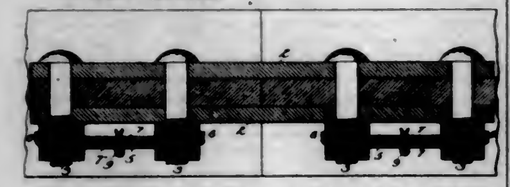
3. In a log-cart, the combination with the axle, the slidable tongue having a slot therein, the hounds, the plates connecting the hounds, the beams and boxes; the block having trunnions eccentrically secured thereto journaled in said boxes, the bar secured to said block having a pivoted pin and a spring-catch, the chain secured to said bar and tongue, the lugs, the pulley, the pivoted dog having its free end bent at an angle, and the rack-bar secured to the tongue; substantially as described.

576,465. FENCE-POST. JAMES M. MOORE, Waldron, Ind. Filed June 23, 1896. Serial No. 596,635. (No model.)



Claim.—In a fence, the combination with the posts thereof, of supporting-bases for said posts, perforations in said posts, stay-wires embracing the ends of the bases and passing through the perforations in the posts, crimped rods having their upper ends passing through perforations in the posts and clamped at their lower ends to the posts by wire clamps, cross-braces embracing the post, crimped rods and opposite sides of said stay-wires, clamping-wires passed around the crimped rod and adapted to secure the fence-wires to the same, and means for tensioning the bracing-wires.

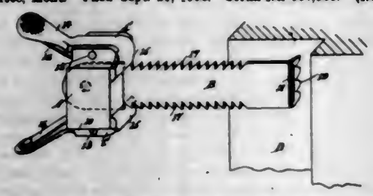
576,466. NUT-LOCK. PETER MCHUGH, Dyer, Tenn., assignor of one-half to Henry Luke Bigga, same place. Filed Sept. 4, 1896. Serial No. 604,870. (No model.)



Claim.—1. A nut-locking device and brace for a pair of bolts, consisting of the bolts, the double nuts on each bolt, a plate engaging the bolts between the nuts and having its ends engaging the outer sides of the inner nuts of each bolt and a U-shaped plate having one of its folded parts abutting against the inner nuts and the other abutting against the outer nuts on their walls between the bolts thereby forming, with the bolt-engaging plate, a lock for both nuts and a brace for the nutted ends of the bolts, as shown and described.

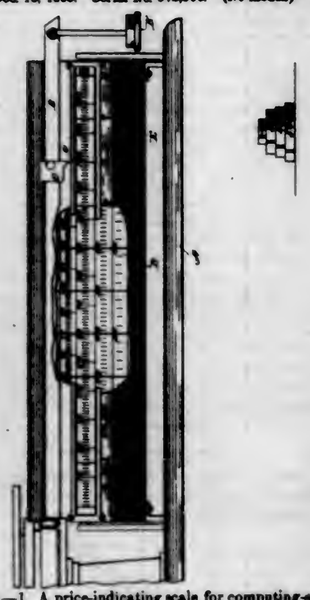
2. In a nut-lock, the combination with the rail and the fish-plate, of a pair of bolts and the double nuts on each bolt, a plate engaging the bolts between the nuts and having its ends engaging the outer walls of the inner nuts of each bolt, and a plate U-shaped in cross-section and wedge-shaped lengthwise whereby it is adapted to be driven upon the bolt-engaging plate with its double ends against the walls respectively of the inner and the outer nuts between the bolts to bind and brace their nutted ends in relation to the fish-plate and the rail.

576,467. DOOR OR WINDOW FASTENER. JOHN T. NAGLE, Butte, Mont. Filed Sept. 29, 1896. Serial No. 607,365. (No model.)



Claim.—In a device for securing doors and windows, the combination with the bar provided with forwardly-shouldered teeth along its edges and a laterally-projecting spur, of the slide provided with an opening in which said bar is received and a recess in both its top and bottom faces, pawls pivoted in the said recesses and having their noses projecting forward of the slide to engagement with said teeth, the front faces of said noses being formed to engage the door and jamb, said pawls having diverging handles at their rear ends, and springs secured to the outer ends of said handles and carried forward into the recesses in said slide, as and for the purpose set forth.

576,468. COMPUTING-SCALE. ORANGE O. OMAN, Dayton, Ohio. Filed Dec. 18, 1895. Serial No. 572,560. (No model.)



Claim.—1. A price-indicating scale for computing-scales, having a series of sets of graduations for indicating cost of articles balanced by the sliding poise, and supplemental or distinctive graduations in each of said sets, each distinctive graduation indicating in each of the sets of cost graduations a decimal-fractional part of the cost of articles balanced by one of the removable counterpoise-weights; substantially as described.

2. A price-indicating scale for computing-scales, having a series of sets of graduations for indicating cost of articles balanced by the sliding poise, and a series of regularly-spaced supplemental or distinctive graduations extending transversely through each of the series of sets of graduations and each distinctive graduation indicating in each set a decimal-fractional part of the cost of articles balanced by a removable counterpoise-weight corresponding to that graduation; substantially as described.

3. In a price-scale, the combination with the platform, beam, poise sliding on the beam and the series of graduated scales with which the poise registers to indicate the cost at different rates per unit, of a series of removable counterpoise-weights and a distinctive set of regularly-spaced graduations extending transversely of all the first-mentioned series of graduated scales and each distinctive graduation indicating a decimal-fractional part of the value of articles balanced by one of the removable counterpoise-weights in all of the scales; substantially as described.

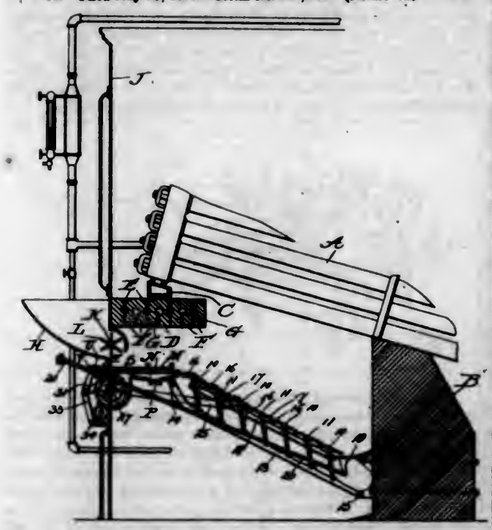
4. In a computing-scale, the combination with the platform, beam, poise sliding on the beam and series of removable counterpoise-weights, of the rotary member having the series of sets of graduations thereon with which the sliding poise registers to indicate cost prices at different rates per unit with a supplemental or distinctive set of graduations extending around the rotary member and intersecting the first-mentioned sets, each distinctive gradnation indicating in each scale a decimal-fractional part of the value of articles balanced by one of the removable counterpoise-weights and indications showing which graduation is to be read in connection with any particular removable weight; substantially as described.

576,469. SWITCH-PLUG. WILLIAM S. PAGE, Baltimore, Md. Filed Sept. 23, 1896. Serial No. 606,759. (No model.)



Claim.—A switch-plug comprising alternate sections of metal and insulating material provided with screw and socket joints and abutting shoulders, and a switch-cord comprising one or more conducting-wires and insulating material passing within the body of the plug, and the ends of the wires being secured between the said abutting shoulders in electrical contact with the metallic sections, substantially as described.

576,470. BOILER-FURNACE. WILLIAM H. PEARCE, Chicago, Ill. Filed May 23, 1896. Serial No. 592,722. (No model.)



Claim.—1. In a boiler-furnace, a furnace-chamber, a series of suspended supporting-rails arranged within said chamber and in the same horizontal plane and in advance of the front ends of the grate-surface, and removable bricks arranged to be supported by said rails, said bricks presenting a flat under surface; as and for the purpose set forth.

2. In a fire-arch for boiler-furnaces, a furnace-chamber, grate-bars arranged therein, a receiving-platform for the coal arranged in said chamber and in advance of the grate-bars, supporting-rails arranged within said chamber and above said platform and in advance of the grate-bars, and fire-bricks removably supported on said rails and arranged to present a flat under surface parallel with the supporting-surface of said platform; as and for the purpose set forth.

3. In a fire-arch for boiler-furnaces, a furnace-chamber, grate-bars arranged therein, a receiving-platform for the coal arranged in said chamber and in advance of the grate-bars, supporting-rails arranged above said platform parallel with each other and in a plane parallel with the supporting-surface of said platform, and fire-bricks removably supported on said rails and presenting an under surface parallel with the supporting-surface of said platform, said bricks provided with air-passages; as and for the purpose set forth.

4. In a boiler-furnace, the combination with grate-bars, a perforated platform arranged within the furnace-chamber and adapted to receive thereon the fresh or green coal, said grate-bars having their front ends arranged adjacent to the delivery edge of said platform and extending rearwardly therefrom upon a downward incline, an air-passage arranged adjacent to said platform and adapted to deliver air to the coal supported on said platform through said perforations; as and for the purpose set forth.

5. In a boiler-furnace, the combination with the grate-bars, a perforated platform arranged within the furnace-chamber and adapted to receive thereon the fresh or green coal, said grate-bars having their front ends arranged adjacent to the delivery edge of said receiving-platform and extending rearwardly therefrom upon a downward incline, an air-chamber arranged adjacent to said platform and adapted to deliver air to the coal supported on said platform through said perforations, said air-chamber provided with a removable plate; as and for the purpose set forth.

6. In a boiler-furnace, the combination with grate-bars, of a platform arranged within the furnace-chamber and in advance of the grate-bars, said platform adapted to receive thereon the fresh or green coal supplied to said chamber, pushers arranged to reciprocate on said platform to positively feed the fresh or green coal from said platform to said grate-bars, a lever pivotally mounted at one end upon the front of the furnace-chamber and connected at the opposite end thereof to said pushers, and means, connected intermediate the ends of said lever, for rocking the same and actuating said pushers; as and for the purpose set forth.

7. In a boiler-furnace, the combination with the grate-bars, of a platform arranged in the furnace-chamber to receive thereon the fresh or green coal supply to said chamber, reciprocatory plates mounted on said platform to feed said coal, and means for actuating said plates; as and for the purpose set forth.

8. In a boiler-furnace, a platform arranged within the furnace-chamber, to receive thereon the fresh or green coal, shovel-shaped plates having their thin edges presented outwardly arranged to slide back and forth upon said platform to positively feed the coal to the grate-surface of the furnace, and means for reciprocating said plates against a yielding resistance; as and for the purpose set forth.

9. In a boiler-furnace, a series of pivotally-mounted grate-bars, each grate-bar provided with a flat portion and with a rearwardly-inclined portion, and means for rocking said grate-bars; as and for the purpose set forth.

10. In a boiler-furnace, a series of pivotally-mounted grate-bars arranged to present a continuously rearwardly-inclined grate-surface, and means for simultaneously rocking one or more of said grate-bars; as and for the purpose set forth.

11. In a boiler-furnace, a series of pivotally-mounted grate-bars, arranged with reference to each other to form air-spaces therebetween, and means for intermittently rocking one or more of said grate-bars; as and for the purpose set forth.

12. In a boiler-furnace, a series of pivotally-mounted grate-bars, each provided with a grate-surface having a flat horizontal portion and a rearwardly-inclined portion, bars connecting two or more of such grate-bars, and means for intermittently and positively reciprocating said connecting-bars endwise; as and for the purpose set forth.

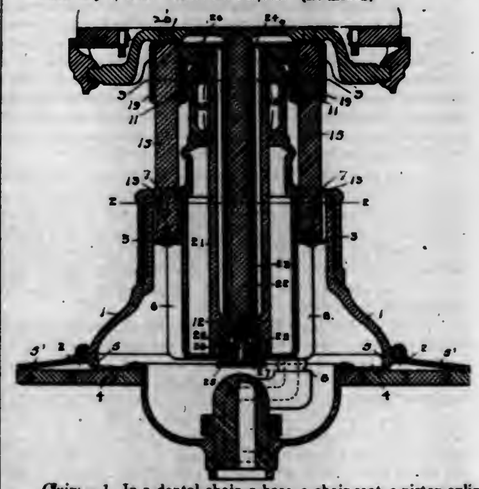
13. In a boiler-furnace, a shaft, means for rotating said shaft, cams mounted on said shafts, a series of pivotally-mounted grate-bars arranged to present a flat rearwardly-inclined surface, and means actuated by said cams for rocking said grate-bars about their pivots; as and for the purpose set forth.

14. In a boiler-furnace, a shaft having gears thereon, means for rotating said shaft, cam-flanges formed on said gears, a series of pivotally-mounted grate-bars, means for positively rocking said grate-bars about their pivots, comprising a bar arranged to engage said cam-flanges; as and for the purpose set forth.

15. In a boiler-furnace, a shaft, means for continuously rotating the same, gears mounted on said shaft and provided with cam-flanges, a series of pivotally-mounted grate-bars, bars connected to rock said grate-bars and carrying rollers arranged to embrace said cam-flange; as and for the purpose set forth.

16. In a boiler-furnace, a shaft, means for continuously rotating said shaft, gears mounted on said shaft having crank-arms, a pivotally-mounted lever, connected to be rocked by said crank, a bar carrying a pawl arranged to be actuated by said lever, a hopper, a shaft or drum mounted therein and having arms projecting therefrom, a ratchet-wheel mounted on said shaft and arranged to be engaged and intermittently rotated by said pawl; as and for the purpose set forth.

576,471. DENTAL CHAIR. FRANK RITTER, Rochester, N. Y. Filed May 8, 1895. Serial No. 548,572. (No model.)



Claim.—1. In a dental chair, a base, a chair-seat, a piston-cylinder fixed in the base, a piston or plunger, a movable cylinder extension, packing to prevent oil from being forced between the cylinder and movable cylinder extension, and means whereby the extension may be moved by the piston, said packing being secured to the foot of the cylinder extension and provided with an opening to permit the passage of oil to the piston, and perforations adjacent the lower end of said packing for the oil to enter said passage when the said extension is in its lowest situation, substantially as set forth.

2. In a dental chair, a base, a chair-seat, an oil-holder, a coupling-cup secured in the bottom of said holder, the cylinder secured in such cup, the piston, a movable piston-cylinder extension carrying a packing at its foot to pack the joint between it and the main cylinder, the packing having an opening communicating with the space below the piston, and perforations 27 adjacent the lower end of said packing to permit ingress of oil, substantially as set forth.

3. In a dental chair, the combination of the base, the pedestal, the chair-seat frame, a piston connected to said frame, a fixed piston-cylinder, a movable piston-cylinder extension, a bar 20, the bar and frame being independently movable, and said bar having a bearing on the piston above the top of the cylinder and cylinder extension, said bearing on the piston being movable lengthwise thereof, and a cylinder 21 fixed to the bar and bearing both on the cylinder and on the pedestal, substantially as set forth.

4. In a dental chair, a base, a seat-frame having a cross-bar 20', the steadying guide-rods made in sections connected to slide one upon the other within a guide-tube, one rod-section 14 being fixed to the said seat-frame cross-bar and the other suspended in a bar 20 mediately supported from the base, in combination with the piston to lift the cross-bar 20' said rod-section 14 having a lateral projection 17 or the like to engage and elevate the rod-section 15 and mediately to engage and elevate said bar 20, substantially as set forth.

5. In a dental chair, a base, a seat-frame having a cross-bar 20', the steadying guide-rods made in sections connected to slide one upon the other within a guide-tube, one rod-section being fixed to the said seat-frame cross-bar and the other suspended in a bar 20 mediately supported from the base, and the steadying-tube 21 fixed to cross-bar 20, in combination with the piston, to lift the cross-bar 20' said rod-section 14 having a lateral projection 17 or the like to engage and elevate the rod-section 15 and mediately to engage and elevate said bar 20, substantially as set forth.

6. In a dental chair, in combination a base, a chair-seat frame, a seat-frame cross-bar 20', laterally-situated steadying-rods attached to said cross-bar, guiding-sleeves for said rods exterior to the pedestal and mediately supported from the base, a pedestal having openings to permit the descent of the lower portions of the rods situated below the sleeves and centrally-situated devices for raising said cross-bar, substantially as set forth.

7. In a dental chair, in combination a base, a chair-seat frame, a seat-frame cross-bar, steadying-rods attached to the said cross-bar, guiding-sleeves for said rods mediately supported from the base and exterior to the pedestal, a pedestal having openings below and in line with the sleeves to permit the descent of the rods within said pedestal and means for raising said cross-bar comprising a piston and a piston-cylinder having a movable extension adapted to be moved by the piston, said sleeves being connected by a bar bearing on the piston, substantially as set forth.

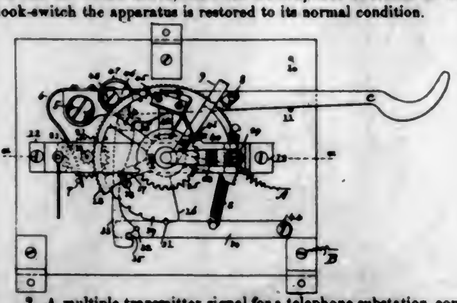
8. In a dental chair, a rotatable pedestal, a fluid-reservoir fixed to said pedestal, a centrally-situated piston-cylinder fixed in the reservoir, a piston supporting the chair-seat frame, a cylinder extension, a packing to exclude oil from entering between the cylinder and its extension, said extension bearing on and fitting the piston at its lower end and provided with a bearing 24 near its upper part whereby the piston-rod is steadied and whereby when it is forced upwardly the piston will engage said bearing and lift the extension, and a pump to force oil under the piston, substantially as set forth.

9. In a dental chair, the combination of the base, the pedestal, the chair-seat frame, a piston connected to said frame, a fixed piston-cylinder, a movable piston-cylinder extension, a bar 20, the bar and frame being independently movable, and said bar having a bearing on the piston above the top of the cylinder and cylinder extension, said bearing on the piston being movable lengthwise thereof, and a bar 15 horizontally fixed to the bar 20 and guided by the chair-base, substantially as set forth.

10. In a dental chair, a rotatable pedestal, a fluid-reservoir fixed to said pedestal, a piston-cylinder fixed in the reservoir, a piston supporting the chair-seat frame, a cylinder extension, a packing to exclude oil from entering between the cylinder and its extension, said extension bearing on and fitting the piston at its lower end and provided with a bearing 24 near its upper part whereby the piston-rod is steadied and whereby when it is forced upwardly the piston will engage said bearing and lift the extension, a steadying device bearing on the piston above the cylinder and cylinder extension, and a pump to force oil under the piston, substantially as set forth.

576,472. TELEPHONE SIGNAL-TRANSMITTER. ERNEST C. ROSS, Medford, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed July 25, 1896. Serial No. 600,477. (No model.)

Claim.—1. A signal-transmitter for a telephone-substation circuit adapted to automatically send multiple independent arbitrary signals, consisting of a motor mechanism, a signal-sending mechanism, a telephone hook-switch controlling the detents of both, and means for simultaneously setting the required signals, and winding the actuating power of said motor and signal-sending mechanisms; whereby when the signal-sending device is set the motor is wound up, when the telephone is removed from the hook-switch the signal is sent to line and the circuit closed, and when the telephone is returned to the hook-switch the apparatus is restored to its normal condition.



2. A multiple-transmitter signal for a telephone-substation, comprising a motor mechanism for sending the signal, a second and independently-actuated motor mechanism, a device for simultaneously setting or determining the specific signal for transmission and winding both of the said motors, a releasing device for the signal-sending motor actuated by the movement of the automatic telephone-switch as the telephone is removed therefrom, and a releasing device for the said second motor actuated by the opposite movement of the said telephone-switch as the telephone is replaced thereon, the said second motor being adapted to restore the signal-setting device to its normal condition.

3. A signal-transmitter in a normally open telephone circuit or branch comprising means for sending successive independent arbitrary signals, motor mechanism actuating the same, a telephone hook-switch controlling the said motor mechanism, means for closing the circuit round the signal-sending mechanism, and means for closing it through the said mechanism.

4. The combination in a signal-transmitter organized to automatically send multiple determinate signals from a subscriber's station to the central station over a telephone-circuit, of a signal-sending device comprising a circuit-wheel and associated contact-spring; a double spring-actuated motor mechanism; a signal-determining device including a turn-wheel, index-pointer, and a shaft operated by the said turn-wheel, secured to the circuit-wheel and one end of each motor-spring, and adapted to turn the circuit-wheel to any desired point indicated by the index, and to simultaneously wind both springs; and a telephone switch-lever controlling the said double-motor stop devices, and adapted on the removal of the telephone therefrom to allow the said motor mechanism to be actuated by one of its springs in a definite direction to move the contact-spring over the advanced portion of the circuit-wheel, and thereby transmit the signal, and on the replacement of the telephone, to permit the said motor mechanism to be actuated by its other spring in a reverse direction, whereby the circuit-wheel and index-pointer are restored to their normal position.

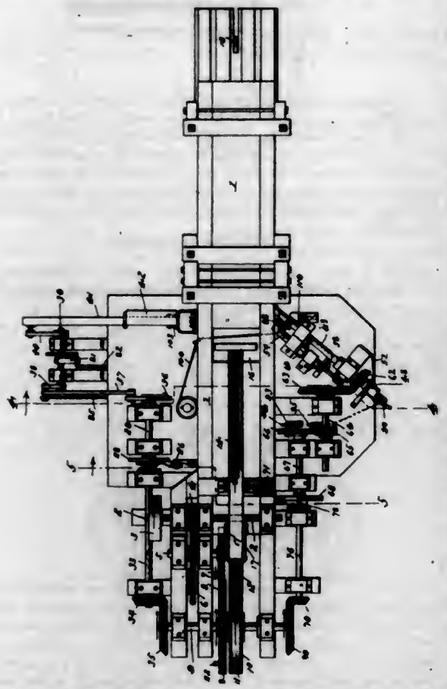
5. The combination in a telephone-circuit of a signal-transmitter and a signal-receiver, as set forth, the former being adapted to automatically send and the latter to receive multiple independent arbitrary signals; the transmitter comprising means for simultaneously setting the signal-sending device and for winding the motor; and with means controlled by the hook-switch for releasing the signal-sending device, and also for restoring the mechanism to its normal condition.

6. The combination in a telephone-circuit of a signal-transmitter and a signal-receiver, as set forth, the former being adapted to automatically send and the latter to receive successive independent arbitrary signals; the transmitter being provided with means for simultaneously setting the signal-sending device and for winding the motor, and with means actuated by the hook-switch for releasing the signal-sending device and actuating the signal-receiver, for closing the circuit, and for restoring the mechanism to its normal condition.

7. A signal-transmitter in a normally open telephone-circuit comprising means for sending successive independent arbitary signals, motor mechanism actuating the same, a telephone hook-switch controlling the said motor mechanism, and means as specified for simultaneously closing the circuit and locking the transmitter mechanism, as set forth.

576,473. BALE-TYING MECHANISM. ANDREW J. ROSS, Breckenridge, Minn., assignor of three-eighths to J. H. Fitzgerald, Campbell, Minn. Filed Sept. 10, 1896. Serial No. 605,398. (No model.)

Claim.—1. In a baling-press, the combination of a baling-chamber, a plunger, a twisting mechanism and means for operating it, an independent gripping device adjacent the twisting mechanism, means for operating it, means for carrying the wire across the bale-chamber and depositing it in the twister and in the grip, a wire-cutting mechanism arranged between the twister and the grip, means for operating said mechanism to cut the wire before the twisting mechanism revolves, and means for partially revolving the gripping device during the rotation of the twisting mechanism, substantially as described.



2. In a baling-press the combination of a baling-chamber, a plunger, a transverse shaft, means carried by said shaft for reciprocating said plunger, means for revolving said shaft, a movable device in the path of the completed bales, a rod 19 connected to said movable device, a lever 21 adapted to be engaged by the rod 19, a part carried by the transverse shaft and adapted to engage lever 21 as said shaft revolves, a rod 23 connected to lever 21, a clutch mechanism, a needle mechanism, said clutch mechanism connecting the needle mechanism, and devices operated by rod 23 to operate said clutch mechanism, substantially as described.

3. In a baling-press the combination of a driving mechanism, a plunger, an operating-shaft therefor, a lever 18, means for adjusting the pivot thereof longitudinally, a rod 19 adjustably connected to said lever, a spring-hook 20 carried by said rod, a stop 20* adapted to be engaged by the rear end of hook 20, a lever 21 adapted to be engaged by hook 20, a part carried by the plunger-operating shaft and adapted to engage lever 21, a needle mechanism, and means operated by lever 21 to connect said needle mechanism with the driving mechanism, substantially as described.

4. In a baling-press the combination of a baling-chamber, a plunger, means for reciprocating said plunger consisting of an eccentric carried by a transverse shaft, a gear upon said shaft, means for revolving said gear, a lever 18, rod 19 connected thereto, lever 21 adapted to be engaged by rod 19, a pin 22 carried by gear on the shaft of the eccentric and adapted to engage lever 21, a rod 23 connected to lever 21, a cam-wheel adapted to be engaged and revolved by the rod 23, a lever 26 operated by the cam-wheel, a clutch mechanism operated by lever 26 and a needle mechanism, said clutch mechanism connecting the needle mechanism with the driving mechanism, substantially as described.

5. In a baling-press the combination of an open-ended baling-chamber, a plunger, a device located in the path of the completed bales and adapted to be engaged by them to operate a clutch connecting the needle mechanism to the driving mechanism, said clutch consisting of a disk 28 a shaft 29 connected to the needle mechanism, a plate 27 pivoted on said disk, a spring 30, lever 26 adapted to engage plate 27 as described, a shaft 33 connected to the driving mechanism, arm 32 on said shaft, pin 31 carried by said arm, and means for releasing lever 26 from plate 27, substantially as described.

6. In a baling-press the combination of a baling-chamber, a plunger, a needle-operating mechanism, consisting of a rock-shaft, an arm 38 on said shaft, a rod connecting said arm to disk 36, shaft 29 carrying said disk, means for automatically connecting and disconnecting said shaft with the driving mechanism, an arm 40 secured to the rock-shaft, a reciprocating needle-frame connected to said arm, a needle or needles carried by said frame, an arm 81 also connected to the rock-shaft, a rod 82 engaged and operated by said arm 81, a twisting mechanism, means for delivering the wire from the needle to the twisting mechanism, and means operated by rod 82 for setting in motion the twisting mechanism on the return stroke of the needle-frame, substantially as described.

7. In a baling-press the combination of a baling-chamber, a plunger, a twisting device and means for revolving it, means for carrying the wire across the baling-chamber and delivering it to the twisting device, said twisting device consisting of a shaft formed with a rigid jaw, and a sliding jaw carried by said shaft, means for moving said sliding jaw and for holding it in its closed position, means operated by the needle mechanism for connecting and disconnecting the twister-revolving mechanism with the driving mechanism, and means operated by the twister-revolving mechanism for releasing the sliding jaw of the twister device, substantially as described.

8. In a baling-press the combination of a baling-chamber, a plunger, a twisting device, means for revolving said device, a gripping device, means for carrying the wire across the baling-chamber and delivering it to said devices, said gripping device consisting of a revoluble bar formed with rigid jaws, sliding jaws carried by said bar, means for alternately closing said jaws against the rigid jaws, means for holding said jaws closed during a partial revolution of the gripping device, and means for opening said jaws during the remainder of the revolution of the device, means for revolving said gripping device, and a cutting device operating between the grip and the twisting device, substantially as described.

9. In a baling-press the combination of a baling-chamber, a plunger, a twisting device and means for operating it, a gripping device, means for carrying the binding-wire across the baling-chamber and delivering it to the said devices, the gripping device consisting of the bar 53 formed with the rigid jaws, sliding jaws 54 carried by bar 53, means for alternately closing said sliding jaws, spring-plate 59 for holding said jaws closed during a portion of the revolution of the gripping device, pins 56 carried by the sliding jaws, a cam 57 adapted to be engaged by the pins 56 to open the jaws, and means operated by the twisting device to revolve the gripping device, substantially as described.

10. In a baling-press the combination of a baling-chamber, a plunger, a twisting device, a mechanism for revolving said device, a gripping device, means for carrying the wire across the baling-chamber and delivering it to the gripping and twisting devices, the gripping device comprising the bar 53, jaws 54, 54 sliding one on the top and the other on the bottom of bar 53, the upper jaw normally remaining open, lever 58 operated by the needle mechanism for closing the upper jaw of the gripping device, means for holding said lever to secure the jaw in its closed position, and means operated by the twister-revolving mechanism for releasing said lever, means for holding said jaw in its closed position during a portion of one revolution, and means operated by the twister-shaft to give the gripping device an intermittent revolving motion, substantially as described.

11. A needle for a baling-press comprising a pivoted head pointed at its forward end, and formed with a wire-engaging shoulder, in combination with a cam adapted to engage the point of the needle-head and tip the head, and means operated by the head to force the wire off the wire-engaging shoulder when the head is tipped, substantially as described.

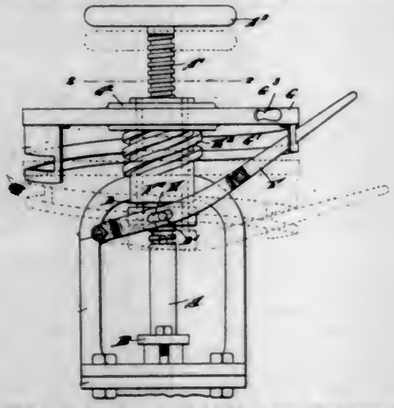
12. A needle for a baling-press comprising a needle bar, a pivoted head 101 carried by said bar and formed with shoulders 104, arms 103 pivoted on said bar and fitting under shoulder 104, means carried by the pivoted head for holding said arms yieldingly in position, a wire-engaging shoulder formed on the under side of the pivoted head, in combination with a cam adapted to engage the point of the pivoted head and raise it, substantially as described.

13. A needle for a baling-press comprising a needle-arm, a head 101 pivoted thereto and formed with shoulders 104, arms 103 pivoted to said arm and extending forward under shoulder 104, spring 107 carried by the pivoted head and engaging arms 103, a wire-engaging shoulder formed on the under side of head 101, the forward ends of arms 103 projecting forward of said shoulder, a lug 109 formed on the head 101 adjacent the shoulder 102, in combination with a cam adapted to engage head 101 and raise its forward end, substantially as described.

14. In a baling-press, the combination of a baling-chamber, a plunger, a twisting mechanism, means for operating the twisting mechanism to hold the wire, an independent gripping device adjacent the

twisting mechanism, means for operating it to grip the wire, means for carrying the wire across the baling-chamber and depositing it in the twister and grip, a wire-cutting mechanism arranged between the twister and grip, means for operating said mechanism to cut the wire before the twisting mechanism revolves, and means for revolving the twisting mechanism, substantially as described.

576,474. VALVE. SIDNEY W. SAMPSON, Hudson, Mass. Filed Oct. 19, 1895. Serial No. 609,372. (No model.)

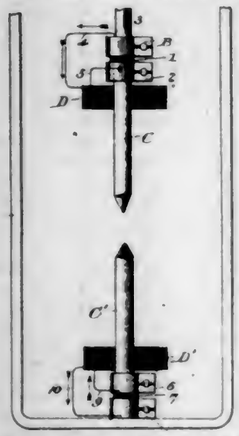


Claim.—1. A valve, provided with a cam-wheel arranged for movement in the direction of the axis of the valve-stem, and a lever controlled by the said cam, and connected with the nut of the valve-stem, substantially as shown and described.

2. The combination with a valve-stem having a threaded portion, of a nut in which screws the said threaded portion of the valve-stem, a lever for shifting the said nut and stem, and a cam-wheel engaging the said lever and arranged to turn and to move in the direction of the axis of the said valve-stem, substantially as shown and described.

3. The combination with a fixed bearing, of a nut fitted to slide in the said bearing, and adapted to engage the threaded portion of the valve-stem, a cam-wheel screwing on the said bearing, and a lever connected with the said nut and engaged by the said cam-wheel, substantially as shown and described.

576,475. ELECTRIC-ARC LAMP. DANIEL A. SHEELER, Toledo, Ohio. Filed Feb. 13, 1896. Serial No. 579,170. (No model.)



Claim.—1. In an electric-arc light, the combination with the upper carbon, of a lower carbon, an insulated support therefor, a conductor adjacent to the insulator, and a solenoid interposed in the circuit adjacent to the carbon and having connections to the carbon and to the conductor adjacent to the insulated support therefor.

2. In an electric-arc light, the combination of the upper carbon, a conductor, an insulator between the carbon and the conductor, a solenoid adjacent to the carbon, having connections to the said conductor and the carbon, a lower carbon, a non-conducting support therefor, a conducting-clamp surrounding the non-conducting support, and a solenoid adjacent to the carbon, having connection to the carbon and to the conducting-clamp, substantially as described.

576,476. SAFETY-RAZOR. ALBERT L. SILBERSTEIN, New York, N. Y. Filed Oct. 16, 1896. Serial No. 609,100. (No model.)



Claim.—A safety-razor provided with a basket-frame, flat springs secured to the back of the frame and extending forwardly and downwardly therein and L-shaped clips formed at the forward free ends of the said springs and adapted to engage and press with their longitudinal arms onto the top of the blade held on the said frame, the said clips being arranged to yield longitudinally to bring the sides of the clips in firm contact with the ends of the blade, substantially as described.

576,477. UMBRELLA-SUPPORT. ANTONIE SILVERMANN, New York, N. Y. Filed June 11, 1896. Serial No. 595,186. (No model.)



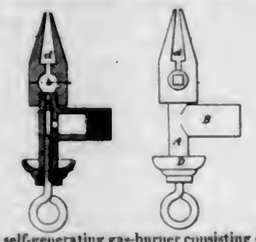
Claim.—1. A tilting support comprising two jointed sections angularly adjustable relative one to the other and means for locking said sections in their adjusted position, in combination with a ring fixed on the upper end of the uppermost section, an umbrella-rib support seated on said ring, and means for removably and adjustably connecting said rib-support to the ring, substantially as described.

2. A tilting support comprising two standards each consisting of two jointed sections angularly adjustable one to the other and means for locking said sections in their adjusted positions, in combination with a ring connected at opposite points to said standards, an umbrella-rib support seated on said ring, and fastenings for removably and adjustably connecting said rib-support to the ring, substantially as described.

3. The combination with an umbrella-support and umbrella mounted thereon, of a ring fixed on said support, and a plurality of stays jointed at their lower ends to said ring and at their upper ends detachably connected to the umbrella-ribs, substantially as described.

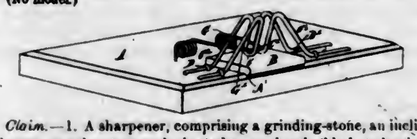
4. An umbrella or shade support comprising two standards connected to the upper part of the umbrella-stick and provided with cross-arms carrying a ring or seat adapted to sit about the lower part of the stick, and a head or flange detachably secured or screwed to the lower part of the stick to secure the ring and stick against disengagement substantially as described.

576,478. SELF-GENERATING BURNER. HARPER F. SMITH, Philadelphia, Pa., assignor of two-thirds to William F. McCully and George McGowan, same place. Filed May 8, 1894. Serial No. 510,489. (No model.)



Claim.—A self-generating gas-burner consisting of a burner-body closed at the ends and having a contracted outlet at the top, a supply-pipe having a valved opening of small area discharging into said chamber and flaring wings surmounting the burner-body and inclosing the space above the contracted outlet of the chamber, but of much greater capacity, whereby there is an expansion of the vapor as it issues from the valved opening into the enlarged chamber above the same, and a second expansion of vapor mixed with air as the latter emerges from the contracted opening above the chamber and enters the enlarged space between the burner-wings, substantially as specified.

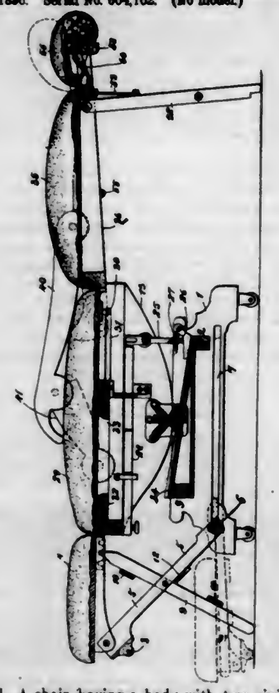
576,479. SHEARS OR SCISSORS SHARPENER. OLOF L. STADIG, Connors Station, Canada. Filed July 14, 1896. Serial No. 599,122. (No model.)



Claim.—1. A sharpener, comprising a grinding-stone, an inclined guideway over the stone and adapted to receive the blade to be sharpened, and a spring adapted to engage the back of the blade, to hold the latter with its cutting edge on the stone, substantially as shown and described.

2. A sharpener, comprising a base formed with a recess adapted to receive a grinding-stone, an inclined guideway extending transversely over the face of the stone, and a spring extending with its middle or bent portion into the said guideway, to engage the back of the blade held transversely in the said guideway, substantially as shown and described.

576,480. CHAIR. HARRIS W. STERR, Vincennes, Ind. Filed Aug. 27, 1896. Serial No. 604,102. (No model.)

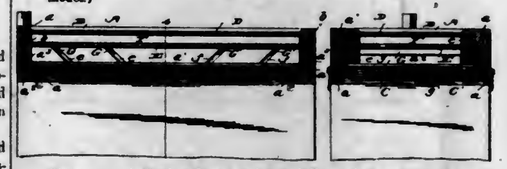


Claim.—1. A chair having a body with two rigidly-connected side pieces, a rocker-frame having two rockers respectively mounted on the side pieces, springs respectively connecting the rockers with the side pieces, a hook secured to one of the side pieces, a longitudinally-sliding lock-bar carried by the rocker-frame, and an arm pivoted to the rocker-frame and having a finger locking with the hook whereby to prevent the independent movement of the rocker-frame, the lock-bar having engagement with the end of the arm opposite the finger, whereby to raise the finger out of position to engage the hook and to hold said finger raised by bearing against the finger, substantially as described.

2. In a chair, the combination of a body portion, a rocker-frame on the body portion, a hook fixed to one of said parts, an arm pivoted on the remaining of said parts and capable of locking with the hook, and a sliding bar carried on the part having the arm, the bar engaging the arm to move the finger out of engagement with the hook and to hold said finger disengaged from the hook, substantially as described.

3. In a chair, the combination of a body, a rocker-frame carried on the body, a hook fixed to the body, an arm pivoted on the rocker-frame and engaging the hook, the arm extending vertically when engaged with the hook, and a horizontally-sliding bar located above the arm and engaging the upper end thereof whereby to move the arm from engagement with the hook and to hold the arm disengaged by moving over the pivot thereof, substantially as described.

576,481. DISPLAY DEVICE FOR BOXES. JOHN H. STRATMAN, Cape Girardeau, Mo. Filed June 29, 1896. Serial No. 597,439. (No model.)



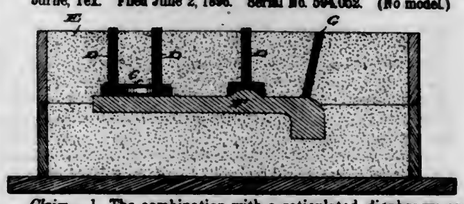
Claim.—1. A display-frame, substantially such as described, provided with kerfs or grooves, a backing slidably fitted within said frame, and wedge-strips adapted to said kerfs or grooves, and to bind against the slidable backing as set forth.

2. The combination of the part A provided with guideways arranged one below the other, the sectional closure C, C' fitted in said guideways to slide one below the other, and a display-frame hinged or pivoted to the part A, as and for the purposes described.

3. A display-frame having the kerfs or grooves arranged in inclined positions relatively to a transparent panel, a backing fitted in said frame, and binding-strips slidably fitted in said inclined kerfs or grooves to wedge themselves therein and bearing against the backing to confine it in place, as and for the purposes described.

4. The combination of a part A provided on the inner faces of its walls with the bevels a^3, a hinged box-like display-frame having the external exposed faces of its end rails beveled coincidently with said part A and adapted to fit snugly within the same to form tight joints between said parts, and said frame having the inclined kerfs formed on its inner edges, a transparent panel carried by said display-frame outside of the kerfs, a backing in the display-frame, and binding-strips slidably fitted in said kerfs of the display-frame and bearing against said backing, as set forth.

576,482. GAS-VENT FOR MOLDS. WILLARD STREETMAN, Cleburne, Tex. Filed June 2, 1896. Serial No. 594,052. (No model.)



Claim.—1. The combination with a reticulated diaphragm and a perforated support therefor having openings of greater dimension than those of the diaphragm, of a chamber held to said diaphragm, and having outlets for the air and gas; substantially as described.

2. The combination with a reticulated diaphragm and a perforated support therefor having openings of greater dimension than those of the diaphragm, of a chamber held to said diaphragm, and having outlets for the air and gas, and tubes communicating with said outlets; substantially as described.

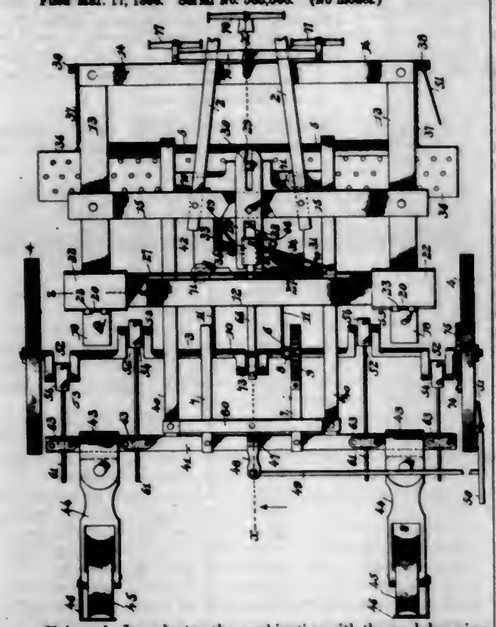
3. A device for the purpose described, comprising a perforated diaphragm having upturned edges, a perforated brace or support for the diaphragm confined between said upturned edges and a chamber secured to said diaphragm and tubes extending upward from said chamber; substantially as described.

4. A device for the purpose described, comprising a perforated diaphragm having upturned edges, a perforated brace or support for the diaphragm confined between said upturned edges and a chamber secured to said diaphragm, and having tubes extending from its upper surface and communicating with the interior thereof; substantially as described.

5. A device for the purpose described, comprising a perforated diaphragm having upturned edges, a perforated brace or support for

the diaphragm confined between said aptarned edges and a chamber secured to said diaphragm and having tubes extending from its upper surface and communicating with the interior thereof, the under face of said diaphragm being upon curved lines; all as specified.

576,483. CORN-PLANTER. JOHN W. SVOBODA, Howell, Nebr. Filed Mar. 17, 1896. Serial No. 583,668. (No model.)



Claim.—1. In a planter, the combination with the seed-dropping mechanism, of actuating mechanism therefor comprising a reciprocating plate having oppositely-disposed stops, a fixed strip, a reciprocating pitman, and diagonally-disposed rods or bars capable of yielding and adapted to hold the said pitman against the opposite sides of the aforesaid strip and to bring it in positive engagement with the stops of the reciprocating plate to move the latter alternately in opposite directions, substantially in the manner set forth.

2. In a planter, the combination with the seed-dropping mechanism, of the following instrumentalities for actuating the said seed-dropping mechanism, comprising a strip, a reciprocating plate having oppositely-disposed stops arranged to be alternately brought into alinement with the said strip, yielding rods or bars diagonally disposed with respect to the said strip, and a reciprocating pitman having a portion operating in the space between the said diagonally-disposed rods or bars and moved laterally thereby to effect a shifting of the reciprocating plate, substantially in the manner described for the purpose set forth.

3. The herein-described mechanism for actuating the seed-dropping devices of a planter, comprising a plate having an opening and inwardly-extending stops at opposite sides of the said opening, a strip disposed at right angles to the reciprocating motion of the plate and having its ends beveled, rods or bars extending about in parallel relation and diagonally with respect to the said strip, and supported at opposite ends and adapted to yield at their free ends, and a reciprocating pitman having a portion operating in the space between the said diagonally-disposed rods or bars and moved by the latter from one side to the other of the strip, whereby the said plate is reciprocated, substantially in the manner set forth for the purpose described.

4. In a planter, the combination with the seed-dropping mechanism, of a table, a plate mounted upon the table and guided in its reciprocating movements, and having an opening provided with inwardly-extending stops at its opposite sides, a longitudinal strip secured to the table and having its ends oppositely beveled, bars or rods extending over the strip in diagonal relation thereto and secured at one end to the table, springs having connection with the free ends of the said rods or bars, and a reciprocating pitman having a portion operating in the space between the said diagonally-disposed rods and moved by the latter from one side to the other of the strip and against the stops of the aforesaid plate to effect a reciprocating movement of the latter, substantially as set forth for the purpose described.

5. In a planter, the combination of the seed-dropping mechanism, a vibrating lever, a block having adjustable connection with the vibrating lever so as to be movable to and from the fulcrum thereof, and a pitman connection between the said adjustable block and the seed-dropping mechanism to transmit motion to the latter, substantially as set forth.

6. In a planter, the combination of the seed-dropping mechanism, a vibrating lever having a slot in one end, a block slidably fitted in the said slot and adapted to be secured therein at any required position, and a pitman connecting the slidable block with the seed-dropping mechanism to transmit motion to the latter, substantially in the manner and for the purpose set forth.

7. In a planter, the combination of the seed-dropping mechanism, a lever fulcrumed at an intermediate point and having longitudinal slots at its ends, a block adjustably mounted in a slotted end of the lever and having connection with the said seed-dropping mechanism, a reciprocating plate, and a pin projecting from the reciprocating plate and operating in the other slotted end of the said lever, substantially as and for the purpose set forth.

8. In a planter, the combination of a runner having parallel grain-passages in its rear side and a space at its lower rear end, a lever fulcrumed to the rear side of the runner and having a lug to operate in the said space and alternately close the lower ends of the grain-passages, a seed-slide having connection with the said lever, a vibrating lever 28, a block having adjustable connection with the lever 28, a pitman connection between the seed-slide and the said adjustable block, and actuating mechanism for operating the vibrating lever, substantially as and for the purpose set forth.

9. In a planter, the combination with the seed-dropping mechanism, and an axle having a crank portion, of a marker mounted upon the said crank portion, and a guide for normally holding the marker in an upright position and directing it during its reciprocating movements, substantially as and for the purpose set forth.

10. In a planter, the combination of an axle having a crank portion, a marker mounted upon the said crank portion, and an arm having connection with the marker and adapted to engage with a portion of the frame to give proper direction to the marker, substantially as and for the purpose set forth.

11. In a planter, the combination of the frame having a notch, an axle having a crank portion, a marker mounted upon the said crank portion, a guide-arm having connection with the marker and operating in the aforesaid notch, and a plate for closing the notch removably fitted to the frame, substantially as and for the purpose set forth.

12. A planter comprising in its organization the following elements in combination: a draft-frame supporting the hoppers and the seed-dropping mechanism, a main frame having a pivotal connection with the draft-frame, a lever and connections between the main and draft frames to adjust them relatively in the manner set forth, an axle journaled to the main frame and having crank portions near each end, ground-wheels at the ends of the axle, a ratchet-and-pawl connection between one of the ground-wheels and the axle to admit of the alining of the machine in the manner set forth, markers mounted upon the crank portions of the axle and having guide-arms to engage with a portion of the framework, and covering-wheels tracking in the path of the runners, substantially in the manner and for the purpose set forth.

576,484. STOVEPIPE-JOINT. ROBERT SWORD, Brandon, Canada, assignor of one-third to William Henry Hellyar, same place. Filed Aug. 12, 1896. Serial No. 602,528. (No model.) Patented in Canada Apr. 24, 1896, 52,089.

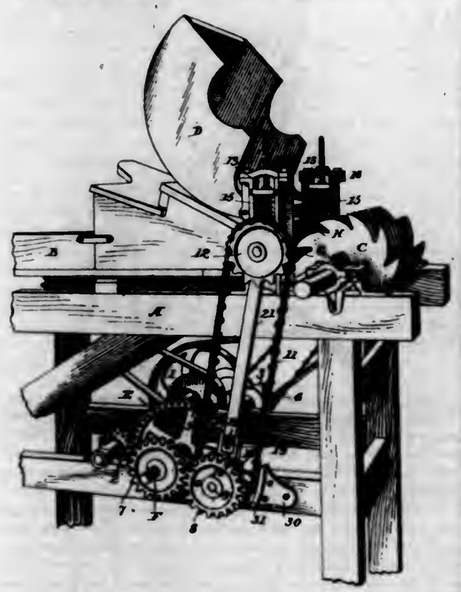


Claim.—1. In a stovepipe lock-joint, the stovepipe-section having at one end an external inwardly-depressed circular groove, and at the other end an outwardly-raised circular groove with outlet or openings cut through the metal of the pipe, one end of each pipe-section being adapted to fit telescopically within the opposite end of the next pipe-section and adapted to receive a curved locking key or keys within the coinciding grooves substantially as and for the purpose described.

2. In a stovepipe lock-joint, the combination of the stovepipe-sections having each at one end an external inwardly-depressed circular groove, and at the other end an outwardly-raised circular groove with outlets or openings cut through the metal of the pipe, one end of each pipe-section being adapted to fit telescopically within the opposite end of the next pipe-section, and two curved locking-keys arranged within the coinciding grooves and provided with handles upon the outside substantially as and for the purpose described.

3. A stovepipe-section having a series of circular parallel grooves around it throughout its length, in combination with stovepipe-sections having each at one end an outwardly-pressed internal groove with openings cut through the pipe at the ends thereof, and curved locking-keys fitting within the coinciding grooves and having external handles substantially as and for the purpose described.

576,485. STALK OR FODDER CUTTING MACHINE. JOHN D. TRACY and JAMES F. PLATT, Sterling, Ill. Filed Aug. 20, 1896. Serial No. 603,406. (No model.)



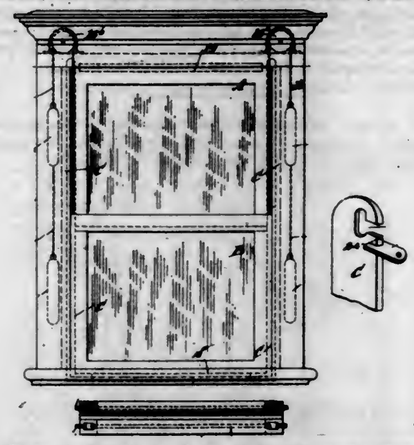
Claim.—1. In a stalk-cutting machine, the combination with the feed-rolls, one being stationary and the other yieldable, of means for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls, a rocking arm also supported independent of either of the rolls, a driven gear carried by the arm and meshing with said drive-gear, a rigid connection between said arm and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

2. In a stalk-cutting machine, the combination with the feed-rolls, one being stationary and the other yieldable, of means for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls, a rocking arm also supported independent of either of the rolls, a driven gear carried by the arm and meshing with said drive-gear, an adjustable rigid connection between said arm and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

3. In a stalk-cutting machine, the combination with the feed-rolls, one being stationary and the other yieldable, of means for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls, a rocking arm also supported independent of either of the rolls, a curved guide for the free end of the arm, a driven gear carried by the arm and meshing with said drive-gear, a rigid connection between said arm and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

4. In a stalk-cutting machine, the combination with the main shaft for driving the cutter-knives, of the feed-rolls, one of which is stationary and the other yieldable, an auxiliary or counter shaft operated from the main shaft, and connections from said counter-shaft for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls and operated from the counter-shaft, a rocking arm also independent of either of the rolls, and a driven gear carried thereby and meshing with said drive-gear, a rigid connection between said driven gear and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

576,486. WINDOW FRAME AND SASH. DAVID W. TROTTER, Butte, Mont. Filed Apr. 25, 1896. Serial No. 589,061. (No model.)



Claim.—1. A window-sash provided with grooves extending through its side and bottom edges, two L-shaped yokes, the longer portions of which are fitted in the vertical slots at the side edges of the sash and the shorter portions of which are pivoted in the horizontal slot at the bottom edge of the sash, and a plate for each yoke, the plates being respectively fitted in slots formed in the upper extremities of the yokes and the plates lying snugly against the upper edge of the sash to prevent the accidental downward movement of the yokes, substantially as described.

2. A window-sash having grooved side and bottom edges, L-shaped yokes having their vertical portions fitted within the grooves in the side edges of the sash and their horizontal portions fitted within the groove in the bottom edge of the sash, the upper extremities of the yokes being respectively extended above the sash and each of said upper extremities being provided with a slot forming a hook, the hook being adapted to carry a weight-cord, and each yoke also having a recess respectively adjacent to the slots and a plate for each recess of the yokes, the plates respectively fitting within the recesses and bearing against the upper edge of the sash, substantially as described.

576,487. WRENCH. WILLIAM VESEY, Sandusky, Ohio. Filed Nov. 6, 1896. Serial No. 611,237. (No model.)



Claim.—1. A wrench consisting of a shank provided with teeth, a jaw fixed on the said shank, a sliding jaw, a carrier connected with the sliding jaw, a lever pivoted to the carrier and having teeth for engagement with the teeth of the shank, and a wedge arranged to enter the space between the sliding jaw and the lever engaging with the teeth, as and for the purpose specified.

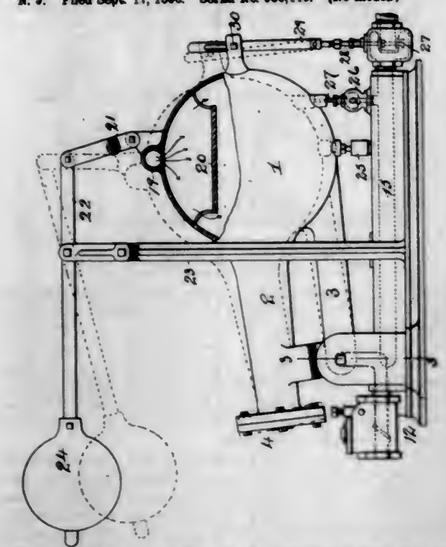
2. In a wrench, the combination, with a shank provided with teeth and a jaw fixed at one end of the said shank, of a second jaw having sliding movement on the shank, a sleeve likewise mounted to slide on the said shank and connected with the sliding jaw, a lever pivoted in the said sleeve below its connection with the sliding jaw, the said lever having teeth for engagement with the toothed surface of the shank, and a wedge arranged to enter the space between the said lever and the sliding jaw, as and for the purpose set forth.

3. In a wrench, the combination with a shank provided with teeth and a jaw fixed at one end of the said shank, of a second jaw having sliding movement on the shank, a sleeve likewise mounted to slide on the said shank and connected with the sliding jaw, a lever pivoted in the said sleeve below its connection with the sliding jaw, the said lever having teeth for engagement with the toothed surface of the shank, a spring attached to the sliding jaw, and a wedge attached to the said spring, being arranged to enter the space between the sliding jaw and the lever and effect a closing movement of the sliding jaw, as and for the purpose specified.

4. The combination, with a shank provided with teeth and a fixed jaw, and a second jaw mounted to slide on the shank, having an arm extending in direction of the handle of the shank and provided with a longitudinal slot, of a sleeve held to slide on the shank of the wrench, a pin passed through the said sleeve and the slot in

the arm of the sliding jaw, a lever fulcrumed in the sleeve at the inner end of the arm of the sliding jaw, which lever is provided with teeth for engagement with the teeth on the shank, and a spring-controlled wedge operated by the lever and arranged to enter the space between the lever and the arm of the sliding jaw, engaging with both of said parts, as and for the purpose specified.

576,488. RETURN STEAM-TRAP. EDWARD P. WAGGONER, Syracuse, N. Y., assignor to the A. A. Griffing Iron Company, Jersey City N. J. Filed Sept. 17, 1896. Serial No. 606,119. (No model.)

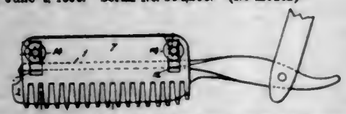


Claim.—1. In a steam-trap, a suitably-supported receiving-chamber oscillating upon and communicating with hollow trunnions and communicating with the water inlet and outlet, an exterior live-steam supply oscillating in unison with the said receiving-chamber and connecting and communicating with an oscillating extension oscillating in alinement with the said trunnions, but having no communication therewith.

2. In a steam-trap, a receiving-chamber provided with a deflector for the distribution of live steam and oscillating upon hollow trunnions connecting with the water inlet and outlet, an exterior steam-supply pipe oscillating in unison with said chamber and not communicating with said trunnions.

3. In a steam-trap the combination of a receiver oscillating upon and communicating with hollow trunnions with a base provided with a suitable support for said receiver, a steam-inlet provided with a valve operated by the oscillating of said receiver, an exhaust in said base communicating with the steam-supply pipe, a chamber in two portions, one communicating with the steam-supply and one with the water-supply, a water-outlet, said water-supply chamber and water-outlet being in direct communication with said receiver and an exterior oscillating pipe conveying live steam to said receiver for evacuating the same.

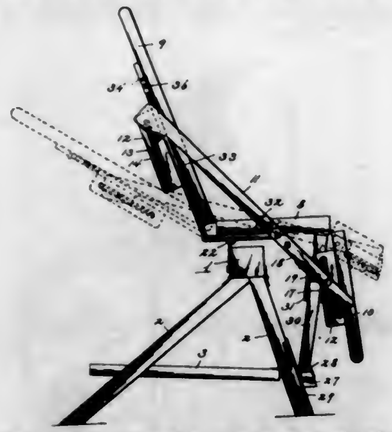
576,489. SAFETY-RAZOR. ALBERT R. WEISS, Brooklyn, N. Y. Filed June 4, 1896. Serial No. 594,298. (No model.)



Claim.—1. In a safety-razor, the combination with a razor-blade, of a clamp constructed to extend round the back of the blade and bear against one side thereof, a guard formed integral with projecting inherently elastic teeth having curved outer extremities which spring and bear directly against the cutting edge of the blade, a rack forming a part of the guard, a pinion engaging the rack and provided with a head to bear against the guard, and a head connected with the pinion and bearing against the clamp, substantially as and for the purposes described.

2. In a safety-razor, the combination with a razor-blade, of a clamp constructed to extend round the back of the blade and bear against one side thereof, a guard having slots with toothed edges, and inherently elastic teeth which spring and bear directly against the cutting edge of the blade, pinions arranged in the slots of the guard and engaging the teeth thereof, a head connected with the pinion and bearing against the guard, and a head connected with the pinion and bearing against the clamp, substantially as and for the purposes described.

576,490. SURGICAL CHAIR. EDWARD J. WELLS, Morristown, Tenn. Filed May 28, 1896. Serial No. 593,474. (No model.)



Claim.—1. The combination with a base or stand, and a table, of a hinge connection between the chair and base, and having one member firmly secured to the chair and its other member pivotally connected with the base, and means for turning the hinge upon its pivotal connection with the base and securing the same positively in an adjusted position, substantially as and for the purpose set forth.

2. The combination with a base or stand, and a chair, of a hinge connection applied to the table and having a member pivotally connected with the base and provided with a curved portion having a series of notches, and a latch adapted to engage with one of the series of notches and secure the pivoted member of the hinge in an adjusted position, substantially as and for the purpose set forth.

3. In a convertible chair, the combination of a series of three sections hinged or pivotally connected together, arms or side bars pivoted between their ends to the middle section and having their end portions widened, blocks having pivotal connection with the widened terminals of the said arms, and plates secured to the under or rear side of the end sections and having an edge portion bent to extend at right angles thereto, and having the bent portions depressed in their inner sides and longitudinally slotted to receive the said blocks and their connections with the arms, substantially as set forth.

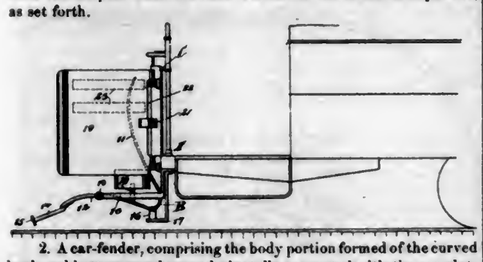
4. In a convertible chair, the combination of a seat, a leg-section hinged to the seat at its lower corner, a back hinged at the opposite end to the seat at its upper corner, side bars having pivotal connection with the seat and slidable connection with the back and leg sections, a plate secured to the bottom side of the seat and projecting beyond the rear end thereof a distance corresponding to the thickness of the back, a slide-bar pivotally connected to the projecting end of the said plate, and means for securing the slide-bar to the back, whereby the several parts are held in an adjusted position, substantially as shown and described.

5. The combination with a base or stand, and a chair having pivotal connection therewith, of a lever, a bar interposed between the lever and chair and hinged to each and composed of parts which are hinged together and adapted to fold upon each other, and a stiffener to extend across the joint between the parts to strengthen and brace the hinged joint, substantially as and for the purpose set forth.

576,491. CAR-FENDER. EDMUND WEST, San Francisco, Cal., assignor of one-third to Frederick E. Rockstroh, same place. Filed Aug. 29, 1896. Serial No. 604,311. (No model.)

Claim.—1. The combination, with a spring-controlled rocking fender, comprising a back and a bottom member, of spring-controlled wings having a hinged connection with a support and located at each side of the back member of the fender, being arranged to fold over and in front of the said back member, a keeper carried by each of the wings, and extensions from the bottom portions of the fenders arranged for engagement with the said keepers, to hold the wings in

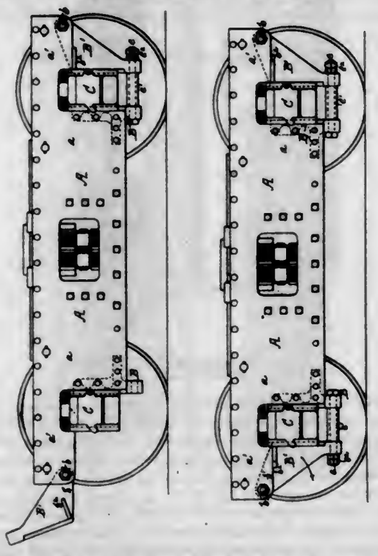
an outer position, the projections from the fender being disconnected from the keepers when the back portion of the fender is depressed, as set forth.



2. A car-fender, comprising the body portion formed of the curved back and bottom members and pivotally connected with the car-platform, arms extending downwardly in opposite directions from the bottom members and connected at their ends by a flexible band, a spring bearing against the under rear portion of the bottom member, wings supported at each side of the back portion of the fender and provided with springs by which they are forced to closed position, keepers secured to the bottom of each wing, and pins extending upwardly from the body portion of the fender and into engagement with the keepers, whereby said wings are held open against the action of their springs, as and for the purpose set forth.

3. The combination with a rocking fender comprising a back and a bottom member, of spring-controlled vertical wings having hinged connection with supports located in the rear and on each side of the back member of the fender, said wings being transversely curved and provided with keepers, pins on the bottom portions of the fenders, and a spring 16 normally holding said pins in engagement with the keepers, as set forth.

576,492. TRUCK. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Mar. 24, 1896. Serial No. 584,679. (No model.)



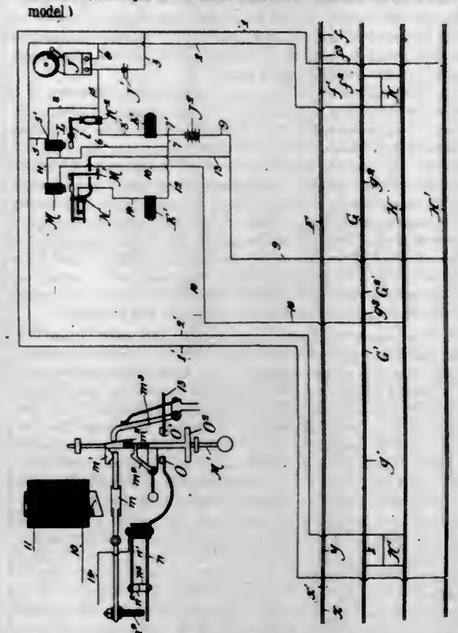
Claim.—1. The combination of the side frame of a truck, made up of two plates suitably spaced, pedestals, and boxes adapted to the pedestals, one pedestal for each box being rigidly secured to the said plates and the other pedestal being pivoted to the plates and detachably secured so that it can be moved to allow for the withdrawal of the journal-box, substantially as described.

2. The combination of the side frames of a car truck, made up of two plates suitably spaced, journal-boxes and two pedestals for each journal-box, one pedestal of each set being fixed and secured between the plates of the side frames, the other pedestal being pivoted and resting between the plates and secured to the fixed pedestal, substantially as described.

3. The combination of the side frame of a truck, made up of two plates *a a* having overhanging extensions *a'* at each end, a fixed and a movable pedestal at each end, and boxes adapted to the pedestal, the movable pedestal being secured to the extensions, substantially as described.

4. The combination of the side frame of a truck made up of two plates *a a* suitably spaced, each plate having end extensions *a'*, boxes C C, pedestals for the boxes, the inner pedestal for each box being secured rigidly to the plates *a a*, the outer pedestal for each box being pivoted to the extension *a'* of the plates by bolts *b*, stops *b*^{3} on said movable pedestals, bolt *e* securing the two pedestals together, and a sleeve *e'* on the bolt between the two pedestals, substantially as described.

576,493. ELECTRICAL CIRCUIT FOR OPERATING AUTOMATIC RAILWAY-GATES. JOHN S. BIGGAR, Chicago, Ill., assignor to Mary E. H. Rutter, same place. Filed Jan. 22, 1895. Serial No. 535,764. (No model.)



Claim.—1. In an automatic railway-gate system, the combination, with gate-operating mechanism, of two electrical circuits successively closed by the movements of a car to close and open the gate, and an intervening circuit, also closed by the car, which holds the second circuit open until the entire train has passed a predetermined point.

2. In an automatic railway-gate system, the combination, with gate-operating mechanism, of two electrical circuits successively closed by the movements of a car, electromagnets interposed in the circuits and adapted to control the gate-operating mechanism to close and open the gate whenever their respective circuit is closed, and an intervening circuit also closed by the car, which holds the second circuit open until the entire train has passed a predetermined point.

3. In an automatic railway-gate system, the combination, with gate-operating mechanism, of a railway-track divided into three insulated sections, the second or middle section being located at the roadway or crossing guarded by the gate, and the first and third sections being located on either side of the crossing or second section, said first and third sections being used in connection respectively with the lowering and raising of the gate, two electrical circuits connected respectively to said first and third sections and successively closed by the movements of a car to control the gate-operating mechanism to close and open the gate and an intervening circuit connected to the second or crossing section and also closed by the car, which intervening circuit holds the second circuit open until the entire train has passed a predetermined point.

4. In an automatic railway-gate system, the combination, with gate-operating mechanism, of a railway-track divided into three insulated sections, the second or middle section being a crossing-section extending over the road or crossing and the first and third sections being located on either side of the crossing-section, an electrical circuit connected to the first section and permitted to be closed by the movements of a car, an electromagnet interposed in said circuit and adapted to permit the gate-operating mechanism to lower the gate, a second electrical circuit connected to the third section and permitted to be closed by the movements of the car, an electromagnet interposed in said last-named circuit and, when closed, adapted to permit

the gate-operating mechanism to open the gate, and an intervening circuit connected to the second section of track and also closed by the car, which intervening circuit holds the second circuit open until the last truck of the car has passed off from the crossing or second section.

5. In an automatic railway-gate system, the combination of a railway-track having insulated sections, an electromagnet arranged in a normally open circuit which is permitted to be closed as a car enters a section, mechanism under control of the electromagnet for actuating the gates whereby as the magnet is excited the gate-arms will be lowered, a second electromagnet arranged in a normally open circuit and permitted to be closed only when a car leaves another section at or near the crossing, and a connection with the gate mechanism and under the control of the second electromagnet whereby as the latter is excited the gate mechanism will be operated to raise the gate-arms, but only after the last truck of the car has cleared the crossing or other predetermined point.

6. In an automatic railway-gate system, the combination of a magnet arranged in a normally open circuit, means for closing the circuit by the movement of a car upon the railway-track, mechanism for actuating the gates, a connection with the gate mechanism, and under the control of the magnet, whereby as the latter is excited the gate-arms will be lowered, a second magnet arranged in a normally open circuit, means for closing the same as a car reaches the crossing, a third magnet arranged in a local circuit and under the control of the second magnet, whereby as the second magnet is excited and then is demagnetized as the last truck clears the crossing or other point the local circuit will be momentarily completed, and a connection with the gate mechanism and under the control of the third magnet whereby as the latter is excited the gate-arms will be raised.

7. In an automatic railway-gate system, the combination of a railway-track having insulated sections f^9 and g^9, an electrical circuit normally open at the rails, magnets L and E interposed therein, but each arranged in its own shunt, a circuit-breaker in the shunt of magnet E, a connection between the armature of magnet L and the circuit-breaker whereby as magnet L is excited the shunt-circuit of magnet E will be broken but only after the momentary energizing of the latter magnet, mechanism under control of magnet E for actuating the gates whereby as a car enters section f^9 and completes the circuit magnet E will be excited and the gate-arms lowered, an electrical circuit normally open and connected with section g^9 located at or near the crossing, a magnet M arranged in this circuit, a magnet E' arranged in a normally open local circuit, and a circuit-breaker and a circuit-closer arranged in the local circuit and under control of magnet M whereby as a car enters section g^9 the circuit will be completed and magnet M excited to operate the circuit-breaker and closer, thereby causing the local circuit to be momentarily closed as the last truck of the car leaves section g^9, and a connection with the gate mechanism under control of magnet E' whereby as the same is excited thus momentarily the gate-arms will be raised.

576,494. METAIODINORTHOÖXYQUINOLINANA-SULFONIC ACID. ADOLF CLAUS, Freiburg, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed May 10, 1894. Serial No. 510,867. (Specimens.) Patented in Germany Aug. 26, 1892, No. 72,942.

Claim.—1. The process herein described of producing metaiodinorthoöxyquinolinana-sulfonic acid, which consists in subjecting an alkaline solution of orthoöxyquinolinana-sulfonic acid to the action of iodin, substantially as set forth.

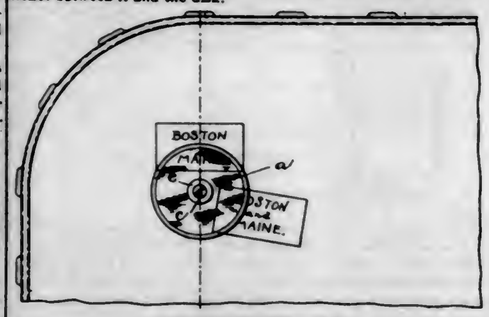
2. The process herein described of producing metaiodinorthoöxyquinolinana-sulfonic acid, which consists in subjecting an alkaline solution of orthoöxyquinolinana-sulfonic acid to the action of an iodin, and then to the action of hydrochloric acid, substantially as set forth.

3. As a new article of manufacture, metaiodinorthoöxyquinolinana-sulfonic acid having the characteristics of being sparingly soluble in water, undergoing by continued boiling with water gradual decomposition while developing an iodin smell melting at about 285° centigrade and decomposing simultaneously under separation of iodin, substantially as described.

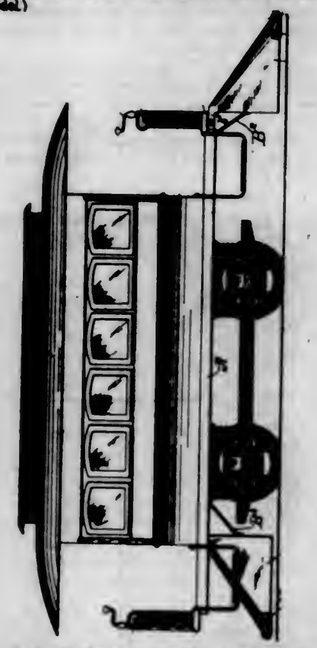
576,495. TICKET-HOLDER. CATHERINE W. DRAPER, Canton, Mass., executrix of James L. Draper, deceased. Filed Sept. 28, 1896. Serial No. 607,193. (No model.)

Claim.—1. A ticket-holder consisting of a non-flexible plate of transparent material such as glass provided with an aperture, in combination with means passing through the aperture for securing it to the back of a seat.

2. The combination with the back of the seat formed with an unyielding central portion covered with a cushion, of a glass disk, and a screw passed through the disk, and holding it against the said cushion whereby the cushion is adapted to yield for the reception of a ticket between it and the disk.



576,496. CAR-FENDER. CLARENCE R. FLETCHER, Waltham, Mass. Filed July 15, 1895. Renewed Dec. 3, 1896. Serial No. 614,380. (No model.)



Claim.—1. In a fender attachment for cars, the combination with a car-body provided with longitudinal bottom timbers with flanged guide-ribs secured on the inner side thereof, of a sliding frame adapted to slide longitudinally within said guide-ribs, a fender at either end of said sliding frame adapted to project beyond the front of the car, a spindle journaled at either end of the car, a hand-lever and a drum mounted on said spindle, a toothed wheel and a pawl adapted to hold the said spindle in any desired position, a hand-rod for releasing said pawl, and a spring for returning the same to the locked position, and a system of ropes and pulleys operated by said drum and said hand-lever for moving said frame longitudinally relative to the car, substantially as described.

2. In a fender attachment for cars, the combination with a car-body provided with guides beneath the same, of a sliding frame adapted to slide longitudinally within said guides, a fender at either end of said sliding frame adapted to project beyond the front of the car, a spindle journaled at either end of the car, and carrying a hand-lever, a drum, a toothed wheel, all rigidly connected thereto, a bowl loosely mounted on said spindle, hand-rods for lifting said bowl, pawls adapted to engage in said toothed wheel, and connecting-rods between said bowl and said pawls for lifting the same out of engagement with said toothed wheel, and means operated by said drum for moving said frame longitudinally relative to the car, substantially as described.

3. In a fender attachment for cars, the combination with a longitudinally-movable frame carrying fenders at either end thereof, of a spindle journaled at each end of the car, and carrying a hand-lever, a drum, a toothed wheel, and an inverted conical disk, of a bowl loosely mounted on said spindle, a spring-catch fast on said bowl, and adapted to catch on said disk, hand-rods for lifting said bowl, pawls adapted to engage in said toothed wheel, and connections between said bowl and said pawl for lifting the pawls out of engagement with the toothed wheel, and means operated by said drum for moving said frame longitudinally relative to the car, substantially as described.

4. In a fender attachment for cars, the combination with a longitudinally-movable frame carrying fenders at either end thereof, of a spindle journaled at each end of the car, and carrying a hand-lever, a drum and a toothed wheel, all rigidly attached thereto, and a disk loosely mounted thereon and held against longitudinal motion on said spindle, a bowl loosely mounted on said spindle, a spring-catch fast on said bowl and adapted to catch on said disk when said bowl is lifted, means for lifting said bowl, pawls adapted to engage in said toothed wheel, and connections between said bowl and said pawls, whereby said pawls are held out of engagement with the toothed wheel, and means operated by said drum for moving said frame longitudinally relative to the car, substantially as described.

5. In a fender attachment for cars, the combination with a longitudinally-movable frame carrying fenders at either end thereof, of a spindle journaled at each end of the car and carrying a hand-lever, a drum, and a toothed wheel, all rigidly attached thereto, and a disk loosely mounted thereon and held against longitudinal motion on said spindle, a bowl loosely mounted on said spindle, a spring-catch fast on said bowl and adapted to catch on said disk when said bowl is lifted, a pair of rods with a handle connecting the same for lifting said bowl, pawls adapted to engage in said toothed wheel, rods between said bowl and said pawls and adapted to lift said pawls, springs adapted to restore said pawls to the initial position, and means operated by said drum for moving said frame longitudinally relative to the car, substantially as described.

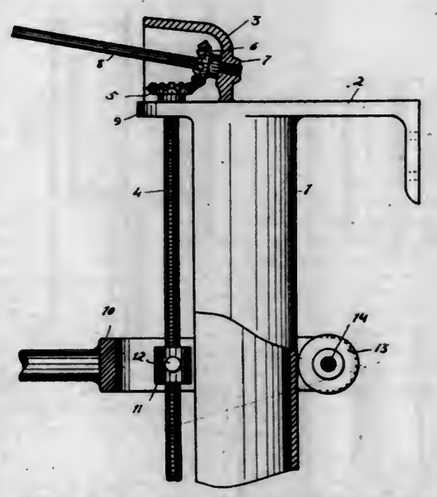
576,497. HAND FERTILIZER-DROPPER. FLAVIUS J. FRANCE, Elkton, Ky. Filed Oct. 28, 1895. Serial No. 567,206. (No model.)

Claim.—1. In an implement for distributing fertilizer or seed, the combination of a plunger for effecting a discharge of the fertilizer or seed, a fan actuated by the plunger for scattering the charge, and a clutch between the plunger and fan, substantially as and for the purpose set forth.

2. In an implement for dropping fertilizer, &c., the combination of a plunger for delivering a charge when depressed, a fan having a rifled barrel and adapted to scatter the charge, a stem having a head operating in the rifled barrel to rotate it and the fan upon depressing the plunger, and a clutch between the plunger and the fan-operating stem, substantially as set forth for the purpose described.

3. In an implement for distributing fertilizer, &c., the combination of a plunger having an opening or slot to deliver a charge, a fan having a rifled barrel, a stem having a head corresponding to and operating in the rifled bore of the barrel, and having a head at its upper end formed with a transverse crease or groove, and having the portions upon opposite sides of the crease oppositely inclined from one end, and a blade carried by the plunger and adapted to cooperate with the upper head of the fan-operating stem, substantially as and for the purpose set forth.

576,498. MEANS FOR RAISING AND LOWERING FORWARD ENDS OF DRAW-BARS IN ROAD-MACHINES. BRITTON POULSON, Fort Wayne, Ind., assignor, by mesne assignments, to the Indiana Road Machine Company, same place. Filed June 27, 1895. Renewed Jan. 11, 1897. Serial No. 618,895. (No model.)



Claim.—1. In a road-working machine, a raising and lowering device for the purpose specified, comprising a vertical screw-shaft rotatably mounted in a proper supporting-standard, provided upon its upper end with a bevel-pinion adapted for an actuating engagement with a corresponding bevel-pinion on a proper rearwardly-extended actuating-rod, the said screw-shaft having a pivotal connection with the bifurcated coupler by which the said draw-bars are vertically adjusted, all substantially as described.

2. In a road-working machine a raising and lowering device for the purpose specified, consisting of a rigid vertical standard 1 fixed upon the main frame as described, a vertical screw-shaft 4 loosely mounted as described, in the lug 9 on the said standard, and having the perforated screw-threaded block 11 with which it engages, and carrying a bevel-pinion 5 on the top thereof, an operating-shaft 8 having a bevel-pinion 6 adapted for engagement with the pinion 5, and the bifurcated draw-head or coupler 10 connected to the said draw-bars and carrying the said block 11 and the roller 13 and adapted to inclose the said standard 1, all substantially as and for the purpose set forth and described.

576,499. GAS APPARATUS. GEORGE F. RANSOM, Milwaukee, Wis., assignor, by direct and mesne assignments, of three-fourths to George F. Ransom, Jr., same place, and Lucas D. Dorschel, Chilton, Wis. Filed Dec. 27, 1895. Serial No. 573,553. (No model.)

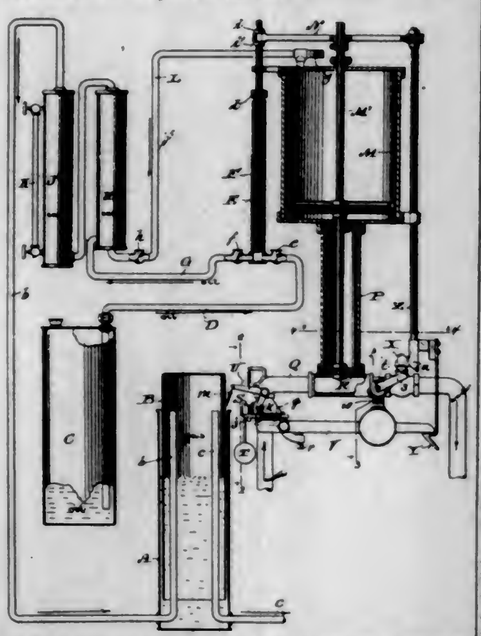
Claim.—1. A gas apparatus comprising a tank for gasolene or analogous liquid, a pump for this liquid and at least one generator in circuit with the tank, an air-pump that discharges into the generator and coöperates with the pump aforesaid, a reciprocative gas-holder in connection with said generator, a motor for the pumps, suitable mechanism operated by the gas-holder to start the motor, and other suitable mechanism operated by the air-pump to stop said motor.

2. A gas apparatus comprising a tank for gasolene or analogous liquid, a pump for this liquid and a plurality of generators in circuit with the tank, an air-pump that discharges into the generator system and coöperates with the pump aforesaid, a reciprocative gas-holder in connection with said generator system, a motor for the pumps, suitable mechanism operated by the gas-holder to start the motor, and other suitable mechanism operated by the air-pump to stop said motor.

3. A gas apparatus comprising a tank for gasolene or analogous liquid, a liquid-pump and at least one generator in circuit with the tank, an air-pump that discharges into the generator and coöperates with the liquid-pump, a reciprocative gas-holder in connection with said generator, a conveyer for fluid under pressure exertive against the air-pump piston, and suitable mechanism operated by said gas-holder and air-pump to effect intermittent flow and waste of said fluid.

4. A gas apparatus comprising a tank for gasolene or analogous liquid, a liquid-pump and a plurality of generators in circuit with each other and the tank, an air-pump that discharges into the gener-

ator system and cooperates with the pump aforesaid, a reciprocative gas-holder in connection with said generator system, a conveyer for fluid under pressure exertive against the air-pump piston, and suitable mechanism operated by said gas-holder and air-pump to effect intermittent flow and waste of said fluid.



5. A gas apparatus comprising a tank for gasolene or analogous liquid, a pump for this liquid in connection with the tank, an air-pump having its piston-rod connected to the plunger of the pump aforesaid, at least one generator connected to both pumps, a gas-holder connected to the generator, a conveyer for fluid under pressure, a cylinder that depends from the air-pump and is coupled to said conveyer, a piston in the cylinder on a continuation of the air-pump piston-rod, supply and waste stop-cocks fitted in the aforesaid conveyer, and controlling mechanism for the stop-cocks cooperative with the gas-holder and air-pump.

6. A gas apparatus comprising a tank for gasolene or analogous liquid, a pump for this liquid in connection with the tank, an air-pump having its piston-rod connected to the plunger of the pump aforesaid, a plurality of generators connected to each other and both pumps, a gas-holder in connection with the generator farthest from the tank, a conveyer for fluid under pressure, a cylinder that depends from the air-pump and is coupled to said conveyer a piston in the cylinder on a continuation of the air-pump piston-rod, supply and waste stop-cocks fitted to the aforesaid conveyer, and controlling mechanism for the stop-cocks cooperative with the gas-holder and air pump.

7. A gas apparatus comprising a gas-holder, an air-pump having a depending cylinder that couples with a conveyer for fluid under pressure, a piston in the cylinder on a continuation of the air-pump piston-rod, supply and waste stop-cocks fitted to said conveyer, and automatic controlling mechanism for the stop-cocks cooperative with the gas-holder and air-pump.

8. A gas apparatus comprising a gas-holder, an air-pump having a depending cylinder that couples with a conveyer for fluid under pressure, a piston in the cylinder on a continuation of the air-pump piston-rod, supply and waste stop-cocks fitted to said conveyer, a tilt-lever, an automatic latch carried by the lever to come under the handle of the supply stop-cock, suitable means for actuating said handle upon release of the latch, a latch-retractor operative in conjunction with the gas-holder, a lever trip-catch and waste stop-cock closer reciprocative with said air-pump piston-rod, and a waste stop-cock opener carried by said lever.

9. A gas apparatus comprising a gas-holder, an air-pump having a depending cylinder that couples with a conveyer for fluid under pressure, a piston in the cylinder on a continuation of the air-pump piston-rod, supply and waste stop-cocks fitted to said conveyer, a tilt-lever an automatic latch carried by the lever to come under the handle of the supply stop-cock, suitable means for actuating said handle upon release of the latch, a latch-retractor flexibly connected to the gas-holder, a lever trip-catch and a waste stop-cock closer reciprocative with said air-pump piston-rod, and a waste stop-cock opener carried by said lever.

10. A gas apparatus comprising a gas-holder, an air-pump having a depending cylinder that couples with a conveyer for fluid under pressure, a piston in the cylinder on a continuation of the air-pump piston-rod, supply and waste stop-cocks fitted to said conveyer, a tilt-lever, an automatic latch carried by the lever to come under the handle of the supply stop-cock, suitable means for actuating said handle upon release of the latch, a latch-retractor, operative in conjunction with the gas-holder, a lever trip-catch and a waste stop-cock closer reciprocative with said air-pump piston-rod, and a finger that being carried by said lever clears the waste stop-cock handle coincident with a lift of the trip-catch but exerts pressure on said handle upon disengagement of said trip-catch from the aforesaid lever.

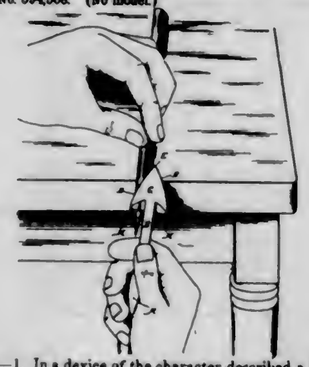
576,500. BALL-BEARING. GUSTAVUS R. STRAUSS, New York, N. Y. Filed Oct. 7, 1896. Serial No. 608,170. (No model.)



Claim.—1. In a ball-bearing, a retaining-ring having projections extending from one uninclosed side only, said projections having seats formed therein for the balls, and balls projecting from said seats in three directions, said ring being adapted to hold the balls in their seats when the ring is removed from the bearing, substantially as set forth.

2. The combination of a hub having on each end an inwardly-extending flange, the outer side surfaces of which are curved or conical, with an axle having on each end a cone forming chambers with the said flanges, in each chamber a retaining-ring having projections extending from one uninclosed side only, said projections having seats formed therein for the balls, and balls projecting from their seats in three directions, substantially as set forth.

576,501. COMBINED PENCIL-SHARPENER, INK-ERASER, AND BURNISHER. HENRY L. TALLEY, Philadelphia, Pa. Filed June 6, 1896. Serial No. 594,506. (No model.)



Claim.—1. In a device of the character described a handle having a head provided with a flat surface F, on one side, a rounded surface G, on the other, two curved erasing edges D, and two straight cutting edges H, as and for the purpose described.

2. As a new article of manufacture, a combined pencil-sharpener, ink-eraser and burnisher composed of a single piece of metal forming a handle, a shank and a head, the latter having a flat surface F, a rounded surface G, two curved erasing edges D, and two straight edges H, for cutting purposes, formed by the grinding of the head upon the rounded side G, as specified.

3. A pencil-sharpener, ink-eraser and burnisher, consisting of a handle A, a shank B, and a head C, the latter being spear-shaped, and having curved edges D, and a concave ground cutting-blade H, upon each side of the shank, substantially as shown and described.

576,502. BRIDLE-BIT. JOHN D. WARFEL, Buford, Ga. Filed Nov. 9, 1896. Serial No. 611,532. (No model.)

Claim.—1. In a bridle-bit, the combination with the two side pieces each having an opening at the top for the attachment of a strap on the head-stall of a bridle or halter, an opening at the bottom for the attachment of a rein, a rearwardly-curved portion between said ends having a short opening for the attachment of a strap on the said bridle or halter, and having also an elongated curved opening therethrough; of a mouth-bar composed of two semicylindrical portions, the one rigidly attached to said side pieces, the other having a shank at each end adapted to slide in said curved openings in said side pieces, and having screw-threaded ends; and thumb-nuts engaging the said screw-threaded ends of said shanks, and adapted to secure said movable section at any desired position in said curved openings, substantially as and for the purposes described.





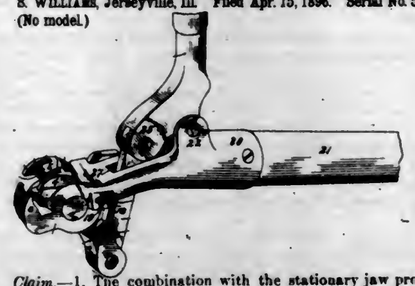
2. In a bridle-bit, the combination with the two side pieces each having an opening at the top for the attachment of a strap on the head-stall of a bridle or halter, an opening at the bottom for the attachment of a rein, a rearwardly-curved portion between said ends having an elongated curved opening therethrough; of a mouth-bar composed of two curved semicylindrical portions, the one rigidly attached to said side pieces, the other having a flattened shank at each end adapted to slide in said curved openings in said side pieces, and having reduced screw-threaded ends; and thumb-nuts engaging the said screw-threaded ends of said shanks, and adapted to secure said movable section at any desired position in said curved openings, substantially as and for the purposes described.

3. In a bridle-bit, the combination with the two side pieces each having an opening at the top for the attachment of a strap on the head-stall of a bridle or halter, an opening at the bottom for the attachment of a rein, a rearwardly-curved portion between said ends having a short opening for the attachment of a strap on the said bridle or halter, and having also an elongated curved opening therethrough; of a mouth-bar composed of two curved semicylindrical portions, the one rigidly attached to said side pieces, and having a pair of recesses in the flat face thereof, the other having a pair of lugs upon its flat face adapted to engage said recesses in the flat face of said rigid portion, and having a flattened shank at each end adapted to slide in said curved openings in said side pieces, and having reduced screw-threaded ends; and thumb-nuts engaging the said screw-threaded ends of said shanks and adapted to secure said movable sections at any desired position in said curved openings, substantially as and for the purposes described.

4. In a bridle-bit, the combination with the two side pieces each having an opening at the top for the attachment of a strap on the head-stall of a bridle or halter, an opening at the bottom for the attachment of a rein, a rearwardly-curved portion between said ends having a short opening for the attachment of a strap on the said bridle or halter, and having also an elongated curved opening therethrough with an enlargement at its lower end; of a mouth-bar composed of two curved semicylindrical portions, the one rigidly attached to said side pieces, the other having a flattened shank at each end adapted to slide in said curved openings in said side pieces, and having reduced screw-threaded ends; and thumb-nuts engaging the said screw-threaded ends of said shanks, and adapted to secure said movable section at any desired position in said curved openings, substantially as and for the purposes described.

5. In a bridle-bit, the combination with the two side pieces each having an opening at the top for the attachment of a strap on the head-stall of a bridle or halter, an opening at the bottom for the attachment of a rein, a rearwardly-curved portion between said ends having a short opening for the attachment of a strap on the said bridle or halter, and having also an elongated curved opening therethrough; of a mouth-bar composed of two curved semicylindrical portions, the one rigidly attached to said side pieces, the other having a shank at each end adapted to slide in said curved openings in said side pieces, and having screw-threaded ends; and thumb-nuts engaging the said screw-threaded ends of said shanks, and adapted to secure said movable section at any desired position in said curved openings, and each having a hollow recess in its flat side, with grooves leading from said hollow recess, said recess and said grooves in said sections adapted to coincide when the two sections are brought together, substantially as and for the purposes described.

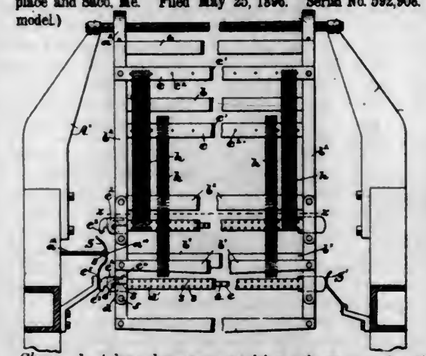
576,503. WIRE CRIMPING AND FASTENING PLIERS. JOHN S. WILLIAMS, Jerseyville, Ill. Filed Apr. 15, 1896. Serial No. 587,677. (No model.)



Claim.—1. The combination with the stationary jaw provided with the handle-socket and slot as described, of the pivoted jaw fulcrumed intermediate its ends on the stationary jaw between the slot and the point thereof, the operating-lever therefor, and the pivotal connecting-link interposed between said lever and pivoted jaw and passing through the slot in the stationary jaw and connected to the inner end of the pivoted jaw, substantially as described.

2. The combination with the pivoted jaws formed at their outer ends with wire-crimping fingers and provided in rear of their pivotal connection with lateral recesses, of wire-cutters removably fitted in said recesses, the said cutters being actuated by the same operating means as the jaws, substantially as described.

576,504. WARP STOP-MOTION FOR LOOMS. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed May 25, 1896. Serial No. 592,906. (No model.)



Claim.—1. A loom-harness comprising a frame, a series of metallic heddles slotted at their lower ends only, a cross-bar on said frame, extending through said slots and supporting the heddles vertically, guide-bars to confine the upper ends of the heddles in the direction of the warp, and cross-supports to divide the heddles into sections, substantially as described.

2. In a loom wherein the heddles are free to move vertically on their support for a limited extent, a heddle-frame and a horizontally-extended warp-rest attached thereto below the warp, said warp-rest when the frame is raised acting as a support for such slack threads in the lower plane of the shed as are abnormally depressed by the weight of their controlling-heddles, substantially as described.

3. In a loom, a heddle-frame provided with a horizontal bar and a series of metallic heddles having warp-eyes, and elongated slots at their lower ends, through which the bar is extended, combined with a feeler having projections to engage a dropped heddle, two series of horizontal projections fixed in position above and below the projections of the feeler respectively, means to normally move said feeler back and forth between the series of fixed projections, at right angles to the length of the warp, stopping mechanism for the loom, and connections between the feeler and said stopping mechanism, to control the latter, substantially as described.

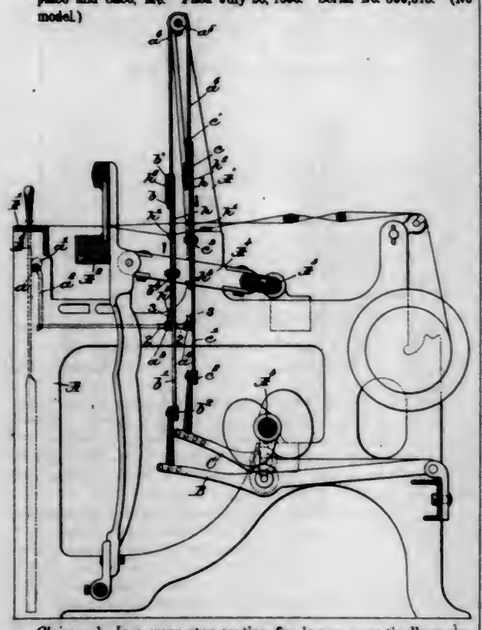
4. In a loom, a heddle-frame provided with a cross-bar and a series of metallic heddles each having a warp-eye and an elongated slot, to embrace and be moved vertically on said bar, combined with a transverse bar having two series of projections one above the other, to extend between and guide the lower ends of the heddles controlling the warps in the lower plane of the shed, a feeler movable at right angles to the length of the warp and between the two series of projections on the said transverse bar, to contact with a dropped heddle, the projections of the bar controlling and preventing lateral movement or bending of a heddle when engaged by the feeler, stop-

ping mechanism for the loom; and connections between the feeler and said stopping mechanism, to control the latter, substantially as described.

5. In a loom, a heddle-frame provided with a cross-bar and a series of heddles adapted to move independently of said bar, a transversely-vibratable feeler carried by the frame, to engage and be held stationary by a dropped heddle, and a hooked ear mounted on said feeler, combined with a shipper-handle, a cord or wire attached thereto and normally in the path of the hooked ear, and means to move the feeler and its ear into inoperative position when the loom is working properly, a dropped heddle preventing such movement of the feeler, whereby the cord or wire is engaged by the hooked ear and the shipper-handle released to stop the loom, substantially as described.

6. In a loom, a heddle-frame provided with a horizontal bar and a series of metallic heddles each having a warp-eye and an elongated slot to embrace and be moved vertically on said bar, combined with a fixed transverse bar and a transversely-vibratable bar or feeler adjacent thereto, two sets of horizontal projections on one of said bars, and a third series of similar projections on the other bar and located between the first two series, and means to normally move said feeler back and forth at right angles to the length of the warp, a dropped heddle being held between a projection of the single series and corresponding projections in the double series, preventing bending or distortion of said heddle and stopping the movement of the vibratable bar, substantially as described.

576,505. **WARP STOP-MOTION FOR LOOMS.** GEORGE O. DRAPER, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed July 20, 1896. Serial No. 599,815. (No model.)



Claim.—1. In a warp stop-motion for looms, a vertically-reciprocating heddle-frame, and a series of heddles supported thereby and adapted to move vertically for a limited distance independently of the frame, combined with stopping mechanism for the loom, and controlling means therefor to engage a heddle in abnormal position due to breakage or undue slackening of its warp-thread, and to be positively operated by subsequent movement of the heddle, substantially as described.

2. In a warp stop-motion for looms, a heddle-frame, a series of heddles supported thereby, and means to reciprocate said frame, combined with stopping mechanism for the loom, and controlling means therefor to engage a heddle in abnormal position, and be actuated by subsequent movement of the heddle, to thereby operate the stopping mechanism at the next change of shed, substantially as described.

3. In a warp stop-motion for looms, the lay, a series of stop-motion-actuating detectors mounted independently thereof, means to reciprocate them vertically at each change of shed, stopping mechanism for the loom, and a controlling device for said mechanism, to engage a detector when its warp-thread breaks or unduly slackens, and to be positively operated by subsequent movement of the detector at the next change of shed, substantially as described.

4. In a warp stop-motion for looms, a series of independently-supported heddles, means to positively reciprocate them, at each change of shed, a shipper, and a controlling device therefor, to engage a heddle after breakage or undue slackening of its warp-thread, and to be positively actuated by subsequent movement of the heddle, substantially as described.

5. In a warp stop-motion for looms, a series of heddles each having a hook, and a frame for and in which said heddles are vertically movable for a limited distance, combined with a shipper, and controlling means therefor to be engaged by the hook of a heddle in abnormal position and to be positively moved by said heddle at the next change of shed, substantially as described.

6. In a warp stop-motion for looms, a heddle-frame provided with a cross-bar and a series of metallic heddles each having a warp-eye and a hook, means to vertically reciprocate said frame, and a guide for and to loosely receive the lower ends of the heddles, combined with a shipper, and controlling means therefor, including a flexible member extended in the path of and to be engaged by the hook of a heddle in abnormal position due to breakage or undue slackening of its warp-thread, subsequent movement of the heddle by its frame actuating the controlling means to release the shipper, substantially as described.

7. In a warp stop-motion for looms, a heddle-frame, a series of heddles supported thereby and having a vertical movement relative thereto, each heddle having a hook, means to reciprocate the heddle-frame, and means to depress the heddles positively, combined with a shipper, a releasing device therefor, including a flexible member to be engaged by the hook of a dropped heddle and positively moved thereby to release the shipper at the next change of shed, substantially as described.

8. In a warp stop-motion for looms, a series of heddles each having a hook, a frame for and in which the heddles are relatively movable for a limited distance, and means to reciprocate the frame, combined with a shipper, and a controlling device therefor including a flexible member, one end of which is fixed, to be engaged by the hook of a heddle in abnormal position and flexed by movement of the latter with its frame, to thereby release the shipper, substantially as described.

9. In a loom, a series of drop-pieces through which warp-threads are drawn, and means to positively reciprocate them at each change of shed, combined with stopping mechanism for the loom, and a normally stationary controller therefor to be engaged by said drop-pieces when their warp-threads are broken or unduly slack, and actuated by movement of said detectors at the next change of shed, substantially as described.

10. In a loom, the combination of a series of independent heddles serving as warp stop-detectors, with a stop-motion for the loom, controlling means therefor directly engaged by and operated through said heddles by the motion of the harness, substantially as described.

11. In a loom, a series of warp-stop-motion-actuating detectors, means to reciprocate them vertically, and stopping mechanism for the loom adapted to be engaged by a detector in abnormal position due to breakage or undue slackness of its warp-thread, and to be positively operated by subsequent movement of said detector, substantially as described.

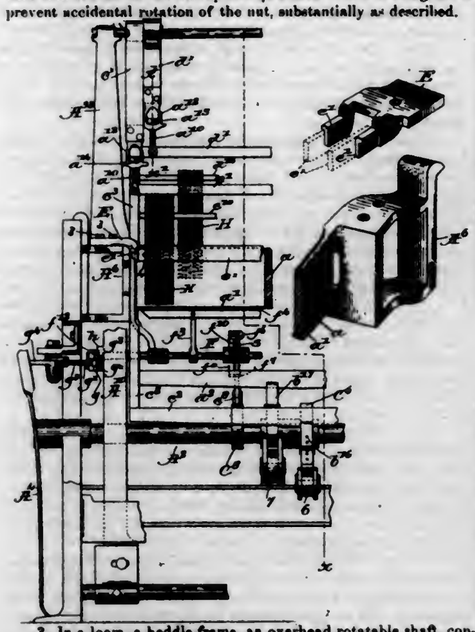
12. In a loom, shedding mechanism, including a series of stop-motion-actuating detectors serving also as heddles and moved into abnormal actuating position by failure or undue slackening of the warp-threads, and stopping mechanism for the loom independent of the shedding mechanism and adapted to be engaged by a detector in abnormal position, to be positively operated by subsequent change of position of said detector due to movement of the shedding mechanism, substantially as described.

13. In a loom, a series of heddle-frames provided with heddles serving as warp-stop-motion-actuating detectors, and stopping mechanism for the loom independent of said frames operated directly and positively by subsequent movement of a dropped detector, substantially as described.

576,506. **SHEDDING MECHANISM FOR LOOMS.** GEORGE O. DRAPER and JAMES H. NORTHROP, Hopedale, Mass., assignors to the Northrop Loom Company, same place and Saco, Me. Filed Sept. 19, 1896. Serial No. 606,331. (No model.)

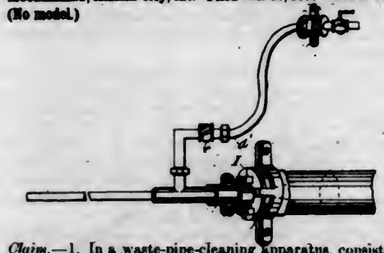
Claim.—1. In a loom, a pair of reciprocating heddle-frames, and a series of heddles on each frame to act as warp-detectors, combined with a fixed separator to separate the lower ends of the heddles of one series from the lower ends of the heddles of the other series, a stationary guide into which the lower ends of the heddles enter, stands having depending, separated feet for the heddle-guide and between which the side bars of the heddle-frames are free to move laterally, means connected to the bottoms of the heddle-frames, to reciprocate them, and upper connections between the tops of the frames, substantially as described.

2. In a loom, a heddle-frame having upturned threaded links attached to its top, an overhead rotatable shaft, depending straps secured thereto each having a stirrup through which one of said links is loosely extended, and a combined adjusting and retaining nut on each link to rest on the stirrup and provided with a locking-ear to prevent accidental rotation of the nut, substantially as described.



3. In a loom, a heddle-frame, an overhead rotatable shaft, connections between it and the top of the heddle-frame, including stirrups and cooperating threaded links extended loosely therethrough, and adjusting-nuts on said links, provided with locking-ears to straddle the stirrup-bases and prevent accidental rotation of the nuts, substantially as described.

576,507. **WASTE-PIPE-CLEANING APPARATUS.** WILLIAM A. MCCLELLAND, Kansas City, Mo. Filed Jan. 10, 1896. Serial No. 575,042. (No model.)



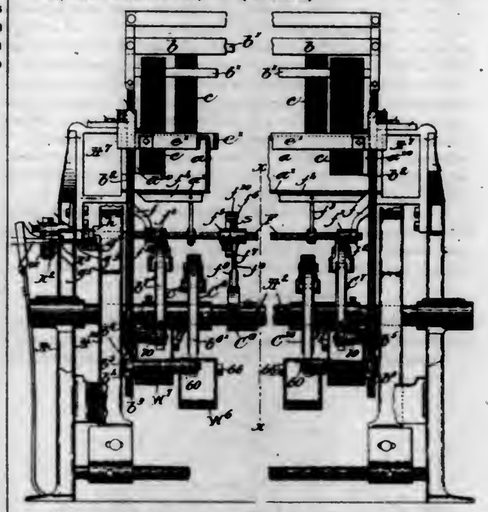
Claim.—1. In a waste-pipe-cleaning apparatus, consisting of an inverted elastic cup, and a handle connected with said cup, the combination of a pipe-closing cover extending around said handle, substantially as shown and described.

2. In a waste-pipe-cleaning apparatus, the combination with the waste-pipe of an inverted elastic cup, a handle connected with said cup, a pipe-closing cover extending around said handle and a gasket between said cover and said waste-pipe having an apron extending around said pipe, substantially as and for the purpose described.

3. In a waste-pipe-cleaning apparatus, the combination with the waste-pipe of an inverted elastic cup, a handle connected with said cup, a disk on said handle and a gasket between said disk and waste-pipe, having an apron extending around said pipe, and a clamping device for said apron, substantially as shown and described.

4. In a waste-pipe-cleaning apparatus, the combination with the waste-pipe of an inverted elastic cup, a tubular handle connected with said cup at one end, and a flexible liquid-conducting pipe connected with the other end of said pipe, having a back-pressure or check valve, a disk on said handle and a gasket between said disk and said waste-pipe, and means for securing said disk to the waste-pipe, substantially as and for the purpose described.

576,508. **LOOM.** JAMES H. NORTHROP, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed May 22, 1896. Serial No. 592,571. (No model.)



Claim.—1. In a loom, a plurality of heddle-frames, and a series of metallic heddles supported in each frame and adapted to slide vertically independent of the movement of the frame, combined with a fixed guide for the lower ends of the heddles, a separator interposed between and separating the lower ends of the heddles of one series from the lower ends of the heddles of the adjacent series, a vibrating detector to meet the edge of a dropped heddle, stopping mechanism for the loom, and connections between it and the detector, substantially as described.

2. In a loom, a plurality of heddle-frames, a series of metallic heddles supported by and adapted to slide vertically in each frame, a fixed guide for the lower ends of the heddles, a separator interposed between the lower ends of each two series of heddles, and a detector to meet the edge of a dropped heddle, combined with an actuating-shaft, connections between it and the heddle-frames, means operating in unison with said actuating-shaft, to vibrate the detector, stopping mechanism for the loom, and connections between it and the detector, substantially as described.

3. In a loom, a plurality of frames, a series of metallic heddles supported by and adapted to slide vertically in each frame, a separator interposed between the lower ends of the heddles of each two series, a detector having oppositely-turned portions to engage a dropped heddle in one or the other series, the separator at such times supporting the inner edge of the dropped heddle, and means to normally vibrate the detector in the direction of the length of the warp, stopping mechanism for the loom, and connections between it and the detector, substantially as described.

4. In a loom, a pair of reciprocating heddle-frames, and a series of heddles on each frame, combined with a stationary guide into which the lower ends of the heddles enter, and a fixed separator to separate the lower ends of the heddles of one series from the lower ends of the heddles of the other series, substantially as described.

5. In a loom, a pair of reciprocating heddle-frames, and a series of heddles on each frame, combined with a stationary guide into which the lower ends of the heddles enter, a fixed separator interposed between the lower ends of the two series of heddles, and a notched foot on the separator, to receive the edge of a dropped heddle, substantially as described.

6. In a loom, a pair of reciprocating heddle-frames, a series of heddles on each, a stationary guide into which the lower ends of the heddles enter, a separator extended across said guide between its sides and separating the lower ends of the heddles of one series from the lower ends of the heddles of the other series, and a heddle-stop at each side of the separator, at the ends of and to maintain each series of heddles from undue lateral movement, substantially as described.

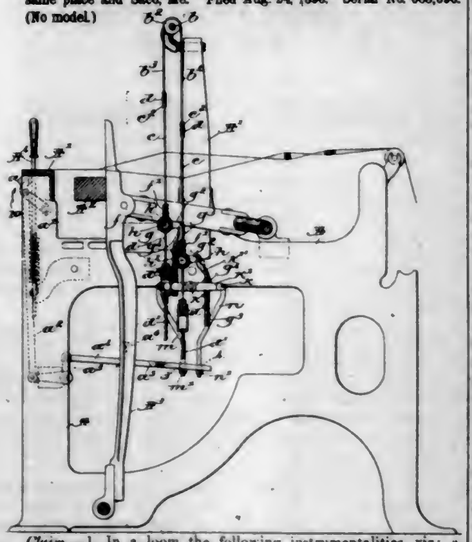
7. In a loom, a shipper-handle, releasing mechanism therefor, including a dagger, a reciprocating bar, a series of heddles thereon free to slide vertically to a limited extent, a vibrating detector, means including a rocking arm, to normally vibrate it, and a yielding connection between said arm and the detector, said detector engaging and being stopped by a dropped heddle, connections between the detector and dagger to control the position of the latter, and means

independent of the said rocking arm to engage and move the dagger to release the shipper-handle when the detector engages a dropped heddle, substantially as described.

8. In a loom, a shipper-handle, a detent therefor, releasing mechanism for the shipper-handle, including an elbow-lever, and a dagger pivotally connected thereto, and means to engage and move the dagger when in operative position to release the shipper-handle, combined with a normally-vibrated detector, connections between it and the dagger, including a slotted rocker-arm and a coöperating stud on the dagger, to move the latter by vibration of the detector, and a series of vertically-reciprocated heddles, dropping of a heddle by breakage of a warp-thread in the lower plane of the shed causing stoppage of the detector and thereby movement of the dagger into operative position, substantially as described.

9. In a loom, reciprocating heddle-frames, and a series of metallic heddles normally free to slide vertically to a limited extent on said frames, combined with heddle-stops to limit the lateral movement of the heddles on the frames, substantially as described.

576,509. **WARP STOP-MOTION FOR LOOMS.** CHARLES F. ROPER, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed Aug. 24, 1896. Serial No. 603,690. (No model.)



Claim.—1. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar, and a series of metallic heddles adapted to move independently of said bar, having each a warp-eye, combined with a vibrator movable in the direction of the length of the warp, and mounted on the heddle-frame and adapted to engage a dropped heddle, a shipper-lever, means to release it, a controller for said means, and connections between the vibrator and controller, to operate the latter, substantially as described.

2. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar, and a series of metallic heddles adapted to move independently of said bar, having each a warp-eye, combined with a rocking vibrator mounted on the heddle-frame and adapted to engage a dropped heddle, a shipper-lever, means including a pivoted dog, and a coöperating bunter, to release the shipper-lever, a controller to move the dog into operative position, and connections between the vibrator and controller, to operate the latter upon failure or undue slackening of a warp-thread, substantially as described.

3. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar, and a series of metallic heddles adapted to move independently of said bar, having each a warp-eye, combined with a rocking vibrator mounted on the heddle-frame and adapted to engage a dropped heddle, an arm on said vibrator, a shouldered rod depending therefrom, a shipper-lever, releasing means therefor, and a controller for said means, having a sliding connection with said rod, whereby the vibrator is normally rocked, engagement of a dropped heddle by the vibrator acting through said rod to operate the controller, substantially as described.

4. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar, and a series of metallic heddles adapted to move independently of said bar, having each a warp-eye, combined with a rocking vibrator mounted on the heddle-frame and adapted to engage a dropped heddle, a shipper-lever, releasing means therefor, including a pivotally-mounted, longitudinally-movable dog, a coöperating bunter, a rocking controller for the dog, to move it into operative position, and means, connected to the vibrator to rock the controller when a dropped heddle is engaged by the vibrator, substantially as described.

5. In a loom, a reciprocating heddle-frame having a cross-bar, and a series of metallic heddles each having a warp-eye and adapted to move independently of the cross-bar, a vibrator adapted to be rocked, connections between said vibrator and the heddle-frame, to normally rock the former as the heddle-frame reciprocates, stopping mechanism for the loom, a controller therefor, and a connection between the vibrator and controller, whereby one or the other will be operated by reciprocation of the heddle-frame, substantially as described.

6. In a loom, a reciprocating heddle-frame having a cross-bar, and a series of metallic heddles each having a warp-eye and adapted to move vertically for a limited distance independently of the cross-bar, a vibrator mounted on the heddle-frame below the heddles, a guide for the lower ends of said heddles, stopping mechanism for the loom, including a dog, and a coöperating bunter, a rocking controller to move the dog into operative position, and a sliding connection between the vibrator and controller, whereby when the vibrator engages a dropped heddle the controller is rocked, substantially as described.

7. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar; a series of metallic heddles supported upon said bar and adapted to be moved longitudinally independently thereof, combined with a rocking vibrator mounted on the heddle-frame and adapted to engage the end of a dropped heddle, and means to normally rock the vibrator when the heddle-frame reciprocates, substantially as described.

8. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar; a series of metallic heddles supported upon said bar and adapted to be moved longitudinally independently thereof, combined with a longitudinally-slotted vibrator, mounted below the heddles, a dropped heddle entering the slotted vibrator to prevent rocking thereof, and means to normally rock the vibrator when the heddle-frame reciprocates, substantially as described.

9. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar; a series of metallic heddles supported upon said bar and adapted to be moved longitudinally independently thereof, combined with an open guide on the heddle-frame, into which the lower ends of the heddles enter, a rocking vibrator mounted on the heddle-frame below the guide, to engage and be held from oscillation by a dropped heddle, and means to normally rock the vibrator when the heddle-frame oscillates, substantially as described.

10. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar; a series of metallic heddles supported upon said bar and adapted to be moved longitudinally independently thereof, combined with a rock-shaft mounted on the heddle-frame, a longitudinally-slotted cylindrical vibrator fast on said shaft, below the heddles, to receive in the slot a dropped heddle, and means to normally rock the vibrator as the heddle-frame descends, substantially as described.

11. In a loom the following instrumentalities, viz: a heddle-frame having a cross-bar; a series of metallic heddles supported upon said bar and adapted to be moved longitudinally independently thereof, combined with a rock-shaft mounted on the heddle-frame, a longitudinally-slotted cylindrical vibrator fast on said shaft, below the heddles to receive in the slot a dropped heddle, an open guide on the heddle-frame for the lower ends of the heddles, and located above the vibrator, and means to normally rock the vibrator when the heddle-frame descends, substantially as described.

12. In a loom, shedding mechanism, a stop-motion for the loom, a series of stop-motion-actuating detectors moved into actuating, operative position by failure or undue slackening of the warp-threads, a longitudinally-slotted vibrator mounted below and to receive a dropped detector, and means to normally rock the vibrator when the shed is changed, substantially as described.

576,510. **PROCESS OF MANUFACTURING MALT WINE.** FRIEDRICH SAUER, Schöneberg, Germany, assignor of one-half to the Dampf-Kornbrennerei und Preshefen-Fabriken Actien-Gesellschaft, vormals Heinrich Heiling, Wandsbeck-Hamburg, Germany. Filed May 5, 1891. Serial No. 391,622. (No specimens.) Patented in Germany June 20, 1890, No. 58,161.

Claim.—1. A wine containing at least five per cent. of sugar, principally maltose free from malt flavor, containing twelve per cent. of unadded ethylic alcohol, and 0.5 per cent. of lactic acid, substantially as described.

2. A wine containing at least five per cent. of sugar, principally maltose free from malt flavor and containing sufficient ethylic alcohol and lactic acid to prevent fermentation without the addition of other antiseptic substances, substantially as described.

3. In the manufacture of malt wine, the process of destroying the malt flavor and bringing out the wine flavor of the wine by treating a wine possessing both a malt and wine flavor with sterilized air while in a warm condition, substantially as described

4. In the manufacture of malt wine, the process of preparing a malt wort, subjecting the same to the action of the ferment of lactic acid, infecting the wort with the special ferments of wines to produce the flavors desired, and subsequently adding successively definite amounts of cane-sugar, thereby enabling the ferments to continue their activity without lessening said activity by the addition of superabundant sugar, substantially as described.

5. In the production of malt wine, the process of treating a malt wort with a special wine ferment as desired, in subsequently adding definite quantities of cane-sugar, and in finally treating the liquid possessing both a malt and wine flavor at a high temperature to destroy the malt flavor and bring out the flavor of the wine by sterilized air, substantially as described.

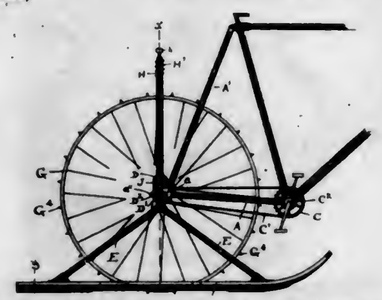
6. In the manufacture of malt wine, the process of subjecting the wort to the action of a lactic-acid ferment, in subsequently adding a special wine ferment as desired, in subsequently adding definite quantities of cane-sugar, and in finally treating the liquid possessing both a malt and wine flavor at a high temperature to destroy the malt flavor and bring out the flavor of the wine by sterilized air, substantially as described.

576,511. **BLUE TRISAZO DYE.** GEORG STRNIKE and FRIEDRICH SCHMIDT, Höchst-on-the-Main, Germany. Filed Jan. 11, 1895. Serial No. 534,573. (Specimens.) Patented in Germany Aug. 24, 1894, No. 84,292.

Claim.—1. The process herein discovered of producing mixed trisazo coloring-matters which consists in combining one molecule of dioxynaphthalenemonosulfonic acid S with one molecule of a diazo compound and coupling the monoazo coloring-matter thus formed with one molecule of a tetrazo compound, and then coupling the resulting intermediate product with a further molecule of a phenol, naphthol, their carbonic or sulfonic acids, substantially as described.

2. As a new article of manufacture, a coloring-matter, which is obtained by combining dioxynaphthalenemonosulfonic acid S with a diazo compound, next with a tetrazo compound, and then with a phenol, naphthol or their derivatives, and which consists of a gray-black powder, dissolving in water with violet-blue color, soluble in concentrated sulfuric acid with blue color, giving a violet precipitate on addition of water, and dyeing cotton blue tints.

576,512. **SLEIGH ATTACHMENT FOR BICYCLES.** PERRY P. TUCKER, Geneva, N. Y. Filed Mar. 21, 1896. Serial No. 584,216. (No model.)



Claim.—1. In a cycle attachment, the combination with the frame having the runner and adapted for attachment to the fork of a cycle, of the spurred driving-wheel, the fork in which said wheel is mounted, and a spring connection between said wheel and runner-frame, substantially as described.

2. In a cycle attachment, the combination with the frame having the runner, means for connecting it to the fork of a cycle, and the tubular frame on the runner-frame, of the spurred driving-wheel having the fork operating in the tubular frame, and the spring arranged between said fork and the tubular frame, substantially as described.

3. In a cycle attachment, the combination with the frame having the runner, the bolts connecting it to a cycle-frame, and upon which it is pivoted, of the spurred driving-wheel, the fork carrying the wheel, and an adjustable spring connection between the runner-frame and fork, substantially as described.

4. In an attachment for cycles, the combination of the brackets adapted for attachment to a cycle-fork, the standards, and the runner secured to their lower ends, the vertical tubular frame, the fork movable therein, the spring between the fork and frame and the driving-wheel journaled in the fork and having the sprocket-wheel thereon, substantially as described.

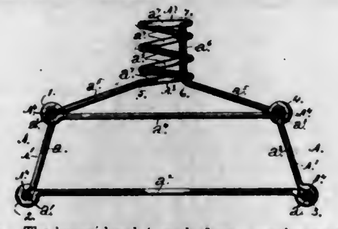
5. The combination with a cycle-frame having a fork, a driving sprocket-wheel thereon, and a sprocket-chain, of a frame pivoted to the fork of the cycle, having a runner, a spurred driving-wheel having a driving-sprocket, and a spring connection between said driving-wheel and the frame in which it is mounted, substantially as described.

6. In a cycle attachment, the combination with the runner having the recess in its under side, and the removable shoe or rib secured therein, substantially as described.

7. In a cycle attachment, the combination with the runner formed of sheet material with the recess in its under side, of the rib or shoe removably secured in said recess, substantially as described.

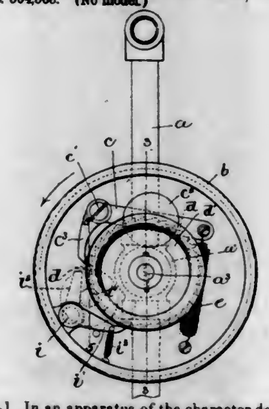
8. The combination with the frame having the slotted runner, of the driving-wheel operating in the slot and having the spurs and the sprocket-wheel, the fork in which said driving-wheel is mounted, the tubular supports for the fork, and the spring between the fork and frame, substantially as described.

576,513. **BROOM-HEAD.** SIMON L. BRANDT, Marietta, Pa., assignor of one-half to Henry C. Grady, same place. Filed Oct. 21, 1896. Serial No. 609,497. (No model.)



Claim.—The broom-head A made from a continuous wire comprising the members A' A^2 having the downwardly and outwardly sloping end bars a, the lower side bars a^2, the upwardly and inwardly sloping end bars a^3, and the upper side bars a^4, with the bolt-receiving eyes a' at the angles 1, 2, 3, 4, where said bars are folded over to form said eyes; the upwardly-sloping diagonal arms a^5 merged from the bars a^4 at the angles 1 and extended to the points 5 and 6; the vertically-disposed ridge a^6 continued from one of the arms a^5 and extended upwardly to the point 7; the handle-socket coil A^2 having the spiral folds a^7 about said ridge with its upper fold merged from the upper end thereof and its lower fold merged into the other arm a^5 at the point 5; and means provided, such as bolts A^4, passed through said eyes, with nuts a^8 thereon, to press and hold said members together, all substantially as described and for the purpose hereinbefore set forth.

576,514. **APPARATUS FOR STOPPING ENGINES.** GILMAN W. BROWN, West Newbury, Mass., assignor, by mesne assignments, to the Electro Steam Appliance Company, of New Jersey. Filed Oct. 4, 1895. Serial No. 564,583. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a vent-controlling valve, of an actuator moved by the power of the engine, and a coupling device or clutch member actuated by the power of the engine to connect the actuator with the valve for the purpose described.

2. In an apparatus of the character described, the combination with a vent-controlling valve and a ratchet affixed to the stem of said

valve, of a rotary actuator driven by the power of the engine and carrying a pawl normally out of engagement with said ratchet, said pawl adapted to be moved into engagement therewith by the power of the engine through centrifugal force substantially as described.

3. In an apparatus of the character described, the combination with a valve-casing, and a vent-controlling valve therein having a screw-threaded stem in engagement with a screw-threaded bore in the casing; of a ratchet-wheel affixed on said stem, a pulley loosely mounted on the casing surrounding the stem and adapted to be driven by the power of the engine, and a weighted ratchet carried by said pulley and adapted to be thrown into engagement with the ratchet-wheel by centrifugal force, substantially in the manner and for the purpose described.

4. An apparatus of the character described comprising a vent-controlling valve, an actuator therefor moved by the power of the engine, two independent coupling devices or clutch members, one adapted to be operated by the power of the engine to automatically connect the actuator with the valve, and manually-controlled means for operating the other clutch member to connect the actuator with the valve at the will of an attendant, substantially as described.

576,515. TIMBER-RAFT. ANDREW J. BURCHAM, Woodland, Wash. Filed Apr. 26, 1895. Serial No. 547,273. (No model.)

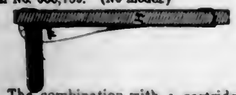


Claim.—1. A raft comprising a series of layers of timber arranged on each other to form a solid mass, and decreasing in length outward and forming a tapering or pointed raft, substantially as described.

2. A raft comprising a central core, and a series of layers of timber arranged on the core and extending around the same to form a solid mass, said layers decreasing in length from the core outward and forming a tapering or pointed raft, substantially as described.

3. A raft comprising a central core, consisting of timbers, a series of concentric layers arranged on the core, composed of sections of flexible connecting-logs and terminating short of one another to arrange the joints or adjacent ends of the sections alternately so that no two joints will occur at the same point, and chains or cables for binding the layers and the core together, substantially as described.

576,516. CARTRIDGE-BELT. CHARLES E. CONNER, Auburn, Me., assignor of one-half to Ara Cushman, Jr., same place. Filed Oct. 14, 1896. Serial No. 608,789. (No model.)

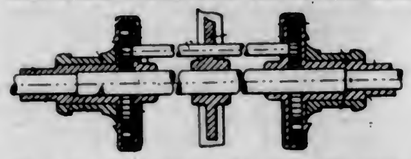


Claim.—1. The combination with a cartridge-belt of a hinged support for the rim of the cartridge and means of attaching it to the belt; all as and for the purpose set forth.

2. In a cartridge-belt, the combination with the leather or other material of the belt, of the fixed part of a hinge secured thereto, a holder for the rim of the cartridge which forms the movable part of the hinge and a spring attached to the belt which acts to hold the rim-holder fixed in one or more positions; all as set forth.

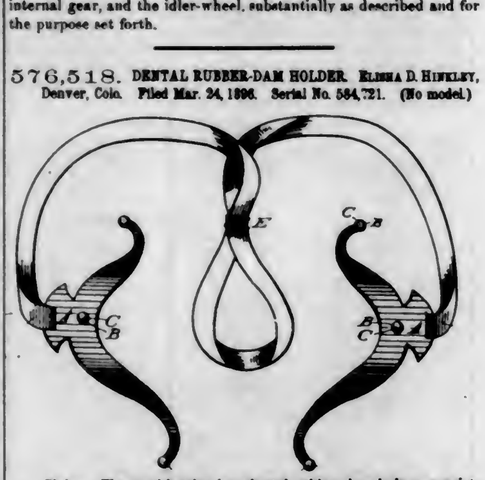
3. The combination of a holder for the rim of a cartridge which encircles one-half of it and is open on the other side, a supporting-piece to which the rim-holder is hinged; a spring formed from the metal of the supporting-piece; and a projecting piece on the rim-holder which enters a hollow in the spring when the rim-holder is at right angles to the supporting-piece; all as set forth.

576,517. SELF-PROPELLING VEHICLE. ROBERT W. ELSTON, Charlevoix, Mich. Filed May 25, 1896. Serial No. 593,671. (No model.)



Claim.—In a drive mechanism for self-propelling vehicles, the combination of the drive-shaft axle constructed of a single piece, sleeves mounted thereon and independently rotatable thereof, the said sleeves each provided with integrally-formed lateral annular housings provided with internal gears, one internal gear being larger than the other, for the purposes specified, supports rigidly connected with the drive-shaft, a drive gear-wheel connected directly with the drive-shaft and arranged midway the ends thereof, a counter-shaft extending in a plane parallel with the drive-shaft and supported by the said supports and passing through the drive-wheel, the said counter-shaft provided with a removable pinion-wheel at each end, one of the pinion-wheels meshing directly with the smaller of the internal gears of the annular housings, and the other pinion-wheel adapted to mesh with the larger of the internal gears by means of an idler-wheel attached to the inner face of the annular housing carrying the larger internal gear, and the idler-wheel, substantially as described and for the purpose set forth.

576,518. DENTAL RUBBER-DAM HOLDER. ELISHA D. HINKLEY, Denver, Colo. Filed Mar. 24, 1896. Serial No. 584,721. (No model.)

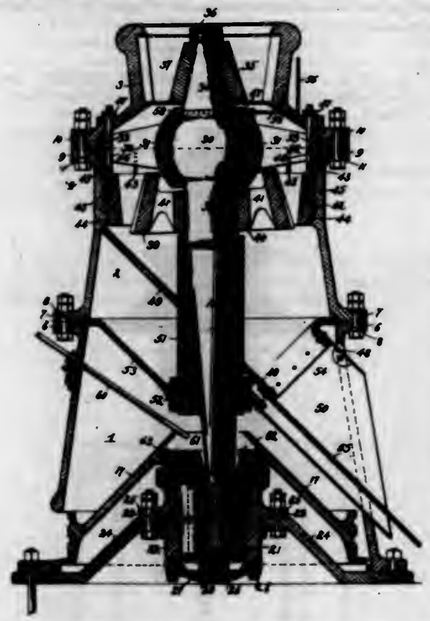


Claim.—The combination in a dental rubber-dam holder, consisting of two metal plates, conforming to the general outline and contour of the face; concaved in their centers, and convex at their extremities, with three round balls for attaching the rubber dam, and with elastic bands for holding the device in position on the head, all as and for the purposes described.

576,519. CRUSHER FOR STONE, ORE, &c. GEORGE LOWRY, Tiffin, Ohio. Filed Oct. 14, 1893. Serial No. 488,163. (No model.)

Claim.—1. The combination with a case constructed as described, of a gyratory shaft having a ball-fulcrum, the bearing for said shaft firmly supported within the frame, the upper crusher-ring held in the upper flanged portion of the case, the upper crusher-section detachably mounted upon the shaft above the fulcrum, the lower crusher-ring, the screws secured to the upper portion of the ring and projected through the case for adjustably supporting said ring, and the lower crusher-section firmly mounted upon the shaft below the fulcrum, and means for revolving said shaft, substantially as shown and described.

2. The combination with the case and gyratory shaft having a ball-fulcrum, of the tubular boss, the sleeve located in said boss, said boss receiving the lower end of said shaft, a friction-roller mounted in said sleeve, the top of the sleeve being formed with a chamber to receive a lubricant, a drive wheel or gear mounted upon the upper portion of the sleeve, and the upper and lower crusher-sections mounted on said shaft above and below the fulcrum respectively, substantially as shown and described.



3. In a crusher or breaker, a gyratory shaft made in sections, one of which has a socket and the other an extension fitting said socket, both of said sections having flanges bolted together and threaded upon their periphery, and a collar screwed upon said flanges, substantially as shown and described.

576,520. SHOE-HEEL. HUGO MEYER, Davenport, Iowa. Filed Dec. 4, 1895. Serial No. 571,052. (No model.)

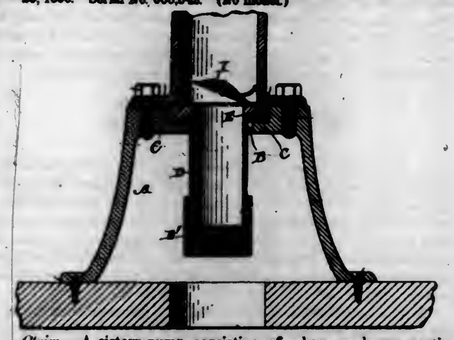


Claim.—1. The combination in a shoe, of a heel-cap embracing the rear portion of the sole and having depending points or spurs, a heel located under the heel-cap and having a filler or packing of soft material in its upper surface adapted to receive said points or spurs, the upper having its edges inserted between said cap and heel, and provision for securing the heel-cap and heel together, substantially as described.

2. The combination in a shoe, of a metal heel-cap embracing the rear portion of the sole and formed with a plurality of depending points or spurs, a heel arranged beneath the heel-cap and receiving said points or spurs, the vamp or upper having its bottom edges introduced between the heel-cap and heel and engaged by said points or spurs, and securing means for uniting the heel-cap and heel, substantially as described.

3. The combination in a shoe of a heel-cap embracing the rear portion of the sole and provided with depending spurs, a metal heel having a piece of rubber seated in its upper surface and adapted to receive said spurs, the vamp or upper having its edges introduced between the heel-cap and heel, and provision for uniting the heel to said heel-cap and the sole of the shoe, substantially as specified.

576,521. PUMP. EDWARD G. STAPLE, Oshkosh, Wis. Filed July 25, 1896. Serial No. 600,542. (No model.)



Claim.—A cistern-pump consisting of a base or lower portion having a flat top forming a packing-seat provided with a central suction-pipe opening and a circular, rabbet-shaped depression surrounding the said opening, a suction-pipe having a corresponding, circular integral flange, and adapted, when fitted into said depression, to be flush with the flat top of said base portion provided at its lower end with an outwardly-extending flange having a flat bottom surface, packing arranged to cover the joint formed by the flange of the suction-pipe and the rabbeted base for preventing the leakage of air and extending beyond the same between the flat top of the base and the flange of the upper pump portion, all around thereby packing the horizontal joint between the base and the upper pump portion, and means for clamping the flange of the upper portion to the flat top of the base and compressing the packing between the said parts, substantially as described.

576,522. PAD FOR HORSES' FEET. FRANK THOMAS, Scranton, Pa., assignor of one-half to David B. Hand, same place. Filed July 10, 1896. Serial No. 598,769. (No model.)



Claim.—1. A soaking or driving pad for horses' feet, comprising in its construction a main body portion constructed of a suitable absorbent material cut into such shape and size as to fit snugly into the space inclosed by the horseshoe, a looped spring attached to the ground-surface of the pad and provided with lateral projections, and a longitudinally-adjustable toe-piece also secured to said pad for holding the pad in position against the foot, substantially as described.

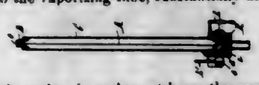
2. A soaking or driving pad for a horse's foot, comprising in its construction a main body portion constructed of a suitable absorbent material cut into such shape and size as to fit snugly in the space inclosed by the horseshoe, a looped spring attached to the ground-surface of the pad and provided with lateral projections, and an approximately U-shaped spring extending approximately the entire length of the pad and provided with lateral projections at its forward ends, substantially as described.

3. A soaking and driving pad for a horse's foot, comprising in its construction a main body portion constructed of a suitable absorbent material cut into shape and size to fit snugly in the space inclosed by the horseshoe, a looped spring attached to the pad and provided with lateral projections, an approximately U-shaped spring extending approximately the entire length of the pad and provided with lateral projections at its forward ends, and a longitudinally-adjustable toe-plate provided with a longitudinal slot, and a rivet passed through the slot in the plate for securing it in position and guiding its movement, substantially as described.

576,523. PETROLEUM INCANDESCENT BURNER. GEORGE WASHINGTON, Brussels, Belgium, assignor to J. Wesley Allison, New York, N. Y. Filed Sept. 17, 1896. Serial No. 606,164. (No model.)

Claim.—1. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube having an oil-supply-regulating valve at

one end and a vapor-discharge nozzle at its other end, and an adjustable needle-valve extending throughout the length of the vaporizing-tube and engaging within the discharge-nozzle, of a mixing-chamber and air-inlets arranged to receive and mix the vaporized hydrocarbon and onter air, and an incandescent burner arranged to impart its heat directly to the vaporizing-tube, substantially as set forth.



2. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube provided with a discharge-nozzle, means for regulating the supply of oil to the tube, and a needle-valve for regulating and controlling the discharge of vapor, of a mixing-chamber and air-inlets located to receive and mix the vapor and outer air, and an incandescent burner arranged to impart its heat directly to the vaporizing-tube and also to the pipe through which mixed vapor and gas is conveyed to the burner, substantially as set forth.

3. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube provided with a discharge-nozzle; an adjustable needle-valve for regulating the discharge of vapor, means for regulating the supply of oil to the vaporiziug-tube, and a mixing-chamber provided with an air-inlet arranged to receive and mix the vapor and air, of an incandescent burner located below the mixing-chamber and arranged to impart its heat directly to the vaporizing-tube, and to heat the mixing-chamber and the air supplied thereto, substantially as set forth.

4. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube provided with a nozzle and needle-valve for controlling the discharge of vapor and a mixing-chamber for receiving and mixing air and vapor, of an incandescent burner arranged and adapted to impart its radiated heat directly to the vaporizing-tube and also to the mixed air and vapor as it flows to the burner, substantially as set forth.

5. In a hydrocarbon incandescent lamp, the combination with a vaporizing tube or receptacle provided with a discharge-nozzle, and a needle-valve for controlling the discharge of vapor through the nozzle, of a mixing-chamber located over said nozzle and constructed to receive and mix air and the hydrocarbon vapor, an incandescent burner located below the mixing-chamber and a pipe or conduit leading downwardly from the mixing-chamber to the incandescent burner, substantially as set forth.

6. In a hydrocarbon incandescent lamp, the combination with a tube provided at one end with a detachable nozzle, means for regulating the supply of oil to the opposite end of the tube, and an adjustable needle-valve extending through the entire length of the tube and adapted to regulate the discharge of vapor, of an incandescent burner arranged to impart its heat directly to the vaporizing-tube, substantially as set forth.

7. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube provided with a detachable discharge-nozzle, a mixing-chamber constructed and arranged to receive the jet of vaporized hydrocarbon, and mix air therewith, and an incandescent burner located below the mixing-chamber and adjacent to the vaporizing-tube, of a pipe or conduit for conveying the mixed air and vapor from the mixing-chamber, downwardly to the incandescent burner substantially as set forth.

8. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube provided at one end with a discharge-nozzle, a valve for regulating the discharge of the vapor, means for regulating the supply of oil to the tube, and a mixing-chamber for receiving and mixing vapor and air, of an incandescent burner arranged to impart its heat directly to the vaporizing-tube, and a pipe for conveying the mixed vapor and air from the mixing-chamber to the incandescent burner, substantially as set forth.

9. In a hydrocarbon incandescent lamp, the combination with a continuous straight vaporizing-tube provided at one end with a discharge-nozzle, a valve for regulating the discharge of vapor, and a mixing-chamber constructed and arranged to receive the jet of vapor and commingle air therewith, of an incandescent burner arranged to impart heat directly to the vaporizing-tube, and to the mixed air and vapor, substantially as set forth.

10. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube provided with a needle-valve for regulating the discharge of vapor, a mixing-chamber constructed and arranged to receive the jet of vapor and commingle air therewith, and a supply-pipe for conveying the mixed vapor and oil to the burner, of an incandescent burner arranged to impart heat directly and substantially throughout its entire length to both the vaporizing-tube and the said supply-pipe, substantially as set forth.

11. In a hydrocarbon incandescent lamp the combination with a vaporizing-tube and mixing-chamber constructed to receive the jet of vaporized oil and draw into and mix therewith a supply of outer air, and then to heat said mixture on its passage to the burner, of an incandescent burner arranged throughout its length in close proximity to the vaporizing-tube whereby the oil therein is highly heated, substantially as set forth.

12. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube, mixing-chamber provided with air-inlets, and a pipe for conveying mixed vapor and air to the burner, of an incandescent burner arranged to impart its heat directly to the vaporizing-tube, and to heat the mixing-chamber, the air supplied thereto, and the pipe through which the mixed oil and vapor is conveyed to the burner, substantially as set forth.

576,524. PETROLEUM INCANDESCENT LIGHTING. GEORGE WASHINGTON, Brussels, Belgium. Filed Dec. 12, 1896. Serial No. 615,471. (No model.)



Claim.—1. In a hydrocarbon incandescent lamp, the combination with a vaporizing tube or receptacle, a mixing-chamber for mixing air and vapor, and a pipe for conveying the mixed air and vapor to the burner, of an incandescent burner located at one side of and in close proximity to the vaporizing-tube, substantially as set forth.

2. In a hydrocarbon incandescent lamp, the combination with a vaporizing tube or receptacle, a mixing-chamber for mixing air and vapor, and a pipe for conveying the mixed air and vapor to the burner, of incandescent burners located on opposite sides of the vaporizing-tube and heating the same, substantially as set forth.

3. In a hydrocarbon incandescent lamp, the combination with a vaporizing tube or receptacle and a mixing-chamber for mixing air and vapor, of an incandescent burner (one or more) located below the mixing-chamber and at the side or sides of the vaporizing-tube and a pipe (one or more) for conveying mixed air and vapor from the mixing-chamber to the burner or burners, substantially as set forth.

4. In a hydrocarbon incandescent lamp, the combination with a vaporizing tube or receptacle and a mixing-chamber for mixing air and vapor, of an incandescent burner (one or more) located below the mixing-chamber and at the side or sides of the vaporizing-tube, of a pipe (one or more) extending from the mixing-chamber downwardly in close proximity to the burners and below the same, and adapted and arranged to convey mixed air and vapor from the mixing-chamber to the lower ends of the burners and to heat the mixture on its passage, substantially as set forth.

5. In a hydrocarbon incandescent lamp, the combination with a mixing-chamber, incandescent burner, and pipe for conveying mixed air and gas to the burner, of a vaporizing-tube located substantially parallel to the burner and constructed and adapted to be readily and separably removable from the lamp, substantially as set forth.

6. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube, mixing-chamber and an incandescent burner, of a hood located above the burner and adapted to convey heated air into contact with the mixing-chamber.

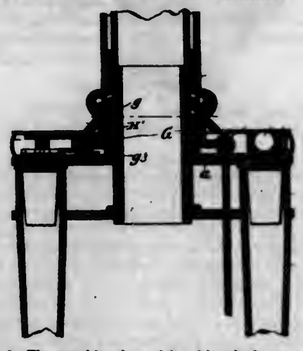
7. In a hydrocarbon incandescent lamp, the combination with a plurality of burners, a mixing-chamber located above the burners and receiving heat from the same, and pipes for conveying mixed air and vapor from the mixing-chamber to the lower ends of the burners, of a vaporizing-tube provided with a needle-valve for regulating the discharge of vaporized oil into the mixing-chamber, substantially as set forth.

8. In a hydrocarbon incandescent lamp, the combination with a hollow base, an incandescent burner connected therewith, of a mixing-chamber located over the burner, a pipe connecting the mixing-chamber and hollow base, and a readily-removable vaporizing-tube arranged in close proximity to the burner, substantially as set forth.

9. In a hydrocarbon incandescent lamp, the combination with a base, an incandescent burner connected therewith, and a mixing-chamber, of a vaporizing-tube detachably secured to the base by a bayonet-joint, substantially as set forth.

10. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube, provided with a stuffing-box, and a needle-valve extending throughout the length of the vaporizing-tube and through the stuffing-box, of a sleeve secured to the projecting end of the needle-valve, said sleeve being constructed and adapted to be adjustably secured to the stuffing-box, and thereby adjust the position of the needle-valve, substantially as set forth.

576,525. INDICATING DEVICE FOR BICYCLES. CHARLES S. LABOUBE, Williamsport, Pa., assignor to Charles R. Harris, same place. Filed July 30, 1896. Serial No. 601,115. (No model.)



Claim.—1. The combination with a bicycle-frame, of a cyclometer consisting of an indicating device which surrounds and is adapted to rotate on a part of the frame, and means for rotating this indicating device operated by a wheel of the machine.

2. The combination with a bicycle-frame, of a two-part cyclometer, one part of which surrounds and rotates upon the steering-head, and means operated by a wheel of the machine for turning this part of the cyclometer.

3. The combination with a bicycle-frame, of a two-part cyclometer, one part surrounding the steering-head and actuating the other part.

4. The combination with a bicycle-frame, of a two-part cyclometer one part surrounding the steering-head, and the other secured to the fork-crown and gearing connecting the two parts.

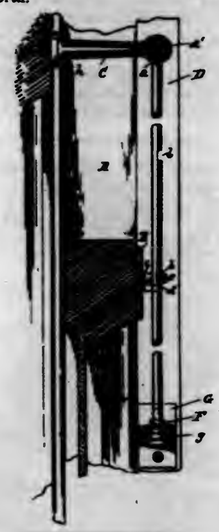
5. The combination with a bicycle-frame, of a two-part cyclometer one part secured on the fork-crown at one side of the steering-head and the other part surrounding the steering-head and a spirit-level located on the other side of the steering-head.

6. The combination with a bicycle-frame, of a metal case adapted to rest on the fork-crown and provided with a central opening for the passage of the steering-head, a cyclometer located within said case at one side of the steering-head and a spirit-level located therein on the opposite side, substantially as set forth.

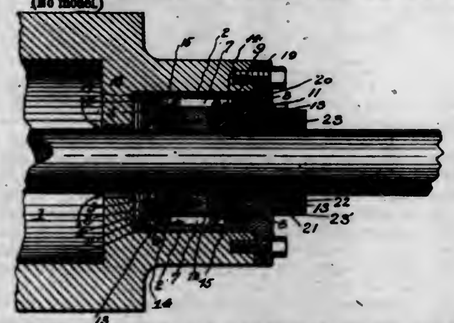
7. The combination with a bicycle-frame, of a two-part cyclometer, one part resting on the fork-crown and the other surrounding the steering-head, a worm-wheel and gearing for actuating the section of the cyclometer surrounding the steering-head, and gearing connecting the two sections of the cyclometer.

576,526. SASH LOCK AND LIFT. FRANK CARSON and JOHN R. PATERSON, San Francisco, Cal.; said Carson assignor of one-half to Guy Lathrop, same place. Filed Dec. 26, 1895. Serial No. 573,267. (No model.)

Claim.—In a combination sash lock and lift, the combination of the slotted supporting-rod D, revolubly seated in the bracket, extending from the upper sash; with the spring-bracket at the top of lower sash through which the rod passes, adapted to operate upon spring inclosed in bracket, when rod is turned, so as, to force the slots upon edge of bracket for the adjustment of sash, and the grooved bracket upon the window-casing, into which tongue-piece on lower end of the rod is turned to lock the sash in place, substantially as herein described and set forth.



576,527. METALLIC PACKING. ALONZO C. PACKER, Pittsburg, Pa. Filed Mar 21, 1896. Renewed Dec. 28, 1896. Serial No. 617,293. (No model.)



Claim.—1. In a metallic packing for steam and other pressure medium, the combination with a stuffing-box, of the casing 2 having inwardly-reaching annular walls 3, 4, formed integrally therewith the latter provided with radial ports 6; a closure for the outer end of said casing consisting of the sealing-diaphragm 8, packing-rings encircling the piston-rod and means for preventing the escape of the pressure medium through the housing thus formed, substantially as set forth.

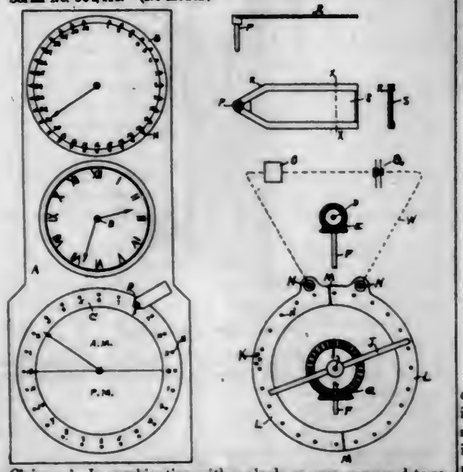
2. A metallic packing for steam and other pressure medium consisting of the lubricant-rings, 10, the outer edges being recessed to receive the reinforcing-rings, 13, said rings having the annular flange, 16; the disks, 11, adapted to reinforce the lubricant-rings and having their free or outer edges inclined toward each other and formed to engage said annular flange; the tension-band, 12, reaching from one of said disks to the other and suitable means for holding said parts in operative position and permitting the impact of the pressure medium upon said tension-band, as and for the purpose set forth.

3. A metallic packing for steam and other pressure medium, the combination with a stuffing-box of the casing, 2, consisting of the cylindrical body, having on its inner face the integrally-formed annular walls, 3, 4, the former wall loosely and the latter snugly adapted to encircle the piston-rod or valve-stem and provided with ports near its junction with the body; the diaphragm, 8, in junction with the free end of said casing; the lubricant-rings encircling the piston-rod within the housing thus formed, and means for incasing and protecting the lubricant-rings and permitting the universal impact of the pressure medium to the outer surface of said rings, as and for the purpose set forth.

4. The herein-described metallic packing for steam and other pressure medium consisting of the casing provided with the compartment, 5, formed by the walls, 3, 4, adapted to facilitate the separation

of water and dry steam, and the admission of the latter only through the ports in the inner wall, the diaphragm contacting the free end of the casing, the gland, 19, having the inner hub, 20, and the outer flange, 21, integrally formed therewith, said gland adapted to complete an inclosure of the stuffing-box and secure said diaphragm in operative position, and further provide the auxiliary packing, the collar, 23, securing such packing; and the lubricant-rings secured within the housing formed by the diaphragm and the casing, substantially as described and for the purpose set forth.

576,528. ALARM-CLOCK. CHARLES R. GARTRELL, Chicago, Ill., assignor of one-half to John J. Luck, Aurora, Ill. Filed Mar. 23, 1896. Serial No. 584,418. (No model.)



Claim.—1. In combination with a clock, an arm arranged to revolve once in a given interval of time, a bisected ring over which said arm moves and with which one end of said arm is in contact, a series of holes in said ring, memorandum-carrying pins adapted to be inserted in said holes so as to be in the path of the other end of said arm, and electrical connections from each half of said ring whereby the passing of said arm over said pin will cause an alarm to be rung.

2. In combination with a clock, a bisected ring provided with holes for the reception of pins, insulating material between the halves of said ring, an arm arranged to revolve in a given interval of time and adapted to engage pins in said holes, and electrical connections to each half of said ring.

3. In combination with a clock, a bisected ring the halves of which are insulated from each other, holes in said ring, memorandum-carrying pins in said holes, an arm adapted to revolve in a given period of time and to engage pins in said holes, and means whereby the engagement of said arm with said pins will produce an electrical connection between the halves of said ring.

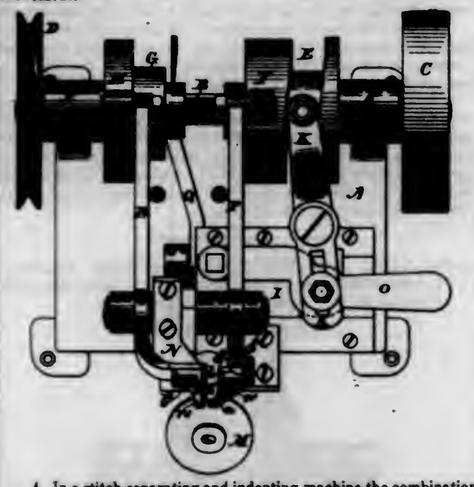
REISSUES.

11,587. STITCH-SEPARATING AND INDENTING MACHINE. JOHN R. HADAWAY, Brockton, Mass. Filed Aug. 13, 1896. Serial No. 602,160. Original No. 549,291, dated Nov. 5, 1895.

Claim.—1. In a stitch-separating and indenting machine the combination of a yielding lower work-support: a presser-foot, provided with a groove in its working face to bridge the line of stitching: means for imparting a positive or unyielding movement to said presser-foot to clamp the work: and means for moving said presser-foot horizontally to feed the work uniform distances at regular intervals.

2. In a stitch-separating and indenting machine the combination of a yielding work-support: a positively-operated presser-foot cooperating with the yielding work-support to clamp and feed the work: a separating and indenting tool non-adjustable to varying lengths of stitches: means for imparting a positive or unyielding downward movement in two steps, to said separating-tool: and means for releasing the grip of the feeding mechanism between the two downward movements of the separating and indenting tool for the purpose specified.

3. In a stitch-separating and indenting machine the combination of a clamp or grip mechanism for feeding the work uniform distances at regular intervals: a separating and indenting tool non-adjustable to varying lengths of stitches: means for imparting a positive or unyielding downward movement, in two steps, to said tool to separate the stitches and indent the welt: means for releasing the grip of the feed mechanism between the two downward movements of said tool: and means for arresting the downward movement of the work and work-support before the indenting-tool has completed its downward movement.



4. In a stitch-separating and indenting machine the combination of a grip mechanism for feeding the work: a separating-tool: a yielding work-support: means for pressing said support upward: a fixed stop-finger to limit the upward movement of the work; means for imparting to said separator a positive or unyielding downward movement in two steps: means for releasing the grip of the feed mechanism: and means for arresting the downward movement of the work when released from contact with the stop-finger or upper work-support, all so constructed and arranged that a moving contact between the rounded shoulder of a stitch and an inclined side of the point of the separating-tool shall cause a secondary feeding of the work toward the left or right, according as the stitch to be separated is longer or shorter than the standard or average stitch.

5. In a stitch-separating and indenting machine the combination of a yielding lower work-support; an upper work-support comprising a fixed stop-finger and a movable bearing-surface: a separating and indenting tool having only upward and downward movements: means for imparting to said tool a positive or unyielding downward movement to separate the stitches and indent the welt: a presser-foot constructed and arranged to grip and feed the work: and mechanism for operating said presser-foot constructed and arranged to move it downward to clamp the work, then move it horizontally to feed the work uniform distances at regular intervals and then release the grip upon the work when the separating-tool has descended through about one-half its downward stroke, to leave the work free to automatically adjust itself to bring the space between two stitches directly beneath the point of the separating-tool.

6. In a stitch-separating and indenting machine the combination of a yielding lower work-support: a fixed stop-finger: a positively-operated presser-foot arranged with its under surface normally on a level with the under surface of said stop-finger and cooperating therewith to serve as an upper work-support: means for imparting to said presser-foot a positive or unyielding downward movement to clamp the work: means for moving said presser-foot horizontally to feed the work a uniform distance corresponding to the length of the standard or average stitch: means for arresting the downward movement of the work-support when the work is released from contact with the fixed stop-finger: a separating and indenting tool: and means for imparting to said tool a positive or unyielding downward movement to separate the stitches and indent the welt.

7. In a stitch-separating and indenting machine, the combination of a yielding lower work-support: a presser-foot constructed and arranged to bear upon the welt to grip the work between it and the work-support, without bearing upon the stitches: means for imparting a positive or unyielding downward movement to said presser-foot to clamp the work: and means for moving said presser-foot horizontally to feed the work uniform distances at regular intervals.

8. In a stitch-separating and indenting machine, the combination of a yielding lower work-support: a presser-foot constructed and arranged to bear upon the welt to clamp the work between it and said work-support without pressing upon the stitches: means for imparting to said presser-foot a positive or unyielding downward movement to clamp the work: means for moving said presser-foot horizontally, to feed the work uniform distances at regular intervals: a separating and indenting tool, non-adjustable to varying lengths of stitches: and means for imparting a positive or unyielding downward movement to said tool, to separate the stitches and indent the work.

9. In a stitch-separating machine the combination of a separating-tool, mechanism for actuating said tool, and work-feeding mechanism, combined and arranged to move the work in either direction to adjust the intervals between the stitches to the point of the separating-tool, substantially as described.

10. In a stitch-separating machine the combination with a work-support of a separating-tool arranged to move the work in either direction to adjust the interval between the stitches to the point of said tool, and mechanism for actuating said tool, substantially as described.

11. In a stitch-separating machine, the combination with a work feed, and a separating-tool, of connected mechanisms operating automatically to actuate the work-feed to feed the work regular distances, to impart to the tool work-indenting movements and to release the work from the feed, to allow it to be moved along the line of the feed, to correct the operation of the feed for stitches of varying length, substantially as described.

12. In a stitch-separating and indenting machine, the combination with a feed mechanism for feeding the work regular distances, and a tool arranged to impart to the work a secondary feed to correct the distances to which the work is fed by the primary feed, for stitches of varying length, substantially as described.

11,588. ELECTRIC METER. JESSE HARRIS, Lynn, Mass. Filed Oct. 12, 1895. Serial No. 566,160. Original No. 543,895, dated Aug. 6, 1895.

Claim.—1. The combination with a pressure-coil and a motor, of a torsion-spring connected to said coil and to said motor, whereby the torsion of the spring automatically balances the torque of the coil.

2. A pressure-coil and its supporting-shaft, in combination with a spring connected to said shaft and brought under tension by the torque of said coil.

3. A pressure-coil mounted upon a shaft, a spring connected to said shaft and to a motor, and a motor in combination.

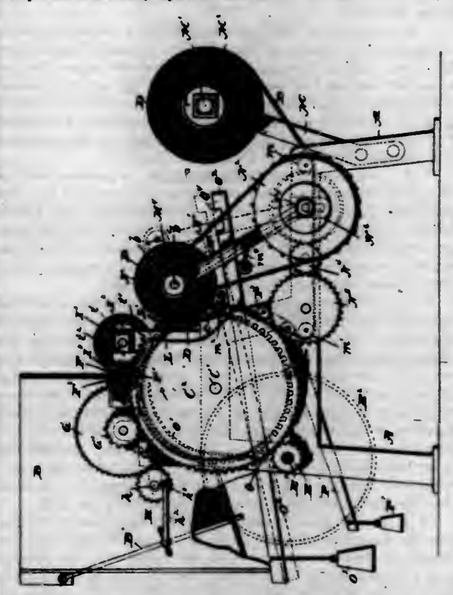
4. A pressure-coil mounted upon a shaft, a spring connected to said shaft and to a motor, a current-coil and a motor, and means to record the current passing through the current and pressure coils.

5. In a registering device a reciprocating arm having a loose pulley or roller connected therewith and lying between revoluble rollers, one of said rollers being arranged to be continuously revolved and having a portion of its face raised and arranged so that when the reciprocating arm is moved longitudinally the loose roller on said arm will be brought into and thrown out of contact with said raised surface on the continuously-revolving roller and arranged so that when the loose roller on the arm is revolved by said raised surface, its motion will be communicated to the other roller and to a train of gears and to a plurality of indicating-pointers substantially as described.

6. A pressure-coil arranged to have rotation and a resilient device connected with the pressure-coil and with a motor, a current-coil and a motor, and means to record the current passing through the current and pressure coils substantially as described.

11,589. MATCH-MAKING MACHINE. CHARLES J. DONNELLY, Philadelphia, Pa., assignor to the Diamond Match Company, of Illinois. Filed Mar. 23, 1893. Serial No. 467,387. Original No. 450,405, dated Apr. 14, 1891. Patented in England Apr. 13, 1887, No. 5,980.

Claim.—1. In a machine for bundling match-splints, in combination with a hopper for the splints, a feeding-carrier having its surface moving in the hopper, provided with splint-receiving recesses, a coiling tape receiving the splints fed from the hopper, a rotary device to coil the tape with the splints thereon, one or more movable stop-arms normally below such recessed surface, and adapted when raised, to keep the splints in the hopper from the recesses of the feeding-carrier, automatic means for raising such arm or arms into feed-stopping position, and automatic means for holding the arm or arms down, until a certain point in the operation of the machine, substantially as and for the purpose described.



2. In a machine for bundling match-splints, in combination with a hopper for the splints, and a feeding-carrier having its surface moving in the hopper provided with splint-receiving recesses, a coiling tape to receive the splints fed from the hopper, a rotary device to coil the tape with the splints thereon, one or more movable stop-arms to move and keep the splints out of such recesses, yielding means tending to hold such arm or arms in raised feed-stopping position, and automatic means for holding the arm or arms normally down out of such position, and releasing them after the machine has acted for a time, substantially as and for the purpose described.

3. In a machine for bundling match-splints, in combination with the hopper for the splints, and a feeding-carrier having its surface moving in the hopper provided with splint-receiving recesses, a coiling tape to receive the splints fed from the hopper, a rotary device to coil the tape with the splints thereon, one or more movable stop-arms, for lifting and holding the splints in the hopper out of such recesses, yielding means tending to hold such arm or arms raised into feed-stopping position, a lever connected rigidly with the stop arm or arms, automatic means for holding such lever, so as to keep the stop arm or arms normally down out of operative position, until a certain predetermined point in the operation of the machine is reached, and then releasing it, substantially as and for the purpose described.

4. In a machine for bundling match-splints, in combination with a hopper for the splints, and a feeding-carrier with recessed splint-receiving surface moving into and out of the hopper, made narrower than the splints are long, the feed-stop device consisting of two arms situated on opposite sides of the feeding-carrier, and connected with actuating means, by which they can be raised, to engage the ends of the splints projecting beyond the sides of the feeding-carrier, and lift the splints in the hopper out of the feeding-carrier recesses, substantially as and for the purpose described.

5. In a machine for bundling match-splints, in combination with a hopper for the splints, a rotary drum narrower than the splints are long, having its periphery provided with recesses to take the splints from the hopper, the feed-stop device consisting of two arms situated on opposite sides of the drum, normally below the plane of the bottoms of the recesses of the drum, but adapted, when raised, to engage the ends of the splints projecting beyond the sides of the drum, and raise such splints in the hopper out of the drum-recesses, and means for raising such arms, substantially as and for the purpose described.

6. In a machine for bundling match-splints, in combination with a hopper for the splints, the rotary drum provided with recesses in its periphery, to take the splints from the hopper, a coiling tape, a swinging arm, a rotary tape-coiling device on the latter, an automatic stop-feed device to raise and hold the splints in the hopper out of the recesses of the drum, and connections between such device and the swinging arm carrying the rotary tape-coiling device, whereby the feed-stop device will be held in inoperative position, until such swinging arm has moved a certain distance, substantially as and for the purpose described.

7. In a machine for bundling match-splints, in combination with the hopper for the splints and the notched or recessed drum fed from said hopper, a coiling tape, a swinging arm, a rotary tape-coiling device on the latter, a weighted lever provided with a notch passing beyond and into position to be engaged by a portion of the arm carrying the coiling device, and means for raising the splints in the hopper away from the recesses of the drum, connected with the weighted lever, substantially as and for the purpose described.

8. In a machine for bundling match-splints, in combination with a hopper for the splints, a drum with recessed periphery to take the splints from the hopper, a coiling tape, a swinging arm, a rotary tape-coiling device on the latter, a weighted lever with notched end, passing through a slot in the swinging arm, and means connected with such lever to prevent the splints from entering the recesses of the drum, substantially as and for the purpose described.

9. In a match-splint-bundling machine, in combination with the hopper, the feed-drum having its periphery provided with longitudinal grooves to receive the match-splints, and with one or more circumferential grooves, one or more tapes running partly around the drum in the circumferential groove or grooves thereof, a swinging arm movable toward and from the drum, means carried on such arm for coiling up the tape or tapes, an automatic stop device to prevent the splints getting into the longitudinal grooves in the drum, and connections between such device and the swinging arm, whereby the stop device is held out of operation, until the arm has swung a certain distance from the feed-drum, and is then thrown into operation to stop the feed, substantially as and for the purpose described.

10. In a match-splint-bundling machine, in combination with the hopper for the splints, a feeding device having match-splint-receiving recesses, two parallel tapes receiving the splints from the feeding device, a winding device to coil up the tapes and the splints thereon, a cutter and a separator between the feeding and the winding devices, substantially as and for the purpose described.

11. In a match-splint-bundling machine, in combination with a hopper for the splints, a feeding device having match-splint-receiving recesses, the two tapes receiving the splints from the feeding device, a winding device to coil up the tapes and the splints thereon, a cutter between the feeding and coiling devices, a separator between the cutter and the coiling device, and guides to guide the outer ends of the two parts of the cut splints, as they are separated by the separator, substantially as and for the purpose described.

12. In a match-splint-bundling machine, in combination with a hopper, a rotary drum with longitudinal and circumferential grooves in its periphery, the two tapes passing partly around the drum, in the circumferential grooves thereof, a winding device for coiling up such tapes, a cutter between the tapes and between the drum and winding device, and a separator between the latter and the cutter, to engage the inner ends of the cut parts of the splints, and move them apart, substantially as and for the purpose described.

13. In a match-splint-bundling machine, in combination with the hopper for the splints, the drum with the longitudinal and circumferential grooves in its periphery, the two tapes passing partly around the drum, in the circumferential grooves thereof, a winding device for coiling up the tapes after they leave the drum, a cutter to cut the splints in two, while in the longitudinal grooves of the drum, a separator to engage the inner ends of the cut parts and separate them longitudinally, guides to guide the outer ends of the separated parts of the splints, and means for holding the splints down in the drum grooves or recesses, while they are being cut and separated, substantially as and for the purpose described.

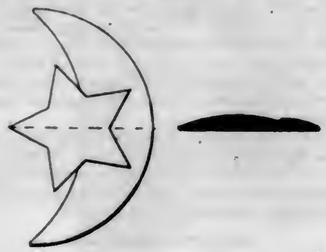
14. In a match-splint-bundling machine, in combination with the two tapes for coiling up the splints, a tension device for the same consisting of a weighted lever, the two tension-rollers each engaging one of the tapes, and a rocking support for such rollers on the lever, substantially as and for the purpose described.

15. In a match-splint-bundling machine, in combination with the hopper having an inclined bottom, the swinging end piece to move the splints inward up such bottom, the feed-drum with its splint-receiving grooves, one or more brush-wheels at the outlet to the hopper, one or more coiling tapes receiving the splints from the drum, means for raising the splints in the hopper away from the feed-drum grooves to stop the feed, substantially as and for the purpose described.

16. In a match-splint-bundling machine, in combination with the swinging arm having its lower end mounted on a shaft, and its upper end provided with a spindle carrying one or more spools, a sprocket-wheel fixed on the spindle, a second sprocket-wheel journaled on the shaft, the sprocket-chain, the wheel for driving the second sprocket-wheel, connected with the shaft, so as to turn therewith, friction-disks on opposite sides of the latter sprocket-wheel, a clamping-washer engaging the outer friction-disk, and a nut on the shaft engaging the outer side of the washer, substantially as and for the purpose described.

DESIGNS.

26,575. CAKE OR CRACKER. WILLIAM W. MILLER, Philadelphia, Pa., assignor to Eugene Ivins, same place. Filed Dec. 3, 1896. Serial No. 614,975. Term of patent 3½ years.



Claim.—The design for a cake, or similar article, as herein shown and described.

26,576. MATCH-SAFE. CHARLES A. DANIELL, Chicago, Ill. Filed Dec. 21, 1896. Serial No. 616,543. Term of patent 7 years.



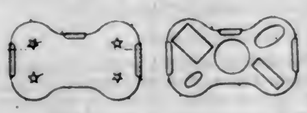
Claim.—The design for a match-safe: substantially as herein shown and described.

26,577. MATCH-SAFE. CHARLES A. DANIELL, Chicago, Ill. Filed Dec. 21, 1896. Serial No. 616,544. Term of patent 7 years.



Claim.—The design for a match-safe: substantially as herein shown and described.

26,578. COURT-PLASTER BOX. SAMUEL LOEWIG, Paterson, N. J. Filed Dec. 3, 1896. Serial No. 614,361. Term of patent 3½ years.



Claim.—The design for a court-plaster box, substantially as shown and described.

26,579. CIGAR-HOLDER. CHRISTIAN S. LEHMAN, Lawn, Pa. Filed Dec. 19, 1896. Serial No. 616,345. Term of patent 7 years.



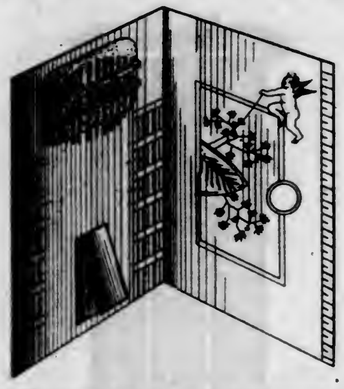
Claim.—The design for a cigar-holder, as herein shown and described.

26,580. HOLDER FOR FOUNTAIN-PENS AND FILLERS. HARRIET M. JOHNSTON, Muncie, Ind. Filed Nov. 5, 1896. Serial No. 611,183. Term of patent 3½ years.



Claim.—The design for a fountain-pen and filler holder, substantially as shown and described.

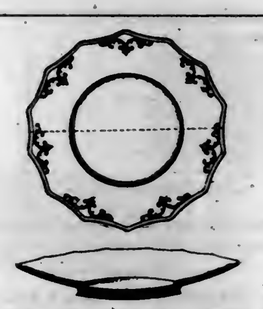
26,581. FOLDING CARD. JULIUS T. ROSENHEIMER, New York, N. Y. Filed Dec. 21, 1896. Serial No. 616,545. Term of patent 3½ years.



Claim.—The design for a folding card, substantially as herein shown and described.

26,582. PLATE. WILLIAM H. GRINDLEY, Congleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Dec. 23, 1896. Serial No. 617,276. Term of patent 3½ years.

26,582.



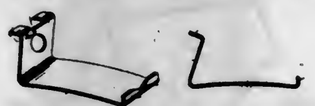
Claim.—The design for a dish substantially as shown and described.

26,583. FASTENING. FRANKLIN S. MCKENNEY, Detroit, Mich., assignor of one-half to J. M. Longyear, Marquette, Mich. Filed Dec. 9, 1895. Serial No. 571,594. Term of patent 14 years.



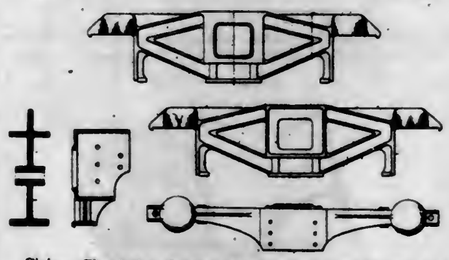
Claim.—The design for a fastening as herein shown and described.

26,584. THILL-COUPLING PLATE. CHARLES T. REDFIELD, Glen Haven, N. Y. Filed Dec. 26, 1896. Serial No. 617,105. Term of patent 7 years.



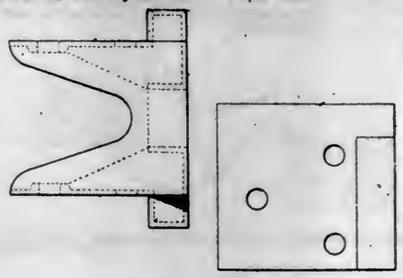
Claim.—The design for a thill-coupling plate herein shown and described.

26,585. SIDE FRAME FOR CAR-TRUCKS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Dec. 29, 1896. Serial No. 617,410. Term of patent 14 years.

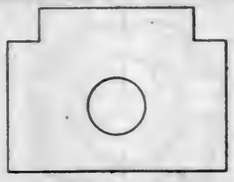


Claim.—The design for the side frame of a car-truck, substantially as herein shown and described.

26,586. DRAFT-LUG AND DRAW-BAR FOLLOWER. ANDREW G. STEINBRENNER, St. Louis, Mo., assignor to the Western Railway Equipment Company, of Illinois. Filed Dec. 21, 1896. Serial No. 617,274. Term of patent 14 years.



26,586.



Claim.—The design for a draft-lug and draw-bar follower, substantially as herein shown and described.

26,587. HORSESHOE-CALK. ALLEN H. ROWE, Hartford, Conn. Filed Dec. 18, 1896. Serial No. 616,201. Term of patent 14 years.



Claim.—The design for horseshoe-calks substantially as herein described and shown.

26,588. BICYCLE-FRAME. FRANKLIN P. BURNHAM, Middletown, Ohio. Filed Nov. 9, 1896. Serial No. 611,566. Term of patent 7 years.



Claim.—The design for a bicycle-frame substantially as shown and described.

26,589. BICYCLE-FRAME. CHARLES R. HARRIS, Williamsport, Pa. Filed Sept 16, 1896. Serial No. 606,057. Term of patent 14 years.



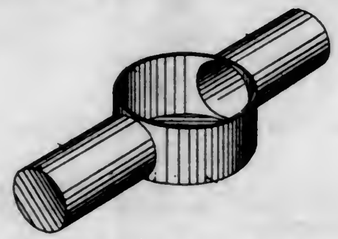
Claim.—The design for a bicycle-frame herein shown and described.

26,590. BICYCLE-FRAME. CHARLES R. HARRIS, Williamsport, Pa. Filed Jan. 6, 1897. Serial No. 618,207. Term of patent 14 years.



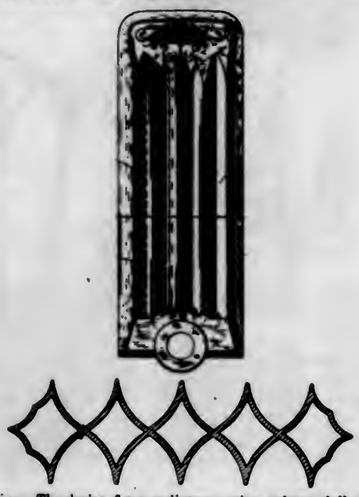
Claim.—The design for a bicycle-frame herein shown and described.

26,591. PUMP-FRAME. THOMAS L. MURPHY, New York, N. Y. Filed Dec. 31, 1896. Serial No. 616,540. Term of patent 7 years.



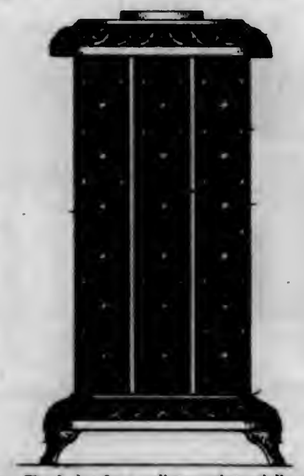
Claim.—The design for pump-frames substantially as shown.

26,592. RADIATOR. DANIEL COLESTOCK, Titusville, Pa., assignor to the Titusville Iron Company, same place. Filed Dec. 23, 1896. Serial No. 616,812. Term of patent 7 years.



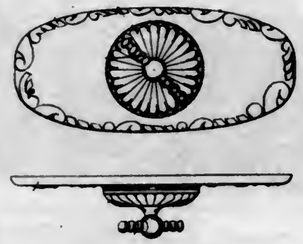
Claim.—The design for a radiator-section, substantially as herein shown and described.

26,593. RADIATOR. WILBOT CASTLE and ARTHUR CASTLE, Rochester, N. Y. Filed Dec. 31, 1896. Serial No. 617,658. Term of patent 7 years.



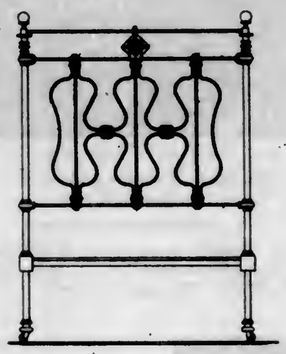
Claim.—The design for a radiator, substantially as herein shown and described.

26,594. STOVE DOOR OR PANEL. LAZARD KAHN, Hamilton, Ohio, assignor to F. & L. Kahn & Bros., same place. Filed Oct. 28, 1896. Serial No. 610,377. Term of patent 14 years.



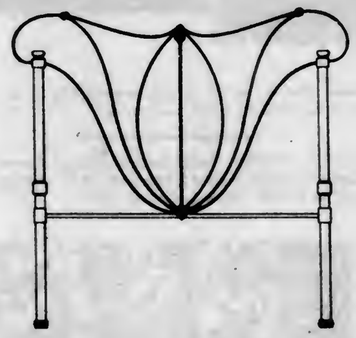
Claim.—The design for a stove door or panel, substantially as shown and described.

26,595. END FRAME FOR METAL BEDSTEADS. DAVID FRANK, Brooklyn, N. Y., assignor of one-half to John Trounstine, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,663. Term of patent 7 years.



Claim.—The design for the end frame of a metal bedstead, substantially as shown and described.

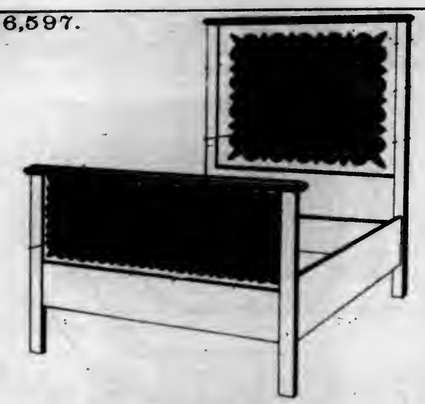
26,596. HEAD OR FOOT BOARD FOR METALLIC BEDSTEADS. EDWARD C. RAYNER, Buffalo, N. Y. Filed Dec. 31, 1896. Serial No. 617,657. Term of patent 7 years.



Claim.—The design for a head or foot board for a metallic bedstead, substantially as herein shown and described.

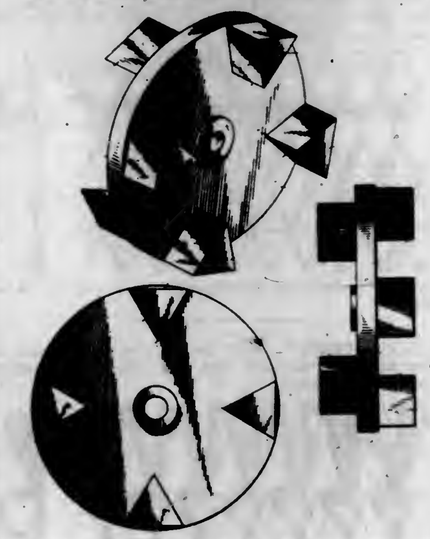
26,597. BEDSTEAD. JOHN SCOTT, Nicholasville, Ky. Filed Nov. 19, 1896. Serial No. 612,767. Term of patent 3½ years.

26,597.



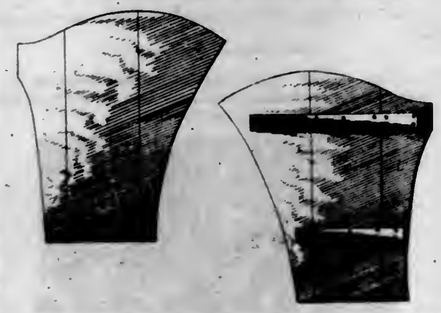
Claim.—The design for a bedstead as herein shown and described.

26,598. CHURN-DASHER. SAMUEL J. HUNTER, Savannah, Mo., assignor of three-fourths to William Sherman Hunter, John Sheridan Hunter, and Ulysses Grant Hunter, same place. Filed Dec. 26, 1896. Serial No. 617,106. Term of patent 14 years.



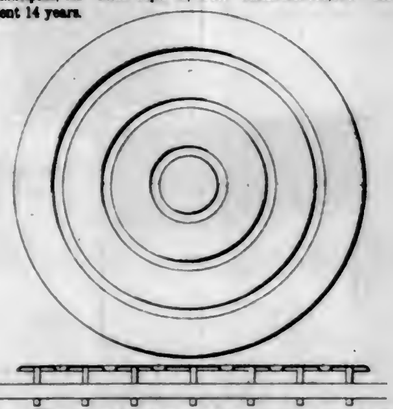
Claim.—The design for a churn-dasher herein shown and described.

26,599. IRONING-BOARD. HANNAH J. HARR, Pittsburg, Pa. Filed Sept. 8, 1896. Serial No. 605,196. Term of patent 7 years.



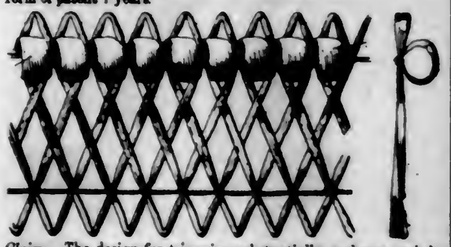
Claim.—The design for an ironing-board, substantially as herein shown and described.

26,600. TARGET. ISAAC N. HASFOLD and JOHN W. SIMMONDS, Philadelphia, Pa. Filed Sept. 16, 1896. Serial No. 606,056. Term of patent 14 years.



Claim.—The design for a target, substantially as described and as shown in the accompanying drawings.

26,601. TRIMMING. MARY LOYD, Philadelphia, Pa., assignor to Loeb, Lipper & Co., same place. Filed Dec. 22, 1896. Serial No. 616,667. Term of patent 7 years.



Claim.—The design for trimming substantially as shown and described.

26,602. TRIMMING. MARY LOYD, Philadelphia, Pa., assignor to Loeb, Lipper & Co., same place. Filed Dec. 22, 1896. Serial No. 616,668. Term of patent 7 years.



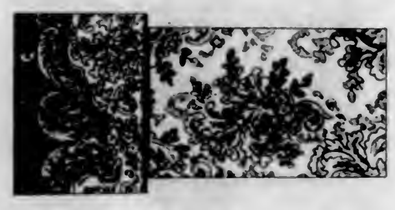
Claim.—The design for trimming, substantially as shown and described.

26,603. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Dec. 30, 1896. Serial No. 617,504. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown and illustration accompanying this specification.

26,604. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Dec. 30, 1896. Serial No. 617,521. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

26,605. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Dec. 30, 1896. Serial No. 617,522. Term of patent 3½ years.



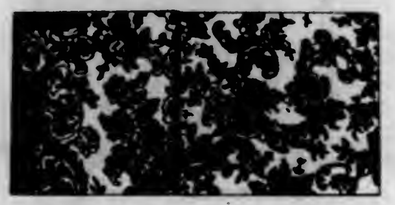
Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

26,606. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Dec. 30, 1896. Serial No. 617,533. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

26,607. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Dec. 30, 1896. Serial No. 617,535. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

26,608. CARPET. GUSTAVE MARTIN FAUSER, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Dec. 30, 1896. Serial No. 617,516. Term of patent 3½ years.



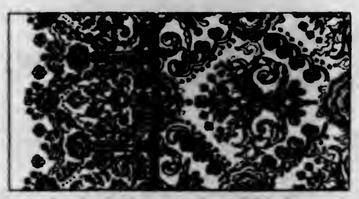
Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

26,609. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y., assignor to Stephen Sanford & Sons, Amsterdam, N. Y. Filed Dec. 30, 1896. Serial No. 617,518. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

26,610. CARPET. JOHN WILLIAM HILL, New York, N. Y., assignor to Stephen Sanford & Sons, Amsterdam, N. Y. Filed Dec. 30, 1896. Serial No. 617,512. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

26,611. CARPET. JOHN WILLIAM HILL, New York, N. Y., assignor to Stephen Sanford & Sons, Amsterdam, N. Y. Filed Dec. 30, 1896. Serial No. 617,530. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

TRADE-MARKS

REGISTERED FEBRUARY 2, 1897.

29,540. WATCHES. Mosbacher & Co., New York, N. Y. Filed Dec. 8, 1896.

Nyusa

Essential feature.—The word "Nyusa." Used since December 2, 1896.

29,541. WRITING, NOTE, AND OTHER PAPER. Writing Paper Company, Holyoke, Mass., and New York, N. Y. Filed Dec. 22, 1896.

ARLINGTON

MILLS

Essential feature.—The words "Arlington Mills." Used since November 28, 1887.

29,542. BOOTS AND SHOES. N. L. Millard & Co., North Adams, Mass. Filed Dec. 16, 1896.

UCANTRIPEM

Essential feature.—The word "Ucantripem." Used since September, 1895.

29,543. BOOTS AND SHOES. Stephen Putney & Co., Richmond, Va. Filed Jan. 6, 1897.



Essential feature.—The representation of a battle-ax. Used since January 1, 1896.

29,544. DRIED FRUIT. Protopapas Brothers, London, England. Filed Jan. 11, 1897.



Essential feature.—A representation of a shield, crescents produced on the shield, the letters "P" and "B" located adjacent to the crescents, and a panel surmounting the shield and containing a representation of a seal. Used since August 1, 1887.

29,545. CANNED SALMON. Shuffet Brothers Company, The Dalles, Oreg. Filed Nov. 19, 1896.

MERRIMAC

Essential feature.—The word "Merrimac." Used since March 1, 1896.

29,546. TEA, COFFEE, COCOA, CHOCOLATE, AND CHICORY. Charles Alfred Ruddock, London, England. Filed Jan. 7, 1897.

SHAMROCK

Essential feature.—The word "Shamrock." Used since October, 1896.

29,547. LAGER-BEER. Born & Co., Columbus, Ohio. Filed Jan. 8, 1897.



Essential feature.—Two concentric circles surrounding a central figure consisting of a dome and a pair of wings. Used since January 1, 1896.

29,548. STOMACH BITTERS. Harry L. Coombs, Kansas City, Mo. Filed June 24, 1896.



Essential feature.—The words "Morning Star" and a figure of a five-pointed star. Used since January, 1896.

29,549. TOBACCO, CIGARS, SNUFF, DISTILLED AND FERMENTED LIQUORS, AND BEVERAGES. George J. Richter, New York, N. Y. Filed Jan. 2, 1897.

AMPHITRYON

Essential feature.—The word "Amphitryon." Used since 1876.

29,550. REMEDY FOR NEURALGIA, RHEUMATISM, AND SIMILAR MALADIES. Hartmiller Brothers, Lebanon, Mo. Filed Aug. 28, 1896.



Essential feature.—The hyphenated word "Ca-tal-gine." Used since September 1, 1895.

29,551. CEMENT, LIME, AND PLASTER. Rock Plaster Company of New York and New Jersey, Hoboken, N. J., and New York, N. Y. Filed Dec. 19, 1896.

RIVERSIDE

Essential feature.—The word "Riverside." Used since August 24, 1896.

29,552. COMPOSITION FOR MANUFACTURING GLASS BATCH. Joseph Kempter, Göritz, Germany. Filed Dec. 22, 1896.

OPALIN

Essential feature.—The word "Opalin." Used since January 15, 1891.

29,553. SCOURING MATERIAL. Scour Bright Co., Bloomington, Ill. Filed Dec. 17, 1896.



Essential feature.—The words "Scour Bright" arranged in a curved form within a circular field, one word substantially opposite the other, and each word being printed in curved lines. Used since August 1, 1896.

29,554. BINOXID OF BARIUM, OXID OF BARIUM, CHLORID OF BARIUM, NITRATE OF BARYTA, HYDRATE OF BARYTA, PEROXID OF HYDROGEN, SULFID OF BARIUM, AND SULFID OF COPPER. The Hedworth Barium Company, Limited, Newcastle-upon-Tyne, England. Filed Jan. 8, 1897.



Essential feature.—A representation of a star and crescent. Used since April, 1896.

29,555. GUNPOWDER, SHELLS LOADED THEREWITH, BLASTING-POWDER, GUN-COTTON, HIGH EXPLOSIVES, FUSES, AND ELECTRIC BATTERIES. Laflin & Rand Powder Company, New York, N. Y. Filed Jan. 2, 1897.



Essential feature.—A representation of a circular wreath of laurel leaves and berries, from the upper left-hand curve of which a ribbon on either side intertwines with such wreath in part, a flag having three bars or stripes nearly horizontal substantially filling the circle inclosed by the wreath attached to a perpendicular staff which extends downward from the upper left-hand curve of the wreath through the lower left-hand curve of the same, and which bears on its top a ball on which stands the figure of an American eagle with outstretched wings. Used since January 1, 1896.

29,556. COAL-TAR PRODUCTS, EXCEPTING DYES. BARRETT MANUFACTURING COMPANY, Philadelphia, Pa. Filed July 2, 1896.



Essential feature.—A diamond-shaped figure with the letter "B" therein. Used since June 18, 1896.

29,557. RUBBER SPECIALTIES FOR USE BY PHYSICIANS AND INVALIDS. THE DIAMOND RUBBER COMPANY, Akron, Ohio. Filed Oct. 9, 1896.

The Diamond



Essential feature.—The words "THE DIAMOND" and a representation of a cut diamond with lines radiating therefrom. Used since March 15, 1894.

29,558. BICYCLE-LAMPS. THE CYCLE DANGER SIGNAL COMPANY, Newark, N. J. Filed Dec. 26, 1896.



Essential feature.—The words "FIRE BALL." Used since November 15, 1896.

29,559. DRILLS OR DRILL-PRESSES. SIBLEY & WARR, South Bend, Ind. Filed Dec. 21, 1896.



Essential feature.—A conventional sphere with lines representing the tropics and the polar circles, in combination with the words "THE SOUTH BEND DRILL." Used since August 15, 1896.

29,560. SOLDERING-COPPER. UNION HARDWARE COMPANY, Torrington, Conn. Filed Jan. 8, 1897.



W. S.

Essential feature.—A representation of a star and the letters "W S." Used since 1874.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of Ohio, Eastern Division.

INDEPENDENT ELECTRIC COMPANY *v.* JEFFREY MANUFACTURING COMPANY *et al.*

Decided November 7, 1896.

1. JEFFREY MANUFACTURING COMPANY—LECHNER—MINING-MACHINE—VALID—INFRINGED.
   Letters Patent No. 432,754, granted July 22, 1890, to F. M. Lechner, examined and in view of the state of the art *Held* valid and infringed.
2. TITLE—RIGHT TO IMPROVEMENTS UNDER ASSIGNMENT.
   An assignment of part of right, title, and interest in a patented invention and in and to any further improvements that the inventor might make or acquire does not give assignees title to an invention which is radically different in several respects, though belonging to the same art. To do so would be in effect to hold that the assignment in question constitutes a mortgage on the inventor's brain. Only improvements on the particular machine patented would pass by the assignment referred to.
3. ESTOPPEL BY FORMER SILENCE.
   Under the rule that if one was silent when it was his duty to speak he shall not be permitted to speak when he should be silent. Since defendants when threatened with a former suit upon the patent now sued upon failed to claim any interest in said patent, they should not be permitted to assert it now.
4. SPECIFIC PERFORMANCE—MERGER OF INTEREST—TITLE.
   When there is a decree for specific performance of two contracts, one for a transfer of part interest of all inventions relating to a particular subject and the other for a transfer of part interest of certain specified patents relating to that subject, the assignee's rights are merged in the decree and he has no title or claim under his contracts to any other patents of the assignor or to any improvements thereon.
5. ANALOGOUS USE.
   Under the decision in *Potts* v. *Creager* (70 O. G., 494; 155 U. S., 597) power picks and plows are not anticipations for a mining-machinee, since they do not belong to related arts.
6. DEDICATION TO PUBLIC—COPENDING APPLICATIONS.
   If at the date of the issue of a patent the patentee has another application pending which describes and claims what he describes but does not claim in the patent issued, the presumption of dedication to the public does not arise.
7. DEFENSE—INOPERATIVENESS.
   A contention that a patent built on the lines of the patent in suit was a failure will not avail defendants where it appears that there was no defect of principle.

Mr. James H. Hoyt, Mr. Thomas C. Kerr, and *Mr. Francis W. Parker* for the complainant.

Mr. H. H. Bliss and *Mr. John R. Bennett* for the respondents.

SAGE, *J.*:

This suit is for infringement of Patent No. 432,754, granted July 22, 1890, application filed March 31, 1890, for a mining-machine, to F. M. Lechner, assignor to the Electric Mining Machine Company, of Columbus, Ohio, under which company, by mesne assignments, complainant claims title. It describes a single-chain cutter breast-machine mounted on a traveling frame, which in operation is moved outwardly from the main or bed frame, and as it is advanced an endless-belt cutter makes an incision or kerf extending into the vein or seam of coal to the desired distance. To hold the traveling frame against lateral movement in the operation of the cutting device when the frame has been moved outwardly from the main frame the specification sets forth that an additional or auxiliary cutter is provided, which is adapted to cut a channel immediately above the incision or kerf made by the endless-belt cutter, and furnish on the traveling frame a holding projection adapted to engage in said channel as the frame is advanced, and thus prevent any side or lateral movement of the traveling frame. This is preferably accomplished by placing immediately above and slightly back of the line of cut of the endless-belt cutter a cutter or chisel having a bearing near its outer end in a bearing-box, through which it is adapted to reciprocate, the bearing-box being preferably formed rectangular in cross-section and of a size substantially equal to or slightly less than that of the reciprocating cutter, to which a reciprocating motion is given by means of a connecting-rod which extends backwardly through a supporting-stand and is connected to an eccentric on the vertical shaft on the traveling frame. As the vertical shaft revolves to impart motion to the endless-chain cutter a reciprocating motion is imparted to the reciprocating cutter through the medium of the eccentric. This cutter, operating against the seam or vein immediately above the kerf or incision formed by the endless-belt cutter, produces a channel substantially rectangular in shape and opening into the kerf or incision, into which the projecting bearing enters as the traveling frame is advanced, thus holding the traveling frame firmly against lateral movement in the direction opposite to the thrust of the endless-chain cutters as they are advanced into the coal. Then follow descriptions of methods of adjustment and of connections and fastenings, which, being matters

of detail, may be omitted as unnecessary to the discussion of the questions involved in this case. In a subsequent paragraph of the specification the inventor says:

> By the use of the supplemental cutter and the holding projection adapted to follow in a channel made by said cutter I am enabled to produce a machine in which a single endless cutting-belt is adapted to perform all the operation of cutting.

Complainant's title to the patent is denied upon the ground that it is within the terms of a contract made by F. M. Lechner, the inventor, on the 21st of October, 1876, with the defendants, Francis C. Sessions and Joseph A. Jeffrey, whereby he transferred to them thirteen twenty-fourths of his Patent No. 172,637, dated January 25, 1876, for an improvement in mining-machines, and thirteen twenty-fourths of any and all improvements which he might thereafter make, acquire, or invent and patent in—

> connection and in any way appertaining to the aforesaid improvement in mining-machines.

By contract dated July 24, 1877, he assigned, transferred, and set over to the Lechner Mining Machine Company one-hundred-and-seventy four-hundred-and-eightieths of all his right, title, and interest in and to the same patented invention (which left to him fifty four-hundred-and-eightieths) and in and to any further improvement that he might make or acquire. Each of these assignments was duly recorded in the Patent Office at Washington. The name of the Lechner Mining Machine Company was subsequently changed to Jeffrey Manufacturing Company, one of the defendants herein. It appears, therefore, that whatever title either of these instruments conveyed is the property of one or the other of the defendants in this case.

The machine of Patent No. 172,637 was a cutter-bar machine by which the kerf or drift in the vein of coal was made by means of a horizontal cutter-shaft, preferably square, except where rounded to form bearings to turn in the metallic shoes, and armed with cutting-teeth the shanks of which were adjustably secured in the shaft by means of set-screws. These teeth were of such width upon their cutting edges that as the shaft revolved and was advanced there were but thin walls of coal left between them. To break those down in front of the bearings of the shaft, each shoe was armed at its lower side with a sharp projecting cutting-spur. In operation a rotary motion was imparted to the cutting-teeth as they were forced directly into the coal. That machine had no cutting-chains, had no lateral tendency, and needed no holding device to prevent lateral motion. In each of these respects it was radically different from complainant's machine, which is an entirely distinct machine and not merely an improvement on the machine covered by Patent No. 172,637. To hold that the assignments in question would pass all of Lechner's future mining-machine patents would, as counsel for complainant suggest—

> be equivalent to holding that these two assignments constituted in fact a mortgage on Lechner's brain to bind all his future products, which is exactly the thing objected to by the court in *Aspinwall Mfg. Co.* v. *Gill*, (32 Fed. Rep., 697.)

In that case Justice Bradley made it clear that under the rule in *Littlefield* v. *Parry* (7 O. G., 964; 21 Wall., 226) only improvements on the particular machine secured by the patent would pass by an assignment of a patent with future improvements. This rule is in accord with the acts of Lechner and Joseph A. Jeffrey, defendant, one of the assignees under the first assignment and president of the defendant company. From Jeffrey's testimony it appears that he knew as early as 1882, and from then until the date of his testimony, that Lechner was engaged in mining-machines other than cutter-bar machines. In 1892 Lechner came to him and described to him his chain machine, and he, (Jeffrey,) after considering the matter some little time, agreed, if his machine should prove successful and better than any machine on the market, to manufacture it and pay Lechner a royalty, provided the machine was free from infringing existing patents or inventions.

The patent in suit, as has already been stated, was issued to the Lechner Electric Mining Machine Company as the assignee of Lechner. Mr. Slade, the president of that company, acting in his official capacity, notified the defendants that his company would sue them for infringement if they manufactured the chain machines covered by the patent, as they were contemplating under their verbal arrangement with Lechner. The defendants claimed no interest in the invention, nor did they give Slade any notice thereof. The Lechner Electric Mining Machine Company failed. The patent was assigned to Dyer, and sold by him, as assignee, to Slade for a valuable consideration, without notice of any claim on the part of the defendants, and he sold it to the complainant for a valuable consideration. It would seem that under such circumstances the defendants should be estopped from setting up as against the complainant any claim of title to said Letters Patent by application of the rule that if one was silent when it was his duty to speak he shall not be permitted to speak when he should be silent. (*Packard* v. *Sears*, 6 Ad. & El., 469.)

Defendants also produced in evidence a transcript of the proceedings in *Brisbin* v. *Lechner et al.* in the Circuit Court of the United States for the Western District of Pennsylvania, a suit which grew out of certain contracts between Brisbin and F. M. Lechner relating to certain improvements invented by him for mounting an electric motor with the operative mechanism of the mining-machine by belt or like device and adjusting the position of the motor to the machine and in the apparatus employed in practicing said invention. Lechner agreed to convey a one-half interest in and to the several inventions referred to and in—

> any improvement or improvements thereon thereafter made by him and in any application or applications made in any Letters Patent of the United States granted for said several inventions or for any such improvement thereon.

Subsequently, December 19, 1888, Brisbin and Lechner made a second agreement in writing by which Brisbin was to have a one-tenth interest in certain undescribed patents, alleged by the bill to be Nos. 237,032, 295,183, and 347,091, and none other. That agreement contains no stipulation relating to improvements. The suit was for specific perform-

ance. It resulted in a decree for the complainant, entered December 26, 1891—more than seventeen months after the date of the patent in suit—whereby Brisbin secured his own one-tenth interest stipulated for. Brisbin's rights were merged in the decree, and he has no title or claim under his contracts with Lechner to any other patents of his or any improvements thereon. The stipulation in the first contract for the assignment of improvements cannot be properly construed to cover the patent in suit for reasons already stated in this opinion, which are directly in point and apply as well to the papers in the suit of the *Electric Mining Machine Co.* v. *Francis M. Lechner et al.*, now pending in this court. Without stopping to assign other reasons it is sufficient to state the conclusions of the court that the complainant's title, which is otherwise good, is not impaired or affected by reason of any of the contracts or suits above referred to.

At the close of the evidence-in-chief for the complainant its counsel gave notice, as appears of record, that the complainant would rely on the first claim of the patent, which reads as follows:

> The combination, with a traveling frame and an endless-belt cutter, of an auxiliary cutter operating in a different plane from said endless-belt cutter, and a holding projection adapted to follow said auxiliary cutter into the kerf or incision made thereby to form a holder to operate against the thrust or force of the endless-belt cutter, substantially as specified.

With reference to this claim the defendants insist—

First. That even when liberally construed it is not tenable, and is invalid in view of the facts of record concerning the earlier art and the conduct of the patentee.

Second. That irrespective of the question of validity it is not infringed by the construction of the defendants, because, first, the claim was intended to exclude such devices, and, second, the structure of the claim and that of the defendants are radically different.

More than seventy-five patents for devices which, it is contended, anticipate the complainant's have been offered in evidence. They may be divided into the following classes: plows, power coal-mining picks, coal-tunneling machines, coal-mining machines having coal-cutting cutter-saws, coal-mining machines having coal-cutting cutter-bars, coal-mining machines having long wall-cutting chains, breast coal-mining machines having two chains, coal-mining machines having reaper-bar cutters, single-chain breast hand coal-mining machines, and double-chain breast mining disk-holder machines. Incidental to the operation of every mining-machine is a reaction or thrust exerted by the carriage upon the cutters and in a direction opposite to their operating motion. Every "heading" or "breast" machine, whether "bar," "saw," "chain," or what not, has a bed-frame, a sliding carriage, and a cutting apparatus at the front of the carriage. It has always been necessary to provide for each machine two "jacks," one at the front and one at the rear of the bed-frame. The rear jack engages sharp the mine-roof, and the front one, inclined upward and at a sharp angle to the right, bites into the vertical wall just above the kerf. They bear down with great force upon the bed, each having a powerful screw and a hand-wheel for clamping the bed to the floor of the mine and holding it in position when the machine is set ready for operation with its cutter-head close and parallel to the coal. As the kerf or incision made by the cutter deepens, extending seven feet or more into the coal, it is obvious that the leverage against the holding power of the jacks increases, with a corresponding increase of the lateral strain upon the moving or sliding carriage and upon the frame. The auxiliary or holding cutter, being immediately above the chain cutters, is in position to most effectively counteract this leverage and to furnish with the least force the greatest resistance to the lateral strain, upon the principle whereby the course of the great ship is controlled by the use of the comparatively insignificant rudder; hence the value and efficiency of the auxiliary cutter or holder. As is well said by counsel for defendants, it—

> is to be regarded merely as an adjunct to the jacks and the frames,

provided too much stress be not placed on "merely." The anticipating devices show various forms of holders. The British patent No. 1,424 of 1876, to Brunton, shows a "steering-pipe" provided with a screw-auger, as is the guiding-bar shown in British patent No. 1,857, issued to Gay in 1863, and the drill in German patent No. 6,848, issued to Weber in 1879. Then followed cutter-wheel holders, shown in British patent No. 1,449 of 1886, to Stanley, of which the *Colliery Engineer* says:

> The top of the machine is guided by two wheels *m*, which have two sharp-edged flanges (in front and one at each side) which cut into the top of the tunnel and prevent any lateral motion of the machine.

Then comes the disk-holder, as in United States Patent No. 340,791, issued to V. A. and S. C. Lechner in 1886. That machine had two chain cutters which moved in opposite directions. To prevent lateral movement by reason of one of the chains working against harder material than the other or from any other cause, a vertical cutter was provided of a diameter somewhat in excess of the height of the kerf cut by the horizontal chain cutters, so as to make a guiding groove or crease in the bottom or top or both in the bottom or top of the kerf. So cutting and holding wheels have been used in plows, as in reissue Patent No. 10,641, to St. John, 1885, which shows a revolving blade or disk placed above the cutting edge or skin of the moldboard and employed as a landslide to prevent the plow from crowding to land in getting or in running the furrow, the side pressure being borne ordinarily by a very small portion of the disk and at the point of least resistance. A wheel-holder is shown in United States Patent to Brown, No. 197,090, 1877, to prevent the chain from drawing the carriage inward. The Brunton patent shows also a rib-like device on the movable carriage or frame, provided with a cutter at its front end and "keel-pieces" to—

> plow up a groove in the interior surface of the tunnel, for their own passage, and in which they may be embedded to resist the tendency to turn the chambers when the head is being rotated.

Each keel-piece was provided at its front end

with a cutting chisel point, which was in line with the outer edge of the keel-piece.

Two patents issued to F. M. Lechner are cited: No. 172,637, 1876, for a mining-machine in which each carrier has a guiding-plate secured to a block. These plates pressed against the upper side of the kerf or drift, and the shoes at the front end of the carriers on which the cutters were mounted rested on the bottom of the drift in order that the cutting-teeth should be always maintained in proper working relation to the coal. Patent No. 232,280, the other patent to Lechner, issued in 1880, shows a device provided with a shoe the upper member of which has a dovetailed rib projecting inwardly from the inner vertical face and adapted to enter a correspondingly-shaped seat formed in the front end of the carrier, whereby this rib assists in supporting the upper member against the upward thrust which is produced by the cutting action of the bits upon the coal, thereby relieving the bolts or set-screws which are used for the purpose of securing the shoe to the sliding carrier.

Patent No. 47,168, to Haupt and Smith, 1865, for a rotary-pick mining-machine, shows a stationary cutter between the top and bottom main wheels, and when the machine was in operation pressed forward against the coal for the purpose, as is set forth in the specification, of cutting away the coal or ore-core in front of the picks and gear; but it is contended for defendants that they had—

> the necessary, secondary, function of steadying and holding the carriage against lateral thrust or reaction.

The last patent mentioned by defendants' counsel as anticipating complainant's device is No. 104,396, to Lynch, 1870, for a cotton scraper or cultivator. The guide, which constituted the invention, consisted of a wrought-iron plate sharpened where it entered the soil and secured to the lower end of the standard of the cultivator. It was arranged parallel to the beam and located near the middle of the share, forming an acute angle therewith. It projected below the cutting edge of the share sufficiently to enter the soil not cut by the share, from the cutting edge of which it extended far enough in the rear of the standard to form a brace in the earth to prevent any lateral movement through the soil.

Of these patents, No. 340,791, to Van Amberg Lechner and F. C. Lechner, is the only one showing a chain breast-machine provided with any sort of device proposing to—

> keep the machine from being moved laterally by reason of one of the chains working against harder material than the other, or from any other cause.

That was a double-chain machine, and the chains were driven in opposite directions, which it was supposed would equalize the strain on the machine and reduce to the minimum the amount of bracing necessary to hold it to its work, and the vertical cutter or disk was intended to prevent lateral motion when the cutters on one of the chains might encounter harder material than the other. The drawings show a disk having cutters projecting radially beyond its periphery and laterally beyond its sides. The channel which they cut was of necessity both wider and deeper than the disk, so that no continuous pressure of the disk against the side of the channel was possible. The disk was in no sense a holding device, nor could it be made to perform that function in a single-chain machine. The defendant company's superintendent admitted as much in answer to cross-questions 318, 319, and 320, page 154, defendants' record. Practical tests of the machine were made at the Shawnee mine, whereby it appeared that whatever was done in the way of holding the machine against the tendency to lateral displacement was accomplished by the jacks, which bore upon the main frame, and not appreciably so as to be available for practical use by the disk. The details of the tests made cannot be entered upon without expanding this opinion beyond reasonable limits. The holder to be completely successful must not only prevent lateral motion, which would occur without it, but also prevent harmful vibration of the frame of the machine. The disk device cannot be made to operate unless the teeth or bits have a spread. The result is necessarily a cut so wide and deep as to make the disk ineffective to prevent either lateral motion or harmful vibration. These remarks apply to every disk device put in evidence by the defendants.

The English patents to Brunton, to Gay, to Stanley—this last patented also in the United States—have the general form of what we call "tunneling-machines." The main frame is securely jacked or held in position in the mine, out in front of which is a great circular revolving cutter which describes a circle larger than the transverse section of the machine itself and by its revolution as it is fed forward produces a rotary tendency of the main frame in the opposite direction. The devices to counteract this strain are all on the main frame, and consist of jacks which hold the main frame in position as the main frame of complainant's machine is held. Most of these machines bore at the same time a central hole for the avowed purpose of the introduction of a charge of powder. The bit or auger which bores the hole has no holding function, nor was it designed to have. None of these machines has any device which gives that constant and persistent holding effect steadying against vibration and jar which tend to disintegrate and crystallize the whole machine, nor is any such device possible in this class of machines.

The German patent to Weber is for a hand-machine having a single chain journaled on the opposite ends of a cross-bar and driven by a spindle operated by hand-wheel by means of beveled gear-wheels. The rear end of the spindle is provided with a sleeve-nut having a point for bearing against a post, and the front end is provided with an auger-bit, which projects beyond the front side of the cutter-chain and is supposed to bore into the coal as the spindle is turned by the hand-wheel. This machine, which was at best feeble and ineffective, operated, as it was, by manual power, was not liable to vibrations nor to any serious lateral tendency. It had no holding device, because the bearing of its

spindle was less than one-half the width of the auger-bit, and consequently would not come into contact with the sides of the hole bored by the auger-bit nor have any holding action.

The Haupt and Smith patent has a pair of horizontally-arranged saws, one above the other, which in operation are moved forward into the coal, excepting that the saws or cutters are mounted on a moving frame. They contain no element bearing any analogy to any element of the patent in suit. Each machine is provided with two saws. These act in opposite directions and balance each other, thereby obviating the necessity for a holding device to prevent lateral movement. Some of the machines are provided with a pick or other device between the two saws for the purpose of breaking up the piece of coal which is cut out by the saws. There is nothing in these machines which anticipates complainant's patent. The power picks and plows, under the doctrine of *Potts* v. *Creager*, (70 O. G., 494; 155 U. S., 597,) do not belong to related arts. If they did, not one of them anticipates complainant's device. In fact, many if not most of the machines above referred to are relied upon by defendants to sustain their contention that complainant is not a pioneer rather than as anticipations. The wheel-holder to prevent the chain from drawing the carriage of the Brown machine, Patent No. 197,090, cannot be recognized as an anticipation.

There are also in the record two double-chain breast-machines—patents No. 287,032, to S. C. Lechner, and No. 295,183, to Van Amberg Lechner—but neither of these patents shows a holding device. They are provided with double chains moving horizontally in opposite directions, and were constructed upon the theory that the chains thus moving would balance the machine, and hence no other or special provision was made against lateral motion.

Patent 428,920, to Francis M. Lechner, (inventor of complainant's machine,) is also relied upon against the validity of complainant's patent. This patent is known as the Lechner auger patent. It was applied for December 10, 1889. The patent in suit was applied for March 31, 1890. The auger patent was issued May 27, 1890, and the patent in suit July 22, 1890. The two applications were pending at the same time. The auger patent describes and claims an auger or drill with bearings as a holder against lateral motion. The complainant's patent describes and claims a reciprocating cutter or chisel for the same purpose. Generally what is shown or described in a patent but not claimed therein is dedicated to the public. (*Miller* v. *Brass Co.*, 12 O. G., 667; 104 U. S., 350.) But if at the date of the issue of such patent the patentee has another application pending which describes and claims what he describes but does not claim in the patent issued the presumption of dedication to the public does not arise. In *Suffolk Co.* v. *Hayden* (3 Wall., 315) the Supreme Court said:

> The first point of the plaintiff in error is, that the description in the patent of March, of the improvement patented the December following, and on which the present suit is brought, and omission to claim it in such earlier patent "operated as an abandonment or dedication of it to the public," and that for this reason the subsequent patent of 1st December was void. But the answer to this ground of defense is, that it appeared that Hayden, the patentee, had pending before the Commissioner of Patents an application for this same improvement at the time he described it in the specification of the 17th of March, which was, doubtless, the reason for not claiming it in this patent. The description in no sense affected this application thus pending before the Commissioner, and while it remained before him, repelled any inference of abandonment or dedication from the omission to again claim it.

In the case of *Singer* v. *Braunsdorf* (7 Blatchf., 521, 535) Judge Blatchford said:

> A patent is not invalidated by the fact that the invention claimed in it was described but not claimed in a patent granted subsequently to the making of the application for the patent secondly issued, but before it was granted.

In *Railway Register Manufacturing Co.* v. *The Broadway & Seventh Avenue R. Company* (30 O. G., 180; 22 Fed. Rep., 555) Judge Wheeler said:

> The application for this patent was on file when the prior patent to this inventor was granted, and therefore the description of this invention in that patent would not affect at all the validity of this one.

In *Holmes E. P. Company* v. *Metropolitan B. A. Company*, (33 Fed. Rep., 258,) in which the patent in suit was held to be invalid because the invention was disclosed in a prior patent to the same inventor, Judge Coxe said:

> This is not the case of a patentee who has made application for the second patent before the first is issued.

In *Graham* v. *McCormick* (21 O. G., 1533; 11 Fed. Rep., 859) a prior patent was issued on July 23, 1867, upon an application filed December 2, 1865. The patent in suit was issued February 11, 1868, upon an application filed February 11, 1867. As to the contention that the second patent was invalid by reason of the issue of the first patent, Judge Drummond said:

> It is to be borne in mind that the application for the second patent, that of 1868, the one in controversy here, was made while that for the previous patent was pending, and before the prior patent had been issued. There were thus pending before the Patent Office two applications at the same time, where the claims were different, and we understand it to be in accordance with the practice of the Patent Office to allow applications to be made at the same time, by the same party, for different parts of the same machine.

The foregoing was followed in the case of *Graham* v. *Geneva Lake Mfg. Co.*, (21 O. G., 1536; 11 Fed. Rep., 138.)

In *Swift* v. *Jenks* (27 O. G., 621; 29 Fed. Rep., 642) Judge Coxe said:

> The conclusion cannot be resisted that the claims in question are invalid, for the reason that the invention covered thereby was disclosed in a previous patent, and belonged to the public when the application was filed.

In *Electrical Accumulator Company* v. *Brush Electric Company* (52 Fed. Rep., 130) the Court of Appeals held that the prior issue of a patent for a subordinate invention did not invalidate a subsequently-issued patent for the broad claims, the application for which was pending in the Patent Office at the time the first patent was issued. This decision was also followed by the same court in the case of the *Thomson-Houston Company* v. *The Elmira & Horseheads Railway Company*, (74 O. G., 144; 71 Fed. Rep., 396.)

The complainant's patent is not invalidated or impaired by Lechner patent No. 428,920.

An attempt was made by defendants to show that the Lechner auger-machine was old, or in public use for more than two years prior to the date of the application for the complainant's patent; but it appears from the testimony that all that was

accomplished was a series of unfortunate experiments. According to the testimony of one of defendants' witnesses, Lechner's auger-holding device for single-chain machines was first tried and demonstrated to be practicable late in 1889, and the application for that patent was filed December 10 of that year. The application for the patent in suit was filed March 31, 1890.

It is contended also that a machine made by Lechner on the lines of the patent in suit did not work successfully and was a failure. There is no contention that there was any defect in that machine on account of its principle. It appears that while Lechner was a great inventor he was a poor mechanic. The machine upon the construction of which the contention is made was not strong enough to do any work, and, irrespective of the holding device, it would have been unsatisfactory. The defendants have not shown that the failure was due to the holding device, and the burden was on them. The device of the complainant's patent can be put into proportions to make it successful, and this has been done by complainant. Moreover, the inventor is not required to bring his device into absolute perfection in order to make his patent good. (*The Telephone Cases*, 43 O. G., 377; 126 U. S., 1.)

While this device is somewhat crude as compared with the improved style of trunk-fasteners now in use, it contains the underlying principle of all of them. In short we find no difficulty in holding that there is a patentable novelty in the Taylor fastener, and that it is not anticipated by any of the devices put in evidence. (*Sessions* v. *Romadka*, 59 O. G., 939; 145 U. S., 419.)

That the drawings of a patent need not be the working drawings or on an operative scale see *Leather Co.* v. *American Tool Co.*, (4 Fish., 284.) That the patent is not limited to its exact form or dimension of parts see *Winans* v. *Edwards*, (15 How., 330.)

With reference to infringement, defendants' device is within the scope of complainant's patent. It consists of a metal plate adapted to be permanently secured to the front end of the movable frame and provided with a series of cutting teeth or chisels which rise at one side of the plate, are successively of greater height, and always so arranged as to present a vertical face on the side which is to bear upon the channel cut by the teeth, and with clearance-slots on the opposite side between the teeth. It is constructed and it operates upon precisely the principle of complainant's device, excepting that the teeth are not independently reciprocated, which relieves against infringement of the second claim of complainant's patent, but not against infringement of the first claim. The contention that the holding function of their device is performed by the continuous engagement of the teeth of their cutters with the coal in front of them, and not by reason of their engagement with the side or wall of the channel, is not tenable. Their proposition that if their holder were reciprocated it would be worthless, just as if the complainant's cutter were made stationary, is fallacious, for the reason that in fact and in operation it is shown by the evidence that defendants' cutter does act reciprocally, upon exactly the principle of the action of complainant's cutter.

Upon all the points considered the equity of this cause is with the complainant, and the decree will be accordingly.

U. S. Circuit Court—Southern District of New York.

AMERICAN GRAPHAPHONE COMPANY *v.* LEEDS *et al.*

Decided November 10, 1896.

PRELIMINARY INJUNCTION—ADJUDICATIONS IN OTHER CIRCUITS.

An adjudication sustaining a patent is not conclusive in favor of granting a preliminary injunction in a suit in another circuit where a decisive question raised in the latter suit was not contested in the former and it appears that in the former a motion for reargument for the purpose of raising this point has been entertained but not yet decided.

STATEMENT OF THE CASE.

This was a suit in equity by the American Graphaphone Company against Loring L. Leeds and others for alleged infringement of a patent. The cause was heard on a motion for preliminary injunction.

Mr. B. F. Lee for the motion.

Mr. R. N. Dyer opposed.

LACOMBE, *J.:*

The only question really presented on this motion is whether the adjudication in support of the patent in the district of Illinois is to be taken as controlling as to validity and scope of the claims relied upon when application is made here for preliminary injunction. If there had been no adjudication, injunction would be refused, in view of the serious dispute as to material issues in the case. Had there been no proceedings subsequent to such adjudication, it might be that this court would not inquire with much particularity as to the issues raised and the evidence introduced in the earlier suit, when it is admitted, as it is here, that the alleged infringing machines are substantially the same. It appears, however, that in the earlier suit there was no serious contention but that the sound-record (of wax or some other material upon which the record was impressed) was the discovery and invention of Bell and Tainter; that the court in that case was convinced that Bell and Tainter were entitled to this invention: that such conviction lay at the basis of the court's conclusion, and that because of such conviction the court held the particular claims here relied upon to be valid as a combination containing this invention of the sound-record. It now appears that it is not only not conceded that this sound-record was the invention of Bell and Tainter, but, on the contrary, it is strenuously insisted that it was the invention of Edison. Upon that disputed point a mass of evidence has been produced which should not be passed upon on the hearing of a preliminary motion. And it further appears that when the attention of the court in the earlier case was called to this condition of affairs it entertained a motion for reargument, which has not yet been decided and which that court has intimated it will not decide until the determination of this important issue of fact in the main case, (in New Jersey.) Under these circumstances the case in Illinois must be considered as *sub judice*—a matter not yet decided—and therefore not entitling the complainant to a preliminary injunction as an adjudication sustaining the claims relied on.

Motion denied.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 78—No. 6. TUESDAY, FEBRUARY 9, 1897. PRICE—$5 per year.

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Disbarred Attorneys.

(ORDER No. 1,108.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 14, 1896.

It is hereby directed that any person who has been disbarred from practice before the Patent Office by order of the Commissioner be denied access to the files of the Office, either in his own capacity or as the representative of any other person or firm.

JOHN S. SEYMOUR,
Commissioner.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Preparation of Specifications and Amendments for the Printer.

The Examiners are directed before passing applications to issue to carefully examine all the papers and see that they are in such shape and condition as to avoid all possibility of error being made by the printers. Whenever interlineations or erasures have been made in the specifications or amendments which would lead to confusion and mistake, the Examiners should require the entire specification to be rewritten before passing the case to issue.

Belgian Patents.

In reply to an inquiry from this Office notice has been received, through the Minister of the United States at Brussels, from the Belgian patent authorities, that it is not deemed advisable to publish their patents *in extenso*, and that no fuller description than that contained in the short abstract of the *Recueil Officiel* will be given. Complete copies may be obtained from the Belgian Patent Office on payment of the expense of reproduction.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1888, to October 1, 1892. One volume, 18 pages. Paper covers, 25 cents.

Appendix No. 2, October 1, 1892, to March 1, 1895. One volume, 28 pages. Paper covers, 25 cents.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Foreign Patents and Publications.

The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library:

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Issue of February 9, 1897.

Patents	464—No. 576,529 to No. 576,992, inclusive.
Designs	12—No. 26,612 to No. 26,623, inclusive.
Trade-Marks	13—No. 29,561 to No. 29,573, inclusive.
Labels	None.
Prints	None.
Reissues	None.
Total issue	489

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama			New Hampshire	2	
Arizona Territory			New Jersey	32	
Arkansas	1		New Mexico Territ'y		
California	12		New York	76	2
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District of Columbia	2		Oklahoma Territory	2	
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Kansas	3		Utah		
Kentucky	7	1	Vermont		
Louisiana	2		Virginia	7	
Maine	5		Washington	3	
Maryland	2		West Virginia	1	
Massachusetts	45	2	Wisconsin	6	2
Michigan	13	1	Wyoming		
Minnesota	10	1	U. S. Army		
Mississippi			U. S. Navy	1	
Missouri	12				
Montana	1		Total to citizens of the United States	429	12
Nebraska	3				
Nevada	1				

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Austria-Hungary	1		Newfoundland		
Barbadoes			New South Wales		
Belgium	2		New Zealand	1	
Bermuda			Norway		
Brazil			Orange Free State		
Canada	6		Portugal		
Canary Islands			Queensland		
Cape Colony			Russia	1	
Ceylon			Scotland	1	
Chile, Republic of			South African Republic		
Colombia				1	
Cuba			South Australia		
Denmark			Straits Settlements		
England	15		Sweden		
France	3	1	Switzerland	3	
Germany	10		Victoria	3	
Guatemala			West Australia		
India					
Ireland			Total to citizens of foreign countries	47	1
Italy					

APPLICATIONS UNDER EXAMINATION.

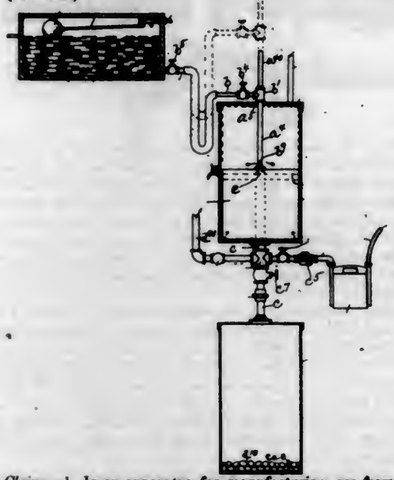
Condition at Close of Business February 2, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
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250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 2	Jan. 20	276
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	Under one month in arrears.			
	Designs	Jan. 11	Jan. 22	165
	Trade-Marks	Jan. 7	Jan. 14	129

PATENTS

GRANTED FEBRUARY 9, 1897.

576,529. APPARATUS FOR MANUFACTURING GAS. WALTER R. ADDICKS, Brookline, Mass. Filed Sept. 3, 1896. Serial No. 604,733. (No model.)



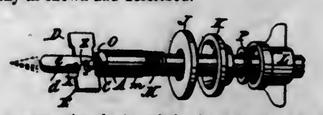
Claim.—1. In an apparatus for manufacturing gas from chemicals, the combination of the following instrumentalities, a generator or chamber in which one of the chemicals is placed, a supply for a liquid constituting another chemical which combines with the chemical in the generator to form the gas, and a regulator consisting of a gas-holder, a vessel or chamber in which said holder is movable, a pipe connection between the gas-holder and the liquid-supply and movable with the gas-holder, substantially as and for the purpose specified.

2. In an apparatus for manufacturing gas from chemicals, the combination of the following instrumentalities, viz: a generator or chamber in which one of the chemicals is placed, a water-supply tank provided with an automatically-controlled water-inlet valve, and a regulator intermediate of the said water-supply tank and the said generator and consisting of a liquid-containing vessel, a gas-holder movable in said vessel, a pipe secured to said holder to move therewith, a flexible pipe connection joining said gas-holder pipe with the water-supply tank, and a pipe connected to the generator and extended up into the gas-holder, substantially as described.

3. In an apparatus for manufacturing gas from chemicals, the combination of the following instrumentalities, viz: a generator or chamber in which one of the chemicals is placed, a supply for a liquid constituting another chemical which combines with the chemical in the generator to form the gas, and a regulator communicating with the liquid-supply and with the gas-generating chamber and automatically operated by the gas generated to regulate and control the supply of the said liquid to the generating-chamber, a gas-outlet pipe communicating with the generator and with the regulator, and means to cut off the said gas-outlet from the regulator, substantially as and for the purpose specified.

576,530. CONNECTING DEVICE FOR SECURING TUBES OR RODS TO MAINS, PLATES, &c. FREDERICK ALBERSHEIM, Melbourne, Victoria. Filed June 11, 1896. Serial No. 595,145. (No model.)

Claim.—1. In a connecting device of the kind herein described, a tube or rod having a slot in the end thereof, in combination with elbow-plates, the elbows of which are pivoted within said slot, said tube being also provided with clamps which are adapted to clamp a base between the same, and one of the arms of said elbow-plates, substantially as shown and described.



2. In a connecting device of the kind herein described, a tube or rod as A, in which is formed a slot as C, said tube being provided with an annular shoulder as O, and a screw-threaded portion as M, and a plane portion as *m*, between the screw-threaded portion and the slot and elbow-plates, the elbows of which are pivoted in said slot, and a suitable clamp mounted on said tube, substantially as shown and described.

3. In a connecting device of the kind herein described, the combination with a tube provided with a slot in the end thereof, of elbow-plates, the elbows of which are pivoted in said slot, said plates being also provided with notches or recesses in the angles thereof, and clamping devices mounted on said tube and adapted to clamp a base as B, between the arms of said elbow-plates and said clamping devices, substantially as shown and described.

4. In a connecting device, a tube or rod end having one or more elbow-plates pivoted thereto, one arm of the or each, plate being adapted to pass through a base B, and swing on its pivot to bear against one side of the base, the remaining arm lying on the other side of said base, in combination with a clamp which locks the elbow-plate or plates, immovably in relation to the tube or rod end and grips the base between said clamp and the elbow-plate arm or arms which bear against the base substantially and for the purposes set forth.

5. In a connecting device, a tube or rod end having an elbow-plate or elbow-plates pivoted thereto, said end and one arm of the, or each elbow-plate being adapted to enter a hole in a base, the other arm of the or each, elbow-plate extending transversely to the tube or rod end when the latter begins to enter the hole, but swinging to a longitudinal position on striking the base, whereby the or, each, arm within the hole is swung to bear against the base the or each, said elbow-plate having a recess X whereby jagged edges Y around said hole may be avoided, in combination with a leakage-preventing washer or washers and a clamp for immovably securing the washer or washers, elbow plate or plates, and the base together substantially as and for the purposes set forth.

6. In a connecting device, the combination of a slotted tube or rod end A, having one or more elbow-plates pivoted thereto, a shoulder O, a smooth portion *m*, and a screw-threaded portion M, with a sleeve K, nut L, and washers to prevent leakage, all substantially as and for the purposes set forth.

7. In a connecting device, a tube or rod end having one or more elbow-plates pivoted thereto, and a point for making a hole in a base, the, or each, plate having a recess adapted to avoid the jagged edges of said hole when the tube or rod end and part of the, or each, elbow-plate is inserted therein, in combination with a clamp for rigidly holding the tube or rod end, the base, and the, or each, elbow-plate rigidly together substantially as and for the purposes set forth.

576,531. LOCK. ISAAC ANDERSON, Dayton, Ohio, assignor to Robert W. Hutchinson, Marcellus, Mich. Filed June 2, 1896. Serial No. 593,963. (No model.)

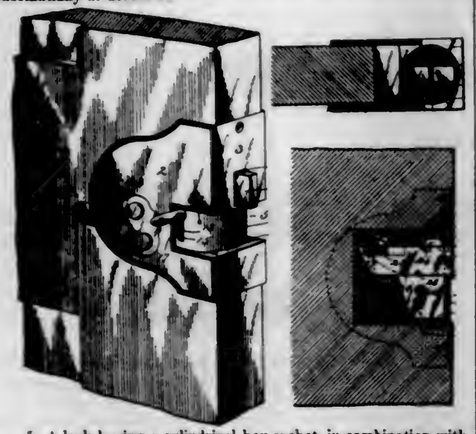
Claim.—1. A lock having that portion in which the keyhole is formed movable so that said keyhole may be presented at either side of a door, substantially as described.

2. A lock having a rotatable portion which is provided with a keyhole adapting the key to be inserted substantially at a right angle to the axis of rotation, substantially as described.

3. A lock having a movable part which is provided with a key-

hole and made reversible, adapting the keyhole to be shifted from one side of a door to the other, substantially as described.

4. A lock having a reversible key-socket adapted to be swung on a vertical axis for bringing the keyhole to either side of the door, substantially as described.



5. A lock having a cylindrical key-socket, in combination with a sleeve surrounding the same loosely and adapted to be turned for covering and concealing the keyhole, substantially as described.

6. A lock having a cylindrical key-socket, in combination with a sleeve surrounding said key-socket and adapted to be turned for concealing the keyhole, and a clutch for engaging said sleeve, substantially as and for the purpose described.

7. In a lock, a reversible key-socket, and a sleeve surrounding said socket and adapted to be moved for covering and concealing the keyhole, in combination with a movable clutch adapted to engage between said sleeve and a fixed part of the lock-case, substantially as and for the purpose described.

8. In a lock, the combination with the lock-bolt and the tumbler, of a reversible key-socket having provision whereby it is adapted to be engaged by the tumbler and held from moving, substantially as described.

9. In a lock, the combination with the bolt, of a reversible key-socket, and a tumbler adapted to engage the bolt and also adapted to simultaneously engage the key-socket for holding the latter against movement, substantially as and for the purpose described.

10. The combination with a lock-case formed with a recess as described, of a cylindrical key-socket mounted in said recess and adapted to turn therein for reversing the position of the keyhole, a bracket removably fitted in the case and having a portion which engages and forms a bearing for the key-socket, the reciprocating bolt, and the pivoted tumbler fulcrumed on said bracket and cooperating with the bolt and key-socket, substantially in the manner and for the purpose described.

11. In a lock, the combination with the bolt, of a reversible key-socket, a tumbler adapted to engage the bolt and also adapted to simultaneously engage the key-socket for holding the latter against movement, and a spring bearing against said tumbler for holding the latter in engagement with the bolt and key-socket, substantially as described.

12. A lock having a rotatable cylindrical key-socket, in combination with a sleeve surrounding the same and provided with a socket or opening adapted to receive a pointed instrument, whereby the sleeve may be turned relatively to and upon the key-socket for covering and concealing the keyhole, substantially as described.

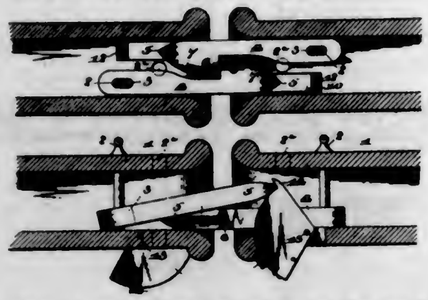
13. In a lock, the combination with the lock-case, of a reciprocating bolt having notches in its upper and lower edges, a tumbler fulcrumed at one end upon a transverse pin crossing the plane of the bolt and extending through one of the notches therein, the said tumbler comprising parallel side plates adapted to embrace the bolt and connected at their swinging ends by a cross-web which engages the bolt, and a spring interposed between the tumbler and a fixed point, substantially as described.

576,582. MANUFACTURE OF GUNPOWDER. GEORGE G. ANDRÉ, Glenlean Sandbank, near Greenock, Scotland, assignor to Charles Herbert Curtis, London, England. Filed May 6, 1892. Serial No. 432,045. (No specimens.) Patented in England July 4, 1891, No. 11,383.

Claim.—1. In the manufacture of substantially smokeless explosives a base consisting of two parts of trinitrocellulose and one part of dinitrocellulose, substantially as and for the purposes set forth.

2. A substantially smokeless explosive consisting of trinitrocellulose, dinitrocellulose and nitroglycerin in the proportions substantially as herein described, said explosive being tough, leathery, and translucent, and characterized by its combined qualities as to rate of combustion, yield of gases, non-exudation of the nitroglycerin, and its constance.

576,583. CAR-COUPLING. ALBERT L. ARNEY, Albion, Iowa. Filed Nov. 9, 1896. Serial No. 568,487. (No model.)

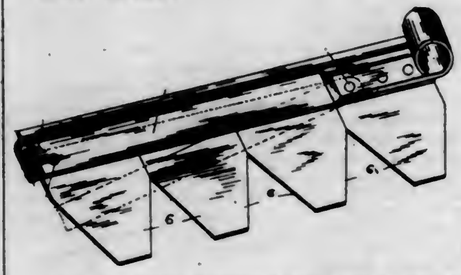


Claim.—1. In a car-coupling, the combination of a draw-head, a link connected to the draw-head and provided with a shoulder adapted to engage the shoulder of a corresponding link, and a link-lifter pivotally mounted on the draw-head at the bottom thereof and located adjacent to the said link and provided at its top with a lug or projection, forming a stop to limit the downward swing of the link-lifter and capable of engaging the outer end of a link, whereby the latter is maintained in an elevated position, substantially as described.

2. In a car-coupling, the combination of a draw-head, a semi-arrow-head link, and a sector-shaped link-lifter pivotally mounted on the draw-head at the bottom thereof and located adjacent to the shank of the link and adapted to lift the link of another draw-head, and provided at the upper terminus of its curved edge with a lug or projection forming a stop and capable of engaging the outer end of the link, said link-lifter being provided near the rear terminus of its curved edge with a stop to limit its upward swing, substantially as described.

3. In a car-coupling, the combination of a draw-head, a link secured therein and having a semi-arrow-head link beveled on its upper and lower faces at its side edge, a substantially sector-shaped link-lifter pivotally mounted in the bottom of the draw-head and located at one side of the shank of the link and provided at its front with a projection or lug, forming a stop and limiting the downward swing of the link-lifter and adapted to engage the outer end of a link, and a rock-shaft designed to be journaled on a car and connected with the link-lifter, substantially as described.

576,584. HARVESTER CUTTER-BAR. WILLIAM H. BALL and ALICE C. BAILEY, Zanesville, Ohio. Filed Apr. 4, 1896. Serial No. 586,343. (No model.)

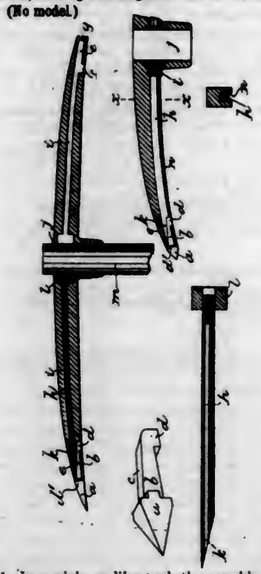


Claim.—1. A cutter-bar formed of three layers of sheet metal, two of said layers having an opening between them to receive the cutters and the third layer extending rearward to prevent rocking when the cutter-bar is in motion, substantially as described.

2. A cutter-bar formed of sheet metal bent into three folds, one of which extends in the rear of the cutter-bar proper to prevent rocking when in motion, substantially as described.

3. A cutter-bar formed of sheet metal bent into three folds and having its lower fold bent upward and then outward to form a flange, substantially as described.

576,585. FIXING WORKING POINTS OR ENDS OF PICKS, &c. JOHN BARLOW, Nottingham, England. Filed July 11, 1896. Serial No. 598,848. (No model.)

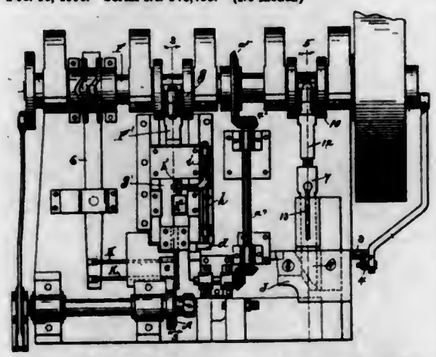


Claim.—1. In a pick, or like tool, the combination of a prong having a passage extending along its whole length, a locking-rod arranged in said passage and having one end wedge-shaped and the other end provided with an adjusting-nut, against which the handle of the pick abuts, and a removable point with a wedge-shaped shank, corresponding to the wedge-shaped end of the locking-rod, substantially as described.

2. In a pick, the combination of a removable point having a wedge-shaped shank, a heel or projection at the end of said shank, a socket in the pick-prong to receive the shank, and a hole to receive the heel or projection thereon, a locking-rod for wedging or jamming the shank tightly in place in the socket and extending to the eye of the pick, and a nut on the eye end of said rod against which the shaft or handle of the pick bears, substantially as described.

3. In a pick, or like tool, a removable point *a* having a shank *b* provided with an inclined or wedge surface *c*, a heel or projection *d*, on the opposite side of the shank to the wedge-surface and projections *d'* at the base of the head of the point to insure stability in combination with a locking-rod *h* having an inclined or tapered end *i*, substantially as and for the purpose described.

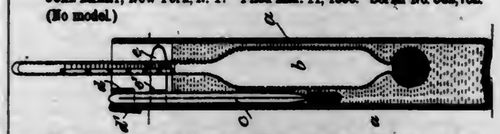
576,586. SPIKE-MACHINE. GEORGE BARR, Chicago, Ill. Filed Feb. 10, 1896. Serial No. 578,733. (No model.)



Claim.—1. In a spike-machine the combination with the intermittently-revolving pointing-dies, and revolving feed-rollers, of the stationary female die having a suitable groove in its upper surface the end of which farthest from said feed-rollers is countersunk, and having the upper surface on the side of said groove over which the spike is discharged inclined from the edge farthest from said feed-rollers to the parallel edge nearest thereto, a reciprocal gripping-die, a reciprocal beading-die, and vertically-reciprocal and horizontally and transversely reciprocal bars for ejecting the finished spike from the dies, as and for the purpose set forth.

2. In a spike-machine the combination with the intermittently-revolving pointing-dies and revolving feed-rollers, of the stationary female die having a suitable groove in its upper surface, the end of which farthest from said feed-rollers is countersunk and the upper surface of which on the side over which the spike is discharged being inclined from the parallel edge farthest from said feed-rollers to the parallel edge nearest the same, and the outer side edge of said inclined surface rounded, a stop-gage, a vertically-reciprocal gripping-die, a longitudinally-reciprocal heading-die, a vertically-reciprocal lifting-bar for ejecting the spike from the groove of the female die, and horizontally and transversely reciprocal push-bars one of which moves in a plane slightly lower than the other, as set forth.

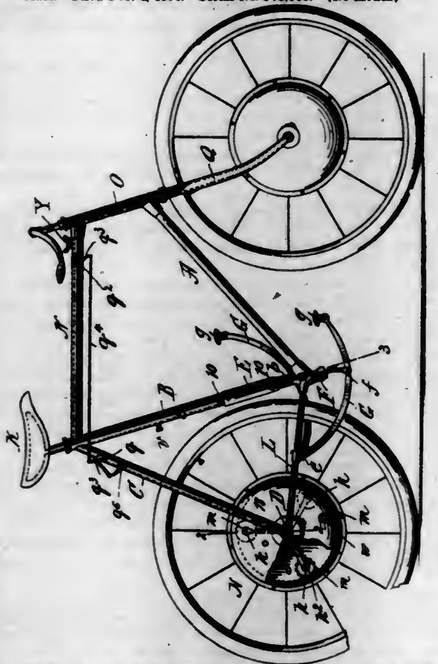
576,587. LIQUID TEMPERATURE AND DENSITY TESTER. JOHN BARRY, New York, N. Y. Filed Mar. 11, 1896. Serial No. 582,702. (No model.)



Claim.—1. The combination with the liquid-holding vessel and the hydrometer, of the thermometer, the spring-clip *d* and integral metal hook *d'* for respectively engaging the upper end of the thermometer-stem and suspending the thermometer from the upper edge of the liquid-holding vessel and the spring-band within the liquid-holding vessel, and passing partially around the inner surface thereof and across behind the thermometer-stem for pressing and maintaining the same in close proximity to the inner surface of the liquid-holding vessel, substantially as set forth.

2. The combination with the liquid-holding vessel and the hydrometer, of the thermometer, the spring-clip *d* and integral metal hook *d'* for respectively engaging the upper end of the thermometer-stem and suspending the thermometer from the upper edge of the liquid-holding vessel, the spring-band *e* having a half-eye *e'*, the spring-band being placed within the liquid-holding vessel and the eye passing over the thermometer-stem for maintaining the same in close proximity to the liquid-holding vessel, substantially as set forth.

576,588. BICYCLE. CHARLES H. BELLAMY, South Hadley Falls, Mass. Filed Feb. 4, 1896. Serial No. 578,005. (No model.)



Claim.—1. In a bicycle or analogous vehicle, an air-compressing apparatus and means actuated by the rider for operating it, a hollow

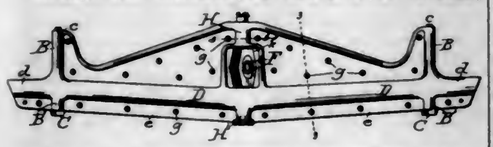
saddle which also serves as an air-reservoir connected with the compressor, and an air-motor applied for propelling one of the wheels of the vehicle having an air connection with said hollow saddle, substantially as described.

2. In a bicycle or analogous vehicle, a fixed hollow axle, a means for compressing air, and which is connected through the frame with the axle, and an internally-toothed wheel mounted on and revolving on the axle, combined with an oscillating motor mounted on and receiving its power for operating it through the axle, a cranked shaft operated by the motor, and a gear-wheel on said cranked shaft and which meshes with and operates the internally-toothed wheel, substantially as specified.

3. In a bicycle or analogous vehicle the combination with the opposing air-compressing pumps supported on the frame of the machine, of the longitudinally-ranging levers pivotally supported at their rear ends and having pedals, the transversely-arranged lever intermediately pivotally supported, connected with intermediate portions of said first-named levers and also having connection with the pistons of said pumps, an air-motor for propelling one of the wheels of the vehicle, having connection whereby to receive compressed air as primarily produced by said compressing-pumps, substantially as described.

4. In a vehicle of the character described the combination with the frame-upright B of the duplicated air-compressing pumps mounted at opposite sides of said upright and having the piston-rods thereof depending, the longitudinally-ranging, pedal-provided, levers G G rearwardly pivotally supported, the cross-lever F intermediately pivotally supported at the lower end of said upright, the links *d d* connecting the cross-lever and said piston-rods, and the links *f f* connecting said cross-lever with intermediate portions of the levers G, substantially as and for the purposes set forth.

576,539. BRAKE-BEAM FOR CARS. WILLIAM P. BETTENDORF, Davenport, Iowa. Filed June 29, 1896. Serial No. 597,400. (No model.)



Claim.—1. A brake-beam consisting of two corresponding sheet-metal plates secured flatwise together, substantially its entire length.

2. A brake-beam consisting of two corresponding plates so shaped as to provide finger-guards made a homogeneous part thereof and with extended ends for supporting brake-shoe heads.

3. A brake-beam consisting of two corresponding plates so constructed as to provide finger-guards with tubular sockets therethrough, and having extended ends for supporting brake-shoe heads, in combination with guard bolts or pins; said plates being secured together with their broad sides in contact.

4. A brake-beam consisting of two corresponding plates so shaped as to provide finger-guards having tubular sockets, in combination with guard bolts or pins.

5. A brake-beam consisting of two corresponding plates, having their forward edge portions provided with longitudinal beads which when said plates are united flatwise together, form a tubular edge therefor as set forth.

6. A brake-beam consisting of two corresponding plates so shaped that when united flatwise together a longitudinal tube is formed near their rear edge, the ends of which extend beyond the finger-guards thereof to form supports for brake-shoe heads.

7. A brake-beam consisting of two corresponding plates secured flatwise together, having their forward edge portions provided with longitudinal beads and forming a tubular forward edge for said beam; said plates being so formed near their rear edges as to form a longitudinal tube, the ends of which extend beyond the finger-guards thereof, as set forth.

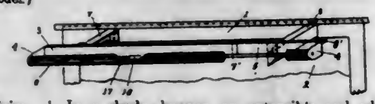
8. A brake-beam consisting of two corresponding plates, having their forward edge portions so formed as to provide a tubular edge for said beam and finger-guards provided with sockets near the ends of the beam and so formed near their rear edges as to provide a longitudinal tube, the ends of which extend beyond said finger-guards, in combination with guard bolts or pins inserted in the sockets of said finger-guards, as set forth.

9. A brake-beam consisting of two corresponding plates having an opening in the center of length thereof, in combination with a fulcrumal block for brake-lever placed within said opening and journaled in suitable bearings in said brake-beam.

10. A brake-beam consisting of two corresponding plates, having an opening in the center of length thereof, in combination with a fulcrumal block for brake-lever placed within said opening and consisting of two corresponding sheet-metal half-sections, the journal portions of which enter bearings between said plates and thereby hold said sections together.

11. A brake-beam consisting of two corresponding plates secured flatwise together and so formed as to provide a tubular forward edge for said beam, finger-guards therefor, and a longitudinal tube near the rear edge thereof, the ends of which extend beyond said finger-guards, and so as to form a suitable opening between said tube and the forward edge of the beam, in combination with a fulcrumal block for the brake-lever placed within said opening and adjustable on its axis, as set forth.

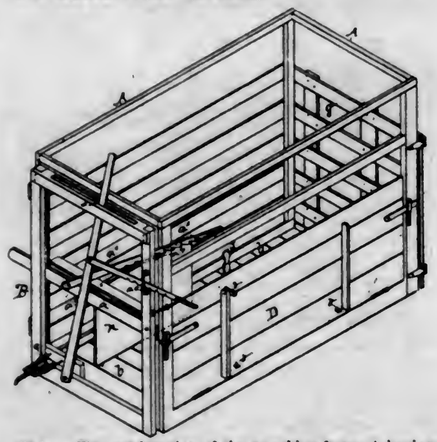
576,540. EXTENSIBLE SHADE-HANGER. ELMER H. BOTTENBERG, Auburn, Ind. Filed Mar. 25, 1896. Serial No. 584,847. (No model.)



Claim.—1. In a shade-hanger, an extensible and adjustable bracket in two parts, one being a fixed section having its rear end bent at right angles with perforations for securing it to the window-sash by nails or screws, and its lower edge turned upwardly thereby forming an open flange 14, and its upper edge provided with a right-angled flange having its forward end bent downwardly to form a holding-flange 13, and the other section having its rear portion adapted for an adjustable sliding engagement within said flanges 13 and 14 and having its forward portion bent at right angles to the remaining portion and then folded upon itself, so as to give the forward end an upright position, with the sides at right angles with the horizontal portion thereof, and the upper end of said upright portion having a rearwardly-projecting flange for engagement with the upper flange of a curtain-hanger for supporting the same all arranged as shown and described and for the purpose stated.

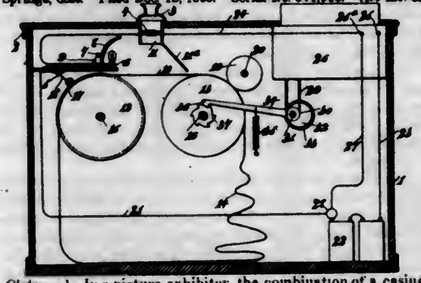
2. In a curtain-shade hanger, an extensible and adjustable bracket in two parts, one being a fixed section having its rear part bent at right angles, with perforations for securing it to the window sash or casing by nails or screws, and its lower edge turned upwardly, thereby forming an open flange 14, and its upper edge provided with a right-angular flange having its forward end bent downwardly to form a holding-flange 13, and its rear portion adapted for an adjustable sliding engagement within said flanges 13 and 14, and its forward portion bent at right angles to the remaining portion and then folded upon itself so as to give the forward end an upright position with the side at right angles, with the horizontal position thereof, and the upper end of the said upright portion having a rearwardly-projecting flange for engagement with the upper flange of a two-part curtain-hanger for supporting the same, in combination with the two-part hanger 3 and 5 and all arranged as described and shown.

576,541. STANCHION. GEORGE L. BRENT and ELMER S. WHEELER, Doddsville, Ill.; said Wheeler assignor to said Brent. Filed Jan. 23, 1893. Serial No. 459,490. (No model.)



Claim.—The combination of the stanchion-frame A having the frame or gate B hinged at one end thereof, the horizontal cross-bar *a* pivoted to said frame B and extending across the same and the ratchet-bar a^3 for operating the same, the ratchet-bar *a'* pivoted at its lower end to the lower portion of the frame B and extending upwardly therefrom and the ratchet-bar a^3 for operating the same, and the nose-clamp secured to the lower portion of the frame B and having an adjustable portion, substantially as described.

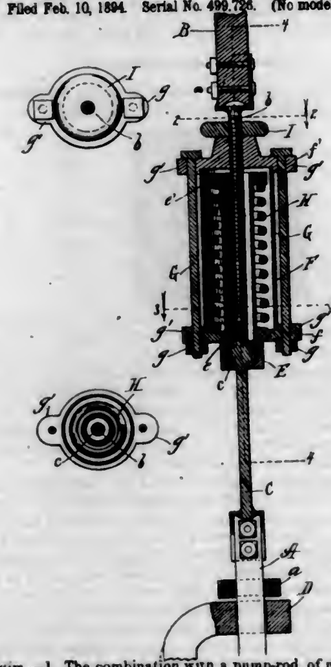
576,542. PICTURE-EXHIBITOR. GEORGE W. BROWN, Colorado Springs, Colo. Filed Dec. 12, 1896. Serial No. 571,916. (No model.)



Claim.—1. In a picture-exhibitor, the combination of a casing, a phonograph therein provided with a motor, drums journaled in the casing and driven from the motor of the phonograph, a flexible strip arranged to pass over the drums and provided with pictures, an eye-tube carried on the casing, through which tube the pictures carried on the strips are visible, a reflector arranged at one side of the eye-tube, and an illuminating device arranged at the opposite side of the eye-tube, substantially as set forth.

2. In a picture-exhibitor, the combination of a casing, a phonograph therein having a motor, drums journaled in the casing, a flexible strip arranged to pass over the drums and adapted to carry pictures, an eye-tube carried on the casing, means to illuminate the pictures passing under the eye-tube, a ratchet-wheel connected to one of the drums, a shaft journaled in the casing and driven from the motor of the phonograph, an eccentric carried by said shaft, and a strap for said eccentric provided with a dog to engage and turn said ratchet-wheel, substantially as set forth.

576,543. WINDMILL ATTACHMENT. NELSON BURR, Batavia, Ill. Filed Feb. 10, 1894. Serial No. 499,726. (No model.)



Claim.—1. The combination with a pump-rod, of means for supporting the rod independent of the power mechanism, and a power-rod for actuating the pump-rod and having a sliding connection therewith, and means for adjustably limiting the movement of the one rod upon the other, substantially as described and for the purpose specified.

2. The combination with a plunger-pump, of a stop on the pump-rod for contact with a fixed part of the pump to limit its instroke, a power-rod, and an adjustable connection between the power-rod and pump-rod whereby the power-rod may, during a portion of its stroke, slide upon the pump-rod, substantially as described and for the purpose specified.

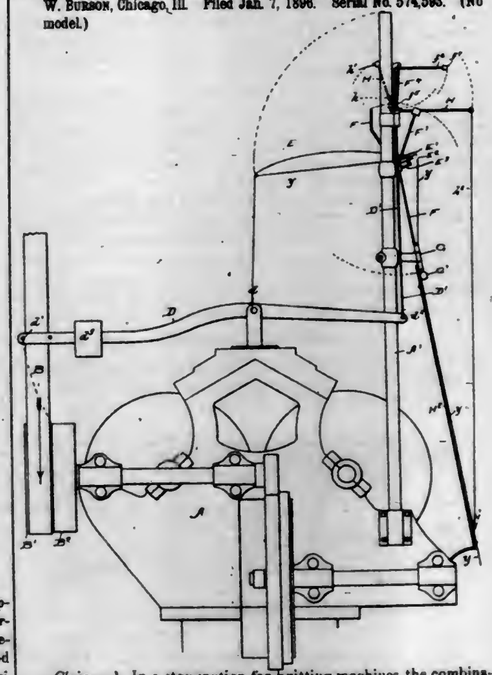
3. The combination with a pump, a pump-rod, and with a power-rod for actuating the pump-rod, of an apertured plate *f*, adjustably attached to the power-rod and adapted to receive and slide upon the pump-rod, a stop upon the pump-rod above and for contact with the plate, and a stop upon the pump-rod below the plate and adapted for contact with a fixed portion of the pump, substantially as described and for the purpose specified.

4. The combination with a pump and with the pump-rod, C, having a cross-head, of a stop, *a*, upon the rod for contact with a fixed portion of the pump, a sliding extension-piece mounted upon the rod and adapted to engage the cross-head, a shoulder, *e'*, at the outer end of the sliding extension-piece, an apertured plate, *f*, sliding upon the sliding extension-piece, a spring interposed between the plate and the shoulder, *e'*, a power rod, B, and rigid connection between the rod, B, and the plate, *f*, substantially as described and for the purpose specified.

5. In a pump connection the combination with the pump, and the pump-rod, O, having a cross-head, of a stop, *a*, upon the rod for contact with the fixed portion of the pump, a sliding extension-piece mounted upon the rod and adapted to engage the cross-head, a shoulder, *e'*, at the outer end of the sliding extension-piece, an apertured plate, *f*, sliding upon the sliding extension-piece, a spring interposed between the plate and the shoulder, *e'*, a power-rod, B, and a longitudinally-adjustable connection between the rod, B, and the plate, *f*, substantially as described and for the purpose specified.

6. The combination with a pump, of the pump-rod, the stop, *a*, attached to the pump-rod for contact with a fixed portion of the pump, the cross-head, *e*, at the end of the pump-rod, the sliding extension tube mounted upon the pump-rod and engaging the cross-head, the shoulder, *e'*, at the outer end of the sliding tube, the apertured plate, *f*, adapted to slide upon the sliding tube, the spring, H, interposed between the plate, *f*, and the shoulder, *e'*, the plate, *f'*, having a central screw-threaded aperture, rods, G, G, for rigidly uniting the plates, *f* and *f'*, the power-rod, B, and the screw-threaded rod, *b*, extending from the rod, B, and engaging the aperture of the plate, *f'*, substantially as described and for the purpose specified.

576,544. STOP-MOTION FOR KNITTING-MACHINES. WILLIAM W. BURSON, Chicago, Ill. Filed Jan. 7, 1896. Serial No. 574,593. (No model.)



Claim.—1. In a stop-motion for knitting-machines, the combination of a driving-shaft, a tight and loose pulley thereon, a driving-

belt, a belt-shifting lever, provided with a draft pin or part, pivoted outside the horizontal plane of the driving-shaft so that the operating end thereof shall approach the loose pulley and draw the belt thereon, a trip-rod, and a tripping mechanism, whereby the weight of the lever and the friction of the belt acting on the draft-pin, when said lever is tripped, shall draw the belt from the driving to the loose pulley, and stop the machine substantially as described.

2. The combination of a shifting-lever pivoted above the plane of the driving-shaft adapted to engage a driving-belt, and held in position by a tripping mechanism, a driving-shaft, provided with a tight and loose pulley, a driving-belt, and a tripping mechanism, whereby the belt is drawn from the tight to the loose pulley, by the weight of the lever moving in the arc of a circle, when said lever is tripped substantially as specified.

3. The combination of a friction device for the yarn, consisting of an oil-saturated wick, metal bars, and a trip-lever engaging the yarn between said friction-bars, said trip-lever held in place by the yarn until said yarn is broken, a trip-wire adapted to hold the belt-shifting lever until tripped, a swinging trip-wire holder, and a take-up wire, adapted to stop the machine when any one of the yarns breaks, substantially as set forth.

4. The combination of an oil-cup and oil-saturated wick, metal cross-bars, a trip-lever engaging the yarn between the bars and held by the tightness of the yarn, a trip-wire, a trip-rod and a belt-shifting mechanism, whereby the breaking of the yarn shall start the belt-shifter into operation, and stop the machine, substantially as specified.

5. The combination of friction-bars, a trip-lever engaging the yarn between said bars and held by the tightness of the yarn, a trip-wire, a trip-rod, and a belt-shifting mechanism, whereby the breaking of the yarn shall start the belt-shifter in operation, and stop the machine, substantially as described.

6. The combination of a trip-lever, adapted to engage and be held in place by the unbroken yarn, a trip-wire, a trip-rod, a swinging trip wire holder, pivoted outside the line of pressure on said trip-wire, and a belt-shifting mechanism, whereby the breaking of the yarn shall start the belt-shifter in operation, and stop the machine, substantially as set forth.

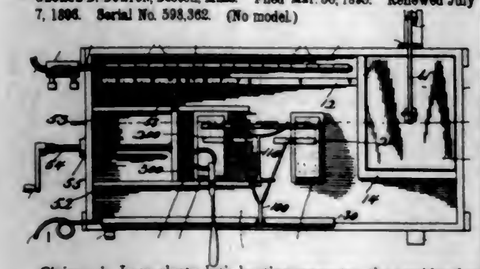
7. The combination of a friction device to engage the yarn between the take-up, and the bobbin, a shifting-lever, a trip-wire, a trip-rod, adapted to hold the shifting-lever, a swinging trip-wire holder, pivoted outside the line of pressure on said trip-wire, and a take-up wire, whereby the breaking of the yarn shall permit the take-up to move the trip-wire outside the line of its holding position, and start the shifting-lever in operation, substantially as set forth.

8. The combination of a shifting-lever, a trip-wire, a trip-rod adapted to hold the same in working position and to cause the machine to stop when tripped, a yarn friction mechanism, a counterbalanced lever pivoted in reach of the trip-wire and adapted to trip the same by the resistance of the yarn and to pay it to the machine without breaking, substantially as set forth.

9. The combination of a shifting-lever, a trip-wire, a trip-rod adapted to hold the same in position and to cause the machine to stop when tripped, a counterbalanced lever pivoted in reach of the trip-wire and adapted to trip the same by the resistance of the yarn, to yield the yarn to the needles and to stop the machine without breaking the yarn, substantially as specified.

10. The combination of a knot-arresting part yieldingly held in the line of the yarn's travel from the bobbin to the knitting-needles, a counterbalanced lever connected to the knot-arresting part, and a tripping mechanism supported within reach of the counterbalanced lever, and adapted to be operated thereby, operating to stop the machine when a knot engages and moves the knot-arresting part and to feed yarn to the machine without breaking it, substantially as specified.

576,545. APPARATUS FOR ELECTRICALLY HEATING METAL. GEORGE D. BURTON, Boston, Mass. Filed Mar. 30, 1895. Renewed July 7, 1896. Serial No. 598,362. (No model.)



Claim.—1. In an electrolytic heating apparatus, the combination of a vessel for containing an electrolytic solution, a hearth composed of two members for supporting a metal to be heated, one of said members being movable relatively to the other, and means for moving one of said members relatively to the other.

2. In an electrolytic heating apparatus, the combination of a vessel for containing an electrolytic solution, a divided hearth composed of two members for supporting a metal to be heated, one of said members being movable relatively to the other, a gage for indicating the adjustment of the movable member, means for establishing an electric arc between the solution and the metal supported on the hearth, and electric conductors for connecting the solution and metal with opposite electric poles.

3. In an electrolytic heating apparatus, the combination of a vessel for containing an electrolytic solution, a divided hearth for supporting the metal to be heated, a slide for supporting one member of said hearth, means for adjusting said slide, and means for establishing an electric arc between the solution and the material supported on the hearth.

4. In an electrolytic heating apparatus, the combination of a vessel for containing an electrolytic solution, a divided hearth for supporting the metal to be heated, means for moving one member of said hearth relatively to the other member thereof, a forked electrode adapted for contact with work on both members of said hearth, and means for establishing an electric arc between the solution and the metal on the hearth.

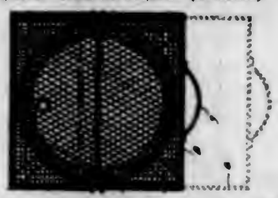
5. In an electrolytic heating apparatus, the combination of a vessel for containing an electrolytic solution, a divided hearth for supporting the metal to be heated, means for moving one member of said hearth relatively to the other member thereof, an electrode provided with a plurality of arms of different lengths for contact with work on both members of said hearth, and means for establishing an electric arc between the solution and the metal on the hearth.

6. In an electrolytic heating apparatus, the combination of a vessel for containing an electrolytic solution, a hearth supported in said solution, a pump for elevating and depressing the level of the liquid in the hearth-compartment, a lever having a yielding connection with said pump, and means for establishing an electric arc between the solution and the metal on the hearth.

7. In an electrolytic heating apparatus, the combination of a vessel for containing an electrolytic solution, a hearth disposed in said solution for supporting the metal to be heated, a plunger-chamber communicating with the hearth-chamber, a plunger provided with a slotted standard, a pivoted lever for operating said plunger and engaging said slotted standard, a spring on said standard to effect a yielding contact between the lever and the plunger, and means for establishing an electric arc between the solution and the metal on the hearth

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576,546. ASH-PAN. CORA R. CAMPBELL, Schenectady, N. Y. Filed June 4, 1896. Serial No. 594,334. (No model.)

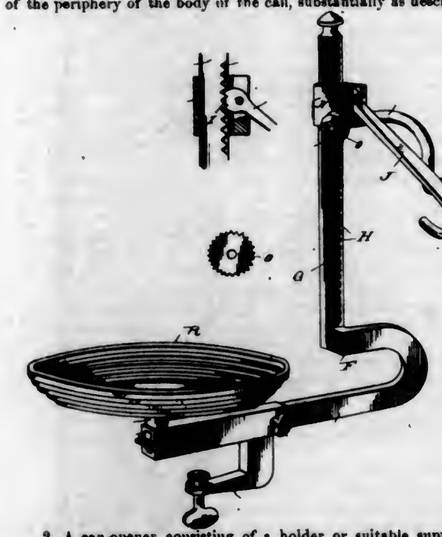


Claim.—1. A combination ash-pan and ash-sieve, comprising a pan having side cleats or strips and provided with an open bottom, a ring mounted within said sliding drawer, and having arms secured thereto, said arms being adapted to rest on said cleats and snugly fit in the corner of said pan, and supported over the open bottom thereof, and two screens above said ring, one of which is circular in form and placed upon said ring, and being revoluble thereon, and the other screen being square in form and provided with a central circular opening, substantially as shown and described.

2. A combination ash-pan and ash-sieve, consisting of a rectangular pan in which is placed a sliding drawer, said drawer being provided with an open bottom and a ring mounted thereon and provided with projecting arms which extend into the corners of said drawer, and by which said ring is supported, a circular screen mounted over and revoluble upon said ring, and a square screen which is placed above said circular screen, said circular screen being provided with an upright post near the front edge, by which it may be agitated or revolved, the ash-pan and cinder pan or sieve both being provided with bails and handles, suitably secured thereto, substantially as shown and described.

576,547. CAN-OPENER AND BURRING DEVICE. JOSEPH R. CAMPBELL, Fairfax Station, Va., assignor of two-thirds to F. G. Mayhugh, Clifton Station, Va., and Charles R. Barber, Washington, D. C. Filed May 4, 1896. Serial No. 590,163. (No model.)

Claim.—1. A can-opener of the character described, consisting of a rotating table; in combination with a standard supporting a rotatable shaft carrying a toothed wheel which rotates the can and also supporting a rotating cutter and means for holding the toothed wheel into engagement with the top of the can over the edge of the body and the cutter into engagement with the cover within the line of the periphery of the body of the can, substantially as described.



2. A can-opener, consisting of a holder or suitable support, a rotary table to support the can, a standard supporting an adjustable rotary cutter and a wheel for rotating the can and its support, said rotating wheel located between the rotary cutter and the standard, substantially as specified.

3. In a can-opener and burring device, a rotating table formed solid and having a succession of circular recesses varying in size, in combination with a cutter and burring device, constructed to engage a can near its edge, as described, whereby the top may be cut from the can and the remaining rim burred over substantially as set forth.

4. In a can-opening device the combination with a clamp having mounted thereon a rotary table, of a bent arm adjustably mounted in an opening in said clamp and a locking clamp to hold said bent arm in any desired position with respect to the size of the can, a standard, rising from the bent arm, a sliding sleeve mounted on said standard, and a rotary toothed wheel and cutter mounted on a shaft journaled in said sleeve, and a crank whereby the shaft may be rotated to turn the can, cut the top thereof and bur the metal at the edge of the can, substantially as specified.

5. In a can-opening device, the combination of a rotary table mounted on a suitable support, a vertical standard, and adjustable laterally and a vertically-adjustable sleeve adapted to slide upon said support, and means for locking it in an adjusted position, and a rotary toothed wheel and cutter mounted upon a shaft, journaled in the sleeve, whereby the can is turned, the top cut and the metal upset at the edge of the can, substantially as specified.

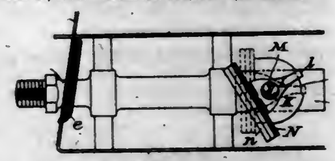
6. The combination with the supporting-clamp, and rotary can-supporting table mounted thereon, of the bent arm, adjustable laterally and secured in an opening in said clamp, and adapted to overset the edge of the rotary table, a vertical standard secured to said arm and provided with a series of ratchet-teeth at one side, an adjustable sleeve mounted on said standard and carrying the cutter and ran-moving mechaniam, and a lever, having a toothed sector adapted to mesh with the ratchet in order to press the cutter into the can-top and hold it to its work, substantially as specified.

7. In a can-opening device, the combination of a rotary table, mounted upon a suitable support, a vertical standard secured to said support, a sliding sleeve adjustably mounted on the standard, a rotary cog-wheel and cutter mounted upon a shaft journaled in the movable sleeve, said cog-wheel located between the cutter and the standard, and means for pressing the said wheel and cutter upon the can, substantially as specified.

8. In a can-opener of the character described, a rotatable can-support, a standard supporting a rotating shaft which simultaneously rotates the can and cutter, and a cutter secured to said shaft, a toothed wheel of less diameter than the diameter of the cutter, secured between the latter and the standard, substantially as described.

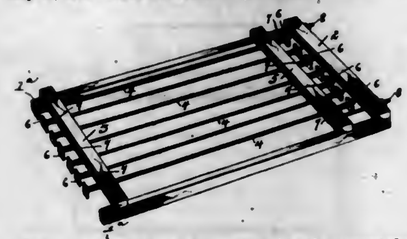
9 In a can-opener of the character described, a rotatable can-support, a standard supporting a rotating shaft which simultaneously rotates the can and cutter, and a cutter secured to said shaft, a toothed wheel of less diameter, than the diameter of the cutter, secured between the latter and the standard and a rotating washer of a greater diameter than the diameter of the toothed wheel secured on the shaft between the wheel and the shaft-support, substantially as described.

576,548. BICYCLE-PEDAL. JAMES M. CASSIDY, Albany, N. Y. Filed Oct. 22, 1896. Serial No. 609,865. (No model.)



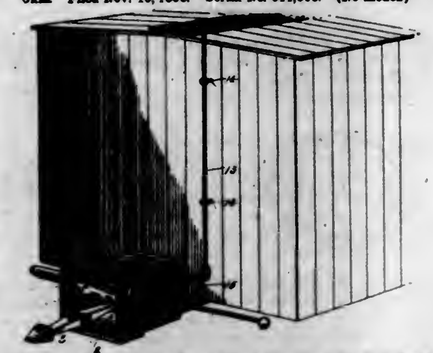
Claim.—In a bicycle-pedal, a clip forming a continuation of one side of the pedal arranged to engage with the opposite side of said pedal and to come in contact with one side of the shoe of the rider, with a clip adapted to be adjusted to the pedal, with a means for limiting the motion of said last-mentioned clip, substantially as described and for the purpose set forth.

576,549. SPRING-BED. CHARLES CHASE, Wichita, Iowa. Filed May 19, 1896. Serial No. 592,147. (No model.)



Claim.—In a spring-bed, the combination of a rectangular frame comprising side bars and end bars 2 and 3, the end bar 2 being located at the terminals of the side bars, and the other end bar 3 being provided with a series of perforations and located a short distance from the adjacent ends of the side bars to provide guard extensions, 1^a, the adjustable attachment-bar 5 arranged to slide on the upper faces of the side bars, located a short distance from the end bar 2 to form a narrow intervening space, and provided with a series of perforations corresponding with those of the end bar 3, the independent longitudinal wires arranged in said perforations and extending beyond the bars 3 and 5, the spiral springs arranged on both ends of the wires and engaging the bars 3 and 5, the springs at one end of the frame being located in the narrow space between the bars 2 and 5 and being protected by the same, and the springs at the other end of the frame being protected by the guard extensions, 1^a, and adjusting screws or bolts connecting the bars 2 and 5 and adapted to regulate the tension of both sets of springs, substantially as described.

576,550. CAR-COUPLING. ROBERT R. CHRITTON, North Enid, Okla. Filed Nov. 10, 1896. Serial No. 611,668. (No model.)



Claim.—In a car-coupling, the combination of a draw-head, provided with a flaring mouth and recessed at its bottom to form a fixed catch 2, said catch being provided at its rear face with a groove, a

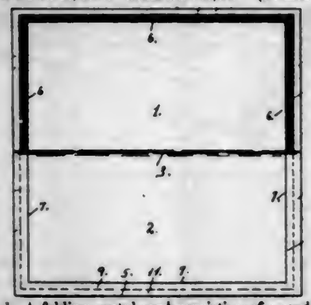
pivoted catch depending from the top of the draw-head, provided with a lower lip and having an upwardly-extending flange forming a stop to engage the top of the draw-head and recessed at its ends to clear the flaring sides of the mouth of the draw-head, a removable shaft journaled in perforations of the draw-head, passing through the catch and provided with a shoulder engaging one end of the same to lock the shaft against movement in one direction, a fastening device mounted on the shaft at the opposite side of the draw-head and securing the former to the latter, and operating mechanism connected with the shaft, substantially as described.

576,551. TELEPHONE-TRANSMITTER. MARION E. CLARK and EARL C. CLARK, Minneapolis, Minn., assignors to the Clark Telephone and Construction Company, of Minnesota. Filed Sept. 23, 1895. Serial No. 563,312. (No model.)



Claim.—The combination, with the diaphragm, made of an electrical insulating material, such as paper or parchment with a multiple contact device secured directly upon said diaphragm and provided with a large number of contact points or projections, a disk or button to engage said contact-points and a binding-piece of material similar to that of which the diaphragm is formed, and whereby said button or disk is secured upon the diaphragm and said multiple contact device, substantially as described.

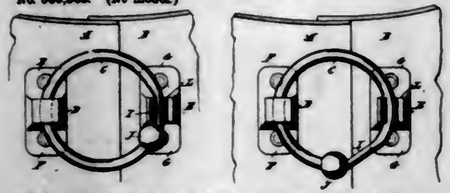
576,552. FOLDING POSTAL CARD. JOHN A. COOK, Buffalo, N. Y. Filed Feb. 11, 1896. Serial No. 578,358. (No model.)



Claim.—1. A folding postal card consisting of a card or sheet of paper adapted to be folded along a central line, the card or sheet of paper being scored or partially cut through, upon its inside face and within and along its outer edges and provided between its lines of scoring and its outer edges with gummed surfaces adapted for sealing the folded portions.

2. A folding postal card consisting of a card or sheet of paper adapted to be folded along a central line the card or sheet of paper being scored or partially cut through upon its inside face and within and along its outer edges and provided between its lines of scoring and its outer edges with gummed surfaces which extend from the lines of scoring only partially across the spaces between the said lines of scoring and the outer edges as and for the purpose stated.

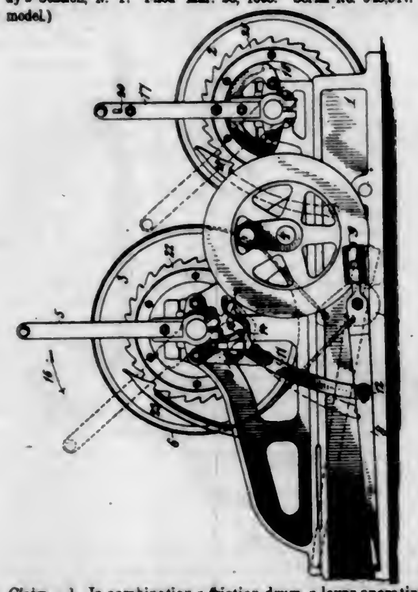
576,553. FASTENING DEVICE FOR HORSE-BLANKETS, &c. GEORGE V. CORNELL, Bound Brook, N. J. Filed Apr. 28, 1896. Serial No. 589,365. (No model.)



Claim.—1. The fastening device consisting of the link or ring having a section of reduced diameter, combined with the retaining-stud for said link or ring, the locking-stud having the aperture and slot and the weight carried by said ring: substantially as set forth.

2. The fastening device consisting of the link or ring having the section of reduced diameter, combined with the retaining-stud D having the flanges F and provided with an aperture which receives and retains said link or ring and the locking-stud provided with the flanges G and having the aperture and entering-slot: substantially as set forth.

576,554. ROPE-DRUM APPARATUS. WILLIAM F. COURSEN, Purdy's Station, N. Y. Filed Mar. 28, 1896. Serial No. 585,517. (No model.)



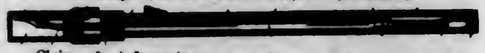
Claim.—1. In combination a friction-drum, a lever operating the friction thereof, a brake engaging said drum, a brake-lever, a brake-locking bar 11 and a projection operated by the friction-lever whereby said brake-locking bar is tripped, substantially as described.

2. In combination a friction-drum, a lever operating the friction thereof, a brake engaging said drum, a brake-locking bar and a connection between said brake-locking bar and said friction-lever constructed substantially as described whereby said bar remains in locking position when the friction-surfaces are substantially disconnected but is moved and held out of locking position as the pressure between said friction-surfaces is varied, substantially as described.

3. In combination, a friction-drum, a lever by which the friction is applied, an arm 15 connected with said lever, a lever 11 engaging with said arm, a brake, a brake-lever 8 containing the counterbalance 9 and a member mounted upon said lever 8 against which the lever 11 abuts, substantially as described.

4. In combination with the frame, the following parts: a fall-rope friction-drum 2, a boom-rope friction-drum 3, a lever by which friction is applied to the drum 2, means whereby said lever may be locked at various degrees of friction, a brake acting upon the drum 3, a lever by which said brake is applied, a stop whereby said brake is locked in position, a lever whereby friction is applied to said drum 3 and a trip connected with said last-named lever whereby said stop is moved, substantially as described.

576,555. FOUNTAIN-PEN. HENRY J. COWGER, Pacific Grove, Cal. Filed Sept. 8, 1896. Serial No. 605,169. (No model.)



Claim.—1. A fountain-pen comprising a casing, a reservoir arranged within the casing, compressible feeding means attached to the reservoir, and an operating-slide concealed within the casing between the same and the reservoir, provided with an exterior handle and arranged to compress the feeding means to discharge ink from the reservoir, substantially as described.

2. A fountain-pen comprising a cylindrical casing, a reservoir arranged within the casing and having one side flattened to provide an intervening space between it and the casing and form a guide, a bulb attached to one end of the reservoir, and a slide arranged on the flat side of the reservoir in the space between the same and the casing, said slide being provided at one end with an exterior handle and having its other end engaging the bulb and adapted to compress the same, substantially as described.

3. A fountain-pen, comprising a casing, a reservoir disposed in said casing and adapted to hold a suitable fluid, said reservoir having one of its sides flattened, compressible feeding means secured to said reservoir, a feed-tube detachably secured to the reservoir and adapted to guide the fluid discharged from the reservoir to a pen-point carried by the casing, and an operating-slide disposed in said casing and lying at the flattened side of the reservoir, whereby said slide is permitted to freely move along said reservoir, said operating-slide being adapted to compress the feeding means to discharge the fluid from the reservoir, substantially as described.

4. A fountain-pen, comprising a casing, a reservoir disposed in said casing and adapted to hold a suitable fluid, compressible feeding means secured to said reservoir, a feed-tube detachably secured to the reservoir and adapted to guide the fluid discharged from the reservoir to a pen-point carried by the casing, an operating-slide disposed in said casing and adapted to compress the feeding means to discharge the fluid from the reservoir, and a tapering finger-piece carried by the operating-slide and extending along the outside of the casing, whereby said operating-slide may be moved to discharge the fluid from the reservoir, substantially as described.

5. A fountain-pen, comprising a casing, a reservoir disposed in said casing and adapted to hold a suitable fluid, compressible feeding means secured to the inner end of said reservoir, a feed-tube detachably secured to the outer end of the reservoir and adapted to guide the fluid discharged from the reservoir to a pen-point carried by the casing, an operating-slide disposed in said casing, the inner and outer ends of said slide being bent at right angles to its body and each extending in an opposite direction to the other, said inner end forming a contact-lip adapted to compress the feeding means to discharge the fluid from the reservoir when the operating-slide is moved, and a tapering finger-piece carried by the outer end of the operating-slide and extending along the outside of the casing, whereby said operating-slide may be moved to discharge the fluid from the reservoir, substantially as described.

6. A fountain-pen, comprising a casing, a reservoir disposed in said casing and adapted to hold a suitable fluid, the inner end of said reservoir being open, a neck formed at said inner end and provided with a peripheral groove, a compressible feeding-bulb secured to said neck, the open end of said bulb receiving the neck and being held thereon by suitable means adapted to fit within the peripheral groove to prevent displacement of the bulb from said neck, a feed-tube detachably secured to the outer end of the reservoir and having its outer end curved to guide the fluid discharged from the reservoir to a pen-point carried by the casing, a collar formed on said feed-tube and adapted to limit the inward passage of the reservoir within the casing, an operating-slide disposed in said casing, the inner and outer ends of said slide being bent at right angles to its body and each extending in an opposite direction to the other, said inner end forming a contact-lip adapted to compress the feeding-bulb to discharge the fluid from the reservoir when the operating-slide is moved, the outer end of the operating-slide passing through a guide-slot formed in one side of the casing, a tapering finger-piece carried by said outer end of the operating-slide and extending along and lying parallel with the outside of the casing, whereby said operating-slide may be moved to discharge the fluid from the reservoir, a removable thimble mounted upon the casing and provided with suitable means for holding a pen-point adapted to receive the fluid discharged from the reservoir, the feed-tube extending through said thimble and the curved end of said tube lying adjacent to the pen-point when the thimble is placed upon the casing, and a removable cap for closing the open end of the casing, substantially as described

576,556. RIVETING-MACHINE. ORSON W. DAVIS, Adrian, Mich., assignor of one-half to Thomas Gimbert and Jonathan B. Davis, same place. Filed Apr. 11, 1896. Serial No. 587,093. (No model.)



Claim.—1. In a riveting-machine, the combination with the wire-feeding mechanism, of the movable cutting and swaging dies between which the wire is fed, the reciprocal plunger moving in line with said dies, and onto the upper end of the rivet, and at the same time actuating said dies to sever the wire and form a swage for heading over the rivet on the under side by the impact of the plunger which also forms a head upon the upper side of the rivet.

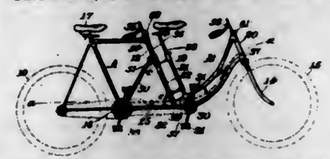
2. In a riveting-machine, the combination with the cutting and swaging dies, of the pivoted jaws between which the wire is fed, the movable sleeve carrying said jaws, and the springs attached to the arms of said jaws and to a fixed support, a movable bar attached to said sleeve, a reciprocal plunger adapted to engage said bar whereby the feeding-jaws are actuated to intermittently feed the wire in proper lengths to form each successive rivet.

3. In a riveting-machine, the combination of the pivoted cutting and swaging dies mounted in a movable head, a reciprocal plunger carrying a heading-swage which operates in line with said dies, the actuated feeding-jaws engaging the wire which is fed between said dies, the connection between said jaws and the reciprocal plunger whereby by an operation of said plunger the rivet is cut and headed on both sides and the wire is fed through said dies a sufficient length to form the successive rivet.

4. In a riveting-machine, the combination of the pivotally-mounted cutting and swaging dies between which the wire to form the rivet is fed, said dies being mounted to meet at their cutting points and having a registering concavity in their upper face, the movable head in which said dies are mounted, the stop mounted on a fixed support and engaging the heel of said dies, the movable plunger carrying a heading-swage mounted in line with said dies whereby by an operation of said plunger the wire is severed and the rivet headed on each side of the work.

5. In a riveting-machine, the combination with the cutting and swaging dies, the reciprocal plunger in line therewith, the feeding-jaws mounted in a reciprocal sleeve, the springs attached to the arms of said jaws and to a fixed support, the reciprocal bar attached to said sleeve, and the adjustable set-screw carried by said bar projecting into the path of said plunger.

576,557. CONVERTIBLE BICYCLE. JAMES I. DEAN, Winsted, Conn. Filed Dec. 12, 1895. Serial No. 571,880. (No model.)



Claim.—1. A detachable frame for a convertible bicycle, having a head: and having two parallel side bars rigidly connected with said frame, and adapted for attachment to a single-frame bicycle: and also having an upright member embodying a part for supporting a saddle; and a member carrying a rotatable stem or journal for the reception of a handle-bar, and adapted, together with said stem or journal, for insertion into the head of a single-frame bicycle.

2. A convertible bicycle comprising a single-bicycle frame having a head: a detachable frame, also having a head, and having a rotatable stem or journal for insertion into the head of a single frame, and for the reception of a handle-bar: and a wheel-carrying frame, also having a stem or journal for insertion into the head of the detachable frame to form a tandem, or for the insertion into the head of a single frame to form a single bicycle, and also adapted for the reception of a handle-bar.

3. A convertible bicycle comprising a single-bicycle frame having a head: a detachable frame also having a head and an upright member embodying means for the attachment of a saddle, and a member carrying a stem or journal rotatable therein, and adapted for insertion into the head of the single frame, and for the reception of a handle-bar, and two parallel side bars rigidly connected with said detachable frame, and adapted for attachment to the single frame: and a wheel-supporting frame, also having a stem or journal for insertion into the head of the detachable frame to form a tandem, or for insertion into the head of the single frame to form a single wheel, and adapted to receive a handle-bar.

4. In a bicycle, the combination of a head having a keyway or slot on its interior; a removable wheel-carrying frame having a part thereof forming one member of a bearing, and having a member extending into said head, and adapted to support a handle-bar: a thimble having a wing or ear engaging the keyway or slot of the head, and forming the other member of the bearing: and spring-clips carried by one of the bearing members for detachably securing said bearing members together.

5. In a convertible bicycle, the combination of a single-bicycle frame having a head having keyways or slots on its interior: a detachable frame comprising a head, also having keyways or slots on its interior: two parallel side bars rigidly connected with said detachable frame, and adapted for attachment to the single frame: and an upright member having wings or ears at its upper end adapted to engage the keyways or slots of the single-frame head, said upright member carrying a rotatable journal or stem for insertion into said single-frame head; and a wheel-carrying frame comprising a bearing member having an annular groove or recess forming one member of a ball-bearing: a thimble having an annular groove or recess, and forming the other member of the bearing, and also having ears or wings adapted to engage the keyways or slots of either the single-frame or detachable-frame head: spring-clips carried by one of said

bearing members for engagement with the other bearing member; and a stem or journal adapted for insertion into either of said heads.

6. In a convertible bicycle, the combination of a single frame having a head; a detachable frame, also having a head, and having an upright member adapted for insertion into said single-frame head; a journal or stem extending through said upright member and rotatable therein, and also extending through said head, and adapted to receive a handle-bar; and a wheel-carrying frame, also having a stem or journal adapted for insertion into the head of the detachable frame to form a tandem, or into the head of the single frame to form a single bicycle; and a bar or rod connecting the rotatable stem or journal of the detachable frame below the upright member thereof with the stem or journal of the wheel-carrying frame.

576,558. SASH-FASTENER. SAMUEL DUNMORE, Vanderbilt, Pa., assignor of three-fourths to James Dolan, same place, and John P. Kane, Dawson, Pa. Filed May 22, 1896. Serial No. 592,544. (No model.)

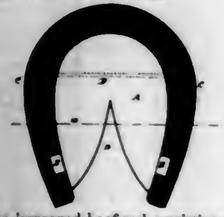


Claim.—1. In a sash-fastener, the combination with the eyes secured to the upper and lower sash, integral pins extending horizontally into the apertures of said eyes, of the rod D having a series of notches, a longitudinal groove adjacent to the said notches, the eyes designed to work on said rod, and means for rotating the same whereby the eyes may be allowed to slide or be locked to said rod, substantially as shown and described.

2. In a sash-fastener the combination with the notched rod mounted as described, of the casting F, of a lever pivoted near the lower end of said rod and a handle H pivoted to said lever, an integral portion *h* of the said handle adapted to rest in a recess in the casting, and a spring *h'* bearing on the lever and handle over the pivotal connection between the latter, substantially as shown and described.

3. In a window-fastener, the combination of the eye, the locking-rod passing through the same, the socket journaling the upper end of the rod, the slotted bracket journaling the lower part thereof, and the eccentric engaging the bracket, substantially as specified.

576,559. HOOF-PAD. CHARLES H. DIX, Akron, Ohio. Filed July 27, 1896. Serial No. 600,625. (No model.)

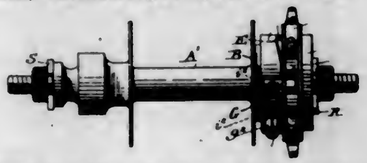


Claim.—1. An improved hoof-pad consisting of vulcanized rubber, conformed to fit the space inside the shoe and about the frog, equal to or exceeding the shoe in thickness at the shoe-line, and thence decreasing toward the frog, with convex surfaces, and having extensions integral with said pad to be clasped between the shoe and hoof, substantially as shown and described.

2. An improved hoof-pad consisting of vulcanized rubber, conformed to fit the space inside the shoe and about the frog; provided with a metallic rod embedded in said pad, and extending transversely in front of the frog, and having its ends projected beyond said pad to enter corresponding indentations in said shoe, and projections to be inserted between the hoof and shoe, substantially as shown and described.

3. The combination with a hoof-pad of vulcanized rubber, adapted to fit within the horseshoe and about the frog, of wing-pieces extending from said pad to rest between the hoof and shoe, a metallic rod embedded transversely in said pad with its extended ends arranged to fit in recesses in said shoe, and a woven fabric cemented to said pad and having its edges extended to be clasped between the shoe and hoof, all constructed and arranged substantially as shown and described.

576,560. BRAKE MECHANISM FOR BICYCLES. PERRY R. DOOLITTLE, Toronto, Canada. Filed Apr. 24, 1896. Serial No. 588,912. (No model.) Patented in Belgium May 28, 1896, No. 121,904.



Claim.—1. In a bicycle or other vehicle in combination with the driving-wheel and driving means, a friction-disk mounted on the axis of said wheel, a second disk mounted on a support adjacent to said friction-disk and connected with the driving means, means to force said second disk against the friction-disk to retard the forward movement of the vehicle, and locking means to normally prevent the engagement of said disks and to lock them when so engaged, substantially as described.

2. In a bicycle or similar vehicle, in combination with the driving-wheel and driving means, a disk to which the driving means are applied mounted on the hub of said driving-wheel and having a lateral movement thereon, a clutch also mounted on said hub and engaging with said disk, and a removable disk on the axis of said driving-wheel and secured against rotation thereon, said removable disk provided with an inner frictional surface and an annular rim inclosing the peripheral edge of said first disk, substantially as and for the purpose described.

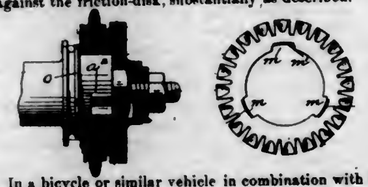
3. In combination with the driving mechanism, a brake mechanism consisting of a sprocket-wheel having a limited rotary and lateral movement on its support, a collar rigidly mounted on said hub, said sprocket and collar provided with inclined projecting sections on their adjacent faces, a friction-plate adjacent to said sprocket, a spring-arm secured to said collar, a pin projecting from said sprocket with which said spring engages, said driving means connected with said sprocket, whereby when the sprocket is forced against said friction-plate the said spring-arm holds the sprocket against said friction-plate until released by a forward pressure of the driving means, substantially as described.

4. In a bicycle or other similar vehicle in combination with the driving means, a friction-disk, a support for said disk, means to force the driving means into engagement with said friction-disk on the reverse movement of the driving means, and a spring-lock on said vehicle adjacent to said driving means and adapted to normally prevent the engagement of said disk and driving means and to lock them when so engaged, substantially as described.

576,561. BRAKE MECHANISM FOR BICYCLES. PERRY R. DOOLITTLE, Toronto, Canada. Filed Aug. 19, 1896. Serial No. 603,245. (No model.)

Claim.—1. In a bicycle or other vehicle, in combination with the driving-wheel and driving means, a friction-disk mounted on the axis of said wheel, a second disk mounted on a support and directly connected with the driving means, a brake-disk on said support between said driven disk and friction-disk, and means to force said brake-disk against the friction-disk to retard the forward movement of the vehicle, substantially as described.

2. In a bicycle or similar vehicle provided with driving means, a disk to which the driving means are applied, said disk provided on one face with raised sections, a brake-disk on the hub of the driving-wheel secured against rotary movement relatively to the hub and having raised sections to engage with said first disk, a friction-disk on the axis of said driving-wheel, with which the brake-disk is adapted to engage, whereby on the reverse movement of the driving means the driven disk is made to ride upon the brake-disk and force it laterally against the friction-disk, substantially as described.



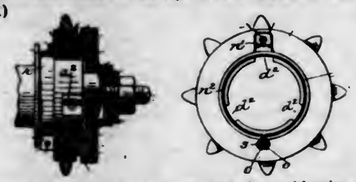
3. In a bicycle or similar vehicle in combination with the driving means, a disk to which the driving means are applied, said disk having a limited rotary movement on the hub of the vehicle, a brake-disk having a lateral movement on said hub, clutch mechanism connecting said disks, a friction-disk with which said brake-disk is adapted to engage on the reversing action of the driving means, and means on said hub to prevent the lateral movement of said driven disk and the rotation of said brake-disk, substantially as described.

4. In a bicycle or other vehicle, in combination with the driving-wheel and driving means, a friction-disk mounted on the axis of said wheel, a second disk rotatably mounted on a support and secured against lateral movement thereon, said rotatable disk directly connected with the driving means, a laterally-movable brake-disk on said support between said driven disk and friction-disk, means to force said brake-disk against the friction-disk to retard the forward movement of the vehicle, and locking means to normally prevent the engagement of said brake and friction disks and to lock them when so engaged, substantially as described.

5. In a bicycle or similar vehicle, in combination with the driving means and driven disk and a brake mechanism connected therewith, said brake mechanism operated by the reverse movement of said driving means, a spring-disk on the hub of said vehicle, said disk provided with projections bearing against said driven disk, and notches on said driven disk to engage with corresponding projections of said spring-disk, substantially as and for the purpose described.

6. In combination with the hub of a driving-wheel of a bicycle or other vehicle, the sprocket-disk and brake-disk thereon, a spring-disk on said hub provided with means to prevent its rotation and means to resist the rotation of said sprocket-disk, lugs on said hub, a seat for said sprocket-disk formed between said lugs and spring, recesses in said sprocket and spring disks to enable them to be passed over the lugs, and said brake-disk provided with recesses to engage said lugs, substantially as described.

576,562. BRAKE MECHANISM FOR BICYCLES. PERRY R. DOOLITTLE, Toronto, Canada. Filed Sept. 18, 1896. Serial No. 606,190. (No model.)



Claim.—1. In a bicycle or other vehicle in combination with the driving-wheel and driving means, an automatic brake mechanism on said driving-wheel connected with and operated by the driving means, and a frictional locking-clamp on the hub of said wheel to normally prevent the operation of said brake mechanism and to lock it when so operated, substantially as described.

2. In a bicycle or other vehicle provided with driving means, an automatic brake mechanism mounted on a suitable support and connected with and operated by said driving-means, a locking-clamp on said support, said clamp provided with an inner frictional surface to engage said support, and means to adjust the pressure of said clamp, said clamp adapted to normally prevent the operation of said brake and to lock it when so operated, substantially as described.

3. In a bicycle or other vehicle, in combination with the driving-wheel and driving means, a friction-disk mounted on the axis of said wheel, a second disk mounted on a support and directly connected with the driving means, a brake-disk on said support between said driven disk and friction-disk, means to force said brake-disk against the friction-disk to retard the forward movement of the vehicle, and a band-clamp secured to said driven disk and bearing against the hub of said driving-wheel to normally prevent the engagement of said brake-disk and friction-disk and to lock them when so engaged, substantially as described.

4. In a bicycle or other vehicle in combination with the driving-wheel and driving means, a disk to which the driving means are applied, a brake mechanism connected with said driven disk, said brake mechanism operated by the reverse movement of said driving means, a circular band-clamp engaging said driven disk, a pressure-regulating screw joining the ends of said clamp, and a rim on the hub of said wheel on which said clamp bears when the brake is operated, substantially as and for the purpose described.

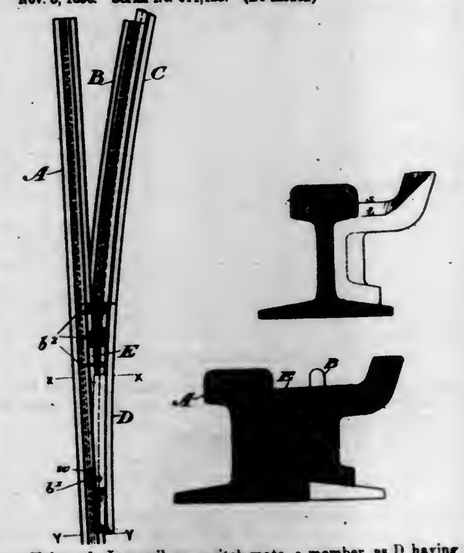
576,563. COMBINATION-TOOL. FRANK ELLIOTT, North Vernon, Ind., assignor of one-half to John G. Schierling, Jr., same place. Filed Aug. 17, 1896. Serial No. 602,935. (No model.)



Claim.—1. The combination of the base-plate having side lugs near each end thereof extending in the same direction and projecting entirely beyond the side edge of said base-plate, with an L-shaped plate, guides upon said plates permitting a cross movement of one upon the other, the short arm of the L-plate having openings therein to receive the lugs upon the base-plate, and means for clamping the two plates together.

2. The combination of the base-plate having side lugs near each end thereof extending in the same direction, with an L-shaped plate, guides upon said plates permitting a cross movement of one upon the other, the short arm of the L-shaped plate having openings therein to receive the lugs of the base-plate, means for clamping the said plates together, and a third gage-plate mounted upon the long arm of the L-shaped plate, and provided with means for adjusting it thereon.

576,564. RAILWAY SWITCH-MATE. EDWARD B. ESTWICK, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed Nov. 5, 1896. Serial No. 611,123. (No model.)



Claim.—1. In a railway switch-mate, a member, as D, having a guard and having a floor upon which the wheel-flanges of the moving vehicle are enabled to roll.

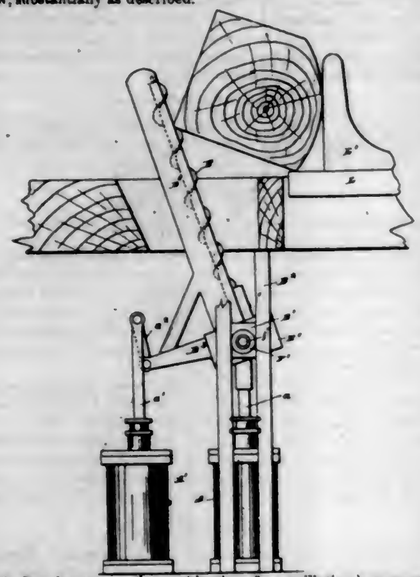
2. In a railway switch-mate, a renewable rolled section having a guard portion adapted to guide the wheels of the moving vehicle, and a floor upon which the wheel-flanges of said vehicle are enabled to roll.

3. In a railway switch-mate, in combination, the renewable rolled section D, the chock E, the guard-rail C, all substantially as, and for the purpose, set forth.

4. As a new article of manufacture, a guard-rail section, adapted to be secured to T-rails, and having a floor adapted to be a running-surface for wheel-flanges, said section being rolled to substantially the shape shown.

576,565. STRAM LOG-TURNER. JOSHUA EVERED, Duluth, Minn., assignor of two-thirds to Louis G. Lange and Albert E. Lange, Muskegon, Mich. Filed Mar. 26, 1896. Serial No. 584,931. (No model.)

Claim.—1. In a log-turner, the combination of an upright turning-bar carrying a screw adapted to engage the log to be turned, and said bar being pivoted at its lower end, and means for rotating said screw, substantially as described.

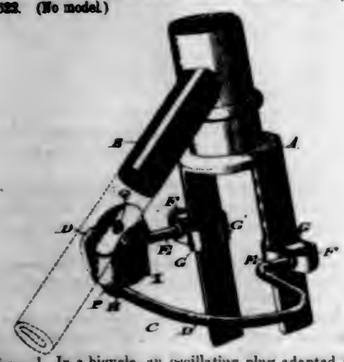


2. In a log-turner, the combination of an oscillating bar carrying a screw adapted to rotate and turn a log, said bar being pivoted at its lower end, means located at its lower end for rotating said screw, an arm projecting rearwardly from its lower end, and means attached to said arm for oscillating said bar, substantially as described.

3. In a steam log-turner, the combination of a bar carrying a vertical screw, a steam-engine adapted to rotate said screw and located at the lower end of said bar, the lower end of said bar being pivoted, guides for controlling its vertical movements, means for admitting steam to said engine carried by said bar, two steam-cylinders adapted to actuate the vertical and oscillating movements of said bar, and means for controlling the admission of steam to each of the cylinders respectively, substantially as described.

4. In a steam log-turner, a rotating spirally-grooved turning-bar pivoted at its lower end and adapted to have a rectilinear and an oscillatory movement, means to effectuate such movement, a steam-engine at its lower end adapted to rotate said bar, means for the admission of steam to said engine through the pivots supporting said bar, means for controlling the admission of steam thereto, substantially as described.

576,566. **STRENGTHENING ATTACHMENT FOR BICYCLES.** CHARLES FOEHL, Philadelphia, Pa. Filed Jan. 23, 1896. Serial No. 576,522. (No model.)



Claim.—1. In a bicycle, an oscillating plug adapted to be connected with the bicycle-frame, and a yoke adapted to have its ends secured to the bicycle-fork, said plug having an eye in which said yoke is movable, said parts being combined substantially as described.

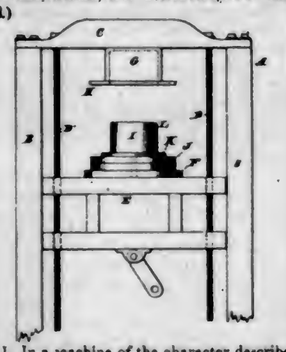
2. In a bicycle, a rotatable plug having a bearing suitably secured to the frame and provided with an eye, a yoke secured at its ends to the limbs of the fork, and movable in said eye, and a dog for holding said yoke locked to said eye, said parts being combined substantially as described.

3. In a bicycle attachment, a plug suitably supported, a yoke passing therethrough and having its ends attached to the bicycle-fork, the central portion of said yoke being provided with a notch or recess, a dog engaging said recess, and means for holding said dog normally in contact with said yoke, substantially as described.

4. In a bicycle attachment, the combination with the fork and frame of a bicycle, of a block attached thereto, a plug rotatably mounted in ball-bearings within said block, and a yoke movable in said plug, the free ends of said yoke being provided with clips adapted to engage the bicycle-fork, substantially as described.

5. In an attachment for bicycles, a block adapted to be secured to a bicycle-frame, a plug mounted in said block, a yoke having a recess therein movable in an eye depending from said plug, a dog adapted to engage said recess, and a spring for holding said dog in position, in combination with clips on the free ends of said yoke adapted to engage the fork of the bicycle, substantially as described.

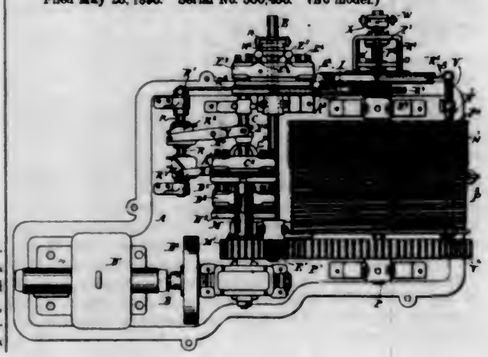
576,567. **MACHINE FOR BLOCKING AND PRESSING HATS.** DENNIS R. FOLEY, Newark, N. J. Filed Feb. 4, 1896. Serial No. 577,971. (No model.)



Claim.—1. In a machine of the character described, the female die and the head or block to receive the hat and therewith enter said female die, said head or block comprising the sealed hollow yielding shell or casing having the central bearing-plate *b* which covers only the central portion of the base of said shell or casing, and a liquid or fluid filling the said shell or casing, combined with means for applying pressure against said central plate only for the purpose of causing the liquid or fluid within the casing or shell to uniformly expand the latter against the crown of the hat; substantially as set forth.

2. In a machine of the character described, the sealed head or block of comparatively stiff but slightly-yielding material filled with a liquid or fluid under pressure and having at its lower end the filling-nipple N and aperture M, combined with the plate *a* within said head and covering one end of said aperture, the plate *b* against the lower end of said head and covering the other end of said aperture, the bolt *c* passing through said plates and aperture, the washers *d* on said bolt and bearing against the plate *b* to prevent leakage around the bolt, and the nut *e* on said bolt and clamping the plates *a*, *b*, against the block on opposite sides of said aperture; substantially as set forth.

576,568. **ELEVATOR.** WILLIAM M. FRISBIE, New Haven, Conn. Filed May 23, 1895. Serial No. 550,430. (No model.)



Claim.—1. In an elevator, an electric motor running in one direction, and a worm revolved thereby, in combination with two worm-wheels engaged on opposite sides, two corresponding friction-clutches, and provisions for engaging them alternately each with its proper worm-wheel, and an elevator-drum connected to both, all arranged for joint operation substantially as herein specified.

2. In an elevator the lever R^7 having the angular slot r^7 turned in one direction or the other at each change of direction of the rotation, in combination with the drum P^2 and clutch E^2, A^2, and with the lever I engaged in such slot and connected to the brake, all arranged to serve substantially as herein specified.

3. In an elevator having friction-clutch mechanism serving as a brake for the winding-drum, the combination therewith of weighted levers E^4, E^5, the cone H^2 and connections extending to and actuated by the power-controlling devices to intermediately effect the movement of the cone, the arrangement being such that the weighted levers will also operate the clutch to apply the brake when the speed of the winding-drum becomes excessive, substantially as herein specified.

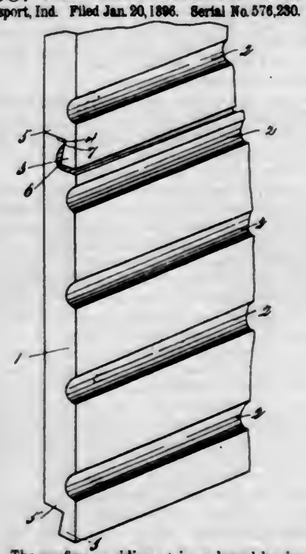
4. In an elevator, the combination with a driving-motor and slower-driven speed-shaft E, geared with the drum, of friction-clutch mechanism mounted on the shaft and serving as a brake for the winding-drum, weighted levers E^4, E^5, the cone H^2 and connections extending to and actuated by the power-controlling devices to intermediately effect the movement of the cone, the arrangement being such that the weighted levers will also operate the clutch to apply the brake when the speed of the winding-drum becomes excessive, substantially as herein specified.

5. In an elevator an electric motor running in one direction, and a worm revolved thereby, in combination with two worm-wheels engaged on opposite sides, and two corresponding friction-clutches and an additional friction-clutch serving as a brake, and with a drum and an intermediate gear-wheel E', the latter arranged to perform the double function of a connection between the two friction-clutches and the drum, and a means of carrying the brake-clutch, all arranged for joint operation substantially as herein specified.

6. In an elevator having a stop-motion for arresting the drum when the hoisting-rope is slackened, the bar V^4 extending longitudinally of the drum, connections as the shaft V and arms V^1, V^2, arranged to induce a parallel and uniform motion of such bar throughout its length, and connections therefrom to the stop mechanism, arranged to serve substantially as herein specified.

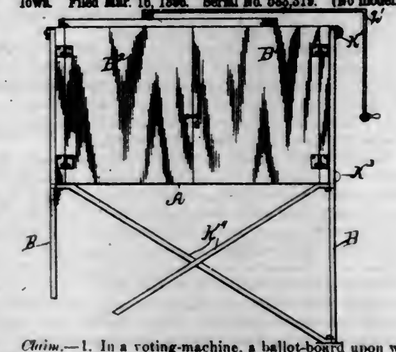
7. In an elevator an electric motor running in one direction and having a worm B^2 on a quick-running shaft B, the fly-wheel B^3, anti-friction-bearings F, and means as the nut B^5 for taking up the slack and wear by operating outside, in combination with friction-clutches C^2, M^2, and D^2, N^2, engaged alternately, and with the elevator-drum and suitable connecting mechanism, all arranged for joint operation substantially as herein specified.

576,569. **BOARD ROOFING AND SIDING.** GEORGE A. GENNER, Williamsport, Ind. Filed Jan. 20, 1896. Serial No. 576,230. (No model.)



Claim.—The roofing or siding strip or board having the lipped lower edge 5 and the dovetailed lip 3 depending therefrom, the upper edge 4 adapted to register with the edge 5 of the board above, the narrow vertical bearing edge 7 fitting against the upper portion of the inner face of the dovetailed lip 3, and the concave groove 6 extending from the edge 7 around the edge of the lip 3, to the outer face of the board and at such a distance therefrom as to leave a vertical space and a horizontal space opening outward and both of said spaces being of such width as that water will not be held therein by capillarity, substantially as described.

576,570. **VOTING-MACHINE.** ALFRED J. GILLESPIE, Atlantic, Iowa. Filed Mar. 16, 1896. Serial No. 583,319. (No model.)



Claim.—1. In a voting-machine, a ballot-board upon which the tickets to be voted are posted, a plurality of registering-counters permanently inclosed in a chamber having a transparent side independent of and apart from said ballot-board and through which said counters may be viewed, in combination with operative mechanism projected into the said chamber adapted to engage and impart motion to the said registering-counters to register the votes.

2. In a voting-machine, a plurality of registering-counters secured to a supporting-frame in fixed relation to each other and a parallel wall or plate supporting independently-adjustable actuating mechanism adapted to engage the said registering-counters, in combination with means for imparting relative movement between the supporting-frame and the parallel wall or plate, whereby the said registering-counters are actuated and the votes registered.

3. In a voting-machine a movable supporting-frame having all the registering-counters affixed thereto in permanent relation to each other, and a parallel wall or plate sustaining independently-adjustable operating-keys adapted to engage said registering-counters, in combination with means for imparting motion to said supporting-frame, toward and away from said wall or plate, whereby the registering-counters are actuated and the votes registered.

4. In a voting-machine a supporting-frame having all the registering-counters affixed thereto in perpendicular columns and horizontal lines, in combination with a series of operating-keys, one for each horizontal line, adapted to engage any one of the counters in a line at a time and having a range of movement embracing all the counters in each respective horizontal line.

5. A voting-machine having the registering-counters arranged in vertical columns and horizontal lines, in combination with an adjacent ballot-board having the ticket to be voted upon arranged in harmony therewith, and a series of indicators, one for each horizontal line, operatively connected with the counters and their actuating agencies, whereby the voter makes his choice of candidates and registers his vote.

6. In a voting-machine, a reciprocating registry-frame having the counters secured thereto in vertical columns and horizontal lines, and a parallel wall, in combination with a series of keys interposed between the frame and wall, one for each horizontal line of counters and having a range of movement embracing each respective line of counters, whereby the counters selected are actuated by contact with the keys, and the unselected meet with no contact and therefore remain inoperative.

7. In a voting-machine, a registry-frame having push-pawl counters secured thereto in vertical columns and horizontal lines, and a parallel wall, with means for imparting a reciprocating movement between the frame and wall, in combination with a series of keys consisting essentially of blocks, one for each horizontal line, interposed between the push-pawls of the selected counters and wall whereby the counters are actuated to register the votes.

8. In a voting-machine, a registry-frame having the counters secured thereto in vertical columns and horizontal lines, and a parallel key-bearing wall and means for imparting relative movement between the frame and wall, in combination with a series of keys, one for each horizontal line, adapted to actuate the said counters, each having

operative connection with an indicator having a range of movement across an adjacent ballot-board containing the names of candidates arranged in harmony with the said counters, by means of which the voter may make his choice of candidates and register his vote.

9. In a voting-machine a registry-frame having the counters secured thereto in party-columns and horizontal office-lines, and a parallel wall, means for imparting relative movement between the frame and wall, and a series of keys interposed, one for each horizontal office-line, in combination with an adjacent ballot-board bearing the names of candidates arranged in harmony with the said counters, and having an indicator operatively connected with each key, said indicators each having a range of movement embracing the line of candidates for each respective office, each key being incapable of actuating more than one counter at the same time.

10. A voting-machine comprising in its construction a suitable casing, one outer third consisting of a registering-chamber, the other outer third a resetting-chamber, and the central third a ballot-board having horizontal sliding indicator-rods extended across its face and having one of their ends projected into the registering chamber, and their other ends projected into the resetting-chamber.

11. The combination in a voting-machine of a ballot-board containing the tickets to be voted in groups, pointers or indicators for each office to be balloted for common to all of said groups, arranged to be moved opposite the name of the candidate for such office on any of the ticket groups, registering mechanisms, each with its immediate actuating agent arranged in groups corresponding to the ticket groups, keys common to all of the registering groups and controlled in position by the movements of said pointers, so as to be brought into effective relation to the registering mechanisms pertaining to the candidates indicated by the pointers on the ballot-board, and means for imparting relative movement between the keys and the registering mechanisms, whereby those of the latter with which keys have been brought into effective relation are actuated to register the vote for their respective candidates.

12. The combination in a voting-machine of a ballot-board containing the tickets to be voted in groups, indicator-slides for each office to be balloted for common to all of said groups arranged to permit their pointers to be brought opposite the names of the candidate for such office in any one of the ticket groups, registering mechanisms each with its immediate actuating agent arranged in groups corresponding to the ticket groups and numbering in each group at least the number of candidates upon the corresponding ticket, keys common to all of said registering groups and controlled in position by said slides so as to be brought into effective relation to the registering mechanisms and their accessories pertaining to candidates on given tickets when the pointers of said slides are opposite the names of said candidates on the ballot-board, and means for moving all of the registering mechanisms toward the paths of movement of the keys, whereby those with which keys have been brought into effective relation are actuated to register the vote for the candidates indicated on the ballot-board by the position of their corresponding pointers.

13. The combination in a voting-machine of a ballot-board containing the tickets to be voted in groups, indicator-slides for each office to be balloted for arranged to permit their pointers to be brought opposite the names of the candidate for such office in any one of the ticket groups, registering mechanisms each with its immediate actuating agent arranged in groups corresponding to the ticket groups and numbering in each group at least the number of candidates upon the corresponding ticket, keys controlled in position by said slides so as to be brought into effective relation to the registering mechanisms and their accessories pertaining to candidates on given tickets when the pointers of said slides are opposite the names of said candidates on the ballot-board, means for moving all of the registering mechanisms toward the paths of movement of the keys, whereby those with which keys have been brought into effective relation are actuated to register the vote for the candidate indicated on the ballot-board by the position of their corresponding pointers and means for returning all of the slides to normal position simultaneously with the registering of the vote.

14. The combination in a voting-machine of a ballot-board containing the tickets to be voted arranged in groups, independently-movable indicator-slides for each office to be balloted for, arranged to permit their pointers to be brought opposite the names of the candidate for such office in any one of the ticket groups, means for moving said pointers and slides simultaneously to any given group in order to indicate a straight ticket, registering mechanisms, each with its immediate actuating agent, arranged in groups corresponding to the ticket groups and numbering in each group at least the number of candidates upon the corresponding ticket, keys controlled in position by said slides so as to be brought into effective relation to the registering mechanism pertaining to a candidate on a given ticket when the pointer of said slide is opposite the name of the candidate on the ballot-board, and means for moving all of the registering mechanisms toward the paths of movement of the keys after a ticket has been indicated by the pointers, whereby those with which the keys have been brought into effective relation are actuated to register the vote.

15. The combination in a voting-machine of a ballot-board containing the tickets to be voted arranged in groups, independently-movable indicator-slides for each office to be balloted for, arranged to permit their pointers to be brought opposite the names of the candidate for such office in any one of the ticket groups, means for moving said pointers and slides simultaneously to any given group in order to indicate a straight ticket, registering mechanisms, each with its immediate actuating agent, arranged in groups corresponding to the ticket groups and numbering in each group at least the number of candidates upon the corresponding ticket, keys controlled in position by said slides so as to be brought into effective relation to the registering mechanism pertaining to a candidate on a given ticket when the pointer of said slide is opposite the name of the candidate on the ballot-board, means for moving all of the registering mechanisms toward the paths of movement of the keys after a ticket has been indicated by the pointers, whereby those with which keys have been brought into effective relation are actuated to register the vote, and means for simultaneously moving all of the slides in opposition to the direction of movement of the straight-ticket mechanism, to restore them to normal.

16. The combination in a voting-machine of a ballot-board containing the ticket to be voted and the officers to be voted for arranged in vertical columns to bring the names of candidates in each ticket horizontally opposite the designation of the office, a series of indicator-slides one for each office arranged to be moved independently along the lines containing the names of the candidates for said offices, to bring their pointers opposite the name of a candidate in any given ticket, registering mechanisms, each with its immediate actuating agent, arranged in vertical columns corresponding to the ticket-columns and numbering in each group at least the number of candidates upon the corresponding ticket and past which the slides are projected, keys controlled in position by said slides so as to be brought into effective relation to the registering mechanism pertaining to a candidate on a given ticket when the pointer of said slide is opposite the name of said candidate on the ballot-board, and means for simultaneously moving all of the registering mechanisms toward the path of movement of the keys.

17. The combination in a voting-machine of a ballot-board containing the tickets to be voted and the officers to be voted for in vertical columns, the nominees on each ticket opposite the designation of the office for which they are candidates, horizontally-movable indicator-slides for each office, arranged to permit their pointers to be brought opposite the names of the candidates for such office in any one of the ticket-columns, registering mechanisms, each with its immediate actuating agent, arranged in columns corresponding to the ticket-columns and in line with the designation of the respective offices, keys controlled in position by said slides so as to be brought into effective relation to the registering mechanism pertaining to a candidate on a given ticket when the pointer of said slide is opposite the name of said candidate on the ballot-board, a straight-ticket bar for moving all of said slides and pointers simultaneously to any given column to designate a straight ticket, means for moving all of the registering mechanisms simultaneously toward the path of movement of the keys whereby those with which keys have been brought into effective relation are actuated to record the vote, and a bar movable in opposition to the straight-ticket bar against the ends of the slides, to restore them all to normal position and to destroy visual evidence of the vote after it has been registered.

18. The combination of the ballot-board, the pointers, the keys controlled thereby, the registry-frame with its counters and their immediate actuating devices, the vertical shafts and their eccentrics and means for moving said shafts simultaneously.

19. The combination of the ballot-board, the indicator-slides and their keys, the registry-frame with its counters, the push-pawls for said counters, the eccentrics taking into slots in the top and bottom plates of said registry-frame, the shafts upon the said eccentrics, and means for actuating said shafts simultaneously.

20. The combination of the ballot-board, the indicator-slides and their keys, the registry-frame having a series of counters corresponding with the tickets on the ballot-board and with the indicator-slides and their keys, and provided also with additional counters for recording the aggregate vote, and means for moving said registry-frame toward the front wall of the machine-casing whereby certain of the counters are actuated by contact with the keys and those which record the aggregate vote by contact with said wall.

21. The combination with the ballot-board, registry-compartment and resetting-compartment, of the straddling legs upon which the casing is supported, and the hinged doors closing the front of the casing, and stayed, when open, by said legs, to form the sides of a booth.

22. The combination with the ballot-board, registering mechanisms, indicator-slides carrying keys, and means for operating the registering mechanism by the keys of the shafts in the resetting-compartment, the chains and the resetting-bar thereon.

23. The combination with the ballot-board and the indicator-slides of the straight-ticket bar, its rack, and the crank whereby said rack is moved.

24. The combination with the registry-frame, the shafts passing therethrough, the eccentrics on said shaft, the resetting-chains and their shafts, of the driving-belt, connecting the sprocket-wheel on the upper end, of one of the resetting-shafts with the sprocket-wheels on the upper ends of the cam-shafts, and a lever on one of said cam-shafts whereby a single complete revolution of the lever will operate the machine and restore it to normal.

25. A voting-machine comprising a casing having a ballot-board or ticket compartment, a registry-compartment and a resetting-compartment, indicator-slides for indicating the ticket on the ballot-board, means controlled by said indicator-slides for actuating the registry-mechanisms, a booth within which the voter manipulates the slides to select his ticket, and a lever external to the booth to be operated in public by the voter.

26. The combination with the machine-casing, of the keepers at the ends thereof and the detachable legs formed in pairs as A-frames, with top strap and middle bar to take into said keepers.

27. The combination with the machine-casing, of the keepers at the ends thereof, formed as screw-bolts and the detachable legs formed in pairs as A-frames with top strap and middle bar to take under said keepers and be clamped thereby.

28. The combination with the machine-casing of the keepers at the ends thereof, the detachable legs formed in pairs as A-frames, with top strap, middle bar, and sill-bar and the cross-braces and their bolts, uniting said sill-bars to the bottom of the casing.

29. The combination with the registry-frame, cam-shafts, indicator-slides and resetting mechanism, of the lever mounted loosely on one of said cam-shafts, and the driving-dog on the adjacent wheel.

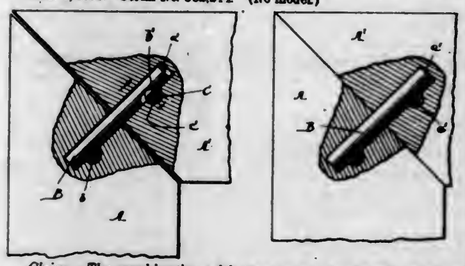
576,571. LABEL-LOCK. CHARLES H. R. GODFREY, South Norwalk, Conn. Filed Apr. 23, 1896. Serial No. 588,705. (No model.)



Claim.—1. A label-lock consisting of a label-holder provided with a socket to receive a label, a longitudinal slot to receive a strap, a recess, a stud extending upward from the bottom of the label-holder in slot 2 and a bodily-detachable locking-block which is adapted to engage the recess and obstruct the label-passage and is provided with locking mechanism which engages the stud.

2. A label-lock consisting of a label-holder provided with a socket to receive a label, a longitudinal slot to receive a strap, a recess, a stud extending upward from the bottom of the label-holder in slot 2 and provided with locking-recesses 10, a bodily-detachable locking-block which is adapted to engage the recess in the holder and obstruct the label-passage and is provided with locking mechanism and an opening in its under side which receives the stud, the locking mechanism engaging the locking-recesses in the stud.

576,572. JOINT-FASTENER. LOUIS GOHLKE, Grand Rapids, Mich., assignor of one-half to Frederick H. Marx, Chicago, Ill. Filed Mar. 7, 1896. Serial No. 582,214. (No model.)



Claim.—The combination with two parts to be joined together, said parts having opposing faces, of a projection or bolt embedded in one of said parts and provided with a shoulder, and a pivotally-sustained eccentric pin or key embedded in said other part at a distance from its opposing face corresponding to the distance of the shoulder of said bolt from the opposing face of the other of said parts, whereby when said parts are placed together the turning of the eccentric-key will serve to draw the opposing faces of the parts firmly together, substantially as described.

576,573. ADJUSTABLE HANDLE-BAR. JOHN R. GOULD, Richmond, Va. Filed Jan. 3, 1896. Serial No. 574,258. (No model.)



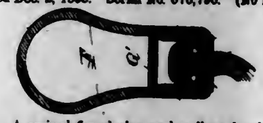
Claim.—1. A handle-bar for cycles provided with a segmental dovetailed flange, in combination with a handle-bar stem detachably connected thereto and having a coupling-piece formed to receive said dovetailed flange, and a hollow binding-screw surrounding said stem and engaging the coupling-piece for causing the latter to clamp the handle-bar and prevent its rotation, substantially as described.

2. An adjustable handle-bar for bicycles, consisting of two substantially equal sections, one of which is formed with an extension adapted to enter the contiguous end of the adjoining section, said sections being provided at their meeting ends with abutting flanges, in combination with a handle-bar stem having a movable undercut socket to receive the ends of said sections and to engage said flanges, and a hollow binding-screw having a threaded connection with the socket and surrounding the handle-bar stem to engage a fixed projection thereon and adapted when tightened to hold said sections rigidly, substantially as described.

3. In an adjustable handle-bar for bicycles, the combination with the handle-bar stem, and a coupling-piece thereon having a dovetailed flange, of a handle-bar proper, provided with a dovetailed bearing-flange partially surrounding the same and engaging the flange of the coupling-piece, and a hollow binding-screw surrounding the stem and cooperating with said bearing-flange for holding the handle-bar against rotation, substantially as set forth.

4. An adjustable handle-bar for bicycles, comprising a handle-bar proper made in two substantially equal sections having interlocking engagement at their contiguous ends and formed with opposing dovetailed flanges partially surrounding the same, a handle-bar stem having an expanded cap or head portion, a coupling-piece loosely mounted upon the stem and engaging beneath said head or cap and also provided with a substantially semicylindrical upper portion forming a seat for the handle-bar, opposing dovetailed flanges at the opposite sides or ends of said semicylindrical portions, adapted to cooperate with the corresponding flanges of the handle-bar, and a hollow binding-screw surrounding the stem and entering the coupling-piece, the said screw being adapted to bind the handle-bar within the coupling-piece, substantially as and for the purpose described.

576,574. SWIVEL FOR CHAINS OR PULLEYS. JOHN A. GUINN, Perry, Iowa, assignor of one-half to Fred Hooker, Des Moines, Iowa. Filed Dec. 2, 1895. Serial No. 570,790. (No model.)



Claim.—1. A swivel for chains and pulleys having a hook member provided with a spindle having a head integral therewith, a cup in which said head is held, antifrictional balls between said head and cup, an eye member connected with said cup and a detachable guard inserted in said cup, closing the same above said head, said parts being combined substantially as described.

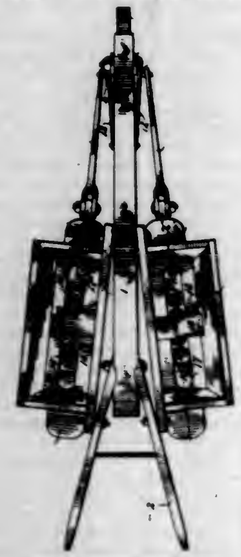
2. A swivel for chains and pulleys having a hook member provided with a spindle with a head thereon, a cup in which said head is held, antifrictional balls forming a bearing for said head, an eye member secured to the outer face of said cup and a guard inserted in said cup above said head closing the same, said parts being combined substantially as described.

3. A swivel for chains or pulleys having a cup with an eye member connected therewith, a hook with a spindle having a head in said cup antifrictional balls forming a bearing for said head, and a detachable guard closing said cup above said head, said spindle having a shoulder thereon below said cup, said parts being combined substantially as described.

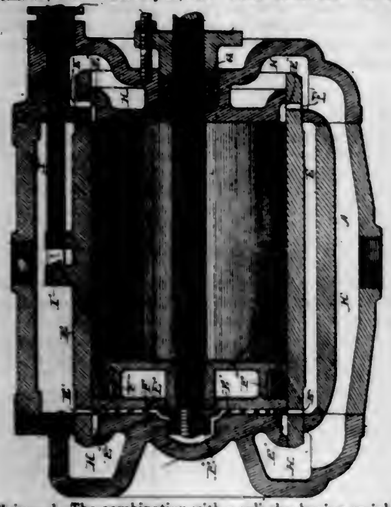
576,575. SEED-PLANTER AND FERTILIZER-DISTRIBUTER. JAMES A. HARMON and FRANK M. HARMON, Albany, Tenn. Filed May 28, 1896. Serial No. 593,462. (No model.)

Claim.—In a planter, the combination of independent dropping-slides, a ground-wheel, an axle supporting the ground-wheel and rotatable therewith, and having an end portion bent to provide an inte-

gral crank, and having its opposite end formed with a shoulder, an angular portion, and a threaded terminal, a second crank adjustable to any angle with reference to the integral crank and fitted to the angular portion of the axle, means for securing the adjustable crank in place upon the angular portion of the axle, and pitmen connecting the two cranks with the respective dropping-slides, the parts being combined and arranged that the dropping-slides may be operated simultaneously in the same or opposite directions or at different relative times, substantially as and for the purpose set forth.



576,576. STEAM-ENGINE. WESLEY A. HAUGHS and SAM BUFKIN, Columbus, Ohio. Filed May 11, 1896. Serial No. 591,126. (No model.)



Claim.—1. The combination with a cylinder having an inlet and exhaust port, of a piston, and a sliding shell surrounding the piston and within which the piston works, the shell and cylinder forming a steam-chamber around the shell, the chamber communicating with the inlet-port of the shell, and the shell provided with a hole at its opposite ends, the hole acting as a passage-way for the inlet and exit for the steam to and from the interior of the shell, and the hole at each end communicating alternately with the steam-chamber and exhaust-port of the cylinder, substantially as described.

2. The combination with a cylinder having an inlet and exhaust port, of a piston, and a sliding shell entirely surrounding the piston, and within which the piston works, the shell and cylinder forming a steam-chamber around the shell, the chamber communicating with the inlet-port, the shell provided with holes at its opposite ends, the holes extending entirely around the shell, and the holes at each end communicating alternately with the steam-chamber and with the exhaust-port of the cylinder, substantially as described.

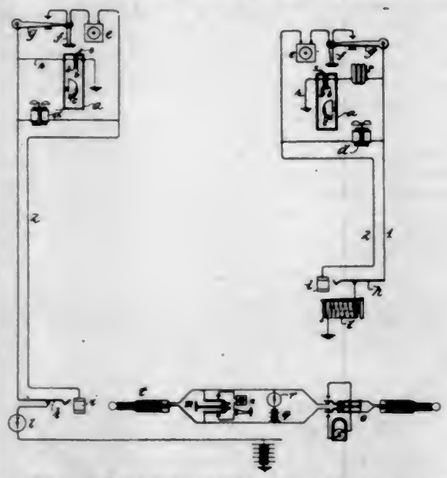
3. The combination with a cylinder having an inlet and exhaust port and a passage-way at opposite ends of the cylinder communicating with the exhaust-port, of a piston, and a sliding shell surrounding the piston provided with a hole at its opposite ends, the holes acting as a passage-way for the inlet and exit for the steam to and from the interior of the shell, and the hole at each end communicating alternately with the inlet-port of the cylinder and with the passage-way at the ends of the cylinder, substantially as described.

4. The combination with a cylinder having an inlet and exhaust port, and an annular passage-way at opposite ends of the cylinder communicating with the exhaust-port, of a piston, and a sliding shell surrounding the piston provided with holes at its opposite ends, the holes extending entirely around the shell and the holes at each end communicating alternately with the inlet-port of the cylinder and with the annular passage-way at the ends of the cylinder, substantially as described.

5. The combination with a cylinder having an inlet and exhaust port, and an annular passage-way at opposite ends of the cylinder communicating with the exhaust-port, of a piston, and a sliding shell surrounding the piston, the opposite ends of the shell extending within the annular passage-ways and the ends provided with holes, the holes at each end connecting alternately the interior of the shell with the annular passage at the ends of the cylinder and with the inlet-port of the cylinder, substantially as described.

6. The combination with a cylinder having an inlet and exhaust port, and an annular passage-way at opposite ends of the cylinder communicating with the exhaust-port, of a piston, and a sliding shell surrounding the piston provided with holes at its opposite ends, the holes at each end communicating alternately with the inlet-port of the cylinder and with the passage-way at the ends of the cylinder, and ports in the ends of the cylinder leading from the interior of the shell adapted to register with the holes at the end of the shell which are in communication with the annular passage-way, substantially as described.

576,577. TELEPHONE SYSTEM. ANGUS S. HIBBARD, Chicago, Ill. Filed May 4, 1896. Serial No. 590,063. (No model.)



Claim.—1. In a telephone-exchange system, the combination of a telephone-line extending from the exchange to a substation, and a coin-receptacle at the substation with a conductor branching from said telephone-line at the substation including two normally-separated contact portions which are adapted to be electrically connected through a coin while in the hand of the user and an indicating device at the exchange adapted to be included in circuit with said telephone-line, branch conductor, and coin, substantially as described.

2. In a telephone-exchange system, the combination of a telephone-line extending from the exchange to a substation and a coin-receptacle at the substation provided with an aperture for the insertion of a coin with an indicating device at the exchange and a conductor branching from said telephone-line including two normally-separated contact portions placed at or near the mouth of said aperture which are adapted to be electrically connected by a coin while in the hand of the user, to close the circuit through said indicating device, substantially as described.

576,578. COMBINED BARREL TRUCK AND SUPPORT. JOHN P. HOFF, Comanche, Tex. Filed Apr. 7, 1896. Serial No. 586,596. (No model.)



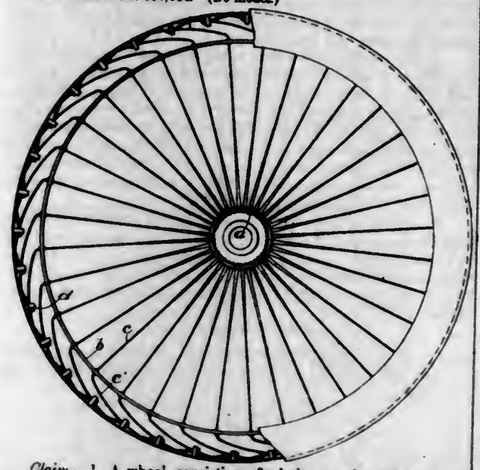
Claim.—1. A combined truck and detachable supporting device consisting of a truck and a support, said support consisting of a top part, two side pieces with curved edges, and two end pieces, one of said end pieces being hinged to the front part of said top piece.

2. A combined truck and supporting device having a two-wheeled truck provided with a lever and a catch-rod pivotally connected to said lever and a support provided with a hinged front end, two curved side pieces, top and back end pieces said end piece being provided with a recess forming a bearing for the lever of said truck.

3. In a hoisting, hauling and supporting device the combination of a support of the character described and a truck provided with a lever adjustable in said support, said lever having a rack on the under side thereof, a collar on said lever adapted to engage said rack, and a catch-rod pivotally connected in said collar.

4. In a device for hoisting, hauling, and supporting barrels or other objects the combination of a truck and a support adapted to be operated with said truck and to be separated for supporting purposes, said support consisting of two curved side pieces, a rear piece having a bearing-block attached thereto, a top piece having a bearing-block attached thereto, and a front piece hinged to the under side of said top piece, and means for operating said truck and support together.

576,579. WHEEL. DAVID HUNT, Boston, Mass. Filed July 24, 1895. Serial No. 557,014. (No model.)



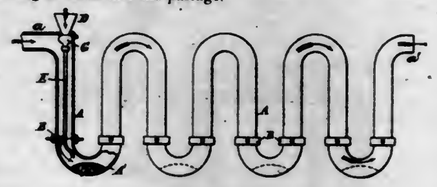
Claim.—1. A wheel, consisting of a hub, a perforated rim, wire spokes extending radially from said hub to and through said rim, and outside thereof bent substantially tangential to the rim and extending a short distance to form springs, and then continuing concentrically to said rim, and held in position by suitable fastenings such as the blocks *d*, substantially as described.

2. A wheel, consisting of a hub, a perforated rim, wire spokes extending radially from said hub to and through said rim and outside thereof bent substantially tangential to the rim and extending a short distance to form springs, and then continuing concentrically to said rim, and held in position by suitable fastenings such as the blocks *d*, the end of each wire being screw-threaded beyond one of the blocks and provided with a nut, substantially as described.

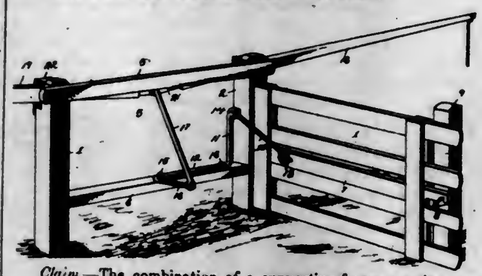
3. A wheel, consisting of a hub, spokes and felly, the latter comprising a rim, wires projecting tangentially therefrom, for a short distance, and then continuing concentrically thereto and passing over and under one another to form an outer face, substantially as described.

576,580. APPARATUS FOR EXTRACTING GOLD. WILLIAM H. HYATT, London, England. Filed June 8, 1896. Serial No. 594,747. (No model.) Patented in England Dec. 20, 1894, No. 24,782.

Claim.—The combination of a sinuous passage in a vertical plane, and of substantially the same area throughout, mercury placed in but not blocking the lower bends of the passage, means for causing a blast of air to traverse the passage, and means for introducing gold-bearing material into the passage.

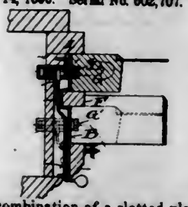


576,581. GATE. CHRISTOPHER ILGEN, Jr., Willow Dell, Ohio. Filed Mar. 17, 1896. Serial No. 583,597. (No model.)



Claim.—The combination of a supporting-frame, a swing-gate provided with a sliding latch-bar, a horizontal rock-shaft journaled on the supporting-frame, arranged longitudinally of the roadway and provided at its inner and outer ends with arms arranged at right angles to each other, the inner arm being disposed vertically when the gate is closed, a link-rod connecting the inner arm of the rock-shaft with the sliding bar, a pair of operating-levers fulcrumed on the supporting-frame, extending from the gate in opposite directions and having their inner ends overlapped, one of the operating-levers being slotted at its pivotal point to provide for a limited longitudinal movement, and an upwardly-extending link pivoted to the outer arm of the rock-shaft and pivotally connecting the overlapped ends of the operating-levers, substantially as and for the purpose described.

576,582. SASH-FASTENER. JOHANNES H. JOHNSON, North Cape, Wis. Filed Aug. 14, 1896. Serial No. 602,707. (No model.)



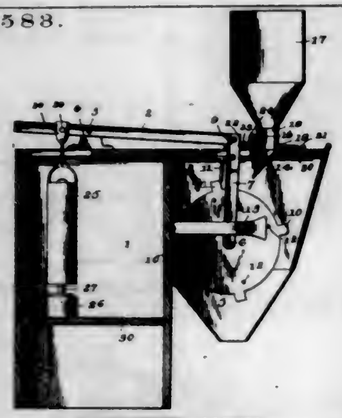
Claim.—1. The combination of a slotted plate for rigid connection with a mortised and slotted portion of a window-frame stile, a housing fast on the plate but extended rearward therefrom to enter a slot of said stile, a detent having play in the housing and plate-slot, a sash-stile rack engageable with the detent, and a retracting-lever for said detent fulcrumed on the plate.

2. The combination of a single plate for rigid connection with a mortised and slotted portion of a window-frame stile, a plurality of housings fast on the plate but extended rearward therefrom to enter slots in the stile, a detent having play in each housing, a sash-stile rack engageable with each detent, and retractive levers for the detents fulcrumed on the plate.

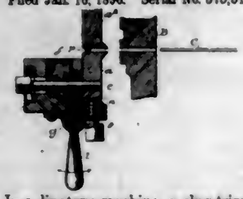
576,583. WEIGHING-MACHINE. EDWIN K. JONES, Kinsman, Ohio. Filed Apr. 30, 1895. Serial No. 547,678. (No model.)

Claim.—In a weighing apparatus, the combination with a balance-beam and weight, of a stirrup connected to and supported by the beam, a bucket-wheel mounted in the stirrup, spaced stop-fingers 10 upon the wheel, a fixed stop 11 to engage said fingers when the wheel is elevated, a stationary stop-spring 13 adapted to engage spaced lateral pins 12 on the side of the wheel to prevent backward rotation of the wheel, said spring bearing at its extremity against the side of the wheel, and means for controlling the supply of material to the buckets, substantially as specified.

576,583.



576,584. TRIMMER FOR LINOTYPES. THOMAS H. KELLER, New York, N. Y., assignor to the Mergenthaler Linotype Company, same place. Filed Jan. 16, 1896. Serial No. 575,812. (No model.)

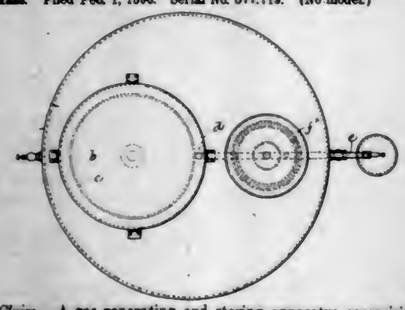


Claim.—1. In a linotype-machine, a slug-trimming knife movable forward and backward, in combination with stops to limit the movement in both directions, and mechanism for throwing the knife instantly from one position to another.

2. In a linotype-machine, the combination of a slug-trimming knife mounted to slide forward and backward, adjustable stops to limit its forward movement, and adjustable stops to limit its backward movement.

3. In a linotype-machine, a slug-trimming knife movable forward and backward, in combination with an eccentric arranged to move the same and to pass over the center for the purpose of holding the knife in its adjusted position.

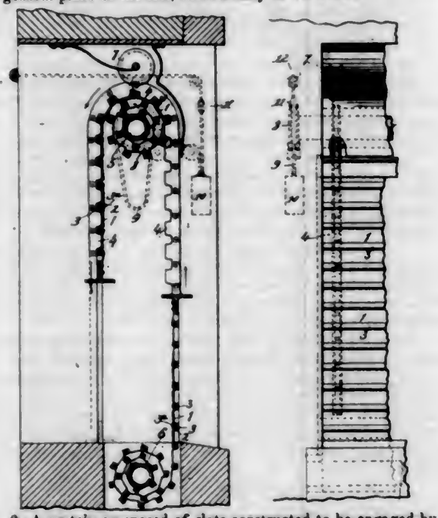
576,585. APPARATUS FOR GENERATING ACETYLENE GAS. MOSES W. KIDDER, Lincoln, Mass., assignor to Person Noyes, Lowell Mass. Filed Feb. 1, 1896. Serial No. 577,719. (No model.)



Claim.—A gas generating and storing apparatus comprising a water-receptacle, a gas-receptacle whose walls extend within the water-receptacle in proximity to the base thereof, said gas-receptacle being closed at the top and open at the bottom for water communication, an intermediate calcic-carbid receptacle within the gas-receptacle communicating at one side with the gas-space thereof, and a water-inlet conduit projecting downwardly from another side of the said calcic-carbid receptacle to the lower portion of the water-receptacle, said inlet also serving as a guard to prevent the admission to the said calcic-carbid receptacle of oil floating on the water in the gas-receptacle.

576,586. FIREPROOF BLIND. WILLIAM R. KINNEAR, Columbus, Ohio. Filed June 27, 1896. Serial No. 597,118. (No model.)

Claim.—1. A slat for metallic curtains and the like having a deep shoulder forming a socket or recess in the slat adapted to receive the sprockets of an operating-chain, a narrow groove on one edge, and a groove on the other edge, the grooves lying on opposite sides of the general plane of the slat, substantially as described.

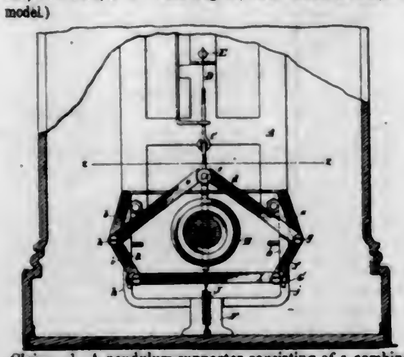


2. A curtain composed of slats constructed to be engaged by a sprocket chain or belt combined with a sprocket chain or belt adapted to engage and move said curtain and run upon the outer surface thereof as it is wound upon a roller.

3. The combination with a rolling fireproof curtain and roller therefor, of a pulley or drum on the shaft of said roller, a cord on said pulley or drum adapted to be wound with the opening of the shutter and unwound with the closing of the same, a weight attached to said cord, whereby the curtain may be raised or lowered independently of the weight, and a device sustaining said weight in a position to unwind the cord adapted to be operated ordinarily only upon an abnormal rise of temperature to release said weight to cause the closing of the shutter, substantially as described.

4. A fireproof curtain comprising a curtain adapted to be raised from the lower part of a window, door, or other opening, a curtain and roller therefor in the upper part of said opening, and a chain or strap attached to the lower curtain adapted to engage the outer surface of the upper curtain to operate the same, substantially as described.

576,587. PENDULUM-CLAMP FOR CLOCKS. FLORENCE KROBER, New York, N. Y. Filed Aug. 22, 1896. Serial No. 603,577. (No model.)



Claim.—1. A pendulum-supporter consisting of a combined lifting and clamping means for lifting and clamping the pendulum to hold the same from moving.

2. The combination of an upper cross-bar and a lower cross-bar or platform, and means for raising or lowering the said lower cross-bar or platform, whereby the lower cross-bar or platform will raise the pendulum-ball and bring it against the upper cross-bar, whereby the pendulum-ball will be held between the cross-bars.

3. A pendulum-supporter comprising the combination of a stationary upper cross-bar, with an up and down moving lower cross-bar, whereby the rising cross-bar will lift the said pendulum and force it against the upper cross-bar, whereby the pendulum will be held between the cross-bars.

4. A pendulum lifter and supporter comprising the combination of a plurality of slotted cross-bars, the lower of which is movable, and means for raising and lowering the lower cross-bar, whereby the pendulum will be gripped by the slotted portions of the bars.

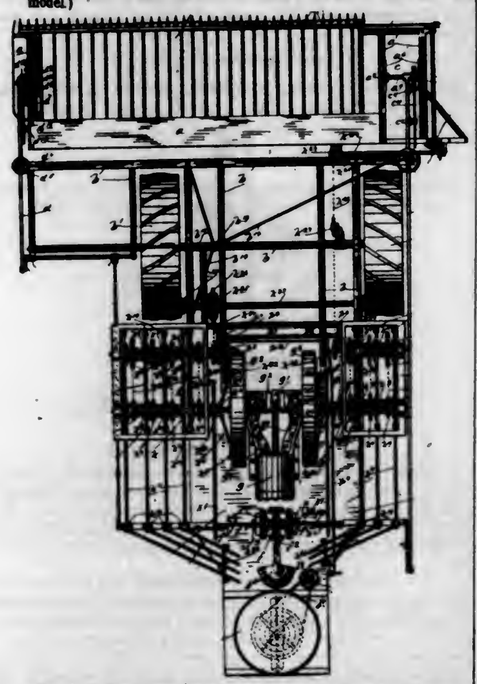
5. The combination of an upper cross-bar, a lower cross-bar, and means for raising and lowering the lower cross-bar to raise and grip the pendulum comprising one or more pairs of toggle-links and an operating-lever therefor, substantially as described.

6. In a pendulum-supporter, the combination of a stationary part located above the pendulum-ball and adapted to be engaged by the said pendulum-ball, a movable part located below the said pendulum-ball and adapted to engage the said pendulum-ball to raise the said pendulum ball and force it against the stationary part, and means for raising and lowering the movable part in a vertical direction whereby the movable part will force the pendulum against the stationary part, the said two parts constituting a combined means for raising the pendulum and gripping the same to relieve the suspension-spring of the strain of the weight of the pendulum-ball.

7. An auxiliary pendulum-supporting device, comprising pendulum-ball-grasping devices arranged to grasp and hold the pendulum-ball and to lift the same so that the weight of the pendulum-ball will be supported by the said pendulum-ball-grasping devices.

8. A pendulum-ball-supporting device consisting of a plurality of pendulum-ball engaging and lifting means adapted to seize and lift the pendulum-ball clear of its normal supports.

576,588. MOTOR-DRIVEN HARVESTER. CHARLEY A. KULBERG, Hawick, Minn. Filed Feb. 1, 1896. Serial No. 577,659. (No model.)



Claim.—1. In a harvester or similar machine, the combination with the traction wheel or wheels and harvesting mechanism, of a motor mounted on the machine-frame and independent variable drives extending from said motor, one to said traction-wheels, and the other to said harvesting mechanism, whereby the speeds of said traction-wheels and harvesting mechanism may be varied with respect to each other and to said motor, substantially as described.

2. In a harvester or similar machine, the combination with the traction wheel or wheels and the harvesting mechanism, of a motor mounted on the machine-frame, and independent variable drives extending from said motor, one to said traction-wheels and the other to the harvesting mechanism, each of said variable drives involving in the combination, a series of intermediate driving connections geared for different speeds, and means for rendering any one of said intermediate connections operative on said drives at will, substantially as described.

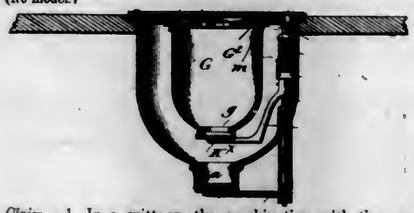
3. In a harvester or similar machine, the combination with the traction wheel or wheels and the harvesting mechanism, of a motor mounted on the machine-frame, and independent variable drives extending from said motor one to said traction-wheels and the other to said harvesting mechanism, each of said variable drives involving in the combination, a series of intermediate sprocket-wheel and chain connections geared for different speeds, and means for rendering any one of said connections operative on said drives at will, substantially as described.

4. In a harvester or similar machine, the combination with the traction wheel or wheels and the harvesting mechanism, of a motor mounted on the machine-frame, and the independent variable drives extending from said motor, one to said traction-wheels, and the other to said harvesting mechanism each of said variable drives involving in the combination the loosely-mounted parallel counter-shafts, the half-clutches carried by said counter-shaft, the loose sprocket-wheels on said counter-shafts provided with half-clutches cooperating with said fixed half-clutches, the chains connecting said sprocket-wheels in pairs, the laterally-movable shipper-bars with keepers engaging the hub of said sprocket-wheels, the rock-shafts and parallel arms connected to said shipper-bars, levers on said rock-shafts, and a clutch for connecting one of said counter-shafts with a rotary part of the engine, substantially as described.

5. In a harvester or similar machine, the combination with the cutting device and support for the same, of raising and lowering connections applied to the opposite ends of said support, said connections involving in the combination, the bifurcated fixed latch-arch bracket, the primary latch-lever working between the blades thereof, the pair of movable bifurcated latch-arches carried by said primary lever, and the secondary latch-levers working independently, one between the blades of each of said movable arches and provided with connections to the opposite ends of said support, substantially as described.

6. In a harvester or similar machine, the combination with the traction-wheels and harvesting mechanism, of a motor mounted on the machine-frame, independent variable drives from said engine respectively to said traction-wheels and to said harvesting mechanism and a reversing device, involving a pair of clutches connected for simultaneous movement, substantially as described.

576,589. SPITTOON. JOHN P. KANE, Dawson, and SAMUEL DINSMORE, Vanderbilt, Pa., assignors of seven-twelfths to Samuel Dinsmore and James Dolan, Vanderbilt, Pa. Filed July 6, 1896. Serial No. 598,217. (No model.)



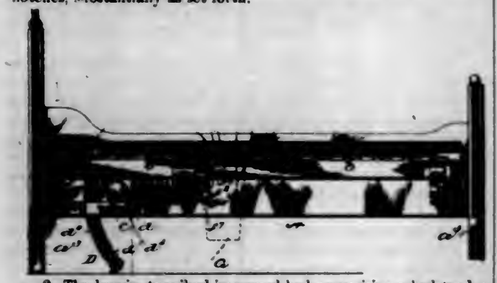
Claim.—1. In a spittoon, the combination with the weather casing or box having a pivoted cover, a post mounted in a tubing communicating through an aperture with the interior of the casing, the upper end of the said post being square a spring interposed between a collar on the post and a bracket on the inner wall of the casing, of the spittoon or receptacle having diametrically-disposed lugs on its outside adapted to register in recesses in the peripnery of the opening of the casing, and a key for locking the receptacle to the casing or box, substantially as shown and described.

2. In a spittoon, the combination with the outer casing having an integral tubing opening therein, a vertically-movable spring-actuated post carried in said tubing, of the spittoon mounted within the casing, valve-plates carried on the post and designed to be seated under registering apertures in the bottoms of the spittoon and casing, and means for opening the valves by depressing the said post and rotating the same, substantially as shown and described.

3. In combination with the spittoon having lugs on its inside wall, and held in the casing in the manner described, the cover having lateral recesses in its central aperture, and the key having lateral arms provided with recesses for engagement with the lugs on the inside of the spittoon, and lateral projections which are adapted to engage in the recesses in the central aperture of the cover, whereby the latter may be turned and locked, in the manner shown and described.

576,590. BED. ISAAC LAURER, Rhinelander, Wis. Filed May 6, 1896. Serial No. 590,507. (No model.)

Claim.—1. The herein-described improved bed, comprising a bedstead, a bed-frame secured therein and having a pivoted section, curved arms secured to said pivoted section and provided with teeth in their front edges and notches in their rear edges, a shaft rotatably mounted in said bedstead and having pinions mounted thereon adapted to engage the teeth of said arms, spring-arms adapted to engage said notches, and a shaft adapted to disengage said spring-arms from said notches, substantially as set forth.

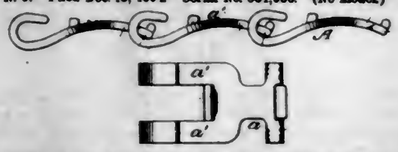


2. The herein-described improved bed, comprising a bedstead, a bed-frame secured therein and having a pivoted section, curved arms secured to said pivoted section and provided with teeth in their front edges and notches in their rear edges, a shaft rotatably mounted in said bedstead and having pinions keyed thereon and adapted to engage the teeth of said arms, spring-arms adapted to engage said notches, and a rotatable rod or shaft having a crank-handle and angular portions adapted to disengage said spring-arms from said notches, substantially as set forth.

3. The herein-described improved bed, comprising a bed-frame having a pivoted member, spring-slats secured to said bed-frame, one of which is provided with a central enlarged portion having a hole or opening, a trap adapted to normally close said opening and having an arm or extension pivotally connected to said latter slat, and a rod or arm for normally holding said trap closed, substantially as and for the purpose set forth.

4. The herein-described improved bed, comprising a bed-frame having a pivoted member, spring-slats having central bowed portions and outer slotted ends secured to said bed-frame, one of which is provided with a central enlarged portion having a hole or opening, a ledge or support formed on the under side of said enlarged portion adjacent said opening, a trap pivotally connected to said slat and adapted to normally close said opening, and a rod or arm the inner end of which is adapted to rest on said ledge or support and hold said trap in its normally-closed position, substantially as and for the purpose set forth.

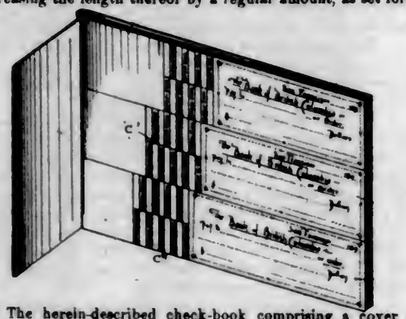
576,591. LINK BELTING. EDWIN S. LEAYCRAFT, Jersey City, N. J. Filed Dec. 15, 1894. Serial No. 531,983. (No model.)



Claim.—A link for a drive chain or belt, comprising a shank portion having at one extremity a journal-piece, or rocker of flattened cross-sectional outline, and whose bearing edges extend at right angles to the longitudinal center line of the shank portion, and at the other extremity a bifurcate portion whose two arms are bent over at their ends to form loops having an internal diameter larger than the thickness of the journal-piece or rocker, and a projecting tongue, the link having an opening between the arms of the bifurcate portion for the entrance of an engaging tooth, substantially as specified.

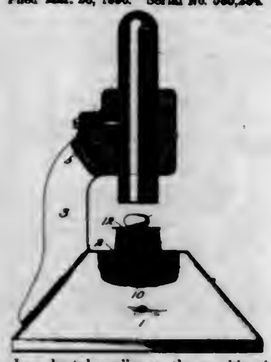
576,592. SAFETY-CHECK BOOK. MARION LEVENTRITT, San Francisco, Cal. Filed July 28, 1896. Serial No. 600,516. (No model.)

Claim.—1. A check-book containing a set of blank checks, drafts, or similar instruments, one blank being composed of a body portion of a standard length denoting by its linear measurement a standard limit of money value and on the stub end of such body portion and integral therewith a set of unperforated coupons of a standard and uniform width each of which is adapted to raise the limit of money value of the blank as expressed by the length of said body portion a regular amount by the addition of its width thereof to such body portion when left attached to and issued with the blank; and additional blanks each having a body portion of standard length which exceeds the standard length of the first blank and unperforated coupons on the stub end thereof integral therewith of standard and uniform widths and each of which being attached to and issued integrally with the blank raises by a fixed amount the limit of money value as expressed by the length of the body portion of the said blank by increasing the length thereof by a regular amount, as set forth.



2. The herein-described check-book comprising a cover and blanks bound therein connected to the cover by a stub and beyond said stub-blank checks each consisting of integral unperforated coupons of a standard and uniform width attached next to the stub and an integral unperforated body portion next to the coupons, whereby the linear measurement of the said body portion alone when detached from and issued without the coupons fixes the limit of money value of the check and each coupon left on and issued with the check raises such limit of money value by a regular amount and fixes such limit by increasing the length of the body portion a fixed and certain amount; the body portions in a set of said blanks being severally of greater linear measurement one over the other by a regular amount thereof, as and for the purpose set forth.

576,593. DENTAL APPLIANCE. HOWARD S. LOWRY, Kansas City, Mo. Filed Mar. 28, 1896. Serial No. 585,264. (No model.)

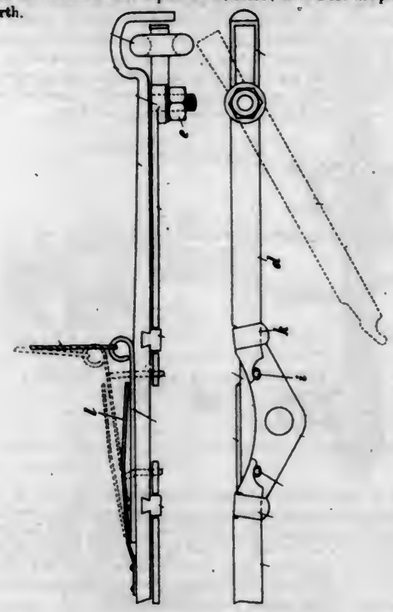


Claim.—1. In a dental appliance, the combination of a base or anvil a female die thereon, a vertical reciprocatory plunger arranged over the die-cavity, and a ball of lead arranged vertically below the plunger, unineloseed by walls and resting loosely upon the plate to be swaged, and vertically over the cavity of the die, for the purpose set forth.

2. A dental appliance, comprising a metallic base provided with a recess in its upper side, an arm projecting upwardly from said base and provided with a vertical guide-sleeve which overhangs said recess, a plunger in said sleeve, a lead plate in said recess, an intaglio-impression die within said recess and seated upon said lead plate, and upon which die the crown-forming plate is placed, a compressible ball upon said crown-forming plate, and a spring-actuated pin, bearing frictionally against the plunger, to hold it at any desired point of adjustment, substantially as described.

576,594. DEVICE FOR RELEASING DRAFT-HORSES. JACOB MARQUARDT, Mummendorf, Pomern, Germany. Filed Feb. 7, 1896. Serial No. 578,377. (No model.)

Claim.—In an arrangement for setting draft-horses free while traveling the combination of a swing-tree both ends of which are bent, thereby forming open parts, and provided with two studs arranged at the bottom part of the said swing-tree not far from the bendings of the same, with two turning-levers pivoted to the said studs of the tree, the shorter ends of these levers being made long enough to nearly close the U-shaped bendings of the swing-tree, with a spring plate-band arranged at the middle part on the top surface of the swing-tree and provided with two pins passing through two longitudinal openings of the swing-tree and projecting beneath the same, said plate-band being in connection with a cord fastened to a loop of the said plate-band, and with two stops attached to the swing-tree and not far from the middle part of the same; as and for the purpose set forth.

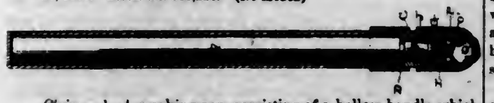


576,595. CULTIVATOR. JONAH MARSEE and THOMAS MORFORD, Bourne, Ky. Filed May 14, 1896. Serial No. 591,591. (No model.)



Claim.—A plow point or shovel for cultivators having an arm extending upwardly from the upper, rear end thereof and thence rearwardly in continuation of and on a line with one side edge of said point or shovel, said arm being waved or curved longitudinally of its length, a portion of one longitudinal edge thereof occupying a plane lower than the other side edge, as and for the purpose set forth.

576,596. FOUNTAIN MARKING-PEN. CALVIN D. MARSH, Williamsport, Pa., assignor to Albert D. Hermance, same place. Filed Oct. 27, 1896. Serial No. 610,226. (No model.)



Claim.—1. A marking-pen, consisting of a hollow handle which is closed at its outer end, a nipple having an opening extending through it, an adjustable cap, and the ball Q, all combined substantially as shown and described.

2. In a marking-pen, the handle A closed at its outer end, the nipple B, provided with an internal screw at its inner end so as to fit upon the inner end of the handle, and an external thread at its outer end and provided with the groove O; balls P placed in said groove; and the large ball Q, combined with the internally-screw-threaded cap which screws upon the nipple; the nipple being provided with a groove to receive the packing J, which is placed therein, substantially as described.

576,597. FURNACE OR STOVE DOOR. FRANK MEYER and GEO. HARMS, Peoria, Ill. Filed Feb. 24, 1896. Serial No. 580,515. (No model.)



Claim.—1. In a furnace the combination with a doorway extending outwardly from the furnace-cylinder, of a flanged frame so disposed that one of the flanges will extend into the doorway and another flange extending over the outer edge thereof and a suitable filling interposed between the flanges and the doorway, all substantially as described and shown.

2. In a furnace or stove door and doorway the neck B' connecting and secured to the inner and outer cylinders A', D', of the furnace, the flange C² on the furnace-front bounding the outer edge of the doorway, the frame F² having the door G' properly hinged thereto and fitting into the doorway and provided with the flange F⁶ bearing outwardly therefrom and the gasket or filling E' interposed between the parts, all substantially as described and shown.

3. In a furnace having an inner and outer shell, a doorway connecting the said inner and outer shell, a frame having flanges bearing into the doorway and in close proximity to the outside edge thereof and extending over the outside edge of the doorway and suitable filling interposed between the flanges of the frame and the outside edge of the doorway to form an impervious joint and a door suitably secured to said frame, substantially as described and shown.

4. In a furnace, the combination with a doorway connecting the furnace-cylinder and the furnace-front, of a flanged frame, one of said flanges extending into the doorway the other end of the flange extending over the outer edge of the doorway and over the joint between the doorway and the furnace-front and over a portion of the said furnace-front and a filling interposed between the frame and the doorway and the furnace-front and a door suitably secured to the said frame, substantially as shown and described.

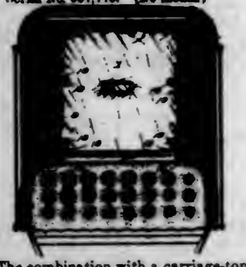
576,598. CURTAIN FOR CARRIAGE-TOPS. GEORGE P. MITCHELL, Ovid, Mich. Filed Aug. 12, 1896. Serial No. 602,560. (No model.)



Claim.—1. In a device of the class described, the combination with a carriage-top, of a rear bearing comprising a bolt passing through a perforation of the back cloth of the carriage-top, provided, at its outer end, with an enlarged head and having a bearing-socket at its inner end, a washer arranged on the bolt and engaging the inner face of the back cloth of the carriage-top, and a nut mounted on the bolt and holding the head of the same and the washer in engagement with the carriage-top, a side curtain provided with a spring-roller and having its rear journal arranged in the bearing-socket of said bolt, and means for supporting the front journal of the spring-roller, substantially as described.

2. In a device of the class described, the combination with a carriage-top, of a rear bearing comprising a bolt passing through a perforation of the back of the carriage-top, provided at its outer end with a head and having a bearing-socket at its inner end, a washer arranged on the bolt and engaging the inner face of the back of the carriage-top, and a nut mounted on the bolt and holding the head of the same and the washer in engagement with the carriage-top, a side curtain provided with a spring-roller and having its rear journal arranged in the bearing-socket of said bolt, and a bearing-bracket mounted on the front bow of the carriage-top, having an opening for the front journal of the spring-roller, and provided at its front face with a plate concealing the end of the spring-roller, substantially as described.

576,599. BUGGY-TOP. GEORGE P. MITCHELL, Ovid, Mich. Filed Oct. 3, 1896. Serial No. 607,775. (No model.)



Claim.—1. The combination with a carriage-top, of a back curtain provided with a spring-roller, and supports mounted on the back of the carriage-top and consisting of bolts extending forward from the said back, sleeves mounted on the bolts and provided at their front edges with recesses receiving the journals of the spring-roller, and nuts mounted on bolts engaging the sleeves and retaining said journals in the recesses thereof, substantially as described.

2. The combination of a carriage-top provided at the inner edges of its back quarters or strips with horizontal notches or slots, a back curtain provided with a spring-roller journaled at points above the slots or notches, said back curtain being arranged to pass through the notches or slots and slide on the rear faces of the back quarters or strips, and guides arranged at the bottom of the curtain and receiving the adjacent edges of the back quarters or strips, substantially as described.

3. The combination of a carriage-top provided at the inner edges of its back quarters or strips with horizontal slots and having a transverse strip 13 covering the same at the back of the carriage-top, supports mounted on the back quarters or strips and located above the slots, a back curtain provided with a spring-roller and having the journals thereof mounted on the said supports, said curtain being arranged to pass through said slots, and guide-plates secured to the bottom of the curtains, arranged on the inner face thereof and provided with L-shaped flanges cooperating with the adjacent portion of the curtain to form guides or ways for the back quarters or strips, substantially as described.

576,600. TRACE-FASTENER. JAMES MITCHELL, Detroit, Mich., assignor of one-third to Robert J. Willis, same place. Filed Aug. 14, 1895. Serial No. 559,236. (No model.)

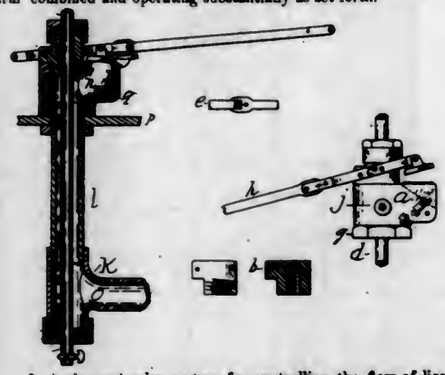


Claim.—In a trace-fastener, the combination with the whiffletree-ferrule having the fixed pin extending from the end thereof, the oblong housing mounted upon said ferrule open at each end, the spring-actuated catch extending into said housing at one end, the longitudinally-movable arm adapted to slide within said housing from the opposite end and having a hook which engages said catch, said arm having a way in its upper face, the set-screw passing through the housing and into said way, the plate F on the outer end of said arm adjacent to the end of the ferrule and having a central aperture that receives said pin, said arm curving upward and outward from said plate and carrying the plate G on the extreme outer end thereof which stands parallel with the plate F and distant therefrom forming a space between said plates and below the curve of said arm which freely receives the tug.

576,601. COMBINATION TANK, VENTED FLOAT, OUTLET-VALVE, AND PIPE SYSTEM. GEORGE H. MONTAGUE, Granby, Mass. Filed July 3, 1896. Serial No. 597,942. (No model.)

Claim.—1. A pipe-and-valve system for controlling the flow of liquids from supply-mains, and analogous purposes, comprising a stand-pipe, a connection on one end thereof, whereby said pipe has communication with a supply-main, a valve-body secured to the outlet end of said pipe, having an outlet-passage terminating at one side of the axis of said pipe, a yoke-casing attached to the upper end of said valve-body, a yoke pivoted on said casing for vibratory motion thereon, having an arm extending over the outer end of said outlet-passage, a valve connected to said arm for movement against and from said valve-body at the outer end of said passage, and an operating-lever connected to said arm, combined and operating substantially as set forth.

2. A pipe-and-valve system for controlling the flow of liquids from supply-mains, and analogous purposes, comprising a stand-pipe, a connection on one end thereof whereby said pipe has communication with a supply-main, a valve-body secured to the outlet end of said pipe, having an outlet-passage terminating at one side of the axis of said pipe, a yoke-casing attached to the upper end of said valve-body, a yoke pivoted on said casing for vibratory motion thereon, having an arm extending over the outer end of said outlet-passage, a valve connected to said arm acting to open and close the outer end of said passage, and an operating-lever pivotally hung on said casing, and pivotally connected to said arm, combined and operating substantially as set forth.



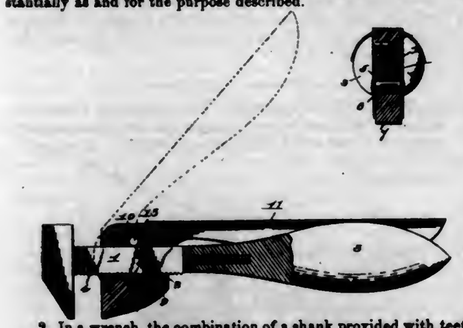
3. A pipe-and-valve system for controlling the flow of liquids from supply-mains and analogous purposes, comprising a stand-pipe, a connection on one end of said pipe, whereby the same has communication with a supply-main, a stuffing-box on the lower end of said connection, a valve-body secured to the outlet end of said pipe having an outlet-passage terminating at one side of the axis of said pipe, a longitudinally-perforated yoke-casing attached to the upper end of said valve-body, a stuffing-box on the outer extremity of said casing, a pipe for the reception of a heating element of less diameter than the interior of said stand-pipe extending through the latter and through each of said stuffing-boxes, a yoke pivoted on said casing for vibratory motion thereon, having an arm extending over the outer end of said outlet-passage, a valve connected to said arm acting to open and close the outer end of said passage, and an operating-lever pivotally hung on said casing, and pivotally connected to said arm, combined and operating substantially as set forth.

4. A pipe-and-valve system for controlling the flow of liquids from supply-mains, and analogous purposes, comprising a stand-pipe, a connection on one end thereof whereby said pipe has communication with a supply-main, a valve-body secured to the outlet end of said pipe, having an outlet-passage terminating at one side of the axis of said pipe, a yoke-casing attached to the upper end of said valve-body, a yoke pivoted on said casing for vibratory motion thereon, having an arm extending over the onter end of said outlet-passage, a valve connected to said arm for movement against and from said valve-body at the outer end of said passage, a pivoted fulcrum-link connected to said casing by one end, and a valve-operating lever pivotally hung on the free extremity of said link, and having one end pivotally engaging said arm, combined and operating substantially as set forth.

5. A pipe-and-valve system for controlling the flow of liquids from supply-mains, and analogous purposes, comprising a stand-pipe, a connection on one end thereof whereby said pipe has communication with a supply-main, a valve-body secured to the outlet end of said pipe, having an outlet-passage terminating at one side of the axis of said pipe, a yoke-casing attached to the upper end of said valve-body, a vent-orifice through the side of said casing, a yoke pivoted on said casing with variable pivot-points for vibratory motion thereon, having an arm extending over the outer end of said outlet-passage, a valve connected to said arm for movement against and from said valve-body at the outer end of said passage, a pivoted fulcrum-link connected to said casing by one end, and a valve-operating lever pivotally hung on the free extremity of said lever-support, and having one end pivotally engaging said arm, combined and operating substantially as set forth.

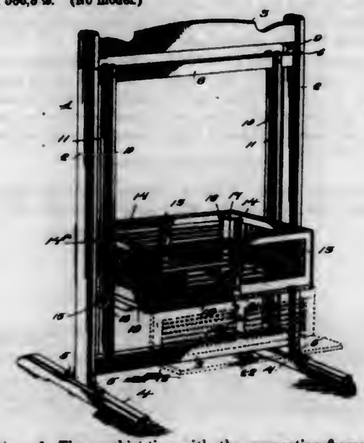
576,602. WRENCH. JOEL A. MCCAWLEY, Canton, Ky., assignor of one-half to G. W. Cobb, same place. Filed Sept. 28, 1896. Serial No. 607,317. (No model.)

Claim.—1. In a wrench, the combination of a shank provided with teeth, a fixed jaw arranged in one end of the shank, a sliding jaw mounted on the shank, a pivoted segment arranged within and carried by the movable jaw and provided at its curved edge with teeth for engaging those of the shank, said segment being journaled on and extended through the sides of the movable jaw, and an operating-lever provided with ears or extensions embracing the sides of the movable jaw and secured to and operating the said segment, substantially as and for the purpose described.



2. In a wrench, the combination of a shank provided with teeth, a fixed jaw, a movable jaw slidingly arranged on the shank and provided in front and in rear of the same with recesses, a pivoted segment mounted in the front recess of the movable jaw and provided at its curved edge with teeth, a pin located in rear of the shank and extending across the rear recess of the movable jaw in position for supporting the shank, and an operating-lever connected with the segment, substantially as described.

576,603. COMBINED CRADLE, SWING, AND CLOTHES-DRIER. WILLIAM E. MCMORDIE, Gatesville, Tex. Filed Apr. 9, 1896. Serial No. 586,849. (No model.)



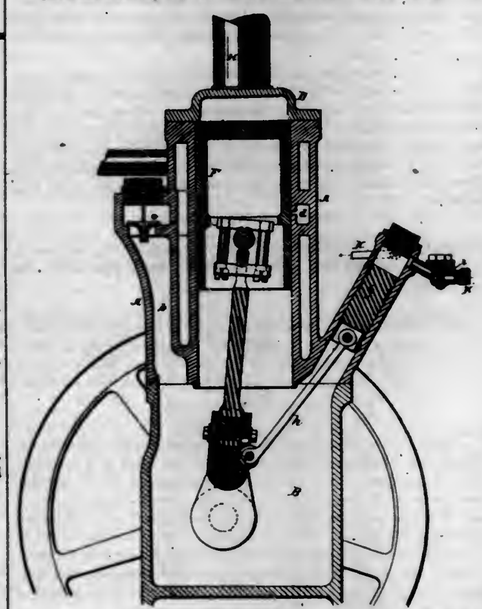
Claim.—1. The combination with the supporting-frame, of the swinging suspension-bars provided with the longitudinal slots extending substantially the entire length thereof, and a frame mounted between and carried by said suspension-bars and made adjustable longitudinally thereof, the said frame being composed of a number of hinged sections which may be adjusted to form either a cradle, swing or clothes-drier, substantially as described.

2. The combination with a supporting-frame, of swinging suspension-bars, a box-shaped frame adjustable up and down on said bars and consisting of bottom, side and end frames each comprising parallel wires or rounds, said frames being hinged together and adapted to be adjusted into the same or different planes to form either a cradle, swing or clothes-drier, substantially as described.

3. The combination with the supporting-frame, of the suspension-bars mounted to swing therein, the frames 12, 13 and 14 carried by said bars and having a hinged relation to each other, means for locking said frames in fixed relation to each other and in a common plane to form a clothes-rack, the parallel wires or rounds forming parts of said frames, and means whereby the said rack may be tilted to either a vertical or horizontal position and held, the same being arranged and adapted for use, substantially as described.

4. The combination with the supporting-frame, and the suspension-bars having a hinged connection therewith and formed with longitudinal slots, of an adjustable frame mounted between said bars and comprising the bottom sides and ends, the ends being hinged to the bottom and provided with the turn-buttons operating in the slots of the suspension-bars, all arranged substantially as and for the purpose described.

576,604. GAS-ENGINE. LEWIS H. MASS, South Norwalk, Conn., assignor to the National Meter Company, New York, N. Y. Original application filed May 22, 1890, Serial No. 352,736. Divided and this application filed Aug. 16, 1890. Serial No. 362,194. (No model.)



Claim.—1. In a gas-engine, in combination with a power-cylinder, a fuel-supply pump having an auxiliary chamber or clearance-space of sufficient capacity substantially to contain the full charge of the pump and means for maintaining the eduction-passage of the pump closed until the piston has substantially completed its forward stroke.

2. In a gas-engine, in combination with a power-cylinder, means for producing therein a compressed charge of atmospheric air and means for subsequently introducing therein a charge of suitable fuel and for cutting off the supply of said fuel at or before the instant of explosion.

3. In a gas-engine, in combination with a power-cylinder, means for introducing into said cylinder atmospheric air where it is compressed by the back stroke of the piston, a pump for compressing and introducing into said compressed air a suitable fuel and a governor controlling the passage from said pump to said power-cylinder.

4. In a gas-engine, in combination with a power-cylinder, means for introducing into said cylinder atmospheric air where it is compressed by the back stroke of the piston, a pump for compressing and introducing into said compressed air a suitable fuel; said pump having an auxiliary chamber or clearance-space of sufficient capacity to contain the full charge of the pump and a governor controlling the passage from said pump to said power-cylinder.

5. In a gas-engine, in combination with a power-cylinder, means for introducing into said cylinder atmospheric air under pressure to drive out the old charge, where said air is further compressed by the back stroke of the piston, a pump for compressing and introducing into said compressed air a suitable fuel and a governor controlling the passage from said pump to said power-cylinder.

6. In a gas-engine, the combination of the power-cylinder having air-supply valved passages *b* and *d* and an air-compression chamber B, the power-piston an auxiliary gas-compression cylinder and a piston working therein, a valve-controlled pipe *K* entering the latter cylinder, a pipe *k* connecting the two cylinders, a gas-supply valve *l* and a check-valve *l'* and the exhaust-valve *e*, the two pistons being connected to operate in the way described.

7. In a gas-engine, in combination, the power-cylinder having an inclosing air-compression chamber into which said cylinder opens, an air-inlet valve seated in one side of said casing and an auxiliary gas-compression cylinder on the other side of said casing, the power-piston, a piston for the auxiliary cylinder, the piston-rods connected

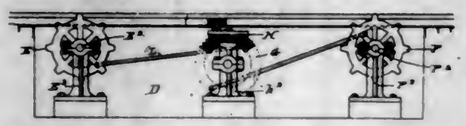
to each other and to the crank-shaft for effecting simultaneous compression in the two cylinders as stated.

8. In a gas-engine, in combination with a power-cylinder and a permanent igniter therein, means for producing therein a compressed charge of atmospheric air and means for subsequently introducing therein a charge of suitable fuel and for cutting off the supply of said fuel at or before the instant of explosion.

9. In a gas-engine, in combination with a power-cylinder and a permanent igniter therein, means for introducing into said cylinder atmospheric air where it is compressed by the back stroke of the piston, a pump for compressing and introducing into said compressed air a suitable fuel and a governor controlling the passage from said pump to said cylinder.

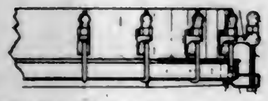
10. In a gas-engine, the combination of a power-cylinder, a passage *b* at the side of the latter in free communication therewith through which the charge of compressed air is supplied from the compression-chamber to the combustion-chamber, a valve *c* in the said passage controlled by varying pressures on its opposite sides, and a valve *l* controlled mechanically to control the entrance of the gaseous fuel under pressure to the combustion-chamber in the way described.

576,605. AUTOMATIC SWITCH FOR RAILWAYS. WILLIAM A. NEWTON, Camden, Ohio. Filed Jan. 4, 1896. Serial No. 574,352. (No model.)



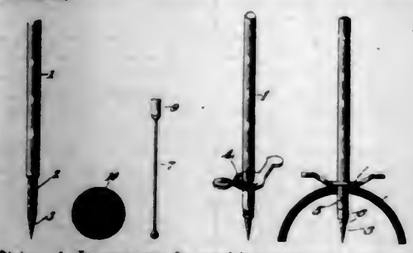
Claim.—In a switch-operating mechanism, of the character described, the combination with the rails of the track of a sprocket-wheel E, mounted on a shaft E^2 supported in standards E^3, another sprocket-wheel F mounted adjacent to the sprocket-wheel E upon a shaft F^2 supported in standards F^3, a beveled gear-wheel G mounted adjacent to the free end of the switch-plate, a beveled gear-wheel H, a rod L, eccentrically connected with the wheel E, and with the gear-wheel G, and a rod M, eccentrically connected with the sprocket-wheel F and with the gear-wheel G, all constructed and adapted to operate as set forth.

576,606. TAILPIECE FOR BANJOS OR VIOLINS. HENRY O. NICHOLS, Norwich, Conn. Filed May 25, 1896. Serial No. 593,015. (No model.)



Claim.—In a tailpiece for banjos a plate doubled upon itself to form parallel members that are mounted upon a rod secured to the banjo-head, the free end of said plate being provided with perforated posts all being combined substantially as and for the purpose specified.

576,607. TOOL FOR MENDING PUNCTURES IN BICYCLE-TIRES. JOSEPH OETTINGER and MINARD A. SCHUTT, Michigan City, Ind., assignors, by mesne assignments, to the New York Bicycle Equipment Company, of New York. Filed Aug. 26, 1895. Serial No. 560,615. (No model.)

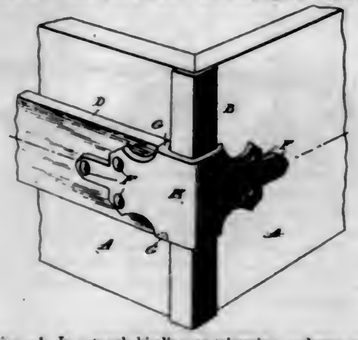


Claim.—1. In apparatus for repairing punctures in cycle-tires or the like, a guide-piece provided with a hollow part or tube having transverse apertures through its wall, substantially as specified.

2. In apparatus for repairing punctures in cycle-tires or the like, the combination with the hollow guide-piece provided with transverse apertures near one extremity, of a plunger provided with an enlarged end capable of being passed entirely through the hollow guide piece and into the tire to be repaired, substantially as specified.

3. In apparatus for repairing punctures in cycle-tires or the like, the combination with a hollow guide-piece provided with a flange at one end and with transverse apertures adjacent to its opposite end, of a penetrator-handle provided with a reduced pointed end designed to fit within and to project beyond the hollow guide-piece for inserting the latter in the puncture, and a reversible plunger provided with a rounded driving end and with a piston-head at its opposite extremity, substantially as specified.

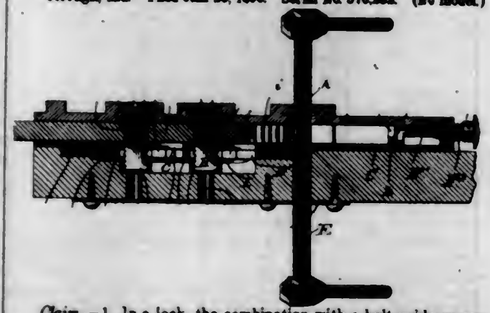
576,608. TRUNK-TRIMMING. DAVID OSTERWEIL, Newark, N. J., assignor of two-thirds to Levi Goldsmith and David Goldsmith, New York, N. Y. Filed Nov. 6, 1896. Serial No. 611,217. (No model.)



Claim.—1. In a trunk binding or trimming, a clamp comprising two wings arranged at substantially right angles to each other, and lug projections formed on the inner opposite edges thereof, at a sufficient distance from the angle formed in the said clamp for the said lugs to grasp the corner binding-strip, as well as the strengthening-slat adjacent thereto, substantially as described.

2. In a trunk binding or trimming, a clamp comprising two wings, arranged at substantially right angles to each other, lug projections formed on the opposite inner edges thereof, at a slight distance from the angle formed in said clamp, an internal shoulder on said clamp between said lugs and the said angle, substantially as described.

576,609. LOCK. WILLIAM C. OWINGS and ELIJAH CARTER, Jonesborough, Ind. Filed Jan. 20, 1896. Serial No. 576,232. (No model.)



Claim.—1. In a lock, the combination with a bolt-guide or casing and a bolt mounted to slide therein, said bolt and guide being provided with registering openings, of a lock-stud threaded in one of said openings and capable of axial movement to engage the other, a rotary tumbler mounted coaxially with the lock-stud, and means whereby rotary motion may be communicated from the lock-stud to the tumbler to adjust the latter, substantially as specified.

2. In a lock, the combination with a bolt-guide or casing and a bolt mounted to slide therein, said bolt and guide being provided with registering openings, of lock-studs threaded in one of said openings and capable of axial movement to engage the other, said lock-stud being provided with a terminal flattened ear or blade, and a rotary tumbler mounted coaxially with the lock-stud and provided with detents for engagement by the same, whereby rotary motion may be communicated from said stud to the tumbler to adjust the latter, substantially as specified.

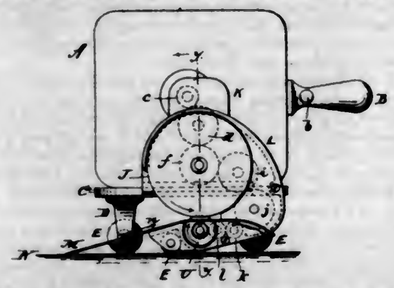
3. In a lock, the combination with a bolt-guide or casing and a bolt mounted to slide therein, said bolt and guide being provided with registering threaded openings, lock-studs threaded in said openings and adapted to engage one or both thereof, said studs being provided with terminal flat ears or bolts, tumblers mounted coaxially with the lock-studs and provided with central openings into which project detents which are thereby arranged in the paths of said ears or blades of the studs, said tumblers being provided with radial slots for registration with fixed slots in the casing, and means for communicating rotary motion to the studs, substantially as specified.

4. In a lock, the combination with a casing and a bolt mounted to slide therein, the bolt and casing being provided with registering threaded openings, of lock-studs mounted in said openings and provided with flat ears or blades, a fixed cap-plate provided with tumbler-seats and communicating alined slots, tumblers mounted in said seats and provided with radial slots for registration with the slots in the cap-plate, said tumblers being mounted coaxially with the studs and having central openings into which project detents for engagement by the ears or blades of the lock-studs, keys for engaging terminal key-seats on the lock-studs, and rotary dials adapted to receive motion from the keys to cooperate with fixed dials, substantially as specified.

5. In a lock, the combination with a casing, a sliding bolt, a lock-stud adapted to engage registering openings in the bolt and guide and capable of rotary movement, and a tumbler cooperating with the stud and adapted to be rotated to allow movement of the stud and release the bolt, of a key adapted to engage a terminal seat on the stud, and a rotary dial carried by and removable with the key, to cooperate with a fixed dial on the casing, substantially as specified.

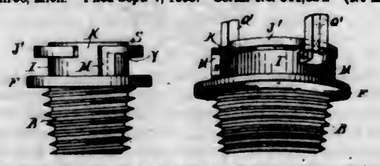
6. In a lock, the combination with a casing, a sliding bolt mounted therein, means for operating the bolt, and locking devices for securing the bolt in its extended position, of a catch consisting of a stem or shank fitted for longitudinal movement parallel with the direction of movement of the bolt and provided with an interior transverse finger and an exterior head, a transverse arm carried by the bolt for engagement by said finger when arranged either in front or in rear thereof, and provided with a notch to allow the arm to pass said finger, and a friction-spring interposed between the end of the casing and the head of the catch, substantially as specified.

576,610. CLOTH-CUTTING MACHINE. JOHN POHLSEN, Providence, R. I. Filed July 6, 1896. Serial No. 598,194. (No model.)



Claim.—In a cloth-cutting machine, the combination of an electric motor, the shaft F, rotatable by said motor and provided with the gear *c*, the shaft H, having the gear *d*, engageable with the gear *c*, the shaft I, having the cutter J and provided with the gear *f* and the gear *e*, the latter engageable with the gear *d*, the shaft O, having the gear *i*, engageable with the gear *f*, the shaft P, having the gear *j*, engageable with the gear *i*, the shaft Q, having the gear *k*, engageable with the gear *j*, the shaft R, having the gear *l*, engageable with the gear *k*, the shaft S, having the cutter U and provided with the gear *m*, engageable with the gear *l*, said cutters being arranged to lie with their cutting edges in contact and to be rotatable in directions opposite to each other, substantially as shown.

576,611. TAP OR BUNG-HOLE BUSHING. EDWARD C. POST, Monroe, Mich. Filed Sept. 7, 1895. Serial No. 561,834. (No model.)



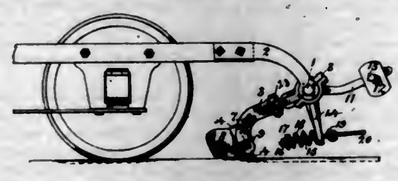
Claim.—1. A tap or bung-hole bushing for making a tight coupling connection, having a threaded body B adapted to be screwed into a barrel or package, and an upper extension I, provided with a laterally-projecting flange J', said flange constructed with a recess Y projecting upward on its under edge to engage a coupling device and hold the said device from turning in either direction on the bushing, and a stop adjacent to said recess, substantially as set forth.

2. The combination of a tap or bung-hole bushing having a threaded body adapted to be screwed into a barrel or package, and an upper extension I, provided with a laterally-projecting flange J', formed with recesses Y projecting upward on its under edge, and a coupling device extending downward in under said flange and upwardly engageable in said recesses, said flange provided with stops adjacent to said recesses to limit the movement of the coupling device and cause it to register with said recesses in engaging the coupling device with the flange of the bushing, substantially as and in the manner described.

3. A tap or bung-hole bushing for making a tight coupling connection, having a threaded body B adapted to be screwed into a barrel or package, provided with a flange F and an upper extension I provided with a laterally-projecting flange J', said latter flange constructed with recesses Y projecting upward on its under edge to engage a coupling device, and with stops M extending downward from the lower face of the flange J' to the flange F adjacent to said notch to limit the movement of the coupling device and cause it to register with said recesses in engaging the coupling device with the flange of the bushing, substantially as and in the manner described.

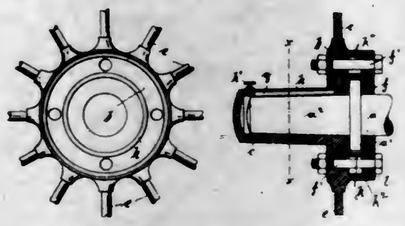
4. A tap or bung-hole bushing for making a tight coupling connection, having a threaded body B adapted to be screwed into a barrel or package, and an upper extension I provided with a laterally-projecting flange J', said flange constructed with a slot K to admit the dog or jaw of a coupling to pass therethrough and be turned under the flange and enter recesses Y on its under side, said bushing provided with stops below said flange adjacent to said recesses to limit the movement of said dogs or jaws, substantially as set forth.

576,612. RAILWAY-TRACK CLEANER. MICHAEL POWER, Toronto, Canada. Filed May 25, 1896. Serial No. 592,919. (No model.)



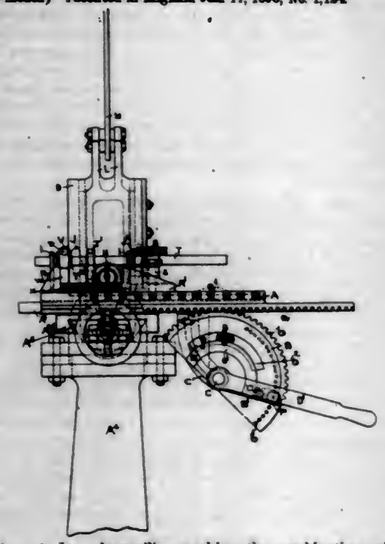
Claim.—As a track-cleaning device, the combination of a rocker-shaft carried in hangers on the truck-frame, by its ends, curved arms secured on said rocker-shaft at points over the rails of the track, a tool adapted to clear the rail-groove and adjustable in the lower end of each of said curved arms, a shovel having rearwardly-inclined wings clamped to said curved arms, a counterweight-arm and weight extending from the opposite side of the rocker-shaft to disengage said tools from the track, an arm hanging downward from said rocker-shaft, a spring encircling a bolt through the lower end of said hanging arm and means as provided to connect said bolt with a secondary brake-mast to operate the rocker-shaft and engage the tools with the track substantially as shown and described.

576,613. LUBRICATING DEVICE. AUGUST REIMANN, Friedrichsberg, Germany. Filed Jan. 9, 1896. Serial No. 574,897. (No model.)



Claim. In combination, the axle having the shoulder *a'* and the hub having an oil-box, and provided on its inner face with concentric flanges with an annular space between them, the said inner flange being close to the periphery of the shoulder *a'* and the outer flange being more extended and having a shoulder, the rubber disk fitting against the edge of the inner flange and against the shoulder of the outer flange, the plate *f* fitting against the rubber disk, and the holding-bolts extending through the disk and the plate and through the annular space between the flanges, substantially as described.

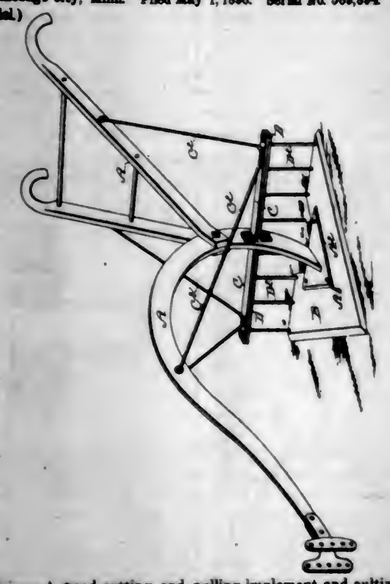
576,614. MACHINE FOR CUTTING DOVETAILS, &c. JAMES R. ENKARD, London, England. Filed Mar. 16, 1896. Serial No. 583,300. (No model.) Patented in England Jan. 17, 1895, No. 1,124.



Claim.—1. In a dovetailing-machine, the combination, with a stationary plate and two arms J and J' carried thereby and forming a V-shaped guide, of an oscillatory plate E, a pin *e* pivoting the plate E to the said stationary plate at a point below the apex of the V-shaped guide, a saddle provided with a bearing engaging with the said arms, said saddle being slidable on the plate E, and a revolubl̀e spindle journaled in the said bearing and provided with a cutter-bit for cutting dovetails, substantially as set forth.

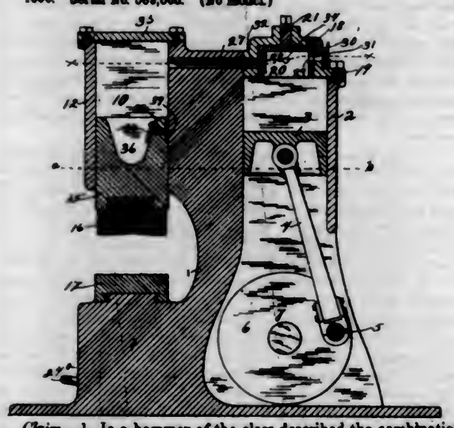
2. In a dovetailing-machine, the combination, with a slidable table for supporting the work, and a toothed rack secured thereto; of a stationary plate provided with equidistant holes, a second stationary plate provided with irregularly-spaced notches, an oscillatory toothed quadrant gearing into the said rack, and two separate locking devices carried by the said quadrant and arranged to engage with the said holes and notches respectively, substantially as set forth.

576,615. WEED-CUTTER AND CULTIVATOR. ADOLPH ROESCH, Winnebago City, Minn. Filed May 1, 1896. Serial No. 589,894. (No model.)



Claim.—A weed cutting and pulling implement and cultivator, comprising a beam, handles secured thereto, a triangular weed-cutting plate B, detachably secured to the lower end of the beam, two braces C, C, secured to the beam and extended laterally in opposite directions above the rear end of the plate two or more vertical rods D^3 fixed to the plate and brace on each side and braces C^3 secured to the outer ends of said braces C, and to the beam and handles, substantially as and for the purposes stated.

576,616. POWER-HAMMER. JOHN G. ROSEMAN, Massillon, Ohio, assignor of one-half to Ernest F. Diehm, same place. Filed Apr. 25, 1896. Serial No. 589,063. (No model.)

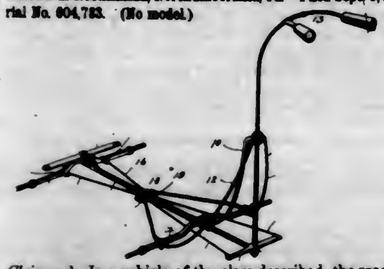


Claim.—1. In a hammer of the class described the combination of a bed or base provided with a hammer-chamber, reciprocating hammer-head therein and a piston-cylinder, a reciprocating piston therein, a valve-chamber communicating with the piston-cylinder and provided with a vent, and an opening 30, a valve for said opening, a valve in said valve-chamber provided with ports 26, 28, 29 and 34, a valve 32 for the port 28, the passage connecting the valve-chamber and hammer-chamber, the hammer-head having a recess in its upper end, and a side recess 39, a port connecting said recesses, and a valve for said port, substantially as set forth.

2. The combination of a bed or base provided with a hammer-chamber, a reciprocating hammer therein, and a piston-cylinder, a reciprocating piston therein, the passage connecting said hammer-chamber and piston-cylinder, the valve 30 in said passage provided with the ports 26, 28, 29, the vent 33 and the valve 32, and the valve-casing having the port 34, opening 30 and valve 31, substantially as and for the purpose set forth.

3. In a hammer of the class described a piston-cylinder, a reciprocating piston therein, a hammer-cylinder, a reciprocating hammer-head therein having a recess in its upper end and a side recess, a port connecting said recesses, a valve 38 for said port, an air-passage leading from the hammer-cylinder to the piston-cylinder, a valve in said passage and means for operating said valve, substantially as and for the purpose set forth.

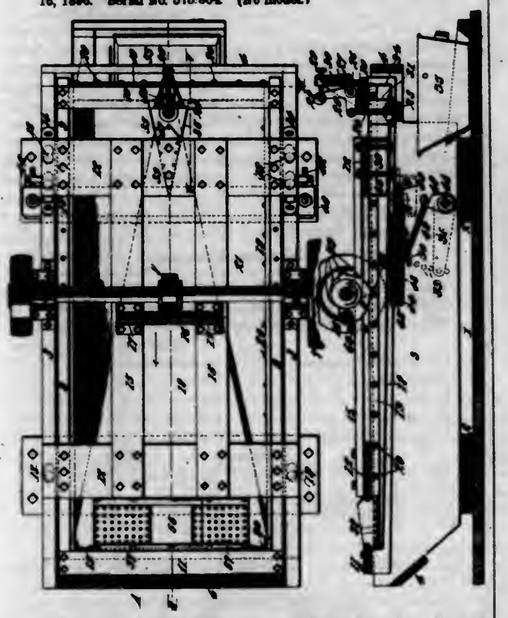
576,617. GUIDING ATTACHMENT FOR BABY-CARRIAGES. GEORGE L. ROTHARMEL, Northumberland, Pa. Filed Sept. 3, 1896. Serial No. 604,783. (No model.)



Claim.—1. In a vehicle of the class described, the reach-bar extended in rear of the rear axle and provided with an eye-bearing, in combination with a rearwardly and upwardly curving brace connected to the reach-bar and provided with an eye-bearing above the bearing in said reach-bar, oblique braces extending from the aforesaid brace to the rear axle, a guiding-rod journaled in said eye-bearings and having a handle-bar with grips at its upper end, a cross-piece rigidly attached to the lower end of said guiding-rod, connections extending from the ends of said cross-piece to the front axle and rollers supported by the reach-bar, intermediate the axles, over which the connections work, all combined and arranged substantially as described.

2. In a vehicle of the class described, the reach-bar extended back of the rear axle and provided at its rear end with an eye-bearing, in combination with a steering-rod journaled therein and provided at its upper end with a handle-bar and grips, a cross-piece rigidly secured to the lower end of said guiding-rod, connections between the opposite ends of said cross-piece and the front axle, and a bracket on the reach-bar intermediate the axles, said bracket having spaced rollers between which said connections run, whereby said connections are held inward in proximity to the reach-bar, substantially as and for the purpose described.

576,618. ORE-CONCENTRATOR. ALBION M. ROUSE, Denver, Colo., assignor to the Miners Relief Association, same place. Filed Jan. 16, 1896. Serial No. 575,804. (No model.)



Claim.—1. In an ore-concentrator, the combination of a pan mounted in a movable frame, means for vibrating said pan in the direction of its length, a discharge-valve at one end of the pan, and a V-shaped plate located at the valve end of the pan and having openings 38; said pan having sloping sides providing a flat bottom that diverges to said valve, and said V-shaped plate extending onto the flat bottom of the pan, substantially as set forth.

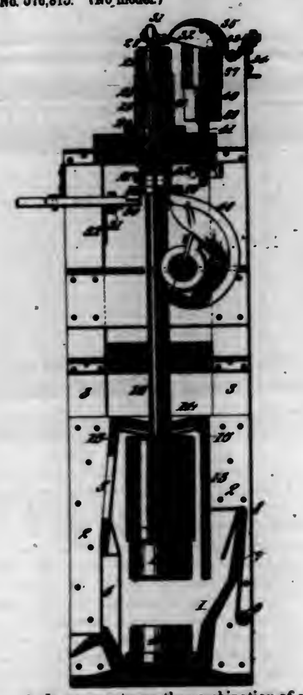
2. In an ore-concentrator, the combination of a base having side pieces, a pan mounted in a movable frame located between the side pieces of the base, cross-pieces secured to the pan-frame, ball-bearings between said cross-pieces and the side pieces of the base, a cam for moving said pan in one direction and formed to impart to the pan a number of short jars and then a long and severe jar, a spring for moving the pan in the other direction, and a valve located at one end of the pan and provided with means for automatically opening and closing it, said pan having sloping sides providing a flat bottom that diverges toward said valve, substantially as set forth.

3. In an ore-concentrator, the combination of a main frame, a supplemental frame movably mounted on the main frame, a pan carried by the supplemental frame formed with inclined and converging sides at one end, a partition provided with openings located in that end of the pan for forming a trough, an opening in the bottom of the pan and a V-shaped deflector provided with openings, inclosing said opening and means for intermittently moving the supplemental frame in one direction and means for returning the frame to produce a jarring of the pan; substantially as shown and described.

4. In an ore-concentrator, the combination of a main frame, a supplemental frame movably carried by the main frame, a pan provided with two outlet-openings carried by the supplemental frame, and means for imparting to the supplemental frame a series of short movements and then a long one consisting of a roller carried by the supplemental frame and a cam bearing against the roller and formed with a series of offsets 59 and a point 60, means for drawing the frame in the opposite direction and means to produce a jarring of the same, substantially as shown and described.

5. In an ore-concentrator, the combination of a main frame, a supplemental frame movably mounted on the main frame, a pan carried by the supplemental frame formed with inclined and converging sides, an opening in the pan, an automatic valve for said opening, a weighted bell-crank lever for said valve adapted to be operated as the supplemental frame is vibrated, and suitable means for vibrating the said frame, substantially as shown and described

576,619. ORE-STAMP. ALBION M. ROUSE, Denver, Colo., assignor to the Miners Relief Association, same place. Filed Jan. 25, 1896. Serial No. 576,815. (No model.)



Claim.—1. In an ore-stamp, the combination of a mortar having side flanges secured to upright posts and having front and rear walls, a bent splash-plate hooked over the rear wall and held in place by a weight, a stamp working within the mortar and means for operating the same, substantially as shown and described.

2. In an ore-stamp, the combination of a mortar, a stamp located within the mortar, means for operating the stamp, and a splash-plate provided with a weight 9; said mortar having flanges secured to upright posts, and said splash-plate being hooked over the rear wall of the mortar, substantially as set forth.

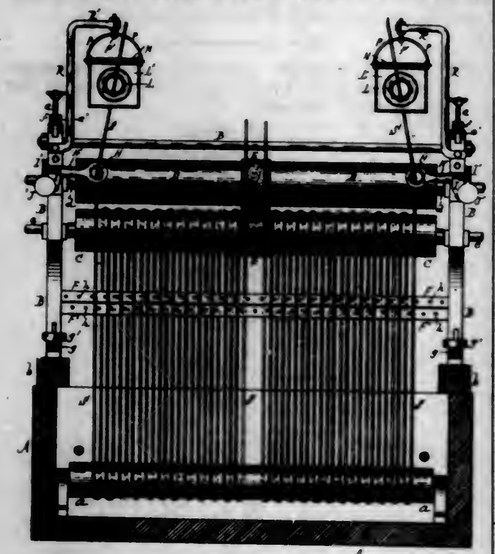
3. In an ore stamp, the combination of a mortar, a stamp arranged within the mortar, a sectional sleeve adapted to receive the stem of the stamp and being provided with feathers, a loosely-supported bushing through which said sleeve passes and which is provided with grooves to receive said feathers, bolt and nuts for clamping the lower end of the sleeve to the stem, a ring fitting over the upper end of the stem, a cushion 30 within the ring, a plug fitting within the upper end of the sleeve, and a spring-actuated lever connected to said plug, substantially as set forth.

4. In an ore-stamp, the combination of a mortar, a stamp located within the mortar and having a stem, a lever 32 having a hinge connection 31 with the stem and a hinge connection 33 with the frame, means for lifting the stamp and means for forcing the stamp down consisting of a head pivoted to the lever 32, an adjustable head 39, and springs 38, substantially as shown and described.

5. In an ore-stamp, the combination of a mortar, a stamp located within the mortar and provided with a stem, a sectional sleeve with which said stem has threaded connection, means for clamping the sleeve to the stem, a loose-turning bearing for said sleeve, and a head formed thereon on its lower end, a cam for engaging said head to raise the stamp, and means for forcing the stamp down consisting of springs 38 which have a connection with said stem; substantially as set forth.

6. In an ore-stamp, the combination of a spring-actuated lever, and a connection between the lever and the stem of the stamp consisting of a stem 28, a plug 27, a sleeve 19 having feathers 23, and a bushing 24 supported by timbers 25, substantially as set forth.

576,620. APPARATUS FOR BLEACHING, &c. HENRY ROWE, Lewiston, Me. Filed Nov. 25, 1896. Serial No. 613,401. (No model.)



Claim.—1. In a bleachery washing-machine, a water-trough; a frame supported thereby; a horizontal roll supported by and within the trough; a pair of parallel squeezing-rolls supported by the frame above and substantially parallel with the roll in the trough, said squeezing-rolls being provided centrally with elastic bands E for pressing the moisture from the fabric before it leaves the machine; and suitable means for introducing the strands of fabric to the trough and guiding them to the squeezing-rolls, substantially as described.

2. In an apparatus of the character described, the combination with the frame, lower roll within the trough and squeezing-rolls supported by the frame; of a pair of substantially horizontal rails supported by the frame between the squeezing-rolls and the trough, both provided with horizontally-extending guide-pegs between which the strands of fabric pass, and the upper of said rails being arranged to be adjusted longitudinally and horizontally with relation to the lower rail, substantially as set forth.

3. In an apparatus of the character described, the frame; supporting-rods R extending from opposite ends thereof and bent into substantially horizontal portions R'; the bails P swiveled to said portions R' so as to rotate horizontally; and frames swung from the lower ends of said bails and provided with guide-eyes through which the strands of fabric pass to the apparatus, substantially as described.

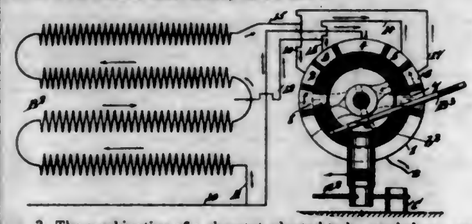
4. In an apparatus of the character described, the frame; supporting-standards extending therefrom; swiveled supports depending from said standards and adapted to be rotated in a horizontal plane; and frames supporting guide-eyes through which the strands of fabric are introduced to the apparatus, said frame swinging vertically from said swiveled supports, substantially as set forth.

5. In an apparatus of the character described, the combination with the frame; of the horizontal brackets I, the worm J supported thereby, and the straining-eyes H provided with shanks H' rotatively supported by the brackets and having their outer ends formed with gear-wheels which are engaged by said worms, substantially as described.

576,621. ELECTRIC SWITCH. MAXIMILIAN SCHALSCHA, Hoboken, N. J. Filed Feb. 20, 1896. Serial No. 580,068. (No model.)

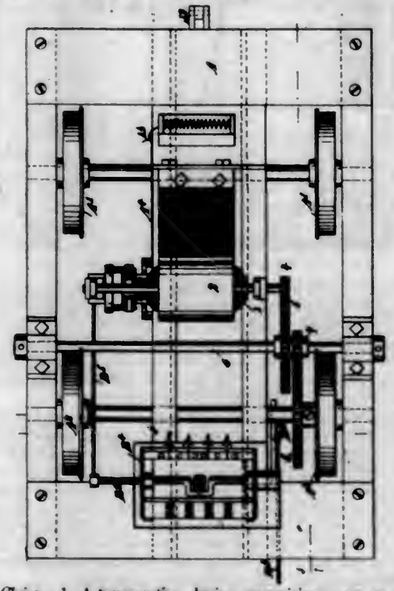
Claim.—1. A switch adapted to be carried by a moving device to regulate the current through a motor for said moving device, comprising a switch in the electric circuit and having a series of contact-plates, a switch-arm for closing the circuit through the plates, a rotary shaft on which said arm is mounted, a rotary shaft having gear connection with the arm-carrying shaft, and arms extended radially from the last-named shaft, substantially as specified.

2. The combination of a switch device adapted to be carried on a car to control the motor thereof and comprising series of contacts and a switch-arm to play on the same, a shaft also adapted to be carried on the car and having an arm, pins located on the track in the path of said arms and arranged to engage and move the same, and gearing between the shaft and the contact-arm to drive the latter from the former, substantially as set forth.



3. The combination of a rheostat adapted to be carried on a car and having a series of coils or equivalent devices, a switch device also adapted to be carried on the car and comprising a part having contact-plates and a switch-arm to traverse said plates, a circuit connection for the switch-arm, the other contact-plates of the switch device being formed into correspondingly-arranged series and similarly-located plates in the respective series being similarly connected to the coils of the rheostat and arranged to place said coils in circuit with the motor on the car whereon the device is carried, a shaft geared to the switch-arm and provided with arms, and pins located along the track in the path of the arms on the shaft, to turn the shaft and actuate the switch device, substantially as set forth.

576,622. ELECTRIC LOCOMOTIVE AND RAILWAY SYSTEM THEREFOR. MAXIMILIAN SCHALSCHA, Hoboken, N. J. Filed Feb. 20, 1896. Serial No. 580,069. (No model.)



Claim.—1. A transporting device, comprising a car, an electric motor thereon, an electric-current conveyer on the track-bed, a trolley having connection with said conveyer, an arm extended from said trolley and having a longitudinal slot, a hanger on the car-truck, having a pivot extended through said slot, and a connection between said hanger and the motor, substantially as specified.

2. An electrical locomotive having a truck, a motor carried by the truck, contact devices capable of leading the current in opposite directions to the field-magnets of the motor, a rock-shaft, a contact-frame carried on the rock-shaft and cooperating with the said contact devices, means for operating the rock-shaft, switch mechanism by which the degree of the current flowing to the motor may be regulated, and a connection between said switch mechanism and the rock-shaft, substantially as described.

3. In an electrical locomotive, the combination with a truck, of an electrical motor, switch mechanism capable of regulating the degree of the current applied to the motor, contact devices capable of changing the direction in which the current flows to the motor, and a connection between the switch mechanism and the contact devices by which they may have synchronous operation, substantially as described.

4. In an electrical locomotive, the combination with a truck, of a motor, switch mechanism capable of regulating the degree of the current applied to the motor, contact devices capable of changing the direction in which the current flows to the motor, a connection between the switch mechanism and the contact devices by which the two may have synchronous operation, and means for operating the switch mechanism and contact devices, substantially as described.

5. In an electrical locomotive, the combination with a truck, of a motor, switch mechanism capable of regulating the degree of the current flowing to the motor, detent-operated gearing for actuating said switch mechanism, a mounted pin moving in unison with the gearing, contact devices capable of regulating the direction in which the current flows to the motor, a rod connected to said contact devices and extending to the said pin, the rod being periodically engaged by the pin, and means for operating the contact devices, substantially as described.

6. In an electrical locomotive, the combination with a truck, of a motor, a rheostat, a switch cooperating with the rheostat whereby the degree of the current supplied to the motor is regulated, a shaft connected with the switch, an arm carried by the shaft and capable of being engaged to turn the shaft, contact devices capable of changing the direction in which the current flows to the motor, a rod moved by the operation of the contact devices, and a pin carried by the shaft in connection with the switch, the pin being capable of engagement with the rod, substantially as described.

7. The combination with a car having doors at its sides, the doors being hinged on horizontal axes, of a rock-shaft mounted longitudinally on the car, a vertically-sliding trip-rod, a bell-crank lever fixed to the rock-shaft and having one arm engaged by the trip-rod, a connecting-link attached to one door, and a flexible connection attached to the link and having rolling connection with the remaining door, the flexible connection being also connected with the bell-crank lever, substantially as described.

8. The combination of a supported hanger, a trolley and a longitudinally-slotted arm carrying the trolley, the arm being pivotally connected with the hanger through the medium of the slot and the arm being capable of movement vertically and laterally so as to extend downwardly and laterally from either side of the hanger, substantially as described.

9. A railway-track having a plurality of tripping-arms and two plates supported on the track, the plates having the tripping-arms adjustably held between them and the tripping-arms extending upwardly from the plates, substantially as described.

10. An electrical device having a motor, contact devices capable of regulating the direction in which the current flows to the motor, switch mechanism regulating the degree of the current applied to the motor, a mechanical connection between the switch mechanism and the contact devices, and capable of transmitting operative movement from one to the other and independent means for directly operating the switch mechanism and contact devices, substantially as described.

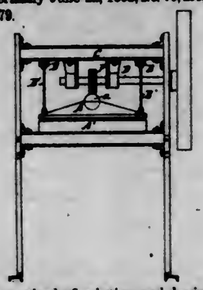
11. The combination of an electrical device, switch mechanism capable of regulating the degree of the current applied to the electrical device, contact devices capable of changing the direction in which the current flows to the electrical device, the switch mechanism and contact devices being independent of each other and independently operative, a mechanical connection between the switch mechanism and the contact devices, and independent means respectively for operating the switch mechanism and contact devices, substantially as described.

12. The combination of an electrical motor, means capable of regulating the degree of the current applied to the motor, additional means capable of changing the direction in which the current flows to the motor, a mechanical connection between the two means, and two independent operating mechanisms respectively for the means for regulating the degree of the current and the means for changing the direction in which the current flows, substantially as described.

13. The combination of an electrical device, automatically-operative means capable of regulating the degree of the current applied to the electrical device, additional and automatically-operative means capable of changing the direction in which the current flows to the electrical device, and a mechanical connection between the two means and capable of giving them synchronous operation, substantially as described.

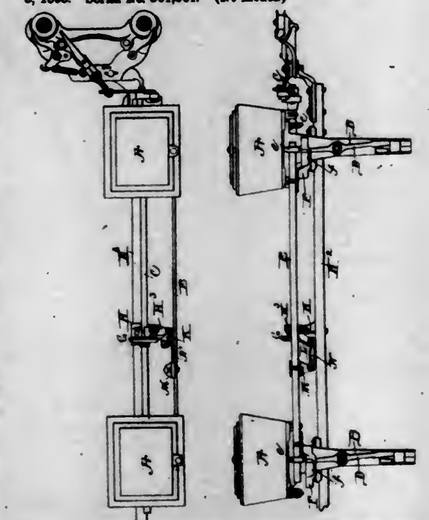
14. A railway system having a track, a vehicle movable on the track, an electrical motor on the vehicle, contact devices capable of regulating the direction in which the current flows to the motor, switch mechanism regulating the degree of the current applied to the motor, a mechanical connection between the switch mechanism and contact devices, the mechanical connection being capable of transmitting operative movement from one to the other, two independent means respectively for directly operating the switch mechanism and contact devices, and projections carried by the track and capable of engaging said independent means, substantially as described.

576,623. PROCESS OF PRINTING AND DYEING FABRICS. FRANÇOIS SCHREURS, Brussels, Belgium. Filed Dec. 7, 1895. Serial No. 571,410. (No specimens.) Patented in Belgium June 18, 1892, No. 100,153; in Germany June 22, 1892, No. 70,498, and in England Oct. 24, 1892, No. 19,079.



Claim.—The method of printing and dyeing fabrics consisting in forming a stencil of sensitized gelatin on a tulle support, the gelatin being dissolved away in the parts which are required to be open and being rendered permeable to various degrees according to the depth of the shade required to be communicated to the various parts of the fabric, applying said stencil to the fabric, applying to the back of the stencil a spongy material charged with the coloring liquid and causing said liquid to pass through the stencil and impregnate the fabric by pressure forcibly applied and immediately removed.

576,624. CORN-PLANTER. JAMES SELBY, Peoria, Ill. Filed Sept. 3, 1896. Serial No. 581,381. (No model.)



Claim.—1. In a corn-planter, a revolving shaft and seed-plates operated thereby, a reciprocating bar operating valves in seed-shanks under said seed-plates, a bevel cog-wheel on said revolving shaft, a bevel cog-wheel suitably supported and meshing therewith, a cam-plate operated by such gear connection and a connecting-link between the cam and the reciprocating bar, all substantially as described and shown.

2. In a corn-planter, having seed-hoppers with seed-plates therein and seed-tubes having valves therein, a revolving shaft operating the plates and a reciprocating bar operating the valves, a cam-plate supported upon a short shaft at right angles with the said revolving shaft and connected with the bar by means of a pivoted link and matching gears upon the seed-disk-operating shaft and the shaft that supports the cam, all substantially as described and shown.

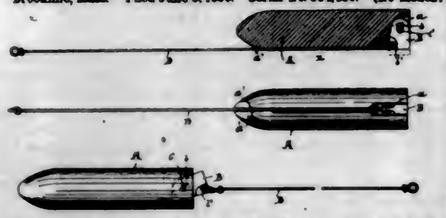
3. In a corn-planter, the combination, with a revolving shaft for operating the seeding devices and a reciprocating bar for operating the valves in seed-tubes, of a cam-plate pivotally connected by means

of a link with the reciprocating bar and connected with the revolving shaft by means of suitable gear-wheels, all substantially as described and shown.

4. In a corn-planter, having seeding devices operated by a revolving shaft and seed-tubes having valves therein operated by a reciprocating bar, a cam-plate made in two parts, adjustable the one upon the other, carried upon a short shaft bearing at right angles with the shaft that operates the seeding devices, and connected with a reciprocating bar by means of a link, pivoted to a projection from the bar and eccentrically upon the cam-plate and matching bevel-gears upon each of the shafts, all substantially as described and shown.

5. In a corn-planter, a revolving shaft for operating seed-plates, a reciprocating bar for operating valves in seed-shanks under seed-plates, provided with slotted portions near its extremities for loose engagement of the upper ends of said valves, a cam-plate on a short shaft at right angles with the shaft that operates the seed-plates and connected with the reciprocating bar by means of a link, and matching bevel-gears upon each of the shafts, all substantially as described and shown.

576,625. **PROJECTILE FOR CARRYING LIFE-LINES.** WILLIAM P. SHAW, Boston, Mass., assignor of one-half to John Shearman, Brookline, Mass. Filed June 3, 1896. Serial No. 594,159. (No model.)



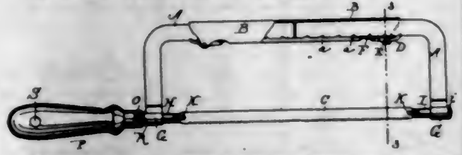
Claim.—1. A projectile for carrying life-lines, consisting of a body having a recess at its rear end, a hinged or pivoted breech-block fitted in said recess and a rod attached to said hinged or pivoted breech-block, substantially as set forth.

2. A projectile for carrying life-lines, consisting of a body having a longitudinal groove and a rod fulcrumed to the rear end of the body and fitting into said groove and extending beyond the mouth of the gun, substantially as set forth.

3. In a projectile for carrying life-lines, a body having a hinged or pivoted breech-block fitted in its rear end, said block being formed with an elongated hole, and secured to the body by a pin, in combination with a rod attached thereto, substantially as and for the purposes set forth.

4. In a projectile for carrying life-lines, a body A, having a recess *a* at its rear end, and a longitudinal groove extending from said recess to its front end, in combination with a hinged or pivoted breech-block B, having an elongated hole *b*, at its upper end, and a hole *b'* at its lower front end, said block being held to the body by a pin C, and a rod D attached to its lower front end, substantially as and for the purposes set forth.

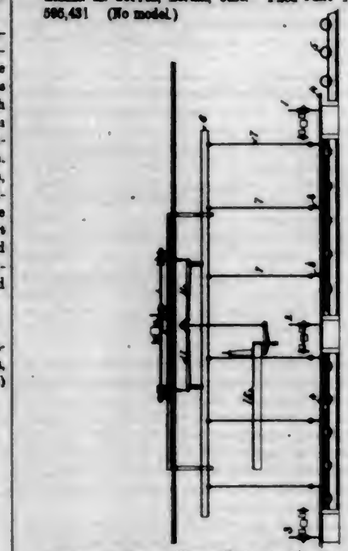
576,626. **HACK-SAW.** LAROY S. STARRETT, Athol, Mass. Filed May 28, 1895. Serial No. 551,022. (No model.)



Claim.—1. In a hack-saw, the back or frame having terminal sockets G G, alined with each other and with the saw-blade, and holders H I therein, provided with studs K to hold the ends of the saw C, in combination with spring-pressed plungers M working in longitudinal recesses in the holders and overlapping the saw ends to prevent premature detachment, substantially as set forth.

2. The saw-frame and its alined sockets G, and the saw end holders and fasteners described, consisting of the parts H I cut away to the axis and provided with the studs K, to afford a flat seat and firm holder for the saw-blade, in combination with the reciprocating plunger M, beveled at its tip where it overlaps the saw end, the spring L held in a recess in the parts H I and acting on the plunger M, and with the transverse pin N entering a groove in the plunger to keep it from rotation but permit longitudinal movement, substantially as set forth.

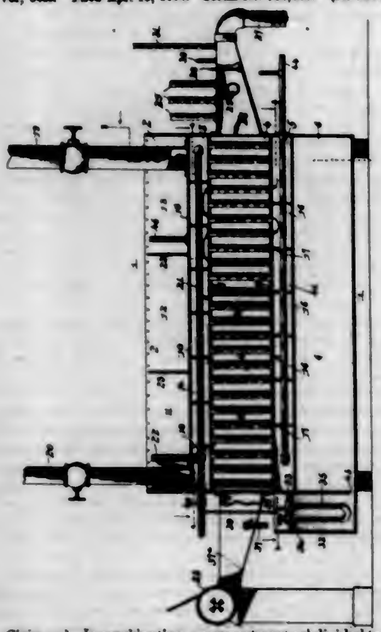
576,627. **WEIGHING DEVICE FOR ROLLING-MILLS.** MAXIMILIAN M. SUPPES, Lorain, Ohio. Filed June 13, 1896. Serial No. 595,431. (No model.)



Claim.—1. In a rolling-mill, in combination, a beam supported above the path of the rail or bar while on its way from the rolls to the hot-bed, members depending from said beam and adapted to engage the rail or bar, means for causing said depending members to lift and support the rail, and suitable weighing mechanism connected with said beam whereby the weight of the rail may be determined.

2. A weighing device for rolling-mills, comprising a beam extending above the path of the rail or bar, members depending from said beam and adapted to engage the rail, suitable scale-levers supporting said beam, vertically-movable fulcra for said levers and mechanism adapted to raise said fulcra.

576,628. **WATER AND AIR HEATER.** BARDEN W. TAYLOR, Denver, Colo. Filed Apr. 15, 1896. Serial No. 587,653. (No model.)



Claim.—1. In combination, a compartment subdivided to provide a series of communicating settling-basins, a compartment immediately below the settling-basins and in communication with the last settling-basin of the series, means for circulating exhaust-steam or other waste-heat product through the lower compartment, and a coil of pipe located within the lower compartment and having communication with the first settling-basin of the series, substantially as and for the purpose set forth.

2. In combination, upper and lower compartments, baffle-plates subdividing the lower compartment into a series of chambers, means for passing exhaust-steam or other waste-heat product through each of the said chambers, and a coil of pipe located in the lower compartment and supported and held in place by passing through openings in the said baffle-plates, and having one end in communication with a water-supply, and having its opposite end opening into the upper compartment, substantially as set forth.

3. In combination, an upper compartment subdivided into a series of settling-basins, a lower compartment in communication with the last settling-basin, an upper and a lower coil of pipe confined between the upper and lower compartments, the upper coil of pipe extending into the first of the series of settling-basins, and means for circulating or passing exhaust-steam or other waste-heat product through the inclosure formed between the upper and lower compartments, substantially as and for the purpose set forth.

4. In combination, a compartment, a bank of flues or pipes located in the compartment, baffle-plates subdividing the said compartment, independent means for passing air and exhaust-steam through the said compartment, and a separator in communication with the lowest point of the said compartment to receive the water of condensation and remove the oil therefrom, substantially as set forth.

5. In combination, a compartment having its bottom inclined toward a given point, baffle-plates subdividing the compartment into a series of chambers and having their lower edges arranged a short distance from the bottom of the compartment, a separator in the plane of the compartment, and a pipe communicating with the lowest point of the compartment and having a trap located in the separator, substantially as and for the purpose set forth.

6. In an apparatus for converting exhaust-steam into motive power and utilizing other waste-heat products of boiler-furnaces and engines, the combination of a compartment subdivided into a series of settling-basins, a second compartment disposed contiguous to the first-mentioned compartment, a coil of pipes located in the second compartment and opening into the first compartment, and means for circulating exhaust-steam through the second compartment and around the coil of pipes therein, substantially as set forth for the purpose described.

7. In combination, a water-compartment, a separator contiguous to and having communication at its lower end with the compartment, a second compartment placed above the first compartment and adapted to have the exhaust-steam passed therethrough, a trap located in the separator and communicating with the second compartment and receiving the water of condensation therefrom, and means for supplying a blast of air to the separator to facilitate the separation of the oil and aerate the condensed water, substantially as and for the purpose set forth.

8. In combination, a settling-compartment, a water-compartment located below the settling-compartment and in communication therewith, an intermediate compartment subdivided by baffle-plates, means for passing exhaust-steam through the intermediate compartment, a coil of pipe in the intermediate compartment and communicating with the settling-compartment, a separator in communication with the water-compartment, and a float operated by the change of water-level in the separator to open or close a controlling-valve in the aforesaid coil of pipe, substantially as and for the purpose set forth.

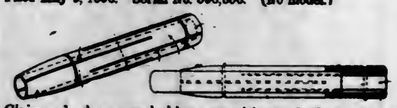
9. In combination, a settling-compartment, a steam-compartment to receive the exhaust-steam, a water-compartment, a separator in communication at its lower end with the water-compartment and having connection with the settling and the steam compartments, a trap located in the separator and adapted to have the water of condensation passed therethrough, a coil of pipe extending through the steam-compartment and opening into the settling-compartment, and having a faucet in its length, and a float operating in the separator and adapted to control the faucet to regulate the supply of water to the settling-compartment, substantially as set forth.

10. The herein-described apparatus for utilizing exhaust-steam and similar waste products, the same embodying in its organization a middle compartment supplied with a vertical set of flues, a fan communicating with one end of the said compartment, a collector having connection with the opposite end of the said compartment and provided with a cut-off and branch pipes, a second compartment placed above the first compartment and subdivided into a series of steam chambers by vertically-arranged baffle-plates, a third compartment placed below the first compartment and subdivided by various baffle-plates into a series of steam-chambers, the baffle-plates of the third compartment alternating in position with the baffle-plates of the second compartment and having a space at their lower edges, a coil of pipe in the third compartment, a fourth compartment placed above the second compartment and subdivided into a series of communicating settling-chambers, a coil of pipe located in the second compartment and leading into the fourth compartment, and having a faucet in its length, a separator having communication with the third compartment and with the fan, a trap in the separator receiving the water of condensation from the third compartment, a float to control the faucet, and a fifth or water compartment in communication with the lower portion of the separator, the parts being arranged to operate substantially in the manner and for the purpose set forth.

11. In a heat-conservator, the combination of a settling-compartment, a steam-compartment, a water-compartment, and a superheating-coil located in the steam-compartment and receiving its supply from the water-compartment, substantially as described, whereby the water is delivered to the boiler fully up to the temperature and the elastic driving power of the exhaust-steam, substantially as described.

12. In combination, a settling-compartment, a water-compartment in communication with the settling-compartment and arranged below it, an intermediate compartment, means for passing exhaust-steam through the intermediate compartment, a separator in communication with the water and intermediate compartments and receiving the water of condensation from the intermediate compartment, and means for forcing a blast of air through the intermediate compartment and into the separator for condensing the exhaust-steam, extracting the oil therefrom, and supplying the necessary air to the water of condensation, substantially in the manner set forth for the purpose described.

576,629. **CRAYON-HOLDER.** EUGENE H. TAYLOR, Lynn, Mass. Filed May 9, 1896. Serial No. 590,856. (No model.)



Claim.—1. A crayon-holder comprising a body portion having an aperture lengthwise thereof to receive the crayon and having longitudinal cuts extending from each end thereof to a point beyond the middle portion of the said body, the said cuts at one end alternating with those at the other end, substantially as set forth.

2. A crayon-holder comprising a body portion having an aperture lengthwise thereof to receive a crayon and having longitudinal cuts extending from each end thereof to a point beyond the middle portion of said body, the said cuts at one end alternating with those at the other end and one or more exterior annular grooves for the purposes and substantially as set forth.

576,630. **FRUIT-PICKER.** BENJAMIN F. THOMPSON, Fritts, Va. Filed Mar. 30, 1896. Serial No. 585,309. (No model.)

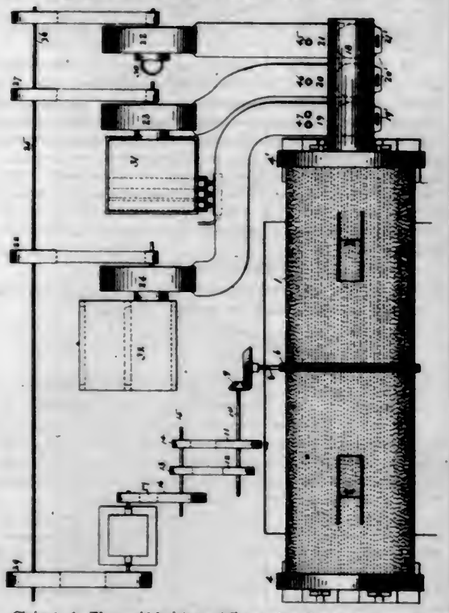


Claim.—1. The combination with the rod or pole and the stationary jaw, of a movable jaw having its supporting-frame extended and coiled around pins projecting from opposite sides of the pole to constitute a spring-pivot, said movable jaw being open upon its under side, and a sack having its mouth located beneath the open under

side of said jaw, and a spring-wire ring above the upper end of the sack to form a stop for the movable jaw, substantially as described.

2. The combination with the rod or pole and the stationary jaw, of a movable jaw having its supporting-frame extended and coiled around pins projecting from opposite sides of the pole to constitute a spring-pivot, said movable jaw being open upon its under side, and a sack having its mouth located beneath the open under side of said jaw, and a spring-wire ring above the upper end of the sack to form a stop for the movable jaw, and cords connecting said spring-wire ring with the supporting-ring of the sack, substantially as described.

576,631. MALTING-MACHINE. JAMES A. TILDEN, Hyde Park, Mass., assignor to the Hersey Manufacturing Company, Boston, Mass. Filed July 3, 1893. Serial No. 479,546. (No model.)



Claim.—1. The combination with a series of pneumatic malting-receptacles of means whereby the rate of agitation of the grain in each receptacle may be varied in relation to the main motor, as required in the different stages of the process of malting.

2. The combination with a series of pneumatic malting-receptacles of a main motor, an agitating counter-shaft for each receptacle, and graduated pulleys communicating a relative change of speed between the main motor and each counter-shaft.

3. The combination with a series of pneumatic malting-receptacles of a main moist-air conduit, a main hot-air conduit, a main atmospheric air conduit, and ducts connecting said main moist, hot, and atmospheric air conduits with each receptacle.

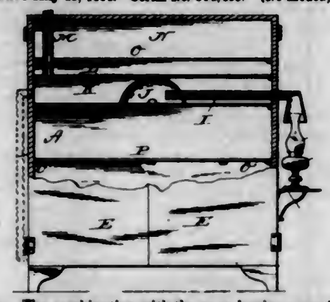
4. The combination with a series of pneumatic malting-receptacles of a main moist-air conduit, a main hot-air conduit, a main atmospheric-air conduit, a fan adapted to force air into each of said conduits, and ducts connecting said main moist, hot, and atmospheric air conduits with each receptacle.

5. The combination with a series of pneumatic malting-receptacles of a main moist-air conduit, a main hot-air conduit, a main atmospheric-air conduit, and ducts provided with dampers connecting said main moist, hot, and atmospheric air conduits with each receptacle, whereby the proper atmospheric conditions may be supplied to the grain in each receptacle, as required in the various stages in the process of malting.

6. The combination with a series of pneumatic malting-receptacles of means whereby the rate of agitation of the grain may be varied in each receptacle in relation to the main motor, a main moist-air conduit, a main hot-air conduit, a main atmospheric-air conduit, and ducts connecting said main moist, hot, and atmospheric air conduits with each receptacle, whereby the proper atmospheric conditions may be supplied and the rate of agitation of the grain be varied in each receptacle, as required in the process of malting.

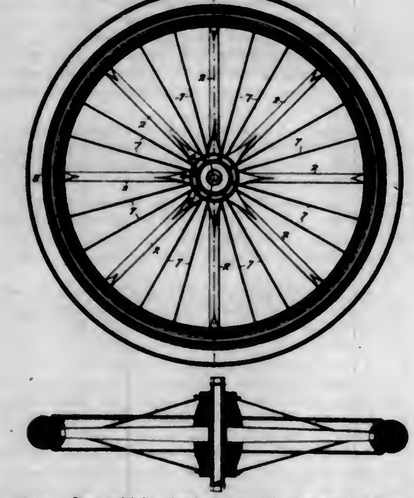
7. The combination with a series of pneumatic malting-receptacles of a fan, a conduit connecting said fan with each receptacle, and a furnace for producing a bleaching agent, said malting-receptacles, conduits, fan and furnace being so combined that the bleaching agent shall be caused to pass through the grain in each receptacle as required.

576,632. BREAD-RAISER. JENNIE M. TIBBE, Milwood City, Pa. Filed May 13, 1896. Serial No. 591,405. (No model.)



Claim.—The combination with the oven having a partition and a plate above the same forming between them a hot-air chamber, of a reflector arranged within the hot-air chamber between said partition and plate, a bracket secured to the outer wall of the oven for supporting a lamp, and a pipe extending into the hot-air chamber and through said reflector and having at its outer end a cone-shaped pipe the bottom open end of which is arranged above said bracket and adapted to receive the upper end of the lamp-chimney, all substantially as herein shown and described.

576,633. VEHICLE-WHEEL. CALVIN TOOMEY, Kansas City, Mo., assignor to C. Toomey & Co., same place. Filed Aug. 30, 1895. Serial No. 561,016. (No model.)

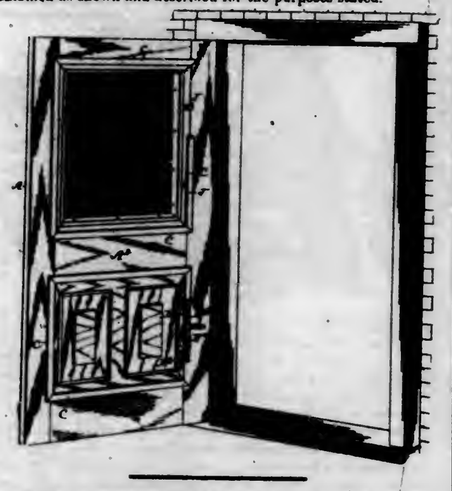


Claim.—In a vehicle-wheel, the combination with a hub, perforated bands, secured upon the ends of the hub, and a concentrically-surrounding felly or rim provided with a tire, of rigid spokes connecting said felly or rim with the hub, and a series of wire spokes secured at their inner ends in the perforations of said bands, and converging outwardly and secured at their outer ends to the felly or rim of the wheel between said spokes, substantially as described.

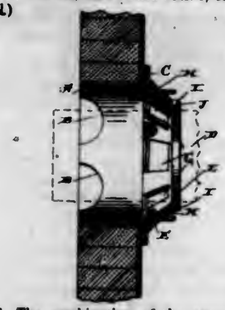
576,634. SCREEN AND STORM DOOR COMBINED. JOHN K. UHR, Eagle Grove, Iowa. Filed June 5, 1896. Serial No. 594,460. (No model.)

Claim.—In a transformable door the frame A having a cross-piece A^1 and the inner edges of said parts rabbeted, a molding C fixed on the inside of the door to project inward from the edges of the openings adapted to admit interchangeable panels and screens having recesses in their edges, a spring-actuated bar D having its ends bent at right angles to enter said recesses, fitted in a recess in the door-frame and provided with an integral arm D^2 at its center that extends out through a slot in the frame that intersects said recess, and dow-

els D^2 at the other side of the door frame and panel, arranged and combined as shown and described for the purposes stated.



576,635. COMBINED VENTILATOR AND THIMBLE. ROBERT L. UNDERWOOD, Fostoria, Ohio. Filed Mar. 5, 1896. Serial No. 581,918. (No model.)



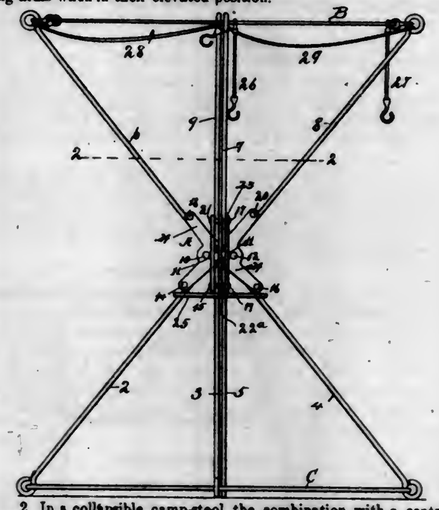
Claim.—1. The combination of the outwardly-tapering collar having ventilating-openings, a ring tapering in form to fit the outer side of and surround the collar, said ring being formed with openings to correspond with the ventilating-openings of the collar and also formed upon its outer edge with elongated notches I, and pins J projected from the outer smaller end of the collar into the said notches I, for holding the ring from displacement on the collar and limiting its movement, substantially as shown and described.

2. The combination of the outwardly-tapering collar adapted to be secured to position, and at its outer end formed with the cylindrical flange L, ring H of tapering form and adapted to fit and encircle the outer side of the collar, the outer end of the tapering ring formed with the cylindrical flange which encircles flange L of the collar, the said ring-flange being formed with elongated notches, and pins J projected outward from flange L into said slots of the ring-flange, whereby the reciprocal movement of the ring is governed and the same is also held from displacement upon the collar, the collar and ring being formed with openings which are adapted to register, substantially as shown and described.

3. The combination of the thimble, the outwardly-tapering collar and damper-ring, the ring surrounding the collar, devices for holding the damper in place upon the collar and which devices also limit the reciprocal movement of the damper, and the converging flanges projected outward from the thimble and having the convergence at the inner side of the collar, and to which the said collar is secured, substantially as shown and described.

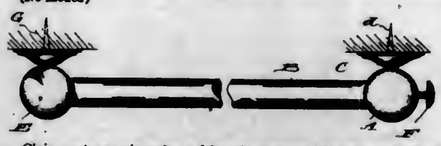
576,636. CAMP-STOOL. WILLIAM A. URBAHN, Chicago, Ill. Filed Jan. 14, 1896. Serial No. 575,534. (No model.)

Claim.—1. In a camp-stool the combination with a flat vertical plate, 22, having two upwardly and two downwardly radiating arms, a pair of flat plates, 23, each having a downwardly and an upwardly radiating arm and a lateral flange for vertical attachment to the plate 22, four angle-plates each having an upwardly and a downwardly projecting arm, such angle-plates being secured by rivets one within each of the angles formed by the union of the plates 22, 23, and spaced apart therefrom, four supporting-arms pivotally secured within alternate spaces between the angle-plates and the plates 22, 23, so as to swing between the downwardly-projecting arm of the angle-plate and the adjacent arm of the plate 22 or 23, four seat-carrying arms pivotally secured within alternate spaces between the angle-plates and the plates 22, 23, so as to swing between the upwardly-projecting arm of the angle-plate and the plate 22 or 23, stops for limiting the outward movement of the supporting-arms from the perpendicular to less than ninety degrees, stops to limit the mutual approach of the seat-carrying arms at a predetermined angle above the horizontal, and a seat detachably stretched between the ends of the seat-carrying arms when in their elevated position.



2. In a collapsible camp-stool, the combination with a central block, of four supporting-legs pivotally attached to the block so as to spread radially, stops for limiting the spread of the legs, means for holding the legs in their spread position, four seat-carrying arms pivotally attached to the central block so as to fold downwardly against the legs and adapted to be turned upwardly, means for limiting the mutual approach of the arms when projected upwardly, a flexible seat adapted to be stretched between the ends of the arms, two cords or cables, 28, 29, attached to the ends of adjacent arms and each being in sliding engagement with one of the remaining arms, such cords being longer than the distance between the ends of adjacent arms when in their upturned position, cords or cables attached to two adjacent corners of the seat, whereby the seat may be attached to the ends of two adjacent legs and to the free ends of the cords 28, 29, substantially as described and for the purpose set forth.

576,637. COMBINED CURTAIN-POLE AND BRACKET. CHARLES H. VAN NOTE, Boston, Mass. Filed Nov. 16, 1896. Serial No. 612,299. (No model.)



Claim.—A curtain-pole and brackets comprising the pole B, the bracket E having a slot to receive one end of said pole, combined with the bracket C slotted to receive the other end of the pole, and a pin D having an annular groove about its head, said pin designed to be held in a hole in the bracket C, and a thumb-screw F in the bracket which locks the latter to the said grooved pin, substantially as shown and described.

576,638. ERASER. THEODORE WASSERBACH, Washington, D. C. Filed June 10, 1896. Serial No. 594,950. (No model.)

Claim.—1. The herein-described improved eraser, the same comprising a series of radiating blades, the edges of which are reduced to a common point and between which are formed recesses, said blades being reduced to provide outer cutting edges, substantially as specified.

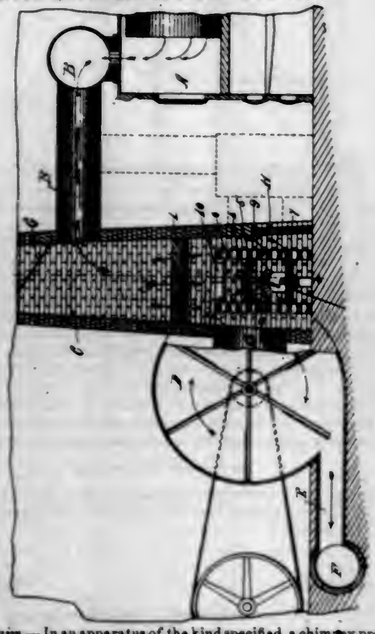
2. The herein-described improved eraser, the same comprising a series of radiating equidistant blades of uniform width or thickness, the same having their edges beveled and reduced to a common point, substantially as specified.



3. The herein-described improved eraser, the same comprising a series of equidistant integral blades having intermediate cavities or recesses throughout their length, the adjacent edges of adjacent blades being in the same plane and the blades being reduced to a common point, substantially as specified.

4. The herein-described improved eraser, the same comprising the three integral blades arranged equidistant and of uniform thickness throughout their width, the adjacent edges of adjacent blades being beveled in the same plane and reduced to a common point, substantially as specified.

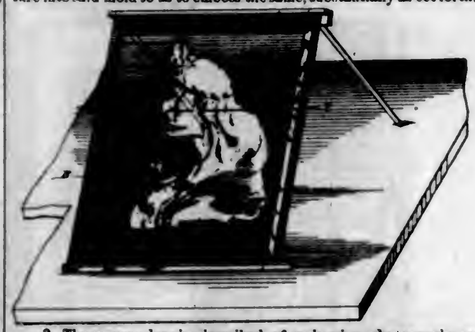
576,639. BRICK-DRIER. BERNARD F. WEBER, Chicago, Ill. Filed Nov. 1, 1895. Serial No. 567,805. (No model.)



Claim.— In an apparatus of the kind specified, a chimney provided with a damper above the point of entry of the gaseous products of combustion, an arch below said point of entry, openings at the sides of said arch, a furnace below said arch comprising four perforated walls of brick, a grate consisting of brick with interstices between the same, a perforated arch above said grate, and a hydrocarbon-burner between said grate and said arch to heat said bricks to a high degree, and means for drawing said gaseous products of combustion through said interstices of said furnace to superheat said gases and force them into a drying-chamber, substantially as described.

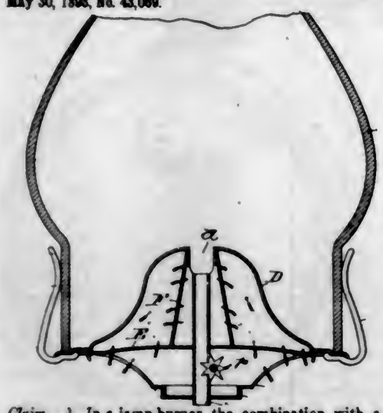
576,640. PROCESS OF EMBOSSING PHOTOGRAPHS. GUSTAV R. A. WEIMANN, Brooklyn, N. Y. Filed May 1, 1896. Serial No. 589,878. (No specimens.)

Claim.—1. The process herein described of embossing photographs or other pictures, which consists in placing a translucent carvable plate over a negative or positive of a picture, carving on the translucent plate an approach to the actual shape of the objects represented in the picture, making a mold from said obtained carving, and pressing a positive photographic or other reproduction of said picture into said mold so as to emboss the same, substantially as set forth.



2. The process herein described of embossing photographs or other pictures, which consists in placing a translucent carvable plate over a negative or positive of a picture to be embossed, carving into the surface of the plate an approach to the actual shape of the objects represented in the picture, making a mold from said carved plate, moistening a positive photographic or other reproduction of the picture to be embossed, pressing it into the mold, drying it while in the mold, and lastly, mounting the embossed picture, substantially as set forth.

576,641. OIL-BURNER. EMILE R. WESTON, Bangor, Me. Filed Sept. 20, 1893. Serial No. 485,973. (No model.) Patented in Canada May 30, 1896, No. 43,069.



Claim.—1. In a lamp-burner, the combination with a suitable base, of a dome rising from said base and provided with a flame aperture; a wick-tube mounted on said base and entering said dome, a perforated plate placed intermediate said base and dome, said intermediate plate having an imperforate central portion, and foraminous walls rising from said imperforate central portion of the said intermediate plate in close proximity to the wick-tube, said walls joining the dome at the edges of the flame-aperture at a point above the top of the wick-tube, substantially as described.

2. In a lamp-burner, the combination with a base having draft-openings, of a dome rising from said base and having a central flame-aperture; a wick-tube mounted in said base, entering said dome, and terminating at a point considerably below the top of the dome; a perforated plate intermediate said base and dome having an imperforate central portion surrounding said wick-tube, and inclined foraminous walls rising from the imperforate central portion of said intermediate plate in close proximity to the wick-tube, said walls extending above the top of said wick-tube and joining the dome on either side of the flame-aperture, whereby air is fed to the flame through the said foraminous walls only, being projected through the latter into the flame in separate jets, substantially as described.

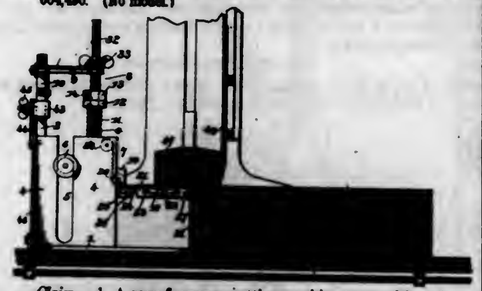
576,642. BICYCLE NAME-PLATE. GEORGE R. WHEELHOUSE, Utica, N. Y. Filed June 24, 1896. Serial No. 596,749. (No model.)

Claim.—1. The herein-described name-plate, which is segmental in cross-section, and provided with segmental arms, each arm being provided at its end with hinged jaws, having angular extensions, and a bolt or screw which is adapted to be passed through said extensions, substantially as shown and described.



2. The herein-described name-plate, which is adapted to be connected with the frame of a bicycle or other vehicle, said name-plate being segmental in cross-section, and being provided with segmental arms, each arm being provided at its end with a hinged jaw, each of which is provided with angular or outwardly-directed extensions which are adapted to be brought together, said extensions being provided with passages or openings, and a bolt or screw which is adapted to be passed therethrough, substantially as shown and described.

576,643. ROLLING GAGE FOR PAPER-CUTTING MACHINES. FREDERICK WILKENING, Elkhart, Ind. Filed Aug. 31, 1896. Serial No. 604,490. (No model.)



Claim.—1. A gage for paper-cutting machines, comprising a base, a flexible strip attached to the base and extending therefrom, forming a stop for the edges of the paper to abut against, a carriage for determining the height of the stop and movable toward and from the base to adapt itself to the pile of paper to be cut, and means for preserving a tension upon the flexible strip at all positions of the carriage, substantially as set forth.

2. A gage comprising a base, a flexible strip secured to the base and having a vertical portion, and a movable carriage having the flexible strip applied thereto, substantially as shown for the purpose described.

3. In a gage, the combination of a flexible strip secured at its ends and normally subjected to tension, and a movable carriage provided with rollers to deflect the flexible strip between its ends and adapted to relieve the friction incident to the relative movement between the flexible strip and carriage during the movements of the latter, substantially as and for the purpose set forth.

4. In a gage, the combination of a flexible strip secured at its ends and normally subjected to tension, a carriage constructed to move vertically and having an approximately horizontal portion, and rollers disposed in different relative planes and at opposite portions of the horizontal part of the carriage, and having the said flexible strip passing beneath one roller and over the other roller, substantially as shown for the purpose set forth.

5. In a gage, the combination of a flexible strip secured at its ends and normally subjected to tension, a movable carriage, and a roller at the front end of the carriage for the flexible strip to pass over and capable of adjustment to properly position the vertical portion of the flexible strip, substantially as set forth for the purpose described.

6. In a gage, the combination of a flexible strip secured at its ends and normally subjected to tension, a movable carriage, arms adjustably connected with the carriage, and a roller journaled in the arms and having the front portion of the flexible strip passing thereover, substantially in the manner and for the purpose set forth.

7. In a gage, the combination of a base having vertical portions, a roller journaled in the vertical portions of the base and provided with means to secure it against backward rotation, a flexible strip secured at one end to the base and at its opposite end to the roller, and adapted to have a portion wound upon the said roller, a vertically-movable carriage having an approximately horizontal portion, a roller at the inner end of the horizontal portion and having its lowest element about in the plane of the top side of the said horizontal portion of the carriage, a second roller located at the front end of the horizontal portion of the carriage and having its upper portion about in the plane of the top side of the horizontal part of the carriage, the said flexible strip passing under the inner roller and over the outer roller, and means for returning the carriage to a normal position after being depressed, substantially as described.

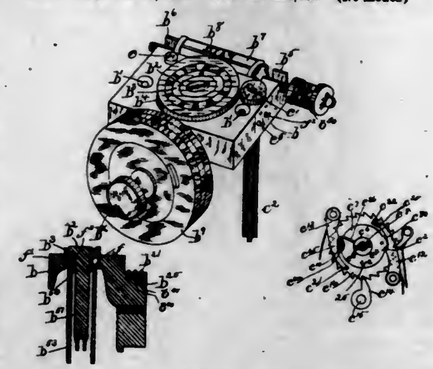
8. In a gage, the combination of guide-rods, springs mounted upon the guide-rods, a movable carriage, a bar directed in its movements by the aforesaid guide-rods and receiving the end thrust of the springs, rods connecting the carriage with the said bar, and adjustable connections for varying the distance between the carriage and the bar with which it is connected, substantially as and for the purpose set forth.

9. In a gage, the combination of a vertically-movable carriage, a strip having connection with the carriage and constituting an adjustable stop, a post having a cam portion to be engaged by the carriage for effecting a turning thereof, a gage attached to and movable with the said post, and a set-screw for limiting the throw or turning of the post and gage, substantially as described.

10. In a gage, the combination of a turn-post having a longitudinal guide formed with a cam portion, a side gage having connection with the turn-post, and a carriage movable vertically and having a portion to engage with the guide of the turn-post to effect a turning of the latter upon the descent of the carriage, substantially as set forth.

11. A gage attachment for paper-cutting machines, comprising a base having standards and guide-rods, and side plates formed with vertical slots, clips movable upon the standards and having slotted plates adjustably connected therewith, a vertically-movable carriage having rollers operating in the vertical slots of the side plates, a transverse bar adjustably connected with the carriage and operating upon the guide-rods, springs mounted upon the guide-rods and exerting an upward pressure against the transverse bar, a vertical turn-post having a guide formed with a cam portion and adapted to be engaged by a projecting portion of the said transverse bar to be actuated when lowering the carriage, a side gage having connection with the turn-post, and a flexible strip secured at its ends to the base and a roller connecting the side plates, and normally subjected to tension, and adapted to travel over a horizontal portion of the carriage when the latter moves upward or downward, substantially as and for the purpose set forth.

576,644. AUTOMATIC TIME-STAMP. JOHN C. WILSON, Boston, Mass. Filed Oct. 19, 1891. Serial No. 409,102. (No model.)



Claim.—1. In a time-stamp, the combination with a hollow case, a bed-plate supported thereby, a die c secured to the bed-plate, a movable die c' having the letters "A.," "P.," means to rotate said die in one direction and consisting of a ratchet-wheel provided on its surface with a cam, a shaft on which said ratchet-wheel is loosely mounted, a disk loose on said shaft and adapted to be engaged with the stem of the movable die c', a projection on said disk, holding-pawls to cooperate with the projection on the said disk and disengaged therefrom by the cam on the ratchet-wheel, and a spring secured to the said ratchet-wheel and to the said disk to turn the latter when released from its holding-pawl, substantially as described.

2. In a time-stamp, the combination of the case A, the arm a attached thereto, and the plunger a^3, an attached platen movably supported by said arm, of the bed-plate b, having at its front end the disk-supporting shoulder b^{30} integral with it, and provided at its rear end with arms b^4 b^4, time-indicating dials b^4 b^5 resting upon the upper face of the bed-plate, indicating-disks b^5 supported on the shoulder b^{30} at one end of the bed-plate, and an indicator supported by the arms b^4 b^4 at the opposite end of the bed-plate, substantially as described.

3. In a time-stamp, the combination with the bed-plate b provided with recesses in its sides, of a detachable ribbon-holder consisting of housings for the shafts upon which the ribbon is wound, and

spring-clips or side pieces connecting said housings and provided on their inner face with projections which enter the recesses in the sides of the bed-plate, substantially as described.

4. In a time-stamp, the combination with the plate *b* provided at one end with arms for supporting the shaft of an indicating-cylinder, of a detachable ribbon-holder consisting of housings for the reception of shafts upon which the ribbon is wound, and spring-clips or side pieces to embrace the sides of the bed-plate and provided with notches or recesses for the reception of the journals of the said cylinder-shaft, substantially as described.

5. In a time-stamp, the combination with a bed-plate, the "A." and "P." die *c'* provided with a stem extended through said bed-plate, a disk c^7 to which said stem is connected, a projection c^{20} on said disk, a shaft c^8 on which said disk is mounted, a ratchet-wheel c^{19} loose on said shaft, a spring secured to said disk and ratchet-wheel, curved levers c^{12} c^{13} provided substantially near their middle with teeth c^9 c^{10} to engage the projection c^{20}, depending pins on the ends of the said levers, and a cam on the ratchet-wheel to engage the depending pins and release the levers from engagement with the projection c^{20}, substantially as described.

6. In a time-stamp, the combination with the bed-plate, of the indicating-dial b^3 resting on the bed-plate and provided with the sleeve b^{30} extended through the said bed-plate and having the shoulder *f*, and the dial b^3 having the stem b^{31} inserted into the sleeve b^{30}, of a locking device for the dial b^3 consisting of the ring fitted upon the said stem and cooperating with the shoulder *f*, substantially as described.

576,645. DEVICE FOR DISPLAYING WALL-PAPER. THOMAS C. WRIGHT, Chicago, Ill. Filed May 25, 1896. Serial No. 593,045. (No model.)



Claim.—1. A device for displaying wall-paper comprising substantially a supporting-frame, rollers journaled upon said frame in lines approximately corresponding with the walls of a room, and suitable gearing interposed between said rollers and adapted to rotate them simultaneously; substantially and for the purpose set forth.

2. A device for displaying wall-paper comprising substantially a suitable supporting-frame, paper-carrying rollers journaled upon said frame in lines approximately corresponding with the walls of a room, suitable gearing interposed between said rollers, an operating-crank adapted to rotate said rollers, and samples of wall-paper mounted upon said rollers and so arranged with respect to each other as to present each complete set to view when said operating-crank is sufficiently rotated.

3. In a device of the class described, the combination with the supporting-frame comprising the members, A, A', A^3, and suitable braces therefor, of the paper-carrying rollers, B, B', C, C', D, D', journaled upon said frame, the rollers, B, B', adapted to carry samples of ceiling-paper, the rollers, C, C', to carry samples of border, and the rollers, D, D', to carry samples of wall-paper, and suitable gearing interposed between said rollers and adapted to rotate them simultaneously; substantially as and for the purpose set forth.

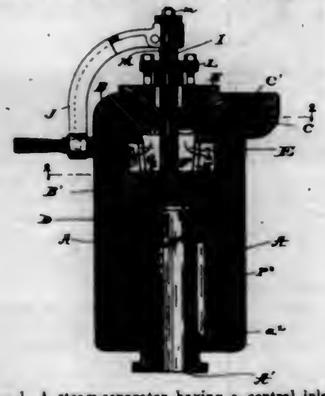
4. In a device of the class described, the combination with the supporting-frame, A, A', A^3, of the paper-carrying rollers, B, B', C, C', D, D', mounted upon the shafts, *b*, *b'*, *c*, *c'*, *d*, *d'*, journaled upon said frame, said rollers being adapted to carry samples of ceiling, border and wall paper respectively, and arranged in lines approximately corresponding with the walls of a room, the pulley, P, operating-crank, O', the pulleys, P', P^3, secured upon the shaft, *d'*, the pulleys, P^2, P^4, secured upon shafts, *b'*, *c'*, respectively, the idlers, *i*, *i'*, and the belt, *p*, connecting the pulleys, P, P', P^3, P^4, substantially as and for the purpose set forth.

5. In a device of the class described, the combination of the ceiling, border and wall paper carrying rollers, B', C', D', mounted upon the shafts, *b'*, *c'*, *d'*, and arranged in lines approximately corresponding with the walls of a room, the pulleys, B^2, B^4, B^7, mounted upon the shafts, *d'*, *c'*, *b'*, respectively, the idlers, i^3, i^4, and the belt, *p'*, connecting said pulleys; substantially as and for the purpose set forth.

6. In a device of the class described, the combination with the supporting-frame, A, A', A^3, of the paper-carrying rollers, B, B', C, C', D, D', journaled upon said frame, and two sets of gearings, one set connecting the rollers, B, C, D, and the other set connecting the rollers, B', C', D', substantially as and for the purpose set forth.

7. A wall-paper-display rack having a suitable frame, a pair of rollers supported thereby adapted to carry a belt containing samples of wall-paper and arranged to hold one of the samples extended between them in an approximately vertical position, and a second pair of rollers also supported by the frame adapted to carry a belt containing samples of ceiling-paper and arranged to hold one of said samples extended between them in an approximately horizontal position above and adjacent to the wall-paper, suitable gearing interposed between said rollers whereby the different samples upon the rollers may be displayed in turn in the same relative positions as in a room by merely turning the rollers.

576,646. SEPARATOR. JAMES B. ALLFREE, Indianapolis, Ind. Filed June 29, 1896. Serial No. 597,363. (No model.)



Claim.—1. A steam-separator having a central inlet through which the steam is received, curved passages permitting of an outward and rotary flow of steam from the inlet, an exit-tube extending up into said chamber from the bottom thereof and a flange projecting down from the top of said chamber around and below the mouth of said exit-tube, substantially as shown.

2. In a steam separator and valve, a valve-seat having a series of curved exits, a valve having a series of passage-ways adapted to be brought into communication with the said exits in the valve-seat, and a chamber to collect the steam after it passes through the valve, substantially as described and for the purposes specified.

3. In a steam separator and valve, a valve-seat having a series of curved exits, a valve having a series of passage-ways adapted to be brought into communication with the said exits in the valve-seat, and a chamber to collect the steam after it passes through the valve, said chamber having walls against which the steam will be violently thrown, and an outlet for the steam from said chamber, shaped so as to cause the steam to travel down and then reverse its direction before discharging, all substantially as described and for the purposes specified.

4. In a steam-separator, the chamber C having communication with the boiler where the steam is generated, a valve-seat having a plurality of curved slots formed through the walls thereof in the manner shown, a valve having a plurality of chambers separated from each other by suitable partitions and having slots through the outside walls thereof whereby the chambers in the valve can be brought into communication with the curved slots in the valve-seat by rotating the valve, a collecting-chamber to receive the steam after it passes through the valve and having walls placed with relation to curved slots so the steam will be thrown against said walls, said chamber having its lower end contracted in diameter to form an outlet and having a tubular extension surrounding the outlet and projected up into the chamber and terminating inside of an inverted-cup-shaped cavity, all substantially in the manner as shown and for the purposes specified.

576,647. CORN-HARVESTER. JOHN I. ASHBAUGH, Richmond, Ky. Filed Sept. 6, 1896. Serial No. 561,634. (No model.)



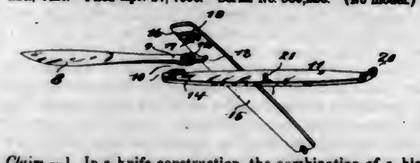
Claim.—1. In a corn-harvesting machine, the combination with the cutting and delivering mechanism, of the compressing devices, consisting essentially of a rotating platform, vertically-movable forks, gears engaging rack-bars on said forks, and means carried by said forks to automatically disengage the gears, substantially as described.

2. In a corn-harvesting machine, the combination with the cutting mechanism, of elevating mechanism, means for guiding the material onto the elevating mechanism, a basket for receiving the cut material, locking means for said basket, means for automatically righting said basket after dumping, a rotating platform to receive the material, compressing mechanism on said platform, comprising a series of forks, means for elevating and depressing the forks, and means for locking the forks when depressed.

3. In a corn-harvesting machine, the combination with the cutting and elevating mechanism, of basket mechanism for delivering the cut material, a rotating platform to receive the material, and binding mechanism on said platform, consisting of vertically-movable forks, means for operating the forks from the main drive-shaft, a series of rigid arms to the rear of the rotating platform, a series of pivoted arms to the front of the platform, and a lever to operate the pivoted arms to compress the material.

4. In a corn-harvesting machine, the combination with the cutting, elevating and delivering mechanism, of compressing mechanism, consisting of vertically-operated forks, a series of arms to compress the material laterally, a horizontal beam supported on the platform and carrying the forks, toggles connected with the beam and forks, a stirrup and connections between the stirrup and toggles, by means of which the toggles may be extended and the forks depressed.

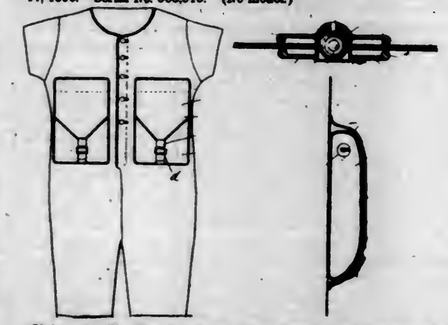
576,648. SURGEON'S KNIFE. WILLIAM AUTENRIETH, Cincinnati, Ohio. Filed Apr. 27, 1896. Serial No. 589,228. (No model.)



Claim.—1. In a knife construction, the combination of a blade having a shank provided with an eye-opening 12 some distance from the end of the latter so that parts of said shank are on either side of the eye-opening, projecting in opposite directions therefrom, part 9 being extended and forming the blade and part 13 being simply a projection in line with part 9, a handle in two sections, one having a post 16 adapted to enter eye-opening 12 to hold the knife-blade to the handle, lugs 10 on one of the sections which are adapted to receive between them either part 9 or part 13 of the shank and whereby the blade is prevented from swinging on post 16 and held rigid either, as in the first case, in operative position or, as in the second case, with the blade between and covered by the handle-sections, a button 17 on one and an opening in the other handle-section through which said button is adapted to pass, but only before such handle-sections are in normal position so that, after the latter are turned to normal position, the button is prevented from returning through said opening and thereby enabled to lock all parts, that is the handle-sections with the shank of the knife-blade between, together and means to prevent the handle-sections from turning out of their normal position.

2. In a knife construction, the combination of a blade having a shank provided with an eye-opening 12 some distance from the end of the latter so that parts of said shank are on either side of the eye-opening projecting in opposite directions therefrom, part 9 being extended and forming the blade and part 13 being simply a projection in line with part 9, a handle in two sections, one having a post 16 adapted to enter eye-opening 12 to hold the knife-blade to the handle, lugs 10 on one of the sections which are adapted to receive between them either part 9 or part 13 of the shank and whereby the blade is prevented from swinging on post 16 and held rigid either, as in the first case in operative position or, as in the second case, with the blade between and covered by the handle-sections, a button 17 on one and an opening in the other handle-section through which said button is adapted to pass, but only before such handle-sections are in normal position so that after the latter are turned to normal position, the button is prevented from returning through said opening and thereby enabled to lock all parts, that is, the handle-sections with the shank of the knife-blade between, together and projections on one handle-section adapted to engage with depressions in the other whereby the handle-sections are held on each other in their normal position.

576,649. LIFE-PRESERVER. THOMAS R. BELL and DAVID A. CARSON, Brooklyn, N. Y.; said Carson assignor to said Bell. Filed Mar. 17, 1896. Serial No. 583,513. (No model.)



Claim.—1. The combination with an inflatable bag or pouch of a valve consisting of a concavo-convex plate having a central bore, said plate being provided with a depending annular flange to the lower edge of which is connected an outwardly-directed flange and a spring-actuated ball-valve within said depending flange to close said bore, substantially as and for the purpose set forth.

2. The combination with a bathing-suit provided with two-part compartments having a closing-flap to secure the same in position, substantially as described, of detachable inflatable bags or pouches, adapted to be secured in said compartments, said bags or pouches being provided with a spring-actuated ball-valve to control the admission and escape of air from the bags or pouches, all arranged, designed and operating as and for the purpose set forth.

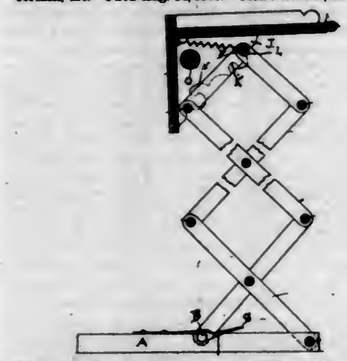
576,650. FURNACE. EDWARD BENEDICT, Brooklyn, N. Y., assignor to the Thatcher Furnace Company, New York, N. Y., and Newark, N. J. Filed May 22, 1896. Serial No. 592,556. (No model.)



Claim.—In a furnace of the class herein set forth, in combination, with a base, an outer shell or casing, a lower dome *c*, having walls *c'*

and c^3 forming a water-space, and formed with a fire-pot c^4, partitions c^5 connecting said walls c' and c^3, forming openings, as c^6, in said dome, a narrow neck c^8 at the top of said dome, having an opening therein, and an upper dome d secured on said neck and communicating with the opening in said neck, and flues d' in said dome d, a semicylindrical opening d^3 in one side of said dome d, a damper e, and means for operating said damper, substantially as and for the purposes set forth.

576,651. COMBINATION RACK AND STAND. ROBIN BLAKE, Cornish, Me. Filed Aug. 14, 1896. Serial No. 602,704. (No model.)

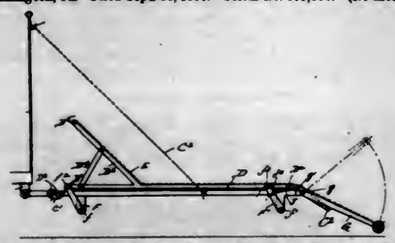


Claim.—1. In a combination convertible stand and rack, a suitable base, a collapsible or folding rack consisting of side bars crossed and pivotally jointed together, and connecting-rods the lower ends of two of the side bars being free, the other two being pivoted to the base, and a bracket consisting of a table and braces, said braces having recesses therein adapted to receive two of the connecting-rods of said collapsible frame, one at the apex and one at the first joint below, the table being supported in a horizontal position thereby, substantially as and for the purposes set forth.

2. In a combination convertible rack and stand, a suitable base, a collapsible frame having the lower extremities of two of its bars pivotally secured to said base and the lower extremities of two other bars free, means for temporarily holding said free ends at a given point on said base whereby the frame is rendered rigid, a bracket consisting of a table and suitable braces provided with recesses adapted to receive two of said connecting-rods, one at the apex and one at the first joint below, and means for holding said table upon said connecting-rods, substantially as and for the purposes set forth.

3. In a combination convertible stand and rack, a suitable base, a collapsible frame consisting of side bars pivotally jointed together, the lower ends of two of the side bars being free, the other two side bars being pivotally secured to the base, a bracket consisting of a table and braces, said braces having recesses therein adapted to receive two of the cross-bars in said collapsible frame, one at the apex and one at the first joint below, the table being supported in a horizontal position thereby, and a rod secured to and extending around the two sides and front edge of said table, substantially as and for the purposes set forth.

576,652. CAR-FENDER. WILLIAM J. BODY and ADAM S. BODY, Shillington, Pa. Filed Sept. 16, 1896. Serial No. 605,997. (No model.)



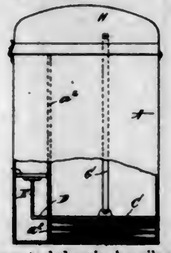
Claim.—1. In a car-fender, the combination of a main frame, having a transverse bar at its front end, a guard-frame pivoted to said main frame and normally resting upon said transverse bar, said guard-frame having short arms extending rearward beyond its pivots, a platform, inclined links pivoted to the platform and main frame and sustaining the former normally above the latter, and connections between the forward links and the short arms of the guard-frame, substantially as described.

2. The herein-described car-fender, embodying a main frame having means for attaching it to a car-body, and also having transverse bars at its opposite ends, a guard-frame pivoted to the side bars of said main frame and normally resting upon the forward transverse bar thereof, the rear end of said guard-frame having short arms extending beyond its pivots, a movable platform, inclined links, pivoted to the side bars of the main frame and side bars of the movable platform, and supporting the latter above said frame, a projection from the rear bar of the frame, arranged to engage and support the movable platform when the latter is depressed, and a connection between the forward links and short arms of the guard-frame for raising the latter when the platform is lowered, as specified.

3. In a car-fender, the combination with the main frame, of a movable platform supported by inclined links, and a pivoted guard-frame, connected to said platform and of such weight relatively thereto as to hold the same normally elevated, as specified.

4. The herein-described car-fender, consisting of a main frame having means for attaching it to a car-body, and also having transverse bars at its opposite ends, a downwardly-inclined guard-frame pivoted to the side bars of the main frame and normally resting upon the front transverse bar thereof, said guard-frame having short arms projecting beyond its pivots at an angle with its main part, a movable platform having rearwardly-projecting inclined arms near its rear end, inclined braces for said arms, extending from the side bars of the movable platform to the same, an apron extending from the upper ends of said arms to the front end of the guard-frame, inclined links pivoted to the side bars of the main frame and side bars of the movable platform and supporting the latter above said frame, a projection from the rear bar of the frame, arranged to engage and support the movable platform when the latter is depressed, and a connection between the forward link and short arm of the guard-frame, substantially as described and for the purposes specified.

576,653. COMBINED MATCH, CIGARETTE, AND CIGAR HOLDER. FRANK S. BOWLBY, Wellington, Ohio. Filed July 1, 1896. Serial No. 597,724. (No model.)



Claim.—1. The receptacle herein described, consisting of a suitable casing which is closed at the bottom, and provided near one side with a vertical partition in the lower end of which is formed a vertical slot, a spiral spring mounted in the main part of the receptacle, and provided with a plate or disk, which is mounted thereon, said plate or disk being provided with an arm which projects through said slot, and which supports a vertically-movable plate or piston located in the chamber formed by said partition, substantially as shown and described.

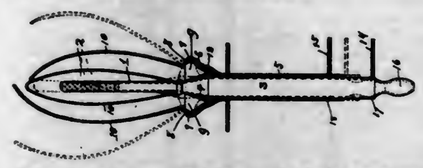
2. The receptacle herein described, consisting of a suitable casing which is closed at the bottom, and provided near one side with a vertical partition in the lower side of which is formed a vertical slot, a spiral spring mounted on the main part of the receptacle, and provided with a plate or disk, which is mounted thereon, said plate or disk being provided with an arm which projects through said slot, and which supports a vertically-movable plate or piston located in the chamber formed by said partition, said casing being also provided with a hinged lid or cover, with which are pivotally connected rods which are pivotally connected with the plate or disk which is mounted on the spring, substantially as shown and described.

3. The receptacle herein described, consisting of a suitable casing which is closed at the bottom, and provided near one side with a vertical partition in the lower end of which is formed a vertical slot, a spiral spring mounted in the main part of the receptacle, and provided with a plate or disk which is mounted thereon, said plate or disk being provided with an arm which projects through said slot, and which supports a vertically-movable plate or piston located in the chamber formed by said partition, said casing being also provided with a hinged lid or cover, with which are pivotally connected rods which are pivotally connected with the plate or disk which is mounted on the spring, and said casing being also provided with a spring-catch by which the cap or cover is held in the closed position, substantially as shown and described.

4. The herein-described box or receptacle, consisting of a suitable casing, which is closed at the bottom, and provided near one side with a vertical partition in the lower end of which is formed a vertical slot, and whereby the box or casing is divided into two compartments, a spiral spring mounted in the main compartment, and provided with a disk plate or support mounted thereon, said disk plate or the support being provided with an arm which projects through said slot, and which supports a vertically-movable plate or other support in the chamber formed by said partition, substantially as shown and described.

5. The herein-described box or receptacle, consisting of a suitable casing, which is closed at the bottom, and provided near one side with a vertical partition in the lower end of which is formed a vertical slot, and whereby the box or casing is divided into two compartments, a spiral spring mounted in the main compartment, and provided with a disk, plate or support mounted thereon, said disk, plate or the support being provided with an arm which projects through said slot, and which supports a vertically-movable plate or other support in the chamber formed by said partition and said box or casing being also provided with a hinged cover with which are pivotally connected two rods which are countersunk in the sides of the box or casing, and which are pivotally connected with the plate, disk or other support which is mounted on said spring, substantially as shown and described.

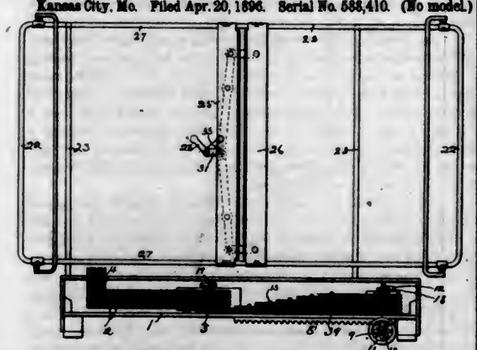
576,654. SYRINGE. WILLIAM C. BUNCH, Oberlin, Ohio. Filed Apr. 8, 1896. Serial No. 586,646. (No model.)



Claim.—In an irrigator for the purpose set forth, in combination, an inner tube provided with a perforated outer extremity, an enlarged inner extremity and conical section connecting the same, an outer tube provided with an enlarged head supporting blade-bases and blades, retaining-lugs upon which said bases fulcrum, return-springs for the bases and blades, and a retaining-ring upon the inner tube adapted to engage said bases when closed about the tube, substantially as described.

576,655. WITHDRAWN.

576,656. LEAF-TURNING DEVICE. WINDSOR O. CAMPBELL, Kansas City, Mo. Filed Apr. 20, 1896. Serial No. 588,410. (No model.)



Claim.—1. In a leaf-turner, the combination with a suitable frame, of one or more leaf-turning arms pivotally mounted upon the said frame, a corresponding number of cam-arms adapted to engage with and partially rotate the leaf-engaging arm or arms, a support for the cam-arms mounted upon and longitudinally movable upon the said frame, a rack secured to the said frame and a pinion pivotally mounted upon the said support, substantially as described.

2. In a leaf-turner, the combination with a suitable frame, of one or more leaf-turning arms pivotally mounted thereon, a corresponding number of cam-arms adapted to engage with and partially rotate the leaf-turning arm or arms, a support for the cam-arms mounted and longitudinally movable upon the said frame, a rack secured to the said frame, a shaft pivoted in the said support, a pinion adapted to operate within the rack and secured upon the said shaft, and means for rotating the said shaft, substantially as described.

3. In a leaf-turner, the combination with a suitable frame, of a post secured to the said frame, one or more leaf-turning arms pivotally mounted upon the said post, a block longitudinally movable upon said frame, a rack secured to the said frame, a pinion adapted to engage said rack and pivotally mounted upon the said block, a post secured to the said block and cam-arms corresponding in number to the number of leaf-turning arms, and pivotally mounted upon the post which is secured to the said block, the said cam-arms being provided with means for engaging the said leaf-turning arms and partially rotate the same when the said block is moved longitudinally on the said frame, substantially as described.

4. In a leaf-turner, the combination with a suitable frame, of one or more leaf-turning arms pivotally mounted thereon, a block longitudinally movable upon the said frame, cam-arms pivotally mounted upon the said block and corresponding in number to the number of leaf-turning arms and adapted to engage the said leaf-turning arms for the purpose of partially rotating them, a rack secured to the said frame, a pinion engaging therewith pivotally mounted upon the said block, and cams corresponding in number to the number of cam-arms and adapted to engage the same for the purpose of deflecting them during their engagement with the leaf-turning arms whereby rotary motion is imparted to the leaf-turning arms during their engagement with the cam-arms when the said block is moved longitudinally substantially as described.

5. In a leaf-turner, the combination with the frame 1, of a music-rack provided with means for engaging the leaves to be turned, one or more supporting-rods secured to the said rack for the purpose of supporting the same and also secured to the said frame, the leaf-turning arms 2, pivotally mounted upon the said frame, the cam-arms 39, adapted to engage the leaf-turning arms, the block 7, movably mounted upon the said frame 1, and upon which the cam-arms 39, are pivotally mounted, the rack 8, secured to the said frame 1, a pinion 9, adapted to engage therewith, and the shaft 10, to which the pinion is secured, and which is pivotally mounted upon the block 7, substantially as described.

6. In a leaf-turner, the combination with the main frame, of an auxiliary frame, one or more rods secured to and connecting the two frames, two plates between which the leaves may be clamped, one of the plates being secured rigidly to the auxiliary frame and the other plate mounted upon the said auxiliary frame and movable toward and from the rigid plate, one or more leaf-turning arms pivotally mounted upon the main frame, a corresponding number of arms adapted to engage with and partially rotate the leaf-turning arm or arms and movably supported upon the main frame, a rack secured to the main frame, a pinion engaging therewith, and means by which the operating-arms are moved when the pinion is rotated, substantially as described.

7. In a leaf-turner, the combination with the main frame, of an auxiliary frame supported thereby, two plates between which the leaves may be clamped, one of the plates being secured rigidly upon the auxiliary frame and the other plate mounted upon the auxiliary frame and movable toward and from the rigid plate, a lever pivotally connected to one of the plates, means by which the movable plate is moved toward or from the rigid plate when the lever is moved in the proper direction, one or more leaf-turning arms pivotally mounted upon the main frame, a rack secured to the main frame, a pinion engaging therewith, and means by which the leaf-turning arms are operated upon their pivotal support when the pinion is rotated, substantially as described.

576,657. FOLDING STOOL. JOSEPH L. CHAPMAN, Haddonfield, N. J., assignor of two-thirds to John H. Christ, Philadelphia, and James Rowland, Ashbourne, Pa. Filed Feb. 29, 1896. Serial No. 581,246. (No model.)

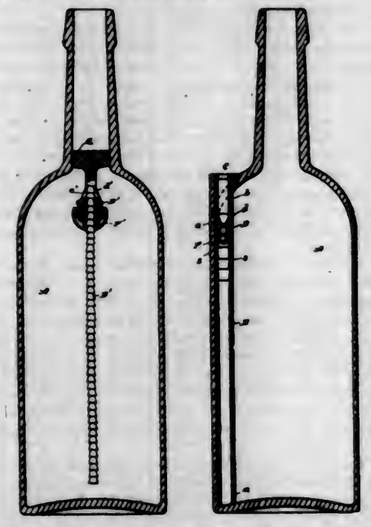


Claim.—1. In a folding stool, a head having a series of sockets arranged in annular form, rigidly connected together at their sides, and alternately inclined in opposite directions, the sockets which are at their upper ends inclined outwardly being adapted to receive props for a seat, and the adjacent sockets which are inclined outwardly at

their lower ends being adapted to receive legs substantially as and for the purpose set forth.

2. A folding stool, consisting of a seat formed of a receptacle having cleats secured to the under side thereof and provided with openings, a head having alternately-inclined sockets, props with their ends adapted to be seated in said openings, and in each alternate socket, and legs in the other sockets, said parts being combined substantially as described.

576,658. BOTTLE-INDICATOR. PHILIP M. COFFIN, Detroit, Mich. Filed Sept. 14, 1894. Serial No. 523,009. (No model.)

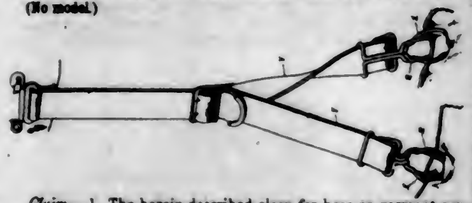


Claim.—1. The combination with a vessel, a support, a register adapted to move freely down along said support, a catch to prevent the rising of the register, and means adapted to primarily sustain the register at the surface of liquid in the vessel, substantially as specified.

2. An indicator adapted to show the depth to which liquid has been drawn from a vessel, consisting of a serrated support, a register adapted to drop downward along the support and provided with springs adapted to engage the serrations and prevent the register from rising again, and means for primarily supporting the register at the surface of the liquid, substantially as described.

3. In an indicator for showing the depth to which liquid has been drawn from a vessel, the combination of a tube notched or serrated on its interior, and provided with small inlet and outlet holes at its top and bottom, a register adapted to drop downward along the support and provided with springs adapted to engage the serrations and prevent the register from rising again, and means for primarily supporting the register at the surface of the liquid, substantially as described.

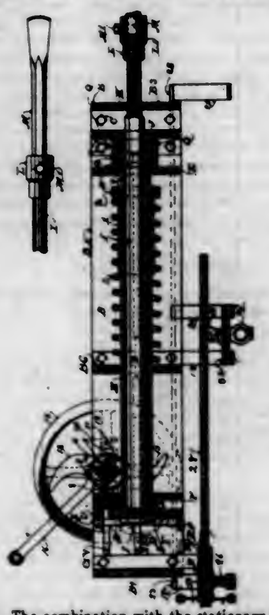
576,659. HOSE AND GARMENT SUPPORTER. WILLIAM H. CORNELL, Brookings, S. D. Filed June 20, 1896. Serial No. 596,284. (No model.)



Claim.—1. The herein-described clasp for hose or garment supporters, made up of a base-piece having a loop at the forward end and a guide for the supporting-strap at the rear end and a tongue to which one end of the supporting-straps is attached, having a loop with a shank at substantially right angles thereto, the said loop being slightly narrower and longer than the loop in said base-piece, substantially as and for the purpose described.

2. The herein-described clasp for hose and garment supporters, consisting of a base-piece having a loop contracted at its rear end and a shank upon the rear end of which is formed a loop, through which the supporting strap is adapted to pass and a tongue having a loop slightly longer and narrower than the loop in said base-piece, a shank extending at right angles thereto and adapted to fit within the contracted portion of the loop in said base-piece when the clasp is in its locked position and means for securing the supporting-strap to the rear end of said shank, substantially as and for the purpose described.

576,660. ROCK-DRILL. FREDERICK CRAMER and WILLIAM F. CRAMER, Denver, Colo. Filed May 9, 1896. Serial No. 590,908. (No model.)



Claim.—1. The combination with the stationary frame, the sliding carriage, and the drill-supporting carriage adapted to be reciprocated in said sliding carriage, of the octagonal drill-bar rotatively secured to said reciprocating carriage, the chuck, the cutting-drill, the collar, washer and buffer-ring on said drill-bar and the buffer-plate having an octagonal aperture therein adapted to receive the octagon front end of said drill-bar and hold it against rotative movement just before and at the close of its forward stroke, substantially as described.

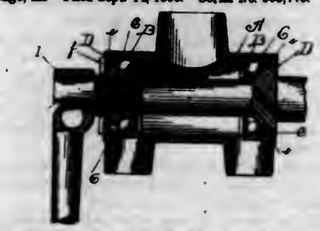
2. In a rock-drill, the combination with a stationary frame and slidable carriage and means including a screw for manually feeding said slidable carriage in said stationary frame, of a reciprocating drill-supporting frame slidably secured in said slidable carriage, and comprising a tube, a cross-head secured at each end of said tube, a thread on one end of said tube, an adjustable nut on said thread, a sleeve surrounding said thread and an expanding spring on said tube arranged between said nut and a fixed abutment on said slidable carriage, substantially as described.

3. In a rock-drill the combination with the slidable carriage of the polygonal drill-bar, a carriage adapted to support said drill-bar and reciprocatively mounted in said slidable frame, an expansive spring adapted to violently move said drill-supporting carriage in one direction of its movement, a crank and shaft, cams mounted on said shaft adapted and arranged to move said drill-supporting carriage in the opposite direction of its movement and to compress said spring, a ratchet-wheel secured to move revolubly with said drill-rod, means for revolubly securing said drill-bar to said drill-supporting carriage, and a spring-controlled pawl having two integral teeth arranged and adapted to engage said ratchet-wheel during the backward stroke of said drill-bar and to impart to said ratchet-wheel a partial rotative movement equal to the circumferential pitch of the polygonal sides of said drill-bar from one another, substantially as described.

4. In a rock-drill, the combination with the ratchet-wheel, the drill-bar and the slidable carriage, of the pawl having two integral teeth, the ratchet-plate secured to said drill-rod adjacent to said ratchet-wheel and supporting said pawl, the vertical spring also secured to said plate and in operative engagement with said pawl, the horizontal spring also in operative engagement with said pawl, the slot in the side of the carriage through which said pawl extends and the inclined plate secured to said carriage and adapted to move said pawl on its backward stroke to operatively engage said ratchet-wheel, as set forth.

5. In a rock-drill, the combination of the slidable carriage, the square crank-shaft, the cams, the recess-bearings in the sides of said slidable carriage, the turned bearings in said shaft, the fly-wheels and the collars with the caps, having a notch in one side edge, a pin secured to the sides of said carriage adapted to fit therein, a bearing in the caps adapted to fit over and on said bearings in said shaft, a notch in the opposite bottom edge of said caps and a screw threaded to each side in the path of the last-named notch, whereby said caps are readily secured and detached to the sides of said carriage, as set forth.

576,661. BALL-BEARING FOR BICYCLES. FRANK DOUGLAS, Chicago, Ill. Filed Sept. 14, 1896. Serial No. 605,773. (No model.)



Claim.—1. In a dust-proof ball-bearing the combination of a hardened ball-bearing cup set firmly in a hub or crank-shaft casing, with a retaining-ring, having an inwardly-turned flange, to retain the balls in position, and a projecting ring which extends beyond the end of the ball-cup to form a dust-proof space between it and the projecting end of the cup-casing, with a ball-bearing cone, having an inwardly-turned flange to enter and turn freely in the dust-proof space between the retaining-ring and the casing, substantially as described.

2. In a dust-proof ball-bearing, the combination of a hardened cup, having a circular groove *m*, which is connected by longitudinal grooves *r r* with a retaining-ring, having lock lugs or points to fit in the cup-grooves, for the purpose of having a stop for the retaining-ring and for holding it in the cup by turning the ring part way round in the grooves, substantially as herein described.

576,662. METAL SIGN-BOARD. FRANCIS V. RAVENSON, Philadelphia, Pa. Filed Oct. 29, 1895. Serial No. 567,282. (No model.)

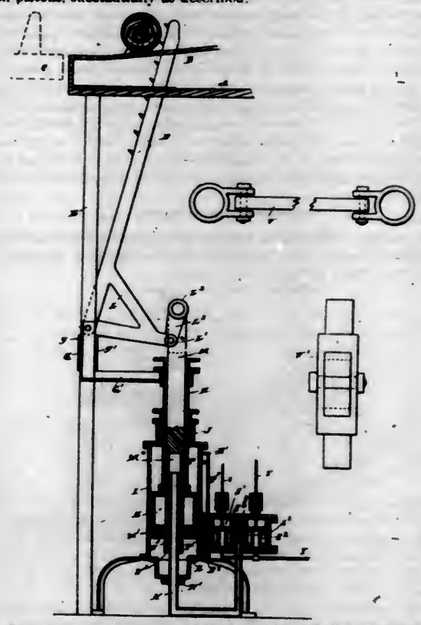


Claim.—A metal sign-board formed from a single piece of metal folded over upon itself as shown and one of the sides of the upper and lower ends of which are furnished with ears *b* adapted to be bent over upon the opposite side and the ends of which, opposite the end formed by the fold of the metal, are bent one to one side, the other to the other side, substantially as and for the purposes set forth.

576,663. STEAM LOG-TURNER. JOSHUA EVERED, Duluth, Minn., assignor of two-thirds to Louis G. Lange, same place, and Albert G. Lange, Muskegon, Mich. Filed Apr. 17, 1893. Serial No. 470,779. (No model.)

Claim.—1. In a log-rolling machine, the combination of a toothed bar pivoted at its lower end to a vertically-guided cross-head rigidly attached to the piston-rod of an upright cylinder, the toothed bar having a bracket at its lower end which is radially connected to the piston-rod of an auxiliary cylinder formed within the piston-rod of the main cylinder, both cylinders being operated by suitable steam-valves, levers, and connections, so that the toothed bar may be elevated or depressed and independently oscillated, substantially as described and for the purpose set forth.

2. In a log-turner, the combination of a cylinder, two pistons working therein, and a bar for operating on the log, connected with both pistons, substantially as described.



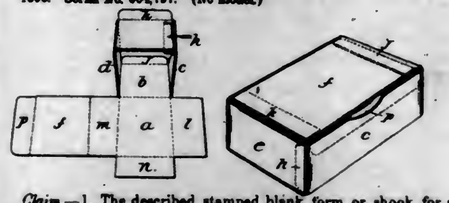
3. In a log-turner, the combination of a cylinder, two pistons working therein, a bar for operating on the log, and connections between the pistons and operating-bar, one of said pistons being connected to the bar near the lower end thereof, and the other to a lateral extension of the same, whereby the pistons may move said bar laterally, substantially as described.

4. In a log-turner, the combination of a cylinder, two pistons working therein, a toothed bar connected with both pistons, and inlet and exhaust ports arranged to admit or exhaust steam or other operating fluid at any portion of the stroke, substantially as described.

5. The combination in a log-turner, of a cylinder, two pistons working therein, a bar for operating on the log having a lateral extension pivotally connected with one of the pistons and a link connecting it with the other, substantially as described.

6. The combination in a log-turner, of a bar for operating on the log, a cylinder, two pistons working therein a hollow piston-rod connected with said bar, a second piston-rod working in the hollow piston-rod and connected with and adapted to actuate said bar, a steam-supply and steam-conduit leading therethrough, and a telescopic connection between the steam-conduit and hollow piston, substantially as described.

576,664. BOX. EUGENE FANNING, Newton, Mass. Filed Sept. 3, 1896. Serial No. 604,797. (No model.)



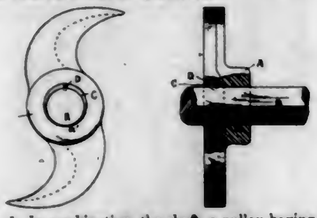
Claim.—1. The described stamped blank form or shook for a box, cut in a single piece and creased for folding corners, and having the arrangement and combination shown of the several parts viz. the bottom having the guides and reinforcements *l m n* on three sides and end *b* on the fourth to which are attached parts *c d e* and *h* in a continuous longitudinal strip the top and tuck *p* being attached to the guide and reinforcement *m*, and folds *k* and J respectively to ends *e* and *b* the fold *h* being adapted to be adhesively joined to the opposite end of the longitudinal strip of which it forms one end viz. strip *c b d e* substantially as shown and described.

2. The complete box-shook in a single piece of material having the two sides and two ends *d c e b* (four sides) having flaps *k* J and

fold *k* in one longitudinal strip contiguous to another longitudinal strip containing bottom *a* top *f* two guides and reinforcements *l m* and tuck *p* said bottom being joined to end *b* and a guide and reinforcement *n* the fold *k* being adapted to be adhesively joined to opposite end *e* of the longitudinal strip and thus made ready for packing, or for setting up and filling all substantially as shown and described.

3. The completed box as shown, when stamped out in a single piece with all parts connected and having the opposite ends of the strip which forms the four ends and sides united by the adhesive fold *k* the guides and reinforcements *k* and *l* being turned up within the end *e* and side *c* and the guide and reinforcement *m* turned up outside of side *d*, and the top or cover *f*, folding down over all with tuck *p* gripped between guide and reinforcement *l* and side *c* substantially as described.

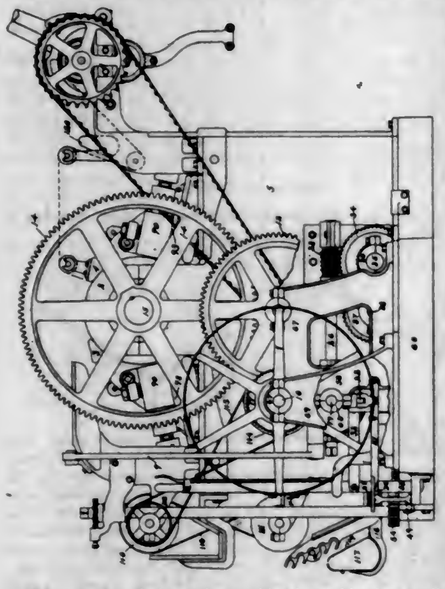
576,665. **MEANS FOR ATTACHING WHEELS, &c., TO SHAFTS.** SIDNEY H. FARRAR, Johannesburg, South African Republic. Filed May 29, 1896. Serial No. 593,631. (No model.)



Claim.—1. In combination, the shaft, a pulley having a bore to receive the same and having also an eccentric bore of larger diameter than the shaft, said eccentric bore opening laterally of the pulley and of its full diameter, the eccentric bush in said open bore and the ball between the bush and shaft for holding the bush against movement about the shaft or longitudinally thereof.

2. In combination, the shaft, a pulley having a bore to receive the same and having also an eccentric bore of larger diameter than the shaft, said eccentric bore opening laterally of the pulley and of its full diameter, the eccentric bush in said open bore, and locking means between the bush and the shaft for holding the bush against movement about the shaft, said locking means projecting from one part into a recess in the other part, the said pulley being thus adapted to be pushed longitudinally of the shaft over the locking device.

576,666. **CLOTH-PRESSING MACHINE.** DAVID GREENER, Worcester, Mass. Filed Dec. 18, 1894. Serial No. 532,138. (No model.)



Claim.—1. In a cloth-pressing machine, in combination, a cylinder, a bed-plate, a prime mover, mechanism containing a friction-clutch connecting the bed-plate and prime mover, a spring tending to separate the parts of the friction-clutch, a lever, assisting said spring and means for operating said lever in a direction to assist said spring, substantially as described.

2. In a cloth-pressing machine, in combination, a cylinder, a bed-plate, a prime mover, mechanism containing a friction-clutch connecting the bed-plate and prime mover a lever for connecting and disconnecting the parts of said friction-clutch and two levers, whereby said first-named lever is operated in opposite directions, substantially as described.

3. In a cloth-pressing machine, in combination, the cylinder-shaft, the end frames supporting the frame, the base-plate, the shaft 10 carrying the prime mover, connections between said shaft and the cylinder-shaft, the shaft 19, connections between said shaft and the bed-plate and stands connected with the base-plate of the machine having bearings, respectively for said shaft 10 and said shaft 19, arranged substantially as described; whereby either of said shafts may be removed independently of the other, substantially as described.

4. In a cloth-pressing machine, in combination, a cylinder, a bed-plate, a shaft 38, connections between the bed-plate and said shaft, a prime mover and the following mechanism for actuating said shaft, viz: the worm 33, the worm-wheel 34 engaging therewith, the gear 36 driven by said worm-wheel, the gear 37 driven by said gear 36 and mechanism whereby said worm is actuated from said prime mover, substantially as described.

5. A rotary cloth-press bed-plate provided with an internal steam-chamber and a series of internal strengthening-ribs arranged alternately in said chamber, substantially as described.

6. In a rotary cloth-press, in combination, a sheet-metal jacket and a bed-plate; said bed-plate containing a heating-chamber, a separate steaming-chamber provided with an opening toward the cylinder, a recess 85 between said chambers and perforations between said chambers to admit the fastening attachments for the sheet-metal jacket: said recess being constructed substantially wider than the thickness of the sheet-metal jacket and being rounded at the edge over which the sheet-metal jacket passes, substantially as described.

7. A rotary cloth-press bed-plate combining in a single casting, a steam-heating chamber, a steam-chamber provided with an opening toward the cylinder and a recess intermediate the two wherein one edge of a jacket may be secured, substantially as described.

8. A rotary cloth-press bed-plate containing a steaming-chamber, a grooved surface next the cloth and an opening connecting said steaming-chamber with said groove, substantially as described.

9. In combination with a rotary cloth-press bed-plate, having a longitudinal recess in its face, a sheet-metal jacket having one of its edges terminating in said recess, substantially as described.

10. In a cloth-press, in combination, the cylinder, two bed-plates on opposite sides thereof, two end-frame uprights each provided with a central support for the cylinder-bearing and a bed-plate support on each side thereof, an intermediate-frame upright extending across under the cylinder and bed-plates, each upright consisting of two parallel members, a base-plate to which all of said uprights are connected, the bed-plate-operating levers and the fulcrum-pins for said levers, each of which is supported on each side of each lever in bearings on the opposite sides of one of said uprights, substantially as described.

11. In a cloth-pressing machine, in combination, the cylinder, the bed-plates on opposite sides of the same, three levers arranged behind each bed-plate, means whereby the pressure of said levers is imparted to said bed-plates at three different points, a shaft 38, three heads 39 mounted thereon, means whereby each of said heads is connected with two opposite levers and means whereby said shaft 38 is oscillated, substantially as described.

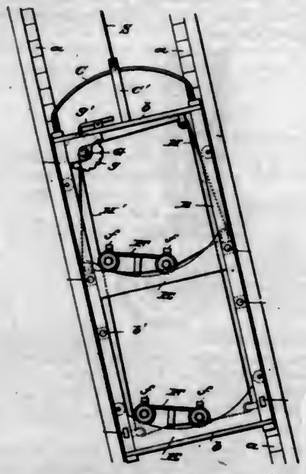
576,667. **SKIP FOR MINE-SHAFTS.** WILLIAM A. GIPSON and CASABLANCA B. WHITE, Cripple Creek, Colo. Filed Sept. 19, 1896. Serial No. 606,377. (No model.)

Claim.—1. A skip or cage having cross bars or rails the upper edges of which are curved inwardly lengthwise and a movable truck or car mounted on said rails, substantially as shown and for the purpose set forth.

2. In combination with the skip or cage having curved supporting-rails, of a truck mounted on said rails, and means for adjusting the truck, carried by the skip or cage and connected to said truck, for the purpose set forth.

3. In combination with a skip or cage, of supporting-rails curved inwardly lengthwise, and trucks mounted on said curved supporting-rails and provided with rails, substantially as shown and for the purpose set forth.

4. In combination with a skip or cage having inwardly-curved supporting-rails and movable trucks mounted thereon, of locking means for said trucks consisting of a shaft having cables wound in opposite directions thereon and connected at their ends to the truck or trucks, a toothed wheel mounted on the shaft, and a ratchet in engagement with said toothed wheel, substantially as shown and for the purpose set forth.



576,668. **GAS-BURNER TIP.** ISIDOR GLOO, Plymouth, Pa. Filed June 19, 1896. Serial No. 596,104. (No model.)

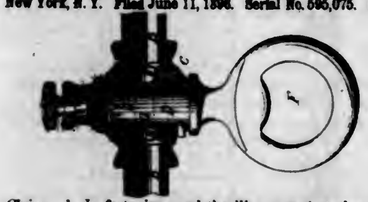


Claim.—1. A gas-burner tip comprising the hollow nipple A, having an apertured plug seated in the lower end thereof, a spring-actuated valve seated over the upper end of the apertured plug, and a thermostat designed to raise the said valve, substantially as shown and described.

2. A tip, for a gas-burner, having in combination, with the hollow tip, an apertured plug seated in the bottom of said tip, a ball E, seated in the upper end of said apertured plug, a coiled spring interposed between the ball and the inner upper end of the tip, and a thermostat, curved over the top of the tip, and having one end designed to rest against and raise the said ball, substantially as shown and described.

3. As an improved article of manufacture, a gas-tip regulator having in combination with the hollow tip an apertured plug and spring-actuated ball E, as described, a thermostat C, having one end secured in a groove about the tip, thence curved over and through an aperture in the tip in contact with the said ball, substantially as described.

576,669. **FASTENING FOR GAS-COCKS, &c.** JOHN A. HAMILTON, New York, N. Y. Filed June 11, 1896. Serial No. 595,075. (No model.)



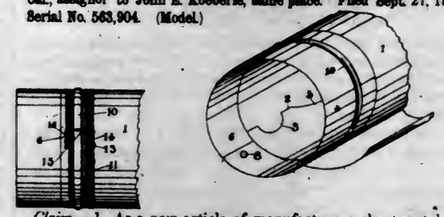
Claim.—1. In fastenings and the like, a socket-piece having a socket, in combination with a member in said socket, having a laterally-expansible projection beyond the latter, said parts movable the one relatively to the other, an annular fastening having a tubular interior passing over said projection and holding said member in said socket, said member having a smooth internal wedge-surface, a smooth wedge acting thereagainst, and a screw engaging said member and forcing said wedge against said surface for expanding the end of said member against said fastening to prevent independent movement of the latter.

2. In fastenings, a socket-piece having a socket, in combination with a plug movable therein and having a projecting end having an external screw-thread, an expanding portion, an internal smooth surface, and an internal screw-thread, a tubular fastening-nut having an internal thread screwing on the external thread of said member and having an internal face surrounding the expanding portion thereof, and a screw engaging the internal thread of said member, having a distinct wedge portion expanding the plug thereof against said fastening, and having a head beyond the latter.

576,670. **PRODUCTION OF BASIC CARBONATE OF LEAD.** OSWALD HAMILTON, Northfleet, England. Filed Apr. 30, 1896. Serial No. 589,750. (No specimens.)

Claim.—The process for the production of that basic carbonate of lead known as "white lead" which consists in dissolving litharge or oxid of lead in a solution of lead and ammonium acetates in equivalent molecular proportions to form a mixture of tribasic-lead acetate and ammonio-lead acetate, and then subjecting the solution to the action of carbonic-acid gas in order to precipitate basic carbonate of lead as specified and regenerate the liquor for use over again as described.

576,671. **SHEET-METAL PIPE.** CHARLES S. HAMLIN, Los Angeles, Cal., assignor to John E. Koeberle, same place. Filed Sept. 27, 1895. Serial No. 563,904. (Model.)



Claim.—1. As a new article of manufacture, a sheet-metal pipe having one or more coils of metal and having its inner edge secured to the body of the pipe by means of individual lips extending over a portion of the edge, said lips being formed out of the body by cutting a notch therein having a portion remaining integral with the body, the inner edge of the pipe being cut away in concave form and means for holding the coils of the pipe together, substantially as set forth.

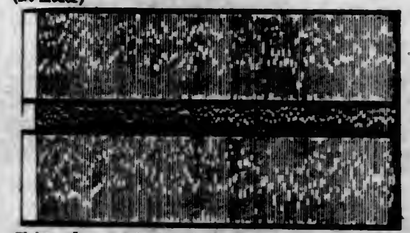
2. As a new article of manufacture, a sheet-metal pipe, having its inner edge scalloped or cut away in concave form, and secured together at the ends of the concavity, substantially as set forth.

3. In a sheet-metal pipe the combination of a sheet formed into pipe shape, a binding-wire coiled around the pipe, a separate short tie-wire having one of its ends secured to the body of the binding-wire, a number of coils of the binding-wire being passed over the tie-wire, and the free ends of the tie and binding wires being secured together, substantially as set forth.

4. A sheet-metal pipe comprising an inner coil formed with individual lips cut in the coil, and its inner edge fitting in the lips thus formed, an outer coil forming a continuation of the inner coil, and provided with a groove, and a ring formed with a bead fitting in the groove of the outer coil and having its inner edge fitting within the overlapping portions of the inner and outer coils, extending around the inner coil and having its outer edge overlapping its inner edge and secured thereto; substantially as described.

5. In a pipe the combination of a main section formed into two or more coils a ring having a peripheral bead, said ring being placed between the coils of the main section, the outer coil of the main section being pressed down upon and conforming with the bead on the ring, and a binding-wire wound around the pipe, and on both sides of the bead, said wire having its inner end secured between the coils of the main section and its outer end secured by a tie-wire, substantially as set forth.

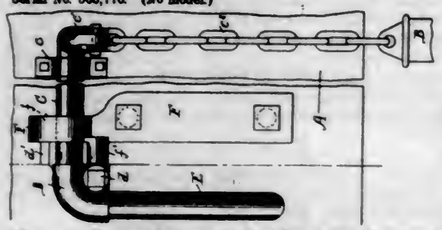
576,672. **CAN FOR ICE-MAKING MACHINES.** ORMOND HAMMOND, Jr., Baltimore, Md. Filed July 11, 1895. Serial No. 555,645. (No model.)



Claim.—In a can for freezing and clarifying ice in blocks, provided with means for applying a heat-absorbent to one side of the

can only, in combination with an air-supply pipe located at the bottom of the can and at a point near the side opposite to that of the heat-absorbent, said pipe provided with delivery-apertures arranged to direct the air against the bottom of the can, and deflect the same before contacting with the side of the freezing block, whereby the ice is frozen in a solid block and clarified.

576,673. **LOCKING DEVICE FOR UNLOCKING-LEVERS OF CAR-COUPLINGS.** PHILLIP HIER, Chicago, Ill. Filed Apr. 1, 1896. Serial No. 585,770. (No model.)

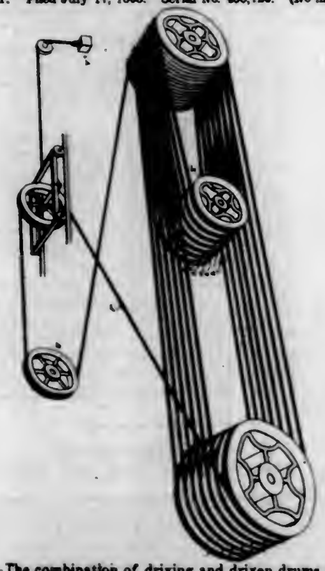


Claim.—1. The combination with the lifting-lever of a car-coupler and a slotted bearing for the lever of a series of engaging teeth or projections for locking the lever in the desired position said teeth disengaged by the elevation of the lever in its slotted bearings substantially as described.

2. The combination with the lifting-lever of a car-coupler and a slotted bearing for the lever of a series of engaging teeth or projections on the lever adjacent to the slotted bearing and at least one stationary engaging point, said teeth disengaged from the stationary engaging point by the elevation of the lever in its slotted bearing substantially as described.

3. The combination with the lifting-lever of a car-coupler and a slotted bearing for the lever of a series of teeth on the lever, and a series of teeth on the bearing the two sets of teeth adapted to mesh with each other substantially as described.

576,674. **ROPE-DRIVING APPARATUS.** JOSEPH H. HOADLEY, San Francisco, Cal., assignor to the Cramp-Hoadley Company, New York, N. Y. Filed July 17, 1893. Serial No. 480,729. (No model.)



Claim.—The combination of driving and driven drums, the rope wound in a larger number of wraps upon the smaller drum, another drum for receiving the extra wraps of the rope which is so wound that the wraps on the third drum alternate with the wraps upon the other drums, and the idle and the tension pulleys likewise receiving the rope in an endless wind, substantially as described.

576,675. **CASTER.** HENRY ILL, Newark, N. J. Filed Nov. 17, 1896. Serial No. 612,435. (No model.)

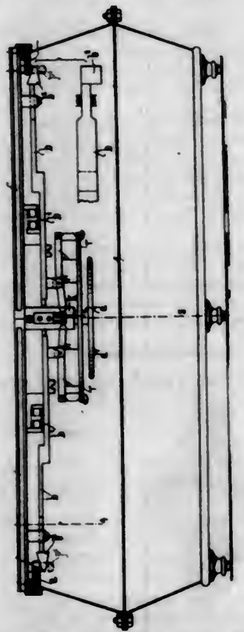
Claim.—1. In a caster, the combination, with a tubular shank, of a washer or disk, as *f*, movably arranged thereon, said washer or disk having an upwardly-extending projection *f'*, and a disk on the upper end of said shank, having spring-tongues, substantially as and for the purposes set forth.



2. In a caster, the combination, with a tubular shank, of a washer or disk, as *f*, movably arranged thereon, said washer or disk having an upwardly-extending projection *f'*, and a disk on the upper end of said shank, having an upwardly and downwardly extending edge *d'* provided with cut-away portions d^2, and spring-tongues d^3, substantially as and for the purposes set forth.

3. In a caster, the combination, with a tubular shank *d* having a bead d^1, of a washer or disk *f*, having an upwardly-extending projection *f'* and the surrounding flat part f^3, and a disk on the upper end of said shank, having an upwardly and downwardly extending edge *d'* provided with cut-away portions d^2, and spring-tongues d^3, substantially as and for the purposes set forth.

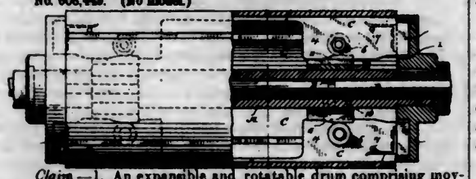
576,676. **COFFIN.** MICHAEL KARNICKI, Warsaw, Russia. Filed Aug. 22, 1896. Serial No. 603,575. (No model.)



Claim.—1. In a coffin, a lid provided with one or more panels held to the lid against the tension of a spring, a catch carried by said panel or panels, a bolt sliding on the under side of one of said panels and adapted to engage the keeper, a keeper on the coffin-lid through which the catch of the panel is adapted to pass, a spring adapted to retract the bolt from the keeper, a rod adapted to hold the bolt in locking position against the tension of said bolt-spring and a push-disk adapted when elevated or depressed to release the rod from the bolt and thereby to permit the bolt to slide out of engagement with the catch to permit of the withdrawal of the panel and catch from the keeper of the lid, substantially as and for the purposes described.

2. In a coffin, a lid having one or more panels, held down upon the lid against the tension of a spring, mechanism for locking the panels together and to the lid, a rod adapted when elevated or depressed to release the locking mechanism, two levers each connected at one end to the rod, and a ring secured to the free end of said levers and adapted when depressed to elevate the other ends of said levers and thereby to elevate the rod and release the locking mechanism, substantially as and for the purposes described.

576,677. **EXPANSIBLE DRUM FOR COILING SHEET METAL.** ABEL KENWORTHY, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. Filed Oct. 10, 1896. Serial No. 608,449. (No model.)



Claim.—1. An expansible and rotatable drum comprising movable sections whose outer surfaces consist of arc-shaped plates extending from end to end of the drum, longitudinally-movable hubs provided with inclines which engage the sections and move them outward when moved in one direction and springs which move the sections inward when the hubs are moved in the opposite direction, a rotatable shaft, and means supported by said shaft for rotating and for guiding the plates in radial directions.

2. An expansible and rotatable drum comprising movable sections whose outer surfaces consist of arc-shaped plates extending from end to end of the drum and at the centers of which are inwardly-extending radial plates, rollers carried by said radial plates, longitudinally-movable hubs having inclines which are engaged by the rollers and move the sections outward when the hubs are moved in one direction and springs which move the sections inward when the hubs are moved in the opposite direction, a rotatable shaft, and means supported by said shaft for rotating and for guiding the plates in their radial movements.

3. An expansible and rotatable drum comprising movable sections whose outer surfaces consist of arc-shaped plates extending from end to end of the drum and at the center of which are inwardly-extending radial plates, a rotatable shaft by which the drum is carried and which is adapted to be moved longitudinally, inclines carried by said shaft which engage the radial plates and move the sections outward when the shaft is moved longitudinally in one direction, springs which move the sections inward when the shaft is moved longitudinally in the opposite direction, and end plates supported by said shaft and having means for guiding the plates in their radial movements.

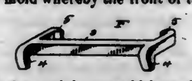
4. An expansible and rotatable drum comprising movable sections whose outer surfaces consist of arc-shaped plates extending from end to end of the drum and at the center of which are inwardly-extending radial plates, a sleeve by which the drum is carried, a shaft adapted to be moved longitudinally, within said sleeve rollers carried by the radial plates, inclines movable along said sleeve which are engaged by the rollers to move the sections outward when the shaft is moved longitudinally in one direction, springs which move the sections inward when the shaft is moved longitudinally in the opposite direction, and connections between said shaft and inclines whereby the latter are moved by the former.

5. An expansible drum comprising movable sections whose outer surfaces consist of arc-shaped plates at the center of which are inwardly-extending radial plates, a shaft by which the drum is carried and which is adapted to be moved longitudinally, rollers carried by the radial plates, hubs rigidly secured to the shaft and provided with grooves which receive the radial plates and with inclines which are engaged by the rollers for the purpose set forth and springs which move the sections inward as the rollers pass down the inclines.

6. An expansible drum comprising a sleeve having slots 10, end pieces secured to the said sleeve and provided with recesses 1, movable sections whose outer surfaces consist of arc-shaped plates at the center of which are inwardly-extending radial plates the ends of which engage the recesses, longitudinally-movable hubs having inclines which are engaged by the radial plates and move the latter outward and springs which act to move the sections inward.

576,678. **CLAMP FOR MOLDS.** ABEL KENWORTHY, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. Filed Oct. 29, 1896. Serial No. 610,444. (No model.)

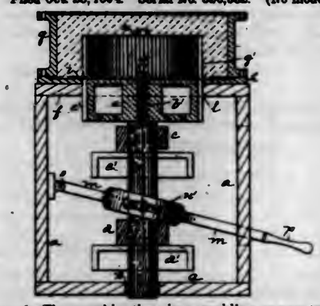
Claim.—1. The combination with a mold-rack having a bar or rail to support the back of the mold, of a clamp adapted to rest on and slide along said bar and provided with a forwardly-projecting hook at each end, the two hooks being connected together only at the back of the mold whereby the front of the latter is unobstructed.



2. A clamp for retaining a mold in position on a rack, consisting of a bar 3 having lugs 4 parallel with each other and extending downward from said bar, and having hooked arms 5 extending from said bar in the same plane therewith and provided with hooks extending toward each other, the bearing-surfaces of the lugs and hooks being free from projections whereby they are adapted to be slid or moved along the engaged portions of the mold and rack.

3. A clamp for retaining a mold in position on a rack, consisting of a longitudinally-adjustable bar 3 having lugs 4 parallel with each other and extending downward from said bar, and having hooked arms 5 extending from said bar in the same plane therewith and provided with hooks extending toward each other, the bearing-surfaces of the lugs and hooks being free from projections whereby they are adapted to be slid or moved along the engaged portions of the mold and rack.

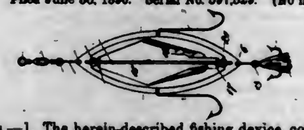
576,679. **MOLDING-MACHINE.** FERDINAND KEPP, Allegheny, Pa., assignor to the Kepp Gear Wheel and Foundry Company, same place. Filed Oct. 23, 1894. Serial No. 526,682. (No model.)



Claim.—1. The combination, in a molding apparatus, of a stationary frame, a stationary mold-table on said frame having an opening therein for the passage of the pattern therethrough, a plunger mounted in guides on said frame, a pattern mounted on the upper end of said plunger, a flask mounted on said mold-table, a slotted lever pivoted to the frame, and a screw bolt or bolts passing through the slot or slots in the lever and screwed into the plunger; substantially as described.

2. The combination, in a molding apparatus, of a stationary frame, a stationary molding-table on said frame having an opening therein for the passage of the pattern therethrough, a stripper-plate mounted on said molding-table also having an opening therein for the passage of the pattern, said opening in the stripper-plate corresponding in outline to the peripheral configuration of the pattern so as to support the sand while forming the mold, a plunger mounted in guides on said frame, a pattern mounted on the upper end of the plunger, a flask mounted on said stripping-plate, a slotted lever pivoted to the frame, and a screw bolt or bolts passing through the slot or slots in the lever and screwed into the plunger; substantially as described.

576,680. **FISHING APPARATUS.** DAVID M. KITTLE, Syracuse, N. Y. Filed June 30, 1896. Serial No. 597,529. (No model.)



Claim.—1. The herein-described fishing device, consisting of an elliptical frame, which is pointed at each end, said frame being provided with a longitudinal rod, which is rigidly secured thereto, a revoluble center piece mounted thereon, the sides of which at the lower end thereof, are curved in the same direction, to form propeller-blades, said frame being also provided at its lower end with a hook or hooks, substantially as shown and described.

2. The herein-described fishing device, consisting of an elliptical frame, which is pointed at each end said frame being provided with a longitudinal rod, which is rigidly secured thereto, a revoluble center piece mounted thereon, the sides of which at the lower ends thereof, are curved in the same direction, to form propeller-blades, said

frame being provided at its lower end with a hook or hooks, and at each side with a hook which is pivotally connected therewith, substantially as shown and described.

576,681. **REIN-HOLDER.** GODFRIED LAUER, Huron, S. D., assignor of one-half to A. Vandenburg, same place. Filed Sept. 9, 1896. Serial No. 605,248. (No model.)



Claim.—A rein-holder formed of a single piece of wire bent to produce a straight bar with an eye on the end, then bent at right angles to the bar and doubled on itself to form a loop, next bent parallel with the first bar and at right angles to form a second loop parallel with the first, then downward, passing through the eye formed on the bar, then curved outward and inward and doubled on itself to form a tongue and ending in a coil above the eye, said loops being bent to form hooks to engage the dashboard of a vehicle, substantially as shown and described.

576,682. **GAS-BURNER FOR ACETYLENE.** MAX LEVY, Philadelphia, Pa. Filed Nov. 14, 1896. Serial No. 568,971. (No model.)



Claim.—1. In a gas-burner, the combination, of the tip having a central opening and gas passages or orifices which converge toward and communicate therewith, together with a plug located in said central opening and adapted to open and close the gas-orifices, one of the parts being movable vertically and rotatably with respect to the other.

2. In a gas-burner, the combination, of the tip having a central opening and escape-passages leading thereto, and a plug located in the central opening to project beyond the tip and adapted to open and close the gas-orifices, the upper end of the plug being beveled and one of the parts movable with respect to the other both vertically and rotatably, substantially as set forth.

3. The combination with a gas-burner, of the tip having a central opening and converging passages leading thereto, and a plug located in the central opening to project beyond the tip and having a flattened and twisted upper end to present curved surfaces against which the gas impinges, for the purpose set forth.

4. In a gas-burner, the combination, of the tip having a central opening countersunk at its upper end and converging passages leading to said central openings; together with a plug having a flattened upper end, said plug being positioned in the central opening of the tip to project beyond the same and adapted to open and close the converging passages, one of the parts being movable vertically and rotatably with respect to the other, for the purpose set forth.

5. In combination with a gas-burner having a tip with a central opening and converging passages leading thereto, of a vertically and rotatably movable plug the upper end of which is beveled on opposite sides, the plug being positioned within the central opening to project beyond the tip so that the gas which escapes through the passages will impinge against the beveled sides of the plug.

6. In a gas-burner, the combination, of a pillar or support carrying a plug or cut-off, and a sleeve mounted upon the pillar and having a tip with a central opening and gas-passages leading thereto, the plug or cut-off being located in the central opening of the tip, one of the parts being movable vertically and rotatably with respect to the other, substantially as shown and for the purpose set forth.

7. In a gas-burner, the combination with a fixed part carrying a plug or cut-off, of a lever fulcrumed thereto, a movable section or sleeve having a tip with a central opening and converging gas-passages, the lever engaging the movable part so that the movement of said lever will cause the movable part to be elevated and depressed, for the purpose of operating the cut-off which is located in the central opening of the tip.

8. The combination with a burner having one part movable vertically and rotatably with respect to the other and embodying a burner-tip through which passes a plug having a flattened end that projects beyond said tip, the tip having apertures which lead to the opening in which the plug is located, and means for moving one part with respect to the other so that the plug may entirely close the escape-apertures in the tip.

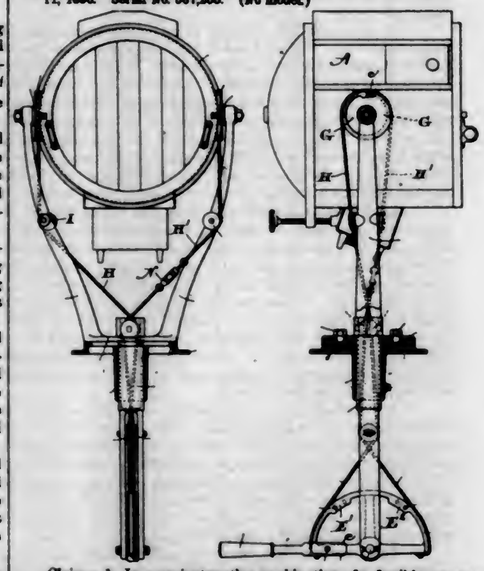
9. In combination with a gas-burner constructed substantially as shown, of the tip having a central opening and converging gas-passages located therein, and a plug or cut-off located in the central opening and projecting beyond the tip, together with means for turning one of the parts with respect to the other as said parts are moved vertically one upon the other.

10. The combination with a gas-burner, of the tip having a central opening and apertures for the gas leading thereto; a plug or cut-off located in the central opening and provided with a flattened and twisted upper end which projects beyond the tip, one of the parts being adjustable and rotatable with respect to the other for varying the size of the escape-apertures and the character of the flame, substantially as described.

11. A gas-burner having a tip with a central opening, converging passages leading to said opening, and a transverse groove in the tip intersecting the central opening, of a plug or cut-off the upper end of which is flattened to provide two surfaces against which the gas impinges, the plug projecting beyond the tip and one of the parts being movable vertically and rotatably with respect to the other.

12. In a gas-burner for the purpose set forth, the combination, of the hollow pillar or post carrying in its upper end a bridge or block provided centrally with a plug, a collar mounted on the pillar and provided with a lever-support having a slot which is inclined relative to the longitudinal center of the burner; a lever mounted on the support and having a slot; together with a movable section carrying a tip and having a projecting pin which engages the slots in the lever and its support, substantially as shown.

576,683. **CONTROLLING MECHANISM FOR PROJECTORS.** JOHN MACHAFFIE and ELIE F. G. H. FAURE, Schenectady, N. Y., assignors to the General Electric Company, of New York. Filed Apr. 11, 1896. Serial No. 587,235. (No model.)



Claim.—1. In a projector, the combination of a flexible connector secured to the drum for moving it upward, a second flexible connector also secured to the drum for moving it downward, and an actuating device common to both.

2. In a projector, the combination of a plurality of sectors mounted on the drum, a sector mounted on the horizontally-rotatable frame, and flexible connectors secured to the sectors on the drum and the sector on the frame in such manner that a movement of the horizontally-rotatable frame can be made without causing a movement of the flexible connectors, and vice versa.

3. In a projector, the combination of sectors secured to the drum, a sector secured to the horizontally-rotatable frame, flexible connections between the sectors on the drum and the sector on the frame,

and an operating-handle for imparting movement to the drum in a horizontal and vertical plane.

4. In a projector, the combination of a flexible connection leading from a sector on the drum to a sector mounted on the horizontally-rotatable frame, a flexible connection leading from a sector on the opposite side of the drum to the sector mounted on said frame, and a handle for operating the projector.

5. In a projector, the combination of sectors mounted on opposite sides of the drum, a sector mounted on a horizontally-rotatable frame, wire ropes from the sectors on the drum to the sector on the frame, rollers mounted on the frame, and a tubular portion through which the wire ropes extend.

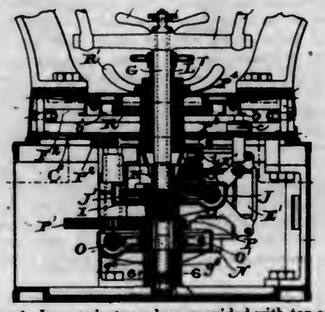
6. In a projector, the combination of sectors secured to the drum, a sector carried by a horizontally-rotatable frame, and flexible connections between the sectors on the drum and the sector carried by the frame, the two ends of each flexible connection being secured to sectors on the same side of a vertical line.

7. In a projector, the combination of sectors carried by the drum, a sector carried by the horizontally-rotatable frame, flexible connections between the sectors on the drum and the sector on the frame arranged to cross one another, the ends of each connector being secured to the sectors on the same side of a vertical plane.

8. In a projector, the combination of a plurality of sectors, flexible connection between the sectors on the drum and a sector mounted on the base, and means for taking up the lost motion between the moving parts.

9. In a projector, a plurality of sectors carried by the drum and frame, a flexible connection between one sector on the drum and a sector on the frame, for imparting motion to the drum in an upward direction, and another flexible connection between the other sector on the drum and a sector on the frame, for imparting movement to the drum in a downward direction.

576,684. **PROJECTOR.** JOHN MACHAFFIE and ELIE F. G. H. FAURE, Schenectady, N. Y., assignors to the General Electric Company, of New York. Filed Apr. 22, 1896. Serial No. 588,552. (No model.)



Claim.—1. In a projector, a base provided with top and bottom members, the top member supporting the drum-frame from its upper side and the operating-motors from its under side.

2. In a projector, the combination of a base provided with top and bottom plates, struts between the plates, and motors and intermediate actuating mechanism carried by the under side of the top plate.

3. In a projector, the combination of top and bottom plates, motors supported from the under side of the top plate, rollers between the top plate and the drum-frame, and means for securing the drum-frame to the top plate.

4. In a projector, the combination of a base composed of two members, means for separating the members, motors and operating mechanism divided into sections, and means for securing the sections to the top member of the base.

5. In a projector, the combination of a base composed of top and bottom plates, struts between the plates, motors and operating mechanism divided into sections and secured to the top plate by bolts, and trays in which portions of the operating mechanism are adapted to revolve.

6. In a projector, the combination of a center screw-threaded sleeve, a split nut adapted to engage therewith, springs for forcing the sections of the nut toward the center, and means for rotating the nut around the sleeve to move it in a vertical direction.

7. In a projector, the combination of a screw-threaded sleeve adapted to actuate the drum, a split nut engaging therewith to move it up and down, and means for releasing the screw-threaded sleeve from the split nut when it is desired to operate the drum by hand.

8. In a projector, the combination of a center sleeve provided with a screw-threaded portion, a split nut adapted to engage therewith, springs for forcing the segments of the nut into engagement with the sleeve, a worm-wheel, guides on the wheel for the nut, and a device for forcing the nut out of engagement with the feed-screw.

9. In a projector, the combination of a screw-threaded sleeve made in sections and adapted to move the drum in a vertical plane, and a clutch for preventing the rotation of the sleeve.

10. In a projector, the combination of a screw-threaded sleeve made in sections and adapted to move the drum in a vertical plane, a shaft inside of the sleeve, friction-surfaces between the shaft and the sleeve, and means carried by a section of the sleeve for preventing rotation of the sleeve when the friction-surfaces are in contact.

11. In a projector, the combination of a shaft, a sleeve surrounding the shaft made in sections, screw-threads cut on one section of the sleeve, one section of the sleeve being adapted for rotation and vertical movement, the other section being limited to a vertical movement.

12. In a projector, the combination of a vertically-movable actuating device secured to the drum, a motor for actuating the device, and a cushioned stop for limiting the vertical movement of the drum.

13. In a projector, the combination of a vertically-movable actuating device secured to the drum, a nut for actuating the device, a motor for revolving the nut, a cushion-stop for limiting the vertical movement of the drum in either direction, and a spring for pressing the nut into engagement with the actuating device when the motor is reversed.

14. In a projector, the combination of a screw-threaded sleeve, a motor for revolving the nut about the sleeve, and a spring adapted to bring the screw-threaded portion of the sleeve into engagement with the nut when the motor is reversed at the end of the up or down movement of the sleeve.

15. In a projector, the combination of a vertical actuating device, means for operating the device propelled by a motor, and a mechanical stop for the device limiting its movement, but permitting a continuous rotation of the motor.

16. In a projector, the combination of an actuating device secured to the drum and adapted to move up or down, means propelled by the motor for operating the device, and a stop provided with a compression-spring adapted to limit the movement of the actuating device in either direction and at the same time permit a continuous rotation of the motor.

17. In a projector, the combination of a shaft or sleeve secured to one element for movement in one plane, a sleeve surrounding it and secured to a second element for movement in another plane, and motors supported from the top part of the base for imparting movement to the operating mechanism.

18. In a projector, the combination of a drum-supporting frame adapted for horizontal movement, a base provided with top and bottom plates, a motor secured to the top plate of the base, gearing between the motor and the frame, and a friction-clutch for throwing the gearing into operative relation with the frame.

19. A screw-threaded sleeve, a nut cooperating therewith, means for securing the nut and rotating the sleeve, and means for preventing rotation of the sleeve and rotating the nut; whereby the sleeve may be moved vertically by two different mechanisms, substantially as described.

20. In a projector, the combination of a vertically-movable sleeve secured to the drum and adapted to be actuated by a rotary movement or by securing the sleeve against rotation and revolving a nut around a screw-threaded portion of the sleeve.

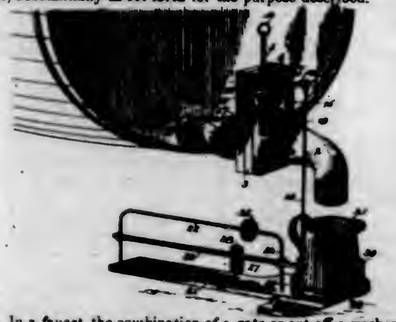
21. A screw-threaded sleeve adapted to be fed in a vertical plane by three separate means; first, by securing the sleeve against rotation and feeding it by means of a nut driven by a motor; second, by securing the nut against rotation and revolving the sleeve, and third, by releasing the sleeve from the nut and moving it up and down by hand.

576,685. **MEASURING-FAUCET.** WILLIAM W. NEWCOMB, Bradfordsville, Ky., assignor of one-half to John J. Conatt, same place. Filed May 26, 1896. Serial No. 593,162. (No model.)

Claim.—1. In a faucet, the combination of a self-closing gate or cut-off having a stem, a cross-bar secured to and movable with the said stem and adapted to be turned, having the stem as an axis, stops to engage with the end portions of the cross-bar upon opposite sides of the stem and hold the gate open, and a trigger to engage with the cross-bar and release it from the said stops, substantially as and for the purpose set forth.

2. In a faucet, the combination of a self-closing gate or cut-off having a stem, slotted side pieces forming guides and having notches, a cross-bar mounted upon and movable with the stem of the gate and operating in the said guides, and adapted to be turned having the stem as an axis to enter the said notches, and a trigger for releasing the cross-bar from the notches, substantially as and for the purpose set forth.

3. In combination, a faucet composed of two parts flanged at their opposing ends, said flanges being bolted together, a gate or cut-off operating in a space formed between the said flanges, a washer located to one side of the gate, and springs disposed to exert a pressure against the opposite side of the gate to force it against the washer, substantially as set forth for the purpose described.

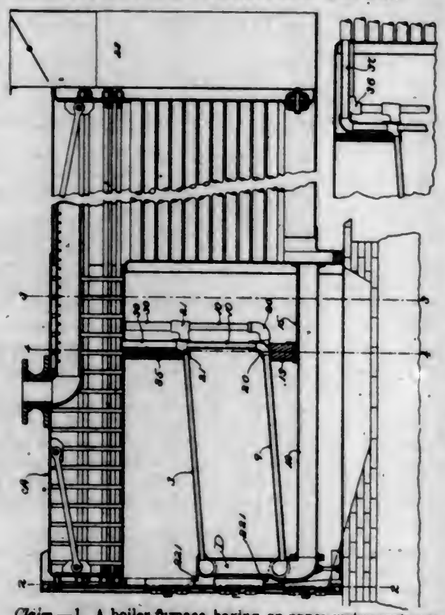


4. In a faucet, the combination of a gate or cut-off, a washer disposed upon one side of the gate, springs placed upon the opposite side of the gate, and set-screws for varying the tension of the said springs to cause the latter to press with greater or less force against the gate, substantially as and for the purpose set forth.

5. In a faucet, the combination of a self-closing gate or cut-off, a cross-bar secured to and having connection with the stem of the gate and having a projecting portion, stops to engage with the end portions of and support the cross-bar when the gate is open, a trigger to release the cross-bar from the stops, and an audible signal having a hammer extending across the path of the projecting portion of the cross-bar to be struck thereby, substantially in the manner set forth for the purpose described.

6. In combination, a faucet having a self-closing gate or cut-off, means for holding the gate open when drawing off the contents of a cask, barrel, &c., through the faucet, a trigger for releasing the gate, a scale-beam operatively connected with the trigger for actuating the latter when a predetermined amount of liquid has been drawn, and a weight 27 slidingly mounted upon the scale-beam and constructed to shift toward the fulcrum of the scale-beam the instant the latter tilts, substantially as and for the purpose set forth.

576,686. BOILER-FURNACE. EDWARD B. PARKHURST, Woburn, Mass. Filed Apr. 23, 1896. Serial No. 588,780. (No model.)



Claim.—1. A boiler-furnace having an upper water-grate composed of a series of tubes connected at their rear ends with the water-space of the boiler by independent connections for the respective tubes, a water-box or manfold with which the front ends of said grate-tubes are connected, a lower water-grate composed of a series of tubes connected at their front ends with a water-box or manifold, a series of vertical connections whereby the rear ends of the said lower grate-tubes are connected with the water-space of the boiler, and supply-pipes connecting said water-box or manifold with the water-space of the boiler, said upper series of tubes being of smaller diameter than the lower series, and with wider spaces between their peripheries than the lower series substantially as set forth.

2. A boiler-furnace having an upper water-grate composed of a series of tubes connected at their rear ends with the water-space of the boiler by independent connections for the respective tubes, a water-box or manifold with which the front ends of said grate-tubes are connected, a lower water-grate composed of a series of tubes connected at their front ends with the said manifold, a series of vertical connections whereby the rear ends of the said lower grate-tubes are connected with the boiler connections of the upper grate-tubes, and supply-pipes connecting said water-box or manifold with the water-space of the boiler, said upper series of tubes being of smaller diameter than the lower series, and with wider spaces between their peripheries than the lower series substantially as set forth.

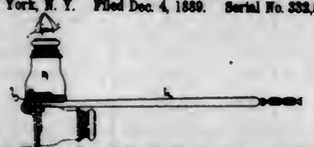
3. A boiler-furnace having upper and lower water-grates and suitable connections therefor with the water-space of the boiler, and having a movable closure device located at the rear of the lower water-grate tubes for closing the space between the rear ends of said lower water-grate tubes and the adjacent surface of the furnace-chamber, whereby the draft of the lower grate is prevented from passing below and behind said grate and is caused to pass upwardly through the same, said closure device being made movable in order to permit of cleaning behind the same substantially as set forth.

4. A boiler-furnace having an upper and a lower series of tubular water-grates, the upper series being of smaller diameter than the lower series, and with wider space between their peripheries than the lower series, substantially as set forth.

5. A boiler-furnace having an upper and a lower series of tubular water-grates, the intervals between the axes of the upper grate-tubes being the same as the intervals between the axes of the lower grate-tubes, and the diameter of the upper grates being less than the diameter of the lower grate-tubes, substantially as set forth.

6. A boiler-furnace having an upper water-grate composed of a series of tubes connected at their rear ends with the water-space of the boiler by independent connections for the respective tubes, a water-box or manifold with which the front ends of said grate-tubes are connected, a lower water-grate composed of a series of tubes connected at their front ends with the said manifold, a series of upright connections whereby the rear ends of the said lower grate-tubes are connected with the boiler connections of the upper grate-tubes, and supply-pipes connecting said water-box or manifold with the water-space of the boiler, the intervals between the axes of the upper grate being the same as the intervals between the axes of the lower grate-tubes, and the diameter of the upper grate-tubes being less than the diameter of the lower grate-tubes, substantially as set forth.

576,687. HANDLE FOR OPERA-GLASSES. JAMES W. PATTERSON, New York, N. Y. Filed Dec. 4, 1889. Serial No. 332,564. (No model.)



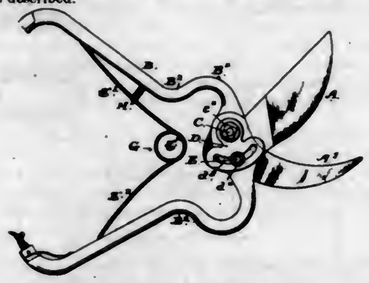
Claim.—1. The combination with an opera-glass, of a handle therefor having a pivoted section movable through an arc of approximately three-fourths of a circle, and fastened to the opera-glass, whereby the glass may be folded against and parallel with the handle, or be turned over the end thereof to a position at right angles to the handle.

2. An opera-glass holder consisting of U-shaped clips, ear-pieces integral with said clips, shoulders formed by said clips, and a handle, shoulders formed on the upper end of said handle which coact with the shoulders on said clips.

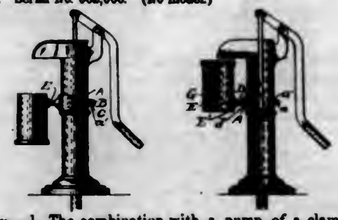
3. The combination with an opera-glass, a holder consisting of a handle having a head r' and shoulders s', ear-pieces r pivoted on each side of the head r' on the handle, a shoulder 8 formed on said ears, U-shaped clips g integral with the ear-pieces r, and set-screws g^3 secured in the upper end of said clips, substantially as described.

576,688. PRUNING-SHEARS. CHARLES R. PERRY, San Francisco, Cal., assignor to John Kleiner, Oakland, Cal. Filed Oct. 10, 1896. Serial No. 586,275. (No model.)

Claim.—In a pruning-shears or similar cutting implement, the combination, with the cutting-jaws united by a pivot-bolt; of the plate D having a hole for the pivot-bolt on which it is placed beneath the nut of said bolt, and having a curved slot concentric with such bolt-hole and located to one side thereof, and a bolt which is inserted through said curved slot of the plate and through the shanks of the two blades or jaws beneath, the undermost jaw having a slot of corresponding curvature to that in the said plate for the bolt E to slide in and the blade next to the said plate having a hole for said bolt, and nuts on said bolts for securing the parts together combined for operation as described.



576,689. PUMP. THOMAS J. PETERS, Miami, Fla. Filed Aug. 13, 1896. Serial No. 602,666. (No model.)

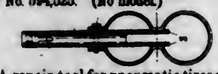


Claim.—1. The combination with a pump, of a clamp secured thereto, and a tank or receptacle rotatably mounted on said clamp and having communication with the interior of the pump, as set forth.

2. A pump attachment comprising a clamp, a tube mounted therein for rotation and a tank mounted on the outer end of said tube, substantially as and for the purpose specified.

3. A pump attachment comprising a clamp with attaching means, a short tube passed through an opening in the clamp and having an enlarged head and its other end screw-threaded, and a receptacle mounted on the threaded end of the said tube, all substantially as shown and described.

576,690. REPAIR-TOOL FOR BICYCLE-TIRES. STEPHEN PORTER, Boston, and LEWIS A. CARPENTER, Revere, Mass. Filed June 6, 1896. Serial No. 594,525. (No model.)



Claim.—1. A repair-tool for pneumatic tires comprising a handle, a reversibly-swinging tool-stock secured to said handle, and a circular cutting-tool at one end of said tool-stock, said tool to be operated by successive semirotary movements without a coöperating anvil.

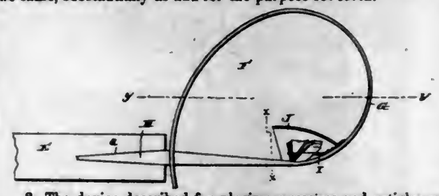
2. A repair-tool consisting of a handle, a swinging tool-stock, a circular cutting-tool at one extremity of said tool-stock, holding-fingers at the opposite end, and means for securing the tool-stock rigidly, whereby either end of the tool-stock may be actively employed.

3. A repair-tool comprising a handle, a reversible tool-stock, a circular cutting-tool and holding-fingers at opposite ends of the tool-stock, and a retaining-pin transversely through the fingers, substantially as stated.

4. In a repair-tool the combination with a handle, and a swinging tool-stock adapted to be held locked by said handle in two extremes of position and formed with a cutting end and a bifurcated end at its opposite extremities, of a removable circular cutting-tool provided with a lug to engage a slot in the tool-stock, holding-fingers likewise on said tool-stock, and a holding-pin transversely of said fingers, substantially as set forth and described.

576,691. TRAIN-ORDER-HOLDING DEVICE. CARPENTER J. QUAY, Meadville, Pa. Filed Oct. 1, 1896. Serial No. 607,609. (No model.)

Claim.—1. The device described for placing messages and articles upon moving trains comprising a hoop and a spring connected to the hoop and adapted to clamp messages and other articles against the same, substantially as and for the purpose set forth.



2. The device described for placing messages and articles upon moving trains comprising a strip of material bent into hoop shape and having one of its end portions extended so as to form a handle or shank and also having a notch *b*, in such end portion receiving its other end portion, substantially as and for the purpose set forth.

3. The device described for placing messages and articles upon moving trains comprising a hoop having a handle or shank, an inclosure connected to the hoop and a device arranged within the inclosure and adapted to clamp and hold messages and other articles, substantially as specified.

4. In an apparatus for placing messages and articles upon moving trains, the combination of a support having the horizontally-disposed bifurcation at one end said bifurcation being tapered toward its inner end, and a hoop having a handle or shank tapered toward its free end and adapted to be placed in said bifurcation of the support; said hoop being adapted to carry messages and other articles and being also adapted to be caught and held by a device on a moving train, substantially as specified.

576,692. FIREPROOF-BUILDING CONSTRUCTION. JOHN W. RAPP, New York, N. Y. Filed Mar. 11, 1896. Serial No. 582,830. (No model.)



Claim.—The combination of longitudinal beams, arched transverse T-bars resting at their ends upon the lower flanges of said beams, longitudinal strips supported by said arched bars with their upper surfaces in substantially the same plane as the upper surfaces of the longitudinal beams, straight T-bars also resting upon the lower flanges of the beams, and blocks of fireproof material having slots in their edges into which the flanges of the beams and straight bars extend, substantially as shown and for the purpose described.

576,693. SUSPENSION-TRESTLE. JAMES RATLEDGE, Fairmont, Minn., assignor of one-half to William D. Brockman, same place. Filed Feb. 14, 1896. Serial No. 579,311. (No model.)

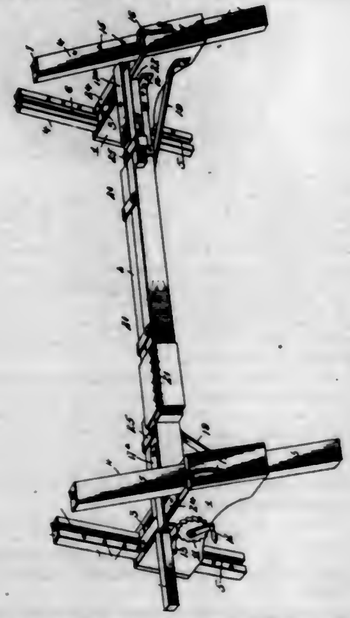
Claim.—1. A trestle having a reach or longitudinally-extending main beam, a head connected rigidly to each end thereof, each head having therein two approximately vertical passages, a supporting-leg arranged in each of said passages and having a longitudinal movement therein, a winding-drum mounted in each head, and a rope or ropes connected to the drums and to the legs, whereby upon operating the drum the trestle may be raised or lowered at will, substantially as described.

2. A trestle having a reach or longitudinal main beam, a head connected rigidly to each end thereof, each head having two approximately vertical passages therein, a supporting-leg arranged in each passage and capable of vertical movement therein, a winding-drum mounted in each head, a rope or ropes for each head and connected to the upper ends of the legs of their respective heads and to the drums, whereby upon winding the ropes on the drum the legs will be drawn downwardly and the trestle consequently raised, and means operating with the legs, whereby they are prevented from dropping down when the trestle is raised, substantially as specified.

3. A trestle having a reach or longitudinal main beam, a head secured rigidly to each end thereof, two approximately vertical legs for each head and having a longitudinal movement on their heads, a winding-drum mounted in each head, and a rope or ropes connected to the legs and to the drum, whereby the former may be moved on the heads, and the height of the trestle adjusted, substantially as described.

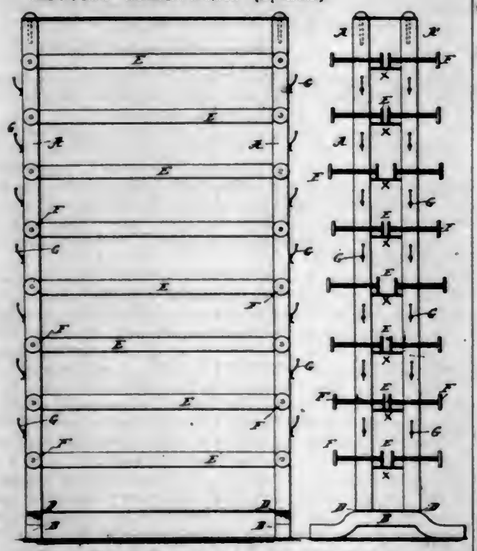
4. A trestle comprising a reach, heads connected by the reach and provided with substantially vertical passages or ways, legs ar-

ranged within the passages or ways of the heads, the latter being capable of upward and downward movement on the legs, and mechanism connecting the heads with the legs, whereby the trestle is raised and lowered, substantially as described.



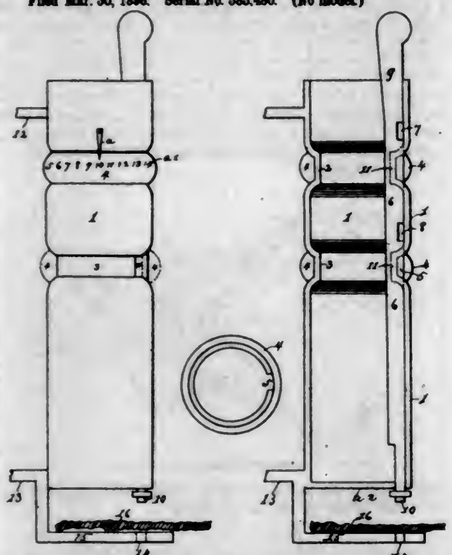
5. A trestle comprising a reach, heads connected with the reach and provided with substantially vertical passages or ways, legs provided at intervals with perforations and arranged in the passages or ways of the heads, the latter being capable of upward and downward movement on the legs, winding-drums mounted in the heads, ropes connected with the drums and with the upper ends of the legs, and pins arranged in perforations of the legs and located at the upper edges of the heads, substantially as and for the purpose described.

576,694. **FURNITURE.** EZRA REDGATE, Brooklyn, N. Y. Filed Jan. 17, 1896. Serial No. 575,849. (No model.)



Claim.—The combination of the pedestals B, B, the posts A, A', the braces X, the rails E and the screws F, substantially as and for the purposes described.

576,695. **WHIP-HOLDER.** FOUNTAIN O. REEVES, Dallas, Tex. Filed Mar. 30, 1896. Serial No. 585,490. (No model.)



Claim.—1. In a whip-holder, the combination, with a socket, of a notched locking bar vertically movable therein, and a rotary band on said socket arranged to rotate in said notch when the locking-bar is suitably depressed, and having a notch in which said bar can reciprocate when said band is suitably rotated, substantially as described.

2. In a whip-holder, the combination, with the socket 1, of the locking-bar 6, having the notch 7, the rotary band 4 having the notch 5 and suitable distinguishing-marks *a'*, and the pointer *a*, substantially as described.

3. In a whip-holder, the combination, with the socket 1, of the locking-bar 6 having the notches 7, 8, the bands 4 with the notches 5 and marks *a'*, and the pointers *a*, substantially as described.

4. In the combination with a whip-holder, of a locking-bar 6, having a wedge-shaped head 9, the notches 7 and 8 and the foot 10, combined with the adjusting-bands 4, having the notches 5 and the figures *a'*, on the outer surface thereof which are pointed out by a pointer *a*, combined with an extension from the lower support 15 having the hole 14 therein, all for a purpose as heretofore substantially set forth.

576,696. **FOLDING FRAME FOR BICYCLES, &c.** FRANK A. REYBOLDS, Lewiston, Me., assignor of one-half to Stephen H. Manning, same place, and Herschel C. Parker, Brooklyn, N. Y. Filed Apr. 22, 1896. Serial No. 588,575. (No model.)

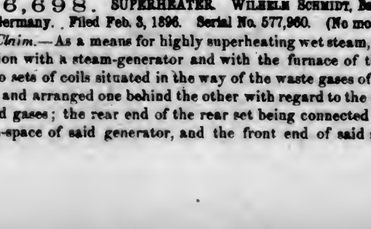


Claim.—1. A bicycle or similar vehicle in which the upper horizontal rod and the lower rod which extends from the support of the pedal-shaft upwardly and forwardly to the upright rod are composed of separate sections, said sections having pivotal connections by universal coupling devices, said devices consisting of two separate parts one of which is composed of a shaft having a cylindrical head on which is formed a disk, and the other consisting of a jaw H, having a cylindrical head on which are formed two circular side jaws, whereby the front and rear portions of the frame may be folded together on said pivotal connection as an axis, said coupling device being revolubly mounted in the separate sections of said rods, whereby the separate portions of the frame are held in rigid position and are revolved or turned to unlock the parts and permit the folding together of said portions, substantially as shown and described.

2. A bicycle or similar vehicle, in which the rods which connect the forward upright rod of the frame, with the rear portion thereof, are composed of sections, said sections being united by universal coupling devices, said coupling devices each consisting of two parts, and each of which comprises a shaft, on the outer end of one of which are formed two circular jaws, and on the outer end of the other, a single central jaw or disk, said jaws or disks being connected by a coupling-pin which is passed therethrough, and said shafts being free to revolve in the separate sections of the rod or rods, substantially as shown and described.

3. The herein-described coupling device for pipes or rods, which comprises two tubular heads, to be secured in the ends of the pipes or rods to be coupled, and two circular heads provided with shanks which are revolubly connected with said tubular heads, said circular heads pivotally connected, substantially as shown and described.

576,697. **ELASTIC TIRE FOR VEHICLES.** RICHARD ROUTH, WILLIAM J. DWYER, and OSWALD R. ROUTH, Jersey City, N. J. Filed July 17, 1895. Serial No. 556,300. (No model.)



Claim.—1. The combination of an outer tube or jacket *a*, an inner circumferentially continuous metal tube *b* which is resilient laterally, means for rigidly connecting the opposite ends of said tube to render it practically inelastic circumferentially, and a rim concaved or grooved on an arc of greater radius than that of the tire, the construction being such that the tube and its jacket are retained in place in the concavity of the rim by the rigid connection of the ends of the metal tube, substantially as and for the purpose set forth.

2. In an elastic tire the combination with a resilient metal tube having one of its ends inserted in the other, of the nuts, *f*, screw-bolt, *g*, pinions placed within said tube for turning said screw-bolt to adjust, tighten and loosen the tube upon the rim, and a stem extended outward through the tire from said pinions to actuate the latter substantially as herein set forth.

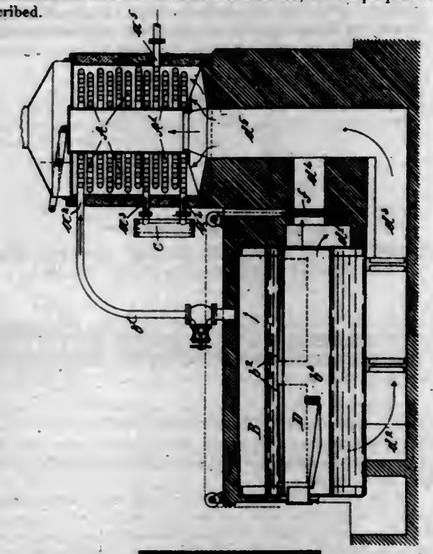
3. In an elastic tire the combination with a metallic tube composed of a sheet-metal blank continuous from end to end, folded into circular or practically circular cross-section, provided at its opposing edges with slotted lugs, and having its ends thrust one into the other, of devices for connecting the lugs of the one edge with those of the other to unite the same and yet permit a resilient action of the tube in lateral directions, substantially as and for the purpose herein set forth.

4. In an elastic tire the combination with a metallic tube composed of a sheet-metal blank continuous from end to end, folded into circular or practically circular cross-section, provided at its opposing edges with slotted coincident lugs, and with one of its ends thrust into the other, of rivets for connecting said lugs to permit lateral resiliency in the tube, and means for rigidly connecting the ends of the tube to firmly retain it upon the rim of the wheel, substantially as and for the purpose herein set forth.

5. A blank for a resilient tube for tires composed of elastic sheet or ribbon metal and having the slotted lugs, *c*, *c'*, arranged for connection by bolts or fastening devices, substantially as and for the purpose herein set forth.

576,698. **SUPERHEATER.** WILHELM SCHMIDT, Ballenstädt, Germany. Filed Feb. 3, 1896. Serial No. 577,960. (No model.)

Claim.—As a means for highly superheating wet steam, the combination with a steam-generator and with the furnace of the same, of two sets of coils situated in the way of the waste gases of said furnace, and arranged one behind the other with regard to the direction of said gases; the rear end of the rear set being connected with the steam-space of said generator, and the front end of said set being connected with the front end of the front set, for the purpose as described.



576,699. **IRRIGATING-PUMP.** CHARLES H. SEAMAN, St. Joseph, Mo. Filed Aug. 19, 1895. Serial No. 559,816. (No model.)



Claim.—In an irrigating-pump, the combination with a water-elevator cup provided in its bottom with a valve-opening; of a conical combined valve cage and seat arranged wholly within the cup and fitted at its small end in said valve-opening, said combined cage and seat having continuously-sloping sides, and a circular series of vent openings or holes disposed within the cup in a plane at one side of the bottom of the same and the seat proper of the said combined cage and seat, and a ball-valve arranged entirely inside of the cage and seat and adapted to seat itself below the plane of said vent openings or holes, said vent openings or holes communicating with the space exterior to the valve-opening only when said ball valve is unseated, substantially as set forth.

576,700. **CLOTHES-WRINGER.** CHARLES D. SHAW, Elmira, N. Y. Filed July 16, 1896. Serial No. 599,380. (No model.)



Claim.—In a clothes-wringer of the type described, the combination, with the slotted end pieces, of sliding cross-bars or yokes encircling the end pieces and guided thereby, hooks extending out laterally from the yokes at either side of the wringer, coiled springs depending from the hooks and attached at their lower extremities to the end pieces at points below the upper roll, and thumb-screws threaded into the central portions of the yokes and bearing upon the boxes of the upper roll for the purpose set forth.

576,701. **HAT-CLIP.** ELIAS S. SHOWER, Lawn, Pa. Filed July 23, 1896. Serial No. 600,212. (No model.)

Claim.—1. The herein-described clip for hats, the same consisting of a frame made of a single piece of metal; which frame consists of two members, each of which has a longitudinal bar, and outwardly-extending bars at the ends of said longitudinal bar, the two members being located close together and adapted to receive the creased portion of the hat between them.

2. The herein-described clip composed of a single piece of spring-wire which is bent into substantially U shape being composed of two

members each of which has a longitudinally-extending portion and two downwardly-extending portions the two longitudinally-extending portions being separated and the sets of downwardly-extending portions being normally in contact with each other.



576,702. NOZZLE FOR OIL-CANS. DAVID TRUE, Amesbury, Mass. Filed Jan. 2, 1896. Serial No. 574,079. (No model.)



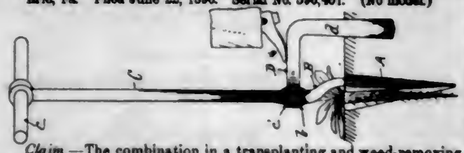
Claim.—1. A nozzle for oil-cans, comprising two separate, rigid tubular portions, a flexible, tubular connection thereof, and a flexible spring-rod extending through said flexible tubular connection and secured at its opposite ends within said rigid tubular portions, substantially as set forth.

2. In a nozzle for oil-cans, two separate rigid, tubular portions, cores, or plugs within said portions and provided with passages for the oil, a suitably flexible spring-rod connecting said plugs or cores, and a flexible tube surrounding said rod and connecting said tubular rigid portions, substantially as described.

3. In a nozzle for oil-cans, the combination of the tube C sustaining the tip B, the core or plug D fixed in said tube and provided with the longitudinal peripheral grooves D', the tube H connected by a union or coupling with the oil-can, the core or plug F rigid within said tube H and provided with the longitudinal peripheral grooves F', the spring-rod E having its opposite ends fast in said plugs or cores D F, and a flexible tube K surrounding said rod and connecting the tubes C H, substantially as set forth.

4. In a nozzle for oil-cans, the combination of the internally-screw-threaded tube H, the internally-screw-threaded tube R provided with the internal flange R', the externally-screw-threaded tube S screwing into said tube R, and externally-screw-threaded tube J screwing into the tube H, provided with the flange P and with the stiffening extension J' extending down into the said tube S, whereby the nozzle is rendered rotative and capable of being taken apart and its parts assembled, substantially as set forth.

576,703. TRANSPLANTER AND WEEDER. WILLIAM W. TYSON, Erie, Pa. Filed June 22, 1896. Serial No. 596,401. (No model.)



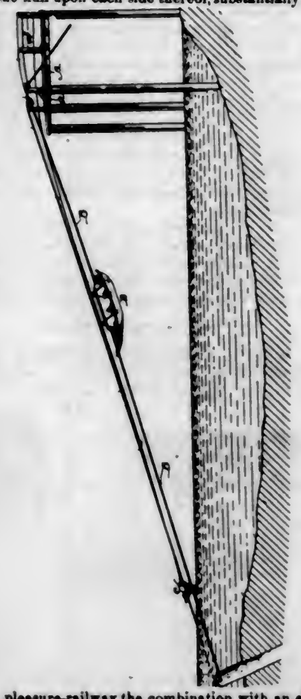
Claim.—The combination in a transplanting and weed-removing spade, of a vertical handle C and a cross-handle c on the top thereof for rotating it, a curved and laterally-projecting shank B secured in the lower end of said handle C, a semiconical spade A secured to the shank B, an arm D journaled around the upper part of the shank B and adapted to support the foot of the operator, and a downward projection adapted to be forced into the ground some distance beyond the circle described by the rotation of the shovel A, so as to support the tool while the shovel is being rotated, substantially as and for the purpose set forth.

576,704. PLEASURE-RAILWAY. DAVID URCH, Portsmouth, N. H. Filed June 20, 1896. Serial No. 596,329. (No model.)

Claim.—1. In a pleasure-railway the combination with an inclined cable extending from an elevated platform down into the water, of a catamaran-boat adapted to straddle the cable, with one hull upon each side thereof, and glide down the same and onto the water, substantially as described.

2. In a pleasure-railway the combination with an inclined cable extending from an elevated platform down into the water, a catamaran-boat adapted to straddle the cable with one hull on each side, antifriction cable-wheels located in the top of the connection between the two boats, substantially as described.

3. In a pleasure-railway the combination with an elevated platform, a cable secured to the same at one end and having its opposite end anchored below the surface of the water, an approximately horizontal track upon the elevated platform and forming a continuation of the cable, a catamaran-boat adapted to straddle the track and cable with one hull upon each side thereof, substantially as described

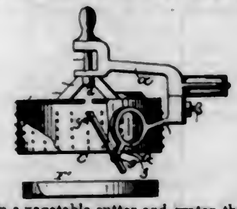


4. In a pleasure-railway the combination with an elevated platform, of two cables secured to the same and anchored below the surface of the water, a hook-carrier mounted on one of said cables, an operating-rope for said carrier, a catamaran-boat provided with antifriction-wheels and adapted to slide down one cable and be hauled up the other, substantially as described.

5. In a pleasure-railway the combination with an elevated platform, of a cable secured at one end thereto and having its opposite end anchored below the surface of the water, a catamaran-boat adapted to straddle the cable and comprising two hulls connected by inverted yokes, and antifriction-wheels mounted in said yokes and adapted to rest upon the cable, substantially as described.

6. In a pleasure-railway the combination with an elevated platform, of a cable secured at one end thereto and having its opposite end anchored below the surface of the water, a catamaran-boat adapted to straddle said cable and comprising two hulls connected by inverted yokes, auxiliary yokes within said inverted yokes, wheel-shafts mounted in said latter yokes and antifriction-wheels on said shafts adapted to rest upon the cable, substantially as described.

576,705. VEGETABLE CUTTER AND GRATER. JULIUS WAGNER, Reading, Pa. Filed Mar. 10, 1896. Serial No. 582,641. (No model.)

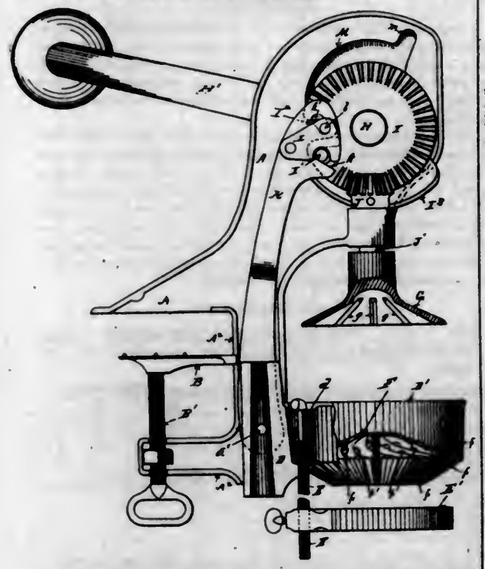


Claim.—1. In a vegetable cutter and grater, the combination of the frame, the rotatable cutter-disk, the cylindrical grater removably attached at one end to said cutter-disk and closed at said end thereby, and a removable cap for closing the other end of said grater, substantially as described and for the purposes specified.

2. In a vegetable-grater, the combination with the frame, and the grater-cylinder, of a feed device above said grater, and a pivoted arm supported by said feed device and adapted to be swung into the interior of said cylinder, substantially as described and for the purposes specified.

3. In a vegetable-grater, the combination with the frame, and the grater-cylinder, of a feed device, comprising a ring above said grater and a pivoted arm carrying said ring, and a wiper attachment to said feed device, comprising an arm projecting from said ring to the edge of the grater, and a finger pivoted to the free end of the latter arm and arranged to be swung into the grater, substantially as specified.

576,706. LEMON-SQUEEZER. EDWIN WALKER, Erie, Pa. Filed May 13, 1896. Serial No. 591,317. (No model.)



Claim.—1. The combination in a lemon-squeezer, of a rotary compressor an operating-lever geared to and rotating said compressor, a cone-cup adapted to be moved up to the compressor, links pivoted to the cone-cup, and hook-and-cam mechanism connecting the links with the operating mechanism, substantially as and for the purpose set forth.

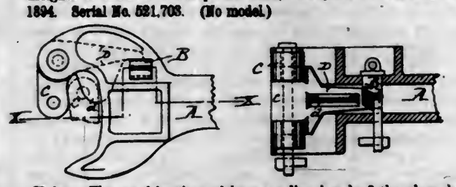
2. The combination in a lemon-squeezer, of a vertical rotating compressor a bevel gear-wheel geared to and rotating said vertical compressor, a vertically-moving cone-cup, links extending from said cone-cup up on each side of said bevel gear-wheel, a pin in said gear-wheel adapted to engage said links during a portion of its revolution, and a cam-surface on said wheel adapted to engage said links during another portion of the revolution of said wheel, substantially as and for the purpose set forth.

3. The combination in a lemon-squeezer, of a conical compressor a bevel gear-wheel geared to and rotating said conical compressor, a vertically-moving cone-cup, links pivoted to the frame of said cone-cup, and extending up on each side of said bevel gear-wheel, a pin in said gear-wheel adapted to engage recesses in said links, hooks on said links adapted to keep the recesses in said links in engagement with the pin in said wheel during a portion of the revolution thereof, a pin connecting said hooks, and a cam on said wheel adapted to engage said pin and disengage said hooks, and cam-surfaces in the frame engaging the end of said pin, substantially as and for the purpose set forth.

4. In a lemon-squeezer, a cone-shaped support for the lemon to be squeezed, having openings therethrough for the passage of the juices and curved ribs radiating from the center and extending to its periphery on the upper surface thereof, substantially as and for the purpose set forth.

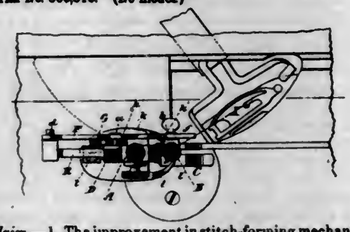
5. The combination in a lemon-squeezer, of an operating-lever H' secured to a shaft H, a bevel gear-wheel I on said shaft, a vertical shaft J' driven by said gear-wheel, a conical compressor G having ribs *g* on its under surface thereof, a vertically-movable cone-cup D', a cone F having curved ribs on its upper surface therein, links K extending from said cone-cup up on each side of the wheel I, a pin I' in said wheel adapted to engage slots *k* in said links, hooks L adapted to retain said links in engagement with said pin I' during a portion of the revolution of said wheel, a cam-surface I³ on said wheel and a pin *l* through the hooks L adapted to be engaged thereby, and cam-surfaces in the side frame A A' adapted to engage the ends of the pin *l*, substantially as and for the purpose set forth.

576,707. CAR-COUPLING. HAMILTON E. WELSH, Columbia, Pa., assignor of one-half to Joseph H. Black, same place. Filed Aug. 30, 1894. Serial No. 521,703. (No model.)



Claim.—The combination with a coupling-head of the class described of a horizontally-swinging coupling-jaw pivoted thereto and provided with a locking-lever D having a projecting tongue *d* adapted to engage the jaw of an adjacent coupling, substantially as and for the purpose set forth.

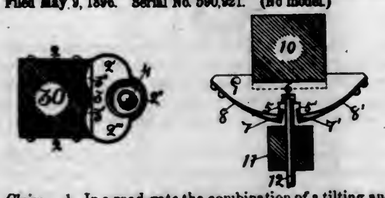
576,708. SEWING-MACHINE. CHARLES W. WESTON, New York, N. Y., and ALBERT LEGG, Allendale, N. J., assignors to the Self-Threading Sewing-Machine Company, of New York. Filed Feb. 24, 1896. Serial No. 580,316. (No model.)



Claim.—1. The improvement in stitch-forming mechanisms which consists of a needle having an open eye or recess for engaging and carrying a bight of thread through the material to be sewed, means for operating said needle, means for feeding thread to the same upon each downward stroke thereof, and mechanism complemental thereto for completing the stitch cooperating with the loop formed on the thread-supply side of the needle, substantially as described.

2. In a sewing-machine, the combination of a needle having a recess or open eye for engaging the thread, means for operating said needle, means for feeding thread to the same, which consists of a guide and finger movable from in front of the path of the needle, the guide to the side thereof on which the complemental stitch-forming mechanism enters the loop of thread, and the finger to the other side, whereby the thread is distended and carried into the open eye of the needle as it descends, and means for operating said guide and finger, with complemental stitch-forming mechanism, substantially as described.

576,709. ROAD-GATE. WILLIAM WILSON, Fremont, Nebr. Filed May 9, 1896. Serial No. 590,921. (No model.)



Claim.—1. In a road-gate the combination of a tilting and swinging closure having its pivot-stile pivoted at a point at its lower end, and its upper end pivoted in a guide-wheel adapted to roll and shift laterally in a triform eye attached to the hanging-post; said eye consisting of two loops extending oppositely and parallel with the road, and a third loop extending in line with the closed gate to receive the guide-wheel and support the gate level and upright when closed; an operating-line running parallel with and from a point on the roadside to and around a pulley beyond the pivot-stile, the end returned and attached to an arm projected upward from the closure, whereby by draft on the line, the closure is tilted and the guide-wheel shifted to the farther loop so that the gate normally swings open and by the line is drawn open away from the operator; and a like oppositely-

arranged line to tilt and close the gate and open it in an opposite direction in the same manner substantially as described.

2. In a gate having a tilting and swinging closure the combination of the pivot-stile 31, pivoted at a point at its lower end, its top end having the guide-wheel 4, to roll and shift laterally in the triform eye on the hanging-post; said eye, consisting of the loop 2″ to receive the wheel and support the closure plumb and level when closed, the adjacent oppositely disposed loops 2′ and 2‴ ranged parallel with the roadway to receive the guide-wheel when the closure is tilted to open; the cap 22, projecting from the hanging-post above the triform eye to protect the eye and guide-wheel and support the deflecting-pulley 23 to bend the closing-line; the operating-lines 17 and 18 connected to the top of the closure and running divergently on opposite sides of the deflecting-pulley to and in opposite directions around the pulleys 27, and 28, on the bar 29 set parallel with the roadway on the hanging-post, the handled ends of the lines running through pulleys on the posts 15 and 15′; and connected to said lines a spring-actuated latch on the closure to engage a notch on the locking-post 10 and hooked catches on the stop-posts 14 and 14′, substantially as described.

3. In a road-gate the combination of the tilting and swinging closure consisting of the top rail 34, bottom rail 32, pivot-stile 31, lock-stile 11, brace-bar 33, and the vertically-projecting arms 25 and 26, footed on the brace-bar and bolted to the top rail; the vertical lever 35, pivoted to the bottom rail to oscillate limitedly in the keeper 36 on the top rail and having the horizontal bolt 12 pivoted thereon to slide loosely through the lock-stile 11; the line 20, one end fastened to the top end of the lever, the other end to the top end of the lock-stile and having the intermediate weight 21; the pivot-stile pivoted in the mud-block 38, at its lower end and having at its top end the guide-wheel 4; with the triform eye consisting of a metal bar the central portion bent to form the loop 2″, adjacent portions each side bent to form the loops 2′ and 2‴ and the ends 2, 2, bolted to the sides of the hanging-post so that the eye embraces the guide-wheel; the projecting cap 22 to support the deflecting-pulley 23 on the vertical journal 24 projecting down through the cap as a guard to the eye and guide-wheel; the bar 29 on the hanging-post its ends projecting each way parallel with the road and having at its ends the pulleys 27 and 28; the operating-lines 17 and 18 connected to the lever 35, and running divergently through eyes on the vertical arms and at opposite sides of the deflecting-pulley, to and in opposite directions around the pulleys 27 and 28, their handled ends over pulleys on the posts 15 and 15′; with the locking-post having the striking-block 9 having the notch 6 and shoulders 5 and 5′, with the spring striking-plates 8 and 8′ having the lips 7 and 7′, and the stop-posts 14 and 14 having the spring-hooks 13 and 13′ to engage the bolt 12 substantially as described.

4. In a catch to engage a gate latch or bolt the combination of the striking-block 9, with the attached spring striking-plates 8 and 8′, having the lips 7 and 7′ projecting into a notch in the block and supported against the lateral impact of the latch by the shoulders 5 and 5′ in the notch, and the intermediate notch 6 of less width than the distance between the lips substantially as described.

576,710. VENTILATED FUSE-PLUG FOR ELECTRIC CIRCUITS. HERBERT C. WIRT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 20, 1896. Serial No. 612,856. (No model.)



Claim.—1. A hollow ventilated fuse-plug for electric circuits, having a metallic contact-ring surrounding its sides, and a metallic contact portion at its lower end, a recess in its upper portion provided with a bridge, and a fusible wire having its ends connected to the metallic terminals and curved over said bridge, as and for the purpose set forth.

2. A hollow fuse-plug for electric circuits, having a side metallic ring forming one terminal, and a metallic plate at its lower end forming the other terminal, a fusible wire located in said plug having its ends connected to said terminals, a bridge in the upper portion of the plug over which said wire curves, ventilated openings in the upper end of said plug, and a cap secured to the top of the plug, extending over the upper part of said openings, as and for the purpose set forth.

3. A hollow fuse-plug for electric circuits, formed with a bridge in its top, and having metallic side and end terminals, a fusible wire in said plug extending over said bridge and having its ends connected to said terminals, ventilating-openings in the upper end of said plug, and a cover extending over the said openings and permitting the passage of air through the same, as and for the purpose set forth.

4. As a new article of manufacture, a fuse-plug for electric circuits consisting of a hollow body portion of molded insulating material, formed with a bridge in its upper portion and lateral ventilating-openings, a metallic contact-ring on the sides of the plug, and a metallic contact-piece on its end, a fusible wire in said plug curving over the bridge and having its ends connected to the contact-ring and end pieces serving as terminals of the wire, and a cap on the open end of the plug covering the ventilating-openings and permitting the passage of air, as and for the purpose set forth.

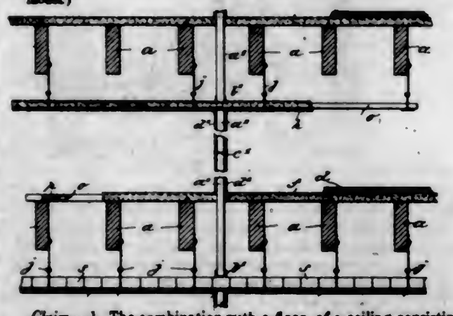
576,711. ANCHOR OR DEVICE FOR SECURING COPPER PLATES TO WOOD BLOCKS. GEORGE W. A. ADELMANN, Chicago, Ill. Filed Mar. 11, 1896. Serial No. 582,831. (No model.)



Claim.—1. The combination in a printing-form with a copper plate of an anchor-screw having a head soldered to the copper plate and a wood block having a hole to receive the screw, a countersink to receive the head of the screw and a deep countersink to receive the nut, and a nut fitting in said deep countersink substantially as specified.

2. The combination with a copper plate of an anchor-screw having a pointed end and solder-coated flat head for soldering the same removably to the copper plate, and a wood block having a hole to receive the screw, a countersink to receive the head of the screw and a deep countersink to receive the nut, and a nut fitting in said deep countersink, said hole and countersink being each larger than the corresponding parts of the screw and nut to enable the position of the plate to be adjusted on the block and said anchor-screw having a pointed end, substantially as specified.

576,712. FIREPROOF-BUILDING CONSTRUCTION. THOMAS BAILEY, New York, N. Y. Filed Jan. 18, 1896. Serial No. 575,939. (No model.)



Claim.—1. The combination with a floor, of a ceiling consisting of a separate structure adapted for and having arranged thereon the usual systems of piping and wiring of buildings, and suspended at an appropriate distance from the floor therefor substantially as described.

2. The combination with a floor, of a ceiling consisting of a separate sectional structure adapted for removal of the sections separately, and also adapted for and having arranged thereon the usual systems of piping and wiring of buildings, and suspended at an appropriate distance from the floor therefor substantially as described.

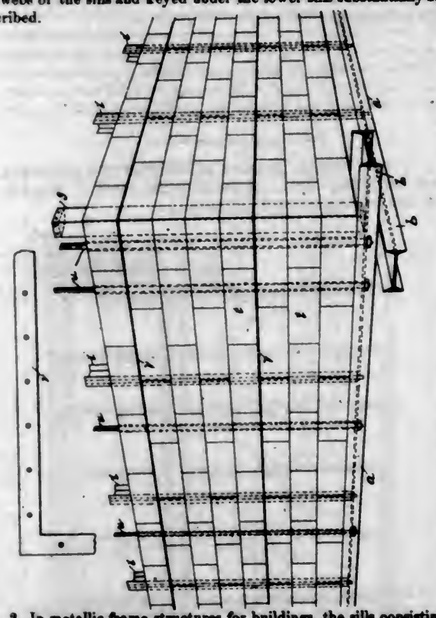
3. The combination with a floor, of a suspended ceiling consisting of a separate sectional structure composed of flanged suspended bars, transverse supports for protective material carried on the flanges of said suspended bars, and protective material carried on the supports therefor substantially as described.

4. The combination with a floor, of a suspended ceiling consisting of a separate sectional structure composed of flanged suspended bars, transverse bars supported on the flanges of said suspended bars, and tiles or slabs of protective material supported on said transverse bars substantially as described.

5. The combination in fireproof-building construction of independent protected floors and ceilings, the latter suspended below the beams, and fireproof partitions which extend upward from one ceiling to another through the floor for also partitioning the space between the floor and the suspended ceiling substantially as described.

576,718. FIREPROOF-BUILDING CONSTRUCTION. THOMAS BAILEY, New York, N. Y. Filed May 8, 1896. Serial No. 590,667. (No model.)

Claim.—1. In metallic-frame structures for buildings, the sills placed crosswise at the angles of the building one upon another and being prolonged beyond the sides of the building outwardly to form anchorage extensions to oppose wind-pressure, said sills secured at the crossings by tenons of the posts inserted through perforations of the webs of the sills and keyed under the lower sills substantially as described.



2. In metallic-frame structures for buildings, the sills consisting of channel-bars placed crosswise at the angles of the building, with filling-blocks between the webs of the sills and secured at the crossings by tenons of the posts inserted through perforations of the webs of the sills and of the filling-blocks and keyed under the lower sills substantially as described.

3. In a fireproof-building construction, the combination with metallic sills placed crosswise one upon another at the crossings, hollow metallic posts and tenons having heads inserted and secured in the ends of the hollow posts, said tenons inserted through the webs of the sills and keyed under the lower sills substantially as described.

4. In fireproof-building construction, the combination of metallic sills placed crosswise one upon another at the angles, corner-posts seated on said sills at the crossings and secured by tenons inserted through the webs of the sills and fireproof sidings laid on the outer margins of the sills, said sidings consisting of walls of hollow brick with vertical stay-rods inserted through apertures of the bricks substantially as described.

5. In fireproof-building construction, the combination of metallic sills placed one upon another at the angles, posts seated on said sills at the crossings and secured by tenons inserted through the webs of the sills and fireproof sidings laid on the sills, said sidings consisting of walls of hollow bricks with stay-rods inserted through apertures of the bricks, and stay plates between courses of bricks at intervals, said plates perforated and the rods inserted through them substantially as described.

6. In fireproof-building construction, the combination with metallic sills and posts of metallic studs and ties having interlocking ends as *p* inserted in interlocking perforations in the webs of the posts or sills and keyed therein substantially as described.

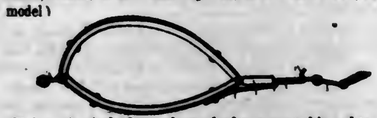
7. In fireproof-building construction the combination with metallic sills and posts, of metallic studs and ties having interlocking ends as *p*, inserted in interlocking perforations as *a*, formed with key-tongues as *s* to lock the said ends in the perforations substantially as described.

8. In fireproof-building construction, hollow metallic sectional posts having joint connections consisting of a socket as *j* inserted and secured in the end of one section, and a tenon as *k* having a head inserted and secured in the end of the other section and adapted for inserting in the socket and for reception of one or more keys below the socket and inserted through the shell of the post substantially as described.

9. In fireproof-floor construction, the floor-beam-filling supporting-bars secured to the upper flanges of the floor-beams and extending both above and below the upper surfaces of said beams, and consisting of inverted angle-bars with the intermediate plates and filling therein carried on the flanges of the angle-bars below the level of the upper surfaces of the beams substantially as described.

10. In fireproof-floor construction, the floor-beam-filling supporting-bars secured to the upper flanges of the floor-beams and extending both above and below the upper surfaces of said beams and consisting of inverted angle-bars, with the intermediate plates and filling thereon carried on the flanges of the bars below the level of the upper surfaces of the beams in combination with the fireproof ceiling suspended from the flanges of said bars and below the lower edges of the beams substantially as described.

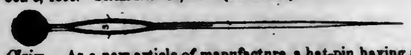
576,714. SHAFT-TUG. JOHN BARRY and MICHEAL L. SHAUGHNESSY, Lenox, Iowa. Filed Apr. 22, 1896. Serial No. 588,573. (No model.)



Claim.—1. A shaft-tug formed of two parts hinged together and each having a tongue, combined with a sleeve slidingly mounted on one tongue and said tongues formed to be engaged one with the other, and a spring-arm and catch to engage the cross-bar of the buckle, as set forth.

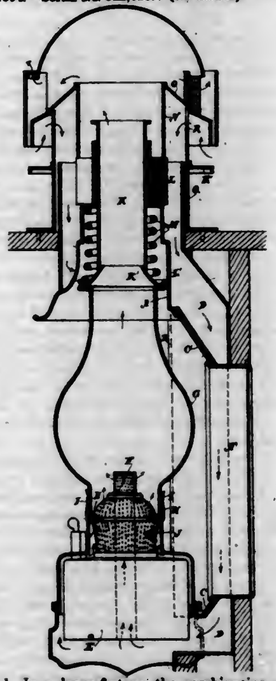
2. The combination with the two parts hinged together and each formed with a tongue, one tongue having a hole to receive a stud on the other tongue, of a sleeve mounted to slide upon the tongues, a buckle pivotally mounted on the end of one tongue, and a spring-arm mounted on one part and having an offset, and a catch to engage said buckle, as and for the purpose specified.

576,715. HAT-PIN. JEROME D. BLISS, Providence, R. I. Filed Oct. 6, 1896. Serial No. 607,991. (No model.)



Claim.—As a new article of manufacture, a hat-pin having a single shaft which is divided longitudinally at its head end, and each of the divided parts curved outwardly so as to form springs, combined with a head that is applied to the divided end, the curved parts being adapted to be closed together while the pin is being inserted, and to spring outwardly to prevent the pin from being withdrawn, substantially as shown.

576,716. LAMP. EMILE BOMSCH, San Francisco, Cal. Filed Sept. 10, 1894. Serial No. 522,635. (No model.)



Claim.—1. In a lamp-fixture, the combination, of a body consisting of a hollow vertical or side reflector, the extension-chimney

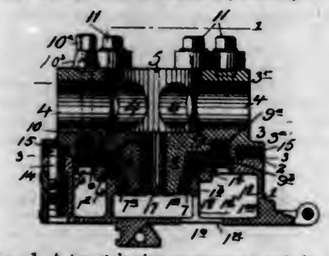
to which it is connected, said body having feed and exhaust passages and an air-chamber, open on top, a removable fount, having its lower part fitting into and over the said air-chamber and provided with a burner, and a glass chimney fitted to the burner and having its upper part fitting within the chimney extension.

2. In a car side lamp-fixture, the combination, of a body consisting of a vertical or side reflector having an air-passage behind the reflecting-surface, said body being without glass casing in front or surrounding the reflector, and having its lower portion projecting inside of the car and formed with an air-chamber in communication with the air-passage, and open on top, a removable fount to be fitted into the open top of said air-chamber, and a burner and chimney carried by the fount.

3. In a lamp-fixture, the combination of the body consisting of a vertical or side reflector having an air-passage behind the reflecting-surface said body having its lower portion projecting into the car-body and forming an air-chamber in communication with said passage, a chimney extension and means for supplying air to said passage, the fount adapted to be fitted within the open top of the air-chamber so that its lower portion is inclosed thereby, a burner and a glass chimney to protect the flame and conduct the draft from the burner into the chimney extension.

4. In a lamp or lantern fixture, the combination, of a body consisting of a vertical or side reflector having an air-passage behind the reflecting-surface and having its lower portion projecting into the car and formed with an air-chamber, open on top, a removable fount adapted to be inclosed by said chamber, a burner provided with a skirt adapted to fit upon the open top of the air-chamber and a glass chimney to be fitted to the burner.

576,717. TURRET-MACHINE. JOHN L. BOGERT, Flushing, N. Y. Filed Feb. 8, 1896. Serial No. 578,461. (No model.)



Claim.—1. A turret having apertures on opposite sides, and a hub or pivot depending therefrom, combined with a cross-slide having a bushing or bearing to receive said hub or pivot, an adjusting ring or gib to bear on said bushing or bearing, and means for connecting said ring or gib with said turret, as and for the purposes specified.

2. A turret having apertures in its sides, and a hub or pivot depending therefrom, combined with a cross-slide having a cavity or bore, a bushing or bearing having a bore to receive said hub or pivot, said cross-slide having a seat or shoulder to receive said bushing or bearing, means for securing the latter on the former, said bushing or bearing having an outer face 7^a, a ring or gib having a corresponding inner face to engage the face 7^a, and means for securing said ring or gib to said turret, as and for the purposes specified.

3. A turret having apertures in its sides, and a hub or pivot depending therefrom, combined with a cross-slide having a cavity or bore, a bushing or bearing having a bore to receive said hub or pivot, said cross-slide having a seat or shoulder to receive said bushing or bearing, means for securing the latter on the former, said bushing or bearing having an outer face, a ring or gib having a corresponding inner face to engage the face 7^a, said turret and cross-slide having corresponding annular grooves to receive said ring or gib, and screws or bolts located in said turret and connected with said ring or gib, substantially as described.

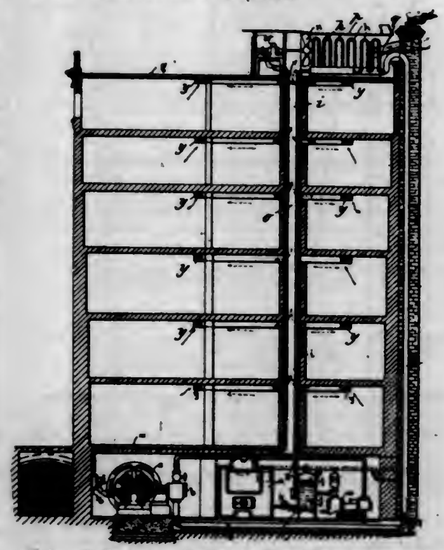
4. The combination of a turret having a depending hub or pivot, with a cross-slide having a cavity or bore, a bushing or bearing in said cavity or bore, a ring or gib, said bushing and ring having corresponding engaging faces, and screws or bolts connecting said ring or gib adjustably with said turret, substantially as described.

5. The combination of a turret having a depending hub or pivot, with a cross-slide having a cavity or bore, a shoulder 1^a, and an annular groove 1^b, a bushing or bearing having a flange 7^b, means for securing said bushing or bearing to said cross-slide, said turret having an annular groove registering with said groove 1^b, a ring or gib in said groove, said bushing or bearing and said ring or gib having corresponding engaging faces, and screws or bolts for adjustably connecting said ring or gib with said turret, substantially as described.

6. A turret having side apertures and a central cavity or recess communicating therewith, and a hub or pivot depending from said turret and having a bore leading to said cavity, combined with a cross-slide having a cavity, and a chamber leading thereto for conducting refuse away, substantially as set forth.

7. The combination of a turret having a depending hub or pivot, with a cross-slide, a bushing carried thereby, a ring or gib to engage said bushing, adjusting bolts or screws located in said turret and serving to adjust said ring, and binder-nuts on said bolts or screws serving to bind said turret and slide together, substantially as set forth.

576,718. POWER, HEATING, AND VENTILATING APPARATUS FOR BUILDINGS. REGINALD P. BOLTON, Pelhamville, N. Y. Filed Aug. 29, 1895. Serial No. 560,846. (No model.)



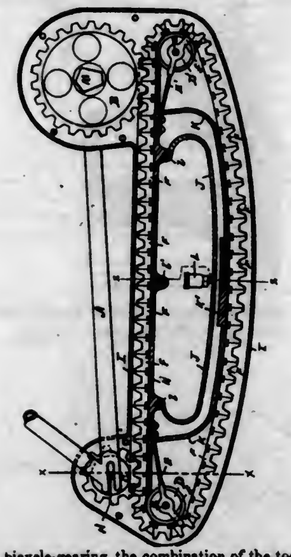
Claim.—1. In power, heating and ventilating apparatus for buildings, the combination of steam-power apparatus located in the lower part of the building, a condenser located on or in the upper part of said building, exhaust and return pipe connections of said power apparatus and condenser, the fan-blower for the condenser, the flue and branches communicating between the rooms of the building and the cover of the condenser through the fan and the outlet and inlet for air to the fan, said fan being reversible substantially as described.

2. The combination with the condenser, conduits communicating between the apartments and condenser, and the fan, of the cover having the overhanging outlet side and upwardly-deflecting doors to the outlet-openings, and also having the inlet-valve admitting air from the top of the cover substantially as described.

576,719. BICYCLE-GEARING. ROBERT I. BOUSELL, Anderson, Ind., assignor to the Combination Bicycle Lock and Gear Company, same place. Filed Apr. 21, 1896. Serial No. 588,415. (No model.)

Claim.—1. A bicycle-gearing comprising a toothed gear-wheel mounted on a crank-shaft, and toothed gear-wheel mounted on a rear or driving axle, an incased channel supported below and extending from one to the other of said toothed wheels, a wheel suitably mounted and supported to rotate at each end of said channel, a chain having a smooth back and serrated or toothed front, said front being in contact with the teeth of said wheels so that the driving-wheel may rotate the driven wheel by pressure against said chain, a casing surrounding said chain and wheels, a flexible strip of material supported within said casing, so as to be in contact with the back of said chain, and a suitable oil-cup mounted to deliver oil to said flexible strip, substantially as and for the purposes shown and described.

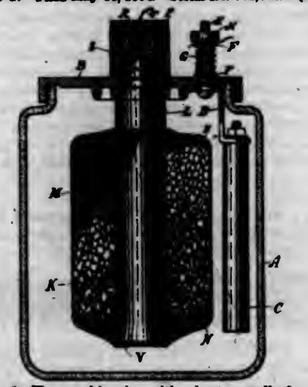
2. The combination of the bicycle-frame, the driving gear-wheel supported rotatably thereon, the toothed wheel mounted on the driven axle in engagement with the rear of said frame, the chain-channel supported on said frame below said toothed wheels, extending from one to the other, the rollers or wheels supported at the ends of said chain-channel, the chain engaging with said toothed wheels and running over said rollers and through said channel, the casing inclosing said channel, chain and wheels, said chain consisting of inside and outside links, the inside link being of solid form and the outside link being formed from a punched plate doubled over to form two parallel sides, between which are inserted and pivotally secured the said inside links, substantially as and for the purposes shown and described.



3. In a bicycle-gearing, the combination of the toothed wheel B mounted on the crank-shaft M; the toothed wheel C mounted on the rear axle; the channel H supported below said toothed wheels; the wheels D D' rotatably supported at each end of said channel; the casing I having the part J, the front T and back U; the chain F composed of inside links G and outside links formed from plates F', substantially as shown and for the purposes described.

4. In a bicycle, the combination of the wheels B C; the channel H; the chain F consisting of links G and links connecting therewith, formed from a plate F'; the flexible strip K supported to lubricate said chain, and a suitable case inclosing said wheels, said chain and said flexible strip, substantially as shown and described for the purposes set forth.

576,720. GALVANIC BATTERY. HORATIO J. BREWER, New York, N. Y. Filed May 18, 1894. Serial No. 511,671. (No model.)

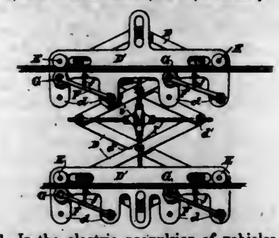


Claim.—1. The combination with a battery-cell of a carbon element therefor comprising a central carbon pencil, a body of material containing carbon closely surrounding the pencil, top and bottom plates between which the body of material is held, one of the plates being loose upon the pencil, a pervious sack inclosing the body of material and said plates, a draw-string at one end of the sack for closing the end of the sack around one of said plates, and a draw-string at the other end of the sack for closing the corresponding end of the sack around the movable plate and compressing the body of material substantially as specified.

2. The combination of a battery-cell, a cover therefor having a screw-thread, an element composed of a pencil engaging with the screw-thread, a flange B provided upon the cover, a cap engaging by screw-threads with the upturned portion of the flange B, a spring and a plate interposed between said cap and said pencil, for holding a conductor against the latter, substantially as described.

3. In a battery-cell, the combination of a cover for the cell, a zinc element, an angular connection between said cover and element, a bolt or pin extending upward from said connection through the cover, plates encircling the shank of said bolt, a spring interposed between said plates and holding the zinc in position, a central carbon pencil, loose carbon surrounding the same, a pervious sack for said loose carbon, and draw-strings at each end of said sack, substantially as described.

576,721. TROLLEY SYSTEM. WILLIS G. CAFFREY, Reno, Nev. Filed Apr. 2, 1896. Serial No. 585,908. (No model.)



Claim.—1. In the electric propulsion of vehicles, the combination, of a positive and negative conductor arranged in a vertical plane, one above the other, and a trolley to travel in contact with the conductors and consisting of pivoted bars forming an extensible and contractible frame, slotted plates in which the frame-bars are guided, contacts carried by the plates and removable and reversible arms pivoted to the plates and carrying contacts, said arms being provided with springs for holding their contacts up to the conductors.

2. In the electric propulsion of vehicles, the combination of independent wires arranged in a vertical plane, one above the other, one forming the inleading and the other the return wire to and from the motor and an automatically-adjustable trolley with suitable electrical connections, said trolley traveling in electrical contact with said conductors and adapted to conform to their variations and consisting of an extensible and contractible frame, of pivotally-secured bars and slotted guides therefor, said frame carrying contact-rollers, and other rollers traveling against the conductors to conform the frame to the position of said conductors and hold the contact-rollers thereto.

3. In the electric propulsion of vehicles, the combination of positive and negative conductors arranged vertically one above the other, one forming the inleading and the other the return wire to and from the motor and an automatically-adjustable trolley with suitable electrical connections, said trolley traveling in electrical contact with said conductors and adapted to conform to their variations and consisting of the pivoted bars forming an extensible and contractible frame, and carrying contact-rollers, and other rollers spring-controlled and traveling against the conductors to conform the frame to the position of said conductors and hold the contact-rollers thereto.

4. In the electric propulsion of vehicles, the combination of positive and negative conductors arranged vertically one above the other, one forming the inleading and the other the return wire to and from the motor and an automatically-adjustable trolley with suitable electrical connections, said trolley traveling in electrical contact with said conductors and adapted to conform to their variations and consisting of the pivoted bars forming an extensible and contractible frame and having contact-rollers, and the cross guide-rods secured to the trolley pole or cable and on which the said adjustable frame slides centrally.

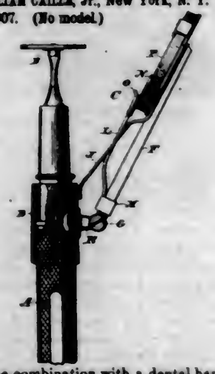
5. In the electric propulsion of vehicles, the combination of positive and negative conductors arranged vertically one above the other, one forming the inleading and the other the return wire to and from the motor and an automatically-adjustable trolley with suitable electrical connections, said trolley traveling in electrical contact with said conductors and adapted to conform to their variations and consisting of the pivoted bars forming an extensible and contractible frame and having contact-rollers, other rollers spring-controlled and traveling against the conductors to conform the frame to the position of said conductors and hold the contact-rollers thereto, and the cross guide-rods secured to the trolley pole or cable and on which the said adjustable frame slides centrally.

6. The composite trolley consisting of the pivoted bars forming an extensible and contractible frame, the centrally-located cross guide-rods secured to the trolley pole or cable and on which the said frame slides in adjusting itself, the contact-rollers carried by the frame, and the spring-controlled swinging rollers carried by said frame and acting against the conductors to adjust said frame and hold its contact-rollers to the conductors.

7. The composite trolley consisting of pivotal bars forming an extensible and contractible frame, the cross guide-rods secured to the trolley pole or cable and on which the frame slides in adjusting itself, the slotted plates in which the extremities of the frame are guided, the contact-rollers carried by the plates and the spring-controlled swinging rollers carried by said plates and acting against the conductors to adjust said frame and hold its contact-rollers to the conductors.

8. The extensible and contractible trolley, consisting of the pivoted bars with its rollers, and the cross-rods on which said bars are guided, in combination with the trolley pole or cable and the double joint between said pole or cable and the cross-rods.

576,722. **TOOL-MOISTENING DEVICE FOR DENTAL HANDPIECES.** WILLIAM CALLS, Jr., New York, N. Y. Filed Oct. 15, 1896. Serial No. 608,907. (No model.)



Claim.—1. The combination with a dental handpiece, of a lubricating and cleaning device, comprising a pad, and means for supporting said pad adjacent to the end of the handpiece, and a spring exerting an outward pressure whereby to maintain the pad normally away from the end of the handpiece, substantially as specified.

2. The combination with a dental handpiece, of a device adapted to be attached thereon, an arm having one end pivotally secured thereto, and its other end free and provided with an enlargement, a pad disposed upon said enlargement, a clamping device for holding the pad in position upon said enlargement, and means for maintaining the pad normally out of contact with the implement carried in the handpiece, substantially as specified.

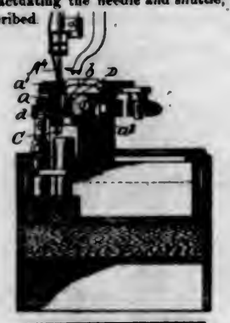
3. The combination with a dental handpiece, of a sleeve, an arm having one end pivotally attached thereto, and its other end free and provided with an enlargement having retaining-clips upon its edge, an absorbent pad disposed upon said enlargement, a spring-actuated clamp adapted for contact with the surface of said absorbent pad to hold the pad in position upon said enlargement, and a spring having one end secured to the enlargement and its other end in contact with the sleeve whereby to maintain the end of the arm and pad carried thereby normally out of contact with the implement carried by the handpiece, substantially as specified.

4. The combination with a dental handpiece, of a split sleeve, a bearing secured thereto, having a shoulder therein, an arm having one end pivotally secured in the bearing aforesaid, and provided with a toe adapted for contact with the shoulder in the bearing, an enlargement or disk provided with retaining-clips arranged upon the outer or free end of said arm, an absorbent pad disposed thereon, a spring having its upper ends secured to under surface of the enlargement or disk to each side of the arm, and its lower or loop end in contact with the surface of the split sleeve, a spring having its lower end secured to arm near its lower or pivoted end, and its other end projecting upwardly through the spring first named, and a segmental clamp, secured to the end of said spring, having a finger portion provided upon its upper surface, substantially as specified.

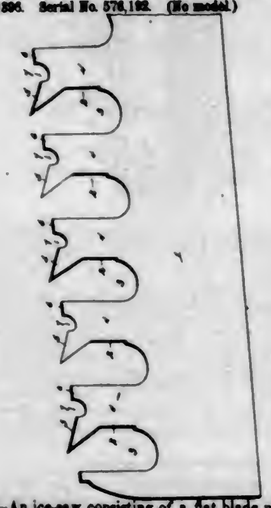
576,723. **LOOP-FORMER FOR SEWING-MACHINES.** JAMES B. DOSTER, St. Louis, Mo., assignor to the Landis Wax Thread Sewing Machine Company, same place. Filed May 15, 1895. Serial No. 549,368. (No model.)

Claim.—1. In a sewing-machine, the vertically-reciprocating needle, the shoe below the base-plate hung on horizontal pivot and having a substantially vertical groove into which the needle enters, and means for adjusting said shoe on its pivot, toward or from the needle, all combined substantially as described.

2. In a sewing-machine, the vertically-reciprocating needle, the rigid shoe below the base-plate thereof supported on horizontal pivots and having a groove in one face into which the needle enters on its descent, the shuttle reciprocating in proximity to said shoe, and usual means for actuating the needle and shuttle, all combined substantially as described.

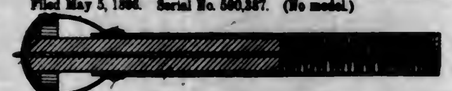


576,724. **ICE-SAW.** GEORGE A. FOSTER, Meriden, Conn. Filed Jan. 20, 1896. Serial No. 576,192. (No model.)



Claim.—An ice-saw consisting of a flat blade provided with integral teeth arranged at intervals and comprising shanks having straight parallel front and rear edges and forming recesses 3, the edges of the blade at the top of the recesses being semicircular, the forwardly-extending triangular cutting-points 5 disposed at a slight inclination, beveled at both the top and bottom to form cutting edges, the latter being arranged at an angle to each other, and heels located in rear of the cutting-points and provided with blunt lower edges, said teeth being provided between the heels and the cutting-points with substantially semicircular recesses 7, substantially as described.

576,725. **HOLDER FOR SEALING-WAX.** CHARLES M. GARRISON Wichita, Kans., assignor of one-half to Thaddeus Campbell, same place. Filed May 5, 1896. Serial No. 590,257. (No model.)

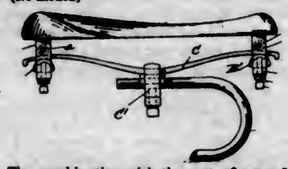


Claim.—1. In combination with a stick of sealing-wax provided with a wick adapted to be lighted for melting said wax, a handle for holding said wax having the cup for covering the end of said stick of wax having a hole in the center of said cup for the wick to pass through and a spring in said handle for keeping the stick of wax against said cup.

2. In combination with a stick of sealing-wax provided with a wick adapted to be lighted for melting said wax, a handle for holding said wax having the cup for covering the end of said stick of wax, having a hole in the center of said cup for the wick to pass through.

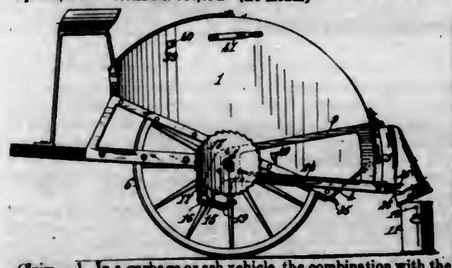
3. In combination with a stick of sealing-wax provided with a wick adapted to be lighted for melting said wax, a handle provided with a cup for catching said wax as melted and a spring in said handle for keeping the stick of wax against said cup.

576,726. **BICYCLE-SEAT SPRING.** AUGUST F. GETZ and WILLIAM C. WESTALL, San Francisco, Cal. Filed Sept. 20, 1895. Serial No. 563,097. (No model.)



Claim.—The combination with the seat, of open frames depending from the ends of the same, set-screws projecting upward in said frames through the lower ends thereof, convex plates carried by the upper ends of said screws, rollers journaled in and between the side bars of the frames, and a supporting-spring having its ends playing between said rollers and convex plates.

576,727. **GARBAGE-CART.** JOHN HEALY, New York, N. Y. Filed Apr. 15, 1896. Serial No. 587,654. (No model.)



Claim.—1. In a garbage or ash vehicle, the combination with the receiving-body thereof, of means for engaging with the receptacle to be emptied as it stands upon the ground, and means for automatically raising the same to the dumping position through the forward movement of the vehicle, substantially as described.

2. In a garbage or ash vehicle, the combination with the receiving-body, and the running-gear supporting the same, of a device carried by the vehicle and adapted to be engaged with the receptacle to be emptied as the latter stands upon the ground, and mechanism operated by the rotating parts of the vehicle to automatically lift the receptacle-holding device into dumping position on top of the vehicle as the latter moves forward, substantially as described.

3. In a garbage or ash vehicle, the combination with the receiving-body, and the running-gear supporting the same, of a device carried by the vehicle and adapted to be engaged with the receptacle to be emptied as the latter stands upon the ground, mechanism operated by the rotating parts of the vehicle to automatically lift the receptacle-holding device into dumping position on top of the vehicle as the latter moves forward, and means for automatically disengaging said receptacle-holding device from the lifting mechanism as the former reaches the proper dumping position, substantially as described.

4. In a garbage or ash vehicle, the combination with the receiving-body, and the running-gear supporting the same, of a device carried by the vehicle and adapted to be engaged with the receptacle to be emptied as the latter stands upon the ground, mechanism operated by the rotating parts of the vehicle to automatically lift the receptacle-holding device into dumping position on top of the vehicle as the latter moves forward, means for automatically disengaging said receptacle-holding device from the lifting mechanism as the former reaches the proper dumping position, and mechanism for retaining said device in dumping position against accidental displacement, substantially as described.

5. In a garbage or ash vehicle, the combination with the receiving-body, and the running-gear supporting the same, of a device carried by the vehicle and adapted to be engaged with the receptacle to be emptied as the latter stands upon the ground, mechanism operated by the rotating parts of the vehicle to automatically lift the receptacle-holding device into dumping position on top of the vehicle as the latter moves forward, means for automatically disengaging said receptacle-holding device from the lifting mechanism as the former reaches the proper dumping position, and means for manually retaining the lifting mechanism disengaged to bring the receptacle-lifting device down again to the receiving position, substantially as described.

6. In a garbage or ash vehicle, the combination with a normally-closed receiving-body, and the running-gear supporting the same, of a device carried by the vehicle and adapted to be engaged with the receptacle to be emptied as the latter stands upon the ground, mechanism operated by the rotating parts of the vehicle to automatically lift the receptacle from the ground into dumping position on top of the vehicle as the latter moves forward, and means for automatically uncovering a receiving-aperture in the top of the vehicle-body as the receptacle comes into dumping position in respect thereto, substantially as described.

7. In a garbage or ash vehicle, the combination with a normally-closed receiving-body, means for automatically lifting a receptacle to be emptied into dumping position on top of the vehicle, and means for automatically uncovering an aperture in the vehicle-top as the receptacle arrives in dumping position and for closing the same as said receptacle leaves the dumping position, substantially as described.

8. In a garbage or ash vehicle, the combination with a receiving-body, and the running-gear supporting the same, of a yoke rotatably mounted upon the axle of the vehicle at each side and extending transversely across the body of the vehicle, a chute centrally carried by said yoke and adapted to be detachably engaged with a receptacle to be emptied as the latter stands upon the ground, and mechanism connecting said yoke with the rotating parts of the vehicle whereby said yoke and receptacle may be automatically raised to dumping position on top of the vehicle as the latter moves forward, substantially as described.

9. In a garbage or ash vehicle, the combination with a receiving-body, and the running-gear supporting the same, of a yoke rotatably mounted upon the axle of the vehicle at each side and extending transversely across the body of the vehicle, a rearwardly-inclined chute centrally carried by said yoke and adapted to be detachably engaged with a receptacle to be emptied as the latter stands upon the ground, and mechanism connecting the said yoke with the rotating parts of the vehicle whereby said yoke and receptacle may be automatically raised to dumping position on top of the vehicle as the latter moves forward, substantially as described.

10. In a garbage or ash vehicle, the combination with a receiving-body, and the running-gear supporting the same, of a yoke rotatably mounted upon the axle thereof at each side and extending transversely across the body of the vehicle and adapted to be detachably engaged with a receptacle to be emptied as the latter stands upon the ground, mechanism connecting said yoke with the rotating parts of the vehicle whereby said yoke and receptacle may be automatically raised to dumping position on top of the vehicle as the latter moves forward, and means for automatically disengaging said yoke from said lifting mechanism as the former reaches the proper dumping position, substantially as described.

11. In a garbage or ash vehicle, the combination with a receiving-body, the running-gear supporting the same, a yoke rotatably mounted upon the axle thereof at each side and extending transversely across the body of the vehicle, and a chute formed centrally on said yoke and adapted to be detachably engaged with a garbage-can as the latter stands upon the ground, of ratchet-wheels mounted on the axle and rotated by the movement of the vehicle, pawls mounted on the yokes and adapted to normally engage the teeth of said ratchet-wheels, a transverse rock-shaft connecting said pawls, dogs mounted on said shaft, and projections on the sides of the vehicle against which said dogs contact as the yoke is rotated, thus rocking said shaft and disengaging the pawls from the ratchet-wheels, substantially as described.

12. In a garbage or ash vehicle, the combination with a receiving-body, the running-gear supporting the same, a yoke rotatably mounted upon the axle thereof at each side and extending transversely across the body of the vehicle, and a chute formed centrally on said yoke and adapted to be detachably engaged with a garbage-can as the latter stands upon the ground, of ratchet-wheels mounted on the axle and rotated by the movement of the vehicle, pawls mounted on the yoke and adapted to normally engage the teeth of said ratchet-wheels, a transverse rock-shaft connecting said pawls, dogs mounted on said shaft, projections on the sides of the vehicle against which said dogs contact as the yoke is rotated, thus rocking said shaft and disengaging the pawls from the ratchet-wheels, stops on the sides of the vehicle to limit the forward movement of the yoke, and spring-arms to retain said yokes in position against said stops, substantially as described.

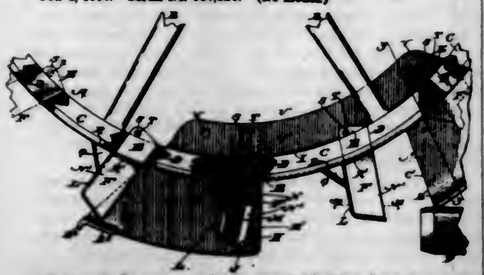
13. In a garbage or ash vehicle, the combination with a receiving-body, the running-gear supporting the same, a yoke rotatably mounted upon the axle thereof at each side and extending transversely across the body of the vehicle, and a chute formed centrally on said yoke and adapted to be detachably engaged with a garbage-can as the latter stands upon the ground, of ratchet-wheels mounted on the axle and rotated by the movement of the vehicle, pawls mounted on the yoke and adapted to normally engage the teeth of said ratchet-wheels, a transverse rock-shaft connecting said pawls, dogs mounted on said shaft, a bell-crank lever mounted on the yoke and having one of its arms engaged with one of said dogs, a hand-lever pivoted to the outer end of the yoke, and a pull-rod connecting said lever with the other arm of the bell-crank lever whereby the rock-shaft may be

rocked manually and the pawls disengaged from the ratchet-wheels, substantially as described.

14. In a garbage or ash vehicle, the combination with the receiving-body having an aperture in the top thereof, and a sliding lid normally closing the same, of a can-lifting yoke pivoted on the vehicle-axle and adapted in its forward movement to abut against said lid and slide the same forward to uncover the aperture, and means on the yoke for detachably engaging with said lid to draw the same to its closed position again as the yoke returns to its lowermost position, substantially as described.

15. In a garbage or ash vehicle, the combination with the receiving-body having an aperture in the top thereof, and a sliding lid normally closing the same, of a can-lifting yoke pivoted on the vehicle-axle and adapted in its forward movement to abut against said lid and slide the same forward to uncover the aperture, a catch pivoted intermediate its length in the front of the yoke and adapted to engage with the lid as the two come together, and a projection on the vehicle-top for tripping said catch to disengage the same from the lid when the latter reaches its closed position, substantially as described.

576,728. **WATER-WHEEL.** DANIEL HUE, Denver, Colo. Filed Oct. 1, 1896. Serial No. 607,529. (No model.)



Claim.—1. In a water-wheel, a bucket having diverging chambers arranged side by side, the upper portion of said bucket having a V-shaped wall therein, the sides of which assist in forming the top of said chambers, the latter discharging at opposite sides of the bucket.

2. In a water-wheel, a bucket having an inclined base, a plurality of chambers diverging therefrom, a V-shaped wall in the upper portion of said bucket, the sides of which wall assist in forming the top of said chambers, the latter having their exits curved and contracted, and means for attaching said bucket to a water-wheel.

3. In a water-wheel, a bucket having a plurality of diverging chambers, the upper portion of said chambers having a V-shaped wall therein, the sides of which wall assist in forming said chambers, which latter discharge at opposite sides of said bucket, an abutment on the latter and a tongue attached to said bucket, in combination with the rim of said water-wheel, a slot in said rim, in which said tongue is inserted, and a pin passing through said tongue and having a suitable bearing on said rim, said abutment being adapted to contact with the outer periphery of said rim.

4. In a water-wheel, a bucket having an inclined base H the chambers K extending therefrom, the upper portion of said bucket being V-shaped and assisting in forming the top wall of said chambers K, and the chambers P into which the latter chambers discharge, said chambers P being a continuation of the chambers K and each having the curved wall N′ and a contracted outlet, a shoulder Q attached to the rear of said bucket, and a tongue S projecting from the latter.

5. In a water-wheel, a protector or casing, the same having attaching devices for a suitable support, an inwardly laterally extending portion, the same being continued downwardly and an outwardly-curved portion, the same being curved inwardly and thence continued laterally, and a portion of said protector adjacent the discharge-nozzle being cut away.

6. A protector for a water-wheel consisting of two sections, each section having an upright flange V, the laterally and inwardly extending member X, the same being curved downwardly and having the outwardly-curved portion Z, the same extending thence downwardly and having the curvature A′, and the lateral extension B′ attached thereto.

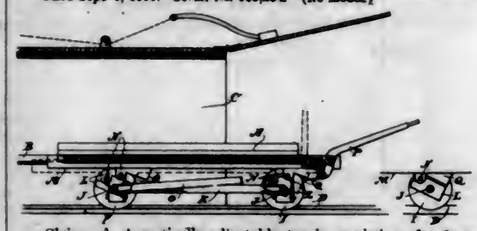
7. A protector for a water-wheel, consisting of two sections, each section having an upright flange V, the laterally and inwardly extending members X, the same being curved downwardly and having the outwardly-curved portion Z, the latter extending thence downwardly and having the curvature A′, the lateral extension B′ attached thereto, one extremity of said casing having the downwardly-deflected lip B^3, and means for holding said sections in positions, a portion of the latter being cut away.

8. The combination of a bucket provided with a shoulder or abutment Q, and a tongue or tenon E attached to said bucket and extending at an oblique angle to said abutment, with a water-wheel having a slot in the rim thereof, through which said tongue passes, said slot being out of alinement with a radius of said wheel, and a pin passing through said tongue and resting transversely upon the inner periphery of said rim, said abutment being in contact with the outer periphery of said wheel.

9. In a water-wheel, a bucket having a plurality of diverging chambers, the upper portion of said bucket having a V-shaped wall therein, the sides of which wall assist in forming said chambers, which latter discharge at opposite sides of said bucket.

10. In a water-wheel, a bucket having a suitable base a plurality of chambers diverging therefrom, a V-shaped wall in the upper portion of said bucket, the sides of said wall assisting in forming the top of said chambers, and means for attaching said bucket to a water-wheel.

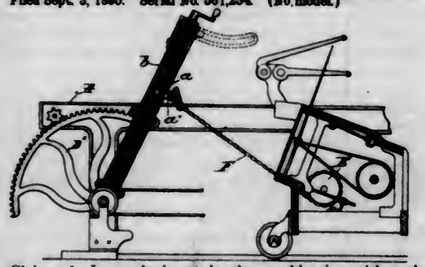
576,729. **ADJUSTABLE TRUCK.** ELIAS IRELAND, Winters, Cal. Filed Sept. 9, 1896. Serial No. 605,254. (No model.)



Claim.—1. A vertically-adjustable truck, consisting of a frame or platform, wheels fixed upon transverse shafts or axles, arms turnable loosely upon said shafts beneath the platform, locking rule-joints by which the upper ends of the arms are directly connected with the platform, side bars connecting the two wheel-shafts, a bar O extending directly from the rear wheel-shaft to the front of the platform, and a lever fulcrumed upon the platform having the lower end connected with the front of the bar O whereby the wheels are moved to raise or depress the frame.

2. A vertically-adjustable truck consisting of wheels fixed upon the ends of two parallel shafts, side bars connecting said shafts and having journal-boxes within which the shafts turn freely, short arms turning loosely upon the wheel-shafts, a frame, the side bars of which are in line above the arms, rule-joints connecting the frame directly with the arms, a connecting bar or frame loosely journaled to the rear axle of the truck extending forwardly, a lever fulcrumed upon the main frame having its lower end connected with this bar, whereby the frame may be raised or depressed by the movement of the lever, and inclined bearing-surfaces formed beneath the frame so as to rest upon the front sides of the connecting-arms when the frame is depressed.

576,730. **SPINNING-MULE.** SAMUEL JACKSON, Pawtucket, R. I. Filed Sept. 3, 1895. Serial No. 561,234. (No model.)

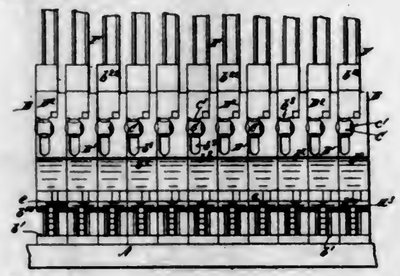


Claim.—1. In a spinning-mule, the combination with a chain-drum, its chain, and the quadrant, of the quadrant-screw, the quadrant-nut thereon and adapted to move from one to the other end of said screw, a chain-bending stud and a carrier therefor permanently and pivotally mounted on said nut, and means to adjust said stud on said carrier, substantially as described.

2. In a spinning-mule, the combination with a drum, the carriage, the chain-drum and its chain, of the quadrant, the movable holding member thereon to which the chain is connected, the slotted plate h^3 pivotally connected with said holding member, and the chain-bending stud made adjustable in said slot, substantially as described.

3. In a spinning-mule, the combination with a drum, the carriage, a chain-drum and its chain, of the quadrant, the movable holding member thereon to which the chain is attached, the slotted plate hinged to said holding member, the chain-bending stud adjustable in said slotted plate, a locking device on the said stud, and a series of teeth on the said plate, to be engaged by said locking device, all operating substantially as described.

576,731. **TYPE-SETTING APPLIANCE.** LOUIS K. JOHNSON and ABBOT A. LOW, Brooklyn, N. Y., assignors to The Alden Type Machine Company, New York, N. Y. Filed Mar. 3, 1896. Serial No. 581,688. (No model.)



Claim.—1. The combination of a channel-holder having one side wall adjustable with relation to the other to compensate for variations in the width of the type-containing channel, of a type face-plate adjustable upon one part of the holder for the purpose of presenting a continuous unbroken surface to the face of the type, substantially in the manner described.

2. A type-channel holder substantially such as described, having a forward extension or type-guard formed with a groove on its under side for the reception and guidance of the highest type, substantially in the manner and for the purpose described.

3. A type-channel holder substantially such as described, having a forward extension or type-guard formed with a groove on its under side for the reception and guidance of the highest type, the upper side of said groove being open near the front end of the guide for the purpose of giving access to the type, substantially in the manner and for the purpose described.

4. The combination of the standard side plate B′, and the adjustable side plate B^3, formed with front and rear type-guards in the same plane, substantially in the manner and for the purpose described.

5. The combination of the standard plate B′, the adjustable side plate B^3, and the laterally-adjustable type face-plate D, substantially in the manner and for the purpose described.

6. The combination of the standard plate B′, the adjustable side plate B^3, formed with the forward extension b^{13}, and the laterally-adjustable type face-plate D, formed with the forward extension d^3, substantially in the manner and for the purpose described.

7. The combination of the standard plate B′, the adjustable side plate B^3 formed with the vertical slot b^{14}, and the adjustable type face-plate D, formed with the lateral flange d^3, substantially in the manner and for the purpose described.

8. The combination of the standard plate B′, formed with the front flange b^3, having the vertical slot b^4, the adjustable side plate B^3, and the adjusting-screw C, engaging with said side plate B^3, and of less diameter than the width of the slot b^4, for the purpose of admitting of the lateral adjustment of the plates B′, B^3, with relation to each other, substantially in the manner and for the purpose described.

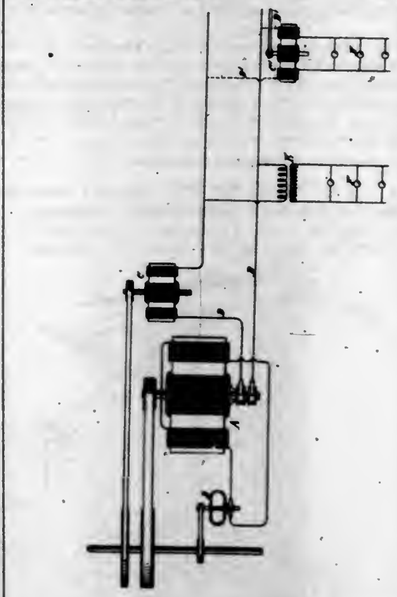
576,732. **ELECTRICAL REGULATING DEVICE.** JOHN F. KELLY, Pittsfield, Mass., assignor to the Stanley Laboratory Company, same place. Filed July 24, 1893. Serial No. 481,261. (No model.)

Claim.—1. The combination of an alternating-current generator used as a source of electrical supply, a circuit from the same for the transmission of the electrical energy developed, and a regulator consisting of an induction-motor connected with the circuit and driven at a speed above that of synchronism as set forth.

2. The combination of an alternating-current generator used as a source of electrical supply, one or more feeders for conveying the current from the same, and a regulator for each feeder, consisting of an induction-motor connected with the feeder and driven at a speed above that of synchronism, as set forth.

3. The combination with an alternating-current circuit and source of current therefor, of translating devices connected or adapted for connection with the circuit, of a regulating device consisting of an induction-motor driven above synchronous speed and having its exciting-coils connected with said circuit, as described.

4. The method herein described of regulating alternating currents, which consists in connecting up in the circuit of an alternating source of current-supply an induction-motor, and operating the same as a regulator by driving it at a speed above that of synchronism with the generator, as set forth.

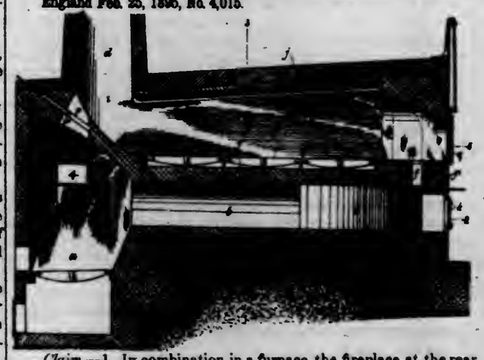


576,733. **THERMOSTATIC FIRE-DOOR APPARATUS.** OLIVER H. KINGSLAND, Brooklyn, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed Apr. 24, 1896. Serial No. 588,861. (No model.)



Claim.—In combination with a self-closing door, a latch or bolt held by gravity in its locking position, and a spring controlled by a thermostatic piece, and adapted to act to withdraw said latch from engagement with the door for the purpose of allowing the door to close.

576,734. **FURNACE FOR HEATING METAL SHEETS.** THOMAS R. LUDFORD, SAMUEL R. DAVIES, and REES DAVIES, Llanelly, England. Filed May 15, 1896. Serial No. 591,719. (No model.) Patented in England Feb. 25, 1895, No. 4,015.

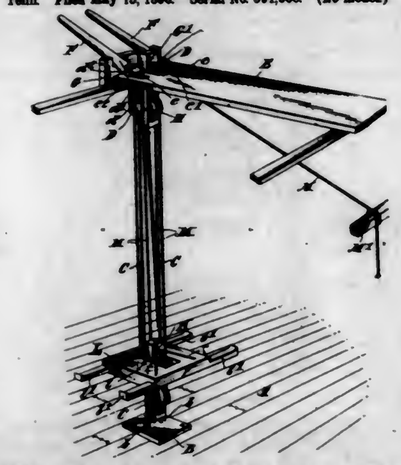


Claim.—1. In combination in a furnace, the fireplace at the rear thereof, the heating-chamber above the fireplace, the flue *b* extending from the fireplace to the front, the central flue *f* extending from

the flue *b* and opening in the plane of the floor of the heating-chamber and the flues *g*, *h*, on each side of the flue *f*, said flues opening into the heating-chamber in a plane higher than the central flue *f*, each of said flues being controlled by a damper, substantially as described.

2. In combination, in a metal-heating furnace, a heating-chamber, the series of transverse bearers *n* on the floor of the heating-chamber and the series of sets of bars extending longitudinally of the furnace-chamber, the bars of the several sets being placed end to end and raised by the transverse bearers from the floor of the furnace, substantially as described.

576,735. TOBACCO-ELEVATOR. ANDREW J. LUTHER, Burns, Tenn. Filed May 15, 1896. Serial No. 591,600. (No model.)



Claim.—The combination with the stationary bottom block B, of the guide-ropes C C having their lower ends secured to said bottom block B, the plates D each of which has a vertical series of holes, the pins d^2 adapted to fit in said holes, the levers F adapted to engage said pins, and a vertically-movable tobacco-holder L adapted to be guided in its movements by the ropes C substantially as described.

576,736. DRAWING-FRAME. WILLIAM V. TERRELL and CHARLES MILLS, Newton, Mass., assignors to the Pettee Machine Works, same place. Filed Aug. 1, 1894. Serial No. 519,136. (No model.)

Claim.—1. In a machine of the character specified, the combination of the drawing-roll, the stop-motion of the machine, the spoons arranged back of the drawing-rolls and connected with and operating the stop-motion as specified, the positively-driven roll C back of the spoons E, the frame c' pivoted to the frame of the machine at its inner end, the roll C' connected with said pivoted frame, the said frame locating the said roll C' upon the roll C back of the spoons E and providing means by which it may be moved to a position remote from said roll C, and the said roll thereby uncovered and exposed, as and for the purposes set forth.

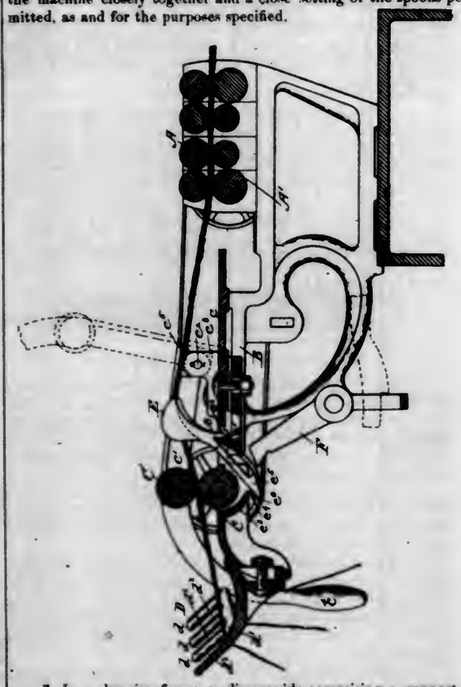
2. The combination in a drawing-frame of the bracket B supporting the spoons E, with a plate *c* bolted or attached to said bracket, and the safety-rolls C, C' held by said plate in a position back of the spoons, as and for the purposes set forth.

3. The combination in a drawing-frame of the table *c* having the downwardly-extending stops c^4 with the spoons E, the lower ends of which are adapted to come into contact with said stops c^4.

4. The combination in a drawing-frame of the spoons E having the stops e^4 at their lower ends, with the plate *c* having the stops c^4, as and for the purposes set forth.

5. In a drawing-frame the stationary sliver-spacing guide D comprising a series of inclined fingers or arms extending upward and outward from a support over which the sliver runs, and which support is formed at an angle which brings its forward ends nearer the frame of the machine and its center farther removed from the frame to produce the spaces d^9 between the said fingers which are inclined and brought together, thereby providing for the relatively wide spacing of the strands of sliver as they enter the guide from the sliver-cans and the close spacing of the said strands as they leave the guide and pass to the drawing-rolls.

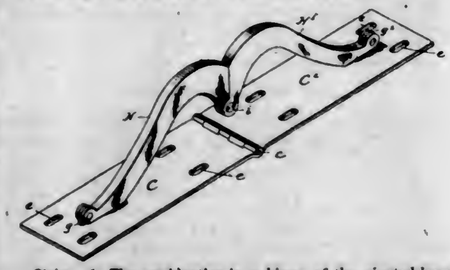
6. In a drawing-frame the combination of the drawing-rolls, the spoons E placed closely together, the stop-motion with which the said spoons are connected, and the sliver-spacing guide D comprising an angular support over which the strands of sliver are drawn, and the forward ends of which are nearer the frame of the machine than its center, and spacing-fingers extending upward from said support, whereby the strands of sliver are brought and fed or drawn through the machine closely together and a close setting of the spoons permitted, as and for the purposes specified.



7. In a drawing-frame, a sliver-guide comprising a support *d'* bolted or attached to the frame of the machine and having integral arms formed at an angle to each other as specified, and outwardly extending or inclined fingers *d* to form guiding spaces or recesses of the character described.

8. The combination in a drawing-frame of the drawing-rolls, the stop-motion, the spoons connected with and operating the stop-motion as specified, the rolls C, C' arranged back of the spoons and adapted to cooperate therewith and with the drawing-rolls as described, and the angularly-arranged sliver recesses or guides back of said rolls C, C', as and for the purposes set forth.

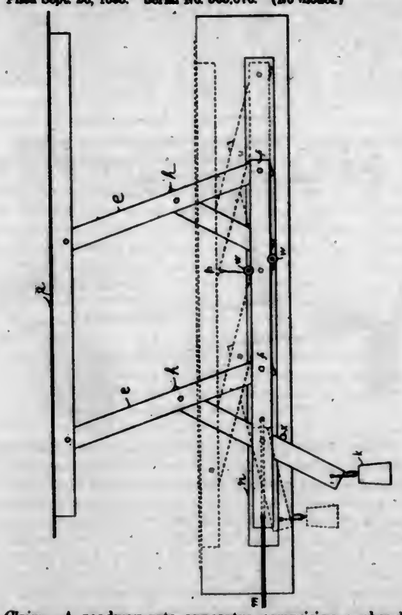
576,737. HINGE. FRANCIS J. MCMENAMIN, Philadelphia, Pa. Filed May 26, 1896. Serial No. 593,168. (No model.)



Claim.—1. The combination in a hinge, of the pivoted leaves, auxiliary arms pivoted to the respective leaves and to each other, said arms having abutting faces formed at their connected ends above their mutual connecting-pivot and adapted to come into contact with each other when the hinge-leaves are opened flat.

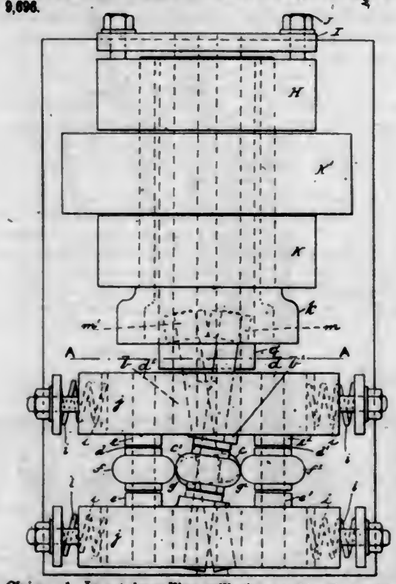
2. The combination in a hinge, of the two leaves, a pivot-pin *e*, arranged in the same plane with the under surfaces of the hinge-leaves when the latter are opened flat and to which said leaves are pivoted, and auxiliary arms H, H', pivoted to the respective leaves and to each other, said arms having abutting faces *h'* formed at their ends at a point above their mutual connecting-pivot and adapted to come into contact with each other when the hinge-leaves are opened flat, substantially as specified.

576,738. ROADWAY-GATE. FRED H. NICHOLS, Lynn, Mass. Filed Sept. 20, 1895. Serial No. 563,076. (No model.)



Claim.—A roadway-gate apparatus comprising a chamber, a fixed bar *n* therein, bars *h* pivoted at their lower ends upon said fixed bar, bars *e* pivoted upon the free ends of the bars *h*, a bar *a* pivoted upon the upper ends of the bars *e*, a bar *f* pivoted to the lower ends of the bars *e*, guides, as *w*, between which the bar *f* slides, and means for moving said bar *f* to operate the gate: substantially as described.

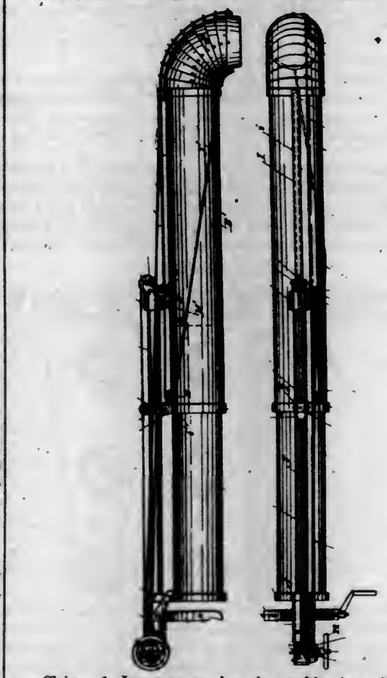
576,739. MACHINERY FOR MANUFACTURING METAL TUBES. ARTHUR PILKINGTON, Birmingham, England. Filed Aug. 24, 1896. Serial No. 603,735. (No model.) Patented in England May 16, 1895, No. 9,696.



Claim.—1. In a tube-rolling mill, the combination, with a pair of working rolls arranged with their axes crossing a plane drawn through the axis of the work, and rigid supports for the said rolls; of driving devices operating positively to revolve the said rolls, a laterally-slidable rest-roll arranged with its axis substantially parallel with the axis of the work, and springs pressing the said rest-roll toward the work, substantially as set forth.

2. In a tube-rolling mill, the combination, with a pair of working rolls arranged with their axes crossing a plane drawn through the axis of the work, and rigid supports for the said rolls; of driving devices operating positively to revolve the said rolls, two laterally-slidable rest-rolls arranged on opposite sides of the said pair of rolls with their axes substantially parallel with the axis of the work, and springs pressing the said rest-rolls toward the work, substantially as set forth.

576,740. PNEUMATIC STRAW-STACKER. ABRAHAM R. PRICE, Waynesborough, Pa., assignor to The Geiser Manufacturing Company, same place. Filed Apr. 20, 1895. Serial No. 546,512. (No model.)



Claim.—1. In a straw-stacker, the combination, with a telescopic discharge-pipe, and a deflector at its upper end; of a guide-sheave carried by the slidable pipe-section, two guide-sheaves supported from the non-slidable pipe-section one above and the other below the aforesaid guide-sheave, and a single flexible connection passing over all the said guide-sheaves and having its ends operatively connected with the deflector, whereby the slidable pipe-section may be slid in or out without changing the position of the deflector, substantially as set forth.

2. In a straw-stacker, the combination, with a telescopic discharge-pipe, and a deflector-pipe at its outer end; of guide-sheaves carried by the stationary and slidable pipe-sections; a flexible connection having its ends attached to the upper and under sides of the deflector-pipe and supported by the said guide-sheaves at a substantially uniform tension; and a catch for engaging with the said flexible connection and sustaining the said deflector-pipe, substantially as set forth.

3. In a straw-stacker, the combination, with a telescopic discharge-pipe, and a deflector-pipe at its outer end; of guide-sheaves carried by the stationary and slidable pipe-sections; and a flexible connection partly formed of drive-chain, having its ends attached to the upper and under sides of the deflector-pipe and supported by the said guide-sheaves at a substantially uniform tension; and a pivoted hooked catch for engaging with the links of the said drive-chain and thereby sustaining the said deflector-pipe, substantially as set forth.

4. In a straw-stacker, the combination, with a discharge-pipe, and a deflector at its outer end; of the support secured parallel to the inner pipe-section and projecting beyond its upper end, guide-sheaves carried by the lower end portion of the slidable pipe-section and by the respective ends of the said support; and a single flexible

connection having its ends operatively connected with the said deflector and passing around the said sheaves, substantially as set forth.

576,741. MILL FOR ROLLING FANTAIL AXLES. GEORGE R. REGARD, Lebanon, Pa., assignor of one-half to A. B. Gloninger. Filed June 17, 1896. Serial No. 596,894. (No model.)

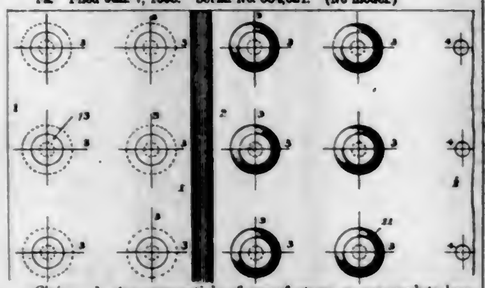


Claim.—1. A mill for rolling fantail axles comprising an upper and a lower roll provided with concentric passes C, D, and eccentric passes E, F, the latter pass being continuously tapered laterally throughout the circumference of the rolls.

2. A mill for rolling fantail axles comprising an upper and a lower roll provided with concentric passes C, D, and eccentric passes E, F, the latter pass being continuously tapered laterally and the collars of said passes E, E, provided with lugs on opposite sides of the roll.

3. A mill for rolling fantail axles comprising an upper and a lower roll provided with concentric passes C, D, and passes E, F, having concentric grooves in the lower roll and eccentric collars on the upper roll and the groove and the collars of the latter pass continuously tapered laterally throughout the circumference of the rolls.

576,742. ARMOR-PLATE. ROBERT H. SAYER, South Bethlehem, Pa. Filed Jan. 7, 1896. Serial No. 534,021. (No model.)



Claim.—1. As a new article of manufacture, an armor-plate having an even or plain impact-surface, and having embedded therein, in proximity to said surface, plugs of a harder metal having a tapering lower or inner portion, the metal adjacent to the plugs being more compressed or compacted than the metal at a distance therefrom, substantially as described.

2. As a new article of manufacture, an armor-plate having an even or plain impact-surface, and having embedded therein, flush with said surface, plugs of a harder metal having projections or anchoring portions below the surface of the plate, the metal adjacent to the plugs being more compressed or compacted than the metal at a distance therefrom, substantially as described.

3. As a new article of manufacture, an armor-plate having an even or plain impact-surface, and having embedded therein, flush with said surface, plugs of a harder metal having a tapering lower or inner portion, and having projections or anchoring portions below the surface of the plate, substantially as described.

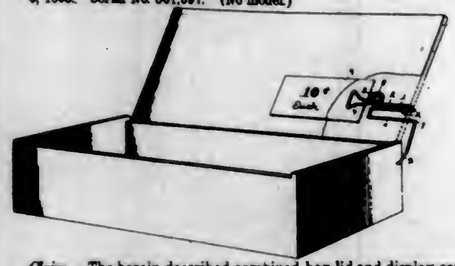
4. The process of making armor-plates, which consists in, first, forming a plate of a suitable thickness with a series of depressions in the surface of the plate for the reception of plugs, next, locating the plugs in said depressions, and finally simultaneously rolling or forging the plate to the final thickness and forcing the plugs farther into the plate, substantially as described.

5. The process of making armor-plates which consists in, first, forming a plate of a suitable thickness with a series of depressions in the surface of the plate for the reception of plugs, next, locating the plugs in said depressions, and finally simultaneously forcing the plugs into the plate, rolling or forging the plate to the final thickness, and compacting the metal of the plate about the plugs, substantially as described.

6. The process of making armor-plates which consists in, first, forming a plate of a suitable thickness with a series of depressions in the surface of the plate for the reception of plugs, next, locating the plugs in said depression, then reheating the plate with the plugs, and finally simultaneously rolling or forging the plate to the final thickness and forcing the plugs farther into the plate, substantially as described.

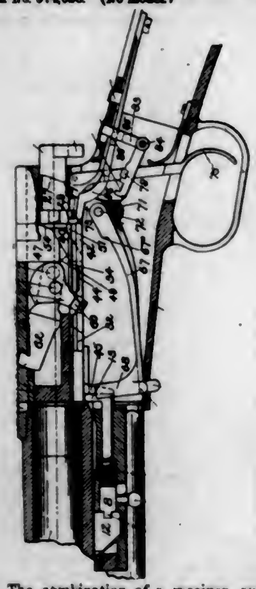
7. The process of making armor-plates, which consists in rolling or forging a plate to a suitable thickness, forming depressions in the surface thereof for the reception of plugs, the holes being smaller than the plugs, locating the plugs in said depressions, forcing the plugs into the plates and compacting the metal of the plate adjacent to the plugs, and then rerolling or forging the plate to its final thickness, farther progressing the plugs into the metal and compacting the metal about the plugs, substantially as described.

576,743. BOX-LID AND DISPLAY-CARD HOLDER. GOTTLIEB SCHNEIDER and WARREN W. GEDDES, Kendallville, Ind. Filed Sept. 6, 1895. Serial No. 561,697. (No model.)



Claim.—The herein-described combined box-lid and display-card holder, made from a single wire blank bent at its central portion to form substantially parallel spring-arms adapted to embrace and clasp the box-lid, one of the terminals of said blank being twisted to form a coil 3 adjacent to the end of one of said spring-arms, after which said terminal is extended longitudinally and recurved upon itself and then provided at its extremity with a coil 5 resting against and aligning with the said coil 3, the said coils 3 and 5 being adapted to receive and clasp a card between them, the other terminal of said blank being extended substantially at right angles to the said spring-arms and being provided with an inbent pointed extremity which may be inserted in the box for holding the lid at the desired angle of adjustment, all of said parts being disposed with relation to each other, substantially as and for the purpose described.

576,744. MAGAZINE-FIREARM. DUDLEY S. SEYMOUR, Hartford, Conn., assignor of one-half to John Johnston, same place. Filed Jan. 7, 1896. Serial No. 574,628. (No model.)



Claim.—1. The combination of a receiver, and a gun-barrel; detachably connected by means of a recess and a hook appurtenant to their adjacent ends; and by means of a barrel-bolt, the outer end of which articulates with the gun-barrel, or with a part appurtenant thereto, and the inner end of which engages with the breech-block, so that the barrel cannot be detached from the receiver, when the breech-block is in its firing position, and so that the breech-block cannot be forced to its firing position, when the barrel is imperfectly attached to the receiver; all substantially as described.

2. The combination of a trombone-slide, on the gun-barrel; and an action-slide, on the inside of the receiver, and extending outward through a wall thereof, to an interlocking joint with the trombone-slide; which interlocking joint consists of a recess and a projection on one side of the rearward end of the trombone-slide; and a projection and a recess on the opposite side of the forward end of the action-slide extension; so that the trombone-slide and the action-slide are attached and detached, when the gun-barrel is lowered into its seat in the receiver, or lifted out of that seat, as the case may be, all substantially as shown and described.

3. The combination of a breech-block; and an action-slide to move it backward and forward; and a lever mechanism, located between the breech-block and the action-slide, which powerfully and slowly starts the breech-block, and forces it home, respectively, at the beginning of its backward movement, and at the end of its forward movement, and which, during all other portions of the backward and forward movement, acts only as an arm of the breech-block, to carry the breech-block with the speed of the action-slide, undiminished by intermediate leverage; all substantially as described in that behalf.

4. The combination of a breech-block; and an action slide, to move it backward and forward; and compound-lever mechanism, located between the breech-block and the action-slide, which acts as a lever at the beginning of the backward movement, and at the end of the forward movement, to powerfully and slowly start the breech-block, and force it home, respectively, and which acts as an arm of the breech-block, during all other portions of the forward and backward movement, to carry the breech-block, with the speed of the action-slide, undiminished by intermediate leverage; all substantially as described, in that behalf.

5. The combination of a reciprocating locking-bolt, for locking the breech-block in its closed position in the receiver; and an action-slide, reciprocating substantially at a right angle with the path of the locking-bolt, for moving the locking-bolt to and from its locking position, and inclined planes appurtenant to the locking-bolt and the action-slide, for transmitting the motion of the latter to the former; substantially as described, in that behalf.

6. The combination of a vertically-moving locking-bolt, for locking the breech-block in its closed position in the receiver; and an action-slide for moving the locking-bolt downward and upward from and to its locking position; substantially as described, in that behalf.

7. The combination of an action-slide, provided with an inclined horn; and a locking-bolt, provided with an inclined recess; whereby the action-slide moves the locking-bolt out of its locking position, when the action-slide is moved in one direction, and into its locking position, when the action-slide is moved in the other direction; all substantially as described, in that behalf.

8. The combination of an action-slide; and an action-slide lock having a part projecting into the path of the forward movement of the firing-pin; and a firing-pin; so that the lock locks the slide, when the firing-pin is cocked, and the firing-pin unlocks the lock from the slide, when it is discharged; all substantially as described.

9. The combination of an action-slide; an action-slide lock; one or more triggers; and a safety-lock, by means of which to simultaneously lock and unlock the trigger, or triggers, and the action-slide lock; all the parts being constructed and combined substantially as described.

10. The combination of a starting-lever; and an action-slide; the slide working the lever, and the lever modifying the action of the slide; substantially as shown in that behalf.

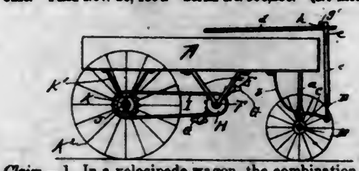
11. The combination of an action-slide, reciprocating adjacent to a trigger; and a trigger, provided with a sear, and also with a projection, or other part, by means of which, the action-slide holds the sear, in positive engagement with its firing-pin or hammer, until the breech-block is closed; all substantially as described.

576,745. TRUNK-LOCK. RUSSELL T. SHELLEY, New Haven, Conn. Filed June 12, 1896. Serial No. 595,325. (No model.)



Claim.—In a trunk-lock, the combination of the sliding plate carrying the bolts, the ends of which are bent in the same direction, and in alinement, of the tumblers mounted on a post carried by a casing, a square lug on the said plate carrying the bolts, designed to engage in notches in the said tumblers to hold the same in a locked or unlocked relation, of the springs L, and the plate R, having lugs R' for holding the same to the casing, all substantially as shown and described.

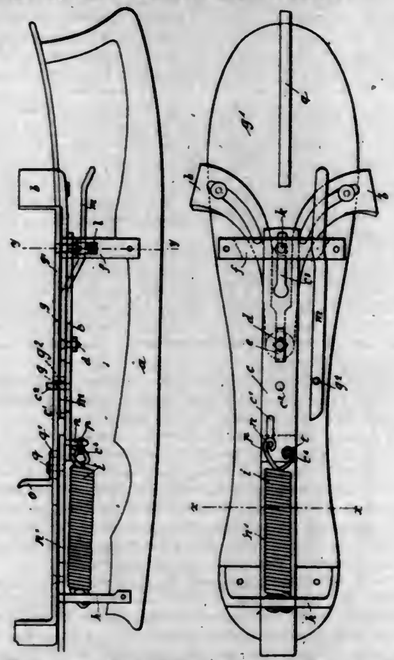
576,746. VELOCIPEDE-WAGON. JAMES M. SPANGLER, Canton, Ohio. Filed Nov. 28, 1894. Serial No. 530,230. (No model.)



Claim.—1. In a velocipede-wagon, the combination of the body or box, mounted upon traveling wheels, the axle B, provided with the arm C, the yoke D pivotally attached to said arm, the tongue formed in sections, said sections hinged together, and one of said sections secured to the yoke D, substantially as and for the purpose specified.

2. The combination of the body or box A, provided with a detachable bottom, said box mounted upon traveling wheels, the axle B, provided with the arm C having pivoted thereto the yoke D, the tongue-section c, attached to the yoke D, and provided with the flanged plates e, the tongue-section d, provided with the screw-threaded rod g, having the thumb-screw g', and the bar h, substantially as and for the purpose specified.

576,747. SKATE. JAKOB STUTZ-MÜLLER, Kempten, Switzerland. Filed July 31, 1896. Serial No. 601,189. (No model.)

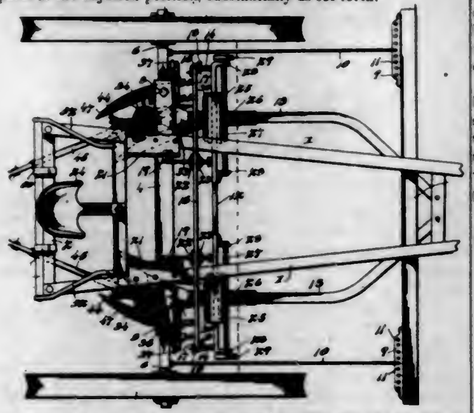


Claim.—1. A skate comprising a foot-plate and runner, sole-clips, a movable bar c carrying the sole-clips, a spring engaging said bar, a heel-clip, a sliding bar n' carrying the heel-clip and a spring engaging said bar n', said springs being located one within the other, substantially as described.

2. A skate comprising a front plate and runner, sole and heel clips, independent springs for each set of clips and a spring-holding device for the sole-clips operated by the pressure of the foot, substantially as described.

576,748. CULTIVATOR. CHARLES TANNER, Cheneyville, La. Filed May 14, 1896. Serial No. 591,531. (No model.)

Claim.—1. In an agricultural implement, the combination of a beam, a quadrantal-shaped bracket having bearings at its ends disposed at right angles relative to each other, the upper or horizontal bearing receiving a portion of the beam upon which it is mounted, a gang journaled in the vertical bearing at the opposite end of the bracket, and independent means for adjusting the bracket relatively to the beam and the gang relatively to the bracket and holding the parts in the adjusted position, substantially as set forth.



2. In an agricultural implement, the combination of a beam having its rear end reduced and provided with a latch-lever, a quadrantal-shaped bracket having right-angularly-disposed bearings at its ends and having a notched segment at one extremity to cooperate with the latch-lever of the beam, whereby the bracket is held at any angular adjustment, the upper or horizontal bearing receiving the reduced portion of the beam, a gang of earth-treating devices journaled in the lower or vertical bearing of the bracket, and means under the control of the driver for turning the gang upon its vertical axis, substantially in the manner set forth for the purpose described.

3. In an agricultural implement, the combination of beams bearing earth-treating devices, a rod or bar connecting the beams, blocks formed with internally-threaded lugs and slidably mounted upon the said connecting-bar and having positive connection with the beams, and feed-screws journaled to the said rod and cooperating with the aforesaid threaded lugs for adjusting the blocks upon the connecting-bar for separating or bringing the beams closer together, substantially as described.

4. In an agricultural implement, the combination of a frame, beams bearing earth-treating devices having loose connection at their front ends with the frame, a laterally-adjustable rod or bar, pivotal connections between the beams and the said rod or bar, and feed-screws carried by the rod or bar for independently adjusting the connections between the beams and the rod or bar, substantially as and for the purpose set forth.

5. In an agricultural implement, the combination of a frame, beams bearing earth-treating devices and having loose connection at their front ends with the frame, a transversely-disposed rod or bar capable of being shifted laterally, pivotal connections between the beams and the rod or bar, means for independently adjusting the beams laterally, a lifting-bar having its terminal portions bent vertically and making loose connection with the aforesaid transverse rod or bar, springs mounted upon the bent ends of the lifting-bar and exerting a downward pressure upon the transverse rod or bar, and a lever under the control of the driver for raising and lowering the lifting-bar, substantially as and for the purpose set forth.

6. In an agricultural implement, the combination with a transversely-disposed bar capable of lateral movement, beams bearing earth-treating devices and having connection with the said bar, a lifting-bar having vertical portions making loose and positive connection with the transverse bar, and coil-springs mounted upon the vertical portions of the lifting-bar and exerting a downward pressure upon the aforesaid transverse bar, of a frame having a sheave-wheel to receive the horizontal portion of the lifting-bar, and a lever operatively connected with the sheave-wheel frame and provided with means for holding it in an adjusted position, substantially as set forth for the purpose described.

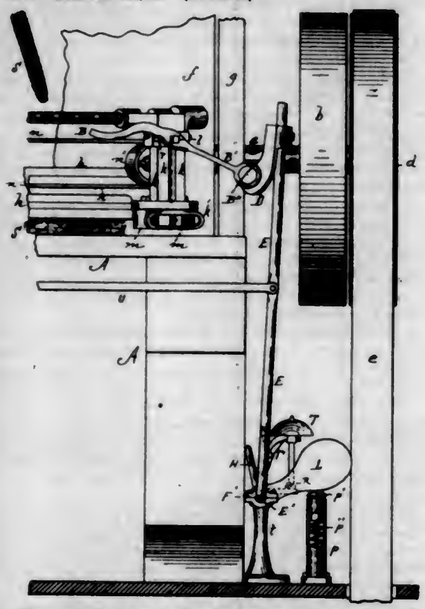
7. In an agricultural implement, the combination with a transversely-disposed bar, and a beam bearing earth-treating devices, of a block slidably mounted upon the transverse bar and having a threaded lug, and a feed-screw journaled to the transverse bar and operating in the threaded lug of the block to move the latter and hold it in an adjusted position, substantially as and for the purpose set forth.

8. In an agricultural implement, the combination of a horizontal bar, metal boxes having adjustable connection with the ends of the bar, crank-arms slidably fitted within the metal boxes and adapted to be secured in an adjustable position, and ground-wheels mounted upon the spindles of the crank-arms, substantially as set forth.

9. The combination of a support having a vertical bearing and having an annular groove in its lower face, and a gang-frame having a shank journaled in the said bearing and formed with an annular shoulder to fit the said annular groove, and having an annular chamber at the base of the shank to receive a corresponding portion of the said bearing, and having an oil-duct leading from the annular chamber through a side of the bearing, substantially as set forth.

10. The combination with a beam having a vertical bearing, a head bearing earth-treating devices and journaled vertically in the said bearing, and a brace having connection with the said head and threaded at its front end, of a sleeve mounted upon the threaded portion of the brace, and a block carried by the sleeve and interlocking with the front end of the beam, substantially as set forth for the purpose described.

576,749. STOP-MOTION AND ALARM FOR WOOLEN FINISHER-CARDS. PATRICK H. WALSH, Saugus, Mass. Filed Apr. 3, 1896. Serial No. 586,015. (No model.)

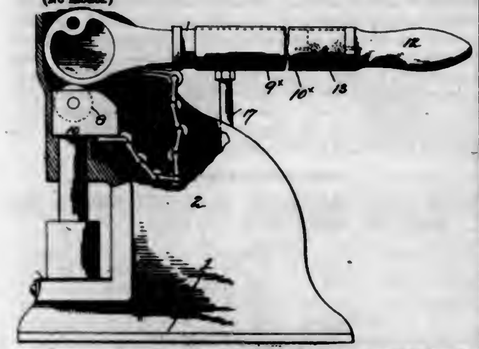


Claim.—1. In a stop-motion for woolen finisher-cards, the finger consisting of the heavier arm B, and lighter arm B′ provided with the ring B″, the traveler and sliver-rolls and supporting mechanism, said finger being pivoted to the traveler in such position that the sliver passes through said ring to the rolls; the horizontal shaft F supported in suitable bearings and provided with the upwardly-extending arm E; a plate or spoon secured to said arm adapted to be engaged by the lighter end of the finger when the sliver breaks; a weight loose on said shaft; and an arm H extending up from said shaft at such an angle as to support the weight when said weight is swung up, and the driving-belt and connecting mechanism; whereby the engagement of the finger with said plate or spoon topples the weight over against the driving-belt and stops the machine, substantially as set forth.

2. In a stop-motion for woolen finisher-cards, the finger consisting of the heavier arm B, and lighter arm B′ provided with the ring B″, the traveler and sliver-rolls and supporting mechanism, said finger being pivoted to the traveler in such position that the sliver passes through said ring to the rolls; the horizontal shaft F supported in suitable bearings and provided with the upwardly-extending arm E; a plate or spoon secured to said arm and adapted to be engaged by the lighter end of the finger when the sliver breaks; a weight loose on said shaft; an arm H extending up from said shaft at such an angle as to support the weight when said weight is swung up, and the driving-belt and connecting mechanism, whereby the engagement of the finger with said plate or spoon topples the weight over against the driving-belt and stops the machine; an alarm-bell supported in position near the weight; and a finger extending from said weight and adapted as the weight falls to trip the hammer of said alarm-bell, substantially as described.

3. In a stop-motion for woolen finisher-cards, the finger consisting of the heavier arm B and the lighter arm B′ provided with the ring B″, the traveler and sliver-rolls and supporting mechanism, said finger being pivoted to the traveler in such position that the sliver passes through said ring to the rolls; the horizontal shaft F supported in suitable bearings and provided with the upwardly-extending arm E; a plate or spoon secured to said arm and adapted to be engaged by the lighter end of the finger when the sliver breaks; a weight loose on said shaft; an arm H extending up from said shaft at such an angle as to support the weight when said weight is swung up, and the driving-belt and connecting mechanism, whereby the engagement of the finger with said plate or spoon topples the weight over against the driving-belt and stops the machine; and a spring rest or support for said weight when it is down, whereby the fall of the weight is accomplished without undue jar, substantially as set forth.

576,750. MACHINE FOR CANCELING CHECKS. JAMES M. WILLBUR, New York, N. Y. Filed Aug. 19, 1895. Serial No. 559,864. (No model.)



Claim.—1. In combination, the frame, the plunger guided therein, the backing-plate secured to said plunger, the knives, and the independent disk carrying the said knives, said disk being secured to said backing-plate, substantially as described.

2. In combination, the frame, the plunger guided therein with means for operating the same, the longitudinally-tapered cutting-knives, the independent disk into which said knives are driven and held and the means for connecting said disk to the plunger, substantially as described.

3. In combination the plunger, the knives, the disk carrying the same, the backing-plate for said disk of reduced diameter, and the loose sleeve entirely inclosing said knives whereby it is impossible for the operator's hand to reach the beveled edges of the blades, said sleeve having an annular shoulder near its upper end adapted to abut the edge of said disk, substantially as described.

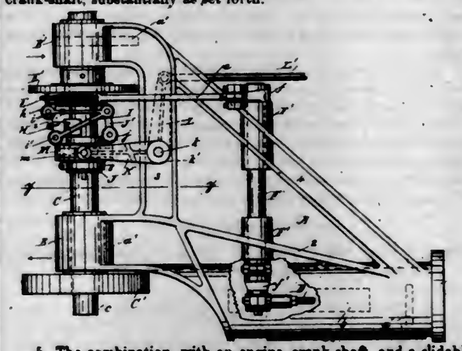
576,751. STEAM-ENGINE. GUSTAF A. ANDERSON, Waynesborough, Pa., assignor to The Geiser Manufacturing Company, same place. Filed Apr. 9, 1896. Serial No. 586,779. (No model.)

Claim.—1. In a steam-engine, a triangular frame comprising a bar 2 inclined horizontally with respect to the axis of the cylinder, a bar 3 forming an obtuse angle with the bar 2 and having bearings for the crank-shaft at its ends, and a bar 4 arranged opposite the said obtuse angle and provided with a flange for supporting the cylinder, said flange being arranged at the apex of the triangle and projecting substantially parallel with the bar 3, and upon the opposite side of the bar 2 from the said bar 3, all the said bars being arranged in the horizontal plane passing through the axes of the cylinder and crank-shaft, substantially as set forth.

2. The combination, with an engine crank-shaft, and a slidable eccentric revolving therewith; of a V-shaped spring-lever having its free ends pivotally connected to the said eccentric and crank-shaft upon the same side of the crank-shaft, and operating mechanism connected to the apex of the said lever, and operating to move its apex longitudinally, thereby sliding the eccentric transversely of the crank-shaft, substantially as set forth.

3. The combination, with an engine crank-shaft, and a slidable eccentric revolving therewith; of a pair of V-shaped spring-levers having their free ends pivotally connected to the said eccentric and crank-shaft upon the same side of the crank-shaft, a slidable operating-sleeve splined to the crank-shaft, and a link pivoted to the said sleeve and to the apices of the said levers, substantially as set forth.

4. The combination, with an engine crank-shaft, and a slidable eccentric revolving therewith; of a pair of V-shaped spring-levers having their free ends pivotally connected to the said eccentric and crank-shaft upon the same side of the crank-shaft, and provided with flat portions bearing on the crank-shaft; and operating mechanism connected to the apices of the said levers on the other side of the crank-shaft, substantially as set forth.



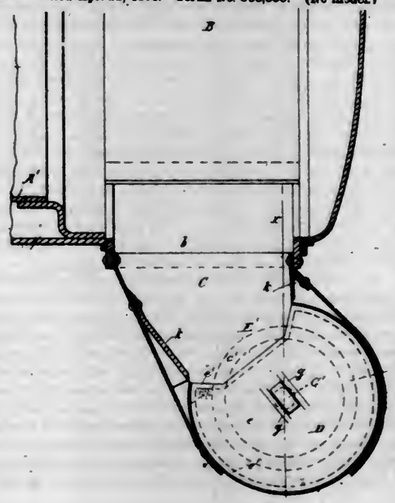
5. The combination, with an engine crank-shaft, and a slidable eccentric revolving therewith; of a pair of V-shaped spring-levers provided with sockets at their ends, tubular pins let into the said sockets, bolts passing through the said pins and clamping them in the said sockets, lugs on the crank-shaft and on the eccentric engaging with the said pins at the free ends of the levers; and operating mechanism connected to the pin at the apices of the levers, substantially as set forth.

6. The combination, with an engine crank-shaft, and a sleeve splined thereon and provided with a stationary collar; of a pivoted lever provided with a forked end, a ring operatively connected with the said lever and journaled on the said sleeve, and an adjustable collar mounted on the said sleeve and movable longitudinally thereof, the said ring being arranged between the two collars, substantially as set forth.

7. The combination, with an engine crank-shaft, and a sleeve splined thereon and provided with collars; of two rings journaled between the collars, a transversely-slidable ring arranged between the two said rings, and a pivoted lever provided with a forked end pivotally connected to the slidable ring, substantially as set forth.

8. The combination, with an engine crank-shaft, and a sleeve splined thereon and provided with collars; of two rings journaled between the said collars and provided with notches at their peripheries, a transversely-slidable ring arranged between the two said rings and provided with projecting bars engaging with the said notches; and a pivoted lever provided with a forked end pivotally connected to the slidable ring, substantially as set forth.

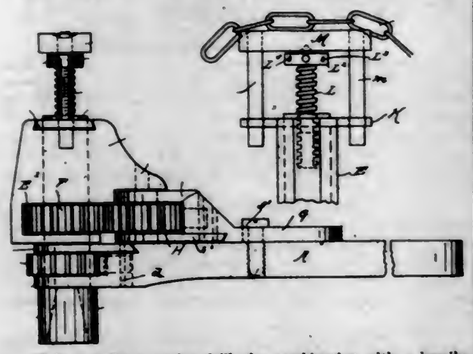
576,752. BOILER ATTACHMENT. GUSTAF A. ANDERSON, Waynesborough, Pa., assignor to The Geiser Manufacturing Company, same place. Filed Apr. 22, 1896. Serial No. 588,553. (No model.)



Claim.—1. The combination, with a smoke-box provided with an opening in its under side, of a forwardly-inclined hopper secured under the said opening, a double-acting barrel-valve journaled in the lower part of the hopper and provided with an opening of less width than the curved front portion of the said hopper, and a stop projecting from the hopper and engaging with flanges on the said valve when the valve is in its two terminal positions, said stop also constraining the opening of the valve to pass over the said curved front portion of the hopper when being moved back and forth, substantially as set forth.

2. The combination, with a smoke-box provided with an opening in its under side, of a hopper secured under the said opening, a double-acting barrel-valve journaled in the lower part of the hopper and provided with a pivot-shaft connected to one of its heads and projecting through a bearing on one end of the hopper, and a slidable spring-pressed operating device splined on the projecting end of the said shaft and provided with clutch projections on its hub engaging with notches in the end of the said bearing, substantially as set forth.

576,753. RATCHET-DRILL. EDGAR H. ATKINS, Richmond, Va. Filed May 2, 1896. Serial No. 590,042. (No model.)



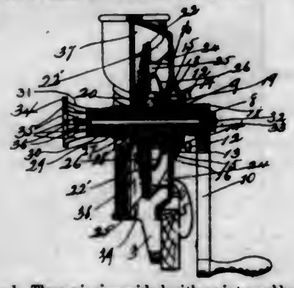
Claim.—1. In a ratchet-drill, the combination with a handle-lever, of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in one end of the handle-lever, a spring-operated pawl connected with said handle-lever, and adapted to operate in connection with said ratchet-wheel, a frame mounted on said shaft above the end of said handle-lever and provided with a recess in its lower side, a gear-wheel mounted on said shaft, and located in said recess, a slotted lever pivoted to the handle-lever and provided with a head on which is mounted a gear-wheel which is adapted to operate in connection with the wheel mounted in the frame, and which is also provided with a spring-operated pawl, said shaft being enlarged at its end, and adapted to receive the head of the drill substantially as shown and described.

2. In a ratchet-drill, the combination with a handle-lever of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in the end of the handle-lever, a spring-operated pawl connected with said handle-lever, and adapted to operate in connection with said ratchet-wheel, a frame mounted on said shaft above the end of said handle-lever and provided with a recess in its lower side, a gear-wheel mounted on said shaft and located in said recess, a slotted lever connected to the handle-lever, and provided with a head in which is mounted a gear-wheel which is adapted to operate in connection with the wheel mounted in the frame, and which is also provided with a spring-operated pawl, said shaft being enlarged at its end, and adapted to receive the head of the drill, and said shaft being projected through said frame, and through a cross-plate secured thereto, and a screw-threaded bolt which passes into the end of said shaft and through said cross-plate and which is provided at its end with a circular head having holes or openings in its perimeter, substantially as shown and described.

3. In a ratchet-drill, the combination with a handle-lever of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in the end of the handle-lever, a spring-operated pawl connected with said handle-lever, and adapted to operate in connection with said ratchet-wheel, a frame mounted on said shaft above the end of said handle-lever, and provided with a recess in its lower side, a gear-wheel mounted on said shaft, and located in said recess, a lever connected with the handle-lever and provided with a head in which is mounted a gear-wheel which is adapted to operate in connection with the wheel mounted in the frame and which is provided with a spring-operated pawl, said shaft being enlarged at its end and adapted to receive the head of the drill, and said shaft being projected through said frame, and through a cross-plate secured thereto, and a screw-threaded bolt which passes into the end of said shaft and through said cross-plate and which is provided at its outer end with a head or nut having holes or openings in its perimeter, the end of said bolt being conical in form and adapted to enter a recess formed in a cross-head which is provided with rods or bars which pass through the plate secured to the frame, substantially as shown and described.

4. In a ratchet-drill, the combination with a handle-lever, of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in the end of the handle-lever, a spring-operated pawl connected with said handle-lever, and adapted to operate in connection with said ratchet-wheel a frame mounted on said shaft, above the end of said handle-lever, and provided with a recess formed in its lower side, a gear-wheel mounted on said shaft, and located in said recess, a slotted lever connected with the handle-lever, and provided with a head in which is mounted a gear-wheel, which is adapted to operate in connection with the wheel mounted in the frame, and which is also provided with a spring-operated pawl, said shaft being enlarged at its end, and adapted to receive the head of the drill, and said shaft being projected through said frame, and through a cross-plate secured thereto, and a screw-threaded bolt which passes into the end of said shaft and through said cross-plate and which is provided at its end with a circular head having holes or openings in its perimeter, the end of said bolt being conical in form, and adapted to enter a recess formed in a cross-head which is provided with rods or bars which pass through the plate secured to the frame, and a chain or other device which passes over said cross-head, and the ends of which are adapted to be secured in position so as to hold the drill, as and for the purpose set forth.

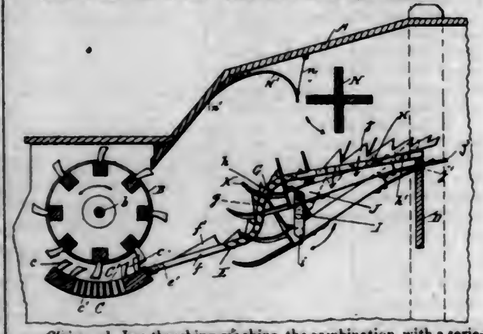
576,754. CORN-SHELLER. ISAAC P. CADMAN, Beloit, Wis. Filed May 27, 1896. Serial No. 593,331. (No model.)



Claim.—1. The casing provided with an integral bearing the hollow shaft and carrying-disk having inclined lugs, in combination with the adjustable collar and thumb-screws and the spider 18 carrying the perforated annular shelling-disk having the inclined lugs, substantially as and for the purpose set forth.

2. The casing 2 6, provided with the bearing-sleeve 27, and the carrying-disk 9, its hollow shaft 8, and inclined lugs 24, in combination with the annular toothed disk 22, its inclined lugs 25, the springs 26, and the thumb-screws 12 12, substantially as and for the purpose set forth.

576,755. THRESHING-MACHINE. BERA G. CLYMAN, Waynesborough, Pa., assignor to The Geiser Manufacturing Company, same place. Filed Feb. 17, 1896. Serial No. 579,546. (No model.)



Claim.—1. In a threshing-machine, the combination, with a series of grate-bars, of a crank-shaft provided with cranks and journaled under the grate-bars, a guard-board behind the said crank-shaft, straw-rakes each having its front portion provided with a row of prongs projecting upwardly and forwardly at different angles and having its rear portion provided with a row of upwardly and rearwardly projecting teeth, the front ends of the said rakes being carried by the said cranks, and guide-bars projecting from the said straw-rakes and slidable on the said guard-board above the level of the crank-shaft, substantially as set forth.

2. In a threshing-machine, the combination, with a series of grate-bars having double curved portions, and ratchet-shaped teeth on the sides of their rear portions; of a crank-shaft provided with cranks and journaled under the grate bars, a guard-board behind the said crank-shaft, straw-rakes each having its front portion provided with a row of prongs projecting upwardly and forwardly at different angles and having its rear portion provided with a row of upwardly and rearwardly projecting teeth, the front ends of the said rakes being carried by the said cranks, and guide-bars projecting from the said straw-rakes and slidable on the said guard-board above the level of the crank-shaft, substantially as set forth.

576,756. COMBINATION-TOOL. SAMUEL M. COLE, Manchester, N. H., assignor of one-half to Osborne W. Price, same place. Filed Dec. 27, 1895. Serial No. 573,496. (No model.)

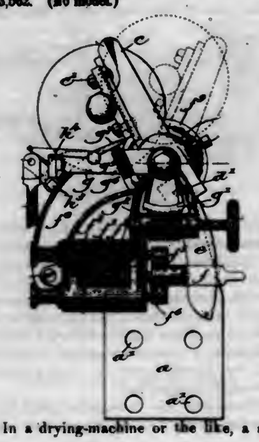


Claim.—1. A tool-handle having a plurality of separable sections, one section being provided with a tool-holding socket disposed lengthwise the section and the other section provided with a transverse sleeve constituting a handle proper and having sockets, the sockets of the sections and of the handle proper being all similar, whereby the sections can be joined and whereby various tools can be interchangeably connected to either section or to the main handle or to said handle proper or to both the main and proper handles at right angles to each other, substantially as described.

2. A tool-handle having a plurality of separable sections, one section being provided with a tool-holding socket disposed lengthwise the section and the other section provided with a transverse sleeve constituting a handle proper and having sockets, the sockets of the sections and of the handle proper being all similar, whereby the sections can be joined and whereby various tools can be interchangeably connected to either section or to the main handle or to said handle proper or to both the main and proper handles at right angles to each other, said handle being provided at its end opposite the handle proper with a blade adapted to enter the soil and support the handle and tool, substantially as described.

3. A tool-handle having a short transverse socketed sleeve, or handle proper, at one end adapted to receive a vise and having at the other end a fixed blade to penetrate the soil for holding and supporting the handle and vise from the soil in an operative position, substantially as described.

576,757. DRYING-MACHINE. PETER DILLON, Lawrence, Mass., assignor of one-half to Henry C. King, same place. Filed May 29, 1896. Serial No. 593,562. (No model.)



Claim.—1. In a drying-machine or the like, a swinging arm, a guide-roll journaled thereon, a swinging valve-controlling lever adapted to control by its movement the steam-supply of the machine, and means to cause said arm and said lever to swing together in unison, whereby the lever receives positive and definite movement corresponding to the movements of the arm and roll, and means for changing, at will, the angle of said arm and lever relatively the one to the other, substantially as described.

2. In a drying-machine or the like, a swinging arm, a guide-roll journaled thereon, a swinging valve-controlling lever adapted to control by its movement the steam-supply of the machine, means to cause said arm and said lever to swing together in unison, whereby the lever receives positive and definite movement corresponding to the movements of the arm and roll, and hand-operated means for adjusting the position of the said lever relatively to the said arm, for varying the regular normal swing thereof, substantially as described.

3. In a drying-machine or the like, a supporting-bracket, a swinging arm pivotally mounted thereon, a guide-roll journaled on said arm, a valve-controlling lever also pivotally mounted on said bracket and constituting with said arm substantially a bell-crank, and adapted to control the steam-supply of the machine, and a suitable adjusting device connecting the arm and lever for changing the angular relation of the two at will, substantially as described.

4. In a drying-machine or the like, a supporting-bracket, a swinging arm pivotally mounted thereon, a guide-roll journaled on said arm, means for adjusting said roll longitudinally of said arm, a valve-controlling lever also pivotally mounted on said bracket and constituting with said arm substantially a bell-crank, and adapted to control the steam-supply of the machine, and a suitable adjusting device connecting the arm and lever for changing the angular relation of the two at will, substantially as described.

5. In a drying-machine or the like, a supporting-bracket, a swinging arm pivotally mounted thereon, a guide-roll carried by the arm, a tension-lever mounted independently of said arm and adjustable relatively thereto on said bracket, means to rigidly connect the arm and tension-lever together, a tension device connected to the tension-lever, and a valve-controlling lever also mounted on said bracket and constituting with said arm substantially a bell-crank, and adapted to control the steam-supply of the machine, substantially as described.

6. In a drying-machine or the like, a supporting-bracket, a swinging arm pivotally mounted thereon, a guide-roll carried by the arm, a tension-lever mounted on the bracket, a tension device connected at one end to the tension-lever, an arm adjustably secured to the bracket and supporting the other end of the tension device, a valve-controlling lever mounted on the bracket and constituting with said swinging arm substantially a bell-crank and adapted to control the steam-supply of the machine, and means to adjust on said bracket all of said other mentioned parts, substantially as described.

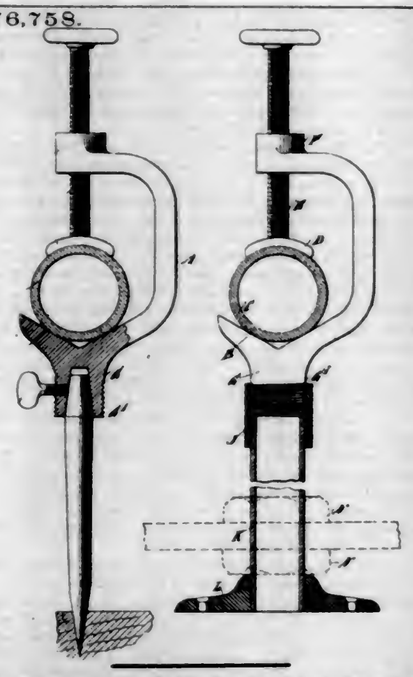
7. In a drying-machine or the like, a supporting-bracket, a swinging arm pivotally mounted thereon, a guide-roll carried by the arm, a tension-lever mounted on the bracket, a tension device connected at one end to the tension-lever, a valve-controlling lever pivotally mounted on the bracket and adapted to control the steam-supply of the machine, and an adjusting device, one member of which is arranged to be rigidly connected to said arm and the other member of which is arranged to be rigidly connected to said valve-controlling lever, said two members being relatively movable by means of a hand-wheel and gear mounted on one member and cooperating parts on the other member, substantially as described.

8. In a drying-machine or the like, a supporting-bracket, a swinging arm pivotally mounted thereon, a guide-roll carried by the arm, a tension-lever mounted on the bracket, a tension device connected at one end to the tension-lever, a valve-controlling lever pivotally mounted on the bracket and adapted to control the steam-supply of the machine, and an adjusting device, one member of which is arranged to be rigidly connected to said arm and the other member of which is arranged to be rigidly connected to said valve-controlling lever, said two members being relatively movable by means of a hand-wheel and gear mounted on one member and cooperating parts on the other member, and means to shift the position of either or both of said members relatively to their said rigid connections, substantially as described.

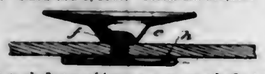
576,758. PLUMBER'S CLAMP. JAMES H. GRIFFIN, New York, N. Y. Filed Feb. 20, 1896. Serial No. 580,096. (No model.)

Claim.—A plumber's clamp, comprising a U-shaped clamping-arm formed at one end with a V-shaped seat for the pipe and at the opposite end with a nut, a screw-rod arranged to work in said nut and provided with a segmental clamping-plate, said plate being adapted to engage said pipe directly opposite said seat, said seat being formed with an extended socket on its outer side, and a supporting-pin received in said socket in direct line with said screw-rod and seat, as and for the purpose set forth.

576,758.

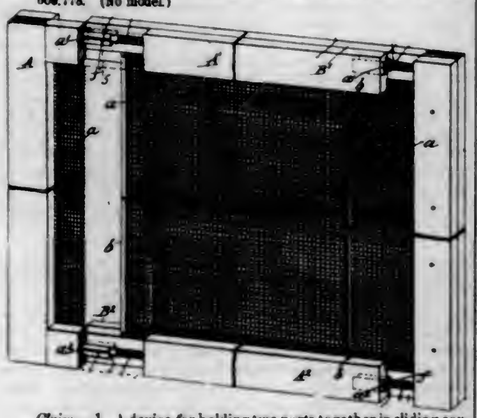


576,759. TACK-FASTENED BUTTON. THEOPHILUS R. HYDE, Jr., Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Oct. 1, 1895. Serial No. 564,292. (No model.)



Claim.—A tack-fastened button, composed of a button-head having a hub or shank in which is an opening for the engagement of the fastening, which opening is surrounded by a faceward countersink, and a fastening composed of a self-entering pointed tack having its shank provided with a shoulder adapted to rest within the countersink, and also having a point, of less diameter than the shoulder adapted to pass through the opening in the hub to carry the shoulder up to and within the countersink, the said point being adapted and designed to be upset within said hub and against the faceward portion of the countersink, thereby firmly and squarely to secure the button-head between said shoulder and said upset point, substantially as described.

576,760. EXTENSION-FRAME FOR WINDOW-SCREENS, &c. EDWARD M. KEMP, Rhinelander, Wis. Filed Oct. 23, 1896. Serial No. 609,773. (No model.)



Claim.—1. A device for holding two parts together in sliding contact consisting of a dovetailed tongue or tenon consisting of a single piece of elastic metal slotted to allow compression and expansion substantially as set forth.

2. A pair of grooved sliding bars, in combination with slotted compressible and expansible tenons of sheet metal, one of said tenons being attached to each one of said bars, and making sliding engagement with the groove of the other bar, so as to hold the said bars together, while permitting their endwise motion over each other without impediment, substantially as set forth.

3. A frame consisting of two sections adapted to slide ovar each other, and having longitudinal grooves in the faces of the bars which are in contact, in combination with detachable tongues or tenons of resilient metal forming double dovetails slotted in one end or face, this slotted end of each tongue or tenon sliding in the opposite groove of one section while the other end is fast to the other section substantially as set forth.

4. A screen-frame consisting of two sections, movable longitudinally over each other for extension and contraction, and having longitudinal dovetail grooves formed in the proximate faces of their upper and lower rails, in combination with sheet-metal toogues or tenons, each having the form of a double dovetail, the end of one dovetail being slotted, in order that it may adapt itself to changes in the groove in which it slides, while the other dovetail is fixed in the opposite frame-section substantially as set forth.

5. An extensible frame consisting of two sections having grooved sliding rails, in combination with sheet-metal tongues or tenons, each of which consists of two reversely-flaring parts of unequal width, one of said parts being slotted, and each section being provided with a pair of these tongues or tenons, fitted by their unslotted parts detachably but firmly into the grooves of the said section, while their slotted parts fit into grooves of the opposite section and adjust themselves to the contraction and expansion thereof, but permit the endwise motion of the said sections substantially as and for the purpose set forth.

576,761. SHOE-LACE FASTENER. FRANK W. LODER, Poughkeepsie, N. Y. Filed Jan. 6, 1896. Serial No. 574,435. (No model.)



Claim.—The combination with the upper of a shoe, of a shoe-lace fastener, consisting of a metal plate formed as shown with a head D, having side arms *d* for securing the fastener to a shoe, and central hook d^4, and parallel arms d^2 and d^3 projected at right angles to the side arms, all the parts integral with the plate and constructed substantially as shown and described.

576,762. NOZZLE-VALVE. STEPHEN PALMER, Lansingburg, N. Y. Filed June 17, 1896. Serial No. 595,896. (No model.)



Claim.—1. The combination with a valve-case and nozzle having a discharge-passage and a transversely-intersecting valve-plug aperture, with the axial line of the aperture on one side of the passage, of a valve-plug rotatively seated in the aperture and provided with a transverse way of a capacity approximately the same as the discharge-passage, a relatively small nozzle secured to the plug in communication with a small aperture therethrough, which way and small nozzle are adapted to be successively brought into line with the discharge-passage by the rotation of the plug, and means for rotating the plug, substantially as described.

2. In a valve-nozzle, the combination with the case having a straightway nozzle-passage, and a plug-aperture on one side of the passage, of a rotary valve-plug having on one side a transverse way corresponding in size and form, and adapted to register, with the nozzle-passage, and on the opposite side with a small tapered aperture therethrough and a relatively small nozzle at the contracted outlet of the aperture wholly contained within the contour of the plug and adapted to be brought into line with the main-nozzle passage, and means for rotating the plug, substantially as described.

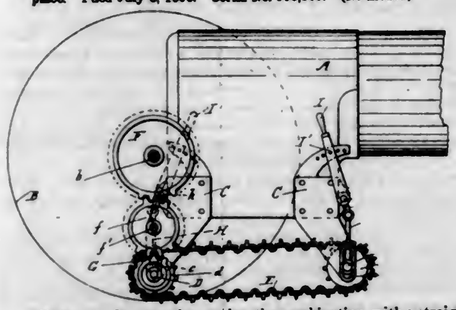
3. In a valve, the combination with the plug having a relatively small transverse aperture, and a nipple at its outlet, of a nozzle detachably secured to the nipple, and a valve-case having a relatively large outlet, substantially as described.

576,768. WATER-HEATER. FRANK B. PETERSON, Woodstown, N. J. Filed Mar. 10, 1896. Serial No. 582,619. (No model.)



Claim.—The combination with the upper and lower hoods and the jacket held thereby, of the boiler inclosed by said jacket and provided with steam-vent into the upper hood and a wire carrying a plate adapted to be dropped over said vent-hole, substantially as and for the purpose specified.

576,764. TRACTION-ENGINE. ABRAHAM E. PRICE, Waynesborough, Pa., assignor to The Geiser Manufacturing Company, same place. Filed July 8, 1896. Serial No. 598,369. (No model.)



Claim.—1. In a traction-engine, the combination, with a straight axle, and traction road-wheels on the ends thereof; of a revoluble support arranged under the said axle and between the said road-wheels, and means for revolving the said support from the said axle, substantially as set forth.

2. In a traction-engine, the combination, with the road-wheels, and their axle; of a revoluble auxiliary support bearing upon the ground between the road-wheels, and toothed driving devices positively connecting the said support with the said axle, substantially as set forth.

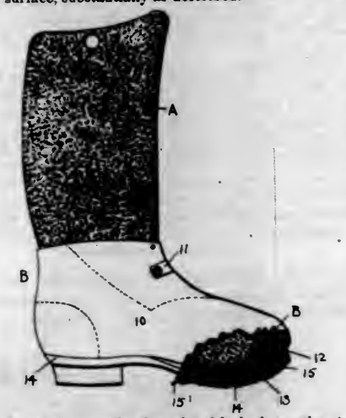
3. In a traction-engine, the combination, with the road-wheels; of an auxiliary support comprising cross-shafts, chain-wheels carried by the said cross-shafts, endless flexible connections carried by the chain-wheels, and cross-bars carried by the said connections and engaging with the ground; and driving mechanism operating to move the said cross-bars at substantially the same speed as the peripheries of the road-wheels, substantially as set forth.

4. In a traction-engine, the combination, with the road-wheels, of an auxiliary support for bearing continuously against the ground, driving mechanism operating the said support at substantially the same speed as the road-wheels, and means for disengaging the said support from operative connection with the road-wheels, substantially as set forth.

5. In a traction-engine, the combination, with the road-wheels; of brackets provided with vertical slots, cross-shafts mounted in the said slots, chain-wheels carried by the said cross-shafts, endless flexible connections carried by the chain-wheels, and cross-bars carried by the said connections and engaging with the ground; driving mechanism operating to move the said cross-bars at substantially the same speed as the peripheries of the road-wheels; and lever mechanism for raising and lowering the said cross-shafts, substantially as set forth.

576,765. BOOT. CHARLES N. PROUTY, Spencer, Mass. Filed July 13, 1896. Serial No. 598,927. (No model.)

Claim.—1. In a boot or shoe, the combination of an upper, imperforate intermediate and in soles permanently secured to said upper, and an outsole having thread worked or sewed thereon to form a non-slipping surface, substantially as described.



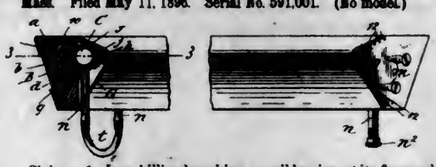
2. In a boot, the combination of a felt body portion A, and a leather overshoe or protector B, said overshoe comprising an upper 10, imperforate intermediate and in soles 12 and 13 permanently secured to said upper, and an outsole having threads sewed therethrough to form ribs on the under surface of the sole for preventing slipping, substantially as described.

576,766. ELECTRIC HEATING APPARATUS. ARTEMAS ROBERTSON, Taunton, Mass., assignor, by direct and mesne assignments, to Patrick T. Creed, same place. Filed Apr. 5, 1895. Serial No. 544,552. (No model.)



Claim.—An electric radiator composed of a casing perforated at its bottom and along its upper front portion; a plurality of heating-bars each made up of a wide thin bar of metal, an insulating-covering and a heating-coil; and supports to hold each bar on a slant upward and inward across the casing all arranged to cause the air flowing through the lower perforations of the casing to be deflected against the back of the casing and to eddy about the heating-bars before escaping through the uper perforations in the front of the casing.

576,767. BILLIARD-TABLE. WILLIAM F. STEBBINS, Springfield, Mass. Filed May 11, 1896. Serial No. 591,001. (No model.)



Claim.—1. In a billiard-cushion, a rail having at its forward side a depression or rest, an elastic tube lying in and along and projected forwardly beyond said rest, a strip of textile flexible material, as canvas, secured by both its edges to the rail, and intermediately confining the said tube between it and the rail, and having along its onter face the textile strip secured thereto by the double row of stitching whereby a longitudinal pocket is produced, and the rod of elastic rubber of smaller diameter than the tube disposed in said longitudinal pocket, substantially as described.

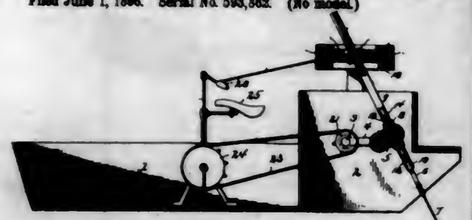
2. In a billiard-cushion, the combination with the rail B having the seat *b* in its forward face and having the undercut channel *d* therebelow, of the inflatable tube lying along said rest, the strip *f* of flexible materal having its upper edge secured to an upper part of the rail, the same being passed forwardly around the front of said tube and having its portion at and adjacent to its lower edge entered in said undercut channel, together with the also-inserted stay-rod *g*, substantially as described.

3. In a billiard-cushion, the combination with the rail B having the seat *b* in its forward face and having an undercut channel parallel therewith, of the inflatable elastic tube lying along said rest, the

strip *f* of flexible material having its upper edge secured to a part of the rail at one side of the tube, being passed around the front of said tube and having its other edge portion, together with the stay-rod *g*, entered in said undercut channel, the additional strip *j* secured in parallel lines along the front of strip *f* and having inclosed along therein the small elastic rod *h*, and the usual cushion-covering cloth, substantially as described.

4. For a billiard-table, the four rails B, each having the front seats *b*, and the mitered ends with the metallic plates D secured thereto, which have the perforations 12, the elastic inflatable tubes C, and the small elastic rods along the front thereof, means substantially as described for confining said tubes and rods in the respective positions at the front of the rail, the usual cushion-covering cloths G having their ends secured by stitching to the said perforated plates, and means for effecting the entrance of compressed air into one of the tubes C, and couplings connecting the several tubes, substantially as described.

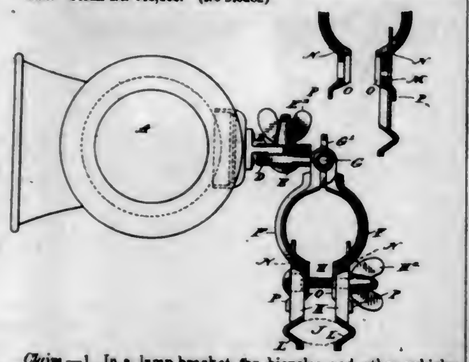
576,768. **BOAT-PROPELLING APPARATUS.** NELSON THERIEN, Plymouth, Ind., assignor of one-half to Alcinous Stuller, same place. Filed June 1, 1896. Serial No. 593,362. (No model.)



Claim.—1. In a boat of the character described, the combination with the propeller-rod, the blade connected therewith, the tube with which said rod is connected, the crank-shaft and the crank connected with said tube, the sprocket-wheel secured to said shaft, and the sprocket-wheel and chain for operating the same, of the gimbal-ring through which said tube passes, the strips secured to said tube, the gimbal-ring through which said ring is journaled, the annulus having arms and cords and the rings and rim for supporting said annulus, substantially as described.

2. In a boat of the character described, the combination with the well the crank-shaft passing through the sides of the well and means for rotating the same; of the block journaled to the crank, the tube passing through an aperture therein, the propeller blade or paddle, the slotted rod secured thereto fitting in said tube, the bolt passing through said tube, the coiled spring, the gimbal-ring through which the tube passes, the strips secured to said tube, the gimbal-ring to which said ring is journaled, the annulus having arms and cords and the rings and rim for supporting said annulus; substantially as specified.

576,769. **LAMP-BRACKET.** FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 16, 1896. Serial No. 615,895. (No model.)



Claim.—1. In a lamp-bracket for bicycles and other vehicles, main clamping-arms, supplemental clamping-arms detachably connected to the free extremity of the main clamping-arms and operating exteriorly thereof.

2. In a lamp-bracket for bicycles and other vehicles, main clamping-arms hinged or pivoted together, supplemental clamps detachably connected to the free extremities of the main clamping members and operating exteriorly thereof.

3. In a lamp-bracket for bicycles and other vehicles, main clamping-arms recessed to engage substantially rounded bodies and hinged or pivoted together, supplemental clamps having at their free extremities jaws for engaging substantially angular bodies and detachably connected to the free extremities of the main clamping members and operating exteriorly thereof.

4. In a lamp-bracket for bicycles and other vehicles main clamping-arms hinged or pivoted together, said clamping-arms being perforated at N and carrying hooks P, supplemental clamps having perforations intermediate their length and adapted to be detachably connected to the free extremities of the main clamping members and operating exteriorly thereof.

5. In a lamp-bracket for bicycles and other vehicles, main clamping-arms hinged or pivoted together at one end, said clamps having perforations N and carrying hooks P rearward of said perforations, supplemental clamping-arms having perforations intermediate their length detachably connected to the free extremities of the main clamping members and operating exteriorly of said main clamping members, an adjusting-bolt at the free ends of said clamping members and passing through said supplemental clamps when the latter are in engagement with said main clamping members, substantially as described.

576,770. **FIREPROOF FLOORING AND CEILING.** FRANK B. ABBOTT, Chicago, Ill. Filed May 19, 1896. Serial No. 592,117. (No model.)



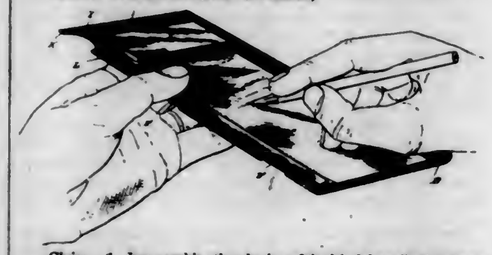
Claim.—1. In a fireproof building, the combination of metal supporting I-beams, metal clips secured to the lower flanges of the I-beams and provided with central side projecting ribs, channel-beams resting on, supported and positioned by the clips, metal lathing secured to the channel-bars and passed around a plane below the lower surface of the clips, and a filling of concrete on such metal lathing and surrounding the structural I-beams, substantially as described.

2. In a fireproof building, the combination with the structural members of a metal clip adapted to be secured thereto, and provided with side projecting ribs and lower projecting flanges, substantially as described.

3. In a fireproof building, the combination of metal supporting I-beams provided with one or more notched flanges, through and by which clips may be secured to or removed from the beams, metal clips removably secured to the flanges of the I-beams, and mechanism for connecting the clips together across the space between the structural I-beams, substantially as described.

4. In a fireproof building, the combination with the structural members of a metal clip adapted to be secured thereto and provided with inwardly-extending portions joined together at the top and bottom and lower projecting flanges, substantially as described.

576,771. **COMBINATION BOOK, PAPER-CUTTER, BLOTTER, ENVELOP-OPENER, &c.** JOHN M. ADAMS, Fort Ann, N. Y. Filed Sept. 18, 1896. Serial No. 606,234. (No model.)



Claim.—1. In a combination device of the kind described, a sheet-metal blank, having the opposite edges turned over upon the top of the said blank, the left-hand edge being adapted to hold the memorandum-book, the right-hand edge being adapted to hold the pencil, the integral ears punched from the said turned-over edges, and bent beneath the blank pads held by the said integral ears, the upper end of the blank being cut out to provide an envelop-opener at the corner, substantially as shown and described.

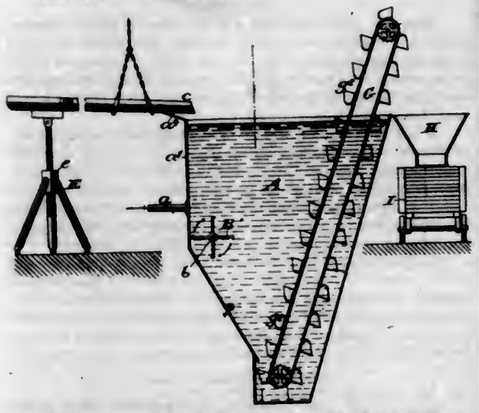
2. In a combination of the kind described, a sheet-metal blank having a straight upper edge, one edge being cut away near the said upper edge to provide an envelop-opener, the overlapping edge, B, adapted to hold a memorandum-book, the rolled edge, D, adapted to hold a pencil, the integral ears, F, turned down beneath the blank and adapted to hold the blotting-pads, the shallow box arranged upon the upper face of the blank near the upper end, and provided with a hinged cover, all arranged and adapted to operate substantially as shown and described.

576,772. **PNEUMATIC BICYCLE-TIRE.** BENJAMIN A. BIDLE, Abbeyville, Ohio. Filed May 31, 1895. Renewed Jan. 12, 1897. Serial No. 619,016. (No model.)



Claim.—The combination with the inner tube and wheel-rim, of an outer tube, split longitudinally and having a series of perforations produced therein adjacent each edge, and a clamping-plate E having fingers F and G, and depending stem D, adapted to pass through the rim and receive the nut J, the fingers F and G being flexible, the fingers F being longer than G and passed through and under the outer tube while the fingers G are bent back upon themselves and hooked into the perforations of the opposite edge, whereby the outer tube can be quickly and easily attached to and detached from the said fingers G substantially as shown and described.

576,773. **APPARATUS FOR PRODUCING FEATHER OR SHOT METAL.** DANIEL BROADRICK, Laurel Hill, N. Y. Filed Aug. 14, 1896. Serial No. 602,735. (No model.)



Claim.—As apparatus for the production of feather or shot metal comprising a tank for containing water, a laterally-vibrating chute mounted on a suitable support the said chute being adapted to receive the molten metal and distribute it from side to side within the tank, an agitator within the tank, and means for removing the shot or feather metal from the tank, substantially as herein set forth.

576,774. **FIREPLACE GAS-HEATER.** MORRIS I. COHEN, Chicago, Ill. Filed Jan. 18, 1896. Serial No. 575,964. (No model.)

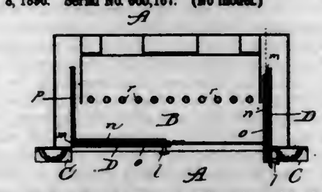


Claim.—1. In a fireplace gas-heater, the heater-chamber, into which the burner-openings of the mixing-chamber discharge, having its back, to which said mixing-chamber is connected, formed with a lower adjustable section, substantially as and for the purpose set forth.

2. In a fireplace gas-heater, the heater-chamber, into which the burner-openings of the mixing-chamber discharge, having the upper portion of its back, to which said mixing-chamber is connected, rigid and the lower portion formed of a slotted section hinged at its upper edge to said rigid portion to be opened and closed by raising and lowering it upon its hinge, substantially as and for the purpose set forth.

3. In combination with a fireplace-heater, a supplemental heater comprising the hood D projecting forward from the upper portion of the fireplace front and having spaced off within it, between its ends, the burner-chamber D′ formed with sides and a bottom and having an open front, a cover *l* for said open front, and means on said cover and chamber for removably fastening the cover in place, substantially as described.

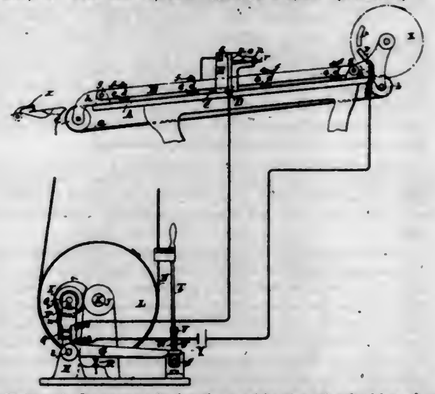
576,775. **FIREPLACE.** MORRIS I. COHEN, Chicago, Ill. Filed Sept. 8, 1896. Serial No. 605,167. (No model.)



Claim.—1. In a fireplace, the combination with the chamber B of grooves *p*, *p*′ at each side thereof, and sides D having lugs projecting into said grooves, said sides being withdrawable and said lugs forming pivots for the sides, when withdrawn, upon which to swing toward each other, as doors, and form the fireplace-front, substantially as described.

2. In a fireplace, the combination with the chamber B of grooves *p*, *p*′, at each side thereof, and sides D provided with catches and having lugs *m*, *m*′ projecting into said grooves, said sides being withdrawable and the said lugs forming pivots for the sides when withdrawn, upon which to swing toward each other, as doors, and form the fireplace-front, substantially as described.

576,776. **PAPER-FEEDING MACHINE.** EDWARD DUMMER, Newton, Mass., assignor to the Dummer Paper Feeder Company, Portland, Me. Filed Mar. 13, 1894. Serial No. 503,527. (No model.)



Claim.—1. In a paper-feeder the combination of a feed-board, a carrier to move sheets individually on said board, a stop or gages to be met by the front edge of each sheet, and a strip over which the sheets pass extending transversely across said board, said strip being pivoted whereby it may swing freely, substantially as set forth.

2. The combination with a carrier for sheets of paper embodying a belt, rollers opposite said belt and means for propelling said belt, of a stop or gages to be met by each sheet and an inclined strip located transversely with reference to said belt so that each sheet will be caused to pass over said strip and be raised thereby so as to lap over the sheet previously carried and at rest, substantially as specified.

3. In a paper-feeder the combination of a feed-board, a belt caused to pass lengthwise of said board, rollers maintained above said belt, a stop or gages to be met by each sheet, and a transverse strip above said board and inclined with reference thereto, substantially as specified.

4. In a paper-feeder the combination of a feed-board, a carrier to propel a sheet on said board, an electric circuit and magnet therein, two members of a closer for said circuit so located on said board in

the path of the sheet that the sheet will be carried between said members, two members of another closer in the same circuit brought into contact intermittently, stopping mechanism, and a releasing device for said mechanism operated by said magnet, substantially as set forth.

5. In a paper-feeder the combination of a feed-board, a belt propelled lengthwise of said board, rollers opposite said belt, a bar to retain said rollers in position, a transverse, pivoted strip inclined with reference to said board, an electric circuit, a magnet in said circuit, stopping mechanism, a releasing device for said mechanism and operated by said magnet, said bar and strip so connected with said circuit as to form a closer therefor, substantially as specified.

6. In a paper-feeder the combination of a carrier for a sheet of paper, an electric circuit, an inclined strip located in the path of said sheet and transversely with reference thereto, a bar or contact-piece between which and said strip said sheet should pass and with which said strip will be in contact when there is no sheet therebetween, said bar or contact-piece and strip forming the two members of a closer in said circuit, another closer in said circuit the members of which are brought into contact intermittently, a magnet in said circuit, stopping mechanism for the feeder, and a releasing device for said stopping mechanism operated by said magnet, substantially as specified.

7. In a paper-feeder the combination with stopping mechanism and a releasing device therefor, of a main support and a transverse strip or supplementary support for a sheet of paper and over which the sheet is caused to pass, and suitable connections between said strip or supplementary support and said releasing device, said strip or supplementary support being adjustably counterbalanced so that it will sustain a predetermined weight, substantially as and for the purpose set forth.

8. The combination of a pulley on a driving-shaft of a machine, a lever pivoted on a stationary stand, a cam-wheel pivoted on said lever to ride on said pulley, and stopping mechanism for the machine connected with said lever, substantially as set forth.

9. The combination of a pulley on a driving-shaft, a lever pivoted on a stationary stand, a cam-wheel pivoted on said lever to ride on said pulley, and a belt-shipping lever connected with the lever carrying said cam-wheel, substantially as specified.

10. The combination of a pulley on a driving-shaft of a machine, a lever, a stand to which the lever is pivoted, a cam-wheel pivoted on said lever to ride on said pulley, an electromagnet, a pawl operated by means of said magnet and to engage with said wheel, and shipping mechanism of said machine connected with said lever to be moved thereby, substantially as specified.

11. In a paper-feeder the combination with an electric circuit and a closer therefor operated by means of a sheet of paper, and mechanism for carrying the sheet, of a pulley on a driving-shaft, a cam-wheel in position to be acted on by said pulley, a lever on which said cam-wheel is pivoted, an electromagnet in said circuit, a pawl to engage with said cam-wheel and in position to be operated by said magnet, and shipping mechanism adjustably connected with said lever to be operated thereby, substantially as set forth.

12. The combination of a driving-shaft, a pulley on said shaft, a pivoted lever, a cam-wheel on said lever to engage with said pulley, shipping mechanism of a machine, and an adjustable connection between said lever and said shipping mechanism, substantially as set forth.

13. In a paper-feeder and in combination with the carrier thereof for the separated sheets a device for detecting the passage of more than one sheet at a time through a certain part of the path of the sheets, which device consists in a transverse strip or support for the paper located in said path, said strip or support being movable substantially vertically and counterbalanced so that a certain weight on said strip or support will not move the same but a greater weight on said strip or support will move the same, substantially as specified.

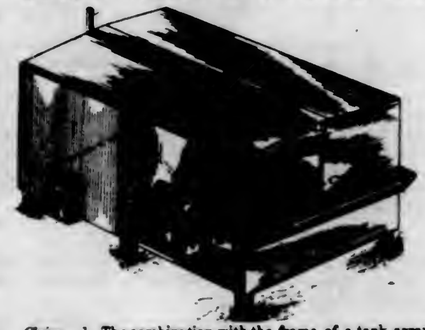
14. In a paper-feeder and in combination with the carrier thereof for the separated sheets a device for detecting the passage of more than one sheet at a time through a certain part of the path of the sheets, which device consists in a strip or support for the paper located in said path, pivoted to move vertically and counterbalanced, the counterbalance being adjustable, so that any predetermined weight on said strip or support will not swing the same, but a greater weight on said strip or support will swing the same, substantially as specified.

15. In a paper-feeder and in combination with the carrier thereof for the separated sheets an electric circuit, a closer for the same having a member connected with it to be operated by a vertically-movable strip or support for the paper located in the path of the paper and counterbalanced so as to remain stationary when a certain weight is thereon, but be moved by a greater weight thereon, substantially as set forth.

16. In a paper-feeder and in combination with the carrier thereof for the separated sheets, an electric circuit and a closer for the same having a member connected with a pivoted and adjustably-counterbalanced strip or support for the paper located in the path of the paper, whereby said strip or support will remain stationary when there is any predetermined weight thereon, but will swing substantially vertically and thus operate said closer when there is a greater weight thereon, substantially as set forth.

17. In a sheet-feeding apparatus for a printing or other machine, an electric circuit, a circuit-closing device at one point in the circuit lying in the path of the sheet to be fed and designed to be held open by the passage of the sheet, a circuit-closing device at another point in the circuit designed to be intermittently opened and closed, the arrangement being such that if the sheet is properly fed one of the circuit-closers will be open when the other is closed, and means operated by said circuit for controlling the operation of the machine, substantially as set forth.

576,777. STOCK-WATERING TANK. JOHN S. RITTENHILLER, Beatrice, Nebr. Filed Dec. 30, 1895. Serial No. 573,785. (No model.)



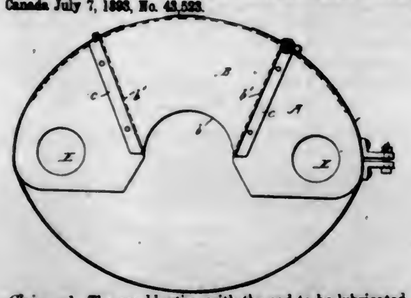
Claim.—1. The combination with the frame, of a tank arranged therein, caps on the lower corners of the tank, consisting of diverging wings and lugs projecting from the said wings, rods secured in the frame passing downward below the tank and through the lugs, and securing-nuts fitted on the ends of the rods and adapted to be turned home against said lugs.

2. In a stock-watering device, the drinking-basin having a downwardly and rearwardly inclined bottom, a shelf projecting outwardly from the lower edge of the said bottom, and a door hinged to the upper edge of the bottom and depending therefrom to the shelf.

3. In a stock-watering device, the drinking-basin having a lamp-holding box formed in its bottom and provided with a swinging door depending from its front edge to form the front of said box.

4. The combination of the frame, having double walls filled with a non-conductor of heat, a tank supported within the frame, a dead-air space being provided over the tank, a platform below said tank, a temperature-proof filling between the platform and the tank, valve-boxes on said platform communicating with the tank, and drinking-basins supported on the frame and communicating with the valve-boxes.

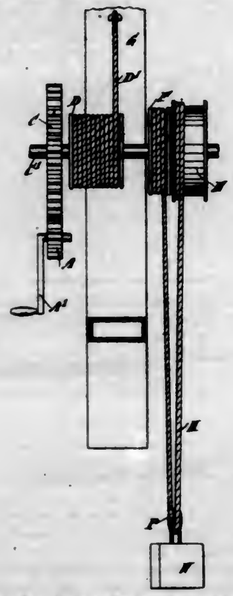
576,778. LUBRICATOR. VITAL A. EMOND, Quebec, Canada. Filed Apr. 22, 1896. Serial No. 588,547. (No model.) Patented in Canada July 7, 1893, No. 43,523.



Claim.—1. The combination with the rod to be lubricated, of a lubricant-chamber, having a filling-opening and an opening contiguous to said rod, said chamber comprising a back plate forming the rear wall thereof, the front plate, the body thereof forming the front wall of said chamber, the side edges of said front plate being turned inwardly to form the side walls of said chamber, the edges of the turned-in portions being bent laterally and bolted to the back plate, substantially as described.

2. The combination with a piston-rod and stuffing-box, of a back plate having a lubricant-chamber formed on the face thereof, a flange extending from the back of the same, said flange being adapted to rest upon the upper periphery of the gland and a band adapted to embrace the lower periphery of the gland with means for securing said band in place, substantially as described.

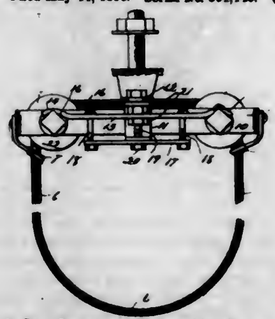
576,779. HOISTING DEVICE. ROBERT L. RITTENGER and GEORGE RUPLEY, Duluth, Minn., assignors, by direct and mesne assignments, to the Pettibone, Mulliken & Company, Chicago, Ill. Filed Feb. 3, 1896. Serial No. 577,884. (No model.)



Claim.—1. In a hoisting device, the combination with the hoisting-drum and the object connected therewith to be raised and lowered, of differential winding mechanism for counterbalancing said object, comprising two pulleys connected with said drum to turn with it, a cable secured to and winding on each of said pulleys, and a weight supported on the loose central portion of said cable, substantially as described.

2. A hoisting device, comprising a hoisting-drum or hoisting-gear proper, two pulleys connected to turn with said hoisting-drum, a cable secured to and winding on each of said pulleys, the cable being arranged to wind in one direction on one of the pulleys, and in both directions successively on the other pulley during the hoisting of the load, and a counterbalance supported on the loose central portion of the cable, the counterbalancing being greater or less according as the cable unwinds from both pulleys or from one only, substantially as described.

576,780. PORTABLE FIRE-ESCAPE. WILLIAM F. EVANS, Bristol, R. I. Filed May 11, 1896. Serial No. 591,140. (No model.)



Claim.—1. In a fire-escape, the combination of a frame, means to attach it to a building, a pair of drums journaled in the frame and having their journals projecting on one side beyond the frame, spools on the extended journals rigid therewith, a spring-bar supported from the frame and having curved ends engaging the spools, and means to adjust the middle portion of said spring-bar whereby the pressure of its ends on the spools may be increased or diminished, substantially as described.

2. A drum for a fire-escape having parts of its winding-surface concave from flange to flange, and alternating parts concave in their middle portions and convex from each end of the concaved portions to the flanges, substantially as described.

3. In a fire-escape, the combination of a frame, means to attach it to a building, a pair of drums journaled in the frame and having their journals projecting on one side beyond the frame, spools on the extended journals rigid therewith, a U-shaped bracket secured to the frame between the spools, a threaded bolt supported in the horizontal arms of the bracket, a spring-bar centrally mounted on the bolt and having curved ends to engage the spools, and nuts on the bolt engaging the opposite faces of the spring-bar to adjust the pressure of the bar upon the spools, substantially as described.

4. In a fire-escape, the combination of a frame, means to attach it to a building, a pair of drums journaled in the frame and having their journals projecting on one side beyond the frame, spools on the extended journals rigid therewith, a U-shaped bracket secured to the frame between the spools, a threaded bolt supported in the horizontal arms of the bracket, a spring-bar centrally mounted on the bolt and having curved ends to engage the spools, a stiffening-bar supported centrally by the said bolt and bearing against the under face of the lower arm of the bracket, bolts connecting the ends of the stiffening-bar with the spring-bar, and nuts on the first-mentioned bolt engaging the opposite faces of the spring-bar to adjust the pressure of the bar upon the spools, substantially as described.

576,781. EXTRACT OF SUPRARENAL GLAND. SIGMUND FRÄNKEL, Vienna, Austria-Hungary, assignor to Chemisch Fabrik von Heyden Gesellschaft mit Beschränkter Haftung, Radebeul, Germany. Filed Apr. 16, 1896. Serial No. 587,843. (No specimens.)

Claim.—1. The process for the production of the active principle of the suprarenal gland or capsule, which process consists in first obtaining an extract from the suprarenal gland or capsule by means of alcohol, second concentrating the said extract, third boiling the concentrated residue with water, fourth filtering off the precipitate of the said boiling, fifth evaporating the filtrate, sixth boiling the concentrated filtrate with alcohol, seventh adding acetone to the solution obtained by the latter boiling for the purpose of precipitating the remaining impurities therefrom, eighth concentrating the clear solution, substantially as herein set forth.

2. The new pharmaceutical product obtained as herein described for increasing the blood-pressure, being the active principle of the suprarenal gland or capsule, having the form of a yellow-brown syrup, an aqueous solution of which even when very diluted will be intensely colored green by chlorid of iron.

576,782. REMOVABLE SUPPORT FOR ASH-RECEPTACLES. ELIZABETH R. GOODRICH, Brooklyn, N. Y. Filed Dec. 20, 1895. Serial No. 572,764. (No model.)



Claim.—In a receptacle for refuse matter, a tubular casing open at both ends, having an unobstructed interior, and provided near one end with loop-handles *c*, and a bag provided at its mouth with hooks and with a clasp, or their equivalents, whereby to connect the bag to the handles and secure the mouth after the removal of the bag, substantially as set forth.

576,783. CLASP-ENVELOP. THOMAS J. GORMAN, New York, N. Y. Filed Sept. 14, 1896. Serial No. 605,774. (No model.)

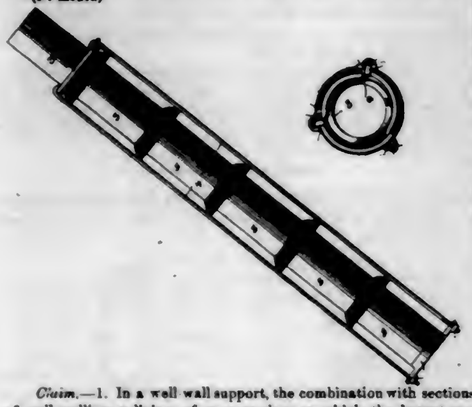
Claim.—1. An envelop, having a metallic pronged fastening device or clasp embodied in and projecting from the back thereof, the head thereof being located between the two folds of material constituting said back, and a disk of tough paper or other suitable material located between said head and the outer fold of material and pasted or otherwise fastened to the adjacent surfaces of both folds of material.

2. An envelop, closed at all points except at one end, having a sealing-flap adapted to close its open end and provided with a reinforcing or eyeleted opening therein, a metallic clasp or fastening device

made up of a head with two bendable nibs or prongs secured thereto or formed integral therewith, the head of said clasp being located between the two folds of material of which the back of said envelop is made and the nibs or prongs thereof adapted to be passed through the eyeleted opening in said sealing-flap, and a disk of tough paper or other suitable material surrounding said nibs or prongs adjacent to said head, located between said head and the inner surface of the outer fold of material constituting said back and pasted or otherwise secured to the adjacent surfaces of both folds of material, substantially as and for the purpose described.



576,784. SUPPORT FOR WELL-WALLS. ARTHUR M. KAUFFMAN, Four Corners, Iowa. Filed June 15, 1896. Serial No. 595,567. (No model.)



Claim.—1. In a well wall support, the combination with sections of well walling or lining, of an open shoe on which the lowest section of lining rests, and a fastening connected to said shoe and located on the outside of the sections of lining, said fastening securing the shoe to the lower sections of lining.

2. In a well-wall support, the combination with sections of well walling or lining, of an annular shoe on which the lower edge of the lowest section of lining rests, and a fastening connected to said shoe and securing it to the lower sections of lining, said fastening being located on the outside of the sections.

3. In a well-wall support, the combination with sections of well walling or lining, of an open shoe on which the lowest section of lining rests, rods having their lower ends connected to said shoe and extending upwardly on the outside of the sections of lining, and a fastening connected to the upper portions of the rods and encircling one of the sections of lining.

4. In a well-wall support, the combination with sections of well walling or lining, of a lower open shoe, upright rods connected to the shoe and having hooks at their upper ends, and a band encircling one of the sections of lining and connected to said hook portions of the upright rods.

5. In a well-wall support, the combination with sections of well walling or lining, of an open shoe, upright rods connected to said shoe, and a detachable band made in sections and connected to the upright rods, said band encircling one of the sections of lining.

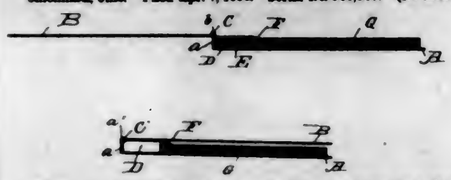
6. In a well-wall support, the combination with sections of well walling or lining, of a shoe, upright rods connected to said shoe, and a band connected to the upright rods and composed of sections having eyes at one end and hooks at the other end, the respective eyes and hooks interlocking, and the band encircling one of the sections of lining.

7. In a well-wall support, the combination with sections of well walling or lining, of a shoe, upright rods connected to the shoe, and an adjustable band encircling one of the sections of lining and connected to the upright rods.

8. In a well-wall support, the combination with sections of well walling or lining, of adjustable upright rods connected to the shoe, and an adjustable band encircling one of the sections of lining and connected to the upright rods.

9. In a well-wall support, the combination with sections of well walling or lining, of an annular shoe provided with lugs, upright rods passing through said lugs and provided with adjusting-nuts at their lower ends and with hooks at their upper ends, and a band encircling one of the sections of lining and provided with an adjusting-nut, the hooks on the upright rods straddling said bands.

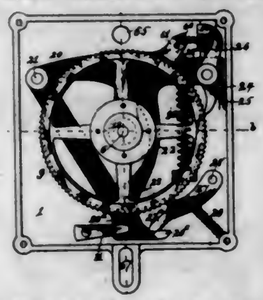
576,785. COVER FOR BOOKS, PADS, &c. ROBERT J. KAUFFMANN, Cincinnati, Ohio. Filed Apr. 7, 1896. Serial No. 586,569. (No model.)



Claim.—1. A cover for books, pads, &c. comprising two sheets of rigid material of practically the same size, one, A, provided along one edge with a flange, and the other, B, hinged to such flange, a receptacle adapted to contain an ink-pad secured to the cover-sheet A along the inner side of the said flange, and means for securing a pad, or book upon the cover-sheet, A, the cover sheet, B, serving to cover both the ink-receptacle and the pad or book, substantially as set forth.

2. A cover for books, &c., consisting of a sheet of rigid material A, formed along one edge with a flange, *a*, another sheet, B, hinged to such flange, and a box or receptacle D secured to the cover-sheet A along the said flange, adapted to contain an ink-pad, and provided with a flange F which constitutes a clamp or holder for the bound edge of a book or pad, substantially as set forth.

576,786. FARE-REGISTER. JOHN J. KENNELLY, New York, N. Y. Filed May 25, 1896. Serial No. 592,951. (No model.)



Claim.—1. In a register the combination of a ratchet-wheel movable back and forth in the direction of the length of its axis, means for driving the same, a spring-pressed pawl for preventing back rotation, said pawl being adapted to pass behind the teeth of the wheel when the latter is moved forward, and a tooth or projection on the back of the wheel to throw the pawl out from behind the same.

2. In a register the combination of a ratchet-wheel movable back and forth in the direction of the length of its axis, means for driving the same, a spring-pressed pawl normally in engagement with the teeth of the wheel to prevent back rotation, said pawl being adapted to pass behind the teeth of the wheel when the latter is moved forward, a tooth or projection on the back of the wheel to throw the pawl out, and a spring to throw the wheel back automatically when the pawl is thrown out from behind the same.

3. In a dial-register the combination with the central shaft or spindle movable back and forth in the direction of its length, the hand or pointer, and a ratchet-wheel fast thereon, of a swinging or vibrating lever, a pawl thereon for driving the ratchet-wheel, a second pawl mounted on a stationary pivot to prevent back rotation, and arranged and adapted to pass behind the wheel when the latter is moved forward, a spring acting on said second pawl to hold it in action, a tooth or projection on the back of the wheel to throw the pawl out from behind the same on the completion of a full rotation, and a spring for automatically returning the wheel to normal position when the pawl is thrown out from behind the same.

4. In a dial-register the combination with the central shaft or spindle and a ratchet-wheel fast thereon formed with an offset or shoulder on the back thereof within the base-line of the teeth, said shaft and wheel movable back and forth in the direction of the length of the axis, means for driving the ratchet-wheel, a pawl for preventing back rotation adapted to pass behind the teeth of the wheel when the latter is moved forward, a spring to hold the pawl in action, a single tooth or projection on said shoulder or offset to throw the pawl out from behind the wheel on the completion of a rotation, and a spring for returning the shaft and ratchet-wheel to normal position when the pawl is thrown out from behind the wheel.

5. In a fare-register the combination of a permanent or total register comprehending a pinion, and a dial trip-register comprehending a central shaft movable back and forth in the direction of its length, a gear-wheel fast thereon normally in mesh with said pinion to drive the same, the connection between said gear and pinion being broken by the movement of the gear-wheel in one direction, and a lever connected with, and operated by the gear-wheel to lock the pinion when the connection is broken, substantially as shown and described.

6. The combination of a dial trip-register comprehending a driven gear-wheel movable in the direction of the length of its axis, a permanent or total register comprehending a pinion driven by said gear-wheel, the connection between said pinion and gear-wheel being broken by the movement of the latter in one direction, and a pivoted lever having a fork at one end in which the gear-wheel runs, its opposite end being arranged and adapted to be thrown into engagement with the teeth of the pinion when the connection between the gear-wheel and pinion is broken, and out of engagement when said connection is restored.

7. In a register the combination of a ratchet-wheel, an operating-lever and pawl for rotating the same, a stop-pawl for preventing back rotation, and a connection between said operating-lever and pawl to hold the latter against the wheel and prevent forward rotation when the lever is in normal or retracted position.

8. The combination of a rotatable direction-indicator, a pivoted arm standing normally in position to prevent rotation of the indicator, a swinging spring-pressed arm arranged and adapted to partially rotate the indicator when released, and a longitudinally movable and rotatable shaft, comprising a part of the registering mechanism, connected with said pivoted arm and operating by its longitudinal movements to throw the arm into and out of engagement with the direction-indicator and to turn the latter to a new indicating position on the return of the shaft to normal position.

9. The combination of a rotatable direction-indicator rectangular in cross-section, a four-toothed wheel fixed on the projecting axis thereof, a swinging spring-pressed arm arranged to act upon one of the teeth of said wheel to partially rotate the same when free, a longitudinally-movable shaft comprising a part of the registering mechanism, and a vibrating arm pivoted between the four-toothed wheel and the shaft and coupled with the latter, the said arm acting to lock and unlock the said wheel when the shaft is moved back and forth and change the position of the wheel and indicator on the return of the shaft to normal position.

10. In a register of the character described, the combination of a rotatable shaft comprising a part of the registering mechanism, the same being movable back and forth in the direction of its length, a ratchet-wheel fast on said shaft, a vibrating lever and a pawl thereon for rotating the ratchet-wheel and its shaft, and a brake mounted on said lever to act upon the ratchet-wheel when the latter is out of normal position.

11. In a register of the character described, the combination of a rotatable shaft comprising a part of the registering mechanism, the same being movable back and forth in the direction of its length, a ratchet-wheel fast on said shaft, a vibrating lever and a pawl thereon for rotating the ratchet-wheel and its shaft, a lug on the lever, and a plate mounted on the lug and overhanging the same on the side toward the ratchet-wheel, the arrangement being such that when the shaft and wheel are moved out of normal position the wheel will be in the same plane with said plate, the latter then serving as a stop to prevent operative vibration of the lever and as a brake to prevent rotation of the ratchet-wheel and its shaft.

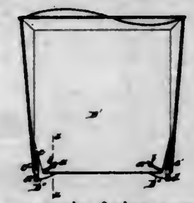
12. In a register of the character described, the combination of a dial trip-register including a rotatable shaft or spindle, a ratchet-wheel fast thereon, a vibrating lever and a pawl thereon for rotating the said wheel and shaft, a permanent or total register geared with, and operated from, the trip-register, a separable connection between the permanent and the trip registers, and a projection on the vibrating lever of the trip-register arranged to impinge against said ratchet-wheel to prevent operative movement of the lever, and to brake the wheel while the two registering mechanisms are disconnected.

13. The combination with a register comprehending a reciprocating mechanism through which it is operated, of an operating mechanism comprehending two levers arranged to move actively in opposite directions and to operate in the same direction, and connections between said levers and the reciprocating mechanism of the register adapted to permit the latter to be operated by either of said levers independently of, and without moving, the other.

14. The combination with a register comprehending a reciprocating mechanism through which it is operated, of an operating mechanism comprehending a lever of the first order and a lever of the second order, the handle ends of both levers standing in the same direction substantially parallel to each other, and connections between said levers and the reciprocating mechanism of the register adapted to permit the latter to be operated by either of said operating-levers independently of, and without moving the other.

15. The combination of the base-block provided with means for holding a register, two levers 72 73, fulcrumed thereon at opposite sides of a vertical central line, stop-lugs and springs for holding the handle ends of said levers normally in substantially vertical position, one lever having a push-bar pivoted thereto above its fulcrum to act on a movable projection of the register and the other lever having a link pivoted thereto below its fulcrum, said link having an elongated eye for the reception of said movable projection of the register, whereby the register is adapted to be operated by either of said levers without moving the other.

576,787. GRASS-CATCHER FOR LAWN-MOWERS. TONE J. LOWELL, Cedar Rapids, Iowa. Filed July 1, 1896. Serial No. 597,736. (No model.)



Claim.—1. In a grass-catcher for lawn-mowers, the combination of a receptacle having its sides separated from the bottom some distance back from the open front thereof, and provided with overlapping wings, slots in the bottom, and bolts passing through said wings and bottom, whereby the front end of the receptacle may be made wider or narrower, as described.

2. The combination in a grass-catcher for lawn-mowers, of a receptacle having sides which at the forward end are adjustable inwardly or outwardly, and a longitudinally-adjustable, auxiliary bottom plate, substantially as described.

3. In a grass-catcher for lawn-mowers, the combination with laterally-adjustable sides, of a vertically-adjustable bracket connecting therewith, and a longitudinally-adjustable plate connecting with said bracket, and adapted to engage a lug on the mower, as described.

4. In a grass-catcher, the combination with the laterally-adjustable side of the receptacle, of the bracket *c*, having adjusting-slot *c''* and slotted wing *c'*, the plate *d*, having hole *d''*, and bolts *b'*, *b''* and *b'''*, substantially as and for the purpose set forth.

576,788. BICYCLE-BELL. ALVIN T. MORRILL, Boston, Mass. Filed Apr. 11, 1896. Serial No. 587,121. (No model.)



Claim.—1. A striking mechanism for bells, comprising a gong, a vibratable hammer, an actuator, and a curved spring connecting said actuator and hammer, the movement of the actuator reversing the

curvature of the spring to thereby operate the hammer, substantially as described.

2. The base, a bridge secured to the inner side of the base, a gong supported thereby, a hammer supported by said bridge, and a curved spring adapted by reversal of its curvature to operate the hammer, substantially as described.

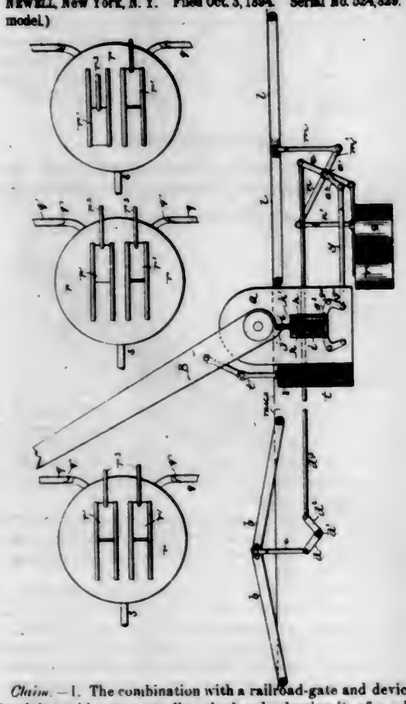
3. The base, a bridge secured to the inner side of the base, a gong supported thereby, a vibratable hammer and an actuator, each pivotally supported by the bridge, and a curved spring connecting said hammer and actuator, movement of the latter reversing the curvature of the spring to operate the hammer, substantially as described.

4. The base, a bridge secured to the inner side of the base, a gong supported thereby, a hammer supported by said bridge, a detent to limit the movement of the hammer, and a curved spring adapted by reversal of its curvature to operate said hammer, substantially as described.

5. The base, a bridge thereon, a gong supported on the bridge, a vibratable hammer and a pivotally-mounted actuator, each supported from and below the bridge, said actuator extending beyond the base, and a curved spring connecting the hammer and actuator, the movement of the latter reversing the curvature of the spring to operate the hammer, substantially as described.

6. The base, a gong, a hammer, a curved spring adapted by reversal of its curvature to operate said hammer, an actuator to reverse the curvature of the spring, and an independent spring to return the actuator to normal position, substantially as described.

576,789. **MEANS FOR OPERATING RAILROAD-GATES.** FRANK NEWELL, New York, N. Y. Filed Oct. 3, 1894. Serial No. 524,839. (No model.)



Claim.—1. The combination with a railroad-gate and devices for maintaining said gate normally raised and releasing it, of a cylinder having its piston connected with the gate for raising the latter, a reservoir communicating with the cylinder, a pump for forcing air into said reservoir, two outlet-valves for said reservoir, and devices adapted to be operated respectively by trains moving in opposite directions, each set of devices being constructed to operate said pump and one of said outlet-valves, whereby to cause the gate to be raised or to prevent it from being raised in case a second train approaches the crossing concurrently or nearly so with the first train, substantially as set forth.

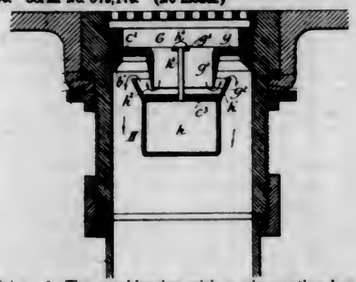
2. The combination with two or more railroad-tracks, a gate for closing a crossing over said tracks and means for maintaining said gate normally raised and releasing it, of a cylinder having its piston connected with the gate for raising it, a reservoir communicating with said cylinder, pumps for forcing air into said reservoir, outlet-valves for said reservoir, corresponding in number with the number of tracks, track instruments for each track, devices connecting said track instruments with the pumps which charge the reservoir, and connections between the track instrument of each track and one of the outlet-valves of the reservoir, whereby to cause the gate to be raised when a single train passes the crossing and prevent it from rising when more than one train approaches the crossing at or near the same time, substantially as set forth.

3. The combination with a railroad-gate, of a dog or catch adapted to engage said gate to retain it in a raised position, an enlargement on said dog, a sleeve adapted to inclose said enlargement and having a shoulder to engage the same, a spring to retain the dog normally in engagement with the gate, a bell-crank lever connected to said sleeve, levers pivoted between the rails of the track and adapted to be depressed by a train, and means between said levers and the bell-crank lever whereby the depression of said first-mentioned levers will operate the dog to release the gate, substantially as set forth.

4. The combination with a railroad-gate, of a catch adapted to maintain the gate normally raised, pneumatic devices for raising the gate, two track instruments to be operated by a train, an oscillatory crank-shaft having a series of arms, said arms being connected respectively with said catch, the two track instruments and the pneumatic devices, substantially as set forth.

5. The combination with a railroad-gate, of a catch adapted to maintain said gate raised, devices adapted to be operated by a train to actuate said catch to release the gate, a cylinder, a plunger in said cylinder and connected with the gate, a reservoir communicating with the cylinder, a pump communicating with said reservoir, an oscillatory shaft having an arm connected with the plunger of said pump, a lever pivoted between the rails of the track and adapted to be depressed by a train, a rod connected to said pivoted lever, and a crank-arm projecting from said oscillatory shaft and connected with said rod, substantially as set forth.

576,790. **SANITARY APPLIANCE.** ARTHUR O'BRIEN, Helena, Mont., assignor of one-half to C. R. Miller, same place. Filed Feb. 13, 1896. Serial No. 579,176. (No model.)

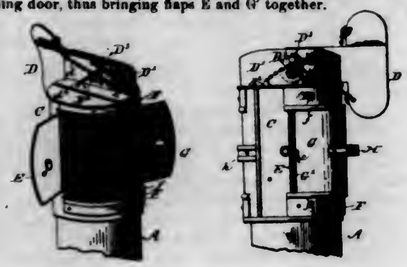


Claim.—1. The combination with a pipe-section having a reduced lower end, of a float vertically movable and flanged at its upper end said flange surrounding the pipe end and extending above the same to provide a constant seal, and a stop for supporting the float in its normal lowered position.

2. The combination with a pipe-section of a strainer at its upper end, an inner pipe-section having a reduced lower end terminating in a thin edge, a float below said inner section supported by a rod and flanged at its upper end to provide a trap into which the thin edge of the section extends, and a gasket in the base of the trap.

576,791. **VENTILATOR.** JAMES F. O'GARA, Charleston, S. C. Filed Jan. 23, 1896. Serial No. 576,572. (No model.)

Brief.—The vane may be oscillated vertically from front to rear by means of chains. The mouth of the cowl may be closed by a sliding door, thus bringing flaps E and G' together.



Claim.—1. A revolving ventilator having an opening on one side with a flap at the edge in combination with a door adapted to close said opening and having a corresponding flap at its edge and a catch or lock for fastening said door in its closed position, substantially as described.

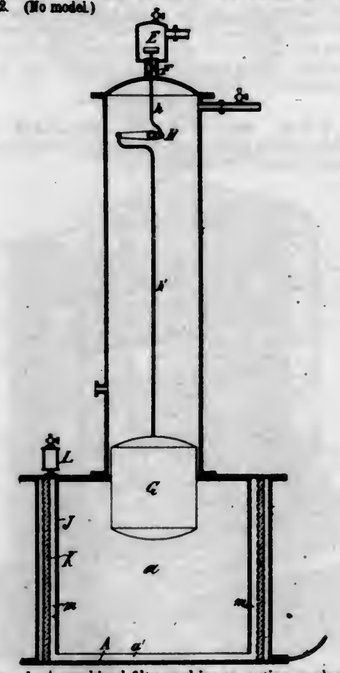
2. In a ventilator, the combination of the revolving cylindrical section C, having an opening with a flap E, at one side, and a sliding door G, having a flap G', corresponding in shape and position to the flap E, substantially as described.

3. The combination with a revolving cylindrical ventilator-cowl, of a horizontally-pivoted vane movable in a vertical plane and adjustable from front to rear of said cowl, substantially as described.

4. In a revolving ventilator, the combination with the cowl, of a vane horizontally pivoted on top of the same and movable in a vertical plane and means substantially as described for moving said vane to diametrically opposite sides of the cowl, as set forth.

5. In a revolving ventilator, the combination with the cowl, a horizontally-pivoted vane and vertical guiding-plates embracing the vane of chains attached to opposite sides of the vane and passing over bearings on said guiding-plates and into the cowl, substantially as described.

576,792. **IMPREGNATING AND FILTERING APPARATUS.** WILHELM RAYDT, Stuttgart, Germany. Filed Jan. 17, 1896. Serial No. 575,882. (No model.)



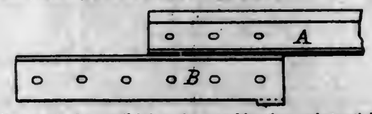
Claim.—1. A combined filter and impregnating or charging apparatus, comprising a filter, an impregnating or charging column in communication with the filter, a gas-inlet and an inlet for liquid at or near the foot and head of the column respectively, and a valve interposed between the inlet for liquid and the inlet to the column, a float in the passage leading from the column to the receiving-chamber of the filter, a two-armed rock-lever, to the arms of which said float and valve are connected, for the purposes set forth.

2. The combination with the filter-casing, a filtering medium arranged therein so as to form a chamber for the filtrate surrounding said filtering medium, and a valved discharge-pipe connected with the filtrate-chamber at or near its lowermost level, and having its outlet above the top of the filter-casing; of an impregnating or charging column rising from and opening into the filter within the space encompassed by the filtering medium, a gas-inlet and an inlet for liquid arranged respectively at or near the foot and head of said column, and level-indicators connected with the filter and discharge-pipe for the purpose set forth.

3. The combination with the filter-casing, a filtering medium arranged therein to form a receiving-chamber, and a chamber for the filtrate respectively surrounded by and surrounding the said filtering medium, and a discharge-pipe having its outlet above the top of the filter and its inlet connected with the filtrate-chamber at or near the foot thereof; of an impregnating or charging column rising from the filter and opening into its receiving-chamber, inlets for gas and liquid located respectively at or near the foot and head of said column, a valve interposed between the inlet for liquid and its outlet into the column, and a float in the passage leading from the column to the aforesaid receiving-chamber of the filter, said float controlling the aforesaid valve, for the purpose set forth.

4. The combination with the filter-casing, a filtering medium arranged therein to form a chamber for the filtrate surrounding said filtering medium, and a receiving-chamber surrounded by said medium, an air-vent in communication with the head of the receiving-chamber, and a discharge-pipe in communication with the foot of the filtrate-chamber, said pipe provided with a level-indicator, said indicator and the outlet of said pipe located above the head of both chambers; of an impregnating or charging column rising from the filter and opening into its receiving-chamber, a gas-inlet, and an inlet for the liquid arranged respectively at or near the foot and head of said column, a sight-glass interposed between said inlet for liquid and inlet to the column, a valve-seat at the outlet of said sight-glass, a valve controlling said outlet and a float in the receiving-chamber of the filter connected with and controlling said valve, substantially as and for the purpose set forth.

576,793. **RAIL-JOINT.** WILLIAM ROBINSON, Boston, Mass. Filed Oct. 7, 1893. Serial No. 487,530. (No model.)



Claim.—1. In a rail-joint, the combination, substantially as described, of two adjacent rails each provided with a girder or truss plate arranged wholly beneath said rails and having one end integrally secured to the bottom of said rail and the opposite end extending under and supporting the adjacent rail, whereby each rail is caused to support and hold the abutting rail in perfect horizontal alinement at the joint.

2. In a rail-joint, the combination, substantially as described, of two adjacent rails each provided with a girder or truss plate arranged wholly beneath said rails and having one end permanently secured to the bottom of said rail and the opposite end extending under, and supporting, the adjacent rail, said girder-plates being arranged to be detachably secured together.

3. In a rail-joint, the combination, substantially as described, of two adjacent rails, each provided with a girder or truss plate having one end permanently secured to the bottom of said rail and the opposite end extending under, and supporting, the adjacent rail, each of said girder-plates being provided, on its inner end, with a lug or projection arranged to support the outer end of the girder secured to the adjacent rail.

4. In a rail joint, a girder or truss plate having one end permanently secured to the bottom of one rail and the other end adapted to detachably support the adjacent rail, said plate being provided with outwardly-projecting feet or angles forming a bearing to support said girder-plate and rail on the ties, substantially as described.

5. A rail-joint consisting essentially of the following elements: two adjacent rails each provided with a truss-plate having one end permanently secured to the bottom of said rail and the other end extending under and supporting the other rail, and two fish-plates fitting into side grooves of the rails, said rails, through their respective truss and fish plates, being detachably secured together, substantially as described.

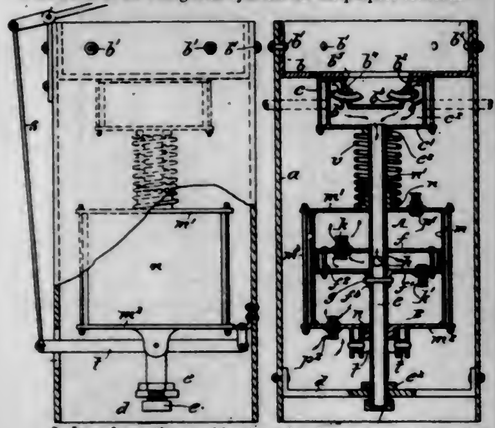
6. A rail-joint consisting, essentially, of the following elements: two adjacent rails, each provided with a truss-plate having one end permanently secured to the bottom of said rail and the other end extending under and supporting, the other rail, said girder-plates interlocking and supporting each other, and two fish-plates, each rail being provided with one having one end permanently secured to the side of said rail and the other end overlapping the adjacent rail, said rails, through their respective fish-plates and truss-plates, being arranged to be detachably secured together, substantially as described.

7. In a rail-joint, the combination of two abutting rails, each provided with a bottom plate having one end permanently secured thereto and the opposite end extending under and detachably supporting, the adjacent rail, said bottom plates being provided with lugs or extensions adapted to determine the relative positions of said bottom plates, substantially as described.

576,794. **FORGE.** WILLIAM ROSS, Montreal, Canada. Filed June 5, 1895. Serial No. 551,791. (No model.)

Claim.—1. In a forge, the combination of a frame or support, a

fuel-receptacle or fire-pot, an air-conductor in communication with said receptacle or fire-pot, an intact stationary hollow piston of inclosing rigid cylindrical form, carried by said conductor communicating therewith, and provided with an inlet in each end thereof and a separate and independently-operating valve for each inlet, a movable cylinder encircling and inclosing such piston, provided with valve-controlled inlets and adapted to receive and force air into said piston and means for actuating such cylinder for the purpose set forth.



2. In a forge, the combination of a frame or support, a fuel-receptacle or fire-pot, an air-conductor extending vertically beneath said receptacle or fire-pot and communicating with same, an intact stationary hollow piston of inclosing rigid cylindrical form carried by said air-conductor with its inner space in communication with the inner space of such conductor and provided with an inlet in each end thereof and a separate and independently-operating valve for each inlet and a movable cylinder encircling and inclosing such piston, provided with valve-controlled inlets and adapted to receive and force air into said piston with means for actuating such cylinder, for the purpose set forth.

3. In a forge, the combination of a frame or support, a fuel-receptacle or fire-pot, an air-conductor in communication with said receptacle or fire-pot, an intact stationary hollow piston of inclosing rigid cylindrical form, carried by said conductor communicating therewith, and provided with an inlet in each end thereof and a separate and independently operating valve for each inlet, a movable cylinder encircling and inclosing such piston, provided with valve-controlled inlets.

4. In a forge, a fuel-receptacle or fire-pot having twyers extending through its sides, the twyers being curved and placed with their convex sides undermost, for the purpose set forth.

5. In a forge, a fuel-receptacle or fire-pot having twyers extending through its sides, the twyers being curved and placed with their convex side undermost their inner ends open and their outer ends closed and inlets in the uppermost side of same near the closed ends for the purpose set forth.

6. The twyers of curved form and with open and closed ends and an inlet in the concave side thereof near the closed end, for the purpose set forth.

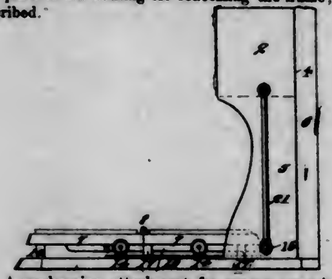
7. In a forge, the combination with a fuel-receptacle or fire-pot, of a hot-air chamber encircling same, an air-inlet to the chamber and inlets from the chamber to the fire-pot in the form of curved twyers placed with their convex side undermost extending transversely through the sides of the fire-pot, for the purpose set forth.

576,795. GAS-BURNER ATTACHMENT FOR RANGES. LOUIS STOCKSTROM, St. Louis, Mo., assignor of one-half to Charles A. Stockstrom, same place. Filed Jan. 27, 1896. Serial No. 576,975. (No model.)

Claim.—1. A gas-burning attachment for ranges comprising a turning gas-pipe, a frame having inner and outer sections provided with burners and hinged together so as to fold the outer section upon the inner section, hinges whereby the frame is connected to the turning gas-pipe, the gas-pipe branches having valves and connected to the turning gas-pipe, secured to the inner section and adapted to be raised and lowered with the frame; substantially as described.

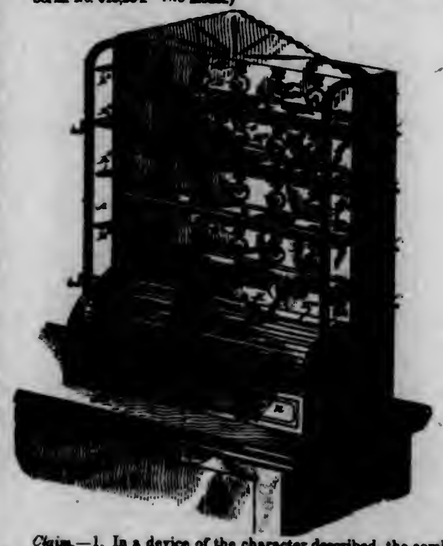
2. A gas-burning attachment for ranges comprising a turning gas-pipe, a frame having burners, hinges whereby the frame is connected to the turning gas-pipe, the gas-pipe branches having valves, and connected to the turning gas-pipe, secured to the frame and adapted to be raised and lowered with the frame, and a pan secured to the bottom of the frame, sliding on the latter and adapted to provide a front plate for the frame when it is elevated; substantially as described.

3. In combination with a range having a housing, a frame provided with gas-burners and hinged to the range within the housing, and a sliding pan secured to the bottom of the frame and providing a front plate to the housing for concealing the frame; substantially as described.



4. A gas-burning attachment for ranges comprising a turning gas-pipe, a frame having inner and outer sections provided with burners and mixing-chambers and hinged together, hinges whereby the frame is connected to the turning gas-pipe, the gas-pipe branches provided with valves, and connected to the turning gas-pipe, secured to the inner section, and adapted to be raised and lowered with the frame; the mixing-chambers of the outer section having notches to permit the outer section to be folded upon the inner section; substantially as described.

576,796. SELF-MEASURING LACE-CABINET. GEORGE M. THOMPSON, Schoolcoh, Ky. Filed Oct. 1, 1895. Renewed Dec. 10, 1896. Serial No. 615,234. (No model.)



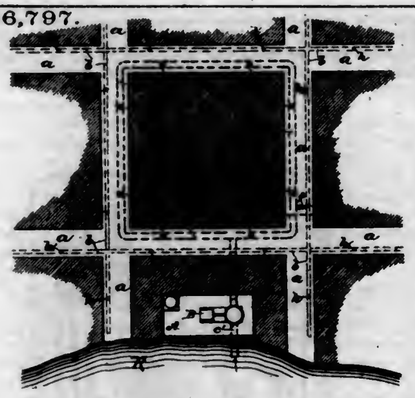
Claim.—1. In a device of the character described, the combination with the notched upright strips of the grooved shafts, the spools having keys and levers, and the friction-brake attached to the upright strips and bearing on the spool substantially as shown and described.

2. In a device of the character described the combination with a reel composed of a series of arms free at one end, one of the said arms being barbed substantially as shown and described.

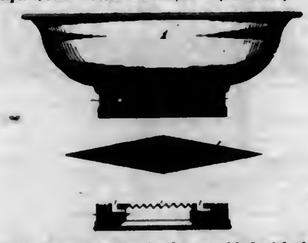
576,797. FIRE PROTECTION FOR CITIES. STILLMAN WHITE, Providence, R. I. Filed Apr. 31, 1896. Serial No. 588,443. (No model.)

Claim.—The improved system of fire protection hereinbefore described, the same comprising two concurrent systems of piping, each provided with fire-hydrants or outlets, one of said lines having a substantially constant hydrostatic head or pressure, and the other being provided with a pump or similar discontinuable means for producing when required a higher pressure in said line than in the former, and a valve which automatically permits the flow of the liquid from the piping of constant pressure into the other line when the pressure in the latter is sufficiently reduced, but checks the flow of the liquid back into said line of constant pressure, substantially as described.

576,797.



576,798. STRAINER. WILLIAM C. BALDWIN, Wyoming, Pa. Filed Apr. 2, 1896. Serial No. 585,871. (No model.)

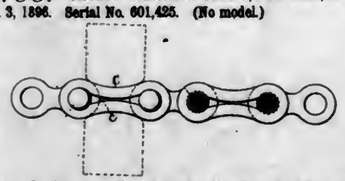


Claim.—1. A strainer or colander provided with the tubular extension or collar having peripheral lugs; a radial internal flange fixed to the body at its point of juncture with said collar; a sleeve having its upper edge serrated and adapted to receive said collar and having slots to engage lugs thereon, and a meshed medium interposed between said collar and sleeve substantially as described and for the purpose named.

2. In combination, a strainer or colander comprising the body; a tubular extension secured to said body, and provided with peripheral lugs; a sleeve having slots to engage said lugs and provided upon its upper edge with a series of serrations, and a meshed medium placed between said collar and sleeve and there positively held by said serrations, substantially as described and for the purpose named.

3. A bowl-shaped receptacle having a straight open neck, a strainer, and a collar having its upper edge serrated and means for attaching the collar to the receptacle, all operatively combined as set forth.

576,799. CHAIN. GEORGE F. BALLOU, New York, N. Y. Filed Aug. 3, 1896. Serial No. 601,425. (No model.)



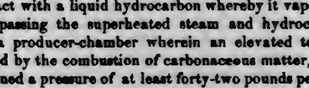
Claim.—1. As an article of manufacture, a chain comprising blocks having holes, pins passing through the holes, and links having apertures for receiving the ends of the pins, and which links are caused by pressure to clench the pins, substantially as set forth.

2. As an article of manufacture, a chain comprising blocks having holes, pins passing through the holes and provided with a groove at each end so as to form heads on the pins, and links having apertures of a width at some point sufficient to admit the heads and permit the links to enter the grooves of the pins, and which links are subjected to pressure to force the inner edges of the links closely within the grooves to clench the pins making a tight joint and holding the parts against displacement, substantially as set forth.

3. As an article of manufacture, a chain comprising blocks having holes, pins passing through the holes and provided with a groove at each end so as to form heads on the pins, and slotted links whose slots at some point are of such width as to receive the heads of the pins and the ends of which slots are curved and of such diameter as to snugly fit the grooves of the pins, and which links are caused by pressure to clench the pins, substantially as set forth.

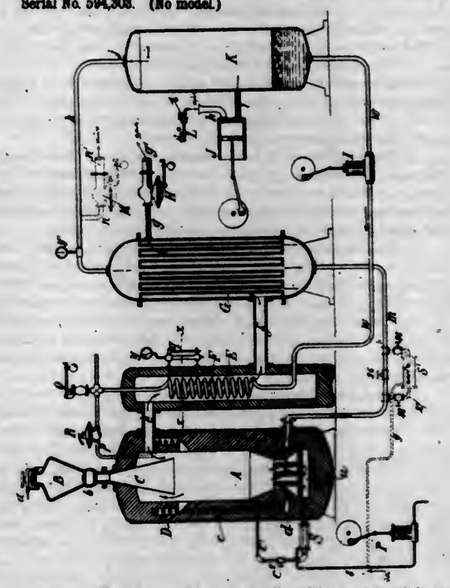
4. A bicycle-chain comprising blocks, longitudinally-slotted links, and connecting-pins, said links being adapted to have their longitudinal sides compressed to shorten the link, substantially as set forth.

576,800. PEN. JONATHAN S. BARD, New York, N. Y. Filed Dec. 11, 1896. Serial No. 615,259. (No model.)



Claim.—A writing-pen having its nibs thickened at their extremities and terminating in a backward slope on the under side and having the nibs reduced to a thickness less than that of the body of the pen by a cavity formed in the back or upper side of the nibs in rear of the thickened portion of the latter, substantially as herein described.

576,801. PROCESS OF AND APPARATUS FOR MANUFACTURING GAS. FRANCIS G. BATES, Philadelphia, Pa. Filed June 4, 1896. Serial No. 594,303. (No model.)



Claim.—1. The improved process of making combustible gas which consists in superheating steam, passing the superheated steam into contact with a liquid hydrocarbon whereby it vaporizes the latter, and passing the superheated steam and hydrocarbon vapors through a producer-chamber wherein an elevated temperature is maintained by the combustion of carbonaceous matter, and in which is maintained a pressure of at least forty-two pounds per square inch.

2. The improved process of making combustible gas which consists in superheating steam, passing the superheated steam into contact with a liquid hydrocarbon whereby it vaporizes the latter, and passing the superheated steam and hydrocarbon vapors together with heated compressed air through a producer-chamber wherein an elevated temperature is maintained by the combustion of carbonaceous matter, and in which is maintained a pressure of at least forty-two pounds per square inch, whereby the hydrocarbons are partly oxidized and partly converted into fixed gases.

3. The improved process of making combustible gas which consists in superheating steam, passing the superheated steam into contact with a liquid hydrocarbon whereby it vaporizes the latter, and passing the superheated steam and hydrocarbon vapors together with heated compressed air through a producer-chamber wherein an elevated temperature is maintained by the combustion of carbonaceous matter, and in which is maintained a pressure approximating one hundred pounds per square inch, whereby the hydrocarbons are partly oxidized and partly fixed as illuminants at the same high temperature at which the gas is generated, and a gas of high illuminating power is produced.

4. The improved process of making combustible gas which consists in carbureting heated compressed air by passing it into contact

with a liquid hydrocarbon to vaporize the latter, carbureting superheated steam, and passing both the carbureted steam and the carbureted air through a producer-chamber wherein an elevated temperature is maintained by the combustion of carbonaceous matter, and in which is maintained a pressure exceeding forty-two pounds per square inch.

5. A gas apparatus comprising a gas-producer, a steam-generator, an air-compressor, a heater for heating the compressed air therefrom a conduit for compressed air leading it through said heater and into said producer, a steam-superheater, a conduit for leading steam from said generator through said superheater to the inlet of said producer, a carbureter in connection with said superheated-steam conduit adapted to introduce a liquid hydrocarbon into contact with the superheated steam to be vaporized thereby and carried into the producer, and a regulating-valve controlling the escape of the resulting gas and retaining a heavy pressure in the producer.

6. A gas apparatus comprising a gas-producer, a steam-generator, an air-compressor, a heater for heating the compressed air therefrom, a conduit for compressed air leading it through said heater and into said producer, a steam-superheater, a conduit for leading steam from said generator through said superheater to the inlet of said producer, a carbureter in connection with said superheated-steam conduit, having oil and steam spaces with an intervening permeable medium, and a force-pump for forcing oil into said carbureter, and through said medium, whereby to introduce the oil into contact with the superheated steam to be vaporized thereby and carried into the producer.

7. The combination of a gas-producer A, having a channel *d* supplying twyers, with a source of steam, a superheater D, a pipe *c* therefrom leading to said channel, and a branch steam-pipe *c'* having a valve c^3 and entering the producer beneath said twyers and a separate inlet for compressed air to said twyers.

8. The combination of a gas-producer, a source of steam, a superheater, a carbureter, a pipe leading from said superheater to the lower part of the producer, with a branch thereof leading through said carbureter and returning into said pipe, and valves controlling said pipes, whereby the steam may be carbureted or not.

9. The combination of a gas-producer, having a channel *d* supplying twyers, a grate, and a space or chamber beneath said grate, with a source of steam, a superheater, a carbureter, a pipe leading from said superheater to the carbureter, and pipes or branches leading from the carbureter to said channel and to said space beneath the grate, with valves for controlling said pipes, whereby the carbureted steam may be admitted to the twyers or to the space beneath the grate.

10. In a gas-producer, the combination of a grate T forming an ash-chamber *u* beneath, a pipe admitting steam into this ash-chamber, said grate having ash-openings and steam-openings, upright tubes U communicating with the steam-openings a movable plate T' mounted beneath the grate and having also ash and steam openings, with said openings so arranged that in one position of the plate its steam-openings register with the steam-openings in the grate while the ash-openings in the latter are closed, and in the other position of the plate its ash-openings register with those in the grate, while the steam-openings in the latter are closed, and means for moving said plate.

11. A gas-producer consisting of a metal shell and a refractory lining, formed with an annular chamber *b'* in said lining, a superheating-coil D in said chamber, and the producer constructed in sections having their divisional plane intersecting said chamber, so that by separating said sections access is had to the coil in said chamber.

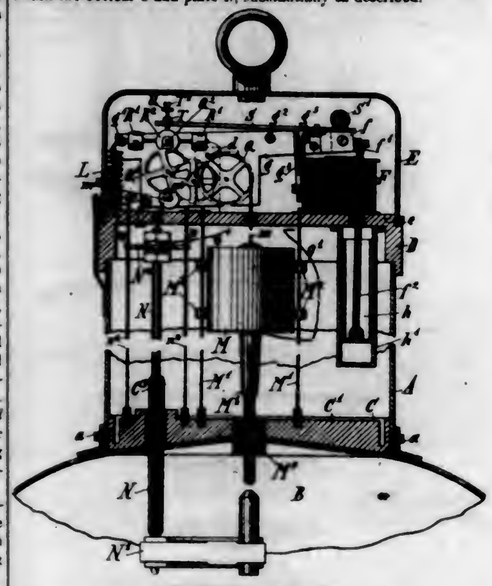
12. A gas-producer consisting of a metal shell and a refractory lining, constructed in three sections, the upper section formed with an annular chamber *b'* in the lining, a coil D in said chamber, the lower section formed with twyers *d'* and channel *d*, and a pipe *c* leading from said coil to said channel, extended outside the shell of the producer so as to bridge the intermediate section, and provided with a separable coupling.

13. The combination of a gas-generator A having a grate T, and means for closing the openings in said grate, and a steam-ejector W for removing ashes communicating with the chamber beneath said grate.

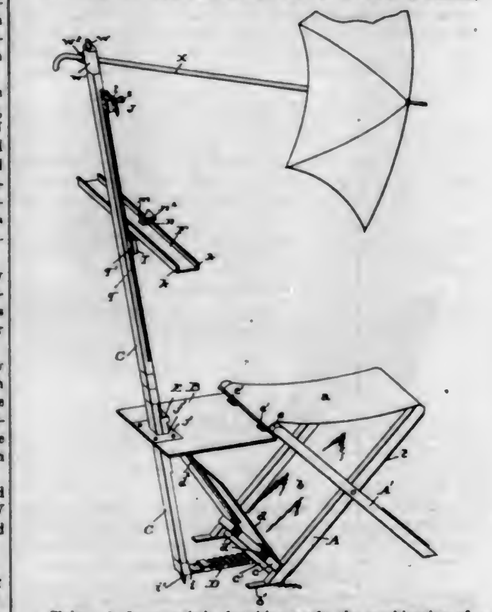
576,802. ELECTRIC-ARC LAMP. HERMANN BÄURLIN, Aarburg Switzerland. Filed May 11, 1896. Serial No. 591,120. (No model.)

Claim.—1. In an electric-arc lamp the combination of an electromagnet included in a shunt-circuit of a main armature having side plates and a clockwork supported thereon carrying a ribbon from which the carbon is supported, a horizontal pendulum, a friction-disk upon the axis thereof, and an auxiliary armature elastically supported upon the main armature controlled by said electromagnet and having an adjustable break-screw to press upon said friction-disk, substantially as described.

2. In an electric-arc lamp, the combination with the lamp-frame comprising a reflector ring-shaped bottom C, an upper plate D, a shunt-magnet armature and gear supported upon said plate, a gear-operating weight M, insulated from carrying the upper carbon and guided by wires M', a rod N, supporting the lower-carbon holder and insulated from the frame and guide-wires M' and n^3 extending between the bottom C and plate D, substantially as described.



576,803. ARTIST'S SKETCHING OUTFIT. SAUL BERNSTEIN, Baltimore, Md. Filed Aug. 4, 1896. Serial No. 601,666. (No model.)



Claim.—1. In an artist's sketching outfit, the combination of a stool having a canvas seat and crossed pivoted legs, one pair of which has a bottom board, *b*, and ends forming a box, and a hinged half-cover, *d*, provided with an attached prop-bar, d^3; and the other pair of legs has at the top a hinged half-cover, B, said two half-covers, when the stool is folded, having their meeting edges at the center, and when the stool is set up for use said hinged half-cover, B, may take a horizontal position as a table substantially in a plane even with the canvas seat, and be sustained by said prop-bar attached to the other half-cover.

2. In an artist's sketching outfit, the combination of a stool having a canvas seat and crossed pivoted legs; a table, B, hinged to the said stool substantially in a horizontal plane even with the seat, and said table provided with a hole; an easel-standard, C, which, when set up, passes through said hole in the table, whereby the hinged table serves as a stay for said standard.

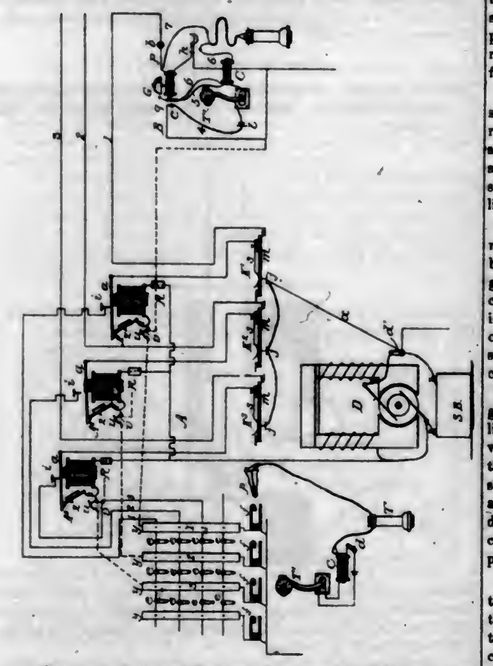
3. In an artist's sketching outfit, the combination of a stool having a canvas seat and crossed pivoted legs; a table, B, hinged to the said stool substantially in a horizontal plane even with the seat, and said table provided on the bottom with a boss, said boss having a socket, *g'*; a prop-bar, d^3, connected with the stool-legs and its upper end having a hole, *h*, and the extremity of said end adapted to enter said socket; and a spring-bolt, *K*, on the bottom of said table which enters the hole in the prop-bar and thereby locks the latter while its extremity is in the socket.

4. In an artist's sketching outfit, the combination of a stool having a canvas seat and crossed pivoted legs; a lower cross-bar on one pair of legs having a metal plate, *c'*; a table, B, hinged to the said stool substantially in a horizontal plane even with the seat and said table provided with a hole; an easel-standard, C, which, when set up, passes through said hole in the table; and a racked bar, D, secured to the lower end of said standard and adapted to engage the said metal plate, as set forth.

5. In an artist's sketching outfit, the combination of a stool having a canvas seat and crossed pivoted legs; a table, B, hinged to the said stool substantially in a horizontal plane even with the seat, and said table provided with a hole; an easel-standard, C, which when set up, passes through said hole in the table; and a wedge, E, secured to said easel-standard by a dovetailed slide device so as to be movable up and down—said wedge entering the hole in the table through which the easel-standard passes.

6. The combination of an easel-standard having side grooves, *q*; a slide-head, I, having plates which take in said grooves and is vertically movable on said standard, and held in position by a set-screw, *r*; an arm or stud, G, projecting from said slide-head and having a notch; a shelf or ledge, F, adapted to set upon the said arm or stud and provided with a spring-catch, *n*, having an elbow-bend which engages said notch and thereby retains the shelf in position.

576,804. TELEPHONE APPARATUS. CHARLES E. BUELL, North Plainfield, N. J. Filed Apr. 24, 1895. Serial No. 547,005. (No model.)



Claim.—1. A charged line, an annunciator in said line, normally open connections from said annunciator to a switchboard, equalizing resistance between said annunciator and a charging-generator, a continuity-preserving key between said annunciator and a charging-generator, and a normally-connected storage battery joined to said generator.

2. A subscriber's-station apparatus that comprises a telephone apparatus in a derived branch, a calling instrument in the main line, a local circuit that includes the primary of an induction apparatus, and connections from said derived branch, and from said local circuit to the armature of the said calling instrument, the whole arranged and operating substantially as described.

3. The combination with a subscriber's station of a telephone in a derived branch, means for disconnecting, and connecting the said derived branch from and to the main line, and devices independent of those used for connecting the derived branch to the main line that are adapted to open the said derived branch by the weight and presence of the telephone.

4. A series of lines radiating from a central station, an annunciator in each line, connections from the several lines to a dynamo, continuity-preserving switches for each line for sending outgoing signals without discharging the annunciator in said line, storage batteries at outlying stations having connections to said lines, and telephone apparatus having connection to said lines, as shown and described.

5. A charged line, an annunciator in said line, normally open connections from said annunciator to a switchboard, equalizing resistance between said line and a charging-generator, a continuity-preserving key between said line and said generator, and apparatus for oral communication having connection to said line.

6. A line having connection to a charging-generator, and to a switchboard, the last-named connection being normally open, an annunciator in said line that is provided with circuit-preserving connections, a storage battery at a remote point having connection to said line through electromechanical switch, and apparatus for oral communication having connections to said line.

7. A series of circuits radiating from a central station and having connection to a charging-generator, and to a switchboard, the last-named connections being normally open, an annunciator in each circuit that is provided with circuit-preserving connections, storage batteries at outlying stations that are provided with connections to their respective circuits through electromechanical switch mechanism, and apparatus at outlying stations for oral communication, having connections to said circuits.

8. A series of circuits radiating from a central station and having connections to a charging-generator, and to a switchboard, the last-named connections being normally open, an annunciator in each circuit that is provided with a target that is adapted to be displayed by a withdrawal of the current from its circuit, and connections from said annunciators to said switchboard, a storage battery at a remote point on each line that is provided with electrical connection to its respective line through an electromechanical switch, and apparatus for oral communication having connections to the said lines.

9. A series of lines centering at a switchboard, annunciators in said lines, a dynamo having connections to said series of lines through regulated branches, a storage battery in the connection from said series of lines and said dynamo, continuity-preserving switches for sending outgoing signals without discharging the annunciators, and storage batteries at outlying stations that have connections to said lines through electromechanical switch mechanism.

10. A series of circuits radiating from a central station, a connection from each circuit to a charging-generator and to a switchboard, devices in each circuit for automatically disconnecting the generator therefrom, a secondary battery at a remote point on each circuit that is provided with connections to its respective circuit that include switch mechanism for disconnecting, and connecting the secondary battery from and to the said circuit, connections from the secondary battery to a subcircuit, and apparatus for oral communication having connections to said circuits.

11. A series of circuits, connections from each to a charging-generator and to a switchboard, an electromagnetic circuit-controlling apparatus, as an annunciator, in each of said circuits, and a device for each at outlying stations, that is adapted to open and vary the said circuits to indicate a call and to automatically disconnect the said generator from the said operated circuit, a secondary battery at a remote station on each circuit, switch mechanism for connecting and disconnecting the secondary battery to and from its respective circuit, connections from the secondary battery to a subcircuit, and apparatus for oral communication having connections to said circuits.

12. The combination with a subscriber's-station apparatus of a telephone, a switch mounted upon said telephone and adapted to open the branch that includes the telephone by the weight of the suspended telephone, and, an independent switch having connections to a local circuit that is adapted to open said local circuit by the pressure of the suspended telephone resting against said last-named switch.

13. A support for a telephone that comprises two insulated metal strips that are respectively connected to the main line, a supporting-eye secured to the telephone that is of conducting material, and that is provided with angles for securing better contact, and which, in its normal operation, closes the main line by the weight of the telephone,

and connections from the telephone to the main line, substantially as described.

14. A support for a telephone that comprises two insulated metal strips, connections from said strips to the main line, and a telephone to be supported thereon that is provided with an eye of conducting material for closing connection between said strips, that is angular, and is attached to the said telephone by a contact-breaking portion, and connections from the telephone to the main line that include the said contact-breaking portion.

15. A subscriber's-station apparatus that comprises a telephone in a derived branch, means for connecting said branch to and disconnecting it from the main line, and automatic devices for opening the said derived branch when the same is disconnected from the main line.

576,805. BOTTLE. EZRA CAMPBELL, Dayton, Wash., assignor of one-fourth to George B. Baker, same place. Filed May 23, 1896. Serial No. 592,706. (No model.)



Claim.—1. In a non-refillable bottle, the combination with the bottle having a frangible bottom, of a depressible opening-rod secured to the bottle-neck and adapted for fracturing said bottom, substantially as described.

2. In a non-refillable bottle, the combination with the bottle having a frangible bottom, of an opening-rod having its upper end secured in the bottle-neck and its lower portion projecting into the bottom in juxtaposition to the frangible bottom, whereby when said opening-rod is forced downward the bottom will be fractured, substantially as described.

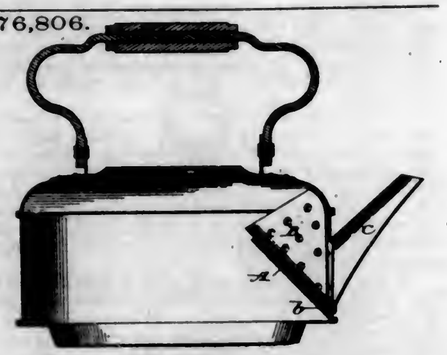
3. In a non-refillable bottle, the combination with the bottle having a pocket in its bottom and a frangible web at the bottom of said pocket, of an opening-rod having its lower end located in said pocket and its upper end secured in and corking the bottle-neck in such manner as to be capable of being forced downward, whereby said frangible web may be fractured, substantially as described.

4. In a non-refillable bottle, the combination with the bottle having its bottom provided with a pocket which has a frangible web, of an opening-rod having a lower point in said pocket and its upper end projecting outward through the neck of the bottle, a gasket around the rod and above the lower pointed end thereof, said gasket being adapted to close the pocket when the opening-rod is forced downward and a second gasket encircling the upper portion of the rod and closing the bottle-neck, substantially as described.

576,806. TEAKETTLE. THOMAS R. CARLIN, Bangor, Me. Filed Apr. 20, 1896. Serial No. 588,320. (No model.)

Claim.—In a vessel for heating liquids and having a snout soldered to the body of the vessel the combination of an inner chamber surrounding the orifice communicating with the snout, and a pocket fitting loosely within said chamber having a minute vent at its tip and having portions only of its outer surface in contact with the inner surface of said chamber.

576,806.



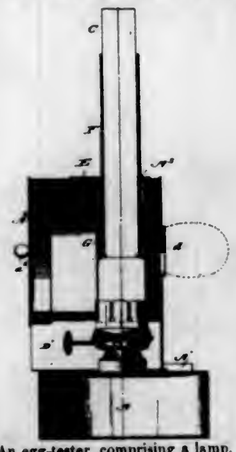
576,807. CLOTHES-LINE SUPPORT. GEORGE R. CARMAN, Brooklyn, N. Y. Filed Apr. 11, 1896. Serial No. 587,063. (No model.)



Claim.—1. In a device of the character herein specified, the combination with the swinging crane, of a pulley at the outer extremity, a rope passing therethrough, a horizontal rod extending along the upper arm of the crane, and an eye through which the rope passes arranged to slide upon said rod, substantially as shown and described.

2. A clothes-line device in which are comprised two eyes fixed to a window casing or frame; a removable swinging crane provided with pintles arranged to engage with said eyes; a removable pulley hooked to the outer extremity of the crane; a rope passing through said pulley, and a second pulley located away from the building; a horizontal rod upon the crane carrying a movable eye through which the rope passes, and a holding-bar pivoted at the inner portion of the crane, the whole combined and arranged to operate, substantially as shown and described.

576,808. EGG-TESTER. HANS G. W. CARSTENS and HANS P. PETERS, Moline, Ill. Filed Sept. 23, 1896. Serial No. 606,734. (No model.)



Claim.—1. An egg-tester, comprising a lamp, a removable bottomless casing mounted to slide horizontally on and off the lamp-bowl and inclosing the burner; said casing having an egg-opening in its closed front end and provided with means for closing its open rear end, substantially as set forth.

2. An egg-tester comprising a lamp, a removable bottomless casing mounted to slide horizontally on and off the lamp-bowl and inclosing the burner; said casing having an egg-opening in its closed front end and provided with means for closing its open rear end, and a reflector within the casing, separate therefrom and supported from the lamp-burner, substantially as set forth.

3. An egg-tester, comprising a lamp, a casing mounted thereon, and having an egg-opening in its front and a chimney-opening in its top through which the chimney may be inserted and removed, an opaque tube surrounding the chimney above the casing and having a flange at its lower end resting loosely upon the top of the casing to close the opening in the top thereof around the chimney, substantially as described.

4. An egg-tester, comprising a lamp, a casing mounted on the lamp-bowl and inclosing the burner, the closed front end of the casing being provided with an egg-opening and the open rear end provided with a removable cap and open below the cap to admit air and permit the wick to be operated, a reflector within the casing and carried by the lamp-burner, and a removable opaque tube surrounding the chimney above the top of the casing, substantially as described.

5. An egg-tester, consisting in the lamp provided with parallel guideways on its bowl, and a casing having flanges or guides at its lower edges working in said guideways to permit it to be slid on and off of the bowl; the front of the casing being provided with an egg-opening, the top with a chimney-opening, and the rear end with a removable cap, substantially as described.

6. The egg-tester, consisting in the lamp having parallel guideways on the upper side of its bowl, the casing having parallel flanges fitting said ways to permit the casing to be slid on and off, said casing also having an egg-opening in its front, a chimney-opening in its top and a removable cap at its back, and the removable opaque tube surrounding the chimney above the casing, and having a flange or cover at its lower end, substantially as described.

7. An egg-tester consisting in the lamp having guideways on its upper side, a casing having flanged lower edges working in said guideways to permit of its being slid on and off, the front of the casing being provided with an egg-opening, the top having a chimney-opening and the back provided with a removable cap, a reflector mounted on the burner with its vertical front edges extending toward the front of the casing, an opaque tube surrounding the chimney, and a cover-flange at the lower end of said tube and resting loosely on top of the casing, substantially as described.

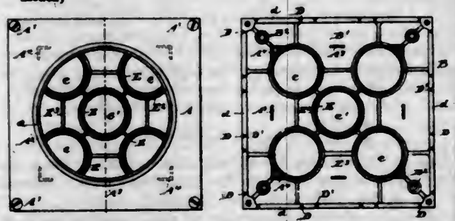
576,809. VEHICLE-TIRE. ROBERT W. CHURCHILL, Peabody, Mass. Filed Nov. 20, 1895. Serial No. 569,486. (No model.)



Claim.—1. In a vehicle-tire the combination with a flexible tubular casing of a coiled spring inclosed by the casing and engaging the inner wall thereof, an oppositely-wound coiled spring the respective coils of which interiorly engage the respective coils of the first-mentioned spring, and a cushioning device located within and independent of both springs, substantially as described.

2. In a vehicle-tire the combination with a flexible tubular casing of a duplex coiled spring, comprising two springs the coils of which are wound in opposite directions, and in close contact with each other and with the inner wall of the casing, and an independent metallic cushioning device located within said duplex spring, substantially as described.

576,810. OUTLET-BOX. JULES J. J. DE RYCKE, New York, N. Y. Filed May 2, 1896. Renewed Jan. 7, 1897. Serial No. 618,389. (No model.)



Claim.—1. In an outlet-box, the cover A and body B, a semicircular disk *d* forming a part of each and matching to each other when the cover and body are assembled, the thin web D′ joining each disk to the adjacent portion of the casting, the said web being thinner than the metal of said disk and adjacent portion, to determine the line of break in removing said disk, all combined and arranged to serve substantially as herein specified.

2. In an outlet-box, the circular disk, the connecting-web joining the disk to the adjacent portions of the casting and thinner than the latter and said disk, to determine the line of fracture in breaking out the disk, combined and arranged to serve substantially as herein specified.

3. In an outlet-box, the circular disk, the connecting-web joining the disk to the adjacent portions of the casting and thinner than the latter and said disk, to determine the line of fracture in breaking out the disk, and the annular strengthening-flange inclosing said disk and web, all combined and arranged to serve substantially as herein specified.

4. In an outlet-box, the circular disk *e*, the connecting-web E′ formed by the grooves E coinciding in position on each face of the casting, and thinner than said disk and the adjacent portion of the casting so that the line of the break in removing the disk shall lie in the mid-thickness of the casting, all substantially as herein specified.

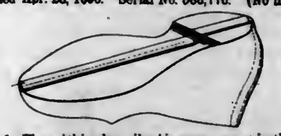
5. In an outlet-box, the circular disk *e*, the connecting-web E′ formed by the grooves E coinciding in position on each face of the casting, and thinner than said disk and the adjacent portion of the casting so that the line of the break in removing the disk shall lie in the mid-thickness of the casting, in combination with the strengthening-flange E^3, all substantially as herein specified.

6. In an outlet-box, the cover and body, a series of semicircular disks on the sides, matching together when the cover and body are assembled, a web joining each disk to the adjacent portion of the casting, and the lugs on the inner face of the cover near each disk to serve as stops all combined and arranged to serve substantially as herein specified.

7. In an outlet-box, the series of circular disks *e e′*, a connecting-web for each thinner than the disks and adjacent portions of the casting to determine the line of the break in removing the disks, in combination with a collar G′ and screw G^2 for securing said collar upon an arm extending within the box, and a flange G^3 on said collar serving as a stop, all substantially as herein specified.

8. In an outlet-box, the body B having the series of disks *d* in its sides and the series of circular disks *e e′* in its bottom B′, each disk connected to the adjacent portion of the body by a web thinner than the disks and casting, in combination with the cover A having the opening *a*, the series of disks matching those on the sides of the body and similarly connected, the lugs A^3 A^4 cast on the inner face of the cover to serve as stops for conduits entering the box from the sides, the collar G′ and screw G^2 for securing the collar upon an arm extending within the box, and the flange G^3 on said collar serving as a stop for conduits entering from the rear, all substantially as herein specified.

576,811. MANUFACTURE OF BOOTS OR SHOES. HENRY J. DOUGHTY, Providence, R. I., assignor to Frank N. White, East Orange, N. J. Filed Apr. 23, 1896. Serial No. 588,776. (No model.)



Claim.—1. The within-described improvement in the art of manufacturing rubber shoes, the same consisting in first cutting a blank from stock having a fabric on one face, then forming the blank into a shape approximating that of a finished article with the fabric inside, then imparting the desired finish to the outer face of the article by expanding the article by air-pressure within a finishing-mold while the composition face is maintained in a plastic condition and then vulcanizing the article upon a suitable last, substantially as set forth.

2. In the manufacture of rubber shoes supporting the article to be finished and vulcanized upon a flexible last within a finishing-mold, while expanding the last by internal air-pressure, substantially as set forth.

3. In the manufacture of rubber shoes first applying the article to be finished and vulcanized to a flexible last then expanding the last and article thereon within the finishing-mold and then vulcanizing the article upon the last, substantially as set forth.

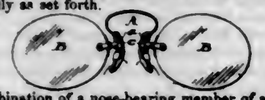
4. The combination in a finishing apparatus for the manufacture of rubber shoes, of a mold in separable sections, means for heating the sections, an expansible last, and means for expanding the last within the mold, substantially as described.

576,812. EYEGLASS-FRAME. CHARLES H. PLAIG, Philadelphia, Pa. Filed Nov. 20, 1895. Serial No. 569,556. (No model.)

Claim.—1. The combination of a nose-bearing member of a glass-frame, a cylindrical hollow cushion, mounted upon the bearing side or face of said nose-bearing member, means to secure the said cushion upon said nose-bearing member, and a concave portion of said nose-bearing member, adapted to laterally support said cushion intermediate of its length, substantially as set forth.

2. The combination of a nose bearing member of a glass-frame,

a hollow cushion, comprising an open-ended soft-rubber tube mounted upon the bearing side or face of said nose-bearing member, and clips upon said nose-bearing member, adapted to secure the ends of said tube, substantially as set forth.



3. The combination of a nose-bearing member of a glass-frame, provided with a concave bearing-face, a hollow cushion mounted upon said bearing face, and means to secure the said cushion upon said face, substantially as set forth.

576,813. TELEPHONE-TRANSMITTER. JAMES F. GILLILAND, Adrian, Mich. Filed Dec. 21, 1895. Serial No. 572,844. (No model.)

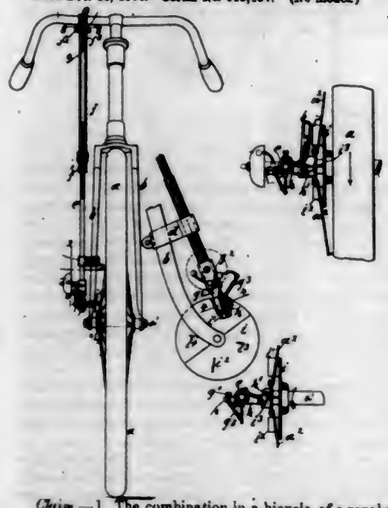


Claim.—1. The combination with the saucer-shaped electrodes provided with a groove about the facing edges, of a resilient non-conducting ring located in said grooves, granular conducting material confined between said electrodes, and opposite axial bearings for supporting the united electrodes, substantially as and for the purpose set forth.

2. The combination with the diaphragm provided with the conical bearing and the adjustable abutment provided with a conical bearing, of the two electrodes provided with axial cones fitting said bearings, the resilient non-conducting connection between the edges of the electrodes, and the granular conducting material confined between the electrodes, as and for the purpose set forth.

3. In a telephone-transmitter, the combination with the diaphragm, of saucer-shaped carbon electrodes, a resilient non-conducting ring cemented between the edges of said electrodes, granular conducting material confined between said electrodes, and means for axially supporting the combined electrodes between the center of the diaphragm and the transmitter-case, as and for the purpose set forth.

576,814. BICYCLE-BELL. JOSEPH GONOROVSKY, New York, N. Y. Filed Dec. 10, 1896. Serial No. 615,157. (No model.)



Claim.—1. The combination in a bicycle, of a revolving toothed disk with an adjustable bell adapted to be brought into engagement with the teeth of said disk, and means substantially as specified for revolving the disk as and for the purpose set forth.

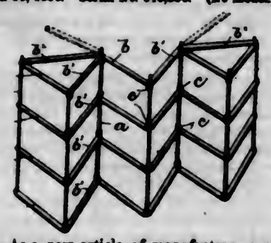
2. The combination in a bicycle of a revolving disk having teeth which project outwardly at different distances from the center of the disk, with an adjustable bell adapted to be brought into engagement with either of said teeth, and means for revolving the disk, substantially as specified.

3. The combination in a bicycle of a vertically-removable bell with a clapper, an actuating-lever, a disk mounted upon the wheel-axle and having teeth that are adapted to engage said lever, and means for revolving the disk, substantially as specified.

4. The combination in a bicycle of a handle-bar with a vertically-movable rod suspended therefrom, a bell carried by the rod, an actuating-lever, a revoluble disk having teeth that project outwardly at different distances from the center of the disk and are adapted to be brought into engagement with the actuating-lever, and means for revolving the disk, substantially as specified.

5. The combination in a bicycle of a vertically-adjustable bell, with an actuating-lever having a pivoted spring-actuated nose, a revoluble disk having teeth that project outwardly at different distances from the center of the disk, and are adapted to engage said nose, and means for revolving the disk, substantially as specified.

576,815. CLOTHES-DRIER. CHARLES CRAFT, Jr., Revere, Mass. Filed Oct. 30, 1896. Serial No. 610,530. (No model.)



Claim.—As a new article of manufacture, a sectional clothes-drier consisting of a series of standards or upright rods; a series of cross-bars having apertures in both ends for receiving the said standards, the cross-bars of the alternate sections being rigidly secured to their standards, and the cross-bars of the remaining sections being loosely fitted on said standards and resting in contact with the ends of the rigidly-secured cross-bars; and collars for coacting with the rigidly-secured cross-bars for the purpose of confining the ends of said loosely-secured cross-bars between the said collars and the ends of the rigidly-secured cross-bars.

576,816. ROUGHING ATTACHMENT FOR HORSESHOES. FREDERICK HEPTNER, New York, N. Y. Filed July 31, 1896. Serial No. 601,143. (No model.)



Claim.—1. A roughener for horseshoes, consisting of a main section, a clip formed therewith, extensions hinged vertically to the main section, and means for securing the roughener to the shoe, as and for the purpose described.

2 A roughener for horseshoes, consisting of a main section, a clip projecting upward and backward from the forward part of the section, extensions hinged vertically to said section, lugs projecting upward from said extensions, set-bolts threaded through said lugs at an angle to secure the roughener to the shoe, as and for the purpose described.

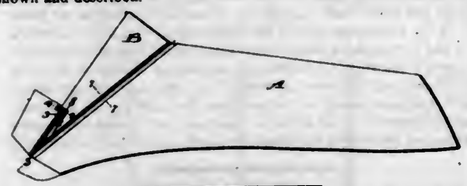
3. A roughener for horseshoes, consisting of a main section, a clip projecting upward from said section, extensions hinged vertically to the main section, lugs projecting upward from said extensions, set-bolts threaded through said lugs at an angle to secure the roughener to the shoe, said roughener having slots formed therethrough for the passage of the calks of a shoe, substantially as described.

576,817. BLANK FOR PLOWSHARES. THOMAS M. MOORE and ARCHABLD RAWLEY, Somerville, N. J. Filed Feb. 27, 1896. Renewed Jan. 12, 1897. Serial No. 619,017. (No model.)

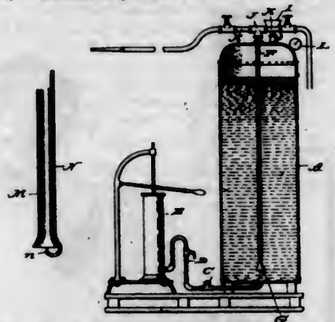
Claim.—1. A blank of sheet metal for use in making a plowshare from sheet-steel, the same consisting of a sheet of steel sheared to conform to the size and shape of the wing and short landside of a plowshare, and having an extra lip or extension, as shown at C, for reinforcing the plow-point, substantially as described.

2. A blank of sheet metal for use in making a plowshare from sheet-steel, the same comprising a sheet of steel sheared to conform to the size and shape of the wing and short landside of a plowshare and having a transverse slit and an additional lip or extension for reinforcing the plow-point, substantially as shown and described.

3. A blank of sheet metal for use in making a plowshare from sheet metal, the same comprising a sheet of steel sheared to conform to the size and shape of the wing and short landside of a plowshare and having a transverse slit and grooves as described and an additional lip or extension for reinforcing the plow-point, substantially as shown and described.



576,818. SPRAYING APPARATUS. WYATT J. MCGRAW, Walla Walla, Wash. Filed Sept. 23, 1896. Serial No. 563,448. (No model.)



Claim.—In a spraying apparatus, the combination with the cask or reservoir, and air-pump; of a pipe leading from the air-pump and opening into the bottom of the cask or reservoir, and two parallel tubes M and N for spraying dry powder vertically disposed in the cask or reservoir, the lower end of one of said tubes being extended and curved to locate the outlet thereof at the center of the lower open end of the other tube, the air-supply pipe discharging into the lower end of the straight tube, substantially as shown and for the purpose set forth.

576,819. GAS-BURNER. WILLIAM H. PAINE, Providence, R. I. Filed Nov. 6, 1896. Serial No. 611,224. (No model.)



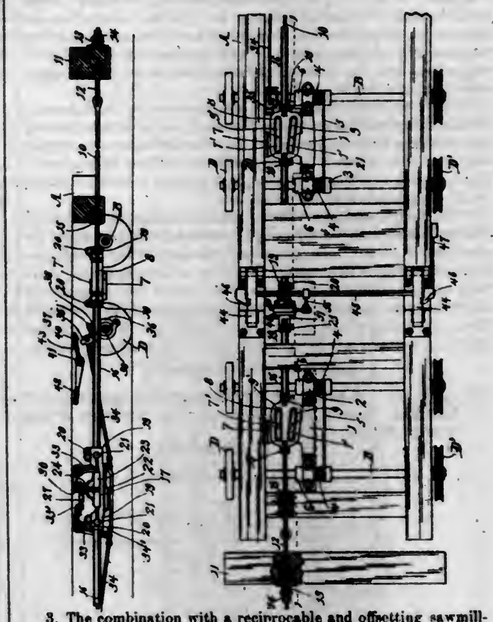
Claim.—1. The combination with a fixed burner, of a two-way cock and a second burner secured to the same whereby the turning of the cock places the second burner in position, as described.

2. The combination with the base of a fixed burner, of a pivoted burner and a two-way cock, whereby on swinging the pivoted burner into position the gas is turned off from the fixed and onto the pivoted burner, as described.

576,820. SAWMILL-CARRIAGE. GEORGE H. PATULLO, Bay City, Mich. Filed Aug. 19, 1895. Renewed Oct. 12, 1896. Serial No. 608,677. (No model.)

Claim.—1. The combination, of a sawmill-carriage, offsetting mechanism engaging the carriage, a fixed cable stretched along the line of travel of the carriage, and gripping mechanism connected with the offsetting device, and adapted, for a limited time, to grip the cable, and thereby hold said offsetting device temporarily stationary as the carriage travels forward, whereby the carriage is moved laterally.

2. The combination with a reciprocable sawmill-carriage movable laterally on its axles, of bearing-blocks secured in sets opposite each other respectively on the axles and on the carriage, a push-block movable longitudinally with the carriage and having surfaces bearing respectively against the bearing-blocks aforesaid one at least of which surfaces is oblique to the axis of the carriage, a fixed cable stretched along the line of longitudinal travel of the carriage, and gripping mechanism connected with the push-block, and adapted, for a limited time, to grip the cable, and thereby hold said push-block temporarily stationary as the carriage travels forward, whereby the carriage is moved laterally.



3. The combination with a reciprocable and offsetting sawmill-carriage, of a fixed cable stretched along the line of travel of the carriage, push-blocks and cable-gripping mechanism mounted on the carriage and a tubular rod or rods connecting the push-blocks and the gripping devices through which rod or rods the cable extends.

4. In a sawmill-carriage having offsetting mechanism, a tubular rod connecting two or more of the devices in the offsetting mechanism, said rod being provided with an obliquely-disposed slot, a fixed cable passing through the tubular rod, clamps on the devices united by the rods, said clamps adapted for holding the rod to the cable, and a pin in the clamp entering the oblique slot in the rod.

5. In a sawmill-carriage having offsetting mechanism, the combination, of a tubular rod connecting two or more of the devices in the offsetting mechanism, a fixed cable passing through the tubular rod, and gripping mechanism connecting with the tubular rod, said gripping mechanism adapted, for a limited time, to grip the cable, and thereby hold said offsetting device temporarily stationary as the carriage travels forward, whereby the carriage is moved laterally.

6. A cable-gripping device for a sawmill-carriage, comprising a base-piece which is adapted to be held temporarily stationary while the carriage travels thereon, a jaw hinged to the base-piece adapted to grip a cable between it and the base-piece, an adjustable arm pivoted on the free extremity of the jaw, and a spring adapted to push the jaw away from the base-piece.

7. In a gripping device the combination of a base-piece, a jaw pivoted thereto, an arm pivoted on the free end of the jaw, a bolt connecting one extremity of the arm movably to the hinge of the jaw, and a spring interposed between the arm and the base-piece adapted to force the jaw away from the base-piece.

8. A gripping device, comprising a base-piece, a jaw hinged to the base-piece, an arm pivoted on the free end of the jaw, a bolt hinged to the pivot of the jaw-hinge which bolt passes movably through one extremity of the arm, nuts on the bolt on either side of the arm and a spring interposed between the arm and a nut at one side thereof, and a spring interposed between the arm and the base-piece adapted to force the jaw away from the base-piece.

9. In a reciprocable and offsetting sawmill-carriage, the combination with the carriage and an axle or axles thereof, of a tilting arm or arms 35 secured yieldingly to the axle or axles, grip-actuating levers 33 pivoted on the carriage, and rods connecting the tilting arms and the grip-actuating lever or levers.

10. The combination with a sawmill-carriage, and a cable-gripping device thereon, of grip-actuating levers 33, and a lug 27 mounted on the carriage and adapted to actuate and control the gripping device.

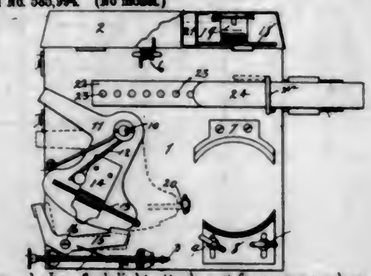
11. In gripping mechanism in a sawmill-carriage, the combination with the carriage-frame, of a bracket 22 provided with ways, a base-piece 17 which the ways of the carriage fit, and on which base-

plate the carriage is adapted to travel limitedly while the plate is stationary, said plate also provided with stops 32, a jaw hinged to the base-piece, the jaw being so disposed as to be adapted to grip a cable to the base-piece and when gripping the cable to have its free end between the stops aforesaid, an adjustable arm 24 mounted on the free extremity of the jaw, and a lug 27 adapted to hold the jaw in engagement with the cable interposed between it and the base-piece while passing said arm.

12. In a sawmill-carriage, the combination with the frame and its axles, and a radial arm mounted frictionally and yieldingly thereon, of a swinging latch 40 mounted on the frame and adapted to engage the radial arm aforesaid at either side thereof and lock it, and a gravity-acting handle secured to the latch adapted to hold it normally out of engagement with the radial arm.

13. The combination with a plurality of reciprocative and offsetting sawmill-carriages and a cable stretched along the route of the carriages, of tubular rods connecting offsetting devices on the carriage and through which rods the cable extends, complementary disks fixed on the extremities of the rods at the ends of the carriages, said disks being provided with catches, and a disk swiveled on a gib-formed tubular extension of one of said rods outside one of said terminal disks, said swiveled disk being provided with catch-engaging latches.

576,821. **FLASH-LIGHT ATTACHMENT FOR PHOTOGRAPHIC CAMERAS.** ISAAC F. PEHLE, Woodville, Ohio. Filed Apr. 2, 1896. Serial No. 585,994. (No model.)

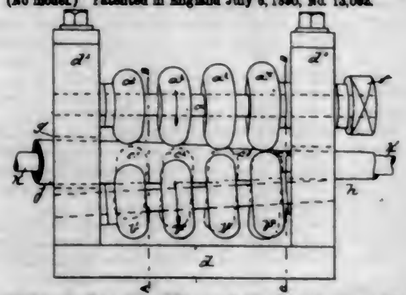


Claim.—1. In a flash-light attachment for cameras, a base, a lid pivoted thereto, means on the base for holding the flash-light substance in place, and a spring-controlled cover or shield secured to said lid, adapted by the closing of said lid to cover and retain in place the flash-light substance.

2. In a flash-light attachment for cameras, a base, lid pivoted thereto, a holder for the flash-light substance, means for producing a spark in proximity to said flash-light substance, and a guard or shield secured to the interior of the lid and adapted by the closing of the lid, to interpose between the flash-light substance and the means for producing the spark.

3. A flash-light attachment for cameras comprising a base, a lid pivoted thereto, an adjustable holder adapted to secure the attachment to the camera, a powder-box holder, a powder-box with gun-cotton fuse, for said holder, a cover secured to the lid and adapted to cover a powder-box in place in said holder, a spring-actuated hammer adapted to carry a match, a trigger adapted to control said hammer, a pin in the path of the hammer adapted to ignite the match and a guard or shield upon the lid adapted to be interposed between said hammer and pin, all substantially as and for the purpose specified.

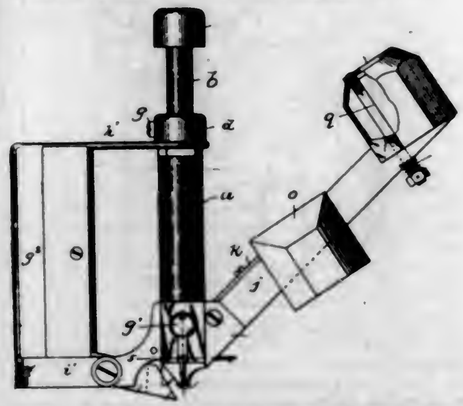
576,822. **METAL-TUBE-ROLLING MACHINE.** ARTHUR PILKINGTON, Birmingham, England. Filed Aug. 26, 1896. Serial No. 603,832. (No model.) Patented in England July 6, 1895, No. 13,092.



Claim.—1. In a tube-rolling mill, the combination, with three roll-shafts *a*, *b* and *c* arranged in spiral form about and inclined with respect to the axis of the work, each said shaft being provided with a similar series of disks increasing step by step in diameter; of a frame provided with rigid bearings for the two lower roll-shafts *b* and *c* and openings arranged between the shafts for the entrance and exit of the work, slidable bearings for the upper roll-shaft *a*, springs pressing said slidable bearings toward the work, and a driving device secured on the end of the shaft *a* outside the frame, substantially as set forth.

2. In a tube-rolling mill, the combination, with three roll-shafts *a*, *b* and *c* arranged in spiral form about and inclined with respect to the axis of the work; of bearings for the ends of the roll-shafts to run in, a frame provided with openings for the entrance and exit of the work, and substantially radial openings, for receiving the said bearings, connected with the aforesaid openings; and springs pressing the bearings of the driving-roll toward the work, substantially as set forth.

576,823. **HAND TACKING-TOOL.** ALBERT F. PRESTON, Boston, Mass., assignor to the Bucell Lasting Machine Company, Nashua, N. H. Filed Apr. 14, 1896. Serial No. 587,523. (No model.)



Claim.—1. In a tacker, the combination with a driver, a driver-bar guide, means at the end of said driver-bar guide for receiving a tack through which it may be driven by the driver-bar, and an unobstructed chute for delivering the tacks one by one to the said yielding means, of a driver for engaging the tacks and driving them through the yielding means, said driver having a concave side to escape the tack next the one engaged thereby.

2. In a tacker, the combination with an unobstructed chute for delivering tacks having their heads overlapping to the action of a driver, and a yielding guide for the tacks, of a driver for driving the tacks through the yielding guide, said driver having a concave side to escape the tack next to the one engaged thereby.

3. In a tacker, the combination with a chute, and a guide consisting of two spring-held plates having their inner edges adjacent to each other, of a crescent-shaped driver for engaging only one of the tacks.

4. In a tacker, a yielding guide for receiving the tacks one by one from the chute and guiding them when engaged by the driver consisting of two movable plates having the upper portion of their inner edges converging, and spring-pivots for said plates for the purposes described.

5. In a tacker, the combination with a driver, of a tack-guide formed of two plates having their inner edges adjacent, and a U-shaped wire forming a spring, said plates being each pivoted on one leg of the spring.

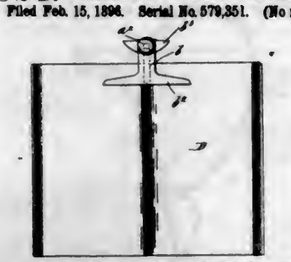
6. In a tacker, the combination with the driver-bar guide, and the driver of a yielding tack-guide having its two movable portions lying in vertical slots in the foot of the driver-bar guide, and a spring mounted in the last said guide, and having its ends extending into the movable portion of the tack-guide and forming spring-pivots for said movable portions, substantially as set forth.

7. In a tacker, the combination with a driver, the driver-bar guide, and a fixed jaw on the foot of the said guide, of a handle secured to said guide, a movable jaw pivoted on the handle and toggle-levers adapted to be operated by the finger for moving the movable jaws.

8. In a tacker, the combination with a driver, a driver-bar guide, and a fixed jaw on the foot of said guide, of a handle secured to said guide, a movable jaw pivoted on the handle, toggle-levers consisting of a long bar pivoted at its upper end to the upper part of the handle, and a relatively short bar pivoted to the end of the movable jaw, said long bar extending practically the length of the handle, said

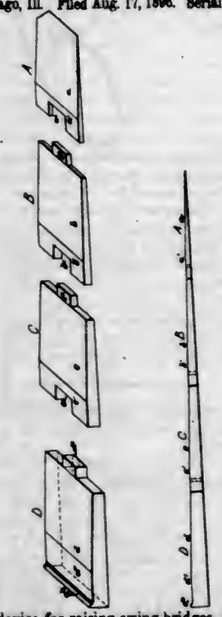
parts being arranged so that the jaws may be practically locked together, for the purposes set forth.

576,824. **BOOK-CLAMP.** WILLIAM S. REYNOLDS, Greenwich, Conn. Filed Feb. 15, 1896. Serial No. 579,351. (No model.)



Claim.—The herein-described clamp for books, consisting of a rod A provided at one end with a head a^2, and having the other end bent at right angles, and a sliding clamp B having a head b^2 provided with an opening through which the rod A passes, and having an arm *b* bent at right angles thereto, and provided with an opening adapted to receive the arm A, and a spring mounted upon said arm A between the heads a^2 and b^2, and adapted to force the arm *b* upon the arm *a*, as set forth.

576,825. **MEANS FOR RAISING SWING-BRIDGES.** JULES E. ROEMHELD, Chicago, Ill. Filed Aug. 17, 1896. Serial No. 603,063. (No model.)



Claim.—1. A device for raising swing-bridges, &c. comprising a plurality of series of wedges, the incline of each wedge beginning at a height equal to the terminal height of the preceding wedge, substantially as described.

2. A device for raising swing-bridges, &c. comprising a plurality of series of wedges, each having an initial incline and a terminal horizontal portion, the incline of each wedge beginning at a height equal to the terminal height of the preceding wedge, substantially as described.

3. A device for raising swing-bridges, &c. comprising a plurality of series of wedges, each having an initial incline and a terminal horizontal portion, the latter recessed as described, the incline of each wedge beginning at a height equal to the terminal height of the preceding wedge and having a tongue entering the recess of said preceding wedge and flush with the horizontal portion thereof, substantially as set forth.

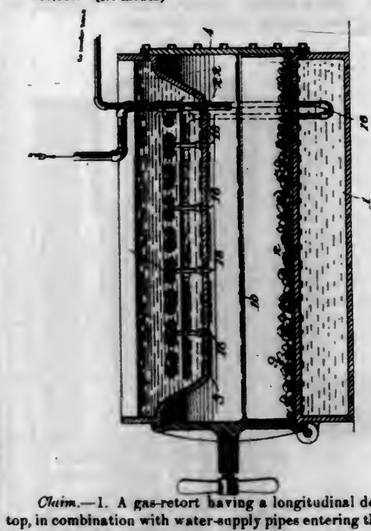
4. As a means for raising swing-bridges, &c. a plurality of wedges adapted to be inserted under the structure to be raised, said wedges having an initial incline and a horizontal portion, the terminal horizontal portions of the plurality being provided with a terminal stop, substantially as described.

5. In a device for raising swing-bridges, &c., a plurality of elements each comprising an initial inclined portion and a horizontal portion, substantially as set forth.

6. In a device for raising swing-bridges, &c., a plurality of elements, each comprising an initial inclined portion and a horizontal portion, the terminal horizontal portions of said plurality having a terminal stop, substantially as set forth.

7. In a device for raising swing-bridges, &c., a plurality of elements having coöperating parts, comprising inclined and horizontal portions, and tongue and recess connections between said portions whereby the separation thereof by the transfer of the load is prevented, substantially as set forth.

576,826. **GENERATOR FOR MAKING ACETYLENE GAS.** HENRY C. SERGEANT, Westfield, N. J. Filed Mar. 13, 1896. Serial No. 583,017. (No model.)



Claim.—1. A gas-retort having a longitudinal depression in its top, in combination with water-supply pipes entering the retort in the depressed portion, a gas-outlet pipe communicating with the retort at one of the highest points of the top wall, and a water chamber or jacket inclosing the retort and condenser-coil substantially as set forth.

2. A gas-retort having a central longitudinal depression in its top, a removable pan, water-supply pipes or nozzles entering the retort in its depressed portion, gas-outlet and condensed-moisture inlet in the top wall of the retort, a condenser-coil communicating with the gas-outlet and condensed-moisture-inlet openings in the top wall of the retort, a gas-pipe leading from the condenser and a water chamber or jacket completely surrounding the retort and condenser-coil, substantially as set forth.

3. The combination of the retort having a central depression and curved top walls and sides, the water-supply pipe extending alongside of the retort, the water-supply nozzles entering the retort in its depressed portion, curved branch pipes leading from the water-supply pipe to the nozzles and curving over the curved top of the retort, a gas-outlet pipe communicating with the retort in its curved top wall and a water-jacket completely surrounding the retort, as set forth.

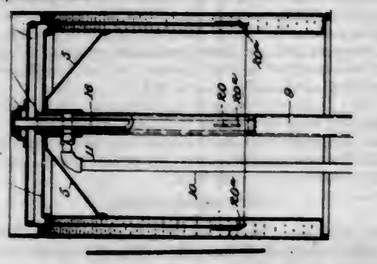
576,827. **ACETYLENE-GAS HOLDER.** HENRY C. SERGEANT, Westfield, N. J. Filed Mar. 13, 1896. Serial No. 583,018. (No model.)

Claim.—1. In a gas-holder, the combination of a liquid-containing well or tank, with the bell supported therein and provided with relief-passages which communicate between the inside of the bell at points just above its lower edge and the outside of the bell at points above the inside communication, substantially as and for the purposes set forth.

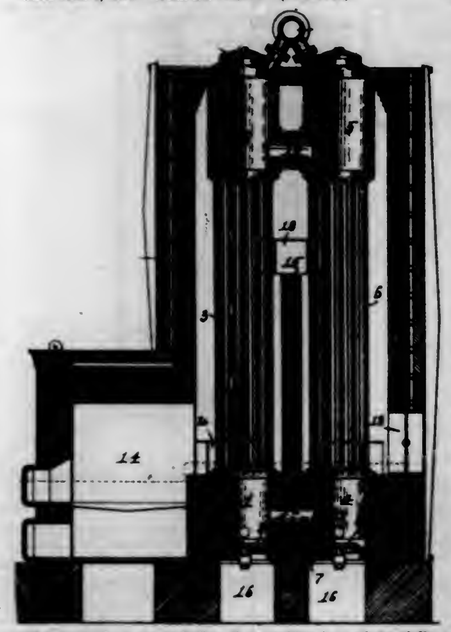
2. In a gas-holder, the combination of the liquid-containing well or tank, with the bell provided with open-ended short tubes communicating with the inside of the bell above its lower edge and extending upwardly therefrom and communicating with the exterior at points above, as set forth.

3. In a gas-holder, the combination of the liquid-containing tank or well, the bell supported therein, the gas-supply pipe, a guide-pipe carried by the bell and engaging and telescoping with the gas-supply pipe for guiding the bell in its up-and-down movement, and short open-ended tubes arranged vertically on the outside of the bell and

having inturned ends passing through the ball adjacent to its lower open end, as set forth.



576,828. STEAM-BOILER. VICTOR O. STROBEL, Philadelphia, Pa. Filed June 3, 1896. Serial No. 594,074. (No model.)



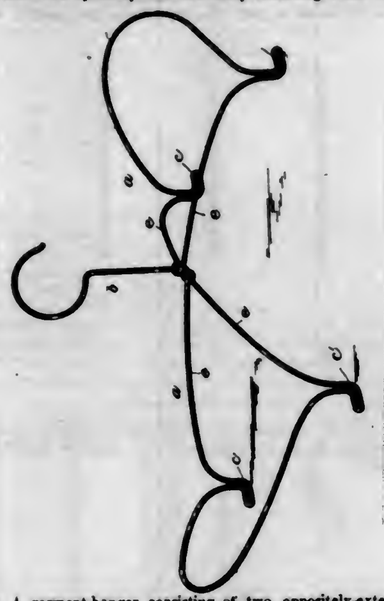
Claim.—1. In a steam-boiler, the combination, substantially as set forth, of front and rear base-shells connected by a neck, front and rear top cylinders connected by a neck and by a steam-pipe, tubes connecting the shells and cylinders, an inclosing chamber for the boiler structure thus formed, a furnace arranged to discharge its products into the front of the base of said chamber, a chimney connection at the rear of the base of said chamber, and a wall transversely dividing said chamber into a front and rear chamber, each containing one of said sets of tubes, base-shells and cylinders, and having an opening placing said front and rear chambers in communication with each other at their tops.

2. In a steam-boiler, the combination, substantially as set forth, of front and rear base-shells connected by a neck, manheads in the floor thereof, top cylinders over said base-shells, tubes connecting the base-shells with the top cylinders, manheads in the roofs of the top cylinders, an inclosing chamber connected with a furnace and chimney, a supporting-foundation, and chambers in said foundation below said base-shells.

3. In a steam-boiler, the combination, substantially as set forth, of a pair of front and rear base-shells and top cylinders connected by vertical tubes, the entire structure thus formed standing vertically on a foundation, a similar structure standing beside the first one and having steam connection therewith, walls forming a chamber inclosing said structures in common, a furnace connected with the base of said inclosing chamber, and a chimney connection from the base of said chamber opposite said furnace connection.

576,829. GARMENT-HANGER. SCOTT H. TOLMAN, Boston, Mass. Filed June 17, 1896. Serial No. 595,859. (No model.)

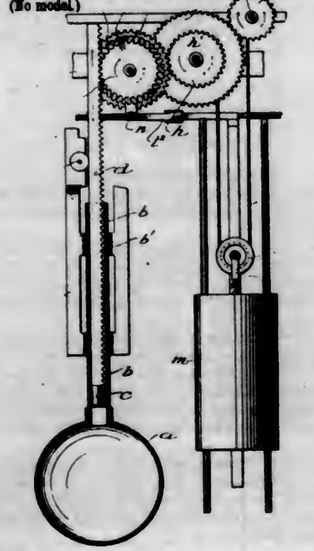
Claim.—1. A garment-hanger consisting of two crossed bars united at their point of crossing by an upwardly-extending suspension-hook, said bars being formed at their ends with downwardly and outwardly extending hooks, and said bars being connected at or near their ends with upwardly and outwardly extending bends or supports.



2. A garment-hanger consisting of two oppositely-extending arms, and a suspension-hook extended up from their point of juncture, said arms being extended downwardly and outwardly to form supports for the shoulders of a garment and then bent back at an angle upon themselves to form outwardly and upwardly extending loops to enter and expand the sleeves of the same.

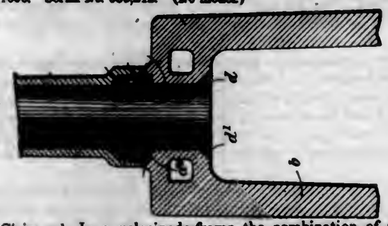
3. A garment-hanger consisting of two oppositely-extending arms curved downwardly and outwardly from their juncture to form supports for the shoulder of a garment and bent back upon themselves to form hooks for a skirt, said arms having a portion extending from the aforesaid hooks upwardly to form loops or supports for the sleeves as described, and a suspension-hook for suspending said arms.

576,830. THERMAL WINDING MECHANISM FOR CLOCKS. ALBRECHT ULLI, Biel, Switzerland. Filed Oct. 6, 1896. Serial No. 608,032. (No model.)



Claim.—The combination with the weight-winding drum and gear-wheels, one of which is adapted to slide upon its arbor, a rack-bar to engage with and disengage from said sliding gear-wheel, a cylinder and mercurial column to operate said rack-bar and a shifting lever pivoted to the gear-case and operated upon by the weight to free the gear-train from the action of the rack-bar and mercury column, substantially as described.

576,831. FRONT STEERING-FORK FOR BICYCLES. JAMES G. ACCLES and PHILIP L. RENOUF, Birmingham, England. Filed Oct. 17, 1896. Serial No. 608,212. (No model.)

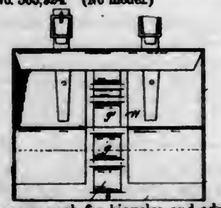


Claim.—1. In a velocipede-frame the combination of a front fork and steering-stem, the latter being screwed into the crown of the former, and a lock-nut for locking the stem in position, substantially as described.

2. The combination of a front fork, a steering-stem screwed into the crown of the fork, a flange or shoulder formed on the stem to bear against the crown, and a lock-nut for locking the stem in position, and for forming at the same time a ball-race for the bearing of the front fork, substantially as described.

3. The combination of a front fork having the crown integral with the prongs, and bored and screw-threaded to receive the steering-stem, a hollow steering-stem screw-threaded to fit the hole in the crown of the fork, and made of increased thickness at the part that is screw-threaded, a flange or shoulder at the lower end of the stem to bear against the crown, and a lock-nut to lock the stem in place and to form a ball-race for the bearing of the front fork, substantially as described.

576,832. TOOL-BAG FOR BICYCLES. FREDERICK G. BENDER, New York, and ROBERT R. MCCONNELL, Brooklyn, N. Y. Filed Oct. 17, 1895. Serial No. 565,924. (No model.)

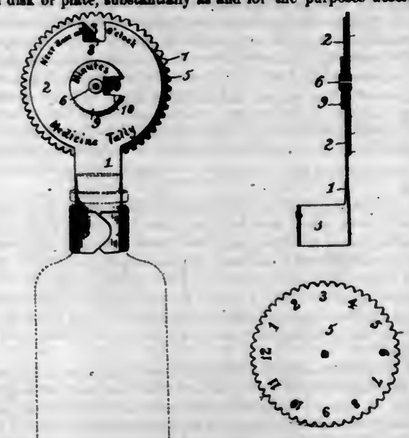


Claim.—A bag or pouch for bicycles and adapted to be used in connection with the same, consisting of a blank, said blank being stitched at the corners thereof, forming thereby a side, an extension secured thereto, a top or cover on said bag, an extension or flap secured thereto, a strap secured to the said extension, buckles on the end of said strap and upon the front flap of said bag, other straps and buckles upon said bag and adapted to engage the said bicycle, a T-shaped portion of metal being provided with slots therein within said bag, straps secured thereto adapted to carry therein tools, said metal straps being provided with slots therein, a strap having loops secured therethrough, a second strap on the opposite portion of said flap, and adapted to receive tools or other articles, all of the said parts being combined substantially as and for the purposes set forth and described.

576,833. MEDICINE-TIME INDICATOR FOR BOTTLES. BESSIE A. CHAPMAN, Brooklyn, N. Y. Filed Dec. 16, 1896. Serial No. 615,872. (No model.)

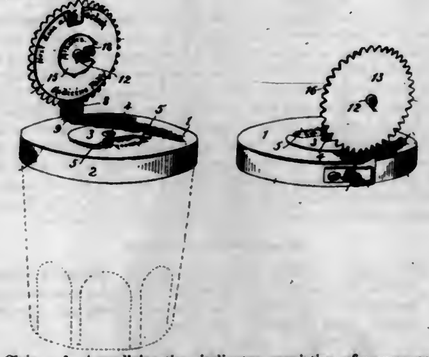
Claim.—1. A medicine-time indicator for a medicine-bottle, consisting of a shank having at one end a main disk or plate, and at the other end a divided or split elastic clasp adapted to encircle and yieldingly grip the neck of the bottle, and a secondary disk or plate mounted on the main disk or plate and provided with a row of numerals indicating the hours, substantially as and for the purposes described.

2. A medicine-time indicator for a medicine-bottle, consisting of a shank having at one end a divided or split elastic clasp, and at the other end a main disk or plate provided with a notch or opening, and a secondary rotatable disk or plate provided with a row of numerals indicating hours and pivoted at its center to the center of the main disk or plate, substantially as and for the purposes described.



3. A medicine-time indicator for a medicine-bottle, consisting of a shank having at one end a divided or split elastic clasp, and at the other end a main disk or plate provided with a notch or opening and a row of numerals indicating minutes, the minute disk or plate pivoted at the front of the main disk and having a notch or opening to expose the minute-numerals, and a secondary rotatable disk or plate provided with a row of numerals indicating hours and pivotally mounted at the rear of the main disk or plate, substantially as described.

576,834. MEDICINE-TIME INDICATOR FOR GLASSES. BESSIE A. CHAPMAN, Brooklyn, N. Y. Filed Dec. 16, 1896. Serial No. 615,873. (No model.)



Claim.—1. A medicine-time indicator, consisting of a cover constructed to fit over and close the mouth of a medicine-glass and having a disk or plate provided with numerals indicating hours, and a disk or plate provided with a notch or opening to expose the numeral or numerals indicating any desired hour, one of the disks or plates being rotatable, so that the hour numeral or numerals may be made visible through the said notch or opening, substantially as described.

2. A medicine-time indicator, consisting of a flanged cover having a time-indicator hinged or pivoted thereto and movable to stand approximately perpendicular, or folded down upon the cover, substantially as described.

3. A medicine-time indicator, consisting of a cover constructed to fit over and close the mouth of a medicine-glass, a shank or support hinged or pivotally connected to the cover, and two disks or plates mounted on the shank or support and provided, respectively, with numerals indicating hours, and a notch or opening to expose said numerals, one of the disks or plates being rotatable so that the hour numeral or numerals indicating the hour may be made visible through the said notch or opening, substantially as described.

4. A medicine-time indicator, consisting of a flanged cover to fit over and close the mouth of a medicine-glass, a shank or support

hinged or pivotally connected to the cover, and a series of disks or plates mounted on the shank or support and having means to indicate the hours and minutes, substantially as described.

5. A medicine-time-indicator, consisting of a flanged cover to fit over and close the mouth of a medicine-glass, a shank or support hinged or pivotally connected to the cover, a disk or plate having a row of numerals indicating the hours, a disk or plate having a row of figures indicating minutes and provided with a notch or opening through which the hour numeral or numerals can be made visable, and a disk or plate having a notch through which the minute-numerals can be made visible, all of said disks or plates being mounted upon and swinging with the shank or support, substantially as described.

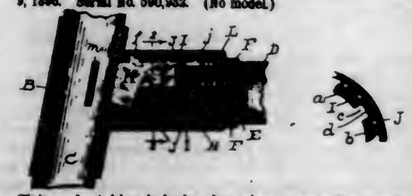
6. The combination in a medicine-time indicator for a medicine-glass, of a cover constructed to fit and close the mouth of the glass and having means for displaying the instructions as to quantity to be taken or administered, a shank or support hinged or pivotally connected to the cover and adapted to stand either upright, or to be held down upon the cover, a device for engaging the shank or support and holding it upright, and hour-indicating devices mounted on, carried by, and swinging with said shank or support, substantially as described.

7. The combination in a medicine-time indicator for a medicine-glass, of a flanged cover to fit over and close the mouth of the glass, a shank or support attached to the cover, a rotary disk or plate mounted on the shank or support and provided with a circular row of numerals indicating the hours, a secondary disk or plate mounted on the shank or support and having numerals indicating minutes and a notch or opening through which the hour and numeral or numerals can be made visible, and a rotary disk or plate arranged in front of said notched disk or plate and having a notch or opening through which the minute-numerals can be made visible, substantially as described.

8. The combination in a medicine-time indicator for a medicine-glass, of a flanged cover to fit over and close the mouth of the glass, a shank or support hinged to the cover, a rotary disk or plate having a serrated or notched periphery and provided with a circular row of numerals indicating the hours, a secondary disk or plate mounted on the shank or support and having numerals indicating minutes and a notch or opening through which the hour and numeral or numerals can be made visible, and a rotary disk or plate arranged in front of said notched disk or plate and having a notch or opening through which the minute-numerals can be made visible, substantially as described.

9. The combination in a medicine-time indicator for a medicine-glass, of a flanged cover constructed to fit over and close the mouth of the glass and having on its upper surface means for indicating the quantity of medicine to be taken or administered, a shank or support hinged to the cover, a rotary disk or plate having a serrated or notched periphery and provided with a circular row of numerals indicating the hours, a secondary disk or plate mounted on the shank or support and having numerals indicating minutes and a notch or opening through which the hour and numeral or numerals can be made visible, and a rotary disk or plate arranged in front of said notched disk or plate and having a notch or opening through which the minute-numerals can be made visible, substantially as described.

576,835. COMBINATION BICYCLE-LOCK. SAMUEL W. COLLINS, Kokomo, Ind., assignor of seven-twelfths to Rufus Laymon, same place, and William J. Wingate and Joel T. Barker, Danville, Ind. Filed May 9, 1896. Serial No. 590,932. (No model.)



Claim.—1. A bicycle-lock adapted to secure the steering-post against turning within the frame-head, consisting of the bolt K, having projections *j*, and a stud *l*; the coil-spring L, the notched tumblers I, having the slots *c*, and the plain portions *d*; the outer rings J, having the inner projection *a*, and the outer numbers and graduations; the separating-rings H, the ring G, having the mark *i*, the projecting shield *f*, and the semicircular notch *g*; and the retaining-ring F, securing said rings and tumblers against slipping back upon the tube D, substantially as shown and described.

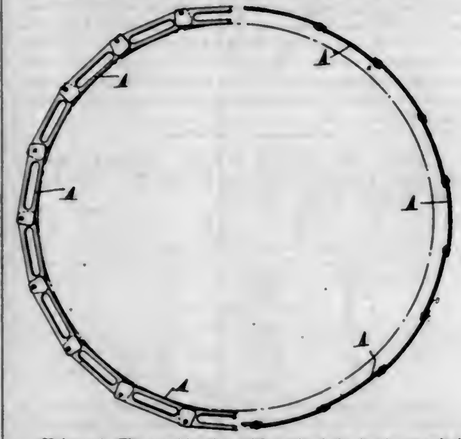
2. In a bicycle-lock, adapted to lock the steering-post against turning in the frame-head, the combination with the bolt K, adapted to pass through the frame-head and enter the opening in the steering-post, and having projections *j*, and a spring-stud *l*; the bolt withdrawing and releasing ring G, having the open collar *e*, to engage the end projection *j*, of the bolt K, the shield *f*, and the semicircular notch *g*; the tumblers I, having the slots *c*, and the V-shaped notch *b*; the rings J, having the V-shaped projections *a*, adapted to engage the notches *b*, on the tumblers I, and having numbers and graduations upon their outer faces, whereby the combinations may be read, substantially as set forth.

3. The combination with a bicycle-frame and steering-post, of the locking devices consisting of the bolt K, the coil-spring L, the notched tumblers I, rings J, having the projections *a*, the ring G, having the shield *f*, and the open collar *e*, inside thereof; the securing-ring F, and the separating-rings H, all substantially as shown and described.

4. The combination in a bicycle-lock, of the outer rings J, having the projections *a*, and the numbers and graduations on their outer faces, the ring G having the shield *f*, and the open ring *e*, the notched tumblers I, and the separating-rings H, with the bolts K, adapted to enter the opening *m*, in the steering-post C, and having the projections *j*, and the stud *l*; and the coil-spring L, all substantially as set forth.

5. In a bicycle-lock, the combination of the steering-post having a slot *m*, the rings J, having the numbers and graduations on their outer faces and the V-shaped projections *a*, on the inner side, the notched tumblers I, having the slots *c*, the separating-rings H, the operating-ring G, having the shield *f*, and the open collar *e*, and the bolt K, adapted to enter the slot *m*, in the steering-post C, and the coil-spring L, substantially as shown and described.

576,836. MEANS FOR SECURING TIRES TO RIMS. ALFRED H. CULLEY, London, England. Filed July 27, 1896. Serial No. 600,653. (No model.) Patented in England Dec. 4, 1895, No. 23,218.

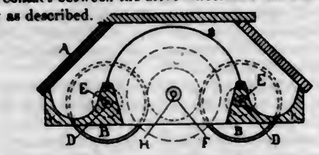


Claim.—1. The combination with a wheel-rim having a suitable channel, of a pneumatic tire lying in said channel, and continuous bands each composed of short, flat plates of suitable metal lapped upon one another at their ends so that all the alternate plates will be in the same plane, and connected by pivots inserted in the angles next to the outer edges of said strips, substantially as described.

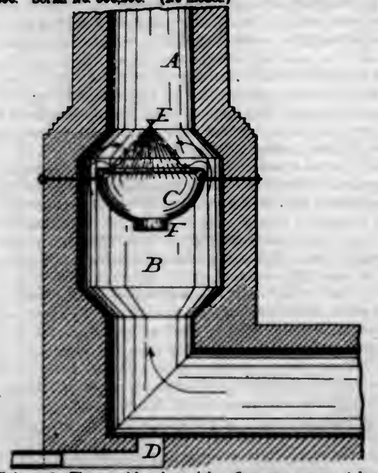
2. The combination with a wheel having a rectangular channel, of a pneumatic tire lying in said channel, a cover for said tire, and two flexible bands each composed of short, flat strips lapped one upon the other at their ends and pivoted together by pins inserted in the angles of said strips next to their outer edges, said strips being arranged between the pneumatic tire and its outer cover with their flat faces lying parallel with the flat sides of the channel in the rim, substantially as described.

576,837. CARPET-SWEEPER. WALTER J. DREW, Grand Rapids, Mich., assignor to The Bissell Carpet Sweeper Company, same place. Filed Mar. 16, 1896. Serial No. 583,400. (No model.)

Claim.—The combination of a sweeper-case, the drive-wheels placed on the outside of said case, a pivot or journal passing through enlarged openings in said case and supporting the wheel on the outside and entering into the dust-pan and rigidly connected therewith, a brush-roller, a pair of dust-pans, each dust-pan turning upon the same pivot as its corresponding drive-wheel, a spring attached to each dust-pan at a point eccentric the turning-point of said dust-pan, said spring adapted to retain the dust-pans closed, and also, to produce frictional contact between the drive-wheels and the brush-roller, substantially as described.



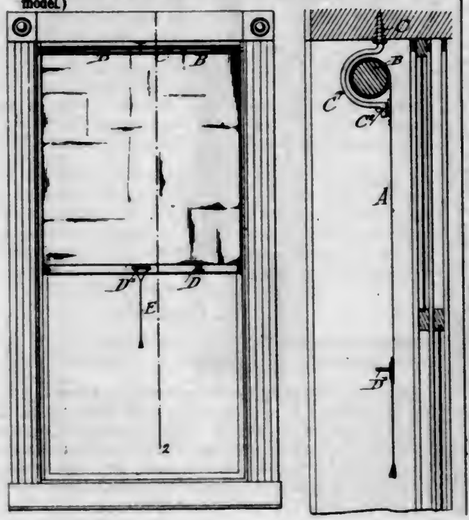
576,838. APPARATUS FOR REMOVING IMPURITIES FROM SMOKE. EDWARD E. DULIER, Mildenhall, England. Filed July 7, 1896. Serial No. 598,290. (No model.)



Claim.—1. The combination with a flue or chimney A having an enlarged chamber B, of a cup C having a discharge-orifice F in its bottom, said cup being arranged in said chamber and having an unobstructed passage for the smoke surrounding it, and a spraying-nozzle arranged in the flue or chimney above the cup, substantially as described.

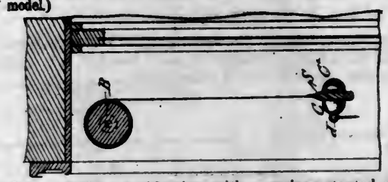
2. The combination with a flue or chimney A having an enlarged chamber B, of a cup C arranged in said chamber and having a flanged discharge-orifice F in its bottom, there being an unobstructed passage for the smoke surrounding said cup, a spraying-nozzle arranged in the flue or chimney above the cup, and a drain arranged in the flue or chimney beneath the cup, substantially as described.

576,839. ATTACHMENT FOR WINDOW-SHADES. NUMA J. FELIX, Brooklyn, N. Y. Filed June 24, 1896. Serial No. 596,672. (No model.)



Claim.—The combination with a window-shade and spring-roller, of a guard-piece attached to the window-casing above the spring-roller and adapted to extend around the front to the lower part of the same, and a loop attached to the stick at the lower end of the shade, said loop being adapted to engage with the lower end of the guard device for preventing the overwinding of the shade under the action of the spring-roller, substantially as set forth.

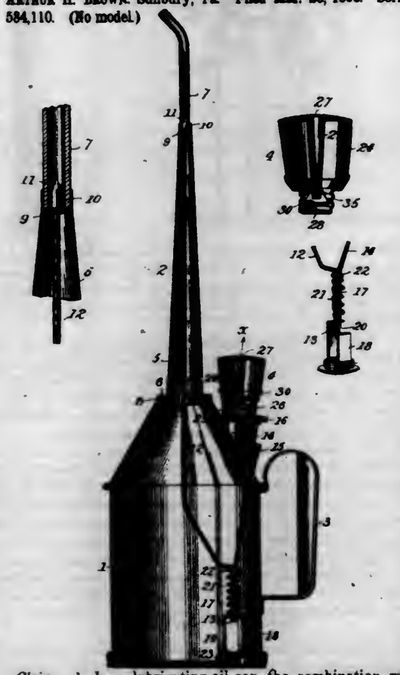
576,840. ATTACHMENT FOR WINDOW-SHADES. NUMA J. FELIX, Brooklyn, N. Y. Filed Oct. 21, 1896. Serial No. 609,528. (No model.)



Claim.—1. The combination, with a spring-actuated window-shade, of an attachment consisting of buffer-sections applied rigidly to the shade-stick, said buffer-sections being adapted to prevent overwinding of the shade, substantially as set forth.

2. The herein-described attachment for shades, consisting of buffer-sections adapted to be applied to the opposite sides of the shade-stick, and a screw-bolt passing through said buffer-sections and through the shade-stick, and provided with means for the suspension of the tassel or other ornament, substantially as set forth.

576,841. LUBRICATING-OIL CAN. BENJAMIN A. GASKINS and ARTHUR H. BROWN, Sunbury, Pa. Filed Mar. 20, 1896. Serial No. 584,110. (No model.)



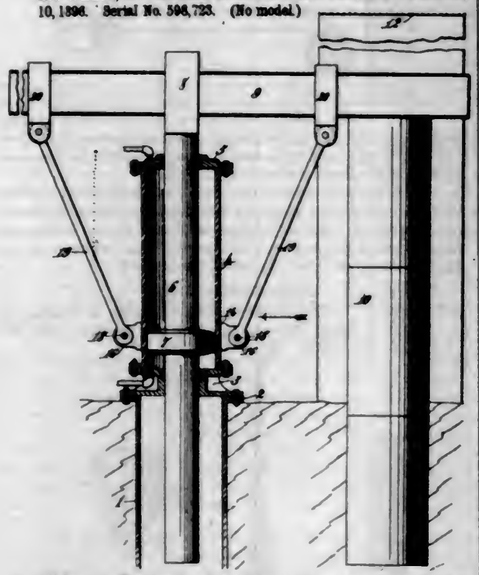
Claim.—1. In a lubricating-oil can, the combination with the spout having a valve-seat, of a valve, and a valve-rod and push-rod consisting of a single piece of wire, the said wire being bent double, a guide having a perforation through which the doubled portion of the wire passes, and a spiral spring surrounding the doubled portion and constructed to hold the valve normally closed, substantially as described.

2. In a lubricating-oil can, the combination with the spout having a valve-seat and the valve fitting said seat, of the valve-stem and push-rod consisting of a single piece of wire, said wire having a doubled portion 17, and a foot 20, a frame 18 in which the doubled portion 17 is guided, a collar 22 at the upper end of said portion and a spring interposed between said guide-frame and collar, substantially as described.

3. In a lubricating-oil can, the bottom having an opening, the removable plug fitting said opening and provided with a guide-frame the valve-rod arranged to be guided in said frame and the spring for normally keeping the valve closed, said valve-rod and spring being detachable and adapted to be removed through the opening in the bottom, substantially as described.

4. In an oil-can, the vent consisting of a chamber having a perforation in each end, a tube within the casing extending downward from the upper perforation and a cap extending across the lower end of said tube to prevent oil from dripping therein from the lower perforation, substantially as described.

576,842. **MEANS FOR CONSTRUCTING SUPPORTS FOR BUILDING-WALLS, &c.** RICHARD S. GILLESPIE, New York, N. Y. Filed July 10, 1896. Serial No. 598,723. (No model.)



Claim.—1. The combination of a pressure-resisting column buried or sunk in the earth, with a revolving hydraulic ram connected with the upper end portion of said column so that the latter holds the ram-cylinder against upward motion as the ram descends, substantially as described.

2. The combination of a pressure-resisting column buried or sunk in the earth, with a revolving hydraulic ram connected with the upper end portion of said column, a horizontally-arranged pressure-beam engaged with the upper end of the ram and extending laterally to act upon and drive wall or other supporting columns perpendicularly into the earth as the ram descends, substantially as described.

3. The combination of a pressure-resisting column buried in the earth, with a fluid-actuated ram mounted on and sustained by the said column and provided at its upper end with a horizontally-arranged beam, one end of which serves to engage and drive a wall-supporting column perpendicularly into the earth, substantially as described.

4. The combination of a pressure-resisting column buried in the earth, with a hydraulic ram rotatably connected with and sustained by the said column, and a horizontally-arranged beam engaged with the ram and extended laterally to bear against and drive a wall-supporting column perpendicularly into the earth, substantially as described.

5. The combination of a pressure-resisting column buried or sunk in the earth, with a fluid-actuated ram connected with and sustained by the said column, a head engaged with said ram, and a horizontally-arranged beam or beams held by said head and extended laterally to bear against and drive a wall-supporting column perpendicularly into the earth as said ram with its head descends, substantially as described.

6. The combination of a pressure-resisting column buried or sunk in the earth, with a fluid-actuated ram mounted on and sustained by said column, a head engaged with the upper end of the ram, a horizontally-arranged beam carried by said head and extending laterally to bear against and drive a wall-supporting column perpendicularly into the earth, and braces connecting the said beam with a portion of the ram, substantially as described.

7. The combination of a pressure-resisting column buried or sunk in the earth, with a hydraulic-ram cylinder mounted on and sustained by the said column, a ram or plunger working in said cylinder, a head carried by the upper end of the ram or plunger, and a horizontally-arranged beam engaged with said head and extended laterally to bear against and drive a wall-supporting column perpendicularly into the earth, substantially as described.

8. The combination of a pressure-resisting column buried or sunk in the earth, with a hydraulic-ram cylinder mounted on and sustained by the said column, a ram or plunger working in said cylinder, a head carried by the upper end of the ram or plunger, a horizontally-arranged beam engaged with said head and extended laterally to bear against, and drive a wall-supporting column perpendicularly into the earth, and tie-rods or links connecting the said beam with the ram-cylinder, substantially as described.

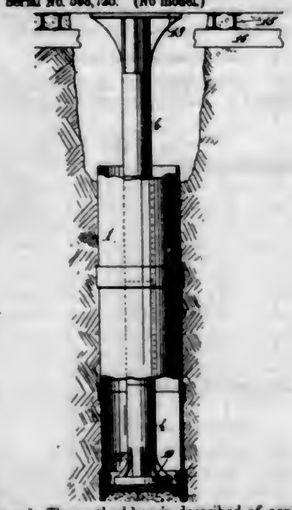
9. The combination of a pressure-resisting column buried or sunk in the earth, with a hydraulic-ram cylinder mounted on and sustained by the said column, a ram or plunger working in said cylinder, a head carried by the upper end of the ram or plunger, a horizontally-arranged beam engaged with said head and extended laterally to bear against and drive a wall-supporting column perpendicularly into the earth, two heads engaged with the said beam, a collar slidable on the ram-cylinder, and tie-rods or links connected with said two heads and with said collar, substantially as described.

10. The combination of a pressure-resisting column buried or sunk in the earth, with a ram-cylinder mounted on the upper end of the said column, a ram or plunger working in said cylinder and having a screw-threaded portion projecting from the upper end of the cylinder, and a screw-nut engaging the screw-threaded portion of the ram or plunger and adapted to rest against the upper end of the cylinder, substantially as described.

11. The combination of a pressure-resisting column buried or sunk in the earth, with a ram-cylinder mounted on the upper end of the said column, a ram or plunger working in said cylinder and having a screw-threaded portion projecting from the upper end of the cylinder, a screw-nut engaging the screw-threaded portion of the ram or plunger and adapted to rest against the upper end of the cylinder, a head carried by the upper end of the arm or plunger, and a horizontally-arranged beam engaged with said head and extending laterally, substantially as and for the purposes described.

12. The combination of tubular pressure-resisting column composed of sections, buried or sunk in the earth, with a hydaulic ram mounted on and detachably connected with the upper end of said column, and means, substantially as described, whereby the ram-plunger can be held against descending and the ram-cylinder utilized for withdrawing the tubular pressure-resisting column, section by section, as set forth.

576,843. **CONSTRUCTION OF SUPPORTS FOR BUILDING-WALLS, &c.** RICHARD S. GILLESPIE, New York, N. Y. Filed July 10, 1896. Serial No. 598,725. (No model.)



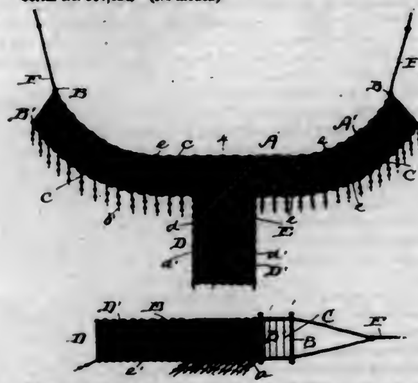
Claim.—1. The method herein described of constructing a foundation for a building or other structure, which consists in sinking a tubular construction-case into the earth to the required depth, excavating or removing the earth from the interior of the case, attaching a closed head water-tight directly to the lower end portion of the case by securing devices, and erecting a column on said head to the required height, substantially as set forth.

2. In the construction of foundations for buildings and other structures, the combination of a construction-case driven or sunk into the earth, and from the interior of which the earth is excavated or removed, a closed head fitted water-tight into the lower end portion of the case and attached directly thereto by securing devices, and a column erected in said case upon said head and adapted at its upper end to support the superincumbent weight of a building-wall or any other structure, substantially as set forth.

3. In the construction of foundations for buildings and other structures, the combination of a cylindrical construction-case driven or sunk perpendicularly into the earth and from the interior of which the earth is excavated or removed, a closed head fitted water-tight into the lower end portion of said case, a concrete base on which said head rests, and a column erected in said case upon said head and adapted at its upper end to support the superincumbent weight of a building-wall or any other structure, substantially as set forth.

4. In the construction of foundations for buildings and other structures, the combination of a cylindrical construction-case, driven or sunk into the earth, and from the interior of which the earth is excavated or removed, a closed head provided in its periphery with an expansible packing and fitted water-tight in the lower end portion of the case, means for expanding said packing, and a column erected in said case upon said head and adapted at its upper end to support the superincumbent weight of a building-wall, or other structure, substantially as set forth.

576,844. **FISH-TRAP NET.** DANIEL L. GLAFLIN, EUGENE R. EDSON, and JAMES R. JESSOP, Cleveland, Ohio. Filed Apr. 10, 1896. Serial No. 587,026. (No model.)



Claim.—1. In a fish-net, a sweep formed of netting and provided at its top and bottom with horizontal leads or projecting portions, said leads or portions extending the full length of the sweep, substantially as and for the purpose shown and described.

2. In a fish-net, the combination with the sweep and trap of drag-anchors secured to the said sweep and trap by means of lines passing through fair-leaders located in or connected to the anchors, substantially as and for the purpose shown and described.

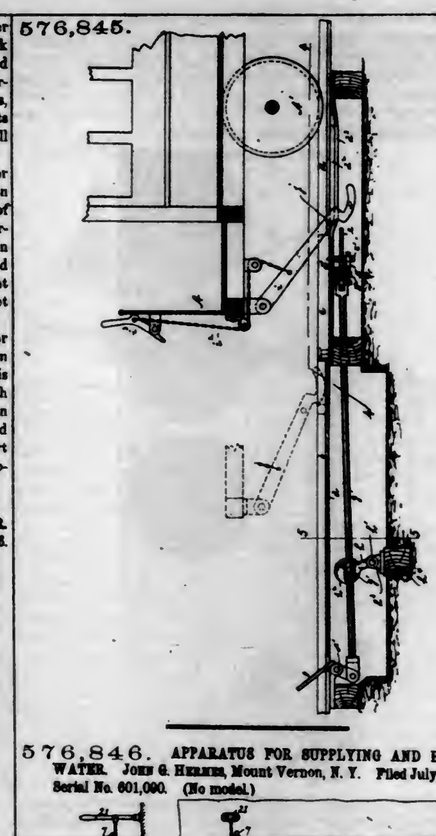
3. In a fish-net of the sweep type, the combination with the sweep proper, of an upper and lower lead secured to said sweep and held in open relation by means of brails at either end, cords secured to the open end of the upper and lower leads whereby said leads are retained in proper position, substantially as and for the purpose shown and described.

4. In a fish-net of the sweep or seine type, the combination with the sweep proper, of an upper and lower lead attached at their rear ends to said sweep and brails, and cords for holding such leads in proper position, said sweep having at its central portion a pound, and the pound in turn being provided with a top laced thereto, whereby said top may be gradually unlaced and thrown back in order to remove the fish, substantially as shown and described.

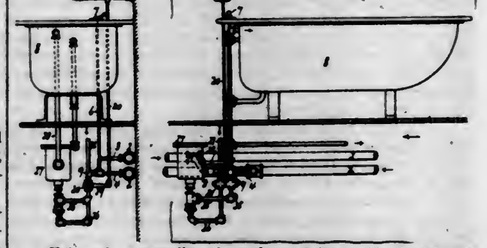
576,845. **RAILWAY-SWITCH.** SOLOMON M HARRIS and MICHEL BRESSON, New York, N. Y. Filed May 28, 1896. Serial No. 593,576. (No model.)

Claim.—In a railway switch, the combination of a switch-rail with a slotted base-plate having a curved flange, an operating-lever connected to the switch-rail and extending transversely across the slot of the base-plate, a tilting lever in the path of the car-wheel, a connecting-rod, and an actuating-hook having a transverse pin that is adapted to engage the curved flange of the base-plate, substantially as specified.

576,845.



576,846. **APPARATUS FOR SUPPLYING AND HEATING WATER.** JOHN G. HERRIES, Mount Vernon, N. Y. Filed July 30, 1896. Serial No. 601,090. (No model.)



Claim.—1. A plurality of supply-conduits combined with a discharge for the conduits, an alternating cock for the discharge, a heat supply or conduit, and an alternating cock for the heat-supply and discharge substantially as described.

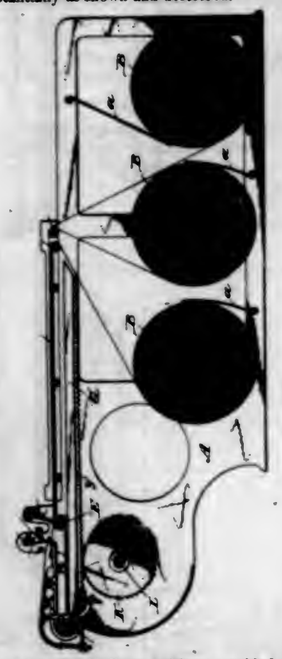
2. A plurality of supply-conduits combined with a discharge for the conduits, an alternating cock for the discharge, a heat supply or conduit, an alternating cock for the heat-supply and discharge, and a mixing-chamber made to communicate with the discharge and heat-supply, substantially as described.

576,847. **AUTOGRAPHIC REGISTER.** GEORGE A. HUEWE, Cincinnati, Ohio, assignor to the Keys-Lee & Huewe Company, same place. Filed July 15, 1896. Serial No. 599,203. (No model.)

Claim.—1. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the writing-tablet, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

2. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for opening the jaws to release the paper, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

3. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for simultaneously stopping the feed and opening the gripper-jaws to release the paper, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.



4. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for simultaneously stopping the feed and opening the gripper-jaws to release the paper, with spring to return the grippers to their normal position, and a cutting edge secured to the case and against which the paper is severed when fed forward by the grippers, substantially as shown and described.

5. In a register for duplicate writings, gripper-jaws to grasp and hold the paper strips, means for operating them to feed the paper over the tablet, mechanism for simultaneously stopping the feed and opening the gripper-jaws to release the paper, cutting edge pivoted to the case, spring to return the grippers to their normal position, and dog to hold said grippers open during the return, released by contact with the case, to allow the grippers to close over the paper strips, substantially as shown and described.

6. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, a rack-bar, a pair of gripper-jaws with spring to close same carried at the forward end of said bar, dog to hold said jaws open when the jaws are released, and gearing meshing with said rack with hand-crank to advance said jaws to feed the paper, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

7. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, a rack-bar, a pair of gripper-jaws with spring to close same carried at the forward end of said bar, stop connected with said rack-bar and lug on the frame in the pathway of said stop, to limit the feed of said jaws, and to stop the paper at any desired length of feed and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

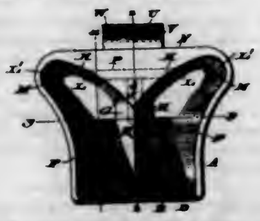
8. In a register for duplicate writings, provided with a plurality of paper strips mounted in rolls, a rack-bar, a pair of gripper-jaws with spring to close same, carried at the forward end of said bar, adjustable stop with the movable one of said jaws, lug on the frame in the pathway of said stop to limit the feed of said jaws and open same, with dog to hold said jaws open, and a cutting edge secured to the case against which the paper is severed when fed forward by the grippers, substantially as shown and described.

9. In a register for duplicate writings, a pair of gripping-jaws, with means for retracting same, dog pivoted on one of the jaws to grasp and hold open the other jaw, said dog carrying a shoulder to abut against a stop on the case and provided with a projection to catch behind said stop to prevent recoil of the jaws, substantially as shown and described.

576,848. FERTILIZER. PETER HUFF, Floyd, Va. Filed Nov. 27, 1896. Serial No. 613,656. (No specimens.)

Claim.—The herein-described composition of matter to be used for protecting and fertilizing corn, consisting of the following ingredients, coal-tar, brimstone, soft soap, saltpeter, lime, and plaster, in suitable proportions.

576,849. WATER-WHEEL. DANIEL HUE, Denver, Colo. Filed Dec. 5, 1896. Serial No. 614,553. (No model.)



Claim.—1. In a water-wheel, a bucket having a plurality of diverging chambers, the upper portion of said bucket having a V-shaped wall therein, the sides of which wall assist in forming said chambers, which latter discharge at opposite sides of said bucket, and the walls of said chambers upon which the incoming fluid first impinges being provided with a curvature throughout their length.

2. In a water-wheel, a bucket having a plurality of diverging chambers, the upper portion of said bucket having a V-shaped wall therein, the sides of which wall assist in forming said chambers, which latter discharge at opposite sides of said bucket, the rear wall of the lower portion of said chambers being provided with a continuous curvature, whereby foaming is obviated, and the incoming fluid is cushioned, and means for attaching said bucket to a water-wheel.

3. In a water-wheel, a bucket having a tenon attached to the top thereof, said tenon being provided with a forwardly-projecting lip, and said bucket having a rearwardly-projecting plate adapted to be attached to the exterior periphery of the water-wheel.

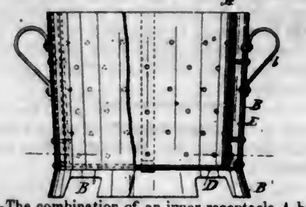
4. In a water-wheel, a bucket having a plurality of diverging chambers, the upper portion of said bucket having a V-shaped wall therein, the sides of which wall assist in forming said chambers, which latter discharge at opposite sides of said bucket, and the top of the latter being inclined and provided with a tenon attached thereto, said tenon having an inclined top and rear wall, and a forwardly-projecting lip in combination with a rearwardly-extending plate, the latter being adapted to be attached to the outer periphery of said water-wheel, and said tenon being adapted to be seated in a recess in the rim of said wheel.

5. In a water-wheel, a bucket having a plurality of diverging chambers, the upper portion of said bucket having a V-shaped wall therein, the sides of which wall assist in forming said chambers, which latter discharge at opposite sides of said bucket, the rear wall of each of said chambers being provided with a continuous curvature at that point upon which the actuating fluid first impinges, a tenon attached to the top of said bucket, and provided with a forwardly-projecting lip, a plate projecting rearwardly from the upper portion of said bucket, and a strengthening-rib common to the latter and said plate.

6. In a water-wheel, a bucket A having a plurality of chambers E therein, the walls F, G, of said chambers diverging outwardly, and the rear wall C of said chambers being provided with a continuous curvature at about the point where the incoming stream first impacts therewith, a V-shaped wall J located in the upper portion of said bucket, the chambers L, the sides of said V-shaped wall assisting in forming said latter chambers, the same being provided with curved and contracted outlets, the tenon T attached to the top of said bucket and provided with an inclined top, and having the rear walls U and X respectively, and the curved front wall V and the lip W, the rearwardly-extending plate P attached to the upper portion of said bucket and extending at an obtuse angle to the top of the latter, the strengthening-ribs S common to said plate and bucket and means for attaching the latter to a water-wheel.

7. In a water-wheel, a bucket, means for attaching the latter to said wheel, said means consisting of the forwardly-projecting tenon and a rearwardly-projecting plate, said tenon being adapted to enter the rim of said wheel, and said plate being adapted to contact with the outer portion thereof.

576,850. FLOWER-POT. HEINRICH IKEN, Gerresheim, Germany. Filed Mar. 26, 1896. Serial No. 584,980. (No model.)



Claim.—The combination of an inner receptacle A having over its whole surface fine perforations, and outer plain receptacle B, a cross-piece D fixed therein near the bottom, recesses B^3 in the bottom rim of said outer receptacle and vertical U-irons F fixed between the two receptacles substantially as described and shown and for the purpose specified

576,851. CAR-COUPLING. JAMES P. JOHNSON, Valdosta, Ga., assignor of one-half to B. F. Whittington, same place. Filed Nov. 13, 1896. Serial No. 611,951. (No model.)

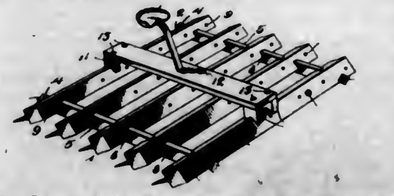


Claim.—1. In a car-coupling, the combination of a draw-head comprising a shank or draw-bar, an upper section rigid with the same, a hinged lower section adapted to swing downward to an inclined position for guiding a link into the draw-head, and a movable pin-support engaging the rear portion of the hinged section and adapted to swing the same upward to its closed position, said pin-support being arranged to project beyond the draw-head when the parts are set for automatic coupling and adapted to be engaged and moved inward by another draw-head, whereby the pin is caused to fall and the lower hinged section of the draw-head is returned to its closed position, substantially as described.

2. In a car-coupling, the combination of a draw-head comprising a shank or draw-bar, a rigid upper section, a hinged lower section provided with an upwardly-extending arm, and a slide mounted on the upper section of the draw-head, arranged to engage the arm of the lower section and adapted when drawn outward to form a support for a coupling-pin, whereby when it is moved inward, the pin will be caused to fall and the lower section will be returned to its closed position, substantially as described.

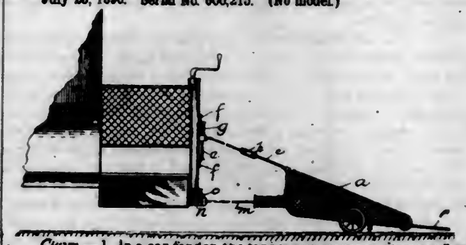
3. In a car-coupling, the combination of a draw-head comprising a shank or draw-bar, a rigid upper section having a longitudinal opening and provided with longitudinal ways, a hinged lower section having an upwardly-extending arm arranged in said opening, a slide mounted in the said ways, engaging with said arm and provided with a perforation adapted to register with the coupling pin perforation of the draw-head, and a guide, mounted on the draw-head and adapted to receive a coupling-pin, substantially as and for the purpose described.

576,852. COMBINED CLOD-CRUSHER, LEVELER, AND HARROW. SAMUEL B. JONES, Butler, Ind. Filed Apr. 24, 1896. Serial No. 588,944. (No model.)



Claim.—In an agricultural implement of the character set forth, a series of square bars arranged in parallel relation with a corner in position to engage with the ground, tie-rods for connecting the bars, space-blocks mounted upon the tie-rods between the bars and having V-shaped notches in their ends to receive the corners of adjacent bars, rest-blocks mounted upon the bars and having V-shaped notches in their lower ends to receive the upper corners thereof, a longitudinal seat-support placed upon the rest-blocks, means for securing the seat-support, rest-blocks and bars together, and a seat mounted upon the said support, substantially as set forth.

576,853. CAR-FENDER. JOHN P. KANE, Dawson, Pa. Filed July 23, 1896. Serial No. 600,215. (No model.)



Claim.—1. In a car-fender, the fender proper scoop shape in form, provided with a suitable netting, a supporting-rod hinged to the top of the fender, cylinders hinged to the rear of same, a supporting-rod secured to the car and operating in said cylinders, said fender supported by pony-wheels at the side, and provided with spring-actuated padded arms at the front and means for releasing the spring, substantially as shown and described.

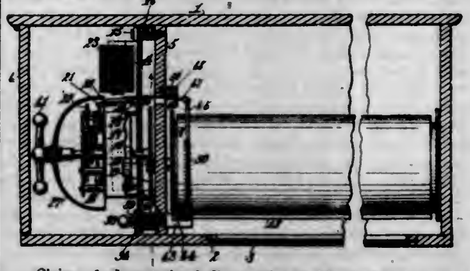
2. In a car-fender, the fender proper, cylinders hinged at the rear of said fender, supporting-rods secured to an adjustable bracket attached to the car, said rods operating in the cylinders, a supporting-rod connected to the top of said fender, and to a sliding collar on a rod attached to the front of the car, said fender carrying spring-arms adapted to engage an object and lift the same on the fender and means for releasing the spring, substantially as shown and described.

3. In a car-fender, the front rail thereof carrying a semicircular portion provided with lugs, spring-actuated arms secured to the side rails and adapted to engage the lugs of the semicircular portion, said fender being supported by pony-wheels and by supporting-rods operating in cylinders secured to the fender, the rear of said rods attached to a bracket on the car, a center connecting-rod attached to the fender and to a collar operating on a rod secured to the car, substantially as shown and described.

4. In a car-fender, the fender proper having suitable netting, a semicircular portion on the front rail of said fender, said portion carrying lugs, spring-actuated arms secured to the side rails, said arms engaging the lugs, cylinders secured to said fender, supporting-rods secured to the car and operating said cylinders, pony-wheels supporting said fender and a supporting-rod connected to the fender and to a sliding collar and a rod attached to the front of the car, said rod provided with a screw-buckle, substantially as shown and described.

5 In a car-fender, the fender proper having suitable netting, a semicircular portion on the front rail of said fender, said portion carrying lugs, spring-actuated arms secured to the side rails, said arms engaging the lugs, cylinders secured to said fender, supporting-rods secured to the car and operating said cylinders, pony-wheels supporting said fender, a brush or scraper secured to the fender in front of said pony-wheels, and a supporting-rod connected to the fender and to a sliding collar and a rod attached to the front of the car, said rod provided with a screw-buckle, substantially as shown and described

576,854. STATION-INDICATOR. JEFFERSON D. KERR and JOHN J. ROBERTS, Louisville, Ky. Filed Sept. 24, 1896. Serial No. 606,823. (No model.)



Claim.—1. In a station-indicator, the combination with a spring-motor, of drums having wound thereon a perforated apron, pinions fixed on the shafts of said drums, a gear-wheel driven by said motor, means for causing said gear-wheel to rotate said pinions and their drums alternately in opposite directions, a ratchet-wheel driven by the motor, an armature carrying a detent adapted to engage the

ratchet-wheel to stop the motor, an electromagnet operating to withdraw the armature to release the ratchet-wheel, a push-pin arranged in contact with the apron, a spring for causing said push-pin to project through the perforations in the apron, and connections between the push pin and armature for moving said armature away from the magnet when the push-pin enters one of the perforations and cause the detent to engage the ratchet-wheel and stop the motor, substantially as described.

2. In a station-indicator, the combination with a spring-motor, of drums having wound thereon a perforated apron, pinions fixed on the shafts of said drums, a gear-wheel driven by said motor, means for causing said gear-wheel to rotate said pinions and their drums alternately in opposite directions, a ratchet-wheel driven by the motor, an armature carrying a detent adapted to engage the ratchet-wheel to stop the motor, an electromagnet operating to withdraw the armature to release the ratchet-wheel, a push-pin arranged to contact with the apron, a spring for causing said push-pin to project through the perforations in the apron, connections between the push-pin and armature for moving said armature away from the magnet when the push-pin enters one of the perforations and causes the detent to engage the ratchet-wheel and stop the motor, a bell and bell-ringing mechanism actuated by the motor, substantially as described.

3. In a station-indicator, the combination with two drums having wound thereon a perforated apron and pinions fixed on the shafts of said drums, of a pivoted plate, a spring-motor carried thereby, a gear-wheel driven by said motor and arranged to gear with one of said pinions to rotate one of the drums, a pinion driven by said gear-wheel and operating to drive the other pinion and its drum in the opposite direction, means for shifting said plate to rotate either of said drums at will, a ratchet-wheel driven by the motor, a detent adapted to engage said ratchet-wheel to stop the motor, electrical mechanism for releasing said detent, a push-pin arranged in contact with the apron, a spring for causing said push-pin to project through the perforations in the apron, and means connecting together said push-pin and detent, whereby when the push-pin enters one of said perforations the detent is thrown into engagement with the said ratchet-wheel and stops the motor, substantially as described.

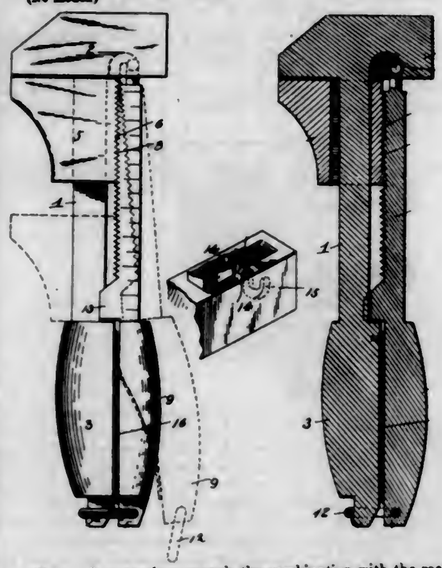
4. In a station-indicator, the combination with two drums mounted in fixed bearings and arranged to rotate simultaneously in the same direction, an apron wound on the drums, and pinions fixed on the shafts of said drums, of a pivoted plate, a spring-motor carried thereby, a gear-wheel driven by said motor and arranged to gear with one of said pinions to rotate one of the drums, a pinion constantly in gear with said gear-wheel and operating to drive the other pinion and its drum in the opposite direction, means for shifting said plate to cause said gear-wheel to rotate either of said drums and for holding it intermediate the pinions to throw the gear-wheel out of engagement with both of said drums, and mechanism for stopping and starting the motor, substantially as described.

5. In a station-indicator, the combination with two drums having wound thereon an apron, of a pivoted plate, a spring-motor carried thereby, means for shifting said plate to cause said motor to rotate either of said drums at will, mechanism operated by the apron for stopping said motor to arrest the movement of the apron at predetermined points, electrically-controlled releasing mechanism for starting the motor, and electric conductors electrically connected with said electrically-controlled releasing mechanism and having their terminals electrically connected with the members of the air-pipe couplings, whereby the indicator on each car is automatically connected up with the indicators on the adjacent cars when the train is made up, substantially as described.

6. In a station-indicator, the combination with two drums 7 and 8 having wound thereon a perforated apron 13 and pinions 11 and 12 fixed on the shafts of said drums, of a pivoted plate 14, a spring-motor 17 carried thereby, a gear-wheel 19 driven by the motor and arranged to gear with the pinion 12, a pinion 20 driven by the gear-wheel 19 and adapted to engage and drive the pinion 11, means for shifting the plate 14 to cause the motor to drive either of the pinions 11 or 12 at will, a ratchet-wheel 21 driven by the motor, a pivoted armature 24 carrying a detent 26 adapted to engage said ratchet-wheel and stop the motor, an electromagnet arranged to retract said armature and release the detent to start the motor, a slotted arm 43 through which the perforated edge of the apron travels, a push-pin 45 fitted to move in a transverse aperture formed in said slotted arm and to successively project through the said perforations, a lever 47 connected to said push-pin, an arm 49 attached at one end to the armature and at its other end engaging the lever 47, and a spring 50, operating, when the push-pin registers with one of the perforations, to move the armature away from its magnet and throw the detent into engagement with the ratchet-wheel and stop the motor, substantially as described.

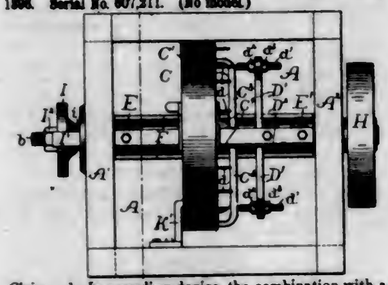
7. In a station-indicator, the combination with two drums 7 and 8 having wound thereon an apron 13, of a pivoted plate 14, a spring-motor carried thereby, means for gearing said motor to drive either of said drums, a fixed plate 35 having a plurality of perforations, a bolt 33 carried by the plate 14 and adapted to engage any of said perforations to hold the spring-motor in operative engagement with either of the drums or out of engagement with both of said drums, a spring 34 operating to force the bolt into engagement with said perforations, and means for starting and stopping the motor, substantially as described.

576,855. **MONKEY-WRENCH.** WILLIAM B. KELLY and HENRY BOWMAN, Barboursville, Ky. Filed Sept. 9, 1896. Serial No. 605,313. (No model.)



Claim.—In a monkey-wrench, the combination with the rectangular shank, the fixed jaw having teeth on one side and at one end provided with a recess on its inner side and with intersecting curved slots of the bar having opposite studs engaging with said slots, and provided with teeth adapted to engage with the teeth of said jaw, substantially as described.

576,856. **ADJUSTABLE SOWING-WHEEL FOR DRILLING-MACHINES.** ALFRED KERN, Magdeburg, Germany. Filed Sept. 28, 1896. Serial No. 607,211. (No model.)



Claim.—1. In a seeding device, the combination with a seedbox of a shaft journaled therein; means for rotating said shaft; a wheel having wide flat rim with an interior flange thereon rigidly mounted upon said shaft within said box, and having perforations through the said flange; an annular ring or flange mounted loosely upon said shaft, and fitting within the rim of said wheel and adapted to rotate therewith; guide-rods rigidly mounted on said annular ring and projecting through said perforations in said interior flange on said wheel; radial arms carried by a hub loosely mounted upon said shaft connected to the ends of three or more of said guide-rods and supporting said annular ring; a curved plate secured rigidly to the side of the box and fitting over the inner edges of said flanges, and forming a closed passage for the seed at one side of the wheel; a hopper adapted to receive the seed from one end of said passages; and a discharging tube or outlet from the bottom of said hopper, substantially as described.

2. In a seeding device, the combination with a seedbox of a shaft journaled therein; means for rotating said shaft; means for adjusting said shaft longitudinally, and for holding the same at the desired adjustment during rotation; a wheel having wide flat rim with an interior flange thereon rigidly mounted upon said shaft within said box; an annular ring or flange mounted loosely upon said shaft, and fitting within the rim of said wheel and adapted to rotate therewith; guides for said annular ring or flange; a curved plate secured rigidly to the side of the box and fitting over the inner edges of said flanges, and forming a closed passage for the seed at one side of the wheel; a hopper adapted to receive the seed from one end of said passages; and a discharging tube or outlet from the bottom of said hopper, substantially as described.

3. In a seeding device, the combination with a seedbox, of a shaft journaled therein; means for rotating said shaft; a wheel having wide flat rim with an interior flange thereon rigidly mounted upon said shaft within said box; an annular ring or flange mounted loosely upon said shaft, and fitting within the rim of said wheel and adapted to rotate therewith; guides for said annular ring or flange; means for adjusting said annular ring or flange toward or away from the interior flange on said rim, a curved plate secured rigidly to the side of the box and fitting over the inner edges of said flanges, and forming a closed passage for the seed at one side of the wheel; a hopper adapted to receive the seed from one end of said passages; and a discharging tube or outlet from the bottom of said hopper, substantially as described.

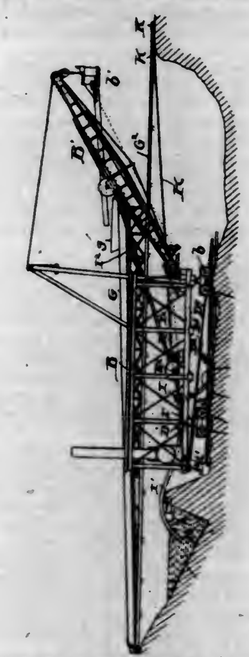
4. In a seeding device the combination with the seedbox A, the shaft B journaled therein, the driving-wheel H mounted upon one end of said shaft, and the adjusting-nut I engaging the opposite end, and brackets confining said nut against movement in the direction of the axis of said shaft; of the wheel C composed of rim C', interior flange C^2, curved radial arms C^3 and hub C^4, the latter being fixed upon the shaft B; the annular ring or flange D having guide-rods thereon projecting through guide-openings in said flange C^2, three or more of said guide-rods having screw-threaded ends d'; the radial arms D' having openings in the ends through which said screw-threaded ends d' extend; nuts securing said screw-threaded ends d' adjustably in said radial arms; sleeves E and E' mounted loosely upon said shaft; strips F resting across said sleeves E and E' and the hubs C^4 and D^4, between the radial arms on said hubs, and secured to both of said sleeves and to said hub D^4; the curved plate K held by a bracket secured to the side of the seedbox, and fitting over the inner edges of said flanges C^2 and D; the hopper or funnel N for receiving the seed, and the discharge-tube n leading therefrom, substantially as described.

5. In a seeding device, the combination with the seedbox A, the shaft B journaled therein; the driving-wheel H mounted upon one end of said shaft, and the adjusting-nut I engaging the opposite end; and brackets confining said nut against movement in the direction of the axis of said shaft; of the wheel C composed of rim C', interior flange C^2, curved radial arms C^3 and the hub C^4, the latter being fixed upon the shaft B; the annular ring or flange D having guide-rods thereon projecting through guide-openings in said flange C^2, three or more of said guide-rods having screw-threaded ends d'; the radial arms D' having openings in the ends through which said screw-threaded ends d' extend, nuts securing said screw-threaded ends d' adjustably in said radial arms; sleeves E and E' mounted loosely upon said shaft; strips F resting across said sleeves E and E' and the hubs C^4 and D^4, between the radial arms on said hubs, and secured to both of said sleeves and to said hub D^4; the curved plate K held by a bracket secured to the side of the seedbox, and fitting over the inner edges of said flanges C^2 and D; the curved plate M adapted to be clamped upon the back of said curved plate K; the hopper or funnel N for receiving the seed, and the discharge-tube n leading therefrom, substantially as described.

576,857. **ART OF EXCAVATING MINERAL-BEARING EARTHS.** GEORGE W. KING, Marion, Ohio. Filed Aug. 7, 1896. Serial No. 601,958. (No model.)

Claim.—1. In combination, an excavator of the character indicated, arranged within and movable longitudinally of the cut made by it and provided with a pump; a sluice-box arranged alongside and outside of the cut, and having its receiving end arranged to receive the material from the excavator's bucket; a source of water-supply; a suction hose or pipe connecting said water-supply source with the aforesaid pump, and a passage-way for conducting the pumped water from the pump into the receiving end of the sluice-box, substantially as set forth.

2. In combination, an excavator of the character indicated arranged within and movable longitudinally of the cut made by it and provided with a pump; a water-basin formed within the cut rearward of the excavator; a rearwardly-declining sluice-box arranged alongside of and outside of the cut, said box having its receiving end arranged to receive the material from the excavator's bucket and provided, at its rear end, with a discharge-pipe or passage-way arranged to discharge into the cut rearward of the basin; a suction-hose or passage-way for conducting water from the basin to the pump, and a pipe or passage-way for conducting water from the pump into the receiving end of the sluice-box, substantially as and for the purpose set forth.



3. In combination, an excavator of the character indicated arranged within and movable longitudinally of the cut made by it and provided with a pump; a dam formed within and extending widthwise of the cut near the rear end of the excavator; a rearwardly-declining sluice-box arranged alongside of and outside of the cut, said box having its receiving end arranged to receive the material from the excavator's bucket and provided, at its rear end, with a laterally and inwardly extending discharge-pipe or passage-way arranged to discharge a suitable distance rearward of the aforesaid dam; a hose or passage-way extending from within the basin formed at the rear of the dam to the pump, and a pipe or passage-way for conducting water from the pump into the receiving end of the sluice-box, substantially as set forth.

4. In combination, an excavator of the character indicated arranged within and longitudinally of the cut made by it, and provided with a suitably-operated winding-drum; a sluice-box arranged alongside of and outside of the cut, said box being movable longitudinally of the cut and having its receiving end arranged to receive the material from the excavator's bucket, and a suitably-guided cable operatively engaging the aforesaid drum and operatively connected with the sluice-box, substantially as and for the purpose set forth.

5. In combination, an excavator of the character indicated arranged within and longitudinally of the cut made by it and provided with a suitably-operated winding-drum; a sluice-box arranged alongside of and outside of the cut, said box being movable longitudinally of the cut and having its receiving end arranged to receive the material from the excavator's bucket; a relatively stationary sheave located a suitable distance forward of the sluice-box, and a cable operatively connected at one end with said box's forward end and thence leading forwardly to and over the aforesaid sheave and thence rearwardly to and operatively engaging the aforesaid winding-drum, substantially as and for the purpose set forth.

6. In combination, an excavator arranged within and movable longitudinally of the cut made by it, and provided with a pump whose suction hose or pipe has its receiving end arranged to take water from the bottom of the cut in which the excavator stands; a sluice-box arranged alongside of and outside of the cut, said box having its receiving end arranged to receive material from the excavator's bucket, and a pipe or passage-way for conducting the pumped water from the pump into the receiving end of said box, substantially as and for the purpose set forth.

7. In combination, an excavator mounted upon rails arranged longitudinally of the cut made by the excavator; a suitably-operated

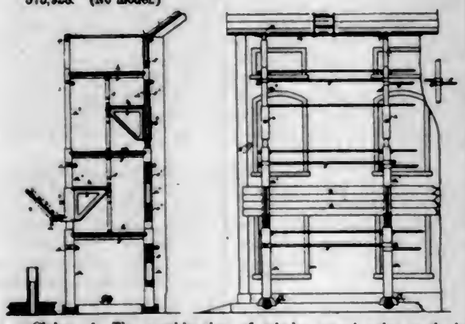
winding-drum suitably supported from the excavator's body portion; a sheave suitably supported from the machine rearward of the drum; a relatively stationary sheave suitably supported a suitable distance forwardly; a cable operatively engaging the drum, thence extending rearwardly over the rear sheave, thence forwardly over the forward sheave, and thence rearwardly to the aforesaid body portion's rear end to which it is suitably secured, substantially as and for the purpose set forth.

8. In combination, an excavator mounted upon rails arranged longitudinally of the cut made by the excavator; a suitably-operated winding-drum suitably supported from the excavator's body portion; a sheave suitably supported from the machine rearward of the drum; a sheave-block a suitable distance forward of said sheave and connected with any suitable number of the aforesaid rails; a cable operatively engaging the drum, thence extending rearwardly over the rear sheave, thence forwardly over the sheave of said sheave-block, and thence rearwardly to the aforesaid body portion's rear end to which it is suitably secured, substantially as and for the purpose set forth.

9. In combination, an excavator mounted upon rails arranged longitudinally of the cut made by the excavator; a suitably-operated winding-drum suitably supported from the excavator's body portion; a sheave suitably supported from the machine rearward of the drum; a sheave-block a suitable distance forward of said sheave; a cable operatively engaging the drum, thence extending rearwardly over the rear sheave, thence forwardly over the sheave of said sheave-block, and thence rearwardly to the aforesaid body portion's rear end to which it is suitably secured; a fish-plate or fish-plates instrumental in forming a joint in the aforesaid rail or rails forward of said sheave-block, and provided with an eye, and a connection between said eye and said sheave-block, substantially as set forth.

10. In combination, an excavator mounted upon rails arranged longitudinally of the cut made by the excavator; a suitably-operated winding-drum suitably supported from the machine; a sheave suitably supported from the rear portion of the machine and rearward of said drum; a sheave-block a suitable distance forward of said sheave; a cable operatively engaging the drum, thence extending rearwardly over said sheave, thence forwardly to and over the sheave of the sheave-block, and a member connecting said block with a rail or rails at or near the forward end of the machine's body portion, substantially as and for the purpose set forth.

576,858. IRON SCAFFOLDING. FRANZ G. KNOPFE and HEINRICH A. RÖDER, Chemnitz, Germany. Filed Jan. 17, 1896. Serial No. 575,928. (No model.)

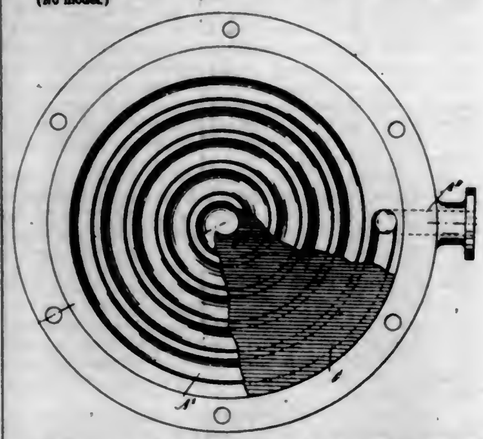


Claim.—1. The combination of tubular metal poles made in lengths, sockets to connect the said lengths, lugs on said sockets and stays adjustable in said lugs to connect up the poles, cross-supports adjustable on said poles and means for securing the same in position on the poles and brackets intermediate of said cross-stays adjustable on said poles, by means of sleeves and set-screws substantially as described.

2. The combination of a series of tubular poles made in lengths, sockets to connect up said lengths, cross-supports for the planking adjustable on said poles, brackets also adjustable on the poles to support planking intermediate of the cross-supports, lugs to the joint-sockets and stays *o o* adjustable therein and adjustable arms *v* on the lower socket-sleeves substantially as described.

3. The combination of tubular poles made in sections, sockets to connect up said sections, supports for the planking adjustable on said poles, brackets for planking adjustable on said poles intermediate of the supports, lugs on said supports, sleeves and stays adjustable in said lugs, outwardly-extending arms *v v* pivoted at the lower part of said poles and adjustable in their angle of incline and a ladder *t* laterally movable on the upper stay *o* to reach the roof substantially as described and shown.

576,859. HEATING AND COOLING COIL. JULIUS R. KOEHLER, New York, N. Y., assignor of one-half to August H. Blanck and William Dannheim, same place. Filed Apr. 13, 1896. Serial No. 587,328. (No model.)



Claim.—1. A coil, comprising two or more grooved sections, and a division-plate or partition separating said sections and having an opening for connecting the adjacent ends of the grooves with each other, and causing the liquid to first flow through the groove in one section and then through the groove in the other section, substantially as shown and described.

2. A coil, comprising two or more grooved sections each formed on its face with a continuous groove leading to an inlet or outlet, and a division-plate or partition between the sections for separating the grooves, said division-plate being formed with an opening for connecting adjacent ends of the grooves with each other, substantially as shown and described.

3. A coil comprising two or more sections provided with grooves in their opposing faces, a division-plate or partition separating said sections and located between said opposing faces, said division-plate being provided with an opening leading from the groove of one section to that of the adjoining section, as and for the purpose set forth.

4. A coil comprising two or more sections provided with continuous spiral grooves in their opposing faces, a division-plate or partition located between said opposing faces and provided with a transverse aperture leading from the groove of one section to that of the adjoining section, the groove being provided at a distance from said connecting-aperture, with openings adapted to serve as an inlet and an outlet respectively, as and for the purpose set forth.

5. A coil comprising two or more sections provided with continuous spiral grooves in their opposing faces and openings at the outer ends of said grooves, said openings being adapted to serve as an inlet and an outlet respectively, and a division-plate or partition located between said grooved faces of the sections and provided with an approximately central aperture leading from the inner end of the groove in one section to the inner end of the groove in the adjoining section, as and for the purpose set forth.

576,860. PROCESS OF BLEACHING RICE. GEORGE A. LANAUX, New Orleans, La. Filed July 20, 1896. Serial No. 599,930. (Specimens.)

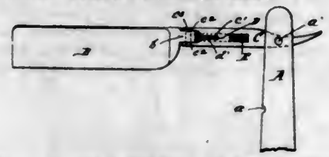
Claim.—1. The herein-described process of cleaning and bleaching rice, consisting in applying to the rice-grains a mixture of bluing, white polishing-powders and oil, and finally brushing and polishing the rice, in the manner set forth.

2. A compound for cleaning and bleaching rice, consisting of ultramarine-bluing, soapstone and petrol-oil, compounded substantially in the manner and the proportions specified.

576,861. REFINING SUGAR. EUGEN LANGEN, Cologne, Germany. Filed May 28, 1894. Serial No. 512,798. (No specimens.) Patented in England Feb. 21, 1894, No. 3,783; in France Feb. 21, 1894, No. 236,464; in Belgium Feb. 22, 1894, No. 106,896; in Austria Mar. 14, 1894, No. 44/473; in Hungary May 17, 1894, No. 449, and in Italy Aug. 1, 1894, LXXII, 136.

Claim.—In the process of refining sugar, the method of improving the quality of the raw sugar before it is subjected to affinage by mixing it with the syrups or saccharine liquors derived from the refinery, heating these liquors for their concentration either before or after such admixture and subjecting the mixture to crystallization in motion, whereby the said syrups are at the same time deprived of their sugar, and numerous fractionated washings are dispensed with, substantially as described.

576,862. RAZOR. JESSE P. LEBOLD, Philadelphia, Pa. Filed June 27, 1896. Serial No. 597,147. (No model.)

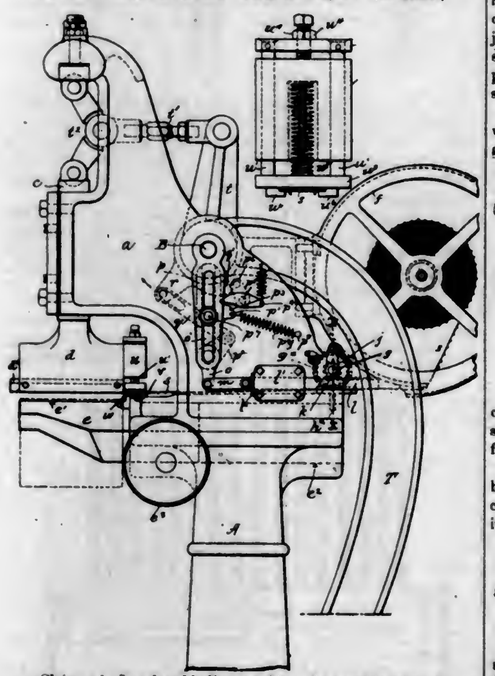


Claim.—1. A razor comprising a handle, a separately-formed tang pivoted in said handle to swing in a line parallel therewith, and a blade pivoted to one end of the tang to swing in either direction transversely of the tang and handle when the blade is open, substantially as specified.

2. A razor comprising a handle, a separately-formed tang pivoted in said handle to swing in a line parallel therewith, and having a jaw formed at one end thereof, a blade pivoted in said jaw to swing transversely of the tang and handle in either direction when the blade is open, and a spring-actuated stop to lock the blade at the desired angle to the tang, substantially as specified.

3. A razor comprising a handle, a separately-formed tang pivoted in the handle to swing in a line parallel therewith, said tang having a spring-jaw at one end and a longitudinal recess extending rearwardly from the jaw, a blade pivoted in the jaw to swing transversely of the tang and the handle in either direction when the blade is open, said blade having a series of depressions in the extreme end of its shank, and a spring-actuated pin supported in the recess in the tang to normally engage one of the depressions in the shank of the blade, substantially as and for the purpose specified.

576,863. BOX-BINDING MACHINE. CHARLES LEFFLER, Brooklyn, N. Y. Filed Apr. 2, 1896. Serial No. 585,867. (No model.)



Claim.—1. In a box-binding machine, the combination of a reciprocating die having a passage for the binding-strip, a guide for the binding-strip carried by said die and movable with respect thereto, and a knife located between the die and guide for severing the strip as set forth.

2. In a box-binding machine, the combination of a reciprocating die having a passage for the binding-strip, and a guide for the binding-strip carried by said die, and movable with respect thereto, as set forth.

3. In a box-binding machine, the combination of a reciprocating die having a passage for the binding-strip, a guide for the binding-strip carried by said die and movable with respect thereto, a stop limiting the movement of the guide, and a stationary knife arranged at the level of the stop and between the guide and the die, substantially as described.

4. In a box-binding machine, the combination of a reciprocating die provided with a passage for the strip, a feeding device for the binding-strip, an automatically-adjusting guide for the end of the binding-strip, located between the feeding device and the die, whereby the strip is properly directed into the passage in the die, for the purpose set forth.

5. In a box-binding machine, the combination of a feeding device for the binding-strip, a reciprocating die provided with a passage for the strip, an automatically-adjusting guide for the end of the binding-strip, located between the feeding device and the die and a knife for severing the strip located between the guide and die substantially as described.

6. In a box-binding machine, the combination of a reciprocating die provided with a passage for the binding-strip, a movable frame mounted in guides suitably fixed to the die, a passage for the binding-strip located in said frame, and means whereby the passage in the guide is brought in line with the passage in the die, substantially as described.

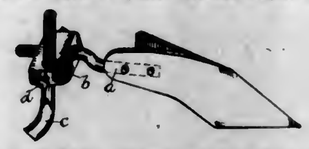
7. In a box-binding machine, the combination of a reciprocating rack-bar, a feeding-wheel driven thereby, a pivoted slotted arm connected with said rack-bar, another pivoted and slotted arm adjustably pivoted to the first and means for swinging the second slotted arm on its pivot to thereby drive the feeding-wheel, substantially as described.

8. In a box-binding machine, the combination of a reciprocating rack-bar, a feeding-wheel driven thereby, a pivoted and slotted arm connected with said rack-bar, another pivoted and slotted arm adjustably pivoted to the first, and means for swinging the second slotted arm on its pivot to thereby drive the feeding-wheel, and a detent preventing reaction of the arm when it has reached the end of its stroke, substantially as described.

9. In a box-binding machine, the combination of a reciprocating rack-bar, a feeding-wheel driven thereby, a pivoted and slotted arm connected with said rack-bar, another pivoted and slotted arm adjustably pivoted to the first, and means for swinging the second slotted arm on its pivot to thereby drive the feeding-wheel, a detent preventing reaction of the arm when it has reached the end of its stroke and means for releasing the detent, substantially as described.

10. In a box-binding machine, the combination of the feeding-wheel for the binding-strip, the rack-bar *l*, arms *o* and *p* pivoted together, slotted link *q* and crank-arm *r*, for the purpose set forth.

576,864. FURROW-SPLITTER. ALFRED W. LEGE, Balclutha, New Zealand. Filed Oct. 2, 1895. Serial No. 564,470. (No model.)



Claim.—1. In an attachment to the moldboard of a plow, the combination of a stay *a*, and a block *b*, provided with holes and set-screws *d*, *d*, for the purpose of adjustment, with a cutter *c*, the whole for the purpose of splitting furrows all substantially as set forth.

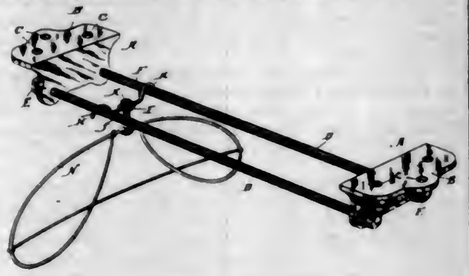
2. The combination with a moldboard, of a plow, of a stay a block having holes carrying set-screws, a cutter adapted to be adjustably connected with said moldboard, whereby the furrow is split directly it is turned by the plow, substantially as and for the purpose set forth.

576,865. HOOK ATTACHMENT. KATHARINE LEONHARDT, Philadelphia, Pa., assignor of one-half to Samuel Rasch, same place. Filed Apr. 20, 1896. Serial No. 588,335. (No model.)

Claim.—1. The herein-described combination of the brackets A, rods D secured thereto and lying parallel with each other, supporters F having hooked ends for engagement with the rods, bolts J depending from said supporters and hangers or other devices attached to said bolts whereby garments may be suspended and moved lengthwise of the rods, substantially as shown and described.

2. The herein-described combination of the right-angled brackets A, means for securing said brackets to the desired surface, rods D secured to said brackets and lying parallel with each other, supporters F, hooks H formed with said supporters and eyes formed through the centers of said supporters, bolts J secured within said

eyes and hangers or other devices for suppporting garments, swiveled to said bolts, substantially as and for the purposes set forth.



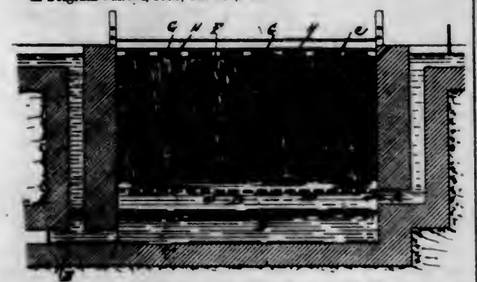
576,866. BRUSH. FRANK N. LOOK, Northampton, Mass. Filed Aug. 22, 1894. Serial No. 521,089. (No model.)



Claim.—1. A brush comprising two metallic shells, one for the face and one for the back, the shell for he face being perforated and having bristles in the perforations, a mass of composition securing the bristles in place and reinforcing the shell for the face, a reinforce of wood or similar material for the shell for the back, securing means engaging with the under side of the wooden reinforce and holding together the said reinforce and the composition at intermediate points in the width of the brush, substantially as set forth.

2. The brush comprising two metallic portions or shells, one for the face and one for the back, the shell for the face being perforated and having bristles in the perforations, a mass of composition securing the bristles in place and reinforcing the said face, a reinforce of wood or similar material for the shell for the back, and securing devices passing through the face shell and composition and entering the wooden reinforce, said devices serving to hold the parts rigidly together, substantially as set forth.

576,867. PROCESS OF RETTING OR STRIPPING FLAX OR HEMP. GEORGES LOPPENS and HONORÉ DEBWARTE, Nieuport, Belgium. Filed Nov. 26, 1895. Serial No. 570,250. (No specimens.) Patented in Belgium June 4, 1895, No. 115,904.

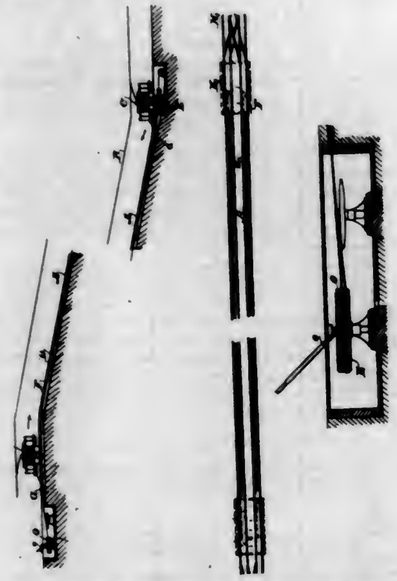


Claim.—The herein-described process of retting flax which consists in covering a mass of vertically-arranged flax-straw with water, constantly delivering fresh water beneath the mass, and constantly withdrawing the same quantity of impure water from below the fresh water, substantially as described.

576,868. OPERATING CARS ON GRADES. HENRY H. LYNCH and SAMUEL L. FOSTER, San Francisco, Cal., assignors to the Market Street Railway Company, same place. Filed Sept. 30, 1896. Serial No. 607,383. (No model.)

Claim.—1. A means for operating on grades, cars having individual motors, said means comprising a movable cable passing down one track and up the other, and having no driving mechanism or device of its own, grips attached to opposite sides to said cable, and adapted one to pass down one track while the other is passing up the other track, coupling devices adapting the cars to be attached to and detached from said grips, and crossings or switches in the tracks from one to the other, to enable the cars to successively connect with the waiting grips.

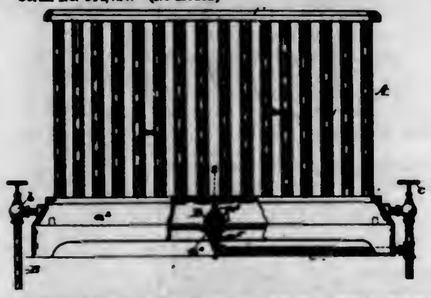
2. A means for operating on grades, cars having individual motors said means comprising conduits in the road-beds of the tracks at the grade, a movable cable mounted in said conduits, grips having means by which they are attached to the cable, said grips being attached to the cable at opposite sides thereof, a fixed track in the conduits upon which the grips travel and are supported, and coupling devices for attaching the cars to and detaching them from the grips, on opposite sides of the cable and at the head and foot of the grade respectively.



3. In a means for operating cars at grades, the combination of a movable cable extending in suitable conduits up and down the grade, a fixed track-rail within said conduits, and the grips having means for attaching them to the cable on opposite sides thereof, and provided with rollers traveling on the fixed track whereby the grips are guided and supported in their travel through the conduits.

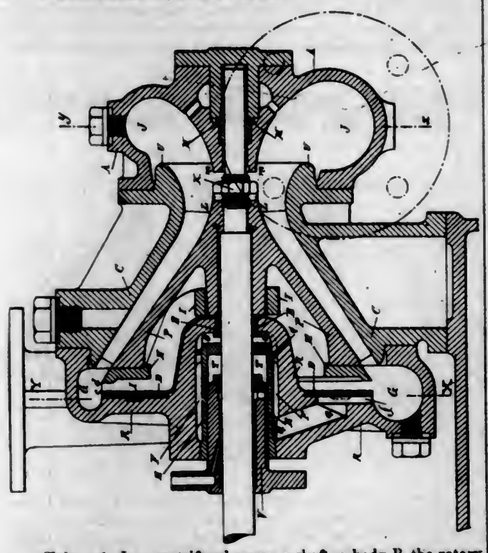
4. In a means for operating cars on grades, and in combination with the traveling grips connected with a cable operating in conduits on the grade, the coupling devices for the cars consisting of the pivoted bails attached to them, and the coupling-links attached to the grips and adapted to be coupled to the bails of the cars.

576,869. RADIATOR. WILLIAM M. LYNE, Boston, Mass., assignor of one-half to Joseph H. Gibson, same place. Filed Dec. 7, 1896. Serial No. 614,727. (No model.)



Claim.—A steam-radiator, having steam inlet and outlet pipes, valves therefor, radiating pipes or loops, and a base communicating therewith, combined with a partition in said base separating said radiator into compartments, a three-way valve in said partition, and a pipe connecting said valve with said steam-outlet pipe, said valve being adapted to open free communication as desired between the compartments of the radiator and said connecting-pipe, substantially as described.

576,870. SINGLE OR CONNECTED HELICO-CENTRIFUGAL PUMP. ALBERT MAGNOT, Vesoul, France. Filed Jan. 31, 1896. Serial No. 577,576. (No model.) Patented in France Dec. 15, 1891, No. 218,001, and Mar. 15, 1894, No. 236,999.



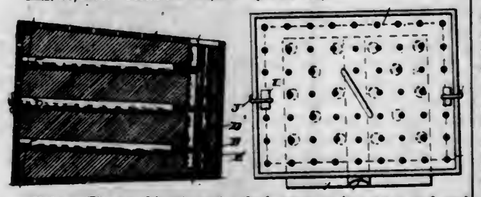
Claim.—1. In a centrifugal pump, a shaft, a body R, the rotary pump, the casing containing the same of which the body R forms a part, the stuffing-box in said body, the thin walls E about the same, the chamber F about said wall and the water-packing chamber O about the shaft at the end of the stuffing-box, the passage leading to the chamber F for cooling the stuffing-box and the passages S from the chamber F to the chamber O, substantially as described.

2. In combination, in a centrifugal pump, the shaft, the rotary nave P, the part L thereof, a nut at the end of said part to hold the nave to the shaft and the aspiring-casing A, having the inwardly-extending hub M, with its edge *m* adjacent to the outer edge of the nut to direct the water past the same without obstruction, the said shaft extending beyond the edge *m* and bearing in the inwardly-extending hub M, substantially as described.

3. In combination in a centrifugal pump, a central shaft, the two sets of paddles on conical naves, said naves being placed in reversed position in respect to each other, the casings surrounding the naves, the inlets to and from the casings, and a central coupling-box uniting the heads, said box forming also a water-passage from one pump to the other, substantially as described.

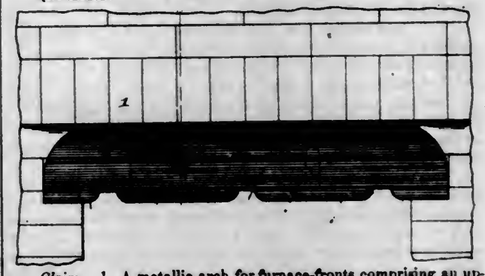
4. In combination, a central shaft, a pair of pumps comprising the paddles on said shaft and the casings about said paddles and shaft, and the central connecting-sleeve about the shaft and secured at its opposite ends to the two casings, said sleeve forming a water-passage between the two casings, substantially as described.

576,871. MOLDING SASH-WEIGHTS. WILLIAM MANN, Galveston, Tex., assignor of one-half to George T. Louttit, same place. Filed Mar. 28, 1896. Serial No. 585,676. (No model.)



Claim.—The combination of a flask open at its upper end and having its sides diverging upward, the flask adjacent its lower end being formed with a side opening, the elongated gate-pattern adapted to be placed in horizontal position through said side opening of the flask, and formed with a central enlargement for the purpose stated, said gate-pattern being formed with vertical openings or perforations, the mold-pattern having reduced ends which are adapted to take the openings or perforations of the gate-pattern, and thus be held in vertical or standing position while the flask is rammed with sand, the sectional chills adapted to be inserted in the ends of the molds to form the eyes upon the sash-weights after the mold-patterns have been removed, and the removable cover for the upper end of the flask, substantially as shown and described.

576,872. METALLIC ARCH FOR FURNACE-FRONTS. WILLIAM M. MATHERN, Chicago, Ill. Filed June 29, 1896. Serial No. 597,272. (No model.)



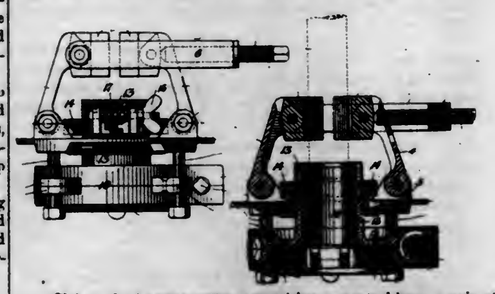
Claim.—1. A metallic arch for furnace-fronts comprising an upright plate provided upon its lower edge with a plurality of flanges at intervals.

2. A metallic arch for furnace-fronts comprising an upright plate provided upon its lower edge with end flanges and middle flanges, said end flanges being adapted to rest upon the wall at the sides of the fire-door, and said middle flanges being adapted to support bricks or tiles to protect said plate from the heat, and braces between said middle flanges and said plate.

3. A metallic arch for furnace-fronts comprising an upright plate provided upon its lower edge with a series of flanges having beveled edges.

4. A metallic arch for furnace-fronts, comprising an upright plate provided upon its lower edge with end flanges and middle flanges having beveled edges, and braces between said middle flanges and said plate.

576,873. COMBINATION VISE AND SCREW-CUTTER. WILLIAM E. MELHORN, Knoxville, Pa., assignor of one-half to V. Q. Hickman, Pittsburg, Pa. Filed Oct. 5, 1896. Serial No. 607,970. (No model.)



Claim.—1. A screw-cutter comprising a central base, a pair of gripping-jaws mounted on swinging arms hinged to the base, and a rotatable die-holder movably mounted upon the base, substantially as set forth.

2. A screw-cutter comprising a base with a central opening therethrough, a pair of gripping-jaws mounted on swinging arms hinged to the base, and a rotatable die-holder movably mounted upon the base provided with a central hollow extension passing through the base, substantially as set forth.

3. A screw-cutter comprising a base with a central opening therethrough, a pair of gripping-jaws mounted on swinging arms hinged to the base, and a rotatable die-holder movably mounted upon the base provided with a central hollow threaded extension passing through the base, with a nut secured to the base and engaging such threaded extension, substantially as set forth.

4. A screw-cutter comprising a base with a central opening therethrough, a pair of gripping-jaws mounted on swinging arms hinged to the base, and a rotatable die-holder movably mounted upon the base provided with a central hollow threaded extension passing through the base, a two-sided divided nut pivotally secured to the base and engaging the threaded extension, with means for closing the nut upon the threaded extension, substantially as set forth.

5. In combination with a base and a rotatable die-holder movably mounted thereon; the gripping-vise comprising arms pivoted to the base, gripping-jaws pivoted to the arms, a clamp-arm pivoted to

one of the arms and gripping-jaws, and having a temper-screw bearing against the other jaw, substantially as set forth.

6. In combination with a central base, a pair of gripping-jaws mounted on swinging arms hinged to the base, and a rotatable die-holder movably mounted upon the base provided with a central hollow threaded extension passing through the base; a divided hinged nut pivotally secured to the base composed of two independently-movable separable threaded halves designed to embrace the threaded extension, substantially as set forth.

7. In combination with a central base, a pair of gripping-jaws mounted on swinging arms hinged to the base, and a rotatable die-holder movably mounted upon the base provided with a central hollow threaded extension passing through the base; a divided hinged nut pivotally secured to the base composed of two independently-movable separable threaded halves designed to embrace the threaded extension, and provided with means for closing the threaded halves upon the threaded extension, substantially as set forth.

8. In combination with a base and a pair of gripping-jaws pivotally mounted thereon; a housing movably mounted on the base, a rotatable die-holder inclosed in the housing provided with worm-teeth on its periphery and a worm-gear meshing therewith, mounted in the housing and provided with a power-shaft, substantially as set forth.

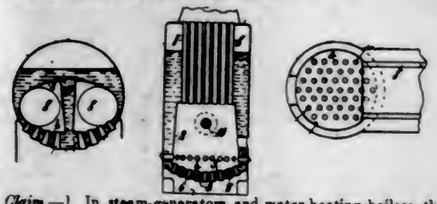
9. In combination with a rotatable die-holder having a circular depressed cavity for the die, adjustably mounted on a base, and means for rotating the die-holder, and a rectangular die mounted therein; segmental holding-blocks provided with a curved face corresponding to the interior edge of the cavity, and a straight face bearing against the edge of the die, with means for securing the blocks to the depressed face of the die-holder, substantially as set forth.

10. In combination with a rotatable die-holder having a circular depressed cavity for the die, adjustably mounted on a base, and means for rotating the die-holder; the adjustable die composed of divided semicircular bases, thread-cutters mounted therein, a cam-plate mounted on the die-holder provided with cam-grooves engaging bolts in the bases, substantially as set forth.

11. In combination with a rotatable die-holder having a circular depressed cavity for the die, adjustably mounted on a base, and means for rotating the die-holder; the adjustable die composed of divided semicircular bases, thread cutters mounted in suitable transverse grooves, and lugs provided with pointed set-screws bearing in regularly-spaced holes in the thread-cutters, a cam-plate mounted on the die-holder provided with cam-grooves engaging bolts in the bases, and means for securing the parts together and to the die-holder, substantially as set forth.

12. In combination with a rotatable die-holder having a circular depressed cavity for the die; a circular plate provided with a cutter mounted in an adjustable slide having a threaded lug engaged by a temper-screw mounted in the circular plate, with means for securing the plate to the die-holder, substantially as set forth.

576,874. **STEAM-GENERATOR.** RICHARD W. MEWES, Blackhill, England. Filed Oct. 15, 1896. Serial No. 608,949. (No model.) Patented in England Aug. 14, 1894, No. 15,490.

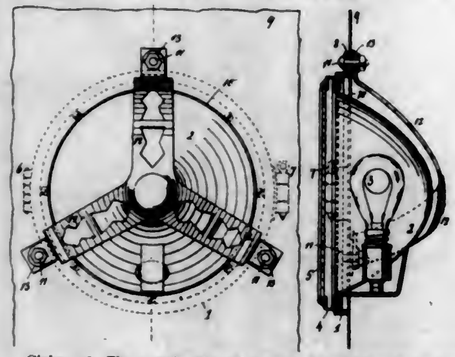


Claim.—1. In steam-generators and water-heating boilers, the combination with the boiler-shell and inclosed fire-box, each having a dished bottom to form an intermediate concavo-convexed bottom water-space, of a number of conical or tapering air-inlet tubes extended across said bottom water-space and opening into the fire-box and ash-pit, the larger ends of said tubes, being downward to quickly discharge the ashes into the ash-pit, substantially as described.

2. The combination with a boiler-shell, and an inclosed fire-box completely surrounded by water and having a water-space between the bottoms of said boiler-shell and fire-box, of a number of tubes traversing said bottom water-space and connected with the bottoms of the fire-box and boiler-shell to supply heated air to the fire and discharge ashes to the ash-pit, and conically-bored ferrules inserted into the upper ends of said tubes with the larger ends of the ferrule-bores downward to quickly release the ashes entering said tubes and thereby prevent choking, substantially as described.

3. The combination with a boiler-shell, and an inclosed fire-box completely surrounded by water, there being a water-space between the bottoms of the said boiler-shell and fire-box, of a number of tubes traversing the said bottom water-space and connecting the bottom plates of the fire-box and boiler-shell to afford passages for air and ashes, conically-bored ferrules inserted into the upper ends of said tubes with the larger ends of the ferrule-bores downward to quickly release the ashes and allow them to discharge freely, and a series of lateral air-inlet tubes above the fuel-bed, substantially as described.

576,875. **HEADLIGHT.** THOMAS C. MILLER, New York, N. Y. Filed Feb. 27, 1896. Serial No. 580,953. (No model.)

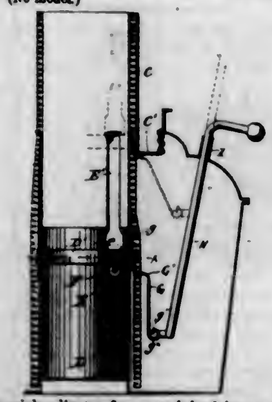


Claim.—1. The combination of a car-dashboard having a circular opening near its center leaving the dashboard unbroken transversely both above and below said opening, with a headlight or lantern set bodily in said circular opening and attached to the dashboard at points around the edge of said opening, a reflector setting within the circular opening, and a protector arranged over the reflector and attached to the dashboard at points around the circular opening therein, substantially as and for the purposes described.

2. The combination of a car-dashboard having an opening near its center leaving the dashboard unbroken transversely both above and below said opening, with a ring attached to the dashboard at points around the edge of said opening, a transparent door mounted on said ring, a reflector setting into the said opening and secured to said ring, and a protector arranged over the reflector and connected with the said ring and with the dashboard at points around the opening therein, substantially as and for the purposes described.

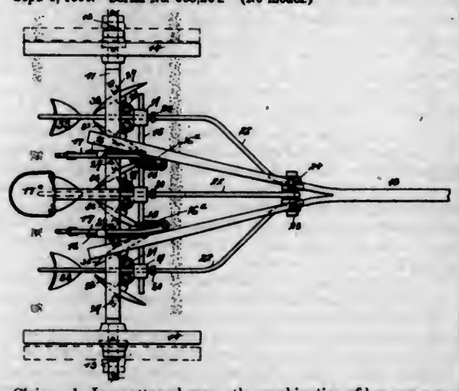
3. The combination of a car-dashboard having a recess or opening therein, with a lantern frame or ring attached to the dashboard at points around the edge of the said recess or opening, a reflector setting within the said recess or opening and attached to the frame or ring, a protector arranged over the reflector and secured to the dashboard, and a transparent door mounted on said frame or ring, substantially as and for the purposes described.

576,876. **WICK-ADJUSTER FOR CENTRAL-DRAFT LAMPS.** JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed Feb. 5, 1894. Serial No. 499,065. (No model.)



Claim.—In a wick-adjuster for central-draft lamps, the combination with a lamp-fount, of a central draft-tube located therein, a wick-holder movable up and down upon the said tube, a straight, rigid draw-bar mounted in an inclined position in the lamp-fount, having its upper end extended upward through the same, and its lower end bent to form an inwardly-projecting, horizontally-arranged hook extending crosswise of the draft-tube, a spring connecting-strap having its upper end attached to the wick-holder and its lower end bent for engagement with the said hook of the bar, and an inclined bearing located upon the lamp-fount, and adapted to receive the draw-bar which it confines to movement in an inclined plane, the variation in the distance of the lower end of the bar from the draft-tube and wick-holder caused by pulling it up and pushing it down, being permitted by the said spring connecting-strap, substantially as described.

576,877. **COTTON-CHOPPER.** JOHN R. MILLER, Bend, Tex. Filed Sept. 9, 1896. Serial No. 605,264. (No model.)



Claim.—1. In a cotton-chopper, the combination of hangers comprising two parallel bars, concave rotary disks pivoted thereto on each side of the center, with a plow-beam passing between said bars and guided thereby and a shovel upon its rear end occupying the space between said disks, substantially as described.

2. In a support for rotary disks the combination of a depending arm having a horizontal head extending across the line of motion, and provided with vertical holes therethrough near each end and locking pin-holes adjacent thereto, with arms having journals at right angles to each other, one of said journals passing through one of the holes in the head, a notched disk fixed to its upper end, a pin adapted to engage one of said notches and a pin-hole in the head, and a rotary disk journaled upon the horizontal journals, substantially as described.

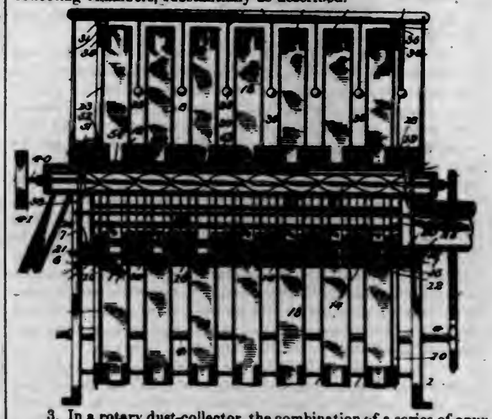
3. In a support for rotary disks, the combination of a depending arm having a horizontal head upon its lower end and extending across the line of motion and provided with a vertical hole therethrough near each end and locking pin-holes adjacent thereto, with bars having right-angled journals pivoted in said holes, notched disks fixed to their upper ends, locking-pins engaging said notches and the pin-holes, disk fitting the horizontal journals and means for adjusting the disks consisting of holes through the journal and pins therefor, substantially as described.

4. In a cotton-chopping machine, a hanger, angular spindles adjustable in the said hanger, a locking device for the spindles, and disk choppers adjustably mounted on the spindles, as and for the purpose specified.

576,878. **DUST-COLLECTOR.** JOHN E. MITCHELL, Jackson, Mich. Filed Nov. 16, 1896. Serial No. 612,295. (No model.)

Claim.—1. In a rotary dust-collector, the combination of a series of parallel and spaced-apart annular dust-collecting sections, each comprising a number of segmental chambers having porous side walls and inclosing a central horizontally-arranged cylindrical space with which said chambers communicate, means for introducing dust-laden air into said cylindrical space and thence into the several dust-collecting chambers, a screw conveyer mounted in the upper portion of the said central cylindrical space below the uppermost segmental chambers, means for vertically rotating the annular dust-collecting sections in a body, and automatically-actuated knockers suspended between and adjacent to the uppermost chambers of the several annular dust-collecting sections, substantially as described.

2. In a rotary dust-collector, the combination of a series of annular and parallel dust-collecting sections connected in one vertically-rotary body and with annular spaces intermediate said sections, a number of segmental dust-collecting chambers formed in each of said annular sections, each of said segmental chambers being closed at its outer end and open at its inner end and provided with porous side walls, the inner open ends of said segmental chambers being in communication with a horizontally-arranged central cylindrical space around which the several annular sections are revolved, a duct or conduit communicating with one end of said central cylindrical space to convey dust-laden air into the same, a conveyer-trough supported longitudinally in the upper portion of said central cylindrical space and having its ends projecting beyond the same, a screw conveyer mounted in said trough and having the ends of its shaft projecting beyond the ends of the trough, a driving-pulley on one end of said shaft, rollers on which the body of annular dust-collecting sections is supported, sprocket-gearing from the conveyer-shaft to the shafts of said rollers, and a series of vibratory knockers suspended in the upper portions of the annular spaces between the uppermost dust-collecting chambers, substantially as described.



3. In a rotary dust-collector, the combination of a series of annular dust-collecting sections, each comprising a number of segmental dust-collecting chambers having inner open ends and closed at their outer ends and provided with porous side walls, the said annular sections being spaced apart with intervening annular spaces between them, a central cylindrical space or chamber with which the inner ends of the several segmental dust-collecting chambers communicate, a series of spring-supported vibratory knockers suspended in the annular spaces between and adjacent to the uppermost segmental chambers of the several annular sections, means for automatically actuating the said knockers from the rotary body of dust-collecting sections, a duct or conduit for conducting dust-laden air into one end of said central cylindrical chamber and thence into the several segmental chambers, a screw conveyer located in the upper portion of said central cylindrical space, a cut-off shield intermediate the upper side of said conveyer and the inner ends of the uppermost chambers in the several dust-collecting sections, the said cut-off shield being provided with a central longitudinal trough having in one side a valve provided with a lever-arm, and a pin carried on one of the annular dust-collecting sections to come in contact with said lever-arm and open the said valve to permit the discharge of dust into the conveyer, substantially as described.

4. In a rotary dust-collector, the combination of a spaced-apart series of parallel annular dust-collecting sections, each comprising a number of segmental dust-collecting chambers having porous side walls, the said chambers being closed at their outer ends and open at their inner ends, a central cylindrical space or chamber communicating with the inner open ends of said chambers, a conveyer-trough supported longitudinally in the upper portion of said central space and provided with a discharge spout or chute at one end, a screw conveyer mounted in said trough, a segmental or concavo-convex cut-off shield adjustably supported by the conveyer-trough and arranged intermediate the upper side of the conveyer and the lower or innermost open ends of the uppermost segmental chambers in the several annular dust-collecting sections, the said cut-off shield being provided with a central longitudinal trough having one side stationary and the other side hinged or formed as a valve, a lever-arm on one end of said trough-valve, a pin carried by one of the rotary annular dust-collecting sections to actuate said lever-arm for opening said valve to cause a discharge of dust into the conveyer, and a series of spring-supported vibratory knockers suspended between and adjacent to the porous walls of the several uppermost segmental dust-collecting chambers and adapted to be automatically operated at intervals for causing the discharge of dust from said chambers into the cut-off trough and thence into the conveyer, substantially as described.

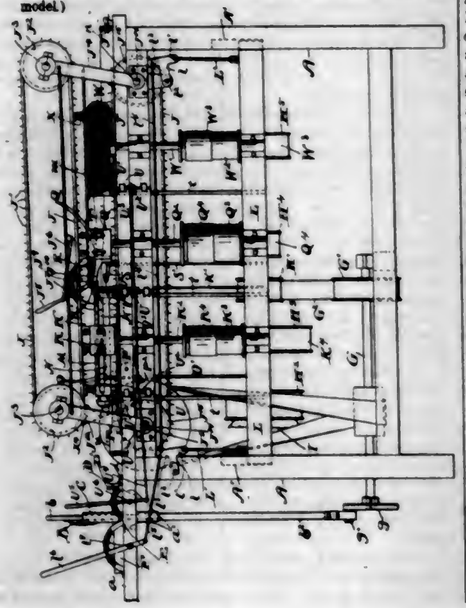
5. In a rotary dust-collector, the combination of a series of spaced-apart and parallel disk-shaped dust-collecting sections each comprising an annular series of segmental chambers segregated from

each other and open at their inner ends, the said chambers being closed at their outer ends and provided with porous side walls, series of rings connected with the inner ends of said disk-shaped sections and spacing the same apart to provide annular spaces between the several disks or sections, a central horizontally-arranged and cylindrical air-inlet chamber having its walls constituted by the inner ends of the segmental chambers and connected spacing-rings, a conveyer mounted in the upper portion of the said cylindrical air-inlet chamber to receive dust from the uppermost segmental chambers of the several disks or sections and carry it out of the machine, means for cutting off the access of air to the several segmental chambers in succession as they are rotated vertically to an uppermost position, and automatically-actuated vibratory knockers suspended adjacent to the porous side walls of the uppermost segmental chambers, substantially as described.

6. In a rotary dust-collector, the combination of a series of hollow disk-shaped dust-collecting sections composed of concentric rings and radial partitions forming in each of said sections an annular series of segmental chambers that are closed at their outer ends and open at their inner ends, series of rings connected with and intermediate the inner ends of said hollow disks or sections to space the same apart and provide annular spaces between the segmental chambers of adjoining sections, the said chambers being provided with porous-cloth walls facing said annular spaces, vibratory knockers suspended in said annular spaces and adjacent to the cloth walls of said chambers, a central and horizontally-arranged cylindrical air-inlet chamber having its walls constituted by the inner ends of the segmental chambers and the said rings that space apart the several disks or sections, the said disks being arranged to rotate in a vertical plane, and a conveyer mounted in said air-inlet chamber to receive dust from the segmental chambers and carry it out of the machine, substantially as described.

7. In a rotary dust-collector, the combination of the end standards provided with circular heads, a series of rotary and spaced-apart disk-shaped sections mounted between the said circular heads and each comprising an annular series of segmental dust-collecting chambers that are open at their inner ends and closed at their outer ends and provided with porous side walls, spring-standards carrying a longitudinally-movable bar having spring-supported knockers suspended therefrom in proximity to the uppermost chambers in the several disks or sections, a cam-bearing on the longitudinally-movable bar, series of pins carried on one of the disk-sections to come in contact with said bearing at intervals and thereby move the spring-supported bar longitudinally to vibrate the knockers, a central cylindrical air-inlet chamber communicating with the segmental dust-collecting chambers, and a dust-conveyer located in said central chamber to carry dust out of the machine, substantially as described.

576,879. FISH-CLEANING MACHINE. ELMER A. MURPHY, Painesville, Ohio. Filed May 11, 1896. Serial No. 591,070. (No model.)



Claim.—1. In a machine of the character indicated, the combination of two toothed endless belts J J arranged one above the other and longitudinally of the machine; means for driving said belts in opposite directions, respectively; guides N n arranged at opposite sides, respectively, of the space between the belts, and revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending through one of the aforesaid guides centrally between the aforesaid belts, and the guide through which said knives' sweep extends being slotted to accommodate the location and operation of the knives, substantially as and for the purpose set forth.

2. In a machine of the character indicated, the combination of two toothed feeding-belts J J arranged one above the other and longitudinally of the machine; laterally-adjustable guides N n arranged at opposite sides, respectively, of the space between the belts, and revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending through one of the aforesaid guides and centrally between the aforesaid belts, and the guides through which said knives' sweep extends being slotted to accommodate the location and operation of the knives, substantially as and for the purpose set forth.

3. In a machine of the character indicated, the combination of two toothed endless feeding-belts arranged one above the other and longitudinally of the machine, and the upper belt being adjustable toward and from the lower belt; guides arranged at opposite sides and longitudinally of the space between the belts and vertically-adjustable revolving splitting-knives K having a horizontal sweep extending into the aforesaid space centrally between the belts, substantially as and for the purpose set forth.

4. In a machine of the charactor indicated, the combination of two toothed endless feeding-belts J J arranged one above the other and longitudinally of the machine; revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts; guides arranged at opposite sides and longitudinally of said space, and a suitably-supported finger O extending inwardly into said space just below the aforesaid sweep and beyond the latter's inner extremity, substantially as and for the purpose set forth.

5. In a machine of the character indicated, the combination of two toothed endless belts J J arranged one above the other and longitudinally of the machine; revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts; a suitably-supported finger O extending into said space just below the aforesaid sweep and beyond the latter's inner extremity, and a dividing-bar M arranged within and longitudinally of said space next above the aforesaid sweep, substantially as and for the purpose set forth.

6. The combination of two toothed belts arranged one above the other and longitudinally of the machine, and the upper belt being adjustable vertically; vertically-adjustable revolving splitting-knives K having a horizontal sweep extending a suitable distance into and centrally of the space between the two belts; the vertically-adjustable finger O arranged just below said sweep and extending into the aforesaid space and somewhat beyond the inner extremity of said sweep, and the vertically-adjustable dividing-bar M arranged within and longitudinally of the aforesaid space next above the aforesaid sweep, substantially as and for the purpose set forth

7. In a machine of the character indicated, the combination of two toothed endless belts arranged one above the other and longitudinally of the machine and the upper belt being adjustable toward and from the lower belt; a vertically-adjustable bar or slide L a suitable distance below the lower belt; splitting-knives K arranged a suitable distance rearward of the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts and suitably supported from the aforesaid slide; the finger O arranged just below said sweep and supported from the aforesaid slide and extending into the aforesaid space beyond the aforesaid sweep, and the dividing-bar M arranged within and longitudinally of the aforesaid space and next above the sweep of the knives and supported from the aforesaid slide, substantially as and for the purpose set forth.

8. In a machine of the character indicated, the combination of two toothed endless belts arranged the one above the other and longitudinally of the machine; revolving splitting-knives suitably arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; means for lifting the side of the fish's body above the latter's inwards preparatory to the operation of said blades upon the inwards; a brush rearward of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations, and means for simultaneously effecting an equal vertical adjustment of the aforesaid brush, blades and knives, substantially as and for the purpose set forth.

9. In a machine of the character indicated, the combination of two endless belts arranged the one above the other and longitudinally of the machine, and the upper belt being adjustable vertically and inclining upwardly and rearwardly; revolving splitting-knives suitably arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; means for lifting the upper portion of the fish's body from the fish's inwards preparatory to the operation of said blades upon the inwards; a brush rearward of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations, and the vertically adjustable bar or slide L carrying the aforesaid knives, blades and brush, substantially as and for the purpose set forth.

10. In a machine of the character indicated, the combination of two endless belts arranged the one above the other and longitudinally of the machine; revolving blades arranged to enter a split fish fed rearwardly by and between said belts and remove the fish's inwards; means for lifting the upper portion of the fish's body from the fish's inwards preparatory to the operation of said blades upon the inwards, and the suitably-supported finger R extending into the space between the belts adjacent to and beyond the inner extremity of the sweep of the aforesaid blades, substantially as and for the purpose set forth.

11. In a machine of the character indicated, the combination of two toothed fish-feeding belts arranged one above the other and longitudinally of the machine; the blades Q arranged a suitable distance rearward of the receiving extremities of said belts, and having a horizontal sweep extending into the space between the belts; the brush W arranged a suitable distance rearward of said blades and extending into the aforesaid space; the bar *m* arranged within and longitudinally of the aforesaid space above the sweep of the brush and blades; the suitably-supported finger R extending into the aforesaid space adjacent to the sweep of the blades and beyond said sweep's inner extremity, and the finger S arranged to extend into said space below the sweep of the blades, substantially as and for the purpose set forth.

12. In a machine of the character indicated, the combination of two toothed endless fish-feeding belts arranged the one above the other and longitudinally of the machine; revolving splitting-knives suitably arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; a brush rearward of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations; the fish-dividing members M *m* and *m'*, and the fingers O, R, S, all arranged and operating substantially as shown, for the purpose specified.

13. In a machine of the character indicated, the combination of two toothed fish-feeding belts arranged the one above the other and longitudinally of the machine; revolving splitting-knives arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; a brush rearward of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations, and the fish-dividing members M, *m'* and *m*; the fingers O, R, and S, and means for simultaneously effecting a corresponding vertical adjustment of said members M, *m*, *m'*, O, R, S, and the aforesaid brush, blades and knives, substantially as and for the purpose set forth.

14. In a machine of the character indicated, the combination of two toothed fish-feeding belts arranged the one above the other and longitudinally of the machine; splitting-knives arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the fish and remove the latter's inwards; a brush rearward of said blades and arranged to brush the fish internally; the fish-dividing members M and *m*, and the guides N, *n*; the brackets supporting said members M, *m*, N, *n*, and adjustable laterally of the machine, and mechanism for effecting a corresponding adjustment of all of said brackets simultaneously, substantially as set forth.

15. In a machine of the character indicated, the combination with two toothed feeding-belts arranged one above the other and longitudinally of the machine; the revolving splitting-knives K arranged in suitable proximity to the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts; of the spring-block P arranged to bear upwardly upon the feeding portion of the lower belt below the forward extremity of the knives' sweep, substantially as shown, for the purpose specified.

576,880. CHEST-PROTECTOR. FRANKLIN McNUTT, High Hill, Ohio. Filed Nov. 16, 1896. Serial No. 612,300. (No model.)



Claim.—1. As an article of manufacture, a lung-protector composed of two layers or thicknesses of material connected together at the side and top edges and disconnected at the bottom edge, removable shields interposed between these layers or thicknesses and buttons sewed to one layer or thickness at or near the extreme upper end of the latter and adapted to button through buttonholes in the shield and other layer whereby the shield is removably secured inside the protector at or near the upper end of the latter so that it hangs suspended naturally in consequence of its weight, substantially as set forth.

2. A lung-protector adapted to inclose the upper portion of the body and provided with neck-opening and armholes, the said protector being composed of inner and outer sections disconnected at their lower ends, reinforcing-strips secured to the inner faces of the outer sections, buttons secured to the inner faces of the inner sections and adapted to pass through buttonholes formed in the reinforcing-strips and outer sections and paper sheets interposed between said inner and outer sections and held in place by the buttons, substantially as set forth.

576,881. STRAIGHT-KNITTING MACHINE. ALFRED NELSON, Rockford, Ill., administrator of John Nelson, deceased, assignor of one-third to Ralph Emerson and William A. Talcott, same place, William Nelson, present administrator, succeeding prior administrator, assignor, by mesne assignments, of two-thirds to EVA C. NELSON, WILLIAM NELSON, OSCAR NELSON, FRITHIOF NELSON, and JOHN F. NELSON, same place, and ANNA NELSON RECK, Chicago, Ill. Filed May 16, 1885. Serial No. 165,731. (No model.)

Brief.—The stocking is started at the toe, both rows of needles being thrown forward to make the setting-up course. Certain needles are kept in reserve at each end of each needle-bed for fashioning above the ankle. Movable toothed segments on the pattern-cylinder regulate the length of tubular knitting. The presser-hook cam is in two parts and connected to the yarn-carrier by lugs and recesses, as shown. The claims suggest the principal structural features.

Claim.—1. The combination, substantially as set forth, of the cam-grooved main actuating-gear; means for operating it; the reciprocating yarn-carrier; and the jointed pivoted connecting-levers and pitman, between the actuating-gear and the yarn-carrier, by which motion is imparted from the actuating-gear to the yarn-carrier.

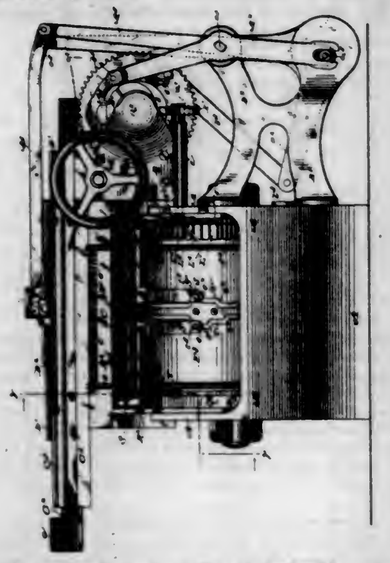
2. The combination, substantially as set forth, of the reciprocating main cam-slides; the needles; needle-actuating cams carried by the slides; the cam-grooved main actuating-gear; means for operating it; connecting-levers and pitmen between the cam-slides and the actuating-gear; the reciprocating yarn-carrier; and connecting-levers and pitman between the cam-gear and the yarn-carrier.

3. The combination, substantially as set forth, of the reciprocating main cam-slides; the needles; needle-actuating cams carried by the cam-slides; the cam-grooved main actuating-gear; means for operating it; the connecting-levers and pitmen between the actuating-gear and the cam-slides; the reciprocating yarn-carrier; the connecting-levers and pitman between the actuating-gear and the yarn-carrier; and the reciprocating presser-hook cam, having a shifting connection with, and actuated by the yarn-carrier.

4. The combination, substantially as set forth, of the cam-grooved main actuating-gear; means for operating it; the reciprocating yarn-carrier; connections between the yarn-carrier and the actuating-gear, by means of which the yarn-carrier is reciprocated; for the purpose specified.

5. The combination, substantially as set forth, of the reciprocating cam-slides; the needles; needle-actuating cams carried by the

slides; the cam-grooved main actuating-gear; means for operating it; the jointed levers and pitmen connecting the actuating-gear with the slides; the reciprocating yarn-carrier; a pin engaging the groove in the actuating-gear; and the jointed levers and pitman connecting the pin with the yarn-carrier.



6. The combination, substantially as set forth, of the reciprocating main cam-slides; the needles; the needle-actuating cams carried by the cam-slides; the cam-grooved main actuating-gear; means for operating it; the jointed levers and pitmen connecting the actuating-gear with the slides; the reciprocating yarn-carrier; a pin engaging the cam-groove in the actuating-gear; the jointed levers and pitman connecting said pin with the yarn-carrier; the reciprocating presser-hook cam; and the shifting connections between the yarn-carrier and the presser-hook cam, for the purpose specified.

7. The combination of the reciprocating main cam-slides, needle-actuating cams carried thereby, the reciprocating yarn-carrier, the pitman for actuating the main cam-slides, the pitman for actuating the yarn-carrier, the main actuating-gear having the cam-groove and wrist-pin, the elbow-lever actuated by connection with said wrist-pin and with which the pitman for actuating the main cam-slides is connected, the lever pivoted to the elbow-lever and with which the pitman for actuating the yarn-carrier is connected, and the lever actuated by connection with the cam-groove of the main actuating-gear and having self-adjusting connection with the lever for actuating the yarn-carrier, substantially as and for the purpose set forth.

8. The combination of the reciprocating main cam-slides, needle-actuating cams carried thereby, the shifting-cam for actuating presser-hooks, the reciprocating yarn-carrier having shifting connection substantially as described with said presser-hook cam, the pitman connected with the main cam-slides, the pitman connected with the yarn-carrier, the main actuating-gear having the cam-groove and wrist-pin, the elbow-lever connected with the pitman for actuating the main cam-slides and operated by connection with the said wrist-pin, the lever pivoted to the elbow-lever and with which the pitman for actuating the yarn-carrier is connected, and the lever actuated by connection with the cam-groove of the main actuating-gear and having self-adjusting connection with the lever which connects with the pitman for actuating the yarn-carrier, substantially as and for the purpose set forth.

9. The combination of the reciprocating yarn-carrier, with the two sections of the presser-hook cam E' having shifting connection with the yarn-carrier slide by means of lugs and recesses, substantially as and for the purpose set forth.

10. The combination of the frame, the rocking needle-supports, and their endwise-sliding sustaining-bar supported in frame-guideways and provided with the inclines for raising and lowering the rocking needle-supports, substantially as and for the purpose set forth.

11. The combination of needle-jacks recessed upon their under sides, rocking levers for supporting the jacks, the needles connected with the jacks, and the needle-bed having the bearing-surface for the needles parallel with its under surface, substantially as and for the purpose set forth.

12. The combination of the dropping needle, its rocking support cut away and provided with a cam on its under side, the hook holding the needle down to its support, the spring acting on the support, the sustaining-bar beneath the support, and mechanism for actuating this sustaining-bar to move it sidewise for dropping and elevating the support, substantially as and for the purpose set forth.

13. The combination of the dropping needle, its support having the cam-like portion, the sidewise-moving sustaining-bar by the actuation of which the needle and its support are dropped or elevated, the spring for moving the sustaining-bar in one direction, the elbow-lever for moving it in the opposite direction, and the pattern-cylinder provided with the wiper-cam acting on the cam-lug of the elbow-lever, substantially as and for the purpose set forth.

14. The combination, substantially as set forth, of the main actuating-gear; the cam-gear rotating therewith; the star-pinion engaged by the cam-gear; the pattern-cylinder; the shaft of the star-pinion; the pinion connecting this shaft with teeth on the pattern-cylinder; the segment-gear carried by, and movable on the pattern-cylinder, and actuated by the pinion on the shaft of the star-pinion, for the purpose specified.

15. The combination, substantially as set forth, of the main actuating-gear, the reciprocating main cam-slides provided with the needle-actuating cams, connecting mechanism substantially as set forth by means of which the main cam-slides are operated by the main actuating-gear, the cam-gear rotating with the main actuating-gear, the pattern-cylinder, its driving-pinion, the shaft of this pinion, and the star-pinion mounted on this shaft and actuated by the cam-gear, whereby the pinion engaging with the pattern-cylinder is operated only at the ends of strokes of the main cam-slides.

16. The combination, substantially as set forth, of the pattern-cylinder provided with the mutilated gear, the pinion for engaging this gear having the long tooth, mechanism for actuating the pinion, the segment-gears movable on the pattern-cylinder, the means substantially as described for preventing premature forward movement of the segment-gears, and means substantially as described for limiting their movements independently of the pattern-cylinder, for the purpose described.

17. The combination, substantially as set forth, of the pattern-cylinder having the mutilated gear; its driving-pinion provided with the long tooth; the segment-gear I^3, movable on the pattern-cylinder; and the brake-stop acting on the segment-gear.

18. The combination of the pattern-cylinder having the mutilated gear, the segment-gear I^4 movable on and connected with the pattern-cylinder, the pinion engaging the cylinder-gear and having the long tooth for actuating the segment-gear, the brake-stop acting on the segment-gear, the dog for engaging the segment-gear with the pattern-cylinder, and the dog-tripping mechanism, substantially as and for the purpose set forth.

19. The combination of the cam-wheel, mechanism substantially as set forth for actuating it, the star-pinion, the long-toothed pinion on the shaft of the star-pinion, the pattern-cylinder having the mutilated gear, the segment-gear movable on and connected with the pattern-cylinder, and the stop-pins for controlling the movements of the segment-gear independently of the pattern-cylinder, substantially as and for the purpose set forth.

20. The combination, substantially as set forth, in a straight-row-knitting machine, of a reciprocating cam-bar having two working surfaces, mechanism substantially as set forth for actuating it, rocking levers both raised and lowered positively by the action of the cam-bar, jacks supported by the rocking levers, and the needles connected with the jacks and thrown into and out of action by the movements imparted to the rocking levers by their cam-bar.

21. The combination, substantially as set forth, of two series of widening-needles, rocking levers supporting the jacks of the needles, reciprocating cam-bars having two working surfaces for actuating the rocking levers, and mechanism substantially as set forth for actuating the cam-bars, for the purpose set forth.

22. The combination of the reciprocating cam-bar, the slide engaging therewith, means, substantially as set forth, for actuating this slide, the rocking lever, the needle-jack, and the needle, substantially as and for the purpose set forth.

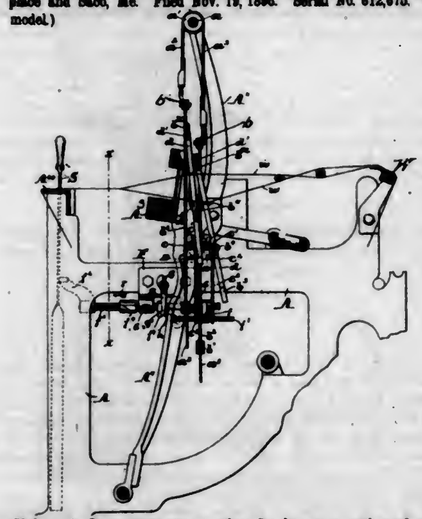
23. The combination of two series of front widening-needles, the rocking levers supporting the jacks of these needles, the reciprocating cam-bars actuating the rocking levers, the slides engaging the cam-bars, and the intermittingly-actuated pattern-cylinder by connections with which the slides are operated, and means substantially as described for actuating the pattern-cylinder for the purpose set forth.

24. The combination, substantially as set forth, of two series of front widening-needles, the reciprocating cam-bars, mechanism, substantially as set forth, connected with the cam-bars, and by which these needles are thrown into and out of action, the intermittingly-actuated pattern-cylinder, mechanism, substantially as set forth, connected with the pattern-cylinder, by which the cam-bars are operated, the two series of back widening-needles, and the connecting mechanism, substantially as set forth, by means of which they are actuated by the pattern-cylinder, for the purpose described.

25. The combination, substantially as set forth of the cam-grooved main actuating-gear, the reciprocating yarn-carrier and its connected mechanism actuated by means of the cam-groove of the main actuating-gear, for the purpose described.

26. The combination, substantially as set forth of the reciprocating main cam-slides, needle-actuating cams carried thereby, the cam-grooved main actuating-gear, connecting mechanism by which the main cam-slides are actuated from the main actuating-gear, the reciprocating yarn-carrier and its connected mechanism actuated by means of the cam-groove of the main actuating-gear, for the purpose described.

576,882. WARP STOP-MOTION FOR LOOMS. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed Nov. 19, 1896. Serial No. 612,675. (No model.)



Claim.—1. In a warp stop-motion for looms, a series of stop-motion-actuating detectors moved into abnormal position by failure or undue slackening of the warp-threads, and means to reciprocate said detectors vertically, combined with stopping mechanism for the loom, and controlling means therefor, including an actuator-bar to be engaged by a detector in abnormal position and rocked when the latter is raised, to operate the stopping mechanism, substantially as described.

2. In a warp stop-motion for looms, a series of stop-motion-actuating detectors moved into abnormal position by failure or undue slackening of the warp-threads, and means to positively reciprocate said detectors vertically, combined with stopping mechanism for the loom, and controlling means therefor to connect the same with and to be operated by a moving part of the loom, said means including an actuator-bar to be engaged by a detector in abnormal position and to be rocked when the latter is moved at the next change of shed, substantially as described.

3. In a warp stop-motion for looms, a series of stop-motion-actuating detectors, and means to positively reciprocate them at each change of shed, combined with stopping mechanism for the loom, an actuator-bar to be engaged by a detector in abnormal position due to a broken or slack warp-thread, movement of the detector at the next change of shed rocking said bar, and connections between the actuator-bar and stopping mechanism to operate the latter when the bar is rocked, substantially as described.

4. In a warp stop-motion for looms, a series of independently-supported heddles, means to positively reciprocate them, a shipper, and controlling means therefor, including an actuator-bar to be engaged by a heddle in abnormal position due to breakage or undue slackening of its warp-thread, vertical movement of the engaged heddle operating to rock said actuator-bar, substantially as described.

5. In a warp stop-motion for looms, a series of heddles each having a shoulder on one of its longitudinal edges, and a frame for and in which the heddles are vertically movable for a limited distance, combined with stopping mechanism for the loom, and controlling means therefor, including an actuator-bar having a projection to be engaged by the shoulder of a detector in abnormal position, movement of the heddle at the next change of shed rocking the actuator-bar to operate the controlling means, substantially as described.

6. In a warp stop-motion for looms, the lay, a bunter movable therewith, a series of stop-motion-actuating detectors moved into abnormal position by failure or undue slackening of the warp-thread, and a reciprocating support for said detectors, combined with stopping mechanism for the loom, controlling means therefor, comprising a longitudinally-movable rock-shaft provided with a finger to cooperate with the bunter, an actuator-bar adapted to be engaged by a dropped detector and to be rocked by subsequent vertical movement thereof, and connections between said actuator-bar and sliding rock-shaft, to rock the latter and move its finger into the path of the bunter, substantially as described.

7. In a warp stop-motion for looms, a series of stop-motion-actuating detectors positively reciprocated at each change of shed, a shipper-lever, and controlling means therefor, said means including a sliding rock-shaft having a finger, a detent and cooperating dog to retain the shaft in position when rocked, and an actuator-bar connected with and to rock the shaft upon failure or undue slackening of a warp-thread, and a bunter to slide the rock-shaft longitudinally, a dropped detector engaging the actuator-bar and thereafter rocking it as the detector is moved at the next change of shed, substantially as described.

8. In a warp stop-motion for looms, a series of stop-motion-actuating detectors moved into abnormal position by failure or undue slackening of the warp-threads, each detector having a shoulder at one of its longitudinal edges, and means to positively reciprocate said detectors, combined with stopping mechanism for the looms, and controlling means therefor to connect the same with and to be operated by a moving part of the loom, said means including an actuator-bar having a longitudinal lip to be engaged by the shoulder of an abnormally-positioned detector and to be rocked thereby when said detector is moved at the next change of shed, substantially as described.

9. In a loom, a frame provided with a cross-bar, a series of shouldered heddles supported thereby and having a limited vertical movement relatively to said bar, a swinging depressor-bar pivotally mounted on the frame, and adapted to engage the shoulders on the heddles, to depress the latter positively in the lower plane of the shed, substantially as described.

10. In a loom, a reciprocating frame and a series of shouldered heddles supported therein and having a limited vertical movement relative thereto, and a depressor-bar reciprocating in unison with the frame and movable toward and from the heddles, to engage the shoulders thereof and depress the heddles positively in the lower plane of the shed, substantially as described.

11. In a warp stop-motion for looms, a reciprocating frame and a series of heddles supported therein having limited vertical movement relative thereto, each heddle having a shoulder on its front and rear longitudinal edges, and a depressor-bar on the frame to engage the shoulders on one edge of the heddles, to positively depress them in the lower plane of the shed, combined with a shipper-lever, and controlling means therefor, including an actuator-bar to be engaged by the shoulder of a heddle in abnormal position due to failure or slackening of its warp-thread, subsequent movement of the heddle at the change of shed rocking said bar to release the shipper-lever, substantially as described.

12. In a warp stop-motion for looms, a series of stop-motion-actuating detectors moved into abnormal position by failure or undue slackening of the warp-threads, each detector having a shoulder at its edge, and reciprocating means to support said detectors at their upper ends, combined with a shipper-lever, and controlling means therefor including a stationary actuator-bar over which the detectors slide and by which they are maintained in an inclined position, a detector in abnormal position engaging said bar and rocking it by subsequent movement of the detector, substantially as described.

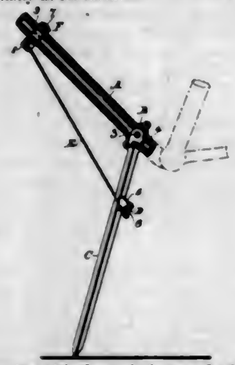
13. A flat, metallic warp stop-motion-actuating detector for looms, having a longitudinal slot at or near its upper end, and notched at its opposite longitudinal edges to form shoulders, which serve as operating-surfaces, substantially as described.

576,883. BICYCLE-SUPPORT. MARTIN OBER and PAUL SCHOTTMÜLLER, New York, N. Y. Filed May 19, 1896. Serial No. 592,220. (No model.)

Claim.—1. The combination with the tubular cycle-frame, of a joint-block, two legs pivoted to the joint-block, toggle-bars between the legs, a brace connected with the toggle-bars at the middle joint, a sliding clip upon the cycle-frame, and a pivotal connection between the clip and brace, substantially as set forth.

2. The joint-block made of two parts screwed together, in combination with the legs pivoted upon the joint-block and each leg made with a short section hinged to the longer section and through which short section the pivot-screws pass, toggle-levers connected by a central joint and pivoted upon the legs, a sliding clip upon the cycle-frame and a brace pivoted at its ends and extending from the sliding clip to the toggle-bars, substantially as set forth.

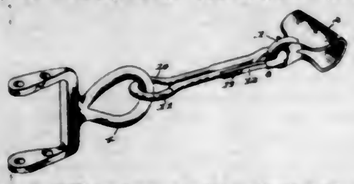
3. The combination with the cycle-frame, of a joint-block made in two parts and clamped to the frame, supporting-legs pivoted at their upper ends to the joint-block and made with a projecting rib at one side and a concave surface at the other side, toggle-bars pivoted at their ends to the legs, and a brace connected with the toggle-bars and a sliding clip upon the cycle-frame to which the end of the brace is pivoted, substantially as set forth.



4. The combination with the cycle-frame, of a joint-block, legs pivoted to the joint-block and toggle-bars between the legs, a sliding clip and a brace pivoted at one end to the sliding clip and at the other end to the toggle-bars and spring-catches upon the sliding clip for holding the legs when out of use, substantially as set forth.

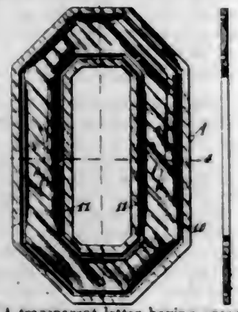
5. The combination with the clip B recessed at 13, of the legs having stops 12 entering such recesses and pivotal connections for the legs, substantially as specified.

576,884. WHIFFLETREE-HOOK. JOSEPH E. PATTERSON, Marshfield, Wis., assignor of two-thirds to F. W. Patterson and J. A. Pettet, Unity, Wis. Filed Aug. 18, 1896. Serial No. 603,145. (No model.)



Claim.—A whiffletree-hook comprising a shank having one end bent to form a hook 10 and having its other end bent to form a continuous eye 8 arranged in the same plane as the hook 10, the end of the shank which forms the eye 8 being extended along and spaced from the body portion of the shank to provide an entrance-opening to the continuous eye, and the hook 11 arranged contiguous to the hook 10 to form a split eye and having its shank pivoted in the space between the extension of the continuous eye and the shank of the hook 10, whereby the entrance to the continuous eye is closed to confine an eye or ring therein, substantially as described.

576,885. SIGN-LETTER. RALEIGH M. PEARSON and WILLIAM LETSIE, Little Rock, Ark. Filed Mar. 21, 1896. Serial No. 584,264. (No model.)

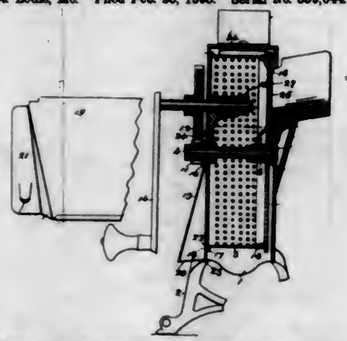


Claim.—1. A transparent letter having approximately parallel front and back faces, each formed with recesses capable of receiving cement for holding the letter in place, the letter having coloring material secured to one face and being capable of having either face secured to the part by which the letter is supported, substantially as described.

2. A transparent letter having approximately parallel front and back faces, one face being formed with two grooves respectively running around the edges of the face and the remaining face being formed with a continuous depression, the letter having one face colored and being capable of having either face cemented to the surface on which the letter is supported, substantially as described.

3. A sign having a transparent body portion formed with two approximately parallel faces, each capable of being attached to the part by which the sign is held and the body portion being colored and the colored portion being visible from either face of the body portion, substantially as described.

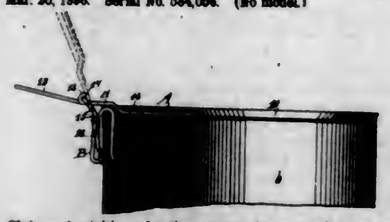
576,886. COMBINED SLICER AND GRATER. HERMANN PERK, St. Louis, Mo. Filed Feb. 20, 1895. Serial No. 539,044. (No model.)



Claim.—1. In a combined slicer and grater, a suitable frame, a rear wall for the same, a bar secured along the front portion of the frame, a series of lugs or ears depending therefrom, inwardly-projecting ledges on opposite sides of the bottom of the frame, an outwardly-inclined plate, having terminal walls, wings forming a part of said walls, and inwardly-punched lips on said wings adapted to embrace the ledges upon insertion of the upper edge of the plate under the lugs of the bar, substantially as set forth.

2. In a combined slicer and grater, a suitable grater-plate, a series of teeth disposed thereon, each tooth having two upwardly-projecting large members, and a third oppositely-receding small member, substantially as set forth.

576,887. HINGE FOR COOKING UTENSILS, &c. EBER W. PRATT, Ipava, Ill., assignor of one-half to George W. Glore, same place. Filed Mar. 20, 1896. Serial No. 584,056. (No model.)



Claim.—1. A hinge for the covers of receptacles, comprising an upper section having its inner end adapted for attachment to a cover, the said section being constructed to extend outwardly beyond the margin of the cover forming a handle, and bearings formed in the said section between its outer end and the portion attached to the cover, and a lower or bracket section having a horizontal member adapted to engage the bearings on the upper section, and vertically-arranged clamping members adapted for engagement with the body of the receptacle, the handle portion of the upper section of the hinge being adapted to engage the outer side of the receptacle to hold the lid in the raised position as and for the purpose specified.

2. A hinge for the covers of receptacles or utensils, comprising an upper section consisting of a wire bent upon itself forming substantially parallel members, the inner ends of the members being adapted for attachment to a cover, the bent portion of said wire extending beyond the margin of the cover forming a handle, and an eye formed in each of the members of the said section between the outer end or handle and the portion adapted to be secured to the cover, and a lower section consisting of a wire bent upon itself to form side members arranged to clamp the body of the utensil, and a substantially horizontal member connecting the vertical members and journaled in the eyes of the upper section, as and for the purpose specified.

3. The combination, with a cover, of a hinge comprising an upper section and a lower or bracket section, the upper section having its inner end secured to the cover, extending over and beyond the margin of the cover in a substantially horizontal direction, the extreme outer portion of the upper section of the hinge being formed as a handle, and said section being further provided with eyes between the handle and the horizontal section extending over the margin of the cover, the lower section of the hinge comprising spring-returned side members arranged to clamp the body of the utensil, and an upper connecting bow member having an upward and rearward inclination and journaled in the bearings of the upper portion of the aforesaid hinge, as and for the purpose specified.

4. The combination, with the cover of a receptacle or utensil, and a wire bent upon itself to form substantially parallel members, the inner ends of the members of the wire being secured to the said cover, extending horizontally beyond the margin of the same and thence upwardly forming a handle, bearings being formed in the wire between the handle and that portion of the wire members which is carried over the margin of the cover, of a bracket constructed of a spring material, comprising side members returned upon themselves, forming vertical loops, and an upper connecting or bow member uniting the side members, being journaled in the bearings of the wire section attached to the aforesaid cover, as and for the purpose specified.

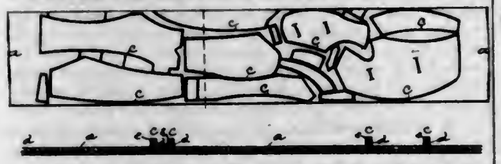
576,888. REVERSIBLE SAD-IRON. ELLIOTT PRESTON, Sturgeon, Mo. Filed Apr. 6, 1896. Serial No. 586,415. (No model.)



Claim.—1. A reversible sad-iron, comprising a hollow iron, a handle having a spring-seat and formed with two trunnions on which the iron is mounted to turn, clamping-arms held in the rear hollow trunnion, and a spirit-lamp adapted to engage said seat, its wick-tube extending through the rear hollow trunnion into the interior of the sad-iron, said wick-tube being engaged by said clamping-arms, substantially as shown and described.

2. A reversible sad-iron, comprising a hollow iron, a handle formed with a spring-seat and having two trunnions on which the iron is mounted to turn, clamping-arms held on the rear hollow trunnion and having a perforated flange for admitting air to the space between the arms and the inner surface of said trunnion, and a spirit-lamp adapted to engage said seat, its wick-tube extending through the hollow trunnion, to be engaged by said clamping-arms, substantially as shown and described.

576,889. CLICHÉ FOR PRINTING PATTERNS. ETIENNE QUENNOY, Lille, France, assignor to Henri Edouard Cousineau, same place. Filed Dec. 1, 1896. Serial No. 614,105. (No model.)

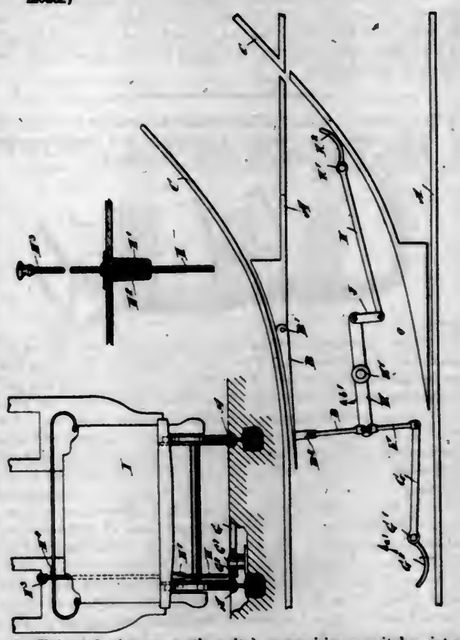


Claim.—1. A cliché consisting of a flexible sheet of cloth with a paper backing glued thereto and having flexible bands forming the outlines of the patterns in relief thereon.

2. A cliché consisting of a sheet of cloth and a backing of strong paper glued thereto, in combination with bands, composed of several layers of cloth glued together, forming the outlines of the patterns in relief on the said cloth.

3. A cliché consisting of a flexible sheet of paper-backed cloth having flexible bands forming the outlines of the patterns in relief thereon, the said bands composed of several layers of cloth glued together and a top layer of caoutchouc, substantially as set forth.

576,890. AUTOMATIC SWITCH. CARL RÖDER and EUGENE DURER, Buffalo, N. Y. Filed Oct. 13, 1896. Serial No. 608,764. (No model.)



Claim.—1. An automatic switch, comprising a switch-point pivoted in the main track to open and close the latter to the side-track, a lever pivotally connected with the said switch-point, a main-track switch-lever pivotally connected with one end of the said first-named lever and formed with a curved arm adapted to be engaged by a projection held on an approaching car, and a side-track switch-lever pivotally connected with the other end of the said first-mentioned lever, and also formed with a curved arm adapted to be engaged by the flange of the car-wheel of the car for the side-track, substantially as shown and described.

2. A railway having a siding, a movable switch-point, a lever fulcrumed between the rails and connected with the switch-point, a switch-lever fulcrumed on a vertical axis forward of the siding and connected to the first named lever whereby to move said lever to open the switch-point, a second switch-lever fulcrumed on a vertical axis at the siding and connected to the said first-named lever whereby to move said lever to close the switch-point, substantially as described.

3. A railway-car, having a longitudinally-sliding rod, a removable handle portion at the one end thereof, a bearing carried by the car and through which the rod moves, means pressing the rod so that the handle portion thereof will be beyond the bearing, and a plate pivoted adjacent to the bearing and capable of engaging the end of the rod to which end the removable handle portion is attached, such engagement being effected when the handle portion is removed from the rod, substantially as described.

576,891. TOY. WILLIAM H. REHFF, Philadelphia, Pa. Filed May 28, 1892. Renewed May 7, 1896. Serial No. 590,629. (No model.)



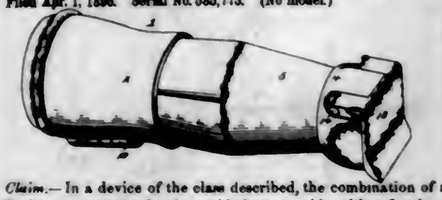
Claim.—1. A toy comprising a card, provided with an opening in the body thereof, a hook secured to said card rearwardly of said opening, an elastic cord fastened at one end to the card forwardly of the opening, and a ring attached to the free end of said cord, substantially as described.

2. A toy comprising a card provided with an opening therein, an elastic cord secured to the face of the card in advance of the open-

ing, and a ring attached to the free end of the said cord, substantially as described.

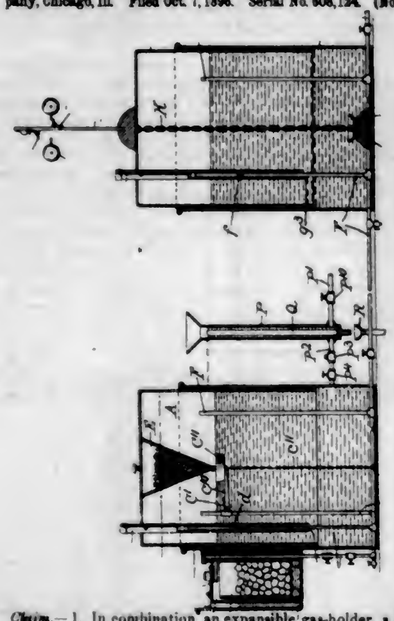
3. A toy comprising a card, a metallic plate secured to the face thereof and provided with a series of rearwardly-projecting hooks, an elastic cord fastened at one end to the face of the card forwardly of said plate, and a ring attached to the free end of said cord, substantially as described.

576,892. HUB-ATTACHING DEVICE. CHARLES H. W. RELYEA, North Adams, Mich., assignor of one-half to A. B. Buck, same place. Filed Apr. 1, 1896. Serial No. 585,773. (No model.)



Claim.—In a device of the class described, the combination of a spindle having an extension 3 provided at one side with a flat face, the annular series of inner and outer lugs 6 and 7, disposed in pairs on the extension 3 and arranged transversely of the same, the outer lugs 7 being disposed opposite the intervals of the inner lugs 6, longitudinal flanges 8 connecting the adjacent ends of the inner and outer lugs 6 and 7, the longitudinal flanges 9 extending from the other ends of the inner lugs to the body portion of the spindle, said lugs 6 and 7 and flanges 8 and 9 forming double bayonet-grooves, the axle-nut having a flat face adjacent to a flat face of the extension 3 and provided with inner and outer series of lugs 11 and 12, alternately arranged and adapted to interlock with the lugs and flanges of the double bayonet-grooves to form a double lock, and the cover hinged at the top to the axle-nut and provided at one side with the vertical locking-flange 16 to fit in the space between the flat faces of the extension 3 and the nut, and having the curved locking-lugs 17 at its bottom, said locking flange and lugs 16 and 17 fitting in the entrance-opening of the double bayonet-grooves and filling the spaces between the adjacent lugs 7, substantially as described.

576,893. ACETYLENE-GAS GENERATOR. DELBERT J. REYNOLDS, Winnebago City, Minn., assignor to the Finkler-Reynolds Company, Chicago, Ill. Filed Oct. 7, 1896. Serial No. 608,124. (No model.)



Claim.—1. In combination, an expansible gas-holder, a gas-generator associated therewith, a gas-duct connecting the upper portions of the generator and gas-holder, and a water-duct leading from the water-space of the gas-holder and discharging into the generator; a displacer which is depressed in the water of the gas-holder by the moving member of the latter as it descends; whereby the descent of said moving member causes the water-level in the holder to be raised and water to pass over into the generator.

2. In combination, an expansible gas-holder and a gas-generator associated therewith, a gas-duct connecting the upper portions of the gas holder and generator, and a water-duct leading from the water-space of the gas-holder into the generator and having its highest point above the low-water level of the gas-holder; a displacer adapted to be depressed in the water by the descent of the moving member of the gas-holder, and thereby to raise the water-level and cause water to pass over into the generator.

3. In combination, an expansible gas-holder, a gas-generator associated therewith; a gas-duct connecting the upper portions of the generator and holder; a water-duct leading from the water-space of the gas-holder into the generator and adapted to discharge into the latter, its highest point being above the low-water level of the gas-holder; a displacer in the gas-holder adapted to be depressed in the water by the descent of the moving member of the holder; a valve which controls access of water into said water-duct, and means by which the descending member of the gas-holder opens said valve and holds the same open while the water-level is raised by the intrusion of the displacer therein as described.

4. In combination, an expansible gas-holder and a gas-generator connected therewith, a gas-duct connecting the upper portions of said holder and generator; a water-duct leading from the water-space of the holder and discharging into the generator and having its highest point immediately above the low-water level of the gas-holder; a valve which controls access of the water from the gas-holder into said water-duct; a float connected to said valve and adapted to hold the same closed; a water-displacer in the gas-holder, and means by which the moving member of the latter simultaneously depresses said displacer in the water and opens said valve.

5. In combination, a gas-holder and a generator associated therewith; gas and water ducts communicating between the holder and the generator, the highest point in the water-duct being immediately above the low-water level of the holder; a displacer in the holder which is depressed in the water by the descent of the moving member; a stand-pipe communicating with the holder and a check-valve suitably interposed to prevent the flow of water out of the holder toward the stand-pipe; means for supplying water to the stand-pipe, said stand-pipe having an overflow-outlet at a point above the low-water level of the holder a distance corresponding to the gas-pressure to be maintained therein; whereby the water supplied to the stand-pipe maintains the water in the holder up to the low-water level, and cannot raise it above such level and the displacer by intrusion does raise the water above said level.

6. In combination with a gas-generator, a gas-holder into which the gas is caused to pass from the generator; a second gas-holder into which it passes from the first, the second gas-holder having its moving member normally weighted to less pressure than the first gas-holder, and a supplemental resistance to expansion arranged to be encountered by the moving member of the second holder as it rises, whereby when the holder has expanded to a predetermined limit, it becomes restrained to a pressure greater than the first holder.

7. In combination with a gas-generator, a gas-holder which receives the gas generated; a second gas-holder into which the gas passes from the first holder, said second holder having its moving member normally restrained to less pressure than the first and provided with a supplemental yielding resistance to expansion arranged to be encountered when said holder is expanded to a predetermined limit, whereby the second holder is permitted to expand beyond such limit under pressure greater than that to which the first holder is adjusted.

8. In combination with a gas-generator and a gas-holder which receives gas from the generator; a second gas-holder which receives the gas from the first holder, the second holder being normally weighted to less pressure than the first, and provided with a supplemental weight adapted to be picked up as the holder expands, the connection of such supplemental weight being of the nature of a chain adapted to be deposited at its lower end when slackened, whereby the pressure of such holder gradually increases as it expands.

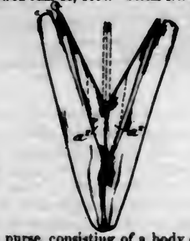
9. In combination with a gas-generator, a gas-holder into which the gas is caused to pass from the generator; a second gas-holder into which it passes from the first, the second holder having its moving member normally weighted to less pressure than the first holder, said weight comprising a chain whose lower end lodges on a fixed support, whereby the chain is deposited and the weight on the holder diminished as the moving member thereof descends, whereby, as the gas is exhausted, the diminishing pressure in the second holder causes the moving member of the first holder to descend to its limit; water connections between the first holder and the generator, and devices in the said first holder whereby the descent to its limit forces water therefrom into the generator to flood the latter.

10. In combination with the gas-generator, a gas-holder into which the gas is caused to pass from the generator; a second gas-holder into which it passes from the first, the second gas-holder having its moving member normally weighted to less pressure than the first holder; a supplemental weight adapted to be encountered or picked up by the moving member of the second holder as it rises, whereby, when said holder has expanded to a predetermined limit, it becomes weighted to a pressure greater than the first holder, whereby it serves as a reserve reservoir for gas; an alarm outside the second holder and connections from the moving member thereof adapted to actuate said alarm as it descends from said predetermined limit.

11. In combination with a gas-generator, a gas-holder into which the gas is caused to pass from the generator; a second gas-holder into which it passes from the first the second gas-holder having its moving member normally weighted with less pressure than the first holder; a supplemental weight adapted to be encountered or picked up by the moving member of the second holder as it rises, whereby when said holder has expanded to a predetermined limit it becomes weighted to a pressure greater than the first holder, said holder being adapted to expand beyond said limit by lifting said weight; an alarm outside said holder, and connections by which the moving member of the latter sounds said alarm as it moves upward carrying said supplemental weight.

12. In combination, an expansible gas-holder and a gas-generator associated therewith; a gas-duct connecting the upper portions of said holder and generator, and a water-duct leading from the water-space of the gas-holder and discharging into the generator; suitable means for maintaining the water in the gas-holder up to a predetermined low-water limit, the highest point in the water-duct leading to the generator being immediately above said low-water limit; a tapering displacer which is depressed point foremost in the water in the gas-holder by the descent of the moving member of the latter, whereby water is slowly and gradually displaced by the entering point of said displacer and caused to pass into the generator, and a larger quantity of water displaced only by the further descent of said moving member when the discharge of the small quantity fails to cause generation of gas sufficient for consumption.

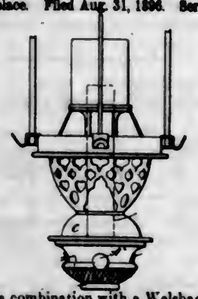
576,894. PURSE. JACOB RITTER, New York, N. Y. Filed Mar. 7, 1896. Renewed Jan. 16, 1897. Serial No. 619,499. (No model.)



Claim.—1. A purse, consisting of a body composed of sides, end gussets, intermediate folding end gussets, top gussets and top corner gussets, all made in one integral piece, and a frame provided with a suitable fastening device, substantially as set forth.

2. The blank herein shown and described for the body of a purse, consisting of sides, end gussets, intermediate end gussets, top gussets and top corner gussets all made in one integral piece, substantially as set forth.

576,895. INSECT-GUARD FOR LAMP-BURNERS. ROBERT P. ROBINSON, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Aug. 31, 1896. Serial No. 604,406. (No model.)



Claim.—1. The combination with a Welsbach lamp-burner having an air-chamber, of a sheet-metal insect-guard conforming in diameter to the diameter of the said air-chamber to which it is applied, having a central opening for the passage upward through it of the gas-supply tube of the burner, and formed at its upper edge with upwardly-extending retaining-fingers which clasp the lower portion of the chamber for holding it in place, and which permit its ready removal therefrom when desired.

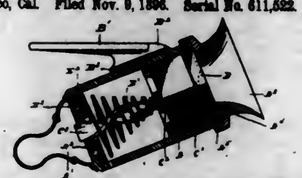
2. The combination with a Welsbach lamp-burner having its air-chamber formed with an annular bead, of a cup-like sheet-metal insect-guard applied to the bottom of the said chamber, and provided with upwardly-extending retaining-fingers clasping the said bead whereby the guard is removably secured to the air-chamber.

576,896. OBJECT-GLASS. PAUL RUDOLPH, Jena, Germany, assignor to The Firm of Carl Zeiss, same place. Filed July 6, 1896. Serial No. 598,361. (No model.)



Claim.—In a chromatically and spherically corrected lens system in which all the components are cemented together, a hyperchromatic negative compound lens consisting of a flint-glass dispersing-lens and a collecting-lens made of glass having about the same refractive but a less dispersive power than the glass of the dispersing-lens.

576,897. BILLIARD-CUE CHALKER. COLIN SALMOND, San Francisco, Cal. Filed Nov. 9, 1896. Serial No. 611,522. (No model.)



Claim.—1. In a billiard-cue chalker a cylindrical containing-chamber to form a runway for a chalk-holder, in combination with a chalk-holder adapted to carry a piece of chalk, a flattened twisted rod attached to said chalk-holder, a partition in said chamber having a perforation to receive said rod and rotate the same as it passes through it, a spiral cone-shaped spring interposed between the said partition and chalk-holder to raise the same, a circular plate upon which the base of the said spring rests, and a ball-bearing interposed between the said circular plate and said partition, substantially as described.

2. In a billiard-cue chalker the combination of the cylindrical chamber, A, having an extension, A', and partition, A^2, with a flared mouthpiece, A^3, having an inwardly-extended shoulder to determine the advance of the chalk, the chalk-holder, C, having the guide-plate, C^2, and twisted rod, C^3, which extends into the extension, A', through a suitable perforation in the partition, A^2, the spiral cone-shaped spring, E, the plate, E^2, and the balls, E^3, forming a bearing in the bottom of the containing-chamber, substantially as described.

576,898. FOUNTAIN SHAVING-BRUSH. ELMER V. SANFER, Watertown, N. Y. Filed Nov. 21, 1896. Serial No. 612,990. (No model.)

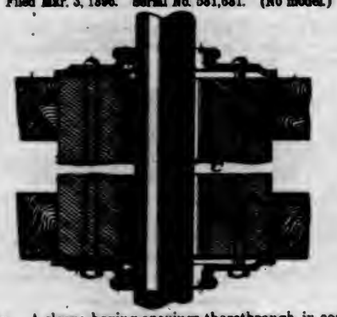


Claim.—1. In a fountain shaving-brush, a hollow reservoir-handle carrying a brush at one end and having at such end a feed-tube extending into the brush, a screw adjusting-rod arranged longitudinally within the handle and carrying at its outer end a rotatable adjusting-cap, a valve-plug fitted to the inner end of said rod and working over the inner end of the feed-tube, a piston or plunger plate working within the reservoir-handle and having a central threaded opening receiving the screw adjusting-rod, and means for imparting to the screw-rod a limited longitudinal movement when the same is turned in either direction, to provide for the seating and unseating of the valve, substantially as set forth.

2. In a fountain shaving-brush, a hollow reservoir-handle carrying a brush at one end and having at such end a feed-tube for the brush, a screw adjusting-rod arranged longitudinally within the handle and carrying at its inner end a valve-plug working into and over the inner end of the feed-tube, the outer end of said rod loosely extending through one end of the handle, an exterior rotatable cap fitted to the outer projecting end of the screw-rod, a piston or plunger plate having a central threaded opening receiving said screw-rod,

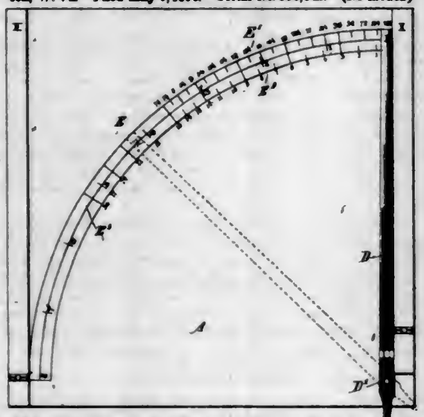
a socket-plate secured in a fixed position to the end of the handle opposite the brush and provided with a threaded opening and an enlarged collar-socket communicating with said opening and of a greater diameter than the same, and an exteriorly-threaded adjusting-collar fitted on the screw-rod and adapted to work in the threaded opening and the socket of said socket-plate, substantially as set forth.

576,899. **FIREPROOF PIPE-SLEEVE.** ROBERT SCOTT, Glenside, Pa. Filed Mar. 3, 1896. Serial No. 581,681. (No model.)



Claim.—A sleeve having openings therethrough, in combination with plates overlapping the ends of said sleeve and provided with openings coinciding with those in said sleeve, bolts passing through certain of said openings in said plates and sleeve for binding them together, and spurs projecting inwardly from the walls of a central opening in one of said plates.

576,900. **MEASURING INSTRUMENT.** HERCULES SCOTT, Princeton, W. Va. Filed May 9, 1896. Serial No. 590,842. (No model.)



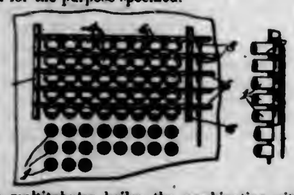
Claim.—1. A measuring instrument comprising a table or base, spaced stationary sights arranged to form sight-lines at opposite sides of the table, and a sighting-arm pivoted to the table at the end of one of said sight-lines, substantially as described.

2. A measuring instrument, comprising a table or base, spaced stationary sights arranged at opposite sides of the table and forming two parallel sight-lines, and a sighting-arm pivoted to the table at the end of one of said sight-lines substantially as described.

3. A measuring instrument, comprising a base or table, spaced stationary sights arranged to form sight-lines at opposite sides of the table, and a sighting-arm pivoted to the table at the end of one of said sight-lines, the table being provided with two graduations on which indicates said pivoted arm, one of said graduations indicating the distance of an object sighted on the pivoted arm and on the sight-line at the opposite side of the table to the pivot of said arm, and the other graduation indicating the distance between two objects (for a certain normal distance of said objects from the instrument) when one of said objects is sighted on the pivoted arm and the other on the sight-line which is adjacent to the pivot of said arm, substantially as described.

576,901. **MULTITUBULAR BOILER.** JOHN SCOTT, Jarrow, England. Filed Nov. 7, 1896. Serial No. 611,396. (No model.)

Claim.—1. A multitubular boiler in which rows of smoke-tubes are partly closed at their front or delivery ends by draft-regulating devices applied separately to the tube ends, the said devices for successive horizontal rows of tubes being of different depths, so that the tubes in the same horizontal row are closed to a greater extent than the tubes in the next lower row, and so on downward, substantially as described for the purpose specified.



2. In a multitubular boiler, the combination with the front or delivery ends of horizontal rows of smoke-tubes, of draft-regulating devices each adapted to separately control the flow of hot gases through the tube to which it is applied, and bars secured to said devices so as to form connected removable horizontal rows of devices, the said devices for successive rows of tubes being of different depth so that tubes in the same horizontal row are closed to a greater extent than the tubes in the next lower row and so on downward, substantially as described for the purpose specified.

3. In a multitubular boiler, the combination with the front or delivery ends of smoke-tubes of horizontal rows of plates or dampers arranged opposite the ends of the tubes, the plates or dampers in each row being of less depth than those in the row above, pivoted bars to which said rows of plates or dampers are secured, and means whereby said bars with attached plates or dampers can be partly turned about their axes, substantially as described for the purpose specified.

576,902. **SHEEP-SHEARING MACHINE.** JAMES D. SCOULER, St. James, Victoria, assignor to George Coles, same place, and William McLean, Melbourne, Victoria. Filed Oct. 15, 1896. Serial No. 608,962. (No model.)



Claim.—1. In a sheep-shearing machine, the combination with the casing, the comb, the cutter, and the oscillatory cutter-lever having a pin n' projecting upward from its forward end, of the tension-arm N having in its forward end a slot n^3 engaged with said pin, an upward-projecting pin or stud n on the rear end of the tension-arm, a screw-threaded cap O placed over and around said stud and having in its periphery vertical grooves O^2, a spring-pressed bolt P to engage the grooves of said cap, and antifriction-balls between the stud and cap, substantially as described.

2. In a sheep-shearing machine, the combination with the casing, the comb, the cutter, and an oscillatory cutter-operating lever having its rear end formed with a slot d and its forward end provided with an upward-projecting pin n', of a tension-arm N pivoted at its rear end in the top of the casing and provided at its forward end with a slot n^3 engaged with pin n', means for adjusting the pressure of the tension-arm, a horizontally-mounted motor-wheel having its periphery provided with vanes, ball-bearings for the hub of said wheel, a friction-roller mounted eccentrically on the hub of the motor-wheel and engaged in the slot of the cutter-operating lever, and means for conducting a motive fluid to the vanes of the motor-wheel, substantially as described.

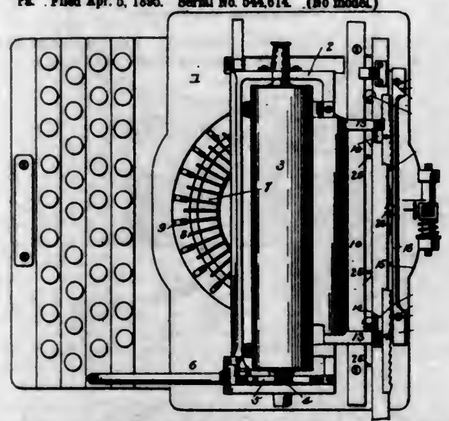
576,903. **PENCIL-HOLDER.** ELI SHARP, Congerville, Ill. Filed May 4, 1896. Serial No. 590,132. (No model.)



Claim.—1. A pencil-holder comprising a wire member having its ends bent to form parallel members a' a' and its intermediate portion bent to form eyes a^2 projected at right angles to the members a' and bent into spring pencil-receiving loops, a second wire member B bent shaped and hung in the eyes a^2 the ends of the member B having points b' and the guard C secured to the members a' all arranged substantially as shown and for the purposes described.

2. As an improved article of manufacture a pen or pencil clasp comprising the lower members a, the side members a', the eyes a^2, the loops a^3, bulged at a^4, the pin B, comprising the central member b, and the points b', and the guard C, attached to the frame A, and having the bottom portion c, and the end portions c', said ends being flared outwardly at c^2, substantially as shown and described.

576,904. **TYPE-WRITING MACHINE.** ELMER S. SHINER, Milton, Pa. Filed Apr. 5, 1895. Serial No. 544,614. (No model.)



Claim.—1. In a type-writer, the combination with the reciprocating paper-carriage and the rail connected therewith, of the ball located on one side of said rail near the center thereof, and the balls at the other side of said rail near the ends, and said balls subjected to a constant spring-pressure; substantially as described.

2. In a type-writer, the combination with the reciprocating paper-carriage and the grooved rail connected therewith, of the stationary grooved rail, the grooved tension-bar, the ball located between said tension-bar and carriage-rail, about midway the length of the bar; and the balls located between the stationary rail and carriage-rails; substantially as described.

3. In a type-writer, the combination with the reciprocating paper-carriage and the grooved rail connected therewith, of the stationary grooved rail, the grooved tension-bar, the ball located between said tension-bar and carriage-rail about midway the length of the bar: the balls located between the stationary rail and carriage-rails; and the pins secured to said bar and rails for confining and locating the balls, substantially as described.

4. In a type-writer, the combination with the reciprocating paper-carriage and the grooved rail connected therewith, of the stationary grooved rail, the grooved tension-bar, having a slot near each end, the ball located between said tension-bar and carriage-rail about midway the length of the bar; the balls located between the stationary rail and carriage-rails; and the set-screws passing through the slots in the tension-bar and engaging with the top plate of the machine for adjustably securing the tension-bar in place, substantially as described.

5. In a type-writer, the combination with the reciprocating paper-carriage, of the rail secured thereto; the stationary rail, and the tension-bar; said rails and bar being formed with grooves extending from end to end, and the upper and lower edges convexed to form curved bearings; and the balls seated in said grooves; substantially as described.

6. In a type-writer, the combination with the reciprocating paper-carriage, of the rail connected therewith; the stationary rail and the tension-bar, said rail and bar being formed with grooves having convex bearing-surfaces; the rails formed with lips or flanges; and the balls seated in said grooves; substantially as described.

576,905. **TACK-FASTENED BUTTON.** ALFRED J. SHIPLEY, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Dec. 9, 1896. Serial No. 614,986. (No model.)



Claim.—1. A button having a hub or shank, a substantially cylindrical anvil arranged therein, and provided with a crown or dome at one end and open at the other end, a substantially cylindrical base having an inturned and inwardly-extending bottom flange, the hub or shank and the anvil being confined within said base, and the base, anvil and hub being of substantially the same height, thereby to reinforce the shank or hub of the button, substantially as described.

2. A button having a hub or shank, an anvil arranged therein and concentric therewith, a concentric base of substantially the height of the hub or shank and having a bottom flange extended within the anvil, the edges of the hub and anvil being spread out and secured within a pocket-like formation at the junction of the base and its flange, and the parts being rigidly united by pinching or pressing them together, substantially as described.

3. A button having a shank or hub of two diameters, a tubular anvil arranged therein and having its crown within the larger diameter and its body within the smaller diameter of the shank or hub, and a base of substantially the height of the hub or shank, and having a bottom flange extended within the anvil, the edges of the hub and anvil being spread out and secured within a pocket-like formation at the junction of the base and its flange, and the parts being rigidly united by pinching or pressing them together, substantially as described.

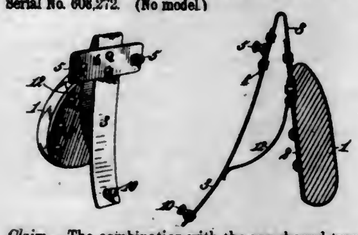
576,906. **DEVICE FOR IMPARTING MOTION TO MOVABLE BODIES.** AXEL L. STORERS, Union Hill, N. J. Filed Feb. 15, 1896. Serial No. 579,436. (No model.)



Claim.—1. The combination with a movable object, of a frame fixedly located therein, a counterbalanced winding-shaft journaled in the said frame, a tension device secured to the said movable object at one of its ends, a cord attached to the said tension device and said shaft, and a guide for the said cord fixedly attached to the said movable object, as and for the purpose specified.

2. The combination with a movable object, of a frame fixedly located therein, a counterbalanced winding-shaft journaled in the said frame, a tension device comprising one or more spiral springs secured at one end to one side of the movable object, a guide located at the opposite side of the movable object, and a cord engaging the guide and having one end connected with the said winding-shaft and the other end connected with the said spiral springs, as and for the purpose set forth.

576,907. **TRUSS.** WILLARD N. SMITH, New Bedford, Mass., assignor of one-half to David W. Judson, same place. Filed Oct. 8, 1896. Serial No. 608,272. (No model.)



Claim.—The combination with the egg-shaped truss-pad, and its supporting-plate 2 having a spring-arm 3 rising from the upper portion of said plate and extended outward and downward to a point below the pad, of the bow-spring 12 having its upper end secured to the pad-supporting plate and its lower free end in riding contact with the lower portion of the spring-arm 3, the cross-arm 4 secured to the upper portion of the spring-arm 3 and provided with studs 5, a belt adapted for adjustable attachment to the studs of said cross-arm, and the crotch-strap, and having a laterally-sliding connection with the belt and adapted for adjustable connection with a stud on the lower end of the spring-arm, substantially as shown and described.

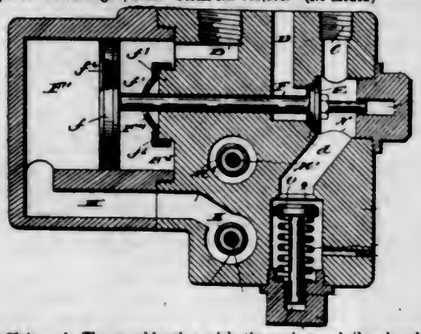
576,908. **BREAST-STRAP IRON.** HARRY R. SPENCER, Hennessey, Okla. Filed May 20, 1896. Serial No. 592,336. (No model.)

Claim.—A breast-strap iron or center having an integral loop at one end and an integral hook and side extensions or ledges at the

opposite end, and formed with a depression at the inner end of and to one side of the throat of the hook directly opposite the side extensions or ledges, in combination with a breast-strap, a clip applied to the breast-strap and connecting it with the aforesaid loop, and a second clip secured to the breast-strap and comprising forked members and a cross-bar, the latter being eccentrically disposed with respect to the terminals of the said forked members and adapted to pass into the throat of the hook and enter and interlock with the aforesaid depression thereof, and held in place by the terminals of the forked members engaging with the ledges at the sides of and opposite the said depression, substantially as set forth.



576,909. VALVE. JACOB A. STARRETT and EDWIN F. WELSH, Wilmerding, Pa., assignors of one-eighth to William F. Kimmick, same place. Filed Aug. 8, 1896. Serial No. 602,193. (No model.)



Claim.—1. The combination with the casing and the chamber with the piston therein, of a valve carried by the piston-stem, ports opening upon opposite sides of said valve, and a passage leading from one of the ports and connected with the reservoir, and a spring-actuated valve located in the passage communicating with one of said ports; substantially as described.

2. The combination with the casing and the port connected with the train-pipe, of the piston, its stem and valve, and the oppositely-movable valves upon opposite sides of the port connected with the train-pipe; substantially as described.

3. The combination with the casing and the port connected with the train-pipe, of the piston, its stem and valve, and the oppositely-movable valves upon opposite sides of the port connected with the train-pipe, one of said valves having a regulating-passage; substantially as described.

4. The combination with the casing and the port connected with the train-pipe, of the piston, its stem and valve, and the oppositely-movable valves upon opposite sides of the port connected with the train-pipe, one of said valves having a regulating-passage and a hollow stem; substantially as described.

5. The combination with the casing and the port connected with the train-pipe, of the piston, its stem and valve, and the oppositely-movable valves upon opposite sides of the port connected with the train-pipe, one of said valves having a regulating-passage and a hollow stem, and a spring around the said stem; substantially as described.

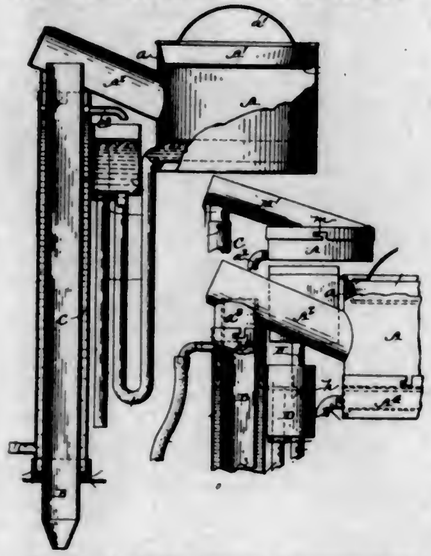
6. The combination with the casing and the port connected with the train-pipe, of the piston, its stem and valve, the oppositely-movable valves upon opposite sides of the port connected with the train-pipe, one of said valves having a regulating-passage and a hollow stem, and a spring around the said stem, and a valve closing said regulating-passage; substantially as described.

7. The combination with the casing, of the chamber, the piston therein, the valve-stem, the valve thereon fitted to a seat between connection of the triple valve and the exhaust-ports to the atmosphere, and valves controlling ports to the train-pipe side of the piston; substantially as described.

8. The combination with the casing, of the chamber, the piston therein, the valve-stem, the valve thereon fitted to a seat between connection of the triple valve and the exhaust-ports to the atmosphere, valves controlling ports to the train-pipe side of the piston, one of said valves having a regulating-passage, and a spring-actuated valve controlling the same; substantially as described.

9. The combination with the casing and its ports, of an automatic retaining pressure-valve and connections from the reservoir and train-pipe and subsidiary valves, one of which has a regulating-passage and a spring-actuated valve controlling the same all arranged, combined and operating by reservoir-pressure and through the train-pipe; substantially as herein shown and described.

576,910. DISTILLING APPARATUS. HENRY A. STERER, Utica, N. Y. Filed June 27, 1896. Serial No. 597,252. (No model.)



Claim.—1. In a distilling apparatus, the combination with a suitable boiler having a laterally and upwardly extending inclined hollow projection, communicating therewith, of a non-corrodible condensing-tube projecting through the wall of and into said hollow projection, whereby any condensation in said hollow projection is prevented from entering the condensing-tube and must flow back into the boiler, substantially as described.

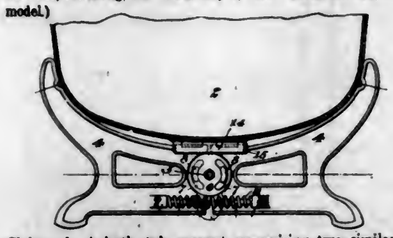
2. In a distilling apparatus, the combination with a suitable boiler, of a condensing-tube communicating therewith, a water-jacket about said tube, and an independent supply-chamber for the boiler, means whereby the independent chamber may be fed from the condensing water, means whereby such supply may be cut off from said chamber and whereby such chamber may be supplied independently of the condensing water, a continuous looped pendent pipe connected to the supply-receptacle at one end and to the boiler at the other for supplying the latter whereby the height of the liquid in said boiler can be known and regulated externally of the same, said loop forming a cold-water trap, and occupying a position considerably below the bottom of the boiler, substantially as described.

3. In a distilling apparatus the combination with a suitable boiler, of a condensing-tube communicating therewith, a water-jacket about said tube, a water-supply to said jacket, a supply-receptacle communicating with the boiler, a pipe for causing the overflow from the water-jacket to feed into the said supply-receptacle and a vertically-adjustable overflow-pipe for said supply-receptacle whereby the height of the water in both the supply-receptacle and the boiler may be gaged at will, substantially as described.

4. In a distilling apparatus the combination with a suitable boiler, of a condensing-tube communicating therewith, a water-jacket about said tube and an independent supply-chamber for the boiler, means whereby the independent chamber may be fed from the condensing water, means whereby said supply may be prevented from entering said chamber and whereby said chamber may be supplied independently of the condensing water, a pipe connected to the supply-receptacle at one end and to the boiler at the other for supplying the latter, said pipe forming a cold-water leg, substantially as described.

5. In a distilling apparatus, the combination with a boiler, having a hollow laterally-inclined projection, and a supply-receptacle, of a condensing-tube, extending into said projection, a tubular support on said projection, about the condensing-tube, a water-jacket detachably connected to said support, in such a manner that it may be adjusted to deliver its contents into said supply-receptacle for the boiler or elsewhere, substantially as described.

576,911. ADJUSTABLE BATH-TUB SUPPORT. WILLIAM B. STERRIT, Pittsburg, Pa. Filed May 6, 1896. Serial No. 590,476. (No model.)



Claim.—1. A bath-tub support comprising two similar parts which are hinged together, and a spring arranged to act upon the parts to clamp them upon the tub, substantially as described.

2. A bath-tub support consisting of two similar parts hinged together and having recesses arranged to engage side ribs upon the tub, and a spring arranged to act upon the parts to clamp them in position, substantially as described.

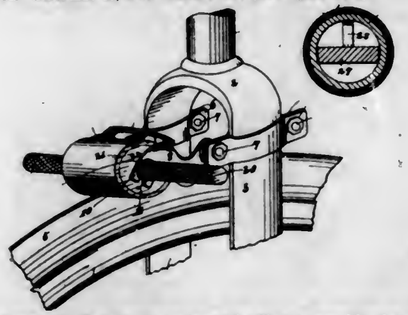
3. A bath-tub support consisting of two parts hinged together, each part having arc-shaped slots engaged by a lug upon the other part, substantially as described.

4. A bath-tub support consisting of two similar parts hinged together, each part having an arc-shaped slot engaged by a lug upon the other part and a spring arranged to clamp the parts upon the tub substantially as described.

5. The combination with a bath-tub, having depending lugs, of a support consisting of two separate similar parts connected together, said parts having flanges arranged to be clamped between the lugs upon the tub, substantially as described.

6. The combination with a tub having transverse depending lugs, of a support consisting of two similar parts hinged together, each part having flanges, and a key arranged to clamp said flanges between the lugs upon the tub, substantially as described.

576,912. BICYCLE-BRAKE. WILLIAM L. STEWART, Wilmerding, Pa. Filed May 19, 1896. Serial No. 592,106. (No model.)

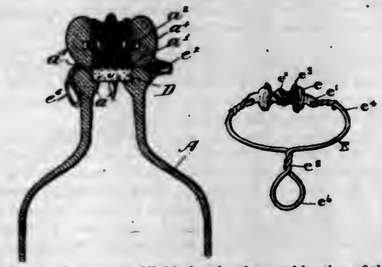


Claim.—1. In a bicycle-brake or the like, the combination of a brake-frame having side pieces provided with forks, an axle having flattened end portions engaged between the forks of the side pieces, a shoe carried on the axle between said flattened portions, a loosely-mounted sleeve encircling the shoe and arranged to engage the tire, and removable plugs for the ends of said sleeve, said plugs being provided with apertures of a larger diameter than and adapted for the passage of the axle, said shoe being arranged to engage the interior of the sleeve when the brake-frame is moved to engage the sleeve with the wheel-tire, substantially as set forth.

2. A brake having a shoe, a sleeve in which the shoe is contained and a spring pressing the sleeve and shoe and normally holding the shoe out of engagement with the interior sides of the sleeve, the sleeve being capable of moving on the shoe so as to clamp the shoe against the curved inner side thereof, substantially as described.

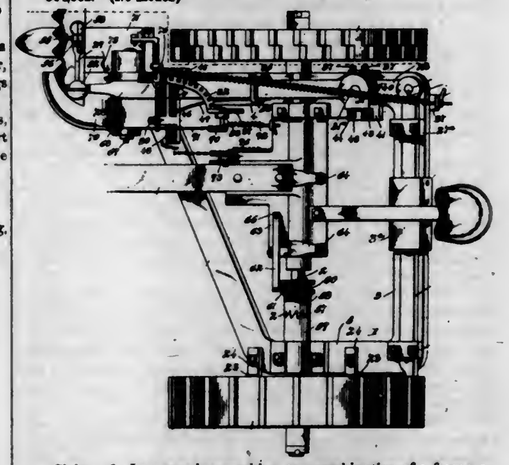
3. A brake having a shoe, an expansive spring carried by the shoe, and a sleeve loosely inclosing the shoe and normally supported by the spring out of forcible contact with the shoe, and moving upon the application of pressure to forcible contact with the interior walls of the sleeve, substantially as described.

576,913. NON-REFILLABLE BOTTLE. JOSEPH STRETCH, East Orange, N. J. Filed Dec. 16, 1895. Serial No. 572,262. (No model.)



Claim.—In a non-refillable bottle, the combination of the shoulders a in the interior of the neck, the annular recess a' having oblique sides, the depression a^2, with the annular groove a^3 on the exterior of the neck, and the annular enlargements a^4 a^5, with the stopper B having the annular groove b and locking device set in said groove, the cork D, the stopper being removed by operating in the annular groove a^3 the cutting device E by means of its wire holder, substantially as described and set forth.

576,914. MOWING-MACHINE. HANS STROMBO, Holt, Minn., assignor of one-half to Simeon O. Bangen, Bella Coola, Canada, and Thomas Sjoelkavik, Crooktown, Minn. Filed Oct. 3, 1895. Serial No. 564,532. (No model.)



Claim.—1. In a mowing-machine, the combination of a frame, a cam-wheel, a transversely-disposed reciprocating bar connected with and actuated by the cam-wheel, an oscillating lever pivoted to the reciprocating bar and provided with a longitudinal opening, an adjustable block arranged in the longitudinal opening and provided with a perforation, a clamping-plate located within the longitudinal opening and engaging the adjustable block, clamping-screws mounted on the oscillating lever and engaging the clamping-plate, an adjustable bearing-bracket mounted on the frame, and a pivot passing through the bearing-bracket and the perforation of the adjustable block, substantially as described.

2. In a mowing-machine, the combination of a frame provided with an opening 66, an axle, a cam-wheel mounted on the axle, a clutch composed of two tubular sections arranged on the axle and provided at their adjacent ends with teeth, one of the sections being connected with the cam-wheel, and the other section being keyed to the axle, having a limited longitudinal movement to engage and disengage the other section and provided with an annular groove, a horizontally-disposed foot-lever fulcrumed intermediate of its ends on the frame and having one end engaging the groove of the movable section of the clutch, and a spring depending from the other end of the lever, passing through the opening 66 and provided at its lower end with a bend forming a shoulder and arranged to engage the frame above or below the opening thereof, substantially as described.

3. In a mowing-machine, the combination of a frame, an axle, a cam-wheel having a peripheral cam-groove and provided at opposite sides of the same with annular flanges, a guard mounted on the frame and composed of two semicircular sections, and having inwardly-extending annular flanges, and provided with an opening, and a reciprocating bar having an arm extending through the opening and engaging the cam-groove, substantially as described.

4. In a mowing-machine, the combination of a frame, a cam-wheel having a peripheral cam-groove, brackets mounted on the frame adjacent to the cam-wheel and extending upward and downward therefrom, a circular wheel-guard having inwardly-extending flanges and inclosing the periphery of the cam-wheel, and secured to and supported by the arms of the said brackets, and a reciprocating bar actuated by the cam-wheel, substantially as described.

5. In a mowing-machine, the combination of a frame, a shoe connected with the same and arranged to swing upward and downward to raise and lower a cutting apparatus, and an operating-lever fulcrumed on the frame and arranged to swing longitudinally thereof, and connected with the shoe, and adapted to swing the same, said operating-lever being capable of a lateral movement, whereby the swinging movement of the shoe is accelerated, substantially as described

6. In a mowing-machine, the combination of a frame, a shoe hinged to the same, an inclined cam-shaped ratchet mounted on the frame and extending inward and rearward, a lever fulcrumed on the frame and connected with the shoe and guided by the cam-shaped ratchet, and means for engaging the ratchet, substantially as described.

7. In a mowing-machine, the combination of a frame, an inclined cam-shaped ratchet mounted on the frame and extending inward and rearward, a lever guided by the ratchet and provided at its lower end with a pivot mounted on the frame and disposed transversely thereof and capable of a limited movement, an arm carried by the pivot and designed to be connected with a cutting apparatus, and means for engaging the ratchet, whereby the lever is locked at the desired position, substantially as described.

8. In a mowing-machine, the combination of a frame, a rock-shaft journaled on the frame and disposed transversely thereof, and capable of a limited longitudinal movement and provided with an arm designed to be connected with a cutting apparatus for raising and lowering the same, a lever connected with the rock-shaft, an inclined cam-shaped guide connected with the lever, and means for locking the lever against movement, substantially as described.

9. In a mowing-machine, the combination of a frame, an inclined cam-shaped ratchet mounted on the frame and extending downward and inward, a lever provided with a rock-shaft journaled on the frame transversely thereof and capable of a limited longitudinal movement, lugs mounted on the upper face of the ratchet, rollers mounted on the lever and located at opposite sides of the ratchet, and a spring-actuated detent carried by the lever and engaging the lugs, substantially as described.

10. In a mowing-machine, the combination of a frame, a guard extending in advance of the frame and hinged at its rear edge to the same and provided at its inner and front edges with an upwardly-extending flange and having an opening therein, a shoe hinged to the outer side of the guard and arranged to swing transversely of the frame, a cutter-bar, and means for reciprocating the same, substantially as described.

11. In a mowing-machine, the combination of a frame, an oscillating lever disposed longitudinally of the frame, diverging springs arranged at opposite sides of the lever and connected at their outer end with the frame, and a clamp adjustably securing the inner ends of the springs to the lever, substantially as and for the purpose described.

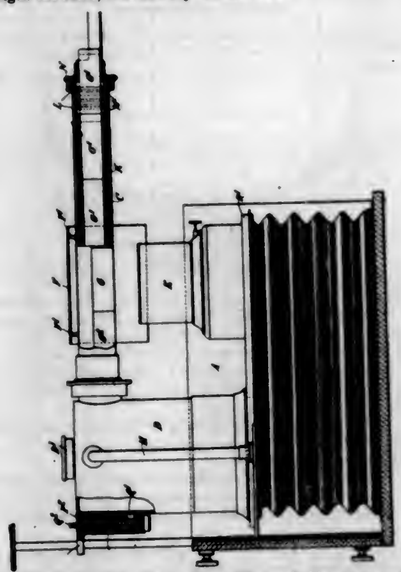
12. In a machine of the class described, the combination with a frame and a pivot, of a locking device comprising a pivoted plate arranged to cover one end of the pivot, and adapted to be swung aside to permit the pivot to be removed, a resilient shank or stem extending from the plate, and forming a handle, and stops arranged to be engaged by the shank or stem to secure the plate against accidental movement, substantially as described.

576,915. APPARATUS FOR MAKING OXYGEN. ALFRED SWEETSER, London, England. Filed Feb. 25, 1896. Serial No. 580,633. (No model.)

Claim.—1. As a new article of manufacture, a cake of oxygen-yielding material provided with a covering that is non-conductive of heat, substantially as and for the purposes specified.

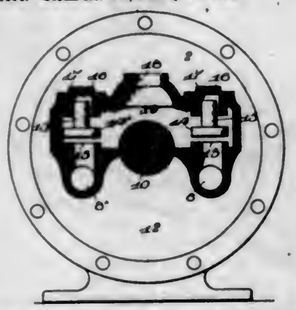
2. The combination with a gas-receiver, a tubular generator connected with the receiver, and means for heating the generator, of an asbestos sleeve K secured in one end of said generator, elastic washers L and metal rings M inserted in the outer end of said sleeve and adapted to closely embrace the last of a series of cakes of oxygen-yielding material placed in said sleeve, and a cap N closing the outer end of said generator and the sleeve therein, substantially as described.

3. The combination of an expansible gas-holder, a generator for oxygen gas, a chamber for receiving spent material from said generator and a lamp for heating the generator, the said chamber, generator and lamp being mounted on the expansible gas-holder and serving to weight the same, substantially as described.



4. The combination of an expansible gas-holder, a generator for oxygen gas, a chamber or box communicating with one end of said generator to receive gas and spent material from the generator, a pipe connecting the upper part of said chamber with the gas-holder, a relief-valve for said chamber, a lamp for heating the generator, the said chamber, generator and lamp being mounted on the expansible gas-holder, and means for automatically opening the relief-valve as the gas-holder attains its limit of expansion, substantially as described.

576,916. PUMP. ANTHONY W. THIERHOFF, Redding, Cal. Filed June 10, 1896. Serial No. 594,985. (No model.)

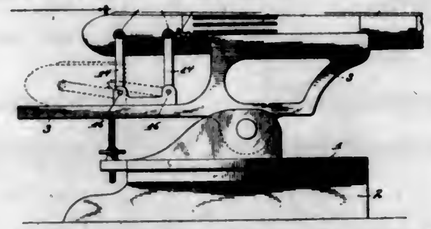


Claim.—In a pump, the combination with the circular casing provided with a partition in said casing, having a cored inlet-passage 4 communicating with the main induction-inlet 5, hinged foot-valves 6 6', removable sides for said casing, one of said sides having the exhaust-ports 8 8', the puppet-valves 14 14', and the removable cap 17, substantially as shown and described.

576,917. HIGH-EXPLOSIVE-THROWING ORDNANCE. CHARLES A. THOMAS, Philadelphia, Pa. Filed Mar. 13, 1896. Serial No. 583,059. (No model.)

Claim.—1. In a gun for throwing high-explosive projectiles, a projectile-bore and firing-chamber with an interposed partition, a projection-rod working through the partition, a projectile-carriage connected with the rod and buffers against which the rod operates, as and for the purpose described.

2. In a gun for throwing high-explosive projectiles, a projectile-bore, a carrier adapted to slide within said bore, a firing-chamber separated from said projectile-bore, and a projector-rod adapted to impart motion to said carrier by an explosion in the firing-chamber, substantially as and for the purposes set forth.



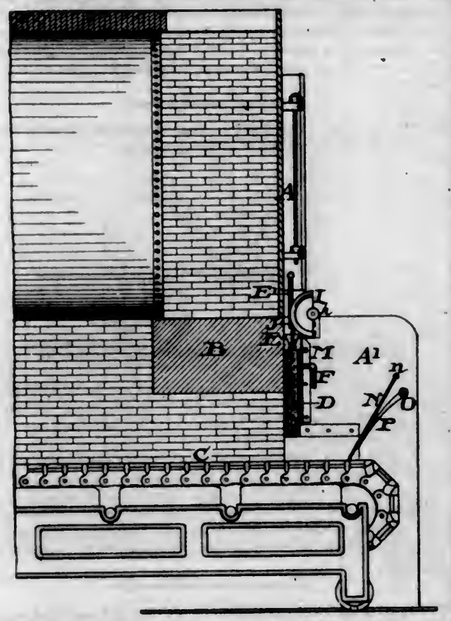
3. A gun for throwing high-explosive projectiles, consisting of a projectile-bore, a firing-chamber separated from said bore by a partition 8, a carrier adapted to slide within said bore, a projector-rod 9, passing through a suitable opening in said partition, a head 10, formed upon said rod, by means of which motion is imparted to the carrier from an explosion in the firing-chamber, supports connected to the firing-chamber whereby it can be moved out of line with the projectile-bore, for the purpose of charging said firing-chamber, substantially as and for the purposes set forth.

576,918. COMPOSITION FOR PREVENTING SQUEAK IN SHOES. ABIHA L. THOMPSON, Rock Creek, Ohio. Filed Aug. 24, 1895. Serial No. 560,321. (No specimens.)

Claim.—1. A composition of matter comprising, French chalk, yellow ocher and pulverized orris-root, for the purpose described.

2. A composition of matter, comprising French chalk, an earthy substance, and an odorous powder substantially as described.

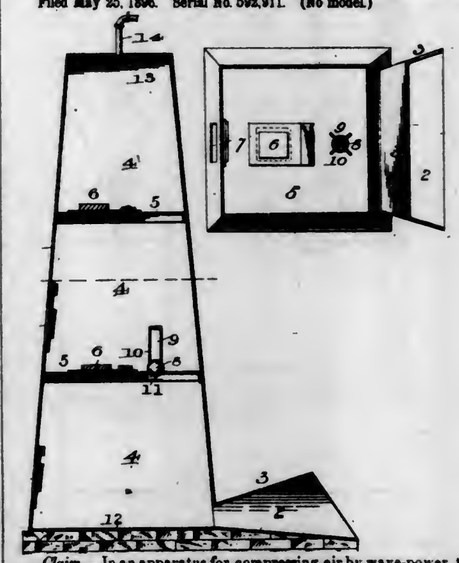
576,919. FURNACE-FRONT. FRANK R. TIBBITTS and CHARLES J. ALLEN, Cleveland, Ohio, assignors to The Playford Stoker Company, same place. Filed May 18, 1896. Serial No. 591,984. (No model.)



Claim.—1. The combination with the furnace-front and the traveling grate, of the chambered gate D, having inlet-funnel E and outlet-pipe F, adapted to provide a water circulation through said gate, the shaft H mounted on the end plates A', half-wheels I I mounted on said shaft, chains J J connecting said half-wheels with the gate, and the lever K on the end of said shaft, and the chain L attached to said lever and adapted to hold the lever in fixed positions, by engagement with fork *k*, all constructed to operate substantially as described and for the purpose specified.

2. The combination with the furnace-front and the traveling grate, of the tie-bar *n* connecting the two extension-plates A', apron N hinged onto said tie-bar, shaft O journaled in the extension-plates A', arms P P mounted on said shaft O, lever Q on the end of said shaft, and the chain R attached to the lever, and adapted to hold the lever and apron in position, by engagement with the fork *q*, all constructed to operate substantially as described and for the purpose specified.

576,920. AIR-COMPRESSOR. RICHARD TOENNES, Boonville, Mo. Filed May 25, 1896. Serial No. 592,911. (No model.)



Claim.—In an apparatus for compressing air by wave-power, the combination with the tower or shaft having an opening in its lower end provided with inclined guide-walls, and the horizontal partitions or floors dividing the tower into an air compressing and storage chamber, and the pipe communicating with the storage-chamber, of the downwardly-closing air-valve in the bottom of the storage-chamber, the downwardly-closing valve in the bottom of the compressing-chamber, the air-valve in the side of the compressing-chamber, and the float-valve in the bottom of the compressing-chamber consisting of the ball or sphere and the crossed vertical wires or rods, the construction being such that said float-valve will allow any water to escape from the compressing-chamber when the air-valve in the bottom thereof closes, substantially as described.

576,921. LOOM-SHUTTLE. OSCAR B. TRUESDELL, Sturbridge, Mass., assignor to the Litchfield Shuttle Company, Southbridge, Mass. Filed Mar. 18, 1896. Serial No. 583,649. (No model.)



Claim.—1. The combination with a shuttle-body, and a spindle pivoted therein, of a spring having the end which engages the spindle-head, when the spindle is in its lowered position extending at an angle to the body of the spring, to form a recess into which the projecting portion of the spindle-head will extend, when the spindle is raised, substantially as described.

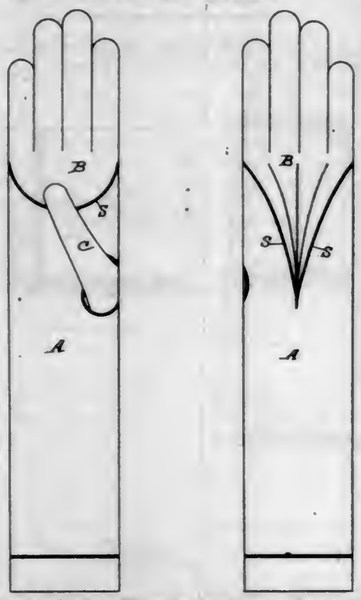
2. The combination with a shuttle-body, and a spindle pivoted therein, of a spring having a recess to receive the projecting portion of the spindle-head, and release the tension on the spring when the spindle is raised, substantially as described.

3. In a loom-shuttle provided with a spindle pivoted therein, the combination with a spindle-spring, having the end which engages the spindle-head bent or inclined at an angle to the main portion of the spring, of a supplemental plate extending under the spring, the end of which plate is engaged by the projecting end of the spindle-head when raised, to limit the raising of the spindle, substantially as described.

4. The combination with a shuttle-body, and a spindle pivoted therein, of a spring, and a supplemental plate on the inside of said

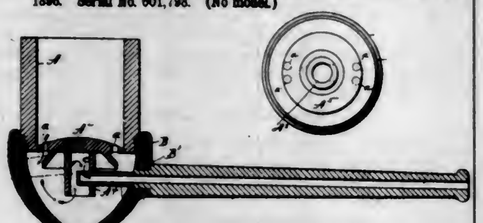
spring, forming a recess to receive the projecting portion of the spindle-head, and release the tension on the spring when the spindle is raised, substantially as described.

576,922. GLOVE. WILLIAM H. TYLER, New York, N. Y. Filed June 10, 1896. Serial No. 594,949. (No model.)



Claim.—A glove consisting of a hand portion, finger-pieces, differing in material from the hand portion, and an attaching portion integral with, and common to, each finger-piece, secured to the hand portion above the thumb by a transverse seam, substantially as described.

576,923. TOBACCO-PIPE. PAUL O. VETTERMANN, New Haven, Conn., assignor of one-half to Otto Bergter, same place. Filed Aug. 5, 1896. Serial No. 601,798. (No model.)

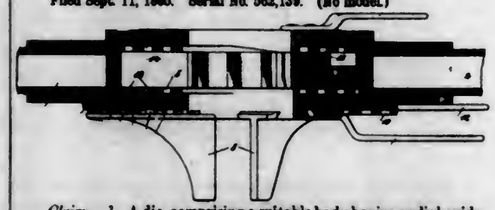


Claim.—1. In a sectional tobacco-pipe, the combination with a bowl having draft-openings in its lower end, of a drip-cup in the open upper end of which the said bowl is secured, a tube depending from the bottom of the said bowl and open at its lower end, and a pipe-stem entering through the side of the drip-cup and passing thence into the said tube through one side, said stem having an opening within said tube whereby said end is protected, substantially as described.

2. In a tobacco-pipe, the combination with a bowl adapted to receive the tobacco, closed at its lower end by a diaphragm having draft-openings near its edge, a tube depending from the under side of of said diaphragm, open at its lower end and formed with an opening in one side, and a depending outwardly-flaring flange located around said tube and inside the openings in the diaphragm, of a drip-cup in the upper end of which the said bowl is secured, and a pipe-stem entering into said tube through the openings in the side of the bowl and tube, said stem having an opening within the tube, substantially as described.

3. In a tobacco-pipe the combination with a bowl having its lower end closed by an integral diaphragm having a crowning inner face, and formed with draft-perforations located at or near its edge, with a downwardly-flaring deflecting-flange and with a depending tube opening downward, of a drip-cup in the upper end of which said bowl is secured, said bowl and tube formed with side openings in line with each other, and a stem closed at its inner end which is entered through the lateral openings formed in the cap and tube, and provided with an opening in one side near the end within said tube, substantially as described.

576,924. DIE-STOCK. GUSTAV WAGNER, Reutlingen, Germany. Filed Sept. 11, 1895. Serial No. 562,139. (No model.)



Claim.—1. A die, comprising a suitable body having radial guideways, two sets of cutters arranged to move radially in said guideways, the cutters of each set being alined in the same transverse plane of the die-body, said cutters being provided with projections extending on opposite sides of the body and independently-rotatable plates arranged on each side of the body so as to form a cover and a bottom therefor, said plates being provided in their opposing or inner faces with spiral grooves engaging the projections of the cutters, substantially as shown and described.

2. A die, comprising a hollow body provided with radial guideways, tools held to slide in said guideways and provided with projections extending on opposite sides of the body, annular disks rotatably mounted on the body at each side thereof, and provided with spiral grooves in their opposing faces to engage the projections of the said tools, and intermediate tools independently adjustable in relation to the body, said intermediate tools being alined in the same transverse plane of the die-body, and the other tools being similarly alined at each side of the intermediate tools, substantially as shown and described.

3. A die, comprising a hollow body, radially-movable tools on said body, a disk rotatably mounted on the body and constructed to move the tools, said rotatable disk having radial guideways, guides mounted to slide in said guideways and arranged in a transverse plane of the die-body different from the transverse plane in which the tools are arranged, and another rotatable disk engaging the said guides and constructed to adjust the same, substantially as shown and described.

576,925. CAR-BRAKE. FRED WAGNER, Carnegie, Pa. Filed Feb. 14, 1896. Serial No. 579,283. (No model.)



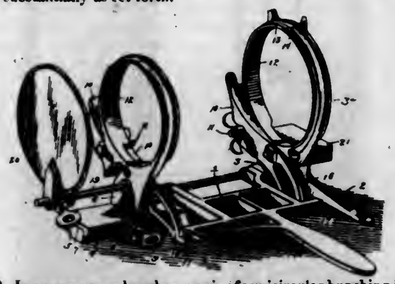
Claim.—1. In a brake, a shaft secured by clamps to the under side of the car, said shaft having near it center an operating-lever and carrying near its ends curved brake-rods adapted to engage the bearing portion of the wheels when the brake is applied substantially as shown and described.

2. In a brake, a shaft secured to the underneath side of the car, said shaft carrying curved brake-rods provided on their free ends with a flat portion adapted to engage the rail, an operating-lever secured to the shaft, and extending through the floor of the car and a rack carrying a cam adapted to engage the operating-lever and retain the brake in its elevated position substantially as shown and described.

576,926. ASPARAGUS-BUNCHER. ELIAS WATTS, Keyport, N. J. Filed June 25, 1896. Serial No. 596,883. (No model.)

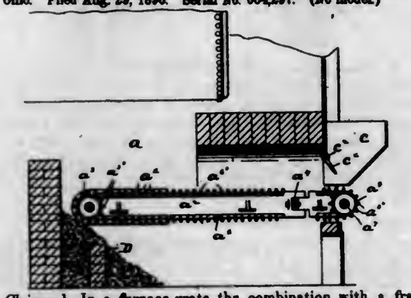
Claim.—1. In an asparagus-buncher, the base, alining pairs of bunching-jaws, means for relatively adjusting the pairs of jaws to vary the distance therebetween, and a gage-plate supported at one side of one pair of jaws and having an adjustment independent of the adjustment for varying the distance between the two pairs of jaws, substantially as set forth.

2. In an asparagus-buncher, the base provided at one end with a longitudinal shank extension 4, a fixed pair of semicircular bunching-jaws mounted at one end of the base, a movable pair of similar jaws arranged in line with the fixed pair of jaws and supported by a standard having at its lower end a flanged slide embracing the shank extension 4 of the base, a clamping device for said flanged slide, a horizontal stem fitted to the standard of the movable pair of jaws, and a longitudinally-adjustable gage-plate mounted on said stem, substantially as set forth.



3. In an asparagus-buncher, a pair of semicircular bunching-jaws provided with an interlocking connection at their contiguous extremities, and adjacent to said extremities with radially-disposed guard projections 15, substantially as set forth.

576,927. FURNACE-GRATE. HENRY F. WEINLAND, Springfield, Ohio. Filed Aug. 29, 1896. Serial No. 604,297. (No model.)



Claim.—1. In a furnace-grate the combination with a frame with flanges as described, grate-bars located around said framework and held to the same by a lug supported loosely under said flange, and an endless chain with lugs on the links, said lugs adapted to hold the grates in proper relation with each other, the chain passing around a frame or guide to correspond with the travel of the grate-bars, driving-wheels with teeth located at and corresponding with the curved part of the framework, the teeth of the said driving-wheels meshing into or between the grates and adapted to drive the same around the frame.

2. In a furnace-grate of the endless type the combination with an endless framework or guide, driving-wheels with teeth located to correspond with the curved part of the endless frame, an endless chain passing around the wheels on opposite ends of the framework, the links of said chain having raises or lugs which are adapted to keep grate-bars placed around the endless frame in position and to move them around the endless frame when the driving-wheels are revolved substantially as shown and described.

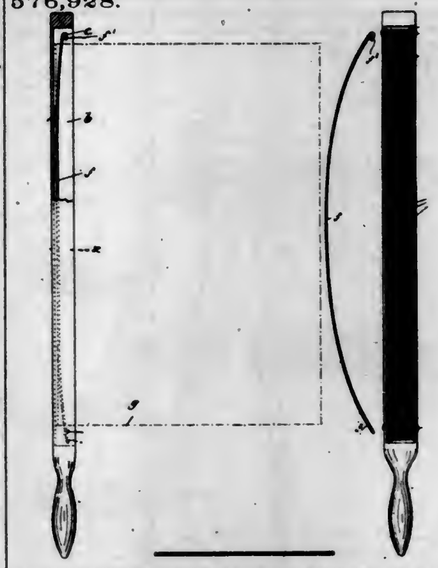
3. In a furnace the combination with endless driving-chains supported around driving-wheels as shown and described, the links of said driving-chains having raises or lugs between which are placed the grate-bars, said lugs keeping the grate-bars the desired distance apart.

4. In a furnace-grate the combination with a frame or framework, adapted to guide and support grate-bars in an endless chain, an endless chain with spacing-lugs on the links supported on a line with the framework, the said lugs meshing into or between the grates as and for the purpose specified.

576,928. NEWSPAPER-FILE. WAKE WHITNEY, Paterson, N. J. Filed Dec. 3, 1896. Serial No. 614,283. (No model.)

Claim.—A file for newspapers or periodicals, consisting of a frame provided with an elongated groove or channel, a transverse pin arranged at each end of said channel, and a series of curved spring-wires removably arranged with their hooked ends on one of said pins, and adapted to engage with their free ends beyond the other pin, substantially as and for the purposes described.

576,928.



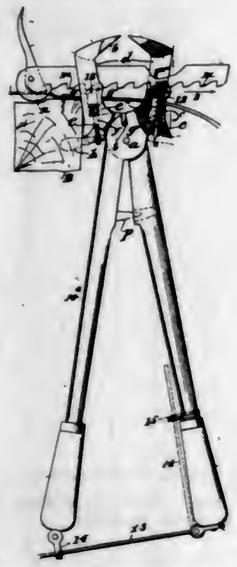
576,929. PUMP. JOHN D. WILCOX, Gilman, Ill. Filed Apr. 14, 1896. Serial No. 587,460. (No model.)

Claim.—A pump, comprising the body portion having an annular channel in its upper end, the receiver having a flanged lower end seated in said channel, a ring secured to the body portion and extending over said flange, the upper end of the body portion having an extension in the receiver and forming therewith a water-receiving compartment 10 having an outlet near the bottom of the receiver, a suction-plunger in the body portion and having an opening and hemispherical valves pivoted to lugs on the plunger to close the opening, a yoke 17 to which the lower end of the pump-rod is connected, a guide-yoke for said rod, a link pivoted on said receiver and having a downwardly-extending finger arranged to strike against the receiver and limit the movement of the link, and the pump-handle pivoted to said rod and fulcrumed on said link, as and for the purpose set forth.

576,930. TOOL FOR ERECTING WIRE FENCES. NORMAN D. WESTERGREN, Deadwood, S. D. Filed May 12, 1896. Serial No. 591,214. (No model.)

Claim.—1. A fence-building tool, comprising two lapped and pivoted handle-arms, the said arms having elongated jaws bent laterally and toward each other, the said jaws being longitudinally slotted be-

low their bent ends, one of said bent members being longitudinally notched forming two like jaw-limbs spaced apart and the other jaw member having a nose thereon adapted to enter the space between the said jaw-limbs, substantially as described.



2. A fence-building tool, comprising two lapped and pivoted handle-arms, each arm having a jaw member inwardly bent at the free end, one member being notched and the other member furnished with a projecting nose which enters the notch when the jaws are closed, both jaws being longitudinally slotted below their bent ends, a spring-pressed latch-dog for each jaw and slidable in a recess below the slot therein, a ratchet-toothed stretcher-bar longitudinally movable in the jaw-slots and engaged by said latch-dogs, and a clamping-dog on one end of the stretcher-bar, substantially as described.

3. A fence-building tool, comprising two lapped and pivoted handle-arms, the said arms having elongated jaws bent laterally and toward each other, the said jaws being provided with openings below their bent ends, one of said bent members being longitudinally notched forming two like jaw-limbs spaced apart and the other jaw member having a nose thereon and shoulders formed at each side of the said nose, substantially as described.

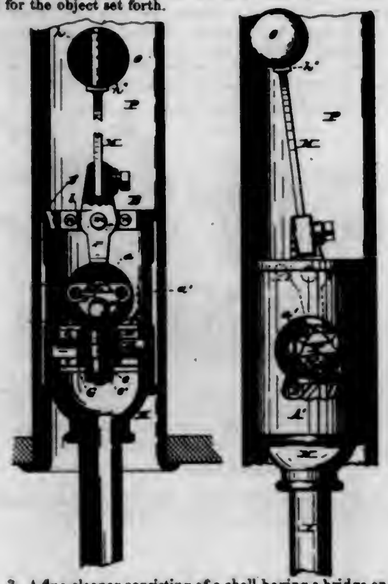
4. A fence-building tool, comprising two lapped and pivoted handle-arms, each arm having a jaw member inwardly bent at the free end, one member being notched and the other member having a projecting nose adapted to enter the notch when the jaws are closed, the said jaws being longitudinally slotted below their bent ends, a ratchet-toothed stretcher-bar longitudinally movable in the jaw-slots, dogs for engaging said stretcher-bar, a clamping-dog on one end of the stretcher-bar, and means for locking the handle-arms together, substantially as described.

5. In a fence-building tool, having two lapped and pivoted handle-arms, a staple-straightening device, comprising a tongue projecting at the inner side from one handle-arm, said tongue being adapted to enter a slot formed in the other handle-arm and said tongue and slot each having grooves in opposed faces, adapted to receive the limbs of a staple to be straightened, when the handle-arms are folded toward each other, substantially as described.

576,931. FLUE-CLEANER. LOUIS J. WOLF, Buffalo, N. Y. Filed Dec. 24, 1896. Serial No. 616,899. (No model.)

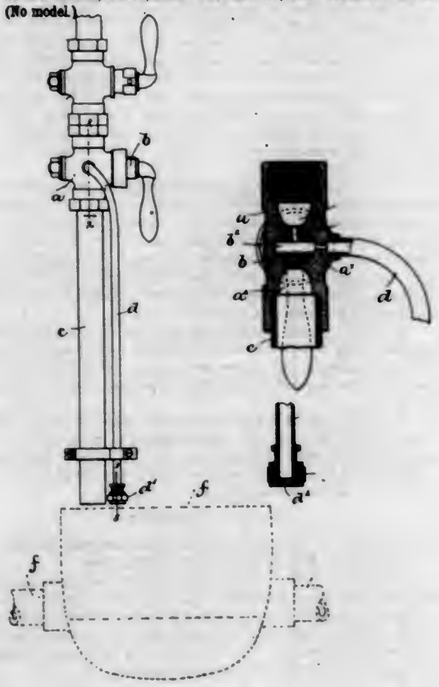
Claim.—1. In a flue-cleaner, a shell, a propeller-wheel located therein, a vibrating lever, a guide on the short arm of said lever, a slide thereon to connect said lever with said propeller-wheel, a hammer on the end of said lever, and a suitable supply-pipe for admitting steam to the interior of said shell, as and for the purpose set forth.

2. A flue-cleaner having a shell provided with a bridge, an upper disk in said shell, a propeller-wheel located in said shell, a pitman on said propeller-wheel, a vibrating lever pivoted in said bridge, a guide on the short arm of said lever, a slide upon said guide and means for connecting the slide with the pitman, and a hammer on the outer end of said lever, the whole being constructed and arranged as and for the object set forth.



3. A flue-cleaner consisting of a shell having a bridge on one end, a bell at the opposite end, openings at diametrically opposite places in said shell, a jacket on the outside of said shell, a propeller-wheel in said shell, two disks inclosing said propeller-wheel, a pitman on said propeller-wheel, a lever pivoted in said bridge, a guide on the short arm of said lever, a slide upon said guide having a recess in its under side engaging the pitman, and a hammer on the end of said lever, as and for the object set forth.

576,932. WATER-SUPPLY APPARATUS FOR DRINKING-FOUNTAINS. THOMAS F. WOOD, New Bedford, Mass., assignor to Charles H. Hall, Boston, Mass. Filed Nov. 30, 1896. Serial No. 613,861. (No model.)

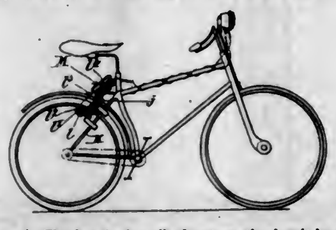


Claim.—1. The improved water-supply apparatus or fitting for drinking cups or troughs, the same comprising a valve-casing having an inlet adapted for connection with a water-supply pipe, and two outlets of different sizes; delivery-pipes connected with said outlets and extending to the cup or trough to be supplied; and a valve having passages formed to deliver a maximum stream to the larger outlet, and a minimum stream to the smaller outlet.

2. The improved water-supply apparatus or fitting for drinking cups or troughs, the same comprising a valve-casing having an inlet adapted for connection with a water-supply pipe; and two outlets of different sizes; delivery-pipes connected with said outlets and extending to the cup or trough to be supplied; a valve having passages formed to deliver a maximum stream to the larger outlet and a minimum stream to the smaller outlet; and a shut-off valve interposed between the said casing and the supply-pipe.

3. A water-supply apparatus of the character specified, comprising a valve adapted to deliver either a maximum or a minimum stream, delivery-pipes of different sizes connected with said valve, and a reducing-cap detachably connected with the smaller pipe to contract the stream delivered thereby.

576,933. ELECTRIC LIGHTING FOR VEHICLES. JULES A. AGKROM, Paris, France. Filed Aug. 2, 1895. Serial No. 558,000. (No model.) Patented in France May 18, 1895, No. 247,509.



Claim.—1. The herein-described automatic circuit-breaker consisting of a rotatable hollow body adapted to contain a conducting fluid and constructed of two sections of conducting material insulated from each other, substantially as set forth.

2. The herein-described automatic circuit-breaker, consisting of a hollow body mounted to rotate about a vertical axis and adapted to contain a conducting fluid, said body being constructed of two sections of conducting material separated by a horizontal ring of insulating material, substantially as set forth.

3. In a rotary circuit-breaker, a cylinder for containing mercury formed of two metallic end sections, and an insulating-sleeve receiving the end sections and provided with an annular rim projecting between the ends of the said end sections, as specified.

4. The combination, with a wheeled vehicle, of an electric generator operated by the rotation of the wheels, an accumulator electrically connected to the said generator, rotatable circuit-breakers in said connection, driving-disks movable from one circuit-breaker to the adjacent circuit-breaker, means controlled from the generator-shaft for rotating and longitudinally moving the said disks on their axes, and a lamp in circuit with the accumulator, substantially as described.

5. The combination, with a wheeled vehicle, of an electric generator operated by the rotation of the wheels, an accumulator electrically connected to the said generator, rotatable circuit-breakers in said connection, driving-disks screwing upon the generator-shaft and movable from one circuit-breaker to the adjacent circuit-breaker, means for holding the said disks against rotation while they travel longitudinally of the said shaft, and a lamp in circuit with the accumulator, substantially as described.

6. The combination, with a wheeled vehicle, of an electric generator operated by the rotation of the wheels, an accumulator electrically connected to the said generator, rotatable circuit-breakers in said connection, driving-disks screwing upon a shaft rotating with the generator-shaft, said disks being movable from one circuit-breaker to the adjacent circuit-breaker, springs clasping the said driving-disks between them to hold the disks against rotation while they travel longitudinally of the said shaft, and a lamp in circuit with the accumulator, substantially as described.

7. The herein-described electric generator, comprising two series of field-magnets, each magnet having its poles facing each other, and the magnets of different series having their similar poles located adjacent to each other, magnetic bars connecting similar poles of the magnets of one and the same series, diamagnetic strips separating the adjacent conducting-bars of different series, and an armature mounted to rotate between the poles of two field-magnets, substantially as set forth.

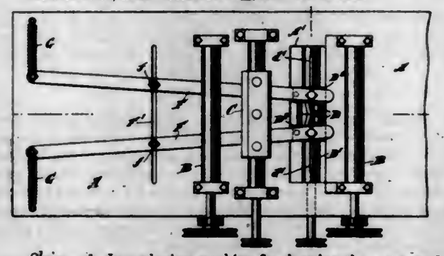
8. The combination with a velocipede, of an electric generator thereon, a rod fitted to slide and turn in a bearing on the machine-frame, a shaft mounted in one end of the rod, a friction-wheel on one end of the shaft, a spring on the rod for holding the friction-wheel in engagement with one of the ground-wheels of the machine, gearing between the said shaft and generator, and a locking lever or handle for preventing the said rod from turning in its bearing, substantially as described.

576,934. APPARATUS FOR BARRELING SOAP-STOCK. WILLIAM C. AHRENBECK, Brenham, Tex. Filed Sept. 15, 1896. Serial No. 605,913. (No model.)



Claim.—In an apparatus of the character described, a cylindrical chamber, a tank opening into one end of the said chamber, a conical cap closing the other end of the said chamber, a spiral conveyer within the said chamber, and means for rotating the said conveyer; of a three-way valve controlling the flow from the said chamber, a handle on the said three-way valve having indicators d' and d^2, discharge-pipes leading from the sides of the said three-way valve, said discharge-pipes being formed in sections connected by elbows to allow the said discharge-pipes to be raised or lowered, substantially as described.

576,935. STAVE-PLANING MACHINE. CARL S. ALGREN, New York, N. Y., assignor of one-half to William Lickstrom, same place. Filed Nov. 12, 1896. Serial No. 611,837. (No model.)



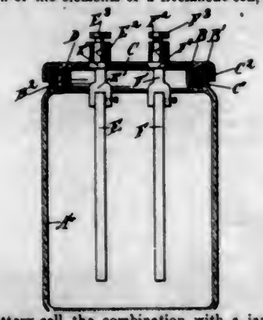
Claim.—1. In a planing-machine for dressing the outer surfaces of staves, the combination of a rotating shaft, two cutters mounted to rotate therewith and slide thereon, said cutters being disposed so as to plane surfaces dipping from the horizontal toward each other, movable guides upon the planer-table adapted to engage the edges of the staves, and connections therefrom to the cutter-heads whereby the heads are automatically moved by said guides to correspond to the width of the staves and the beveling is made to extend a uniform distance from the edges inward, substantially as shown and described.

2. In a planing-machine for dressing the outer surfaces of staves, the combination of a rotating shaft, two cutters mounted to rotate therewith and slide thereon, said cutters being disposed so as to plane surfaces dipping from the horizontal toward each other, guide-bars pivoted upon the table, adjustable pivots therefor, a grooved collar attached to each cutter-head, yokes attached to the guide-bars and engaging said collars, whereby the cutter-heads are automatically moved by said guides to correspond to the width of the staves and the beveling is made to extend a uniform distance from the edges inward, substantially as shown and described.

576,936. BATTERY. FRANCIS B. BADT, Chicago, Ill. Filed Sept. 7, 1894. Serial No. 522,235. (No model.)

Claim.—1. In a battery-cell, the combination with a jar, of a channel surrounding the upper edge of said jar, a cover for said jar provided with a rim adapted to fit in said channel, an insulating liq-

uid in said channel, and an opening in said rim, the distance from the surface of the insulating liquid to the opening in the rim being insufficient to prevent the escape of gas under the internal pressure set up by the action of the elements of a Leclanché cell, substantially as described.



2. In a battery-cell, the combination with a jar, of a circular channel at the upper edge thereof, a cover for said jar adapted to support the electrodes, a circular projection upon said cover adapted to rest in said channel, a liquid insulating material in said channel, an opening in said projection, the distance from the surface of the insulating liquid to the opening in the rim being insufficient to prevent the escape of gas under the internal pressure set up by the action of the elements of a Leclanché cell, substantially as described.

3. In a battery, the combination with the glass jar A, of the channel B^3 between the edges B B', the cover C provided with the downwardly-depending flanges C' C^3, the said flange C' resting in said channel, an insulating liquid in said channel, the opening D in said flange C', the distance from the surface of the insulating liquid to the opening in the flange C' being insufficient to prevent the escape of gas under the internal pressure set up by the action of the elements of a Leclanché cell, and the elements E F supported by said cover C, substantially as and for the purpose specified.

576,937. SHEARS OR SCISSORS. ELI BAILEY, Keokuk, Iowa, assignor, by mesne assignments, of two-thirds to Sarah Bailey, same place. Filed Oct. 21, 1896. Serial No. 608,563. (No model.)



Claim.—1. A pair of scissors, the blades of which are provided with recesses around the pivot, each blade having a raised bearing-surface, the bearing-surface on one blade terminating at the opposite ends of a transverse line through the pivot and thereby extending for a distance of one-half a circle concentric with the pivot and the other raised bearing extending in a concentric direction beyond the semicircle a distance equal to the movement of the upper bearing in the widest opening of the scissors, as explained.

2. A pair of shears comprising blades having recesses about their pivot and having raised bearing-surfaces back of the pivot one of which is a semicircle and the other of which extends on one side beyond the semicircle a distance sufficient to maintain the semicircular bearing at all angles of opening, a pivot-pin having a perforated end, a lever extending through the perforation in said pivot and bearing at one end on the blade having a semicircular bearing and a set-screw in the shank of the said blade, which has the semicircular bearing and putting tension on said lever, substantially as and for the purpose set forth.

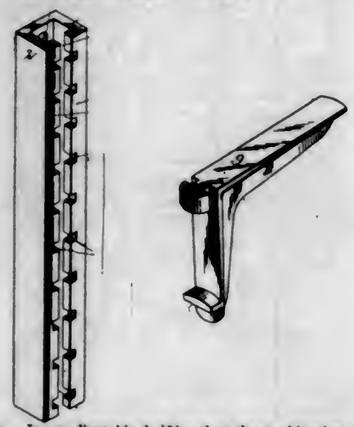
576,938. SHEARS OR SCISSORS. ELI BAILEY, Keokuk, Iowa, assignor, by mesne assignments, of two-thirds to Sarah Bailey, same place. Filed Nov. 16, 1896. Serial No. 612,246. (No model.)



Claim.—1. In a pair of shears or scissors, the combination with the blades of a pivot-pin or pintle provided with a perforation, a lever adapted to fit over the pin and to bear at one end against one of the blades forward of the pin, means for adjusting the other end of the lever, and a hook pivoted to the lever and parallel therewith and the point of which is adapted to enter the perforation in the pin, substantially as set forth.

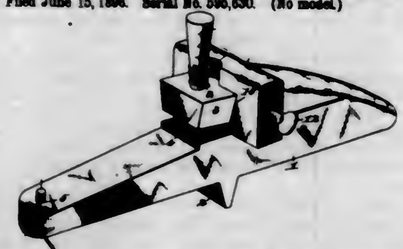
2. In a pair of shears or scissors, the combination of the blades, a pivot-pin provided at one end with a perforation and at the other end with a head, a lever adapted to fit over the pin, a set-screw for tightening one end of the lever, and a hook arranged parallel with the lever having an inturned end riveted into a perforation in one end of the lever and the point of which is adapted to fit in the perforation of the pin, substantially as set forth.

576,939. ADJUSTABLE SHELF-BRACKET. JOHN BAINES, Piqua, Ohio, assignor to John J. Kirk and Theodore Royer, same place. Filed May 4, 1896. Serial No. 590,160. (No model.)



Claim.—In an adjustable shelf-bracket, the combination with the standard, comprising the vertical sides having inwardly-turned flanges at the front with a space therebetween and said flanges formed at their opposite edges with a series of equidistant rectangular notches and the apertured cross-pieces, of the bracket-arm formed with a lug at the upper end with opposite vertical notches, said lug being of a thickness between its upper and lower ends greater than the notches in said flanges, so as to prevent them from passing therethrough and the foot at the lower end of the bracket substantially as described.

576,940. SAW-SET. JOSEPH D. BANNERMAN, Muscogee, Fla. Filed June 15, 1896. Serial No. 595,630. (No model.)



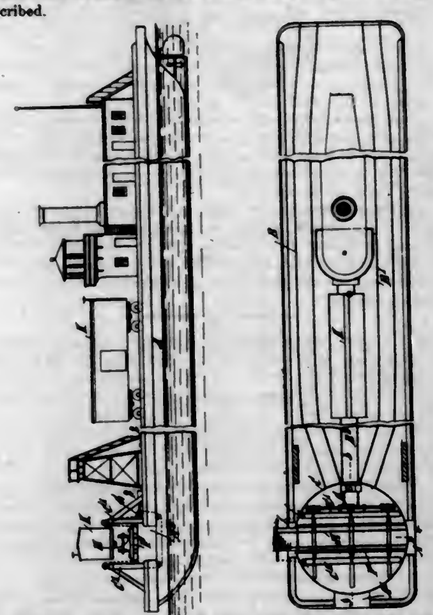
Claim.—In a saw-set, the combination of a base having an anvil portion, and provided with a longitudinally-disposed arm overhanging the anvil portion and having oppositely-beveled side faces converging downward from the upper face of the arm to the lower face thereof, the transversely-disposed gage provided with a tapering opening conforming to the configuration of the arm and receiving the same, whereby the gage is interlocked with the same and is adapted to slide backward and forward thereon, said gage having its sides depending below the arm at both sides thereof to form guides for a saw, an adjusting-screw mounted on the gage and engaging the arm to secure the gage at the desired adjustment, and a vertically-movable plunger mounted on the arm, substantially as described.

576,941. TRANSFER-BOAT. WALTER G. BERG, New York, N. Y. Filed Nov. 23, 1895. Serial No. 569,906. (No model.)

Claim.—1. The combination of a turn-table, a platform held to turn therewith and vertically movable in relation thereto, and an apron hinged to said platform at the periphery thereof, substantially as described.

2. The combination of a turn-table, and a platform held to turn therewith and capable of independent vertical movement without changing its original angular position relatively to a horizontal plane, substantially as described.

3. A boat provided with a turn-table, a platform held to turn therewith and movable vertically in relation thereto while remaining substantially horizontal, and an apron hinged to said platform and held to turn as well as to rise and fall therewith, substantially as described.

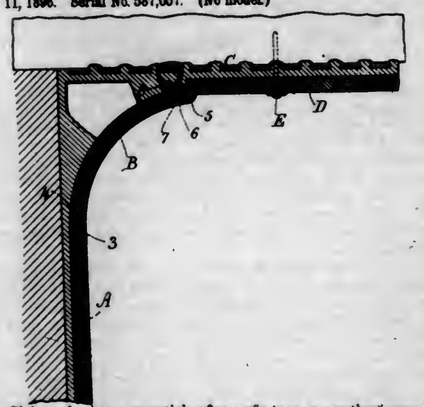


4. The combination of a turn-table, supports held to turn therewith, a platform suspended from said supports and capable of being moved bodily in a vertical direction, and a hoisting device connected to the platform, substantially as described.

5. The combination of a turn-table, supports held to turn therewith, a platform suspended from said supports and capable of being moved bodily in a vertical direction, an apron hinged to said platform at the periphery thereof, and a hoisting device connected to the platform, substantially as described.

6. The combination of a turn-table, supports held to turn therewith, a platform carried by said supports so as to turn with the turn-table, the said platform being also bodily movable in a vertical direction relatively to said support, and a hoisting device connected to the platform, substantially as described.

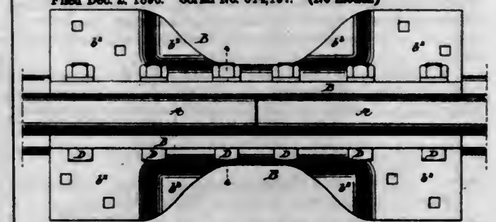
576,942. CORNICE-TILE. CHARLES J. BOGERT, Brooklyn, N. Y., assignor to The J. L. Mott Iron Works, New York, N. Y. Filed Apr. 11, 1896. Serial No. 587,057. (No model.)



Claim.—1. As a new article of manufacture, an earthenware cornice-tile made as a curve or cove sectionally with its lower edge adapted to rest upon the top edge of the vertical tiles, and with a lip at its upper edge to pass below the under surface of the ceiling-tile, and having a projecting ear or lug upon the upper portion and behind the top edge for receiving the fastening devices, substantially as set forth.

2. As a new article of manufacture, a corner-tile with the two portions at an angle to each other and curved or coved in its sectional shape, and with a rounded surface where the two angular portions come together, substantially as set forth.

576,943. RAIL-JOINT. ADOLPHUS BONSANO, Philadelphia, Pa. Filed Dec. 2, 1896. Serial No. 614,197. (No model.)

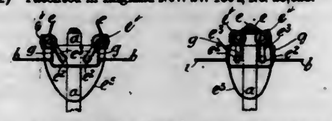


Claim.—1. The within-described joint-plate for railroad-rails, said plate having an upper chord adapted to be secured to the webs of the rails, a lower chord adapted to project downwardly beyond the base-flange of the rails, and feet adapted to extend outwardly beyond the base-flanges on each side of the lower chord and webs connecting the feet to the lower chord, substantially as described.

2. The within-described joint-plate for railroad rails, said plate having vertical upper and lower chords, the said upper chord adapted to be secured to the rails, the lower chord extending below the base-flange of the rails, feet adapted to extend outwardly beyond the base-flanges of the rails and diagonal webs connecting the feet to the lower chord, substantially as described.

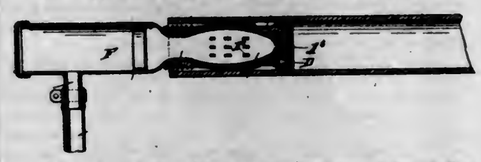
3. The combination of the abutting rails, a joint-plate having upper and lower chords arranged at each side of the said rails, the upper chord of each plate fitting between the head and base-flanges of the rail and secured thereto in the manner common to fish joints, feet projecting outwardly from the said plates in the same plane as the base of the rails and webs connecting the feet to the lower chord, substantially as described.

576,944. EXTINGUISHER FOR LAMP OR OIL-STOVE BURNERS. WILLIAM BRANDON, Aston, England, assignor to Eliza Rippingille, same place. Filed Feb. 27, 1896. Serial No. 580,910. (No model.) Patented in England Nov. 27, 1894, No. 23,023.



Claim.—An extinguisher for lamp and oil-stove burners comprising a wick-tube *a*, a perforated diaphragm *b*, bearings e^2 fixed to the diaphragm, contiguous to the wick-tube, the axes *e'* having crank-arms e^3, and flaps *e*, the single bow-string e^4 the yokes e^5 connecting the ends of the bow-spring with the crank-arms, and the stops *g*; substantially as described.

576,945. PIPE ATTACHMENT. CLARENCE B. BRENNEMAN, Marion, Iowa. Filed July 10, 1896. Serial No. 598,681. (No model.)



Claim.—1. A device of the class described, comprising a hollow core provided with a forward contracted end and connected with a fluid-pressure supply, and formed in its wall with apertures and at said contracted end with an outlet-opening less in area than the apertures, and a bulb of a flexible material and secured at its ends to the exterior of the said core, the said bulb being adapted to be inflated by the fluid passing through the said apertures, substantially as shown and described.

2. A device of the class described, comprising a hollow core connected with a fluid-pressure supply, and formed in its wall with aper-

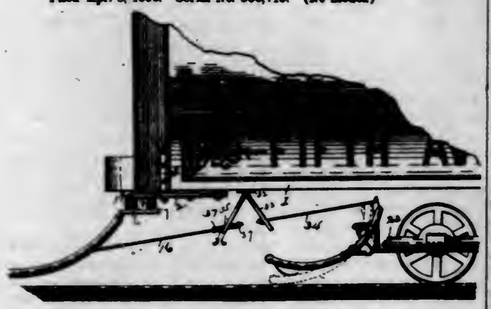
tures and at its forward end with an outlet, and a bulb of a flexible material and secured at its end to the exterior of the said core, the said bulb being adapted to be inflated by the fluid passing through the said apertures, and an annular flange formed on the said bulb and extending forwardly, to be pressed in contact with the pipe by the pressure within the latter, substantially as shown and described.

3. A device of the class described, provided with an inflatable bulb formed with an external annular flange, adapted to engage the inner surface of the pipe and adapted to be pressed in contact therewith by the pressure inside the said pipe, substantially as shown and described.

4. A device of the class described, comprising the core having a forward contracted end and the bulb on the exterior thereof the said core having communication with said bulb and an outlet-opening in said end, as shown and described.

5. A device of the class described, comprising the core, and the bulb surrounding the walls of the same and provided with an annular flange, said core having openings leading into said bulb and an outlet at its forward end, substantially as shown and described.

576,946. CAR-FENDER. HARRY S. BRICKELL, Pittsburg, Pa. Filed Apr. 3, 1896. Serial No. 586,715. (No model.)



Claim.—1. A car-fender consisting of the frame portion having a net composed of any suitable material, braces secured to the car-body and formed with a curved-end supporting-plate pivoted to the braces engaging in the side portions of the frame, said supporting-plate having a coiled spring arranged between the same and the brace and a connecting-rod having a pivoted V-shaped end secured in the center brace of the fender and the hanger, to which the rear end of the rod is secured and a rear scoop, secured to the truck-frame, substantially as shown and described.

2. In a car-fender, the combination of the front fender supported by braces secured to the car-body, a connecting-rod having forked pivoted ends having pins engaging in apertures in the center brace of the fender, a hanger and a spring arranged between the forks and the rear end of the rod connected to the hanger, substantially as shown and described.

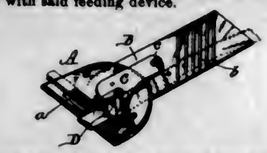
3. In a car-fender a rear wheel-guard consisting of the frame portion provided with a netting, said frame portion being supported by brackets secured to the truck-frame and a cap secured to said brackets, a locking-brace secured to the truck-frame and engaging the rear bar of the frame, said locking-brace provided with a bolt attached thereto, and supported by an arm and a coil-spring arranged on said bolt, all parts being arranged and operating, substantially as shown and described.

4. A car-fender consisting of a front and rear fender, rods secured to the front fender and to a locking-brace of the rear fender, the two rods being connected by an inverted-V-shaped hanger secured to the car-body, said rods being provided with springs on each side of the hanger-arms, substantially as shown and described.

5. A car-fender consisting of a front and rear fender, connected together to work automatically, the connecting-rod of the front fender provided with arms pivotally attached to the rod and provided with pins adapted to engage in holes in the brace of the front fender, said arms being held in the engaging position by a spring, the rear rod being connected to the locking-brace of the rear fender and both rods connected to an inverted-V-shaped hanger secured to the car-body, and coil-springs arranged on the rods at either side of the arms of the hanger, substantially as shown and described.

576,947. SEWING-MACHINE BINDER. EUGENE BUKER, Kansas City, Mo., assignor to The Singer Manufacturing Company, of New Jersey. Filed Aug. 31, 1894. Serial No. 521,811. (No model.)

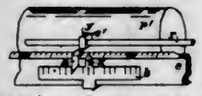
Claim.—1. The combination with a sewing-machine throat-plate provided with a slot, of a horizontally-movable binding-guide, a part by which said guide is carried, and a pin extending through said slot and serving to connect said guide-carrying part with the feeding device of the sewing-machine so that said guide will be reciprocated horizontally with said feeding device.



2. The combination with a sewing-machine throat-plate provided with a slot, of a binding-guide, a horizontally-movable part, as the shank C, by which said binding-guide is carried and which is provided with a pin, as c', extending through said slot to be engaged with the feeding device of the machine.

3. The combination with the throat-plate A provided with the slot a^2, of the plate B provided with the tension-pins b, the shank C pivoted to said plate B and provided at its free end with the binding-guide D, said shank being also provided with a pin c' extending downward through the said slot a^2 so as to engage the feeding device of a sewing-machine.

576,948. TYPE-WRITER ATTACHMENT. WALTER P. BUTLER, Minneapolis, Minn. Filed Oct. 30, 1895. Serial No. 567,341. (No model.)

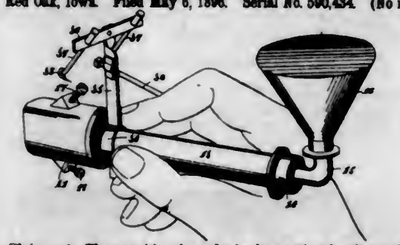


Claim.—1. An attachment for type-writers, consisting of a digital scale and a pointer, the scale and pointer being capable of connection one to the type-writer carriage and one to the type-writer frame and the pointer having a clamp by which it may be adjustably connected to the part which carries it, substantially as described.

2. An attachment for type-writers, consisting of a digital scale and a pointer, the scale and pointer being capable of connection one to the type-writer carriage and one to the type-writer frame and the pointer having a spring-clamp by which it may be removably and adjustably connected with the part which carries it, substantially as described.

3. The combination with a type-writer, of a digital scale secured to the type-writer frame and juxtaposed to the carriage and a pointer secured to the carriage and moving over the digital scale, the pointer having at one end a spring-clip by which it may be removably and adjustably held to the carriage, substantially as described.

576,949. SIGN-WRITER'S APPARATUS. HERMAN C. CARVER, Red Oak, Iowa. Filed May 6, 1896. Serial No. 590,434. (No model.)



Claim.—1. The combination of a body portion having a flanged mouth, a block capable of closing said mouth, and a point carried by the block and capable of projecting through the mouth and of movement with the block into the body portion, substantially as described.

2. The combination of a body portion having a mouth, an orificed block capable of removably closing said mouth, and a point movable through the orifice of the block and independently thereof, substantially as described.

3. The combination of a body portion having a mouth, a block capable of closing the mouth, a spring pressing the block, a rod passed through the block, a point carried by the rod and projecting through the mouth of the body portion, a spring pressing the rod, a nut carried by the rod and capable of engagement to move the block with the rod, and a screw carried by the body portion and limiting the inward movement of the block, substantially as described.

4. The combination of a body portion having a mouth, a block capable of closing the mouth, a rod passed into the body portion and block, and a point carried by the rod and projecting through the mouth of the body portion, the block being capable of movement

inward to open the mouth of the body portion, substantially as described.

5. A sign-painter having a body portion provided with liquid-feeding devices, a guide rigid with the body portion and capable of engaging the surface on which the sign is to be painted, and a supplemental arm carried by the guide and capable of engaging the hand of the operator and of indicating the degree of pressure applied to the guide, substantially as described.

6. The combination with a body portion having a flanged mouth, of a centrally-recessed block having a projection extending through the month, a rod passed into the recess of the block, a point carried by the rod and projecting through the block and through the mouth of the body portion, a screw carried by the body portion and engaging the block to limit its inward movement, and means for spring-pressing the rod and block, substantially as described.

576,950. VIOLIN CHIN-REST. MYRON H. COLONEY, Denver, Colo. Filed June 10, 1896. Serial No. 594,897. (No model.)



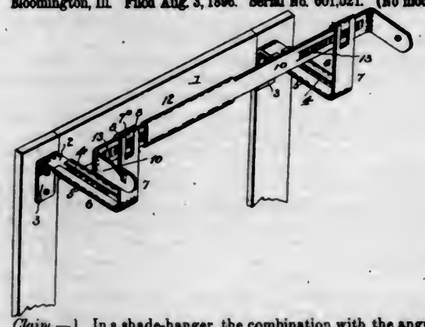
Claim.—1. A chin-rest, comprising a shank made in two tubular parts slidable one on the other, a head on one of the parts provided with a rest proper, a foot on the other part, a post fixed to one of said parts and provided with a projection engaging a vertically-disposed slot in the other part, and a spring on said post for drawing the head and foot toward each other to clamp the device in place on the body of the instrument, substantially as shown and described.

2. A violin chin-rest, comprising a rest proper, a head to which said rest proper is secured, a tubular shank extending from the said head, a foot provided with a tubular shank engaging the tubular shank of the head, a post extending from said foot into the shank of the head, a spring coiled on the said post for drawing the head and foot toward each other, and elastic cushions secured to the under side of the said head and the top of the said foot, substantially as shown and described.

3. A violin chin-rest, comprising a head adapted to support at its top the rest proper, a tubular shank extending from the said head, a foot provided with a tubular shank engaging the said head-shank, a post extending from the said foot into the said tubular head-shank, and a spring coiled on the said post and resting with one end on the bottom of the said head-shank and with its other end on a pin attached to the said post, substantially as shown and described.

4. A violin chin-rest, comprising a rest proper, a head adapted to support at its top the rest proper, a tubular shank extending from said head and having a bottom provided with an aperture, a foot provided with a tubular shank engaging the tubular shank of the head, a post extending from the said foot into the tubular shank of the head, the said post being fitted to slide in the aperture formed in the bottom of said shank, a pin fastened to the upper end of the post and projecting into a vertically-disposed slot formed in the tubular shank of the head, a spring coiled on the said post and resting with one end on the bottom of the tubular shank of the head and with its other end engaging the said pin on the post, and cushions secured respectively to the under side of the head and the top of the said foot, substantially as shown and described.

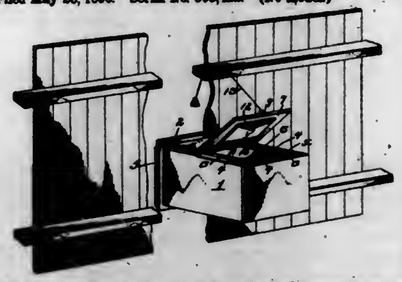
576,951. HANGER FOR SHADE-ROLLERS. JULIUS W. CRIGLER, Bloomington, Ill. Filed Aug. 3, 1896. Serial No. 601,521. (No model.)



Claim.—1. In a shade-hanger, the combination with the angular brackets adapted to be secured to a window-sash, of the extensible angular brackets connected therewith, the three vertical arms at the upper ends thereof, the central one of which is formed with a bend, so that it will be in a different plane from the other two, and the ends of said arms being bent or curved inwardly forming ways, and the overlapping adjustable hanger-bars, seated in said ways, substantially as described.

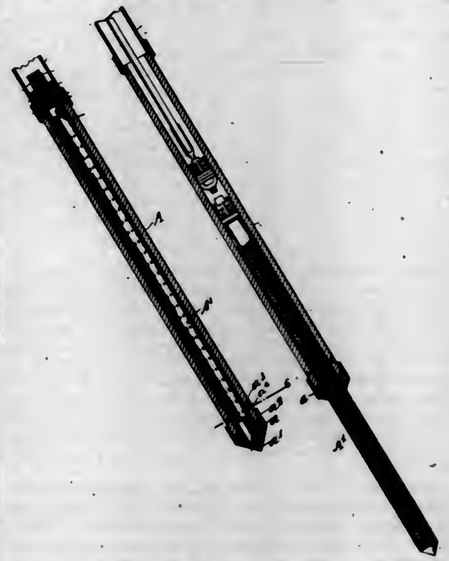
2. In a shade-hanger, the combination with the angular brackets adapted to be secured to a window-sash, of the angular extensible brackets having inwardly-turned flanges engaging therewith, the arms in different planes at the upper ends of said extensible brackets, and one of said arms of each bracket formed with a projection, the overlapping adjustable hanger-bars, having depressions coinciding with said projections and one of said bars formed with flanges overlapping the other bar, substantially as described.

576,952. GARBAGE-BOX. DENIS CREHAN, Fort Wayne, Ind. Filed May 28, 1896. Serial No. 593,422. (No model.)



Claim.—In a box of the class described, the combination of a box proper provided with a lid connected to its top, a drawer sliding in said box, a panel secured to said lid and having its inner end beveled to permit the passage of the drawer through the box, the opposite end of the panel being adapted to normally lie in the path of the inner end of said drawer and lock the latter in the box, said panel being of the same dimensions as the interior of the drawer so as to fit tightly around the edges of said drawer and render the box air and water tight, and means for opening the lid of the box, substantially as set forth.

576,953. PIPE-WELL AND DEVICE FOR DRIVING SAME. NELSON W. DAVIS, Port Jefferson, N. Y. Filed Mar. 6, 1896. Serial No. 582,042. (No model.)



Claim.—1. In a tubular well, the combination with a well pipe, of a screen-protector pipe secured to the lower end of the well-pipe, the said screen-protector pipe being of smaller interior diameter than the well-pipe, whereby a shoulder is formed at the upper end of the protector-pipe within the well-pipe, a tapered tubular shoe portion

on the lower end of the protector-pipe, a strainer-tube having an external circumference to fit snugly, yet movably in the protector tube, a tapered shoe portion on the lower end of the strainer-tube forming a continuation of the shoe portion on the protector-pipe, a driving-head adapted to engage with the upper end of the protector-pipe within the well-pipe, and a rod extended from the driving-head to engage with the shoe portion on the strainer-tube, the said rod fitting snugly within the strainer-tube, substantially as specified.

2. In a tubular well, a well-pipe having a water-inlet port through its lower portion, a tapered shoe portion on the pipe below said port, a strainer-tube within the pipe and having a shoe-point, and a driving-head having a port, substantially as specified.

576,954. SAVINGS-BANK. CLARENCE L. DAWSON, Tacoma, Wash. Filed May 23, 1896. Serial No. 592,800. (No model.)



Claim.—1. The combination with the casing having an annular body portion, an outwardly-movable back plate, a locking device to hold the back plate in its closed position, a circularly-arranged series of coin-depositories normally closed at one end by said back plate, and a rotary front plate having a pocket to receive and convey coins to the said pockets until they are all filled, substantially as described.

2. In a bank, a casing having a marginal coin-slot, depositories located within the said casing and adapted to receive coin, the said depositories being at a uniform distance from a common center, and a revoluble plate having its pivot at the common center around which the depositories are grouped, the said plate being provided with a pocket upon its inner face and opening through its periphery to register with said slot for the reception of a coin, the pocket being so placed that when the plate is revolved the said pocket will pass over all of the depositories, as and for the purpose specified.

3. In a bank, a casing, depositories located within the said casing, adapted for the reception of coin, a revoluble plate provided with a pocket, so placed that as the plate is revolved the said pocket will pass over all of the depositories, and an extractor located within the said pocket, acting to force a coin from the pocket into the nearest depository capable of receiving it, and prevent the return of the coin to the pocket as and for the purpose specified.

4. A bank consisting of a casing, depositories located within the said casing, a revoluble plate provided with a pocket adapted to receive a coin, the said pocket being so placed that as the plate is revolved the pocket will pass over all of the depositories, a spring-extractor located in the pocket of the said plate, and locking devices located within the casing, adapted to enter keepers formed in the said revoluble plate, as and for the purpose set forth.

5. In a bank, a casing, depositories located within the said casing, adapted to receive coin, a plate held to revolve over the depositories and provided with a coin-receiving pocket, adapted in the travel of the plate to pass over the said depositories, an extractor located within the said pocket, and coin-operated lock-latches adapted for locking engagement with the said revoluble plate when in its normal position, as and for the purpose set forth.

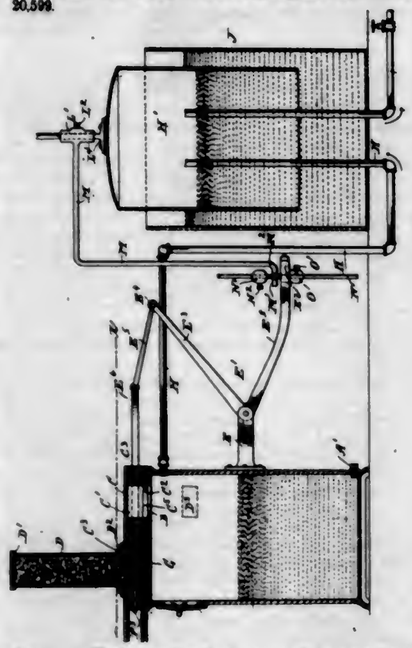
6. In a pocket-bank, a casing, depositories located within the casing at a uniform distance from a common center, a plate pivoted at the aforesaid common center and provided with a coin-receiving pocket, so placed as to pass over the said depositories as the plate is revolved, a spring-extractor located within the said pocket, acting when the pocket is opposite a depository to force the coin from the pocket, a toothed register-wheel pivoted to pass by an opening in the said plate and pivoted on the said plate, and a post around which the plate revolves, provided with a projection engaging with the teeth of the register-wheel, whereby at each revolution of the said plate the register-wheel will be turned the distance of one tooth, as set forth.

7. In a pocket-bank, a casing, depositories located within the said casing, a plate mounted to turn over the said depositories, being provided with a coin-receiving pocket arranged to pass over the depositories, an extractor located within the said pocket, recesses located one at each side of the said pocket, latches located within the said casing, and adapted to enter the recesses in the revoluble plate, one of the said latches being operated by the introduction of a coin into the pocket, as and for the purpose set forth.

8. In a pocket-bank, a casing comprising a body-band having a tubular pendant, a locking-bolt located within the said pendant and extending within the body-band, a coin-depository within the band and a face-plate closing the sides of the body-band, one of the said plates being revoluble and provided with a pocket to convey the coins to said depository and the other having locking engagement with the aforesaid bolt and adapted when unlocked to open the case and expose the coin-depository, as and for the purpose specified.

9. In a pocket-bank, a casing comprising a body-band having a tubular pendant, a locking-bolt located within the said pendant and extending within the body-band, a coin-depository within the band and a face-plate closing the respective sides of the body-band, one of the said plates being revoluble and provided with a pocket to convey the coins to said depository and the other having locking engagement with the aforesaid bolt and adapted when unlocked to open the case and expose the coin-depository, and a key adapted to manipulate the said bolt, substantially as shown and described.

576,955. METHOD OF AND APPARATUS FOR GENERATING GAS. JAMES A. DEUTHER, Boston, Mass. Filed July 13, 1896. Serial No. 599,025. (No model.) Patented in England Sept. 17, 1896, No. 20,599.



Claim.—1. The herein-described process of generating acetylene gas which consists in first forming the carbid into compact bodies each containing a determined amount of carbid and capable of generating a determined amount of gas, and second in so storing such compact bodies with reference to a generator as to keep them out of contact with the liquid therein or vapor thereof, and third, in feeding such bodies to the liquid of the generator by mechanism operated by the volume of the gas in such manner that each feed of the carbid shall generate a determined amount of gas.

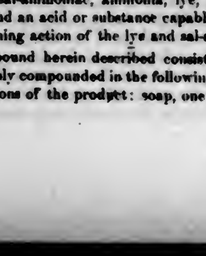
2. In a gas-generating apparatus, a gas-generating chamber for holding water or other liquid and provided with a gas-outlet, a receptacle for holding compact bodies of metallic-carbid compounds containing a determined amount of metallic carbid, and mechanism for automatically feeding said compact bodies of metallic-carbid compounds to said gas-generating chamber and adapted to be operated by the variations of the volume of the gas generated.

3. In a gas-generating apparatus, a gas-generating chamber for holding water or other liquid and having a gas-outlet, a gasometer with which said gas-outlet communicates and in which the gas generated is stored, a receptacle for holding compact bodies of metallic-carbid compounds capable of generating determined amounts of gas, and mechanism for feeding said compact bodies of metallic-carbid compounds to said gas-generating chamber and adapted to be operated by the variations of the volume of the gas in the gasometer.

4. In a gas-generating apparatus, a gas-generating chamber for holding water or other liquid and having a gas-outlet and a port through which metallic-carbid compounds are fed to said gas-generating chamber, a gasometer with which said gas-outlet communicates and in which the gas generated is stored, a chamber located on said gas-generating chamber and having a port registering with the port of said gas-generating chamber, a receptacle for holding compact bodies of metallic-carbid compounds and communicating with said chamber, and mechanism for feeding said compact bodies of metallic-carbid compounds to said gas-generating chamber and adapted to be operated by the variations of the volume of the gas in the gasometer.

5. In a gas-generating apparatus, a gas-generating chamber for holding water or other liquid, and having a gas-outlet and a port through which metallic-carbid compounds are fed to said gas-generating chamber, a gasometer with which said gas-outlet communicates and in which the gas generated is stored, a chamber located on said gas-generating chamber, a receptacle for holding compact bodies of metallic-carbid compounds and communicating with said chamber, and mechanism for feeding said compact bodies of metallic-carbid compounds to the gas-generating chamber and consisting of a piston adapted to feed said metallic-carbid compounds and devices cooperating with said piston to actuate the same and adapted to be operated by the variations of the volume of the gas in the gasometer.

576,956. LOCKING DEVICE FOR GAS-COCKS. JOHN DOYLE, New York, N. Y. Filed Apr. 18, 1896. Serial No. 588,148. (No model.)



Claim.—1. The cock herein described as having its casing formed with a bolt-hole on its inside, and its core constructed of two sections, inclosing therebetween a locking-bolt, and united by fastenings as screws, whose heads are covered and sealed by the casing, and locked by the bolt inside the casing.

2. The combination with the casing of a cock having a bolt-hole on its inside, of a cock-core constructed of two sections inclosing therebetween a chamber, fastenings uniting said sections and sealed by the casing and a locking-bolt working in said chamber through the wall of the outer section of the core into said bolt-hole, said outer section of the core being provided with a key-slot to admit a bolt-locking key.

3. The combination, with the casing of a cock having a series of concentric slots of varying lengths, of a cock-core having an adjustable stop to ride in either of said slots, and variably limit the opening of the cock.

4. The combination, with the casing of a cock having a bolt-hole and a series of slots of different lengths, of a cock-core having an adjustable stop to ride in either of said slots, a bolt in the core, and means for operating the bolt by a key.

5. The combination, with the casing of a cock having a bolt-hole and a series of slots of different lengths, of a cock-core having an adjustable stop within the casing to ride in either of said slots, a bolt in the core and means for operating the bolt by a key.

6. The combination, with the casing of a cock having a series of slots of different lengths, of a cock-core having a series of stop-holders corresponding to the respective slots, and a stop to be held in one of said stop-holders.

576,957. PAINT-REMOVING COMPOUND. ADALBERT REINT, Cleveland, Ohio. Filed June 15, 1896. Serial No. 595,659. (No specimens.)

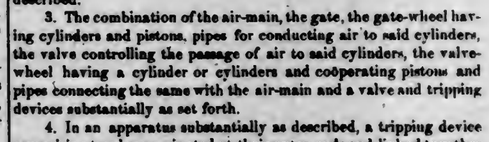
Claim.—1. The compound herein described, consisting of suitable proportions of the following suitably-compounded ingredients: soap or its ingredients, fat, sal-ammoniac, ammonia, lye, flour or starch, and an acid or substance capable of counteracting or reducing the burning action of the lye and sal-ammoniac.

2. The compound herein described, consisting of suitable proportions of the following suitably-compounded ingredients: soap or its ingredients, fat, sal-ammoniac, ammonia, lye, alum, washing-soda, flour or starch, and an acid or substance capable of counteracting or reducing the burning action of the lye and sal-ammoniac.

3. The compound herein described consisting of the following ingredients suitably compounded in the following proportions for one and one-half gallons of the product: soap, one pound; fat, one-half pound; sal-ammoniac, two ounces; ammonia, one-half gallon; tartaric acid, one ounce; lye, two pounds, and flour or starch, one-half pound.

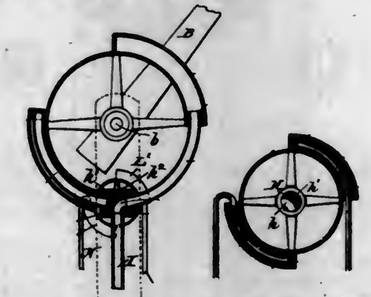
4. The compound herein described, obtained by boiling, first, a suitable quantity of soap and water until it receives the consistency of paste or dough; secondly, adding a suitable quantity of tartaric acid and sal-ammoniac, and stirring and boiling the mass; thirdly, adding a suitable quantity of lye and continuing the stirring and boiling of the mass; fourthly, adding a suitable quantity of fat and continuing the stirring and boiling of the mass; fifthly, adding ammonia and continuing to stir and boil the mass; sixthly, adding a suitable quantity of flour or starch and continuing to stir and boil the mass, and then allowing the mass to cool down, or artificially cool the same, and stirring it during the cooling process.

576,958. SPRING-TENSION RATCHET FOR WIRE FENCES. GEORGE W. FIELD, North Branch, N. J. Filed May 22, 1896. Serial No. 592,647. (No model.)



Claim.—The herein-described tension device for wire fences, made up of a frame composed of a pair of parallel longitudinal bars having flanges upon the inner surface thereof, a perforated cross-head at one end of said bars, a cross-bar acting as a guide for the line-wires at the opposite end of said bars, a roller rotatably mounted in said longitudinal bars adjacent to said cross-bar, the said roller being formed with a rectangular extension for the application of a wrench, a ratchet-wheel on said roller, a pawl engaging said ratchet-wheel pivoted to one side of said frame, a headed bolt passing through the opening in said cross-head to which the other end of the line-wire is attached, and a spiral spring surrounding said rod or bolt engaging the head thereon and the cross-head of said frame and held in place between the side bars and said frame by the flanges thereon, substantially as and for the purpose described.

576,959. RAILROAD-GATE. JOHN J. FLIPPIN, Neapolis, Va., assignor of one-sixth to George C. Corbin, same place. Filed Sept. 25, 1895. Serial No. 563,639. (No model.)



Claim.—1. The combination of the gate, the gate-wheel having air-cylinders and pistons, pipes by which to supply air to said cylinders, a valve controlling the supply of air, a wheel fixed to said valve and provided with cylinders and pistons, and means by which pressure may be admitted to said cylinders substantially as set forth.

2. The combination of the air-main, the gate, pneumatically-operated devices for actuating the gate, a valve controlling the passage of air to said devices oppositely-disposed cylinders connected to and movable with said valve and the pistons and pipes connected therewith and extended in opposite directions substantially as shown and described.

3. The combination of the air-main, the gate, the gate-wheel having cylinders and pistons, pipes for conducting air to said cylinders, the valve controlling the passage of air to said cylinders, the valve-wheel having a cylinder or cylinders and cooperating pistons and pipes connecting the same with the air-main and a valve and tripping devices substantially as set forth.

4. In an apparatus substantially as described, a tripping device comprising two levers pivoted at their outer ends and linked together at their adjacent ends, a pitman arranged for engagement of one of said levers and a connection between said pitman and the other lever whereby if the latter be depressed before the other lever it will set

the pitman out of position for engagement by the subsequently-depressed lever, substantially as set forth.

5. In a tripping device, substantially as described, the combination of the track, two levers arranged one after the other along said track and pivoted at their outer ends, a pitman arranged for engagement by one of said levers and a connection between said pitman and the other lever, substantially as set forth.

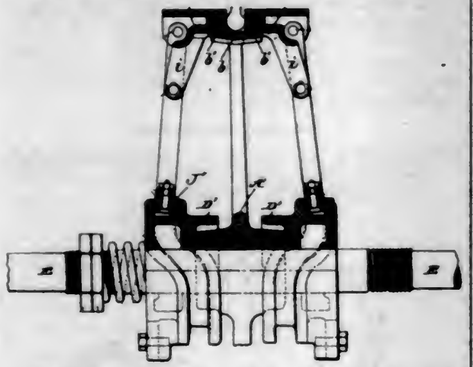
6. The combination with the valve and the pitman of the lever having a portion arranged to engage said pitman a second lever and a connection between said second lever and the pitman, substantially as set forth.

7. The combination of the air-main, the gate, the gate-wheel, the valve controlling the passage of air to said wheel, the valve-wheel, the pipes connecting the valve-wheel with the air-main, valve devices controlling the passage of air from the main to said connecting-pipes, a relief-valve for said connecting-pipes and a tripping device by which to operate said relief-valve, all substantially as set forth.

8. The combination of the gate, the pneumatic devices for moving such gate, the valve controlling the passage of air to said devices, and pneumatic devices mounted upon the stem of said valve by which to operate the same substantially as set forth.

9. The combination of the air-main, the gate, the gate-wheel, having cylinders and pistons, a valve-casing, pipes connecting such casing with the air-main, the valve in such casing the valve-wheel connected with said valve and having as part thereof pneumatic devices whereby the valve-wheel is operated in one direction, a spring by which to operate it in the opposite direction, pipes connecting such valve-wheel with the air-main, valves controlling said pipes and tripping devices by which to operate said controlling-valves substantially as set forth.

576,960. ELEVATOR DRIVE-WHEEL. GEORGE S. FOOTE, San José, Cal. Filed Feb. 11, 1896. Serial No. 578,887. (No model.)



Claim.—1. The combination with a pulley and with opposite gripping-sections, of a cam at one side of the pulley, and connections with both gripping-sections operated by said cam for moving both sections simultaneously, substantially as described.

2. In an apparatus substantially as described, the pulley having its rope-groove formed with a continuous and unbroken base and provided at intervals with lateral guides for the clamping-sections and with guide-ribs leading outward from such extensions and the oppositely-movable gripping-sections substantially as set forth.

3. In an apparatus substantially as described, the combination of the pulley, the gripping-section, a cam-ring, intermediate devices between the said ring and the gripping-section, and a spring by which said cam-ring is yieldingly held to place, substantially as shown and described.

4. The combination with the shaft, the pulley, the gripping-section, the cam-ring and the connections between said cam-ring and the gripping-section, of a spring encircling the shaft and holding the cam-ring yieldingly to place, substantially as shown and described.

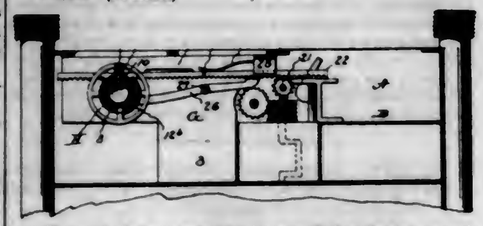
5. The combination of the pulley having an extended hub, the gripping-section, the cam-ring extended at its inner end over the pulley-hub, connections between said cam-ring and the gripping-section and a spring by which said cam-ring is held yieldingly to place, substantially as shown and described.

6. The combination of the pulley, gripping-sections, the cam-ring, an anchor-bar connected with said cam-ring, a carrier for said bar, and a curved guide for said carrier substantially as shown and described.

7. The combination of the pulley, the gripping-sections, the cam-ring for operating said sections, the spring by which said cam-ring is yieldingly held to place, an anchor-bar connected with the cam-ring, a carrier for said bar having an opening in which the bar is slidingly held, and a curved guide for said carrier, substantially as shown and described.

8. The combination with the pulley having the opposite gripping-sections, of a cam-ring at one side of said pulley, a lever engaged by said cam-ring and connections between said lever and the opposite gripping-sections, substantially as shown and described.

576,961. COIN-CONTROLLED MECHANISM FOR GAS-METERS. GEORGE R. FRENCH, Boston, Mass.; Sarah Ann French administratrix of said George R. French, deceased. Filed Dec. 17, 1895. Serial No. 572,442. (No model.)



Claim.—1. In a gas-meter, a coin-controlled mechanism, comprising independently-journaled telescoping cylinders provided with coin-slots, a rack-bar operatively connected thereto, a meter indicating mechanism, gearing between the meter indicating mechanism and the rack-bar, and an indicating-finger 29 on the rack-bar, substantially as described.

2. In a gas-meter, a coin-controlled mechanism, comprising independently-journaled telescoping cylinders provided with coin-slots, a metric indicating mechanism, a rack-bar operated by the rotation of the cylinders, gearing connecting the rack-bar and the metric mechanism, a lever actuated by the rotation of the said cylinders to throw the rack-bar out of engagement, and a valve opened by the movement of the rack-bar.

3. In a gas-meter, a coin-controlled mechanism, comprising a valve mechanism mounted in the inlet-tube of the meter, a rack-bar, connections between the rack-bar and the valve, rotative telescoping coin-slotted cylinders to move the rack-bar a predetermined distance, and a metric indicating mechanism connected to the rack-bar, substantially as and for the purpose set forth.

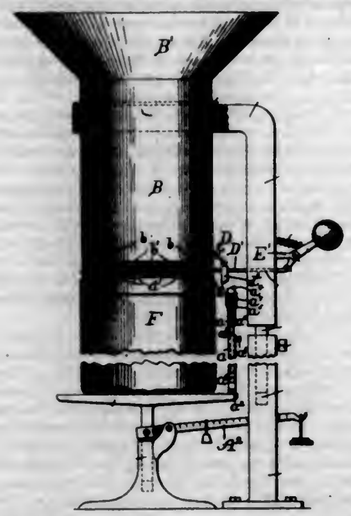
4. In combination with the meter and the meter mechanism, of the rotative telescoping coin-slotted cylinders, a rack-bar connected to the cylinders and arranged to be moved a determined distance thereby, a lever actuated by the rotation of the cylinders to lift the rack-bar, a metric mechanism, a gearing connecting the rack-bar and the metric mechanism connected to the rack-bar.

5. In a gas-meter, a coin-controlled mechanism, comprising the telescoping coin-slotted cylinders, a cam-piece on the journal of the outer of the cylinders, a rack-bar, a lever in engagement with the said cam-piece to lift the rack-bar, a metric mechanism, a gearing between the rack-bar and said mechanism, an indicating-finger on the rack-bar, and a valve operated by the movement of the rack-bar, substantially as and for the purpose specified.

6. In combination, the inner rotative cylinder provided with a coin-slot, means to limit the rotation thereof, an outer rotative cylinder having a coin-slot and fitted over the first-named cylinder, and adapted to rotate therewith when a coin is disposed in the slots of both cylinders, a cam-piece on the journal of the outer cylinder, a lug or pin on the said journal, a rack-bar adapted to be moved by the lug or pin, a valve connected to the rack-bar, a lever adapted to lift the rack-bar by engagement with the cam-piece on the journal of the cylinder, a registering-arm on the rack-bar, a meter mechanism, and gearing to connect the rack-bar and the meter mechanism, substantially as and for the purpose specified.

576,962. WEIGHING-SCALE ATTACHMENT. MICHAEL W. GILMARTIN, U. S. Navy. Filed June 30, 1896. Serial No. 597,627. (No model.)

Claim.—1. The combination with a weighing-scale, of an upright standard having a horizontal arm at its upper end; a hopper supported by said horizontal arm above the scale pan or platform; a grated bottom fixed in said hopper and having beveled upper surface; a slideway beneath said grated bottom; a flat grated slide adapted to work in said slideway and to open or close the interstices of said grated bottom; a horizontal rod connected to said slide and working in a suitable support; means acting upon said rod tending to close said slide; a block adjustably mounted upon said rod; a rigid vertical arm mounted upon the pan or platform of said scale; and a spring-catch mounted in the upper end of said vertical arm and adapted to engage said block and hold said slide open when the scale is up, but to become disengaged from said block and allow the said slide to shut when the scale descends, substantially as described.



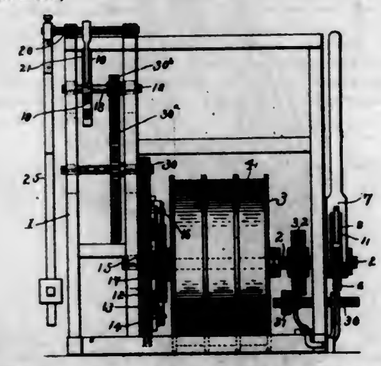
2. The combination with a weighing-scale, of an upright standard having a horizontal arm at its upper end; a hopper supported by said horizontal arm above the scale pan or platform; a grated bottom fixed in said hopper and having a beveled upper surface thereto and a flat under surface; a slideway beneath said grated bottom; a flat grated slide adapted to work in said slideway and to open or close the interstices of said grated bottom; a horizontal rod connected to said slide and working in a suitable support; a lever-arm fulcrumed to said support and pivotally connected at one end to said rod; a weight mounted upon the opposite end of said lever-arm and tending to thrust said rod longitudinally of itself and thus close said slide; a block mounted upon said rod; a rigid vertical arm mounted upon the pan or platform of the scale; and a spring-catch mounted in the upper end of said vertical arm and adapted to engage said block and hold said slide open against the action of said weight, when the scale is up, but to become disengaged from said block and allow the said slide to shut when the scale descends, substantially as described.

3. The combination with a weighing-scale, of a vertically extensible upright having a horizontal arm at its upper end; a hopper supported by said horizontal arm above the scale pan or platform; a grated bottom having a beveled upper and a flat lower surface fixed in said hopper; a slideway beneath said grated bottom; a flat grated slide adapted to work in said slideway and to open or close the interstices of said grated bottom; a horizontal rod connected to said slide and working in a suitable support; a lever-arm fulcrumed to said support and pivotally connected at one end to said rod; a weight mounted upon the said lever-arm and tending to thrust said rod longitudinally of itself and thus close said slide; a block mounted upon said rod; a rigid vertically-extensible arm mounted upon the pan or platform of the scale; and a spring-catch mounted in the upper end of said arm and adapted to engage said block and hold said slide open against the action of said weight when the scale is up, but to become disengaged from said block and allow said slide to shut when the scale descends, substantially as described.

4. The combination with a weighing-scale, of an upright standard having a horizontal arm at its upper end; a hopper supported by said horizontal arm; a cut-off mounted in the lower part thereof; a horizontal arm rigidly connected to said cut-off and passing through said upright standard; an arm connected to said rod; a weight mounted upon one end of said arm and tending to hold said cut-off closed; stops limiting the throw of said arm and weight; a block adjustably mounted upon said rod; a rigid vertical arm mounted upon the pan or platform of the scale; and a spring-catch carried by said arm adapted to engage said block and hold said cut-off open when the scale is up, but to become disengaged therefrom and allow said cut-off to shut when the scale descends, substantially as described.

5. The combination with a weighing-scale, of an upright standard having a horizontal arm at its upper end; a hopper supported by said horizontal arm; a cut-off mounted in the lower part thereof; a horizontal rod connected to said cut-off and working in an opening through said upright standard; means acting upon said rod tending to close said cut-off; a block mounted adjustably upon said rod; a rigid vertical arm mounted upon the pan or platform of the scale; and a spring-catch carried by said arm adapted to engage said block and hold said slide open when the scale is up, but to become disengaged therefrom and allow said slide to close when the scale descends, substantially as described.

576,963. SPRING PUMPING-MACHINE. THOMAS H. HANES and FRANK C. PURDY, Sterling, Kans., assignors to the Spring Pumping Machine Company, same place. Filed Jan. 7, 1896. Serial No. 574,652. (No model.)



Claim.—1. In combination with a yoke 21 mounted upon a rock-shaft 20, a pendulum 25 connected to said shaft, arm 23 carried by said yoke and adapted to be connected to a pump-rod, a wheel 19 formed with an uneven number of cam-teeth adapted to operate the yoke 21, said wheel being mounted between and operating on both arms of the yoke, each tooth of said wheel being formed of two arcs of different radius, whereby when one end of yoke 21 is operated on by that portion of a cam-tooth formed by the arc having the longer radius the other arm of the yoke will bear on that portion of a tooth formed by the arc having the shorter radius, and a driving mechanism connected to said wheel, substantially as described.

2. In combination with a suitable support, of a driving-shaft and a driving or power spring secured thereto and adapted to be wound thereon, of a winding mechanism, said mechanism consisting of a lever 7, wheel 6 secured to the driving-shaft, shoe 10 and dog 8 carried by the lever, spring 11 carried by the lever and forcing shoe 10 inwardly, arm 8^a on dog 8, and a stop, as 8^b, adapted to be engaged by arm 8^a, substantially as described and for the purpose set forth.

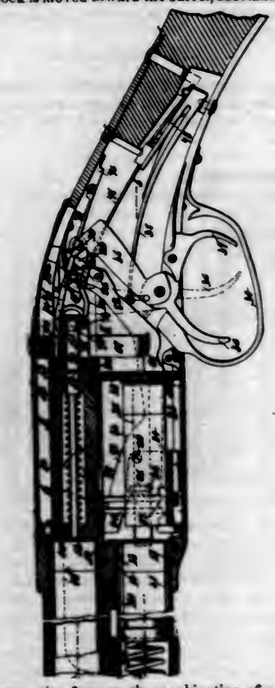
576,964. MAGAZINE-FIREARM. GARDNER P. HASTINGS, Springfield, Mo. Filed Jan. 16, 1896. Serial No. 575,719. (No model.)

Claim.—1. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block having a firing-pin, a hammer, a carrier arranged to move in the chamber of the frame, to carry the cartridges from the magazine to the barrel, the carrier having clamping-jaws to hold the cartridge upon the upward movement of the carrier, a latch to lock the jaws of the carrier when the same is in its uppermost position, and means to actuate the latch to release the carrier-jaws to permit the cartridge to be pushed into the cartridge-chamber, substantially as set forth.

2. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech block having a firing-pin, a hammer, a carrier arranged to move in the chamber of the frame, to carry the cartridges from the magazine to the barrel, the carrier having clamping-jaws to hold the cartridge upon the upward movement of the carrier, a latch to lock the jaws of the carrier when the same is in its uppermost position, and means to release the jaws when the carrier is opposite the magazine and also when the carrier is opposite the barrel, substantially as set forth.

3. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block having a firing-pin, means to move the breech-block, a hammer, a carrier arranged to move in the chamber of the frame to carry the cartridges from the magazine to the barrel, the carrier having clamping-jaws to hold the cartridge upon the upward movement of the carrier, means to open the clamping-jaws when the carrier is opposite the magazine, means to move the carrier upward when the breech-block

is retracted, whereby the empty shell is ejected, means to lock the jaws of the carrier against opening when the carrier reaches its uppermost position, and means to release the jaws of the carrier when the breech-block is moved toward the barrel, substantially as set forth.



4. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block mounted in the frame to move toward and away from the barrel, a firing-pin, a hammer, a carrier arranged to move in the chamber of the frame to carry the cartridges from the magazine to the barrel, the carrier having clamping-jaws to hold the cartridge upon the upward movement of the carrier, means to open the jaws when the carrier is opposite the magazine, means to move the carrier upward when the breech-block is retracted to eject the empty shell, and means to lock the jaws against movement when the carrier reaches its uppermost position, said breech-block being arranged when moved toward the barrel, to release the carrier-jaws and permit the cartridge to be pushed into the barrel, substantially as set forth.

5. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block arranged to move in the frame toward or from the barrel, a firing-pin, a hammer, a carrier arranged to move in the chamber of the frame to carry the cartridges from the magazine to the barrel, the carrier having clamping-jaws to hold the cartridge, means to open the jaws when the carrier is opposite the magazine, means to move the carrier upward in the chamber in the frame when the breech-block is retracted, said carrier standing when in its uppermost position above the plane of the cartridge-chamber of the barrel, and means to lock the jaws when the carrier is in its uppermost position, said breech-block being arranged when moved toward the barrel to lower the carrier in alinement with the cartridge-chamber in the barrel, and to release the jaws to permit the cartridge to be pushed from the carrier into the cartridge-chamber, substantially as set forth.

6. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block having a firing-pin, a hammer, a carrier arranged to move in the chamber of the frame to carry the cartridges from the magazine to the barrel, the carrier having clamping-jaws to hold the cartridge upon the upward movement of the carrier, means to move the carrier in the chamber in the frame when the breech-block is retracted, and a stop to be engaged by the carrier when the same is in its uppermost position, to lock the jaws thereof against opening, substantially as set forth.

7. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber communicating with the chamber in the frame, a breech-block having a firing-pin, a hammer, a carrier arranged to move in the chamber in the frame to carry the cartridges from the magazine to the barrel, and comprising pivotally-connected clamping-jaws to hold the cartridge, means to move the carrier upward in the chamber in the frame when the breech-block is retracted, and a link having a loose connection with one of the jaws of the carrier and arranged when the carrier reaches its uppermost position to lock the jaws thereof against opening, substantially as set forth.

8. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block having a firing-pin, a hammer, a carrier arranged to move in the chamber of the frame to carry the cartridges from the magazine to the barrel, the carrier having pivotally-connected clamping-jaws to hold the cartridge, means to move the carrier upward in the chamber in the frame when the breech-block is retracted, a pivoted bottom plate for the chamber in the frame, and a link connected to the bottom plate and arranged to engage one of the jaws of the carrier when the carrier is in its uppermost position, to lock said jaws against opening, substantially as set forth.

9. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block having a firing-pin, a hammer, a carrier arranged to move in the chamber in the frame to carry the cartridges from the magazine to the barrel, a latch to prevent the passage of the cartridges from the magazine to the chamber in the frame, a plate movable on the frame and also adapted to prevent the passage of the cartridges from the magazine to the chamber in the frame, said plate being arranged when actuated to move the latch out of operation, means to move the carrier, and means to actuate said plate when the carrier is moved upward, substantially as set forth.

10. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a breech-block having a firing-pin, a hammer, a carrier having means to move it in the chamber in the frame to carry the cartridges from the magazine to the barrel, said carrier having clamping-jaws to engage and hold the cartridge when the carrier is moved, and a lug mounted on the frame and projecting into the chamber thereof to support the end of the cartridge when the same is passed from the magazine onto the carrier, substantially as set forth.

11. In a magazine-firearm, the combination of a frame, a barrel, a magazine, a breech-block movable in the frame, a firing-pin, a hammer to actuate the firing-pin, a lever movable in the frame, a carrier connected to the lever and movable in the frame to carry the cartridges from the magazine to the barrel, a dog to lock the lever to hold the carrier normally in position opposite the magazine, means to lift the carrier when released to carry the cartridge in position opposite the barrel, and a slide arranged to actuate the dog to disengage the lever, substantially as set forth.

12. In a magazine-firearm, the combination of a frame, a barrel, a magazine, a breech-block movable in the frame, a firing-pin, a hammer to actuate the firing-pin, a lever movable in the frame, a carrier connected to the lever and movable in the frame to carry the cartridge from the magazine to the barrel, a pivoted dog to lock the lever to hold the carrier normally in position opposite the magazine, a spring to lift the carrier when released to carry the cartridge in position opposite the barrel, and a slide arranged to actuate the dog to disengage the lever, substantially as set forth.

13. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a plate mounted to move in the chamber in the frame and arranged when moved to prevent the passage of cartridges from the magazine to said chamber, a breech-block having a firing-pin, a hammer to actuate the firing-pin, a carrier movable in the chamber in the frame to carry the cartridges from the magazine to the barrel, and a connection between the carrier and said plate, substantially as set forth.

14. In a magazine-firearm, the combination of a frame having a chamber, a magazine and a barrel having a cartridge-chamber adapted for communication with the chamber in the frame, a plate mounted to move in the chamber in the frame and arranged when moved to prevent the passage of cartridges from the magazine to said chamber, a breech-block having a firing-pin, a hammer to actuate the firing-pin, a carrier movable in the chamber in the frame to carry the cartridges from the magazine to the barrel, and comprising pivotally-connected jaws, and a link connecting the carrier and plate, to actuate the plate from the movement of the carrier and to lock the jaws against opening when the carrier is in its uppermost position, substantially as set forth.

15. In a repeating arm, the combination with the frame, the barrel and the magazine, of a pivoted plate movable to close the magazine, a carrier vertically movable between the magazine and barrel, a link connecting the carrier and the plate, and means for operating the carrier, substantially as described.

16. In a repeating arm, the combination with the frame, the barrel and the magazine, of a pivoted plate movable to close the magazine, a vertically-movable cartridge-carrier, having two jaws embracing the cartridge, a link connecting the carrier with the plate whereby to close the jaws and to swing the plate, and means for operating the carrier, substantially as described.

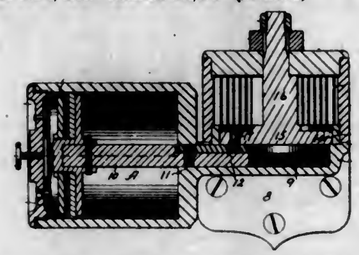
17. In a repeating arm, the combination with the frame, the barrel and the magazine, of a slide movable longitudinally with the barrel, an arm attached to the slide and running into the frame, a breech-block reciprocated by the arm, an actuated lever within the frame and engaged by the breech-block as the same moves toward the barrel, a cartridge-carrier movable by means of the lever and carrying the cartridges from the magazine to the barrel, a pivoted plate movable to close the magazine, and a link connecting the cartridge-carrier and pivoted plate, substantially as described.

18. In a repeating firing-arm, the combination with the frame, the barrel and the magazine of a longitudinally-sliding breech-block movable in and out of the path of the breech-block locking-block, a cartridge-carrier movable between the magazine and barrel, a pivoted plate movable to close the magazine, a connection between the cartridge-carrier and the pivoted plate, a lever within the frame and connected to the cartridge-carrier, a spring pressing the lever, the lever being engaged by the breech-block as the breech-block moves forward, whereby to depress the cartridge-carrier, a second lever fulcrumed within the frame and connected with the locking-block, a slide moving longitudinally with the barrel and an arm attached to the slide and reciprocating the breech-block, the arm also engaging the said second lever whereby to actuate the locking-block, substantially as described.

19. In a repeating firearm, the combination with the frame, the barrel and the magazine, of a slide running longitudinally with the barrel, an arm attached to the slide and projecting into the frame, a breech-block connected with the arm and longitudinally reciprocated thereby, a locking-block movable in and out of the path of the breech-block, a lever connected to the locking-block and actuated by the arm of the slide, a hammer cocked by the arm of the slide, an exploding firing-pin section carried in the breech-block, an actuating firing-pin section carried in the locking-block, a cartridge-carrier movable between the magazine and the barrel, an actuated lever connected with the cartridge-carrier and engaged by the breech-block when the breech-block moves forwardly whereby to move the cartridge-carrier to the magazine, a pivoted plate movable to close the magazine, and a link connecting the carrier and pivoted plate, substantially as described.

20. In a firearm, a hammer with an offset arm, a sliding arm engaging the offset arm to cock the hammer, a longitudinally-sliding breech-block moved by the sliding arm, a sliding locking-block movable in and out of the path of the breech-block, a spring-pressed controlling-arm engaging the locking-block, an actuating firing-pin section carried in the locking-block and having a transverse extension running into the path of the hammer and an exploding firing-pin section carried in the breech-block, substantially as described.

576,965. **DOOR-CHECK.** WILLIAM K. HENRY, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Oct. 4, 1895. Serial No. 564,673. (No model.)

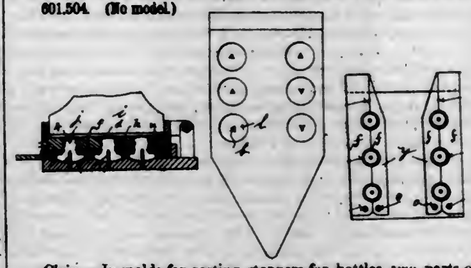


Claim.—1. The combination of a cylinder, a plate-like piston-rod support at one end of said cylinder and having an open groove with its central longitudinal line in the same plane as the axis of said cylinder, a piston and piston-rod fitted to said cylinder and open groove, a crank-shaft and crank-pin connected to said piston-rod, mounted at right angles to and in the same plane as the axis of the cylinder and piston-rod, and devices for operatively connecting said parts with a door and its casing, substantially as described and for the purpose specified.

2. The combination of a cylinder and piston a piston-rod in the same plane as the axis of said cylinder, a piston-rod support having an open groove in the path of said piston-rod which is fitted thereto, a crank-shaft arranged at right angles to the piston-rod and centrally with reference to the groove of said piston-rod support, a crank-pin carried by said crank-shaft, a link connecting said crank-shaft and piston-rod and operating devices, the same being arranged for moving the crank-pin and link to one side of the groove in said piston-rod support for a right-handed door and to the opposite side for a left-handed door, substantially as described and for the purpose specified.

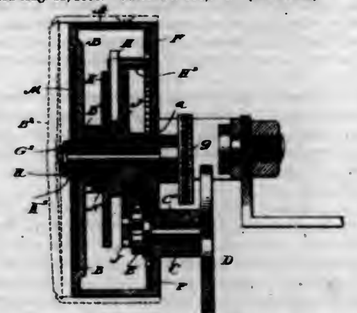
3. The combination of a piston and piston-rod, a cylinder having the grooved piston-rod support extending across the end of said cylinder, a spring-barrel secured to said support at one end of said cylinder, a spring and spring-shaft within said barrel, a crank-pin disk having a peripheral bearing extending across one end of said cylinder and adjacent to said piston-rod support, a link connecting the crank-pin of said disk with the piston-rod and devices for operatively connecting said parts with a door and its casing, substantially as described and for the purpose specified.

576,966. **MOLD FOR BOTTLE-STOPPERS.** JAMES HICKLING and THOMAS SLATER, London, England. Filed Aug. 3, 1896. Serial No. 601,504. (No model.)



Claim.—In molds for casting stoppers for bottles, two parts or sections formed so as to have seamless cavities or matrices in which the screw and head of the stopper are cast by pressing the glass thereinto, one part or section having the cavities or matrices for forming the screw-thread upon the stopper, the other part or section having the cavities or matrices for forming the head of the stopper said cavities or matrices having cores or projections for forming a recess in the head of the stopper, movable sections or parts pivoted to the sections or parts forming the screw-thread upon the stopper and having apertures which form the matrices for that portion of the stopper which is between the screw-thread and the head, the position of said pivoted sections or parts being regulated by studs or pins, a pivoted or hinged frame which forms a receptacle for the molten glass or metal which is forced through suitable apertures into the cavities or matrices in which the stopper is cast.

576,967. **CYCLOMETER.** CHARLES T. HIGGINBOTHAM, Thomaston, Conn., assignor to the Seth Thomas Clock Company, of Connecticut. Filed Aug. 22, 1896. Serial No. 603,574. (No model.)



Claim.—1. In a cyclometer, a revoluble ring, a cross-head carried thereby, a revoluble arbor G moved by said cross-head, and an indicating-hand carried by said revoluble arbor, a pinion carried by said cross-head, said pinion gearing with a fixed wheel, and a revoluble wheel, said revoluble wheel being loosely supported upon said revoluble arbor, a greater number of teeth on one of said wheels than on the other, an indicating-hand carried by the hub of said revoluble wheel, and a stationary graduated dial.

2. In a cyclometer a revoluble ring, a cross-head carried thereby, a shaft frictionally journaled in said cross-head, an indicating-hand G'

carried by said shaft, a pinion carried by said cross-head, said pinion gearing with a fixed wheel and a revoluble wheel, a greater number of teeth on one of said wheels than on the other, an indicating-hand K' carried by the hub of said revoluble wheel, said hand K' being free to revolve on its hub in one direction and carried by the hub in the opposite direction, a washer having spring-blades and carried by the frictionally-mounted shaft, said spring-blades engaging and turning the hand K' on its hub when revolved in one direction, and moving independently thereof when revolved in the opposite direction.

3. In a cyclometer a revoluble ratchet-ring, means as described for intermittently moving said ratchet-ring in one direction, a cross-head carried by said ratchet-ring, a shaft frictionally journaled in said cross-head, an indicating-hand G' carried by said shaft, a pinion carried by said cross-head, said pinion gearing with a fixed wheel and a revoluble wheel, a greater number of teeth on one of said wheels than on the other, an indicating-hand K' carried by the hub of said revoluble wheel, said hand K' being free to revolve on its hub in one direction and carried thereby in the opposite direction, and means as described for causing said hands K' and G' to be manually moved to zero, and a stationary graduated dial.

4. In a cyclometer a revoluble ring, a cross-head carried thereby, a shaft frictionally journaled in said cross-head, an indicating-hand G' carried by said shaft, a pinion carried by said cross-head, said pinion gearing with a fixed wheel and revoluble wheel to gradually advance said revoluble wheel as the cross-head is rotated, an indicating-hand K' carried by the hub of said revoluble wheel, said hand K' having a split spring-hub free to turn in one direction upon its supporting-hub a washer having inclined spring-blades carried by the frictionally-mounted shaft, said spring-blades engaging and turning the hand K' when revolved in one direction and moving independently thereof when revolved in an opposite direction.

5. In a cyclometer a revoluble ring, a cross-head carried thereby, a shaft journaled therein, an indicating-hand G' carried by said shaft, a pinion carried by said cross-head, said pinion gearing with a stationary wheel J and a revoluble wheel K, a greater number of teeth on one of the wheels K J than on the other, an indicating-hand K' carried by the hub of the wheel K, a pinion O carried by the wheel K meshing with a stationary gear B', and a revoluble gear N fixed on the hub of a dial M and causing said dial M to be revolved as the wheel K and cross-head are revolved.

6. In a cyclometer a revoluble ring, a cross-head carried thereby, a shaft journaled therein, an indicating-hand carried by said shaft, a pinion carried by said cross-head, said pinion gearing with a stationary wheel and a revoluble wheel, a greater number of teeth on one of said wheels than on the other, an indicating-hand K', a pinion O meshing with a stationary gear B' and a revoluble gear N fixed on the hub of a graduated dial M, said hub passing through the stationary dial B, one of said gears B' N having a greater number of teeth than the other, substantially as described.

7. In a cyclometer a revoluble ring, a cross-head carried thereby, a shaft frictionally journaled therein, an indicating-hand G' carried by said shaft, a pinion carried by said cross-head, said pinion gearing with a stationary wheel J and a revoluble wheel K, a greater number of teeth on one of the wheels K J than on the other, an indicating-hand K' carried by the hub of the wheel K, and a graduated dial B, a pinion O carried by the wheel K and meshing with a stationary gear B' carried by the dial B and a revoluble gear N fixed on the hub of a dial M, said hub passing through the stationary dial B, one of said gears B' N having a greater number of teeth than the other, and means for permitting said indicating-hand to be reset to zero.

8. In a cyclometer, an indicating-hand frictionally mounted, a washer adjacent thereto and concentric therewith, said washer having inclined blades, substantially as described, to engage against a shoulder on the said indicating-hand when said washer is revolved in one direction and freely passing said shoulder when revolved in the opposite direction.

9. In a cyclometer a revoluble ring and means for moving the same, a cross-head carried by said ring, a revoluble shaft journaled in said cross-head, an indicating-hand carried thereby, a pinion carried by said cross-head, said pinion gearing with a fixed wheel and a revoluble wheel loosely mounted on said shaft, a greater number of teeth on one of said wheels than on the other, an indicating-hand carried by the journal of said revoluble wheel, a pinion eccentrically carried by said revoluble wheel and meshing with a fixed wheel and a gear carried on a revoluble dial-plate, substantially as described.

10. In a cyclometer, a revoluble central shaft and means for driving the same, an indicator-hand carried by said shaft, a cross-head journaled on said central shaft, a pinion carried by said cross-head, said pinion geared with a fixed wheel, and a revoluble wheel, the latter being loosely mounted upon said revoluble shaft, a greater number of teeth on one of said wheels than on the other, an indicating-hand carried by the journal of said revoluble wheel.

576,968. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Sept. 30, 1895. Serial No. 564,097. (No model.)



Claim.—The combination with an upright post, having a horizontal opening therein at its upper end, through which the saddle-spring, of non-circular shape in cross-section, extends, of two movable jaws or clamps extending through said opening, and made beveled or cut out to receive said spring, and with lips or flanges at their outer ends which extend over the edges of said opening, and a screw or bolt turning in a threaded hole in one side of the post, and adapted to bear at its inner end against one of the jaws, to clamp the saddle-spring between said jaws and the top of the post, substantially as set forth.

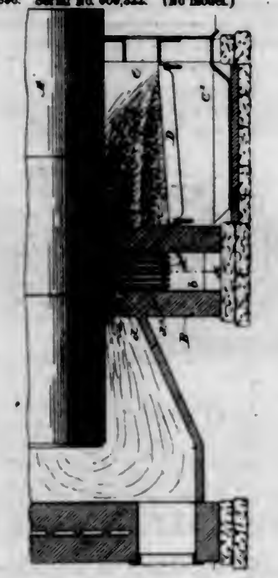
576,969. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Aug. 7, 1896. Serial No. 601,997. (No model.)



Claim.—1. In a saddle for bicycles, &c., the combination with a cantle-plate, a pommel-plate, a spring or support intermediate the cantle and pommel, and the bottom of the saddle-seat, extending between the cantle-plate and pommel and secured thereto, of a top or cover, the front portion of which extends over and is in contact with the front portion of the bottom of the saddle, to form a flat pommel, and the rear portion of which extends above and out of contact with the bottom, to make two raised portions to receive felt or other pliable material, and form two pads or cushions extending in a plane above the pommel end of the saddle, and stitching extending around said pads or cushions, substantially as shown and described.

2. In a saddle for bicycles, &c., the combination with a cantle-plate, a pommel-plate, a spring or support intermediate the cantle and pommel, and the bottom of the saddle-seat, extending between the cantle plate and pommel and secured thereto, of a top or cover, the front portion of which extends over and is in contact with the front portion of the bottom of the saddle, to form a flat pommel, and the rear portion of which extends above and out of contact with the bottom, to make two raised portions to receive felt or other pliable material, and form two pads or cushions extending in a plane above the pommel end of the saddle, and stitching extending around said pads or cushions, and an opening through the cover between said pads or cushions, substantially as shown and described.

576,970. FURNACE. JAMES R. SWEET, Malden, Mass. Filed Oct. 19, 1896. Serial No. 609,322. (No model.)

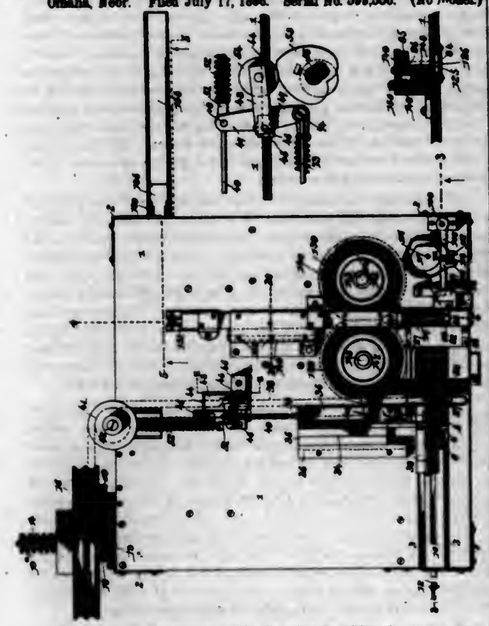


Claim.—1. In a furnace, having a bridge-wall having two superposed transverse chambers therein, a perforated top for the upper chamber, a fresh-air inlet for said chamber at one end, and a connection between the two chambers at the opposite end, and flues extending from the perforated top through the upper and opening into the lower chamber, to heat the air as it passes through the upper chamber prior to its entrance into and discharge through said flues, substantially as described.

2. In a furnace, a bridge-wall, a transverse chamber therein having a fresh-air inlet, a perforated cover-plate for the top of the chamber, depending open-ended pipes secured to said plate, a second perforated plate between the open lower ends of said pipes and the air-inlet, dividing the chamber into two compartments, and a connection between said compartments at the end of the chamber removed from the inlet, whereby the fresh air passes into the upper compartment around the pipes, to enter thence the lower compartment and pass up through the depending pipes to be discharged at the top of the bridge-wall, substantially as described.

3. In a furnace, a bridge-wall having a chamber therein, parallel perforated top and bottom plates in said chamber, dividing it into upper and lower compartments, pipes depending from the upper and extended through the lower plate and open from end to end, a communication between and at one end of said compartments, a fresh-air inlet opening into the opposite end of the upper compartment, and independent means to heat the incoming fresh air, substantially as described.

576,971. MATRIX-CLEANING MACHINE. WILLIAM R. TAYLOR, Omaha, Nebr. Filed July 17, 1896. Serial No. 599,556. (No model.)



Claim.—1. A linotype-matrix-cleaning machine having a separate brush for operating against each side edge and flat side of a matrix.

2. A linotype-matrix-cleaning machine having a separate cleaning-surface arranged for operating against each side edge and flat side of a matrix.

3. A linotype-matrix-cleaning machine having moving cleaning-surfaces arranged to operate against both side edges and both flat sides of a matrix.

4. A linotype-matrix-cleaning machine having cleaning-surfaces arranged to successively operate respectively against the edges and sides of a matrix, substantially as set forth.

5. A linotype-matrix-cleaning machine having moving cleaning-surfaces arranged to successively operate respectively against both edges and sides of the matrix, substantially as set forth.

6. A linotype-matrix-cleaning machine having sets of revolving brushes, there being a separate set of such brushes for operating respectively against the opposite side edges and the opposite flat sides of a matrix.

7. A linotype-matrix-cleaning machine having separate sets of moving cleaning-surfaces for operating respectively against the edges and sides of the matrix, and means for carrying the matrices in a bunch in contact with the edge-cleaning surfaces and singly in contact with the side-cleaning surfaces, substantially as set forth.

8. A linotype-matrix-cleaning machine having separate sets of revolving brushes for operating respectively against the edges and sides of the matrix, and means for carrying the matrices in a bunch in contact with the edge-cleaning brushes, and singly in contact with the side-cleaning brushes, substantially as set forth.

9. A linotype-matrix-cleaning machine having separate pairs of vertically and horizontally arranged cleaning-brushes, and means for carrying matrices between both pairs of brushes, substantially as set forth.

10. A linotype-matrix-cleaning machine having separate sets of vertically and horizontally arranged cleaning-brushes, and means for carrying the matrices in a bunch between the vertically-arranged brushes, and singly between the horizontally-arranged brushes, substantially as set forth.

11. A linotype-matrix-cleaning machine having cleaning-surfaces arranged to operate on both edges and sides of the matrix, and assembling mechanism for assembling the cleaned matrices in the same relative position as when fed into the machine, substantially as set forth.

12. A linotype-matrix-cleaning machine having cleaning mechanism, and assembling mechanism operating continuously with the cleaning mechanism for assembling the cleaned matrices in proper upright positions, substantially as set forth.

13. In a matrix-cleaning machine, a machine-table, a pair of vertically-arranged rotating cleaning-brushes supported by the table, a matrix-feeding device working in a plane between the two brushes, and separate cleaning mechanism for the sides of the matrices, substantially as set forth.

14. In a matrix-cleaning machine, the machine-table, a pair of vertical rotating cleaning-brushes supported by the table, a sliding feed-head mounted to slide on the surface of the table in a plane between the plane of the two brushes, slip-clutch mechanism for operating said slide, and cleaning devices for the sides of the matrices, substantially as set forth.

15. In a linotype-matrix-cleaning machine, a pair of vertically rotating cleaning-brushes for the edges of the matrices, a matrix-holder arranged in a plane between the two brushes, means for sliding the matrices on the holder between the two brushes, and cleaning mechanism for the sides of the matrices, substantially as set forth.

16. In a matrix-cleaning machine, the machine-table, a pair of vertically-arranged rotating cleaning-brushes supported by the table, a sliding feed-head working on the table in a plane between the plane of the two brushes, and slip-clutch mechanism for operating said head, substantially as set forth.

17. In a matrix-cleaning machine, the machine-table, a pair of vertically-rotating spaced cleaning-brushes for the edges of the matrices, a horizontal matrix-holder arranged in the plane between the two brushes and having longitudinal corrugations or ribs to engage the toothed notches of the matrices, means for sliding the matrices on the holder, and cleaning mechanism for the sides of the matrices, substantially as set forth.

18. In a matrix-cleaning machine, the machine-table a pair of vertically-rotating spaced cleaning-brushes supported by the table, a horizontal matrix-holder arranged on the table between the two brushes and of a V shape in cross-section to register with the V-shaped notches and ends of the matrices, said V-shaped holder having longitudinally corrugated or ribbed sides to engage with the teeth in the notches of the matrices, and a sliding feed-head working on the table in a line with said holder, substantially as set forth.

19. In a matrix-cleaning machine, the machine-table provided in its upper face with a pair of horizontal slide-grooves to receive the head and heel projections of the matrices and with a longitudinal guide-slot between said grooves, a pair of vertical rotating spaced cleaning-brushes supported by the table, cleaning mechanism for the sides of the matrices, a sliding feed-head working on the table and provided with head and heel projections registering in said slide-grooves, a feed rack-bar supported to slide at the under side of the table and having a connection at its inner end through the guide-slot with said feed-head, a main drive-shaft mounted on the table, and a gear-wheel meshing with said rack-bar and having a slip-clutch connection with said drive-shaft, substantially as set forth.

20. In a matrix-cleaning machine, the table, a pair of vertical rotating spaced cleaning-brushes for the edges of the matrices, cleaning mechanism for the sides of the matrices, a sliding feed-head working on the table in a plane between the two brushes, a feed rack-bar having a connection with said feed-head, a main drive-shaft mounted under the table, a clutch gear-wheel meshing with said rack-bar and loosely mounted on the shaft, said gear-wheel being provided at one side with a friction hub-plate, and at the directly-opposite side with a rawhide ring, a shaft-collar secured fast on the

shaft at one side of the rawhide clutch-ring of the gear-wheel, and a spring-actuated sleeve feathered on the shaft and carrying a rawhide collar frictionally contacting with the friction hub-plate of the gear-wheel, substantially as set forth.

21. In a matrix-cleaning machine, the separate sets of brushes for cleaning the edges and sides of the matrix, each of said brushes comprising a central rotating hub, and a brush ring or collar carrying bristles and frictionally fitted to the periphery of said hub, substantially as set forth.

22. In a matrix-cleaning machine, the machine-table, a pair of vertically-arranged rotating cleaning-brushes supported by the table, a sliding feed-head working on the table and in a plane between the plane of the two brushes, and means of reciprocating the two brushes from end to end of the matrices, substantially as set forth.

23. In a matrix-cleaning machine, the table provided in its upper face with a pair of slide-grooves to receive the head and heel projections of the matrices, and near one end of such grooves with a brush-opening, a pair of vertical rotating cleaning-brushes arranged respectively above and below the table for cleaning the edge of the matrices, the lower of said brushes working in said brush-opening, a corrugated V-shaped holder-bar arranged on the table between the two brushes, a sliding feed-head working on the table and provided with head and heel projections similar to those of the matrices registering in said slide-grooves, means for operating said feed-head, means for reciprocating the two brushes from end to end of the matrices, and separate cleaning mechanism for the sides of the matrices, substantially as set forth.

24. In a matrix-cleaning machine, the table provided at a suitable point with a brush-opening, a pair of vertical rotating cleaning-brushes supported respectively above and below the table for cleaning the edges of the matrices, the lower of said brushes working in said brush-opening, a retaining-plate supported directly over the brush-opening to prevent the rise of the matrices, a holder-bar for locking the matrices to a fixed sliding movement while traveling between the two brushes, and feeding mechanism for said matrices, substantially as set forth.

25. In a matrix-cleaning machine, the feed-table, a pair of reciprocating brush-carriages mounted respectively on top of and under the table, rotating vertically-arranged cleaning-brushes mounted on said carriages, means for simultaneously reciprocating the carriages, and feeding mechanism for carrying bunches of matrices sidewise between the two brushes, substantially as set forth.

26. In a matrix-cleaning machine, a table provided at a suitable point with a brush-opening, upper and lower brush-carriages mounted to slide in suitable guides respectively on top of and beneath the table, each of said brush-carriages carrying a short horizontal brush-shaft, vertically-rotating circular cleaning-brushes mounted on the brush-shafts of the reciprocating carriages, and the lower of which brushes works in and projects through the brush-opening in the table, a suitably-operated oscillating adjusting-head having connections with both brush-carriages for the simultaneous reciprocation thereof, and feeding mechanism for sliding the matrices on the table between the two brushes and at right angles to the movement of the brush-carriages, substantially as set forth.

27. In a matrix-cleaning machine, the table provided at a suitable point with a brush-opening, upper and lower brush-carriages mounted to reciprocate in suitable guides respectively on top of and beneath the table, each of said brush-carriages carrying a vertical rotating cleaning-brush, an oscillating adjusting-head mounted in an opening in the table and carrying at one end a contact-roller, said oscillating adjusting-head being further provided on upper and lower sides thereof with short rock-arms respectively connected with the upper and lower reciprocating brush-carriages, retractile springs connected at one end with the rock-arms of the oscillating adjusting-head and at their other ends to a fixed point of attachment, feeding mechanism for sliding the matrices on the table between the two brushes and at right angles to the movement of the brush-carriages, and a suitably-operated shaft carrying a cam engaging said contact-roller, substantially as set forth.

28. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, a pair of vertically-arranged brushes supported by the table for cleaning the edges of the matrices, feeding mechanism for sliding the matrices between said brushes into said matrix-channel, a pair of horizontal cleaning-brushes arranged respectively at opposite sides of said matrix-channel, and mechanism for carrying the matrices singly between said horizontal cleaning-brushes, substantially as set forth.

29. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, suitably-arranged cleaning-surfaces for the edges of the matrices, feeding mechanism for sliding the matrices between said cleaning-surfaces into the matrix-channel, cleaning-surfaces arranged respectively at opposite sides of said channel, and mechanism for carrying the matrices singly between the cleaning-surfaces at opposite sides of the channel, substantially as set forth.

30. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, a slideway for matrices leading into the matrix-channel at one end, cleaning-brushes arranged below and above said slideway, means for feeding the matrices over the slideway into the matrix-channel, cleaning-brushes arranged at opposite sides of said channel and having their bristles projecting across the same, and mechanism for carrying the matrices singly through said channel between the cleaning-brushes at opposite sides of the same, substantially as set forth.

31. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, a slideway for matrices leading into the matrix-channel at one end, cleaning-brushes arranged above and below the slideway, cleaning-brushes arranged at opposite sides of the channel, a separating device arranged at one end of the slideway to prevent more than one matrix being fed into the channel at one time, means for feeding the matrices over the slideway, and means for carrying the matrices singly from said separating device through the channel between the brushes at opposite sides thereof, substantially as set forth.

32. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, a slideway for matrices leading into the matrix-channel at one end, cleaning-brushes at opposite sides of the channel, a horizontal guide-plate arranged parallel with the table above the channel, and provided in its under side with a longitudinal guide-groove and with a pair of short-spaced entrance-grooves communicating with the guide-groove and lying directly above one terminal of said slideway, said entrance-grooves receiving the head and heel projections of the matrices, and said guide-plate being further provided between the entrance-slots with an opening, separator-levers arranged side by side and pivotally mounted between their ends on the guide-plate, said levers being further provided at their lower ends with toe projections projected into said guide-groove but of a combined width less than the width of said groove, springs connected with the upper ends of said levers to normally hold the toe projections within said guide-groove, means for feeding the matrices over the slideway, and means for carrying the matrices singly from the toe projections of the separator-levers through the channel and guide-groove between the cleaning-brushes at opposite sides of the channel, substantially as set forth.

33. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, a slideway for matrices leading into the matrix-channel at one end thereof, cleaning-brushes arranged above and below the slideway, cleaning-brushes arranged at opposite sides of the channel, an endless carrier-chain working below said channel and having catches traveling through the channel for engagement with the projections of the matrices, a matrix-separating device arranged at one end of the slideway, means for feeding the matrices over the slideway, and a shifting device for automatically engaging each matrix singly to shift the same from the separating device onto the endless carrier-chain, substantially as set forth.

34. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, a slideway for the matrices leading into the matrix-channel at one end thereof, suitably-arranged cleaning-surfaces for operating against the edges and sides of the matrices, an endless carrier-chain working below the channel and having catches for engagement with the projections of the matrices, a matrix-separating device arranged at one end of the slideway, means for feeding the matrices over the slideway, and a reciprocating shifting-block working at one side of the matrix-channel and carrying a spring-actuated shouldered catch-plate or dog adapted to engage the heel end of each matrix singly for the purpose of shifting the same onto the endless carrier-chain, substantially as set forth.

35. In a matrix-cleaning machine, the combination with the machine-table-supporting cleaning devices and having a matrix-channel for guiding the matrices in one direction; of a carrier-chain having projections traveling in said channel, a reciprocating shifting block slidably mounted on the table at one side of the channel, a spring-adjusted catch-plate or dog pivotally connected with said block and provided with a catch-shoulder adapted to engage the heel ends of the matrices to shift the same onto the carrier-chain, a jointed lever-arm pivotally mounted at one end on the table and loosely connected at its other end with said shifting block, said jointed lever-arm having a central normally spring-closed break-joint, and carrying at the lower side of said joint a cam-roller, and a suitably-rotated cam-shaft carrying at its upper end a rotating cam working on top of the table and provided with a peripheral cam-groove receiving said cam-roller, substantially as set forth.

36. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, a slideway for matrices leading into the matrix-channel at one end, cleaning-surfaces for the matrices arranged above and below the slideway and at opposite sides of said channel, an endless carrier-chain working below the channel and having catches traveling through the channel for the projections of the matrices, and a shifting device for shifting the matrices singly from said slideway onto said carrier-chain, substantially as set forth.

37. In a matrix-cleaning machine, the table provided with a transverse matrix-channel and a slideway for matrices leading into the matrix-channel at one end and at right angles thereto, circular rotating cleaning-brushes arranged above and below the slideway and at opposite sides of the matrix-channel, vertically-arranged chain-wheels supported beneath the table, an endless carrier-chain arranged on said chain-wheels and essentially comprising a series of flat jointed chain-links each carrying a spring-adjusted catch-stud traveling through the matrix-channel, and a shifting device for shifting the matrices singly from one terminal of the slideway onto said carrier-chain, substantially as set forth.

38. In a matrix-cleaning machine, the table provided with a transverse matrix-channel, and a slideway for the matrices leading into the matrix-channel at right angles thereto, cleaning-brushes arranged in the path of the matrices above and below the slideway and opposite sides of the matrix-channel, oppositely-arranged chain-wheels supported beneath the table and provided with a peripheral series of spaced pairs of shouldered sprockets, an endless carrier-chain arranged on said wheels and essentially comprising a series of flat jointed links, each provided at one end with a bifurcation and at its opposite end with a tongue pivoted in the bifurcation of the adjacent link, a leaf-spring secured to the inner side of each link and carrying at its free end a beveled catch-stud normally projected through an opening in the link and traveling in the matrix-channel for engagement with the projections of the matrices, and a shifting device for shifting the matrices singly from one terminal of the slideway onto said chain, substantially as set forth.

39. In a matrix-cleaning machine, the table provided with a transverse matrix-channel and a slideway for matrices leading into the channel at right angles thereto, circular rotary cleaning-brushes arranged in the path of the matrices above and below the slideway and at opposite sides of the channel, a stationary horizontal auxiliary brush detachably clamped on the table at one side of the channel beyond the brushes at opposite sides of the channel, said stationary brush having its bristles projected across the path of the matrices through the channel, a suitably-supported endless carrier-chain having catch-studs traveling through the matrix-channel, and a shifting device for shifting the matrices singly from one terminal of the slideway onto said carrier-chain, substantially as set forth.

40. In a matrix-cleaning machine, the machine-table provided with a transverse matrix-channel, suitably-arranged cleaning-surfaces for the edges and sides of the matrices, a galley-box supported beneath the table and having matrix-assembling mechanism disposed below the matrix-channel, and a carrier-chain for carrying the matrices through the channel and delivering the same to the assembling mechanism of the galley-box, substantially as set forth.

41. In a matrix-cleaning machine, the table provided with a matrix-channel, suitably-arranged cleaning-surfaces, a carrier for moving the matrices through the channel, a galley-box supported beneath the table and provided at one end with assembling mechanism disposed below the matrix-channel, and suitable guides for deflecting the matrices singly from the channel and carrier to the assembling mechanism of the galley-box, substantially as set forth.

42. In a matrix-cleaning machine, the table provided with a matrix-channel, suitably-arranged cleaning-surfaces, a carrier for moving the matrices through the channel, a guide-hood mounted on the table over the channel at one end of the carrier, a deflecting-chute arranged at the under side of the table immediately below the guide-hood, and a galley-box supported beneath the chute and provided at its inner end with matrix-assembling mechanism receiving the matrices singly from said deflecting-chute, substantially as set forth.

43. In a matrix-cleaning machine, the table provided with a matrix-channel, suitably-arranged cleaning-surfaces, a carrier for moving the matrices through the channel, an elongated galley-box supported beneath the table and arranged adjacent to one end of the carrier to receive the matrices as they are released therefrom, a spring-retarded sliding gage-plate mounted within the galley-box, and an automatically-vibrated assembling-plate mounted within the rear end of the galley-box to bunch the matrices against said gage-plate, substantially as set forth.

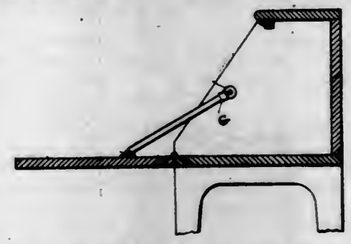
44. In a machine of the class described, the combination with the matrix-carrying mechanism, of a suitably-arranged galley-box, a spring-retarded sliding gage-plate mounted within the galley-box, an automatically-vibrated assembling-plate mounted in one end of the box to bunch the matrices against the gage-plate, and a suitably-operated laterally-movable fly-plate pivotally supported at one edge of the galley-box and operating to release the matrices from the carrying mechanism and to throw the same in an upright position within the galley-box at one side of the vibrating assembling-plate, substantially as set forth.

45. In a matrix-cleaning machine, the table provided with a matrix-channel, suitably-arranged cleaning-surfaces, an endless carrier-chain supported below the table and having catch-studs traveling through the matrix-channel, an elongated galley-box supported beneath the table at one side of one end portion of the chain, a spring-retarded sliding gage-plate mounted within the galley-box, an automatically-vibrated assembling-plate pivotally suspended at its upper end within the rear end of the galley-box, a laterally-movable fly-plate pivotally supported at its lower end on one edge of the galley-box and provided in its upper unpivoted edge with a notch and at one side of said notch with an inwardly-curved bill engaged by the ends of the chain-links, and springs connected with said fly-plate for normally deflecting the same in an inclined position outward from the galley-box, substantially as set forth.

46. In a matrix-cleaning machine, the combination with the matrix-carrying mechanism, of a suitably-arranged galley-box, mounted at one end of the carrying mechanism, a spring-retarded sliding gage-plate mounted within the galley-box, a movable assembling-plate pivotally suspended at its upper end within the rear end of the galley-box, a suitably-operated laterally-movable fly-plate pivotally supported at one edge on the galley-box, means for imparting two complete vibrations to the assembling-plate for each matrix delivered in front of the same by the fly-plate, and a spring mounted at one side of the galley-box and carrying a catch-lug normally projected through an opening in the box to bind against the head projections of the matrices, substantially as set forth.

47. In a machine of the class described, the combination with the matrix-carrying mechanism, of a galley-box arranged at one end of the carrying mechanism, a spring-retarded sliding gage-plate mounted within the galley-box, means for delivering the matrices from the carrying mechanism singly into the galley-box, a movable assembling-plate pivotally suspended at its upper end within the rear end of the galley-box and provided at its lower end with a tongue projected through a slot in the bottom of the box, a retractile spring connected at one end to a fixed point of attachment, and at its other end to said tongue, an adjusting-plate slidably mounted on the galley-box and working at one end within the tongue of said assembling-plate, a short turn-post mounted at one side of the galley-box and carrying at its lower end a cam-arm engaging against one end of said adjusting-plate, and at its upper end carrying a rock-arm, a suitably-arranged cam-shaft having a reduced spindle extremity, a double or two-point cam-plate mounted on said shaft, and a pitman connected at one end with said rock-arm and provided at its other end with a slot loosely taking over the spindle extremity of said shaft, said pitman carrying at its slotted end a contact-roller engaged by said cam-plate, substantially as set forth.

576,972. **DESK-LID SUPPORT.** DANIEL W. TOWER, Grand Rapids, Mich., assignor to the Grand Rapids Brass Company, same place. Filed May 22, 1896. Serial No. 592,658. (No model.)



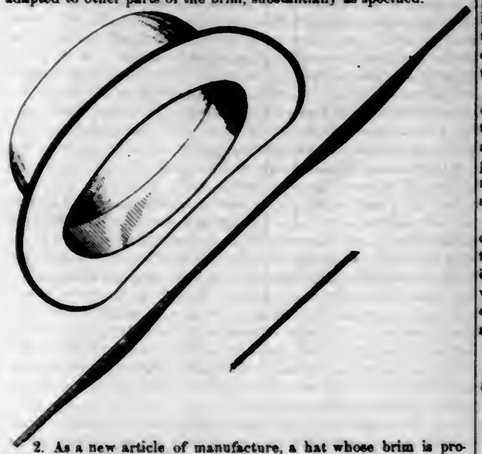
Claim.—1. The combination with the hinged lid of a desk, of a guide-plate connected with the desk-case and having a slotted offset projection provided with opposite bent flanges G, and a lid-sustaining arm slidable under said bent flanges and through said offset projection, said arm being pivoted at one end portion to the desk-lid and having an offset-stop at its other end portion which strikes the slotted offset projection of the guide-plate and firmly supports the desk-lid when the latter is thrown open for use, substantially as described.

2. The combination with a desk and desk-lid of a lid-supporting arm pivoted at one end to the lid, a supporting-plate pivoted upon the desk and having a projecting bracket provided with a way or guide for the lid-supporting arm, a stop on one end of the said desk-lid support to engage a projection on the pivoted plate and serve as a stop, substantially as described.

576,973. **HAT AND EDGE BINDING THEREFOR.** THOMAS W. BRACHER, New York, N. Y. Filed Apr. 2, 1896. Serial No. 585,874. (No model.)

Claim.—1. A binding adapted to the wide and narrow turned portions of a hat-brim, and consisting of a continuous strip having

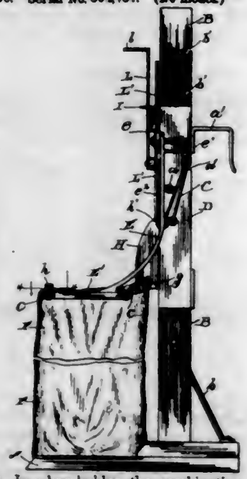
broad portions adapted to parts of the hat-brim and narrow portions adapted to other parts of the brim, substantially as specified.



2. As a new article of manufacture, a hat whose brim is provided with a binding of varying width, a broad part covering the edge of a wide turned portion of a hat-brim, and a narrow part covering the edge of a relatively narrow turned portion of the hat-brim, substantially as described.

3. As a new article of manufacture, a hat whose brim is provided with a binding of varying width, the narrow part of said binding being applied to a narrow turned portion of the brim, and the broad part to a relatively broad turned portion of the brim, the overlapping edge of said binding being on the top of the brim and substantially uniform throughout the length of the binding, substantially as described.

576,974. BAG-HOLDER. JOHN CARLSON, Chicago, Ill. Filed June 5, 1896. Serial No. 594,737. (No model.)



Claim.—1. In a bag-holder, the combination of a body, with a support therefor, a supporting-arm pivotally secured on each side of the body, a forwardly-extending portion on the lower part of each arm, a toothed wheel on each end of said extended part, and means to retract and distend the supporting-arms, substantially as described.

2. In a bag-holder, the combination of a body, with a support therefor, a spring-actuated supporting-arm pivotally secured on each side of the body, a forwardly-extending portion on the lower part of each arm, a toothed wheel on each end of said extended part, and means to retract and distend the supporting-arms, substantially as described.

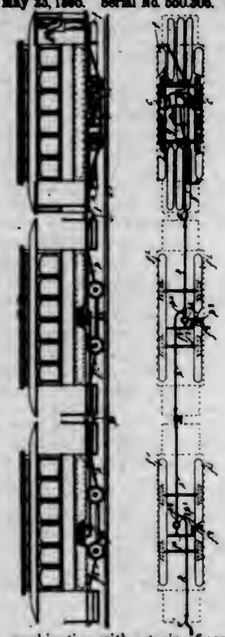
3. In a bag-holder, the combination of a body, with a support therefor, a supporting-arm pivotally secured on each side of the body, a forwardly-extended portion on the lower part of each arm, a toothed wheel on each end of said extended part, a guide-piece for the bag on the free ends of the said extended portions, and means to retract and extend the supporting-arms, substantially as described.

4. The combination of the supporting-body, having at its lower part a bracket, with a dog or detent pivoted in said bracket, a supporting-arm pivotally secured on each side of the body, a forwardly-extended part on the lower portion of each arm, a toothed wheel on each end of said extended parts, and means to retract and extend the supporting-arms, substantially as described.

5. The combination with the standard B, having the notches *b'*, of the hollow body D, on said standard, the yoke-catch C, pivoted on the body to engage the notches *b'*, of the standard, the supporting-arms E, pivoted on each side of the body and having the extended portions E', the toothed wheels *c*, on said extended portions, and means to retract and extend the supporting-arms, substantially as described.

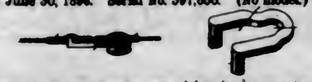
6. The combination with the standard B, having the notches *b'*, of the hollow body D, on said standard, the yoke-catch C, pivoted on the body to engage the notches *b'*, the supporting-arms E, pivoted on each side of the body, and having the extended portions E', the toothed wheels *c*, and guide-pieces *k*, on said extended portions, the dog or detent *g*, pivoted on the lower part of the body, and means to retract and extend the supporting-arms, substantially as described.

576,975. PNEUMATIC RAILWAY. HERMAN HAUPT, Washington, D. C., assignor to the General Compressed Air Company, New York, N. Y. Filed May 23, 1895. Serial No. 550,208. (No model.)



Claim.—The combination with a train of cars, of a compressed-air motor on one of said cars, applied to propel the train, a train-pipe with flexible couplings between cars, for supplying said motor, branch pipes connecting the local reservoirs on the several cars with said train-pipe, and automatic reducing-valves in said branch pipes, substantially as and for the purposes set forth.

576,976. CORSET-EYE. DANIEL F. DALTON, Waterbury, Conn. Filed June 30, 1896. Serial No. 597,650. (No model.)

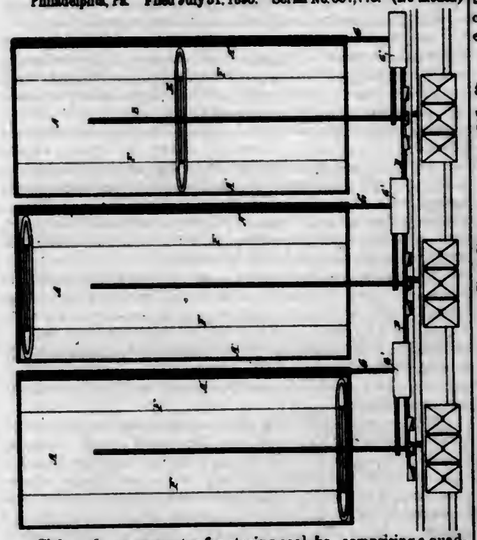


Claim.—1. A corset-eye comprising in its construction a round piece of wire flattened and bent in dies suitable for the purpose to form an enlarged eye and a smaller slot communicating with said eye, and with its integral free round ends bent at right angles to form attaching-rivets, substantially as described.

2. A corset-eye constructed of a round piece of wire flattened and bent in dies so as to form an eye suitable for the purpose with its free round ends bent at right angles to the body part and adapted to have their extremities upset in the form of rivets to attach them to a corset, said ends constituting integral parts of the corset-eye proper, substantially as described.

3. A corset-eye made automatically from round wire, consisting of a flat body part bent so as to form a slot communicating with an enlarged eye, and with its integral free ends constituting attaching-rivets bent at right angles to the body part, substantially as described.

576,977. APPARATUS FOR STORING COAL. JAMES M. DODGE, Philadelphia, Pa. Filed July 31, 1895. Serial No. 557,773. (No model.)



Claim.—1. An apparatus for storing coal, &c., comprising a quadrangular floor on which material may be piled, a conveyer-trough extending along one side of the floor, a conveyer therein, a traveling conveyer mounted on the floor, conveying mechanism thereon adapted to discharge into the conveyer at the side of the floor, and means for moving the traveling conveyer along the floor on a line parallel with the fixed conveyer-trough at the side, substantially as described.

2. An apparatus for storing coal, &c., comprising a piling-conveyer, the receptacle at one side of the floor into which material is discharged, a traveling conveyer extending across the floor and mounted thereon, with means for moving the conveyer bodily on the floor, and conveying mechanism carried by said traveling conveyer adapted to receive material and discharge it into the receptacle at the side, said conveyer being elevated at the discharge end so that the material after being discharged will fall by gravity into the receptacle, substantially as described.

3. An apparatus for storing coal, &c., comprising a piling-floor, a removing-conveyer adapted to travel thereon, a conveyer at the side of the floor into which the removing-conveyer discharges, and side retaining-walls for the material piled upon the floor, the wall adjoining the side conveyer having openings therein, and gates for said openings, substantially as described.

576,978. BRUSH. ALANSON C. BETABROOK, Northampton, Mass., assignor to the Florence Manufacturing Company, same place. Filed Aug. 16, 1894. Serial No. 520,472. (No model.)

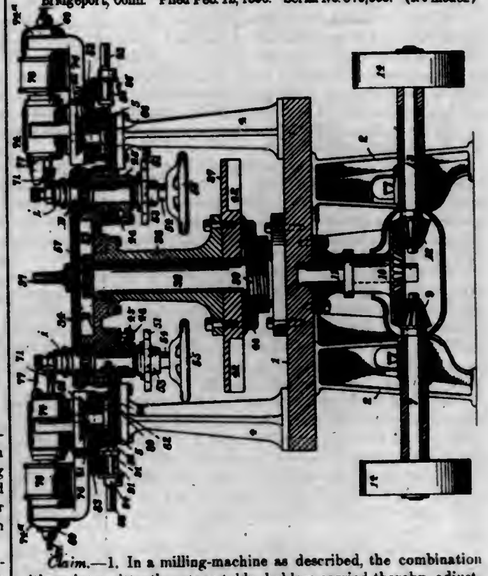


Claim.—1. A brush comprising two metallic shells, one for the face and one for the back, the shell for the face being perforated and having bristles in the perforations, a mass of composition in said shell securing the bristles in place and reinforcing the said shell, a reinforce for the shell for the back, a portion of said reinforce entering the shell for the face, said reinforce being grooved circumferentially and receiving the inturned edge of the shell for the face, substantially as set forth.

2. A brush comprising two metallic shells, one for the face and one for the back, the shell for the face being perforated and having bristles in the perforations, a mass of composition in said shell securing the bristles in place and reinforcing the said shell, and a reinforce for the shell for the back, said reinforce consisting of two parts, one of which is grooved circumferentially and receives the inturned edge of each of the said shells, substantially as set forth.

3. A brush comprising two metallic portions, one for the face and one for the back, the shell for the face being perforated and having bristles in the perforations, a mass of composition in said shell securing the bristles in place and reinforcing the shell, a reinforce for the shell for the back, a portion of said reinforce entering the shell for the face and being grooved or reduced circumferentially, and a concave strip placed in the groove and receiving the inturned edge of each of said shells, substantially as set forth.

576,979. AUTOMATIC MILLING-MACHINE. JAMES GREGORY, Bridgeport, Conn. Filed Feb. 12, 1896. Serial No. 579,095. (No model.)



Claim.—1. In a milling-machine as described, the combination with an intermittently-rotary table, holders carried thereby, adjustable slides fitted laterally in the frame, radially-moving reciprocating carriages mounted in said slides and bearing rotary cutters, means for operating said slides, a movable ring fitted in said frame, connections between said ring and carriages, whereby the latter are reciprocated.

2. In a milling-machine as described, the combination with an intermittently-rotary table having holders, of a series of slides bearing rotary cutters mounted in the frame, means for adjusting said slides with respect to the holders, means for accurately determining the amount of said adjustment.

3. In a machine of the class described, the combination of the frame, a ring movably fitted thereto, means for reciprocating said ring, slides fitted to the frame, cutters mounted upon said slides, connections between said ring and cutters, whereby the latter are reciprocated by the former, means for holding the work in a stationary position while being milled, and means for moving said work from one cutter to another.

4. In a machine of the class described, the combination of the frame, a ring fitted within said frame and provided with means for reciprocating the same, slides fitted in ways of the frame, means for adjusting said slides, cutters mounted upon said slides, connections between said ring and cutters whereby the latter are reciprocated by the former, means for holding and advancing the work to successive cutters and means for so changing the work as to present a new surface of the work to the cutter aforesaid, at each successive advancement of the former.

5. In a milling-machine, the combination with a rotary table, of a spindle journaled therein, a post within said spindle and adapted to retain the work thereon, a lead-screw engaging said post and adapted to be operated, to clamp the work to said spindle, mechanism connected with said lead-screw and spindle, whereby they are automatically operated in a manner to release said work.

6. The combination in a milling-machine with the table, of a rotatable spindle having a threaded extremity, a star-wheel threaded to engage said spindle, a post movably fitted in said spindle and adapted to retain the work on its upper end, a lead-screw journaled within the hub of the star-wheel and engaging the post, whereby the same is adjusted with relation to the spindle.

7. The combination in a milling-machine, of a rotatable spindle having a threaded extremity, a star-wheel 51 to engage said spindle extremity, a post movably fitted in said spindle and adapted to retain the work to be milled, a lead-screw journaled within the hub of the star-wheel and engaging the post for adjusting the same, means for operating the wheel 51, whereby the post is raised or lowered with respect to the spindle.

8. The combination with the table of a milling-machine, of a rotary spindle having a threaded extremity, a star-wheel fitted to said threaded extremity, a vertically-movable post fitted in said spindle and adapted to retain the work on its upper end, connections between said post and star-wheel, whereby said post is raised and lowered by a movement of the wheel, and means for imparting to said wheel a rotary movement.

9. The combination in a milling-machine, of the bed, a post secured thereto and provided with a threaded portion 39, a hollow column pivoted on said post and supporting a table, a disk secured to said column and bearing a series of radial slots, means for intermittently engaging one of said slots and transmitting to said column and table a remittent rotary movement, an adjustable ring attached to said threaded portion and adapted to support said column and table, substantially as described.

10. The combination in a milling-machine, of the bed, a post secured thereto and provided with a threaded portion 39, a hollow column pivoted on said post, a table mounted upon said column and bearing a series of work-holders, an adjusting-ring attached to the threaded portion and adapted to support said column and table, substantially as described.

11. The combination in a milling-machine, of the bed, a post secured thereto and provided with a threaded portion 39, a hollow column pivoted on said post, a table mounted upon said column, an adjustable ring attached to the threaded portion and adapted to support said column and table, posts 4 secured to the bed, a frame 5 secured to said posts and encircling the table aforesaid in a manner to brace the same, substantially as described.

12. The combination of the bed, a post secured thereto, a hollow column pivoted to said post, a table mounted upon said column and bearing a series of rotary work-holders, a fixed gear 57 secured to said post, idle-gears 58 secured to the table and adapted to travel around said fixed gear with the movement of said table, idlers 59 meshing with the idlers before mentioned and the gear-face of the rotary holders, thus intermittently rotating the same by the movement of the table.

13. In a machine of the class described, the combination of the fixed post 38, the table mounted thereon and provided with means for intermi..ently rotating the same, a gear 57 fixed to said stationary post, idlers 58 journaled on studs of said table and meshing with said fixed gear, idlers 59 secured to said table and meshing with the before-mentioned idler 58 and the gear of the rotatable holders, holders carried by and journaled within the table and intermittently rotated by said table through the connections above recited.

14. In a milling-machine, the combination with an intermittently-rotary table suitably journaled upon a post and carrying work-holders, a disk secured to a hollow column supporting said table and bearing radial slots, a driven shaft adjacent to said table and bearing an arm to engage the radial slots thereof at each rotation, and a series of slides bearing rotary cutters mounted in the frame, means for adjusting the slides with respect to the holders, means for accurately determining the amount of said adjustment.

15. In a milling-machine, the combination with an intermittently-rotary table suitably journaled upon a post and carrying work-holders, a disk secured to a hollow column supporting said table and bearing radial slots, concave recesses in said disk between said slots, a driven shaft adjacent to said disk and bearing an arm to engage one of said slots with each rotation, thereby intermittently rotating said table, slides fitted laterally in the frame, radially-moving reciprocating carriages mounted in said slides, means for operating said slides, a movable ring fitted in said frame, connections between said ring and carriages whereby the latter are reciprocated, substantially as described.

16. In a milling-machine, the combination with the main driving-shaft 7, of bevel-gear 10, radial shafts bearing pinions meshing with said bevel-gear, connections with said radial shafts, cutters operated through said connections, connections of one of said radial shafts with an elliptical gear, a second elliptical gear meshing with the elliptical gear aforesaid and secured upon an intermediate shaft A, whereby the latter is given an irregular rotation, connections with said shaft and the cutters, whereby the same are advanced slowly in their cutting operation, and rapidly in their return movement.

17. In a milling-machine, the combination with the driving-shaft, of elliptical gear connections thereof with an intermediate shaft A, whereby the latter is afforded an irregular rotation, a table and connections with said shaft A for intermittently rotating said table, cutters mounted upon said table and having connections with said shaft whereby the former are simultaneously reciprocated slowly in their cutting operation, and rapidly in their return movement.

18. In a machine of the class described, the combination with the main driving-shaft 7, of bevel-gear 10, radial shafts bearing pinions meshing with said bevel-gear, connections with said radial shafts whereby the cutters are operated, connections with one of said radial shafts, with a vertical shaft A for operating the table of the machine, clutch mechanism interposed between said radial shaft and the vertical shaft whereby the movement of the latter is controlled.

19. The combination in a milling-machine, of holders and means for rotating the same, clutch mechanism interposed in the driving connection and adapted to be normally held in operative engagement, a device for retaining said clutch out of such engagement, automatic trip mechanism interposed between said retaining device and the holders aforesaid, whereby the clutch is operated by the movement of the holders.

20. The combination with the rotary table and its driving mechanism, of clutch mechanism interposed in said driving mechanism, a spring-actuated lever whereby said clutch is operated, means for engagement with said lever, whereby the same is held to lock the clutch, automatic safety mechanism operated by the movement of the table for releasing the engagement of said lever.

21. The combination with the rotary table and its driving mechanism, of a clutch interposed in said driving mechanism, a lever for operating said clutch, holders journaled in the rotatable table, means whereby said holders and their work are rigidly held with relation to the table, an automatic safety device interposed between said holders and the operating lever, whereby the latter is operated to disengage the clutch in case of imperfect registration of the holders with said safety device.

22. The combination with the rotary table and driving mechanism of a milling-machine, of a clutch interposed therein, consisting of a disk 16 secured to the shaft, engaging blocks adjacent to said disk, a movable shank fitted in a bore of the shaft, toggle connections between said blocks and movable shank, a spring-actuated lever connected to the shank, means for engaging said lever and holding it against the action of its spring, automatic safety trip mechanism operated by the movement of the table, whereby the lever is released to engage the clutch.

23. In a milling-machine of the class described, the combination with the rotary table, holders carried thereby, a star-wheel secured to said holders, a clutch interposed in the driving mechanism, a rod 164 operatively connected with the lever of the clutch mechanism and whereby the same is disengaged, a block Q splined to said shaft, an arm to engage said block and operate its rod, connections between the star-wheel of the holder and said rod, whereby the block is disengaged therefrom.

24. The combination in a milling-machine, of holders journaled in the rotatable table thereof, means for clamping work to said holders, a driving-shaft and connections thereof with driven shaft A, an arm on said driven shaft adapted to engage and operate said holders in a manner to release said work with each rotation of the table.

25. The combination in a milling-machine, of holders journaled in the rotary table thereof, means for clamping work to said holders, a driving-shaft and connections with driven shaft A, an arm on said driven shaft adapted to engage and operate said holders in a manner to release said work, means for removing said work from said holders, means for resetting said holders with relation to the table aforesaid and to receive additional work, to be milled.

26. The combination in a milling-machine, of holders journaled in the rotary table thereof, means for clamping work to said holders, a driving-shaft and connections with driven shaft A, an arm on said driven shaft adapted to operate said holders to release said work, a movable ring fitted in the frame, a cam-actuated bell-crank lever 60 pivoted to said ring and adapted to operate the holders in a manner to reset the same to receive additional work, substantially as described.

27. In a milling-machine, the combination in a work-removing attachment, of a frame, a vertical shaft journaled therein, a cam upon said shaft, connections between said cam and a vertical rod, whereby the latter is given a reciprocating movement, connections between said rod and the gripping-head whereby said gripping-head is given a vertically-reciprocating movement, connections between said vertical shaft and said gripping-head, for imparting thereto a rotary movement.

28. In a milling-machine, the combination in a work-removing attachment, of a vertical driving-shaft 107, connections thereon with the gripping-head, whereby the same is afforded a vertically-reciprocating movement, a cam 120 upon said shaft, a segment operatively connected with said cam for imparting to the former a reciprocating movement, connections between said segment and the gripping-head for imparting thereto a reciprocating rotary movement, means whereby the jaws of said head are opened and closed by said reciprocating movement, substantially as described.

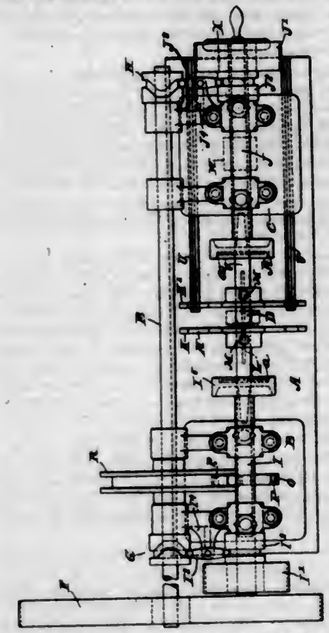
29. In a milling-machine, the combination in a work-removing attachment, of a driving-shaft, connections thereof with the gripping-head whereby the same is operated to detach the work from the machine, of a cam 144 upon said shaft, an arm E pivoted to the frame and operated by said cam, in a manner to receive the work from gripping-head, and remove the same from the machine.

30. In a milling-machine, the combination in a work-removing attachment, of the driving-shaft, connections thereof with the gripping-head, whereby the same is operated to remove the hubs from their holders, a cam upon said shaft, connections thereof with the laterally-swinging arm bearing a receptacle to receive the work, means for tilting said receptacle in a manner to drop the work therefrom, when said arm is in its extreme position.

31. The combination with a milling-machine of a work-removing attachment, consisting in part of a spindle P, means for imparting thereto a rotary and vertical movement, a gripping-head carried by said spindle and provided with a pair of jaws, means for opening and closing said jaws, by the initial rotary movements of said spindle.

32. The combination with a milling-machine of a work-removing attachment, consisting in part of the spindle P, a gripping-head carried by said spindle and provided with a pair of jaws, means for adjusting said jaws to accommodate different sizes of work, connections of said jaws with the spindle, whereby they are operated by the rotary movements of said spindle.

576,980. PAPER-BOX MACHINE. GERHARDT E. GRIMM, Camden, N. J. Filed Apr. 13, 1896. Serial No. 587,275. (No model.)

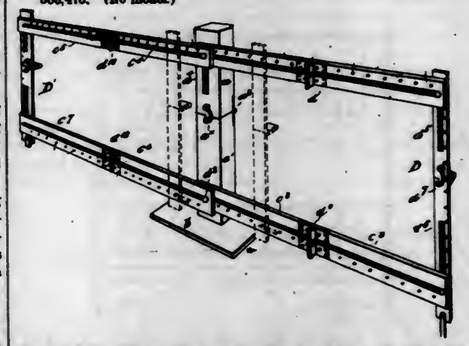


Claim.—1. In a machine for operating upon the heads of cylindrical boxes, the combination of two housings mounted upon the bed of the machine, means for adjusting one of said housings to vary the distance between them, arbors and spinning-heads carried by said housings, means for rotating said arbors in opposite directions, means for imparting intermittent longitudinal movements to said arbors, an intermittently-movable carrier arranged to carry the boxes to the spinning-heads, and a shaft for the carrier, said carrier being laterally adjustable upon its shaft, substantially as described.

2. In a machine for operating upon the ends of cylindrical boxes, the combination of two housings mounted upon the bed of the machine, a nut and screw for adjusting one of said housings upon the machine-bed, a main shaft carried in bearings upon the housings, arbors and spinning-heads carried by said housings, cams upon the main shaft, grooved collars upon the arbors, and levers mounted upon the housings and arranged to engage the cams and the carriers whereby a reciprocating movement is given to the arbors at each revolution of the main shaft, substantially as described.

3. The combination with the main shaft, the arbors and spinning-heads, the carrier-shaft and carrier, and means for operating said shaft and arbors, of a stationary housing furnished with bearings for carrying one end of said shafts and one arbor, and a laterally-movable housing adapted to carry the other ends of said shafts and the other arbor, all substantially as and for the purposes set forth.

576,981. FOLDING CURTAIN-DRYING FRAME AND PEDESTAL. HANNAH HEY, Kansas City, Mo. Filed Oct. 10, 1896. Serial No. 608,475. (No model.)



Claim.—1. A folding drying-frame for fabrics, its sides being composed of longitudinally-slotted bars, each bar having separate overlapping, adjustable folding parts and extension-hinges connecting said folding parts at one end of said frame, and the ends of said frame composed of longitudinally-slotted standards, each standard having separate folding parts and extension-hinges connecting each part as and for the purpose described.

2. A folding drying-frame for fabrics, its sides being composed of longitudinally-slotted bars, each bar having separate overlapping, adjustable and folding parts and extension-hinges connecting said folding parts at one end of said frame, and the ends of said frame composed of standards, each standard having separate folding parts and extension-hinges connecting each part, and a pedestal connected with the said frame having separate folding parts hinged together upon a line horizontal with the hinged joint of the said standards as and for the purpose described.

3. A folding drying-frame for fabrics, its sides being composed of longitudinally-slotted bars, each bar having separate overlapping, adjustable and hinged folding parts, and extension-hinges connected with said folding parts at one end of said frame, and the ends of said frame composed of standards, each standard having separate folding parts and extension-hinges connecting each part, a pedestal connected with the adjustable bars of said frame, having separate folding parts hinged together upon a line horizontal with the hinged joint of the said standards, upon the rear side and a fastening device upon the front side, and means for adjusting the said bars upon the pedestal as and for the purpose described.

4. The combined drying-frame and pedestal, said frame being composed of longitudinally-slotted bars, each bar having separate overlapping, adjustable and hinged parts, and extension-hinges connecting one of said parts at one end of said frame, and the ends of said frame composed of standards, each standard having separate folding parts and extension-hinges connecting each part, and adjusting nuts and bolts connecting said standards and said bars, said pedestal having separate folding parts hinged together upon a horizontal line with the joints of the hinges in said standards, and provided with a vertical groove upon its front side, adjusting bolts and nuts in said groove connected with the adjustable parts of said bars, and a base for said pedestal as and for the purpose described.

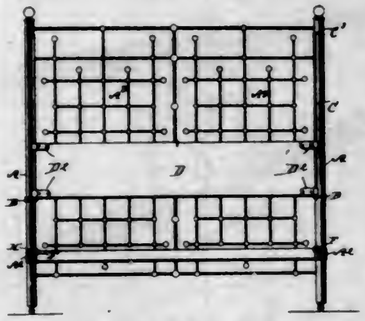
576,982. TOP. CHARLES W. LOWE, Miamisburg, Ohio. Filed Feb. 12, 1896. Serial No. 579,052. (No model.)



Claim.—A top provided with a chamber *b* entering at a point below the widest diameter of said top, and inclining upwardly, and a chamber *a'* intersecting with the rear terminal of said chamber *b*, a plug *c* entirely inclosing said chamber *a'*, and a plug *c'* inclosing the

chamber *b*, the latter plug being provided with an opening *c* in the edge thereof, as herein shown and for the purposes specified.

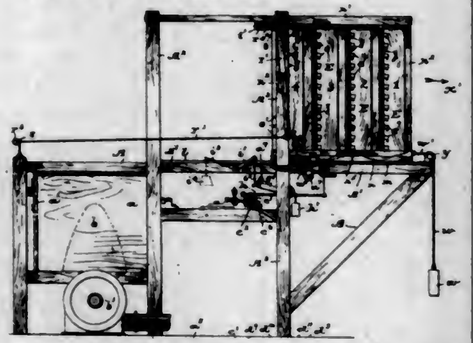
576,983. TABLE ATTACHMENT FOR BEDS. JAMES A. NORTON, Odebolt, Iowa, assignor of two-thirds to John R. Mattes and Frank P. Motie, same place. Filed Oct. 22, 1896. Serial No. 609,769. (No model.)



Claim.—1. A table attachment for beds comprising the clamps B and bolts B^3, the rods C connected with the said clamps, the rivets C^2, the table-top D, the metal strips D^2, and standards to be secured to the side pieces of a bedstead to support the outer ends of said rods, substantially as and for the purposes stated.

2. A table attachment for beds, comprising two like clamps designed to encircle the corner-posts of the head of a bedstead, and having a projecting, perforated end, two straight metal rods slotted at one end to admit said projections, rivets for pivotally connecting the rods and clamps, enlarged heads on the outer ends of the rods, a table-top slidingly connected with the rods, clamps adjustably and detachably secured to the side pieces of the bedstead, standards hinged thereto to swing longitudinally of the bed and an arm adjustably mounted on the top of each standard to receive the outer ends of the table-supporting rods, substantially as and for the purposes stated.

576,984. FUR-FEEDING ATTACHMENT FOR HAT-FORMING MACHINES. FREDERICK F. POOLE, Newark, N. J. Filed May 14, 1896. Serial No. 591,499. (No model.)



Claim.—1. The combination, with the mechanism of a hat-forming machine, of a feed-box arranged on the frame of the machine, means connected with said box for causing a sliding motion of the same, and mechanism also connected with said feed-box, operating to deposit the fur in said box into the hat-forming machine, substantially as and for the purposes set forth.

2. The combination, with the mechanism of a hat-forming machine, of a traveling frame or carriage, a feed-box arranged on said frame, means connected with said frame for causing a sliding motion of the same, and mechanism connected with the feed-box, operating to deposit the fur into the hat-forming machine, substantially as and for the purposes set forth.

3. The combination, with the mechanism of a hat-forming machine, of a feed-box arranged on the frame of the machine, compartments in said box, means connected with each compartment, operating to separately deposit the fur in said compartments into the hat-forming machine, and mechanism connected with said feed-box for causing a sliding motion of the same, substantially as and for the purposes set forth.

4. The combination, with the mechanism of a hat-forming machine, of a traveling frame or carriage, a feed-box arranged on said carriage, means connected with said carriage for causing a sliding motion of the same, compartments in said feed box or boxes, and means connected with each compartment, operating to separately deposit the fur in said compartments into the hat-forming machine, substantially as and for the purposes set forth.

5. The combination, with the mechanism of a hat-forming machine, of a feed-box arranged on the frame of the machine, means connected with said box for causing a sliding motion of the same, hinged or pivoted shelves in said box, means for retaining said shelves in their raised positions to form compartments, and mechanism connected with each compartment, operating to deposit the fur in said compartments into the hat-forming machine, substantially as and for the purposes set forth.

6. The combination, with the mechanism of a hat-forming machine, of a traveling frame or carriage, means connected therewith for causing a sliding motion of the same, a feed-box on said carriage, hinged or pivoted shelves in said boxes, means for retaining said shelves in their raised positions to form compartments, and mechanism connected with each compartment, operating to deposit the fur in said compartments into the hat-forming machine, substantially as and for the purposes set forth.

7. The combination, with the mechanism of a hat-forming machine, of a traveling frame or carriage, a feed-box arranged on said frame, having hinged or pivoted shelves, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions, to form compartments, projections e^7 on said catches, and mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, substantially as and for the purposes set forth.

8. The combination, with the mechanism of a hat-forming machine, of a feed-box arranged on the frame of the machine, having hinged or pivoted shelves, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions, to form compartments, projections e^7 on said catches, and mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, consisting, essentially, of a vertical shaft, spirally-disposed arms o' on said shaft, and means for causing the operation of said shaft, substantially as and for the purposes set forth.

9. The combination, with the mechanism of a hat-forming machine, of a feed-box arranged on the frame of the machine, having hinged or pivoted shelves, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions, to form compartments, projections e^7 on said catches, and mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, consisting, essentially, of a vertical shaft, spirally-disposed arms o' on said shaft, a ratchet-wheel on said shaft, a lever o^4 having a pawl adapted to actuate said ratchet-wheel, a pivoted lever r' and flexible connections r and r^2, substantially as and for the purposes set forth.

10. The combination, with the mechanism of a hat-forming machine, of a traveling carriage or frame, two or more feed-boxes on said carriage, and mechanism connected with said carriage for causing a sliding motion of the same, substantially as and for the purposes set forth.

11. The combination, with the mechanism of a hat-forming machine, of a traveling carriage or frame, two or more feed-boxes on said carriage, and mechanism connected with said carriage for causing a sliding motion of the same, consisting, essentially, of a pivoted lever u, a shaft u^6, weight u^7, arm u^8, connection u^4 between said lever u and arm u^8, a tongue or finger u^9 and a stop u^9, and means adapted to actuate said lever u, substantially as and for the purposes set forth.

12. The combination, with the mechanism of a hat-forming machine, of a traveling carriage or frame, two or more feed-boxes on said carriage, and mechanism connected with said carriage for causing a sliding motion of the same, consisting, essentially, of a pivoted lever u, a shaft u^6, weight u^7, arm u^8, connection u^4 between said lever u and arm u^8, a tongue or finger u^9 and a stop u^9, and means adapted to actuate said lever u, comprising a vertical shaft o, an arm or arms o' thereon, and means for causing the operation of said shaft, substantially as and for the purposes set forth.

13. The combination, with the mechanism of a hat-forming machine, of a traveling frame or carriage, two or more feed-boxes on said carriage, having hinged or pivoted shelves, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions to form compartments, projections e^7 on said catches, mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, and mechanism connected with said carriage for causing a sliding motion of the same, consisting, essentially, of a pivoted lever u, a shaft u^6, weight u^7, arm u^8, connection u^4 between said lever u and arm u^8, a tongue or finger u^9 and stop u^9, and means adapted to actuate said lever u, substantially as and for the purposes set forth.

14. The combination, with the mechanism of a hat-forming machine, of a traveling frame or carriage, two or more feed-boxes on said carriage, having hinged or pivoted shelves, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions to form compartments, projections e^7 on said catches, mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, and mechanism connected with said carriage for causing a sliding motion of the same, consisting, essentially, of a pivoted lever u, a shaft u^6, weight u^7, arm u^8, connection u^4 between said lever u and arm u^8, a tongue or finger u^9 and stop u^9, and means adapted to actuate said lever u, comprising a vertical shaft o, an arm or arms o' thereon, and means for causing the operation of said shaft, substantially as and for the purposes set forth.

15. The combination, with the mechanism of a hat-forming machine, of a traveling carriage or frame, two or more feed-boxes on said carriage, having hinged or pivoted shelves, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions to form compartments, projections e^7 on said catches, mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, consisting, essentially, of a vertical shaft, spirally-disposed arms o' on said shaft, a ratchet-wheel on said shaft, a lever o^4 having a pawl adapted to actuate said ratchet-wheel, a pivoted lever r' and flexible connections r and r^2, and mechanism connected with said traveling carriage for causing a sliding motion of the same, consisting, of a pivoted lever u, a shaft u^6, weight u^7, arm u^8, connection u^4 between said lever u and arm u^8, a tongue or finger u^9 and stop u^9, all arranged, substantially as and for the purposes set forth.

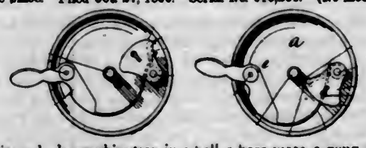
16. In combination, with the mechanism of a hat-forming machine, of a conveyer-apron d, a pair of feed-rolls d^4 and d^5, a picker-cylinder d^6, a vibrating distributing-roll d^7, gear mechanism for operating said roll, a feed-box arranged on the frame of the machine, and mechanism connected with said box and operating to deposit the fur in said box upon the apron d, substantially as and for the purposes set forth.

17. In combination, with the mechanism of a hat-forming machine, of a conveyer-apron d, a pair of feed-rolls d^4 and d^5, a picker-cylinder d^6, a vibrating distributing-roll d^7, gear mechanism for operating said roll, a feed-box arranged on the frame of the machine, hinged or pivoted shelves in said box, means connected with said shelves for normally retaining them in their raised positions to form compartments, and mechanism connected with each compartment, operating to deposit the fur in said compartments into the hat-forming machine, substantially as and for the purposes set forth.

18. In combination, with the mechanism of a hat-forming machine, of a conveyer-apron d, a pair of feed-rolls d^4 and d^5, a picker-cylinder d^6, a vibrating distributing-roll d^7, gear mechanism for operating said roll, a feed-box arranged on the frame of the machine, hinged or pivoted shelves in said box, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions, to form compartments, projections e^7 on said catches, and mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, substantially as and for the purposes set forth.

19. In combination, with the mechanism of a hat-forming machine, of a conveyer-apron d, a pair of feed-rolls d^4 and d^5, a picker-cylinder d^6, a vibrating distributing-roll d^7, gear mechanism for operating said roll, a feed-box arranged on the frame of the machine, hinged or pivoted shelves in said box, holding-catches e^3, having holding-tongues e^5 for retaining said shelves in their raised positions, to form compartments, projections e^7 on said catches, and mechanism adapted to engage with said projections and operating to deposit the fur in said compartments into the hat-forming machine, consisting, essentially, of a vertical shaft, spirally-disposed arms o' on said shaft, and means for causing the operation of said shaft, substantially as and for the purposes set forth.

576,985. BICYCLE-BELL. FREDERICK A. SCRANTON, East Hampton, Conn., assignor to the Bevin Brothers Manufacturing Company, same place. Filed Oct. 27, 1896. Serial No. 610,201. (No model.)

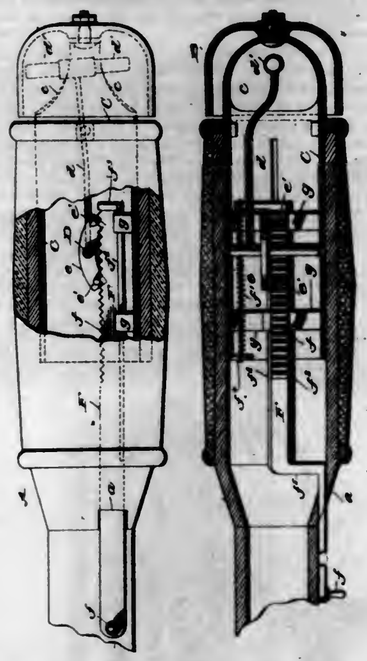


Claim.—1. In combination in a bell, a base-plate, a gong, a lever pivoted to the base-plate and having an inward-extending curved spring-arm, a spring rotarily mounted on a post and having a lower spring-arm loosely connected with the spring-arm of the lever, a pivoted swinging hammer connected with the upper spring-arm of the spring, and stops to limit the swinging movement of the hammer.

2. In combination in a bell, a base-plate, a gong, a lever pivoted to the base-plate and having an inward-extending curved spring-arm, a spring rotarily mounted on a post and having a lower spring-arm loosely connected with the spring-arm of the lever and an upper spring-arm connected with a hammer, the hammer pivoted on a post, on which the spring is rotarily mounted, and stops to limit the swinging movement of the hammer.

3. In combination in a bell, a gong, a base-plate, a lever pivoted to the base-plate and having an inward-extending curved spring-arm loosely connected to the spring-arm of a swinging hammer, a swinging hammer pivoted on a post and connected to the upper spring-arm from the spring, the spring rotarily mounted on a post, and stops located in the path of movement of the lower arm of the spring to hold the hammer normally out of engagement with the gong.

576,986. BICYCLE-BELL. JOSEPH W. STARRITT, Richmond, Va. Filed Nov. 16, 1895. Serial No. 569,178. (No model.)

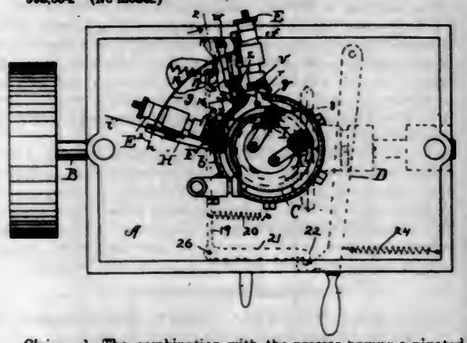


Claim.—1. An alarm-bell for bicycles comprising the combination with the hollow handle-bar, of a shell C fitted and contained in said bar, a gong attached to the outer end or head of the shell, a clapper and clapper-actuating mechanism mounted in and carried by said shell, and a handle forming part of said mechanism projecting beyond the shell and through the handle-bar in position to be operated by the rider, substantially as set forth.

2. The combination of the hollow handle-bar; the gong upon the end of said bar, the rock-shaft the clapper-supporting stem secured to said rock-shaft, and the clapper carried by said stem; the pallet attached to said rock-shaft; and the sliding toothed bar, engaging the pallet, supported in guides within the handle-bar, and provided with an operating handle or knob upon the exterior of the handle-bar, substantially as hereinbefore set forth.

3. The combination of the hollow handle-bar; the shell C fitted in said bar; the gong attached to the head or outer end of said shell; the transverse rock-shaft mounted in said shell; the clapper and its supporting-stem attached to said rock-shaft; the pallet secured to said rock-shaft; the toothed operating-bar engaging said pallet, supported in suitable guides on said shell, and provided with an extension which projects through to the exterior of the handle-bar, and is there provided with an operating knob or handle; and the spring for retracting the toothed operating-bar—substantially as and for the purposes hereinbefore set forth.

576,987. STOP-MOTION FOR CIRCULAR-KNITTING MACHINES. DANIEL F. SULLIVAN and ALBERT WHITE, Lowell, Mass.; said Sullivan assignor to said White. Filed May 18, 1896. Serial No. 592,034. (No model.)



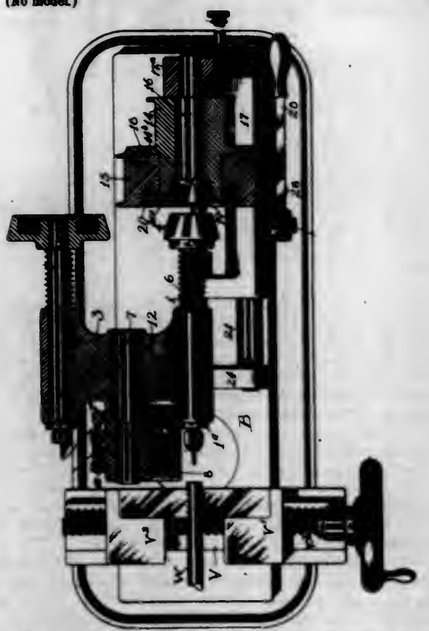
Claim.—1. The combination with the presser having a pivoted heel of a locking mechanism for said heel adapted to be released by the breaking of a thread whereby the tension of the heel on the needles is abated.

2. The combination with the cylinder of a presser having a pivoted heel; a locking mechanism therefor adapted to be released by the breaking of a thread; and a machine stop mechanism simultaneously released by the release of said locking mechanism.

3. The combination of the presser having the pivoted heel; the latch therefor; the rock-shaft bearing an arm carrying the thread to the cylinder; and a projection on the latch adapted to be thrown by the rocking of said shaft into the path of the cylinder substantially as and for the purpose specified.

4. The combination of the presser having the pivoted heel; a latch therefor; mechanism for releasing the latch when a thread breaks; a spring-actuated shipping-lever; a lock therefor; and devices connecting said lock and latch whereby they may be conjointly released.

576,988. MULTIPLE-SPINDLED DRIVING DEVICE. BENJAMIN S. WOODWARD, Hartford, Conn., assignor of one-half to William W. Rogers, West Hartford, Conn. Filed June 19, 1896. Serial No. 596,208. (No model.)



Claim.—1. A series of concentrically-journaled separate driving-clutches, and a series of rotatable spindles journaled in a movable head, whereby each spindle of the series may be brought into concentric engaging relation with its respective clutch, substantially as described.

2. A driving-clutch, its rotating means, and a series of spindles journaled in a movable head, whereby they may each be brought into concentric relation to the clutch, with means for moving the clutch longitudinally of the common axis of itself and of the spindle which is in the operative position, thereby rotating that spindle and moving it longitudinally to its work, substantially as described.

3. In combination with a series of concentrically-mounted separate rotating clutches, a series of rotatable spindles, each provided with a cone for engaging with one or the other of the clutches and with a spring for maintaining the said engagement, the series of spindles being mounted upon a movable head by means of which each may independently be brought into alinement with the series of clutches.

4. In combination with a series of concentrically-mounted driving-clutches, a series of spindles each adapted to be brought into engaging relation with one of the clutches, with means for independently rotating the clutches at suitable rates of speed, substantially as described.

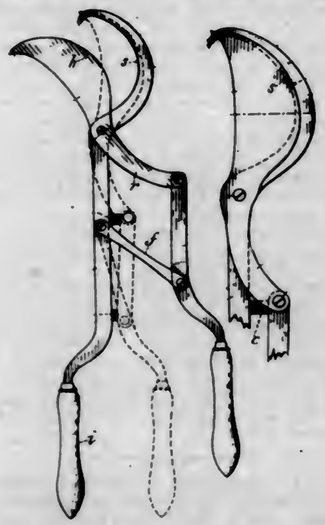
5. A series of concentrically-mounted separate driving-clutches, means for holding the work in suitable relation thereto, and a series of spindles located between the plane of the work and the plane of the clutches, rotatably mounted upon a movable head, whereby each of the spindles may independently be brought into engaging relation to the work and to one of the clutches, substantially as described.

6. A series of concentrically-mounted separate driving-clutches, means for holding the work in suitable relation thereto, a series of tool-carrying spindles rotatably mounted upon a head, whereby they may independently be brought into alinement with the work and with one of the series of clutches, the latter being capable of longitudinal movement whereby it may be brought into driving engagement with the spindle, and then move the latter longitudinally to its work, substantially as described.

7. A series of concentrically-mounted rotating clutches, a slide upon which the clutches are mounted, being capable of movement longitudinally of the common axis of the clutches, with means for independently rotating the clutches, and with means for moving the slide longitudinally, substantially as described.

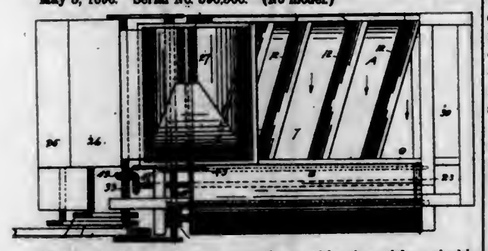
8. The combination of a slide, a rotating driving-clutch 14 journaled thereon, a clutch 15 journaled upon a sleeve of the clutch 14, concentrically therewith, with means for imparting rotative motion independently to each of the clutches, and with means for moving the slide upon its ways longitudinally of the common axis of the clutches.

576,989. PRUNING-SHEARS. ALBERT BARLING, Milwaukee, Wis. Filed Jan. 27, 1896. Serial No. 577,069. (No model.)



Claim.—In a pruning implement, the combination with a handle having a segmental cutting-knife with a hook end, of a cutting-blade pivoted on said handle and also having a hook end, an operating-handle pivoted to said cutting-blade, a link pivotally connecting said operating-handle and the first-mentioned handle at their middles ends on said first-mentioned handle of different length and adapted to be engaged successively by the operating-handle, substantially as described.

576,990. GRAIN SEPARATOR AND GRADER. SAMUEL BARNES, Loveland, Colo., assignor of one-half to David Barnes, same place. Filed May 5, 1896. Serial No. 590,360. (No model.)



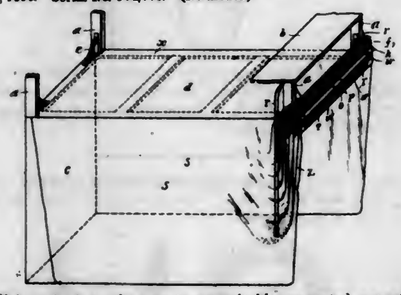
Claim.—1. In a grain-separator, the combination with a suitable frame, of an inclined table mounted thereon, the drums journaled in the frame at the ends of the table, an endless apron surrounding the table and engaging the drums, said apron having a movement transverse to the inclination of the table, flaps supported above and engaging the apron and occupying a diagonal position with reference to its direction of movement, an agitating device supported on the table underneath the apron, said device being located between the flaps and the forward end drum, means for feeding the grain to the apron, and means for propelling the latter, substantially as described.

2. In a grain-separator, the combination with a suitable frame, of an inclined table mounted thereon, an endless apron surrounding the table, means for propelling the apron in a direction at right angles to the inclination of the table, the flaps suitably supported above and engaging the apron, an agitating device supported on the table underneath the apron, said device being located between the flaps and the forward end drum, the reel underneath the apron, and suitable means for feeding the grain to the apron, substantially as described.

3. In a grain-separator, the combination with a suitable frame, of the inclined table supported thereon, an endless apron surrounding the table, means for propelling the apron in a direction at right angles to the inclination of the table, the flaps supported above and engaging the apron, and an agitating device supported on the table underneath the apron, said device being located between the flaps and the forward end drum, substantially as described.

4. In a grain-separator, the combination with a suitable frame, of the inclined table mounted thereon, the endless apron surrounding the table, means for propelling the apron in a direction at right angles to the inclination of the table, an agitating device supported on top of the table and underneath the apron, the upper extremity of said device being made fast while its lower extremity is loose, and means for actuating said device, comprising a lever fulcrumed on the frame, a spring normally holding the lower extremity of the lever in its lowest position of movement, a projection attached to the lower extremity of the lever and adapted to engage the lower extremity of the agitating device, and suitable means, as a rotating cam, for engaging the upper extremity of the lever, substantially as described.

576,991. CARRIAGE-PROTECTOR. OSCAR F. BOVIER, Ithaca, N. Y., assignor of one-half to Judson A. Elston, same place. Filed Jan. 8, 1896. Serial No. 574,778. (No model.)



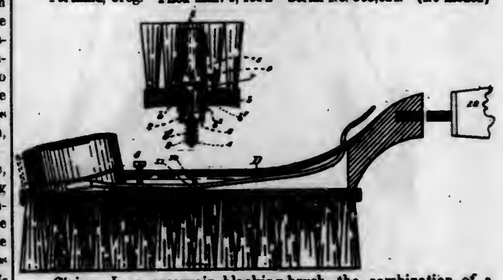
Claim.—1. A carriage-protector suitably supported out of engagement with the carriage and provided with an end integral with the sides and yet adapted to be raised to its full height independently of the remainder of the protector, substantially as set forth.

2. A carriage-protector suitably supported out of engagement with the carriage and having its side and end walls or curtains made of flexible material and united at the vertical edges by vertical folds, one of said curtains being provided with means for raising it independently of the other curtains as and for the purpose set forth.

3. A carriage-protector supported out of engagement with the carriage and having a vertically-movable front curtain integral with the side curtains and vertically movable independently of the side curtains and divided at its lower end for the accommodation of carriage shafts or pole, a stay extending across the curtain above said division, and cords for raising said curtain run through suitable loops or guides around the sides and lower ends of the divided portions and along the sides of said curtain, substantially as and for the purpose set forth.

4. The combination with the suspended supporting-frame of the cover *d*, the side and end walls or curtains hung from said frame and provided with the folds *z*, at the junctions between them, and raising-cords attached to one of the said curtains only and passing over suitable pulleys above it, substantially as set forth.

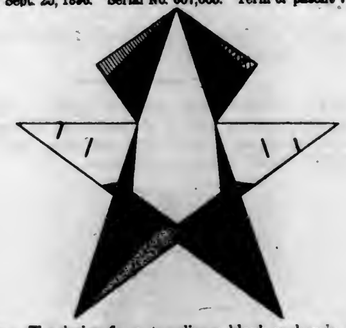
576,992. RESERVOIR BLACKING-BRUSH. WILLIAM HAYBALL, Portland, Oreg. Filed Mar. 9, 1894. Serial No. 503,021. (No model.)



Claim.—In a reservoir blacking-brush, the combination of a reservoir-chamber for containing the liquid blacking, said reservoir having a depressible portion in its casing, a swab mounted on said reservoir and having its disk apertured to communicate with the reservoir, a valve mechanism in said opening consisting of a tube or neck, a valve adapted to close the discharge end of said tube, which is itself adapted to provide a seat for said valve, a rod depending from the base of the valve, a plunger to which said rod is secured, a guide-plate in which said plunger slides, extending from said tube or neck, and a spring for holding the valve on its seat, said plunger being arranged to be actuated by the depression of the depressible portion of the reservoir-casing when ejecting the liquid blacking, substantially as described.

DESIGNS.

26,612. TOY-SLIPPER BLANK. HUGH S. KERR, Philadelphia, Pa. Filed Sept. 25, 1896. Serial No. 607,005. Term of patent 7 years.



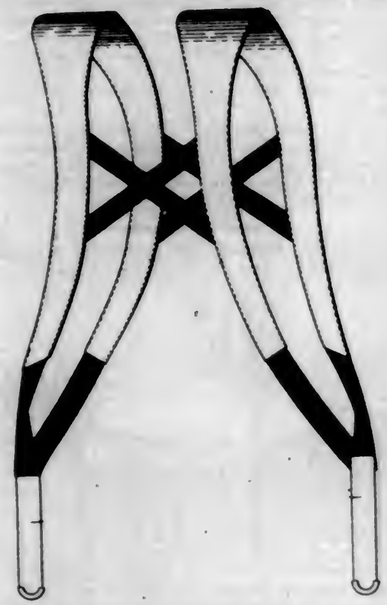
Claim.—The design for a toy-slipper blank as herein described and shown in the accompanying drawing.

26,613. NECKTIE-HOLDER. JOSEPH F. BERG, Jr., Plainfield, N. J. Filed Oct. 28, 1896. Serial No. 610,368. Term of patent 14 years.



Claim.—The design for a necktie-holder, as herein shown and described.

26,614. STOCKING-SUPPORTER. FRANK KERR, Mattoon, Ill. Filed June 1, 1896. Serial No. 593,926. Term of patent 14 years.



Claim.—The design for a stocking-supporter, substantially as shown and described.

26,615. COAT-HANGER. CHARLES M. CLINTON, Ithaca, N. Y. Filed Dec. 16, 1896. Serial No. 615,931. Term of patent 3½ years.



Claim.—The design for a coat-hanger or similar article substantially as herein described and shown.

26,616. BULB FOR INCANDESCENT LAMPS. LAWRENCE H. DOLAN, Alexandria, Ind., assignor of three-fourths to Thomas A. Nilan, Louis Kaufeld, and Valentine Libler, same place. Filed Jan. 4, 1897. Serial No. 617,964. Term of patent 7 years.



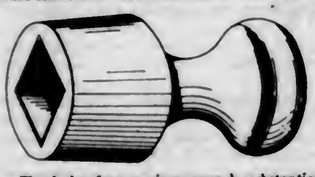
Claim.—The design for a bulb for incandescent lamps, herein shown and described.

26,617. BURNER-FIXTURE. ERNST LINDNER, New York, N. Y. Filed Dec. 23, 1896. Serial No. 616,695. Term of patent 14 years.



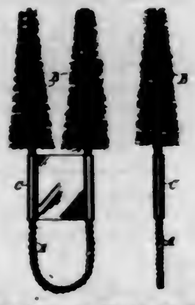
Claim.—The design for a burner-fixture, substantially as shown.

26,618. VEHICLE-WRENCH. ELLIOTT D. MOORE, Moorefield, Ohio. Filed Jan. 2, 1897. Serial No. 617,942. Term of patent 14 years.



Claim.—The design for a carriage-wrench, substantially as herein shown and described.

26,619. CYCLE-BRUSH. JOHN THOMAS BURNIP, Melbourne, Victoria. Filed Dec. 30, 1896. Serial No. 617,536. Term of patent 3½ years.



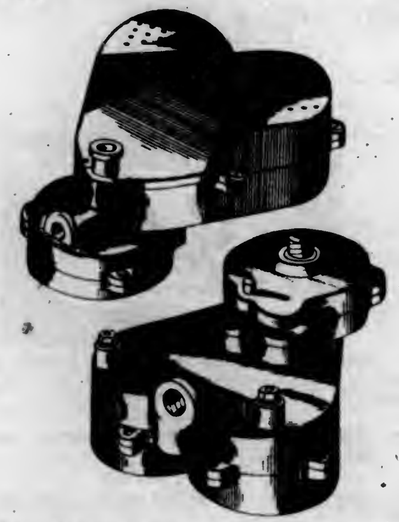
Claim.—The design for a cycle-brush herein shown and described, comprising a length of twisted wire A, bent to the form of the letter U, with a conical brush B, formed upon each end of the wire, and a cross-support C, as set forth.

26,620. CLAMP-HEAD FOR BICYCLE-SADDLES. EDWIN J. TOOF, New Haven, Conn. Filed July 27, 1896. Serial No. 600,715. Term of patent 7 years.



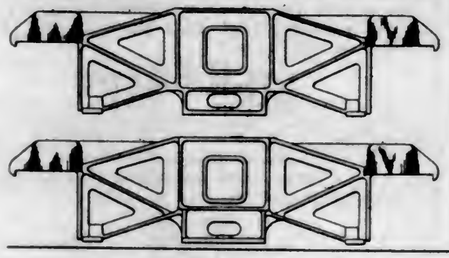
Claim.—The design for a bicycle-saddle clamp-head as herein shown and described.

26,621. CASING FOR FLUID-PRESSURE ENGINES. FRANCIS M. COMSTOCK, Topeka, Kans., assignor to the Comstock Motor Company, same place. Filed Jan. 4, 1897. Serial No. 617,963. Term of patent 14 years.

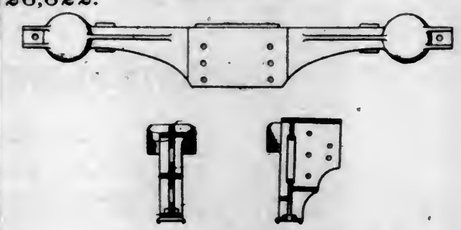


Claim.—The design for a casing for fluid-pressure engines substantially as herein shown and described.

26,622. SIDE FRAME FOR CAR-TRUCKS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Jan. 5, 1897. Serial No. 618,077. Term of patent 14 years.

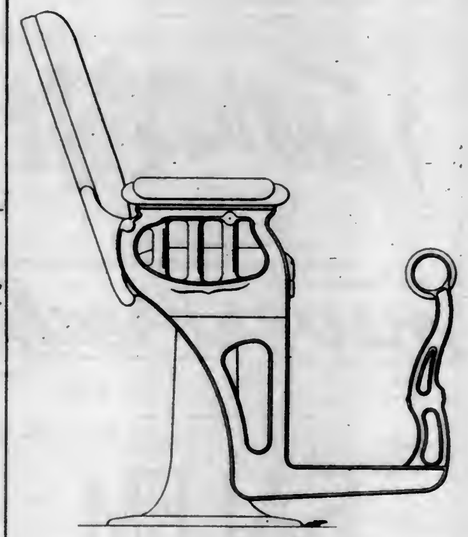


26,622.



Claim.—The design for the side frame of a car-truck, substantially as herein shown and described.

26,623. CHAIR. SAMUEL KLINE, Trenton, N. J. Filed Oct. 20, 1896. Serial No. 609,471. Term of patent 14 years.



Claim.—The design for a chair herein shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 9, 1897.

29,561. CORSETS AND PARTS THEREOF. Kops Bros., New York, N. Y. Filed Dec. 22, 1896.

CADET

Essential feature.—A diamond-shaped figure inclosing the word "CADET." Used since November 15, 1896.

29,562. CORSETS. The Warner Brothers Company, Bridgeport, Conn. Filed Dec. 24, 1896.



Essential feature.—A symbol of a violet, expressed verbally or pictorially. Used since December 15, 1896.

29,563. LACINGS. Neverbreak Shoe String Company, Boston, Mass. Filed Jan. 20, 1897.

neverbreak

Essential feature.—The word "NEVERBREAK," formed by the representation of a lacing. Used since December 21, 1896.

29,564. COTTON FABRICS. Naumkeag Steam Cotton Company, Salem, Mass. Filed Dec. 22, 1896.

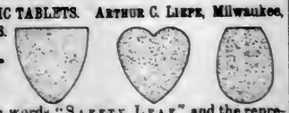
SALEM



Essential feature.—The word "SALEM" and a picture of a calf. Used since January 15, 1896.

29,565. ANTISEPTIC TABLETS. Arthur C. Liepe, Milwaukee, Wis. Filed Nov. 27, 1896.

SAFETY LEAF



Essential feature.—The words "SAFETY LEAF" and the representations, in outline, of a spade, a heart, and an almond with the end cut off. Used since November 16, 1896.

29,566. BEER AND PORTER. The Goebel Brewing Company, Detroit, Mich. Filed Jan. 2, 1897.



Essential feature.—An oblong rectangular ground or panel, an inscribed rhomboid, and the name "GOEBEL'S" printed or stamped upon the rhomboid. Used since December 8, 1896.

29,567. MALT EXTRACT. Berghein Brothers, Louisville, Ky. Filed Jan. 11, 1897.

SHAW'S

Essential feature.—The word "SHAW'S." Used since February, 1895.

29,568. MALT EXTRACT. Val. Blatz Brewing Company, Milwaukee, Wis. Filed Jan. 15, 1897.

MALT-VIVINE

Essential feature.—The word "MALT-VIVINE." Used since December 30, 1896.

29,569. WHEAT-FLOUR. Duluth Imperial Mill Company, Duluth, Minn. Filed Nov. 19, 1896.

HIGH LOAF

Essential feature.—The words "HIGH LOAF." Used since November 3, 1896.

29,570. METAL ALLOYS AND ORDNANCE METALS. Charles N. Choate, Bridgeport, Conn. Filed Jan. 14, 1897.



Essential feature.—A representation of a ring provided with spur gear-teeth on its periphery, two crossed cannon, and the words "ORDNANCE METALS." Used since December 1, 1896.

29,571. POLISH FOR IRONWARE. Aristé Martin Dumoulin, Asnières, France. Filed Jan. 13, 1897.



Essential feature.—A representation of a horseshoe. Used since September 1, 1894.

29,572. POCKET CUTLERY, RAZORS, AND SCISSORS. McIlwaine, Linn & Hughes, New York, N. Y. Filed Jan. 13, 1897.

STERLING £

Essential feature.—The word "STERLING" and a crossed "L" or mark indicating pounds sterling. Used since July 1, 1896.

29,573. AXES. James H. Mann, Lewistown, Pa. Filed Oct. 31, 1896.

RED WARRIOR

Essential feature.—The words "RED WARRIOR." Used since January 25, 1868.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

RULES OF PRACTICE

IN THE

UNITED STATES PATENT OFFICE.

REVISED FEBRUARY 9, 1897.

CORRESPONDENCE.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

POWERS OF ATTORNEY.

6. Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

APPLICATIONS.

7. A complete application must comprise a petition, specification, oath, and, when the nature of the case admits, drawings. Only when models or specimens are called for by the Office will they be retained as parts of the application.

8. The following order of arrangement must be observed in framing the specification:

(1) Preamble stating the name and residence of the applicant and the title of the invention, and, if the invention has been patented abroad, the countries in which it has been so patented and the date and number of each patent;

(2) General statement of the object and nature of the invention, except in design applications;

(3) Brief description of the several views of the drawings;

(4) Detailed description;

(5) Claims;

(6) Signature of inventor;

(7) Attestation of two witnesses.

9. All parts of an application, papers in prosecution thereof, actions therein, and the depositions in contested cases must be plainly printed or written, in the English language, on legal-cap paper, on but one side, and leaving a wide margin on the left. Interlineations and erasures must be clearly referred to in marginal notes.

10. Every application signed or sworn to in blank or without the actual inspection by the applicant of the petition and specification and every application of which any part has been altered or partly filled up after being signed or sworn to will be stricken from the files.

11. If several inventions claimed in a single application be of such a nature that a single patent may not be issued to cover them, the inventor will be required to limit the description, drawing, and claim of the pending application to the one invention which he may elect.

12. When an applicant files two or more applications relating to the same subject-matter of invention, all showing but only one claiming the same thing, the applications not claiming it must contain references to the application claiming it.

13. A reservation for a future application will not be permitted in a pending application.

14. When a forfeited application is renewed, the petition, specification, oath, and drawing of the original application may be used.

15. Papers not amounting to a complete application will be returned on request.

16. Neither files, records, models, specimens, nor compositions of matter, which by official requirement have become parts of pending cases or patent cases, will be returned; nor will they be taken from the Office for any purpose except in cases where certified copies or duplicates are not sufficient, and then only in the custody of an official where he will not be required to part with the actual possession.

17. Applications will be preserved in secrecy, except as provided in the interference rules; but copies of the files of abandoned applications, upon petition therefor, for sufficient cause, properly verified and served on the applicant or his attorney, will be furnished when ordered by the Commissioner.

OATHS.

18. The applicant, if the inventor, must make oath that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent, that he does not know and does not believe that the same was ever before known or used, and must state of what country he is a citizen and where he resides. In every original application the applicant must state,

under oath, whether the invention has been patented to himself, or to others with his knowledge or consent, in any country, and, if it has been, the country or countries in which it has been patented, giving the date and number of each patent; that it has not been patented in any other country than those mentioned, and that, according to his knowledge and belief, the invention has not been in public use or on sale in the United States for more than two years prior to the application in this country, and this oath must be subscribed by the affiant.

An additional oath will be required in cases where the applications have not been filed in the Patent Office within a reasonable time after the execution of the original oath.

DRAWINGS.

19. The drawing must show (1) every feature of the invention covered by the claims. When the invention consists of an improvement upon an old machine, the drawing must (2) exhibit the invention itself disconnected from the old structure, (3) and also in another view the specific improvement and such parts of the old structure as necessarily coöperate with it. (4) Pure white paper must be used, (5) ten by fifteen inches in size, (6) of a thickness corresponding to three-ply bristol-board, (7) calendered and smooth. (8) The views must be made with the pen only, in india-ink, to secure black and solid lines, (9) and with the fewest lines consistent with clearness. (10) They must not be too fine or crowded. (11) Surface shading must be open. (12) The different views must be consecutively numbered. (13) The same reference numerals or letters must refer to the same parts throughout all the views. (14) One of the shorter edges must be the top, (15) and a clear space of an inch and a quarter below the top marginal line must be left blank for the heading, which will be supplied by the Office in uniform style. (16) Each sheet must be signed by the inventor or the name of the inventor must be signed on the drawing by the attorney in fact (17) at the lower right-hand corner, with reference to the heading, (18) attested by two witnesses at the lower left-hand corner, (19) all views and signatures must be within marginal lines one inch from the edges, and if the drawing be arranged lengthwise of the sheet (20) the views and reference-numerals must read when the heading is toward the right. (21) One of the views best calculated to explain the nature of the invention must be designed with special reference to its reproduction in THE OFFICIAL GAZETTE on a reduced scale of about one-eighth. (22) No professional designations or advertisements or addresses will be permitted upon the face of the drawings, (23) and the drawings must not be folded for transmission to the Office.

20. All reissue applications must be accompanied by new drawings upon as large a scale as the original drawings.

MODELS.

21. The model, if called for, must clearly exhibit every feature of the mechanism which forms the subject of a claim of invention, must not be more than one foot in length, width, or height, and must be substantially made.

REISSUES.

22. The application for a reissue must be accompanied by the original patent, by an offer to surrender it if reissued, and by a certified abstract of title, giving the names of all assignees owning any interest in the patent. In case the application be made by the inventor it must be accompanied by the written assent of such assignees. If the reissue be refused, the original patent will, upon request, be returned.

23. An applicant for reissue must file with his petition a statement on oath as follows:

(1) That the original patent is inoperative or invalid.

(2) That such patent is inoperative or invalid by reason of a defective or insufficient specification, particularly specifying such defects or insufficiencies, or

(3) That such patent is inoperative or invalid by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, distinctly specifying the part or parts so alleged to have been improperly claimed as new.

(4) Specifying the facts which constitute the inadvertence, accident, or mistake under which the patent originally issued.

(5) That said errors arose without any fraudulent or deceptive intention on the part of the applicant.

THE EXAMINATION.

24. Applications will be examined in their order of filing; but the following applications will have precedence over others, in the order numbered:

(1) Applications wherein the inventions are deemed of peculiar importance to some branch of the public service, and when for that reason the head of a Department of the Government requests immediate action, and the Commissioner so orders;

(2) Applications for reissues;

(3) Applications covering inventions patented by the same inventor in foreign countries, and applications interfering therewith;

(4) Applications which would interfere with another application or with an unexpired patent;

(5) Cases remanded by an appellate tribunal for further action by the Office;

(6) Amended applications.

25. Where the specification and claims are such that the invention may be understood, the examination of a complete application and the action thereon will be directed throughout to the merits; but in each letter the Examiner shall state or refer to all his objections. Only in cases presenting patentable substance will requirements in matters of form be insisted on.

26. Suspensions of actions on applications will be granted only for cause and for a reasonable time specified.

REJECTIONS AND REFERENCES.

27. Upon the rejection of a claim in an application upon references the Examiner will cite the best

at his command, fully identified, giving also the class and subclass when patents are cited, and will apply them to the rejected claim. When the rejection is made on facts, the data will be specific, and when within the personal knowledge of an officer of the Bureau they will be supported, when called for, by his affidavit.

28. An applicant will be considered to persist in his claim for a patent without altering his specification in case he fail to act in prosecution of the same for six months after the Office action thereon, and thereupon the Examiner will make a reëxamination of the case.

29. When a claim in an application is rejected on reference to a domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing of the application on which the domestic patent issued, or before the foreign patent was issued, or before the date of the printed publication, then the patent or publication cited will not bar the grant of a patent to the applicant. When the rejection is on reference to an unexpired domestic patent which claims the rejected invention, a like affidavit to like facts will be a prerequisite to an interference involving the application and the patent.

30. In every case pending before the Office more than five years in which the record raises the presumption that there have been intentional delays in prosecution the Examiner may require the applicant to show cause why the case was not more rapidly prosecuted, and at the hearing thereon or upon failure of the applicant to appear the Examiner will determine, under all the circumstances of the case, whether there have been intentional and unreasonable delays in prosecution, and upon finding the fact to be so he will reject the case for that reason.

AMENDMENTS.

31. Before final rejection and as often as the Examiner raises new objections or presents new references or reasons for rejection the applicant may amend, but not to incorporate new matter which is a departure from the invention originally presented, unless to combine applications. Amendments objectionable for new matter and departure will be entered for consideration, and when the scope of the claims is affected the claims will be rejected, and in every case the Examiner will require the objectionable new matter to be canceled.

32. New parties may be admitted to a pending application as joint inventors, or some of the parties may be dropped, where they all consent in writing and where the non-joinder or misjoinder was by mistake and without fraudulent intent.

And applications may be amended by dividing out distinct though related inventions or by uniting two or more applications where the inventions are related, but not to put the contents of a later application into an earlier one.

33. In every amendment the matter to be stricken out or inserted must be specified and the point indicated where the erasure or insertion is to be made.

34. When an applicant presents a claim for matter originally shown or described but not substantially embraced in the statement of invention or claim originally presented, he will file a supplemental oath to the effect that the subject-matter of the proposed amendment was part of his invention, was invented before he filed his original application, was not known or used before his invention, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

35. During the pendency of an interference amendments of an application will not be entered, except to withdraw subject-matter not adjudged to interfere, or to avoid interference, or to disclaim, or to claim a patentable invention claimed by another party and shown and described but not claimed by the party who amends, or to comply with the Examiner's requirements, or to add necessary parties, or to drop parties.

36. After final rejection amendments will not be entered, except to conform to the requirements of the Examiner, or to cancel claims, or to present the twice-rejected claims and the related parts of the specification and drawings in better form for consideration on appeal.

37. After the allowance of an application amendments will not be entered except by leave and for cause.

INTERFERENCES.

38. Before an interference will be declared the invention which is to form the subject of the controversy must be claimed by every party and must be considered to be patentable to every party in the absence of the others. When an applicant who is required to put his application in other respects in condition for interference fails to do so for thirty days, he will nevertheless be made a party to the interference and the proceeding will not be further delayed.

39. When patentable substance has been found in an original or reissue application, which is also claimed, and it is found by the Primary Examiner that matter claimed therein would interfere with any pending application, or with an unexpired patent, the Primary Examiner will declare an interference, that the question of priority of invention may be determined; he will clearly define the issue or issues, designating the claims involved in each count, and will prepare notices of interference for all the parties, embodying the issues and the claims involved and disclosing the name and residence of each party, and of his attorney, and of any assignee, and if any party be a patentee, the date and number of the patent; he will determine the seniority of the parties by the filing dates of their respective applications, except when an unexpired patent is involved, in which case the patentee will be the senior party, or, if there be more than one patent involved, the patentee filing first will be senior; and he will forward to the Examiner of Interferences the

notices and a statement disclosing the foregoing matters.

40. Each party to the interference will be required to file a concise preliminary statement of the following facts, under oath, on or before a date to be fixed:

(1) The date of original conception of the invention set forth in the declaration of interference;

(2) The date upon which a drawing of the invention was made;

(3) The date upon which a model of the invention was made;

(4) The date upon which the invention was first disclosed to others;

(5) The date of the reduction to practice of the invention;

(6) A statement of the extent of use of the invention.

If a drawing or model has not been made, or if the invention has not been reduced to practice or disclosed to others, or used to any extent, the statement must specifically disclose these facts.

When the invention was made abroad the statement must set forth:

(1) That applicant made the invention set forth in the declaration of interference;

(2) Whether or not the invention was ever patented; if so, when and where, giving the date and number of each patent;

(3) Whether or not the invention was ever described in a printed publication; if so, when and where, giving the title, place, and date of such publication;

(4) Whether the invention was ever introduced into this country; if so, giving the circumstances, with the dates connected therewith, which are relied upon to establish the fact.

41. The statement must be sealed up in a separate envelop before filing, and the name of the party filing it, the title of the case, and the subject of the invention indicated on the envelop.

42. The preliminary statements will not be open to the inspection of opposing parties until each shall have been approved, or the time for filing the same shall have expired, and it also appears that further testimony must be submitted. After the time for filing preliminary statements has expired, and after the approval of such as have been submitted, the parties will be permitted to see and to obtain copies of each other's file-wrappers and so much of their contents as relate to the interference.

43. From any party in default in filing or perfecting his preliminary statement no testimony will be received to prove that he made the invention at a date prior to his application.

44. When an application is involved in an interference in which a part only of the invention is included in the issue, the applicant may file certified copies of the parts of the specification, claims, and drawings which cover the interfering matter, and such copies may be used in the proceeding in place of the original application, and the application will then be withheld from inspection.

45. When an application involved in an interference shows and describes, without claiming, a patentable invention claimed by another party thereto, the applicant may, at any time within twenty days after the preliminary statements have been approved, on motion duly made, file an amendment of his application claiming such invention, and on the admission of such amendment such claim will be included in the interference.

46. When there is ground for belief that a party in an interference has not received the notice of the proceeding and does not know of it, further notice will be given in THE OFFICIAL GAZETTE.

47. The Primary Examiner will dissolve an interference, first, when no interference in fact exists; second, when there has been such irregularity in declaring the same as will preclude the proper determination of the question of priority or originality; third, when the claims involved in the interference are not patentable; fourth, when a party has no right to make the claims; fifth, upon the filing of a declaration of abandonment of invention; sixth, upon the filing of a disclaimer of all the interfering matter or on the filing of a declaration of abandonment of the application, if in either case this is done before the preliminary statements are open to opponents; but if filed later the consideration of such disclaimer or declaration of abandonment will be postponed until after a decision of the question of priority or originality of invention.

48. The Examiner of Interferences will issue the notices of the interference proceeding, will fix times for filing the preliminary statements and determine their sufficiency, will fix times for the taking of testimony, will transmit allowable motions concerning the burden of proof, patentability, interference in fact, and irregularity in declaring the interference to the Primary Examiner, and will himself decide all other motions and questions of form and procedure in interference practice, and will determine the questions of priority or originality of invention, and fix the limit of appeal.

49. Motions made in good faith within twenty days after the preliminary statements have been approved and not intended for delay will be decided on interlocutory hearing, but not motions that can be as well determined at the hearing on the merits or afterward. Successive motions will not be heard, nor will motions made later than twenty days after the preliminary statements have been approved, unless upon a showing that they could not have been made earlier.

50. Motions will not operate as a stay, except by leave, for cause.

51. In interference cases, when another applicant appears who will ultimately be in interference concerning the same subject-matter, he and all the parties to the pending proceeding will be notified, and on seasonable motion by any of them he may be made a party to the pending proceeding upon such terms as to testimony that may already have been taken as the Examiner of Interferences may prescribe, if such course would more advantageously dispose of the whole contention between all parties, and under the same condition, when new ref-

erences are discovered, the interference may be suspended to consider them.

52. In interference cases the question of priority or originality of invention will be determined, either upon the testimony, or upon a concession of priority, or by judgment against the junior parties upon the record, or by default.

53. Whenever a final award of priority has been made in an interference, the claims of the defeated party involved in the issue which are made or can be made by the prevailing party will be finally rejected; but other claims which cannot be made by the prevailing party may be allowed to a defeated party.

54. The application of the successful party in interference cases will not be passed to issue until the limit of appeal has expired, and in cases decided by the Commissioner not until forty days after the date of his decision, unless the defeated parties shall waive their right of appeal.

TESTIMONY IN INTERFERENCES, PUBLIC-USE PROCEEDINGS, AND OTHER CONTESTED CASES.

55. Reasonable notice shall be given to opposing parties, as hereinafter provided, of the time when and place where depositions will be taken, of the cause or matter in which they are to be used, and of the names and residences of witnesses to be examined, and the opposing party shall have full opportunity to cross-examine the witnesses. Neither party shall take testimony in more than one place at the same time, nor so nearly at the same time that reasonable opportunity for travel from one place of examination to the other cannot be had.

56. Service of such notice may be made (1) by delivering a copy of the notice to the adverse party or to his attorney; (2) by leaving a copy at the usual place of business of the adverse party or with his attorney or some one in his employment; (3) when such adverse party or his attorney has no usual place of business, by leaving a copy at his residence, with a member of his family over fourteen years of age and of discretion; (4) by transmission by registered letter; (5) by express, or (6) in such manner as the Commissioner may order. Such notice shall, with sworn proof of the fact, time, and mode of service thereof, be attached to the depositions, whether the opposing party shall have cross-examined or not.

57. Each witness before testifying shall be duly sworn according to law by the officer before whom his deposition shall be taken. The pages of each deposition must be numbered consecutively and the name of the witness written at the top of each page. The testimony will be taken in answer to interrogatories, with the questions and answers committed to writing in their regular order by the officer, or in his presence by some person not interested in the case either as a party thereto or as attorney; but the depositions may be written out by other persons in the presence of the officer or may be taken stenographically in presence of the officer, and when written out shall be read by or to the witness and then signed by him in the presence of the officer. The officer shall annex to the deposition his certificate showing (1) the due administration of the oath by the officer to the witness before the commencement of his testimony; (2) the name of the person by whom the testimony was written out, and the fact that, if not written by the officer, it was written or taken stenographically in his presence; (3) the presence or absence of the adverse party; (4) the place, day, and hour of commencing and taking the deposition; (5) the reading by or to each witness of his deposition before he signs the same, and (6) the fact that the officer was not connected by blood or marriage with either of the parties, nor interested, directly or indirectly, in the matter in controversy. The officer shall sign the certificate and affix thereto his seal of office, if he have such seal. He shall then, without delay, securely seal up all the evidence, notices, and paper exhibits, inscribe upon the envelop a certificate, giving the title of the case, the name of each witness, and the date of sealing, address the package, and forward the same to the Commissioner of Patents. If the weight or bulk of an exhibit shall exclude it from the envelop, it shall be authenticated by the officer and transmitted in a separate package, marked and addressed as above provided.

58. Upon notice given to the opposite party before the closing of the testimony any official record and any special matter contained in a printed publication, if competent evidence and pertinent to the issue, may be used as evidence at the hearing.

59. All depositions which are taken must be duly filed in the Patent Office. On refusal to file, the Office at its discretion will not further hear or consider the contestant with whom the refusal lies, and the Office may, at its discretion, receive and consider a copy of the withheld deposition, attested by such evidence as is procurable.

60. By leave of the Commissioner, first obtained, testimony may be taken in foreign countries upon complying with the following requirements:

(1) Such permission will be granted only upon motion duly made designating a place for the examination of the witnesses at which an officer duly qualified to take testimony under the laws of the United States in a foreign country shall reside, and it must be accompanied by a statement under oath that the motion is made in good faith and not for purposes of delay, setting forth the names of the witnesses, the particular facts to which it is expected each will testify, and the grounds on which is based the belief that each will so testify.

(2) It must appear that the testimony desired is material and competent and that it cannot be taken in this country at all or without hardship and injury to the moving party greatly exceeding that to which the opposite party will be exposed by the taking of such testimony abroad.

(3) Upon the granting of such motion a time will be set within which the moving party shall file in duplicate the interrogatories to be propounded to each witness, and serve a copy of the same upon each adverse party, who may, within a designated time, file, in duplicate, cross-interrogatories. Ob-

jections to any of the interrogatories or cross-interrogatories may be filed at any time before the depositions are taken, and such objections will be considered and determined upon the hearing of the case.

(4) As soon as the interrogatories and cross-interrogatories are decided to be in proper form the Commissioner will cause them to be forwarded to the proper officer with the request that, upon payment of or satisfactory security for his official fees, he notify the witnesses named to appear before him within a designated time and make answer thereto under oath, and that he reduce their answers to writing and transmit the same, under his official seal and signature, to the Commissioner of Patents, with the certificate prescribed in Rule 57.

(5) By stipulation of the parties the requirements of paragraph 3 as to written interrogatories and cross-interrogatories may be dispensed with, and the testimony may be taken before the proper officer upon oral interrogatories by the parties or their agents.

61. In contested cases six copies of the printed testimony, including the notices of the interference and the preliminary statements, must be furnished one week before the day of hearing; but testimony filed in manuscript cannot be withdrawn by the parties for printing. When desired, the Office will print the testimony at the cost of the parties.

62. Testimony taken in any proceeding in the Patent Office may be used in any other proceeding between the same parties, so far as relevant and material.

APPEALS, PETITIONS, AND MOTIONS.

63. In appealable cases in which no limit of appeal is fixed no appeal will be entertained by any tribunal in the Office unless taken within six months from the action which puts the case in condition for appeal, unless it be shown to the satisfaction of the Commissioner that such delay was unavoidable.

64. Petitions to the Commissioner will lie only from actions which in substance have been twice considered by the Examiner or a second consideration waived.

65. The action of the Primary Examiner or of the Examiner of Interferences will not be reviewed or his discretion controlled in matters of form or procedure, except when there has been an abuse of discretion.

66. No appeal on the patentability of an opponent's claim or upon an opponent's right to make the claim will be heard.

67. Questions *inter partes* before the Primary Examiner will be *inter partes* on appeal.

68. In *ex parte* cases matters of form and procedure, when reviewable under the foregoing rules, and the question of division, may be brought up by petition to the Commissioner. In contested cases matters of form and procedure may be brought up by appeal on motion.

69. Appeals and petitions must contain a specific statement of the reasons therefor.

70. Notices of appeals and motions in contested cases must be served upon all the opposing parties unless such notice is dispensed with for cause.

71. In *ex parte* cases upon the filing of an appeal or petition the Primary Examiner shall, ten days before the date of hearing, furnish the appellate tribunal and the appellant or petitioner with a statement of the grounds of his decision.

72. In contested cases the parties will file six copies of their printed briefs, the junior party or the appellant five days before the hearing and the senior party or the appellee one day.

73. The Examiners-in-Chief and the Examiner of Interferences will direct the attention of the Commissioner to any matter which in any case before them establishes the fact that no interference exists, or that there has been fatal irregularity in declaring the same, or which amounts to a bar to the grant of a patent, or which anticipates any claim.

74. When an appeal is taken to the Court of Appeals of the District of Columbia, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within forty days from the date of the decision appealed from, his reasons of appeal, specifically set forth in writing.

75. Cases heard by an appellate tribunal will not be further acted upon by the Primary Examiner except for the consideration of matters not adjudicated, nor will amendments be received except to carry out recommendations or official requirements, unless by consent of the Commissioner.

76. Cases will not be reheard except upon the principles applied by courts in the granting of rehearings or upon the principles governing new trials at law.

ALLOWANCE.

77. After the notice of allowance of an application is given, the case will not be withdrawn from issue on account of any mistake or change of purpose of the applicant or of his attorney, nor for the purpose of enabling the inventor to procure a foreign patent, nor in any other case, without the approval of the Commissioner.

78. The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

79. The patent will be delivered or mailed on the day of its date to the attorney of record, if there be one; if not, to the patentee; or, if the attorney so request, to the patentee or assignee of an interest therein.

ASSIGNMENTS.

80. If the assignee hold an undivided part interest, the patent will, upon request, issue jointly to the inventor and the assignee; but the assignment must first have been entered of record and at a day not later than the date of the payment of the final fee; and if the assignment be dated subsequently to the execution of the application, it must give the date of execution of the application, or the date of filing, or the serial number.

81. No instrument will be recorded which does

not, in the judgment of the Commissioner, amount to an assignment, grant, mortgage, lien, incumbrance, or license, or which does not affect the title of the patent or invention to which it relates. Such instrument should identify the patent by date and number; or, if the invention be unpatented, the name of the inventor, the serial number, and date of the application should be stated.

An order for a copy of an assignment must give the book and page of the record.

CORRECTION OF PATENTS.

82. Whenever a mistake, incurred through the fault of the Office, is clearly disclosed by the records or files of the Office, a certificate stating the fact and nature of such mistake, signed by the Secretary of the Interior, countersigned by the Commissioner of Patents, and sealed with the seal of the Patent Office, will, at the request of the patentee or his assignee, be indorsed without charge upon the Letters Patent and recorded in the records of patents, and a printed copy thereof attached to each printed copy of the specification and drawing.

Whenever a mistake, incurred through the fault of the Office, constitutes a sufficient legal ground for a reissue, such reissue will be made, for the correction of such mistake only, without charge of Office fees, at the request of the patentee.

Mistakes not incurred through the fault of the Office and not affording legal grounds for reissues will not be corrected after the delivery of the Letters Patent to the patentee or his agent.

CAVEATS.

83. Caveats must comprise a petition, a specification, oath, and, when the nature of the case admits of it, a drawing.

PAYMENTS AND FEES.

84. All payments to the Office must be made in certificates of deposit, post-office money-orders, or certified checks, payable to the order of the Commissioner of Patents or indorsed to him, or in cash, and must be accompanied by a letter stating the amount and for what purpose it is to be applied. After the payment of money has been made, except for final fees, it will not be repaid upon a change of purpose or the abandonment of any application or appeal.

85. Office fees must be paid in advance and all transportation charges prepaid.

EQUITY.

86. The Office, to the extent of its jurisdiction, will consider equitable rights and apply equitable remedies, and whenever the foregoing rules and the established rules of equity are at variance respecting the same matter the rules of equity will prevail, except in matters concerning the ownership or title of inventions, applications, patents, or interests therein.

87. It is the design of the Constitution and the patent laws to secure to the inventor not that which is a matter of common right, nor the property of another, but what he has himself created. The duty of the Office is to grant nothing which already belongs to the domain of the public, but, on the other hand, not to withhold from the inventor any portion of the full benefit of his invention. Its function is to draw the line with even justice between the two.

The foregoing rules are intended to secure this object, and therefore are to be construed and applied in that sense and toward that end.

The foregoing rules are hereby established for the conduct of proceedings in the Patent Office and all other rules and practices, inconsistent herewith, are hereby repealed and annulled, and these regulations will be in effect on and after February 9, 1897.

(Signed) JOHN S. SEYMOUR,
Commissioner of Patents.

Approved:
(Signed) DAVID R. FRANCIS,
Secretary of the Interior.

APPENDIX.

FEES AND PRICES OF PUBLICATIONS OF THE U. S. PATENT OFFICE.

The following is the schedule of fees and of prices of publications of the Patent Office:

On filing each original application for a patent, except in design cases	$15.00
On issuing each original patent, except in design cases	20.00
In design cases:	
For three years and six months	10.00
For seven years	15.00
For fourteen years	30.00
On filing each caveat	10.00
On every application for the reissue of a patent	30.00
On filing each disclaimer	10.00
On an appeal for the first time from the Primary Examiners to the Examiners-in-Chief	10.00
On every appeal from the Examiners-in-Chief to the Commissioner	20.00
For certified copies of patents and other papers, including certified printed copies, per hundred words	.10
For recording every assignment, agreement, power of attorney, or other paper, of three hundred words or under	1.00
Of over three hundred and under one thousand words	2.00
Of over one thousand words	3.00

For copies of drawings not in print, the reasonable cost of making them.	
For the drawings, if in print	.05
For certified copies of printed patents:	
For specification and drawing, per copy	.05
For the certificate	.25
For the grant	.50
For twenty-coupon orders, each coupon good for one copy of a printed specification and drawing	1.00
For one hundred coupons in stub-book	5.00
For uncertified printed copies of the specifications and accompanying drawings of patents, each	.05
When ordered by subclasses, each	.03
When ordered by classes, each	.02
And when the entire set of all patents granted is ordered, each	.01
For certifying to a duplicate of a model	.50
For abstracts of title to patents or inventions:	
For the certificate of search	1.00
For each brief from the digest of assignments	.20
For copies of matter in any foreign language, for every one hundred words or a fraction thereof	.10
For translation, for every one hundred words or fraction thereof	.50
THE OFFICIAL GAZETTE:	
To subscribers within the United States, Mexico, and Canada, one year	5.00
To foreign subscribers, except in Canada and Mexico	10.00
Single numbers	.10
For bound volumes of THE OFFICIAL GAZETTE:	
Semiannual volumes, from January 1, 1872, to June 30, 1883, full sheep binding, per volume	4.00
In half sheep binding, per volume	3.50
Quarterly volumes subsequent to July 1, 1883, full sheep binding, per volume	2.75
For the annual index—from January, 1872—full law binding, per volume	2.00
In paper covers, per volume	1.00
For the general index—a list of inventions patented from 1790 to 1873—three volumes, full law binding, per set	10.00
For the index from 1790 to 1836—one volume, full law binding	5.00
For the monthly volumes, containing the specifications and photolithographed copies of the drawings of all patents issued during the month, certified, bound full sheep, per volume	5.00
In half sheep, per volume	3.00
For the index to patents relating to electricity, granted by the United States prior to June 30, 1882, one volume, 250 pages, bound	5.00
In paper covers	3.00
Annual appendixes for each fiscal year subsequent to June 30, 1882, paper covers	1.50
For Commissioner's Decisions:	
For 1869–'70–'71, one volume, full law binding	2.00
For 1872–'73–'74, one volume, full law binding	2.00
For 1875–'76, in one volume, with decisions of United States courts in patent cases, full law binding	2.00
In paper covers	1.00
Subsequent annual volumes with decisions of United States courts, full law binding, per volume	2.00
In paper covers	1.00

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[BY AUTHORITY OF CONGRESS.]

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Belgian Patents.

In reply to an inquiry from this Office notice has been received, through the Minister of the United States at Brussels, from the Belgian patent authorities, that it is not deemed advisable to publish their patents *in extenso*, and that no fuller description than that contained in the short abstract of the *Recueil Officiel* will be given. Complete copies may be obtained from the Belgian Patent Office on payment of the expense of reproduction.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

INDEX TO FRENCH PATENTS, 1791 to 1879, inclusive, (subject-matter,) one volume, 935 pages, bound in cloth	$10 00
INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pages—	
Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Notice.

On the 9th day of February, 1893, the President approved "An act to establish a Court of Appeals for the District of Columbia, and for other purposes," which contains the following:

Sec. 9. That the determination of appeals from the decision of the Commissioner of Patents, now vested in the general term of the Supreme Court of the District of Columbia, in pursuance of the provisions of section seven hundred and eighty of the Revised Statutes of the United States, relating to the District of Columbia, shall hereafter be and the same is hereby vested in the court of appeals created by this act; and in addition, any party aggrieved by the decision of the Commissioner of Patents in any interference case may appeal therefrom to said court of appeals.

Sec. 17. That all acts and parts of acts inconsistent herewith are hereby repealed.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 86 pages. In paper covers, $1.50.

Vol. 12. Appendix No. 12, July 1, 1892, to June 30, 1893. One volume, 80 pages. In paper covers, $1.50.

Vol. 13. Appendix No. 13, July 1, 1893, to June 30, 1894. One volume, 70 pages. In paper covers, $1.50.

Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 68 pages. In paper covers, $1.50.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Issue of February 16, 1897.

Patents	413—No. 576,993 to No. 577,405, inclusive.
Designs	43—No. 26,634 to No. 26,676, inclusive.
Trade-Marks	1—No. 20,574.
Labels	None.
Prints	None.
Reissues	None.
Total issue	457

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	6		New Hampshire	1	
Arizona Territory			New Jersey	23	
Arkansas	1		New Mexico Territ'y		
California	4		New York	84	1
Colorado	6		North Carolina	1	
Connecticut	13		North Dakota		
Delaware	2		Ohio	23	
District of Columbia	1		Oklahoma Territory		
Florida			Oregon	3	
Georgia	3		Pennsylvania	42	
Idaho	1		Rhode Island	3	
Illinois	40		South Carolina		
Indian Territory			South Dakota		
Indiana	13		Tennessee	2	
Iowa	10		Texas	3	
Kansas	7		Utah	6	
Kentucky	3		Vermont		
Louisiana	5		Virginia	6	
Maine	2		Washington	3	
Maryland	8		West Virginia	1	
Massachusetts	32		Wisconsin	9	
Michigan	23		Wyoming		
Minnesota	4		U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	12				
Montana	3		Total to citizens of the United States	421	1
Nebraska	2				
Nevada	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands	1	
Austria-Hungary			Newfoundland		
Barbadoes			New South Wales		
Belgium			New Zealand	1	
Bermuda			Norway		
Brazil			Orange Free State		
Canada	2		Portugal		
Canary Islands			Queensland	1	
Cape Colony			Russia	1	
Ceylon			Scotland		
Chile, Republic of			South African Republic		
Colombia			South Australia		
Cuba			Straits Settlements		
Denmark			Sweden	1	
England	18		Switzerland		
France	2		Victoria		
Germany	8		West Australia		
Guatemala					
India					
Ireland			Total to citizens of foreign countries	35	
Italy					

APPLICATIONS UNDER EXAMINATION.

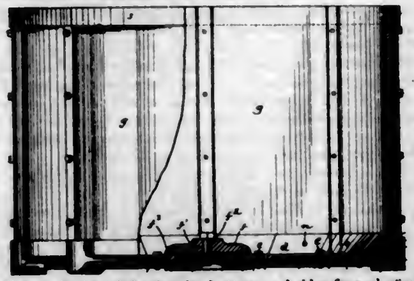
Condition at Close of Business February 9, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears.—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 9	Jan. 30	265
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 14	Jan. 25	166
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 11	Jan. 25	171
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Jan. 9	Jan. 22	113
215	XVII. Paper Manufactures and Printing.	Jan. 9	Jan. 18	127
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 11	Jan. 16	181
256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 9	Jan. 16	211
253	X. Carriages and Wagons	Jan. 11	Jan. 14	265
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 9	Jan. 14	296
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Jan. 11	Jan. 11	209
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 9	Jan. 11	243
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Jan. 9	Jan. 11	300
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Jan. 9	Jan. 9	311
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 9	Jan. 9	335
246	I. Tillage and Fences	Jan. 11	Jan. 6	180
221	XXIII. Instruments of Precision, Acoustics, etc.	Jan. 11	Jan. 2	313
106	II. Farm Stock, Products, etc.	Jan. 9	Dec. 17	399
	Between one and two months.			
98	XXI. Textiles, etc.	Jan. 6	Jan. 9	198
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 24	Jan. 8	158
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Jan. 4	Jan. 6	194
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Jan. 4	Jan. 6	327
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Jan. 4	Jan. 6	342
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 5	Jan. 4	245
248	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Jan. 4	Jan. 4	288
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 2	Jan. 4	264
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Dec. 26	Jan. 2	370
240	VII. Harvesters, Games and Toys, and Velocipedes.	Dec. 21	Jan. 2	1136
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 28	Dec. 31	370
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Dec. 24	Dec. 26	476
102	XIX. Stoves and Furnaces	Dec. 19	Dec. 23	397
248	XVIII. Steam-Engineering, etc	Dec. 14	Dec. 24	256
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 16	Dec. 18	577
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 11	Dec. 11	373
	Total number of applications awaiting action			9,953
	Under one month in arrears.			
	Designs	Jan. 16	Feb. 1	174
	Trade-Marks	Jan. 11	Jan. 19	126

PATENTS

GRANTED FEBRUARY 16, 1897.

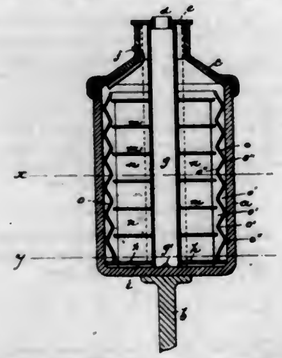
576,993. TANK. JOHN W. ABRAHAMS, Allegheny, Pa. Filed June 20, 1896. Serial No. 596,295. (No model.)



Claim.—1. A tank having its bottom and sides formed of sections of sheet-metal plates, ribs having channels therein, said plates having their edges bent to engage said channels, bars fitting in said channels and secured to said ribs, arc-shaped metal strips having upwardly-extending flanges engaging the lower edges of the side plates and inwardly-extending flanges engaging the outer edges of the bottom plates, enlargements on the ends of said strips forming seats for the side and bottom ribs, arc-shaped metal strips on the interior of the tank, and bolts passing through said strips, substantially as set forth.

2. A tank having its bottom and sides formed of sections of sheet-metal plates, ribs having channels therein, said plates having their edges bent to engage said channels, bars fitting in said channels and secured to said ribs, arc-shaped metal strips having upwardly-extending flanges engaging the lower edges of the side plates and inwardly-extending flanges engaging the outer edges of the bottom plates, enlargements on the ends of said strips forming seats for the side and bottom ribs, arc-shaped metal strips on the interior of the tanks, and bolts passing through said strips, arc-shaped metal strips on the interior of the tank triangular in cross-section, and bolts passing through said strips, substantially as set forth.

576,994. CENTRIFUGAL CREAMER. OSCAR ANDERSON, Newark, N. J. Filed Jan. 23, 1896. Serial No. 576,519. (No model.)



Claim.—1. The combination with a rotary bowl and means for rotating the same, of a milk-supply tube arranged at the center of the bowl and imperforate to deliver all the milk at the bottom thereof, a series of horizontal or outwardly-extending partitions arranged within the bowl and fixed to said milk-supply tube and removable therewith and the perforated and irregular cylindrical partition arranged outside of said horizontal partitions, all substantially as set forth.

2. The combination with the rotary bowl having openings therein for the new milk, cream and blue milk, and means for rotating said bowl, of a series of partitions arranged within said bowl and forming a vertical series of chambers at or near the center of the bowl, and a vertical partition arranged outside of and around said chambers within said bowl, the last partition having irregular surfaces and provided with openings for the cream and blue milk at points in its vertical length closely adjacent to the edges of the first said partition, all substantially as set forth.

3. The combination with the rotary bowl having ducts for the blue milk, cream and new milk, and means for rotating said bowl, of a central feed-tube *g*, imperforated to deliver all the milk at one end of the bowl, partitions *m*, extending outward from said feed-tube and a cylindrical partition arranged around said partitions *m*, and provided with blue-milk and cream passages, substantially as set forth.

4. In a centrifugal creamer, the combination with the bowl *a*, and means for rotating the same, of a cylindrical partition, comprising a plate having protuberances and opposite corresponding recesses, the protuberances bearing directly upon the bowl and holding the cylinder in place, said protuberances being perforated near their apices and bases to allow of the flow of blue milk and cream therethrough, and leaving blue-milk passages entirely therearound to allow both a vertical and horizontal flow, substantially as set forth.

5. In a centrifugal creamer, the combination with the bowl and means for operating the same, of a cylinder open at its opposite ends and having protuberances entirely surrounded by passages for the fluid, to allow a free horizontal and vertical flow, each protuberance being perforated near its point of farthest outward projection and the cylinder being also perforated at the base of its protuberances, substantially as set forth.

6. In a centrifugal creamer, the combination with the bowl, and means for operating the same, of a sheet-metal cylinder with protuberances which do not extend continuously around the periphery of the bowl, said protuberances being stamped or pressed in said cylinder to give the same irregularity of shape, the protuberances leaving passages for the fluid entirely around the same and having perforations at or near their apices and bases, substantially as set forth.

7. In a centrifugal creamer, the combination with the bowl and means for operating the same, of a sheet-metal cylinder with discontinuous peripheral protuberances on the outside and corresponding recesses on the inside, the protuberances being entirely surrounded with fluid-passages admitting both a horizontal movement of the fluid and a vertical flow as it gradually passes to its exit, said cylinder having perforations for the cream and blue milk, all substantially as set forth.

8. In a centrifugal creamer, the combination with a rotary bowl and means for operating the same, of a perforated partition comprising a piece of impressed sheet metal, turned into a cylindrical form, the impressions due to the stamping, forming peripherally-discontinuous perforated protuberances on one side of the cylinder and recesses at the other side, the protuberances admitting a vertical flow of fluid between, substantially as set forth.

9. In a centrifugal creamer, the combination with the bowl and means for operating the same, of a sheet-metal cylinder with protuberances and perforations, and a frame having partitions forming a vertical series of chambers, the outer edges of the said partition extending out to the inner side of the cylinder at the bases of the protuberances, and ducts whereby the bowl may be supplied with milk at one end and the cream and blue milk may be separately emitted at the other, substantially as set forth.

10. In a centrifugal creamer, the combination with the bowl and means for operating the same, of a sheet-metal cylinder having protuberances and perforations, and a frame comprising an imperforate milk-supply tube having partitions forming a vertical series of chambers and a flange on which the said cylinder is seated, substantially as set forth.

11. In a centrifugal liquid-separator, the combination with the bowl and means for operating the same, of the milk-supply tube open to receive the milk at one end of the bowl and to deliver the same at the other, a series of partitions *m*, fastened upon said tube and

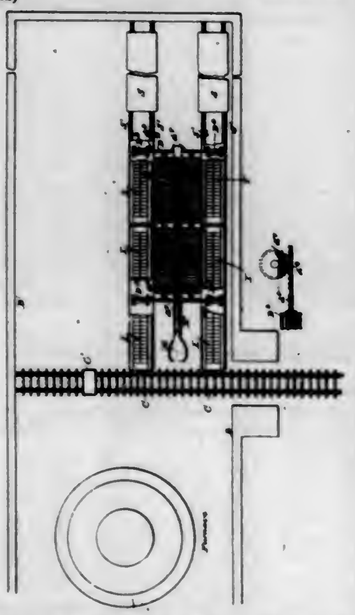
extending laterally therefrom and forming chambers therebetween, said chambers having open communication with one another near said milk-supply tube to allow a flow of cream at the cream-wall and direct communication of the said milk-tube with said chambers being cut off or closed to prevent an intermingling of the new milk with the cream of the cream-wall, substantially as set forth.

12. In a centrifugal separator, the combination with the bowl and means for operating the same, of the new-milk-supply tube, open to receive the milk at one end of the bowl, and to deliver the same at the other, a series of partitions fastened thereto and extending laterally therefrom, forming chambers between which are open to one another near said tube, to allow a flow of cream at the cream-wall, wings n, arranged between said partitions and extending from one to another to strengthen said partitions in their relations to one another, substantially as set forth.

13. In a centrifugal creamer, the combination with the bowl and means for operating the same, of a milk-supply tube having a series of laterally-exteeding partitions fastened thereto forming chambers therebetween which latter are closed from direct communication with the passages for the new milk within said tube but are open at or near said tube to allow a flow of cream from one chamber to the next, and a cylindrical partition arranged within the bowl at the interior wall thereof and having perforated protuberances and corresponding recesses, the partition being also perforated at said recesses, the lateral partitions of the milk-supply tube extending out to the cylinder and the recesses serving as fluid-passages from one chamber to another, substantially as set forth.

14. The combination with the rotary bowl and means for operating the same, said bowl having exits and inlets for the new milk, cream and blue milk, of an interior irregularly-formed cylindrical partition, a tube disposed centrally within said partition, and a series of horizontal partitions disposed around said tube, said tube having an opening for the emission of milk at one end of said series of horizontal partitions only, so that the milk will all be forced to flow over the edges of said partitions, substantially as set forth.

576,995. **CASTING APPARATUS OR PLANT.** DAVID BAKER, Sparrow's Point, Md. Filed June 24, 1896. Serial No. 596,712. (No model.)



Claim.—1. In a casting apparatus, the combination with the longitudinally-traveling, tilting runner having oppositely-projecting discharge lips or spouts, of beds of non-communicating molds at opposite sides of the runner, substantially as set forth.

2. In a casting apparatus, the combination with the longitudinally-traveling, axially-tilting runner having oppositely-projecting pouring-outlets, of tilting, reversible beds of oppositely-facing molds at opposite sides of the runner, substantially as set forth.

3. The traveling runner having opposite discharging-outlets and provided with trucks on which it tilts.

4. The traveling runner having opposite discharging-outlets, and trucks supporting said runner, and geared thereto, to permit the runner to tilt and bring either discharge-outlet into operation, substantially as set forth.

5. The traveling runner having opposite discharging-outlets, trucks supporting the runner, and geared thereto, to permit the runner to tilt, in combination with a longitudinal rack connecting the trucks, and a gear-wheel engaging the rack to move the runner back and forth, substantially as set forth.

6. The combination with the tilting runner, of a lever mechanism having oppositely-operating arms projecting across the upper edges of the runner to depress either edge thereof, substantially as set forth.

7. The combination with the tilting runner, of a lever mechanism having oppositely-operating arms provided with rollers, engaging the upper edges of the runner to depress either edge thereof, substantially as set forth.

8. In a casting apparatus, the combination with the molds, of an inclined surface thereunder, to receive the articles discharged from the molds, a track below the lower edge of said inclined surface, a dumping-car thereon to receive the articles from the said inclined surface; said car having a sectional deck or platform to discharge the molded articles gradually, substantially as set forth.

9. In a casting plant or apparatus, the combination with the molds, the inclined surface thereunder, the track below the lower edge, of the said inclined surface, a transfer or dumping car on the track to receive the molded material from the inclined surface, and a guard or buffer above the track at the outer side of the car to prevent the falling articles from shooting off of the car, substantially as set forth.

10. In a casting plant or apparatus, the transfer or dumping car having its deck or platform divided into separate and independent series of sections hinged at their outer ends to the sides of the car to swing downwardly; the inner ends of the two series of sections overlapping and a series of latches along one side of the car and holding the adjacent series of deck or platform sections in their raised positions; said locked series in turn holding up the opposed series of sections, substantially as set forth.

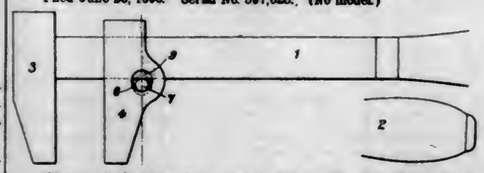
11. In a casting plant or apparatus, a traveling and tilting runner, and tilting mold-beds at opposite sides thereof, of oppositely-inclined surfaces under said mold-beds to receive the articles discharged from the molds and direct them downwardly and outwardly, substantially as set forth.

12. In a casting plant or apparatus, the combination with the traveling and tilting runner, and the tilting mold-beds at opposite sides thereof, of the oppositely-inclined surfaces beneath said beds to receive the molded articles and guide them downwardly and outwardly and transfer-cars to receive the articles from said surfaces, substantially as set forth.

13. In a casting plant or apparatus, the combination with the traveling furnace-ladle, the tilting pouring-basin supplied thereby, and a short runner leading from the pouring-basin, of a traveling and tilting runner into which said short runner discharges, and beds of molds at opposite sides of the traveling runner, substantially as set forth.

14. A casting plant or apparatus, comprising the traveling furnace-ladle, the tilting pouring basin or reservoir supplied thereby, a short runner into which said basin discharges, a traveling and tilting runner into which said short runner discharges and provided with oppositely-discharging outlets means for operating the traveling runner, beds of tilting molds at opposite sides of the runner and provided with operating mechanisms for tilting them, inclined surfaces below said mold-beds and cars at the lower edges of the inclined surfaces to receive the molded articles therefrom and transfer them to the freight-cars or other point, substantially as set forth.

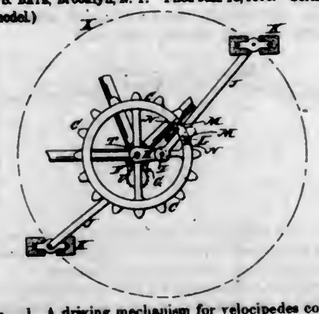
576,996. **MONKEY-WRENCH.** WALKER B. BARTRAM, Redding, Conn., assignor of one-half to Edgar B. Bartram, Bridgeport, Conn. Filed June 26, 1896. Serial No. 597,025. (No model.)



Claim.—1. In a monkey-wrench, the combination of the shank having its forward edge beveled and provided at its end with a stationary jaw, the adjustable jaw snugly embracing said shank and capable of free sliding movements thereon and provided with a recess whose wall opposite said shank is beveled to correspond to the bevel of said shank, and the spring-projected conical lock-roller within said recess and having a diameter less than that of the latter and in locked position conforming closely to the diametrically opposite bevels of said shank and recess, substantially as set forth.

2. The combination of the shank having its forward edge beveled and provided at its extremity with a fixed jaw, the adjustable jaw snugly embracing said shank and capable of free sliding movements along the same and provided with a recess whose outer wall is beveled to correspond with the bevel of said shank and whose side walls in connection with said shank form contracted spaces, the conical lock-roller contained within said recess and adapted when projected outwardly to snugly conform to the diametrically opposite bevels of said shank and recess, and the spring at the bottom of said recess beneath said roller, substantially as set forth.

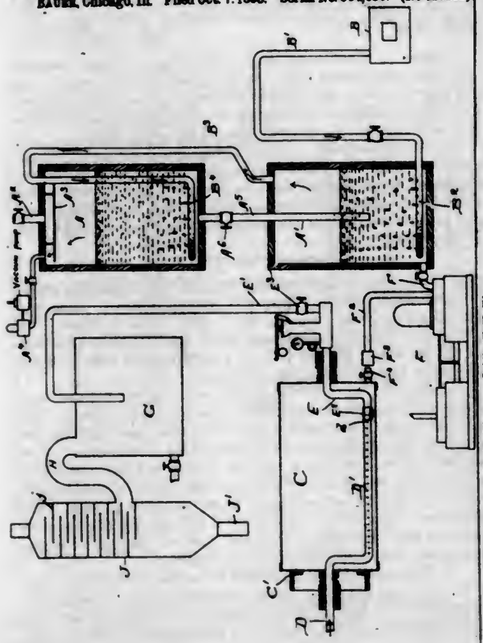
576,997. **DRIVING MECHANISM FOR VELOCIPEDES.** WILLIAM S. BATE, Brooklyn, N. Y. Filed Jan. 16, 1896. Serial No. 575,666 (No model.)



Claim.—1. A driving mechanism for velocipedes consisting of a forward sprocket-wheel, and its complementary part, located on opposite sides of the supporting-bracket, but revolving on the same axis, lugs carrying stationary fulcrums for the pedal-cranks, guides for the pedal-cranks, pedals, rear sprocket-wheel, and a suitable chain, together with gearing arranged to keep the forward sprocket-wheel and its complementary part revolving in unison.

2. In combination, the bracket G, the sprocket-wheel C, wheel R, fixed shaft F, lugs H, pivots I, pedal-cranks J, pedals K, guides L, gear-wheels T, gear-wheels U, axle V, sprocket-wheel D, and chain E, substantially as set forth.

576,998. **MANUFACTURE OF GLUCOSE OR SUGAR.** LOUIS P. BAUER, Chicago, Ill. Filed Oct. 7, 1895. Serial No. 564,856. (No model.)



Claim.—1. The process of converting starch into glucose or sugar, which consists in charging the starch solution in a cold state with a gaseous converting agent, such as sulfurous acid, and subsequently heating the starch under pressure to the point of conversion, substantially as specified.

2. The process of converting starch into glucose or sugar, which consists in charging the starch solution in a cold state with a gaseous converting agent such as sulfurous acid, said gaseous converting agent being drawn into the starch under a vacuum, and subsequently heating the starch under pressure to the point of conversion, substantially as specified.

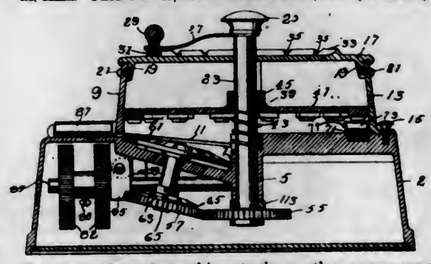
3. The process of converting starch into glucose or sugar, which consists in charging the starch solution in a cold state with a gaseous converting agent, such as sulfurous acid, subsequently heating the starch under pressure to the point of conversion, subsequently relieving the pressure from the product and collecting the sulfurous acid which rises therefrom in water to form a solution, and save the same, substantially as specified.

4. The apparatus for charging the cold-starch solution with sulfurous acid, consisting of two vacuum-chambers connected together, so that the starch will feed from one to the other, a sulfurous-acid generator connected to the bottom of one of the chambers, and a gas connection from the upper part of this chamber to the bottom of the other chamber, substantially as specified.

5. The combination of the sulfurous-acid-gas generator, means for delivering said gas from the generator to the charging tank or tanks, said charging tank or tanks adapted to contain a cold solution of starch, and to charge said solution with the gas, the converter consisting of a closed chamber adapted to contain the solution of starch charged with the gas and to heat the same under pressure, means, as a pump, for conveying the charged starch solution from the charging tank or tanks to the converter, and a receiving-tank connected to the converter, substantially as specified.

6. The combination of the sulfurous-acid-gas generator, means for delivering said gas from the generator to the charging tank or tanks, said charging tank or tanks adapted to contain a cold solution of starch, and to charge said solution with the gas, the converter consisting of a closed chamber adapted to contain the solution of starch charged with the gas and to heat the same under pressure, means, as a pump, for conveying the charged starch solution from the charging tank or tanks to the converter, and a receiving-tank connected to the converter, said receiving-tank being closed to confine the gas, and a gas-collector wherein the gas freed by the heat in the converter is collected in solution in water, and a connection between the receiving-tank and the gas-collector for conveying the gas to the collector, substantially as specified.

576,999. **CHECK-PROTECTOR.** GAYLORD W. BEEBE, Minneapolis, Minn. Filed Feb. 15, 1896. Serial No. 579,344. (No model.)



Claim.—1. Means for marking checks or other papers, comprising male dies consisting of wedged-faced ribs forming the outlines of figures or other characters, corresponding female dies, means for bringing said dies together and thereby crushing the fiber of the paper between said male and female dies upon lines forming the desired characters, and means for inking said dies, substantially as described.

2. In a check-protector, the combination, with male dies provided with a rib corresponding to the outline of a figure or character and having a V or wedge shaped face, of a female die provided with a corresponding groove or depression, and means for moving one of said dies against the other, whereby the fiber of the paper will be crushed on a line or lines corresponding to the outline of said figure or character.

3. A check-protector, comprising revoluble disks or plates provided with corresponding male and female dies, said disks or plates being mounted upon converging axes, whereby when moved together said disks or plates engage at a single point, and means for moving one of said disks or plates toward the other.

4. The combination, with a die-carrying disk or plate, of a second die-carrying disk or plate, arranged at an inclination with re-

spect to the first-mentioned disk, said second plate or disk having a beveled surface which at the point of engagement of the two disks when forced together will be parallel to the first-mentioned disk or plate.

5. The combination, in a check-protector, with the vertically-movable shaft and the die-plate secured thereto, of the spring-arm secured to the upper end of said shaft, a raised rib provided with a series of notches, said rib being arranged concentrically, and a catch upon said arm adapted to engage any one of said notches, for the purpose specified.

6. The combination, with the casing, having a cover provided with the rib 33 having the series of notches 35, letters or characters marked upon said cover opposite said notches, the revoluble and vertically-movable shaft 23, the die-plate carried by said shaft, the spring-arm 37 secured upon said shaft and provided with the catch 31 and with the knob or handle 29, for the purpose specified.

7. The combination, with the casing, of the revoluble and vertically-movable shaft mounted in said casing and carrying the die-plate 41, the lever 45 pivoted within said casing and bearing upon said die-plate, and provided with an opening through which said shaft passes, and with a handle extending outside of the casing of the machine, for the purpose specified.

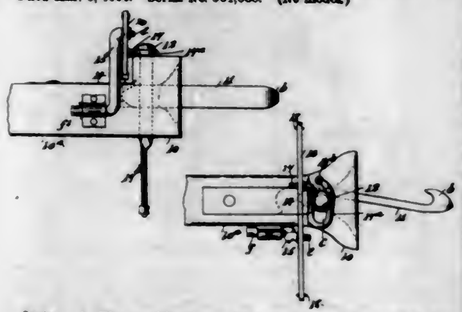
8. The combination, with the revoluble and vertically-movable shaft, carrying the die-plate provided with a series of dies, of the lever 45 through which said shaft passes, said lever extending outside of the casing, and the adjustable stop 51 for regulating the throw of said lever.

9. The combination, with the rotatable and vertically-movable shaft, of the die-plate secured thereon and carrying on its under surface a series of dies, and provided in its circumference with a series of slots or openings 79, the inking-rollers 73, and the inking-pad arranged below said rollers 73, whereby said dies are inked by said pad at each depression and at each revolution of the die-plate the dies are further inked and the ink on the dies is evenly distributed by said rollers.

10. In a check-protector, the combination, with the male dies formed of ribs having transverse grooves or openings, and female dies having grooves corresponding to said ribs, and having transverse partitions corresponding to the transverse grooves or openings in the ribs forming the male dies.

11. The combination, with the dies and the check-feeding mechanism, comprising the shaft 85 and the ratchet-wheel 111, of the revoluble and vertically-movable shaft 23, the collar 113 secured upon said shaft and carrying the dog 115, said collar being also provided with an arm or lug projecting upon opposite sides of said wheel 111, whereby said collar 113 is caused to remain stationary while the shaft 23 is rotated.

577,000. CAR-COUPLING. JAMES E. BETTS, Wilmington, Ohio. Filed Mar. 5, 1896. Serial No. 581,885. (No model.)



Claim.—1. The combination, with a chambered draw-head, having transverse slots in the top and bottom walls thereof, of a gravity-pin reciprocal in said slots, a lateral plate-spring pressing the pin toward the center of the draw-head chamber at its throat, a lifting device for the pin, and a coupling-link having a lateral hook on each end and adapted for insertion in the draw-head throat to engage the coupling-pin, substantially as described.

2. The combination, with a draw-head, having a chamber and flared walls at the front, of a coupling-link in bar form, having opposite arrow-head formations at its ends which project laterally from the body of the link, each head being concaved at the rear to produce hooks thereon, and springs in the draw-head chamber adapted to press on the side and top of an inserted end of the coupling-link, substantially as described.

3. In a car-coupling of the described construction, the combination with the draw-head having a chamber and flared walls at the front, a lateral plate-spring in said chamber, and a similar spring at the top of the chamber, of a coupling-link in bar form, having an arrow-head formation at each end projecting at opposite sides, said formations being concaved at their rear walls, the spring being adapted to hold the link projected from the throat of the draw-head, substantially as described.

4. In a car-coupling of the described construction, the combination with the draw-head chambered to receive a coupling-link, and transversely slotted in its top and lower walls near the front of the chamber to receive a cylindric pin, of a pin-lifter device, comprising the rock-arm having a member pivoted to the side of the draw-head and upwardly projected therefrom, a transverse lever pivoted nearer one end on the upper end of the rock-arm, a lifter-arm having loose connection with the lever and furnished with a looped formation adapted to receive and lift the coupling-pin, and a guide-limb depending from the said looped portion of the lifter-arm and slidable in a vertical perforation of the draw-head, substantially as described.

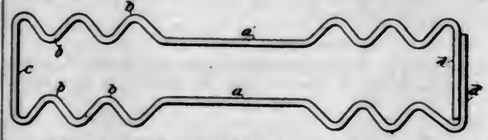
577,001. BRIDLE-BIT. MELVIN F. BIGELOW, Alden, Iowa. Filed May 28, 1896. Serial No. 593,494. (No model.)



Claim.—1. In a bridle-bit, the combination with a mouthpiece, of levers pivoted thereto and crossing each other being adapted to work in the mouth of the horse, substantially as described.

2. In a bridle-bit, the combination with a mouthpiece, of check-pieces connected to the ends of the mouthpiece, and adapted for connection with the driving-reins and levers pivoted to the mouthpiece and crossing each other, said levers having their free outer ends provided with rings for attachment of the driving-reins, the free ends of said levers working in the check-pieces, substantially as described.

577,002. WALL TIE OR BINDER. GEORGE H. BLODGETT, Springfield, Mass. Filed June 3, 1896. Serial No. 594,126. (No model.)



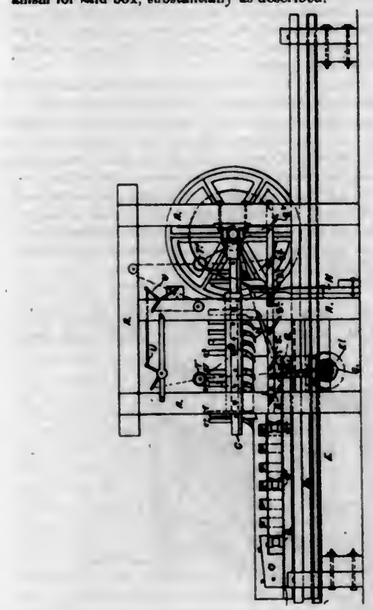
Claim.—1. A wall bond and tie, consisting of a frame composed of a single wire formed with coincidently-shaped end portions, and side bars parallel at their central portions, as *a*, and formed with angularly-bent sections *b*, arranged on the plane of the frame, intermediate of the central parallel portions and the end portions.

2. A wall bond and tie, consisting of a frame composed of a single wire formed with parallel end portions the ends of the wire being lapped at one end, and side bars parallel at their central portions and formed with angular portions *b* intermediate of the straight central portions and the ends, the said angular portions lying in the plane of the frame.

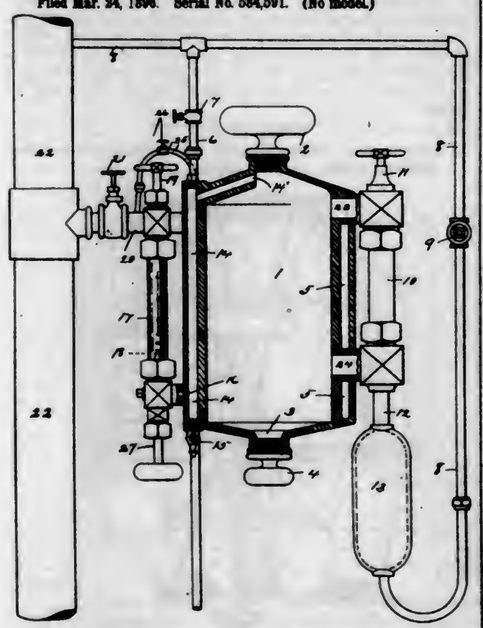
577,003. MACHINE FOR MOLDING AND DRESSING STONE FOR BUILDINGS, &c. GEORGE M. BOWEN, Brisbane, Queensland. Filed Feb. 1, 1894. Renewed Nov. 3, 1896. Serial No. 612,041. (No model.) Patented in New Zealand Feb. 9, 1893, No. 6,080; in New South Wales May 16, 1893, No. 4,361; in Victoria Sept. 19, 1893, No. 10,831, and in England Jan. 15, 1894, No. 903.

Claim.—1. The combination in a machine for molding and dressing stone, of the character described, of the rectangular frame or slide secured thereto, a tool chest or holder mounted upon said slide, and provided with openings, adapted to receive the cutting-tools, a stone-carriage mounted on rails, a rack-bar beneath said stone-carriage, a cog-wheel carried by a transverse shaft mounted on the rectangular frame, and gearing with said rack, pawls connected by rings which are in turn connected by rods or chains to a set of crank-levers secured to said rectangular frame, and rack-bars adapted to engage therewith, substantially as shown and described.

2. The combination in a machine for molding and dressing stone of the character described, of the rectangular frame or slide secured thereto, the tool chest or holder mounted on said slide, and provided with openings adapted to receive the cutting-tools, a stone-carriage mounted on rails, a rack-bar beneath said stone-carriage, a cog-wheel carried by a transverse shaft mounted on the rectangular frame, and gearing with said rack, pawls connected by rings which are in turn connected by rods or chains, to a set of crank-levers secured to said rectangular frame, and rack-bars adapted to engage therewith, a double eccentric crank connected with the tool chest or holder and main shaft, whereby a reciprocating motion is imparted, ratchet-wheels in connection with cams or eccentrics upon the main shaft to propel the carriage of the tool chest or holder, and actuating mechanism for said box, substantially as described.



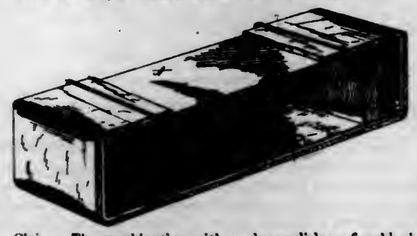
577,004. LUBRICATOR. GEORGE L. BRINKIN, McKeesport, Pa. Filed Mar. 24, 1896. Serial No. 584,691. (No model.)



Claim.—1. The combination of the oil-receiver a discharge-pipe therefor the gage-glass connected to said oil-receiver, the condenser connected to, and arranged beneath said gage-glass, whereby the oil in the oil-receiver is permitted to expand, and means for supplying steam to said condenser as and for the purpose set forth.

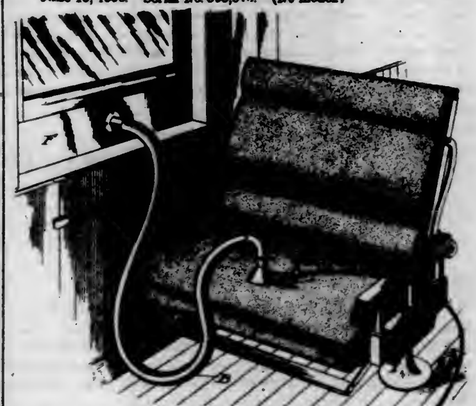
2. The combination of the oil-receiver a discharge-pipe therefor the gage-glass connected to said oil-receiver, the condenser connected to, and arranged beneath said gage-glass, and means for supplying steam thereto said oil-receiver having a surrounding steam-jacket, the sight-glass, and means for supplying steam to said steam-jacket, substantially as described.

577,005. SHOE-POLISHER. JOHN F. BROCKER, New York, N. Y. Filed Aug. 26, 1895. Serial No. 560,510. (No model.)



Claim.—The combination with a shoe-polisher of a block rectangular in cross-section having nearly the whole of its under surface longitudinally concaved; and having stretched over said concavity a resilient strip of equal width with said block and secured thereto by screws, and surmounting the whole of said strip a polishing-strip folded over the ends of said block and secured to the same by spring-clamps, substantially as shown and described.

577,006. DUST-EXTRACTOR. GEORGE H. BROWN, Dubuque, Iowa, assignor to the Chicago Pneumatic Tool Company, Chicago, Ill. Filed June 15, 1896. Serial No. 595,575. (No model.)



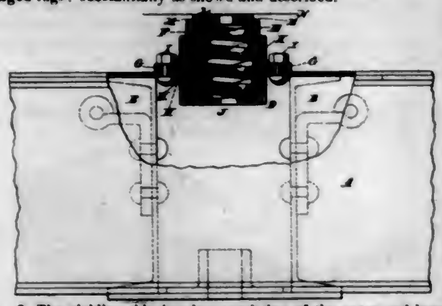
Claim.—1. The herein-described pneumatic dust-extractor, comprising the casing A having a flaring lower end adapted to rest upon and be moved over the surface from which the dust is to be extracted, the inverted cone D supported in the upper part of said casing, the air-inlet pipe C entering the casing and terminating in the upturned nozzle immediately below the apex of the cone D, and the discharge-pipe B connected to the upper end of the casing, substantially as and for the purpose set forth.

2. The herein-described pneumatic dust-extractor, comprising the casing A having the flaring lower portion provided with the cross bar or bars G, the inverted cone D supported in the upper part of the casing, the air-inlet pipe C entering the casing and terminating in the upturned nozzle immediately below the apex of the cone, and the discharge-pipe B connected to the upper end of the casing, substantially as and for the purpose set forth.

3. The herein-described pneumatic dust-extractor, comprising the casing A, inverted cone D, discharge-pipe B, and air-inlet pipe C arranged as shown, in combination with the board F having the discharging end of the pipe B fitted in an opening therein, substantially as and for the purpose set forth.

577,007. SIDE BEARING FOR CAR-TRUCKS. EDWARD CLIFF, Newark, N. J., assignor to the Vose & Cliff Manufacturing Company, New York, N. Y. Filed Nov. 3, 1896. Serial No. 610,909. (No model.)

Claim.—1. The yielding side bearing consisting of the upper and lower telescopic sections inclosing the spring, the lower section at a substantial distance above its lower end being provided, for its support, with the integral annular external shoulder and oppositely-arranged lugs: substantially as shown and described.



2. The yielding side bearing consisting of the upper and lower telescopic sections inclosing the spring, the lower section receiving the upper section and having at a substantial distance above its lower end the interior annular shoulder to receive the lower edge of said upper section when the latter is depressed, and the bore of the upper section corresponding with the bore of that portion of the lower section below said shoulder; substantially as shown and described.

3. The yielding side bearing consisting of the upper and lower telescopic sections inclosing the spring, the upper section resting on the spring and having integral with its top the elevated seat located above and entirely within and following the contour of the corner edges of said top; substantially as and for the purposes shown and described.

4. The yielding side bearing consisting of the upper and lower telescopic sections inclosing the spring, the upper section resting on the spring, and having on its top the elevated seat located above and entirely within and following the contour of the corner edges of said top, and the lower section having at a substantial distance above its lower end the interior annular shoulder to receive the lower edges of the upper section and the exterior securing-lugs, which are also at a substantial distance above the lower end of said lower section; substantially as shown and described.

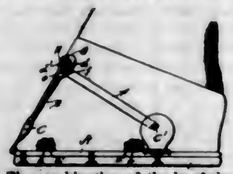
577,008. **BUCKLE.** CLARK S. COMSTOCK, Bloomfield, N. J. Filed Oct. 2, 1896. Serial No. 607,666. (No model.)



Claim.—1. A buckle consisting of the lower or frame portion A, bent to form a lower loop C and inwardly-projecting arms or rests *c*, and an upper portion B movably secured to the free end of the frame and bent to form an upper loop D and tongues *d*, the extremities of the latter resting on said inwardly-projecting arms, substantially as described.

2. A buckle, consisting of the wire frame A, bent into a lower loop C, inwardly-projecting arms *c* and teeth *k*, and an upper portion B bent into an upper loop D and tongues *d*, adapted to rest against said arms *c*, substantially as described.

577,009. **NAILLESS HORSESHOE.** CHARLES W. CRAWFILL, Holton, Kans. Filed May 23, 1896. Serial No. 592,810. (No model.)



Claim.—1. The combination of the hoof-plate, the side and toe clip-plates hinged or pivoted thereto, the two straps pivotally connected to the toe clip-plate, the short links pivoted one to the upper portion of each of said straps, the side draw-straps, pivotally connected to the side clip-plates at one end portion and having at their opposite end portions means whereby they may be detachably engaged with said links, and the transverse lock-strap, substantially as specified.

2. In a nailless horseshoe, the combination with a hoof-plate of shoe form, and to which the shoe proper is designed to be removably secured, said plate having studs or dowels upon its upper face, of sockets set in the hoof to receive said studs or dowels, and means for holding said plate to the hoof, substantially as specified.

3. In a nailless horseshoe, the combination with a hoof-plate of shoe form, and having the studs or dowels, of the clip-plates hinged or pivoted thereto, one at the toe, and one at each side portion, the two equalizing draw-straps pivoted to the toe clip-plate, the side draw-straps pivoted one to each of the side clip-plates, the links pivotally connected to said equalizing draw-straps and having means whereby they may be detachably and loosely connected with the side draw-straps, and means for locking said straps in the proper adjustment, substantially as specified.

4. The combination of the hoof-plate of shoe form, and having dowels arranged to engage sockets in the bottom of the hoof, the shoe proper removably secured to said hoof-plate, the toe clip-plate and the two side clip-plates hinged or pivoted to said hoof-plate, the side draw-straps having the slotted openings, the front or equalizing draw-straps having the studs at their upper portions, the links pivotally connected to said front or draw straps and having headed studs designed to loosely and detachably engage the slotted openings of the side draw-straps, and the transverse lock-plate arranged to engage the studs of the front draw-straps, all substantially as and for the purpose specified.

577,010. **COMBINED RACK AND MIRROR.** ELIJAH CUNDEY, Philadelphia, Pa. Filed May 1, 1896. Serial No. 589,921. (No model.)



Claim.—A combined mirror and rack, consisting of a frame, a series of pegs pivoted thereto, two vertical rods secured in the frame, studs on said vertical rods, thumb-screws threaded in the studs, a horizontal rod held by said thumb-screws parallel arms secured at right angles to the horizontal rod and a mirror pivoted at the middle of its sides to the ends of the arms, as and for the purpose described.

577,011. **PRINTING-PRESS.** ELMER CURNUTT, Colony, Kans. Filed June 6, 1896. Serial No. 594,568. (No model.)



Claim.—1. In a printing-press, the combination with a reciprocating type-bed having a longitudinally-projecting arm and a cross-head thereon, of a detachable bracket having one end forked to form substantially parallel portions adapted to straddle the arm on the type-bed and project under said bed, shoulders on said portions for engaging the cross-head, and an inking-plate mounted on and removable with said bracket, substantially as described.

2. In a printing-press, the combination with a reciprocating type-bed, of a vibratory ink-roller carriage, an inking-roller mounted loosely therein, a transverse rock-shaft having a crank-arm, a connecting rod or link interposed between the carriage and said crank-arm for moving the carriage in one direction, a spring for returning the carriage to its normal position, and means on the rock-shaft arranged in the path of the type-bed for moving the carriage and inking-roller, substantially as described.

3. In a printing-press, the combination with a reciprocating type-bed, and a vibratory ink-roller carriage, of a movable table arranged above the plane in which the type-bed moves, and connections between said carriage and table, whereby the table is lifted out of the path of the inking-roller, substantially as described.

4. In a printing-press, the combination with a reciprocating type-bed, of a paper-holding table arranged above the plane in which the type-bed moves, a fly journaled at or near one end of the table, a cord or cable connected with said fly and having one end attached to the type-bed and a weight at the opposite end, and means for reciprocating the type-bed, the fly being actuated simultaneously therewith, substantially as described.

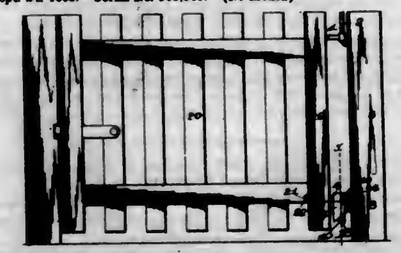
5. In a printing-press, the combination with the reciprocating type-bed and the vibratory ink-roller carriage, of the pivoted and inclined table arranged above the plane in which the type-bed moves and the arms or connections interposed between said carriage and the table for the purpose of lifting the table out of the path of the inking-roller, substantially as described.

6. In a printing-press, the combination with the reciprocating type-bed, of the paper-holding table arranged over the same, the fly located above the table and journaled near one end thereof, a pulley fast on one end of the fly-shaft, a cord or cable running over said pulley and attached at one end to the type-bed and having a weight at its opposite end, and means for reciprocating the type-bed, the fly being actuated simultaneously therewith, substantially as described.

7. In a printing-press, the combination with the reciprocating type-bed, of a fly, a pulley fast on the shaft of said fly, a cord or cable running over said pulley and attached at one end to the type-bed and having a weight at its opposite end, the said cord being fastened permanently at one point on the pulley, and a pawl engaging said pulley for preventing its rotation and having connection with a rock-shaft having an arm located in the path of the type-bed, whereby in the operation of the type-bed, the pawl is thrown out of engagement with the pulley, substantially as and for the purpose described.

8. In a printing-press, the combination with the reciprocating type-bed, of the fly, a pulley fast on the fly-shaft, a cord or cable connected to the type-bed and running around said pulley and attached thereto, and a pawl for engaging and holding said pulley stationary, said pawl being operatively connected with the press mechanism whereby it is adapted to be moved out of engagement with the pulley for releasing the fly, substantially as described.

577,012. **GATE-HINGE.** MARK DEPEW, Edmonton, Ky. Filed Sept. 24, 1896. Serial No. 563,505. (No model.)



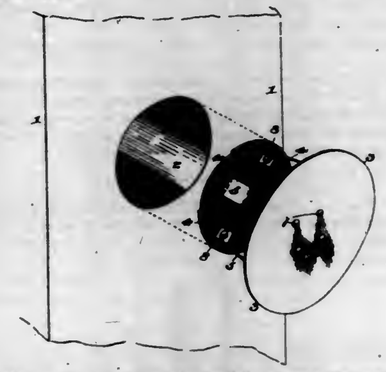
Claim.—1. In a gravity-closing hinge, a gate member, in combination with a post member comprising a base-section and a superposed relatively-movable section, and provisions for securing the two sections in an adjusted position, substantially as set forth, for the purpose described.

2. In a gravity-closing hinge, a gate member, in combination with a post member comprising a base-section, having a circular depression in its upper side, a superposed movable section having a shouldered portion adapted to be seated in said circular depression to maintain the two sections in fixed relation, and means for securing the two sections in the required adjusted position substantially in the manner set forth, for the purpose described.

3. A gravity-closing hinge comprising a gate member having a pendent pintle, and a post member comprising a base-section and a superposed section, the two sections having corresponding centrally-disposed openings for the passage of the pintle of the gate member, substantially as, and for the purpose set forth.

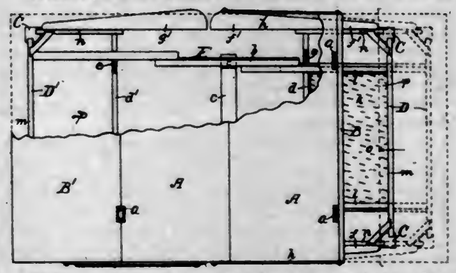
4. The herein-described gravity-closing hinge, comprising a gate member having a pendent pintle and flange forming a guard, the post member comprising base and superposed sections, the one having an annular shoulder to enter a corresponding depression in the other, and both sections having a centrally-disposed opening for the passage of the said pintle, antifriction-bearings fitted in grooves formed in the inclines between the two members, and means for securing the two sections of the post member in the adjusted position, substantially as set forth, for the purpose described.

577,013. **AUTOMATIC FIREPROOF FLUE-STOPPER.** ROBERT W. DRINKER, Kilbourn, Wis. Filed June 25, 1896. Serial No. 596,919. (No model.)



Claim.—In an automatic fireproof flue-stopper, the combination of the cap to cover a pipe-hole, a disk formed of a plurality of sectors of a circle with edges overlapping adapted to pass into the opening, and a plurality of spring-arms connecting all the sectors to the cap, and pressing the edge of said disk against the wall, said arms being elongated and bent back to form additional springs to press against the wall and hold the stopper in place, a chamber being formed between said disk and said cap, as and for the purpose substantially as set forth and described.

577,014. **FOLDING EXTENSION-TABLE.** HENRY J. DUBOIS, Rochester, N. Y. Filed July 20, 1896. Serial No. 599,686. (No model.)



Claim.—1. A table comprising a frame composed of two similar independent parts connected and adapted to move toward or from each other, and slides for the parts, in combination with a rigid central section of the bed or top secured to the slides, and folding leaves joined to two opposite sides of said rigid central section, said leaves being adapted to be turned to form horizontal extensions of said central section or to turn over horizontally upon the top of said section with their free edges forming a close joint, and means for connecting the leaves and the independent parts so that as the leaves are swung upon their hinges the parts will be moved toward or from the central part, substantially as shown and described.

2. A table having a divided frame and a top or bed, and folding leaves joined to the bed, and connectors for said leaves and the frame whereby when the leaves are turned they act to move the said parts of the frame, substantially as specified.

3. A table having a divided frame and a top or bed, and folding leaves joined to the bed, and links or connectors for said leaves and the respective parts of the frame whereby when a leaf is turned to the right or to the left its accompanying part of the frame will move in a corresponding direction and so always be under the leaf, substantially as shown and set forth.

4. A table having a rigid central portion, leaves hinged to the opposite sides thereof, a movable frame at each end of the table, and overhanging parts secured to each side of each frame, and a link or connector secured to the overhanging portion and to its respective leaf, substantially as set forth.

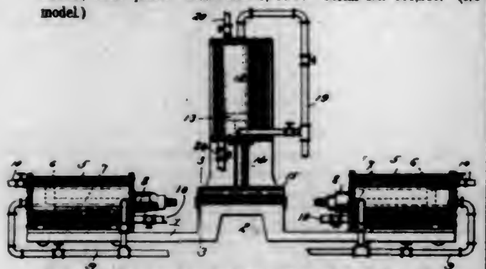
5. A table having a rigid central portion, leaves hinged to opposite sides thereof, a movable frame at each end of the table, an overhanging portion secured to each side of each frame, one end of which is wider than the other and passes over the opposite frame when the table is closed, and a link secured to the wider end of each of the overhanging portions and to the end of its respective leaf, substantially as set forth.

6. A table having a rigid central portion, a movable frame under each end of the table, means for connecting each of the frames with the central portion, a drawer formed in one of the frames, leaves hinged to the opposite sides of the central portion, and means for connecting each leaf with the frame upon that side, whereby the leaf and the frame may be moved in unison, substantially as set forth.

7. A table having a rigid portion, a movable frame under each end of the central portion, the inner piece of each frame being recessed, slides for connecting each of the frames of the central portion, said slides fitting within the recesses of the frames, leaves hinged to the opposite side of the central portion, and means for connecting the frames and the leaves, substantially as set forth.

577,015. MACHINE FOR INSERTING COUPLINGS IN HOSE.

PETER BRENAN, Huntington, W. Va., assignor of one-half to C. W. McCue, same place. Filed Oct. 5, 1896. Serial No. 608,289. (No model.)



Claim.—1. In a machine for inserting couplings in hose, the combination of a clamp adapted to receive a section of a hose, said clamp consisting of a movable jaw and a rigid jaw, said jaws being recessed at one of their ends to receive a clamping-ring as described, means for applying pressure to the movable clamping-jaw whereby the hose-section and the clamping-ring may be securely held in place, means for forcing a coupling into said hose at the point encircled by the clamping-ring and against the pressure of the clamping-jaw, and means for increasing the pressure on the clamping-jaw after the coupling has been forced into the hose, whereby the clamping-ring may be secured around the hose without removing the hose from the clamp, substantially as described.

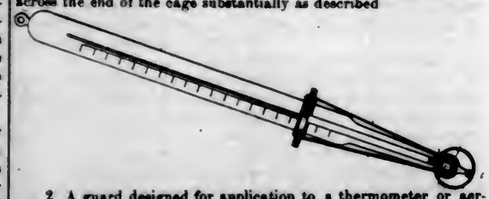
2. In a machine for inserting couplings in hose, the combination of a clamp adapted to receive a section of a hose, said clamp consisting of a movable jaw and a rigid jaw, said jaws being each formed with longitudinal semicylindrical grooves, a yielding device for encircling the end of the hose at the point where the coupling enters, whereby the clamp is prevented from crushing the hose, means for applying pressure to the movable clamping-jaw, means for forcing a coupling into the hose at the point encircled by the protecting device, substantially as described.

3. The combination of a grooved rigid jaw, a grooved clamping-jaw, cylinder 12, a piston therein, rod 14 connecting said piston to the movable clamping-jaw, valved pipes 19 connected to said cylinder for admitting pressure thereto, cylinders 5, 5 at each end of the clamp, pistons therein, rods connected to said pistons and extending toward the clamp, coupling-carrying devices secured to the ends of the said rods, valved pipes 9, connected to said cylinders and adapted to admit pressure thereto for moving the pistons therein, substantially as described.

577,016. THERMOMETER-GUARD.

BENJAMIN T. FAIRCHILD, New York, N. Y., assignor to the Fairchild Bros. & Foster, of New Jersey. Filed Aug. 14, 1895. Serial No. 559,245. (No model.)

Claim.—1. A guard designed for application to a thermometer or aerometer with a substantially cylindrical body terminating in a substantially spherical bulb at the lower end, consisting of a cage formed of resilient strips united near the upper ends around a central opening for the body of the instrument and conforming approximately to the shape of the lower end of the instrument to which it is applied, the lower portion of the cage being formed with a restricted resilient passage for engaging the instrument immediately above the bulb and terminating in a head or enlargement conforming approximately to the contour of the bulb on the instrument; said head or enlargement being formed by portions of the resilient strips which are extended across the end of the cage substantially as described



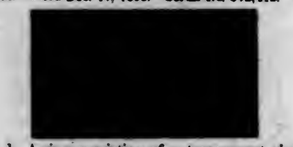
2. A guard designed for application to a thermometer or aerometer with a substantially cylindrical body and tapering lower end terminating in a substantially spherical bulb at the lower end, consisting of a cage formed of resilient strips united by an annulus at the upper end and tapered to approximately conform to the tapered lower end of the instrument to which it is applied, the lower portion of the cage being formed with a resilient passage for engaging the instrument immediately above the bulb and terminating in a head or enlargement conforming approximately to the contour of the bulb on the instrument, and an annular buffer surrounding the upper end of the cage; substantially as described.

3. The combination with the thermometer or aerometer guard, or cage having the ring at the upper end, of the spring located within said ring for holding the thermometer; substantially as described.

4. A thermometer or aerometer guard substantially such as herein described consisting of the strips having their ends united by an annulus or ring and their intermediate portions secured together at the crossing-point and formed into a cage with downwardly-converging sides and an enlargement or head at the lower end, the spring within the annulus or ring and the annular buffer over the outside of the ring; substantially as described.

577,017. GLASS SIGN.

VINCENT A. FERNHOUGH, Philadelphia, Pa., assignor, by direct and mesne assignments, to Edward H. Pyle, same place. Filed Dec. 17, 1895. Serial No. 572,412. (No model.)
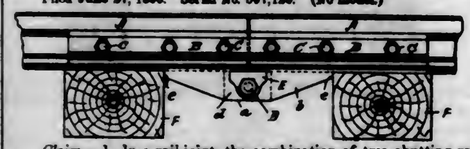


Claim.—1. A sign consisting of a transparent plate having letters or designs on the back thereof, the same being formed of water-color, and backing of oil-paint on the spaces between said letters or designs, and on said letters or designs, the oil of said paint having been absorbed by the water-color, substantially as described.

2. The method of making a sign, consisting in coating a transparent plate with a color material, adapted to absorb oil, placing a pattern over said material, removing the exposed portion of said material from the plate, displacing the pattern, and then coating with oil-paint the shaped material that remains on the plate and the uncovered part of said plate, thus producing the ground, and having some of the oil of the paint absorbed by the shaped color material, as set forth.

577,018. RAIL-JOINT.

WALTER H. FITCH, Indianapolis, Ind. Filed June 27, 1896. Serial No. 597,130. (No model.)



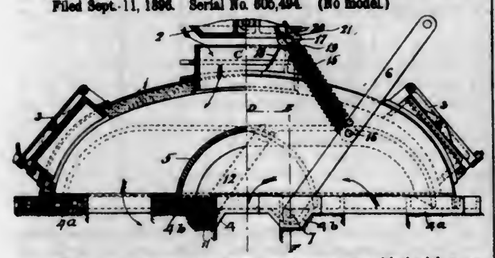
Claim.—1. In a rail-joint, the combination of two abutting rail ends, a pair of splice-bars substantially of the form shown, the upper edge of the vertical portion of which bars bears against the under surface of the rail-head but the body of which does not bear against the web or stem of the rail, the foot of which vertical portion of said bars bears against the upper side of the flange of the rail adjacent

to the web thereof, the horizontally-inclined portion of said bar conforming to the upper surface of said flanges, said horizontally-inclined portion having the vertical portion or flange extending downward from the outer edge thereof and integral therewith, said vertical portion having its greatest depth at its longitudinal center and there reinforced in thickness, through which are suitable openings to receive a wedge and a retaining-bolt; an adjusting-wedge adapted to pass through said openings in said vertical flanges and having a head at one side of its thickest end provided with a bolt-hole; a securing-bolt passing through the openings in said head and said vertical flanges, said bolt being screwed into the hole in the farthest of said flanges and having a lock-nut screwed on the end thereof bearing against said flange, said wedge and bolt together binding said rails rigidly and preventing the spreading apart of said flanges, substantially as and for the purposes shown and described.

2. In a rail-joint, the combination of the splice-bars B B' having the downward-depending vertical flanges *b* reinforced centrally at *d* and having the openings G H and *h n*, the latter of which is provided with screw-threads; the wedge E having the head *i* provided with a bolt-hole; the securing-bolt D having the threaded end passing through said hole *n* and securing said wedge in its openings, and a lock-nut engaging said bolt end and seated against the adjacent flange, all operating substantially as shown and described, for the purposes set forth.

577,019. REVERSE-VALVE.

SAMUEL FORTER, New Castle, Pa. Filed Sept. 11, 1896. Serial No. 605,494. (No model.)



Claim.—1. The combination of a valve-seat provided with water seals; an oscillating reverse-valve adapted to be shifted from one set of seals to the other a shaft immersed in the water seal and links connecting said shaft with the valve.

2. The combination of a valve-seat provided with water seals: a valve-chamber resting in certain of said seals and an oscillating reverse-valve adapted to be shifted from one set of said seals to the other.

3. The combination of a valve-seat provided with water seals: an oscillating reverse-valve seated in said seals; an oscillating actuating-lever for said reverse-valve; an oscillating shaft immersed in the water seal and moved by said lever and connections from said shaft to the valve.

4. The combination of a valve-seat provided with water seals; an oscillating reverse-valve seated in one set of said seals; an oscillating actuating-lever for said reverse-valve; an oscillating shaft immersed in the water seal and moved by said lever; connections between said shaft and the valve; a second counter-shaft parallel with the first and also immersed in the water seal and connections between said shaft and the valve.

577,020. SHOE-FASTENING.

THOMAS D. GADDIS, Clinton, Ky., assignor of three-fourths to J. H. Shelton, J. C. Speight, and Jerry M. Porter, same place. Filed May 19, 1896. Serial No. 592,140. (No model.)

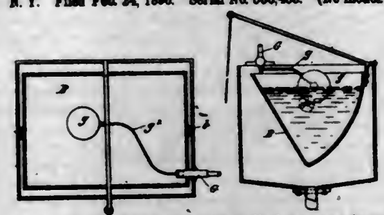


Claim.—1. The combination with a shoe having a fly, of an elastic strip secured at one edge to the fly a short distance from its edge, forming a projecting portion or lip, a strip secured to the free edge of the said elastic strip and having a projecting part forming a lip to correspond with the aforesaid lip, and corresponding fastenings along the free edges of the fly and elastic strip, substantially as and for the purpose set forth.

2. The combination with a shoe having a fly, of an elastic strip for connecting the edge portions of the fly, projecting portions at the edges of the said strip, forming extensions of the fly, and a strap secured to the outer side of the elastic strip and having its edge portions extending beneath the aforesaid projecting portions at the edges of the elastic strip, substantially as and for the purpose set forth.

577,021. FLUSHING-TANK.

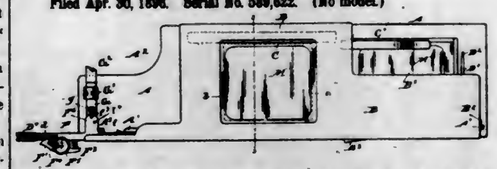
WILLIAM GROSSMANN, New York N. Y. Filed Feb. 24, 1896. Serial No. 580,483. (No model.)



Claim.—In a tank provided with a discharge-opening and a supply-pipe, the combination of a substantially triangular vessel pivotally supported therein, one side of said vessel being open, the remaining sides and ends being closed, a lever connected with the curved side of the vessel and having a shoulder adapted to rest on one edge of the tank to limit the backward movement of the vessel, said lever projecting over the opposite side of the tank to limit the forward movement of the vessel, and to provide means for turning the same, a float mounted centrally of the vessel and having connections with the valve in the supply-pipe, whereby when the lever is depressed the water is discharged from the inclined side of the vessel and the forward movement thereof is limited by a contact of the lever upon the edge of the tank, in the manner set forth and shown.

577,022. SLIDE-CARRIER.

LOUIS M. HALSEY, Brooklyn, N. Y. Filed Apr. 30, 1896. Serial No. 589,622. (No model.)



Claim.—1. A slide-carrier comprising a frame having an opening over which the slide to be shown centers, a spring-actuated rod and an arm rigid therewith and extending upward therefrom for engaging the rear edge of the succeeding slide lying in the rear of and in the same plane with the first and imparting motion to both, a releasing mechanism for holding and liberating the rod, and a stop connected with the guide of said rod and arranged in the path of the slides to receive the forward edge of the first and thereby arrest the motion when the succeeding slide is centered over the said opening, all substantially as herein specified.

2. A slide-carrier comprising a frame having an opening over which the slide to be shown centers, a spring-actuated rod and its upwardly-extending arm for engaging the rear edge of the succeeding slide lying in the rear of and in the same plane with the first and imparting motion to both, a releasing mechanism for holding and liberating the rod, a stop arranged in the path of the slides to receive the forward edge of the first and thereby arrest the motion when the succeeding slide is centered over said opening, and means for varying the position of the stop to adapt the carrier for use with slides of differing sizes, all substantially as herein specified.

3. The frame A having the opening *a*, the ledge A' thereon for supporting the slides, and the casing B secured to the frame and having a space between the two and having the opening *b*, in combination with the rod D and its actuating-spring E guided in the space below said ledge, the arm D' carried on said rod near one end, the catch F' for holding and releasing the latter, and the lever G connected with the guide of said rod near the other end and cushion G', all arranged to serve substantially as herein specified.

4. The frame A having the opening *a*, the ledge A' and its flange B^2 thereon, the casing B having the opening *b*, in combination with the rod D and its actuating-spring E, the arm D' having the loop D^2 and staple D^3 for guiding the free end of the rod and engaging a slide, the guide F receiving the opposite end, the catch F' carried on

said guide for holding and releasing said rod, and the lever G and cushion G' thereon, all arranged to serve substantially as herein specified.

5. The frame A and casing B having the openings *a b*, the rod D and its arm D', the guide F receiving the rod, and the spring E secured at one end to the guide and at the other to the rod, in combination with the catch F' for holding and releasing the rod, the lever G turning on the screw *g* and having the slot *g'*, and the pin f^2 carried by said guide and engaged in the slot to limit the turning motion of the lever, all arranged to serve substantially as herein specified.

6. The frame A and casing B having the openings *a b*, the rod D and its arm D', the guide F receiving the rod, the actuating-spring E for the latter, in combination with the catch F' for holding and releasing the rod, the lever G turning on the pivot *g* and connected to said guide, the pin F^2 carried on the latter and the hook-lever H mounted on the frame to engage the said pin, all arranged to serve substantially as herein specified.

7. The frame A and casing B having the openings *a b*, the rod D and its arm D', the guide F receiving the rod, and the actuating-spring E for the latter, in combination with the catch F' for holding and releasing said rod, the lever G turning on the pivot *g* and having the slot *g'*, the pin f^2 carried by said guide and engaged in said slot to limit the turning motion of the latter, the pin F^2 on the guide and the hook-lever H mounted on the frame to engage said pin and lock the guide and its connections in position, all arranged to serve substantially as herein specified.

8. The frame A and casing B having the openings *a b*, the rod D and its arm D', the guide F receiving the rod, and the actuating-spring E for the latter, in combination with the stop B^2, the catch F' for holding and releasing the rod, the lever G turning on the pivot *g* and connected to the said guide, the cushions G', G^2 carried on the lever, and the pin A^2 for holding the guide in place, all arranged to serve substantially as herein specified.

577,023. LAMP-BRACKET. EDDIE W. HANCOCK and LESSIE BAILEY, Epping, Ga. Filed July 6, 1896. Serial No. 598,216. (No model.)



Claim.—A lamp-bracket having a perpendicular rod, a lamp-rest secured at the upper end of the rod, sliding grippers located on said rest, said grippers having elongated perforations, said rod passing through said perforations, a set-screw fixed to the rest at one side of said rod and passing through said elongated perforations, said set-screw adapted to retain the grippers in the desired position, the outer ends of the grippers adapted to engage the base of the lamp and retain the same on the rest, the perpendicular rod and the set-screw forming guides for the grippers and adapted to prevent the grippers from getting out of alinement with each other.

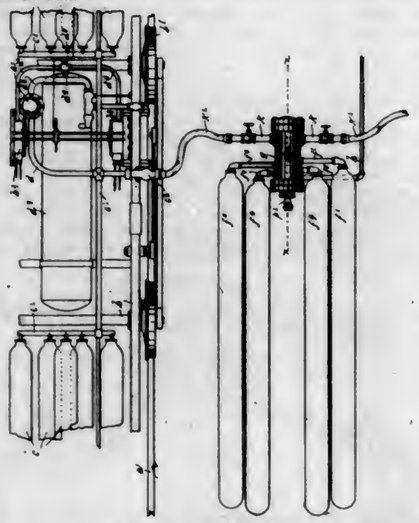
577,024. CHARGING DEVICE FOR AIR-STORAGE MOTOR-CARS. ROBERT HARDIE, Rome, N. Y., assignor to the General Compressed Air Company, New York, N. Y. Filed June 25, 1895. Renewed Nov. 11, 1896. Serial No. 611,783. (No model.)

Claim.—1. A device, for charging supply-reservoirs from a compressor or other primary source and for charging a storage-car or other receiver from said supply-reservoirs, comprising a valve and valve-seat with the ports therein arranged to permit the several supply-reservoirs to be connected with the storage-car, in succession, under a step-by-step movement of the valve, while always keeping open the compressor or source connection and delivering therefrom first to the untapped reservoirs in advance of the valve and then to the storage-car on reaching the last of the reservoirs, substantially as and for the purposes set forth.

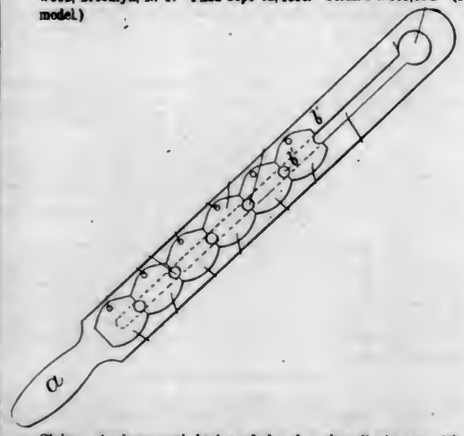
2. A charging device involving the combination with a valve-seat, having a series of supply-ports and a discharge-port, of a valve having an admission-port, a series of outlet or discharge ports and a port connecting said admission-port with all of said outlet-ports, in the valve, with the ports in the seat and in the valve in reverse relation to each other, for permitting the supply-ports of the seat to be connected with the discharge-port thereof, under a step-by-step movement of the valve, substantially as described.

3. A device, for charging an air-storage car or other receiver from one or more supply reservoirs, comprising a valve and valve-seat with coöperating ports for connecting the supply reservoir or reservoirs to the car, and with coöperating ports for bleeding the charging-pipes, after the charge is made, under the control of said valve, substantially as described.

4. The combination with the supply-reservoirs *f' f²*, &c., and the compressor or source pipe *h*, of the valve-chest *g*, the valve-seat g^2 having the supply-ports g^3, the discharge-port g^4, the by-pass section *r'*, the bleeding-duct section t^2 and the chest-duct *v*, the valve *p* having the admission-port p^4, the discharge or outlet ports p^5, the connecting-port p^6, the bleeding-port *t'*, the by-pass section r^2, one or more charging-pipes *k K'*, for connection with the car or other receiver, and means for operating the valve, substantially as and for the purposes set forth.



577,025. DEVICE FOR CLEANING BUTTONS. GEORGE W. HARWOOD, Brooklyn, N. Y. Filed Sept. 12, 1896. Serial No. 605,604. (No model.)



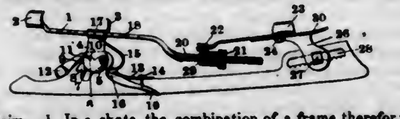
Claim.—An improved device of the class described, comprising a body portion or strip provided with a longitudinal slot and carrying a longitudinally-arranged series of pivoted plates adapted to cover said slot and provided in their opposite edges with correlative recesses conjointly forming an eye or opening for the accommodation of the shank portion of a button, substantially as and for the purpose set forth.

577,026. SHOOTING-REST FOR FIREARMS. FRIEDRICH R. HEINZMANN, Stuttgart, Germany. Filed Nov. 28, 1896. Serial No. 613,735. (No model.)



Claim.—A stand or holder for mechanically adjusting the position of firearms, consisting of a slide attached as specified to the fire-arm and supported loosely on a concave or convex guide, by the movement of which the elevation of the firearm supported may be varied, and simultaneously a free recoil enabled.

577,027. SKATE. HERMANN HEINER, Chicago, Ill. Filed Apr. 13, 1896. Serial No. 587,288. (No model.)



Claim.—1. In a skate, the combination of a frame therefor; a clamp seat vertically movable thereon; a pair of clamp-jaws on said clamp-seat, one of which is urged toward the other by the downward movement of the clamp-seat; and a lever adapted to catch and hold the clamp-seat in the lowered position, thereby securing the clamp-jaws in the closed or shoe-engaging position, said lever having a shifting fulcrum permitting the movement of the lever into locking and releasing positions, substantially as described.

2. In a clamping mechanism for a skate, the combination of a clamp-seat having a threaded extension; an oppositely-threaded adjusting-nut engaging the extension; a collar on the nut permitting the nut to be turned therein independent of the collar; a pair of clamp-jaws having arms pivotally engaging the collar; and another clamp-seat adapted to support and guide said pair of clamp-jaws.

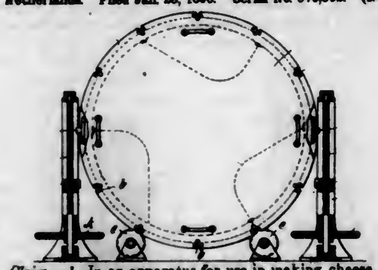
3. In a skate, the combination of a frame therefor; a clamping mechanism; a prop secured to the skate adapted to rest upon the floor or ice, so as to support the skate in an upright position, and actuated by the clamping mechanism, so as to be withdrawn free from the floor or ice when the clamps are in the locked or shoe-engaging position.

4. In a skate, the combination of a frame therefor; a clamping mechanism having a vertically-movable clamp-seat; a prop secured to the skate, adapted to rest upon the floor or ice, so as to support the skate in an upright position, and actuated by the downward movement of said clamp-seat to withdraw free from the floor or ice.

5. In a skate, the combination of a frame therefor; a clamp-seat vertically movable thereon; a clamp-jaw slidingly attached to the clamp-seat; an arm secured to the jaw and adapted to move same on its seat, said arm being moved in the way by vertical movement of the clamp-seat; and a lever adapted to catch and hold the arm at the other end of the way, said lever having a shifting fulcrum permitting the movement of the lever into locking and releasing positions, substantially as described.

6. In a clamping mechanism for a skate, the combination of a frame therefor having the way 6, recess 8, fulcrum 9 and shoulder 10, a lever supported on the fulcrum, an arm adapted to operate in the way and to be engaged by the lever, and a pair of clamp-jaws adapted to be operated by the arm.

577,028. CHEESE-MAKING APPARATUS. JAN HELDER, Dokkum, Netherlands. Filed Jan. 23, 1896. Serial No. 576,592. (No model.)



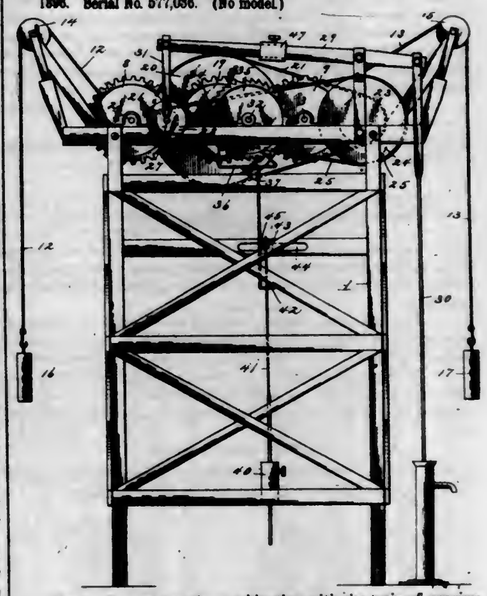
Claim.—1. In an apparatus for use in making cheese, the combination with a drum adapted to be tightly closed, and with means for rotating it around a horizontal axis, of means for turning said drum into a horizontal position whereby it may be rotated also around another horizontal axis forming angles of ninety degrees with said former axis, for the purpose as described.

2. In an apparatus for use in making cheese, the combination with a drum adapted to be tightly closed, and with rolls adapted to rotate said drum around a horizontal axis, of frames having means adapted to raise said drum from said rolls, to support it in its raised position, and to allow turning of the said drum around another horizontal axis forming angles of ninety degrees with said former axis, for the purpose as described.

3. In an apparatus for use in making cheese, the combination with a drum adapted to be tightly closed, and with rolls adapted to rotate said drum around a horizontal axis, of frames having vertical threaded spindles carrying slides forming bearings adapted to support said drum by means of pivots secured to the said drum; and means for turning said spindles, substantially as described.

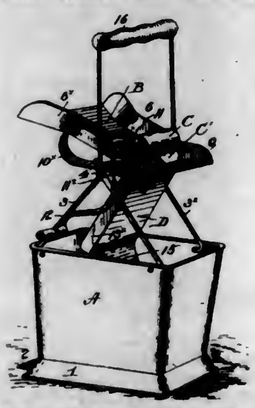
4. In an apparatus for use in making cheese, the combination with a drum adapted to be turned into a horizontal position, and to be tightly closed, and with means for rotating said drum around a horizontal axis, of sets of knives adapted to be attached to and to be removed from the mantle of said drum; said sets consisting each of curved parallel wires connected by plates, and adapted to be arranged so as to extend in the circumference of said mantle; and means for detachably attaching said plates to the said mantle, substantially as described.

577,029. MOTOR. JOHN M. HESS, Ivester, Iowa. Filed Jan. 27, 1896. Serial No. 577,036. (No model.)



Claim.—In a motor, the combination with the train of gearing, and a scape-wheel in mesh with the train of gearing, of a pallet-lever for controlling the movement of the scape-wheel, a crank-arm supporting the pallet-lever and having a threaded arm passing through a portion of the framework, a clamp-nut mounted upon the threaded end of the arm to hold the latter in an adjusted position, a beam or support having a longitudinal slot, a threaded stud operating in the slot, clamp-nuts mounted upon the threaded stud upon opposite sides of the slotted support to clamp the latter and hold the stud in the required position, and a pendulum having connection with the pallet-lever and supported by the said threaded stud, substantially as set forth.

577,030. MOP-WRINGER. JOHN A. HIGGINS, Manistee, Mich. Filed Aug. 12, 1896. Serial No. 602,516. (No model.)



Claim.—1. A mop-wringer, comprising a pail, a frame mounted on the pail, an inclined mop-plate having side flanges extending be-

yond the lower end of the plate, suitably-journaled wringing-rollers having the extensions of the mop-plate arranged between their journals, means to rotate the rollers, a chute D, reversely inclined to the mop-plate, formed with side flanges, and having its upper end secured to the extensions of the mop-plate, and a plate extending from the lower end of the plate D into the pail and forming a partition dividing the pail into two compartments.

2. A mop-wringer, comprising a pail, rectangular in cross-section, a supporting-frame composed of bars having their lower ends secured in the corners of the pail and their upper ends united, a cross-bar uniting the opposite frames, an inclined mop-plate formed with side flanges, extended beyond the lower end of the plate, a reversely-inclined chute D, having its upper end secured to the extensions of the mop-plate, and formed with an extension reaching into the pail and dividing it into two compartments, wringing-rollers journaled in the opening at the foot of mop-plate, intermeshing gears on the journals of said rollers, and a crank to rotate the rollers.

577,031. WHIFFLETREE. JAMES C. H. HOBBS, Louisville, Nebr. Filed May 4, 1896. Serial No. 590,343. (No model.)

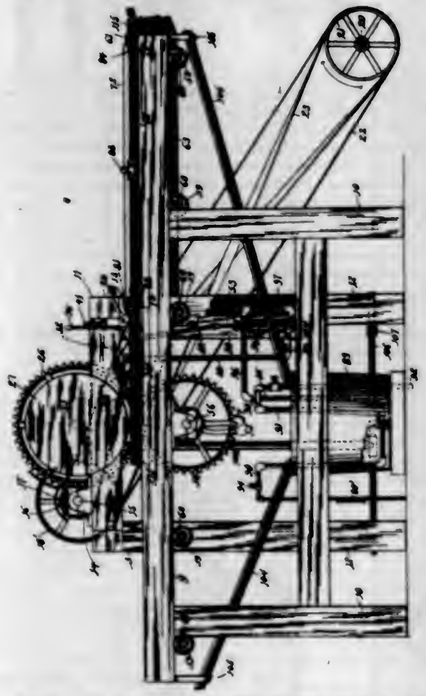


Claim.—1. In a compound whiffletree, the pivoted whiffletree-sections, in combination with the centrally-pivoted turning table connecting the inner, adjacent ends of said sections, substantially as described.

2. Two whiffletree-sections centrally connected by a turn-table, the inner, adjacent ends of said sections being slotted to move on bolts connecting them with said turn-table, substantially as described.

3. A compound whiffletree composed of pivoted whiffletree-sections and an interposed turn-table having slotted connection with the adjacent ends of said sections, substantially as and for the purpose set forth.

577,032. STARCHING-MACHINE. FLORA HOFMEISTER, Racine, Wis. Filed Feb. 23, 1896. Serial No. 581,186. (No model.)



Claim.—1. In a starching-machine, the combination, of a frame, a carriage adapted to travel thereon, screens one above the other, and supported above the base-piece of the carriage, and adapted to receive a deposit of starch thereon, and a roller above the screens, adapted to bear on said screens, as the carriage is brought beneath said roller.

2. In a starching-machine, the combination, of a frame, a carriage adapted to travel thereon, a roller above the carriage and adapted to bear thereon as the carriage is brought beneath the roller, a starch tank or vat, a force-pump, a system of piping leading from the tank to the pump, a system of piping leading from the force-pump, and adapted for discharging starch onto the screen, a shaft, a connection between the shaft and the pump-rod of the force-pump, a sprocket-wheel loose on the shaft, said sprocket-wheel provided upon opposite faces with clutching-hubs, clutching-collars splined on the shaft, and located upon opposite sides of the sprocket-wheel, and means for alternately throwing said clutching-collars into engagement with the clutching-hubs of the sprocket-wheel, whereby, when one clutching-collar is thrown into engagement the starch is discharged only in the travel of the carriage in one direction, and, when the other collar is thrown into engagement, the starch is discharged in the travel of the machine in both directions, and when both collars are out of clutch, the discharge of starch is stopped.

3. In a starching-machine, the combination, with a frame, a carriage adapted to travel thereon and consisting of two sections, each of which is provided with a screen, and the upper section hinged to the lower section.

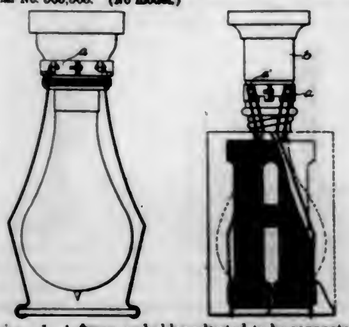
4. In a starching-machine, the combination, with a frame, of a carriage adapted to travel thereon, and consisting of two sections, each of which is provided with a screen, and the upper section hinged to the lower section, a catch for holding the hinged section normally down, and means for automatically opening the hinged section when the catch is disengaged.

5. In a starching-machine, the combination, with a frame, of a carriage adapted to travel thereon, said carriage consisting of two sections, each of which is provided longitudinally with a screen, and the upper section hinged to the lower section, a catch for normally holding the hinged section down, an arm depending from the hinged section, and a coiled spring having one end engaging the depending arm, and its opposite end engaging the opposite side piece of the lower section of the carriage.

6. In a starching-machine, the combination, with a frame, of a carriage adapted to travel thereon, said carriage consisting of two sections, each of which is provided with a screen, and the upper section hinged to the lower section, and packings running longitudinally of, and near to, the opposite side edges of the lower section.

7. In a starching-machine, the combination, with a frame, of a carriage adapted to travel thereon, said carriage consisting of two sections, each of which is provided with a screen, and the upper section hinged to the lower section, a packing running longitudinally of, and near to, the side edge of the lower section, and a tubing running longitudinally of the under side of the upper section, said tubing adapted to bear against the packing of the lower section, when the hinged section is turned down.

577,033. ILLUMINATED SIGN. CURTIS HOLLAND, Millis, Mass., assignor of one-half to David Hunt, Boston, Mass. Filed Mar. 17, 1896. Serial No. 583,505. (No model.)



Claim.—1. A frame or holder adapted to be connected with the socket of an incandescent electric lamp and having a pair of jaws, and a sign-plate detachably held by said jaws, substantially as described.

2. A frame or holder adapted to be connected with an incandescent electric lamp, having separable jaws formed with hook-like ends to engage a sign-plate and a sign-plate engaged and held by said jaws, substantially as described.

3. A frame or holder adapted to be connected with an incandescent electric lamp, having spring-acting jaws, and a sign-plate held by said jaws, substantially as described.

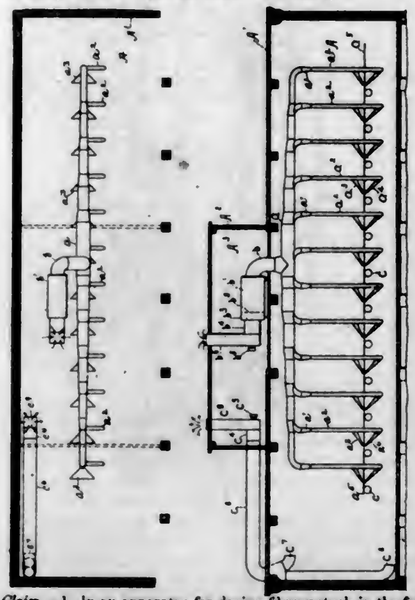
4. The combination with the socket of an incandescent electric lamp, of a frame or holder applied thereto having a pair of jaws, and a sign-plate held by said jaws, substantially as described.

5. The combination with the socket of an incandescent electric lamp, of a frame or holder detachably connected therewith, having jaws adapted to hold a sign-plate before the lamp, substantially as described.

6. The combination with the socket of an incandescent electric lamp, of a frame or holder detachably connected therewith, having a pair of jaws at one side of the lamp and a sign-plate held by said jaws before the lamp, substantially as described.

7. The clamp-ring *a* adapted to be applied to the socket of an incandescent electric lamp, and a frame or holder connected with it having jaws formed with hooked ends, and a sign-plate *d* engaged and held by said jaws, substantially as described.

577,034. PAPER-DRIER. ALFRED A. HUNTING, Salem, Mass., assignor of one-half to the Smith & Anthony Company, Boston, Mass. Filed Aug. 28, 1893. Serial No. 484,161. (No model.)



Claim.—1. In an apparatus for drying fibrous stock in the form of a sheet or web, the combination of the following instrumentalities, viz: an air-forcing apparatus, a main distributing-pipe connected with the air-forcing apparatus and of varying areas in cross-section decreasing from the connection of the distributing-pipe with the air-forcing apparatus, a series of branch pipes connected to the main distributing-pipe at the junctions of sections of smaller area with sections of larger area, a series of discharge-nozzles connected to the said branch pipes in pairs located above and below the plane in which the paper web is moved, and each nozzle having a continuous slot or orifice extended transversely of the paper web and of a length substantially equal to the width of the paper web, substantially as and for the purpose specified.

2. In an apparatus for drying fibrous stock in the form of a sheet or web, the combination of the following instrumentalities, viz: an air-forcing apparatus, a main distributing-pipe connected with the air-forcing apparatus and of varying areas in cross-section decreasing from the connection of the distributing-pipe with the air-forcing apparatus in opposite directions, a series of depending upper and lower branch pipes connected to the main distributing-pipe at the junctions of sections of smaller area with sections of larger area, and of substantially the same length, discharge-nozzles for each branch pipe arranged in pairs with the discharge-nozzles of the upper branch pipes in substantially the same plane and the discharge-nozzles of the lower branch pipes in substantially the same plane, with the discharge-mouths of the upper and lower nozzles of each pair in substantially the same vertical plane and of a length substantially equal to the width of the paper web, whereby the said web may be simultaneously acted upon at a number of points by a plurality of continuous streams of air striking the upper and lower surfaces in substantially the same vertical plane, substantially as described.

577,035. WITHDRAWN.

577,036. BANJO. HARRY J. ISBELL, St. Louis, Mo. Filed Dec. 10, 1896. Serial No. 615,193. (No model.)

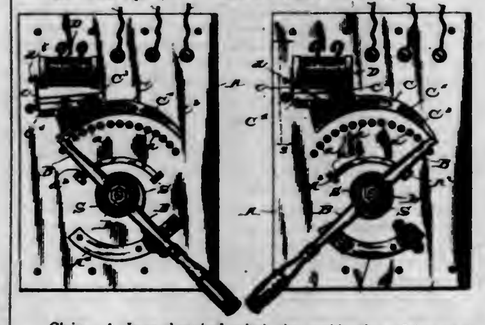


Claim.—1. In a banjo, the combination with the rim, of a cap or cover for closing the back of the rim, said cover conforming in size and shape to the rim and being provided with a peripheral circular flange which embraces said rim, and is provided at its edge with radially-projecting ears having openings for the reception of the head-tightening bolts, substantially as described.

2. In a banjo, the combination with the rim, provided at intervals with sound-openings as described, of a cap or cover closing the back of the rim and provided with a peripheral circular flange embracing the bottom edge of the rim and provided at its edge with a plurality of radially-disposed ears or integral brackets having openings for the reception of the head-tightening bolts, substantially as described.

3. In a banjo, the combination with the banjo-rim provided at intervals with sound-openings as described, of a head or sounding-board stretched across the upper portion of the rim, a hoop for stretching said head, a cap or cover closing the bottom of the rim and provided with a peripheral flange embracing said rim and provided at its edge with radially-disposed rigid ears having openings, and a series of head-tightening bolts provided at one end with hooks for engaging said hoop and having their opposite ends extended through said ears and threaded to receive the tightening-nuts all arranged substantially as described.

577,037. ELECTRIC SWITCH. CHARLES D. JENNEY, Indianapolis, Ind. Filed Apr. 7, 1896. Serial No. 586,499. (No model.)

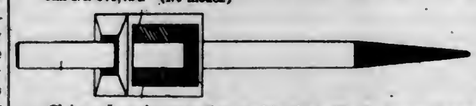


Claim.—1. In an electrical switch, the combination, of the switch-lever mounted to swing on a pivot over a series of contact-points arranged in the arc of a circle, a locking-arm pivoted adjacent to the path of the end of said lever and formed with its adjacent side substantially parallel with the arc in which said points are arranged, and of a length to extend from one end of said arc to the other, so that its ends are substantially opposite terminal points of said arc, and are arranged to engage opposite sides of said lever as it reaches said terminals and lock it in position, an electromagnet for holding said parts locked in one position, and mechanical means for holding them locked in the other position, substantially as set forth.

2. The combination, with the switch-lever of an electric switch, of a pivoted locking device therefor having a point jointed thereto and thus enabled to have a limited independent movement, substantially as set forth.

3. In an electrical switch, the combination of the lever the pivoted locking-arm formed with a joint near one end, the magnet for holding said device in position to lock said lever in one position, and mechanical means for holding it in the other, substantially as set forth.

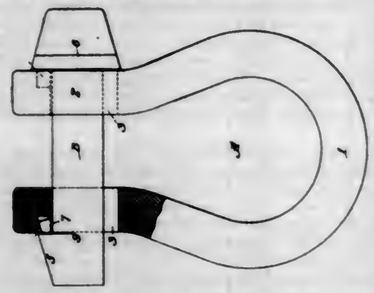
577,038. HARROW. SEYMOUR JOHNSON, Austin, Minn., assignor of one-half to Albert M. Smith, same place. Filed Jan. 16, 1896. Serial No. 575,724. (No model.)



Claim.—In a harrow, the combination with the harrow-beam, composed of parallel bars, of the tooth-holder provided with a longitudinal opening to receive the beam, and a central vertical opening to receive the harrow-tooth, and the pivotal connection between said holder and beam, consisting of a boss or projection upon one engag-

ing a socket in the other, said tooth when inserted in place between the parallel bars holding the same forced outward against the sides of the holder, and preventing slipping by reason of the pivotal connection, said bars being adapted to be sprung together when the tooth is removed to disengage the holder and beam.

577,039. LOCK-PIN SHACKLE. LINCOLN KING, Port Richmond, N. Y., assignor to the King Drop Forge Company, same place. Filed Mar. 23, 1896. Serial No. 584,496. (Model.)



Claim.—1. An improved lock-pin shackle composed of a substantially U-shaped yoke, having symmetrical eyes at its extremities elongated toward its loop, and provided with internal notches diametrically opposite such elongations, and a headed pin having at its point a one-sided projection corresponding with said elongations, and a spring-projected catch which interlocks with either of said notches

2. In a lock-pin shackle, a headed pin having a rigid withdrawal-resisting projection at its point, which is one-sided and provided with a locking-catch, in combination with a yoke having an eye through which said one-sided projection passes in one position only, and provided with a notch which interlocks with said catch in another position of the pin and fastens the pin against turning.

3. In a lock-pin shackle, a pin having withdrawal-resisting projections at both ends integral with the body of the pin, one of said projections being one-sided and recessed, and provided with a spring-projected catch pivoted within such recess and protruding only at the shoulder of said one-sided projection, in combination with a yoke having eyes through which said one-sided projection passes in one position, and a notch within one of said eyes which interlocks with said catch when the pin is turned to fasten it, substantially as hereinbefore specified.

4. In a lock-pin shackle, a pin having a one-sided projection at its point end and provided with a longitudinal recess crossing the shoulder of said projection, a catch pivoted within said recess by a pivot parallel to said shoulder and a catch-projecting spring located within said recess and having an arc-shaped bend occupying a corresponding cove in the catch, in combination with a yoke having elongated eyes through which said point of the pin is inserted in one position and a notch within one of said eyes which interlocks with said catch to fasten the turned pin, substantially as hereinbefore specified.

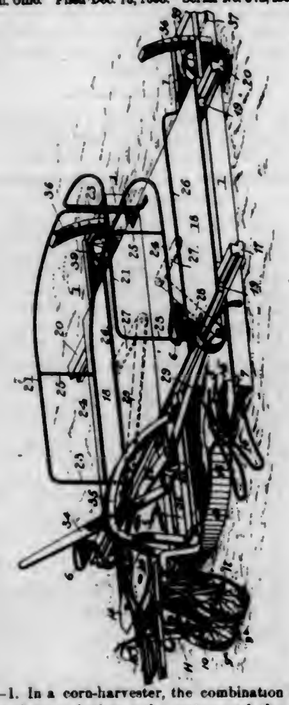
577,040. SAFETY-HOOK. LINCOLN KING, Port Richmond, N. Y., assignor to the King Drop Forge Company, same place. Filed Mar. 25, 1896. Serial No. 584,768. (No model.)



Claim.—1. The combination, substantially as hereinbefore specified, of a hook having a laterally-enlarged point, a suspension-ring or its equivalent from which said hook is suspended and which is movable downwardly relatively to said hook, and a shackle-bar suspended from and movable with said ring and having an opening which is fitted at its lower end to said point of the hook behind its enlargement and is widened above said lower end for the passage of said enlarged point when the shackle-bar is lowered.

2. The combination, in a safety-hook, of a hook proper having a suspension-eye in the same plane as its body and a laterally-enlarged point, a small ring permanently interlocked with said eye, a main suspension-ring, or its equivalent, permanently interlocked with said small ring, and a shackle-bar permanently interlocked with said main ring and having an opening fitted at its lower end to the point of the hook behind its enlargement, and widened above said lower end for the passage of said enlarged point, whereby the hook is adapted to be shackled and unshackled by simple movements in the plane in which the hook proper hangs, substantially as hereinbefore specified.

577,041. CORN HARVESTER AND SCHOCKER. HENRY LAFFON, Galion, Ohio. Filed Dec. 18, 1895. Serial No. 572,495. (No model.)



Claim.—1. In a corn-harvester, the combination with the side beams, the stationary platforms, the cutters and the guides, of the laterally-movable platforms, the curved guide-railings secured thereto, the links pivoted to said platforms, the levers pivoted thereto, the links connected with said levers, the horizontally-slidable block, the guideways therefor, the lever pivotally connected with said block, the segments to which said lever is pivoted, and the fenders secured to the side bars of the machine, substantially as described.

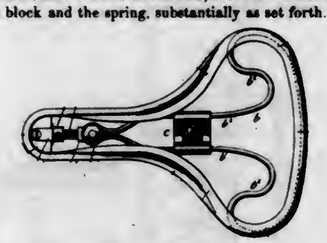
2. In a corn-harvester, the combination with the beams arranged in pairs at each side of the machine, the stationary platforms at the front thereof, the dovetailed rail extending across the machine and secured to said beams, and the short dovetailed rails at the rear of said beams with a space between their inner ends, of the laterally-movable platforms, the beveled guides on the under sides thereof engaging with said rails, the links and levers for operating said platforms, the curved guide-rails, and the fenders consisting of the rods secured at their rear ends to the inner side beams and extending horizontally to and beyond the front of the platforms and their ends turned outwardly at right angles and secured to the outer side beams, substantially as described.

3. In a corn-harvester of the character described, the combination with the parallel side beams arranged in pairs, the laterally-movable platforms and the guide-railings consisting of a curved metal rod the ends of which are turned downwardly at right angles and secured to said platforms and the curved horizontal and the vertical brace-rods, of the fenders consisting of the rod secured to the inner side beam near the end thereof, and extending above the platform to and in front of the front end thereof and then bent outwardly at a right angle and secured to the outer side beam, substantially as described.

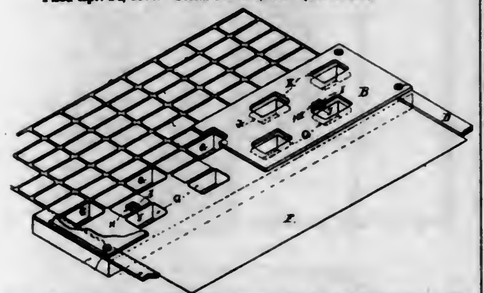
577,042. VELOCIPEDE SEAT OR SADDLE. FREDRICK LATULIP, Syracuse, N. Y., assignor of one-half to W. C. Smith, same place. Filed Mar. 21, 1896. Serial No. 584,286. (No model.)

Claim.—1. A velocipede seat or saddle constructed from molded sheet-rawhide and provided at its edge with a depending and an inwardly-extending flange, said flange being rigid and providing lodgment for the frame, substantially as set forth.

2. In combination with a seat or saddle provided at its edge with a depending and an inwardly-extending rigid flange, of a support comprising a spring a portion of which conforms to and is lodged within but unattached to the rear flanged edge of the saddle, a block lodged in the forward end or nose of the saddle, and a screw interposed between said block and the spring, substantially as set forth.



577,043. MULTIPLE CARD-CUTTING DIE. HARRY W. LAWRENCE, Denver, Colo., assignor to Singleton M. Morrison, same place. Filed Apr. 24, 1896. Serial No. 588,935. (No model.)



Claim.—1. A compound card-cutting die consisting of a plurality of dies and punches operatively adapted to one another and arranged in two or more rows, said rows being spaced a little farther apart than the width of the individual dies and arranged in alternate order and having a space between the dies of each row a trifle wider than the length of each individual die and having each alternate die of each row arranged in the center of the intermediate spaces of the opposite row, but laterally from them in the opposite row, substantially as described.

2. The combination in a compound card-cutting die of a die-plate having a plurality of matrices arranged in two rows of four and five matrices, each positioned relatively to one another as herein shown and described, guide-strips secured to the ends of said die-plate and extending beyond it on its feeding-in side parallel to one another and to the direction of the feed, a stripper-plate secured over the surface of the die-plate and gage-stops secured to the surface of said plate in position to gage the manual intermittent-feed movement of the cardboard sheets over said die-plate.

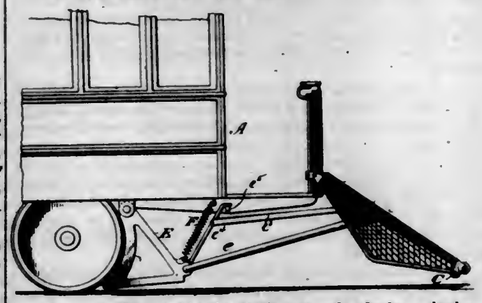
3. In a multiple card-cutting device for cutting cards from standard-sized sheets of cardboard, a combination of dies and punches arranged in successive but alternate order in two parallel independent rows as herein specified, a stripper secured over the surface of said die having openings in which said punches reciprocate in passing to and from said dies and adapted to fit them freely, guides for guiding the sheets of cardboard centrally to the dies, gages for determining the intermittent feed of the cardboard over said dies whereby each sheet of cardboard is cut into cards, with the exception of a narrow filament of paper all around the edge of each die, substantially as described.

4. In a rectangular card-cutting die the combination of a compound die comprising a die-plate containing two or more axially-alined rows of dies of equal size and having the dies of each individual row spaced a trifle farther apart from one another than the length of the individual dies, and having the dies of two or more rows arranged centrally of the spaces between the dies of the adjacent row or rows but laterally to one side of them a distance a trifle greater than twice the breadth of the individual dies from the center of one row of dies to the center of its adjacent row or rows and with a parallel intervening space between the opposing edges of the dies of each row a trifle greater than their individual breadth, with a like number of similarly-arranged coacting punches, substantially as described.

5. The combination of a card-cutting die, comprising a compound die consisting of coacting dies and punches adapted to receive and span standard sheets of cardboard, and having two parallelly-arranged rows of oppositely-disposed dies and punches of equal sizes, spaces between each separate die of each row greater than the length of the individual dies, and having each row of dies arranged laterally to one side of the outer edge of its adjacent row of dies a distance a trifle greater than the breadth of the individual dies, whereby a clear space intervenes between each two rows parallel with their length and wider than the breadth of the dies, and having the dies of each row positioned centrally in line with the blank space between the dies of the adjacent row and with a central point between them, with a stripper arranged over the surface of said dies having guide-apertures through which the punches reciprocate to and from said dies, means for reciprocating said punches through said stripper to and from said dies, and guide-strips for feeding said cardboards in alinement with the die, substantially as described.

6. A compound die for cutting standard-sized sheets of cardboard into rectangular-shaped cards, comprising a plurality of equally-sized dies and cooperating punches arranged in two parallel, differential rows, having the dies of one row extend across the width of standard-sized sheets of cardboard to within a narrow margin of its outside edges and spaced at equal distances apart and at a distance from one another a trifle greater than the length of the card and dies, having the other row of dies shorter than the first-named row and also spaced at like distances apart and positioned centrally between each two dies of the above-named row, but laterally to one side of them and to the dies' exterior edges a distance a trifle greater than the breadth of the cards to be cut and of the breadth of the dies, and means for arranging the dies and ponches in operative relation and for reciprocating said punches to and from said dies whereby standard sheets of cardboard are fed to the die and their entire available surface is cut into cards, substantially as described.

577,044. COMBINED CAR FENDER AND BRAKE. EDWIN S. LEAYCRAFT, Jersey City, N. J. Filed July 15, 1895. Renewed Dec. 28, 1896. Serial No. 617,291. (No model.)



Claim.—1. The combination, with a car, of a fender, a brake-shoe and a link pivoted to the brake-shoe and provided with an elongated slot embracing a pin extending from the fender, substantially as and for the purpose set forth.

2. The combination with a car, of a brake-shoe, a fender, a connection between the brake-shoe and the fender permitting the latter to vibrate to a limited extent independently of the former, but forming a rigid connection to force the brake-shoe into action upon an abnormal movement of the fender, a catch for normally holding the brake-shoe away from the wheel, and means for disengaging said catch, substantially as specified.

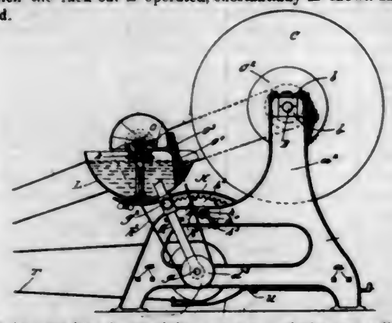
3. The combination with a fender of a pneumatic roller journaled at the front edge of the fender, substantially as specified.

4. The combination with a car, of a fender, a brake-shoe, a catch for normally holding the brake-shoe away from the wheel, means for disengaging said catch, and a link connecting the brake-shoe with the fender with which latter it has a resilient connection, substantially as specified.

577,045. MEANS FOR SUPPLYING WATER TO POLISHING-WHEELS. WILLIAM J. LEE, Brooklyn, and LOUIS ROUAULT, New York, N. Y. Filed Apr. 22, 1896. Serial No. 588,572. (No model.)

Claim.—1. In a machine for supplying water or a solution to a polishing-wheel, the combination with a suitable frame by which said polishing-wheel is supported, of a swinging frame mounted in the front of said polishing-wheel, and provided with a receptacle for receiving water or a polishing solution, said receptacle being provided with a stirrer and with a brush, which are operated for applying water or a solution to the polishing-wheel, and said frame and receptacle being provided with means whereby they may be adjusted toward or from the polishing-wheel, consisting of a rack-bar, connected with the bottom of said receptacle, and with said frame, and a shaft passing trans-

versely through the frame and provided with a gear or ratchet wheel, by which the rack-bar is operated, substantially as shown and described.



2. In a machine for supplying water or a solution to a polishing-wheel, the combination with a suitable frame by which said polishing-wheel is supported, of a swinging and adjustable frame which supports the receptacle for water or a solution, said swinging frame being provided with a transverse shaft, on which is mounted a gear-wheel which operates in connection with another gear-wheel arranged on a vertical shaft in said receptacle, said vertical shaft being provided with a stirrer, substantially as shown and described.

3. In a machine for supplying water or a solution to a polishing-wheel, the combination with a suitable frame by which said polishing-wheel is supported, of a swinging and adjustable frame which supports the receptacle for water or a solution, said swinging frame being provided with a transverse shaft, on which is mounted a gear-wheel which operates in connection with another gear-wheel arranged on a vertical shaft in said receptacle, said vertical shaft being provided with a stirrer, and said transverse shaft being provided with tubular casings a brush-support secured thereto, and said brush-support being adapted to be operated by said stirrer so as to bring the brush in connection with the polishing-wheel, substantially as shown and described.

4. In a machine for supplying water or a solution to a polishing-wheel, the combination with a suitable frame by which the polishing-wheel is supported, of a swinging frame connected therewith, in front of said wheel, and provided with means for regulating the position thereof, a suitable receptacle for water or other material supported by said swinging frame, a shaft connected with said swinging frame and with said receptacle, and a shaft at the lower end of said frame, and a stirrer mounted in said receptacle and adapted to be operated by a shaft with which the receptacle is connected, substantially as shown and described.

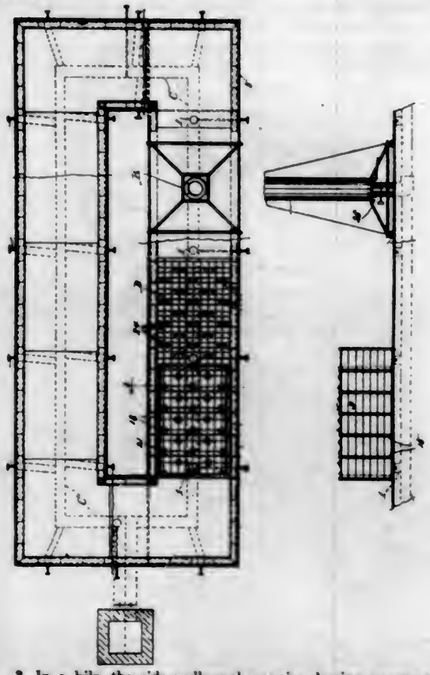
5. In a machine for supplying water or a solution to a polishing-wheel, the combination with a suitable frame by which the polishing-wheel is supported, of a swinging frame connected therewith, in front of said wheel, and provided with means for regulating the position thereof, a suitable receptacle for water or other material, supported by said swinging frame, a shaft connected with said swinging frame and with said receptacle, and a shaft at the lower end of said frame, and a stirrer mounted in said receptacle and adapted to be operated by a shaft with which the receptacle is connected, said receptacle being also provided with a brush which is supported by tubular casings mounted on said shaft, with which the receptacle is connected, and said brush-support being adapted to be operated by said stirrer, substantially as shown and described.

6. In a machine for supplying water or a solution to a polishing-wheel, the combination with a suitable frame by which the polishing-wheel is supported, of a swinging frame connected therewith, and which supports a receptacle for the water or solution, said swinging frame being provided with means for adjusting the position thereof, and said receptacle being mounted in front of the polishing-wheel, a shaft extending transversely of the top of the receptacle, tubular casings mounted on said shaft, a brush-support connected thereto a stirrer also mounted in said receptacle and adapted to be operated by said shaft, and means connected with said stirrer and with said tubular casings for operating the brush-support, whereby the water or solution is applied to a polishing-wheel, substantially as shown and described.

577,046. CONTINUOUS KILN. FRIEDRICH D. T. LIEBHAFN, Chicago, Ill., assignor of one-half to Peter N. Kohlmat, same place. Filed June 10, 1896. Serial No. 593,351. (No model.)

Claim.—1. In a kiln, having a floor and removable walls and chimney or stack, a flue situated beneath said floor, openings in said floor with which said flue communicates, and dampers controlling said openings, substantially as described.

2. In a kiln, the side walls and covering, and a yielding joint between said side walls and covering consisting of a connecting-piece or channel-bar with its edges resting on said parts, substantially as described.



3. In a kiln, the side walls and covering having grooves near their edges, and a channel-bar or connecting-piece, having its edges resting in said grooves, substantially as described.

4. In a continuous kiln, a floor, a flue below said floor, a plurality of openings in said floor communicating with said flue, removable walls and covering for said kiln, a stack or chimney, and means for establishing communication between said flue and stack or chimney, substantially as described.

5. In a continuous kiln, a floor, a flue below said floor, a plurality of openings in said floor communicating with said flue, removable walls and covering for said kiln, a movable stack or chimney, and means for establishing communication between said flue and stack or chimney, substantially as described.

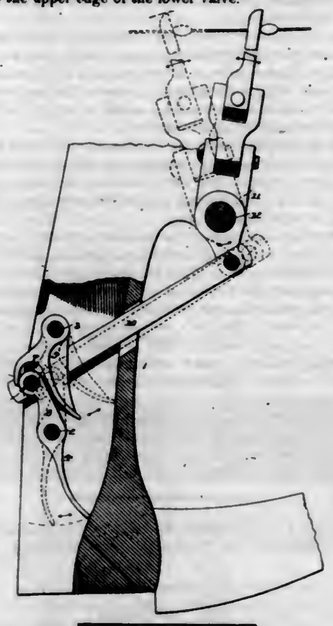
6. A kiln having a floor of hollow tile provided with openings at intervals to create a more perfect draft within said kiln, walls of hollow tile set up upon each side of said floor, and a covering of hollow tile adapted to be laid upon the brick or tile to be burned and between said walls and provided with openings at intervals through which fuel is fed to the kiln, substantially as described.

7. A kiln having a floor of hollow tile provided with openings at intervals to create a more perfect draft within said kiln, and transverse flues adjacent the ground to form an exit for dampness arising therefrom, walls of hollow tile set up upon each side of said floor, and a covering of hollow tile adapted to be laid upon the brick or tile to be burned and between said walls and provided with openings at intervals through which fuel is fed to the kiln, substantially as described.

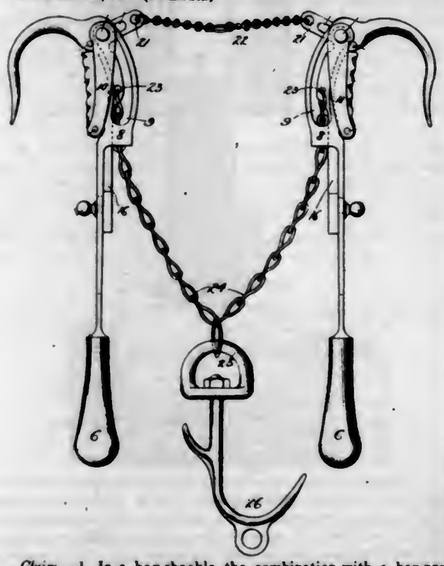
577,047. SEED-DROPPING MECHANISM. AUGUST LUDGREN, Moline, Ill., assignor to the Moline Plow Company, of Illinois. Filed Oct. 29, 1896. Serial No. 610,452. (No model.)

Claim.—1. The combination in a seeding-machine provided with a seed-discharge opening, of an upper valve mounted at its upper edge in said opening on a horizontal axis and having its lower edge arranged to close against the front wall of the opening, a lower valve mounted between its ends on a horizontal axis, its lower edge adapted to close against the front wall of the opening and its upper edge operatively connected with the upper valve and operating devices connected to the upper edge of the lower valve.

2. The combination in a seeding-machine provided with a discharge-opening of an upper valve mounted at its upper edge in said opening on a horizontal axis and formed in its rear face with a groove or socket, a lower valve mounted between its ends in said opening on a horizontal axis and having its upper edge rounded and seated loosely in the socket in the upper valve and operating devices connected to the upper edge of the lower valve.



577,048. HOG-SHACKLE. NATHAN MANDEL, Chicago, Ill., assignor to himself and Kate Roth, same place. Filed Nov. 19, 1896. Serial No. 612,684. (No model.)



Claim.—1. In a hog-shackle, the combination with a bar provided at its forward end with a hook and with a slotted portion opposite said hook, of an arm secured in said slotted portion, a connection between the outer end of said arm and the body of the device, and means for moving said arm to throw said connection across the hook-opening, substantially as specified.

2. In a hog-shackle, the combination with a bar provided at its forward end with a hook and with a slotted portion opposite said hook, and an arm movably secured in said slotted portion, of a slide movably secured to said bar and to the pivot of said arm, whereby upon the movement of said slide the arm can be thrown across the hook, substantially as specified.

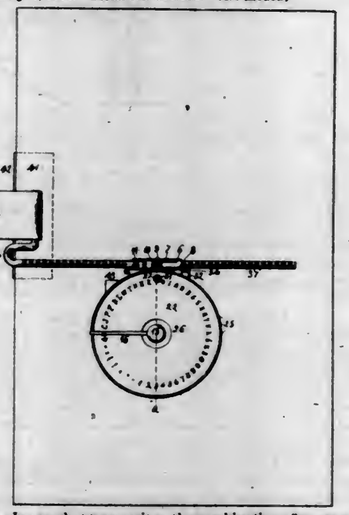
3. In a hog-shackle, a bar having at one end a hook, and provided with a slot at one side of said hook, in combination with two arms connected together at their ends, the upper connection traveling in said slot, a connection between the lower ends of said arms and the body of the device, and means for moving said arms to throw said last-named connection across the hook, substantially as specified.

4. In a hog-shackle, a bar having at one end a hook and provided with a slot at one side of said hook, in combination with two arms connected together at their ends, the upper connection traveling in said slot, of a slide movably attached near its lower end to said bar and movably attached at its upper end to the upper connection of said arms, and a flexible connection between the lower ends of said arms and the body of the device, adapted to be thrown across the hook when the said arms are moved downward by the slide, substantially as specified.

5. In a hog-shackle, a bar having at one end a hook and provided with two slots the planes of which are at right angles to each other and at the side of the hook, a slide movably secured in one of said slots, and a pair of antifriction-rollers traveling with the forward end of said rod, in combination with a pair of arms adapted to be moved by said slide, and a flexible connection between said arms and the body of the device, adapted to be thrown across the hook by the movement of the arms, substantially as specified.

6. In a hog-shackle, a bar provided at one end with a hook and with a slotted portion opposite said hook, arms movably secured on said slotted portion, and a connection extending from said arms to the body portion of said device and adapted to be thrown across the hook when said arms are moved, in combination with a slide for actuating said arms, a suspending-chain attached to said slide for locking the device as a whole to the leg of a hog, and another chain also attached to said slide for releasing the hog from the shackle when the weight of the hog is transferred from the first to the second of said chains, substantially as specified.

577,049. POCKET TYPE-WRITER. CHARLES P. MARS, Rockford, Ill. Filed May 7, 1896. Serial No. 590,632. (No model.)



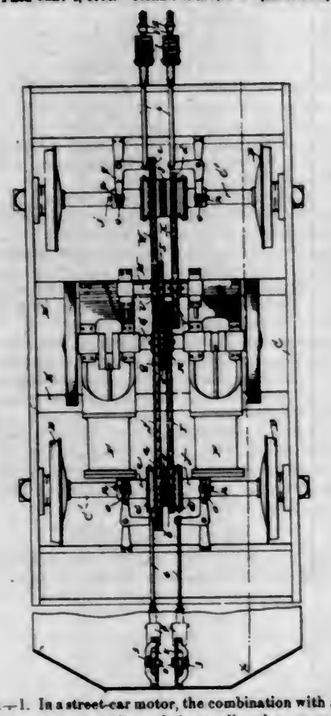
Claim.—1. In a pocket type-writer, the combination of a case containing the printing mechanism, a toothed rack, and an escapement connection between the case and rack, spring-actuated jaws having a pivotal connection, one of the jaws pivotally connected to the toothed rack and the other jaw provided with a gage.

2. In a pocket type-writer, the combination of a toothed rack, a case containing the printing mechanism, having a sliding engagement with the rack and an escapement connection therewith, the case having an outwardly-extending projection indicating the lower edge of the printing.

3. In a pocket type-writer, the combination of a case, a stationary dial-plate marked with the printing-characters, the upper edge of the plate provided with vertical notches, a disk located beneath the dial-plate provided with radial spring type-supporting arms, a stud connected with the disk extending through an opening in the dial-plate by which the disk is operated, having a pointer extending radial therefrom, a plate having a pivotal connection with the under face of the dial-plate and a connection with the stud, the plate sup-

porting a screw adapted to engage one of the type-arms forcing the type of the arm in contact with the paper.

577,050. **STREET-CAR MOTOR.** PHINEAS P. MAST, Springfield, Ohio. Filed June 1, 1896. Serial No. 593,702. (No model.)



Claim.—1. In a street-car motor, the combination with a driving-shaft adapted to rotate continuously in one direction, a counter-shaft rotated thereby in the opposite direction, the car-axles, operating wheels of larger and smaller diameters on each axle, means to connect and disconnect said wheels rotatably with said axles, and connecting mechanism between the driving-shaft and said wheels on one axle, and other connected mechanism between the counter-shaft and said wheels on the other axle, whereby the car may be run in either direction and whereby it may be run with variable speed and power without substantially changing the speed and power of the driving-shaft.

2. In a street-car motor, the combination of the driving-shaft adapted to rotate continuously in one direction, a counter-shaft rotated thereby in the opposite direction, a larger and a smaller sprocket-wheel on the driving-shaft and also on the counter-shaft, the car-axles and a larger and a smaller operating-wheel on each axle, means to rotatably connect either of said operating-wheels with its car-axle, and sprocket-chains connecting the smaller sprocket-wheel of the driving-shaft with the larger operating-wheel of one axle and the larger sprocket-wheel with the smaller driving-wheel of the same axle, and other sprocket-chains connecting the smaller sprocket wheel of the counter-shaft with the larger operating-wheel on the other axle and a larger sprocket-wheel of the counter-shaft with a smaller operating-wheel of the latter axle.

3. In a street-car motor, the combination with the driving-shaft adapted to rotate continuously in one direction, a counter-shaft rotated thereby in the opposite direction, the car-axles, a larger and a smaller operating-wheel on each car-axle, a connecting mechanism between the driving-shaft and the operating-wheels of one axle, and connecting mechanism between the counter-shaft and the operating-wheels of the other axle, all of said operating-wheels having clutch-surfaces, and a clutch member carried by the axles for each operating-wheel, and operating mechanism for each clutch member extending to the operator's position on the car.

4. In a street-car motor, the combination with the driving-shaft adapted to rotate in one direction, a counter-shaft rotated thereby in the opposite direction, said driving and counter shafts each having sprocket-wheels of different diameters, sprocket-chains on said sprocket-wheels, car-axles, operating-wheels of different diameters on each car-axle with which said chains respectively engage, a clutch-face on each operating-wheel and a clutch member on each axle for each of its operating-wheels, a lever mechanism for operating each clutch member to rotatably connect and disconnect each operating-wheel with its own axle.

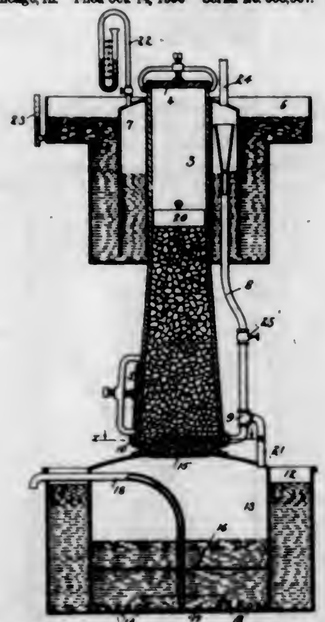
5. In a street-car motor, the combination with a car-axle, of operating-wheels of different diameters loosely mounted thereon, a disk fixed to the axle between the wheels and a friction-clutch surface on the outer sides of the wheels, a slidable friction-clutch member rotatably mounted on the axle and means to engage and disengage each member with its operating-wheel.

6. In a street-car motor, the combination with a car-axle, a disk fixed thereon, a sprocket operating-wheel with a conical friction-surface loosely mounted on each side of said disk, one wheel being larger than the other, a friction-clutch member for each wheel slidingly and rotatably mounted on the axle.

7. In a street-car motor, the combination with the car-axle, an operating-wheel, and a friction-clutch on the axle, and means to operate the slidable member of the friction-clutch, said means consisting of a lever mounted on the car, a rod divided into sections, a sleeve and a spring connecting said sections together as to tensile pulls and a part of the sleeve holding the sections to one another when pressed end to end, whereby said rods yield to tensile pulls but resist end-to-end pressure positively, one of said sections being connected to said lever and the other to the slidable member of the clutch through an intermediate device.

8. In a street-car motor, the combination with a divided driving-shaft, of a disk or plate fixed to each division of the shaft, means to connect said disks or plates, and a gear-wheel mounted on said disks or plates and secured thereto.

577,051. **ACETYLENE-GAS GENERATOR.** CHARLES MATTHEWS, Jr., Chicago, Ill. Filed Oct. 14, 1896. Serial No. 608,807. (No model.)



Claim.—1. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a receiver for the solid, a liquid-supply tank, an inverted receptacle within the tank and communicating at or near its lower end with the tank, a supply-pipe projecting into said receptacle and communicating also with the said receiver near the lower end thereof, and means for holding and conducting the gas formed by the union of the liquid and solid, substantially as specified.

2. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a receiver for the solid, a liquid-supply tank, an inverted receptacle within the tank that communicates at or near its lower end with the tank, a supply-pipe opening into said receptacle, and a perforated, annular, pipe within the lower end of said receiver and communicating with said supply-pipe, substantially as specified.

3. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a receiver for the solid, said receiver being enlarged at or near its lower end to receive a pipe, a perforated pipe arranged within such enlarged portion so as to offer no obstruction to the downward movement of the solid within the receiver, and means for feeding a liquid to said pipe for delivery onto the solid, substantially as specified.

4. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a receiver for the solid, a liquid-supply tank, a pipe for conducting the liquid to the solid in the receiver, a water-containing receptacle communicating with the lower end of said receiver and adapted to receive and hold the gas that is generated, and a pipe connecting said last-named receptacle with the water-supply pipe, whereby the gas may be conducted away for use, substantially as specified.

5. In an apparatus for forming gas by the union of a solid and a liquid, the receiver 3, tank 6, receptacle 7 within and communicating with said tank 6, pipe 8 leading from said receptacle 7 and connecting with the annular perforated pipe 10 in the lower end of said receiver, in combination with the tank 12, receptacle 13 within and communicating with the tank 12, and pipe 21 connecting the pipe 8 and receptacle 13, substantially as and for the purpose specified.

577,052. **COMB-CLEANER.** ROBERT D. MAYO, Frankfort, Mich. Filed Nov. 25, 1896. Serial No. 613,393. (No model.)



Claim.—1. The combination with a comb, having slots in the end teeth thereof, of a comb-cleaner having a bar provided with slots, each receiving one of the teeth of the comb, and projections on said bar moving within the slots on the end teeth of the comb and adapted to secure said cleaner to said comb.

2. The combination with a comb having slots in the end teeth thereof, of a comb-cleaner having a bar provided with slots, each receiving one of the teeth of the comb, an elastic strip, having slots therein registering with the slots in the bar, fastened to said bar, and projections on said bar moving within the slots in the end teeth of the comb adapted to secure said cleaner to said comb.

3. The combination with a comb having slots in the end teeth thereof and lateral lugs projecting within said slots, of a comb-cleaner having a bar provided with slots, each receiving one of the teeth of the comb, an elastic strip fastened to the bar and having slots therein, registering with the slots in the bar, said strip being adapted to closely embrace the sides of the teeth, and projections on said bar moving within the slots in the end teeth of the comb adapted to pass behind and be held by the aforesaid lugs.

4. The combination with a comb having slots in the end teeth thereof, of a comb-cleaner having a bar provided with slots, each receiving one of the teeth of the comb, an elastic strip, having slots therein registering with the slots in the bar, fastened to said bar, projections on said bar moving within the slots in the end teeth of the comb adapted to secure said cleaner to said comb, and gripping-pieces attached to said bar to reciprocate it upon said teeth.

577,053. **BOTTLE.** JAMES W. MOHN, Philadelphia, Pa. Filed Mar. 13, 1896. Serial No. 583,066. (No model.)

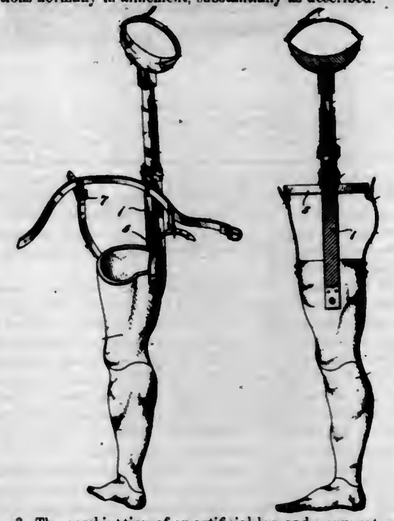


Claim.—A bottle having a flaring mouth which extends evenly all around the neck of the bottle, and a flat crescent-shaped web which covers over one edge of the mouth and forms a chamber within the mouth to hold a small quantity of fluid so as to insure a continuation of drops, a hole being made through the web at or near its center through which the drops pass, substantially as shown.

577,054. **ATTACHMENT FOR ARTIFICIAL LEGS.** WILLIAM MONAGHAN, Cheboygan, Mich. Filed Sept. 5, 1896. Serial No. 605,018. (No model.)

Claim.—1. The combination of an artificial leg, a support rigidly secured to the same at its lower end and provided between its ends with a hinged joint located above the artificial leg and arranged adjacent to the waist of the wearer, and means for attaching the support and the artificial leg to the body of the wearer, substantially as described.

2. The combination of an artificial leg, a support composed of upper and lower sections, the lower section being rigidly secured at its lower end to the artificial leg, an arm-rest arranged at the upper end of the upper section, a hinge connecting the adjacent ends of the sections and located at the front of the support, and an elastic connection located at the back of the support and maintaining the two sections normally in alinement, substantially as described.



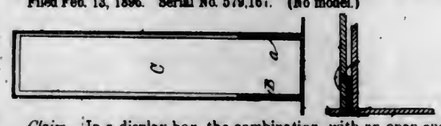
3. The combination of an artificial leg, and a support secured to the same provided at its top with an arm-rest and capable of longitudinal adjustment to vary its length to facilitate walking up or down hill, substantially as described.

4. The combination of an artificial leg, a support secured to the same and composed of two portions connected by an elastic joint located adjacent to the waist of the wearer, one of the portions of the support being composed of two telescoping sections and provided with an adjusting-screw arranged to be operated by the wearer to vary the length of the support, and means for attaching the support and the artificial leg to the body of the wearer, substantially as described.

5. The combination of an artificial leg, a support composed of upper and lower portions having an elastic joint, the upper portion being composed of two sections capable of longitudinal adjustment by the wearer, an arm-rest located at the top of the support and provided with a shoulder-strap, a waist-strap or belt attached to the lower portion of the support, and front and rear straps secured to the artificial leg and connected with the belt or strap, substantially as described.

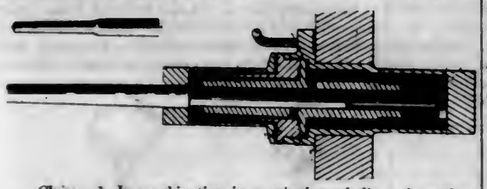
6. The combination with an artificial leg, of a support extending upward therefrom, provided at its top with an arm-rest, and having a suitable joint adjacent to the waist of the wearer, whereby it is adapted to yield to the movements of the upper portion of the body, substantially as described.

577,055. **DISPLAY-BOX.** WILL H. MOORES, Rochester, N. Y. Filed Feb. 13, 1896. Serial No. 579,167. (No model.)



Claim.—In a display-box, the combination, with an open-ended body portion, the wall of which is provided with an opening through which the contents may be seen, of a base-piece provided with an open box-like portion adapted to fit within the open end of the body, said base being extended beyond the body at all points, and provided with a perforation adjacent to the exterior of the box-like portion, and a fastener secured to the body near the open end and extending longitudinally along the inner surface of the body and between it and the box-like portion and extending through the opening in the base and being bent laterally thereupon, the bent end of the fastener being flexible and adapted to be bent into a straight line with the main portion of the fastener so that it may be passed through the opening in the base and the parts of the box may be separated by moving them longitudinally upon each other, substantially as set forth.

577,056. SPINNING-SPINDLE. WALTER G. MORRISON, Willimantic, Conn. Filed Oct. 29, 1895. Serial No. 567,296. (No model.)



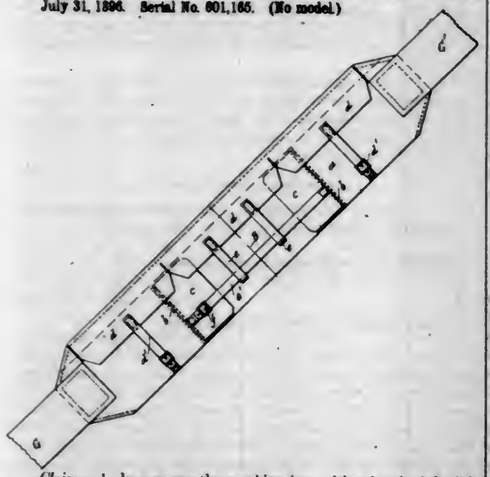
Claim.—1. In combination in a spinning-spindle, a base-piece having a socket, a bolster-bearing tube extending within the socket and having a flange, a collar overlying the flange and removably secured to the base-piece, a cushioning-spring located within the socket in the base-piece and thrusting upward against the flange on the bolster-bearing tube, a step-bearing within the base-piece, a spindle supported by the step and bolster bearings, and means for exerting an additional upward pressure upon the lower end of the cushioning-spring from the under side thereof on the tipping of the spindle, all substantially as described.

2. In combination in a spinning-spindle, a base-piece, a socket within the base-piece, a bolster-bearing tube having a flange and extending within the socket in the base-piece, a collar overlying the flange and secured to the base-piece, a cushioning-spring located in the socket in the base-piece and underlying the flange on the bolster-bearing tube, a socket-piece into which the lower end of the bolster-bearing tube extends and within which it loosely fits, an exterior flange or shoulder forming a support for the lower end of the cushioning-spring, and means for automatically raising the flange by pressure from underneath, all substantially as described.

3. In combination in a spinning-spindle, a socketed base-piece, a flanged bolster-bearing tube having its lower portion located within the socket in the base-piece, a cushioning-spring compressed below the flange on the bolster-bearing tube, a spindle having a bolster-bearing and a step-bearing within the mount, and a tilting socket-piece engaging the lower end of the bolster-bearing tube and held in normal position by the thrust of the cushioning-spring, all substantially as described.

4. In combination with a spinning-spindle, a mount comprising a base-piece, a tilting bolster-bearing tube, a tilting socket-piece in engagement with the bolster-bearing tube, and a cushioning-spring with one end underlying a shoulder on the bolster-bearing tube and the other overlying a shoulder on the tilting socket-piece whereby an automatic brake controlling the extreme tilting movement of the bolster-bearing piece by the action of the cushioning-spring is provided, all substantially as described.

577,057. PURSE. JOHN W. MYERS, Waterville, Ohio. Filed July 31, 1896. Serial No. 601,165. (No model.)

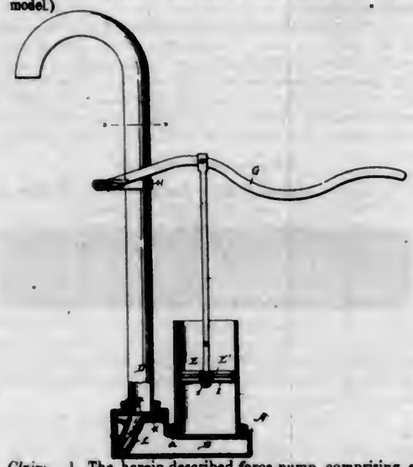


Claim.—1. In a purse, the combination, with a band of flexible material provided with a long compartment, of a flap closing the top of the compartment, and reinforcing-flaps at the ends of the said compartment, substantially as set forth.

2. In a purse, the combination, with a band of flexible material provided with a long compartment, of a flap closing the top of the compartment and provided with a depending loop, and a fastening-strap attached to the ends of the said compartment, passing through the end of the said loop, and preventing the middle portion of the compartment from bulging, substantially as set forth.

3. In a purse, the combination, with a band of flexible material provided with a long middle compartment and short end compartments, of a flap closing the center portion of the middle compartment, and flaps closing the end compartments and lapping over the end portions of the said middle compartment, substantially as set forth.

577,058. FORCE-PUMP FOR WELLS OR CISTERNS. LUTHER MYERS, Manmee, Ohio. Filed Feb. 27, 1896. Serial No. 580,952. (No model.)



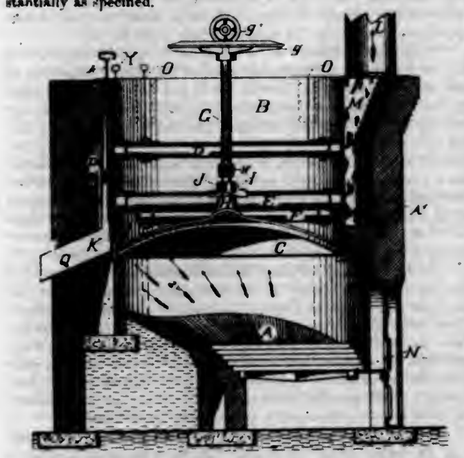
Claim.—1. The herein-described force-pump, comprising essentially the elongated chambered base-casting, the vertical submerged cylinder secured in one end portion of said casting and opening into the chamber thereof, the upper end of said cylinder being open and forming the induct of the pump, the spider-piston working in said cylinder and having a flexible disk secured centrally to the bottom thereof, the discharge-pipe connected to the opposite end portion of said casting, at the top thereof, the wall or diaphragm underneath the said pipe and having an oblique portion formed with a port therethrough, and with a horizontal portion above said port, a valve seat or bearing formed between the lower portion of said diaphragm and the adjacent end wall of the base-casting, and a valve loosely seated thereon and controlling said port, together with means for operating the said piston, substantially as specified.

2. In a pump of the character described, the combination of the chambered base-casting A, the vertical, open-ended cylinder-barrel C, secured in the upper wall of said casting, the piston having vertical openings therethrough and the flexible disk or washer, the piston-rod, the delivery or discharge pipe also secured in the upper wall of said casting, the wall or diaphragm underneath the lower end of said pipe and having the horizontal and the oblique portions, the latter having a port therein, the stop-valve which controls said port, the lever connected to the piston-rod, and the slotted clamp adjustably secured to the discharge or delivery pipe and to which said lever is connected, substantially as specified.

577,059. CALCINING APPARATUS. THOMAS MCNEAL, Gypsum City, Kans. Filed Dec. 11, 1895. Serial No. 571,742. (No model.)

Claim.—1. In a calcining apparatus, the combination with a furnace, of a smoke-box at one side thereof, a vessel supported in the furnace and having a space between it and the furnace-wall and also having a convex bottom, an upper set of flues extended across the interior of the vessel, a middle set of flues extended across the vessel directly under the upper set, and a lower set of flues extended across the vessel in a plane lower than the middle set, there being substantially the same relative distance between the bottom of the vessel and the said lower set of flues as between the bottom and said middle set of flues, and all of said flues providing a communication between the smoke-box and the space at the opposite side of the vessel, substantially as specified.

2. In a calcining apparatus, the combination with a furnace, of a vessel having a convex bottom suspended in the furnace and having a space between it and the wall of the furnace, a smoke-box for the furnace at one side of the vessel, flues extended horizontally through the vessel, providing communication between the smoke-box and the space at the opposite side of the vessel, the said flues being arranged in pairs one above another, the flues of each pair converging toward the smoke-box the flues of the two lower pairs having substantially the same relative distance from the bottom of the vessel, and the flues of the upper pair being of smaller diameter than the flues of the other two pairs, and dampers in the upper pair, substantially as specified.

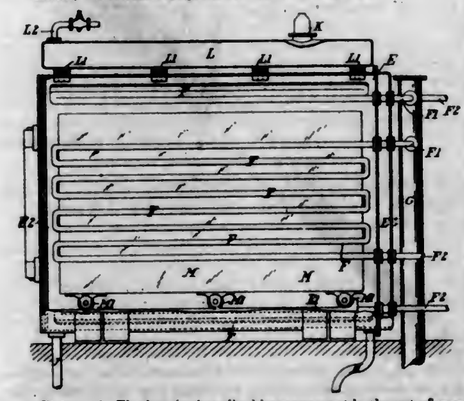


3. The combination with a calcining vessel provided with an upwardly-convexed bottom forming an acute angle to the side wall, of a vertical stirrer-shaft in the vessel and adjustable laterally with relation to the sides of the vessel, arms extended horizontally from the shaft, a series of plate-like scrapers having loose connection with the arms, and comprising an S-shaped scraper having its opposite ends loosely connected with the arms adjacent to the shaft, and substantially V-shaped scrapers having their ends loosely attached to the ends of the arms and adapted to engage the bottom and inner side wall of the vessel, substantially as specified.

4. A calcining apparatus, comprising a furnace, a vessel suspended therein provided with an upwardly-convexed bottom and having an outlet for material, a bridge or bar extended across the outlet, a vertical shaft in the vessel, arms extended from said shaft, and scrapers moved by said arms and comprising substantially V-shaped end scrapers, the said end scrapers being guided across the outlet by said bar or bridge, substantially as specified.

5. The combination with a calcining vessel, flues extending across the same and a vertical shaft in the vessel, of saddle-plates on, and adjustable longitudinally of the flues, and shaft-bearing-clips secured to and adjustable transversely of the saddle-plates, substantially as specified.

577,060. MANUFACTURE OF ARTIFICIAL STONE. WILLIAM OWEN, London, England. Filed June 15, 1896. Serial No. 595,551. (No model.) Patented in England Oct. 16, 1894. No. 19,647.

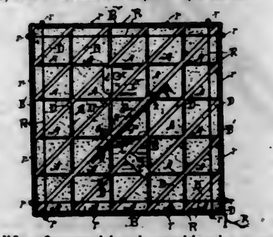


Claim.—1. The herein-described improvement in the art of manufacturing artificial stone under pressure, consisting in confining the ingredients in a suitable mold, applying water-pressure to the outside of the mold, and then heating the mold by a heating medium having no direct access to the mold or water: substantially as described.

2. The herein-described improvement in the art of manufacturing artificial stone under pressure, consisting in confining the ingredients in a suitable mold, applying water under pressure to the outside of the mold, shutting off the water-supply and subsequently raising the temperature of the water and mold by means of a heating medium having no direct access to the water or mold; substantially as described.

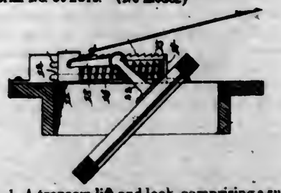
3. The herein-described improvement in the art of manufacturing artificial stone under pressure, consisting in confining the ingredients in a suitable mold, inclosing the mold in a casing, applying water under pressure to the outside of the mold, shutting off the supply of water, raising the temperature of the mold and water by steam having no direct access to the mold or water, drawing off the water from the casing and finally maintaining a reduced temperature within the casing, sufficient to dry the stone; substantially as described.

577,061. LIFE-RAFT. WINFIELD S. PALMER, Glenburn, Pa. Filed Nov. 15, 1895. Serial No. 568,019. (No model.)



Claim.—A life-raft comprising in combination a series of interlocked partitions B, the blocks A made up of a series of layers of cork and held in the spaces between the intersecting partitions B, the cans C, the strips D diagonally disposed over the tops of the said blocks and cans, and the ropes R secured about the keepers r, all substantially as shown and for the purpose set forth.

577,062. TRANSOM LIFTER AND LOCK. GEORGE M. PARSONS, Carson, Nev., assignor to Henry C. Cutting, same place. Filed June 9, 1896. Serial No. 594,816. (No model.)



Claim.—1. A transom lift and lock, comprising a support, a spring-controlled sleeve having sliding movement on the support, a rack-surface formed on the support, a pivoted latch carried by the sleeve and arranged to slide over and engage with the aforesaid rack-surface, and an arm likewise carried by the sleeve and arranged for connection with a transom, substantially as shown and described.

2. In a transom lift and lock, a support provided with a guide-bar and a toothed bar, and a spring coiled around the guide-bar, a sleeve held to slide over the toothed bar, having bearing upon one end of the spring, a crank-arm pivotally connected with the sleeve, and a latch pivotally connected with the said arm and arranged for engagement with the teeth of the said toothed bar, as and for the purpose specified.

577,063. DENTAL HANDPIECE. JOHANNES T. PEDERSEN, Woodside, N. Y. Filed Jan. 6, 1896. Serial No. 574,423. (No model.)

Claim.—1. The combination in a dental handpiece, of a case adapted to being held in the hand, a tool-holder within the case, a driving-shaft adapted to being connected to the flexible shaft of the dental engine, an internal spring surrounding a portion of the driving-shaft for giving end movement to the tool-holder to grasp the tool, and devices having opposing curved bearing-faces adapted to rock on one another and acting to compress the spring and positively move a portion of the driving-shaft longitudinally to remove the pressure on the tool-holder and permit the same to expand and release the tool when the rear part of the shaft is swung or deflected, substantially as set forth.

2. The combination in a dental handpiece, of a case adapted to be grasped by the hand, a spring connected with the rear end of such case, a tubular case surrounding the spring, and bearing at one end against the rear end of the case whereby the spring is distended when

the rear part of the case is deflected out of line with the hand portion of the case and such tubular case is restored into line with the case by the action of the spring, substantially as set forth.



3. The combination in a dental handpiece, of a case adapted to being grasped by the hand and having a collar at its rear end, a driving-shaft adapted to being connected to the flexible shaft of the dental engine, a screw-collar surrounding and sliding upon such shaft, a spring connected at one end with the screw-collar and at the other end to the collar of the handpiece, a tubular case around the spring with a nut at one end upon the screw-collar for adjusting the tension of the spring and devices having opposing curved bearing-faces for allowing the driving-shaft and tube to be turned or deflected into an angular position to the hand portion of the case and restored into line by the action of the spring, substantially as set forth.

4. The combination in a dental handpiece, of a case adapted to being grasped by the hand, a tool-holder to receive and grasp the tool by an end movement, a driving-shaft and an upper portion to the case around such driving-shaft and adapted to being deflected with that shaft into an angular position to the case, a connection from the driving-shaft to the tool-holder for rotating the same, an internal spring surrounding a portion of the driving-shaft for causing the tool-holder to grasp the tool and devices having opposing curved bearing-faces adapted to rock on one another and intervening between a portion of the driving-shaft and the spring for acting upon such spring to compress the same and to simultaneously and positively move a portion of the driving-shaft longitudinally to remove the pressure on the tool-holder and permit the same to expand and release the tool when the shaft is deflected, substantially as set forth.

5. The combination in a dental handpiece, of a case adapted to being grasped by the hand, a tool-holder to receive and grasp the tool by an end movement, a driving-shaft and an upper portion to the case around such driving-shaft and adapted to being deflected with that shaft into an angular position to the case, a connection from the driving-shaft to the tool-holder for rotating the same, an internal spring surrounding a portion of the driving-shaft for causing the tool-holder to grasp the tool and devices having opposing curved bearing-faces adapted to rock on one another and intervening between a portion of the driving-shaft and the spring for acting upon such spring to compress the same and to simultaneously and positively move a portion of the driving-shaft longitudinally to remove the pressure on the tool-holder and permit the same to expand and release the tool when the shaft is deflected, and an adjustment between the tool-holder and the spring for varying the action and adapting the tool-holder to different sizes of tools, substantially as set forth.

6. The combination in a dental handpiece with the spring tool-holding jaws tapering at both ends, of a sleeve receiving the spring tool-holder, an internal sleeve adjacent to the rear end of the spring tool-holder, a threaded adjusting-stem within the internal sleeve, a thrust-piece against which the adjusting-stem acts, the dental-engine shaft and mechanism intervening between the thrust-piece and such shaft for applying or relieving the pressure upon the thrust-piece, substantially as set forth.

7. In a dental handpiece, the combination with the rigid case A and collar a' having an internal rib, of the sleeve b' having a reduced end, the hard-metal collar b^3 at the end of the case A and sleeve b' and between the same and the rib of the collar a', substantially as set forth.

8. In a dental handpiece, the combination with the sleeve b' and the rod k from the dental-engine shaft, of the collar c', means for connecting the same to the rod k, the rod n, its head n' within the collar c' and a pin passing loosely through the head and into the collar c' to connect said parts, a head-block o around the rod n, the collar c' and head-block o having adjacent curved bearing-faces whereby said rod k may be rocked or deflected from its axial line, and an end movement given to the rod n, substantially as set forth.

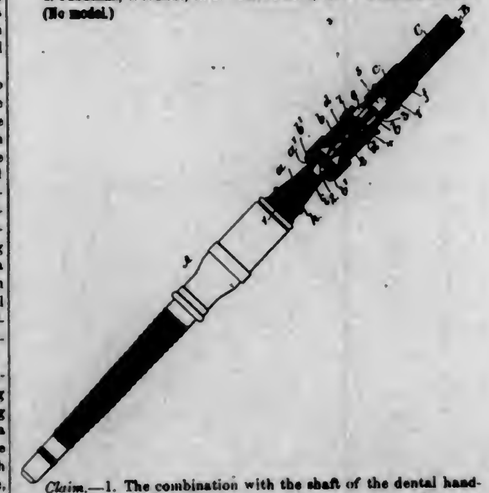
9. In a dental handpiece, the combination with the sleeve b' and the rod k from the dental-engine shaft, of the collar c' connected to said rod k and having an internal rib 11 and adjacent curved bearing-faces 19 at one end thereof, the rod n screw-threaded at one end and the sleeve m upon said threaded end, the head n' having a flaring hole and adjacent neck and bearing within the collar c' against the rib 11, the pin 16 passing through said collar and head, the head-block o received within the end of the sleeve b' and having curved bearing-faces 18 that bear on the faces 19 and the helical expansion-spring k around the rod n and acting against the sleeve m and inner end of the sleeve b' and block o to hold the faces 18 and 19 together tightly and the parts axially in line, substantially as set forth.

10. In a dental handpiece, the combination with the sleeves b b' and the spring tool-holder d', of the notched sleeves c' and m, the threaded adjusting-stem f within the sleeve c' and having a screw-driver notch 13, the rod n threaded at one end and screwing into the sleeve m, the thrust-piece r having reduced ends received within the notches of the sleeves c' and m and bearing at its ends upon the ends of the rod n and stem f respectively, the parts being adjusted longitudinally by the rotation of the stem f, by an instrument inserted in the room of the operating-tool, substantially as set forth.

11. In a dental handpiece, the combination with the rigid case A, of the helical spring a, the collar c' having a threaded coupling-2 by which it is connected to the case A and an enlarged end recessed, the collar a^2 threaded at the back end and fitting within the spring a, the ends of the helical spring being permanently connected to the collars, and a tubular case l screwing at one end upon the collar a^2 and at the other end fitting within and bearing against the enlarged end of the collar a' and covering the spring a, substantially as and for the purposes set forth.

12. In a dental handpiece, the combination with the sleeve b' and rod k from the dental-engine shaft, of the collar c' having an internal rib 11 and adjacent curved bearing-faces 19 at one end thereof, the head-block o received within the end of the sleeve b' and having curved bearing-faces 18 bearing on the faces 19, the rod n, the head n' thereon and within the collar c' bearing upon the rib 11, a helical spring for drawing the parts into axial line and means for connecting the head n' or rod k or both to the collar c' to cause them to rotate together, substantially as set forth.

577,064. SLIP-JOINT FOR DENTAL HANDPIECES. JOHANNES T. PEDERSEN, Woodside, N. Y. Filed Mar. 2, 1896. Serial No. 581,506. (No model.)



Claim.—1. The combination with the shaft of the dental handpiece, the flexible driving-shaft to the dental engine, a coupling connection between the ends of the respective shafts, and a handpiece having a globular head upon its rear end, of a tubular bearing and a connection therefrom to the covering of the flexible driving-shaft of the dental engine, said tubular bearing having claws engaging the globular head upon opposite sides and a longitudinally-movable tubular clip surrounding said tubular bearing and adapted to be sprung over the globular head to engage and connect the parts, substantially as specified.

2. The combination with the case of the dental handpiece and its shaft, the flexible shaft to the dental engine, and an internal coupler for connecting the ends of the respective shafts, of a coupling having a globular head connected upon the rear end of the handpiece-case, a tubular bearing and a connection therefrom to the covering of the flexible shaft of the dental engine, said tubular bearing having claws receiving between them and engaging the globular head upon opposite sides, and a longitudinally-movable tubular clip surrounding said tubular bearing and adapted to be sprung over the globular head to engage and connect the parts, and a connection from the tubular clip to the internal shaft-coupler, whereby said coupler is longitudinally moved simultaneously with the movement of said tubular clip, substantially as set forth.

3. The combination with the case of the dental handpiece and its operating-shaft, and the flexible driving-shaft and covering from the dental engine, of a longitudinally-movable coupler for operatively connecting the respective shafts, a coupling having a globular head at the rear end of the dental handpiece, a tubular bearing receiving the aforesaid coupler and having projecting claws between which the globular head is received laterally and a connection therefrom to the flexible covering, said tubular bearing being slotted at one side, a sliding tubular spring-clip surrounding the tubular bearing and adapted to be moved longitudinally and sprung over the globular head in connecting the parts together, a pin passing through said tubular clip and through the slot of the tubular bearing and engaging the internal coupler whereby said coupler can be moved longitudinally and simultaneously with the said tubular clip in engaging or disengaging the parts, substantially as set forth.

4. In a coupling for connecting dental handpieces and the flexible covering of the dental-engine shaft, the combination with a universal slip-joint coupling, of the handpiece-shaft A slotted at its rear end, the stem f slotted at its forward end, the flexible dental-engine shaft to which the stem is connected, a longitudinally-movable coupler and means for moving the same and devices connected with the respective ends of said coupler for engaging the slotted ends of the handpiece-shaft and the said stem f, substantially as set forth.

5. In a coupling for connecting dental handpieces and the flexible covering of the dental-engine shaft, the combination with a universal slip-joint coupling, of the handpiece-shaft A slotted at its rear end, the stem f slotted at its forward end, the flexible dental-engine shaft to which the stem is connected, a coupler provided at one end with a head 2 and cross-pin, and at the rear end which is of reduced diameter with a cross-pin 3 and with an annular groove 4, the said head and cross-pins respectively engaging the slotted end of the shaft A, and means for longitudinally moving the coupler substantially as set forth.

6. The combination with the dental handpiece, its shaft, the flexible shaft to the dental engine, and its covering, of a universal slip-joint coupling connecting the handpiece and the sleeve at the end of said flexible covering, a stem connected to the dental-engine shaft and having a collar and a washer 8 received between the rear end of the universal slip-joint coupling and the inner end of the connecting-sleeve and a universal coupler for connecting the shaft of the handpiece and the stem of the driving-shaft, substantially as set forth.

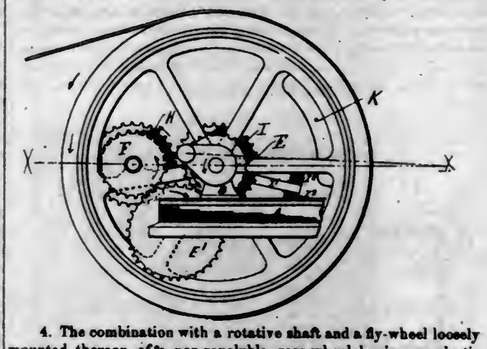
7. The combination with the dental handpiece and the screw-coupling a and its globular head a', of the tubular bearing b having claws b' projecting from one end and at opposite sides, the sliding tubular clip d surrounding the tubular bearing b and longitudinally slotted at opposite sides for part of its length to spring over the globular hand, the inner face of the extreme slotted end being of a diameter slightly smaller than the globular head so as to be sprung over said head, substantially as set forth.

577,065. DIFFERENTIAL FLY-WHEEL. BENJAMIN C. POLE, Camden, N. J. Filed Mar. 1, 1892. Serial No. 423,379. (No model.)

Claim.—1. The combination, with an engine-motor, of a single sustaining rotative central shaft and single gear-wheel keyed thereto, a fly-wheel, loosely mounted on said shaft, a stationary, non-revoluble wheel and a series of gear-wheels on shafts carried by said fly-wheel and forming connection between said shafts and said non-revoluble wheel, substantially as and for the purposes described.

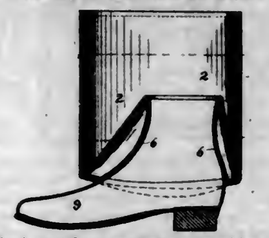
2. The combination with a single sustaining central rotative shaft, of a fly-wheel loosely mounted thereon, a gear-wheel fast on said shaft, an idle-wheel on a shaft carried by the said fly-wheel, two gear-wheels, one of which is on each end of a shaft carried by said fly-wheel, and a stationary, non-revoluble gear-wheel, in position to engage one of said two gear-wheels, the latter forming connection between the said non-revoluble wheel and the said idle-wheel which engages with the gear-wheel on the shaft of the fly-wheel, substantially as set forth and described.

3. The combination with a rotative shaft, of a fly-wheel loosely mounted thereon, a stationary non-revoluble wheel, a series of gear-wheels on shafts carried by said fly-wheel and forming connection between said non-revoluble wheel and the shaft of said fly-wheel, the latter being provided with a raised line or annular ridge on its periphery, adapted to retain belting in position thereon, substantially as set forth and described.



4. The combination with a rotative shaft and a fly-wheel loosely mounted thereon, of a non-revoluble gear-wheel having an elastic connection with a fixed base, said elastic connection consisting of an arm and springs, and a series of gear-wheels forming connection between said rotative shaft and said non-revoluble gear-wheel, substantially as and for the purposes described.

577,066. PANTALOONS-PROTECTOR. LLOYD B. POTTER, Emporia, Kans. Filed July 31, 1896. Serial No. 601,154. (No model.)



Claim.—1. A pantaloons-protector comprising an outside portion, an ankle portion, and an inside portion located intermediate of the outside and ankle portions; substantially as described.

2. A pantaloons-protector comprising an outside portion, an ankle portion, and an inside portion located intermediate of the outside and ankle portions; the ankle portion folding within the inside portion, and the inside portion folding within the outside portion; substantially as described.

3. A pantaloons-protector comprising an outside portion, having an inside portion, and a horizontal folding rib between the outside and inside portions, and an ankle portion; substantially as described.

4. A pantaloons-protector comprising an outside portion, an inside portion having a side opening, and an ankle portion having a side opening and suitable fastenings for closing the side openings; substantially as described.

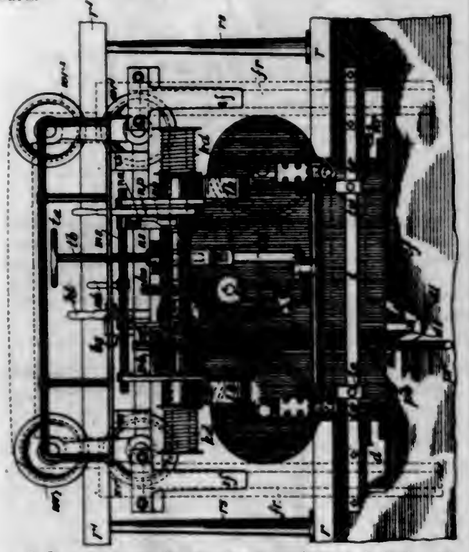
5. A pantaloons-protector comprising an outside portion, an ankle portion having a side opening, and suitable fastening and an inside portion having a side opening, and a tongue for closing the side openings; substantially as described.

6. A pantaloons-protector comprising an outside portion having vertical stiffeners, an ankle portion having vertical stiffeners, and an inside portion located intermediate of the outside and ankle portions; substantially as described.

577,067. APPARATUS FOR CLOSING BREAKS IN HULLS OF SHIPS. JOSEF PROFT, New York, N. Y. Filed Apr. 20, 1896. Serial No. 588,359. (No model.)

Claim.—1. In an apparatus for stopping a break in the hull of a ship, the combination with a flexible plate adapted to cover the break in the hull of the ship and to be secured thereto, of a combined hoisting and conveying carriage, comprising a main shaft mounted in bearings on a movable frame, hoisting-drums rigidly secured, one on each end of the shaft, a sleeve keyed to the main shaft, a worm-wheel rotating thereon, a driving-shaft pillowed in the frame of the carriage, underneath the main shaft, a grooved pulley rigidly keyed to the driving-shaft and adapted to be driven by a cable, a worm rigidly

connected to the driving-shaft, and gearing with the worm-wheel, a sliding clutch keyed to the main shaft, and adapted to clutch with the worm-wheel, a sliding shaft pillowed in brackets above the main shaft, a forked shifter secured to the sliding shaft and engaging in the groove of the clutch, a handle projecting through the platform of the carriage and secured to the sliding shaft, a ratchet-wheel and a brake-collar joined with the sleeve, a pawl pivoted in the bracket, supporting the bearing of the main shaft, a handle secured to the pawl and projecting upward through the platform of the carriage, a pin set in the handle, a brake comprising a spring inclosing the brake-collar and a rigid lever secured thereto and resting against the pin set in the handle, the spring pressing also the pawl against the ratchet-wheel.



2. In an apparatus for stopping a break in the hull of a ship, comprising a flexible plate, adapted to cover the break in the hull of the ship and to be secured thereto, and an ambulant hoisting-machine adapted to be driven by an endless cable, passing in opposite directions over a grooved driving-wheel rigidly connected to the driving-shaft, the combination with the grooved driving-wheel of grooved guide-wheels, set in pairs on both sides of the driving-wheel and forcing the cable to pass partly around the driving-wheel, thereby increasing the length of contact between the cable and the driving-wheel and also the friction.

3. In an apparatus for stopping a break in the hull of a ship, comprising a flexible plate adapted to cover the break in the hull of the ship and to be secured thereto, and a movable hoisting-machine, adapted to be driven by an endless cable passing in opposite directions over a grooved driving-wheel rigidly connected to the driving-shaft, the combination with the hoisting apparatus and with the truck-wheels, set in the frame and adapted to convey the hoisting-machine on rails provided around the ship's deck, of an apparatus for gripping the cable, comprising two fixed jaws secured to the frame of the carriage, one on each side of the driving-wheel, movable jaws secured to tails, sliding in dovetailed grooves provided in the frame of the carriage, pins set in the tails of the movable jaws, levers fulcrumed in the carriage-frame engaging the pins, springs connected to the ends of the levers and drawing the jaws apart, an oscillating disk keyed to a pivot turning in bearings in the frame of the carriage, pins operating the levers set in the oscillating disk, a crank rigidly keyed to the pivot of the oscilating disk, a hand-lever pivoted to the carriage-frame, a rod connecting the crank keyed on the pivot of the oscillating disk, a disk set on the pivot of this lever, the hand-lever projecting through the platform of the carriage and turning the oscillating disk when moved from its normal position, thereby closing the jaws and gripping the cable, and starting the carriage in the same direction as the hand-lever is moved.

4. In an apparatus for stopping a break in the hull of a ship, comprising a flexible plate adapted to cover the break in the hull of the ship and to be secured thereto, and a movable hoisting-machine adapted to be driven by an endless cable passing in opposite directions over a grooved driving-wheel rigidly connected to the driving-shaft, the combination with the apparatus for automatically releasing the grip of the cable, of a rail-brake comprising a brake-shoe adapted to be pressed against the rail, a stem secured in the brake-shoe, a spiral spring set on the stem of the brake and pressing the shoe against the rail, a pin secured adjustably to the stem of the brake, a cam-lever oscillating on a pivot, set in the frame of the carriage, a cam with two projections rigidly secured to the pivot of the hand-lever operating the cable-gripping apparatus, and pressing against the oscillating lever, forcing it downward, and thereby withdrawing the brake from the rail, when the lever is moved from its normal position to grip the cable.

5. In an apparatus for stopping a break in the hull of a ship, comprising a flexible plate adapted to cover the break in the hull of the ship and to be secured thereto, and a movable hoisting-machine adapted to be driven by an endless cable passing in opposite directions over a grooved driving-wheel, rigidly connected to the driving-shaft, the combination with the apparatus for gripping the cable, of a contrivance for automatically releasing the grip of the cable and for stopping the carriage in the place, where the break occurred, the contrivance comprising a spring-actuated stopper pivoted in the hull of the ship, a wire strung in zigzag lines across the section of the ship, and holding the stopper within the hull, the stopper being projected from the hull of the ship when the wire is broken by a collision, a slotted plate sliding in bearings provided in the frame of the carriage, a slotted stop-bar sliding in the same bearing, a doubly-armed lever pivoted to the frame of the carriage and engaged with its shorter arm in the slot of the sliding plate, and with its longer arm in the slot of the stopping-bar, a lever secured to the pivot of the oscillating disk, operating the cable-gripping mechanism and engaging in a slot of the sliding plate, the lever moving the sliding plate when the oscillating disk is turned, setting thereby the stopping-bar accordingly in the directions in which the carriage moves, and turning again the oscillating disk, disengaging thereby the cable-gripping mechanism and also the rail-brake, when the stop-bar strikes against the stop projecting from the hull of the ship and by which its forward motion is arrested.

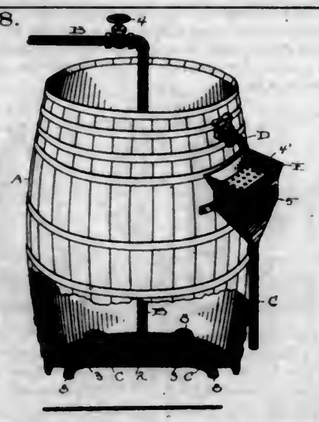
6. In an apparatus for stopping leaks in hulls of ships, comprising a flexible plate adapted to cover a break in the hull of the ship and to be secured thereto, and a movable hoisting-machine adapted to convey the plate to the place of the break and to lower the same in the required position, the combination with the conveying and hoisting apparatus and with a frame guiding the plate in its descent, of a device for pressing the plate to the hull of the ship when finally adjusted in position, the device comprising a rigid cross-tie having apertures through which the guiding-frame slides vertically, studs secured in the frame of the carriage and supporting the cross-tie on the frame of the carriage, racks rigidly secured to the cross-tie, a shaft set in bearings secured to the carriage from above the cross-tie, cog-wheels gearing with the rack keyed to the shaft, a crank rigidly secured to the shaft, a screw-threaded block adapted to slide vertically in a slot, provided in the frame of a carriage, a connecting-rod connecting the crank secured to the shaft, with the sliding block, a screw-threaded shaft engaging in the screw-thread of the sliding block, set vertically in brackets above the sliding block and projecting upward through the platform of the carriage, stop-collars secured to the screw-threaded shaft on both sides of the bracket, and a hand-wheel secured to the screw-threaded shaft and adapted to turn the shaft, thereby moving the sliding block upward and turning the crank and the shaft connected thereto, the cog-wheels then forcing the cross-tie and, with it, the guiding-frame of the plate engaged in the apertures on the ends thereof, and the plate itself to the hull of the ship.

7. In an apparatus for stopping the leaks in hulls of ships, comprising a flexible plate adapted to cover a break in the hull of the ship and to be secured thereto, and a movable hoisting-machine adapted to convey the plate to the place of the break and to lower the same into required positions, the combination with electrical signaling devices and with an oscillating anchor located between two contact-pieces, a recoil-spring set on the pivot of the oscillating anchor, and pressing it against one of the contact-pieces, of wires strung in zigzag lines, separately in each section of the ship, the wire holding the anchor against the pressure of the spring between the two contact-pieces, the spring throwing it over to the contact-piece when the wires are broken, whereby the electric circuit, actuating the signaling devices and closing switches, starting the machines and other apparatus, is closed, and the break and its location in the hull are signaled on the deck of the ship and in other places as may be required.

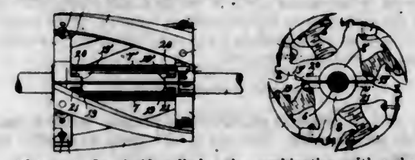
577,068. APPARATUS FOR MAKING BRINE. BARTHOLOMEW B. QUINN, Cleveland, Ohio. Filed Feb. 23, 1896. Serial No. 581,187. (No model.)

Claim.—The apparatus for making salt brine consisting of the tank open at its top, the water-supply pipe B provided with a cock to regulate the flow of water, the spraying-arms C fed by said pipe and shoes supporting the ends of said arms, and a outlet for the brine near the top of the tank, substantially as described.

577,068.



577,069. KNIFE-CYLINDER. EDWARD W. SAIBERLICH, Appleton, Wis. Filed June 13, 1896. Serial No. 595,438. (No model.)

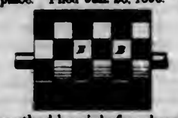


Claim.—1. In a knife-cylinder, the combination, with a shaft, of two registering elongated partly-circular bearings, having projections radiating from the registering ends thereof, blades connecting said projections, and means for clamping the half-sections to the shaft, whereby said sections revolve with the shaft under ordinary strain, but slip on said shaft under abnormal strain.

2. In a knife-cylinder, the combination, with a shaft, of two registering elongated partly-circular bearings having projections radiating from the registering ends thereof, said projections provided at their outer ends with feet having elongated slots therethrough, said feet provided at their heels with lugs, blades connecting the feet of opposite projections, bolts passing through said blades and through the elongated slots of the feet, nuts on the threaded ends of said bolts, set-screws passing through the lugs and bearing against the back edges of the blade, and means for clamping the half-sections to the shaft, whereby said sections revolve with the shaft under ordinary strain, but slip on said shaft under abnormal strain.

3. In a knife-cylinder, the combination, with a shaft, of two registering elongated partly-circular bearings provided with registering end enlargements, projections radiating from said end enlargements, registering lugs also extending from the respective end enlargements, clamping-bolts passing through said lugs, and blades connecting the projections.

577,070. METHOD OF PRODUCING MOLDS FOR PAPER-MAKING MACHINES. HARRY SANDHAM, Spokane, Wash., assignor to Samuel Crump, same place. Filed Jan. 20, 1896. Serial No. 576,064. (No model.)

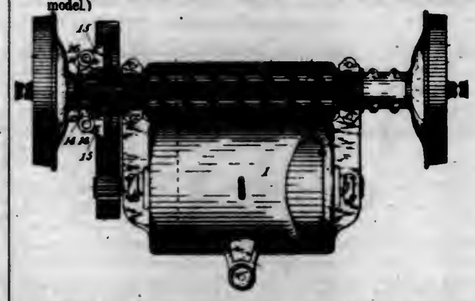


Claim.—1. The method hereinbefore described of forming a pattern on the wire mold of a paper-making machine, which consists in applying to the obverse face of the wire a protecting-surface, forming a backing for the reverse face of the wire in material which will resist electrolytical deposition, applying to the upper surface of said backing a metalized surface and the design in material which will resist electrolytical deposition, applying said backing to the reverse side of the wire and permanently depositing metal by electrolytic action upon the said metalized surface to form the pattern and close the meshes of the wire, except at points where said meshes are protected from electrolytical deposition by means of said design and protecting-surface.

2. The method hereinbefore described of forming a pattern on the wire mold of a paper-making machine, which consists in providing a backing in material which will resist electrolytical deposition, applying a metalized surface and the design in non-conducting material upon the upper surface of said backing, applying said backing and design to one side of the wire, and closing all of the meshes of the wire outside of the outlines of said design by means of electrolytical deposition.

3. The method hereinbefore described of forming a pattern on the wire mold of a paper-making machine, which method consists in providing a backing having a metalized upper surface for the reverse face of the wire, applying the design in material which will resist electrolytical deposition upon the said upper surface of said backing, applying said backing and design to one side of the wire, and closing all of the meshes of the wire outside of the outlines of said design by means of electrolytical deposition.

577,071. ELECTRIC RAILWAY-MOTOR. ALBERT SCHMID, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed June 4, 1895. Serial No. 551,658. (No model.)



Claim.—1. The combination with a car-axle and a motor supported at one side by said axle, of a plurality of springs circumferentially arranged around said axle and bearing against the same, a bearing for said motor interposed between the same and the outer ends of said springs and gearing between the motor-armature, the bearing and the axle, whereby all of said parts rotate together.

2. The combination with a vehicle-axle and a hollow shaft or tube surrounding the same, of springs interposed between said parts and located above, below and at the sides of the axle, a gear-wheel keyed to said shaft, a coupling between said gear-wheel and the axle, whereby the said parts and the interposed springs rotate together, and an electric motor the field-magnet frame of which is provided with bearings for said hollow shaft and the armature of which has a pinion meshing with said gear-wheel.

3. The combination with a vehicle-axle and a hollow shaft surrounding the same, of a plurality of coiled springs interposed between the axle and shaft and located above, below and at the sides of the axle, an electric motor supported at one side by said shaft, and at its other side by a spring connection with the truck-frame, gearing between the motor-armature and the hollow shaft and a yielding connection between said shaft and the axle whereby the said parts may have a slight movement independent of each other but rotate together.

4. The combination with a vehicle-axle and a hollow shaft surrounding the same, of a plurality of springs disposed between the axle and the shaft, a gear-wheel keyed to said shaft and provided with laterally-projecting lugs, a collar keyed to the axle and provided with lugs, springs interposed between said lugs and the lugs on the gear-wheel and an electric motor having a field-magnet sleeved at one side upon the hollow shaft and spring-supported from the truck-frame at its opposite side and having a pinion on its armature-shaft which meshes with the gear-wheel carried by the hollow shaft.

577,072. CLASP FOR TROUSERS. ALOIS SCHRANEK, New York, N. Y. Filed Nov. 24, 1896. Serial No. 613,345. (No model.)



Claim.—1. A trousers guard or fastener, comprising spaced connected uprights or fingers, one of which is adapted to lie within the trousers-bottom and the other upon the outside thereof and to form a fulcrum upon which the device is turned, and a spring-clasp connected to said device and adapted to engage the trousers-bottom, substantially in the manner and for the purpose described.

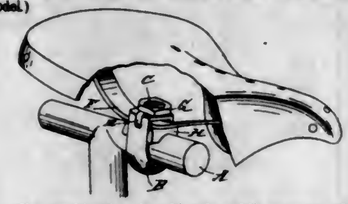
2. A trousers guard or fastener, comprising connected and upwardly-converging fingers or arms, and a spring-clasp connected to said device adjacent to the lower end of said arms, substantially as described.

3. A trousers guard or fastener consisting of a spring provided at each end with an upright, and a spring-clasp arranged at or near one end of said spring and adapted to engage with the trousers-bottom, substantially as and for the purpose described.

4. A trousers guard or fastener, comprising a leaf-spring, upwardly-converging arms or fingers at the opposite ends of said spring, and a spring-clasp located near one end of said spring and adapted to engage with the trousers-bottom, substantially as described.

5. A trousers guard or fastener, comprising a leaf-spring, an upright at one end of said spring, a second and slightly oblique upright at the opposite end of said spring, said uprights being extended below said spring and in a plane parallel thereto, and a spring-clasp connected to said extension, all arranged substantially as described.

577,073. **MEANS FOR ATTACHING BICYCLE-SADDLES.** BENJAMIN S. SEAMAN, Canton, Ohio. Filed Dec. 26, 1895. Serial No. 572,961. (No model.)



Claim.—The combination, in a bicycle-saddle support, of a link having a threaded neck portion and a slot extending entirely through the neck in a direction of its length and terminating in the body of the link, the block, E, provided with a neck portion, the block being fitted in that part of the slot that terminates in the body of the link, and the neck of the block located in the slot of the screw-threaded neck, a saddle-piece, H, located between the sides of the link and below the block, and a nut adapted to engage the screw-threaded neck, substantially as set forth.

577,074. **DEVICE FOR FORMING BUTTER-BALLS.** CHARLES H. SEITZ, Detroit, Mich. Filed Apr. 23, 1896. Serial No. 588,784. (No model.)



Claim.—1. A device for forming butter balls or "rolls" comprising a shank portion, a hook-shaped portion bent to extend on both sides of the shank portion, said hook-shaped portion having a cutting edge on its convex face and notches or grooves on its concave face, substantially as described.

2. A device for forming butter-balls comprising a handle, and a curved blade having an interrupted or notched edge on its inner face, and a continuous cutting edge on its outer face.

3. A device for forming butter-balls consisting of a curved flat blade having a series of grooves formed in its lower inner edge and a lower outer cutting edge, and a handle at the end of the blade.

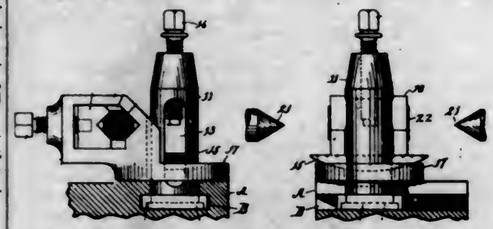
577,075. **TOOL-HOLDER.** WILLIS S. SHERMAN, Milwaukee, Wis. Filed Apr. 6, 1896. Serial No. 586,336. (No model.)

Claim.—1. A tool-holder for a lathe, comprising a tool-post and a tool-post arm arranged to swivel about the tool-post, and means for clamping the tool-post and tool-post arm to their support.

2. The combination of a tool-post movable in its support, the support, a tool-post arm resting on the support and swiveling about the tool-post, a bolster and a tool in the tool-post, and means for clamping the tool-post and the arm to the support.

3. The combination with a support and a tool-post thereon, of a tool-post arm swiveling about the post, means for clamping the tool-post and the arm to the support and means in the arm for holding a tool therein.

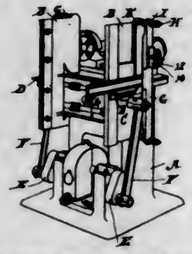
4. The combination with a support, of a tool-post, a tool-post arm swiveling about the post, V-shaped jaws in the tool-post arm disposed to center the tool in a predetermined plane and at a right angle to a radius from the axis of the tool-post arm, and means for clamping the jaws.



5. The combination of a tool-post movable in its support, the support, a tool-post arm resting on its support and swiveling about the tool-post, a tool or its equivalent on the tool-post and means for clamping the tool-post, the tool, and the tool-post arm to the support.

6. A tool-holding device comprising a tool-post, a tool-post arm, swiveling about the tool-post and having a jaw or jaws and means for clamping the tool thereto, so that tools of different sizes and forms may at will be inserted and clamped therein in such manner that the axis of the tool will be in a predetermined horizontal plane parallel with the ways of the tool-support and at a right angle to a radius from the axis of the tool-post arm.

577,076. **TONGUE-AND-GROOVE MACHINE.** WILLIS S. SHERMAN, Milwaukee, Wis. Filed Apr. 6, 1896. Serial No. 586,337. (No model.)



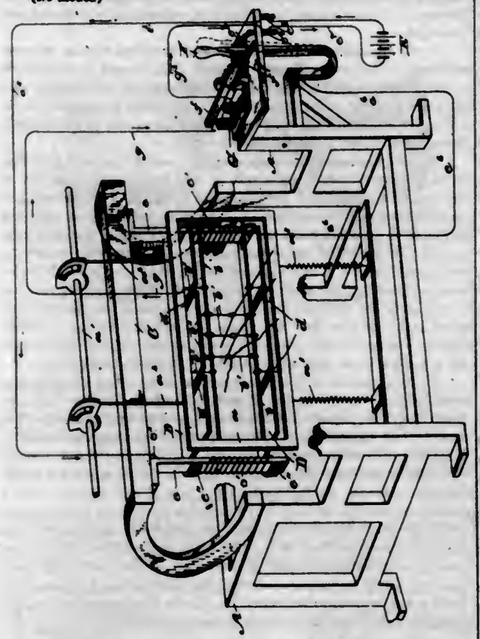
Claim.—1. In an end-matcher, the combination with an elongated bearing-plate, an elongated yielding pressure-bar opposite the bearing-plate, a material-holding shelf reciprocable in the direction of the elongated plate and bar, and cutter-heads at one side but adjacent to the plate and bar, of an auxiliary pressure device mounted on the bar substantially opposite the cutters and provided with fingers projecting transversely through the bar and adapted to supplement the pressure of the bar in the same direction.

2. In an end-matcher machine, the combination with a material-supporting bearing-plate and a yielding pressure-bar opposite and substantially parallel thereto adapted to bear against interposed material, of a bearing-block on and auxiliary to the pressure-bar and having a finger or fingers projecting beyond the pressure-bar toward the bearing-plate adapted to enter recesses in the material and supplement the pressure of the pressure-bar, and means for holding the pressure device yieldingly to its work.

3. In an end-matcher machine, the combination with a material-supporting bearing-plate and a yielding pressure-bar opposite and substantially parallel thereto adapted to bear against interposed material, of a bearing-block mounted on and auxiliary to the pressure-bar and having a finger or fingers projecting beyond the pressure-bar toward the bearing-plate adapted to follow an uneven surface of the material as it passes the block and supplement the pressure of the bar, a stud-pin fixed in the pressure-bar and on which the block moves freely from and toward the pressure-bar, and a spring adapted to hold the pressure-block yieldingly to its work and relatively to the movable pressure-bar.

4. The combination with an elongated yielding pressure-bar G having a plurality of transverse tapered slots in the line of its elongation, of an auxiliary pressure device comprising a block 10 provided with tapering fingers 14 entering the slots in the bar the bevel of the fingers fitting against the correspondingly-beveled surfaces in the slots of the pressure-bar, a stud-pin fixed in the bar and passing loosely through the block, a nut adjustable on the pin and a spring 12 interposed between the nut and the block.

577,077. **ELECTRICAL WARP STOP-MOTION FOR LOOMS.** ALPHEUS G. SHUTTLEWORTH, Philadelphia, Pa., assignor to George Draper & Sons, Hopedale, Mass. Filed Apr. 30, 1894. Serial No. 509,447. (No model.)



Claim.—1. In an electric warp stop-motion for looms, the combination with the heddle-frames, of a series of heddles mounted on their shafts so as to have a limited independent vertical movement, a magnet so placed relative to said heddles as to be in close proximity to the ends of said heddles at the termination of each shed, stopping mechanism, and electrical connections between said magnet and stopping mechanism to actuate said mechanism and stop the loom when a heddle comes in contact with said magnet.

2. In an electric warp stop-motion for looms, the combination with the heddle-frames, of a series of heddles mounted on their shafts so as to have a limited independent movement vertically, a magnet placed in close proximity to the ends of said heddles and adjustable to the angle of the line of the shed, stopping mechanism, and electrical connections between said magnet and stopping mechanism to actuate said mechanism and stop the loom when a heddle comes in contact with said magnet.

3. In an electric warp stop-motion for looms, the combination with the heddle-frames, of a series of heddles mounted on their shafts so as to have a limited independent vertical movement, magnetic plates adjustably mounted relative to said heddles so as to be in close proximity to the ends of said heddles at the termination of the shed, a source of electrical energy with which said magnetic plates are in circuit and by which they are constantly excited, stopping mechanism, and electrical connections between said stopping mechanism and said magnetic plates whereby when contact is made by a heddle with either of said magnetic plates the stopping mechanism is actuated and the loom is brought to a state of rest.

4. In an electric warp stop-motion for looms, the combination with a series of heddle-frames, of heddles mounted on their shafts so as to have a limited independent vertical movement, slotted magnetic plates extending through the entire field of heddle-frames and arranged so as to lie in close proximity to the ends of the heddles at the close of the shed, stopping mechanism for the loom, and electrical connections between said magnetic plates and stopping mechanism whereby the latter is actuated and the loom is brought to a state of rest when any one of the heddles contacts with either of said magnetic plates and completes the circuit.

5. In an electric warp stop-motion for looms, the combination with the heddle-frames *a* having the heddle-shafts *b*, of the heddles *b'* having limited vertical play on said shafts, the magnetic plates D, D', extending through the entire field of heddle-frames, stopping mechanism, a source of electrical energy from which a current normally passes through the loom-frame and magnetic plates D, D', and electrical connections between the heddles and the stopping mechanism whereby when a heddle contacts with either of said plates D, D', short-circuiting ensues, the stopping mechanism is actuated, and the loom is brought to a state of rest.

6. In an electric warp stop-motion for looms, the combination with the heddle-frames *a* having the heddle-shafts *b*, of the heddles *b'* having limited vertical play on said shafts, the connections b^2, the slotted magnetic plates D, D', extending through the entire field of heddle-frames and embracing connections b^2, stopping mechanism, a source of electrical energy from which a current normally passes through the loom-frame and magnetic plates D, D', and electrical connections between the heddles and the stopping mechanism, whereby when a heddle contacts with either of said plates D, D', short-circuiting ensues, the stopping mechanism is actuated and the loom is brought to a state of rest.

7. In an electric warp stop-motion for looms, the combination with a series of heddle-frames *a* having the heddle-shafts *b*, of the heddles *b'* having limited vertical movement on said shafts, the connections b^2 the magnetic plates D, D', extending through the entire field of heddle-frames and provided with slots *d* which embrace said connections b^2, and are insulated therefrom stopping mechanism, a source of electrical energy from which a current normally passes through the loom-frame and magnetic plates D, D', and electrical connections between the heddles and the stopping mechanism, whereby when a heddle contacts with either of said plates D, D', short-circuiting ensues, the stopping mechanism is actuated, and the loom is brought to a state of rest.

8. In an electric warp stop-motion for looms, the combination with the heddle-frames, of a series of heddles mounted on the heddle-shafts so as to have a limited independent vertical movement, two magnetic plates which are constantly excited while the loom is in operation extending through the entire field of heddle-frames and so positioned as that they lie in close proximity to the ends of the heddles at the termination of the shed, a source of electrical energy with which said magnetic plates are in circuit, stopping mechanism in circuit with said plates, actuating means for said stopping mechanism which is normally out of circuit, and electrical connection between said actuated means and said heddles whereby when any one of said heddles contacts with either of said magnetic plates short-circuiting ensues, the stopping mechanism is actuated and the loom is brought to a state of rest.

9. In an electric warp stop-motion for looms, the combination with the heddle-frames, of a series of heddles mounted on the heddle-shafts so as to have a limited independent vertical movement, two magnetic plates, which are constantly excited while the loom is in operation, extending through the entire field of heddle-frames and adjustable to the angle of the line of the shed, said plates being so positioned as that they lie in close proximity to the ends of the heddles at the termination of the shed, a source of electrical energy with which said magnetic plates are in circuit, stopping mechanism in circuit with said plates, actuating means for said stopping mechanism which is normally out of circuit, and electrical connections between said actuating means and said heddles whereby when any one of said heddles contacts with either of said magnetic plates short-circuiting ensues, the stopping mechanism is actuated and the loom is brought to a state of rest.

10. In an electric warp stop-motion for looms, the combination with the heddle-frames, of a series of heddles carried by the heddle-shafts and having a limited vertical movement thereon, electromagnets suspended from the loom-frame, magnetic plates secured to said electromagnets and excited thereby extending through the entire field of heddle-frames, in close proximity to the ends of said heddles so as that said plates will attract and hold any one of the heddles on which tension is relaxed, and means for energizing said electromagnets.

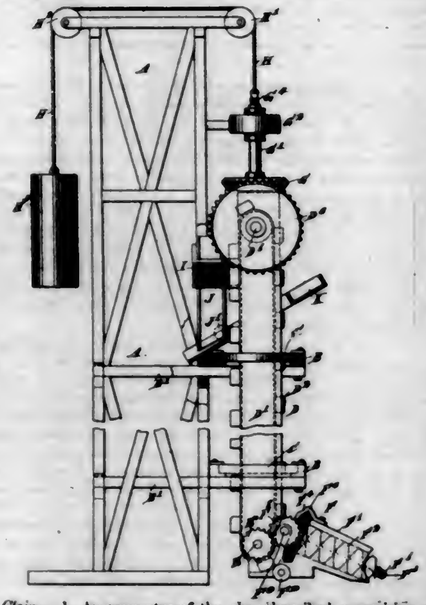
11. In an electric warp stop-motion for looms, the combination with the heddle-frames, of a series of heddles carried by the heddle-shafts and having a limited vertical movement thereon, electromagnets suspended from the loom-frame, magnetic plates adjustably secured to said electromagnets and excited thereby, said plates extending through the entire field of heddle-frames in close proximity to the ends of said heddles so as that said plates will attract and hold any heddle on which tension is relaxed, and means for energizing said electromagnets.

12. In an electric warp stop-motion for looms, the combination with a series of heddle-frames, provided with heddle-shafts, of heddles mounted on said shafts so as to have a limited independent vertical movement, two magnetic plates extending through the entire field of heddle-frames but normally out of contact with said frames and heddles, a source of electrical energy with which said magnetic plates are in circuit, a spring shipper-lever in circuit with said plates, means for locking said shipper-lever, electrical connections between said heddles and the source of electrical energy, and a normally inactive electromagnet to control said locking means for the shipper-lever in circuit with said heddles, whereby when any one of the heddles contacts with either of said magnetic plates short-circuiting

through said electromagnet ensues, the spring shipper-lever is released and the loom stopped.

13. In an electric warp stop-motion for looms, the combination with a series of heddle-frames provided with heddle-shafts, of heddles mounted on said shafts so as to have a limited independent vertical movement, two magnetic plates extending through the entire field of heddle-frames but normally out of contact with said frames and heddles, a source of electrical energy with which said magnetic plates are in circuit, a spring shipper-lever in circuit with said plates, a pivoted locking-lever engaging an arm on said shipper-lever, electrical connections between said heddles and the source of electrical energy, and a normally inactive electromagnet to control said pivoted locking-lever in circuit with said heddles, whereby when any one of said heddles contacts with either of said magnetic plates, short-circuiting through said electromagnet ensues, the locking-lever is lifted, the shipper-lever released and the loom is stopped.

577,078. **APPARATUS FOR HANDLING COAL.** EPHRAIM SMITH, West New Brighton, N. Y. Filed Sept. 30, 1896. Serial No. 563,108. (No model.)



Claim.—1. An apparatus of the class described, comprising an elevator, guides in which the said elevator is mounted to slide, and bearings in which the said guides are mounted to turn, the said elevator being mounted to turn with said guides, substantially as shown and described.

2. An apparatus of the class described, comprising bearings mounted to swing laterally, guides mounted to turn in said bearings, and an elevator mounted to slide vertically in said guides and to turn therewith, substantially as shown and described.

3. An apparatus of the class described, comprising an elevator, guides in which the said elevator is mounted to slide vertically, bearings in which the said guides are mounted to turn, and a conveyer pivotally connected with the lower end of the said elevator and discharging therein, substantially as shown and described.

4. An apparatus of the class described, comprising an elevator, disks in which the said elevator is mounted to slide vertically, circular bearings in which the said disks are mounted to turn, and a conveyer pivotally connected with the lower end of said elevator and discharging therein, substantially as shown and described.

5. An apparatus of the class described, comprising a supporting-frame, bearings pivotally supported on said frame and adapted to swing laterally, disks mounted to turn in said bearings and provided with openings, an elevator mounted to slide vertically in said disks and to turn therewith, a conveyer-screw pivotally connected with the lower end of the said elevator, and a gearing connecting the conveyer-screw to said elevator, substantially as shown and described.
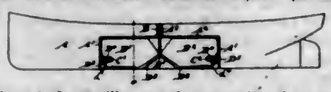
6. An apparatus of the class described, comprising an elevator mounted to slide and to turn, a conveyer pivotally connected with the lower end of the said elevator, and adapted to discharge into the boxes of the elevator, a chute into which discharge the said elevator-boxes and fastened to the elevator-frame, a second chute fitted to slide in the said first-named chute, and a fixed inclined chute made circular and engaged by the lower end of the said slidable chute, so that when the elevator is moved up or down or turned, a connection between the three chutes is maintained, substantially as shown and described.

7. An apparatus of the class described, provided with an elevator mounted to slide vertically and adapted to be turned, a chute fixed on the elevator-frame and into which discharge the boxes of the said elevator, a second chute fitted to slide in the said first-named chute, and a circular fixed chute engaged by the lower end of the slidable chute, substantially as shown and described.

8. An apparatus of the class described, comprising a supporting-frame, circular bearings supported by said frame, disks mounted to turn in said bearings and provided with openings, a suspended, and counterbalanced elevator mounted to slide vertically in the said disks and to turn therewith, a conical conveyer-screw pivotally connected with the lower end of said elevator, and a gearing connecting the conveyer-screw to said elevator so that the movement of the elevator will actuate the conveyer-screw in whatever angular relation it may be to the elevator, the parts being so combined that the elevator and conveyer may be raised, lowered and turned, or their angular relation varied, while the said elevator and conveyer-screw are in motion or at rest, substantially as shown and described.

9. An apparatus of the class described, comprising a supporting-frame, arms pivotally connected with said frame, circular bearings supported at the outer ends of said arms and located one above the other, a disk mounted to turn in each of said bearings, the said disks being provided with a central opening, an elevator mounted to slide vertically in the said disks and to turn therewith, a conical screw conveyer pivotally jointed to the lower end of said elevator, and a gearing connecting the conveyer-screw thereto, so that the operation of the elevator will actuate the conveyer-screw, the said elevator and conveyer being adapted to be raised, lowered and turned or their angular relation varied, while the said elevator and connected screw conveyer are in operation or at rest, and the combined elevator and screw conveyer being constructed to slide or roll upon a floor or supporting-platform, substantially as shown and described.

577,079. **CENTERBOARD VESSEL.** SAMUEL R. SMITH, Babylon, N. Y. Filed Dec. 26, 1895. Serial No. 573,249. (No model.)



Claim.—1. In a sailing vessel a centerboard comprising a pair of oppositely-arranged and pivotally-connected sections D' D^2 each of corresponding pentagonal form and having at their meeting edges oppositely-disposed inclined faces and formed each with slots d' d^2, so positioned and pitched as to form a sliding pivotal connection obliquely to the line of descent of the respective sections, and that are adapted to engage with pins C' C^2 arranged and extending transversely through the inclosing well, the whole arranged and designed to effect the greatest amount of useful surface area in the drop, that can be inclosed in a well of a given size, substantially as described.

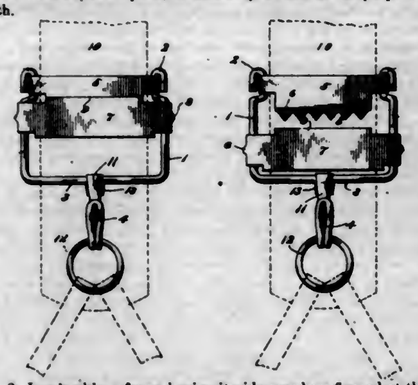
2. In a sailing vessel a centerboard comprising two oppositely-arranged sections D' D^2 each of irregular pentagonal form in combination with each other and a well and means for holding said sections in operative relation that consists of a pivotal connection at their meeting edges and a sliding pivotal connection located at the respective outer edges, at a point below the center substantially as described.

3. In a sailing vessel, a centerboard comprising two oppositely-arranged sections D', D^2, each of irregular pentagonal form, and equipped with a proper shoe D^3, in combination with each other and with the well A', and the operating-rod B, the adjacent edges of the sections being grooved as indicated by d, and receiving each a portion of the single rod B, so that the latter serves as a tongue or dowel, all arranged to serve substantially as herein specified.

4. In a sailing vessel, a centerboard comprising two oppositely-arranged sections D' D^2 each equipped with a shoe D^3 and each having a groove in its edge receiving a portion of the operating-rod whereby the said sections are supported laterally therein, in combination with each other and with a well A', with its tight cover A^2, and with the tube A^3 loosely inclosing the operating-rod B, all arranged for joint operation, substantially as herein specified.

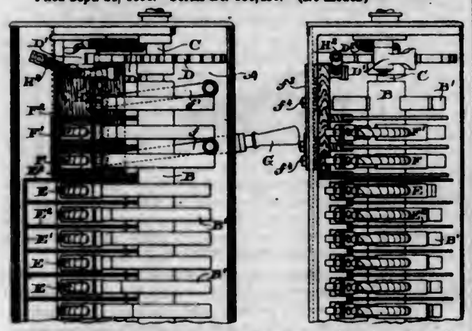
577,080. **SUSPENDER-BUCKLE.** JAMES E. SOLT, Bellefonte, Pa. Filed May 21, 1896. Serial No. 592,470. (No model.)

Claim.—1. In a buckle, a frame open at its upper end, a toothed bar or plate connecting the upper ends of the side members of the frame and having its teeth deflected forwardly, and a bar or plate slidably mounted upon the side members of the frame and having a lip forwardly deflected and adapted to act in opposition to the teeth of the toothed bar or plate, substantially as and for the purpose set forth.



2. In a buckle, a frame having its side members formed at their extremities with elongated eyes, a toothed bar or plate having its extremities looped into or bent around the inner portion of the said eyes, and a bar or plate slidably mounted upon the said side members, substantially in the manner set forth for the purpose described.

577,081. **ELECTRIC CONTROLLER.** ELMER A. SPERRY, Cleveland, Ohio, assignor to the General Electric Company, of New York. Filed Sept. 21, 1896. Serial No. 606,488. (No model.)



Claim.—1. In an electric controller, the combination of a cylinder provided with contacts for establishing various connections of the motor-circuits, brushes engaging with the contacts, and means for changing the relation between the brushes and the contacts on the cylinder by a movement of one relative to the other in a direction transverse to the plane of rotation of the cylinder.

2. In an electric controller, the combination of a reversing-switch cylinder, brushes engaging therewith, an arc-extinguishing means, a separate inclosing chute for each brush, and means for changing the relation between the brushes and magnet, and the switch-cylinder.

3. In an electric controller, the combination of a cylinder provided with contact-rings for establishing various circuit relations of the motor, brushes engaging with the rings, and means for moving certain of the brushes so that they will engage with different contact-rings.

4. In a reversing-switch for an electric motor, the combination of a number of contact-rings mounted on a cylinder, brushes engaging with the rings, and a parallel-motion device for shifting the brushes.

5. In a reversing-switch for an electric motor, the combination of a number of contact-rings mounted on a cylinder, a number of brushes less than that of the rings engaging therewith, and means for moving the brushes in a direction parallel to the axis of the cylinder.

6. In a controller, the combination of a contact-cylinder, brushes engaging therewith, means for moving the brushes in a direction parallel to the axis of the cylinder, and a blow-out magnet for each brush.

7. In a controller, the combination of a controller-cylinder, brushes engaging therewith, and a separate blow-out magnet and inclosing chute for each brush.

8. In a controller, the combination of a switch-cylinder, contacts on the cylinder for changing the motor connections, reversing-switch contacts also mounted on the cylinder and adapted to move therewith, brushes engaging with the contacts, and means for moving certain of the brushes in a direction parallel to the axis of the cylinder for the purpose of reversing the armature connections.

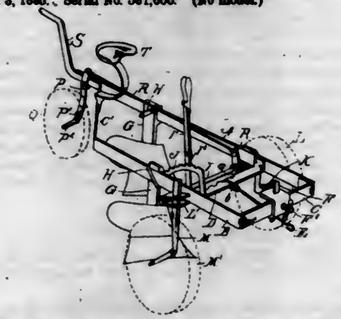
9. In a controller, the combination of a contact-cylinder, a disk mounted on the shaft of the cylinder and provided with a slot, a lug carried by the brush-support and registering with the slot when the cylinder is in its "off" position, and means for holding the lug in position above or below the disk.

10. In an electric controller, the combination of a contact-cylinder, a reversing-switch, brushes and contacts therefor, a disk carried by the shaft of the contact-cylinder and provided with a slot, a lug actuated by the reversing-switch adapted to pass through the slot when the contact-cylinder is in the "off" position, and to engage with the top or bottom of the disk when the contact-cylinder is in other than its "off" position.

11. In an electric controller, the combination of a metal cylinder divided electrically into sections, and contacts removably secured to a section extending between the contacts of another section.

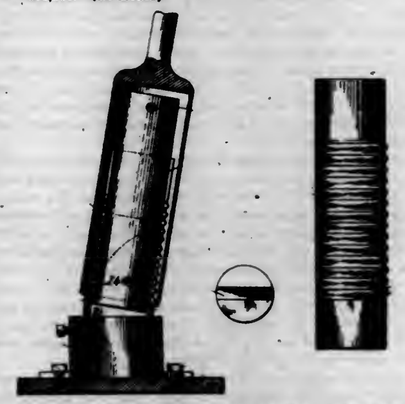
12. In an electric controller, the combination of a metal cylinder divided electrically into sections, lugs cast on the hub or permanent parts of the cylinder, and contacts mounted on the lugs and insulated therefrom.

577,082. **PLOW.** RUDOLPH E. SUCHOTA, Detroit, Mich. Filed Sept. 3, 1895. Serial No. 561,600. (No model.)



Claim.—The combination with the frame, substantially as described, of the plow-standards and means for securing the standards to the frame, the flanges d h at the bottom of the standard, the moldboard-sections e f secured to one flange and the landside i secured to the other flange, substantially as described.

577,083. **PORTABLE MACHINE FOR FORMING ELBOWS.** HORACE K. TALLMAGE, Buffalo, N. Y. Filed May 27, 1896. Serial No. 593,283. (No model.)

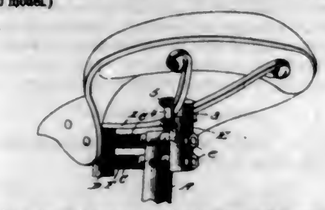


Claim.—1. In a machine for forming elbows, a holding-base consisting of an inside cylindrical portion, an upward-extending plate having its base extending across the cylindrical portion from front to rear, its narrow rear side extending in the arc of a circle to the top of its vertical narrow side, a base portion surrounding the cylindrical portion leaving a narrow annular space between the two, means for securing it to the base-plate, and means for securing a piece of pipe when entered in place to be bent, substantially as described.

2. In a machine for forming elbows, a base-holding portion provided with a vertical plate having a curved edge over which the elbow is bent and with an annular space in which the pipe to be formed is entered, in combination with a tubular hand crimping-tool provided with an inward-extending crimping portion, and inner, former pivoted loosely within the crimping-tool and provided with a slot in its lower end adapted to fit over the vertical plate, substantially as described.

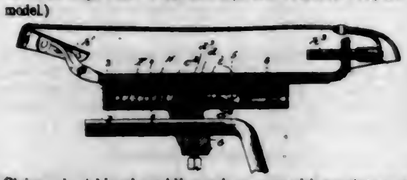
3. In a machine for forming elbows, a hand crimping-tool, consisting of a tubular crimping-bar provided with an inward-extending crimping portion 14, in combination with a forming-bar having its upper end secured within the tubular crimping-bar, for the purposes described.

577,084. CARRIAGE FOR BICYCLE-SADDLES. CHARLES E. VAIL, Salt Lake City, Utah. Filed July 26, 1895. Serial No. 557,234. (No model.)



Claim.—As an improvement in bicycle-saddle carriages, the combination, with a rigid member provided with parallel bearing-channels, of the carriage consisting of yielding bearing-rods working in said channels in a straight, longitudinal line relative thereto, said rods being rigidly connected at their forward ends, a block rigidly connecting the rear ends of said yielding rods and provided with means for mounting the saddle directly and rigidly thereon, and a coil-spring disposed on each of said rods in front of the rigid member: substantially as set forth.

577,085. BICYCLE-SADDLE CARRIAGE. CHARLES E. VAIL, Salt Lake City, Utah. Filed Nov. 11, 1895. Serial No. 568,618. (No model.)



Claim.—1. A bicycle-saddle carriage, comprising a plate or member provided with a knob or projection, a cylinder or barrel receiving said knob or projection and having a longitudinal slot and an open end, a spring or cushion mounted within the cylinder with relation to said knob or projection, and a detachable cap-piece or end closure mounted at the open end of the cylinder, one of the first-mentioned or main members being adapted to slide or yield longitudinally with relation to the other member and in a longitudinal plane with relation to the line of travel, said yielding member carrying the saddle and the other member having a fixed position, substantially as and for the purpose set forth.

2. A bicycle-saddle carriage, comprising a plate or member provided with a knob or projection, a cylinder or barrel receiving said knob or projection and provided with the longitudinal slot and an open end, a spring or cushion mounted in the cylinder with relation to said knob or projection, a detachable cap-piece or end closure mounted at the open end of the cylinder, one of said main members having a sliding or yielding movement with relation to the other member and in a longitudinal plane with relation to the line of travel and the other member having a fixed position, devices carried by said yielding member for the attachment of the saddle, and a stem projecting from said fixed member for attachment to a saddle-post, substantially as and for the purpose set forth.

3. As an improvement in bicycles, a supporting-stem for the saddle, having a transverse opening, said stem being thus adapted for connection with either a straight saddle-post or with the arm of an angular saddle-post, substantially as and for the purpose set forth.

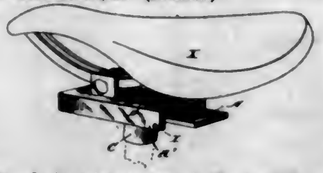
4. A bicycle-saddle carriage comprising a cylinder or barrel, a member received thereby, one of said members having a sliding movement in a longitudinal plane only, with relation to the other member, and a spring located in the cylinder or barrel between one end of the same and the other member and respectively connected therewith at its ends; substantially as and for the purpose set forth.

5. A bicycle-saddle carriage, comprising a cylinder or barrel having a longitudinal slot or slideway and an open end, a plate or member provided with a knob or projection received by said cylinder, one of said members having a fixed position and the other member having a sliding or yielding movement in a longitudinal plane with relation to the line of travel, a detachable cap-piece or end closure adapted to be secured at the open end of the cylinder, and a controlling-spring having its ends respectively connected to the detachable end piece of the cylinder and to the knob or projection of the other member, substantially as and for the purpose set forth.

6. A bicycle-saddle carriage, comprising the cylinder or barrel, a plate or member having a knob or projection received by said cylinder and relatively mounted so that its normal position within the cylinder is some distance from the front end of the latter, and a controlling-spring mounted in the cylinder in the space in rear of said knob or projection and having its ends respectively connected to the end portion of the cylinder and to said knob or projection, one of said main members having a fixed position, whereby the other member has a sliding or yielding movement in a longitudinal plane with relation to the line of travel and in both a forward and rearward direction, said yielding movement being controlled by the spring and the latter acting to return the yielding member to normal position from either direction, substantially as and for the purpose set forth.

7. A bicycle-saddle carriage, comprising a barrel or cylinder having a slot or slideway and an open end, a plate or member provided with a knob or projection received by said cylinder, a detachable cap-piece or end closure mounted at the open end of the cylinder, and a detachable spring having one end connected with said end piece and the other end detachably connected with said knob or projection, substantially as and for the purpose set forth.

577,086. CARRIAGE FOR BICYCLE-SADDLES. CHARLES E. VAIL, Salt Lake City, Utah. Filed July 26, 1895. Renewed Dec. 19, 1896. Serial No. 616,333. (No model.)



Claim.—1. As an improvement in bicycle-saddle carriages, the combination, with a fixed member provided with a rotatable, spring-controlled wheel, of a casing mounted on said fixed member and adapted by its movement in one direction to rotate said wheel against the tension of its spring mechanism; substantially as set forth.

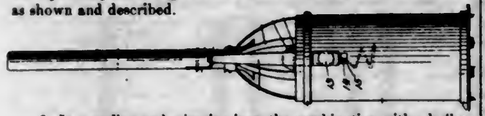
2. As an improvement in bicycle-saddle carriages, the combination, with a fixed member provided with a rotatable spring-controlled spur-wheel, of a rearwardly-yielding casing mounted upon said member and provided with a rack adapted to mesh with said spur-wheel: substantially as set forth.

3. As an improvement in bicycle-saddle carriages, the combination, with a fixed member provided with a bearing-pin journaled therein and carrying a fixed spur-wheel, and a coil spring or springs mounted on said pin and having one end secured to the spur-wheel and the free end secured to said fixed member, of a rearwardly-yielding casing mounted on said fixed member and provided with a rack meshing with said spur-wheel; substantially as set forth.

4. As an improvement in bicycle-saddle carriages, the combination, with a fixed member adapted to be carried by the saddle-post, said member comprising a flat plate and provided with a central chamber, a bearing-pin journaled transversely in said chamber and carrying a fixed spur-wheel, a coil-spring disposed on the bearing-pin at each side of the spur-wheel, said springs having one end secured to the bearing-pin and the free end connected with the fixed member, of a casing mounted on said member and provided with a rack meshing with the spur-wheel, and means for connecting the fixed member and casing together and for limiting the movement of the latter; substantially as and for the purpose set forth.

577,087. CURLING-IRON. ANDREW B. VIOU, Brainerd, Minn., assignor of one-half to Edward W. Lynch, same place. Filed May 1, 1896. Serial No. 589,896. (No model.)

Claim.—1. In a curling and crimping iron, the combination with a hollow handle, of a tubular curling-iron mounted on said handle, the mandrel portion of said tube longitudinally divided at its central portion, the end of one section hinged to its complemental part near the lower end thereof and having an arm projecting therefrom, a draw-bar connecting with said arm and with means in said handle for holding the edges of said mandrel portion normally in contact and means for separating said hinged section to receive the hair, substantially as shown and described.



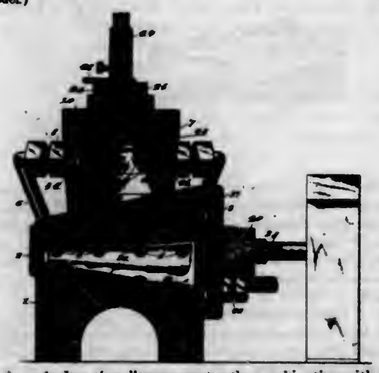
2. In a curling and crimping iron, the combination with a hollow handle open at each of its ends, of a tube rigidly fixed to said handle and rising vertically therefrom and forming a chimney for the heating device used therewith, the mandrel portion of said tube longitudinally divided at the central part thereof and one section pivotally secured to its complementary portion to form a separable means to receive the hair, an arm projecting from said pivotally-secured portion below the pivotal point thereof, said arm connected by a draw bar to a convolute spring secured in said handle whereby said mandrel portions of said tube are held normally in contact and means attached to said draw-bar for separating said tube to receive the hair, substantially as shown and described.

3. A curling and crimping iron comprising a hollow handle and a tubular mandrel, said mandrel longitudinally divided at the central portion to form a separable means to receive the hair, one section of said mandrel rigidly fixed to said handle and provided with knuckles near its lower end, the complemental section of said mandrel hinged therewith by a pintle passing through said knuckles, said hinged section provided with an arm at its lower end having hinged thereto a draw-bar, said draw-bar attached at its opposite end to a convolute or flat spiral spring secured in said handle, whereby the hinged section of said mandrel is held normally in contact with the fixed portion thereof and means for depressing said draw-bar to separate the sections of said mandrel, substantially as shown and described.

4. In a curling and crimping iron, the combination with a hollow handle provided with a tubular mandrel rigidly mounted thereon, of a lamp removably supported in said handle for heating said mandrel, the bottom of the reservoir of said lamp provided with an annular flange for supporting said curling and crimping iron vertically, said flange provided with slots to receive hooks formed on the end of said handle and interlock therewith, substantially as shown and described.

5. In a curling and crimping iron, the combination with a hollow handle provided with a tubular mandrel rigidly secured thereon, of a lamp removably supported within said handle for heating said mandrel, the bottom of the reservoir of said lamp provided with an annular flange for supporting said iron vertically, said flange being provided with slots to receive hooks formed on the end of the handle and interlock therewith and a cover inclosing said mandrel fitted to the top of said handle, substantially as shown and described.

577,088. MARINE SIGNALING APPARATUS. JAMES H. WALKER, Hartlepool, England. Filed Apr. 2, 1896. Serial No. 585,980. (No model.)

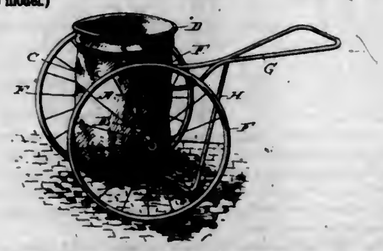


Claim.—1. In a signaling apparatus the combination with a suitable base, of a cone-shaped chamber provided with openings for the admission and emission of air or steam, a hollow shell or plug fitting within said chamber and provided with openings registering with the openings in the chamber as the plug is revolved, a hollow circular chamber formed with or secured to said cone-shaped chamber, a series of pipes communicating with the openings in said chamber and the circular chamber respectively, a hollow plug fitting within said circular chamber and having ports in the side thereof and provided with a stem by means of which it may be revolved, a smaller auxiliary chamber connected with said circular chamber by a pipe, a hollow plug fitting said auxiliary chamber and provided with a stem for turning same, means for operating the various plugs described, and a sound-producing device connected with said auxiliary chamber and operable by means of air or steam under pressure, for the purposes set forth.

2. In a signaling apparatus, the combination with a suitable support of a series of chambers having steam or air passages therein hollow plugs fitting said chambers and having openings registering with the openings in their respective chambers as said plugs are revolved, pipes connecting said chambers with each other, means for revolving said plugs and a sound-producing device connected with one of said chambers and operable by means of air or steam passing through said chambers, plugs and pipes substantially in the manner and for the purposes described.

3. In a signaling apparatus, the combination with a suitable base, of a cone-shaped chamber having in its base an inlet-opening and in its side a series of outlet-openings, a hollow plug fitting said chamber, having a series of openings in its side and other openings in one end, and provided with a stem for revolving said plug upon the application of suitable power thereto, a hollow circular chamber on one side of the cone-shaped chamber, having a series of ports in its side, pipes communicating between said ports and the openings in the side of the cone-shaped chamber, a hollow open plug fitting said circular chamber, having ports or openings in its side registering with the openings in the said chamber as said plug is revolved, and provided with a stem for revolving the plug, a vertical shaft connected with said stem, a wheel for turning said shaft a plate mounted on said shaft on which are indicated the points of the compass, a pipe communicating with an opening in the lower part of the circular chamber and with the bottom of a cup-shaped auxiliary chamber 13, said chamber having an opening in its side, an open hollow plug fitting said chamber and having ports registering with said opening successively, and provided with a stem by means of which it may be revolved, means for automatically turning said stem consisting of a catch and a trigger, an index-finger on the end of said stem, a steam-outlet pipe from said chamber 13 and a device for producing sounds by the action of steam or air under pressure, substantially as and for the purposes set forth.

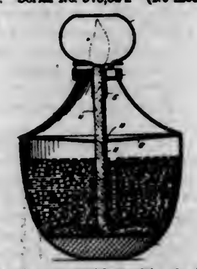
577,089. RECEPTACLE FOR STREET-SWEEPINGS. LOUISE WARING, New York, N. Y. Filed Aug. 2, 1895. Serial No. 557,962. (No model.)



Claim.—1. In combination with a frame and clamping-ring for holding a flexible bag upright and open, a skeleton-framed carrier, with wheels mounted on stub-axles, and adapted to hold the bag centrally, or substantially so, between the wheels.

2. In combination with a frame and clamping-ring for holding a flexible bag upright and open, a skeleton-framed carrier, with wheels mounted on stub-axles, adapted to hold the bag centrally, or substantially so, between the wheels, and provided with a tongue or other traction device.

577,090. SAFETY-LAMP. FREDERICK A. E. WENKEL, Danbury, Conn., assignor to Albert F. Pierce and Rebecca N. Pierce, same place. Filed Dec. 26, 1895. Serial No. 573,324. (No model.)

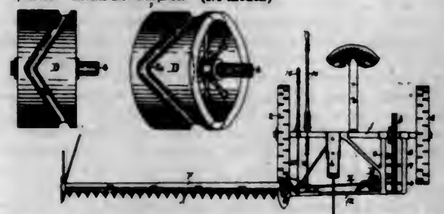


Claim.—1. A safety-lamp provided with a body having a weight at the bottom and a diaphragm extending from the sides thereof be-

low the top and which inclines slightly downward from its edge to the center and is provided at the center with an opening through which the wick passes, said wick closely fitting the opening.

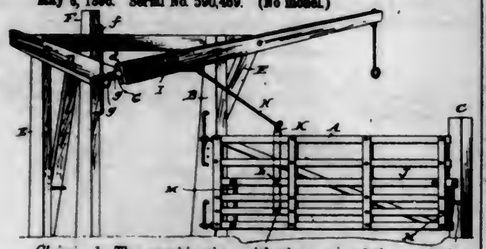
2. A safety-lamp having a body the lower portion of which is spheroidal in form and is provided with a weight placed wholly at the bottom and a diaphragm extending from the sides thereof below the top and which inclines slightly downward from its edge to the center and is provided at the center with an opening through which the wick passes, said wick closely fitting the opening, substantially as described, for the purpose set forth.

577,091. **MOWER.** NATHAN WETZEL, Omaha, Nebr. Filed Nov. 7, 1895. Serial No. 568,241. (No model.)



Claim.—In a mowing-machine the combination with a suitable driving mechanism of a roll, D, provided with a ball-race within the peripheral surface of said roll, holders, 10, 10, a bar, E, supported by said holders, 10, said holders being provided with suitable ball-sockets, K' and the balls, 20, 20, working within said sockets and ball-race substantially as shown.

577,092. **GATE.** WILLIAM R. WHITE, Bloomington, Ill. Filed May 6, 1896. Serial No. 590,469. (No model.)



Claim.—1. The combination with the gate, of the operating-levers, the inner ends of which come close together, the end portions of such levers having kerfs formed in them, a plate rigidly secured in the kerf of one of the levers and extending into the kerf in the other, and a pin with which the said plate has a sliding engagement, substantially as described.

2. The combination with a swinging gate, of the operating-levers, an arm extending laterally from one of the levers toward the roadway beyond the hinge-line, and a connecting-rod between such arm and the gate, substantially as described.

3. The combination with a swinging gate having a latch-bar, of the operating-levers, an arm projecting laterally from one of the levers beyond the hinge-line of the gate, and a connecting-rod connected to the said arm, and with the latch-bar of the gate, substantially as described.

4. The combination with a swinging gate having a latch-bar, of the operating-levers, an arm projecting laterally from one of the levers, a lever upon the gate connected with the latch-bar, and a connecting-rod between such lever and the laterally-projecting arm, substantially as described.

5. The combination with a swinging gate, of the operating-levers, a laterally-projecting arm carried by one of the levers and extending on the side toward the gate, when closed, beyond the hinge-line, a lever L connected with the latch-bar, and having an arm *l'* extending a short distance beyond the plane of the gate, and a connecting-rod between the said laterally-projecting arm and the arm *l'*, substantially as described.

6. The combination with a gate, of a sliding latch-bar, the links M by which the latch-bar is carried, one of the links being arranged at the outer end of the gate, and the catches with which the said link engages to lock the gate, substantially as described.

7. The combination with the gate, of the operating-levers, the inner ends of which come close together, the end portion of one lever having a kerf therein, an extension of the other lever entering said kerf, and a pin with which the extension has a sliding engagement, substantially as described.

577,093. **FENCE.** WILLIAM R. WHITE, Bloomington, Ill. Filed Nov. 2, 1896. Serial No. 610,833. (No model.)



Claim.—1. In a fence, the combination of longitudinal wires having kinks or bends therein, and a picket or stay sunken or depressed at points adjacent to the kinks to form an interlocking engagement with the wires, substantially as described.

2. In a fence, the combination of longitudinal wires having kinks or bends therein, and a picket or stay held or supported in position by said wires alone, and being sunken to interlock or engage with said kinks, substantially as described.

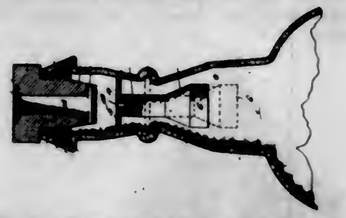
3. In a fence, the combination of longitudinal wires having kinks or bends therein, and a picket or stay having front and side portions and held or supported in position by said wires alone, the said front portion being sunken to be engaged by said kinks or beside, and the side portions being provided with openings through which the wires pass, substantially as described.

4. In a fence, the combination of longitudinal wires, and a stay therefor supported by said wires alone, the wires and the stay being united by sunken or depressed portions in each extending inwardly from the outer face of said stay, substantially as described.

5. In a fence, the combination of longitudinal wires and a picket or stay therefor supported in position by said wires alone, the two being united by corresponding sunken or depressed portions in each, substantially as described.

6. In a fence, the combination of longitudinal wires having kinks or bends therein, and a stay supported by said wires alone and constructed of rectangular cross-section to constitute front and side portions, the said front portion being sunken or depressed at points adjacent to the kinks and engaging therewith, and the said side portions being provided with holes for the passage of the wires arranged close to the inner surface of said front portion, substantially as shown and for the purpose described.

577,094. **NON-REFILLABLE BOTTLE.** HARRY WIESNER, Pittsburg, Pa., assignor to the Wiesner Non-Refillable Bottle Company, same place. Filed Feb. 23, 1895. Serial No. 539,408. (No model.)



Claim.—1. A bottle provided in its neck with a valve-seat and having below the same a trap-groove, combined with a valve having a flexible plate arranged within the neck on the seat, and being of a size to fill the trap-groove, and adapted to be forced into the same, whereby the valve-plate is locked against upward and downward movement to prevent any liquid entering or leaving the bottle, substantially as and for the purpose described.

2. A bottle provided at its neck with a tapered portion forming a seat, said bottle being provided below the seat with a trap-groove, combined with a valve comprising a flexible plate arranged on the seat and being of a size to fill the trap-groove, whereby the valve-plate is locked against upward and downward movement, to prevent any liquid entering or leaving the bottle, and a weight for holding the valve-plate on the seat, substantially as described.

3. A bottle provided in its neck with an interior valve-seat and having below the same a trap-groove, combined with a valve comprising a paper plate of a size to fill the trap-groove, and a rigid stem forming a weight for holding the plate on the seat, substantially as described.

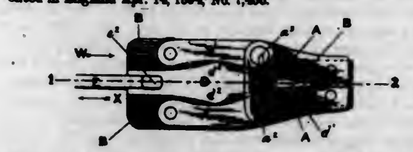
4. The combination of a bottle provided at its neck with an interior groove, and having an upwardly-tapered portion below the groove and provided above the same with a downwardly-tapered portion forming a valve-seat, and a valve comprising a paper plate, and a stem secured to the plate and depending therefrom and having its lower portion tapered and enlarged, substantially as described.

5. The combination of a bottle, provided at its top with a recess, forming a horizontal seat, a stopper fitting within the bottle and combining with the recess to form a pocket, and provided with a bore communicating with the pocket and provided with a discharge opening or passage, a heat-non-conducting lining, arranged in the recess and fitting against the bottle, and a flange formed on the stopper and consisting of metal poured through the bore into the recess in a melted condition, substantially as described.

6. The combination of a bottle, provided at the top of its neck with an interior recess, a stopper combining with the recess to form a pocket and having a shank and provided with a head and fitting within the neck of the bottle and resting upon the upper end thereof, said stopper being provided with a discharge opening or passage and having a filling opening or perforation communicating with said pocket, and the shank of the stopper being provided with an exterior rib, a lining non-conducting to heat arranged in the pocket, and a flange formed on the shank and consisting of metal poured into the recess through the filling opening or perforation when in a melted condition, substantially as described.

7. In a stopper, the combination of a valve-seat having a slight downward contraction, a valve having a working surface resting upon the valve-seat, means for holding the valve upon its seat, and means for compressing the valve in the valve-seat and locking it when subjected to abnormal pressure, substantially as described.

577,095. **DOG OR GRIPPER FOR USE ON DRAW-BENCHES.** ROBERT WOOTTON, Birmingham, England, and FRANK L. MIDDLETON, Washington, D. C., ancillary administrator of Benjamin Hewitt, deceased, assignors to the British Tube Company, Limited, Birmingham, England. Filed May 19, 1896. Serial No. 592,236. (No model.) Patented in England Apr. 14, 1894, No. 7,453.

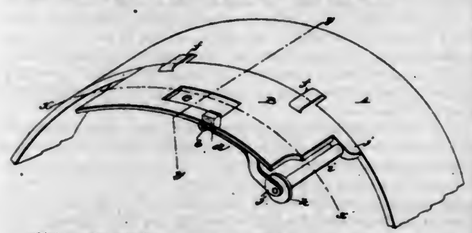


Claim.—1. A gripping-dog for draw-benches, comprising a pair of pivoted levers having gripping-jaws at one end and means for opening and closing the said levers with the jaws consisting of a wedge between the rear ends of the levers, said wedge having a point d' to enter between the levers beyond their pivoted points, and having the faces d^3 in rear of said pivots to act upon the rear ends of the levers to spread them, when the wedge is retracted, substantially as described.

2. A gripping-dog comprising levers pivoted intermediately of their ends, having gripping-jaws at one end and a wedge arranged to engage the opposite ends of the levers and having a point entering between said levers beyond their pivotal point and a pawl pivoted to said wedge, substantially as described.

3. In combination, the gripper-levers, the wedge having a portion arranged to engage the rear ends of the levers and a point arranged to engage said levers beyond the pivoted points and the clutch-lever carried by the wedge having a hook e^3 and an arm e^3, substantially as described.

577,096. **BELT-REPLACER.** MICHAEL R. ZAHNISER, Washington, Pa. Filed Apr. 10, 1896. Serial No. 587,080. (No model.)

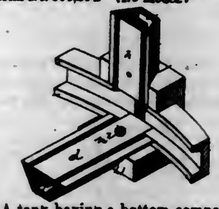


Claim.—1. A belt-replacer, comprising an arched plate, a hooked rod *b* engaging with a spoke of the wheel, lugs *f* on said plate above the wheel-rim, lugs *g* on said plate below the wheel-rim, and a roller *i* at the edge of said arched plate, substantially as set forth.

2. A belt-replacer, comprising an arched plate, a hooked rod *b* engaging with a spoke of the wheel, lugs *f* on said plate above the wheel-rim, lugs *g* on said plate below the wheel-rim, set-screws *h* in said lugs *g* engaging beneath the wheel-rim, and a roller *i* at the edge of said arched plate, substantially as set forth.

3. A belt-replacer, comprising an arched plate, a hooked rod *b* engaging with a spoke of the wheel, a nut *d* on said hooked rod, said arched plate having an opening *e* above said nut, lugs *f* on said plate above the wheel-rim, and lugs *g* on said plate below the wheel-rim, substantially as set forth.

577,097. **TANK.** JOHN W. ABRAHAMS, Allegheny, Pa. Filed June 20, 1896. Serial No. 596,294. (No model.)



Claim.—1. A tank having a bottom composed of a series of radial ribs, sectors of metal with their edges engaging said ribs, and means for securing said sectors to said ribs, substantially as set forth.

2. A tank having a bottom composed of a series of radial ribs having channels formed therein, sectors of metal with their edges engaging said channels, and bars fitting in said channels and secured to said ribs, substantially as set forth.

3. A tank having a bottom composed of a series of radial ribs, a central base having seats to receive the ends of said ribs, said ribs having channels formed therein, sectors of metal with their edges bent to engage said channels, bars fitting in said channels and secured to said ribs, a plate on said central base, and a bolt passing through said plate and base, substantially as set forth.

4. A tank having a bottom composed of a series of radial ribs having outwardly-flaring channels formed therein with flat bottoms, sectors of metal with their edges bent to engage said channels, dovetailed bars fitting in said channels, said ribs and bars having coincident openings and bolts passing through said openings, substantially as set forth.

5. A tank having its bottom and sides formed of sheet-metal plates, a curved metal strip having an inwardly-extending flange engaging the lower edges of the side plates and an inwardly-extending flange engaging the outer edges of the bottom plates on the exterior of the tank, a metal strip engaging the lower edges of the side plates and the outer edges of the bottom plates on the interior of the tank, and bolts passing through said strips, substantially as set forth.

6. A tank having its bottom and sides formed of sheet-metal plates, a curved-metal strip having an inwardly-extending flange engaging the lower edges of the side plates and an inwardly-extending flange engaging the outer edges of the bottom plates on the exterior of the tank, a metal strip engaging the lower edges of the side plates and the outer edges of the bottom plates on the interior of the tank, packing interposed between said strips, and bolts passing through said strips, substantially as set forth.

7. A tank having its bottom and sides formed of sections of sheet-metal plates, ribs having channels therein, said plates having their edges bent to engage said channels, bars fitting in said channels and secured to said ribs, arc-shaped metal strips having inwardly-extending flanges engaging the lower edges of the side plates and inwardly-extending flanges engaging the outer edges of the bottom plates on the exterior of the tank between said ribs, arc-shaped metal strips on the interior of the tank, bolts passing through said strips, and the clamping-shoes connecting the coincident side and bottom ribs, substantially as set forth.

8. A tank having its bottom and sides formed of sections of sheet-metal plates, ribs having channels therein, said plates having their edges bent to engage said channels, bars fitting in said channels and secured to said ribs, arc-shaped metal strips having inwardly-extending flanges engaging the lower edges of the side plates and inwardly-extending flanges engaging the outer edges of the bottom plates on the exterior of the tank between said ribs, arc-shaped metal strips on the interior of the tank, bolts passing through said strips, and clamping-shoes connecting the coincident side and bottom ribs, clamping-shoes having seats therein to receive the lower ends of the side ribs and the outer ends of the bottom ribs, and bolts for securing said shoes to said ribs, substantially as set forth.

9. A tank composed of an upper and lower section, said sections being made up of sheet-metal plates connected by vertical ribs, substantially as set forth, arc-shaped ribs having channels formed therein, the upper edges of the metal plates of the lower section being bent to engage said channels, and the lower edges of the upper section being

bent to engage said channels, arc-shaped bars fitting in said channels and held therein, and clamping-shoes connecting the coincident vertical ribs and arc-shaped ribs, substantially as set forth.

10. A tank composed of an upper and lower section, said sections being made up of sheet-metal plates connected by vertical ribs in the manner set forth, arc-shaped ribs having channels formed therein, the upper edges of the lower section being bent to engage said channels, and the lower edges of the upper section being bent to engage said channels, arc-shaped bars fitting in said channels and held therein, clamping-shoes having seats therein adapted to engage the coincident vertical and arc-shaped ribs, and a bolt passing through said clamping-shoes and through a plate on the interior of the tank, substantially as set forth.

577,098. MACHINE FOR MANUFACTURING ENVELOPS.

JAMES BALL, Hyde, England. Filed Apr. 24, 1896. Serial No. 588,849. (No model.) Patented in England July 25, 1894, No. 14,286.



Claim.—1. In an envelop-machine, gummer-supporting devices comprising a vertical gummer supporting and actuating spindle, and a bar fixed to said spindle and extending hofizontally over the blank-table of the machine, combined with t vo gummers carried on said bar, and means connecting said gummers with said bar, whereby upon the descent of said gummers against a pile of envelop-blanks held on the machine, the contact pressure of said gummers is unequal, and one thereof has an upwardly-swinging movement induced by said contact and by the deflecting pressure of the opposite gummer upon said blanks, substantially as set forth.

2. In an envelop-machine, gummer-supporting devices comprising a vertical gummer supporting and actuating spindle, and a bar fixed to said spindle and exteoding horizontally over the blank-table of the machine, combined with two gummers carried on said bar, means whereby upon the descent of said gummers against a pile of envelop-blanks held on said table, the contact pressure of said gummers is unequal, and one thereof has an upwardly-swinging movement induced by said contact and by the deflecting pressure of the opposite gummer upon said blanks, and means for engaging said upwardly-swinging gummer and temporarily retaining the same, substantially as set forth.

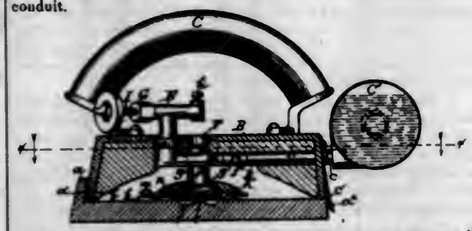
3. In an envelop-machine, gummer-supporting devices comprising a vertical gummer-supporting spindle, and a bar fixed to said spindle and extending horizontally over the blank-table of the machine, combined with a gummer secured on one end of said bar, a lever pivotally attached to said bar for vertical vibratory movements, a second gummer secured on the free end of said vibratory lever, and a spring controlling the pressure of said second gummer against an envelop-blank, substantially as set forth.

4. In an envelop-machine, gummer-supporting devices comprising a vertical gummer-supporting spindle, and a bar fixed to said spindle and extending horizontally over the blank-table of the machine, combined with a gummer secured on one end of said bar, a lever pivotally attached to said bar for vertical vibratory movements, a second gummer secured on the free end of said vibratory lever, a spring controlling the pressure of said second gummer against an envelop-blank, a pivoted latch-lever engaging a part attached to said lever thereby retaining the gummer thereon temporarily in an upwardly-swung position, and a spring interconnected between said latch-lever and a fixed part of the machine for actuating said latch-lever, substantially as set forth.

5. Devices for holding and permitting of the separation of the envelop-blanks one by one, comprising the guide-post *f*, having a socket in its upper end, and suitably supported on a fixed part of the machine, the socket being revolubly adjustable oo said guide-post, combined with the block f^3, adapted to slide in said socket, and the sheet-separating pin f^3, screwing through said block, substantially as set forth.

577,099. SAD-IRON. CHARLES M. COATS and CHARLES E. CORLETT, Aurora, Ill. Filed Mar. 6, 1895. Serial No. 540,795. (No model.)

Claim.—1. The combination with a base-plate and a deflector having a central opening therein and having a circular comb depending downward from its under side between its central opening and its outer unbroken downwardly-curved circumferential edge, and secured to and raised slightly above said base-plate, of a hollow detachable top part or cover B the under part of which is open and fits upon said base-plate with openings next the lower edges thereof, and has a suitable handle, an independent gasolene-tank located contiguous to said top part, a burner, a sinuous conduit traversing the interior of said part B and connecting said tank and burner, said part B having a vertical flue extending downward from the upper surface thereof in alinement with said burner, and said flue discharging the volatilized gasolene into said deflector, which spreads the flame therein created directly against said base-plate so that after leaving said deflector the heat generated thereby comes in direct contact with said sinuous conduit.



2. The combination with a base-plate having a protuberance H, and a deflector having a central opening therein and having a circular comb depending downward from its under side between its central opening and its outer circumferential edge, and the outer portion of the deflector beyond the comb being unbroken and curved downward, and said deflector being secured to and slightly raised above said base-plate, of a detachable hollow cover or top part B fitting upon said base-plate having recesses in the lower edges thereof, and having a suitable handle, an independent gasolene-tank located contiguous thereto, a burner, and a sinuous coudnit connecting said tank and burner all as described, said part B having a flue extending down from its top surface in alinement with said burner, said flue discharging the volatilized gasolene into said deflector which spreads the flame directly against said base-plate so that after leaving said deflector the heat generated thereby has an unobstructed course to and comes in direct contact with said sinuous conduit.

3. The combination with a base-plate having a protuberance H and a gutter surrounding the base of the same, and a deflector having a central opening therein and secured to and raised slightly above said base-plate, of a detachable hollow cover or top part B fitting upon said base-plate having recesses in the lower edges thereof and having a suitable handle, an independent gasolene-tank located contiguous thereto, a burner, a sinuous conduit connecting said tank and the burner all as described, said part B having a flue extending down from its top surface in alinement with said burner, said flue discharging the volatilized gasolene into said deflector, which spreads the flame directly against said base-plate, so that after leaving said deflector the heat generated thereby has an unobstructed course to and comes in direct contact with said sinuous conduit.

4. The combination with a base-plate having a protuberance H and a gutter surrounding the base of the same, and a deflector secured to and raised slightly above said plate, having a central opening therein and provided with a concentric circular comb depending from its under surface, of a detachable hollow top part or cover B fitting upon said base-plate having recesses in the lower edges thereof and having a suitable handle, an independent gasolene-tank located contiguous thereto, a burner, a sinnous conduit connecting said tank and the burner all as described, said part B having a fine extending down from its top in alinement with said burner, said flue discharging the volatilized gasolene into said deflector, which spreads the flame directly against said base-plate so that after leaving said deflector, the heat generated thereby has an unobstructed course to and comes in direct contact with the sinuous conduit.

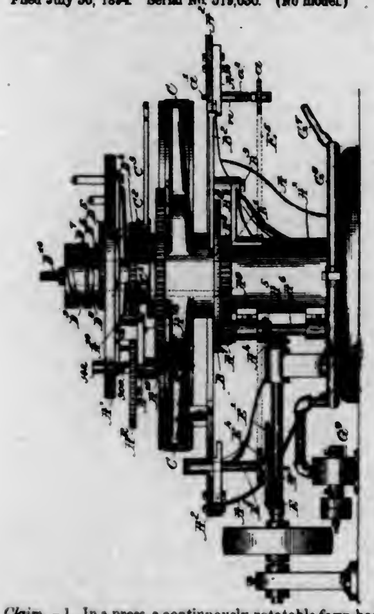
5. The combination with a base-plate, and a deflector secured to and raised slightly above the same, of a hollow cover or top part B removably secured to said base-plate having openings in the sides thereof and provided with a suitable handle, a gasolene-tank located contiguous to said cover, a burner, a pipe c plate D having an opening *d* therein and tubes *f*, *f'*, and stub *e* all cast in one piece as described, and forming the connection between said tank and the burner, and a flue *g* projecting down from the top surface of said cover and extending down through the opening in said plate D and discharging into said deflector.

6. The combination with a base-plate having a protuberance H, and a deflector secured to and raised slightly above said plate, having a central opening therein and provided with a concentric circular comb depending from its under surface, of a hollow cover or top part removably secured to said base-plate having openings in the side thereof and provided with a suitable handle, a gasolene-tank located contiguous to said cover, a burner, a pipe c plate D having an opening *d* therein and tubes *f*, *f'*, and stub *e* all cast in one piece as described, and forming the connection between said tank and burner, and a flue *g* projecting down from the top of said cover and extending down through said plate D, said flue discharging the volatilized gasolene into said deflector, which spreads the flame directly against said base-plate so that after leaving said deflector, the heat generated thereby has an unobstructed course to and comes in direct contact with plate D.

7. The combination in a self-heating sad-iron, of a base-plate, and an inverted-saucer-shaped deflector having a circular comb depending downward from the under side between its central opening and its outer circumferential edge, and the outer portion of the deflector beyond the comb being curved downward, with a hollow cover fitting over and removably secured to said base-plate having openings in its sides, a gasolene-tank supported by and having pipes extending therefrom into said cover and terminating in a valve-controlled head which directs the volatilized gasolene downward, and a flue in said cover extending vertically down to and discharging the said volatilized gasolene down into said deflector in which it ignites and by which it is spread directly against said base-plate.

8. The combination in a self-heating sad-iron, of a base-plate, and an inverted-saucer-shaped deflector having an opening in its top and having a circular comb depending downward from its under side between its central opening and its outer circumferential edge, and the outer portion of said deflector beyond the comb being curved downward, said deflector being secured directly to but elevated slightly above the base-plate, with a hollow cover fitting over and removably secured to said base-plate, having openings in its sides and having its upper interior surface protected by a suitable insulating material, a gasolene-tank supported by and having pipes extending therefrom into said cover and passing up therethrough to and terminating in a valve-controlled head which directs the volatilized gasolene downward, and a flue in said cover extending vertically down to and discharging the said volatilized gasolene down into said deflector in which it ignites and by which it is spread directly against said base-plate.

577,100. PRINTING-PRESS. HENRY H. CUMMINGS, Malden, Mass., assignor to the New Multiple Press Company, Boston, Mass. Filed July 30, 1894. Serial No. 519,030. (No model.)



Claim.—1. In a press, a continuously-rotatable form-bed carrying a series of forms, and means to continuously rotate said form-bed, combined with a series of platens, means to reciprocate them toward and from said form-bed to cooperate in succession with the forms, and mechanism to cause the platens to move in unison with the forms while making impressions, substantially as described.

2. In a press, a continuously-rotatable form-bed carrying a series of forms, combined with a series of platens, and means to move them toward and from said form-bed and also backward and forward with relation to the direction of rotation of said bed to cooperate in succession with the forms, substantially as described.

3. In a press, the following instrumentalities, viz: a continuously-rotatable form-bed having a plurality of forms, means to rotate the same continuously, a multisided platen, means to rotate said platen intermittingly, and means to move said platen and form-bed toward and from each other, substantially as described.

4. In a press, the following instrumentalities, viz: a rotatable form-bed having a plurality of forms, a multisided platen also rotatable, means to continuously rotate one of said rotatable members, means to intermittingly rotate the other of said members, and means to move said platen and form-bed toward and from each other, substantially as described.

5. A rotatable form-bed having a series of forms, and a carriage having a platen movable toward and from the form-bed, combined with devices to cause the carriage and platen to move in unison with the form-bed while making an impression and between printing impressions to be moved in opposition to the movement of said form-bed, substantially as described.

6. A rotatable form-bed having a series of forms, and a carriage having a multisided platen movable toward and from the form-bed, combined with devices to cause the carriage and platen to move in unison with the form-bed while making an impression, and between printing impressions to be moved in opposition to the movement of said form-bed, substantially as described.

7. In a press, the following instrumentalities, viz: a form-bed provided with a series of forms; means to rotate said form-bed; a multisided platen, sheet-holding devices, a carriage on which said platen is mounted, means to rotate said platen and to move it toward and from the form-bed, and devices to couple the carriage having the platen to said form-bed while the sheet is being printed, substantially as described.

8. In a press, a rotatable form-bed carrying a series of forms, combined with a series of platens, means to impart a relative reciprocal movement to said platens and said forms toward and from each other, to cause the platens to coöperate in succession with the forms in succession, means to continuously move one of said series, means to intermittingly move the other of said series, and mechanism to cause the platens to move in unison with the forms while making impressions, substantially as described.

9. In a press, a rotatable form-bed carrying a series of forms, combined with a platen and means to move it toward and from said form-bed to coöperate with the forms in succession, and devices to supply said platen with sheets, consisting of a sheet-separator, a carrier, and a pivoted sheet-guide to direct the edges of the sheets, substantially as described.

10. In a press, a movable form-bed having attached to it a series of forms, a carriage, and devices to move it on said form-bed, combined with a platen mounted upon and movable with said carriage, and devices to move the platen toward and from the forms on the form-bed, for the purposes set forth.

11. In a press the following instrumentalities, viz: a form-bed provided with a series of forms; a multisided platen provided with sheet-holding jaws, movable laterally to grasp the edges of the sheet, a supply-box to supply sheets, a carrier to take the sheets singly from the supply-box and present them to the sheet-holding jaws attached thereto, means to rotate said platen and to move the same toward and from the said form-bed, substantially as described.

12. In a press, the following instrumentalities, viz: a form-bed provided with a series of forms; a multisided platen provided with opposing sheet-holding jaws for the sheets at their opposite edges, a supply-box to supply sheets, a carrier to take the sheets singly from the supply-box and present them to the sheet-holding jaws attached to said platen to be held thereby against their said edges, means to rotate said platen and move the same toward and from the said form-bed, and delivery mechanism to take the printed sheets from the said platen, substantially as described.

13. In a press the following instrumentalities, viz: a form-bed provided with a series of forms; a multisided platen provided with sheet-holders, a supply-box to supply sheets, a carrier to take the sheets singly from the supply-box and present them to the sheet-holders attached to said platen, means to rotate said platen and to move the same toward and from said form, delivery mechanism to take the printed sheet from the platen, a receiving-box, and devices between said delivery mechanism and said receiving-box to put the printed sheets into said box, substantially as described.

14. In a press, a circular form-bed provided with a series of forms and having its edges shaped to form tracks, combined with a carriage mounted on said tracks, a platen mounted on said carriage, and means to reciprocate said carriage on said track, substantially as described.

15. The circular form-bed having notches, the platen-carrying carriage mounted thereon and provided with a spring-controlled locking device to engage said notches, combined with devices to move said locking device in opposition to its operating-spring to disconnect the said carriage from the said bed, substantially as described.

16. The circular form-carrying bed, the carriage mounted thereon and having a guideway, a slide fitted in said guideway, an arm pivoted in said slide, and a head pivoted on said carriage and provided with a post, the upper end of which is engaged by the arm of said slide, combined with a multisided platen mounted on said post,

and with means to rotate said platen and to move the said slide in said guideway to effect the movement of the platen toward and from the said bed, substantially as described.

17. The carriage, the head pivoted thereon provided with a post, a multisided platen mounted on said post, said platen having fixed to its lower end a notched ring, a loose pawl-ring provided with notches and applied to the upper end of said platen, a pawl carried by said platen to be engaged by said loose ring to rotate the platen, devices to partially rotate said loose pawl-ring in said platen, and a locking device carried by said head and adapted to engage the notched ring fixed to the lower end of said platen, substantially as described.

18. The form-bed provided with a series of forms, a carriage mounted thereon, a head pivoted on said carriage and provided with a post, a main and an auxiliary locking device mounted on said head, combined with a multisided platen mounted loosely on said post and having fixed to its lower end a ring provided with a series of notches; and means to rotate said platen and to operate said main and auxiliary locking devices to effect the release of the said platen when the latter is to be rotated, locking it against rotation at all other times, substantially as described.

19. In a press, a circular form-bed, a carriage mounted thereon, a head pivoted on said carriage and having a post, a multisided platen mounted on said post and provided with a pawl, a pawl-ring mounted loosely in the upper end of said platen, a link jointed to said pawl-ring, a shoe connected to said link, a friction-box in which said shoe is fitted to slide frictionally, and means to move said platen toward and from said form-bed, the platen during a portion of its outward movement being rotated by or through the action of the pawl-ring on the pawl of the platen, the said pawl-ring being held while the platen is being moved outwardly, substantially as described.

20. The carriage, a head pivoted thereon having a post, a multisided platen mounted loosely on said head and having at each of its faces a pair of sheet-holders made as spring-arms, said holders having their short arms connected together, whereby the movement of one holder moves the other in unison with it, combined with means to act upon one of said holders to cause the same to pass over and engage the edges of a sheet laid upon said platen, substantially as described.

21. The carriage, a head pivoted thereon having a post, a many-sided platen mounted loosely on said head and having at each of its faces a pair of sheet-holders made as spring-arms, said holders having their short arms connected together, whereby the movement of one holder moves the other in unison with it, combined with means to act upon one of the said holders to separate the same to enable the printed sheet to be taken from the said platen, substantially as described.

22. In a press, a form-bed having a series of forms, a carriage mounted thereon, a head pivoted on said carriage and provided with a post having a ball-shaped top, a multisided platen mounted loosely on said post, an arm having a semispherical recess to engage the ball-shaped upper end of said post, means to connect said arm with said post, a slide upon which said arm is pivoted, a guideway forming part of said carriage and in which said carriage is free to reciprocate, a link having at one end an eccentric-strap, an eccentric inserted in said strap, a post carried by said slide and upon which said eccentric is fitted, combined with means to move said eccentric-link, the adjustment of the eccentric determining the extent of movement of said platen toward and from the form-bed, substantially as described.

23. The ink-distributing cylinder having at one side of its center a secant face, a rotating shaft extended through said distributing-cylinder and provided with a disk a^{29} having a series of bearings, a second disk a^{30} loose with relation to said shaft and having a series of bearings, a gear n^7 attached to disk a^{30}, a gear n^8 fast to the disk a^{29} secured to said shaft, a shaft n^9 having pinions and engaging said gears, whereby the two disks are made to rotate in unison, combined with a series of inking-rolls having their journals mounted in said bearings, substantially as described.

24. The ink-distributing cylinder having at one side of its center a secant face, a rotating shaft extended through said distributing-cylinder and provided with a disk a^{29} having a series of bearings, a second disk a^{30} loose with relation to said shaft and having a series of bearings, a gear n^7 attached to a disk a^{30}, a gear n^8 fast to the disk a^{29} secured to said shaft, a shaft n^9 having pinions and engaging said gears, whereby the two disks are made to rotate in unison, combined with a series of inking-rolls having their journals mounted in said bearings, a series of antifriction-rolls mounted on the journals of said inking-rolls, means to rotate said cylinder-shaft, and tracks a^{26}, a^{27}, upon which said antifriction-rolls travel while the inking-rolls are inking the forms on the form-bed, substantially as described.

25. The supply-box having a bottom plate, a curved guide for the outer ends of a pile of sheets mounted on said bottom plate, and against which the said outer ends abut, removed from the carrying mechanism, whereby the inner ends of the lowermost sheets are so located as to be substantially free from pressure of the pile of sheets, combined with a separating device to coöperate with the inner end of the lowermost sheet and move it away from the sheet above it, and with a carrier to engage the end of said sheet and detach it from the pile in the said supply-box, substantially as described.

26. A supply-box for a pile of sheets, combined with a carrier having a notch, a nipping-roll mounted in said notch and supported by a spring, combined with a sliding wedge to coöperate with said nipping-roll to cause it to grip the end of a sheet closely or to permit the end of a sheet to be released, and means to move said carrier, to operate, substantially as described.

27. In a printing-press, the following instrumentalities, viz: a supply-box for a pile of sheets, a multisided platen having a series of sheet-holders, a carrier having a nipping-roll, means to move said carrier and cause it to engage between itself and said nipping-roll the end of a sheet, a sheet-guide through which the said carrier carries the said sheet on its way to the sheet-holders of the platen, devices to move said nipping-roll to effect the release of said sheet when applied to the platen, and means to actuate said holders to engage the sheet presented to the platen by the said carrier, substantially as described.

28. The combination with a platen having sheet-holders, and means to move said sheet-holders to release a printed sheet, of a delivery device consisting of an arm, a block carried thereby, said block having a pair of jaws, one jaw being stationary and the other jaw being movable relatively to said block, said jaws having broad nipping-faces lying in parallel planes throughout their movement, means to open said jaws to grasp the end of the printed sheet, a spring to close said jaws, and means to move the arm carrying said jaws, to operate, substantially as described.

29. The receiving-box provided with spring-cheeks having inwardly-projecting fingers to support the pile of printed sheets inserted in said box from its lower end, and a movable bottom plate provided with a clamp to engage one end of a sheet, means to move said bottom plate to pass a sheet carried by it into the open lower end of said receiving-box and above said spring-cheeks, combined with a delivery device consisting of a lever having a pair of jaws to grasp a printed sheet and pass the end of said sheet into the spring-clamp carried by said bottom plate, as and for the purpose described.

30. The receiving-box, provided with a swinging bottom plate hinged thereto, guide-flanges thereon to receive a sheet, stops thereon to limit and properly aline the sheet in its movement, and a receiving-foot normally spring-pressed adjacent to said bottom plate at one side edge thereof, said foot being yieldingly adjusted in loose gripping contact with its support, substantially as described.

31. A rotatable form-bed having a series of forms, a carriage mounted thereon, and a platen mounted on said carriage, combined with devices to move the said platen toward and from said form-bed, and a device independent of said platen secured to the carriage and interposed between said platen and form-bed in the path of movement of the latter and arranged to be engaged by the sheet on the moving platen and sprung toward said form-bed, whereby the tendency of said device to regain its normal position causes the sheet to move with the platen away from the form-bed, to operate substantially as described.

32. A form-bed having a series of forms, a carriage, a multisided platen supported upon said carriage and provided with sheet-holders, combined with means to move said platen toward and from said bed, and with devices to act upon said sheet-holders and move them toward each other to engage and hold a sheet against the edges thereof, substantially as described.

33. The ink-distributing cylinder having at one side of its center a secant face, a rotating shaft extended through said distributing-cylinder and provided with a disk a^{29}, a second disk a^{30} loose with relation to said shaft, a gear n^7 attached to disk a^{30}, a gear n^8 fast to the disk a^{29} secured to said shaft, a shaft n^9 having pinions and engaging said gears, whereby the two disks are made to rotate in unison, the pivoted bearings for the inking-rolls mounted on disks a^{29}, a^{30}, and means to press said bearings outwardly, combined with a series of inking-rolls having their journals mounted in said bearings, to operate, substantially as described.

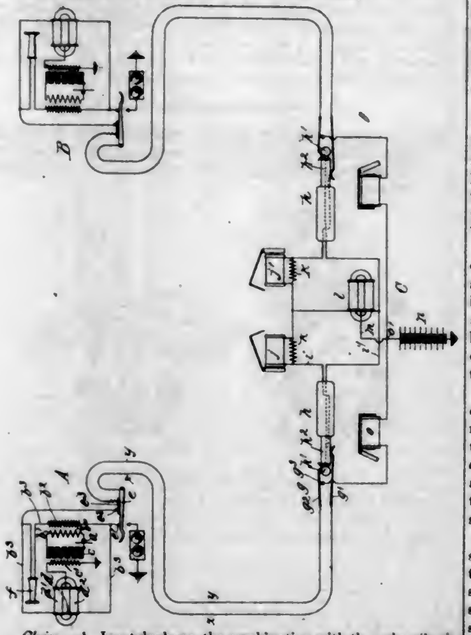
34. In a press, a movable form-bed, a rotatable platen having a plurality of sides, and means to move said platen and form-bed toward and from each other, combined with devices to cause the same to move in unison while making an impression, substantially as described.

35. In a press, a rotatable form-bed having a plurality of forms, a movable platen, and means to move said platen and form-bed toward and from each other, combined with devices to cause the same to move in unison while making an impression, substantially as described.

36. The delivering device, comprising a base-block provided on its outer surface with a stationary nipper having its free nipping end projecting over a recess in said block, said recess, a movable nipper arranged to reciprocate in said recess, and a spring normally pressing the same against the under side of said stationary nipper, said block being suitably mounted to move back and forth in the delivery of sheets, substantially as described.

37. In a press, the combination with a platen, of sheet-holders, said holders being provided at their upper ends with jaws opening inwardly toward each other, and arranged to grasp and direct the sheet at either edge thereof, said holders being movable with the platen to hold the sheet thereon in proper adjustment for printing, substantially as described.

577,101. TELEPHONE SYSTEM. William W. Dean, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed Sept. 19, 1896. Serial No. 606,344. (No model.)



Claim.—1. In a telephone, the combination with the subscriber's microphone and primary of the induction-coil, of an electrothermal generator in circuit therewith, a heating-coil in proximity to said electrothermal generator, means for supplying current to said heating-coil, and means for controlling the supply of current to said heating-coil.

2. In a telephone system, the combination with the subscriber's microphone, and primary of the induction-coil, of an electrothermal generator in circuit therewith, a heating-coil, a source of current-supply for said heating-coil, and means, controlled by the movement of the telephone-hook, for including said source of current in circuit with said heating-coil, substantially as described.

3. In a telephone system, the combination with the subscriber's microphone and primary of the induction-coil, of an electrothermal generator in circuit therewith, a heating-coil, a source of current at the central station, and means for including said source of current in circuit with said heating-coil substantially as described.

4. In a telephone system, the combination with the subscriber's microphone and primary of the induction-coil, of an electrothermal generator in circuit therewith, a heating-coil in circuit with the telephone-line, a spring-jack terminal for said telephone-line, a plug and cord circuit at the central station, and a source of current included in said cord circuit, said source of current being placed in electrical communication with said heating-coil upon the insertion of the plug into the spring-jack, substantially as described.

5. In a telephone apparatus, the combination of a telephone-receiver with a telephone-transmitter, an electrothermal generator included in circuit with said transmitter, means for heating said electrothermal generator, and a switch-hook for the receiver adapted to control said means, substantially as described.

6. In a telephone apparatus, the combination of an induction-coil, with a telephone-receiver, a telephone-transmitter, an electrothermal generator included in circuit with said transmitter and the primary of the induction-coil, a heating-conductor placed in proximity to said generator, a source of current adapted to be included in circuit with said heating-conductor, and a switch-hook for the telephone-receiver adapted to control the continuity of the circuit including said source of current and heating-conductor, substantially as described.

7. In a telephone system, the combination of a telephone-line extending from the central office to a subscriber's station with a source of electricity connected therewith at the central office, an induction-coil at the subscriber's station, a thermal generator and a microphone-transmitter included in circuit with the primary of said induction-coil, and a conductor adapted to heat said generator connected with said telephone-line and source of electricity, substantially as described.

8. In a telephone apparatus, the combination of a telephone-receiver, with a telephone-transmitter, an electrothermal generator included in circuit with said transmitter, a heating-conductor adapted to heat said generator, a source of current adapted to be included in circuit with said conductor, and a switch-hook for the telephone-receiver adapted to control the continuity of the circuit including said source of current and heating-conductor, substantially as described.

9. In a telephone system, the combination of a telephone-line extending from the central office to a subscriber's station, with a telephone-transmitter at the subscriber's station, and an electrothermal generator included in circuit therewith, a conductor adapted to supply heat to said generator included or adapted to be included in circuit with the telephone-line, and a source of current at the central office included or adapted to be included in circuit with said conductor, substantially as described.

10. In a telephone system, the combination of a telephone-line extending from the central office to a subscriber's station, a transmitter at the subscriber's station, and an electrothermal generator included in circuit therewith, a heating-conductor associated with said generator, and connected or adapted to be connected with the telephone-line, a source of current, and switching mechanism at the central office adapted to include said source of current in circuit with the telephone-line and said conductor, substantially as described.

11. In a telephone system, the combination of a telephone-line extending from the central office to a substation, with a telephone-receiver in circuit with the telephone-line at the substation, an induction-coil at the substation, a transmitter and an electrothermal generator included in circuit with the primary coil of said induction-coil, a heating-conductor, a source of current and a telephone-hook for the telephone-receiver adapted to complete a circuit including said source of current and conductor, substantially as described.

12. In a telephone system, the combination of a plurality of subscribers' stations each having a telephone-transmitter, with electrothermal generators, one in circuit with each transmitter, a common source of current, a conductor leading from said source of current to said subscribers' stations, and heating-conductors, one at each subscriber's station, in circuit with the aforesaid conductor and source of current and adapted to heat said thermal generators, substantially as described.

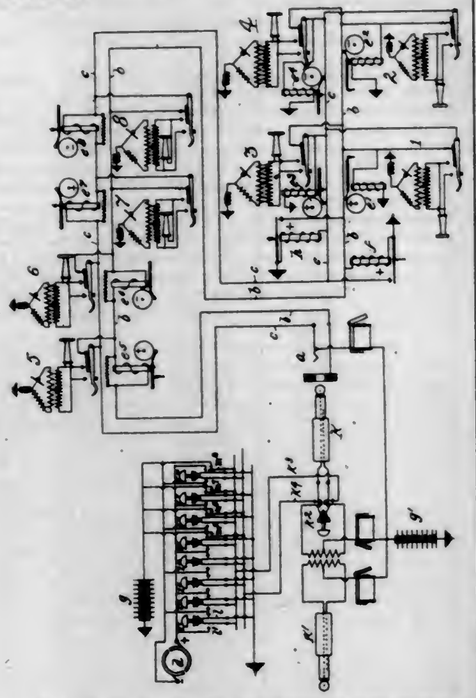
13. In a telephone system, the combination of a plurality of subscribers' stations each having a primary circuit including a transmitter, thermal generator and the primary helix of an induction-coil, a common source of current, a conductor leading from said source of current to said subscribers' stations, and heating-conductors, one at each subscriber's station in circuit with the aforesaid conductor and source of current and adapted to heat said thermal generators, substantially as described.

577,102. PARTY-LINE TELEPHONE SYSTEM. William W. Dean, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed Sept. 19, 1896. Serial No. 606,345. (No model.)

Claim.—1. The combination with an electric circuit consisting of two limbs or sides adapted to be formed into a metallic circuit, of a group of high-resistance signal-bells connected with the outer portion of said circuit, an inner group of low-resistance signal-bells included in said circuit, relays, one for each limb, connected between said groups and each when operated acting to diminish the resistance of the other limb, means for sending pulsating current of either polarity over either of said limbs, and means for at the same time directing battery-current over the limb corresponding to that over which the signaling or pulsating current is being sent, to operate the proper relay, whereby either bell of the low-resistance group may be operated without ringing any other bell of either of the groups.

2. In a party telephone-line, the combination with two metallic limbs extending from the telephone-exchange through five substations, four of said substations being provided with low-resistance signal devices, two of said low-resistance devices of opposite polarity being connected with each limb of the metallic circuit, while the fifth substation is provided with a high-resistance signal device connected

with said line, a source of signaling-current adapted to be included in circuit with said signal devices, relay switching mechanism adapted to shunt or exclude said high-resistance signal device from the path of said current, a source of electricity and switching mechanism at the exchange for including said source of electricity in circuit with the aforesaid relay switching mechanism and for directing signaling-current of the proper polarity over either of the metallic limbs of said line to actuate the selected low-resistance signal device, substantially as described.



3. In a party telephone-line, the combination with two metallic limbs adapted to be formed into a metallic circuit, of a high-resistance bell connected with the outer portion of said circuit, an inner group of low-resistance positively and negatively polarized bells associated with the limbs of said circuit, a source of signaling-current adapted to be included in circuit with said bells, relays, one for each line, adapted to exclude or shunt said high-resistance bell from the path of said current, a source of electricity adapted to be included in circuit with said relays, means for sending current of the proper polarity over said lines to ring the bell of the selected station, and means for closing circuit through the relay connected to the limb companion to the limb over which signaling-current is being sent to remove or shunt the high-resistance bell from the path of said signaling-current, substantially as described.

4. In a telephone system, the combination with a party telephone-line extending from the central office through five substations, four of said substations being provided with low-resistance signal devices, two of said low-resistance signal devices being of one polarity, while the other two are of an opposite polarity, the fifth substation being provided with a high-resistance signal device, a source of signaling-current adapted to be included in circuit with said signal devices, means for shunting or excluding said high-resistance signaling device controlled at the central office and switching mechanism adapted to direct current of the proper polarity over said line to actuate the selected low-resistance signal device, substantially as described.

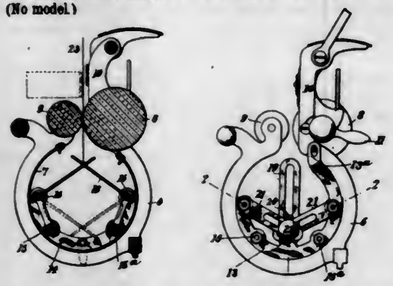
5. In a telephone system, the combination of a party telephone-line extending from a central office to two substations, with an indicating device located at one substation, an indicating device of comparatively high resistance located at the other substation, said signaling devices being normally included in series with the telephone-line, a source of signaling-current, means at the central office for including said signaling-current in series with said telephone-line and signaling devices, a relay connected with said line adapted to establish a shunt about said high-resistance signal device, a source of current, and means at the central office adapted to include the same in circuit with said relay, substantially as described.

577,103. BALL-BEARING. JAMES R. DENISON, Grand Rapids, Mich., assignor of one-half to Julius M. Jamison, same place. Filed July 6, 1896. Serial No. 598,231. (No model.)



Claim.—In a ball-bearing, a solid outer ring having a bead at its periphery, a circumferentially-divided inner ring, said rings constructed to form a laterally-elongated groove for the travel of the balls, a shaft upon which one section of the divided ring is secured, there being a screw-thread on the shaft, a nut engaging said screw-thread and securing the outer section of the ring to the shaft, said nut having a flange projecting from its periphery over said bead to form a dust-guard, a washer between the divided sections of the inner ring, and a washer between the surfaces of the rings and the nut, substantially as and for the purpose set forth.

577,104. CARD OR ENVELOP HOLDER FOR TYPE-WRITERS. JOHN H. DORMAN, New York, N. Y., assignor to the Hammond Type Writer Company, same place. Filed May 23, 1896. Serial No. 592,841. (No model.)



Claim.—1. A card or envelop holder for type-writing machines provided with means for securing it immovably to the machine and with a support for the card or envelop, combined with appliances for vertically adjusting said support, up or down, wholly from one end of the holder.

2. A card or envelop holder for type-writing machines adapted to be secured immovably in the paper cylinder or case and provided with two series of pivoted intersecting supports and means for vertically adjusting the latter to change the relation of the intersecting line of the same with reference to the line of the type impression.

3. A card or envelop holder for type-writing machines consisting of a frame provided with two pivoted longitudinal shafts each having a series of supporting-wires extending beyond the longitudinal center between said pivoted shafts, the wires of one shaft intersecting with those of the other, said shafts at one end of the holder provided with means for revolving them whereby the intersecting line between said wire supports, above or below the plane of the revolving shafts, may be changed and fixed with relation to the impression-line of the type.

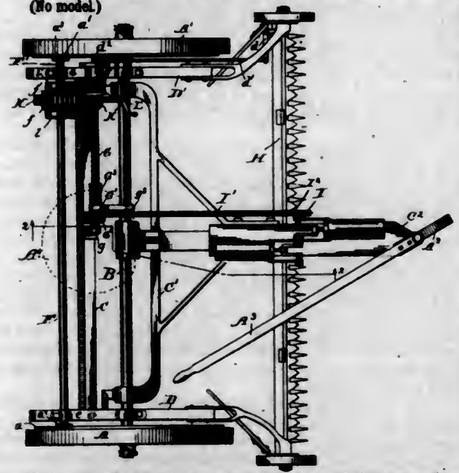
4. In a card or envelop holder for type-writing machines, the combination with a frame provided with two pivoted longitudinal shafts each having a series of supports intersecting one another, of a pair of links secured to said shafts at one end of the holder and slotted at their outer ends, a vertical guide grooved to receive a sliding nut and a screw passing through the slotted ends of said links and connected to said nut, whereby said supports may be adjusted above or below the plane of said shafts and fixed in the position of adjustment.

5. In a card-holder for type-writing machines, the combination with the end pieces 13, 14, one of which is provided with a slotted perpendicular portion, and the connecting-rods 15, 15ª, of longitudinal shafts pivoted in said end pieces and each provided with a series of intersecting supports or wires, a pair of links secured to the ends of said shafts at one end of the holder and slotted at their outer ends which pass by each other, a nut adapted to slide in said slotted perpendicular portion and a screw passing through the slots in said links and connected with said nut, substantially as set forth.

6. The combination with the paper-carriage of a type-writing machine, of a card or envelop holder adapted to rest in the paper-carriage and provided with a support for the card or envelop and with end pieces, one of which is provided with a slotted extension adapted to be connected to the machine-frame and the other with a swivel for locking the holder in place, and means for vertically adjusting said support from one end of the holder without changing the relation of the holder to the paper-carriage.

7. The combination with the paper-cylinder of a type-writer and the feed-rollers, of a card or envelop holder provided with means for securing it immovably in the paper-cylinder and with a support for the card or envelop and appliances for vertically adjusting said support wholly from one end of the holder without changing the relation of the holder to the paper-carriage.

577,105. MOTOR FOR HARVESTING MACHINERY. GEORGE H. ELLIS and JOHN F. STEWARD, Chicago, Ill., assignors to the Deering Harvester Company, same place. Filed Apr. 13, 1896. Serial No. 587,292. (No model.)



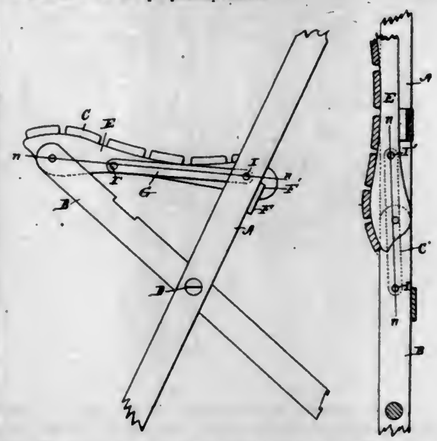
Claim.—1. The combination in a harvester of the supporting-wheels, the main frame and the cutting apparatus, with a motor, a crank-shaft and means for transmitting rotation from said motor to said crank-shaft, and a clutch for disconnecting said crank-shaft from said motor, the said crank-shaft adapted to actuate the cutting apparatus and means whereby the machine is moved along the ground, said means consisting of two shafts having coincident axes, differential gearing mounted on the adjacent ends of said shafts and connected by gearing to said crank-shaft, the said shafts being adapted to transmit rotation to said carrying-wheels, suitable brake mechanism upon the two said shafts and a hand-shaft connected to both parts of the said brake mechanism whereby the rotation in one direction of said hand-shaft serves to stop or delay one of said main wheels, and by a rotation in the opposite direction serves to stop or delay the other said main wheel, without affecting the speed of the cutting apparatus, substantially as described.

2. The combination in a harvester of the supporting-wheels, the main frame and the cutting apparatus, with a motor, a crank-shaft and means for transmitting rotation from said motor to said crank-shaft, the said crank-shaft adapted to actuate the cutting apparatus and means whereby the machine is moved along the ground, said means consisting of two shafts having coincident axes, differential gearing mounted on the adjacent ends of said shafts and connected by gearing to said crank-shaft, the said shafts being adapted to transmit rotation to said carrying-wheels, suitable brake mechanism upon the two said shafts and a hand-shaft connected to both parts of the said brake mechanism whereby the rotation in one direction of said hand-shaft serves to stop or delay one of said main wheels, and by a rotation in the opposite direction serves to stop or delay the other said main wheel, without affecting the speed of the cutting apparatus, substantially as described.

3. The combination in a harvesting-machine of a motor, the supporting-wheels, two shafts each suitably connected by gearing to said supporting-wheels, differential gearing supported on the adjacent ends of said shafts, suitable brake-wheels secured to said shafts, brake-straps engaging the peripheries of said brake-wheels, a hand-shaft and means connecting said brake-straps with said hand-shaft, and a bearing for said hand-shaft pivoted upon the main frame of the machine whereby said hand-shaft can be rotated upon its axis in either direction to apply a braking stress to either of said brake-wheels, or can be moved bodily rearward upon its pivoted bearing to apply a braking stress to both of said brake-wheels, substantially as described.

577,106. FOLDING CHAIR OR SETTEE. WILLIAM R. KIDDER, Kalamazoo, Mich., assignor to the Kalamazoo Sled Company, same place. Filed Aug. 5, 1896. Serial No. 601,779. (No model.)

Claim.—1. In a folding chair or settee, the combination of a suitable back A, having side pieces extending downwardly and forwardly to form the front legs thereof; cross-pieces B, B, suitably connected and pivoted between the side pieces of the back A, to form the rear legs and support the front of the seat; a strip F, on the rear side of the back A, at the height of the rear of the seat, to support the same; a seat made up of cleats E, with slats C, thereon, the cleats E, of which are pivoted between the front ends of the side pieces B, and have notches F', to engage the strip F; link connections pivoted inside of the side pieces of the back at I, and extended forwardly and pivoted at I', to the outside of the cleats E, so positioned that in extending the chair, the pivot I' passes a line through the center of the pivot at the front of the seat and the rear of the links, to lock the chair automatically in position, and so that when the chair is folded, the pivot I' passes a line through the same pivots to lock the chair automatically in the closed position; all coacting together substantially as described for the purpose specified.



2. In a folding chair or settee, the combination of a suitable back A, having side pieces extending downwardly and forwardly to form the front legs thereof; cross-pieces B, B, suitably connected together and pivoted between the side pieces of the back A, and forming the rear legs thereof; a strip F, on the back A, at the height of the rear of the seat to support the same; a seat pivoted between the front ends of the side pieces B; link connections G, pivoted inside of the side pieces of the back at I, and extended forwardly and pivoted to the seat, so positioned that in extending the chair, the pivot I' passes a line through the center of the pivot at the front of the seat and the rear of the links to lock the chair automatically in position, and so that when the chair is folded, the pivot I' passes a line through the same pivots to lock the chair automatically in the closed position; all coacting together substantially as described for the purpose specified.

577,107. POWER-SHEARS. FRANK M. LEAVITT, Brooklyn, N. Y., assignor to the E. W. Bliss Company, same place. Filed Apr. 2, 1894. Renewed July 13, 1896. Serial No. 599,058. (No model.)

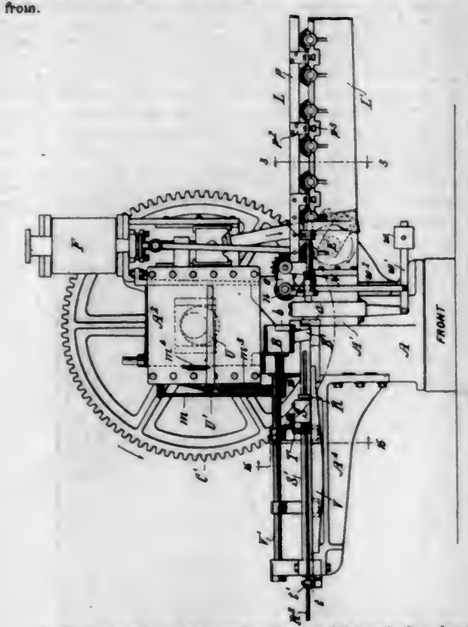
Claim.—1. In a power-shears, the combination of a driving-shaft, a feed mechanism for the bar to be sheared, driven thereby, the movable shearing-jaw, a shear-operating shaft, driven from said driving-shaft, a clutch for coupling said shear-operating shaft to the driving-shaft to operate the shear, and a push-plate in the path of feed of the bar, connected to said clutch to engage the latter when displaced by the bar, whereby the shear is tripped automatically to cut off the bar into equal lengths.

2. In a power-shears, the combination of a driving-shaft, a clutch for coupling the movable shear to said shaft, a push-plate R in the path of feed of the bar being operated on, a head-block S supporting said push-plate, and mechanical connections between said push-plate and the clutch for engaging the latter when the push-plate is displaced by the bar.

3. In a power-shears, the combination of a driving-shaft, a clutch for coupling the movable shear to said shaft, a head-block S adjustable longitudinally of the direction of feed, with means for locking it in any adjustment, a push-plate carried by said block and movable relatively thereto arranged in the path of feed of the bar, and mechanical connections between said push-plate and clutch adapted to engage the latter when the plate is displaced by the bar.

4. In a power-shears, the combination of a driving-shaft, a clutch for coupling the movable shear to said shaft, and a push-plate in the

path of feed of the bar being operated upon, connected to the clutch to engage the latter when displaced by the bar, and a mechanical connection between said push-plate and the movable shear, adapted upon the descent of the shear to cause the push-plate to recede therefrom.



5. In a power-shears, the combination of a driving-shaft, a clutch for coupling the movable shear to said shaft, and a push-plate in the path of feed of the bar being operated upon, connected to the clutch to engage the latter when displaced by the bar, a head-block carrying said push-plate, a longitudinal sliding bar to which said head-block is connected, and a connection between said bar and the movable shear adapted upon the descent of the shear to slide the bar longitudinally and cause the push-plate to recede from the shear.

6. In a power-shears, the combination of a driving-shaft, a clutch for coupling the movable shear to said shaft, and a push-plate in the path of feed of the bar being operated upon, connected to the clutch to engage the latter when displaced by the bar, a head-block S carrying said push-plate, a longitudinal sliding bar S' having a recess S^2, and an inclined cam-arm B' engaging said recess and fixed to the movable shear, whereby during the descent of the latter a thrust is communicated through said arm to said slide-bar to carry the head-block and push-plate away from the shears.

7. In a power-shears, the combination of a driving-shaft, a clutch for coupling the movable shear to said shaft, a push-plate R in the path of feed of the bar being operated on having a sliding plunger or frame, mechanical connection between said push-plate and clutch to engage the latter when displaced by the bar, the same consisting in part of a push-bar R^3, and a lever T guiding the end of said push-bar, holding it normally in line with said plunger and adapted by throwing the lever to carry it out of line therewith, and thereby throw the automatic clutch-operating mechanism out of action.

8. In a power-shears, the combination with a movable shear-head, a laterally-movable table V arranged to receive and support the bar to be cut as the latter is fed between the shears, and mechanism for operating said table adapted on the descent of the shear to move back the table from under the section of bar that is cut off by the shears to permit the latter to fall.

9. In a power-shears, the combination of movable shear-head B, sliding table V, arranged to support the bar to be cut as it is fed between the shears, and an elbow-lever connection between said table and shear-head consisting of a rock-shaft V' extended parallel to the direction of feed of the bar to be cut, having an arm V^3 engaging said table and an arm V^4 engaged by said shear-head, whereby upon the descent of the shear-head the table is caused to slide out from under the section of bar that is cut off.

10. In a power-shears having a driving-shaft, a clutch for coupling the movable shear to said shaft, and a push-plate in the path of feed of the bar being operated on for automatically tripping the clutch, a clutch-engaging mechanism comprising a restraining-pawl *j*, a lever Q for rocking said pawl to release it and engage the clutch, and mechanical connections between said lever Q and the push-plate, combined with a hand-lever U for tripping the clutch manually, and an arm U^3 connected to it and acting against the lever Q, whereby said latter lever may be operated to release the clutch either from the push-plate or said hand-lever U.

11. In a power-shears, the combination with a roller-table having continuously-revolving rollers for feeding the bar to be operated upon to the shears, of a clamp having opposite jaws relatively movable to grip the bar between them to retard its feed, and an operating-lever connected to said clamp by which the operator may at will close the clamp upon the bar to arrest the latter.

12. In a power-shears, the combination with a roller-table having continuously-revolving rollers for feeding the bar to be operated upon to the shears, of a clamp I consisting of a fixed jaw I', and a movable jaw I^3, arranged on opposite sides of the path of travel of the bar to grip the bar between them, and an operating-lever N connected to said movable jaw I^3 to move it toward the fixed jaw, whereby the operator may at will close the clamp upon the bar to arrest the latter.

13. In a power-shears, the combination with a roller-table having continuously-revolving rollers for feeding the bar to be operated upon to the shears, of a clamp I consisting of a fixed jaw I', and a movable jaw I^3 formed on a slide *s*, with a transverse slideway for guiding said slide in its movements to keep the two jaws parallel, an operating-lever N, and a connecting-link *s'* joining it to said slide.

14. In a power-shears, the combination with a roller-table for feeding the bar to be operated upon to the shears, of a clamp I consisting of a fixed jaw I', and a movable jaw I^3 with transverse slideways for guiding the latter in its movement to hold it parallel to the fixed jaw, and a movable guide-bar P joined at one end to a fixed part and connected at the other end to said movable jaw, whereby it moves with the latter and guides the bar to be operated upon between the two jaws of the clamp.

15. In a power-shears, the combination with a roller-table for feeding the bar to the shears consisting of rollers geared together and revolving in the same direction, of a pressure-roller *n* mounted over the terminal roller *k'* of the roller-table, gearing for driving the roller *n* at the same speed as the rollers of the table but in the opposite direction, a movable frame *o* carrying said roller, a tension device for pressing said frame down, to cause said roller to grip the bar being fed, and an operating-lever N connected to said frame to raise it and free the bar.

16. In a power-shears, the combination with a roller-table for feeding the bar to the shears consisting of rollers geared together and revolving in the same direction, of a pressure-roller *n* mounted over the terminal roller *k'* of the roller-table, gearing for driving the roller *n* at the same speed as the rollers of the table but in the opposite direction, a movable frame *o* carrying said roller, a clamp I for gripping the bar to retard its feed, and an operating-lever N connected to said frame *o*, and clamp I to simultaneously lift the pressure-roller free from the bar and to close the clamp against the bar.

17. In a power-shears or analogous machine, the combination with the driving-shaft, clutch and clutch-drum, of a brake for arresting the latter when the clutch is released consisting of jaws *g g* carrying brake-shoes engaging opposite sides of the rim of said drum, right and left nuts carried by said jaws, and a right-and-left-threaded oscillatory shaft *h* engaging said nuts, and a connection between said shaft and the clutch-operating mechanism for oscillating said shaft upon engaging or disengaging the clutch.

18. In a power-shears or analogous machine, the combination with the driving-shaft and clutch, of a clutch-operating mechanism comprising a tripping device, a falling bar K formed with a block K', a lever-arm entering said block, and a sliding block movable in a transverse recess in said block K', and formed with a socket receiving the rounded end of said lever-arm.

577,108. COMBINED SHOVEL AND TONGS. HARRY P. LENHART, Terre Haute, Ind., and CHARLES H. LENHART, Mattoon, Ill. Filed June 20, 1896. Serial No. 596,237. (No model.)



Claim.—1. The combination of a shovel having a two-part handle, and an extensible rod connected to one member of said handle and adapted to serve as a tongs-leg, the shovel-blade being upon the other member of said handle.

2. The combination of a shovel the handle whereof is semitubular in form, a second handle portion yieldingly connected thereto at the upper end and adapted to serve as a tongs portion when the two handle portions are separated, but adapted to rest in the concave portion of the shovel-handle when closed, substantially as set forth.

3. The combination of a shovel, a shovel-handle having a clip-spring thereon, a second yieldingly-connected handle portion, a tongs-leg telescopically mounted in said second handle portion and adapted when the two handle portions are forced together to be caught and held by said clip-spring, substantially as set forth.

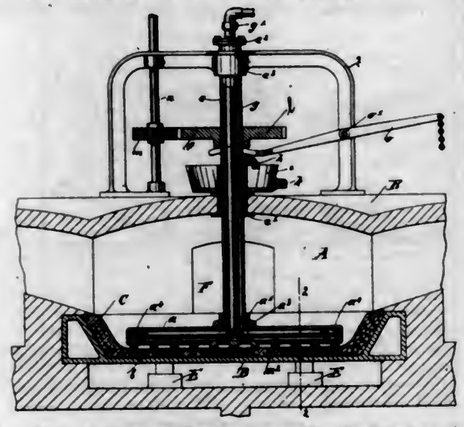
4. In a combined shovel and tongs, a telescopic tongs-leg composed of a substantially tubular structure having a slot, a rod therein provided with a guide-stud entering said slot, whereby the telescopic movement is permitted but rotary movement between the two parts prevented, substantially as set forth.

5. In a combined shovel and tongs, a telescopic tongs-leg composed of a substantially tubular member, and a rod mounted within said member, a ferrule on the lower end of the tubular member, a latch on the upper end of said ferrule, and a combined spring-catch and thumb-push whereby the rod member of the leg may be operated, said tube member of the leg being provided with a slot through which said combined spring-catch and thumb-push may pass, substantially as shown and described.

6. In a combined shovel and tongs, a tongs-leg composed of a substantially tubular part having a slot, a rod within said part having a guide-stud entering said slot, a ferrule surrounding the lower end of the tubular part and having a latch registering with said slot, said rod portion being also provided with a combined spring-catch and thumb-push or handle adapted to engage with said latch, substantially as set forth.

7. The combination of a shovel, a semitubular handle thereto provided with a clip-spring, a second handle portion united to the first by means of a loop-spring and substantially tubular in form, a tongs-leg inserted within said tubular handle portion and there held by suitable devices, the whole being arranged as described, whereby it may be used either as a shovel or as a pair of tongs at will, and readily shifted from one condition to the other, substantially as set forth.

577,109. PUDDLING-TOOL. LOUIS J. MORGAN, Indianapolis, Ind. Filed June 18, 1896. Serial No. 596,055. (No model.)

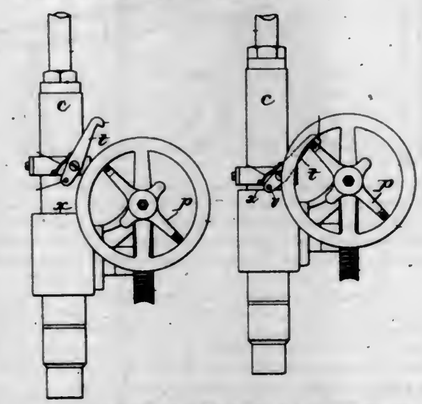


Claim.—1. In a puddling-furnace or other like structure, the combination of an upright tubular shaft with means for rotating the same, an inner tube in the shaft with means for supplying water thereto, a horizontal hollow stirring-bar or shell, firmly secured at its middle point to the upright shaft with the interiors in free communication, an inner hollow horizontal portion located within the said stirring-bar or shell, having terminal outlet-passages, and centrally connected to said inner tube with the interiors in free communication, whereby when water is introduced into the inner tube it will circulate through the inner horizontal portion and thence through the shell or stirring-bar, and outward through the upright tubular shaft, while the latter is rotated, substantially as and for the purpose specified.

2. In a puddling-furnace, or other like structure, in combination, an upright tubular shaft *e*, with means for rotating the same, having centrally affixed to the bottom thereof a hollow stirring-bar or shell, containing a horizontal hollow member with terminal outlet-passages, an inner tube *g* located in the tubular shaft *e*, and means for supplying water to the same, said inner tube firmly secured to the middle point of the said tubular portion within the said stirring-bar or shell, whereby a water circulation may be maintained through tube *g* and the said tubular portion within the stirring-bar, and thence outward through the said stirring-bar and the tubular shaft *e*, while the latter is being rotated, and the stirring-bar thus kept cool during the puddling operation, substantially as and for the purpose specified.

3. In a puddling-furnace or other like structure, the combination of a stirring bar or plate comprising an outer portion or shell *a*, provided with a central portion as a^3 made integral with said outer portion and having an outlet as a^4, a hollow rotary shaft provided with an outlet, a tube within said shaft, connections between said shaft and said outer portion and connections between said tube and said central portion whereby water may be circulated within said stirring bar or plate, and means for rotating said shaft, substantially as described.

577,110. AUTOMATIC FEED-STOPPING MECHANISM FOR DRILLING-MACHINES. ALBERT H. MORTON, Lowell, Mass. Filed Aug. 22, 1896. Serial No. 603,611. (No model.)

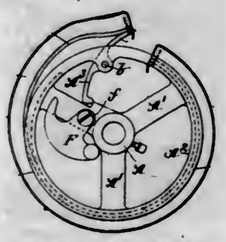


Claim.—1. An automatic feed-stop for drilling-machines comprising in its construction a pivoted dog on the feed-sleeve, a device on the clutch-shaft adapted to be engaged by the dog and to be thereby held against turning, and a stop to engage the dog and actuate it to engage the said device.

2. An automatic feed-stop for drilling-machines comprising in its construction a pivoted dog, a support upon which the dog is pivoted, adjustable on the feed-sleeve, a device on the clutch-shaft adapted to be engaged by the dog and to be thereby held against turning, and a stop to engage the dog and actuate it to engage the said device.

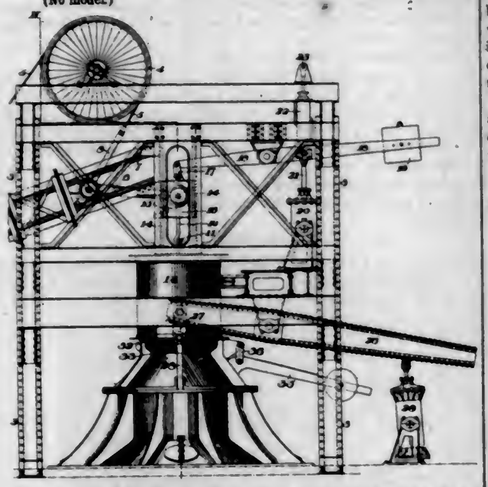
3. The combination, with the feed-sleeve, the collar or clamp adjustable thereon and the dog pivoted upon the said collar, of the clutch-rod and its clutch part, a device on the said rod adapted to be engaged by the dog, and a stop to engage the dog to move it into engagement with the said device.

577,111. BUFFING OR POLISHING WHEEL. DOUGLAS MCNIVEN, Pawtucket, R. I., assignor to the Campbell Machine Company, same place. Filed July 6, 1896. Serial No. 598,114. (No model.)



Claim.—In a buffing or polishing wheel a cushion whose width is less than the width of the rim of the wheel; a portion of the rim corresponding in width to the width of the cushion, movable on the wheel, and with one end of the cushion secured to it; and locking devices to lock the narrow movable portion of the rim in place; all substantially as described.

577,112. BLAST-FURNACE-CHARGING APPARATUS. MARVIN A. NEELAND, Duquesne, Pa. Filed Sept. 26, 1896. Serial No. 607,029. (No model.)



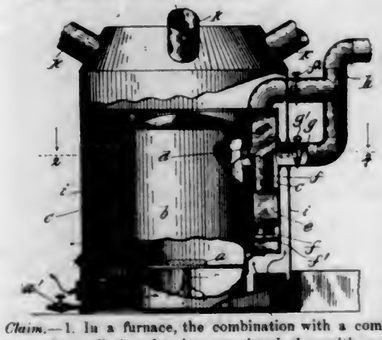
Claim.—1. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon said track, a bucket supported upon said carriage, a sliding frame above the furnace arranged to be entered upon by the carriage, and means for positively moving said slide in a vertical direction, said means being under the control of the operator; substantially as described.

2. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable thereon, a pivoted hanger depending from the carriage, a bucket suspended from said hanger, a section of track carried in a vertically-moving frame at the top of the furnace, a lever connected to said frame, and a motive cylinder arranged to swing said lever; substantially as described.

3. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon said track and having a depending hanger, a bucket having a movable bottom provided with a handle engaged by said hanger, a sliding frame at the top of the furnace arranged to be entered upon by the carriage, a lever connected to this frame, and a motive cylinder arranged to operate said lever; substantially as described.

4. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable thereon, a pivoted hanger depending from the carriage, a bucket suspended from said hanger, a section of track carried in a vertically-moving frame, a motive cylinder arranged to swing said lever, and a dash-pot also connected to the lever; substantially as described.

577,113. FURNACE. AMASA ORELUP, Chicago, Ill. Filed Dec. 7, 1896. Serial No. 614,736. (No model.)

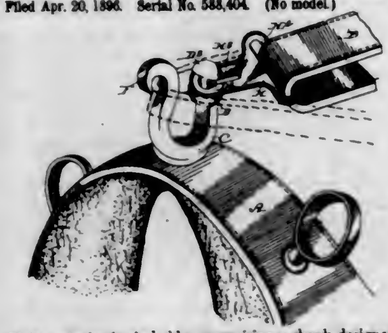


Claim.—1. In a furnace, the combination with a combustion-chamber, of a radiating-chamber associated therewith, a passage affording communication between said combustion-chamber and said radiating-chamber, and an outlet-pipe leading from said radiating-chamber to the chimney-way, the mouth of said outlet-pipe being situated nearly or quite at the bottom of said radiating-chamber, substantially as and for the purpose described.

2. In a furnace, the combination with a combustion-chamber, of an annular radiating-chamber concentrically disposed about the same, a passage affording communication between said combustion-chamber and said radiating-chamber, an outlet-pipe or riser, the mouth whereof is near the bottom of said radiating-chamber, and a partition in said radiating-chamber, between said outlet-pipe and said passage communicating with the combustion-chamber, substantially as and for the purpose specified.

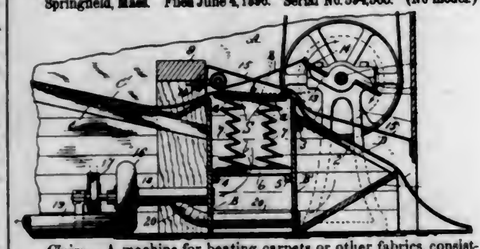
3. The combination with the combustion-chamber *b*, of the radiating-chamber *c*, passage *d*, partition *e*, riser or outlet-pipe *f*, the direct-draft pipe *g*, and a damper *g'* therein, substantially as and for the purpose specified.

577,114. CHECK-HOOK. HENRY E. PATTERSON, Hudson, Iowa. Filed Apr. 20, 1896. Serial No. 588,404. (No model.)



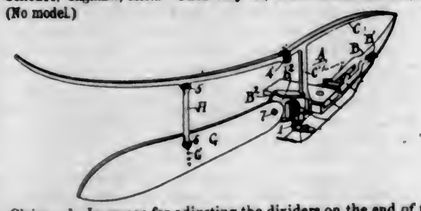
Claim.—A checkrein-holder comprising a shank designed to be secured in a harness-saddle, an integral U-shaped part, a collar near one end thereof, an elongated head therein, a rearwardly and downwardly turned hook on the top of the other end, and a device having a slot in one end designed to admit the head on one end of the U-shaped part, and having a slot in its other end to admit a checkrein-strap, substantially as set forth.

577,115. CARPET-CLEANER. WILLIAM A. J. SCHMELZINGER, Springfield, Mass. Filed June 4, 1896. Serial No. 594,305. (No model.)



Claim.—A machine for beating carpets or other fabrics, consisting of a frame the downwardly-inclined supports C and D, and a yielding surface, as S, consisting of a plurality of vertical spiral springs whose upper extremities are connected together and interposed between said inclined supports, the beater-rods 8, rigidly secured by one end to a fixed support, as 9, and a revolving shaft having means thereon for raising the free ends of said beater-rods intermittently and the guard-strips 15, secured to the frame of the machine, substantially as set forth.

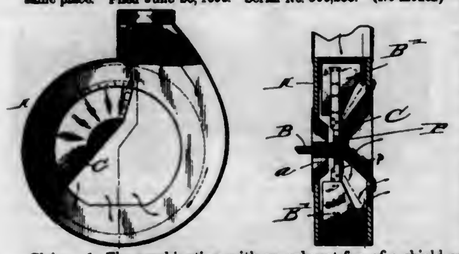
577,116. DIVIDER FOR MOWING-MACHINES. FRED J. J. SCHUETT, Saginaw, Mich. Filed May 15, 1896. Serial No. 591,604. (No model.)



Claim.—1. In means for adjusting the dividers on the end of the finger-bar, the combination with the finger-bar and a shoe under the end of the finger-bar and a grass-board hinged to the rear of the finger-bar, of means connecting the finger-bar and shoe for raising the hinged end of the grass-board, a dividing-rod hinged to a standard thrown up from the finger-bar, and means for adjusting the rear end of the dividing-rod comprising a brace adjustably connected to the rear of the grass-board and dividing-rod, whereby by adjusting these means the distance between the swath and the standing grass may be varied, as specified.

2. In a mowing-machine, the combination with a grass-board hinged to the rear of the outer end of the finger-bar, of a dividing-rod hinged to a standard thrown up from the finger-bar and supported in the rear from the grass-board by a brace hinged to the grass-board and to the divider, and means for adjusting the brace up and down along the grass-board, substantially as specified.

577,117. PNEUMATIC STRAW-STACKER. WILLIAM SEBURN, Indianapolis, Ind., assignor to The Indiana Manufacturing Company, same place. Filed June 20, 1896. Serial No. 596,235. (No model.)



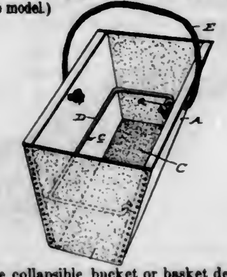
Claim.—1. The combination, with an exhaust-fan, of a shield or deflector, dish-shaped in form, and secured within the eye of the fan, and extending inwardly toward the shaft in an inclined direction, thus covering or inclosing that portion of the fan-casing in which the fan-blades revolve while farthest on the path of travel from the discharging orifice or chute.

2. The combination, in a pneumatic straw elevator and stacker, with the fan thereof, of an inclined dish-shaped shield or deflector covering or inclosing that portion of the fan-casing within which the blades of the fan are situated when farthest on the path of travel from the discharge-orifice, whereby the inflowing material is prevented from coming in contact with said blades at said point, substantially as and for the purposes set forth.

3. A fan for pneumatic straw-stackers, the casing whereof is provided with a portion C extending across and closing a segment of the fan-eye at that side of the fan occupied by the blades when farthest on the path of travel from the discharge-orifice.

4. The combination, in a fan for pneumatic straw-stackers, of the fan-casing A, fan-shaft B provided with the usual fan arms and wings, a plate *p*, and a shield or deflector C secured to the casing and covering a portion of the fan-eye, said shield or casing being dish-shaped and extending down to near said plate.

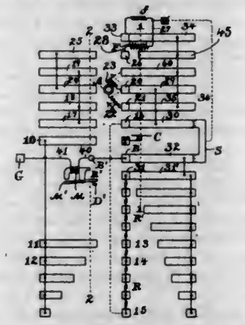
577,118. BUCKET OR BASKET. EDWARD W. SMITH and HOWARD R. MITCHELL, Winnipeg, Canada. Filed Nov. 28, 1896. Serial No. 613,815. (No model.)



Claim.—The collapsible bucket or basket described comprising stiff and rigid side walls, a bottom of flexible material and end walls also of flexible material interposed between and connected to the side walls, a bail pivotally connected to the inner side of one of the side walls and adapted to assume a horizontal position between the side walls, and a flexible handle connected at its ends to the said side walls substantially as specified.

577,119. ELECTRIC BRAKE. ELMER A. SPERRY, Cleveland, Ohio, assignor to the General Electric Company, of New York. Filed Feb. 19, 1895. Serial No. 539,019. (No model.)

Claim.—1. In an electric brake system, the combination of a dynamo-electric machine having a series and shunt field-coil and adapted for propelling and braking the vehicle, with means for maintaining a field magnetization at the time the dynamo-electric machine is not affecting the motion of the vehicle.



2. In an electric brake system, the combination of a motor for propelling and braking the vehicle, with an auxiliary field-coil for energizing the field-magnets at the time the motor is not affecting the propulsion of the vehicle.

3. The combination with an electric motor, of an auxiliary field-coil, and means for automatically connecting the coil in circuit with the motor when the source of supply is interrupted.

4. The combination of an electric motor having main and auxiliary field-coils, means for reversing the relation between the armature and fields, and means for connecting the auxiliary field-coil to the armature at a time when the motor is not affecting the propulsion of the car.

5. In a controller for electric motors, the combination of contacts and connections for regulating the supply of energy to the power side and to the brake side of the system, an auxiliary field-coil, and brushes and connections for establishing various combinations in the circuit relations, certain of the brushes engaging with the contacts when the power and brake circuits are interrupted, for the purpose of energizing the auxiliary field-coil.

6. In an electric controller, the combination of contacts for regulating the supply of current to the motor or motors, contacts for regulating the supply of energy to the brake-circuit, brushes for establishing connection between the motor-circuit and the contacts, and a field-coil for energizing the field of the motor in the "off" position of the controller.

7. The combination with an electric motor, of an auxiliary field-coil of relatively high resistance, and brushes and contacts for including the said coil in circuit with the motor-armature at the "off" position of the controller.

8. In a controller for electric motors, the combination of contacts for establishing circuit connections with the motors when propelling the vehicle, other contacts for regulating the supply of current to the brakes when the motors are converted into generators and supplying current to the brakes, and means for establishing a connection between the armature and an auxiliary field-coil between the times when the power-circuit is broken and the brake-circuit established.

9. In combination, an electric motor, main and auxiliary field-coils, contacts and brushes for establishing connection between the main field and the armature of the motor, and other contacts for establishing circuit relation between the armature and the auxiliary field-coil.

10. In combination, an electric motor provided with main and auxiliary field-coils, a controller for regulating the current flowing through the motor, means for reversing the relation between armature and field-coils, and contacts and brushes for connecting the auxiliary field coil in circuit with the armature.

11. In an electric-brake system, the combination of means for placing the motor in operative connection with a source of electrical supply so as to be driven as a motor, means for reversing the relation of the armature and field of the motor and operatively connecting the armature-circuit to an auxiliary field coil or coils on the motor, and means for coupling the armature to a low-resistance field-circuit of the motor.

12. The combination, with a series electric machine having an auxiliary field-coil, of means for disconnecting either one or the other of such field-coils from the armature-circuit, and a reversing-switch for the armature-circuit.

13. The combination, with a series electric machine having an auxiliary field-coil, of means for disconnecting either one or the other of such field-coils from the armature-circuit, a reversing-switch for

the armature-circuit, a plurality of exterior circuits, and means for coupling them successively to the said motor.

14. In an electric controller, the combination of a plurality of circuits, certain of which are for regulating the current supplied to the motors, certain others for regulating the energy supplied to the brakes, resistance included in the first-named circuit, and the said resistance plus other resistance included in the brake-circuit.

15. The combination of a dynamo-electric machine for propelling and braking purposes, means for including the machine in circuit with the source of supply when it is desired for propelling purposes, and for disconnecting it from the supply and converting it into a generator for braking purposes, and an automatic switch for closing and opening a shunt-circuit around the field-coils of the dynamo-electric machine when acting as a generator for preventing an increase of current over a predetermined amount.

16. The combination of a dynamo-electric machine mounted on a vehicle for propelling and braking purposes, a controller for including the machine in circuit with the source of supply and regulating the energy supplied thereto, and for disconnecting the machine from the supply, converting it into a generator and regulating the energy supplied thereby to the brake-circuit, and an automatic device for shunting a part of the current around the machine when it is acting as a generator.

17. The combination of a dynamo-electric machine for propelling and braking purposes, a controller for regulating the machine when employed for propelling and braking purposes, and an automatic switch controlled by the current in the brake-circuit for closing a shunt around the field-coils of the machine when it is acting as a generator.

18. The combination of an electric motor, a controller provided with means for converting it into a generator, an auxiliary field-coil, means for establishing connection between the field-coil and the armature, and an automatic shunting device for the generator.

19. In combination with a series electric motor, a plurality of exterior circuits, means for changing the circuit connection of said motor from one to the other of the said exterior circuits, a device for converting the motor into a generator, operated by such means, and means for automatically weakening the field magnetization of the generator without directly altering the current in the armature, said means responsive to current produced by the generator when such current rises or tends to rise above a predetermined amount.

20. In combination with a series electric motor, a plurality of exterior circuits, means for changing the circuit connection of the said motor from one to the other of the said exterior circuits, a device for converting the motor into a generator operated by such means, and an automatic shunt for the field-magnet coil of such generator, the said shunt being responsive to the current in one of said exterior circuits.

21. The combination of an electric motor, a controller for regulating the same a plurality of circuits extending therefrom, more resistance included in one circuit than in the others, main and auxiliary field-coils for the motor, and means for connecting them in any desired relation with the armature.

22. The combination of a series-wound dynamo-electric machine for propelling and braking purposes, means for including it in circuit with the source of supply when it is desired to propel the vehicle, and for disconnecting it from the supply and converting it into a generator, and an automatic limit-switch for shunting the same when it is used for braking.

23. The combination of a vehicle, a dynamo-electric machine for propelling and braking purposes mounted thereon, means for including the machine in circuit with the source of supply when employed for driving the load and for disconnecting it from the supply and converting it into a generator for braking purposes, and for regulating the braking energy when so connected, and automatic means controlled by the current in the brake-circuit for preventing the locking of the vehicle-wheels by means of the brake-magnets.

24. The combination of a dynamo-electric machine for propelling and braking a vehicle, with means for maintaining a field magnetization at all times when the vehicle is in motion.

25. The combination in an electric-brake system, of brakes on the motor-car connected in parallel, brakes on the trailer connected in a group, and a resistance for regulating the supply of energy to the group.

26. The combination in an electric-brake system, of brakes on the motor-car connected in parallel, brakes on the trailer connected in a group, the members of the group connected in parallel with each other, and the group as a whole connected in series with the source of supply.

27. In an electric-railway system, the combination of means for placing the motor in operative connection with a source of electrical supply so as to be driven as a motor, means for reversing the relation of the field and armature of the motor and operatively connecting the armature-circuit to an auxiliary field coil or coils on the motor, circuits for establishing connection between the motor and the brakes, means for closing a shunt around the brakes, and means for simultaneously coupling the armature-circuit with a low-resistance field-coil and opening said shunt.

28. In an electric-brake system, the combination of a dynamo-electric machine for propelling and braking the car, a controller provided with contacts and brushes for establishing desired circuit relations, and a shunting device for the brake-magnets.

29. In an electric-brake system, the combination of a dynamo-electric machine for propelling and braking the car, a controller provided with contacts and brushes for establishing connections between the dynamo-electric machine and the brake-magnet coils, and a mechanical shunting device for shunting the brake-magnet coils at a predetermined time.

577,120. CUT-OFF FOR NOZZLES. WILLIAM W. STEWART, Columbus, Ga. Filed Jan. 30, 1896. Serial No. 577,457. (No model.)



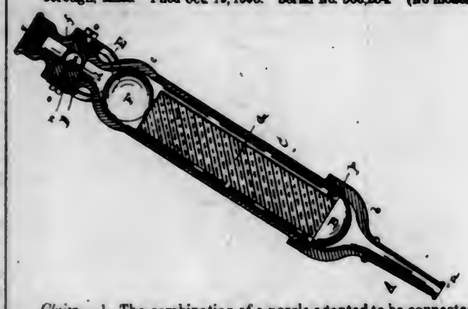
Claim.—1. In a nozzle, the combination with the main shell, and a valve mounted to turn therein, of an inner tube so constructed that a space is formed between the two for the passage or escape of water, the inner tube or pipe bearing at one end upon the valve, and a tip at the outer end of the shell between which and the valve the inner tube or pipe is held.

2. In a nozzle, the combination with the main shell, and a tip thereon, of an inner tube of such diameter relatively to said shell that a chamber will be formed between the shell and tube, and a ball-valve at the inner end of said tube, the tube being forced against the ball-valve by the said tip, substantially as set forth.

3. In a nozzle, the combination with the main shell, of a tube therein, said tube being appreciably less in diameter than the shell, a shoulder at the inner end of the tube, a valve, a tip adapted to force the shoulder on the tube against the valve, and a flange on the tube adapted to maintain the latter centrally within the shell, substantially as set forth.

4. In a nozzle, the combination with a main shell and a tube therein, said tube being appreciably less in diameter than the shell so as to form a chamber between the shell and tube, of a valve at the inner end of the tube, said valve having a flat face whereby to form an unobstructed passage to the chamber between the shell and tube, substantially as set forth.

577,121. CHEMICALLY-CHARGED NOZZLE FOR FIRE-EXTINGUISHERS. WILLIAM C. STOCK and HARRY W. TUPPS, North Attleborough, Mass. Filed Oct. 19, 1895. Serial No. 566,254. (No model.)



Claim.—1. The combination of a nozzle adapted to be connected with a hose, a soluble chemical cartridge loosely fitting within the nozzle and a valve within the nozzle movable by the pressure of the water-current therein and adapted to close the discharging end of the nozzle when the said cartridge is dissolved.

2. The combination of a nozzle, adapted to be connected with a hose, a soluble chemical cartridge loosely fitting within the nozzle and a ball also fitting loosely within the nozzle and movable by the pressure of the water-current to follow said cartridge until the same is dissolved and adapted then to close the discharging end of the nozzle substantially as set forth.

3. The combination of a nozzle, adapted to be connected with a hose, a soluble chemical cartridge, loosely fitting in the nozzle, a ball also loosely fitting in the nozzle and adapted to lie in contact with said cartridge by the pressure of the water-current from said hose and a strainer in said nozzle near the end thereof, substantially as specified.

4. The combination of a nozzle, adapted to be connected with a hose, a soluble chemical cartridge loosely fitting in the nozzle, a ball also loosely fitting in the nozzle and adapted to keep in contact with the cartridge by the force of the water-current from the hose, a strainer near the outer end of the nozzle, and a washer having a central perforation of less diameter than that of the ball, substantially as described.

5. The combination of the discharge-pipe A, having the bore *a* and enlarged end *b* and provided with the strainer B, the tubular chamber C, having the enlarged end *c* and the pipe *d*, opening therein, which is adapted to be connected with a hose, a valve D in the pipe *d*, the ball F within the chamber C of a less diameter than that of the bore of said chamber, the soluble chemical cartridge, composed of ingredients, which, when wet with water, generate carbonic-acid gas, and made in a cylindrical shape so as to loosely fit in said chamber, and the washer *p* held in the circumferential groove within the chamber and provided with a central perforation having a diameter larger than that of said cartridge but less than that of said ball, substantially as shown and for the purpose specified.

577,122. AIR-VALVE. GEORGE W. WASHBURN, West New Brighton, N. Y. Filed Nov. 30, 1895. Serial No. 570,847. (No model.)

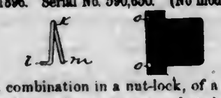


Claim.—1. In an air-valve, the combination with a loose valve-disk A of soft rubber and a valve-support B forming a rest behind said valve-disk, of a one-part valve-case C inclosing said valve-disk and said valve-support and having a central inlet-hole perpendicular to said valve-disk and an internal valve-seat formed by a bevel around said inlet-hole and a straight cut at a suitable distance from the center, substantially as hereinbefore specified.

2. The combination with a loose valve-disk A of a self-holding valve-support B having a rear end which is compressible edgewise and is provided with a lateral projection *a*, and a tubular valve-case having a circumferential internal groove which interlocks with said projection, and having an internal valve-seat opposed to said valve-disk and valve-support, substantially as hereinbefore specified.

3. The one-part self-holding valve-support B constructed with the flat body 1 and rest 2, the former having the lateral projection *a* longitudinal slit *b* and end projections *c*, in combination with the valve-case C having an internal groove 3 to coact with said lateral projection, substantially as hereinbefore specified.

577,123. NUT-LOCK. HENRY A. WILLIAMS, Wollaston, Mass. Filed May 8, 1896. Serial No. 590,650. (No model.)



Claim.—The combination in a nut-lock, of a washer having the pawl-groove in its face and one or more sockets bored in the bottom of the groove, the wire spring-pawl adapted to lie in the pawl-groove and engage one of the sockets, a nut adapted to confine the end of the pawl engaging a socket in said groove and having a stop-shoulder in its face adapted to be engaged by the other end of the pawl, said nut also having a hole in the relation to the stop-shoulder enabling the nut to be released from the pawl substantially as described.

577,124. DOOR CHECK AND CLOSER. JAMES ADAMS, London, England. Filed Feb. 18, 1896. Serial No. 579,785. (No model.)

Claim.—1. In an apparatus for closing doors and for checking the closing of the same and wherein a cylinder and piston are used, the combination of the piston-rod, a bent lever having a slanting slot therein and to which said rod is pivoted and a lever pivoted to the door-frame and to the door and carrying a pin and roller working in said slot, all substantially as and for the purposes set forth.



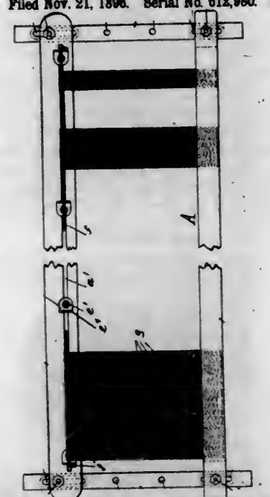
2. In apparatus for closing doors and for checking the closing of the same, the combination with the cylinder hinged at its rear end to a bracket on the door-frame, and with its piston-rod, of a lever *w*, bracketed adjustably at one end to the door and at its other end pivoted to a bracket on the door-frame, al ever having a slanting slot therein and pivoted to said bracket, and a cross-head on the piston-rod pivoted on said slotted lever, and a pin on lever *w*, working in said slanting slot, all substantially as set forth.

3. In a door-closing apparatus, the combination with the cylinder, its piston and piston-rod, of a T-shaped joint-piece in the rear cover of the cylinder having a passage *i* communicating at one end with a transverse hole made through the joint-piece for the escape of air, and a regulating-screw in said hole, all substantially as and for the purposes described.

4. In combination with the cylinder, its piston and rod, the T-shaped joint screwed into the rear end of the cylinder and having in it the passages *i*, *j*, the regulating-screw *k*, at one end of passage *j*, and a porous plug in the other end of said passage *j*, all substantially as set forth.

5. In combination with the cylinder and with the T-shaped piece, the bracket *b*, having both sides formed in cup shape and carrying a pin *g*, all as and for the purposes set forth.

577,125. FALSE REED FOR LOOMS. THOMAS ALBINSON, Paterson, N. J. Filed Nov. 21, 1896. Serial No. 612,980. (No model.)



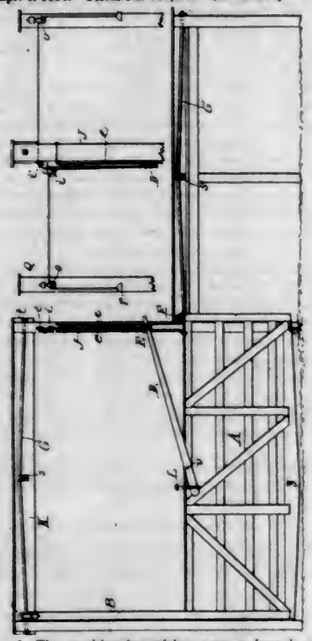
Claim.—1. A false reed, consisting of an adjustable frame, a series of brackets arranged on the head-bar of said frame, a rod or wire removably arranged in said brackets, and a series of dents fulcrumed and slidingly arranged on said rod or wire and depending therefrom, substantially as described.

2. A false reed, consisting of a frame, a series of brackets on said frame and horizontally-adjustable thereon, a rod or wire removably arranged in said brackets, and a series of dents fulcrumed and slidingly arranged on said rod or wire and depending therefrom, substantially as described.

3. A false reed, consisting of a frame having adjustable sections, the head section of said frame being provided with an elongated slot, a series of brackets adjustably arranged in said slot, a rod or wire removably arranged in said brackets, and a series of dents fulcrumed and slidingly arranged on said rod or wire and depending therefrom, substantially as described.

4. A false reed, consisting of a frame having adjustable sections, the head and bottom sections of said frame being each provided with an elongated slot, a series of brackets adjustably arranged in the elongated slot of the head section, a rod or wire removably arranged in said brackets, and a series of dents fulcrumed and slidingly arranged on said rod or wire and depending therefrom and having their lower portions extending into the elongated slot of the bottom section, substantially as described.

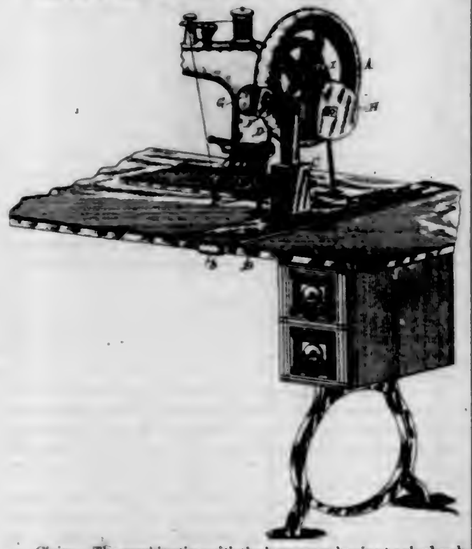
577,126. GATE OR DOOR. EDWARD R. CHASE, Findlay, Ohio. Filed Apr. 6, 1896. Serial No. 586,466. (No model.)



Claim.—1. The combination with a gate or door A, of the tracks G, and G' each formed of two oppositely-inclined planes; and a bottom board *i*, having its lower edge shaped to planes, the converse of said tracks G, G', substantially as above described.

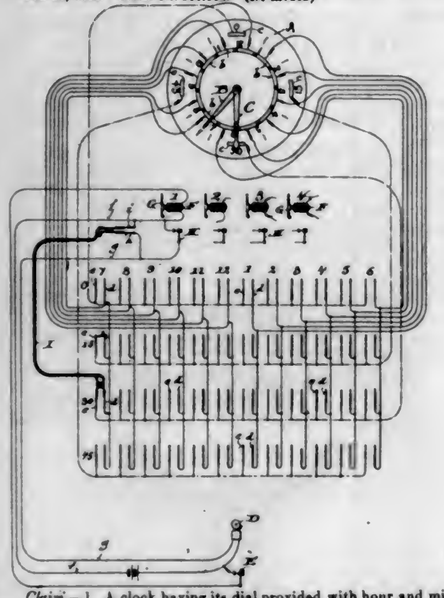
2. The combination with the gate or door A, of the tracks G, G'; the lever D, pivoted near the middle of upper gate-rail, the guides E, E, engaging one end of said lever; and the vertical rod L having an offset M, resting upon the other end of said lever, substantially as described.

577,127. KNIFE-SHARPENER. MARY H. P. COX, Kirkham, Md. Filed Apr. 6, 1896. Serial No. 586,440. (No model.)



Claim.—The combination with the base-piece having hooked ends and adjustable in length, of the hollow standard rising from said base-piece, the rod adjustable in said standard, the horizontal shaft mounted to revolve in said rod, the friction-wheel on said shaft to engage a fly-wheel of a sewing-machine or the like, and a wheel on the other end of said shaft and having an edge of sharpening material, as set forth.

577,128. SIGNAL. PAUL G. PFUERSTEIN, Milwaukee, Wis. Filed Oct. 26, 1896. Serial No. 610,112. (No model.)



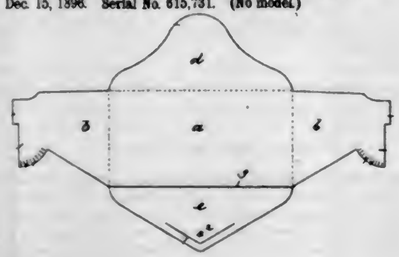
Claim.—1. A clock having its dial provided with hour and minute contacts, the clock-hands as electric conductors that travel against the contacts on the dial, a switchboard having contacts wired to those aforesaid, electric signal-wires, and an electric split plug for connecting switchboard-contacts with signal-wires.

2. A clock having its dial provided with hour and minute contacts, the clock-hands as electric conductors that travel against the contacts on the dial, a switchboard having a series of contacts in electric connection with each hour-contact of said dial and another series of contacts in like connection with each minute-contact of the aforesaid dial, these switchboard-contacts being arranged in series of pairs, together with an electric signal system, and an electric split plug for the connection of a pair of said switchboard-contacts with a circuit of the signal system.

3. A clock having its dial provided with hour and minute contacts, the clock-hands as electric conductors that travel against the contacts on the dial, a switchboard having a series of contacts in electric connection with each hour-contact of said dial and another series of contacts in like connection with each minute-contact of the aforesaid dial, these switchboard-contacts being arranged in series of pairs, an annunciator and return-call system, and an electric split plug for connection of a pair of said switchboard-contacts with a circuit of the annunciator and return-call system.

4. A clock having the dial thereof provided with hour and minute contacts, at least one of the clock-hands operative as a circuit-closer against a contact in each series, a switchboard having contacts wired to those aforesaid, electric signal-wires, and an electric split plug for connecting the switchboard-contacts with signal-wires.

577,129. ENVELOP. FRANK FISCHER, Paterson, N. J. Filed Dec. 15, 1896. Serial No. 615,731. (No model.)



Claim.—1. The combination with the side flaps of an envelop, of a curved tongue projecting from each of said flaps and having their edges incised, substantially as and for the purposes described.

2. In an envelop, the combination with the side flaps and the upper flap, of a curved tongue projecting from the lower edges of each side flap and having their curved edges incised, said tongues when folded together to correspond substantially in shape and size to the curved portion of the upper flap and to be engaged thereby, substantially as described.

3. In an envelop, the combination with the side flaps, the upper flap and the lower flap, of a curved tongue projecting from the lower edges of each side flap and adapted to be engaged by the inner surface of the curved portion of the upper flap, and a substantially V-shaped flap formed within the lower flap by a V-shaped incision, and adapted to engage the outer surface of the curved portion of the upper flap, substantially as and for the purposes described.

4. The combination with the flaps of an envelop, of a substantially V-shaped flap formed in the lower flap, and a curved tongue projecting from each side flap and having their edges incised, the said tongues being adapted to be covered and engaged by the inner surface of the curved portion of the upper flap, while the outer surface of the said curved portion of the upper flap is adapted to be engaged by the inner surface of the lower flap, substantially as and for the purposes described.

577,130. SPACE-BLOCK FOR ARMATURES. HENRY GEISENHÖNER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 20, 1896. Serial No. 612,851. (No model.)



Claim.—1. A space-block for armature-cores, consisting of a main portion of cast metal, having recesses or seats for the teeth or projections of the space-block, and teeth or projections of strips of metal secured to said cast portion, as set forth.

2. In an armature-core a space-block consisting of a main portion of cast metal formed of a T shape, having recessed portions or seats for the teeth, and teeth formed of thin strips of sheet metal seated and secured in said seats, as set forth.

3. In an armature-core, the combination with sections built up of laminæ, of space-blocks each consisting of a main cast portion having recesses or seats for the teeth, and teeth of sheet metal secured in said recesses or seats, said space-blocks being located between said sections of built-up laminæ, and in contact with adjacent laminæ, whereby ventilating-space is afforded between the inner and outer surfaces of said core, as described.

4. In a laminated armature-core built up of sections, a space-block, comprising a main portion of cast metal secured to the outer lamina of one of said sections and teeth or projections of sheet metal extending outwardly therefrom to the adjacent section, and radial to the center of the core, whereby air-passages are afforded between the inner and outer surfaces of said core.

5. An armature consisting of layers of laminæ built up into sections or bundles, and space-blocks located between said bundles of laminæ, said space-blocks consisting of a main portion of cast metal, and teeth or projections of thin metal secured to said main cast portion, as set forth.

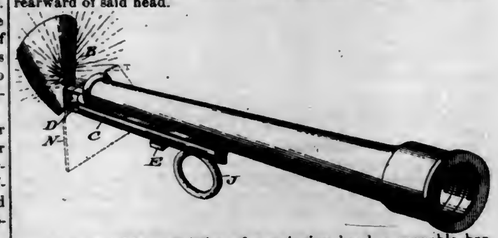
6. A space-block for a laminated structure, consisting of a main portion of cast metal formed with lateral projections, and teeth or projections formed of strips of sheet metal secured in said lateral projections, as set forth.

577,131. SPRINKLER. DANIEL GOFF and JESSE T. HIGBEE, Millville, N. J.; said Goff assignor to James L. Smith, same place. Filed Feb. 19, 1896. Serial No. 579,840. (No model.)

Claim.—1. A sprinkler consisting of a pivoted head, with a supporting-arm, an operating-bar pivoted to said head, a guide for said bar, and means connected with said bar for locking it with said guide, said parts being combined substantially as described.

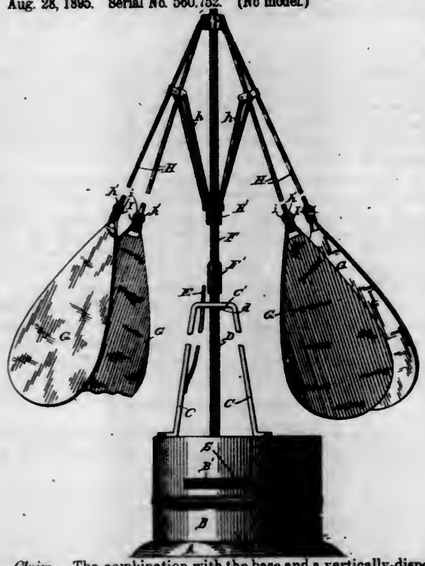
2. A pipe with an arm connected therewith, a head pivoted to said arm in front of said pipe, an operating-bar connected with said head, a cross-piece on said arm for guiding said bar, and a spring bearing against said arm and bar, said parts being combined substantially as described.

3. A pipe with a connected arm, a head pivoted to said arm, and adapted to be moved in front of said pipe, an operating-bar guided on a cross-piece on said arm, a spring normally keeping said operating-bar and cross-piece in contact, and a guard pendent from the pipe rearward of said head.



4. A sprinkler, consisting of a swinging head, a movable bar connected with said head, a guide for said bar, a toothed piece on said guide, and a rack on said bar with which said piece is adapted to interlock, substantially as described.

577,132. FLY-FAN. JOHN H. GORMAN, Danville, Va., assignor to L. C. Clark, John F. Rison, and W. W. Williamson, same place. Filed Aug. 28, 1895. Serial No. 560,752. (No model.)



Claim.—The combination with the base and a vertically-disposed arm having a tubular portion at its lower end, the main shaft having its upper end received in said tubular portion, a pivotally-mounted fan-supporting arm having an integral ball at its outer end, a U-shaped piece of spring metal, the free ends of which are cup-shaped and oppositely disposed and adapted to spring over said ball to hold the U-shaped piece thereon and frictionally adjustable and frictionally held in its adjusted position, a fan-supporting frame having its ends secured to the outer faces of the parallel portions of the U-shaped piece, and a fan having its frame secured to said U-shaped piece, all substantially as herein shown and described.

577,133. ARTIFICIAL FOOT. PAUL A. HABERL, Denver, Colo. Filed May 11, 1896. Serial No. 591,060. (No model.)



Claim.—1. An artificial foot comprising the body part and the independent heel and toe pieces movably attached to the body part and reinforced by some yielding substance placed between the said pieces and the body part substantially as described.

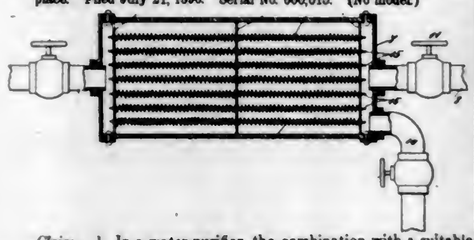
2. An artificial foot comprising the body part and the independent heel and toe parts movably attached to the body part, and rein-

forced by independent yielding substances placed both above and below the said movable part substantially as described.

3. In an artificial foot the combination of the body part and the independent heel and toe pieces movably hinged to the body part at a common point substantially as described.

4. In an artificial foot the combination of the body part having a depending central part 5^a, and the parts 6 and 8 hinged to the body part in such a manner as to be capable of movement independently of each other and projecting respectively to the front and rear of the part 5^a.

577,134. WATER-PURIFIER. JOHN H. HARRISON, New York, N. Y., assignor to Charles Blondel and Adolphus E. Bayreuther, same place. Filed July 21, 1896. Serial No. 600,015. (No model.)



Claim.—1. In a water-purifier, the combination with a suitable casing, of a voltaic pile, consisting of a plurality of disks or plates, which are connected by a plurality of zinc rods which pass therethrough, said rods being provided between said disks or plates with spiral coils of copper wound thereon, substantially as shown and described.

2. In a water-purifier, the combination with a cylindrical casing, provided with water supply and egress pipes, of a voltaic pile, consisting of suitable metal disks or plates supporting a plurality of longitudinal rods of zinc which are passed therethrough, said rods being wound between said disks or plates with spiral coils of copper wound thereon, and said disks or plates being provided with ports or passages for the water, substantially as shown and described.

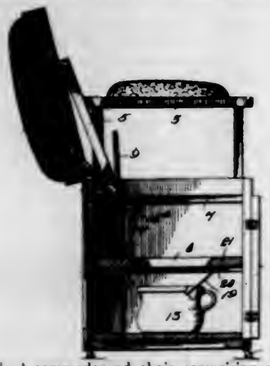
3. In a water-purifier, the combination with a casing adjacent to and connected with a steam-boiler, through which casing is passed the water-supply, of zinc rods passing longitudinally through said casing and supported therein, each of said rods being separately and spirally wound with copper, substantially as shown and described.

577,135. PROCESS OF MANUFACTURING ARTICLES FROM FIBROUS MATERIALS. PHILIP H. HOLMES, Gardiner, Me. Filed May 29, 1894. Serial No. 512,910. (Specimens.)

Claim.—1. The herein-described process consisting in mixing with fibrous pulp, oil, rubber and wax, then adding material to produce an emulsion, adding alum, and forming the pulp into any desired shape.

2. The herein-described process consisting in mixing with fibrous pulp, oil, rubber and wax, then adding soap to produce an emulsion, and then adding sizing and alum, and finally forming the pulp into any desired shape.

577,136. PORTABLE COMMODE AND CHAIR. JOHN HONEYWELL, Greenville, Mich. Filed Apr. 23, 1896. Serial No. 588,704. (No model.)



Claim.—1. A commode and chair comprising a box or casing having a hinged top forming a seat when in a horizontal position, and adapted to be swung upward to form a back for the commode, and upper and lower commode-seats arranged horizontally within the box for use in such position, the upper seat being hinged and adapted to be swung upward out of the way when the lower seat is used and the lower seat forming a receptacle-support when the upper one is used, substantially as described.

2. A commode and chair comprising a box or casing provided at its front with a door and having a hinged top forming a seat and adapted to be swung upward to form a back for the commode, upper and lower commode-seats, the upper one being hinged and adapted to be swung out of the way of the lower one, and a lid hinged to the lower commode-seat and forming a receptacle-support, substantially as described.

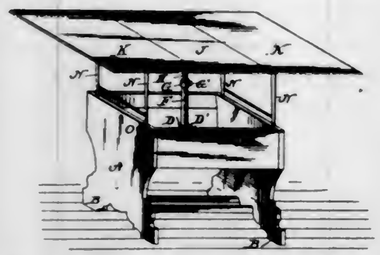
3. In a device of the class described, the combination of a box or casing having a hinged top forming a seat when in a horizontal position and adapted to be swung upward to form a back for the commode, a commode-seat, a guide-plate arranged on the inner face of one side of the box or casing and having its opposite edges bent inward over it to form ways, a pivot passing centrally through the guide-plate and securing the same to the box or casing, a flat sliding bar pivoted at its upper end to the hinged top, arranged flat against the guide-plate in the ways thereof and provided at its lower end with a stop, said bar being adapted to slide freely in the ways of the guide-plate and the latter being capable of free pivotal movement, substantially as and for the purpose described.

577,137. PEN-RESERVOIR. HERBERT J. HOPE and FREDERICK DOBSON, Sanford, Me. Filed July 23, 1896. Serial No. 600,254. (No model.)



Claim.—The combination with an ink-reservoir for pens, comprising a body which fits in the pen and is provided with an inlet-opening, an inwardly-bent portion, and a spring-tongue which abuts on the pen, of an elastic band lying in the bent portion of the body and passing around the pen whereby the reservoir is held in position.

577,138. COMBINED TABLE AND FOOT-REST. ARTHUR G. HUBBARD, Sterling, Ill. Filed Oct. 23, 1896. Serial No. 609,838. (No model.)



Claim.—1. The combination of the foot-rest A of a box-like form, and a table provided with legs N, adapted to be supported upon the edge of said foot-rest, and optionally to be folded therein, and a central adjustable connection between said table and foot-rest, substantially as shown and for the purpose described.

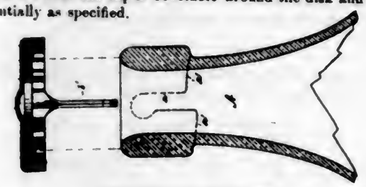
2. The combination of a foot-rest A provided with the plate C and openings O, socket D seated on said plate and provided with set-screw D', tube F adjustably seated in said socket and plate and provided with set-screw G', tube H loosely seated in the tube F, central portion J rigidly seated on the tube H, leaves K suitably hinged to the part J, and folding legs N pivotally attached at their upper ends to said leaves K and adapted to be inserted, at their lower ends, in the openings O, substantially as shown and for the purpose specified.

3. The combination of the foot-rest member A, provided with a central plate C, a table member adapted to be seated in the upper edge of the member A, the telescoping tubes F and H adjustably connecting the central plate C to the center of the table member and means substantially as shown for adjusting said tubes, for the purpose specified.

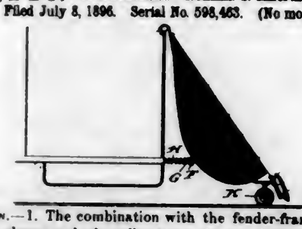
577,139. BOTTLE-STOPPER. ANTHONY IBERT, Jr., Brooklyn, N. Y. Filed Oct. 31, 1896. Serial No. 610,691. (No model.)

Claim.—1. A bottle-stopper composed of a cap having a knurled rim, a pair of depending hook-shaped arms, a rigid disk contacting with the inner face of the cap, and a flexible washer below the disk, all being so constructed that the cap is revoluble around the disk and washer, substantially as specified.

2. A bottle-stopper composed of a centrally-bulged cap, a pair of depending hook-shaped arms, a centrally-bulged rigid disk engaging the bulged cap, and a flexible washer below the cap, all being so constructed that the cap is revoluble around the disk and washer, substantially as specified.



577,140. CAR-FENDER. NORMAN T. MACFERRON, Allegheny, Pa. Filed July 8, 1896. Serial No. 598,463. (No model.)

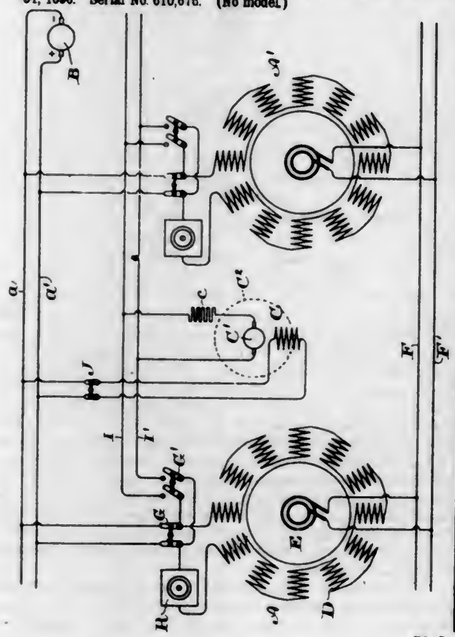


Claim.—1. The combination with the fender-frame, of an axle curved as shown and pivotally mounted centrally and forwardly of the fender, a plate, rods supporting the same, and projections extending from the lower surface of said rods, substantially as and for the purpose specified.

2. The combination with the fender-frame of an axle curved as shown and pivotally mounted centrally and forwardly of the fender, a circular plate, rods connecting the same, the axle being flattened at its highest point and pivoted to said plate, substantially as herein shown and described.

3. The combination with the fender-frame of an axle curved as shown and pivotally mounted centrally and forwardly of the fender, a circular plate, rods connecting the same, the axle being flattened at its highest point and pivoted to said plate, and projections extending from the lower surfaces of said rods to limit the movement of the axle, substantially as herein shown and described.

577,141. MEANS FOR PREVENTING DESTRUCTIVE FIELD-MAGNET DISCHARGES. FREDERICK MACKINTOSH, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 31, 1896. Serial No. 610,676. (No model.)



Claim.—1. The art of preventing destructive discharge from field-magnet coils, which consists in including in circuit with the field-magnet coils and the exciter a secondary source of electromotive force, interrupting the circuit of the exciter causing the secondary source of electromotive force to energize the field-coils, and decreasing the secondary electromotive force.

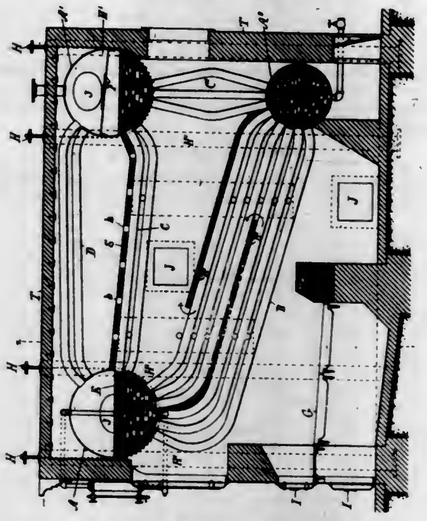
2. As a means of preventing destructive discharge from field-magnet coils, the combination of an exciter supplying current to the field-magnet, a source of secondary electromotive force in circuit with the exciter, means for interrupting the exciter-circuit causing the secondary source of electromotive force to energize the field-coils, and means for decreasing the secondary electromotive force.

3. As a means for preventing destructive discharge from field-magnet coils, the combination of an exciter supplying current to the field-coils, a dynamo-electric machine in circuit therewith, and a switch for interrupting the exciter-circuit and causing the motor to act as a generator and supply current to the field-coils.

4. As a means for preventing destructive discharge from field-magnet coils, the combination of an exciter supplying current to the field-coils, a motor having its armature included in circuit with the field-coils to be discharged, field-coils for the motor excited from a suitable source of energy, and a switch for interrupting the exciter-circuit and causing the motor-armature to supply current to the field-coils in circuit therewith.

5. In combination, a plurality of dynamo-electric machines receiving their exciting-current from a common source, a motor having its field-magnets excited from a source of constant potential, switches for including the armature of the motor in the field-circuit of any of the dynamo-electric machines, and a switch for interrupting the exciting-circuit of the machine to which the armature is connected, and causing the armature to supply current to the field-coils of the machine.

577,142. STEAM BOILER OR GENERATOR. JOHN MILNE, Brooklyn, N. Y. Filed June 12, 1896. Serial No. 595,250. (No model.)



Claim.—In a steam-boiler the combination with the drums A, A', A^2 of the downwardly-inclined tubes B connecting the drum A to the drum A^2 and the two nests of tubes C, D, inclined respectively downwardly and upwardly and both connecting the drum A to the drum A', the injection-pipe E arranged at the entrance of the pipes C in the drum A, the pipes C' connecting the drum A' to the drum A^2 and the diaphragm F in the drum A' intermediate of the points of connection of the pipes C, D, thereto, partitions B' and perforated partition S parallel to the plane of the pipes B, C, substantially as shown and described.

577,143. APPARATUS FOR TURNING OVER LEAVES OF MUSIC, &c. WALTER J. MOFFATT and EDWARD A. KNAPP, Nelson, New Zealand. Filed Aug. 7, 1896. Serial No. 602,074. (No model.)

Claim.—1. A music-leaf turner comprising a slide, pins carried thereby at different points to engage the leaves, a way for the slide to move in and operating means for the slide, said pins being fixed to the slide, substantially as described.

2. A music-leaf turner comprising a slideway, the slide thereon with operating means therefor, and pairs of fixed pins on the slide each pair being adapted to engage a leaf, substantially as described.



3. In combination, in a music-leaf turner, a slideway, the slide, pins carried thereby for engaging and operating the leaves and adjustable clasps j' movable in slots j^3 with means for fixing the same in position, said slots being formed in the stationary framework, substantially as described.

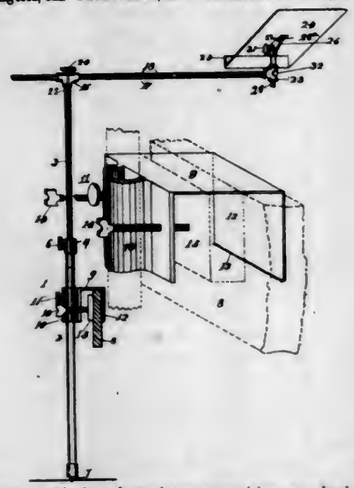
4. In combination in a music-leaf turner the folding rest having an upright portion, the slideway, the slide movable therein and having pins to engage the levers and the connection between the folding rest and the slideway consisting of the plate secured to the slideway, the clasp g engaging the upright part of the folding rest and the hinge connecting the clasp and plate, substantially as described.

577,144. AUTOMATIC LOCKING-HOOK. JAMES MCFARLANE, London, Canada. Filed May 25, 1896. Serial No. 550,722. (No model.)



Claim.—In a hook, the combination with the body, and a latch pivoted thereto; of an independent member connected with the body by a separate pivot, this member standing within the bend of the hook, and connections between said member and latch for automatically throwing the latter upward to a position across the throat of the hook when pressure is applied to the lower end of the member, substantially as set forth.

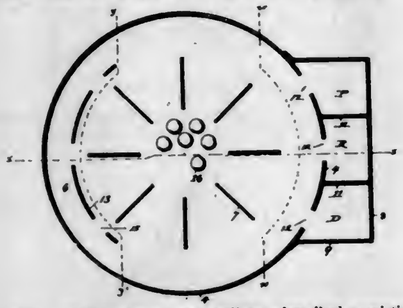
577,145. BEDSTEAD ATTACHMENT. CHARLES E. MCKEAG, Los Angeles, Cal. Filed June 30, 1896. Serial No. 597,590. (No model.)



Claim.—1. A bedstead attachment comprising a standard, a clamp secured to the standard, a perforated plug located in the upper end of the standard, the T-coupling having a vertical perforation, the horizontal arm having a series of apertures and adjustable in the T-coupling, a pin for securing the horizontal arm extending through the latter, through the T-coupling, and into the plug, a post secured to the horizontal arm, and a support secured to the post; substantially as described.

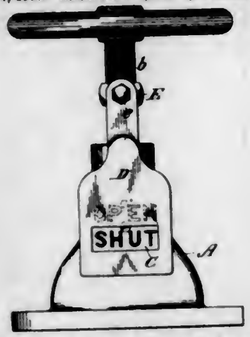
2. A bedstead attachment comprising a standard, a clamp secured to the standard, a horizontal arm secured to the standard, a T-coupling secured to the inner end of the arm, a post having a fork and secured to the T-coupling, a support, a semicircular plate formed with a lip and with a series of perforations, and secured to the support by the lip and a set-screw working through the fork and through a perforation in the plate; substantially as described.

577,146. PUZZLE OR GAME. ELIZABETH R. PARKER, Fort Collins, Colo. Filed May 16, 1896. Serial No. 591,836. (No model.)



Claim.—The puzzle or game appliance described consisting essentially of the frame or box having the inclosure 5, at one of its ends providad with separate compartments, and openings connecting said compartments with the interior of the frame or box, the inclosure 6, arranged at the opposite end of the frame or box with respect to the inclosure 5, and having its ends communicating with the interior of the frame or box and also having an opening in its front wall connecting its interior and the interior of the frame or box, the depression 30, formed in the bottom of the frame or box immediately in front of the front wall of the inclosure 6 and the radially-disposed, vertical walls 7 arranged on the bottom of the frame or box and between the inclosures 5, and 6, and also arranged at intermediate points between the center of the frame or box and the side wall thereof so as to form a central space between their inner ends and a space between their outer ends and the side wall of the frame or box, substantially as specified.

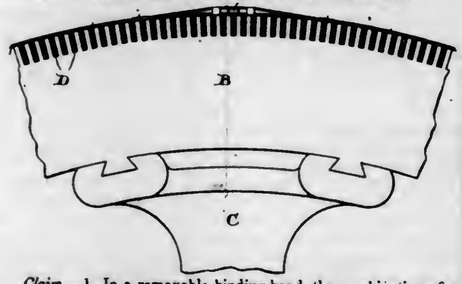
577,147. INDICATING-VALVE. ANDREW G. PAUL, Boston, Mass., assignor, by mesne assignments, to Charles Grove, Jr., New York, N. Y. Filed June 27, 1896. Serial No. 597,171. (No model.)



Claim.—1. In a valve, the combination of a valve-casing provided on one side with a reversible indicating-plate bearing on each side two separated marks or legends, one to signify "valve open" and the other to signify "valve closed," readily-removable means for securing said indicating-plate in place, a movable and non-rotatable shutter adapted to move back and forth over the indicating-plate to render each one of said marks or legends separately visible while the other is simultaneously obscured, said shutter held in place by suitable means, a rotatable and longitudinally-fixed valve-stem, provided with screw-threads and normally sealed in one position, and a non-rotatable nut on the threaded valve-stem arranged to actuate the shutter, the means for holding the indicating-plate in place so disposed with respect to the shutter that they cannot be entirely withdrawn to remove said plate until the valve-seal has been broken and the valve and shutter moved from one position to another, substantially as set forth.

2. In a valve, the combination of a valve-casing provided on one side with a reversible indicating-plate bearing on each side two separated marks or legends, one to signify "valve open" and the other to signify "valve closed," said indicating-plate fixed to the valve-casing by means of a screw and steady-pin, a movable and non-rotatable shutter adapted to move back and forth over the indicating-plate to render each one of said marks or legends separately visible while the other is simultaneously obscured, said shutter comprising a plate provided with longitudinal grooves fitting over suitable projections on the valve-casing, a rotatable and longitudinally-fixed valve-stem provided with screw-threads and normally sealed in one position and a non-rotatable nut on the threaded valve-stem arranged to actuate the shutter, the means for holding the indicating-plate in place so disposed with respect to the shutter that they cannot be entirely withdrawn to remove said plate until the valve-seat has been broken and the valve and shutter moved from one position to another, substantially as set forth.

577,148. BINDING-BAND FOR ARMATURES. HENRY G. REIST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 18, 1896. Serial No. 612,606. (No model.)



Claim.—1. In a removable binding-band, the combination of a number of turns of wire, loops formed at the ends of the band, and means for securing the ends.

2. In a removable binding-band for armatures, the combination of a plurality of turns formed by a single wire, loops at the ends of the band, and space-blocks separating the ends or loops and providing means for attachment when it is desired to draw the ends of the band together.

3. In a removable binding-band for armatures, the combination of a plurality of turns of wire, loops formed at the ends of the band, the loops of one end alternating with the loops of the adjacent end, and means for securing the ends together.

4. A removable binding-band for armatures, comprising a plurality of turns of wire having one side slightly longer than the other, thereby providing for the means employed in securing the adjacent ends of the bands.

5. In a removable binding-band for armatures, the combination of a number of turns of wire, space-blocks situated near the ends of the band to which the ends of the wire are secured, and pieces soldered to the band at intervals to hold the wires in place.

6. In a removable binding-band for armatures, the combination of a plurality of sections, each section consisting of a single piece of wire wound in such a manner that loops are formed in the ends, means extending between the ends of the loops for securing the sections together, and means secured to the wire of each section so that suitable assembling devices can be applied to the band for approximating the ends under tension.

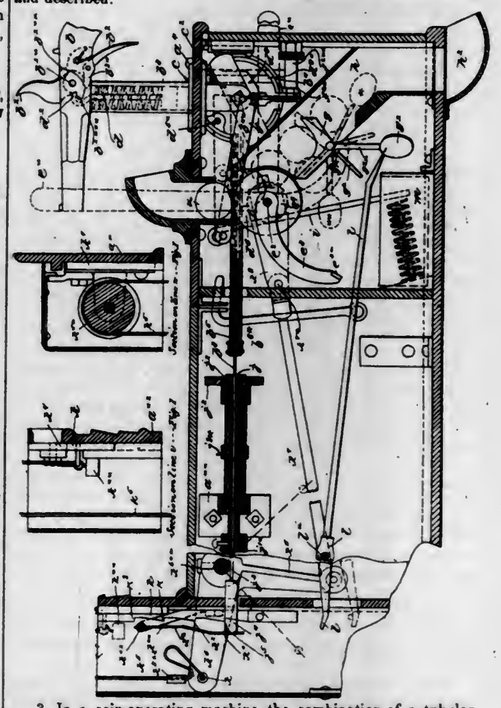
7. As an article of manufacture, a removable binding-band for armatures, comprising a number of loops or turns of wire wound so as to form loops at the ends of the band with space-blocks for separating the loops and providing means whereby a suitable assembling device can be attached to the band when desired to apply it to an armature.

8. An assembling tool for wire armature-bands, comprising a pair of arms secured together at their upper ends, an enlarged lower extremity for each arm, teeth formed in the enlarged portion, and means for drawing them together.

577,149. COIN-OPERATED MACHINE. VINCENT ROBBINS and EDGAR C. ROBBINS, London, England. Filed June 19, 1895. Serial No. 553,280. (No model.) Patented in England May 4, 1894, No. 9,082.

Claim.—1. In a coin-operating machine, the combination of a pedestal mounted with capability of universal movement within certain limits, a pistol rigidly fixed with the upper end of the pedestal parallel with the pistol, a projectile-rod carried by the tubular guide, an invisible target for the projectile-rod, a visible target for the pistol, means for forcibly projecting the projectile-rod upon the firing of the pistol and means for inserting a coin and for preventing the use of the machine without prepayment, substantially as herein shown and described.

2. In a coin-operating machine, the combination of a tubular pedestal mounted with capability of universal movement, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal, parallel with the pistol, a projectile-rod carried by the tubular guide, a simple lock within the pistol consisting of a hammer controlled by a trigger, a rod within the pedestal at its upper end loosely connected with the hammer, a spring surrounding the rod and acting; to depress it, and a bell-crank lever, one arm of which is acted upon by the lower end of the rod and the other arm of which acts upon the projectile-rod, substantially as herein shown and described.



3. In a coin-operating machine, the combination of a tubular pedestal mounted with capability of universal movement, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal, parallel with the pistol, a projectile-rod carried by the tubular guide, a simple lock within the pistol consisting of a hammer controlled by a trigger, a rod within the pedestal at its end loosely connected with the hammer, a spring surrounding the rod and acting to depress it, a bell-crank lever one arm of which is acted upon by the lower end of the rod, and the other arm of which acts upon the projectile-rod, and means for preventing the pistol being fired more than three times without resetting the apparatus, substantially as herein shown and described.

4. In a coin-operating machine, the combination of a tubular pedestal mounted with capability of universal movement, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal, parallel with the pistol, a projectile-rod carried by the tubular guide, a simple lock within the pistol consisting of a hammer controlled by a trigger, a rod within the pedestal at its end loosely connected with the hammer, a spring surrounding the rod and acting to depress it, a bell-crank lever one arm of which is acted upon by the lower end of the rod and the other arm of which acts upon the projectile-rod, a vertically-sliding block formed with ratchet-teeth upon one face, a clawker carried by that arm of the bell-crank lever connected with the rod and engaging the ratchet-teeth of the sliding block and a detent for engaging such teeth and preventing the accidental descent of the sliding block so that each time the pistol is cocked the sliding block will be raised the distance of one tooth, until it comes against a stop and means for disengaging the clawker and detent from the ratchet-teeth in order to return the sliding block to its normal position, substantially as herein shown and described.

5. In a coin-operating machine, the combination of a tubular pedestal mounted with capability of universal movement, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal and parallel with the pistol, a projectile-

rod carried by the tubular guide, a simple lock within the pistol consisting of a hammer controlled by a trigger, a rod within the pedestal at its end loosely connected with the hammer, a spring surrounding the rod, and acting to depress it, a bell-crank lever, one arm of which is acted upon by the lower end of the rod, and the other arm of which acts upon the projectile-rod, a vertically-sliding block formed with ratchet-teeth upon one face, a recess in such face, a clawker carried by that arm of the bell-crank lever connected with the rod and engaging the ratchet-teeth of the sliding block, and a detent for engaging such teeth, and preventing the accidental descent of the sliding block, so that each time the pistol is cocked, the sliding block will be raised the distance of one tooth, until it comes against a stop, a releasing-bar mounted in the recess of the sliding block, angular slots in the releasing-bar, corresponding pins in the sliding block, and means for depressing the releasing-bar at the times desired so that it will come forward beyond the ratchet-teeth and disengage the clawker and detent therefrom while the sliding block descends to its normal position, substantially as herein shown and described.

6. In a coin-operating machine, the combination of a tubular pedestal mounted with capability of universal movement, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal and parallel with the pistol, a projectile-rod carried by the tubular guide, a simple lock within the pistol consisting of a hammer controlled by a trigger, a rod within the pedestal at its end loosely connected with the hammer, a spring surrounding the rod and acting to depress it, a bell-crank lever one arm of which is acted upon by the lower end of the rod, and the other arm of which acts upon the projectile-rod, a vertically-sliding block formed with ratchet-teeth upon one face, a recess in such face, a clawker carried by that arm of the bell-crank lever connected with the rod and engaging the ratchet-teeth of the sliding block and a detent for engaging such teeth and preventing the accidental descent of the sliding block so that each time the pistol is cocked the sliding block will be raised the distance of one tooth until it comes against a stop, a releasing-bar mounted in the recess of the sliding block, diagonal slots in the releasing-bar, corresponding pins in the sliding block, a drum formed with a pocket therein adapted to receive a coin, a coin slot and chute adapted to deliver the coin into the pocket of the drum, leaving the same projecting beyond the periphery thereof, an operating-handle fixed with the axis of the drum and adapted to turn the same part of a revolution, a lever adapted to be acted upon by the coins in the rotation of the drum and means for conveying the movement of the lever to the releasing-bar so that upon the introduction into the machine of a coin and the required movement of the operating-handle, the sliding block will be brought down to its normal position, substantially as herein shown and described for the purposes stated.

7. In a coin-operating machine, the combination of a pedestal mounted with capability of universal movement within certain limits, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal and parallel with the pistol, a projectile-rod carried by the tubular guide, means for forcibly projecting the projectile-rod upon the firing of the pistol and a target for the projectile-rod, substantially as herein shown and described.

8. In a coin-operating machine, the combination of a pedestal mounted with capability of universal movement within certain limits, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal, and parallel with the pistol, a projectile-rod carried by the tubular guide, means for forcibly projecting the projectile-rod, upon the firing of the pistol, a visible target for the pistol, an invisible target for the projectile-rod consisting of several sections or diameters each capable of longitudinal movement, a visible indicator connected with each section, means for connecting the indicator therewith, and means for preventing the use of the machine without prepayment, substantially as herein shown and described.

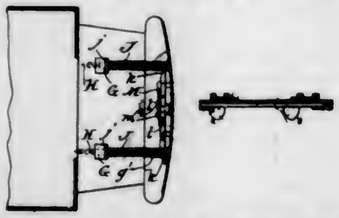
9. In a coin-operating machine, the combination of a pedestal mounted with capability of universal movement, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal and parallel with the pistol, a projectile-rod carried by the tubular guide, means for forcibly projecting the projectile-rod upon the firing of the pistol, a visible target for the pistol, an invisible target for the projectile-rod consisting of several sections or diameters each capable of independent movement, several apertures in a vertical screen, several vertical slides arranged at the back thereof, and having numerals marked thereon, several vertically-sliding bars carrying the slides and formed with ratchet-teeth thereon, a detent in connection with each vertical slide for engaging the ratchet-teeth, and connections from each detent to a section of the invisible target, substantially as herein shown and described and for the purposes stated.

10. In a coin-operating machine, the combination of a pedestal mounted with capability of universal movement within certain limits, a pistol rigidly connected with the upper end of the pedestal, a tubular guide connected with the pedestal and parallel with the pistol, a projectile-rod carried by the tubular guide, means for forcibly projecting the projectile-rod upon the firing of the pistol, a visible target for the pistol, an invisible target for the projectile-rod consisting of several sections or diameters each capable of independent movement, several apertures in a vertical screen, several vertical slides at the back thereof, and having numerals marked thereon, several vertically-sliding bars carrying slides and formed with ratchet-teeth thereon, a detent in connection with each vertical slide, for engaging the ratchet-teeth, and connections from each detent to a section of the invisible target, a flexible band attached to each vertical slide and passing over a guide-pulley, the lower ends of the several flexible connections, being fixed to one arm of a bell-crank lever, an arm or offset fixed with the shaft of the pocketed money-drum and a link flexibly connecting the other arm of the bell-crank lever with such arms or offsets so that upon the partial rotation of the drum the indicating-slides of the register will be raised to their normal positions, substantially as herein shown and described.

11. In a coin-operating machine, the combination of a pedestal mounted with capability of universal movement within certain limits, a pistol rigidly connected with the upper end of the pistol, a tubular guide connected with the pedestal parallel with the pistol, a projectile-rod carried by the guide, means for forcibly projecting the projectile-rod upon the firing of the pistol, a visible target for the pistol, an invisible target for the projectile-rod, such target being formed in several sections or diameters each capable of independent movement, several apertures in a vertical screen, several vertical slides arranged at the back thereof and having numerals marked thereon, several vertically-sliding bars carrying slides and formed with ratchet-teeth thereon, a detent in connection with each vertical slide for engaging the ratchet-teeth, and connections from each detent to a section of the invisible target, and a money-slot in suitable position, a chute connected therewith, a pocketed drum, arranged beneath the money-slot, a switch-bar arranged beneath the drum into which the coin is discharged therefrom, a chute for conducting the coin back to the operator at certain times, an arm from the axis of the drum for delaying the switch-bar and discharging the coin into the money-box under normal circumstances, and a lever at one end arranged in the path of the vertical slide of the bull's-eye aperture, and at the other end adapted to tilt the switch-bar so that the coin is discharged into the money-chute returning it to the operator upon a succession of bull's-eyes being obtained, substantially as herein shown and described and for the purpose stated.

12. In a coin-operating machine, the combination of a target consisting of several sections or diameters, each capable of independent movement, a vertical screen formed with several apertures, several slides arranged at the back of the apertures and having figures or signs thereon, several vertically-sliding bars carrying the slides and provided with ratchet-teeth, a detent in connection with the teeth of each slide, and connections from each detent to a section of the target, substantially as herein shown and described.

577,150. **RAILWAY-SWITCH.** HERMAN SCHNEIDER, Brooklyn, N. Y. Filed Apr. 21, 1896. Serial No. 588,430. (No model.)



Claim.—1. In a railway-switch, the combination of a sliding plate having depending lugs thereon, and means for supporting the same, and a swinging tongue attached to said plate; with levers for engagement with the lugs of said plate, substantially as shown and described.

2. The combination with the dashboard of a car, of a switch-operating device consisting of the sliding bolt with beveled ends attached to a pivoted lever bearing upon pivoted spring-actuated hangers connected to the dashboard, which said hangers are actuated by said sliding bolt and carry wheels adapted for operating a switch mechanism from a car, substantially as shown and described.

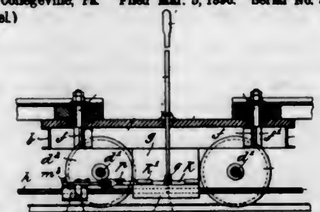
3. A switch-operating device consisting of a sliding bolt with beveled ends attached to a pivoted lever bearing upon a pivoted spring-actuated hanger which carries a wheel adapted for operating a switch mechanism, substantially as shown and described.

577,151. **BASKET.** JOHN W. TAYLOR, Buda, Tex. Filed June 13, 1896. Serial No. 595,466. (No model.)



Claim.—A wire basket comprising a series of rib-wires extending radially outward from the center of the bottom of the basket and then upward to form the sides thereof, a continuous filling-wire attached to one of the ribs near the center of the bottom and interwoven spirally with the rib-wires at the bottom and sides of the basket, and the clamping device for the ends of the rib-wires, said clamping device comprising two plates or disks, each having a centrally-perforated boss upon one face and a series of radial grooves extending from the boss to the periphery of the disk, and a rivet passing through the central perforations and clamping the ends of the rib-wires between the two disks, substantially as described.

577,152. **TRUCK AND GRIPPING MECHANISM FOR RAILWAY-CARS.** WILHELM VOGT, Philadelphia, Pa., assignor to Abraham A. Landis, Collegeville, Pa. Filed Mar. 5, 1896. Serial No. 581,880. (No model.)



Claim.—1. In a pleasure-railway, an auxiliary truck, comprising a platform swiveled at either end to adjacent cars, an open frame supporting the platform and provided with wheels, a frame depending from the open frame, and a gripping mechanism, consisting of two substantially wedge-shaped gripping-cheeks having a range of movement longitudinally on said depending frame, a sliding bar adapted to open and close said cheeks, spring-controlled friction-jaws secured to one end of said bar, and provided with wings adapted to rest on the cable, all arranged so that the friction-jaws will operate the cheeks of the gripping mechanism only when the speed of the car and the cable are approximately equal, substantially as and for the purposes described.

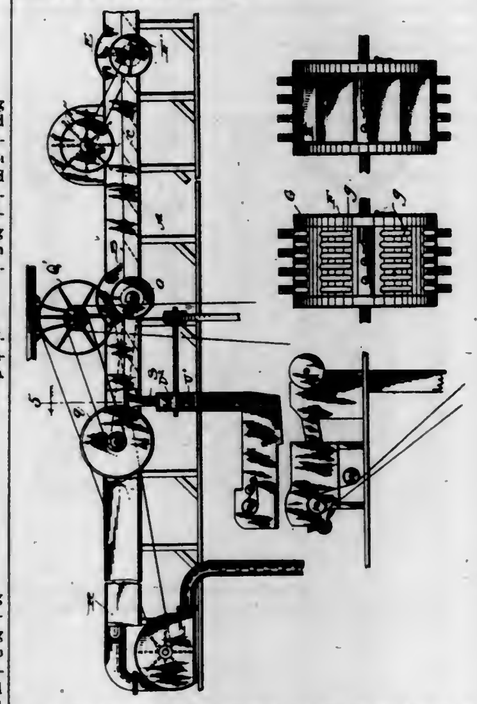
2. In a pleasure-railway, an auxiliary truck comprising a platform swiveled at either end to adjacent cars, an open frame supporting the platform and provided with wheels, a frame depending from the open frame, and a gripping mechanism, consisting of two substantially wedge-shaped gripping-cheeks having a range of movement longitudinally on said depending frame, a sliding bar adapted to open and close said cheeks, spring-controlled friction-jaws secured to one end of said bar, and provided with wings adapted to rest on the cable, all arranged so that the friction-jaws will operate the cheeks of the gripping mechanism only when the speed of the car and the cable are approximately equal, an upwardly-projecting lever pivoted at one end to the sliding bar and in the platform, said lever having a handle projecting above the platform, whereby the gripping-cheeks may be operated by hand, substantially as and for the purposes described.

577,153. **MACHINE FOR CLEANING SEED-COTTON.** PETER WALKER, Friar's Point, Miss. Filed June 30, 1896. Serial No. 597,591. (No model.)

Claim.—1. In an apparatus for cleansing, and conveying seed-cotton to a gin, the combination with the main trough having a beater-drum and an air-wheel journaled therein, a belted connection between same, the said air-wheel adapted to be rotated by a current of air, of a series of wires longitudinally disposed in a horizontal plane in said trough, substantially as shown and described.

2. In an apparatus for conveying and cleansing seed-cotton and carrying same to a gin, the combination with the main trough, the beater-wheel and screen operated in connection therewith, of a series of longitudinal wires arranged in a horizontal plane in said trough, and a series of inclined partitions underneath the wires and the hinged doors in the bottom of the trough, substantially as shown and described.

3. In combination with a trough of a seed-cotton cleansing and cotton-gin feeder, as described, the beater journaled in casings communicating with the main trough, the longitudinal wires and compartments on either side of the beaters, the air-wheel N with belted connection with the beater-wheel and means for conveying the seed-cotton through the trough and for rotating the said wheel N, substantially as shown and described.



4. In a beater-drum, for cleansing and beating seed-cotton, the combination with the drum having perforated ends series of elongated apertures in the circumference thereof, of the stationary wings or retainers within the drum and partially covering said apertures whereby they will allow the trash to pass within the wheel, and means for driving the wheel, substantially as shown and described.

5. In a beater-drum for cleansing and beating seed-cotton, the combination with the drum proper having perforated ends, one of which has a hinged door, the circumference of the wheel provided with series of elongated perforations, of a series of wings or retainers rigidly secured to inner circumference of the drum, the ends of the said wings or retainers overlapping one another, a slight space being left between the said overlapping ends, substantially as shown and described.

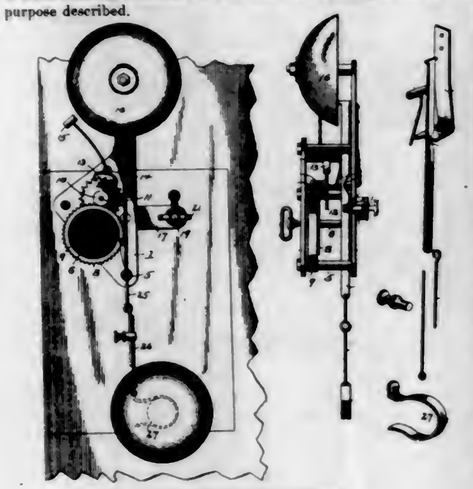
6. In a cotton cleaning and beating machine, the combination with the trough, beater-drum and air-wheel as described, of an inclosed screen-wheel with a perforated circumference journaled in an enlarged portion of the trough, a duct leading from the said trough in advance of the said screen-wheel, and a fan-wheel operatively connected with the beater-drum for the purpose of actuating the same for producing a suction through the trough and screen-wheel, substantially as shown and described.

577,154. **BURGLAR-ALARM.** JAMES H. WALTERS, Harrisburg, Pa., assignor of one-half to Thomas P. Brown, same place. Filed May 15, 1896. Serial No. 591,695. (No model.)

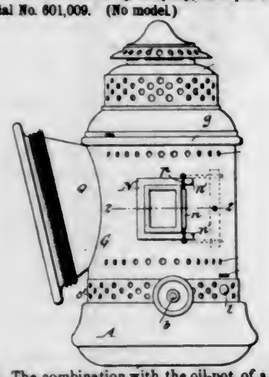
Claim.—1. The combination with a door, of alarm mechanism made up of a casing, consisting of two plates secured by uprights, a gong, a hammer for said gong, a shaft upon which said hammer is mounted, a lateral arm on said shaft, a spring engaging said arm, a rod moving in suitable ways in two of said uprights, having a score at one point therein whose curved sides are adapted to engage said spring, and connections between said rod and the handle of the door, substantially as and for the purpose described.

2. The combination with a door, of alarm mechanism therefor, the same consisting of a casing having two side plates secured by suitable uprights or bolts, a strip of metal extending outwardly from

one of said plates, a bolt passing through the outer end of said strip, having arms on its inner end which are adapted to fit in the keyhole of said door, and a thumb-screw for tightening said bolt, a gong, a hammer therefor, a shaft upon which said hammer is mounted, a lateral arm on said shaft, and a spring for engaging said lateral arm, a release-bar moving in suitable ways in two of said uprights, having a score at one point therein whose curved edges are adapted to engage said spring, an adjustable rod upon the outer end of said release-bar, and a spring-clip upon the outer end of said rod whereby connection is made with the door-knob of said door, substantially as and for the purpose described.



577,155. BICYCLE-LAMP. JOHN W. BRAGGER, Watertown, N.Y., assignor to the Hitchcock Lamp Company, same place. Filed July 30, 1896. Serial No. 601,009. (No model.)

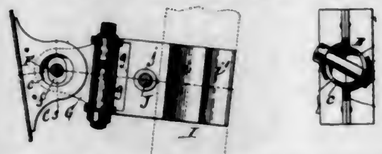


Claim.—1. The combination with the oil-pot, of a burner-gallery resting thereon and consisting of a perforated diaphragm provided with a marginal flange having air-inlets, an outer shell resting on said diaphragm and provided with perforations near its lower end and with air-inlets near its upper end, an inner shell having its lower end supported above said diaphragm and provided with perforations near its lower end and in its upper portion, and a burner arranged within said inner shell and having its air-space in communication with the space between the inner and outer shells, substantially as set forth.

2. The combination with the oil-pot, of a burner-gallery composed of a horizontal perforated plate and a perforated depending marginal flange formed integrally therewith and having a raised annular rim and raised bosses formed integrally with said horizontal plate, an annular supporting-plate resting on said bosses, bolts connecting said supporting-plate and perforated plate with the oil-pot, and an outer shell resting on said horizontal plate outside of said rim, substantially as set forth.

3. The combination with the lamp-body, of a spring composed of a pivot-bar and bent arms connected with the ends of said bar and secured at their ends to the lamp-body, and a signal frame or door pivoted to said bar between the arms of said spring and provided with a projection extending beyond said pivot-bar and adapted to bear against the lamp-body, substantially as set forth.

577,156. HOLDER FOR BICYCLE-LAMPS. JOHN W. BRAGGER, Watertown, N. Y., assignor to the Hitchcock Lamp Company, same place. Filed Aug. 15, 1896. Serial No. 602,841. (No model.)



Claim.—1. The combination with a lamp-case having on its rear side a spherical knuckle which is provided with vertically-elongated openings on opposite sides, of a spherical socket embracing said knuckle and having horizontal eyes at its rear end, a transverse pivot-bolt which connects said socket and knuckle and which is capable of a limited vertical movement in the elongated openings of the latter, and a clamp adapted to be secured to a bicycle-frame and connected with the eyes of the socket by a vertical pivot-bolt, whereby the lamp-case can be adjusted by a horizontal movement about the vertical bolt, by a longitudinal vertical movement about the transverse bolt, and by a transverse vertical movement about the longitudinal axis of the spherical joint, substantially as set forth.

2. A lamp-holder having one of its members provided with a spherical socket and the adjacent member provided with a spherical knuckle composed of two plates secured together side by side and each provided with a semispherical protuberance, substantially as set forth.

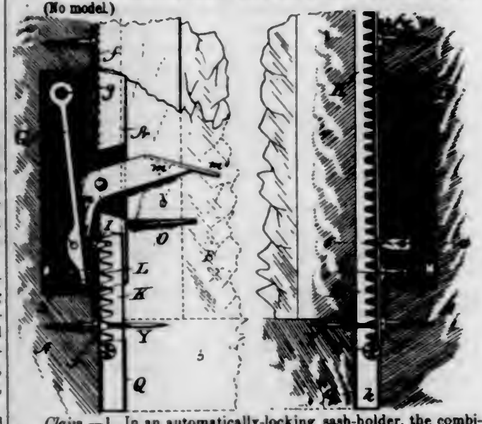
3. In a lamp-holder, the combination with a member provided with a spherical socket, of a member provided with a spherical knuckle composed of two plates secured together side by side and each provided with a semispherical protuberance having an opening, and a transverse bolt connecting said socket and knuckle and capable of a limited movement in the openings of the latter, substantially as set forth.

4. A lamp-holder having one of its members provided with a spherical socket and the adjacent member provided with a spherical knuckle composed of two plates secured together side by side and provided with semispherical protuberances and a flat flange surrounding said protuberances, substantially as set forth.

5. In a lamp-holder, the combination with a spherical knuckle, of a spherical socket composed of two plates arranged side by side and provided with eyes arranged in line with each other, a bolt connecting said plates, and a clamp connected with the eyes of the socket-plates by a bolt, substantially as set forth.

6. A lamp-holder provided with a clamp having each of its arms provided with a rounded depression to fit a steering-head and with an angular depression arranged between the ends of the rounded depression and projecting outwardly therefrom, substantially as set forth.

577,157. AUTOMATICALLY-LOCKING SASH-HOLDER. ROBERT K. BROWN, Whitinsville, Mass. Filed May 26, 1896. Serial No. 593,157. (No model.)



Claim.—1. In an automatically-locking sash-holder, the combination with the sash with tooth-engaging devices thereon, of a spring-actuated plate pivotally supported on the window-frame, a tooth carried by and adjustable laterally on the plate and normally in engagement with the side of the sash, with means for pushing the plate inward, to release the tooth from the sash, substantially as described

2. In an automatically-locking sash-holder, the combination with the window-sash having engaging teeth on its side, of a casing seated in the recess in the window-frame, a plate pivotally supported in said casing at one end and provided with a transverse slot at its free end, a screw-threaded bolt mounted in said slot, a tooth carried by said screw-threaded bolt, a spring normally pressing the free end of the plate outward and the tooth in engagement with the side of the sash, a lever pivoted on the casing having one arm in engagement with the face of the plate and the other arm projecting outwardly from the window-frame, substantially as described.

3. In an automatically-locking sash-holder, the combination with the sash having a locking rack-bar on its side, of a casing seated in a recess in the window-frame, a plate pivotally supported in said casing and carrying at its free end a tooth adjustably mounted thereon, a screw-threaded bolt passing through the face of the casing and the free end of the plate and having a nut on its inner end, with a spring confined between the nut and the end of the plate, and means for pushing the plate inward to disengage the tooth from the side of the window-sash, substantially as described.

4. In an automatically-locking sash-holder, the combination with the window-sash having a locking rack-bar mounted in the side thereof, of a casing having a guide flange or lip extending from one side in alinement with the box-strip on the window-frame and seated in a recess in the window-frame, a spring-actuated plate pivotally supported at one end in said casing, a tooth mounted on the free end of the plate and normally in engagement with the rack-bar of the window-sash, a lever fulcrumed on the guide-lip of the casing having one arm engaging the plate and the other arm extending outwardly from the window-frame, substantially as described.

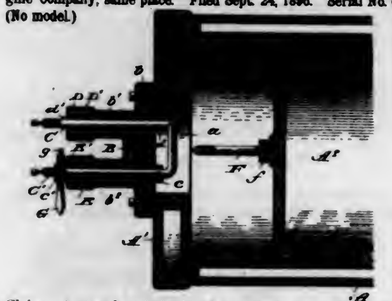
5. In a sash-holder, the combination with the window-sash, of a rack-bar having plain end portions provided with segmental cylindrical recesses, and antifriction-rolls journaled in said recesses, with a sheet-metal strip inclosing the sides of the end portions of the bar, substantially as described.

6. In a sash-holder, the combination with the window-sash, of the locking rack-bar having plain end portions provided with segmental cylindrical recesses, antifriction-rolls mounted in said recesses, with a sheet-metal casing inclosing the sides of the end portions of the bar, and a staple embracing the rack-bar and fastening the same to the window-sash, substantially as described.

7. In an automatically-locking sash-holder, the combination with the sash, of a plate pivotally supported in a recess in the window-frame, a tooth carried by said plate and normally held in engagement with the side of the sash and locking the same, a lever having one end in contact with said plate and the other end projecting outwardly from the window-frame, pulley or cord-guide mounted on the meeting-rail of the sash, and a second pulley or guide mounted on the window-frame, with a cord attached to the end of the lever and passing through the pulley or guide on the meeting-rail of the sash and over the pulley on the frame, down to the hand, substantially as described.

8. As a new article of manufacture, an automatically-locking sash-holder consisting of a casing having a flange projecting from one side thereof provided with a recess *n* and adapted to be seated within a recess in the window-frame, a spring-actuated plate pivotally supported between the side walls of said casing, a tooth carried by the free end of said plate and adapted to engage the side of a window-sash when in place, and a lever pivoted in the recess of the flange of the casing and having one arm engaging the plate and the other arm projecting outwardly beyond the flange, substantially as described.

577,158. ELECTRIC IGNITER FOR EXPLOSIVE-ENGINES. WILLIAM F. DAVIS, Waterloo, Iowa, assignor to the Davis Gasoline Engine Company, same place. Filed Sept. 24, 1896. Serial No. 606,875. (No model.)



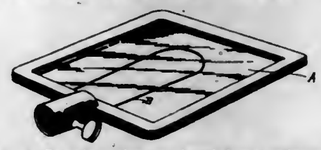
Claim.—1. An electric igniter for explosive-engines consisting of a stationary electrode C and a working electrode C' supported parallel with each other in a suitable frame and insulated substantially as shown, the working electrode comprising a rock-bar the inner end of which is bent at an angle to contact with one side of the stationary electrode, and a handle G secured to the outer end of said working electrode; together with a spring for holding the electrodes normally in contact with each other, and an arm projecting from the piston of the engine to engage the bent end of the working electrode and move the same against the action of the spring at each reciprocation of said piston, for the purpose set forth.

2. In combination with an explosive-engine, of the stationary electrode C having an end projecting within the cylinder, a working electrode C' comprising a rock-bar one end of which projects within the cylinder and is bent at an angle to contact with one side of the inner end of the stationary electrode, a handle mounted on the outer end of the working electrode or rock-bar, and a spring connected to said handle and to a stationary part of the engine for holding the electrodes normally in contact with each other, substantially as shown; together with an arm secured to the piston of the engine and adapted to strike the bent end of the working electrode or rock-bar C' and move the same away from the stationary electrode at each reciprocation of said piston, for the purpose set forth.

3. In combination with an explosive-engine, of the stationary electrode C projecting within the cylinder, a working electrode comprising a rock-bar C' the inner end of which is bent at an angle and the terminal beveled presenting an inclined surface which contacts with one side of the stationary electrode, a handle G mounted on the outer end of the working electrode, and a spring H connected to the handle and to a stationary part of the engine for holding the electrodes normally in contact with each other; together with an arm projecting from the piston of the engine and adapted to strike the bent end of the working electrode or rock-bar and operate the same against the action of the spring at each reciprocation of said piston, for the purpose set forth.

4. The combination with an explosive-engine having a cylinder-head with an opening therein, a frame or casting B secured over said opening and presenting projections or housings b' and b^3, an insulated stationary electrode C mounted within the housing b' to project within the cylinder of the engine, a working electrode C' comprising a rock-bar bearing in the other housing and presenting an end which projects within the cylinder and is bent at an angle and provided with a beveled terminal which contacts with one side of the inner end of the stationary electrode, a handle G mounted on the outer end of the working electrode or rock-bar, and a spring H connected to said handle and to a stationary part of the engine to hold the electrodes normally in contact with each other; together with an arm projecting from the piston of the engine to operate the working electrode against the action of the spring at each reciprocation of said piston, substantially as shown and for the purpose set forth.

577,159. INCANDESCENT ELECTRIC LAMP. CHARLES S. DOLLEY, RUSSELL HAWKINS, and THOMAS M. LIGHTFOOT, Philadelphia, Pa. Filed Apr. 22, 1896. Serial No. 588,664. (No model.)



Claim.—1. In an incandescent electric lamp, an incandescent filament compressed between two non-conducting plates one or both of which plates is either transparent or translucent and from between which plates the air has been exhausted, and a hermetically-sealed boundary-frame for said plates, substantially as described and for the purpose specified.

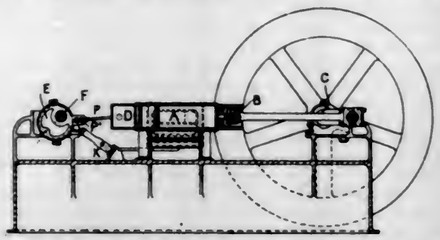
2. The combination with two non-conducting plates one or both of which is either transparent or translucent and from between which plates the air has been exhausted, a filament compressed between said plates, a hermetically-sealed frame extending around the outer edges of the plates, and connections for electric wires, substantially as described.

3. The combination with two plates of mica or their equivalent, of an incandescent filament compressed between said plates, a hermetically-sealed frame extending around the outer edges of the plates, and wire connections with the filament thus compressed between the plates, substantially as described and for the purpose specified.

577,160. GAS-MOTOR. WILLIAM DONALDSON, London, England. Filed Oct. 11, 1895. Serial No. 565,387. (No model.) Patented in England Apr. 4, 1895, No. 6,972.

Claim.—1. In an explosive-gas motor, in combination, an open explosive gas-cylinder, two revolving shafts, situated one at either end of said cylinder at right angles to and in the plane of the axis

of said cylinder, bearings adapted to support said shafts on surface of bed-plate, two single-acting pistons one operative and one regulating in said cylinder, a crank and connecting-rod connections between operative piston and main shaft; eccentric connections between the regulating-piston and counter-shaft, and gearing between said shafts adapted to revolve counter-shaft at half the revolutions of main shaft to effect the variable regulation of the volume of burned products undischarged on exhaust and the ratios of compression and expansion.



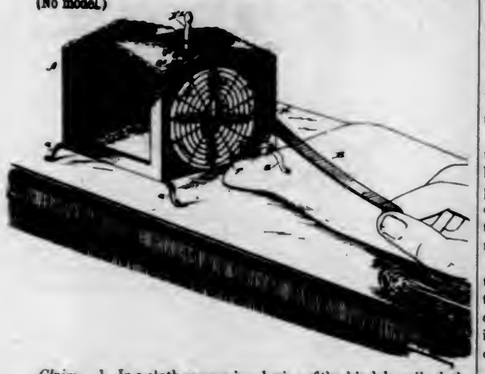
2. In an explosive-gas motor, a regulating-piston in main cylinder at rear of operative piston, an adjustable lengthening-piece adapted thereto, and means for reciprocation of said regulating-piston from counter-shaft revolving at half-speed of main crank-shaft.

3. In an explosive-gas motor, a regulating-piston in main cylinder at rear of operative piston, a connecting-rod adjustable as to length, connecting same to eccentric on counter-shaft revolving at half-speed of main crank-shaft.

4. In an explosive-gas motor, a regulating-piston in main cylinder at rear of operative piston, and adjustable means for reciprocating same at various angular positions to main crank-piston, consisting of a loose eccentric-tumbler on counter-shaft, a keyed disk on said counter-shaft and a steady-bolt fitting a series of holes in said disk to effect adjustment of eccentric to fixed disk.

5. In an explosive-gas motor, two explosion-cylinders, each having a trunk-piston, and an auxiliary piston, and means to reciprocate the latter with half as many reciprocations in a given time as the trunk-piston, in combination with a single-acting expansion-cylinder, and connections from the exhaust-port of each explosion-cylinder to the supply-port of the expansion-cylinder.

577,161. **CLOTH-MEASURING MACHINE.** ARTHUR EDWARDS and JOSEPH C. GARTEN, Willow Springs, Mo., assignors of three-fifths to Sebern A. Jones, same place. Filed Mar. 19, 1896. Serial No. 583,941. (No model.)

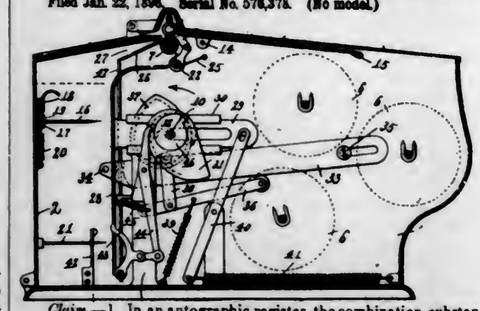


Claim.—1. In a cloth-measuring device of the kind described, the combination with the tape-reel and tension-rollers of the gear and pinion operated by one of said rollers, the crown-gear and pinion, the shifting lever all arranged, substantially as shown and described.

2. In a cloth-measuring device, the combination with the disk having crown-teeth upon its inner face and rigid teeth on the periphery, of the locking-pawl adapted to engage the rigid teeth on the periphery, the spring-actuated shaft upon which said disk is mounted, the indicator-hand upon the outer end of said shaft, the shifting lever, the rock shaft and link connections, the movable shaft and gears connected therewith, and the tape-reeling mechanism operatively connected with the gear upon the outer end of said movable shaft, substantially as shown and described.

3. The combination with the shifting lever of the movable shaft carrying a gear or pinion upon its inner end, and disk having crown and rigid teeth, and locking-pawl adapted to engage the rigid teeth, the rock-shaft having angled ends and the links connecting said shaft with the shifting lever, and the locking-pawl, substantially as shown and described.

577,162. **AUTOGRAPHIC REGISTER.** WILLIAM L. EGRY and THEODOR SCHIRMER, Dayton, Ohio, assignors, by direct and mesne assignments, to the Egry Autographic Register Company, same place. Filed Jan. 22, 1896. Serial No. 576,378. (No model.)



Claim.—1. In an autographic register, the combination, substantially as set forth, with feed-rolls, darts, and a stabbing-plate, of a guide-stem projecting from the stabbing-plate and moving in guides supported by the casing of the register, a shaft geared to the feed-rolls, a cam thereon for operating the stabbing-plate, a pin projecting from the guide-stem engaging said cam, a pivoted bar vibrating past the end of said shaft, a cam on said shaft to vibrate said bar, and a folding-rod carried by the free end of said bar in front of the stabbing-plate.

2. In an autographic register, the combination, substantially as set forth, with feed-rolls, darts, and a stabbing-plate, of a shaft geared to the feed-rolls, a loosely-pivoted vibrating bar, a folding-rod in the free end thereof in front of the stabbing-plate, a vertical guide for the free end of the bar, and cams on said shaft to operate the stabbing-plate and bar, the loose pivotal connection and vertical guide of the vibrating bar insuring perpendicular movement of the folding-bar.

3. In an autographic register, the combination, substantially as set forth, of a lower feed-roll, an upper feed-roll mounted in yielding bearings, a rod parallel with said rolls, arms on said rod, wedges carried by said arms and engaging under the shaft of the upper feed-roll, a spring to retract the wedges, and a handle on said rod.

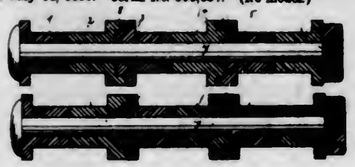
4. In an autographic register, a casing, paper-holding mechanism therein, feed-rolls at the top thereof, one of said rolls having yielding bearings, a tablet having its end adjacent to said rolls hinged to the top of the casing, a main cover also hinged to the casing adjacent to the rolls and closing over said hinged tablet and having an opening over the tablet, and means for slightly separating said rolls, whereby when the main cover is opened and the rolls separated the paper may be readily adjusted to be fed over the tablet and between the rolls, substantially as described.

5. In an autograph-register, the combination with the casing and tablet, of a carbon-paper box outside of the casing provided with a lid, a spring designed to be clamped against the paper by the lid, paper-securing means at the opposite side of the casing, and a main cover designed to coöperate with said securing means and to depress the carbon-paper-box lid, whereby the main cover is caused to indirectly secure the carbon at each side of the tablet.

6. In an autographic register, the combination with a casing, tablet, and carbon-paper box provided with a lid, of a spindle within the box, a spring upon the lid and bearing upon the spindle, a main cover projecting beyond the edge of the lid and designed to depress it, and coöperating studs and sockets carried by the main cover and casing.

7. In an autographic register, the combination with the casing and paper-stabbing mechanism, of sockets, detachable darts thereon, and a spring-actuated latch-bar common to the several detachable darts.

577,163. **WAGON-SPRING.** LAUREN M FITCH, Rome, N. Y. Filed July 11, 1896. Serial No. 598,857. (No model.)

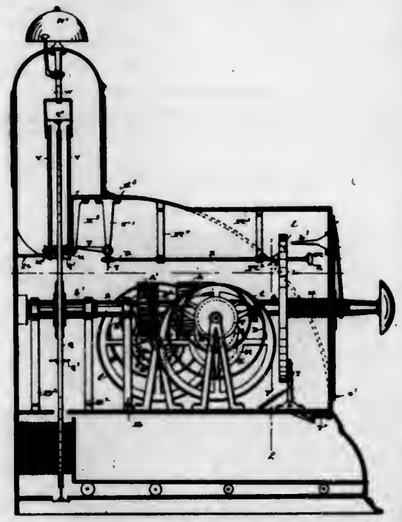


Claim.—1. The combination with a three-part elliptical spring having eyes at respective ends of interlocking bushings between the parts, and a bolt, substantially as set forth.

2. The combination with a three-part elliptical spring having eyes at their respective ends adapted to register with each other, of the interlocking bushings 2 and 3, 4 and 5, and a bolt, substantially as set forth

3. The combination with an elliptical spring having two upwardly-bowing parts, and an intermediate downwardly-bowing part each having eyes at their respective ends, of bushings received in the eyes and interlocking between the intermediate and outside spring parts, and a bolt, substantially as set forth.

577,164. **CASH-REGISTER.** DANIEL W. HARPER, Birmingham, Ala., assignor of one-half to Thomas Ripley Farnsworth and Robert Leedy Matthews, Memphis, Tenn. Filed Aug. 11, 1896. Serial No. 602,448. (No model.)



Claim.—1. A cash-register having a shutter, which is designed to obscure or disclose an indicating-numeral by means of a rotary and reciprocating mechanism which indicates and records a purchase amount, substantially as shown and described.

2. A cash-register having a shutter which is designed to obscure or disclose an indicating-numeral, the said shutter being opened by means of a horizontal movement of a recording-shaft, and closed by a rotary movement of an indicating-dial, substantially as shown.

3. In combination with the shutter described, a dial having a series of peripheral projections, designed to contact with the upper end of the shutter, and a concentric series of projections above the axis of the dial, adapted to strike against a projection near the lower end of the said shutter, substantially as and for the purpose set forth.

4. In a cash-register the combination with a rotary indicating-dial, and means for operating the same, of a shutter pivoted eccentrically to said dial, of a series of cross-pieces about the circumference of the dial, which are adapted to strike against a portion of the shutter and close the same as the dial is rotated in one direction, substantially as shown and described.

5. A shutter, for a cash-register indicating-dial, mounted on brackets to the casing of the register; means as described for closing the shutter, combined with an angle-lever having one of its arms adapted to contact with a projection of the said shutter, its other arm connected to a sliding bar, whereby shutter may be opened as a purchase is made, substantially as described.

6. A shutter, for obscuring a numeral on an indicating-dial of a cash-register, consisting of two V-shaped plates pivoted within the casing of the register; means for tilting said shutter, the upper ends of said plates being connected together with bracket-strips, which as the shutter is tilted are caused to trip a bell-hammer, located in the path of the shutter, substantially as described.

7. A shutter for obscuring a numeral on an indicating-dial of a cash-register, consisting of two plates V having bracket-strips connecting their upper ends, the lower integral arms of the plate curved, and lugs U thereon, substantially as shown and for the purpose set forth.

8. In combination with a shutter as described, an angle-lever adapted to tilt said shutter, and a sliding rod connected to one end of said lever, and means for automatically operating said rod as a purchase is recorded, substantially as set forth.

9. In a shutter-operating mechanism for cash-registers, the combination with the shutter, and angle-lever as described, of the rod R, slidingly mounted in suitable bearings, the said rod connected at one end to said lever the other end having projections R^2, of the disk-wheel L, mounted on a horizontally-movable shaft the said disk adapted to strike against the projections as the shaft is moved backward and forward, substantially as shown.

10. A recording mechanism for a cash-register, consisting of a shaft carrying a cog-wheel having a series of broken teeth thereon, and means for recording a purchase as the said shaft carrying the cog-wheel is moved backward and forward, substantially as shown and described.

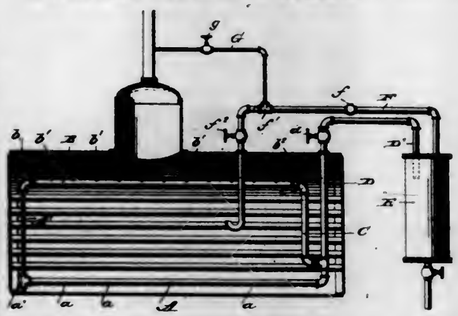
11. A recording mechanism for a cash-register, consisting of a longitudinally-movable shaft, having keyed thereto a cog-wheel, each cog having teeth at right angles to its length, the pinion-wheel mounted at right angles to the axis of said cog-wheel and in the path of the teeth thereon, and means for holding the said shaft from rotating, as it is moved longitudinally, substantially as described.

12. In combination in a cash-register, a shaft carrying an indicating-dial, a revoluble telescoping shaft working said dial-shaft, and having keyed thereto a cog-wheel with broken teeth thereon, and a pinion-wheel, which is connected with recording mechanism, and mounted with the teeth in the path of the said cog-wheel, substantially as described.

13. In combination in a cash-register, a shaft carrying an indicating-dial, a revoluble telescoping shaft working said dial-shaft, and having keyed thereto a cog-wheel with broken teeth thereon, and a pinion-wheel, which is connected with recording mechanism, and mounted with the teeth in the path of the said cog-wheel, and means for preventing the shafts from rotating when moved longitudinally, substantially as described.

14. In a cash-register, the combination with a horizontally and longitudinally movable shaft, a perforated disk mounted thereon of the stationary member L' adapted to register with an aperture in said disk, of the means for automatically operating a shutter and a catch to a money-drawer, as the shaft carrying the said disk, is pulled forward, substantially as described.

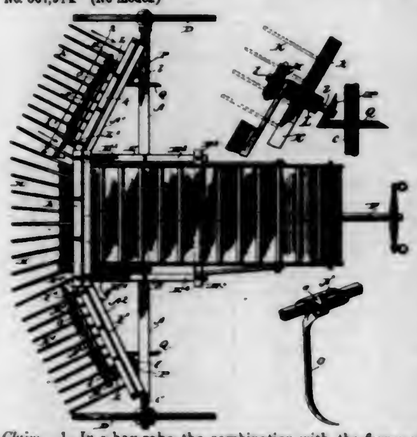
577,165. **BOILER-CLEANER.** PETER A. KIMBURG, Chicago, Ill. Filed Dec. 3, 1896. Serial No. 614,322. (No model.)



Claim.—1. In a boiler-cleaner, the combination, of the perforated pipes A and B supported within the boiler substantially as shown, a pipe D connected to the pipe A, and a pipe C extending from the pipes B to the pipe D to which it is connected adjacent to the pipe A, the pipe D serving to support one end of the pipes A and B; a mud-drum E with which the pipe D communicates, and a pipe F also extending from said mud-drum to a point within the boiler below the pipes B, said pipe F having a check-valve; together with a pipe G which is adapted to take dry steam from the boiler and discharge it within the pipe F, the parts being organized substantially as shown.

2. In a boiler-cleaner, the combination, of a perforated pipe A, a pair of parallel pipes B connected to each other, a vertical pipe D located near one end of the boiler, a pipe C extending from a central extension b^3 of the pipes B B downward and upward to the pipe D at a point adjacent to the pipe A, a support A' connected to the ends of the pipes A and B, said support resting upon the bottom of the boiler, the hereinbefore-mentioned pipe D having a valve; a mud-drum or tank to which the pipe D is connected; together with a pipe F extending from the drum into the boiler, said pipe being provided with a check-valve, and an interposed steam-injector which is connected to the boiler by means of a pipe G, substantially as shown.

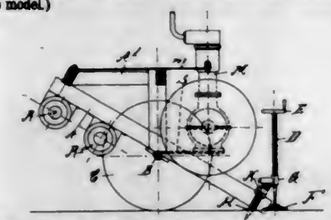
577,166. HAY RAKE AND LOADER COMBINED. WILLIAM S. LOOMIS and SILAS O. PIER, Sycamore, Ill. Filed Nov. 4, 1895. Serial No. 567,914. (No model.)



Claim.—1. In a hay-rake the combination with the frame and drive-shaft, of the elevation, the rear-rake section, the side-rake section arranged at an angle to the rear-rake section, the endless chain of rake-fingers, each finger having a stop *o*, to engage the link of the chain and hold it rigid while moving toward the rear-rake section and means for operatively connecting the said chain with the drive-shaft substantially as shown and described.

2. In a hay-rake, the combination with the frame, and drive-shaft, of an elevator, the rear-rake section, the side-rake section arranged at an angle to the rear-rake section, the endless chain of rake-fingers, each finger having a suitable stop to engage the link of chain, and the shelf upon which said fingers rest when on the back flight and means for operatively connecting the said chain with the drive-shaft substantially as shown and described.

577,167. PORTABLE HYDROCARBON-ENGINE. WILHELM MAYBACH, Cannstadt, Germany. Filed July 11, 1896. Serial No. 598,350. (No model.)



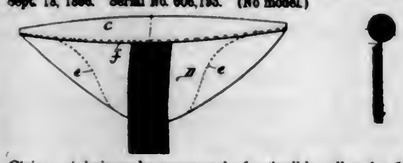
Claim.—1. In a portable hydrocarbon-engine, the combination with the inclinable carriage-frame, and the engine proper carried by said frame, of one wheeled axle supporting the latter; said engine proper being arranged upon the carriage-frame in an inclined position, in such a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said frame, for the purpose as described.

2. In a portable hydrocarbon-engine, the combination with the inclinable carriage-frame, an auxiliary frame arranged upon the latter, springs held by said auxiliary frame, other springs held by said carriage-frame, and the engine proper held by said springs, of one wheeled axle supporting said carriage-frame; said engine proper being held by the said springs in an inclined position, in such a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said carriage-frame, for the purpose as described.

3. In a portable hydrocarbon-engine, the combination with the inclinable carriage-frame, and the engine proper carried by said frame, of one wheeled axle supporting the latter; said engine proper being arranged upon the carriage-frame in an inclined position, in such a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said frame, and means for adjusting the degree of inclination of the latter, for the purpose as described.

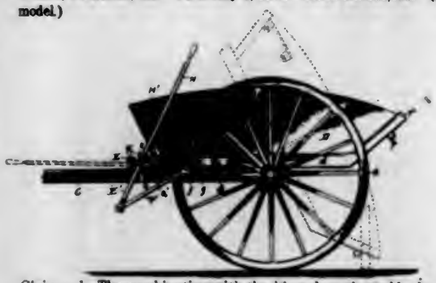
4. In a portable hydrocarbon-engine, the combination with the inclinable carriage-frame, and the engine proper carried by said frame, of one wheeled axle supporting the latter; said engine proper being arranged upon the carriage-frame in an inclined position, in such a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said frame; a nut hinged to the more loaded end of the latter; a threaded spindle held by said nut; a foot-plate attached to said spindle, and means for rotating the latter, for the purpose as described.

577,168. HAIR-CURLER. LAURA W. MERCH, Buffalo, N. Y. Filed Sept. 18, 1896. Serial No. 606,183. (No model.)



Claim.—A hair-curler composed of a flexible roll and a flexible flap or apron attached to the roll and having its side edges retreating from the ends of the roll toward the outer edge of the flap or apron, the end portions of the roll being practically unencumbered by the flap or apron, substantially as set forth.

577,169. DUMPING-CART. CHARLES R. MOSHELY and SCOTT S. WELTY, Frederick, Md. Filed May 2, 1896. Serial No. 589,968. (No model.)



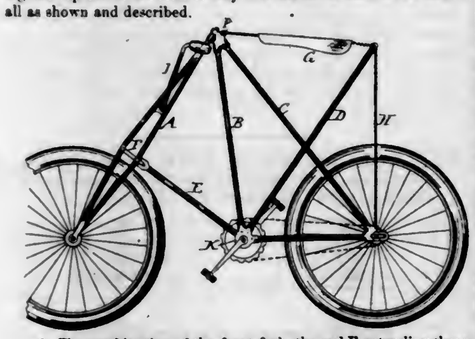
Claim.—1. The combination with the hinged or pivoted body, of the transverse rock-shaft journaled upon the shafts forward of said body, and having a straight downwardly and forwardly projecting arm rigidly secured to each end portion thereof, a link-rod connected at one end to the lower forward end of each of said arms, said rods at their opposite ends having slots which engage studs or the like on the lateral portions of said body, an upwardly-extending actuating-lever attached to said shaft, and locking devices carried by the said rock-shaft independently of the lever and adapted to engage and hold the body in its normal position, said devices being also arranged to engage the shafts when the body is in dumped position and thereby form stops to limit its downward and backward movement, substantially as specified.

2. The combination with the hinged or pivoted body, having the lateral studs forward of the axle, of the transverse rock-shaft journaled on the shaft forward of said body, and having a depending arm at each end, a link-bar connected to each of said arms and having a slotted engagement with one of said studs, the actuating-lever, and the hooks carried by the said rock-shaft and adapted to engage the body to form locks therefor in its normal position and to engage the shafts to form stops for said body in its tilted position, substantially as specified.

3. The combination of the body having the pivoted end-gate, the lateral studs, and the lever lock-plate, of the transverse rock-shaft journaled in bearings on the shafts forward of the said body, and having the depending arms, the link-rods connected to said arms at one end and having slots at their opposite end portions for engagement with the respective studs of the body, the actuating-lever and the locking and stop hooks also carried by the said rock-shaft, substantially as specified.

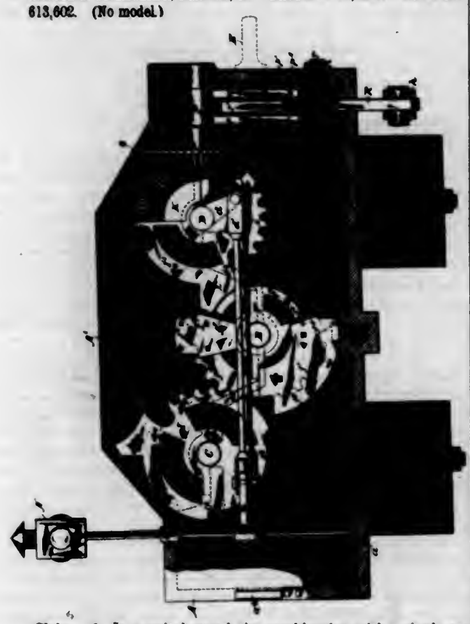
577,170. CYCLE-FRAME. MIKAEL PEDERSEN, Dursley, England. Filed June 1, 1894. Serial No. 513,219. (No model.) Patented in England Sept. 30, 1893, No. 18,371; in Belgium Feb. 28, 1894, No. 108,542; in France May 4, 1894, No. 236,267; in Sweden Dec. 20, 1894, No. 5,708, and in Germany Jan. 21, 1895, No. 79,288.

Claim.—1. In cycle-frames the combination of a fork C whose lower ends are fixed to the rear ends of the rear-wheel fork and a fork or stay D, whose lower end is fixed to the crank-bracket K, crossing each other, the saddle G, being suspended from the top end of the fork C to the top end of the fork or stay D, and the fork or stay B, connecting the top end of the fork C to the lower end of the fork or stay D, the front steering-post with the frame-bar extending therefrom to the crank-bracket, the said rear-wheel fork extending from the crank-bracket to the rear wheel and the fork or cords H, connecting the top end of the fork or stay D to the lower ends of the fork C; all as shown and described.



2. The combination of the front fork, the rod E extending therefrom to the crank-axle bracket, the rear fork extending from the crank-bracket to the rear wheel, the upwardly-extending divergent forks or stays B and D from the crank-axle bracket, the fork C extending between the rear wheel and the top of the front post and the seat suspended between the tops of the forks C and D.

577,171. COMBINED SWITCH AND DISTANT-SIGNAL STAND. GEORGE S. PFLASTERER, Danville, Ill. Filed Nov. 27, 1896. Serial No. 613,602. (No model.)



Claim.—1. In a switch-stand, the combination with a single operating-shaft, of two adjacent shafts, one provided with distant-signal-operating mechanism, and the other with connections to a switch, and segmental gears on the three shafts whereby the operating-shaft is enabled to actuate the others in succession, substantially as described.

2. In a switch-stand, the combination with a single operating-shaft, of a driving-wheel thereon having two quadrant-gears and a smooth peripheral portion, two adjacent shafts, and a driven wheel on each of said two shafts, each wheel having a quadrant-gear, and a lock-segment adapted to coact with the smooth portion of the driving-wheel, substantially as described.

3. In a switch-stand, the combination with a single operating-shaft, and two adjacent shafts, of coacting segmental gears and lock-segments on said shafts, distant-signal connections adapted to be actuated by one shaft, switch mechanism connected with another shaft, a lock-rod connected with the switch, and locking-rims on the operating-shaft to engage with said rod, substantially as described.

4. In a switch-stand, the combination with a single operating-shaft, of two adjacent shafts, distant-signal-operating mechanism adapted to be actuated by one shaft, and switch mechanism connected with the other shaft, and a switch-signal connected with the switch-operating mechanism, substantially as described.

5. In a switch-stand, the combination with an operating-shaft, of a driving-wheel thereon, having a segment-gear with a long tooth at one end and a smooth peripheral portion with a notch at the end adjacent to said long tooth, a shaft provided with operating connections for a signal or switch mechanism, a driven wheel on said shaft having a segment-gear meshing with said gear on the driving-wheel, a lock-segment on said driven wheel having a concave edge adapted to fit the smooth peripheral portion of said driving-wheel, and a deep notch between said lock-segment and the gear-teeth, substantially as described.

6. In a switch-stand, the combination with a single operating-shaft, of a driving-wheel thereon having two segment-gears with a short space between their adjacent ends, a long tooth at their distant ends, a smooth peripheral portion having a notch at each end adjacent to said long teeth, two shafts provided with operating connections for a distant signal and a switch mechanism, respectively, a driven wheel on each shaft, having a segment-gear adapted to mesh with one of the segment-gears on the driving-wheel, a lock-segment on each driven wheel having a concave edge to fit the smooth peripheral portion of the driving-wheel, and a deep notch between said lock-segment and the gear-teeth, said driven wheels being arranged to be actuated successively, substantially as described.

7. In a switch-stand, the combination with a driving-shaft, of two driven shafts, one connected with a distant signal and the other with a switch mechanism, a lock-rod attached to the switch-point, and two locking-rims on the driving-shaft adapted to engage with said rod, one rim being long enough to engage the rod while the distant signal is being set or cleared, and the other rim being short to lock the switch-point open after the switch mechanism has been operated, substantially as described.

8. In a switch-stand, the combination with a driving-wheel, of a lock-rod attached to the switch-point, and two adjustable and reversible locking-rims secured to one side of the driving-wheel, substantially as described.

9. In a switch stand, the combination with a driving-wheel, of two similar driven wheels, a removable and reversible segment bevel-gear secured to one of said driven wheels, and switch-operating mechanism in gear with said bevel-gear, substantially as described.

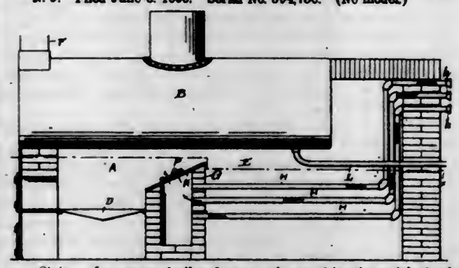
10. In a switch-stand, the combination with a casing A, of three transverse shafts B, C, D journaled therein, segmental gears connecting said shafts, distant-signal connections operated by the shaft C, a switch mechanism operated by the shaft D, a crank *d* on said shaft, a switch-signal N mounted on an upright staff, a crank *n* on said staff, and a rod *d'* connecting the cranks *d* and *n*, substantially as described.

577,172. INSTRUMENT FOR REMOVING MEAT FROM HARD-SHELL CRABS. CHARLES S. PLATT, New York, N. Y. Filed Jan. 30, 1896. Serial No. 577,438. (No model.)



Claim.—As an article of manufacture, an instrument of the kind described, comprising a handle, a concaved body or bowl, terminating in a sharp point, having one side straight and parallel with the axis of the handle, and formed into a scraping edge, as and for the purpose specified.

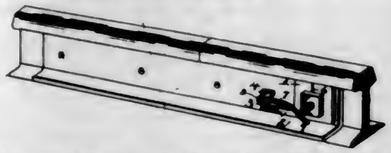
577,173. STEAM-BOILER FURNACE. JOHN PRICE, Trenton, N. J. Filed June 8, 1896. Serial No. 594,730. (No model.)



Claim.—In a steam-boiler furnace, the combination with the fire-bridge having an interior chamber, and an upwardly and rearwardly inclined upper wall provided with an air-discharge opening or openings, and means for controlling such opening or openings, of a plu-

rality of air-conducting flues, whose forward ends open into said chamber, said flues having horizontal portions which extend rearwardly through the lower portion of the combustion-chamber, thence vertically through the rear portion of said chamber, thence horizontally out through the rear wall of said chamber, opposite the rear end of the boiler, and terminate in enlarged open ends, said flues being arranged in superposed series extending substantially the width of the combustion-chamber, and separated from each other both individually and serially.

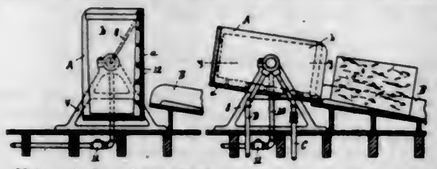
577,174. NUT-LOCK. GEORGE REILLY, Marfa, Tex. Filed Apr. 16, 1896. Serial No. 587,795. (No model.)



Claim.—1. A nut-lock, comprising a lock-body formed of spring material having an opening adapted to receive a bolt and a shank extending from said lock-body, a spindle projecting at right angles to the shank and provided with a head, and a latch having one of its ends coiled to form an eye, said eye encircling the spindle of the shank and having its extremity flattened at one side and lying upon the main portion of said latch in vertical alinement with one side of the same, said flattened side of the extremity being adapted to be pressed against the body to which the lock is applied and held in contact therewith by the shank of the lock-body so as to retain the latch in locked position, and the other end of the latch bent at an obtuse angle to the main portion thereof and normally lying under the nut on the bolt to lock the same, substantially as set forth.

2. A nut-lock, comprising a strip bent at one of its ends to form lock-body having an opening adapted to receive a bolt and a shank extending from said lock-body, a spindle projecting at right angles to the shank and provided with a head, and a latch having one of its ends coiled to form an eye, said eye encircling the spindle of the shank and having its extremity flattened at one side and lying upon the main portion of said latch in vertical alinement with one side of the same, said flattened side of the extremity being adapted to be pressed against the body to which the lock is applied and held in contact therewith by the shank of the lock-body so as to retain the latch in locked position, and the other end of the latch bent at an obtuse angle to the main portion thereof and normally lying under the nut on the bolt to lock the same, substantially as set forth.

577,175. APPARATUS FOR THAWING BLOCKS OF MANUFACTURED ICE FROM MOLDS. ROBERT R. REYNOLDS and BEN M. KIRKER, Cincinnati, Ohio. Filed Oct. 14, 1896. Serial No. 566,692. (No model.)



Claim.—1. In a device for thawing ice from molds, the combination of a tilting receptacle for the mold having a hollow steam-space formed in its inclosing walls, a steam-supply pipe, an exit-pipe leading to a reboiler and communicating with the lowermost portion of the steam-space when the receptacle is tilted into position to discharge the ice, whereby the water of condensation is blown off to the reboiler, a check-valve arranged in the exit-pipe for preventing back pressure from the reboiler, and means operating when the receptacle is turned to an upright position to shut off the supply of steam, substantially as described.

2. In a device for thawing ice from molds, the combination of a tilting receptacle for the mold having a hollow steam-space formed in its inclosing walls, a steam-supply pipe, an exit-pipe leading to a reboiler arranged at a higher lever than the mold-receptacle and communicating with the lowermost portion of the steam-space when the receptacle is tilted into position to discharge the ice, whereby the water of condensation is elevated to the reboiler, and means operating when the receptacle is turned to an upright position to shut off the supply of steam and close the exit-pipe, substantially as described.

3. In a device for thawing ice from molds, the combination with the supporting-brackets 3 4, of the receptacle A having a hollow steam-space formed in its inclosing walls, and mounted on hollow trunnions 1 2 journaled in said brackets, a steam-supply pipe C adapted to alternately communicate with ports 6 and 7 in the hollow trunnion 1, a steam-pipe D communicating with the port 6 and leading to a condenser, an exit-pipe communicating with the steam-space of the receptacle and with the trunnion 2, and a pipe leading from said trunnion to a reboiler, the construction being such that when the receptacle is turned to an inclined position steam is admitted to the steam-space and the water of condensation is conveyed to the reboiler, but when said receptacle is turned to an upright position the exit-pipe is closed and the live steam conveyed directly to the condenser, substantially as described.

577,176. RAILROAD-TIE. JAMES M. ROSENBERGER, Lebanon, Pa., assignor of one-half to Frank Kohler and C. Robert Kohler, Kohler, Pa. Filed Oct. 29, 1896. Serial No. 610,425. (No model.)



Claim.—1. A metallic railroad-tie having dovetailed grooves in its top surface adjacent to its outer ends, and an inverted dovetailed pillar located centrally of each of said grooves, in combination with a rail adapted to rest upon said pillars, and clamping-blocks adapted to slide into said grooves on each side of said rail, substantially as and for the purpose described.

2. A metallic railroad-tie having dovetailed grooves in its top surface adjacent to its outer ends, and an inverted dovetailed pillar located centrally of each of said grooves, in combination with a rail adapted to rest upon said pillars, and clamping-blocks having dovetailed lower ends adapted to fit within said grooves on opposite sides of said pillars and provided with upwardly-extending portions adapted to embrace the web of said rail and with flanges upon their outer ends forming stops for limiting the inward movement thereof, substantially as and for the purpose described.

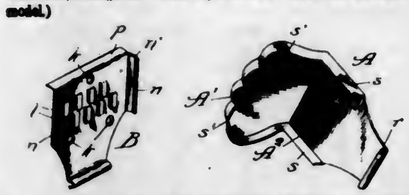
3. A metallic railroad-tie having dovetailed grooves in its top surface adjacent to its outer ends, and an inverted dovetailed pillar located centrally of each of said grooves, in combination with a rail adapted to rest upon said pillars, and clamping-blocks having dovetailed lower ends adapted to fit within said grooves on opposite sides of said pillars and provided with upwardly-extending portions adapted to embrace the web of said rail and with flanges upon their outer ends forming stops for limiting the inward movement thereof, and a spring-stop for preventing the rearward movement of said clamping-blocks when they have once been seated, substantially as and for the purpose described.

4. A railroad-tie having a dovetailed groove in its upper surface, and an inverted dovetailed pillar located centrally of said groove, in combination with the abutting ends of two adjacent rails each having slots or openings in the outer ends of the webs thereof, and a pair of clamping-blocks having dovetailed bases adapted to fit within said groove on opposite sides of said pillar, each provided with an upwardly-extending portion and upon one of which are formed laterally-extending pins or projections adapted to pass through slots or openings in said rails, substantially as and for the purpose described.

5. A railroad-tie having a dovetailed groove in its upper surface, and an inverted dovetailed pillar located centrally of said groove, in combination with the abutting ends of two adjacent rails each having slots or openings in the outer ends of the webs thereof, a pair of clamping-blocks having dovetailed bases adapted to fit within said groove on opposite sides of said pillar, each provided with an upwardly-extending portion and upon one of which are formed laterally-extending pins or projections adapted to pass through the slots or openings in said rails, both provided with flanges upon their outer ends for limiting their inward movement, and means for preventing the outward movement thereof when they have once been seated, substantially as and for the purpose described.

6. A railroad-tie having a dovetailed groove in its upper surface, and an inverted dovetailed pillar located centrally of said groove, in combination with the abutting ends of two adjacent rails, each having slots or openings in the outer ends of the webs thereof, a pair of clamping-blocks having dovetailed bases adapted to fit within said groove on opposite sides of said pillar, each provided with an upwardly-extending portion and upon one of which are formed laterally-extending pins or projections adapted to pass through the openings or slots in said rails, the other of said blocks having notches or recesses therein, and a spring secured to said tie adapted to engage said notch or recess, substantially as and for the purpose described.

577,177. TAILPIECE FOR STRING INSTRUMENTS. DAVID C. SANKEMAN, Chicago, Ill. Filed Sept. 17, 1896. Serial No. 606,165. (No model.)

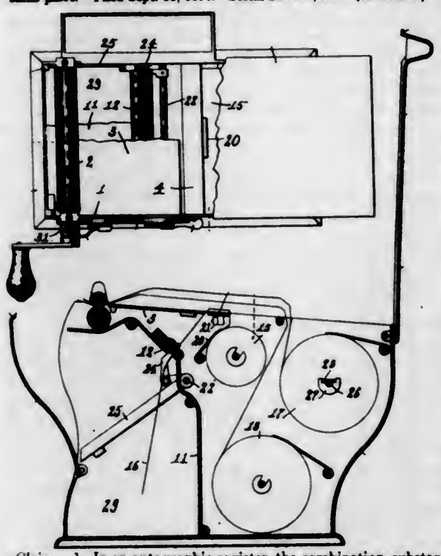


Claim.—1. In a tailpiece for string instruments, the combination of the crown-piece having a downward-extending back provided with lateral clamp-flanges and with a hook-socket at its end, and a bridge-piece provided on its body with hooks for looping the strings thereon and with lateral spring clamping-jaws to engage said back-flanges and terminating at one end in a hook-socket to engage with the hook-socket on said back, substantially as described.

2. In a tailpiece for string instruments, the combination of the crown-piece, having a back provided with lateral clamp-flanges and with a hook-socket at its end, and a bridge-piece provided on its body with hooks for looping the strings thereon and with lateral spring-clamps having longitudinal ridges to engage said back-flanges and terminating at one end in a hook-socket to engage with the hook-socket on said back, substantially as described.

3. In a tailpiece for string instruments, the combination of a crown-piece comprising the top A′ provided with a flange *s*′ and the back-piece A³ having lateral flanges *s* and provided at its lower end with a hook-socket *r*, said flanges meeting to form a brace for the top as shown, a bridge-piece B provided on its body with hooks *l* for loops of the strings, at its sides with backward-projecting flanges *n* provided with ridges *n*′ extending longitudinally thereof, at its top with a forward-projecting flange or bridge *p* and at its lower end with a hook *m* adapted to engage the hook-socket *r*, and means for securing the bridge-piece to the instrument, all combined to operate substantially as and for the purpose set forth.

577,178. AUTOGRAPHIC REGISTER. THEODORE F. SCHIRMER, Dayton, Ohio, assignor to the Egry Autographic Register Company, same place. Filed Sept. 18, 1896. Serial No. 606,285. (No model.)



Claim.—1. In an autographic register, the combination, substantially as set forth, of mechanism within the casing adapted for the spreading of the feed-rolls, a handle exterior to the casing for actuating said mechanism, and an arm moved by said mechanism and projecting as an unyielding obstruction to the casing-door when the feed-rolls are spread.

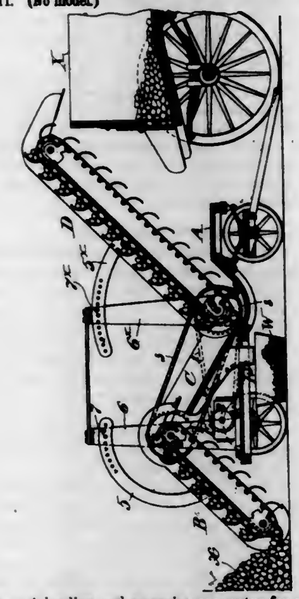
2. In an autographic register, the combination, substantially as set forth, of a pair of feed-rolls, wedges engaging between and adapted by endwise motion in one direction to spread said rolls and to be moved in a reverse direction by the rotation of the rolls, and a handle and connecting mechanism for moving said wedges.

3. In an autographic register, the combination, substantially as set forth, of a feed-roll having a pin projecting from its shaft, a crank removably fitted on said shaft and having a spiral notch engaging said pin and having its hub circumferentially grooved, and a spring seating in said groove.

4. In an autographic register, the combination, substantially as set forth, of a casing, main feed-rolls at the front upper portion thereof, a gapped partition in the casing to the rear of said main feed-rolls, summary feed-rolls at and closing the gap in said partition and connected with the main feed-rolls, a main tablet at the top of the casing to the rear of the main feed-rolls, a summary-tablet at the top of the casing to the rear of and separated from said main tablet, and supports for supply-rolls supported by the casing to the rear of said partition.

5. In an autographic register, the combination, substantially as set forth, of a casing having apertures for the reception of a spindle to be inserted endwise from outside the casing, a half-bearing projecting from one inner wall of the casing below said aperture therein and having ears projecting at each side above the level of the top of such aperture, and a spring-wire extending from one to the other of said ears above said aperture and adapted to impinge tangentially upon a spindle engaging said apertures in the casing.

577,179. LOADING AND SCREENING APPARATUS. WILLIAM O. SHADBOLT, Brooklyn, N. Y. Filed May 19, 1896. Serial No. 592,211. (No model.)



Claim.—A loading and screening apparatus for coal, comprising a wagon to transport the same over uneven ground or surfaces without shock or displacement, a series of conveyers consisting of a rearwardly-inclined lifting-conveyer and a counterbalancing, forwardly-extending delivery-conveyer, an inclined screen between and connecting said conveyers, the adjacent ends of the latter being mounted on journals in different horizontal planes and the conveyers so disposed that they are adapted to swing about said journals in a manner to obtain the greatest possible reach, means for rigidly securing both of said conveyers in position, and a motor connected with said conveyers for driving them, said motor being situated on the wagon in position to preserve the proper balance of the structure and connected with the conveyers in the manner shown whereby the latter are left free for independent adjustment, as set forth.

577,180. LUBRICATOR. JAMES R. STINE, Ogden, Utah. Filed Nov. 14, 1896. Serial No. 612,079. (No model.)

Claim.—1. An oil-cup having a controlling-valve provided with a threaded stem, a latch pivotally mounted upon the stem of the controlling-valve and adapted to engage one of a plurality of notches or kerfs in the upper edge of the cup, said cup being exteriorly threaded, and a cap interiorly threaded to engage the exterior threads of the cup and provided with an interior shoulder to engage the back or upper edge of said latch, the depth of the notches or kerfs in the cup being

approximately equal to the depth of the threaded portion of the cup, whereby when the latch is not seated in one of said notches or kerfs the cap is held from engagement with the threads of the cup, substantially as specified.



2. An oil-cup having a controlling-valve provided with a threaded stem, a latch fulcrumed upon the stem and adapted to engage one of a plurality of notches or kerfs in the upper edge of the cup, and a cap threaded upon the cup to cover said latch, and provided with a shoulder to bear against the back or upper edge of the latch and hold it seated in one of the notches or kerfs, the relative depths of the notches and the threaded portions of the cap and cup being such that when the latch is not seated the cap is held from engagement with the cup, substantially as specified.

577,181. APPARATUS FOR CLEANING KNIVES. KARL A. WENDAHL, Long Island City, N. Y. Filed Oct. 2, 1896. Serial No. 607,641. (No model.)



Claim.—In a cleaning apparatus of the class described, the combination, with the handle device embodying the handle carrying divergent spring-arms provided with spread or enlarged concaved heads and having the adjusting-ring, encircling the stems of said arms, of a wedge-shaped cleaning-block having a transverse groove in its rear wall engaged by the head of the under short arm, the top of said block being engaged by the head of the upper arm, substantially as and for the purpose set forth.

577,182. MANUFACTURE OF ALLOYS OF COPPER AND IRON. AIMÉ F. V. M. BARON, Paris, France, assignor to the Baron Manufacturing Company, of New York. Filed Apr. 22, 1896. Serial No. 588,535. (Specimens.)

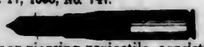
Claim.—1. The process of producing a homogeneous alloy of copper and iron, which consists in subjecting the copper to heat, until it becomes of a cherry or very bright red, and subsequently adding the required quantity of a mixture composed of a resin and oxalic acid, and finally adding the required quantity of iron.

2. The process of producing a solution of iron in copper, which consists in effecting said solution by heat, and in the presence of carbon monoxid, carbon dioxid and water produced by the decomposition of an oxalate or other similar organic salt.

3. The process of producing a homogeneous alloy of copper and iron, which consists in adding to the metals, when subjected to heat, a mixture composed of a resin and an oxalate or other similar organic salt, which on decomposition by heat, evolves carbon monoxid, carbon dioxid and water.

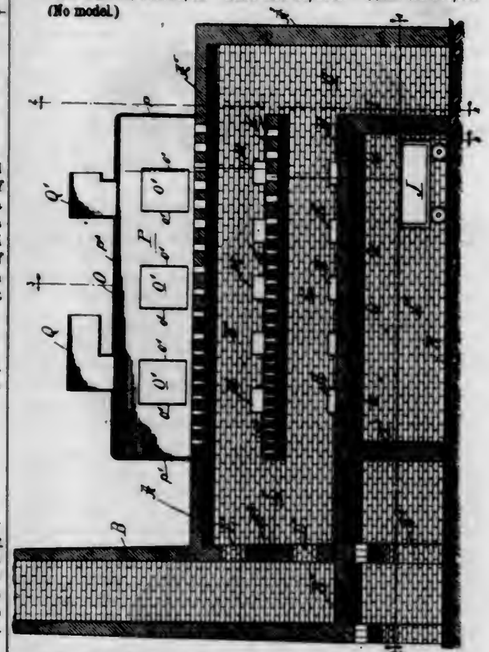
4. The process of producing a homogeneous alloy of copper and iron, which consists in subjecting the copper to heat, until it becomes of a cherry or very bright red, and subsequently adding the required quantity of a mixture composed of a resin and an oxalate or other similar organic salt, which on decomposition by heat evolves carbon monoxid, carbon dioxid and water, and finally adding the required quantity of iron.

577,183. PROJECTILE. HUGO BORCHARDT, Berlin, Germany. Filed July 19, 1895. Serial No. 556,443. (No model.) Patented in Germany June 19, 1895, No. 85,143; in Switzerland July 5, 1895, No. 10,770; in Belgium July 5, 1895, No. 116,447; in Hungary July 6, 1895, No. 5,180; in England July 8, 1895, No. 13,169; in France July 8, 1895, No. 248,743; in Sweden July 10, 1895, No. 6,837; in Norway July 12, 1895, No. 4,399; in Italy July 30, 1895, No. 39,273/60; in Austria Aug. 22, 1895, No. 45/3,931; in Spain Sept. 10, 1895, No. 17,700, and in Denmark Sept. 17, 1895, No. 747.



Claim.—An armor-piercing projectile, consisting of an outer cylindrical or similarly-shaped shell of heavy metal and an externally-smooth central core separably connected to and extending through the said shell, whereby the core can get free of the body of the shell at the moment of impact of the projectile and thereby then act with its full momentum independently of the shell, substantially as described.

577,184. GARBAGE-FURNACE. ERNEST DE LA CHAPELLE and JOHN PEARCE, Ottawa, Ill. Filed Dec. 23, 1895. Serial No. 573,660. (No model.)



Claim.—1. A garbage-furnace comprising an inclosure, a fire-box occupying one end of the inclosure, a horizontal combustion-chamber connected at one end with the fire-box, a compartment extending over the combustion-chamber, forming a drying-chamber having lateral openings for the introduction of waste materials, said combustion-chamber having an apertured, fire-brick top arch, the top of which is horizontal and forms the floor of the drying-chamber, a stack or chimney communicating with the end of the combustion-chamber remote from the fire-box, a flue leading from the top of the drying-chamber to the combustion-space of the fire-box, and means for supplying fuel to said fire-box, substantially as described.

2. A garbage-furnace comprising a fire-box, a plurality of horizontal combustion-chambers each connected at one end with the fire-box, and separated from each other by an apertured fire-brick arch or arches, a stack or chimney communicating with the ends of the combustion-chambers remote from the fire-box, an inclosure forming a drying-chamber extending over the upper combustion-chamber, the top arch of the upper combustion-chamber which forms the floor of the drying-chamber being perforated or of open construction, a flue leading from the said drying-chamber back to the fire-box, and means for supplying fuel to the fire-box, substantially as described.

3. A garbage-furnace comprising a fire-box; a plurality of horizontally-extending combustion-chambers which communicate at one end with the fire-box, and separated from each other by a fire-brick arch or arches of perforated or open construction, a stack or chimney, a compartment or chamber located between the said combustion-chambers and the stack, in open communication with said stack and with said combustion-chambers, an inclosure forming a drying-chamber extending over the upper combustion-chamber, the portion of the top arch of the furnace which constitutes the floor of the drying-chamber, being perforated, a flue leading from the top of the drying-chamber back to the fire-box, and means for supplying fuel to the fire-box, substantially as described.

4. A garbage-furnace comprising a fire-box, a plurality of horizontally-extending combustion-chambers which communicate at one end with the fire-box, and separated from each other by a fire-brick arch or arches of perforated or open construction, a stack or chimney, an inclosure forming a drying-chamber extending over the upper combustion-chamber, the portion of the top arch of the furnace which constitutes the floor of the drying-chamber, being perforated and having the perforations of different sizes in different parts of said floor, a flue leading from the top of the drying-chamber back to the fire-box, and means for supplying fuel to the fire-box, substantially as described.

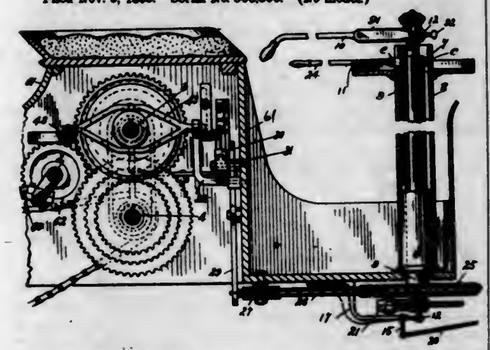
5. A garbage-furnace comprising a fire-box, a plurality of horizontally-extending combustion-chambers, each communicating at one end with the fire-box; a stack or chimney communicating with the ends of the combustion-chambers remote from the fire-box end, said combustion-chambers being separated by an apertured partition, an inclosure forming a drying-chamber extending over the upper combustion-chamber, a part of the top arch of the uppermost combustion-chamber, which forms the floor of said drying-chamber being perforated or of open construction, a burner discharging into the fire-box, and a flue leading from said drying-chamber to the fire-box at the rear of the burner, substantially as described.

6. A garbage-furnace comprising a main inclosure, a fire-box occupying one end thereof, a fuel-burner arranged to extend within said fire-box at the lower part thereof, a plurality of horizontally-extending combustion-chambers, each communicating at one end with the fire-box, a stack or chimney communicating with the said chambers at their ends remote from the fire-box, said combustion-chambers being separated by a horizontal apertured partition, which terminates short of the chimney, the top arch of the upper combustion-chamber being also perforated, an inclosure extending over said perforated top arch and forming a drying-chamber, two upright stacks or flues, located one at each side of the burner, and two flues leading from the top of said drying-chamber to the said upright flues, substantially as described.

7. A garbage-furnace comprising a main inclosure of generally rectangular form, a fire-box occupying one end thereof, an ash-chamber occupying the lower part of said inclosure, two horizontally-extending combustion-chambers located one above the other, each communicating at one end with the fire-box, and separated from each other by a horizontal, apertured partition, the upper one of said chambers having a perforated top arch, a horizontal partition forming the floor of the lower combustion-chamber and separating the latter from the ash-chamber, said floor being provided with a series of ash-holes extending therethrough, doors extending through the walls of the furnace and communicating with the said combustion-chambers, a housing forming a drying-chamber extending over the said top arch of the upper combustion-chamber, an eduction-flue leading from the drying-chamber to the fire-box, and means for supplying fuel to the fire-box, substantially as described.

8. A garbage-furnace comprising a main inclosure of generally rectangular form, a fire-box occupying one end thereof, an ash-chamber occupying the lower part of said inclosure, a combustion-chamber communicating at one end with the fire-box and having a perforated top arch, a horizontal partition forming the floor of the combustion-chamber and separating the latter from the ash-chamber, said floor being provided with a series of ash-holes extending therethrough, doors extending through said walls of the furnace and communicating with the combustion-chamber, a housing forming a drying-chamber extending over said perforated top arch of the upper combustion-chamber, an eduction-flue leading from the drying-chamber to the fire-box, and means for supplying fuel to the fire-box, and car-tracks in the said ash-chamber beneath the said ash-holes in the floor of the combustion-chamber, substantially as described.

577,185. ROAD-VEHICLE. HENRY W. CLAPP, Springfield, Mass. Filed Nov. 9, 1895. Serial No. 568,396. (No model.)



Claim.—1. In a road-vehicle, a non-rotatable forward axle, cylindrical axle-bearings pivoted on said axle, combined with wheels rotating on said bearings, a lever fixed to the inner end of each of said bearings extending therefrom toward a central point between said wheels, a segment fixed on the free end of each of said levers, grooved blocks fixed on said axle under said segments, and receiving in the grooves thereof the edges of said segments, presser-bars moving in said blocks against and from said segments, and means for moving said presser-bars and for imparting a swinging movement to said levers, substantially as set forth.

2. In a road-vehicle, a non-rotatable forward axle, cylindrical axle-bearings pivoted on said axle, combined with wheels rotating on said bearings, a lever fixed to the inner end of each of said bearings extending therefrom toward each other, the segments grooved blocks fixed on said axle under said segments and receiving in the grooves thereof the edges of said segments, presser-bars in said blocks for action against said segments, toggle-levers between the outer ends of said blocks, the hand-lever 10, and connections between said hand-lever and toggle-levers for actuating the same, whereby said presser-blocks are moved, substantially as set forth.

3. In a road-vehicle the combination of the hand-lever 10, an elbow-lever 15, toggle-levers 16, a connecting-rod uniting said elbow-lever and toggle-levers, the presser-bars 13, blocks 18, and the segments 89, substantially as set forth.

4. In a road-vehicle the shafts 3 and 4, combined with a driving-gear 63, having a clutch-cup on one face fixed on shaft 3, by which gear the last-named shaft is driven, a clutch-cup 78, fixed on shaft 4, sprocket-bearing clutch-disks for said cups, a drive-chain engaging said sprockets, a clutch-bar engaging said clutch-disks, and means for moving said bar and disks simultaneously to, and away from said clutch-cups, substantially as set forth.

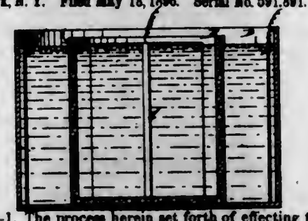
5. In a road-vehicle the shafts 3 and 4, combined with a driving-gear 63, having a clutch-cup on one face fixed on shaft 3, by which gear the last-named shaft is driven, a clutch-cup 78, fixed on shaft 4, sprocket-bearing clutch-disks for said cups, a drive-chain engaging said sprockets, a clutch-bar engaging said clutch-disks, the shipper-lever 29, connected to said clutch-bar, the vertical post 9, the hand-lever 24, thereon, extending toward the seat of the vehicle, a sprocket-wheel on said post, guide-wheels 27 and 28, and a drive-chain carried by said sprocket and guide wheels, engaging with said shipper-lever, substantially as set forth.

6. In a road-vehicle the shaft 3, geared to the crank-shaft, shaft 4, having several gears of differing diameters fixed thereon, combined with clutch devices freely hung on said shaft 3, engaging said several gears, pivoted shipping-levers engaging said several clutch devices, a reciprocally-rotating cam engaging one end of each of said shipping-levers, and means for turning said cams successively, whereby said gears of differing diameters are brought alternately into action, substantially as described.

7. In a road-vehicle the shaft 3, geared to the crank-shaft, shaft 4, having several gears of differing diameters fixed thereon, combined with clutch devices freely hung on said shaft 3, engaging said several gears, pivoted shipping-levers engaging said several clutch devices, a cam engaging one end of each of said shipping-levers, a shipper-bar 30, having posts thereon engaging said cams, whereby reciprocally-rotating movements are imparted thereto, the pivoted shipper-lever 29, engaging said bar, a drive-chain 26, engaging said last-named lever, the vertical post 9, having a sprocket-wheel thereon engaging said chain, and the hand-lever 24, secured to said post, substantially as described.

8. In a road-vehicle the cams 33, 34, and 35, having one or more pins projecting from one side thereof, and a cam-groove 41, on the opposite side, combined with the shipper-bar 30, having the posts 39 and 40, for engagement with said pins, the clutch-shipping levers 42, 43, and 44 engaging in said cam-grooves, the clutch-disks, 45, 46, and 47, engaged by said shipping-levers, the gear-carrying clutch-cups 64, 65, and 66, for engagement with said disks, the shaft 4, having gears of varying diameters fixed thereon engaging with said gear-carrying clutch-cups, the shipper-operating lever 29, the tubular shaft 9, an operating-lever on said shaft, and connections between said shaft 9, for imparting vibratory motions to said shipper-operating lever, substantially as set forth.

577,186. PROCESS OF ELECTRODEPOSITING ALUMINIUM. CALEB G. COLLINS, Woodsburg, N. Y., assignor to Calvin Amory Stevens, New York, N. Y. Filed May 18, 1896. Serial No. 591,891. (No specimens.)



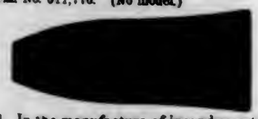
Claim.—1. The process herein set forth of effecting the electro-deposition of aluminium consisting in passing an electric current successively through a positive solution containing a salt of aluminium, a porous partition, and a negative solution containing potash and phosphate of aluminium, substantially in the manner and for the purpose described.

2. The process herein set forth of effecting the electrodeposition of aluminium, consisting in passing an electric current successively through a positive solution containing a salt of aluminium, a porous partition, and a negative solution containing potash, phosphate of aluminium and aqua-ammonia, substantially in the manner and for the purpose described.

3. The process herein set forth of effecting the electrodeposition of aluminium, consisting in passing an electric current successively through a positive solution containing a salt of aluminium, a porous partition, and a negative solution containing potash, phosphate of aluminium, aqua-ammonia, and a derivative of argol, substantially in the manner and for the purpose described.

4. The process herein set forth of effecting the electrodeposition of aluminium, consisting in passing an electric current successively through a positive solution containing sulfate of aluminium, a porous partition, and a negative solution containing potash and phosphate of aluminium, substantially in the manner and for the purpose described.

577,187. MANUFACTURE OF MANTLES FOR INCANDESCENT GAS-BURNERS. LEOPOLD HARTMAN, New York, N. Y. Filed Nov. 11, 1896. Serial No. 611,776. (No model.)



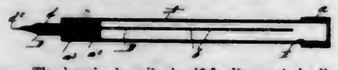
Claim.—1. In the manufacture of incandescent mantles, the step herein described, which consists in impregnating the same as a temporary ingredient, with a solution of guncotton for strengthening and rendering the same elastic, as specified.

2. In the manufacture of incandescent mantles, impregnating the same as a temporary ingredient, with a solution of guncotton in amyl-acetate, for the purpose specified.

3. In the manufacture of incandescent mantles, impregnating the same as a temporary ingredient, with a solution of guncotton and a gum, as white shellac, for the purpose specified.

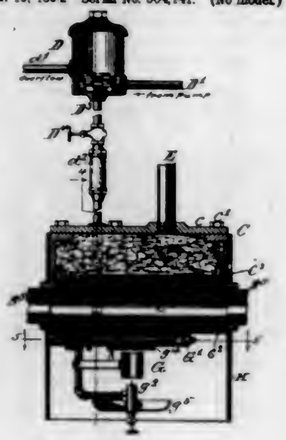
4. As a new article of manufacture, an incandescent mantle, the body of which is impregnated as a temporary ingredient, with a solution of guncotton, substantially as and for the purpose herein described.

577,188. SHADING-PEN. EDGAR S. HEBERT, Hellam, Pa. Filed Apr. 22, 1896. Serial No. 588,622. (No model.)



Claim.—The herein-described self-feeding and shading pen, consisting of a reservoir A, provided on one end with a removable cap *a*, and the passage being closed by a plug a^3, a strip B mounted on said plug and extending into the reservoir, the outer end of said plug being provided with a socket a^2 and a pen D adapted to be secured in said socket, said pen having a longitudinal passage *d*, said strip B being perforated throughout the greater portion of its length as set forth.

577,189. VAPOR-ENGINE. GEORGE W. LEWIS, Chicago, Ill. Filed Mar. 19, 1894. Serial No. 504,141. (No model.)



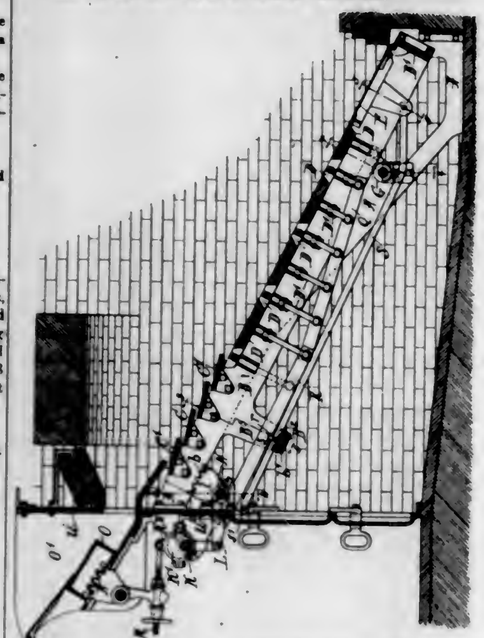
Claim.—1. In combination with a vapor-engine, a vaporizer subject to the heat of the exhaust of the engine, an elevated reservoir for liquid hydrocarbon, a pipe leading from the reservoir to the interior of the vaporizer, a valve in said pipe adapted to allow the liquid to descend therefrom drop by drop into the vaporizer, a burner arranged externally to and in position to heat the vaporizer, and a pump operated by the engine for the supply of liquid to the reservoir.

2. In combination with a vapor-engine, a vaporizing-chamber containing within it, and integral therewith, a section of the exhaust-pipe of the engine, said section of pipe being arranged near the bottom of the vaporizing-chamber, a supply-reservoir having valved connection with the interior of the vaporizer, a pump operated by the engine for the supply of the reservoir, and a burner external to the vaporizer for heating the same.

3. The combination with a vapor-engine, a vaporizing chamber from which air is excluded, and means for heating said chamber of an elevated reservoir for liquid hydrocarbon, connected by a pipe with the interior of the chamber, and a valve in the pipe below the reservoir, whereby in the variation of pressure within the chamber the liquid may descend in minute quantities under the hydraulic head or may be arrested by the pressure in the vaporizer.

4. In combination with a vapor-engine, a vaporizing chamber, means for heating said chamber, an elevated reservoir for liquid hydrocarbon connected by a pipe with the interior of the vaporizing-chamber, and a valve in said pipe arranged beneath a suitable hydraulic head in the pipe and reservoir, whereby, in the variation of pressure in the vaporizing-chamber, the liquid may descend in successive minute quantities under the pressure of the hydraulic head or may be arrested by the pressure in the vaporizer.

577,190. FURNACE-GRATE. HENRY R. LOSSWELL, Chicago, Ill., assignor to the Westinghouse, Church, Kerr & Company, Orange, N. J. Filed Sept. 26, 1894. Serial No. 524,139. (No model.)



Claim.—1. A longitudinally-reciprocatory inclined furnace-grate provided with shaking bars in position to support the incandescent fuel, said shaking bars being movable bodily with the grate, but independently movable thereon, said grate being provided also at its head or receiving end with bars or an equivalent fuel-support having no movement independently of the grate as a whole.

2. A longitudinally-reciprocatory inclined furnace-grate provided with pivoted shaking bars in position to support the incandescent fuel, said shaking bars being movable bodily with the grate, but independently movable thereon, said grate being provided also at its head or receiving end with bars, or an equivalent fuel-support having no movement independently of the grate as a whole, in combination with a connection or connections between points on said shaking bars remote from their pivots, and a relatively stationary part whereby the movement of the grate as a whole results in a shaking movement of said shaking bars.

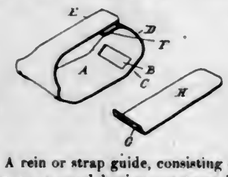
3. An inclined longitudinally-movable grate comprising a fixed section of bars or their equivalent at its upper end, a section of independently-shaking bars located below the fixed section and which move bodily with the grate, and a dumping-grate at the foot or lower end of the main grate, which also moves bodily with the main grate, the entire grate, so composed, having a bodily-reciprocatory movement.

4. A longitudinally-reciprocatory inclined grate provided with a section of shaking bars, and a connection leading from said shaking bars adapted to be engaged with either a stationary part or with an accessory of the grate, respectively to shake or to lock said grate-bars.

5. A longitudinally-reciprocatory inclined grate provided with a section of shaking bars, and a connection leading from said shaking bars and adapted either to engage a stationary part for the purpose of operating said bars, to engage an accessory of the grate for the purpose of locking said bars, or to be disengaged from both whereby said bars may be operated by hand or otherwise independently.

6. In combination with an inclined, longitudinally-reciprocatory grate provided with a series of shaking bars, as D, a link R having notches *r*, *r'*, for respectively engaging movable and stationary parts and also provided with the notch r^2, and a hand-lever, as T, having an arm *t* adapted to engage the notch r^2, and when so engaged, to hold the link clear of engagement at both its notches *r* and *r'*, whereby the shaking bars may be operated independently.

577,191. REIN OR STRAP GUIDE. MARK A. LOWRY, Chelsea, Mich., assignor to Archie W. Wilkinson, same place. Filed Apr. 23, 1896. Serial No. 588,771. (No model.)



Claim.—1. A rein or strap guide, consisting of a strip of metal bent into a loop or eye, and having apertures in its opposite ends near the base through which the securing-strap passes, and a key passing through the apertures and spanning the intermediate space whereby the portions of the strap between the apertures are held in engagement with the base of the loop.

2. A rein or strap guide consisting of a loop or eye formed of a single piece of sheet metal bent into the form desired with overlapping ends, having opposite apertures near the base, and a key substantially as described.

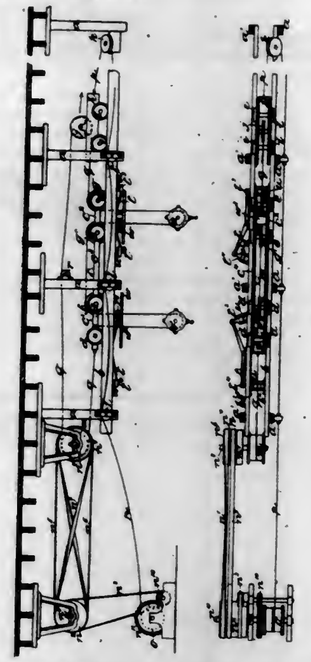
3. A rein or strap guide consisting of a single piece of sheet metal bent to form the base A, inclined base or end sections C having apertures B therein, the ends, and the top, the latter formed by the spring-bar E overlapping the opposite end, and the spring-key H having the finger-piece G, the parts arranged as and for the purpose described.

577,192. CONVEYING APPARATUS. THOMAS S. MILLER, South Orange, N. J. Filed Sept. 12, 1892. Serial No. 445,643. (No model.)

Claim.—1. In a conveying apparatus, in combination, a trackway, a load-carriage traveling thereon, a fall-rope hanging from said load-carriage and extending horizontally to an end of the span, two fall-rope supports below the level of the horizontal portion of said fall-rope, means whereby the same are successively moved out of the way of the vertical part of said fall-rope and a connection between the two whereby the movement of one out of the way throws the other into supporting position below the horizontal portion of said fall-rope, substantially as described.

2. In a conveying apparatus, in combination, a trackway, a load-carriage traveling thereon, a fall-rope hanging from said load-carriage and extending horizontally to an end of the span, two fall-rope supports below the level of the horizontal portion of said fall-rope, means whereby the same are successively moved out of the way of the vertical part of said fall-rope and a connection between the two whereby the movement of one out of the way throws the other into supporting position below the horizontal portion of said fall-rope and a spring in antagonism to which said movement is made substantially as described.

3. In a conveying apparatus, in combination, the two tracks, the load-carriage traveling thereon, a fall-rope hanging from said carriage and extending horizontally to an end of the span, a rocker pivotally supported intermediate its two ends and adapted to rock in a horizontal plane laterally of said tracks, a fall-rope-supporting roller mounted in vertical position upon and moved by each extremity of said rocker below the level of the horizontal portion of said fall-rope and means whereby said rocker is reciprocated as the load-carriage passes, substantially as described.



4. In a conveying apparatus in combination a trackway, a load-carriage traveling thereon, a traveler located at the farther end of said trackway, means whereby said traveler is propelled outwardly, a fall-rope sheave mounted upon said traveler, a sheave at the near end of said trackway, an endless fall-rope supported by said two sheaves and by the load-carriage and forming a loop depending from the load-carriage whereby as the traveler moves out the fall-rope performs the function of hoisting and the fall-block supported by said loop, substantially as described.

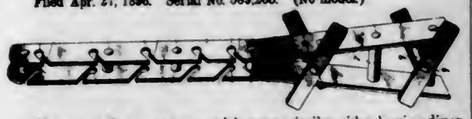
5. In a conveying apparatus in combination, a trackway, a load-carriage traveling thereon and provided with the block w^3 secured between the side frames of the load-carriage, a rope-support adapted to be deflected as the carriage passes and a deflector carried by said carriage; the said deflector being suspended upon a hanger secured to the block w^3 of the load-carriage, substantially as described.

6. In a conveying apparatus in combination, a trackway, a load-carriage running upon said trackway, a traveler running upon said trackway continued, a fall-rope sheave mounted upon said traveler, means for propelling said traveler outwardly, a fall-rope extending from said traveler to said load-carriage below which it forms a loop and thence to the near end of said trackway whereby as the traveler moves out the fall-rope performs the function of hoisting, a fall-block suspended by said loop and means whereby said load-carriage is propelled, substantially as described.

7. In a conveying apparatus in combination, a trackway, two load-carriages traveling thereon, a traveler located at the farther end of said trackway, a fall-rope sheave mounted upon said traveler, means whereby said traveler is propelled outwardly, a fall-rope extending from said traveler to one of said load-carriages below which it forms a loop, thence to the other of said load-carriages below which it forms another loop, thence to the near end of the trackway whereby as the traveler moves out the fall-rope performs the function of hoisting, a fall-block suspended in each of said loops and means whereby said load-carriages are propelled, substantially as described.

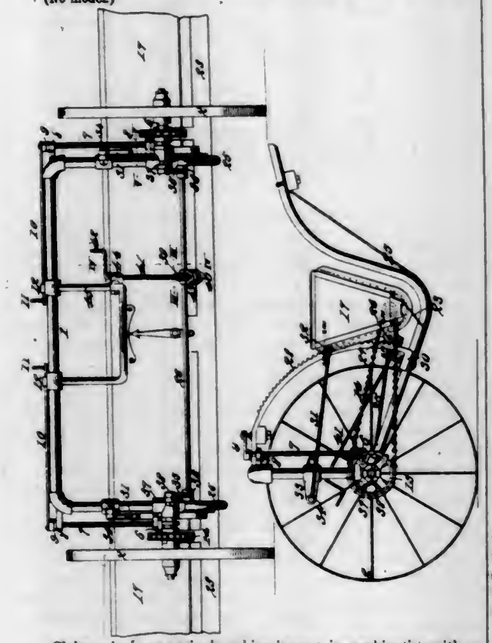
8. In a conveying apparatus in combination, a near-by stationary-rope support, a distant traveling-rope support, a fall-rope sheave mounted upon said support, a trackway extending between said rope-supports, a load-carriage mounted upon said trackway, a rope extending between said rope-supports and forming a loop beneath the load carriage intermediate the two and operating to perform the function of hoisting as the traveling-rope support is moved outward, a fall-block suspended by said loop, means whereby said load-carriage may be propelled and independent means whereby said traveling-rope support may be propelled, substantially as described.

577,193. FENCE-POST. CHARLES J. MILLER, Plymouth, Mich. Filed Apr. 27, 1896. Serial No. 589,265. (No model.)



Claim.—A fence-post comprising two similar sides having diverging lower portions, horizontal fastening devices connecting the sides and arranged at intervals throughout the entire length of the fence-post, spacing-sleeves arranged on the fastening devices and interposed between the sides of the fence-post, said spacing-sleeves gradually increasing in length at the converging portions of the sides to retain the same in proper position, the oppositely-inclined anchor-bars, arranged on the edges of the sides of the post, projecting upward and downward therefrom and capable of vertical adjustment, and the fastening devices connecting the pairs of anchor-bars, passing through the space between the sides of the post and the connecting fastening devices thereof and arranged contiguous to the adjacent spacing-sleeves, whereby the anchor-bars are prevented from slipping downward on the post to retain the latter firmly in the ground and to prevent any accidental withdrawal or lateral movement of the same, substantially as described

577,194. COMBINED AGRICULTURAL IMPLEMENT. LLOYD T. MILLER, Caseyville, Ill. Filed Oct. 3, 1896. Serial No. 607,759. (No model.)



Claim.—1. In an agricultural implement, in combination with an axle and its ground-wheels forming a support, a feed-box, rods connecting said box to said support, and means for raising and lowering the box, whereby the height of the box may be adjusted without changing its upright position, substantially as set forth.

2. In an agricultural implement, in combination with an axle and its ground-wheels forming a support, a feed-box, an upper and a lower pair of rods connecting said box to said support, racks secured to the support, pinions secured to said box and which engage said racks, and means for turning said pinions, substantially as set forth.

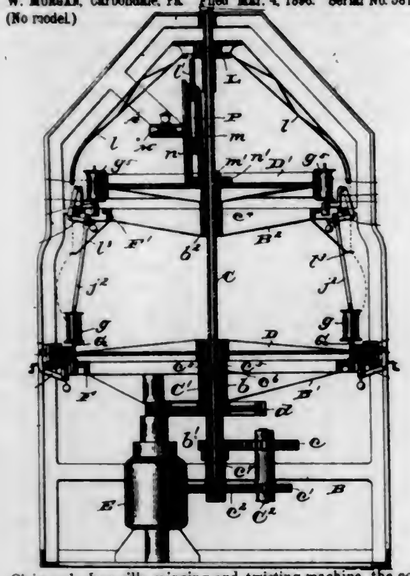
3. In an agricultural implement, in combination with an axle and its ground-wheels forming a support, a feed-box, parallel rods connecting each end of said feed-box to said support, and means for raising and lowering the box, whereby the height of the box may be adjusted without changing its upright position, substantially as set forth.

4. In an agricultural implement, in combination with an axle and its ground wheels forming a support, a feed-box, parallel rods connecting each end of said feed-box to said support, a shaft provided with pinions and carried by said box, a pair of racks with which said pinions engage, a pinion on said shaft, a worm engaging said pinion, and a crank-rod for operating said worm, substantially as and for the purpose set forth.

5. In an agricultural implement, the combination of an arched axle, ground-wheels journaled to said axle and having notched hubs, sliding clutches fitted on said axles and adapted to engage said hubs, sprocket-wheels carried by said clutches, cranks having pins fitting in grooves formed in said clutches, rock-shafts to which said cranks are secured, cranks secured to the upper ends of said rock-shafts, bars secured to the last-mentioned cranks and provided with hand-pieces, a feed-box, and chain belts fitting over said sprocket-wheels and passing around sprocket-wheels secured to the feed-shaft of said box, substantially as and for the purpose set forth.

6. In an agricultural implement, the combination of an arched axle, ground-wheels mounted on said axle, a feed-box, endless chain connecting sprocket-wheels on said axle to sprocket-wheels on the shaft of said feed-box, parallel rods connecting said box to said axle, and means for raising and lowering the box whereby the elevation of the box may be adjusted while not changing its position nor affecting the distance between the sprocket-wheels on the axles and the sprocket-wheels on the shaft of the box, substantially as set forth.

577,195. SILK SPINNING AND TWISTING MACHINE. HENRY W. MORGAN, Carbondale, Pa. Filed Mar. 4, 1896. Serial No. 581,830. (No model.)



Claim.—1. In a silk spinning and twisting machine, the combination with a friction-wheel, of a series of slides set radially of said wheel, spindles mounted upon said slides and means for moving said slides toward the said wheel, each of said slides having a bearing for the spindle, and means independent of said bearing to hold the spindle in contact with said wheel, substantially as described.

2. In a silk spinning and twisting machine the combination with a friction-wheel, of an annular table surrounding said wheel, a series of slides movably mounted on said table radially of said wheel, spindles mounted in said slides, said slides being each provided with an antifriction device supporting a spindle on the side opposite its point of engagement with the friction-wheel, substantially as described.

3. In a silk spinning and twisting machine the combination with the friction-wheel, of a spindle engaging said wheel and antifriction-wheels engaging said spindle and holding it in contact with said friction-wheel, substantially as described.

4. In a silk spinning and twisting machine, the combination with the friction-wheel for driving the spindles, of a spindle engaging said wheel, double antifriction-wheels engaging the spindle above and below the plane of their contact with the driving-wheel, whereby the spindle is held in a vertical position, substantially as described.

5. In a silk spinning and twisting machine, the combination with the friction-wheel, a slide movable radially of said wheel, a spindle mounted in said slide, antifriction-wheels engaging the spindle to hold it in contact with said friction-wheel and mounted on said slide and means for forcing said slide inwardly to bring the spindle in contact with said friction-wheel, substantially as described.

6. In a silk spinning and twisting machine, the combination with the twisting-spindles, of a series of take-up bobbins, a single friction-wheel for operating the take-up bobbins by contact with the body of the bobbin or the silk thereon, each of said bobbins being movable radially to and from the said friction-wheel, a lever and weight for moving each of the bobbins toward the friction-wheel and a device operating upon the said lever to move it away from the wheel, substantially as described.

7. In a silk spinning and twisting machine the combination with the take-up bobbins, of the devices for delivering thread to said bobbins and the traverse-cam for moving the delivery devices a certain distance along the body of the said bobbins and its eccentric to cause the traverse of the delivery devices to cover different portions of the body of the bobbins and means for actuating the same, substantially as described.

8. The combination with the thread-delivery device, of the traverse-cam, the wheel for rotating the same, the connection between them permitting a movement of the cam toward and from the center of its rotation and means for moving said cam radially at each revolution of the same substantially as described.

9. The combination with the thread-delivery device, of the traverse-cam, the gear for rotating said cam, connected therewith to permit a radial motion of the cam, of the gear-wheel for giving a radial movement to said cam, and operative means for said gear-wheels, substantially as described.

10. In a silk spinning and twisting machine, the combination with two annular tables, of a series of twisting-spindles on one table, a series of take-up bobbins on the other table, frictional driving devices for said spindles and bobbins and operative connections between each take-up bobbin and its twisting-spindle whereby the moving of such take-up bobbin out of operative relation with its driving-wheel withdraws its twisting-spindle for its frictional driver, substantially as described.

11. In a silk and spinning twisting machine, the combination of two annular tables, of two friction-wheels, a series of take-up bobbins movably mounted on one table, a series of twisting-spindles movably mounted on the other table, means to maintain each spindle and bobbin in operative relations with its friction-driver, and connections between each take-up bobbin and its twisting-spindle whereby the withdrawal of one from its operative position effects a corresponding movement of the other, substantially as described.

12. In a silk spinning and twisting machine, the combination with a friction-wheel for actuating the twisting-spindle, of the spindle and the slide for carrying the same, of a weighted lever for acting on said slide, of a take-up bobbin, a friction device for rotating said bobbin a slide carrying said bobbin, a weighted lever for maintaining the frictional engagement of said bobbin and means connecting the controlling-lever of the take-up bobbin with the lever controlling the twisting-spindle whereby the withdrawal of one effects the stopping of the other, substantially as described.

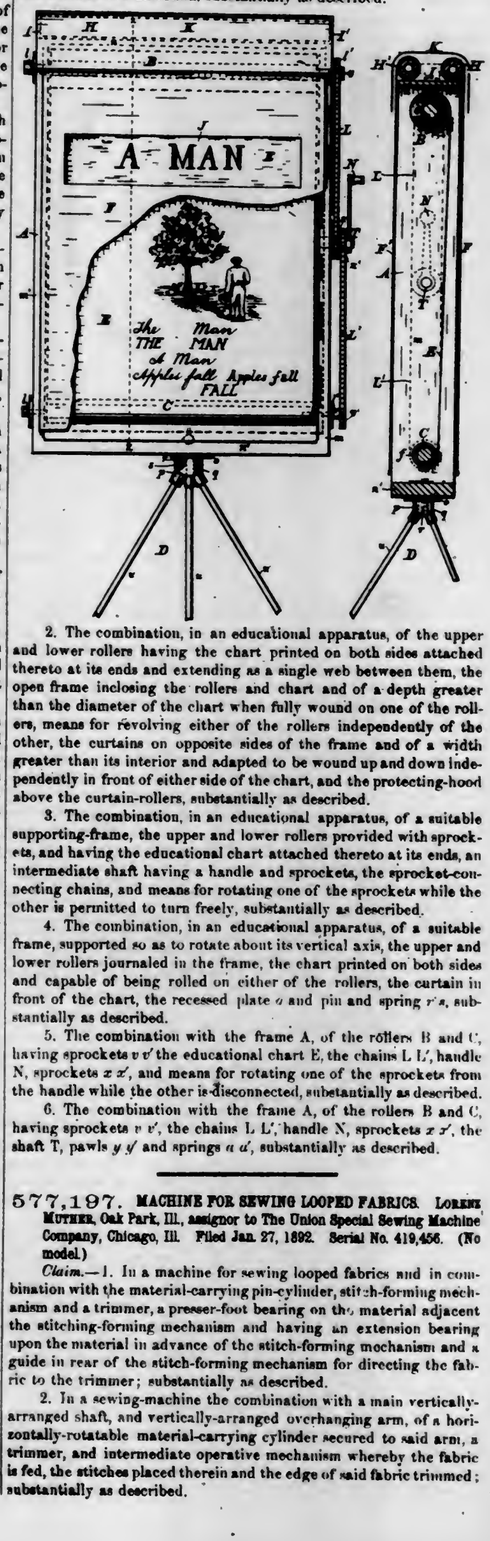
13. In a silk spinning and twisting machine the combination with the frictionally-driven twisting-spindle of a frictionally-driven take-up bobbin, levers for maintaining the frictional engagement of these devices and a link connecting said levers having provision for lost motion, between them, substantially as described.

14. In a silk spinning and twisting machine, the combination with the vertical shaft and friction-wheel mounted thereon, of an annular table surrounding said friction-wheel, twisting-spindles mounted on said table for operation by the friction-wheel, an annular table in a different plane from the spindle-table, take-up bobbins mounted thereon and a friction-wheel for operating the take-up bobbins, substantially as described.

15. In a silk spinning and twisting machine the combination with a friction-wheel, of an annular table surrounding the said wheel, twisting-spindles mounted on said table to slide radially of the same, an annular table in a different plane from the spindle-table, take-up bobbins mounted to slide radially of said table and weighted levers for pressing said spindles and bobbins into engagement with their operating-wheels, substantially as described.

577,196. EDUCATIONAL APPARATUS. SAMUEL P. MOULTHROP, Rochester, N. Y. Filed Sept. 8, 1896. Serial No. 605,108. (No model.)

Claim.—1. The combination, in an educational apparatus, of the upper and lower rollers having the chart printed on both sides attached thereto at its ends and extending as a single web between them, the open frame inclosing the rollers and chart and of a depth greater than the diameter of the chart when fully wound on one of the rollers, the support on which the frame is pivotally sustained so that it may be turned about its vertical axis, means for revolving either of the rollers independently of the other, and the curtains on opposite sides of the frame, wider than the open space of the frame, and adapted to be wound up and down in front of either side of the chart, whereby a part only of either side of the chart may be displayed, and the whole chart may be protected from both sides when the curtains are unwound, substantially as described.



2. The combination, in an educational apparatus, of the upper and lower rollers having the chart printed on both sides attached thereto at its ends and extending as a single web between them, the open frame inclosing the rollers and chart and of a depth greater than the diameter of the chart when fully wound on one of the rollers, means for revolving either of the rollers independently of the other, the curtains on opposite sides of the frame and of a width greater than its interior and adapted to be wound up and down independently in front of either side of the chart, and the protecting-hood above the curtain-rollers, substantially as described.

3. The combination, in an educational apparatus, of a suitable supporting-frame, the upper and lower rollers provided with sprockets, and having the educational chart attached thereto at its ends, an intermediate shaft having a handle and sprockets, the sprocket-connecting chains, and means for rotating one of the sprockets while the other is permitted to turn freely, substantially as described.

4. The combination, in an educational apparatus, of a suitable frame, supported so as to rotate about its vertical axis, the upper and lower rollers journaled in the frame, the chart printed on both sides and capable of being rolled on either of the rollers, the curtain in front of the chart, the recessed plate *a* and pin and spring *r s*, substantially as described.

5. The combination with the frame A, of the rollers B and C, having sprockets *v v'* the educational chart E, the chains L L', handle N, sprockets *x x'*, and means for rotating one of the sprockets from the handle while the other is disconnected, substantially as described.

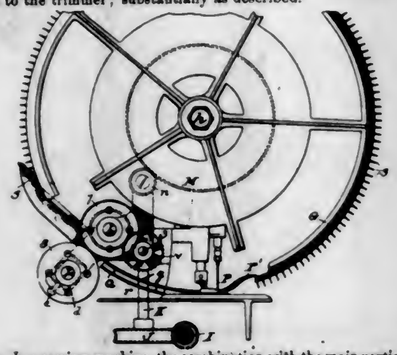
6. The combination with the frame A, of the rollers B and C, having sprockets *v v'*, the chains L L', handle N, sprockets *x x'*, the shaft T, pawls *y y'* and springs *a a'*, substantially as described.

577,197. MACHINE FOR SEWING LOOPED FABRICS. LORENZ MUTHER, Oak Park, Ill., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Jan. 27, 1892. Serial No. 419,456. (No model.)

Claim.—1. In a machine for sewing looped fabrics and in combination with the material-carrying pin-cylinder, stitch-forming mechanism and a trimmer, a presser-foot bearing on the material adjacent the stitching-forming mechanism and having an extension bearing upon the material in advance of the stitch-forming mechanism and a guide in rear of the stitch-forming mechanism for directing the fabric to the trimmer; substantially as described.

2. In a sewing-machine the combination with a main vertically-arranged shaft, and vertically-arranged overhanging arm, of a horizontally-rotatable material-carrying cylinder secured to said arm, a trimmer, and intermediate operative mechanism whereby the fabric is fed, the stitches placed therein and the edge of said fabric trimmed; substantially as described.

3. In a sewing-machine the combination with a main vertically-arranged shaft, and vertically-arranged overhanging arm, of a horizontally-rotatable material-carrying cylinder secured to said arm, a trimmer, suitable intermediate operative mechanism whereby the fabric is fed, the stitches placed therein and the trimmer operated, and a guide for directing the material from the stitch-forming mechanism to the trimmer; substantially as described.

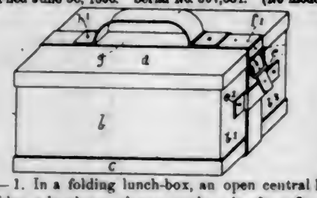


4. In a sewing-machine, the combination with the main vertically-arranged shaft and vertically-arranged overhanging arm, of a horizontally-rotatable material-carrying cylinder secured to said arm, a trimmer, suitable intermediate operative mechanism whereby the fabric is fed, the stitches placed therein and the trimmer operated, and a suitable presser-foot provided with a guide for directing the material from the stitch-forming mechanism to the trimmer; substantially as described.

5. The combination with a main shaft and stitch-forming mechanism of a sewing-machine, of a horizontal rotatable material-carrying cylinder for holding said material in position to be operated upon by the stitch-forming mechanism, a trimmer, suitable intermediate operative mechanism whereby the fabric is fed, the stitches placed therein, and the trimmer operated, and a presser-foot having an extension in front of the needle to guide the goods thereto and being provided also with a guide in rear of said needle to direct the fabric to the trimmer; substantially as described.

6. In the herein-described machine, the bracket A' having the downwardly-projecting portion with the forwardly-projecting lugs one above the other, having openings for the shaft K', the rearwardly and laterally extending projections 4 arranged one above the other and having openings for the shafts *a*, *b*, and an opening for the shaft 3, and having a bearing for one end of the horizontal shaft K; substantially as described.

577,198. FOLDING LUNCH-BOX. JAMES MCFADYEN, Paterson, N. J. Filed June 30, 1896. Serial No. 597,651. (No model.)



Claim.—1. In a folding lunch-box, an open central loose body having its sides and ends tapering upward made of any flexible, tough and durable material, the ends centrally and vertically creased so as to fold inward, each end being provided with a strap-loop, loose top and bottom covers engaging and partly inclosing said central body, and a securing-strap, substantially as specified.

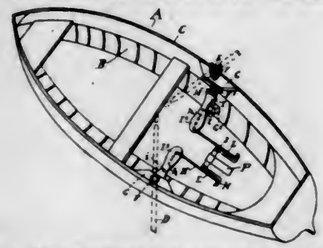
2. In a folding lunch-box, an open central body tapering upward on sides and ends, the corners being flexible, and a vertical crease centrally located in each end to form a bending joint, said corners and central end bending joints being reinforced by a flexible strip on their inner sides, strap-loops secured to each end, a loose top and bottom cover, the said top cover being larger than the bottom cover in length and width, the bottom lid or cover being of such a size that the central body when folded may lie within its tray in combination with a strap and securing-buckle substantially as specified.

577,199. NIPPLE. GEORGE H. NEIDLINGER, Brooklyn, N. Y. Filed Nov. 18, 1895. Serial No. 569,309. (No model.)

Claim.—A soft nipple for nursing-bottles, provided with a perforation at the top adapted to be clasped over the vent of a nursing-bottle, and provided in the inside with ridges curved at the ends in opposite directions, the ridges on opposite sides being arranged to cross each other at an angle, whereby the complete collapse of the nipple is prevented, substantially as described.



577,200. ROWING MECHANISM. JOHN NORDWALL, Seattle, Wash. Filed July 29, 1896. Serial No. 600,998. (No model.)



Claim.—1. The combination with a boat, of the rowlock with a gear-sector thereon, a second gear-sector engaging therewith having a pendent arm, and a swinging treadle, all pivoted in said boat, and a connecting-rod intermediate said arm and treadle, substantially as shown and set forth.

2. In rowing mechanism adapted to utilize the force of the legs, the rowlocks thereof having a gear-sector thereon, in combination with a second gear-sector engaging therewith, having connection with a swinging treadle adapted to rotation by said force, substantially as shown and set forth.

3. The combination of the oar, the rowlock, the swinging hanger pivoted therein, the gear-sector thereon, a second gear-sector engaging therewith and a swinging treadle having connection with said second gear-sector, substantially as shown and set forth.

577,201. CARPET-FASTENER. HENRY OBERJOHANN, Toledo, Ohio. Filed June 29, 1896. Serial No. 597,408. (No model.)



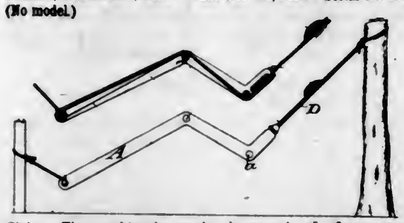
Claim.—In a carpet-fastener, a plate curved in cross-section and provided with a longitudinal groove upon its upper face, said groove being curved longitudinally in the arc of a circle, and a screw having an eccentric head of a size to enter the groove in the plate and engage with the sides of the groove to hold the plate from lateral movement and to engage with the curved bottom of the groove to press the plate downwardly and to prevent longitudinal movement of the plate.

577,202. COMBINED TABLE AND MUSIC-PULPIT. THEODORE J. PALMER, Hackensack, N. J. Filed May 27, 1896. Serial No. 593,271. (No model.)



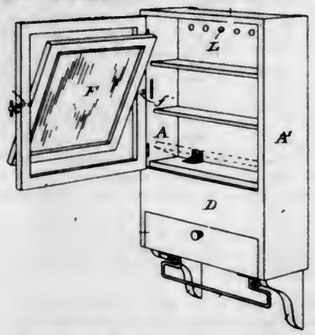
Claim.—The combination, in convertible table and music-pulpit, of a standard or support, a stem adjustable upward and downward in said support, a board pivoted to said stem and adjustable to a horizontal or inclined position, a flap hinged to said board to turn upward or lie flush therewith, and an angular bolt consisting of a stem pivoted to the board parallel with the face thereof and a toe projecting from said stem at an angle thereto for the purpose of securing said flap in its turned-up position, substantially as herein described.

577,203. SEAT ATTACHMENT FOR HAMMOCKS. ISAAC E. PALMER, Middletown, Conn. Filed Dec. 21, 1896. Serial No. 616,400. (No model.)



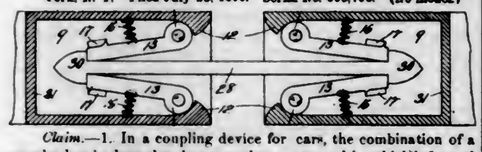
Claim.—The combination with a hammock, of a frame engaged therewith, said frame having bearings so located as to interrupt the natural curve of the hammock-body to form a seat, the said hammock-body after passing around one of the said bearings being folded back and caused to engage another bearing, means for securing the folded-over end of the hammock and suspension-cords engaging the frame for supporting it and the hammock, substantially as set forth.

577,204. WALL-CABINET. DANA A. PATTEN, New York, N. Y., assignor to L. M. Bostwick, same place. Filed May 17, 1895. Serial No. 549,721. (No model.)



Claim.—In a wall-cabinet, a frame containing partitions and means for fastening said frame upon the wall at a distance therefrom, said frame being provided with perforations communicating with the space between the frame and wall; in combination with two independent doors inclosing said frame, the upper door being hinged to the vertical side of said frame and the lower door being hinged horizontally, a mirror pivoted horizontally in said upper door and a protective backing for said mirror, said mirror being so arranged that when said upper door is closed the mirror is protected and inclosed thereby, substantially as described.

577,205. CAR-COUPLING. CHARLES PAYNE and JOHN LYNN, New York, N. Y. Filed July 23, 1896. Serial No. 600,790. (No model.)

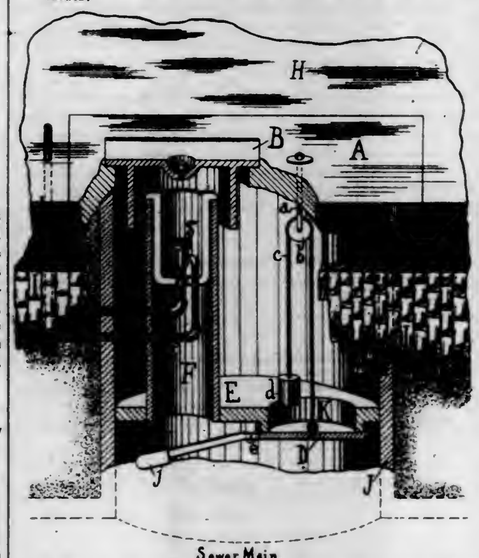


Claim.—1. In a coupling device for cars, the combination of a coupler-head adapted to be secured to a car, and in which is formed a chamber which opens outwardly, dogs pivoted at the sides of the opening in said chamber, the free ends of which are directed inwardly, and spring-operated, said free ends being also provided with upwardly-directed shoulders or projections, and a coupler-bar provided with a head which is adapted to be forced between the free ends of said dogs, and with which said dogs interlock, and means for disconnecting said dogs from the head of the coupler-bar, consisting of a transverse plate or dog having oppositely-beveled ends, and which is mounted on the lower end of a shaft which passes through the cover of the coupler-head, and which is adapted to operate in connection with said upwardly-directed shoulders or projections, said cover being provided in its under side with a transverse chamber or cavity which is adapted to receive said transverse plate or dog, and which is provided at its opposite sides, and near each end thereof, with notches or recesses which are adapted to receive the ends of said plate or dog, substantially as shown and described.

2. The herein-described automatic coupler for cars, which consists of similar coupling heads connected with each end of each car, each coupler-head being provided with a central chamber which opens outwardly, and with a pair of pivoted spring-operated dogs, which project inwardly, and a coupler-bar provided with a head at each end, said heads being adapted to be forced between said dogs, and to be held thereby, and means for releasing said dogs, from said heads, consisting of a vertical shaft which passes through the top of each of the coupler-heads, and which is provided at its lower end with a transverse plate or dog, having beveled ends, and which is adapted to operate in connection with shoulders or projections formed on the dogs which hold the coupler-bars, substantially as shown and described.

3. The herein-described automatic coupler for cars, which consists of similar coupling-heads, connected with each end of each car, said coupling-head being provided with a central chamber which opens outwardly, and with a pair of pivoted spring-operated dogs, which project inwardly, and a coupling-bar provided with a head at each end, said heads being adapted to be forced between said jaws, and to be held thereby, and means for releasing said dogs from said heads when the cars are to be uncoupled, consisting of a vertical shaft which passes through the top of each of the coupler-heads, and which is provided at its lower end with a dog, which operates in connection with shoulders or projections formed on the dogs which hold the coupler-bars, and means for operating said shafts, on which said dogs are mounted, consisting of gear-wheels mounted thereon, and transverse rods or shafts, suitably supported and provided with worm-gears by which said wheels are operated, substantially as shown and described.

577,206. APPARATUS FOR RENDERING SEWER-GAS INNOCUOUS. HARVEY PERRY, Rochester, N. Y., assignor of two-fifths to Harriet E. Perry, same place. Filed Jan. 15, 1896. Serial No. 575,547. (No model.)

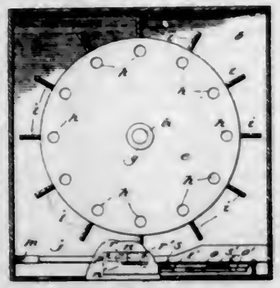


Claim.—1. In a sewage system, a flue extending upward from the sewer and arranged to deliver surface drainage to such sewer, in such flue a diaphragm, in such diaphragm a valve arranged to close automatically when not acted upon by the pressure of a column of water or surface drainage in such flue, in such diaphragm a tube extending upward therefrom and through which the gas escaping from such sewer must pass, and in such tube germ-destroying agencies for rendering innocuous the gas escaping from such sewer.

2. In a sewage system, a flue arranged to deliver surface drainage to a sewer, in such flue a diaphragm, in such diaphragm a valve arranged to open only under the pressure of a column of surface water or drainage and through which all of such surface water or drainage must pass in going to such sewer, means for closing such valve automatically except when operated upon by such a column of surface water or drainage, in such diaphragm also a tube extending upward therefrom, and through which the gas escaping from such sewer

must pass, in such tube means for subjecting the gas escaping upward therethrough to a temperature sufficient to destroy the disease germs resident in such sewer-gas.

577,207. COIN-CONTROLLED VENDING APPARATUS. MARSHALL A. PERSONS, Franklin, N. H., assignor of one-half to Frederick Flanders, same place. Filed June 29, 1896. Serial No. 597,436. (No model.)



Claim.—1. A coin-controlled vending apparatus comprising in its construction a delivery-carrier mounted to rotate in a horizontal plane and having radial pins, a spring for rotating said carrier, an escapement-lever adapted to be operated by the insertion of a coin and provided with two projections alternately movable into the path of movement of said radial pins, and means for discharging an article from the carrier immediately upon the completion of the operation of the escapement.

2. A coin-controlled vending apparatus comprising in its construction a delivery-carrier mounted to rotate in a horizontal plane and having radial pins, a spring for rotating said carrier, an escapement-lever adapted to be operated by the insertion of a coin and provided with two projections alternately movable into the path of movement of said radial pins, an opening in the casing adapted to permit the discharge of an article after the operation of the escapement, and a fraud-preventing coin-chute adapted to deliver a coin to an arm of the escapement.

3. A coin-controlled apparatus comprising in its construction a coin-chute having openings in its side, and springs below and adjacent to said openings, the said springs being adapted to be depressed more or less by the passage of a coin.

4. In a coin-controlled apparatus, the combination with the casing thereof, of the coin-chute *o o'* provided with openings *s s'* the springs *t t'* located below and adjacent to the openings, and the discharge-passage at the lower end of the chute, substantially as described.

5. In a coin-controlled apparatus, the combination with the casing thereof having a coin-slot *n* the lever *r*, one arm of which crosses the slot, of the coin-chute, consisting of the inclined plate *o o'* having pins *p'*, one of which has an arm engaging the lever *r*, the spring *q*, and means for supporting the pins *p'*, substantially as described.

577,208. SEPARABLE BUTTON. EUGENE PRINGLE, Gloversville, N. Y., assignor to Madison D. Shipman, Charles R. Bradt, and Samuel E. Bradt, De Kalb, Ill. Filed Apr. 29, 1896. Serial No. 589,544. (No model.)

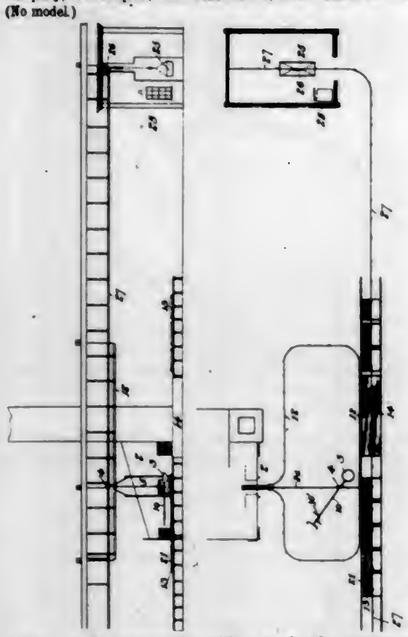


Claim.—1. A stud for separable buttons having an engaging groove, a shoulder below it, an enlarged hollow securing-section below the shoulder, and a base-flange, said stud secured to the material by pressure to crinkle or fold the securing-section between the shoulder and the base-flange, and forming a bead or fold above a washer upon the surface of the fabric, all without altering the length of the engaging end of the stud, as set forth.

2. A stud for separable buttons having an engaging groove, an enlarged hollow securing-section below said groove, a base-flange below said section, a washer encircling the securing-section, said section being crinkled or folded upon itself and upon the washer, thus firmly clamping the stud to the material.

3. A stud having an enlarged hollow securing-section, a base-flange below said section, a washer encircling said section, and the latter crinkled or folded upon the washer, thereby securing the stud to the material, substantially as described.

577,209. APPARATUS FOR CASTING METALS. WILLIAM S. REESE, Natrona, Pa., assignor to the Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. Filed Oct. 3, 1895. Serial No. 564,507. (No model.)



Claim.—1. The combination with a track, of a water-tank beneath a portion only of the same, a wheeled truck movable upon the track, and a tipping mold carried upon the truck, substantially as described.

2. The combination with a track, of a water-tank beneath a portion only of the same, separate wheeled trucks movable upon the track, and tipping molds carried upon the trucks, substantially as described.

3. The combination with a tank, of tipping molds moving horizontally over the same, an overhead track, and a hand-controlled tipping device for the molds suspended from and movable along said track; substantially as described.

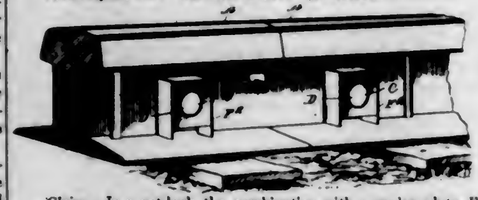
4. The combination with a tank, of a cage therein, a tipping mold movable over the cage, and an overhead track having movable thereon a trolley from which the cage is suspended, substantially as described

5. The combination with a tank, of a cable passing thereover, molds supported independently of the cable but having detachable clamps arranged to grip the same, and means for moving the cable longitudinally, substantially as described.

6. The combination with a track, of a water-tank beneath a portion only of the same, a wheeled truck movable upon the track and having a longitudinal shaft, and a mold loosely pivoted upon the shaft, substantially as described.

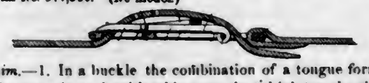
7. The combination with a furnace having a side opening, of a dipping-ladle suspended from an overhead track and arranged to enter the opening and dip metal from the molten bath, a horizontal track adjacent to the overhead track and having molds movable thereon, and a water-tank beneath a portion only of the track: substantially as described.

577,210. NUT-LOCK. HENRY R. SCHURTER, North Decatur, Ga. Filed July 30, 1896. Serial No. 599,888. (No model.)



Claim.—In a nut-lock the combination with a washer-plate, E, having the bolt-holes, E', and the end guides, E², said plate also having an opening, G, of the locking-plate, F, having the slots, F', the sides of which are bent outwardly at F², said plate being adapted to slide in the ways or end guides, E², and provided with an integral tongue, H, adapted to be passed into the opening, G, substantially as shown and described.

577,211. BUCKLE. DAVID P. SKELTON, Scottsborough, Ala., assignor of one-half to R. S. Skelton, same place. Filed Jan. 31, 1896. Serial No. 577,586. (No model.)



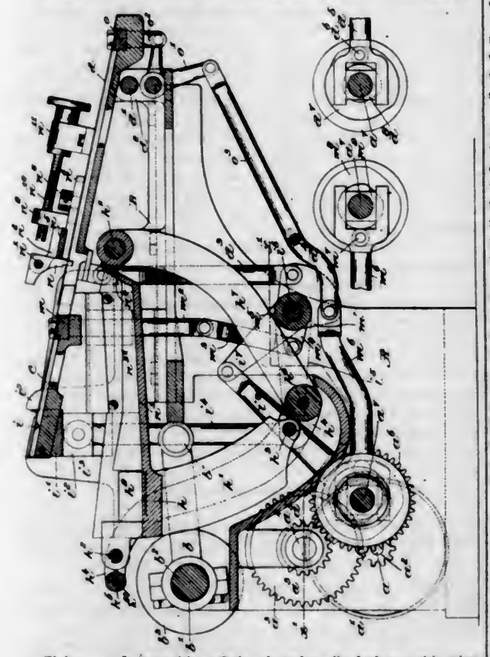
Claim.—1. In a buckle the combination of a tongue formed at a point between its ends with a hinge or pivotal joint, and a ring pivotally connecting the parts of the tongue and adapted to be grasped when it is required to break the joint to disengage the tongue from a strap or part with which it is engaged, substantially as described.

2. A buckle having a tongue jointed between its ends, in combination with a spring having a head fitted in a recess of a part of the tongue, and having the spring overlapping the joint between the parts, substantially as specified.

3. A buckle having a tongue jointed between its ends, the tongue having a recess formed in one of its parts by projections, and a spring overlapping the joint between the parts of the tongue, and having a cross-head which is fitted in the said recess and secured therein by upsetting the projecting parts of the said projections, substantially in the manner shown and described.

4. A buckle comprising a frame, a tongue composed of parts, a ring connecting the parts of the tongue, a spring for stiffening the joint formed between the parts of the tongue and secured to one of the parts, and a brace-bar forming a part of the buckle-frame and coming opposite the joint of the tongue to sustain the latter when in service, substantially in the manner set forth.

577,212. NAIL SELECTING AND DISTRIBUTING MACHINE. CHESTER C. SMALL, Newton, Mass., assignor to James W. Brooks, principal trustee, Petersham, and John Brooks, associate trustee, Cambridge, Mass. Filed Feb. 27, 1896. Serial No. 581,022. (No model.)



Claim.—1. In a machine of the class described, the combination with raceways arranged one near the end of the other in the direction of their length to receive and guide a series of nails, and feeding devices to supply the raceways with nails; of nail-selecting apertures occupying a position in the line of travel of the nails from one to the other of said raceways, into which apertures only those nails which travel head first in said raceways may gravitate and be discharged from said raceways, while those nails traveling point first continue their travel in the said raceways, substantially as described.

2. In a machine of the class described, the combination with raceways arranged one near the end of the other in the direction of their length to receive and guide a series of nails, and feeding devices to supply the raceways with nails; of nail-selecting apertures occupying a position in the line of travel of the nails from one to the other of said raceways, into which apertures only those nails which travel head first in said raceways may gravitate and be discharged from said raceways, while those nails traveling point first continue their travel in the said raceways, and with means to direct the return of the nails entering said apertures into position to be again fed to the raceways, substantially as described.

3. In a machine of the class described, the combination with nail-feeding devices, raceways to receive a series of nails therefrom, and nail-selecting apertures arranged in the line of travel of the nails and into which only those nails which travel head first in said raceways gravitate, to thereby select and separate such nails from those which travel point first in the same raceway, of an inclined wall to reverse the nails entering said apertures, and means to guide the said nails in their return passage to the said feeding devices whereby said nails when again put on the raceway will have their points leading, substantially of described.

4. In a machine of the class described, a hopper to contain nails; a nail-feeding device; raceways to which a series of said nails are fed, and selecting-apertures arranged in the line of travel of the nails and into which only those nails which travel head first down said raceways gravitate to thereby select and separate such nails from those which travel point first on said raceways, combined with return channels or conduits having inclined bottoms and in communication with said apertures, whereby the nails entering said return-channels are returned to be again acted upon by said feeding device, substantially as described.

5. In a machine of the class described, a series of raceways, and nail-selecting apertures arranged in the line of travel of the nails into which only those nails which travel head first on said raceways may gravitate to thereby select and separate such nails from those which travel point first on the said raceways, combined with means to temporarily arrest all the nails traveling down said raceways point first and a second series of raceways and means to effect the transfer of the stopped nails to the second series of raceways down which they continue to travel point first, substantially as described.

6. In a machine of the class described, the combination with a raceway, of a nail-selecting aperture arranged in the line of travel of the nails, and means at will to cause all the nails or those only which travel head first to gravitate into or through said selecting-aperture, substantially as described.

7. In a machine of the class described, the combination with a raceway, of a nail-selecting aperture arranged in the line of travel of the nails, a stop-surface arranged at that side said aperture which is opposite said raceway to stop those nails which travel down the raceway point first before they can gravitate into or through said aperture, while permitting those which come head first to gravitate, and means to move said stop-surface from such operative position to permit the nails which travel point first to also gravitate into or through said aperture, substantially as described.

8. In a machine of the class described, the combination with a raceway, of a nail-selecting aperture arranged in the line of travel of the nails, and a swinging stop-surface arranged in the line of and slightly removed from the end of said raceway, to operate substantially as described.

9. In a machine of the class described, the combination with a raceway, of a nail-selecting aperture arranged in the line of travel of the nails, and a stop-surface arranged in the line of and somewhat removed from the end of said raceway, to operate substantially as described, and means to change the relative position of said raceway end and stop-surface at will for different lengths of nails, substantially as described.

10. In a machine for assorting nails the following instrumentalities, viz: a series of raceways to receive and guide nails with their points and heads arranged indiscriminately; a lifter arranged across the said receiving-raceways near their ends and provided with a series of grooves in line with the raceways each to receive a lowermost nail from one of said raceways, means to raise said lifter to cause it to raise the series of nails lodged on it and permit them to pass to the extremities or delivery ends of said raceways, substantially as described.

11. In a machine of the class described, the combination with a series of main raceways and extension-raceways arranged at a different level; of an interposed lifter provided with a series of transverse grooves to receive nails from the main raceway; a stop to arrest the nails in said lifter; and means to elevate the lifter and carry the series of nails thereon to the level of the said extension-raceways, substantially as described.

12. In a machine of the class described, a raceway, a nail-selecting aperture arranged in the line of travel of the nails into which

those nails which travel head first in the said raceway may gravitate to thereby select and separate such nails from those which travel point foremost into said raceway, combined with a distributing-raceway, and means to insure the lateral transfer thereto of the nails traveling point first, substantially as described.

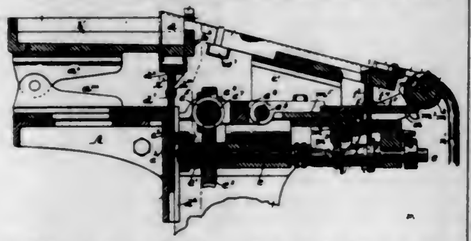
13. In a machine of the class described, the combination with a raceway having a trough-like top to conduct nails, a portion of one side of the trough being removed adjacent the end of said raceway, of a nail-selecting aperture arranged in the line of travel of the nails and into which those nails alone which travel head first in said raceway may gravitate to thereby select and separate such nails from those which travel point first in the same raceway, a second raceway arranged at the side of said first-mentioned raceway, its side wall constituting a wall for said trough at that point or points where the normal wall of said trough is removed, and means to change the relative positions of the said raceways and cause one to disappear below the level of the other to thereby permit a nail carried by one to move transversely upon the other, substantially as described.

14. In a machine of the class described, the combination with a raceway having a longitudinally-grooved top and a secondary lifter having its upper edge tapering downwardly or inclined toward the side of the said raceway, the lifter, when in its lowered position, presenting a trough between its inclined edge and the side of the raceway to receive and hold a nail, of means to move said lifter and cause it to lift a nail or nails to the level of the said raceway to thereby enable the nail or nails lifted by it to move laterally off the inclined top of the lifter into the groove of the raceway, substantially as described.

15. In a machine of the class described, the combination with a pair of raceways having longitudinal grooved tops, of a single lifter arranged between the said raceways and having downwardly-inclined surfaces extending from a middle point at the top of said lifter in opposite directions toward the sides of said raceways, whereby said sides constitute with said downwardly-inclined surfaces, troughs in which to deposit nails, the latter passing transversely from the lifter upon said raceways as the said lifter is raised above the raceway, substantially as described.

16. In a machine of the class described, the combination with a raceway and means to move it to aid in causing the nails to travel in the raceway, of a selecting-aperture arranged in the line of travel of the nails, and into which those nails alone which travel head first in said raceway may gravitate, to thereby select and separate such nails from those which travel point first in said raceway, substantially as described.

577,213. NAIL SELECTING AND DISTRIBUTING MACHINE. CHESTER C. SMALL, Newton, Mass., assignor to James W. Brooks, principal trustee, Peterham, and John Brooks, associate trustee, Cambridge, Mass. Filed Feb. 27, 1896. Serial No. 581,023. (No model.)



Claim.—1. In a machine for assorting nails the following instrumentalities, via: a series of raceways to receive and guide nails; a cooperating nail-controller crossing the delivery ends of said series of raceways and having a series of stop-surfaces and a series of spaces or pockets, one for each of said raceways, and in the line of travel of the nails therein, said stop-surfaces being sufficiently removed from the ends of the raceways to enable those nails which travel head first, owing to the gravity of their heads, to enter said spaces or pockets; and means to move said controller to effect the reversal of the nails in the said spaces or pockets, and the discharge therefrom of the nails reaching it point first, substantially as described.

2. In a machine for assorting nails the following instrumentalities, viz: a series of raceways to receive and guide nails with their points and heads arranged indiscriminately; a cooperating movable nail-controller crossing the delivery ends of the said raceways and having a series of nail-receiving spaces or pockets and a series of stop-surfaces, a space or pocket and a stop-surface for each of said raceways and in line with the travel of the nails thereon, said stop-surfaces being sufficiently removed from the ends of the said raceways to enable those nails which travel head first, owing to the gravity of their heads, to enter said spaces or pockets, and means to move the nail-controller, whereby the nails leaving the raceways head first enter said spaces or pockets, and those point first are arrested temporarily by said stop-surfaces, the movement of the controller effecting the discharge point first of all the nails in contact with it, substantially as described.

3. In a machine for assorting nails, the following instrumentalities, viz: a series of raceways to receive and guide nails with their heads and points arranged indiscriminately, a cooperating movable nail-controller crossing the delivery ends of the said raceways and having a series of stop-surfaces, one for each of said raceways, to arrest the points of the nails descending point first, said stop-surfaces being sufficiently removed from the ends of said raceways to enable those nails which travel head first to drop directly from the raceway owing to the gravity of their heads and before their arrival at said stop-surfaces; and means to move said controller to effect the discharge of the nails stopped by it, substantially as described.

4. In a machine for assorting nails the following instrumentalities, viz: a series of raceways to receive and guide nails with their points and heads arranged indiscriminately; a cooperating movable nail-controller crossing the delivery ends of the said raceways and having a series of nail-receiving spaces or pockets and a series of stop-surfaces, a space or pocket and a stop-surface for each of said raceways and in line with the travel of the nails thereon, said stop-surfaces being sufficiently removed from the ends of the said raceways to enable those nails which travel head first, owing to the gravity of their heads, to enter said spaces or pockets, and means to move the said nail-controller, whereby the nails leaving the raceways head first enter said spaces or pockets and those point first are arrested temporarily by said stop-surfaces, the movement of the controller effecting the discharge point first of all the nails in contact with it, and a series of distributing raceways or tubes to receive said nails, substantially as described.

5. In a machine for assorting nails the following instrumentalities, viz: a series of raceways to receive and guide nails with their points and heads arranged indiscriminately; a lifter arranged across the said receiving-raceways near their ends and provided with a series of grooves in line with the raceways each to receive a lowermost nail from one of said raceways, means to raise said lifter to cause it to raise the series of nails lodged on it and permit them to pass to the extremities or delivery ends of said raceways; a cooperating movable nail-controller crossing the delivery ends of the said raceways and having a series of nail-receiving spaces or pockets and a series of stop-surfaces, a space or pocket and a stop-surface for each of said raceways and in line with the travel of the nails thereon, said stop-surfaces being sufficiently removed from the ends of the said raceways to enable those nails which travel head first, owing to the gravity of their heads, to enter said spaces or pockets, and means to move the said nail-controller, whereby the nails leaving the raceway head first to enter said spaces or pockets and those point first are arrested temporarily by said stop-surfaces, the movement of the controller effecting the discharge point first of all the nails in contact with it, and a series of distributing raceways or tubes to receive said nails, substantially as described.

6. In a machine for assorting nails, a frame-plate, a hopper pivotally mounted thereon and slotted at its bottom, combined with a series of nail-lifters working through the slots in the bottom of the hopper, a jointed slide connected with and to operate said nail-lifters, and a series of raceways upon which the said lifters deposit nails, substantially as described.

7. In a machine of the class described, a raceway having portions at different levels, and an intermediate lifter to convey the nails from one to the other level, combined with a nail-controller located near the end of the higher level of the raceway, and means to rotate said nail-controller to cause the discharge of the nails arriving in contact with it point first into a discharge raceway or tube, substantially as described.

577,214. RESONANT ELECTRIC CIRCUIT. JOHN S. STONE, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed Sept. 10, 1896. Serial No. 605,368. (No model.)

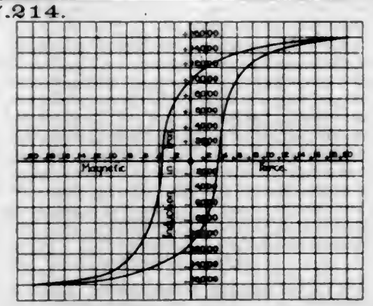
Claim.—1. A resonant electric circuit containing inductance resulting from the magnetization of independently-magnetized paramagnetic material.

2. A resonant electric circuit containing inductance resulting from the magnetization of paramagnetic material independently magnetized by means of an electric current.

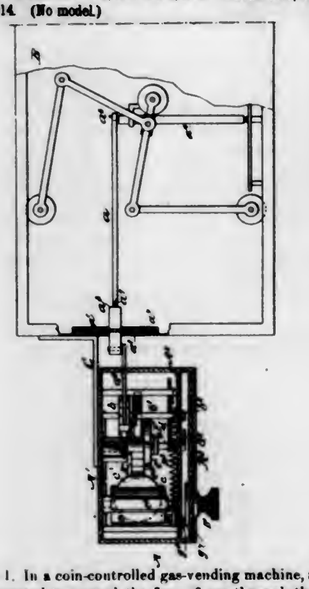
3. In a resonant electric circuit containing an inductance-coil having a core of paramagnetic material, an associated conductive circuit including serially a source of direct current and the said inductance-coil, substantially as described.

4. A resonant electric circuit containing a closed conductive circuit including serially a source of direct current and inductance-coils having a paramagnetic core, substantially as described.

577,214.



577,215. COIN-CONTROLLED GAS OR LIQUID VENDING MACHINE. WESLEY WEBBER, New York, N. Y. Filed Feb. 3, 1896. Serial No. 577,814. (No model.)



Claim.—1. In a coin-controlled gas-vending machine, an escapement-disk arranged to control the flow of gas through the meter, a pallet or let-off device for said escapement-disk and a rod connected to and reciprocated by the mechanism of the meter for operating the said pallet or let-off device, substantially as described.

2. In a coin-controlled gas-vending machine, an escapement-disk arranged to control the flow of gas through the meter, a pallet or let-off device for said escapement-disk, a rod or connection reciprocated by the power of the meter, an intermediate wheel rotated by said rod, a crank or pin operated by said wheel and an arm connecting said crank or pin with the said pallet or let-off device for operating and permitting the same to operate substantially as described.

3. In a coin-controlled gas-vending machine, an escapement-disk arranged to control the flow of gas through the meter, a pallet or let-off device for said escapement-disk, a rod or connection reciprocated by the power of the meter, an intermediate wheel rotated by said rod, a crank or pin operated by said wheel and an elastic or yielding arm connecting said crank or pin with the said pallet or let-off device for operating and permitting the same to operate, substantially as described.

4. In a coin-controlled gas-vending machine, in combination with a coin-slot and a toothed wheel fixed on a shaft and arranged to be operated on the insertion of each coin into the machine, a radial arm affixed to said shaft and arranged to close said slot at a point of said wheel's rotation, substantially as described.

5. In a coin-controlled gas-vending machine, the combination with the meter mechanism and a rod reciprocated thereby of a flexible diaphragm to which said rod is connected, an outside section arranged to be reciprocated with said rod and diaphragm, and an intermediate reducing-wheel arranged to be revolved by said outside section, substantially as and for the purposes described.

6. In a coin-controlled gas-vending machine, the combination with the meter mechanism, a rod reciprocated thereby, a flexible diaphragm, to which said rod is connected, and an outside section arranged to be reciprocated by said rod and diaphragm, of an intermediate reducing-wheel rotated by said outside section, an escapement-disk and a pallet or let-off device therefor and an arm connecting said pallet or let-off device with the said intermediate reducing-wheel, substantially as described.

7. In a coin-controlled gas-vending machine, an escapement disk provided with a valve-operating projection in combination with a valve-rod and crank arranged to be acted upon by the said escapement-disk for opening and closing the valve, substantially as described.

8. In a coin-controlled gas-vending machine, an escapement-disk provided with a valve-operating projection in the form of a curved segment in combination with a valve-rod and crank arranged to be acted upon by the said escapement-disk for opening and closing the valve, substantially as described.

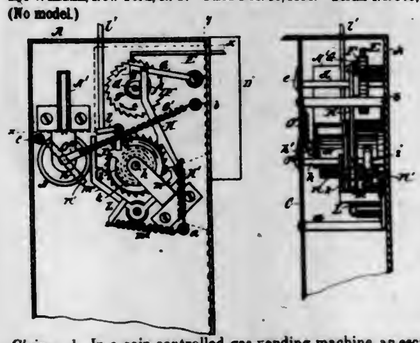
9. In a coin-controlled gas-vending machine, an escapement-disk provided with a stud or shoulder and a bent lever arranged adjacent to said disk, so that the said shoulder will operate the lever, in combination with a valve-rod arranged to be operated by the said lever and a flexible diaphragm held in the service-pipe, and which is secured to said rod, substantially as described.

10. In a coin-controlled gas-vending machine, an escapement-disk E, provided with a projection *e*, a pallet F, operated by the power of the meter, a crank *e'*, a valve-rod e^3 valve H and a flexible diaphragm *h* held in the coupling, in which diaphragm the said rod is held, substantially as described.

11. In a coin-controlled gas-vending machine, the coin-carrier D, formed with a slot *c* and provided with a crank g^3 in combination with a spring for partially turning said carrier and a crank or knob for partially rotating said carrier in opposition to the action of the spring, substantially as described.

12. In a coin-controlled gas-vending machine, a toothed gas-measuring wheel rotated exclusively in one direction by a pawl reciprocated by the mechanism of the meter, a toothed coin-counting and valve-operating escapement-wheel rotated in one direction on the insertion of a coin and in the other direction by a spring, a pallet or let-off device governing the running down of said wheel, and operated by means arranged to be operated by said gas-measuring wheel, substantially as described.

577,216. COIN-CONTROLLED GAS-VENDING MACHINE. WESLEY WEBBER, New York, N. Y. Filed Feb. 19, 1896. Serial No. 579,836. (No model.)



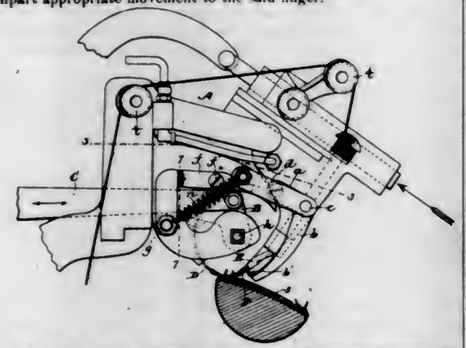
Claim.—1. In a coin-controlled gas-vending machine, an escapement-disk, a pallet arranged to release the same on the insertion of a coin in the machine and a reciprocating engaging rod operated by the power of the meter for turning back said escapement-disk, substantially as described.

2. In a coin-controlled gas-vending machine, a wheel operated by the power of the meter and an escapement-disk operated by the insertion of coins in the machine, a levér and engaging rod in combination with a device for lifting said engaging rod and a spring for returning the same for turning back the escapement-disk, substantially as described.

3. In a coin-controlled gas-vending machine, the combination with an escapement-disk J, and pallet L, arranged to be operated on the insertion of a coin in the machine, of the wheel F, lifting device *f*, spring H', and engaging rod H arranged to be reciprocated laterally by the action of the pallet, substantially as described.

577,217. SEWING-MACHINE. EDWIN A. WEBSTER, Haverhill, Mass., assignor, by mesne assignments, to the Lincoln Sewing Machine Company, Pawtucket, R. I. Filed May 9, 1895. Serial No. 548,680. (No model.)

Claim.—1. In a machine of the character described, the combination with the curved oscillating needle, the arm or lever for operating the same, and the looper in juxtarelation to the needle, of a thread-engaging finger movable into and out of position for engagement with the thread where it extends between the work and the looper, and means actuated by the needle-operating arm or lever to impart appropriate movement to the said finger.



2. In a machine of the character described, the combination with the curved oscillating needle, the arm or lever for operating the same, and the looper in juxtarelation to the needle, of a depending pivoted arm adjacent to the looper and having its lower end formed or provided with a projecting thread-engaging finger, said arm being movable on its pivot in a direction to move its finger into and out of position for engagement with the thread where the latter extends between the work and the looper; and operating connections between the needle-operating arm or lever and the thread-engaging arm whereby to vibrate the latter, substantially as and for the purpose described.

577,218. TEMPORARY BINDER. ANDREW L. WEIS, Toledo, Ohio. Filed Mar. 16, 1896. Serial No. 583,280. (No model.)



Claim.—1. In a temporary binder, a back, rigid keepers secured at each end of the same, binding-bars having an elongated slot in one end through which one of the keepers passes, and a notch at the opposite end to engage the opposite keeper.

2. In a temporary binder, a back, rigid keepers secured at each end of the same, binding-bars having an elongated slot in one end through which one of the keepers passes, a notch in the opposite end to engage the opposite keeper, the slot in the binding-bars being of a length to allow the bars to be moved longitudinally a distance to disengage with the opposite keeper.

3. In a temporary binder, a back provided with longitudinal projecting portions forming recesses or jackets, in combination with binding-bars located in each jacket, rigid end keepers secured to the back at each end, to one of which one end of the binding-bars is movably secured, the opposite ends having notches upon their upper edges to engage the opposite keeper and held in engagement therewith by the upward pressure exerted by the matter engaged by the bars.

577,219. HARMONICA. CHRISTIAN WEISS, Jr., Trossingen, Germany. Filed May 28, 1896. Serial No. 593,475. (No model.)



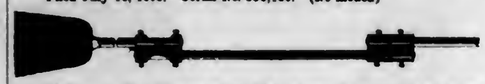
Claim.—1. In combination in a harmonica, the body portion, the reeds and the casing and a sound-deflecting plate extending from the rear of the harmonica and across the sound-emission openings in the casing, substantially as described.

2. In combination in a harmonica, the body portion, the reeds, the casing having sound-emission openings, and a sound-deflecting plate secured to the body at its central rear portion and having portions extending in opposite directions across the sound-emission openings, substantially as described.

3. In combination in a harmonica, the body portion, the casing and the deflector secured to the casing by a slot and screw at one end and by a detachable pivotal connection at the other end.

4. In combination in a harmonica, the body portion, the casing, and the deflector having one end secured to the body portion by a pin and slot and having its other end secured by a staple, substantially as described.

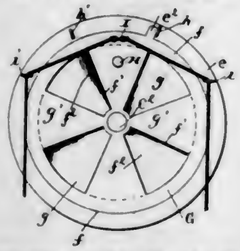
577,220. EXTENSIBLE BROOM-HANDLE. THOMAS P. WHITEHEAD, Shreveport, La., assignor of one-half to J. D. Lee, same place. Filed July 16, 1895. Serial No. 556,169. (No model.)



Claim.—1. The herein-described implement, comprising a coupling having longitudinal bores extending in parallel relation and formed with a longitudinal opening in the part intermediate of the said bores, a hook detachably fitted in said opening, binding-screws to project into the bores, and a handle secured in one of said bores, substantially as set forth.

2. The herein-described implement, comprising a coupling having longitudinal bores extending in parallel relation and formed with a longitudinal opening in the part intermediate of the said bores, a hook detachably fitted in said opening, binding-screws to project into the bores, a handle secured in one of said bores, a second or extension handle, and couplings connecting the adjacent ends of said handles, substantially as described.

577,221. VENTILATOR. SOLOMON S. WILLIAMS, Altoona, Kans. Filed July 18, 1896. Serial No. 599,691. (No model.)



Claim.—A ventilator comprising the cylindrical thimble A having integral ribs a' a', external flange a, recess a^3, and rigid diaphragm B having radial openings b, and the cylindrical sleeve E having guide-grooves e e, external flange e', and integral diaphragm F having radial openings f and circular orifice a, the flange e' being provided with integral stops h h', in combination with the screw-shaft C, formed with the square collar c^4 having shoulder c^5 and the nut c' having square collar c^6 and shoulder c^7, the circular valve D having radial openings d, and a central square hole d^3 through which the square collar c^6 of the nut c' passes, and the valve G having radial openings g, the lug c^3, and the central square hole g^3 through which the square collar c^6 of the shaft passes, substantially as shown and described.

577,222. CORNER SCAFFOLD-BRACKET. SAMUEL F. WRAY Elwood, Ind. Filed May 22, 1896. Serial No. 592,566. (No model.)

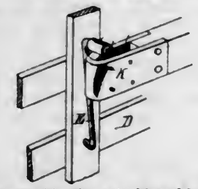


Claim.—1. A corner-bracket for scaffolding comprising the combination of an angle-iron provided with an aperture at its bend, brackets connected to the portions of the angle-iron, and a lag-screw adapted for reception in the aperture of the angle-iron.

2. The combination with the corner-post of a scaffold, of a bracket therefor comprising the combination of an angle-iron, brackets connected to the angle-iron, and a lag-screw provided with a crank and adapted to hold the angle-iron in position, substantially as described.

3. A corner-bracket for scaffolding, comprising the combination of an angle-iron, bent-up metal straps connected to the portions of the angle-iron and which constitute pockets in connection therewith, brackets provided with hooks adapted for reception in the pockets, and means for fastening the angle-iron in position.

577,223. GATE. GUSTAVUS BARTON, Memphis, Mich. Filed June 29, 1896. Serial No. 597,392. (No model.)



Claim.—1. The combination of a hinged bracket, a gate, a link having at one end a horizontally-projecting portion by which it is pivoted to the bracket, and having at the other end a horizontal projecting portion by which it is pivoted to the gate at or near its middle.

2. The combination of a hinged bracket, a link having oppositely-projecting pivots at right angles with the same by one of which it is connected to the bracket, near its end, and a gate suspended near its middle on the remaining pivot.

3. The combination of a hinged gate-bracket, a link pivoted to the bracket horizontally, and a gate having a horizontal pivotal connection with said link, and a post with which a part of the gate engages, the pivoted link causing the gate to be retained in engagement with the keeper by gravity.

4. The combination of a hinged gate-bracket extending substantially to the middle of the gateway, a gate, a link having a horizontal and vertical swivel connection with the bracket, and a pivotal connection with the gate and adapted to be swung to support the gate in different vertical positions.

5. The combination of a hinged gate-bracket extending substantially to the middle of the gateway, a link, a swiveled pin on the end of the bracket in which said link is horizontally pivoted, a gate horizontally secured on the lower end of the link said link adapted to be swung to support the gate in different vertical positions, and retainers for both ends of the gate, one on the gate-post and one on the bracket.

6. The combination of a hinged gate-bracket extending substantially to the middle of the gateway, a link having a horizontal and vertical swivel connection with the end of the bracket, a gate pivoted at its middle to the link and adapted to swing with and be supported by said link in different vertical positions, retainers for the inner end of the gate on both sides of the bracket, and a gate-post having a retainer with which either end of the gate may engage.

7. The combination with the gate-posts, of a gate-bracket hinged to one and extending to substantially midway between the posts, a gate, a link suspended from the bracket to which the gate is pivoted, the link being free to swing upward or downward from the bracket, and a stop on the gate with which the link engages in its upward position to hold it from falling, substantially as described.

8. The combination with the gate-posts, of a gate-bracket hinged to one and extending to substantially midway between the posts, a gate, a link suspended from the bracket and to which the gate is pivoted, the link being free to swing upward or downward from the support on the bracket, and a longitudinal adjustment for the link-support on the bracket.

577,224. COMBINATION-CULTIVATOR. ARTHUR M. BERNARD and DAVID C. KNIGHT, New Iberia, La. Filed July 25, 1896. Serial No. 600,568. (No model.)

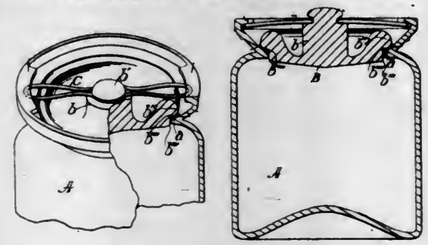
Claim.—1. A cultivator comprising a runner or slide, grooved in its under face, having a point attached at its front end, moldboards pivoted at their front ends to the point, and connected at their rear ends by bars to a lever for adjusting them inward, outward and upward, and a presser-foot passing through the runner and connected to a lever for operating it, substantially as described.

2. A convertible implement for cultivating plants, consisting of a runner, having a groove in its under side, wings provided with moldboards, cultivator-teeth and harrows for detachable connection to the runner, a rock-shaft pivoted to supports on the runner, and connected to the wings, and levers for adjusting the wings, substantially as described.



3. A cultivator consisting of a runner having a grooved under face, a presser-foot passing through an aperture in the runner and having a spring surrounding its shank for keeping it normally in its upper position, a lever connected to the shank of the presser-foot above the spring for depressing the foot, and movable wings attached to the runner and adjustable by levers, substantially as described.

577,225. FRUIT-JAR. STEPHEN S. BLACK, Pasadena, Cal. Filed Oct. 4, 1895. Serial No. 564,586. (No model.)



Claim.—1. The cover provided with the centrally-arranged flanged pivot, and the hub provided with a pivotal offset equal in diameter to the flange of the pivot; the cross-bar having a central opening fitted on the pivotal offset; and the cross-bar formed of a wire bent upon itself to form a link open at one end and having its members bent intermediately and clasped upon the pivot between the other cross-bar and the flange of the pivot.

2. In a fruit-jar having the oppositely-arranged fastening-lugs and the cover provided with the central hub and pivot; the cross-bar formed of a wire bent upon itself to form a link open at one end and having its members bent intermediately to form a clasp for the pivot substantially as set forth.

3. The combination of the jar provided with a plurality of sets of oppositely-arranged inwardly-projecting lugs; a cover provided with a centrally-arranged hub and flanged pivot; a cross-bar provided with a central opening to fit over the pivot and upon the hub; and the cross-bar made of spring-wire formed in a link and having its members provided respectively with an intermediate bend to clasp the pivot and fitted between the other cross-bar and the flange of the pivot substantially as set forth.

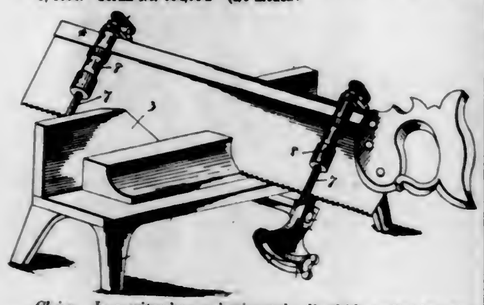
4. The combination of the jar provided with a plurality of sets of oppositely-arranged inwardly-projecting lugs; a cover provided with a centrally-arranged hub and flanged pivot; a cross-bar provided with a central opening to fit over the pivot and upon the hub and provided with the upwardly-projecting lugs; and the cross-bar made of spring-wire formed in a link and having its members provided respectively with an intermediate bend to clasp the pivot and fitted between the other cross-bar and the flange of the pivot substantially as set forth.

577,226. JACK FOR REMOVING JOURNAL BEARINGS OR BRASSES FROM AXLE-BOXES. ALBERT B. BLY, Ottumwa, Iowa. Filed July 20, 1896. Serial No. 599,369. (No model.)



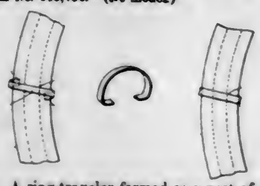
Claim.—A jack comprising a stock provided at its lower portion with an interiorly-threaded opening or socket and having its upper end tapered and provided with a groove for engaging an axle-box or a tie-bar at the bottom thereof, the adjusting-screw fitting in the longitudinal socket or opening of the stock and provided at its lower end with a socket, a removable conical point forming the bottom of the jack, adapted to engage the recess of a car-wheel and provided with a shank fitting in the socket of the lower end of the screw, and means for securing the shank in the socket of the screw, substantially as described.

577,227. MITER-BOX. THOMAS BOLIG, Bellevue, Ohio. Filed Sept. 5, 1896. Serial No. 604,934. (No model.)



Claim.—In a miter-box, a horizontal adjustable radial bar pivotally mounted to a bed-plate and carrying, parallel to itself in journals supported from both ends, a bar radially adjustable mounted with saw-guides and vertically-adjustable saw-rollers to gage the depth of cut vertically, a sectant with a set-screw mounted upon the face to the bar carrying the standards for radial adjustment.

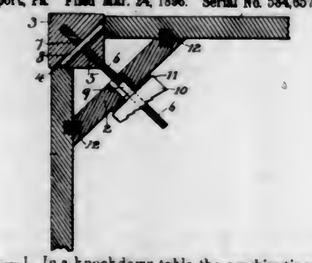
577,228. RING-TRAVELER. JOHN BOOTH, Central Falls, R. I., assignor of one-half to Charles D. Wood, Lincoln, R. I. Filed Dec. 15, 1896. Serial No. 615,756. (No model.)



Claim.—1. A ring-traveler formed as a part of a helical convolution, the end portions of which are bent within the circle of the helix.

2. A ring-traveler having its end portions arranged substantially parallel with each other, in different planes, the said planes being oblique to the plane of the body portion of the traveler.

577,229. FASTENING FOR TABLE-LEGS. WILLIAM BOSCH, Williamsport, Pa. Filed Mar. 24, 1896. Serial No. 584,657. (No model.)

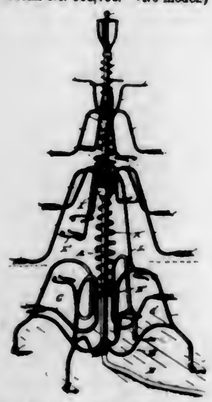


Claim.—1. In a knockdown table the combination with the side pieces of the table-frame, the ends of said side pieces cut away to permit the leg of the table to rest against said ends, of a diagonal brace joined at each of its ends to said side pieces by means of a tongue secured in grooves in said side pieces and the ends of said brace and having an aperture therethrough intermediate of said ends, a slotted bolt secured at its inner end in a recess in said leg by a removable pin placed diagonally in said leg and through an aperture in said bolt, the outer end of said bolt passing through the aperture in said brace and provided with a notched wedge to engage with the outer wall of a slot in said bolt and rest in contact with said brace, substantially as shown and described.

2. In a knockdown table the combination with the ends of the side pieces of the table-frame, the leg of the table interposed between said ends, of a diagonal brace secured at each of its ends by means of a tongue secured in grooves in the ends of said brace and in grooves in said side pieces and having an aperture intermediate of its ends thereof, a slotted bolt secured in a recess in said leg by a removable pin passing through said bolt and diagonally through said leg, the outer end of said bolt passing through the aperture in said brace; a wedge passing through a slot in said bolt and its inner edge supported by said brace, substantially as shown and described.

3. In a knockdown-table frame, the combination with the side pieces of said frame, of a diagonal brace 2 joined at its ends by a tongue secured in grooves in said side pieces and in the ends of said brace to said side pieces, the leg 3 provided with the diagonal aperture 4 therethrough and the diagonal aperture 5 therein, the perforated bolt 6 resting in said aperture 5 and pivoted therein by a pin 8 passing through the aperture 7 in said perforated bolt 6 and the said aperture 4 in said leg 3, the opposite end of said perforated bolt 6, passing through the aperture 13 in said diagonal brace 2, a slot 9 in the outer end of said bolt adapted to receive the wedge or key 10 provided with teeth to engage in said slot and secure said leg 3 in the corner of said table-frame, substantially as shown and described.

577,230. FOUNTAIN FLOWER-STAND. CALVIN C. BOYD, Harlansburg, Pa., assignor of one-half to J. H. Pizor, Jacksville, Pa. Filed Oct. 13, 1896. Serial No. 608,706. (No model.)



Claim.—1. In a flower-stand, the combination with a tubular standard adapted to have a hose-pipe attached thereto, and the spray-nozzle to the upper end thereof, of the supporting-legs and the bracket-arms having rests at their outer ends, substantially as shown and described.

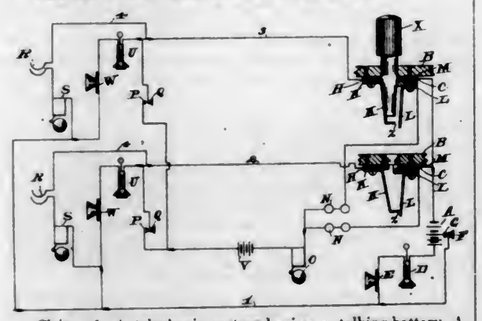
2. In a flower-stand, the combination with a tubular standard having a spray-nozzle at the upper end thereof, of the supporting-legs, the collars mounted upon the tubular standard, and the bracket-arms attached to said collars, having rests in their outer ends, substantially as shown and described.

3. In a flower-stand, the combination with the tubular standard, of the supporting-legs attached thereto, the upper ends of said legs being bent upward to provide bracket-arms and having rests at their outer ends, collars mounted upon the tubular standard, and bracket-arms attached to said collars and having rests at their outer ends, substantially as shown and described.

4. In a flower-stand, the combination with the tubular standard, of the supporting-legs having the integral bracket-arms provided with rests at their outer ends, the supporting-springs surrounding the standard, the collars resting upon said springs, the detachable bracket-arms having rests at their outer ends, the top rest arranged upon the top spring, and a detachable spray-nozzle, all arranged and adapted to operate substantially as shown and described.

5. In a flower-stand, the combination with the tubular standard, of the supporting-spring, the collar arranged upon the top of said spring and having a series of sockets in the upper end thereof, and the bracket-arms adapted to engage the said sockets, substantially as shown and described.

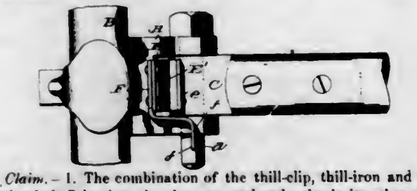
577,231. TELEPHONY. WALTER L. BRADSHAW, Cincinnati, Ohio. Filed Mar. 30, 1896. Serial No. 585,367. (No model.)



Claim.—1. A telephonic system having a talking-battery, A, with one of its poles permanently connected to each spring-jack at point C and normally open; the other pole of said battery permanently connected to operator's receiver, D, and transmitter, E, and general return-wire, 1; and having a ringing-key, F, also connected to wire, 1, adapted to form low-resistance shunt around operator's receiver, D, and transmitter E, its anvil, G, susceptible to connection to battery A so as to include only sufficient number of cells to furnish ringing power for station-bells, and also susceptible of including the entire battery; and having line-wires 2 and 3 connected to metallic plates H, in turn connected to line-springs K, which are normally in contact with drop-springs, L, which are mounted upon and insulated from metal strip, M, and permanently connected to its respective annunciator-drop, N, N, and each annunciator-drop having its other side connected to one binding-post of bell, O, the other binding-post of bell connected to one pole of ringing-battery, Y, the other pole of said battery being extended to each of the stations, the ends normally open at contact of push-button, P, the other contact of push-button, Q, connected to its respective line-wire at each station; the line-wires permanently connected through receiver and transmitter to return-wire, 1, and having branched wires 4 also connected to line-wires, and terminating at one side of hook, R, the other side of hook having a wire leading through bell, S, to common return-wire, 1, as described and shown and for the uses and purposes set forth.

2. In a telephone system of the class described, the push-button Q, in combination with the receiver U, the hook R, ringing-battery Y, line 2, plate H, line-spring K, drop-spring L, and drop N, as described and shown, and for the uses and purposes set forth.

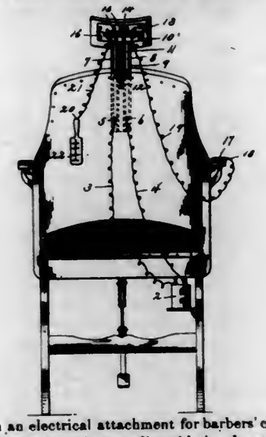
577,232. ANTIRATTLING THILL-COUPLING. WILLIAM M. BUCHNAU, Columbia, Tenn. Filed Apr. 25, 1896. Serial No. 589,075. (No model.)



Claim.—1. The combination of the thill-clip, thill-iron and the securing-bolt D having a head or one end and a slot in its other end; with the antirattling-spring having a rear leaf E, and front leaf e, connected at their lower ends: leaf E being bent at the points E', E^3, E^4, and leaf e, at the points e', e^3, e^4, and the bolt-securing device consisting of a sheet-metal plate F fastened vertically edgewise to the upper end of rear leaf E, bent forwardly at right angles over the slotted end of the bolt and having a vertically-depending tapered extension f' on its lower edge adapted to transfix the bolt and bind it and the spring to the clip, all substantially as described.

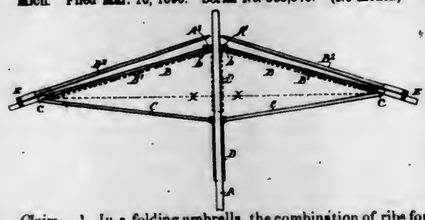
2. The combination of the thill-clip A, the thill-iron C, and the bolt D securing the iron to the clip having slot d in one end; with the antirattling-spring having a rear leaf E, and front leaf e, connected together at their lower ends, and bent in the form shown and described; and the plate F attached edgewise to the upper end of rear leaf E, and bent forward to a point beyond leaf e, then bent outwardly as at f directly over the bolt, part f having a depending tapered key f' on its lower edge transfixing the bolt and securing the bolt and spring in place, all substantially as shown and for the purpose described.

577,233. ELECTRICAL ATTACHMENT FOR BARBERS' CHAIRS. NEWTON H. BURGER, Bensonia, Mich., assignor of one-half to Leslie Crane, same place. Filed Oct. 23, 1895. Serial No. 566,618. (No model.)



Claim.—In an electrical attachment for barbers' chairs, the combination with the chair having an adjustable head-rest slide provided with a pair of metallic guides 7 and 8 forming contact-strips for the attachment, a suitably-arranged battery, circuit-wire connections between the poles of the battery and said contact-strips, an induction-coil fitted on the rear side of the head-rest of the chair and having a switch, said coil having two of its terminals electrically connected with said contact-strips, a fixed electrode secured to the frame of the chair and having a wire connection with the coil, and a movable electrode adapted to be attached to a brush or similar device and also having a wire connection with the coil, substantially as set forth.

577,234. FOLDING UMBRELLA. DELOS CARPENTER, Orion, Mich. Filed Mar. 16, 1896. Serial No. 583,373. (No model.)



Claim.—1. In a folding umbrella, the combination of ribs formed of upper and lower portions B', B^3, channeled arms, the one arranged to overlap the other, connecting the adjacent ends of said ribs, a link having a jointed connection with said arms, means to hold the arms in expanded position, and braces arranged to fold upward, for the purpose described.

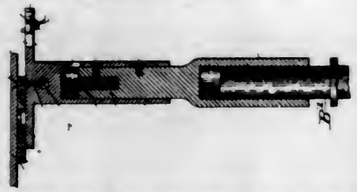
2. In a folding umbrella, the combination of ribs formed of upper and lower portions B', B^3, arms E', E^4 secured to the adjacent ends of said ribs, and a link connecting said arms, one of said arms channeled and arranged to overlap the other arm and formed with side walls having a spring-tension to receive and hold the other arm in place when said portions of the rib are expanded, for the purpose set forth.

577,235. QUILTING-MACHINE. LOUIS A. CASGRAIN, Winchester, Mass., assignor to James W. Brooks, principal trustee, Petersham, and Frank F. Stanley, associate trustee, Swampscott, Mass. Filed Oct. 19, 1896. Serial No. 609,297. (No model.)

Claim.—1. In a quilting-machine for driving fastenings in patterns, a fastening-driving mechanism, a feeding mechanism, and a spring-supported plate or rest, combined with a pattern-plate adapted to receive and carry positively the piece of leather to be quilted in pattern, the particular pattern being determined by a groove at the under side of said pattern-plate, and two relatively-fixed pins in said groove, substantially as described.

2. The spring-supported plate, two adjustable pins carried thereby, and a pattern-plate having a groove entered by said pins, combined

with a feeding device to engage the material lying on said pattern-plate and move it and said plate, and with a fastening-driver and its actuating devices, substantially as described.

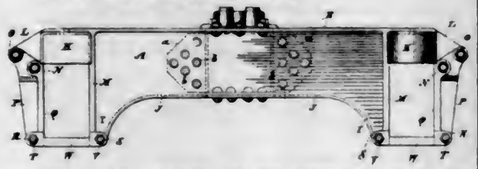


3. The horn-shaft B', the sleeve clamped on it, a plate having a hollow shank to slide on said sleeve, a spring interposed between said hollow shank and the top of the said sleeve, and a pin or projection, combined with a pattern-plate having at its top pins to hold the material to be quilted, and at its under side a groove, to operate, substantially as described.

4. In a quilting-machine for driving fastenings to form a pattern, fastening-driving mechanism, feeding mechanism, a supporting plate or rest, and a radially-adjustable centering pin or projection thereon adapted to be moved into operative or inoperative position, combined with a pattern-plate to carry the work to be quilted in pattern, said plate having a plurality of holes in its under side to be entered one by one by said centering-pin, whereby the fastenings will be driven in the work in curved intersecting lines, substantially as described.

5. The spring-supported plate, two adjacent vertically-movable pins carried thereby side by side, means to elevate the pins, a carriage radially movable in the plate, and a centering-pin pivotally mounted on the carriage and adapted to be turned into inoperative position, combined with a pattern-plate having a pattern-groove to be entered by said adjacent pins, said plate having a plurality of holes to be entered one by one by the centering-pin when in use, a feed device to engage the work resting on the pattern-plate and to move both, and a fastening-driver and actuating devices therefor, substantially as described.

577,236. CAR-TRUCK FRAME. EDWARD CLIFF, Newark, N. J., assignor of one-half to George R. Joughins, Berkley, Va. Filed June 11, 1896. Serial No. 595,098. (No model.)



Claim.—1. In a car-truck, the side frames A having at their upper edges the inwardly-projecting horizontal flanges and at their lower edges the inwardly-projecting flanges, and at their ends the pedestals for the reception of the axle-boxes, combined with the bolster formed of the connected channel-irons, whose upper and lower flanges face one another and are at their ends secured between the said flanges of the side frames; substantially as set forth.

2. In a car-truck, the side frames having at their upper and lower edges the horizontal flanges and provided at their ends with the pedestals for the axle-boxes, combined with the bolster connecting said sides and formed of the channel-irons whose upper and lower flanges face one another and are secured at their ends between the said upper and lower flanges of the said side frames, the flanges of the said channel-irons being sheared away on lines tapering outward toward the ends of said channel-irons; substantially as set forth.

3. In a car-truck, the side frames having at their upper and lower edges the inwardly-projecting horizontal flanges and provided at their ends with the pedestals for the axle-boxes, combined with the bolsters connecting said side frames and composed of the channel-irons whose upper and lower flanges face one another and are secured between the upper and lower flanges of said side frames, said channel-irons having at their ends the additional flanges in face-to-face contact with said side frames and being thereto rigidly secured; substantially as set forth.

4. In a car-truck, the side frames having the upper and lower flanges and provided with the pedestals for the axle-boxes, the upper flange of said side frames having inward and outward extensions at about its center and the lower flange of said side frame having at its center the inward extension, combined with the bolster coonecting said side frames and being secured at its ends between the said inward extensions, the outwardly-projecting extension of the said upper flanges receiving the side bearings and the inwardly-projecting extension of said upper flanges being rigidly secured to the ends of the said bolster; substantially as set forth.

5. In a car-truck, the side frames having integral therewith the vertical flanges M, inverted receptacles K and flanges L, the said receptacles extending entirely across the pedestal-spaces from the outer edges of the flanges M to the opposite sides of the flanges L, and the flanges L extending centrally outward from said receptacles, combined with the removable frames P inclosing the outer side of the spaces provided for the axle-boxes and hinged at their upper ends to said flanges L and adapted to be swung outward from said spaces, and a bar closing the lower end of said spaces and bolted to said side frame and said removable hinged frame; substantially as set forth.

6. In a car-truck, the side frames A provided with flanges at their upper and lower edges, the vertical flanges M formed on said side frames and the longitudinal flanges L at the upper corners of said side frames, combined with the bolster connecting said side frames and secured at its ends to said flanges at the upper and lower edges of said side frames, the removable frames P hinged to said flanges L and inclosing one side of the spaces provided for the axle-boxes, means at the upper end of said removable frames for maintaining the latter in a vertical position during the use, and the removable bars secured at one end to said removable frames P and at the other end to the main portion of the side frames; substantially as set forth.

7. In a car-truck, the side frames, and the bolster connecting said side frames, the said side frames at their outer ends being provided with spaces for the reception of the axle-boxes, combined with the removable frames P inclosing the outer side of said spaces and secured by the bolts N, O, to the upper corners of the said frame, and the cross-bars W inclosing the lower side of said spaces and secured by the bolt T to said removable frames P and by the bolt V to the main side frames; substantially as set forth.

8. In a car-truck, the side frames and the bolster connecting said frames, the ends of said side frames being formed with the spaces for the reception of axle-boxes, the inverted receptacles above and extending entirely across the said spaces to receive the springs, and the longitudinally-projecting flanges L extending outward from said receptacles, combined with the removable frames P secured to said extensions and inclosing the outer side of said spaces, and the lower bars removably secured to the lower ends of the said frames P and the main side frames and closing said spaces; substantially as set forth.

9. In a car-truck, the side frames having the upper and lower edge flanges and provided with the spaces for the reception of the axle-boxes, combined with the bolster formed of the channel-irons whose upper and lower edges face one another and are secured at their ends between the said upper and lower flanges, the central portion of said flanges of the channel-irons being together and there provided with the vertical aperture for the king-bolt, and thence from the central bearing being sheared on lines diverging outward toward the ends of the said bolster; substantially as set forth.

10. In a car-truck, the side frames and the bolster connecting said side frames, said side frames having formed therein at their ends the spaces for the reception of the axle-boxes, the vertical flanges M at the inner sides of said spaces and integral with said side frames, the outwardly-extending flanges L also integral with said side frames and being at the upper outer corners of said side frames, the inverted receptacles connecting at the opposite sides of the side frames the said flanges M and the said flanges L, and being integral with said frames, the removable sides secured to said flanges L and adapted to be swung outward from the said spaces for the axle-boxes, and the lower bars closing said spaces at their lower ends and removably secured to the said sides and said side frames, said removable sides being provided integral therewith with the flanges Q corresponding and in line with the said flanges M; substantially as set forth.

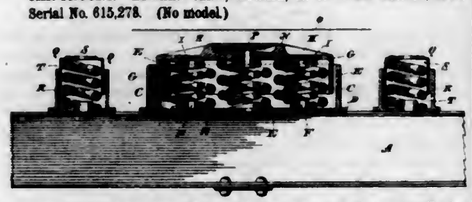
11. In a car-truck, the connected side frames having at their ends the spaces for the reception of the axle-boxes and springs, combined with the removable frames inclosing the outer sides of said spaces, and lower bars closing the lower ends of said spaces, each of said removable frames being secured to the lower bar by a bolt and to the side frame by bolts N, O, one of which acts as a hinge; substantially as set forth.

12. In a car-truck, the connected side frames having at their ends the spaces for the reception of the axle-boxes and springs, combined with the removable frames P inclosing the outer sides of said spaces, and lower bars closing the lower ends of said spaces, each of said removable frames being bolted to the lower bar and secured to the side frame by bolts N, O, the former of which is in the thicker inner part of said removable frame, while the bolt O is on a higher elevation in an upward and outward extension of said frame; substantially as set forth.

13. In a car-truck, the side frames having at their ends the spaces for the reception of the axle-boxes and springs, combined with the frames P inclosing the outer side of said spaces, and the bolts N, O, securing said frames P, one of said bolts acting as a hinge and the other maintaining the said frames in a vertical position during use; substantially as set forth.

14. In a car-truck, the side frames having the inwardly and outwardly turned flanges at both its upper and lower edges and formed at its ends with the spaces for the reception of the axle-boxes and springs, and the vertical flanges along the inner edges of said spaces and integral with said side frames, combined with the removable side frames for the outer sides of said spaces; substantially as set forth.

577,237. CENTER-BEARING-BOLSTER ATTACHMENT FOR CAR-TRUCKS. EDWARD CLIFF, Newark, N. J. Filed Dec. 11, 1896. Serial No. 615,278. (No model.)



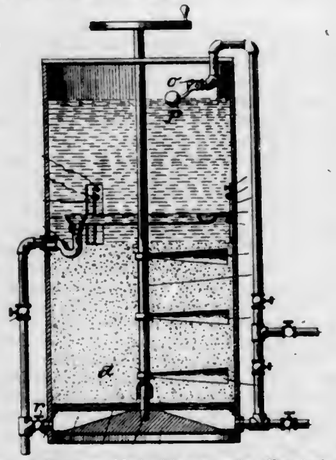
Claim.—1. For car-trucks having the transverse beams A, B, the center-bearing bolster composed of the elongated casing C secured to the center part of said beams, the cover for said casing and the series of springs inclosed between said cover and casing, the central portion of said cover being provided with the bearing and opening; substantially as set forth.

2. For car-trucks, the elongated casing secured centrally upon the truck, the series of springs within said casing and the top or cover for said springs and casing, the edges of said cover and casing substantially corresponding with one another and having the outwardly-curved side portions J and parallel straight portions K; substantially as set forth.

3. For car-trucks, the center bearing, comprising the casing secured to a center part of the truck, the springs within said casing and the cover for said springs and casing and having the bearing N and opening P, combined with side bearings secured to said car-truck at opposite ends of said center bearing; substantially as set forth.

4. For car-trucks, the center bearing comprising the casing secured to a center part of the truck, the springs within said casing and the cover for said springs and casing, said cover having the bearing N and opening P, combined with the side bearings at the ends of said center bearing, each side bearing comprising the lower section, the inclosed spring, and the upper section adapted to yield vertically; substantially as set forth.

577,238. FILTER. JOHN DAVIS, Allegheny, Pa. Filed Mar. 25, 1896. Serial No. 584,765. (No model.)

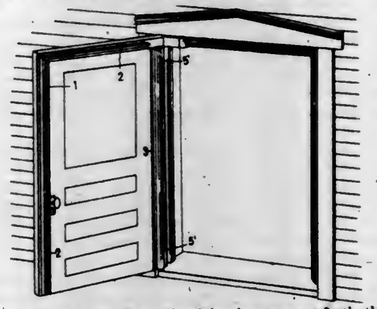


Claim.—1. A filter provided with a granular filter-bed, in combination with an annular receptacle vertically adjustable on the wall or body of the filter and means for conducting waste water out of the filter.

2. A filter provided with a granular filter-bed, in combination with a vertically-adjustable and annular receptacle for collecting waste water from the surface and a flexible connection between said receptacle and the waste-pipe of the filter.

3. A filter provided with a granular filter-bed, in combination with a vertically-adjustable annular receptacle for collecting waste water from the surface, brackets for supporting the receptacle, means on the inner surface of the filter for supporting the brackets and means for securing the brackets.

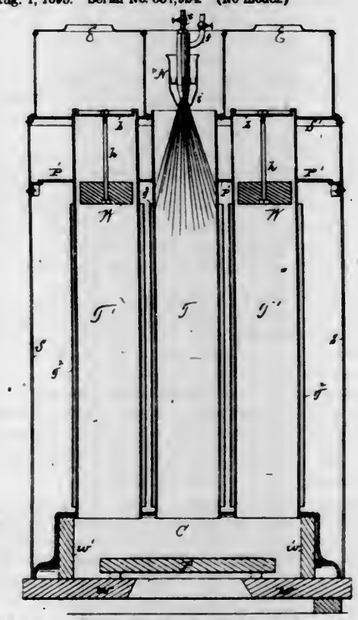
577,239. WEATHER-STRIP. WILLIAM J. DEVERS, Scranton, Pa. Filed Oct. 26, 1896. Serial No. 610,060. (No model.)



Claim.—1. In a weather-strip of the character set forth, the combination of the grooved molding forming one portion of the weather-strip and the complementary portion consisting of a molding having a curved edge and a movable tongue having a longitudinal cavity therein, said cavity adapted to loosely receive said curved edge and said tongue adapted to be received in the groove of said first-named strip as the door and casing upon which they are mounted are brought together, as set forth.

2. As a new article of manufacture, a weather-strip consisting of a grooved molding 1 having a side 2 extending therefrom, by means of which it may be secured upon a door-casing, the complementary portion of the weather-strip consisting of the molding 3 provided with a curved edge 4; and a tongue 5 having a body portion 6, said body portion being provided with a longitudinal cavity 6', the curved edge of said molding 3 adapted to be loosely received in the groove 6' of said tongue 5 when said molding 3 and tongue 5 are mounted upon a door and said tongue brought into mesh or engagement with the groove of said molding 1, as set forth, to form a tight closure therebetween.

577,240. BOILER. ELLIS F. EDGAR, Woodbridge, N. J. Filed Aug. 1, 1895. Serial No. 557,924. (No model.)



Claim.—1. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-

tube leading from said chamber to the draft-exit and a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

2. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit and a burner located within that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

3. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, circulator-tubes surrounding said fire-tubes, and a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

4. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, the draft-space of which is contracted at or near the water-level of the boiler, and a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

5. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, and provided with an incombustible block located within the tube and at or near the water-level and a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

6. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, circulator-tubes surrounding said fire-tubes, a separator interposed between the upper end of the circulator-tubes and the steam-exit, and a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

7. The combination in a vertical boiler of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber and a spatter-plate located in the combustion-chamber and opposite the nozzle of the burner, all substantially as set forth.

8. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, a spatter-plate located in the combustion-chamber and opposite the nozzle of the burner, one or more openings through the walls of the combustion-chamber and a passage between it and the spatter-plate, all substantially as set forth.

9. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, and a substantially annular smoke-box inclosing the upper end of the fire-tube leading from the combustion-chamber, all substantially as set forth.

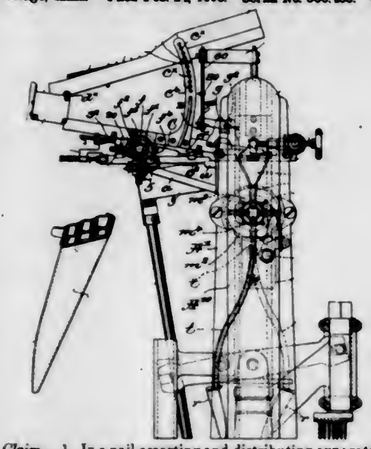
10. The combination in a vertical boiler, of a combustion-chamber provided with side and bottom walls, an opening through the bottom wall of the combustion-chamber, a passage between said wall and the spatter-plate, a fire-tube leading to and opening into said combustion-chamber, a fire-tube leading from said combustion-chamber to the draft-exit, a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, and a substantially annular smoke-box inclosing the upper end of the fire-tube leading from the combustion-chamber and provided with a draft-exit, all substantially as set forth.

11. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit, circulator-tubes surrounding said fire-tubes, and a nozzle-burner located within that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

12. The combination in a vertical boiler, of a combustion-chamber, a fire-tube leading vertically downward to and opening into said chamber, a fire-tube leading vertically upward from said chamber to the draft-exit, circulator-tubes surrounding said fire-tubes, and a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

13. The combination in a vertical boiler, of a combustion-chamber, a fire-tube above said combustion-chamber and leading to and opening into said chamber, a fire-tube leading from said chamber to the draft-exit and a burner located at that end of the first fire-tube opposite the combustion-chamber and directed substantially parallel to said fire-tube and toward said combustion-chamber, all substantially as set forth.

577,241. NAIL ASSORTING AND DISTRIBUTING APPARATUS. ALVIN D. ELLIOTT, Lawrence, Mass., and JOHN R. GLIDDEN, administrator of Charles W. Glidden, deceased, assignors to James W. Brooks, principal trustee, Peterham, and John Brooks, associate trustee, Cambridge, Mass. Filed Feb. 24, 1896. Serial No. 580,403. (No model.)



Claim.— 1. In a nail assorting and distributing apparatus, a series of guideways to receive nails laid thereon in the direction of their length, means to cause the said nails to travel along said guideways toward their delivery ends, means to automatically discharge the endmost nails of said guideways, a rotatable transferring device having a series of pockets, one for each guideway, said pockets being arranged side by side parallel to the axis of motion of said transferrer, and means to move said transferrer to enable it to deliver a series of nails point first into delivering-tubes, substantially as described.

2. In a nail assorting and distributing apparatus, a series of guideways to receive nails in the direction of their length; means to supply nails to said guideways; and a stationary reversing device located at the delivery ends of said guideways, to form a temporary fulcrum for and reverse those nails which are presented thereto point foremost, whereby all the nails will have their heads pointing in the same direction when discharged, substantially as described.

3. In a nail assorting and distributing apparatus, a series of guideways having each a longitudinal groove therein to receive nails in the direction of their length, means to feed the nails along said guideways; a grid having a series of partitions, one for each guideway; an adjustable stop arranged in front of and at a short distance from the delivery ends of the guideways; and a pin or projection between the stop and the end of the guideways and crossing said partitions, whereby such nails as leave the latter guideways point foremost will be turned by gravity on said pin or projection with their head ends directed downwardly, the stop preventing overrunning of the nails, substantially as described.

4. In a nail assorting and distributing apparatus, a hopper to receive nails in bulk; a series of guide-troughs communicating with the hopper, to convey the nails therefrom in the direction of their length; a series of inclined guideways below the open ends of the guide-troughs, and a directing device between said troughs and guideways, to supply the nails lengthwise upon the latter as they leave the guide-troughs, substantially as described.

5. In a nail assorting and distributing apparatus, a hopper to receive nails, said hopper having an inclined bottom and open at its lower end; a series of guide-troughs radiating from the open end of the hopper, to receive the nails therefrom; a series of guideways having their upper ends below the open lower ends of the guide-troughs, and means to cause the nails to fall lengthwise upon the guideways, substantially as described.

6. In a nail assorting and distributing apparatus, a nail-hopper having an inclined bottom; radiating guide-troughs leading from the hopper and along which the nails pass lengthwise; a series of guideways to receive the nails from the said troughs; a transferrer to which the nails are to be delivered from the guideways; and means to vibrate said hopper, trough and guideways, to cause the nails to be fed to the transferrer, substantially as described.

7. In a nail assorting and distributing apparatus, a hopper to receive the nails in bulk; a series of guideways to receive the nails lengthwise; means to convey the nails from the hopper to the guideways; a nail-reversing device located at the delivery ends of the guideways, to reverse all those nails which are delivered from the guideways point foremost, and a transferrer having a series of pockets arranged side by side in a line parallel to the axis of motion of the transferrer to receive all the nails from all the said guideways with their heads all in one direction, and means to move said transferrer to turn said nails over and deliver them point first into position to be distributed, substantially as described.

8. In a nail assorting and distributing apparatus, a hopper to receive nails; a series of guideways to receive the nails lengthwise and to deliver them to a transferrer; a transferrer to receive a series of nails from the ends of said guideways with their heads all pointed in the same direction, devices to move said transferrer into position to discharge said nails point foremost to be distributed; and a nail-reversing device between the delivery ends of the guideways and the transferrer, to reverse those nails which arrive at the ends of the guideways point foremost, substantially as described.

9. In a nail assorting and distributing apparatus, a series of inclined guideways to receive the nails lengthwise; means to shake the guideways to cause the nails to move toward their lower ends; a let-off for each guideway, to enable a series of nails to be delivered therefrom singly; a detent cooperating with each guideway, to retain the second and following nails thereon while the adjacent let-off is moved to let off the series of nails at the extremities of the guideways, and means to operate the let-offs and detents alternately, substantially as described.

10. In a nail assorting and distributing apparatus, a nail-hopper having a convexed bottom and inclined from its upper to its lower end; a series of trough-like passages leading from the lower end of the hopper, to receive the nails; inclined V-shaped guideways to which the nails are supplied lengthwise, to be discharged thence to the distributers; and a reversing device at the lower ends of the guideways, to reverse those nails presented thereto point foremost, whereby all the nails will be discharged with their heads in one direction, substantially as described.

11. In a nail assorting and distributing apparatus, a hopper for the nails, a series of guide-troughs leading therefrom, to receive the nails in the direction of their length, and means to turn nails passing from the hopper and presented sidewise to said troughs to thereby direct them into the guide-troughs lengthwise, substantially as described.

12. In a nail assorting and distributing apparatus, a hopper, a series of nail-receiving guide-troughs rigidly attached thereto, a pivotal support for said guide-troughs, and means to vary the inclination of said hopper and guide-troughs, substantially as described.

13. In a nail-distributing apparatus, a series of distributing-tubes, and independent throat-pieces adapted to be adjustably attached directly to the lower ends of and be supported by said tubes, to vary the points of delivery of the nails, substantially as described.

14. In a nail-distributing apparatus, a series of distributing-tubes, and throat-pieces adapted to be attached to the lower ends of said tubes, the inner sides of said throat-pieces being outwardly curved at their lower ends, to permit nails passing therethrough to be presented in a vertical position, substantially as described.

15. A throat-piece outwardly curved toward its lower end and provided with a spring-clip, whereby it may be adjustably attached to the end of a distributing-tube, substantially as described.

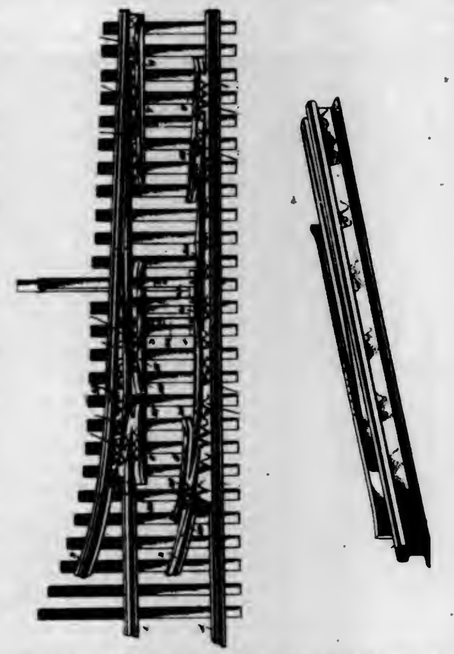
16. A throat-piece for distributing-tubes, having a spring-clip at its upper end, corrugated to embrace the end of a distributing-tube and be adjusted thereon, substantially as described.

17. A throat-piece for distributing-tubes, flattened, and outwardly curved toward its lower end, to permit nails passing therethrough to straighten up and be presented in a vertical position, substantially as described.

577,242. RAILROAD-SWITCH. JOHN F. R. FELTNER, Leadville, Colo. Filed Aug. 24, 1896. Serial No. 603,747. (No model.)

Claim.—1. In a railroad-switch, the combination of a turnout-section, and its mate, both being of similar construction and comprising a rail, a guard, and intermediate oppositely-disposed beveled points, substantially as shown and described.

2. In a railroad-switch, the combination of a switch-point section, a turnout-section, and an intermediate switch-tongue section, the latter comprising a beveled point and a movable switch-tongue, substantially as and for the purpose set forth.



3. In a railroad-switch, the combination of a switch-tongue section comprising a rail, a guard, a beveled point, and a movable tongue, and a mate comprising a rail, a beveled point, and a movable tongue, the latter being connected with the movable tongue first mentioned, substantially as set forth.

4. The herein shown and described railroad-switch, comprising a switch-point section and its mate, each having a rail, a guard, and an intermediate beveled point, a turnout-section and its mate, each formed of a rail, a guard, and intermediate oppositely-disposed beveled points, a switch-tongue section having a rail, a guard, a point, and a movable tongue, a mate for the switch-tongue section comprising a rail, a beveled point, and a movable tongue, tie-bars connecting the movable tongues of the switch-tongue section and its mate, and an operating-lever for throwing the switch, substantially in the manner set forth.

577,243. CHAIN-SWIVEL. JOHN L. FITTS, Providence, R. I. Filed Oct. 9, 1896. Serial No. 608,324. (No model.)



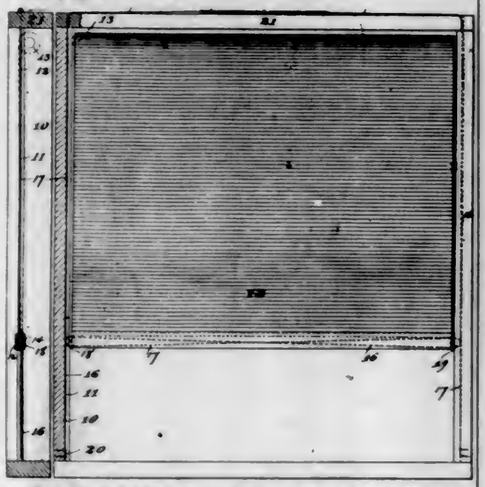
Claim.—In a chain-swivel, the combination with the post *b* having the pin *c* and shoulder *g*, of the annular groove *d*, the cup *e* a portion of the sides of which extends into the groove *d*, and the ring *h*; whereby the ring *h* is secured to the post and free to rotate on the same, as described.

577,244. SHADE-HOLDING MECHANISM. HENRY H. FORSYTH, Chicago, Ill. Filed Nov. 16, 1896. Serial No. 612,259. (No model.)

Claim.—1. A shade-holding mechanism comprising in combination a stationary spring-actuated roller to which the shade is attached, a flexible strand engaging and guiding the opposite end of the shade and means for automatically tensioning said flexible strand, substantially as and for the purpose described.

2. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides near its side margins,

flexible strands passed over said guides from opposite sides of the shade and secured against longitudinal movement and means for automatically tensioning said flexible connections, substantially as and for the purpose described.



3. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides near its side margins, flexible metal tapes passed over said guides from opposite sides of the shade and each having one end thereof extending upwardly and the other extended downwardly parallel to the side margin of the shade and secured against longitudinal movement and suitable friction devices carried by the shade and contacting with said tapes, substantially as described.

4. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade carrying a rigid bar or shade-stick, guides mounted upon the ends of said bar and a flexible tape or tapes having strands thereof extending transversely of the shade over said guides and extending parallel to the margins of the shade and means for automatically tensioning said tapes, substantially as described.

5. A shade-holding mechanism comprising in combination a spring-actuated shade-roller, a shade attached at one end thereto, parallel bars carried by the opposite end of said shade, guides secured between the outer ends of said bars and projecting beyond the ends thereof, flexible tapes passing over said guides and between said bars and thence parallel to the side margins of the shade and means for tensioning said tapes, substantially as described.

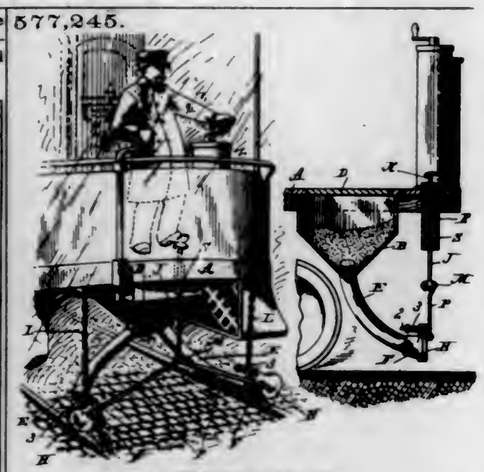
6. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides near its side margins, flexible tapes passed over said guides from opposite sides of the shade and secured against longitudinal movement and a spring or springs connected to said tapes, substantially as described.

7. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides near its side margins, flexible metal tapes passed over said guides from opposite sides of the shade and each having one end thereof extending upwardly and the other extended downwardly parallel to the side margin of the shade and secured against longitudinal movement, suitable friction devices carried by the shade and contacting with said tapes and automatic means for tensioning said tapes, substantially as described.

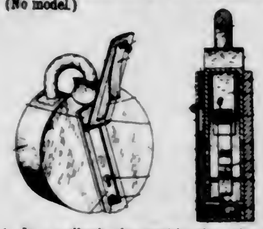
577,245. **TRACK-SANDING DEVICE.** ASA J. FREEMAN, Springfield, Mass. Filed Nov. 11, 1896. Serial No. 611,751. (No model.)

Claim.—A track-sanding device consisting of the conical-shaped sand-box B, the sand-conduits E, E extending from said sand-box to a position in front of the forward wheels of the car, the valves F, F located at the end of said conduits, the gates H, H, pivoted on said valves by the pin 2, the spring 3, on said pin for holding said gates operatively against said valves, connecting-rods P, P, pivoted by one end to said valve-gates and by their other ends to each other and to the vertical rod J, the socket S, the spring R, engaging the said socket and the rod J, and a foot-post N, one end of which projects above the platform of the car, and the other end of which engages the top of the rod J, substantially as described.

577,245.



577,246. **PADLOCK.** THEODOR GRADOWSKI, Buffalo, and KASIMIERS JURKOWSKI, Niagara Falls, N. Y. Filed Sept. 5, 1896. Serial No. 604,967. (No model.)



Claim.—1. In a padlock, the combination of a casing, said casing having suitable orifices and keyholes, a pivoted bow, a bolt adapted to be operated by a key, said bow constructed for engagement with said bolt, a fixed keyhole guard-plate having a longitudinal slot and recess, a sliding keyhole-plate provided with suitable orifices, a keyhole-cover consisting of a fixed and a hinged portion, said hinged portion possessing a pin-hook, a pivoted back plate, spring-operated devices within said casing adapted to engage said pin-hook, and connections between said back plate and spring-operated devices whereby the pin-hook may be released, substantially as described.

2. In a padlock, the combination of a casing, said casing having suitable orifices and keyholes, a pivoted bow, a bolt adapted to be operated by a key, said bow constructed for engagement with said bolt, a fixed keyhole guard-plate having a longitudinal slot and recess, a sliding keyhole-plate provided with suitable orifices, a keyhole-cover consisting of a fixed and a hinged portion, said hinged portion possessing a pin-hook and longitudinal recess, a curved spring having one end fixed in said recess, a pivoted back plate, spring-operated devices within said casing adapted to engage said pin-hook, and connections between said back plate and spring-operated devices whereby said pin-hook may be released, substantially as described.

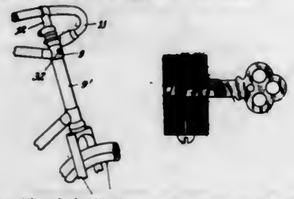
3. In a padlock, the combination of a casing, said casing having suitable orifices and keyholes, a pivoted bow, a bolt adapted to be operated by a key, said bow constructed for engagement with said bolt, a fixed keyhole guard-plate having a longitudinal slot and recess, a sliding keyhole-plate provided with suitable orifices, a keyhole-cover consisting of a fixed and a hinged portion, said hinged portion possessing a pin-hook and longitudinal recess, a curved spring having one end fixed in said recess, a pivoted back plate, spring-operated devices within said casing adapted to engage said pin-hook, connections between said back plate and spring-operated devices whereby said pin-hook may be released, a pivoted angular block, and a flat spring fixed to said casing, constructed and arranged substantially as shown and described, for the purposes set forth.

577,247. **FEEDER FOR CARDING-ENGINES.** JACOB F. GEB, Franklin, Mass., assignor to the Geb Attachment Company, same place. Filed May 19, 1896. Serial No. 592,183. (No model.)

Claim.—The combination of a shaft having affixed thereto a disk, a dog pivoted on one side of the latter, a driving member loosely mounted on said shaft and having a hub projecting into the plane of the dog, and constituting a clutch member for engagement with said dog, a ratchet-disk loosely mounted on the shaft, a cam-slot and pin connection between said ratchet-disk and the dog, a spring connecting the ratchet-disk and the dog-carrying disk, and means for arresting and releasing the ratchet-disk.

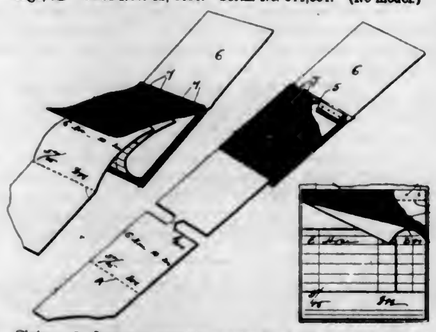


577,248. **BICYCLE-LOCK.** MAXIMILIAN GESSLER, Milwaukee, Wis. Filed May 25, 1896. Serial No. 593,024. (No model.)



Claim.—In a bicycle-lock, the combination, of the front outer stationary tubing of a bicycle-frame provided at one side with a bolt-opening, inner tubing fitting closely, revolubly in the outer stationary tubing, said inner tubing provided at one side with a bolt-opening, and having a connection with the fork of the front wheel, the inner tubing adapted, when rotated a desired distance, to bring its bolt-opening into register with the opening of the outer tubing, and to also turn the front wheel of the bicycle at an angle, a lock-casing fitting within the inner tubing, and provided with a screw-threaded bolt-opening registering with the opening of the inner tubing, lock mechanism within the casing, a bolt within the bolt-opening of the lock-casing, said bolt provided with a feather engaging the screw-threads of the bolt-opening, and a key adapted, when the inner tubing is turned so as to bring the bolt-openings into register, to be passed through said openings and to engage the bolt directly, said key when turned in one direction, adapted to draw the bolt from within outwardly through the registering openings, and to finally engage the opening of the stationary outer tubing, whereby the inner tubing, and the fork which carries the front wheel, are held against rotation; and when the key is turned in the opposite direction, the bolt is forced from without inwardly through the registering openings to its normal position within the casing, whereby the inner tubing and the front fork carried thereby are free to be turned.

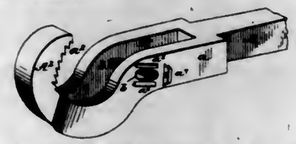
577,249. **MEMORANDUM SALES-BOOK.** OSCAR W. GILL, Chicago, Ill. Filed Nov. 12, 1896. Serial No. 611,851. (No model.)



Claim.—1. In a memorandum sales-book, the combination with carbon material of a series of folded original and duplicate slips or sheets, one end of each of said series of sheets adapted to be folded and bound together, and provided upon the inside of the binding with interrupted lines of perforations, and the opposite ends of each of said series provided with lateral cuts as described, all of said sheets connected or attached one to the other at the ends by an intervening angular neck or strip, substantially as and for the purpose set forth.

2. In a memorandum sales-book the combination with carbon material of a series of original and duplicate sales-sheets, perforated and folded midway their length and partly cut and perforated at the ends as described, to form integral connecting-strips between each of said series, said connecting-strips folded into the binding-stub and adapted to pull out from under a carbon-sheet the next sales-sheet of the series when the first or preceding sheet is torn from the binding-stub, substantially as and for the purpose set forth.

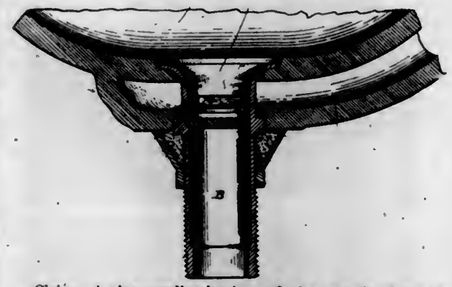
577,250. **PIPE-WRENCH.** CHARLES GROGAN, Gate City, Va., assignor of nineteen twenty-fourths to Harry P. Grogan, George A. Ewing, and R. F. McConnell, same place. Filed Aug. 26, 1896. Serial No. 603,968. (No model.)



Claim.—1. A pipe-wrench comprising a body portion slotted at a point near its front end; and such end terminating in a fixed jaw, and having at a point in line with its slotway elongated slots in its side members extending in the direction of the grip-point of the jaws, of a revolving jaw having eccentrically-arranged biting-seats, having its journals seated in the elongated slots and means for moving the revolving jaw toward the fixed jaw and holding it to its adjusted positions substantially as shown and described.

2. In a pipe-wrench the combination with the body member A having a fixed jaw A^3 elongated slots a^3 and guides a^4 of the revolving jaw D, having its journals extended through the slots a^3, the journal-blocks F held to slide in the guides a^4 and means for adjusting the blocks F secured to the body A all arranged substantially as shown and for the purposes described.

577,251. **PIPE-COUPLING.** FRANK A. GRUNDY, Pittsburg, Pa. Filed July 25, 1896. Serial No. 600,469. (No model.)

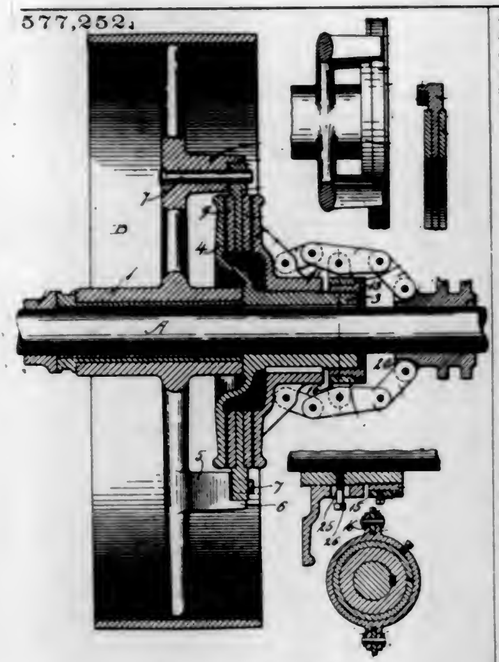


Claim.—A pipe-coupling having a flaring mouth adapted to be seated in a recess in the part to which it is to be connected, openings in said pipe below the flaring mouth, a collar on said pipe, adapted to fit in an opening in the receptacle, a threaded shank extending the full length of the tube below the collar, a cup-shaped nut threaded on said shank, said cup adapted to be filled with cement, whereby a tight joint may be formed between the tube and the receptacle upon screwing up the nut.

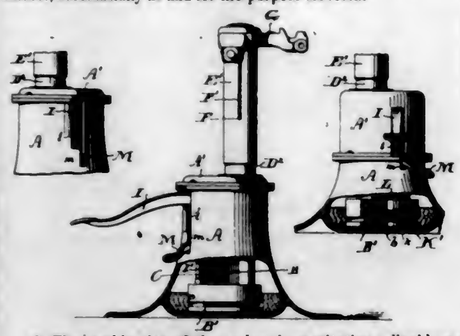
577,252. **FRICTION-CLUTCH.** WILLIAM C. HARRIS, Chicago, Ill., assignor to the A. Plamondon Manufacturing Company, same place. Filed July 27, 1896. Serial No. 600,677. (No model.)

Claim.—In a friction-clutch, the combination with a part to be clutched and carrying a clutch member comprising a ring loosely mounted thereon, and longitudinally movable with relation thereto, of a shaft carrying two clutch members between which said loose ring is located, one of said members comprising a hub rigidly mounted upon said shaft and provided with an outwardly-extending flange adapted to engage the inner face of said ring, a sliding sleeve on said hub provided with an outwardly-extending circumferential flange adapted to engage the outer face of said ring, an adjustable split nut upon the hub of said inner clutch member, a ring mounted upon said split nut and adapted to be clamped thereon, toggle-levers pivotally mounted upon said ring, links pivotally secured at one end to said toggle-levers and at their other ends to said outer clutch member, a sliding sleeve on said shaft, and links pivotally connected at one end with said sliding sleeves and at their other ends with the outer ends of said toggle-levers.

577,252.

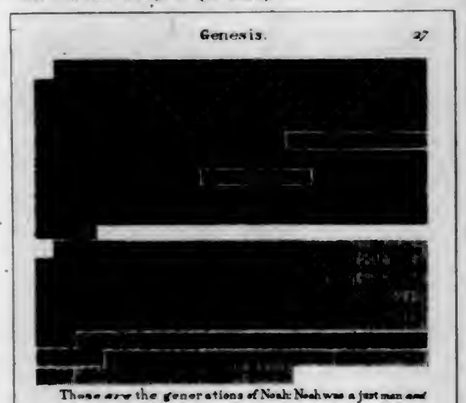


and provided with the piston having the liquid-passage through it, and the outer member fitting about and working outside the cylinder, and the upper section of the telescoping support consisting of the inner and the outer members, one of said members working inside the lower section of the support and the other working outside thereof, substantially as and for the purpose set forth.



2. The combination of the pedestal constituting a liquid-reservoir and provided with the detachable cap, the cylinder-carrier detachably secured within the pedestal to the bottom thereof, and the raising and lowering mechanism and the actuating-levers thereof mounted upon said carrier and removable from the pedestal therewith, substantially as and for the purpose set forth.

577,253. BOOK. PAUL HAUPT, Baltimore, Md. Filed May 1, 1896. Serial No. 547,733. (No model.)



Claim.—A sheet or page whereon portions of its printed text of different natures appear with backgrounds of different colors, and portions of the same nature appear with backgrounds of the same color, substantially as and for the purpose set forth.

577,254. MEANS FOR RAISING OR LOWERING DENTAL CHAIRS. HARRY B. HAWKSWORTH, Philadelphia, Pa., assignor to The S. S. White Dental Manufacturing Company, same place. Filed Oct. 17, 1896. Serial No. 609,192. (No model.)

Claim.—1. The combination of the support-cylinder, the lower section of the telescoping support consisting of an inner and an outer member, with the inner member working within the support-cylinder

577,255. WRENCH. BERNARD HERSTEIN, Elizabeth, N. J. Filed June 19, 1896. Serial No. 596,130. (No model.)



Claim.—1. A wrench having its operating-jaws rotatable and their planes parallel with the line of the length of its handle, substantially as described.

2. A wrench having its operating-jaws located upon arms at the extreme end of its handle and adapted to be rotated thereupon, substantially as described.

3. An adjustable wrench having its operating-jaws rotatable and their planes parallel with the line of the length of its handle, substantially as described.

4. An adjustable wrench having its operating-jaws rotatable and arranged upon sliding or carrying heads, so as to permit a vertical semicircular motion of the handle, while the jaws are closed upon a nut or other body to be operated on, substantially as described.

5. An adjustable wrench having rotatable jaws pivoted to sliding heads and provided with an adjusting device, substantially as described.

6. An adjustable wrench having rotatable jaws carried upon adjustable heads so arranged at the end of its handle that the planes of the jaws are in the direction of the length of the handle, substantially as described.

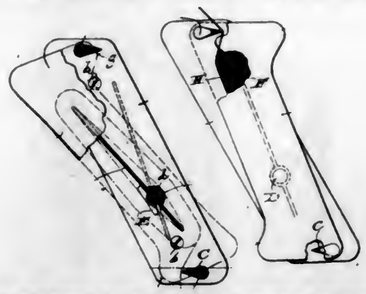
7. An adjustable wrench having rotatable jaws arranged upon sliding heads adapted to move upon a bar set between the arms at the end of the handle and provided with an adjusting-screw, substantially as described.

8. In an adjustable wrench the combination of rotatable jaws, carried upon sliding heads arranged at the end of said wrench and held in position by a bar while having their lower or inner points adapted to move in a slot or groove with a screw extending through said heads and adapted to adjust the same, substantially as described.

577,256. TOILET-PAPER FIXTURE. FRANK H. HOBERG, Green Bay, Wis. Filed July 9, 1896. Serial No. 598,514. (No model.)

Claim.—1. A toilet-paper fixture comprising a bracket consisting of a plate, attachable to a support, upper and lower shear-blades, an intermediate pivot-pin and a stop-lug extending laterally from the plate; together with a paper-holder consisting of a plate having detachable tilt engagement with said pivot-pin in opposition to said stop-lug and provided with an outer flange at right angles thereto in opposite directions.

2. A toilet-paper fixture comprising a bracket consisting of a plate, attachable to a support, upper and lower shear-blades, a pivot-pin and a stop-lug extending laterally from the plate; together with a paper-holder consisting of a plate having tilt engagement with said pivot-pin in opposition to said stop-lug, a spring-latch engageable with a notch in the aforesaid pin and an outer guard-flange for the paper.



3. A toilet-paper fixture comprising a bracket consisting of a plate, attachable to a support, upper and lower shear-blades, an intermediate pivot-pin and a stop-lug extending laterally from the plate; together with a paper-holder consisting of a plate having detachable tilt engagement with said pivot-pin in opposition to said stop-lug and provided with an outer flange at right angles thereto in opposite directions, this flange having upper and lower ear extensions.

4. A toilet-paper fixture, comprising a bracket consisting of a plate, attachable to a support, upper and lower shear-blades, an intermediate beveled and notched pivot-pin and a stop-lug extending laterally from the plate; together with a paper-holder consisting of a plate having tilt engagement with said pivot-pin in opposition to said stop-lug, an outer guard-flange in connection with this latter plate at right angles thereto in opposite directions and a spring-latch engageable with the pivot-pin notch.

577,257. WHEEL-TIRE. AMOS M. HOWARD, New Haven, Conn. Filed Aug. 31, 1896. Serial No. 604,412. (No model.)



Claim.—1. The herein-described tire for vehicle-wheels, consisting of two plates connected by springs arranged in succession and alternately extending transversely and longitudinally to the tire, and a casing inclosing said plate.

2. The herein-described tire for vehicle-wheels consisting of a flat plate and a transversely-bowed plate, said plates connected by springs arranged in succession and alternately extending transversely and longitudinally to the tire, and a casing inclosing said plates.

3. The herein-described tire for vehicle-wheels consisting of a flat plate and a transversely-bowed plate, said plates connected by alternately-arranged springs extending transversely and longitudinally, a casing inclosing said plates, and longitudinal stripe applied to the outer face of said casing and connected with the bowed plate, substantially as described.

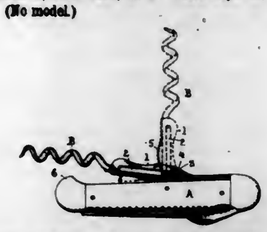
577,258. SPOOL-HOLDER. WILLIAM R. A. INNES, Pueblo, Colo. Filed Apr. 15, 1896. Serial No. 587,644. (No model.)



Claim.—1. In a spool-thread tension, the combination of a spring-wire frame provided with trunnions oppositely disposed, an antifriction-roller journaled upon said trunnions, to carry the spool, a flat plate secured to the frame and provided with a pivot-rod, a follower hinged upon said rod, and a spring exerting its pressure against said plate and against said follower, and thereby holding the latter into frictional engagement with the thread wound upon the spool.

2. In a spool-thread tension, the combination of a spring-wire frame provided with oppositely-disposed trunnions at one side, an antifriction-roller journaled upon said trunnions, and carrying the spool, a plate secured rigidly and immovably upon said frame, a follower hinged to said plate and provided with a lug, and a spring carried by said plate and bearing against said lug, substantially as shown and described.

577,259. COMBINED CORKSCREW AND POCKET-KNIFE. ADOLPH KASTOR, New York, N. Y. Filed Sept. 14, 1896. Serial No. 605,693. (No model.)



Claim.—The combination with a pocket-knife, and a pin connected with the handle thereof about midway of its ends, of a corkscrew having a sliding and pivotal connection with the knife by means of the said pin, and a spring attached to the inner or rear edge of the corkscrew and adapted to hold the corkscrew closed and to throw it outward when moved forward, substantially in the manner set forth.

577,260. BURIAL-VAULT. FRANK KAUFMAN, Rosedale, Ohio. Filed Apr. 28, 1896. Serial No. 589,431. (No model.)



Claim.—1. A slab for use in the construction of burial-vaults or like structures, having vertical or outwardly-extending flanges at its ends, which flanges are beveled outwardly at their extreme edges to form a trough when similar slabs are placed end to end, substantially as set forth.

2. In a vault or like structure, a top composed of a series of hollow slabs having their upper surfaces oppositely inclining from an intermediate point, and having vertical flanges at their ends which are beveled outwardly at their extreme edges so as to form a trough when the slabs are together, substantially as shown for the purpose described.

3. In a vault or like structure, a top formed of hollow slabs having vertical flanges at their ends beveled outwardly to form troughs, and a cap cemented over the upper edges of the flanges, substantially as and for the purpose set forth.

4. In a vault, the combination of a series of body-slabs grooved or channeled in their upper edges, a tie-bar cemented in the groove or channel, and a cap for securing a finished appearance to the top edge of the vault composed of sections which are arranged to break joint with the body-slabs, and having a pendent tongue to enter and be cemented in the aforesaid groove or channel, substantially as set forth.

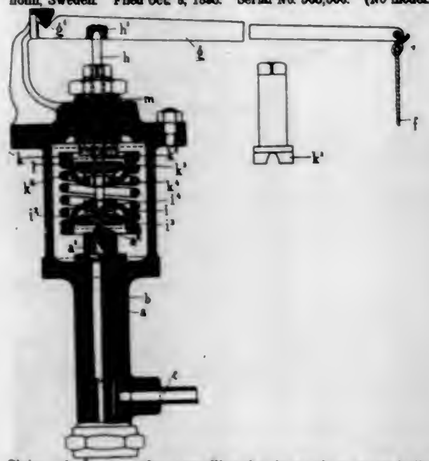
577,261. SAFETY ATTACHMENT FOR BICYCLES. LOUIS KONRAD, Brooklyn, N. Y., assignor of three-fourths to Charles Boehringer and Gustav P. Fromm, same place, and Hans Kauer, New York, N. Y. Filed July 31, 1896. Serial No. 601,162. (No model.)



Claim.—The combination, with the frame of a bicycle, of a tubular main fork provided with means for attaching the same to the frame of the bicycle, a sliding frame provided with auxiliary wheels and having elongated guide-rods guided in the tubular fork, a rack-bar arranged between and connected with the guide-rods, slotted guide-tubes attached to the main fork between the sides of the fork and to the frame of the bicycle, said guide-tubes guiding between

them the said rack-bar, a toothed segment pivotally supported on the post of the front fork of the bicycle, and a pawl-and-ratchet mechanism for operating and locking said toothed segment and sliding frame in adjusted position, substantially as set forth.

577,262. **DAMPER-REGULATOR.** CARL G. P. DE LAVAL, Stockholm, Sweden. Filed Oct. 8, 1895. Serial No. 565,066. (No model.)



Claim.—1. In means for controlling the air-supply to steam-boiler furnaces, the combination of a cylinder, a piston guided in the cylinder, a steam-supply pipe leading into the cylinder at one end of the piston, a system of blocks and knife-edges arranged between the other end of the piston and one end of the cylinder, a spring arranged between and bearing at one end against one of said blocks and at the other end against another of the blocks, an air-supply-controlling device, and means for connecting the piston with the air-supply-controlling device, substantially as set forth.

2. In means for controlling the air-supply to steam-boiler furnaces, the combination of a cylinder, a piston guided in the same, a steam-supply pipe leading into the cylinder at one end of the piston, a system of blocks and knife-edges arranged between the other end of the piston and one end of the cylinder, a spring arranged between and bearing at one end against one of said blocks at the other end against another of the blocks, an air-supply-controlling device, and means for connecting the piston with the air-supply-controlling device, consisting of a pin *h* passing through one end of the cylinder, one of the blocks and stepped into one of the other blocks, a lever *g* connected with the pin *h*, and a rope or cord *f* leading from said lever to a damper of the furnace, substantially as set forth.

577,263. **REGULATOR FOR SUCTION CREATING OR EXHAUSTING DEVICES.** MEREDITH LEITCH, Richmond, Va., assignor to the Warren Webster & Company, of New Jersey. Filed Sept. 15, 1896. Serial No. 605,873. (No model.)

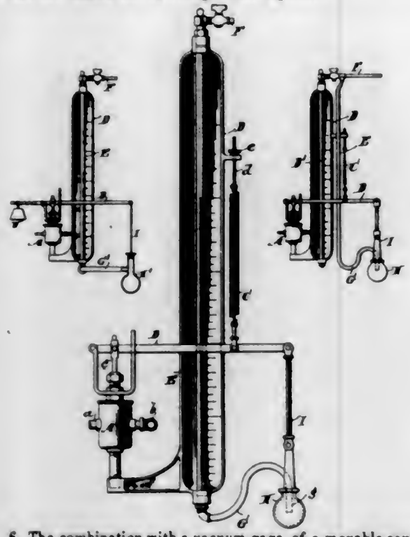
Claim.—1. The combination with an exhausting or vacuum-creating device, of a regulator for controlling the operation thereof, a counterweight, embracing a reservoir containing a liquid, such as mercury, which varies with the partial vacuum created by the exhausting or vacuum-creating device, means acting on the regulator to operate it as the counterweight varies, and connections between the variable counterweight and the means acting on the regulator, whereby the variation of the counterweight by the suction created in the reservoir will cause the regulator to be operated.

2. The combination with a tube in which a suction is created, of a movable reservoir adapted to contain a fluid, such as mercury, communicating therewith, and a regulator controlled by the movement of the movable reservoir.

3. The combination of a tube in which a suction is created, of a movable reservoir communicating therewith and adapted to contain a fluid such as mercury, a regulator for controlling the operation of the device by which suction is created in the tube, means acting on the regulator to operate it, and a connection between the movable reservoir containing fluid and the means for operating the regulator.

4. The combination of a regulator, devices acting normally on the regulator to operate it, a suction-tube, a movable counterbalancing-reservoir communicating with the tube and containing a liquid, such as mercury, and a connection between the movable counterbalancing-reservoir and the devices normally acting on the regulator.

5. The combination of a regulator, a tension device acting on the regulator, a suction-tube, a movable counterbalancing-reservoir communicating with the tube and containing a liquid, such as mercury, and a connection between the movable counterbalancing-reservoir and the tension device acting on the regulator.



6. The combination with a vacuum-gage, of a movable counterbalancing mercury-reservoir communicating therewith, a suction-regulator for controlling the suction in the gage, and connections between the suction-regulator and the mercury-reservoir.

7. The combination of a regulator, for controlling the operation of a suction creating or exhausting device, means acting on the regulator to operate it, a suction-tube, a movable counterbalancing-reservoir containing a fluid, such as mercury, and communicating with the suction-tube, and connections between the reservoir and the means acting on the regulator to operate it.

8. The combination of a regulator for controlling the operation of a suction creating or exhausting device, means acting on the regulator to operate it, a suction-tube E, a tube-section communicating with the bottom thereof, a movable reservoir H containing mercury or other liquid communicating with the tube-section, and a connection between the movable reservoir and the means acting on the regulator to operate it.

9. The combination with a regulator for controlling the operation of a vacuum creating or exhausting device, of a controlling-lever connected therewith, means acting on the controlling-lever to operate it, a suction-tube, a movable counterbalance-reservoir H containing liquid, such as mercury, communicating with the bottom of the suction-tube, and a connection between the controlling-lever and the movable counterbalancing-reservoir H.

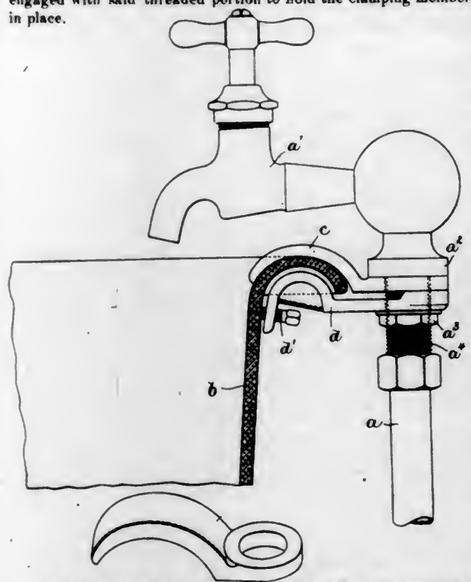
577,264. **BATH-TUB SUPPLY-PIPE.** WILLIAM H. LLOYD, Boston, Mass., assignor to the Smith & Anthony Company, same place. Filed Jan. 9, 1896. Serial No. 574,827. (No model.)

Claim.—1. A water-supply pipe or fixture having a faucet or outlet at its upper portion, a curved clamping member below said outlet formed to bear on the outer surface of the roll of a bath-tub, and a clamping member formed or arranged to enter the recess of said roll and bear against its wall and adjustably connected with said curved member.

2. A water-supply pipe or fixture having a faucet or outlet at its upper portion, a curved clamping member below said outlet formed to bear on the outer surface of the roll of a bath-tub, and a similarly-curved clamping member formed to take into the recess of said roll and adjustably connected with the first-named clamping member.

3. A water-supply pipe or fixture having a faucet or outlet at its upper portion, a curved clamping member below said outlet formed to bear on the outer surface of the roll of a bath-tub, a similarly-curved clamping member formed to take into the recess of said roll and adjustably connected with the first-named clamping member, and a bearing-screw entered through said adjustable clamping member to bear against the side of the tub.

4. A water-supply pipe or fixture having a faucet or outlet at its upper portion, a shoulder below said outlet, a threaded portion below said shoulder, two clamping members movable on said threaded portion and formed to grasp the edge of a bath-tub, and a clamping-nut engaged with said threaded portion to hold the clamping members in place.



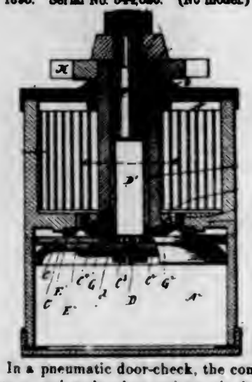
5. A water-supply pipe or fixture having a faucet or outlet at its upper portion, a shoulder below said outlet, a threaded portion below said shoulder, an arm *c* having a concave portion formed to bear on the upper surface of the roll of a bath-tub, an arm *d* below the arm *c* and having a bearing-screw *d'*, said arms being movable on the threaded portion of the pipe, and a nut engaged with said threaded portion and cooperating with the shoulder in confining said arms.

577,265. **BOOT-LACING.** WILLIAM C. O'BRIEN, Chicago, Ill. Filed May 18, 1896. Serial No. 592,026. (No model.)



Claim.—A lacing device consisting of a holder formed from a strip of metal, an intermediate portion of which forms a base and one extremity thereof a closed loop, said base portion having integral prongs and a curved roller journaled in the opening of the loop, substantially as described.

577,266. **PNEUMATIC DOOR-CHECK.** ALBERT A. PAGE, East Haven, Conn., assignor to the Sargent & Company, New Haven, Conn. Filed Apr. 1, 1895. Serial No. 544,096. (No model.)

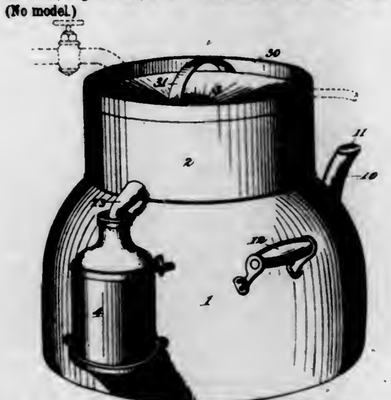


Claim.—1. In a pneumatic door-check, the combination with a case divided into a spring-chamber and an air-chamber by a diaphragm having a circular central opening, of a cap applied to the case to close the open end of the spring-chamber, a spring located in the spring-chamber, a non-rotatable plunger located in the air-chamber, a rotary sleeve passing through the said opening of the diaphragm, through the spring-chamber and through the said cap beyond which it projects and having the inner end of the spring connected with it, a plunger-stem rigidly connected at one end with the plunger, and having its other end threaded, a retaining-plate located within the air-chamber, secured to the diaphragm over the central opening therein, forming a bearing for the inner end of the sleeve, and having an opening for the passage through it of the plunger-stem which it holds against rotation, and which extends into the sleeve, an operating-nut located in the outer end of the sleeve, and having internal screw-threads to coact with the threads of the stem, and means for rotating the said operating-nut, whereby the plunger is reciprocated back and forth in the air-chamber through the medium of the plunger-stem.

2. In a pneumatic door-check, the combination with a case divided into a spring-chamber and an air-chamber by a diaphragm having a circular central opening, of a cap closing the open end of the spring-chamber, a spring located in the spring-chamber, a rotatable sleeve passing through the said opening in the diaphragm, through the spring-chamber and through the said cap beyond which it projects and having the inner end of the spring connected with it, a non-rotatable plunger located in the air-chamber, a plunger-stem connected at one end with the plunger, extending into the said sleeve, and comprising a square body portion, a screw, the threads of which are of coarse pitch, and a stop-shoulder located between its said screw and body portion; a rotatable operating-nut located in the outer end of the sleeve, and internally threaded to receive the screw of the said plunger-stem, a retaining-plate located within the air-chamber, secured to the diaphragm over the opening thereof, forming a bearing for the inner end of the sleeve which rests upon it, and having a square opening through which the squared body portion of the said stem passes, a stop-tube located within the lower end of the sleeve and interposed between the said end and the retaining-plate upon which it rests, and means connected with the nut for rotating the same in one direction or the other.

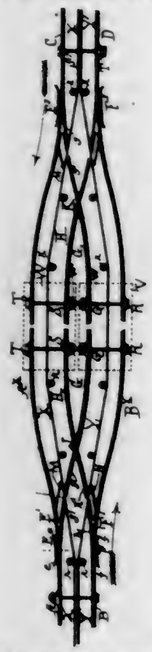
3. In a pneumatic door-check, the combination with a case having a diaphragm divided into a spring-chamber and an air-chamber, of a spring located in the spring-chamber, a rotary sleeve having the inner end of the spring connected with it and constructed at its lower end with an outwardly-extending flange fitting into an annular recess formed in the lower face of the diaphragm aroond the opening made therein for the reception of the sleeve; a retaining-plate secured to the lower face of the diaphragm and impinging against the flanged end of the sleeve, which it holds in place, a plunger located in the air-chamber, a plunger-stem passing through the said retaining-plate in which it is held against rotation, an operating-nut located in the outer end of the sleeve, shouldered for its retention therein, and internally threaded to coact with the threads of the plunger-stem, and means connected with the said nut for rotating the same in one direction or the other, substantially as described.

577,267. **COMBINED TEAKETTLE AND STILL.** LOUISE L. PAINTER, Sag Harbor, N. Y. Filed Jan. 24, 1896. Serial No. 576,652. (No model.)



Claim.—A combined teakettle and still comprising: the body 1 provided with a spout 10 on which is a lid 11; a bottle 4 and means whereby it is supported on one side of the body; and the head 2 mounted on the body 1, and having a removable cover which constitutes also the cover of the teakettle and whose central portion is a cone 3, the head containing a channel 21 near the bottom, and a trough 22, and having a spout 23 communicating with both the channel 21 and the trough 22; whereby condensation of steam generated in the body of the teakettle is procured on both the conical and cylindrical surfaces within the head, and the distilled water formed on both those surfaces is conveyed to and collected in a receptacle, while the teakettle proper is utilized in the capacity of an ordinary teakettle, substantially as described.

577,268. RAILWAY-TURNOUT. CHARLES F. PARKER, New York, N. Y. Filed Apr. 13, 1896. Serial No. 587,424. (No model.)



Claim.—1. The combination in a railway-turnout, of a cable main rails, a fixed rail-switch; a car attached to each end of said cable, a wheel or wheels on one side of the one car and on the other side of the other car and the treads of said wheels being broad enough to project outside of the head of their corresponding outside rail, and a wing-rail on each side of the track outside of the corresponding main rail and adapted to engage said broader wheel or wheels and switch the car, substantially as described.

2. The combination in a cable-railway turnout, of a cable around the sides of the turnout, cars operated thereby, an interrupted inner rail of the turnout, a riding-rail adjacent to the interruption, and a device on the car independent of the main wheels and adapted to ride on said riding-rail and support the car while crossing the cable, substantially as described.

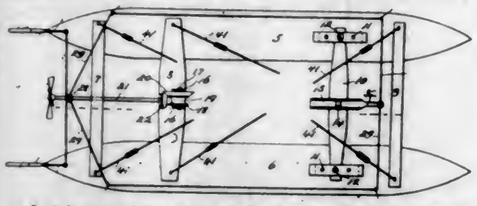
3. In a railway-turnout system, the combination of an interrupted rail, an auxiliary riding-rail, a car and a device thereon independent of the main wheels and adapted to travel on said riding-rail, substantially as described.

4. In a railway-turnout system, the combination of a cable, main rails interrupted where the cable crosses the rails, an auxiliary riding-rail adjacent to the main rails at said points of interruption, a car attached to each end of said cable, and idlers on each car adapted to travel on the corresponding riding-rail, substantially as described.

5. In a cable-railway turnout, a fixed switch consisting of the following elements in combination, viz. main rails interrupted where the cable crosses, frogs, a wing-rail adjacent to each of said main rails and having a part not parallel with said main rails, a car attached to each end of said cable, and relatively broader-treaded wheels on opposite sides of said cars adapted to project outside of their corresponding main rails and engage against said wing-rails and thereby switch the car, substantially as described

577,269. BICYCLE-BOAT. ALLAN R. POWLEY, Kingston, N. Y., assignor of one-half to Bird H. Braselton, Chicago, Ill. Filed Sept. 4, 1896. Serial No. 604,867. (No model.)

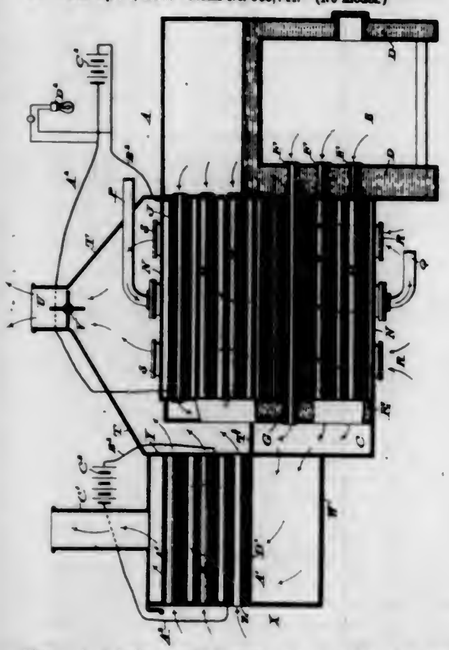
Claim.—1. A boat consisting of two similar floats, each of which is provided with a rudder, and are connected and held parallel to each other, by cross-bars, one of said cross-bars being provided with a friction-roller which is mounted thereon, and provided with a peripheral groove, said roller being provided at one side with a beveled gear-wheel, a suitably-supported propeller-shaft provided with a beveled gear-wheel which is adapted to be operated by the wheel on the roller, said roller being also adapted to support the drive-wheel of a bicycle, and a pivotally-mounted shoe by which the guide-wheel of the bicycle is supported, said shoe being provided with a downwardly-directed arm, with which are connected two cords or similar devices, which are passed through suitable keepers secured to the floats, and carried backwardly and connected with the tillers of the rudders, substantially as shown and described.



2. A boat consisting of two similar floats, each of which is provided with a rudder, and are connected and held parallel to each other by cross-bars, one of said cross-bars being provided with a friction-roller which is mounted thereon, and provided with a peripheral groove, said roller being provided at one side with a beveled gear-wheel, a suitably-supported propeller-shaft provided with a beveled gear-wheel which is adapted to be operated by the wheel on the roller, said roller being also adapted to support the drive-wheel of a bicycle, and a pivotally-mounted shoe by which the guide-wheel of the bicycle is supported, said shoe being provided with a downwardly-directed arm, with which are connected two cords or similar devices, which are passed through suitable keepers secured to the floats, and carried backwardly and connected with the tillers of the rudders, and means for holding a bicycle on said roller and said shoe, substantially as shown and described.

3. In a boat, the combination with two parallel floats which are connected as herein described, of a suitably-supported and peripherally-grooved roller, and also a suitably and pivotally supported shoe, said roller and said shoe being adapted to support the drive-wheel, and the guide-wheel of a bicycle respectively, a beveled gear-wheel mounted on said roller, a suitably-supported propeller-shaft provided with a beveled gear-wheel which is operated thereby, and means connected with said shoe for steering or guiding the boat by means of the handle-bar of the bicycle, substantially as shown and described.

577,270. APPARATUS FOR GENERATING AND APPLYING HEAT TO THERMOCOUPLES. HARRY C. REAGAN, Jr., Philadelphia, Pa. Filed Apr. 1, 1896. Serial No. 585,741. (No model.)



Claim.—1. A boiler provided with water-tubes, fire-tubes passing through the latter, a series of thermocouples supported upon said water-tubes and means for holding said couples in position, substantially as described.

2. A steam or heat generator consisting of a fire-box, a smoke-box, and a water-jacket, fire-tubes connecting the combustion-chamber and smoke-boxes, and water-tubes connecting the water-legs, in combination with thermocouples supported upon said water-tubes, substantially as described.

3. A boiler consisting of water-tubes, a water-leg and a smoke-box, fire-tubes connecting the latter and the combustion-chamber, water-tubes connecting the water-legs and surrounding said fire-tubes, a lining of vitreous or other non-conducting material surrounding the said water-tubes, thermocouples supported upon said lining, a second lining of vitreous or other non-conducting material inclosing said couples, and an inclosing tube surrounding said non-conducting linings and couples, substantially as described.

4. A boiler having water-legs, and a smoke-box, connections between said water-legs and smoke-box, a combustion-chamber, an auxiliary casing attached to said smoke-box, a hood mounted on said boiler, a partition between said smoke-box and hood, air-tubes communicating with the atmosphere and the interior of said hood, a casing surrounding the said air-tubes, thermocouples located within said casing, and a draft-inducing device located in the outlet of said hood, substantially as described.

5. In a device of the character described, a water-tube, a vitreous or non-conducting lining surrounding the same, thermocouples supported upon said lining, another non-conducting lining inclosing said couples, and tubes of copper or other suitable material inclosing the whole, substantially as described.

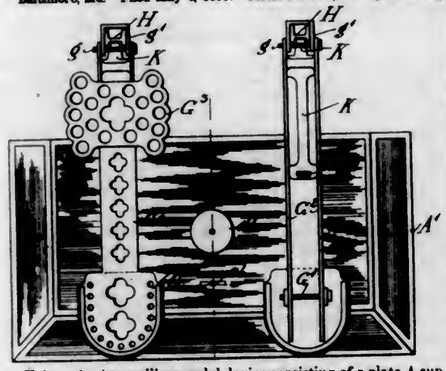
6. A boiler provided with fire-tubes, water-tubes surrounding the same, thermocouples supported upon said water-tubes, a casing surrounding the whole, means for conducting air or other cooling medium around said casing, a hood supported upon said boiler, and means for creating a draft in said hood, substantially as described.

7. A steam-boiler, having water-tubes projecting therefrom, a series of thermocouples supported upon said tubes a casing surrounding the latter and said couples, and means for passing a cooling medium through said casing, substantially as described.

8. A casing, having an open-ended tube secured therein, thermocouples supported upon said tube, a casing inclosing said couples, means for heating said last-mentioned casing and means for cooling said tube, substantially as described.

9. A boiler provided with water-tubes, fire-tubes passing through the latter, a series of thermocouples supported upon said water-tubes, means for holding said couples in position, a casing in communication with said fire-tubes, open-ended tubes secured in said casing, thermocouples supported thereupon, a casing inclosing said couples, and means for heating and cooling the latter, substantially as described.

577,271. PEDAL-BOARD FOR PIANOS. REINHARD SCHULER, Baltimore, Md. Filed May 4, 1895. Serial No. 548,170. (No model.)

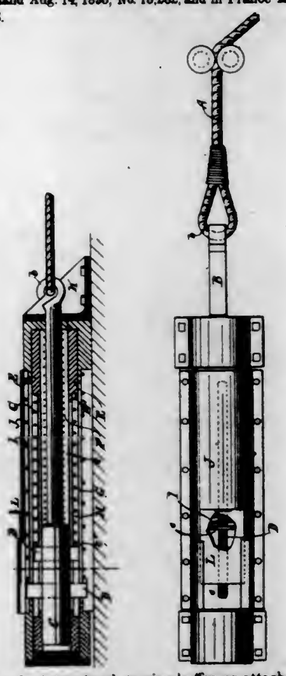


Claim.—1. An auxiliary pedal device consisting of a plate A supported by four levers B pivoted to a bottom plate C, these levers crossing one another in pairs and connected by bolts sliding in slits, said levers B being connected at their upper ends with toothed bars E actuated by a pinion D′ and hand-wheel D; pedal-bars pivoted to the upper side of the plate A and engaging toothed bars vertically pivoted to the pedals, substantially as set forth.

2. An auxiliary pedal device consisting of a plate A supported by four levers B pivoted to a bottom plate C, these levers crossing one another in pairs and connected by bolts sliding in slits, said levers B being connected at their upper ends with toothed bars E parallel to one another guided on the lower side of plate A and actuated by one sole pinion D′ and hand-wheel D, substantially as set forth.

3. In an auxiliary pedal device as described the two pedals G pivoted with the eyes G′ to the upper side of a plate A, and with the eyes g to a piece g' surrounding a toothed shaft H pivoted to the pedals; each of said pedals having, on its lower face a bar K catching with its ends into the teeth of shaft H and held in this position by a lever K′ and a spring K^2, the levers K′ being engaged with the ends of a U-shaped bar F on the lower side of the plate A and an eccentric disk e having a handle e' on the top of its axle, substantially as set forth.

577,272. TENSION-BUFFER. DREW STRETCH, Litherland, England. Filed Sept. 5, 1896. Serial No. 604,937. (No model.) Patented in England Aug. 14, 1895, No. 15,282, and in France Mar. 10, 1896, No. 254,653.



Claim.—1. A tow-head, tension-buffer, or attachment device for use on steamers, barges, steam-plows, and other structures, towed, drawn or used for towing or drawing consisting of a sliding draw-bolt having springs arranged concentrically one around the other on the draw-bar, and each abutting against a separate or removable abutment, whereby each spring will act independently so that one, two or any number of springs can be used as required, substantially as described.

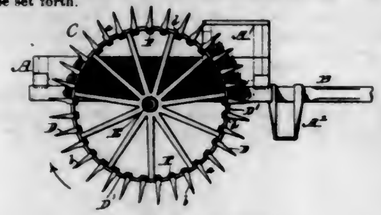
2. A towing-head, tension-buffer, or attachment device for use on steamers, barges, steam-plows, and other structures towed, drawn, or used for towing or drawing, consisting of a sliding draw-bolt having a solid head or abutment at one end and an eyebolt or other attachment at the other for the rope and a coiled spring pressing against the sliding head aforesaid at one end, and against a solid abutment at the other, in combination with an outer cylinder having a coiled spring, one end of which presses against a cotter or other abutment on the draw-link head, and the other against a projecting abutment on the cylinder, and one or more similar cylinders and springs each arranged concentrically and superimposed one around the other in succession, whereby each spring will act independently so that one, two or any number of the springs can be used as required substantially as described.

3. In a towing-head, tension-buffer, or attachment device for use on steamers, barges, steam-plows, and other structures in which two, three, or more springs are arranged concentrically on a draw-bar and each abutting against a separate abutment, consisting of cotters D forming when in position points of abutment for the springs to bear against, the said cotters being capable of being placed in position or removed from the draw-bar as required, whereby one, two or any number of the springs can be brought into play or thrown out of connection.

577,273. ROTARY SPADE-PLOW. JOHN E. SWANSTROM, Worcester, Mass. Filed Apr. 15, 1896. Serial No. 587,599. (No model.)

Claim.—In a rotary spade-plow, the combination of the wheels C C, with the transversely-arranged spades D adapted to fit the rims

of the wheels and having ears *d d* at each side to fit over the edges of the peripheries of the wheels, and means for rigidly fastening said spades to said peripheries of the wheels, substantially as and for the purpose set forth.



577,274. THILL-COUPLING. JESSE U. TABOR, Los Angeles, Cal. Filed Sept. 4, 1896. Serial No. 604,911. (No model.)



Claim.—1. A thill-coupling comprising a clip provided with a socket for a shaft-eye; a shaft having its eye arranged in the socket; a bolt pivoting the eye in the socket; a yoke arranged on the clip and having one of its nuts elongated, one end being arranged to engage the other nut when fully screwed home, and its other end projecting beyond the yoke and being provided with a bolt-hole; a compressible plug arranged between the body of the clip and the shaft-eye; a bolt secured to the plug and passed through the bolt-hole in the elongated nut; and a nut screwed upon the bolt.

2. A thill-coupling comprising a clip provided with a socket for a shaft-eye; a shaft having its eye arranged in the socket; a bolt pivoting the eye in the socket; a yoke arranged on the clip; nuts, securing the yoke on the clip, one of the nuts being undercut and the other nut being elongated and having one end arranged to seat beneath the undercut nut, and having its other end projecting in front of the yoke and provided with a bolt-hole; a compressible plug arranged between the clip and the eye; a bolt arranged to compress the plug, passed through the bolt-hole in the nut, and a nut screwed upon such bolt.

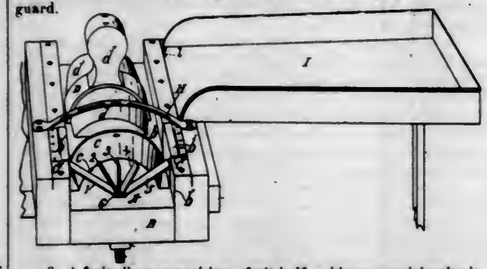
3. In combination, a clip having a shaft-eye socket; a shaft-eye arranged in the socket; a bolt pivoting the shaft-eye in the socket; a yoke arranged on the clip; a lug projecting from the yoke and provided with a bolt-hole; a bolt flattened at one end and returned upon itself to form a spring-plug arranged between the shaft-eye and the clip and having its other end passed through the bolt-hole in the lug; and a nut screwed upon the bolt.

4. In combination, a clip having a shaft-eye socket; a shaft-eye arranged in the socket; a bolt pivoting the shaft-eye in the socket; a yoke arranged on the clip; nuts securing the yoke to the clip, one of such nuts being undercut, and the other nut being elongated and having one end arranged to fit beneath the undercut nut, its other end projecting in front of the yoke and provided with a bolt-hole; a bolt having one end flattened and returned upon itself to form a spring-plug arranged between the shaft-eye and the clip, and having its screw-threaded end passed through the bolt-hole in the elongated nut; and a nut screwed upon the bolt.

577,275. FRUIT-SLICER. MARION WELSH, Los Angeles, Cal. Filed Sept. 9, 1896. Serial No. 605,317. (No model.)

Claim.—1. A fruit-slicer comprising a series of radial blades substantially covering a semicircle; a fruit-compressing guideway, the floor of which is approximately in a plane with the chord of such semicircle and the top of which guideway forms a tapering arch tapering toward the blades, to deliver the fruit-halves to the blades in a compressed condition; and the plunger to force the fruit-halves through the guideway.

2. The combination of the base member having a channel to form a slideway for fruit-halves; a guard seated in the slideway to form the top of a fruit-compressing guideway, the inner fruit-engaging face of which guard forms a tapering arch and is continuous from side to side of the channel and tapers toward the discharging end thereof; a plunger for forcing fruit-halves through between the guard and floor of the channel; and radiating blades at the discharging end of the guard.



3. A fruit-slicer comprising a fruit-half guideway semicircular in cross-section, and adapted to prevent the fruit-halves from expanding laterally when under endwise pressure; a plunger to force fruit-halves through the guideway; and radial blades in the path of the fruit.

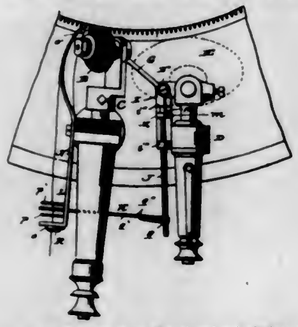
4. The combination of a base member having a slideway for the fruit; a guard with fruit-half guideway semicircular in cross-section; and adapted to prevent the fruit from expanding laterally when under endwise pressure; a plunger for forcing fruit-halves through the guideway; and radial blades in the path of the fruit.

5. The combination of the base member having a channel to form a slideway for fruit-halves; a guard seated in the slideway and provided with a tapering fruit-half guideway, semicircular in cross-section facing the floor of the channel; and adapted to prevent the fruit-halves from expanding laterally when under endwise pressure; a plunger for forcing fruit-halves through the guideway; and radiating blades in the path of the fruit.

6. The combination of a base member having a channel to form a slideway for fruit-halves; a guard seated in the channel and provided with a tapering guideway for fruit-halves, semicircular in cross-section facing the floor of the channel; a plunger for forcing fruit-halves through the guideway; a hole being provided through the base member at the mid-line thereof at the end of the guideway; and a knife having a stock inserted in the said hole, and radial blades in the path of the fruit.

7. The combination of the base member having a channel, a socket for a knife-shank and side sockets for a fruit-guard; a sheet-metal fruit-guard having wings to enter said guard-sockets and bent to form a tapering guideway semicircular in cross-section to face toward the floor of the channel; and a knife having a shank inserted in said socket, and blades radiating from said shank and extending across the outlet of the guideway; and a plunger for forcing fruit-halves through the guideway.

577,276. QUARTER-SAVER MECHANISM FOR KNITTING-MACHINES. JOHN L. WENTWORTH and JOHN DEMPSTER, Little Falls, N. Y. Filed July 20, 1896. Serial No. 599,906. (No model.)



Claim.—1. In a quarter-saver for circular-knitting machines, the combination with a cylinder, a presser-stand, a cloth-stand and a presser, of a bracket, a spring-controlled spindle fitted therein to have a turning movement and a limited vertical play, a dog, a trip-finger, a rock-shaft journaled in the bracket and extending back from the spindle, a collar carried by the rock-shaft and provided with a seat and with an incline or cam for the trip-finger to ride against, and a drop-wire having one end coiled around said shaft to hold it in a proper position thereon.

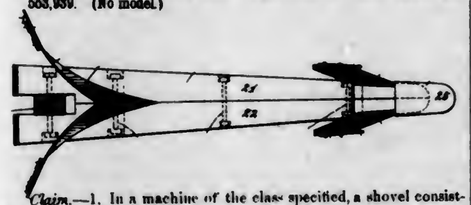
2. In a quarter-saver for knitting-machines, the combination with a spindle carrying a dog for engagement with a cylinder, and a trip-finger, of a rock-shaft extending back from said spindle, a drop-wire carried by the rock-shaft, and positive connections between the rock-shaft and the trip-finger whereby the dog is made to instantly respond to the descent of the drop-wire, as and for the purposes described.

3. In a quarter-saver for knitting-machines, the combination with a spindle carrying a dog and a trip-finger, of a rock-shaft extending back from said spindle, a collar provided with a seat and with an abutment for the trip-finger, and a drop-wire attached to the rear end of said rock-shaft, as and for the purposes described.

4. In a quarter-saver for knitting-machines, the combination with an angular bracket, of a spring-controlled spindle fitted therein to have a turning movement and a limited vertical play, a dog, a trip-finger, a rock-shaft journaled in the bracket and extending back from the spindle, a collar carried by the rock-shaft and provided with a seat and with an incline or cam for the trip-finger to ride against, and a drop-wire attached to the shaft, as and for the purposes described.

5. In a quarter-saver for knitting-machines, the combination with an arm or bracket, and a spindle carrying a dog and trip-finger, of a rock-shaft, positive connections between the rock-shaft and finger, and a drop-wire having a clamp made integral therewith and adapted to engage with the rock-shaft to hold said wire rigidly thereon, as and for the purposes described.

577,277. DITCHING-MACHINE. HEINRICH ALTHAUS and WILLIAM GERKEN, Dyersville, Iowa. Filed June 24, 1895. Serial No. 553,939. (No model.)



Claim.—1. In a machine of the class specified, a shovel consisting of two pieces, and a wedge adapted to be inserted between them to adjust the width of the shovel, substantially as described.

2. In a machine of the kind specified, a shovel consisting of two pieces suitably secured together, means for adjusting the width of said shovel consisting of a wedge-shaped piece adapted to be inserted between the two pieces composing said shovel, and means for raising and lowering said shovel, substantially as described.

3. In a machine of the kind specified, a shovel consisting of two pieces suitably secured together, means for adjusting the width of said shovel, a plow on said shovel, provided with extensible moldboards, and means for raising and lowering said shovel, substantially as described.

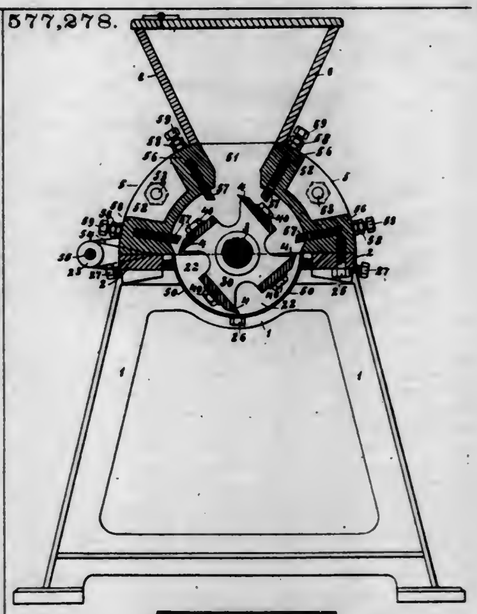
4. In a machine of the kind specified, a shovel consisting of two pieces suitably secured together, means for adjusting the width of said shovel, a plow on said shovel, provided with extensible moldboards, said extensions consisting of plates hinged to the rear ends of said moldboards, means for locking said extensions in position with relation to said moldboards so as to form practically continuous moldboards, and means for raising and lowering said shovel, substantially as described.

577,278. ROTARY CUTTING AND COMMINUTING MACHINE. ERNST F. AUTENRIETH, New York, N. Y.; Marie Autenrieth administratrix of said Ernst F. Autenrieth, deceased. Filed Mar. 20, 1896. Serial No. 584,165. (No model.)

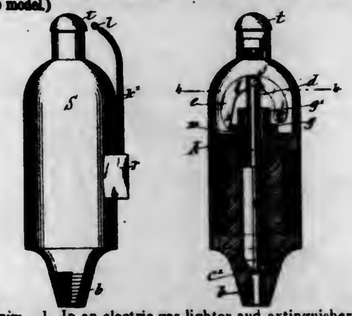
Claim.—1. A rotary cutting and comminuting machine comprising a standard, the top 2 mounted thereon and having the opening 20, sections 22, lugs 23 and bearings 21, a screen 50 on the sections 22, bolts 26 passing through the screen into the sections 22, bolts 27 in the top abutting at their inner ends against the screen, the sections 22 and screen 50 constituting the lower part of the casing, and the upper part of the casing separable from the lower part and hinged to the lugs 23 on the top 2, substantially as described.

2. A rotary cutting and comminuting machine comprising: the uprights 1 of the standard; the top 2 supported near each end by one of the uprights, the top consisting of the main portion in which is the opening 20 and of sections 22 extending downward between the uprights at the ends of the opening 20, and the top being provided with shaft-bearings between its ends and those of the opening; and a screen 50 secured to the curved edges of the sections 22; in combination with the upper part of the casing, hinged to the lower part and comprising the ends 51, adapted to rest on the sections 22 of the top, and castings 52, bolted to the ends 51 and containing knives 57; the shaft 3 with cutter-heads 30 secured thereon; and knives 4 secured to the cutter-heads; substantially as described.

577,278.



577,279. ELECTRIC GAS-LIGHTER. JAMES T. ARMSTRONG and AXEL ORLIVE, London, England. Filed Nov. 19, 1896. Serial No. 612,695. (No model.)

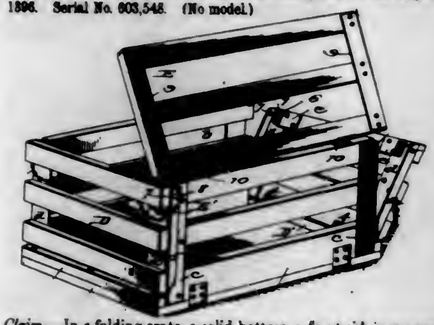


Claim.—1. In an electric gas lighter and extinguisher, the combination, with an electromagnet or solenoid, of an armature or core adapted to be lifted by said solenoid or electromagnet, which core forms the gas-controlling valve, a permanent magnet that is pivotally applied to a spindle on said core or valve, and means for retaining the permanent magnet and the valve in lifted position when the circuit is broken for supplying the gas, or releasing said magnet by reversing the direction of the current in said direction so as to permit the valve to drop back to its seat for cutting off the supply of gas when the circuit is again broken, substantially as set forth.

2. In an electric gas lighter and extinguisher, the combination, with an electromagnet or solenoid, of an armature or core adapted to form a gas-controlling valve, a gas-supply socket, having a seat for said valve, a permanent magnet pivotally applied to a spindle on said core or valve, and means for engaging the permanent magnet and the valve in raised position when the current in the circuit has a given direction and retaining said valve in raised position when the circuit is broken, or releasing said valve when the direction of the current in the said circuit is reversed so as to return it to its seat and effect the cutting off of the gas-supply when the circuit is again broken, substantially as set forth.

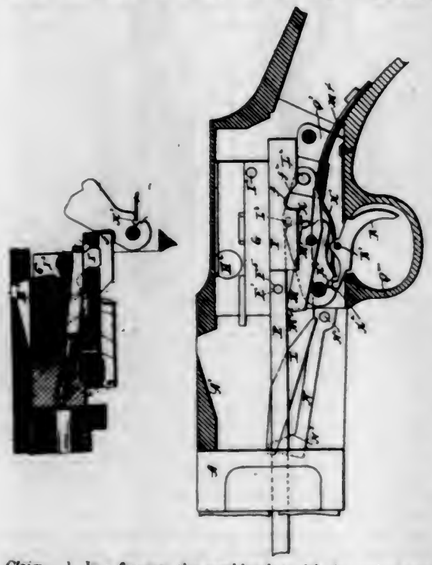
3. In an electric gas lighter and extinguisher, the combination of an electromagnet or solenoid, an armature or core adapted to form a gas-controlling valve, a permanent magnet pivotally applied to a spindle on said core or valve, a resistance in the circuit of the coil of the electromagnet or solenoid arranged close to the burner, and means for engaging the permanent magnet when the current in the circuit has a given direction and retaining said valve in raised position when the circuit is broken or releasing said valve when the direction of the current is reversed so as to return the valve to its seat when the circuit is again broken, substantially as set forth.

577,280. FOLDING CRATE. EDWARD J. BROWN, Hemlock, N. Y., assignor of one-half to William McLeod, same place. Filed Aug. 21, 1896. Serial No. 603,548. (No model.)



Claim.—In a folding crate, a solid bottom, a front side composed of slats inwardly hinged to the bottom, the slats being held together with metal strips, a rear side and top hinged thereto composed of slats held together by metal strips, said rear side being outwardly hinged to the bottom, and ends composed of slats held together by thin strips, the outer ends of which are bent inwardly at a right angle, thin plates also secured to the ends and having their inner edges turned inward at a right angle forming with the right-angled portions on the strips a narrow recess to receive the edges of the front and rear sides when the crate is set up, said ends being inwardly hinged to the bottom and carrying chains having bolts adapted to securely hold the ends and front and rear sides together, as and for the purposes stated.

577,281. MAGAZINE-FIREARM. JOHN M. BROWNING, Ogden, Utah, assignor to the Winchester Repeating Arms Company, New Haven, Conn. Filed Mar. 16, 1896. Serial No. 583,367. (No model.)



Claim.—1. In a firearm, the combination with the action mechanism thereof, of a sliding handle located forward of the said mechanism and adapted to be reciprocated back and forth in a line parallel or substantially parallel with the longitudinal axis of the gun-barrel, a blocking-piece released by the recoil following the firing of the gun, and coacting with a member of the action mechanism for blocking the gun against being prematurely unlocked and opened by a rearward draft exerted upon the sliding handle when the gun is fired.

2. In a firearm, the combination with the frame thereof, of action mechanism located therein, a sliding handle located forward of the said mechanism, and adapted to be reciprocated back and forth in a line parallel or substantially parallel with the axis of the gun-barrel, an action-bar extending rearwardly from the handle into the frame within which it is connected with the action mechanism for operating the same, a blocking-piece located within the said frame, constructed and arranged to be released for retirement by the recoil following the firing of the gun, and coacting with a member of the action mechanism for blocking the gun against being prematurely unlocked and opened by a rearward draft exerted upon the sliding handle when the gun is fired, means for moving the said blocking-piece into its blocking position, and means for retiring the said blocking-piece when the same is released by the recoil following the firing of the gun.

3. In a firearm, the combination with the action mechanism thereof, including a breech-closure and a recoil-block; of a sliding handle located forward of the said action mechanism and adapted to be reciprocated in a line parallel or substantially parallel with the longitudinal axis of the gun-barrel, an action-bar extending rearwardly from said handle into the frame, and connected with the action mechanism for operating the breech-closure, and for operating the recoil-block to lock and unlock the gun; and a blocking-piece released for retirement by the recoil following the firing of the gun, and coacting with a member of the action mechanism for blocking the gun against being prematurely unlocked and opened by rearward draft exerted upon the handle when the gun is fired, substantially as described.

4. In a firearm, the combination with the frame thereof, of action mechanism including a breech-closure, a breech-closure slide and a recoil-block, a sliding-handle located forward of the action mechanism and adapted to be reciprocated back and forth in a line parallel or substantially parallel with the longitudinal axis of the gun-barrel and connected with and operating the said breech-closure, breech-closure slide and recoil-block, a blocking-piece in the form of a safety-dog, released by the recoil following the firing of the gun and coacting with the breech-closure slide to block the same and prevent the premature unlocking and opening of the gun by rearward draft upon the sliding handle when the gun is fired, a spring arranged to move the said dog into its active or blocking position, and means under the control of the firing mechanism of the gun for retiring the dog when it is so released, against the tension of the said spring.

5. In a firearm, the combination with the action mechanism thereof, of a sliding handle for operating the said mechanism, a safety-dog for blocking the opening of the gun by rearward draft exerted upon the sliding handle when the gun is fired, a light spring arranged to move the dog into its active or blocking position, a heavier spring for retiring the dog, and means for cutting out the heavy safety-dog spring to permit the light safety-dog spring to act, substantially as set forth.

6. In a firearm, the combination with the action mechanism thereof, of a sliding handle for operating the said mechanism, a safety-dog for blocking the gun against being prematurely opened by rearward draft exerted upon the sliding handle when the gun is fired, a light safety-dog spring for moving the dog into its blocking position, a heavy safety-dog spring for moving the dog into its retired position, and a hammer constructed and arranged to act upon the safety-dog spring whereby the same is cut out of action when the hammer is cocked, substantially as described.

7. In a firearm, the combination with the frame thereof, of action mechanism, a sliding handle located forward of the same and adapted to be reciprocated back and forth in a line parallel or substantially parallel with the longitudinal axis of the gun-barrel, a safety-dog against which a member of the action mechanism is jammed in case of premature rearward draft upon the sliding handle, whereby the gun is prevented from being prematurely unlocked and opened, a spring for moving the dog into its blocking position, and means, under the control of the firing mechanism of the gun, for retiring the dog when it is released from the jamming action of the coacting member of the action mechanism by the recoil following the firing of the gun.

8. In a firearm, the combination with the action mechanism thereof including a breech-closure slide, of a sliding handle connected with the said mechanism for operating the same, a tang-head, a safety-dog mounted in the said tang-head in position to engage with the breech-closure slide for blocking the same in its closed position, a light safety-dog spring for moving the dog into its active position, and a heavy safety-dog spring adapted to be cut into and out of operation under the control of the hammer of the arm, substantially as described.

9. In a firearm, the combination with the hammer thereof, of a pivotal carrier constructed and adapted to engage with the hammer and restrain the same until the gun is virtually closed, and a trigger also coacting with the hammer, substantially as described.

10. In a firearm, the combination with a hammer having a notch formed in its top, of a pivotal carrier constructed with a trigger-tooth arranged to take into the notch in the hammer and hold the hammer in its cocked position until the gun is virtually closed, substantially as described.

11. In a firearm, the combination with the hammer thereof, of a pivotal carrier having a trigger function, and constructed to have a trigger-hold upon the hammer until the gun is virtually closed, and a spring coacting with the carrier upon which it imposes its tension just as the gun is about to be fully closed, substantially as described.

12. In a firearm, the combination with a breech-bolt, of a breech-bolt slide connected with the breech-bolt for operating the same, a pivotal carrier connected with the said breech-bolt slide by means of which it is lifted into its highest position and sustained therein until the gun is virtually closed, a hammer engaged by the pivotal carrier, and held by the same as by a trigger until the gun is virtually closed, and a trigger also coacting with the hammer for releasing the same.

13. In a firearm, the combination with a breech-bolt slide having depending flanges, the rear ends of which are beveled, and which are notched forward of their said ends, and a pivotal carrier provided with yielding pins which are thrust inward by the said bevels, and which coact with the notches for lifting the carrier, substantially as set forth.

14. In a firearm, the combination with a longitudinally-movable breech-bolt, of a breech-bolt slide located below the said bolt and connected therewith for operating the same, and provided at its forward end with a laterally-projecting supporting-pin, and a pivotal carrier coacting at its rear end with the breech-bolt slide which lifts it into its highest position, and constructed in one of its side walls with a groove receiving the said pin which supports the carrier in such position until the gun is virtually closed.

15. In a firearm the combination with a breech-bolt slide having depending flanges and a supporting-pin, of a pivotal carrier provided with yielding pins which coact with the said flanges to lift the carrier and support the same in its lifted position for a time, the said carrier being also formed with a groove which receives the said pin which maintains the carrier in its lifted position until the gun is virtually closed, substantially as described.

16. In a firearm, the combination with the frame thereof, of a sliding handle located forward of the said frame, adapted to be reciprocated back and forth in a line parallel or substantially parallel with the longitudinal axis of the gun-barrel, and constructed with a rearwardly-extending action-bar; of a longitudinally-movable breech-bolt, a recoil-block pivotally mounted in the said bolt and movable upward for engagement with the frame, and downward for clearance therefrom, a breech-bolt slide located beneath the breech-bolt, and connected with the said action-bar, and a tumbler pivotally mounted in the breech-bolt and connected with the recoil-block and breech-bolt slide.

17. In a firearm, the combination with a breech-bolt, of a recoil-block pivotally mounted therein, and a tumbler also mounted in the breech-bolt and coacting with the recoil-block to lift the same into engagement with the frame and to retract it from such engagement, substantially as described.

18. In a firearm, the combination with a breech-bolt having a transverse horizontal recess formed in it, of a recoil-block pivotally mounted therein and having its forward end knuckle-shaped to fit into the said recess, and a pin mounted in the breech-bolt, forming a pivot upon which the recoil-block swings, and having one end provided with an enlarged head which fills the outer end of the said recess, substantially as described.

19. In a firearm, the combination with the breech-bolt, of a breech-bolt slide, a recoil-block pivotally mounted therein, a tumbler mounted in the breech-bolt coacting with the said block, and extending downward into connection with the breech-bolt slide, a reciprocating action-bar connected at its rear end with the said breech-bolt slide for operating the same, and a sliding handle connected with the forward end of the bar and movable back and forth in a line parallel or substantially parallel with the longitudinal axis of the gun-barrel, substantially as described.

20. In a firearm, the combination with a breech-bolt, of a recoil-block mounted therein, a tumbler also mounted in the breech-bolt and coacting with the recoil-block, a firing-pin mounted in the breech-bolt and engaging with the tumbler which retracts it after it has been fired, a breech-bolt slide located below the breech-bolt, and connected with the tumbler which it rocks for actuating the recoil-block and the firing-pin, an action-bar connected with the slide for operating the same, and a sliding handle located at the forward end of the action-bar for operating the same, substantially as described.

21. In a firearm, the combination with a breech-bolt, of a breech-bolt slide, a recoil-block, an operating-tumbler and a firing-pin mounted in the breech-bolt, and a breech-bolt slide constructed to operate the said tumbler which in turn operates the recoil-block and the firing-pin, substantially as described.

22. In a firearm, the combination with a frame having openings formed opposite each other in its side walls, of a breech-bolt closure, a coupling-pin movable under friction mounted in the forward end of the said slide and alining with the said holes when the slide is at the limit of its rearward movement, a sliding handle, and an action-bar extending rearwardly from the said handle, and receiving the said coupling-pin which is moved into or out of engagement with the action-bar by means of a tool inserted through the holes in the frame, substantially as described.

23. In a firearm, the combination with a tubular magazine and a carrier, of a combined cartridge-stop and carrier-spring pivotally mounted within the frame of the arm, and adapted at its forward end to form a magazine-stop and at its rear end to engage with the carrier and place the same under spring-tension, and means for operating the said combined part to elevate its rear end to place the carrier under its spring-tension just as the gun is closed, and to elevate its forward end to bring the same into play as a cartridge-stop at the proper time, substantially as described.

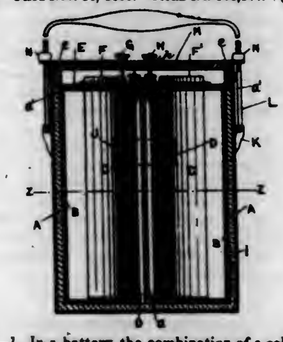
24. In a firearm, the combination with the frame thereof, of a removable barrel, a magazine connected therewith, a take-up collar mounted upon the barrel, and a non-rotatable sliding coupling-collar mounted on the barrel so as to be interposed between the take-up collar and the frame when the barrel and magazine are assembled with the frame, substantially as described.

25. In a magazine-firearm, the combination with the frame thereof, of a barrel having its rear end formed with continuous and interrupted screw-threads, a take-up collar placed over the said continuous threads, a non-rotatable sliding, coupling-collar placed over the interrupted threads, the exposed portions of which coact with corresponding threads formed in the forward end of the frame between which and the take-up collar, the coupling-collar is located, substantially as described.

26. In a firearm, the combination with the frame thereof, of a removable barrel, a magazine connected therewith, a take-up collar mounted upon the barrel, and a sliding non-rotatable coupling-collar also mounted upon the barrel, and provided with a stop-lug which coacts both with a stop upon the frame and with the magazine, to prevent the barrel from being rotated in either direction, substantially as described.

27. In a magazine-firearm, the combination with a frame, of a removable barrel, a rotatable take-up collar mounted thereupon, a non-rotatable sliding coupling-collar also mounted thereupon, a rotatable magazine connected with the barrel at its forward end and adapted at its rear end to enter an opening in the forward end of the frame, two stops located upon the magazine, a sliding handle mounted upon the magazine, and an action-bar extending rearward from the sliding handle and coacting with one of the said stops for preventing the magazine from being rotated in one direction after the gun has been assembled, the other stop coacting with the said take-up collar to prevent the magazine from rotating in the opposite direction after the gun has been assembled, substantially as described.

577,282. ELECTRICAL BATTERY. EDWARD BURNET, Wigan, England. Filed Nov. 30, 1895. Serial No. 570,577. (No model.)



Claim.—1. In a battery, the combination of a cell formed with a socket in its upper opened end, with the electrodes, and a tray supporting the electrodes and closely fitting within the socket and having a flange extending over the walls of the cell to prevent leakage into the tray, substantially as described.

2. The combination of the cell having a socket or rabbet at top, the electrodes, the tray supporting the electrodes, and closely fitting within the socket and formed with a flange which projects over and hermetically seals the top of the cell, the lid fitting closely upon the flange of the tray, and suitable connections and terminals above the tray connected through it and the lid, whereby the connections are protected from the contents of the cell, substantially as described.

3. The herein described method of treating battery-carbons for preventing the creeping or spreading of paraffin, which consists in plating or forming upon the carbons adjacent to one end a band or ribbon of negative metal, and then paraffining the end of the carbon above the plated portion, leaving the plated portion and the part below free of paraffin, substantially as set forth.

4. The herein-described method of treating carbons for preventing the creeping or spreading of paraffin, which consists in plating the upper ends of the carbons, removing a strip or portion of the plating, and paraffining the upper end of the carbon and the portion from which the plating has been removed, substantially as set forth.

5. The herein-described method of preparing battery-carbons which consists in plating the upper end of the carbon, brazing a metal cap or plate to the plated end of the carbon, removing a strip or portion of the plating from the carbon beneath the metal cap or strip, and finally immersing the capped end of the carbon in paraffin up to and including the portion from which the plating has been removed, substantially as set forth.

6. A battery-carbon having a metallic cap or plate secured to its upper end, a portion plated with a negative metal below the cap portion, and paraffin above the plated portion, as set forth.

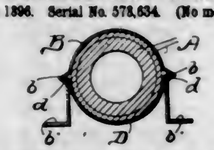
7. In a battery, the combination of the double cell, the tray supported in the cell, the carbons supported from and extending through the tray, the cap-pieces F F' secured to the upper ends of the carbons, the terminals G, H electrically connected with the cap-pieces, and an extension from cap-piece F' to one of the zincs, substantially as set forth.

577,283. METHOD OF TREATING WATERPROOFED SURFACES. EDWARD M. CAFFALL, New York, N. Y. Filed May 14, 1896. Serial No. 591,497. (No specimens.)

Claim.—1. The herein-described method of treating waterproofed surfaces, the same consisting in applying a waxy, absorbable material, and upon this a powdered absorbing material, sufficient to take up the surplus waterproofing substance, and then removing the powder by washing with water, substantially as explained.

2. The herein-described method of treating waterproofed surfaces, consisting in applying waxy, absorbable material in a heated state, employing a powdered, absorbing material to take up the surplus of the waterproofing material while still heated, heating the absorbing material thus applied, allowing it to cool, and then removing the powder, substantially in the manner explained.

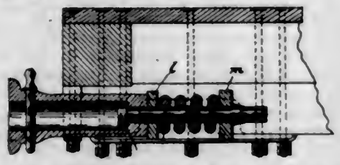
577,284. CONDUIT-SHEATHING. HORACE B. CAMP, Akron, Ohio. Filed Feb. 10, 1896. Serial No. 578,634. (No model.)



Claim.—1. A conduit suitably metallically sheathed externally, and having the sheathing composed of an inner section D and an outer section B embracing the longitudinal edges of the inner sheathing-section and extending inwardly at opposite sides of the conduit flush with or beyond the innermost extremity of the conduit, and said extensions of said outer sheathing section terminating in laterally and outwardly projecting flanges b', substantially as shown, for the purpose specified.

2. A conduit of the character indicated, that is suitably metallically sheathed, and has the sheathing composed of two sections, the inner section D bent laterally and outwardly near its longitudinal edges, and the other section B suitably shaped to embrace the longitudinal edges of the inner sheating-section and extending beyond said edges of the inner section a suitable distance and terminating in laterally and outwardly projecting flanges b', substantially as shown, for the purpose specified.

577,285. DRAFT-BOLT. GEORGE H. CAUGHERTY, Blairsville, Pa. Filed Nov. 29, 1895. Serial No. 570,431. (No model.)



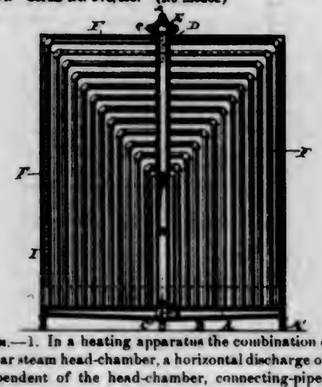
Claim.—In a draw-head fastener, a bolt having at one end a slot, said slot ending in recesses penetrating the solid portion of the bolt, shanks extending across the slot at the top and bottom, spring-pressed lugs having arms to engage the shanks and having rear extensions operating in the recesses and in combination a draft-plate arranged over the shanks, a following-plate and coil-spring arranged on the bolt, as and for the purpose described.

577,286. FOLDING SHADE-HOLDER. EMORY S. COGGINS, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed Sept. 21, 1896. Serial No. 606,468. (No model.)



Claim.—In a folding shade-holder for lamps, the combination with a band having a plurality of integral outwardly-projecting, slotted, radial arms, each of which has its outer end closed by a web, and each of which contains a transversely-arranged pivot; of pivotal shade-holding arms provided at their inner ends with eyes which are adapted to be set downward into the slots of the said arms of the band with which they are pivotally connected by means of the said pivots which pass through their eyes, and which are supported in their elevated open positions upon the upper forward edges of the webs closing the outer ends of the arms of the bands substantially as set forth.

577,287. STEAM-RADIATOR. THOMAS F. DEXTER, Boston, Mass., assignor to the Warren Webster & Company, Camden, N. J. Filed Feb. 8, 1896. Serial No. 578,496. (No model.)



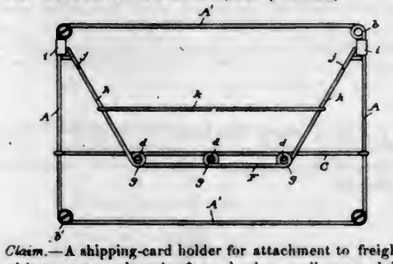
Claim.—1. In a heating apparatus the combination of a vertical rectangular steam head-chamber, a horizontal discharge or foot chamber independent of the head-chamber, connecting-pipes extending laterally from opposite faces of the head-chamber then downward and opening into the discharge or foot chamber and constituting the only means of communication between the head and foot chambers, said head and foot chambers and connecting-pipes being maintained unobstructed by water, a steam-supply pipe for supplying steam to the head-chamber, and a discharge-pipe from the discharge or foot chamber having no connection with the steam-pipe for the water of condensation, the entire apparatus being exposed to the circulation of the atmosphere.

2. In a heating apparatus, a series of vertical head-chambers bolted together with a common communication with the steam-supply, in combination with a series of horizontal foot-chambers bolted together with a common discharge for discharging water of condensation and independent of the head-chambers, a series of sets of inverted-L-shaped pipes having horizontal portions thereof opening into the vertical walls of the head-chambers and vertical portions opening into horizontal walls of the foot-chambers, and vertical supports or pedestals for sustaining the head-chambers and obstructing the free passage of air below said head-chambers upon the foot-chambers.

3. The combination in a heating apparatus of vertical head-chamber D, a steam-supply pipe therefor, a horizontal foot-chamber A provided with a discharge-pipe, two sets of inverted-L-shaped tubes F, one set of which opens from one vertical face of the head-chamber and the other set of which opens from the opposite face of the said head-chamber and the lower ends of which pipes open into the upper surface of the foot-chamber, and a vertical pedestal or support arranged below the head-chamber for supporting it vertically upon the foot-chamber but at an angle thereto.

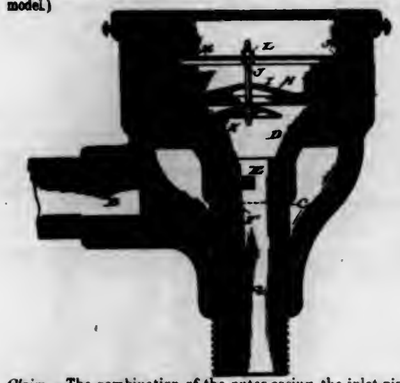
4. The combination in a heating apparatus of a series of vertical head-chambers D opening into each other, combined with a steam-supply pipe therefor, a series of horizontal foot-chambers A opening into each other and provided with a discharge-pipe, two sets of inverted-L-shaped tubes F for each head and foot chamber, one set of which opens from one vertical face of the head-chamber and the other set of which opens from the opposite face of the said head-chamber and the lower ends of which pipes open into the upper surface of the foot-chamber, an inclosing case having supply and discharge air-apertures upon opposite sides of the heads and heating-pipes whereby the air is required to flow over the heads and pipes thereof successively, and power devices for creating a forced draft or blast of air through the said case and in the space between the tubes.

577,288. CARD-HOLDER. JOHN H. DOWNING, Portsmouth, Va. Filed Dec. 15, 1896. Serial No. 615,753. (No model.)



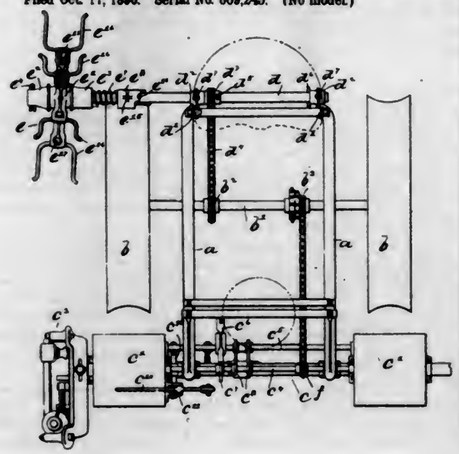
Claim.—A shipping-card holder for attachment to freight-cars, comprising a rectangular wire frame having a coil or eye, h, in each corner; a stationary cross-bar, C, extending from one end of the frame to the other and carrying spurs whose points project outward; a bar, F, parallel with said cross-bar and having loop-eyes, g, which take over the spur-points; and two arms, k, which carry said loop-eye bar and each of which has a spring-coil, j, and is attached to the said frame, as set forth.

577,289. FLUID-PRESSURE REGULATOR. WILLIAM C. DOWNWARD, Wilmington, Del. Filed Nov. 5, 1896. Serial No. 611,105. (No model.)



Claim.—The combination of the outer casing, the inlet-pipe, the gas-chamber removably attached to the upper end of the same, the ring secured within the outer casing around the gas-chamber, the valve-stem guide consisting of upwardly-converging arms secured on top of the gas-chamber, a valve within said chamber, a valve-stem rising from said valve through the guide, and a float removably secured on the upper end of the stem and having its edge playing between the outer casing and the ring secured thereto.

577,290. CORN-PLANTER. LOUIS C. EVANS, Springfield, Ohio. Filed Oct. 17, 1896. Serial No. 609,245. (No model.)



Claim.—1. In a corn-planter, a main frame, driving-wheels, a reel-shaft supported in said frame, and a reel on said shaft, said reel having arms arranged obliqne to its axis of rotation, and means for rotating said reel from the driving-wheels, substantially as specified.

2. The combination with a planter-frame and a driving-shaft, a reel-shaft connected to said driving-shaft, a reel on said reel-shaft, said reel having its axis parallel to the axis of said shaft with its arms in a plane oblique to the axis of said shaft, substantially as specified.

3. The combination with the main axle, a shaft having a driving connection with said axle, a reel on said shaft, said reel having hubs with conical ends, as described, and cup-shaped friction-collars adapted to fit over said conical ends, a spring resting against one end of said hub, and a rotating adjustable collar having cam-steps adapted to engage a pin on said shaft so as to adjust said spring, substantially as specified.

4. The combination with a reel and its hub, a friction-collar adapted to bear against the same, a shaft on which said hub is journaled, a pin in the shaft engaging in recessed openings in said hub, a sleeve having projecting arms journaled on said shaft, and a recessed or slotted way extending through said sleeve, a pin in said shaft, and a series of cam-shaped steps in one end of said sleeve, and a spring between the end of said sleeve and said friction-collar, substantially as specified.

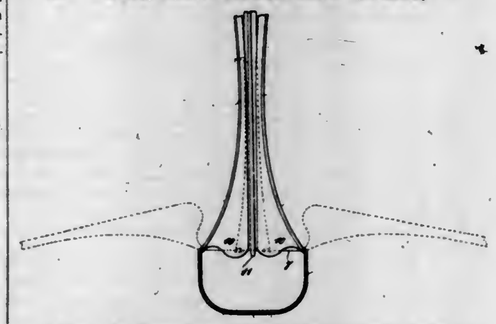
5. In a corn-planter, a rotating shaft, a rock-shaft, a ratchet-wheel on said rotating shaft and a pawl on said rock-shaft to engage said ratchet-wheel, and a pivoted pawl in a stationary part adapted to engage said ratchet-wheel and hold it against backward movement, substantially as and for the purpose specified.

6. The combination with a rock-shaft having a projecting arm, a hinged lever pivotally connected at one end to a link, said link being perforated and threaded onto the end of said arm to form a toggle-jointed connection between said lever and said arm, substantially as specified.

7. The combination with a rock-shaft and arm thereon having a projecting finger turned at right angles, as described, a pivoted lever pivoted on an axis at right angles to said shaft, a two-part link adapted to embrace the end of said lever to which it is pivoted, said link being perforated to be threaded on the angularly-arranged finger of said arm, substantially as specified.

8. The combination with a wheel-frame, and a runner-frame, a guide on said runner-frame and a reel on said wheel-frame, said reel being journaled on a shaft whose axis is parallel to the axis of the driving-wheels, a driving connection from one or more of said driving-wheels to said shaft, said reel being arranged in a plane oblique to the axis of said shaft whereby the arms of said reel are caused to travel in different paths of the same diameter, substantially as specified.

577,291. LEMON-SQUEEZER. ANNIE J. FALES, Morehead City, N. C. Filed Aug. 10, 1896. Serial No. 602,297. (No model.)

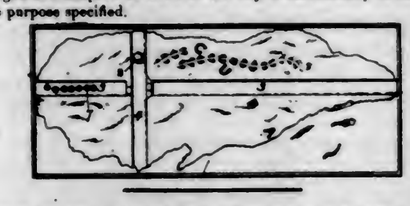


Claim.—The herein-described lemon-juice extractor, which consists of a suitable receptacle provided with a perforated bottom, and open at the top, and plates or jaws hinged to the opposite sides thereof, and provided with upwardly-directed arms or handles, said plates being also provided on their inner sides with inwardly-directed projections, and vertical flanges, substantially as shown and described.

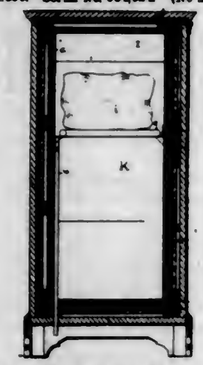
577,292. PUZZLE. REGINALD FORWOOD, New Orleans, La. Filed July 1, 1896. Serial No. 597,745. (No model.)

Claim.—The herein-described puzzle comprising the body having the way 3, the way 4, intersecting the way 3, the walls separating the ways 3, and 4, and having apertures disposed in the direction of the length of the way 3; the said apertures being arranged out of alinement with each other, a series or plurality of balls 7, adapted

to move in the ways 3, and 4, and a comparatively large ball arranged and adapted to move in the way 4, substantially as and for the purpose specified.



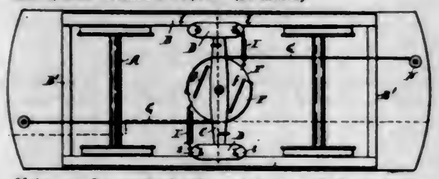
577,298. **REFRIGERATOR.** LUCIUS H. FRINK, Rock Island, Ill. Filed Mar. 24, 1896. Serial No. 584,624. (No model.)



Claim.—1. The combination in a refrigerator having solid inner and outer walls, of the sash fitted between said walls and the glass panels carried by said sash, substantially as described.

2. The combination in a refrigerator having solid inner and outer side walls, a hinged top carrying a sash fitted with a glass panel, a corresponding sash fitted in the bottom thereof and the removable sash interposed between said side walls, substantially as described.

577,294. **CAR-BRAKE.** ADOLPH S. GOETZ, Detroit, Mich. Filed Mar. 9, 1896. Serial No. 582,391. (No model.)



Claim.—1. In a car-brake, the combination with the truck-frame, of the vertically-movable cross-beam, the ways in the inner face of the rails of the frame which receive the ends of said beam, the brake-shoes connected with said beam and depending adjacent to the rails of the track, and the rotary movable wedge for actuating said beam.

2. In a car-brake, the combination with the truck-frame, of a vertically-movable cross-beam carrying the depending brake-shoes, the oppositely-inclined ways in the upper face of said beam, the rotary disk carrying the wedge-blocks adapted to engage in said ways, and means for actuating said disk.

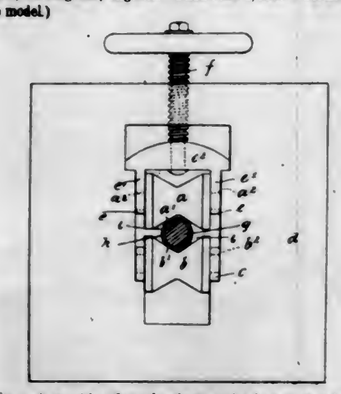
3. In a car-brake, the combination with the truck-frame, of the vertically-movable cross-beam carrying the brake-shoes which depend adjacent to the track, the fixed cross-beam above said movable beam, the rod depending from said fixed beam and passing freely through said movable beam, the spring on the lower end of said rod bearing against the under face of said movable beam, and the movable wedge for actuating the movable cross-beam.

4. In a car-brake, the combination with the brake-actuating mechanism, of the brake-shoes depending adjacent to the rails of the track, said shoes having in their under face, at each end, an inclined recess, substantially as set forth.

577,295. **PROCESS OF DYEING.** WILLIAM J. S. GRAWITZ, Nogent-sur-Marne, France. Filed Jan. 18, 1895. Serial No. 535,347. (No specimens.) Patented in Belgium July 9, 1894, No. 110,914; in Italy Jan. 5, 1895, LXXIV, 393; in France Jan. 5, 1895, No. 244,121; in Hungary Jan. 10, 1896, No. 5,580; in England Feb. 6, 1895, No. 2,614; in Austria Feb. 10, 1895, No. 41, and in Spain Mar. 30, 1895, No. 16,831.

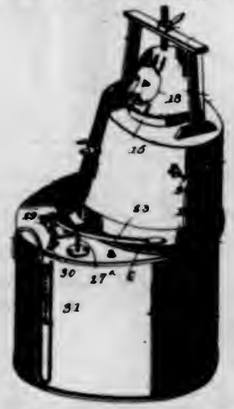
Claim.—The process herein described of dyeing or printing vegetable textile fibers, prepared wool or silk by means of the sulfocyanate of anilin or its homologues as set forth, which consists in treating the fibers with a mixture of a salt of anilin with a soluble cyanate capable of forming the sulfo-cyanate of anilin by double decomposition, and developing the color by the oxidizing of the chlorate in presence of a salt of vanadium, substantially as described.

577,296. **MEANS FOR REMOVING SEAMLESS TUBES FROM MANDRELS.** ROBERT F. HALL, FREDERICK WARWICK, and THOMAS SMITH, Birmingham, England. Filed June 1, 1896. Serial No. 593,876. (No model.)



Claim.—A machine for releasing a tube from a mandrel, consisting of two counterpart rolls journaled one above the other and each having a V-shaped groove in its periphery, the walls of which bear against the tube at four distinct and separated points to secure four distinct clearance-spaces with the single pair of rolls, substantially as and for the purpose described.

577,297. **DEPURATOR.** ELISA J. HARDING, Denver, Colo. Filed Nov. 21, 1895. Serial No. 569,645. (No model.)

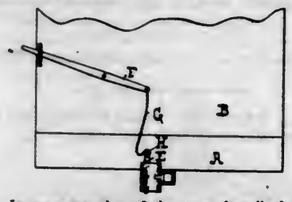


Claim.—1. In a depurator, a vacuum-box having a top manhole, a hinged cover-section working over said manhole and provided in its top with a neck-opening surrounded by an upwardly-extending hood-flange, a pair of registering semicircular neck-plates removably fitted within said hood-flange, a flexible hood attached at its lower edge to said flange, and an adjustable rigid support for the top of said hood, substantially as set forth.

2. In a depurator, a vacuum-box having a top manhole, a cover-section arranged over said manhole and provided in its top with a neck-opening, a flexible hood secured at its lower edge to the cover-section over said neck-opening, a skeleton bracket-frame arranged on top of the cover-section, a screw-rod loosely working through the top of said frame and carrying at its lower end a supporting-plate fitted in the top of the hood, and an adjusting-nut mounted on said rod above said frame, substantially as set forth.

3. In a depurator, a vacuum-box having a cover-section provided in its top with a neck-opening, a flexible head-confining hood secured at its lower edge to the cover-section over said neck-opening, and a rigid support for the top portion of the flexible hood to prevent the latter from being drawn too tightly over the head of the patient by the vacuum within the box, substantially as set forth.

577,298. **CAR-COUPLING.** JOHN R. HARR, Baltimore, Md. Filed Nov. 19, 1896. Serial No. 612,721. (No model.)



Claim.—In a car-coupler of the type described, the combination of a head, a locking-jaw within which the head is inserted and pivoted, a coupling-pin adapted to pass through the inner end of the locking-jaw and the head, and a pivoted plate interposed between the head and one side of the jaw provided with stops whereby the independent swinging movement of the plate is limited, and having a hole which will register with the coupling-pin holes in the head and jaw when the said jaw is in its locked position, substantially as specified.

577,299. **APPARATUS FOR FEEDING PAPER TO PRINTING-PRESSES.** CHARLES G. HARRIS, Niles, Ohio. Filed Mar. 7, 1894. Serial No. 502,738. (No model.)



Claim.—1. A printing-press, comprising a rotary cylinder provided with stops on its periphery, and means for feeding paper on said cylinder against said stops while the same is in motion, said paper being fed at a speed greater than that at which the cylinder is rotated, substantially as set forth.

2. A printing-press having a rotary cylinder provided with stops on its periphery, and means, periodically operated, as said stops are receding, for feeding paper up to and against said stops at a speed greater than that at which the cylinder is rotated, substantially as set forth.

3. A printing-press having a rotary impression-cylinder and means for positioning or registering paper on said cylinder and causing the paper to travel at a speed greater than that at which the cylinder is rotated, comprising two rollers, one of said rollers being operated by the other, which latter is of varying diameter, the first-mentioned roller being designed to engage the points of greatest diameter of said latter roller, and belts engaging said impression-cylinder and one of said rollers, substantially as set forth.

4. A printing-press having a rotary impression-cylinder and means for positioning or registering paper on said cylinder and causing the paper to travel at a speed greater than that at which the cylinder is rotated, comprising a constantly-rotated roller of varying diameter, and a second roller driven by said former roller when in engagement with the points of greatest diameter of said former roller, and belts engaging said impression-cylinder and one of said rollers, substantially as set forth.

5. A printing-press having a rotary impression-cylinder provided with stops on its periphery, and mechanism for positioning or registering paper on said impression-cylinder against said stops while said cylinder is being rotated, comprising a constantly-rotated feed-roller, a second feed-roller designed to be periodically rotated by contact with said former feed-roller, and means for guiding the paper or the like between said feed-rollers, and holding the same until grasped by said feed-rollers and fed forward thereby to or against said stops, the contact of said feed-rollers being periodically effected according to the position of said impression-cylinder, substantially as set forth.

6. A printing-press having a rotary impression-cylinder and provided with stops on its periphery, and mechanism for feeding the paper at a greater speed than that at which the impression-cylinder is rotated and positioning or registering the same on said impression-cylinder against said stops, the same comprising a constantly-rotated feed-roller having rings or enlargements, a second feed-roller, means for periodically raising said second feed-roller into frictional contact with said rings or enlargements of said former feed-roller, whereby the paper is fed forward at a speed greater than that at which the cylinder is rotated when being positioned thereon, and belts engaging said impression-cylinder and said former feed-roller, substantially as set forth.

7. In a printing-press, means for positioning the paper or the like to be printed, comprising a fixed stop, a movable tongue or bar adapted to cooperate therewith, a guide bar or plate, and a plate-spring carried by said guide bar or plate and in contact with said tongue with which it is designed to move, whereby when the article to be printed is fed between the said tongue and plate-spring, and into contact with the stop a retrograde movement is prevented, substantially as set forth.

8. In a printing-press means for regulating or positioning the article to be printed while the cylinders of the press are being rotated, consisting of the stop or stops located on the surface of one of the cylinders of the press, and means for passing the article to be printed up to said stops at a speed greater than the speed of rotation of said cylinder, substantially as set forth.

9. A printing-press having a rotary impression-cylinder and mechanism for causing the paper to travel at a greater speed than that at which the cylinder is rotated and positioning or registering paper on said cylinder while the latter is being rotated, the said mechanism comprising a feed-roller of varying diameter operated by said cylinder, a stop for arresting the movement of the paper, means for holding the paper against said stop, a guide bar or plate, a second feed-roller, and means for periodically elevating said guide-bar and said latter roller, the latter being thrown into contact with the maximum circumferential portion of said former feed-roller, whereby the paper is fed to said impression-cylinder at a speed greater than the speed of rotation of the latter, substantially as set forth.

10. In a printing-press, the combination with the rotary impression-cylinder, of a feed-roller mounted in contact with said cylinder, spools in rear of said cylinder, tapes or bands passing over said spools and feed-roller and over said impression-cylinder, a second feed-roller, a guide-bar located thereover, means for holding the paper or the like while passing over said guide-bar, and means for elevating said second feed-roller into engagement with said former feed-roller, substantially as set forth.

11. In a printing-press, the combination with the rotary impression-cylinder, of the feed-roller of varying diameter having a reduced portion and a peripheral flange in engagement with a corresponding flange of said impression-cylinder, a rear shaft having adjustable spools thereon, tapes passed around said spools and feed-roller, a rock-shaft designed to be periodically operated by said impression-cylinder, arms secured to said rock-shaft, a second feed-roller carried by said arms, a guide-bar also carried by said arms and having a plate spring or springs, a tongue or tongues secured to said shaft and against which said plate spring or springs bear, and a stop bar or bars in rear of said guide-bar and second feed-roller, substantially as set forth.

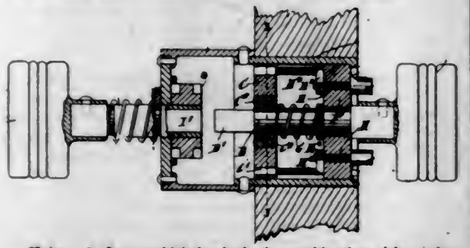
12. In a printing-press, the combination with the rotary impression-cylinder, of the feed-roller having a central reduced portion and a peripheral flange in engagement with said impression-cylinder, a shaft in rear of said cylinder having adjustable spools thereon, tapes or bands passed around said spools and over said feed-roller, said tapes being in contact with said impression-cylinder in their forward movement and out of contact when moving in reverse direction, a disk on one of the journals of said impression-cylinder having a peripheral shoulder, a rock-shaft having an arm engaging said disk, two arms depending from said rock-shaft, the second feed-roller mounted in said depending arms, and designed to be revolved when thrown into engagement with said former feed-roller, the guide bar or plate also carried by said depending arms, the plate-spring extending transversely over said bar or plate and free at one end, the tongue carried by said rock-shaft and against which said plate-spring is designed to bear, and the rigid stop-bar projecting in rear of said guide bar or plate, substantially as set forth.

577,300. PRINTING-PRESS. CHARLES G. HARRIS, Niles, Ohio. Filed Mar. 18, 1895. Serial No. 542,229. (No model.)



Claim.—In a printing-press, an independent roll located in juxtaposition to the discharge mechanism of the press, and transversely across the line of passage of the paper, or the like, said roll having its surface composed of absorbent material, and means for rotating said roll at a surface speed equal to or greater than the speed of the paper or the like, which latter is acted upon by said roll, as set forth.

577,301. PERMUTATION-LOCK. FOSTER J. HEACOCK, Salem, Ind. Filed Aug. 11, 1896. Serial No. 602,412. (No model.)



Claim.—1. In a combination-lock, the combination with a casing, of a disk fixedly secured in the inner end of the casing and provided with a central opening and a plurality of apertures, a knob-spindle sliding in the said disk, a dial secured to the knob-spindle within the casing and sliding in the casing with the spindle, a spring surrounding the spindle between the disk and dial, and a plurality of shafts mounted to rotate in the dial and each having on its inner end a handle and a pointer indicating on a graduation on the dial and provided on its inner end with a pin adapted to be brought into alinement with an opening in the disk and to enter the same when the knob-spindle is pushed inward, substantially as described.

2. In a combination-lock, the combination with a casing, of a disk fixedly secured in the inner end of the casing and provided with a central aperture and sets of apertures, each set being arranged in a circle, plugs for closing all except one aperture of each set, a knob-spindle sliding in the central aperture of the disk, a dial secured to the spindle within the casing, a plurality of shafts mounted to rotate in the dial and each having on its inner end a handle and a pointer indicating on a graduation on the dial and provided with an arm at its inner end from which projects a pin, and a spring for holding the dial and spindle in the outermost position, substantially as described.

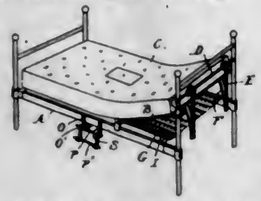
3. In a combination-lock, the combination with a bolt-operating spindle adapted to be arranged on the inside of a door, of a disk having a central opening and provided with a plurality of apertures, said disk being adapted to be arranged in a door at the inner face thereof, a knob-spindle sliding in and projecting through the disk for engagement with the bolt-operating spindle, a dial secured to the said sliding spindle, a spring for holding the dial and spindle in an outermost position, and a plurality of shafts mounted in the dial and each having on its outer end a handle and pointer and provided on its inner end with a pin, substantially as described.

4. A combination-lock, comprising a casing, a disk secured in the casing and provided with sets of apertures, plugs for closing all except one aperture of each set, a knob-spindle sliding in and projecting through the disk, a dial secured to the spindle and provided with shafts carrying pins on their inner ends, a second casing secured to the inner end of the first casing and a knob-spindle for operating the bolt mounted in the second casing and having a socket in its inner end to receive the end of the sliding knob-spindle, substantially as herein shown and described.

577,302. TERPENE ALCOHOL. ALBERT HEBER, Leipsic, Germany, assignor to Heine & Co., same place. Filed Oct. 13, 1894. Serial No. 525,826. (Specimens.)

Claim.—The herein-described process for producing a new terpene alcohol from volatile saponified oils, particularly African, Reunion, and other geranium oils, by heating the said oils with an acid anhydrid, such as camphoric-acid anhydrid, succinic-acid anhydrid, phtalic-acid anhydrid, which converts the terpene alcohol into acid esters non-volatilizable in steam, then removing the non-alcoholic ingredients by distillation with steam, then saponifying the residual esters with alkalies, also under pressure, and subsequently distilling the terpene alcohol with steam substantially as described.

577,303. INVALID-BED. THOMAS HOLMES, Chelsea, Mich. Filed Aug. 5, 1896. Serial No. 601,733. (No model.)



Claim.—1. In an invalid-bed, the combination with the bedstead, and mattress having an aperture therein, of a frame extending across and movably suspended from opposite sides beneath the bed, and a mattress block or section fitted in the aperture and detachably supported on the frame.

2. In an invalid-bed, the combination with the bedstead, and woven-wire or other mattress, having an aperture therein, of an elastic supporting drop-frame, hung from and detachably supported by the opposite sides of the bedstead, and a mattress block or section fitted in the aperture and detachably supported on the frame.

3. In an invalid-bed, the combination with the bedstead, and apertured mattress of a detachable block or section fitted in the aperture, a drop-frame hinged to the opposite sides of the bedstead and supporting said block or section.

4. In an invalid-bed, the combination with the bedstead, and apertured mattress, of a detachable member fitted in the aperture, and an elastic drop-frame hinged at one end to one side of the bedstead to support said detachable member.

5. In an invalid-bed, the combination with the bedstead, and apertured mattress and the detachable member therein, of a vertically-movable drop-frame hinged to the bedstead to support such detachable member and provided with flanges or guides for the member.

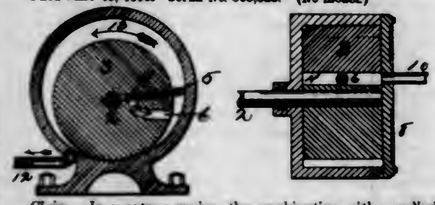
6. In an invalid-bed, the combination with the apertured bedstead, mattress, and the detachable member therein, of a frame detachably hinged at both ends to the bedstead and supporting said detachable member.

7. In an invalid-bed, the combination with the bedstead, apertured mattress and the detachable member therein, of a movable frame consisting of a central support, and inclined arms extending therefrom in opposite directions and hangers for the arms secured to the sides of the bedstead adapted to support said frame in its upper and lower positions.

8. In an invalid-bed, the combination with the bedstead, apertured mattress, and the detachable member therein, of the frame supporting the detachable member comprising the section L, the inclined arms M and a cross-bar, the hangers O having hooks O' near the top and a cross-bar near the bottom, substantially as described.

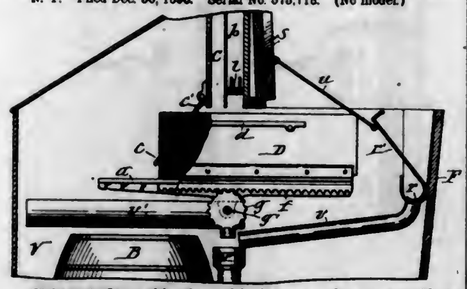
9. In an invalid-bed, the combination with the bedstead, and apertured mattress, of a drop-frame loosely supported at opposite ends and arranged transversely of the bed beneath the aperture and having guides therein, and the removable frame T adapted to slide in the guides in said drop-frame and adapted to receive the pan or mattress-block for insertion into the aperture in the mattress.

577,304. ROTARY ENGINE. HENRY R. JUNE, Elmira, N. Y. Filed June 15, 1896. Serial No. 595,525. (No model.)



Claim.—In a rotary engine, the combination with a cylindrical casing, closed at the ends, of a piston-head mounted upon a suitable shaft, an eccentric thereto, and provided with a piston-seat, a piston mounted and adapted to reciprocate in said seat, a steam-inlet pipe through a side of said casing and brought intermittently into connection with said piston-seat by the rotation of said head to admit steam into said seat interior to said piston therein, and a steam-conduit in said head connecting said seat to the steam-chamber between said head and casing.

577,305. SANITARY CLOSET. HILAND H. KENDRICK, Fulton, N. Y. Filed Dec. 30, 1895. Serial No. 573,718. (No model.)



Claim.—1. In combination, with the seat, a drawer movable to and from under said seat, and open at both ends, and a movable scraper closing the rear end of the drawer when under the seat, and mechanism lifting said scraper during the movement of the drawer from the seat and dropping the scraper onto the drawer when in its removed position and retaining it in its dropped position during the movement of the drawer to the seat as set forth.

2. In combination with the seat, a drawer movable to and from under said seat and open at both ends, a scraper movable to and from the rear end of the drawer, a track attached to the side of the drawer and lifting the scraper during the movement of the drawer from the seat and dropping the scraper at the end of said movement of the drawer as set forth.

3. In combination with the seat, a drawer movable to and from under said seat and having both ends open, a vertically-yielding scraper at the rear end of said drawer and conformed to the interior thereof, and a track attached to the side of the drawer and composed of a horizontal main portion and an inclined rear end portion provided with a joint to allow the extremity thereof to rise and fall, said track lifting the scraper during the rearward movement of the drawer and allowing said scraper to drop into the drawer when in its extreme rear position.

4. In combination with the seat and a drawer movable to and from under said seat and open at both ends, a dust-hopper over the rear end of the drawer and communicating therewith, an agitator in said hopper, and a vertically-movable scraper entering the drawer in its movement toward the seat as set forth.

5. In combination with the seat, a drawer movable to and from under said seat and open at both ends, a vertically-movable scraper over the rear end of the drawer and entering the same, a track on the side of the drawer lifting the scraper during the rearward movement of the drawer and dropping the scraper into the drawer in the forward movement thereof, a dust-hopper over the rear end of the drawer, an agitator in said hopper, racks attached to the drawer, pinions meshing with the racks, mechanisms transmitting motion from the shaft of said pinions to the aforesaid agitator, and manually-operated mechanism operating the pinions and thereby moving the drawer, agitator and scraper in the order specified.

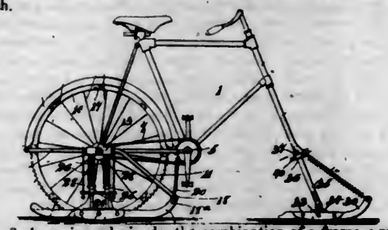
6. In combination with the seat and the drawer movable to and from under said seat, a drain-pipe for liquid, a gutter extending across the front of the drawer and continued along the side of the path of the drawer and leading to the drain-pipe, as set forth and shown.

7. In combination with the seat and the drawer movable to and from under said seat, a drain-pipe for liquid, and a gutter extending along the side of the path of the drawer and leading to the said drain-pipe as set forth.

577,306. ICE-VELOCIPEDE. MATHIAS KOLBENSON, Marysville, Mont. Filed Apr. 22, 1896. Serial No. 588,606. (No model.)

Claim.—1. In an ice-velocipede, the combination of a frame, front and rear runners thereon, the rear runner being provided with a longitudinal opening formed through it, and a driving-wheel having a rim constructed of flat metal sections overlapped at their ends and secured together, said rim being provided with teeth and being arranged to project through the opening in the rear skate, substantially as set forth.

2. In an ice-velocipede, the combination of a frame, a rear driving-wheel mounted to turn therein and provided with means to engage the ice, an auxiliary frame secured to the main frame, and consisting of bars extending forward on opposite sides of the driving-wheel, a runner having a vertical slot in its forward end, and connected by an adjustable bolt with the forward ends of said bars, and a spring connecting said bolt with the main frame, substantially as set forth.

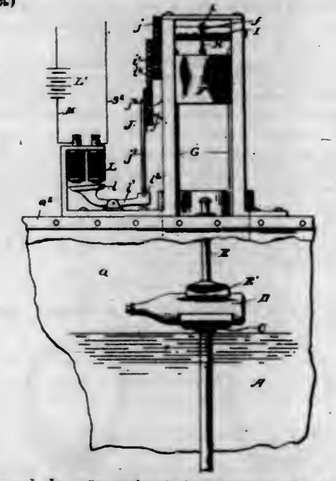


3. In an ice-velocipede, the combination of a frame, a rear driving-wheel mounted to turn therein, an auxiliary frame comprising bars extending on opposite sides of the driving-wheel, a runner having an opening formed in it for the passage of the rim of the driving-wheel, said runner being pivotally connected to said bars at its forward end, posts extending up from the runner on opposite sides of the openings therein, nuts arranged to screw on the posts, and coil-springs held on the posts and bearing at their lower ends against said nuts, said springs having their upper ends connected to the frame, substantially as set forth.

4. In an ice-velocipede, the combination of a frame, a rear driving-wheel mounted to turn therein, an auxiliary frame comprising bars extending on opposite sides of the wheel, a runner having an opening for the passage of the wheel-rim and having its forward end pivotally connected to said bars, two posts extending up from the runner on each side of the opening therein, cross-bars carried on said posts, nuts arranged to screw on the posts, lugs depending from the frame and alined with the upper ends of the posts, springs held at their upper ends on said lugs and at their lower ends on the posts above the nuts thereon, and bars depending from the frame and arranged to support said cross-bars, substantially as set forth.

5. In an ice-velocipede, the combination of a frame having a driving-wheel, a steering-post having forks at its lower end, a bearing-piece secured at its ends to the forks and extending between the same, a rod carried by the bearing-piece, a forward runner loosely secured to the lower end of said rod, and a spring for holding said runner in position, substantially as set forth.

577,307. FIRE-EXTINGUISHING APPARATUS. HOSEA F. MAXIM, Norfolk, Va. Filed Aug. 15, 1895. Serial No. 559,412. (No model.)



Claim.—1. In a fire-extinguishing apparatus, the combination with a tank or receptacle for a chemical reagent, a supplemental receptacle, for another reagent, supported within the tank, and a breaking-rod extending through the tank and lying in the planes of the supplemental receptacle, of a weight, means for normally holding the weight above the breaking-rod, a wheel geared to said supporting means and having a stop-arm secured thereto, a lock normally extending into the path of said arm to hold the same and the weight-supporting devices stationary, an electric magnet having its armature

connected with said lock to move the same from the path of said arm, and means for closing an electric circuit through said magnet, substantially as set forth.

2. In a fire-extinguishing apparatus, the combination with a tank, for holding a chemical reagent, a supplemental receptacle, for another reagent, supported within the tank, and a breaking-rod extending through the tank in line with the supplemental receptacle therein, of a weight, means for holding the weight above the breaking-rod, a gear-wheel connected with said weight-supporting means, a pinion meshing with said gear, another gear mounted at the axis of and rotating with the pinion, a gear meshing with the last said wheel and having a rod projecting from one face thereof, a lock-arm normally extending into the path of said rod to hold the same stationary, an electric magnet having its armature connected with the said lock, and means for closing an electric circuit through said magnet, whereby the lock will be moved out of the path of said stop-rod and the weight-supporting devices released, substantially as set forth.

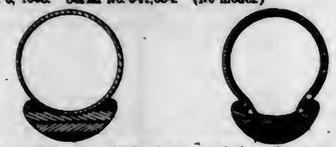
3. In a fire-extinguishing apparatus, the combination with a tank adapted to contain a chemical reagent, a supplemental receptacle supported within the tank, and adapted to contain another reagent, a breaking-rod extending through the tank in line with the supplemental receptacle therein, of a weight, a shaft, a cord or cable connected to the weight and adapted to be wound upon the shaft, a gear-wheel on said shaft, a second gear-wheel mounted on an axis parallel to but at one side of the shaft, an arm connected to said wheel, a lock normally engaging with said arm, a train of reducing-gearing connecting the gear on the shaft with the last said gear, an electric magnet having its armature connected with the lock, and means for closing an electric circuit through said magnet, whereby the lock will be moved out of engagement with the said stop-arm and the weight released, substantially as set forth.

4. In a fire-extinguishing apparatus, the combination with a tank containing a chemical reagent, a receptacle for another reagent mounted within the tank, means adapted to break said receptacle and extending beyond the top of the tank, a weight fitted to vertical guides on the tank above such breaking devices, a shaft journaled in said guides above and connected to the weight, a lock for normally preventing rotation of said shaft and maintaining the weight in an elevated position, an electromagnet for releasing the lock, and a thermostat adapted to close an electric circuit through the magnet, substantially as set forth.

5. In a fire-extinguishing apparatus, the combination with a tank containing a chemical reagent, a receptacle mounted within the tank and containing another reagent, a rod extending through the top of the tank in the plane of said receptacle, a weight, a shaft journaled in bearings on the tank, a cord or cable connecting the shaft and weight, a lock carried by one arm of a lever, pivoted on the tank, for normally holding the shaft against rotation and maintaining the weight out of contact with the rod, an electromagnet having its armature connected with the other arm of the lever, and a thermostat for closing an electric circuit through the magnet, substantially as and for the purpose set forth.

6. In a fire-extinguishing apparatus, the combination with a tank containing a chemical reagent, a second receptacle for a second reagent, parallel standards mounted on the tank, a shaft journaled in said standards, a weight fitted to guides on the standards and connected with the shaft, devices adapted to be actuated by the weight for bringing the reagents into contact, a train of gears connected with the shaft, a lever fulcrumed on the tank and having near one end a seat or socket, a lock-rod connected to the train of gears and adapted to fit in said socket, an electromagnet having its armature connected to the lever on the opposite side of the fulcrum from the socket, and a thermostat adapted to close an electric circuit through such magnet, substantially as set forth.

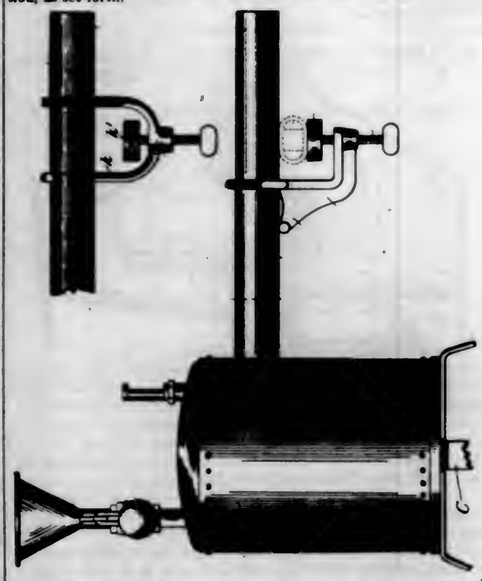
577,308. BICYCLE-RIM. ALFRED G. MOORE, Malden, Mass. Filed Mar. 3, 1896. Serial No. 541,034. (No model.)



Claim.—A laminated wheel-rim consisting of two or more strips of wood and an interposed strip or strips of vulcanized fiber, all solidly secured together, substantially as set forth.

577,309. VULCANIZER. FRED W. MORGAN, PERCY L. CLARK, and JOHN R. PARKER, Chicago, Ill., assignors to said Morgan and Rufus Wright, same place. Filed Jan. 31, 1896. Serial No. 577,552. (No model.)

Claim.—1. The combination, in a vulcanizer having a holder-supporting portion, of a vulcanizing-surface situated below said portion; means for heating said surface; and a detachable holder provided with an adjustable seat arranged opposite said vulcanizing-surface, and with a bearing portion adapted to engage said supporting portion, as set forth.



2. The combination, in a vulcanizer having an arm or extension, of a vulcanizing-surface provided by said arm or extension: means for heating said surface: and a detachable holder provided with an adjustable seat arranged opposite said surface, and with a bearing portion adapted to engage said arm or extension, as set forth.

3. The combination, in a vulcanizer having an arm or extension, of a vulcanizing-surface provided by the latter; means for heating said surface; and a holder provided with an adjustable seat arranged opposite said surface, and with a bearing portion adapted to engage said arm or extension and situated at one side of said seat, whereby the article being vulcanized may be removed and replaced without removing the holder, as set forth.

4. A portable vulcanizer comprising a boiler; a pipe attached to said boiler and provided with a flat vulcanizing-surface; and a detachable clamp arranged to embrace the pipe and provided with screw means for adjusting the article to be vulcanized against the vulcanizing-surface, substantially as described.

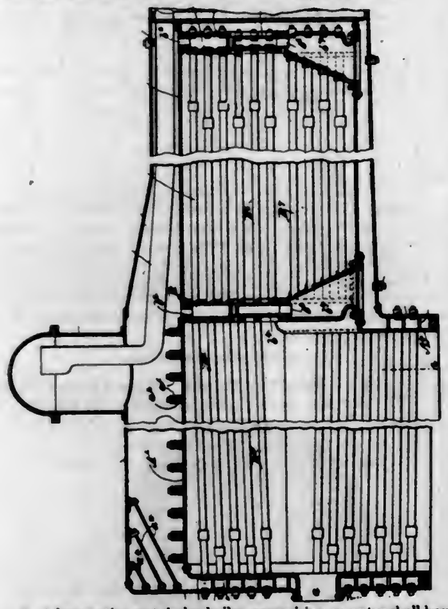
5. In a vulcanizer, a clamp for holding an article to be treated in contact with the vulcanizing-surface, said clamp being provided with means of attachment, a brace or extension for contact with said surface at one side of the point of attachment, and means for pressing the article against said surface on the opposite side of said point of attachment, substantially as described.

577,310. TUBULAR BOILER. SWENEY MURDOCK, Sayre, Pa. Filed May 28, 1896. Serial No. 593,433. (No model.)

Claim.—1. A locomotive or tubular boiler, comprising an outer shell, a crown-sheet arranged therein and forming a combustion-chamber, a water-leg forward of the crown-sheet, a manifold at the rear end of the crown-sheet, water-tubes providing communication between the water-leg and the manifold, an inner shell extended from said manifold to a connection with the manifold at the rear end of the boiler, and water-tubes connecting said two manifolds, the lower portion of the inner walls of said manifolds being inclined to provide enlarged water-spaces, substantially as specified.

2. A boiler, comprising an outer shell, an inner shell, a manifold at each end of said inner shell, water-flue connections between said two manifolds within the inner shell, a crown-sheet forward of the inner shell and having a water-leg between its end and the end of the outer shell, circulating-tubes extended through said crown-sheet, and a series of arched braces having connection with said crown-sheet, substantially as specified.

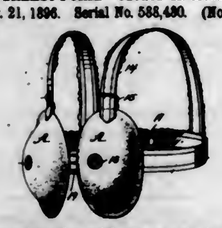
3. A locomotive or tubular boiler, comprising an outer shell, an inner shell, water-tubes connecting manifolds in said inner shell, a crown-sheet forward of the inner shell, circulating-tubes extending through said crown-sheet, and communicating with the tubes of the inner shell, and brace-rods extending from the body of the outer shell to the end wall of said outer shell, substantially as specified



4. A locomotive or tubular boiler, comprising an outer shell having a plug-closed opening at its top and plug-closed wash-out openings through its bottom, an inner shell, manifolds at the ends of the inner shell, the said manifolds having enlarged water-spaces at their lower sides and communicating with the water-space between the inner and outer shells, a crown-plate forming the upper portion of the combustion-chamber forward of said inner shell, longitudinal brace-rods extending through the lower portion of said combustion-chamber, and diagonally-disposed brace-rods extended from the body of the outer shell to a connection with the end wall thereof, substantially as specified.

5. A locomotive or tubular boiler, comprising ring-shaped manifolds, water-flue connections between said manifolds, water-boxes located centrally within said manifold and having communication therewith, and tubes connecting said water-boxes, substantially as specified.

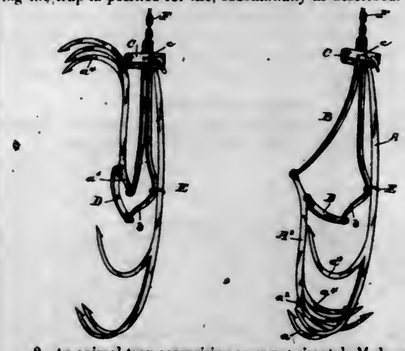
577,311. BREAST-FORM. GEORGE M. MCCLEARY, McKeesport, Pa. Filed Apr. 21, 1896. Serial No. 588,480. (No model.)



Claim.—The combination with pneumatic breast-forms having convexed outer faces and concaved inner faces, said forms having embedded therein endless non-elastic shaping-bands 12, said bands lying wholly within the margins of the forms, whereby the latter are held close to the body where said band touches; the outer convex faces having nipples located centrally thereof, of shoulder-straps attached to said forms, and a girth to which said shoulder-straps are attached, said girth being also attached to the forms and constructed in two main sections provided with elastic sections, said main sections being united at the back by a lacing and at the front by a clasp, as and for the purpose set forth.

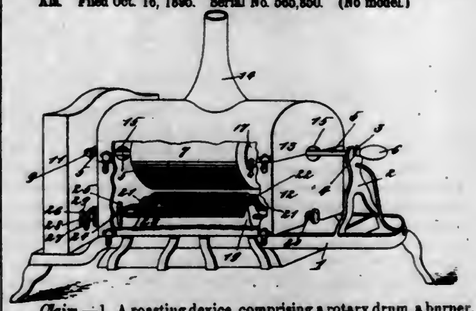
577,312. ANIMAL-TRAP. DAVID S. MCCOLLUM, Keno, Oreg. Filed Sept. 1, 1896. Serial No. 604,547. (No model.)

Claim.—1. An animal-trap comprising an approximately V-shaped spring, a yoke, constituting a sear, pivoted to one of the members of the spring and projecting beyond the sides thereof, a grab-hook bearing-bar connected with one end of the sear, a second grab-hook bearing-bar pivoted to the end of one of the members of the spring, and having a trigger-catch adapted to be brought into engagement with the sear to hold the latter bar raised, and a link connecting the movable hook-bar with the other member of the spring, said spring constituting, at once, a hook-actuating spring and the means for supporting the trap in position for use, substantially as described.



2. An animal-trap comprising an approximately V-shaped spring, a yoke, constituting a sear, pivoted to one of the members of the spring and projecting beyond the sides thereof, a grab-hook bearing-bar connected with one end of the sear, a second grab-hook bearing-bar pivoted to the end of one of the members of the spring, and having a trigger-catch adapted to be brought into engagement with the sear to hold the latter bar raised, a link connecting the movable hook-bar with the other member of the spring, said spring constituting, at once, a hook-actuating spring and the means for supporting the trap in position for use, and a band or ring for holding the spring and stationary hook-bar together, substantially as described.

577,313. COFFEE-ROASTER. JOHN MCLEAN, Miller's Ferry, Ala. Filed Oct. 16, 1895. Serial No. 565,850. (No model.)



Claim.—1. A roasting device, comprising a rotary drum, a burner, and a motor for driving the drum and arranged to control said burner, substantially as set forth.

2. A roasting device, comprising a casing, a rotary drum in the casing, a motor for operating the drum, a burner below the drum, an extinguisher for the burner, and intermediate mechanism between the motor and extinguisher for operating the latter from the former, substantially as described.

3. A roasting device, comprising a casing, a rotary drum in the casing, a motor for operating the drum, a burner in the casing below the drum, an extinguisher for the burner, comprising pivoted and spring-pressed plates, and a pivoted lever with which the extinguisher-plates are connected, said lever being adapted to be operated at a predetermined time by the motor, substantially as and for the purpose set forth.

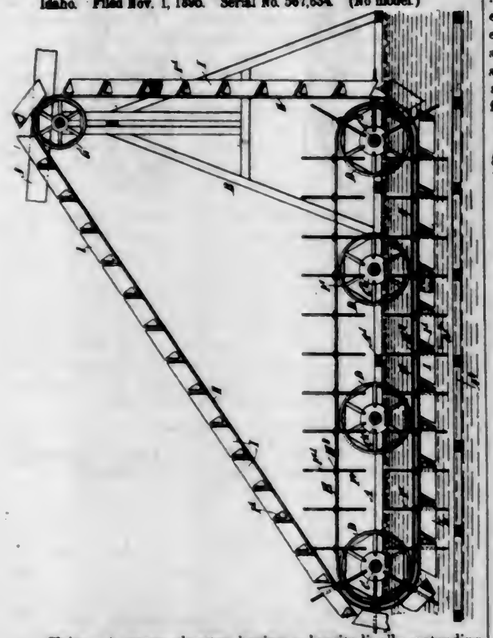
4. A roasting device, comprising a casing, a rotary drum in the casing, a spring-motor for operating the drum, a burner below the drum, pivoted and spring-pressed plates for extinguishing the burner, and a lever to which the said plates are connected, said lever projecting below the motor to be engaged by the spring thereof as it uncoils, substantially as described.

5. In a roasting device, the combination with a casing, a rotary drum mounted therein, and a burner below the drum, of a pivoted lever projecting into the casing, pivoted and spring-pressed plate carried by the said lever, and a motor for operating the said lever at a predetermined time, substantially as described.

6. In a roasting device, the combination with a casing, a rotary drum in the casing, and a burner below the drum, of a spring-motor, a bifurcated lever projecting into the casing and extending below the motor to be engaged by its spring as it uncoils, and plates pivoted to the members of the lever and connected together by a spring, substantially as described.

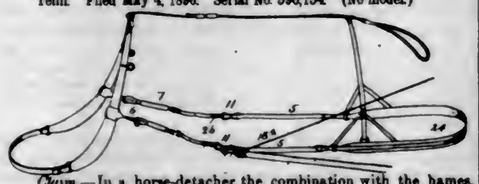
7. In a roasting device, the combination with a frame, a casing on the frame and having a cover, and a motor at one end of the said frame and having its arbor provided with a socket, of a bearing at the end of the frame opposite the motor, and a shaft carrying a drum in the casing, one end of the shaft being mounted in the said bearing and the other end engaging the socket of the motor-arbor, substantially as described.

577,314. WATER-ELEVATOR. JOSEPH MCMURRIN, Shoshone, Idaho. Filed Nov. 1, 1896. Serial No. 567,634. (No model.)



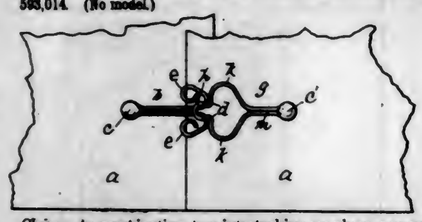
Claim.—A water-elevator having a longitudinally-extending float, an upper and lower deck formed of buoyant material and projecting laterally from one side of the float, the float forming a breakwater at one side of the decks, the upper deck lying level with the surface of the water when the apparatus is in use, the decks being adapted to float evenly with the breakwater when in use, a tower rising from the upper deck, a series of transverse shafts mounted on the upper deck, pulleys respectively fixed to the shaft, an endless belt passed over the pulleys, paddles carried by the belt, and an endless water-conveyer having one run passed vertically up the tower and a second run passed diagonally downward to meet a horizontal run passing between the decks, substantially as described.

577,315. HORSE-DETACHER. JOHN H. NICHOLS, Duck River, Tenn. Filed May 4, 1896. Serial No. 590,154. (No model.)



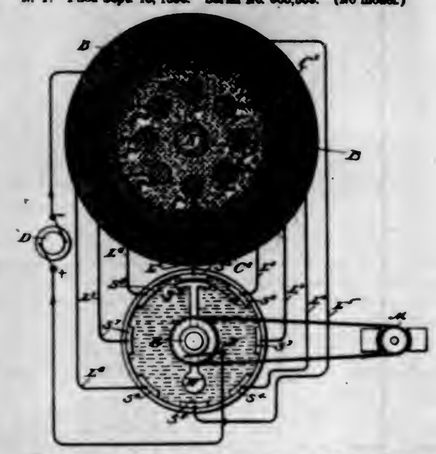
Claim.—In a horse-detacher the combination with the hames, the tugs connected therewith provided with coiled springs at their rear ends and the double loops connected therewith, provided with a central bar, of the breeching-straps connected with the rear sections of said double loops, the traces, the detacher connected with the front ends thereof comprising the cylinder, the semicircular lug formed therewith, the lug pivoted thereto formed with a recess in its free end, the movable rod, the coiled spring and the line secured to said rod, substantially as described.

577,316. HOOK AND EYE. REUBEN T. PALMER, Jr., and FREDERIC W. MERCER, New London, Conn. Filed May 25, 1896. Serial No. 593,014. (No model.)



Claim.—In combination, two interlocking members, one consisting of an eye *h* opening into an enlargement formed by laterally-extending loops *k k* and having at the opposite end of said eye *h* an eye by means of which said member may be secured to the fabric, and a companion member formed of wire doubled to provide an eye *b'* and bent outward to form oppositely-disposed loops *d* and eyes *e* that are adapted to interlock with the eye *h*, all being substantially as and for the purpose specified.

577,317. ELECTRIC FURNACE. FRANCIS J. PATTEN, New York, N. Y. Filed Sept. 15, 1896. Serial No. 605,869. (No model.)



Claim.—1. In an electric furnace two or more carbon pencils connected through independent electric circuits to a source of electric current said circuits including a liquid commutator whereby the pencils can be given current singly and in groups successively in rotation.

2. In an electric furnace two or more carbon pencils connected through independent circuits and a liquid commutator to a source of electric current whereby the pencils can be given current in rotation without rupture of said current between the source of energy and the pencils.

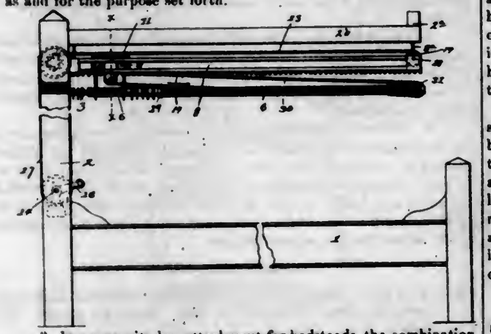
3. In an electric furnace the combination of a number of electrodes connected to independent electric circuits and a liquid commutator or switch whereby the current is sent successively through the different circuits to different electrodes substantially as described.

577,318. MOSQUITO-BAR ATTACHMENT FOR BEDSTEADS. LOUIS PAYNE and WILLIAM P. CAREY, New Orleans, La. Filed Aug. 26, 1896. Serial No. 604,006. (No model.)

Claim.—1. In a mosquito-bar attachment for bedsteads, the combination of a bedstead, the frame 2^a, connected thereto, the longitudinal rods connected to the bed-posts of the bedstead, the movable sleeves arranged on the rods and connected at their forward ends by a cross-rod and adapted to carry a mosquito-bar, tracks connected with the frame 2^a, and arranged above the rods and movable sleeves, movable carriers arranged on the tracks and having hangers connected to the movable sleeves, a crank arranged at the head of the bedstead, and mechanism connected with and designed to be actuated by the crank for moving the carriers, substantially as and for the purpose set forth.

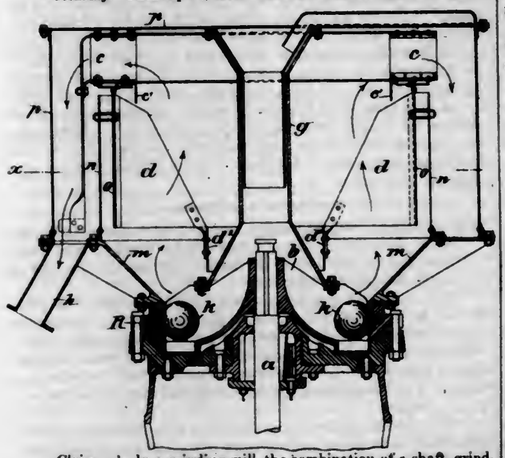
2. In a mosquito-bar attachment for bedsteads, the combination of a bedstead, the frame 2^a, connected thereto, the longitudinal rods connected to the head-posts of the bedstead, the movable sleeves arranged on the rods and connected at their forward ends by a cross-

rod and adapted to carry a mosquito-bar, tracks connected with the frame 2^a, and arranged above the rods and movable sleeves, shafts journaled in the carriers and having pinions engaging the racks of the tracks and also having sprocket-wheels, a shaft arranged in the tracks and having sprocket-wheels, a shaft journaled in the head-posts and having three sprocket-wheels, chains taking around the sprocket-wheels of said shafts and connected at their opposite ends to the carriers, a crank-shaft arranged within convenient reach of a person in bed, gearing connecting said crank-shaft and the shaft arranged in the head-posts of the bedstead, sprocket-wheels mounted on the cross-rod at the forward ends of the movable sleeves, sprocket-chains taking around said sprocket-wheels and the sprocket-wheels on the shafts journaled in the carriers, and a cross-bar movable on the movable sleeves and connected to the said chains, substantially as and for the purpose set forth.



3. In a mosquito-bar attachment for bedsteads, the combination of a bedstead, the frame 2^a, connected thereto, the longitudinal rods connected with the head-posts of the bedstead, the movable sleeves arranged on the rods and connected at their forward ends by a cross-rod and adapted to carry a mosquito-bar, tracks connected with the frame 2^a, and arranged above the rods and movable sleeves and having racks, movable carriers arranged on the tracks and having hangers connected to the movable sleeves, shafts journaled in the carriers and having pinions engaging the racks of the tracks and also having sprocket-wheels, sprocket-wheels mounted on the cross-rod at the forward ends of the movable sleeves, sprocket-chains taking around said sprocket-wheels and the sprocket-wheels on the shafts journaled in the carriers, a cross-bar movable on the movable sleeves and connected to the said chains and adapted for the connection of a mosquito-bar, and means for moving the carriers, substantially as specified.

577,319. GRINDING-MILL. JACOB PFEIFFER, Kaiserslautern, Germany. Filed Sept. 4, 1895. Serial No. 561,446. (No model.)



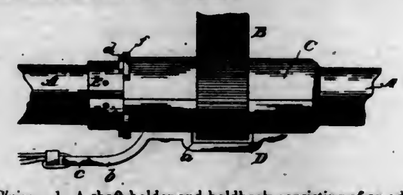
Claim.—1. In a grinding-mill, the combination of a shaft, grinding mechanism actuated thereby, a casing inclosing the grinding mechanism, a feed-hopper extending centrally through the casing, an exhaust-fan, a vane rigid with the casing and interposed between the fan and grinding mechanism, and a ring held to the vanes and below the same and embracing the feed-hopper, substantially as described.

2. In a grinding-mill, the combination of a casing, a shaft, grinding mechanism carried by the shaft and within the casing, a hopper axially coincident to and revolving with the shaft, a casing *n* concentric with and within the first casing and arranged to leave an annular space between the two, a casing *o* within the casing *n* and secured thereto, a fan carried by the hopper and above the casings *n* and *o*, vanes projecting inwardly from the casing *o*, and a ring held by and below the vanes and embracing the hopper, substantially as described.

3. In a grinding-mill, the combination with a base, of a drive-shaft, a series of radial arms carried by the drive-shaft, a grinding-ring held on the base and embracing the arms, grinding-balls confined by the ring and driven by the arms, a centrally-disposed hopper leading downward to the arms and grinding-ring and carried by the arms, an exterior casing rigid with the base, a second casing within the first and also rigid with the base, the two casings forming between them an outlet-passage for the pulverized material, a fan carried by the hopper and moving therewith, the fan being located at the upper edge of the inner casing, and a series of radial vanes rigidly carried by the inner casing, the vanes projecting into the space surrounding said hopper to prevent the formation of a swirling current of air, substantially as described.

4. In a grinding-mill, a base having a grinding-ring, a driving-shaft, arms mounted on the shaft and inclosed by the ring, balls driven by the arms, a hopper carried by the arms and rising from the same, the hopper leading to the space inclosed by the ring, a fan carried and driven by the hopper, a casing rigid with the base, the casing being located beneath the fan and the parts being arranged so that a current of pulverized material may pass upward through the casing, and a series of vanes rigid on the interior of the casing, the vanes projecting radially and inward to prevent the formation of a swirling current of air, substantially as described.

577,320. SHAFT-HOLDER. THEODORE F. PHILLIPS, Wabash, Ind., assignor of one-half to Emanuel N. Hoot, same place. Filed May 23, 1896. Serial No. 592,847. (No model.)



Claim.—1. A shaft-holder and holdback consisting of an adjustable thimble, a split ferrule, and the holdback carried by said split ferrule substantially as described.

2. In a shaft-holder and holdback, the combination with the shaft, of the adjustable thimble, a split ferrule, a holdback carried by said split ferrule, a recess in said holdback, a strap passing through said recess, and a projection and loop for the breeching as set forth.

3. As an article of manufacture, the holdback D, the recess *a*, the projection *b*, the loop *c*, and spring-ferrule C, as shown and described.

577,321. ANTISLIPPING PAD FOR HORSESHOES. JOHN H. PURCHARD, London, England. Filed May 28, 1896. Serial No. 593,388. (No model.)

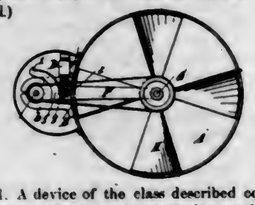


Claim.—1. An antislipping pad or appliance for horseshoes or the like, consisting of a metallic plate having the rear edge thereof curved or indented, a short wall or flange extending only along said rear edge and arranged at or about right angles thereto, supports extending from said plate on the same side as the said wall or flange and arranged at some distance from the sides of the plate, a gromet or ring of rope passing around said supports and between the supports and the wall or flange, and means for securing said gromet or ring to the wall or flange and the supports and against the under face of the plate, substantially as set forth.

2. An antislipping pad or appliance for horseshoes or the like, comprising a plate of malleable iron or the like, provided with a

flange or wall extending only along the rear edge, and supports on the under face of said plate extending parallel with the flange or wall, said supports being arranged at some distance from both side edges of the plate, all of said parts being cast in one piece, substantially as set forth.

577,322. DRAFT-PRODUCING DEVICE FOR STACKS. JOHN C. RAYMOND, New York, N. Y. Filed Oct. 10, 1895. Serial No. 565,273. (No model.)

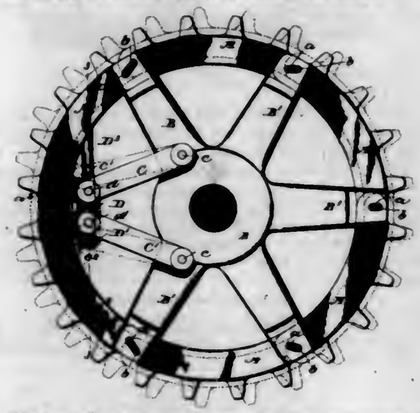


Claim.—1. A device of the class described comprising an arm mounted to swing, a fan journaled in the free end of the said arm, an electric motor having its driving-shaft extending in the axis of the said arm and means for connecting the said motor driving-shaft with the shaft of the said fan, substantially as described.

2. A device of the class described comprising an arm mounted to swing, a fan journaled in the free end of the said arm, an electric motor having its driving-shaft extending in the axis of the said arm and means for connecting the said motor driving-shaft with the shaft of the said fan and a second electric motor carrying on its shaft a worm in mesh with a rack-quadrant on the said arm to impart a swinging motion to the said arm, to move the fan from or to the top of funnel, substantially as described.

3. A device of the class described comprising an arm mounted to swing and carrying at its free end a fan, a rack-quadrant on the said arm, a worm in mesh with the said rack-quadrant and an electric motor carrying the said worm on its shaft, substantially as described.

577,323. EXPANSIBLE WHEEL. DAVID R. ROSS, Brookston, Ind. Filed Jan. 30, 1896. Serial No. 577,456. (No model.)



Claim.—1. In an expansible sprocket, the combination of a toothed split rim, a hub provided with rigid spokes attached to the rim by slots and pins, and means for simultaneously and uniformly expanding or contracting the rim, by distending or closing the split therein and locking the rim when it is expanded or contracted, substantially as and for the purpose described.

2. The combination of the split rim composed of a series of segments hinged together at their ends, a hub having rigid spokes loosely attached to the segments, and supporting them upon the hub, and means for simultaneously and uniformly expanding or contracting the rim by distending or closing the joint between two of its segments, substantially as described.

3. In an expansible pulley or wheel, the combination of a split rim, with a pair of links respectively connected to the rim on the opposite ends of the rim, and to each other, and means for partially rotating one of said links, whereby the split is closed or distended and the rim contracted or expanded, substantially as described.

4. In an expansible pulley or wheel, the combination of the rim split at one side, and having inwardly-projecting lugs on its ends on opposite sides of the split, with the links pivoted to opposite lugs and to each other, one of said links being shorter than the other, and means for turning the shorter link, substantially as described.

5. In an expansible pulley or wheel, the combination of a split rim, with a pair of links respectively connected to the rim on the opposite ends of the rim, and to each other, and means for partially rotating one of said links, whereby the split is closed or distended and the rim contracted or expanded, and supports for the rim connected thereto so as to admit of the expansion or contraction thereof, substantially as described.

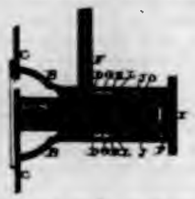
6. In a pulley the combination of the split rim having lugs c', c^2, on opposite sides of the split, the link D pivoted to lug c', the short link D′ pivoted to lug c^2, and to lug D, and having a lever D^2, substantially as described.

7. The combination of the hub having spokes provided with slotted ends; a split rim having pins engaging the slots in the spokes, the links connecting the split ends of the rim, and means for shifting said links so as to expand or contract the rim, substantially as described.

8. The combination of the split rim composed of segments hinged together, the links D, D′, pivoted to the opposite segments at the split of the rim, and also pivoted to each other, and means for turning one of said links so as to distend or close the split in the rim, substantially as described.

9. The herein-described sprocket, consisting of toothed segments A, and segments A′, A^3, the hub B, having bifurcated and slotted spokes B′ the levers C pivoted to hub B, and respectively pivoted to a lug c' on segment A′ and lug c^3 on segment A^3, the link D pivoted to lug c', and link D′ pivoted to lug c^3, said links being pivoted together, and the lever D^2 for turning and locking link D′, all substantially as and for the purpose set forth.

577,324. TOP-PROP FOR CARRIAGES. CHRISTIAN SCHNEIDER, Davenport, Iowa. Filed Nov. 28, 1896. Serial No. 613,829. (No model.)



Claim.—1. In a button or nut for vehicle-tops, a grooved bolt, a nut or button which screws upon the bolt, a washer provided with a tooth to catch in the groove, a spring-washer which bears against the toothed washer, and which is compressed by the nut or button, substantially as shown.

2. A grooved bolt, the arm F, passed thereover, the toothed washer, and the spring-washer which bears against the toothed washer upon the end of the bolt, combined with a second washer H, placed against the outer end of the spring-washer and the nut or button which screws upon the end of the bolt, substantially as described.

3. In a nut or button for vehicle-tops, a spring-actuated sleeve for inclosing the operating parts, and which sleeve is held between the arm of the top and the nut or button, substantially as set forth.

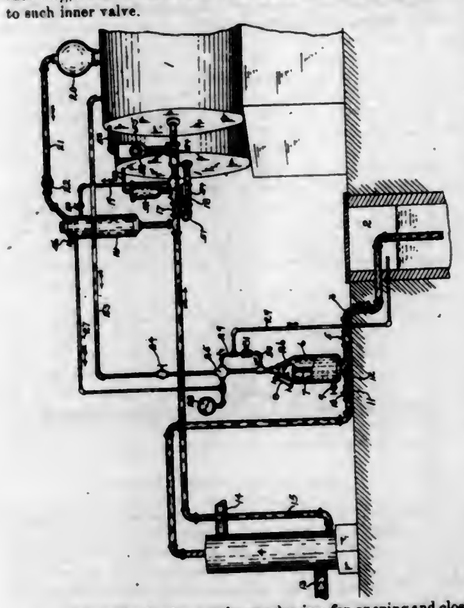
4. In a vehicle-top, the grooved bolt, the clamping-sleeve placed thereon, the arm F, of the top, the two washers D, H, placed upon the bolt, and the spring-washer, combined with the button or nut, and the spring-actuated inclosing sleeve which protects the parts, substantially as specified.

577,325. BOILER-FEEDER. ORLA J. SCOTT, Louisville, Ky., assignor to the Scott Automatic Boiler Feeder Company, same place. Filed May 18, 1896. Serial No. 592,011. (No model.) Patented in Canada Aug. 4, 1896, No. 53,107.

Claim.—1. In a boiler-feeder, the combination with a receiver and its steam-port, of a compound valve composed of a main valve and an auxiliary valve, for controlling said port, and means for successively actuating the auxiliary valve and the main valve from the fluid in the receiver, whereby the pressure between the boiler and receiver may be rapidly equalized, substantially as and for the purposes specified.

2. In a boiler-feeder, the combination with the receiver and its steam-inlet port, of a compound valve composed of an outer casing or main valve having ports or spaces, and an inner piston or auxiliary valve movable within the casing, and means for successively actuating the inner piston-valve and the outer casing or main valve from the fluid in the receiver, substantially as and for the purposes specified.

3. In a boiler-feeder, a valve mechanism for opening and closing the steam-port into the receiver comprising a seat with a large port, an outer valve consisting of a cylindrical casing with a ring below it connected up by necks, such ring having a small port in it, an auxiliary valve movable within such outer valve so as to be seated on such ring, a float in the receiver and a stem extending from such float to such inner valve.



4. In a boiler-feeder, a valve mechanism for opening and closing the steam-port into the receiver comprising a seat with a large port, an outer valve provided with a seat having a small port, an auxiliary valve seated within the outer valve, and means for actuating such inner valve and through it the outer valve, a float in the receiver, a stem extending from such float to such inner valve, a guide-bracket in the lower end of the receiver, and a stem connected to the float and extending through such guide-bracket.

5. In a boiler-feeder having a receiver and a steam-port entering it, the combination with a valve for opening and closing the steam-port and a float in the receiver connected with the valve by a suitable stem for actuating the valve, of a bell-crank weighted at one end and pivoted at the other end to the valve-stem and means independent of the float for supporting or suspending said bell-crank, substantially as and for the purposes specified.

6. In a boiler-feeder having a receiver and a steam-port entering it, the combination with a valve for opening and closing the steam-port and a float in the receiver connected with the valve by a suitable stem for actuating the valve, of a bell-crank pivoted at one end to the valve-steam, a weight carried on the other end thereof, a chain supported from the upper end of the receiver and connected with the bell-crank near its middle, and a chain extending from the outer end of the bell-crank to the stem below it to limit the upward movement of the weight and downward movement of the float.

7. In a boiler-feeder, the combination of a main receiver, a primary receiver for drawing water from a cistern or other reservoir whose upper end is conical or tapering, a steam-pipe from the boiler entering such conical end, and a suitable valved delivery-pipe for connecting the primary receiver with the main receiver, as and for the purpose shown and described.

8. In a boiler-feeder, the combination with a receiver and its steam-inlet port, of a valve for controlling said port, a float and stem for actuating said valve from the fluid in the receiver, a suspended weighted lever, means for connecting said weighted lever with the stem of the float, and means for limiting the upward movement of said weighted lever, substantially as and for the purposes specified.

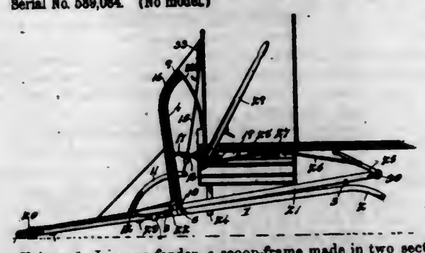
9. In a boiler-feeder, the combination of a boiler, a main receiver, a check-valve between the main receiver and boiler, a primary receiver, a pipe leading thereto from a suitable water-supply, a pipe leading from the boiler to the primary receiver, a pipe leading from the primary receiver to the main receiver having a check-valve in it between such receivers, and a by-pass around such valve.

10. In a boiler-feeder, the combination of a primary receiver, a main receiver, a steam-induction pipe leading to the primary receiver and provided with a differential valve, a connection between the differential valve and the main receiver whereby the valve is governed by the pressure in the main receiver, and a feed-water heater interposed between the primary receiver and main receiver, substantially as and for the purposes specified.

11. In a boiler-feeder, the combination with a receiver and its steam-inlet port, of a valve for controlling the steam-inlet port of the receiver, a float having a stem for actuating said valve, a suspended weighted lever, and means for connecting said weighted lever with the stem of the float, substantially as and for the purposes specified.

12. In a boiler, the combination with a receiver and its steam-inlet port, of a valve for controlling the steam-inlet port of the receiver, a float provided with a stem for actuating said valve, a supported or suspended weight, means for connecting said weight with the float-stem, and a buffer-spring for preventing injury to the valve when the float trips the supported or suspended weight, substantially as and for the purposes specified.

577,326. CAR-FENDER. EARL SHERWOOD, Honesdale, Pa., assignor of one-half to Judson J. Curtis, same place. Filed Apr. 25, 1896. Serial No. 589,084. (No model.)



Claim.—1. In a car-fender, a scoop-frame made in two sections having a hinged connection with each other, one of said sections being jointed between its front and rear ends so as to fold and extended under the car-body for engagement with the tripping mechanism, in combination with a trip slidingly supported on said scoop-frame, a swinging hanger to which the rear end of the trip is pivotally connected, and an arc-shaped brace pivotally connected to one of said sections and having a sliding and interlocking engagement with the other section, substantially as described.

2. In a car-fender, a scoop made in two sections having a hinged connection, one of said sections being jointed between its front and rear ends so as to fold and extended under the car-body for engagement with the tripping mechanism, in combination with a trip slidingly supported on said scoop, a swinging hanger to which the rear end of the trip is pivotally connected, an arc-shaped brace connected to one of said sections and having an interlocking engagement with the other section, and a flexible connection attached to said brace whereby the latter may be disengaged for allowing the scoop to be folded, substantially as described.

3. In a car-fender, the combination with the pivoted scoop-frame having its side bars extended straight back under the car and formed with downwardly-curving rear ends, of the trip-frame slidingly supported on the scoop and having its rear end supported upon a swinging hanger, substantially as described.

4. In a car-fender, the combination with the scoop-frame pivotally connected to the car and having its side bars extended straight back under the car, of a trip-frame slidingly supported on the scoop and provided at its rear end with a cross-bar which engages the rear ends of the side bars of the scoop-frame, and a swinging hanger for yieldingly supporting the rear end of the trip-frame, substantially as described.

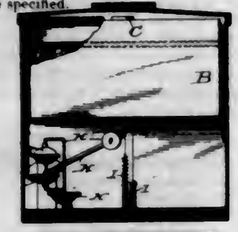
5. In a car-fender, the combination with the pivoted scoop, of the trip slidingly supported thereon, the swinging hanger for suspending the rear end of the trip, and an operating-lever and connections between said lever and hanger, whereby the trip may be moved for releasing or setting the scoop, substantially as described.

6. In a car-fender, the scoop-frame pivotally connected to the car and having its side bars extended back under the car, and made in hinged and folding sections, means for folding or setting the scoop from the car-platform, and a shoe consisting of a coiled spring surrounding the front bar of the scoop, in combination with a trip-frame independently connected to the car-body and slidingly supported on the scoop, a swinging hanger suspending the rear end of the trip, an operating-lever within reach of the motorman, and connections between said lever and hanger, whereby the trip may be moved for dropping or raising the scoop, substantially as described.

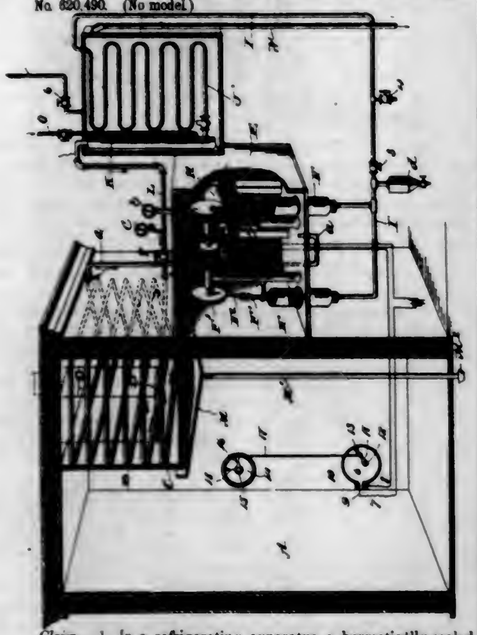
577,327. CAR-REFRIGERATING APPARATUS. WILLIAM F. SINGER, New York, N. Y. Filed Oct. 7, 1896. Serial No. 564,928. (No model.)

Claim.—In a car-refrigerating apparatus of the character described, the combination with the car-body of a hermetically-sealed tank within the car, two diaphragm-pumps also within the car one

of the pumps being inverted and the diaphragms of the pumps being connected as described, a lever having one of its ends in engagement with the link connecting the pump-diaphragms and the other end free and weighted, a pipe system connecting the pumps with the tank, and a discharge-pipe from the pumps, substantially as described and for the purpose specified.



577,328. REFRIGERATING APPARATUS. WILLIAM F. SINGER, New York, N. Y., assignor to the American Electric Cold-Supply Company, of Maine. Filed Apr. 20, 1896. Renewed Jan. 23, 1897. Serial No. 620,490. (No model.)



Claim.—1. In a refrigerating apparatus, a hermetically-sealed chamber, the gas-return pipe from the expansion-coil leading to the chamber and the gas-pump and its motor located in the chamber.

2. In a refrigerating apparatus, a hermetically-sealed chamber, the gas-return pipe leading to and opening freely into said chamber, and the gas-pump and its motor located in the chamber.

3. In a refrigeratiug apparatus, a hermetically-sealed chamber, the gas-return pipe from the expansion-coil leading to the chamber, and the gas-pump and electric motor located in said chamber, and supply-wires passing gas-tight through the chamber-wall.

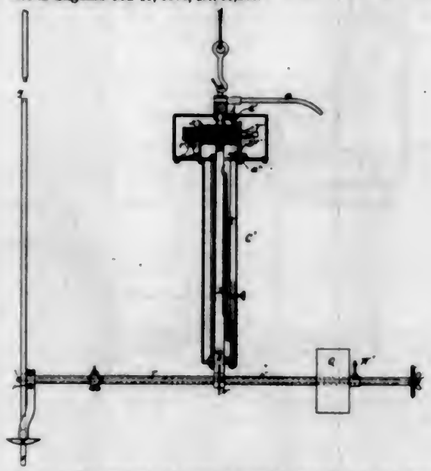
4. A refrigerator, an expansion-coil therein, an adjacent hermetically-sealed chamber connected to the expansion-coil, and the gas-pump and its motor in said chamber, and delivering its gas outside thereof.

5. A refrigerator, an expansion-coil therein, a hermetically-sealed chamber mounted on the wall of the refrigerator, and connected to the expansion-coil, and the gas-pump and its motor located in said chamber and delivering the gas outside thereof.

6. A refrigerator, an expansion-coil therein, an adjacent hermetically-sealed chamber connected to the expansion-coil, and the gas-pump and its motor in said chamber, and the condenser connected to the pump and pipe leading from the condenser to the expansion-coil.

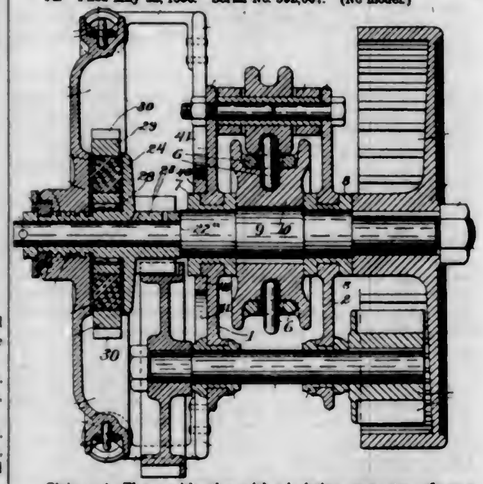
7. In a refrigerating apparatus, a hermetically-sealed chamber the walls of which are free from penetration by any moving part, the gas-return pipe from the expansion-coil leading to the chamber, and the gas-pump and electric motor located in said chamber, and supply-wires passing gas-tight through the chamber-wall.

577,329. ELECTRICAL CASTING OF METALS. NICHOLAS SLAWIANOFF, St. Petersburg, Russia. Filed Jan. 29, 1891. Serial No. 379,555. (No model.) Patented in Germany Oct. 11, 1890, No. 57,417, and in England Oct. 13, 1890, No. 16,279.



Claim.—The method of casting metals, consisting in the formation of an electric arc between a metallic rod, which procures the metal to be melted and forms at the same time one of the electrodes of the arc, and the contents of the mold (the metallic object in the mold), which forms the other electrode of the arc, and in continuously regulating the electric arc formed, substantially as described.

577,330. HOISTING APPARATUS. JOHN G. SPEIDEL, Reading, Pa. Filed May 22, 1896. Serial No. 592,667. (No model.)



Claim.—1. The combination with a hoisting apparatus, of an automatic brake mechanism comprising a pinion provided with an integral hub having a coupling end, a hand-wheel provided with an integral hub having a like coupling end, and a brake-wheel loosely mounted upon said pinion-hub to make a frictional brake by locking the said two hubs together.

2. The combination with a hoisting apparatus, of an automatic brake mechanism, comprising a pinion provided with an integral hub having a coupling portion, a hand-wheel mounted to turn on the pinion-hub and having an integral hub provided with a like coupling portion and having the hub of the said pinion-hub extending therethrough, and a brake-wheel loosely mounted upon the pinion-hub and adapted to make a frictional brake between the wheel and pinion by locking the two said coupling portions together, as set forth.

3. The combination with a drum and threadless shaft of an elevator apparatus, a pinion turning and traveling on the shaft and having its hub formed into a coupling member, a coupling member mounted upon the pinion-hub and adapted to lock with the latter, a brake-wheel loosely mounted on said pinion-hub, a suitable gear from the pinion to the shaft to impart motion to the latter, as set forth.

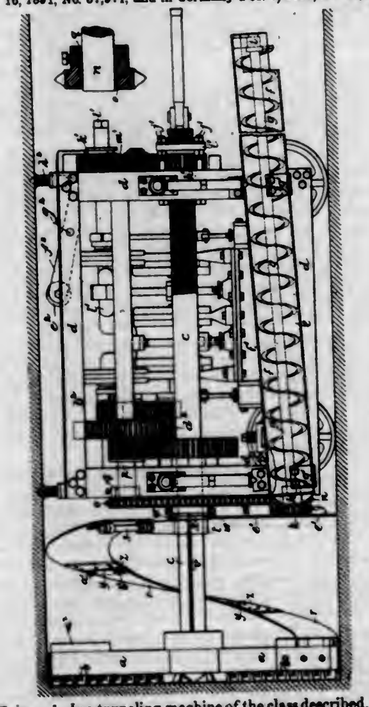
4. The combination with a lift-drum, its threadless driving-shaft, and shaft-gearing, of a pinion loosely turning and traveling upon the shaft and having a threaded hub and an integral flange, a drive-wheel mounted on the pinion-hub and having a thread meshing with the thread of the pinion whereby the wheel and pinion are connected to be locked together, and a friction brake-wheel loosely mounted upon the pinion-hub and adapted to make a frictional brake between the said pinion-flange and wheel-hub face to impart motion to said gearing and shaft, as set forth.

5. The combination with a portable hoist, of a frame in which the hoist mechanism is secured, comprising side plates, a series of bearings secured in openings of the plates at equal radial distance from the center of the plates, a shaft in certain of said bearings, sleeves upon the bolts fixing the plates at proper distance apart, and a head attached to the plates and carrying a hook for suspending the hoist, as set forth.

6. The combination in a portable hoist, a frame comprising side plates, bearings contained in the plates at equal radial distance from the center of the frame, and connected together by bolts, sleeves upon the bolts fixing the distance between the plates, a lift-drum upon the shaft between the plates and adapted to be revolved inside of the said bolts, an automatic brake mechanism loosely mounted upon the shaft, a pawl carried by one of the said plates and adapted to operate with the brake mechanism, a shaft journaled in the frame-plates, and gears to impart motion from the brake mechanism to the driving-shaft.

7. The combination with a hoisting-machine, of a chain-guide comprising a slotted head loosely mounted upon the main shaft of the machine near its center and remote from the hand-wheel of the machine, a set-screw passing through said slot and extending into the frame, outwardly-diverging curved arms, wings detachably secured to and extending at right angles from said arms, and terminating at the periphery of the hand-wheel, and eyes formed at the terminal of the wings, whereby the eyes only are adjacent to said wheel, as set forth.

577,331. MINING-MACHINE. REGINALD STANLEY, Nuneaton, England. Filed Apr. 9, 1890. Renewed Sept. 12, 1896. Serial No. 606,643. (No model.) Patented in England Sept. 13, 1889, No. 14,343; in New South Wales June 27, 1891, No. 3,062; in Queensland June 29, 1891, No. 1,363; in New Zealand July 6, 1891, No. 5,078; in Canada Dec. 16, 1891, No. 37,971, and in Germany Feb. 5, 1892, No. 60,237.



Claim.—1. In a tunneling-machine of the class described, the combination of the rotary cutter-head, the central longitudinally-arranged driving-shaft secured to the cutters, the rectangular bed-frame having the front and rear uprights and the top and bottom longitudinally-arranged connecting-bars, all lying in substantially the central vertical planes of the tunnel, the power-shafting on said bed, means for positively fastening the bed to the tunnel-wall to hold it stationary while the cutters advance relatively forward, a conveyer arranged eccentrically to the tunnel and supported upon one side of said bed and extending toward the rear thereof, a vertical drive-chain driven by the aforesaid shafting, a horizontal driving-chain actuated by the vertical chain and connected to the conveyer, and means carried by the cutter-head for picking up the cuttings and delivering them to said conveyer, substantially as set forth.

2. In a tunneling-machine of the class described, the combination of a rotary cutter-head, the central longitudinally-arranged driving-shaft secured to the cutter-head, the rectangular bed arranged in the central longitudinal vertical planes of the tunnel, means for locking said frame stationary to the walls of the tunnel while the cutters advance, the gearing on the bed-frame, the engine supported eccentrically on one side of the bed and situated in the open space between said bed and the side wall of the tunnel, a conveyer supported eccentrically of the tunnel upon the frame on the opposite side and below the central horizontal plane thereof and extending toward the rear thereof, power-transmitting devices connecting the engine with the conveyer for driving the latter, and a platform supported upon the side of the frame above the conveyer, said conveyer, power-transmitting devices, and platform being all arranged as aforesaid whereby a free space is provided for the movements of the operative on the side of the bed-frame opposite the engines, substantially as set forth.

3. In a tunneling-machine, the combination with the stationary main frame, the engine, the gearing, the longitudinally-advancing cutter-carrying shaft, and the cutter-arms, of a flexible extensible conveyer mounted on said shaft and working around the circumference of the tunnel, one end being attached to the frame and the other secured to the cutter-arms, said conveyer being composed of two or more parts movable relatively to each other, substantially as set forth.

4. The combination, in a tunneling-machine, with the frame, the gearing, the longitudinally-advancing cutter-driving shaft, and the cutter-arms secured thereon, of the arm *s* secured to the frame and revolving with the cutter-shaft, and the extensible conveyer having one end secured to the arm *s*, and the other end to the cutter-arms, substantially as set forth.

5. In a tunneling-machine, the combination with the frame, the gearing, the longitudinally-advancing cutter-driving shaft, and the cutter-arms mounted on said shaft, of the extensible conveyer mounted concentrically around said shaft, one end being secured to the main frame, and the other to the cutter-arms, said conveyer comprising the slotted parts *r*, *r*, and the connecting-pieces, *z*, *z*, substantially as set forth.

6. In a tunneling-machine, the combination of the main frame, the engine, the power-shaft, the cutter-shaft arranged parallel thereto, two sets of gear connecting the power-shaft with the cutter-shaft, and a wheel sliding on said power-shaft and adapted to engage with either of said sets of gear, whereby one or both sets may be actuated to vary the speed and power of the cutters, substantially as set forth.

7. In a tunneling-machine, the combination of the cutters, the cutter-carrier, the main frame adapted to be advanced or withdrawn intermittingly, a positive lock for intermittingly fastening said frame stationarily to the tunnel-wall, a roller or equivalent adapted to rest against the tunnel-wall when the frame is in motion, and means connecting said lock with said roller, whereby said roller and said lock are pressed into engagement with the wall alternately, substantially as set forth.

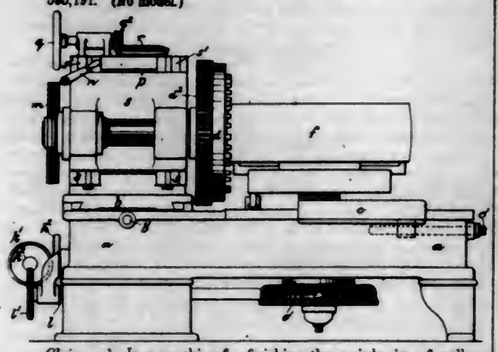
8. In a tunneling-machine, the combination of the cutters, the cutter-carrier, the gearing for actuating said cutter-carrier, a main frame supporting said gearing and said cutter-carrier and adapted to be advanced intermittingly, a lock for positively securing said frame to the tunnel-wall when the frame is at rest, a roller adapted to rest against the tunnel-wall when the frame is in motion, and a lever connecting said roller and said lock whereby when the lock is withdrawn the roller is pressed into engagement with the wall, substantially as set forth.

9. In a tunneling-machine, the combination with the frame adapted to be moved forward intermittingly, the cutters, the gearing, and the supporting-wheels for the main frame, of a lever f^3 mounted on the frame, a roller e^3 mounted on one end of the lever, and a screw-pin h^3 situated above the other end of the lever, and engaging with the tunnel-walls when the frame is stationary, whereby the roller is brought to bear against the top wall of the tunnel when the pin is unscrewed, to guide the frame during its movements forward, substantially as set forth.

10. The combination with the frame, the engine, the gearing, the cutter-shaft, and the cutter-arm, of a conveyer mounted concentrically around said shaft, connected to the cutter-arm and to the frame,

and having the arc-like plates *r*, one end of each plate having slots, and the other end having pins secured thereto, and passing through the slots of the next adjoining plate, substantially as set forth.

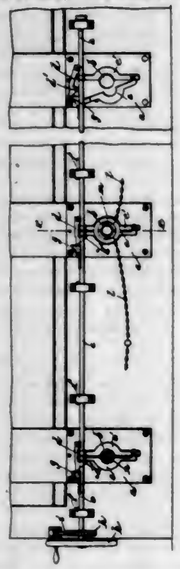
577,332. MACHINE FOR FINISHING PERIPHERIES OF PULLEYS OR FLY-WHEELS. JOHN TANGYE, Handsworth, and WILLIAM H. BAILEY, Smethwick, England, assignors of one-third to Tangyes, Limited, Birmingham, England. Filed June 11, 1896. Serial No. 595,191. (No model.)



Claim.—1. In a machine for finishing the peripheries of pulleys and other wheels the combination with a bed, a slide *c* horizontally and longitudinally movable thereon, means for moving said slide, a vertical pulley-spindle *e* journaled in said slide, of the slide *b* mounted on said bed and movable transversely to the line of travel of the slide *c*, a vertical milling-cutter mounted on the slide *b* at a tangent to the rim of the pulley to be operated upon, means for adjusting said milling-cutter vertically, and means for moving the slide *b*, whereby the milling-cutter is caused to impart either a concave, convex or cylindrical shape to the periphery of the pulley, substantially in the manner specified.

2. In a machine for finishing the peripheries of pulleys and other wheels the combination with a bed, a slide *c* horizontally and longitudinally movable thereon, means for moving said slide, a vertical pulley-spindle *e* journaled in said slide, of the slide *b* mounted on said bed and movable transversely to the line of travel of the slide *c*, a slide S movably mounted on the vertical face of the slide *b*, means for vertically adjusting the slide S, a vertical milling-cutter journaled in the slide S at a tangent to the pulley to be operated upon, and means for moving the slide *b* across the path traversed by the slide *c*, substantially as shown and described and for the purpose specified.

577,333. APPARATUS FOR UNCHAINING CATTLE. JOACHIM VIETHEER, Kollmar, Germany. Filed June 24, 1896. Serial No. 596,767. (No model.)



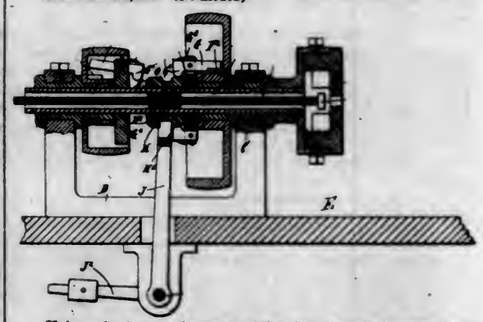
Claim.—1. A device for unchaining animals, comprising a pair of jaws held on the crib, means for opening the jaws, a pin or bolt held in place by the said jaws, and chains connected with the said pin, one of the chains having a loose connection with the pin, to drop out of the latter when the pin is released by the jaws, substantially as described.

2. The combination with a support of a jaw fixed thereto, a second jaw pivotally mounted adjacent to the first jaw, a headed pin removably held by the two jaws, a catch capable of holding the movable jaw, a rotary shaft, and a tappet carried by the shaft and lifting the catch as the shaft turns, substantially as described.

3. The combination with a support having an orifice, of a jaw fixed adjacent to said orifice, a second jaw pivotally mounted adjacent to the first jaw, a catch holding the movable jaw, a headed pin projecting into the orifice of the support and normally held by the jaws, a rotary shaft, and a tappet carried by the shaft and engaging the catch to release the pivoted jaw, substantially as described.

4. A device for unchaining animals, the device having a headed pin, means for removably holding the pin, a ring fixed to the end of the pin, and a second ring loose on the pin and confined by the fixed ring, the second ring being capable of passing over the head of the pin, substantially as described.

577,334. REVERSING-GEAR FOR SCREW-CUTTING OR OTHER MACHINES. CHARLES WAGNER, New York, N. Y. Filed Apr. 25, 1896. Serial No. 589,064. (No model.)



Claim.—1. A reversing-gear of the class described, comprising a spindle, two driving-pulleys rotating in opposite directions and independent of the spindle, a clutch-sleeve held to slide on said spindle between the said pulleys, a fulcrumed shifting-lever engaging said clutch-sleeve and carrying a weighted arm, two clutches carried by the spindle and controlled by said sleeve, the clutches being adapted to engage said driving-pulleys, and means for moving said shifting-lever, substantially as shown and described.

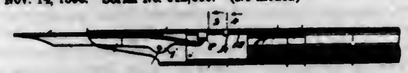
2. A reversing-gear of the class described, comprising two clutch-arms secured on the spindle, spring-pressed levers fulcrumed on said clutch-arms, a sleeve held to slide on the spindle between said arms to engage either of the said clutch-levers, a fulcrumed shifting-rod engaging the said sleeve, a weighted arm on the fulcrum-shaft of said lever, means for moving the said shifting-lever, and two driving-pulleys rotating independently of the spindle and in opposite directions, the said pulleys being adapted to engage the clutch-levers and carry the same around to rotate the spindle in the direction of the corresponding pulley, substantially as shown and described.

3. A reversing-gear of the class described, comprising a spindle, a clutch-sleeve held to slide on said spindle, two clutches carried by the spindle and controlled by said sleeve, the clutches being adapted to engage driving-pulleys rotating in opposite directions, a screw-rod adapted to be engaged by the work, and a nut connected with the said sleeve and in which screws the said screw-rod, substantially as shown and described.

4. A reversing-gear of the class described, comprising a hollow spindle, two driving-pulleys rotating in opposite directions and independent of the spindle and concentric thereto, a clutch-sleeve held to slide on said spindle between said pulleys, a shifting-lever engaging said clutch-sleeve, two clutches carried by the spindle and controlled by the sleeve the clutches being adapted to engage said driving-pulleys, and a rod extending within the hollow spindle and connected with the said sleeve, substantially as shown and described.

5. A reversing-gear of the class described, comprising two clutch-arms secured on the spindle, spring-pressed levers fulcrumed on said clutch-arms, a sleeve held to slide on the spindle between said arms, to engage either of the said clutch-levers, two driving-pulleys rotating independently of the spindle and in opposite directions, the said pulleys being adapted to engage said clutch-levers and carry the same around to rotate the spindle in the direction of the corresponding pulley, a screw-rod extending within the hollow spindle, and a nut in which screws said screw-rod, and connected with said sleeve, substantially as shown and described.

577,335. PENHOLDER. WILLIAM H. WALKER, Dover, Del. Filed Nov. 14, 1896. Serial No. 612,069. (No model.)



Claim.—1. The combination with a supported barrel, of an interior sleeve having an interior projection, and a pivoted clamping-plate in the barrel, rockable thereon when pressed upon at one end by the interior projection, substantially as described.

2. The combination with a pen-stock, a rotatably-movable barrel, and an interior stationary sleeve on the pen-stock and adapted to support the barrel, said sleeve having an interior projection, of a clamping-plate pivoted in the barrel intermediately of the ends of said plate, so as to contact at the front end with the front end of the barrel, and having its rear end adapted for depression, when impinged upon by the said interior projection of the sleeve during a partial rotation of the barrel, substantially as described.

3. The combination with a pen-stock, of a holder device, comprising a rotatably-movable barrel mounted at one end on the stock, a sleeve in said barrel and having an interior projection, and a clamping-plate pivoted forwardly in the barrel and having an ear adapted to be pressed by the interior projection of the sleeve when the holder-barrel is rotatably actuated, substantially as described.

4. The combination with a pen-stock, of a holder device, comprising a barrel having a clamping-jaw at its free end, and adapted for partial rotation on one end of said stock, a sleeve fixed on the end of the pen-stock and supporting the barrel, a cam on the inner wall of the sleeve, and a clamping-plate pivoted to rock longitudinally in the forward portion of the holder-barrel and having its rear end in contact with the cam, substantially as described.

5. The combination with a pen-stock, of a holder device, comprising a barrel loosely mounted at one end on one end of the pen-stock, and shaped at its free end to form a clamping-jaw, a sleeve secured at one end on a reduced portion of the pen-stock and rotatably sustaining the barrel, a cam projection on the inner surface of the sleeve, a pin and grooved connection between the barrel and sleeve, and defining the rotatable movement of said barrel, and a clamping-plate convex on its face adjacent to the clamping-jaw of the barrel, and pivoted therein between its ends, said clamping-plate having an ear adapted to contact with the cam to rock the free end of the plate upwardly when the barrel is partially rotated, substantially as described.

6. A penholder comprising two jaws adapted to hold the shank of a pen between them, one being pivoted to rock toward the other and a member capable of lateral oscillation and thereby engaging said movable jaw to clamp the pen, substantially as described.

7. A penholder comprising a barrel provided with a jaw, a second jaw pivoted to rock toward the first jaw, a member within the barrel and capable of lateral oscillation relative thereto, and a projection upon said member engaging the movable jaw to close the same, substantially as described.

8. A penholder comprising two jaws adapted to hold the shank of a pen between them, one pivoted to rock toward the other, and a member capable of lateral oscillation relative thereto and having a projection adapted to enter between the inner ends of said jaws to close their outer end and clamp the pen-shank between them, substantially as described.

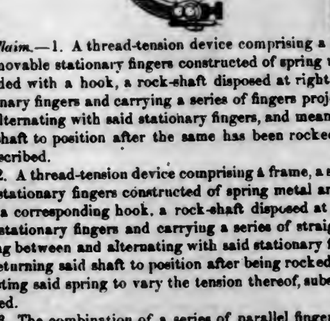
9. A penholder comprising two jaws adapted to hold the shank of a pen between them, one pivoted to rock toward the other, a laterally-oscillating member engaging said movable jaw to close it upon the pen, and a stop limiting the amount of said oscillation, substantially as described.

10. A penholder, consisting of two jaws adapted to receive the shank of a pen between them, the principal one of said jaws being supported upon the handle so that it may oscillate thereon and the other pivoted to rock, and a cam projection fixed to the handle and engaging the secondary or auxiliary one of said jaws to rock it toward the other, substantially as described.

577,336. DEVICE FOR ADJUSTING TYPE IN HAND-STAMPS. JAMES C. WARD, Little Rock, Ark. Filed Aug. 27, 1896. Serial No. 604,111. (No model.)

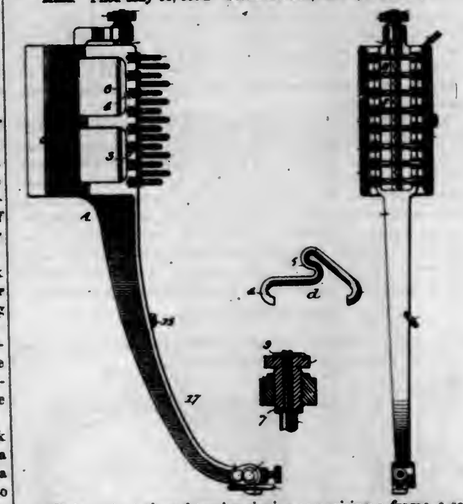
Claim.—1. The herein-described device for use with hand-stamps which are provided with interchangeable type for facilitating the adjustment of such type, said device comprising a flanged plate or cup, adapted to fit over the type-carrying end of the stamp in the manner substantially as specified.

2. The herein-described device for use with hand-stamps which are provided with interchangeable type for facilitating the adjustment of such type, said device comprising a flanged plate or cup, adapted to fit over the type-carrying end of the stamp, said plate or cup having a yielding interior bottom wall, substantially as specified.



3. The herein-described device for use with hand-stamps which are provided with interchangeable type and with a set-screw for securing said type, said device comprising a flanged plate or cup adapted to fit over the type-carrying end of the stamp for the purpose described, a wrench or key adapted to fit the head of said screw, and a flexible connection between said cup and the wrench of sufficient length to enable both to be operated simultaneously substantially as specified.

577,337. TENSION DEVICE. SIMON W. WARDWELL, Jr., Boston, Mass. Filed May 18, 1894. Serial No. 511,715. (No model.)



Claim.—1. A thread-tension device comprising a frame, a series of removable stationary fingers constructed of spring metal and each provided with a hook, a rock-shaft disposed at right angles to said stationary fingers and carrying a series of fingers projecting between and alternating with said stationary fingers, and means for returning said shaft to position after the same has been rocked, substantially as described.

2. A thread-tension device comprising a frame, a series of removable stationary fingers constructed of spring metal and each formed with a corresponding hook, a rock-shaft disposed at right angles to said stationary fingers and carrying a series of straight fingers projecting between and alternating with said stationary fingers, a spring for returning said shaft to position after being rocked, and means for adjusting said spring to vary the tension thereof, substantially as described.

3. The combination of a series of parallel fingers, each bent to form a hook and a series of alternating fingers supported to swing upon an axis at right angles to and between the fixed fingers to and from the hooked portions thereof and a spring for actuating the movable fingers, substantially as set forth.

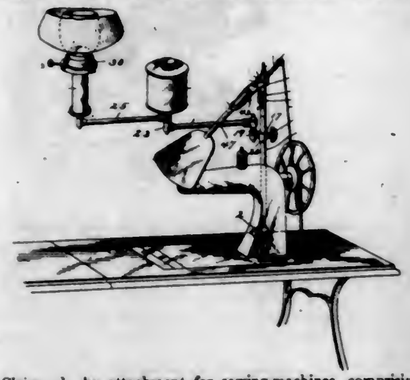
4. A tension device having a frame with two parallel series of bearings a series of fingers each consisting of a spring-rod having bent ends to engage opposite bearings and a shaft turning in bearings upon

the frame and carrying a series of fingers and a spring for turning said shaft, substantially as set forth.

5. The combination with the thread-bearing elements of a tension device, of a rotatable knot-catcher consisting of a fixed bar and a plug carrying an eccentric bar, and means for securing said bar in position, substantially as set forth.

577,838. FAN ATTACHMENT FOR SEWING-MACHINES.

HENRY P. WATTS, Lynchburg, Va., assignor to Lizzie Lillian Adkerson, same place. Filed Oct. 10, 1895. Serial No. 565,290. (No model.)

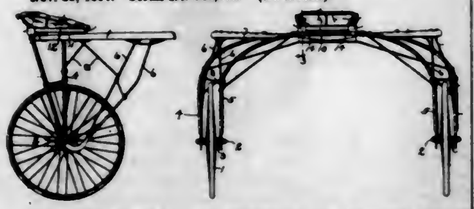


Claim.—1. An attachment for sewing-machines, comprising a standard having provision whereby it may be attached to the machine-table and provided at or near its upper end with a transverse axle, a fan-lever having bearing-slots at its under side by which it is fulcrumed on said axle, a spring carried by the fan-lever and having curved portions which engage beneath the ends of the axle for holding the fan-lever in position, and means connecting said lever to one of the machine-wheels whereby motion is imparted to the fan, substantially as described.

2. An attachment for sewing-machines, comprising a standard having provision whereby it may be attached to the machine-table and provided at or near its upper end with a transverse axle, a fan-lever fulcrumed on said axle and provided near one end with longitudinal slots or openings for the reception of the fan-handle and also having its end arched to embrace said handle, a spring mounted on the fan-lever and having a transverse portion which passes under the fan-handle and frictionally engages the same for holding it in place, and means connecting said lever to an operative part of the machine whereby motion is imparted to the fan, substantially as described.

577,839. SULKY.

GEORGE L. WELLS, Indianapolis, Ind. Filed Nov. 23, 1896. Serial No. 613,065. (No model.)



Claim.—1. In a sulky, the combination with the frame thereof, of a seat pivoted near its middle portion, and a spring controlling one extremity thereof.

2. In a sulky, the combination of the frame having a central and a rear bow or cross-bar, a seat frame pivoted on the central bow or cross-bar, and a spring connection between the rear bow or cross-bar and the seat, whereby the rear bow or cross-bar may have a vertical movement independent of the seat.

3. In a sulky, the combination with a frame provided with a central and a rear bow or cross-bar, of a seat-frame pivoted to such central bow or cross-bar, boxes secured to the rear bow or cross-bar provided with upward rear and lateral extensions to receive the corner of the seat, and a spring connection between the rear bow or cross-bar and the seat, whereby the seat will be prevented from having rearward or lateral movement but will be permitted to have vertical movement relative to the rear bow or cross-bar.

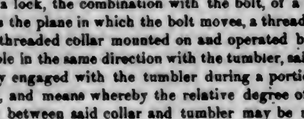
4. In a sulky, the combination with the thill, framework and wheels thereof, of a brace extending from the thill to the axle of the wheel that at its lower end is curved downward below such axle, substantially as and for the purpose shown and described.

5. In a sulky, suitable wheels, suitable bows mounted on the axles of the wheels, a thill carried by such bows, front braces extending from the thills to the axles of the wheels that are curved at their lower ends to a point below the axles as shown, and metallic braces extending from the thills and wrapped about the bows and front braces, substantially as and for the purpose shown and described.

6. In a sulky, the combination with the wheels, a central and a rear bow mounted on the axles of said wheels, and thills carried by said bows, of a seat pivotally mounted on the central bow, a spring connection between the rear bow and the seat, and front braces extending from the thills to the axles of the wheels that are curved at their lower ends below said axles, substantially as and for the purpose shown and described.

577,840. ATTACHMENT FOR PASTEBOARD BOXES, CARTONS, &c.

ALOIS G. WUTKE and HEYMAN UHRY, Plaquemine, La. Filed Aug. 3, 1896. Serial No. 601,534. (No model.)



Claim.—1. As an improved article of manufacture a box, carton or the like formed at or near its front lower edge with a slit, and provided with a previously-prepared strong flexible strip of suitable length and width, the ends of the strip being gummed a considerable distance, and the central portion of the strip which constitutes a pull being ungummed, the strip being doubled upon itself to form a loop and the ungummed looped portion passed through the slit in the front lower edge of the box, so as to project from the box a considerable distance, to form a pull, the gummed ends of the strip being pasted respectively to the inside of the front vertical wall of the box and to the inside of the bottom of the box a considerable distance, substantially as described.

2. As a new article of manufacture a pull for a box consisting of a strip of flexible material cut into suitable length and width, the ends of the strip being gummed a considerable distance, and the central portion of the strip which constitutes the pull being ungummed, the strip being adapted to be folded upon itself to form a loop, the looped portion to be passed through the slit in the front lower edge of the box a suitable distance to form a pull, and the ends of the strip to be pasted respectively to the inside of the front vertical wall of the box and to the inside of the bottom of the box, substantially as described.

577,841. PERMUTATION-LOCK.

WILLIAM ANGLE, Tiffin, Ohio. Filed Apr. 9, 1896. Serial No. 586,572. (No model.)



Claim.—1. In a lock, the combination with the bolt, of a tumbler movable across the plane in which the bolt moves, a threaded operating-spindle, a threaded collar mounted on and operated by said spindle and movable in the same direction with the tumbler, said collar being operatively engaged with the tumbler during a portion only of its movement, substantially as described.

2. In a lock, the combination with the bolt, of a tumbler movable across the plane in which the bolt moves, a threaded operating-spindle, a threaded collar mounted on and operated by said spindle and movable in the same direction with the tumbler, said collar being operatively engaged with the tumbler during a portion only of its movement, and means whereby the relative degree of independent movement between said collar and tumbler may be regulated and changed, substantially as described.

3. In a lock, the combination with a bolt having a longitudinal slot, of a tumbler adapted to slide transversely through said slot and having a reduced center adapted to be arranged in the plane of the bolt to allow the sliding thereof and also having terminal stumps to fit snugly in the slot and lock the bolt against movement, means for holding the tumbler yieldingly in its adjusted positions, and devices connected with the spindle for adjusting the tumbler and reciprocating the bolt, substantially as specified.

4. In a lock, the combination with the bolt, of a tumbler movable across the plane in which the bolt moves, the operating-spindle, and a collar mounted on the spindle and movable in a plane parallel to the plane of the movement of the tumbler, the said collar being provided with a bit or lug cooperating with the tumbler and adapted to be moved a certain distance without affecting the tumbler, substantially as described.

5. In a lock, the combination with the sliding bolt, of the tumbler movable across the plane of the bolt, the operating-spindle, the collar having a threaded engagement with the spindle and adapted to be moved thereby when the spindle is turned, said collar having a bit or lug which cooperates with the tumbler during a portion only of the movement of said collar, substantially as and for the purpose described.

6. In a lock, the combination with the bolt, of the operating-spindle, the collar adjustable longitudinally on the spindle and notched or provided with shoulders as described, the slide working in a longitudinal groove in the spindle for engaging said notches or shoulders on the collar and locking the same to the spindle, and the bit or lug on the collar engaging the bolt, substantially as described

7. In a lock, the combination with a bolt, of an operating-spindle, a collar having a bit for engaging the bolt and adjustable longitudinally on the spindle, and adjustable stops mounted on the collar for movement parallel with the path thereof and adapted to engage a fixed object to limit the said longitudinal movement of the collar, substantially as specified.

8. In a lock, the combination with the bolt, of the operating-spindle, the sleeve adjustable longitudinally on the spindle and having provision whereby it engages the bolt, a stop-lug on the collar working in a recess in the lock-case for limiting the rotation of the collar, and the set-screws for adjusting and limiting the movement of the collar longitudinally of the spindle, substantially as described.

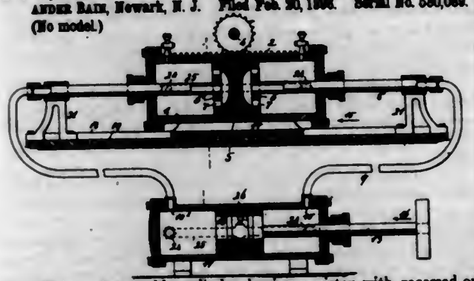
9. In a lock, the combination with the bolt, of the operating-spindle, the collar adjustable longitudinally on the spindle, the bit or lug on the collar for operating the bolt, the tumbler movable across the plane of the bolt, and the opposing stops on the tumbler cooperating with said bit or lug, substantially as described.

10. In a lock, the combination with the bolt, of the tumbler movable across the plane of the bolt, the opposing stops on the tumbler made adjustable for varying the distance between them, the operating-spindle, the collar adjustable thereon, means for adjusting the collar, and the bit or lug on the collar interposed between the stops on the tumbler, substantially as and for the purpose described.

11. In a lock, the combination with the knob-spindle, and the collar adjustable longitudinally thereon and engaging the bolt, of the slide movable longitudinally of the spindle for locking the collar thereto or unlocking it, and the knob slotted to receive the operating projection on the slide, said knob carrying a spring for engaging the slide, substantially as and for the purpose described.

577,842. HYDRAULIC MOTOR OR REVERSING-GEAR.

ALEXANDER BAIN, Newark, N. J. Filed Feb. 20, 1896. Serial No. 580,069. (No model.)



Claim.—A movable cylinder having a piston with recessed or concave faces, perforated faces allowing communication from the cylinder to the recesses, and hollow piston-rods made to communicate through said faces with the recesses, combined with a fixed cylinder having a piston and ports located at opposite sides of the fixed cylinder-piston and made to communicate with the hollow piston-rods, said fixed cylinder having an equalizing-pipe and equalizing-ports located on opposite sides of its piston, substantially as described.

577,843. TRAP-SCREW.

NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed Jan. 21, 1896. Serial No. 576,266. (No model.)

Claim.—1. The combination of the trap, with a hard-metal ring having an inner threaded portion adapted to come flush with the interior surface of the trap and an exterior centering or setting portion adapted to fit against the outer face of the trap, substantially as described.

2. A hard-metal self-centering ring for trap-screws, U-shaped in cross-section, having its interior annular portion screw-threaded and adapted to project through the trap-hole opening and come flush with the inner surface of the trap, and its external annular portion being adapted to fit against the exterior surface of the trap so as to center the ring in place, substantially as described.



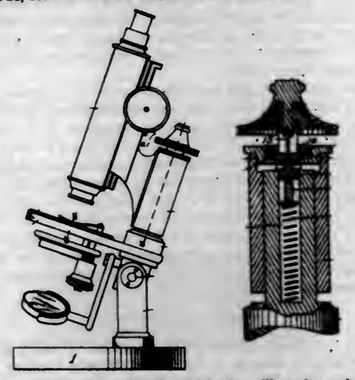
3. The herein-described ring C for plumbers' trap-screws having an interior threaded portion c, and an exterior portion c' connected at their lower edges by an integral metal web, and an exterior portion having its upper edges dished at opposite sides to fit the curved outer surface of the trap, substantially as described.

4. The herein-described trap-screw, having an annular threaded portion d, closed at top by an integral portion d', and having a horizontally-projecting flange d^2 at its lower edge and lugs d^3 projecting from the edge of said flange, all formed integral from sheet metal by stamping, substantially as and for the purpose described.

5 The combination of the trap having an opening in its bottom, a double-walled ring having an inner annular threaded portion c fitted to the opening of the trap and having its edge flush with the interior thereof, and having an exterior annular portion c' connected to and surrounding portion c, and fitting closely against the curved exterior surface of the trap and secured thereto; and the stopple F, having a concave top d' adapted to come flush with the interior of the trap, all substantially as and for the purpose set forth.

577,844. MICROSCOPE.

EDWARD BAUSCH, Rochester, N. Y., assignor to the Bausch & Lomb Optical Company, same place. Filed Aug. 21, 1896. Serial No. 603,495. (No model.)



Claim.—1. The combination with the pillar, the yoke and the spring, of the adjustable sleeve, the bridge passing through the yoke, and means for connecting the ends of the bridge to the sleeve in any position of rotary adjustment, and the adjusting-screw, substantially as described.

2. The combination with the pillar, the yoke screwing therein, and the spring, of the bridge passing through the yoke and engaging the spring, the sleeve having the shoulder, the adjustable collar on the sleeve clamping the yoke upon the shoulder, and the adjusting-screw, substantially as described.

3. The combination with the pillar, and the yoke screwing therein, of the sleeve, the bridge passing through the yoke, means for clamping the bridge to the sleeve in any position of rotary adjustment, and means for operating the sleeve and pillar relatively, operating through the yoke and bridge, substantially as described.

4. In an instrument of the kind described, the combination with the stage having the anchors thereon, of the stage-cover composed of hard rubber or similar material firmly secured by the anchors to the stage, substantially as described.

5. In an instrument of the kind described, the combination with the stage recessed and having the undercut edges and the anchors,

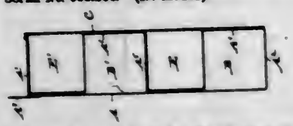
of the stage-cover of hard rubber or similar material in which the anchors are embedded, substantially as described.

577,345. PLAYING-CARD. GEORGE P. BENJAMIN, New York, N. Y. Filed Mar. 16, 1896. Serial No. 583,401. (No model.)



Claim.—A card-package consisting of a pack of ordinary playing-cards and one or more cards having the back decorated with the same design as the playing-cards and the opposite or plain surface ruled and imprinted as described, to constitute a score-record, substantially as hereinbefore set forth.

577,346. SPICE-CABINET. ANDERS G. BÖRKMAN, Brooklyn, N. Y., assignor to himself and William N. Andreason, same place. Filed Oct. 8, 1896. Serial No. 608,206. (No model.)



Claim.—1. As an improved article of manufacture a sheet-metal cabinet consisting of the rectangular case having sides, top, bottom and back, the latter being provided at its upper end with the eyes A^7 and front integral with the bottom and extending upward from the bottom a short distance, a horizontal partition with integral front extending upward therefrom a short distance, doors hinged to the front edges of the sides each door having pockets upon the inner wall and fitting the spaces between the upper ends of the said fronts and the next adjacent horizontal portions of the case, one of said doors having a portion overlapping the adjacent edge of the other door and bridging the space between the pockets of the two doors, all substantially as shown and described.

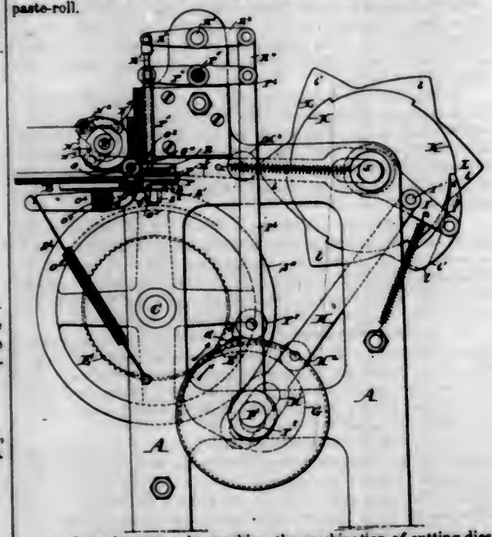
2. The sheet-metal case comprising the back A, bottom A^3, top A', sides A^2 and A^4 and shelf A^5 at the mid-height and the fronts A^6 on said bottom and shelf forming the case-pockets B, B' extending the full width of the case, in combination with the wide door D having extended portion D' to overlap the narrow door and narrow door C hinged to said case sides, the projecting door-pockets E, E' on the interior face of each of said doors less than half the width of the case, matching to the unoccupied spaces in the case between the said pockets and between the pocket B' and said top, when the doors are closed, mounted with a space between each pocket and its neighbor on the same level to allow said wider door to be opened and closed without interference, all substantially as herein specified.

577,347. CIGARETTE-TUBE MACHINE. JAMES A. BONSACK, Philadelphia, Pa., assignor to the Bonsack Machine Company, Salem, Va. Filed Dec. 3, 1891. Serial No. 414,408. (No model.)

Claim.—1. In a cigarette-tube machine, the combination with a pair of rotating feed-rolls, of die-cutters situated on the delivery side of said rolls and arranged to operate while the rolls are stationary to cut blanks from the paper, and mechanism for imparting a series of intermittent feeds to the rolls, the initial feed of each series being greater than the others.

2. In a cigarette-tube machine, the combination with a pair of intermittently-rotating feed-rolls, of a receiving-platform situated on the delivery side of the rolls and having formed in or secured to it a female die; a male die arranged to lie above the female die while the paper is being fed over it and to descend into it to cut the blank when the feed-rolls are stationary; and an intermittently-moving carrier having an opening extending through its bottom and along one of its sides and arranged to lie beneath the female die to receive the blank, and having received it to move carrying the blank to the pasting mechanism.

3. In a cigarette-tube machine, a blank-cutter consisting of a female die P in combination with a male die P^3 and a stripper R, said stripper arranged as described to carry the blank through the female die after it has been severed by the male die, a reciprocating carrier located beneath the stripper, a paste-roll, nippers for clamping the blank, and a presser for forcing the edge of the blank against the paste-roll.



4. In a cigarette-tube machine, the combination of cutting-dies, a reciprocating carrier S arranged to receive and remove the blanks from the dies; nippers arranged in the path of the carrier to seize the blank, and a paster, as roll T^3, arranged in the path of the nippers to apply paste to one edge of the blank.

5. In a cigarette-tube machine, the combination of a pair of feed-rolls, mechanism as described for imparting a series of intermittent rotations of equal length intermitted by a rotation of greater length to said rolls, and blank-cutting dies situated on the delivery side of the rolls and arranged to operate during the intermission in the movements of the feed-rolls.

6. In a cigarette-tube machine, the combination of the blank-cutting dies, the intermittently-moving carrier S, the intermittently-moving paste-roll T^3 between which and the point below the dies the carrier moves; the movable nipper U arranged with its edge beneath the roll T^3; the nipper V arranged to grip the blank against the nipper U and lift it toward the paste-roll T^3 and the plate W^3 arranged to move past the edge of the nipper U and press the edge of the paper against roll T^3.

7. In a cigarette-tube machine, the combination of the blank-cutting dies, an intermittently-moving carrier, the paste-box T, the intermittently-moving paste-rolls T' T^3, the paste-roll T^3 having an exposed section, and the carrier moving from the dies to the paste-roll, and nippers arranged as described to seize the blank from the carrier and carry one edge against the paste-roll T^3.

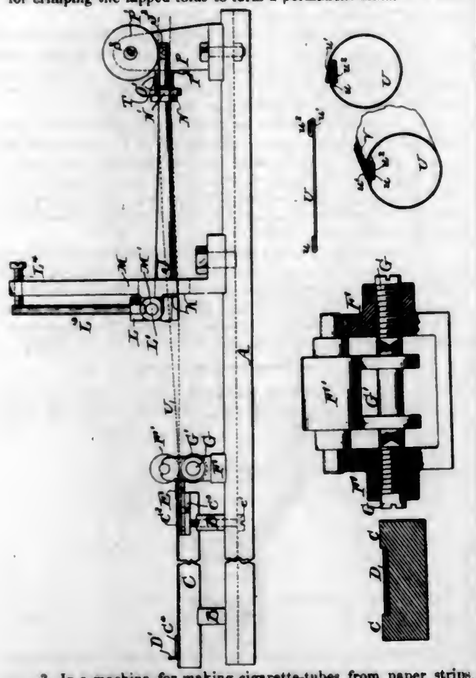
8. In a cigarette-tube machine, the combination with dies arranged to cut blanks from a strip or roll of paper, a paster, as roll T^3, carriers arranged to take each blank from the dies after it is severed from the strip, and nippers arranged to carry it to and against the paster.

9. In a cigarette-tube machine, the combination with the feed-rolls of mechanism for imparting a series of intermittent feeds thereto, said mechanism comprising a revoluble shaft, an arm and intermediate pawl-and-ratchet mechanism for actuating the shaft and a cam-wheel for actuating the arm, said wheel having a series of cam projections coöperating with the arm, one of the projections being longer than the others.

577,348. MACHINE OR APPARATUS FOR MAKING CIGARETTE-TUBES. JAMES A. BONSACK, Philadelphia, Pa., assignor to the Bonsack Machine Company, Salem, Va. Filed Jan. 9, 1893. Serial No. 457,751. (No model.)

Claim.—1. In a machine for making cigarette-tubes from paper strips, the combination of the following devices or mechanisms: devices for forming a fold along one edge of a paper strip, said fold having three plies of paper, a device for opening up two plies of said fold, mechanism or means for inserting the opposite edge of the strip in said opened fold and mechanism for crimping the lapped folds together to form a permanent seam.

2. In a machine for making cigarette-tubes from paper strips, the combination of the following devices or mechanisms: devices for forming a fold along one edge of a paper strip having at least three plies of paper, mechanism for creasing said fold, devices for opening up two plies of said fold, mechanism or means for inserting the opposite edge of the strip between said opened plies, and mechanism for crimping the lapped folds to form a permanent seam.



3. In a machine for making cigarette-tubes from paper strips, the combination of the following devices or mechanisms: devices for folding one edge of the paper strip first inward and then outward, mechanism for forming the paper strip into a tube and inserting the opposite edge in the outermost fold of the folded edge, and mechanism for crimping the seam thus formed.

4. In a machine for forming cigarette-tubes, the combination of the following devices or mechanisms: mechanism for folding one edge of the paper strip inward and the other edge first inward and then outward, mechanism for forming the paper strip into a tube, inserting the fold of the first edge into the outermost fold of the second edge, and mechanism for crimping the seam formed by the two folded edges.

5. The combination of paper-folding mechanism adapted to independently fold the edge or edges of a strip of paper over upon themselves with mechanism for bending said paper into a tube and lapping the independently-folded edges and a crimper arranged to act on the seam so formed.

6. The combination of the former D with the outwardly-extending folder E, a folder C' arranged on one side of and extending over the former-face, a mandrel, means for lapping the edges of the paper thereon and a crimping device arranged to act on the seam formed by the lapped edges.

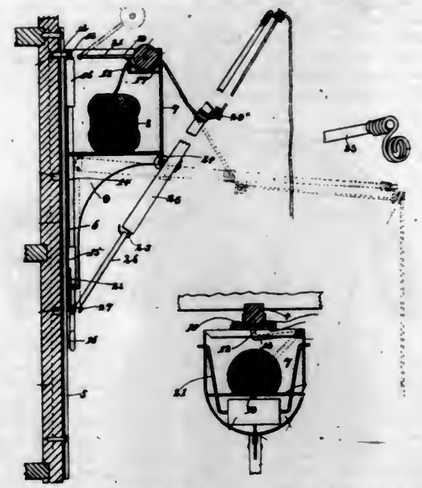
7. The combination with a mandrel and means for folding paper into tubular form around the same, of a fold-opener T adapted to open out a fold on the edge of the paper at or near the point on the mandrel where the edges thereof lap, and crimping mechanism arranged to act on the seam formed by the lapping edges.

8. The combination of the crimping-wheel S, the mandrel J having a crimping-wheel J^3 adapted to coact with wheel S, the collar N, placed around the mandrel, a support N^3 for said collar independent of the mandrel, and a fold-opener T situated in advance of the crimping-wheels.

577,349. TWINE-HOLDER. FRANK BOSSONG, Ellensburg, Wash. Filed June 9, 1896. Serial No. 594,853. (No model.)

Claim.—1. The combination with a track-plate, of a carriage movable on the track-plate, a box carried by the carriage, a platform on the box; a pivotally-mounted roller bearing on the platform, a take-up rod pivotally held by the carriage, and a spring for the take-up rod, substantially as described.

2. The combination with a track-plate, of a carriage slidable on the track-plate, a rod rockably mounted on the carriage and having an arm with a projection, the projection being capable of locking with the track-plate, a box held by the carriage, and a take-up rod pivotally held by the carriage, substantially as described.



3. The combination with a track-plate, of a carriage comprising a back plate having lips slidably receiving the track-plate, a box held by the carriage, a platform carried by the box, a U-shaped rod having its ends pivotally connected to the box, a roller carried by the rod and bearing on the platform, a take-up rod pivotally held by the carriage, and a spring coöperating with the take-up rod, substantially as described.

4. The combination of a track-plate having a front face and flanges projecting rearwardly from the front face, a carriage having lips slidably receiving the front face of the track-plate, a box held by the carriage, and a take-up rod pivotally held by the carriage, substantially as described.

5. The combination of a track-plate, a carriage movable on the track-plate, a twine-receptacle held by the carriage, and a take-up rod also held by the carriage, substantially as described.

6. In a twine-holder, a carriage adapted to have vertical movement, a box held by the carriage, and a take-up rod pivotally mounted on the carriage, substantially as described.

577,350. MATCH-RECEPTACLE. WILLIAM C. BOWER, Birmingham, Ala. Filed June 10, 1896. Serial No. 594,987. (No model.)



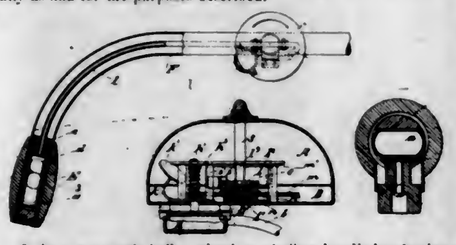
Claim.—A match holder and igniter, comprising a solid metallic block having a series of vertical elongated perforations therein, the walls of each perforation roughened, combined with the plates C, having a series of integral spring-arms C', one of each being designed to rest in each perforation, with its upper portion resting against the said roughened surface, between which and the spring the match is designed to be held, substantially as shown and described.

577,351. EXPLOSIVE. HAROLD BOYD, Birmingham, England. Filed Nov. 27, 1896. Serial No. 613,554. (No specimens.)

Claim.—An explosive characterized by its capability of being fired without a detonator and of absorbing the noxious fumes or gases evolved on firing, and consisting of a mixture of nitrate of potash, sulfur, nitrate of baryta, picric acid, wood-dust and a fume absorbent such as dry pulverized bog ore or other hydrated oxid of iron.

577,352. BELL MECHANISM FOR BICYCLES. ERNST BRANDT, Berlin, Germany. Filed Aug. 19, 1896. Serial No. 603,282. (No model.)

Claim.—1. In a pneumatic bell mechanism for a bicycle, a handle-bar, a grip on one end thereof, a longitudinally-extending chamber within said grip, an elastic bag provided with a button snugly fitting in said chamber, a bell secured to said handle-bar having means therein for ringing the same, a casing below said bell and secured thereto, means in said casing for locking the said bell mechanism and a rubber tube passing through said handle-bar and connected at its end with said elastic bags all of said parts being combined substantially as and for the purposes described.

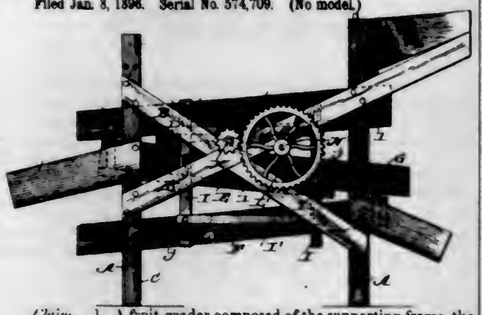


2. In a pneumatic bell mechanism, a hollow handle-bar having a hollow grip at one end thereof, an elastic bag having a metal strip secured thereto within said hollow grip, a button secured to the lower side of said plate, a guide for said button, a filling within said grip for holding said elastic bag and extending through said hollow handle, a bell mounted on said handle and having a spring-actuated clapper therein, a casing secured to the under portion of said bell, an elastic bag within said casing and in connection with the other end of said rubber tube, and a plate engaging the upper portion of said latter-mentioned bag and carrying on its upper face means for locking the said spring-actuated clapper, all of said parts being combined substantially as and for the purposes described.

3. A pneumatic bell mechanism for bicycles and other vehicles, having a hollow handle-bar, a hollow grip on one end of said bar, a filling for said grip, an elastic bag having secured thereto a longitudinally-extending plate adapted to snugly fit within said filling, a button secured to said plate, guide for said button, a tube in connection with said elastic bag and extending through a portion of said hollow handle-bar, a bell mounted on said handle-bar having a spring-actuated clapper, a casing firmly secured below said bell, a smal' elastic bag in said casing, a plate adapted to engage said latter-mentioned bag and carrying on its upper face a vertically-extending shaft, an annular shoulder and a rod adapted to be engaged by said shoulder, all of said parts being combined substantially as described.

4. In a pneumatic bell for bicycles and other vehicles, a hollow handle-bar, a hollow grip on one end of said handle-bar having therein a filling, an elastic bag provided with a plate and operating-button, a bell mounted on said bar, a spring-actuated clapper, a casing below said bell, an elastic bag in said casing, connected with said first-mentioned bag, a plate engaging said latter-mentioned bag and having on its upper face a vertically-extending shaft, an annular shoulder on said shaft, a spring mounted on said shaft above said shoulder, said shoulder being adapted to engage the aforesaid rod, all of said parts being combined substantially as and for the purposes described.

577,353. FRUIT-GRADER. WILLIS BROWN, Portland, Oreg. Filed Jan. 3, 1896. Serial No. 574,709. (No model.)



Claim.—1. A fruit-grader composed of the supporting-frame, the grading-frames, the sieves or screens, in said grading-frames the side frames having a sliding connection with the grading-frames and provided with portions engaging the sieves or screens the operating-shaft having crank projections engaging said side frames whereby to jolt the same and cranks and pitmen connecting said cranks with the grading-frame whereby to swing the latter substantially as and for the purposes set forth.

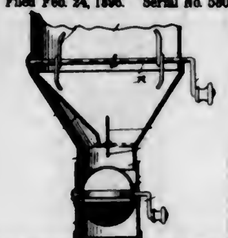
2. In a fruit-grader, the combination of the grading-frames arranged one above the other, the sieves or screens movable therein, the movable jolting devices extending between and adapted to jolt the screens of the several grading-frames and means for operating such jolting devices, substantially as set forth.

3. In a fruit-grader, the combination of the grading-frames, the screens or sieves movable in said frames, side frames having upright bars provided with inwardly-projecting pins engaging the screens or sieves and bars connecting such upright bars, and devices for operating such side frames, substantially as shown and described.

4. In a fruit-grader, the combination with the suspended grading-frames and the screens movable therein of the side frames held to and movable vertically along the grading-frames, and provided with inwardly-projecting pins engaged with the screens, and the drive-shaft having a crank connected with the suspended grading-frame and a jolting projection engaging the side frame all substantially as and for the purpose set forth.

5. The combination of a series of grading-frames one above the other, a screen in each such frame and movable therein, the frames having vertically-elongated slots opposite their screens the side frames having uprights provided with pins projected inwardly through said slots and bearing beneath the screens, and means for operating such side frames substantially as shown and described.

577,354. FLOUR OR MEAL BIN. SIMEON O. CALLAHAN, Jacksborough, Tex. Filed Feb. 24, 1896. Serial No. 580,505. (No model.)



Claim.—1. In a receptacle for flour and meal, the combination of a bin, the false bottom extended from one side thereof and sloping downward to a point near the bin center, the shaft traversing the bin at a point slightly removed from the lower extremity of the false bottom, and the cut-off when closed bearing in horizontal position against the false bottom and the bin-wall; and having connection with the shaft adjacent one edge whereby the greater part of the cut-off is on the side of the shaft opposite the false bottom while the narrower part closes the space between the shaft and the false bottom, substantially as shown and described.

2. The combination of the bin having the downwardly-tapering bottom portion, the downwardly and inwardly sloping false bottom extended partially across the discharge thereof, the damper for closing the remainder of the discharge, said damper when closed bearing against the lower end of the false bottom and the tapering wall of the bin opposite the false bottom, and the transverse shaft to which the damper is secured positioned at a point slightly removed from the edge of the false bottom, whereby material guided downward by the false bottom is not obstructed when the damper is open, substantially as shown and described.

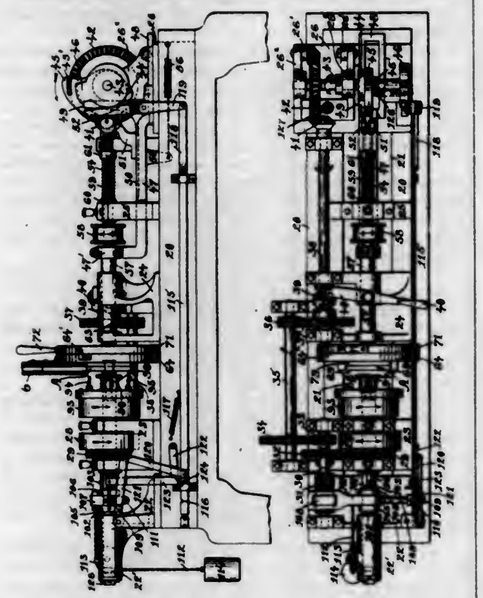
577,355. MACHINE FOR MAKING SPOOL-HEADS. GEORGE W. CARY, New Bedford, Mass., assignor of one-half to William Henry Wilson, same place. Filed June 11, 1896. Serial No. 595,079. (No model.)

Claim.—1. In a spool-head machine, a tapper-shaft having a longitudinal groove and a spring-operated cutter pivoted at the forward portion of the shaft, in combination with a bar reciprocal in said groove and adapted to move the cutter against the action of the spring.

2. In a spool-head machine, the combination with a non-reciprocal tubular cutter-head rotatably mounted, and a reciprocal tapper mechanism partially contained within the cutter-head, of a reciprocal chuck mounted before the cutter-head, and means for reciprocating the same.

3. In a spool-head machine, the combination with a drive-pulley, a sleeve journaled in bearings on which the pulley is mounted, a gear also on said sleeve, and a tapper-shaft extending through said sleeve and keyed thereto, of a worm-shaft journaled in bearings parallel to said sleeve and carrying a worm, a gear on the worm-shaft intermeshing with the gear on the sleeve, a lever pivoted on the tapper-shaft, a nut on said lever adapted to engage the worm when depressed, a drilling mechanism, a cam connected with the drill mechanism, and means for depressing the nut set in action by said cam.

4. In a spool-head machine, the combination with a reciprocal chuck for holding the blank, and a drilling device mounted to independently reciprocate and rotate, of a non-reciprocal cutter, and a tapper mounted to rotate with the cutter and adapted to reciprocate.



5. In a spool-head machine, the combination with bearings, a sleeve 57 mounted to reciprocate therein, and a chuck comprising a stationary plate secured to the sleeve, a plate rotatable on the sleeve and holding devices operated by the plate, of a sleeve-operating connection comprising an arm secured to the sleeve and a supporting-frame having a vertical member and means adapted to be engaged by a locking-bolt, the locking-bolt and means, in the nature of cams, for releasing said bolt and operating to move said frame.

6. In a spool-head machine, the combination with a tapper-bar mounted to reciprocate, a driven worm-shaft, a worm thereon, and an arm pivoted on the tapper-shaft, having at one end a nut for engaging the worm and at the other a member adapted to be moved up or down by a swinging arm, of such an arm, an inclined member pivoted to said arms and adapted to raise the arm when brought toward the perpendicular, a slide-rod for actuating the inclined member, and a combined locking device and tripper designed to lock said slide-rod and to be tripped to release the same by the forward movement of the tapper-shaft.

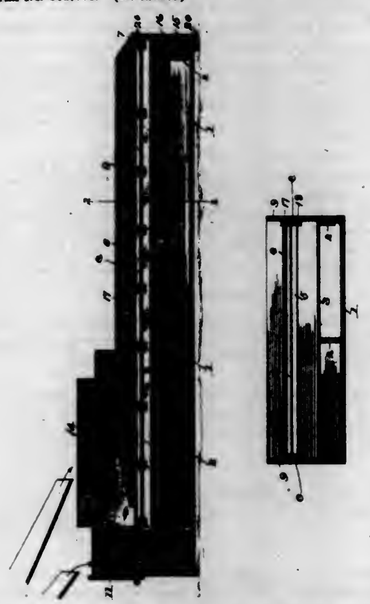
7. In a spool-head machine, the combination with a clutch-plate, laterally-adjustable clamping-fingers mounted therein and having screw-threaded shanks, and gears working on said shanks, of a plate rotatably secured to said chuck-plate and having a handle, and curved racks secured to said second plate with which the gears engage and having flanges overlapping said gears.

8. The combination with the plate 64 having the guides 66 66 and the slots 67 67, the blocks 68 68 mounted in the guides, the clamps 69 69 reciprocal in said blocks and having screw-threaded ends, and the gears 70 screwing on said ends, of the plate 71 having the handle 72 and mounted to rotate, and the curved racks 75 having the flanges 76 secured to said plate 71, said racks engaging the gears as described.

9. The combination with the plate 64 having the opening 65, the sleeve 77 secured through said opening, and the intercepting-finger 78 mounted to reciprocate in the sleeve and having the slot 80 and the cams 81 and 82, of the plate 71 mounted to rotate adjacent to the plate 64, the plate 83 adjustably secured on said plate 71, and the spring-operated pawl 84 pivoted on the plate 83 and having the cams 86 and 87, as described.

10. The combination with the bearing-blocks 22 and 23, the sleeve 27 journaled in the block 23 and carrying a belt-pulley, the tapper-shaft 96 keyed to said sleeve and reciprocal independent thereof, said shaft being furnished with the slot 97, and the spring-operated cutter 98 pivoted in the forward end of said slot and having the shank 99, of the sliding rod or bar 101 mounted in said slot 97 and having the end 104 adapted to raise the cutter-shank when advanced, the pins 102 and 103 secured in said bar 101 between the bearing-blocks and adapted to strike one or the other to shift the bar, and means for reciprocating the tapper-shaft.

577,356. SLUICE-BOX. CHRISTOFFER A. CHRISTENSEN, Oretown, Oreg., assignor to Andrew Carlson, Astoria, Oreg. Filed Aug. 14, 1896. Serial No. 602,771. (No model.)



Claim.—1. A sluice-box comprising a casing having a perforated horizontal diaphragm 6, supporting cross-bars 5, 7, surmounted by a fibrous bed, an inlet provided with a screen for introducing the gold-bearing dirt and water to the top of the fibrous bed, and a receiving-chamber for a second inflow of water communicating with the space below the perforated diaphragm and rising to a height above the perforated diaphragm to supply a head of pressure substantially as and for the purpose described.

2. A sluice-box comprising a casing having a perforated horizontal diaphragm 6, supporting cross-bars 5, 7, surmounted by a fibrous bed, a subjacent imperforate partition-plate 3 having an opening 16 at its tail end, and an adjustable gate 10 at its front end, an inlet provided with a screen for introducing the gold-bearing dirt, and water to the top of the fibrous bed, and a receiving-chamber for a second current of water arranged at the front end of the box and communicating through the gate with the lower part of the box and rising above the level of the perforated diaphragm to supply a head of pressure substantially as and for the purpose described.

3. The combination with the casing in a sluice-box; of a horizontal perforated metal plate, cross-bars arranged above and below the same, longitudinal bars connecting and supporting the ends of the cross-bars, and a fibrous bed arranged upon the top of the upper bars substantially as and for the purpose described.

4. The combination in a sluice-box, with a horizontal gold-gathering fibrous bed; of a horizontal partition-plate arranged beneath the same and dividing the space into an upper and lower chamber with a communicating opening at the tail end, a receiving-chamber at the front end, and a gate arranged between the receiving-chamber and the upper and lower chambers of the sluice-box, and adapted to alternately throw these chambers into communication with the receiving-chamber substantially as shown and described.

5. The sluice-box comprising bottom strips 2 carrying on their upper edges the horizontal partition-plate 3 with opening 16 and adjustable gate 10, the perforated plate 6 with upper and lower clamping-bars with fibrous bed above them, the inlet for the sand and water having screen 14 and chute 13, and the receiving-chamber 12 with adjustable gate 11 substantially as and for the purpose described.

577,857. WIRE-FENCE FASTENER. LEANDER CLARK, Greenville, Ohio. Filed Sept. 24, 1896. Serial No. 606,868. (No model.)

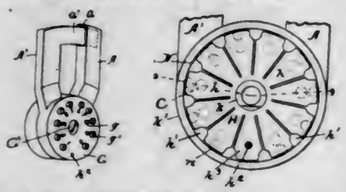


Claim.—1. A wire-fastener consisting of parallel arms and a laterally-projecting doubled portion receiving the fence-wire, the said arms attached to the picket or post and coiled around the fence-wire, substantially as described.

2. A wire-fastener consisting of parallel arms and a doubled portion receiving the fence-wire, the said arms attached to the picket or post, one arm wrapped around the fence-wire at the opposite side of the picket or post from the looped portion, and the opposite arm passed around behind the picket or post and coiled around the fence-wire at the opposite side of the post adjacent to the doubled portion, substantially as described.

3. A wire-fastener consisting of parallel arms and a doubled portion receiving the fence-wire, the arms attached to the post, one of said arms coiled around the wire at the opposite side of the picket or post from the doubled portion, the other arm doubled around the fence-wire adjacent to the said coil, passed around behind the picket or post and then coiled around the fence-wire at the opposite side of the post adjacent to the looped portion, substantially as described.

577,358. COMBINATION-LOCK. HENRY CLARKE, Chicago, Ill., assignor to Henry Love Clarke and Eugene H. Garnett, same place. Filed Nov. 6, 1896. Serial No. 611,196. (No model.)



Claim.—1. In a combination-lock the combination with two adjacent lock-disks, of two series of lock-pins mounted therein, a series of keys or push-pins, and a safety ring or device to prevent the lock-pins being moved by the keys or push-pins except when said safety ring or device is in a certain position, substantially as specified.

2. In a combination-lock the combination with two adjacent lock-disks, of two series of lock-pins mounted therein, a series of keys or push-pins, a safety ring or device to prevent the lock-pins being moved by the keys or push-pins except when said safety ring or derice is in a certain position, and furnished with a series of humps or projections, substantially as specified.

3. In a combination-lock the combination with two adjacent lock-disks, of two series of lock-pins mounted therein, a series of keys or push-pins, a safety ring or device to prevent the lock-pins being moved by the keys or push-pins except when said safety ring or device is in a certain position, and furnished with a series of humps or projections, and a spring plate or disk interposed between the lock-pins and push-pins, and furnished with a series of notches adapted to be brought into registery with the humps or projections on the safety ring or device, substantially as specified.

4. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, and a setting plate or disk turning upon the same axis as the lock-disk, substantially as specified.

5. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, and a setting plate or disk turning upon the same axis as the lock-disk, said setting-plate having a series of cams or cavities with inclined sides, substantially as specified.

6. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, a setting plate or disk turning upon the same axis as the lock-disk, said setting-plate having a series of cams or cavities with inclined sides, and said setting-plate having a central hub extending through the lock-disks, substantially as specified.

7. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, a setting plate or disk turning upon the same axis as the lock-disk, said setting-plate having a series of cams or cavities with inclined sides, and said setting-plate having a central hub extending through the lock-disks, and an external flange to form a case to receive the lower lock-disk, substantially as specified.

8. The combination with two disks turning on a common axis and each furnished with a hasp-arm, with means for locking the disks together, a series of keys or push-pins, a spring H having notches *h'*, and a safety ring or device N having humps or projections *n*, substantially as specified.

9. The combination with two disks turning on a common axis and each furnished with a hasp-arm, with means for locking the disks together, a series of keys or push-pins, a spring H having notches *h'*, and a safety ring or device N having humps or projections *n*, said safety-ring N being connected with the setting-plate and adapted to turn therewith in respect to the lock-disks, substantially as specified.

10. The combination with two disks turning on a common axis and each furnished with a hasp-arm, with means for locking the disks together, a series of keys or push-pins, a spring H having notches *h'*, and a safety ring or device N having humps or projections *n*, said safety ring or device having an internal arm *n'* attached to the hub of the setting-plate, substantially as specified.

11. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, a setting plate or disk turning upon the same axis as the lock-disk, and opening and closing hasp-arms secured to two of said disks, substantially as specified.

12. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, a setting plate or disk turning upon the same axis as the lock-disks, opening and closing hasp-arms secured to two of said disks, and a spring for opening the lock or the arms of hasp, substantially as specified.

13. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, and a setting plate or disk turning upon the same axis as the lock-disk, said setting-plate having a series of cams or cavities with inclined sides, and a spring for opening the lock or turning the setting-plate in respect to the lock-disk, substantially as specified.

14. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, a setting plate or disk turning upon the same axis as the lock-disk, and a spring connection between the setting-plate disk and the lower lock-disk, permitting a limited movement of the one in respect to the other, substantially as specified.

15. The combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, of two series of lock-pins mounted in holes in said disks, the pins in the one series being longer than those in the other, and part of each series being in each disk, and a setting plate or disk turning upon the same axis as the lock-disks, said setting-plate having a series of cams or cavities of length adapted to prevent engagement between their abrupt end walls and the lock-pins, substantially as specified.

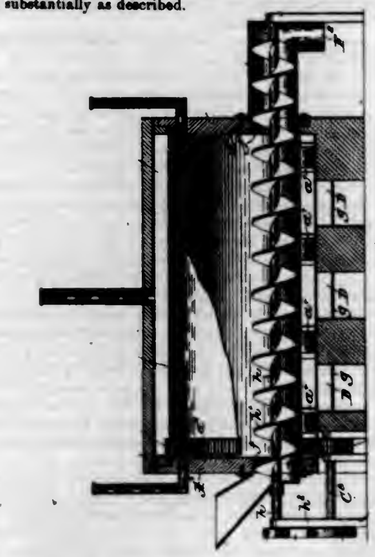
16. In a combination-lock, the combination with two adjacent lock-disks, of two series of lock-pins mounted therein, a safety device preventing the pins being moved when the safety device is in its acting position, and a setting-plate having a series of cams or cavities adapted to prevent engagement between their abrupt end walls and the pins, substantially as specified.

577,359. APPARATUS FOR HEATING AND DRYING. JOHN C. COUSENS, Arlington, Mass., assignor to the New England Turbine and Fuel Company, of Maine. Filed July 10, 1896. Serial No. 598,640. (No model.)

Claim.—1. In an apparatus of the class described, an open-ended revolving cylinder, an inclosing heating-chamber having circular portions to form fixed air-tight ends for the cylinder, a hopper to deliver material through one of said ends into the cylinder, a discharge-chute leading from the other end, and a conveyer within and at the lower part of the cylinder, to move the material to be treated from the hopper through the cylinder and out of the discharge-chute, substantially as described.

2. In an apparatus of the class described, an open-ended revolving cylinder, stationary ends for and to maintain the cylinder air-tight, a feed-hopper in one of said ends, an oppositely-located discharge-chute leading from the other end, a conveyer closing the hopper and discharge-openings in the ends, and extending through the cylinder, and means to rotate said cylinder and conveyer in opposite directions, substantially as described.

3. In an apparatus of the class described, an open-ended revolable cylinder, stationary air-tight ends therefor, means to heat the cylinder exteriorly, an inlet in one end for the material to be treated, an outlet in the other end, a spiral conveyer within the cylinder between the inlet and outlet, and closing them, means to rotate said cylinder and conveyer in opposite directions, and a vapor-outlet for the cylinder, substantially as described.



577,360. NECK-YOKE IRON. WELCOME CRAFORD and JOSEPH S. ATKINSON, Bayfield, Wis. Filed July 28, 1896. Serial No. 600,749. (No model.)



Claim.—1. A neck-yoke iron comprising a tubular body, a lip projected from the lower rear portion of the body, the said lip being provided on its under face with a longitudinal flange at each side of its center, the said flanges terminating at a point near the junction of the lip with the body, a spring located in the space between the said flanges, a bearing for the spring located at the outer end portion of the body, and a stirrup located between the end of the lip-flanges and the said bearing and through which the said spring passes, as and for the purpose set forth.

2. A neck-yoke iron comprising a tubular body, a lip projected horizontally from the lower end portion of the said body, the said lip being provided with a flange at each side of its center, increasing in width in direction of their outer ends, a spring located in the space between the said flanges, having its inner end attached to the iron, a stirrup secured to the body, through which the spring passes, and a support located at the under forward portion of the body, with which the spring is normally in engagement, substantially as and for the purpose specified.

3. In a neck-yoke iron, the combination, with a tubular body portion and a lip extending horizontally from the lower rear end of the body, the said lip having a flange at each side of the center of its bottom surface, which flanges increase in depth in direction of their outer ends, of a spring located in the space between the flanges, having its inner end secured to the iron, a hook-shaped and rearwardly-extending guard located at the under forward portion of the body of the iron, the free end of the spring normally engaging with the upper face of the horizontal member of the said hook-shaped guard, and a stirrup located between the hook-shaped guard and the outer end of the lip-flanges, through which stirrup the aforesaid spring passes, as and for the purpose specified.

577,361. BELT-FASTENER. CHARLES C. DOUGLASS, Philadelphia, Pa., assignor of one-half to Charles E. Hayes, same place. Filed Mar. 10, 1896. Serial No. 582,545. (No model.)

Claim.—1. A belt-fastener formed of a single piece of flexible sheet metal so that the fastener can bend with the belt, the same consisting of an elongated strip or body having the plorality of pointed projections extending outwardly from its opposite longitudinal edges, and alternately long and short and all bent at right angles to form points to pass through the belt and be clenched on the opposite side thereof, the projections on one side of the body staggered with relation to those at the opposite side so that each projection pulls on two opposite projections in accordance with the lacing principle, substantially as shown and described.



2. The belt-fastener composed of a flexible metal strip or body having a plurality of tapered pointed projections extending outwardly from its opposite edges and all turned down to form points to pass through and be clenched on the under surface of the belt, the projections at each side alternately long and short so that four rows of points are formed, the projections at one edge staggered with relation to those at the opposite edge so that each projection is arranged opposite and pulls against a long and short projection the four corners of the fastener having the long projections, substantially as shown and described.

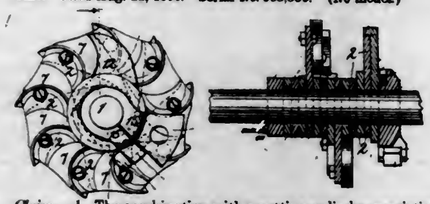
577,362. HOSE-NOZZLE. SEBASTIAN ETTLINGER, Baltimore, Md., assignor of one-half to Moses Samstag, same place. Filed Oct. 31, 1896. Serial No. 610,770. (No model.)



Claim.—1. A metallic hose-nozzle, consisting of a screw-threaded socket having a cylindrical throat merging into a soft-metal, flaring, hollow body, with its sides and edges diverging from the throat and provided at the outer end with a narrow bendable non-resilient delivery-mouth, susceptible of bending to expand or contract the same and thus vary the thickness of the flat sheet or stream issuing therefrom, said mouth retaining the form imparted thereto when bent to expand or contract the same, substantially as described.

2. A hose-nozzle, consisting of a screw-threaded socket having a cylindrical throat merging into a soft-metal, flaring, hollow body, with its sides and edges diverging from the throat, and provided in the outer end with a narrow non-resilient, contractible and expansible delivery-mouth reinforced by a strengthening non-resilient bendable metal band applied to the exterior of the flat body around the delivery-mouth thereof, substantially as and for the purposes described.

577,363. FEED-CUTTER. WILLIAMSON R. HARRISON, Massillon, Ohio. Filed Aug. 22, 1896. Serial No. 603,559. (No model.)



Claim.—1. The combination with a cutting-cylinder consisting of a series of spirally-arranged knife-arms supported upon a shaft, of a fixed stop or abutment at one end of the cylinder, and an adjustable clamping-ring at the opposite end said ring carrying a balancing-weight and provided with a set-screw, substantially as described.

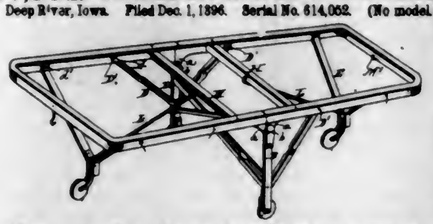
2. The combination with a cutting-cylinder comprising cutters spirally arranged upon a shaft, of a fixed stop on the shaft at one end of the cylinder, an adjustable stop at the opposite end of the cylinder, and a weighted clamp interlocking adjustably with said adjustable stop, substantially as described.

3. The combination with the cylinder and its shaft, said cylinder comprising a series of knife-arms, of the adjustable dog provided with projections on its outer side, and an adjustable clamp provided with a weight a clamping-screw, and a series of recesses into which said projections fit, substantially as described.

4. The combination with the cylinder and its shaft, said cylinder comprising a series of knife-arms, of the adjustable dog provided with projections arranged in the arc of a circle, and an adjustable clamp having radially-disposed recesses, substantially as described.

5. The combination with the cylinder and its shaft, said cylinder comprising a series of knife-arms, of the adjustable dog, and an adjustable balance and clamp, consisting of a split ring provided with a clamping-screw and an integral weight, substantially as described.

577,364. UNDERTAKER'S FOLDING TRUCK. JACOB J. HENRIE, Deep River, Iowa. Filed Dec. 1, 1896. Serial No. 614,052. (No model.)



Claim.—1. In a foldable truck, the end standards or supports in combination with the split spring brace-arms connected to the frame, and adapted to engage the end standards or supports, substantially as and for the purpose set forth.

2. In a foldable truck, the combination of the centrally-hinged main frame, the central side standards, the jointed brace-arms, connected to the frame and side standards, the end standards pivoted to the frame and carrying the swivel-wheels, the cross-bars, and the split spring brace-arms connected thereto to engage the end standards, substantially as and for the purpose set forth.

577,365. MACHINE FOR SEWING LOOPED FABRICS. ELIAS C. HOLLAND, Austin, Ill., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed July 9, 1892. Serial No. 439,465. (No model.)

Claim.—1. A sewing-machine comprising a main overhanging frame, a rotating material-carrying cylinder journaled to and depending therefrom, a trimming mechanism, a main shaft, and mechanism for intermittently operating the material-carrying cylinder and trimming mechanism comprising a rocking crank-frame, a shaft as K with connections between it and the rocking crank-frame, and independent operative connections between the said shaft K and the cylinder and trimming mechanism; substantially as described.

2. A sewing-machine comprising a main overhanging frame, a rotating material-carrying cylinder journaled to and depending therefrom, a trimming mechanism, a main shaft, and mechanism for intermittently operating the material-carrying cylinder and trimming mechanism comprising a rocking crank-frame, a plate arranged to oscillate on a horizontal axis in operative connection with said rocking crank-frame, and operative connections between the plate and the cylinder and trimming mechanism; substantially as described.

3. The combination with a rotating material-carrying cylinder, of a main shaft, a rocking crank-frame with operating connections between it and the main shaft and intermittently-operated connections between the rocking frame and the material-carrying cylinder comprising an oscillating plate carrying a spring-pawl; substantially as described.

4. The combination with the rotating material-carrying cylinder of the main shaft, a rocking shaft parallel therewith, connections between the two for oscillating the latter, a crank on one end of said rock-shaft, an oscillating plate as L, a spring-pawl carried thereby, a ratchet-wheel driven by said pawl, operative connections between the pawl-and-ratchet mechanism and the material-carrying cylinder, and connections between the crank and the plate L for oscillating the latter; substantially as described.

5. The combination with the rotating material-carrying cylinder, of the main shaft, a rock-shaft parallel therewith, connections between the two for oscillating the latter, a crank on one end of said rock-shaft, an intermittently-operated driving connection intermediate the cylinder and said crank and comprising an oscillating plate carrying a spring-pawl, and a ratchet-wheel driven thereby, with a universal-joint connection between said crank and the intermittently-operated driving connection; substantially as described.

6. The combination with the rotating material-carrying cylinder, of the main shaft, the rock-shaft, the crank *c'* on said rock-shaft having a stud *d*, the arm *e* sleeved thereon and having a screw-threaded shank *f*, the split bearing *h* having the shank *g* into which *f* extends and the oscillating plate L having a ball-and-socket connection with the split bearing, and connections between the oscillating plate and the material-carrying cylinder; substantially as described.

7. The combination with the horizontally-rotating material-carrying cylinder, of the main vertical shaft, a rock-shaft parallel therewith, connections between the two for oscillating the latter, a crank on one end of said rock-shaft, an oscillating plate as L, a pawl-and-ratchet mechanism driven by said plate, operative connections between the pawl-and-ratchet mechanism and the material-carrying cylinder, including a horizontally-arranged shaft, and connections between the crank and the plate L for oscillating the latter; substantially as described.

8. The combination with the main shaft, stitch-forming mechanism, trimmer and horizontal work-carrying cylinder, of a rocking frame driven by the main shaft, an oscillating plate driven by said rocking frame, a pawl on said plate, a shaft as K, a ratchet on said shaft engaged by said pawl, and driving connections between the shaft K and the cylinder, and means for operating the trimmer; substantially as described.

9. The combination with the main shaft, stitch-forming mechanism, trimmer, and horizontal work-carrying cylinder, of an eccentric on the main shaft, a rod *b* attached thereto, a rock-shaft H, arm *c* rigidly secured thereto and having adjustably pivoted to it the rod *b*, arm *c'* on the opposite end of the shaft, rod or arm *e*, pivoted thereto, ball-and-socket bearing *h*, oscillating plate L, pawl carried by said plate, shaft K, ratchet on the end of the shaft engaged by the pawl and connections between the shaft and the cylinder and means for operating the trimmer; substantially as described.

10. The herein-described pawl-and-ratchet mechanism comprising a shaft as K, the oscillating plate L, the ratchet-plate 20 arranged adjacent one side of the plate L, secured to the shaft, and having a hub on which the plate L is sleeved, a plate 16 arranged adjacent the opposite side of the plate L and rigidly secured to the plate 20, and a pawl carried by the plate L and normally engaging the teeth of the ratchet-plate 20; substantially as described.

11. In combination with the rotating material-carrying cylinder, a stitch-forming mechanism with means for operating the same, a trimmer, a stripper arranged in rear of the trimmer for removing the fabric from the cylinder, and a brake bearing on the inner periphery of the cylinder; substantially as described.

12. In combination with the stitch-forming mechanism, the cylinder and means for operating the latter intermittently, a stripper for removing the goods from the cylinder, a brake pivoted to the stripper and composed of a strip of spring metal, having at its onter end a block of leather or other frictional material bearing on the inner periphery of the cylinder; substantially as described.

13. In combination with the main vertical shaft, the vertical rock-shaft with connections between the two, the overhanging arm, the horizontal rotatable material-carrying cylinder supported by said overhanging arm, suitable stitch-forming mechanism, a trimmer, a horizontal shaft K, operative connections between said shaft K and the cylinder and trimmer and a vertically-arranged pawl-and-ratchet mechanism secured to the shaft K and in operative connection with the vertical rock-shaft; substantially as described.

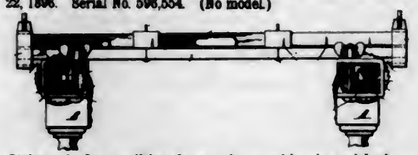
14. In the herein-described machine for sewing looped fabrics, the vertically-arranged pawl-and-ratchet mechanism comprising the oscillating plate L having the downwardly-extending shank portion, a rock-shaft to which the same is universally jointed with connections between said rock-shaft and the main shaft of the machine, a pivoted spring-pressed pawl attached to said plate L, a ratchet-plate with the teeth of which the pawl normally engages, said ratchet-plate being secured on the shaft K, but the plate L being sleeved on the hub of said ratchet-plate; substantially as described.

15. In combination with the main shaft having an eccentric thereon, a vertical rock-shaft journaled in bearings I, a horizontally-extending slotted crank-arm fixed on said rock-shaft, a connecting-rod secured at one end to the eccentric on the main shaft and at the other end adjustable in the slot in said crank, a second crank on the upper end of said rock-shaft H, suitable feeding and trimming mechanisms with connections between said crank on the upper end of the shaft H and said feeding and trimming mechanisms for operating the latter; substantially as described.

16. A machine for sewing looped fabrics comprising a vertical, overhanging frame, a horizontal rotatable material-carrying cylinder provided with impaling-points journaled to and rotating beneath said overhanging frame, a vertically-arranged driving-shaft, a rocking crank-frame supported on a vertical axis parallel with the axis of the driving-shaft, a vertically-arranged pawl-and-ratchet mechanism oscillating on an axis at right angles to the axis of the driving-shaft, connections between said pawl-and-ratchet mechanism and the rocking crank-frame, a horizontally-arranged rotary cutting apparatus and connections between said vertical pawl-and-ratchet mechanism and the cutting apparatus and between the pawl-and-ratchet mechanism and the material-carrying cylinder, and suitable stitch-forming mechanism; substantially as described.

17. In combination with the driving-shaft arranged to rotate on a vertical axis, the single eccentric thereon, the horizontally-rotatable material-carrying cylinder and trimmer, the rocking vertical crank-frame connected with the single eccentric, and connections between the rocking crank-frame and the cylinder and trimmer; substantially as described.

577,366. QUILTING-FRAME. MARY JENSON, (now by marriage Mary Butterfield,) Ogden, Utah. Filed July 28, 1893. Renewed June 22, 1896. Serial No. 596,554. (No model.)

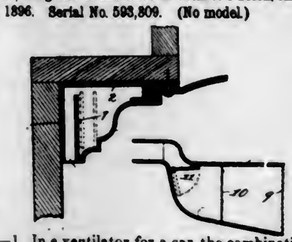


Claim.—1. In a quilting-frame, the combination with the posts and plates projecting therefrom, of the side bars which rest thereon, and clamps adapted to embrace both plates and bars, for holding the latter in any desired adjustment, as shown and described.

2. In a quilting-frame, the combination with side and end bars, having pins fixed on one side, of the metal sockets which are open on one side and have journals at their ends, and means for detachably securing said sockets upon the ends of the bars required to be rotated, their open sides connecting with the sides of the bars in which the pins are set, as shown and described.

3. The quilting-frame, having side and end bars which are made in sections, and have a vertical portion provided with longitudinal grooves, and a series of pins set in the horizontal portion, a detachable hinge connection between said sections, and the slotted sliding sleeves adapted to fit on the grooved portion of the bars, as shown and described.

577,367. VENTILATOR. DAVID J. LANE and JOHN P. HAHN, St. Louis, Mo., assignors of one-third to John J. O'Brien, same place. Filed June 1, 1896. Serial No. 593,809. (No model.)

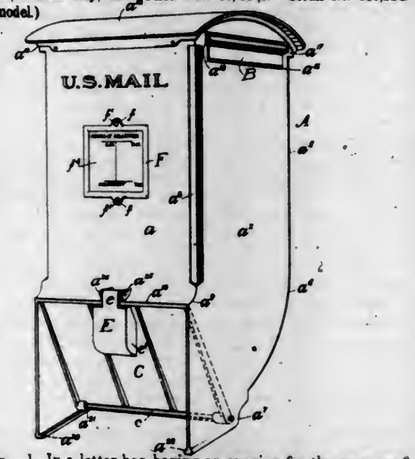


Claim.—1. In a ventilator for a car, the combination with a wall extending longitudinally through the car, of a wall joined to one edge thereof and extending at an angle thereto, a wall joined to the free edge of one of these walls and extending toward, but not entirely to, the free edge of the other wall, a wall joined to the free edge of the third-mentioned wall positioned parallel to the first-mentioned wall and extending toward but not entirely to the second-mentioned wall, thereby providing a passage between the space inclosed by the second, third, and fourth mentioned walls and the space inclosed by the first, second and fourth mentioned walls, and openings in each end of the car to admit air to the space inclosed by the second, third and fourth mentioned walls.

2. In a ventilator for a car, the combination with a wall extending longitudinally through the car, of a wall joined to one edge thereof and extending at an angle thereto, a wall joined to the free edge of one of these walls and extending toward, but not entirely to, the free edge of the other wall, a wall joined to the free edge of the third-mentioned wall positioned parallel to the first-mentioned wall and extending toward but not entirely to the second-mentioned wall, thereby providing a passage between the space inclosed by the second, third and fourth mentioned walls and the space inclosed by the first, second and fourth mentioned walls, and funnels mounted upon the outside of the car and communicating with the space inclosed by the second, third and fourth mentioned walls, substantially as specified.

3. In a ventilator for a car, the combination with a wall extending longitudinally through the car, of a wall joined to one edge thereof and extending at an angle thereto, a wall joined to the free edge of one of these walls and extending toward, but not entirely to, the free edge of the other wall, a wall joined to the free edge of the third-mentioned wall positioned parallel to the first mentioned wall and extending toward but not entirely to the second-mentioned wall, thereby providing a passage between the space inclosed by the second, third and fourth mentioned walls and the space inclosed by the first, second and fourth mentioned walls, funnels mounted upon the outside of the car and communicating with the space inclosed by the second, third and fourth mentioned walls, screens in the mouths of said funnels, and dampers in the necks of said funnels, substantially as specified.

577,368. LETTER-BOX. DAVID C. MCCARROLL and RICHARD M. SKINNEL, Kansas City, Mo. Filed Dec. 17, 1896. Serial No. 616,294. (No model.)



Claim.—1. In a letter-box having an opening for the passage of the letters, &c., a valve normally closing said opening and pivoted at its upper edge so as to be moved inwardly by the pressure of the letter, a plate upon the inner side of said box below the opening having its upper surface in a single curved line struck from the pivot-point of said valve, and extending rearwardly and upwardly, as and for the purpose described.

2. In a letter-box having an opening for the passage of the letters, &c., a pivotal wedge-shaped valve closing said opening, and a plate upon the inner side of said box having its upper surface in a single curved line struck from the pivotal point of said valve and extending rearwardly and upwardly, the larger end of said wedge-shaped valve fitting said curve, as and for the purpose described.

3. In a letter-box having a discharge-opening, a cover for said opening, the ends of the said box extending beyond said cover to form a discharge-chute for the contents of the box.

4. In a letter-box for the collection and delivery of letters having an opening for the discharge of said letters, a hinged cover for said opening, the ends of said box extending beyond the cover when closed, in such manner that said bottom when opened out and said ends form a continuous chute for the discharge of the contents of the box.

5. In a letter-box for the collection and delivery of letters, having an opening for the discharge of said letters extending through the bottom, and the lower portion of the front side of said box, and a bottom to said box hinged at one end to the lower end portion of the back of said box, and extending up between the ends and secured to the front side of said box in such manner that said bottom when opened out, and said sides, form a continuous chute for the discharge of the contents of the box.

6. In a letter-box for the collection and delivery of letters having an opening for the discharge of the contents of the box, extending through the lower end of the box and the lower portion of the front side of the box, and a bottom formed by a valve or covering for said opening hinged at one end to the lower portion of the back of the box, and extending up between the ends and secured to the front side of said box, in such manner that when lowered it combines with an incline in the back of said box extending from said point of hinge to a point of contact with the perpendicular line of the back of said box, so as to form a continuous and easy slide or descent for the contents of the box from said point of contact down to the extreme lower part of said opening or point of discharge, the contents of the box being facilitated in the discharge by reason of said incline employed in combination with the slide formed by said valve or covering when lowered, so as to form a downward incline from said point of hinge to said point of discharge, as and for the purpose described.

7. In a letter-box for the collection and delivery of letters, having an opening for the discharge of the contents of the box, extending through the lower end of the box and the lower portion of the front side of the box, and a bottom formed by a valve or covering for said opening, hinged at one end to the lower portion of the back of the box, and extending up between the ends and secured to the front side of said box, in such manner that when lowered it combines with a curvature in the lower end of the back of said box, so as to form a continuous and easy slide or descent for the contents of the box from a point of contact in the perpendicular line of the back of the box, with said curvature down to the extreme lower part of said opening or point of discharge, the contents of the box being facilitated in the discharge by reason of said curvature employed in combination with the slide formed by said valve or covering when lowered so as to form a downward incline from said point of hinge to the said point of discharge, as and for the purposes described.

8. A letter-box for the collection and delivery of letters, &c., having its lower discharging end portion composed of the opposite lower portions of the ends of said box, and the lower end portions of the respective front side and back of the box inclined at an angle to and meeting each other, said bottom or lower end portion of the front side being separable and hinged at the rear end to the lower portion of the back of the box, as and for the purpose described.

9. A letter-box for the collection and delivery of letters, &c., having its lower discharging end portion composed of the opposite lower portions of the ends of said box, and the lower end portion of the respective front side and back of the box inclined at an angle to and meeting each other, said lower end portion of the front side being separable and hinged at the rear end to the lower portion of the back of the box, and extending up between the ends and secured to the front side of said box in such manner that said bottom, when opened out, and said sides form a continuous chute for the discharge of the contents of the box, as and for the purposes described.

10. In a letter-box for the collection and delivery of letters, &c., having upright ends and an opening in the bottom and lower portion of the front side, a bottom to said box hinged at one end to the lower portion of the back of said box and extending between the ends of the box and secured to the front side of the box at the other end and flanges on the inner side and lower end portion of said ends of the box inclined, for the purpose described.

11. The combination with a letter-box of a frame for time-cards, and means acting upon the edges of the card for securing the time-card in the frame out of contact with the box, whereby discoloration of the time-card is prevented, substantially as described.

12. The combination with a letter-box of a frame for time-cards provided with a groove upon its inner surface, and means acting at the edges of the time-card to press the card away from the box and against the outer wall of the groove, whereby discoloration of the time-card is prevented, substantially as described.

13. The combination with a letter-box of a frame for time-cards provided with a groove upon its inner surface, a curved plate arranged between the side of the box and the time-card and engaging the card at its edges only, substantially as described.

14. The combination with a letter-box and its support, of a base-plate, means for securing the base-plate to the support and a screw for securing the box to the base-plate in such manner as to protect its securing means, substantially as and for the purpose described.

15. The combination with a letter-box and its support, of a strap for securing the letter-box to the support, a base-plate having openings in the back for the ends of the strap, and fastening devices upon said ends, and a screw for securing the letter-box to the base-plate in such manner as to protect the ends of the strap, as and for the purpose described.

16. The combination with a letter-box having outward extensions extending beyond the outer surface of the said back, of a support for said box and a screw and strap, and a hollow base-plate adapted to receive the said extensions of the back of the box, having openings in its back for the ends of the strap, and a screw-threaded opening between said ends of the strap, fastening devices upon said ends within said base-plate and an opening in the said extension, and a screw-bolt extending through said opening within the screw-threaded opening in the back of said hollow base-plate, as and for the purpose described.

17. The combination with a letter-box, and its support, of a securing-strap, a hollow base-plate or casting secured to the ends of said strap, and an extension from the back of said box within the hollow casting, and a screw-bolt extending through said extension from within the letter-box into the said casting, as and for the purpose described.

18. The combination with a letter-box and its support, of a strap for securing the letter-box to the support, a hollow base-plate or casting having openings on the back portion for the ends of the strap, and fastening devices upon said ends, and a screw for securing the back of the letter-box to the casting from within the box, as described.

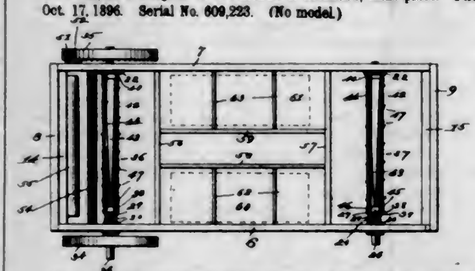
19. The combination with a street letter-box, of a lock-shield, said shield being provided with a hinge so adjusted with reference to the weight of the shield and center of gravity that when the shield is raised for the purpose of operating the lock, the shield, by its own gravity, stands up clear of the lock, substantially as and for the purpose described.

20. In combination with a letter-box, a lock-shield normally covering the lock, hinged above the lock, and a water-shedding plate between the hinge and the lock, substantially as and for the purpose described.

21. In combination with a letter-box, of a lock-shield E, provided with a water-shedding plate e^3, substantially as and for the purpose described.

22. In combination with a letter-box provided with a curved extension a^{13}, a lock-shield hinged above said extension and provided with a water-shedding plate e^3 extending over the lock and underneath said extension a^{13}, substantially as and for the purpose described.

577,369. **STENOGRAPHER'S CABINET.** ARTHUR F. MCINTIRE, St. Louis, Mo., assignor to Desmonde C. McIntire, same place. Filed Oct. 17, 1896. Serial No. 609,223. (No model.)



Claim.—1. In a stenographer's cabinet, a suitable box, a writing-plate mounted in said box, a hand-rest slidingly mounted in said box above said writing-plate, mandrels rotatably mounted in said box in positions parallel with each other and in alinement with said writing-plate, and a channel-bar attached to the inner face of one of the end walls of said box and a slot formed transversely through the bottom piece of said box and in inclined alinement with said channel-bar, substantially as specified.

2. In a stenographer's cabinet, a suitable box, a writing-plate mounted in said box, mandrels rotatably mounted in said box in positions parallel with each other and in alinement with said writing-plate, a channel-bar attached to the inner face of one of the end walls of said box and a slot formed transversely through the bottom piece of said box and in inclined alinement with said channel-bar, substantially as specified.

3. In a stenographer's cabinet, a suitable box, a writing-plate mounted in said box and mandrels rotatably mounted in said box in positions parallel with each other and in alinement with said writing-plate; each of said mandrels consisting of spindles mounted in the side pieces of said box and removable rollers connecting said spindles; traction-wheels fixed to the front pair of said spindles and holding the front end of said box from the table, substantially as specified.

4. In a stenographer's cabinet, a suitable box, a writing-plate mounted in said box and mandrels rotatably mounted in said box in positions parallel with each other and in alinement with said writing-plate; each of said mandrels consisting of spindles mounted in the side pieces of said box and removable rollers connecting said spindles, each of said removable rollers consisting of the disk 38, the flange 39 projecting from the edge of said disk, the portions 42 and 44 pivotally connected to said flange, the disk 40 having a central aperture, the flange 41 projecting from the edge of said disk and the portion 43 fixed to the flange 41 and the disk 40; traction-wheels fixed to the front pair of said spindles and holding the front end of said box from the table, substantially as specified.

5. In a stenographer's cabinet, a suitable writing-plate, mandrels mounted in positions parallel with each other and in alinement with said plate, and traction-wheels upon one of said mandrels, substantially as specified.

6. In a stenographer's cabinet, a suitable writing-plate, mandrels mounted in positions parallel with each other and in alinement with said plate, traction-wheels upon the ends of one of said mandrels, and a ratchet for controlling the direction of rotation of said wheels, substantially as specified.

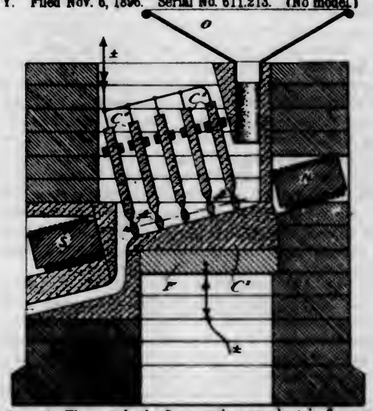
7. In a stenographer's cabinet, a suitable writing-plate, mandrels mounted in positions parallel with each other and in alinement with said plate, traction-wheels upon the ends of the front one of said mandrels, ratchet-teeth upon one of said wheels, and a spring-pawl mounted in position to engage said ratchet-teeth and to turn upon the pivot out of engagement with said ratchet-teeth as desired, substantially as specified.

8. In a stenographer's cabinet, a suitable box, a writing-plate mounted in said box, transversely-alined spindles mounted in bearings in the sides of said box, removable mandrels connecting said spindles and mounted in positions parallel with each other and in alinement with said writing-plate, and traction-wheels upon the outer ends of the front pair of said spindles, substantially as specified.

9. In a stenographer's cabinet, a spindle rotatably mounted in one side of the cabinet, a disk fixed to near the inner end of said spindle and engaging the inner face of the wall of the cabinet, the portion of said spindle inside of said disk being polygonal, a second spindle mounted in alinement with the first-mentioned spindle and in the opposite side of the cabinet, a coil-spring upon said second spindle and inside of the wall of the cabinet, a disk fixed upon said second spindle near its inner end and engaging the inner end of said coil-spring, the portion of said spindle inside of said disk being polygonal, a removable mandrel connecting said spindles and having apertures in its ends to receive the polygonal portions of said spindles, said second spindle being mounted to slide endwise in its bearing and to be held in its normal position by the expansion of said coil-spring, and traction-wheels upon the outer ends of said spindles, substantially as specified.

10. In a stenographer's cabinet, a mandrel consisting of two wedge-shaped pieces, a cap forming a hinge connection between the large ends of said pieces, a wedge-shaped piece to be inserted between the first-mentioned wedge-shaped pieces and from their free ends, a cap attached to the large end of the last-mentioned wedge-shaped piece, lugs projecting from the last-mentioned cap and engaging apertures in the free ends of the first-mentioned wedge-shaped pieces, and teeth projecting from the outer faces of the first-mentioned wedge-shaped pieces, the whole forming a cylindrical roller when the parts are in their normal positions, substantially as specified.

577,370. **ELECTRIC FURNACE.** FRANCIS J. PATTEN, New York, N. Y. Filed Nov. 6, 1896. Serial No. 611,213. (No model.)



Claim.—1. The method of operating an electric furnace which consists in passing the material to be operated on between electrodes, subjecting the arc to the influence of a magnetic field whose lines of force are substantially transverse to the direction of the arc, and reversing or alternating either the current in the arc or the magnetic field, whereby the arc is reciprocated transversely to the path of the material, substantially as described.

2. The method of operating an electric furnace which consists in passing the material to be operated on between electrodes, subjecting the arc to the influence of a magnetic field whose lines of force are substantially transverse to the direction of the arc, passing a direct current through the electrodes, and reciprocating the arc by reversing or alternating the magnetic field, substantially as described.

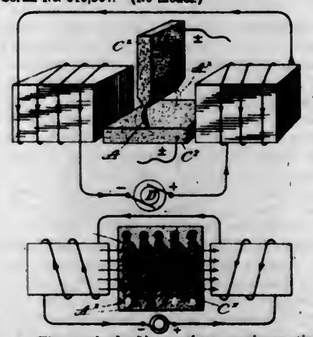
3. In an electric furnace a lower electrode, and an upper electrode consisting of a plate, an electromagnet having its poles so arranged that the lines of force pass through the arc and are normal to the upper electrode, and means for reversing or alternating either the arc-producing current or the magnet-exciting current, whereby the arc reciprocates along the lower edge of the plate, substantially as described.

4. In an electric furnace, electrodes consisting of a block and a plate above said block having its edge at arcing distance therefrom, an electromagnet having its poles so arranged that the lines of force pass through the arc and are normal to the upper electrode, means for passing a direct current through the electrodes, and means for reversing or alternating the magnet-exciting current, substantially as described.

5. In an electric furnace, the combination with a lower electrode, a plate-electrode having its lower edge at arcing distance above said lower electrode, means for feeding material between the electrodes, means for creating a magnetic field having its lines of force passing through the arcing-space, and means for alternating or reversing said field, whereby the arc is reciprocated transversely to the path of the material, substantially as described.

6. An electric furnace having for a lower electrode an inclined block or slab over which the material is fed and for its upper electrode a series of plates having their lower edges transverse to the movement of said material, means for passing a direct current through said electrodes, and means for creating a reversing magnetic field having its lines of force transverse to the upper electrode, whereby the arcs produced are caused to reciprocate across the material being operated on, substantially as described.

577,371. **ELECTROMAGNETIC ARC-CONTROLLING DEVICE.** FRANCIS J. PATTEN, New York, N. Y. Original application filed Sept. 8, 1896, Serial No. 605,146. Divided and this application filed Jan. 15, 1897. Serial No. 619,367. (No model.)



Claim.—1. The method of imparting a reciprocating movement to an arc between electrodes which consists in causing the arc to traverse a magnetic field in which the lines of force are substantially transverse to the direction of the arc, and reversing or alternating either the arc-producing current or the magnetic field, substantially as described.

2. The method of imparting a reciprocating movement to an arc between electrodes which consists in causing the arc to traverse a fixed magnetic field, the lines of force of which are substantially transverse to the direction of the arc-producing current and reversing or alternating the arc-producing current, substantially as described.

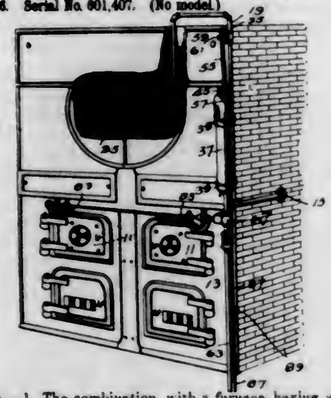
3. The combination with means for producing a magnetic field, of electrodes arranged to produce an arc across said field, and means for reversing or alternating either the arc-producing current or the magnetic field, whereby the arc between the electrodes will be reciprocated, substantially as described.

4. The combination with the electromagnet having separated poles of opposite polarity, and an exciting-circuit therefor, of electrodes located between said poles and arranged transversely to the direction of the magnetic lines of force, a circuit for producing an arc between the electrodes, and means for reversing or alternating either the arc-producing current or the magnet-exciting current, whereby the arc will be reciprocated, substantially as described.

5. The combination with an electromagnet having separated poles of opposite polarity, and a constant exciting-current therefor, of elec-

trodes located between said poles and arranged transversely to the direction of the magnetic lines of force, a circuit for producing an arc between the electrodes, and means for reversing or alternating the current in said arc-producing circuit, substantially as described.

577,372. SMOKE-CONSUMER. FRED W. SMITH, Minneapolis, Minn., assignor of three-fourths to Newton T. Hume and William H. Davies, same place, and Sumner W. Hume, Chicago, Ill. Filed Aug. 3, 1896. Serial No. 601,407. (No model.)



Claim.—1. The combination, with a furnace having an air-passage to the fire-box, of a valve whereby the passage of air to the fire-box is controlled, a cylinder, a piston provided therein, the piston-rod disconnected from said valve and whereby said valve is actuated and held open during the greater part of the movement of the piston, and from which the valve is liberated upon the complete return of the piston within the cylinder, a supply-pipe leading to said cylinder, a valve provided therein, means in connection with the furnace door or doors for opening said valve upon the opening of said door or doors, and a waste-pipe leading from said cylinder, for the purpose specified.

2. The combination, with a furnace, of an air-passage provided in the wall thereof, ducts leading from said air-passage into the fire-box of the furnace, siphoning pipes or nozzles provided therein, a pressure-pipe connected therewith, a valve provided in said pipe, a lever for actuating said valve, a cylinder, a piston therein, a piston-rod disconnected from and engaging said lever to open said valve, and to hold the same open during the greater part of the movement of said piston within the cylinder, a supply-pipe leading to said cylinder, a waste-pipe leading from said cylinder, a valve provided in said supply-pipe, and means whereby upon the opening of the furnace-door said valve is operated, substantially as described.

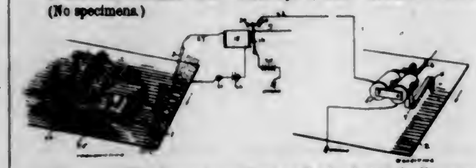
3. The combination, with the furnace, of the air pipe or duct arranged in the front of the fire-box, openings leading therefrom into the fire-box, nozzles provided therein, a steam-pipe for supplying steam thereto, a valve provided in said steam-pipe, a lever for operating said valve, the cylinder 37, the piston, the piston-rod 45 adapted to engage said lever said rod having a beveled end, the inlet-pipe and the waste-pipe connected to said cylinder, the valve 67 provided in said inlet-pipe, the furnace door or doors, the rock-shaft, the arm or arms provided thereon to engage the said door or doors, and means operatively connecting said shaft and the stem of said valve to operate the same, substantially as described.

4. The combination, with the furnace, having air and steam inlet openings in its fire-box, of the steam-pipe, the valve 27 provided therein, the lever 55 for operating said valve, the cylinder 37, the piston therein, the piston-rod 45 having a beveled end, said rod adapted to actuate and hold said lever 55 during the greater part of the movement of said piston, the furnace door or doors, the rock-shaft, the curved arm or arms 83 thereon to be operated by the opening of the furnace-door, an inlet-pipe leading to said cylinder, a valve therein, a cam upon said rocking shaft to operate said valve, whereby upon the opening of the furnace-door said valve is opened to permit the filling of the cylinder to raise the piston, and a smaller waste or drain pipe leading from the cylinder and by which the cylinder is slowly emptied, substantially as described.

5. The combination, with the boiler and the fire-box, of a steam-jet pipe, a valve provided in said pipe, means for automatically closing said valve, a lever for opening the same, a cylinder and a piston, said piston provided with a rod disconnected from and arranged to engage and hold said lever, inlet and outlet pipes connected with said cylinder, and a valve in said inlet-pipe arranged to be operated by the opening of the furnace-door, substantially as described.

6. The combination with the furnace, of steam-jet pipes leading into the fire-box thereof, a steam-pipe connected therewith, a valve in said pipe, means to automatically close the valve, a cylinder 37 provided with inlet or supply and waste pipes, a piston in said cylinder, the piston-rod 45 preferably held in suitable guides and having a beveled upper end, means whereby on the opening of the furnace-door the cylinder is filled to project said piston, said valve, being opened and held open by said piston-rod during the greater part of the movement of said piston in both directions, all as and for the purpose specified.

577,373. METHOD OF REPRODUCING PHOTOGRAPHS. NOAH S. AMSTUTZ, Cleveland, Ohio. Filed Apr. 9, 1896. Serial No. 585,075. (No specimens.)



Claim.—1. The herein-described method of electrically reproducing photographs, &c., consisting, first, in forming a pictorial image with continuous parallel lines in the half-tone portions thereof; second, in moving in contact therewith, at about right angles to said lines, a suitable tracer whereby electrical impulses of varying duration are formed, and third, recording such impulses in an engraved manner on another surface, substantially as set forth.

2. The herein-described method, consisting in forming continuous parallel lines, varying in width, throughout the half-tone portions of an image, except where the inherent composition of the image makes them discontinuous, then moving a tracer in contact with the lines of the image in such a direction as to cause successive electrical impulses of variable duration and recording such impulses upon another surface, substantially as set forth.

3. The method of reproducing images other than "outlines," which consists in forming an image with continuous parallel lines of varying widths, except where they are discontinuous through the inherent composition of the subject and causing variable electrical impulses to be formed through the medium of such lines and a suitable transmitter and then recording such impulses upon another surface, substantially as set forth.

4. The method of reproducing photographic or other images locally or at a distance, the same consisting of forming electrical impulses of variable duration according to the varying lights and shades of the image, by forming a pictorial image with continuous parallel lines and in moving in contact therewith at right angles thereto a tracer, whereby the electrical impulses may be graphically recorded by a suitable instrument, substantially as specified.

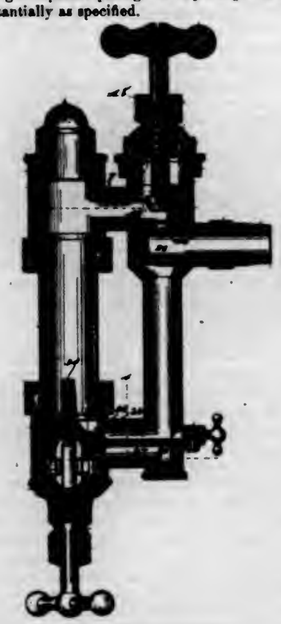
577,374. LUBRICATOR. DWIGHT F. BABCOCK, St. Louis, Mo., and JOHN KELLEY, East St. Louis, Ill. Filed July 20, 1896. Serial No. 599,949. (No model.)

Claim.—1. In a lubricator, two cylinders arranged in vertical parallel positions, a pipe connecting said cylinders, caps closing the upper ends of said cylinders, a pipe connected to one of said cylinders and designed to be tapped into the steam-pipe, an elbow positioned inside of said last-mentioned cylinder and connecting the inner end of said last-mentioned pipe with the end of said first-mentioned pipe, the upper end of said elbow being above the end of said first-mentioned pipe and there being passages outside of said elbow and inside of said cylinder, a tube connecting with said passages and projecting downwardly from said cylinder, a sight-tube projecting downwardly from the other one of said cylinders, a tube having a passage connecting the lower ends of the last two mentioned tubes, and also having a separate passage for injecting oil into said sight-tube, substantially as specified.

2. In a lubricator, an inner and an outer cylinder mounted in vertical parallel positions, a pipe connecting the centers of said cylinders, a tube projecting from the lower end of the inner cylinder and designed to be tapped into the steam-pipe, an elbow in said inner cylinder and connecting the inner end of said tube with the end of said pipe, the upper end of said elbow being above said pipe and there being passages outside of said elbow and inside of said cylinder, a tube projecting downwardly from said inner cylinder, a glass tube projecting downwardly from said outer cylinder, a tube having a passage leading from the interior of said downwardly-projecting tube to the interior of said glass tube, and also having a separate passage for injecting oil into said glass tube, substantially as specified.

3. In a lubricator, an inner cylinder and an outer cylinder mounted in parallel vertical positions, a pipe connecting said cylinders, a tube

connecting the lower end of said inner cylinder with the steam-pipe, an elbow within said inner cylinder and connecting the inner end of said tube with said pipe, the upper end of said elbow being above the end of said pipe and there being passages outside of said elbow and inside of said cylinder, a tube having a passage connecting the lower end of said inner cylinder and the lower end of said outer cylinder, and also having a separate passage for injecting oil into said outer cylinder, substantially as specified.

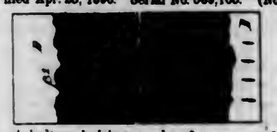


577,375. BELTING. JAMES F. BROWN, Needham, Mass. Filed Apr. 25, 1896. Serial No. 589,104. (No model.)



Claim.—A belt or belting made of two materials, or textile fabrics, one consisting of warp-threads or longitudinal cords, having associated therewith, woof-threads or transverse cords as few as possible simply for the purpose of keeping the warp-threads or longitudinal cords in their relative position, and the other material or textile fabric being such as is in common use and adapted for belt-making; associated together and treated with rubber or any other suitable substance, compound, or material, and folded, and stitched together, as and for the purpose described.

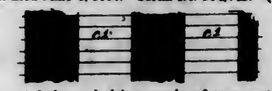
577,376. BELTING. JAMES F. BROWN, Needham, Mass. Original application filed May 25, 1895, Serial No. 550,674. Divided and this application filed Apr. 25, 1896. Serial No. 589,105. (No model.)



Claim.—1. A belt or belting made of two materials, or textile fabrics, one consisting of warp-threads or longitudinal cords, having associated therewith, woof-threads or transverse cords as few as possible simply for the purpose of keeping the warp-threads or longitudinal cords in their relative position, and the other material or textile fabric consisting of woof-thread portions for a sufficient distance of its respective ends, and a blank woof-thread space between such woof-thread portions, and having associated with the woof-threads or transverse cords warp-threads or longitudinal cords, as few as possible simply for the purpose of keeping the woof-threads or transverse cords in their relative position; associated together and treated with rubber or any other suitable substance, compound, or material, and folded and stitched together, as and for the purpose described.

2. In a belt or belting, two materials or textile fabrics, one consisting of warp-threads or longitudinal cords having associated therewith woof-threads or transverse cords, as few as possible simply for the purpose of keeping the warp-threads or longitudinal cords in their relative position, in combination with the other material or textile fabric consisting of woof-threads or transverse cords having associated therewith warp-threads or longitudinal cords as few as possible simply for the purpose of keeping the woof-threads in their relative position, being for a sufficient length applied to the respective ends of the first-mentioned material, as described.

577,377. BELTING. JAMES F. BROWN, Needham, Mass. Original application filed May 25, 1895, Serial No. 550,674. Divided and this application filed June 8, 1896. Serial No. 594,743. (No model.)



Claim.—1. A belt or belting made of two materials, or textile fabrics, one consisting of warp-threads or longitudinal cords, having associated therewith woof-threads or transverse cords as few as possible simply for the purpose of keeping the warp-threads or longitudinal cords in their relative position, and the other material or textile fabric consisting in its length of woof-thread portions and blank woof-thread spaces alternatively, the woof-threads having associated therewith warp-threads or longitudinal cords as few as possible simply for the purpose of keeping the woof-threads or transverse cords in their relative position; associated together and treated with rubber or any other suitable substance, compound, or material, and stitched together and folded, as and for the purpose described.

2. In a belt or belting two materials or textile fabrics, one consisting of warp-threads or longitudinal cords, having associated therewith woof-threads or transverse cords as few as possible simply for the purpose of keeping the warp-threads or longitudinal cords in their relative position, and the other material or textile fabric consisting in its length of woof-thread portions and blank woof-thread spaces alternatively, the woof-threads having associated therewith warp-threads or longitudinal cords as few as possible simply for the purpose of keeping the woof-threads or transverse cords in their relative position, as described.

577,378. BELTING. JAMES F. BROWN, Needham, Mass. Filed May 25, 1895. Renewed Dec. 1, 1896. Serial No. 614,154. (No model.)



Claim.—1. A belt or belting made of two materials or textile fabrics, one consisting of warp-threads or longitudinal cords, having associated therewith, woof-threads or transverse cords as few as possible simply for the purpose of keeping the warp-threads or longitudinal cords in their relative position, and the other material or textile fabric consisting of woof-threads or transverse cords, having associated therewith warp-threads or longitudinal cords as few as possible simply for the purpose of keeping the woof-threads or transverse cords in their relative position; associated together and treated with rubber or any other suitable substance, compound, or material, and stitched together and folded, substantially as and for the purpose described.

2. In a belt or belting, two materials or textile fabrics, one consisting of warp-threads, or longitudinal cords, having associated therewith, woof-threads or transverse cords as few as possible simply for the purpose of keeping the warp-threads or longitudinal cords in their relative position, and the other material or textile fabric consisting of woof-threads or transverse cords, having associated therewith warp-threads or longitudinal cords as few as possible simply for the purpose of keeping the woof-threads or transverse cords in their relative position, as described.

577,379. POLISHING-BRUSH FOR SHOES. JOHN A. CADOT, Cincinnati, Ohio, assignor of one-half to John E. Devere, same place. Filed Aug. 17, 1896. Serial No. 602,961. (No model.)

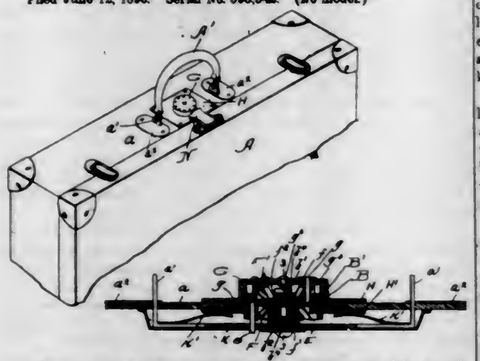
Claim.—1. A polishing-brush for shoes and other purposes, composed of a backing or bar B having a clamping bar or jaw hinged along both its longitudinal edges; a bunch or tuft of textile material grasped between said clamp-bars and extended outward below their jaw edges to present a polishing-surface; and a suitable clamping de-

vice engaging said hinged clamping jaws or bars, to hold them firmly but removably closed over said bunch or tuft, substantially as herein set forth.



2. A polishing-brush for shoes and other purposes, composed of a pair of longitudinal jaw-bars hinged along their median line to an inner horizontal bar or block; a bunch or tuft of textile fabric, grasped or clamped between the lower edges or jaws of said jaw-bars; and a slide-bar detachably inserted between the upper longitudinal edges or jaws of said jaw-bars, and suitably held in place by means of a set-screw to firmly but removably clamp said bunch or tuft between said lower jaw edges, substantially as herein set forth.

577,380. **PERMUTATION-LOCK.** HENRY CLARKE, Chicago, Ill., assignor to Henry Love Clarke and Eugene H. Garnett, same place. Filed June 12, 1896. Serial No. 595,342. (No model.)



Claim.—1. In a combination-lock, the combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, and each furnished with a series of lock-pin holes, of two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, and part of each series of pins being in each disk, and means for holding the lock-pins in the positions to which they may be individually pushed to set the combination for unlocking, substantially as specified.

2. In a combination-lock, the combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, and each furnished with a series of lock-pin holes, of two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, and part of each series of pins being in each disk, and means for holding said locking-pins in position as they are separately and individually moved into position for unlocking, substantially as specified.

3. In a combination-lock, the combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, and each furnished with a series of lock-pin holes, of two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, and part of each series of pins being in each disk, and a series of independently-movable push-pins or keys for independently moving the lock-pins into position for unlocking, substantially as specified.

4. In a combination-lock, the combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, and each furnished with a series of lock-pin holes, of two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, and part of each series of pins being in each disk, and a movable setting plate or device for returning the lock-pins to position, substantially as specified.

5. The combination of two adjacent lock-disks one adapted to turn in respect to the other, and having each a series of holes extending through the same parallel to its axis to receive the lock-pins, of two series of lock-pins mounted in said disks the pins of the one series being longer than those of the other, springs for holding said pins in position, a dial or cover plate, a series of keys or push-pins mounted on said dial or cover plate to operate said locking-pins and a setting-plate for returning said locking-pins to position, the short pins being uppermost under the keys of the combination and the long pins uppermost under the other keys so that a depression of any key other than those of the combination will lock the disks from turning, until all the lock-pins are restored by movement of the setting-plate to position for unlocking by depressing the keys of the combination, substantially as specified.

6. The combination of two adjacent lock-disks one adapted to turn in respect to the other, and having each a series of holes extending through the same parallel to its axis to receive the lock-pins, of two series of lock-pins mounted in said disks the pins of the one series being longer than those of the other, springs for holding said pins in position, a dial or cover plate, keys or push-pins to operate said locking-pins, a setting-plate for returning said locking-pins to position, and springs interposed between said keys or push-pins and said lock-pins, substantially as specified.

7. In a combination-lock, the combination with two adjacent lock-disks one adapted to turn in respect to the other on a common axis, and each furnished with a series of lock-pin holes, of two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, part of each series of pins being in each disk, and a dial or cover plate inclosing said disks and provided with a series of keys or push-pins, substantially as specified.

8. In a combination-lock, the combination with two adjacent lock-disks one adapted to turn in respect to the other on a common axis, and each furnished with a series of lock-pin holes, of two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, part of each series of pins being in each disk, a dial or cover plate inclosing said disks and provided with a series of keys or push-pins, and springs interposed between said keys or push-pins and the lock-pins, substantially as specified.

9. In a combination-lock, the combination with two adjacent lock-disks, one adapted to turn in respect to the other on a common axis, and each furnished with a series of lock-pin holes, of two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, a movable setting plate or device for returning the lock-pins to position, and a handle secured to said setting-plate, substantially as specified.

10. The combination of a traveling bag or case, having hasp and catch or locking plate, of a combination-lock comprising two lock-disks, one adapted to turn in respect to the other, having each a series of holes to receive lock-pins, two series of lock-pins mounted in said disks, the pins of the one series being longer than those of the other, a series of keys or push-pins, a setting-plate, and the handle of the bag attached to said setting-plate, substantially as specified.

11. The combination with the dial or cover plate G, the two lock-disks and two series of lock-pins, of a series of push-pins g^3 having heads g^3 mounted in said plate G, and a spring-disk g^4 divided radially into a series of spring-tongues g^4, substantially as specified.

12. The combination with lock-disks B B', of lock-pins C C', and index or dial plate G, keys or push-pins g^3, spring disk or plate g^4, springs F F' for holding the lock-pins in position, movable setting-plate K, catch or locking plate M having a finger or projection m', said dial-plate G having a notch or projection g^7 engaging said finger or projection m' on the catch or locking plate, substantially as specified.

13. The combination with a lock-disk B', of an adjacent lock-disk B, having a hub b' projecting through said lock-disk B', and a hub b^3 projecting in the opposite direction, two series of locking-pins C C', two spring-disks having radial spring-tongues bearing against said locking-pins and fitting over the hubs of said lock-disk B, substantially as specified.

14. The combination with a lock-disk B', of a lock-disk B, having hub b' projecting through said lock-disk B', and a hub b^3 projecting in the opposite direction, two series of locking-pins C C', two spring-disks having radial spring-tongues bearing against said locking-pins and fitting over the hubs of said lock-disk B, and collars f' f^3 surrounding said hubs and bearing against said spring-disks, substantially as specified.

15. The combination with a traveling-bag having a handle, of a combination-lock having a pair of lock-disks and two series of lock-pins and a setting-plate attached to the handle of said bag, substantially as specified.

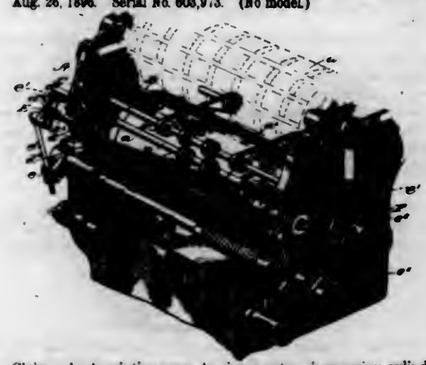
16. The combination with a pair of lock-disks and two series of lock-pins mounted therein, a dial or cover disk rotatable with one of said lock-disks and having a notch or projection for operating a catch or locking plate, substantially as specified.

17. The combination with a pair of lock-disks and two series of lock-pins mounted therein, a dial or cover disk rotatable with one of said lock-disks and having a notch or projection for operating a catch or locking plate, a catch or locking plate and a hasp, substantially as specified.

18. The combination with a pair of lock-disks and two series of lock-pins mounted therein, a dial or cover disk rotatable with one of said lock-disks and having a notch or projection for operating a catch or locking plate, a series of keys or push-pins, and a setting-plate, substantially as specified.

19. In a combination-lock, the combination with a dial or cover plate G, of a series of keys or push-pins g^3, having heads g^3 at their lower ends, and a spring plate or disk secured near its center to said dial-plate and bearing near its periphery against the heads of said keys or push-pins to hold them in position, substantially as specified.

577,381. **PRINTING-PRESS.** CHARLES G. HARRIS, Niles, Ohio, assignor to the Harris Automatic Press Company, same place. Filed Aug. 26, 1896. Serial No. 603,973. (No model.)



Claim.—1. A printing-press having a rotary impression-cylinder and means for positioning or registering paper on said cylinder and causing the paper to travel at a speed greater than that at which the cylinder is rotated, comprising two rotary shafts, one of said shafts being constantly rotated by the rotation of the other and capable of being moved or rocked toward and away from the latter, both of said shafts being of varying diameters, as and for the purpose set forth.

2. A printing-press having a rotary impression-cylinder and means for positioning or registering paper on said cylinder and causing the paper to travel at a speed greater than that at which the cylinder is rotated, comprising a positively-operated shaft having a gear-wheel and rings or enlargements, a second shaft having corresponding rings or enlargements and a gear-wheel meshing with said former gear-wheel, and means for moving said latter shaft so as to bring its rings or enlargements into contact with those of the first-mentioned shaft, substantially as set forth.

3. The combination with the cylinder having stops thereon, of a positively-operated shaft having a gear-wheel and rings or enlargements, a second shaft having corresponding rings or enlargements and a gear-wheel meshing with said former gear-wheel, arms supporting said latter shaft, and means for moving said arms operated by said cylinder, substantially as set forth.

4. The combination with the cylinder having stops thereon and a cam-disk on its journal, of a positively-operated shaft having a gear-wheel and rings or enlargements, a second shaft also having rings or enlargements and a gear-wheel meshing with said former gear-wheel, supports for said second shaft, short shafts to which said supports are secured, arms on said shafts, a shaft to which said arms are connected, and an arm on said latter shaft having its free end in contact with said cam-disk, substantially as set forth.

577,382. **WINDOW.** JOHN A. KIRK, Washington, D. C. Filed Apr. 16, 1896. Serial No. 587,862. (No model.)

Claim.—1. In a window the combination of a box-frame having inclined guideways, a movable pulley-stile, beveled or inclined at its lower end, and adapted to be adjusted with relation to the frame, a lever operatively connected with said stile and a catcher for securing the lever and thus firmly locking the stile in normal position.

2. In a window having sash-weights to counterbalance the sash and in which the sash is removable the combination of the frame and an adjustable shelf to support the weights, substantially as described.

3. In a window the combination of a box-frame having inclined guideways, a pulley-stile having beveled ends and a lever for adjusting the stile in the desired position.

4. In a window the combination of a box-frame a pulley-stile laterally movable in said frame, a movable table or weight-support and means for moving the stile and for bringing the table into operative position, substantially as described.

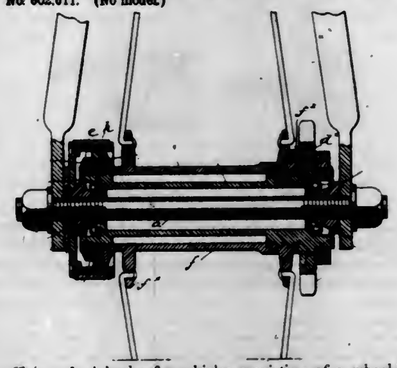
5. In a window the combination of a box-frame, a pulley-stile having a segment thereof laterally movable in said frame, a sliding sash, sash-weights, a table and levers having a catch whereby the movable segment is operated to permit the removal and insertion of the sash and the table is adjusted to support the weights, substantially as described.

6. In a window the combination of a box-frame having an inclined guideway, a stile having the movable section thereof beveled at the lower end to correspond with the guideway and mechanical means for operating said movable section and for locking it in place, substantially as described.



7. In a window the combination of a box-frame, a removable stile-section and a reciprocating cam-faced sword for clamping the stile-section in place, substantially as described.

577,383. **VEHICLE-BRAKE.** WILLIAM A. LEGGO, Jr., Hartsdale, N. Y., assignor of one-fourth to the Long Island Rubber and Cycle Company, of New York. Original application filed May 11, 1896, Serial No. 590,972. Divided and this application filed Aug. 13, 1896. Serial No. 602,611. (No model.)



Claim.—1. A brake for vehicles consisting of a wheel-hub to which the driving power is applied, an auxiliary hub to which the spokes of the wheel are attached, a frictional surface carried by each hub, corresponding frictional surfaces against which the former surfaces are adapted to bear, in combination with means for creating relative lateral movement of the two hubs whereby the said corresponding friction-surfaces are caused to move toward or away from each other.

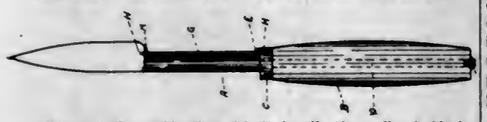
2. A brake for vehicles consisting of a wheel-hub to which the driving power is applied, an auxiliary hub to which the spokes of the wheel are attached, a friction-flange carried by each hub, an element located between said flanges and adapted to be clamped thereby to create friction, in combination with means for creating relative lateral movement of the two hubs whereby the said flanges may be caused to clamp or release said intervening element for the purpose set forth.

3. A brake for vehicles consisting of a wheel-hub to which the driving power is applied, an auxiliary hub to which the spokes of the wheel are attached, a friction-flange carried by each hub, a drum located between said friction-flanges and adapted to be clamped or released thereby, a friction-strap upon the drum, the tension of which retards the rotation of the drum, in combination with means for creating relative lateral movement of the two hubs whereby the drum may be clamped or released by the flanges, substantially as described.

4. In a cycle-brake, the combination of a hub carrying a sprocket or other gear wheel for transmitting propelling power thereto, an auxiliary hub surrounding the first hub to which the spokes of the

wheel are attached, interlocking lugs between the main and auxiliary hubs, whereby one is driven by the other, a screw-threaded connection between the two hubs whereby differential rotation of them will create relative lateral movement, a brake-drum surrounded by a brake-strap, a flange or web carried by said drum, and a flange on each of said hubs between which that on the drum is clamped when the two drums move laterally with respect to each other.

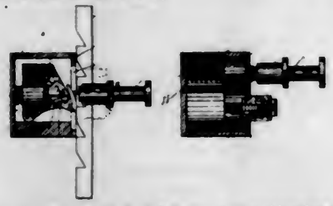
577,384. **POTATO-PEELING KNIFE.** HERMAN G. LOEFFLER, Bay City, Mich. Filed Mar. 9, 1896. Serial No. 582,414. (No model.)



Claim.—1. In combination with the handle of a peeling-knife the main blade thereof provided with a flange in which a bearing L is formed, a stem having a shoulder N, and a long shank M screw-threaded at its end a handle B having a central opening through which the said shank passes, and a bearing D fixed thereto a nut turning on the said shank, and a peeling-blade G journaled in said bearings so as to be clamped in place or set free by the action of the said nut substantially as set forth.

2. A ferrule provided with a bearing and a gage-pin in combination with a blade having a flange turned and perforated to form another bearing, a peeling-blade removably journaled in the said bearings, a handle on which the said ferrule is fitted, means for drawing the said bearings toward each other or moving them away from each other at will substantially as set forth.

577,385. **SASH-FASTENER.** LEWIS C. MILLER, St. Louis, Mo., assignor to the Miller Lock Company, same place. Filed June 15, 1896. Serial No. 595,577. (No model.)



Claim.—1. In a sash lock or fastener, the combination with mechanism for locking a top sash against downward movement while permitting it to move upward, of mechanism for locking the bottom sash against upward movement while permitting it to move downward, and means for unlocking the top and the bottom sash so that while unlocked they may be moved, respectively up and down, the portion of said means which operates in connection with the bottom sash being mechanically held out of operative relation with said sash in the upward movement of the sash and released by the bottom sash acting thereon in the downward movement of the sash so as to be thrown into operative relation, substantially as and for the purposes described.

2. In a sash lock or fastener, the combination with mechanism for locking a top sash against downward movement while permitting it to move upward, of mechanism for locking the bottom sash against upward movement while permitting it to move downward, means for unlocking the mechanism of the bottom sash to permit it to be raised, and means carried by the bottom sash and in the upward movement of said sash brought in contact with a part of the locking mechanism of the top sash for actuating the same to permit the top sash to be lowered, substantially as and for the purposes described.

3. In a sash lock or fastener, the combination with mechanism for locking a top sash at various adjustments and in a closed position, of mechanism for locking the bottom sash at various adjustments and in a closed position, said mechanism of the bottom sash comprising a latch to engage a stop or rack bar on the sash, a guard-catch adapted to fit over the end of the latch when retracted to hold it out of engagement with said stop or rack bar, and to be moved from the end of the latch in the downward movement of the sash to permit the latch to engage the stop or rack bar, and means for unlocking the locking mechanism respectively of the top and bottom sashes, substantially as and for the purposes described.

4. A sash lock or fastener, comprising a stop or rack bar for the sash, a latch to engage said stop or rack bar, a guard-catch adapted to fit over the end of the latch when retracted to hold it out of engagement with said stop or rack bar and to be moved from the end of the latch by the sash in its movement in one direction, and means for retracting the latch from the stop or rack bar, substantially as and for the purposes described.

5. A sash lock or fastener, comprising a stop or rack bar for the sash, a spring-actuated latch to engage said stop or rack bar, a spring-actuated guard-catch having a shank, a heel, and a nose-piece to fit over the end of the latch when retracted to hold it out of engagement with the stop or rack bar, and means for retracting the latch from the stop or rack bar, substantially as and for the purposes described.

6. In a sash lock or fastener, the combination with mechanism for locking one sash, of mechanism for locking the other sash and comprising a stop or rack bar attached to said other sash on the side next to the sash-frame, a spring-actuated latch adapted to be thrown in and out from the sash-frame next to said stop or rack bar, a finger to engage a part of said latch and having a pin projecting into the path of a cam carried by the other sash, substantially as and for the purposes described.

577,386. **PLUMB-LEVEL.** SYLVESTER S. MUMSON, Swanton, Ohio, assignor of one-half to A. B. Lathrop, same place. Filed Jan. 28, 1896. Renewed Dec. 26, 1896. Serial No. 617,094. (No model.)



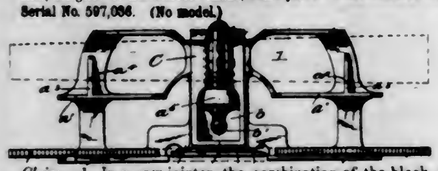
Claim.—A plumb or level comprising a stock having a circular opening, a circular casing fitted in said opening, said casing having one end made integral therewith, the opposite end or face being detachable, and carrying a dial upon the outer side, a shaft journaled centrally in the casing, and carrying a pointer on one end, said shaft being large at the center and reduced at each end, and having bearing-shoulders, the ball-bearings, and the grooved seats formed upon the faces of the casing and adapted to receive the ball-bearings, and the plumb-weight secured to the central portion of shaft, all arranged substantially as shown and described.

577,387. **METER-REGISTER.** LEWIS H. NASH, South Norwalk, Conn. Filed Apr. 28, 1896. Serial No. 589,430. (No model.)



Claim.—In a registering device the combination in cam-gearing of a driving part consisting of a spur-gear and a driven part consisting of a spur-pinion, the teeth on the driving part being farther apart than the teeth on the driven part.

577,388. **SAW-JOINTER.** ROBERT R. POINDEXTER, Indianapolis, Ind., assignor to Emmasetta Hicks, same place. Filed June 26, 1896. Serial No. 597,096. (No model.)



Claim.—1. In a saw-jointer, the combination of the block, the gage-plate formed with the bifurcated or open-slotted shank extending at right angles therewith, which gage-plate is mounted in a suitable recess in said block on projecting points with said shank extending down into a recess between said block and the file-clamp, a screw extending through said slot in said shank into said block for securing said gage-plate, and said saw-clamp and operating device for securing the file in either position on suitable rests formed on said block, all substantially as set forth.

2. In a saw-jointer, the combination of the block having a seat for the gage-plate formed therein, a cone-shaped rest or projection being formed near each end of said seat, which serve as supports for said gage-plate, said plate formed with a shank extending down at right angles with its face, which rests and is secured against a suitably-formed seat on the side of said block, and the horizontal portion of which plate rests on said cone-shaped projections under its ends, and the file-clamp, substantially as set forth.

577,389. **CAR-COUPLING.** PAUL M. REAGAN, Chicago, Ill., assignor to the Hinson Manufacturing Company, same place. Filed July 16, 1896. Serial No. 599,429. (No model.)



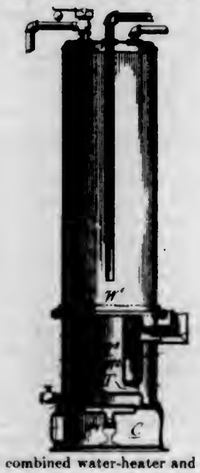
Claim.—1. The combination, in an automatic car-coupler, of a knuckle or hook having a coupling-arm formed with a link-slot and a groove adapted to retain a pin formed in the bearing-face of said knuckle and intersecting said slot, and a pin for said groove, substantially as described.

2. The combination, in an automatic car-coupler, of a knuckle or hook having a link slot or opening and a groove adapted to retain a pin against lateral movement formed in the bearing-face of said knuckle and intersecting said slot or opening, a pin for said groove, and means for preventing the accidental withdrawal of said pin from said groove, substantially as described.

3. The combination, in an automatic car-coupler, of a knuckle or hook having a link slot or opening and a groove intersecting said slot or opening, and a pin conforming in shape to said groove and having its exposed face or side conforming to the curvature of the bearing-face of the knuckle, substantially as described.

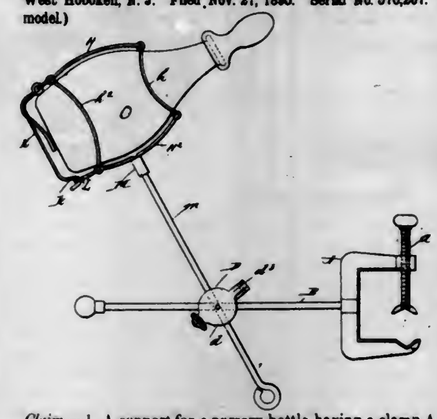
4. The combination, in an automatic car-coupler, of a knuckle or hook having a link slot or opening and a groove adapted to retain a pin against lateral displacement formed in the bearing-face of the knuckle and intersecting the link slot or opening, a pin having a groove formed in one side thereof, and a key entering the groove of said pin to prevent its accidental withdrawal from the knuckle-groove, substantially as described.

577,390. **COMBINED PRESSURE-RESERVOIR AND HEATER.** FRANK L. RICE and ALBERT D. LANGWORTHY, Chicago, Ill., assignors, by direct and mesne assignments, to the Keystone Heater Company, same place. Filed Dec. 13, 1894. Serial No. 531,650. (No model.)



Claim.—In a combined water-heater and pressure-reservoir the combination of an upper sheet-metal cylindric portion, a lower cast-metal portion, an annular water-space in the lower portion communicating directly with the water-space in the upper portion, a central water leg or space in said lower portion communicating at its upper end with body portion of the reservoir and at its lower end with said annular water-space, a combustion-chamber within the annular water-space and surrounding the central water-space, and means for supplying heat to the combustion-chamber, substantially as described.

577,391. **NURSERY-BOTTLE SUPPORT.** WILLIAM A. ROWAN, West Hoboken, N. J. Filed Nov. 27, 1895. Serial No. 570,267. (No model.)



Claim.—1. A support for a nursery-bottle having a clamp A provided with an arm B, a basket or cage for a bottle, a rod secured to said cage, a clamp D movably attached to said rod, and having on one side thereof a longitudinally-extending groove and on the other side thereof a plate having a transverse groove therein, said arm B secured at one end to said clamp A and being engaged by said clamp D, said arm passing through said longitudinally-extending groove, while said rod snugly fits said plate-groove, all of said parts being combined substantially as described.

2. A basket or cage for a nursery-bottle, comprising a wire frame composed of side pieces, and upper and lower rings, and a bottom-fastening device or clamp hinged to one side of the frame and provided with a hook *k*, hooks L adapted to be engaged by said hook *k*, a rod secured to said frame a pivotally-connected arm engaging said rod and a clamp secured to one end of said arm, all of said parts being combined substantially as and for the purposes described.

577,392. **AUTOMATIC BOILER-FEEDER.** ORLA J. SCOTT, Fairmount, Ind., assignor to the Scott Automatic Boiler Feeder Company, Louisville, Ky. Filed Nov. 16, 1895. Serial No. 569,360. (No model.) Patented in England Jan. 21, 1896, No. 1,442, and in France Jan. 21, 1896, No. 253,339.

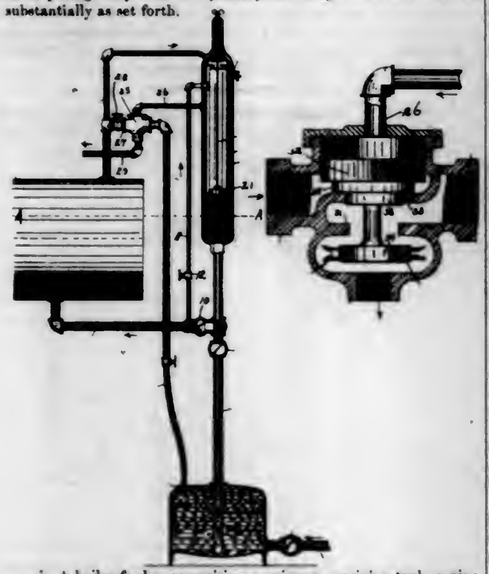
Claim.—1. In a boiler-feeder, the combination of a primary and a main receiver, suitable pipe connections between the receivers and to the boiler, a steam-induction pipe leading to the primary receiver, a differential valve therefor, and a connection between the main receiver and differential valve, whereby the said valve is governed by the pressure in the main receiver, substantially as and for the purposes specified.

2. In a boiler-feeder, a receiver whose upper end is provided with a port surrounded by a valve-seat, a pipe leading from the boiler and entering a small chamber immediately above such port, a spring-supported valve to close such port, and a weight in the lower end of the receiver to actuate such valve when the receiver has discharged its contents.

3. In a boiler-feeder, a receiver, an outlet-pipe leading to the boiler with a check-valve in it, a spray-pipe leading from the boiler-pipe behind the check-valve to the receiver, a steam-port entering the upper end of the receiver, a spring-withheld valve to close the port, and a weight in the bottom of the receiver suspended from the valve, substantially as set forth.

4. In a boiler-feeder, a primary receiving-tank, a pipe leading thereto from a suitable water-supply and having a check-valve in it, a main receiver, a pipe leading from the lower portion of the primary receiving-tank to such main receiver and having a check-valve in it, a boiler-pipe leading from the lower end of the main receiver to the boiler, a steam-pipe leading from the boiler to the upper end of the main receiver for conveying steam, a pipe leading from the steam-pipe to the primary receiving-tank provided with a differential valve, a pipe leading from the receiver to such valve to actuate the same, and an exhaust leading from such valve, the valve so arranged that when in one position there will be a passage-way from the boiler to

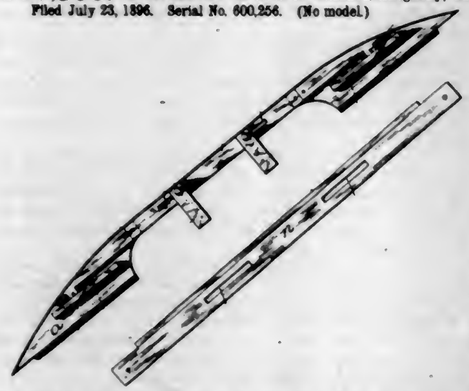
the primary receiving-tank and when in the other position there will be a passage-way from the primary receiving-tank to the exhaust, substantially as set forth.



5. A boiler-feeder comprising a primary receiving-tank, a pipe leading from a suitable water-supply to such tank and having a check-valve in it, a main receiver, a pipe leading from the primary receiving-tank to such main receiver and having a check-valve in it, a pipe leading from the lower end of such main receiver to the boiler and having a check-valve in it, a spray-pipe leading from such boiler-pipe behind its check-valve to the receiver, a steam-pipe leading from the boiler to the upper end of the receiver, an automatic valve for regulating the entrance of steam into the receiver from such steam-pipe, a pipe leading from such steam-pipe to the primary receiving-tank having in it a differential valve, a pipe leading from the receiver to such valve to actuate it, and an exhaust from such valve, such valve being so arranged that when it is in one position there will be a passage-way from the boiler to the primary receiving-tank and when in the other position there will be a passage-way from the primary receiving-tank to the exhaust, substantially as set forth.

6. In a boiler-feeder, the combination of a primary and a main receiver, a steam-induction pipe leading to the primary receiver, and a differential valve therefor, a connection between the main receiver and differential valve whereby the valve is governed by the pressure in the main receiver, a feed-water pipe leading from the main receiver, and a return-pipe leading from said feed-water pipe to the upper part of the main receiver, substantially as and for the purposes specified.

577,393. HOSE-BRIDGE. THOMAS D. WALLACE, Allegheny, Pa. Filed July 23, 1896. Serial No. 600,256. (No model.)



Claim.—1. In a hose-bridge, the bridge proper having apertures to receive the hose, an extension-bar whereby the bridge may be made to accommodate several lines of hose, and means for securing the bridge on each rail together, substantially as shown and described.

2. In a hose-bridge, the bridge proper having apertures to receive the hose, and an extension-bar and detachable portions, and a securing-bar engaging in the bridge on each rail to hold the same rigid, substantially as shown and described.

3. In a hose-bridge, the end portions connected together by an extension-bar, supporting-blocks to engage the rail, detachable portions on the end pieces, and a securing-bar engaging in the bridge on each rail to hold the same rigid, substantially as shown and described.

4. In a hose-bridge, the bridge proper constructed with detachable portions to admit of same being extended if desired, an extension-bar for said purpose, and a securing-bar locked to the bridge on each rail and holding the same rigid, substantially as shown and described.

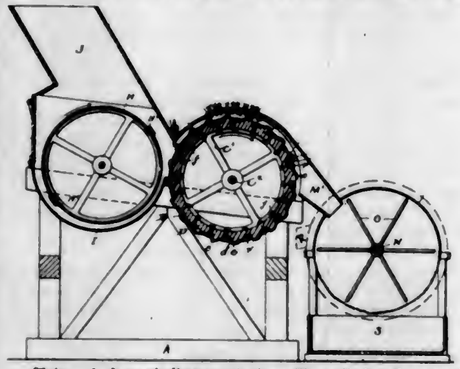
5. In a hose-bridge, the bridge proper constructed to accommodate one or more lines of hose, detachable portions and an extension-bar pivotally attached to the bridge, supporting-blocks secured to the extension-bar, an adjustable securing-rod holding the bridge of each rail, and means for fastening said rod, substantially as shown and described.

6. In a hose-bridge, the end portions connected together by an extension-bar, supporting-blocks to engage the rail, detachable portions on the end portions, a securing-bar engaging in the bridge on each rail to hold the same rigid, and friction-rollers in the bridge proper to engage the hose, substantially as shown and described.

7. In a hose-bridge constructed double to conform to double tracks, said bridges connected together by a bar, an extension-bar, detachable portions, and an adjustable securing-bar to engage the bridge on the inner rails, substantially as shown and described.

8. In a hose-bridge, a bridge for each rail, friction-rollers in said bridge to engage the hose, detachable portions, an extension-bar and an adjustable securing-bar to lock the bridges, substantially as shown and described.

577,394. COTTON-SEED HULLER AND SEPARATOR. CORNELIUS YOUNG, Selma, Ala., assignor to the Cotton States Machinery Company, same place. Filed May 7, 1896. Serial No. 590,564. (No model.)



Claim.—1. In a grinding or reducing mill, a cylinder whose working surface is formed by a series of lengthwise-extending blades secured therein, the working edges of the said blades being bent over to conform approximately to the curvature of the cylinder, and separated from the surface thereof by a distance less than the thickness of the seed to be operated upon, substantially as specified.

2. In a grinding or reducing mill, a cylinder whose working surface is formed by a series of lengthwise-extending blades, reversibly seated and projected beyond the surface of the cylinder and bent or curved forwardly to conform approximately to the surface thereof, the under surfaces of the bent portions of said blades being separated from the cylinder by a space which is of less height than the thickness of the seed to be operated upon, substantially as specified.

3. In a grinding or reducing mill, the combination with the cylinder having the inclined, lengthwise-disposed peripheral seats thereon, of the spacing, or seat plates, in the bottom of said seats having their forward edge portions projecting beyond the surface of the cylinder, the knife-blades placed upon the said plate with their forward edges or working portions projected beyond the same and also beyond the surface of the cylinder, said portions being bent over to conform approximately to the surface of the cylinder, the segmental securing-blocks, and the fastening screws or bolts which pass through said blocks and the blades and seat-plates, substantially as specified.

4. In a grinding or reducing mill, a cylinder whose working surface is formed by a series of lengthwise-extending thin blades secured thereto at short intervals apart, said plates having thin working edge portions bent or curved downward out of the plane of the blade, such bent portions conforming approximately to the curvature of the cylinder, but separated therefrom by a space of less height than the thickness of the seed to be operated upon.

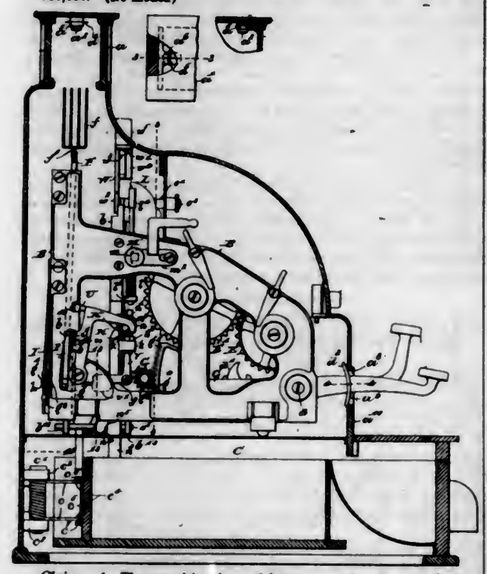
5. In a grinding or reducing mill, a concave whose working face or surface is formed by the points or ends of a plurality of adjusting-screws, the heads of the said screws extending beyond the outer surface of the part in which they are seated whereby they are readily accessible for adjustment, substantially as specified.

6. In a grinding or reducing mill, a concave consisting of removable blocks or segments thickly studded with screws whose inner ends project beyond the inner surfaces thereof, and form the working surface of the concave and whose grooved heads extend beyond the outer surface of said blocks, whereby they are readily accessible for adjustment, substantially as specified.

7. In a grinding or reducing mill, the combination with a cylinder whose working surface is formed by a series of blades secured therein and whose working edges are bent over to conform approximately to the surface of the cylinder, but are separated therefrom by intervals of less height than the thickness of the seed to be operated upon, of a concave whose working surface is formed by the points or ends of a plurality of screws, substantially as specified.

8. In a grinding or reducing mill, the combination of the cylinder, the concave above the upper portion of the cylinder, the feed-drum in front of the cylinder and designed to be rotated in the same direction, the eccentric casing which surrounds the lower portion of said drum, the hopper, and the fender-blade whose lower edge is adjacent to the front portion of said cylinder, substantially as specified

577,395. CASH INDICATOR AND REGISTER. FORTUNE L. BAILEY, Northampton, Mass., assignor, by mesne assignments, to Robert F. Herrick, trustee, Boston, Mass. Filed July 27, 1894. Serial No. 518,697. (No model.)



Claim.—1. The combination of keys, a registering-ratchet, a lever, having a fulcrum concentric with said ratchet, a pawl, carried by said lever, and engaging said ratchet, a vertically-reciprocating driving-plate, a rod, connecting said plate and lever, a coupling-plate, movable with said driving-plate vertically and movable on said driving-plate laterally and having a slot, vertical nearly throughout its length but inclined at the top thereof, and an immovable horizontal stud arranged in said slot, to give said coupling-plate a lateral movement at the beginning of its vertical movement, said plate having projections adapted to engage the slots in said keys when said keys are depressed, as and for the purpose specified.

2. The combination of keys, a registering-ratchet, a lever, having a fulcrum concentric with said ratchet, a pawl, carried by said lever, and engaging said ratchet, a vertically-reciprocating driving-plate, a rod, connecting said plate and lever, a coupling-plate, movable with said driving-plate vertically and movable on said driving-plate laterally and having a slot, vertical nearly throughout its length but inclined at the top thereof, and an immovable horizontal stud arranged in said slot, to give said coupling-plate a lateral movement at the beginning of its vertical movement, said plate having projections adapted to engage the slots in said keys when said keys are depressed, said projections being arranged at proportional vertical distances from said keys to enable said pawl to move said ratchet through proportional annular distances under the operation of said keys, as and for the purpose specified.

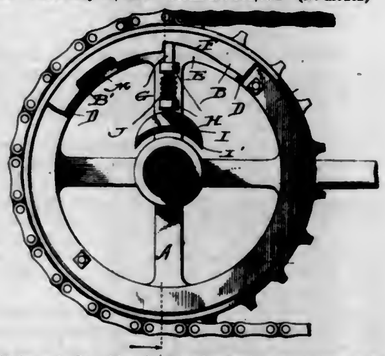
3. The combination of keys, a rock-plate, arranged above said keys and moved by the depression of any of said keys, a coupling-bar carried by said rock-plate and movable laterally thereon and having key-engaging projections, and a cam engaging said coupling-bar, to move said projections into engagement with two or more partially-depressed keys, to cause all such partially-depressed keys to move in unison during the remainder of their movement, as and for the purpose specified.

4. The combination of keys, a rock-plate operated by any key, a vertical slide, jointed to said rock-plate, a horizontal slide, a lock having a bolt engaging said slide to move said slide into or out of the path of said vertical slide, said lock being adapted to be operated by a key passed into said case from the outside, as and for the purpose specified.

5. The combination of a case, keys, a rock-plate operated by any key, a vertical slide having an incline, a sliding hook, a spring, normally causing said hook to engage said rock-plate, a drawer, sliding in said case and when closed holding said hook out of engagement with said rock-plate, said hook being adapted to be engaged by said incline and to be forced out of engagement with said rock-plate when said drawer is open, and a cam within said case turning on a stud with which said slide is provided, to raise said incline into engagement with said hook, as and for the purpose specified.

6. The combination of the rock-plate, a shaft, pivoted therein parallel with the fulcrum of said plate, pinions, rigidly secured on said shaft at opposite sides of said plate, and stationary arc-shaped racks, concentric with said fulcrum, engaged by said pinions, as and for the purpose specified.

577,396. BICYCLE-BRAKE. HARRISON R. BROWN, Chevy Chase, Md. Filed July 11, 1896. Serial No. 598,784. (No model.)



Claim.—1. In a bicycle, a brake device consisting of the combination with a driving-wheel, its axle and crank-hanger, of a circumferential toothed ring movable longitudinally on the wheel, a cam on said ring, a radially-movable arm also carried on the wheel, a shoe on the arm, an immovable friction-surface on the hanger, devices for limiting the movement of said ring, and a spring for normally holding the shoe out of contact with said surface, substantially as described.

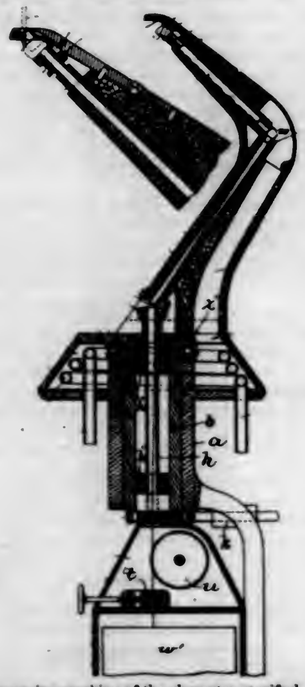
2. In a bicycle, a brake device consisting of the combination with a sprocket-wheel, its axle, crank-hanger and chain, of a circumferentially-movable toothed ring on the wheel, a radially-movable brake on an arm operating in guides on the wheel and provided with a retracting-spring encircling the brake-arm, means in connection with the ring for applying the brake, devices for limiting the movement of the ring, and a friction-surface on the hanger, substantially as described.

3. In combination with the drive-wheel, its axle and crank-hanger, a brake device consisting of a circumferentially-movable toothed member on the drive-wheel, a cam on said member, a movable brake-arm against which the cam operates, a shoe on the inner end of the arm, a brake-surface on the crank-hanger and a spring adapted to hold the shoe out of contact with the hanger, substantially as described.

577,397. SHOE-SEWING MACHINE. EVERETT P. RICHARDSON, Lawrence, Mass., assignor to John H. Richardson, trustee, same place. Filed July 27, 1896. Serial No. 600,687. (No model.)

Claim.—1. In a sewing-machine of the character specified, the combination of a fixed support, a heating device thereon, and a horn

rotatively mounted on said support and provided at its base with a hood or cover located over the heating device.



2. In a sewing-machine of the character specified, the combination of a fixed support, a heating device thereon, and a horn rotatively mounted on said support and provided at its base with a hood or cover located over the heating device, and with a heat-conducting flue extending upwardly from said hood.

3. In a sewing-machine of the character specified, the combination of a fixed support, a heating device thereon, a horn rotatively mounted on said support and provided at its base with a hood or cover located over the heating device, and above said hood with a chamber extending upwardly into the horn, and a tubular shaft extending from the upper portion of said chamber to the tip of the horn, said chamber and shaft constituting a flue which conducts heated air from the chamber to the tip of the horn, and a looper or thread-presenting device carried by said shaft.

4. In a sewing-machine of the character specified, the combination of a fixed support having a flange or projection forming the fixed bottom of an annular heating-chamber, a heating device above said flange, and a horn rotatively mounted on said support and provided at its base with a hood or cover located over the heating device and forming a movable top for said chamber.

5. In a sewing-machine of the character specified, the combination of a fixed support, a horn rotatively mounted thereon, said support and horn having the complemental parts or sections of an annular chamber, and a fixed steam-conduit located in said chamber and supported by the fixed section of the chamber.

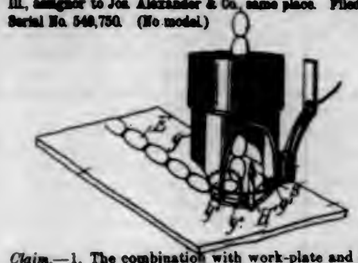
6. In a sewing-machine of the character specified, the combination of a rotary horn having a shoe-supporting tip, a looper within said tip, and a series of tubular shafts journaled in the horn and extending from the looper to a point below the spindle of the horn, said shafts forming a practically continuous thread-guide, and means for imparting motion to the shafts to actuate the looper.

7. In a sewing-machine of the character specified, the combination of a fixed support provided with an outwardly-projecting flange, a horn rotatively mounted thereon and provided at its base with a hood located over said flange, said hood and flange forming an annular heating-chamber, a vertical tubular shaft journaled in bearings which are concentric with the axis of the horn, inclined tubular shafts within the horn, a looper engaged with the upper inclined shaft and located in the tip of the horn, means for rocking the vertical shaft, connections between said tubular shafts, and means for delivering thread under tension to the lower end of the vertical shaft, the thread passing through the said vertical and inclined shafts to the looper.

8. The combination of a sewing-machine horn, a support therefor, said horn having an elbow therein above the plane of the top of said support, a looper-operating shaft within the horn, said shaft extending from the tip of the horn to the elbow and provided with a thread-guiding passage extending through it from end to end, a looper engaged with the outer end of said shaft, means for guiding the thread to the inner end of the looper-shaft, and means for operating and heating said shaft.

9. The combination, in a shoe-sewing machine, of a horn-support, a rotating horn provided with an elbow above said support and with a chamber in its body extending from the elbow to said support, a hollow looper-operating shaft extending from the tip of the horn to said chamber, means for guiding the thread to the lower or inner end of said shaft, and means for rotating said shaft and for heating said chamber.

577,398. EMBROIDERING-MACHINE. RUDOLF ALBERS, Chicago, Ill., assignor to Jos. Alexander & Co., same place. Filed May 18, 1895. Serial No. 549,750. (No model.)

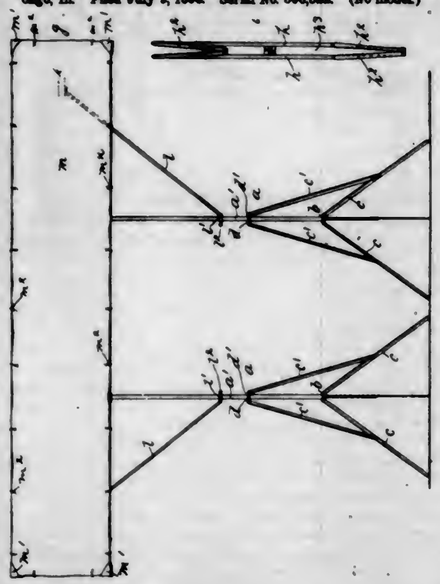


Claim.—1. The combination with work-plate and feed mechanism, of a reciprocatory needle arranged beneath the work-plate and adapted to project upwardly through the same to penetrate the fabric from beneath, means for reciprocating the needle, a guide for cord, braid or the like, located above the work-plate, and a thread-guide located outside of the cord-guide whereby the thread may be wound around the cord and needle at each stitch, substantially as described

2. The combination with work-plate and feed mechanism, of a hollow spindle above the work-plate forming a cord-guide, a reciprocatory needle below said plate adapted to project upwardly through the same to penetrate the fabric from beneath, means for actuating the needle, and a thread-guide located outside of the cord-guide and adapted to be rotated about said spindle, substantially as and for the purpose set forth.

3. The combination with the work-plate and feed mechanism, of a nipple above the work-plate recessed or cut away on one side to receive the needle, a thread-guide outside said nipple for winding thread around the same, a reciprocating needle working upwardly through the cloth-plate, and operating mechanism for said thread-guide and needle, substantially as described.

577,399. PORTABLE FOLDING RACK. EMANUEL MARKS, Chicago, Ill. Filed July 9, 1896. Serial No. 598,532. (No model.)



Claim.—1. In a display-rack, the combination with folding supports or standards, of a display-top constructed in sections adapted to be folded upon one another, and then collapsed or again folded substantially in parallel planes, and means for securing the display-top upon the standards, substantially as described.

2. In a display-rack, the combination with the folding supports or standards *a*, of the display-top *g* formed in sections adapted to be folded upon one another, the said sections being constructed of strips pivotally secured together, whereby the top is adapted to be again folded or collapsed, and means for removably securing the display-top upon the standards, substantially as described.

3. In a display-rack, the combination with folding supports or standards *a*, of the folding and collapsible display-top *g* sectionally constructed and adapted to be secured thereto, arms *l* adapted to support the outer sections of the display-top, and means for laterally inclining and securing the said top in position, substantially as described.

4. In a display-rack, the combination with folding supports or standards *a*, of the collapsible display-top *g* constructed in sections g', g^2, g^3 which are hinged and adapted to be folded upon one another, supporting-arms *l* adapted to sustain the sections g' g^3, and rotatable clamps *f* whereby the said top may be inclined and secured at the angle desired, substantially as described.

5. In a display-rack, the combination with the folding supports or standards *a*, of the collapsible display-top *g* sectionally constructed and adapted to be mounted upon said standards, supporting-arms *l* secured to the standards *a* and adapted to sustain the outer sections of the display-top, clamps *f* whereby the said top is adapted to be inclined and secured in the position desired, and a flexible cover *m* adapted to be fastened upon the said display-top, substantially as and for the purpose specified.

6. In a display-rack, the combination with the folding supports or standards *a*, of the collapsible display-top *g* adapted to be secured thereto, the said top being constructed in hinged sections g', g^2, g^3, of metallic strips pivotally secured together, clamps *f* adapted to secure the said display-top upon the standards at the desired angle therewith, and supporting-arms *l*, and brackets *k* adapted to sustain the outer ends of sections g' g^3, substantially as described.

577,400. PNEUMATIC TIRE. GEORGE W. ROWE and WILLIAM G. HEYS, Manchester, England. Filed Dec. 24, 1891. Serial No. 416,068. (No model.) Patented in England July 17, 1891, No. 12,153; in Austria-Hungary Dec. 17, 1891, No. 15,277 and No. 67,793; in Sweden Dec. 19, 1891, No. 6,014; in Norway Dec. 19, 1891, No. 2,741; in France Dec. 23, 1891, No. 218,235; in Spain Dec. 23, 1891, No. 12,836; in Italy Dec. 24, 1891, LX. 476; in Switzerland Dec. 26, 1891, No. 4,599; in Belgium Dec. 28, 1891, No. 97,734; in Canada Dec. 29, 1891, No. 41,296; in India Jan. 16, 1892, No. 19; in Victoria Aug. 18, 1892, No. 9,879; in South Australia Aug. 18, 1892, No. 2,285, and in New South Wales Aug. 25, 1892, No. 3,934.



Claim.—1. A pneumatic tire having in its deflated condition a tubular cylindrical shape, with an outer layer of non-stretching material, and an inner layer of thick rubber in a state of inwardly-progressive compression.

2. A pneumatic tire composed of an annular tube of rubber in a state of inwardly-progressive compression sufficient to prevent the escape of gas through a puncture, said tire having in its deflated condition a tubular cylindrical shape, substantially as shown and described and for the purpose set forth.

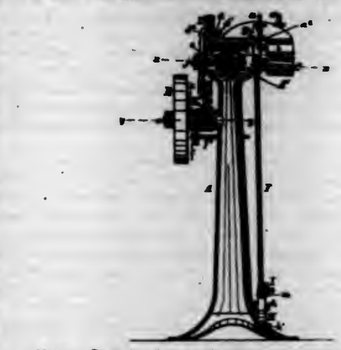
3. A pneumatic tire composed of an annular tube of rubber in a state of inwardly-progressive compression, and an inclosing jacket of non-stretching material, said tire having in its deflated condition a tubular cylindrical shape, substantially as shown and described and for the purpose set forth.

4. A pneumatic tire consisting of an annular tube containing air under pressure and comprising a layer of rubber of which the portion liable to puncture is in a state of compression, sufficient to prevent the escape of air when said rubber is punctured, said tire having in its deflated condition a tubular cylindrical shape, substantially as shown and described and for the purpose set forth.

5. A pneumatic tire consisting of a rubber tube, in a state of compression, and an inclosing cover of non-stretching material cemented to the tube and having a flap or flaps continuous with the cover and cemented thereto to form a reinforce, substantially as described.

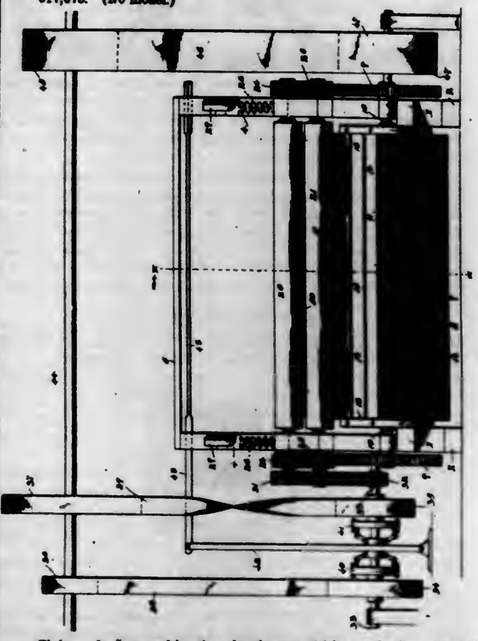
6. A pneumatic tire consisting of a rubber tube thicker on one side than on the other, a cover of non-stretching material maintaining said tube in a compressed state, and a layer of soft rubber lying on the thicker side of the tube, substantially as described.

577,401. IRONING-MACHINE. ARTHUR B. SHLDEN, Rochester, N. Y. Filed Sept. 11, 1894. Serial No. 522,768. (No model.)



Claim.—In an ironing-machine, a supporting-frame, an adjustable arm B resting on said frame and having a fulcrum against the same between its ends, an iron *b* upon one end of said arm, adjusting-screws *d d'* for setting the other end of said arm, a roller-shaft bearing J pivoted between its ends to said supporting-frame to oscillate in a substantially vertical plane, a roller-shaft *j* set in said bearing, a roller C on one end of said roller-shaft, a gear-wheel D fixed on the other end of said roller-shaft, a stud *e* fixed to said supporting-frame, an elongated pinion K revoluble upon said stud *e* and meshing with said gear-wheel D and capable of longitudinal movement upon said stud, a driving-pulley E revolable on said stud *e* and incapable of longitudinal movement thereon, corresponding clutch-teeth upon said pulley E and said pinion K, a rod *f'* movable in bearings in said supporting-frame and having a yoke *f* engaging in a groove *k'* around the pinion K, whereby the roller C is movable to and from the iron *b* and the gear-wheel D remains at all times in mesh with the pinion K when the latter is in or out of operative connection with the driving-pulley E, and a treadle mechanism H and treadle-rod F for moving said roller C toward said iron *b*.

577,402. LEATHER-SCRUBBING MACHINE. HENRY BRIGHT, Costello, Pa. Filed Mar. 28, 1895. Renewed Dec. 31, 1896. Serial No. 617,673. (No model.)



Claim.—1. In combination, leather-scrubbing cylinders geared to revolve together, feed-rollers geared together and adapted to advance the side of leather between the scrubbing-cylinders, a power-driven shaft operatively connected with one of the scrubbing-cylinders for rotating the latter at a uniform rate of speed, differential

pulleys keyed upon the power-driven shaft, a counter-shaft in gear with the feed rollers, differential pulleys loosely mounted upon the counter-shaft and driven in opposite directions and at unequal rates of speed from the differential pulleys of the power-driven shaft, clutches mounted upon the counter-shaft between the differential pulleys thereon, and a shipper-lever to move the clutches to gear one or the other of the pulleys with the counter-shaft, whereby the feed-rollers are operated to advance the side of leather slowly to the scrubbing-cylinders and withdraw it quickly, substantially as specified.

2. In a leather scrubbing and cleansing apparatus, a scrubbing-cylinder comprising wooden strips and metal bars placed in alternate relation and secured between inner and outer bands, and having longitudinal spaces, and brushes extending through the said spaces formed in the body of the cylinder, substantially as set forth.

3. In a leather scrubbing and cleansing apparatus, a scrubbing-cylinder comprising a series of bars grouped around a central line, and strips, the latter forming the body and having spaces, and a series of brushes supported in the said bars and extending through the spaces between the strips of the body of the cylinder, substantially as set forth.

4. The herein-specified leather scrubbing and cleansing apparatus, comprising two scrubbing-cylinders formed by means of bars grouped around a central line, wooden strips and metal bars disposed in alternate relation and held between clamping-bands, brushes supported at their inner ends in the said bars and projecting through the body of the cylinders, feed-rollers, a fast and a slow actuating mechanism for the feed-rollers, and spray-pipes disposed to supply water to the opposite sides of the leather, substantially as set forth.

577,403. BICYCLE PROP OR SUPPORT. WILLIAM H. MORGAN, Peabody, Kans. Filed Jan. 21, 1896. Serial No. 576,301. (No model.)



Claim.—1. The combination, with a bicycle, of a prop or support hinged to a clamp over the pilot-wheel and consisting of two legs or standards, one on each side of the pilot-wheel, the upper portion of the legs being sufficiently close to each other to clasp the pilot-wheel firmly, substantially as described.

2. The combination with a bicycle, of a portable prop or support, hinged to a clamp over the pilot-wheel, and consisting of two legs or standards, one on each side of the pilot-wheel, the upper portion of the legs being sufficiently close to each other to clasp the pilot-wheel firmly—and when not in use the two legs to be sprung together and carried under the cross-bar of the bicycle-frame, with their lower ends resting in a hook on the clamp G, substantially as described.

577,404. BICYCLE-BRAKE. WILLIAM H. MORGAN, Peabody, Kans. Filed Feb. 3, 1896. Serial No. 578,599. (No model.)



Claim.—1. The combination with the brake-wheel, of an axle upon which it is loosely mounted, and a coiled spring arranged within the wheel and attached at one end to the rim and at the other end to said axle, substantially as specified.

2. The combination with a bicycle-frame having grooves on the inner faces thereof, of a brake-wheel having its axle projecting into said grooves, the coiled spring arranged within the wheel and attached at one end to the rim and at the other end to the axle of said wheel upon which the latter is loosely mounted, substantially as and for the purpose specified.

3. The combination with the frame of a bicycle, of a support hinged therefrom, the brake-wheel axle carried by said hinged support, the brake-wheel loosely mounted on said axle and provided with an interior retarding-spring with one end attached to the rim and the other to the axle and a connection between said wheel and an operating-lever, substantially as specified.

577,405. PRINTING-MACHINE. CHARLES G. HARRIS, Niles, and JOHN F. MCNUTT, Warren, Ohio; said McNutt assignor to said Harris. Filed Dec. 14, 1895. Serial No. 572,217. (No model.)



Claim.—1. In a printing-press, having its type-carrying cylinder formed with a longitudinal peripheral cut-out and a series of circumferential and longitudinal T-grooves, a series of clamps consisting each of an inner slightly-curved plate having a lug on its outer surface adjacent to one end, an outer plate also slightly curved and beveled at one end and provided on its under side with a rib and formed with a recess at one end to accommodate said lug, and a binding-screw at the other end for uniting said plates, substantially as set forth.

2. In a printing-press, the combination with an impression-cylinder and eccentric bearings therefor, of means tending to normally turn said bearings so as to move the impression-cylinder away from the type-carrying cylinder, said means comprising a spring-impelled shaft to which said bearings are connected, a trip for normally restraining said shaft and devices intermittently operated and adapted to actuate the trip in the event of any irregularity in the feed to the press, substantially as set forth.

3. In a printing-press, the combination with an impression-cylinder and eccentric bearings therefor, of means tending to normally turn said bearings so as to move the impression-cylinder away from the type-carrying cylinder, a trip normally restraining said means, an intermittently-operated shaft having an arm or projection movable in line with said trip but not engaging therewith, and a lug, or the like, normally filling the space between said trip and said arm or projection, and a device designed to move said lug out of its normal position only in the event of the stock being properly fed, whereby if said lug is not so moved said arm or projection will free said trip, substantially as set forth.

4. In a printing-press having throw-off and stop mechanism, a spring-impelled shaft designed to effect the operation thereof, a trip-block for normally holding said shaft, a second shaft intermittently operated having an arm or projection movable in line with said trip-block, and a device capable of being raised and lowered by said second shaft having a swinging portion the upper end of which is designed to engage or contact with the card, envelop or paper being fed to the press, its other end being designed to swing into and out of, the line between said arm or projection and said trip-block, substantially as set forth.

5. In a printing-press having its impression-cylinder eccentrically mounted, a rock-shaft connected thereto, a trip for holding said shaft stationary in its normal position, and a mechanical device operated by the rotation of said cylinder and designed to disengage said trip and allow said shaft to rotate in the event of any irregularity in the feed to the press, as and for the purpose set forth.

6. The combination with a press having its impression-cylinder provided with eccentric bearings, of the rock-shaft, connections between said shaft and said bearings, a trip for holding said shaft in its normal position, a second rock-shaft operated by the rotation of said cylinder, and a device operated by said latter shaft and designed to disengage said trip in the event of any irregularity in the feed to the press, as set forth.

7. The combination with a press having its impression-cylinder provided with eccentric bearings having arms, of the rock-shaft, connections between said shaft and said arms, an arm on said rock-shaft, a trip for engaging said arm, a second rock-shaft operated by the rotation of said cylinder having an arm, and a device having a swinging member movable between said arm and said trip and designed to effect the tripping of the latter in the event of any interruption in the feed to the press, as set forth.

8. The combination with a printing-press having a shiftable impression-cylinder, of a device intermittently operated by the rotation of said cylinder and having a pivoted member designed to be arrested in its movement by contact with the card, or the like, passing to said cylinder, and means designed to be operated by said device to effect the shifting of said cylinder in the event of said pivoted member not being so arrested by such card, or the like, as set forth.

9. The combination with a printing-press having a shiftable impression-cylinder, of an intermittently-operated device designed to engage the card or the like in its passage to said cylinder, a shaft for shifting said cylinder, and a rock-shaft for moving said device and designed to operate said former shaft through the agency of said device in the event of any irregularity in the feed to the press, as set forth.

10. The combination with a printing-press having a shiftable impression-cylinder, a shaft for shifting said cylinder, and a trip-block for holding said shaft, of a mechanically-operated device designed to engage the card or the like in its passage to said cylinder, and a rock-shaft for operating said device and designed to effect the tripping of said block in the event of any irregularity in the feed to the press, as set forth.

11. The combination with a printing-press having its impression-cylinder mounted in eccentric bearings, of a spring-impelled shaft, connections between said shaft and said bearings, a trip-block for holding said shaft, a rock-shaft, and a device operated by said latter shaft and having a movable portion designed to be forced by said rock-shaft into engagement with said trip-block in the event of any irregularity in the feed to the press, as set forth.

12. The combination with a press having its impression-cylinder mounted in eccentric bearings, of a spring-impelled shaft having an arm, connections between said shaft and said bearings, a trip-block for engaging and holding said arm, a rock-shaft operated by said cylinder having an arm provided with a lug, and a device operated by said rock-shaft designed to engage the card or the like in its passage to said cylinder and having a swinging member provided with a lug which is forced by said lug of said arm into engagement with said trip-block in the event of any irregularity in the feed to the press, as set forth.

13. The combination with a press having its impression-cylinder mounted in eccentric bearings, of a spring-impelled shaft having an arm, connections between said shaft and said bearings, a trip-block for engaging and holding said arm, a rock-shaft operated by said cylinder having an arm provided with a lug, a second shaft, a sleeve thereon, a lever fulcrumed on said sleeve and having an arm designed to engage the card or the like in its passage to said cylinder, a second lever connected to said former lever and having a lug designed to be engaged by said lug of said arm in the event of any interruption in the feed to the press, and connections between said rock-shaft and said sleeve for effecting the operation of said levers, substantially as set forth.

14. The combination with a press having its impression-cylinder mounted in eccentric bearings, of a spring-impelled shaft having an arm, and connections between said shaft and said bearings, a trip-block for engaging and holding said arm, a rock-shaft operated by said cylinder having an arm provided with a lug, a second shaft, a sleeve thereon, a lever fulcrumed on said sleeve and having an arm designed to engage the card or the like in its passage to said cylinder, a second lever connected to said former lever and having a lug designed to be engaged by said lug of said arm in the event of any interruption in the feed to the press, and pivoted rods or pitmen connecting said arm of said rock-shaft to said sleeve, substantially as set forth.

15. In a printing-press having mechanism for stopping the operation thereof, a tripping device comprising an intermittently-operated lever which is arrested in its movement by contact with the article to be printed, and a second lever engaged by said former lever and designed to be moved thereby when said former lever engages said article so as not to operate the stop mechanism and to aid in operating the latter in the event of the movement of said former lever not being arrested by the article to be printed, as set forth.

16. In a printing-press having mechanism for stopping the operation thereof, a tripping device comprising an intermittently-operated lever one arm of which is designed to engage the article to be printed, a movable support for said lever, means for moving said support, and a second lever connected to said former lever and designed to be moved thereby when said former lever engages said article, and to aid in operating said stopping mechanism in the event of any irregularity in the feed to the press, as set forth.

17. In a printing-press, the combination with a rotary shaft, an intermittently-operated rock-shaft, a spring-impelled shaft for controlling the position of the operative parts of the machine, and a trip-block for holding said latter shaft, of a lever, a sleeve loose on said rotary shaft having ears, said lever being fulcrumed between said ears, a second lever depending from said former lever and having a lug normally in line with said trip-block, an arm on said rock-shaft designed to engage said lug when the latter is in alinement therewith, and connections between said arm and said sleeve for raising and lowering the latter, whereby an arm of said first-mentioned lever is intermittently raised so as to engage the article to be printed, substantially as set forth.

18. In a printing-press, the tripping device herein described, consisting of a lever, the sleeve supporting the same, the support for said sleeve, a second lever having a lug, the rock-shaft having an arm, the pivoted arm, the rods or pitmen connecting the same to said arm and said sleeve, the spring-impelled shaft having an arm, and the trip-block holding the same, all constructed and designed to operate as set forth.

19. The combination with a printing-press having stop mechanism, of a spring-impelled shaft for operating the same, a trip for normally holding said shaft, and an intermittently-operated mechanical device having a pivoted member designed to be arrested in its movement by contact with the card or the like passing to the press and to operate said trip and allow said shaft to rotate in the event of said pivoted member not being so arrested in its movement, as set forth.

20. The combination with a press having its impression-cylinder eccentrically mounted, a rock-shaft connected with said cylinder, and an operating-shaft having a belt-pulley thereon, of a device for controlling said belt-pulley designed to be operated by said rock-shaft, and an intermittently-operated mechanical device designed to be arrested in its movement by contact with the card or the like passing to the press and to effect the operation of said rock-shaft in the event of not being so arrested in its movement, as set forth.

21. The combination with a press having its impression-cylinder eccentrically mounted, a rock-shaft connected with said cylinder for shifting the position thereof, and an operating-shaft having a clutch-pulley thereon provided with an operating-arm, of a device for controlling said clutch-pulley, comprising a movable member engaging said operating-arm, a shaft engaging said member at one end, a lock thereon, and means connected to said rock-shaft for disengaging said lock, as and for the purpose set forth.

22. The combination with a press having its impression-cylinder eccentrically mounted, the operating-shaft, the rock-shaft connected to said cylinder and means for tripping the same, of the clutch-pulley having an operating member, the sliding collar designed to engage said operating member, the shaft having a forked end engaging said collar, the spring acting on said shaft, the lock for the latter, and the arm carried by said rock-shaft for engaging said lock, substantially as set forth.

23. The combination with a press having its impression-cylinder eccentrically mounted, the operating-shaft, the spring-impelled rock-shaft, and means for tripping the same, of the clutch-pulley, the sliding collar engaging an arm of said pulley, the spring-impelled shaft engaging said collar at one end, and having a handle-bar on the other end provided with a shoulder, a pivoted locking-arm engaging said shoulder, and an arm on said rock-shaft designed to engage said locking-arm, substantially as set forth.

24. The combination with a press, of an ink-trough, a roller located over the outlet thereof having a ratchet-wheel, a sleeve loose on said roller, and carrying a pawl engaging said ratchet-wheel, means for reciprocally actuating said sleeve, a rock-shaft supporting a second roller, and an arm on said rock-shaft having a spring-held tongue designed to be engaged by said sleeve for rocking said shaft, substantially as set forth.

25. In a printing-press, the combination with the ink-trough, a

fountain-roller, a sleeve on said roller having a shoulder, an operating-arm extending from said sleeve, and means for reciprocally operating said sleeve connected to said arm, of a rock-shaft, a roller supported thereby, an arm on said rock-shaft having a recessed end, and a spring-held tongue fitted in said recess, designed to be engaged by said shoulder, as and for the purpose set forth.

26. In a printing press, the combination with the frame, having an inner projection, and the impression-cylinder having a groove, of the spring-held shaft mounted in said groove having an arm designed to engage said projection, the plate on said shaft extending over said groove, and the stops adjustable on said plate, substantially as set forth.

27. The combination with a printing-press, throw-off mechanism for the impression-cylinder, and a trip for normally holding said throw-off mechanism, of a rock-shaft located in rear of said impression-cylinder, and tapered arms mounted thereon normally held away from said cylinder and designed to be thrown against or near the periphery thereof, said rock-shaft being operated in the event of said throw-off mechanism being freed by said trip, as set forth.

28. The combination with a printing-press, stop mechanism and means for operating the same, of a rock-shaft and tapered arms mounted thereon designed to be thrown against or near the periphery of the impression-cylinder when said stop mechanism is operated, said rock-shaft being connected to the said operating means, substantially as set forth.

29. The combination with a printing-press having throw-off mechanism for the impression-cylinder, of a two-chambered receptacle, tapered blocks having their edges against or near said cylinder for directing the discharge therefrom into one of said chambers, a rock-shaft connected to said throw-off mechanism, and tapered arms on said rock-shaft for directing the discharge into the other one of said chambers, substantially as set forth.

30. The combination with a printing-press having a rotary impression-cylinder, of a rotary discharge-receiving receptacle having two concentric chambers, means for gradually rotating the same, and means for directing the discharge into either one of the chambers of said receptacle, as set forth.

31. The combination with a printing-press having a rotary impression-cylinder, of a rotary discharge-receiving receptacle having two concentric chambers, blocks having their edges against or near said cylinder for directing the discharge therefrom into one of said chambers, tapered arms, and means for throwing the same against or near said cylinder for directing the discharge into the other one of said chambers, substantially as set forth.

32. The combination with a printing-press having a feed-table, of a reciprocating feeder movable longitudinally over said table, a plate at the forward end of said feeder having an inclined portion and a shoulder at the upper end of said incline, and an adjustable plate having its free end abutting against said shoulder, as set forth.

33. The combination with a printing-press having a feed-table, of a reciprocating feeder movable longitudinally over said table, a plate at the forward end of said feeder having an inclined portion and a shoulder at the upper end of said incline, a longitudinally-adjustable plate having a slot, and a screw extending through said slot for binding said latter plate to said former plate, substantially as set forth.

34. The combination with a printing-press having a feed-table, of a reciprocating feeder comprising a rod, a plate pivotally mounted on the free end of said rod, inclined extensions having shoulders at their upper ends, and adjustable plates having their forward ends abutting against said shoulders, substantially as set forth.

35. The combination with a printing-press having a feed-table, of a reciprocating feeder comprising a rod, a plate pivotally mounted on the free end of said rod, inclined plates extending from said former plate having upper shoulders and adjustable plates secured to said inclined plates and having their free ends abutting against said shoulders, substantially as set forth.

36. The combination with a printing-press having a feed-table, of a reciprocating rod, a transverse pin extending therefrom, a plate pivoted on said rod and designed to engage said transverse pin, inclined plates extending from said former plate, and adjustable plates secured to said inclined plates, as and for the purpose set forth.

37. The combination with a printing-press having a feed-table provided with upper guide-plates, of a slide fitted between said guide-plates, a rocking shaft connected with the press having an arm engaging said slide, a rod connected to said slide, a plate on the forward end of said rod having inclined shouldered plates, and plates having their ends adjacent to said shoulders, as and for the purpose set forth.

38. The combination with a printing-press having a feed-table and a feeder, of a post, a slide adjustably mounted in said post, an arm projecting from said slide, a plate pivoted at one end to the lower end of said arm and having a flat portion and at its other end designed to engage said slide, said arm and slide limiting the movements of the free end of said plate, as set forth.

39. The combination with a printing-press having a feed-table and a feeder, of the post having a recess in its front face, a slide fitted in said recess having a slot, a screw-rod vertically adjustable in said post having a flange fitting in said slot, an arm extending from said slide, a plate pivoted to said arm and having its forward bent end bearing against said slide, and a spring acting on said plate, substantially as set forth.

DESIGNS.

26,624. BADGE. CHARLES S. POWELL, Ardmore, Pa. Filed July 9, 1896. Serial No. 598,610. Term of patent 7 years.



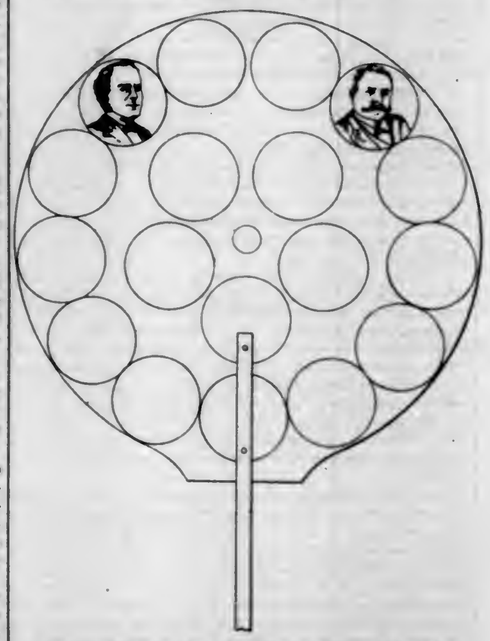
Claim.—The design for a badge or pin, substantially as shown and described.

26,625. BADGE. WILLIAM D. MURRAY, Plainfield, N. J., and FREDERICK R. SCHENCK, Brooklyn, N. Y., assignors to the International Committee of Young Men's Christian Associations, New York, N. Y. Filed May 23, 1896. Serial No. 593,516. Term of patent 14 years.



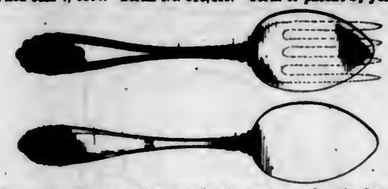
Claim.—The design for a badge substantially as shown and described.

26,626. FAN. JAMES M. RECTOR, Elk Park, Mont. Filed Sept. 9, 1896. Serial No. 606,337. Term of patent 3½ years.



Claim.—The design for a fan as herein shown and described.

26,627. HANDLE FOR SPOONS, &c. JOHN CLULEE, Wallingford, Conn., assignor to the Simpson Nickel Silver Company, same place. Filed Jan. 7, 1897. Serial No. 618,413. Term of patent 3½ years.



Claim.—1. The design for handles for spoons as herein shown and described.

2. In the design for handles of spoons and similar articles, the obverse, as herein shown and described.

3. In the design for handles of spoons and similar articles, the reverse, as herein shown and described.

26,628. HANDLE FOR BUTTON-HOOKS, &c. WILLIAM A. SKIDLER, Newark, N. J., assignor to John W. Reddall & Co., same place. Filed Dec. 3, 1896. Serial No. 614,365. Term of patent 3½ years.



Claim.—The design for a handle for a button-hook or a similar article as herein illustrated and described.

26,629. TABLE-BELL. ABBY DAY SLOCOMB, Groton, Conn., assignor to J. R. Caldwell & Co., Philadelphia, Pa. Filed May 12, 1896. Serial No. 591,299. Term of patent 14 years.



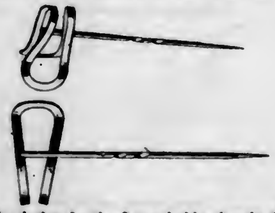
Claim.—The design for a table-bell as herein described and as shown in the accompanying drawing.

26,630. EWER. WILLIAM H. GRINDLEY, Congleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Dec. 15, 1896. Serial No. 615,818. Term of patent 3½ years.



Claim.—The design for a ewer substantially as shown and described.

26,631. FLOWER-HOLDER. STEPHEN M. GRISWOLD, Brooklyn, N. Y. Filed Jan. 9, 1897. Serial No. 618,655. Term of patent 14 years.



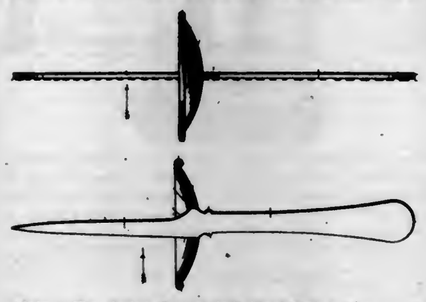
Claim.—The design for the flower-holder herein shown and described.

26,632. HOLDER FOR SOAP OR SIMILAR ARTICLES. CHARLES L. WILKINS, Columbus, Ohio. Filed Dec. 21, 1896. Serial No. 616,543. Term of patent 7 years.



Claim.—The design for a holder for soap and similar articles substantially as herein shown and described.

26,633. FRUIT-HOLDER. ELIZABETH STERRICK, St. Louis, Mo. Filed Dec. 23, 1896. Serial No. 616,815. Term of patent 7 years.



Claim.—The design for an individual fruit-holder, as herein shown and described.

26,634. CIGAR-LIGHTER, &c. CHARLES D. GOLDEN, Chicago, Ill. Filed Dec. 18, 1896. Serial No. 616,196. Term of patent 3½ years.



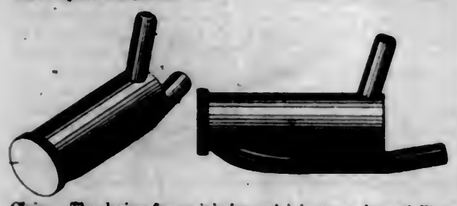
Claim.—The design for a cigar lighter and cutter, substantially as shown and described.

26,635. SHOESTRING-FASTENER. WILLIAM K. WEBB and EDWARD B. ANDREWS, Wilkinsburg, Pa. Filed Dec. 21, 1896. Serial No. 616,551. Term of patent 14 years.



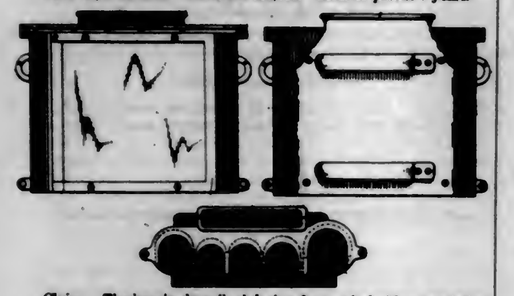
Claim.—The design for a shoestring-fastener, as herein shown and described.

26,636. INHALER, &c. ALFRED H. RANEY, FRANK D. ROLLINS, and LEWIS H. RICE, Aurora, Ill. Filed Dec. 24, 1896. Serial No. 616,926. Term of patent 14 years.



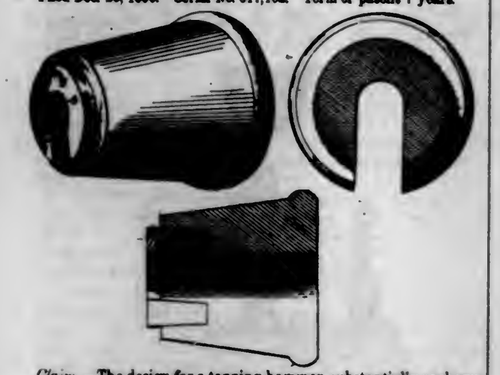
Claim.—The design for an inhaler and injector, substantially as herein set forth.

26,637. COIN-HOLDER CASE. FRANK B. WAGNER, Cleveland, Ohio. Filed Sept. 23, 1896. Serial No. 606,788. Term of patent 7 years.



Claim.—The herein-described design for a coin-holder, consisting of the barrel-casing having a flat top and base and rounded ends, the front of said casing having a rectangular frame centrally located thereon, the rear of said casing having the receptacle projecting therefrom and also projecting upwardly above said casing, said receptacle having the contracted neck and the flaring mouth, the U-shaped eyes on the side of said casing and the clips on the back of said receptacle, substantially as set forth.

26,638. TAPPING-HAMMER. JOHN B. MEIER, Port Huron, Mich. Filed Dec. 26, 1896. Serial No. 617,102. Term of patent 7 years.



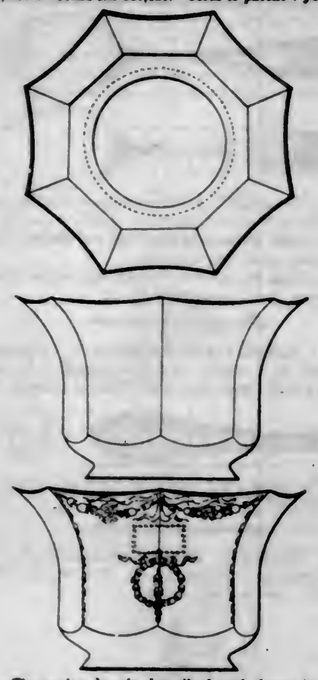
Claim.—The design for a tapping-hammer, substantially as shown and described.

26,639. CLIP. JEROME STIVERS, New Rochelle, N. Y. Filed Nov. 18, 1896. Serial No. 612,633. Term of patent 14 years.



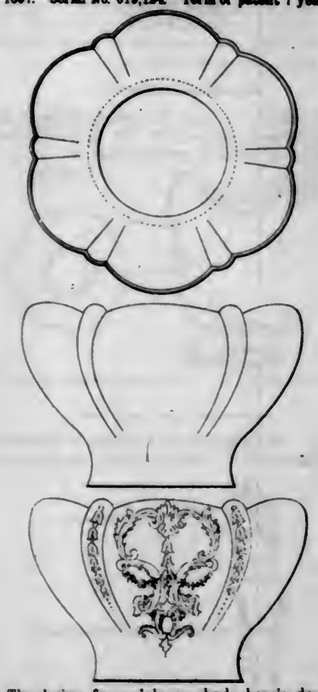
Claim.—The design for a clip substantially as herein shown and described.

26,640. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,123. Term of patent 7 years.



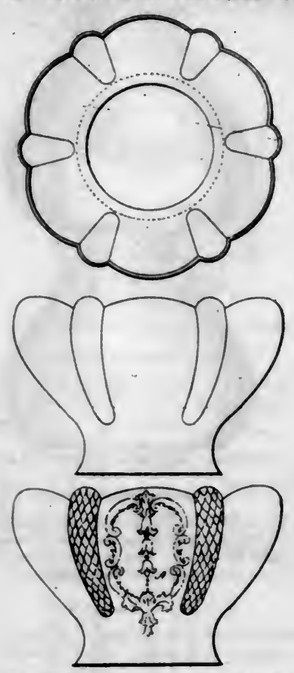
Claim.—The design herein described and shown in the accompanying drawing.

26,641. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,124. Term of patent 7 years.



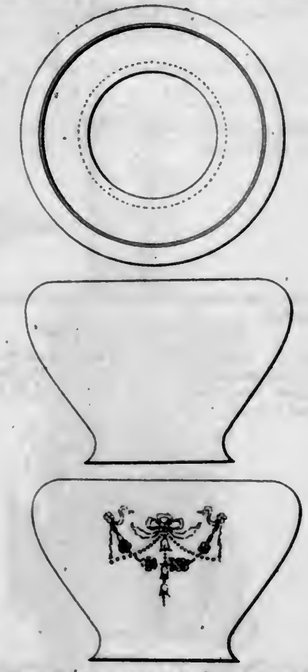
Claim.—The design for a globe or shade herein described and shown in the accompanying drawings.

26,642. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,125. Term of patent 7 years.



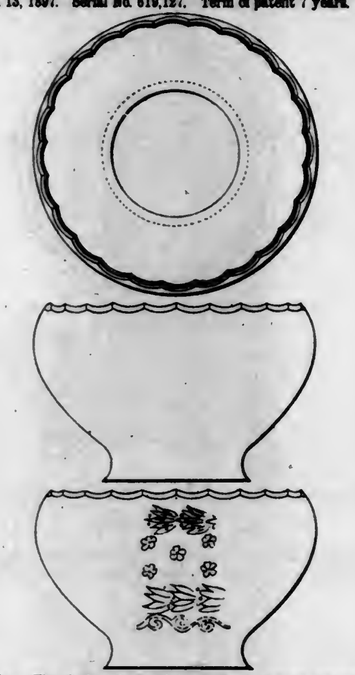
Claim.—The design for globes or shades, substantially as shown and described.

26,643. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,126. Term of patent 7 years.



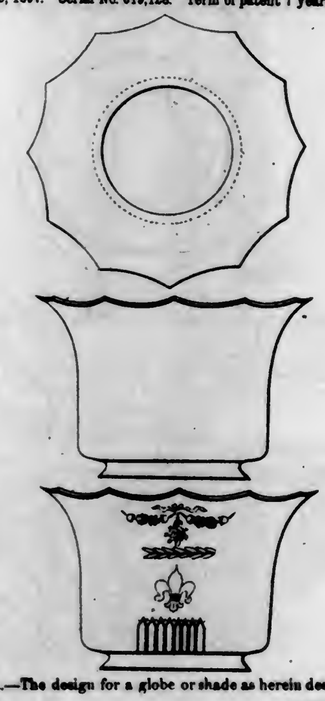
Claim.—The design for a globe or shade, as shown and described.

26,644. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,127. Term of patent 7 years.



Claim.—The design for a globe or shade herein described and shown.

26,645. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,128. Term of patent 7 years.



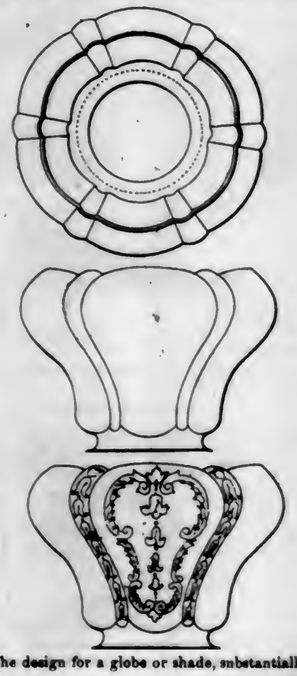
Claim.—The design for a globe or shade as herein described and illustrated.

26,646. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,130. Term of patent 7 years.



Claim.—The design for a globe or shade as described and shown.

26,647. GLOBE OR SHADE. EDWARD F. CALDWELL, New York, N. Y., assignor to the Phœnix Glass Company, Pittsburg, Pa. Filed Jan. 13, 1897. Serial No. 619,130. Term of patent 7 years.



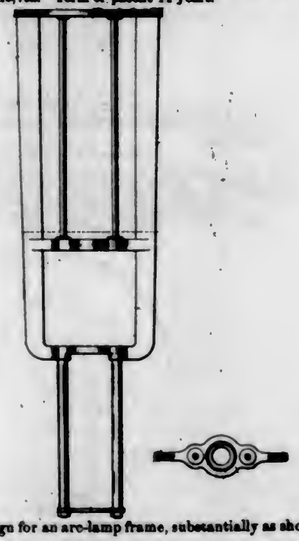
Claim.—The design for a globe or shade, substantially as shown and described.

26,648. LAMP-GLOBE. LAWRENCE M. CASEO, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Jan. 11, 1897. Serial No. 618,881. Term of patent 14 years.



Claim.—The design for globes substantially as shown and described.

26,649. ARC-LAMP FRAME. JOHN A. MOSHER, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Nov. 27, 1896. Serial No. 613,702. Term of patent 14 years.



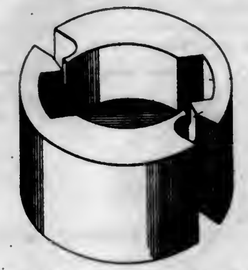
Claim.—The design for an arc-lamp frame, substantially as shown and described.

26,650. ELECTRIC-SWITCH BASE. GERALD W. HART, West Hartford, Conn., assignor to The Hart & Hegeman Manufacturing Company, Hartford, Conn. Filed Sept. 28, 1896. Serial No. 607,266. Term of patent 14 years.



Claim.—The design for a switch-base, substantially as described and shown.

26,651. ELECTRIC-SWITCH BASE. GERALD W. HART, West Hartford, Conn., assignor to The Hart & Hegeman Manufacturing Company, Hartford, Conn. Original application filed Sept. 28, 1896, Serial No. 607,266. Divided and this application filed Jan. 25, 1897. Serial No. 620,695. Term of patent 14 years.



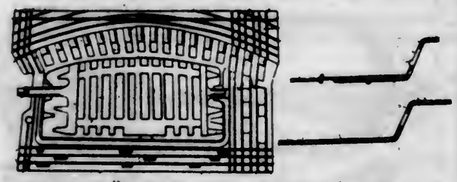
Claim.—The design for a switch-base, substantially as described and shown.

26,652. ANTIRATTLER. FREDERICK E. KOHLER, Canton, Ohio. Filed Jan. 2, 1897. Serial No. 617,846. Term of patent 7 years.



Claim.—The design for an antirattler, substantially as shown and described.

26,653. GRATE. ALBERT S. NEWBY, Kansas City, Mo. Filed Oct. 6, 1896. Serial No. 608,066. Term of patent 14 years.



Claim.—The design for front and bottom grates, as herein described and shown.

26,654. HEATING-STOVE. HERBERT L. MOSHER, Dowagiac, Mich. Filed Oct. 7, 1895. Serial No. 564,971. Term of patent 14 years.



26,654.



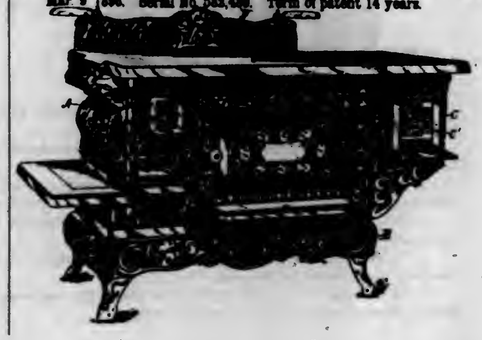
Claim.—The design for a heating-stove as herein described and shown.

26,655. HEATING-STOVE. HERBERT L. MOSHER, Dowagiac, Mich. Filed Oct. 7, 1895. Serial No. 564,972. Term of patent 14 years.



Claim.—The design for a heating-stove, as herein described and shown.

26,656. COOKING-STOVE. FRED R. LEE, Dowagiac, Mich. Filed Mar. 9, 1896. Serial No. 582,489. Term of patent 14 years.



Claim.—1. The design for a cooking stove or range substantially as described and shown.

2. In a design for a cooking stove or range the reservoir C with the hinged plate C' in connection therewith substantially as described and shown.

3. In a design for a cooking stove or range, the ornamental bracket or cresting D at the top of the same, substantially as described and shown.

26,657. STOVE OR RANGE. FRED R. LEE, Dowagiac, Mich. Filed Mar. 9, 1896. Serial No. 582,490. Term of patent 14 years.

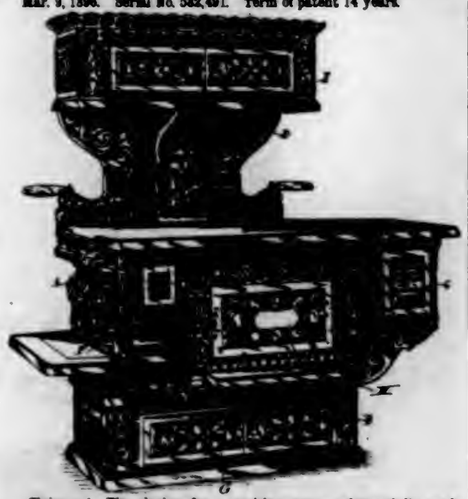


Claim.—1. The design for a cooking stove or range substantially as described and shown.

2. In a design for a cooking stove or range, the base B, substantially as described and shown.

3. In a design for a cooking stove or range the ornamental shelf-bracket D, substantially as described and shown.

26,658. STOVE OR RANGE. FRED R. LEE, Dowagiac, Mich. Filed Mar. 9, 1896. Serial No. 582,491. Term of patent 14 years.



Claim.—1. The design for a cooking-stove, substantially as described and shown.

2. In a design for a cooking stove or range the warming oven base, substantially as described and shown.

3. In a design for a cooking stove or range, the body portion A with its reservoir C to the rear, substantially as described and shown.

4. In a design for a cooking stove or range, the body portion A, substantially as described and shown.

5. In a design for a cooking stove or range, the reservoir C, substantially as described and shown.

6. In a design for a cooking stove or range, the supporting-bracket D, substantially as described and shown.

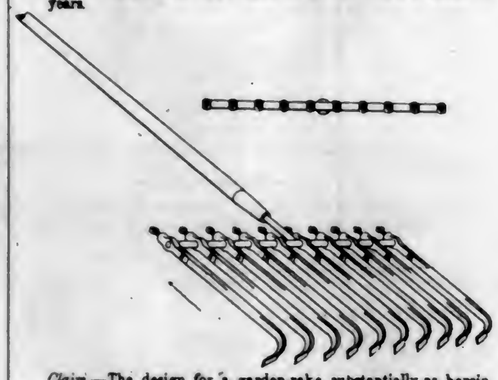
7. In a design for a cooking stove or range, the elevated oven E, substantially as described and shown.

8. In a design for a cooking stove or range the oven-door substantially as described and shown.

9. In a design for a cooking stove or range the warming-oven door G, substantially as described and shown.

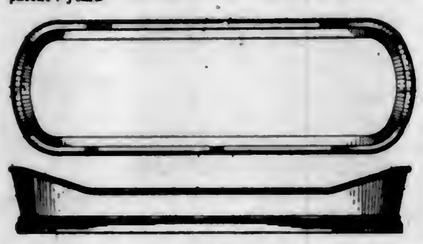
10. In a design for a cooking stove or range the fire-door F, substantially as described and shown.

26,659. RAKE. AUGUST WILHELM HEINRICH WOLLESKI, Bloomington, Ill. Filed Dec. 29, 1896. Serial No. 617,409. Term of patent 14 years.



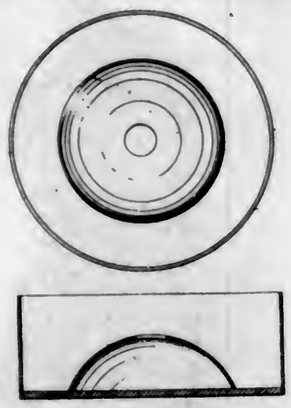
Claim.—The design for a garden-rake, substantially as herein shown and described.

26,660. BASE FOR CASKETS. WILLIAM A. SPARKS and LEO STEIN, Hoboken, N. J. Filed Sept. 17, 1896. Serial No. 606,183. Term of patent 7 years.



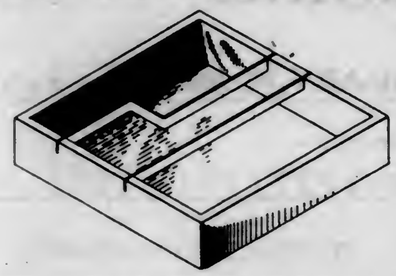
Claim.—The design for the base of a casket, substantially as herein shown and described.

26,661. PUZZLE-BOX. SIDNEY A. CROM, New York, N. Y. Filed Jan. 2, 1897. Serial No. 617,844. Term of patent 3½ years.



Claim.—The design for a puzzle box or casing herein shown and described.

26,662. PUZZLE-BOX. CHARLES J. HARTLEY, Decatur, Ill. Filed Jan. 4, 1897. Serial No. 617,962. Term of patent 3½ years.



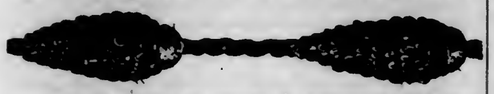
Claim.—The design for a puzzle-box herein shown and described.

26,663. SHOE. ALFRED A. KOHN, Montgomery, Ala. Filed Nov. 11, 1896. Serial No. 611,761. Term of patent 14 years.



Claim.—The design for shoes herein shown and described.

26,664. ROPE FOR PORTIÈRES, &c. ISIDOR DREYFUS, New York, N. Y. Filed June 30, 1896. Serial No. 597,646. Term of patent 7 years.



Claim.—The design for a rope for rope portières and lambrequins, substantially as herein shown and described.

26,665. FABRIC. JOSEPH H. WIDDER, Orange, N. J. Filed Dec. 31, 1896. Serial No. 617,660. Term of patent 14 years.



Claim.—The design for a fabric, substantially as herein shown and described.

26,666. FABRIC. JOSEPH H. WIDDER, Orange, N. J. Filed Dec. 24, 1896. Serial No. 617,375. Term of patent 14 years.



Claim.—The design for a fabric, substantially as herein shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 16, 1897.

29,574. PLAYING-CARDS. ANDREW DOUGHERTY, New York, N. Y. Filed Dec. 24, 1896.



Essential feature.—A symbolic representation of a black cat, either by word or picture. Used since November 11, 1896.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Third Circuit.

CAMPBELL *et al. v.* RICHARDSON *et al.*

Decided October 16, 1896.

1. DE LONG—GARMENT-HOOK—VALID—NOT INFRINGED.
Letters Patent No. 462,473, granted November 3, 1891, to Frank E. De Long, for a garment-hook, construed and *Held* valid and not infringed.

2. CLAIM—CONSTRUCTION OF.
The words "substantially as described" may be part of a claim and control its construction. They may not be omitted from the claim in order to give it a broader construction.

APPEAL from the Circuit Court of the United States for the Western District of Pennsylvania.

STATEMENT OF THE CASE.

This was a suit in equity by William Campbell and J. J. Smith against Thomas De Q. Richardson and others for alleged infringement of a patent for an improvement in garment-hooks. The circuit court sustained the patent and found that defendants had infringed, and decreed accordingly. (74 O. G., 807; 72 Fed. Rep., 525.) The defendants have appealed.

Before DALLAS, BUTLER, and WALES, Judges.

Mr. Geo. H. Christy and *Mr. Wm. L. Pierce* for the appellants.

Mr. Wm. C. Strawbridge and *Mr. Frederick P. Fish* for the appellees.

BUTLER, *J.:*

The bill charges infringement of the first claim of Letters Patent No. 462,473, dated November 3, 1891, for an invention of Frank E. De Long. The claim reads as follows:

1. A garment-hook consisting of a shank, a hook proper, and a tongue continuous of each other, said tongue being looped and normally closing the space between the shank and hook proper and having its free end returned to the rear of the shank, substantially as described.

The respondents' hook, which is charged to infringe, is similar in construction to the complainants', except that the free end of the wire of which it is formed is cut off near the rear of the shank.

The only question which need be considered is one arising upon the construction of the claim. Looped or "humped" hooks were not invented by De Long, but were very old. He had taken out two patents for improvements in them, as the record shows, which are undistinguishable from that of his third patent, now involved, except in the single feature hereinafter noted. The free end of the wire in each of his former hooks were cut off forward and so bent as to avoid danger of injury to the garment on which it might be used. Of course it is unimportant whether the loop be formed by bending the wire upward or downward or whether it be placed in what the patent calls the "hook proper" or in the shank opposite, and it is equally unimportant whether the free end of the wire be carried to the rear or terminated sooner. If, therefore, the words "substantially as described" be omitted from the claim and the preceding language be taken literally, nothing new would be embraced, and the claim would consequently be invalid. This seems to be clear, for there would be nothing, as we have seen, to distinguish the hooks thus described from those of De Long's former patents, except the merely formal differences before stated, the end of the wire when cut off at the rear of the shank serving no purpose that is not as well served by cutting it farther forward, as provided for in the earlier patents. The words referred to cannot, however, be omitted. They are part of the claim and control its construction. The hook named therein is the one described in the specification and drawings. The claim expressly so declares. The only hook thus described, either in the specification or drawings, is one with the free end of the wire carried to "the rear of the shank, and there formed into an eye," giving to the hook three eyes by which to attach it instead of two, as formerly. The drawings show this peculiar hook, and no other, and the specification describes it particularly, declaring it to be an "embodiment of the invention," and does not suggest any other. Indeed, the language of the specification seems to preclude the belief that any other was thought of. It is as follows:

The free end of the jaw is provided with an eye 8, which is adjacent to the eyes 4 and disconnected therefrom, it being noticed that the jaw is elastic in its nature and may yield when subjected to superior pressure, this being occasioned when the eye to be connected with the hook is presented to the jaw and forced past the same, so that said jaw opens and allows said eye to reach the bend 3, on the inner side of which it is seated, the jaw then being closed and controlling said eye. The eye formed on the end of the jaw is secured in a manner similar to eyes 4 4, so that the resiliency of said jaw is increased and the jaw more

Fig. 1. Fig. 2. Fig. 3.



firmly sustained in its normal position. The eyes 4 and 8 provide means for connecting the hook with the garment or other place of service, said eye 8 also preventing the jaws from presenting an exposed edge.

It is thus seen that a special function is ascribed to the peculiar disposition made of the free end of the wire.

The suggestion that this construction leaves no distinction between the first and following claims has no force. The fault is not in the construction, but in the language of the claims and the specification and drawings. Such similarity in claims is not unfrequent in patents where several are founded on a single novel feature in a device. Patentees seem fond of multiplying claims, inspired probably by a fear that they may not otherwise get all they are entitled to. Here the first claim covers all the novelty to be found in either the specification or drawings.

With the claim thus construed the respondents' hook does not infringe. It is in all material respects similar to that of De Long's first patent.

The decree must be reversed and the bill dismissed, with costs.

U. S. Circuit Court of Appeals—Third Circuit.

MCDOWELL *et al. v.* KURTZ.

Decided October 26, 1896.

1. KURTZ—PIPE-THREAD PROTECTOR—VALID.
   Letters Patent No. 440,168, granted November 11, 1890, to John A. Kurtz, for a band for protecting screw-threads of pipes, *Held* valid.
2. SAME—PUBLIC ACQUIESCENCE.
   Where plaintiffs have manufactured and sold their device without opposition for upward of five years, there is sufficient proof of public acquiescence, and it is immaterial that a large number of their devices were not marked "Patented" when it appears that enough were so marked to give general notice of the patent.
3. INJUNCTION—DISTRICT JUDGE HOLDING CIRCUIT COURT.
   The authority of a district judge when holding a circuit court under Revised Statutes, section 609, is coextensive with that of any judge sitting in the same court, and the restrictions of Revised Statutes, section 719, relative to the granting of injunctions by district judges do not apply.

APPEAL from the Circuit Court of the United States for the Western District of Pennsylvania.

STATEMENT OF THE CASE.

This was a suit in equity by Jacob H. Kurtz, trading as the National Manufacturing Company, against D. F. McDowell and others, trading as the Pittsburg Ring Company, to restrain the infringement of a patent. From an interlocutory order granting a preliminary injunction defendants appeal.

Before ACHESON, DALLAS, and WALES, Judges.

Mr. James C. Boyce for the appellants.

Mr. Wm. L. Pierce for the appellee.

ACHESON, *J.:*

This is an appeal from an interlocutory order or decree granting a preliminary injunction restraining the appellants, who were the defendants below, from infringing Letters Patent No. 440,168, for a band or ring for the protection of the screw-threads of pipes, granted on November 11, 1890, to John A. Kurtz and now owned by the appellee, the plaintiff below. The court below held that the defendants infringed the first claim of the patent, which claim is as follows:

1. The device for protecting the screw-threaded ends of pipes, consisting of a band provided with flanges on each end of the band and adapted to engage the screw-threads of the pipes, substantially as set forth.

The court below was of the opinion that none of the prior devices brought to its attention anticipated the device of the Kurtz patent and that the bands or rings manufactured by the defendants were a clear infringement of the first claim of that patent. The court further found that for upward of five years the plaintiff had continuously manufactured rings under the patent, and had built up a large trade therein, without any attempt to infringe on the part of others, until the defendants—

who, during negotiations for a contemplated purchase of complainant's plant, business, and patents, had full opportunity to examine complainant's methods, inspect his machinery, and learn the growing character of his business—

began shortly before the bringing of this suit to manufacture the rings complained of. Four objections have been urged to the decree which is before us for review, and these objections we will consider in the order in which they are stated in the brief of the appellants' counsel.

First. It is insisted that the alleged infringement is not shown to be clear and free from doubt. It is to be noted, however, that the patented device is simple in construction and operation and is easily understood. The case is one in which infringement is determinable upon a mere inspection of the two rival devices. After a thorough examination of the earlier patents, which were cited in the court below in opposition to the allowance of an injunction and are relied on here as sustaining assignments of error, we are not able to see that the Kurtz invention was anticipated by any of them. It may be that this field of invention was narrow when Kurtz entered it and that the first claim of the patent in suit is to be construed strictly. Nevertheless the owner of the patent is to be protected from colorable changes in matters of pure form. The judgment of the court below was that the difference between the protecting-ring of the Kurtz patent and the defendants' ring was one of mere form and not of substance and that—

so far as means, methods, and functions go, the gist of the two devices is the same.

This conclusion appears to us to be correct. We cannot discover any material difference between the two devices. They do the same work in substantially the same way and accomplish substantially the same result.

Second. The second stated objection to the interlocutory decree is—

that the patent has never been sustained by a court, nor sufficiently acquiesced in by the public.

To this it is enough to say that until the defendants began to infringe the plaintiff had no occasion to apply to the courts to protect his patent and that if public acquiescence need be shown to entitle the owner of a valid patent to a preliminary injunction against clear infringement such acquiescence satisfactorily appears here in the facts stated in the opinion of the court below. It is shown, indeed, that a large number of the plaintiff's rings were not marked "Patented;" but a sufficiently large number of them were so marked to give general notice that the ring was patented. There was ample proof of public acquiescence.

Third. We do not think that sufficient doubt as to whether Kurtz was the original inventor of the

patented ring to defeat the application for the preliminary injunction was raised by the affidavit of Harry Hipwell, especially in view of the rebuttal affidavits upon that subject.

Fourth. The fourth objection is based upon the provisions of section 719 of the Revised Statutes of the United States relating to the issuing of an injunction by a district judge; but that section does not apply to this case. (*Vulcanite Co.* v. *Folsom*, 3 Fed. Rep., 509.) The injunction here was not issued by the district judge under section 719. When the case was heard below and the injunction was granted, the district judge was holding the circuit court under section 609 of the Revised Statutes of the United States, and his authority was coextensive with that of any other judge sitting in the same court. (*Robinson* v. *Satterlee*, 3 Sawy., 134, 140; Fed. Cas., No. 11,967.) Therefore his action in granting the injunction had the same force and effect as if the court had been held by the circuit justice or a circuit judge or by a full bench. (*Industrial & Mining Guaranty Co.* v. *Electrical Supply Co.*, 7 C. C. A., 471; 58 Fed. Rep., 732, 737.) The decree appealed from is the decree of the circuit court.

Upon a careful consideration of the whole record it seems to us that the proofs justified the allowance of a preliminary injunction, and therefore the interlocutory decree granting the same is affirmed.

U. S. Circuit Court of Appeals—Third Circuit.

GREEN *et al. v.* AMERICAN SODA FOUNTAIN COMPANY.

Decided January 18, 1897.

1. WITTING—DISPENSING APPARATUS FOR SODA-WATER—VOID.
   Letters Patent No. 414,272, granted November 5, 1889, to Theodore I. Witting, for improvements in dispensing apparatus for soda-water, examined in view of the prior art and *Held* void for want of invention.
2. NON-INVENTION.
   The particular way of hanging a door does not involve invention and is not sufficient to sustain the validity of a patent.

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Before DALLAS, BUTLER, and WALES, Judges.

Messrs. Strawbridge & Taylor and *Mr. Frederick P. Fish* for the appellants.

Mr. Joshua Pusey for the appellee.

WALES, *J.:*

This is a suit for the infringement of the second claim of Letters Patent No. 414,272, granted November 5, 1889, to Theodore I. Witting, for improvements in dispensing apparatus for soda-water, etc., and by him assigned to the American Soda Fountain Company, the complainant below.

The specification states that the—

invention * * * consists in the novel construction, combination, and arrangement of parts hereinafter set forth, and pointed out in the claims.

The principal defenses were, first, that the combination of the second claim of the patent, in view of the prior state of the art, did not involve invention, and, second, that the claim was for an unpatentable aggregation. On hearing on bill, answer, and proofs the circuit court overruled both defenses and entered a decree finding the defendants guilty of infringement, with the usual award for an injunction. The cause is now here on review.

The Witting patent is not for a primary invention, as will appear from the reading of the second claim, the validity of which is put at issue. The claim is as follows:

2. The combination of the outer case provided with a recess for containing glasses, drop-doors hinged to said case above said recess and having journaled therein keys or handles for operating the syrup-faucets, and laterally-movable syrup-cans and attached faucets located entirely within the case, for the purpose substantially as herein set forth.

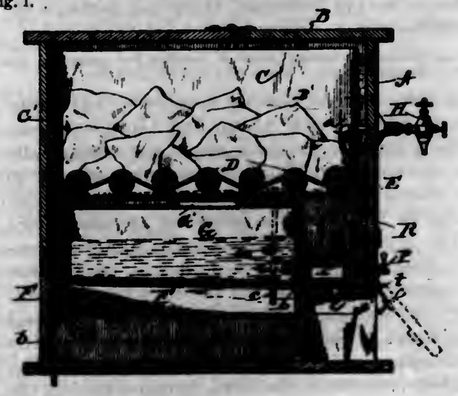
The combination thus described is alleged to be unpatentable for the want of invention by the patentee in the adjustment of the different parts, and which, although, perhaps, it may be a convenient arrangement, called for nothing more than the exercise of mechanical skill in bringing together the well-known devices of prior inventors.

The Witting apparatus belongs to that general class of soda-fountains in which the syrup-cans are horizontally inserted into that part of the casing which is below the ice-chamber. Along the lower portion of the entire front of the casing extends a tumbler-recess. Through the roof of this tumbler-recess are a series of apertures corresponding in location to the faucets of the cans, one to each faucet, so that when the faucet is opened the syrup drops through the aperture into the tumbler beneath. The front of the casing is provided with a series of doors, corresponding in number with the cans, hinged at their lower edges to the front edge of the roof of the tumbler-recess, so that they may be dropped down to permit of the insertion and removal of the cans. In each of these doors is journaled the stem of an externally-applied key or handle, the inner end of which stem, as the patent states, is—

preferably bifurcated or provided with a suitable slot, which engages the end 12 of the plug I, readily allowing the door to be opened when required, the slotted or forked end of the key being detached from the plug by the operation of opening the door.

This entire arrangement is described in the specification as follows:

The syrup-faucets being located within the refrigerating-chamber, it is obvious that some provision must be made for operating them from without, which is done by journaling suitable handles or keys P in the doors R and connecting their inner ends to the thumb-pieces or handles 12, formed on outer end of plug I. This may be done in various ways; but I prefer to hinge the doors to the case A at their lower ends by means of hinge *t*, so that said doors may open downwardly and out, as shown in Fig. 1.



To understand how much of originality or of invention there may be in the combination of the Witting apparatus, reference will be had to a few of the patents (in defendants' exhibits) for similar structures of a date prior to the patent in suit. The Mathews patent, No. 50,225, of October 3, 1865, shows the casing of a soda-water fountain which embodies a tumbler-recess and contains vertically-disposed cans the valve-controlled faucets or outlets of which register with openings in the roof of the tumbler-recess and the valve-stems of which are operated by handles passing through a hinged door in the top of the casing.

The Mathews patent, No. 179,584, of July 4, 1876, shows the casing of a soda-fountain which contains separate series of both horizontally and vertically disposed cans.

The Adami patent, No. 316,594, of April 28, 1885, shows a casing which is provided in its upper portion with an ice-chamber and in its central portion with a series of horizontal can-chambers for syrup-cans, within which a series of horizontally-disposed cans may be introduced, and the front face of which is provided with a series of doors hinged along the upper edge of the can-chambers and adapted to close said chambers to permit the introduction and removal of the cans.

The Lippincott patent, No. 375,452, of December 27, 1887, shows a soda-water apparatus the casing of which has a tumbler-recess, a series of vertically-disposed can-chambers in the front of the apparatus, orifices through the roof of the tumbler-recess, registering with the outlets of the faucets of the cans, and a series of vertically-disposed removable cans having syrup-faucets located entirely within the case and each of them provided with a lug or blade adapted to be separably engaged with the bifurcated inner extremity of a stem journaled within the front of the casing, the outer extremity of which stem is provided with a key or handle, by the movement of which from the outside of the case the faucet within the case is wholly controlled.

By comparing the separate parts of the Witting fountain with the corresponding parts of the prior structures, as described in the patents just referred to, it will be seen that Witting has not added a single new feature to those contained in one or the other of the old fountains, excepting, perhaps, the drop-doors—

having journaled therein keys or handles for operating the syrup-faucets.

In fact, all that Witting appears to have done was to imitate both Adami and Lippincott, and thereby produce the same results by substantially the same means. Thus there was no novelty in the insertion of syrup-cans from the front of the casing or in having the faucets of the cases fitted to the apertures in the roof of the tumbler-recess or in journaling keys in the casing for the purpose of operating the faucets of the cans from the outside. Adami showed how horizontally-disposed cans could be used with swinging doors hinged at their upper ends, and Lippincott, borrowing the tumbler-recess from Mathews, demonstrated for the first time the application of a handle journaled through the case, on which was a claw which engaged with the blade of the faucet of the syrup-can, by which he could manipulate the syrup from the outside of the case. In the specification of his patent Lippincott says:

The invention consists, primarily, in the combination, with a syrup-jar having a cock in the neck thereof, of a shaft projecting beyond the outer casing of the fountain and provided with a handle on its outer end for operating the key of said cock, the inner end of said shaft being constructed so that the jar, with the cock therein, may be readily removed from and replaced within the containing-chamber (or another similar jar substituted therefor) without necessitating the breaking or disturbance of any joints or connections; yet, when the jar is in place, the cock therein will be in engagement with said shaft and may be readily opened or closed by turning the handle on the end of the latter on the outside of the casing.

If this was all he did, it would not be contended that he was entitled to a patent, and this was the view taken by the Patent Office when Witting first formulated his claims. Having these two patents before his eyes, Witting applied the journaled key of Lippincott to the swinging door of Adami in the only way in which it could be done, and placed the cans and their faucets entirely within the casing, as Lippincott had done, and, finally, used the horizontally-disposed cans of Adami, and by this adjustment of parts secured the result which had already been accomplished by Lippincott—viz., the discharge of the syrup into the tumbler beneath by—

the adaptation of the valve-operating handle shown by Lippincott to the swinging door shown by Adami.

It is true there is a slight distinction between the united Adami and Lippincott inventions and the Witting patent, consisting in the fact that the Adami doors are hung from the top, while the Witting doors are hung from the bottom, and this appears from the proceedings in the Patent Office to have been the only ground on which the patent was granted. Witting's original application contained seven claims, which were finally reduced to two. The original fifth claim, as subsequently amended, is the present claim 2, now in suit, and reads as follows:

5. The combination of the outer case provided with a recess for containing glasses, doors hinged to said case and carrying keys or handles for operating the syrup-faucets, and syrup-cans and attached faucets located entirely within the case, for the purpose substantially as herein set forth.

This claim was rejected because—

deemed to involve no invention over what is shown in patents to Lippincott of record and Adami, 316,594, April 28, 1885, (dispensing-fountains.) The claim seems to involve nothing more than the adaptation of the valve-operating handle shown by Lippincott to the swinging door shown by Adami.

Several amendments followed until claim 5 was made to read as claim 2 now appears in the patent, thus, (the italicized words show the amendments:)

2. The combination of the outer case provided with a recess for containing glasses, *drop*-doors hinged to said case *above said recess* and *having journaled therein* keys or handles for operating the syrup-faucets, and *laterally-movable* syrup-cans and attached faucets located entirely within the case, for the purpose substantially as herein set forth.

Leaving out the "drop-doors," it appears that nothing new was added by Witting to the Adami-Lippincott structures. The Patent Office had, in the first place, decided that—

Lippincott is deemed to show the full equivalent of claims 5 and 7—

and again held, after claim 7 had been canceled, that claim 5 involved—

nothing more than the adaptation of the valve-operating handle shown by Lippincott to the swinging door shown by Adami.

It would seem, therefore, that the patent was granted to Witting only on the addition of the "drop-doors." It was evident to the Patent Office that the application of the Lippincott patent to the Adami patent did not amount to invention, and it was not until Witting, without making any other material amendment, limited his invention to drop-doors that his patent was granted. In avoidance of the reference to Adami, Witting states, "Adami's doors are hinged at the top; they cannot drop." If there is anything of which it can be possibly said that it has passed out of the domain of invention, it would seem to be the hinging of a door—that is, whether a door should be hinged at the top or bottom, at one side or the other, and made to open in any particular direction. The decision of such questions may be safely left to the judgment of a mechanic of ordinary skill and intelligence. It was a mere matter of mechanical choice with Witting to make a lift-door or a drop-door, and he preferred the latter. Lippincott journaled his key through the front casing in order to engage the stem of the handle with the valve of the faucet. Witting put in a door as Adami had done and journaled the key in the door, and in making use of the Adami door he was compelled to adopt Lippincott's method of using the key. The patents of Adami and Lippincott are not public property, and as Lippincott could not appropriate the former's invention by the application to it of his own neither should Witting be permitted to combine them by a mere mechanical adjustment which it required no invention to make.

For these reasons we are unable to concur with the circuit court in sustaining the second claim of the Witting patent. He has produced no new result, nor has he invented any novel and improved means of obtaining an old result. The whole object of his device is to discharge the syrup from the can-faucet through the aperture in the roof into the tumbler directly beneath it, and he attains this end in almost precisely the same way and by the same means which are shown in the Lippincott drawings. We do not regard the cutting of a door in front of the casing as proof of invention, since Adami has already preceded him in doing the same thing, and certainly there can be no invention in converting a lift-door into a drop-door.

In *Hoffman* v. *Young* (18 O. G., 794; 2 Fed. Rep., 74) the claim in a combination patent was sustained on the ground that it presented evidence of invention because a new result had been produced, though it was conceded the case was near the border-line of non-patentability. In *National Cash Register Co.* v. *American Cash Register Co.* (53 Fed. Rep., 369) this court decided that the invention there in suit was a primary one and that the result achieved by the inventor was absolutely and entirely new and had not by any means been previously attained. In each of these cases, cited by counsel for the appellees, the production of a new result is made the test of patentability. On the other hand, numerous authorities may be found in which patents for combinations in machinery and in compositions have been held void for want of invention. We refer to a few only. (*Vinton* v. *Hamilton*, 21 O. G., 557; 104 U. S., 485; *Heald* v. *Rice*, 21 O. G., 1443; 104 U. S., 737; *Thatcher Heating Co.* v. *Burtis*, 39 O. G., 587; 121 U. S., 121.) In *Aron* v. *Manhattan Railway Co.* (49 O. G., 1365; 132 U. S., 84) a patentee had made use of devices of earlier patents. All that he did was to adapt them to the special purpose to which he contemplated their application by making modifications which did not require invention, but only the exercise of ordinary mechanical skill. This was held insufficient to sustain his patent.

Having thus disposed of the first branch of the defense, it is unnecessary to discuss the question of aggregation, with which it is so closely connected.

We are of the opinion that the decree of the circuit court by which the second claim of the Witting patent was sustained should be reversed and the cause remanded, with directions to dismiss the bill, and it is so ordered.

U. S. Circuit Court of Appeals—Second Circuit.

TARRANT & CO. *v.* HOFF.

Decided October 21, 1896.

1. TRADE-MARKS AND TRADE-NAMES—"HOFF'S MALT EXTRACT"—INFRINGEMENT—UNFAIR COMPETITION.

When a trade has been built up for "Johann Hoff's Malt Extract" or "Hoff's Malt Extract," a branch house conducted by Leopold Hoff, manufacturing such extract in competition with another branch or with the original business, may not use the name "Hoff" without indicating which of the Hoff family is the maker.

2. TRADE-NAME—UNFAIR COMPETITION.

It is unfair to conspicuously use the name "Hoff" upon the face of the bottle containing malt extract made by Leopold Hoff and to use a small side label containing the statement that Leopold Hoff is the manufacturer, when another man by the name of Hoff was in the same business under his own name before Leopold Hoff.

3. TRADE-MARK—IMMATERIAL MISREPRESENTATION—EQUITABLE RELIEF.

Equitable relief for infringement of a trade-mark will not be denied by reason of inaccurate statements in the complainant's labels when such statements are immaterial.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

STATEMENT OF THE CASE.

This is an appeal by the defendant from a decree of the Circuit Court for the Southern District of New York enjoining defendant from using the words "Hoff's Malt Extract" on its labels or advertisements unless preceded by the name "Leopold." The circuit court refused any further relief to complainant, and directed the decree to be entered without costs. In such disposition of the case complainant acquiesced, and it has taken no appeal. Both parties are corporations. The opinion of the circuit court in the case at bar is reported in 71 Fed. Rep., 163, and an opinion of the same court in an earlier action between Johann Hoff (the individual after whom complainant is named and from whom its rights are derived) and this same defendant will be found on file in that court under date of April, 1886.

Before WALLACE, LACOMBE, and SHIPMAN, Judges.

Mr. Fisher A. Baker for the appellant.
Mr. Chas. G. Coe for the appellee.

PER CURIAM:

In affirming this decree it does not seem necessary to add anything to the discussion of the law and the facts contained in the opinion of the circuit court. The proposition contended for that a person has a right to use his own name in his business was fully accepted by that court, and nothing in the decree prevents Leopold Hoff from selling as his own the malt extract which he makes and disposes of in this country through the defendant corporation as his selling agent. Upon the argument in this court defendant's counsel conceded the correctness of the first proposition set forth in the opinion below—viz., that complainant has the right to sell in the United States "Johann Hoff's Malt Extract" under the old labels and trade-marks used in Germany for many years. And defendant has not in either court contended that it can sell the Johann Hoff extract or use the Johann Hoff labels. That a malt extract has been known in the commerce of this country for years as "Hoff's Malt Extract" and has been dealt in under that name is proved by both sides. In view of the elaborate and specific statements contained in the contract of 1869, entered into by defendant, by Johann Hoff, (the individual,) and by Leopold Hoff, we concur in the conclusion of the circuit court that the extract thus called, which was introduced into this country by Leopold with the concurrence and pecuniary assistance of his uncle Johann and sold for twenty years by defendant under this contract of 1869, was recognized by all parties as "Johann Hoff's Malt Extract," whether made in whole or in part at the original Berlin factory or at any of the so-called branch houses which existed when the extract began to come to this country and entered into commerce here under either the name "Johann Hoff's" or simply "Hoff's." Whether the branch houses have ceased to be branches, whether the article now made in any one of them is the same or better or worse than that made in any other, is immaterial. To allow any one of them to advertise and offer for sale under the single name of "Hoff's," without indication as to which of the family is the maker, would make it easy to delude the purchasing consumer into buying one kind when he wants another. Equally with the judge who heard the cause in the circuit court, we are at a loss to understand how it is that defendant practically concedes this proposition by affixing a perpendicular side label to its bottles having printed thereon "Manufactured by Leopold Hoff," and yet objects to imparting this information so plainly that there can be no mistake or confusion. Manifestly the perpendicular side label is inconspicuous, and would be easily overlooked by the retail purchaser, and without the statement that the extract is "Leopold Hoff's" he might readily be deceived by the representation on the face of the horizontal label that it is "Hoff's" and be induced to purchase it as the "Hoff's" he has always known, when, in fact, it is not. Courts in such cases do not require proof of any peculiarly iniquitous "perfidious dealing." If the representation as to what or whose the goods are is calculated to deceive the purchaser into buying them as goods of the complainant, equity will enjoin its continuance, although the "deceitful representation" was placed upon them carelessly or from lack of appreciation of the meaning it would convey to the purchaser or from an honest mistake as to defendant's right to use it.

Nor do we find that complainant is disentitled to relief in equity by reason of any false representations in its own labels as to the place of origin of the extract it sells. Some of the statements they contain, survivals from the older labels, are not now strictly accurate, notably the words "Moritz Fisher, Sole Agent for U. S. of America;" but they are immaterial. The labels certainly contain no statement that the extract is made in Germany, while the record shows that complainant has been to no inconsiderable expense to advertise its new industry of manufacturing the "Johann Hoff's Malt Extract" in this country. The criticism that its label states that there is such a factory and brewery in New York, when complainant's is at Newark, is too trivial to merit discussion.

The decree of the circuit court is affirmed, with costs of this appeal.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 78—No. 8. TUESDAY, FEBRUARY 23, 1897. PRICE—$5 per year.

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Powers of Attorney.

Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

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Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.	Netherlands.
Argentine Republic.	Norway.
Belgium.	Peru.
Brazil.	Portugal.
Costa Rica.	Russia.
Denmark.	San Salvador.
Haiti.	Servia.
Honduras.	Sweden.
Italy.	Switzerland.
Mexico.	

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Price of Printed Copies of Specifications and Drawings.

(ORDER No. 1,094.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 25, 1896.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1896.

JOHN S. SEYMOUR,
Commissioner.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electrical Engineer, New York, a weekly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1895.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Delivery of Patent.

The patent will be delivered or mailed on the day of its date to the attorney of record, if there be one; if not, to the patentee; or, if the attorney so request, to the patentee or assignee of an interest therein.

PRINT.

45.—Title: "CUT No. 567, G. V." *Isaac E. Palmer*, Middletown, Conn. Application filed January 19, 1897.

Issue of February 23, 1897.

Patents	424—	No. 577,406 to No. 577,829, inclusive.
Designs	29—	No. 26,667 to No. 26,695, inclusive.
Trade-Marks	37—	No. 29,575 to No. 29,611, inclusive.
Prints	1—	No. 45.
Labels	None.	
Reissues	None.	
Total issue	491	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	3	.....	New Hampshire	3	.....
Arizona Territory	.....	.....	New Jersey	11	.....
Arkansas	2	.....	New Mexico Territ'y	.....	.....
California	13	2	New York	76	11
Colorado	7	.....	North Carolina	2	.....
Connecticut	22	3	North Dakota	1	.....
Delaware	.....	.....	Ohio	16	1
District of Columbia	6	.....	Oklahoma Territory	3	.....
Florida	1	.....	Oregon	4	.....
Georgia	3	1	Pennsylvania	61	5
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Illinois	45	1	South Carolina	.....	.....
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Iowa	5	.....	Texas	5	.....
Kansas	5	.....	Utah	.....	.....
Kentucky	6	.....	Vermont	2	1
Louisiana	3	1	Virginia	2	.....
Maine	1	.....	Washington	.....	1
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Minnesota	7	.....	U. S. Army	.....	.....
Mississippi	3	.....	U. S. Navy	.....	.....
Missouri	11	1			
Montana	1	.....	Total to citizens of the United States	409	34
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Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
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Australia	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	1	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	.....	.....
Belgium	.....	.....	New Zealand	1	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Orange Free State	.....	.....
Canada	4	.....	Portugal	.....	.....
Canary Islands	.....	.....	Queensland	.....	.....
Cape Colony	.....	.....	Russia	.....	.....
Ceylon	.....	.....	Scotland	.....	1
Chile, Republic of	.....	.....	South African Republic	.....	.....
China	1	.....	South Australia	.....	.....
Cuba	.....	.....	Straits Settlements	.....	.....
Denmark	.....	.....	Sweden	.....	.....
England	18	.....	Switzerland	1	1
France	4	1	Victoria	1	.....
Germany	13	.....	West Australia	.....	.....
Guatemala	.....	.....			
India	.....	.....			
Ireland	.....	.....	Total to citizens of foreign countries	44	4
Italy	.....	.....			

APPLICATIONS UNDER EXAMINATION.

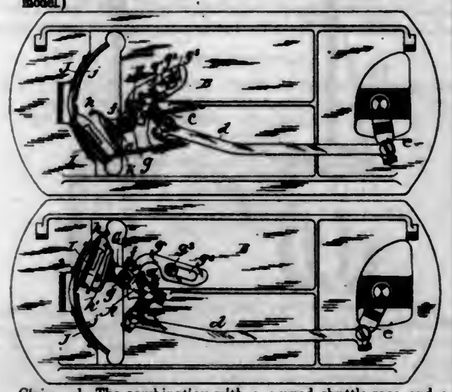
Condition at Close of Business February 16, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
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120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 31	Jan. 6	196
240	VII. Harvesters, Games and Toys, and Velocipedes.	Jan. 2	Jan. 4	1149
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Dec. 16	Jan. 2	531
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 21	Dec. 26	506
102	XIX. Stoves and Furnaces	Dec. 19	Dec. 26	436
248	XVIII. Steam-Engineering, etc	Dec. 19	Dec. 24	220
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 16	Dec. 21	280
	Total number of applications awaiting action			9,922
	Under one month in arrears.			
	Designs	Jan. 25	Feb. 3	208
	Trade-Marks	Feb. 4	Jan. 21	56

PATENTS

GRANTED FEBRUARY 23, 1897.

577,406. VIBRATING-SHUTTLE SEWING-MACHINE. EDWARD R. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Oct. 10, 1896. Serial No. 608,457. (No model.)



Claim.—1. The combination with a curved shuttle-race and a shuttle fitted to run against the same, of a two-horned vibrating-shuttle driver which swings from or on a center or pivot nearer to the said race than the center from which the arc of the shuttle-race is described, and means for vibrating said shuttle-driver on its pivot and for moving it back and forth bodily; whereby said shuttle-driver will be so moved relatively to said shuttle as to cause its horns to be alternately engaged with and disengaged from said shuttle as the latter is moved to and fro.

2. The combination with a curved shuttle-race and a shuttle fitted to run against the same, of a two-horned shuttle-driver, a rocker or vibrating lever to which said driver is pivoted between the fulcrum or center of motion of said rocker or lever and said shuttle-race, and means for vibrating said driver on its pivot and for moving it back and forth bodily; whereby the horns of the driver are caused to be alternately engaged with and disengaged from said shuttle as the latter is moved to and fro.

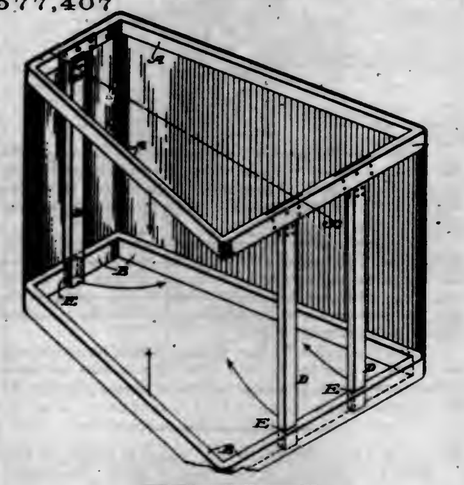
3. The combination with a curved shuttle-race having an undercut rib and a shuttle fitted to run against the same, and having a groove into which said rib closely fits, of a two-horned shuttle-driver, a rocker or vibrating lever to which said driver is pivoted between the fulcrum or center of motion of said rocker or lever and said shuttle-race, and means for vibrating said driver on its pivot and for moving it back and forth bodily; whereby the horns of the driver are caused to be alternately engaged with and disengaged from said shuttle as the latter is moved to and fro.

4. The combination with a curved shuttle-race having an undercut rib and a shuttle having a curved face grooved to receive said rib, of a rocker or vibrating lever, a two-horned shuttle-driver pivoted to said rocker or lever at a point between the pivot of the latter and said shuttle-race, said shuttle-driver having a tailpiece provided with a slot, and a fixed pin entering said slot and serving to vibrate said driver on its pivot to cause its horns to be alternately engaged with and disengaged from said shuttle as said driver is carried back and forth bodily by said rocker or lever.

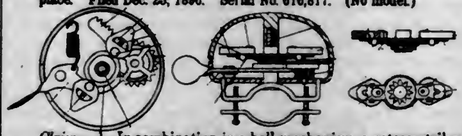
577,407. VAPOR-BATH CABINET. WILLIAM L. ANDERSON, Philadelphia, Pa., assignor to L. C. Anderson and Charles Schaal, same place. Filed May 20, 1896. Serial No. 593,542. (No model.)

Claim.—A vapor-bath cabinet, having upper and lower frames, legs at its opposite ends hinged to one of said frames and having their other ends seated in recesses in the other frame, a flexible covering having an opening in its top with a slit extending therefrom, a slitted collar in said opening, and means for closing said slit and collar.

577,407



577,408. BICYCLE-BELL. PHILIP C. ARNOLD, East Hampton, Conn., assignor to The Bevin Brothers Manufacturing Company, same place. Filed Dec. 23, 1896. Serial No. 616,817. (No model.)



Claim.—1. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted and having a limited sliding movement thereon, and a striker pivoted to the carrier-plate and projecting beyond the outer end thereof.

2. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted and having a limited sliding movement thereon, a striker pivoted to the carrier-plate and projecting beyond the outer end thereof, and stops to limit the swinging movement of the striker.

3. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted and having a limited sliding movement thereon, a striker pivoted to the carrier-plate and projecting beyond the outer end thereof, and a pin projecting through a lateral slot in the striker.

4. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted to slide thereon, stops located on the carrier-plate and adapted to engage the striker-bar, and a striker pivoted to the carrier-plate and projecting beyond the outer end thereof.

5. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted to slide thereon, an upturned lug from the striker-bar projecting through a lengthwise slot in the carrier-plate, and a striker pivoted to the carrier-plate and projecting beyond the outer end thereof.

6. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted to slide thereon, a striker pivoted to the carrier-plate and projecting beyond the outer end thereof, and an uptured lug from the striker-bar, projecting through a lengthwise slot in the carrier-plate and into a lateral slot in the striker.

7. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted to slide thereon, projections from the carrier-plate adapted to embrace the striker-bar, and a striker pivoted to the carrier-plate and projecting beyond the outer end thereof.

8. In combination in a bell mechanism, a rotary striker-bar, a carrier-plate loosely mounted to slide thereon, projections from the carrier-plate adapted to embrace the striker-bar, a striker pivoted to the carrier-plate, and an upturned lug from the striker-bar projecting through a lengthwise slot in the carrier-plate and into a lateral slot in the striker.

577,409. TILTING CASE OR CRATE. GEORGE W. BANKER, Keene, N. Y. Filed Feb. 29, 1896. Serial No. 581,307. (No model.)

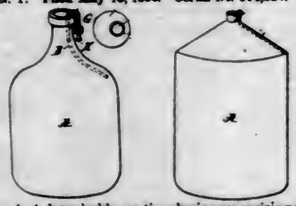


Claim.—1. The combination of a base, uprights thereon, axes on the uprights, composed of headed bolts, nuts on the outer ends thereof, and a hook or latch, adapted to swing over the ends of the axes and nuts, when the same are in their inward position, for the purposes set forth.

2. The combination of a base, uprights thereon, axes on the uprights, a crate having a pair of holes near its upper edge, one on each side of the crate, said holes being at the same distance from the bottom of the crate, that the axes are from the upper surface of the base, and a second pair of holes in the crate, below the first-named pair, for the purposes set forth.

3. The combination of a base, uprights thereon, movable axes on the uprights, a crate having holes in its opposite sides, and means applied to the axes to insure their permanent inward projection, for the purposes set forth.

577,410. VENTING DEVICE. GEORGE W. BANKER, Au Sable Forks, N. Y. Filed May 13, 1896. Serial No. 591,337. (No model.)



Claim.—1. A detachable venting device comprising a substantially rigid tube adapted to enter the vessel, and a spring-holding device attached at or near the outer end thereof, adapted to engage with the exterior of the neck of the vessel, for the purposes set forth.

2. A detachable venting device, comprising a substantially rigid tube bent to conform to the shape of the interior of the vessel, in conjunction with which it is to be used, and a spring-holding device attached at or near the outer end thereof, adapted to engage with the exterior of the neck of the vessel, for the purposes set forth.

3. A detachable venting device comprising a substantially rigid tube, and a spring-holding device attached at or near the outer end thereof, constructed and arranged to engage with the exterior of the neck of the vessel at more than one point for the purposes set forth.

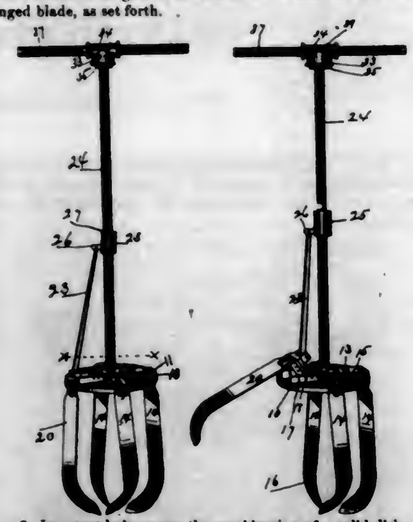
4. A detachable venting device comprising a substantially rigid tube bent upon itself, so that when in operative position, it will be partly inside and partly outside of the neck of the vessel, and a rotary disk eccentrically connected with said tube, for the purposes set forth.

5. A detachable venting device comprising a substantially rigid tube bent upon itself, so that when in operative position, a portion of it is inside and a portion outside of the neck of the vessel, means attached to the tube, and adapted to engage the exterior of the neck of the vessel, and reinforcing or strengthening material located at the curve in the tube, for the purposes set forth.

577,411. POST-HOLE AUGER. ALEXANDER O. BARNES, Des Moines, Iowa, assignor to J. G. Jordan, same place. Filed June 26, 1893. Serial No. 478,206. (No model.)

Claim.—1. A post-hole auger comprising a solid disk, a stem secured to said disk, a handle secured to said stem, four cutting-blades radially adjustably secured to said disk, one of said blades being hinged to said disk, and means for oscillating said hinged blade, the points of said blades being torsionally bent.

2. A post-hole auger comprising a stem, a disk secured to one end of said stem, a ratchet-handle secured to the other end of said stem, cutting-blades radially adjustably secured to said disk, one of which blades is hinged to said disk, and means for operating said hinged blade, as set forth.



3. In a post-hole auger, the combination of a solid disk, means for rotating the same, and blades fixed to said disk, each of said blades comprising a longitudinally-straight body portion 14 in a vertical plane, a head 15 fixed to the body portion at right angles thereto, said body portion being torsionally bent at its juncture with said head portion, and a point formed on the end of said body portion opposite to said head and bent torsionally at 16, thereby positioning said point at an angle of about forty-five degrees from the horizontal when the auger is employed in a vertical bore, each said blades on the forward side of said point portion and the corresponding side of said body portion having a cutting edge, the several blades when assembled having the axial lines of their body portions parallel to the principal axis of the auger.

4. In a post-hole auger the combination of four cutting-blades, the lower ends of which blades are torsionally bent, heads formed on said blades, a disk, three radial slots in said disk, webs on the opposite sides of said slots, the heads of three of said blades being respectively positioned between said webs, bolts passed through said slots and heads, whereby said three blades are secured to the disk, flanges formed on and extending upward from said disk, the fourth blade hinged to said flanges, means for oscillating said fourth blade, and means for rotating said disk on an axis common to said blades, the longitudinal axes of the body portions of said blades being vertical and parallel to each other.

5. A post-hole auger having a disk and means for rotating the same, three blades fixed to said disk, flanges formed on said disk, a hinge pivoted between said flanges, an additional blade fixed to said hinge and means for oscillating said hinge conjunctively with the blade secured thereto.

6. A post-hole auger having a ratchet-handle, comprising a ratchet-plate on the stem, and a pin 39 reversibly mounted on the handle, and engaging said plate.

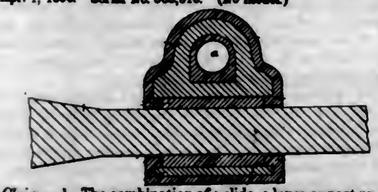
7. A post-hole auger having a stem and cutting devices secured thereto, a handle fixed to the upper end of said stem, and pawl-and-ratchet mechanism interposed between said stem and handle and connecting the same, whereby said stem may be rotated in a given direction by the reciprocation of said handle through an arc, as set forth.

8. A post-hole auger comprising a solid disk, four cutting-blades secured to said disk, three of said blades being fixed to said disk, the fourth blade being hinged to said disk, and means for rotating said disk, each of said blades comprising a longitudinally-straight body portion, a head portion bent at right angles to said body portion, said body portion being torsionally bent at its juncture with said head portion, and a point portion formed on the end of said body portion opposite to said head and bent torsionally at 16, each said blades on the forward side of said point portion and the corresponding side of said body portion having a cutting edge, the several blades when assembled having the axial lines of their body portions parallel to the principal axis of the auger

9. In a post-hole auger, a blade comprising a longitudinally-straight body portion, a head portion bent at right angles to said body portion, said body portion being torsionally bent at its juncture with said head portion, and a point portion formed on the end of said body portion opposite to said head portion but on the same side thereof, said point portion being helically bent at an angle of approximately forty-five degrees, and the forward side of said point portion and the corresponding side of said body portion having a cutting edge.

10. A post-hole auger comprising the following elements, to wit: a stem; a handle secured to said stem; a disk secured to said stem opposite to said handle; and cutting-blades secured to said disk, each of said cutting-blades being formed with a body portion, a head portion bent at right angles to said body portion, the body portion being bent torsionally at its juncture with the head portion, and a point portion formed on the end of the body portion opposite to the head portion and helically bent at 16, a cutting edge being formed on the forward side of the point portion and the corresponding side of the body portion; the several blades when assembled having the axial planes of their body portions parallel to the principal axis of the auger.

577,412. SLIDE-BOX. SAMUEL M. BLEVINS, Hiettsville, Ind., assignor of one-half to Thomas H. O'Donnell, Jeffersonville, Ind. Filed Apr. 1, 1896. Serial No. 585,816. (No model.)



Claim.—1. The combination of a slide, a lever or part upon which the same moves, a wear-plate between the slide and lever, and a strap fitting over the exterior of the slide and having portions that project in line with said wear-plate at opposite ends, substantially as and for the purpose specified.

2. The combination of a slide-box having a lever-receiving opening, a strap fitting over the exterior of the box, and having a rib projecting into each end of said opening, a lever and a wear-plate placed between the two ribs of the strap, substantially as and for the purpose described.

577,413. HOSE-COUPLING. NICHOLAS S. BRAY, Laurium, Mich. Filed Sept. 26, 1896. Serial No. 607,050. (No model.)



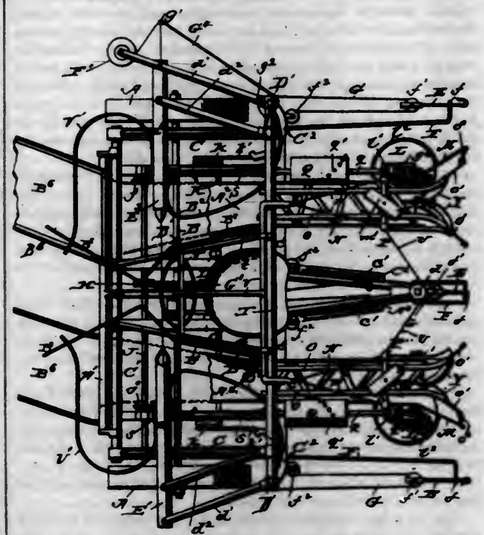
Claim.—A hose-coupling having interlocking male and female members provided with engaging beveled or inclined lugs, said male member having a reduced extension to fit within the extremity of the female member and being provided in the shoulder contiguous to its extension with a seat which is closed at its outer side and is open at the face of the shoulder, and a washer removably fitted in said seat and held by the inner and outer walls thereof from spreading laterally, substantially as specified.

577,414. CORN-HARVESTER. TIFFANY J. BROCKWAY, Eagle Chief, Okla., assignor to the Brockway Corn Harvester Company, Omaha, Nebr. Filed Aug. 6, 1896. Serial No. 602,353. (No model.)

Claim.—1. In a corn-harvester, the parallel bars, O, connected in pairs in the same vertical plane, combined with the horizontal coils, N, supported by and revolving between the rods, O, and a mechanism for revolving the coils, substantially as described.

2. The two upright frames, P P^2, the rear one of which is pivoted so as to have a turning movement, the two sets of bars, O, connected in pairs in the same vertical plane by vertical plates which are pivoted to the uprights, the rods, o', for connecting the front ends of the rods, O, in pairs, and the rods, o^2, for connecting two of the pairs of rods together at their front ends, combined with the spirally-coiled bars, N, supported by and revolving between the rods, O, and a mechanism for revolving the coils, substantially as set forth.

3. In a corn-harvester, the two pairs of uprights, P P^2, the rear one of which is pivoted so as to have a partially-turning movement, a plurality of sets of bars, O, connected in pairs in the same vertical plane, by vertical plates which are pivoted upon the uprights, the rods, o', for connecting the front ends of the bars in pairs, the rods, o^2, for connecting the pairs of rods on one side, the rods, o^3, and the bars, M, combined with the spiral bars, N, supported by and revolving between the bars, O, and the rollers, Q, for revolving the spiral bars, substantially as specified.



4. In a corn-harvester, the two uprights, P P^2, the rear one of which is pivoted so as to have a partially-turning movement; the frames composed of horizontal rods, O, connected in pairs in the same vertical plane by vertical plates which are pivoted upon the uprights; the spiral revolving bars supported in the frames, and the revolving rollers for revolving the spiral rods, combined with the cross-bar, T, the lever, V, pivoted thereon, and the wires, W, connected to its front ends, and to the front uprights, substantially as shown.

5. In a corn-harvester, the bar, E', the short endwise-moving tubular casing placed therein, means for moving the casing endwise in the bar, a latch, e^2, for locking the casing in position in the bar, means for releasing the latch, the grooved shaft, n', having one end journaled in the casing, the disk, I', the pinions, M' K', the pin, L', which passes through the pinion, K', and disk, I', connecting them rigidly, and the wheel, J', placed loosely upon the pin, L', combined with a pawl, f', for engaging the wheel, J'; the arm, T^2, pivoted upon the plate, G^2; the bent rod, U', slidingly connected at one end to the arm, the ring, provided with pins for catching in the grooves of the shaft, and the bracket, P', through which the end of the shaft passes, substantially as described.

6. In a corn-harvester, the ejector-rod E^2, having its upper end bent into a ring form, and the tubular lever f^7 pivoted near its lower end, the arms w' and w^2, the bars w^3 to which the lever is pivoted, and the link G^2 loosely connected to both the lower end of the lever and to the arm w' combined with the binding-platform, substantially as set forth.

7. In a corn-harvester, two open horizontal frames placed one above the other in the same vertical plane, and each frame divided into two parts which are connected at their front ends by suitable jointed rods, and two vertical supporting-frames, the rear one of which is pivoted, and upon which supporting-frames the horizontal frames are pivotally supported, combined with the cutting mechanisms placed just back of the front ends of the horizontal frames which have both a lateral and a vertical adjustment, and a mechanism for adjusting the parts vertically, substantially as specified.

8. The shaft, K, provided with the cranks, k, the pitmen, k', connected to said cranks, and the cranks, C^3, secured to the lower end of the partially-revolving shafts, D', combined with the vertical partially-turning shafts, D', provided with the supporting-arms, d', the uprights, T', provided with supporting-arms d^2, pivoted thereto, the two hollow reciprocating bars, E' E^2; the wire-reel, F', and the tension-rod, G^4, for the wire; one of the reciprocating bars being provided with a twisting mechanism which is operated by the other bar through which the wire passes, and which wire-conducting bar enters into the bar which carries the binding mechanism, substantially as shown.

9. In a binder the bar E', and a sliding twisting mechanism placed therein, combined with the disk R' provided with the pin r', the shaft N', provided with the spiral groove n', and longitudinal groove n^2, the pawl r^3, and shoulder r^4, the bracket P', and a cutting device for cut-

ting the binding-wire while the twisting mechanism is held against rotation by the groove n^3, substantially as specified.

10. In a harvester, the bar, E', the short endwise-moving tubular casing, F^3, the latch, e^3, for locking the casing in position, means for releasing the latch, the twisting mechanism, and means for moving the twisting mechanism endwise, combined with the spirally-grooved shaft, N', the pinion, M', secured to the end of the shaft; the bracket through which the shaft passes and which is provided with the bifurcated extension, p^3, the lug, n^3, on the shaft and which catches in the extension, p^3, the ring, R', provided with pins to catch in the grooves of the shaft, the bent rod, U', the arm, T^3, operated by the rod, a pawl attached to the arm and the cutter-wheel, operated by the pawl, substantially as specified.

11. In a harvester, the bar, E', the tubular casing, F^3, slidingly placed therein, the bar, S', provided at its rear end with a short vertical extension, s', the pin, s^3, carried by the bar and which projects above and below it, and the spring, s^3, combined with the bar, E^3, of smaller diameter than the one, E', and provided with the plate, e', having the hole, e^4; the bar, E^3, being provided with the hole, e^3, to receive the latch, substantially as shown.

12. In a harvester, the two endwise-moving bars E' E^3 which approach each other, one carrying the wire and the other the twisting mechanism, combined with the curved compressor-bars which are secured to said bars E' E^3, and move therewith to compress the shock, substantially as shown.

13. In a harvester, the shock-receiver, the rocking shaft W', the frame C, cross-bars C', the two arms w', w^2, and the two parallel bars w^3, combined with the foot-lever C^3 pivoted upon the bar C, and connected to the bars w^3, the pivoted arm D^3 provided with a shoulder to catch over a projection on one of the bars w^3, the collar Y', provided with a radial lug y^3, the operating-shafts, and the gears placed thereon, substantially as set forth.

14. In a harvester, the vertical shafts l, l^3 connected slidingly together, the cutter L, secured to the lower end of the shaft l, the short inclined shaft q^7, connected by a universal joint with the shaft l^3, provided with a pinion q^6 and the two roller-shafts q, q, having gears q^3, q^3 combined with the toothed rollers Q, placed on the shaft q, pivotal bearings for the shafts, the rearwardly-inclined telescopic shaft R, provided with pinions q^2 q^4, the uprights P P^3, the frames O, pivoted to the uprights, and means for raising and lowering the front frames, substantially as specified.

15. In a corn-harvester, the two rear pivoted vertical frames, having a horizontal turning movement; the two front vertical frames, two conveying-frames open at their front ends and placed vertically one above the other, and each one divided into two parts and supported pivotally upon the vertical frames; rods for connecting the front ends of the bars in each frame, and rods for connecting the front ends of the frames; and a mechanism for raising and lowering the front ends of the frames, combined with the spiral conveyers supported by and revolving in the conveyer-frames, means for causing the conveyers to revolve simultaneously; and cutting mechanisms located back of the open ends of the frames, substantially as set forth.

16. In a corn-harvester, the binding-platforms, and the two endwise-moving hollow bars, E' E^3, adapted to move toward each other, combined with the wire-spool, a guide for the wire which passes through one of the bars, a sliding twisting mechanism placed in the opposite bar, a spirally-grooved shaft geared to the twisting mechanism, and a disk through which the shaft moves back for the purpose of causing it to revolve, substantially as shown.

17. The binding-platform, combined with the two endwise-moving bars, E' E^3, one of which has a twisting mechanism placed therein, and which mechanism is adapted to be moved back and forth in its bar; the other bar, E^3, having means for attachment to the twisting mechanism and being adapted to enter the bar, E', which carries the twisting mechanism, and force the mechanism back and forth for the purpose of operating it, substantially as described.

18. The two endwise-moving bars, E' E^3, of unequal diameter so that the one, E^3, can enter the other: the bar, E^3, having the binding-wire to pass through it, and provided at its inner end with a perforated plate, combined with the larger bar, an endwise-moving twisting mechanism placed therein, and a latch that both locks said mechanism in place and engages with the perforated plate in the other bar, substantially as set forth.

19. In a binding mechanism, a bar adapted to move endwise, a twisting mechanism placed therein and adapted to be moved back and forth, an endwise-moving spirally-grooved shaft connected to the twisting mechanism, a stationary bearing through which the shaft moves, and means in the bearing for engaging the spiral grooves, combined with a second bar of smaller diameter, and which is adapted to be forced into the larger one, and provided with means for first unlocking the twisting mechanism, then forcing it inward for the purpose of operating it, and then drawing it back into position again, substantially as shown.

577,415. BOTTLE. ELIJAH B. BROWN, Cripple Creek, Colo., assignor of one-half to John Crawshaw, same place. Filed July 31, 1896. Serial No. 601,126. (No model.)

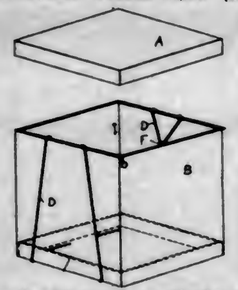


Claim.—1. A bottle having a double conical outlet through the neck thereof, shoulders projected inwardly from the top of the lower conical portion, and an annular recess formed within the wall or material of the neck thereof, said recess having apertures leading upwardly therefrom to the top of the neck for engagement with a key, substantially as shown and described.

2. The combination of a bottle having a double conical outlet through the neck thereof, shoulders projecting inwardly from the lower conical portion thereof, an annular recess formed within the wall of the neck thereof having apertures leading upwardly therefrom, and a two-pronged key adapted to enter said apertures, said prongs having spring-arms upon the lower ends thereof for engagement with the said annular recess, substantially as shown and described.

3. The combination of a bottle having a double conical outlet in the neck thereof, and shoulders projecting inwardly from the lower conical portion, and an annular recess formed within the wall of said neck, which recess has apertures leading upwardly therefrom, with a metal cap and a two-pronged spring-metal key, having spring-arms upon the lower end of its prongs, for locking the bottle, substantially as shown and described.

577,416. COLLAPSIBLE BOX. JOSEPH B. BROWN, Liverpool, England. Filed Nov. 30, 1895. Serial No. 570,583. (No model.)



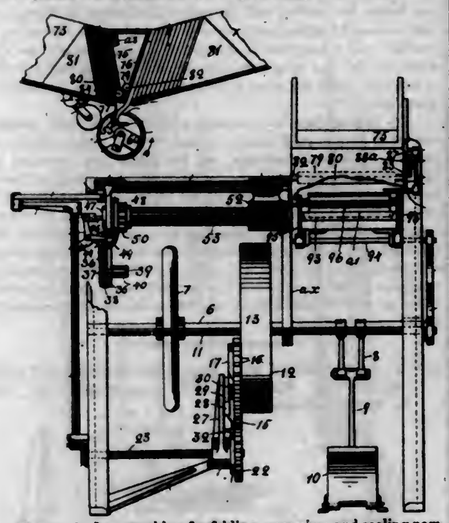
Claim.—In a collapsible box, the combination of the side pieces hinged together, the studs F on the inner faces of two of the side pieces, the detachable bottom adapted to fit inside of the side pieces when open, and the binding cords or strings secured to the bottom and adapted to pass outside of the side pieces over the top edges and engage the studs for securing the bottom to the sides, substantially as set forth.

577,417. THILL-COUPLING. JOHN W. BUCHANAN, Smithville, Ohio. Filed May 21, 1896. Serial No. 592,378. (No model.)



Claim.—In a thill-coupling, the combination of a clip secured to an axle and located directly behind the head d^3, and provided with the flanges B, and C, said flanges located a greater distance apart than the width of the head d^3, the aperture d, located in the flange B, and provided with the opening d', the thill-iron D, provided with the integral head d^3, the arm or bar e, provided with the lip f, the screw-threaded bolt g', formed of different diameters and provided with the jam-nut g^3 and the socket h, located in the side of the head d^3, all arranged substantially as described and for the purpose specified.

577,418. MACHINE FOR WRAPPING, FOLDING, AND SEALING CIRCULARS. ROBERT A. CARTER, New York, N. Y., assignor of two-thirds to William J. Davis and Henry J. Harding, same place. Filed Aug. 15, 1896. Serial No. 602,878. (No model.)



Claim.—1. In a machine for folding, wrapping, and sealing pamphlets, circulars and other documents, the combination with a suitable frame, of a longitudinally-movable and revoluble tube, provided in one side with a longitudinal slot or opening, into which the circular and the wrapper are adapted to be fed, said tube being provided with a sliding and revoluble gate, which is adapted to clamp said circular and said wrapper in said slot or opening, and means for operating said tube and said gate, and for sealing the document, substantially as shown and described.

2. In a machine for wrapping, and folding circulars and other documents, the combination with a suitable frame, of two chutes suitably supported, the adjacent ends of which are inclined inwardly and downwardly, and each of which is provided with a slot, in the bottom thereof, one of said chutes being adapted to receive the documents, and the other the wrappers, a longitudinally-movable and revoluble tube mounted below said slots, and provided with a longitudinal slot or opening in the side thereof, and a sliding and revoluble gate mounted in said tube, and means for feeding said circulars and said wrappers into the slot or opening in said tube, and devices for operating said gate so as to clamp and hold the same therein, and for revolving said tube, substantially as shown and described.

3. In a machine for wrapping and folding circulars and other documents, the combination with a suitable frame, of two chutes suitably supported, the adjacent ends of which are inclined inwardly and downwardly, and each of which is provided with a slot, in the bottom thereof, one of said chutes being adapted to receive the documents, and the other the wrappers, a longitudinally-movable and revoluble tube mounted below said slots, and provided with a longitudinal slot or opening in the side thereof, and a sliding and revoluble gate mounted in said tube, and means for feeding said circulars and said wrappers into the slot or opening in said tube, and devices for operating said gate so as to clamp and hold the same therein, and for revolving said tube, and for sealing said wrappers and removing the sealed document from said tube, substantially as shown and described.

4. In a machine for folding and sealing circulars and other documents, the combination with a suitable frame, of a longitudinally-movable and revoluble tube, provided with a slot or opening in one side thereof, and with a longitudinally-movable and revoluble gate, which is mounted therein, means for feeding the documents and the wrappers into said slot or opening in said tube, and for operating said gate to clamp and hold the same therein, and devices for revolving said tube, and for moving the same longitudinally so as to remove the document therefrom when wrapped and sealed, substantially as shown and described.

5. In a machine for folding, wrapping and sealing circulars and other documents, the combination with a suitable frame, of a sliding and revoluble tube mounted in a stationary sleeve, and said tube being provided with a slot or opening in one side thereof, suitable devices for feeding a document and a wrapper into said slot or opening, a sliding and revoluble gate mounted in said tube, and adapted to clamp said document, and said wrapper in said slot or opening, a gum receptacle or vessel mounted adjacent to one side of said tube, a roller mounted therein, another roller mounted adjacent thereto, and adapted to bear thereon, and to be thrown against said revoluble tube, and another roller mounted on the opposite side of said revoluble tube, and adapted to press thereon, substantially as shown and described.

6. In a machine for folding, wrapping and sealing circulars and other documents, the combination with a suitable frame, of a sliding and revoluble tube mounted in a stationary sleeve, and said tube being provided with a slot or opening in one side thereof, suitable devices for feeding a document and a wrapper into said slot or opening, a sliding and revoluble gate mounted in said tube, and adapted to clamp said document, and said wrapper in said slot or opening, a gum receptacle or vessel mounted adjacent to one side of said tube, a roller mounted therein, another roller mounted adjacent thereto, and adapted to bear thereon, and to be thrown against said revoluble tube, and another roller mounted on the opposite side of said revoluble tube, and adapted to press thereon, and means for moving said revoluble tube longitudinally through said sleeve and for operating said head and revoluble gate, substantially as shown and described.

7. In a machine for folding, wrapping and sealing circulars and other documents, the combination with a suitable frame, of a sliding and revoluble tube mounted in a stationary sleeve, said tube being provided with a slot or opening in one side thereof, suitable devices for feeding a document and a wrapper into said slot or opening, a sliding and revoluble gate mounted in said tube, and adapted to clamp said document and said wrapper in said slot or opening, a gum receptacle or vessel mounted adjacent to one side of said tube, a roller mounted therein, another roller mounted adjacent thereto and adapted to bear thereon and to be thrown against said revoluble tube, and another roller mounted on the opposite side of said revoluble tube, and adapted to press thereon, and means for moving said revoluble tube longitudinally through said sleeve, and for operating said revoluble gate, consisting of a head formed on or secured to said tube, a rod passing through said head, and through lugs or projections formed on said gate, said rod being provided with springs which are adapted to force it outwardly, and operative devices connected with said head, and said rod for revolving said tube and for forcing the rod inwardly and for moving said tube longitudinally, substantially as shown and described.

8. In a machine for folding, wrapping and sealing circulars and other documents, the combination with a suitable frame, of a sliding and revoluble tube mounted in a stationary sleeve, said tube being provided with a slot or opening in one side thereof, suitable devices for feeding a document and a wrapper into said slot or opening, a sliding and revoluble gate mounted in said tube, and adapted to clamp said document and said wrapper in said slot or opening, a receptacle mounted adjacent to one side of said tube, a roller mounted therein, another roller mounted adjacent thereto, and adapted to be thrown against said revoluble tube, and another roller mounted on the opposite side of said revoluble tube and adapted to press thereon, and means for moving said revoluble tube longitudinally through said sleeve, and for operating said revoluble gate, consisting of a suitably-supported sliding sleeve, provided with a head, to which said sliding and revoluble tube is secured, and through which passes a rod, which also passes through lugs or projections formed on said gate, said rod being provided with springs which are adapted to force it outwardly, and operative devices connected with said head and said rod for revolving said tube, and for forcing said rod inwardly, said gate being also provided with inclined slots, and said sliding and revoluble tube with pins or projections which pass therethrough, whereby when the gate is thrown outwardly by said rod it is also turned in said tube, substantially as shown and described.

9. In a machine for folding, wrapping and sealing circulars and other documents, the combination with a suitable frame, of a longitudinally-movable and revoluble tube, which is supported in a sleeve, and provided with a longitudinal slot or opening in one side, and means for feeding the circulars and wrappers thereinto, and for sealing the same, while said tube is revolved, and devices for moving said tube longitudinally and for revolving the same, consisting of a sleeve mounted in line with said tube, and provided with a depending plate, a head revolubly mounted in said plate, and to which said tube is secured, a circular gear formed on said head, and a suitably-mounted drive-wheel provided with a segmental or circular gear-plate, which is adapted to operate in connection with said circular gear, a vertically-movable slide connected with the plate with which said head is connected, and provided with an arm which operates in connection with a locking-disk formed on said head and said drive-wheel being provided with a circular or segmental flange-plate which is adapted to depress said slide, and devices connected with said drive-wheel for

moving said sleeve and said tube longitudinally, substantially as shown and described.

10. In a machine for folding, wrapping and sealing circulars and other documents, the combination with two inwardly and downwardly inclined chutes in which said wrappers and said documents are placed, said chutes being each provided at its lower end with a slot, through which said wrappers and documents are passed, of a suitably-supported longitudinally-movable and revoluble tube mounted below said slots, said tube being provided with a slot or opening in one side into which the wrappers and documents are adapted to be passed, and with a longitudinally-movable and revoluble gate mounted therein, and adapted to clasp and hold a wrapper and a document, in said slot, and means for revolving said tube and for moving it longitudinally, and also for operating said gate, and a suitable gumming device mounted adjacent to said tube, and adapted to gum said wrapper, said chutes being also provided with rollers at the inner ends thereof, by which the wrappers and the documents are fed through the slots into said tube, substantially as shown and described.

11. In a machine for folding, wrapping, and sealing circulars and other documents, the combination with a sliding sleeve, provided with a depending plate, of a revoluble head mounted in said plate, a tube secured to said head, and provided with a slot in its upper side, a longitudinally-movable and revoluble gate mounted in said tube a sliding rod passing through said tube, and connected with said gate, a vertically-movable slide mounted on said plate, and provided with an arm, which passes through a vertical slot formed therein, and which operates in connection with a locking-disk formed on said head, said plate being also provided with a crank-lever, one arm of which passes through an opening, in the upper end of said slide, and the other arm being provided with a head, with which said sliding rod is connected, said parts being in operative connection with devices by which said sleeve is moved longitudinally on its support, and the said tube revolved, substantially as shown and described.

12. In a machine for wrapping, folding, and sealing circulars, the combination with a suitable frame, of a stationary sleeve, a sliding sleeve provided with a depending plate, having a vertical slot formed in the lower end thereof, and a revolable head mounted therein, above said slot, a tube connected with said head, and passing through the stationary sleeve, said tube being provided in its upper side, with a slot or opening, and with a sliding and revoluble gate mounted therein, a spring-operated rod passing through said head, and connected with said gate, a vertically-movable slide connected with said plate, and provided with an arm, which passes through a slot formed therein, and which engages with a locking-disk formed on said head, and another arm which passes through said slot, and is provided with a roller, a crank-lever pivotally connected with said plate, one arm of which passes through an opening in the upper end of said slide and the other arm being provided with a pivoted head, having a socket into which the outer end of the rod that is connected with the gate, passes, and means for operating said slide, and said revoluble tube, and for moving the sliding sleeve, substantially as shown and described.

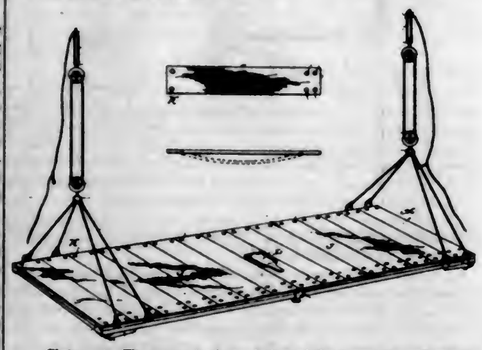
13. In a machine for wrapping, folding and sealing circulars the combination with a suitable frame, of a sliding sleeve provided with a depending plate having a vertical slot formed in the lower end thereof, and a revoluble head mounted therein, above said slot, a tube connected with said head, and passing through a stationary sleeve, said tube being provided in its upper side, with a slot or opening, and with a sliding and revoluble gate mounted therein, a spring-operated rod passing through said head, and connected with said gate, a vertically-movable slide connected with said plate, and provided with an arm, which passes through a slot formed therein, and which engages with a locking-disk formed on said head, and another arm which passes through said slot, and is provided with a roller, a crank-lever pivotally connected with said plate, one arm of which passes through an opening in the upper end of said slide and the other arm being provided with a pivoted head, having a socket into which the outer end of the rod that is connected with the gate, passes, and means for operating said slide, and said revoluble tube, and for moving the sliding sleeve, and devices for feeding the circulars and the wrappers into the slot or opening into said sliding tube, and for gumming said wrappers as the tube is revolved, substantially as shown and described.

14. In a machine for folding, wrapping and sealing circulars, pamphlets and other documents, the combination with a suitable, revoluble and longitudinally-movable tube on which said documents are adapted to be wound, of means for feeding the documents and wrappers thereto, consisting of two transverse chutes which are arranged over said tube and which are inwardly and downwardly inclined, and between which is a triangular partition, the base of which is directed upwardly and at each side of the apex of which is a slot, one of said chutes being adapted to receive documents, and the other wrappers, and means for feeding said documents, and wrappers through said slots, substantially as shown and described.

15. In a machine for folding, wrapping and sealing circulars, pamphlets, and other documents, the combination with a suitable, revoluble and longitudinally-movable tube on which said documents are adapted to be wound, of means for feeding the documents and wrappers thereto, consisting of two transverse chutes which are arranged over said tube and which are inwardly and downwardly inclined, and between which is a triangular partition, the base of which is directed upwardly and at each side of the apex of which is a slot, one of said chutes being adapted to receive documents, and the other wrappers, and means for feeding said documents and wrappers through said slots, and said longitudinally-movable and revoluble tube being also provided with a longitudinal slot into which the wrappers and documents are fed, and means for securing said wrappers and documents to said tube while the same is revolved, substantially as shown and described.

16. In a machine for wrapping, and sealing circulars, pamphlets and other printed publications, the combination with a suitably-supported longitudinally-movable and revoluble core, provided with means for clamping or securing the wrappers and documents thereto, and means for feeding said documents or wrappers, consisting of two chutes which are arranged transversely of said core and downwardly inclined, said chutes being separated by a partition and each being provided with a slot directly over said core, and the partition between said chutes being provided with rollers by which the documents and wrappers are fed thereto, said documents being adapted to be placed in one of said chutes and said wrappers in the other, substantially as shown and described.

577,419. COT OR BED. MARY J. CARVER and RHODA R. CARVER, Nashville, Tenn. Filed Feb. 24, 1896. Renewed Jan. 21, 1897. Serial No. 620,155. (No model.)



Claim.—1. The cot or bed consisting of the frame, the adjustable head-rest at one end of the frame, the adjustable strips carried by the frame one having the opening provided with a flap, the legs hinged to the corners of the frame, and the adjustable suspending devices connected to the frame.

2. The cot or bed consisting of the frame, the suspending devices connected to the frame, the adjustable head-rest at one end of the frame, the adjustable strips carried by the frame, one having the opening covered by the flap, the legs hinged to the corners of the frame and the springs for holding the legs when closed.

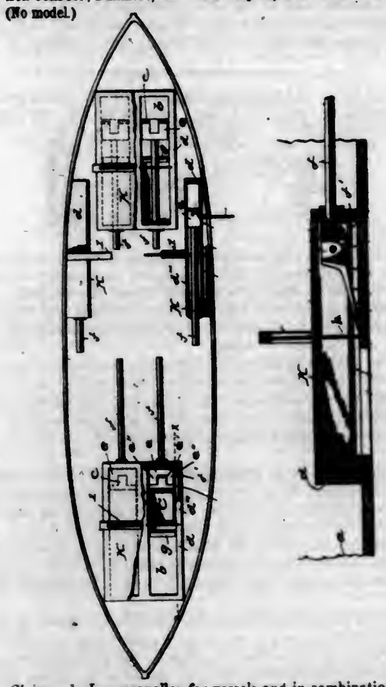
577,420. ROTARY CUTTER. JOHN O. COLLINS, Marblehead, Mass., assignor of one-third to George E. Butterfield, same place. Filed Apr. 12, 1895. Renewed July 21, 1896. Serial No. 600,073. (No model.)



Claim.—The herein-described rotary cutter, consisting of the male portion A, of substantially the same width throughout and having radial cutting-arms A' provided with cutting edges A^3, one side of said arms being concaved, of the interlocking female portion B, of less diameter than the male portion and having enlarged radial projections with convexed sides of unequal curvature or pitch, the curvature of one side being like the curvature or pitch of the concaved

edge of the cutting-arms, said radial projections being of greater width than the hub of the female portion, and gage or bed surfaces B^7 on the periphery of the said radial projections, substantially as described.

577,421. RECIPROCATING PROPELLER FOR VESSELS. HARMON COMPTON, Dunmore, Pa. Filed July 23, 1896. Serial No. 600,282. (No model.)



Claim.—1. In a propeller for vessels and in combination with a hull provided with openings therein, of a pair of twin propellers located in water-tight boxes at the bow and stern of the vessel and projecting beyond the lines of the hull, said propellers each consisting of a propeller-blade knuckle-joined to a head located within the lines of the hull of the vessel, a driving-rod to which the head is secured, an internal box surrounding the openings and adapted to contain the head, and guiding mechanism within the box, all arranged and adapted to operate substantially as described.

2. In a propeller for vessels and in combination with a hull provided with a pair of rectangular, oblong openings in its bottom at the bow and stern thereof, interiorly-disposed boxes around said openings, said boxes being extended beyond the inner end of the openings to provide a compartment for the reception of the propellers when withdrawn from the water, twin propellers located within said boxes and having knuckle-joined blades adapted to project through the openings, means for guiding the propellers in their reciprocations, and an antifriction-roller located at the inner ends of the openings, substantially as described.

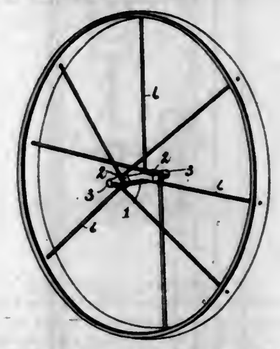
3. In a propelling apparatus for vessels, and in combination with the hull having openings in its bottom and sides through which the propeller-blades project, twin propellers located at the bow and stern of the vessel and having blades hinged to project through said bottom openings when moving to press against and engage the water, and side propellers projecting through openings in the opposite sides of the hull, substantially as described.

577,422. WATCH-BOW FASTENER. HENRY F. COOK, Sag Harbor, N. Y., assignor to The Fahys Watch Case Company, same place. Filed Apr. 2, 1896. Serial No. 586,010. (No model.)



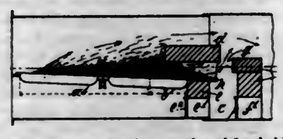
Claim.—The combination with a pendant S, having diametrically opposite apertures; of the bow 1, each end of which is formed with a single cut-away portion at one side only, providing a single locking-tongue at the other side of the end; substantially as described.

577,423. METAL WHEEL. FRANK J. COOPER, Toledo, Ohio, assignor of one-half to Christain Stery, same place. Filed Sept. 8, 1896. Serial No. 605,069. (No model.)



Claim.—In a metal wheel, a hub having enlarged portions at each end rectangular in cross-section with the squares in different planes, each square having grooves formed therein in different transverse planes, the grooves of each plane embracing two angles of the rectangular end with return-bend spokes bent at an angle at their centers to seat within the grooves, and the outer ends secured in the wheel-rim.

577,424. SMOKE-CONSUMING FURNACE. ROBERT DEIMLER, Treptow, Germany. Filed Apr. 16, 1896. Serial No. 587,844. (No model.)



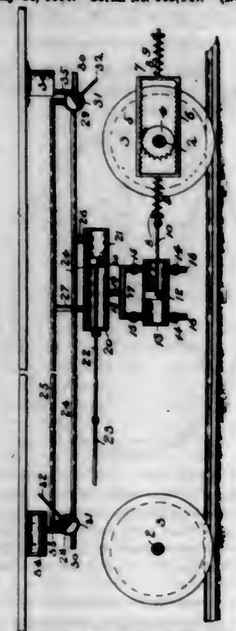
Claim.—1. In a furnace having a reduced fire-bridge, and a fire-beam extending in some distance over said bridge and over the rear portion of the grate, the combination with the said bridge, of another fire-bridge arranged in some distance behind the former, and extending up to about the height of said fire-beam, and forming between itself and said beam a channel the free section of which is smaller than the free section of the space existing between the fire-beam, the first-mentioned fire-bridge, and the adjacent portions of the walls of the furnace, for the purpose as described.

2. In a furnace having a reduced fire-bridge and a fire-beam extending in some distance over said bridge and over the rear portion of the grate, the combination with the said bridge, of another bridge arranged in some distance behind the former, and of another fire-beam supported by said other bridge, and forming between itself and the first-mentioned beam a channel the free section of which is smaller than the section of the space existing between said first-mentioned beam, the first-mentioned fire-bridge, and the adjacent portions of the walls of the furnace, for the purpose as described.

3. In a furnace having a reduced fire-bridge, and a fire-beam extending in some distance over said bridge and over the rear portion of the grate, the combination with said bridge, of another fire-bridge arranged in some distance behind the former, and of another fire beam arranged in some distance over said other bridge, and forming between itself and the latter as well as between itself and the first-mentioned fire-beam channels the combined free sections of which are smaller than the free section of the space existing between said first-mentioned beam, the first-mentioned fire-bridge and the adjacent portions of the walls of the furnace, for the purpose as described.

4. In a furnace having a fire-beam arranged in front of the fire-bridge, and extending in some distance over the grate, the combination with said beam and said bridge, of another fire-beam supported by the said bridge and arranged in some distance over the first-mentioned fire-beam, and forming between itself and the latter a channel the free section of which is smaller than the space of the free section existing between said first-mentioned beam, the said bridge, and the adjacent and opposite portions of the wall of the furnace, for the purpose as described.

577,425. AIR-BRAKE. DENNIS DUNN, Mahanoy City, Pa., assignor of forty-nine one-hundredths to John R. Rayburn, Philadelphia, Pa. Filed May 26, 1896. Serial No. 593,147. (No model.)



Claim.—1. In an air-brake, the combination with the axle, the mutilated gear, the rectangular rack-frame, the rod connected therewith, the air-compressor provided with inlet and outlet valves, and the piston in said compressor, of the air-cylinder, the piston therein, the pipe connecting said compressor and cylinder, the horizontal pipes connected with said air-cylinder at opposite sides of the piston, the valve-chambers at the ends of said pipes, the oscillating valves, the valve-rods, and the outlet-pipes; substantially as described.

2. In an air-brake the combination with the axle, the mutilated gear, the rectangular rack-frame, the coiled spring, the air-compressor, provided with inlet and outlet valves, and the piston in said compressor, of the air-cylinder connected with said compressor, the piston therein, the horizontal parallel pipes connected with said air-cylinder at opposite sides of the piston, the valve-chambers at the end of said pipes, the oscillating valves, the valve-rods, the outlet-pipes and the storage-tanks connected with said valve-chambers; substantially as described.

577,426. ANTIREFILLABLE BOTTLE. GARRITT J. FRANKEN, Schenectady, N. Y. Filed Feb. 29, 1896. Serial No. 581,236. (No model.)



Claim.—In an antirefillable bottle, the combination with the bottle-neck having an elongated chamber connected with the main body of the bottle by a contracted neck, the outer end of said chamber terminating in a cylindrical cork-receiving projection, between which and the elongated chamber is a shoulder or offset of larger diameter than the cork-receiving projection, of a non-removable skeleton valve-carrying frame of spring metal located within the chamber and having at its upper end a plurality of diverging spring-arms which engage the aforesaid shoulder, and having likewise at its lower end an integral ring which rests on the contracted neck, and having also intermediate rings, the rings being connected by lateral strips, substantially as shown, a ball-valve adapted to be seated on the contracted neck, a central inverted cone secured in the spring-frame about midway of the length thereof, and a ball within said cone in contact with the ball-valve, substantially as described.

577,427. ALTERNATING-CURRENT MOTOR. LUDWIG GUTMANN, Pittsburg, Pa. Filed Feb. 4, 1891. Serial No. 380,120. (No model.)



Claim.—1. An alternating-current motor consisting of the combination of a field-magnet core, one or more windings for the same, an armature-core, a winding or windings for said armature-core, contact-terminals connected to said winding or windings, and a block or brush permanently in contact with one armature-terminal and temporarily with the other or others.

2. An alternating-electric-current motor consisting of the combination of a field-magnet, an armature whose winding or windings are subdivided into coils, contact-terminals for said subdivided winding or windings and a brush adapted to rest permanently on one armature-terminal and temporarily and periodically on the other or others.

3. An alternating or pulsating current electric motor consisting of the combination of two field-magnet structures, energizing-coils for said magnet, an armature-core, windings mounted on said core and exposed to the influence of both field-magnet structures, contact-terminals connected to the armature-windings and means such as a brush or brushes for periodically and alternately short-circuiting the armature-windings under influence of the two field-magnet structures.

4. In an alternating or pulsating current electric motor, the combination of field-magnets in one or more subdivisions or structures, an armature core, two or more windings for said armature-core structure angularly displaced the one from the other, and means for periodically and successively changing the circuit connections of said windings in respect to one another and inclosing them in turn alternately in a closed circuit.

5. In an electric-power-distribution system the combination with a suitable generator, of a motor, having a field-magnet system in one or more core structures, one or more field-windings for each of said core structures, one of which is in circuit with said generator, an armature provided with one or more windings, two or more contact-terminals electrically connected to one member of said motor, and one or more brushes resting permanently on one of said terminals and periodically and alternately on the others.

6. In a commutator or current-collector the combination of two, three or more contact-terminals provided with projections, and each contact insulated from the other and a brush adapted to be permanently in contact with one of said terminals and periodically with one or more of the others.

7. An alternating-current electric motor consisting of the combination of a multipolar-field magnet divided into two or more parallel parts, an armature whose laminated core is also divided axially into two or more core parts, one or more subdivided windings mounted on each of said armature-core parts, contact-terminals connected to said winding or windings and a circuit closer or closers or its equivalent permanently in contact with one of said terminals and periodically with others.

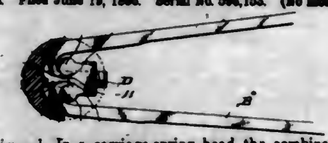
8. In an alternating-current electric motor the combination with field-magnets, of an armature having two or more windings so displaced relatively to the field-poles that one of said windings faces the poles or pole regions while the others are intersecting said regions, a set of contact-terminals connected to said windings common to both sets of coils, and a brush or brushes constantly engaging with some of said terminals and periodically with others.

9. In an alternating-current electric motor the combination with a field-magnet system, of an armature provided with two or more windings subdivided into coils, a commutating or contact device some terminals of which are connected and common to two of said windings, and a brush or brushes in contact with said terminals adapted to engage first with coils of one winding and then with those of the other.

10. In an alternating-current motor the combination of a field-magnet, an armature having two or more windings, electric contact-terminals of positive and negative polarity arranged alternately around a common center connected to said two or more windings and means such as a brush adapted to normally close-circuit an armature-winding to form closed subcircuits.

11. In an alternating-current electric motor the combination of a field-magnet in one or more structures or subdivisions, windings for said subdivisions, an armature whose winding is divided into the same number of divisions as the field, electric contacts or terminals connected in common to said armature-windings and means such as brushes for normally close-circuiting an armature-winding influenced by a field-subdivision, to form one or more closed circuits.

577,428. VEHICLE-SPRING HEAD. GEORGE H. HAWES, Racine, Wis. Filed June 19, 1896. Serial No. 596,153. (No model.)



Claim.—1. In a carriage-spring head, the combination with a coupling-box, of springs having hooked cam ends, a coupling member having cams which fit in the hooked cam ends, and means for holding the coupling member in the box.

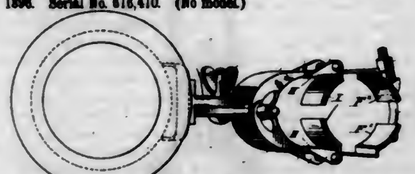
2. In a carriage-spring head, the combination with a coupling-box, of springs having hooked cam ends, a coupling member having cams which fit into the hooked cam ends, and a bolt passing through the coupling-box and coupling member, substantially as described.

3. In a carriage-spring head, the combination with a coupling-box having side walls and provided with inner curved depressions, of springs having cam ends located between the said walls and received in said curved depressions, and means for preventing displacement from the coupling-box of the cam ends of the springs.

4. In a carriage-spring head, the combination with a coupling-box provided with interior curved depressions, of springs having hooked ends forming inner and outer cam-surfaces, the outer cam-surfaces being received in the curved depressions of the coupling-box, a coupling member having cams which fit in the inner cam-surfaces of the springs, and means for holding said coupling member in position.

5. In a carriage-spring head, the combination with a coupling-box provided with interior curved depressions, of springs having hooked ends provided with inner and outer cam-surfaces, the outer cam-surfaces fitting in the curved depressions, a coupling member having cams which fit in the inner cam-surfaces of the springs, and a bolt passing through the coupling-box and coupling member, whereby the latter is held within the former.

577,429. LAMP-BRACKET. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 21, 1896. Serial No. 616,410. (No model.)



Claim.—1. In a lamp-bracket for bicycles and other vehicles, main clamping-arms, adjustable clips carrying clamping-wings and mounted upon and between said main clamping-arms.

2. In a lamp-bracket for bicycles and other vehicles, main clamping-arms, longitudinally-movable clips carrying clamping-wings and mounted upon and between said main clamping-arms.

3. In a lamp-bracket for bicycles and other vehicles, main clamping-arms, recessed or perforated as described, adjustable clips carrying inwardly-projecting clamping-wings, tongues carried by said clips and adapted to engage in said recesses or perforations.

4. In a lamp-bracket for bicycles and other vehicles, main clamping-arms pivotally connected at one end, the free ends being curved inwardly for the purpose described, adjustable clips mounted upon said arms intermediate in their length and means for adjusting the position of said clips, substantially as described.

5. In a lamp-bracket for bicycles and other vehicles, main clamping-arms pivotally connected at one end, the free ends of said arms being curved inwardly for the purpose described, adjustably-mounted clips carried by said arms and adapted to slide on said arms, means for adjusting the position of said clips thereon as described, and a universal connection between the body of the lamp to be supported and the pivoted ends of the clamping-arms.

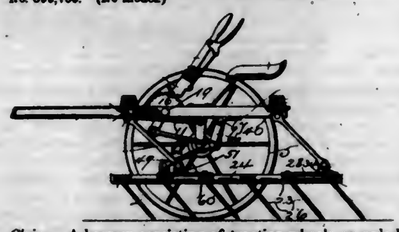
577,430. SHELF-BRACKET. NORMAN R. HURD, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Oct. 22, 1896. Serial No. 609,682. (No model.)



Claim.—1. A shelf-bracket comprising a brace or bracket portion having the hooked lugs 6, 7 a shelf-plate mortised to receive part of said lugs and having its rear end fitted to a tongue on the upper end of a wall-plate, the wall-plate also mortised to receive part of the lugs 6, 7, of the bracket and having at its upper end the tongue to pass behind a portion of the shelf-plate and the holding-lug to secure the said wall-plate all, substantially as described and for the purpose specified.

2. A sheet-metal bracket comprising a brace or bracket portion having the hooked lugs 6, 7, a shelf-plate mortised to receive part of said lugs and having its rear end fitted to abut against a portion of the front face of a wall-plate, the wall-plate also mortised to receive part of said lugs 6, 7, of the bracket portion, a portion of the upper end of said wall-plate being adapted to extend up behind a portion of the rear end of the shelf-plate, substantially as described.

577,431. HARROW. JAMES L. KEEL, Talking Rock, Ga., assignor of one-half to Robert A. Ray, same place. Filed July 18, 1896. Serial No. 599,709. (No model.)



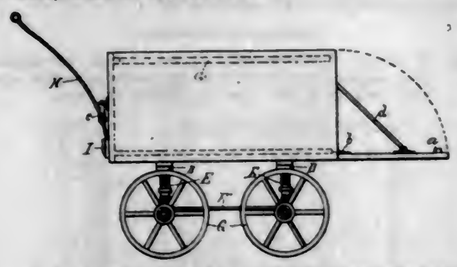
Claim.—A harrow consisting of traction-wheels, an axle having bent ends, a main frame supported on said axle, a draft-pole, an operative lever journaled on said pole and having a spring-pawl, a toothed segment having bearing on said pole, a rock-shaft having bearing on the under portion of said main frame and having a downwardly-projecting strap or arm, a lever having end pivotal connection, respectively, with the lower end of the operative lever and with the arm projecting downwardly from said rock-shaft, a harrow-frame having rear tooth-bars of greater length than the other tooth-bars and extending laterally across the path of either or both of said traction-wheels link-bearings connected, respectively, with the forward and rear portions of the main and harrow frames, a series of link-levers located at the front and rear of and having pivotal end connection, respectively, on said link-bearings on the main and harrow frames, respectively, and a central link-lever having end connection, respectively, with the harrow-frame and with a strap depending from the said rock-shaft, substantially as and for the purpose set forth.

577,432. COMBINED TRAVELING-CASE AND BABY-CARRIAGE. FREDERICK S. KRATZET, Detroit, Mich. Filed May 9, 1896. Serial No. 590,845. (No model.)

Claim.—1. In a combined traveling-case and baby-carriage, the body or box, said box having a raised bottom, and the running-gear mounted on the cover thereof, substantially as set forth.

2. In a combined traveling-case and baby-carriage, the combination of the box, the handle secured to one end thereof said box

having a raised bottom, the running-gear mounted on the cover, substantially as and for the purpose set forth.



3. In a combined traveling-case and baby-carriage, the combination of the body, the running-gear secured to the removable cover thereof, the raised bottom in said body forming a recess thereunder, said recess adapted to receive said cover, a removable handle as H, and the hinged end of said body for the purpose set forth.

4. In a combined traveling-case and baby-carriage, the combination of the body, the running-gear secured to the removable cover thereof, said running-gear adapted to be received and inclosed by said body, said body having a raised bottom, the removable handle H, the cleats I, the fixed handle c and the exterior covering of leather, canvas or other similar material, substantially as and for the purpose set forth.

577,483. DOOR-ALARM. CHARLES R. DE LAMARRE, Biloxi, Miss., assignor of one-half to Otto Mandrup Tennison, New Orleans, La. Filed Aug. 26, 1896. Serial No. 604,023. (No model.)



Claim.—1. The combination with a bellows, having a pivoted movable interior partition, of a whistle, a connection between the same, and means connected with the partition for actuating the bellows to force the air through the whistle, as set forth.

2. The combination with the fixed and movable sides of the bellows, having a pivoted movable interior partition, of means for moving the movable portion in one direction, a spring for moving it in the opposite direction, and a whistle adapted to be sounded by the compression of the air caused by the moving part, as set forth.

3. The combination with the bellows having a pivoted movable interior partition and its actuating means, of a whistle connected therewith and adapted to operate both by exhalation and inhalation, as set forth.

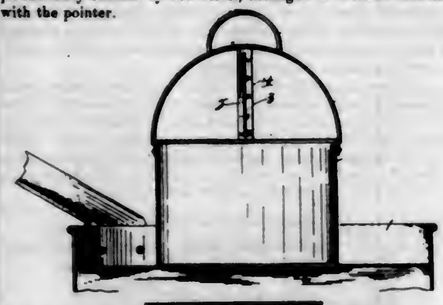
4. The combination with the bellows having a movable part, forming an interior partition and extended to form an operating-arm and means for actuating the same, of a whistle, and a pipe connecting the same with the bellows to sound the whistle, as set forth.

5. The combination with the double bellows having an interior pivoted partition extended to form an operating-arm, of the whistle, a pipe connected therewith and a pipe from each chamber of the bellows connected with said pipe, as set forth.

6. The combination with the double bellows having an interior pivoted partition extended to form an operating-arm, of the whistle, a pipe connected therewith, a pipe from each chamber of the bellows connected with said pipe, and a valve in each of the pipes leading from the bellows, substantially as and for the purpose specified.

577,434. HYDROSTATIC MEASURING VESSEL. JOHN D. R. LAMBOS, Toledo, Ohio. Filed Sept. 8, 1896. Serial No. 605,119. (No model.)

Claim.—In a hydrostatic measuring vessel, a vessel to receive the matter to be weighed, having a central walled opening extending substantially the height of the vessel forming a central chamber extending vertically through the vessel and insulated from the interior thereof, a float located in the chamber, a rod secured at one end to the float, the opposite end carrying a pointer, and a scale-standard permanently carried by the vessel, arranged in vertical alinement with the pointer.



577,485. EYELET. ALBERT LATHAM, Springfield, Mass., assignor of one-half to James William Nourbourn, same place. Filed Dec. 6, 1895. Serial No. 571,361. (No model.)



Claim.—1. An eyelet having a metallic body, the top of which is composed of several outwardly-extending and downturned members or hooks, and a plastic covering material overlying and engaged by said members—end portions of said hooked metallic members projecting below the surface of the base of the eyelet-head, substantially as described.

2. An eyelet consisting of a metallic body and a top composed in part of several outwardly-extending and depending hook members of the body and in part of a plastic covering overlying and engaged with said members, and having at the base of the overhanging surrounding top an annular rib in part constituted by portions of said metallic members, and in part by the molded conformation of the plastic material intermediate between said members, substantially as described.

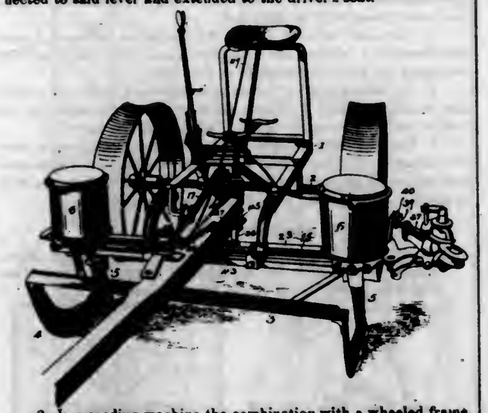
577,486. CURTAIN-HOLDER. CARL LEES, Zurich, Switzerland. Filed July 11, 1896. Serial No. 598,942. (No model.)



Claim.—In a curtain-holder having an elastic foot, a cavity provided within the latter and opening to the base-surface of the same, a piston arranged within said cavity, a rod secured to said piston and passing through the top part of said foot, and means for longitudinally displacing said rod, the combination with the latter and with the portion of said top part surrounding said rod, of a conical packing situated between the latter and said portion; said packing exceeding in length the thickness of the said top part, and means for longitudinally displacing the said packing, substantially as described.

577,437. SEEDING-MACHINE. AUGUST LINDGREN, Moline, Ill., assignor to the Moline Plow Company, of Illinois. Filed Apr. 30, 1895. Serial No. 547,633. (No model.)

Claim.—1. In a seeding-machine the combination with a wheeled frame, of seed-hoppers sustained thereby at the front, a driver's seat at the rear of the frame, seed-discharging mechanisms in said hoppers, a rotary shaft for operating said mechanisms from the ground-wheels, a rock-shaft adjacent to the rotary shaft, driving mechanism carried by the rock-shaft and serving to give motion to the rotary shaft independently of the ground-wheels, a lever pivoted to the frame and connected to the driving mechanism and a cord or chain connected to said lever and extended to the driver's seat.



2. In a seeding-machine the combination with a wheeled frame, of seed-hoppers sustained thereby, seeding mechanisms in said hopper, a rotary shaft adapted to operate said mechanisms from the ground-wheels, a rocking arm adjacent to the rotary shaft, a driving-pawl pivoted to the upper end of the arm, a wheel on the rotary shaft adapted to be driven through the pawl by the rocking of the arm, a manually-operated lever pivoted to the frame and suitable connections between the lever and the arm; whereby the operation of the lever will serve, through the rocking arm and pawl, to operate the rotary operating-shaft independently of the ground-wheels.

3. In a seeding-machine the combination with a wheeled frame, of the seed-hoppers sustained thereby, seeding mechanisms located in said hoppers, a rotary shaft for operating said mechanisms from the ground-wheels, a rock-shaft mounted on the frame adjacent to the rotary shaft, a vertical arm connected to said rock-shaft, a pawl pivoted to the upper end of the arm, a wheel on the rotary shaft having pins or lugs adapted to be engaged by the pawl on the advance of the arm, a spring acting on the arm and tending to hold the same in a retracted position, a lever 48 pivoted to the frame and a link 47 connecting the end of said lever with the end of the arm.

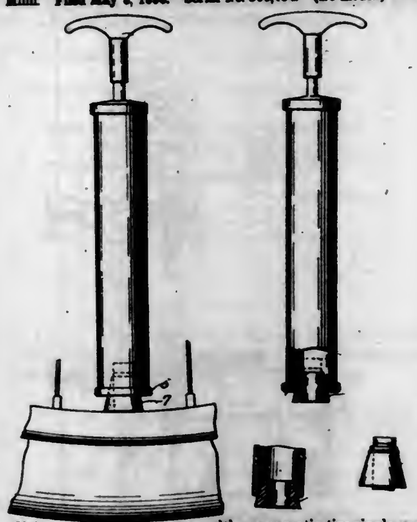
4. In a seeding-machine the combination with the seed-discharging mechanism, of the seed-tube into which it discharges, a normally open valve in said tube, a normally closed valve located beneath the same, adjustable connections between said valves, and means for operating the valves at intervals.

5. In a seeding-machine the combination with the seed-discharging mechanism, of the seed-tube into which it discharges, a normally open valve in the upper part of said tube, a rock-shaft, a collar 26 fixed to said shaft, and provided with a radial finger to operate the valve, a lug on said collar formed with a hole, a vertical sleeve 29 formed with a laterally-projecting finger extending in said hole, said sleeve being threaded internally, a vertical rod screwed into said sleeve at its upper end, and a normally closed valve in the lower part of the tube pivoted to the lower end of said rod.

6. In a seeding-machine the combination with the frame, of the seed-hopper sustained thereby, seed-discharging mechanism in said hopper, a seed-tube in position to receive the seed from the hopper, a normally open valve in the upper part of the tube, a rock-shaft provided with a finger to engage said valve, a normally closed valve in the bottom of the tube, connections between the two valves, and means for rocking said shaft to close the upper valve and simultaneously open the lower valve and vice versa.

7. In a seeding-machine the combination with a wheeled frame, of seed-hoppers sustained thereby, seeding mechanisms in said hoppers, seed-tubes into which said mechanisms discharge, a rotary shaft for operating said mechanisms, connections for driving said shaft continuously from the ground-wheels, a rock-shaft, a normally open and a normally closed valve in the seed-tubes, adjustable connections between the said valves, connections between the rock-shaft and valves for operating them alternately to open and close the seed-tubes, a rocking lever adapted to be operated by the check-line, and connections between said lever and the rock-shaft for rocking the latter; whereby the machine may be employed to drop the corn at intervals by operating the valves, or the latter may be adjusted to permit the corn to be dropped continuously in rows.

577,488. BICYCLE-PUMP. MARSHALL B. LLOYD, Minneapolis, Minn. Filed May 8, 1896. Serial No. 590,754. (No model.)



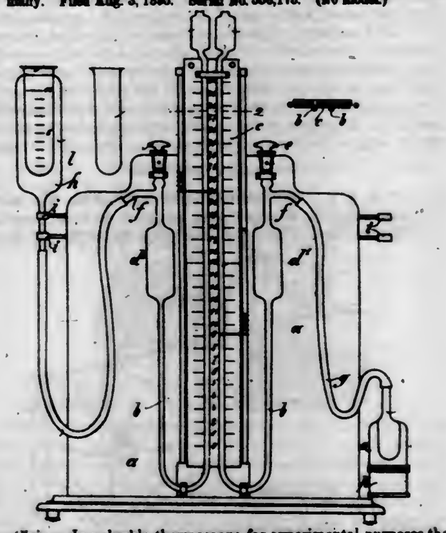
Claim.—1. The combination, with a pneumatic-tire nipple or stem provided with a conical or tapering elastic outer surface, of a pump having an opening fitting upon said conical surface, for the purpose set forth.

2. The combination, with an elastic sleeve adapted to fit upon a pneumatic-tire nipple, and to be compressed thereon and having a conical or tapering outer surface, of a pump provided with an opening adapted to fit upon the outer or tapering surface of said sleeve, for the purpose set forth.

3. The combination, with an elastic sleeve having a cylindrical bore adapted to fit upon a pneumatic-tire nipple, and having a conical or tapering outer surface, of a pump having an opening fitting upon the outer surface of said sleeve, for the purpose set forth.

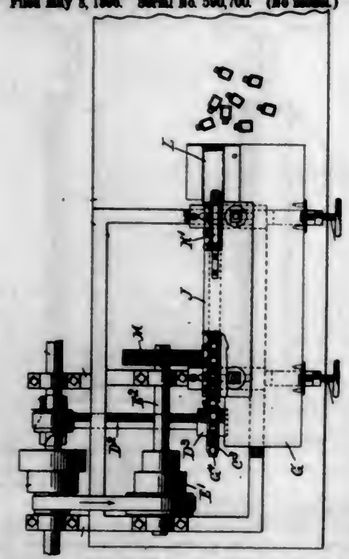
4. The combination, with a pump provided upon the end of its barrel with a cap or plate having a central opening, and a rubber or elastic sleeve having a conical outer surface fitting into said opening, for the purpose set forth.

577,489. THERMOSCOPE. WILHELM G. LOCKER, Rixon, Germany. Filed Aug. 3, 1895. Serial No. 558,173. (No model.)



Claim.—In a double thermoscope for experimental purposes the combination of an air-capsule with a glass tube hermetically sealed to it, and a U-shaped tube with enlarged portions and a tap, the tube being partially filled with an inexpansible fluid; as and for the purpose set forth.

577,440. GRINDING-MACHINE. HENRY P. LEFFEL, St. Charles, Ill. Filed May 8, 1896. Serial No. 590,700. (No model.)



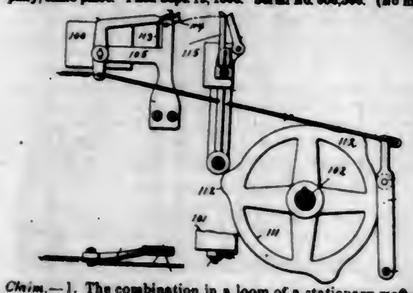
Claim.—1. In a machine for grinding the links of a metal belt, the combination of a grinding-wheel with a carriage adjustably fixed with relation to the surface of the grinding-wheel, and a conveyer device on the carriage moving across the surface of the grinding-wheel, and means thereon for receiving and carrying the links to be ground across the surface of the wheel.

2. A machine for grinding the links of a metal belt, having a sprocket-chain, a driving-wheel, a device for supplying the links to be ground to the chain, which consists of a chute discharging upon the chain and a spring device above the chain and between which and the chain the links are received.

3. In a machine for grinding the links of a metal belt, the combination of a driving counter-shaft with a frame, a driven shaft thereon, carrying the grinding-wheel, a second driven shaft thereon, a driving sprocket-wheel, a grooved guideway thereon through which the links are conveyed while being ground, a carriage mounted on the frame, a second sprocket-wheel and a chain driven by the two wheels, and adjusting devices whereby the carriage and chain and sprocket-wheels are moved bodily toward or away from the grinding-wheel.

4. In a machine for grinding the links of a metal belt, the combination of a relatively-fixed rotating grinding-wheel with a sprocket-chain traveling across the face of such grinding-wheel, suitable guides and feeding devices associated therewith and projecting lugs on the chain to receive the links and shaped so as to hold them substantially parallel to the surface of the grinding-wheel, and driving mechanism for carrying the chain and links past the surface of the wheel.

577,441. WEFT-CONTROLLING MECHANISM FOR LOOMS. JAMES R. MARTIN, Worcester, Mass., assignor to the Carpet Loom Company, same place. Filed Sept. 19, 1896. Serial No. 606,366. (No model.)



Claim.—1. The combination in a loom of a stationary weft-horn and mechanism for detaching the loop of weft from the horn, substantially as described.

2. The combination in a loom of a stationary weft-horn, means for lifting the loop of weft off of the horn, and mechanism for replacing the weft in position to engage the horn, substantially as described.

3. The combination in a loom of a stationary weft-horn, mechanism for detaching the weft from the horn, and means carried by the lay for replacing the weft in position to engage the horn, substantially as described.

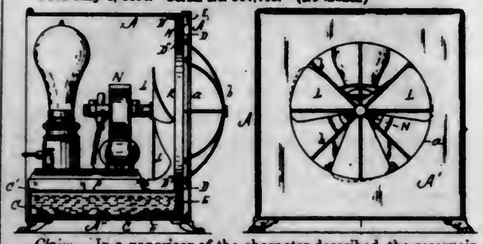
4. The combination in a loom of a stationary weft-horn, a movable detacher, and means for replacing the weft in position to engage the horn, substantially as described.

5. The combination in a loom of a stationary weft-horn, a movable detacher, a retainer, and means for replacing the weft in position to engage the horn, substantially as described.

6. The combination in a loom of a stationary weft-horn, a movable detacher a guide and cam carried by the lay for replacing the weft in position to engage the horn, substantially as described.

7. The combination in a loom of a stationary weft-horn, a movable detacher, cam mechanism for lifting the detacher, a guide and cam carried by the lay for lifting the detacher and carrying the weft in position to engage the horn, substantially as described.

577,442. VAPORIZER. ABRAHAM R. MIRANDA, Boston, Mass., assignor to Spencer R. Hill and Albert H. Cushing, Brookline, Mass. Filed July 1, 1896. Serial No. 597,715. (No model.)



Claim.—In a vaporizer of the character described, the reservoir or tank C, the vertical wall or plate extending up from the front portion of the reservoir and provided with the narrow flanges D′, said reservoir being provided with an opening next and to the rear of said plate; flat wicking or absorbent material H extending from the reservoir up over the rear surface of said plate; a perforated plate H covering the rear surface of the wicking and secured in such position; and a suitable fan and motor for operating the same placed at the rear of the perforated plate; the wicking and the structure produced by the plate D, flange D′ and perforated plate H being provided with a central opening, whereby the vapor from the wicking passes through the perforated plate and is then caught and directed through the opening by the fan, substantially as described.

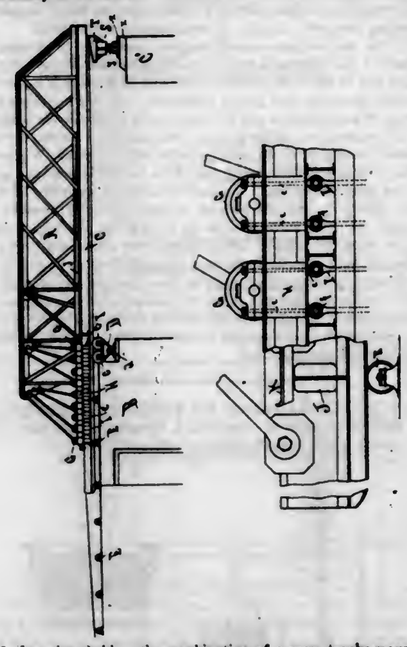
577,448. CANTALIVER DRAWBRIDGE. CHARLES M. MOORE and FRANK M. SYLVESTER, Buffalo, N. Y. Filed June 24, 1896. Serial No. 553,846. (No model.)

Claim.—1. A drawbridge consisting of a cantaliver span, an abutment and approach, a series of rollers secured to said approach, inverted tracks secured to a chord of said span and calculated to travel upon said rollers, and a second series of rollers anchored to said abutment and adjustable thereto and tracks secured to a chord of said span and calculated to travel underneath said second series of rollers, said span, tracks and series of rollers constituting a draw-cantaliver, for the purposes set forth.

2. In a drawbridge, the combination of a span, tracks secured to chords of said span, the one pair secured invertedly, and the other secured to brackets upon said chord, with an abutment, having a series of rollers secured thereto and calculated to engage with said inverted tracks, and a second series of rollers vertically adjustable and anchored to said abutment and calculated to engage over the other pair of tracks, with a source of power and mechanism for actuating said span, substantially as set forth.

3. In a drawbridge, the combination of a span, provided with upper and lower tracks secured to the chords of said span, an abutment and approach, rollers secured thereto, rollers anchored to said abutment and engaging with the upper rails of said chords, and a second abutment provided with an adjustable bearing, adjustable to the outer end of said span when in place with a source of power actuating said span, substantially for the purposes set forth.

4. In a drawbridge, a span, an abutment, two pairs of tracks secured to said span, a series of rollers secured to said abutment and engaging with one pair of tracks, a second series of rollers adjustably secured to and anchored into said abutment engaging the other pair of tracks, and a depressible approach pivoted at its outer end and depressible adjacent to said span, and means for depressing said approach independent of the action of said bridge, consisting of a source of power and gearing connecting therewith, and a source of power and gearing actuating said span independently of said approach, substantially as set forth.



5. In a drawbridge, the combination of a span, tracks mounted thereon, an abutment with one series of rollers secured thereto and a second series of rollers adjustably secured to and anchored into said abutment, constituting an adjustable cantaliver, and a source of power and mechanism for actuating said cantaliver, with a depressible approach and mechanism for actuating said approach consisting of a source of power, counterweight, sheaves and gearing, with a second abutment provided with an adjustable bearing adjustable to the plane of action of said cantaliver, substantially as set forth.

6. A drawbridge consisting of a cantaliver span, tracks, abutments and a series of rollers as set forth, actuated by mechanism connecting said span with a source of power, a depressible approach consisting of a floor system pivoted at its outer end and depressible at its end adjacent to said span, and actuated by gearing connecting said approach with a source of power, track-covers for covering the openings adjacent to said approach and within which the lower chord of said span travels and actuated by a source of power through gearing, substantially as set forth.

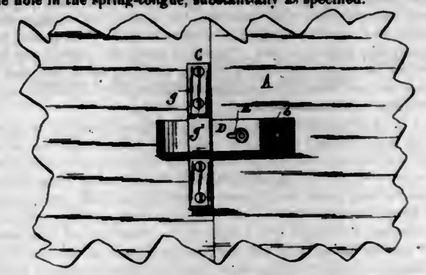
7. In a drawbridge, the combination of a span, tracks secured thereto, an abutment and rollers secured and anchored thereto, means for actuating said span consisting of a source of power, shafting, drum and cable, and a depressible approach, consisting of a floor system pivoted to the foundation at its outer end, mechanism for elevating and depressing the same, consisting of a source of power, shafting, sheaves and counterbalance, struts for holding said approach in place and actuated by a lever, shafting and gearing, and track-covers, consisting of covers, pivoted adjacent to the sides of said approach, levers, cables, drums, and shafting connecting with the source of power, substantially as and for the purposes set forth.

8. A drawbridge comprising a sliding span, an abutment, an approach, a series of rollers E, tracks carried by the span and arranged to travel upon the said rollers, a second series of rollers G, and tracks carried by the span and arranged to travel under the last said series of rollers, substantially as set forth.

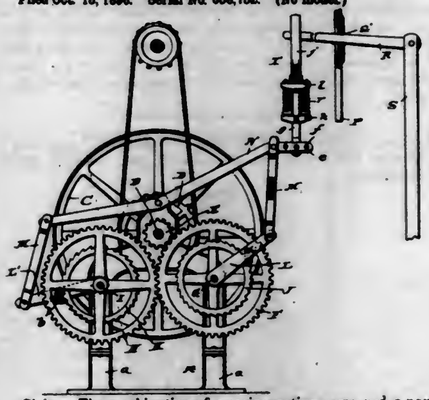
9. A drawbridge comprising a span, an abutment, two pairs of tracks secured to said span, a series of rollers E over which one pair of tracks travel, a second series of rollers G under which the other pair of tracks travel, a depressible approach for the bridge, and means for operating the approach, and for sliding the span, substantially as set forth.

577,444. SLIDING-DOOR FASTENER. WALLACE MOSIER, Mosiertown, Pa. Filed Apr. 7, 1896. Serial No. 586,495. (No model.)

Claim.—The combination with a door and a plate secured thereto and having a portion extended beyond the edge of the door and bent to form an integral spring-tongue provided with a hole and a key-hole-shaped opening, of a keeper having a loop portion and a pin extending inward from the cross-bar thereof and adapted to engage the hole in the spring-tongue, substantially as specified.



577,445. POWER-CONVERTER. ALBERT G. NEWMAN, JOHN A. JOHNSON, JOSEPH H. SWENDLUND, and CHRIS WILLIAMS, Stratford, Iowa. Filed Oct. 13, 1896. Serial No. 608,752. (No model.)



Claim.—The combination of a reciprocating pump-rod, a power-converter comprising a main frame, a drive-shaft journaled therein, a lever fulcrumed on the main frame and mechanism intermediate of said lever and the drive-shaft for rotating said shaft when the lever is rocked, and the device T, comprising the lower rod-section connected with the lever and having a cross-bar *k*, and also having a longitudinal transversely-disposed slot *i*, the upper rod-section connected with the pump-rod and provided at its lower end with the casting *k*, receiving the lower rod-section and having the enlargement *l*, at its lower end, the guides *m*, bearing upon the bar *k*, of the lower rod-section and extending loosely through the enlargement *l*, of the casting, the bolt extending through the casting *k*, and the slot *i*, of the lower rod-section, the bolts extending loosely through the guides *m*, the enlargement *l*, of the casting *k*, and the cross-bar *k*, of the lower rod-section and the coiled springs surrounding said bolts and interposed between the enlargement *l*, and the lower portions of the guides *m*, substantially as specified.

577,446. FOLDING CAR-STEP. WILLIAM P. NYE, Tazewell, Va. Filed Nov. 25, 1896. Serial No. 613,456. (No model.)



Claim.—1. In a device of the class described, the combination with a stationary step of a car or similar vehicle, of ways depending therefrom and located at opposite sides thereof, riser-bars having their upper ends engaging and pivotally connected with the said ways, a folding step provided at its inner edge with ears, a pintle pivoting the said ears to the lower ends of the riser-bars and forming an intervening space between it and the body portion of the step, the latter being adapted to be folded against the riser-bars and arranged beneath the stationary step, suitable stops for supporting the step and the riser-bars in their folded and operative positions, and a catch

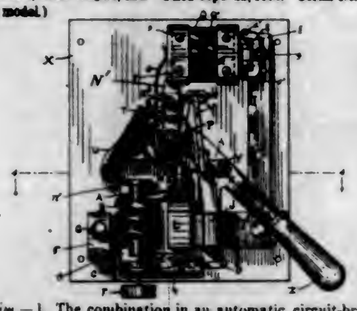
mounted on the stationary step and adapted to extend into the space between the pintle and the folding step, whereby the latter is locked in its folded position, substantially as and for the purpose described.

2. In a device of the class described, the combination of a stationary step provided with depending horizontal ways having a slot, a folding step, riser-bars pivotally connected to the folding step and engaging the said ways and adapted to carry the folding step beneath the stationary step, and a pivoted L-shaped catch mounted in the said slot and arranged to engage the folding step to lock the same in its folded position, substantially as described.

3. In a device of the class described, the combination of a stationary step provided at its outer edge with a slot, ways depending from the stationary step and provided with longitudinal flanges forming stops and serving as supports, riser-bars having longitudinal flanges forming stops and supports, provided at their upper ends with bosses engaging the said ways, a folding step provided with ears and adapted to engage the flanges of the riser-bars, a horizontal pintle passing through the ears and the lower ends of the riser-bars and hinging the step to the latter, and a pivoted L-shaped catch mounted in the slot of the stationary step and engaging the folding step between the same and the pintle, substantially as described.

4. In a device of the class described, the combination of a stationary step, ways located beneath the step, riser-bars engaging said ways, a folding step carried by the riser-bars and adapted to be arranged beneath the stationary step, and a movable catch located beneath the upper face of the stationary step and depending therefrom in position to engage the folding step, whereby the latter is locked against outward movement in the said ways, substantially as described.

577,447. AUTOMATIC CIRCUIT-BREAKER. GRANVILLE F. PACKARD, Fort Wayne, Ind. Filed Sept. 22, 1896. Serial No. 606,661. (No model.)



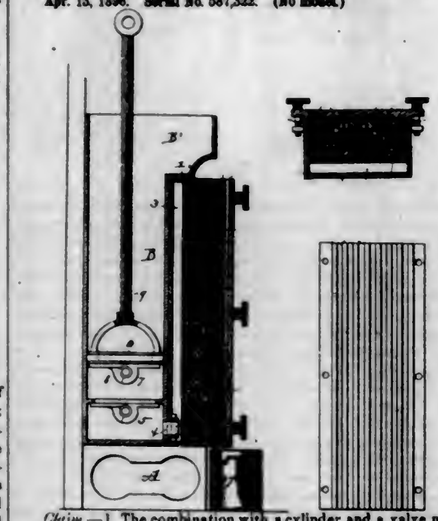
Claim.—1. The combination in an automatic circuit-breaker of metallic contacts for closing the main circuit between the terminals; high-resistance contacts for closing the shunt-circuit between the terminals; a pivoted hand-lever carrying the bridging-contact for the main circuit; an arc-rupturing plate pivotally mounted on said hand-lever and adapted to be automatically thrust or interposed across the path of the arc, as described; an armature to which is attached a weight or spring to resist the magnetic pull of the armature, and having a catch or trigger adapted to holdingly engage the said hand-lever when the working circuit is closed; and an electromagnet arranged as described for actuating the said armature, all substantially as described.

2. In an automatic circuit-breaker, the combination of a pivoted hand-lever carrying the bridging-contact for the main circuit and adapted to separate the metallic contacts before the high-resistance contacts leading to the same terminals are separated, as described; means for securing said hand-lever in its normal position when the circuits are closed; means for automatically releasing the said hand-lever from such position to open the circuits; metallic contacts for closing the main circuit between the terminals; high-resistance contacts for closing the shunt-circuit between the terminals; and an arc-rupturing plate or shield pivotally mounted on the said hand-lever and adapted to be automatically thrust across the path of the arc upon the breaking of the shunt-circuit, all substantially as described.

3. In an automatic circuit-breaker, a main operating-lever K pivotally mounted on the base-block carrying a bridging-contact for the main circuit, and having upon its inner end an oblique lug K^3 provided upon its outer face with a radial and outwardly-flaring recess for the purpose specified; in combination with the carbon-holder N having a fixed carbon Q, and pivotally mounted in said recess as shown, and adapted for a limited play therein for the purpose of prolonging the contact of the carbons after the breaking of the main circuit; the carbon-holder R provided with the fixed carbon Q' and the pivoted hanger-bracket S whereby it is adapted for self-alinement with its companion; the arc-rupturing plate V pivotally fixed on said handle and adapted to be automatically interposed across the path of the arc, as described; a weighted armature O provided with a catch or trigger D adapted to holdingly engage the said operating-lever when the working circuit is closed; and an electromagnet for actuating the said armature, all substantially as described.

4. In an automatic circuit-breaker means for prolonging the contact of the carbons in the shunt-circuit for the purpose of avoiding an arc in the main circuit, comprising a hand-lever K pivotally mounted as shown on a proper base-block, carrying a bridging-contact for the main circuit and having upon its inner end the projecting lug K^3 recessed as described; the carbon-holder N having a carbon Q fixed therein as shown, and provided with a handle N' pivotally arranged in said recess and adapted for a limited lateral play therein for the purpose specified; the carbon-holder R provided with the fixed carbon Q', and the pivoted hanger-bracket S whereby it is adapted for self-alinement with its companion, the lugs I and I' on the respective plates I and L adapted to form cooperating contacts with the brush J, as shown, a spring O fixed as shown on said lug K^3 with its free end adapted to bear against the back of said carbon-holder N; and the spiral retracting-spring T having one end fixed as shown and the other end secured to the said lug K^3 whereby both circuits are closeda gainst the tension of said retracting-spring, all substantially as described.

577,448. APPARATUS FOR EXPRESSING, STRAINING, AND PURIFYING LIQUIDS. CHRISTIAN L. PETERSEN, Revere, Mass. Filed Apr. 13, 1896. Serial No. 587,322. (No model.)



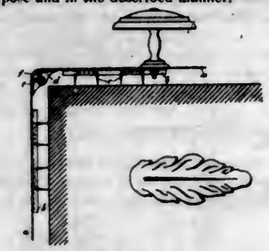
Claim.—1. The combination with a cylinder and a valve near its lower end, of a valved plunger in said cylinder, a receptacle communicating with said cylinder below the valve therein and having an open mouth, and straining or filtering material closing said mouth, substantially as set forth.

2. The combination with a cylinder and a downwardly-opening valve near the lower end thereof, of a plunger in said cylinder, a downwardly-opening valve in said plunger, a receptacle communicating with said cylinder below the valve therein, said receptacle having an open mouth and straining or filtering material closing said mouth, substantially as set forth.

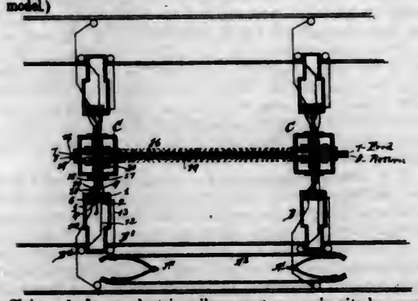
3. The combination with a base, and a pump-cylinder located on said base and a shoulder at the upper end of said pump-cylinder, of a receptacle disposed between said base and said shoulder, a downwardly-opening valve in the lower portion of the pump-cylinder, a pipe connecting said pump-cylinder with said receptacle at a point below the valve, a valved plunger in said cylinder and a screen or strainer secured to the mouth of said receptacle, substantially as set forth.

577,449. DEVICE FOR FASTENING CURTAIN-ROSETTES, &c., TO WALLS. RICHARD PREUSS and LOUIS LEIPZIGER, Breslau, Germany. Filed Feb. 24, 1896. Renewed Oct. 31, 1896. Serial No. 610,760. (No model.)

Claim.—A device for fastening curtains and the like, consisting of two jaws *a* provided with fastening-hooks *b* which jaws are adapted to turn about a hinge *d* and are held together by a spring-connecting part (spiral spring *f*) and one or both of which are provided with one or more eyes, into which a rosette A or the like is screwed for the specified purpose and in the described manner.



577,450. ELECTRIC-RAILWAY SYSTEM. CONSTANT F. DE REDON, New York, N. Y. Filed Sept. 5, 1896. Serial No. 561,478. (No model.)



Claim.—1. In an electric-railway system, a circuit-closer comprising a permanent magnet adapted to be attracted by a part carried by a car, a lever on which the magnet is placed, a contact-plate carried by said lever and contact-blocks to be engaged by said plate and having connection with the current-carrying wires, substantially as specified.

2. In an electric-railway system, a circuit-closer comprising a permanent magnet, a lever on which the magnet is mounted, a closed casing in which the lever is pivoted, a contact-plate on the lever, contact-blocks for engagement with the plate, and a retarding device for the closer, substantially as specified.

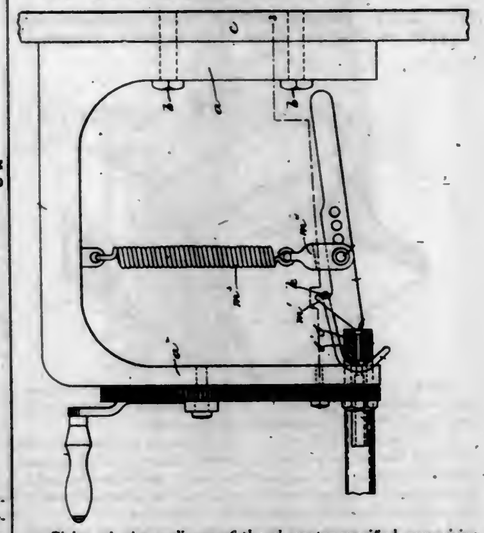
3. In an electric-railway system, a circuit-closer comprising a permanent magnet, a pivoted lever on which the magnet is mounted, a casing in which said parts are placed, the said casing having a thin wall adjacent the poles of the magnet, contact-plates carried by the lever and the contact-blocks adapted to be engaged by the contact-plate, substantially as specified.

4. In an electric-railway system, the main circuit, and the series of circuit-closers along the line of the track each comprising the swinging magnet adapted to be attracted by a part carried by the car, the contact-plates which are moved by the movement of said magnet, and the series of contact-blocks to be engaged respectively by said plates, combined with the conductors passing from two of said contact-blocks to the main line-wires, conductors passing from two other of said contact-blocks to contacts to be engaged by the car, and auxiliary circuit conductors passing from two others of said contact-blocks to contact-blocks of the circuit-closer ahead which are connected with the contacts to engage the car moving toward them, substantially as and for the purposes described.

5. In an electric-railway system, the main circuit and the series of circuit-closers along the line of the track each comprising the swinging magnet adapted to be attracted by a part carried by the car, the contact-plates which are moved by the movement of said magnet, and the series of contact-blocks to be engaged respectively by said plates, combined with the conductors, passing from two of said contact-blocks to the main line-wires, conductors passing from two other of said contact-blocks to contacts to be engaged by the car, auxiliary-circuit conductors passing from two others of said contact-blocks to contact-blocks of the circuit-closer ahead which are connected with the contact to engage the car moving toward them, and a retarding device to prevent the sudden breaking of the circuit when the magnet is no longer attracted by the said part carried by the car, substantially as and for the purposes described.

6. In an electric-railway system, a circuit-closer comprising a magnet adapted to be attracted by and thereby moved toward a part carried by the car, a contact-plate mounted to be moved by said magnet during the motion of the latter toward said part carried by the car, contacts connected with the current-carrying wires and arranged to be engaged by said plate to close the circuit when the plate is moved due to the movement of said magnet, and a retarding device to prevent the sudden breaking of the circuit when the magnet is no longer attracted by the said part carried by the car: substantially as set forth.

577,451. TIRE-BOLT WRENCH. BYRAM A. RICH, Scituate, Mass. Filed July 9, 1896. Serial No. 598,553. (No model.)



Claim.—1. An appliance of the character specified, comprising an arm or frame having means for attachment to a vertical support, the said frame being formed to overhang a space at one side of said support, a wrench-spindle journaled in the overhanging portion of said arm and formed to engage a nut on the inner surface of a wheel-rim projecting into said space, and means for rotating said wrench.

2. An appliance of the character specified, comprising an arm or frame having means for attachment to a vertical support, the said frame being formed to overhang a space at one side of said support, a wrench-spindle journaled in the overhanging portion of said arm and formed to engage a nut on the inner surface of the wheel-rim projecting into said space, a gear affixed to the wrench, and an intermediate gear connecting the two gears.

3. An appliance of the character specified, comprising an arm or frame having means for attachment to a vertical support, the said frame being formed to overhang a space at one side of said support, a wrench-spindle journaled in the overhanging portion of said arm and formed to engage a nut on the inner surface of a wheel-rim projecting into said space, means for rotating said wrench, and a plunger or ejector movable endwise in the wrench.

4. An appliance of the character specified, comprising an arm or frame having means for attachment to a vertical support, the said frame being formed to overhang a space at one side of said support, a wrench-spindle journaled in the overhanging portion of said arm and formed to engage a nut on the inner surface of a wheel-rim projecting into said space, means for rotating said wrench, and a vise or clamp arranged to hold a tire-bolt on the wheel, and prevent the same from turning.

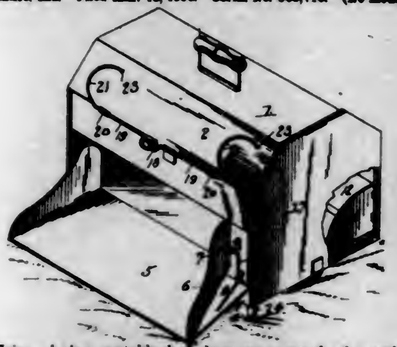
5. An appliance of the character specified, comprising an arm or frame having means for attachment to a vertical support, the said frame being formed to overhang a space at one side of said support, a wrench-spindle journaled in the overhanging portion of said arm and formed to engage a nut on the inner surface of a wheel-rim projecting into said space, means for rotating said wrench, a fulcrum-arm formed to detachably engage the inner side of the wheel-rim, and a lever fulcrumed on said arm and formed to engage the head of a tire-bolt on the outer side of the wheel-rim.

6. An appliance of the character specified, comprising an arm or frame having means for attachment to a vertical support, the said frame being formed to overhang a space at one side of said support, a wrench-spindle journaled in the overhanging portion of said arm and formed to engage a nut on the inner surface of a wheel-rim projecting into said space, means for rotating said wrench, a suspension-spring secured to said arm, a lever pivotally connected to said spring, and provided with a fulcrum hook or projection, and a fulcrum-arm

formed to engage said hook and provided with hooked fingers formed to bear on the inner side of a wheel-rim.

7. An appliance of the character specified, comprising an arm or frame having means for attachment to a vertical support, the said frame being formed to overhang a space at one side of said support, a spindle journaled in the overhanging portion of said arm, and means supported by the arm for rotating said spindle.

577,452. PORTABLE DUST-BOX. HENRY S. RICHARDSON, Terre Haute, Ind. Filed Mar. 18, 1896. Serial No. 583,710. (No model.)



Claim.—1. In a portable dust closet or receptacle, the combination with the front hinged door, of the automatically-operating guide-wings hinged thereto; substantially as described.

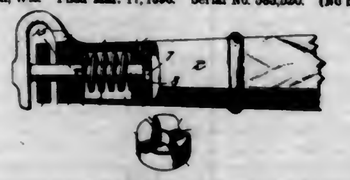
2. In a portable dust closet or receptacle, the combination with the hinged door, of the guide-wings hinged thereto, the lugs secured thereto, the rod or wire connected therewith, the hooks secured to the wings and the eyes secured to the closet with which said rods or wires are also connected; substantially as described.

3. The combination with the portable dust closet or receptacle, the door hinged thereto, and the automatically-operating guide-wings hinged thereto, of the hinged dumping-pan at the back of the closet and guide-wings secured thereto; substantially as described.

4. The combination with the portable dust closet or receptacle, of the hinged door, the guide-wings hinged thereto, the hinged dumping-pan and the guide-wings hinged thereto, of the hinged upwardly-swinging door at one end of said closet; substantially as described.

5. The combination with a dust box or receptacle of the character described, of the brush-holder comprising the wire bent at the center forming a lug or catch, the horizontal arms pivotally connected with the box, and the curved upwardly-extending arms, the ends of which engage in holes in the said box, substantially as specified.

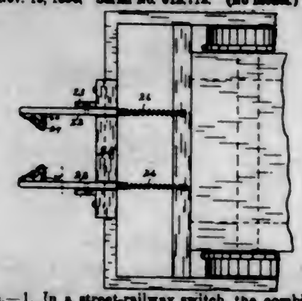
577,453. WHIFFLETREE-HOOK. MARK M. SANDERSON, Ellsworth, Wis. Filed Mar. 17, 1896. Serial No. 583,520. (No model.)



Claim.—1. A whiffletree-hook consisting of a ferrule having a lateral extension, a hook-carrying pin having longitudinal and rotary bearing within said ferrule, a locking-pin seated within and extending transversely through said hook-carrying pin and having lock-bearing within said ferrule, and a hook extending transversely across the outer end of said hook-carrying pin and curving rearwardly and transversely to engage with the lateral extension of the ferrule, substantially as and for the purpose set forth.

2. In a whiffletree-hook, a ferrule adapted to be seated on the end of a whiffletree and having an external laterally and forwardly extending horn, a centrally-bored washer located at the base of the chambered portion of said ferrule, a centrally-bored disk located in the outer end, or mouth, of and closing the mouth of said ferrule and having in its inner face a square, or angular transverse groove, and also a curved transverse groove and, mediately of said grooves, raised curved faces, a spring seated between said washer and disk, a hook, a hook-carrying pin seated within the central bores of said washer and disk, respectively, and a square pin carried by and extending transversely through said hook-pin to engage said grooved disk, substantially as and for the purpose set forth.

577,454. STREET-RAILWAY SWITCH. ANTON SCHNACKENBERG, Dayton, Ohio, assignor of one-half to Wm. B. Anderson, same place. Filed Nov. 19, 1896. Serial No. 612,712. (No model.)

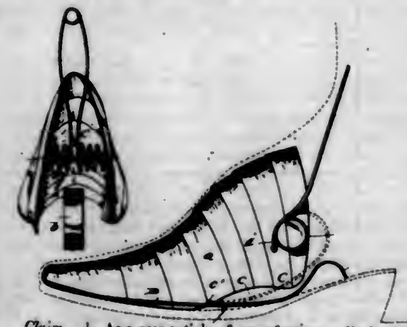


Claim.—1. In a street-railway switch, the combination with a shifting bar having a connection with the switch-tongue, a cam lying flush with the track and having a connection with the said shifting bar, of bars fulcrumed on the truck provided with lugs projecting from their lower ends, actuating-pieces pivoted to said lugs and adapted to trip the cam, the said pivotal pieces being so mounted that the planes of their inner sides will be on an angle to the bars, and the planes of their sides which are adjacent to the said bars will be parallel to said bars, and springs inclosed between the said pivotal pieces and bars, as herein shown and described.

2. In a street-railway switch, a casing having an open bottom, guide projections on the inner sides of said casing, a slide mounted in said casing, a shifting bar attached to said slide and having a connection with the switch-tongue, and a cam connected with said shifting bar, in combination with bars having a pivotal attachment with the truck-frame and provided at their lower ends with tapering lugs that project inwardly, trip-pieces pivoted to said lugs, springs inclosed between said trip-pieces and the bars, and means for manipulating said bars, as herein shown and described.

3. In a street-railway switch, the combination with a switch-tongue, of a rack-bar having a connection with said tongue, a toothed sector meshing with said rack-bar, a segment-plate to move said toothed sector, bars having a pivotal connection with the truck, pivotal trip-pieces on the lower ends of said bars, springs inclosed between said trip-pieces and bars, and means for manipulating said bars to lower the trip-pieces to a position to actuate the said segment-plate, as herein shown and described.

577,455. DISPLAY-FORM. DEWITT C. SEE, Mechanicsville, N. Y. Filed Apr. 9, 1896. Serial No. 586,843. (No model.)



Claim.—1. As a new article of manufacture, a display-form comprising a body, and the elastic spring arranged longitudinally under the body and having a holding tooth or spur at an intermediate point of its length, the front end of said spring attached to the toe portion of the body and the rear end thereof having a finger-piece which extends beyond said body, for the purposes described, substantially as set forth.

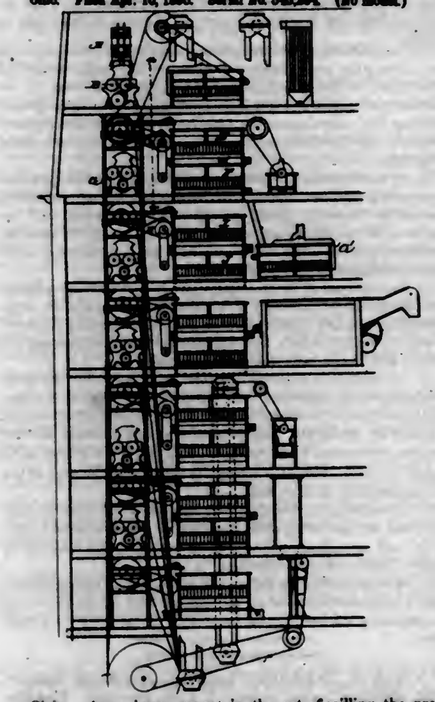
2. A display-form comprising a yieldable or expansible shell-like body open at its rear end and a distending or pressure spring situated within the open rear end of the body and attached to the sides or walls thereof, said spring having the upright shank, as and for the purposes described.

3. A display-form comprising a yieldable or expansible body and a pressure or distending spring connected with said body and provided with a foldable shank, substantially as and for the purposes described.

4. In a display-form, the combination with a yieldable or expansible body, of a spring bent from a piece of wire to produce the duplex coils and the extended shank or arm, said coils being arranged within the open rear end of the body and the shank or arm extending above the body, as and for the purposes described.

5. In a display-form, the combination with a body, of a holding-spring, and a distending-spring which carries a foldable arm arranged to be reversed and bear or press against the holding-spring, substantially as and for the purposes described.

577,456. PROCESS OF MILLING. GEORGE T. SMITH, Chicago, Ill., assignor to the George T. Smith Mill Building Company, Cleveland, Ohio. Filed Apr. 16, 1895. Serial No. 545,984. (No model.)



Claim.—As an improvement in the art of milling, the process herein described of reducing the grain to the condition of a food product by a series of reductions and separations upon different machines the material being moved from one machine to another in such bulk as to practically prevent cooling during its passage from one machine to another, substantially as described.

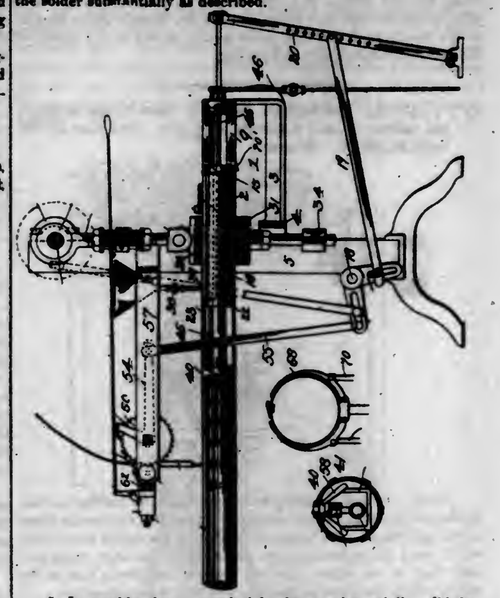
577,457. CAN-MAKING MACHINE. JOHN SOLTER, Baltimore Md., assignor of one-half to George L. Krebs, same place. Filed Feb 26, 1896. Serial No. 580,808. (No model.)

Claim.—1. In combination, in a can-making machine adapted to be fed by hand, a die, a mandrel having an extension beyond the die with a reduced portion, said extension having a free space about it to permit the operator to fold the blank about the mandrel to interlock the seam and to properly adjust the blank, said extension having means by which the operator may accurately gage the position of the blank to aline the seam with the seaming-die, substantially as described.

2. In combination, the frame, the mandrel for the can-body, the reduced extension of said mandrel, a right-angular bracket connected with the front end of said reduced extension and extending to the frame with a space 1 between it and the mandrel for the proper simultaneous folding and interlocking of the body-blank about the reduced portion and a device arranged adjacent to the mandrel to act on the side seam, substantially as described.

3. In combination, a mandrel with means for moving the can-bodies along the same, a burner within the mandrel to act directly on the can-bodies and a soldering device acting on the outside of the mandrel and of the can, substantially as described.

4. In combination, a hollow mandrel, the burners arranged within the same, a wire-solder-feeding device arranged exterior and adjacent to the mandrel and burners and means for moving the can-bodies along the mandrel past the burners and soldering device, the said burners acting directly upon the can-bodies to heat the same and melt the solder substantially as described.



5. In combination, a mandrel having a substantially solid forward part and a hollow rear part, the seaming-die operating at the solid part, a burner within the hollow rear part acting directly on the can and the wire-solder-feeding device operating outside the hollow part of the mandrel, substantially as described.

6. In combination, a hollow mandrel having a slit, the burners within the mandrel directed to said slit to act directly on the can-body, the soldering device outside the mandrel also directed to the slit and means for moving the can-body along the mandrel with its seam covering said slit, substantially as described.

7. In combination, a mandrel having a grooved substantially solid front part, a seaming-die acting in conjunction therewith, a slitted hollow rear part the slit of which forms a continuation of said groove, a soldering device acting in conjunction therewith including the burners acting directly upon the can-bodies and means for moving the can-body along the mandrel, substantially as described.

8. In combination, a mandrel having a front part, a seaming-die, a hollow rear part, the soldering device and burner at the rear part, the intermediate slotted part of the mandrel, the cross-head moving inside the mandrel with the inner operating-rod and the feed-slide connected to the cross-head and moving in the face of the mandrel, substantially as described.

9. In combination, the mandrel having the reduced forward extension consisting of the upper and lower bars, the bracket with the space 1 between it and the bars to permit folding and interlocking of the body-blanks simultaneously about the reduced part of the mandrel, the seaming-die, the soldering device and the feed-slide having their operating-rod extending forward between the upper and lower bars and means for operating the rod, substantially as described.

10. In combination, the mandrel, the seaming-die, the cross-head carrying the same, the eccentric and rod for operating the cross-head, the thrust-block, the eccentrics and rods for operating the same, in opposition to the seaming-die and the shaft for operating the said connections, said seaming-die cross-head being guided on the rods of the thrust-block, substantially as described.

11. In combination, the elongated mandrel, the seaming-die, the shaft connected thereto for operating the same, the feed-slide, the rock-shaft having connections thereto for the same and solder-feeding mechanism connected with the rock-shaft to be operated thereby, substantially as described.

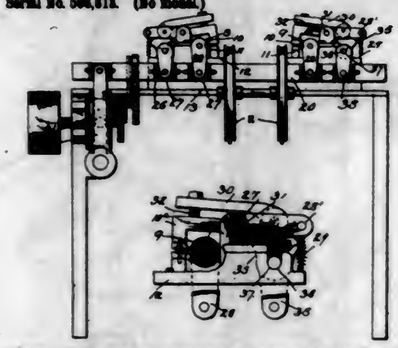
12. In combination, the means for holding the can-blank, and the soldering device comprising the feed-wheels between which the wire-solder is moved, and means for retracting one feed-wheel from the other to stop the feed, substantially as described.

13. In combination, the hollow mandrel, having a slit, the burners within the mandrel, the inclined deflectors to direct the flames to the slit and the soldering devices without the mandrel, substantially as described.

14. In combination, the upright frame, the mandrel projecting through the same to the front and to the rear, a bracket extending

from the frame to support the front end of the mandrel, the rear end being free and unsupported, the seaming-die and thrust-block operating at the forward part of the mandrel, the burners within the rear of the mandrel and the wire-solder-feeding device on the outside of the mandrel, substantially as described.

577,458. CAN-MAKING MACHINE. JOHN SOLTER, Baltimore, Md., assignor to John R. Mitchell, same place. Filed June 23, 1896. Serial No. 596,613. (No model.)



Claim.—1. In can-making machinery, means for holding the can-blanks, and breaking-rollers arranged on fixed axis at opposite edges of the said blanks, with means for oscillating the rollers about their axis to bend the projecting edges of the blanks, the edges being partially bent as the rollers turn one way and completely bent as the rollers turn in the reverse direction, substantially as described.

2. In combination, the gripping-jaws, the breaking-rollers, means for oscillating the rollers about their axis to bend the edges of the metal on each stroke and means for feeding the blanks between the gripping-jaws to leave the edges of the same exposed to be engaged by the breaking-rollers, the axis of said break-rollers bearing a fixed relation to the gripping-jaws, substantially as described.

3. In combination, the gripping-jaws for the can-blanks, breaking-rollers with means for moving the same, an endless carrier moving step by step in a constant forward direction to move the blanks between the jaws, said carrier remaining in its moved position until the can-blank is bent, substantially as described.

4. In combination, clamping means, the breaking-rollers, arranged to engage the opposite edges of the blank, the step-by-step endless carrier arranged to feed the blanks with their edges projecting and pawl-and-ratchet mechanism for giving the carrier a step-by-step movement, the movement of the carrier being always forward and being arrested during the bending of the edges, substantially as described.

5. In combination, the clamping-jaws for gripping the blanks, to leave the edges exposed and break-rollers to engage the opposite edges of the blanks and means for partially rotating the rollers back and forth in opposite directions to bend one edge upwardly and the other downwardly, the said rollers bending the edges partially as they move one way and completing the bending as they return substantially as described.

6. In combination, the gripping-jaws, one of which has an inclined face and a break-roller adapted to engage the projecting end of the can-blank to bend the same upon the inclined face, said roller having an oscillating movement to partially bend the blank as it moves one way and to bend it onto the inclined face as it returns, substantially as described.

7. In combination, the gripping-jaws and a break-roller having a plurality of independent shoulders for bending the projecting end of the can-blank, substantially as described.

8. In combination, the gripping-jaws, a shouldered breaking-roller arranged to have rotary oscillation, and means for oscillating the break-roller to and fro to bring first one shoulder and then the other into contact with the projecting edge of the blank, substantially as described.

9. In combination, means for holding the blank and a break-roller having a shoulder 16, a rounded shoulder 17, with a recess between them and a third shoulder 19, substantially as described.

10. In combination, the holding means for the blank having an inclined face 18, a break-roller having a recess, a shoulder on each side of the same and a third shoulder adapted to force the edge of the blank upon an inclined face 18, and means for oscillating the break-roller, substantially as described.

11. In combination, means for holding the can-blanks, a break-roller and means for operating the break-roller and clamp comprising the reciprocating bar with connections to the break-roller and to the clamp, said connections comprising the roller connecting the drive-rod and break-roller and a second roller connected with the drive-rod and having intermediate connections to the clamp, substantially as described.

12. In combination, the clamp comprising the movable jaw, the oscillating break-roller, the lever carrying the clamp, the reciprocating drive-rod, the connection between the same and the break-roller and means for operating the clamp-lever, comprising the segment connected with the drive-rod, substantially as described.

13. In combination, the clamp comprising the movable jaw, the oscillating break-roller and means for controlling the clamp, comprising the oscillating segment and the reciprocating drive-bar for oscillating both the break-roller and the segment, substantially as described.

14. In combination, the clamp comprising the movable jaws, the lever carrying the same, the lever 30 having an adjustable connection therewith, the oscillating segment arranged to move the lever 30, the oscillating break-roller and means for moving said roller and segment, comprising the rollers connected with the break-roller and segment respectively and the drive-rod for moving said rollers, substantially as described.

15. In combination, the clamp, comprising the movable jaw, the lever carrying the same having an extension, the spring controlling the same, the lever 30 having an adjustable connection with the clamp-lever, the oscillating segment arranged to operate the lever 30, the oscillating break-roller and means for moving the same and the segment, substantially as described.

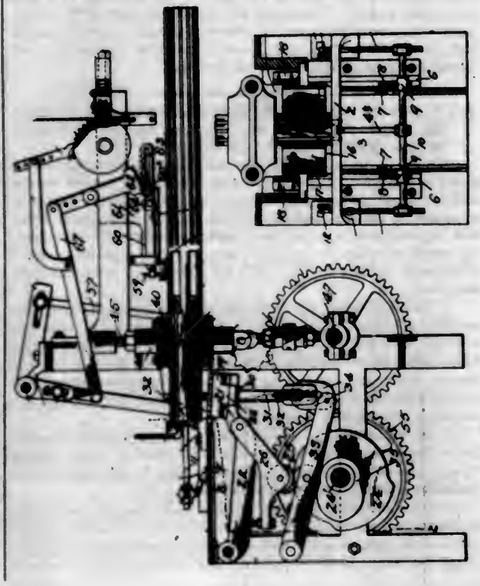
16. In combination, the two clamps, the two oscillating breaking-rollers, the drive-rod extending across the machine, means for reciprocating the same and vertically-extending arms connecting the drive-rod and oscillating rollers and independent arms connecting the drive-rod and clamps, substantially as described.

17. In combination, clamping means, the break-roller, the reciprocating drive-rod connected independently to said parts, the cam-shaft, the cam and lever connected with the drive-rod, the feed-carrier, and means for giving the same intermittent and constant forward movement, said means being connected with the cam-shaft and being arranged to remain stationary during the bending of the edge of the blank, substantially as described.

18. In combination, the clamps to hold the blank with its edge exposed and the oscillating roller arranged on a fixed axis and operating on said projecting end, said roller receiving the blank at its periphery, substantially as described.

19. In combination, the clamps and a break-roller having a back-and-forth movement and bending the edge partially on one movement and completing the bending on the return of the roller to normal position.

577,459. CAN-MAKING MACHINE. JOHN SOLTER, Baltimore, Md., assignor of one-half to George L. Krebs, same place. Filed Sept. 12, 1896. Serial No. 605,659. (No model.)



Claim.—1. In combination the mandrel having a reduced extension, and a pair of folding-wings pivotally supported and adapted to fold a blank of flat form about the reduced part of the mandrel and means for operating the wings, the edges of the blank being interlocked by the retraction of the wings, substantially as described.

2. In combination the mandrel having a reduced extension, a seaming-die operating at the part of the mandrel of the full diameter, the pivoted folding-wings, operating against the reduced part of the mandrel and operating means therefor to permit the retraction of one wing in advance of the other to interlock the edges of the can-blank, substantially as described.

3. In combination the seaming-die, a mandrel having a reduced extension beyond the same and adapted to permit the feeding thereto of a flat can-body blank and means for folding said blank from its flat form about the reduced extension and for interlocking the seam, substantially as described.

4. In combination the seaming-die, a mandrel having a reduced extension and pivoted folding-wings operating at the reduced extension, substantially as described.

5. In combination the seaming-die, a mandrel having a terminal extension beyond the die of reduced diameter adapted to permit the feeding of the blanks directly thereto and folders operating at the said reduced terminal extension, substantially as described.

6. In combination the seaming-die, the mandrel having the reduced extension beyond the same, the folders operating at said reduced extension, and means for feeding the blanks automatically between the reduced extension and the folders, substantially as described.

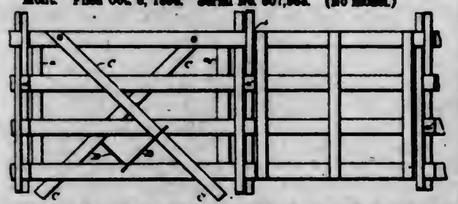
7. In combination the feed-table, the cross-trus extending in arch form over the same, the mandrel having its forward extension secured thereto, the folders arranged to operate on said extension, the seaming-die in rear of said extension, and the feed mechanism operating over the folding-table, substantially as described.

8. In combination the mandrel, the pivoted folders, the clamp-block carrying the same, the lever carrying the clamp-block, the cross-head for operating the pivoted folders and means for operating the lever and cross-head, substantially as described.

9. In combination the die and thrust-block, the mandrel, the folding mechanism, the cam-shaft and cams for operating the folding mechanism, the crank-shaft for operating the seaming-die and thrust-block, and the gearing between the said cam and crank shafts, substantially as described.

10. In combination the mandrel, the seaming mechanism, the flux-brush, the arm for carrying the same having the rack, the segment for reciprocating the arm and the cam having the double incline, substantially as described.

577,460. PORTABLE FENCE. MARION STEWYER, Iron Mountain, Mont. Filed Oct. 6, 1896. Serial No. 607,962. (No model.)



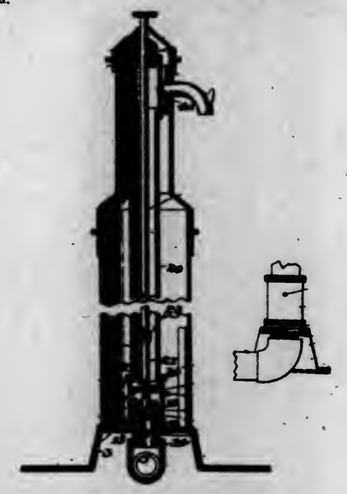
Claim.—In a fence-panel supported by the top rail on transverse cross-stakes and having the rails connected by vertical stiles, the diagonal cross-braces C C, and pivoted on opposite sides of the panel to the top rail, passing through keepers near bottom of the panel and extending into the ground as shown and described.

577,461. HYDRANT. JOHN O. STEINER, Sunbury, Pa., assignor of one-half to George R. Cadwallader, same place. Filed July 18, 1896. Serial No. 599,664. (No model.)

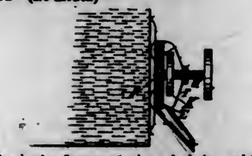
Claim.—1. In a hydrant, the combination with the service-pipe, the frost-casing and the valve-casing, of a separate base or support consisting of a bridge-piece adapted to extend over the service-pipe, said bridge-piece having an opening or socket at its center to receive the valve-casing, guides to hold the frost-casing in position, and depending legs, provided with outwardly-extending feet, at each end, substantially as described.

2. In a hydrant, the combination with the frost-casing, the valve-casing and the service-pipe, of a base or support extending over the service-pipe and having an opening or socket engaging the lower part of the valve-casing to prevent it from turning, and upwardly-extending guides at its ends fitting within the frost-casing to hold it in position, substantially as described.

3. In a hydrant, the combination with a base or support having legs and a bridge-piece adapted to extend over the service-pipe and provided with a central angular opening or socket, of a valve-casing formed in two or more parts, one of the parts extending through the opening in the bridge-piece and forming the connection to the service-pipe, said part having an angular section engaging the socket, and a flange adapted to rest upon said bridge-piece, substantially as described.



577,462. DEVICE FOR OPENING OR CLOSING VESSELS CONTAINING LIQUIDS. JAMES T. STEWART, Los Angeles, Cal., assignor of one-half to William McLean, same place. Filed June 15, 1896. Serial No. 595,644. (No model.)



Claim.—1. The device for puncturing a hole in, and for opening and closing metallic cans or vessels containing kerosene or other liquid—consisting of an annular seat, a cork or elastic ring or disk above said seat, a dome having a screwed nut in the outer end thereof, a screwed stem provided with a milled head at its outer end, and whose inner end is a puncturing-point and valve for closing or opening the punctured hole in the can—said screwed stem having a flange above the puncturing-point for compressing the elastic ring against the annular seat, the spout, all operating together in the manner and for the purposes substantially as set forth.

2. The combination of a can or vessel an annular seat, a dome, a screwed nut at the center of said dome, a screwed stem whose outer end carries a milled head, on which stem a flange is fixed and whose inner end is a puncturing conical point which also acts as a valve for opening and closing the punctured hole—the elastic ring between the annular seat and flange upon the valve-stem, the spout, all operating together in the manner and for the purposes substantially as set forth.

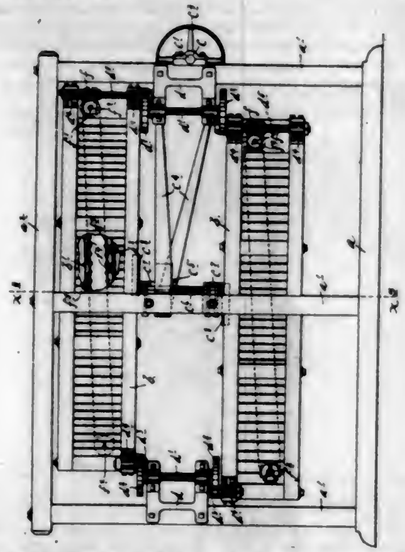
577,463. BRUSH-MOTION FOR GYRATORY SIEVES. WILLIAM J. STEWART, Minneapolis, Minn. Filed Apr. 27, 1896. Serial No. 589,284. (No model.)

Claim.—1. The combination with a primary body, of a crank-shaft having its crank portion connected thereto, a secondary body carried by said primary body, but movable in respect thereto, and driving connections operated by said crank for causing said secondary body to move in respect to said primary body.

2. The combination with a primary body mounted for gyrating movement, of a crank-shaft having its crank portion connected thereto, a secondary body carried by said primary body but movable in respect thereto, and driving connections operated by said crank for causing said secondary body to move in respect to said primary body.

3. The combination with a supporting-frame for a gyrating sieve, of a crank-shaft having its crank portion connected to said frame, a traveling body carried by said frame, and driving connections from

said crank to said traveling body for causing the same to move in respect to said frame.

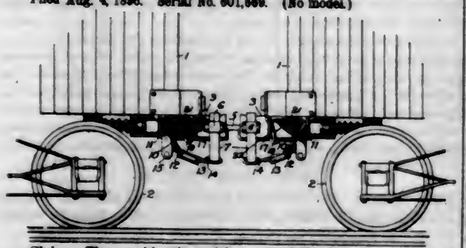


4. The combination with a supporting-frame and a gyrating sieve-box, of crank-shafts on said frame having their pins connected to said box, for cooperation in supporting and gyrating the same, a traveling brush on said box, for cleaning the sifting-surface, and driving connections, on said box, for operating said brush from one of said crank-pins, substantially as described.

5. The combination with a supporting-frame and a gyrating sieve-box, of crank-shafts on said frame having crank-pins connected to said box, for cooperation in supporting and gyrating the same, a traveling brush, on said box, for cleaning the sifting-surface, and a drive for the same, including a worm on one of said crank-pins engaging a worm-gear on one of the brush supporting and operating shafts, substantially as described.

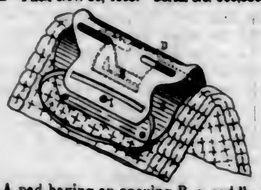
6. The combination with a suitable supporting-frame, of the pair of sieve-boxes *b*, the central shaft c^4, on said frame, having the eccentrics or cranks c^5 engaging said sieve-boxes, the corner crank-shafts d' d^2 having crank-pins engaging with the corners of said sieve-boxes, the worms *f* on two of said crank-pins the traveling-brush devices f^4 f^5, the supporting and driving shafts f^2, for the same, and the worm-gears f' on certain of said shafts f^2, engaging with said worms *f* on said crank-pins, all for cooperation, substantially as described.

577,464. CAR-COUPLING. JACKSON F. SWIFT, Stroud, Ala. Filed Aug. 4, 1896. Serial No. 601,669. (No model.)



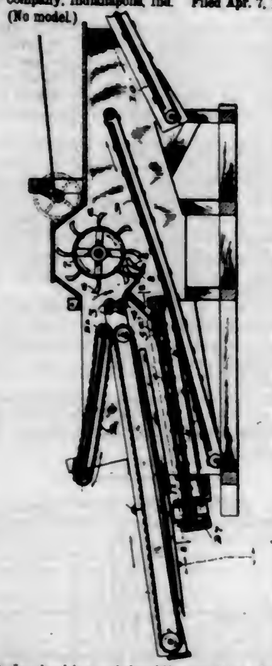
Claim.—The combination with a car, of the draw-head thereof, having a recess in its forward end for receiving the coupling-link, a stirrup slidingly mounted on the side of said draw-head, a coupling-pin secured to said stirrup and projecting through an opening in said draw-head, a rock-shaft mounted in suitable bearings on the under side of the car and having operating-handles thereon which project outwardly from the side of the car and a lever fulcrumed upon the under side of the car, loosely connected at its free end to said stirrup and provided with a slot or guide through which a crank-arm on said rock-shaft passes, whereby, upon the turning of said rock-shaft, said stirrup may be raised and lowered and the cars coupled or uncoupled, substantially as described.

577,465. HORSE-COLLAR PAD. WILLIAM V. TASCHER, Mishawaka, Ind. Filed Nov. 20, 1895. Serial No. 569,569. (No model.)



Claim.—A pad having an opening B, a saddle portion C with a corresponding opening fastened thereto, and a rocking support D, elevated above and pivoted to the saddle portion at or near the center of its lower edges, substantially as shown and described.

577,466. CORN-HUSKER AND FODDER-SHREDDER. FREEMAN M. TEEGUARDEN, Colfax, Ind., assignor to the Safety Corn Husker and Shredder Company, Indianapolis, Ind. Filed Apr. 7, 1896. Serial No. 586,536. (No model.)



Claim.—1. In a husking and shredding machine, the combination, of the two feeding carrier-belts, the frame of the upper one being swung loosely on its shaft, the snapping-rolls just at the point of delivery of said belts, an inclined concave with knives just behind said snapping-rolls to receive the fodder, a shredding-roll with knives mounted to revolve just above said concave, and the husking-rolls beneath and in front of said snapping-rolls, and mechanism geared thereto for driving the same beyond the point of delivery for the corn, all substantially as set forth.

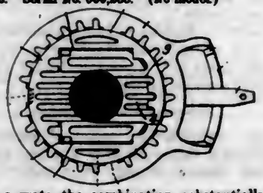
2. The combination, in a husking-machine, with the feeding carriers and snapping-rolls, of husking-rolls in the form of plain cylinders having alternate projections and depressions and short knives and corresponding grooves opposite each other at the upper end of each pair, substantially as shown and described.

3. The combination, in a husking-machine, of several pairs of husking-rolls all geared together and running in pairs the shafts whereof project outwardly beyond the ends of the rolls, driving-gears for said rolls on the ends of said shaft, and an off-bearing carrier-belt for the corn traveling at the lower ends of said rolls, between them and their gears, substantially as shown and described.

4. The combination, in a husking-machine, of a series of husking-rolls mounted in loose yielding bearings and provided with a series of gears on the lower ends of the shafts beyond the operative portions of the rolls and the off-bearing belt, all said gears being arranged in a single train, and a driving-belt connected to the end of a centrally-located roll-shaft, substantially as shown and described.

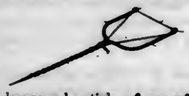
5. The combination, in a husking-machine, with the feeding carriers and snapping-rolls, of husking-rolls running in pairs one roll of each pair being provided with a knife at the upper end, and the opposing roll of the pair being provided with a corresponding groove whereby the husk-points and silk may be clipped off as the points of the ears reach said husking-rolls, substantially as and for the purpose set forth.

577,467. STOVE-GRATE. WILLIAM THOMPSON, St. Louis, Mo., assignor to the Buck's Stove and Range Company, same place. Filed Oct. 19, 1896. Serial No. 609,285. (No model.)



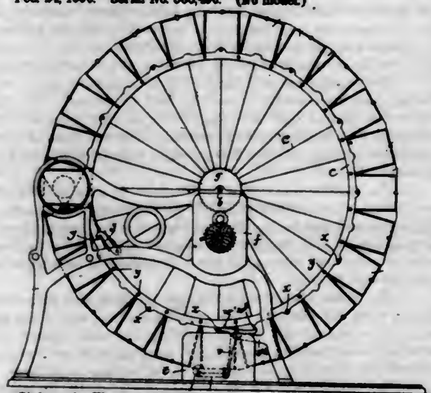
Claim.—In a grate, the combination, substantially as set forth, of a shaking main grate having a centrally-disposed cone upon its upper surface and having large discharge-openings at the base of the cone, and a subgrate supported by and sliding in guides under the main grate and shaking with the main grate and having gratings normally closing said discharge-openings and adapted for sliding withdrawal to leave those discharge-openings free.

577,468. TOOTHPICK. HENRY T. TEMINGTON, Aspen, Colo. Filed Aug. 13, 1896. Serial No. 602,685. (No model.)



Claim.—As an improved article of manufacture, the toothpick herein described, formed of a single piece of metal bent at its center and elongated and sharpened to form a point and twisted from its point to form a straight handle, the material branching from the end of said handle forming a substantially U-shaped portion with the ends of the material bent to form eyes, and a thread passed through said eyes and having its ends twisted about and secured to the twisted handle at the point beyond the junction thereof with the U-shaped portion, all substantially as described.

577,469. AUTOMATIC STEREOPTICON. WILLIS L. VELEY, Chicago, Ill., assignor of one-half to Grove L. Brownell, same place. Filed Feb. 24, 1896. Serial No. 580,496. (No model.)

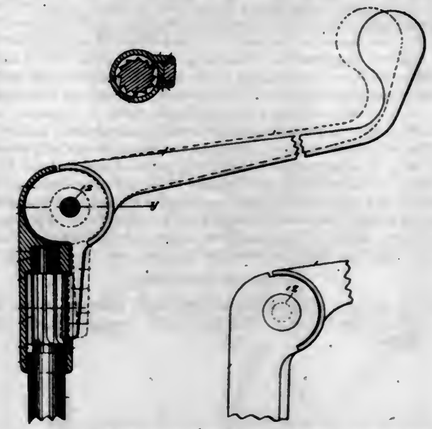


Claim.—1. The combination with a lens and source of light of a wheel provided with a series of lantern-slide frames upon or near its periphery, said frames being arranged to intervene in their path of rotation between said light and lens, means for rotating said wheel, an escapement mechanism in operative proximity to said wheel for alternately engaging and releasing the same, a shutter for cutting off the light from the lens, and means for automatically closing said shutter during the movement of the wheel for the purpose of shifting said slides, substantially as described.

2. An automatic stereopticon in which the lantern-slides are mounted upon the periphery of a wheel arranged to be rotated in a vertical plane between the lantern and lens, clock mechanism for alternately starting and stopping the same as each view is brought into registration with the lens, shutter-wings pivotally mounted between the lens and light, a lever in operative connection with said shutter-wings for actuating the same, and a series of pins upon said wheel for engaging and releasing said lever as the wheel is rotated, substantially as described.

3. The combination in a stereopticon of a source of light, a lens, a wheel for supporting the lantern-slides upon its periphery, means for automatically rotating the same step by step, shutter-wings *o o*, a series of pins upon the periphery of said wheel, and a pivoted lever operatively intervening between said pins and shutter-wings, substantially as set forth.

577,470. BRAKE-HANDLE. JOHN D. WALDRAN, St. Louis, Mo., assignor, by direct and mesne assignments, to Lab Sturdevant, trustee, same place. Filed Dec. 7, 1896. Serial No. 614,839. (No model.)



Claim.—1. In a brake-staff and handle therefor, a suitable brake-staff, a ratchet carried thereby having teeth disposed parallel to the axis of rotation of the staff, a socket loosely passed over the ratchet, a brake-handle pivotally carried by the socket, and a pawl, carried by the handle, adapted to normally engage with the teeth of the ratchet, and adapted to be disengaged from said teeth upon the movement of the handle in one direction, substantially as set forth.

2. In a brake-staff and handle therefor, a suitable brake-staff, a ratchet carried thereby and having teeth disposed substantially parallel with the axis of rotation of the staff, a socket adapted to be passed over the ratchet, a handle pivoted to said socket, an arm depending from the handle below the pivotal point of the latter, and a pawl carried by the depending arm and adapted to play in a suitable opening formed in the socket and adapted to engage the teeth of the ratchet by the gravitating action of the handle, substantially as set forth.

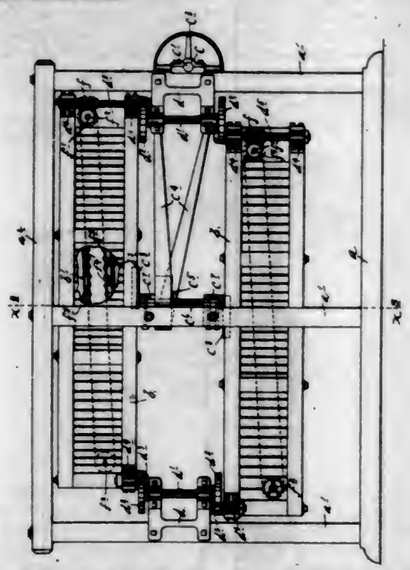
3. In a brake-staff and handle therefor, a suitable brake-staff, a ratchet carried thereby and having teeth disposed substantially parallel with the axis of rotation of the staff, a socket adapted to be passed over the ratchet and rotating freely about the staff, one side of the socket being open, a chamber having lateral bounding-walls formed at the upper end of the socket, a brake-handle having an expanded base pivoted within said chamber, the handle being adapted to oscillate in a vertical plane, an arm depending from the base of the handle and carrying a pawl adapted to play in the space formed in the socket and to engage with the ratchet under the gravitating action of the handle, the said pawl being adapted to be disengaged from the ratchet by the tilting of the handle upwardly, substantially as set forth.

4. In a brake-handle, a suitable handle proper, adapted to be pivotally mounted on top of a brake-staff, an arm depending from the pivotal base of the handle, a plate carried by the arm, and a deflected wing forming a part of the plate and serving as a pawl, said pawl being tapering from its base upward, and having a ratchet-engaging bevel edge, substantially as set forth.

577,471. TRUCK. WILLIAM H. WARD, Mound City, Kans. Filed Sept. 25, 1896. Serial No. 606,963. (No model.)

Claim.—1. A truck, comprising a main frame, which is supported on wheels in the usual manner, a supplemental frame mounted thereon and pivotally connected therewith, centrally thereof, and adapted to

said crank to said traveling body for causing the same to move in respect to said frame.

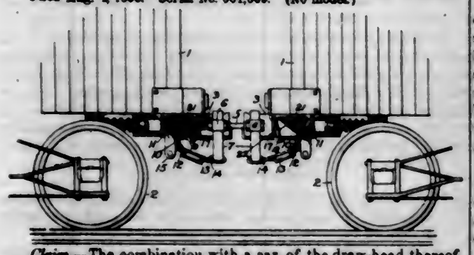


4. The combination with a supporting-frame and a gyrating sieve-box, of crank-shafts on said frame having their pins connected to said box, for cooperation in supporting and gyrating the same, a traveling brush on said box, for cleaning the sifting-surface, and driving connections, on said box, for operating said brush from one of said crank-pins, substantially as described.

5. The combination with a supporting-frame and a gyrating sieve-box, of crank-shafts on said frame having crank-pins connected to said box, for cooperation in supporting and gyrating the same, a traveling brush, on said box, for cleaning the sifting-surface, and a drive for the same, including a worm on one of said crank-pins engaging a worm-gear on one of the brush supporting and operating shafts, substantially as described.

6. The combination with a suitable supporting-frame, of the pair of sieve-boxes *b*, the central shaft c^2, on said frame, having the eccentrics or cranks c^3 engaging said sieve-boxes, the corner crank-shafts d' d^2 having crank-pins engaging with the corners of said sieve-boxes, the worms *f* on two of said crank-pins the traveling-brush devices f^4 f^5, the supporting and driving shafts f^2, for the same, and the worm-gears f' on certain of said shafts f^2, engaging with said worms *f* on said crank-pins, all for cooperation, substantially as described.

577,464. CAR-COUPLING. JACKSON P. SWIFT, Stroud, Ala. Filed Aug. 4, 1896. Serial No. 601,669. (No model.)



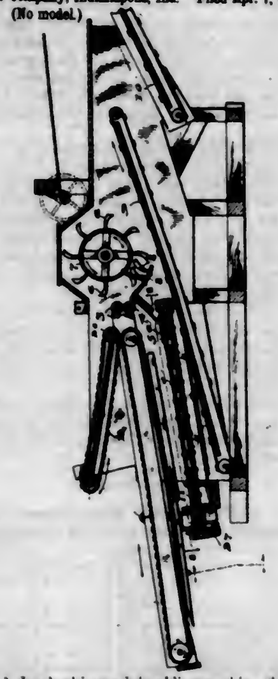
Claim.—The combination with a car, of the draw-head thereof, having a recess in its forward end for receiving the coupling-link, a stirrup slidingly mounted on the side of said draw-head, a coupling-pin secured to said stirrup and projecting through an opening in said draw-head, a rock-shaft mounted in suitable bearings on the under side of the car and having operating-handles thereon which project outwardly from the side of the car and a lever fulcrumed upon the under side of the car, loosely connected at its free end to said stirrup and provided with a slot or guide through which a crank-arm on said rock-shaft passes, whereby, upon the turning of said rock-shaft, said stirrup may be raised and lowered and the cars coupled or uncoupled, substantially as described.

577,465. HORSE-COLLAR PAD. WILLIAM V. YAGGER, Mishawaka, Ind. Filed Nov. 20, 1895. Serial No. 569,569. (No model.)



Claim.—A pad having an opening B, a saddle portion C with a corresponding opening fastened thereto, and a rocking support D, elevated above and pivoted to the saddle portion at or near the center of its lower edges, substantially as shown and described.

577,466. CORN-HUSKER AND FODDER-SHREDDER. FREEMAN M. TERBUARDEN, Colfax, Ind., assignor to the Safety Corn Husker and Shredder Company, Indianapolis, Ind. Filed Apr. 7, 1896. Serial No. 586,536. (No model.)



Claim.—1. In a husking and shredding machine, the combination, of the two feeding carrier-belts, the frame of the upper one being swung loosely on its shaft, the snapping-rolls just at the point of delivery of said belts, an inclined concave with knives just behind said snapping-rolls to receive the fodder, a shredding-roll with knives mounted to revolve just above said concave, and the husking-rolls beneath and in front of said snapping-rolls, and mechanism geared thereto for driving the same beyond the point of delivery for the corn, all substantially as set forth.

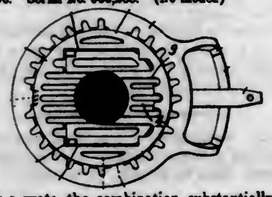
2. The combination, in a husking-machine, with the feeding carriers and snapping-rolls, of husking-rolls in the form of plain cylinders having alternate projections and depressions and short knives and corresponding grooves opposite each other at the upper end of each pair, substantially as shown and described.

3. The combination, in a husking-machine, of several pairs of husking-rolls all geared together and running in pairs the shafts whereof project outwardly beyond the ends of the rolls, driving-gears for said rolls on the ends of said shaft, and an off-bearing carrier-belt for the corn traveling at the lower ends of said rolls, between them and their gears, substantially as shown and described.

4. The combination, in a husking-machine, of a series of husking-rolls mounted in loose yielding bearings and provided with a series of gears on the lower ends of the shafts beyond the operative portions of the rolls and the off-bearing belt, all said gears being arranged in a single train, and a driving-belt connected to the end of a centrally-located roll-shaft, substantially as shown and described.

5. The combination, in a husking-machine, with the feeding carriers and snapping-rolls, of husking-rolls running in pairs one roll of each pair being provided with a knife at the upper end, and the opposing roll of the pair being provided with a corresponding groove whereby the husk-points and silk may be clipped off as the points of the ears reach said husking-rolls, substantially as and for the purpose set forth.

577,467. STOVE-GRATE. WILLIAM THOMPSON, St. Louis, Mo., assignor to the Buck's Stove and Range Company, same place. Filed Oct. 19, 1896. Serial No. 609,285. (No model.)



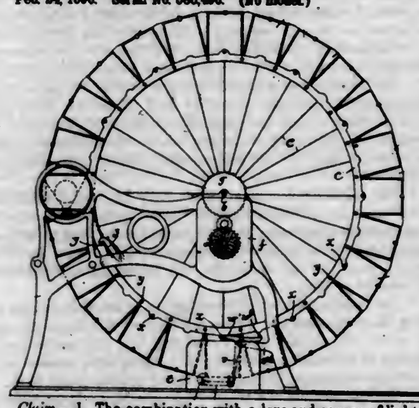
Claim.—In a grate, the combination, substantially as set forth, of a shaking main grate having a centrally-disposed cone upon its upper surface and having large discharge-openings at the base of the cone, and a subgrate supported by and sliding in guides under the main grate and shaking with the main grate and having gratings normally closing said discharge-openings and adapted for sliding withdrawal to leave those discharge-openings free.

577,468. TOOTHPICK. HENRY T. TREMINGTON, Aspen, Colo. Filed Aug. 13, 1896. Serial No. 602,685. (No model.)



Claim.—As an improved article of manufacture, the toothpick herein described, formed of a single piece of metal bent at its center and elongated and sharpened to form a point and twisted from its point to form a straight handle, the material branching from the end of said handle forming a substantially U-shaped portion with the ends of the material bent to form eyes, and a thread passed through said eyes and having its ends twisted about and secured to the twisted handle at the point beyond the junction thereof with the U-shaped portion, all substantially as described.

577,469. AUTOMATIC STEREOPTICON. WILLIS L. VELEY, Chicago, Ill., assignor of one-half to Grove L. Brownell, same place. Filed Feb. 24, 1896. Serial No. 580,496. (No model.)

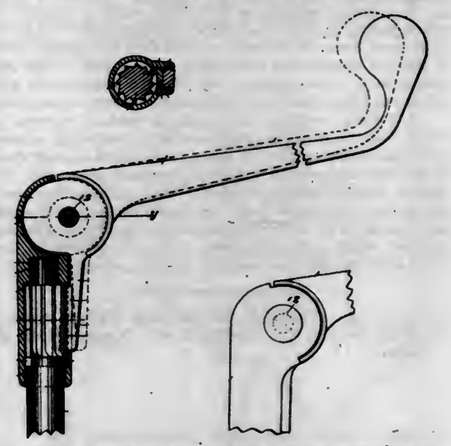


Claim.—1. The combination with a lens and source of light of a wheel provided with a series of lantern-slide frames upon or near its periphery, said frames being arranged to intervene in their path of rotation between said light and lens, means for rotating said wheel, an escapement mechanism in operative proximity to said wheel for alternately engaging and releasing the same, a shutter for cutting off the light from the lens, and means for automatically closing said shutter during the movement of the wheel for the purpose of shifting said slides, substantially as described.

2. An automatic stereopticon in which the lantern-slides are mounted upon the periphery of a wheel arranged to be rotated in a vertical plane between the lantern and lens, clock mechanism for alternately starting and stopping the same as each view is brought into registration with the lens, shutter-wings pivotally mounted between the lens and light, a lever in operative connection with said shutter-wings for actuating the same, and a series of pins upon said wheel for engaging and releasing said lever as the wheel is rotated, substantially as described.

3. The combination in a stereopticon of a source of light, a lens, a wheel for supporting the lantern-slides upon its periphery, means for automatically rotating the same step by step, shutter-wings *v o*, a series of pins upon the periphery of said wheel, and a pivoted lever operatively intervening between said pins and shutter-wings, substantially as set forth.

577,470. BRAKE-HANDLE. JOHN D. WALDRAN, St. Louis, Mo., assignor, by direct and mesne assignments, to Lois Sturdevant, trustee, same place. Filed Dec. 7, 1896. Serial No. 614,839. (No model.)



Claim.—1. In a brake-staff and handle therefor, a suitable brake-staff, a ratchet carried thereby having teeth disposed parallel to the axis of rotation of the staff, a socket loosely passed over the ratchet, a brake-handle pivotally carried by the socket, and a pawl, carried by the handle, adapted to normally engage with the teeth of the ratchet, and adapted to be disengaged from said teeth upon the movement of the handle in one direction, substantially as set forth.

2. In a brake-staff and handle therefor, a suitable brake-staff, a ratchet carried thereby and having teeth disposed substantially parallel with the axis of rotation of the staff, a socket adapted to be passed over the ratchet, a handle pivoted to said socket, an arm depending from the handle below the pivotal point of the latter, and a pawl carried by the depending arm and adapted to play in a suitable opening formed in the socket and adapted to engage the teeth of the ratchet by the gravitating action of the handle, substantially as set forth.

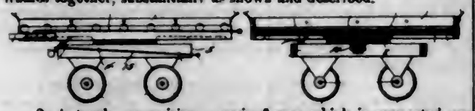
3. In a brake-staff and handle therefor, a suitable brake-staff, a ratchet carried thereby and having teeth disposed substantially parallel with the axis of rotation of the staff, a socket adapted to be passed over the ratchet and rotating freely about the staff, one side of the socket being open, a chamber having lateral bounding-walls formed at the upper end of the socket, a brake-handle having an expanded base pivoted within said chamber, the handle being adapted to oscillate in a vertical plane, an arm depending from the base of the handle and carrying a pawl adapted to play in the space formed in the socket and to engage with the ratchet under the gravitating action of the handle, the said pawl being adapted to be disengaged from the ratchet by the tilting of the handle upwardly, substantially as set forth.

4. In a brake-handle, a suitable handle proper, adapted to be pivotally mounted on top of a brake-staff, an arm depending from the pivotal base of the handle, a plate carried by the arm, and a deflected wing forming a part of the plate and serving as a pawl, said pawl being tapering from its base upward, and having a ratchet-engaging bevel edge, substantially as set forth.

577,471. TRUCK. WILLIAM H. WARD, Mound City, Kans. Filed Sept. 26, 1896. Serial No. 606,963. (No model.)

Claim.—1. A truck, comprising a main frame, which is supported on wheels in the usual manner, a supplemental frame mounted thereon and pivotally connected therewith, centrally thereof, and adapted to

turn thereon, and an auxiliary frame mounted on said supplemental frame, and adapted to slide thereon, and means for locking said frames together, substantially as shown and described.

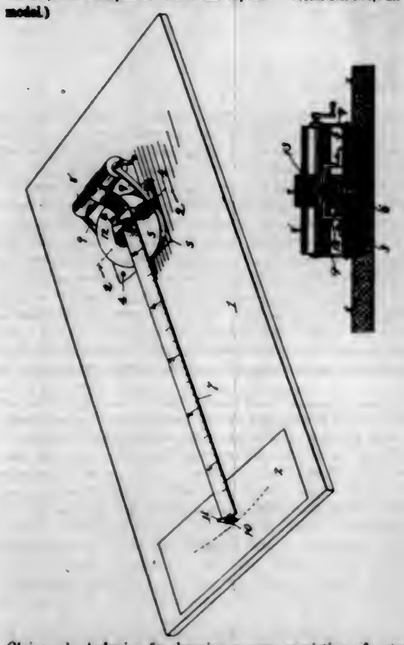


2. A truck, comprising a main frame, which is supported on wheels in the usual manner, a supplemental frame mounted thereon and pivotally connected therewith, centrally thereof, and adapted to turn thereon, and an auxiliary frame mounted on said supplemental frame, and adapted to slide thereon, and means for locking said frames together, said supplemental frame being also provided with vertical side strips between which the auxiliary frame is adapted to move and said auxiliary frame being provided with revolvable rollers or supports at each side thereof, substantially as shown and described.

3. A truck, comprising a main frame which is supported on wheels in the usual manner, a supplemental frame revolubly mounted on the main frame and pivotally connected therewith centrally thereof, and said supplemental frame being provided with vertical side walls or strips and an auxiliary frame which is longitudinally movable in said supplemental frame, substantially as shown and described.

4. A truck, comprising a main frame which is supported on wheels in the usual manner, a supplemental frame revolubly mounted on the main frame and pivotally connected therewith centrally thereof, and said supplemental frame being provided with vertical side walls or strips and an auxiliary frame which is longitudinally movable on said supplemental frame, and devices for locking the supplemental frame to the main frame, and the auxiliary frame to the supplemental frame, said devices being adapted to be operated from either end of the truck, substantially as shown and described.

577,472. APPARATUS FOR DRAWING CURVES. JOSEPH H. WHITE, New York, N. Y. Filed Jan. 31, 1896. Serial No. 577,542. (No model.)



Claim.—1. A device for drawing curves, consisting of a stationary member; a rotary member mounted upon the stationary member; a graduated measuring-tape; and a clamp for clamping said tape upon said rotary member.

2. A device for drawing curves, consisting of a drafting board or table; a stationary member embedded in said table; a rotary member mounted upon the stationary member; a graduated measuring-tape; and a clamp for clamping said tape upon said rotary member.

3. A device for drawing curves, consisting of a stationary member; a rotary member; a measuring-tape; a reel or roller for said tape, secured to the rotary member; and a clamp for clamping said tape to said rotary member.

4. A device for drawing curves, consisting of a stationary member; a rotary member; a graduated measuring-tape; and a set-screw located above the rotary member for clamping said tape to said rotary member.

5. A device for drawing curves, consisting of a stationary member; a rotary member; a measuring-tape; a reel or roller for said tape, secured to said rotary member; and a set-screw for clamping said tape to said rotary member.

6. In a device for drawing curves, the combination of a stationary member; a rotary member; a flexible measuring-tape provided on its end with a pencil-holder; and a clamp for clamping said tape upon said rotary member.

7. In a device for drawing curves, the combination of a stationary member, as 3; a rotary member, as 5; a tape as 7, having a pencil-holder, as 10; a reel as 8; a guide as 12; and a set-screw clamp, as 13, 14; for the purposes set forth.

577,473. VEHICLE-TOP. JOHN W. WILDER, Pulaski, N. Y., assignor to Frank H. Wilder and Holly W. Wilder, same place. Filed Apr. 15, 1896. Serial No. 587,553. (No model.)



Claim.—1. The combination of a vehicle-body provided with pockets along the sides of its interior and a top connected to said body and movable from an erect position to a concealed position in the aforesaid pockets.

2. The combination of a vehicle provided with pockets extending along the sides and back of the seat, and a top pivoted to the sides of the vehicle-body adjacent to the front portion of the seat and sliding into the aforesaid pockets in its movement to its lowered position as set forth.

3. The combination with a vehicle, of a top having sector-shaped sides pivoted at the junction of their radial edges to the sides of the body adjacent to the front portion of the seat and provided with a corresponding arc-shaped deck, and pockets extending along the sides and across the rear of the seat for receiving said top in its lowered position as set forth.

4. The combination of a vehicle-body having the rear end portions of its sides formed with vertical sector-shaped pockets on the inner sides thereof and meeting with a pocket extending across the end of the body and curved from top to bottom to conform to the arcs of the aforesaid sectors, and a top having vertical sector-shaped sides pivoted to the body adjacent to the front of the seat and having a corresponding arc-shaped deck, all sliding into the aforesaid pockets in the movement of the top to its lowered position as set forth.

5. The combination of a vehicle-body provided with pockets extending along the sides and across the back of the seat, a top pivoted to the sides of said body and sliding into said pockets in its movement to its lowered position, and weather-strips attached to the exterior of the top near the bottom edges thereof substantially as set forth.

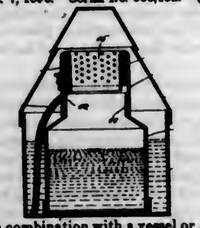
6. The combination with a vehicle-body, of a top formed with sector-shaped and self-sustaining side panels pivoted to the sides of the vehicle-body and having the deck shaped to conform to the segmental edges of said panels and pockets extending along the inner sides and across the rear end of the body to receive said top when in its lowered position.

7. The combination of a vehicle-body provided with pockets extending along the sides and across the back of the seat, a top pivoted to the sides of said body and sliding into said pockets in its movement to its lowered position, and a spring-latch connected to the body for supporting the top in its raised position as set forth.

8. The combination of a vehicle-body provided with pockets extending along the sides and across the back of the seat, a top pivoted to the sides of said body adjacent to the front portion of the seat and sliding into said pockets and housed therein when in its lowered position, and a valance on the front of the said top-covering and tops of the pockets and forming a border to the upholstering of the sides and back of the seat as set forth.

9. The combination with a vehicle-top arranged movable to and from its raised position, of a prop consisting of catches on said top, and a sustaining-latch pivoted to the vehicle and weighted at its lower end to retain it in a vertical position and cause it to automatically release the catch by excessive lateral tilting of the vehicle.

577,474. MUCILAGE-BOTTLE. ELIZABETH G. WOODMAN, Goble, Oreg. Filed Oct. 7, 1896. Serial No. 608,152. (No model.)



Claim.—1. The combination with a vessel or receptacle, which is adapted to be filled or partially filled with water, of a mucilage-bottle which is placed therein, said mucilage-bottle being provided with a neck attachment having an annular chamber the inner wall of which is perforated, and said chamber being adapted to receive a wick which is provided at one side with an extension which projects downwardly into the water receptacle or vessel, substantially as shown and described.

2. The herein-described mucilage-bottle which is provided with an attachment which is tubular in form, and in the upper end of which is an annular chamber which is open at its lower side, and the inner wall of which is perforated, said attachment being provided with a transverse slot in one side, substantially as shown and described.

3. The herein-described mucilage-bottle which is provided with an attachment which is tubular in form, and in the upper end of which is an annular chamber which is open at its lower side, and the inner wall of which is perforated, said attachment being provided with a transverse slot in one side, and the neck of the bottle being provided with a corresponding slot, substantially as shown and described.

4. The herein-described mucilage-bottle which is provided with an attachment which is tubular in form, and in the upper end of which is an annular chamber which is open at its lower side, and the inner wall of which is perforated, said attachment being provided with a transverse slot in one side, and the neck of the bottle being provided with a corresponding slot, and said attachment being also provided with a vertically-movable plate, which is mounted on one side thereof, directly over the slot formed therein, substantially as shown and described.

5. The herein-described mucilage-bottle which is provided with an attachment which is tubular in form, and in the upper end of which is an annular chamber which is open at its lower side, and the inner wall of which is perforated, said attachment being provided with a transverse slot in one side, and the neck of the bottle being provided with a corresponding slot, and said attachment being also provided with a vertically-movable plate, which is mounted on one side thereof, directly over the slot formed therein, said bottle being also adapted to be placed in a water vessel or receptacle, substantially as shown and described.

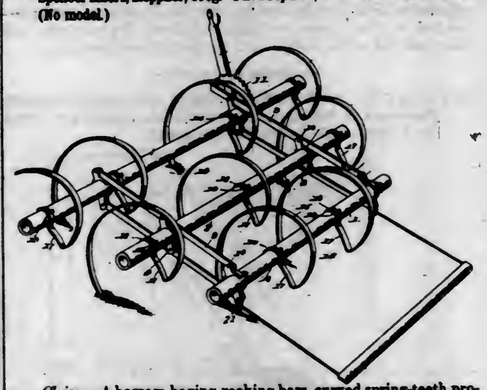
6. The herein-described mucilage-bottle which is provided with an attachment which is tubular in form, and in the upper end of which is an annular chamber which is open at its lower side, and the inner wall of which is perforated, said attachment being provided with a transverse slot in one side, said annular chamber being adapted to receive a wick, which is provided at one side with an extension which projects through said slot, and a water vessel or receptacle in which the mucilage-bottle is placed, substantially as shown and described.

577,475. ANTISLIPPING ATTACHMENT FOR BOOTS OR SHOES. JOSEPH ZANDALASKIE, Scranton, Pa. Filed July 19, 1895. Serial No. 556,543. (No model.)



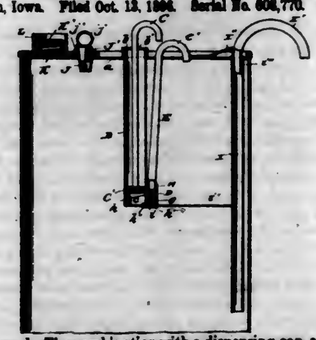
Claim.—An antislipping attachment for boots or shoes, comprising a sole-plate provided with calks and having its rear portion curved and terminating in a curl, and having corresponding ears and wings at its edges, the wings having openings, a strap looped through the openings of the wings and adapted to be buckled over the foot, a heel-plate provided with calks and having a rear and side vertical extensions terminating in loops, and formed with a shank comprising longitudinal members which are deflected to form offsets to engage with the front of the heel and which curve in their length and terminate in curls to come upon opposite sides of the curl at the rear end of the sole-plate, a pin connecting the several curls, a counter-strap having connection with the loop of the said rear vertical extension, and an ankle-strap having connection with the said side vertical extensions of the heel-plate and with the ends of the counter-strap, substantially as shown for the purpose described.

577,476. HARROW. MAURICE L. AKERS, Gooseberry, Oreg., assignor of two-thirds to Roger Montgomery, Hardman, and Alven Spencer Akers, Heppner, Oreg. Filed Sept. 29, 1894. Serial No. 524,509. (No model.)



Claim.—A harrow having rocking bars, curved spring-teeth provided with runner portions, adapted to be disposed to support the harrow, and substantially straight arms springing from the heels of the runner portions and extending inwardly approximately to the centers of the spaces inclosed by the teeth, and terminating in clips secured to the rocking bars, said arms extending radially from the axes of the rocking bars and being adapted when the extremities of the teeth are in operative position to incline downwardly and forwardly from the rocking bars, and when the runner portions are in operative position to incline downwardly and rearwardly from the rocking bars, connections between the rocking bars, and means for securing said rocking bars at the desired adjustment, substantially as specified.

577,477. DISPENSING-CAN. THEOPHILUS W. ALEXANDER, Burlington, Iowa. Filed Oct. 13, 1896. Serial No. 608,770. (No model.)



Claim.—1. The combination with a dispensing-can, a liquid-eduction tube therein, and a piston-cylinder having a piston, of the air-pressure tube E coupled at its lower end to the piston-cylinder, extending through the can-head and provided with an external, elbow-shaped upper extremity *e'* which reenters the can-head and forms a trap, when the can is inverted, against the passage of liquid from the can-chamber to the piston-cylinder, as and for the purposes described.

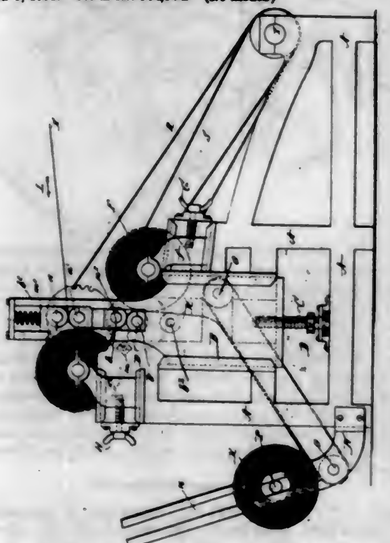
2. The combination with a dispensing-can, a liquid-eduction tube, and a piston-cylinder and a piston, of an air-pressure tube E passing

through the can-head and provided with an external elbow *e* which reënters the can-head to discharge air to the can-chamber and form a trap, should the can be inverted, against the passage of liquid to the piston-cylinder, a valve-tube D united by sealed joints to the lower end of the air-pressure tube and the piston-cylinder, and a ball-valve confined and seated within said valve-tube, as and for the purposes described.

3. The combination with a can, a piston-cylinder, a piston, and an air-pressure-tube, substantially such as described, of the valve-tube D provided with a ground valve-seat, a ball-valve confined within said valve-tube and adapted to its seat, and a hood coupled by hermetic sealed joints to the air-pressure tube and to the piston-cylinder and having the valve-tube housed therein, whereby said hood joins all the parts to the piston-cylinder, as and for the purposes described.

4. The combination with a dispensing-can, a piston-cylinder having a lateral egress-port, and an air-pressure tube, of the valve-tube attached to said air-pressure tube and provided with an internal ground seat and with stops above said seat, a ball-valve confined within the valve-tube, and a slotted hood united hermetically to the air-pressure and valve tubes and to the piston-cylinder, said hood adjusted to bring its slot coincident with the egress-port in the cylinder and to form a space or chamber *i* between the valve tube and the closed end of the hood, as and for the purposes described.

577,478. MACHINE FOR BRUSHING AND ROLLING FABRICS. FREDRICK A. H. DEWALD and EDWARD CRIPPELL, Catskill, N. Y. Filed Oct. 3, 1895. Serial No. 564,574. (No model.)



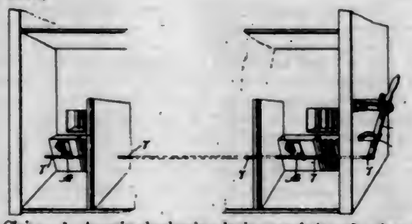
Claim.—1. In a machine for brushing knit goods, woolen goods, plushes &c., the combination with a frame, of the supplemental frame, feed-rollers thereon, said rollers being arranged in pairs, one above the other, a nut and screw for vertically adjusting said feed-roller frame, a brush-roller mounted on the main frame opposite one of the rollers of the upper pair, and a similar brush-roller, mounted on the main frame opposite one of the rollers of the lower pair, adjusting-screws for adjusting said brush-rollers toward or from the feed-rollers of the said adjustable frame, and an idler-roller mounted therein below the lower pair of feed-rollers, substantially as described.

2. In a machine for brushing knit goods, plushes, woolen goods, and other fabrics, the combination with a frame of the supplemental frame, feed-rollers thereon, said feed-rollers being arranged in pairs, and one of said pairs being below the other, a nut and screw for vertically adjusting said feed-roller frame, a brush-roller mounted adjacent to the upper pair of feed-rollers, a corresponding brush-roller mounted adjacent to the lower pair of feed-rollers, and on the opposite side, the idler-roller mounted in the adjustable frame, below the lower pair of feed-rollers, and set-screws for adjusting said brush-rollers relatively to the feed-rollers, substantially as shown and described.

3. In a machine for brushing woven fabrics, such as knit goods, plushes, &c., the combination with a stationary frame, of a supplemental frame mounted therein, a nut and screw for adjusting said supplemental frame, of two pairs of feed-rollers, one pair being below the other, the lower roller of the lower pair projecting in front of the upper roller, a guide-roller mounted in front of the lower feed-roller of the lower pair, a brush-roller, mounted at the front of the machine, adjacent to the upper pair of feed-rollers, a corresponding brush-roller mounted on the opposite side of the adjustable frame adjacent to the lower pair of feed-rollers, and an idler-roller mounted in said adjustable frame below the lower pair of feed-rollers, substantially as described.

4. In a machine for brushing woven fabrics, such as knit goods, plushes, &c., the combination with a stationary frame, of an adjustable frame mounted therein, upper and lower pair of feed-rollers, the lower rollers of the lower pair projecting in front of the upper rollers, a guide-roller mounted in front of the lower feed-roller of the lower pair, a brush-roller, mounted at the front of the machine adjacent to the upper pair of feed-rollers, a corresponding brush-roller mounted on the opposite side of the adjustable frame adjacent to the lower pair of feed-rollers, an idler-roller mounted therein, below the lower pair of feed-rollers, and a rod or bar mounted adjacent to the said guide-roller, substantially as described.

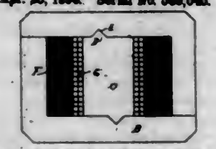
577,479. ANIMAL-RELEASING DEVICE. SAMUEL J. BOKER, South Bethlehem, Pa. Filed June 23, 1896. Serial No. 596,606. (No model.)



Claim.—1. An animal-releasing device, consisting of a plate provided with a keeper, and with a bearing-block, said parts being arranged substantially as described to form a narrow space between them, of a pivoted locking-bolt, constructed to support a halter-ring and arranged so that its free end will pass through a hole in the keeper, a guard located over the bolt, and a rod for actuating the pivoted bolt, substantially as set forth.

2. An animal-releasing device comprising a plate having a keeper and a bearing integral therewith, a bearing-block on said plate, a locking-bolt pivoted to the block and adapted to enter the keeper, a guard secured to the block over the bolt, and an actuating-rod mounted in the bearing and connected to the bolt, substantially as set forth.

577,480. ELECTRIC TRANSFORMER. LUDWIG GUTHARD, Peoria, Ill. Filed Apr. 25, 1896. Serial No. 589,045. (No model.)



Claim.—1. In an electric ironclad transformer the combination of the laminated iron envelop, having its laminæ made each of three punchings of magnetic material, two of them fitting together from opposite sides of the coils, and a center plate entering within the coils and interlocking with the two punchings first named at points out of coincidence, and with successive laminæ reversed, as and for the purpose described.

2. An electric transformer the laminated core of which is built up of laminæ, made each of three sheets or punchings of magnetic material, two of them fitting together from opposite sides of the coils of the transformer, and the third or core plate proper entering within the coil or coils adapted to interlock with the punchings named first, of unequal length on opposite sides of the axial plane of the coils and with superposed layers reversed, as and for the purpose described.

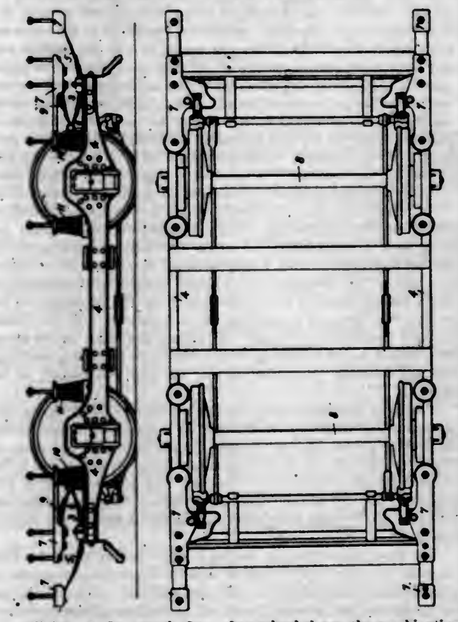
3. In an element-plate for electric transformers, the combination of two equal punchings having limbs of unequal length, recesses provided in one of said limbs, and a third punching placed at right angles to the longer limbs, projections forming the extreme ends of said third punching adapted to be retained in the recesses above named, as and for the purpose described.

4. An element-plate for electric transformers, or similar devices consisting of the combination of two punchings, each having two limbs at an angle to one another, and a recess in one or both of them, and a third plate or punching adapted to be retained in two oppositely-located recesses of the two punchings named first, as and for the purpose described.

5. In an electric transformer-core the combination of two punchings, each having limbs at an angle to one another, and both punchings forming together a symmetrical figure, recesses located in oppositely-located limbs of said punchings, and a third stamping adapted to be retained between the others having projections located unsymmetrically with respect to the axis of said third punching.

6. In an electric transformer the combination, with the transformer-coils of a laminated core built up of laminæ, made each of a central plate projecting out of the coils an unequal distance on opposite sides of the axial plane of the coils, a pair of angle-shaped punchings, and a recess in one arm of said punching for retaining the projection of the plate first named, and with successive laminæ reversed to break joints.

577,481. CAR-TRUCK. MORRIS G. HUBBARD, Jr., Chicago, Ill., assignor to the McGuire Manufacturing Company, same place. Filed Feb. 20, 1894. Serial No. 500,932. (No model.)



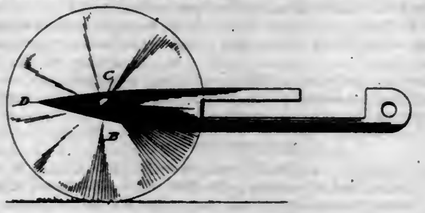
Claim.—1. In a truck for a four-wheeled car, the combination with a car-body, of three-quarter elliptic springs, each having its single end longer than its double end, and also having two bearings on the car-body, neither of which is inside the bearing of said spring upon the truck-frame, and the longer and single end projected out and upward beyond the truck-frame and acting directly against an overhanging portion of the car-body, and spiral springs arranged upon the car-truck and supporting the car-body, substantially as and for the purposes described.

2. In a truck for four-wheeled cars, a three-quarter elliptical spring having its single end longer than its double end, said spring having two bearings on the car-body, neither of which is inside the bearing of said spring upon the truck-frame, and the longer single end projected out beyond the truck-frame and supporting the overhanging portion of the car-body, combined with a spiral spring for supporting the car-body, substantially as described.

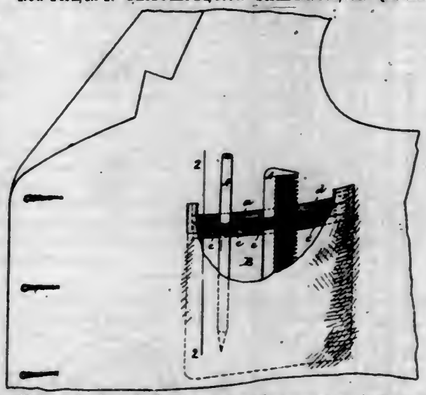
3. In a truck for four-wheeled cars, an elliptical spring located at each corner of the truck-frame, said elliptical springs being composed of two unequal parts, a lower part attached to the truck-frame having one long end extending out beyond the truck-frame and supporting the car-body and a short end extending toward the truck-axle, and an upper part engaging the car-body at one end and extending toward the truck-axle and engaging with the short end of said lower part, combined with a spiral spring for supporting the car-body, substantially as described.

577,482. GUARD-FINGER FOR MOWING-MACHINES. FRANK A. KELLEY, Susanville, Cal. Filed Oct. 15, 1895. Serial No. 565,810. (No model.)

Claim.—In a mower, the combination with the guard-finger thereof, of a vertical wheel attached thereto, said wheel provided with a cutting edge adapted to travel on the ground in front of the guard-finger journaled on either side or in a slot thereof in the manner and for the purpose set forth.



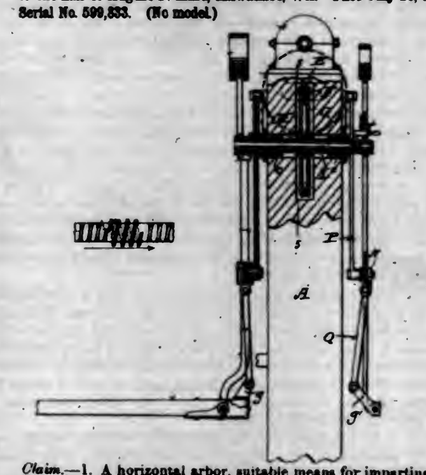
577,483. RACK FOR GARMENT-POCKETS. DAVID B. KIRSCHNER, New York, N. Y. Filed June 24, 1896. Serial No. 596,681. (No model.)



Claim.—1. A rack for garment-pockets composed of a textile body, a front elastic band, a rear stay, and transverse clips, substantially as specified.

2. A rack for garment-pockets composed of a textile body, a front elastic band, a rear stay, transverse clips, and a pair of hooks that engage the edges of the stay, substantially as specified.

577,484. GATE. FREDERICK W. MASS, Oshkosh, Wis., assignor of one-half to August F. Mass, Milwaukee, Wis. Filed July 20, 1896. Serial No. 599,533. (No model.)



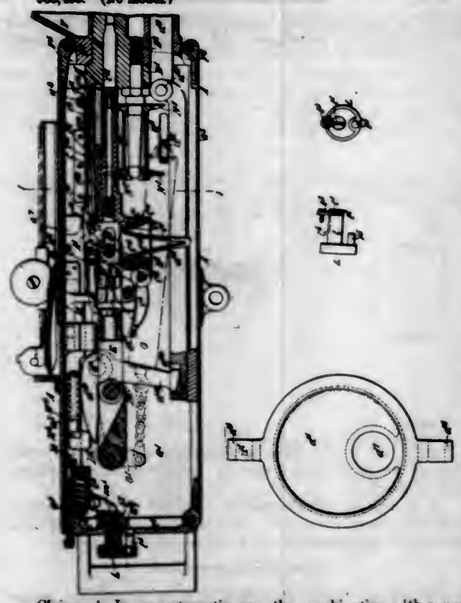
Claim.—1. A horizontal arbor, suitable means for imparting rotary movement to the arbor, a gate comprising a section fast on said arbor and another section in pivotal connection with the one aforesaid, a cross-head guided on the arbor-connected gate-section, a cross-head link having play on a fixed pivot, and another link connecting said cross-head and pivotal gate-section.

2. A post, a sleeve in bearings on the post, suitable means for imparting rotary motion to the sleeve, an arbor engaging said sleeve and having latch connection therewith, a gate comprising a section

fast on the arbor and another section in pivotal connection with the one aforesaid, a cross-head guided on the arbor-connected gate-section, a link connecting the cross-head and post, and another link connecting said cross-head and pivotal gate-section.

3. A post, an electric motor on the same for control from a more or less distant switchboard, a motor-controlled worm-pinion, a worm-sector having terminal teeth of less length than the intermediate teeth, an automatic folding and rotary adjustable gate in connection with the worm-gear, and elastic buffers on the post in position to abut the gate when the latter is up or down.

577,485. AUTOMATIC GAS-OPERATED GUN. HIRAM S. MAXIM, London, England, assignor to The Maxim-Nordenfelt Guns and Ammunition Company, Limited, same place. Filed Mar. 30, 1896. Serial No. 585,463. (No model.)



Claim.—1. In an automatic gun, the combination with a non-recoiling barrel, of a jacket surrounding the same and divided by a transverse partition located near the muzzle of the barrel into a water-chamber and a forward gas-chamber of relatively large capacity, a pivoted plate forming one side of said gas-chamber and connections between the plate and the breech mechanism, whereby the movement of the plate due to the pressure of the gases of discharge within the chamber, will operate said breech mechanism, as set forth.

2. In an automatic gun, the combination with a non-recoiling barrel, of a jacket surrounding the same, a transverse partition near the muzzle of the barrel dividing the jacket into a water-chamber and a forward gas-chamber of relatively large capacity, a gland in said partition through which the barrel projects, the barrel being provided with transverse apertures within the chamber for the escape of gas, a pivoted plate forming one side or end of the gas-chamber and connections for transmitting the movement of said plate to the breech mechanism, as set forth.

3. In an automatic gun, the combination with a non-recoiling barrel provided with transverse gas-escape apertures near its muzzle, of a gas-chamber surrounding the said apertures and situated within the mouth of the water-jacket, of a steel casing or lining within the gas-chamber, of a pivoted end plate or flap having an aperture through which the muzzle of the barrel projects, and of means for transmitting the movement of the flap to the breech mechanism of the gun substantially as described.

4. In an automatic gun, the combination with the movable end of the gas chamber, of a longitudinal bar extending to the breech of the gun and controlled by a spring, of a bell-crank lever operated by the said longitudinal bar and acting on the crank to actuate the breech mechanism, and of a recess formed in the bell-crank lever for the reception of a beveled portion of the crank when the latter is in its horizontal position, the said recess and the beveled portion of the crank thus acting as a "dead-stop" to prevent further movement or rebounding of the crank until the bell-crank lever is again operated by the aforesaid longitudinal bar, substantially as described.

5. In an automatic gun having a non-recoiling barrel, the combination with a crank receiving its motion from mechanism actuated by a portion of the gases of discharge, of a breech block or lock coupled to the crank by a connecting-rod, of a striker carried by the lock and having a notch on its under side, of a vertical opening in the lock-body, of inclined sides to the said opening, one of which terminates at its upper end in a notch, and of a mainspring which engages with the notch on the striker and that on one of the inclined sides of the opening by the mere act of forcing the said mainspring through the opening in the lock-body substantially as described.

6. In an automatic gun having a non-recoiling barrel, the combination with a breech block or lock provided with a reciprocating striker, of an extractor pivoted to the forward portion of the breech block or lock, of a resilient arm connected to the rear portion of the striker and moving therewith, of a slotted opening in the free end of the flexible arm, of a T-head on the extractor for engagement with the said slotted opening, of an ear or lug near the free end of the said resilient arm, of a longitudinal flexible guide situated above the resilient arm and acting to keep it in its depressed position during the greater portion of the movements of the breech block or lock, of a fixed projection or cam-piece situated in proximity to the rearward extremity of the flexible guide and acting to raise the resilient arm and the extractor when the end of said arm leaves the flexible guide, and of a fixed bar or stop which is situated in proximity to the breech end of the barrel, so that after the breech block or lock has closed the breech, the aforesaid slotted end of the resilient arm is, simultaneously with the forward movement of the striker in firing the gun, driven forward beneath the said fixed bar or stop and thereby acts as a wedge to firmly hold the extractor in engagement with the head of the cartridge substantially as described and for the purpose specified.

7. In an automatic gun the combination with a breech block or lock having a reciprocating striker, of spring-controlled safety and firing sears pivotally connected to the lock-body and having shoulders for engagement with a projection on the striker, of a nose or bent end on the safety-sear which comes against the connecting-rod and is thereby lifted to free its shoulder from the projection on the striker when the said connecting-rod is horizontal and the breech properly closed, of a cam-piece or inclined projection on the firing-sear, and of means for acting on this cam-piece for raising the firing-sear and releasing the striker to fire the gun substantially as described.

8. In an automatic gun, the combination with the firing-sear and the cam-piece or projection thereon, of a spring-controlled sliding bar having a projection to engage with the aforesaid cam-piece on the firing-sear, of a rocking lever connected at its upper end to the said sliding bar and having at its lower end a V-piece and of a V-groove in the end of the rotary firing-button for engagement with the aforesaid V-piece, substantially as described and for the purpose specified.

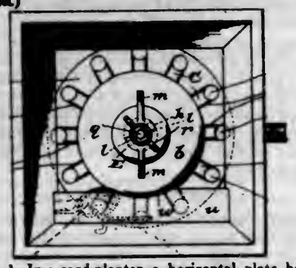
9. In an automatic gun having a non-recoiling barrel the combination with the breech block or lock, of a feed-wheel mounted on a horizontal spindle which is so situated relatively to the breech end of the barrel that the feed-wheel will by its intermittent movement bring the cartridges in alinement with the cartridge-chamber and the plunger on the lock, of a series of teeth or projections on the feed-wheel, of a spring-controlled pawl for engaging with the said teeth or projections, of a pivoted lever carrying the said pawl, of a shoulder on the pawl which comes between the teeth on the feed-wheel as the pawl rises and thus prevents the feed-wheel from overturning, and of two projections on the crank-shaft for acting on the free end of the aforesaid pivoted lever to alternately raise and lower the pawl, substantially as described.

10. The combination with the spring-controlled pawl for working the feed-wheel, of a sliding bar adapted to engage with the said pawl, of a pivoted lever situated outside the gun and which when shifted in one direction causes the sliding bar to remove the pawl from engagement with the teeth of the feed-wheel and when shifted in the other direction allows the pawl to again come into engagement with said teeth, of a hooked portion or catch on the said pivoted lever for engaging with a projection on the crank-arm when the latter is in its forward position, and of means for keeping the pivoted lever in either of its extreme positions substantially as described and for the purpose specified.

11. In an automatic gun, the combination with the water-jacket having horizontally and vertically arranged lugs at its rear end, of side plates a a' having corresponding lugs for engagement with the said lugs on the water-jacket, of pins passing vertically through these lugs and securing the parts together, and of top and bottom plates a^3 a^3 having hinge-joints for connection to the aforesaid horizontal lugs on the water-jacket, substantially as described and for the purpose specified.

12. In an automatic gun the combination with the water-jacket of a loose rotary plug having apertures therein, of a socket in which such plug works, of openings in the socket communicating respectively with the breech end of the water-jacket, with a tube leading to the muzzle end of the water-jacket, and with a valve, of means for turning the said plug, and of a flexible arm for locking the said plug in its adjusted positions and for allowing the plug to rise and give passage to the steam if the pressure thereof become abnormally high, substantially as described and for the purpose specified.

577,486. SEED-PLANTER. JOSEPH A. MENGEL, McKeansburg, Pa., assignor of two-thirds to George H. Gerber, Pottsville, and George K. Binkley, Orwigsburg, Pa. Filed May 5, 1896. Serial No. 590,294. (No model.)



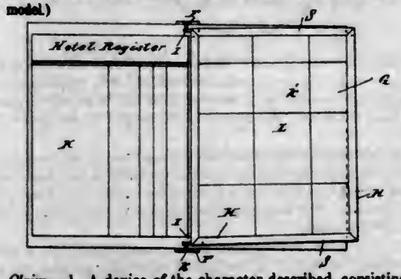
Claim.—1. In a seed-planter, a horizontal plate having radial slots in the outer portion thereof, guideways in the under side and inner portion thereof, and feeding-arms engaging said slots and guideways and a gear-wheel connected to said plate, in combination with a cam-plate connected to said arms, and means for adjusting the arms.

2. In a seed-planter, a horizontal plate resting upon the bottom of the hopper and provided with radial slots and guideways and a central opening, and feeding-arms engaging said slots and guideways and a gear-wheel connected to said plate, in combination with a plate having cam-slots connected to said arms, a hub, an adjusting-disk and a clamping-nut.

3. In a seed-planter, a horizontal plate thickened in its center and provided with radial slots through the plate beyond said thickened part and radial grooves in the under side of the thickened part, a gear-wheel connected to said plate, a plate having cam-slots, and feeding-arms between said plates and engaging said slots and grooves, in combination with an adjusting-disk and a clamping-nut.

4. In a seed-planter, a hopper having a seed-opening in its bottom, a seed-chamber formed at one side of the hopper, a revoluble plate provided with radial slots in the outer portion and radial guideways in the under side and inner portion and with seed-spaces and means for varying the capacity of said spaces, in combination with a device for removing excess of seed from said spaces, and a gear-wheel connected to said plate.

577,487. REVOLUBLE DESK FOR HOTEL-REGISTERS. JOHN D. METZ, Dubuque, Iowa. Filed Nov. 28, 1896. Serial No. 614,387. (No model.)



Claim.—1. A device of the character described, consisting of a desk, a register thereon, and a show-case hinged to the desk and adapted to be turned to rest on either page of the open register, for the purposes shown.

2. A device of the character described, a desk, a show-case consisting of two plates of glass removably set in a frame with a space between said glass and means for adjustably hinging the show-case upon the desk, for the purposes shown.

3. A device of the character described, a turn-table, a revoluble desk pivoted to said turn-table, and a show-case hinged to the desk, the said case having two opposite transparent sides, with space between the sides for receiving one or more advertising-sheets, adapted to be read from either side of the case, for the purposes shown.

4. In a device of the character described, a show-case consisting of two plates of glass having beveled corners, means for hinging said case to a desk consisting of the arms I, plates h and projections k, all combined to operate, as and for the purposes shown.

5. A turn-table with rollers therein, a desk pivoted upon said turn-table and adapted to travel upon said rollers, a register upon said desk and a show-case adjustably hinged to said desk and consisting of two plates of glass removably secured within a frame with space between the glasses, and one or more advertising-sheets between the glass, adapted to be read from either side of the show-case, as and for the purposes shown.

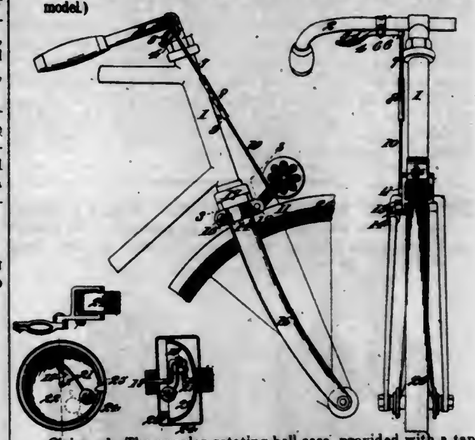
6. A device of the character described, a turn-table A, with socket d, and rollers b, a desk pivoted upon said turn-table, and having the pads e, cover E, butts F, a register K, and show-case S, consisting of frame H, glass G, advertising-sheets k' and arms I projections k, and plates h, all combined as and for the purposes shown.

7. In a device of the character described, a turn-table, a desk pivoted to the turn-table with padding upon its upper surface and butt F, of hinge attached to opposite ends of the desk and a show-case consisting of two plates of glass removably set in the frame, with space between the glass and provided with arms I, and projections k, to engage with the butts F, of the desk, all combined to operate substantially as described and shown.

8. In a device of the character described, a revoluble desk and a show-case hinged thereto having glasses G, with beveled corners g, removably set within a frame, arms I provided with plate h, and projections k, said arms removably secured within said frame, all combined to operate substantially as described and shown.

9. In a device of the character described, a turn-table provided with rollers set within said table, a desk pivoted upon said turn-table and provided at its opposite ends with half of a hinge and a register in combination with a show-case having two plates of glass removably set in the frame with a space between said glasses and with means attached to said show-case for engaging with the half of the hinge upon the desk, whereby the said show-case is removably hinged to the revoluble desk, all combined to operate substantially as described and shown.

577,488. BICYCLE-BELL. FERDINAND MEYROSE and WILLIAM H. CURTIS, St. Louis, Mo. Filed Nov. 21, 1896. Serial No. 612,930. (No model.)



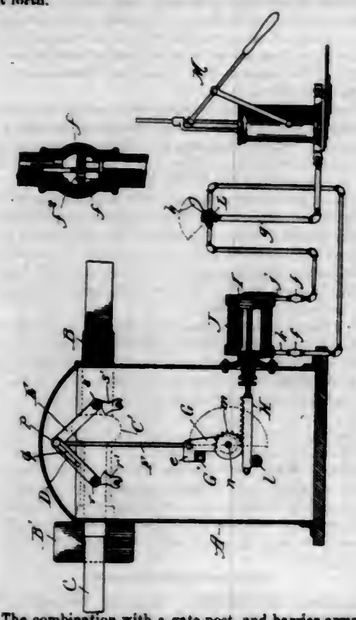
Claim.—1. The annular rotating bell-case, provided with a tappet revolving by frictional contact with a driven wheel about a fixed bell—and thereby operating the bell-hammer, substantially in the manner shown and described and for the purpose set forth.

2. The bell attachment for a bicycle, consisting of the rotating bell-case, 24, provided with a tappet, in combination with a stationary bell supported on a bifurcated lever, and operated by contact with a driven wheel through suitable rod-and-lever connections with the handle-bar of the machine substantially in the manner shown and described and for the purposes specified.

577,489. RAILWAY-GATE. MORTIMER B. MILLS, Chicago, Ill., assignor to the Mills Pneumatic Gate Company, same place. Filed Dec. 23, 1895. Renewed Jan. 23, 1897. Serial No. 620,489. (No model.)

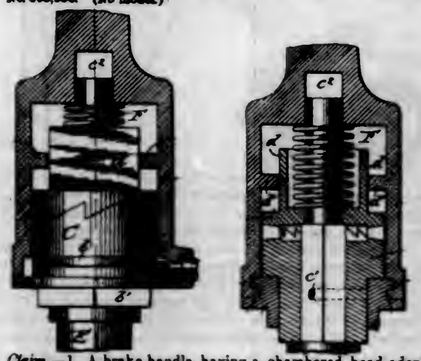
Claim.—1. The combination with a gate-post, and a barrier-arm journaled thereon, of a cylinder, a piston therein, a rack connected with and actuated by said piston, a pinion mounted in the gate-post and engaging the said rack, a crank in rigid relation to and movable with the said pinion, a link connection between the said crank and barrier-arm, stops in the path of the said crank at points adjacent to but beyond the dead-center of the crank with relation to the link connection in the movement of the crank to the opposite ends of its traverse, and compressed-air supplying and exhausting means at the

cylinder for reciprocating the piston, substantially as and for the purpose set forth.



2. The combination with a gate-post, and barrier-arms B and C journaled thereon, of a lever E on the arm B, a lever D on the arm C, a pin-and-slot connection between the said levers, an operating-rod pivoted at the said pin connection, a cylinder, a piston in the cylinder, a reciprocating rack connected with and operated by the piston, a pinion mounted in the post and engaging said rack, a crank upon and movable with the pinion and pivotally connected at its free end portion with the said operating-rod, and compressed-air supplying and exhausting means at the cylinder for reciprocating the piston, substantially as and for the purpose set forth.

577,490. RATCHET BRAKE-HANDLE. WILLIAM A. MCGUIRE and MOSES G. HUBBARD, Jr., Chicago, Ill., assignors to the McGuire Manufacturing Company, same place. Filed June 18, 1896. Serial No. 595,958. (No model.)



Claim.—1. A brake-handle having a chambered head adapted to contain clutch mechanism, and provided on its inner surface near the lower end with a projection, in combination with a collar having a like projection adapted to interlock with the first-named projection, and a set-screw threaded into the handle, the head of which screw is held in a socket formed partly in the handle and partly in the collar, substantially as specified.

2. A brake-staff having near its upper end a collar, a fixed clutch member of a diameter less than that of the collar, a loose clutch member above and adapted to cooperate with the fixed clutch member, a downwardly-acting spring for the loose clutch member, a brake-handle having at its lower end a socket inclosing said clutch members and spring, a shoulder for the upper end of the spring to abut against, and a fixed connection with said collar, substantially as set forth.

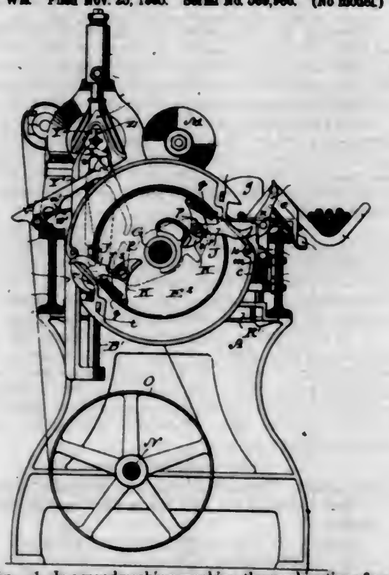
577,491. RETAINER OR GUIDE FOR HAT-PINS. EMMA Q. A. MCHUTT, Amherst, Canada. Filed Nov. 7, 1896. Serial No. 611,367. (No model.)



Claim.—1. The herein-described fastening device which is adapted to be connected with the hair, said device consisting of parallel rods or bars which are provided at one end with upwardly and inwardly directed arms, and to the opposite ends of which is hinged a loop which projects beyond said arms, said loop being also provided with an upwardly-directed yoke, through which a hat-pin is adapted to be inserted, substantially as shown and described.

2. A retainer or guide for hat-pins consisting of three parallel rods, eyes formed at one end of the said rods, a pivot or hinge pin passed through said eyes, a cross-head secured to the opposite ends of said rods, upwardly and inwardly directed arms secured to said cross-head, a wire loop mounted on said pivot-pin and projecting in an opposite direction beyond said cross-head and an upwardly-directed yoke mounted on said loop, all of the said parts being combined substantially as described.

577,492. WOODWORKING-MACHINE. JOHN M. NASH, Milwaukee, Wis. Filed Nov. 25, 1895. Serial No. 569,966. (No model.)



Claim.—1. In a woodworking-machine, the combination of a continuously-rotary carrier provided at each end with projecting pivots, a gripper and a wiper loose on each pivot but in flexible connection with each other, and stationary cams arranged in the paths of the wipers.

2. In a woodworking-machine, the combination of a continuously-rotary longitudinally-extensible carrier provided at each end with projecting pivots, a gripper and a wiper loose on each pivot but in flexible connection with each other, and stationary cams arranged in the paths of the wipers.

3. In a woodworking-machine, the combination with a continuously-rotary carrier, of pivotal guard-fingers for material fed to the carrier, and suitable means for automatically actuating the guard-fingers to bring the same in and out of working position with respect to said material.

4. In a woodworking-machine, the combination with a carrier, of pivotal spring-controlled guard-fingers for material fed to the carrier, pivotal dogs operative to swing said fingers into working position, and projections on the carrier arranged to actuate the dogs.

5. In a woodworking-machine, the combination of a carrier, provided with pivotal grippers and wipers, cams arranged in the paths of the wipers, guard-fingers for material fed to the carrier, and an automatic finger-actuating mechanism embodying projections on said carrier.

6. In a woodworking-machine, the combination of a continuously-rotary carrier comprising notched end disks, suitable means for automatically clutching and releasing material fed into the disk-notches, saws operative in the path of said material, and stops arranged to hold back the blocks cut from the aforesaid material.

7. In a woodworking-machine, the combination of a continuously-rotary carrier comprising notched end disks, suitable means for automatically clutching and releasing material fed into the disk-notches, saws operative in the path of said material, stops arranged to hold back the blocks cut from the aforesaid material, and saw-opposing plugs extending from the stops.

8. In a woodworking-machine, the combination with saws and a continuously-rotary carrier, of gages arranged to prevent longitudinal movement of material in the carrier after passing the saws, reciprocative jaws, suitable means for effecting an automatic yielding grip of the jaws on material coming from the carrier, clamp-forks for the closed jaws, and reciprocative tools operative upon the centered material.

9. In a woodworking-machine, the combination with saws and a continuously-rotary carrier, of gages arranged to prevent longitudinal movement of material in the carrier after passing the saws, reciprocative jaws, suitable means for effecting an automatic yielding grip of the jaws on material coming from the carrier, clamp-forks for the closed jaws, and automatic sizing mechanism operative on ends of the centered material.

10. In a woodworking-machine, the combination with saws and a continuously-rotary carrier, of a self-centering clamp mechanism for material coming from the carrier, automatically-reciprocative tools operative upon centered material, and pivotal gravity-bars arranged to be swung up and passed by said material on its way to line with the tools but which on return to normal position constitute shedders for the aforesaid material when the latter is released from the clamp mechanism subsequent to an operation of said tools.

11. In a woodworking-machine, the combination with a carrier, of a self-centering mechanism comprising reciprocative normally open jaws having longitudinally-adjustable shanks, suitable means for closing the jaws on material brought thereto by the carrier, laterally-adjustable longitudinally-yielding clamp-forks for said jaws, and automatic reciprocative tools operative on the centered material.

12. In a woodworking-machine, a carrier comprising a pair of peripherally-notched disks provided with lateral pivots adjacent to the notches, a gripper and a wiper loose on each pivot but in flexible connection with each other, suitable means for imparting continuously-rotary motion to the disks, and stationary cams arranged in the paths of the wipers.

13. In a woodworking-machine, the combination with a carrier, of a self-centering mechanism comprising reciprocative normally open jaws arranged in pairs and having longitudinally-adjustable shanks, a support on the shank of a jaw in each pair for material delivered from the carrier, suitable mechanism for closing the jaws on the material, laterally-adjustable longitudinally-yielding clamp-forks for said jaws, and automatically-reciprocative tools operative on centered material.

14. In a woodworking-machine, a self-centering clamp mechanism comprising sleeves reciprocative on guides, collars adjustable longitudinally of the sleeves, paired jaws having spring-separated shanks in rule-joint connection with the collars, a guide opposing one jaw-shank of each pair, a finger-bar in pivotal connection with the other of these shanks, a spring interposed between the finger-bar and adjacent jaw-shank, rotary cams operative against the finger-bars, and laterally-adjustable longitudinally-yielding clamp-forks arranged to receive the closed jaws.

15. In a woodworking-machine, a self-centering clamp mechanism comprising sleeves reciprocative on guides, collars adjustable longitudinally of the sleeves, paired jaws having spring-separated shanks in rule-joint connection with the collars, a guide opposing one jaw-shank of each pair, a finger-bar in pivotal connection with the other of these shanks, a spring interposed between the finger-bar and adjacent jaw-shank, rotary cams operative against the finger-bars, and laterally-adjustable longitudinally-yielding forks arranged to receive the closed jaws.

16. In a woodworking-machine, a self-centering clamp mechanism comprising sleeves loose on guides, collars adjustable longitudinally of the sleeve, paired jaws having spring-separated shanks in rule-joint connection with the collars and the outer shank of each pair in opposition to a guide, hinged bars linked to the collars, rotary cams operative against the hinged bars, a finger-bar in pivotal connection with the inner jaw of each pair, other rotary cams operative against the finger-bars, and laterally-adjustable longitudinally-yielding clamp-forks arranged to receive the closed jaws.

17. In a woodworking-machine, the combination of a frame, a shaft in bearings on the frame, a pinion loose on the shaft, a driver loose on the pinion-hub and constituting one section of a clutch, a friction-disk that constitutes another clutch-section and is in loose sliding engagement with the driver-hub, as well as in sliding-tooth connection with said pinion-hub; suitable means for adjusting the friction-disk, and a gear-train that transmits motion of the pinion to said shaft.

18. In a woodworking-machine, the combination of a frame, a shaft in bearings on the frame, a clutch-controlled start-and-stop speed-reducing gear for the shaft, independently-driven reciprocative tools, reciprocative jaws, suitable means for effecting an automatic yielding grip of the jaws, clamp-forks for the closed jaws, and cams carried by said shaft to constitute parts of the tool and jaw mechanisms.

19. In a woodworking-machine, the combination of a frame, in bearings on the frame, a clutch-controlled start-and-stop speed-reducing gear for the shaft, saws and reciprocative tools, an independent drive mechanism for the saws and tools, a carrier having rotation with said shaft, reciprocative jaws having yielding grip on material coming from the carrier subsequent to action of the saws, clamp-forks for the closed jaws, and cams carried by said shaft to constitute parts of the tool and jaw mechanisms.

20. In a woodworking-machine, the combination of a carrier, reciprocative jaws, suitable means for effecting a yielding grip of the jaws on material coming from the carrier, yielding clamp-forks for the closed jaws, and reciprocative tools operative on said material in said fork-held jaws.

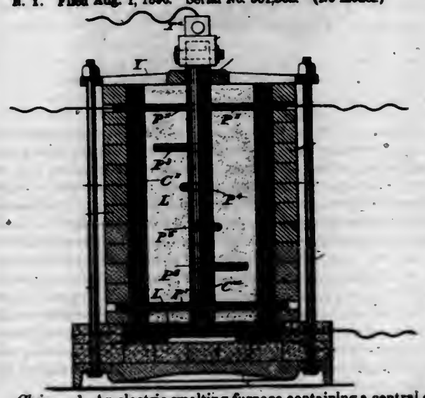
21. In a woodworking-machine, the combination of a carrier, saws in the path of material on the carrier, reciprocative jaws, suitable means for effecting a yielding grip of the jaws on material coming from the carrier, yielding clamp-forks for the closed jaws, and reciprocative tools operative on said material in the fork-held jaws.

22. In a woodworking-machine, the combination of a frame having a stationary bed, a saw and a reciprocative tool having their arbors mounted on the bed, a carriage longitudinally adjustable on the frame, another saw and tool having their arbors mounted on the carriage, a continuously-rotary carrier having a portion thereof adjustable with said carriage, reciprocative jaws for gripping material coming from the carrier, clamp-forks for the closed jaws, and suitable means for reciprocating the arbors of the tools other than said saws.

23. In a woodworking-machine, the combination of a frame having a stationary bed, a saw and a reciprocative tool having their arbors mounted on the bed, a carriage longitudinally adjustable on said frame, suitable means for clamping the carriage in adjusted position, another saw and tool having their arbors mounted on the carriage, a continuously-rotary carrier having a portion thereof adjustable with said carriage, reciprocative jaws for gripping material coming from the carrier, clamp-forks for the closed jaws, and suitable means for reciprocating the arbors of the tools other than said saws.

24. In a woodworking-machine, the combination of a tool-carrying arbor, a loose screw-threaded rod parallel to the arbor, a link mechanism in connection with said arbor, a sleeve on the rod also connected to the link mechanism, a hand-wheel nut adjustable on said rod in opposition to the sleeve, a rotative cam, a pivotal spring-controlled lever arranged to be actuated by the cam, and a lever-connecting shackle provided with a screw-threaded socket engaged by the aforesaid rod.

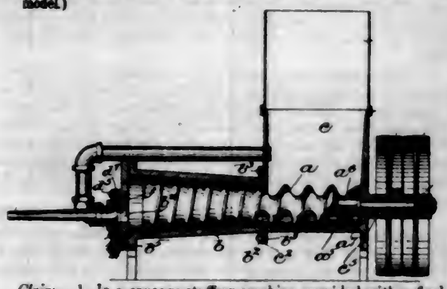
577,493. ELECTRIC FURNACE. FRANCIS J. PATTEN, New York, N. Y. Filed Aug. 1, 1896. Serial No. 601,302. (No model.)



Claim.—1. An electric smelting-furnace containing a central carbon core constituting one electrode of the furnace, having numerous pencils of carbon radiating from it through the mixture to be fused, the outer extremities being connected to independent leads whereby they can be given current simultaneously or separately at will substantially as described.

2. In an electric furnace the combination of a central carbon electrode, an inner lining or wall of carbon, and carbon pencils of relatively small diameter extending from one to the other and means for passing an electric current through the pencils singly or in groups substantially as described.

577,494. SAUSAGE-STUFFING MACHINE. CHARLES H. SCHOOLLAND, Lawrence, Mass. Filed Aug. 31, 1896. Serial No. 603,437. (No model.)

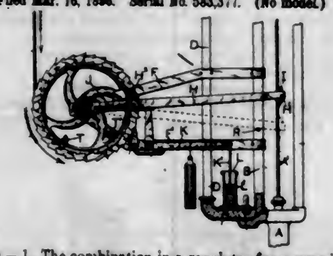


Claim.—1. In a sausage-stuffing machine provided with a feed-supply hopper, the combination with a continuously-operating feed device adapted to carry the meat away from said hopper, of a stuffing-nozzle adapted to receive meat therefrom, a return-tube also adapted to receive meat therefrom, and itself communicating with the said hopper, and means for opening and closing the said stuffing-nozzle and return-tube, substantially as described.

2. In a sausage-stuffing machine, the combination with a hopper provided with a lateral tubular extension, of a rotatable worm extending through said extension into said hopper, a cover for the end of said extension provided with openings communicating respectively with a stuffing-nozzle and a return-tube leading to the hopper, and a valve controlling said openings, and adapted by its movement in either direction to open one and close the other, substantially as described.

3. In a sausage-stuffing machine, the combination of a feed-hopper having a lateral tubular extension therefrom, of a driving-shaft in alinement with said extension, a feeding device comprising a worm adapted to be inserted longitudinally into said extension, and having a socket adapted to fit the end of said shaft, a removable cover for said extension provided with two openings, a stuffing-nozzle and a mixing-tube secured thereto, and respectively communicating with said openings, and a valve controlling said openings, substantially as and for the purpose described.

577,495. WINDMILL-REGULATOR. JOHN N. SWANSON, Chicago, Ill. Filed Mar. 16, 1896. Serial No. 583,377. (No model.)

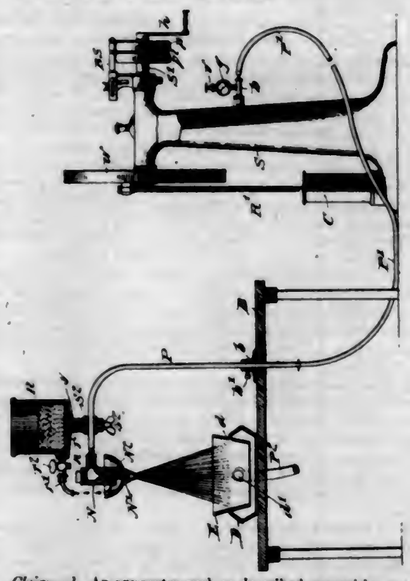


Claim.—1. The combination in a regulator for a pumping-windmill, of a pump having a discharge-pipe communicating with a pressure-chamber having a discharge-opening communicating with an elevated tank, the discharge-opening normally open, but provided with a valve opening outwardly, which valve is operated to close the discharge-opening by the buoyancy of a float in the tank, a check-valve in the discharge-pipe of the pump between the pressure-chamber and the pump, a pressure-cylinder in free communication with the said discharge-pipe, a piston in the pressure-cylinder, a ratchet-wheel having a rope connected therewith and to the stop mechanism of the windmill, and means connected with the said piston for engaging a lever with the pump-rod, and a pawl attached to the said lever, and a detent with the ratchet-wheel, whereby the reciprocating motion of the pump-rod serves to operate the stop mechanism of the windmill, at the time and in the manner described.

2. In a pumping-windmill which discharges water into an elevated tank, in the regulating mechanism therefor, a ratchet-wheel to which the stop mechanism of the windmill is connected, a pressure-cylinder having a piston therein and in communication with the discharge-pipe of the pump between the pump and the elevated tank, a lever connected with the said piston, which latter operates to engage the lever through a pawl mounted thereon with the ratchet-wheel, and with the pump-rod, and operates the stop mechanism of the windmill, in the manner and for the purpose stated.

3. The combination in a means for regulating pumping-windmills which discharge water into an elevated tank, of a ratchet-wheel to which the stop mechanism of the windmill is attached, a pressure-cylinder having a piston therein and in communication with the discharge-pipe of the pump between the pump and the elevated tank, the said piston, by virtue of the pressure of water in the discharge-pipe, adapted to operate the ratchet-wheel and the said stop mechanism, a pressure-chamber in the tank communicating with the discharge-pipe of the pump and having a discharge-orifice normally open, but provided with a valve opening inwardly which is closed by the buoyancy of a float in the tank, whereby a greater than usual pressure is attained in the discharge-pipe of the pump, and a second discharge-orifice in the said pressure-chamber normally closed by a valve opening outwardly which latter is held in a closed position by the buoyancy of a float in the tank, and opened at the time, in the manner and for the purpose stated.

577,496. PNEUMATIC PAINTING APPARATUS. ROUGHEDGE WALLWORK and ARTHUR C. WELLS, Manchester, England. Filed Mar 30, 1896. Serial No. 584,164. (No model.)



Claim.—1. An apparatus such as described, comprising a spraying device consisting of an air-nozzle, means for supplying air under pressure to said nozzle, a cup-shaped paint-nozzle surrounding said air-nozzle, and a receptacle for paint adapted to supply paint to said cup-shaped nozzle, for the purpose set forth.

2. An apparatus such as described, comprising a spraying device consisting of an air-nozzle and an air-supply pipe connected therewith, a cup-shaped paint-nozzle surrounding said air-nozzle, and a receptacle for paint on the air-pipe and adapted to supply paint to said cup-shaped nozzle, for the purpose set forth.

3. In an apparatus such as described, the combination with a paint-spraying device, and a bench to which said device is secured; of a collector for the surplus paint comprising a vessel D contracted at its upper end *d* and provided with an outlet-port above its bottom, and an open-ended tapering vessel E seated in said contracted end, said collector arranged on the bench in line with the spraying device, substantially as and for the purpose set forth.

4. An apparatus such as described, comprising a support as a bench, a rigid air-supply pipe adjustable vertically in said support, a downwardly-turned ejector spraying-nozzle provided with a passage for air rigidly connected with the air-supply pipe, said nozzle provided with a passage for paint, a paint-receptacle adapted to supply paint to said passage, and a collecting vessel below and on a line with the outlet of the ejector spraying-nozzle, for the purposes set forth.

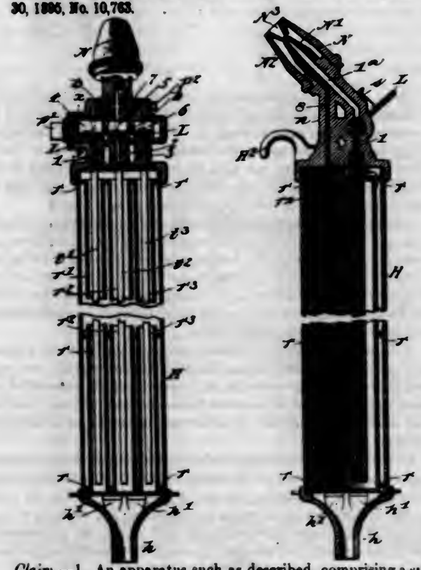
5. An apparatus such as described, comprising a support as a bench, a rigid air-supply pipe rising therefrom, a downwardly-turned ejector spraying-nozzle provided with a passage for air rigidly connected with the pipe and with a passage for paint, a paint-receptacle adapted to supply paint to said passage, an open collecting vessel on the aforesaid bench below and on a line with the ejector spraying-nozzle, said collecting vessel having a contracted neck, and an outlet-port above its bottom, an open-ended tapering collector or funnel seated in the aforesaid contracted neck of the collecting vessel and extending below the outlet-port thereof, for the purpose set forth.

6. An apparatus such as described, comprising a support as a bench, a rigid air-supply pipe adjustable vertically thereon and having its upper outlet end bent at right angles, an ejector spraying-nozzle supported from the outlet end of said pipe and provided with an air-passage at right angles to such pipe, an air-nozzle connected with such passage, a cup-shaped paint-nozzle into which said air-nozzle projects, and a paint-receptacle adapted to supply paint to said cup-shaped nozzle, for the purposes set forth.

7. An apparatus such as described, comprising a support, as a bench, a rigid air-supply pipe adjustable vertically thereon and having its upper outlet end bent at right angles, an ejector spraying-nozzle supported from the outlet end of said pipe and provided with an air-passage at right angles to such pipe, an air-nozzle connected with said passage, a cup-shaped paint-nozzle into which said air-nozzle projects, and a paint-receptacle supported from the air-supply pipe and adapted to supply paint to such cup-shaped nozzle, for the purposes set forth.

8. An apparatus such as described, comprising a support, as a bench, a rigid air-supply pipe adjustable vertically thereon and having its upper outlet end bent at right angles, an ejector spraying-nozzle supported from the outlet end of said pipe and provided with an air-passage at right angles to such pipe, an air-nozzle connected with said passage, a cup-shaped paint-nozzle into which said air-nozzle projects, and a paint-receptacle supported from and adjustable on the horizontal portion of the air-supply pipe, and adapted to supply paint to said cup-shaped nozzle, for the purposes set forth.

577,497. PNEUMATIC PAINTING APPARATUS. ROUGHEDGE WALLWORK and ARTHUR C. WELLS, Manchester, England. Filed Mar. 25, 1896. Serial No. 584,861. (No model.) Patented in England May 30, 1895, No. 10,763.



Claim.—1. An apparatus such as described, comprising a spraying device, a plurality of paint-receptacles, a holder common to all said receptacles, an air-supply pipe adapted to supply air under pressure to all the paint-receptacles and to the spraying device, and means for connecting any one or more or all the paint-receptacles with said spraying device, for the purpose set forth.

2. An apparatus such as described comprising a spraying device having separate air and paint ducts, a plurality of paint-receptacles, a paint-passage in communication with the like duct in the spraying device and with all of said paint-receptacles, an air-supply pipe common to and supplying air under pressure to said paint-receptacles and to the air-duct in said spraying device, and controlling appliances for controlling the flow of paint from any one or more or all of the paint-receptacles to the aforementioned paint passage, for the purpose set forth.

3. An apparatus such as described, comprising a spraying device having separate air and paint ducts, a plurality of paint-receptacles, a paint-passage in communication with the like duct in the spraying device and with all the paint-receptacles near the bottom thereof, an air-supply pipe common to and supplying air under pressure to all the paint-receptacles above the level of the paint therein and to the air-duct in the spraying device, and controlling appliances for controlling the flow of paint from any one or more or all the paint-receptacles to the aforementioned paint-passage, for the purpose set forth.

4. An apparatus such as described comprising a spraying device, means for supplying air under pressure thereto, a holder connected with said spraying device, a plurality of paint-receptacles contained in said holder and means for forcing paint from one or more of the receptacles to the spraying device to be sprayed by the air under pressure supplied to said device, for the purpose set forth.

5. An apparatus such as described, comprising a spraying device provided with two passages, one for air and one for paint, a holder adapted to contain air under pressure in communication with the aforesaid passage for air in the spraying device, a plurality of open paint-receptacles in the holder, a paint-eduction duct for each of said receptacles in communication with the passage for paint in the spraying device, and means for controlling the flow of paint through any one or more of said ducts to the aforesaid passage for paint, for the purpose set forth.

6. An apparatus such as described, comprising a spraying device provided with two passages one for air and one for paint, a holder for said spraying device in communication with the passage for air therein, a plurality of open paint-receptacles in said holder, a paint-eduction duct for each of said receptacles in communication with the passage for paint in the spraying device, means for controlling the flow of paint from any one or more of the eduction-ducts to said passage for paint in the spraying device, and means for supplying air under pressure to the aforesaid holder, for the purpose set forth.

7. An apparatus such as described, comprising a spraying-nozzle constructed to operate like an injector and provided with two concentrically-arranged nozzles one for paint and one for air, and suitable passages leading thereto, a holder connected with the spraying device, in communication with its passage for air, a plurality of open paint-receptacles in said holder, a paint-eduction duct for each of said receptacles in communication with the passage for paint in the spraying device, means for controlling the flow of paint from any one or more of said ducts to said passage for paint, and means for supplying air under pressure to the holder, for the purpose set forth.

8. An apparatus such as described, comprising a spraying device provided with two passages one for paint and one for air, a holder connected with said device and in communication with its air-passage, a plurality of open paint-receptacles in said holder, a paint-eduction duct for each of said vessels merging into a common duct leading to the passage for paint in the spraying device, a separate valve for each of the paint-eduction ducts, and means for supplying air under pressure to the holder, for the purpose set forth.

9. An apparatus such as described, comprising a spraying device provided with two passages one for paint and one for air, a holder detachably connected with said spraying device and in communication with its passage for air, a plurality of removable open paint-receptacles in said holder, and a paint-eduction duct for each of said receptacles merging into a common duct leading to the passage for paint in the spraying device, in combination with an independently-operating valve for each of the eduction-ducts, and means for supplying air under pressure to the holder, for the purpose set forth.

10. An apparatus such as described, comprising a spraying device provided with two passages one for paint and one for air, a holder connected with said device and communicating with its passage for air, a plurality of open paint-receptacles in said holder, a paint-eduction duct for each of said vessels in communication with the passage for paint in the spraying device, and means for controlling the flow of paint from any one or more of said ducts to the aforesaid passage for paint, in combination with a source of compressed-air supply and a flexible pipe or hose connecting the aforesaid holder with said source of compressed-air supply, for the purpose set forth.

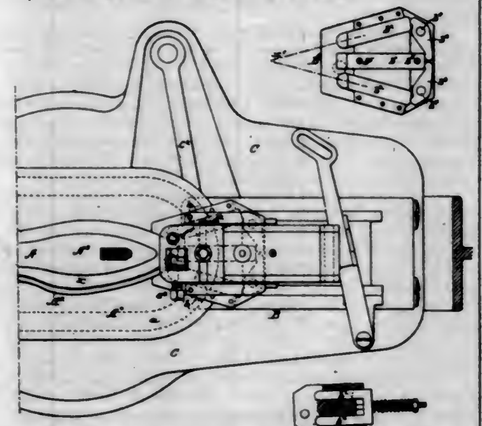
11. An apparatus such as described comprising a holder, a plurality of open paint-receptacles therein and means for supplying air under pressure to said holder, in combination with a spraying device connected with the holder and provided with two passages, one for paint and one for air, with a transverse passage 7 in communication with said passage for paint, and with paint-eduction ducts, one for each paint-receptacle leading to said transverse passage and extending near to the bottom of their respective paint-receptacles, a valve for each of said eduction-ducts, and a valve-seat in the spraying device common to all the valves and intersecting the aforesaid paint-eduction ducts, substantially as and for the purpose set forth.

12. The combination with the spraying device provided with the passages 8, 1^a and 7, and the passages 1, 2 and 3, leading to said passage 7, and with a tapering valve-seat intersecting the passages 1, 2 and 3, the open-ended tubes t', t^2 t^3 connected thereto, the independent-spaced valve-plugs 4, 5 and 6, each provided with an operating-lever, the screw-plug p' screwed into the open end of the valve-seat and adapted to hold the valve-plugs against endwise motion, of the

holder H, the open paint-receptacles r' r^2 r^3 into which pipes t' t^2 t^3 respectively extend, and means for supplying air under pressure to said holder, for the purpose set forth.

13. The combination with the spraying device provided with the passages 8, 1^a and 7, and the passages 1, 2 and 3, leading to said passage 7, and with a tapering valve-seat intersecting the passages 1, 2 and 3, the open-ended tubes t' t^2 t^3 connected thereto, the independent-spaced valve-plugs 4, 5 and 6, each provided with a spring-controlled operating-lever the springs operating to hold the valves normally closed, the screw-plug p' screwed into the open end of the valve-seat and adapted to hold the valve-plugs against endwise motion; of the holder H, the open paint-receptacles r', r^2, r^3, into which pipes t' t^2 t^3 respectively extend, and means for supplying air under pressure to said holder, for the purpose set forth.

577,498. SHOE CHANNELING AND GROOVING MACHINE. REUBEN M. WHITE, Philadelphia, Pa. Filed Dec. 9, 1895. Renewed July 20, 1896. Serial No. 599,911. (No model.)



Claim.—1. The combination in a shoe-channeling machine, of the clamp for the sole, the tool-carriage, a tool-carrier, with movable side bearings on the carriage adapted to rest against the former so that there will be three bearing-points, substantially as described.

2. The combination of the former, mechanism for clamping the sole in respect to the former, a tool-carriage, a central slide carrying the tool, said slide adapted to rest against the former, with movable side bearings connected to the central slide and also resting against the former, substantially as described.

3. The combination of the former, mechanism for holding the sole in respect to the former, a tool-carriage, a pivoted head B^3 thereon, slides b', b^2 adapted to ways in said carrier, levers connecting the central slide with the side slides, a carrier attached to the center slide, a tool mounted on said carrier, the center and side slides adapted to rest against the former, substantially as described.

4. The combination of the former, mechanism for holding the sole in respect to the former, a carriage, a sliding plate thereon, a head pivoted to said plate, a center slide and side slides adapted to ways in the pivoted head, levers resting against the said slides so that when the center slide is pushed back the side slides will be moved forward and vice versa, a carrier attached to said central slide, a tool-carrier D pivoted to the carrier B^3 and a tool-head secured to the pivoted tool-carrier, substantially as described.

5. The combination of the former, the clamp for the sole, a carriage adapted to rest against the former, a tool-head clamped thereto by a vertical bolt, a set-screw for adjusting the tool-head laterally, a vertical slot in said tool-head and a clamp-screw for securing the tools therein, substantially as described.

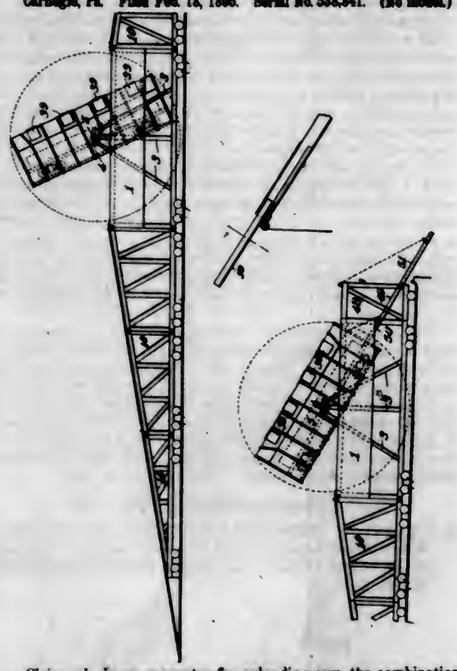
577,499. FILAMENT FOR ELECTRIC LAMPS. JOHN H. DOUGLAS-WILLIAM and FRANK R. W. BOWER, London, England. Filed Aug. 3, 1896. Serial No. 601,532. (No specimens.)

Claim.—1. The process of treating filaments consisting in rendering them incandescent in the presence of a compound containing boron, carbon and oxygen.

2. The process of treating filaments consisting in rendering them incandescent in the presence of the borate of an alcohol.

3. The process of treating filaments consisting in rendering them incandescent in the presence of the borate of an alcohol mixed with ethyl iodid.

577,500. CAR-UNLOADING APPARATUS. WILLIAM R. WILSON, Carnegie, Pa. Filed Feb. 18, 1896. Serial No. 578,841. (No model.)



Claim.—1. In an apparatus for unloading cars, the combination of a frame, a cage pivotally mounted in the frame and capable of being rotated longitudinally through an arc of one hundred and eighty degrees, more or less, means for holding the car stationary during the rotation of the cage, movable chutes in the sides of the frame, and doors in the top of the cage adapted to be placed in line with the chutes when the cage is inverted, substantially as set forth.

2. In an apparatus for unloading cars, the combination of a frame, a cage pivotally mounted in the frame, means for tipping the cage in both directions, means for holding the car stationary during the movement of the cage, an opening in the bottom of the cage, a chute arranged below said opening, and chutes in the side of the frame, the chute under the cage being adapted to be adjusted into line with the side chutes, substantially as set forth.

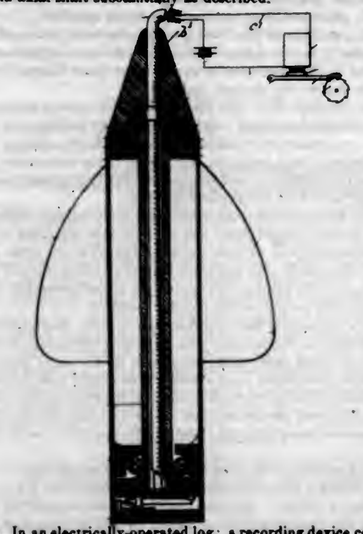
3. In an apparatus for unloading cars, the combination of a frame, a cage pivotally mounted in the frame, means for tipping the cage, means for holding the cars stationary during the movement of the cage, a frame arranged in line with the cage-frame, a chute mounted in said auxiliary frame, and provided with a telescopic section, substantially as set forth.

4. In an apparatus for unloading cars, the combination of a frame, a cage pivotally mounted in the frame, a series of eccentrics mounted in the cage, and adapted to prevent a movement of the car away from the rails of the cage, means for operating the eccentrics along each side of the cage, simultaneously, and means for preventing a longitudinal movement of the car in the cage, substantially as set forth.

577,501. ELECTRICALLY-OPERATED SHIP'S LOG. WALTER S. ALEXANDER, New York, N. Y., assignor to Robert B. Strang, Plainfield, N. J. Filed May 18, 1896. Serial No. 591,981. (No model.)

Claim.—1. In an electrically-operated log; a recording device controlled electrically, in combination with a rotator in electrical connection therewith, through a metallic circuit connection; the rotator having a hollow axial shaft provided with a conical head, and an annular shoulder for ball-bearings, and a base carrying a diaphragm, contact-pens and crank-arm, a hollow shell provided with helical blades, and a lug to trip the circuit-controller, and an annular shoulder with ball-bearing surfaces; said shell being suitably mounted on ball-bearings to revolve on said axial shaft substantially as described.

2. In an electrically-operated log, a recording device controlled by an electromagnet, having an armature said magnet connected by a metallic circuit with a rotator having a hollow axial shaft, provided with conical head and an annular shoulder for ball-bearings, and a base carrying a diaphragm; contact-pens, and crank-arm, the pens and diaphragm normally in said circuit connection with the recording device through the center of the axial shaft, to control the said circuit; a hollow shell provided with helical blades, and a lug to trip the circuit-controller, and an annular shoulder with ball-bearing surfaces; said shell being suitably mounted on ball-bearings to revolve on said axial shaft substantially as described.



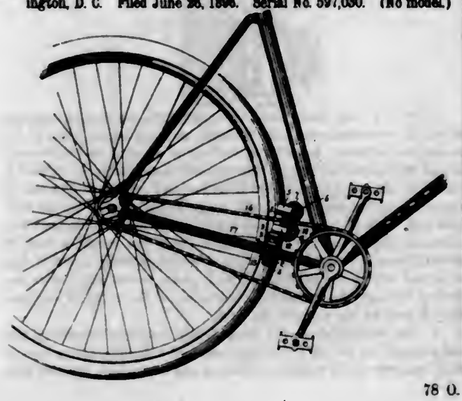
3. In an electrically-operated log: a recording device controlled electrically, in combination with a rotator in electrical connection therewith; the rotator having an axial shaft, with a circuit-controller mounted thereon controlling said circuit to the recorder; a hollow shell filled with oil or its equivalent, suitably mounted to revolve on the axial shaft, and provided with helical blades, and a lug to trip the circuit-controller, substantially as described.

577,502. EGG-CASE. HENRY L. ANDERSON, Chicago, Ill. Filed Mar. 2, 1896. Serial No. 581,574. (No model.)



Claim.—In an egg-case, a false bottom made on springs, said bottom being provided with air-spaces, in combination with a central partition F hung loosely in said case, partition E, handles M, lid C having recess and slot as shown, handle S, the handles M, extending up to protect the edges of the lid C, in combination with egg-carriers T, all combined and operating as set forth.

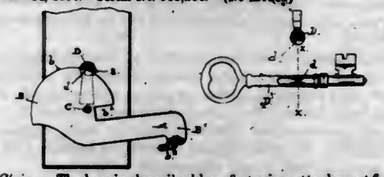
577,503. CYCLE-CHAIN CLEANER. WILLIAM M. ASH, Washington, D. C. Filed June 26, 1896. Serial No. 597,030. (No model.)



Claim.—1. A chain-cleaner comprising an upright frame or support having upper and lower relatively-adjustable bearing-yokes, cleaning-brushes mounted for rotation in said yokes, and a clamping device for each brush to secure the same against rotation, substantially as set forth.

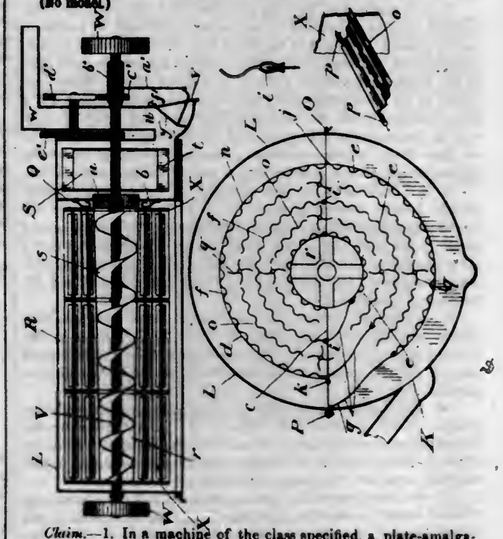
2. A chain-cleaner comprising a frame or support having a bearing-yoke, a cleaning-brush arranged to rotate within said bearing-yoke, and a journal-forming thumb-screw connecting the opposite ears of the bearing-yoke and forming a journal-support for the brush and also a clamping device to secure the brush against rotation, substantially as set forth.

577,504. KEY-FASTENER. WILLIAM F. BLANCHET, Haywards, Cal., assignor of one-half to Thomas C. Creighton, same place, Henry F. Marsh, Jr., Alameda, and Arthur Kidd, San Francisco, Cal. Filed Mar. 14, 1896. Serial No. 583,238. (No model.)



Claim.—The herein-described key-fastening attachment for door-locks, comprising the segment-shape plate B having a curvilinear edge b, a rectangular slot $b^\times$ in one side extending from the edge inward, and a straight arm or lever $B^\times$ extending from the same side of the plate and in the same plane, the edge of said lever forming one side of such slot, and a hole C for a pivot-screw located to one side of the center of said plate and in close relation to the bottom of the rectangular slot as described; the said plate being pivotally attached to the escutcheon-plate of the lock at a point below and in line with the keyhole and eccentrically with relation to the curvilinear edge b as described, whereby the slot in the plate is caused to register with the keyhole by turning the plate in one direction, and when turned in the opposite direction the plate is caused to cover the keyhole and its curvilinear edge to grip the shank of the key in the circular part of the keyhole, as and for the purpose set forth.

577,505. GOLD-AMALGAMATING MACHINE. JOHN B. BROWN, Harrison Hot Springs, Canada. Filed Oct. 21, 1895. Serial No. 566,400. (No model.)



Claim.—1. In a machine of the class specified, a plate-amalgamator comprising an outer cylinder with a feed-opening therein, a central shaft, an inner cylinder carried by said central shaft and consisting of a longitudinal spiral coil, the said spiral coil commencing at the inside of said outer cylinder and terminating in an inner longitudinal coil or cylinder, and a series of curved plates supported in the spaces between the coils of the spiral, the said inner coil or cylinder being tapered longitudinally whereby the tailings are discharged by gravity at the larger end of the tapered coil, substantially as and for the purpose specified.

2. In a machine of the class specified, an amalgamator comprising an outer cylinder with a feed-opening therein, in combination with an inner cylinder carried by a shaft comprising a longitudinal spiral of corrugated metal, the outer coil of which ends close to the inside of the outer cylinder while the inner coil is tapered to discharge the tailings at one end: and a series of curved corrugated plates supported by coil-springs in the space between the coils of the spiral, substantially as and for the purpose specified.

3. In a machine of the class specified, an amalgamator comprising an outer cylinder with a feed-opening therein, in combination with an inner cylinder carried by a shaft and comprising a longitudinal spiral of corrugated metal, the outer coil of which ends close to the inside of the outer cylinder while the inner coil is tapered to discharge the tailings at one end; a cylinder with corrugated sides forming an agitating-chamber into which the tailings are discharged from the aforesaid coil: a revoluble beater located in the said chamber: and a discharge-spout connected to the chamber at or near its bottom and opening at or above its top, substantially as and for the purpose specified.

4. In a machine of the class specified, an outer amalgamating-cylinder having an inner cylinder therein, formed of a longitudinal spiral coil, disks connected to and supporting said spiral coil, all of said parts being formed in two detachable parts, and means for connecting said parts together, whereby one half of said parts may be swung away from the other half and again placed together with the divided spirals properly joined, substantially as described.

5. In a machine of the class specified, an inner amalgamating-cylinder comprising two disks X connected to the shaft V; a series of curved plates *e* connected to the disks X to form one half of a longitudinal spiral; two semicircular disks *d* fitting against the inner sides of the upper halves of the disks X; a series of curved plates *f* connected to the semicircular disks *d* to complete the said spiral coil: and a spiral conveyer within the inner coil of the spiral and revolving therewith to discharge the tailings through an opening formed in one of the disks X, and semicircular disks *d*, substantially as and for the purpose specified.

6. In a machine of the class specified, an inner amalgamating-cylinder comprising two disks X connected to the shaft V; a series of curved plates *e* connected to the disks X to form one half of a longitudinal spiral; two semicircular disks *d* fitting against the inner sides of the upper halves of the disks X; a series of curved plates connected to the semicircular disks *d* to complete the said spiral, the inner coil of the spiral being tapered to discharge the tailings through an opening formed in one of the disks X, and semicircular disks *d*, substantially as and for the purpose specified.

7. In a machine of the class specified, an inner amalgamating-cylinder comprising two disks X connected to the shaft V; a series of curved plates *e* connected to the disks X to form one half of a longitudinal spiral, two semicircular disks *d* fitting against the inner sides of the upper halves of the disks X; a series of curved plates connected to the semicircular disks *d* to complete the said spiral, and a spiral conveyer within the inner coil of the spiral and revolving therewith to discharge the tailings through an opening formed in one of the disks X and semicircular disks *d*, the inner coil being tapered to facilitate the discharge, substantially as and for the purpose specified.

8. In a machine of the class specified, an inner amalgamating-cylinder section comprising the disks X, X; the extensions *h*; the curved plates *e*; the plates *g*; the semicircular disks *d*; and the curved plates *f*; the inner coil of the spiral formed by the plates *e* and *f* being tapered to discharge the tailings through a central opening in one of the disks X and semicircular disk *d*, substantially as and for the purpose specified.

9. In a machine of the class specified, an inner amalgamating-cylinder section comprising the disks X, X; the extensions *h*; the curved plates *e*; the plates *g*; the semicircular disks *d*; the curved plates *f*, and the spring clips *i*, substantially as and for the purpose specified.

10. In a machine of the class specified, an inner amalgamating-cylinder section comprising the disks X, X; the extensions *h*; the curved plates *e*; the plates *g*; the semicircular disks *d*; the curved plates *f*; the spring-clips *i*; hinge *j*; and flanged connection *k*, substantially as and for the purpose specified.

11. In a machine of the class specified, an inner amalgamating-cylinder section, comprising the disks X, X; the extensions *h*; the curved plates *e*; the plates *g*; the semicircular disks *d*; the curved plates *f*; the spring-clips *i*; hinge *j*; flanged connection *k*; corrugated vibrating plates *o*, and springs *p*, substantially as and for the purpose specified.

12. In a machine of the class specified, an inner amalgamating-cylinder section, comprising the disks X, X; the extensions *h*; the curved corrugated plates *e*; the plates *g*; the semicircular disks *d*; the curved corrugated plates *f*; the spring-clips *i*; hinge *j*; flanged connection *k*; corrugated vibrating plates *o*; springs *p*; and current-diverters *q*, substantially as and for the purpose specified.

13. In a machine of the class specified, the combination of an outer cylinder L, an inner cylinder a carried by a shaft B and revolving in said cylinder L, an agitating-chamber S, a partition Q separating the inner cylinder from the agitating-chamber, end disk X of cylinder a, and the spring packing-ring *b* between said partition Q and disk X, substantially as and for the purpose specified.

14. In a machine of the class specified, the combination of the outer cylinder L, and the agitating-chamber S divided longitudinally; the partition Q; the inner cylinder a; the hinge O and flanges P, substantially as and for the purpose specified.

15. In a machine of the class described, a lower tailings-discharge, a gate for said discharge and a spring for normally holding said gate closed, in combination with means for automatically opening said gate at predetermined intervals, said means being constructed and arranged to gradually open said gate and to allow it to suddenly close, substantially as and for the purpose specified.

16. In a machine of the class described, a lower tailings-discharge closed by an outer hinged gate; and an inner gate connected to the said outer gate adapted to close the discharge when the outer gate is open, in combination with means for normally holding the said gate closed and means for automatically opening it at predetermined intervals, substantially as and for the purpose specified.

17. In a machine of the class described, a lower discharge with a curved bottom, in combination with an outer gate closing the said discharge; an inner gate rigidly connected to the outer gate and swinging over the curved bottom which is so shaped that the inner gate closes the discharge when the outer gate is open; a spring adapted to hold the outer gate closed and means for automatically opening it at predetermined intervals, substantially as and for the purpose specified.

18. In a machine of the class described, the combination of a discharge u, having a discharge-gate r connected therewith, a driving-shaft, having a pulley r' thereon, a cord or chain connecting said pulley and the discharge-gate r, a pinion on said driving-shaft and connected with said pulley, a segmental gear d' arranged to engage with said pinion c', and a train of gearing connecting said segmental gear and said driving-shaft, whereby the rotation of said shaft causes the segmental gear to intermittently operate the pinion c' and its pulley, winding the cord or chain a' and opening the discharge-gate r, substantially as described.

19. In a machine of the class described the combination of a discharge u, having a discharge-gate v connected therewith, a driving-shaft as V having a pinion c' and pulley v' loosely journaled thereon, a cord or chain connecting said pulley and said discharge-gate v, a segmental gear d' arranged to engage with said pinion c', a train of gearing interposed between said segmental gear and said driving-shaft for operating the former, and a spring f' arranged to normally keep the discharge-gate v closed, whereby the rotation of said shaft causes the segmental gear to intermittently operate the pinion c' and its pulley, thus winding the cord or chain a and opening the discharge-gate v, substantially as described.

20. In a machine of the class specified, the combination with discharge u, of an adjustable upper part w, a lower discharge-gate v, normally held closed by a spring f', inner gate y, and means for automatically opening the outer gate at predetermined intervals, said means being arranged to gradually open said outer gate and permit it to rapidly close, substantially as and for the purpose specified.

577,506. BRAKE-SHOE. MARSHALL J. BRUNDAGE, North San Juan, Cal., assignor of one-fourth to Charles S. Paine, same place. Filed Aug. 10, 1896. Serial No. 602,940. (No model.)



Claim.—1. The brake-block comprising the two hollow sections having the outer side walls, the inwardly-directed lateral walls 3^b, 3^c, forming an inclosure, dowels and sockets to receive the dowels arranged within said inclosures, and transverse apertures to receive a connecting device, and provided in its forward side with a recess of dovetail form in cross-section said recess being formed by the side walls and walls 3^b, a ledge at the lower end of said recess, and serrations on the inner side of the side walls of the recess, a shoe of dovetail form in cross-section arranged in the dovetail recess of the block and resting on the ledge thereof, and a connecting device extending through the transverse apertures of the sections, substantially as and for the purpose set forth.

2. The combination of a brake-beam, a spindle carried by the brake-beam and having a threaded end and a nut thereon, a brake-block secured on the spindle by the nut and comprising the two hollow sections having the outer side walls, the inwardly-directed lateral walls 3^b, 3^c, forming an inclosure, dowels and sockets to receive the dowels arranged within said inclosures, and transverse apertures receiving the spindle, and provided in its forward side with a recess of dovetail form in cross-section; said recess being formed by the side walls and walls 3^b, a ledge at the lower end of said recess, and serrations on the inner side of the side walls of the recess, and a shoe of dovetail form in cross-section arranged in the dovetail recess of the block and resting on the ledge thereof, substantially as specified.

577,507. DENTAL PLUGGER. ALFRED CANE, Golden Gate, Cal. Filed June 11, 1895. Serial No. 552,448. (No model.)



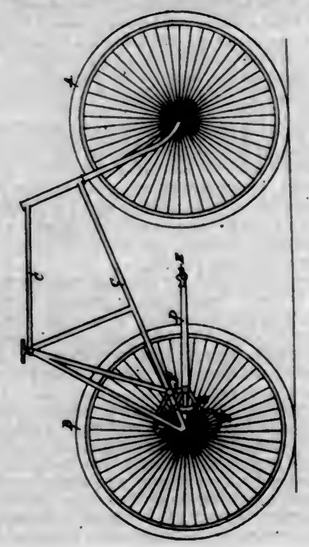
Claim.—The herein-described dental plugging instrument consisting of the hollow handle having the tubular socket-piece on the lower end, the spindle fitted to move in said socket-piece and having a helical groove extending partly aronnd the circumference thereof a fixed pin in the socket-piece engaging said groove, a coil-spring within the handle bearing upon the head of the spindle, the adjusting-screw in the upper end of the handle resting upon and forming an adjustable bearing for the spring and a socket in the lower end of the spindle to receive a filling point or tool; the said parts being so constructed and arranged that a limited rotative movement of the filling-point simultaneously with pressure is produced by the contact of such point with the filling in the cavity, as and for the purpose set forth.

577,508. VEHICLE-HUB. JOHN C. CHILCOTE and ROBERT I. RIGLEY, Shy Beaver, Pa. Filed July 2, 1896. Serial No. 597,831. (No model.)

Claim.—1. In a sectional hub, the combination with a threaded box provided with a ratchet, of a hub-section adapted to screw over the box, a pawl carried by the section and adapted to engage the ratchet, and devices for locking the pawl against withdrawal, substantially as described.

2. In a sectional hub, and in combination with a detachable hub-section, a box provided with an annular ratchet, a pawl carried on the section, a screw for locking the pawl, and a device for locking the screw, all arranged and adapted to operate as set forth.

577,509. BICYCLE. CHARLES B. COFFEEN and CARL F. BUCK, Chicago, Ill. Filed Sept. 10, 1896. Serial No. 582,085. (No model.)



Claim.—1. In combination, a bicycle tricycle or similar device provided on either side with a lever fulcrumed at a point between its ends by means of a swinging bar supported by the frame, and terminating at the front end in a pedal and at the rear end in an internally-geared yoke, a pinion secured to the rear wheel and located within the yoke and in mesh therewith, and a guide adapted to keep the yoke constantly in mesh with the pinion.

2. In combination, a bicycle tricycle or similar device provided on either side with a lever fulcrumed at a point between its ends by means of a swinging bar supported by the frame, and terminating at the front end in a pedal and at the rear end in an internally-geared yoke, a pinion secured to the rear wheel and located within the yoke and in mesh therewith, and a guide adapted to keep the yoke constantly in mesh with the pinion, the arrangement on the two sides of the bicycle being so timed that when one pedal is at its highest limit the other is at its lowest, substantially as described.

577,510. RIGHT AND LEFT HAND STOP AND WASTE COCK. WILLIAM HALL, New Haven, Conn. Filed June 17, 1896. Serial No. 595,896. (No model.)



Claim.—1. A wrench for a stop and waste cock having a head portion provided with a recess eccentric to the center of the said head, an integral stop upon the under side of, and concentric with, the said head, substantially as described.

2. A plug for a stop and waste cock the neck or head portion of which is eccentric to the body portion, substantially as described.

3. A stop and waste cock body having a flange upon its upper portion provided with the stops 7 8 10 which project upward from the said flange, are integral therewith, and are concentric thereto, substantially as described.

4. A stop and waste cock with a flange upon the upper portion of its body provided with stops as herein described, in combination with a plug having a neck eccentric to the center thereof, substantially as described.

5. A stop and waste cock provided with a flange upon which are stops, as herein shown and described, having a plug provided with a rectangular neck eccentric to the center of the said plug-body, in combination with a wrench having a head portion provided with a rectangular recess eccentric to the said head, an integral stop concentric thereto and projecting therefrom, substantially as described.

6. A stop or waste cock having a flange as herein shown and described, stop-shoulders upon said flange, a plug provided with a rectangular neck and a wrench having a stop upon the under side thereof adapted to be placed upon the neck of said plug whereby changing the position of the wrench upon said neck one-half a revolution the cock may be changed from a right to a left hand or vice versa, substantially as described.

577,511. BALE-TIE. WILLIAM P. HAYNE, Campti, La. Filed June 18, 1896. Serial No. 596,015. (No model.)

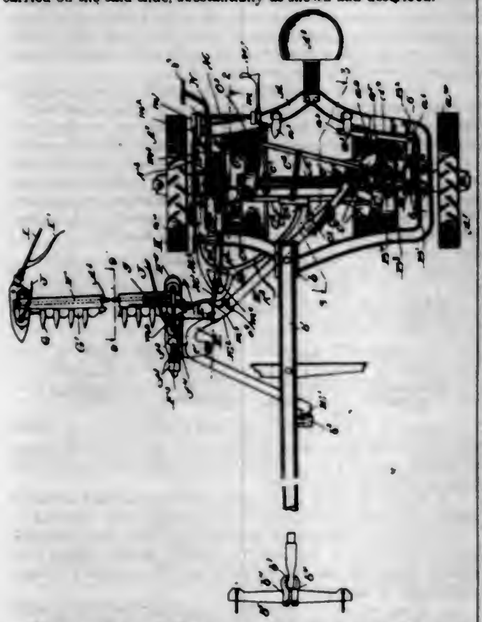


Claim.—The bale-tie composed of wire doubled and having the loop at one end from which its two members extend side by side to near the opposite end which has the two points or short arms and adjacent to which the members come in contact and are twisted together, as and for the purpose set forth.

577,512. MOWING-MACHINE. MARVIN M. HAZZARD, Nile, N.Y. Filed Sept. 9, 1895. Serial No. 561,967. (No model.)

Claim.—1. The combination with the axle and the clutch mechanism thereon, of the internally-toothed ring C, a pinion on the said axle designed to engage therewith, ring C^2, bars C^3 connecting said rings, an eccentric disk C^7 loosely mounted on said axle and turning on the inner rim of said ring C^2, connection between the bars C^7 and the axle, and means for holding the bars from rotating about the

axle the finger-bar, a slide on one of the bars C^3 a reciprocating bar having ball-and-socket connections between the finger-bar and a lug carried on the said slide, substantially as shown and described.



2. In combination with the substantially U-shaped bar E pivoted to the main frame of the machine, and to a lug on the tongue, a yoke connected to the said bar by a link, the axle, the pinion thereon, the ring C internally toothed and designed to mesh with the teeth of the pinion, the eccentric disk C^7 and ring C^8, strips C^2 connecting rings C and C^8, the collar C^6 pivoted to the collar c^4 on the main shaft, the forks of the said yoke pivoted to the collar C^6, substantially as shown and described.

3. In a mowing-machine the combination with the U-shaped member pivoted to the machine as described, of a recessed bracket E^2 mounted on said U-shaped member, a pulley journaled in the recess of the said bracket, a spring-actuated portion pivoted to the said bracket and provided with a notched member adapted to engage with the projection from the finger-bar, of the link having ball-and-socket connection with said pivoted member, and means on the frame connected with the said link for raising the notched member, substantially as shown and described.

4. The combination with the shoes connected by a finger-bar, the upright posts of the shoes recessed and carrying sliding blocks, rack-bars on the front upright face of each shoe, a rod journaled in a recess on the under side of a finger-bar, pinion-wheels carried at each end of the said rod designed to mesh with the teeth of the rack-bars, one end of the finger-bar carrying a yoke which straddles the cutting-knife and an angle-lever and link connection with the said yoke, whereby the finger-bar may be raised or lowered, substantially as shown and described.

5. The combination with the shoe and its upright with notched segment, of the finger-bar, the yoke connected therewith, the lever pivoted on the upright, and the link connecting the lever with the yoke, as and for the purpose set forth.

6. The combination with the pulley with the cam-flange notched as described, of the drum, the spring and adjusting-wheel, the worm-shaft meshing therewith, of the lever R pivoted to the pulley, the levers Q^4 and Q^3 pivoted on a common pivot to a bracket on the side of the pulley, a pawl q^3 pivoted on the same pivot, its free end resting on a curved rack-bar, the corresponding ends of the levers notched and adapted to bear on the said pawl at two different locations and suitable connections between the said levers Q^4 and Q^3 and lever R, whereby the pawl may be operated, substantially as shown and described.

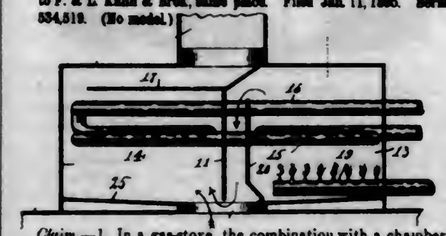
7. The combination with the cam-flanged pulley with spring and adjustment-wheel as described, of the lever R pivoted to the pulley, the levers Q^3 and Q^4 and pawl q^3 pivoted on a pin q^4, held in a bracket on the side of the wheel, the rear ends of said levers Q^4 and Q^3 notched with the upper projections of the notched portions adapted to bear against the end of the pawl and the lower projecting portions extending under the pawl to raise the same, of the springs bearing against a lug on the side of the pulley and the upturned ends of the levers Q^3 and Q^4, suitable connection between the said levers, whereby, when the lever R is swung, the said pawl may be raised or lowered, substantially as shown and described.

8. The combination with the pulley with its cam-flange and notches, of the drum, the spring having one end secured to the pulley, its other to an adjusting-wheel, the curved rack-bar, the lever pivoted on the flange, a pawl carried by said lever for engaging said notches, and a system of levers for actuating the pulley and flange and carrying a pawl engaging the said rack-bar, substantially as shown and described.

9. The combination with the pulley, notched cam-flange, drum and adjusting-wheel, the levers Q^4 and Q^4 and pawl, pivoted on a common pivot, the ends of the levers notched and adapted to bear against the end of the under side of the said pawl, the curved rack-bar, the lever R pivoted to the cam-flange, the angle-lever Q pivoted to the pulley on a pin q, a link Q^2 connecting the lower angled end of the said lever Q and the lever Q^3, of the lever Q^4 pivoted on a pin mounted in a bracket on the said pulley, one end of the said lever Q^4 pivoted to a link Q^2 which is pivoted to one end of the lever Q^4, and a pin r carried on a rod and adapted to work in slots in the angle-lever Q, and lever Q^4 disposed at right angles to said lever Q, of the auxiliary levers connected to the lever R for operating the pin r and pawl R', substantially as shown and described.

10. The combination of the U-shaped bar pivoted to the frame and pole of the machine, a T-shaped shaft journaled at the angled portion of the said bar and designed to carry the finger-bar, of the bracket carried on the said U-shaped bar and a pivoted member on the said bracket, a notched portion of the said member designed to engage with a projection from the finger-bar, the integral ball-shaped lug on said pivoted member, the link M^7 having ball-and-socket connection with said lug, the crank-shaft M^3 pivoted to the main frame and connected with the link M^7 and a foot-lever having link connection with said crank-shaft M^3, substantially as shown and described.

577,513. GAS-STOVE. LAZARD KAHN, Hamilton, Ohio, assignor to F. & L. Kahn & Bros., same place. Filed Jan. 11, 1895. Serial No. 534,519. (No model.)



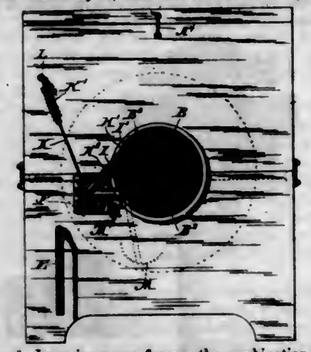
Claim.—1. In a gas-stove, the combination with a chamber disposed beyond and connected with the outlet of the stove and adapted to receive the waste gases therefrom and pass them to the stovepipe, of a water-heating coil disposed in said chamber, a second chamber in juxtaposition to said first chamber having a water-heating coil therein, a gas-burner located in the second chamber under the water-heater, an air-inlet to the second chamber, and a flue connecting the chambers, whereby the hot products from the gas-burner after heating the coils in the second chamber pass on to the first chamber and mingling with the waste gases from the stove assist in heating the coils in said first chamber.

2. In a gas-stove, the combination, substantially as set forth, of a chamber disposed beyond and connected with the outlet of the stove and adapted to receive the waste gases therefrom and pass them to the stovepipe, a water-heating coil in said chamber disposed beyond said outlet, and a second chamber having an air-inlet, and having a waste-gas diving-flue leading to the first chamber, a water-heating coil in the second chamber, and a gas-burner in the second chamber under the water-heater therein.

3. The combination with a primary heater, as a stove, of a chamber adapted to receive the products of combustion therefrom, a second chamber containing an auxiliary heater, water circulating pipes in both chambers, a flue opening from the second chamber into the first-named chamber below the water-circulating pipes therein, and an outlet-opening in the first-named chamber for the products of combustion.

4. The combination with a stove, and a chamber adapted to receive the products of combustion therefrom, of a water-circulating pipe in the chamber, an auxiliary heater removed from, but arranged to discharge its products of combustion into, the chamber below the pipe, and a baffle-plate above the pipe, extending adjacent to the end of the chamber farthest from the auxiliary burner, whereby the products of combustion therefrom will be forced to traverse the entire length of the chamber and in the immediate vicinity of the pipe.

577,514. ICE-CREAM FREEZER. CHARLES H. KENNEY, Milwaukee, Wis. Filed July 15, 1895. Serial No. 555,970. (No model.)



Claim.—1. In an ice-cream freezer, the combination with a non-revoluble case, of a horizontally-disposed cylindrical drum revoluble in the case, the drum being provided with an enlarged axial aperture at one end, a double-edged scraper provided with a cranked stem, a bracket outside the drum fixed on the case in which bracket the stem of the scraper is journaled whereby the scraper is adapted to swing into contact with the interior surface of the periphery of the drum at two separate localities, and a spring adapted to hold the scraper in contact with the drum at both localities, said spring being detachably attached to the crank of the scraper permitting the swinging of the scraper from one position to the other, the spring being shiftable from one position of the scraper-crank to the other position, substantially as described.

2. In an ice-cream freezer, the combination with a non-revoluble case and a horizontally-disposed cylindrical drum revoluble therein having an axial aperture of considerable diameter at one extremity, of a material-spreading plate having a rigid doubly-cranked stem with a terminal tang, and a bracket outside the drum fixed on the non-revoluble case adjacent to the drum-aperture and provided with a deep socket in which the tang of the stem of the spreader is inserted adjustably and removably and at a right angle to the movement-impelling strain on the plate whereby the spreader is securable in position adjustably but non-yieldingly, substantially as described.

3. In an ice-cream freezer, the combination with a non-revoluble case and a horizontally-disposed cylindrical drum revoluble therein having an axial aperture of considerable diameter at one extremity, of a material-spreading plate having a rigid cranked stem with a terminal tang, and a bracket outside the drum fixed on the non-revoluble case, which bracket is provided with a deep socket in which the tang of the stem of the spreader is inserted adjustably and removably, said bracket having a recessed or bifurcated end adjacent to the mouth of the socket in which recess a part of the stem is received whereby the spreader is supported non-yieldingly in position adjacent to and parallel with the interior surface of the periphery of the drum, substantially as described.

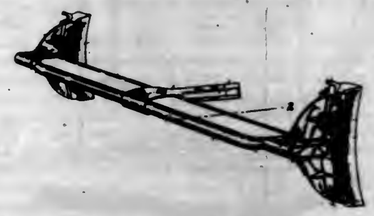
4. In an ice-cream freezer, the combination with a non-revoluble case and a revoluble drum therein having an axial aperture at one end, of a material-removing scraper, and a material-flattening spreader in the drum, the scraper and the spreader being each provided with a stem extending through the aperture in the end of the drum, and a single bracket fixed on the case outside the drum in which the stems of the spreader and of the scraper are mounted, substantially as described.

5. In an ice-cream freezer, the combination with a material-scraper fixed on a cranked stem having an axial portion provided with a part or parts flattened and extended, of a bracket for supporting the scraper said bracket having a circular aperture for the axial portion of the stem of the scraper and a contracted passage or passages to said aperture capable of admitting the flattened portions only of the stem, substantially as described.

6. In an ice-cream freezer, the combination with an exterior non-revoluble case, and a horizontally-disposed revoluble material-holding drum therein, of a non-revoluble spreader inside of the drum disposed adjacent to the interior surface of the drum and in the lower portion thereof, and a relatively-fixed scraper on the inside of the drum arranged to remove material from the interior surface of the drum above the spreader and in such position relative thereto that material removed from the surface of the drum by the scraper falls in front of the spreader as the drum revolves, substantially as described.

7. In an ice-cream freezer, the combination with an exterior non-revoluble case, and a horizontally-disposed cylindrical material-holding drum therein having one end open centrally, of a material-spreader substantially as long as the interior of the drum and near its periphery on the inside thereof, said spreader being supported and held in position by a cranked stem extending to and passing out of the open end of the drum, and a material-scraper also located in the drum, and provided with a cranked stem that extends to and passes out of the open end of the drum, said scraper being slightly shorter than the interior of the drum and so disposed as to be capable of being swung in the drum from one position to another past the stem of the spreader without removing either spreader or scraper from the drum, substantially as described.

577,515. CAR-BRAKE. ELLA A. MARDEN, Watertown, Mass. Filed July 13, 1896. Serial No. 598,016. (No model.)



Claim.—1. In a car-brake, a tubular brake-beam having the brake-heads secured to its opposite ends, said tubular beam being reinforced by a solid bar placed within the same in contact with its interior surface and extending from one end to the other of said beam, substantially as described.

2. In a car-brake, a tubular brake-beam having the brake-heads secured to its opposite ends, combined with a solid flat reinforcing-bar placed within the same with its narrower sides or edges facing in the line or direction of the strain, substantially as described.

3. In a car-brake, a tubular brake-beam having the brake-heads secured to its opposite ends, combined with a solid flat reinforcing-bar placed within the same with its narrower sides or edges facing in the line or direction of the strain, and said flat reinforcing-bar being provided on its upper and lower surfaces with longitudinal ribs extending vertically therefrom into contact with the upper and lower interior surfaces of the tube within which said bar is placed, substantially as described.

4. A car-brake consisting of a tubular brake-beam of elliptical or oblong form in cross-section, and two brake-heads within which the ends of said beam are secured, said tubular beam being arranged with its narrower sides or edges facing in the line or direction of the strain, substantially as described.

5. In a car-brake, a tubular brake-beam of elliptical or oblong form in cross-section and having the brake-heads secured to its opposite ends, in combination with a flattened reinforcing-bar placed within the same, said beam and reinforcing-bar being arranged with their narrower sides or edges facing in the line or direction of the strain, substantially as described.

6. In a car-brake, a tubular brake-beam having the brake-heads secured to its opposite ends, said beam being reinforced by a solid bar placed within the same, and said tubular beam being compressed at its ends to fit tightly around the reinforcing-bar on all sides of the same, thereby forming solid ends for insertion within apertures in the brake-heads, substantially as described.

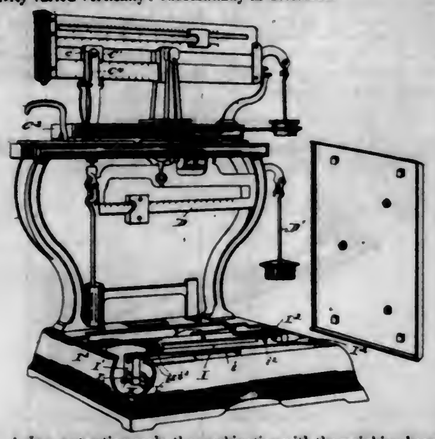
7. In a car-brake, the combination of a tubular brake-beam, two brake-heads in which the ends of said beam are secured, and a solid flat reinforcing-bar placed within said tubular beam with its narrower sides or edges facing in the line or direction of the strain, and a lever-clamp or connecting-bar centrally secured to the tubular beam to receive the brake-lever, substantially as described.

577,516. WEIGHING-SCALE. FRANK E. MELLINGER, Dayton, Ohio, assignor to The Computing Scale Company, same place. Filed Aug. 20, 1895. Serial No. 559,942. (No model.)

Claim.—1. In a scale, the combination with the beam, of a vertically-arranged chamber or casing rigidly mounted thereon with means for closing the same and a gravity-weight located within said chamber whereby the sensitiveness of the balance of the beam may be adjusted and adapted to have its center of gravity varied vertically; substantially as described.

2. In a scale, the combination with the balanced beam, of a casing having a chamber therein with its longitudinal axis at right angles to the longitudinal axis of the beam, with means for closing said chamber and a gravity-weight located in said chamber in fixed position whereby the sensitiveness of the balance of the beam may be secured but adapted to have its center of gravity varied vertically; substantially as described.

3. In a scale, the combination with the beam, of the vertically-arranged casing or chamber on said beam, and the solid soft-metal gravity-weight in said chamber and adapted to have its center of gravity varied vertically: substantially as described.



4. In a computing-scale, the combination with the weighing-beam and independent computing-beam having its pivot adjustable with relation to the platform-lever connection, of a chamber or casing on the computing-beam having its longitudinal axis at right angles to the longitudinal axis of the beam and a gravity-weight located in said chamber and adapted to have its center of gravity varied vertically whereby the proportion of the weight below the pivot of the beam may be regulated and the sensitiveness of the balance of the beam adjusted; substantially as described.

5. In a scale the combination with the beam and platform-levers having the knife-edge bearings, of the platform-subbase resting on said bearings and having the upwardly-extending leveling projection at each corner and the platform resting on said projection: substantially as described.

6. In a scale, the combination with the beam and platform-levers having the laterally-extending knife-edge bearings, of the platform-subbase having the downwardly-extending arms cooperating with said knife-edge bearings and the upwardly-extending leveling projections one at each corner and the cooperating projections and sockets in the platform and platform-subbase for preventing the lateral movement of the platform; substantially as described.

7. In a scale, the combination with the beam, the platform-levers having the lateral knife-edge bearings, of the bifurcated platform-supporting legs having their inner sides beveled inward, the V-shaped bearings pivotally supported in said bifurcated legs with the edges above the lower edges of the inclined surfaces a sufficient distance to prevent the knife-edge bearing from entering the joint, whereby the seating of the knife-edge bearing in the V-shaped bearing is insured; substantially as described.

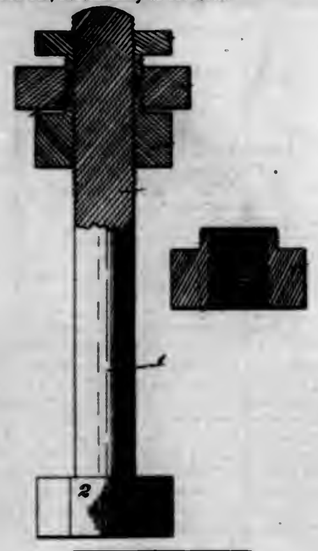
8. As an improved means for adjusting the gravity of scale beams or levers, a chamber carried rigid with the beam or lever and adapted to have more or less weight taken therefrom or placed therein and the center of gravity thereby varied vertically, and means for sealing the mouth of said chamber whereby the sensitiveness of the balance of the beam may be adjusted, substantially as specified.

9. As an improved means for adjusting the gravity of scale beams or levers, a chamber open at one end and carried rigid with the beam or lever, said chamber being adapted to contain weight more or less near its opening to vary its center of gravity vertically; and means for sealing the opening to said chamber whereby the sensitiveness of the balance of the beam may be adjusted, substantially as specified.

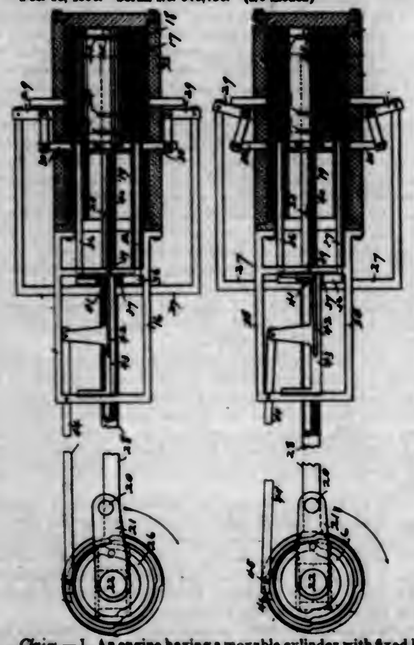
10. In a computing-scale, the combination with the weighing-beam and independent computing-beam having its fulcrum adjustable with relation to the platform-lever connection, of a chamber open at one end and carried by the computing-beam, a vertically-adjustable gravity-weight located in said chamber whereby the gravitating of the beam and the sensitiveness of its balance may be adjusted, and means for sealing the opening to said chamber and thus prevent tampering with the gravity of said beam, substantially as specified.

577,517. NUT-LOCK. MICHAL HITTLE, Pittsburg, Pa. Filed Dec. 27, 1895. Serial No. 573,459. (No model.)

Claim.—The nut-lock comprising the bolt, the nut screwed thereon and having an internally and externally threaded flange, the auxiliary nut also screwed on said bolt and having an internally and externally threaded flange, and a third nut screwed upon the flange of the first-named nut and adapted to permit the screwing thereinto of the flange of the second nut, substantially as set forth.



577,518. ENGINE. CHARLES M. C. PRENTICE, Chicago, Ill. Filed Feb. 18, 1896. Serial No. 579,736. (No model.)



Claim.—1. An engine having a movable cylinder with fixed heads, a piston reciprocating within the cylinder, mechanism substantially as described for moving the cylinder in definite relation to the piston movement, and mechanism for fixedly securing or locking the cylinder at predetermined limits of travel, substantially as described.

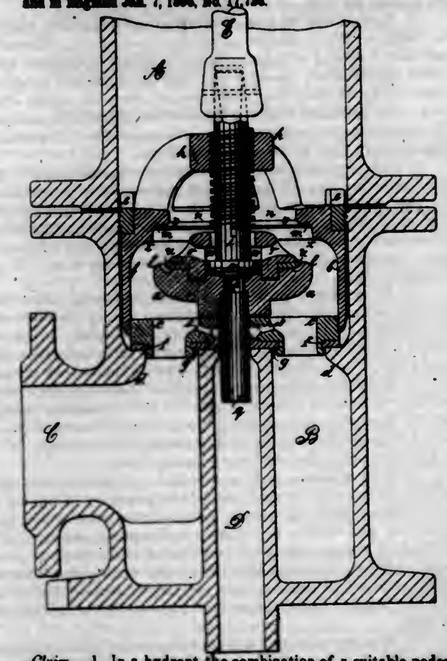
2. An engine having a single bodily-movable cylinder with fixed heads and a reciprocating piston working within the cylinder, mechanism substantially as described for moving the cylinder and piston from dead-center positions, means for admitting the motive fluid to the cylinder and mechanism for locking the cylinder against recoil whereby an added movement may be imparted to the piston by the expansion of the motive fluid behind it, substantially as described.

3. The combination with a stationary frame having suitable ways, a cylinder mounted to slide in said ways, a piston reciprocating within said cylinder, means for locking the cylinder and piston together whereby they are moved simultaneously during the first part of the piston stroke, means for locking the cylinder against recoil and for unlocking the cylinder and piston whereby to permit the piston to continue its travel freed from its connection with the cylinder, substantially as described.

4. The combination with a stationary frame having ways therein, of a cylinder adapted to slide in said ways, a piston mounted to reciprocate within the cylinder and having a piston-rod, a crank-shaft connection, means for locking the cylinder to the piston-rod whereby the cylinder is caused to move with the piston during the initial part of the stroke of the latter, means for locking the cylinder against recoil and means for unlocking the cylinder from the piston-rod and admission-ports in the cylinder adapted to admit the motor fluid when the crank-shaft is intermediate its dead-centers, substantially as described.

5. The combination with a movable cylinder, of a piston adapted to move therein and also independently thereof, a piston-rod having locking projections thereon, a collar encircling the rod and having grooves through which the locking projections of the rod may pass, and means for rocking said collar whereby to turn the locking projections out of register with the grooves and a connection between the collar and the cylinder whereby the latter may be locked to and moved with the piston-rod, substantially as described.

577,519. VALVE FOR HYDRANTS. HEINRICH PICHLER, Frankfort-on-the-Main, Germany. Filed July 13, 1896. Serial No. 598,966. (No model.) Patented in Germany Aug. 31, 1895, No. 84,211; in Austria Dec. 28, 1895, No. 45/5,183; in Hungary Dec. 30, 1895, No. 6,083, and in England Jan. 7, 1896, No. 17,736.



Claim.—1. In a hydrant, the combination of a suitable pedestal formed with the supporting-step *d* and the central discharge D also forming a support, the valve-casing resting upon said step and said discharge, an annular retaining-nut *e* constructed to screw into the pipe to which the valve is applied and bearing against the valve-casing, whereby the latter may be inserted and withdrawn, and a valve working in the casing and having a tube *g* working in the discharge, as set forth.

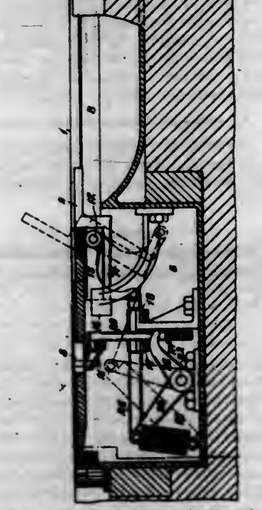
2. In a hydrant, the combination of a suitable pedestal, formed with the annular shoulder *d* and the central outlet D, the valve-casing resting upon the shoulder and outlet, the valve seated in the valve-casing and having a tube *g* working in the outlet D and opened at top to the upper side of the valve, and a controlling-stem moving upon and closing the tube *g* by the act of opening the valve but withdrawing from and opening said tube by the act of closing the valve, as explained.

3. In a valve of substantially the character specified, the combination of the valve-casing having an inner and an outer seat, a valve having a metallic bearing-face constructed to bear against the inner seat and having a lip-shaped washer separated from the metallic bearing-face and arranged to bear against the outer seat and exposed on its inner side to pressure of the water to be controlled, substantially as explained.

4. In a valve, the combination of a casing having an inner and an outer annular valve-seat, a valve of hard material having a face bearing against the inner seat and a lip-shaped washer bearing against the outer seat and spaced apart from the hard bearing-face sufficient to admit the pressure of water behind it in a direction to force it against the seat, and a disk screwed to the valve upon the washer and fitting just within the outer seat in order to draw the washer away from its seat without injury when the valve is opened, as herein explained.

5. In a valve for hydrants and the like, the combination of the valve-casing *b*, formed with the valve-opening *n*, the central outlet for trapped water and the pressure-ducts *s*, the valve *a* having telescoping tube *q* working in the escape-opening of the casing and having a packing-washer *g* flared upwardly toward the pressure-ducts to cause packing by the pressure of the water, upper portion of the valve formed with a cylinder and ports *r*, the valve-stem *i* for controlling the movement of the valve and having a piston *o* working in a cylinder in the upper part of said valve and adapted to open and close communication between ports *r* and the escape-tube *q* by the operation of closing the same respectively, substantially as set forth.

577,520. AUTOMATIC SWITCH. PERCY S. ROCKER, Boston, Mass. Filed July 16, 1896. Serial No. 599,427. (No model.)



Claim.—1. In switch-actuating mechanism, the combination with a pivoted grip designed to be actuated from a vehicle and consisting of a pair of hinged jaws pivoted upon studs projecting from the tracks, of a switch-point, and mechanism intermediate of the point and grip whereby the grip may be actuated to operate the switch-point, substantially as specified.

2. The combination with a switch-point, of a plurality of grips located adjacent to the opposite rails, trip-levers carried by the car and adapted to engage the grips and mechanism intermediate of the grips and point for operating the latter when the grips are actuated, substantially as specified.

3. The combination with a pivoted grip consisting of a pair of hinged jaws, and a switch-point, of mechanism intermediate of the grip and point for communicating motion from the former to the latter, and mechanism designed to open the jaws of the grip when the latter is actuated to throw the switch, substantially as specified.

4. The combination with a pivoted grip consisting of a pair of hinged jaws provided, respectively with tailpieces, of a switch-point, mechanism intermediate of the switch-point and one of said tailpieces

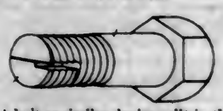
for communicating power from the former to the latter, and a cam-groove engaged by the other of said tailpieces, substantially as specified.

5. The combination with a switch-point and pivoted grip, of a spring-actuated rock-shaft, bell-crank lever, mechanism intermediate of the rock-shaft and grip, mechanism intermediate of the rock-shaft and bell-crank lever, and mechanism intermediate of the bell-crank lever and switch-point whereby as the grip is operated power is communicated to actuate the switch-point, substantially as specified.

6. The combination with a grip, switch-point and intermediate mechanism, of a plate-cover or similar element provided with a guide-slot designed to guide a trip-lever or the like to the grip and means for automatically releasing the grip, substantially as specified.

7. The combination with a trip-lever, of spring-actuated mechanism designed to elevate the trip-lever, a grip adapted to be engaged and operated by the trip-lever and a foot-rod designed to release said trip-lever, substantially as specified.

577,521. NUT-LOCKING BOLT. EDWIN STANCLIFF, New York, N. Y., assignor of one-half to Thomas Orgill, same place. Filed July 16, 1895. Serial No. 556,196. (No model.)



Claim.—1. A bolt or similar device split in the general direction of its length in two parts, the two parts being laid together so as to make the bolt complete, one of the parts being cut away so as to form a shoulder and longitudinal rocking edge, the rocking edge being so positioned that if the parts are rocked relatively to each other upon this edge in one direction their joint diameter is increased beyond the normal diameter, substantially as described.

2. The combination of a nut and a bolt, the bolt being split in the general direction of its length in two parts, the two parts being laid together so as to make the bolt complete, and one of its parts being cut away to form a shoulder and a longitudinal rocking edge, the rocking edge being so positioned that if the parts are rocked relatively to each other upon this edge in one direction the joint diameter is increased beyond the normal diameter, the threads of the bolt and nut being so cut that the nut can be turned on with ease but is turned off with comparative difficulty, substantially as described.

577,522. PNEUMATIC PAINTING APPARATUS. ROCHESTER WALLWORK and ARTHUR C. WELLS, Manchester, England. Filed Mar. 23, 1896. Serial No. 584,504. (No model.) Patented in England May 3, 1894, No. 8,839.



Claim.—1. An apparatus such as described, comprising a spraying device provided with a paint and an air duct, a closed tank, an open paint-receptacle therein and a paint-passage leading from the paint-receptacle to the paint-duct in the spraying device, in combination with an air-compressor, a storage-chamber for the compressed air, mechanism for operating the compressor carried by said chamber, and means for conveying the compressed air from the storage-chamber to the aforesaid tank and to the air-passage in the spraying device, respectively, for the purpose set forth.

2. An apparatus such as described, comprising a spraying device provided with a paint and an air duct, a closed tank, an open paint-receptacle therein and a paint-passage leading from the paint-receptacle to the paint-duct in the spraying device, in combination with an air-compressor, a storage-chamber for the compressed air, mechanism for operating the compressor carried by said chamber, flexible pipes connecting the storage-chamber with the aforesaid tank and the latter with the air-duct in the spraying device, for the purpose set forth.

3. An apparatus such as described comprising a spraying device provided with a paint and an air passage, a closed tank, an open paint vessel therein, a paint-duct leading from near the bottom of the paint vessel to the outside of the tank, and a flexible pipe connection between said paint-duct and the like passage in the spraying device, in combination with an air-compressor, a storage-chamber for the compressed air, mechanism for operating the compressor carried by said chamber, and flexible-pipe connections connecting the chamber with the aforesaid tank and the latter with the air-passage in the spraying device, for the purpose set forth.

4. An apparatus such as described comprising a closed tank adapted to contain air under pressure, an open paint-receptacle in said tank, a paint-delivery duct opening near the bottom of said receptacle and leading to the outside of the tank, and a spraying device having two passages, one for paint and one for air adapted to be respectively connected with the aforesaid delivery-duct and with a source of compressed-air supply, for the purpose set forth.

5. An apparatus such as described, comprising a closed tank adapted to contain air under pressure, an open paint-receptacle suspended in said tank above the bottom thereof, a paint-delivery duct opening near the bottom of said receptacle and leading to the outside of the tank, and a spraying device provided with two passages one for paint and one for air, adapted to be respectively connected with the aforesaid paint-delivery duct and with a source of compressed-air supply, for the purpose set forth.

6. An apparatus such as described, comprising a closed tank adapted to contain air under pressure, an open paint-receptacle in said tank, a paint-delivery duct opening near the bottom of said receptacle and leading to the outside of the tank, and a spraying device having two passages one for paint and one for air, adapted to be respectively connected with the aforesaid delivery-duct and with a source of compressed-air supply, in combination with an agitator or stirrer for the paint-receptacle, for the purposes set forth.

7. An apparatus such as described, comprising a closed tank adapted to contain air under pressure, an open paint-receptacle in said tank, a paint-delivery duct leading from near the bottom of said receptacle to the outside of the tank, a spraying device having concentric passages for air and paint and a flexible pipe connected with the aforesaid paint-delivery duct and paint-passage, in combination with an air-compressor, a compressed-air chamber connected therewith and flexible pipes connecting the said chamber with the aforesaid tank and with the passage for air in the spraying device, for the purpose set forth.

8. An apparatus such as described, comprising a tank adapted to contain air under pressure, an open paint-receptacle contained in said tank, a stirring or agitating device consisting of a tubular open-ended agitator-shaft provided with suitable blades and extending nearly to the bottom of the paint-receptacle and to the outside of the tank, and a channeled handle on the outer end of said shaft, said handle provided with an outlet constructed for connection with a suitable paint-delivery pipe, for the purpose set forth.

9. In an apparatus such as described, the combination with the paint-conveying pipe and the source of paint-supply, of an intermediate pipe terminating in a stuffing-box, a strainer interposed in said pipe, and a tubular stuffing-box gland for the reception of the paint-conveying pipe, said gland provided with a handle and adapted to screw into the stuffing-box of said pipe, substantially as and for the purpose set forth.

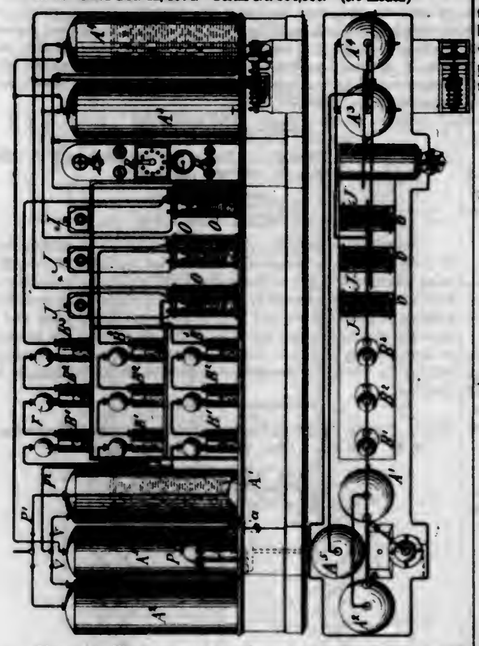
10. In an apparatus such as described, a spraying device constructed to be held in the hand comprising a casting provided with two passages, one for paint and one for air, with a purge or blow-off branch in communication with the passage for paint, and with a passage adapted to connect the purge or blow-off branch with the passage for air through said passage for paint, in combination with a valve or stop-cock adapted to control the flow of paint through its passage and the flow of air through the purge or blow-off branch, a pinion on the valve-spindle, and the spring-controlled toothed sector-lever in gear with said pinion, for the purpose set forth.

11. In an apparatus such as described, a spraying device comprising two concentric nozzles, passages for paint and air leading to said nozzles, a rigid pipe-section connected with each of said passages, said pipe-sections rigidly connected together and forming a handle for the spraying device, in combination with a source of paint-supply, a source of compressed-air supply and flexible pipes connecting the paint and air passages in the spraying device with the source of supply of paint and compressed air, respectively, for the purpose set forth.

12. In an apparatus such as described, a tank adapted to contain compressed air and provided near its upper end with interior inward projections or brackets, in combination with a receptacle for paint provided with a rim-flange adapted to seat on the aforesaid projections, a cover adapted to close the open end of the tank fluid-tight, and a paint-delivery duct extending from the cover near to the bottom of the paint-receptacle, for the purpose set forth.

13. In an apparatus such as described, the combination with a spraying device constructed to be held in the hand and provided with separate passages for paint and air, a valve for controlling the flow of paint through said paint-passage and a purge or blow-off branch leading from the air-passage to the atmosphere and intersecting the paint-passage, of a lever in reach of the fingers of the hand that holds the spraying devices, said lever adapted to move the valve so as to bring the passage therein in line with said blow-off branch whereby the valve-passage can be freed from obstructions by a finger of the hand that holds the spraying device, substantially as set forth.

577,523. PROCESS OF MANUFACTURING OZONE AND BY-PRODUCTS. GUSTAF J. ANDERSSON and JULIUS C. DITTRICH, Brooklyn, N. Y., assignors to the Ozone Company, same place and New York, N. Y. Filed Dec. 12, 1894. Serial No. 531,580. (No model.)



Claim.—1. The process of manufacturing ozone and nitrous oxids from air consisting in first freeing the air from carbon dioxid and then drying the same, then ozonizing the oxygen of the air into ozone and oxidizing simultaneously the nitrogen of the same into nitrous oxids by electrical currents of high tension in an ozone-generator and then separating the nitrous oxids from the ozone by absorbing them in suitable liquids, substantially as described.

2. A plant for manufacturing ozone and by-products consisting of a dynamo, a rheostat, a mechanical current-interrupting device, induction-coils, cylinder-reservoirs gas wash and drying bottles in connection with the reservoirs, ozone-generators in connection with the drying-bottles and in the secondary circuits of the induction-coils, apparatuses for separating and collecting the by-products in connection with the ozone-generators and tanks in which the ozone is absorbed by suitable substances in connection with these apparatuses, as specified.

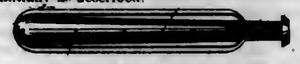
3. In a plant for manufacturing ozone the combination of a dynamo with a rheostat, a mechanical current-interrupting device, induction-coils, cylinder-reservoirs, wash and drying bottles in connection with the reservoirs, ozone-generators in connection with the drying-bottles and in the secondary circuits of the induction-coils, and tanks in which the ozone is absorbed by suitable substances in connection with the ozone-generators as specified.

4. In a plant for manufacturing ozone the combination of a dynamo with a rheostat, a mechanical current-interrupting device, induction-coils, cylinder-reservoirs, gas wash and drying bottles in connection with the reservoirs ozone-generators in connection with the drying-bottles and in the secondary circuits of the induction-coils, tanks in which the ozone is absorbed by suitable substances in connection with the ozone-generators and a tank in which the unabsorbed excess of ozone is collected in connection with the absorption-tank by a return-pipe, as described.

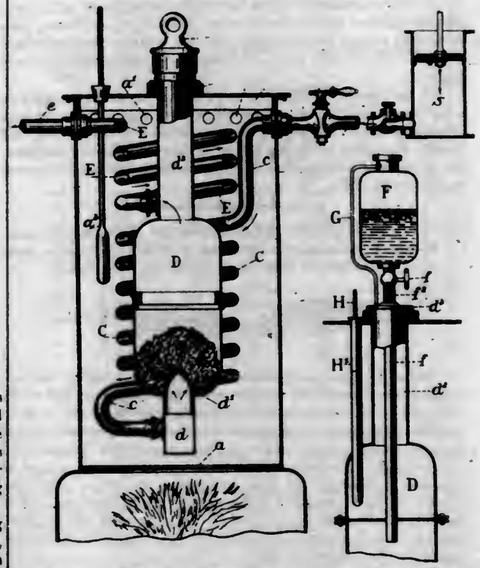
5. In a plant for manufacturing ozone and by-products the combination of a dynamo with a rheostat, induction-coils, cylinder-reservoirs, gas wash and drying bottles in connection with the reservoirs, ozone-generators in connection with the drying-bottles and in the secondary circuits of the induction-coils, apparatuses for separating and collecting the by-products in connection with the ozone-generators and tanks in which the ozone is absorbed in connection with these apparatuses, as specified.

577,524. SYRINGE-NOZZLE. HENRY H. BENNETT, Freehold, N. J. Filed Jan. 15, 1896. Serial No. 575,565. (No model.)

Claim.—A nozzle for a syringe, consisting of a tube open at one end and closed at the other end and gradually expanding in size from its open to its closed end, said closed end conforming in section to the arc of a circle, side ribs rigidly attached to the closed end of said tube and projecting a short distance outward therefrom as an extension of the arc forming the end of the tube, and then parallel to each other longitudinally of the tube to near the open end thereof, and then inward to the tube, to which the ends are rigidly connected, and suitable perforations in the end of the tube and the sides thereof between the ribs, substantially as described.



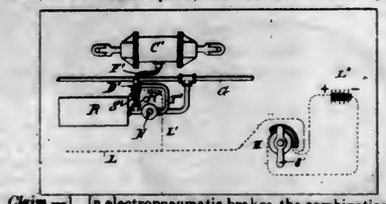
577,525. APPARATUS FOR DISINFECTING. ANDRÉ V. BROCHET, Paris, France. Filed July 15, 1896. Serial No. 599,302. (No model.) Patented in France Jan. 18, 1896, No. 253,282, and in England May 27, 1896, No. 11,557.



Claim.—1. In an apparatus for the production of formic aldehyde from a polymeride of formic aldehyde, the combination of a receiver in which the polymeride is placed, a worm surrounding the receiver and in communication with the bottom thereof, an auxiliary worm in communication with the top of said receiver, means for heating said worms and means for forcing air or similar gas through the worm, the receiver and auxiliary worm, substantially as described.

2. In an apparatus for the production of formic aldehyde from a polymeride of formic aldehyde, the combination of a receiver in which the polymeride is placed, a worm surrounding the receiver and in communication with the bottom thereof, an auxiliary worm in communication with the top of said receiver, means for heating said worms, means for forcing air or similar gas through the worms, the receiver and auxiliary worm and means for conducting water continuously into said receiver above the polymeride, substantially as described.

577,526. ELECTROPNEUMATIC BRAKE. FRANÇOIS CHAPSAL, Paris, France. Filed Sept. 26, 1896. Serial No. 607,089. (No model.)



Claim.—1. In electropneumatic brakes, the combination with an auxiliary reservoir, distributer, brake-cylinder, and an electric brake-valve and an electric release-valve, of electromagnetic means operating one of said valves when moved in one direction, and the other of said valves when moved in the other direction, an electric circuit

for energizing said means, and a commutator for reversing the current on said circuit.

2. The combination with a pneumatic brake comprising a distributer, an auxiliary reservoir, and a brake-cylinder, of an electric brake-controlling apparatus, an engineer's valve for operating the brakes pneumatically, a commutator operated by said valve for operating the brakes electrically, and an electric switch on said valve for closing said circuit to control electric operation.

3. For electrically-operated pneumatic brakes, the improved commutator H comprising segments 5', 6', 7', conductors 13', 14', contacts 2', 3' and 10', a line-wire connected to saids egments 5', and means for connecting the opposite terminals of a source of electric energy to said segments 6' and 7'.

4. For electrically-operated pneumatic brakes, the improved commutator H comprising segments 5', 6', 7', conductors 13', 14', contacts 2', 3' and 10', a line-wire connected to said segments 5', means for connecting the opposite terminals of a source of electric energy to said segments 6' and 7', and a handle-switch 8'.

5. The combination with a pneumatic-brake system, of an electrically-operated brake-valve therefor comprising an oscillating electromagnet, a single line-wire leading thereto, means for sending reverse currents over said wire, and valves operated by the oscillation of said magnet.

6. An electrically-operated valve for pneumatic-brake systems comprising a magnetic ring rotatively mounted on an axis between pole-pieces, means for sending reverse currents over said ring, and thereby oppositely energizing it and causing it to turn in one direction or another, and separate valves operated by the opposite movements of said ring.

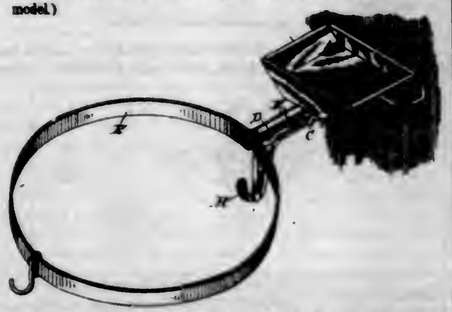
577,527. DAMPER FOR STOVE-DOORS. SEYMOUR C. HULBERT, Geneva, N. Y., assignor to the Phillips & Clark Stove Company, same place. Filed Sept. 12, 1896. Serial No. 605,577. (No model.)



Claim.—1. The combination with a stove-door having damper-openings made therein, of a bridge connected to the inner face of the door, and at its ends projected rearwardly from the latter so as to straddle said openings; a damper disk or plate arranged between said door and bridge, and provided with guides at each side to receive the inturned ends of the bridge; and a damper rod or bolt arranged to pass loosely through said door and bridge and where projecting beyond the latter provided with a nut, and at its outer end with a handle, and threaded into the intermediately-placed disk or plate, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

2. In a damper for stoves the combination with a door provided with damper-passages, and a centrally-located bolt-passage, of a bridge which at each of its ends connects with the door at each side of the damper-openings, and is therefrom projected rearwardly from its attached ends to straddle the damper-passages; a damper plate or disk arranged between the bridge and door, and having guides at each of its side edges to receive the bridge and a damper bolt or rod arranged to loosely pass through said journal-passage in the door and bridge, and to make a threaded connection with the damper-disk, and provided with a handle at its outer end, and a collar between where passing through the door and the handle, substantially as and for the purposes set forth.

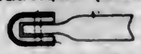
577,528. DEVICE FOR SUPPORTING WASHBASINS. WILLIAM KAGELER, Louisville, Ky. Filed Aug. 4, 1896. Serial No. 601,662. (No model.)



Claim.—1. A device for the purpose described, comprising a soap-dish, an arm extending from the under side thereof, a hoop mounted on a horizontal pivot held in said arm and having parallel portions extending beyond its pivot to engage the under side of the soap-dish, and a hook adapted to receive a basin, all substantially as described.

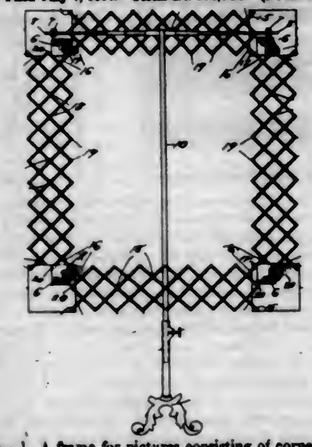
2. A device for the purpose described, comprising a soap-dish, an arm extending from the under side thereof, a hoop mounted on a horizontal pivot held in said arm and having parallel portions extending beyond its pivot to engage the under side of the soap-dish, and a hook adapted to receive a basin, said dish being provided with flanges extending from opposite sides thereof to receive a towel-rack, substantially as described.

577,529. UMBRELLA. ROBERT P. KNAPP, Brooklyn, N. Y. Filed Mar. 26, 1896. Serial No. 584,735. (No model.)



Claim.—In an umbrella, parasol or like article, the combination of a rib of hollow or trough-like construction, a bracing or strengthening piece fitted snugly within said rib and lying entirely within the hollow of said rib, a stretcher of hollow or trough-like construction adapted to enter the rib and bracing or strengthening piece, and a pivot-pin passing through the sides of the rib, through the bracing or strengthening piece and stretcher, the said pin being a means for holding the bracing or strengthening piece in place, substantially as specified.

577,530. PICTURE-FRAME. CAROLINE I. C. LEE, Holland Patent, N. Y. Filed July 7, 1896. Serial No. 598,344. (No model.)



Claim.—1. A frame for pictures consisting of corner-pieces, the backs of which are provided with pockets, which are adapted to receive the corners of the picture, and said corner-pieces being united by lazy-tongs whereby the size of the frame may be adjusted, substantially as shown and described.

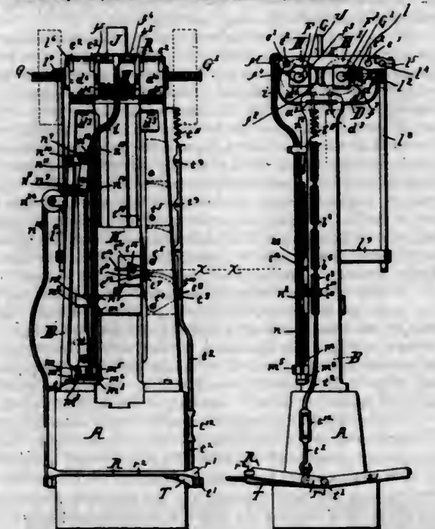
2. A frame for pictures consisting of corner-pieces, the backs of which are provided with pockets, which are adapted to receive the corners of the picture, and said corner-pieces being united by lazy-tongs whereby the size of the frame may be adjusted, and the upper corner-pieces being provided, each with a rod, which passes through a suitable keeper secured to the back thereof, the inner ends of said rods being connected by a tube in which they are adjustable, said tube being provided centrally with a rod which is mounted in a tubular standard, and in which it is adjustable, substantially as shown and described.

3. A frame for pictures consisting of corner-pieces, the backs of which are provided with pockets, which are adapted to receive the corners of the picture, and said corner-pieces being united by lazy-tongs whereby the size of the frame may be adjusted, and said frame being provided with an adjustable support, substantially as shown and described.

4. A picture-frame comprising corner-pieces, which are united by means of double lazy-tongs, which constitute the sides and ends thereof, the connection between the corner-pieces, and the lazy-tongs being such that the size of the frame may be adjusted as desired, said corner-pieces being each provided with a pocket which opens inwardly, and which is adapted to receive the corners of the picture, substantially as shown and described.

5. A picture-frame comprising corner-pieces, which are united by means of double lazy-tongs, which constitute the sides and ends thereof, the connection between the corner-pieces, and the lazy-tongs being such that the size of the frame may be adjusted as desired, said corner-pieces being each provided with a pocket which opens inwardly, and which is adapted to receive the corners of the picture, and the upper corner-pieces being provided with adjustable rods which are connected with the back thereof, and which are connected by a central tube, into which the inner ends thereof, are passed, said tube being provided with an upright rod which is adjustably supported in a suitable standard, substantially as shown and described.

577,531. DROP-HAMMER. FRANK LOMBARD, Hartford, Conn. Filed Sept. 21, 1896. Serial No. 606,472. (No model.)



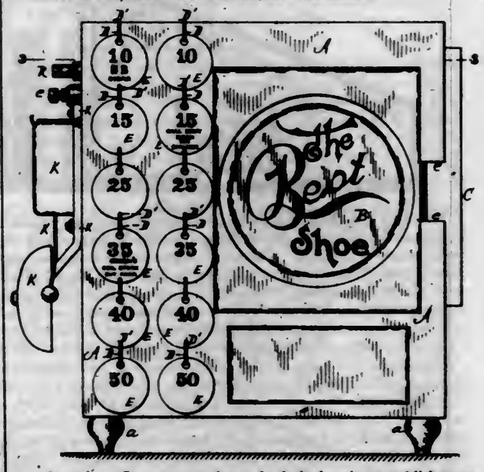
Claim.—1. In drop-hammers of the class operated by friction driving-rolls and lifting-board, the combination of a trip-rod adapted by its gravity to actuate the friction-rolls into clutching engagement with the friction-board, a pawl for holding the trip-rod elevated, releasable by engagement of the hammer in falling, a vertical lever pivoted to the side or upright, connections for lifting the trip-rod by movement of said lever, an adjustable dog mounted on said lever and adapted to be engaged and cammed laterally by the hammer in ascending, to lift the trip-rod, a main foot-treadle and connections for operating the lever to lift the trip-rod by depression of the treadle, an auxiliary treadle arranged underneath and in engagement with the main treadle whereby it is adapted for operation with, or independent of the main treadle, a latch for holding the hammer elevated, and a connection between the auxiliary treadle and latch for releasing the hammer, substantially as and for the purpose specified.

2. In drop-hammers of the class operated by friction driving-rolls and lifting-board, the combination of a trip rod adapted by its gravity to actuate the friction-rolls into clutching engagement with the friction-board, a pawl for holding the trip-rod elevated, means for releasing the trip rod by the falling movement of the hammer, a vertical lever pivoted at the side of the machine, an adjustable dog mounted on said lever, a cam carried by the hammer adapted to actuate the lever by the ascent of the hammer, a horizontal lever bearing upon a lifting shoulder or collar on the trip-rod, yielding connecting means for operating said horizontal lever by movement of the vertical lever, a main foot-treadle connecting means for operating the vertical lever to lift the trip-rod by depression of the treadle, an auxiliary treadle pivoted underneath and adapted to be engaged by the main treadle on its downward motion, a spring-actuated latch for holding the hammer elevated, and a yielding connection between the auxiliary treadle and latch for releasing the hammer, substantially as and for the purpose specified.

3. In drop-hammers the combination with the friction-rolls, and clutching mechanism of the trip-rod i, pawl n', vertical lever n having the adjustable dog n^6, the intermediate lever n^7, the cam-slotted horizontal lever n^{10}, the hammer provided with the cams m^7 and m^8, the treadle B, pivoted substantially in the central plane of the machine, the strap connection from the treadle to lever n and the pulley n^{20}, the treadle T pivoted concentric to the main treadle, a spring-actuated latch for holding the hammer elevated, a catch or shoulder, on the hammer for engaging the latch, a connection between the latch and auxiliary treadle, and yielding mechanism embodied in said connection for permitting the yielding of the latch during the passage of the catch, arranged and combined substantially in the manner and for the purpose specified.

4. In a drop-hammer, the combination of the sector-shaped holding-latch, pivoted to the upright at its axial center and having a groove in its curved edge and transverse perforations at its corners extending through the groove, and a hardened T-shaped block fitted into said groove with the lateral branches of the T overlapping and bearing upon the curved edges at either side of the groove, the block being adapted to be secured at either end of the groove and secured by pins passing through the perforations thereof, with the treadle connections pivoted to a pin at the opposite corner of the sector, whereby both the latch and the block are rendered reversible, substantially as and for the purpose specified.

577,532. ANNUNCIATOR. ABRAHAM R. MIRANDA, Boston, Mass. Filed Nov. 17, 1896. Serial No. 612,462. (No model.)



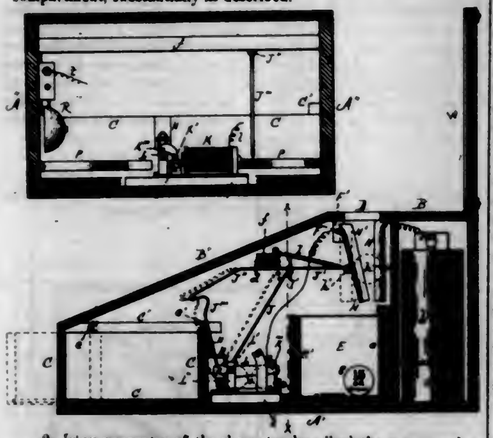
Claim.—1. In an annunciator for hair-dressing establishments, a case suitably provided with the front wall A; the hooks D extending from said case; checks E suspended on said hooks; the rods D' extending from said case, and each rod extending above a corresponding check-hook out of contact therewith but with its forward portion sufficiently near the corresponding portion of the hook to cause the check during the process of removal to come into contact with said rod and thus electrically connect the same with the hook next beneath it; an annunciator; and electrical connections, said annunciator, hooks and rods being in electrical circuit, substantially as described.

2. In an annunciator for hair-dressing establishments, a case suitably provided with the front wall A: the hooks D extending from said case; checks E suspended on said hooks; the rods D' extending from said case, and each rod extending above a corresponding check-hook out of contact therewith but with its forward portion sufficiently near the corresponding portion of the hook to cause the check during the process of removal to come into contact with said rod and thus electrically connect the same with the hook next beneath it; an annunciator; an electrical battery; the wire J; the plates L from which said hooks extend; the wires J' connecting said wire J with said plates L; the plates V from which said rods extend; the wires W connecting the two series of plates V and the two series of plates L; a suitable switch; the wires U' U connecting said plates V with the switch; the wires P' connecting the annunciator with the switch; and the wire P connecting the annunciator with the battery, substantially as set forth.

577,588. COMBINED CHECK-RECEPTACLE AND CASH-DRAWER. ABRAHAM R. MIRANDA, Boston, Mass. Filed Nov. 27, 1896. Serial No. 613,009. (No model.)

Claim.—1. In an apparatus of the character described, the case provided with the slots D, a pair of metallic troughs H, H' set with their grooved portions facing inward or toward each other and hung beneath said slot, one of said troughs being adapted to swing toward and from the other; a check-receptacle located within the case beneath said pair of troughs; mechanism for holding the lower end of the swinging trough sufficiently near the other trough to cause a metallic check to come in contact with both troughs simultaneously after it has dropped through the slot; an electromagnet and electrical connections placing said troughs in circuit therewith and with elec-

tric batteries; a cash-drawer; and mechanism intermediate of the armature of the magnet, the cash-drawer and the troughs whereby the drawer is thrown open and the swinging trough swung away from the opposite trough, thus allowing the check to drop into its compartment, substantially as described.



2. In an apparatus of the character described, the case; an electromagnet provided with the swinging armature K' formed with the hook-shaped extension K''; the lever L supported by a standard and with its rear portion engaged normally by said hook-shaped extension; the sliding cash-drawer provided on its rear side with a catch engaging normally with the forward end of said lever; springs secured to the case and pressing against the rear portion of the drawer: a pair of metallic troughs H, H' extending down into the case below a slot adapted to receive the metallic check, one of said troughs being arranged to swing toward and from the other; and an electrical connection embracing said troughs and magnet in a circuit which is completed when the check connects the troughs; and mechanism intermediate of the troughs and the drawer for impelling the latter forward when it is released by the armature of the magnet, substantially as set forth.

3. In an apparatus of the character described, a case provided with the slots D; a series of stationary metallic troughs H extending down into the case from said slots and connected together; a series of swinging metallic troughs H' connected together and hung within the case opposite to the stationary troughs, said series of troughs set with their grooves facing inward or toward each other; a spring I connecting the swinging troughs with the case and adapted to draw them forward; the frame J extending from the swinging troughs, sliding in the case, and held normally by said spring against the rear side of the drawer; electrical connections adapted to complete the circuit by dropping a metallic check between a pair of said troughs; an electromagnet; and mechanism intermediate of said magnet and the drawer for releasing and impelling forward the same when such electrical circuit is completed, substantially as described.

577,534. SUBMARINE TELEGRAPHY. ALEXANDER MUIRHEAD, London, England. Filed Nov. 18, 1896. Serial No. 569,333. (No model.) Patented in England Mar. 16, 1894, No. 5,508, and June 7, 1894, No. 11,089.



Claim.—1. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices and the lever contact devices adapted to respectively enter perforations in the traveling ribbon and by their movement thus adapted to establish battery-contacts, of a rotating cam acting after a determined interval of time to restore the contact-lever devices to their normal position.

2. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices and the lever contact devices adapted to respectively enter perforations in the traveling ribbon and by their movement thus adapted to establish battery-contacts, of rotating cams acting respectively to release that lever contact device that may have entered a perforation in the traveling ribbon and after a determined interval of time to restore the corresponding contact-making device to its normal position.

3. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices and the lever contact devices adapted to respectively enter perforations in the traveling ribbon and by their movement thus adapted to establish battery-contacts, of rotating cams acting respectively to keep the lever contact devices clear of the traveling ribbon except at the moment that a perforation is, or might be, immediately over one of them, to release that one that may have entered a perforation in the traveling ribbon and, after a determined interval of time, to restore the corresponding contact-making device to its normal position.

4. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices and the lever contact devices adapted to respectively enter perforations in the traveling ribbon and by their movement thus adapted to establish battery-contacts, of a rotating cam governing the movements of the contact-lever devices, and means for varying the operative periods of such rotating cam.

5. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, rods adapted to enter perforations in the tape, and battery-contact devices controlled thereby, whereby a battery-contact is effected when a rod enters a perforation in the tape, of means for restoring the rod to its normal position while the battery-contact is still maintained, and means for operating such contact devices after a definite interval of time to open the battery-contact, substantially as and for the purpose set forth.

6. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, of lever contact devices brought into operation by said perforated ribbon formed of a plurality of parts moving as one mechanism in the one direction to establish battery-contacts and means for returning said parts independently one of the other whereby the length of the signaling-contacts are rendered capable of variation relatively to the earthing period.

7. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, of lever contact devices brought into operation by said perforated ribbon formed of a plurality of parts moving as one mechanism in one direction to establish battery-contacts, and cams operating to return said parts independently one of the other whereby the length of signaling-contacts are rendered capable of variation relatively to the earthing period.

8. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, of lever contact devices brought into operation by said perforated ribbon formed of a plurality of parts moving as one mechanism in the one direction to establish battery-contacts, a cam, a lever or pawl operated thereby, and a pin whose movements are governed by such lever or pawl serving to return one part of the lever contact devices while the battery-contact is still maintained, and a graduated cam, a lever or pawl operated thereby, and another pin whose movements are governed by such last-mentioned lever or pawl serving after a determined interval of time to reëstablish earth-contacts.

9. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, of lever contact devices brought into operation by said perforated ribbon formed of a plurality of parts moving as one mechanism in the one direction to establish battery-contacts, and one or more cams with levers or pawls serving to return such lever contact devices, the moment of return of the last part thereof being capable of variation by adjustment of the lever or pawl and the cam relatively to one another.

10. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, the lever contact devices adapted to respectively enter perforations in the paper ribbon whereby battery-contacts are established, and a rotating cam serving to restore the contact-lever devices to their normal position, of means for curbing or reversing the current from the battery during the maintenance of the said battery-contact, substantially as and for the purpose set forth.

11. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, rods adapted to enter perforations in the tape and battery-contact devices controlled thereby, whereby a battery-contact is effected when a rod enters a perforation in the tape, of means for restoring the rod to its normal position while the battery-contact is still maintained, means for operating such contact devices after a definite interval of time to open the battery-contact, and means for curbing or reversing the current from the battery during the maintenance of said battery-contact, substantially as and for the purpose set forth.

12. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, of lever contact devices brought into operation by said perforated ribbon formed of a plurality of parts moving as one mechanism in the one direction to establish battery-contacts, means for returning said parts independently one of the other, and means for curbing or reversing the current from the battery during the maintenance of the signaling-contact, substantially as and for the purpose set forth.

13. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, of lever contact devices brought into operation by said perforated ribbon formed of a plurality of parts moving as one mechanism in the one direction to establish battery-contacts, cams operating to return said parts independently one of the other, and means for curbing or reversing the current from the battery during the maintenance of the signaling-contact, substantially as and for the purpose set forth.

14. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, of lever contact devices brought into operation by said perforated ribbon formed of a plurality of parts moving as one mechanism in the one direction to establish battery-contacts, a cam, a lever or pawl operated thereby, and a pin whose movements are governed by such lever or pawl serving to return one part of the lever contact devices while the battery-contact is still maintained, another cam, a lever or pawl operated thereby, another pin whose movements are governed by such last-mentioned lever or pawl serving to reëstablish earth-contacts and means for curbing or reversing the current from the battery during the maintenance of the signaling-contact, substantially as and for the purpose set forth.

15. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, the lever contact devices adapted to respectively enter perforations in the paper ribbon whereby battery-contacts are established, and mechanism for restoring the contact-lever devices to their normal position, of means for curbing or reversing the current from the battery during the maintenance of the said battery-contact and means for varying the duration of the curbing or reversing period, substantially as set forth.

16. In an automatic telegraph-transmitter, the combination with the perforated-ribbon-actuating devices, the lever contact devices adapted to respectively enter perforations in the paper ribbon whereby battery-contacts are established, and mechanism for restoring the contact-lever devices to their normal position after a determined interval of time, of a rotating cam acting to curb or reverse the current from the battery during the maintenance of the said battery-contact, substantially as and for the purpose set forth.

577,535. CALK ATTACHMENT FOR HORSESHOES. RICHARD G. PAINE, Washington, D. C. Filed Aug. 7, 1896. Serial No. 602,034. (No model.)

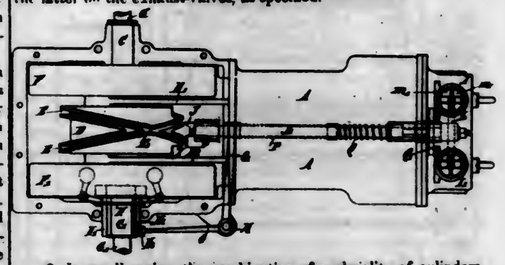


Claim.—1. The herein-described calk attachment for horseshoes, consisting of a pair of plates, one having a threaded opening therein and the other a smooth opening, a threaded bolt passing through said plates whose threaded portion is adapted to engage said threaded opening, and which is provided with a head or shoulder upon one end adapted to engage the plate having a smooth opening, arms pivotally connected to said plates and extending outwardly therefrom, hooks or flanges upon said arms, and calks screwed or otherwise connected to the under side of said arms.

2. The herein-described calk attachment for horseshoes, consisting of plates having holes formed therein, one of said holes having screw-threads formed in it, and the other having a smooth opening through it, a threaded bolt passing through the openings in said plates and having a shoulder upon its outer end which engages one of said plates, a pair of arms pivoted to each of said plates and extending outwardly therefrom, upwardly-extending hooks on said arms, and calks screwed or otherwise connected to the under side thereof, substantially as and for the purpose described.

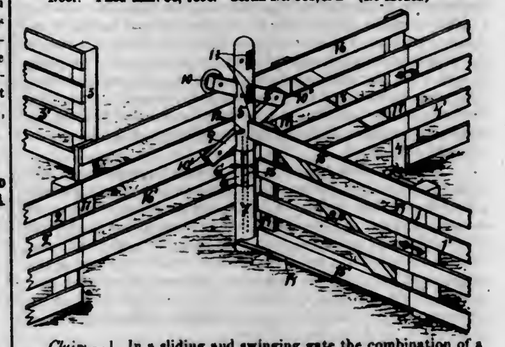
577,536. OIL-ENGINE. ARMAND PEUGEOT, Valentigney, France. Filed July 29, 1896. Serial No. 600,914. (No model.) Patented in France Feb. 6, 1896, No. 244,925, and in England May 21, 1896, No. 11,073.

Claim.—1. In a multiple-cylinder oil-engine, the combination of admission and exhaust valves, the valves arranged one above another and screw-caps covering the uppermost valves so as to enable inspection and repairs of both the admission and exhaust valves to be performed by removing the screw-caps of the valve-boxes, valve-operating mechanism consisting of a cam-disk keyed on the crank-pin, a slide-block crank-arm and rock-shaft, a cross-head which alternately actuates the exhaust-valves of the two cylinders as described, and governing-gear partly contained within the crank-chamber and sliding on the valve-operating rock-shaft for determining the action of the latter on the exhaust-valves, as specified.



2. In an oil-engine, the combination of a plurality of cylinders and a crank-shaft mechanism, of a cross-head and means for swinging the same, the said cross-head being provided with a plurality of tappets pivoted thereto and an independently-movable head Q' located in proximity to the tappets and adapted to be moved into the path of the said tappets to render them inoperative to actuate the valves.

577,537. FARM-GATE. MATTHIAS H. REED, near Kennard, Nebr. Filed Mar. 30, 1896. Serial No. 585,434. (No model.)



Claim.—1. In a sliding and swinging gate the combination of a closure having a horizontal rail, a pivotal post consisting of a revoluble top part having a long axial journal boxed in a stationary part, a removable section to place around the journal between the revoluble and stationary parts, the revoluble part having an inclined bar fastened thereto, a flanged roller at the lower end of said bar to engage the lower edge of the rail, and a like roller at the upper end of the bar to bear on the top edge of the rail substantially as described.

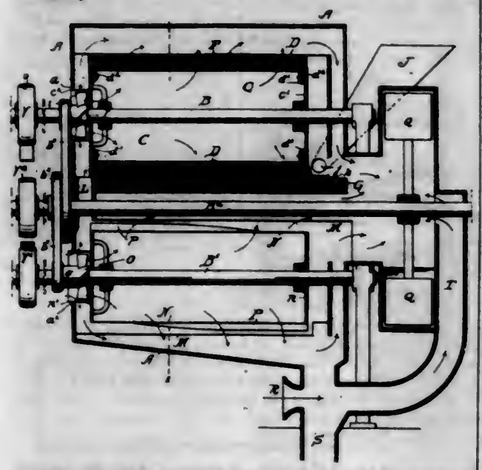
2. In a gate the combination of the closure having the rails 16, and 16', with the revoluble post 5, having the long axial journal 13, boxed in the stationary part 7, and the removable section 6, with the slot 6'', and pin 6', the inclined bar 8, with the flanged rollers 10, and 10'', to engage the rail 16, and the brace-bar 9, with the roller 10' to engage a lower rail 16', all substantially as shown and described.

3. A gate for gateways at the angle where lines of fence intersect, consisting of a closure pivoted centrally at the point of intersection, to revolve horizontally and close an opening on one line, and a wing-closure on the same pivoting to close one end of an opening on another line, the closures independently adjustable to different heights from the ground, substantially as described.

4. A gate for the angle where lines of fence intersect, consisting of gateways in the lines at their intersection, a horizontally-revoluble closure slidingly connected to a pivotal post at the point of intersection, and a wing-closure set at an angle to the sliding closure substantially as described.

5. In a farm or road gate the combination of the pivotal post consisting of the round stationary ground set part 7, and the revoluble top part 5, having the vertically-ranged mortises 11, 11 and 11, and having the axial journal 13 boxed in the stationary part 7, with a closure having the top rail 15 one end of which projects to shift and fasten in said mortises to adjust the closure to different heights, said closure having the lower projecting curved bifurcation 14' to engage and slide on the stationary part of the pivotal post, substantially as described.

577,538. GRAIN CLEANING AND SCALPING. RELFORD G. ROYAL, Camden, N. J. Filed Apr. 15, 1896. Serial No. 587,581. (No model.)



Claim.—1. The combination with a stationary cylinder composed of alternately-arranged abrading-stones and perforated sheet metal, of a hollow rotatable drum closed at its inner end and having its periphery perforated to allow the air to pass through the circumferential walls from within, a series of brushes arranged on the periphery of said drum, and deflectors between said brushes, said deflectors being made in a series of short sections, and arranged in each of the intervening spaces between the brushes in a substantially helical line around the periphery and along the whole length of the drum, substantially as specified.

2. In a grain cleaning and scalping machine the combination with a stationary cylinder having alternately-arranged abrading-stones and perforated sheet metal, of a hollow rotatable drum closed at one end and perforated to allow of the passage of currents of air through its circumferential walls and thence through the perforated sheet metal of the cylinder, a series of adjustable brushes arranged on the periphery of the drum, and deflectors between said brushes constructed of short sections arranged approximately longitudinally of the drum, the whole series forming substantially a helical line around the periphery of the drum as set forth.

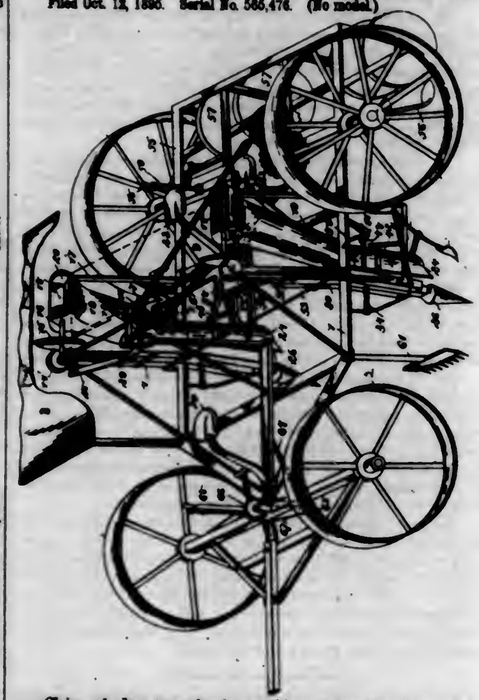
3. The combination with a stationary cylinder composed of alternately-arranged abrading-stones and perforated sheet metal, of a rotatable perforated drum, a shaft carrying the same, brushes on said drum, a tubular extension or flange formed on the end of the drum and extending through an opening in the casing of the apparatus and a fan loosely mounted upon said shaft at a point within said flange.

4. The combination of a casing, a stationary cylinder composed of alternately-arranged abrading-stones and perforated sheet metal, a drum of perforated sheet metal, brushes carried by said drum, intermediate deflecting-blades on the periphery of the drum, a flange, c^3, provided at one end of the drum and projecting through an opening in the casing, a fan, I, loosely mounted on the shaft at a point within said flange, and mechanism for rotating said shaft.

5. The combination of the casing, the abrading-cylinder, a drum within said cylinder having on its periphery a series of brushes, a shaft carrying said drum, a fan mounted on said shaft, a lower stationary cylinder formed of perforated sheet metal, a perforated sheet-metal drum adapted to rotate within said cylinder, deflecting-blades on said drum, a shaft carrying said drum, a fan mounted thereon, a shaft, B^3, and an exhaust-fan, Q, mounted on said shaft, B^3, and in communication with the interior of the casing, substantially as specified.

6. The combination of the casing, A, having openings, a, a', shafts, B, B', and B^3, a stationary cylinder formed of alternately-arranged abrading-stones, F, and perforated sheet metal, G, a perforated sheet-metal drum, C, mounted on the shaft, B, and having a closed end, c, and a flange, c', a fan, I, loosely mounted on the shaft, brushes, D, and deflectors H, on the periphery of the drum, a hopper, J, a shovel, k, carried by the drum, a stationary cylinder, M, of perforated sheet metal, a rotatable drum, N, formed of perforated sheet metal and mounted on a shaft, B', a tubular extension or flange, n', formed at one end of the drum, N, a fan, O, loosely mounted on the shaft, B', deflectors, P, on the periphery of said drum, an exhaust-fan, Q, on the shaft, B^3, a discharge-pipe, S, having an opening, R, and a pipe, T, leading from the pipe, S, to exhaust-fan, Q, substantially as specified.

577,539. TRANSPLANTER. AUGUST SPEIDEL, Lincoln, Nebr. Filed Oct. 12, 1895. Serial No. 565,476. (No model.)



Claim.—1. In a transplanting-machine, the combination, with a frame, of consecutively vertically, forwardly and rearwardly movable planting mechanism and means for giving said planting mechanism an intermittent movement, substantially as set forth.

2. In a transplanting-machine, the combination, with a frame, of a vertically, forwardly and rearwardly movable plunger, of a forwardly and rearwardly moving conveyer extension, and means for operating the same, substantially as set forth.

3. In a transplanting-machine, the combination, with a frame, of a vertically, forwardly and rearwardly movable plunger, of a movable conveyer extension, and means for stopping the forward movement of the extension during a portion of the forward movement of the machine, substantially as set forth.

4. In a transplanting machine, the combination, with a frame, of a vertically, forwardly and rearwardly moving plunger, and means for operating the same, of a conveyer extension suspended directly to the rear of the plunger, and a shovel for engaging with the earth and preventing the forward movement of the extension during a portion of the forward movement of the machine, substantially as set forth.

5. In a transplanting-machine, the combination, with a frame, of a vertically-movable plunger, of an inclined guide for moving the plunger forward and rearward, a conveyer extension to the rear of the plunger, and means for stopping the movement of the extension and opening and closing the same during a portion of the forward movement of the machine, substantially as set forth.

6. In a transplanter, the combination, with a frame, of a vertically-movable plunger, a forwardly and rearwardly movable conveyer, a shovel, a spring-actuated lever connected therewith, a gate in the conveyer, and means for connecting the lever with the gate and with the plunger-operating mechanism, substantially as set forth.

7. In a transplanter, the combination, with a frame, of a vertically-movable plunger, a guide for giving the plunger a backward and forward movement, a substantially U-shaped conveyer extension to the rear of the plunger, a gate in the plunger, an arm connected therewith, a spring-actuated lever, a link for connecting the arm with the lever, a shovel connected with the lever and with the rear portion of the extension and means for connecting the lever with the plunger-actuating mechanism, substantially as set forth.

8. The combination, with a frame, of a vertically, forwardly and rearwardly movable plunger, of a conveyer extension pivotally secured to the rear thereof, an arm secured to the extension, a spring-actuated rocker-arm to the rear thereof, and adapted to be engaged thereby, and means for stopping the forward movement of the extension during a portion of the movement of the machine, and for opening the lower end of the extension, substantially as set forth.

9. In a transplanting-machine, the combination, with a frame, of supports thereon, a shaft journaled in said supports, an intermittingly-movable dropper at each end of the shaft, a tube or conveyer extending from each of said droppers below the frame, the lower end of which is provided with an extension which is pivoted so as to have a forward and backward movement, a vertically-movable plunger in front of each extension, and means for operating the dropper uniformly with the movement of the plunger, and for stopping the forward movement of the extension, and for opening and closing the same, substantially as set forth.

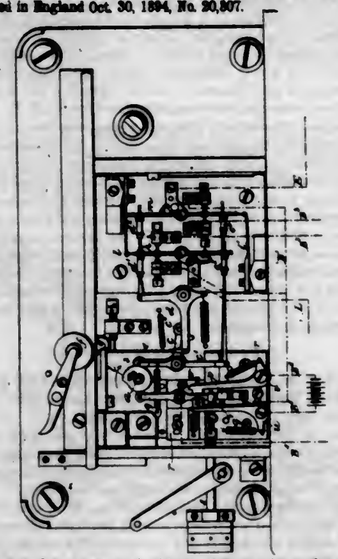
10. In a transplanting-machine, the combination, with a frame, of a shaft journaled thereon, two wheels rigidly secured to the shaft the periphery of each of which is provided with spurs, a sprocket-wheel loosely mounted upon the shaft between said wheels, a latch for engaging with the projections of each wheel, a sprocket-chain over the sprocket-wheel provided with pairs of blocks, a dropping attachment at each end of the shaft, a conveyer leading from each dropper to the surface of the ground, a plunger for each conveyer connected with the shaft and adapted to be operated thereby, and mechanism for moving the lower end of the conveyer and opening and closing it, substantially as set forth.

11. In a transplanting-machine, the combination, with a frame, of an operating-shaft supported thereby, each end of which is provided with a bevel-gear, a dropper-shaft at each end of the operating-shaft, each provided with a bevel-gear in engagement with the corresponding gear of the operating-shaft, a casing around each of said operating-shafts, a conveyer extending from each casing to near the surface of the ground, wings upon the shafts, within the casing, a plunger for each conveyer, and means for stopping the forward movement of the lower end of each conveyer, substantially as set forth.

12. In a transplanter, the combination, with a frame, of supports thereon, provided with guideways, a shaft journaled at the upper end of said supports, and provided with a crank adjacent each support, a vertically-movable block in each of said guideways, one end of which is connected with the crank, and the other end is provided with a plunger, means for giving each plunger a forward and rearward movement simultaneous with its vertical movement, a conveyer leading to the rear of each plunger and means for opening the same and holding a portion of it stationary during a portion of the forward movement of the machine, substantially as set forth.

13. The combination, with a transplanter, of a frame, the front end of which is provided with a curved king-bolt, a clamp for securing the bolt to the front axle, an adjusting-wheel on the axle, and a chain from the lower end of the bolt to the hand-wheel, substantially as set forth.

577,540. TELEGRAPH-TRANSMITTER. HERBERT A. TAYLOR, London, England. Filed Nov. 18, 1895. Serial No. 569,342. (No model.) Patented in England Oct. 30, 1894, No. 20,807.



Claim.—1. In an automatic telegraph-transmitter, the combination with contact-levers, a punched paper tape and needle-levers, of cams adjustable relatively to each other, located on an arbor of the driving mechanism of the instrument, and intermediate levers each operated by one of said cams, one cam with its operated intermediate lever serving, in conjunction with the punched paper tape, to control the movements of the contact-levers in one direction, and another cam with its operated intermediate lever serving to return or reset the contact-levers to their normal positions after a regulated interval of time.

2. In an automatic telegraph-transmitter, the combination with a punched tape, needle-levers, and contact-levers operated by the needle-levers, of cams on an arbor of the driving mechanism of the instrument, an intermediate lever controlled by one of the cams and acting upon the needle-levers to normally hold the needles clear of the tape and to permit their entrance, respectively, into perforations therein, to effect the actuation of the contact-levers, and to then return the needle-levers to their normal positions irrespective of the contact-levers, and a second intermediate lever operated upon by the other cam to return the contact-levers to their normal position after a regulated interval of time, substantially as set forth.

3. In a curbing device of an automatic telegraph-transmitter, the combination of a cam carried on an arbor of the driving mechanism, a lever oscillated by said cam, and a pole-changer, said oscillating lever and pole-changer being carried by an insulating sliding block that is capable of adjustment relatively to the cam-axis, whereby said oscillating lever may be brought more or less into the path of said cam and the amount of curb regulated while the instrument is running.

4. The combination, substantially as set forth, with a telegraph-transmitter, of relays having their coils connected with one pole of the line-battery through a pole-changer which makes a single reversal for every signal that passes to line, and with the contact-points to which the contact-levers of the transmitter pass when operated to send a current to line, a local circuit completed through the tongue of one relay by the action of outgoing positive currents to line and another local circuit completed through the tongue of another relay by the action of outgoing positive currents to earth, and means in said local circuits whereby a record is preserved of such outgoing signals.

5. In combination, substantially as set forth, a telegraph transmitting-key having its front bar divided into two parts and with which parts its levers respectively come into contact when operated, relay-coils in separate branches of a divided circuit connected respectively between one part of the divided front bar and the one pole of the line-battery, two local circuits completed through the relay-tongues, and means in said local circuits whereby a message is preserved of outgoing signals.

6. The combination, substantially as set forth, with a telegraphic transmitter, of relays having their coils connected with the same pole of the line-battery and respectively with the contact-points to which the transmitter contact-levers pass when operated to send a current to line, the opposite or back contacts of such levers being respectively connected to the other pole of said battery, and one lever being connected to earth, and the other to line, a local circuit completed through the tongue of one relay by the action of outgoing positive currents to line, and another local circuit completed through the tongue of another relay by the action of outgoing positive currents to earth, and means in said local circuits whereby a record is preserved of such outgoing signals.

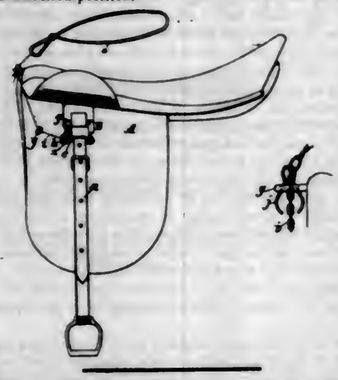
7. In combination, an automatic telegraph-transmitter, means for preserving a record of outgoing signals, relays operating through their tongues to close local circuits and bring into action said recording means, a transmitting-key with its front bar divided and the coils of a relay in circuit between each of those divisions and the one pole of the line-battery, and a switching device serving to put either the automatic transmitter or the transmitting-key into circuit.

577,541. STIRRUP-DETACHING DEVICE. PAUL WAGENAHR, Moringen, Germany. Filed Aug. 22, 1896. Serial No. 603,570. (No model.)

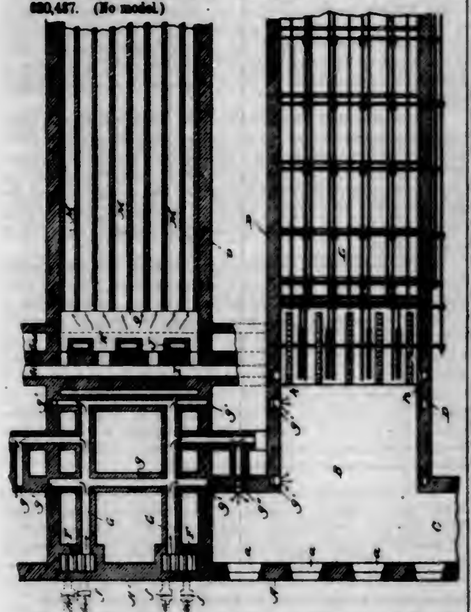
Claim.—1. The combination of a stirrup-bar, a releasing-latch therefor, latch-operating mechanism entirely independent of the saddle and its connections and means for connecting said latch-operating mechanism with the releasing-latch when the latter is in the locked position and for disconnecting said latch-operating mechanism from the releasing-latch when the latch is in the releasing position, said releasing-latch-operating mechanism being under the control of the rider for throwing the releasing-latch and thereby disconnecting the stirrup from the saddle.

2. The combination of a stirrup-bar, a releasing-latch therefor, latch-operating mechanism and means carried by the releasing-latch for securing the latch-operating mechanism thereto when the parts are in the locked position and for releasing the latch-operating mechanism therefrom when the latch has been thrown.

3. The combination of a pivoted stirrup-bar and perforated releasing-latch therefor, a hook carried by said releasing-latch which is adapted to be closed by the stirrup-bar when the parts are in the locked position, and a latch-operating chain adapted to engage the hook on the releasing-latch, whereby when the parts are in the locked position the releasing-chain will be connected with the releasing-latch and will be automatically released therefrom when the parts are in the unlocked position.



577,542. GLASS-ANNEALING KILN. EDWARD WALSH, JR., St. Louis, Mo. Filed Dec. 17, 1894. Renewed Jan. 23, 1897. Serial No. 620,457. (No model.)

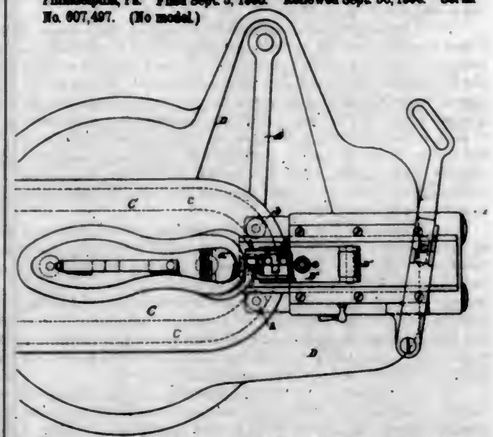


Claim.—1. In an annealing-kiln, the combination with the sole, of two or more leerways leading therefrom, means for causing the travel of the glass through the leerways, an elevator located in each of said ways for receiving the glass from the sole and conveying it to the traveling mechanism, air and gas flues located beneath the sole and leading to a combustion-chamber, and flues which extend longitudinally the leerways for conducting off the products of combustion: substantially as described.

2. In an annealing-kiln, the combination with a sole, of two or more leerways leading therefrom, means for causing the travel of the glass through the leerways, an elevator located in each of said ways for receiving the glass from the sole and conveying it to the traveling mechanism, flues arranged under the sole for the slow combustion of gas, which flues terminate at points above the sole, gas-exit ports which discharge above the elevators, air and gas flues which lead beneath the elevators and combustion-chambers beneath the floors of the several leerways: substantially as described.

3. In an annealing-kiln, the combination with the sole, of two or more kilnways leading therefrom, flues arranged under said sole for the slow combustion of gas, which flues terminate at points above the sole, elevator-pits located just back of the sole, gas-exit ports which discharge into the different ways above said pits, air and gas flues which lead beneath said pits, combustion-chambers beneath the floors in the several ways, and flues for conducting off products of combustion from said chambers, which flues are divided, the divisions of the different ways leading to different stacks, substantially as described.

577,548. SHOE-CHANNELING MACHINE. ERNEST M. WHITE, Philadelphia, Pa. Filed Sept. 3, 1895. Renewed Sept. 30, 1896. Serial No. 607,497. (No model.)



Claim.—1. The combination of the former having edges conforming to the shape of the sole to be channeled and enlarged at the heel portion to form a cam, a clamp for the sole, a movable carriage adapted to travel around the clamped sole and to be governed by the former, substantially as described.

2. The combination in a machine for cutting a shoe-sole, of the clamp for the sole, an overhanging former on which the sole is clamped, a cam at the heel of the former, a carriage, a slide thereon adapted to be moved toward or from the former, a head pivoted to said slide and having a projection resting against the edge of the former, the said head extending under the former, substantially as described.

3. A former for shoe-channeling machines consisting of a plate having its edges conforming to the shape of the sole to be channeled except at the heel, said heel portion being enlarged to form a cam so as to withdraw the channeling-tool from the sole as it passes around the heel, substantially as described.

4. The combination in a shoe-channeling machine, of the base upon which the sole is mounted, a clamp to clamp the sole to the base, a carriage adapted to travel around the base, tools on said carriage, said base having a rear extension so as to throw the tools out of engagement with the sole and a cam for elevating the tools as the carriage travels around the heel, substantially as set forth.

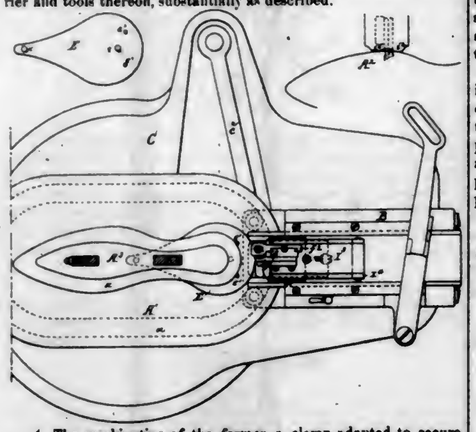
5. The combination in a shoe-channeling machine, of the fixed former, mechanism for clamping the sole in a fixed position in relation to the former, a fixed cam having a camway, a carriage B having projections adapted to the camway, a swinging head B' pivoted to the carriage so as to swing laterally, a section B^3 pivoted at b^3 to the swinging head, an adjusting-screw to elevate said section B^3, a pressure-spring to hold the said section in its adjusted position on the swinging head, laterally-adjustable section E mounted on the section B^3, and means for adjusting said section laterally, with a projection b^4 on said section E, a cam on the clamp-plate for the sole acting upon said projection so as to elevate the cutting-knives carried by the section E, substantially as described.

577,544. SHOE CHANNELING AND GROOVING MACHINE. ERNEST M. WHITE, Philadelphia, Pa. Filed Dec. 4, 1895. Renewed Sept. 30, 1896. Serial No. 607,498. (No model.)

Claim.—1. The combination of the former, means for clamping a sole-blank thereon, a cam-plate mounted under the former and extending beyond the heel portion thereof, the tool-carrier, tools thereon, said former being detachable, substantially as described.

2. The combination of a detachable former, a cam-plate mounted under the former and extending beyond the heel portion thereof, means for alining the former and cam-plate, pins on the cam-plate extending above the surface of the former at the heel and acting as stops for the sole-blank, a carrier and tools thereon, substantially as described.

3. The combination of a detachable former, a detachable cam-plate mounted under the former and extending beyond the heel portion thereof, means for alining the former and cam-plate, pins on each side of the cam-plate, the upper pins extending above the surface of the former at the heel and acting as stops for the sole-blank, a carrier and tools thereon, substantially as described.

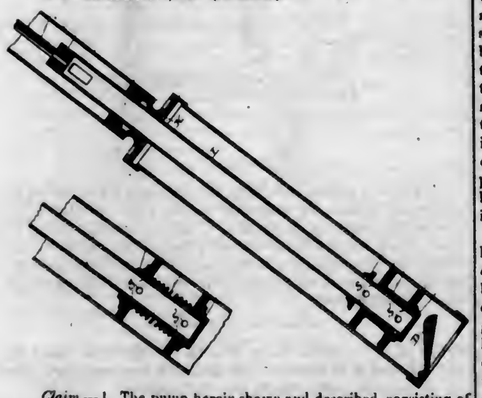


4. The combination of the former, a clamp adapted to secure the sole-blank to the former, a carriage, a plate mounted on said carriage and having an extension passing under the former during the cutting operation, a carrier pivoted to said extension, a slide mounted on said carrier and adjustable toward and from the former, said slide having two bearing-points adapted to rest against the former, and cutting-tools carried thereby, substantially as described.

5. The combination of the former, means for clamping the sole thereon, a tool-carriage, a plate pivoted to said carriage and extending under the former when the tool is cutting, a carrier pivoted to the extension of the plate, a slide mounted on said carrier and adapted to rest against the former, an adjusting-screw for adjusting the slide longitudinally on the carrier, tools carried by said slide, substantially as described.

6. The combination in a shoe channeling and grooving machine, of the table, means for rotating the same, a fixed cam, a fixed former above the cam, a cam-plate mounted under the former, a clamp for securing the sole-blank to the former, a carriage adapted to the camways in the fixed cam, a plate on the carriage, a pivoted carrier pivoted to the extended portion of the plate, said pivoted carrier passing under the former during the cutting of the blank, a longitudinally-adjustable slide mounted on the carrier having two bearing-points resting against the former when the tools are cutting, a transversely-adjustable slide mounted on the longitudinally-adjustable slide, a tool-head pivoted to the said slide, channeling and grooving cutters and a presser-foot, substantially as described.

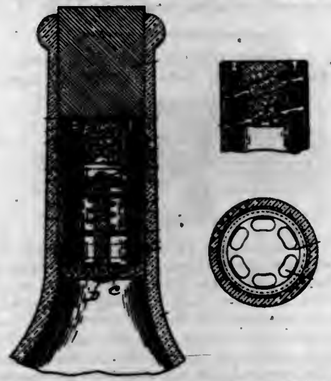
577,545. SUBMERGED DOUBLE-ACTING FORCE-PUMP. HUBBARD D. B. WILLIAMS, Mansfield, Ohio, assignor of three-fourths to Arnold Kallmerten and Carl Greuninger, same place. Filed June 30, 1896. Serial No. 597,546. (No model.)



Claim.—1. The pump herein shown and described, consisting of the barrel having the exterior threads at the upper and lower ends, the cap screwed on the lower end and having the valve-inlet, the cap screwed on the upper end having the inlets and the reduced portion formed with exterior and interior threads, the valves for the inlets, the flanged packing-ring engaging the interior thread of the reduced portion of the cap, the tube fitting the exterior threads of the cap, the hollow piston-rod passing through the cap and packing, the collar screwed on said rod, the cap screwed to the lower end of said rod, and the movable spool-shaped plunger adapted to slide upon the piston-rod between the ring and cap.

2. The pump herein shown and described, having the valve-inlets at its upper and lower ends, the hollow piston-rod having the openings in its lower portion, the caps secured on the lower end of the rod, the ring secured to the rod above the cap, the spool-shaped plunger made in two parts adapted to slide or play between the ring and cap and the coiled spring surrounding the two sections of the plunger and having its free ends bearing against each section of the plunger to hold the sections in their proper positions.

577,546. BOTTLE-STOPPER. JULIUS H. WITTEKIND, Roslindale, Mass. Filed Mar. 26, 1896. Serial No. 584,951. (No model.)



Claim.—1. A bottle-stopper, comprising a tubular portion having at its lower end a valve-seat and at its upper end a disk perforated to permit the escape of liquid from the bottle, said disk being provided with a depending portion secured thereto, combined with a valve adapted to close tightly against said valve-seat, and having a valve-stem extending upwardly within the said tubular portion, a perforated bar fixed within and approximately midway of the length of said tubular portion to receive said upper end of said valve-stem, a protector in the form of an inverted funnel immediately above said bar and provided with a central aperture surrounding said valve-stem, for the escape of the liquid therethrough, said valve-stem operating through the aperture of said inverted funnel, and a spring interposed between said bar and said valve, normally tending to hold the latter in closed position against its seat, substantially as described.

2. A bottle-stopper, comprising a tubular portion having at its lower end and at its upper end a disk perforated to permit the escape of liquid from the bottle, said disk being provided with a depending portion secured thereto, combined with a valve adapted to close tightly against said valve-seat, and having a valve-stem extending upwardly within the said tubular portion, a perforated bar fixed within and approximately midway of the length of said tubular portion to receive said upper end of said valve-stem, a protector in the form of an inverted funnel immediately above said bar and provided with a central aperture surrounding said valve-stem for the escape of the liquid therethrough, said protector extending at its upper end within said depending portion, a guide-plate mounted on said valve-stem and having a plurality of arms extending in close proximity to the wall of said tubular portion, and a spring interposed between said bar and said valve normally tending to hold the latter in closed position against its seat, substantially as described.

3. A bottle-stopper, comprising a tubular portion having at its lower end a valve-seat and at its upper end a disk having a plurality of openings to permit the escape of liquid from the bottle, said disk being provided with a depending bell-shaped portion secured thereto, combined with a valve adapted to close tightly against said seat, a guide-plate, a valve-stem extending upwardly within the said tubular portion, a perforated bar fixed within and approximately midway of the length of said tubular portion to receive said upper end of said valve-stem, a protector in the form of an inverted funnel immediately above said bar and provided with a central aperture surrounding said valve-stem, for the escape of the liquid therethrough, said pro-

tector extending within said bell-shaped portion and a spring interposed between said bar and said valve normally tending to hold the latter in closed position against the seat, substantially as described.

4. In a bottle-stopper, comprising a tubular portion having a perforated disk secured integrally thereto at its upper end, and a post centrally depending therefrom within said tubular portion, said post being provided externally with a spiral groove, said tubular portion being provided with an internal spiral groove opposite and corresponding to said first-mentioned groove, substantially as described.

5. In a bottle-stopper, a tubular portion provided with an external annular groove adapted to aline with a corresponding internal annular groove formed in the bottle-neck, said stopper having a perforation extending through said tubular portion in the bottom of the said annular groove thereof, combined with a strip of compressible material adapted to rest in said last-mentioned groove having its ends inserted through said perforation, substantially as described.

6. The combination with a bottle having an internal annular projection or rib, and also provided with a relatively thin annular portion or line of easy fracture immediately below and adjacent said internal projection or rib, of a bottle-stopper provided with one or more hooked spring-clips adapted to snap over said projection or rib and thereby properly retain the stopper, substantially as described.

577,547. CAR-COUPLING. ROBERT B. CRITTON, North Enid, Okla. Filed Mar. 15, 1896. Serial No. 582,962. (No model.)



Claim.—In a car-coupling, the combination with a car, of a draw-head provided at one side with a fixed catch, a pivoted catch mounted at the opposite side of the draw-head and having its pivot extending through the top of the draw-head, a rearwardly-disposed arm connected with the upper portion of the pivot, a vertically-disposed lever fulcrumed on the car and located at one side thereof and extending to the top of the same, a transversely-disposed link-bar connecting the arm and the lever, a handle extending from the operating-lever at the lower end thereof, and a rod extending to the opposite side of the car, arranged in a suitable guide and having its inner end connected to the link-bar, substantially as described.

577,548. CHALK-SHARPENER. CHARLES M. CLIFTON, Ithaca, N. Y. Filed Dec. 31, 1896. Serial No. 617,629. (No model.)



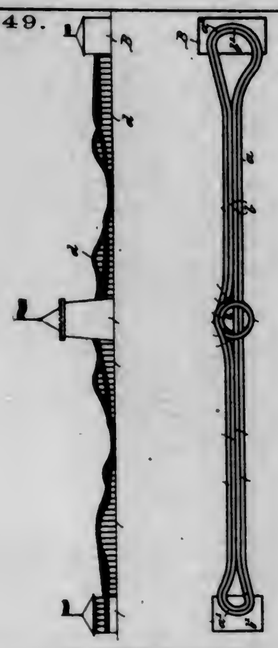
Claim.—1. A chalk-sharpener comprising a box, an inclined cover therefor, a groove in or upon said cover, a mortise through said cover and partly in the walls of said cover, and an arrow-headed cutter, the cutting edges of which project through said mortise and beyond the walls of said groove.

2. A chalk-sharpener comprising a box, an inclined cover therefor, parallel bars secured thereon creating a V-shaped groove between them, a stop-wall at the bottom of said groove a hole through said cover at the foot of said wall, a mortise through said cover and the walls of said groove, an arrow-headed cutter extending through said mortise and presenting cutting edges within the walls of said groove.

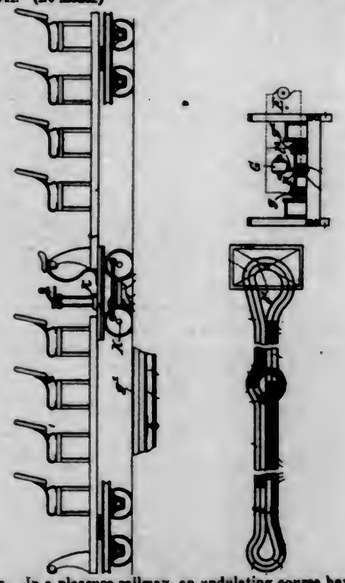
577,549. GRAVITY AND CABLE PLEASURE-RAILWAY. JAMES A. GRIFFITHS, Philadelphia, Pa. Filed Mar. 17, 1896. Serial No. 583,533. (No model.)

Claim.—In a pleasure-railway, the combination with an outer undulating course, of an inner undulating course concentric therewith, each course being provided with a loop at each end, two spiral courses, a tower in which the spiral courses are entwined and located between the opposite looped ends of the concentric courses, one of said spirals connecting the outer with the inner undulating course and the other connecting the inner with the outer undulating course, and both spirals being upwardly inclined from the point of connection respectively with the outer or inner course, all arranged so that a car starting from any point on either the outer or inner course and once completely traversing both spirals and courses will return to said point, substantially as described.

577,549.



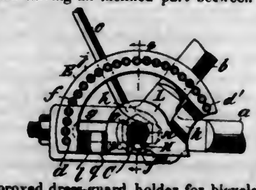
577,550. ELECTRIC AND GRAVITY PLEASURE-RAILWAY. JAMES A. GRIFFITHS, Philadelphia, Pa. Filed Apr. 3, 1896. Serial No. 586,041. (No model.)



Claim.—In a pleasure-railway, an undulating course having upwardly and downwardly extending inclines, a car provided with a downwardly-projecting feeder-arm, a trough arranged along the course below the surface thereof, and a feeder-wire arranged in said trough only at the upwardly-inclined portions of the course and below the road-bed beneath the trough at other portions of the course, substantially as described.

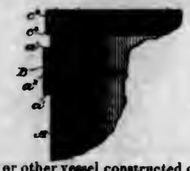
577,551. DRESS-GUARD HOLDER FOR BICYCLES. MARK GUY, New York, N. Y., assignor to John McClave & Sons, same place. Filed Oct. 14, 1896. Serial No. 585,610. (No model.)

Claim.—1. The improved dress-guard holder for bicycles and the like, consisting of a plate lying in the plane of the machine, containing a row of perforations, and having one portion of the plate offset in a plane substantially parallel thereto to bear against the frame of the machine, and having an inclined part between and connecting said portions.



2. The improved dress-guard holder for bicycles and the like, consisting of a plate lying in the plane of the machine, having an outer arc-shaped portion containing a row of perforations, having an inner offset portion in a plane parallel thereto for bearing against the machine, having a hole in its inner portion for passing over the axle of the machine, and having an inclined arm between and connecting its inner and outer portions.

577,552. SHEET-METAL CAN. JOSEPH W. HILL and RICHARD P. MCKAY, Portland, Oreg. Filed Jan. 25, 1896. Serial No. 576,799. (No model.)



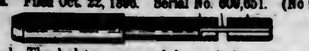
Claim.—1. A can or other vessel constructed of sheet metal having a flat strip of sheet metal folded in the body thereof, the strip being made a little longer than the length of the can-body blank, so as to project at the end, the metal of the body of the can having been in no way weakened or prepared for the reception of this strip, except the folding, substantially as described.

2. The can-body having a strip of sheet metal contained within an outwardly-projecting flat fold, which extends around the can-body, said strip lying parallel with said body, one end of said strip terminating with the outside edge of the lapped side seam and the other end of said strip projecting a convenient distance from the other edge of the lapped seam whereby said strip may be engaged by a proper key, so that when the key is turned, the contained strip and the outer portion of the fold are wound up together and the body severed along the upper and lower ridges of the fold, substantially as described.

3. A sheet-metal can having a portion of its body folded into an outwardly-projecting fold or bead, composed of the flat portions a^3 a^3 lying against the body of the can, and the flat portion a' a' lying parallel with the body of the can, the folds a' being at the upper and lower edges of said flat fold, and a flat cutting-strip of metal inclosed in and filling said fold and lying parallel with said can-body, whereby the fold and inclosed strip project but slightly beyond the wall of the can and offer a broad, flat outer surface to come in contact with adjacent cans when packed, substantially as described.

4. A blank for a can-body, consisting of the rectangular metal sheet A having in one end near the top, the T-shaped notch a, substantially as described.

577,553. SPINDLE BEARING OR SUPPORT. WILLIAM HINCHLIFFE, Huntsville, Ala., assignor to the Sawyer Spindle Company, Boston, Mass. Filed Oct. 22, 1896. Serial No. 609,651. (No model.)



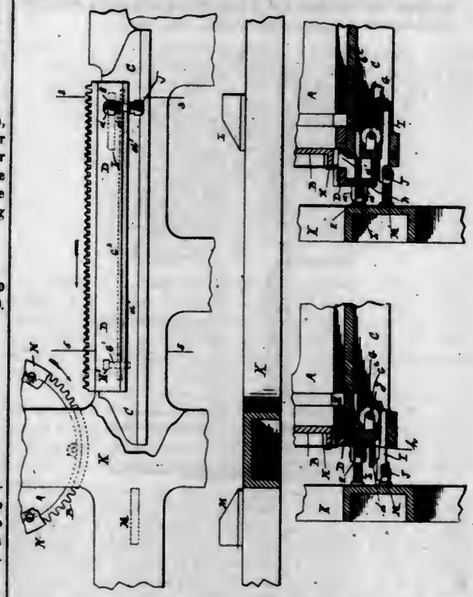
Claim.—1. The bolster-case and loose bolster therein, and the step suspended in the bore of the said case below the said bolster by a loop, substantially as described.

2. The bolster-case, a shouldered bolster mounted therein loosely and a step, combined with a loop connected to and suspended below the lower end of said bolster, said loop wholly supporting said step in the said bore loosely, whereby the foot of the spindle and its step are permitted freedom of motion, substantially as described.

3. A spindle, a bolster-case, and the bolster sustained loosely therein, combined with a loop having its ends bent to enter notches in the bolster, and a step sustained by said loop, and receiving the foot of the spindle, substantially as described.

577,554. REGISTERING MECHANISM FOR PRINTING-PRESSES. WINFIELD S. HUDON, Taunton, Mass., assignor to the Campbell Printing Press and Manufacturing Company, of New York. Filed May 28, 1892. Serial No. 434,813. (No model.)

Claim.—1. In a cylinder printing-press the combination of an impression-cylinder having a registering-gear connected to the same, a reciprocating bed having a registering-rack adapted to coact with said registering-gear, and means for shifting said rack laterally so that the rack and the gear will be in mesh on one stroke, and out of mesh on the other stroke of the bed, substantially as described.



2. In a cylinder printing-press, the combination of the impression-cylinder having a registering-gear secured to the same, the reciprocating bed having a registering-rack mounted on the same, means for moving one of the members of said registering mechanism laterally, and a guard secured to the stationary member of the registering mechanism, whereby the moving member of the registering mechanism will be held in place while the mechanisms are coöperating, substantially as described.

3. In a cylinder printing-press, the combination of the impression-cylinder having a registering-gear, the reciprocating bed carrying a coöperating registering-rack, means for moving said rack laterally, so that the same will alternately engage and disengage said registering-gear, and a guard secured to the side of said gear, substantially as described.

4. The combination in a cylinder printing-press of the impression-cylinder A having the registering-gear B secured to the same, the reciprocating bed C having the registering-rack D, suitable rollers mounted to move said rack, and stationary cams on the frame, the whole arranged so that the rack will be moved in to mesh with the gear as the bed makes its forward or printing stroke, and so that the rack will be moved laterally out to clear the registering-gear as the bed makes its retrograde or return stroke, substantially as described.

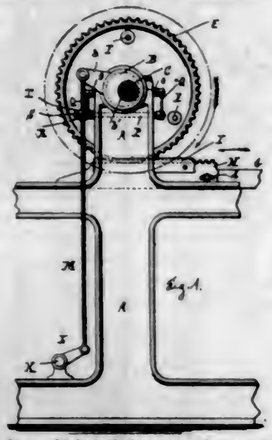
5. The combination in a cylinder printing-press of the impression-cylinder A having the registering-gear B secured to the same, the reciprocating bed having the registering-rack D mounted on the same, said rack having a roller E and rack H, pinion G which said rack engages, and rack I engaging the other side of pinion G and having a suitable roller J on the outside end thereof, and suitable cams mounted on the side frame, the whole arranged to operate as described.

6. The combination in a cylinder printing-press, of the impression-cylinder having a registering-gear secured to the same, the reciprocating bed having a registering-rack adapted to coact with said registering-gear, means for shifting said rack laterally in and out of engagement with said registering-gear, and connections whereby said rack will be positively operated at two different points, substantially as described.

7. The combination in a cylinder printing-press, of the impression-cylinder A having the registering-gear B secured to the same, the reciprocating bed having the registering-rack D mounted on the same, said rack having a roller E and rack H, a pinion G which said rack engages, shaft G^3 on which said pinion is mounted, rack I engaging the other side of pinion G, and having a suitable roller J on the outside end thereof, suitable cams mounted on the side frame, arranged to operate as described, pinion G' mounted on said shaft G^3 and rack

H' cooperating with said pinion G' whereby said rack D will be shifted at two points, substantially as described.

577,555. REGISTERING MECHANISM FOR PRINTING-PRESSES. WINFIELD S. HUSON, Taunton, Mass., assignor to the Campbell Printing Press and Manufacturing Company, of New York. Filed May 28, 1892. Serial No. 434,814. (No model.)



Claim.—1. In a cylinder printing-press, the combination of the impression-cylinder having a registering-gear connected to turn the same, the reciprocating bed, having a registering-rack adapted to coact with said registering-gear, and means for shifting said gear laterally so that the rack and gear will be in mesh on one stroke and out of mesh on the other stroke of the bed, substantially as described.

2. In a cylinder printing-press, the combination of the impression-cylinder, having a registering-gear connected to turn with the same, the reciprocating bed having a registering-rack mounted on the same, means for moving said gear laterally so that the same will alternately engage and disengage with said registering-rack, and a guard as I secured to the side of said rack, substantially as described.

3. The combination in a cylinder printing-press, of the impression-cylinder having a registering-gear connected to turn with the same, the reciprocating bed having a registering-rack mounted on the same, means for moving one of these registering instrumentalities laterally so that the same will alternately be in and out of mesh, and a starter-segment and rack secured to said cylinder and bed respectively, substantially as described.

4. The combination in a cylinder printing-press of the impression-cylinder having a registering-gear, the reciprocating bed having a registering-rack mounted on the same, means for moving the registering-gear laterally so that the registering mechanism will be alternately in and out of mesh, and a starter-segment and rack secured to said cylinder and bed respectively, substantially as described.

5. The combination in a cylinder printing-press of the shaft C having the impression-cylinder D mounted on the same, the registering-gear E loosely mounted on said shaft C, pins F projecting from the side of the cylinder D and passing through holes in the registering-gear E, means for shifting said registering-gear laterally, and the reciprocating bed G having the cooperating registering-rack H substantially as described.

6. In a cylinder printing-press the combination of the impression-cylinder D having a registering-gear E connected to turn with the same, the yoke N mounted on the hub of said gear E, connections to said yoke N adapted to shift the gear E laterally, and the reciprocating bed G having the cooperating registering-rack H mounted on the same, substantially as described.

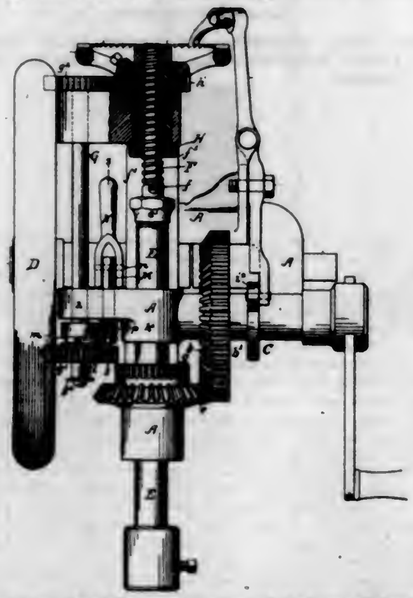
7. The combination in a cylinder printing-press of the impression-cylinder, and a mechanism for raising and lowering the same, the registering-gear connected to turn with the impression-cylinder, but capable of a lateral movement, connections from the impression-cylinder raising and lowering mechanism to the registering-gear, whereby said registering-gear will be synchronously laterally shifted as the impression-cylinder is raised and lowered, and the reciprocating bed, having a registering-rack secured to the same, adapted to coact with said registering-gear, substantially as described.

8. In a cylinder printing-press, the combination of the impression cylinder having a registering-gear connected to turn with the same, a reciprocating bed having a registering-rack adapted to coact with said registering-gear, one of these registering mechanisms being adjustable, and means for shifting one of the registering mechanisms laterally so that the registering mechanism will be in mesh on one stroke, and out of mesh on the other stroke of the bed, substantially as described.

9. In a cylinder printing-press, the combination of the impression-cylinder having a registering-gear connected to turn with the same, the reciprocating bed carrying a longitudinally-adjustable registering-rack adapted to coact with said registering-gear, and means for shifting one of said registering mechanisms laterally so that the registering mechanism will be in mesh on one stroke, and out of mesh on the other stroke of the bed, substantially as described.

10. In a cylinder printing-press, the combination of the impression-cylinder having a registering-gear, the reciprocating bed carrying a longitudinally-adjustable registering-rack, and means for shifting said gear laterally so that the rack and gear will be in mesh on one stroke, and out of mesh on the other stroke of the bed, substantially as described.

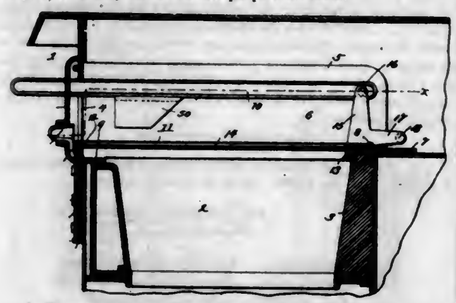
577,556. DRILL. HENRY R. KEIPER, Lancaster, Pa. Filed Apr. 23, 1894. Serial No. 508,617. (No model.)



Claim.—In a drill, the combination with the frame, of a horizontal driving-shaft journaled therein, a combined bevel-gear and spur-wheel *b b'* on the driving-shaft, a horizontal counter-shaft mounted in the frame having a balance-wheel at one end and provided with a pinion meshing with the spur-wheel on the driving-shaft, the drill-spindle mounted vertically in the frame and provided with a threaded portion at its upper end, a combined bevel-gear and crown-wheel on the said spindle, the said bevel-gear meshing with the bevel-gear on the driving-shaft, a rotatable nut mounted on the threaded upper end of the drill-spindle and journaled in the frame, a combined gear-pinion and ratchet-wheel secured to the upper end of the nut, means for rotating the ratchet-wheel intermittently, a vertical shaft mounted in the frame, a pinion on the upper end of said shaft meshing with the pinion on the rotatable nut, a sliding pinion on the lower end of said shaft adapted to engage the crown-wheel on the drill-spindle and having an annular groove in its hub, a vertically-movable spindle mounted in the frame and provided at its lower end with a fork engaging the annular groove in the hub of the sliding pinion, a spring coiled around said spindle between the fork and the frame, and a cam pivoted to the upper end of the said spindle and bearing on the upper side of the frame.

577,557. STOVE OR RANGE. MAX M. KOCH, Cleveland, Ohio. Filed July 13, 1896. Serial No. 599,042. (No model.)

Claim.—1. The combination of a stove-body having a fire-box and an opening in one of its walls in a plane above the fire-box and also having a bearing adjacent to said opening, a movable door for closing the opening in the wall of the body, and a broiler adapted to be introduced through the opening in the wall of the body and having a device adapted to engage the bearing of the body when the broiler is withdrawn through the opening in said body so as to hang the broiler at the side of the body and also having a device for closing the door when the broiler is withdrawn from the stove-body and for opening said door when the broiler is moved to insert it in the body, substantially as and for the purpose set forth.



2. The combination of a stove-body having a fire-box and an opening in one of its walls in a plane above the fire-box and also having a bearing adjacent to said opening, a movable door for closing the opening in the wall of the body, a broiler adapted to be introduced through the opening in the wall of the body and having a device adapted to engage the bearing of the body when the broiler is withdrawn through the opening in said body so as to hang the broiler at the side of the body and also having a device for closing the door when the broiler is withdrawn from the stove-body and for opening said door when the broiler is moved to insert it in the body, and a door carried by the broiler and adapted to close the opening in the wall of the body when the broiler is inserted in said body, substantially as and for the purpose specified.

3. The combination of a stove-body having a fire-box and an opening in one of its walls in a plane above the fire-box and also having a bearing adjacent to said opening, a vertically-movable door adapted to slide between guides on the body and close the opening thereof and having a bearing, and a broiler adapted to be introduced through the opening in the wall of the body and having a device adapted to engage the bearing of the body when the broiler is withdrawn through the opening in said body so as to hang the broiler at the side of the body and also having a device adapted to engage the bearing of the movable door and raise said door when the broiler is lowered to its position at the side of the body and lower said door when the broiler is raised, substantially as and for the purpose set forth.

4. The combination of a stove-body having a fire-box and an opening in one of its walls in a plane above the fire-box and also having a bearing adjacent to said opening to permit of the broiler being swung down at the side of the body, a door carried by the broiler for closing the opening in the stove when the broiler is within the same, and a door for closing the said opening when the broiler is without the body; the latter door being connected with the broiler when the said broiler is without the body so that it will be opened by the raising of the broiler and will be closed by the lowering of the same, substantially as specified.

5. The combination of a stove-body having a fire-box and an opening in one of its walls in a plane above the fire-box and also having bearings adjacent to said opening, a vertically-movable door for closing the opening in the wall of the body and having bearings, and a broiler adapted to be introduced through the opening in the wall of the body and having arms provided with lugs adapted to engage the bearings of the body and also having arms provided with lugs adapted to engage the bearings of the movable door; the latter arms being disposed at an angle to the first-named arms, substantially as and for the purpose set forth.

6. The combination of a stove-body having a fire-box and an opening in one of its walls in a plane above the fire-box, and also having ways and bearings at the outer ends of said ways, a vertically-movable door for closing the opening in the wall of the body and having bearings, a broiler adapted to be introduced through the opening in the wall of the body and having arms provided with lugs adapted to move in the ways and engage the bearings of the body and also having arms provided with lugs adapted to engage the bearings of the movable door; the last-named arms being disposed at an angle to the first-named arms, and a door connected to the broiler and adapted to close the opening in the body when the boiler is within the same, substantially as and for the purpose set forth.

7. The combination of a stove body having a fire-box and an opening in one of its walls in a plane above the fire-box and also having ways, bearings at the outer ends of said ways and lugs below the ways at points adjacent to the door-opening, a vertically-movable door for closing the opening in the wall of the body and having bearings, a broiler adapted to be introduced through the opening in the wall of the body and having arms provided with lugs adapted to move in the ways and engage the bearings of the body and also having arms provided with lugs adapted to engage the bearings of the movable door; the last-named arms being disposed at an angle to the first-named arms and being also adapted to engage the lugs below the tracks or ways, substantially as and for the purpose set forth.

577,558. WARPER'S BEAM AND WEAVER'S BEAM. JOHNSON MILLS, Manchester, England, assignor of one-half to John Ellears, Swinton, England. Filed Jan. 8, 1896. Serial No. 574,732. (No model.) Patented in England Feb. 27, 1895, No. 4,203, and May 23, 1895, No. 10,163, and in Belgium July 25, 1895, No. 116,263.

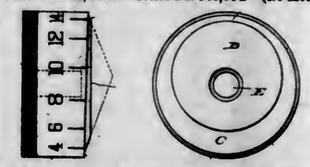


Claim.—1. A flange or end for a warper's or a weaver's beam, composed of a plate of flat metal and a plate of corrugated metal placed one against the other and in intimate contact, and united by overbending their peripheries, and supplied with a collar by means of which the said flange or end may be secured to the beam, substantially as shown and described.

2. A flange or end for a warper's or weaver's beam constructed of two plates of metal, the outer plate being plain and the inner plate being corrugated, and the two plates being united by overbending their peripheries, and provided with means whereby the said flange or end may be rigidly connected to the beam, substantially as described.

3. In a warper's beam or weaver's beam or like structures, a metallic flange or end constructed from two stamped steel or iron plates, one of said plates being plain and the other corrugated, and the two connected together by the central portion of said plates being pressed out to form a boss or flange, both the inner and outer edges of said plates being rolled over so that the edges of the plain plate shall clip over the edges of the corrugated plate, substantially as described.

577,559. ANVIL FOR SAW-SETS. CHARLES MORRILL, New York, N. Y. Filed Jan. 18, 1896. Serial No. 576,014. (No model.)



Claim.—1. In a saw-set the combination of the frame, the inclined adjusting-screw mounted in the frame, the setting bar or plunger, the handle for operating the plunger, the rigid handle and the rotary adjustable anvil; said anvil having indices or figures on its periphery and having the inclined oblique working surface and the flat edge contiguous to said surface for turning up the teeth of the saw and fixing the angle thereof, substantially as described.

2. In a device for setting the teeth of saws comprising a supporting-frame, and plunger, a rotary adjustable anvil provided with the annular inclined oblique working surface and the flat annular edge contiguous to said surface for turning back the teeth of saws and fixing the angle thereof, substantially as described.

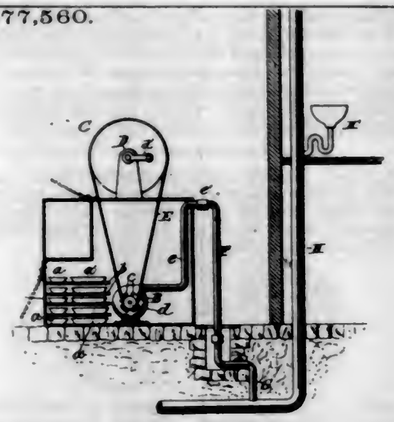
577,560. PROCESS OF TESTING PLUMBING, &c. LIONEL MOSES, New York, N. Y. Filed May 13, 1896. Serial No. 591,453. (No model.)

Claim.—1. The process herein described of testing plumbing for leaks which consists in generating at ordinary air temperatures a visible chemical vapor in a chamber, and then charging the pipes to be tested with vapor-laden air from said chamber by means of an air-forcing device substantially as described.

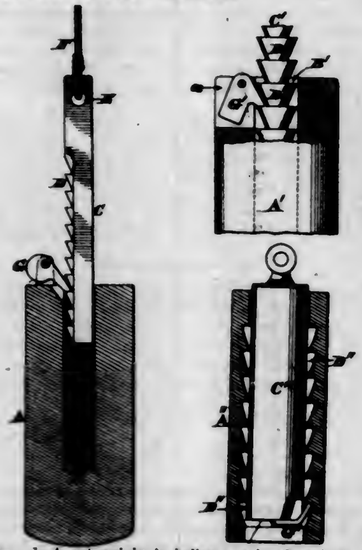
2. The process herein described of testing plumbing for leaks which consists in mingling in a chamber at ordinary air temperatures invisible chemical vapors to form a visible vapor and then by air-pressure charge the plumbing with said visible vapor substantially as described.

3. The process of testing plumbing for leaks which consists in mixing in a closed chamber the gases of ammonia and hydrochloric acid forming a cloud of ammonium chlorid and forcing the same under pressure into the plumbing substantially as described.

577,560.



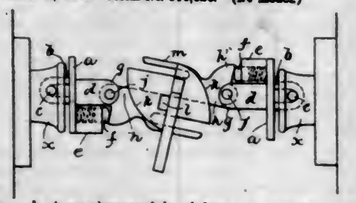
577,561. SASH-WEIGHT. CHARLES R. MULLEN, Cincinnati, Ohio, assignor of one-half to John W. Hilton, same place. Filed Dec. 19, 1896. Serial No. 616,291. (No model.)



Claim.—1. A sash-weight including a pair of sections, one of which slides longitudinally within the other, and a ratchet mechanism that automatically couples them together as soon as the lower section is arrested, in the manner described.

2. The sash-weight A, having a pawl G and longitudinal passage B, in combination with the ratchet-bar C D, for the purpose stated.

577,562. CAR-COUPLING. SIMON A. POLITSKY, Boston, Mass. Filed June 18, 1896. Serial No. 596,020. (No model.)

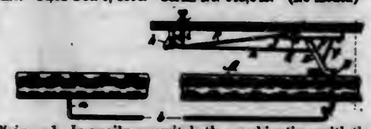


Claim.—1. A supplemental head for a car-coupling comprising in its construction means for removably connecting it with the draw-bar of a car, and having a cam-shaped forward portion or jaw pivotally connected with the base portion; a spring for moving the jaw portion relatively to the base portion, and a pin for uniting the two jaw portions.

2. In a car-coupling, the combination with the arm *h* pivoted to a suitable support and having the jaw at its outer end provided with the recesses *l* and having the hole n^2, the L-shaped projection *m*, and the pin *n* having the offset and downwardly-projecting portion *n'*.

3. In a car-coupling, the combination with the plate *a* having the loop *b* and carrying a spring-pressed plunger *f*, of the arm *h* pivotally connected with the plate *a* and having an offset *h'* adapted to be engaged by said plunger *f*, said arm *h* being provided with the jaw *i* having two cam-surfaces *k* and having the hole n^2 and the L-shaped projection *m*, and the pin *n* having the offset and downwardly-projecting portion *n'*.

577,563. AUTOMATIC CAR-SWITCH. FRANKLIN RICE, Dayton, Ohio. Filed Dec. 9, 1896. Serial No. 615,045. (No model.)



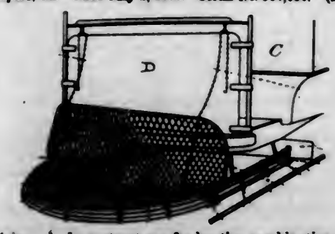
Claim.—1. In a railway-switch, the combination, with the switch-rail, and a wedge, of a rock-shaft, with arms connecting same at opposite ends to said switch-rail and wedge, whereby the shifting of the wedge will turn the switch, substantially as shown and described.

2. In a railway-switch, the combination, with the switch-rail and a wedge, of a rock-shaft, with arms connecting same at opposite ends to switch-rail and wedge, with lever on the car, and means for shifting same from side to side to contact with either side of the wedge, substantially as shown and described.

3. In a railway-switch, the combination, with the switch-rail and a wedge, of a rock-shaft, with an arm at one end connecting same to the switch-rail, and a downwardly-extending arm attached to the wedge, with link connecting said arm to the other end of said rock-shaft, whereby the rotation of the wedge-arm will rock the shaft to shift the switch, substantially as shown and described.

4. In a railway-switch, provided with a switch-rail and wedge and connecting mechanism, a lever pivoted to a horizontally-movable block secured to the car, and means for depressing said lever to contact with said wedge, in connection with mechanism for shifting the lever-block to change the contacting position of said lever, substantially as shown and described.

577,564. STREET-CAR FENDER. GUSTAV STADEMANN, Philadelphia, Pa. Filed July 2, 1896. Serial No. 597,839. (No model.)

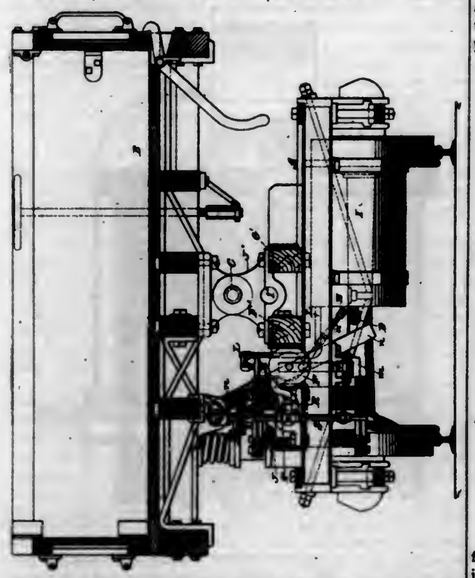


Claim.—1. In a street-car fender the combination of side bars fixed below the steps at each side of the platform, an upright movable wire-netting screen resting thereon at each end, a wire lunette reaching forward and hinged to the fixed side bars, and also hinged centrally to the movable upright screen, bands of elastic tubing with interiorly-coiled wire spring on the lower periphery of the lunette, supports for said tubes and means for elevating and depressing the wire screens, substantially as set forth.

2. In a street car fender the combination of side bars fixed below the steps at each side of the platform, an upright movable wire-netting screen resting thereon at each end, a wire lunette reaching forward and hinged to the fixed side bars, and also hinged centrally to the movable upright screen, bands of elastic tubing with interiorly-coiled wire springs on the lower periphery of the lunette, clips or holders for supporting same, and means for elevating and depressing the wire screens, substantially as set forth.

577,565. DUMPING-CAR. WILLIAM A. TRACHER, New York, N. Y. Filed Nov. 27, 1893. Serial No. 492,054. (No model.)

Claim.—1. In a dumping-car, the dumping-cylinder and the reservoir for compressed air carried by the car, combined with the latch-cylinder having a piston and rod and an inlet for compressed air, the chest having outlet-ports communicating with opposite ends of the dumping-cylinder, the connection between the said reservoir and chest the controlling-valve in said chest and having its rod connected with the latch-cylinder rod, the weighted latch-lever connected with said latch-cylinder rod, and the bar carried by the car and being of a form to engage said latch-lever and retain the controlling-valve in the running position while the car-body is in its horizontal position and permit the extreme outward movement of said valve when the car-body is in tilted position: substantially as set forth.



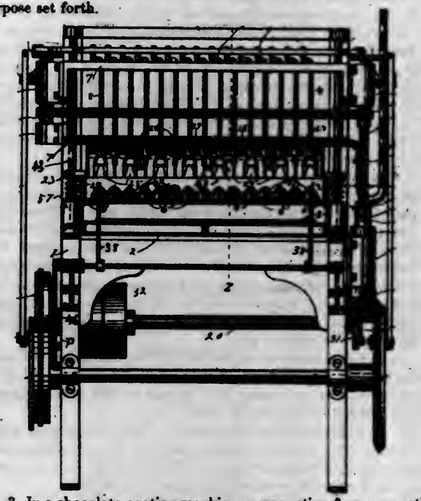
2. In a dumping-car, the dumping-cylinder and the single main train-pipe for compressed air for both tilting the car-body and returning it to position, combined with the chest open to the pressure of the said air and having a valve-seat provided with ports communicating with pipes leading to the opposite ends of said dumping-cylinder the controlling-valve on the valve-seat in said chest, and an independent auxiliary train-pipe for compressed air to operate said controlling-valve; substantially as set forth.

3. In a dumping-car the dumping-cylinder and the single main train-pipe for compressed air for both tilting the car-body and returning it to position, combined with the chest into which said air passes from a single pipe, the valve-seat in said chest provided with ports communicating with pipes leading to opposite ends of said cylinder, the controlling-valve on said valve-seat, the latch-cylinder having its rod connected with the rod of said controlling-valve, and an independent auxiliary train-pipe for compressed air to operate the latch and controlling-valve; substantially as set forth.

577,566. CHOCOLATE-COATING MACHINE. PETER J. VANDER LINDA, Grand Rapids, Mich. Filed Dec. 16, 1895. Serial No. 572,356. (No model.)

Claim.—1. In a chocolate-coating machine, a main frame supporting suitable driving mechanism, a vertical frame attached to said frame and provided with ways for the support of a vertically-reciprocating brush-frame, cranks and pitmen for reciprocating said frame, revolving brushes supported in said frame, a chocolate, or dipping trough beneath said brushes, a tray secured to vertically-reciprocatable slides for supporting the centers and conveying them to the melted chocolate in the trough, slides to force the centers to the tray and the coated stock from the tray to the dripping-shelf, a dripping-shelf, and a conveyer-belt, substantially as and for the purpose set forth.

2. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame supported thereon, brushes supported upon shafts that pass through said brush-frame, cranks on the upper ends of said shafts, a pitman connecting said cranks and driven by cranks, one at each end of the frame, the shafts supporting said cranks connected by a sprocket chain and wheels so that the pitman must always travel in the same parallel plane, the driving-shaft supported at the lower end in a sleeve, a clutch at the upper end of said sleeve to engage with a pin in the shaft to drive the shaft intermittently, cranks and pitmen for reciprocating the brush-frame, a trough for holding melted chocolate, a tray secured to sliding supports to hold the centers when being fed to and from the chocolate, guards to hold the centers to place on the tray, a hood over the brushes to cover the centers while being coated, a blower, an air-pipe connecting said blower and hood, slides to convey the coated stock from under the brushes toward the conveyer-belt, a conveyer-belt, a ratchet-wheel, a pawl, a crank and pitman to operate the conveyer-belt, wings attached to the conveyer-belt to close the flue under the ice-box, an auxiliary pawl and ratchet for use when the wings are approaching the flue under the ice-box, and an ice-box situated above the conveyer-belt with a flue between, substantially as and for the purpose set forth.



3. In a chocolate-coating machine, a supporting-frame, a vertical frame attached thereto and fitted to support a vertically-reciprocating brush-frame, a brush-frame fitted to reciprocate vertically in said frame, a series of brushes supported in said brush-frame, said brushes having heads constructed to agitate the chocolate as it is being coated on the centers and supported on shafts that pass up through the brush-frame and terminate in cranks at their upper ends, a pitman fitted to revolve all of the brushes simultaneously, a crank at each end of the brush-frame for actuating said pitman and supported upon shafts that are connected by a sprocket chain and wheels, one of said shafts connected with a sleeve having a clutch fitted to drive the shaft, only, when the brush-frame is lowered, a hood covering the brush-heads, vents in said hood, a blower and pipe connected with the hood to force air through the hood, a dipping-trough below said brush, a tray secured to sliding supports at the top of the trough to be forced down by the hood that covers the brushes, springs for actuating said slides, a wire guard for holding the stock to place, slides for conducting the centers to the dipping-trough and the coated stock from it, a dripping-shelf, a standard and ratchet-wheels for vibrating said shelf, and an elevator to carry the guards from the dripping-shelf within convenient reach of the operator, substantially as and for the purpose set forth.

4. The combination in a chocolate-coating machine, of a supporting-frame, a dipping-trough on said frame, slides for conducting the centers to and the coated stock from the trough, with a guard and hood for covering the centers, a revoluble brush for agitating the chocolate over and around each individual center while being coated, and means for forcing cold air through the hood and commingling it with the agitated chocolate about the centers, substantially as and for the purpose set forth.

5. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame supporting a series of revoluble brushes, a hood covering said brushes, a blower connected by pipe with said hood, a dipping-trough, vertically-reciprocating slides supporting a tray over said trough, a receiving and a dripping shelf connected with the trough, slides for conducting the centers from the receiving-shelf to the trough and the coated stock from the trough to the dripping-shelf, rods and ratchet-wheels arranged to vibrate said dripping-shelf, and cones by means of which the rapidity of said vibrations may be regulated, substantially as and for the purpose set forth.

6. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame carrying a series of revoluble brushes, a dipping-trough, beneath said brush-frame, slides for conducting centers to said trough and the coated stock from it, guards to cover the centers while being coated, a dripping-shelf, and an elevator to carry the guards from the dripping-shelf to the warming-shelf, substantially as and for the purpose set forth.

7. In a chocolate-coating machine, a frame supporting the driv-

ing mechanism of the machine, a vertically-reciprocating brush-frame, cranks for actuating said brush-frame, a pitman connecting said cranks and the brush-frame, the upper ends of said pitman being slotted so that the brush-frame is stationary during a portion of the lower course of travel of the cranks, brushes supported in said frame arranged to revolve, only, when the frame is down and the brushes in the dipping-trough, a dipping-trough, a receiving-shelf, a dripping-shelf, and a conveyer-belt substantially as and for the purpose set forth.

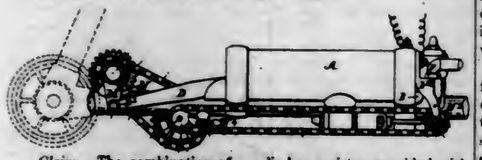
8. In a chocolate-coating machine, a supporting-frame, a vertically-reciprocating brush-frame, intermittently-revoluble brushes in said frame, a dipping-trough, means for heating the chocolate in said trough, a warming-shelf convenient to the reach of the operator, guards to cover the centers when passing to and from the dipping-trough, a dripping-shelf back of the dipping-trough, an elevator for carrying the guards from the dripping-shelf to the warming-shelf and a conveyer-belt to carry the coated stock from the machine, substantially as and for the purpose set forth.

9. In a chocolate-coating machine, a supporting-frame, a dipping-trough on said frame, a vertically-reciprocating frame and tray for carrying the centers into and out of the trough, a hood for covering the tray and passing with it into the melted chocolate, and form an air-chamber through which air may be forced to intermingle with the chocolate when flowing around the centers in the dipping-trough, a guard to cover the stock within the hood, and a blower connected to force cold air through the hood, for the purpose of temperating the coated stock to produce the desired color substantially as and for the purpose set forth.

10. In a chocolate-coating machine, a longitudinal guard made of wire for securing the stock when being coated and a series of ornamenting devices suspended from the top of said guard, substantially as and for the purpose set forth.

11. In a chocolate-coating machine, a supporting-frame, a dipping-trough, and a hood for covering the stock; in combination with an appliance for forcing and mixing cold air into the chocolate when being coated upon the centers, substantially as set forth.

577,567. GAS-ENGINE. LUTHER H. WATTLES, Providence, R. I., assignor, by direct and mesne assignments, of three-fourths to William B. Sherman, same place, and Byron C. Davis, Brooklyn, N. Y. Filed Dec. 7, 1895. Serial No. 571,337. (No model.)



Claim.—The combination of a cylinder, a piston provided with an electrode connected therewith by means of an adjusting-screw and a tube having a threaded connection with the adjusting-screw, and a cylinder-head secured to the cylinder, and through which, an insulated electrode is fitted and with which, the piston-electrode is adapted to make and break contact, during its movements, substantially as specified.

577,568. COMPRESSING OR BLOWING ENGINE. ASA A. WEIMER, Lebanon, Pa. Filed Jan. 7, 1895. Serial No. 534,097. (No model.)

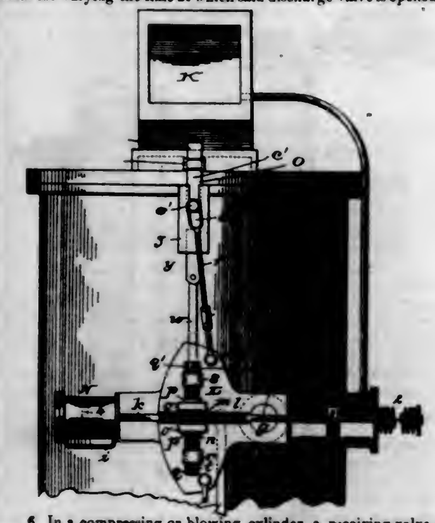
Claim.—1. In a compressing or blowing engine, a receiving-valve and means for operating the same, in combination with a discharge-valve, an oscillating plate, a fluid-motor supported by said plate, controlling mechanism between said motor and the discharge-valve and operating mechanism between said plate and said discharge-valve.

2. In a compressing or blowing engine, a receiving-valve and means for operating the same, in combination with a discharge-valve, an oscillating plate, a fluid-motor supported by said plate, connections between the said discharge-valve and plate, and means connected with the fluid-motor on the plate to vary the time at which the discharge-valve is operated.

3. In a compressing or blowing engine, a receiving-valve and means for operating the same, in combination with a discharge-valve, a fluid-motor, an oscillating plate supporting said motor, a block having an inclined surface engaging the valve-rod and means connected with the motor for varying the time at which said block is operated.

4. In a compressing or blowing engine, a receiving-valve and means connected with the engine for operating said valve, in combination with a fluid-pressure motor connected to the discharge-conduit, an oscillating wrist-plate, laterally-movable pins on said plate operated by the motor, mechanism between said pins and the discharge-valve for varying the time at which the discharge-valve is operated and suitable rods connecting the plate to the discharge-valve.

5. In a compressing or blowing engine a receiving-valve and means for operating the same, in combination with a discharge-valve, an oscillating wrist-plate, a fluid-motor cylinder and a liquid-containing or cataract cylinder suitably connected to said motor-cylinder and supported by said plate, means connected with said fluid-motor cylinder for varying the time at which said discharge-valve is opened.

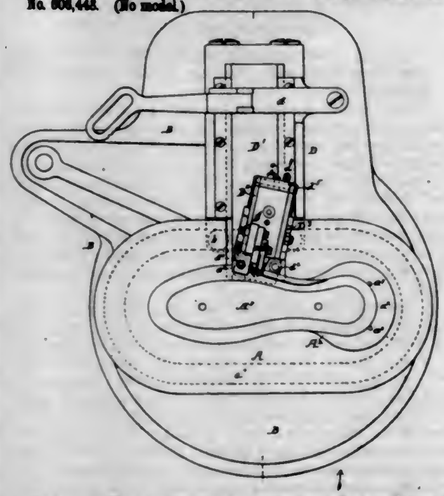


6. In a compressing or blowing cylinder, a receiving-valve and means for operating the same, in combination with a discharge-valve, an oscillating wrist-plate provided with a fixed and a movable pin, a block connected to the movable pin on said plate and a block connected to the fixed pin on the plate.

7. In a compressing or blowing engine, a receiving-valve and means for operating the same, in combination with a discharge-valve, an oscillating wrist-plate, a fluid-motor supported on said plate, a slot in the plate, a pin movable in said slot and connections between the valve and said pin and the motor.

8. In a compressing or blowing engine, a receiving-valve and means for operating the same, in combination with a discharge-valve, an oscillating wrist-plate a fluid-motor supported on said plate, connections between the motor and the discharge-valve for opening the same and a separate connection between the wrist-plate and the discharge-valve for positively closing the valve.

577,569. SHOE-CHANNELING MACHINE. ERNEST M. WHITE, Philadelphia, Pa. Filed Oct. 31, 1895. Renewed Sept. 19, 1896. Serial No. 606,443. (No model.)



Claim.—1. The combination in a sole-channeling machine, of a support, a reversible former adapted to be mounted thereon and shaped to conform to the sole to be channeled, pins extending from each side of the former at the heel portion and serving as guide-stops for the adjustment of the sole, clamps for holding the sole to the former, with channeling mechanism and means for throwing said mechanism out of engagement with the sole as it rounds the heel, substantially as described.

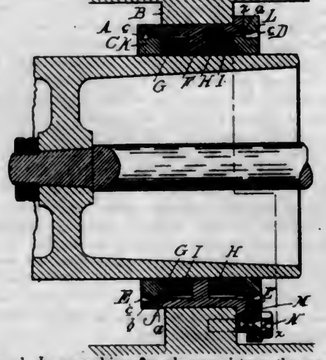
2. The combination in a sole-channeling machine, of a carriage having channeling and grooving tools, a stationary support, a reversible former conforming to the shape of the sole to be channeled, said former having an enlargement at the heel portion forming a cam, with pins on each side of the former serving as guide-stops for the adjustment of the sole to be channeled and means for clamping the sole-blank on the former, substantially as described.

3. The combination of the former, a cutting-tool, a slide carrying said tool and having a projection resting against the edge of the former, a carrier for the slide having two bearings one on each side of said projection and also resting against the former, and a spring mounted between the carrier and slide and adapted to keep the slide against the former, substantially as described.

4. The combination of a fixed former, clamping mechanism for clamping the sole thereon, a carriage adapted to travel around the former, a slide on the carriage, a carrier pivoted to the slide and adapted to rest against the former, a slide D^6 carrying the cutting-tools mounted on the carrier and having a portion extending between the rollers and bearing against the former, a spring mounted between the slide and its carrier to keep the slide against the former, substantially as described.

5. The combination of a fixed former, the clamp for clamping the sole to the former, a carriage adapted to travel around the former, a slide on the carriage, a spring to force the slide toward the former, a carrier pivoted to the slide so as to swing laterally, a slide D^6 on the carrier, a spring adapted to force the slide toward the former, bearing-points on the slide and on the carrier resting against the fixed former, a laterally-adjustable head mounted on the slide and a vertically-adjustable tool-carrier on the head and tools carried thereby, substantially as described.

577,570. PACKING FOR PUMP-PLUNGERS. BENJAMIN F. WILLSTON, Jackson, Mich. Filed Sept. 24, 1896. Serial No. 606,531. (No model.)

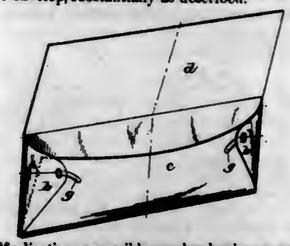


Claim.—1. In a packing for plunger-pistons, the combination with the pump-cylinder and bridge dividing the same into two chambers, of a bushing recessed in opposite ends, a set of metallic packing-rings in each recess, spaces formed behind the packing-rings communicating through orifices with the chambers of the pumping-cylinder, and glands secured in the ends of the bushing to hold the packing-rings in position, one of said glands being directly secured by bolts to the bridge to detachably hold the packing in position in the bridge.

2. In a packing for plunger or piston, the combination with the pump-cylinder and bridge dividing the same into two chambers, of the bushing E formed with recesses in opposite ends, a set of metallic packing-rings in each recess, composed of two or more inner rings and an outer ring inclosing the same, a gasket between the outer and inner rings, the packing-glands in the recesses of the bushing securing the packing-rings independently removable, and the spaces I back of the said packing-rings communicating through orifices *a b* and channels *c* with the chambers on opposite sides.

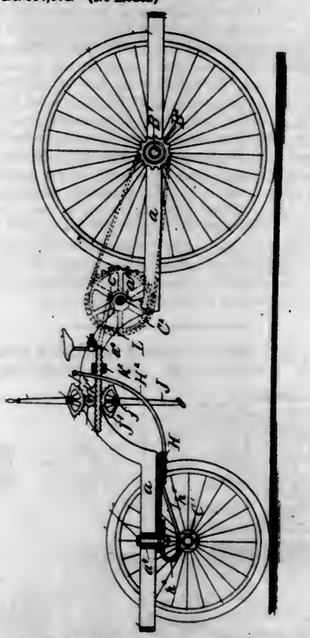
577,571. ENVELOP. WILLIAM D. BRADSTREET, Waltham, Mass., assignor to Abbie D. Hankerson, same place. Filed Dec. 14, 1896. Serial No. 615,692. (No model.)

Claim.—1. In an envelop, the combination with the lower flap or back, of an end flap secured to the lower flap by a sliding fastening device, whereby the envelop is made expansible to vary its capacity, said fastening device being provided with a stop to limit the expansibility of the envelop, substantially as described.



2. A self-adjusting expansible envelop having an end flap adjustably secured to the lower flap or back by means of a rivet or projection on the one part, and a slot or track on the other part, whereby the two connected parts are permitted to slide the one upon the other to vary the capacity of the envelop, substantially as described.

577,572. MOTOR-VEHICLE. REES D. CROSS, Chicago, Ill., assignor of one-fourth to William P. Tuttle, same place. Filed July 25, 1895 Serial No. 557,071. (No model.)



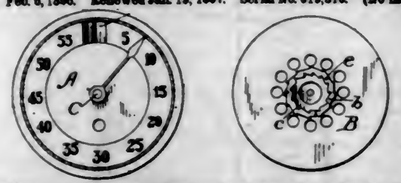
Claim.—1. In a vehicle, the combination with the main frame and vehicle-wheels, of a propelling device comprising a rack-bar, a toothed segment engaging one side of said rack-bar, a pinion engaging the other side of the rack-bar, a second toothed segment engaging said pinion, hand and foot levers for oscillating said segments, a crank element connected with the rack-bar, and gearing between the crank element and driving-wheels, substantially as described.

2. In a vehicle, the combination with the main frame and vehicle-wheels, of a propelling device comprising a rack-bar, a toothed segment engaging one side of said rack-bar, a pinion engaging the other side of said rack-bar and provided with a central slot and a pivot-pin engaging said slot, a second toothed segment engaging said pinion, both of the segments being of eccentric shape, hand and foot levers connected with said segments, a crank element connected with said rack-bar, and a gearing between the crank element and driving-wheels, substantially as described.

3. An axle-bearing for vehicles comprising a cylindric casing attached to the main frame, and provided on one side with an inwardly-extending flange, two sets of balls inserted within said casing between outer and inner knife-edged annular bearing-washers, a hollow annular washer separating the two sets of balls, and a flanged collar having

screw-threaded connection with the axle for inclosing the bearing on the opposite side from the casing-flange, substantially as described.

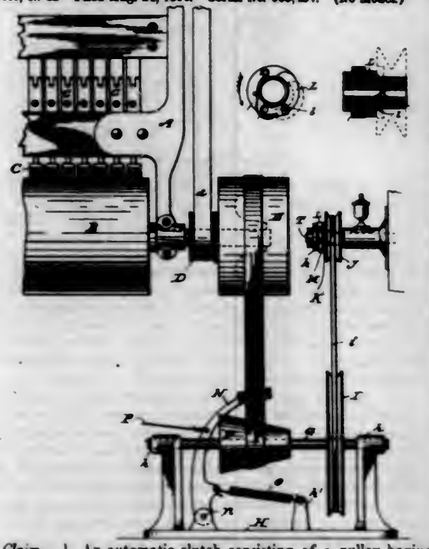
577,573. TIMEPIECE-DIAL. JOSIAH CULVER, Delta, Pa. Filed Feb. 6, 1896. Renewed Jan. 19, 1897. Serial No. 619,816. (No model.)



Claim.—1. In a clock, the combination with the fixed dial provided with an aperture, and the minute-hand arbor, of a movable hour-dial revolubly supported on said arbor immediately in the rear of the fixed dial, a ratchet-wheel having inner and outer peripheral teeth secured to the back of the hour-dial concentric with the said arbor, a bar pivoted at one end to a fixed part of the clock-frame and having an elongated opening through which said arbor extends, an eccentric secured to the arbor in rear of the said bar, a lug on the bar engaging the cam-face of the eccentric, shifting and locking dogs pivoted on said bar and engaging the outer teeth of the ratchet-wheel at opposite points, and a stop-lug projecting from said bar to engage the inner teeth of the ratchet-wheel, substantially as described.

2. In a clock, the combination with the fixed dial, the movable hour-dial, the minute-hand arbor, the eccentric keyed on said arbor, and the ratchet-wheel having inner and outer peripheral teeth secured to the back of the hour-dial concentric with the said arbor, of a bar located between the eccentric and the hour-dial and pivoted at one end to a fixed part of the clock-frame, said bar having an enlarged portion in which is an elongated opening through which said arbor extends, a lug projecting rearwardly from the bar and engaging the cam-face of the eccentric, a stop-lug projecting forwardly from the bar and engaging the inner teeth of the ratchet-wheel, a locking-dog pivoted near its tail end on said bar to engage the outer teeth of the ratchet-wheel, said dog having an elongated opening through which a pin on the bar projects, for the purpose specified, a shifting dog pivoted near its nose end to said bar to engage the outer teeth of the ratchet-wheel at a point opposite the locking-dog, and a pin on the bar engaging a recess in said shifting dog to limit the movement of its tail end, substantially as described.

577,574. AUTOMATIC CLUTCH. CLARENCE M. DODGE, Manchester, N. H. Filed Aug. 31, 1896. Serial No. 603,457. (No model.)



Claim.—1. An automatic clutch consisting of, a pulley having an annular groove in one side said pulley being provided with an inwardly-projecting lug or pin, a sleeve rigidly attached to a power shaft or arbor having an annular flange at its outer end, a curved arm pivotally attached to said flange and provided on one side with a lateral projection for engaging the lug or pin of said pulley, and a suitable spring for holding said pivoted arm out of engagement with said lug or pin of the pulley.

2. In an automatic clutch, an arm pivotally connected to a power shaft or arbor, having at one side a lateral projection and a spring for holding said arm normally against said arbor, and a loose pulley provided in one side with an annular groove having an inwardly-projecting lug adapted to normally clear the lateral projection of said pivoted arm and to engage the same when the power shaft or arbor has attained the desired speed.

577,575. SLIDING CURTAIN. ALEXANDER D. ELLIOTT, Viola, Ill., assignor of one-half to Miss Eugene Parkman, Aledo, Ill. Filed June 12, 1896. Serial No. 595,240. (No model.)



Claim.—1. In a sliding curtain, the combination of a fixed track portion, a sectional track removably secured thereto, and a curtain slidingly mounted in such track and adapted to be slid into the removable section to be removed from or placed in position, substantially as described.

2. In a sliding curtain, the combination of a tubular track portion, comprising a fixed section and a removable section having a longitudinal opening or rift therein, and a curtain slidingly mounted in such track portion and adapted to be slid into the removable section to be removed from or placed in position, substantially as described.

3. In a sliding curtain, the combination of a tubular track portion, comprising a fixed section and a removable section having a longitudinal opening or rift in the lower section thereof, a flange for securing the fixed portion of the track in position, a coupling for removably holding the removable section in engagement with the fixed section, a curtain provided with holding-balls arranged in the track portion and adapted to be slid into the removable section to be removed from or placed in position, substantially as described.

4. In a sliding curtain, the combination of a tubular track portion, comprising a fixed section and a removable section having a lower longitudinal rift or opening in the lower portion thereof, a flange for holding the fixed section in position, a depending guard portion on the track portion, a coupling for securing the removable section to the fixed section, a bracket adapted to hold one end of the removable section in position, and a curtain portion provided with a plurality of holding-balls arranged in the track portion and adapted to be slid into the removable section to be removed from or placed in position, substantially as described.

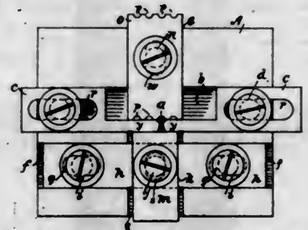
577,576. FISH-HOLDER. LAWRENCE D. GARNHART, Fairmont, Minn. Filed Aug. 7, 1896. Serial No. 602,060. (No model.)



Claim.—1. In a fish-holder, the combination with a bag made of net-like material and provided with a small mouth, of a draw-string passing loosely twice around the neck, and additional or supplemental strings located on opposite sides of the mouth, and adapted for opening the bag.

2. In a fish-holder, the combination with a bag made of net-like material, of loops connected to the bag on opposite sides at the neck thereof, a draw-string passing through said loops and doubly looped around the neck of the bag, and a clamp slidable on the draw-string and adapted to keep the mouth of the bag locked.

577,577. SMOOTHING AND FINISHING DIE. MAURICE J. GLAVIN, Boston, Mass. Filed Oct. 29, 1896. Serial No. 610,413. (No model.)



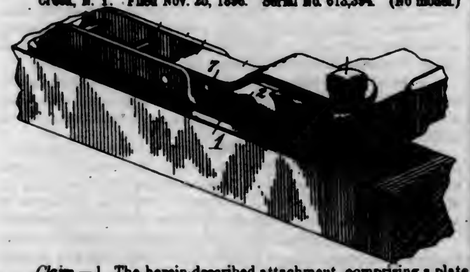
Claim.—1. A finishing-die for metal rods consisting of two flat steel cutting-dies adjustable to and from each other, and of adjustable guides or supports for the rods.

2. A compound finishing-die for metal rods consisting of two flat steel cutting-dies adjustable to and from each other one or both of which are multiple dies, and of adjustable guides or supports for the rods in the same plane with the dies.

3. A compound die for finishing metal rods consisting of a suitable base in which are secured two flat steel cutting-dies adjustable to and from each other one or both of which are multiple dies, and two adjustable guides or supports for the rods in the same plane with the dies, as set forth.

4. A compound die for finishing metal rods consisting of a suitable base in which are secured two flat steel cutting-dies adjustable to and from each other one or both of which are multiple dies, and one being adjustable at right angles to the other, and two adjustable guides or supports for the rods in the same plane with the dies, as set forth.

577,578. WAGON-POLE ATTACHMENT. ELIAS HOXIE, Red Creek, N. Y. Filed Nov. 25, 1896. Serial No. 613,394. (No model.)



Claim.—1. The herein-described attachment, comprising a plate or base having a series of openings therein and also provided with a corresponding series of cross-pins, a strap provided at one end with a hook for engaging one of said pins and at its opposite end with an opening, and a bolt removably fitted in the opening of the strap and also in one of the openings of the plate or base, substantially as described.

2. The herein-described attachment, comprising a plate or base provided at one end with a longitudinal series of openings and at its opposite end with a longitudinal series of cross-pins, a strap provided at one end with a hook for engaging with one of said pins and at its opposite end with an opening, and a bolt passing through the opening in said strap and also through one of the openings in said plate or base, substantially as described.

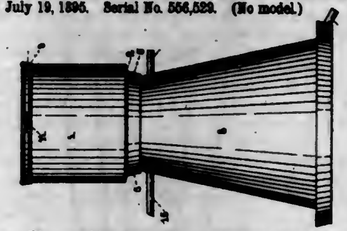
3. The herein-described attachment, consisting of an oblong plate provided at one end with a longitudinal series of openings and at its opposite end with spaced parallel flanges connected by cross-pins arranged in a longitudinal series, a hammer-strap having one end hooked to engage any one of said pins and provided at its opposite end with an opening, and a bolt passed through the opening in said strap and also through one of the openings in said plate or base, substantially as described.

4. The herein-described attachment, consisting of an oblong plate provided adjacent to one end with a series of holes and at its opposite end with a corresponding series of cross-pins, a strap provided at one end with a hook for engaging said pins and at its opposite end with an opening, a bolt removably fitted in the opening in the strap and in one of the openings in the base, and a stop on said strap coöperating with said pin, substantially as and for the purpose described.

5. The combination with a stationary base or plate and the adjustable hammer-strap, both provided with openings as described, of a bolt removably inserted through said openings, and a reversible lock-plate connected to the lower end of said bolt and adapted to abut against the under side of said base, substantially as and for the purpose described.

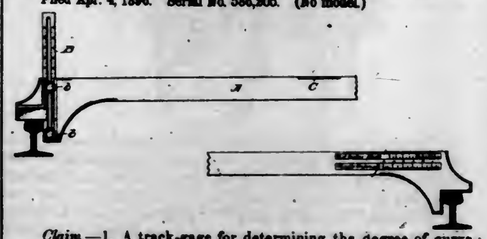
6. A bolt for the purpose described provided at one end with a head and adjacent to the other end with a tapering recess at one side, and a lock-plate pivotally connected intermediate its ends to said bolt and lying in said tapering recess, said lock-plate being provided at one end with a laterally-projecting lip adapted in one position of the plate to lie within the normal plane of the bolt and in its reversed position to project beyond the normal plane of the bolt, substantially as and for the purpose described.

577,579. MILK-COOLER. JAMES F. HUBBARD, Bradford, Pa. Filed July 19, 1895. Serial No. 556,523. (No model.)



Claim.—The combination with a reservoir for milk provided with the bottom formed with the sloping ring 2, the V-shaped annular groove having a series of perforations on the inner side thereof and the disk 6, of the cooling-chamber provided with a centrally-located foot-box, and a shaft provided with fans, substantially as shown and for the purpose described.

577,580. TRACK-GAGE. CLARENCE E. IRWIN, St. Louis, Mo. Filed Apr. 4, 1896. Serial No. 586,205. (No model.)



Claim.—1. A track-gage for determining the degree of curvature of a track-curve, said gage having a scale arranged thereon near the end which coöperates with the outer rail, and with a cord or tape-measure which is adapted to be placed on the outer rail on each side of said gage; substantially as described.

2. In a track-gage for railroad-curves, the combination with the body portion of the gage, a scale on said body portion for determining the elevation which the outer rail of the curve being measured, should occupy, and a cord or tape-measure for coöperating with said scale; substantially as described.

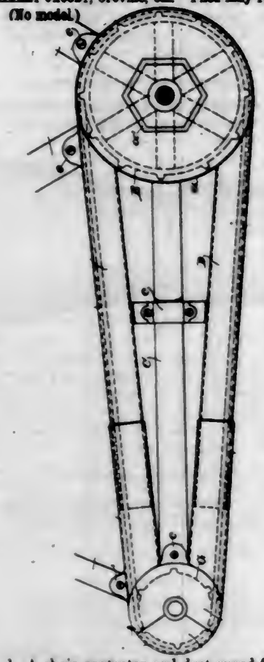
3. In a track-gage for railroad-curves, the combination with the body portion of the gage, a scale on said body portion for determining the elevation which the outer rail of the curve being measured, should occupy, a cord or tape-measure for coöperating with said scale, an adjustable bracket on the end of said body portion, and a spirit-level arranged in said body portion; substantially as described.

4. In a track-gage for railroad-curves, the combination with the body portion of the gage, a scale on said body portion for determining the elevation which the outer rail of the curve being measured, should occupy, a scale on said body portion for determining the degree of curvature, and a cord or tape-measure for coöperating with said scales, substantially as described.

5. In a track-gage for railroad-curves, the combination with the body portion of the gage, a scale on said body portion for determining the elevation which the outer rail of the curve being measured, should occupy, a scale on said body portion for determining the degree of curvature, a scale on said body portion for determining the middle ordinate, and a cord or tape-measure for coöperating with said scales; substantially as described.

6. The combination with the body portion of a track-gage, which gage is designed to be used on curves and in connection with a cord or tape-measure, of a scale on said body portion which is adapted to cooperate with the cord or tape-measure for determining the elevation which the outer rail of the curve should occupy, a vertically-slotted bracket which is adjustably mounted on one end of the body portion of the gage, said bracket having a scale on its vertical member by which it is adjusted, a rail-seat on the lower end of the bracket, and a spirit-level for establishing the proper elevation of the outer rail after the bracket has been adjusted; substantially as described.

577,581. CHAIN-PROTECTOR AND DUST-GUARD FOR BICYCLES. HARRY JACOBY, Oroville, Cal. Filed May 11, 1896. Serial No. 591,165. (No model.)



Claim.—1. A chain-protector and dust-guard for gearing, comprising boxes or casings inclosing the terminal sprockets, one of said boxes having an open side, and a removable cover threaded into said open side and the other box having a removable sector-shaped piece and a U-shaped slide for locking it in place, said boxes also having hollow arms projecting toward each other, and communicating with the boxes, and with each other, whereby passages are formed for the chain.

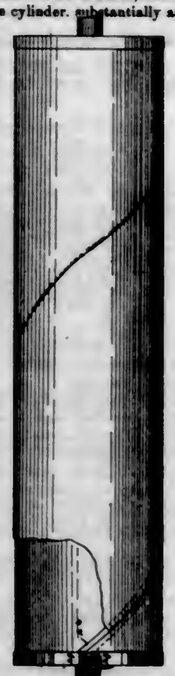
2. In a chain-protector and dust-guard having boxes or casings inclosing the terminal sprockets and provided with hollow arms forming passages for the chain, a removable sector-shaped piece forming a part of one terminal box or casing, and having grooves open on their inner sides, and a U-shaped slide having legs adapted to fit the grooves of the sector-shaped piece and overlap the joints between this piece and the main part of the box, and lock said piece in place.

3. In a chain-protector and dust-guard for gearing, and in combination with the front box or casing having a removable cover by which access may be had to its interior, and backwardly-extending hollow arms for the chain, the rear box or casing, having a removable sector-shaped piece, with a sliding lock seated in peripheral grooves in said piece and in the body of the box or casing, and adapted to secure said piece and to free it, whereby it may be removed, said box or casing having forwardly-projecting hollow arms for the chain, joining and communicating with the hollow arms of the front box or casing.

577,582. ABRADING-CYLINDER. FRANKLIN L. LANE and HARRISON J. MITCHELL, Beloit, Wis., assignors to the Berlin Machine Works, same place. Filed May 22, 1896. Serial No. 592,633. (No model.)

Claim.—1. An abrading-cylinder having an abrading material spirally wound thereon, and a longitudinally-movable clamping-ring over which the abrading material projects, and to which it is secured, and by the movement whereof the abrading material may be tightened, substantially as described.

2. An abrading-cylinder having an abrading material spirally wound thereon, and a rotatably and longitudinally movable clamping-ring, over which the abrading material projects, and to which it is secured, and by the movement whereof, the abrading material may be tightened upon the cylinder, substantially as described.



3. An abrading-cylinder having a spiral groove in its periphery and an abrading material spirally wound thereon, the edges of the spirals registering with the spiral groove, substantially as described.

4. An abrading-cylinder having a spiral groove in its periphery, an abrading material spirally wound thereon with the edges of the spirals overlapped above the groove, substantially as described.

5. An abrading-cylinder having a spiral groove in its periphery, abrading material spirally wound thereon with its edges registering with the groove, and its ends adjustably secured, substantially as described.

6. An abrading-cylinder having a spiral groove in its periphery, an abrading material spirally wound thereon, the turns of the spirals registering with the groove, a movable clamping-ring over which the abrading material projects and to which it is secured, and means for moving the clamping-ring, whereby to tighten the abrading material.

7. An abrading-cylinder having an abrading material covering the surface thereof, a clamping-ring over which the abrading material projects and a clamp, consisting of a flexible band or tape for clamping the abrading material to the ring, and means for tightening said tape, substantially as described.

8. An abrading-cylinder having an abrading material wound thereon, a clamping-ring over which the material projects, a clamp consisting of a flexible tape, strap or band having one end adapted for engagement with the clamping-ring and a rocking arm to which the other end of the tape is made fast and means for moving said arm, whereby to tighten the tape, substantially as described.

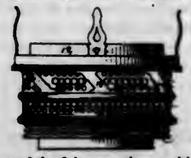
9. An abrading-cylinder having an abrading material spirally wound thereon and projecting beyond the end of the cylinder, a clamping ring, to the periphery of which the projecting end of the abrading material is secured, said clamping-ring having a threaded connection with a part carried by the cylinder, capable of rotation, but held against longitudinal movement and means for rotating said part, whereby to longitudinally move the clamping-ring, substantially as described.

10. An abrading-cylinder having an abrading material spirally wound thereon, a clamping-ring to which one end of the abrading material is secured, a sleeve having a threaded engagement with the clamping-ring and confined against longitudinal movement and a pinion carried by the cylinder and adapted to drive said sleeve, substantially as described.

11. An abrading-cylinder having an abrading material spirally wound thereon with its ends projecting beyond the ends of the cylinder, clamping-rings over which the ends of the abrading material project and to which they are secured, said rings having threaded hubs, sleeves having threaded engagement with said hubs, said sleeves being adapted to rotate independently of the cylinder but held from longitudinal movement, a shaft or rod passing through the cylinder and having pinions upon its ends for driving said sleeves and said shaft being adapted for rotation, whereby the clamping-rings may be simultaneously longitudinally moved, substantially as described.

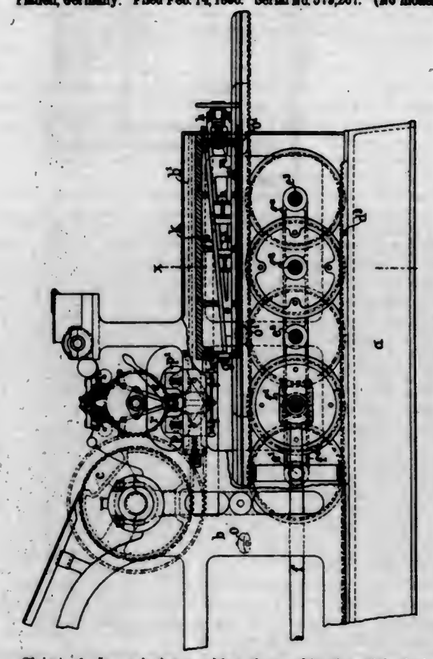
12. An abrading-cylinder having an abrading material spirally wound thereon and a shaft whose projected ends form journals for the cylinder, clamping-rings adapted to slide upon the shaft, and to which rings the projecting ends of the abrading material are secured, and means for imparting a longitudinal and partially rotary movement to said rings, substantially as and for the purpose described.

577,583. CHIMNEY-LIFT FOR CENTRAL-DRAFT LAMPS. FRANK REIFF, Bridgeport, Conn., assignor to The Bridgeport Brass Company, same place. Filed July 27, 1896. Serial No. 600,584. (No model.)



Claim.—In a central-draft burner the combination with a perforated body, and a vertically-adjustable chimney-gallery surrounding and moving upon said body and having an aperture for the passage of a match, of a perforated air-distributer within and of less diameter than said body, so as to leave an annular space between said distributer and said body, said distributer being also connected to said body at its upper edge, so that all the air passing through said body passes through the perforations in said distributer.

577,584. PRINTING-MACHINE. WILHELM M. ROCKSTROH, Plauen, Germany. Filed Feb. 14, 1896. Serial No. 579,267. (No model.)



Claim.—1. In a printing-machine, the combination of a printing-cylinder and stationary bearings therefor, a reciprocating form-box and prismatic guides therefor whereby it is prevented both from rising and from moving sidewise, a form-bed adjustable in said box toward and from the cylinder in parallel relation to itself and to the cylinder, means substantially as described for effecting such adjustment, a carriage for such form-box, a fixed foundation and three or more fixed supporting-ways for said carriage, wheels under said carriage for running on the several ways, the axles of said wheels rolling on the different ways being arranged as near as practicable to each other and those on each way being arranged between those on the next way so that the form is supported in the direction of its length and breadth at many places by the foundation and the carriage, substantially as herein set forth.

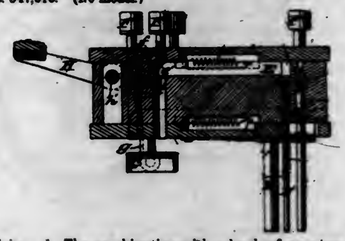
2. The combination of a form-box, a carriage for said form-box, three or more fixed ways for said carriage, wheels for said carriage running on said fixed ways those wheels on each way being arranged between those on the next way, and an impression-cylinder having internal helical strengthening-ribs crossing each other, all substantially as herein described.

3. The combination with a printing-machine cylinder, of a rotatable gripper-bar v pivoted to the cylinder near the periphery thereof, brackets v^3 on the said bar, grippers v^2 independently pivoted to said bar and prolonged backward beyond their pivots, and springs applied to the backward prolongations of the several grippers for pressing them upon the sheet, substantially as herein described.

4. The combination with a printing-machine cylinder, of blanket-clamping devices consisting of a fixed jaw and a spring-pressed pivoted jaw provided with a groove and a rib that engage with each other for receiving the blanket ends, and a spring-pressed clamping-jaw pivoted to the back of the first-named pivoted jaw and engaging therewith by grooves and ribs for receiving the ends of the oiled sheet, all substantially as herein described.

5. In a printing-machine of the kind herein described wherein the distributing-rollers which are in rolling contact with the large ink-cylinder when the machine is in use, the combination with the said rollers of separate movable bearings therefor, springs applied to said bearings to press the several rollers toward the said cylinder, a lever common to all of said bearings and mechanism substantially as herein described intermediate of said lever and bearings for withdrawing the several rollers at one time from contact with the cylinder, as herein described.

577,585. PIANO-MACHINE FOR PUNCHING JACQUARD CARDS. VERNON ROYLE, Paterson, N. J. Filed Apr. 30, 1895. Serial No. 547,616. (No model.)



Claim.—1. The combination with a bank of punches and means for engaging them with the work to be punched, of locking-bars for holding the punches in working adjustment, sliding, inclined-faced keys for throwing the locking-bars into locking adjustment at pleasure and means for returning the keys to their normal positions, substantially as set forth.

2. The combination with a bank of punches and means for engaging them with the work to be punched, of spring-actuated locking-bars for holding the punches in working adjustment, sliding, inclined-faced keys for throwing the locking-bars into locking adjustment at pleasure said keys being mounted to move in paths transverse to the movement of the locking-bars and means for returning the keys to their normal positions, substantially as set forth.

3. The combination with a bank of punches and means for engaging them with the work to be punched, of locking-bars for holding the punches in working adjustment, keys provided with a beveled portion and with a straight portion adjacent to the beveled portion arranged to throw and hold the locking-bars in position to lock the punches at pleasure and means for returning the keys to their normal positions, substantially as set forth.

4. The combination with a bank of punches and means for engaging them with the work to be punched, of spring-actuated locking-bars for holding the punches in working adjustment, retracting-springs engaged with the locking-bars keys having a beveled engagement with the bars for operating them and means for returning the keys to their normal positions, substantially as set forth.

5. The combination with a bank of punches and means for engaging them with the work to be punched, of horizontally-sliding locking-bars for holding the punches in working adjustment, vertically-sliding keys arranged to throw and hold the bars in position to lock the punches at pleasure and a reciprocating returning plate or bar under the control of the hand of the operator for simultaneously returning all the keys which have been depressed to their normal positions, substantially as set forth.

6. The combination with the banks of punches having their ends

at different elevations, and series of locking-bars, one series for each bank of punches and arranged at heights corresponding to the banks of punches, of sliding keys for operating said locking-bars, said keys being mounted to move in paths transverse to the movement of the locking-bars, retracting-springs engaged with the locking-bars and means for simultaneously returning the keys of the several banks to their normal positions, substantially as set forth.

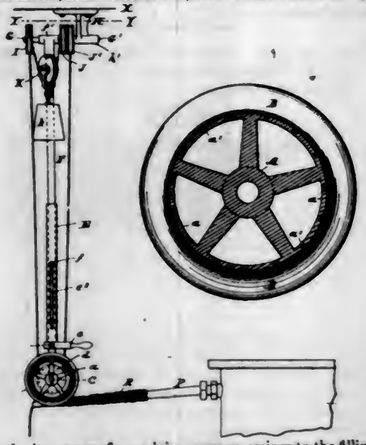
7. The combination with a bank of punches for punching the pattern-holes in a card and means for operating said punches, of larger punches for punching the lacing-holes in the card a sliding bar for simultaneously locking said larger punches in operative adjustment and means for operating said bar, substantially as set forth.

8. The combination with a bank of punches for punching pattern-holes in a card, of a plurality of sets of punches for punching lacing-holes in a card and means for bringing one or another of the sets into operative adjustment at pleasure to punch holes at different distances apart, substantially as set forth.

9. The combination with a plurality of sets of lacing-hole punches and means for engaging them with the work, of a sliding locking-bar for locking one or another of the sets in operative adjustment and keys for operating said locking-bar, substantially as set forth.

10. The combination with a plurality of sets of lacing-hole punches and means for engaging them with the work, of a sliding locking-bar, means for normally returning the bar to a position to release the several sets of punches and keys for moving the locking-bar in different directions to lock one or another of the sets in operative adjustment, substantially as set forth.

577,586. SAUSAGE-FILLING APPARATUS. WILLIAM F. SCHÖLAND, Manchester, N. H. Filed Dec. 12, 1896. Serial No. 615,461. (No model.)

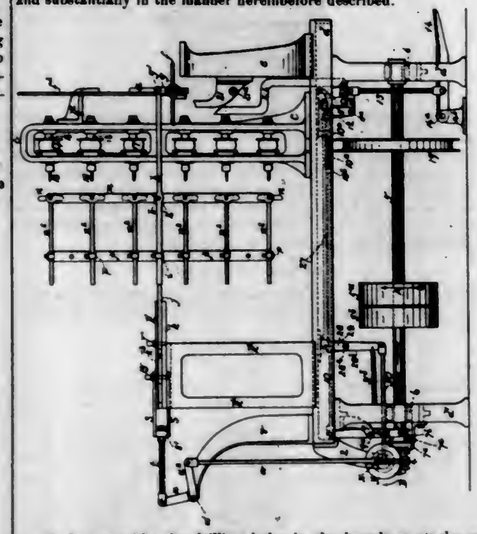


Claim.—1. As a means for applying sausage-casings to the filling-tubes of sausage-stuffing machines, the combination with said stuffing-tubes of one or more rolls having a grooved periphery of flexible material said rolls being mounted on a horizontal shaft carrying a belt-pulley, the said shaft and belt-pulley, a yoked bearing for said shaft, a vertical rod having one end attached to said yoked bearing and the other end loosely mounted upon a shaft carrying belt-pulleys, the said belt-pulleys, a counter-shaft and pulleys, and a power-belt connecting the latter pulleys with the belt-pulley on the shaft carrying said feeding-pulleys for the sausage-casings, substantially for the purpose set forth.

2. The combination with the filling-tubes of a sausage-stuffing machine, of one or more rolls having a grooved periphery of flexible material said rolls being mounted on a horizontal shaft carrying a belt-pulley, the said shaft and belt-pulley, a yoked bearing for said shaft, a vertically-adjustable rod connecting said yoked bearing with a shaft upon which it is loosely mounted, belt-pulleys loosely mounted on the latter shaft, a counter-shaft and pulleys, and a power-belt connecting the pulleys of shafts G G' with the belt-pulley on shaft C, substantially for the purpose set forth.

577,587. MACHINERY FOR DRILLING HOLES IN STOCKS, &c., OF BRUSHES OR BROOMS. GEORGE SHAW, THOMAS SHAW, and JOHN P. DITCHFIELD, Ashton-under-Lyne, England. Filed Mar. 13, 1896. Serial No. 583,063. (No model.) Patented in England May 9, 1894, No. 9,157; in France May 9, 1895, No. 247,258, and in Austria Nov. 24, 1895, No. 4,451.

Claim.—1. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, a templet *a*, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks to be drilled, an adjustable stud 44 to act as a stop to such stop-plate 42, a shaft *z* carrying a disk provided with a crank-pin to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine and means to connect the said crank-pin to the said plate *j*, said means consisting partly of a stud 15, passed through a curved slot q^3 in a plate *q*, secured to the said plate *j*, all arranged, employed, and operating for the purposes and substantially in the manner hereinbefore described.



2. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a*, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks to be drilled, an adjustable stud 44 to act as a stop to such stop-plate 42, a shaft *z* carrying a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine and means to connect the said crank-pin to the said plate *j*, said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

3. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, a templet *a*, means for moving such templet *a*, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held, and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks to be drilled, an adjustable stud 44 to act as a stop to such stop-plate 42, a shaft *z* carrying a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j*, said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

4. In a machine for drilling holes in the boards or stocks of brushes and brooms the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a*, means for moving such templet *a*, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held, and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks to be drilled, an adjustable stud 44 to act as a stop to such stop-plate 42, a shaft *z* carrying a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j*, said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

5. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, a templet *a*, reciprocating jaws 22 23 to move such templet vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, means to move the said plate *j* backward and forward, and means to move the said jaws 22 23, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

6. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, a templet *a*, reciprocating jaws 22 23 to move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, means to move the said plate *j* backward and forward, and means to move the said jaws 22 23, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

7. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a*, reciprocating jaws 22 23 to move such templet *a* vertically and laterally, rods *h* moved vertically and laterally, by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, means to move the said plate *j* backward and forward, and means to move the said jaws 22 23, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

8. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a*, reciprocating jaws 22 23 to move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks being drilled or bored, an adjustable stud 44 to act as a stop to such stop-plate 42, means to move the said plate *j* backward and forward and means to move the said jaws 22 23, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

9. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, a templet *a* reciprocating jaws 22 23 to move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, a shaft *z* carrying a cam 32 to actuate the said jaws 22 23 and a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, and a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j*, said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

10. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, a templet *a* reciprocating jaws 22 23 to move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, a shaft *z* carrying a cam 32 to actuate the said jaws 22 23 and a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, and a clutch to bring the said shaft into connection as required with the driving-shaft 5 of the machine and means to connect the said crank-pin to the said plate *j* said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

11. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed, in passing around such pulley 19 a templet *a*, reciprocating jaws 22 23 to move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be bored or drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, a shaft *z* carrying a cam

32 to actuate the said jaws 22 23 and a disk provided with a crank-pin to move the said plate *j* backward and forward and a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j*, said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

12. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19 a templet *a*, reciprocating jaws 22 23 to move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be bored or drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks to be drilled, an adjustable stud 44 to act as a stop to such stop-plate 42, a shaft *z* carrying a cam 32 to actuate the said jaws 22 23 and a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection when required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j* said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

13. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, a templet *a*, formed of pins a^3 mounted and capable of being moved in boards, reciprocating jaws 22 23 to act upon the said pins a^3 when pressed into the space between such jaws 22 23 and so move the said templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, means to move the said plate *j* backward and forward, and means to move the said jaws 22 23, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

14. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, a templet *a* formed of pins a^3 mounted and capable of being moved in boards, reciprocating jaws 22 23 to act upon the said pins a^3 when pressed into the space between such jaws 22 23 and so move such templet vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush board or stocks to be turned when moved vertically, means to support and guide the said plate *j*, a shaft *z* carrying a cam 32 to actuate the said jaws 22 23 and a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j* said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

15. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, a templet *a* formed of pins a^3 mounted and capable of being moved in boards, reciprocating jaws 22 23 to act upon the said pins a^3 when pressed into the space between such jaws 22 23 and so move such templet vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, means to move the said plate *j* backward and forward, and means to move the said jaws 22 23, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

16. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a* formed of pins a^3 mounted and capable of being moved in boards, reciprocating jaws 22 23 to act upon the said pins a^3 when pressed into the space between such jaws 22 23 and so move the said templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, means to move the said plate *j* backward and forward and means to move the said jaws 22 23 all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

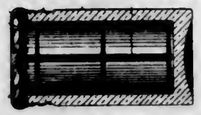
17. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a* formed of pins a^3 mounted and capable of being moved in boards, reciprocating jaws 22 23 to act upon the said pins a^3 when pressed into the space between such jaws 22 23 and so move the said templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j* an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks being drilled, an adjustable stud 44 to act as a stop to such stop-plate 42, means to move the said plate *j* backward and forward and means to move the said jaws 22 23, all arranged employed and operating for the purposes and substantially in the manner hereinbefore described.

18. In a machine for drilling holes in the boards or stocks of brushes and brooms, the combination of a number of drills 18, capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a* formed of pins a^3 mounted and capable of being moved in boards, reciprocating jaws 22 23 to act upon the said pins a^3 when pressed into the space between such jaws 22 23 and so move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, a shaft *z* carrying a cam 32 to actuate the said jaws 22 23 and a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j*, said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all

arranged, employed and operating for the purposes and substantially in the manner hereinbefore described.

19. In a machine for drilling holes in the boards or stocks of brushes and brooms the combination of a number of drills 18 capable of revolution but incapable of longitudinal movement, all receiving motion from one pulley 19 by means of separate belts superimposed in passing around such pulley 19, a templet *a* formed of pins a^3 mounted and capable of being moved in boards, reciprocating jaws 22 23 to act upon the said pins a^3 when pressed into the space between such jaws 22 23 and so move such templet *a* vertically and laterally, rods *h* moved vertically and laterally by means of such templet *a*, holders or sets of parts for holding brush boards or stocks to be bored or drilled equal in number to the drills 18 and supported upon the rods *h* so as to be moved vertically and laterally thereby, a plate *j* connected to the said rods *h* and provided with arms *j'* in which are provided studs formed with eyes which respectively embrace arms connected to the apparatus by which the brush boards or stocks to be drilled are held and so cause such brush boards or stocks to be turned when moved vertically, means to support and guide the said plate *j*, an adjustable stop-plate 42 supported by the rods *h* and moved similarly to the brush boards or stocks to be drilled, an adjustable stud 44 to act as a stop to such stop-plate 42, a shaft *z* carrying a cam 32 to actuate the said jaws 22 23 and a disk provided with a crank-pin *x* to move the said plate *j* backward and forward, a clutch to bring the said shaft *z* into connection as required with the driving-shaft 5 of the machine, and means to connect the said crank-pin to the said plate *j* said means consisting partly of a stud 15 passed through a curved slot q^3 in a plate *q* secured to the said plate *j*, all arranged, employed and operating for the purposes and substantially in the manner hereinbefore described

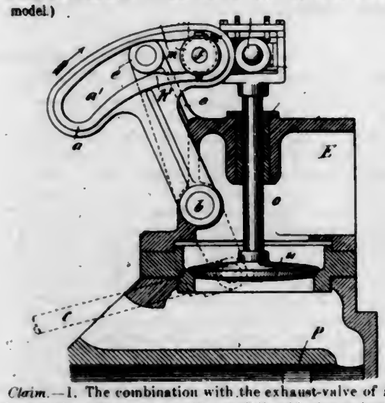
577,588. SALT-BOX. WILLIAM R. SIMONDS, Canton, Conn. Filed Sept. 12, 1896. Serial No. 605,555. (No model.)



Claim.—1. The combination of the screw-threaded body of the vessel, the screw-threaded annulus, the perforated cover rotarily attached to the annulus, and the stirrer fixedly attached to the cover, all substantially as described and for the purposes set forth.

2. The combination of the screw-threaded body of the vessel, the screw-threaded annulus, the perforated cover rotarily attached to the annulus, and the stationary scraper-bars, all substantially as described and for the purposes set forth.

577,589. VALVE FOR EXPLOSIVE-ENGINES. ERNEST L. TEUBERT, New Castle, Pa. Filed Mar. 16, 1896. Serial No. 583,416. (No model.)



Claim.—1. The combination with the exhaust-valve of a gas or gasolene engine, of gear comprising a sliding block set in the head of the valve, a pin set in the sliding block, a bracket secured to the valve-chest, a lever hinged to the bracket and having its other end pivoted on the pin set in the sliding block, a bolt set in the center of the lever, a roller set on the bolt and secured thereon by a washer and a cross-pin, an oscillating cam, having a curved slot, composed of two segments of different diameters, connected by a short step, the roller engaging in the slot of the oscillating cam, actuated by an eccentric and a rod from the main shaft, and the lever, thus actuated by the oscillations of the cam, opening and closing the valve with a quick motion and holding it at the same time under control so as to prevent its hammering against the seat.

2. In a valve-gear, comprising an oscillating cam, adapted to be actuated from the main shaft of the engine and having an appropriately-curved slot: a lifting-lever, hinged to a bracket, a bolt, set in center of the lever, and secured in its place by a screw-nut, a roller, set on the projecting end of the bolt and secured thereto by a pin and a washer, the combination with the valve of a vertically-adjustable frame, screws sustaining the frame in position, a sliding block sliding therein, and adapted to be connected by a pin to the lifting-lever.

577,590. BOTTLE. ALFRED TURNER, Horton's, Pa. Filed July 23, 1896. Serial No. 600,188. (No model.)



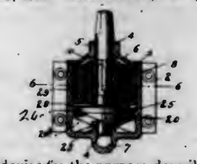
Claim.—1. In a non-refillable bottle, the combination with a bottle-neck provided with a lug, of a cap for said neck which is provided with a lug or ear, said lugs or ears being adapted for fusing together.

2. In a non-refillable bottle, the combination with a bottle-neck provided with a lug or ear having a reduced or easily-frangible portion, of a cap for said neck which is provided with an ear also having a reduced portion, said ears being adapted for fusing together.

3. In a non-refillable bottle, the combination with a bottle-neck provided with a lug or ear, of a cork or stopper located in the neck, and an upper cap which covers the stopper, said cap being provided with a lug or ear, said ears being adapted for fusing together.

4. In a non-refillable bottle, the combination with a bottle-neck provided with a lug or ear, of a cork or stopper located in the neck, a chain connecting said stopper with the neck, and a cap covering the stopper and provided with a lug or ear, said ears being adapted for fusing together.

577,591. DOOR CHECK AND CLOSER. DAVID G. WELLS, Chicago, Ill. Filed Oct. 23, 1895. Serial No. 566,654. (No model.)



Claim.—1. A device for the purpose described, having in combination a shell provided with a chamber for containing a quantity of liquid and being hermetically closed at one end and having a contraction or choke located around its wall near its opposite end: a reciprocating plunger located in said shell between said choke and closed end and being of less diameter than the main portion of said chamber between said choke and closed end but of about the same diameter as said chamber at said contraction or choke, whereby the plunger will substantially close the chamber at said contraction or choke; a stem to which said plunger is secured; means for forcing said plunger toward the closed end of said chamber and away from said choke when the door is opened; and means operatively connected with the door for forcing said plunger away from said closed end of the chamber and toward said contraction or choke when the door closes; whereby the opening movement of the door will force the plunger down in the liquid and cause the liquid to escape upwardly past the plunger and occupy a position between the plunger and the choke, and the closing movement of the door will cause said plunger to move away from the closed end of the chamber and rapidly approach said contraction or choke throughout the greater part of the closing movement of the door and thereby cause the liquid to be sucked toward the closed end of the chamber and away from said choke, and the retardation of the door will be increased as the plunger approaches the choke or contraction and the door thus allowed to close rapidly throughout the greater portion of its movement and very slowly through the final portion of its movement, substantially as set forth.

2. A device for the purpose described having in combination a

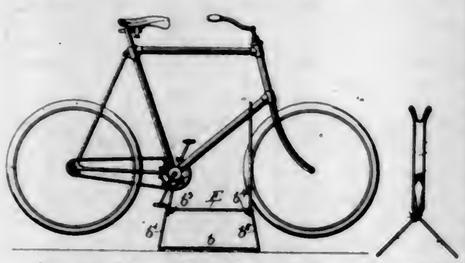
shell having inclines and a choke or contracted portion, a vertically-movable stem in said shell, having a shoulder, a spring coiled around said stem and resting upon said shoulder at one end and being fixed at its other end, a plunger arranged on said stem in said shell below said choke and having bottom inclines complementary in shape to the said inclines in the shell, and means for connecting said shell and stem to the jamb and door, substantially as set forth.

3. A device for the purpose described having in combination a shell having inclines in its bottom and a choke or contraction arranged around the wall of said shell above said inclines, a plunger arranged in said shell and having bottom inclines corresponding to said first inclines and resting thereon, and the upper edge of said plunger being beveled or conical, a stem arranged in said shell and being secured to said plunger, a spring coiled on said stem and secured to said shell, and means for rotatively connecting said stem and shell to the door and jamb, substantially as set forth.

4. A device for the purpose described having in combination a shell provided with inclines in its bottom and having the central socket 7 and extension 23, a plunger arranged in said shell and having inclines corresponding to said first inclines and being provided with the recess 24 for receiving said extension 23, a stem projecting through said plunger and recess and having one end fitted in said socket 7, said shell being provided with a choke or contraction above said plunger, a spring for rotating said stem and means for connecting said stem and shell to the jamb and door, substantially as set forth.

5. A device for the purpose described having in combination a shell, a stem located in said shell and having a series of vertical grooves forming teeth undercut on both sides, a spring coiled within said shell around said stem and having a struck-up tongue engaging with said teeth whereby the tension of the spring may be varied and the spring made to act in either direction, and means for connecting said stem and shell with the door and jamb, substantially as set forth.

577,592. BICYCLE-SUPPORTING STAND. JOHN L. BENTON, New Haven, Conn., assignor of one-half to Charles R. Bishop, same place. Filed Dec. 11, 1896. Serial No. 615,269. (No model.)



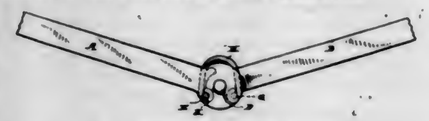
Claim.—1. A bicycle-supporting stand comprising a suitable base consisting of a stationary section and a swinging section, a rear upright uprising from the base in position to engage the crank-hanger, and a front upright of loop form uprising from the base, adapted to engage the front lower brace-tube and also the steering-wheel of the bicycle, substantially as set forth.

2. A bicycle-supporting stand comprising a suitable base consisting of a stationary section and a swinging section, a rear upright uprising from the base, adapted to engage the crank-hanger, a front upright of loop form uprising from the base, in position to engage the front lower brace-tube and the steering-wheel of the bicycle, and a connecting-rod rigidly connecting the front and rear uprights at the top of the base, substantially as set forth.

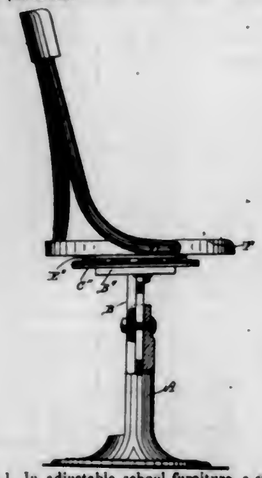
3. A bicycle-supporting stand comprising a suitable base consisting of a stationary section and a swinging section, a rear upright uprising from the stationary section in position to engage the crank-hanger, a front upright of loop form uprising from the stationary section in position to engage the front lower brace-tube and the steering-wheel of the bicycle, and a rod rigidly connecting the front and rear uprights at the top of the base, the stationary section, the front upright and the rear upright being formed of a single strip of wire, substantially as set forth.

577,593. SPRING-HINGE. GEORGE S. BRONSON and HOMER D. BRONSON, Beacon Falls, Conn., assignors to the Homer D. Bronson Company, same place. Filed Oct. 21, 1896. Serial No. 609,433. (No model.)

Claim.—A hinge consisting of leaves lying parallel with each other and a plate lying parallel with the leaves and secured to one of said leaves by studs D and E, one of said leaves being pivoted on stud D and being provided with an opening through which stud E passes and with a stud G and a bow-spring the ends of which are attached to studs E and G substantially as described.



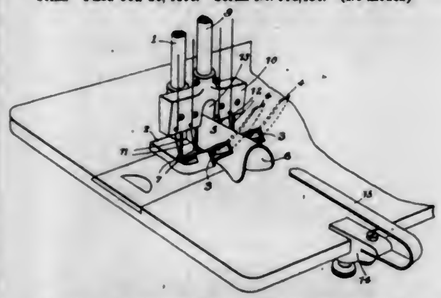
577,594. ADJUSTABLE SUPPORT FOR SCHOOL FURNITURE. JAMES H. BUTLER, Somerville, Mass. Filed June 29, 1896. Serial No. 597,345. (No model.)



Claim.—1. In adjustable school furniture, a stationary base A, and a shank B vertically adjustable thereon, said shank having at its upper end a cross-bar B' and guideways B'', B³, combined with a hub C having slotted bars C'', C³, said bars being inclined or wedge-shaped in opposite direction, and fastening devices for securing said bars in an adjustable manner to their guideways substantially as and for the purpose set forth.

2. In adjustable school furniture the herein-described means for adjusting the furniture in a lateral direction consisting of guideways B'', B³ forming a part of the furniture-shank combined with slotted bars C'', C³, secured to the furniture said bars being inclined in opposite direction and fastening devices for securing said bars in an adjustable manner to their respective guideways substantially as and for the purpose set forth.

577,595. SEWING-MACHINE. GIDEON A. CLOSE, Bridgeport, Conn. Filed Oct. 26, 1896. Serial No. 610,131. (No model.)



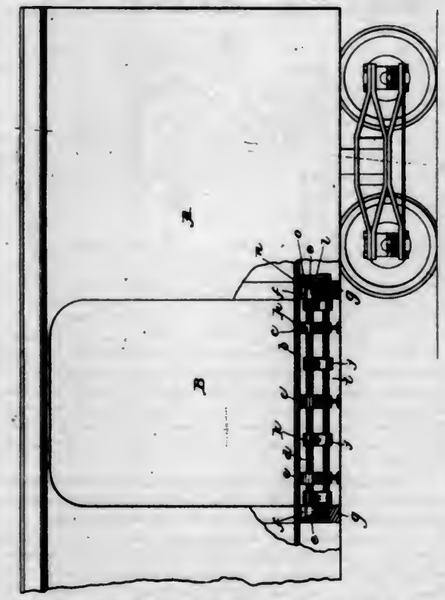
Claim.—1. In a sewing-machine employing a presser-foot and a needle-head carrying gangs of needles, the vertically-disposed pocket midway between the sides of the presser-foot and said gangs of needles, the bottom of said pocket being flush with the bottom of the presser-foot, while the passage-way afforded by said pocket is plain and unobstructed throughout its length substantially as set forth.

2. In a sewing-machine, the combination of the presser-foot carrying the vertically-disposed pocket midway between its sides the bottom of said pocket being flush with the bottom of the presser-foot, while the passage-way afforded by said pocket is plain and unobstructed throughout its length the needle-head carrying the gangs of needles each gang adapted to operate through the presser-foot on opposite sides of said pocket, and means for gathering the goods through which the stitches are passed within said pocket, substantially as set forth.

3. In a sewing-machine employing a presser-foot and a needle-head carrying separate series of needles adapted to effect parallel rows of stitching, the bell-mouthed vertically-disposed pocket carried by the presser-foot midway between each series of needles and having its bottom flush with the bottom of the presser-foot whereby when the goods to be stitched through are gathered up within the bell-mouth of said pocket and drawn through the latter by the sewing-machine feed the lines of stitching of each series of needles will diverge, substantially as set forth.

4. The combination of the needle-head carrying separate gangs of needles, the presser-foot, the vertically-disposed pocket supported by said foot midway between said gangs of needles and having its bottom flush with the bottom of the presser-foot and the spring-actuated horizontally-disposed tongue extending toward said pocket, substantially as set forth.

577,596. RAILWAY-CAR. WILLIAM M. COLE, Concord, Mass. Filed June 22, 1896. Serial No. 596,384. (No model.)



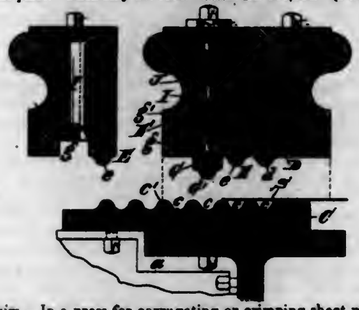
Claim.—1. In a car or similar vehicle, the combination with a movable platform, adapted to rest normally on the car-floor, a series of parallel shafts arranged longitudinally of the car, and a series of cams on each shaft, of a series of shafts parallel to the aforesaid shafts and arranged directly above the same, said last-mentioned series of shafts being vertically movable in their bearings and being each equipped with rollers resting on the said cams, a series of wheels on each of said last-mentioned shafts arranged to extend into slots in the floor of the car, and means for rocking said cam-supporting shafts, to rock said cams, thereby elevating the series of wheels until the platform is lifted from the floor of the car.

2. In a car or similar vehicle, the combination with a movable platform, a series of parallel shafts beneath the floor of the car, and wheels or rollers on each shaft, of cam-supporting shafts for elevating said shafts simultaneously to lift the platform from the floor, a horizontally-pivoted lever for rocking the cam-supporting shafts, and cams on the cam-supporting shafts, so shaped that the lever will remain in either of its two positions for elevating or depressing the roller-supporting shafts.

3. A freight or baggage railway-car having a door intermediate of its ends, interior compartments on either side of the door for the reception of baggage, a series of shafts arranged longitudinally of the car beneath the floor thereof and in front of the door, rollers or wheels on the shafts normally lying beneath the surface of the car-floor but adapted to be elevated in slots in the car-floor so as to have their peripheries project above the surface of the car-floor, a lever arranged in a slot in the car-floor for elevating the shafts simultaneously, and a movable platform of a width less than that of the door and resting normally on the car-floor but adapted to be raised therefrom by the rollers on the shafts, all for the purposes set forth.

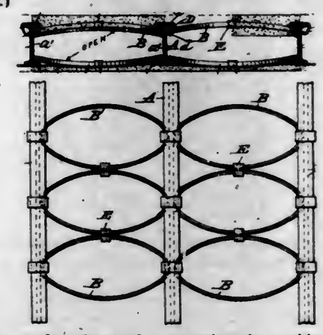
4. The combination with a movable platform, of a series of vertically-movable horizontally-arranged shafts, rollers or wheels on said shafts, a vertically stationary shaft under each of the first said shafts, cams on the vertically stationary shafts adapted to act upon the first said shafts, cranks on the cam-shafts, and a lever pivoted to the floor of the car and connecting with the said cranks for oscillating the cams, for the purpose set forth.

577,597. PRESSURE-DIES FOR CORRUGATING SHEET METAL. CHARLES J. COLLINS, Cincinnati, Ohio, assignor to J. M. Robinson & Co., same place. Filed May 27, 1896. Serial No. 593,214. (No model.)



Claim.—In a press for corrugating or crimping sheet metal, the combination of a rigid lower die having three or more formations thereon; a pair of upper dies mounted on independent vertically-moving beams or plungers and each adapted to coact with a separate corrugation of the lower die to form complete or whole crimps or corrugations in the metal at each downstroke thereof; and a suitably-formed, spring-controlled presser-bar engaging a longitudinal guide-way in the fore-die plunger-beam and supported on vertical bolts and bushings in the said fore plunger; substantially as and for the purpose herein set forth.

577,598. FIREPROOF CONSTRUCTION. ALEXANDER R. FORDYCE, Newark, N. J. Filed Oct. 20, 1896. Serial No. 609,453. (No model.)



Claim.—1. In a fireproof construction, the combination of the supports, and the hoops mounted thereon.

2. In a fireproof construction, the combination of the beams having flanges, and the hoops mounted on the said flanges.

3. In a fireproof construction, the combination of the supports and the hoops mounted thereon in two parallel sets, the hoops of one set breaking joint with the hoops of the other set.

4. In a fireproof construction, the combination of the supports, the hoops mounted thereon, and the clips securing said hoops together.

5. In a fireproof construction, the combination of the supports, the hoops, and the haugers securing said hoops to said supports.

6. In a fireproof construction, the combination of the supports, and the hoops having slanting sides mounted thereon.

7. In a fireproof construction, the combination of the supports, and the elliptical hoops mounted thereon.

8. In a fireproof construction, the combination of the supports, and the elliptical hoops having inclined sides mounted thereon.

9. In a fireproof construction, the combination of the supports and the elliptical arched hoops mounted thereon.

10. In a fireproof construction, the combination of the supports, the hoops mounted thereon, and the auxiliary supports carried by the main supports and connected with said hoops.

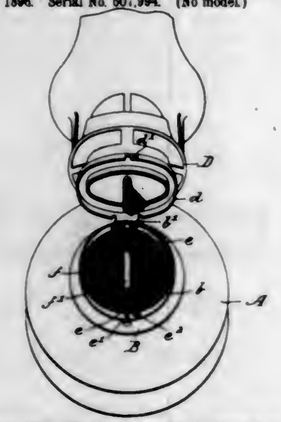
577,599. LACING FOR ARTICLES OF WEARING-APPAREL. CALVIN E. FOSBURGH, Brooklyn, N. Y., assignor of one-half to Edgar Charles Fosburgh, Norfolk, Va. Filed May 20, 1896. Serial No. 592,275. (No model.)



Claim.—1. The combination with an article of wearing-apparel having an opening, of a lacing for securing the opening, strips arranged inward of the opening, so that the edges of the opening will constitute flaps, and pulley-blocks secured to such strips and receiving the lacing, substantially as specified.

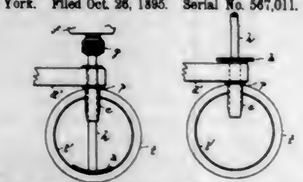
2. The combination with an article of wearing-apparel having an opening, of a lacing for securing the opening, strips arranged inward of the opening so that the edges of the opening will constitute flaps, and pulley-blocks secured to such strips and receiving the lacing, the rivets d' d^2 securing the pulley-blocks to the said strips, and the rivet d^3 supporting the pulleys and securing the pulley-block to the edges of the flap-like edges of the said opening, substantially as specified.

577,600. LAMP ATTACHMENT. ALBERT A. FREEMAN, Philadelphia, Pa., assignor to The Specialty Novelty Company, same place. Filed Oct. 6, 1896. Serial No. 607,994. (No model.)



Claim.—In a lamp attachment, a cap *b*, adapted to be secured to the lamp-fount, a sleeve *d*, carrying the burner-piece and directly hinged to said cap, and a fine-gauze partition *f*, secured to said cap, said partition *f*, having a slot *f''*, through which the wick of the lamp is adapted to pass before it enters the burner-piece, said slot being sufficiently small to squeeze said wick in its passage through the partition, substantially as described.

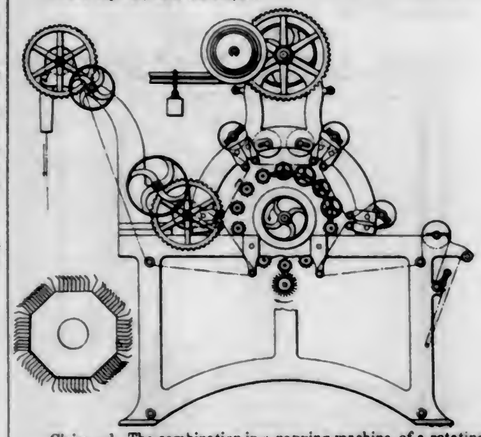
577,601. METHOD OF PATCHING PNEUMATIC TIRES AND IMPLEMENT THEREFOR. CHARLES E. GREEN, Chicago, Ill., assignor, by mesne assignments, to the New York Bicycle Equipment Company, of New York. Filed Oct. 26, 1895. Serial No. 567,011. (No model.)



Claim.—1. The described method of patching or closing a puncture in a pneumatic tire, said method consisting in introducing into the puncture a rigid pipe or duct until its inner end extends into the air-chamber of the tire, forcing through the pipe or duct a flexible patch by a blunt implement, as specified, holding the patch against the wall of the air-chamber opposite the puncture while spreading cement or solvent thereon, and then pressing the walls of the tire together, withdrawing the implement and causing the patch to adhere to the punctured surface, substantially as described.

2. The specified means for repairing punctures in pneumatic tires, said means comprising in combination a pipe or duct in two parts, each part attached to a handle and the two handles being hinged together, whereby on insertion of the pipe or duct in a puncture the latter can be distended, and a tapering guide-pin, inclosed in and having its point projecting beyond the inner end of said pipe or duct during the insertion thereof, and adapted to be withdrawn leaving the latter within the air-chamber of the tire, substantially as described.

577,602. MEANS FOR NAPPING FABRICS. NICOLAS H. GROSSELIN, Sedan, France, assignor to Charles Heap, Rochdale, England. Filed July 23, 1895. Serial No. 556,943. (No model.) Patented in France Sept. 30, 1895, No. 247,681.



Claim.—1. The combination in a napping-machine, of a rotating drum, a series of rolls carried by said drum each provided at different points with teeth which in cross-section of the roll terminate at different distances from its center, and means for driving the rolls whereby different parts of the napping-surface of each roll travel at different speeds during each revolution of the roll, substantially as described.

2. The combination in a napping-machine, of a rotating drum and a series of non-cylindrical rolls, each of the same cross-sectional dimensions throughout its length substantially as described.

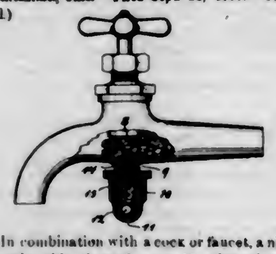
3. The combination in a napping-machine, of a rotating drum, a series of non-cylindrical rolls each of uniform diameter systematically arranged, and means for turning the rolls to vary the speed of each during its rotation, substantially as described.

4. A non-cylindrical roll for napping-machines provided with teeth, the ends of which throughout the length of the roll coincide with different flat planes at different parts of the periphery, substantially as described.

5. A roll for napping-machines provided with cards, the teeth of which terminate upon the lines of a prism, substantially as described.

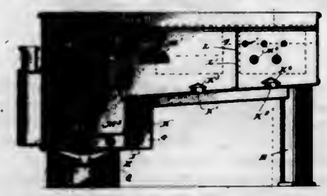
6. A roll for napping-machines provided at different points with teeth which in cross-section of the roll terminate at different distances from its center, substantially as described.

577,603. ADJUSTABLE SELF-DRAINING COCK. FRANK G. HAMER, Cincinnati, Ohio. Filed Sept. 21, 1895. Serial No. 563,341. (No model.)



Claim.—In combination with a cock or faucet, a nipple 9 depending from the under side thereof, a cap 10, adapted to be connected thereto, a perforation 11, in the latter, a valve 12, occupying the interior thereof, which interior forms the valve-chamber therefor and a screw 14, threaded and fitted within the interior of nipple 9, acting as a guard to prevent valve 12, from leaving its chamber as well as controlling by its adjustment the outpour from the cock, said screw cut out to permit communication between the spaces at its ends.

577,604. COMBINATION STEAM-COOKER. JOHN A. HATTER, Vicksburg, Miss., assignor of one-half to Lester H. Boyd, same place. Filed Sept. 18, 1896. Serial No. 606,256. (No model.)



Claim.—1. An improved steam-cooker having soup and coffee compartments at one end, the opposite end being essentially trough-shaped and adapted to hold a series of saucepans, a cover and a steam-pipe leading into the trough-shaped portion of the cooker the condensed steam being adapted to drop back into the coffee and soup compartments substantially as shown and described.

2. An improved steam-cooker, having soup and coffee compartments at one end, the opposite end being essentially trough-shaped, said trough-shaped portion having a double bottom, a steam-pipe leading into the spaces between the bottom and a series of saucepans arranged in the trough-shaped portion, said trough-shaped portion having openings at the bottom whereby the condensed steam is discharged into the soup and coffee compartments, and the cover and means for securing the same in place substantially as shown and described.

3. In a steam-cooker, the combination with a suitable receptacle having a soup-compartment near one end and a coffee-urn arranged below the soup-receptacle, of the condensing-chamber arranged upon the side of the receptacle, the steam-pipe leading into the space between the soup and coffee compartments, the flues for conducting the steam from the said steam-space through the bottom of the receptacle, substantially as shown and described.

4. In a steam-cooker, the combination with a receptacle having a soup-compartment at the forward end, the coffee-urn arranged below the soup-compartment, the condensing-chamber arranged upon the side of the receptacle, the openings between the said receptacle and condenser, the steam-pipe leading into the steam-space and the flues for conducting the steam from the said steam-space up through the bottom of the receptacle, substantially as shown and described.

5. In a steam-cooker, the combination with the receptacle having a soup compartment and coffee-urn, of the condensing-chamber arranged at one side of the cooking-receptacle, the steam pipe and generator, the coffee-holding bag arranged within the urn and means for conducting the condensed steam into the said coffee-holding bag, substantially as shown and described.

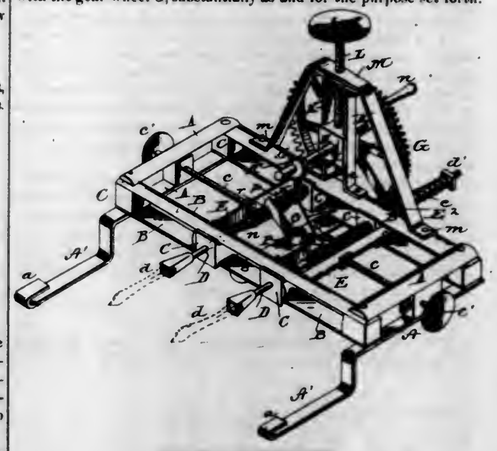
6. In a steam-cooker, the combination with the receptacle, of the supporting-rack, the pans arranged within the said rack, the coffee-urn arranged beneath the soup-compartment, of the receptacle, the condensing-chamber arranged at the side of the receptacle, the steam-pipe and flue, said steam-space having openings leading into the condensing-chamber and flues all arranged and adapted to operate substantially as shown and described.

577,605. PORTABLE DRILL FOR RAILROAD-RAILS. MARTIN T. HURLEY, Peoria, Ill. Filed Apr. 7, 1896. Serial No. 586,555. (No model.)

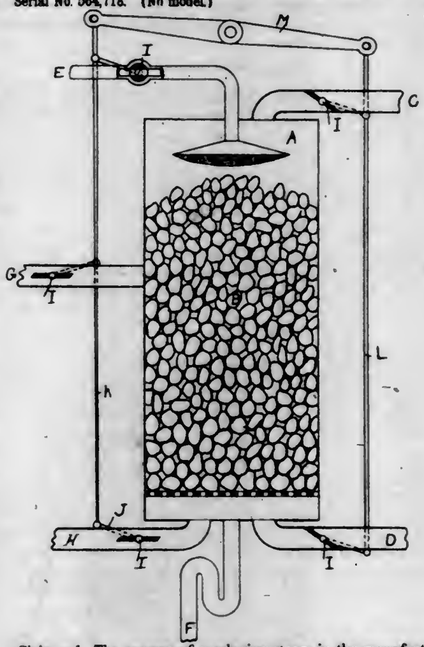
Claim.—1. The frame A provided with the drill-shaft D, having the threaded portion n', upon which is mounted a sleeve N, having longitudinal recesses n^3 and the stud P, to which is pivoted a pawl O, in combination with the shaft H, having the eccentric S, and eccentric-strap T connected by a rod *p* to the pawl O, substantially as and for the purpose specified.

2. The frame A provided with the drill-shafts D D, each having driving-gears E^2 E^2 and the threaded portion n', upon which are mounted the sleeves N N' having longitudinal recesses n^3, in combination with the shaft H provided with the gear-wheel G and eccentric S, eccentric-strap T, and rods *p p* connected to the outer ends of the pawls O O' fulcrumed in the stud P, substantially as and for the purpose set forth.

3. The frame A provided with the extensions A' terminating in integral clamps *a a*, the drill-shafts D D journaled in said frame and provided with slots E', the driving-gears E^2 E^2, having pins *e'*, the springs *e* and nuts *d'*, and having threaded portions n' on which are mounted the sleeves N N', in combination with the shaft H provided with the gear-wheel G, substantially as and for the purpose set forth.



577,606. PRODUCTION OF STEAM FOR USE IN GAS-PRODUCERS. LUDWIG MOND, Northwich, England. Filed Oct. 5, 1895. Serial No. 564,718. (No model.)



Claim.—1. The process of producing steam in the manufacture of gas in gas-producers, which consists in gasifying fuel by partial combustion with a mixture of hot air and steam, separating the ammonia, using the heat of the partial combustion to heat the said mixture of air and steam, utilizing the gas by explosion or combustion for motive power and passing the hot exhaust-gases alternately with water and the aforesaid mixture of hot air and steam through a regenerator; whereby the mixture is sufficiently heated and loaded with moisture to serve the purpose of gasifying the fuel in gas-producers under the most favorable conditions for obtaining ammonia as a by-product.

2. The process of utilizing the heat of refuse gases, which consists in passing the said gases and water alternately in the same direction past a large surface of refractory material and passing moist air in the reverse direction while the water is passing.

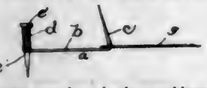
3. The improvement in the process of utilizing the heat in the hot exhaust-gases of a gas-engine, which consists in passing the said

gases and water alternately over an extended surface of refractory material, passing air more or less saturated with moisture over that surface at the same time as the water but in a contrary direction, and leading off the mixed steam and air for use in gas-production.

4. A chamber loosely stacked with refractory materials in combination with the exhaust-pipe from a gas-motor entering above, exit-pipe for said gases escaping below, a water-supply entering also above, an escape-pipe for surplus water below, and escape for steam near the top, and a valve mechanism, whereby the water and the exhaust-gases are (alternately with each other) passed through the chamber and cut-off and the steam-escape is opened during the passage of the water and cut off therewith.

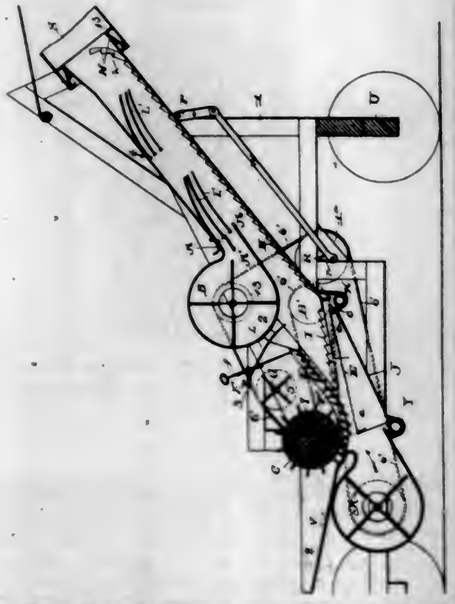
5. A chamber loosely stacked with refractory material, provided with an entrance at the top and exit below for hot gases, an entrance above and an exit below for the passage of water, an entrance below and an exit near the top for the passage of air or a mixture of air and steam and means for alternating the passage of the hot gases with the simultaneous passage of the air and water aforesaid, substantially as and for the purposes described.

577,607. CURTAIN-STRETCHER PIN. JAMES P. MCALISTER, Columbus, Ohio. Filed Jan. 18, 1896. Serial No. 575,947. (No model.)



Claim.—In a curtain-stretcher pin the combination of a pin-body consisting of a horizontal portion *b*, an upwardly and outwardly inclined portion *c* and a vertical coiled portion *d* at the outer end of said pin-body, of a tack *e* adapted to be inserted into and through said coil *d* and removably connected therewith, substantially as and for the purpose specified.

577,608. GRAIN THRESHER AND SEPARATOR. SAMUEL R. ROGERS, Bijou Hills, S. D. Filed June 24, 1896. Serial No. 553,930. (No model.)



Claim.—In a grain thresher and separator, the combination with the threshing-cylinder C, the grate F immediately below the same and extending upwardly and rearwardly, detainers L L' arranged at the rear of the grate, an inclined shoe J arranged below the grate, a chaffer I arranged above the grate, sieves E arranged between the chaffer and the inclined shoe, a fan A arranged below and in advance of the cylinder C and having a throat to direct the blast upwardly through the sieve and the grate into the space between the cylinder C, grate F and retainers L L', and a beater G arranged between the cylinder C and the said retainers, substantially as shown and described.

577,609. POCKET LAMP OR LIGHTER. WILLIAM TRABUE, Louisville, Ky., assignor to Curran Pope, same place. Filed June 26, 1896. Serial No. 596,965. (No model.)



Claim.—1. In a pocket-lamp or igniting device, the two tubes connected to have a rotary movement one within the other and to open an aperture by such movement, and means for feeding igniters singly and for holding an igniter in contact with one of the moving parts and igniting the same by such rotary movement, the parts in combination substantially as described.

2. In a pocket lamp or igniter, the magazine-tube and the lamp-tube entering one within the other, said tubes having openings to the combustion-chamber which may be made to register and open and close by a partial rotation of one tube relatively to the other, and means for feeding a single pellet and for retaining and igniting it in the combustion-chamber, all combined substantially as described.

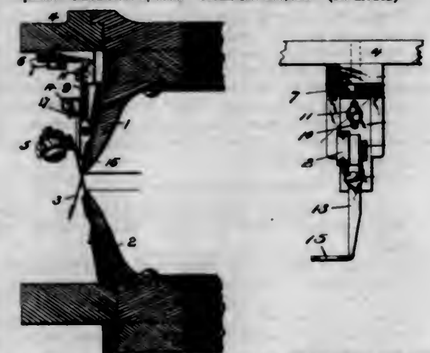
3. In a pocket-igniter, the tubes entering one within the other and arranged for partial relative rotation, means for feeding a pellet, and for igniting such pellet by the rotary movement, and a spring connected to the parts and adapted to restore them to normal position, all combined substantially as described.

4. In a pocket-igniter, the tubes entering one within the other and adapted to rotate, the magazine inclosed in one of the tubes and feeding pellets singly to the combustion-chamber, and the partition which cuts off the magazine provided with a roughened contact-surface against which the pellet is held during such partial rotation, all combined substantially as described.

5. In a pocket-igniter, the tubes arranged to have a rotatory movement relatively to each other, a magazine in one tube and means for feeding pellets singly therefrom and for igniting such pellets by partial rotation, and openings through which the magazine may be filled, said openings being in register only during part of the rotation of the tubes, all combined substantially as described.

6. In a pocket-igniter, the tubes, having openings, and a feeding-magazine in one tube substantially as described, means for retaining the tubes so as to permit a partial rotation of one relatively to the other, and an elastic rod or wire for holding a pellet in the combustion-chamber, and in contact with the igniting-surface during the partial rotatory movement of one of the tubes, all combined substantially as described.

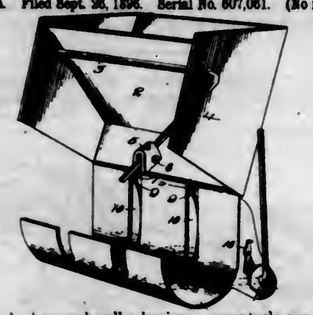
577,610. STITCH-FORMER FOR KNITTING-MACHINES. WILLIAM T. BARRATT, Bennington, Vt., assignor to Charles Cooper, same place. Filed Nov. 9, 1896. Serial No. 611,496. (No model.)



Claim.—1. In a knitting-machine having revoluble needle-cylinders the combination with the stitch-wheel, and the needles of one of the cylinders, of a cam supported in the path of the travel of said needles to force them successively between the blades of the stitch-wheel, substantially as and for the purpose set forth.

2. In a knitting-machine having revoluble needle-cylinders, the combination with the stitch-wheel and the needles of one of the cylinders, of a cam supported in the path of the travel of said needles to force them successively between the blades of the stitch-wheel, and devices to adjust the cam vertically and laterally relative to said needles, substantially as and for the purpose set forth.

577,611. SCRAP CHUTE AND BUNDLER. PETER BERRIS, Pittsburg, Pa. Filed Sept. 26, 1896. Serial No. 607,061. (No model.)



Claim.—1. A scrap-bundler having a receptacle provided with alined front and rear slots adapted to receive a binding wire or band for arrangement upon the floor of the receptacle, the front slots having open upper ends to receive said wires and compressing or bundling arms mounted to swing in the planes of said slots and provided with means for carrying one extremity of the binding wire or band over the contents of the receptacle into a position contiguous to the other extremity, substantially as specified.

2. A scrap-bundler having a receptacle provided in its front and rear walls with registering slots, and compressing or bundling arms fulcrumed in rear of the rear wall to swing in the planes of and through the slots to compress the contents of the receptacle, and provided with terminal notches for engaging the rear extremities of binding wires or bands to carry the same over the upper side of the bundle, the front ends of said wires or bands resting in the front walls which are open at their upper ends, substantially as specified.

3. A scrap-bundler having a receptacle provided in its front and rear walls with registering slots, compressing or bundling arms mounted to operate through said slots and swing over and compress the contents of the receptacle, means, as a lever, for operating said arms, and a locking device consisting of a ratchet and pawl for securing the compressing-arms in their depressed position during the tying of a bundle, substantially as specified.

4. The combination with a scrap-chute having automatic weighing devices including a check-flap and yielding means for normally holding the check-flap in its operative position, of a scrap-bundler having a receptacle of which the rear wall is connected with the rear wall of the chute and is provided, in common with the front wall, with vertical slots, a rock-shaft mounted in rear of the rear wall of the receptacle, compressing or bundling arms carried by the rock-shaft and adapted to operate through the slots in said rear wall, and means for actuating the compressing-arms, substantially as specified.

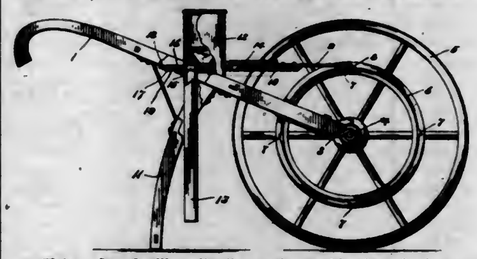
577,612. LAMP-BURNER. FRANK P. BOLAND, Providence, R. I. Filed May 26, 1896. Serial No. 593,139. (No model.)

Claim.—1. In a lamp-burner, the combination of a swinging annular extinguisher member surrounding the upper portion of the wick-tube, provided with a lateral extension forming a weight and heat-conductor, and a locking-plate integral with said extinguisher member having its lower end arranged to engage the teeth of the usual wick-adjusting wheels, substantially as hereinbefore described and for the purpose set forth.

2. In a lamp-burner, the combination with the wick-tube having its upper part beveled on one side, and toothed wheels extending inwardly through the lower side of said tube for actuating the wick, of the swinging extinguisher *f* arranged to automatically close the said beveled part of the wick-tube, and a downward-extending locking plate or stop f^3 integral with or rigidly secured to the extinguisher member and in practically continuous engagement with the teeth of the wick-adjusting wheels, whereby the wick may be raised unobstructedly but is prevented from being lowered past the wheels, substantially as hereinbefore described.

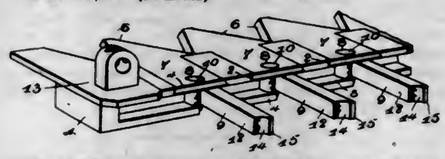
3. In a lamp-burner, the wick-tube beveled across on one side at its upper end portion, a central space or chamber, as *d'*, into which cool air enters, and toothed feed-wheels mounted below said chamber, in combination with the swinging extinguisher member *f* inclosing the said beveled part of the wick-tube, having an integrally-formed extension f^2 forming a combined weight and heat-conductor located in said air-chamber, and the locking plate or stop f^3 projecting downwardly from said extension f^2 having its lower end adapted to engage the teeth of the feed-wheels, whereby the rotation of the latter as in elevating the wick uncovers the wick-tube, while a reverse movement of the wheels, as in lowering the wick, closes the tube and at the same time interposes the said stop f^3 between the face of the tube and the adjacent teeth of the wheels, substantially as hereinbefore described and for the purpose set forth.

577,613. PHOSPHATE-DROPPER. ASHBEL L. BOZARD, Humphrey, N. Y. Filed May 7, 1896. Serial No. 590,591. (No model.)



Claim.—In a fertilizer-distributer, the combination of a hopper, a dropping-slide, a ground-wheel, a laterally-extending rim applied to a side of the ground-wheel and having projections formed thereon at intervals in its circumferential length, said projections being beveled at one end and shouldered at the opposite end, a draft-bar secured at one end to the dropping-slide and disposed tangentially to the aforesaid rim, and normally resting thereon, and having its terminal bent to engage with the projections of the said rim, and a retractile spring secured at one end to the hopper and at its opposite end to the inner bent terminal of the draft-bar, substantially as set forth.

577,614. CUTTING APPARATUS FOR MOWING AND REAPING MACHINES. WILLIAM L. BROWN, Oleona, Pa., assignor of one-half to James Impson and Dell Impson, same place. Filed July 18, 1896. Serial No. 599,737. (No model.)



Claim.—The cutter-bar 1 provided with a series of transverse dovetail slots 2, a continuous recess 3, and a series of vertical orifices 5, in combination with the knives 6 having dovetail shank 7 and circular orifice 8, the series of locking-levers 9 comprising the cylindrical hub 10 and the integral arm 12 formed with an angular shoulder 16, its outer end terminating in a circular recess 14, and an angular locking end 15, substantially as and for the purpose set forth.

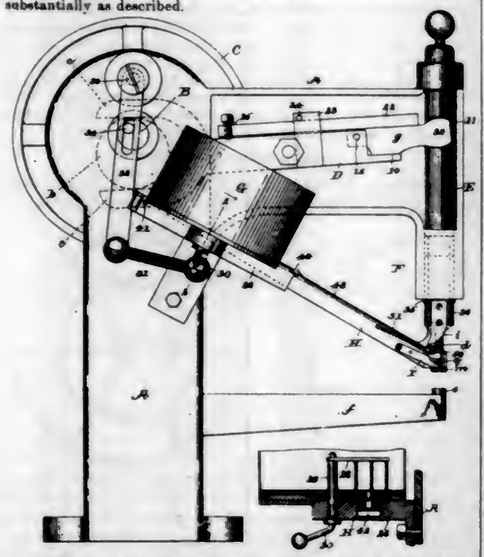
577,615. RIVET-SETTING MACHINE. HERBERT S. CROMBIE, Waltham, Mass. Filed May 29, 1896. Serial No. 593,666. (No model.)

Claim.—1. In a rivet-setting machine, the combination with the reciprocating plunger-bar carrying the punch and provided with a sliding sleeve encircling its lower end, of a raceway pivoted to said sleeve and adapted to move up and down as the plunger-bar is reciprocated, substantially as described.

2. In a rivet-setting machine, the combination with the hopper for containing the rivets, of the reciprocating plunger-bar carrying the punch and provided with a sliding sleeve encircling its lower end, and a raceway leading from the hopper and pivoted at its lower end to said sleeve and having a movement up and down therewith and also in the direction of its length on a suitable support as the said plunger-bar is reciprocated, substantially as described.

3. In a rivet-setting machine, the combination with the plunger-bar and punch and the raceway having an aperture at its lower end for the passage of the punch and rivet driven thereby, of a spring-operated stop-block beveled at its upper edge and projecting into

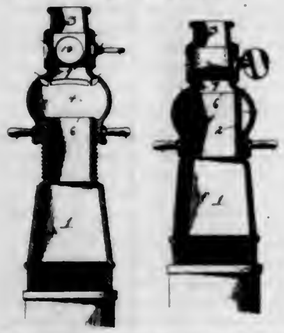
said aperture to support the rivet therein before it is struck by the punch and adapted to be forced outwardly by the pressure of the rivet as it is forced down, said stop-block being beveled at its lower edge to fit a corresponding bevel at the bottom of the opening in which it is placed, whereby downward pressure on the block will cause it to move outwardly with its inner face in a vertical plane, substantially as described.



4. In a rivet-setting machine, the combination with the hopper for containing the rivets, and a raceway leading therefrom and pivotally connected at its lower end to a sliding sleeve encircling the lower end of the reciprocating punch-carrying plunger-bar, and having a movement up and down and also in the direction of its length on a suitable support as the said plunger-bar is reciprocated, of a spring-stop secured to a stationary support and projecting over the raceway into a position to intercept the rivets, and a projection on the raceway adapted to lift the stop as the raceway is raised and moved backward and thereby release the rivets and permit them to pass down the raceway, substantially as described.

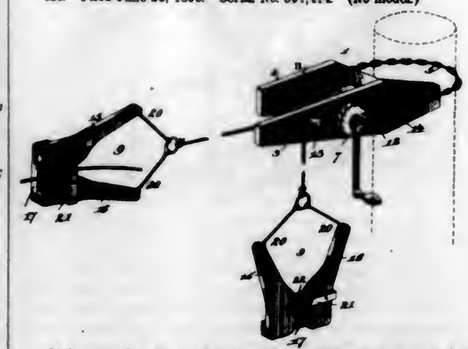
5. In a rivet-setting machine, the combination with the punch-carrying plunger-bar and its actuating rocker-arm, of the connecting-bar *g* engaging said plunger-bar and pivoted at its opposite end to the rocker-arm and resting on a shoulder or projection thereon, and a spring-lever bearing upon the connecting-bar *g* and provided with a set-screw for regulating its pressure upon said bar *g*, substantially as and for the purpose set forth.

577,616. **HOSE-NOZZLE.** ELISHA L. DAY, Brenham, Tex. Filed Apr. 15, 1896. Serial No. 587,684. (No model.)



Claim.—A hose-nozzle made in two sections, one screwing upon the other, the terminal section having an expanded spheroidal chamber between its threaded end and the discharge end, said chamber having a series of segmental openings the walls of which converge toward the outer surface of the chamber to discharge an annular spray in a direction forwardly with but divergently from the direction of the solid stream, said section having also a valve beyond the spheroidal chamber to control the central bore, and the end of the other section adapted to control the segmental spray-opening when extended into the spheroidal chamber, substantially as described.

577,617. **WIRE-STRETCHER.** WILLIAM W. HENDRICKS, Bolivar, Mo. Filed June 29, 1896. Serial No. 597,414. (No model.)

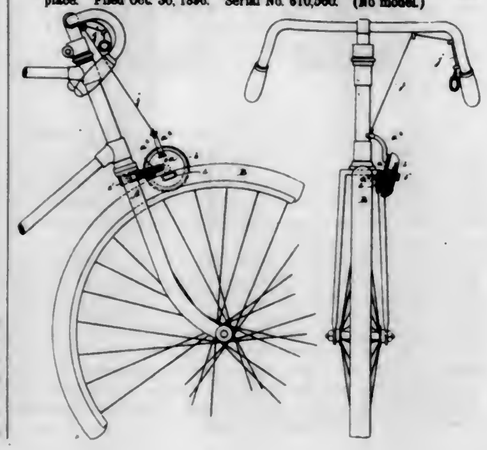


Claim.—1. In a wire-stretcher, the combination of a windlass-frame, a windlass-shaft journaled on the frame, provided between the sides thereof with a longitudinal groove and having transverse perforations communicating with the groove, a continuous rope or cable arranged in said groove and passing through the said perforations to form two branches, the latter being reversely wound around the windlass-shaft, whereby when one branch is wound up the other will be simultaneously unwound, and clamps carried by the said branches, substantially as described.

2. In a wire-stretcher, the combination of a windlass-frame provided at one end with means for connecting it to a post or other suitable anchor, a windlass-shaft journaled on the frame, provided between the sides thereof with a longitudinal groove and having transverse perforations communicating with the groove, a continuous rope or cable arranged in said groove and passing through the perforations of the shaft forming two branches, the latter being reversely wound around the windlass-shaft, so that when the latter is rotated one of the branches will be wound up and the other simultaneously unwound, wire-engaging clamps secured to the outer ends of the branches of the rope or cable, a double ratchet-wheel having reversely-arranged teeth, and reversely-arranged pawls adapted to engage the ratchet-wheel to lock the windlass against rotation in either direction, substantially as described.

3. In a wire-stretcher, a wire-engaging clamp comprising a pair of clamping-levers, a cross-bar secured to the outer end of one lever and pivotally connected to the other, a pair of guide-arms extending laterally from one lever, embracing the other and adapted to retain a wire in position, and a pair of rods connected at their inner terminals to the levers and having their outer terminals connected together, substantially as described.

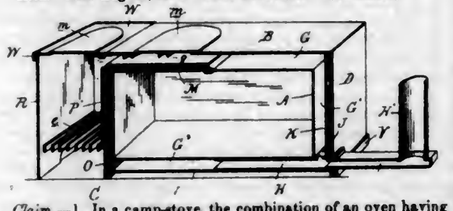
577,618. **BICYCLE-BELL.** THEODOR HOHRMANN, Berlin Village, N. Y., assignor to William M. Bowers and Thomas J. Bates, Jr., same place. Filed Oct. 30, 1896. Serial No. 610,560. (No model.)



Claim.—1. The combination in a bicycle-bell of a gong with a cam-wheel adapted to engage the side of the tire, a clapper actuated by said wheel, and a spring-knuckle that connects the gong to the bicycle-frame and permits a lateral tilting motion of the gong, substantially as specified.

2. The combination of a tilting base-plate having a knuckle, with a pivot engaging the same, means for connecting said pivot to the bicycle-frame, means for limiting the tilting motion of the base-plate, a cam-wheel projecting through the base-plate, a spring-actuated bell-crank engaging the same, and a clapper actuated by the bell-crank, substantially as specified.

577,619. **CAMP OR ARMY STOVE.** OLIVER D. HUNT, Detroit, Mich. Filed Aug. 26, 1896. Serial No. 603,927. (No model.)



Claim.—1. In a camp-stove, the combination of an oven having two separated top and end walls forming between them a continuous flue across the top, and a fire-box detachably connected to the end of the oven, and having a top detachably connected to and forming a continuation of the outer top wall of the oven, substantially as described.

2. In a camp-stove, the combination with the oven having double top walls of a reinforcing-plate on the edge of the upper wall of the top, a fire-chamber detachably secured to the end of the oven, a top therefor, a corresponding plate below the edge of the top forming a groove between in which the reinforcing-plate is adapted to engage and means for securing the fire-chamber to the oven for the purpose described.

3. In a camp-stove, the combination of an oven having a smoke-flue across the top, of a fire-chamber comprising a side and end walls hinged together, means for detachably connecting it to the end of the oven, and a detachable top for the fire-chamber, substantially as described.

4. In a camp-stove, the combination with an oven having a double-wall top forming a smoke-flue between, of the reinforcing-plate projecting from the edge thereof and having the apertures X′, of a fire box or chamber detachably secured to the end of the oven and extending up to the top wall of the oven, a detachable top W for the fire-chamber, having hooks Y adapted to engage in the apertures X′, and a plate or lip X^2 below the top forming a recess in which the reinforcing-plate *X* is adapted to engage, substantially as described.

5. In a camp-stove, the combination with an oven having a smoke-flue across the top open at one end, of a fire-box detachably connected to the end of said oven and communicating with said flue at its open end, and the plate O detachably secured on the end of the oven, substantially as described.

6. In a camp-stove, the combination of an oven having a double-wall top forming a smoke-flue between, of the detachable fire-chamber including the end of this smoke-flue and comprising a side and ends hinged thereto, the hooks T on the ends, the detachable plate O on the end of the oven and the flange Q on the end of said plate, over which the hooks T are adapted to engage.

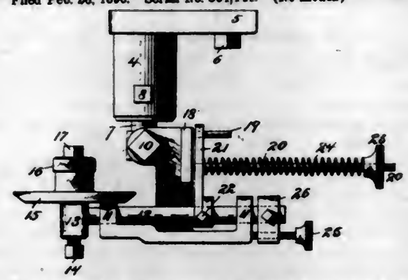
7. In a camp-stove the combination of the oven having the double-wall top forming a smoke-flue between, with L-shaped plate M extending over the end, and part of the top, of the inner wall of the oven and insulating material between, and a detachable fire-chamber across that end of the oven.

8. In a camp-stove, the combination of an oven having a smoke-flue crossing the same and terminating at the bottom, a smoke-pipe extending laterally from the bottom of the oven and communicating with said smoke-flue, and a pipe H′ at the outer end of the smoke-pipe located a sufficient distance from the stove to permit the wall of a tent to be placed between, substantially as described.

9. In a camp-stove, the combination of the oven having double walls to form a smoke-flue on the top, end and bottom, of the flue I in the bottom smoke-flue and communicating therewith at or near the middle thereof and extending to the outside of the stove and the smoke-exit at the end of the flue I in the base of the stove, substantially as described.

10. In a camp-stove, the combination of the fire-chamber and ledges thereon, of a grate consisting of the flat metal bars *c* set on edge, the end twisted portions *h* arranged at right angles thereto and the connecting-bar *i* to which these twisted portions are connected at each end.

577,620. **PRESSER-STAND FOR KNITTING-MACHINES.** DANIEL HURLEY, Bennington, Vt., assignor to Charles Cooper, same place. Filed Feb. 28, 1896. Serial No. 581,141. (No model.)

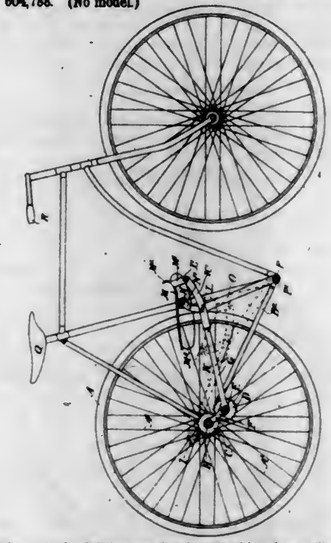


Claim.—1. The combination in a knitting-machine, of a support attached thereto and provided with bearings, a sliding rod supported in said bearings with means for regulating and restricting its movements, a presser-disk carried by the sliding rod, a fixed rod extending from the support, an arm connected to the sliding rod and fitting loosely over the fixed rod, an adjustable stop on the end of the fixed rod, and a spring between the said stop and arm, substantially as and for the purpose set forth.

2. The combination in a knitting-machine, of a presser-disk and a support therefor consisting of a tube screwed to the frame of the machine, a rod adjustably secured in the tube, a casting pivotally connected to the said rod and provided with bearings, a sliding rod supported in said bearings, a post carrying the presser-disk adjustably pivoted on the sliding rod, a fixed rod extending from the casting, a stop on the end of the fixed rod, an arm connected to the sliding rod and fitting loosely over the fixed rod, and a spring between the said stop and arm, substantially as and for the purpose set forth.

3. The combination in a knitting-machine, of a presser-disk and a support therefor consisting of a tube secured to the frame of the machine, a rod adjustably secured in the tube, a casting pivotally connected to the said rod and provided with bearings, a sliding rod supported in said bearings, a fixed rod extending from the casting, a stop on the end of said rod, an arm connected to the sliding rod and fitting loosely over the fixed rod, a spring between the said stop and arm, a device to adjust and limit the movement of the sliding rod in its bearings, and a post carrying the presser-disk adjustably pivoted on the sliding rod, substantially as and for the purpose set forth.

577,621. **DRIVING MECHANISM FOR VELOCIPEDES.** FRANZ J. A. KINDERMANN, Melbourne, Victoria. Filed Sept. 3, 1896. Serial No. 604,788. (No model.)



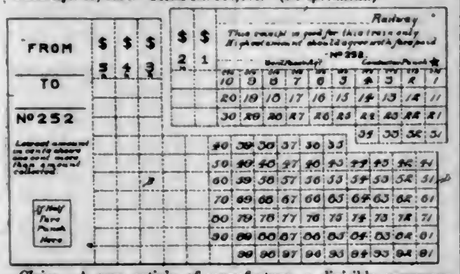
Claim.—1. In driving mechanism for bicycles and other like machines, a frame, with a driving-wheel mounted thereon, a gear-wheel secured to the axle of said driving-wheel, a crank with axle loosely mounted in said driving-wheel axle, a wheel mounted on said crank and meshing with said gear-wheel, a connecting-rod connected with

said crank, a foot-piece pivotally connected with said rod and an oscillating lever pivoted to the frame and to said rod and supporting said foot-piece, substantially as described and for the purpose set forth.

2. In driving mechanism for bicycles and the like machines—in combination the wheel C attached to the hub of the driving-wheel of the machine, a wheel D set upon a pin E and arranged to travel around and actuate the wheel C, cranks F and I, connecting-rods G and K, foot-pedals M, M and rocking lever O, said lever being provided with an antifriction-roller N substantially as and for the purposes set forth.

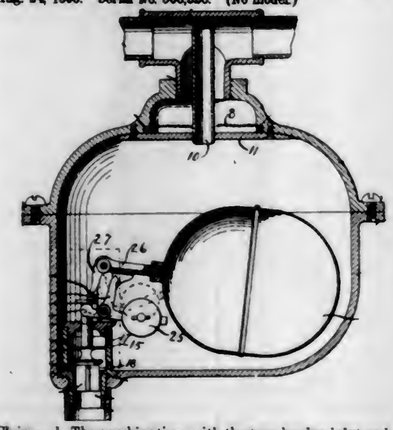
3. A frame with a driving-wheel thereon having a hollow axle with a gear-wheel thereon, the wheel D meshing with said gear-wheel and adapted to rotate around and actuate the same, foot-pieces having loops on their under sides, rods connected with the axle of said wheel D and pivoted to said foot-pieces and levers pivoted to said frame and to said rods and carrying antifrictional rollers bearing against said foot-pieces, substantially as and for the purpose set forth.

577,622. DIVISIBLE PASSENGER-RECEIPT AND AUDITOR-COUPON RAILROAD-TICKET. HARRY P. MUSSEN, Grand Rapids, Mich. Filed Apr. 15, 1896. Serial No. 587,675. (No specimens.)



Claim.—A new article of manufacture, a divisible passenger-receipt and auditor-coupon railroad-ticket comprising a middle and end spaces, one end space bearing the names of the stations, a designating-character and desired matter, the other end space having an upper part upon which are placed a designating-character, the receipt and other matter, and a lower part which is subdivided by vertical break-lines extending from the said upper part to the lower edge of the ticket and horizontal break-lines, forming squares or spaces ten to a side and numbered consecutively in horizontal groups of ten from right to left from the upper right-hand corner to the lower left-hand corner, and ranging decimally in vertical lines from top to bottom, and the middle space having the said horizontal break-lines extending across to the first-mentioned space, and having vertical break-lines extending from the top to the bottom of the ticket, the heads of the vertical spaces having dollar-indicating numerals consecutively arranged in horizontal alinement, substantially as specified.

577,623. STEAM-TRAP. NILS NILSON, Minneapolis, Minn., assignor to the Nilson Manufacturing Company, St. Paul, Minn. Filed Aug. 24, 1895. Serial No. 560,320. (No model.)



Claim.—1. The combination, with the trap having inlet and outlet openings, of a valve for closing said outlet-openings, a casing therefor within which the valve-stem is vertically movable, a disk provided upon said stem, a weighted lever for normally holding said valve open, a float-lever operated by the accumulated water in the trap and said weighted lever being arranged to be moved into position by the closing of said valve to be engaged by said float-lever during its initial movement.

2. In a steam-trap, the combination, with the casing having inlet and outlet openings, of a valve arranged over said outlet, and adapted to be closed by the pressure of steam within said trap, a lever for normally holding said valve open, said lever having an upwardly-extending arm, and means actuated by the accumulated water for engaging said arm at a point where the greatest possible leverage may be obtained to start the valve, for the purpose set forth.

3. In a steam-trap the combination, with the casing having inlet and outlet openings, of the valve arranged within said casing, and adapted to close said outlet-opening, the lever for normally holding said valve open until steam is admitted to the trap, means adapted to be actuated by the accumulated water for depressing said lever and opening said valve, and a pipe arranged within said inlet-opening and extending up through the same, for the purpose set forth.

4. In a steam-trap, the combination with the casing having the inlet and outlet openings, of the valve arranged therein for closing said outlet-opening, the pivoted lever having one end in engagement with the stem of said valve, and a weight upon its opposite end, said lever being also provided with an upwardly-extending arm, a second pivoted lever provided at one end with a depending portion in position to engage said upwardly-extending arm, whereby the greatest leverage will be obtained upon said valve at the beginning of its stroke, and a float arranged upon the opposite end of said second lever, substantially as described.

5. The combination in a steam-trap, with the casing having the inlet and outlet openings, of the valve arranged therein, and arranged to close said outlet-opening, the cylindrical portion arranged above said outlet-opening, and provided with a series of ports or openings, the cap for the same having a central opening to receive the stem of said valve, the brackets upon said cap, the weighted lever journaled at the base of said brackets, and having one end in engagement with said stem, and provided with an upwardly-extending arm, a second lever pivoted upon said brackets, and having a depending portion to engage the upwardly-extending arm to obtain the greatest leverage upon said valve at the beginning of its stroke, and the float provided at the opposite end of said second lever, substantially as described and for the purpose set forth.

6. In a steam-trap the combination, with the casing having the inlet and outlet openings, of the valve arranged to close said outlet-opening, means adapted to be operated by the accumulated water for opening said valve, a screen arranged in said inlet-opening, and a tube extending through said screen and inlet-opening, for the purpose set forth.

577,624. DEVICE FOR PROTECTING BURNING ENDS OF CIGARS. OSKAR ROCHOLL, Schöneberg, Germany. Filed Feb. 11, 1896. Serial No. 578,922. (No model.) Patented in Germany Nov. 20, 1895, No. 86,464.

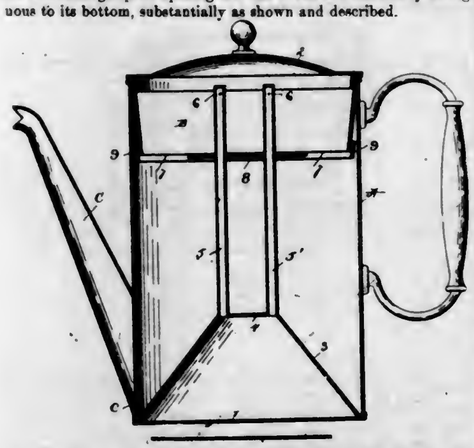


Claim.—1. In a device for protecting the burning ends of cigars, the combination with a cup closed at one end, of levers pivotally secured intermediate their ends to the cup and being arranged diametrically opposite each other and parallel with the longitudinal axis of the cup, one end of each of said levers projecting beyond the open end of the cup and being adapted to grasp a cigar, and the other end of each lever projecting beyond the closed end of the cup and forming handles, and means for normally pressing said latter ends of the levers apart for the purpose specified.

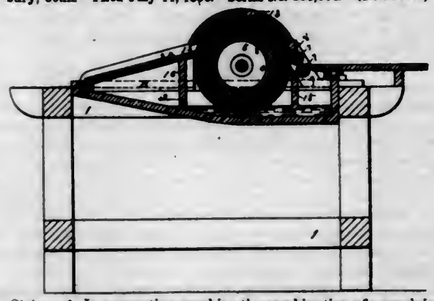
2. In a device for protecting the burning ends of cigars, the combination with a cup closed at one end, of levers pivotally secured intermediate their ends to the cup and being arranged diametrically opposite each other and parallel with the longitudinal axis of the cup, one end of each of said levers projecting beyond the open end of the cup and being adapted to grasp a cigar, and the other end of each lever projecting beyond the closed end of the cup and forming handles, and being also bent to form inwardly-projecting abutting spring portions for the purpose specified.

577,625. COFFEE-POT. LEMON S. ROYER, Henrietta, Tex. Filed July 18, 1896. Serial No. 599,674. (No model.)

Claim.—A coffee-pot comprising the cylindrical vessel A, having a closed bottom and a detachable cover, a conical water vessel 3 located in the bottom thereof, pipes 5 5× leading from said water-receptacle, and having steam-jet holes 6 6 located contiguous to their upper closed ends, a perforated horizontal shelf 8, fixed to said pipes, a coffee-receptacle arranged in the upper end of said vessel A and provided with a flexible perforated bottom supported by said shelf 8, and a discharge-spout opening into the vessel A immediately contiguous to its bottom, substantially as shown and described.



577,626. CARROTING-MACHINE. CHARLES E. SACKETT, Danbury, Conn. Filed July 11, 1896. Serial No. 598,884. (No model.)



Claim.—1. In a carroting-machine the combination of a revolving brush, a pair of feed-rolls arranged in its front, means to supply a liquid carrot to the brush, and a close cap covering the upper surface of the brush conforming within to its periphery, spreading from side to side of said brush and extending from the feeding-rolls in front to the rear of the brush, between which cap and the brush-surface the skin is passed in the act of being carroted, said cap having a bearing upon the surface of the skin as it passes, simultaneously throughout its length and breadth, means to adjust the distance between the cap and brush, thereby regulating the pressure upon the skin, and means to strip the skin from the brush as it comes out from below the cap in the rear, for the purpose set forth, and substantially as described and shown.

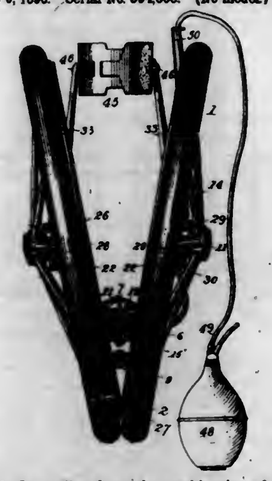
2. In a carroting-machine the combination of a revolving brush, a pair of feed-rolls, a close cap covering the upper section of the brush, and a liquid-carrot supply, all constructed and arranged to rub the liquid carrot into the fur of the skin simultaneously throughout its entire length and breadth, for the purpose set forth and substantially as described and shown.

577,627. STRING-ADJUSTER FOR GUITARS. RAIMUND SCHUSTER, Markneukirchen, Germany. Filed Oct. 31, 1896. Serial No. 610,719. (No model.)



Claim.—A string-adjuster for guitars and similar string instruments composed of a frame adapted to partially surround the neck of the instrument and carrying in bearings a roller, rolling upon the strings and being provided with a lever B, serving to operate the adjuster and provided with a ring adapted to receive the thumb of the player for shifting the adjuster along the keyboard, substantially as described.

577,628. ROLLER-SKATE. JOHAN A. SIGURBERG, Denver, Colo. Filed June 9, 1896. Serial No. 594,808. (No model.)



Claim.—1. In a roller-skate, the combination of the wheels with a pneumatic brake, consisting of an exterior cylinder attached to the foot-support, a piston-rod moving at one end of said cylinder, said piston-rod carrying at its inner end a piston-head and at its outer end a brake-shoe, a spiral spring adapted to push the piston-rod inward, a smaller cylinder fixed in the other end of the exterior cylinder, an inflatable air-sack between the piston-head and the interior cylinder adapted when inflated to press the piston-rod outward and to sink into the space between the exterior and interior cylinders when deflated, an air-tube entering the air-sack, and a pneumatic bulb for supplying air under pressure to the air-tube.

2. A pneumatic brake for a vehicle-wheel, consisting of a cylinder provided with a piston-rod therefor having a brake-shoe at its outer end and a piston-head at its inner end, an air-bladder attached to the cylinder and adapted to press against the piston-head and to push the same forward when being inflated, a retracting-spring, and means for supplying air under pressure to the air-bladder.

3. A roller-skate consisting of two wheels set at an angle to each other and lightly touching at their point of contact with the ground, said wheels being mounted on ball-bearings fixed on the inclined extremities of an adjustable U-shaped axle, an adjustable foot-support located between the depending legs of said axle and swung from ball-bearings mounted near the extremities of said axle, adjustable leg-braces pivotally attached to the upper ends of said axle, and adjustable padded leg-bands at the upper ends of said leg-braces.

4. A roller skate consisting of two wheels set at an angle to each other and lightly touching at their point of contact with the ground, said wheels being mounted on ball-bearings fixed on the inclined extremities of an adjustable U-shaped axle, an adjustable foot-support located between the depending legs of said axle and swung from ball-bearings mounted near the extremities of said axle, adjustable leg-braces pivotally attached to the upper ends of said axle, adjustable padded leg-bands at the upper ends of said leg-braces, and a pneumatic brake attached to the bottom of the foot-support.

5. In a roller-skate, the combination of the wheels set at angles to each other on inclined axles with ball-bearings therefor, each having two rows of balls with their outer bearings set at right angles to the spokes, having three-pointed bearings, and revolving at an angle of forty-five degrees with the axle.

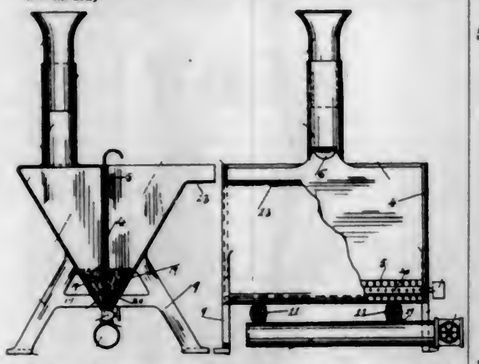
577,629. FOOD PRODUCT. JÖRGEN SIMMONS, Appleton, Minn. Filed May 20, 1895. Serial No. 550,003. (No specimens.)

Claim.—1. In a laxative nutritious food derived from wheat the combination of coarsely-granulated first-germ middlings with coarsely-granulated second and third break middlings, and coarsely-granulated cerealin germ-shorts, as and for the purposes substantially as set forth.

2. In a laxative nutritious food derived from wheat the combination of about forty per cent. by weight, of coarsely-granulated purified cerealin and germ-shorts, with about forty per cent. of coarsely-granulated purified first-germ middlings, and about twenty per cent.

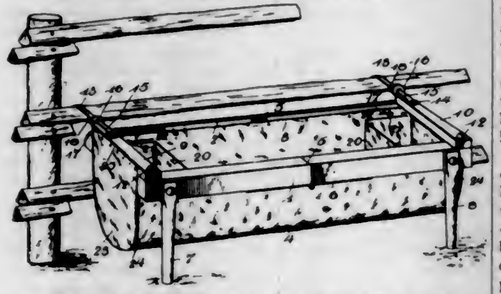
of the second and third break purified middlings coarsely granulated as and for the purposes substantially as set forth.

577,630. MINERAL-SEPARATOR. WILLIAM SNEE and JOHN A. SNEE, West Elizabeth, Pa. Filed Mar. 30, 1896. Serial No. 585,518. (No model.)



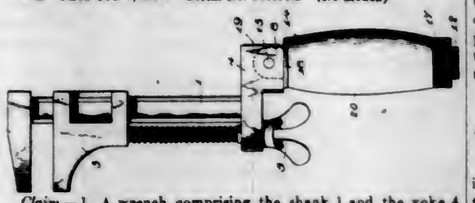
Claim.—The separator comprising the tank or receptacle having two compartments, one provided with a hopper-like tube fitted into its upper end and the other compartment provided with an overflow-outlet and with a sliding door arranged against the subdividing-partition of the tank or receptacle, the agitator arranged in said tank, just below or under the said sliding door, pipes connected to the bottom of said tank and provided with valves, and a tube connected to said pipes and also provided with a valve, substantially as set forth.

577,631. FEED-TROUGH. ABIRAM STACY, Montrose, Colo. Filed Oct. 21, 1896. Serial No. 609,606. (No model.)



Claim.—A collapsible feed-trough, comprising the parallel rails 1 and 2, the canvas 4 connecting said rails, the pivoted legs 7 and 8 secured to the rail 1, the braces 9 and 10 pivoted to the said rail 1, the canvas ends 23 secured to said braces and the outer ends of the canvas bottom 4, the hooks 21 pivoted to said braces, in combination with the stationary eyes 16 and staples 22 secured to the rail 2, and the collapsible pockets 20, secured at one side to the rail 1, the link-hooks 21 secured to the opposite parallel side of said pockets and adapted to engage the staples on the back rail, substantially as and for the purpose set forth.

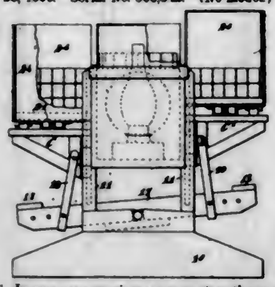
577,632. MONKEY-WRENCH. CHARLES E. THOMPSON, Leesburg, Va. Filed Oct. 9, 1896. Serial No. 608,384. (No model.)



Claim.—1. A wrench comprising the shank 1 and the yoke 4 having integral parallel ears 8 and 9 formed with right-angularly-disposed plane faces 18 and 19, the rod 12 pivoted at one end between said ears, the washer 14 and sleeve 15, removably secured on said rod by means of the nut 17, substantially as shown and described.

2. A wrench comprising the shank 1 and yoke 4 having integral parallel ears 8 and 9, with oppositely-disposed plane faces 18 and 19, the rod 12 pivoted at one end between said ears, and having its opposite or free end provided with screw-threads, and the washer 14, sleeve 15, and milled-rim nut 17 mounted on said rod, substantially as and for the purpose set forth.

577,633. EGG-TESTER. HENRY F. WALTON, Flandreau, S. D. Filed Apr. 20, 1896. Serial No. 588,342. (No model.)



Claim.—1. In an egg-examining apparatus, the combination, with a box-body having a reflector in its bottom, the reflector tapering from a central point downwardly and outwardly in opposite directions, the box-body being further provided with spaces for lights at each side of the said reflector, of a transparent pane located over the reflector in the aforesaid box-body, a sliding table located at each side of the transparent testing-surface, a lever centrally fulcrumed, and a link connection between the ends of the lever and the said tables, whereby one table will be moved upwardly when the other table is carried downwardly, as set forth.

2. In an egg-examining apparatus, the combination of a box, a reflector therein, the reflector consisting of two upwardly and inwardly extended surfaces, a transparent plate forming the top of the box, a light-holder at each side of and communicating with the interior of the box, a vertically-movable support at each side of the box, a lever fulcrumed below the box, and links respectively connecting the ends of the lever with the supports, substantially as described.

3. In an egg-examining apparatus, a box having a transparent top and having means for holding a light, a lever fulcrumed beneath the box, a support slidably mounted at each side of the box, and a link pivotally connecting the supports with the respective ends of the lever, substantially as described.

4. In an egg-examining apparatus, a mounted box having two oppositely-arranged openings, a reflector within the box, the reflector having two surfaces curved upwardly and inwardly, a transparent top for the box, a lamp-holder adjacent to and communicating with each opening in the box, supports located at opposite sides of the box and at a transverse point between the lamp-holders, a lever fulcrumed beneath the box, and links respectively connecting the supports with the ends of the levers, substantially as described.

5. In an egg-examining apparatus a rack consisting of a bottom plate having a series of staples projecting from one surface and side and end plates, each plate having a portion bent to lie against the surface of the bottom plate from which the staples project, each flange having an orifice receiving a staple and the flanges also having handles by which the rack may be manipulated, substantially as described.

6. In an egg-examining apparatus a rack having a bottom plate, side and end plates, each side and end plate having a flange capable of lying against one surface of the bottom plate, and means for holding the side and end plates in rigid connection with the bottom plate, substantially as described.

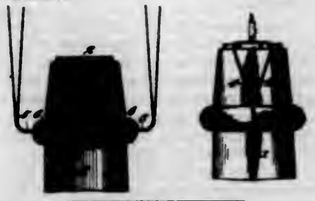
7. In an egg-examining apparatus a box having a transparent top, a support at each side of the box, each support being capable of vertical reciprocation from the transparent top of the box to a point below the same, and means connecting the supports by which they may have movement in unison to alternately move level with the top of the box, substantially as described.

577,634. BOTTLE. WARWICK WIRGTON, Shanghai, China. Filed Oct. 3, 1896. Serial No. 607,741. (No model.)

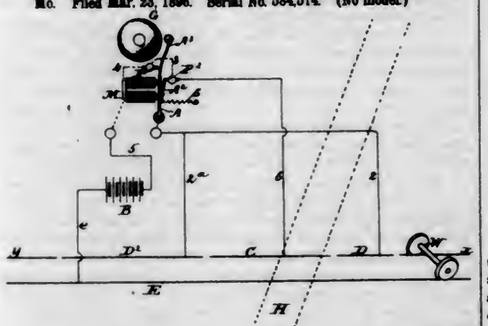
Claim.—1. A bottle having a neck formed with a rib, and retaining-wires having loops molded within the rib and extending laterally therefrom, substantially as described.

2. A bottle having a neck formed with a rib and retaining-wires folded upon themselves and twisted at their inner ends providing loops molded within the rib and extending laterally therefrom; substantially as described.

3. A bottle having a neck formed with a rib located at a distance beneath the mouth of the bottle, and retaining-wires having loops molded within the rib and extending laterally therefrom, substantially as described.



577,635. ELECTRIC SIGNAL FOR HIGHWAY-CROSSINGS. WILLIAM W. ALEXANDER and MANCHILLIA C. GILLHAM, Kansas City, Mo. Filed Mar. 23, 1896. Serial No. 584,514. (No model.)

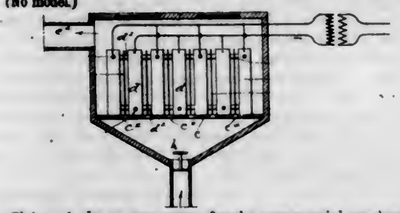


Claim.—1. The combination of a railway track having an electrically-continuous rail and a rail comprising sections insulated from each other, an electromagnet, its armature adapted to vibrate between two contact-points P and P², battery connections between the intermediate rail-section and the continuous rail and including the magnet and said contacts, and electrical connections between the armature and the other rail-sections substantially as described.

2. The combination of a railway-track having an electrically-continuous rail and a rail comprising sections insulated from each other, a vibrating bell having a contact-stop as P³, a circuit therefor including a continuous rail, a battery, the bell-magnet, its armature, the contact, and one of the track-sections, and the branch wire leading from the contact to another track-section, whereby the bell is first rung and then stopped by the passage of a train over the rail-sections, substantially as described.

3. The combination of a railway-track having an electrically-continuous rail and a rail comprising sections insulated from each other, a battery, an electromagnet, its armature A, provided with a bell-hammer and having a spring extension A³ on one side, a contact-point P⁴ adjacent to said spring extension and a contact-point P on the opposite side to hold the circuit of the battery closed through the electromagnet, battery connections between the intermediate rail-section and the continuous rail and including the magnet and said contact-points, and electrical connections between the armature and the other rail-sections substantially as described.

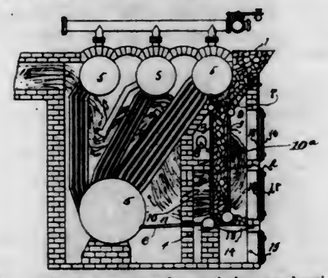
577,636. APPARATUS FOR PRODUCING OZONE. EMILE ANDREOLI, London, England. Filed Aug. 12, 1896. Serial No. 602,491. (No model.)



Claim.—1. In an apparatus for the commercial production of ozone, a box containing a series of positive and negative electrodes arranged alternately with respect to each other, in combination with sheets of dielectric material placed equidistant between each pair of electrodes, a space being left between the sheet of dielectric and the electrodes, and means for directing a draft of air or other gas to be ozonized, between the several pairs of electrodes, and upon each side of the sheets of dielectric material, substantially as described.

2. In an apparatus for the commercial production of ozone, the combination of a box provided with a false bottom having a plurality of slits therein, a series of electrodes resting upon the said bottom with spaces between them directly over said slits, respectively, a sheet of dielectric material between each pair of electrodes and arranged over the middle of each slit, a conical chamber below the false bottom, an inlet-passage for air or gas fitted to the apex of said chamber and an exit for air or gas from the box located at a point above the electrodes, substantially as described.

577,637. FURNACE FOR SMOKELESS COMBUSTION. MEYLERT M. ARMSTRONG, Philadelphia, Pa. Filed Apr. 15, 1894. Renewed July 31, 1896. Serial No. 601,206. (No model.)

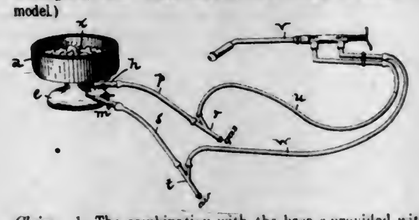


Claim.—1. In an apparatus for smokeless combustion of fuel, a magazine or hopper for charging fuel, a fuel-chamber placed below and fed from said magazine, and having apertures upon both sides, an air-inlet chamber communicating with the upper part of one side of the fuel-chamber, and a gas-outlet in the lower part thereof, in combination with a second chamber 9 on the opposite side of the fuel-chamber, arranged to receive products of combustion from the upper part of the fuel-chamber, and return them through the lower part of said fuel-chamber, substantially as and for the purpose set forth.

2. In an apparatus for smokeless combustion of fuel, a fuel-magazine, a fuel-chamber, having perforations on both sides and located below and arranged to be continuously fed by said magazine, a chamber arranged to admit air upon the upper portion of one side of said fuel-chamber, a chamber to convey gaseous products of combustion from the lower part thereof, a chamber 9 arranged to receive products of combustion from the side of the upper part of said fuel-chamber and return them through the lower part thereof to the discharging-chamber, in combination with a grate and air-supplied ash-pit, arranged at the base of the returning-chamber to receive and to burn fuel falling from the fuel-chamber, substantially as set forth.

3. In a steam-boiler furnace, a magazine or hopper for charging fuel, a fuel-chamber placed below and fed from said magazine, and having apertures upon both sides, an air-inlet chamber 8 communicating with the upper part of one side of the fuel-chamber, and a gas-outlet 10 in the lower part thereof, in combination with a second chamber 9 on the opposite side of the fuel-gas outlet 10, arranged to receive products of combustion from the upper part of the fuel-chamber, and return them through the lower part of said fuel-chamber, said chamber being connected with a passage for the products of combustion, and a boiler located in the path of said products of combustion, substantially as set forth.

577,638. FURNACE FOR DENTAL USE. JOHN T. BARKER, Wallingford, Conn. Filed June 1, 1896. Serial No. 593,737. (No model.)

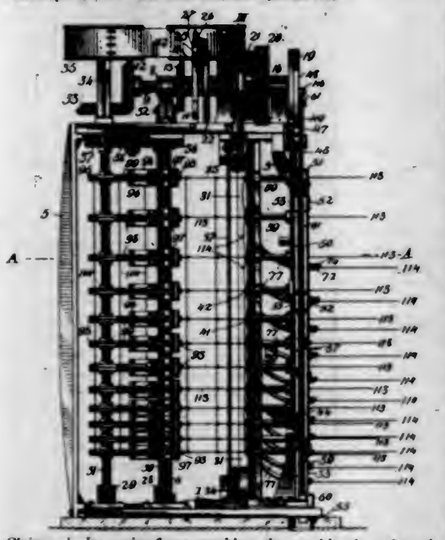


Claim.—1. The combination with the base *c* provided with the socket *d*, of the cup *a* having the tubular stem *e* projecting within said socket, tube *f* projecting upwardly within said stem *e* and having at its upper end the screen *g*, tube *o* projecting upwardly within said tube *f*, and pipe-sections *h* and *m* communicating with said tubes respectively, substantially as set forth.

2. The combination with base *e*, cup *a* revolubly mounted upon said base and having a lining of asbestos as described, and means for admitting both gas and compressed air to said cup through said base, substantially as described.

3. The combination with base *e*, cup *a* revolubly mounted upon said base, tube *f* secured upon said base and communicating with said cup, tube *o* located within said tube *f* and also communicating with said cup, and pipe-sections *k* and *m* communicating with said tubes respectively, of the Y-couplings *r* and *t*, tubes *p* and *s* connecting one branch of each of said couplings with said pipe-sections *k* and *m* respectively, and means for connecting the opposite branch of each of said couplings with the gas and air inlets respectively of a hand-blowpipe and for connecting the main stems of said couplings with a source of gas-supply and a source of compressed-air supply respectively, arranged and operating substantially as described.

577,689. WIRE-FENCE MACHINE. ALBERT J. BATES, Joliet, Ill., assignor to the Consolidated Steel and Wire Company, Chicago, Ill. Filed Sept. 4, 1896. Serial No. 604,857. (No model.)



Claim.—1. In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for intermittently feeding a plurality of stay-wires simultaneously and transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, and mechanism for simultaneously coiling the adjacent ends of the lengths of the stay-wires around the strand-wires.

2. In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for intermittently feeding a plurality of stay-wires simultaneously and transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, and mechanism for intercoiling the adjacent ends of the lengths of the stay-wires around the strand-wires.

3. In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for intermittently feeding a plurality of stay-wires simultaneously and in line with one another transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, and mechanism for intercoiling the adjacent ends of the lengths of the stay-wires around the strand-wires.

4. In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for intermittently feeding a plurality of stay-wires simultaneously and in line with one another transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, mechanism for coiling the outer ends of the outermost lengths of the stay-wires around the border strand-wires, and mechanism for intercoiling the adjacent ends of the lengths of the stay-wires around the intermediate strand-wires.

5. In a wire-fence machiue, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for intermittently feeding a plurality of stay-wires simultaneously and transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, mechanism for simultaneously coiling adjacent ends of the lengths of stay-wires around the strand-wires, and mechanism for crimping the strand-wires at the junction of the stay-wires to more firmly secure the latter.

6. In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for intermittently feeding a plurality of stay-wires simultaneously and transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, mechanism for intercoiling the adjacent ends of the lengths of the stay-wires around the strand-wires, and mechanism for taking up the fencing as it is formed.

7. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, a plurality of guides through which stay-wires are fed transversely to the coilers, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, and mechanism for holding the stay-wires intermediately of the coilers while their ends are being coiled around the strand-wires.

8. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, a plurality of guides through which stay-wires are fed transversely to the coilers, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, said guides being adapted to hold the cut lengths of the stay-wires intermediately of the coilers while their ends are being coiled around the strand-wires, and to yield so as to release the stay-wires after the coiling operation.

9. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, a plurality of guides through which transverse stay-wires are fed to the coilers, mechanism for feeding in the stay-wires transversely of the strand-wires, and mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, said feeding and cutting mechanisms being arranged and adapted to feed the stay-wires in and cut them off with the ends of adjacent lengths overlapping at the coilers.

10. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, mechanism for feeding a plurality of stay-wires transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, and mechanism for rotating the coilers in one direction only to coil the ends of the stay-wires around the strand-wires.

11. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, mechanism for feeding stay-wires to the coilers transversely of the strand-wires, mechanism for cutting the stay-wires, mechanism for intermittently rotating the coilers in one direction only, and mechanism for locking the coilers against rotation during the intermission of the coiler-rotating mechanism.

12. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, mechanism for feeding stay-wires to the coilers transversely of the strand-wires, mechanism for cutting the stay-wires, a gear-rack for rotating the coilers in one direction only, and mechanism for throwing said rack into and out of engagement with the coilers.

13. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, mechanism for feeding stay-wires to the coilers transversely of the strand-wires, a rack-bar for intermittently rotating the coilers in one direction only, mechanism for throwing said rack into and out of engagement with the coilers, and means for locking and holding the coilers while the rack is out of engagement therewith so as to prevent rotation and insure the reengagement of the rack.

14. In a wire-fence machine, the combination of a plurality of coilers arranged in line with one another, a gear-rack for rotating said coilers, said rack being supported in parallel relation with the line of coilers by pivoted levers, and mechanism for swinging the levers to throw the rack into and out of engagement with the coilers.

15. In a wire-fence machine, the combination of a plurality of coilers arranged in line with one another, a gear-rack for rotating said coilers, a rack-supporting bar, pivoted levers carrying said bar, a rod connecting said levers, mechanism for swinging the levers to throw the bar and its rack toward and from the coilers, and mechanism for reciprocating the rack.

16. In a wire-fence machine, the combination of a plurality of coilers arranged in line with one another, the gear-rack 55 supported in parallel relation with the line of coilers on pivoted levers 44, 45, the rod 50 connecting said levers to move together, and the cam-wheel 19 upon which the rollers 46, 47 of the lever 45 work.

17. In a wire-fence machine, the combination of a plurality of coilers arranged in line with one another, the gear-rack 55 supported in parallel relation with the line of coilers on pivoted levers 44, 45, the rod 50 connecting said levers to move together, the cam-wheel 19 upon which the rollers 46, 47 of the lever 45 work, the lever 57 pivotally connected to the rack-bar and to the connecting-rod 59, and the rod 61 connecting the lever 57 to the crank 62 of the cam-wheel.

18. In a wire-fence machine, the combination of a plurality of coilers arranged in line with one another, a reciprocating rack-bar in parallel relation with said line of coilers and adapted to be thrown laterally into and out of engagement therewith, a keeper-plate movable laterally with the rack-bar, and pins 63 on the plate at the opposite side of the coiler-pinions from the bar.

19. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, guide-tubes corresponding to the coilers for feeding transverse stay-wires thereto, and guides located between the coilers for directing the stay-wires from one coiler across the intervening space to the next adjacent coiler.

20. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, guides extending between the coilers for directing the stay-wires from one coiler across the intervening space to the adjacent coiler, and cutters for cutting the stay-wires after they have been projected through the guides, said guides being adapted to hold the stay-wires during the operation of the coilers and to release them after the coiling is completed.

21. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, coöperating rolls for feeding stay-wires through the coilers transversely of the strand-wires, and mechanism for throwing individual feed-rolls out of action so as to interrupt the feeding in of individual stay-wires.

22. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, the shaft 67 carrying feed-rolls 69, one for each coiler, the coöperating feed-rolls 72 mounted in spring-arms and geared to the rolls 69, and the cam-faced levers 76 for throwing the rolls 72 in operative connection with the rolls 69.

23. In a wire-fence machine, the combination of the driven feed-rolls 69, the coöperating rolls 72 geared to the rolls 69, the spring-arms 70 in which the rolls 72 are mounted, and the cam-faced levers 76 for throwing the rolls 72 in operative connection with the rolls 69.

24. In a wire-fence machine, a stay-wire-feeding mechanism comprising driven feed-rolls, and coöperating feed-rolls geared thereto, the coöperating rolls having a diameter twice that of the driven rolls, and having one-half of their peripheries cut away.

25. In a wire-fence machine, the combination of strand-wire-feeding mechanism, stay-wire-feeding mechanism, and stay-wire cutting and coiling mechanism, of mechanism for crimping the strand-wires at the junction of the stay-wires, said mechanism consisting of rolls between which the completed fencing passes, one of said rolls having a plain surface and the other being provided with notches or recesses into which the coils of the stay-wires pass.

26. In a wire-fence machine, the combination of strand-wire-feeding mechanism, stay-wire-feeding mechanism, mechanism for cutting the stay-wires and coiling them around the strand-wires, the tension-roll 99 having a plain periphery, and the take-up roll 93 having notches or recesses 94 in its periphery, the surfaces of the rollers 99 and 93 being in such proximity that the strand-wires are crimped at the junction of the stay-wire coils as the coils pass into the recesses 94.

27. In a wire-fence machine, the combination of a plurality of coilers, a stationary cutter-bar carrying a plurality of cutters corresponding to the coilers, a movable cutter-bar carrying a plurality of cutters corresponding to and coöperating with the fixed cutters, and mechanism for moving the movable cutter-bar toward and from the stationary bar so that all the cutters will operate simultaneously.

28. In a wire-fence machine, the combination of a plurality of coilers, a stationary cutter-bar carrying a plurality of cutters corresponding to the coilers, and a movable cutter-bar carrying a plurality of cutters corresponding to and coöperating with the fixed cutters, said movable bar being mounted on eccentric-wrists 82 of a pair of connected levers 83, 84 connected together by a rod 87, and means for operating the levers.

29. In a wire-fence machine, the combination of take-up rolls for taking up the completed fencing, tension-rolls coöperating with said take-up rolls, spring-arms in which the tension-rolls are mounted, and cam-faced levers for throwing the tension-rolls in operative connection with the take-up rolls.

30. In a wire-fence machine, the combination of strand-wire-feeding mechanism, stay-wire-feeding mechanism, mechanism for cutting the stay-wires and coiling them around the strand-wires, mechanism for taking up the completed fencing, and differential gearing for driving the take-up mechanism, whereby the distance apart of the stay-wires may be varied.

31. In a wire-fence machine, the combination of the shafts 30, 31 of the take-up mechanism, said shafts being intergeared by the gears 36 and 37, respectively, and the idler 38, of the drive-shaft 9 having the adjustable gears 12 and 13 adapted to mesh with the gears 32 and 33 on the shafts 30 and 31 respectively.

32. In a wire-fence machine, the combination of a winding-drum, a ratchet-wheel fixed on the shaft of the drum, a driving-wheel loosely journaled on said shaft, and a pawl carried by the driving-wheel and engaging the ratchet-wheel.

33. In a wire-fence machine, the combination of a longitudinally-sectional winding-drum, a driven head-piece in which one end of each of the drum-sections are fitted, a rotatable stand in which the other ends of the drum-sections are fitted, and means for releasably securing said sections together and to the head and stand.

34. In a wire-fence machine, the combination of the driven head-piece 105, the rotatable stand 101, the longitudinally-sectional winding-drum composed of the parts 100, 100, and the detachable fastening-keys 102, 104.

35. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, a plurality of guides through which stay-wires are fed to the coilers transversely of the strand-wires, mechanism for feeding the stay-wires through the guides, and mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, said guides being curved so as to present the ends of the stay-wires at an angle to the face of the coilers in order that the body portion of the wires may not interfere with the action of the coiling-pins.

36. In a wire-fence machine, the combination of a plurality of coilers arranged in vertical line one over another, a plurality of similarly-arranged guides and feed-rolls for feeding stay-wires to the coilers, take-up rolls for taking the fencing from the coilers, and a winding-drum for reeling the completed fencing, said take-up rolls and winding-drum being located and arranged in parallel relation to the line of coilers and stay-wire feed-rolls.

37. In a wire-fence machine, the combination of bed and head plates, suitably connected by vertical standards, a plurality of coilers arranged in vertical line one over another, a vertically-reciprocating rack-bar in parallel relation with the line of coilers, a plurality of vertically-arranged guides and feed-rolls for directing and feeding stay-wires to the coilers, take-up and tension rolls for taking the fencing from the coilers, and a winding-drum for reeling the completed fencing, said take-up rolls and winding-drum being located and arranged vertically in parallel relation to the line of coilers.

577,640. SEAL ATTACHMENT FOR BOTTLES. HERMAN BOKELMANN, Newark, N. J., assignor of one-half to Margaretha Schmitt, same place. Filed Mar. 25, 1896. Serial No. 584,724. (No model.)



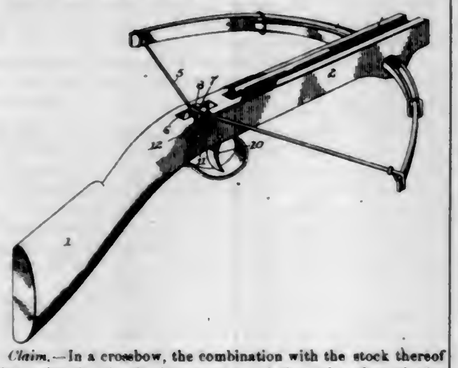
Claim.—1. A seal attachment for bottles, comprising therein, a seal cap or hood, strands or strips depending from said cap or hood, a sleeve-like portion having an annular shoulder a^4, with which said strands or strips are connected, a protector-sleeve *e* arranged over said sleeve-like portion, having an inwardly-extending portion *e'* adapted to be locked over said shoulder a^4, and a locking or holding means connected with said sleeve-like portion, adapted to be forced into holding or locking engagement with the neck of the bottle, said means consisting, essentially, of a sleeve *d*, having spring-tongues d^7, substantially as and for the purposes set forth.

2. The combination, with the neck of the bottle, having a depression b^3 and a shoulder b^3, of a seal attachment, comprising therein, a seal cap or hood, strands or strips depending therefrom, a sleeve-like portion a^3 with which said strands or strips are connected, an annular shoulder a^4 on said portion a^3, a protector-sleeve *e* arranged over said sleeve-like portion a^3, having an inwardly-extending portion *e'* adapted to be locked over said shoulder a^4, and a locking or holding means connected with said portion a^3 adapted to be forced into holding or locked engagement with said shoulders b^3, substantially as and for the purposes set forth.

3. The combination, with the neck of the bottle, having a depression b^3 and a shoulder b^3, of a seal attachment, comprising therein, a seal cap or hood, strands or strips depending therefrom, a sleeve-like portion a^3 with which said strands or strips are connected, an annular shoulder a^4 on said portion a^3, a protector-sleeve *e* arranged over said sleeve-like portion a^3, a locking or holding means connected

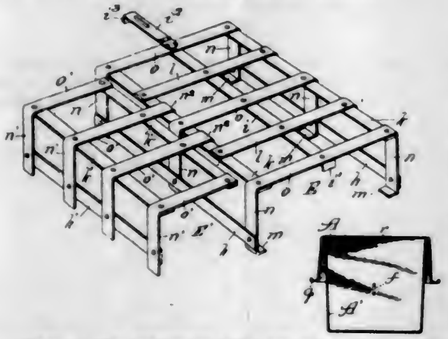
with said portion a^3 adapted to be forced into holding or locked engagement with said shoulder b^3, consisting, essentially, of a sleeve d having spring-tongues d^7, an inwardly-extending portion c' on said sleeve c adapted to be fitted and locked over the upper edge of said sleeve d, and an inwardly-extending portion c^3 on said sleeve c adapted to be fitted and locked over the lower edge of the said sleeve d, all substantially as and for the purposes set forth.

577,641. CROSSBOW. GUSTAV BRUDER, Annapolis, Md. Filed July 7, 1896. Serial No. 598,301. (No model.)



Claim.—In a crossbow, the combination with the stock thereof having a slot therein, the bow proper and the string thereof, of a detent-disk pivotally mounted in said slot having a shoulder at one point thereon with which said bow-string is adapted to engage, a spring for normally holding said disk in its rearward position, and a pivotally-mounted trigger whose upper end is adapted to engage a second shoulder on said disk, substantially as and for the purpose described.

577,642. COOKING OUTFIT. FRANCIS H. BURNACOTT, Chicago, Ill. Filed Mar. 12, 1896. Serial No. 582,963. (No model.)

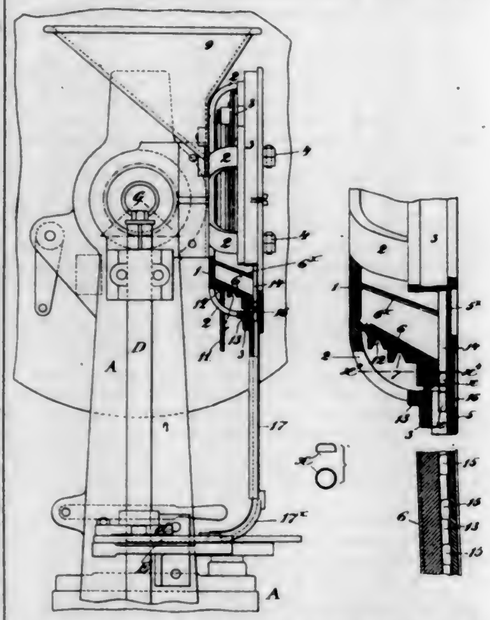


Claim.—1. The combination with a pan, of a metal grating having a top and sides extending therefrom to embrace said pan, and forming a skeleton stove and also a protective cage for the pan and such other utensils as may be contained therein, means on the stove and pan for securing them in this relation, and a supplemental grating provided with means for connecting it with said grating to extend the service area of the stove, substantially as described.

2. The combination with a pan, of a metal grating having a top and sides extending therefrom to embrace said pan and forming a skeleton stove and also a protective cage for the pan and such other utensils as may be contained therein, means on the stove and pan for securing them in this relation, and a supplemental grating affording an extension of said stove and forming two sides of a rectangle composed of transverse angle-bars o', having hook extensions n^3 at which to engage a bar of said stove, and longitudinal bars k' and h', said supplemental grating being adapted to nest in said pan, substantially as described.

3. A camp cooking outfit comprising, in combination, a pan A having a flange q, a pan A' nesting in said pan A, a cover H over said pan A', and a metal grating E formed with legs s having the inwardly-projecting catches m, a stop-lug i' at one end of the grating and a hinged catch at the opposite end thereof, said grating E extending over the covered pan A' and engaging at its said catches and lug the flange q about the pan A, the whole being constructed and arranged to be operated substantially as and for the purpose set forth.

577,648. MECHANISM FOR FEEDING BLANKS TO DIES, &c. ANDREW C. CAMPBELL, Waterbury, Conn., assignor to the E. J. Manville Machine Company, same place. Filed June 6, 1896. Serial No. 594,463. (No model.)



Claim.—1. A feeding mechanism for unsymmetrical blanks and the like, having a stationary box, and a conical, open-ended drum rotatively mounted in said box with the margin about its larger open end adjacent to the inner face of one wall of the box, said drum having at the said margin a channel 14, and unsymmetrical apertures 15, through which the blanks in the drum may pass when presented to the apertures facing in one direction only, substantially as and for the purpose set forth.

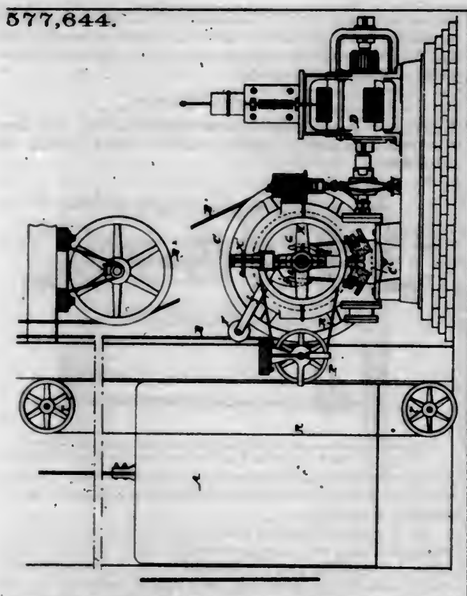
2. In a feeding mechanism for unsymmetrical blanks and the like, the combination with the stationary box, provided with a channel 16 to receive the blanks, the drum mounted rotatively in said box and provided at its edge with a channel 14, having in its bottom unsymmetrical apertures 15 of such form as to fit the blank when the latter is presented to it facing in one direction only, and a guideway arranged to receive the blanks which fall through the openings in the drum into the channel 16 in the box, substantially as set forth.

3. In a feeding mechanism for blanks and the like, the combination with the stationary box, comprising the back plate 1, the ring 3, having in it the channel 16, the arms connecting said back plate and ring, and the door 5, hinged to said ring, of the conical drum 6, mounted rotatively in said box and provided with a channel 14, and a band 13, having in it apertures 15 for the passage of the blanks from the drum to the outer channel 16, of the wheels 8 on which said drum is rotatively mounted, and a guideway connected with the channel 16 and adapted to receive the blanks from said channel, substantially as set forth.

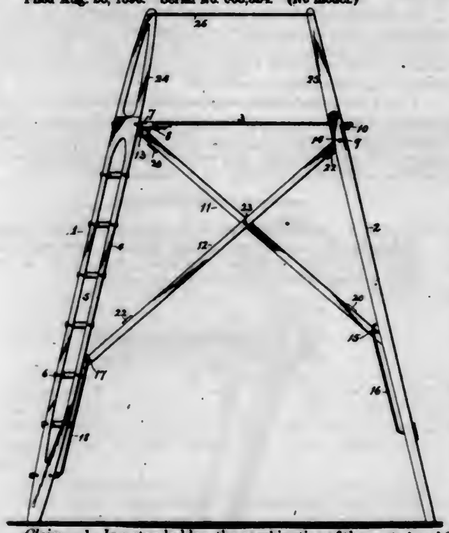
577,644. ELECTRIC ELEVATOR. JOHN P. CASEY, Philadelphia, Pa., assignor to the Morse, Williams & Company, same place. Filed June 13, 1893. Serial No. 477,413. (No model.)

Claim.—In an electric elevator the combination of a winding-drum, a power device to rotate the drum, a lifting-cable, a movable part adapted to control the power device, a pawl carried by the movable part, a rotating tooth or ratchet wheel moved by the winding-drum or the power device, a movable frame provided with a guide adapted to press upon the lifting-cable and furnished with a shoe to forcibly press the pawl into contact with the ratchet-wheel whereby in case the cable becomes slack the shoe and movable frame shall operate the pawl to throw it positively into engagement with the moving toothed or ratchet wheel and thereby move the movable part to stop the operation of the power device.

577,644.



577,645. STEP-LADDER. STANLEY A. COHEN, New York, N. Y. Filed Aug. 20, 1896. Serial No. 603,324. (No model.)



Claim.—1. In a step-ladder, the combination of the parts 1 and 2, disconnected at their upper ends so as to be bodily separable thereat by a movement of said ends outwardly in opposite directions for the creation of a space therebetween, and a pendent platform attached at one end to the upper end of one of said parts and arranged to automatically bridge said space when said upper ends are thus bodily spread apart, as and for the purpose shown and described.

2. In a step-ladder, the combination of the parts 1 and 2 connected together in a manner such that said parts may be bodily spread apart at their tops as well as at their bottoms in the opening-out operation of the ladder by a movement of said parts outwardly in opposite directions, and a platform hinged or pivoted to the upper end of one of said parts and so arranged as to be capable of being lifted to a working position by the other of said parts when the two parts are separated; substantially as set forth.

3. In a step-ladder, the combination of the bodily-separable parts 1 and 2, pivoted connecting-frames which permit said parts 1 and 2 to be moved outwardly in opposite directions for their entire lengths, and so as to create a comparatively wide space between the upper ends of the parts 1 and 2, and a platform hinged or pivoted to the part 1 and adapted to be automatically raised to a working position by the part 2 by and during the movement of separation of said two parts; substantially as set forth.

4. In a step-ladder, the combination with the parts 1 and 2 arranged to be bodily spread apart at their tops as well as at their bottoms in the opening-out operation of the ladder, of a platform hinged or pivoted to one of said parts and arranged to hang pendent on the outside of the other of said parts and to be automatically raised thereby by and during the movemenet necessary to separate the parts 1 and 2; substantially as set forth.

5. In a step-ladder, the combination of the bodily-separable parts 1 and 2, and the connecting-frames pivoted at their upper ends to the parts 1 and 2 and slidably connected at their lower ends to said parts; substantially as set forth.

6. In a step-ladder, the combination of the separable parts 1 and 2, the platform pivotally attached to one of said parts and liftable by the other of said parts, and the connecting bars or frames, pivoted at their upper ends to the parts 1 and 2 and loosely connected at their lower ends to said parts; substantially as set forth.

577,646. CHILD'S CARRIAGE. FELIX COHN, Namslau, Germany. Filed Feb. 28, 1896. Serial No. 581,155. (No model.) Patented in England Feb. 3, 1896, No. 2,421.



Claim.—1. In a child's carriage, the combination of a front and rear section, with hinges connecting the lower parts of same, a king-bolt, a spring encircling same and a spring connected with the forward part of the carriage and adapted to be engaged by the king-bolt, substantially as set forth.

2. A child's carriage having a body composed of two sections hinged together, as described, the forward section having a supporting-spring hinged to the bottom thereof, a segmental piece connected with said supporting-spring, and a locking-spring for engaging the segmental piece, substantially as set forth.

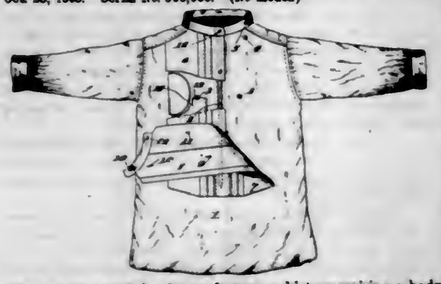
3. In a vehicle having a body composed of a front and rear section hinged together as described, a pair of supplemental side pieces p and means for securing same, when the forward part of the carriage is inclined, substantially as set forth.

577,647. DEVICE FOR CLEANING FLUES AND FLUE-PIPES. CHARLES COMSTOCK, Ozone Park, N. Y. Filed June 12, 1896. Serial No. 595,375. (No model.)



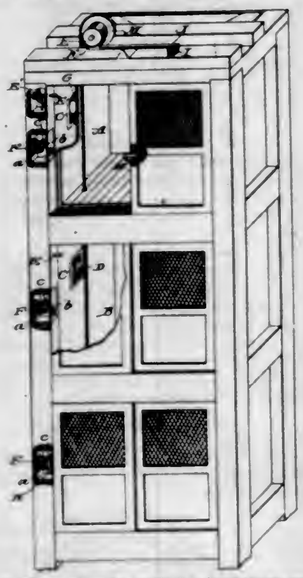
Claim.—A device for cleaning flues and pipes, comprising a suitable circular casing having a removable side, a spring-drum mounted in said casing, a spring-metal tape, cord, or band wound on said drum, one end of which is secured thereto, and the other to a disk or plate, said casing being provided at one side with a tubular extension by means of which connection with a steam-supply may be made, and at the other end with a conical tubular extension by means of which connection with a flue or pipe may be made and through which the end of the tape, cord or band which is connected with the disk or plate passes, and said spring-drum being adapted to be wound up by the pressure of the steam on said plate or disk, and said plate or disk being adapted to be blown through the flue or pipe, and to be withdrawn by said spring-drum, substantially as shown and described.

577,648. SHIRT. EDMUND K. EDWARDS, Jennings, La. Filed Oct. 23, 1895. Serial No. 566,606. (No model.)



Claim.—As an article of manufacture, a shirt comprising a body portion having a central front opening, a bosom composed of two sections centrally divided, one of said sections being secured at its upper and lower ends to the body of the shirt, and the other section being secured at its lower end, and adapted to be detachably secured at its upper end to said shirt-body, reinforces on the inner faces of said sections provided with means for detachably securing them to the body of the shirt, substantially as described.

577,649. SAFETY DEVICE FOR ELEVATORS. WILLIAM EBERHARDT, Union, Hudson County, N. J., assignor of one-half to George A. Conner, New York, N. Y. Filed Jan. 4, 1895. Serial No. 533,866. (No model.)

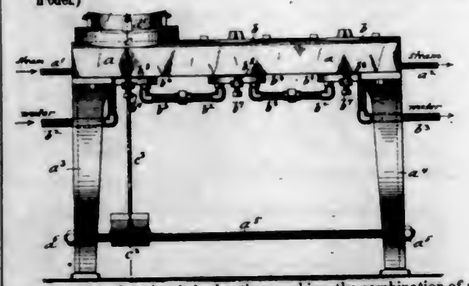


Claim.—1. The combination with the elevator-car and the shaft-door and its lock and starting-rope, of a boss, as G, fastened to the exterior of the car, wall-springs, as D, fastened to the elevator well or shaft, electrical connections and a source of electricity, whereby said boss, when the elevator-car has arrived at a floor-level closes an electrical circuit, rendering operative said lock and permitting the door to be opened, substantially as described.

2. The combination, with the elevator-car having a boss or projection thereon and the doors at the several landings, of electromagnetic locks, each consisting of a latch on the door, an electro magnet or magnets and a hanging piece or pendulum, and electrical connections whereby the car, upon arriving at a floor-level, causes said pendulum to be attracted to the magnet or magnets, permitting the latch to be lifted and door opened, substantially as described.

3. The combination of an elevator-car having a boss or projection as G, wall-springs as D fastened to the well or elevator-shaft, a pulley around which said rope passes, and a brake-wheel fastened to said pulley, elevator-starting or valve rope, and the doors at the several landings, of a brake-shoe as K, electromagnetic locks for the doors, each consisting of a latch on the door, and electro magnet or magnets, and a hanging piece or pendulum and electrical connections operated by the boss or projection fastened to the car to attract or release the hanging piece or pendulum to or from the electro magnet or magnets which permits the door to be opened or closed, and by the doors to operate the brake-shoe to engage or release the brake-wheel, substantially as described.

577,650. MACHINE FOR HEATING HAT-BRIMS. CARL EICKEMEYER, Yonkers, N. Y. Filed Dec. 21, 1896. Serial No. 616,485. (No model.)



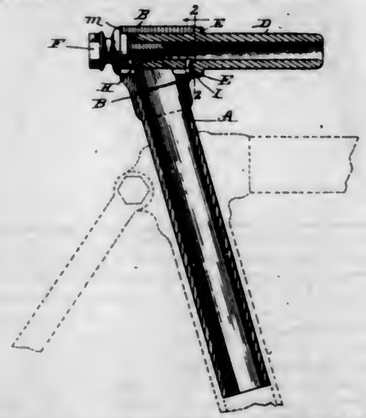
Claim.—1. In a hat-brim-heating machine, the combination of a brim-heating bed-plate, a crown-cooling bed within the same, a hollow brim-heating ring, and means for supplying steam to said ring, substantially as set forth.

2. In a hat-brim-heating machine, the combination of a brim-heating bed-plate box, a crown-cooling bed within the same, a hinged hollow brim-heating ring supplied with steam, a counterbalancing-weight connected with said ring and a treadle connected with said ring so as to move it in raised or lowered position, substantially as set forth.

3. In a hat-brim-heating machine, the combination of a brim-heating bed-plate box, a crown-cooling bed located within the same, a hollow brim-heating ring supplied with steam and a layer of insulating material supported at the inner circumference of the brim-heating ring, substantially as set forth.

4. In a hat-brim-heating machine, the combination of a brim-heating bed-plate box, a crown-cooling bed within the same, a hollow brim-heating ring, provided with upright lugs, and a layer of insulating material applied to said lugs and extending over the inner circumference of the brim-heating ring, substantially as t forth.

577,651. REVERSIBLE SADDLE-POST FOR BICYCLES. GEORGE GILBERT and EDWARD MOSHING, Coventry, England. Filed Feb. 7, 1896. Serial No. 578,348. (No model.) Patented in England Dec. 14, 1895, No. 21,270, and in France Dec. 19, 1895, No. 239,866.

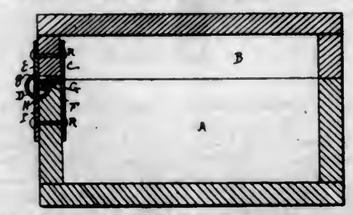


Claim.—1. A saddle-post, having a tubular head, placed at an angle thereto, and a reversible clip-bar having a hollow screw-threaded end, and a stop formed thereon, combined with a headed screw which enters the hollow end of the clip-bar, and abutting against the opposite end of the tubular head from the stop, clamps the clip-bar rigidly in position, substantially as shown.

2. The saddle-post, provided with a tubular head, extending at an angle thereto, and a reversible clip-bar having a hollow screw-threaded end to fit within the head, and a stop to abut against one end of the tubular head, combined with a headed screw, which has one end to enter the tubular head and its end to clamp against the opposite end of the head from the stop, and means for preventing the clip-bar from turning in the head, substantially as described.

3. The saddle-post A, provided with a tubular head B, provided with a longitudinal internal groove H; and the reversible clip-bar provided with a stop E to abut against one end of the head, and a pin L to fit in said groove H, and having a hollow screw-threaded end which fits in but which is shorter than the head, combined with a screw which fits in the hollow end of the clip-bar and is provided with a head which clamps against the opposite end of the head from the stop, whereby the clip-bar is locked rigidly in position, substantially as set forth.

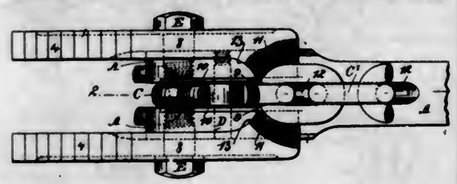
577,652. HINGE. JAMES F. GILLILAND, Adrian, Mich., assignor to the Adrian Box Company of New Jersey, Jersey City, N. J. Filed June 5, 1896. Serial No. 594,415. (No model.)



Claim.—1. A sheet-metal hinge, comprising two U-shaped leaves adapted to embrace the edges of the top and bottom of a box, one of said leaves being provided at its center and on one side with slots, and the other leaf provided at one edge with a curved portion passing through the said slots, substantially as described.

2. A sheet-metal hinge, comprising two U-shaped leaves adapted to embrace the edges of the top and bottom of a box, one of said leaves being provided at its center and on one side with slots and having an inwardly-bent curved lip *g*, and the other leaf provided at one edge with a curved portion passing through the said slots, substantially as and for the purpose specified.

577,653. CHAIN WRENCH. WILLIAM J. GRINDER and GEORGE AMBORN, Jr., Brooklyn, N. Y., assignors to the J. H. Williams & Company, same place. Filed Apr. 1, 1896. Serial No. 585,710. (No model.)



Claim.—1. The combination in a chain wrench, of a handle forked at the front end and having dovetailed edges, jaws grooved upon their inner faces to fit the dovetailed edges and driven endwise upon the same, and a chain having an end link within the fork of the handle and a cross-pin for connecting the same, substantially as set forth.

2. The combination in a chain wrench, of a handle forked at its front end and having tapering dovetailed edges, jaws grooved upon their inner faces to fit the dovetailed edges and driven endwise upon the same, and a chain having an end link within the fork of the handle and a cross-pin for connecting the same, substantially as set forth.

3. The combination in a chain wrench, of a handle forked at its front end and having dovetailed edges, jaws grooved upon their inner faces to fit the dovetailed edges and driven endwise upon the same, and a chain having an end link within the fork of the handle and a cross-pin for connecting the same, and separate bolts passing through the jaws and into the fork of the handle, substantially as set forth.

4. The combination in a chain wrench, of a handle having a fork at its front end, jaws having serrated front edges and grooved in their inner faces to set tightly upon the outer sides of the handle-fork, and two separate bolts passing through the jaws and into the fork, substantially as set forth.

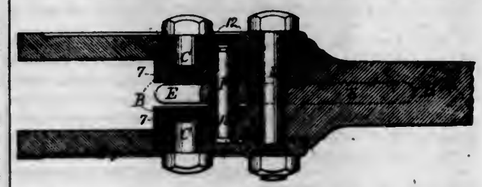
5. The combination in a chain wrench, of jaws having serrated edges at each side, a handle having a forked end, separate bolts passing through the jaws and into the fork for connecting such jaws to the fork, a chain and a pin crossing the axial center of the handle and nearer to the bottom of the fork than the separate bolts, for connecting the end link of the chain to the fork and preventing the wrench becoming wedged upon the pipe, substantially as set forth.

6. The combination in a chain wrench adapted for use with either an open cable or flat-link chain, of two jaws having serrated edges, a handle forked at the end, a chain and cross-pin for connecting the end link of the chain in the fork, the jaws being provided with flaring recesses adapted to receive and interlock with a cable chain having open elliptical links and with recesses 11 within the flaring recesses for receiving the ends of the cross connecting pins or rivets in a flat-link chain, substantially as set forth.

7. The combination with the jaws having serrated edges at each side, of a forked handle received between the jaws and permanently connected to them, the jaws being extended to the rear and formed with recesses to receive the projecting ends of the chain-pivots or the curved ends of the cable-chain links, and the edges of the handle-fork being grooved to receive the edges of the plate links of the chain, substantially as set forth.

8. The combination with the forked handle of jaws grooved upon their inner surfaces and setting against the outer surfaces of the forked handle, separate bolts passing through the jaws and terminating at the inner surface of the fork of the handle, and a chain and a removable pin passing through the fork and through the end link of the chain, substantially as set forth.

577,654. CHAIN WRENCH. WILLIAM J. GRINDER and GEORGE AMBORN, Jr., Brooklyn, N. Y., assignors to the J. H. Williams & Company, same place. Filed Apr. 1, 1896. Serial No. 585,711. (No model.)



Claim.—1. The combination in a chain wrench, of a handle-bar having a forked end, jaws having serrated edges at both sides and recessed on their inner surfaces to receive the outer edges of the handle-bar fork, the end of such handle-bar fork having undercut or dovetailed projections, and the ends of the recesses in the jaws being correspondingly shaped, substantially as set forth.

2. The combination in a chain wrench, of a handle-bar having a forked end, jaws having serrated edges at both sides and recessed on their inner surfaces to receive the outer edges of the handle-bar fork, the end of such handle-bar fork having undercut or dovetailed projections, and the ends of the recesses in the jaws being correspondingly shaped, there being shoulders upon the handle-bar fork undercut or dovetailed to receive the correspondingly-shaped back ends of the jaws, substantially as set forth.

3. The combination with the jaws and handle-bar, forked at the end, of a chain with the end link passing into the slot of the handle-bar fork, a cross-pin passing through the end link of the chain and through the handle-bar fork, such pin having a head at one end and a nut and divided washer at the other end, the jaw being recessed to receive the divided washer, substantially as set forth.

4. The combination with the handle-bar forked at one end, of jaws having serrated edges at both sides, two bolts each passing through one jaw and into the fork of the handle-bar and terminating at the inner surfaces of the fork, the screw-threaded portions of the bolts being only near the inner ends of such bolts so that the plain cylindrical portions of the bolts pass through the jaws and enter the handle-bar fork, substantially as set forth.

5. The combination with the handle-bar forked at one end, of jaws having serrated edges at both sides, two bolts each passing through one jaw and into the fork of the handle-bar and terminating at the inner surfaces of the fork, the screw-threaded portions of the bolts being only near the inner ends of such bolts so that the plain cylindrical portions of the bolts pass through the jaws and enter the handle-fork, a cable chain having open elliptical links and a separate cross-pin passing through the end link of the chain, substantially as set forth.

6. The combination with a handle-bar forked at the end, of jaws having serrated edges at both sides, two separate bolts for connecting the jaws to the handle-bar fork near its ends and terminating at the inner surfaces of the fork, and a second bolt to the rear passing across through the jaws and handle-bar, and a chain having its end link pivoted within the handle-bar fork, substantially as set forth.

7. The combination in a chain wrench, of a handle-bar having a fork and dovetail projections at its end, jaws having serrated edges at both sides and dovetailed recesses in the middle corresponding to the projections on the handle-bar fork for connecting the handle to the jaws, a chain and a connection for one end of the chain in the

handle-bar fork, there being projections on the jaws for engaging the links of the chain, substantially as set forth.

8. The combination with the handle-bar forked at the end, of jaws having serrated edges at both sides, two separate bolts passing through the jaws and into the handle-bar fork, a bolt passing across through the jaws and handle-bar, and a chain having one end connected within the handle-bar fork, substantially as set forth.

577,655. **RAILROAD-BRAKE.** CHARLES L. HARRYMAN, Louisville, Ky., assignor of one-half to William T. Pyne, same place. Filed July 14, 1896. Serial No. 599,139. (No model.)



Claim.—1. In a car-brake, the combination with a movable brake-beam, of friction-shoes carried by said beam and adapted for insertion between the wheels and rails, a spring adapted for moving the brake-beam so as to throw the shoes into engagement with the wheels and rails, and means for keeping said shoes normally out of engagement with the wheels and rails.

2. In a car-brake, the combination with a movable brake-beam, of arms carried by said beam, friction-shoes connected to the arms and adapted for insertion between the wheels and rails, winding mechanism, a chain or cable connected to the winding mechanism, and a coil-spring connected to the brake-beam and the chain, said parts being so disposed and related that the winding mechanism keeps the shoes out of engagement with the wheels and rails, but upon said mechanism being released, the coil-spring throws them into engagement with said wheels and rails.

3. In a car-brake, the combination with a brake-beam, of arms connected to said beam, rollers journaled on the arms and adapted to ride on the car-track, friction brake-shoes connected to the beam and adapted for insertion between the wheels and rails, and means for moving the brake-beam to throw said friction-shoes into engagement with the wheels and rails.

4. In a car-brake, the combination with a movable brake-beam, of arms connected thereto, friction brake-shoes consisting of plates provided with flanges which are connected to the arms, said shoes being adapted for insertion between the wheel-tread and flange and the rail, and means for moving the brake-beam to put the shoes in use.

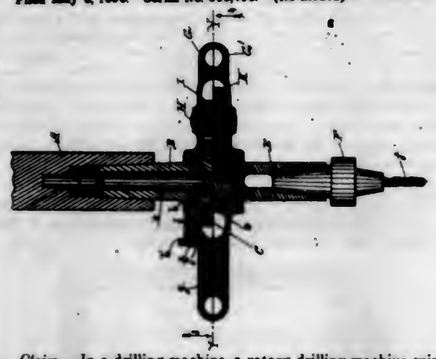
5. In a car-brake, the combination with a movable brake-beam, of friction-shoes carried thereby which are adapted for insertion between the wheels and rails, mechanism for holding the brake-shoes out of engagement with the wheels and rails, means for automatically throwing said shoes into engagement with the wheels and rails, additional brake-shoes, and a connection between the brake-beam and the latter shoes whereby they are applied simultaneously with the friction brake-shoes.

6. In a car-brake, the combination with an auxiliary movable brake-beam, of friction-shoes connected to said brake-beam and adapted for insertion between the wheels and rails at opposite ends of the car, means for moving the brake-beam from either end of the car so as to apply the shoes to either set of wheels, additional brake-shoes, and connections between said brake-shoes and the auxiliary beam whereby when the friction brake-shoes are applied to one set of wheels the other brake-shoes are applied to another set of wheels.

7. In a car-brake, the combination with a movable auxiliary brake-beam, of friction-shoes carried by said brake-beam and extending in opposite directions, being adapted for insertion between the wheels and rails at opposite ends of the car, additional brake-shoes, links connecting said shoes to the car-truck, said shoes being located at opposite ends of the car, and brake-rods connected to the auxiliary brake-beam and provided with open links adapted for engagement with the extra brake-shoes, whereby when the friction-shoes are applied to the wheels at one end of the car, the extra shoes are applied to the wheels at the other end of the car.

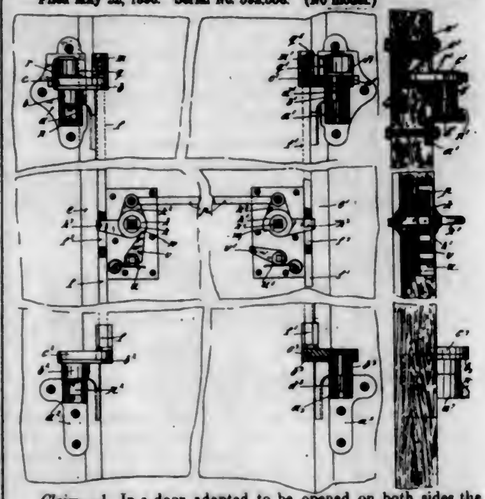
8. In a car-brake, the combination with a movable auxiliary brake-beam, of friction-shoes connected to said beam and adapted for insertion between rails and the wheels at opposite ends of the car, winding mechanisms located at opposite ends of the car, chains connected to said winding mechanisms, springs connecting said chains to the auxiliary brake-beam, additional brake-shoes at opposite ends of the car, and connections between said brake-shoes and the auxiliary brake-beam whereby when the friction brake-shoes are applied at one end of the car, the additional brake-shoes are applied to the wheels at the opposite end of the car.

577,656. **DRILL-CHUCK.** JOHN F. HENDRICKSON, Boston, Mass. Filed May 8, 1896. Serial No. 590,758. (No model.)



Claim.—In a drilling-machine a rotary drilling-machine spindle combined with a shank B attached to the same, and provided with a gear C, a chuck or drill holding shank E loosely journaled in said shank B and a gear *e*, attached to said shank E, a hand-wheel G, G', or pulley journaled on the shanks B, E, gears I, K, intermeshing respectively with the gears C, *e*, and a locking device for attaching and detaching the hand-wheel to and from the shank B, substantially as and for the purpose set forth.

577,657. **DOOR.** LEO F. HERRMANN, Vienna, Austria-Hungary. Filed May 22, 1896. Serial No. 593,558. (No model.)



Claim.—1. In a door adapted to be opened on both sides the combination of the door with disengaging hinges on both sides above and below, pivot-journals on the door-post, rods sliding in grooves provided in the edges of the door and having lugs projecting laterally therefrom beyond the edges of the door carrying pintles which engage the pivot-journals of the door-post, said rods being actuated vertically by the locking mechanism to release the pintles when the door is opened, substantially as described.

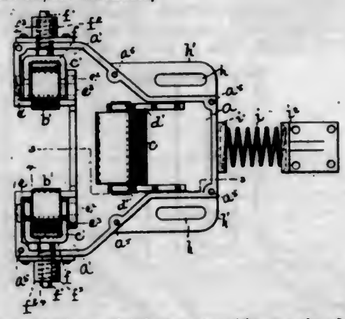
2. In a door adapted to be opened on both sides the disengaging hinges consisting of the pivot-journals mounted on the door-post, the guiding-sockets attached to the door and the hinge-pivots carried by lugs which project laterally from the sliding bars in combination with a rod having a slot in which engages a cam actuated by the door-handle which by being pressed down lifts the rod carrying with it the hinge-pivots and lifting them from their journals so that the door may now turn about the pivots on the other side, substantially as described.

3. In a door adapted to be opened on both sides the combination of the disengaging hinges with pivot-journals on the door-post, rods sliding in grooves provided in the edges of the door and having projecting lugs with extensions, a notch-disk formed integral with the projecting lugs, pintles dependent of the rod and a snapping-stop pivoted to the frame of the pivot-journal with teeth engaging the notch of the disk, so that by turning the door on one of the hinges the notch-disk oscillates and swings the pivoted stop over the lug extension thus preventing the bar from lifting, substantially as described.

4. In a door adapted to be opened on both sides the combination of the disengaging hinges with a rod having a projecting lug with extension and a slot in which engages a cam actuated by the door-handle which by being pressed down lifts the rod and the lug carrying with it the hinge-pivots and lifting them from their journals, and a spiral spring surrounding the rod which returns the rod to its original position after the handle is released, substantially as described.

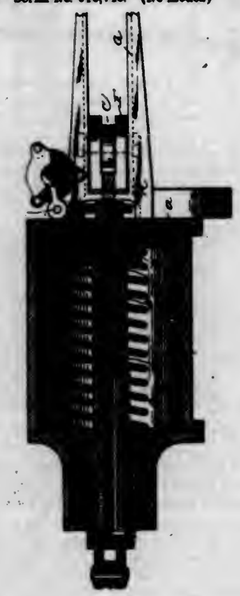
5. In a door adapted to be opened on both sides the combination of the disengaging hinges with rods sliding in grooves on the edges of the door and having projecting lugs which carry pintles, hinge-journals on the door-post which extend forward and are provided with inclined surfaces on which the pintles move upward while the door is closing and past which they snap into the bores of the journals when the door is perfectly closed, substantially as described.

577,658. **LUBRICATOR.** GEORGE A. HOFMEYER, New York, N. Y., assignor to Rosalie Hofmeyer, same place. Filed Jan. 28, 1894. Serial No. 497,752. (No model.)



Claim.—An elevator-lubricator, comprising a casing forming a main oil-chamber, and branch oil-chambers, a roller *b* mounted in immovable bearings within the main oil-chamber, a spring-pressed feed-roller immersed in the oil and in contact with said roller *b*, a spring engaging the casing for moving the same, whereby said roller *b*, will be kept in constant engagement with the elevator-rail, a smaller roller *b'* in each branch oil-chamber carried in an independent spring-pressed support, whereby the smaller rollers will be kept in constant engagement with the sides of the elevator-rail, and a feed-roller for each roller *b'* carried by the support for said rollers *b'*, substantially as set forth.

577,659. **SLACK-ADJUSTER FOR BRAKES.** WILLIAM W. HOLMES, Chicago, Ill., assignor to Charles F. Quincy, same place. Filed Dec. 23, 1896. Serial No. 616,746. (No model.)



Claim.—1. The combination with an air-brake cylinder, of a cylinder-lever, a movable fulcrum therefor, a fulcrum-guide supported from the brake cylinder head, and means for shifting the movable fulcrum, said means housed within the air-brake cylinder; substantially as and for the purposes specified.

2. The combination with an air-brake cylinder having a perforate head provided with an inwardly-projecting tube, of a slack-adjuster having a screw-rod and nut-and-ratchet mechanism, said slack-adjuster mounted on the cylinder-head the screw-rod being housed in the tube within the cylinder; substantially as and for the purposes specified.

3. The combination with an air-brake cylinder having a perforate cylinder-head and an inwardly-projecting tube, of a piston-head having a hollow stem for the reception of the inwardly-projecting tube of the cylinder-head, a lever-fulcrum movable in a guide or stirrup mounted on the cylinder-head and provided with a screw-rod housed in the tube of the cylinder-head, a ratchet-nut arranged on the screw-rod, and means for rotating the ratchet-nut; substantially as and for the purposes specified.

577,660. **PICTURE-FRAME.** RUDOLPH LIEBMANN, New York, N. Y. Filed Dec. 8, 1896. Serial No. 614,855. (No model.)



Claim.—1. A picture-frame provided with a rotatable back provided with a supporting or suspending device, substantially as described.

2. The combination with an open frame, of a bezel attached to said frame and provided with a circular seat, a back rotatively mounted in said bezel, and a supporting or suspending device attached to said back, substantially as described.

577,661. **HORSESHOE ATTACHMENT.** JOHN MALKEN, Babylon, N. Y. Filed Mar. 16, 1896. Serial No. 583,466. (No model.)



Claim.—1. In a horseshoe attachment, the heel and toe plates united by the connecting-bars, and the adjusting-bar connected to one connecting-bar and to the other connecting-bar, by a set-screw working in a slot made in the end of the adjusting-bar, substantially as shown and described.

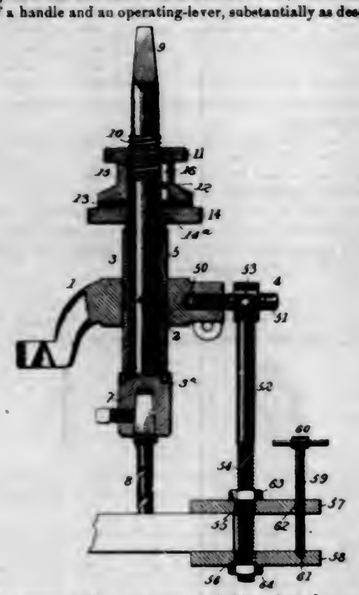
2. The combination, with the connecting-bars, of the heel-plates at their ends, the heel-calks, the toe-plates and bolts connecting the bars and toe-plates, and the adjusting-bar pivoted at one end and slotted at the opposite end, and the set-screw, all arranged substantially as shown and described.

3. The combination with the horseshoe A, of the toe-plates B and B', the toe-calks attached to the plate B, the connecting-bars E having their ends pivoted between the plates B and B', the bolts D for securing said connecting-bars; the plates F and F' arranged upon the rear ends of the connecting-bars E and substantially parallel, the plate F being longer than the plate F', and the heel-calks G attached to the said plates F, and an adjusting or spreading bar H pivoted to one of the connecting-bars and having a slot *h* at the opposite end, and the set-screw H' adapted to pass through the said slot into the connecting-bar, all arranged and adapted to operate substantially as shown and described.

577,662. **FEED DEVICE FOR ROTARY DRILLS.** WILLIAM J. MEWER, Old Orchard, Me., assignor to the Mower Tool Company, Portland, Me. Filed May 23, 1896. Serial No. 592,846. (No model.) Patented in Canada Nov. 14, 1895, No. 50,577.

Claim.—1. A rotary drill comprising a rotary-drill stock or holder adapted to receive a brace and provided at its upper end with a detachable handle or grip, a feed for said holder, and means attached to the grip and detachable therewith, for rotating the stock or holder, substantially as described.

2. In a rotary drill, a drill stock or holder, means for rotating the same, and a feed therefor, the said means comprising a clutch-section detachably fitted to the drill, and another clutch-section co-operating with the first and detachable therefrom, and constructed in part of a handle and an operating-lever, substantially as described.



3. In a rotary drill, a drill stock or holder adapted to receive a brace and means for rotating the same, the said means comprising a clutch-section detachably fitted to the drill, and another clutch-section cooperating with the first and detachable therefrom, the latter section being constructed in part of an operating-lever, a handle or grip having a threaded bore, and a feed-screw fitting in said bore, substantially as described.

4. A rotary drill comprising a saddle and means for securing the same to the work, a rotary-drill stock or holder provided at its upper end with a detachable handle or grip, and means attached to the grip for rotating the drill, substantially as described.

5. A rotary drill comprising a saddle, means for securing the saddle in place upon the work to be drilled, a drill stock or holder, a threaded feed-tube working in the saddle and friction devices for operating the feed, the same comprising a leather disk, a clamp for the disk, and a regulating-nut for the clamp, substantially as described.

6. In a rotary drill, a drill stock or holder, a handle or grip therefor, a feed, and means for rotating said holder, the said means comprising an operating-lever, a block having a recessed surface, and an annular rim or shoulder, cams arranged in said recessed surface with spaces between the cams and a rectangular clutch-block seated centrally between said cams and having projecting pins impinging on corresponding corners of the cams, substantially as described.

7. In a rotary drill, a feed, a drill stock or holder, and means for rotating the holder, the said means comprising a block with a neck and a central opening passing through the neck and block, a recessed annular rim or shoulder on the block, cams arranged within said rim or shoulder with spaces between the same, and a rectangular clutch-block seated centrally between said cams and having projecting pins impinging on corresponding corners of the cams, the said neck having in its side a set-screw bearing on the drill stock or holder, substantially as described.

8. In a rotary drill, a drill stock or holder, a handle or grip therefor, a feed, and means attached to the grip for rotating said holder, the said means comprising an operating-lever, a block having a recessed surface, and an annular rim or shoulder, substantially elliptic cams arranged in said recessed surface with spaces between the cams, a rectangular clutch-block seated centrally between said cams and having projecting pins impinging on corresponding corners of the cams, and a guard-plate inclosing the cams, substantially as described.

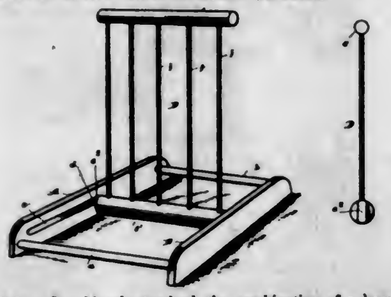
9. In a rotary drill, a feed, a drill stock or holder, and means for rotating the holder, the said means comprising a block having a recessed surface and an annular rim or shoulder, an operating-lever, cams arranged in said recessed surface with spaces between the same, and a handle or grip receiving the upper end of the drill-stock and having at its lower end a rectangular clutch-block, the latter provided with pins impinging upon corresponding corners of the cams, substantially as described.

10. In a rotary drill, a drill stock or holder, means for rotating the same, and a feed comprising a handle or grip removably attached to the holder and having a feed-bore leading from its upper end, and a feed-screw in said bore, substantially as described.

11. A rotary drill comprising a saddle adapted to receive a chain, a drill stock or holder, a feed device, and means for securing the saddle in place upon the work, said means consisting of the clamping-jaws each having an opening, a threaded rod passing through said openings and removably attached at its upper end to the saddle by means of a screw, the nuts on said rod, and the regulating-screw seated in a recess in the lower jaw and working in a threaded opening in the upper jaw, substantially as described.

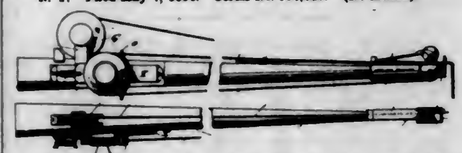
12. A rotary drill comprising a saddle, means for securing the saddle to the work to be drilled, a drill stock or holder, a feed for the drill, and friction devices for operating the feed, the same comprising a leather disk, a clamp for the disk, and means for regulating the clamp, substantially as described.

577,668. **BICYCLE-SUPPORT.** PHILIP P. PEACE, Powes Valley, Ky., assignor, by mesne assignments, of one-half to Mattie S. Houston. Filed Dec. 18, 1896. Serial No. 616,118. (No model.)



Claim.—In a bicycle-standard, the combination of a base provided with a vertically-disposed mortise and a horizontally-disposed gain, a standard having cross-bars provided with tenons adapted to engage in the said vertically-disposed mortise and to slide along the said gains, substantially as described.

577,664. **LINE-FEEDING DEVICE.** GEORGE RACK, Norwich, N. Y. Filed May 7, 1896. Serial No. 590,619. (No model.)



Claim.—1. In a fishing-tackle, the combination with a pole or rod, of a reel at the inner end for winding in the line, and an independent reel adjacent to the winding-reel for projecting the line.

2. In a fishing-tackle, the combination with a pole or rod, a reel at the inner end of the rod, for receiving and winding or drawing in the line, devices at the outer end of the rod for guiding the line and an independent mechanism adjacent to the winding-reel for throwing out or projecting the line.

3. In a fishing-tackle, the combination with a pole or rod, devices at the inner end of the rod for receiving and drawing in the line, guides at the outer end of the rod, for guiding and holding the line from improper movement and devices adjacent to the winding-reel for throwing out or projecting the line; said projecting devices being independent of the devices for drawing in the line.

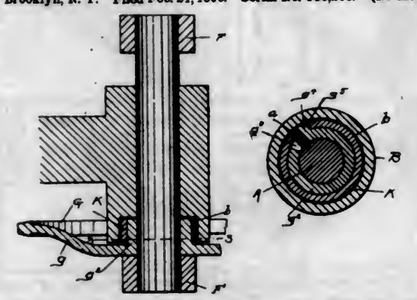
4. In a fishing-tackle, the combination of a winding and receiving reel at the inner end of the pole, a cap or ferrule at the outer end of the pole for guiding the line, a spool or drum engaging the line and a cord or band also engaging the spool or drum to throw out or project the line.

5. In a fishing-tackle, the combination of a cap or ferrule at the end of the pole having the line-guide, the spool or drum, and the retaining or holding device, the continuous band engaging the spool, and the line passing through the guide and engaging the spool and held in engagement by means of the retaining device.

6. In a fishing-tackle, the combination of the winding and receiving reel, the cap or ferrule having the guide, the toothed wheel, and the spring for forcing said wheel down upon the line, the spool or drum mounted in the ferrule and also receiving the line, and the cord or band engaging the spool or drum for throwing out the line.

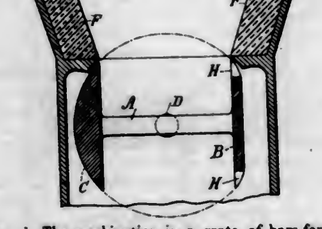
7. In a fishing-tackle, the combination of the winding and receiving reel, the cap or ferrule having the guide, the toothed wheel, and the spring for forcing said wheel down upon the line, the spool or drum mounted in the ferrule and also receiving the line, the cord or band engaging the spool or drum for throwing out the line, the reel receiving the frame carrying said cord and having a sliding movement, and a spring for holding the cord taut under all conditions.

577,665. **BRAKE FOR BICYCLES, &c.** WILLIAM SCHMIDT, Brooklyn, N. Y. Filed Feb. 21, 1896. Serial No. 580,206. (No model.)



Claim.—The combination with the frame of a bicycle of a hub B, provided with an annular chamber *b*, a pedal-shaft A, having radial shoulder or projection *a*, which extends across said chamber, a sprocket-wheel G, provided with radial outwardly-curved spokes *g*, and a tubular hub g^4, one side of which is open, and which is provided on one side with a shoulder g^4, which extends outwardly flush with the projection *a*, and an open spring brake-ring within said chamber *b*, one end of which is adapted to press against the projection g^4 of the hub, and the other end to rest against the projection *a* of the shaft, the outer wall of said shoulder g^4 being inwardly beveled, all constructed and adapted to operate as set forth.

577,666. **GRATE FOR STOVES OR FURNACES.** SAMUEL SMYTH, Pittston, Pa. Filed Oct. 13, 1896. Serial No. 608,711. (No model.)



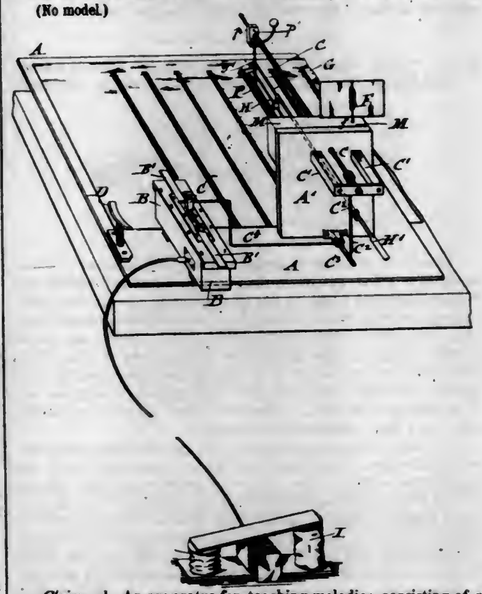
Claim.—1. The combination in a grate, of bars for supporting the fuel with intervening spaces for the free passage of air, and a plate connected with the bars and of a size adapted to close, or nearly so, the air-inlet, end pivots upon which the grate can be turned so as to bring the plate up to the lower end of the fire-pot for excluding the air or nearly so, or to bring the bars into position for supporting the fuel, substantially as set forth.

2. The combination in a grate, of bars for supporting the fuel with intervening spaces for the free passage of air, and a segmental plate connected with the bars and of a size adapted to close, or nearly so, the air-inlet, end pivots upon which the grate can be turned so as to bring the segmental plate up to the lower end of the fire-pot for excluding the air or nearly so, or to bring the bars into position for supporting the fuel, substantially as set forth.

3. The combination in a grate, of bars for supporting the fuel with intervening spaces for the free passage of air, a plate connected with the bars and having projecting teeth at the edges, and end pivots upon which the grate can be turned for bringing the plate up into position for supporting the fuel such as wood, and for admitting a small quantity of air to pass in between the teeth, substantially as set forth.

4. The combination in a grate, of bars for supporting the fuel with intervening spaces for the free passage of air, a plate with a segmental surface adapted to close, or nearly so, the air-inlet to the fire, a second plate also supported by the bars and adapted to admit a smaller quantity of air and end pivots for supporting the grate and upon which such grate can be turned to bring the segmental plate into position for closing the air-inlet, or nearly so, or for bringing the second plate into position for supporting wood or similar fuel, or for allowing the fuel to rest upon the grate-bars, substantially as set forth.

577,667. **APPARATUS FOR TEACHING MELODIES.** FRANK H. STEFFENS, Brooklyn, N. Y. Filed June 9, 1896. Serial No. 594,817. (No model.)



Claim.—1. An apparatus for teaching melodies, consisting of a vibrating and traversing pointer suspended above a sheet of music, a melody-producing device, and mechanism interposed between it and said pointer for vibrating the latter over said sheet as it traverses over the staffs of the sheet of music, substantially as set forth.

2. An apparatus for teaching melodies, which consists of a vibrating pointer suspended above a sheet of music, a motor connected with said pointer for moving it transversely over said sheet, a melody-producing device, and mechanism interposed between the latter and the pointer for imparting vibrating motion to the pointer as the melody-producing device is operated, substantially as set forth.

3. An apparatus for teaching melodies, consisting of a vibrating pointer, a horizontal guide-arm for said pointer, a motor connected with said pointer and adapted for moving it transversely on said guide-arm over a sheet of music, a melody-producing device, and mechanism interposed between the latter and the guide-arm for vibrating the latter while the pointer is moved over one of the staffs of a sheet of music, substantially as set forth.

4. An apparatus for teaching melodies, consisting of a vibrating and traversing pointer suspended over a sheet of music, a motor for moving the pointer transversely over said sheet, a melody-producing device provided with a sliding key-plate, keys on said key-plate, and mechanism connecting said key-plate with the pointer so as to vibrate the latter while passing over a staff of the sheet of music in proportion to the shifting motion of the key-plate, substantially as set forth.

5. In an apparatus for teaching melodies, the combination, with a horizontal guide-rod, of a vibrating pointer supported by a slide-block on the same, a motor, connected with said slide-block, gages arranged in line with the center of the music-staff, and a spring-actuated pressure-plate for holding the sheet of music firmly in line with said gages, substantially as set forth.

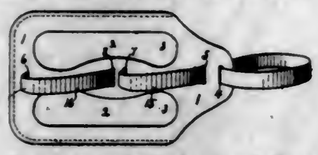
6. An apparatus for teaching melodies, comprising a horizontal and axially-movable guide-rod, a pointer supported by a slide-block on said guide-rod, a motor connected with said slide-block, a melody-producing device, a sliding key-plate on said melody-producing device, means for connecting the key-plate with the axially-movable guide-rod, a hand-rest near the melody-producing device, and means for actuating the melody-producing device, substantially as set forth.

7. In an apparatus for teaching melodies, the combination, with an axially-movable guide-rod, a pointer supported by a sliding block on said guide-rod, a melody-producing device, a sliding key-plate on the same, connecting mechanism between the key-plate and guide-rod, means for adjusting the axial motion of the guide-rod, and means

for actuating the sound-producing devices of the melody-producing device on depressing either one of the keys of the key-plate, substantially as set forth.

8. In an apparatus for teaching melodies, the combination of a movable pointer suspended over the staff of a sheet of music, a motor for moving said pointer transversely over the sheet of music, a melody-producing device, and means between the melody-producing devices and the pointer for moving the latter up or down to any note on the staff as the pointer travels laterally over the sheet of music under the action of the motor, substantially as set forth.

577,668. CANE OR UMBRELLA HOLDER. WILLIAM F. STELLNER, Danville, Ill. Filed July 31, 1896. Serial No. 601,195. (No model.)

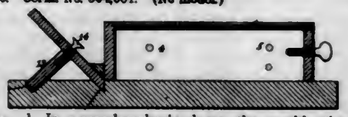


Claim.—1. A device for holding canes, umbrellas and the like, consisting of a body portion provided with end and intermediate slots or apertures, there being a wider space between the end and intermediate slots than there is between the intermediate apertures themselves, and a strap secured at one end portion thereto and passed through the slots or apertures thereof to form upon one side of the body portion one or more short friction bends or loops, and upon the opposite side longer loops designed to receive therethrough the article or articles to be held, together with means for securing the free end of said strap, substantially as specified.

2. A device for use in connection with traveling-bags, valises &c., for holding canes, umbrellas and the like, and comprising a body portion provided with two adjacent slots or apertures, and also with one or more other slots or apertures which are separated from the first-named slots by a space or spaces wider than that between the two adjacent slots, and a strap attached to said body portion and designed to be passed through said slots or apertures, to form upon one side of the body portion one or more short friction bends or loops, and upon the opposite side one or more longer loops to receive therethrough the article or articles to be held, together with means for securing the free end of said strap, substantially as specified.

3. The herein-described combined tag and umbrella or cane holder for use in connection with traveling-bags, valises &c., and consisting of a body portion having therein a pocket or slip to receive a tag, openings therein through which the tag may be seen, said body portion being also provided with end and intermediate slots and apertures, there being a wider space between the end and intermediate slots than there is between the said intermediate slots themselves, and a strap secured to the said body portion and designed to pass through the said slots or apertures and through the tag to secure the latter, to frictionally secure the strap and also to form loops to receive the article or articles to be held, substantially as specified.

577,669. CLAMP. JOHN STRANG, Quebec, Canada. Filed June 3, 1896. Serial No. 594,061. (No model.)



Claim.—1. In a woodworker's clamp, the combination with a holder and clamping devices for securing the work in the holder, of a handle, and a shield therefor, substantially as described.

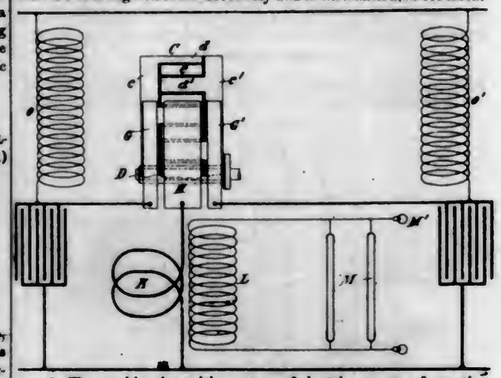
2. In a woodworker's clamp, the combination with a holder and clamping devices for securing the work in the holder, of a handle, and an upwardly-inclined shield therefor, substantially as described.

3. In a woodworker's clamp, the combination with a base, of a holder and means for clamping the work therein, an upwardly-inclined shield connected to the base, and a handle protected by said shield, substantially as described.

4. In a woodworker's clamp, the combination with a base, of a holder and means for clamping the work therein, an upwardly-inclined shield, a brace interposed between the shield and the holder, and a handle interposed between the base and the shield, substantially as described.

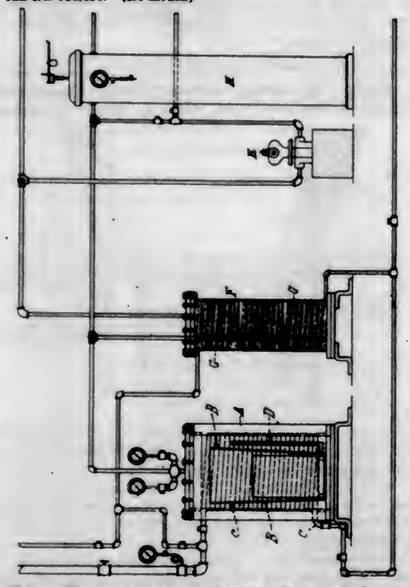
577,670. APPARATUS FOR PRODUCING ELECTRIC CURRENTS OF HIGH FREQUENCY. NIKOLA TESLA, New York, N. Y. Filed Sept. 3, 1896. Serial No. 604,723. (No model.)

Claim.—1. The combination with a source of electric energy, of a plurality of condensers and a discharge-circuit therefor, a motive device and a circuit-controller operated thereby and adapted to direct the energy of the source into the condensers and connect them with the discharge-circuit successively and in alternation, as set forth.



2. The combination with a source of electric energy, of a motive device, two condensers, a circuit-controller adapted to direct the energy of the source alternately into the said condensers, and a discharge-circuit through which, by the operation of said circuit-controller one condenser discharges while the other is being charged, as set forth.

577,671. MANUFACTURE OF ELECTRICAL CONDENSERS, COILS, &c. NIKOLA TESLA, New York, N. Y. Filed Nov. 5, 1896. Serial No. 611,126. (No model.)

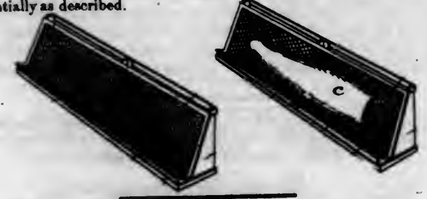


Claim.—The improvement in the manufacture of electrical devices such as condensers, which consists in inclosing the device in an air-tight receptacle, exhausting the air from the receptacle, introducing into a vessel containing the device an insulating material rendered fluid by heat, and then when said material has permeated the interstices of the said device, subjecting the whole to pressure, and maintaining such pressure until the material has cooled and solidified, as set forth.

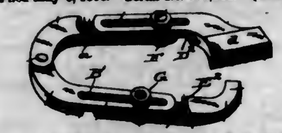
577,672. PROCESS OF AND APPARATUS FOR SMOKING FISH. CARL WALDEMANN, Cöslin, Germany. Filed July 3, 1896. Serial No. 598,082. (No model.)

Claim.—1. The process of smoking fish, which consists in cutting the fish in longitudinal sections, placing in contact with the inner split surface a piece of membranous material, and then laying the fish upon a frame over the smoke, substantially as described.

2. A frame for holding fish while being cured and smoked substantially as herein described, while held in a horizontal position, consisting of a number of triangular transverse metal frame-standards having base ledge projections and wire-screen surfaces fitted thereon inclined in opposite directions and open at the back and bottom of said screen-surfaces for exposure to the smoke and fire, substantially as described.



577,673. BICYCLE-LOCK. CHARLES R. WICKLIFFE, Washington, D. C. Filed May 6, 1896. Serial No. 590,501. (No model.)



Claim.—1. A bicycle-lock of substantially loop form having its side portions extensible in length and pivotally united at one end and having locking means at the other end, substantially as described.

2. A bicycle-lock of substantially loop form having its side portions adjustable in length, each side having one of its parts pivotally united at one end of the loop and the other ends oppositely curved and adapted to be received one within the other and locking means for the free ends of the loop, substantially as described.

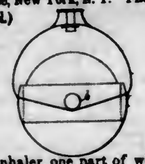
3. A bicycle-lock of substantially loop form having its parallel portions pivotally connected together and adjustable in length and provided with means for securing them in their adjusted position, such means being permanently connected together and held against separation from said parallel portions, substantially as described.

4. A lock of substantially loop form provided with a pivot at one end and its longitudinal portions overlapping each other and provided with longitudinal slots and means passed through said slots for holding the parts in their adjusted position, substantially as described.

5. A lock of substantially loop form having a pivot at one end and its parallel portions overlapping each other and provided with longitudinal slots, bolts passed through said slots and held against turning therein and means upon the ends of said bolts held against displacement and adapted to hold the parts in their adjusted position, substantially as described.

6. A bicycle-lock of substantially loop form having its parts pivotally united at one end and the parallel portions formed with elongated slots in their halved-out portions, said halved-out portions being oppositely disposed upon opposite sides of the lock, bolts passed through the slots thereof and having rectangular portions to prevent their turning in the slots, and nuts on the ends of said bolts and having recesses into which the ends of the bolts are headed, substantially as described.

577,674. INHALER. THEODORE B. WILCOX, Newark, N. J., assignor to Sharp & Dohme, New York, N. Y. Filed June 1, 1896. Serial No. 593,781. (No model.)

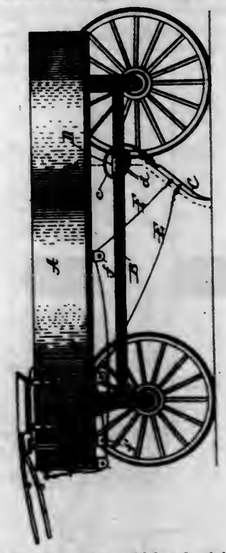


Claim.—A two-part inhaler, one part of which, adapted to contain an aromatic substance, is centrally pivoted within the other, as shown, the said inhaler being provided with a suitable stop or detent for limiting the relative movement of the parts in one direction, as set forth.

577,675. HORSE-HITCHING DEVICE. THOMAS AGNEW, Evanston, Ill. Filed Jan. 14, 1896. Serial No. 575,494. (No model.)

Claim.—1. The combination with a vehicle, of an arm pendent therefrom and having a swinging movement, such arm being adapted to engage the road-bed when inclined forwardly, a coil-spring forming the means of attachment of the arm to the vehicle, whereby the arm may yield longitudinally, and a cord leading from the lower end of the arm.

2. The combination with a vehicle, of a swinging arm projecting forwardly from the under side or frame of the vehicle, a leaf-spring forming the means of attachment between the arm and the vehicle and normally tending to bear the arm downwardly and backwardly, and a cord, or the like, leading from the outer or free end of the arm.



3. The combination with a vehicle, of a rigid arm C pendent from the vehicle, a coil-spring forming the means of attachment of the arm to the vehicle, having one of its ends secured to the vehicle and its other end pivotally attached to the lever, and a cord leading from the arm near its free end, substantially as described and for the purpose set forth.

577,676. PASSE-PARTOUT. JOHN A. BARTONEWICK and PAUL P. BARTONEWICK, Chicago, Ill. Filed Apr. 13, 1896. Serial No. 587,296. (No model.)



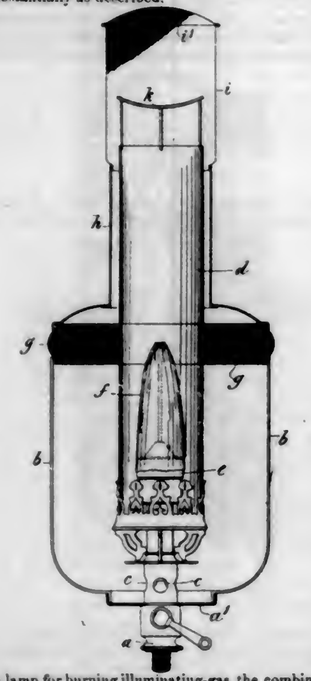
Claim.—As an improved article of manufacture, a passe-partout, consisting of the glass A, the pieces or strips *a*, secured to its rear surface at three sides of its perimeter, a board or back C, having the central opening *c*, secured on the rear surface of the strips *a*, the reinforcing board or back C', having the opening *c'*, the sliding cover D, provided with the hinged support *d*, and adapted to fit in the opening *c'*, and the securing-strips *e*, uniting the edges of the glass A, strips *a*, and back C, substantially as described.

577,677. MEANS OR APPARATUS FOR BURNING ILLUMINATING-GAS. THEODORE BIRNBAUM, London, England. Filed Aug. 17, 1896. Serial No. 603,011. (No model.)

Claim.—1. In a lamp for burning illuminating-gas, the combination of the translucent globe *b* closed at its lower end, the burner *e* arranged in the lower portion of said globe and connected with a gas-supply pipe, a translucent chimney *d* surrounding said burner and extending above the said globe, a gauze collar *g* arranged on the upper end of the globe, a cylinder *h* of slightly greater diameter than the chimney fitted on the gauze collar and surrounding the said chimney, and a perforated hood arranged on the upper end of said cylinder, substantially as described.

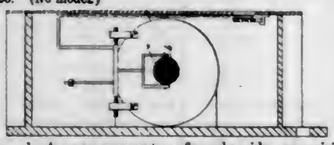
2. In a lamp for burning illuminating-gas, the combination of the translucent globe *b* closed at its lower end, the burner *e* arranged in the lower portion of said globe, a Bunsen burner arranged beneath said burner, a gas-supply pipe connected with the Bunsen burner, a translucent chimney *d* surrounding the gas-burner and extending above the said globe, a gauze collar *g* arranged on the upper end of the globe, a cylinder *h* fitted on the gauze collar and surrounding the

chimney, and a perforated hood arranged on the upper end of said cylinder, substantially as described.



3. In a lamp for burning illuminating-gas, the combination of the translucent globe *b* closed at its lower end, the burner *e* arranged in the lower portion of said globe and connected with a gas-supply pipe, a translucent chimney *d* surrounding the gas-burner and extending above the said globe, a ganze collar *g* arranged on the upper end of the globe, an imperforate cap fixed on the upper end of said collar and terminating in a contracted cylinder *h* surrounding the upper portion of the chimney, and a perforated hood arranged on the upper end of said cylinder, substantially as described.

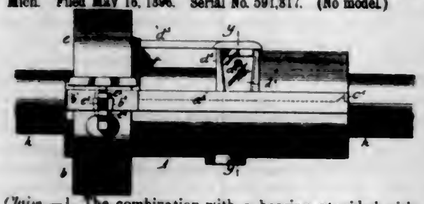
577,678. VOLTMETER. PAUL BRANDT, Berlin, Germany, assignor to Anton Heusch, same place. Filed Aug. 6, 1896. Serial No. 601,923. (No model.)



Claim.—1. A core or armature for solenoids, comprising a soft-iron sleeve, and a bundle or cluster of wires contained therein, as and for the purpose set forth.

2. In a voltmeter, a solenoid, a movable core consisting of a soft-iron sleeve and a cluster or bundle of wires contained therein, and an indicator actuated by the movement of the core, substantially as described.

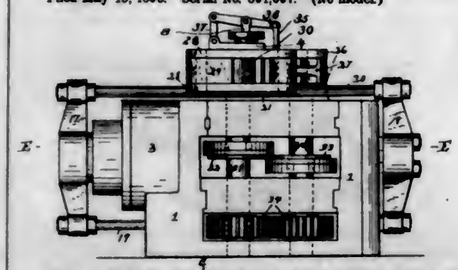
577,679. LUBRICATING DEVICE. WILLIAM A. CLAY, Cadillac, Mich. Filed May 16, 1896. Serial No. 591,817. (No model.)



Claim.—1. The combination with a bearing provided with an upper and lower oil-trough, of an oil-reservoir formed in two parts, means for adjusting said parts to or from each other, an inclined plate in the upper part arranged to discharge oil into the upper trough, and a scraper carried by the shaft and adapted to move in the path of the plate at any desired distance therefrom.

2. The combination of the lower bearing and the lower half of the reservoir formed integrally therewith, said lower bearing having an inclined oil-trough in its base and oil-channels in its sides leading to said trough, the upper bearing having an oil-trough in its top and a vertical passage leading from said trough to the channels, said passage having a sight-opening, means for adjustably securing the upper half to the lower half, an inclined plate in the top of the upper half arranged to deliver oil to the trough in the upper bearing, and a scraper carried by the shaft and adapted to deliver oil to the plate.

577,680. MACHINE FOR MAKING SPIKES. JOHN C. CROMWELL and OSCAR SUNDT, Joliet, Ill.; said Sundt assignor to said Cromwell. Filed May 15, 1896. Serial No. 591,697. (No model.)



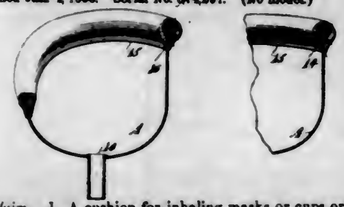
Claim.—1. In the machine described in combination with rock-shaft 25, the arms 24 and 26 on said shaft, said arms being connected to the piston, the feed-roll mechanism, connecting-rod 27 between arm 26 and the feed-roll mechanism whereby the actuation of said piston intermittently operates said feed-roll mechanism substantially as and for the purpose set forth.

2. In the machine described, in combination with the frame embodying in its construction the cylinders 2 and 3, and having attached thereto the cylinder 4; the pistons and their heads operating in said cylinders, and the feeding gripping and shedding mechanism connected with and actuated by said pistons, said mechanism being adapted to be operated by steam or compressed-air pressure, all arranged to operate substantially as and for the purpose set forth.

3. In the machine described in combination with the piston 6 and head 22 thereof, the arms 24, the shaft 25, arms 26, connecting-rod 27, the pawl-and-ratchet mechanism, and the connected feed-rolls having the radially-arranged pinching-dies all arranged to operate substantially as and for the purpose set forth.

4. In the machine described the combination of the die-connecting bar 14 having a transverse recess on its under side near its forward end, the die 15 having a transverse rib or projection 59 on its upper side near its rear end for fitting the groove or recess in said connecting-bar, the wedge-bar 16 for passing under die 15 and holding it connected with bar 14, and the stationary die 13, said dies being provided respectively with the cutting edges 57, 58 and nail-point formers 60, 61, all arranged to operate substantially as and for the purpose set forth.

577,681. INHALER. HARLEY M. DUNLAP, Battle Creek, Mich. Filed Jan. 4, 1896. Serial No. 574,291. (No model.)

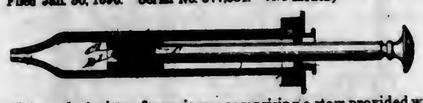


Claim.—1. A cushion for inhaling masks or cups or any similar article requiring a cushioned margin, the said cushion consisting of a tube adapted to contain air and provided with an attaching-section, the said attaching-section being slotted vertically and transversely whereby it is adapted to receive the marginal portion of the article to be cushioned together with a flange thereon, substantially as described.

2. The combination with an inhaling mask or cup provided with a marginal flange, of a cushion, comprising a tube adapted to contain air and a depending section provided with a continuous vertical slot adapted to receive that portion of the cup adjacent to its flange and a continuous transverse slot adapted to receive the marginal flange of the mask or cup, as and for the purpose set forth.

3. The combination with an inhaling mask or cup or a similar article provided at its margin with an outwardly-extending flange, of an elastic cushion removably connected with the said mask or cup, the said cushion having a depending section tapering toward its lower edge, and provided with a continuous angular slot opening at the lower edge of the depending section, the said angular slot having a vertical portion and a transverse portion extending outwardly from the upper part of the vertical portion the said slot being shaped to correspond with the outwardly-extending marginal flange and the portion of the mask or cup adjacent thereto, and adapted to receive the same, as and for the purpose specified.

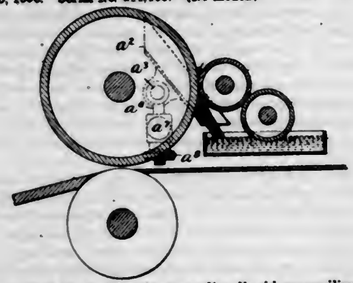
577,682. SYRINGE. FREDERICK EISNER, New York, N. Y. Filed Jan. 30, 1896. Serial No. 577,331. (No model.)



Claim.—1. A piston for syringes, comprising a stem provided with a plurality of circumferential and spaced ridges, an elastic tube arranged on the stem over the ridges thereof, and having its ends extending beyond said ridges, and a clamp engaging the elastic tube between the ridges of the stem to contract it into the space between the said ridges and firmly secure it in place, substantially as described.

2. A piston for syringes, consisting of a stem having a reduced and threaded end, two nuts having reduced portions or necks and screwing on the said reduced portion of the stem, said nuts forming spaced circumferential ridges, an elastic tube arranged on the stem over the nuts with its ends projecting beyond the same, and a band encircling the tube and contracting it into the channel formed by and between the nuts, substantially as herein shown and described.

577,683. MACHINE FOR SPREADING LIQUIDS OVER SHEETS OF PAPER, &c. JOSEF HEIN, Offenbach-on-the-Main, Germany. Filed Nov. 5, 1896. Serial No. 611,165. (No model.)



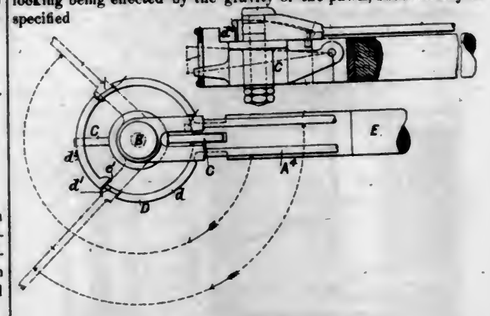
Claim.—1. In a machine for spreading liquid or semiliquid substances upon the surfaces of materials of different kinds, the combination with a liquid-reservoir, a spreading-roller, and a roller distributing the liquid to said spreading-roller, of slanting or inclined guard-plates extending across the ends of the rollers intermediate the axes thereof, and having channels or grooves for conveying the surplus liquid back to the reservoir, substantially as described.

2. In a machine for spreading liquid or semiliquid substances over the surfaces of materials of different kinds, the combination with a liquid-reservoir, a spreading-roller, and a roller distributing the liquid to said spreading-roller, of slanting or inclined guard-plates extending across the ends of the rollers intermediate the axes thereof, and having conducting channels or grooves leading to the reservoir, means for adjusting the plates horizontally, and means for adjusting the same vertically, substantially as described.

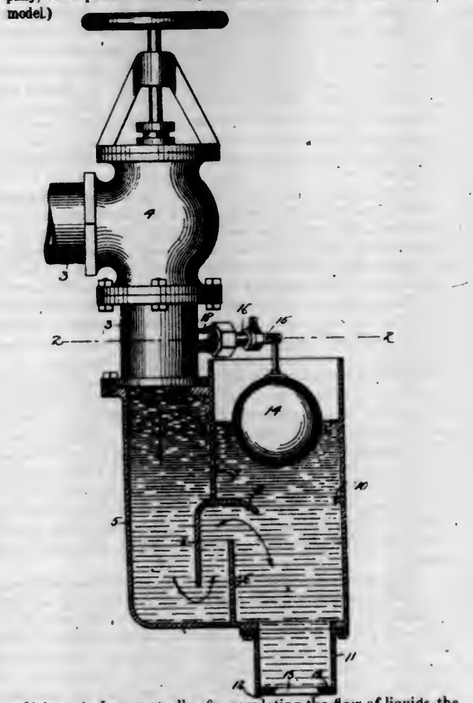
577,684. LANDING-NET. ALLAN HOLMES, Dunedin, New Zealand. Filed Sept. 12, 1896. Serial No. 605,610. (No model.)

Claim.—1. A collapsible net-frame constructed of jointed segments and pivoted to swing in its own plane as a whole about a center pin, in combination with a frame supporting and locking ring or head having notches normal to the plane of the net-frame and adapted to receive and engage with the pivoted members of the net-frame when the latter is distended, and with stops limiting the swinging motion of the frame so as to insure coincidence of the frame members with the notches, the center pin being carried by a pivoted support so as to be capable of limited movement in a plane perpendicular to the plane of the ring or head in order to permit of the net-frame engaging in the said notches, the locking and unlocking being effected by the gravity of the moving parts, substantially as specified.

2. A collapsible net-frame constructed of jointed segments pivoted to swing in its own plane as a whole about a center pin, fixed to a supporting and locking disk or head, in combination with pawls pivoted to the pivoted member of the net-frame, and with notches in the disk or head adapted to receive and engage with the said pawls when the net-frame is in the distended position, and with stops for limiting the swinging motion of the frame so as to insure coincidence and engagement of the pawls with the notches, the locking and unlocking being effected by the gravity of the pawls, substantially as specified



577,685. CONTROLLING DEVICE. OMAR H. JEWELL and WILLIAM M. JEWELL, Chicago, Ill., assignors to the O. H. Jewell Filter Company, same place. Filed May 16, 1896. Serial No. 591,812. (No model.)

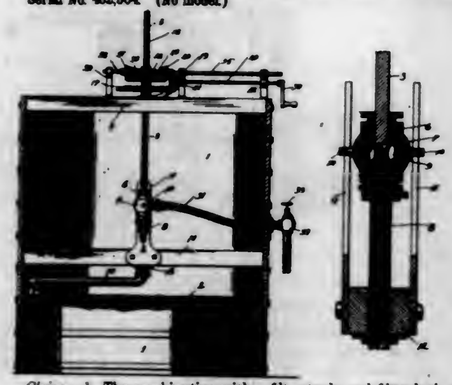


Claim.—1. In a controller for regulating the flow of liquids, the combination with a liquid-conduit and a valve in said conduit, of a tank into which the liquid is continuously discharged from said conduit, an outlet for said tank, a removable ring in said outlet for controlling the continuous discharge from the tank, and a float arranged in said tank and connected to the stem of said valve for automatically operating the latter to regulate the volume of liquid which flows through said conduit, substantially as described.

2. In a controller for regulating the flow of liquids, the combination with a pipe and a valve therein, of a tank communicating at its upper end with said pipe and provided at its lower end with an outlet, the vertical partitions 6 and 7 arranged in said tank and separated at their adjacent ends, the downwardly-depending plate 8 and horizontal curved deflector 9, and a float arranged in the tank above the deflector and connected to the stem of said float, substantially as described.

3. In a controller for regulating the flow of liquids, the combination with a pipe, and a valve therein, of a tank having a partition 7 and a deflecting-plate 9, a partition 6, a lug 10 opposite the deflecting-plate 9, and a float in said tank connected with the valve, substantially as described and for the purpose specified.

577,686. FILTER. WILLIAM M. JEWELL, Chicago, Ill., assignor to the O. H. Jewell Filter Company, same place. Filed May 9, 1892. Serial No. 432,304. (No model.)



Claim.—1. The combination with a filter-tank, and filter-bed, of a horizontal tube centrally pivoted in said tank above the filter-bed in close proximity thereto, and extending from the center to the circumference of the filter-bed, so that by rotating said tube about its pivot it may be moved over the entire surface of the filtering material, mechanism for rotating said tube, said tube being open on its under side so that the impurities accumulated upon the surface of the filter-bed may flow thereinto, and piping for conveying the impurities from said tube to the outside of the filter, substantially as described.

2. The combination with a filter-tank containing filtering material, of a vertical shaft 3, a tubular shaft 8 connected with the vertical shaft, a coupling-chamber 9 communicating with the tubular shaft, a pipe 31 communicating with the coupling-chamber and extending to the outside of the filter-tank, a horizontal tube 14 extending from the center to the circumference of the tank, movable over the surface of the filtering material without agitating the same and provided in its under side with an opening which permits the impurities accumulated upon the surface of the filtering material to flow thereinto, and means for rotating the shafts and tube, substantially as described.

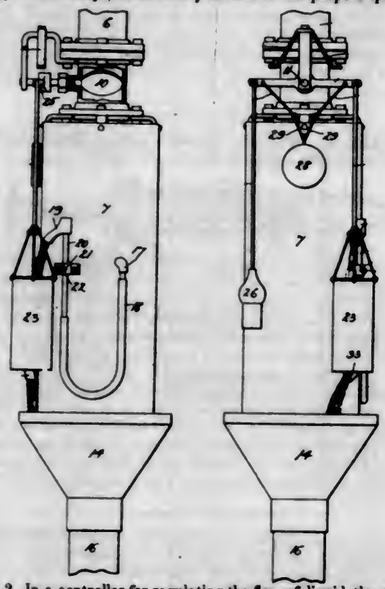
3. The combination with a filter-tank containing filtering material, of a vertical shaft 3, a tubular shaft 8 connected with the vertical shaft, a coupling-chamber 9 communicating with the tubular shaft, a flexible pipe 31 communicating with the coupling-chamber and extending to the outside of the filter-tank, a horizontal tube 14 movable over the surface of the filtering material without agitating the latter and provided in its under side with an opening which permits the impurities accumulated upon the surface of the filtering material to flow thereinto, and means for rotating the shafts and tube and raising and lowering the same in a vertical plane, substantially as described.

4. The combination with a tank, and a granular filter-bed therein, of a shaft arranged vertically therein, means for moving said shaft vertically and for rotating it, a horizontal tube connected to said shaft, and extending from the center to the circumference of the filter-bed, said tube being arranged over the filter-bed and being open at its under side to permit impurities to flow thereinto, and means for conducting the impurities from said tube to the exterior of said tank, substantially as described.

5. The combination with a tank, and a granular filter-bed therein, of a shaft arranged vertically therein, means for moving said shaft vertically and for rotating it, a horizontal tube connected to said shaft, said tube extending from the center to the circumference of the filter-bed and being arranged over the filter-bed and having a longitudinal slot in its under side to permit impurities to flow thereinto, and means for conducting impurities from said tube to the exterior of the tank, substantially as described.

577,687. CONTROLLING DEVICE. WILLIAM M. JEWELL, Chicago, Ill., assignor to the O. H. Jewell Filter Company, same place. Filed May 16, 1896. Serial No. 591,789. (No model.)

Claim.—1. In a controller for regulating the flow of liquid, the combination with a liquid-conduit, and a valve which controls the flow of the liquid through said conduit, of a tank with which said conduit communicates and into which the liquid is discharged, an outlet from said tank, devices operated by the head of water in said tank to adjust said valve and thereby regulate the flow of liquid, and a removable ring having a discharge-orifice, said ring being substantially oval in shape, substantially as and for the purpose specified.



2. In a controller for regulating the flow of liquid, the combination with a liquid-conduit, and a valve which controls the flow of the liquid through said conduit, of a tank with which said conduit communicates and into which the liquid is discharged, an outlet from said tank, a bucket connected with said valve, a tube communicating with said tank and adapted to discharge water therefrom into said bucket, means for adjusting the outlet of said tube vertically, and means for discharging water from said bucket, substantially as and for the purpose specified.

3. In a controller for regulating the flow of liquid, the combination with a liquid-conduit, and a valve which controls the flow of the liquid through said conduit, of a tank with which said conduit communicates and into which the liquid is discharged, an outlet from said tank, a bucket connected with said valve, a tube communicating with said tank and adapted to discharge water therefrom into said bucket, a guide for said tube, a set-screw for locking said tube at different heights, and means for discharging water from said bucket, substantially as and for the purpose specified

577,688. LUNCH-COUNTER. HANS KNUDSEN, Boston, Mass. Filed Mar. 11, 1896. Serial No. 582,730. (No model.)

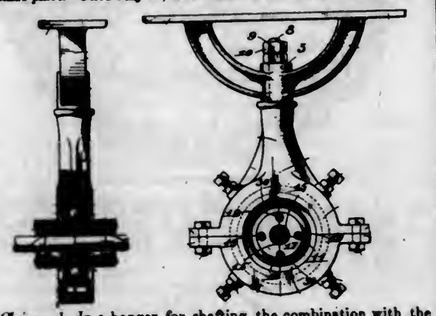


Claim.—1. The combination with a table or counter, of an endless slot in the surface thereof, a conveyer-belt having a notched or serrated edge extending through said slot, pulleys for said belt mounted on vertical shafts below the table, stationary supports for the lower edge of said belt secured to the under side of the table below said slot, and traveling trays adapted to travel along the surface of the table and to be engaged by said conveyer-belt when placed over the same, substantially as described.

2. The combination with a lunch-counter, of an endless slot extending along substantially parallel to the periphery thereof, a belt supported edgewise below the table, engaging shoulders along the edge of said belt projecting upward through said slots, and trays having supporting-wheels adapted to travel on the surface of the table and provided with a forked downward extension adapted to engage said shoulders, substantially as described.

3. The combination with the table or counter provided with a slot through the surface thereof, of a conveyer-belt carried by pulleys below the table and extending edgewise through said slot and provided with shoulders along its upper edge, a central wall extending upward from the surface of the table and adapted to support castors and the like, a series of distinguishing-marks arranged at proper intervals along the said wall, traveling trays each having a distinguishing-mark corresponding to one of said marks on the wall and adapted to be engaged by said conveyer-belt when placed on the surface of the table over the same, and means for securing said trays to the said wall, substantially as described.

577,689. HANGER FOR SHAFTING. BART LOBER, Buffalo, N. Y., assignor of two-thirds to George Duchscherer and Frank W. Carter, same place. Filed July 17, 1896. Serial No. 599,528. (No model.)



Claim.—1. In a hanger for shafting, the combination with the bearing-frame provided with a circular opening in its end, of a bearing-ring, having an annular groove forming the outer half-raceway, secured within the opening, means for adjusting the ring in said opening, collars adjustably secured to the shaft and provided with chamfered or grooved edges which form the inner half-raceway, and means for adjusting them so as to compensate for wear, and a series of balls located within the raceway, substantially as set forth.

2. The combination with the shaft, of collars secured thereto, and provided with chamfered edges which form the inner V-shaped half raceway, a bearing-ring set over the collars, and provided with a V-shaped annular groove on its inner side which forms the outer half-raceway, and means for adjusting the bearing-ring in the bearing-frame, substantially as set forth.

3. In a hanger for shafting, the combination with the hanger-frame and a bearing-frame vertically adjustable, secured thereto, provided with a semicircular portion at its lower end, of a semicircular cap adapted to be secured to the latter, so as to form a circular opening, a bearing-ring set within the opening and held from movement in the direction of the length of the shaft, by annular flanges projecting inwardly from the bearing-frame and cap, radially-arranged bolts passing through the bearing-frame and cap, for adjusting the bearing-ring in the opening, an annular V-shaped groove on the inner side of the bearing-ring, which forms one part of the raceway, collars secured to the shaft having chamfered edges, and adjustable toward and from each other, which form the other V-shaped part of the raceway, and a series of balls set within the raceway, substantially as set forth.

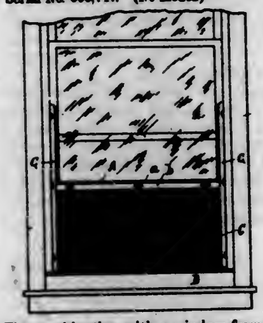
4. The combination with the stationary hanger-frame and the bearing-frame pivotally secured thereto, of a bearing-ring provided with a groove on its inner side to form one part of the raceway, secured in the bearing-frame, collars provided with split tapering extensions, secured to the shaft and adapted to form the other part of the raceway, a series of balls set within the raceway, and clamping-sleeves set over the split tapering extensions adapted to contract the latter onto the shaft, substantially as set forth.

5. A bearing for hangers, consisting of a bearing-ring provided on its inner side with a V-shaped half-raceway, a pair of collars adjustably secured to the shaft, having chamfered edges, and together forming the other V-shaped half-raceway, balls inserted between the two half-raceways, and means for adjusting the collars toward and from each other so as to take up the wear at the four bearing-points of the raceway, substantially as set forth.

6. In a hanger for shafting, the combination with the stationary hanger-frame and bearing-frame pivotally secured thereto, of a bearing-ring adjustably secured in its lower end, and having a V-shaped groove on its inner side forming one part of the ball-raceway, collars provided with split tapering extensions forming the other part of the ball-raceway, and adapted to be secured to the shaft by means of clamping-sleeves having tapering bores to fit over the tapering extensions of the collars, screws passing through the clamping-sleeves and into the collars, for drawing the sleeves up onto the tapering extensions and contracting the latter onto the shaft, screws for adjusting the collars toward and from each other passing through one of the clamping-sleeves and collars, and into the other collar, whereby the wear is compensated for at the four bearing-points of the raceway, substantially as set forth.

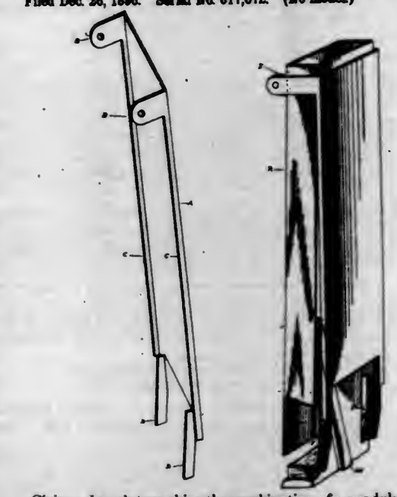
7. The combination with the shaft, of an inner half-raceway secured thereto, a bearing-ring provided with an annular groove on its inner side, forming the outer half-raceway, a series of balls set between the two, the whole adapted to be set within a circular opening, formed by the bearing-frame and cap secured thereto, flanges projecting inwardly from the bearing-frame and cap, and adapted to hold the bearing-ring, shaft and parts secured thereto from moving in the direction of the length of the shaft, and bolts passing through the bearing-frame and cap adapted to bear against the outer face of the bearing-ring for adjusting the same, substantially as set forth.

577,690. WINDOW-SCREEN. ELMER R. MONROE, Richmond, Ind., assignor of one-half to Cornelius Ratliff, same place. Filed Oct. 13, 1896. Serial No. 608,747. (No model.)



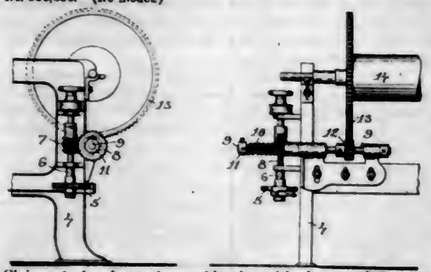
Claim.— The combination with a window-frame, and the lower sash, of a spring-controlled roller having a housing D removably supported on the window-sill, a screen C having its lower end attached to said roller and its upper end detachably secured to the lower portion of the sash, balls H secured to the side edges of said screen, and the grooved ways G secured to the sides of the window-frame and provided at their lower ends with outward-turned guides *h* to hold the housing D in position, and the inner portions of said grooved ways G being enlarged to receive the balls H on the side edges of the screen, substantially as described.

577,691. SLOT-MACHINE. CRESCOF F. NEUBERT, Chicago, Ill. Filed Dec. 26, 1896. Serial No. 617,072. (No model.)



Claim.—In a slot-machine the combination of a pendulum having a body A having sides C, C, projections D, D, and arms B, B, swinging from a cross-piece E, and operating in conjunction with a merchandise-tube holder R, having openings F F and a coin guide or channel W, all substantially as set forth.

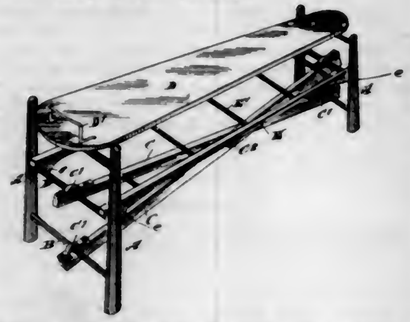
577,692. LOOM. ALBERT K. PRATT, Northbridge, Mass., assignor of one-half to Frank S. Berry, same place. Filed Feb. 26, 1896. Serial No. 580,836. (No model.)



Claim.—1. In a loom, the combination with the warp-beam connected to the pinion-shaft by means of gears, of the pinion-shaft, a worm-gear loose on the same, a coiled spring, surrounding the shaft, secured at one end to the shaft by an adjustable collar and at the other end to the loose worm-gear, and means for turning the loose worm-gear; whereby a yielding adjustable spring strain is exerted on the warp and slack warp or excessive sudden strain on the yarn is avoided, as described.

2. In a loom, the combination with the warp-beam, the gear connected therewith, and the shaft carrying the pinion-gear engaging with the gear on the warp-beam, of a gear loose on the shaft, and a coiled spring inclosing the shaft, one end of said spring being secured to the shaft and the other end to the loose gear, means for turning the loose gear whereby the tersional strain of the coiled spring is exerted on the gear of the warp-beam and on the warp and the slack taken up, as described.

577,693. COMBINED IRONING-BOARD, BENCH, AND LADDER. WILLIAM G. RODGERS and CHARLIE R. KUHN, Johnstown, Pa. Filed Oct. 15, 1896. Serial No. 608,925. (No model.)

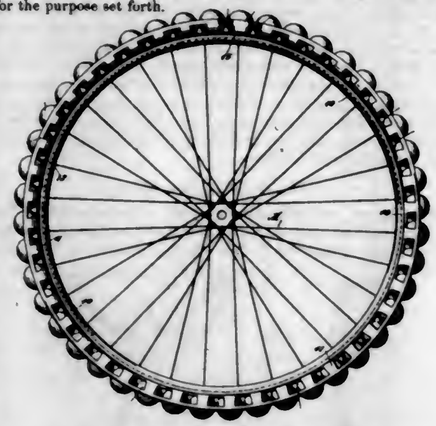


Claim.—1. A combined bench and ironing-board consisting of end frames, brace-rods pivoted to top and bottom of opposite end frames and crossing each other, means for locking these together, an ironing-board provided with projections adapted to engage the upper ends of the end frames, and a ladder adapted to engage and be supported by the end frames beneath the ironing-board, substantially as described.

2. A combined bench and ironing-board, consisting of four supporting-posts, horizontal rungs connecting the posts at each end of the bench, brace-rods pivoted upon the middle and lower rungs of opposite pairs of posts, a lock for the middle of the rods at their point of crossing, an ironing-board having blocks upon its under surface adapted to engage the inner sides of the upper rungs of the posts, and a ladder having projecting lugs upon one side of its side bars at each end, adapted to engage the inner sides of the middle rungs of the posts, substantially as described.

577,694. BICYCLE-TIRE. MARGARET A. SANCHO, Brooklyn, N. Y., assignor of one-third to George H. K. White, same place. Filed Aug. 11, 1896. Serial No. 602,402. (No model.)

Claim.—As a new article of manufacture, the herein-described bicycle-tire consisting of a circular frame having its side edges upturned whereby it is rendered concave in cross-section and its edges form a continuous clip, the said frame having its sides cut out to form a series of openings below the said edges, a series of balls placed contiguous in said rim and held therein by the curvature of the side edges of said frame and a door in said frame and formed by hinging one of the solid sections of the rim between said openings in the sides, whereby the balls may be inserted, removed, and replaced, as and for the purpose set forth.

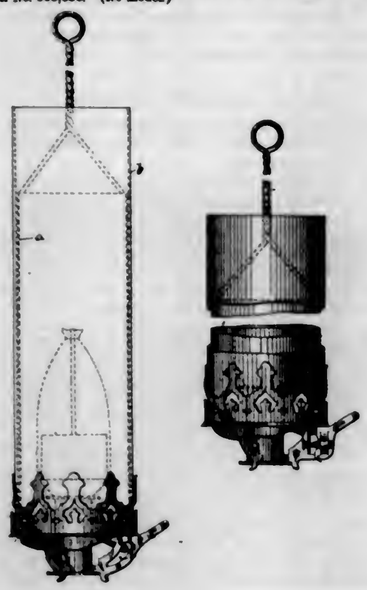


577,695. HOT-WATER HEATING ATTACHMENT FOR FURNACES. CHARLES SMITH, Chicago, Ill., assignor to the Charles Smith Manufacturing Company, same place. Filed Sept. 11, 1895. Serial No. 562,180. (No model.)



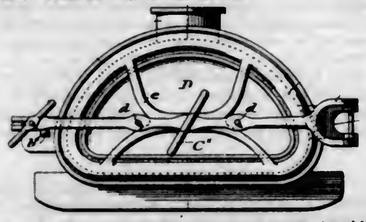
Claim.—A hot-water heating attachment for a furnace, consisting of a hollow body portion formed of a single casting in the shape of a segment, an inlet-pipe communicating with the lower end of the body portion, and an outlet-pipe leading from the upper end of the body portion, said body portion being adapted to be arranged in a furnace with its convex side directly exposed to the fire so that the lower portion, into which the water is first admitted, will stand substantially in a horizontal position over the fire, substantially as described.

577,696. MANTLE-PROTECTOR FOR INCANDESCENT GAS-BURNERS. LOUIS TEICHMANN, Berlin, Germany. Filed June 1, 1896. Serial No. 593,830. (No model.)



Claim.—The combination of a cylinder to pass down the chimney of an incandescent burner fitting in the same, a series of hooks formed at the bottom end of said cylinder and having curved backs as specified said hooks being adapted to engage the arms of the burner-gallery substantially as described and shown and for the purpose specified.

577,697. GAS-RETORT LID. THOMAS B. TINNEY, Philadelphia, Pa., assignor of one-half to William McDonald, same place. Filed May 22, 1896. Serial No. 592,574. (No model.)



Claim.—1. In combination with a retort, a cotter-bar hingedly connected thereto, and a closure for the mouth of said retort, consisting of a door, and a re-inforcing plate, means for connecting said door to said cotter-bar, and independent means for connecting said re-inforcing plate to said bar, substantially as set forth.

2. In combination with a retort, a lid consisting of a door adapted to make contact with the mouth thereof, and a reinforcing plate adapted to engage in a seat formed in the exterior of the retort and also to bear against the exterior of the door, and a cotter bar hingedly connected to the retort and upon which said door and reinforcing plate are mounted,—substantially as set forth.

3. In combination with a retort, a lid consisting of a door adapted to make contact with the mouth thereof, a reinforcing plate adapted to engage in a seat formed in the exterior of the retort and also to bear against the exterior of the door, and a cotter bar upon which said door and reinforcing frame are mounted,—substantially as set forth.

4. In combination with a retort, a cotter bar mounted thereon free for swinging movement, means for retaining said cotter bar in closed position, a door adapted to make contact with the edge of the retort mouth, and provided with studs engaged in openings in said cotter bar, a reinforcing frame provided with a spider, and a screw shaft threaded in said cotter bar and swiveled in said spider, substantially as set forth.

5. In combination with a retort, a cotter bar mounted free for swinging movement, means for retaining said cotter bar in closed position, a door adapted to make contact with the edge of the retort and provided with studs engaged in openings in said cotter bar, a reinforcing frame provided with a spider, a screw shaft threaded in the cotter bar and swiveled in said spider, and a flange forming a part of said reinforcing frame and adapted to enter a seat formed for it in the exterior of the retort,—substantially as set forth.

6. In combination with a retort, a cotter bar hingedly connected thereto and latched, a packing recess formed in the exterior of the retort, a door, a packing recess formed in the exterior of said door, packing mounted in said packing recesses, a reinforcing frame having flanges adapted to enter said packing recesses, means for connecting said door plate to the cotter bar, and means for adjustably connecting said reinforcing frame to the said cotter bar,—substantially as set forth.

7. In combination with a retort, a cotter-bar mounted thereon, free for swinging movement, means for retaining said cotter-bar in closed position, a door adapted to make contact with the edge of the retort mouth, and provided with studs equipped with shoulders intermediate of their lengths, the outer portions of which studs are engaged in openings in said cotter-bar, a re-inforcing frame provided with a spider, and a screw shaft threaded in said cotter-bar, and swiveled in said spider, substantially as set forth.

577,698. VALVE FOR PNEUMATIC TIRES. DALLAS E. WALKER, Indianapolis, Ind. Filed May 20, 1895. Serial No. 550,022. (No model.)



Claim.—A valve for a pneumatic tire comprising the combination with the air-containing tube of a tire having an aperture in it, of an air-inlet tube with a base whose outer edge is secured to the air-containing tube so as to surround the aperture in the latter but prevent the aperture from registering with the opening in the air-inlet tube.

577,699. TROUGH. JOHN S. WEAVER and JOSEPH B. WEAVER, New Oxford, Pa. Filed May 18, 1896. Serial No. 591,981. (No model.)



Claim.—1. A trough, comprising a semicircular body, semicircular heads having their straight top portions of the same width as the curved portions, said heads fitting in the ends of the body between the heads thereof with their outer faces flush with the ends of the body and their straight portions or tops flush with the upper edges of the said body, bands of the same width as the heads and shrunk upon the exterior surfaces of the body and the top of the heads, and protecting-strips on the upper edges of the body between the heads, substantially as described.

2. A trough, consisting of a semicircular body, semicircular heads having their straight top portions of the same width as the curved portions, said heads fitting in the ends of the body with their outer faces flush with the ends of the body, and their straight portions or tops flush with the upper edges of the said body, bands of the same width as the heads and shrunk upon the exterior surfaces of the body and the tops of the heads, U-shaped protecting-strips on the upper edges of the body between the heads thereof, and legs secured to the outer faces of the heads, substantially as herein shown and described.

577,700. CAR-COUPLING. THOMAS WELCH, Paw Paw, Mich., assignor of one-half to the Sheffield Car Company, Three Rivers, Mich. Filed May 20, 1893. Renewed May 18, 1896. Serial No. 592,070. (No model.)

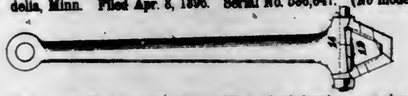


Claim.—1. In a hook car-coupler, the combination of the hook, B, with the draw-bar, A, having curved portions, B', the key, C, with a cap fitting over an upwardly-projecting socket in the draw-head, and adapted to engage a notch, *n*, a spring, *i*, and rock-shaft, D, having arm, *r*, adapted to put stress on the spring, *i*, and pass the center against the car, substantially as described, for the purpose specified.

2. In a vertical-hook car-coupler having oppositely-facing irregular jaws sliding in curved recess in the draw-head, a locking device, in combination with a spring actuated by a lever that passes its center of support to put stress on the spring to unlock the coupler when the car slacks and hold it unlocked until required for use, substantially as described for the purpose specified.

3. In a vertical-hook car-coupler, the combination of oppositely-facing hook-jaws adapted to hook into each other; a lock for said jaws when closed; an arm attached by suitable connections to said locks adapted to swing over past its center of support to unlock the coupler and hold it so until required for use; a rock-shaft attached to said arm, and a lever to the other end of said rock-shaft to the outside of the car to operate said arm and swing it past its center, so that it may be operated from the ground, for the purpose specified.

577,701. CONNECTION FOR CRANKS. GEORGE WILSON, Madelia, Minn. Filed Apr. 8, 1896. Serial No. 586,647. (No model.)



Claim.—1. The combination with a shaft having a stub end of substantially triangular formation, and provided with opposite splines on the converging sides of said stub end, of a crank-arm having an essentially triangular hub-aperture grooved in its walls to receive the splines, and a device for pressing the splines into said grooves and locking the crank-arm and shaft together, substantially as described.

2. The combination with a shaft having a substantially triangular stub end, the converging sides of said stub end having opposite integral splines thereon, of a crank-arm, the hub of which is apertured

to loosely receive the stub end, the converging walls of said aperture being grooved and adapted to receive the splines and permit the converging walls of the stub end having said splines to contact with the grooved walls of the hub-aperture, a wedge-block occupying a recess formed in the aperture in the hub next the crank-arm, and means for longitudinally moving the wedge-block, substantially as described.

3. The combination with a shaft having a substantially triangular stub end, two converging sides of said stub end having integral splines thereon, of a crank-arm, the hub of which is apertured to loosely receive the stub end, two converging walls of said aperture being grooved and adapted to receive the splines and permit the converging walls of the stub end having said splines to closely contact with the grooved walls of the hub-aperture, a wedge-block located in a recess in the hub, said recess having a transverse sloping top wall and being located opposite one corner of the hub, and a key-bolt having a recess on one side and threaded at one end, said bolt passing through the hub above the wedge-block; shoulders on said key-bolt at the ends of the recess therein and engaging the wedge-block, and a nut on the threaded end of said key-bolt, substantially as described.

577,702. **KNIT FABRIC.** THOMAS J. WOODCOCK, Philadelphia, Pa. Filed Jan. 14, 1896. Serial No. 575,434. (Specimens.)



Claim.—1. A knit fabric composed of warp and knitting threads, the warp-threads being arranged in two sets one in rear of the other, the threads being in serpentine lines with the bights of the two sets turned in opposite directions and overlapping as shown, bights of adjacent threads of one set of warps being connected by one set of the knitting-threads and bights of adjacent threads of the other set of warps being connected by the other knitting-threads, substantially as described.

2. A knitted fabric composed of warp-threads arranged one in rear of the other, the threads of each set being in serpentine lines with the bent or return portion of one thread opposite to and extending a short distance between the straight portions of the adjacent thread, the threads of the two sets being turned in opposite directions and overlapping one another, and knitting-threads alternately connecting two bent or return portions of one set of warp-threads with a straight portion of the other set of warp-threads, substantially as herein shown and described.

577,703. **TYPE-WRITER CABINET.** WILLIAM P. YAKELEY, Syracuse, N. Y., assignor to Mark W. Dewey, same place. Filed May 22, 1895. Serial No. 550,190. (No model.)

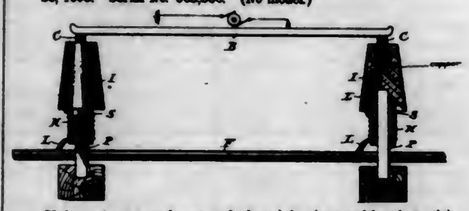


Claim.—1. The combination with a table or cabinet, of a movable machine-table, having rigidly secured thereto a depending bracket, a pivot held stationary in the lower end of the bracket, the cabinet, a curved bar secured to the cabinet and engaging the said pivot at one end, and a second movable table adapted to form a cover for the machine-table pivoted to the lower end of the curved bar by a straight lever, which is pivoted intermediate its length to the curved bar and having one of its ends connected to the machine-table by a link carried below the table, substantially as described and shown.

2. The combination in a table or cabinet for type-writers or other machines, of a stationary table, a movable table pivoted to the cabinet and adapted to lie in the same plane as the stationary table, a machine-table pivoted to the cabinet and held against lateral movement, and a straight lever pivoted intermediate its length to the cabinet and having one end pivoted to the movable table, a link carried below the machine-table and connected to the end of the said lever, and a link connecting the first-mentioned movable table to the cabinet, substantially as described and shown.

3. The combination with a table or cabinet, of a movable machine-table, having rigidly secured thereto a bracket having an upward and a downward projection, a pivot held stationary in the bracket and engaging the cabinet, and a second movable table adapted to form a cover for the machine-table pivoted to the cabinet by a straight lever which is pivoted intermediate its length to the cabinet and having one of its ends connected to the machine-table by a link, said link being pivoted to the upwardly-extending projection on the bracket and depending from the table, substantially as described and shown.

577,704. **ELECTRICAL INSULATOR.** TAPLEY W. YOUNG, Washington, D. C., assignor to David A. McKnight, same place. Filed Sept. 23, 1896. Serial No. 563,380. (No model.)



Claim.—1. A conductor of electricity in combination with an electric heater arranged in proximity to a support of the conductor and a hood for shedding water away from the electric heater, substantially as described.

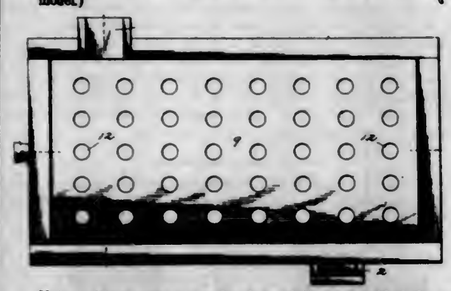
2. As a new article of manufacture, an insulator for an electric conductor provided with a stem adapted to receive an electric heating-wire, a pendent hood for shedding water away from the stem, and a socket passing through the stem for the reception of a supporting-standard, substantially as described.

3. A conductor of electricity, an insulator supporting it, and a standard supporting the insulator, in combination with an electric heater surrounding the standard and located between the insulator and the earth, substantially as described.

4. An electric-railway working conductor, an insulator supporting the conductor, a main current-supply wire, a current-distributing wire connecting the supply-wire and conductor and passing through the insulator, and an electric heater arranged in proximity to a support of the conductor, substantially as described.

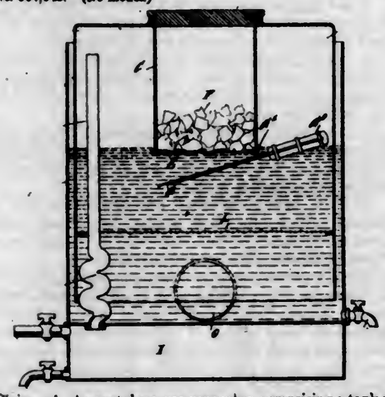
5. An electric-railway working conductor, an insulator supporting the conductor, a main current-supply wire, and a current-distributing wire connecting the supply-wire and conductor, passing through the insulator, and having in its circuit the resistance-coil of an electric heater arranged in proximity to a support of the conductor, substantially as described.

577,705. **ORE SEPARATOR AND CONCENTRATOR.** JOHN O. ANDERSON, Lead, S. D. Filed Apr. 8, 1896. Serial No. 586,714. (No model.)



Claim.—Means constructed substantially as specified for separating and extracting floating particles of precious metals from their bearing medium, the same consisting of a box-shaped trap having an opening in a side near its bottom, means for closing said opening, an inlet-flume communicating with one side of the trap near an end and the bottom thereof, an outlet-flume communicating with the opposite side of the trap near the other end and top, a series of copper plates located within the trap at different levels and amalgamated or coated with mercury on their top and bottom sides, said plates having openings of graduated sizes, and the openings in the several plates being out of register, the openings in the bottom plate being the largest and the openings in the topmost plate the smallest, and a copper plate placed upon the bottom of the trap and coated on its top side with mercury, substantially as and for the purpose specified.

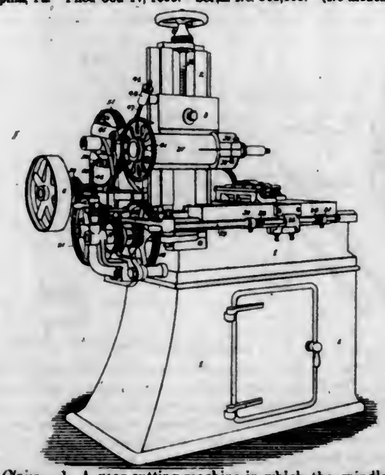
577,706. **ACETYLENE-GAS GENERATOR.** GUY S. ARCHER and CHARLES F. BURRINGTON, Cherokee, Iowa. Filed Apr. 15, 1896. Serial No. 587,643. (No model.)



Claim.—1. An acetylene-gas generator, comprising a tank adapted to contain water, a holder adapted to fall and rise in said water, a receptacle carried by the holder and having a perforated bottom capable of supporting calcium carbid, and a weighted door pivoted on the lower end of said receptacle, to open and close the same as said holder falls and rises, substantially as shown and described.

2. An apparatus for generating gas having a tank, a receiver below the tank, a pipe communicating with the receiver and passing upwardly into the tank, a bell-shaped holder inverted within the tank and receiving the upper end of the pipe, the holder being capable of movement vertically, a receptacle carried by the holder and located within the same, and a door for the receptacle, the door being capable of closing upon the upward movement of the holder, substantially as described.

577,707. **GEAR-CUTTING MACHINE.** JAMES BARKER, Philadelphia, Pa. Filed Oct. 17, 1895. Serial No. 565,995. (No model.)



Claim.—1. A gear-cutting machine in which the spindle carrying the blank is combined with mechanism for automatically imparting intermittent movements of partial rotation thereto, and with a split and compressible bearing constituting a friction-clutch for said spindle, substantially as specified.

2. The combination of the work-carrying spindle and its ratchet-wheel, an arm having a pawl for engaging said ratchet-wheel, a cam for acting on said arm, a continuously-rotating driving-gear for said cam, and means for intermittently clutching the cam to and releasing it from said gear.

3. The combination of the work-carrying spindle, and its ratchet-wheel, an arm having a pawl for engaging said ratchet-wheel, a cam for actuating said arm, a continuously-rotated ratchet-wheel, a pawl whereby the cam can be clutched to said ratchet-wheel, a tripper-arm whereby the pawl is normally held out of engagement with the ratchet-wheel, and means for moving said tripper-arm out of operative position at intervals.

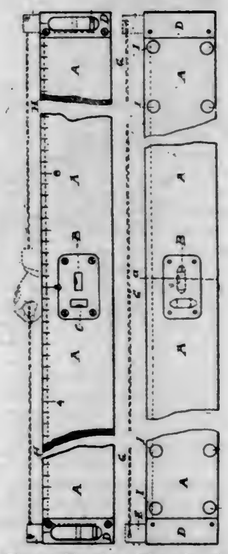
4. The combination of the work-carrying spindle and its ratchet-wheel, an arm having a pawl for engaging said ratchet-wheel, a cam for actuating said arm, a continuously-operated ratchet-wheel, a pawl whereby the cam can be clutched to said ratchet-wheel, a trip-arm for normally holding said pawl out of engagement with the ratchet-wheel, a clutch-lever forming part of the reversing mechanism of the machine, and means whereby said lever is caused to move said trip-arm out of operative position in order to permit clutching of the cam to its ratchet-wheel.

5. The combination of the work-carrying spindle and its ratchet-wheel, an arm having a pawl for engaging said ratchet-wheel, a cam for actuating said arm, a continuously-operated ratchet-wheel, a pawl whereby the cam can be clutched to said ratchet-wheel, a trip-arm for normally holding said pawl out of engagement with the ratchet-wheel, a clutch-lever forming part of the reversing mechanism of the machine, a spring-trigger carried by said lever, and adapted to move the trip-arm, and a cam for throwing said trigger out of action when the trip-arm has been moved to a sufficient extent, substantially as specified.

6. The combination of the work-carrying spindle and its ratchet-wheel, the arm having a pawl for engaging with said ratchet-wheel, a cam for moving said arm in one direction and means for limiting the descent of the arm, said means comprising a threaded rod hung to the arm, a stud through which said rod passes, and a nut carried by the rod and serving by contact with said stud to limit the descent of the pawl-carrying arm, substantially as specified.

7. The combination of the work-carrying spindle shouldered and threaded at the rear end, with a face-plate confined against said shoulder by a nut adapted to the thread of the spindle, and bearing against the face-plate, and a feed-ratchet secured to said face-plate, said feed-ratchet having a central opening for the reception of the nut, substantially as specified.

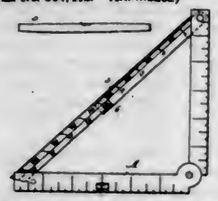
577,708. **PARALLEL-RULER.** JOHN D. BARRIE, Los Angeles, Cal., assignor of one-fourth to James J. McInerney, same place. Filed Aug. 23, 1895. Serial No. 560,225. (No model.)



Claim.—1. The combination of the ruler, the marking-cord, the sliding device and thumb-piece at each end of the ruler, to which each end of the marking-cord is attached, the groove in the edge of the ruler for receiving and inclosing the marking-cord, the level or levels at the center of the ruler, all operating together in the manner and for the purposes, substantially as set forth.

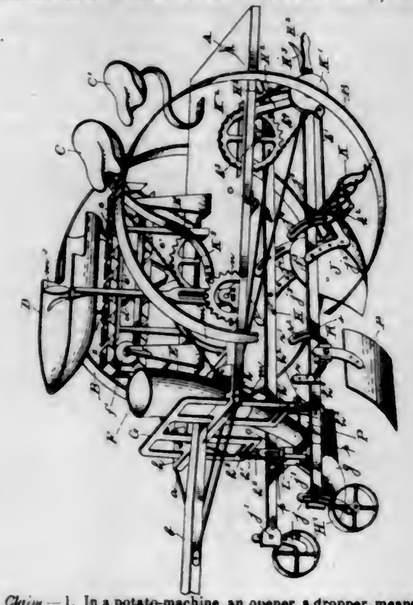
2. The combination of the ruler, the marking-cord, the sliding device and thumb-piece at each end of the ruler, to which each end of the marking-cord is attached, the groove in the edge of the ruler for receiving and inclosing the marking-cord, the level or levels, the elastic contact-pieces, all operating together in the manner and for the purposes, substantially as set forth.

577,709. COMBINED POCKET-RULE, SPIRIT-LEVEL, AND INCLINOMETER. MATTHEW H. REDDOW, Minersville, Pa. Filed June 29, 1896. Serial No. 597,412. (No model.)



Claim.—The herein-described combination-tool, comprising a measuring-rule made in two sections pivotally connected with each other and formed with slots in the free ends, of the sheet-metal extensible leg made in two parts hinged to each other and having their outer edges bent over at a right angle forming flanges cut away at the ends to form shoulders and one of said sections of said leg pivotally connected with one of the sections of said rule while the free end of the other section of the leg is adapted to slide in the slot in the other section of the rule, substantially as described.

577,710. POTATO PLANTER AND DIGGER. FREDERICK D. BELL, Hornellsville, N. Y. Filed Jan. 7, 1896. Serial No. 574,563. (No model.)



Claim.—1. In a potato-machine, an opener, a dropper, means for feeding the potatoes within said dropper, laterally and vertically adjustable plates or wings for covering the potatoes, horizontal bars carrying said opener and wings, and adjustable wheels at the forward ends of said bars, substantially as set forth.

2. In a potato-machine, an adjustable opener, a dropper, a receiver, means for conveying the potatoes from the receiver to the dropper, wings for covering the potatoes, horizontal bars for carrying said opener and wings, and means for adjusting the rear ends of said horizontal bars, substantially as described.

3. In a potato-machine, the combination with the horizontal adjustable bars carrying the former or opener and covering-wings, of a frame at the front of said machine supporting said horizontal bars, means for adjusting and locking said frame, and means for adjusting the covering-wings both laterally and vertically.

4. The combination with a supporting part, of a pivoted digger and digger-adjusting mechanism, a separator pivoted to the digger at its rear edge, a connecting-link having a crank-arm, mechanism for vibrating the separator by means of the crank-arm, and a plurality of fingers pivoted to the rear extremity of the separator.

5. The combination with a pair of supporting-bars, of vertically and laterally adjustable wings depending therefrom, a pivoted digger carried by the bars behind the wings, a separator pivoted to the rear edge of the digger, a connecting-link having a crank-arm, and mechanism connected with the crank-arm for continuously vibrating the separator while the machine is in motion.

6. In a digging attachment for potato-machines, a digger upwardly inclined from its forward edge and provided with rearwardly-projecting and downwardly-inclined fingers carried by the digger.

7. In a digging attachment for potato-machines, the combination with laterally-adjustable plates, of a digger secured to the machine at points behind and in line with each of said plates.

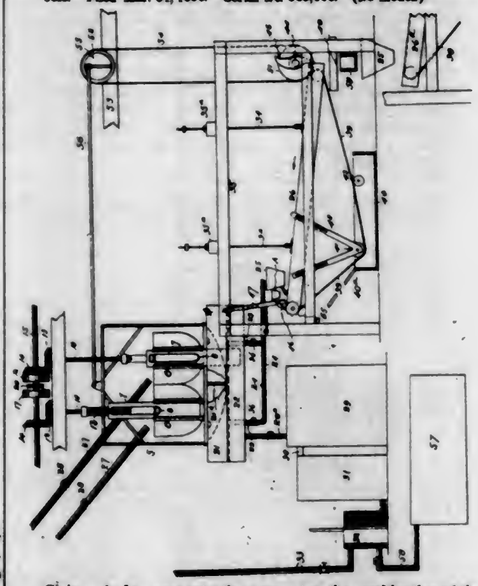
8. In a digger attachment for potato-machines, the combination with a pair of horizontal bars, of adjustable plates or wings secured thereto, and a digger adjustably secured to each of the bars respectively, behind the plates.

9. In a digger attachment for potato-machines, the combination with horizontal bars, of adjustable plates or wings secured thereto, a digger directly attached to each of said bars, and mechanism for simultaneously adjusting the bars.

10. In a digging attachment, the combination with laterally-adjustable soil-removing plates, a digger behind said plates, fingers secured to the digger, pivoted fingers carried by said first-named fingers, and means for adjusting the digger.

11. In a convertible potato planting and digging machine, a main frame carrying a supplemental frame, adjustable soil-throwing plates on the sides of said supplemental frame, an opener on said supplemental frame in front of and on a median line between said soil-throwing plates, the said supplemental frame being adapted to carry a digger at the rear of said plates, the opener and digger being adjustable into and out of operative position at will, substantially as described.

577,711. ORE-CONCENTRATOR. HARRISON T. BENSON, Denver, Colo. Filed Mar. 31, 1896. Serial No. 585,663. (No model.)



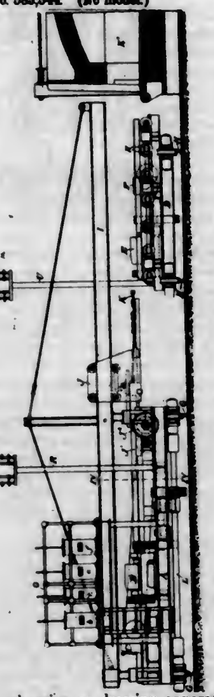
Claim.—1. In a concentrating apparatus, the combination of the rocking frame, the tanks rigidly mounted thereon and having a slot in one end of each, the movable gates controlling said slots, the worms engaging suitable nuts for actuating the gates, links having their extremities respectively pivoted to the nuts and to the sliding gates, means for feeding the pulp to the tanks, and means for actuating the rocking frame, substantially as described.

2. In a concentrating apparatus, the combination of the rocking frame, the tanks rigidly mounted thereon, a vertically-movable end gate controlling a suitable opening formed in one end of each tank, worms engaging nuts for actuating the gates, said worms having right and left threads, links connecting said nuts with the gates, the link extremities being pivoted to the respective parts, a suitable shaft, gears connecting said shaft with the worms, and suitable means for reversing the movement of the shaft and worms, as and for the purpose set forth.

3. In a concentrating apparatus, the combination of the rocking frame, the tanks rigidly mounted thereon and having end openings, vertically-movable gates attached to said tanks and controlling said openings, operating-worms, links connecting the gates with the worms, the link extremities being pivoted to permit the rocking motion of the tanks, and means for actuating the worms, comprising a shaft, gears connecting the shaft with the worms, loose pulleys mounted on the shaft and having clutch-faces, said pulleys being connected with the line-shaft in such a manner that they move in opposite directions, and a clutch splined on the shaft and adapted to alternately engage the clutch-faces of the pulley whereby the movement of the shaft and worms is reversed at will, as and for the purpose set forth.

4. In a concentrating apparatus, the combination of the rocking frame, the tank 6 rigidly mounted thereon and adapted to receive the ore to be treated, end gates for controlling the discharge from the tanks, means for actuating the end gates, links connecting said means with the gates, the extremities of the links being pivoted to the connected parts, a settling-tank adapted to receive the water from the tanks 6, suitable means for causing the water to travel from the settling-tank back to the pulverizing-mill whereby it may be used as many times as desired, and a precipitating-tank into which the water is finally drawn from the settling-tank, substantially as described

577,712. APPARATUS FOR CHARGING AND DRAWING FURNACES. PER T. BERG and ALVA C. DINKEY, Munhall, Pa. Filed Mar. 17, 1896. Serial No. 583,544. (No model.)



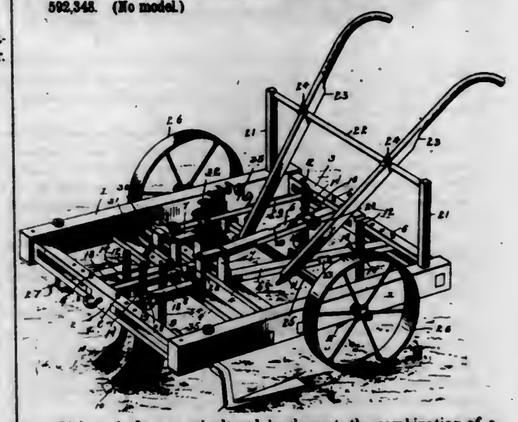
Claim.—1. In a charging or drawing apparatus for furnaces, the combination with a charging carriage or buggy having means for grasping and moving the metal pieces, and electric motors for moving the carriage and operating the tongs, of a separately-movable carriage or buggy adapted to receive the metal from the furnace, and having a motor for causing its travel, a main generator, controllers situated on one of the carriages or buggies, and line conductors connecting the controllers with the main generator and with said motors: substantially as described.

2. In a charging or drawing apparatus for furnaces, the combination with a charging carriage or buggy having means for grasping and moving the metal pieces, and electric motors for moving the carriage and operating the tongs, of a separately-movable carriage or buggy adapted to receive the metal from the furnace, and having a motor for causing its travel, controllers on one of the carriages or buggies, line conductors for connecting the controllers with the main generator and with the motors on the other carriage or buggy, and traveling contacts on the last-named carriage or buggy, making contact with the line conductors; substantially as described.

3. In a charging or drawing apparatus for furnaces, the combination with a charging-carriage having means for grasping and moving the metal pieces, and electric motors for moving the carriage and operating the tongs, of a separately-movable buggy adapted to receive the metal from the furnace, and having a motor for causing its travel, conductors leading from the main generator along the path of travel of the charging-carriage, other conductors leading from the path of travel of the charging-carriage to and along the path of travel of the buggy, traveling contacts on the buggy connecting the motors thereof with said conductors, and controllers on the carriage also connected with said conductors and with the motors on the carriage, whereby the motors on both may be independently operated from the carriage; substantially as described.

4. In charging or drawing apparatus for furnaces, the combination of a traveling carriage carrying means for grasping and moving the metal pieces, an independently-movable buggy movable between said carriage and the furnace and adapted to receive such metal pieces, and mechanism for controlling the movements of said carriage and buggy from a single operating-station; substantially as described.

577,713. COMBINED CULTIVATOR AND COTTON-CHOPPER. ELI N. BICKLEY, Harrisburg, Ark. Filed May 20, 1896. Serial No. 592,348. (No model.)



Claim.—1. In an agricultural implement, the combination of a beam, a notched standard bearing a blade or shovel, a clip having slots or openings in its parallel members to receive the standard, and having a closed end of one slot out of line with the corresponding closed end of the other slot, and means for securing the clip to the beam, substantially as and for the purpose set forth.

2. In combination, a notched beam, a standard having a series of notches at one edge, a clip having slots in its parallel portions to register with a notch of the beam, and having a closed end of one slot out of line with the corresponding closed end of the other slot, and a binding-screw operating through a threaded opening in the closed end of the clip to secure the latter upon the beam and the standard at an adjusted position, substantially as set forth.

3. In an agricultural implement, the combination with a frame bearing cultivating devices, of ground-wheels for supporting the frame, and runners secured to the side bars of the frame and having their lower portions expanded and forming fenders, and adapted to operate upon the ground in advance of the ground-wheels to pulverize the soil, substantially as and for the purpose set forth.

4. In combination, longitudinal beams having corresponding arched portions, a rock-shaft journaled intermediate of the beams and bearing a hoe or cotton-chopper, a power-driven shaft located to one side of the beams, and a crank-and-pitman connection between the power-driven shaft and the rock-shaft, the said pitman operating in the space formed by the arched portions of the beams, substantially as set forth.

5. In combination, a frame of substantially rectangular form, uprights rising from the frame and connected by a transverse rod, longitudinal beams having adjustable connection with the front and rear bars of the frame and deflected intermediate of their ends and provided with arches, handles secured to the longitudinal beams and movable therewith laterally, and having adjustable connection with the said transverse rod, cultivating devices attached to the opposite ends of the longitudinal beams, a rock-shaft bearing a chopping-blade, and actuating mechanism for operating the said shaft, substantially as set forth.

6. The herein-described implement for the purposes set forth, comprising a frame mounted upon ground-wheels and runners, the latter forming fenders and operating upon the ground in advance of the ground-wheels, laterally-adjustable beams having arched portions intermediate of their ends, cultivating devices having adjustable connection with the beams, a rock-shaft bearing a hoe or cotton-chopper and having a crank, a longitudinal shaft operatively connected with the axle bearing the ground-wheels and having a crank which is connected with the crank of the rock-shaft by means of a pitman, the latter operating in the space formed by the arched portions of the beams, an elevated transverse rod or bar, and handles secured at their lower ends to the beams and movable laterally therewith, and having adjustable connection with the said transverse rod or bar, substantially in the manner and for the purpose specified.

577,714. RAILROAD-TIE. BENJAMIN BRADLEY, Sr., Bellefonte, Pa. Filed Sept. 4, 1896. Serial No. 604,826. (No model.)



Claim.—1. A tie comprising the metallic frame having the main plates of angle-iron the base-plates resting on the lower wings of said main plates and the bars connecting said main plates substantially as shown and described.

2. A tie comprising the frame having main plates provided near their ends with offsets extending at right angles to the direction of length of the tie and forming the outer end walls of the bearing-block chambers and with cross-bars forming the inner walls of said chambers and the bearing-blocks fitted in said chambers substantially as shown and described.

3. In a tie the combinstion with the frame of the outer bearing-blocks, and the inner wedge-block such blocks having inclined faces whereby the inner block may be set up to take up wear &c. substantially as shown and described.

4. A tie consisting of the frame having main plates of angle-iron and provided near their ends with offsets, the base-plates resting on the lower wings of the main plates, the cross-bars connecting the main plates and forming the inner walls of the bearing-block chambers, the bearing-blocks in said chambers, and the end cross-bars connecting the main plates all substantially as shown and described.

5. The combination of the tie-frame, the bearing-blocks fitted in and projecting above the tie-frame and the rail-locks secured to the tie-frame substantially as shown and described.

6. A tie composed of the metal frame, and the removable wear-blocks held in said frame and consisting of the outer blocks and the inner wedge-blocks such blocks being arranged at their upper faces to support the rail and the inner block being tapered and movable longitudinally in the direction of length of the tie whereby it may be set longitudinally without affecting the bearing-plane for the base of the rail subetantially as shown and described.

7. The combination of the tie-frame having a notch and the rail-locks hooked together and secured to the tie-frame one of such locks having a lug entering the notch of the tie-frame substantially as shown and described.

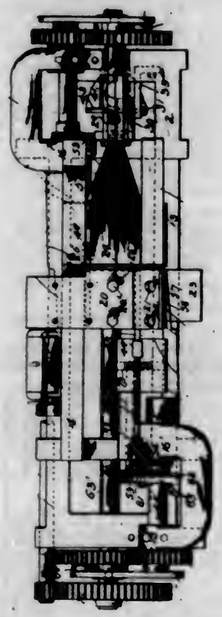
577,715. CAN-MACHINE. WILLIAM D. BROOKS, Baltimore, Md. Filed June 9, 1896. Serial No. 594,536. (No model.)

Claim.—1. In combination, breaking devices, the curling-rollers, feeding means for feeding the blanks through the breaking devices, and a carrier operating at right angles to the feeding means to move the blanks transversely of the breaking means to the curling-rollers, substantially as described.

2. In combination, the front and rear rigid vise-jaws having their gripping-faces oppositely directed, the movable vise-jaws with means for moving them in opposite directions to grip the blank, one jaw of each pair having a receding inclined face and the breaking-arms with means for turning them in opposite directions about the outer meeting edges of the fixed and movable jaws to bend the edges of the blank onto the receding inclined faces, substantially as described.

3. In combination, the breaking mechanism comprising the vise-jaws with means for opening and closing the same and the break-arms with operating means therefor, and the feed-slide for feeding the blanks into the vise-jaws with means for reciprocating the feed-slide and for raising and lowering the same, substantially as described, said feed-slide moving in between the vise-jaws, to hold the blank while being clamped.

4. In combination, the breaking mechanism comprising the vise-jaws, with means for opening and closing the same and the break-arms with operating means therefor, and a feed-slide with operating means therefor, and means on the feed-slide for engaging and feeding a new blank into the vise-jaws and for moving the previous blank therefrom, said feed-slide moving in between the vise-jaws, to hold the blank while being clamped.



5. The machine for forming can-bodies, means for breaking the ends of the blanks, a feed-slide, a vertical movable standard in which the same slides, means for operating the standard vertically and means for reciprocating the slide, substantially as described.

6. In combination in a machine for forming can-bodies, means for breaking the edges of the can-blanks, a feed-slide having pins 25, 26 feeding a pair of blanks, a vertically-movable standard in which the slide is guided, a cam for raising and lowering the same, a lever for reciprocating the slide pivoted to the standard to move therewith, and a cam for oscillating the lever, substantially as described.

7. In combination, the breaking means comprising the oscillating break-arms with their shafts, curling-rollers and a carriage for transferring the blanks from the breaking means to the curling-rollers and connections for operating the said carriage, said connections being actuated by the oscillating break-arm shafts, substantially as described.

8. In combination, the oscillating break-arm, the gripping-jaws comprising the movable member and means for operating the movable member having operating connections with the oscillating shafts of the break-arms, substantially as described.

9. In combination, the oscillating break-arms, the gripping-jaws comprising the movable members, the wedges for operating said movable members and means for moving the wedges automatically and previous to the automatic action of the break-arms, substantially as described.

10. In combination, the gripping-jaws, the oscillating break-arms, the said gripping-jaws comprising movable members, the reciprocating wedges for operating the same and the connections between the said wedges and the oscillating break-arms comprising the nut and the shaft 50 geared to the break-arm shaft, said shaft 50 being threaded to reciprocate the nut, substantially as described.

11. In combination the breaking means for the blanks, the curling-rollers, the reciprocating transfer-carriage, the oscillating break-arms, the rotary shaft geared to the break-arm shaft and the geared connection between the same and the transfer-carriage, substantially as described.

12. In combination, the breaking means comprising the gripping-jaws having movable members, the wedges for operating the same, the curling-roller, the transfer-carriage operating between the same and the gripping-jaws, the oscillating break-arms and the connections between one of said arms and the transfer-carriage and wedges for operating said parts, substantially as described.

13. In combination, the breaking means comprising the gripping-jaws and oscillating break-arms extending longitudinally of the machine, and feed-slide operating longitudinally of the machine, curling-rollers at one side of the machine and a transfer-carriage operating transversely of the machine and at one side of the gripping-jaws.

14. In combination, the gripping-jaws and break-arms extending longitudinally of the machine, the feed-slide arranged to receive the blanks from the front of the machine, curling-rollers at the rear side of the machine and a transfer-carriage operating at one side of the gripping-jaws and from front to rear of the machine, substantially as described.

15. In combination, the gripping-jaws arranged at the center of the machine and the break-arms with means for operating the same said break-arms extending from the gripping-jaws at the center of the machine in opposite directions with their operating means at opposite ends of the machine, substantially as described.

16. In combination, the main frame, front and rear frame-bars comprising rigid gripping-jaws and laterally-extending bearing portions and the break-arms extending longitudinally of the frame-bars and having their shafts journaled in the lateral bearing portion thereof to bring their axial centers in line with the edge of the rigid clamp-jaw, substantially as described,

17. In combination, the main frame, the front and rear frame-bars extending longitudinally thereof and having rigid gripping-jaws disposed reversely in relation to each other, the movable gripping-jaws, the brackets carrying the same and secured to the frame-bars and the oscillating break-arms bearing in the frame-bars and means for operating the oscillating break-arms and the gripping-jaws, substantially as described.

18. In combination, the main frame, the front and rear frame-bars extending longitudinally thereof having rigid gripping-jaws and U-shaped bearing portions, said frame-bars being reversely disposed in relation to each other, the oscillating break-arms extending from the gripping-jaws longitudinally of the machine in opposite directions and journaled in the U-shaped parts of the frame-bars, means at opposite ends of the machine for oscillating the break-arms and means for operating the movable members of the gripping-jaws, substantially as described.

19. In combination, the main frame, the front and rear frame-bars carrying the rigid gripping-jaws, the oscillating break-arms with their shafts and with operating means, said frame-bars being adjustable toward and from each other, the movable gripper-bars and the brackets carrying the same, said brackets being adjustable on the frame-bars, substantially as described.

20. In combination, the main frame, the gripping-jaws and oscillating break-arms at front and rear adjustable toward and from each other, the gears on the break-arm shafts, the vertically-adjustable oscillating gear and means for operating the same, substantially as described.

21. In combination, the front and rear gripping-jaws with the oscillating break-arms adjustable toward and from each other, the gears on the break-arm shafts, the vertically-adjustable oscillating gears, the shaft therefor and the adjustable clamping-boxes for said shaft comprising the rectangular portion, the threaded portion, the nut and the washer having pins, said washer being interposed between the nut and the end frame, substantially as described.

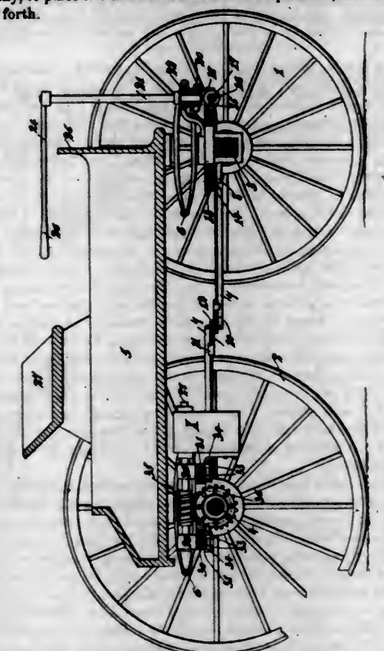
22. In combination, the gripping-jaws, the oscillating break-arms with means for operating the same, comprising the oscillating gears, the shaft for said gears and feeding mechanism comprising the feed-slide, the vertically-movable standard with means for operating the same, the oscillating lever with means for operating the same, said lever and standard having bent portions forming a loop for the passage of the operating-shaft.

23. In combination, the clamping-jaws and break-arms, a carriage to receive the blank therefrom, means for moving the carriage at right angles to the first movement of the blank between the break-arms and the bending-rollers for receiving the blank from the carriage.

577,716. MOTOR-VEHICLE. LEWIS BROWN, Sawkill, N. Y. Filed Jan. 16, 1896. Serial No. 575,673. (No model.)

Claim.—1. In a vehicle, the combination of a bed, forward and rear axles mounted to swing in horizontal planes under the bed, crossed reaches connected at opposite ends to the opposite ends of the respective axles, and brackets secured to the central portions of the respective reaches, said brackets being pivoted together, substantially as set forth.

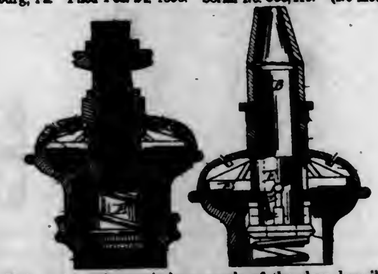
2. In a vehicle, the combination of a bed, forward and rear axles arranged to swing in horizontal planes under the bed, reaches connecting the axles, means for swinging one of the axles, means for rotating the other axle, wheels on the axles, the wheels which are on the axle having means for rotating it, being provided with clutches normally arranged to hold the wheels to rotate with the axle, and arms carried by the reaches and arranged when the axle is swung pivotally, to place one of said clutches out of operation, substantially as set forth.



3. The combination of two axles, two reaches respectively pivoted to the axles and extended across each other, and two plates connected to each other and respectively having sliding connection with the reaches, substantially as described.

4. In a vehicle, the combination of two axles, wheels for the axles, two reaches each respectively pivoted to the axles, the reaches being crossed at a point between the axles, two plates connected with each other and respectively slidably connected on the reaches, an arm fixed to each reach adjacent to one end thereof, and a clutch connected with each arm, the clutches being capable of engaging or disengaging the respective adjacent wheels with the axles, substantially as described.

577,717. FIREMAN'S HOSE-NOZZLE. JOSEPH BUSHA, Pittsburg, Pa. Filed Feb. 24, 1896. Serial No. 580,419. (No model.)



Claim.—1. A fireman's hose-nozzle of the class described, consisting of a shell, formed to provide an enlarged chamber at its forward end, said chamber having spraying-openings in its front wall and also having alined openings in its front and rear walls, a valve-seat encircling the opening in its rear wall and a sleeve encircling the opening in the forward wall and projecting into said chamber, said sleeve being formed with a cam-groove; a freely-movable tube extending through said sleeve and chamber and having a pin engaging said cam-groove; a valve encircling the inlet end of said tube; and a nozzle-tip at the opposite end thereof, substantially as described.

2. A fireman's hose-nozzle of the class described, consisting of a shell, embodying a rear section having an inlet-opening and an annular flange forming a valve-seat encircling said opening, and a forward section formed with spraying-openings and having a central sleeve projecting inward toward said valve-seat and formed with a cam-groove, said sections being threaded together and dished in opposite

directions, to form conjointly a widened chamber; a freely-movable tube extending through said sleeve and chamber and having a pin engaging said cam-groove; a valve encircling the inlet end of said tube; and a nozzle-tip at the opposite end thereof, substantially as described.

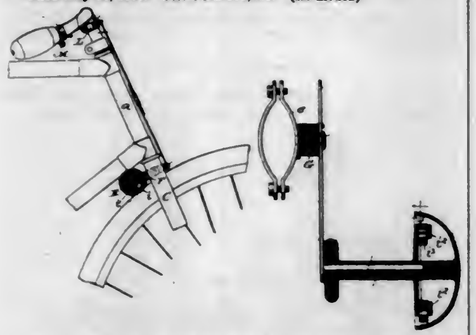
3. A fireman's hose-nozzle of the class described, consisting of a shell, embodying a rear section, consisting of an annular flange forming a valve-seat, a dished end extending forwardly from said flange and a tubular extension projecting rearward from said flange; a forward section, consisting of a dished rear end having spraying-openings, and a central sleeve projecting toward said valve-seat and formed with a cam-groove; said tubular extension of the rear extension being of greater inside diameter than the opening through said flange; and a collar on the rear end of said extension; a freely-movable tube extending loosely through said sleeve and flange and having a pin engaging said cam-groove; a valve encircling the inlet end of said tube; and a nozzle-tip at the opposite end of the latter.

4. A fireman's hose-nozzle of the class described, consisting of a shell formed to provide an enlarged chamber at its forward end and with an annular flange having an opening forming the inlet to said chamber, the forward wall of said chamber being formed with spraying-openings and with a sleeve projecting inward toward said flange, said sleeve being formed, at diametrically opposite sides, with cam-grooves which are curved in opposite directions and with recesses at each end of each groove; a tube, extending through said sleeve and flange and provided with pins engaging said cam-grooves; a valve encircling the inlet end of said tube; and a nozzle-tip at the outlet end of the latter.

5. A fireman's hose-nozzle of the class described, consisting of a shell formed to provide a forward enlarged chamber and a rear chamber and having an annular flange between said chambers, the front wall of said forward chamber being formed with spraying-openings and with a sleeve projecting inward toward said flange, said sleeve having a cam-groove; a tube, extending loosely through said sleeve and flange and provided with a pin engaging said cam-groove; a valve, encircling the inlet end of said tube and controlling communication between said chambers; a nozzle-tip at the outlet end of said tube; and a coiled spring seated in the rear chamber of the shell and engaging said valve.

6. In a spraying-nozzle, the combination with the shell having an annular opening for the issue of the spray, of a series of ribs, spanning said opening and formed with recesses registering therewith to cause the water to consolidate as it leaves the latter.

577,718. BICYCLE-BELL. GEORGE F. CARLIN, New York, N. Y. Filed May 26, 1896. Serial No. 593,105. (No model.)



Claim.—In an alarm-bell for bicycles and like vehicles, a clamp adapted to be secured to the fork and having a pin or stud, a coiled spring surrounding said stud, one end of the spring being fastened to said clamp, a lever of the first order mounted upon said stud and adapted to rock thereon, and having attached to it the other end of said spring, and a pin or spindle carried by one arm of said lever, combined with a bell or gong fixed upon said pin and provided with an inner projection, a sleeve revolubly mounted upon said pin or spindle and having arms with pins extending therefrom, a disk or weight loosely mounted upon each of said pins, a roller fixed to said sleeve, and means, within the control of the rider, and connected with the end of the lever opposite to that carrying the bell, for depressing (against the normal action of said spring) the end of the lever carrying the bell, so as to bring the sleeve-roller in contact with the tire of a wheel of the vehicle, and thus, by frictional contact of said roller and tire, cause the rotation of said arms and the throwing out of the disks or weights by centrifugal force, whereby, in their revolutions, they shall strike the said projection, and thus sound the bell or gong, substantially as set forth.

577,719. WEATHER-STRIP. ADELBERT P. CHILSON, Butler, Ind. Filed July 25, 1896. Serial No. 600,489. (No model.)

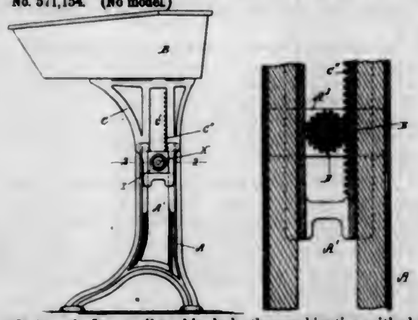


Claim.—1. In a weather-strip, the combination with a housing provided with a flat part for attachment to a door and having a curved outer part with the edge thereof turned inwardly and resting normally in contact with the flat part of said housing, of a plate provided with a flange formed at a right angle thereto supported between the inwardly-turned edge of said housing and the flat part thereof by said edge resting in a channel formed at the inner angle of said plate and the flange thereon, a spring within said housing and said flange held normally in contact with the flat part of said housing thereby, substantially as shown and described.

2. A weather-strip consisting of a housing formed with a flat surface to rest against a door and an outwardly-curved portion with the edge thereof turned back and resting normally in contact with the flat portion, a plate supported between the edge of the turned-back part of said housing and the flat portion thereof, said plate having a flange formed at a right angle thereto, said flange formed by folding the metal of which it is made back on itself to form a channel at the inner angle of said plate and flange to receive the inwardly-turned edge of said housing and a flat spring secured within said housing to hold said flange in contact with the flat part thereof, substantially as shown and described.

3. A weather-strip consisting of a housing formed with a flat surface to rest in contact with a door, and having an outwardly-inclined part formed with its lower edge curved inwardly and resting normally in contact with the flat surface of said housing, a plate to cover the exterior part of the door-sill, said plate provided with a flange formed thereon at a right angle and having a groove or channel formed at its inner angle, said plate held in position in said housing by the edge of the curved portion of the housing resting in the groove or channel therein, a spring attached to the door and within the housing resting over said flange for elevating the outer edge of said plate, and a catch for attachment to the casing of the door for depressing said plate, substantially as shown and described.

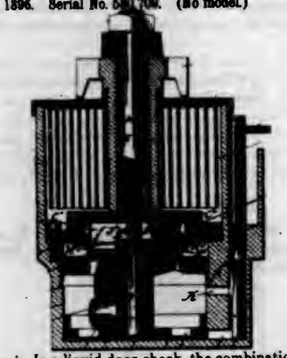
577,720. ADJUSTABLE SUPPORT FOR SCHOOL FURNITURE. LEANDER B. COBB, Everett, Mass., assignor to the Chandler Adjustable Chair and Desk Company, Boston, Mass. Filed Dec. 5, 1895. Serial No. 571,154. (No model.)



Claim.—1. In an adjustable desk, the combination with slotted vertical standards, of brackets secured to the movable desk to have vertical adjustment in the slotted ways of said standards, an adjusting-shaft journaled in bearings in said standards and carrying pinions meshing with racks on the movable brackets, a worm-gear upon said shaft, a worm meshing with said gear and carried by a shaft journaled in supports upon one of the standards, clamping-plates loosely mounted on the ends of the adjusting-shaft and bearing upon outer, tapering surfaces on the standards, and clamping-nuts on the threaded ends of said shaft lying in cup-shaped recesses in the outer faces of the clamping-plates, substantially as described.

2. In an adjustable desk, the combination with standards A, bearing vertically-slotted ways A', of desk-brackets C movable in said ways and having outer, tapering faces C^3, an adjusting-shaft E journaled in bearings on the standards and carrying pinions D which mesh with racks C^2 on the desk-brackets, clamping-plates I loosely mounted on the shaft and provided with faces corresponding to the tapered faces C^3 and clamping-nuts K turned on the threaded ends of the shaft and lying in cup-shaped recesses in the outer faces of the clamping-plates, substantially as described.

577,721. LIQUID DOOR-CHECK. HERBERT G. COLLINS, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Feb. 25, 1896. Serial No. 580,706. (No model.)



Claim.—1. In a liquid door-check, the combination with the case thereof, of a spindle, a vertically-movable and rotary plunger provided with a stem coupled for rotation with the spindle, a lifting-pin located at the upper end of the stem, a depressing-pin located at the lower end thereof, and a non-rotatable cam-head interposed between the two pins, and provided upon its upper face with a lifting-cam to coact with the lifting-pin and upon its lower face with a depressing-cam to coact with the depressing-pin.

2. In a liquid door-check, the combination with the case thereof, of a spindle located therein and provided at its lower end with a circular, chambered head, an annular diaphragm located within the case and forming a bearing for the said head, a vertically-movable and rotatable plunger located within the lower portion of the said case, and provided with a stem which is coupled with the head for rotation therewith, a lifting-pin connected with the upper end of the stem, a depressing-pin located at the lower end of the stem, and a non-rotatable cam-head interposed between the two pins, and provided upon its upper face with a lifting-cam to coact with the lifting-pin and upon its lower face with a depressing-cam to coact with the depressing-pin.

3. In a liquid door-check, the combination with the case thereof, of a spindle mounted therein and provided at its lower end with a circular chambered head, an annular diaphragm located within the case and forming a bearing for the said head, a vertically-movable and rotatable plunger located within the lower portion of the case and provided with a stem, the upper end of which enters the said chambered head which affords a bearing for it, a lifting-pin connected with the upper end of the stem and entering a clearance-slot formed in the said head, a depressing-pin located at the lower end of the stem, and a non-rotatable cam-head interposed between the two pins and provided upon its upper face with a lifting-cam to coact with the lifting-pin and upon its lower face with a depressing-cam to coact with the depressing-pin, substantially as described.

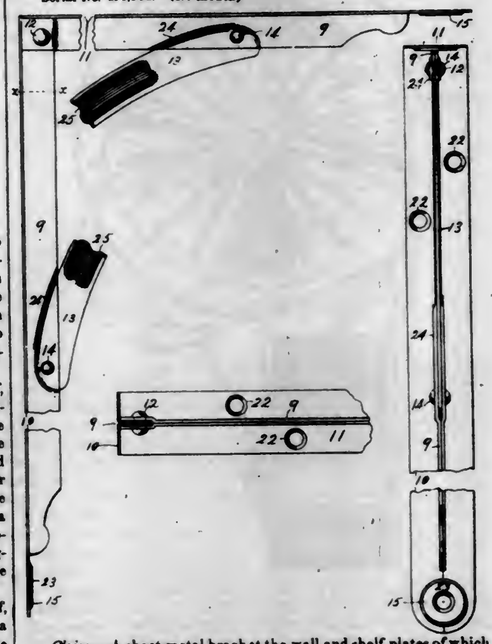
4. In a liquid door-check, the combination with a case, of a diaphragm located therein and dividing it into a spring-chamber and a liquid-chamber, a spindle located in the case, and provided at its lower end with a circular head having bearing in the diaphragm, and constructed with a cam-recess, a stem-recess, and a coupling-slot, a vertically-movable and rotary plunger located in the lower portion of the liquid-chamber, a plunger-stem rigidly connected at its lower end with the plunger, and extending upward into the stem-recess, a combined lifting and coupling pin mounted in the upper end of the stem, and extending into the coupling-slot aforesaid, a depressing-pin mounted in the lower end of the stem, and a cam-head located between the said chambered head and plunger, and provided upon its upper face with a lifting-cam entering the cam-recess in the head, and coacting with the lifting and coupling pin, and upon its lower face with a depressing-cam, which coacts with the depressing-pin.

577,722. FIRE-KINDLER. ELSWORTH COOK, Kempton, Ill. Filed June 1, 1896. Serial No. 593,840. (No model.)



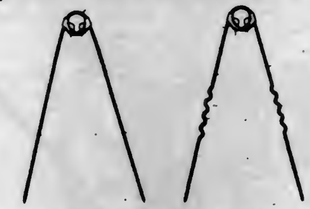
Claim.—A fire-kindler consisting of a compressible shell and a slot therein, a mass of non-combustible absorbent material within the shell, and having a portion thereof extending through the slot to form a wick, and a handle of twisted wire having its ends encircling the shell, united upon the side thereof and formed into a hook adapted to support the kindler upon the grate, substantially as specified.

577,723. SHELF-BRACKET. THOMAS CORSCADEN, New Britain, Conn., assignor to the Stanley Works, same place. Filed Jan. 29, 1896. Serial No. 498,301. (No model.)



Claim.—A sheet-metal bracket the wall and shelf plates of which are each formed of two separate angle-plates the projecting members of which abut against each other for the main portion of their length and form the longitudinal web, swaged brace-sockets formed in said web, in combination with a brace the ends of which are secured in said swaged sockets to the projecting members of said web, whereby excessive pressure on the brace-rivets is avoided substantially as described.

577,724. HAIR-PIN. EDWARD W CRESCY, Washington, D. C. Filed Feb. 14, 1894. Renewed Aug. 31, 1896. Serial No. 604,464. (No model.)

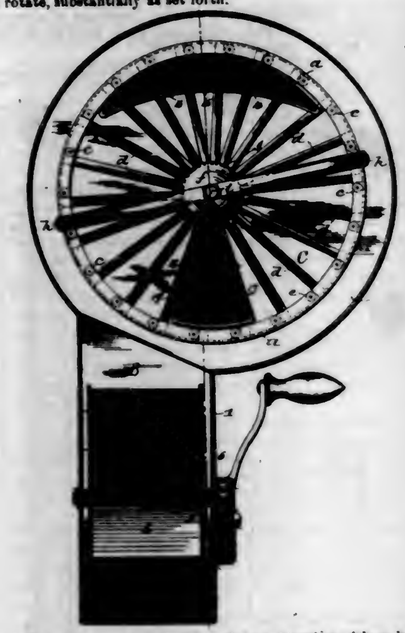


Claim.—A hair-pin consisting of a single piece of wire bent to form a convolution at its center and having its arms extending along the bent portion and thence diverging from each other, and two guard-pieces oppositely attached at the junction of the convolution and the arms, the said guards having their free ends extended inwardly and arranged to stand open from each other when the pin is in normal position, and to close together when the pin is compressed, substantially as shown and described.

577,725. DISH-CLEANER. WILLIAM H. CURTICE, Louisville, Ky. Filed June 6, 1896. Serial No. 594,548. (No model.)

Claim.—1. In a dish-washing machine, the combination with a drum or shell, of a revoluble dish-receptacle within said drum or shell, and a water-wheel arranged tangentially to said dish-receptacle, whereby to throw water against dishes in said receptacle and cause the latter to revolve, substantially as set forth.

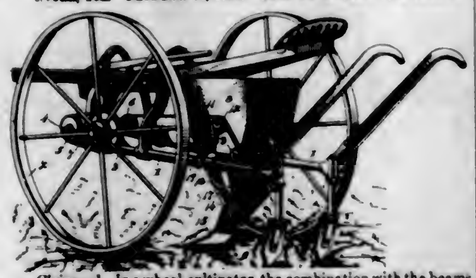
2. In a dish-washing machine, the combination with a drum or shell, of a revoluble dish-receptacle within said drum or shell, a compartment arranged at a tangent to said drum or shell and communicating therewith and a water-wheel in said compartment in line with one side of the wheel whereby the impact of the water thereon causes it to rotate, substantially as set forth.



3. In a dish-washing machine, the combination with a drum or shell, of an open basket or receptacle adapted to revolve in said drum or shell and to be removed therefrom, and a water-wheel so arranged as to throw water against dishes in said basket or receptacle and thereby revolve the latter, substantially as set forth.

4. In a dish-washing apparatus, the combination with a drum or shell, of a revoluble open basket or dish-receptacle in said drum or shell, a conical bearing or support for the bottom of said basket or receptacle, a cover for said drum or shell, a bail secured to the basket and having a post passing loosely through said cover and means for throwing water into the drum or shell so as to revolve the basket and wash dishes contained therein, substantially as set forth.

577,726. CULTIVATOR ATTACHMENT. WILLIAM L. DAYTON, Austin, Tex. Filed Dec. 14, 1896. Serial No. 615,622. (No model.)



Claim.—1. In a wheel-cultivator, the combination with the beams bearing the cultivator-gangs, of a forked stock adapted to replace two of the cultivator-shovels, and having its fork-arms secured to the said beams, and a shovel or plow-point attached to the forked stock, substantially as shown for the purpose described.

2. In a wheel-cultivator, the combination of the gang-bearing beams, a forked stock formed of a bar doubled upon itself, providing a shank, and having its end portions bent outward, thence parallel, forming arms which are secured to the said beams, and a shovel or point secured to the shank of the forked stock, substantially as set forth.

3. In a wheel-cultivator, the combination of the gang-bearing beams, a frame supported by the said beams and composed of similar parts constructed of a bar having an end portion recurved or bent upon itself, a hopper mounted upon the said frame, means for actuating the seed-dropping mechanism, and a forked stock secured to the said beams and bearing an opener, substantially as and for the purpose set forth.

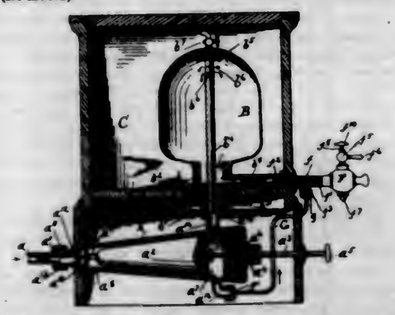
4. In a wheel-cultivator, the combination of the gang-bearing beams, a frame applied to the said beams, a hopper mounted upon the said frame, a shaft journaled to the frame of the cultivator and receiving motion from a ground-wheel, means for transmitting motion from the said shaft to the seed-dropping mechanism, and a forked stock secured to the said beams and having an opener to operate in advance of the grain-spout, substantially as and for the purpose set forth.

577,727. SCRAPER FOR PLOWMEN'S SHOES. WILLIAM C. DE GRAFFENRIED and JAMES P. REDDING, Jr., Jasper, Fla. Filed Nov. 16, 1895. Serial No. 569,172. (No model.)



Claim.—As a new article of manufacture, a scraping attachment for boots and shoes constructed of sheet metal which is bent or doubled upon itself between its edges, and having a portion bent about at right angles a short distance from the fold to form a blade and again bent to extend parallel with the portion from which it departed and forming therewith lips to receive the edge portion of the sole, one of the lips having openings to receive fastenings, substantially as shown and described.

577,728. DEVICE FOR DRAWING STEAM-BEER. ROBERT DEMERS, San Francisco, Cal. Filed May 15, 1896. Serial No. 591,673. (No model.)

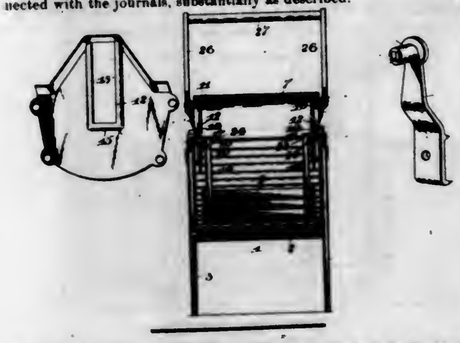


Claim.—1. In a beer-dispensing apparatus, a conical casing, a conical plug placed therein but of enough smaller diameter than the casing to allow a space all around for the flow of the liquid through the casing, a valve at one end of the plug to control the supply of fluid, and a screw-rod at the large end of the plug to center and adjust it endwise, combined with a cooler, a pipe extending thereto from the conical casing, a faucet connected to the cooler, and a pipe G, extending from the conical casing to the faucet which is provided with two passages through it, substantially as described.

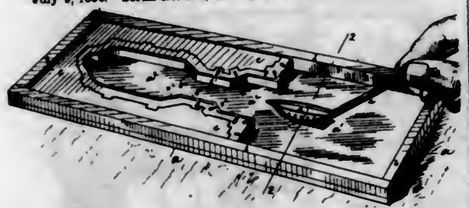
2. In a faucet, the body having two passages *f*, *f'*, through it, and a hollow plug provided with a series of openings through it to communicate with said passages, the plug being provided with a head f^3, and handle f^4; combined with a solid plug f^7 placed inside of the hollow plug, and a screw-rod f^8 for centering and adjusting the solid plug in the hollow one; a space being left between the two plugs to allow a free flow of finid between them substantially as shown.

577,729. WASHING-MACHINE. JOHN H. DOUB, Walnut, Kans., assignor of one-half to Thomas F. Jones, same place. Filed Mar. 26, 1896. Serial No. 584,944. (No model.)

Claim.—In a washing-machine, the combination of a washing-machine body, a cover hinged to the same, an oscillating rubber, bearing-plates secured to the cover at opposite sides thereof, provided with vertical slots and having flanges at opposite sides thereof forming ways, said bearing-plates being provided at the top and bottom of the slots with flanges having openings, the slides mounted in the ways and extending through the openings of the top and bottom flanges of the plates, journals arranged in the bearing-openings of the slides and attached to the oscillating rubber, and a handle-frame connected with the journals, substantially as described.



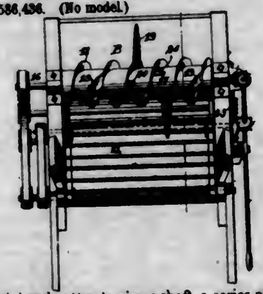
577,730. TOY. LOUIS A. EBERHARDT, New York, N. Y. Filed July 9, 1896. Serial No. 598,531. (No model.)



Claim.—1. A toy composed of a base-plate, a superposed horseshoe magnet and a metallic object adapted to be moved along the base-plate and between the magnet-shanks, substantially as specified.

2. A toy composed of a base-plate, a horseshoe magnet having inwardly-projecting shoulders and partly covering the base-plate, and a metallic object adapted to be moved along the base-plate and between the magnet-shanks, substantially as specified.

577,731. BAND-CUTTER AND DISTRIBUTING-FEEDER FOR THRESHING-MACHINES. ASAHEL W. EDDY and HARVEY P. JONES, Coleridge, Nebr.; said Jones assignor to said Eddy. Filed Apr. 6, 1896. Serial No. 586,436. (No model.)



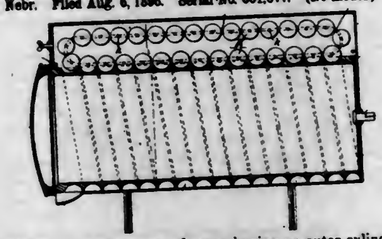
Claim.—A band-cutter having a shaft, a series of blocks fixed to the shaft, each block having its ends formed with a waved surface, such surface being regular and unbroken, and a series of knives each having a body portion consisting of a disk twisted to accurately conform to the shape of the ends of the blocks and each disk being clamped between the contiguous ends of the blocks, each knife also having a blade projecting from the disk, substantially as described.

577,732. BLUING-PACKAGE. JOHANN O. BOSTORFF, London, England. Filed Aug. 19, 1895. Serial No. 559,789. (No model.)

Claim.—A box for holding and discharging laundry blue or the like under water constructed of a sheet-metal body *a*, a bottom end *c* with an aperture *c'* therein, a flexible diaphragm of sheet-rubber or the like elastic material *z* laid in between the said bottom end *c* and the body *a*, and secured by seaming or crimping the two latter together, a top end *b* with an aperture *b'* therein, and a diaphragm of flannel or other textile fabric *x* laid in between said top *b* and said body *a* and secured by seaming or crimping the two latter together, all combined and arranged to act substantially in the manner and for the purposes hereinbefore set forth.



577,733. ICE-CREAM FREEZER. CHARLES EVERTS, Omaha, Nebr. Filed Aug. 6, 1896. Serial No. 601,877. (No model.)



Claim.—1. An ice-cream freezer, having an outer cylinder open at one end and closed at the other, an inner freezing and refrigerant-containing cylinder adapted to be contained and rotated within the outer cylinder, said inner cylinder having at one end a journal-stud and crank-seat which extend through an opening in the closed end of the outer cylinder, and at its opposite projecting end portion an external surrounding shoulder against which the open end of the outer cylinder bears, and a detachable head or plug for closing the outer end of the inner cylinder, said outer cylinder having a filling-opening and a discharge, and the inner cylinder a helically-grooved surface, together with clearing devices which engage the said grooved surface substantially as specified.

2. In an ice-cream freezer, the combination with an outer cylinder-casing having a longitudinal vertical hollow extension at its upper portion, said cylinder being open at one end and closed at the other, and provided with a filling-opening near its closed end, and with a discharge at its open end, of an inner freezing-cylinder supported to rotate within the outer cylinder, and having a helically-grooved exterior surface, and clearing devices working in the extension of the outer casing and engaging the said grooved surface, substantially as specified.

3. In an ice-cream freezer, the combination with an outer cylindrical shell or casing having a hollow vertical longitudinal extension at its upper portion provided therein with endless ways or tracks, of the inner removable freezing-cylinder journaled to rotate within the outer cylinder and having a continuous helical groove extending around its outer surface, together with a series of wheels or disks arranged to run in said ways or tracks and to engage the said groove, substantially as specified.

4. In an ice-cream freezer, the combination of an outer stationary cylinder or case having a filling and a discharge opening, an inner rotary refrigerant-containing cylinder having a helical groove in its surface, and a series of movable wheels or disks arranged to engage said groove, substantially as specified.

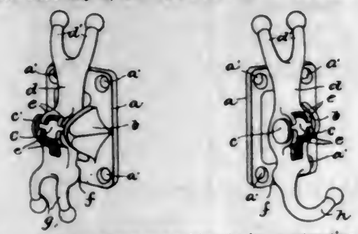
577,734. STALK-CUTTER. GEORGE W. EVERIDGE, Fort Worth, Tex. Filed July 2, 1896. Serial No. 597,865. (No model.)



Claim.—A stalk-cutter comprising longitudinal bars having their rear ends extended, an axle having supporting-wheels carrying the longitudinal bars, a sprocket-wheel, clips securing the sprocket-wheel

to the spokes of a supporting-wheel, a shaft journaled to the rear ends of the longitudinal bars and having a pinion at one end which is connected with the sprocket-wheel by means of a sprocket-chain, a series of blades grouped around the shaft, each formed of a strip having its end portions bent about at right angles and its terminals bent outwardly and resting against and secured to a side of the shaft, braces for connecting the bent ends of the strips forming the blades, a breaker-bar having its end portions bent and pivotally connected with the longitudinal bars, and braces adjustably connecting the breaker-bar with the longitudinal bars, substantially as and for the purpose set forth.

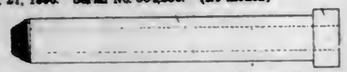
577,735. **LINE-GRIP.** JAMES P. FREAN, Cambridge, Mass., assignor, by mesne assignments, to the American Line Grip Company, of Maine. Filed May 18, 1896. Serial No. 591,971. (No model.)



Claim.—1. A line-clamp comprising in its construction a base-plate having a lug *b* provided with a pin *c* projecting from one side thereof, said pin being provided with a head, and a lever *d* inserted between the pin and the base-plate so as to bear against the pin, said pin being provided with a bifurcated upper end, a corkscrew-finger at its lower end, and with a cam portion coacting with the base-plate, said lever also having forwardly-extending lugs *e* bent around the pin *c* whereby the strain upon the lever is borne by the pin, and not by the lugs, said lugs coacting with the pin and the head thereof to retain the lever in position, substantially as described.

2. A line-clamp comprising in its construction a base-plate having a lug *b* provided with a pin *c* projecting from one side thereof, said pin being provided with a head, and a lever *d* inserted between the pin and the base-plate so as to bear against the pin, said pin provided with a bifurcated upper end, and with a cam portion coacting with the base-plate, said lever also having forwardly-extending lugs *e* bent around the pin *c* whereby the strain upon the lever is borne by the pin, and not by the lugs, said lugs coacting with the pin and the head thereof to retain the lever in position, substantially as described.

577,736. **BOBBIN.** JAMES C. FISHER, Lawrence, Mass. Filed Mar. 21, 1896. Serial No. 584,239. (No model.)



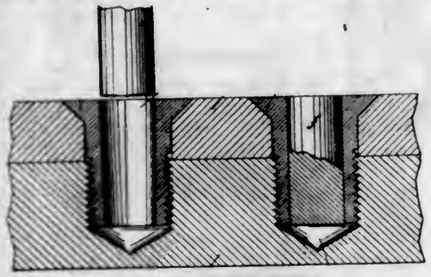
Claim.—1. As a new article of manufacture, a hollow bobbin or spool having its body formed of a strip of fibrous material of a width equal to the length of the bobbin or spool, wound in convolutions, cemented together, one of the longitudinal edges of the strip being at a slight angle to the other edge so as to form a beveled end, and its peripheral flange or base formed of a narrow strip of fibrous material cemented to the lower end of the said body, and having its end inserted under the edge of the last convolution of the body part.

2. As a new article of manufacture, a bobbin or spool having its body formed of a strip of fibrous material wound in convolutions, cemented together, said strip having incisions cut into one of its longitudinal edges in the last convolution, and a base or peripheral flange formed of a strip of fibrous material having one end cemented under the flaps formed by said incisions and wound and cemented thereon, substantially as described.

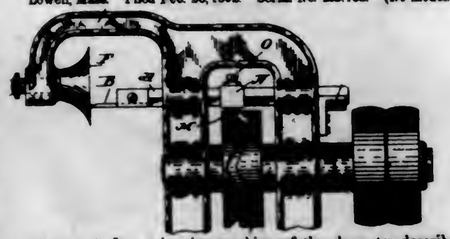
577,737. **BOLT OR RIVET.** ROBERT FLANERTY, New York, N. Y. Filed Nov. 7, 1896. Serial No. 611,311. (No model.)

Claim.—1. A flat-headed bolt or rivet provided with a cavity extending longitudinally therethrough, which is tapered or slightly conical throughout its length or a portion thereof, in combination with a cylindrical plug of substantially the same length as the said cavity and of a diameter to fit the same at the entrance thereof, whereby when driven or forced by gradual pressure into the said cavity the latter will be fully occupied, and the said bolt or rivet will be expanded throughout the whole extent of the tapered portion of the cavity, leaving the combined bolt and plug flush on the outer surface, substantially as specified.

2. A flat-headed bolt or rivet, screw-threaded on its exterior surface, provided with a cavity extending longitudinally therethrough, which is tapered or slightly conical throughout its length or a portion thereof, in combination with a cylindrical plug of substantially the same length as the said cavity and of a diameter to fit the same at the entrance thereof, whereby when driven or forced by gradual pressure into the said cavity the latter will be fully occupied, and the said bolt or rivet will be expanded throughout the whole extent of the tapered portion of the cavity, substantially as specified.



577,738. **SOLE-TRIMMING MACHINE.** FRANCIS J. FREEK, Lowell, Mass. Filed Feb. 20, 1892. Serial No. 422,182. (No model.)



Claim.—1. In a trimming-machine of the character described, the circular rest free to rotate, having a thin edge adapted to penetrate the inseam of a shoe, a beveled back and flat disk-face, and an open groove in said face parallel to and near the edge of said rest, in combination with a reciprocating blade having its lateral cutting edge working in and in shear contact with the edge of said groove, and means for supporting said parts and for reciprocating the blade, all combined substantially as described.

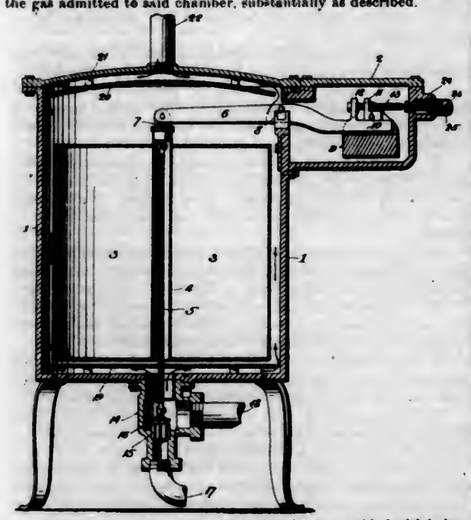
2. In a shoe-trimming machine, the circular rest supported to freely rotate on a central journal and having a groove in its flat face, the reciprocating knife working in a plane perpendicular to the flat face of the rest and having its lateral edge in constant shearing contact with the edge of the groove in the face of the rest, and means for reciprocating the knife, all combined substantially as described so that the shoe may be held against the rest and moved by hand, and the trimming may be done by the reciprocating knife, substantially as set forth.

577,739. **DEVICE FOR REGULATING QUALITY OF GAS.** EDWARD J. FROST, Philadelphia, Pa., and BENJAMIN MIDDLEDITCH, Detroit, Mich., assignors to Joseph H. Berry, Detroit, Mich. Filed June 13, 1895. Serial No. 552,843. (No model.)

Claim.—1. The combination with a mixing-chamber having a gas-inlet port and a gas-eduction port, of a lever pivoted in said chamber having on one arm a float and on the other arm a weight, an air-inlet port adapted to deliver air to said mixing-chamber (at a pressure equal to or greater than the gas-pressure at the gas-inlet port), and a valve controlling said air-inlet port and connected with said lever, whereby the admission of air to said mixing-chamber is regulated and varied in proportion to the richness of the gas entering said chamber, substantially as and for the purposes set forth.

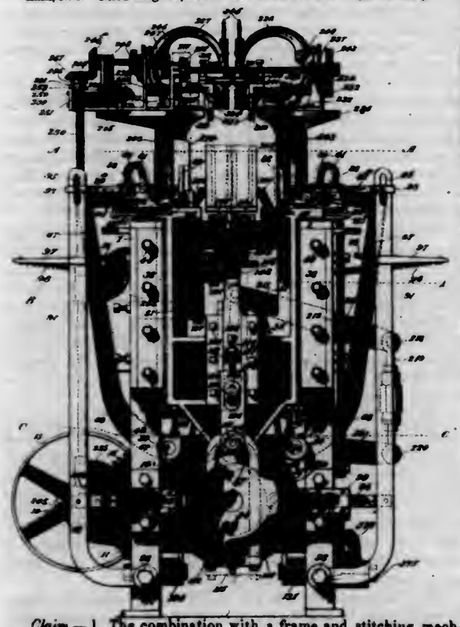
2. In devices for regulating the quality of gas, the combination of a mixing-chamber provided with an inlet-port leading from a gas-producer, an air-inlet port leading from an air-blast, and an eduction-port leading to the burners, of air-inlet valve 16 and counterbalanced float 3 so connected to each other that the amount of opening of said valve is automatically regulated by the density of the gas admitted to said mixing-chamber, substantially as described.

3. The combination with mixing-chamber 1 provided with induction-ports for the admission of gas and air, respectively, and with an eduction or delivery port, and an extension 2, of float 3, passage-way 4, therethrough, valve-stem 5 balance-lever 6, counterbalance 9, valve 16, and an adjusting device connected with said lever whereby the adjustment of said counterbalance can be effected and the admission of air to said chamber be automatically regulated by the density of the gas admitted to said chamber, substantially as described.



4. The combination with mixing-chamber 1, provided with induction and eduction ports, of float 3, having passage-way 4, therethrough, lever 6, provided with lug, or projection 12, counterbalance 9, traveling block 11, threaded rod 13, valve-stem 5, connected at its upper end to lever 6, and at its lower end to valve 16, and means, as rod 23, for effecting the longitudinal movement of said counterbalance, substantially as described.

577,740. **BAG-STITCHING MACHINE.** THOMAS B. FULLER, Durham, N. C. Filed Aug. 12, 1896. Serial No. 602,535. (No model.)



Claim.—1. The combination with a frame and stitching mechanism, of alining and feeding mechanism operatively connected with the stitching mechanism, and adapted to feed a previously-formed bag-bottom to the stitching mechanism substantially as set forth.

2. The combination with a frame and a pair of oppositely-disposed sewing-machines, separated so as to allow the passage of a bag-body between them, of alining and feeding mechanism, operatively connected with the stitching mechanism, and adapted to clamp and feed a folded flat bottom of a bag thereto, substantially as set forth.

3. The combination with a frame, stitching and feeding mechanism, of bag-presenting mechanism adapted to present a previously creased and folded bag to the feeding and stitching mechanism, substantially as set forth.

4. The combination with a frame and stitching mechanism, of mechanism for supporting a bag vertically, and bag-bottom-folding mechanism adapted to fold the bottom of the bag before it is fed to the stitching mechanism, substantially as set forth.

5. The combination with a frame, stitching mechanism, and bag-feeding mechanism for feeding a bag stitch by stitch through the stitching mechanism, of bag-presenting mechanism, and bag-folding mechanism, substantially as set forth.

6. The combination with a frame, stitching mechanism, bag-feeding mechanism for feeding a bag stitch by stitch through the stitching mechanism, and bag-presenting mechanism, of bag-folding mechanism intermediate said stitching and presenting mechanisms, substantially as set forth.

7. The combination with a frame, and a plurality of stitch-forming mechanisms, of clamping feeding mechanism common to the stitch-forming mechanisms, and means for causing said feeding mechanism to clamp and hold a previously-folded bag-bottom, and to carry the same through the stitch-forming mechanisms while thus clamped and held, substantially as set forth.

8. The combination with a frame-feeding mechanism and stitching mechanism, of bag-presenting mechanism, side-creasing mechanism, and bag-folding mechanism adapted to operate upon the bag prior to its presentation to the stitching mechanism, substantially as set forth.

9. The combination with a frame and stitching mechanism, of bag-presenting mechanism, feeding mechanism and folding mechanism, substantially as set forth.

10. The combination with a frame and stitching mechanisms, of a feeding mechanism common to the stitching mechanisms comprising separable elements adapted to clamp a previously-folded bag-bottom between them, and mechanism for actuating the separable elements, substantially as set forth.

11. The combination with a frame and stitching mechanisms, of a feeding mechanism common to the stitching mechanisms comprising spring-actuated separable elements adapted to clamp a previously-folded bag-bottom between them, and mechanism for actuating the separable elements against the force of their spring-power, substantially as set forth.

12. The combination with a main frame, machine-head frame movable therein, and sewing-machines carried upon the latter, of feeding mechanism carried upon the machine-head frame, and comprising separable spring-actuated elements, of bars upon one of said elements adapted to separate it from its companion, and an obstructive element projecting in the path of the bars and adapted to operate through them the elements of the feeding mechanism to which it is attached, with each movement of the machine-head frame, substantially as set forth.

13. The combination with a frame and stitching mechanism, of bag-bottom-folding mechanism, feeding mechanism and return mechanism therefor, substantially as set forth.

14. The combination with a frame and stitching mechanisms, of a feed mechanism common to the stitching mechanisms comprising upper and lower feed-plates operatively united, and feed-plate-operating mechanism, substantially as set forth.

15. The combination with a frame and stitching mechanism, of feeding mechanism comprising upper and lower feed-plates, the lower plate divided by a longitudinal slit, needle-slits in the respective plates, and feed-plate-operating mechanism, substantially as set forth.

16. The combination with a frame and stitching mechanism, of separable feed-plates, a folding-plate upon one of the feed-plates, feed-plate-operating mechanism, and bag-presenting mechanism, substantially as set forth.

17. The combination with a frame and stitching mechanism, of a pair of separable feed-plates, and mechanism for intermittently operating the feed-plates to advance them stitch by stitch in one direction, and to slide them by a continuous movement in the opposite direction, substantially as set forth.

18. The combination with a frame and stitching mechanism, of bag-presenting mechanism movable to and from the stitching mechanism, and feeding mechanism movable in opposite directions through the stitching mechanism, substantially as set forth.

19. The combination with a frame and stitching mechanism, of bag-presenting mechanism, feeding mechanism comprising folding mechanism, means for operating the bag-presenting mechanism, and the feeding mechanism, said means timed to operate to cause the feeding mechanism to make its return movement each time the bag-presenting mechanism approaches the stitching mechanism, substantially as set forth.

20. The combination with a frame and stitching mechanisms of a single mechanism for feeding a folded bag-bottom through the

stitching mechanisms, and maintaining said bag-bottom in proper alinement; and chain-stitch-severing mechanism, substantially as set forth.

21. The combination with a frame, stitching mechanism, and folding mechanism, of bag-bottom-feeding mechanism, and mechanism for retaining a plurality of the bags within the feeding mechanism to preserve a chain-stitch between them, substantially as set forth.

22. The combination with a frame and stitching mechanism, of bag-bottom-feeding mechanism, mechanism for retaining a plurality of bags within the feeding mechanism, and chain-stitch-severing mechanism, coöperating with the feeding mechanism to sever the chain connecting the last bag to the others in the feeding mechanism, at required intervals, substantially as set forth.

23. The combination with a frame, stitching mechanism, feeding mechanism, and chain-stitch-severing mechanism, of bag-discharging mechanism, coöperating with the chain-stitch-severing mechanism to receive the bag from the feeding mechanism as the chain-stitches are severed, substantially as set forth.

24. The combination with a bag-corner-stitching machine, of chain-stitch-severing mechanism, consisting of a frame, a plurality of pairs of shears, and mechanism for operating the shears, substantially as set forth.

25. The combination with a bag-corner-stitching machine, of chain-stitch-severing mechanism consisting of the combination with a frame, cutter-carriage, fixed and movable shear-blades carried thereon, an operative element in the path of the movable shear-blade, and actuated by the carriage, and means for imparting motion to the carriage, substantially as set forth.

26. In a bag-corner-stitching machine, the combination with a main frame and bag-discharging movable frame, of reciprocatory rods in the bag-discharging frame, and means for actuating the rods to receive and discharge a bag held between them, substantially as set forth

27. In a bag-corner-stitching machine, the combination with a main frame and movable bag-discharging frame, of reciprocatory rods carried in the frame, chain-stitch-severing mechanism operatively connected with the rods, and mechanism for operating the rods, substantially as set forth.

28. The combination with a main frame, stitching mechanism and feeding mechanism, of a bag-discharging frame carried upon the main frame, reciprocatory rods therein adapted to be brought into alinement with the feeding mechanism each time the latter travels through the machine, and driving mechanism, substantially as set forth.

29. The combination with a main frame, stitching mechanism and feeding mechanism, of a bag-discharging frame, reciprocatory rods therein adapted to be brought into alinement with the feeding mechanism each time it is fed through the machines, and chain-stitch-severing mechanism located between the rods and the feeding mechanism, and adapted to sever a complete bag from the feeding mechanism so that it may be carried backward and discharged by the rods, and driving mechanism for operating the several parts, substantially as set forth.

30. As a part of a bag-corner-stitching machine, the combination with a main frame and bag-discharging frame movable thereon, of reciprocatory rods working in the latter projections thereon, and cams upon the main frame in the path of the projections upon the rods for actuating them, substantially as set forth.

31. In a bag-corner-stitching machine, the combination with a main frame and bag-discharging frame movable thereon, of reciprocatory rods, chain-stitch-severing mechanism connected therewith, projections upon the rods, and cams upon the main frame in the path of the projections for operating the parts, substantially in the manner and for the purpose specified.

32. The combination with a frame, of mechanism adapted to firmly support a side-stitched bag from within, and folding mechanism coöperating therewith to press and crease the bottom of the bag, substantially as set forth.

33. The combination with a frame, of mechanism adapted to expand and hold a bag from within, and mechanism carrying a bag-folding plate coöperating with the first-named mechanism to press and crease the bottom of the bag, substantially as set forth.

34. The combination with a frame, stitching mechanism, and feeding mechanism, of bag-receiving mechanism, and bag-presenting mechanism, substantially as set forth.

35. The combination with a frame, stitching mechanism and its feeding mechanism, of bag-presenting mechanism adapted to supply a bag to the feeding mechanism, and bag-releasing mechanism adapted to release the bag from the presenting mechanism, substantially as set forth.

36. The combination with a frame, driving mechanism, and vertically movable sewing-machines connected with the driving mechanism, of vertically-stationary bag-presenting mechanism, coöperating with the sewing-machines, substantially as set forth.

37. The combination with a frame, driving mechanism and intermittently-actuated sewing-machines thereon, of bag-receiving mechanism, and bag-presenting mechanism timed to present a bag to the sewing-machines at the beginning of each of their intermittent activities, substantially as set forth.

38. The combination with a frame, driving mechanism, and vertically-movable sewing-machines carried in the frame, of mechanism connecting the sewing-machines with the driving mechanism, and adapted to cause them to operate during their vertical ascent and descent, and to cause them to come to a rest near their lower limit of movement, substantially as set forth.

39. The combination with a frame, driving mechanism, and intermittently vertically movable sewing-machines, of bag-receiving mechanism, the bag-receiving mechanism being timed to receive a bag when the sewing-machines are vertically stationary, substantially as set forth.

40. The combination with a frame, feeding and stitching mechanism, bag-holding mechanism, and side-chain-severing mechanism, adapted to coöperate substantially as and for the purpose specified.

41. The combination with a frame, feeding and stitching mechanism, and bag-holding mechanism, of side-creasing mechanism coöperating with the bag-holding mechanism, substantially as set forth.

42. The combination with a frame, stitching mechanism, and bag-receiving mechanism, consisting of separable fingers, bag-holding mechanism, and finger-reversing mechanism, substantially as set forth.

43. The combination with a frame, stitching mechanism, bag-expanding mechanism, bag-holding mechanism, and mechanism for reversing the expanding mechanism, substantially as set forth.

44. In a machine for creasing and folding a bag, means for folding the bag-bottom in shape to be corner-stitched, comprising bag-holding mechanism, and side-creasing mechanism, substantially as set forth.

45. The combination with bag-holding mechanism, and reversible bag-expanding mechanism, constituting side-creasing mechanism, substantially as set forth.

46. The combination with bag-receiving mechanism, comprising movable fingers, of bag-holding mechanism, and side-creasing mechanism adapted to reverse and separate the fingers within the bag, substantially as set forth.

47. The combination with bag-receiving mechanism, bag-expanding mechanism, and bag-holding mechanism, of side-creasing mechanism, and bag-lifting mechanism, substantially as set forth.

48. The combination with bag-receiving mechanism, bag-expanding mechanism, and bag-holding mechanism, of side-creasing mechanism, bag-lifting mechanism, and bag-bottom-folding mechanism, substantially as set forth.

49. The combination with the frame, driving mechanism, and stitching mechanism of a machine, of bag-receiving mechanism, bag-expanding mechanism, bag-holding mechanism, side-creasing mechanism, adapted to crease the bag at right angles to the plane of movement of the bag-expanding mechanism, bag-lifting mechanism adapted to lift the bag from the side-creasing mechanism to present a fullness at the bottom, and bag-folding mechanism adapted to fold the bottom into shape to be corner-stitched, substantially as set forth.

50. The combination with the frame, driving mechanism, and stitching mechanisms of a machine, of bag-receiving mechanism, bag-expanding mechanism, bag-holding mechanism, side-creasing mechanism, adapted to crease the bag at right angles to the plane of movement of the bag-expanding mechanism, bag-lifting mechanism adapted to lift the bag from the side-creasing mechanism to present a fullness at the bottom, bag-folding mechanism adapted to fold the bottom into shape to be corner-stitched, and bag-presenting mechanism adapted to present the folded bottom to the stitching mechanisms, substantially as set forth.

51. The combination with the frame, driving mechanism, and stitching mechanisms of a machine, of bag-receiving mechanism, bag-expanding mechanism, bag-holding mechanism, side-creasing mechanism, adapted to crease the bag at right angles to the plane of movement of the bag-expanding mechanism, bag-lifting mechanism, adapted to lift the bag from the side-creasing mechanism to present a fullness at the bottom, bag-folding mechanism adapted to fold the bottom into shape to be corner-stitched, bag-presenting mechanism adapted to present the folded bottom to the stitching mechanisms, and bag-releasing mechanism, substantially as set forth.

52. The combination with a frame, driving mechanism, and stitching mechanism, comprising feed mechanism, of side-creasing mechanism, bag-lifting mechanism, bottom-folding mechanism, and bag-presenting mechanism adapted to present the bag to the feeding mechanism, substantially as set forth.

53. The combination with a machine, driving mechanism and stitching mechanism, of side-creasing mechanism, bag-lifting mechanism, bag-folding mechanism incorporated with the feeding mechanism, and bag-presenting mechanism, the bag-presenting mechanism and the feeding mechanism being timed to advance at proper intervals toward each other, thereby folding the bag-bottom and presenting it to the feeding mechanism by one operation, substantially as set forth.

54. In a bag-corner-stitching machine, the combination with bag-expanding mechanism, adapted to expand a side-sewed bag between its seams, bag-holding mechanism adapted to retain the expanded edges of the bag, and side-creasing mechanism, substantially as set forth.

55. In a bag-corner-stitching machine, the combination with a pair of separable fingers adapted to expand a bag between its seams, bag-holding mechanism adapted to clamp the edges of the expanded bag, mechanism for operating the holding mechanism to release the tension upon the bag, and finger-reversing mechanism adapted to side-crease the bag transversely to its seams, substantially as set forth.

56. The combination with a frame, stitching mechanism, and driving mechanism, of a horizontally-movable finger-head, fingers, and finger-separating mechanism thereon, a finger-actuating bar in the path of the finger-expanding mechanism, a movable member upon which the actuating-bar is carried, and mechanism operatively connecting the movable member, and the finger-head to the driving mechanism, substantially as set forth.

57. The combination with a frame, stitching mechanism, driving mechanism, and a movable finger-head connected with the driving mechanism, of jaw-carriages movable to and from the finger-head, and jaw-carriage-actuating mechanism operatively connected with the driving mechanism, substantially as set forth.

58. The combination with a frame, stitching mechanism, and driving-shaft, of a movable finger-head operatively connected with the driving-shaft, clamping-jaw carriages movable to and from the finger-head, and levers operatively connecting the carriages, respectively, with the driving-shaft, substantially as set forth.

59. The combination with a frame, stitching mechanism, and driving-shaft, of a movable finger-head operatively connected with the driving-shaft, clamping-jaw carriages also operatively connected with the driving-shaft, clamping-jaws upon the carriages, and mechanism for operating the carriages, substantially as set forth.

60. The combination with a frame, stitching mechanism, and driving-shaft, of a movable finger-head operatively connected with the driving-shaft, clamping-jaw carriages movable to and from the finger-head, and operatively connected with the driving-shaft, separable clamping-jaws upon the carriages, and mechanism for intermittently actuating the jaws, substantially as set forth.

61. The combination with a frame, stitching mechanism, driving-shaft, and movable finger-head operatively connected with the driving-shaft, of clamping-jaw carriages movable to and from the finger-head, and operatively connected with the driving-shaft, spring-actuated clamping-jaws upon the carriages, and jaw-separating plungers operatively connected with the driving-shaft, substantially as set forth.

62. The combination with a frame, stitching mechanism, driving-shaft, and movable finger-head operatively connected with the driving-shaft, of clamping-jaw carriages movable to and from the finger-head, levers operatively connecting the same with the driving-shaft, clamping-jaws upon the respective carriages, jaw-actuating mechanism, and levers connecting the same with the driving-shaft, the carriage-levers and the jaw-actuating plungers timed to operate intermittently and at regular intervals, substantially as set forth.

63. The combination with a main frame, stitching mechanism driving-shaft and movable finger-head operatively connected with the driving-shaft, of a clamping-head frame also operatively connected with the driving-shaft, a plunger carried in the clamping-head frame, and operatively connected with the driving-shaft, an actuating-bar upon the plunger operatively connected with the finger-head, clamping-jaws carried upon the clamping-jaw frame, and operatively connected with the driving-shaft, substantially as set forth.

64. The combination with a main frame, stitching mechanism, driving-shaft, and movable finger-head operatively connected with the driving-shaft, of a movable clamping-head frame also connected with the driving-shaft, a plunger and actuating-bar movable therein, and operatively connected with the driving-shaft and with the finger-head, respectively, clamping-jaws, levers loosely connected therewith to operate the same at one end, and operatively connected with the driving-shaft at the other end, whereby the vertical movement of the clamping-jaw frame may be accomplished without interfering with the operation of the clamping-jaws, substantially as set forth.

65. The combination with a frame, feeding and stitching mechanism, and driving-shaft, of traveling bag-holding clamping-jaws operatively connected with the shaft, substantially as set forth.

66. The combination with a frame, feeding and stitching mechanism, and driving-shaft, of clamping-jaws and spring-actuated levers operatively connecting the jaws with the shaft, substantially as set forth.

67. The combination with a frame, stitching mechanism, clamping-jaw carriages movable to and from each other, spring-actuated levers operatively connecting the carriages with the shaft, spring-actuated bag-holding clamping-jaws upon the carriages, spring-actuated levers operatively connected at one end to the shaft, and plungers connected with them at the other end for separating the clamping-jaws, substantially as set forth.

68. The combination with a frame, stitching mechanism, and driving-shaft, of a movable finger-head carriage connected with the driving-shaft, finger-head therein and independent mechanism for reversing the finger-head within its carriage also connected with the driving-shaft, substantially as set forth.

69. The combination with a frame, stitching mechanism, and driving-shaft, of a finger-head carriage operatively connected to the driving-shaft, finger-head therein, a recessed flange upon the finger-head, a pin-carriage provided with a pin working in the recess, and mechanism connecting the pin-head carriage with the driving-shaft, substantially as set forth.

70. The combination with a frame, stitching mechanism, and driving-shaft, of a finger-head, bag-expanding fingers thereon, a block, levers connecting the block with the fingers for expanding the latter, and mechanism for actuating the block, substantially as set forth.

71. The combination with a frame, stitching mechanism, and driving-shaft, of a finger-head, bag-expanding fingers therein, a spring-actuated block, levers connecting the block with the fingers for expanding the latter, and mechanism for actuating the block, substantially as set forth.

72. The combination with a frame, stitching mechanism, and driving-shaft, of a finger-head, and bag-expanding fingers thereon, a vertically-movable block, operatively connected with the fingers, a rod connected with the block, and mechanism connected with the driving-shaft for reciprocating said rod, substantially as set forth.

73. The combination with a finger-head, and transversely-movable finger-blocks thereon, of bell-crank levers loosely secured to the opposite walls of a recess in the finger-head, an actuating-block located within the recess in the finger-head, and loose connections between the levers and said actuating-block, substantially as set forth.

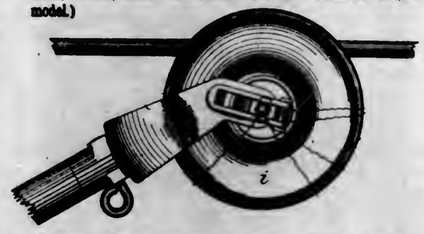
74. The combination with a frame, driving-shaft and movable machine-head frame operatively connected to the driving-shaft, of bag-presenting mechanism, also connected to the driving-shaft, sewing-machines upon the machine-head frame, and mechanism for operating the same, substantially as set forth.

75. The combination with a frame, driving-shaft, machine-head frame, and machines thereon, of bag-presenting mechanism; machine-head-driving mechanism, clutch mechanism upon the same, and mechanism for automatically throwing the clutch mechanism into and out of operation through the movement of the machine-head frame, substantially as set forth.

76. The combination with a frame, main driving-shaft, and second shaft parallel thereto, of a machine-head frame operatively connected with the main driving-shaft, bag-presenting mechanism also connected therewith, sewing-machines upon the machine-head frame, sewing-machine-driving shaft, a fixed gear upon the latter, a shaft connecting the second driving-shaft with the machine-head-driving shaft, and a loose gear thereon meshing with the gear upon the machine-head shaft, substantially as set forth.

77. The combination with a frame, driving-shaft, and movable machine-head frame connected therewith, of sewing-machines upon the frame, feeding mechanism therein, spring-actuated plungers carried upon the machine-head frame, fixed and movable jaws upon the opposing ends thereof, and lugs upon the main frame in the path of the plungers, said lugs being adapted to actuate them, through the reciprocation of the machine-head frame to support a bag during the return movement of the feed mechanism, and before the chain-stitches which unite the bags are severed, substantially as set forth.

577,741. TROLLEY FOR ELECTRIC RAILWAYS. HERBERT N. GALE, Bristol, Conn. Filed Oct. 16, 1896. Serial No. 609,054. (No model.)



Claim.—1. In combination, the trolley-pole, the forks borne by the trolley-pole, having ways for the trolley-wheel shaft, the trolley-wheel shaft hung in said ways and the trolley-wheel rotarily hung on said shaft, all substantially as described and for the purposes set forth.

2. In combination, the trolley-pole, the forks borne by the trolley-pole, having ways for the trolley-wheel shaft, the trolley-wheel shaft

hung non-rotarily in said ways, and the trolley-wheel rotarily hung on said shaft, all substantially as described and for the purposes set forth.

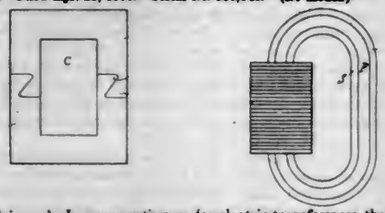
3. In combination, the trolley-pole, the forks borne by the trolley-pole, having ways for the trolley-wheel shaft, said ways being inclined downwardly toward the rear, the trolley-wheel shaft hung in said ways and the trolley-wheel rotarily hung on said shaft, all substantially as described and for the purposes set forth.

4. In combination, the trolley-pole, the forks borne by the trolley-pole, having ways for the trolley-wheel shaft, the trolley-wheel shaft detachably divided at the center into two similar halves and hung in said ways, means for holding said halves together and the trolley-wheel rotarily hung on said shaft, all substantially as described and for the purposes set forth.

5. In combination, the trolley-pole, the forks borne by the trolley-pole, having ways for the trolley-wheel shaft, the trolley-wheel shaft detachably divided at the center into two similar halves held together by nut and bolt traversing the same longitudinally, and the trolley-wheel rotarily hung on said shaft, all substantially as described and for the purposes set forth.

6. In combination, the trolley-pole, the forks borne by the trolley-pole, having ways for the trolley-wheel shaft, the trolley-wheel shaft detachably divided at the center into two similar halves, each formed with a curved cheek adapted to bear against one of said forks, means for holding said halves together and the trolley-wheel rotarily hung on said shaft, all substantially as described and for the purposes set forth.

577,742. ELECTRIC TRANSFORMER. LUDWIG GUTMANN, Peoria, Ill. Filed Apr. 25, 1896. Serial No. 589,046. (No model.)



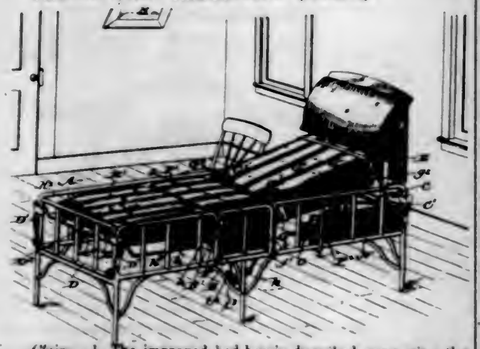
Claim.—1. In a magnetic core for electric transformers, the combination of two U-shaped plates adapted to interlock with one another, in such a manner, as to be inseparable in any direction other than vertical to the plane of the plates.

2. In an electric-transformer element, the combination of two U-shaped pieces of magnetic material, whose butting joints form the letter Z, as and for the purpose described.

3. In an electric-transformer element the combination of two plates each provided with a recess and two extending arms caused by said recess; and a projection and a recess upon the extremity of said arms, of such form that the projection of one plate may lodge in the recess of the other plate, as and for the purpose described.

4. In a magnetic-core element for an electric transformer the combination of a plate provided with a recess; two arms or extensions caused by said recess, and dovetail-shaped projections forming the extreme ends of said extensions, as and for the purpose described.

577,743. INVALID-BED. JAMES T. HALL, Monticello, Ark. Filed June 22, 1896. Serial No. 596,489. (No model.)



Claim.—1. The improved bed herein described comprising the frame having vertical and horizontal slots or guides, the upper tilting section provided at its lower end with upwardly-projecting straps or hangers, pivoted at their upper ends to the frame, and the lower tilting section having lateral studs at and a short distance below its upper end and arranged to enter the vertical and horizontal slots or guides in the frame substantially as shown and described.

2. In a bed the combination of the upper tilting section, the bed-frame provided with racks, the supporting-frames pivoted at their upper ends to the said section extending thence in opposite directions and arranged at their lower ends to both engage the racks one in advance of the other and devices by which to free the said supporting-frames from such racks substantially as shown and described.

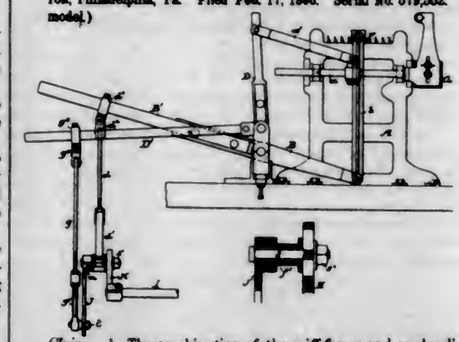
3. In a bed substantially as described the combination of the central fixed section the upper and lower tilting sections, a lever pivoted to the central section, a link or rod connecting said lever with the lower section and a link or rod connecting the upper section with said lever and having a slotted connection with the latter substantially as shown and described.

4. In a bed substantially as described the combination with the tilting section, the racks and the supporting frame or frames engaging said racks of the longitudinally-movable slide by which to free the said supporting frame from the rack and means for operating said slide substantially as set forth.

5. In a bed the combination of the upper tilting section, the bed-frame provided with racks, the supporting-frames pivoted at one end to the upper section crossing each other between their ends and arranged at their other ends to both engage the racks and means by which to free both the supporting-frames from the racks substantially as shown and described.

6. In a bed substantially as described the combination of the bed-frame the lower tilting section having at its upper end and near such end lateral studs the horizontal and vertical guideways on the bed-frame for said studs, the central fixed section, the upper tilting section having at its lower end upwardly-projected hangers pivoted to the bed-frame, the lever jointed to the fixed section and connected with the opposite tilting sections, the racks fixed to the bed-frame the two supporting-frames pivoted to the upper tilting section and both engaged with the rack the longitudinally-movable slide for releasing said frames and the lever for operating the same substantially as shown and described.

577,744. JACQUARD MECHANISM FOR LOOMS. THOMAS HALTON, Philadelphia, Pa. Filed Feb. 17, 1896. Serial No. 579,552. (No model.)



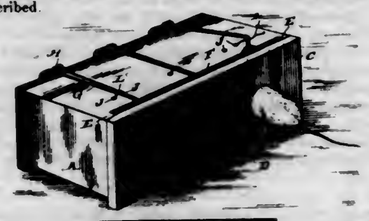
Claim.—1. The combination of the griff-frame and card-cylinder of a Jacquard machine, the operating-levers therefor, an operating crank-arm having a pin connected to one of said levers, an arm connected to the other lever and carried by said pin, and means for adjusting said arm to different positions around the axis of the crank-pin, substantially as specified.

2. The combination of the griff-frame and card-cylinder of a Jacquard machine, the operating-levers therefor, a crank-arm having a pin connected to one of said levers, an arm connected to the other lever and rotatably mounted upon said pin, and means for securing said arm in position after adjustment, substantially as specified.

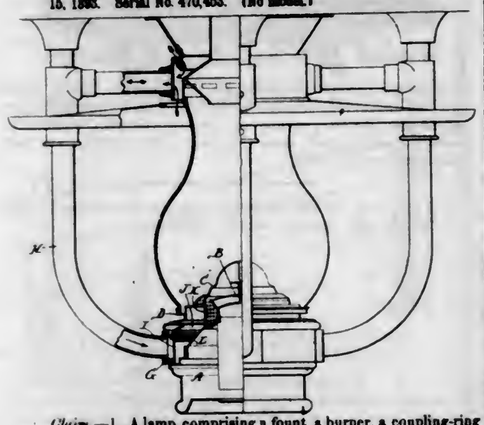
3. The combination of the two griff-frames and the card-cylinder of a rise-and-fall Jacquard machine, the operating-levers therefor, a double crank having two pins, one connected to one of the griff-frame-operating levers, and the other to the other of said levers, an arm connected to the card-cylinder-operating lever and carried by the crank-pin of one of the griff-frame-operating levers, and means for adjusting said arm to different positions around the axis of said pin, substantially as specified.

577,745. ANIMAL-TRAP. WALLIS H. HAMILTON, Palmyra, N. J. Filed Sept. 14, 1896. Serial No. 605,726. (No model.)

Claim.—In a device of the character described, the combination of a block having compartments, apertures arranged vertically through the block and intersecting the compartments, securing-pins arranged in the bottom and having split ends, chokers consisting of wires doubled on themselves with a loop formed centrally, the loop portion being bent at approximately right angles to the body of the wires, springs formed by coiling the wires near each end, said coils resting on the top of the block, the ends of said wire extending down the rear edge of the block and secured in place and a string looped over the spring-arm with the ends passing through the apertures of the block and controlling the entrance to the compartments the ends of the string being secured in the split ends of the pegs, substantially as described.



577,746. TUBULAR LAMP. WILLIAM S. HAHN, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Apr. 15, 1895. Serial No. 470,453. (No model.)



Claim.—1. A lamp, comprising a fount, a burner, a coupling-ring for supporting the lamp fount or body, air-supply ducts separate from the fount and connected at one end to said coupling-ring, a vertical deflector integral with said coupling-ring and independent of the fount and interposed between the air-ducts and the burner, and a filling follower-ring movably interposed between the deflector and fount, said vertical deflector serving to direct the air upward as it emerges from the said air-ducts, substantially as described.

2. A lamp, comprising a fount, a plurality of air-supply ducts, a burner supported separately from and interposed between the delivery ends of the said ducts, an air-chamber between the ends of the ducts and the burner, a vertical deflector interposed between the burner and the delivery ends of the ducts and entirely surrounding the said fount, a filling follower-ring interposed between the fount and said vertical deflector, and a coupling-ring carrying and supporting said deflector, integral therewith, and serving to connect the air-ducts at their discharge ends and to support the fount, substantially as shown and described.

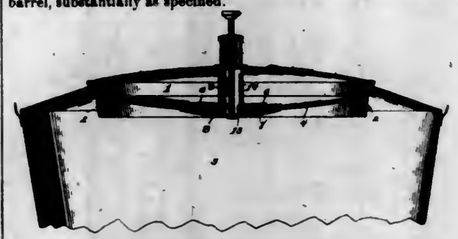
3. A lamp comprising a fount, a burner, a coupling-ring, and air-ducts, a deflector interposed between the air-ducts and the burner and directly opposing the entrance of air from the ducts, and a filling follower-ring movably interposed between the deflector and the fount, substantially as set forth.

4. A lamp comprising a plurality of air-supply ducts, a burner interposed between the delivery ends of said ducts, a coupling-ring carrying a deflector which extends vertically between the burner and the delivery ends of the ducts, and a filling follower-ring movably interposed between the deflector and the fount of the burner, substantially as set forth.

5. In a lamp the combination of the fount A, the coupling-ring G, the deflector I, the filling-ring L, and the air-ducts H, substantially as and for the purpose described.

577,747. COVER FOR PAILS. HANS C. HANSEN, Ithaca, N. Y. Filed Mar. 30, 1896. Serial No. 584,161. (No model.)

Claim.—The herein-described hollow cover for vessels forming a reservoir or receptacle and provided, respectively in its upper and lower sides, with inlet and outlet openings, the outlet-opening being arranged equidistant from the center of the cover, a guide-barrel arranged vertically in the reservoir, a valve arranged to bear against the lower surface of the cover to close said outlet-openings, a valve-stem extending through said guide-barrel, an actuating-spring connected to the valve-stem and housed within a casing in communication with said barrel, and a sleeve secured to and carried by the valve concentric with the stem and fitting to slide in the lower end of the barrel, substantially as specified.



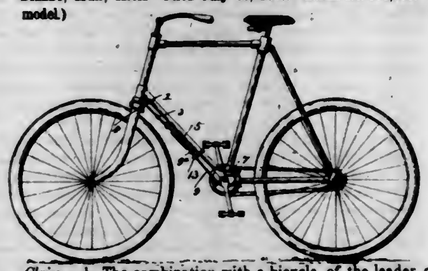
577,748. REFRIGERATOR-CAR. CHARLES S. HARDY, San Diego, Cal. Filed May 6, 1896. Serial No. 590,449. (No model.)



Claim.—1. An ice-receptacle composed of hinged sections and provided with a drain-flue at its lower or discharge end, the partition forming such drain-flue being provided with rubber or other flexible material at its upper or inlet end, in such a manner that the floor of the ice-receptacle will seal itself to the drain-flue by its own weight, substantially as set forth and described.

2. The combination of the ice-receptacle having a hinged floor-section, a drain-flue arranged at its upper end to be abutted by said section and a sealing-strip sealing the joint between said parts substantially as shown and described.

577,749. BICYCLE-LEADER. HECTOR J. HAYES and ZEBA J. DILLEY, Muir, Mich. Filed July 20, 1896. Serial No. 599,853. (No model.)

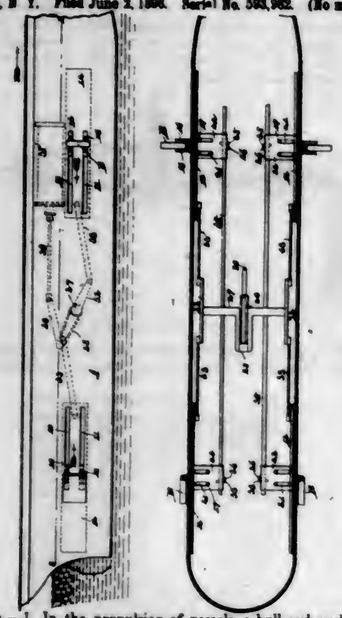


Claim.—1. The combination with a bicycle, of the leader comprising the coiled spring, the section connected with the front or upper end thereof consisting of two bent arms engaging with the head of the bicycle, and the rear section consisting of two arms bent into a hook which engages with the sprocket or crank axle bearing, substantially as described.

2. As an improved article, a leader for a bicycle consisting of the section bent at the center forming a loop and two converging arms the ends of which are bent into hooks adapted to be connected with a bicycle-head, the hook connected therewith, the coiled spring connected with said loop and the rear section consisting of a piece of

wire bent to form a hook adapted to be connected with the sprocket-axle bearing, and then extended forwardly, forming two arms connected with the rear ends of said spring; substantially as described.

577,750. PROPULSION OF VESSELS. JOHN L. HELHOLT, New York, N. Y. Filed June 2, 1896. Serial No. 593,962. (No model.)



Claim.—1. In the propulsion of vessels, a hull and paddles located at the sides of the hull, capable of lateral movement, the said paddles having a hinged connection with a sliding support, locking devices adapted to engage the sides of the paddles to hold the same at an angle to the vessel's side, and a shifting mechanism connected with the locking devices, as and for the purpose set forth.

2. The combination, with the hull of a vessel, hinged stern and bow paddles having sliding movement in the hull at each side, a driving mechanism for the paddles, moving the paddles on opposite sides alternately in direction of and away from one another, and automatic locking devices engaging alternately the sides of the stern and the bow paddles to hold the same at an angle to the vessel's sides, as and for the purpose specified.

3. In the propulsion of vessels, the combination, with a hull having longitudinal openings made in its sides near the bow and near the stern, plates having sliding movement in the said openings, paddles having hinged connection with the said plates and located at the outside portion of the vessel's hull, a motor, and a driving connection between the motor and all of the said slides, operating each set of slides at each side simultaneously, opposite slides on the same side of the vessel's hull moving alternately toward and away from each other, a carriage connected with each slide, locking devices located in the carriage and adapted to hold the paddles at an angle to the sides of the vessel, and a mechanism, substantially as described, for releasing the paddles from the aforesaid locking devices, as and for the purpose set forth.

4. In the propulsion of vessels, the combination, with a hull having longitudinal openings made in its sides near the bow and near the stern, plates having sliding movement in the said openings, paddles having hinged connection with the said plates and located at the outside portion of the vessel's hull, a motor, and a driving connection between the motor and all of the said slides, operating each set of slides at each side simultaneously, opposite slides on the same side of the vessel's hull moving alternately toward and away from each other, of a carriage connected with each slide, locking devices located in the carriage and adapted to hold the paddles at an angle to the sides of the vessel, a shifting shaft, trip-arms carried by the said shifting shaft, links connected with the locking devices of a carriage, a shaft adapted to operate the said links, and a trip connection between the shaft and the aforesaid trip-arms, as and for the purpose set forth.

5. The combination, with a vessel's hull, of paddles having a hinged connection with supports held to slide upon the said hull, means for simultaneously moving the said sliding supports toward and away from each other at each side of the vessel, locking devices arranged to hold the paddles at an angle to the vessel, and means for withdrawing the said locking devices from engagement with the said paddles, and releasing devices operating simultaneously to lock sundry of the paddles and release others, as and for the purpose set forth.

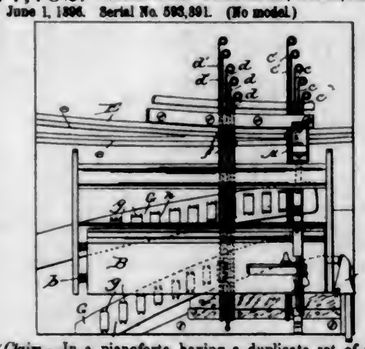
6. The combination, with a vessel's hull having openings therein, plates held to slide in the said openings within the hull, the openings being located near the bow and near the stern at each side, and means, substantially as described, for simultaneously imparting movement to all of the sliding plates, of a carriage connected with each plate, locking-fingers located in each carriage and arranged to extend outward therefrom, a blade or paddle having a hinged connection with the outer portion of each sliding plate and located between the locking-fingers of the plate, a withdrawing device located in each carriage and connected with the said locking-fingers, a shifting shaft operating the releasing devices, and trips located at the forward and rear portions of the slots in the hull, and arranged to operate the releasing mechanism in a manner to force the fingers to a locking engagement with the paddles, or to withdraw the said fingers from such locking engagement, as and for the purpose set forth.

577,751. NUT-LOCK. JAMES R. HINES, near Hinesville, Ga. Filed June 1, 1896. Serial No. 593,857. (No model.)



Claim.—A nut-lock consisting of a spring-plate bowed toward the fish-plate and, having the faces of its apertured end sections inclined from the body portion and formed with teeth, whereby the ends will abut squarely against the bases of the superimposed nuts, substantially as set forth.

577,752. PIANOFORTE. FRANZ HOERR, Toronto, Canada. Filed June 1, 1896. Serial No. 593,891. (No model.)



Claim.—In a pianoforte, having a duplicate set of strings arranged in pairs differing by one octave, and shifting hammers and action, arranged to strike part or the whole of the sets of strings, a tuning-bridge having diverging grooves, and blocks in said grooves supporting the strings, substantially as described.

577,753. CLOCK-ESCAPEMENT. CHARLES HOLME, Ridgway, Pa. Filed Mar. 18, 1896. Serial No. 583,779. (No model.)



Claim.—1. The combination with the balance-wheel and its shaft, of a collar fast upon said shaft and having a projection, an impulse-wheel fast upon said shaft and having a notch upon its under side,

the escape-wheel mounted to coöperate with the impulse-wheel, a double detent-lever jointed between its ends, an unlocking-lever pivotally mounted on one portion of the double detent-lever, a spring connected with one part of the double lever, and its free end acting upon a lug pivotally mounted on the unlocking-lever; substantially as described.

2. The combination with the balance-wheel and its shaft, of a collar fast upon said shaft and having a projection, an impulse-wheel fast upon said shaft and having a notch upon its under side, the escape-wheel mounted to coöperate with the impulse-wheel, a double detent lever jointed between its ends, an unlocking-lever pivotally mounted on one portion of the double detent-lever, a spring connected with one part of the double lever, and its free end acting upon a lug pivotally mounted on the unlocking-lever, said lug being cam-shaped and the unlocking-lever being tapered toward each end; substantially as described.

3. The combination with the balance-wheel and its shaft, of a collar fast upon said shaft and having a projection, an impulse-wheel fast upon said shaft and having a notch upon its under side, the escape-wheel mounted to coöperate with the impulse-wheel, a double detent-lever jointed between its ends, an unlocking-lever pivotally mounted on one portion of the double detent-lever, a spring connected with one part of the double lever, and its free end acting upon a lug pivotally mounted on the unlocking-lever, said lug being cam-shaped and the unlocking-lever being tapered toward each end, and a spring having its free end arranged to act upon a lug on the detent-lever near its joint; substantially as described.

577,754. WIRE STRETCHING AND SPLICING DEVICE. GEORGE K. JACKSON, Reece, Kans. Filed Aug. 31, 1896. Serial No. 604,494. (No model.)



Claim.—The herein-described stretching and splicing device, consisting of a metal fork having a squared body or crown portion, a cross-sectional wedge-shaped head, and spaced arms depending from said body portion, the said fork tapering slightly from its crown to the outer ends of the arms, and a detachable arm slidable on said fork and projecting at substantially a right angle thereto, said arm having a squared opening to receive said fork and prevent the latter from turning therein, and being shaped at its outer end to form a bill or hook having a compound curve, substantially as and for the purpose described.

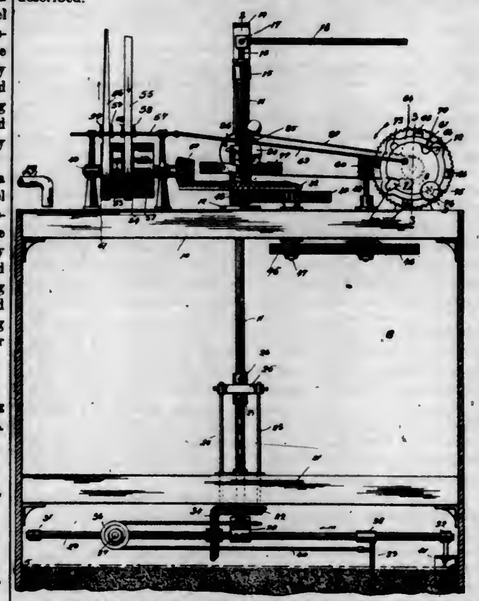
577,755. APPARATUS FOR CLEANSING FILTERS. WILLIAM M. JEWELL, Chicago, Ill., assignor of one-half to Omar H. Jewell, same place. Filed Apr. 7, 1892. Serial No. 428,236. (No model.)

Claim.—1. In a filter, the combination with a tank, and filtering material located therein, of a conducting-tube movable over the surface of the filtering material toward and away from the center of the tank, and operating mechanism for moving said tube alternately toward and away from the center of the tank, substantially as described.

2. In a filter, the combination with a tank, and a filter-bed, of a device for conducting the impurities to the exterior of the tank, and means operating from above the surface of the filter-bed and out of contact therewith for sucking up from the entire surface of the filter-bed the impurities at the top of the filter-bed without penetrating it or agitating it, substantially as described.

3. In a filter, the combination with a tank, and a filter-bed, of a tube for conducting the impurities to the exterior of the tank, means for moving said tube to cover the entire surface of the filter-bed in close proximity thereto but without penetrating the bed, said tube having an opening in its under side opposite to the filter-bed, and means for causing the impurities to rise vertically into said tube without requiring it to penetrate the bed, whereby they may be removed without agitating the filter-bed, substantially as described.

4. In a filter, the combination with a tank, and a filter-bed located therein, of a conducting-tube adapted to be moved over the surface of the filter-bed, said tube being in communication with the exterior of the tank and having an opening in its under side opposite to the filter-bed, mechanism for moving the said tube to cover the entire surface of the filter-bed in close proximity thereto but not in contact therewith, and means for sucking up the impurities vertically into said tube without causing the latter to penetrate the bed, for purifying the filter without agitating the filter-bed, substantially as described.



5. In a filter, the combination with a tank, and a tubular shaft, of a tube carried thereby and communicating therewith, and operating mechanism for moving said tube in a spiral path over the surface of the filtering material, substantially as and for the purpose specified.

6. The combination with a filter-tank, a vertically-movable tubular shaft mounted therein, mechanism for moving said shaft vertically, and mechanism for rotating said shaft, of a tube carried by said shaft and communicating therewith, and operating mechanism driven by the rotation of said shaft to cause said tube to move in a spiral path over the surface of the filtering material, substantially as and for the purpose specified.

7. The combination with a filter-tank, a vertically-movable tubular shaft mounted therein, mechanism for moving said shaft vertically, and mechanism for rotating said shaft, of a screw-threaded rod journaled at the lower end of said shaft in a horizontal position, mechanism for rotating said rod, a bracket mounted upon said rod, a tube depending from said bracket and communicating with said shaft, and devices for preventing said bracket from rotating, whereby when said rod is rotated the bracket and tube will be moved longitudinally thereupon, substantially as and for the purpose specified.

8. The combination with a filter-tank, a vertically-movable tubular shaft mounted therein, mechanism for moving said shaft vertically, and mechanism for rotating said shaft, of a fixed gear-wheel mounted at the lower end of said shaft, a screw-threaded rod supported by said shaft in a horizontal position, a gear-wheel mounted upon said rod and intermeshing with said fixed gear-wheel, and a tube mounted upon said rod and movable on the screw-threads thereof, said tube being in communication with said shaft, substantially as and for the purpose specified.

9. The combination with a filter-tank, a vertically-movable tubular shaft mounted therein, mechanism for moving said shaft vertically, and mechanism for rotating said shaft, of a screw-threaded rod journaled at the lower end of said shaft in a horizontal position, mechanism for rotating said rod, a bracket mounted upon said rod, a tube depending from said bracket, a flexible pipe connecting said tube and the shaft, means for holding said flexible pipe taut, and devices for preventing said bracket from rotating, whereby when said rod is rotated the bracket and tube will be moved longitudinally thereupon, substantially as and for the purpose specified.

10. The combination with a filter-tank, a vertically-movable tubular shaft mounted therein, mechanism for moving said shaft vertically, and mechanism for rotating said shaft, of a screw-threaded rod journaled at the lower end of said shaft and extending across the tank in a horizontal position, the threads on one half of said rod being

twice as fine as those on the other half thereof, mechanism for rotating said rod, two brackets mounted upon said rod at opposite sides of the center thereof, a pulley carried by the bracket which is mounted upon the finer screw-threads of the rod, a tube depending from the other of said brackets, and a flexible pipe connecting said tube with said shaft, said pipe passing around said pulley, substantially as and for the purpose specified.

11. The combination with a filter-tank, a vertically-movable tubular shaft 11 mounted therein, mechanism for moving said shaft vertically, and mechanism for rotating said shaft, of rods 29 and 30 supported by said shaft, a screw-threaded shaft 33 supported by said rods, brackets 35 and 38 moving on said shaft 33, pulley 36 on said bracket 35, tube 39 depending from said bracket 38, and a flexible pipe 40 connecting said tube 39 and the shaft 11, gear 34 mounted on said shaft 33, and a fixed gear 22 adapted to intermesh with said gear 34, substantially as and for the purpose specified.

12. The combination with a filter-tank, a vertically-movable screw-threaded tubular shaft mounted therein, and mechanism for rotating said shaft in one direction, of a tube carried by said shaft and communicating therewith, devices operated by the rotation of the vertically-movable shaft for moving the tube to cover the entire surface of the filtering material, and reversing mechanism for automatically reversing the rotation of the tubular shaft to reverse the motion of said tube, substantially as and for the purpose specified.

13. The combination with a filter-tank, a vertically-movable screw-threaded tubular shaft mounted therein, a bearing for said shaft, and a gear-wheel mounted thereupon, of a horizontal shaft geared to said gear-wheel, fixed and loose pulleys mounted upon said horizontal shaft, belts for rotating said pulleys, devices operated by the rotation of the vertically-movable shaft for shifting said belts to reverse the rotation of the tubular shaft, a tube 39 carried by the tubular shaft and communicating therewith, and means for causing the tube to cover the entire surface of the filtering material, substantially as and for the purpose specified.

14. The combination with a filter-tank, a vertically-movable screw-threaded tubular shaft mounted thereupon, and means for rotating the tubular shaft, of a tube having communication with the vertically-movable tubular shaft and adapted to travel horizontally over the surface of the filtering material for removing by suction the entire upper surface or layer of the impurities accumulated upon the filter-bed, operating mechanism for moving said tube in a horizontal plane over the surface of the filtering material, a wheel fitted on the screw-threads of the vertically-movable tubular shaft, and devices for holding the wheel stationary for causing the tubular shaft to move vertically, substantially as described.

15. In a filter, the combination with a tank, a tubular screw-threaded shaft vertically mounted therein, a tube communicating with said shaft, mechanism for moving said tube over the surface of the filtering material, and mechanism for rotating said shaft, of a wheel mounted upon the screw-threads of said shaft, and operating mechanism actuated by the rotation of said shaft for holding said wheel in a stationary position to effect the downward movement of said shaft at stated intervals, substantially as and for the purpose specified.

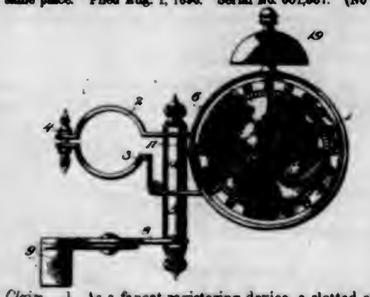
16. The combination with a filter-tank, a tubular screw-threaded shaft vertically mounted therein, means for rotating said shaft, a tube communicating with said shaft, and mechanism for moving said tube over the surface of the filtering material, of a ratchet-wheel mounted upon the screw-threads of said shaft, a pawl adapted to engage the teeth of said ratchet-wheel, and mechanism for automatically throwing said pawl into engagement with said ratchet-wheel to effect the downward movement of said shaft at stated intervals, substantially as and for the purpose specified.

17. The combination with a filter-tank, a tubular screw-threaded shaft vertically mounted therein, means for rotating said shaft, a tube communicating with said shaft, and mechanism for moving said tube over the surface of the filtering material, of a ratchet-wheel 77 mounted upon said shaft, pawl 78 adapted to engage the teeth of said ratchet-wheel, pulley 84, pins 85 and 86 for operating said pawl, and means for rotating said pulley 84 to throw said pawl into engagement and out of engagement with said ratchet-wheel at stated intervals, to effect the downward movement of said shaft, substantially as described.

18. The combination with a filter-tank, a tubular screw-threaded shaft vertically mounted therein, gear-wheel 42 mounted on a feather on said shaft, shaft 49, pinion 50 mounted on said shaft and intermeshing with said gear-wheel 42, fast pulleys 53 and 54 and loose pulleys 51 and 52 mounted on said shaft, belts 55 and 56, shifting-rod 57 for shifting said belts, a tube 39 communicating with said tubular shaft, and mechanism for moving said tube over the surface of the filter-bed, of a worm-gear 61, a worm 60 for operating said worm-gear, said worm being geared to said tubular shaft, whereby by the rotation of said shaft the worm will be operated, ring 64 carried by said worm-gear, said ring having recesses in its inner surface, disk 67 mounted in said ring, said disk having recesses 70 and 71, a weight adapted to fit into the recesses in said disk and ring, and a connecting rod 69 connecting said disk and the shifting-rod 57, substantially as and for the purpose specified.

19. The combination with a filter-tank, a tubular screw-threaded shaft vertically mounted therein, gear-wheel 42 mounted on a feather on said shaft, shaft 49, pinion 50 mounted on said shaft and intermeshing with said gear-wheel 42, fast pulleys 53 and 54 and loose pulleys 51 and 52 mounted on said shaft, belts 55 and 56, shifting rod 57 for shifting said belts, a tube 39 communicating with said tubular shaft, and mechanism for moving said tube over the surface of the filter-bed, of a worm-gear 61, a worm 60 for operating said worm-gear, said worm being geared to said tubular shaft, whereby by the rotation of said shaft the worm will be operated, ring 64 carried by said worm-gear, said ring having recesses in its inner surface, disk 67 mounted in said ring, said disk having recesses 70 and 71, a weight adapted to fit into the recesses in said disk and ring, and a connecting-rod 69 connecting said disk and the shifting-rod 57, ratchet-wheel 77 mounted on said tubular shaft, pawl 78, pulley 84, pins 85 and 86 carried by said pulley, arm 83, pulley 88 mounted on the same shaft with the worm-gear 61, and a belt 87, substantially as and for the purpose specified.

577,756. FAUCET-REGISTER. CHARLES W. KELLY and GABRIEL H. VORE, Oregon City, Oreg., assignors of one-fourth to George C. Fields, same place. Filed Aug. 1, 1896. Serial No. 601,367. (No model.)

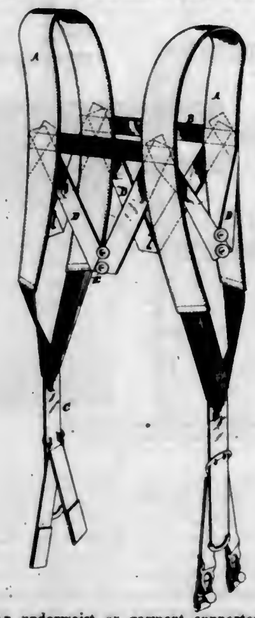


Claim.—1. As a faucet-registering device, a slotted case 1, having jaws 2 and 3, and means for locking the same together whereby to attach such case to a faucet, the bolt 6, the vertical cylinder 5, pivotally suspended from the jaw 2, by the bolt 6, the slotted cylinder extending through a circular aperture in the jaw 3; a coil-spring 7, on the bolt 6, the upper end of which spring is fast to such bolt; and the lower end fast to the cylinder; the extension-arm 8, rigidly attached to the cylinder 5, and having a pivoting-jaw 9, at its extremity; guide-blocks 14 and 14^a, extending on and parallel to the verge of such slot; the segment-spring 13, with pin 12, extending through the slot in the case, and into the slot 11 in the cylinder 5; the ratchet-wheel 20 having a suitable number of teeth extending around its circumference; means for arresting the wheel 20 when not moved forward; the ratchet-wheel 21 and a suitable communicating mechanism for the wheels 20 and 21, so that each complete revolution of the wheel 20 will move the wheel 21 one point forward; a suitable alarm-bell, and mechanism for striking the same adapted to cooperate with the wheel 20 so that each movement thereof will cause a tap on the bell by its hammer; and a hand on the axis of each of the wheels 20 and 21, to note their rotations, the parts being combined and cooperating as described.

2. As a faucet-registering device, a slotted case 1, having jaws 2 and 3, and means for locking the same together whereby to attach such case to a faucet; the slotted vertical cylinder 5, pivotally suspended from the jaw 2 by the bolt 6; the cylinder extending through a circular aperture in the jaw 3; a coil-spring 7 on the bolt 6, the upper end of which spring is fast to such bolt, and the lower end fast to the cylinder; the extension-arm 8, rigidly attached to the cylinder 5, and having a pivoting-jaw 9, at its extremity; guide-blocks 14 and 14^a extending on and parallel to the verge of such slot; the segment-spring 13 with pin 12, extending through the slot in the case, and into the slot 11 in the cylinder 5; the ratchet-wheel 20 having a suitable number of teeth extending around its circumference; the spring-detent 26; the spring-arm 24 rigidly attached to the axis of the wheel 20 and revolving therewith; the wheel 21, with a suitable number of teeth on its interior face; the shoe 22 for arresting the wheel 21 when not moved forward; the slanting wedge 23 for throwing the toes on the arm 24 in engagement with wheel 21, once in each complete revolution of the wheel 20; a suitable alarm-bell, and mechanism for striking the same; adapted to cooperate with the wheel 20, so that each movement thereof will cause a tap on the bell by its hammer; and a hand on the axis of each of the wheels 20 and 21, to note their rotations, the parts being combined and cooperating as described.

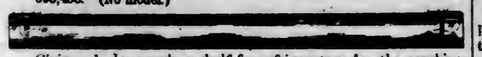
3. As a faucet-registering device, the combination of a horizontally-vibratable arm, carrying a jaw adapted to be engaged by the vessel filled from said faucet, a vertical bearing for said arm, means for securing said bearing to the faucet so that said arm shall be below the mouth thereof, registering mechanism likewise supported on said faucet by said means and comprising a ratchet-wheel and operating-pawl therefor, and operative connection between said arm and said pawl, whereby lateral movement of the arm operates said pawl, a spring resisting said operative movement, an alarm-bell, and a spring-arm carrying a hammer for striking the bell, said arm engaging the teeth of the ratchet-wheel to act as a detent when the latter has been moved forward, substantially as described.

577,757. GARMENT-SUPPORTER. FRANK KERR, Mattoon, Ill. Filed Jan. 31, 1895. Renewed June 12, 1896. Serial No. 595,365. (No model.)



Claim.—An underwaist or garment-supporter provided with shoulder-straps, a V-strap secured between the shoulder-straps above the waist terminating in front at the waist-line, a V-strap similarly secured and similarly terminating in rear, and a V-strap secured to the outside of each shoulder-strap above and terminating at the waist-line at each side, whereby the waistband is dispensed with and independent lateral movement is given to each terminal.

577,758. SHELF FOR REFRIGERATORS. WILLIAM B. KEYSER and JAMES A. BURR, Chattanooga, Tenn., assignors to the Keyser Manufacturing Company, same place. Filed June 13, 1896. Serial No. 595,458. (No model.)

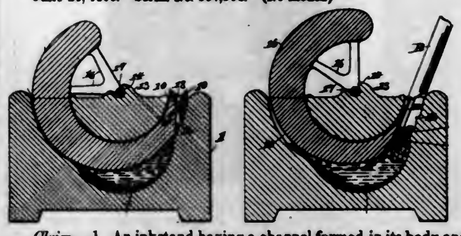


Claim.—1. In a rack or shelf for refrigerators, &c., the combination of a tubular frame-bar constructed of a strip of sheet metal rolled between its longitudinal edges and having the edge portions overlapping and spaced apart, and having the edge portion of the inner part bent inwardly and extending substantially toward the center of the tube, and a body portion slipped into the tubular frame-bar and having its edge bent to engage with the said inner bent edge portion of the frame-bar, substantially as set forth.

2. The combination of a body, and an end frame-bar formed of a strip of sheet metal having its edge portions inwardly folded and doubled upon itself between its edges, and receiving an edge portion of the body between the folded parts, and having an edge portion of a folded part bent about at right angles on a line inside of the folded edge portion of the opposite part, whereby an offset is had in the said body, substantially as shown for the purpose described.

3. The herein shown and described shelf or rack for refrigerators, &c., comprising a wire-fabric body having its edge portions bent about at right angles, and a metal frame composed of side and end bars secured together in a substantial manner, the side bars being tubular and formed of a strip of sheet metal curved between its edges into a tubular form, and having an inner and an outer edge portion and an inwardly-extending part, the edge portions of the wire body being received between the said inner and outer edge portions in the manner set forth, and the end bars being formed of a metal strip folded between its edges to receive the adjacent edges of the wire-fabric body, and having the edge portions of the lower parts bent about at right angles, substantially as shown for the purpose set forth.

577,759. INKSTAND. CHARLES S. KIDD, Cross Fork, Pa. Filed June 29, 1896. Serial No. 597,301. (No model.)



Claim.—1. An inkstand having a channel formed in its body and connected with the ink-well, and a rocking stopper adapted to move in said channel, the said stopper being self-closing, and arranged when closed to lock the ink in the well of the stand, as and for the purpose set forth.

2. An inkstand provided with a rocking stopper crossing the well and adapted in its closed position to lock the ink in the well, the said stopper being provided with a pocket for the reception of a pen, which pocket at a point in the movement of the stopper is in communication with the ink-well, as and for the purpose set forth.

3. An inkstand provided with a rocking, automatically-locking stopper, the said stopper having a pocket for the reception of the pen, which may be carried to a communication with the ink-well of the stand, as and for the purpose set forth.

4. An inkstand provided with a rocking stopper crossing the ink-well and so arranged that in the closed position of the stopper the ink will be locked in the well, the said stopper being provided with a latch arranged to automatically engage with a keeper when the stopper is in its closed position, the stopper being further provided with an opening for the reception of a pen adjacent to the latch, the latter being released from its keeper on the introduction of the pen into the aforesaid opening, as and for the purpose set forth.

5. An inkstand having a rocking stopper crossing the ink-well and arranged to lock the ink in the same when in a closed position, the stopper passing out from the stand at opposite sides of the center of the same, the remaining portion of the stopper being within the stand, as and for the purpose specified.

6. An inkstand having a rocking stopper crossing the ink-well and arranged to lock the ink in the same when in a closed position, the stopper passing out from the stand at opposite sides of the center of the same, the remaining portion of the stopper being within the stand, the said stopper having a tapering surface connection with the channel in which it moves, as and for the purpose set forth.

7. In an inkstand, a rocking stopper crossing the ink-well and provided with a pen-receiving opening, which when that portion of the stopper containing the opening is carried inward the said opening will be in communication with the ink in the ink well, as and for the purpose specified.

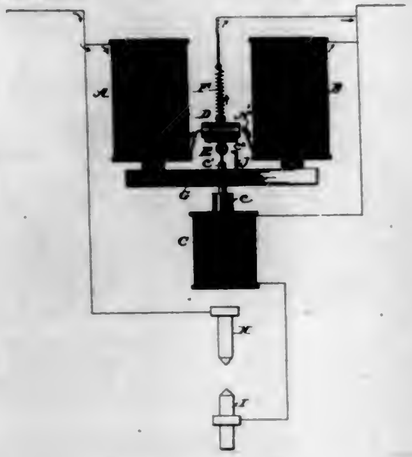
8. In an inkstand, a rocking stopper crossing the ink-well and provided with a pen-receiving opening, which when that portion of the stopper containing the opening is carried inward the said opening will be in communication with the ink in the ink-well, and a latch located at the pen-receiving opening, being released from its keeper by the introduction of a pen into the said opening, as and for the purpose set forth.

9. An inkstand having a segmental channel formed in the body thereof and connected with the ink-well, the said stand being provided with a rocking stopper constructed to move in said channel and crossing the well, and adapted when in its closed position to lock the ink in the well, as and for the purpose set forth.

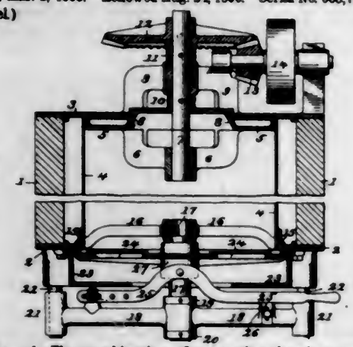
10. An inkstand having its body provided with a segmental tapering channel opening at opposite sides of the center of the body, the said channel being connected with the ink-well, a rocking stopper shaped to conform to the said channel and adapted to move therein and crossing the ink-well, and a locking device for holding said stopper in the closed position, as and for the purpose set forth.

577,760. ELECTRIC-ARC LAMP. GEORGE M. LANE, Asbury Park, N. J. Filed Jan. 4, 1896. Serial No. 574,344. (No model.)

Claim.—In an arc-lamp, the combination with the high and low resistance magnets, the auxiliary magnet, the carbons and feeding mechanism of contacts D and E, operated as described, the armature G, carrying the pin J, and the armature of the auxiliary magnet connected with the contact-plate E, all arranged substantially as shown and described.



577,761. COFFEE-ROASTER. HENRY G. LANGE, Chicago, Ill. Filed Mar. 2, 1896. Renewed Aug. 24, 1896. Serial No. 603,774. (No model.)



Claim.—1. The combination of a roasting-chamber, supported against end movement, at its driven end, and a moving bracket, carrying its free end, substantially as set forth.

2. The combination of a roasting-chamber, supported against end movement, at its driven end, and a moving bracket supporting its free end, and adapted to slide upon longitudinally-extending rods, or slides, on the furnace-front, substantially as set forth.

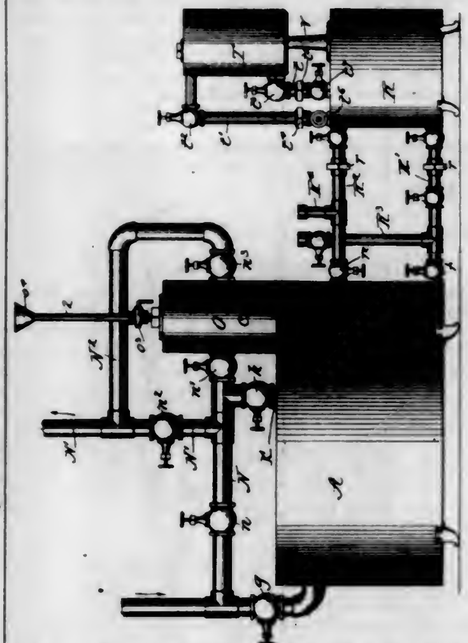
3. The combination with the roasting-cylinder, and its forward carrying-shaft 17, of the door or cover 24, arranged to slide upon said shaft, and means for moving said door, to open or close the end of the roasting-cylinder, substantially as set forth.

4. The combination with the roasting-cylinder, and its forward carrying-shaft 17, of the door or cover 24, arranged to slide upon said shaft, and means for moving said door, to open or close the end of the roasting-cylinder, said means consisting of a lever 25, connected to the hub of said door, and adapted to be engaged by a locking-lug 26, substantially as set forth.

577,762. APPARATUS FOR INCREASING CANDLE-POWER OF GAS. ROBERT S. LAWRENCE, Chicago, Ill. Filed May 2, 1896. Serial No. 589,864. (No model.)

Claim.—1. A carbureter comprising a central chamber and the outer chamber to retain a volume of hydrocarbon, and an intermediate chamber communicating at its bottom with the central and outer chambers but closed at its top and containing the entire mass of fibrous material whereby the hydrocarbon is raised by capillary attraction, said intermediate chamber being provided with suitable gas inlet and outlet ports.

2. A carbureter comprising a central chamber and the outer chamber to retain a volume of hydrocarbon, and an intermediate chamber communicating at its bottom with the central and outer chambers but closed at its top and containing the entire mass of fibrous material whereby the hydrocarbon is raised by capillary attraction, said intermediate chamber being provided with suitable gas inlet and outlet ports, and being provided also with a vertical division-wall upon opposite sides whereof the inlet and outlet ports are arranged,



3. A carbureter comprising a central chamber and the outer chamber to retain a volume of hydrocarbon, and an intermediate chamber communicating at its bottom with the central and outer chambers but closed at its top and containing the fibrous material whereby the hydrocarbon is raised by capillary attraction, said intermediate chamber being provided with suitable gas inlet and outlet ports and comprising also an atomizing-chamber extending across said above-mentioned chambers and provided with the atomizing-pipe having a series of jets, said jets being arranged to cause currents issuing therefrom to impinge directly against each other as they issue into the atomizing-chamber and a discharge-pipe leading from said atomizing-chamber.

4. A carbureter comprising the central chamber, the outer chamber and the intermediate chamber connected together at their bottoms, an atomizing-chamber extending across the tops of several chambers, an atomizing-pipe connected with the carbureting-chamber and arranged within but around the exterior of said atomizing-chamber and provided with inwardly-facing discharge ducts or jets, and a pipe leading from said atomizing-chamber, substantially as described.

5. A carbureter comprising the combination with a chamber containing fibrous material whereby the hydrocarbon will be raised by capillary attraction, said chamber being provided with suitable admission and discharge openings, of an atomizing-chamber, an atomizing-pipe arranged around the exterior of said atomizing-chamber and provided with inwardly-discharging jets, and a perforated discharge-pipe leading from the central portion of said atomizing-chamber.

6. An apparatus for increasing the brilliancy of gas comprising the combination of a casing having suitable admission and discharge pipes leading thereto and therefrom, of a perforated or foraminous receptacle within said casing for containing calcium carbid and interposed between said pipes, a removable cover through which said receptacle can be withdrawn and a water-supply pipe leading through said cover and provided with a controlling-valve, substantially as described.

7. The combination with a carbureter, of a chamber for carbid of calcium, a pipe for supplying gas to the carbureter, a pipe connecting the carbureter with the chamber for the carbid of calcium, a pipe leading from said carbid-chamber to the main discharge-pipe, a branch-pipe connecting the main supply-pipe with the main discharge-pipe and with the carbid-chamber and suitable cocks interposed in said several pipes whereby the gas from the supply-pipe may be caused to flow direct to the discharge-pipe, or to the carbureter and thence to the discharge-pipe, or to the carbureter and to the carbid-chamber and thence to the discharge-pipe, or to the carbid-chamber and thence to the discharge-pipe.

577,763. EMBROIDERY-NEEDLE. SYLVESTER G. LEWIS, St. Louis, Mo. Filed Sept. 21, 1896. Serial No. 606,497. (No model.)



Claim.—An embroidery-needle, consisting of a tube beveled to a point at one end, a wire handle attached to the upper end of said tube, said wire handle being bent to bring its ends substantially into parallel planes and said handle having recesses or apertures in its end opposite the end to which said tube is attached, a wire having its upper end removably inserted in one of said recesses and extending downwardly a short distance, then coiled around said end of said handle, then extending downwardly and coiled around said tube as required to form a stop to regulate the depth to which said tube will penetrate the material, and said stop being adjustable up and down by removing the upper end of said wire from one of said recesses and inserting it in another, substantially as specified.

577,764. COLLAPSIBLE CUP. JOHN LUHR, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Jan. 31, 1896. Serial No. 577,521. (No model.)



Claim.—1. In a telescopic cup, the combination with a series of differentiated rings including a cup-like ring which is constructed with a central inwardly-extending boss, and a foot constructed with a central inwardly-projecting boss fitting into that of the ring, the two bosses being upset for securing the foot to the cup-like ring, substantially as set forth.

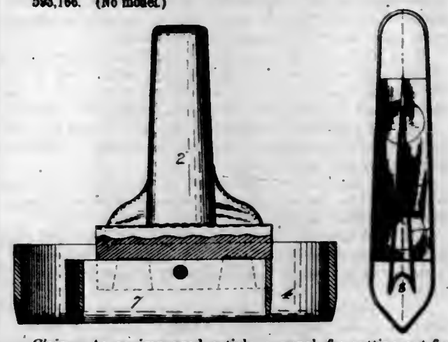
2. In a collapsible telescopic cup, the combination with a series of differentiated rings including a cup-like ring, of a disk-shaped foot secured to the cup-like ring, and a cover adapted to fit over the differentiated rings and having two elastic flanged members adapted to be engaged with the edge of the disk-shaped foot which forms one member of an inclosing-box, the other member of which is formed by the cover, substantially as set forth.

577,765. BOILER-TUBE CLEANER. JAMES LOCKWOOD and GEO. CLIFFORD, St. Louis, Mo. Filed Dec. 26, 1895. Serial No. 573,379. (No model.)



Claim.—A boiler-tube cleaner, comprising the rod 1, having the screw-threaded ends 2, the nut 3 located upon one of said screw-threaded ends, the collar 4 adjacent the opposite end of said rod, and the cylindrical head 5, having the longitudinal bore 6 arranged to slide upon the rod 1 between the nut 3 and the collar 4 and also having the enlarged ends 7, and the bore 6 being countersunk to form the cutting edges 9, substantially as stated.

577,766. PUNCH FOR CUTTING OUT GLOVE-FOURCHETTES. EDWARD J. LUCAS, Johnstown, N. Y. Filed May 26, 1896. Serial No. 593,166. (No model.)



Claim.—As an improved article, a punch for cutting out fourchettes and quirks for glove-fingers, comprising the outer endless blade consisting of the converging side portions and the curved and rounded end portions, and the inner triangular blade connected together at the divergent ends by an inwardly-extending curved portion, substantially as described, whereby a fourchette may be cut having the quirk integral therewith.

577,767. POWDER-BOX. EDWARD H. LYON, Englewood, N. J. Filed Oct. 7, 1896. Serial No. 608,101. (No model.)



Claim.—1. A powder-box having a neck, a side discharge-tube sliding in said neck, and a collar carried by said tube and fitting the neck when the discharge-tube is pushed in to close the box, substantially as described.

2. A powder-box having a neck provided with an exterior inclined surface, a side discharge-tube sliding in said neck, and a collar carried by said tube and fitting over the inclined surface on the neck when the discharge-tube is pushed in to close the box, substantially as described.

3. A powder-box having a neck, a side discharge-tube sliding in said neck, and a collar carried by said tube and fitting the neck when the tube is pushed in to close the box, said tube being provided with a spring inner end coacting with said neck to close the space between the tube and neck and hold the tube in position, substantially as described.

4. A powder-box having a neck provided with an exterior inclined surface, a side discharge-tube sliding in said neck, and a collar carried by said tube and fitting over the inclined surface on the neck when the tube is pushed in to close the box, said tube being provided with a spring inner end coacting with said neck to close the space between the tube and neck and hold the tube in position, substantially as described.

5. A powder-box having a side discharge-tube moving longitudinally in an opening in the box to open and close the box, said tube being formed with a spring inner end coacting with the wall of the opening to form a tight closure and hold the tube in position, substantially as described.

6. A powder-box having a side discharge-tube moving longitudinally in an opening in the box to open and close the box, said tube being formed with a spring inner end coacting with the wall of the opening to form a tight closure and hold the tube in position, and a stop to prevent the withdrawal of the tube, substantially as described.

7. A powder-box having a side discharge-tube moving longitudinally in an opening in the box, said tube being split at its inner end to form a spring-tube and provided with an outwardly-projecting stop-flange at its inner end, substantially as described.

8. A powder-box having a cover secured to the box by a powder-tight joint constructed to hold the cover against being drawn off the box, a side discharge-tube moving longitudinally in an opening in the

cover, and in a direction exerting a direct pull upon the cover tending to draw the cover off the box, and coacting with the cover to form a powder-tight closure of the opening in the cover when the tube is pushed in to close the box, and a stop to prevent the tube being drawn out of the cover, substantially as described.

9. A powder-box having a neck, a side discharge-tube sliding in said neck, and a cap on said tube formed separately from the tube and carrying a collar inclosing the tube and fitting over the neck when the tube is pushed in to close the box, substantially as described.

10. The combination with tube C, of cap D formed in a single piece and having the depressed gage-ring 6 and collar *b* inclosing the tube, substantially as described.

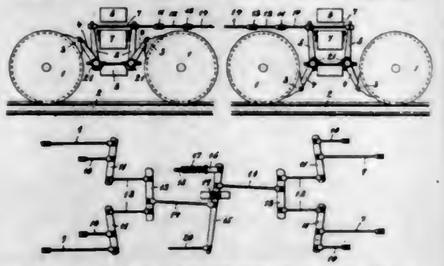
11. The combination with tube C, of cap D formed in a single piece and having the expanded handle-knurl 5, gage-ring 6, and collar *b*, substantially as described.

12. A powder-box having cover B provided with neck *a*, side discharge-tube C, and cap D formed in a single piece and having the expanded handle-knurl 5, gage-ring 6 and collar *b*, substantially as described.

13. A powder-box having cover B permanently secured to the box, neck *a*, side discharge-tube C, collar *b* fitting over the neck *a* when the tube is pushed in to close the box, said tube being slotted to form a spring inner end coacting with the neck to form a tight closure and hold the tube in position when withdrawn and having an outwardly-projecting stop-flange on its inner end, substantially as described.

14. A powder-box having cover B secured by a rib-and-groove connection 1, and side discharge-tube C, sliding in the cover and pulling directly upon the cover when drawn out for discharge of the powder, said tube being slotted to form a spring inner end fitting tightly in the cover, substantially as described.

577,768. BEAMLESS BRAKE. PHILLIP MARCHLING, New Orleans, La. Filed May 8, 1896. Serial No. 590,744. (No model.)



Claim.—1. In a brake, the combination with a pair of wheels, rock-shafts having arms, and shoes on the latter; of a collar on each shaft next its bearing, a lever keyed to the shaft and longitudinally adjustable thereon so that the two levers stand in different planes, long and short connecting-rods leading from said levers to a common member, and means for swinging the latter so as to move the levers simultaneously in opposite directions, as and for the purpose set forth.

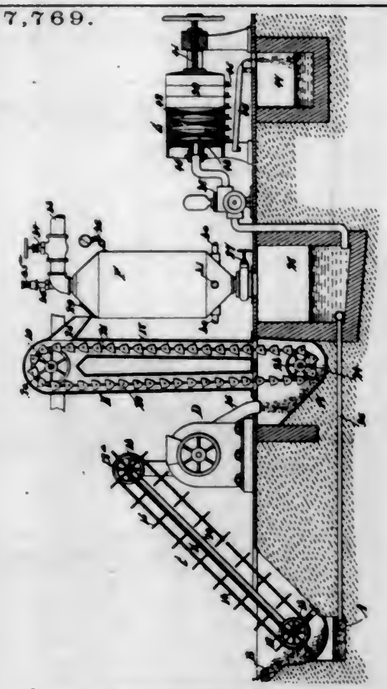
2. In a brake, the combination with a pair of wheels, rock-shafts having arms, and shoes on the latter; of levers turning with said shafts, means for adjusting the levers longitudinally thereon, long and short connecting-rods leading from the levers respectively to a common member and pivoted thereto, and brake-gearing for swinging said member so as to move the rods simultaneously in opposite directions, as and for the purpose set forth.

3. In a brake, the combination with a pair of wheels, rock-shafts having arms, shoes on the latter, and levers rising from the shafts and standing in different longitudinal planes; of long and short connecting-rods leading from the levers respectively and pivoted to one end and to an intermediate point of a swinging member, a brake-lever actuated from a suitable source, a cross-piece connected with the brake-lever, and a rod leading from the cross-piece and pivoted to the other end of said swinging member, as and for the purpose set forth.

577,769. APPARATUS FOR MAKING FERTILIZERS FROM GARBAGE. LAWRENCE MANUELI, Newport, R. I., and PLINY CATUCCI, New York, N. Y. Filed Feb. 18, 1896. Serial No. 579,776. (No model.)

Claim.—An apparatus for treating garbage, the apparatus having a pit, a conveyer leading from the pit, a disintegrator to which the conveyer feeds, the disintegrator emptying into a second pit, an elevator rising from the second pit, a casing inclosing the elevator, a digester to which the elevator extends, a third pit in which the digester empties, a pump communicating with the third pit, and a filter fed by the pump, substantially as described.

577,769.



577,770. WRENCH. GEORGE W. MARTIN, Henderson, Ky., assignor of one-half to Harry Morgan Stanley, same place. Filed June 1, 1896. Serial No. 593,860. (No model.)



Claim.—1. In a wrench, the combination with a handle, head, and smooth jaw-face on the head, of a jaw-chamber in the head adjacent to the jaw-face and longitudinally disposed with respect to the handle, a spring-actuated jaw working within the chamber, and a transversely-adjustable jaw in the head, substantially as set forth.

2. In a wrench, the combination with a handle, head, and jaw on the head, of a movable jaw having an inclined shank, a way for the jaw and shank in the head, screw-teeth upon the shank and a screw-cone upon the handle in operative engagement with the teeth on the shank, substantially as set forth.

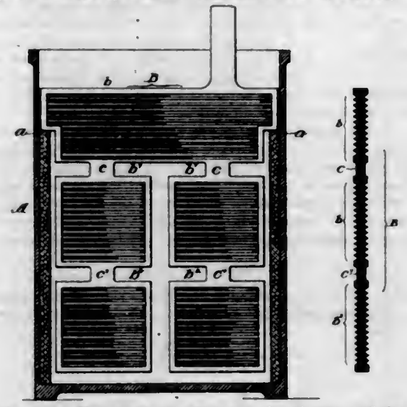
3. In a wrench, the combination with a handle, head, and jaw thereon, of a movable jaw, a jaw-shank working obliquely in the head, a cone pivoted to the handle upon the side opposite to the movable jaw, and coöperating threads upon the shank and the cone, respectively, substantially as set forth.

4. In a wrench, the combination with a handle, head and jaw-face thereon, of a movable jaw adjustable to and from the jaw-face, a jaw-chamber adjacent to the face and the head, a movable jaw working in the chamber, slots in the opposite walls of the chamber, and projecting elements working in the slots and affording to an operator means for grasping and actuating the jaw within the chamber, substantially as set forth.

5. In a wrench, the combination with a handle and head, and smooth jaw-face in the head opposite the handle, of a jaw-chamber in the head adjacent to the smooth face, a spring-actuated jaw working in the chamber, a transversely-adjustable jaw, and toothed shank formed integral therewith, and a screw-cone secured to the handle in operative relation to the shank, substantially as specified.

6. In a wrench, the combination with a handle, head and jaw thereon, of a spring-actuated movable jaw working obliquely in the head, a transversely-movable jaw and shank formed integral therewith, and a way or bearing-slot in the head for the reception of the jaw and shank, the way and the jaw, respectively, being provided with correlative converging walls, shoulders surmounting the same, and a cone-screw secured to the handle in operative relation to the shank, substantially as specified.

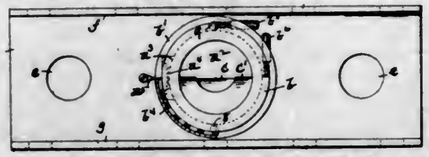
577,771. SECONDARY BATTERY. HENRY G. MORRIS, Philadelphia, Pa. Filed Sept. 5, 1895. Serial No. 561,538. (No model.)



Claim.—1. The combination in a secondary battery, of the cell having supports therein below the liquor-level, a battery-plate consisting of two or more sections connected together by necks, the upper section being in the form of a beam from which the other section or sections are suspended, said beam-section being part of the active plate within the liquor and resting upon the supports within the cell, substantially as described.

2. A secondary-battery plate consisting of the beam-section *b* resting on supports in a containing vessel, sections *b'* suspended from the beam-section *b* by necks *c* and sections *b²* suspended from the sections *b'* by necks *c'*, substantially as described.

577,772. SPIRIT-INCLINOMETER. WILLIAM M. MORTON, New Haven, Conn. Filed Feb. 8, 1896. Serial No. 578,479. (No model.)



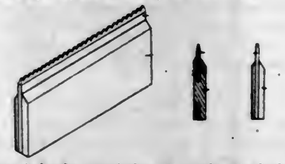
Claim.—1. In an inclinometer, the combination with a frame composed of three plates of sheet metal, viz:—a top plate, a bottom plate, and an intermediate plate standing at a right angle to said top and bottom plates and united to the latter at their center line, of an annular bubble-glass case revolubly seated within a circular opening in said intermediate plate and having a bubble-glass detachably secured to the inner side thereof, two stop-pins located on said intermediate plate of the frame and projecting into an annular groove or channel in said case, and adjustable contact devices on said case adapted to engage said stop-pins respectively to limit the movement of the case in opposite directions, substantially as described.

2. The combination with the frame and the ring *b* revolubly seated in said frame, of the bubble-glass *c*, U-shaped band *c'* partially inclosing said glass and having the filling-piece c^3 between its outer edges, and the screw c^4 passing through said ring and into said filling-piece, substantially as set forth.

577,773. PRINTER'S LEADER. JOHN J. MOSHER, Rochester, N. Y., assignor of one-half to Augustus W. Crittenden, Washington, D. C. Filed Sept. 14, 1896. Serial No. 605,633. (No model.)

Claim.—1. A printer's leader consisting of a rule of relatively hard material the full height of the leader and adapted to rest upon its bottom edge, and a filling or body of relatively cheaper material permanently united to the side of the relatively hard rule, substantially as described.

2. A printer's leader consisting of a rule of relatively hard material the full height of the leader and adapted to rest upon its bottom edge, and a filling or body of relatively cheaper material united to the side of the hard rule by means of coöperating apertures and projections on the parts, substantially as described.



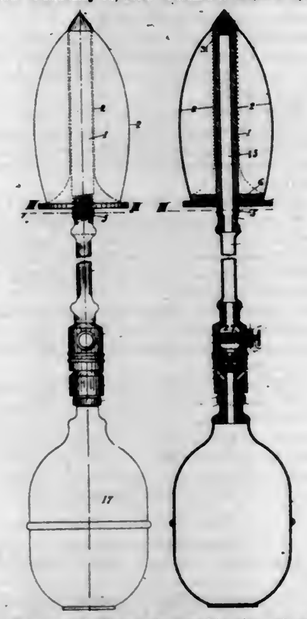
3. A printer's leader consisting of a rule of relatively hard material, as brass, the full height of the leader, adapted to rest upon its bottom edge and having the transverse apertures, and a filling or body of relatively cheaper material, having portions extending through the apertures and permanently united to the side thereof, substantially as described.

577,774. HOSE-COUPLING. FRANK MUMSON, Ithaca, Mich. Filed Jan. 7, 1896. Serial No. 574,580. (No model.)



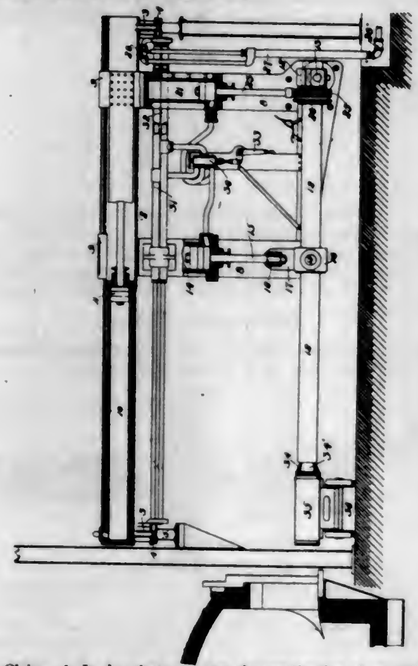
Claim.—The combination with two pivotally-united parts of a hose-coupler, of a latch upon one part, a cam upon the other part adapted to coöperate with the latch to close the coupler, a pin upon the latch, an aperture in that part of the coupler that carries the cam adapted to receive the pin and fasten the latch, and a handle upon the latch, substantially as set forth.

577,775. DILATOR. NATHAN D. MUSSEY, Los Angeles, Cal., assignor of one-half to Taylor R. Baldridge and Horatio S. Beckwith, same place. Filed May 12, 1896. Serial No. 591,229. (No model.)



Claim.—In a rectal dilator the combination, of an expansible bulb-sack, an air-supplying bulb, a tube connecting the bulbs, ports for admitting a supply of air to the tube and air-bulb, a valve for closing said ports against outward pressure, and a release-valve located in the tube, substantially as set forth.

577,776. FURNACE-CHARGING APPARATUS. NIVEN MCCONNELL, Munhall, and WILLIAM C. BURNS, Homestead, Pa. Filed Apr. 5 1893. Serial No. 469,167. (No model.)



Claim.—1. In charging apparatus, the combination of a carrying-box, having a socket open at the side, and a rotatory carrying-bar having a head adapted to enter said socket laterally; substantially as described.

2. In charging apparatus, the combination of a carrying-box, having a socket open at the side, and a rotatory carrying-bar having a head adapted to enter said socket laterally, said head and socket being dovetailed; substantially as described.

3. In charging apparatus, the combination with a rotatory carrying-bar, adapted to engage sockets on the carrying-boxes, of a car bearing two boxes having sockets open at opposite sides respectively, substantially as described.

4. In charging apparatus, the combination with a rotatory carrying-bar, adapted to engage sockets on the carrying-boxes, of a car bearing two boxes having sockets open at opposite sides respectively, said bar being rotatory in both directions a semirevolution; substantially as described.

5. In charging apparatus, the combination with a rotatory carrying-bar, of two motors comprising upright cylinders and plungers adapted to move in opposite directions and connected with said bar by flexible connections and telescopically-connected supply-pipes having end swivel-joints and arranged to convey fluid to the cylinders, substantially as described.

6. In charging apparatus, the combination of a rotatory carrying-bar pivoted to the frame at a fixed point, means for rotating it, and a lifting-cylinder carrying a collar in which the bar is journaled; substantially as described.

7. In charging apparatus, the combination of a laterally-movable carriage or jib mounted on an overhead track, a depending trolley mounted thereon, a cylinder on the jib or carriage adapted to move the trolley back and forth thereon, a carrying-bar supported by the trolley, and a lifting-cylinder and a turning-cylinder also carried by the trolley said turning-cylinder being arranged to rotate the carrying-bar upon its own axis; substantially as described.

577,777. MITER-CUTTING MACHINE. JOSEPH W. OLIVER, Grand Rapids, Mich. Filed Jan. 11, 1896. Serial No. 575,171. (No model.)



Claim.—1. In a miter-cutting machine, the combination with the bed and frame, of a gage having a face at right angles to its length and provided with two bearing-points consisting in the opposite edges or corners of said face, a post forming an abutment for one bearing-point, an upright frame K on the back of the frame of the machine having a flat surface arranged at right angles to the bearing-surface of the post and in line with the travel of the edge of the knife and forming a bearing-surface for the other bearing-point of the gage, and means for adjustably securing the opposite end of the gage, substantially as described.

2. In a miter-cutting machine, the combination with the bed and an upright frame, of a carriage bearing a knife and arranged to move in said upright frame and bed, an angle-gage, a groove in the bed extending parallel with the line of travel of the knife, a bolt passing through a portion of the angle-gage into said groove for longitudinally adjusting said angle-gage relative to said groove, and an adjustable swinging gage arranged adjacent to the inclined side of the angle-gage and adapted to be set at varying angles relative to the latter, substantially as described.

3. The combination with the bed, of a reciprocating carriage bearing two knives arranged at its opposite ends, two independent angle-gages each provided with a bolt engaging a groove in the bed extending parallel with the line of travel of the knives for adjusting the said angle-gages in said groove, and two adjustable swinging gages arranged on the opposite sides of the angle-gages and adapted to be set at varying angles relative to the latter, substantially as described.

577,778. PORTABLE FRACTURE APPARATUS. CHARLES S. PAGE, Dorranceton, Pa. Filed Aug. 5, 1896. Serial No. 601,782. (No model.)



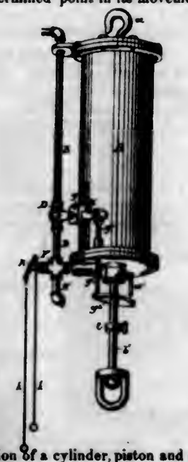
Claim.—1. In a portable fracture apparatus, the combination of a stand comprising a vertical standard, a block or bar mounted upon the said standard, pulleys on said block, a pulley below the block, a cord passing over all of the pulleys and provided at one end with a weight and at the other with suitable means for securing it to an injured limb, substantially as described.

2. In a portable fracture apparatus, the combination of a stand comprising a vertical standard, pulleys near the upper end of the standard, a pulley mounted on said standard beneath the upper pulleys, means for adjusting the pulleys toward or from each other, and a cord passing over all of said pulleys, and provided at one end with a weight and at the other with means for attachment to an injured limb, substantially as described.

577,779. HOISTING APPARATUS. HOWARD A. PEDRICK, Philadelphia, Pa., assignor to the Pedrick & Ayer Company, same place. Filed Apr. 17, 1896. Serial No. 587,938. (No model.)

Claim.—1. The combination of the cylinder, piston and piston-rod of a hoisting apparatus, a motive-fluid-supply pipe, a valve therein adapted to be operated by hand and serving to control the flow of motive fluid to the cylinder, and its discharge therefrom, a stop-valve located in said motive-fluid-supply pipe in advance of the hand-operated valve, and connections between said stop-valve and the piston-rod whereby the flow of motive fluid to the cylinder is arrested independently of the hand-actuated valve when the piston reaches a certain predetermined position, substantially as specified.

2. The combination of the cylinder, its piston and piston-rod, the motive-fluid-supply pipe having therein a stop-valve with weighted arm, a rod depending from said arm, a bar connected to said rod and embracing the piston-rod, and a collar on said piston-rod for striking and moving said bar to effect closing of the stop-valve when the piston reaches a predetermined point in its movement, substantially as specified.



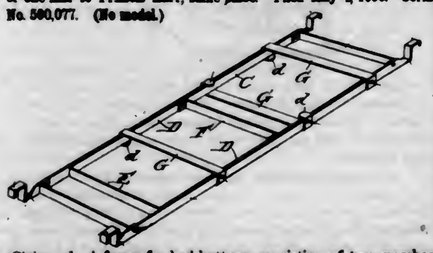
3. The combination of a cylinder, piston and piston-rod of hoisting apparatus, an inward-opening relief-valve adapted to a seat in the head at that end of the cylinder in which pressure is maintained, said valve having a projecting stem, and an attachment on the piston-rod whereby said stem is operated when the piston reaches a predetermined position, substantially as specified.

4. The combination of the cylinder, its piston and piston-rod, a motive-fluid-supply pipe, a stop-valve located therein, an inward-opening valve adapted to a seat in the head at that end of the cylinder in which pressure is maintained, and a valve-operating attachment on the piston-rod constructed as described, whereby when the piston reaches a certain predetermined position the stop-valve will be closed and when the piston moves slightly beyond this position the relief-valve will be opened, substantially as specified.

5. The combination of the cylinder, piston and piston-rod of a hoisting apparatus, a valve-chest having a pressure-chamber and an exhaust-chamber therein, and a valve-face having two ports, one communicating with the pressure-chamber and the other with the exhaust-chamber, and a valve-disk contained in a chamber communicating with the cylinder, said disk having two ports, one of which, by movement of the disk in one direction, is brought into communication with the pressure-port, of the valve-face, the other port of the disk on the movement of the latter in the opposite direction, being brought into communication with the exhaust-port of the valve-face, substantially as specified.

6. The combination of the cylinder, piston and piston-rod of a hoisting apparatus, a valve-chest communicating with the cylinder and having a valve-face with two ports, a disk valve bearing against said valve-face and having ports so disposed that one of the same will be brought into line with one of the ports of the valve-chest by movement of the disk in one direction, and the other will be brought into line with the other port of the valve-chest by movement of the disk in the other direction, and means for moving said disk, stop mechanism for limiting the movement of the disk in either direction, and a spring-actuated and beveled bolt adapted to temporarily arrest the valve when in its intermediate position, substantially as specified.

577,780. BED-BOTTOM. NIELS PETERSEN, Chicago, Ill., assignor of one-half to Francis Karr, same place. Filed May 4, 1896. Serial No. 590,077. (No model.)

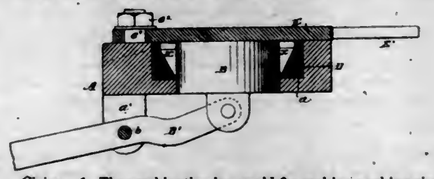


Claim.—1. A frame for bed-bottoms consisting of two members arranged to slide one within the other, each of said members being provided with hooks at its outer ends and each side of each member being twisted adjacent to the hook thereon, substantially as and for the purpose set forth.

2. A frame for bed-bottoms comprising two members arranged to slide one within the other and provided with hooks on their ends and cross-bars secured to the outer member, the ends of said cross-bars being extended around the sides of the members to form guides with the cross-bars, substantially as described.

3. A frame for bed-bottoms, comprising two members arranged to slide one within the other, the hooks on the ends of said members, and a twisted portion on each side of each member to form an angularly-shaped socket adjacent to each hook, substantially as and for the purpose described.

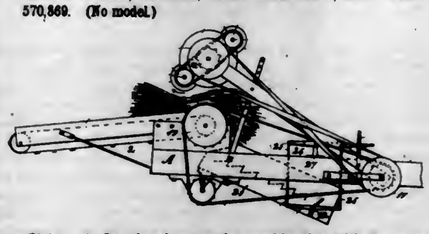
577,781. MOLD. HENRY A. PIKE, Chicago, Ill., assignor to the United States Metallic Packing Company, Philadelphia, Pa. Filed May 3, 1895. Serial No. 548,043. (No model.)



Claim.—1. The combination in a mold for making packing-rings, of the body A, having a central opening and an annular recess, a ring D resting in said recess, a core B adapted to the central opening, a lever hung to the body and carrying the core B, a cover-plate E pivoted to the body and adapted to slide thereon, said plate having a pouring-opening communicating with the space between the rings D and cover B, substantially as described.

2. The combination in a mold for making packing-rings, of the body A, having a central opening and an annular recess, a ring D resting in said recess, a core B adapted to the central opening, a lever hung to the body and carrying the core B, a segment I having notched ends resting in the space formed by the core and ring, a cover-plate E pivoted to the body and adapted to slide thereon, said plate having a pouring-opening communicating with the space between the ring D, core B and segment I, substantially as described.

577,782. BAND-CUTTING AND FEEDING MACHINE. JONATHAN D. POWELL, Deanville, Mich. Filed Dec. 3, 1895. Serial No. 570,869. (No model.)



Claim.—1. In a band-cutter the combination with the main and supplemental frames and the endless straw-carrier, of the links pivoted to said main frame, the hollow cylinder journaled to the free ends thereof, and formed with a series of slots, the transverse shafts, journaled to said cylinder diametrically opposite each other, the circular knives carried thereby, the sprockets at one end of said shaft, the sprocket-chain engaging therewith, the stationary sprocket secured to one of said links with which said chain also engages and the pulley and belt connected with said cylinder, substantially as described.

2. In a band-cutter for threshing-machines, the combination with the rotatable cylinder, and the shafts journaled thereto diametrically opposite each other provided with circular cutting-knives, of the sprockets secured to said shafts, the sprocket-chain engaging therewith, the stationary sprocket with which said chain also engages, and means for rotating said cylinder whereby an orbital movement is given to the shafts and knives, substantially as described.

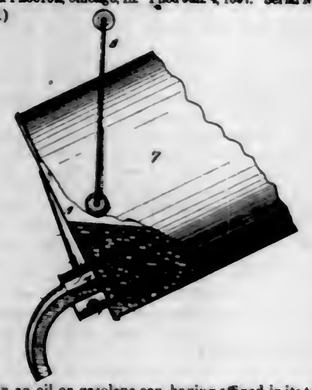
3. In a band-cutter for threshing-machines, the combination with the main and supplemental frames, the links pivoted to the main frame, the hollow cylinder journaled thereto formed with a series of slots, the diametrically opposite shafts journaled to said cylinder, the circular knives carried thereby, the sprockets on the ends of said shaft, the sprocket-chains, the stationary sprocket secured to said links, and the pulley and belt connected with said cylinder, of the pulley around which said belt also passes, its shaft, the sprocket-wheel secured thereto, the sprocket-chain and sprocket-wheels, the shafts to which said wheels are secured, the straw-carrier, and the shaker, substantially as described.

577,783. SPIKE-PULLER. LAWRENCE C. POWELL, California, Pa. Filed July 23, 1896. Serial No. 600,300. (No model.)



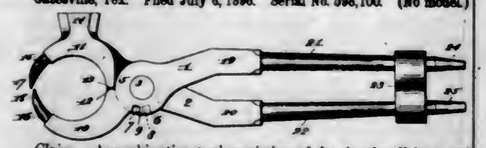
Claim.—The herein-described spike-puller consisting of the lever having the slotted lower portion, and a solid lower end beneath said slotted part provided with the cut-out portion, the clamping-jaws pivotally connected directly above the cut-out portion, the oppositely-arranged slots in the upper part thereof in which the slotted portion of the lever is journaled, the fulcrum-block secured to the lever in the rear of the slotted portion thereof, depending therefrom and adapted to rest on the rail, the claw at the forward end when the spike-puller is turned in one direction raising the spike, while the spike-puller when inverted by reason of the fulcrum-block resting on the rail will permit the jaws to grip the spike as set forth.

577,784. OIL OR GASOLENE CAN. CHARLES W. PROCTOR and RICHARD R. PROCTOR, Chicago, Ill. Filed Jan. 4, 1897. Serial No. 617,959. (No model.)



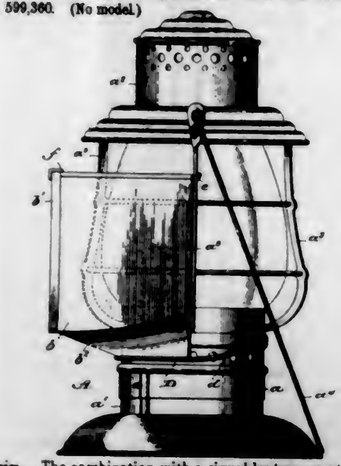
Claim.—In an oil or gasolene can, having affixed in its top a tube extending down within the can, and also protruding above it; its inner extension perforated laterally for outflow, and its outer extension perforated laterally for airway, and a pipe affixed along said top for continuing the airway to a vent-hole in the top, in combination with a tubular revoluble and withdrawable plug, closed at its bottom, and laterally perforated near thereto for outflow into a chamber in the lower part of the plug; said chamber communicating with a pouring-spout; and an upper opposite lateral perforation, communicating with said airway-pipe; and an air-inletting tube, extending from the outer end of the spout to an air-chamber in the upper part of the plug, substantially as and for the uses and purposes herein stated and illustrated.

577,785. COMBINATION WIRE-FENCE TOOL. LEE RUBARTH, Gatesville, Tex. Filed July 6, 1896. Serial No. 598,100. (No model.)



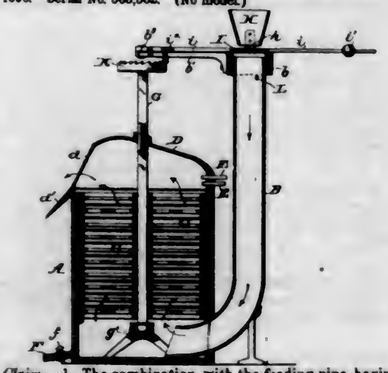
Claim.—A combination-tool consisting of the circular disks 4 and 5 mounted side by side and having the notches 6 and 7 respectively, and said notches having the cutting edges 8 and 9 respectively, the bolt 3 pivotally connecting said disks, the jaw 10 extending from the disk 5, the jaw 11 extending from the disk 4, said jaws being offset from said disks as required to bring them into alinement and being designed to receive the handle 27, the flat face 12 extending radially from the disk 5 upon the head of the jaw 10, the flat face 13 extending radially from the disk 4 upon the head of the jaw 11, said flat faces operating to form a pincer, the hammer-head 14 upon the jaw 11, the points 15 and 16 upon said jaws 11 and 10, said points being substantially circular in cross-section and tapering toward their free ends, the flattened surfaces 17 and 18 upon the outer sides of said points respectively, the arms 19 and 20 extending from the disks 5 and 4, the handles 21 and 22 extending from the free ends of said arms, and the locking-link 23 upon said handles, substantially as specified.

577,786. ATTACHMENT FOR SIGNAL-LANTERNS. HENRY G. RUST and EDWIN S. LYNN, Topeka, Kans. Filed July 16, 1896. Serial No. 599,360. (No model.)



Claim.—The combination with a signal-lantern constructed substantially as shown provided with vertical bars and a flat ring having a bead, of a supplemental frame for supporting colored glasses in connection with said lantern made up of sheet metal shaped to present side wings *b b*, a front section consisting of parallel flanges and cross pieces or strips, and a bottom plate the inner end of which is curved to correspond with the arc of the flat ring of the lantern; together with a spring-wire D secured to the curved end of the bottom plate and having projecting ends which are curved to embrace the flat ring, hooks *c* attached to the upper ends of the wings, and a flat spring *f* overlying the upper end of the front section *b'*, the lower end of the supplemental frame being adapted to bear upon the bead of the flat ring of the lantern, substantially as shown and for the purpose set forth.

577,787. MEANS FOR ABSTRACTING PRECIOUS METALS FROM ORES. JOHN P. SCHMITZ, San Francisco, Cal. Filed Mar. 30, 1896. Serial No. 585,502. (No model.)



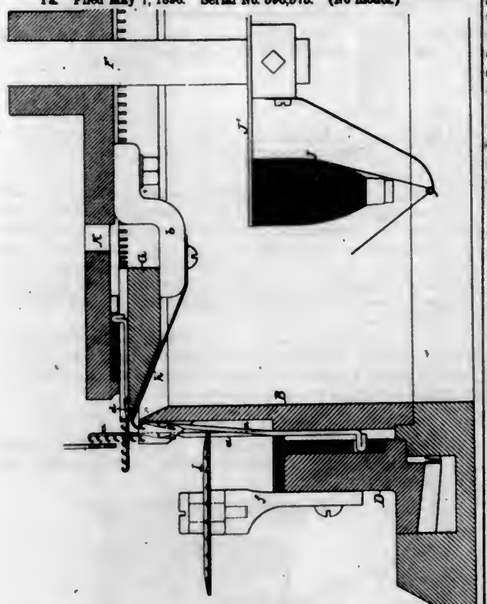
Claim.—1. The combination, with the feeding-pipe, having a lateral arm, of the cover I, and its leverage-rod pivoted to said arm, the pusher i^3, attached to such rod, a ratchet, a vertical rod on which the latter is fixed, and a series of rotatable strainers attached to said vertical rod, and the tube or box inclosing the strainers, as shown and described.

2. In an amalgamator, the combination, with a tube or box, having a vertical feed-pipe, a lateral outlet, an air-pipe connected with the feed-pipe, a pivoted and laterally-slidable cover for said pipe, a weighted leverage-rod for holding the cover pressed down upon the pipe while air is being forced in, and strainers arranged substantially as shown and described.

3. In an amalgamator, the combination of the feed-tube, ring *b*, with its projecting arms *b'*, and b^2, with feeding-pipe B, funnel H, cover I, and air-pipe L, substantially as and for the purpose shown and described.

4. In an amalgamator, the cover I, having leverage-rod i, and ball i', in combination with head-piece or ring *b*, pusher i^3 and feeding-pipe B, substantially as and for the purposes shown and described.

577,788. RIB-KNITTING MACHINE. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis N. D. Williams, Ashbourne, Pa. Filed May 7, 1896. Serial No. 590,573. (No model.)



Claim.—1. The combination in a rib-knitting machine, of the needle-carriers, the needles, cams for operating said needles, a knitting-thread guide, means for separating the needles of one of the carriers for the application of a weft-thread, and provision for applying such weft-thread from the inner side of the machine.

2. The combination in a rib-knitting machine, of a needle-cylinder, a needle-dial, the needles, a cam-cylinder, a dial cam-plate, a knitting-thread guide, means for separating the needles of one of the needle-carriers for the application of a weft-thread, and provision for applying said weft-thread from the inner side of the machine.

3. The combination in a rib-knitting machine, of the needle-cylinder, the cam-cylinder, the dial, the dial cam-plate, the needles and the knitting-thread guide, with means for separating certain of the needles of the cylinder for the application of a weft-thread, and provision for applying said weft-thread from the inner side of the machine.

4. The combination of the needle-cylinder, the dial, the needles, the cam-cylinder, the dial cam-plate and the knitting-thread guide of a rib-knitting machine, with means for separating certain of the needles of one of the needle-carriers for the application of a weft-thread, provision for feeding said weft-thread from the inner side of the machine, and a bobbin mounted on the inner side of the machine for supplying said thread-feeder.

5. The combination of the needle-cylinder and annular needle-dial, the knitting-thread guide, a cam-cylinder and a dial cam-plate provided with means by which said annular needle-dial is supported, with means for separating certain of the needles of one of the needle-carriers for the application of a weft-thread, and provision for applying said weft-thread from the inner side of the machine.

6. The combination in a rib-knitting machine, of needle-carriers, their needles, cams for operating said needles, one or more knitting-thread guides, one or more rotatable pressers for laterally separating the needles of one of the needle-carriers for the application of a weft-thread, and provision for applying said weft-thread from the inner side of the machine.

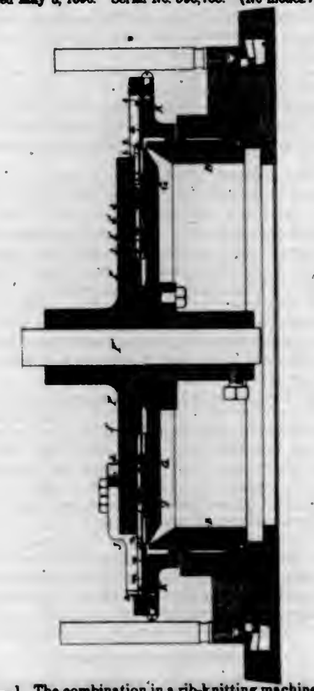
7. The combination in a rib-knitting machine, of needle-carriers, their needles, cams for operating said needles, one or more knitting-thread guides, one or more rotatable pressers for laterally separating the needles of one of the needle-carriers for the application of a weft-thread, and provision for applying said weft-thread from the inner side of the machine, said presser or pressers being constructed as described, whereby the needles depressed in some courses are different from those depressed in the other courses.

8. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, a knitting-thread guide, cams for operating the needles so as to cause them to form stitches, and a weft-thread guide located on the inner side of the machine whereby it is adapted to feed weft-thread to the inner side of the fabric which is being produced by the needles.

9. The combination in a rib-knitting machine, of a needle-cylinder and its needles, a supplementary needle-carrier having needles adapted to coöperate with those of the needle-cylinder to produce a ribbed web, cam-carriers having cams for operating the needles of the needle-cylinder and supplementary needle-carrier, and a mounting for said supplementary needle-carrier affording provision for the introduction of a thread on the inside of the latter.

10. The combination in a rib-knitting machine, of a needle-cylinder and its needles, an annular needle-dial and its needles, a cam-cylinder and its cams, a dial cam-plate and its cams, means for supporting the annular needle-dial, and provision for introducing a thread on the inside of said annular needle-dial.

577,789. RIB-KNITTING MACHINE. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis N. D. Williams, Ashbourne, Pa. Filed May 8, 1896. Serial No. 590,703. (No model.)



Claim.—1. The combination in a rib-knitting machine, of the two needle-carriers each provided with needles, cams for actuating the needles so as to cause them to form stitches, means for separating the needles of one of said carriers, and provision for laying a weft-thread between said separated needles and behind the needles of the other carrier whereby it will be disposed alternately to one side and to the other side of the stitches on the needles of one carrier and wholly behind the stitches on the needles of the other carrier.

2. The combination in a rib-knitting machine, of the two needle-carriers each provided with needles, cams for actuating the needles so as to cause them to form stitches, means for moving the needles outwardly from one needle-carrier and back again to the same, and provision for feeding a weft-thread behind said needles when they are projected and at the same time feeding it behind the needles of the other needle-carrier.

3. The combination in a rib-knitting machine, of a circular needle-cylinder and a circular needle-dial both provided with needles, cams whereby the needles are actuated so as to cause them to form stitches, a circular plate located beyond said needle-dial and constructed for the reception and guidance of needles therefrom, means for moving needles from the circular needle-dial to said circular plate and back again, and provision for laying a weft behind said dial-needles when they are projected, and at the same time laying it behind the needles of the cylinder.

4. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, cams for actuating the needles so as to cause them to form stitches, mechanism for moving alternate needles or sets of needles outwardly from one of the needle-carriers, and back again onto the same, and provision for laying a weft-thread behind the projected needles and at the same time laying said weft-thread behind the needles of the other carrier.

5. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, cams for actuating the needles so as to cause them to form stitches, means whereby in knitting one course certain needles are projected from one of the needle-carriers and then back again onto the same, and in knitting a succeeding course the alternate needles are thus projected and retracted, and provision for laying a weft-thread behind the projected needles and at the same time laying it behind the needles of the other carrier.

6. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, cams for actuating said needles so as to cause them to form stitches, cams for projecting the needles of one carrier outwardly therefrom, jacks guided in the needle-grooves and serving to move the needles into range of said projecting-cam, cams for actuating said jacks, and provision for laying a weft-thread behind the projected needles and at the same time laying it behind the needles of the other carrier.

7. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, cams for actuating the needles so as to cause them to form stitches, a needle-receiving plate located beyond one of said carriers, means for projecting needles from said carrier onto the plate, jacks guided in the needle-grooves of the plate and serving to restore the needles to the carrier, cams for acting upon said jacks, and provision for laying a weft-thread behind the projected needles and at the same time laying it behind the needles of the other carrier.

8. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, cams for actuating the needles so as to form stitches, a cam whereby the needles of one carrier may be projected beyond the same, two sets of jacks alternating with each other and guided in the needle-grooves of said carrier, cams, one for acting upon the jacks of one set and the other for acting upon the jacks of the other set, a plate located beyond the needle-carrier from which the needles are projected, said plates serving to receive the projected needles, means for restoring the needles from said plate to the carrier, and provision for laying a weft-thread behind the projected needles, and at the same time laying it behind the needles of the other carrier.

9. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, cams for actuating the needles so as to form stitches, a cam adapted to project needles from one of the cam-carriers, said cam having an eye for guiding a weft-thread behind the projected needles and at the same time laying it behind the needles of the other carrier, and means for restoring the needles to the carrier after the weft-thread has been laid behind them.

10. The combination in a rib-knitting machine, of two needle-carriers each provided with needles, cams for actuating the needles so as to form stitches, a cam for projecting needles from one of the carriers, said cam having a heel for retracting the non-projected needles, means for restoring the projected needles to the carrier, and provision for laying a weft-thread behind the projected needles and at the same time laying it behind the needles of the other carrier.

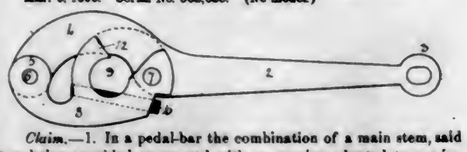
577,790. NON-REFILLING BOTTLE. JAMES D. SHOOTS, Horseheads, N. Y. Filed Mar. 13, 1896. Serial No. 583,002. (No model.)



Claim.—In a non-refillable bottle, the bottle provided with a neck B, having two flanges G, I, around its top edge, and the groove J, between the flanges, combined with a glass cap D having an inwardly-formed groove or crimp E near its lower edge and which groove or crimp forms a corresponding flange or projection on the inner side of the cap to catch in the filling; and a filling of suitable material placed in the cap around the cork and upper end of the neck, substantially as shown

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577,791. PEDAL-BAR. JOHN A. SPOONER, Omaha, Nebr. Filed Mar. 6, 1896. Serial No. 582,025. (No model.)



Claim.—1. In a pedal-bar the combination of a main stem, said stem being provided at one end with an opening adapted to receive the pedal, the remaining end being curved outwardly in a direction at right angles to the axis of the pedal, and a holder, said holder being approximately C-shaped and secured at both ends to the curved end of said pedal-bar, said holder being provided with an opening adapted to receive the propelling-axle of a bicycle, substantially as and for the purpose set forth.

2. In a two-part pedal-bar the combination of a main stem 2 having openings at each end, one end 4 further being curved, and a curved holder 8 adapted to receive a shaft and the pins 6 and 7 all substantially as and for the purpose set forth.

577,792. CORE-BOX MACHINE. JOHN S. STEPHENS and GEORGE R. BRUNS, Pittsburg, Pa. Filed Apr. 16, 1895. Serial No. 545,905. (No model.)



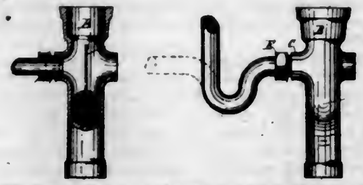
Claim.—1. In a core-box machine, the combination of the stand or frame, the table having its top provided with a longitudinal slot, a rotary shaft, a cutter-head on said shaft rotatable in said slot, means for tilting said table-top on a horizontal axis at right angles to said shaft, and means for raising and lowering said table-top without affecting said tilting means, substantially as set forth.

2. The herein-described machine for forming core-boxes from a solid block of wood, comprising a stand or frame, a table thereon capable of being raised and lowered and having its top provided with a longitudinal slot over which said block is designed to be moved, the adjustable straight guide mounted on said top at right angles to said opening, a rotary shaft, a cutter-head thereon rotatable in said longitudinal slot, and means for tilting said table-top on a horizontal axis at right angles to said rotary shaft, said cutter-head having opposite adjustable knives the line of travel of which is concentric with the axial center of the cutter-head, said block being held down on said table-top against said guide and gradually moved over said cutter-head, substantially as set forth.

3. The herein-described machine for forming core-boxes from a solid block of wood, comprising the adjustable table having an opening in its top over which said block is designed to be moved, said table having a slot therein extended in the direction of said opening, a rotary cutter-head designed to rotate in said opening and having opposite knives the outer ends of which are narrow and concentric with the axial center of the cutter-head, the vertex of said cut-out in said block being parallel with the axis of said cutter-head, the arm designed to swing over said table parallel with the top thereof and to one end of which said block is designed to be temporarily attached, and the pivot-clamp working in said slot and designed to pivotally support said arm, substantially as set forth.

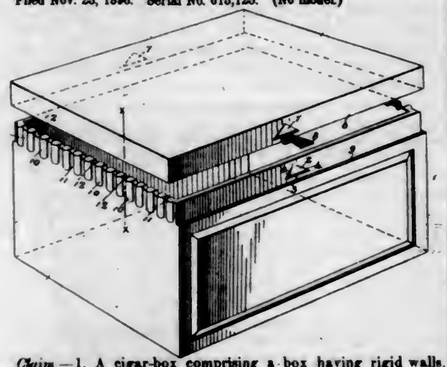
577,793. METALLIC DRAINAGE-FITTING. ALEXANDER C. STEWART, Los Angeles, Cal. Filed July 18, 1896. Serial No. 599,731. (No model.)

Claim.—1. The improved drainage-fitting consisting of a portion of soil-pipe, a ventilating branch leading from said soil-pipe, the connection or connections on the side or sides of said ventilating branch, the diaphragm or partition having its flat sides facing the discharge ends of the laterally-connected traps, the whole being formed or cast in one piece, substantially as set forth and shown in the annexed drawings.



2. The improved drainage-fittings, consisting of the combination of a portion of soil-pipe, a ventilating branch, lateral openings in the ventilating branch, a diaphragm within the ventilating branch opposite the lateral openings, the discharge-pipes and traps or cesspools connected to said lateral openings, all operating together in the manner and for the purposes substantially as set forth.

577,794. CIGAR-BOX. WILLIAM A. STICKNEY, St. Louis, Mo. Filed Nov. 23, 1896. Serial No. 613,125. (No model.)

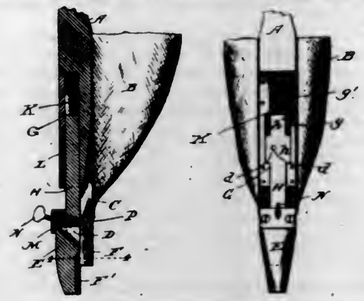


Claim.—1. A cigar-box comprising a box having rigid walls, suitable lugs formed integrally with the walls and disposed along the outer surfaces of two opposite walls at a suitable distance below the upper edges of the walls, a cover for the box having yielding sides and adapted to be passed over the walls of the box, suitable openings formed in the said sides of the cover through which the lugs carried by the walls are adapted to be passed and retain the cover in place, and suitable corrugations forming corresponding air-spaces, carried by the outer surfaces of the two remaining walls, said air-spaces communicating with the interior of the box for permitting free access of air into the box, the corrugations extending approximately from the upper edges of the walls along which they are disposed to a suitable distance downward along said walls, substantially as set forth.

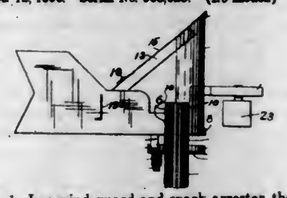
2. A cigar-box comprising a box having rigid walls, a ledge disposed along each of two opposite walls thereof at a suitable distance below the upper edges of said walls, suitable lugs formed with or carried by the said walls and disposed along the outer surfaces of said walls adjacent to said ledge and between the ledges and the upper edge of the box, a cover for the box having yielding sides adapted to be passed over the walls of the box, suitable openings formed in said yielding sides of the cover through which the lugs carried by the walls are adapted to pass and retain the cover in place, the lower corresponding edges of the sides of the cover adapted to rest on said ledges, suitable corrugations forming corresponding air-spaces disposed along the upper portions of the two remaining opposite walls of the box, the outer peripheral surfaces of the corrugations or ridges being disposed in a plane exterior to the general plane of the surface of the wall carrying the same, the edge of the wall at the upper ends of the several air-spaces being bounded by dish-shaped or concave depressions whereby the air-spaces formed between the series of corrugations are free to communicate with the interior of the box and permit the free circulation of air through the box, substantially as set forth.

577,795. PLANTER. CHARLES P. TAYLOR and GEORGE W. OGLESBY, Elberton, Ga. Filed Feb. 19, 1896. Serial No. 579,947. (No model.)

Claim.—The dropper-rod A, provided with the hopper B and formed with the vertical passage C, the integral partition P, the discharge-chute F, and the vertical recess G having the enlarged portion *g*, in combination with the vertically-reciprocating seed-slide H, formed with the cross-head *h*, the seed-chamber D and discharge-opening F', the follower M and thumb-screw N located in said seed-chamber and the spiral spring *g'*, substantially as shown and described.



577,796. SPARK-ARRESTER. JOSEPH T. THOMPSON, Hatton, N. D. Filed Oct. 12, 1896. Serial No. 608,623. (No model.)



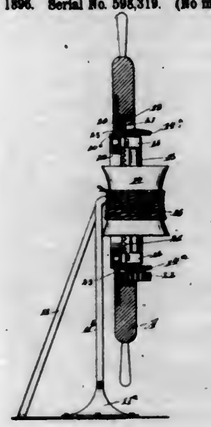
Claim.—1. In a wind-guard and spark-arrester, the combination with the smoke-stack and the cup-shaped receptacle secured thereto, of the rotatable wind-guard, the inclined wire-gauze or perforated shield, the wind-vane, and the adjustable counterbalance-weight; substantially as described.

2. The combination with the smoke-pipe, the cup-shaped receptacle, the rotatable hub and rim, of the rotatable guard, the wind-vane secured thereto, the inclined perforated metal or wire-gauze shield, the lug at the lower end thereof, the eyes, the pivoted hooks engaging therewith, and the adjustable counterbalance-weight; substantially as described.

3. The combination with the smoke-pipe, the rotatable hub, the radial arms and ring, the wind-vane secured thereto, and the cup-shaped receptacle, of the wind-guard, the downwardly-inclined arms secured thereto, and to the wind-vane, the downwardly-inclined flanged shield engaging therewith, the lugs at the lower end thereof having eyes, the pivoted hooks engaging therewith, and the adjustable counterbalance-weight; substantially as described.

4. The combination with the smoke-pipe, the rotatable hub, the radial arms and rim, the blade secured to one of said arms, and the wind-guard, wind-vane and shield, of the cup-shaped receptacle having openings in the bottom, and a discharge-pipe provided with a closing-plug; substantially as described.

577,797. STEERING-GEAR. WILLIAM TUTTLE, Natchez, Miss. Filed July 7, 1896. Serial No. 598,319. (No model.)



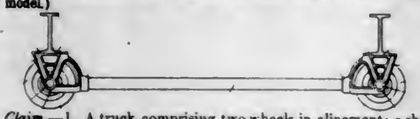
Claim.—1. The combination, with a steering-wheel, of an annular ring-like support around which the wheel turns, a spindle provided with a drum journaled upon the said support, the said drum being adapted to carry the steering-cable, and a rack-and-pinion connection between the said spindle and the said wheel, as and for the purpose specified.

2. In a steering-wheel, the combination, with a wheel and a ring-like support over which the wheel revolves, of a spindle journaled upon the said support, a drum carried by the said spindle, friction-rollers carried by the spindle and located on the said support, engaging with a portion of the said wheel, and a rack-and-pinion connection between the wheel and the spindle, as and for the purpose set forth.

3. In a steering-gear, the combination, with a ring-like support having an outwardly-extending marginal flange, and a wheel held to revolve around said support, having a face-plate practically engaging with the support and bearing against its flange, the said face-plate being provided with an annular rack upon one of its faces, of a spindle journaled upon the said support, provided with friction-rollers engaging with the face-plate of the wheel, and a pinion meshing with the rack-surface of the wheel, and a drum secured on the said spindle, adapted to carry the steering-cable, as and for the purpose specified.

4. In a steering-gear, the combination, with an annular or ring-like support having an outwardly-extending marginal flange, and a steering-wheel provided with an opening of greater diameter than the said support, receiving the same, and a face-plate attached to the wheel, engaging with the flange of the support and substantially with its peripheral surface, the said face-plate having an annular rack formed on one of its surfaces and an inclined surface below the rack, of friction-rollers journaled upon the said support, engaging with the inclined surface of the wheel face-plate, a spindle likewise journaled in the said support, carrying friction-rollers engaging with the aforesaid inclined surface of the wheel face-plate, a pinion secured on the said spindle, engaging with the rack of the wheel, and a drum secured to the spindle and extending within the body, the said drum being adapted to carry the steering-cable, as and for the purpose specified.

577,798. LUMBER-TRUCK. JACOB A. ULMAN and VICTOR L. EMERSON, Baltimore, Md. Filed July 28, 1896. Serial No. 600,763. (No model.)

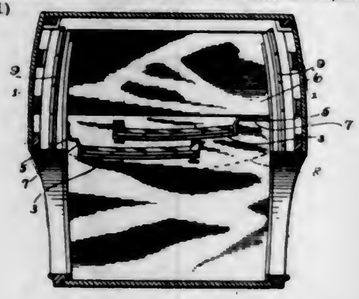


Claim.—1. A truck comprising two wheels in alinement; a shaft or axle in each wheel with ends projecting at opposite sides; two separate and independent frames each one astride of a different wheel and engaging both ends of the shaft or axle thereof and each frame having on top a seat for a cross-beam; and a connection uniting said two frames and attached to them below said top seats, for keeping the wheels rigidly alined.

2. The combination of two trucks parallel with each other each truck having two or more wheels in alinement; a separate frame over each wheel and having a seat, and a rigid connection between the said alined frames; and cross-beams connecting from one truck to the other and resting on the seats of said frames—said cross-beams for the purpose of supporting the load.

3. A truck having two or more wheels which are in alinement; two separate frames each supported over a different one of said wheels and each adapted to carry a load substantially in a line vertical with respect to the axis of the wheel over which it sets; a telescopic tube uniting said frames, and a screw clamp-collar to hold the said telescopic tube at any position of adjustment.

577,799. VEHICLE-DOOR CONSTRUCTION. CHARLES A. WARREN, Columbus, Ohio. Filed Feb. 17, 1896. Serial No. 579,523. (No model.)

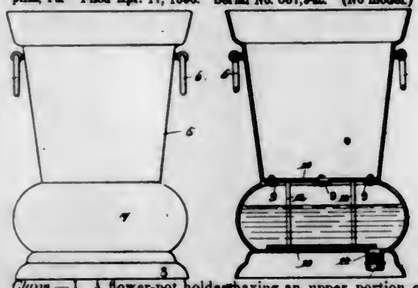


Claim.—1. In a door construction for vehicle-bodies the combination with the body having doorways in its forward portion, of an upper and lower door-section adapted to close one of said doorways, said upper door-section being adapted to slide within said body and upon the upper side of said lower section and said lower section being adapted to fold within said body substantially as and for the purpose specified.

2. In a door construction for vehicles the combination with the body the latter having its rear portion elevated above its forward portion, and track-rails fixed on the inner sides of said body, of lower door-sections adapted to close the lower portions of the body-doorways and to be folded inward within said body, track-rails on said lower door-sections in line with the body track-rail and a sliding-door section provided with trackways in its upper and lower portions, said sliding-door section being adapted to travel on the track-rails of said body and lower door-section, substantially as and for the purpose specified.

3. In a vehicle-door construction the combination with the body 1, track-rails in the lower portion thereof and guideways in the upper portion, of lower door-sections 3 adapted to close the lower portions of the doorways and to be folded inward therefrom, track-rails on said lower doorways, sliding-door sections 2 having channels on their lower ends, rollers journaled in said sliding-door sections and projecting within said channels, spring-strips projecting from the inner sides of said channels, bars 16 on the upper sides of said sliding doors and spring-strips projecting therefrom, said door-channels adapted to embrace the body and lower-door track-rails and said track-rails 16 adapted to travel in the channel-strips of said body, substantially as and for the purpose specified.

577,800. FLOWER-POT HOLDER. HOSEA WATERER, Philadelphia, Pa. Filed Apr. 17, 1896. Serial No. 587,942. (No model.)



Claim.—1. A flower-pot holder having an upper portion capable of receiving the flower-pot, a base or reservoir communicating with the upper portion, and a support located within the base or reservoir and supported on the bottom thereof, the support having a plate at its upper portion which extends to and forms the bottom of the upper portion of the holder, substantially as described.

2. A flower-pot holder comprising an upper portion capable of receiving the pot, a base or reservoir communicating with the upper portion, and a support contained within the base or reservoir and capable of sustaining the flower-pot within the upper portion, the holder having two plates rigidly held in superposed position, substantially as described.

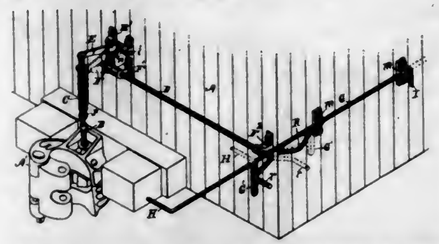
3. A flower-pot holder comprising an upper portion capable of receiving the flower-pot, a base or reservoir communicating with the upper portion, and a support held by the base or reservoir and capable of sustaining the flower-pot in the said upper portion, the support consisting of two perforated plates rigidly held in superposed positions, substantially as described.

4. A flower-pot holder having an upper portion capable of receiving a flower-pot, a base or reservoir communicating with the upper portion, and a support contained within the base or reservoir and capable of sustaining the flower-pot within said upper portion, the support having two plates closely perforated throughout and rigidly held in superposed positions, substantially as described.

577,801. CAR-COUPLING. THOMAS WELCH, Paw Paw, Mich. Filed Feb. 5, 1896. Serial No. 578,079. (No model.)

Claim.—1. The combination with a vertical-hook car-coupler, having a knuckle hinged to swing laterally, of a locking device, mechanism for disengaging said locking device, a compression-spring connecting said mechanism with said locking device, and means actuated by contact with an adjacent car to automatically release the locking device to effect the coupling, whereby a strain upon the locking device will compress said spring, and whereby, when said strain is relieved, the recoil of the compressed spring will lift the locking device and disengage said device from said coupler, for the purpose set forth.

2. The combination with a vertical-hook car-coupler, of a locking device, mechanism for disengaging said locking device, and means actuated by contact with an adjacent car whereby the locking device may be automatically released to effect the coupling when it is desired to couple, and means whereby the locking device may be retained in inoperative position when it is not desired to couple, at the will of the operator, for the purpose set forth.



3. The combination with a vertical-hook car-coupler, of a rock-bar, a locking device connected with the rock-bar, and means whereby the rock-bar may be automatically operated when desired by contact with an adjacent car to effect the coupling, for the purpose set forth.

4. The combination with a vertical-hook car-coupler, having a knuckle hinged to swing laterally, of a locking device, a rock-bar, a compression-spring connecting the rock-bar and locking device, and means to automatically operate the rock-bar to effect the coupling, whereby a strain upon the locking device will compress said spring, and whereby, when said strain is relieved, the recoil of the compressed spring will lift the locking device and disengage said device from said coupler, for the purpose described.

5. The combination with a vertical-hook car-coupler, of a rock-bar, a locking device connected with the rock-bar, and means whereby the rock-bar may be automatically operated when desired, by contact with an adjacent car to effect the coupling, and means whereby the rock-bar may be rendered inoperative by the approach of an adjacent car when it is desired, for the purpose set forth.

6. The combination with a vertical-hook car-coupler, of a rock-bar, a locking device connected with the rock-bar and a removable rod G to actuate the rock-bar, for the purpose set forth.

7. The combination with a vertical-hook car-coupler, of a rock-bar provided with a crank-arm at its outer end, a locking device connected with the opposite end of the rock-bar, and a movable rod G provided with an arm G' arranged to strike the crank-arm of the rock-bar, for the purpose set forth.

8. The combination with a vertical-hook car-coupler, a locking device connected with the rock-bar, a movable rod G provided with an arm G' to actuate the rock-bar, and means to throw the arm G' out of contact with the rock-bar, for the purpose set forth.

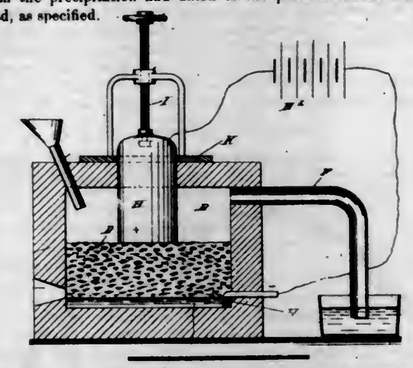
9. The combination with a vertical-hook car-coupler, of a rock-bar provided with a crank-arm at its outer end, a locking device connected with the opposite end of the rock-bar, a rod movable longitudinally of the car provided with an arm G' to actuate the crank-arm of the rock-bar, and with an arm H to contact with an adjacent car, and means to throw the arm G' out of engagement with the crank-arm of the rock-bar, for the purpose set forth.

10. The combination with a vertical-hook car-coupler, having a knuckle hinged to swing laterally, of a locking device, mechanism for disengaging said locking device, a compression-spring connecting said mechanism with said locking device, and means actuated by contact with an adjacent car, whereby the locking device may be automatically released to effect the coupling when it is desired to couple, and means whereby the locking device may be retained in inoperative position when it is not desired to couple, at the will of the operator for the purpose set forth.

11. The combination with a vertical-hook car-coupler, having a knuckle hinged to swing laterally, of a rock-bar, a locking device, a compression-spring connecting the locking device with the rock-bar, and means whereby the rock-bar may be automatically operated, when desired, by contact with an adjacent car to effect the coupling, for the purpose set forth.

577,802. PROCESS OF AND APPARATUS FOR TREATING ARSENIC ORES. GUSTAF M. WESTMAN, New York, N. Y. Filed July 3, 1895. Serial No. 555,272. (No model.)

Claim.—The hereinbefore-described dual process of treating arsenic ores, for obtaining therefrom the metallic arsenic and separating and saving the precious metals contained therein, which consists in melting such ore by means of an electric current, one of the electrodes in the circuit being a stratum of lead, beneath the ore, with which the precious metals unite while molten, and, second, condensing the arsenical vapors given off from the ore while melted, simultaneously with the precipitation and union of the precious metals with the lead, as specified.

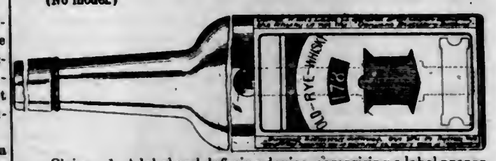


577,803. PROCESS OF PRODUCING AND CONSUMING HYDROCARBON GAS. THOMAS L. WILLSON, New York, N. Y., assignor to the Electro Gas Company, of West Virginia. Original application filed Jan. 9, 1894, Serial No. 517,006. Divided and this application filed Jan. 13, 1896. Serial No. 575,370. (No specimens.)

Claim.—1. The process of producing an illuminating-flame of high luminosity, which consists in producing acetylene gas, collecting the resulting gas and allowing it to expand into a suitable receptacle to a pressure approximating to but above atmospheric pressure, and forcing a small stream of the acetylene gas so produced through a burner, under conditions substantially as specified, whereby the said acetylene in burning is enabled to appropriate the full amount of oxygen required for its combustion before cooling below its kindling temperature, substantially as described.

2 The process of producing an illuminating-flame of high luminosity, which consists in producing acetylene gas from calcium carbid and water, collecting the resulting gas in a receptacle under its own pressure of generation and allowing it to expand into a second suitable receptacle to a pressure approximating to bnt above atmospheric pressure, and forcing a small stream of acetylene gas so produced through a burner, under conditions substantially as specified, whereby the said acetylene in burning is enabled to appropriate the full amount of oxygen required for its combustion before cooling below its kindling temperature, substantially as described.

577,804. COUPON-LABEL-DEFACING DEVICE. RUDOLPH A. WITTEMANN, New York, N. Y. Filed Oct. 22, 1896. Serial No. 609,734. (No model.)



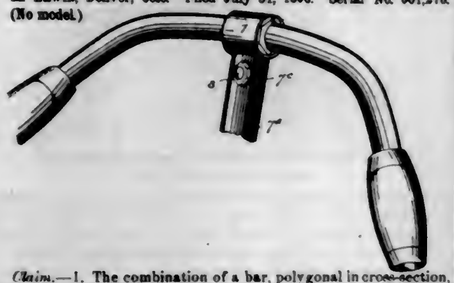
Claim.—1. A label and defacing device, comprising a label proper having suitable identifying marks or characters thereon and adapted to be secured to a shipping or other package, together with a coupon having an enlarged portion intermediate its ends and secured to said label in such manner that when detached the identifying mark or marks on the label will adhere to the coupon while the label is defaced; said coupon also having a flap projecting beyond the edge of the label and adapted to be grasped for removing the coupon from the package, whereby the label is adapted to serve as an incentive for selling the particular class of goods contained in the original packages and may be effectually canceled and the coupon readily identified to prevent fraud, substantially as described.

2. A coupon device for labels consisting of an elongated strip secured to the back of a label so as to underlie an identifying mark or character on the face of the label, and having a substantially rectangular enlargement between its ends and a substantially semicircular flap at one end projecting beyond the edge of the label in position to be grasped for forcibly removing the coupon and defacing the label; said coupon also having identifying marks or characters thereon, together with a label proper having an identifying mark or character thereon overlying the concealed portion of the coupon so as to be removed with the latter when the coupon is detached, substantially as described.

3. A label having identifying marks or characters thereon and adapted to be secured to a shipping or other package, combined with

a coupon device also having identifying marks or characters thereon and consisting essentially of an elongated strip secured to the back of the label and having its body portion formed of different widths so as to provide an enlarged portion between its ends, and also having at one end a projecting portion or flap which extends beyond the edge of the label, so as to provide a small exposed portion to be grasped for forcibly removing the coupon with the overlying identifying marks or characters on the label, substantially as described.

577,805. ADJUSTABLE HANDLE-BAR FOR BICYCLES. Joseph M. Erwin, Denver, Colo. Filed July 31, 1896. Serial No. 601,276. (No model.)



Claim.—1. The combination of a bar, polygonal in cross-section, a clamping-collar whose interior and exterior perimeters describe polygons having an unequal number of sides, the inner surface of the collar being adapted to fit the bar, and a clamp whose inner surface is adapted to fit the exterior surface of the collar, substantially as described.

2. The combination of a bicycle handle-bar, whose central portion is polygonal in cross-section, a slotted collar, the perimeters of whose inner and outer surfaces describe polygons having an unequal number of sides, and a clamp surrounding said collar, which it is adapted to fit, said clamp being provided with a depending stem adapted to connect with the post of the bicycle-fork, substantially as described.

3. The combination of a bicycle handle-bar whose central portion is formed exteriorly polygonal in cross-section, a slotted collar whose interior and exterior perimeters describe polygons having an unequal number of sides, the inner surface of the collar being adapted to fit the central portion of the handle-bar, said collar having grooves formed at its interior angles, a clamp surrounding said collar which the clamp is adapted to fit, said clamp having grooves formed at its interior angles and also provided with a depending stem adapted to be connected with the post of the fork, substantially as described.

4. The combination of a bar polygonal in cross-section, a clamping-collar whose interior and exterior perimeters describe polygons having an unequal number of sides, the inner surface of the collar being adapted to fit the bar, the latter having a stop adapted to engage one end of the collar, and a clamp whose inner surface is adapted to fit the exterior surface of the collar, the latter having a stop at the end opposite the stop on the bar, said stop being adapted to engage the adjacent end of the clamp.

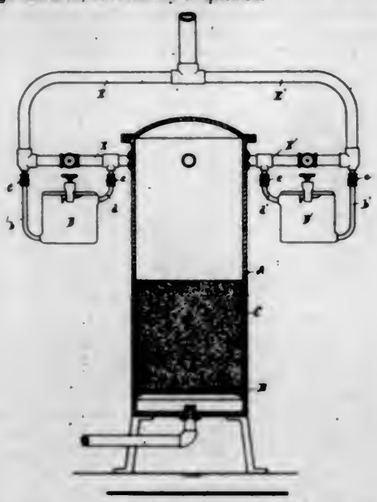
5. The combination of a bar, a clamp and an interposed collar, the latter having its interior and exterior surfaces provided with an unequal number of elements or instrumentalities adapted to prevent independent rotation when engaged by surfaces having similar or counterpart elements, the bar being fashioned to fit the interior surface of the interposed collar, and the clamp adapted to fit the exterior surface thereof.

6. The combination of a bar, a clamp and an interposed collar, the latter having its opposite surfaces provided with an unequal number of elements or instrumentalities adapted to prevent independent rotation when engaged by surfaces having similar or counterpart elements, the bar being fashioned to fit one surface of the interposed collar, and the clamp adapted to fit the other surface thereof.

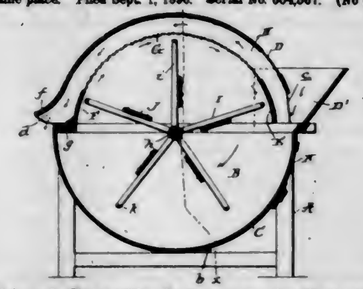
577,806. PURIFYING WATER. Henry R. Furness, Cincinnati, Ohio, assignor to Fred C. Weir, same place. Filed Oct. 20, 1894. Serial No. 526,501. (No specimens.)

Claim.—1. The method of forming a filter-bed in a filter, which consists in impregnating a granular bed with a flocculent, flexible and adhesive precipitate formed by the reaction of an alkaline phosphate upon a soluble salt the base of which forms said precipitate, substantially as specified.

2. The method of removing from water the suspended impurities in a filter containing a granular bed by introducing into the space above said granular bed a solution of an alkaline phosphate and a solution of any salt whose base is capable of forming with the said alkaline phosphate, an insoluble flocculent phosphate precipitate, said precipitate forming with the granular bed a filter upon which are deposited the suspended impurities during the passage of the water through the same, substantially as specified.



577,807. MACHINE FOR QUILLING FEATHERS. Henry Horster, Evansville, Ind., assignor of one-half to Saunders B. Sansom, same place. Filed Sept. 1, 1896. Serial No. 604,567. (No model.)

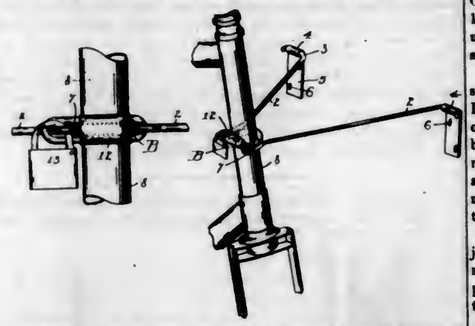


Claim.—1. The machine for the purpose described comprising a casing or shell having induction and eduction openings for feathers, a screen D, arranged in the casing or shell above the induction-opening, the walls E, F, arranged in the casing or shell adjacent to the induction and eduction openings respectively, the screen connected at its opposite ends to the walls E, F, said screen and walls serving in conjunction with the top wall of the shell or casing to form a passage connected at its opposite ends with the eduction-opening and the interior of the casing or shell and communicating with the screened opening, a removable screen arranged at the bottom of the shell or casing, and a rotary stirrer or agitator arranged in said shell or casing, substantially as specified.

2. In a machine for the purpose described the combination of the casing or shell having induction and eduction openings at opposite ends, a screen D, arranged in the top wall of the casing or shell above the induction-opening, the walls E, F, arranged in the casing or shell adjacent to the induction or eduction openings respectively, the screen connected at its opposite ends to the walls E, F; said screen and walls serving in conjunction with the top wall of the shell or casing to form a passage connected at its opposite ends with the eduction-opening and the interior of the shell or casing and communicating with the screened opening and a rotary agitator or stirrer arranged in the shell or casing, substantially as specified.

3. A machine for the purpose described, comprising a casing or shell having induction and eduction openings for feathers and also having openings adjacent to its bottom for the insertion and removal of screens, spring-pressed doors for closing said openings, the said removable screens, a stop arranged below the eduction-opening of the casing or shell, the walls E, F, arranged adjacent to the induction and eduction openings, respectively, of the casing or shell, the screen connected at its opposite ends to the walls E, F; said screen and walls serving in conjunction with the top wall of the shell or casing to form a passage connected at its opposite ends with the eduction-opening and the interior of the casing or shell, and the rotary agitator or stirrer arranged in the casing or shell, substantially as specified.

577,808. BICYCLE-LOCKER. Howard W. Myers, St. Paul, Minn. Filed Apr. 13, 1896. Serial No. 587,405. (No model.)



Claim.—1. As an improved article of manufacture, a device of the class described, formed of wire or rod of substantially V shape, adapted to be hinged by its ends to a relatively-fixed support, the apex being inwardly bent upon itself to form a recess for the bicycle-post, and the means for holding the post in said recess.

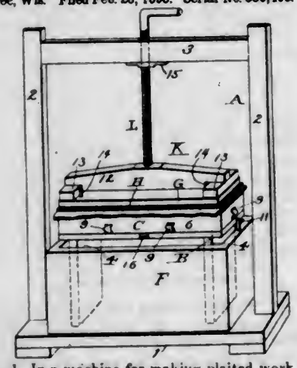
2. As an improved article of manufacture, the substantially V-shaped bracket or brace adapted to be connected to a relatively-fixed support, and being formed at its apex with a central reverse bend, constituting a recess to receive the post of the bicycle, the bends on each side of the recess constituting eyes, and the hasp hinged in one of said eyes, and adapted to engage the opposite similar eye to hold the bicycle in place.

3. As an improved article of manufacture, a device of the class described, formed of a single piece of wire or rod, of substantially V shape, adapted to be connected by its ends to a relatively-fixed support, the apex being inwardly bent upon itself to form a socket for the bicycle-post, the hasp hinged to the eye formed by the bend on one side of said socket, and adapted to engage the opposite bend, and means for locking it in such engagement.

4. In combination with the relatively-fixed support, the V-shaped brace hinged thereto, having a reverse bend or socket in its outer end, the hasp hinged to an eye in one side of said bend and engaging an opposite similar eye, and the lock for engaging said opposite eye to secure said hasp in closed position.

5. As an improved article of manufacture, the V-shaped bracket or brace having the free ends of its arms hinged to clips, which are secured to the wall, and being formed at its apex with a central reverse bend or recess to receive the upright post of the bicycle, the hasp hinged to one side of said recess, and the lock for securing the free end of the hasp to the other side of said recess, so as to inclose the upright post of the bicycle, said recess and hasp being covered by suitable soft material to prevent abrasion of the bicycle.

577,809. MEANS FOR MAKING PLAITED WORK IN UPHOLSTERING. Henry B. Pitner, Aurora, Ill., assignor to Alfred Freschl, Milwaukee, Wis. Filed Feb. 23, 1895. Serial No. 539,460. (No model.)



Claim.—1. In a machine for making plaited work in upholstering, the combination of a frame A provided with base 1, standards 2, beam 3 and nut 15, the bench B seated centrally on the base of said frame, moldboard C seated on said bench, and provided with tuft-hole guards D, having fluted sides 6, plaiters E adapted to be pressed downward on said flutes 6 and to project upwardly from the guards D, guide-box F adapted to inclose mold C and to project upwardly therefrom, and adapted to receive and retain, during pressure, the necessary filling, strawboard H placed over said filling, and follow-board G imposed upon said strawboard, and the screw-bolt L seated in nut 15 and adapted to exert downward pressure mediately or immediately upon said follow-board and thereby force said filling within said mold substantially as shown and for the purpose described.

2. In a machine for making plaiting in upholstering, a suitably-supported mold C, provided with upwardly-projecting tuft-hole guards D, having fluted sides 6, plaiters E adapted to force the fabric down over guards D, and form radial plaits in right lines therefrom, guide-box F adapted to inclose mold C and extend upwardly therefrom to receive the necessary filling, strawboard H, placed over such filling, and means substantially as shown for compressing the latter within the mold C, and suitable means for seating and clenching or otherwise fastening the tuft-buttons within the guards D for the purpose specified.

3. The combination with the mold provided with upwardly-projecting hollow tucking devices, of a follower provided with openings registering with said tucking devices, and a pin-board provided with pins adapted to be inserted from the bottom of the mold into said tucking devices and support the tuft-buttons, substantially as set forth.

4. The combination with the mold provided with fluted hole-guards projecting upwardly from the base of said mold, of plaiters provided with downwardly-projecting points adapted to be pressed down the fluted sides of said guards and to form the fabric into plaits, substantially as set forth.

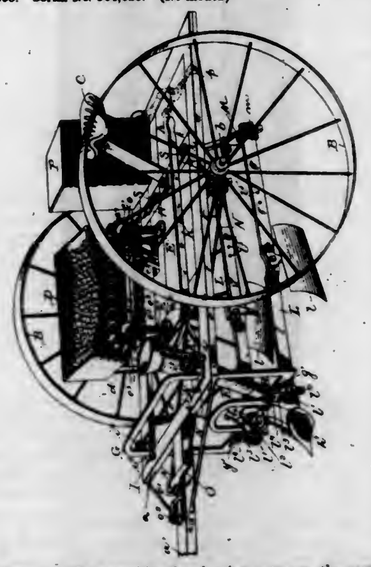
5. In an upholstering device, the combination of a base provided with upwardly-projecting tucking devices, of detachable recessed plaiters which are adapted to straddle said tucking devices, substantially as set forth.

6. In an upholstering device, the combination of a base provided with upwardly-projecting tucking devices, of detachable plaiters provided at their lower ends with downwardly-projecting points which straddle said tucking devices, substantially as set forth.

7. In an upholstering device, the combination of a mold provided with perforated tucking devices, a surrounding casing, plaiters which straddle said tucking devices and force the material forming the outside of the article being formed over said tucking devices, a top, and means for forcing the parts together and holding them while the upholstering operation is being completed, substantially as set forth.

8. In an upholstering device, the combination with the mold provided with upwardly-projecting hollow tucking devices, of a follower provided with openings registering with said tucking devices, detachable plaiters for forcing the material forming the outside of the article being formed down over said tucking devices, and a pin-board provided with pins adapted to be inserted from the bottom of the mold into said tucking devices and support the tuft-buttons.

577,810. POTATO-PLANTER. Bower F. Stickler and Frederick D. Bell, Hornellsville, N. Y., assignors to said Bell. Filed Sept. 6, 1895. Serial No. 561,623. (No model.)



Claim.—1. In a machine for planting potatoes, the combination with a pair of wings or plates, of mechanism for independently ad-

justing them vertically and laterally and adjusting mechanism common to both of said wings or plates.

2. In a potato-planting machine, the combination with an opener, means for dropping the potatoes, and concave plates in the rear of the opener, of mechanism for independently adjusting the opener and either of the plates, and mechanism for adjusting said elements simultaneously.

3. In a potato-planting machine, the combination with an opener, dropper and potato-conveying mechanism, of concave plates in the rear of the dropper, mechanism for independently adjusting the plates laterally, mechanism for independently and vertically adjusting the opener, and mechanism for simultaneously vertically adjusting the opener and plates.

4. In a potato-planting machine, the combination with an independently-adjustable opener, a dropper and receiver, and means for conveying the potatoes from the receiver to the dropper, vertically-adjustable horizontal bars adjustably connected through intermediate mechanism with the opener, and plates or wings carried by said bars.

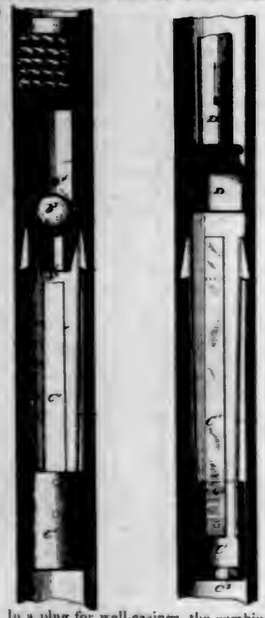
5. In a potato-planting machine, the combination with an adjustable opener, dropper, receiver and a conveying-belt, of belt-actuating mechanism, independently-adjustable plates designed to hill the potatoes, and adjusting mechanism common to the opener and plates.

6. In a potato-planting machine, the combination with an adjustable frame, of an opener adjustably carried thereby, a dropper and receiver in the rear of the opener and a conveyer operatively connected with the axle of the machine, and plates designed to hill the potatoes adjustably supported by the adjustable frame.

7. In a potato-planting machine, the combination with an adjustable frame, of an opener adjustably carried thereon, horizontal bars adjustably connected to the adjustable frame, plates carried by said bars, and means for adjusting the adjustable frame.

8. In a potato-planting machine, an opener, horizontal bars, adjustable plates or wings secured to said bars for covering the potatoes and connecting-rods bringing the pull or draw of the horses directly upon frame carrying said bars, as described.

577,811. REMOVABLE PLUG FOR OIL-WELLS. GEORGE P. TADDER, Millerstown, Pa. Filed May 7, 1896. Serial No. 590,635. (No model.)

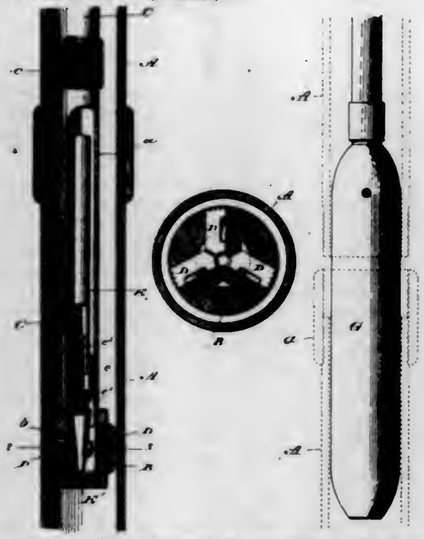


Claim.—1. In a plug for well-casings, the combination of a tube having an external packing, a conical head secured to the lower end thereof and provided with a concavity and with a longitudinal bore or vertical opening below said concavity, the lower end of the tube having notches, and a ball located within the concavity and adapted to have a slight play therein, substantially as shown and for the purpose set forth.

2. In combination with the bridge constructed as shown and described, of a device for inserting said bridge in a well-casing, comprising an inverted cup which contains the free ends of the bridge, and a tube or equivalent means attached to the cup, substantially as shown and described.

3. A plug for well-casings consisting of a tube having externally-threaded ends, a rope packing coiled thereon so as to overlie the threads on the upper portion of the tube, jam-nuts carried by the tube so as to engage with the packing thereon, notches or recesses in the lower end of the tube, a hollow conical head carried by the lower end of the tube and provided with an internal valve-seat, a ball-valve adapted to rest upon the valve-seat and abut when raised against the notched end of the tube, together with a bridge or means to hold the plug in the casing having movable ends which engage with the conical head of the plug and with the inner wall of the casing, substantially as shown and for the purpose set forth.

577,812. APPLIANCE FOR UNSCREWING CASINGS DOWN IN OIL-WELLS. GEORGE P. TADDER, Millerstown, Pa. Filed May 7, 1896. Serial No. 590,636. (No model.)



Claim.—1. In an implement for unscrewing well-casings, the combination, of a head having left-hand threads and provided with a series of transverse openings through the same, wickers located in said openings and adapted to be projected beyond the head, said wickers having teeth at their outer ends and their inner ends shaped to leave a vertical opening between them, and a stem or tubing having left-hand threads which engage the corresponding threads of the head; together with an independent tapered head for separating the wickers, substantially as shown and for the purpose set forth.

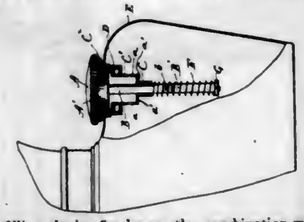
2. In an implement for unscrewing well-casings, the combination, of a head having a vertical opening, left-hand threads in the upper part of said opening, and transverse openings through the walls of the head; wickers located in said openings and adapted to be projected beyond the head, said wickers having teeth at their outer ends and their inner ends shaped to leave a vertical opening between them; a stem or tubing made up of separable sections connected by couplings having left-hand threads, said stem being connected to the head; together with an independent tapered head for separating the wickers, substantially as shown and for the purpose set forth.

3. In an implement for unscrewing well-casings, the combination, of the head having vertical and transverse openings therein, wickers located to slide in the transverse openings, the inner ends of said wickers projecting within the vertical opening of said head; together with a hollow stem or tube E presenting shoulders at its lower end, and a tapered head E' having a headed stem located within the hollow stem or tube, substantially as shown and for the purpose set forth.

577,813. FILLING DEVICE FOR LAMPS. WALDO L. UPSON, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed July 29, 1896. Serial No. 600,872. (No model.)

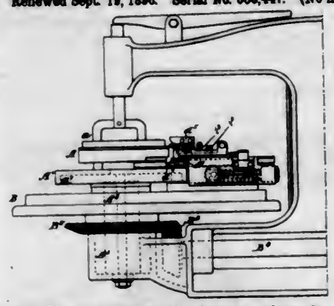
Claim.—1. In a filling device for lamps, the combination with a filler-cap, of a sectional stem rigidly secured thereto, a supplemental nipple adapted to be introduced into the fixed nipple of a lamp-fount, and a spring applied to the inner end of the sectional stem.

2. In a filling device for lamps, the combination with a filler-cap, of a sectional stem having the said cap secured to the outer end of its outer member, the inner end of which is pivotally attached to the outer end of the inner member, a supplemental nipple adapted to be introduced into the fixed nipple of an ordinary lamp-fount, and provided with a bearing for the said stem, and a spring engaging with the sectional stem and exerting a constant effort to keep the filler-cap upon its seat upon the outer end of the supplemental nipple.



3. In a filling device for lamps, the combination with a lamp-fount, of a fixed nipple located therein, a supplemental nipple fitting into the said fixed nipple and adapted in length to project downward through and below the same, its projecting lower end being formed with openings for discharging into the fount the oil poured into its upper end, a filler-cap adapted to come to a seat upon the supplemental nipple, and a sectional stem having bearing in the lower end of the supplemental nipple and having the said cap secured to its outer or upper end.

577,814. SHOE-CHANNELING MACHINE. ERNEST M. WHITE, Philadelphia, Pa., and JACOB M. SPROW, Jr., Camden, N. J.; said Sprow, Jr., assignor to Clarence B. White, Philadelphia, Pa. Filed Aug. 29, 1896. Renewed Sept. 19, 1896. Serial No. 606,447. (No model.)



Claim.—1. The combination of a former, a clamp for the sole, a cam-plate, a carriage engaging with said cam-plate, a slide on the carriage movable toward and from the former, a channeling-knife on said carriage and a cam so situated under the heel portion of the former that as the carriage passes around the heel the slide will be moved laterally away from the sole, substantially as described.

2. The combination of the clamp for the sole, a sole-blank, a former, a fixed cam, two carriages adapted to travel around the former in engagement with the fixed cam, a rounding-knife on one carriage, a channeling-knife on the other carriage, the carriage having the channeling-knife adapted to follow the carriage having the rounding-knife, a cam acting to withdraw the channeling-knife from the sole as it passes around the heel portion thereof without acting upon the rounding-knife, substantially as described.

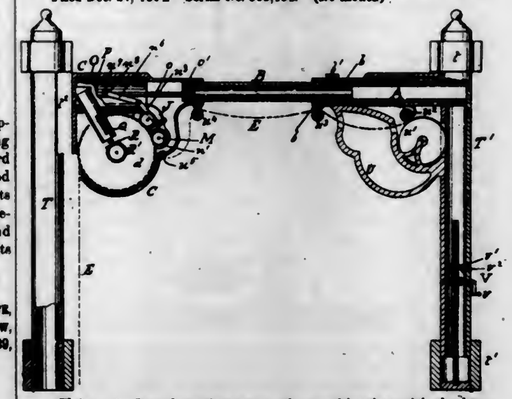
3. The combination of the fixed clamp-plates for the sole, a fixed cam, a carriage controlled by the cam and adapted to travel around the clamp, a slide, a movable head on said slide carrying the channeling-knife, with a lock acting to lock the head of the slide prior to the withdrawal of the channeling-knife from the heel portion of the sole, substantially as described.

4. The combination of the fixed clamps for the sole-blank, a fixed cam, the lower clamp acting as a former for the channeler, a carriage, a slide on said carriage, a movable head on the slide, said head carrying the channeling and grooving knife, a lock for locking the head to the slide during a portion of the revolution of the carriage around the clamp, the lower clamp being cut away at the heel portion so as to allow the locking-bolt to act and thus lock the head to the slide, substantially as described.

5. The combination in a channeling-machine, of the fixed former upon which the sole is clamped, a fixed cam-plate, a carriage adapted to travel around the former and controlled by the cam-plate, a slide pivoted to the carriage so as to swing laterally, said slide resting against the former, a head so pivoted to said slide that it can be adjusted vertically, a channeling-tool and presser-foot carried by said head, substantially as described.

6. The combination in a channeling-machine of the fixed former upon which the sole is clamped, a fixed cam-plate, a carriage adapted to travel around the former and controlled by the cam-plate, a slide pivoted to the carriage and resting against the former, a head pivoted to the said slide so as to be adjusted vertically, a laterally-adjustable slide carried by said head and a longitudinally-adjustable tool-carrier mounted on the slide and tools carried thereby, substantially as described.

577,815. LOWERING-CRANE. WILLIAM J. ALLEN, Brithdir, and DAVID WILLIAMS and VICTOR LECOQ, New Tredegar, England. Filed Dec. 27, 1894. Serial No. 533,131. (No model.)



Claim.—1. In a lowering-crane, the combination with the lowering means, of connected mechanism actuated by the lowering means for governing the initial movement and permitting a progressive increase and gradual decrease in the movement of the lowering mechanism.

2. In a lowering-crane, the combination with a supporting-arm and a lowering means, of a governing device for the lowering means comprising means for initially impeding and finally interrupting the movement of the lowering means and permitting an uninterrupted intermediate movement.

3. In a lowering-crane, the combination with a support and a lowering means, of a governor comprising means for progressively increasing the movement of the lowering means and subsequently progressively decreasing the movement thereof, substantially as described.

4. In a lowering-crane, the combination with the support, of a lowering means, a governor comprising a cylinder and a piston working therein and connected with said lowering means, means for admitting fluid or releasing it from the cylinder, and means actuated by the lowering means for governing the action of said fluid admitting and releasing means, substantially as described.

5. The combination of means for lowering a load, a cylinder, a piston in said cylinder connected with said lowering means, and a valve for governing the admission of fluid to said cylinder, said valve consisting of a member adapted to move across a port of said cylinder and having a series of openings, substantially as described.

577,816. DEVICE FOR CONTROLLING LIGHT EFFECTS. HARRY V. ARNOLD, New York, N. Y., assignor to Solomon May and Moses May, same place. Filed Feb. 24, 1896. Serial No. 580,409. (No model.)

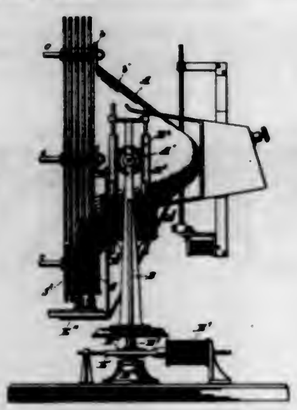
Claim.—1. A theatrical display apparatus comprising a projector having a reflector, means for swinging the projector in altitude and azimuth, and a plurality of movable screens for modifying the beam of light carried by and moving with the swinging projector, and electromagnets moving with the projector and connected to the said screens for operating the same independently of each other.

2. In an apparatus for producing light effects, the combination of a projector having a reflector, a plurality of screens carried by the reflector and electromagnetic means for bringing the screens into the path of the light from the projector, the said electromagnetic means operating independently of the illuminating apparatus for the projector, as and for the purposes set forth.

3. In an apparatus for producing theatrical light effects, the combination of a reflector, a series of screen-sections pivoted thereon, and electromagnetic means for actuating the screen-sections to move the same in the beam of light, the said electromagnetic means being independent of the illuminating apparatus for the reflector.

4. An apparatus for producing light effects in theaters comprising the following instrumentalities in operative relation, to wit: a lamp suitable for projecting an illuminating beam of light upon a

stage, a series of different-colored screens movable into the path of the beam, a series of electromagnets for interposing the screens individually in the path of the beam of light, and individual controlling mechanism for controlling the electromagnets individually from a common location and electromagnetic means for swinging the lamp controlled from a distance.



5. The combination of a light-screen comprising pivoted sections, connections between the sections and a pivotally-supported solenoid, and a core entering the solenoid and connected with one or more of the screen-sections.

6. The combination of a lamp, a pivoted support therefor, a pinion, a pair of solenoids having toothed cores which mesh with the pinion, and means for energizing one or the other of the solenoids, whereby the lamp will be swung.

7. The herein-described swinging device comprising a pinion, racks gearing therewith, armatures for controlling the movement of the racks, and magnets for moving the armatures, the said magnets comprising a plurality of coils connected in series, the terminals of the series being connected to one pole of a source of electricity, and each section being individually connected to a rheostat-switch so that movement of the switch will cut in the coils of one magnet and cut out the coils of the other magnet *seriatim*, substantially as described.

8. The herein-described light-effects exhibitor comprising a lamp, individually and independently controllable electromagnetic means for interposing different light-effects media in the beam of light of the lamp, individually and independently controllable electromagnetic means for swinging the lamp in altitude, and individually and independently controllable electromagnetic means for swinging the lamp in azimuth, the said swinging means being controlled from a common point, and means for so controlling them.

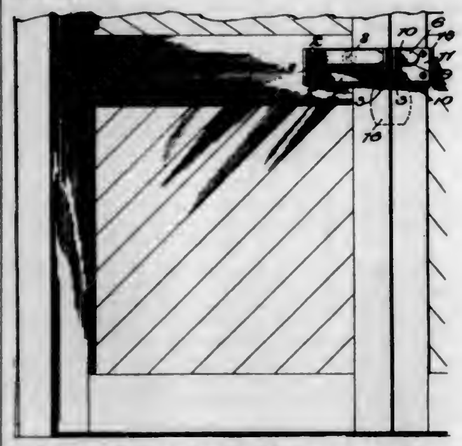
9. The herein-described circuit arrangement comprising armatures, magnets for moving the armatures, the said magnets comprising a plurality of coils connected in series, the terminals of the series being connected to one pole of a source of electricity, a rheostat-switch, each section being individually connected to the rheostat-switch so that movement of the switch will cut in the coils of one magnet and cut out the coils of another magnet *seriatim*, substantially as described.

577,817. PROCESS OR METHOD OF WELDING COPPER UPON STEEL OR WELDING COPPER UPON IRON. JAMES BURNS, Verona, Pa. Filed May 9, 1896. Serial No. 590,929. (No specimens.)

Claim.—The herein-described process of welding together copper and iron or steel, consisting in applying a mixture of oxid of copper and powdered alkali between the contact-surfaces of the plates or masses of the said metals and compressing them with the said mixture between them under the influence of heat, substantially as and for the purpose set forth.

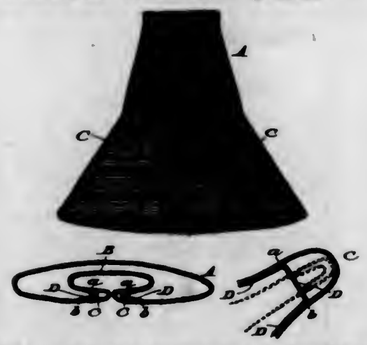
577,818. LATCH. WILLIAM CRONK, Havana, N. Y. Filed June 18, 1896. Serial No. 596,061. (No model.)

Claim.—1. In a reversible latch, a base-plate adapted to be secured to a door and having its ends bent outwardly at a right angle to form ears, said ears each having an open-ended slot in its upper edge, combined with a keeper consisting of a base-plate adapted to be secured to a door-frame, and having its ends bent outwardly at a right angle to form ears, said ears each having an open-ended slot in its upper edge, and a combined latch and handle pivoted on the base-plate on the door and provided with a notch in each of its edges to engage the open-ended slots in the ears of its supporting-plate and the adjacent ear of the keeper when the door is closed, substantially as described.



2. The combination with a door, of a latch pivoted on its outer side and projecting beyond the edge of the door, a lever pivoted to the edge of said door, the part on one side of the pivot engaging the latch and the other part projecting inwardly beyond the door and being bent to form a finger-hold, the part engaging the latch having a normal tendency to drop down, and a plate secured to the inner side of the door having a projection to engage the lever to limit the downward movement of the outer portion, said plate also being bent to form a handhold, substantially and for the purposes described.

577,819. DRESS-SKIRT. HENRY M. FOOTE, New York, N. Y., assignor, by mesne assignments, to the Stadler & Falk, of New York. Filed Feb. 26, 1896. Serial No. 580,677. (No model.)



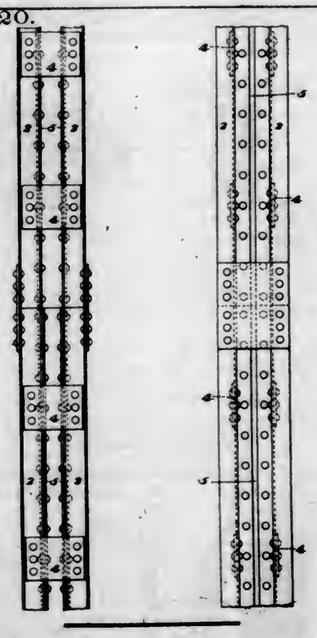
Claim.—A lady's skirt having in the back thereof the V-shaped piece B, the plaits C folded toward each other, forming loops covering said piece and the linings D, each of which latter is primarily narrower than the corresponding portion of the skirt and having a part thereof floating from the front to the rear walls of each plait inside of the loop thereof, the loops approaching at the back of the piece B without connection.

577,820. STRUCTURAL COLUMN. FREDERICK H. KNUDI, Pittsburg, Pa., assignor to the Carnegie Steel Company, Limited, same place. Filed May 18, 1896. Serial No. 592,052. (No model.)

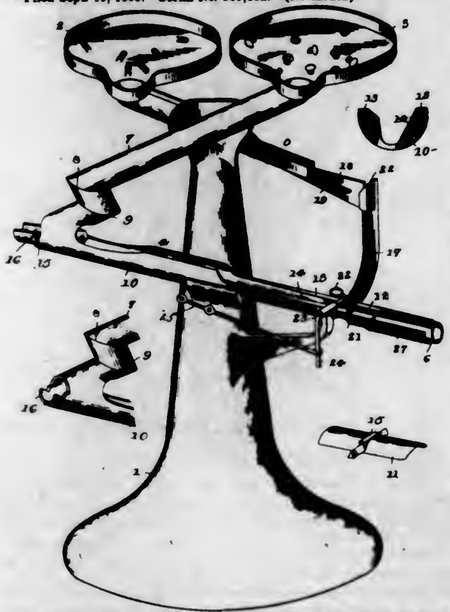
Claim.—1. A compound column, the successive sections of which are composed of trough-shaped sections secured back to back with their bases spaced apart, said sections having longitudinal strengthening-plates secured thereto in the space between the bases of the two sections, the number of the plates diminishing with the successive sections; substantially as described.

2. A compound column, the successive sections of which are composed of two trough-shaped sections provided with projecting flanges and secured together back to back with their bases spaced apart, and longitudinal strengthening-plates secured to the bases of the trough shapes in the space between them, the amount of material in these strengthening-plates decreasing with the successive sections: substantially as described.

577,820.



577,821. BUTTON-TUBE LOADER. JAMES KYDD, El Reno, Okla. Filed Sept. 19, 1895. Serial No. 563,032. (No model.)



Claim.—1. In a mechanism for applying the staple-fastenings to the eyes of buttons, the combination with a race, of a combined detent and ejector comprising connected parts, the one holding the button in position to receive the fastening, the other urging the button forward after the fastening has been applied thereto, substantially as set forth for the purpose described.

2. In a mechanism for applying staple-fastenings to the eyes of buttons, the combination with a race, of a shaft, and portions extending at different relative angles therefrom to extend across the path of the button in the race and provide means for retaining the button in proper position to receive the fastening and releasing and urging the said button forward after the fastening has been applied, substantially as specified.

3. In a mechanism for applying staple-fastenings to the eyes of buttons, the combination with inclined races for the buttons and the fastenings intersecting, of a combined detent and ejector located opposite the point of intersection of the inclined races and comprising oppositely-disposed parts for alternately engaging with and retaining the buttons to properly position them for receiving the staples and urging the buttons forward after the staples have been applied, substantially as set forth.

4. In a mechanism for applying staple-fastenings to the eyes of buttons, an inclined race provided in its length with elbows or offsets to check the momentum of the gravitating part, and a movable retarder to supplement the action of the offsets or elbows, substantially as set forth.

5. In a mechanism for applying staple-fastenings to the eyes of buttons, the combination with the button-race, of a movable retarder adapted to have the buttons travel thereon and located in the length of the race and extending across the path of the button and operated automatically by the impact of the button, substantially in the manner set forth for the purpose described.

6. In a mechanism for applying staple-fastenings to the eyes of buttons, the combination with the button-race, of a pivotally-supported retarder adapted to have the buttons travel thereon and arranged in the length of the race and having an end portion normally obstructing the path of the button and overbalanced and pushed aside by the superior force and mass of the button in the travel of the latter thereover, substantially in the manner set forth for the purpose described.

7. In a mechanism for applying staple-fastenings to the eyes of buttons, the combination with the button-race having a return portion, and having an opening and supporting-lugs at the angle formed between the two parts, of a retarder adapted to have the buttons travel thereon and located in the said opening and having knife-edged bearings placed upon the said supporting-lugs, substantially as and for the purpose set forth.

8. In a mechanism for applying staple-fastenings to the eyes of buttons, the combination with the button-race having a return portion, and having an opening and supporting-lugs at the angle formed between the two parts, of a retarder adapted to have the buttons travel thereon, and a cross-bar located about midway between the ends of the retarder and having its ends projected and beveled to form knife-edged bearings which are mounted upon the said supporting-lugs, substantially as and for the purpose set forth.

9. A staple-race comprising a flat bottom and straight parallel sides, and a vertically-disposed blade extending parallel with and located midway between the sides of the race and having its upper portion merging into the bottom of the race and gradually increasing in height or inclining from the bottom of the race toward the delivery end thereof, and extending beyond the said race, substantially as and for the purpose set forth.

10. A staple-race having a vertically-disposed blade located midway between its sides and gradually widening toward the delivery end of the race, the upper portion of the blade merging into the bottom of the race, and laterally-extending ribs at the sides of the blade and terminating short of the lower end of the said blade, substantially as and for the purpose set forth.

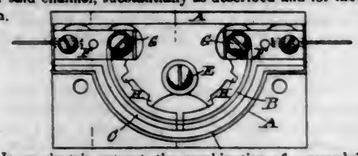
11. A staple-race having a lateral branch or guide at its lower end and formed with a vertically-disposed blade, the latter terminating short of the opposing side of the said lateral branch or guide, and the said side having an inwardly-extending rib in line with the blade, substantially as set forth for the purpose described.

12. In combination, an inclined button-race, a vertically-disposed guide having a rib at its upper end and having its sides flattened and brought close together, and having the lower portion of the guide curving laterally and intersecting with the button-race to automatically shoot the staples through the eyes of the buttons, and an inclined staple-race communicating with the said guide and having a blade to aline with the aforesaid rib, substantially as set forth for the purpose described.

13. The herein-described mechanism for applying staple-fastenings to the eyes of buttons and loading the latter into button-tubes, the same comprising a button-race having a return portion and provided with provisions for checking the momentum of the button, a staple-race having a curved lateral branch or guide which intersects with the button-race, a combined detent and ejector located opposite the point of intersection between the staple and button races, a holder for detachably connecting the button-tubes with the lower end of the button-race, and shallow hoppers having flat bottoms for receiving the buttons and the staple-fastenings and applied to the respective races, substantially as specified.

577,822. ELECTRIC CUT-OUT. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car-Heating Company, same place. Filed Oct. 20, 1894. Serial No. 526,474. (No model.)

Claim.—1. In an electric cut-out, the combination of a porcelain block, a curved grooved channel-way therein, a curved fuse-wire placed in said channel-way suitably connected, with a flexible covering over said channel, substantially as described and for the purpose set forth.

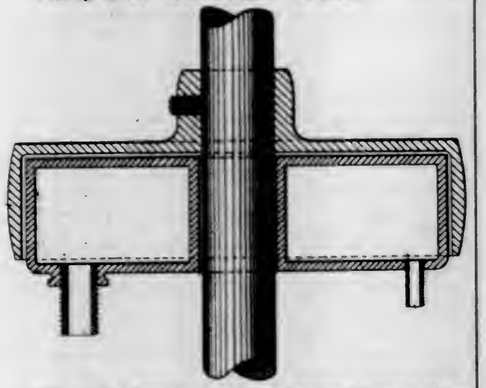


2. In an electric cut-out, the combination of a porcelain block, a curved grooved channel-way cut therein, a series of ribs of porcelain formed in said block on the concave side of said curved fuse, a suitable covering over said channel-way, substantially as described and for the purpose set forth.

3. An electric cut-out consisting of a porcelain block, a curved fuse suitably connected placed in said block, a series of porcelain ribs adjacent to said fuse, with a flexible covering placed over said fuse so arranged that the gases may escape through the cut-out in a thin sheet in the form of a crescent, substantially as described and for the purpose set forth.

4. An electric cut-out consisting of a block of non-conducting substance provided with a curved grooved channel-way, a curved fuse within said channel-way suitably connected, and suitably supported above the bottom of said groove, a series of reduced projections adjacent to said fuse, with a flexible covering over said channel-way, substantially as described and for the purpose set forth.

577,823. **BURNISHING-MACHINE.** SAMUEL H. NICHOLS, Brockton, Mass., assignor of one-half to Oscar A. Campbell, Jr., same place. Filed Apr. 8, 1896. Serial No. 586,694. (No model.)



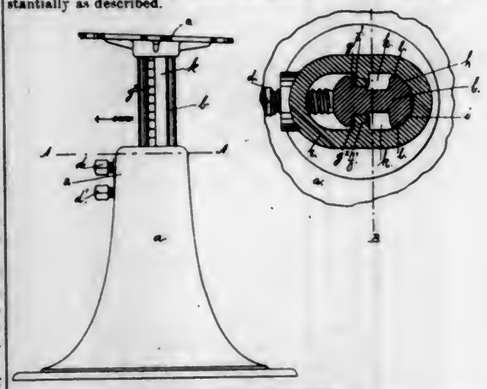
Claim.—1. A burnishing-machine comprising a rotary shaft carrying affixed to it a disk with an annular marginal burnishing-flange; a stationary steam-drum arranged within said flange with its periphery in close proximity thereto, said drum being of annular form to loosely surround the shaft and form a continuous circular passage for steam; and inlet and outlet pipes attached to and communicating with the interior of said drum at diametrically opposite points.

2. A burnishing-machine comprising a rotary shaft carrying affixed to it a disk with an annular marginal burnishing-flange; a stationary steam-drum arranged within said flange with its periphery in close proximity thereto, said drum being of annular form to loosely surround the shaft and form a continuous circular passage for steam, and inlet and outlet pipes attached to and communicating with the interior of said drum.

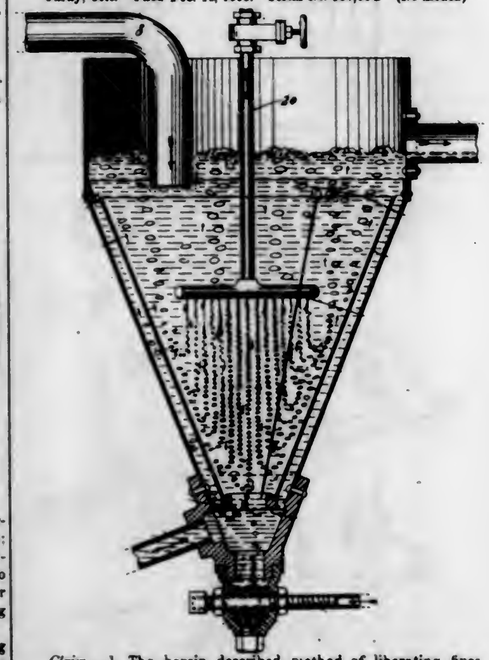
3. A burnishing-machine comprising a rotary shaft carrying affixed to it a disk with an annular marginal burnishing-flange; a steam-drum arranged within said flange with its periphery in close proximity thereto, said drum being of annular form to loosely surround the shaft and form a continuous circular passage for steam; inlet and outlet pipes attached to and communicating with the interior of said drum; and one or more standards fixedly supporting the drum, substantially as described.

577,824. **ADJUSTABLE SCHOOL DESK AND CHAIR SUPPORT.** RICHARD P. ELLIOTT, Nashua, N. H. Filed Jan. 30, 1896. Serial No. 577,413. (No model.)

Claim.—The combination with the base *a* having socket *c*, screw *d* and two inwardly-projecting and laterally-inclined teeth *f f'*, of the slide *b* having bearing faces or portions *h i*, and two sets or series of teeth g g^3 the faces of which are inclined or wedge-shaped, substantially as described.



577,825. **APPARATUS FOR TREATING ORES.** JOHN H. MCCOY, Ouray, Colo. Filed Feb. 11, 1895. Serial No. 537,964. (No model.)



Claim.—1. The herein-described method of liberating fines, slimes and the like from pulp which consists in projecting an air-blast downwardly through the pulp from a point below the scum formed upon its surface, concentrating the air-blast to produce a positive downward current tending to draw the fines through the scum, and finally permitting the diffusion of the air as it rises for the purpose of inducing a circulation or ebullition within the pulp.

2. In an apparatus designed for use in the treatment of ores, the combination with a receptacle substantially V-shaped in vertical cross-section and provided with an outlet, of means for projecting an air-blast in a downward and substantially vertical direction from a point within the receptacle, and means for supplying pulp to said receptacle.

3. The combination with a receptacle having substantially parallel walls and converging continuations thereof substantially V-shaped in vertical cross-section, of an outlet located at or near the lower end of the receptacle, means for supplying pulp to said receptacle, and means for projecting an air-blast in a downward and substantially vertical direction from a point within the receptacle, and intermediate of its converging walls.

4. The combination with a receptacle substantially V-shaped in vertical cross-section, and an outlet adjacent to its lower end, of an air-pipe extending downwardly into the receptacle in a substantially vertical direction and having a head upon its extremity provided with numerous perforations in its under side.

5. The combination with a receptacle provided with outlets adjacent to its opposite ends and substantially V-shaped in vertical cross-section, of means for supplying pulp to the receptacle, and an air-pipe extending downwardly into the receptacle in a substantially vertical direction to a point substantially midway between the outlets.

6. The combination with a receptacle substantially V-shaped in vertical cross-section, and an outlet at its lower end of a pulp-supply pipe discharging downwardly into the receptacle, and an air-pipe extending downwardly in a substantially vertical direction designed to project a blast downwardly from a point below the pulp-supply pipe.

7. A box having converging sides, an amalgamated plate therein supported at a distance from the sides of said box, and parallel therewith, a submerged air-discharge by means of which the air is forced within and below said plate and permitting it to rise upon both sides of the same.

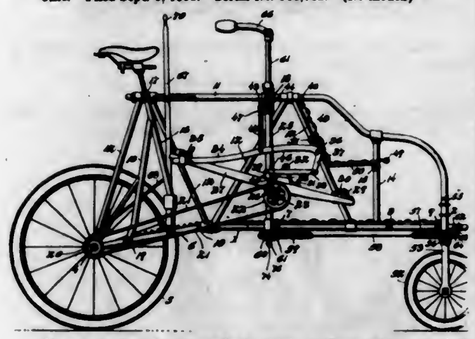
8. The combination with an ore-pulp-grading box converging from the top toward the bottom, of an air-inlet submerged in the pulp, having its opening intermediate to the depth of the box, and directed downward centrally toward the converged portion of the box, adapted to operate as described.

9. The combination with an ore-pulp-grading box, of amalgamating-plates within the box, a mercury-trap below the plates, and an air-inlet in the trap adapted to agitate the mercury therein and throw out foreign substances into the pulp above the mercury.

10. The combination in an ore-pulp-grading box converging from the top toward the bottom, of a pulp-inlet at or near the top of the box, an outlet for lighter constituents also at or near the top of the box, amalgamating-plates converging from the top toward the bottom and near the sides of the body of the box, a compressed-air inlet between the converging sides of the said plates, an outlet for the heavier constituents at or near the bottom of the box, and a mercury-trap below the latter outlet and under said plates.

11. The combination in an ore-pulp-grading box converging from the top toward the bottom, of a pulp-inlet at or near the top of the box, an outlet for lighter constituents also at or near the top of the box, amalgamating-plates converging from the top toward the bottom and near the sides of the box, an outlet for the heavier constituents at or near the bottom of the box, and a compressed-air inlet between the converging sides of the said plates adapted to project the air downward toward the latter outlet and then permitting the air to rise gradually around the sides of the jet between it and said plates.

577,826. **FOOT-PROPELLED VEHICLE.** GEORGE G. J. MILLAR, Groveport, Ohio, assignor of one-half to Luke G. Byrne, Columbus, Ohio. Filed Sept. 9, 1895. Serial No. 561,962. (No model.)



Claim.—1. In a foot-propelled vehicle, a frame of substantially rectangular form comprising spaced lower longitudinal bars connected by cross tie-braces, elevated longitudinal bars located above the said lower longitudinal bars and connected thereto by suitable bracing, a seat-post tube arranged centrally between the said longitudinal bars and having its upper end arranged in about the same horizontal plane with the elevated frame-bars, a rigid and substantially horizontal brace extending from one of the upper bars to the top of the seat-post tube, the axle journaled in the lower portion of the frame, and a brace connected at one end to the seat-post tube and inclining rearward and downward and provided at its opposite end with a bearing for said axle, all combined and arranged substantially as described.

2. In a foot-propelled vehicle, the combination with the substantially rectangular and horizontal base-frame, and the side frames comprising the upper and lower substantially parallel bars braced and connected as described, of a seat-post tube arranged about in the longitudinal center of the frame, a seat-post socket at the upper end of said tube, and a rigid and substantially horizontal brace extending from said socket to one of the side frames, the space between said seat-post socket and the other side of the frame being left unobstructed, substantially as and for the purpose described.

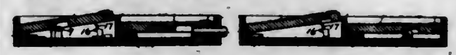
3. In a foot-propelled vehicle, the combination with the substantially rectangular and horizontal base-frame, of the transverse axle having ground-wheels at its ends and on opposite sides of the base-frame, the bearings at or near each end of the axle, a supplemental bearing located intermediate the ends of said axle in proximity to the sprocket-wheel, and a brace connected at one end to said bearing and extending thence toward the seat-post tube to which it is rigidly related, whereby the weight of the load is distributed at intervals along the axle and the latter is prevented from springing intermediate its ends, substantially as described.

4. In a foot-propelled vehicle, the combination with a substantially rectangular and horizontal base-frame, of a pair of steering-wheels arranged beneath the opposite corners of said frame and journaled in forks thereunder, a sprocket-wheel fast on each fork, the handle-bar stem having a sprocket-wheel fast thereon, a chain extending around all of said sprocket-wheels, the rods at the ends of the chain forming extensions thereof, and a turnbuckle connecting the adjacent ends of said rods, substantially as and for the purpose described.

5. In a foot-propelled vehicle, the combination with the frame or body thereof, of a vertically-disposed handle-bar stem, a sprocket-wheel thereon, steering-wheels arranged beneath the opposite forward corners of said body or frame, the vertically-disposed forks in which said wheels are mounted, the sprocket-wheels fast on said forks, a section of sprocket-chain passing partially around each of said sprocket-wheels, draft-rods interposed between and connecting said chain-sections, a turnbuckle interposed between and connecting the threaded inner ends of two of said draft-rods, and a pair of springs arranged on opposite sides of said turnbuckle and interposed between the same and suitable fixed brackets or stops, substantially as and for the purpose set forth.

6. In a foot-propelled vehicle, the combination with the driving-shaft, of a ratchet-wheel fast thereon, a lever and pawl for imparting motion thereto, and a suspension-cord connected to said pawl and provided with a stop whereby it may be engaged with the machine-frame for the purpose of holding the pawl out of engagement with the ratchet-wheel, substantially as specified.

577,827. **DISPLAY-TRAY.** FREDERIC SHAW, Philadelphia, Pa., assignor to William R. Eisenhower, same place. Filed July 31, 1896. Serial No. 601,169. (No model.)



Claim.—1. In a display-tray, a frame, a tilting cushion located within the said frame, a reciprocating rod connected with the said cushion and adapted to tilt the same, substantially as shown and described.

2. In a display-tray, a frame, a tilting cushion located within the said frame, a reciprocating rod connected with the said cushion and adapted to lock the same, substantially as shown and described.

3. In a display-tray, a frame, a tilting cushion located within the said frame, a reciprocating rod and a roller carried thereby which is adapted to engage and tilt the said cushion, substantially as shown and described.

4. In a display-tray, a frame, a tilting cushion located within the said frame, a reciprocating rod and a latch operated thereby which is adapted to engage and lock the said cushion, substantially as shown and described.

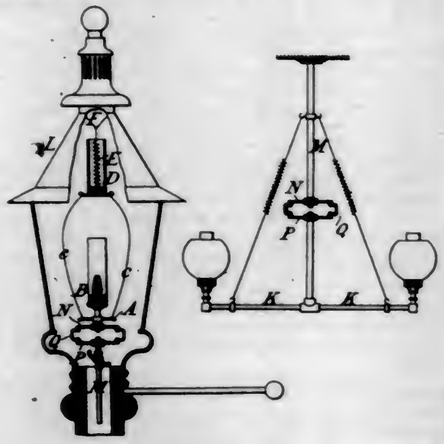
5. In a display-tray, a tilting cushion, a reciprocating rod, a roller carried by the said reciprocating rod adapted to engage and tilt the said cushion, a latch operated by the said reciprocating rod and adapted to engage and lock the said cushion, and a spring adapted to control the said reciprocating rod, substantially as shown and described.

577,828. **INCANDESCENT GAS-LAMP.** JULIUS MOELLER, London, England, assignor to the Welsbach Light Company, Gloucester City, N. J. Filed May 16, 1896. Serial No. 591,768. (No model.)

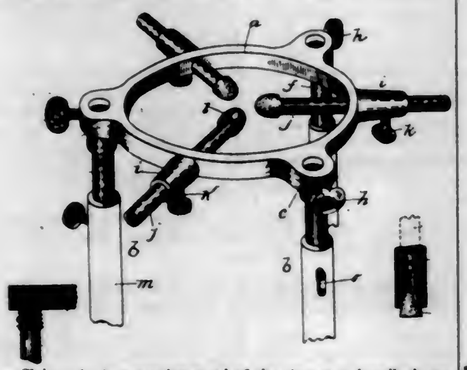
Claim.—1. In an incandescent gas-burner, a burner-pipe supported upon an elastic spring, said burner-pipe being secured to a flat disk, a disk secured to the end of the supply-pipe, and flexible material secured to and joining the edges of the two disks; substantially as described.

2. In an incandescent gas-chandelier, the combination with a gas-supply pipe, having springs secured thereto and supporting the burner-arms, of a disk secured to the end of the supply-pipe, a disk secured

to the registering end of the burner-pipe, and flexible material joining the edges of the two disks and forming a gas-tight joint; substantially as described.



577,829. PERCOLATOR-STAND. PAUL J. BROWN, Boston, Mass. Filed Apr. 22, 1896. Serial No. 588,673. (No model.)



Claim.—1. A supporting-stand of the character described, consisting of a supporting-ring having a series of tapering sockets, and a series of outwardly and radially projecting sleeves or bearings, in combination with vertical legs, each having a tapering head to fit in one of said sockets, radial supporting-arms in said bearings, and set-screws for securing said heads in said sockets and said arms in said sleeves.

2. A supporting-stand of the character described, consisting of a supporting-ring having a series of tapering sockets, and a series of outwardly and radially projecting sleeves or bearings, in combination with radial arms secured in said sleeves, and extensible legs, each having a tapering head with grooves, and set-screws adapted to enter said grooves and lock the heads in said sockets.

DESIGNS.

26,667. CHAIN. PHILIP J. DUERR, Buffalo, N. Y. Filed Jan. 15, 1897. Serial No. 619,373. Term of patent 7 years.



Claim.—The design for a chain, substantially as herein shown and described.

26,668. SPOON. GEORGE R. POHL, Washington, D. C., assignor to Robert Leding, same place. Filed Dec. 21, 1896. Serial No. 616,546. Term of patent 3½ years.



Claim.—The design for a spoon, substantially as shown and described.

26,669. CLOCK-CASE. CHARLES D. GOLDEN, Chicago, Ill. Filed Jan. 16, 1897. Serial No. 619,492. Term of patent 3½ years.



Claim.—The alto-rilievo design for a clock-case, substantially as shown and described.

26,670. CLOCK-CASE. CHARLES D. GOLDEN, Chicago, Ill. Filed Jan. 16, 1897. Serial No. 619,493. Term of patent 3½ years.



Claim.—The design for a clock-case, substantially as shown and described.

26,671. CLOCK-CASE. CHARLES D. GOLDEN, Chicago, Ill. Filed Jan. 16, 1897. Serial No. 619,494. Term of patent 3½ years.



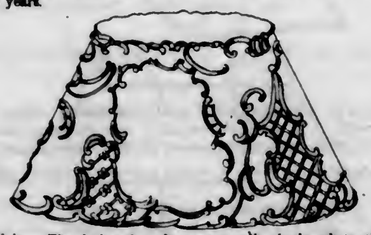
Claim.—The design for a clock-case, substantially as shown and described.

26,672. CIGAR-LIGHTER. CHARLES D. GOLDEN, Chicago, Ill. Filed Jan. 16, 1897. Serial No. 619,495. Term of patent 3½ years.



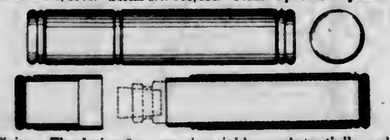
Claim.—The design for a cigar-lighter, substantially as shown and described.

26,673. SHADE FOR LAMPS, &c. MATILDA R. LITTELL, New York, N. Y. Filed Jan. 2, 1897. Serial No. 617,845. Term of patent 3½ years.



Claim.—The design for a lamp or candle shade substantially as herein shown and described.

26,674. WOODEN VIAL-BOX. WEBSTER C. ESTES, Brooklyn, N. Y. Filed Jan. 7, 1897. Serial No. 618,414. Term of patent 14 years.



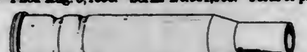
Claim.—The design for a wooden vial-box, substantially as shown and described.

26,675. TEMPORARY CARTRIDGE-CLIP. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 28, 1896. Serial No. 607,264. Term of patent 14 years.



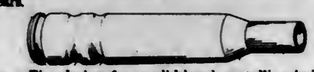
Claim.—The design for a temporary cartridge-clip, as herein shown and described.

26,676. CARTRIDGE-SHELL. JOHN GARDNER, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Aug. 3, 1896. Serial No. 601,565. Term of patent 14 years.



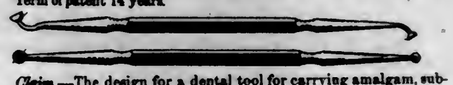
Claim.—The design for a solid-head, metallic, rim-cartridge shell as herein shown and described.

26,677. SOLID-HEAD CARTRIDGE-SHELL. JOHN GARDNER, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Aug. 3, 1896. Serial No. 601,566. Term of patent 14 years.



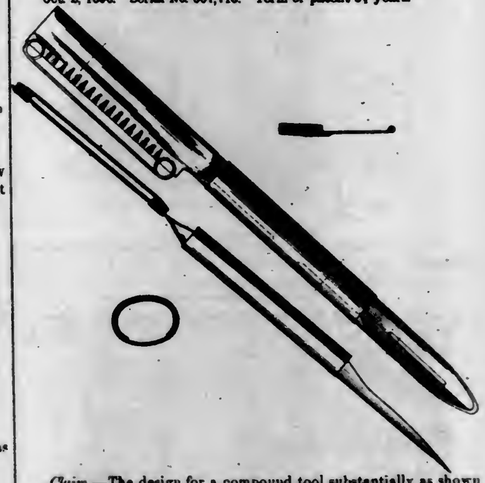
Claim.—The design for a solid-head, metallic, rimless cartridge shell, as herein shown and described.

26,678. DENTAL TOOL FOR CARRYING AMALGAM. JAMES W. IVORY, Philadelphia, Pa. Filed June 12, 1896. Serial No. 595,361. Term of patent 14 years.



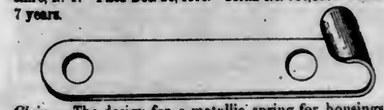
Claim.—The design for a dental tool for carrying amalgam, substantially as described and shown.

26,679. COMPOUND TOOL. OSCAR ABERER, St. Louis, Mo. Filed Oct. 2, 1896. Serial No. 607,713. Term of patent 3½ years.



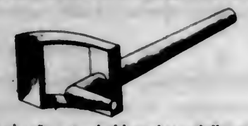
Claim.—The design for a compound tool substantially as shown and described.

26,680. METALLIC SPRING-HOOK. FRANK L. FAATZ, Lestershire, N. Y. Filed Dec. 26, 1896. Serial No. 617,100. Term of patent 7 years.



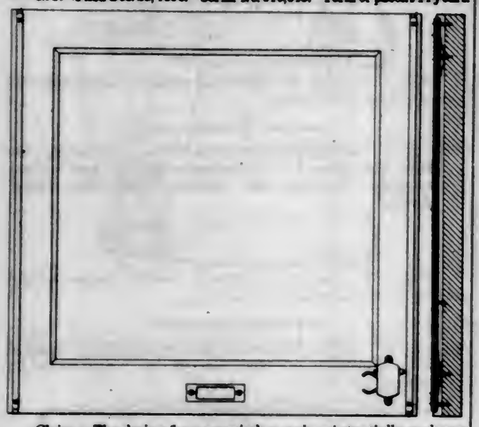
Claim.—The design for a metallic spring for housings substantially as herein described and shown.

26,681. TUG-HOLDER. HENRY HANNAH, Burlington, Kans. Filed Jan. 2, 1897. Serial No. 617,843. Term of patent 7 years.



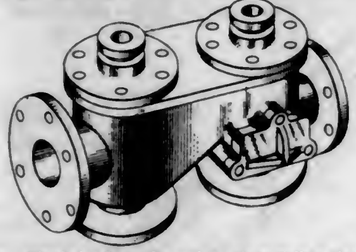
Claim.—The design for a tug-holder substantially as herein shown and described.

26,682. CAR-WINDOW SASH. SILAS S. BRADSHAW, Brooklyn, N.Y. Filed Dec. 23, 1896. Serial No. 616,813. Term of patent 14 years.



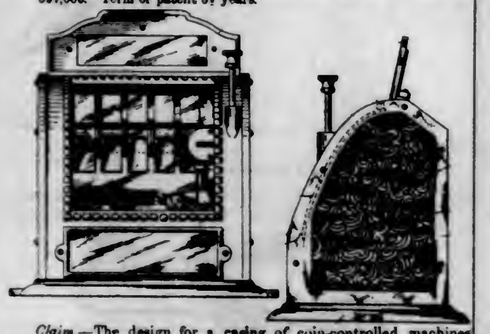
Claim.—The design for a car-window sash, substantially as shown and described.

26,683. VALVE-CASING. WILLIAM RAILTON and RICHARD CAMPBELL, Liverpool, England. Filed Feb. 12, 1896. Serial No. 579,086. Term of patent 14 years.



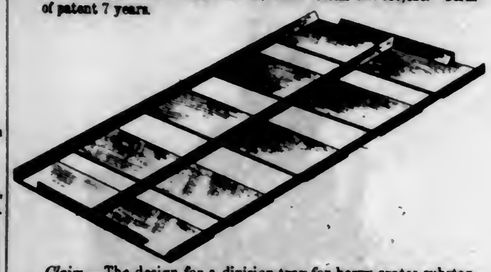
Claim.—The design for a valve-casing, substantially as shown and described.

26,684. CASE FOR COIN-CONTROLLED MACHINES. BENNY J. WERTHEIMER, San Francisco, Cal. Filed June 26, 1896. Serial No. 597,086. Term of patent 3½ years.



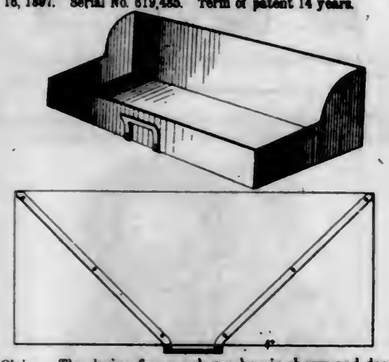
Claim.—The design for a casing of coin-controlled machines herein described and shown.

26,685. TRAY FOR BERRY-CRATES. DANIEL EDWARD SMITH, Goldsborough, N. C. Filed Jan. 13, 1897. Serial No. 619,121. Term of patent 7 years.



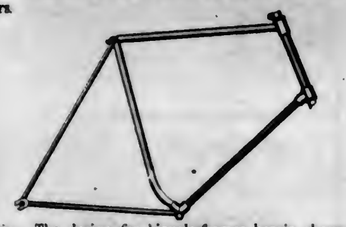
Claim.—The design for a division-tray for berry-crates substantially as herein shown and described.

26,686. ASH-PAN. MARY V. CONNER, Tuskegee, Ala. Filed Jan. 16, 1897. Serial No. 619,485. Term of patent 14 years.



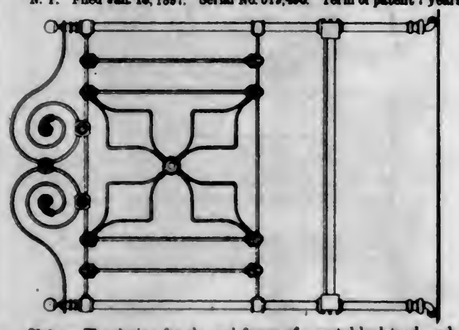
Claim.—The design for an ash-pan herein shown and described.

26,687. BICYCLE-FRAME. ROBERT M. KEATING, Springfield, Mass. Filed Oct. 24, 1895. Serial No. 566,792. Term of patent 14 years.



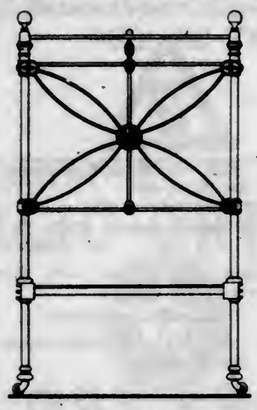
Claim.—The design for bicycle-frames herein shown and described.

26,688. END FRAME FOR METAL BEDSTEADS. DAVID FRANK, Brooklyn, N. Y., assignor of one-half to John Trounstine, New York, N. Y. Filed Jan. 16, 1897. Serial No. 619,490. Term of patent 7 years.



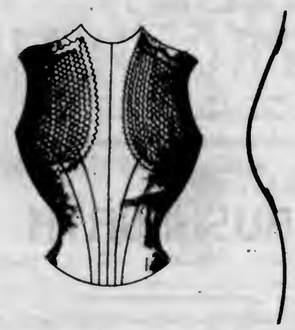
Claim.—The design for the end frame of a metal bedstead; substantially as shown and described.

26,689. END FRAME FOR METAL BEDSTEADS. DAVID FRANK, Brooklyn, N. Y., assignor of one-half to John Trounstine, New York, N. Y. Filed Jan. 16, 1897. Serial No. 619,491. Term of patent 7 years.



Claim.—The design for the end frame of a metal bedstead: substantially as shown and described.

26,690. DRESS-FORM. LOUIS E. HACHENBELLE, Peoria, Ill. Filed Apr. 20, 1896. Serial No. 588,391. Term of patent 3½ years.



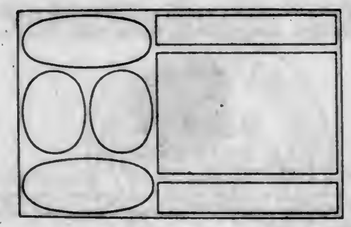
Claim.—The design for a dress-form substantially as shown.

26,691. RUBBER QUARTER-BOOT. WILLIAM B. MCDONALD, Buffalo, N. Y., assignor to John G. Wickser, same place. Filed Nov. 30 1896. Serial No. 614,011. Term of patent 14 years.



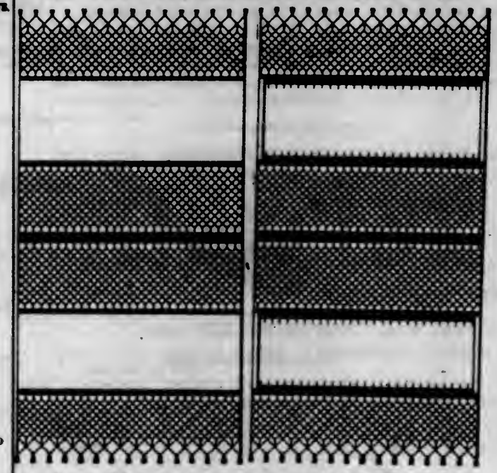
Claim.—The design for a rubber quarter-boot herein shown and described.

26,692. CARD. FREDERICK R. BROOKE, Brooklyn, N. Y. Filed Jan. 9, 1897. Serial No. 618,656. Term of patent 3½ years.



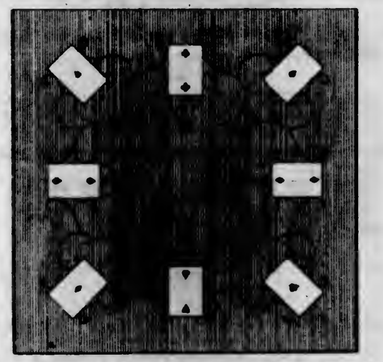
Claim.—The design for a card herein shown and described.

26,693. ADVERTISING FLY-NET. HARLOW D. GAINES, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,664. Term of patent 7 years.



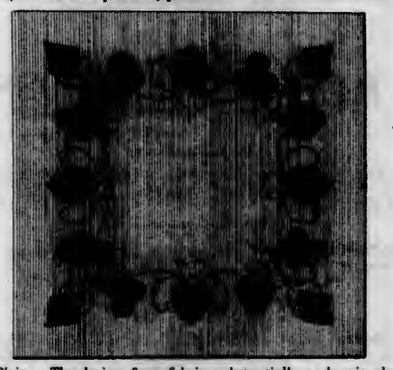
Claim.—The design for an advertising fly-net, substantially as shown and described.

26,694. FABRIC. SAMUEL ROBERT OGG, New York, N. Y., assignor to Bernhard Ulman & Co., same place. Filed Jan. 15, 1897. Serial No. 619,375. Term of patent 3½ years.



Claim.—The design for a fabric substantially as herein shown and described.

26,695. FABRIC. SAMUEL ROBERT OGG, New York, N. Y., assignor to Bernhard Ulman & Co., same place. Filed Jan. 15, 1897. Serial No. 619,376. Term of patent 3½ years.

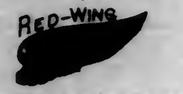


Claim.—The design for a fabric, substantially as herein shown and described.

TRADE-MARKS

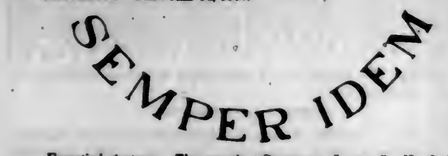
REGISTERED FEBRUARY 23, 1897.

29,575. CORSETS. HENRY W. LYON, Bridgeport, Conn. Filed Jan. 14, 1897.



Essential feature.—A representation of a wing and the words "RED WING." Used since November 1, 1896.

29,576. VELVET AND SATIN RIBBONS. VIESCHER & Co., Basle, Switzerland. Filed Jan. 18, 1897.



Essential feature.—The words "SEMPER IDEM." Used since December 10, 1896.

29,577. WOOLEN CLOTH. MIDDLESEX COMPANY, Boston, Mass. Filed Dec. 23, 1896.

Essential feature.—The word "YACHT." Used since 1872.

29,578. CASSIMERES. MIDDLESEX COMPANY, Boston, Mass. Filed Dec. 23, 1896.



Essential feature.—A representation of a portion of a railway-train embracing the locomotive and mail-car and the words and letters "MIDDLESEX" and "U. S. MAIL AGENT CLOTH." Used since 1877.

29,579. HYDRAULIC OR FIRE HOSE. EUREKA FIRE HOSE COMPANY, New York, N. Y. Filed Nov. 23, 1896.



Essential feature.—A figure of a Greek cross and the words "RED CROSS," whether used separately or in conjunction. Used since 1875.

29,580. TOILET-WATER. L. T. PIVER & CIE., Paris, France. Filed Nov. 20, 1896.



Essential feature.—The words "A LA REINE DES FLEURS, LAIT D'IRIS" and the facsimile signature "L. T. PIVER & CO." Used since January 1, 1856.

29,581. SOAP. THE PETROLIA MANUFACTURING COMPANY, New York, N. Y. Filed Dec. 29, 1896.

PETRO-OLIVE

Essential feature.—The compound word "PETRO-OLIVE." Used since December 4, 1896.

29,582. SOAP. THE PETROLIA MANUFACTURING COMPANY, New York, N. Y. Filed Dec. 29, 1896.

PETRO

Essential feature.—The word "PETRO." Used since December 4, 1896.

29,583. SOAP. THE PETROLIA MANUFACTURING COMPANY, New York, N. Y. Filed Dec. 29, 1896.

PETRO-OLEUM

Essential feature.—The compound word "PETRO-OLEUM." Used since December 4, 1896.

29,584. HAIR-CRIMPING PINS. JOSEPH BATTLES, Lawrence, Mass. Filed Jan. 28, 1897.

RUSHFORTH

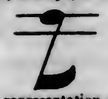
Essential feature.—The word "RUSHFORTH." Used since June 15, 1889.

29,585. NEEDLES. EXCELSIOR NEEDLE COMPANY, Torrington, Conn. Filed Jan. 12, 1897.



Essential feature.—The letter "L" between V-shaped lines. Used since 1878.

29,586. SURGICAL INSTRUMENTS AND APPLIANCES. THE KNY-SCHEERER COMPANY, Brooklyn, N. Y. Filed Jan. 14, 1897.



Essential feature.—A representation of two ledger-lines with a musical note displayed upon the upper line. Used since December 18, 1896.

29,587. CERTAIN NAMED MEDICINES AND SURGICAL INSTRUMENTS. ARTHUR R. BURNS, Tacoma, Wash. Filed Jan. 9, 1897.



Essential feature.—The word "GARDEZ" printed on a shield and partially inclosed by a laurel wreath, and a woman kneeling on one knee and one hand extended toward the shield. Used since October 1, 1896.

29,588. REMEDIES FOR PULMONARY DISEASES, INCLUDING PILLS. THE LESTER H. GREENE CO., Montpelier, Vt. Filed Oct. 12, 1896.



Essential feature.—The letter "G" inclosed in a triangle. Used since September 1, 1895.

29,589. SPICES. TILLMANN & BENDEL, San Francisco, Cal. Filed Dec. 31, 1896.



Essential feature.—A figure of a star bearing the letter "T" and inclosed by a circle. Used since November, 1895.

29,590. BAKING-POWDER. TILLMANN & BENDEL, San Francisco, Cal. Filed Dec. 31, 1896.

TROPHY

Essential feature.—The word "TROPHY." Used since May, 1893.

29,591. WHEAT-FLOUR. FREEMAN MILLING COMPANY, West Superior, Wis. Filed Mar. 28, 1896.



Essential feature.—A representation of a sheaf of wheat bearing the word "GOLDEX" above the band on the sheaf and the words "SHEAF PATENT" below the band. Used since December 20, 1895.

29,592. CERTAIN NAMED FOODS, BEVERAGES, AND CONDIMENTS. J. F. HUMPHREYS & COMPANY, Bloomington, Ill. Filed Dec. 9, 1896.



Essential feature.—A representation of a broken wishbone and the words "WISH BONE." Used since July 1, 1896.

29,593. ANIMAL FEED. FREEMAN MILLING COMPANY, West Superior, Wis. Filed Nov. 28, 1896.



Essential feature.—The words "MIXED," "NEW ENGLAND," and "FEED," occupying the central field within two concentric circles, printed in parallel horizontal lines, with the words "FREEMAN MILLING CO." and "WEST SUPERIOR, WIS." located concentrically within the circles and respectively above and below the words "NEW ENGLAND." Used since December 1, 1895.

29,594. AGED GLUTINOUS FLOUR. EDWARD A. SMITH, Philadelphia, Pa. Filed Jan. 14, 1897.

KERTINE

Essential feature.—The word "KERTINE." Used since December 8, 1896.

29,595. LAUNDRY STARCH. T. KINGSFORD & SON, Oswego, N. Y. Filed Oct. 15, 1896.

COMPLETE

Essential feature.—The word "COMPLETE." Used since October 6, 1896.

29,596. CHEWING-CANDY. AMERICAN MOLASSES CANDY CO., Philadelphia, Pa. Filed Dec. 23, 1896.

SATINETTE

Essential feature.—The word "SATINETTE." Used since April 15, 1896.

29,597. NATURAL APERIENT WATERS, THEIR SALTS, AND MEDICINAL PREPARATIONS CONTAINING SUCH SALTS. EMILY SAXLEHNER, Buda-Pesth, Austria-Hungary. Filed Aug. 12, 1896.

HUNNIA

Essential feature.—The word "HUNNIA." Used since August 11, 1896.

29,598. CLARET WINE. JOHN MICHEL VERGNOLE, New Orleans, La. Filed Jan. 20, 1897.

Domaine de la Palme

Essential feature.—The words "DOMAINE DE LA PALME." Used since January, 1885.

29,599. BEER. ACME BREWING COMPANY, Macon, Ga. Filed Jan. 20, 1897.



Essential feature.—The words "ACME BUDWEISER." Used since December, 1896.

29,600. LAGER-BEER. AUGUST H. ZIEGLER, New York, N. Y. Filed Jan. 21, 1897.

MÜNCHNER-KINDL

Essential feature.—The words "MÜNCHNER KINDL." Used since July 15, 1892.

29,601. LIQUID GLUE. EDMUND JAMES MILLS, Glasgow, Scotland. Filed Nov. 17, 1896.

FIRM FAST



Essential feature.—A representation of two hands clasped together and the words "FIRM FAST." Used since June, 1896.

29,602. PAINTS. HARRISON BROS. & CO., Philadelphia, Pa. Filed Dec. 7, 1896.



Essential feature.—A black surface containing a central cube-shaped figure of a contrasting color embodying one or more blocks of color. Used since July, 1875.

29,603. NON-HARDENING ELASTIC LUTING, CEMENT, OR PUTTY. FREDERICK OLIVER PIERCE, New York, N. Y. Filed Jan. 15, 1897.

MASTICA

Essential feature.—The word "MASTICA." Used since June 1, 1895.

29,604. RANGES, STOVES, AND HEATERS. THOMAS, ROBERTS, STEVENSON COMPANY, Philadelphia, Pa. Filed Jan. 19, 1897.

COLONIAL

Essential feature.—The word "COLONIAL." Used since November 5, 1892.

29,605. NAIL-PULLERS. MALTBY, HENLEY & CO., New York, N. Y. Filed Jan. 21, 1897.

GIANT

Essential feature.—The word "GIANT." Used since January 1, 1874.

29,606. ROLL-PAPER CUTTERS. AMERICAN ROLL PAPER COMPANY, St. Louis, Mo. Filed Jan. 7, 1897.



Essential feature.—A representation of a star. Used since May 9, 1896.

29,607. BICYCLES, VELOCIPEDES, THEIR PARTS AND ATTACHMENTS. TOURIST CYCLE COMPANY, Syracuse, N. Y. Filed Nov. 13, 1896.



Essential feature.—A representation of a parallelogram and a triangle. Used since October 1, 1895.

29,608. BICYCLES, VELOCIPEDES, THEIR PARTS AND ATTACHMENTS. TOURIST CYCLE COMPANY, Syracuse, N. Y. Filed Nov. 13, 1896.

TOURIST TOURIST

Essential feature.—The words "TOURIST TOURIST" arranged with a common "R" for both words. Used since January 1, 1891.

29,609. BICYCLES AND SIMILAR VEHICLES. HOMER J. YOUNG, Toledo, Ohio. Filed Nov. 12, 1896.



Essential feature.—The word "YALE" upon a triangular flag imposed upon an annular band. Used since July 1, 1895.

29,610. DISINFECTANTS. HANCE BROS. & WHITE, Philadelphia, Pa. Filed Dec. 3, 1896.

PHENOLINE

Essential feature.—The word "PHENOLINE." Used since August, 1878.

29,611. PAINTS. JAMES R. PATTON COMPANY, Milwaukee, Wis. Filed Jan. 22, 1897.



Essential feature.—The compound word "SUN-PROOF" and a conventionalized pictorial representation of the sun. Used since December 20, 1896.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of New York.

NATIONAL FOLDING BOX AND PAPER COMPANY *v.* STECHER LITHOGRAPHIC COMPANY *et al.*

Decided December 16, 1896.

1. MUNSON—PAPER-BOX MANUFACTURE—VOID.
   Letters Patent No. 259,416, granted June 13, 1882, to Edward B. and Harvey S. Munson, for the manufacture of boxes from paper, cardboard, etc., examined and *Held* void for want of invention and of novelty.
2. INVENTION—WANT OF.
   It does not involve invention to provide channels or grooves in the counter-die of a press to coöperate with the embossing-rules of the die for creasing the fold-line of a paper-box blank.
3. SAME—MERE IMPROVED RESULT NOT PATENTABLE.
   Though the patentees may have produced a more perfect counter-die than their predecessors, if they have added no novel mechanism and no new principle of operation they have produced no new product of a creative mental conception.

FINAL hearing in equity.

Messrs. Philipp, Munson & Phelps for the complainant.

Messrs. Church & Church for the defendants.

COXE, *J.*:

The defendants are charged with infringing Letters Patent No. 259,416, granted to Edward B. and Harvey S. Munson June 13, 1882, for improvements in the manufacture of paper boxes. The patent is now owned by the complainant.

The apparatus described has for its object the cutting out of blanks for paper boxes and defining the lines of their ultimate foldings. This is accomplished by a die and counter-die, the former having cutting and embossing rules and the latter having channels corresponding to the embossing-rules, so that when the two dies are brought together the box-blank is cut out by the cutting-rules and the line of fold is indicated by creases formed by the embossing-rules, which emboss and upset the paper by pressing it into the channels of the counter-die, so that the box may be folded up without rupturing or disfiguring its outer or face surface.

Whatever of novelty there is in this apparatus must be found in the counter-die. That the die containing the sharp cutting and blunt embossing rules was old in each and all of its features is proved beyond question and is conceded by the complainant.

The counter-die is preferably made up on a metal plate having secured to its face a packing-sheet of paper in which are formed the channels which register with blunt embossing-rules. These channels are formed either by cutting them out or by indenting them by repeated contact with the die. No preference is given to either method. In short, the object being to crease a box-blank so that it will fold easily, the patentees provide two dies, one having embossing-rules to mark the line of fold and the other having grooves corresponding with the rules.

The defenses are lack of novelty and invention and that the apparatus used by the defendants since 1894 does not infringe. The controversy is practically narrowed to a single proposition, viz: Did it involve invention to provide channels or grooves in the counter-die of a press to coöperate with the embossing-rules of the die for creasing the fold-line of a paper-box blank?

The record and briefs aggregate eleven hundred and sixty-two printed pages. To one unfamiliar with the needless fecundity of patent litigation it would probably be matter of amazement that so much can be said upon a question so simple.

The art of making paper boxes is very old. Long before the date of the alleged invention box-blanks had been made with creases along the line of ultimate fold. This crease was made by a die and counter-die coacting in a press, the box-blank being pressed by the scoring-rules upon the semisoft material of the platen, thus forming a folding-crease concave on one side and convex on the other. The art of embossing on paper was also old and was well known in the manufacture of paper bags, boxes, and collars and other similar articles. Indeed, the proof shows that marketable box-blanks had been made in large quantities where grooves had been formed in the packing of the counter-die by repeated impressions of the creasing-rules, the line of fold being indicated by pressing the box material into these grooves by blunt embossing-rules. The advance made by the patentees from their point of view is clearly stated by the learned counsel for the complainant as follows:

> The new mode of operation of the patent is, defining the lines of its ultimate foldings by so acting upon the material along such lines by means of embossing or creasing rules and coacting recesses or channels, whereby the fibers of the material along such lines are stretched or moved relatively to each other so as to form elastic and flexible folding-lines, which permits the box-blank to fold readily along such lines, by the fibers taking on new dispositions relatively to each other, without undue strain, and without the material of the blank being ruptured or unduly weakened or disfigured; instead of crushing or breaking down the fibers of the material so as to form weakened lines to fold it upon.

In other words, as before stated, the question of invention is limited to the grooves upon the coun-

ter-die. All else was old. It is understood that this was conceded at the argument. At any rate there can be no doubt that it is proved beyond dispute. If, then, grooves were used in the prior art producing fold-lines substantially like those of the patent, the patent cannot be sustained.

Speaking generally, the court is of the opinion that the patentees have added nothing to the art involving invention. Their machine acts upon the old principle. Their die and counter-die are constructed in the old manner, and if their blanks differ at all from those of the prior art it is only in degree. Whatever changes they have made are due to the natural evolution of the art. Whatever improvements they have introduced are those which would occur to the intelligent artisan after witnessing the shortcomings and defects of the prior mechanisms.

The theory that they were the first to introduce the art of embossing to indicate the fold-line of paper articles and that its introduction was so magical that a revolution in box-making was the immediate result, though ably and ingeniously presented, cannot be maintained. It is founded upon a mistake of fact and is supported by a mass of theoretical and technical learning which it is safe to say did not enter the heads of the patentees at the time of their experiments. In short, liability is reached by a process of contraction upon the question of invention and of expansion upon the question of infringement which is not warranted by the proof.

> The platen (says the Munson specification) is furnished with a counter-die, Fig. 4, composed of a packing-sheet, 12, of paper or similar firm material that is fixed upon the face of the platen in such relation to the embossing-rules of the die as will provide recesses 5 for the same to register with.

It will be noted that this packing-sheet may be paper or any other similar firm material. It is to be fixed to the face of the platen; but how it is to be fixed is not pointed out. This was evidently supposed by the patentees to be quite immaterial—a matter that could be safely left to the judgment of the operator. It would seem that when directed to fix paper to a flat surface the use of glue might naturally occur to him. If the patentees had been familiar with the marvelous result produced by a combination of glue and blotting-paper which has been developed since the commencement of this action, it is probable that they would have described the result and claimed the glue. They have done neither.

Again, the specification says:

> It is preferable that the whole surface of the platen shall be covered by the packing-sheet 12, in which the recesses 5 are formed, either by cutting out a suitable channel or indenting it by repeated contact with the die, so that while said recesses perform their functions the cutting-rules will also pass through the packing 12 and have direct contact with the platen.

These quotations are all that the specification contains on the subject of a counter-die.

The formation of the channels is made either by cutting out or by indenting. If the patentees prefer one method to the other, they do not say so. They evidently regard them as equivalent methods.

It is not necessary to discuss what would be the result were the claims confined to cut-out channels, as the defendants do not use them.

It is obvious, therefore, that a counter-die provided with channels indented by repeated contact with the scoring-rules would infringe, no matter what kind of paper is used and no matter how the paper is attached to the platen. Such a counter-die found in the prior art would of course anticipate. If there is anything in the patent limiting the claims to any particular variety of packing or fastening, the court has not been able to discover it. A packing-sheet of bass-wood veneer fixed to the platen by rubber bands would be as much within the claims as blotting-paper fastened with glue.

The Shelton patent of October, 1876, has for one of its objects the creasing of box-blanks on the fold-line, precisely like the patent in suit.

The Shelton specification says:

> The platen is provided with a semisoft or compressible material, so that the rules may sink slightly into such material. * * * The character of the depressions or grooves formed by this operation in the Manila paper is illustrated in Fig. 3, in which *a* shows the grooves on the printed or outer side of the blank, and *b* the corresponding ridges on that side, which become the inner side of the completed box.

In the application filed May 20, 1875, Shelton uses the following language:

> The platen is composed of a semisoft compressible material, so that the rules will indent or press into such material.

The Munson patent says the grooves may be formed by indenting the packing-sheet with the rules.

A casual inspection of the Shelton grooves as illustrated by the drawings demonstrates the fact that they could not have been produced by crushing the paper against a rigid surface, the embossing or stretching of the material being due to the sinking of the creasing-rules into the soft material of the packing.

An attempt is made to avoid this evidence by limiting the soft compressible material to a number of sheets of thin Manila or white paper; but this will not do. It is perfectly plain that a box-maker had an undoubted right to use a blotting-paper or anything else for the compressible material of the Shelton patent and fasten it on in any way he saw fit. No one will pretend that the substitution of blotting-paper for Manila paper in the Shelton apparatus would constitute invention, and yet this is practically all the change, assuming it to be a change, that the defendants have made. They are nearer to Shelton than Munson. If they infringe, Shelton anticipates.

But assuming that the Shelton patent is not an anticipation, it certainly shows a person skilled in the art how to proceed. The differences between it and the Munson patent are the differences between 1876 and 1878. They are the improvements which would naturally be suggested by two years' use of the machine.

It is true that Shelton's description of the grooves is not so full and minute as Munson's; but Shelton illustrates a machine that cannot operate for any considerable length of time without producing channels of the same character, substantially, as those produced by the indenting method of the Munson patent.

That Shelton fully understood what kind of a fold-line was needed and that he intended to accomplish and supposed he had accomplished exactly what is now claimed for the Munson patent is demonstrated by the letter of May 20, 1875, to the Examiner. The attorney says, speaking of railroad-tickets, which had been cited by the Examiner:

> In that case, the depression of one side is greater than the projection on the other, and the paper is, to a certain degree, broken or partially separated, so as to make the complete separation easy, whereas, in this invention, the paper is not broken, it is equally as thick at the angles or depression as at other points: the usual sharp line or cut, as made in railroad-tickets, would be fatal in the making of paper boxes.

This was five years before the Munson application, and no language in the record more clearly describes the alleged improvement of the Munson patent than this description of the improvement of the Shelton patent. Indeed, were there nothing in the prior art but the Shelton patent it is difficult to see how the patent in suit can be construed so as to hold the defendants.

But there is much else in the prior art. Embossing by the use of a male and female die was well known, and the score thus produced was used as the fold-line of many paper articles, notably paper collars, which belong to an analogous art. For instance, the Snow patent of 1872 says:

> L L are plates having one edge curved, and also having a curved groove, o, formed in the face thereof, which, working with the male die c, embosses a curved line upon the collar to determine the fold.

It also seems to be established that structures very similar to that of the patent were used by various box-manufacturers. Cutting and creasing rules operating upon a counter-die having a packing of soft yielding paper were used to indicate the fold-line. The criticism of most of the prior structures is that the crease was made by a "crushing action," which tore and injured the paper, and not by the upsetting or stretching action of the dies of the patent. It is thought that this criticism is based largely upon theory unsupported by facts.

There is no doubt that prior to the patent box-makers knew how to crease on the fold-line. They knew that if they cut the paper on this line it would be apt to break in folding. They knew how to emboss, and they made immense numbers of merchantable boxes by methods which operated upon the same principle as the patented method. Why then should the Munson method stretch and all others crush the paper? Why should a blunt creasing-rule coöperating with a soft compressible paper packing produce one result in 1876 and another in 1878? Why should it crush one year and stretch the next? Why should it produce a deplorable failure when known as the "Shelton" method and a superlative success when bearing the name of "Munson?"

Unquestionably many of the prior structures were crude affairs. That some of them tore the paper at times cannot be denied; but the court cannot accept the theory that the patentees were the first to introduce the art of embossing in the business of making paper-box blanks. They may have produced a more perfect counter-die than their predecessors; but they added no novel mechanism and no new principle of operation. They have produced no new result.

To adopt the language of the recent case of *American Road Machine Co.* v. *Pennock & Sharp Co.*, (77 O. G., 633,) it would seem that the change made by the patentees—

> was not the product of a creative mental conception, but merely the result of the exercise "of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the faculty of manipulation which results from its habitual and intelligent practice."

The bill is dismissed.

U. S. Circuit Court—Northern District of New York.

NEW YORK FILTER MANUFACTURING COMPANY *v.* NIAGARA FALLS WATER WORKS COMPANY.

Decided December 29, 1896.

1. HYATT—PURIFYING WATER—INFRINGEMENT—VALIDITY.
   Letters Patent No. 293,740, granted February 19, 1884, to Isaiah S. Hyatt, for a method of purifying water, examined and *Held* presumably valid and infringed.
2. PROCESS—EQUIVALENT—INFRINGEMENT.
   So long as the purifying agent is introduced simultaneously with the passage of the water to the filter and produces the same result in the filter-bed infringement may occur whether or not it is introduced directly into the filter.
3. PRESUMPTION AFTER LITIGATION.
   When after arduous litigation the equities and presumptions are all with the complainant, if either party should suffer during final decree it should be the defendant.

MOTION for a preliminary injunction.

Mr. M. H. Phelps and *Mr. John R. Bennett* for the complainant.

Mr. J. E. Hindon Hyde and *Mr. Frederic H. Betts* for the defendant.

COXE, *J.:*

The complainant moves for a preliminary injunction restraining the defendant from infringing Letters Patent No. 293,740, granted to Isaiah S. Hyatt February 19, 1884, for an improved method of filtration.

The patent has been sustained, after years of litigation, by the circuit court and by the Circuit Court of Appeals. (*N. Y. Filter Co.* v. *Schwarzwalder*, 68 O. G., 1276; 61 Fed. Rep., 840; affirmed, 72 O. G., 1043; 66 *Id.*, 152.) A motion for leave to amend and introduce new proof was denied. (62 *Id.*, 582.)

That Hyatt made a valuable invention is established conclusively by these decrees. Debate on that question is closed.

The defendant finds the principal justification for its acts in the concluding sentences of the opinion of the Circuit Court of Appeals, as follows:

> In some of the plants of the corporation defendant settling-tanks are used between the introduction of the coagulant and the filter-bed. In those plants the method of the patent is not appropriated and there is no infringement.

It is argued that this language exempts from the claim of the patent all processes which employ settling-tanks, irrespective of their size, shape, capacity, or the amount of sedimentation. A person may therefore use the Hyatt method with impunity if somewhere between the introduction of the coagulant and the entrance of the water into the filter he places a receptacle larger than the inlet-pipe through which the water must pass. It is thought that this is not a correct exegesis of the judgment of the court. It is contrary to the spirit of the opinion. It is at variance with the state-

ment of the invention as previously expounded, and it has no basis of proof on which to rest.

It is stated in the moving affidavits and not denied that the sole question of infringement involved in the Schwarzwalder case related to one particular plant erected by the Jewell Company where tanks were not used, and that there was no word of description in that record showing the construction, arrangement, operation, or function of the settling-tanks at Columbia and Louisville. When, therefore, the court used the language quoted, the conclusion is irresistible that the settling-tanks alluded to were the tanks of the prior art, the tanks about which the witnesses had been testifying, the tanks in which the water is permitted to remain at rest and in which sedimentation actually takes place.

Settling-tanks of the Spence type, in which the impurities actually settled, were the only ones described by the proof. When court or counsel used the expression "settling-tanks," explanation was unnecessary. It was understood by all familiar with the art.

The virtue of the Hyatt process, stated in a word, is that it is continuous. The vice of the prior processes was that they were intermittent.

In the old tanks the water, mingled with the coagulant, was permitted to remain in a state of rest for hours and days until the impurities settled to the bottom.

The court drew a sharp distinction between these two processes, pointed out the advantages of the former, and concluded by saying that one who used the latter to do an appreciable part of the work did not infringe. Manifestly he did not. Hyatt's process is inconsistent with the use of settling-basins. It is designed to obviate their use. He expressly says so in the description and the claim.

It is obvious (says the description) that by the use of the uninterrupted process hereinbefore described I entirely dispense with the employment of settling basins or reservoirs as now commonly employed.

This is precisely what the court says in different language. Hyatt might have added the quotation from the opinion to his description and it would not have limited in the least the scope of his patent. He might have said:

In some plants settling-tanks are used between the introduction of the coagulant and the filter-bed. I do not claim to cover these.

Every one would have understood that he referred to settling-tanks "as now commonly employed," and not to tanks where the water flows at nearly the same velocity as at other parts of the system—tanks which do not interrupt the process of filtration for a moment and do not permit the impurities to settle at the bottom. So, it is thought, must the court be understood. The language of the opinion was simply declaratory of the language of the specification as explained by the prior art. There is nothing to warrant the conclusion that the court intended to lay down a new proposition, or to declare that the mere location of a large receptacle on the line of flow made such receptacle a settling-tank. The simple question where tanks are employed is, are they settling-tanks? If so, the claim is avoided; if not, it is immaterial how many tanks are used. So far as this question is concerned a party might conduct the water through a labyrinth of tanks, basins, and large pipes and yet be within the claim if the water left the last tank in the same condition as to turbidity as it entered the first. In short, it is thought that the quoted language does not change the scope of the invention as previously defined. The question here is to be determined precisely as if the language had been omitted. To give the opinion the literal and unyielding construction for which the defendant contends places the court in the untenable position of presenting with one hand to the inventor a decree certifying that he exclusively is entitled to the fruits of a valuable invention and with the other hand delivering to the infringer a simple but infallible receipt for avoiding the patent.

Does the defendant infringe?

The point is made that infringement is avoided because the defendant introduces the alum into the intake-main and not directly into the filter. The court is of the opinion that so long as the alum is introduced simultaneously with the passage of the water to the filter and produces the same result in the filter-bed the precise locality of its introduction is immaterial. The principal controversy, however, arises over the function performed by the defendant's tanks, so that the issue may be narrowed to the single question, Does the defendant use settling-tanks? That it uses tanks is conceded; but are they settling-tanks? Does it use tanks "commonly employed" as settling-tanks at the date of the invention? Does it use tanks in which sedimentation takes place to any appreciable extent—tanks in which the work of purifying is carried on so as to relieve the filter-beds in any practical degree? In short, can it be said that the pure water produced by the Niagara plant is the joint product of the tanks and the filter? If such water be produced by a process of sedimentation in the tanks and a subsequent process of filtration, the Hyatt claim is not infringed. If, on the other hand, the purity of the water is due to the filter, precisely as if the intake-pipe communicated directly with the filter, the claim is infringed. Running the water through the enlarged main does not avoid infringement, and this is so even though the water in its passage deposits a small and wholly inconsequential amount of sediment.

The foregoing is, it is thought, a fair statement of the issue as it relates to infringement.

The capacity of the defendant's tanks is said to be twenty-eight thousand gallons. The daily output of the plant is about three million five hundred thousand gallons, or about two thousand five hundred gallons per minute. This immense volume of water passes through the tanks daily and remains therein only about thirteen minutes. It is always moving. It is never at rest. Not only does it move longitudinally, but in almost every other direction as well. The water enters near the bottom of the tank at one end. It then flows over a baffle, through an archway, over another baffle, and is finally

pumped up through a large suction-pipe in the last compartment. That all this produces eddies, currents, cross-currents, vertical currents, and general turmoil in the tank is undisputed. In short, the passage of the water through the tanks resembles in a less degree its flow through the turbulent and rock-troubled channel from which it is originally taken.

The tanks are washed not more than once a week. At the time of Professor Main's visit, October 28, 1896, he says:

I could not find that any one about the establishment knew when either of the tanks had been cleaned out. It might have been weeks or months for all the information I could obtain.

The filters, on the contrary, are washed twice every day.

If the proof stopped with these general facts, it would seem to the ordinary lay mind that these tanks, which hold but fourteen thousand three hundred and eighty gallons each and through which over three and a half million gallons flow each day in a confused and eddying mass, can hardly be the settling-basins of the prior art. But this opinion is concurred in by two men who stand at the head of their profession and upon whose judgment in such matters the court has a right to rely with confidence. Dr. Chandler says, in speaking of the defendant's tank:

It is evident, therefore, that this is not a settling-basin, or settling-tank in fact, and I am satisfied from my knowledge of the subject that it is impossible for a basin constructed as this one is constructed, and of the dimensions of this basin, taken in connection with the flow of water, to act as a settling-basin. In the first place, it is far too small for a filtering plant of the capacity of this one, even if the two basins were used alternately and the flow of water were stopped for a time in each basin successively; and, further, it is constructed in such a manner as to make it practically impossible for any sediment to accumulate in it, as it is used at Niagara.

President Morton, after examining the drawings of defendant's plant and Professor Main's description, says:

I am able to say with certainty that such a plant fully embodies the invention assigned to Hyatt by the above-quoted opinion of the court, and that the so-called "settling-basins" represented as connected therewith are in no sense settling-basins such as are referred to in the opinion of the court, and do not in any way modify the process of continuous filtration as defined in said opinion. In these so-called "settling-basins," the water is never in a state of rest, but, on the contrary, is in a rapid condition of motion, and not only so, but by special arrangement of cross walls or partitions, scouring-currents are established in the water as it moves through, well adapted to prevent sedimentation or settling of any solid matter which might exist in the water.

Persuasive as is this testimony, infringement does not rest upon opinion, but upon facts. The plant has been twice examined to determine this question—on October 28 by the complainant's experts and on December 7 by the defendant's experts: The examination on October 28 is the more important, first, because the tests were simpler and more determinative; second, because it was made in the presence of the defendant's expert, and, third, because if infringement is established on the 28th of October it is no answer to say that there was no infringement on the 7th of December, when the conditions were wholly different both as to the turbidity of the water and the amount of alum used. If the Hyatt process were used on October 28, it must have been used for a number of days prior and subsequent thereto. This is sufficient to establish infringement.

It should be remembered that at the time of complainant's examination no one knew when the tanks had been last washed out. An immense volume of water had therefore passed through them. The court will take judicial notice of the fact that in such circumstances impure water will deposit some sediment. The examination of Professor Main and Mr. Kendrick demonstrates conclusively that the defendant does not use settling-tanks. Substantially the entire surface of the basin was perfectly clean. In one of the compartments were two small patches of mud half an inch deep where it lay thickest. The entire amount of mud in the whole basin was estimated at less than half a bucketful. The water when examined near the bottom with an electric light showed no evidence of turbidity due to sedimentation. When the tank was drained, the last water that ran out was clear.

An examination of the samples of water taken before its entrance to the tanks and after it had passed through them showed practically no difference in turbidity. In short, the facts found were absolutely incompatible with the theory of settling-tanks, considering the size of the tanks, the volume of water, and the small quantity of alum used.

But this was not all. An examination of the filters showed that substantially the entire work of clarifying and purifying the water was done in the filter-bed, precisely as in the Hyatt process. If there had been any substantial sedimentation in the tanks, the result would have been registered in the filter-bed.

Assuming Professor Main's observations to be correct, the court has no doubt that the defendant is practicing a continuous process of filtration by the use of small quantities of coagulant—too small to produce substantial sedimentation in settling-basins—the impurities being removed by passing the water through a filter-bed of sand—in other words, the Hyatt process. The correctness of these observations is hardly disputed so far as their principal features are concerned.

The chief criticism of Professor Main's method is that he used the suction-pump to drain the tank; but as over two feet of water remained when the pump stopped operating, and as this was the water examined and found to be clear, it is thought that there is little force in the criticism. Again, it is said that the statement that the tank was perfectly clean is discredited by the fact that on coming up from the tank the experimenters washed their hands. This certainly proves that they washed their hands, but it proves little else.

The facts found by Professor Main and Mr. Kendrick are hardly disputed at all. The contradictions are in the most general and guarded terms. One of the witnesses saw mud and slime in the channel in the middle of the tank. How much he does not say, except that it was a "thin layer." Another speaks of "a substantial deposit of slime and mud." Another says that there were "many times 'two quarts' or 'a half bucketful' of mud" in the tank, and testifies further:

I have examined these settling-basins on other occasions and

have invariably found a substantial deposit of mud and slime; the amount always being in proportion to the turbidity of the water since the last cleansing of the settling-tanks.

Two other witnesses testify to having seen, when the tanks were being cleaned, "a noticeable deposit of sediment and mud," and a third has seen "thick mud and slime deposited in the settling-tanks." This is uncertain and vague and wholly inadequate to disprove the positive assertions of the complainant's witnesses. The statement that a muddy stream will deposit more mud than a clear one is thought to be in exact accordance with the truth and accounts for some of the different results found on December 7.

For the reasons heretofore stated it is unnecessary to discuss the examination on the 7th of December, when no one representing the complainant was present. The difference in the quantity of mud may well be accounted for by the increased turbidity of the water and the length of time the tank had been in use without cleaning. The experiments of the 7th, though interesting, do not seem to the court to destroy the verity of the conclusions reached by the complainant's experts. The court is therefore of the opinion that infringement has been established.

The motion is also opposed upon the ground that new evidence has been adduced tending to show anticipation. Several of the affidavits relate to alleged prior use by Benjamin T. Loomis and Livingston H. Gardner at Baltimore and New Orleans, respectively. Substantially the same facts were presented to the court on a motion to open the Schwarzwalder decree. (62 Fed. Rep., 582.)

Gardner's contribution to the art was summarily dismissed with the following observation:

The New Orleans affidavits are, in my opinion, unimportant. The information which they contain is unsubstantial in its character.

As to the Loomis defense, it is true that the motion was denied because the defendants had been guilty of negligence in not presenting it sooner; but it is thought that had the learned judge who decided the cause at circuit been impressed with the idea that Loomis's testimony would have invalidated the patent so careful a jurist would have found some way to have the evidence brought before him.

The affidavit of Mr. Loomis is largely devoted to excuses for not using the invention after it was made and for not having it patented. Neither excuse seems entirely satisfactory. He sold many filters in Baltimore, but did not attach his alum-feeding device, because—

the water was so pure and free from disease germs as to require no special care in filtration.

This would seem a plausible reason for selling no filters at all; but, as the citizens evidently thought their pure water needed filtering, it would seem that Baltimore was an ideal market for an improved filter. After December, 1882, (he does not say how long after,) he had an order for a filter to be used at a place a distance from Baltimore, to which he attached the alum-feeding device; but he omits to state where the place was or who gave the order. He had obtained a patent for a filter in September, 1880; but he did not patent his invention of 1882, because he thought it covered only the particular form of apparatus, and this he did not consider worth patenting.

It seems incredible that if Loomis had actually discovered the Hyatt process his achievement should have reached a termination so lamentable.

The single filter made by Peterson was, on his own showing, a failure. There is no evidence that it is in existence, and the description is too indefinite and uncertain to be considered.

The other anticipatory evidence has been examined; but it is thought that nothing material has been added to the record in the Schwarzwalder case. It may be said generally of all this proof that it is shadowy and uncertain and fails to meet the rule so often reiterated by the courts that prior use must be established beyond a reasonable doubt.

This motion was submitted after unusually able oral arguments, but without briefs or any assistance from complainant's experts so far as this branch of the controversy is concerned. As the affidavits relating to prior use were first presented at the argument, this was inevitable. The court has examined this testimony with all the care possible in the circumstances and entertains the hope that nothing important has been overlooked. Although some parts of the testimony have not been discussed, all have been considered.

The complainant has established its patent after years of fierce and expensive litigation. The patent has but four years more of life. If relief be withheld now, the complainant is practically remediless. Its business will be destroyed long before the second weary journey through the courts is terminated.

The equities are with the complainant. So are all the presumptions. If either party must suffer pending the final decree, it should be the defendant and not the complainant.

The motion is granted.

NOTE.—If the injunction be issued immediately, it may cause great inconvenience to the citizens of Niagara Falls and endanger their health as well. If the appeal be speedily prosecuted, it would seem that a decision may be reached within a few months. In the meantime it is suggested that the parties agree upon a *modus vivendi* which will preserve the rights of all.

Court of Appeals of the District of Columbia.

ROSEBRUGH *v.* HOLMAN.

Decided December 17, 1896.

ROSEBRUGH—FAILURE TO FILE APPEAL—APPEAL DISMISSED—COSTS.

When it appears that an appellant has failed to have his cause filed and docketed, his appeal may, on motion, be docketed and dismissed, with costs.

APPEAL from the Commissioner of Patents.

MULTIPLEX TELEPHONY.

Messrs. Foster & Freeman for the appellant.
Mr. Reuben L. Roberts for the appellee.

ALVEY, *J.*:

On motion of Mr. Fred E. Tasker, of counsel for the appellee in the above-entitled cause, and he having produced a certificate from the Commissioner of Patents showing that an appeal to this court had been taken, and it appearing to the court that the said appellant has failed to have his cause filed and docketed, therefore it is now here ordered and adjudged by this court that this appeal be, and the same is hereby, docketed and dismissed, with costs, pursuant to the fourteenth rule of this court.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Close of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

Withdrawal of Applications from Issue Files.

After the notice of allowance of an application is given, the case will not be withdrawn from issue on account of any mistake or change of purpose of the applicant or of his attorney, nor for the purpose of enabling the inventor to procure a foreign patent, nor in any other case, without the approval of the Commissioner.

Belgian Patents.

In reply to an inquiry from this Office notice has been received, through the Minister of the United States at Brussels, from the Belgian patent authorities, that it is not deemed advisable to publish their patents *in extenso*, and that no fuller description than that contained in the short abstract of the *Recueil Officiel* will be given. Complete copies may be obtained from the Belgian Patent Office on payment of the expense of reproduction.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1888, to October 1, 1892. One volume, 18 pages. Paper covers, 25 cents.

Appendix No. 2, October 1, 1892, to March 1, 1895. One volume, 26 pages. Paper covers, 25 cents.

Preparation of Specifications and Amendments for the Printer.

The Examiners are directed before passing applications to issue to carefully examine all the papers and see that they are in such shape and condition as to avoid all possibility of error being made by the printers. Whenever interlineations or erasures have been made in the specifications or amendments which would lead to confusion and mistake, the Examiners should require the entire specification to be rewritten before passing the case to issue.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

INDEX TO FRENCH PATENTS, 1791 to 1870, inclusive, (subject-matter,) one volume, 945 pages, bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1849 to May 1, 1882, (subject-matter,) one volume, 120 pages—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Issue of March 2, 1897.

Patents	477—No. 577,830 to No. 578,306, inclusive.
Designs	26—No. 26,096 to No. 26,721, inclusive.
Trade-Marks	35—No. 29,612 to No. 29,646, inclusive.
Prints	None.
Labels	None.
Reissues	3—No. 11,590 to No. 11,592.
Total issue	541

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama			New Hampshire		1
Arizona Territory	1		New Jersey	26	
Arkansas	2		New Mexico Territory		
California	11	1	New York	84	8
Colorado	4		North Carolina	2	
Connecticut	32	1	North Dakota	1	
Delaware			Ohio	29	1
District of Columbia	4		Oklahoma Territory	1	
Florida			Oregon	3	1
Georgia		1	Pennsylvania	44	2
Idaho			Rhode Island	10	
Illinois	37		South Carolina		
Indian Territory			South Dakota	2	
Indiana	13		Tennessee	4	
Iowa	6		Texas	7	
Kansas	4		Utah	1	
Kentucky	5		Vermont	1	
Louisiana	4		Virginia	1	
Maine	7		Washington	1	
Maryland	4	1	West Virginia	5	
Massachusetts	40	9	Wisconsin	7	1
Michigan	18	1	Wyoming		
Minnesota	7		U. S. Army		
Mississippi	5		U. S. Navy		
Missouri	18	1			
Montana	3		Total to citizens of the United States	455	29
Nebraska	1				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		1
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Barbadoes			New South Wales		
Belgium	1		New Zealand		
Bermuda			Norway		
Brazil			Orange Free State		
Canada	5	1	Portugal		
Canary Islands			Queensland		
Cape Colony			Russia	1	
Ceylon			Scotland	2	
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China			South Australia		
Cuba			Straits Settlements		
Denmark			Sweden	1	
England	17	2	Switzerland	1	
France	4	1	Victoria	1	
Germany	13		West Australia		
Guatemala					
India		1			
Ireland			Total to citizens of foreign countries	48	6
Italy	1				

APPLICATIONS UNDER EXAMINATION.

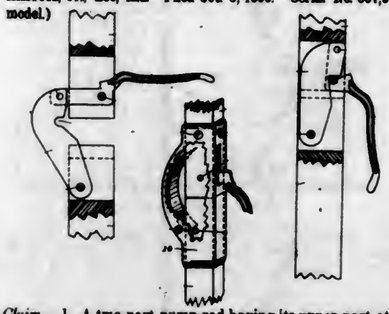
Condition at Close of Business February 23, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
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256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 18	Feb. 1	215
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 16	Feb. 1	140
215	XVII. Paper Manufactures and Printing.	Jan. 16	Jan. 27	142
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 21	Jan. 25	335
200	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 20	Jan. 25	227
93	XXI. Textiles, etc.	Jan. 20	Jan. 22	190
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Jan. 11	Jan. 22	349
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 14	Jan. 20	184
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Jan. 19	Jan. 19	352
246	I. Tillage and Fences	Jan. 18	Jan. 19	178
243	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Jan. 18	Jan. 18	210
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 18	Jan. 18	220
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Jan. 9	Jan. 16	333
158	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Jan. 11	Jan. 12	329
85	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 18	Jan. 7	342
240	VII. Harvesters, Games and Toys, and Velocipedes.	Jan. 2	Jan. 4	1241
102	XIX. Stoves and Furnaces	Jan. 4	Dec. 29	453
248	XVIII. Steam-Engineering, etc	Dec. 26	Dec. 25	231
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 26	Dec. 23	273
	Between two and three months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Dec. 16	Jan. 2	574
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 21	Dec. 26	640
	Total number of applications awaiting action			10,209
	Under one month in arrears.			
	Designs	Jan. 28	Feb. 12	191
	Trade-Marks	Feb. 5	Feb. 13	80

PATENTS

GRANTED MARCH 2, 1897.

577,830. COUPLING FOR PUMP-RODS. JOHN ARBUTUS and JOHN ARBUTUS, Jr., Leo, Ind. Filed Oct. 5, 1896. Serial No. 607,978. (No model.)



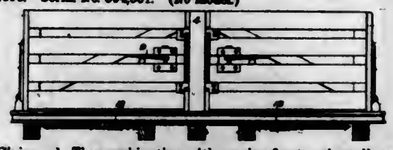
Claim.—1. A two-part pump-rod having its upper part attached to any suitable motor-power and its meeting ends vertically slotted for the operating parts in combination with a pump-handle pivotally fulcrumed in the upper pump-rod section, and having its inner end extended for the purpose specified, and means for pivotally connecting said handle with the adjacent end of the lower pump-rod section whereby its said sections can be rigidly connected at pleasure and the said lower section can be operated by means of said handle pivotally connected to said upper section without disengaging the said parts, substantially as described and shown.

2. In a pump operated by a wind-engine or other motor-power a pump-rod consisting of an upper and lower section connected at their meeting ends by a coupler constructed as described, pivotally connected to the lower section of said rod and at its upper end pivotally connected to the short arm of a pump-handle, which handle is pivotally fulcrumed upon the lower end of the upper section of the pump-rod and so arranged that when the free end of the handle is depressed the said coupling at its upper end will be seated upon the fulcrum-bolt of said handle and thus rigidly connect the two sections of said rod together for operating the pump by motor-power attached to said upper section, and that when the free end of the handle is elevated the coupling will be disengaged from its seat upon said fulcrum-bolt, and the meeting ends of the two sections will be separated but still in alinement, and connected by said coupling and that the pump can be then operated by the pump-handle independent of the motor-power attachment, in combination with said pump-handle and a proper motor-power attachment.

3. The combination in a pump operated by a motive power, of a two-part pump-rod, consisting of an upper and lower section connected at their meeting ends by a coupler constructed as described, pivotally connected at its lower end to said lower section, and at its upper part to the short arm of a pump-handle, the handle pivotally fulcrumed upon the lower end of the upper section of the pump-rod as shown, a boxing 10 secured to the upper section of the pump-rod and extending below the meeting ends of the two sections as a guide for said lower section and to keep it in constant alinement with the upper section, and means for connecting said pump-rod to the motive power, all arranged substantially as shown and described.

4. The combination with a pump operated by mechanical power of a pump-rod comprised of an upper and lower section, having a pump-handle pivotally fulcrumed upon the lower end of the upper section and a coupler constructed as described pivotally secured to the inner short arm of said handle and also pivotally secured to the upper end of the lower section of said rod, and so arranged that by depressing the free end of said pump-handle, the adjacent ends of said sections will be rigidly secured together, and that by elevating said free end of the handle the adjacent ends of the pump-rod sections will be separated and the pump can be then operated by means of the pump-handle independent of the motor, and without disconnecting the coupler from either of the two sections, in combination with said pump-handle and a suitable motor-power, all substantially as described and shown.

577,831. CATTLE-GATE. ALBERT M. BARCUS, Milton, W. Va., assignor of one-half to Leonidas L. Love, same place. Filed June 5, 1896. Serial No. 594,381. (No model.)



Claim.—1. The combination with a pair of gates pivotally mounted upon suitable uprights, of a reciprocating rod for each gate normally held in outward position, a pitman connecting said rod and said gate, a rock-shaft connected to said reciprocating rod and means, operated by the approach of cattle or other animals to the gates, for rotating said rock-shaft and closing said gates, substantially as and for the purpose described.

2. The combination with a pair of gates pivotally mounted on suitable uprights or supports, of a reciprocating rod for each of said gates, a cord connected to the outer end of said rod passing over a suitable guide-pulley, a weight upon the lower end of said cord, a pitman connecting said shaft and said gate, a rock-shaft whose crank portions are pivotally connected to said reciprocating rod and a platform connected to said rock-shaft, whereby, upon the depression of said platform said rock-shaft will be rotated and through it and the intermediate mechanism, said gates will be closed substantially as and for the purpose described.

577,832. PAINT. HENRI L. BATES, Providence, R. I. Filed Oct. 29, 1896. Serial No. 610,498. (No specimens.)

Claim.—The herein-described composition for an elastic paint for house and decorative purposes, which consists in a mixture of acetic acid, powdered borax, carbonate of soda, glucose, paraffin-wax, citronella, fine salt, powdered alum, white-grape juice, and niter, in the proportions substantially as specified.

577,833. SHAFT-LOOP. HENRY A. BUERLEY, Portsmouth, Ohio. Filed Aug. 10, 1896. Serial No. 602,232. (No model.)

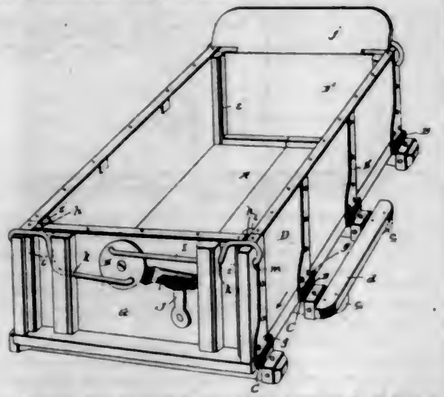


Claim.—As a new article of manufacture, the within-described specific construction of shaft-loop, which construction includes the back plate A, having eyes B, B', at top and bottom; a bearing C, projecting outwardly and upwardly from the lower eye B'; a bead or roll *c*, at the upper end of said bearing; and a spring D, which extends down from the upper eye B, and has its free end in contact with the back of said bearing, and at a point slightly below said roll; the entire device being made of a single, flat, strip of spring metal, all as herein shown, and set forth.

577,834. WAGON-BODY. WILLIAM H. BOETTCHER, Milwaukee, Wis. Filed Aug. 27, 1896. Serial No. 604,056. (No model.)

Claim.—1. A sectional wagon-body comprising a bottom formed by the longitudinal sections *a*, *b*, arranged side by side, the transverse beams *c*, connected to the under side of the section *a*, and extending

beyond the outer edge of said section *a*, and also extending beneath and beyond the section *b*, the transverse beams *f*, connected to the under side of the section *b*, and extending beyond the outer edge of said section *b*, and also extending beneath and beyond the section *a*, the keepers connected to the extended portions of the transverse beams *e*, *f*, adjacent to the bottom sections *a*, *b*, and extending upwardly from said beams and having their upper ends bent inwardly and downwardly, the side walls, the hooks C, connected to the outer sides of the said walls and having the laterally and upwardly extending portions engaging the keepers, and end walls detachably connected with the side walls, substantially as described.



2. A sectional wagon-body comprising a bottom formed by the longitudinal sections *a*, *b*, arranged side by side, the transverse beams *e*, connected to the under side of the section *a*, and extending beyond the outer edge of said section *a*, and also extending beneath and beyond the section *b*, the transverse beams *f*, connected to the under side of the section *b*, and extending beyond the outer edge of said section *b*, and also extending beneath and beyond the section *a*, the transverse cleats *c*, connected to the under side of the bottom section *a*, and extending beneath the section *b*, and arranged at the inner sides of the transverse beams *f*, the keepers connected to the extended portions of the transverse beams *e*, *f*, adjacent to the bottom sections *a*, *b*, and extending upwardly from said beams and having their upper ends bent inwardly and downwardly, the stops *g*, arranged at one end of the said keepers, the side walls, the hooks C, connected to the outer sides of the said walls and having the laterally and upwardly extending portions engaging the keepers, and end walls detachably connected with the side walls, substantially as described.

3. In a wagon-body, the combination of the side walls having the sockets in their outer sides adjacent to their upper edges, and also having vertical guideways on their inner sides, the end wall arranged and adapted to be moved in said guideways, the vertically-disposed lever fulcrumed on said end wall, and the rods connected to said lever at opposite sides of the fulcrum thereof and extending through guides on the end wall and having their outer ends bent downwardly and inwardly so as to enable them to enter the sockets of the side walls, and an arm pivoted on the end wall and adapted to engage and hold the lever, substantially as described.

577,835. STAR-WHEEL STANDARD FOR MUSIC-BOXES. GUSTAV A. BRACHHAUSEN, Rahway, N. J., assignor to the Regina Music Box Company, same place. Filed Aug. 11, 1896. Serial No. 602,384. (No model.)

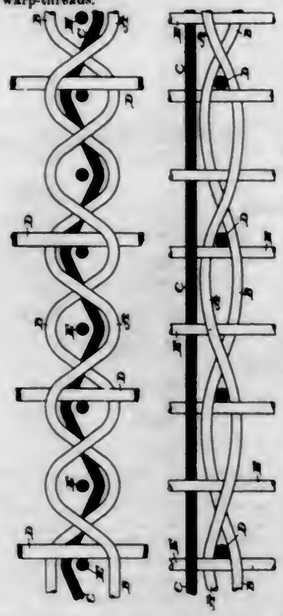


Claim.—A standard for star-wheels consisting of a series of independent apertured supporting-plates secured together for a portion of their lengths to form a base and spaced apart to receive and support star-wheels between them, the apertures in one plate coinciding with the apertures in the adjacent plates for the passage of a shaft therethrough.

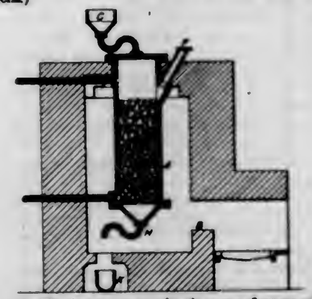
577,836. WOVEN PILE FABRIC. WILLIAM BRIMFIELD, Blue Anchor, N. J. Filed Jan. 3, 1896. Serial No. 574,225. (No model.)

Claim.—1. A double-faced pile fabric herein described, consisting of weft-threads, warp-threads twisted back and forth, and substantially straight tuft-pieces passing from face to face of the fabric at right angles thereto, said tuft-pieces being gripped and held by the twisted warp-threads.

2. The double-faced pile fabric herein described, consisting of weft-threads, warp-threads which are twisted together between the weft-threads, and substantially straight tuft-pieces which are gripped and held in the triangular inclosures formed by the weft-threads and the twisted warp-threads.



577,837. PROCESS OF MAKING CYANIDS. HAMILTON Y. CASTNER, London, England. Filed July 5, 1894. Serial No. 516,612. (No specimens.)



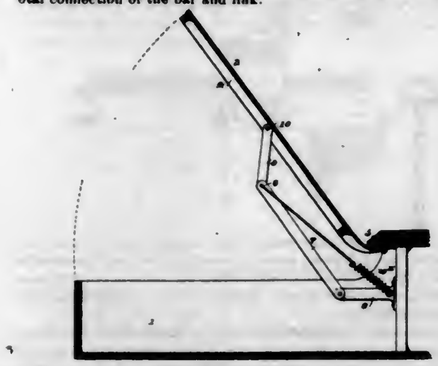
Claim.—1. The improvement in the manufacture of alkali cyanids, consisting in causing the previously-prepared molten alkali metal to percolate or pass in a fine state of division through previously-heated carbon or hydrocarbon vapor in the presence of a current of free nitrogen, substantially as set forth.

2. The improvement in the manufacture of alkaline cyanids consisting in heating carbon to a dull red heat, then admitting previously-prepared molten alkaline metal through a trapped inlet, and conducting the alkaline cyanids formed by the reaction out through a trapped outlet, substantially as described.

577,838. VEHICLE-BOOT. DAVID R. COWAN, Moline, Ill. Filed Apr. 7, 1896. Serial No. 586,482. (No model.)

Claim.—1. The combination with the vehicle-body of the boot-frame hinged at its forward end thereto, the bar pivoted at its front end to the vehicle-body at a point rearward of the connection of the boot-frame therewith, a link pivoted to the rear end of the bar and to the boot-frame, and a spring connected at one end to the vehicle-body and at its opposite end at the pivotal connection of the bar and link.

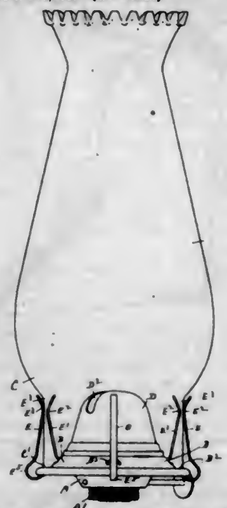
2. The combination with the vehicle-body, of the boot hinged at its forward end thereto, a rearwardly-extending bracket fixed to said body, a bar pivoted to the bracket and extending rearward, a link pivoted to the rear end of the bar and to the boot, a spring connected at its forward end to the bracket in advance of the point of the connection of the bar therewith, and a rod connected at its forward end to the rear end of the spring, and at its rear end at or near the pivotal connection of the bar and link.



577,839. NOTE-PLATE FOR MECHANICAL MUSICAL INSTRUMENTS. EMILE L. CUENDET, New York, N. Y., and FRANK J. BERNARD, Hoboken, N. J. Filed June 20, 1896. Serial No. 596,250. (No model.)

Claim.—A note-plate provided with a curled lug, the end of which abuts against the body of the lug, and with a boss that contacts with the back of such lug, substantially as specified.

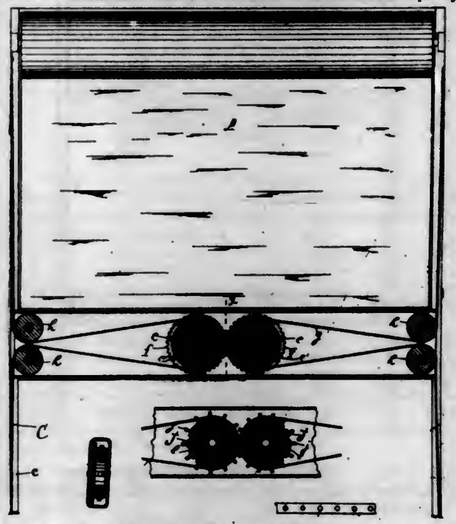
577,840. LAMP-BURNER. FRANCIS V. DAVIS, Worcester, Mass., assignor of one-third to John F. Chadwick, same place. Filed Feb. 10, 1896. Serial No. 578,668. (No model.)



Claim.—In a lamp-burner the combination of a base A provided with radially-projecting arms A^2, a plate B, having a central section B', and a chimney-seat B^3 in a lower plane than said central section and having openings B^4 between said seat and said central section, a dome D attached to said plate at the edge of said central section, and yielding fingers E and E' arranged in pairs and adapted to press against the outer and inner sides of the chimney, each pair of fingers being integral and attached to one of the arms A^2, with the outer finger turned around the edge of said plate B and with the inner finger passing through one of the openings B^4, substantially as described.

577,841. CURTAIN-HOLDING DEVICE. GEORGE H. DAVIS, Portland, Me. Filed Oct. 4, 1895. Serial No. 564,697. (No model.)

Claim.—1. The herein-described curtain-holding device consisting of a hollow curtain-stick having journaled therein two wheels or pulleys geared or otherwise connected together so that they rotate simultaneously, a band or chain at each side of the curtain having one end secured at the top of the casing and the other end secured at the bottom, said bands or chains forming loops which extend into the ends of the hollow curtain-stick and around said wheels or pulleys.



2. The herein-described curtain-holding device consisting of a hollow curtain-stick having journaled therein a pair of gears in engagement, a pair of wheels or pulleys attached to said gears, a chain or band on each side of the curtain, the upper end of said chain or band being secured to the upper portion of the casing, thence passing into the end of the hollow curtain-stick and around one of said wheels or pulleys and out at the same end of the curtain-stick, the lower end of said chain or band being secured to the lower portion of the casing.

3. The herein-described curtain-holding device consisting of a hollow curtain-stick having journaled therein a pair of gears in engagement, a pair of wheels or pulleys attached to said gears, a chain or band on each side of the curtain, the upper end of said chain or band being secured to the upper portion of the casing, thence passing into the end of the hollow curtain-stick and around one of said wheels or pulleys and out at the same end of the curtain-stick, the lower end of said chain or band being secured to the lower portion of the casing and the said hollow curtain-stick being provided with rolls journaled at its ends over which the said chain or band passes.

4. The herein-described shade-curtain-holding device consisting of a curtain-stick attached to the lower edge of the curtain, a tape, cord, chain or other equivalent device on each side of the curtain secured by one end at or near the top and by the other end at or near the bottom of the casing, each of said tapes forming a loop which extends in at the end of said curtain-stick and passes over a wheel or pulley pivoted therein, the said wheel or wheels being so arranged that they let off or take up said tapes at the same rate of speed.

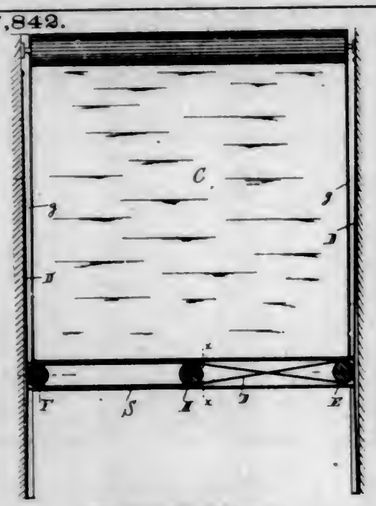
577,842. CURTAIN-HOLDING DEVICE. GEORGE H. DAVIS, Portland, Me. Filed Oct. 5, 1895. Serial No. 564,714. (No model.)

Claim.—1. The herein-described curtain-holding device having a hollow curtain-stick secured to the lower edge of the curtain, a cord at each side of the curtain, each of said cords being secured by one end to the upper portion of the casing and by the other end to the lower portion of the casing, the body of each cord forming a loop which extends into said hollow curtain-stick through the end and over a common pulley journaled therein.

2. The herein-described curtain-holding device having a hollow curtain stick secured to the lower edge of the curtain, a cord at each side of the curtain, each of said cords being secured by one end to the upper portion of the casing and by the other end to the lower portion of the casing, a wheel or pulley journaled at each end of said hollow curtain-stick and another journaled at some interior point, the said cords forming loops which extend into the said hollow curtain-stick through its ends, each passing around one of said end pulleys and both passing around the common interior pulley.

3. In a guide for spring-actuated shades, the combination with a casing and a spring-actuated shade, of a hollow stick thereon, flexible guides secured to the casing and entering the stick, and means located in the stick, actuated by the guides, for moving the opposite ends of the stick simultaneously.

577,842.



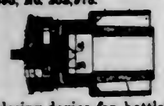
577,843. FLEXIBLE SUPPORT FOR SHOES OR BOOTS. HENRY J. DOUGHTY, Providence, R. I. Filed Apr. 23, 1896. Serial No. 588,777. (No model.)



Claim.—1. A support for shoes, &c. consisting of a shoe-shaped hollow shell open at the top and having closed sides and bottom, all of flexible material, with stiffening means at the sides making the upper self-supporting, substantially as described.

2. The combination in a support for shoes, &c. of a flexible shell, stiffening means extending along the edges of the sole portion of the shell, and also projecting upward at the sides and heel, substantially as and for the purpose set forth.

577,844. BOTTLE-STOPPER. GILBERT DUBRAU, Toulouse, France. Filed Dec. 6, 1894. Serial No. 530,970. (No model.) Patented in France Sept. 25, 1893, No. 232,978.

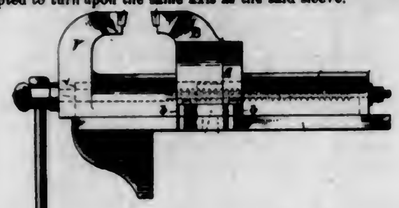


Claim.—1. In a closing device for bottles &c., the combination with a body portion a cap rotatably mounted on said body portion and provided with an air-inlet and a liquid-escape opening, a valve loosely seated within the body portion, a disk arranged above the valve and adapted to be turned, said disk being provided with an air-inlet and a liquid-escape opening, and a second disk arranged immovably above the first disk and provided with an air-inlet, a liquid-escape opening, and a stop or guide opening, and a projection on the rotatable cap projecting within said guide-opening all arranged for coöperation as described.

2. In a closing device for stoppers &c., the combination with a body portion threaded at its upper end and a cork lining surrounding its lower end, of a valve having an upwardly-projecting stem, a disk arranged above the valve and having air-inlet and liquid-escape openings, said disk being firmly mounted on the valve-stem, a second disk arranged immovably above the first disk and provided with air-inlet and liquid-escape openings and a guide-opening a cap screwing upon the body portion and having air-inlet and liquid-escape openings, a depending shank having a socket within which the valve-stem is seated, and a projection engaging within the guide-opening of the second disk, all arranged for coöperation as described.

577,845. VISE. ALEXANDER BOKERT, Nyack, N. Y. Filed Dec. 4, 1896. Serial No. 614,458. (No model.)

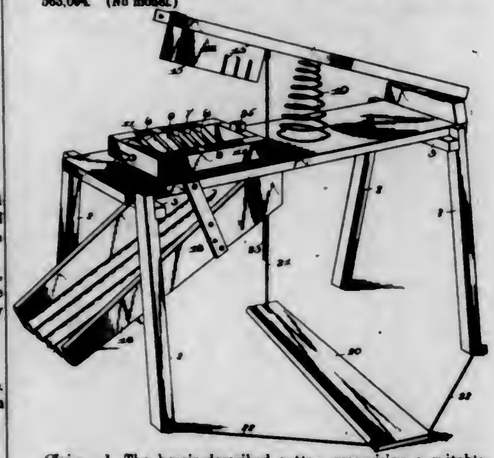
Claim.—1. In a vise, the combination with the stationary jaw, the sleeve of the movable jaw and means for rotating the latter, of a filling-shell placed between the sleeve and the stationary jaw, and adapted to turn upon the same axis as the said sleeve.



2. In a vise, the combination with the stationary jaw and a rotatable nut, through which passes the actuating-screw of the movable jaw, of a filling-shell placed intermediate the walls of the stationary jaw and the rotatable nut and adapted to turn upon the same axis as the rotatable nut.

3. In a vise, the combination with the stationary jaw and sleeve and actuating-screw of the movable jaw of a rotatable nut adapted to receive the actuating-screw, and a filling-shell placed intermediate the sleeve and the stationary jaw and adapted to turn with the former.

577,846. SEED-POTATO CUTTER. DARWIN W. RODY and CHARLES A. CARLTON, Woodland, Me.; Charles Carlton administrator of said Charles A. Carlton, deceased. Filed Sept. 20, 1895. Serial No. 563,094. (No model.)



Claim.—1. The herein-described cutter, comprising a suitable table having an opening therein, a plunger operating in said opening, a centrally-disposed cutter arranged within said opening and beneath the plane of the upper edge thereof, a series of inwardly-declining cutters terminating at said central cutter, and two or more oppositely-arranged leaf-springs extending in the plane of the cutting edges of the inwardly-declining cutters and having their inner free ends bearing against or lying in close proximity to said central cutter, substantially as and for the purpose set forth.

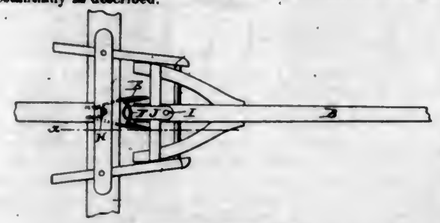
2. The herein-described cutter, comprising a suitable table, a plunger operating through an opening in said table, a treadle arranged beneath the table and connected with said plunger, and a pair of oppositely-extending guy-rods secured to said treadle and having their terminals hooked to engage with fasteners secured to the table-legs, substantially as and for the purpose described.

577,847. TONGUE-SUPPORT. GEORGE W. FLETCHER, Mendon, Ill. Filed Oct. 16, 1896. Serial No. 609,128. (No model.)

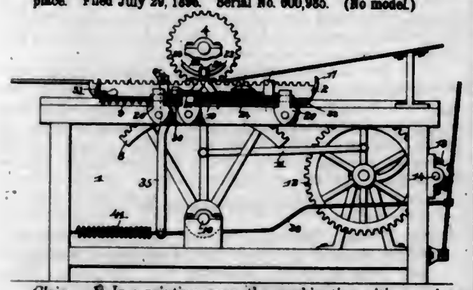
Claim.—1. In a tongue-support, the combination with the sustaining springs carried by the axle, the tongue, the plate coöperating with the spring to sustain the tongue, pivotally connected to the tongue, whereby the plate may be turned to permit the tongue to be disengaged from the spring, substantially as and for the purpose set forth.

2. In a wagon-tongue support, the combination with the axle and king-bolt, of the sustaining-spring connected with the king-bolt above and below the axle, and the tongue supported by said spring; substantially as described.

3. In a wagon-tongue support, the combination with the axle and king-bolt, the sustaining-spring consisting of a metal wire formed with the side coils and upwardly-extending loop portion, and connected with the bolt above and below the axle, the tongue and the plate pivotally secured thereto, provided with a hooked end adapted to coöperate with the loop portion of the spring to sustain the tongue; substantially as described.



577,848. PRINTING-PRESS. ALMARINE GAINES, Mendon, Mich., assignor of three-fourths to Otto W. Seob and Charles W. Seob, same place. Filed July 29, 1896. Serial No. 600,985. (No model.)



Claim.—1. In a printing-press, the combination with a reciprocating type-bed, of an intermittently-rotated impression-cylinder having a spur gear-wheel at one end, and carrying a pair of cams on its face, and a rock-shaft journaled at right angles to the cylinder on the machine-frame, said rock-shaft provided with an inwardly extending stud or stop, and means for throwing the stud between the pair of cams to hold the cylinder against rotation, substantially as described.

2. In a printing-press, the combination with a reciprocating type-bed, of an intermittently-rotating impression-cylinder having a spur gear-wheel at one end thereof meshing with a rack on the type-bed, said gear-wheel being mutilated and provided with a double cam on its face, a spring-actuated rock-shaft journaled on the frame and carrying a stop which is projected between the cams for holding the cylinder stationary during a portion of the throw of the type-bed, a cam 25 on the type-bed, and an arm on the rock-shaft coöperating with the said cam for withdrawing the stop, substantially as described.

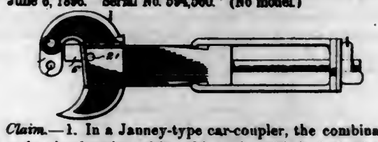
3. In a printing-press, the combination with a reciprocating type-bed, of an intermittently-revolving impression-cylinder having a spur gear-wheel at one end thereof in mesh with a rack on the type-bed, said gear-wheel being mutilated and provided with a double cam on its face adjacent to the mutilated portion of the gear-wheel, a rock-shaft journaled on the frame, a stop on the rock-shaft, automatic means for throwing the stop between the cams and withdrawing it therefrom, a pin 18 on the gear-wheel in line with the opening between the cams, and the type-bed having a hook 17 at one end thereof to catch the pin, for the purpose described.

4. In a printing-press, the combination of a reciprocating type-bed, carrying a rack, an intermittently-revolving impression-cylinder having a mutilated spur gear-wheel at one end in mesh with the rack, a double cam on said wheel, a spring rock-shaft mounted on the frame at the side of said wheel, and provided with a stop, automatic means for throwing the stop between the cams and for withdrawing it therefrom, a pin on the gear-wheel in line with the opening between the cams, and the type-bed carrying a hook 17 at one end and a gravity-pawl 31 at the other, for the purpose described.

5. In a printing-press, a reciprocating type-bed, and an intermittent impression-cylinder, in combination with a rock-shaft having an arm for engaging and locking said cylinder, a spring for actuating said rock-shaft, a latch for engaging said rock-shaft and holding said arm away from the cylinder, and a projection or finger on the type-bed for lifting the latch out of engagement with the rock-shaft, substantially as described.

6. In a printing-press, a reciprocating type-bed carrying an ink-plate, and an impression-cylinder, in combination with an ink-roller carriage fulcrumed intermediate its ends, an inking-roller carried thereby, an upright lever having one end arranged in the path of the type-bed so as to be actuated thereby, and a connecting-rod interposed between said lever and the ink-carriage, all arranged substantially as and for the purpose described.

577,849. CAR-COUPLING. JUSTUS J. GAYLORD, Sayre, Pa. Filed June 6, 1896. Serial No. 594,560. (No model.)

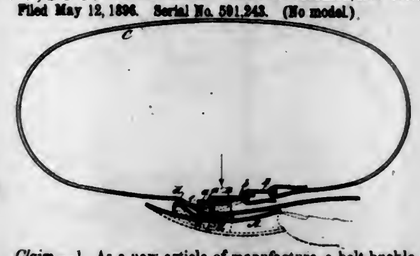


Claim.—1. In a Janney-type car-coupler, the combination with a draw-head, of a pivoted knuckle, a knuckle-lock for locking and unlocking the knuckle and a safety-bracket operated by the knuckle-lock, substantially as described.

2. In a Janney-type car-coupler, the combination with a draw-head, of a pivoted knuckle, a pivoted knuckle-lock for locking and unlocking the knuckle, and a pivoted safety-bracket thrown into supporting position by the movement of the knuckle-lock, substantially as described.

3. In a Janney-type car-coupler, the combination with a draw-head, of a pivoted knuckle, a pivoted knuckle-lock for locking and unlocking the knuckle, and a pivoted safety-bracket projecting through the lower jaw of the draw-head and provided with a tripping-arm on which the knuckle-lock is adapted to ride and whereby the safety-bracket is thrown into a supporting position, substantially as described.

577,850. BELT-BUCKLE. MARCUS T. GOLDSMITH, New York, N. Y. Filed May 12, 1896. Serial No. 591,243. (No model.)



Claim.—1. As a new article of manufacture, a belt-buckle comprising the main plate A, provided at the back with a keeper *a*, and the parallel ribs *b b*, forming a channel coincident with the slot *a'*, in the said keeper, and having a breast-piece *d*, at one side of the keeper, in combination with the clasp B, fulcrumed in said keeper at a point in a plane intermediate of the said ribs *c c*, and formed with a jaw *e*, of a width relative to the width of the space between the main plate and the keeper to adapt one of the said ribs to clear the edge of the jaw when the main plate A is moved slightly outward at one edge; substantially as described.

2. In a belt-buckle the main plate A, having the slotted keeper *a*, rigidly secured to the back thereof and also having the parallel ribs *c c*, rigidly secured to the back of said main plate so as to form a channel coincident with the slot *a'* in the said keeper *a*, in combination with the clasp B fulcrumed in said slot *a'*, at points in a plane intermediate of the said ribs *c c*, and formed with a jaw *e*, of a width relative to the width of the space between the main plate and the keeper *a* to adapt the ribs *c* to clear the edge of the jaw when the main plate A is moved slightly outward at one edge; substantially as and for the purposes described.

577,851. ALLOY OF IRON. ROBERT A. HADFIELD, Sheffield, England. Filed Feb. 19, 1896. Serial No. 579,949. (Specimens.)

Claim.—A quarternary alloy or steel containing iron, carbon up to 1.5 per cent.; from three to fifteen per cent. of manganese, and from four to twenty-five per cent. of nickel, substantially as described.

577,852. EXHAUST-MUFFLER. RALPH B. HAIN, Grand Rapids, Mich. Filed Apr. 8, 1896. Serial No. 586,739. (No model.)

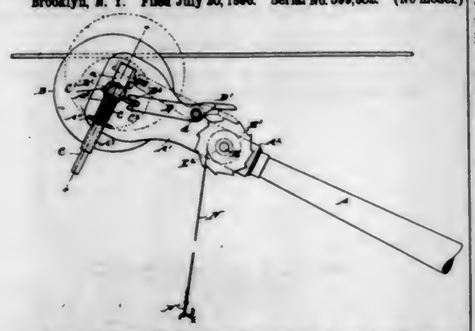
Claim.—1. The combination with the exhaust-pipe, a cap, closing one end of the same and provided with an opening, a pipe having an open outer end, extending from said opening downward within the exhaust-pipe, said inner pipe having lateral openings near its inner end, and said inner and outer pipes being relatively of such diameters as to leave a clear chamber surrounding said inner pipe and closed at its top by said cap, and a cap closing the inner end of the inner pipe.

2. The combination, of an exhaust-pipe, having an inlet-opening at one end and an outlet-opening at the other end, and divided intermediate of its ends into two compartments by an imperforate diaphragm, the lower compartment being formed with lateral outlet-openings and the upper compartment having lateral inlet-openings situated only in its lower part, and a closed jacket inclosing that part of the pipe having said openings and diaphragm, the upper end of said jacket terminating at a distance above the inlet-openings to the upper compartment, whereby cushions of exhaust-steam are formed in the upper end of the lower compartment and in the upper end of said jacket, substantially as described.



3. The combination of an exhaust-pipe, having two series of lateral openings, a diaphragm in said pipe, a cap closing the end of said pipe, a pipe in the axis of said cap and exhaust-pipe, open at its outer end and closed at its inner end, and having lateral openings near the inner end, and a jacket surrounding said exhaust-pipe and extending from the cap to a point beyond all of the lateral openings in said exhaust-pipe, substantially as described.

577,853. **TROLLEY-POLE CONTROLLER.** LOUIS M. HALSEY, Brooklyn, N. Y. Filed July 30, 1896. Serial No. 599,852. (No model.)



Claim.—1. The trolley-pole and jaws thereon, and a trolley-wheel mounted between the jaws with liberty to rise and sink therein, in combination with a spring-actuated reel carried by said jaws and near said wheel, a ratchet-wheel on the reel-shaft, a pawl pivoted on one of said jaws with one end connected to the wheel-support and the other adapted to engage or release said ratchet-wheel as the trolley-wheel sinks or rises, and a trolley-rope attached at one end to the car and at the other to said reel, all arranged to serve substantially as herein specified.

2. The trolley-pole A having the jaws A′ and slots *a* therein, the trolley-wheel B and its shaft B′ mounted between said jaws with its shaft extending through the slots, in combination with the rods C and heads C′, C², the supporting-spring A³ for each, the shaft E, spring E³ and ratchet-wheel E′, the pawl D mounted on one of said jaws and connected to the head C′ to be moved by the rising and sinking of the latter to release and engage said ratchet-wheel, and the rope attached at one end to the car and at the other to said reel-shaft, all substantially as herein specified.

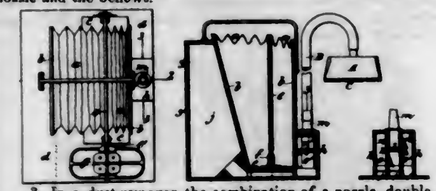
3. The trolley-pole A having jaws A′ and slots *a* therein, the trolley-wheel B and its shaft B′ mounted between said jaws with its shaft extending through said slots, in combination with the rods C and heads C′, C², guides A³, and a supporting-spring for each head, the reel-shaft E mounted in said jaws, the actuating-spring E³ and ratchet-wheel E′, the pawl D pivoted on one of said jaws, the fork D² and lip C³ engaged thereby and operated by the rising and sinking movement of the head to engage and release the said ratchet-wheel, and the trolley-rope N attached at one end to the car and at the other to said reel-shaft, all substantially as herein specified.

4. The trolley-pole A, jaws A′ and trolley-wheel B therein, in combination with the shaft B′ having the shoulders *b*, the rods C and heads C′, C² and C³ matching to the said shoulders the loop C³ on one of said heads C′ and the lip C³ on the other, and a supporting-spring A³ for each, all arranged to serve substantially as herein specified.

577,854. **DUST-REMOVER.** JAMES J. HARVEY, Kidderminster, England. Filed Mar. 16, 1896. Serial No. 583,459. (No model.) Patented in England Jan. 10, 1893, No. 546, and Mar. 3, 1894, No. 4,545.

Claim.—1. In a dust-remover the combination of a nozzle, double bellows consisting of two fixed boards with an oscillating board between them and a flexible pipe connecting the nozzle and the bellows.

2. In a dust-remover the combination of a nozzle, a pair of bellows, means for arresting the dust and a flexible pipe connecting the nozzle and the bellows.



3. In a dust-remover the combination of a nozzle, double bellows consisting of two fixed boards with an oscillating board between them, a double valve-box at one side of the bellows, passages in the base-plate, connecting the valve-box with the inside of the bellows, and a flexible pipe connecting the valve-box and the nozzle.

4. In a dust-remover the combination of a nozzle, double bellows consisting of two fixed boards with an oscillating board between them, a double valve-box at one side of the bellows, passages in the base-plate connecting the valve-box with the inside of the bellows, a receptacle for arresting the dust attached to the bellows and a flexible pipe connecting the valve-box and the nozzle.

5. A dust-remover consisting of the combination of a cupboard or dust-receiver, an oscillating board *c*, air-chambers on opposite sides thereof, flexible material attached to the board at one end and closing the air-chambers at one end, a valve-chamber communicating with the air-chambers on opposite sides of the oscillating board, and with the cupboard or dust-receiver, a nozzle, and a flexible pipe connecting the nozzle with the valve-chamber.

577,855. **FLY-TRAP.** DATUS I. HAYS, Moores Forks, N. Y., assignor of one-half to Signor P. Morgan, same place. Filed June 11, 1896. Serial No. 595,133. (No model.)



Claim.—1. In a fly-trap, the combination of a rotary frame or wheel arranged horizontally and provided with an annular series of curved portions forming ridges at their ends and provided at points between their ends with bait-receiving depressions, a cage located above the rotary frame or wheel, and an automatically-operating brush resting upon the curved portions of the frame or wheel and actuated by contact with the same, whereby it is moved upward and downward and is adapted to brush flies from the frame or wheel and carry them upward into the cage, substantially as described.

2. In a fly-trap, the combination of a rotary frame or wheel provided with a rim having an annular series of curved portions forming intervening ridges, a stationary trap-frame forming a passage for the rim of the wheel or frame and covering a portion thereof, a receptacle located above the trap-frame, and an automatically operating device capable of moving upward and downward and resting upon and actuated by the frame, whereby flies are brushed from the latter and carried upward into the receptacle, substantially as described.

3. In a fly-trap, the combination of a rotary frame or wheel provided with a rim having a series of curved portions forming ridges and provided with depressions to receive a suitable bait, a stationary trap-frame conforming to the configuration and receiving a portion of the frame and provided at its top with an opening for the passage of flies, a receptacle mounted on the trap-frame and having a fly-entrance located over the opening of the trap-frame, a movable brush mounted on the trap-frame and having a substantially L-shaped flange located at the opening of the trap-frame and resting upon the frame and moved upward and downward by the same, whereby flies are forced upward from the opening in the receptacle, substantially as described.

4. In a fly-trap, the combination of a frame, a wheel provided with a rim having an annular series of curved portions forming radial ridges, means for rotating the wheel, a stationary trap-frame conforming to the configuration and covering a portion of the rim and provided at its front with a transparent portion, said trap-frame being provided in rear of the transparent portion with an opening, a removable receptacle mounted on the trap-frame and having a fly-entrance located over the opening thereof, an automatically-operating brush consisting of a plate loosely arranged on the top of the trap-frame, and a depending L-shaped flange arranged at the opening of the trap-frame and resting upon the rim, a transverse rod mounted on the trap-frame and located in front of the L-shaped flange, and means for holding the rear portion of the plate in position, substantially as described.

5. In a fly-trap, the combination of a wheel provided with a rim having a series of curved portions, a trap-frame provided with a horizontal forwardly-extending rod, a standard capable of vertical adjustment and having an opening receiving the rod, means for securing the rod in the opening, a receptacle mounted on the trap-frame, and means for brushing flies from the rim and forcing them in the receptacle, substantially as described.

577,856. **PAINTER'S POT-HOOK AND PUTTY-KNIFE.** ALBERT L. HIGGINS, Bar Harbor, Me. Filed Apr. 17, 1896. Serial No. 587,981. (No model.)

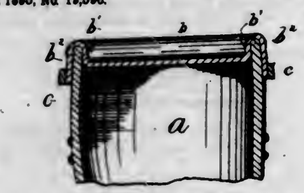


Claim.—1. A putty-knife provided at one end with a rigid integral C-shaped hook forming a handle, in combination with an arm pivotally connected to the putty-knife adjacent to the base of the hook and adapted to be supported on the base portion of the hook when swung outward at an angle to the knife, said arm being provided at its free end with a hook for engaging the pot-bail, substantially as described.

2. A putty-knife having one end bent to form a C-shaped hook disposed at one side of the plane of the knife and forming a handle therefor, in combination with an arm pivotally connected at one end to said knife near the base of the hook and adapted to rest against the hook when swung outward at an angle to the knife, said arm being provided with one or more spurs which project beyond its pivotal connection with the knife and in longitudinal alinement with the arm, and a hook at the free end of said arm, all combined and arranged substantially as described.

3. A putty-knife provided at one end with a rigid and integral C-shaped hook arranged at one side of the plane of the knife, said knife being also provided intermediate its ends with an opening, in combination with an arm pivotally connected to the knife adjacent to the base of the hook and adapted to bear against said hook for its support when swung outward at an angle to the knife, and a spring-hook at the free end of said arm adapted to support the pot and to enter the opening in the knife for locking the arm against the knife, substantially as described.

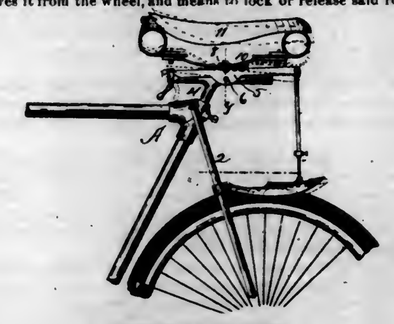
577,857. **CASK.** THOMAS C. HOOHAN, Ditton, England. Filed Jan. 28, 1896. Serial No. 577,137. (No model.) Patented in England Oct. 15, 1895, No. 19,596.



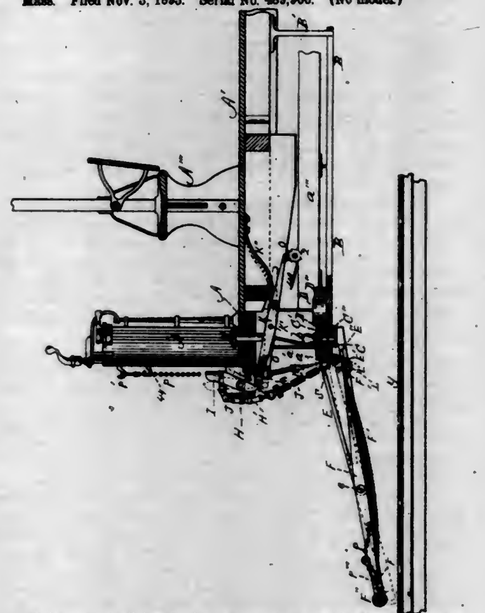
Claim.—A cask or barrel for containing cement or the like, having the head *b*, of a suitable metal provided with a raised rim *b′* and depending flange b^3, with space between, in combination with means for securely affixing the head in position, which means consist of the hoops or bands *c*, tightly encircling the flange b^3 of the head *b*, all substantially as herein described and shown.

577,858. **CYCLE-BRAKE.** CHARLES W. HUDSON, Woodsport, N. Y. Filed Aug. 14, 1896. Serial No. 602,779. (No model.)

Claim.—The combination with a cycle-frame, a wheel mounted therein, and a saddle-post mounted in said frame, of a rocker mounted upon the saddle-post, a saddle mounted upon said rocker, a brake-shoe hung upon said frame, and a rod connecting said shoe to said rocker, whereby the swinging of said rocker applies the brake to or removes it from the wheel, and means to lock or release said rocker.



577,859. **FENDER FOR CARS.** ARTHUR H. JELLY, Cambridge, Mass. Filed Nov. 3, 1893. Serial No. 489,966. (No model.)



Claim.—1. A tilting fender sustained in a fender-frame between the front and rear edges of the fender, said tilting fender being adapted to have its front edge tilted down from its normal raised position by the substantially horizontal impact of said front edge against an object on the track, substantially as set forth.

2. A fender pivotally sustained at a point between its front and rear edges by a vertically-movable fender-frame, said fender being thereby adapted to tilt down at its front end from a normally-raised operative position toward the road-bed, substantially as set forth.

3. A tilting fender sustained pivotally in a fender-frame at a point between the front and rear edges of the frame or body of the fender, and a spring arranged and adapted to hold the said tilting fender with sufficient strength or firmness to resist a tendency to have its front edge raised by the force of its substantially horizontal impact against an object on the track, but to allow the said tilting fender to yield to the substantially vertical blow on its under side produced by the rocking or oscillation of the car, substantially as set forth.

4. In a fender, in combination, a bar or frame sliding longitudinally under the car, a fender-frame hinged to said sliding frame or bar, and a fender-bottom pivotally secured to and tilting on said fender-frame, substantially as described.

5. A tilting fender sustained pivotally at a point between the front and rear edges of its body portion, and adapted to be slid substantially horizontally under the car, substantially as described.

6. In combination, a tilting fender sustained pivotally at a point between the front and rear edges of its body portion, and a longitudinal supporting-bar sustained beneath the car, whereby the fender

is adapted to be slid substantially horizontally under the car, substantially as set forth.

7. The combination of the frame comprising the bar E' and arms E, said bar being provided with the horizontal holes *f*, springs *g'*, bolts *g* and screws *g''*, and the fender-bottom tilting in said frame and held normally in line therewith by said bolts pressing against its rear edge, substantially as described.

8. A fender-frame and fender-bottom tilting in said frame, said fender-bottom being held normally in line with said frame by a friction mechanism between the frame and bottom, substantially as set forth.

9. In combination, the car-body provided with the trip-lever K pivoted to said body, the bunter provided with the trip I bearing normally against the front end of said trip-lever, the spring I', the hinged fender-frame and the chain J connecting said frame and trip, said raised trip-lever holding the lower end of the trip normally forward, substantially as described.

10. In combination, the car-body provided with the trip-lever K pivoted to said body, the bunter provided with the trip I bearing normally against the front end of said trip-lever, the hinged fender-frame, and the chain J connecting said frame and trip, said trip-lever holding the lower end of the trip normally forward, substantially as described.

11. In combination, the car-body provided with the trip-lever K, the bunter provided with the trip I, the spring I', the hinged fender-frame E E', and the chain J connecting said frame and trip, the tilting fender-bottom F, and the chain L connecting said bottom and trip-lever, substantially as described.

12. In combination, the car-body provided with the trip-lever K, the bunter provided with the trip I, the spring I', the hinged fender-frame E E', the chain J connecting said frame and trip, the tilting fender-bottom F, the chain L connecting said bottom and trip-lever, and the chain P connecting the front portion of said fender-bottom with the car in a place accessible to the motorman, substantially as set forth.

13. The combination of the fender-frame E E' and the tilting fender F, the latter being provided with stops *l* whereby the front edge is prevented from tilting up, substantially as described.

14. In combination, a vertically-hinged fender-frame, a fender-bottom sustained by said frame and pivotally secured thereto, and a stop whereby the front edge of the fender-bottom is prevented from being tipped up by impact independently of the frame, substantially as set forth.

15. A vertically-hinged fender-frame provided with a life-saving scoop or fender-bottom adapted to be tripped or dropped by the direct impact of an object on the track against the front edge as distinguished from an attachment thereto, substantially as set forth.

16. A vertically-hinged fender-frame provided with a life-saving scoop or fender-bottom adapted to be tripped or dropped by its direct impact against an object on the track, and held down in continuous contact with the track by a spring, substantially as described.

17. In combination, an air-brake mechanism, an electrical switch for turning on and cutting out an electric current, the shaft 1 supported by the car-body and provided with the spring 5 and ratchet-wheel 2, the lever K engaging with said ratchet-wheel and operated by the dropping of the car-fender, the wheel 8 actuating the valve 10 and connected with the shaft by the cord 6 secured at its ends to and wound reversely on said shaft, the cord 35 secured at its ends to and wound reversely on the shaft and connecting with the electrical switch, and the cord 40 wound on the shaft and leading to a point within reach of the driver, substantially as set forth.

18. In combination, a vertically-hinged fender-frame provided with a life-saving fender or guard, a slideway suitably attached to a car, a slide supported by and moving longitudinally with relation to said slideway and connecting said slideway and fender whereby the fender may be brought forward from a retracted inoperative position beneath the car into a substantially non-vertical position for operative use, suitable means of support whereby the fender may be maintained with its front end normally raised from the road-bed or track when in said forward operative position, and mechanism within control of the motorman or driver whereby the said front end may be instantly brought down in case of emergency from said normally-raised operative position toward the road-bed or track, substantially as set forth

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577,860. **BUFFER.** WILLIAM B. KNIGHLEY, Vineland, N. J. Filed June 13, 1896. Serial No. 595,442. (No model.)

Claim.—1. A buffer consisting of a head with a neck, and an extension thereon, a follower on said neck with a recess surrounding the latter, a nut on a threaded portion of said extension bearing against said follower, a spring in said recess bearing against said follower and head, a pad secured to said head by a washer and screw, the latter bearing against said washer and engaging a threaded portion of said head, a second pad and a disk with tabs, the latter being held between said head and follower.

2. A buffer consisting of a head having a threaded neck, a follower on said neck having a recess therein, a nut on the threaded portion of said neck bearing against said follower, a pad, means for holding said pad in contact with said head and for preventing improper movement thereof relative to said head, a disk embracing said pad and provided with split tabs held between said head and follower, and a spring in said recess bearing against said follower and head.

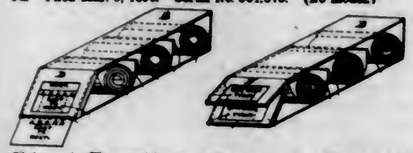


577,861. **WIRE STRETCHING AND TYING DEVICE.** THOMAS W. KIRBY, Chico, Tex., assignor of two-thirds to S. G. Stalnecker and J. F. Brooks, same place. Filed Oct. 20, 1896. Serial No. 609,431. (No model.)



Claim.—A wire stretching and tying device comprising a straight lever provided at one end with a substantially L-shaped bearing-slot adapted to receive a fence-wire and enable the lever to be fulcrumed thereon, said lever being provided adjacent to the inner end of the bearing-slot with a pair of perforations adapted to have a wire laced through them and thereby secured to the lever, whereby when the latter is rotated around a fence-wire, the tie will be twisted thereon, substantially as described.

577,862. **ROLL-TICKET HOLDER.** JOSEPH L. KIRK, Allegheny, Pa. Filed Mar. 5, 1896. Serial No. 581,873. (No model.)



Claim.—1. The combination of a case; a plurality of ticket-holders mounted in said case, each holder containing a plurality of compartments for rolls of ribbon-tickets, certain of said compartments being used for storage and the remainder for the tickets on sale; a guide at the forward end of the holders to facilitate the delivery of the ticket and a separating edge on said guide to sever the ticket.

2. The combination of a case; a plurality of ticket-holders mounted in said case, each holder being adapted to receive the roll ribbon-ticket on sale and one or more roll ribbon-tickets placed in said holder for storage; a guide at the forward end of the holders to facilitate the delivery of the ticket and a separating edge for said guide to sever the ticket.

3. The combination of a case; a plurality of ticket-holders mounted in said case each holder containing a plurality of compartments adapted to receive the ticket on sale and the tickets placed in said holder for storage; a plurality of guides at the forward end of the holder for the plurality of tickets in the holder and a separating edge on each of said guides for its respective ticket.

577,863. **PAIL FOR OYSTERS.** JAMES W. KNIGHT, Anderson, Ind. Filed July 10, 1896. Serial No. 598,764. (No model.)



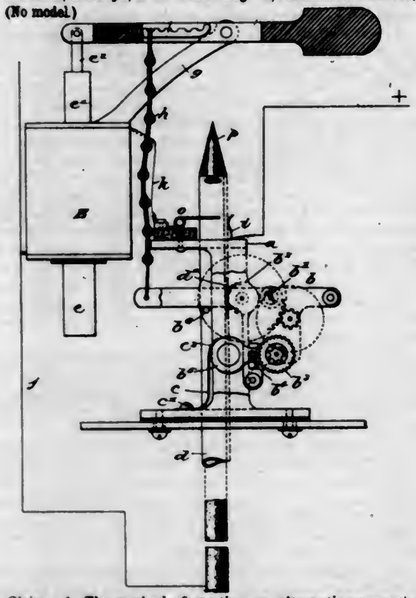
Claim.—1. The combination of a paper pail formed of the blank A scored and bent into shape as shown; the lid S provided with the upturned flaps *r r* and the downward-turned flaps *t*, the latter being

secured at the top of one of the sides of said pail; the flaps *g g* at two opposite sides of the top of said pail and having the flaps *k k* at each end of said flaps *g g* and turned over the ends thereof; the flaps *k k* at the two opposite sides of the top of said pail and turned down over said lid, substantially as shown and described.

2. The combination of a paper pail formed of a blank scored and bent into shape, having the flaps *g k k* at the top of the sides thereof; the lid S having the flaps *r r* and *t*, the latter secured to one side of said pail, said lid being secured and sealed to said pail by means of the flaps *g k* and flaps *k k* bent and folded over said flaps *g g*, substantially as described.

3. In a paper pail formed of a blank scored and bent into shape, the combination of the lid S having the flaps *r r* and *t*, the latter secured to one of the sides of said pail; the flaps *g k k* at the top of the sides of said pail, the said flaps *k k* being folded over the top of said lid, and the flaps *k* folded over the flaps *g* of said lid, substantially as described.

577,864. **ALTERNATING-CURRENT ARC-LAMP.** EDWARD R. KNOWLES, Brooklyn, N. Y. Filed Aug. 19, 1896. Serial No. 603,181. (No model.)



Claim.—1. The method of starting an alternating-current arc-lamp in operation, which consists in holding the carbons in contact after the current is turned on, long enough to allow the carbons to become heated sufficiently to maintain the normal arc and then slowly separating the carbons to establish the arc.

2. An arc-starting mechanism for alternating-current arc-lamps, comprising the combination of means for holding the carbons in contact for a sufficient time to heat the carbons to maintain the normal arc, with means for thereafter slowly separating the carbons to establish the arc.

3. An arc-starting mechanism for alternating-current arc-lamps in which the carbons are normally separated, comprising the combination of means for contacting the carbons, means for thereafter holding the carbons in contact for a sufficient time to heat the carbons to maintain the normal arc, and means for thereafter slowly separating the carbons to establish the arc.

4. In an arc-lamp, the combination of an arc-striking magnet, a carbon-rod, a swinging frame carrying a train of gearing in engagement with said rod, a stop limiting the movement of the frame, a pivoted lever to which the armature of the magnet is attached, and a flexible connection between the lever and the swinging frame whereby the former may move after the latter is held by its stop, substantially as and for the purpose set forth.

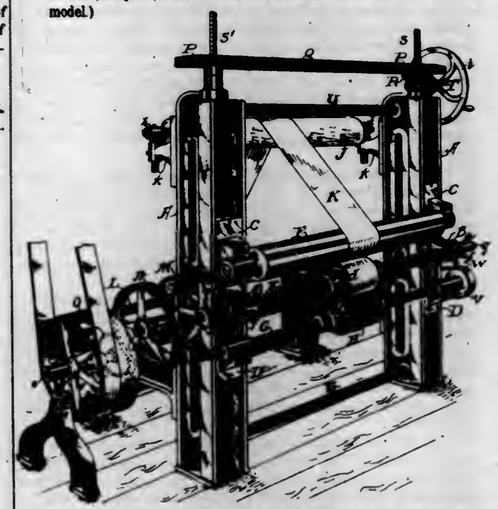
5. In an arc-lamp, a train of gearing controlled by an escapement, the latter having an oscillating weight provided with a rounded surface and the gearing being mounted in a swinging frame, in combination with a yielding detent for said weight, the detent having a corresponding rounded surface, substantially as described.

6. In an arc-lamp, the combination with the frame, of a globe-holder consisting of a wire-netting embracing the globe and springs connecting the netting with the lamp-frame, substantially as described.

7. In an arc-lamp, the combination with the frame, of a globe-holder consisting of a wire-netting embracing the globe and springs connecting the netting with the lamp-frame, said springs having attached to them rings which embrace the side rods of the lamp and which normally engage with hooks on the lamp-frame, for the purpose set forth.

8. In an arc-lamp, the combination of the globe and a net embracing the same, said net being secured at its upper edge by hooks passing over the upper edge of the globe, as set forth.

577,865. **WINDING AND SLITTING MACHINE.** CHARLES KORSEL, Holyoke, Mass. Filed Oct. 29, 1895. Serial No. 567,311. (No model.)



Claim.—1. In a winding and slitting machine, the combination, with a suitable frame, of a winding-spool, a regulator arranged to be moved outwardly from the axis of the spool by the increasing thickness of the material wound thereon, and cutters mounted on a cutter-shaft (other than the regulator) and arranged to cut the material after it reaches the roll being formed, the cutter-shaft being arranged to be moved away from the spool-axis by the outward movement of said regulator, substantially as described.

2. In a winding and slitting machine, the combination, with a suitable frame, of a winding-spool, a regulator-roll arranged to be moved by the change in diameter of the roll of material upon the spool and a cutting-shaft having cutting-blades mounted thereon, and intermediate operative mechanism whereby the relative position of the material upon the spool and the blades is varied by the regulator, the cutter-shaft being supported independently of the material and independently of the body of the regulator-roll substantially as shown.

3. In a winding and slitting machine, the combination, with a suitable frame, of a winding-spool, a regulator-roll arranged to be moved outwardly from the axis of the spool by the increase in diameter of the roll being formed and a cutting-shaft having cutting-blades mounted thereon and mounted in sliding boxes, whose position is controlled by operative mechanism interposed between them and the regulator, substantially as shown.

4. In a winding and slitting machine, a suitable frame, a winding-spool, a controller bearing against the material being wound, means for cutting the material as it is being wound, said cutting means being supported and operated by mechanism independent of the material being operated upon, and operative mechanism between the controller and cutting mechanism, whereby the position of the cutters with reference to the material is controlled by the controller, substantially as shown.

5. The combination of a suitable frame, a controller movably mounted therein, a spool and cutters one being movable with reference to the other, intermediate mechanism whereby the controller determines the relative position between the spool and cutters and means other than the material being operated upon to drive the cutter-shaft, substantially as shown.

6. In a winding and slitting machine, the combination, with a suitable frame, of a winding-spool, a presser regulator-roll to press the material as it is wound upon the spool, cutters arranged to cut the material on the roll at a point removed from the presser-roll, means to support and communicate motion to the cutters other than

through the medium of the presser-roll, and an operative connection between said presser-roll and cutters whereby the outward movement of the presser-roll from the spool will also move the cutters outwardly, substantially as described.

7. In a winding and slitting machine, the combination, with a suitable frame, of a winding-spool, mechanism for driving the same, a cutter-shaft having cutters thereon arranged to cut the material as it is partly wound, mechanism for driving the same, a regulator arranged to be moved outwardly from the axis of the spool by the increase of the diameter of the roll being formed and an operative connection between said regulator and said cutter-shaft whereby the latter is moved away from the winding-spool in unison with the former, substantially as described.

8. In a winding and slitting machine, the combination, with a suitable frame, of a winding-spool, a regulator resting upon and supported by the material being wound and arranged to be moved outwardly from the axis of the spool by the increase in the diameter of the roll being formed, and cutters for slitting said material, the cutters being mounted in supports and operative independently of the regulator-roll and arranged to be moved away from the spool and in opposite direction by the outward movement of said regulator, substantially as described.

9. In a winding and slitting machine, the combination, with the vertical side posts, the fixed bearings B therein, the winding-spool shaft in said bearings, the vertically-sliding bearings C, D, in said posts, the roll F and shaft G having cutters H, mounted in said bearings, respectively and an operative connection between the bearings C and D whereby they move oppositely from each other in unison, substantially as described.

10. In a winding and slitting machine, the combination with the sides of the machine, of three pairs of bearings each pair carrying a roller or shaft, whereof one is a presser-roller, another a spool-shaft, and a third is provided with cutting-blades, said bearings on each side being movable relatively to each other but operatively connected so that the presser-roller bearings and the cutter-shaft bearings are always moved equidistant from the spool-shaft bearing, substantially as described.

11. In a winding and slitting machine, the combination, with the lateral supports of the machine, of the stationary bearings thereon, the stationary spur-gears, the movable bearings on said supports, each pair thereof provided with racks meshing with said spur-gears on opposite sides, and the rollers carried by said bearings, substantially as described.

12. In a winding and slitting machine, the combination, with the vertical side posts, of the fixed bearings and winding-shaft therein, a fixed spur-gear, the upper sliding bearings having a presser-roll therein and provided with a rack, the lower sliding bearings having a slitting-shaft therein and provided with a rack, said racks engaging said spur-gear so as to effect a reciprocal motion, one from the other, substantially as described.

13. In a winding and slitting machine, the combination, with vertical side posts, of fixed bearings therein, a winding-spool shaft in said bearings, a presser-roll above said winding-shaft, a cutter-roll below the same, bearings for said presser-roll and cutter-roll, moving oppositely in unison and means, for moving both presser-roll bearings simultaneously, substantially as described.

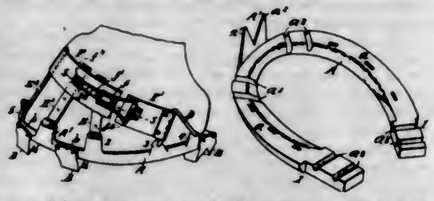
14. In a winding and slitting machine, the combination, with suitable slideways, of the bearing C, having the racks *e*, the bearings D having the racks *d*, the spur-gear *a*, meshing with said racks whereby they move oppositely in unison, the threaded stems S, S' arranged to engage said bearings C, and the threaded sprocket-wheels through which said stems pass and the sprocket-chain, whereby simultaneous reciprocation is imparted to said stems, substantially as described.

577,866. HORSESHOE. EDWARD KRANTS, Detroit, Mich. Filed May 28, 1896. Serial No. 593,476. (No model.)

Claim.—1. A horseshoe constructed with transverse grooves a^3 on the upper surface of the body of the shoe, having in combination therewith detachable calks, constructed with flanges *b*, *b* embracing the lateral edges of the body of the shoe, and transverse fastening devices passed through said flanges and grooves above the body of the shoe, for the purpose set forth.

2. A horseshoe constructed with transverse grooves a^3 on the upper surface of the body of the shoe, having in combination therewith detachable calks, constructed with flanges *b*, *b* embracing the lateral edges of the shoe, and transverse fastening devices passed through said flanges and grooves above the body of the shoe, said calks each provided with double points or edges *b'*, *b'*, one of said points or edges being longer than the other, for the purpose set forth.

3. A horseshoe having the body thereof constructed with transverse grooves a^3 upon its upper surface, and with a double-pointed toe-clip, said body having in combination therewith detachable calks, each provided with marginal flanges embracing the lateral edges of the body of the shoe, and fastening devices passed through said flanges and grooves above the body of the shoe to hold the calks in engagement with the body of the shoe, for the purpose set forth.



4. A horseshoe constructed with transverse grooves a^3 on the upper surface of the body of the shoe, having in combination therewith detachable calks, constructed with marginal flanges *b*, *b* embracing the lateral edges of the body of the shoe, and fastening devices passed through said flanges and grooves above the body of the shoe, the body of said shoe provided with spurs a^5 struck up from the upper surface thereof, for the purpose set forth.

5. A horseshoe having the body thereof constructed convexed on its upper surface, and provided with transverse grooves of convex form on its upper surface, and in combination therewith detachable calks, each provided with perforated marginal flanges embracing the lateral edges of the body of the shoe, and fastenings passed through said flanges and grooves above the body of the shoe, the inner extremities of said fastening devices being clenched to hold the calks in engagement with the body of the shoe, substantially as set forth.

6. A horseshoe having the body thereof constructed with transverse grooves a^3 on the upper surface thereof, and with upright flanges and a toe-clip, each projecting upward above the upper surface of said body, said body having in combination therewith detachable calks, provided with marginal flanges embracing the edges of the body of the shoe, fastening devices passed through said flanges and grooves over said body engaging said calks with the body of the shoe, clamping-plates having a hinged connection with said upright flanges and toe-clip, and clamping-arms to hold said clamping-plates upon the hoof, substantially as set forth.

7. A horseshoe provided with clamping-plates, having a jointed connection therewith, clamping-arms having a jointed connection therewith, and a fastening device to unite said clamping-arms, said clamping-plates arranged to be turned up under and to be held in place by said clamping-arms, for the purpose set forth.

8. A horseshoe having the body thereof provided with flanges 2, 3, 4, 5, 6 and 7, clamping-plates E, E^3 having a hinged connection with the flanges 2, 5, loops D, D engaged with the flanges 3, 4 and 6, 7, clamping-arms F, F' having a jointed engagement with said loops, respectively, and a fastening device to unite said clamping-arms, said plates arranged to be turned up under and to be held in place by said clamping-arms, for the purpose set forth.

9. A horseshoe having the body thereof provided with flanges 2, 3, 4, 5, 6 and 7, clamping-arms E, E^3, having a hinged connection with the flanges 2, 5, loops D, D engaged with the flanges 3, 4 and 6, 7, clamping-arms F, F', having a jointed engagement with said loops, respectively, and a fastening device to unite said clamping-arms, said fastening device consisting of a loop *f*, jointedly connected with one of said arms, a toothed bar jointedly connected with the other of said arms, and a fastening to engage said toothed bar with the corresponding clamping-arm, for the purpose set forth.

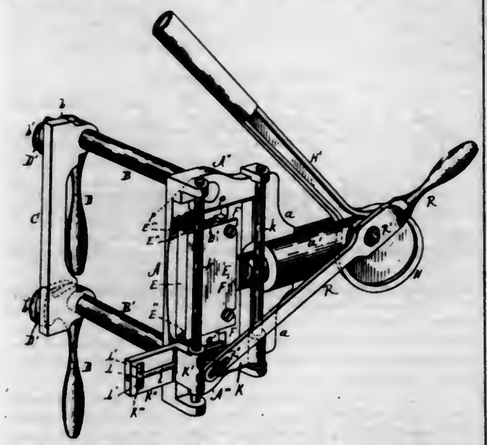
577,867. FUMIGATOR. CARL F. LAUBER, Philadelphia, Pa. Filed May 22, 1896. Serial No. 592,671. (No model.)



Claim.—In a device of the character described a cylinder, a cover on one end, said cover having a convex surface with perforations therethrough, a bead formed on said cylinder to limit the position of the cover, a plug secured in the other end by a flange, a wire-gauze resting on said flange leaving an air-space between the gauze and the plug, a nipple formed with said plug ending in a head, said plug having a passage therethrough and an elastic bulb attached to the nipple as and for the purpose described.

577,868. MACHINE FOR CUTTING MORTISES FOR HINGES IN DOORS AND DOOR-JAMBS. THEODORE H. LEWIS, Canton, Mass. Filed Dec. 3, 1896. Serial No. 614,290. (No model.)

Claim.—1. In a machine of the character described, a frame adapted to be clamped in a horizontal plane upon the casing of a door next the jamb to which the hinges are to be applied; the pair of vertical parallel cutters E provided with the inwardly-projecting horizontal cutting edges E" at the upper and lower ends thereof, said cutters being adapted to work on a horizontal plane between the jamb and the edge of the door; a clamp for securing the frame in position, said clamp being horizontally secured to such frame on a plane at right angles with the plane of the cutters and the plane in which they work; and mechanism supported by the frame and adapted to force said cutters horizontally and simultaneously into the jamb of the casing and the adjacent edge of the door for the purpose of cutting a mortise for both leaves of the hinge, substantially as described.



2. In a machine of the character described, the frame A, A", A", *a*; a clamp adapted to be secured horizontally to the casing of the door and supporting the frame; the bifurcated horizontal rearward extension *a'*; the cam pivotally secured to said extension within the bifurcation; the horizontal rod or plunger F" within said extension, adapted to be engaged by the cam and provided with the plate F adapted to slide horizontally within the frame; and the cutters E provided with the inwardly-turned upper and lower edges E", substantially as set forth.

3. In a machine of the character described, a frame adapted to be clamped upon the casing of a door next the jamb to which the hinges are to be applied; a cutter-frame adapted to reciprocate vertically in said frame and provided with the forward extension K" vertically slotted at K"; the winged cutter L, L' within said slot and actuated by a shaft *l*"; and means for reciprocating said cutter-frame vertically within the frame and swinging the wings of the cutter out at substantially right angles to the slot, said portion K" being adapted, when the machine is clamped in position upon the casing, to extend between the jamb and the edge of the door, whereby the rear edges of the mortises for the two leaves of the hinge may be simultaneously cut, substantially as described.

4. In a machine of the character described, a frame adapted to be clamped upon the casing of a door next the jamb to which the hinges are to be applied; vertical rods *k* supported by the frame; the cutter-frame K, K' sliding on said rods and provided with the horizontal forward extension K" adapted to enter the space between the jamb and the door, said extension being formed with the vertical slot K"; the winged cutter L, L' within the slot, and shaft *l* to which the cutter is secured supported by the cutter-frame; the finger *l*" extending from said shaft; the projections P, P' located at the upper and lower portions of the machine and extending into the path of the finger for turning the winged cutter out before its downward stroke and into the slot before its upward stroke; and means for vertically reciprocating said cutter-frame, substantially as set forth.

5. A machine of the character described, comprising a frame adapted to be clamped upon a casing of a door next the jamb to which the hinges are to be applied; a pair of horizontally-moving cutters of shape to cut the size and upper and lower ends of the mortises in the jamb and door for the two leaves of a hinge; means for forcing said cutters simultaneously into the jamb and door; a horizontally-reciprocating cutter and cutter-frame supported by the machine and extending into the space between the jamb and the door and adapted to cut the rear edges of said mortises simultaneously, and means for vertically reciprocating said cutter and cutter-frame, substantially as described.

577,869. METHOD OF TOUGHENING OR STRENGTHENING METAL. ROBERT S. LOVELACE, Henstridge, England. Filed Oct. 23, 1896. Serial No. 609,854. (No specimens.)

Claim.—1. The herein-described mode of treating metal, which consists in applying a solution containing india-rubber to the metal while the latter is in a heated condition.

2. The herein-described mode of treating metal, which consists in applying a solution containing india-rubber to the metal while the latter is at a blood-red heat.

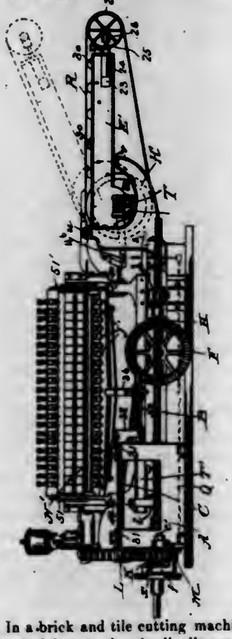
3. The herein-described mode of treating metal, which consists in dipping the metal while in a heated condition into a solution containing india-rubber, and allowing the metal to remain in the solution until fairly cool.

4. The herein-described mode of treating metal, which consists in applying a solution containing an oil, fat or grease and india-rubber to the metal while the latter is in a heated condition.

5. A tempering and toughening solution for metal, comprising linseed-oil, and india-rubber.

6. A tempering and toughening solution for metal comprising oil, fat or grease, india-rubber, soda and borax.

577,870. BRICK OR TILE CUTTING MACHINE. JOHN O. LUDLAM and JOHN L. MCKITTRICK, Canton, Ohio. Filed Apr. 13, 1896. Serial No. 587,252. (No model.)



Claim.—1. In a brick and tile cutting machine, a suitable supporting stationary bed-frame, a longitudinally-reciprocating carriage mounted on the said bed-frame, a transversely-reciprocating cutting-frame on the carriage, a shaft journaled on the bed and provided with a crank-arm, a connecting-rod between the crank and the longitudinally-movable carriage, a gear-wheel provided with a hollow hub or clutch member, a clutch member splined on the shaft, and provided with a radially-projecting roller, a guide in the path of the roller when rotated by the gear-wheel to separate the clutch members, substantially as set forth.

2. In a brick and tile cutting machine, a suitable supporting stationary bed-frame, a longitudinally-reciprocating carriage mounted on the bed-frame, a transversely-reciprocating cutting-frame on the carriage, a shaft journaled on the bed-frame, provided with a crank-arm, a connecting-rod, between the crank-arm and the carriage, a gear-wheel formed with a hollow hub or clutch member loosely journaled on the said shaft, a clutch member splined on the shaft, a radially-arranged friction-roller on the last-mentioned clutch member, an incline *a* down which the roller travels to disengage the clutch members, and a reverse incline down which the roller travels to engage the clutch members, substantially as set forth.

3. In a brick and tile cutting machine, the combination with the longitudinally-reciprocating carriage, of a line-shaft B, provided with a bevel-gear H, a bevel gear-wheel F, meshing with the gear H, formed with a hollow hub G', having clutch-teeth on its inner end, a clutch

G, a shaft D splined in the clutch and loose in the hub, a crank on the shaft, a connection between the crank and carriage, a radially-arranged roller *b*, on the clutch, and oppositely-arranged inclines in the path of the roller, whereby the clutch is thrown into and out of engagement, substantially as set forth.

4. In a brick and tile cutting machine, the combination with the longitudinally-reciprocating carriage, of a bar rigidly secured to and projecting from the rear end thereof, and formed with notches at a determined distance apart, a roller journaled in movable bearings and arranged to bear on the rigid bar and engage in the notches, to hold the carriage against movement, and means to lift the roller from the notches and permit the carriage to resume movement, substantially as set forth.

5. In a brick and tile cutting machine, the combination with the longitudinally-reciprocating carriage, of a bar rigidly secured to and projecting from the rear end of the carriage, and formed with notches, a yoke pivotally mounted on the bed-frame, a roller in the yoke to ride on the bar and engage in the notches, a rod projected laterally from the free end of the yoke, and a rotatable arm to lift the rod and raise the roller, substantially as set forth.

6. In a brick and tile cutting machine, the combination with the bed-frame, the longitudinally-reciprocating carriage, and the carrying-table, of a frame pivotally supported on the bed-frame, a roller journaled in the free end of the frame, a rigid bar formed with notches, projecting from the reciprocating carriage, in the path of the roller, a rod laterally extending from the free end of the frame, an arm on the shaft of the drum of the carrying-off table, to engage the lateral rod and lift the roller from the notches in the rigid bar, substantially as set forth.

7. In a brick and tile cutting machine, the combination with a longitudinally-reciprocating carriage, a transversely-reciprocating cutting-frame thereon, mechanism for actuating the carriage and cutting-frame, and a trip actuated by the severed clay to bring into action the operating mechanism aforesaid, substantially as set forth.

8. In a brick and tile cutting mechanism, a carrying-table, comprising stationary standards provided with bearings in their upper ends, and formed with rearwardly-projecting and upwardly-curved arms, adjusting-screws in the ends of the said arms, a frame pivotally hung in the bearings of the standards, rollers journaled in the frame, a drum journaled in adjustable bearings in the free end of the frame, a main drum journaled in the forward end of the frame, and a carrying-apron on the drums and traveling over the rollers in the frame, substantially as set forth and for the purpose specified.

9. In a brick and tile cutting machine, the combination with a longitudinally-reciprocating carriage, and a transversely-reciprocating cutting-frame thereon, of a driving-shaft, a loose pinion thereon, a crank-shaft, a gear-wheel thereon in mesh with the said loose pinion, a pull-rod between the crank-shaft and the cutting-frame, a disk-wheel fixed on the driving-shaft, radially-arranged rollers laterally projecting from the disk-wheel, a pawl N, eccentrically fulcrumed on the loose pinion, and formed with a bifurcated hub loosely straddling the driving-shaft, and in the path of the rollers on the disk-wheel, an oscillating arm on which the free end of the arm N lodges, means to oscillate the said oscillating arm, a pull-rod having one end connected to the oscillating arm and the other end fastened to a crank-arm on a rotary rocking lever-rod, a laterally-projecting lever on the free end of the rotary rocking lever, the clay-actuated drum of the carrying-table, and a rotating arm on the shaft of drum, to engage and lift the projecting lever, substantially as set forth.

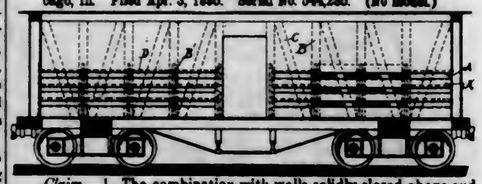
10. In a brick and tile cutting machine the combination with a longitudinally-reciprocating carriage, and a transversely-reciprocating cutting-frame thereon, of a driving-shaft, a loose pinion thereon, a crank-shaft, a gear-wheel L thereon in mesh with the loose pinion, a bar extending from the end of the crank, a sliding sleeve on said bar, a pull-bar connecting said sleeve to the cutting-frame, a disk-wheel on the driving-shaft, radially-arranged rollers projecting from the disk-wheel, a pawl N, eccentrically fulcrumed on the loose pinion, formed with a bifurcated hub loosely straddling the driving-shaft, and in the path of the rollers on the disk-wheel, a pinion M, journaled to mesh with the gear-wheel L, an oscillating arm, a yielding connection between the arm and the pinion M, a pull-rod having one end connected to the oscillating arm and the other to a crank-arm on rotary rocking rod, a lever-bar projected laterally from the free end of the rotary rocking rod, and a clay-actuated rotating arm to lift the lever-bar, substantially as set forth.

11. In a cutting-table for brick and tile, the combination of the longitudinally-reciprocating carriage, tracks transversely laid and secured on the carriage, said tracks being formed with vertical flanges on their outer edges, and the tracks having apertured ears on their inner faces, the transversely-reciprocating cutting-frame, having end pieces with bottoms formed to fit on the face of the tracks and over the flanges thereof, and having a flange on their inner upper faces, a keeper-plate formed with a laterally-projecting flange to set over the inner flanges of the said end pieces, and having vertical sleeves thereon, fastening-bolts projected through the keeper-plates, and fastening-bolts in the said sleeves and ears, substantially as set forth.

12. An intermitting clutch-lock, comprising a rotatable shaft, a loose pinion thereon, a pawl eccentrically fulcrumed on the loose pinion, and having a bifurcated hub loosely straddling the shaft, a disk-wheel fixed on the shaft, radially-arranged rollers projecting from the face of the disk in the path of one of the arms of the bifurcated hub, substantially as set forth.

13. An intermitting clutch-lock, comprising a rotatable shaft, a loose pinion thereon, a pawl eccentrically fulcrumed on the loose pinion and having a bifurcated hub, the arms of which loosely straddle the shaft, a disk-wheel fixed on the shaft, radially-arranged rollers projecting from the face of the disk in the path of one of the arms of the bifurcated hub, and a movable support actuated by the mechanism connected to the loose pinion, to intercept the free end of the eccentrically-fulcrumed pawl, substantially as set forth and for the purpose specified.

577,871. STOCK-CAR VENTILATOR. ALONZO C. MATHER, Chicago, Ill. Filed Apr. 3, 1896. Serial No. 544,285. (No model.)

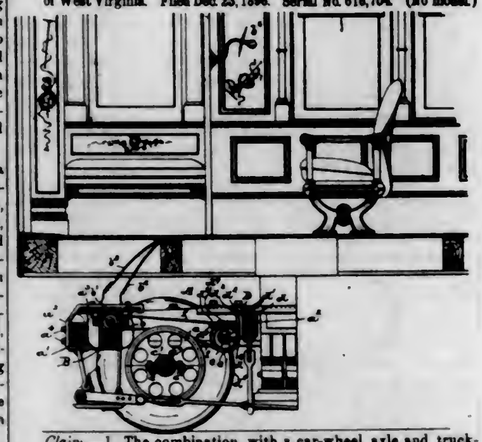


Claim.—1. The combination with walls solidly closed above and slatted longitudinally with open spaces between the slats at the lower half-wall, of a sliding piece with end slots transversely across said piece and headed bolts in said slots held in the framing of the car, substantially as specified.

2. The combination with side walls solidly closed above and slatted longitudinally with open spaces between the slats to the lower half-wall, of sliding pieces with transverse slots, headed bolts in said slots held in the framing of the car and gravity-actuated hooks to catch the lower edge of said sliding piece, substantially as specified.

3. The combination with side walls solidly closed above and slatted longitudinally with open spaces between the slats at the lower half-wall, and a filling-piece, of sliding pieces with transverse end slots, headed bolts in said slots held in the framing of the car, and gravity-actuated hooks to catch the lower edge of said sliding piece, substantially as specified.

577,872. ELECTRICAL CAR-LIGHTING. MORRIS MOSKOWITZ, Newark, N. J., assignor to the National Electric Car Lighting Company, of West Virginia. Filed Dec. 23, 1896. Serial No. 616,704. (No model.)



Claim.—1. The combination, with a car-wheel axle and truck-frame, of a dynamo on said frame, having an armature-shaft and a pulley-wheel thereon, a pulley-wheel on said car-wheel axle, and a counter-shaft in brackets secured to the car-truck, a pulley-wheel on said counter-shaft, all of said pulley-wheels being in alinement, and a belt passing around the dynamo-pulley and the pulley on said counter-shaft, and in frictional contact with the upper surface of the pulley-wheel on the car-wheel axle, said pulley-wheel on the car-wheel axle being adapted to be removed without moving the belt, substantially as and for the purposes set forth.

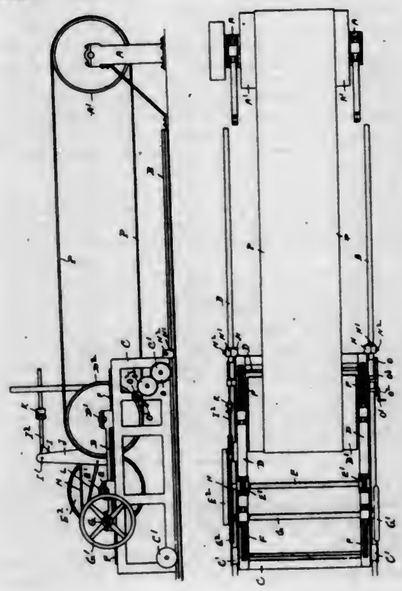
2. The combination, with a car-wheel axle and truck-frame, of a dynamo on said frame, a pulley-wheel on said car-wheel axle, said dynamo having an armature-shaft and a pulley-wheel thereon, brackets D on said frame, pivotally arranged and spring-actuated bearing-plates on said brackets, a shaft and pulley wheel connected with said bearing-plates, all of said pulley-wheels being in alinement, and a belt passing around said dynamo-pulley and pulley on the counter-shaft connected with said bearing-plates, and said belt passing over the upper portion of the pulley on the car-wheel axle in frictional contact therewith, said pulley-wheel on the car-wheel axle being adapted to be removed without moving the belt, substantially as and for the purposes set forth.

3. The combination, with a car-wheel axle and truck-frame, of a dynamo on said frame, a pulley-wheel on said car-wheel axle, a bracket D on said frame, a swinging bearing-plate d^4 on said bracket, a shaft *e*, a pulley-wheel *e'* on said shaft, and a belt *f*, passing over the upper surface of said pulley-wheel on the car-wheel axle, said pulley-wheel on the said car-wheel axle being adapted to be removed without moving the belt, substantially as and for the purposes set forth.

4. The combination, with a car-wheel axle and truck-frame, of a dynamo on said frame, a pulley-wheel on said car-wheel axle, a pair of brackets D on said frame, each comprising, a main or body portion *d* and means for securing the same to the truck-frame, ears or lugs on said portion *d*, bearing-plates d^4 pivotally arranged on bolts or pins in said ears or lugs, bearings on said plates, a shaft in said bearings, a pulley-wheel on said shaft, and a belt *f*, and means connected with each bracket D to maintain the proper tautness of said belt, consisting of posts d^4 on said body portions *d* extending through openings in said plates d^4, adjusting-nuts on the ends of said posts, and springs encircling said posts, all arranged, substantially as and for the purposes set forth.

5. The combination, with a car-wheel axle and truck-frame, of a dynamo on said frame, a pulley-wheel *e* made in halves, and having flanges *e'* and bolts e^4 for securing said halves in position on said car-wheel axle, a pair of brackets D on said frame, each comprising, a main or body portion *d* and means for securing the same to the truck-frame, ears or lugs on said portion *d*, bearing-plates d^4 pivotally arranged on bolts or pins in said ears or lugs, bearings on said plates, a shaft in said bearings, a pulley-wheel on said shaft, and a belt *f*, and means connected with each bracket D to maintain the proper tautness of said belt, consisting of posts d^4 on said body portions *d* extending through openings in said plates d^4, adjusting-nuts on the ends of said posts, and springs encircling said posts, all arranged, substantially as and for the purposes set forth.

577,873. BELT-STRETCHING MACHINE. TRACY MURDOCK, Worcester, Mass., assignor to the Graton & Knight Manufacturing Company, same place. Filed Jan. 20, 1896. Serial No. 576,238. (No model.)



Claim.—1. In a belt-stretching machine, the combination of a stationary frame, a drum supported by said frame, a movable carriage, a drum supported by said movable carriage, means for controlling the position of said movable carriage relatively to said stationary frame, whereby the axes of said drums are maintained in a parallel position, and means for adjusting the distance between said movable carriage and said stationary frame, substantially as described.

2. In a belt-stretching machine, the combination of a stationary frame, a drum supported by said frame, a track at right angles with the axis of said drum, a carriage movable on said track, a drum supported by said carriage with its axis at right angles with said track, means for moving said carriage along said track in order to vary the distance between said drums and means for attaching said carriage to said track in order to resist the strain upon a belt carried upon said drums, substantially as described.

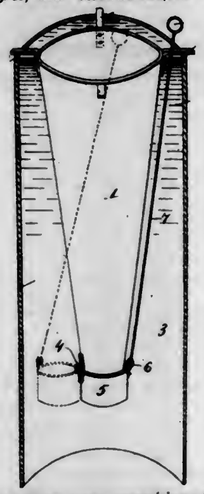
3. In a belt-stretching machine, the combination of a stationary frame, a rotating drum supported by said frame, a track at right angles with the axis of said drum, a carriage adjustably attached to said track, a frame supported on said carriage and capable of a sliding motion parallel with said track, a rotating drum supported by said sliding frame with its axis at right angles with said track and means for moving said frame and increasing the distance between said drums, substantially as described.

4. In a belt-stretching machine, the combination of a stationary frame, a drum supported by said frame, a track at right angles with the axis of said drum, a carriage movable on said track, a frame movable on said carriage, a drum supported by said frame, means for attaching said carriage to said track, and means for adjusting the position of said movable frame on said carriage, substantially as described.

5. In a belt-stretching machine, the combination of a rotating drum journaled in fixed bearings, a movable frame, ways along which said frame is moved, a shaft journaled in said frame, a drum carried on said shaft, an eccentric carried on said shaft, a fixed rack, a shaft journaled in said movable frame, a pinion carried on said shaft and engaging said rack, and operative mechanism between said drum-shaft and said pinion-shaft, whereby the latter is intermittently rotated to move said frame, substantially as described.

6. In a belt-stretching machine, the combination of a drum journaled in fixed bearings, a pair of rails forming a track at right angles with the axis of said drum, a carriage adapted to move along said track, a jaw projecting from said carriage, a movable jaw with one of the rails inclosed between said jaws, a tightening-bolt by which the rail is clamped between said jaws and the carriage held from movement on said track and a rotating drum supported by said carriage, substantially as described.

577,874. ORE-SEPARATOR. EDWARD P. MCDONALD, Ashaway, R. I. Filed Aug. 15, 1896. Serial No. 602,892. (No model.)



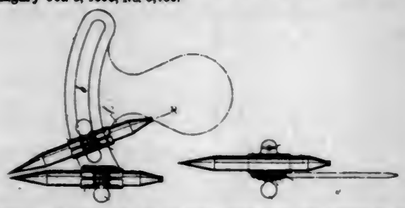
Claim.—1. An ore-separator, comprising a tank inclosing a body portion having a trap pivoted at its lower end, a loosely-connected operating-rod secured at one end to said trap and terminating in a finger-hold, said rod being adapted to swing said trap horizontally, and fingers secured to the upper portion of said body portion for attaching it to the tank, substantially as shown and described.

2. An ore-separator, comprising a tank adapted to be filled with water, inclosing a conical-shaped body portion, a trap pivoted to the

reduced end of the body portion and adapted to swing in a horizontal plane, an operating-rod attached to said trap and terminating in a finger-hold and fingers at the enlarged end of the body portion for securing it to the tank, substantially as shown and described.

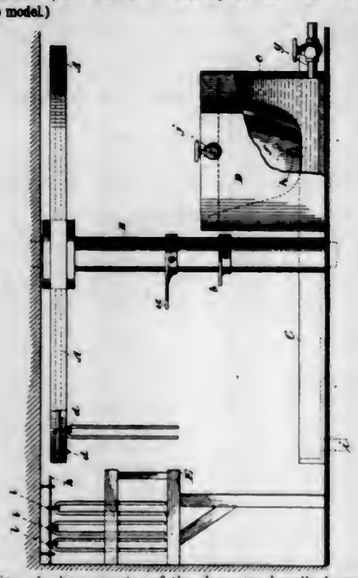
3. An ore-separator, comprising a tank in which is located a body portion having a pivoted trap secured thereto at the lower end, said trap being adapted to be swung in a horizontal plane so as to retain its contents, means for operating the trap comprising a rod, and fingers for securing the body portion to the tank, substantially as shown and described.

577,875. **PENHOLDER FOR WRITING ROUNDHAND.** PAUL NEUMANN, Berbisdorf, Germany. Filed Dec. 2, 1895. Serial No. 570,762. (No model.) Patented in Austria Sept. 28, 1895, No. 45/3,500, and in Hungary Oct. 3, 1895, No. 3,739.



Claim.—An apparatus for writing roundhand and consisting essentially of a pen, pencil or other like writing appliance fixed at one end of a curved slot in which move split tubes for retaining pencils or other writing instruments at any required angle with the fixed writing appliance or with each other, the said writing appliance being clamped in the split tubes and in the slot by pinch-screws, the whole substantially as described in the above specification and exemplified by the accompanying drawings.

577,876. **PLANT FOR COATING AND DRYING TUBING.** MARK M. NICHOLLS, New York, N. Y. Filed Sept. 26, 1896. Serial No. 607,040. (No model.)

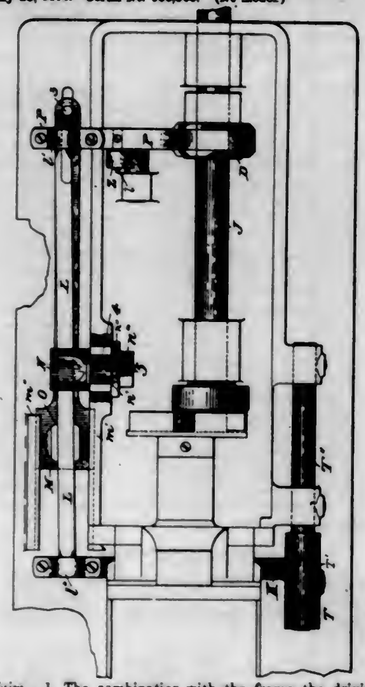


Claim.—1. An apparatus of the character described comprising a horizontally-rotatable drying-wheel having tube-supporting spokes radiating therefrom, hooks upon said spokes, a drip-pan under the said wheel for receiving the drippings from articles on said wheel, and a heated vat located under said wheel and in close proximity to the drip-pan, substantially as described.

2. An apparatus of the character specified comprising a horizontally-rotatable drying-wheel A having supporting-spokes e radiating therefrom, tube-supporting hooks upon said spokes, a drip-pan C under said wheel and conforming in contour to a portion thereof for receiving the drippings from articles carried upon said wheel, a heated vat located under said wheel and in proximity to the drip-pan, said vat comprising an outer casing *e*, a coating-containing vessel *f* with a heating-jacket formed between said casing *e* and vessel *f*, and means for heating fluid contained in said casing and for discharging said fluid to the drip-pan when desired, substantially as described.

3. An apparatus of the character described comprising a horizontally-rotatable drying-wheel having tube-supporting spokes radiating therefrom, hooks upon said spokes, a drip-pan under the said wheel for receiving the drippings from articles on said wheel, a heated vat located under said wheel and in close proximity to the drip-pan, and drying-racks in close proximity to the periphery, whereby the partly-dried articles upon the wheel may be readily transferred to the drying-racks, substantially as described.

577,877. **FEEDING MECHANISM FOR SEWING-MACHINES.** LANSING ONDERDONK, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed July 30, 1892. Renewed July 25, 1896. Serial No. 600,566. (No model.)



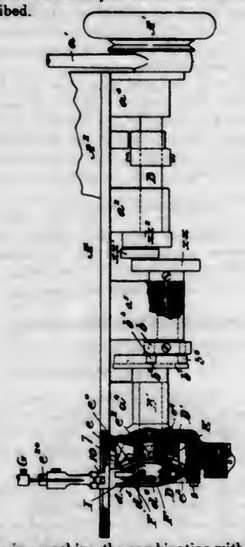
Claim.—1. The combination with the frame, the driving-shaft supported thereby carrying an eccentric, and a feed-bar, of a support for said feed-bar pivoted thereto and to the frame, a rod operated by the eccentric and pivotally supported between its ends, a gyratory lever connected by a universal joint at one end to the feed-bar and at the other end to the rod, means for pivotally supporting said gyratory lever intermediate its ends, and means for regulating the throw of the feed-bar; substantially as described.

2. The combination with the frame, the driving-shaft supported thereby carrying an eccentric, and a feed-bar, of a support for said feed-bar pivoted thereto and to the frame, a gyratory lever connected by a universal joint to the feed-bar, means for pivotally supporting said lever, means for adjusting the supporting means, and a rod connected to and operated by the eccentric, pivoted between its ends, and connected to and operating said lever; substantially as described.

3. The combination with the frame, the driving-shaft supported thereby carrying an eccentric, and a feed-bar, of a support for said feed-bar pivoted thereto and to the frame, and means for adjusting the support laterally of the bar, a rod operated by the eccentric and pivotally supported between its ends, a gyratory lever connected by a universal joint at one end to the feed-bar and at the other end to the rod, and means for pivotally supporting said gyratory lever intermediate its ends; substantially as described.

577,878. **SEWING-MACHINE.** LANSING ONDERDONK, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Oct. 6, 1892. Renewed July 25, 1896. Serial No. 600,566. (No model.)

Claim.—1. The combination of the needle, a rotating loop-taker provided with a plurality of hooks rigid therewith, mechanism for imparting to the needle a plurality of reciprocations to one revolution of the loop-taker, and continuous-rotary-motion mechanism comprising means for imparting to the loop-taker a multiplex variable motion whereby the motion of the loop-taker as a whole is accelerated and retarded a plurality of times in each revolution; substantially as described.



2. In a sewing-machine, the combination with a needle, a rotary loop-taker having a plurality of hooks, mechanism for imparting to the needle a plurality of reciprocations during one rotation of the loop-taker, said mechanism involving means for varying the motion of the needle during such reciprocations, and continuous-rotary-motion mechanism comprising means for imparting to the loop-taker a multiplex variable motion whereby the motion of the loop-taker is accelerated and retarded a plurality of times in each rotation to coöperate with the variable motion of the needle, substantially as described.

3. In a sewing-machine, the combination with a needle, means for reciprocating the same, and a rotary loop-taker having a plurality of hooks rigid therewith, of mechanism for imparting to the loop-taker as a whole rotary motion involving a duplex variation: substantially as described.

4. In a sewing-machine, the combination with a needle, means for reciprocating the same, and a rotary loop-taker having a plurality of hooks rigid therewith, of mechanism for imparting to the loop-taker as a whole continuous rotary motion involving a duplex variation during each rotation; substantially as described.

5. In a sewing-machine, the combination with a reciprocating needle and a rotary loop-taker having a plurality of hooks rigid therewith, of means for actuating said needle and loop-taker, the loop-taker-actuating mechanism comprising two speeding devices coöperating to impart to the loop-taker a duplex variation during each rotation; substantially as described.

6. In a sewing-machine, the combination with a reciprocating needle and a rotary loop-taker having a plurality of hooks rigid therewith, of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, and mechanism for imparting to the loop-taker as a whole variable motion during such rotation; substantially as described.

7. In a sewing-machine, the combination with a reciprocating needle and double-hooked rotary loop-taker, of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, mechanism for imparting to the needle a variable motion during such reciprocations, and mechanism for imparting to the loop-taker a variable motion during such rotation; substantially as described.

8. In a sewing-machine, the combination with a prime shaft, a needle, means for operating the latter from the prime shaft, a loop-taker having a plurality of hooks, a loop-taker shaft, a secondary shaft, connections between the prime and secondary shafts for varying the speed of the latter, and connections between the secondary and loop-taker shafts for reducing the number of rotations of the latter relative to the former; substantially as described.

9. In a sewing-machine, the combination with a reciprocating needle and a rotary loop-taker having a plurality of hooks of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, means for imparting to the needle a slow motion while in the vicinity of its lowest position, and means for accelerating the motion of the loop-taker during the slow motion of the needle; substantially as described.

10. In a sewing-machine, the combination with a reciprocating needle and a rotary loop-taker having a plurality of hooks of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, means for imparting to the needle a slow motion while in the vicinity of its lowest position and a rapid motion in ascending, and means for accelerating the loop-taker during the slow motion of the needle and retarding the loop-taker during the rapid motion of the needle; substantially as described.

11. In a sewing-machine, the combination with a reciprocating needle and a double-hooked rotary loop-taker, of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, mechanism for imparting to the loop-taker a variable motion during such rotation, and the take-up mechanism timed with relation to the motion of the loop-taker to properly draw in the stitch; substantially as described.

12. The combination in a sewing-machine with a reciprocating needle-bar and needle and a double-hooked rotary loop-taker, of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, means for imparting to the needle a variable motion during such reciprocations, and a take-up mechanism controlled by the movement of the needle-bar whereby the variable movement of the latter imparts the proper take-up action; substantially as described.

13. The combination in a sewing-machine with a reciprocating needle-bar and needle and a double-hooked rotary loop-taker, of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, means for imparting to the needle a variable motion during such reciprocations, means for imparting to the loop-taker a variable motion during such rotation, and a take-up mechanism partially carried by the needle-bar and controlled thereby, whereby the variable movement of the latter imparts the proper take-up action; substantially as described.

14. In a sewing-machine, the combination with a reciprocating needle and a rotary loop-taker, having a plurality of hooks, of mechanism for imparting to the needle two reciprocations during one rotation of the loop-taker, means for imparting to the needle a slow motion while in the vicinity of its lowest position and a rapid movement in ascending, means for accelerating the motion of the loop-taker during the slow motion of the needle and retarding the loop-taker during the rapid motion of the needle, and a take-up mechanism operating to draw in the stitch during the slow motion of the loop-taker; substantially as described.

15. In a sewing-machine the combination with a prime shaft, a secondary shaft and a loop-taker shaft, of connections between the prime and secondary shafts for operating the latter, connections between the secondary and the loop-taker shafts for reducing the number of rotations of the latter relative to the former, a loop-taker and complemental stitch-forming mechanism; substantially as described.

16. In a sewing-machine the combination with a driving-shaft and a driven shaft of connections between the two shafts for reducing the number of rotations of one relative to the other comprising a slotted disk on one shaft and a crank on the other shaft carrying a pin operating in the slot of the disk, and stitch-forming mechanism comprising a needle actuated from the driving-shaft to have a reciprocation for every revolution of the latter, substantially as described.

17. In a sewing-machine the combination with a driving-shaft and a driven shaft of connections between the two shafts for reducing the number of rotations of one relative to the other comprising a slotted disk on one shaft and a crank on the other shaft carrying a pin operating in the slot of the disk and suitable stitch-forming mechanism, said shafts being set out of line; substantially as described.

18. In a sewing-machine the combination with a prime shaft, a secondary shaft and a loop-taker shaft, of connections between the prime and secondary shafts, connections between the secondary and loop-taker shafts for reducing the number of rotations of the latter relative to the former, comprising a slotted disk on one shaft and a crank on the other shaft carrying a pin operating in the slot of the disk, a loop-taker, and complemental stitch-forming mechanism; substantially as described.

19. In a sewing-machine the combination with a driving-shaft and a loop-taker shaft, of connections between the two shafts for reducing the number of rotations of the latter relative to the former, comprising a disk carried by one shaft having diametrical slots arranged at a right angle to each other, and a crank on the other shaft having pins operating in the slots of the disk, a loop-taker, and complemental stitch-forming mechanism comprising a needle actuated from the driving-shaft to have a reciprocation for every revolution of the latter.

20. In a sewing-machine the combination with a prime shaft, a secondary shaft, and a loop-taker shaft, of connections between the

prime and secondary shafts for operating the latter, connections between the secondary and loop-taker shafts for reducing the number of rotations of the latter relative to the former, comprising a disk carried by one shaft having diametrical slots arranged at a right angle to each other, and a crank on the other shaft having pins operating in the slots of the disk, a loop-taker, and complemental stitch-forming mechanism; substantially as described.

21. In a sewing-machine the combination with a prime shaft, a secondary shaft, and a loop-taker shaft, of connections between the prime and secondary shafts for varying the speed of the latter relative to the former, connections between the secondary and loop-taker shafts for reducing the number of rotations of the latter relative to the former, a loop-taker, and complemental stitch-forming mechanism; substantially as described.

22. In a sewing-machine, the combination with a prime shaft, a needle, means for operating the latter from the prime shaft, a loop-taker having a plurality of hooks, a loop-taker shaft, a secondary shaft, connections between the prime shaft and secondary shaft for varying the speed of the latter and means between the secondary shaft and the loop-taker shaft for reducing the number of rotations of the latter relative to the former, comprising a slotted disk on one shaft and a crank on the other shaft carrying a pin operating in the slot of the disk; substantially as described.

23. In a sewing-machine, the combination with a prime shaft, a needle, means for operating the latter, a loop-taker having a plurality of hooks, a loop-taker shaft, a secondary shaft, connections between the prime shaft and secondary shaft for varying the speed of the latter, and means between the secondary shaft and the loop-taker shaft for reducing the speed of the latter relative to the former, comprising a disk carried by one shaft, and having diametrical slots arranged at a right angle to each other, and a crank on the other shaft having pins operating in the slots of the disk; substantially as described.

24. In a sewing-machine, the combination with a prime shaft, a needle, means for operating the latter, a loop-taker having a plurality of hooks, a loop-taker shaft, a secondary shaft, connections between the prime shaft and the secondary shaft for varying the speed of the latter, and means between the secondary shaft and the loop-taker shaft for reducing the speed of the latter relative to the former, consisting of an arrangement of the shafts whereby the axes will be eccentric relatively, a disk carried by one of said shafts and having diametric slots arranged at a right angle to each other, and a crank on the other shaft operating in the slots in the disk; substantially as described.

25. In a sewing-machine, the combination with a prime shaft, a needle, means for operating the latter, a loop-taker having a plurality of hooks, a loop-taker shaft, a secondary shaft, means between the prime shaft and secondary shaft for varying the speed of the latter, comprising a crank on each shaft having a pin and a link connecting said pins, and connections between the secondary shaft and loop-taker shaft for reducing the number of rotations of the latter relative to the former; substantially as described.

26. In a sewing-machine, the combination with a prime shaft, a needle, means for operating the latter, a loop-taker having a plurality of hooks, a loop-taker shaft, a secondary shaft, means between the prime shaft and secondary shaft for varying the speed of the latter, comprising an arrangement of the shafts whereby their axes will be eccentric relatively, and connections between the secondary and loop-taker shafts for reducing the number of rotations of the latter relative to the former; substantially as described.

27. In a sewing-machine, the combination with a prime shaft, a needle, means for operating the latter, a loop-taker having a plurality of hooks, a loop-taker shaft, a secondary shaft, means between the prime shaft and secondary shaft for varying the speed of the latter, consisting of an arrangement of the shafts whereby their axes will be eccentric relatively, a crank on each shaft having a pin, and a link connecting said pins, and connections between the secondary and loop-taker shafts for reducing the number of rotations of the latter relative to the former; substantially as described.

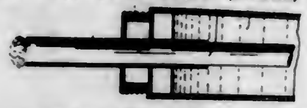
28. In a sewing-machine, the combination with a driving-shaft having a transverse slot at its forward end, a loop-taker driver pivoted within said slot having actuating-arms, a cam surrounding the shaft and actuating said driver, of a loop-taker race supported adjacent the driver and carrying a loop-taker having a series of openings for the reception of the arms of the driver, and also having a convex back, and a thread-guard supported by the driving-shaft adjacent the loop-taker extending lengthwise of the driver and slotted for its reception and passage, said guard being curved to conform to the convexity of the back of the loop-taker; substantially as described.

29. In a sewing-machine, the combination with the frame thereof, comprising a hanger, of a loop-taker race supported by said hanger, a bobbin-retainer pivoted to said hanger and confined to swing in a plane parallel with the wall of the race and provided with a notch in its lower extremity, and a spring-latch carried by said hanger and cooperating with said notch to hold the retainer in a vertical position; substantially as described.

30. The combination in a sewing-machine, with a reciprocating needle-bar and needle, and a rotary loop-taker having a plurality of hooks, of mechanism for actuating the loop-taker, mechanism for imparting to the needle-bar a plurality of reciprocations having a definite ratio with relation to a revolution of the hooks of the loop-taker, means for imparting to the needle-bar a variable motion during such reciprocations, and a take-up mechanism controlled by the movements of the needle-bar, whereby the latter imparts the take-up action; substantially as described.

31. The combination in a sewing-machine with a reciprocating needle-bar and needle, and a rotary loop-taker having a plurality of hooks, of mechanism for imparting the requisite movements to the needle and loop-taker, a take-up mechanism controlled by the needle-bar for beginning the take-up action, and means controlled by the loop-taker for finishing the take-up action; substantially as described.

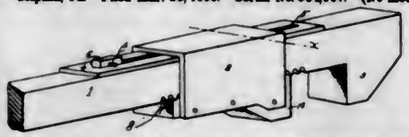
577,879. COMBINED CANE AND TORCH. OTIS F. PACKARD, Toledo, Ohio, assignor of one-half to Leroy S. Churchill, same place. Filed June 27, 1896. Serial No. 597,172. (No model.)



Claim.—1. In a combined cane and torch, a hollow body, a wick-holder carried thereby, and a handle removably secured to either end of the body, at the top to act as a cane-handle and to envelop the wick and the wick-holder, and at the bottom to act as a torch-handle.

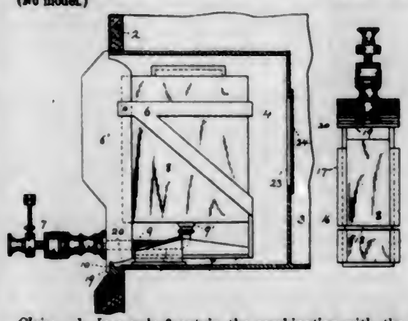
2. In a combined cane and torch, a body having an internal chamber provided with screw-threaded projections at each end, a wick-holder removably secured in the upper end, a hollow handle screw-threaded internally at or near each end whereby it may be secured to the upper end of the body to envelop the wick-holder, and to act as a cane-handle or to telescope and be secured to the lower end of the body to act as a torch-handle.

577,880. KEY-LOCKING WRENCH. JAMES M. PFLIEGER, Philadelphia, Pa. Filed Mar. 26, 1896. Serial No. 584,967. (No model.)



Claim.—In a key-locking wrench, the combination of shank 1, provided with its jaw 3, cog-teeth 8 and lug 6; sliding cog-toothed rack-block 7 provided with its jaw 10; enveloping-hood 2 arranged and secured substantially as shown; sliding key 4, provided with a long slot 5, through which lug 6 passes and pin 11, adapted to engage through a hole in said lug, substantially as described and for the purposes set forth.

577,881. SODA-WATER APPARATUS. LUTHER W. PUFFER, Lakeville Plantation, Me., assignor to the American Soda Fountain Company, Trenton, N. J. Filed July 24, 1896. Serial No. 600,356. (No model.)



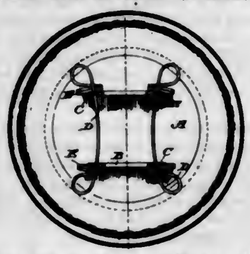
Claim.—1. In a soda-fountain the combination with the chamber-casing, of a rail longitudinally at the bottom of the chamber and in front, and a series of plates I-shaped in vertical cross-section transversely of the rail and of greater height at the rear than at the front, substantially as explained.

2. In a soda-fountain the combination with a syrup-jar chamber, syrup containing and discharging apparatus, a rail in front at the bottom of said chamber, and a plurality of flanged plates having the top edges rising rearwardly, of a syrup-jar, lateral lips longitudinally beneath to engage the flanged plates, and a transverse stop likewise in the bottom to engage the rail at stated times, substantially as specified.

3. In a soda-fountain the combination with a syrup-jar chamber, a rail in front along the bottom, a plurality of plates transversely of the rail and within the chamber, and top and bottom flanges on said plates, of a movable syrup-jar, oppositely-disposed lips longitudinally beneath the jar-bottom to engage the flanges on the plates, and cam-surfaces on the jar to wipe upon the rail, substantially as set forth.

4. In a soda-water fountain having containing and dispensing apparatus, the combination with a syrup-jar chamber, a front rail therefor, and a plurality of flanged plates having their top edges obliquely inclined upwardly and rearwardly of the chamber, of a syrup-jar fitted with the following instrumentalities, longitudinal lips to engage the flanges on the plates, a transverse stop on the rear bottom portion, a pendent lip at the front, a cam-shaped surface behind said lip, and a groove intermediate between the lip and the cam, substantially as explained.

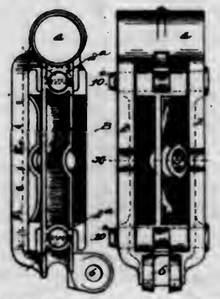
577,882. FLUE-STOPPER. WILLIAM G. RAU, Louisville, Ky. Filed Aug. 7, 1896. Serial No. 602,044. (No model.)



Claim.—1. As a new article of manufacture a flue cap or stopper having on the back thereof, two parallel-arranged eyes or sleeves and two bow-shaped wire spring-holders having coils near their lower ends and having said lower ends or terminals snugly fitting in the sleeves or eyes.

2. The combination with a flue cap or stopper, of the bail-shaped wire holders arranged opposite to each other and having coils near their inner ends and having their inner ends connected to the back of the cap or stopper.

577,883. STRUT FOR BRAKE-BEAMS. HENRY B. ROBICHUNG, Kalamazoo, Mich., assignor to the Chicago Railway Equipment Company, Chicago, Ill. Filed Mar. 21, 1896. Serial No. 584,300. (No model.)



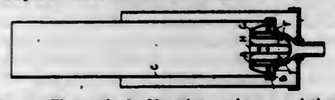
Claim.—1. A post or strut for brake-beams, composed of a cage-section, and an included reversible lever-section, substantially as and for the purposes specified.

2. The combination in a post or strut for brake-beams, of a cage-section having parallel side bars and a bottom bar, and a detachable lever-section having parallel bars which form the lever-slot and are perforated for the reception of the fulcrum or lever pin, substantially as and for the purposes specified.

3. The combination in a post or strut for brake-beams, of a slotted box or cage section and an included detachable and reversible lever-section having a lever-slot which registers with a slot of the cage-section, substantially as and for the purposes specified.

4. A post or strut for brake-beams, composed of a box or cage section and an included detachable lever-section, said sections being substantially rectangular in cross-section, the included section having a diagonally-placed lever-slot, and the cage-section having a slot which registers with the diagonally-placed slot of the included lever-section; substantially as and for the purposes specified.

577,884. GAS-LIGHTING APPARATUS. THOMAS ROWAN, London, England. Filed Dec. 26, 1895. Serial No. 573,342. (No model.)

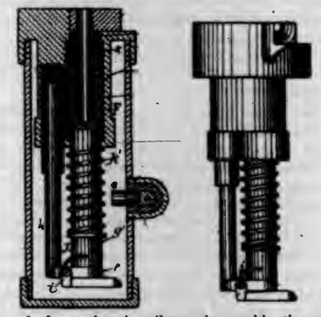


Claim.—1. The method of burning coal-gas consisting in feeding the gas to the burner at a low temperature and over a large area or surface, the gas at the burning-point being maintained at a minimum volume and supplying to the said gas a minimum amount of air at a high temperature, substantially as described, to produce complete combustion and high incandescence and luminating.

2. In combination in an Argand gas-burner, the burner proper having gas-jet openings spaced about five diameters apart to distribute a minimum volume of gas over a maximum surface or area, a double chimney communicating with the burner and adapted to conduct highly-heated air thereto in a minimum quantity and means for supplying cold air to the burner comprising a central air-passage up the burner to prevent the gas from being too highly heated before issuing from the burner, substantially as described.

3. In combination in an Argand gas-burner, the burner proper having gas-jet openings spaced about five diameters apart to distribute a minimum volume of gas over a maximum surface or area, a double chimney communicating with the burner and adapted to conduct highly-heated air thereto in a minimum quantity, means for supplying cold air to the burner comprising a central air-passage up the burner to prevent the gas from being too highly heated before issuing from the burner, and the cone G about the burner forming the means for leading the hot air from the double chimney to the burning-point, substantially as described.

577,885. ELECTRIC RAILWAY. COURTLAND SKINNER, Chicago, Ill. Filed May 27, 1895. Serial No. 550,751. (No model.)



Claim.—1. In an electric railway, the combination with a sealed receptacle, an insulated current-wire, a lateral branch therefrom entering said receptacle, and a circuit-closing bolt movable bodily vertically, but normally depressed in said receptacle, of a car, motor therefor and devices carried by said car for directly engaging the top of and lifting said bolt, so as to bring the same in electrical contact with said lateral branch and close the circuit therethrough between said current-wire and car.

2. In an electrical railway, the combination with a sealed receptacle, a current-wire, a vertically-movable circuit-closing bolt, and a spring-electrode hinged to the lower end of the same, of a car, a motor therefor, and devices carried by said car for directly engaging and lifting said bolt so as to bring said hinged electrode in electrical contact with said current-wire and close the circuit from the latter to the car, and a vertically-movable circuit-closing bolt normally depressed in said receptacle, of a car, motor therefor, and devices carried by said car for directly engaging and lifting said bolt so as to close the circuit between said current-wire and car.

3. In an electrical railway, the combination with a sealed receptacle, a current-wire, a normally-depressed, circuit-closing bolt movable bodily vertically, and a spring-controlled electrode hinging to the lower end of the same, of a car, a motor therefor, and devices carried by said car for, directly engaging and lifting said bolt so as to bring said hinged electrode in electrical contact with said current-wire and close the circuit from the latter to the car.

4. In an electric railway, the combination with a sealed receptacle, a current-wire, a lateral branch therefrom entering said receptacle, and a vertically-movable circuit-closing bolt, and a spring-controlled electrode hinged to the lower end of the same, of a car, a motor therefor, and devices carried by said car for directly engaging and lifting said bolt so as to bring said hinged electrode in contact with said lateral branch, and thereby close the circuit from said current-wire to said car.

5. In an electric railway, the combination with a sealed receptacle, a current-wire, a lateral branch therefrom entering said receptacle and provided with a removable end piece, a vertically-movable circuit-closing bolt normally depressed in said receptacle, and a spring-controlled electrode hinged to the lower end of the same, of a car, a motor therefor, and devices carried by said car for directly engaging and lifting said bolt so as to bring said hinged electrode in contact with the removable end piece of said lateral branch, and thereby close the circuit from said current-wire to said car.

6. The combination with a current-wire, sections of pipe within which said current-wire is insulated, vertical cylindrical boxes from which said wire is insulated but with the interior of which it electrically communicates, a head closing the bottom of said box, a cover screwed to the top of said box having a guide-boss depending therefrom, and a normally-depressed circuit-closing bolt, so constructed that when lifted it is insulated from said box through the cover of which it moves, of a car, a motor therefor and devices carried by said car which directly engages and lifts said bolt and thereby closes the circuit between said current-wire and car.

7. The combination in an electric railway with a current-wire, sections of pipe within which said current-wire is insulated, T-couplings connecting said sections of pipe, vertical cylindrical boxes into which the lateral arm of said T-coupling into which T-coupling a branch of said current-wire extends, and a normally-depressed vertically-movable circuit-closing bolt, which moves through the top of said boxes, of a car, motor therefor, and devices carried by said car which directly engage and lift said bolt and thereby close the circuit between said current-wire and car.

8. The combination in an electric railway, with insulated sections of current-wire, sections of pipe within which said sections of circuit-wire are placed, T-couplings connecting said pipe-sections, and a T-shaped metallic core, insulated in said T-couplings, for connecting the sections of current-wire, vertical cylindrical boxes into which the lateral arm of said T-coupling is tapped, and into which the lateral arm of said metallic core extends, and a normally-depressed vertically-movable circuit-closing bolt, which moves through the top of said boxes, of a car-motor therefor, and devices carried by said car which directly engage and lift said bolt and thereby close the circuit between said current-wire and car.

9. The combination in an electric railway with insulated sections of current-wire, sections of pipe within which said sections of wire are placed, T-couplings connecting said pipe-sections and a T-shaped metallic core insulated in said T-couplings for connecting said sections of current-wire, the end of the lateral arm of which is provided with a longitudinal hole, a removable contact-piece the shank of which is seated in said hole, vertical cylindrical boxes into which the lateral arm of said T-coupling is tapped, and into which the removable contact-piece extends, and a normally-depressed vertically-movable circuit-closing bolt which moves through the top of said boxes, of a car, motor therefor, and devices carried by said car that directly engage and lift said bolt, and thereby close the circuit between said current-wire and car.

10. The combination in an electric car with an insulated current-wire, boxes from which said wire is insulated but with the interior of which it electrically communicates, and normally-depressed bolts movable bodily vertically so constructed that when elevated they are insulated from said boxes through the top of which they move, of a car, motor therefor, a plow on each end of said car, and a tram connecting the upper ends of said plows directly engaging the upper ends of said bolts and lifting them to said tram thereby closing the circuit between said current-wire and tram.

11. The combination in an electric car with an insulated current-wire, boxes from which said wire is insulated, but with the interior of which it electrically communicates, and normally-depressed bolts, movable bodily vertically, and so constructed that when in their elevated position they are insulated from said boxes through the tops of which they move, of a car, motor therefor, a plow on each end of said car, and a tram connecting the upper ends of said plows which can curve laterally but not vertically; said plows directly engaging the upper ends of said bolts and lifting them to said tram and thereby closing the circuit between said current-wire and tram.

12. The combination in an electric railway, with an insulated current-wire, boxes from which said wire is insulated but with the interior of which it electrically communicates, and normally-depressed bolts movable bodily vertically so constructed that when in their elevated position they are insulated from said boxes through the tops of which they move, of a car, motor therefor, a plow on each end of said car, a tram communicating with the upper ends of said plows, and depressors insulated from said car and plows; said plows lifting said bolts and thereby closing the circuit between said current-wire and tram, and said depressor depressing said bolts, as set forth.

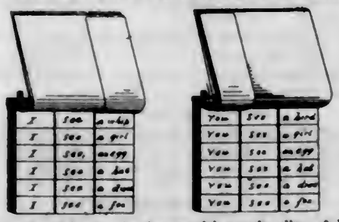
13. The combination with an electric railway, with an insulated current-wire, boxes from which said wire is insulated but with the interior of which it electrically communicates, and normally-depressed vertically-movable bolts so constructed that when in their elevated position they are insulated from said boxes through the tops of which they move, of a car, motor therefor, a plow on each end of said car, a tram consisting of several links connecting with which are extensible portions, substantially as described, said tram capable of curving laterally but not vertically, said plows directly engaging and lifting said bolts, and thereby closing the circuit between said current-wire and tram, as set forth.

14. In an electric railway, the combination with a normally-insulated underground current-wire, a car, a motor carried thereby, and collector therefor, of a normally depressed and insulated current-closing bolt, movable bodily vertically, and insulated between its exposed ends, which when raised by said collector closes the circuit between said current-wire and motor.

15. In an electric railway the combination with a normally-insulated underground current-wire, a car, a motor carried thereby and collector therefor, of a normally depressed and insulated circuit-closing bolt, movable bodily, vertically and consisting of a central metallic bolt, insulating material covering the same between its exposed ends and a metal casing or jacket surrounding said insulation so as to leave the end portions of said insulating material exposed and so as to avoid contact with the ends of said bolt; said bolt when raised by said collector closing the circuit between said current-wire and motor.

16. In an electric railway the combination with a normally-insulated underground current-wire, a car, a motor carried thereby and collector therefor, of a normally depressed and insulated circuit-closing bolt, movable bodily, vertically, and consisting of a central metallic bolt, and insulating material covering the same between its exposed ends; said bolt when raised by said collector closing the circuit between said current-wire and a motor.

577,886. TEACHING-CHART. LOUISE SNYDER, Minneapolis, Minn. Filed May 17, 1896. Serial No. 549,615. (No model.)



Claim.—1. A chart or book comprising a plurality of slitted sectional leaves bound together at one edge, and containing words or reading matter, the slit or slits of one leaf registering with those of all the other leaves, whereby when one or more sections of one leaf are turned up, the reading matter thus exposed on the section or sections of the underlying leaf, will be in reading registration with the matter contained on the unturned portion of the leaf first mentioned.

2. A chart or book comprising a plurality of leaves containing reading matter and bound together at their upper ends, each of said leaves being slitted or divided vertically or crosswise of the reading-lines to form sections so that any section of one leaf may be turned independently of the other sections of the same leaf to bring the reading matter of one or more of said other sections into reading registration with the reading matter on the leaf-section below said turned or raised section.

3. As an article of manufacture, a chart or book comprising one or more entire or undivided leaves containing words or symbols, and a plurality of slitted or sectional leaves, all of said leaves being bound together at their top edge, and said slitted leaves containing words or reading matter, the slit or slits of one leaf registering with those of all the other slitted leaves, whereby when one or more sections of one slitted leaf are turned up, the reading matter thus exposed on the section or sections of the underlying leaf will be in reading registration with the matter contained on the unturned portion of the slitted leaf first mentioned; substantially as described.

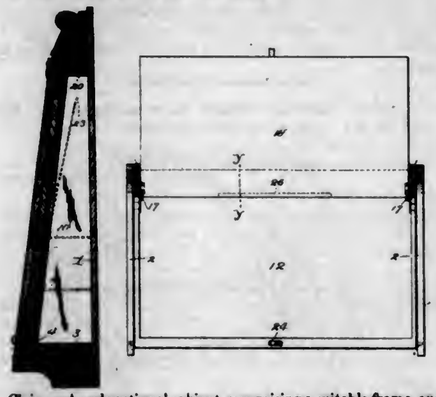
577,887. DENTAL MALLET. JERE R. STANTON, Boston, Mass. Filed Mar. 25, 1896. Serial No. 584,787. (No model.)

Claim.—1. In a pneumatic dental mallet, the combination of a handle with a tube, a tool-bearing spring engaging with said tube near the outer or tool-bearing end, and provided at its inner end with a head, a reciprocating spring-cushioned piston provided with a clutch adapted to engage with said head, air inlet and outlet passages and a pneumatic bulb, all arranged and operating substantially as and for the purposes described.



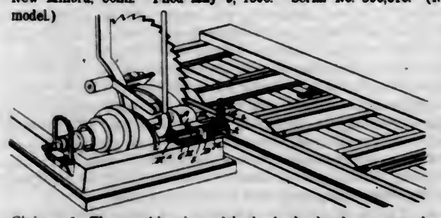
2. In a pneumatic dental mallet, a handle provided with suitable air inlet and outlet passages, and having the regulating-screw F, in combination with a pneumatic bulb, a tool-bearing spring provided with the head *h*, a reciprocating spring-cushioned piston provided with the pivoted spring-jaws L L', adapted to engage with the head *h*, and the shank and spindle N, *n*, adapted to engage with said jaws, all arranged and operating substantially as and for the purposes described.

577,888. EDUCATIONAL CABINET. DAVID K. THOMAS, Brunswick, Mo., assignor of one-half to A. G. Glaser, same place. Filed Dec. 26, 1895. Serial No. 573,338. (No model.)



Claim.—An educational cabinet, comprising a suitable frame, and a blackboard in the form of a lid or cover consisting of two sections hinged together at their upper ends, the front section occupying a recess in the face of the inner or rear section, a turn-button for securing said sections together at their lower ends, a loop or grip upon the section occupying the recess, and a guard-strip secured to the inner or rear section and bearing against the rear side of the other section when it is operated and caused to rest upon said inner or rear section, substantially as shown and described.

577,889. GAGE-ROLL FOR SAWMILLS. HOMER J. THOMAS, New Milford, Conn. Filed May 9, 1896. Serial No. 590,810. (No model.)



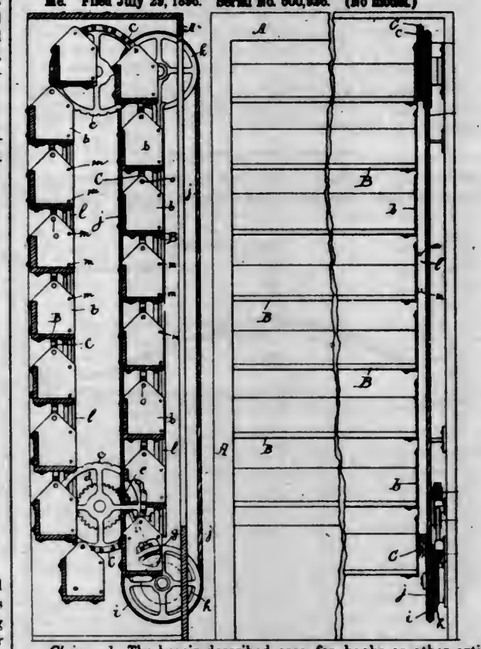
Claim.—1. The combination with the body, having a carrying-roll journaled therein near the end of the guide-ribs, arranged at the top and bottom of the said body portion, the sliding member working upon said ribs, said sliding member having a worm rack-bar, the shaft hand-wheel and worm, the gage-roll pivoted within the sliding member and adapted to normally rest in a vertical position, said gage-roll having a right-angular arm adapted to engage a spring-catch, said roll being adapted to be turned down parallel with the carrying-roll of the body portion, substantially as shown and described.

2. The combination with the body and slide member, said slide member having a cushion at one end, a gage-roll having a screw-knob at one end, said roll being pivoted within the sliding member and adapted to fold down and rest upon the cushion, the screw-knob resting directly upon the cushion, said roll acting as a carrying-roll when turned down, substantially as shown and described.

3. The combination with the slide member, constructed as described, of the gage-roll pivoted therein and adapted to fold from a vertical to a horizontal position, the arm rigid with the roll, and the locking-catch adapted to engage the said arm, all arranged substantially as shown and described.

4. The combination with the body having ribs or tongues, of a slide member having grooves, the hand-wheel and shaft, the scale and indicator, the gage-roll and arm pivoted in the slide member, the screw-knob, and the automatic catch, all arranged substantially as shown and described.

577,890. CASE FOR BOOKS, &c. CHARLES A. TUCKER, Portland, Me. Filed July 29, 1896. Serial No. 600,936. (No model.)



Claim.—1. The herein-described case for books or other articles consisting of a pair of endless chains, a series of shelves pivoted thereto, sprocket-wheels for said chains, guides for keeping said shelves horizontal, an endless hand-rope, guide-pulleys for the same, a gear connected with one of the said pulleys, a gear connected with one of said sprocket-wheels, and a shaft having on one end a pinion connecting with said first-mentioned gear and a worm connected with the other gear, whereby the sprocket-wheels are operated by said hand-rope.

2. The herein-described case for books and other articles consisting of a pair of endless chains, sprocket-wheels for said chains, a series of shelves and hangers for supporting the ends of said shelves, said hangers being pivoted by their upper ends to said chains, grooved vertical guides and pins projecting from the said sprockets below the level of the supporting-pivot and adapted to travel in the grooves of said guides for maintaining said shelves in a horizontal position, a gear connected with one of said sprocket-wheels, a worm-gear adapted to engage said gear and means for actuating said worm-gear.

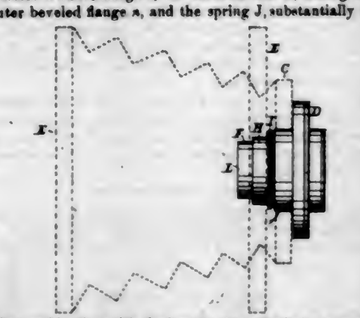
577,891. PHOTOGRAPHIC LENS. HENRY H. TURNER, Rochester, N. Y., assignor to the Gundlach Optical Company, same place. Filed Sept. 8, 1896. Serial No. 605,114. (No model.)

Claim.—1. The combination with the collapsible body of a camera, of a collapsible-lens mount, having a movable rear lens, adapted to be collapsed by the closing of the camera and a spring for expanding the lens-mount when the camera is opened, substantially as described.

2. The combination with the collapsible body of a camera, of a collapsible-lens mount, having a movable rear lens, adapted to be collapsed by the closing of the camera, and a spring for expanding the lens-mount when the camera is opened, and means for centering the lenses when the lens-mount is extended, substantially as described.

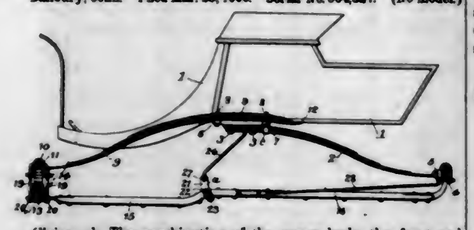
3. The combination with the lens A of a suitable lens-mount, the movable lens B, sliding tube F and spring J, substantially as described.

4. The combination with the lens A of a suitable lens-mount, having interior beveled flange *o*, the movable lens B, sliding tube F, having outer beveled flange *n*, and the spring J, substantially as described.



5. The combination with the lens A of a suitable lens-mount, the threaded collar I, one or more sliding tubes F H, and the spring J, substantially as described.

577,892. RUNNING-GEAR FOR WAGONS. JAMES VAUGHAN, Danbury, Conn. Filed Mar. 23, 1896. Serial No. 584,537. (No model.)



Claim.—1. The combination of the wagon-body, the front and rear springs extending lengthwise of said body and arranged in pairs one of which is contained within the other the outer extremities of said springs being respectively connected with the rear axle and the bolster over the front axle, the reach made in two sections whose outer extremities are connected respectively with the front and rear axles, the link to which the inner ends of said sections are pivoted in different horizontal planes, and the bar whose extremities are pivoted to the wagon-body and said link, substantially as set forth.

2. The combination in a running-gear for wagons, of the wagon-body, the front and rear axles, a sectional reach whose outer extremities are connected respectively with said axles, a link to which the inner ends of the reach-sections are pivoted in different horizontal planes, and a bar whose upper end is pivoted to the wagon-body while its lower extremity is pivoted to said link, substantially as set forth.

3. In a wagon, the herein-described reach comprising two sections and an intermediate link to which the inner ends of said sections are pivotally connected in different horizontal planes whereby said sections are capable of lengthwise extension and contraction, the outer extremities of these sections being secured to the front and rear axles of the wagon, while said link is connected with the wagon-body whereby the vertical movements of the latter vary the distance between said axles, substantially as set forth.

577,893. LAMP-BURNER ATTACHMENT. MARY A. VOLKERATH, Huntington, W. Va. Filed June 3, 1896. Serial No. 594,076. (No model.)



Claim.—1. An attachment to a lamp-burner having a loop for the passage of the wick and an offset for throwing the wick out of the line of said loop and a portion to bear against the wick in proximity to the offset, as set forth.

2. An attachment for a lamp-burner having a loop for the passage of the wick and an offset at its lower end, and spring-arms bearing against the wick above the offset, as set forth.

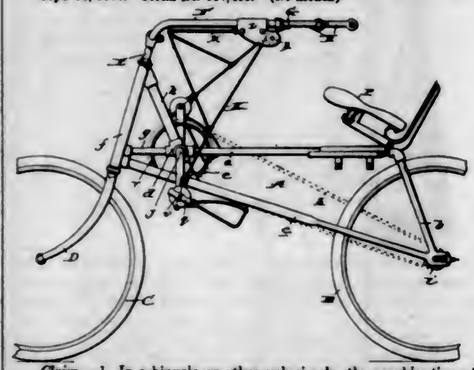
3. An attachment for the purpose described formed of a single piece of material and comprising a loop at its upper end, depending arms with an offset at their lower ends, and spring-arms having their lower ends terminating in hooks, substantially as and for the purpose specified.

577,894. COMBINED AIR-HEATER AND SURFACE CONDENSER. JOSEPH A. WADE, Liverpool, England, assignor to James Arthur Palethorpe, same place. Filed May 3, 1896. Serial No. 548,045. (No model.)



Claim.—A combined air-heater and surface condenser of parallelepipedon shape comprising a body tilted toward one end and toward one side having pendent transversely-arranged top deflectors, the upwardly-extending transversely-arranged bottom deflectors each having a perforation at the lowest side of the body and alternating with the pendent deflectors, the steam-inlet port located in the top at the highest corner of the body, a water-outlet located at the bottom at the lowest diagonally opposite corner of the body, and the closely-arranged air-tubes extending through the body and through the deflectors and arranged parallel with the body; substantially as described.

577,895. BICYCLE. IRVING F. WALSH, Woonsocket, R. I. Filed Sept. 30, 1896. Serial No. 607,413. (No model.)

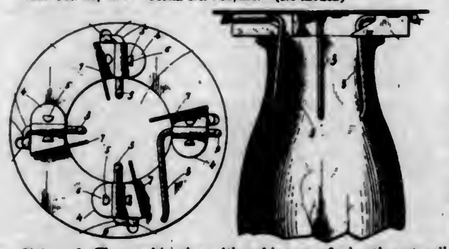


Claim.—1. In a bicycle or other velocipede, the combination of a main frame having top line-tubes, rear stays connected with the top line-tubes, bottom line-tubes connected to and extending forwardly and upwardly from the lower ends of the rear stays, the head-post connected at its lower end to the forward ends of the bottom line-tubes, the crank-shaft hanger receiving and connected to the top line-tubes, braces *e*, connecting the crank-shaft hanger and the bottom line-tubes, a brace *g*, connecting the hanger and the lower portion of the head-post, and a brace *h*, connecting the hanger and the upper end of the head-post, a drive-wheel mounted in and supporting the main frame, a pilot-wheel, a fork carrying said wheel and having a rod journaled in the main frame, a handle-bar connected to the said rod and having the rearwardly-extending tubular portions, reciprocating rods arranged and adapted to move in the said portions of the handle-bar, a crank-shaft journaled in the hanger and having pedal-cranks and pedals thereon, gearing intermediate of said crank-shaft and the drive-wheel and connections intermediate of the crank-shaft and the reciprocating rods, substantially as specified.

2. In a bicycle or other velocipede, the combination of a main frame, a drive-wheel mounted in and supporting said frame, a pilot-wheel, a fork carrying said wheel and having a rod journaled in the main frame, a handle-bar connected to the said rod and having the rearwardly-extending tubular portions, reciprocatory rods arranged and adapted to move in the said portions of the handle-bar, a crank-shaft journaled in the main frame and having pedal-cranks and pedals thereon, gearing intermediate of said crank-shaft and the drive-wheel, flexible connections between the reciprocatory rods and the crank-shaft, slides arranged on the handle-bar and having wheels engaging said flexible connections, elastic devices connected at opposite ends to the flexible connections and slides and taking over guides on the main frame and means for assisting the forward movement of the reciprocatory rods, substantially as specified.

3. In a bicycle or other velocipede, a pedal and a clip connected to the rear side of the pedal and comprising a longitudinal central bar having the upwardly-bent rear end, and the loop connected to the forward end of the longitudinal central bar and the upper end of the rear branch thereof, substantially as and for the purpose set forth.

577,896. HEATING UTENSIL. JOHN H. WALKER, Buffalo, N. Y. Filed Oct. 29, 1896. Serial No. 610,428. (No model.)



Claim.—1. The combination with a chimney, of a heating utensil comprising a base portion and a series of hinged spring supporting-arms depending therefrom, and locking devices so arranged on the base portion that the said supporting-arms are automatically locked in their proper depending position, when sprung in the chimney-mouth.

2. A heating utensil, adapted to be attached to a lamp-chimney, comprising a base-plate, and a series of supporting-arms hinged thereto and provided with bent ends for limiting their pivotal folding or unfolding movement to or from said base.

3. A heating utensil consisting of a utensil-base, spring supporting-arms, and supporting portions or clamping-hinges for hinging and securing said arms to said base.

4. A heating utensil, consisting of a utensil-base, spring supporting-arms, supporting portions or clamping-hinges for hinging and securing said arms to said base and a series of depending portions for elevating the said base and thereby forming air or draft spaces between the chimney-top and the bottom of the utensil-base, as set forth.

5. A heating utensil, adapted to be attached to the top of a lamp or other chimney, consisting of a base-plate, a series of spring supporting-arms hinged thereto and adapted to press against the interior surface of the chimney, and devices for locking them with a spring force in their depending position when the utensil is attached to the chimney-top.

6. The combination of a utensil-base, clamping-ears stamped therefrom and formed integral therewith, clamping-hinges, slits in said hinges through which the said clamping-ears are passed and folded down and thus fasten the said clamping-hinges to the utensil-base, spring supporting-arms fastened in and depending from said clamping-hinges, and locking-ears also stamped from the said base for securely holding the arms in their downward depending position when the said arms are pressed against the interior of the lamp-chimney, substantially as described.

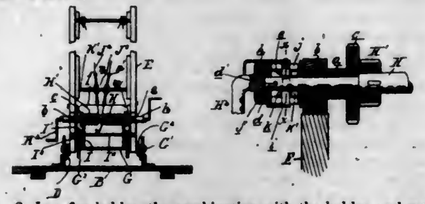
7. The combination with a chimney, of a heating utensil, consisting of a utensil-base, spring supporting-arms hinged to the said utensil-base, said arms being adapted to fit in the chimney-top and press outward against the interior surface of the said chimney, and locking-ears whereby the said arms are rigidly held in their position when the utensil is secured to the chimney, as set forth.

8. A heating utensil, adapted to be attached to a lamp-chimney, comprising a base-plate and a series of spring supporting-arms hinged and detachably secured thereto, the said arms being immovably locked in their proper depending position when the utensil is attached to the chimney, but removable therefrom when the utensil is not located on said chimney.

9. A heating utensil, adapted to be attached to a lamp-chimney, comprising a base-plate and a series of supporting-arms depending therefrom and adapted to fit in and press outwardly against the interior surface of said chimney, the said arms being unremovably secured to said base-plate when the utensil is attached to the chimney, but capable of detachment therefrom when the utensil is separate from the said chimney.

577,897. FIRE-LADDER. MARK A. WALKER, Detroit, Mich., assignor to Thomas J. Quinn, same place. Filed Feb. 18, 1896. Serial No. 579,749. (No model.)

Claim.—1. In a fire-ladder, the combination with the ladder and means for erecting and extending the same, of a crank connection for actuating either the erecting or extending mechanism comprising a shaft adapted to operate the one, a sleeve on said shaft adapted to operate the other, a crank having a socket fitting over said shaft and sleeve, and a shifting device adapted to connect said socket to either shaft or sleeve.



2. In a fire-ladder, the combination with the ladder and means for erecting and extending the same, of a shaft and a sleeve on said shaft, the one connected to the erecting mechanism and the other to the extending mechanism, a fixed collar in the projecting end of the shaft arranged to leave an annular space between it and the end of the sleeve, said collar and sleeve having keyways formed in their adjacent ends, a crank having a socket fitting over said collar and sleeve, and an inwardly-projecting lug adapted to be adjusted laterally to engage with either one of said keyways or to register with said annular space.

3. In a fire-ladder, the combination with the ladder and means for erecting and extending the same, of the shaft H connected to the erecting mechanism, the sleeve *a* thereon connected to the extending mechanism, the collar *d* secured to the projecting end of the shaft so as to leave the annular space *e* between it and the end of the sleeve, the said collar and sleeve having slots or keyways *k* and *k'* formed in their adjacent ends respectively, the crank H^2 having the socket *f* fitting over said collar and sleeve, said socket having the lug *g* extending into the annular space *e*, and the longitudinal slot *j*, and the sleeve *h*, longitudinally adjustably secured upon the socket *f* and having the inwardly-projecting lug passing through the slot *j* and adapted to be engaged with either of the slots *k* or *k'* or to be registered with the annular space *e*.

4. In a ladder, the combination, with the two side bars, one of said bars having a socket formed therein, the other of said side bars having an opening, of a suitable socket V^3 adapted to close said opening, a round fashioned to pass through said opening and engage both of said sockets, and a tie-rod passing through the socket V^3 and the side bars of said ladder for holding said round and socket in place.

5. In a fire-ladder, the combination with a wheel-truck swiveled upon a hollow king-bolt, a rocking brake-beam carried by said truck, brake shoes on crank-arms on said beam, in proximity to the wheels of the truck, a rock-arm for said brake-beam adapted to move the shoes in contact with the wheels, and an actuating connection for said rock-arm passing through said hollow king-bolt and comprising a pivoted link-section.

6. In a fire-ladder, the combination of the frame, the wheel-truck supporting said frame, the hollow king-bolt P, the brake-beam N, the links N' and N^2 securing said beam to the truck, the crank-arms N^4 and the rock-arm N^7 on said beam, the brake-shoes N^6 on said crank-arms, the foot-lever O^7 on the frame, the rock-shaft O^4 having the arms O^5 connected to said lever, the rod O' passing through the king-bolt, the link O connecting said rod to the arm N^7, the arm O^3 on the rock-shaft, and a swivel connection between said arm and rod O'.

7. In a fire-ladder truck, the combination with a spring-supported circle-plate, of links depending from said circle longitudinally slotted at their lower ends, a shaft passing through said slots journaled in bearings rigidly secured to the axle, clamping-plates having a screw-threaded engagement with said shaft, and means for turning the shaft to operate said clamping-plates and rigidly secure the links to the axle.

8. In a fire-ladder truck, the combination with a spring-supported circle-plate, of the links R depending from said circle-plate, having the longitudinal slots R' at their lower ends, the shaft R^4 passing through said slots, the bearings R^3 in which said shaft is journaled rigidly secured to the axle, the clamping plates or collars R^2 having respectively a right and left screw-threaded engagement with said shaft and the lugs *w* entering the slots R' and means for turning the shaft to clamp or unclamp said links between said collars R^2 and bearings R^3.

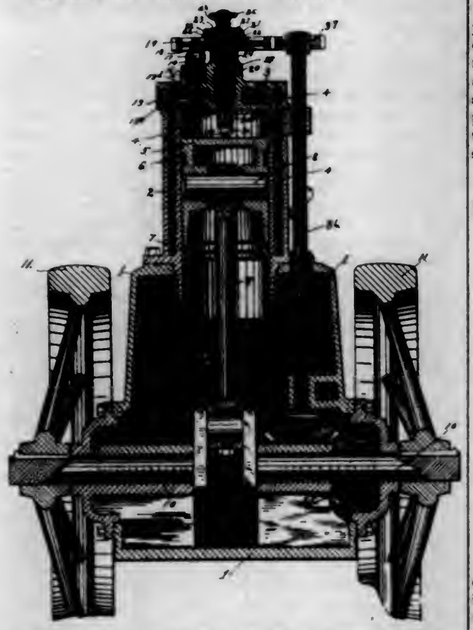
9. In a fire-ladder, the combination with the spring-supported circle-plate, of the depending links R having the longitudinal slots R' and serrated face R^5, the shaft R^4, the bearing R^3 rigidly secured to the axle the clamping plates or collars R^2 having respectively a right and left screw-thread engagement with the shaft, the lugs *w* and serrated face *w'*, substantially as and for the purpose described.

10. In a fire-ladder, the combination with the frame and the turn-table supported thereon, of the folding standard X hinged to the frame below the turn-table, consisting of side bars and cross-bars, and having the adjustable legs or extensions X^4 slidingly engaging the lowermost cross-bar, and the screws X^5 between and engaging the legs and standards, substantially as and for the purpose described.

11. In an extension-ladder, the combination with a latch-dog on one ladder-section adapted to engage successively with a series of detents on the opposite ladder-section as the ladder is extended, of a releasing-arm for said latch-dog, extending into the path of the rounds of the opposite ladder-section and adapted to be delayed in passing each round as the ladder is extended and to be operated to release the latch from each detent in passing said round in the opposite way, as the ladder is lowered.

12. In an extension-ladder, the combination with a latch-dog on one ladder-section adapted to engage successively with a series of detents on the opposite ladder-section, as the ladder is extended, of a rock-arm on the section carrying the latch-dog, extending into the path of the rounds of the opposite ladder-section and adapted to be rocked one way in passing each round as the ladder is extended, and to be rocked in the opposite way in passing said rounds as the ladder is lowered and in said latter movement to withdraw the latch-dog from engagement with the detent.

577,898. EXPLOSIVE-ENGINE. JESSE WALRATH, Racine, Wis. Filed Dec. 9, 1895. Serial No. 571,507. (No model.)



Claim.—1. In an explosive-engine, the combination with outwardly-closing puppet-valves, controlling the admission and exhaust of the explosive mixture, of a wheel mounted with its profile face passing over the stems of said valves and provided with a cam-surface which is adapted to operate on said valves, in succession, the relative locations of said valves, with respect to each other and to said cam-surface, being such as to give the properly-timed actions, substantially as described.

2. In an explosive-engine, the combination with a cylinder-head having inlet and exhaust ports, for the explosive mixture, of outwardly-closing spring-seated puppet-valves, controlling said ports, with their stems extending outward through said cylinder-head parallel with and eccentric to the cylinder-axis, a gear-wheel with hollow hub centrally mounted on said cylinder-head and having a profile cam shoe or surface operative on said valve-stems, to open said valves, in the proper order, an electric igniter with its electrodes in the explosion-chamber, one member of which is carried by a spindle extending through said wheel-hub and rotated thereby, and connections, for driving said gear-wheel from the engine-shaft, substantially as described.

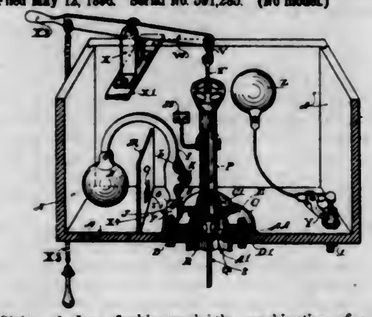
3. The combination with the cylinder-head with admission and exhaust ports for the explosive material, of the spring-seated outwardly-closing puppet-valves, controlling said ports, the gear-wheel with hollow hub mounted on the cylinder-head, and provided with the profile cam shoe or surface, for action on said valves, the hollow stub-shaft or sleeve extending through said sleeve-hub and cylinder-head, the spring-held igniter-spindle extending through said sleeve, with said spindle-sleeve and wheel-hub connected for common rotary movement but free for independent axial movement, and connections for driving said gear-wheel from the engine-shaft, substantially as described.

4. The combination with the cylinder-head having admission and exhaust ports for the explosive material, of outwardly-closing puppet-valves controlling said ports, the gear-wheel mounted for rotary and a slight axial movement, a profile cam-shoe on said gear-wheel operative on said valves, and antifriction bearing devices working against the outer face of said gear-wheel and resisting the outward pressure on the same, substantially as described.

5. The combination with the cylinder-head having admission and exhaust ports for the explosive material, of spring-seated outwardly-closing puppet-valves, controlling said ports, the hollow sleeve mounted for both rotary and axial movements in the head of said cylinder, the spring-held igniter-spindle, rotatable with said sleeve but having a slight axial movement therethrough, the gear-wheel with hollow hub rotatable with, but permitting axial movement of, said sleeve, a profile cam-shoe on said gear-wheel, operative on said valves, and ball-bearings working between the outer face of said gear-wheel and the fixed bearing-support, substantially as described.

6. The combination with the cylinder-head 3 having admission and exhaust ports, of the puppet-valves 12^{a} and 13^{a}, controlling said ports, the yoke 21, the gear-wheel 19 held by said cylinder-head and yoke, the cam-shoe 18, on said wheel, the caps 14 on said valve-stems embracing the springs 16 and telescoping in the cup-like seats 15, the rollers 17 on said caps, the sleeve 23 working through the wheel-hub and cylinder-head, the spindle 24, working through said sleeve, with said parts 19, 23 and 24, rotatively connected with freedom for independent axial motion, the nut 25 and spring 26, and the driving connections 35, 36, 37 from the engine-shaft to the gear-wheel 19, all substantially as described.

577,899. FLUSHING-TANK. DAVID S. WALLACE, Denver, Colo., assignor to the Wallace Plumbing Improvement Company, same place. Filed May 12, 1896. Serial No. 591,285. (No model.)



Claim.—1. In a flushing-tank, the combination of a tank, an outlet-valve secured in the bottom thereof, means for manually opening said valve to discharge the contents of said tank, an integral, transverse partition in said tank adapted to divide the flushing-water into two parts, means for discharging the two bodies of water in predetermined, differential periods of time, and means, including a lever and float, for holding said valve open until both bodies of water are discharged, substantially as described.

2. In a flushing-tank, the combination of a tank, a flushing-valve therein, means for manually opening said valve, with a lever pivoted adjacent to said valve, a roller pivoted to said lever to operatively engage said valve when it is opened, and means including a transverse integral partition having an aperture at its bottom and extending from the bottom of the tank upward a portion of its height, and a float secured to said lever and confined between said partition and the end of said tank for automatically locking said valve open for a predetermined period of time and then releasing the same to allow it to close, substantially as described.

3. In a flushing-tank, the combination of the tank, the float-controlled inlet-valve, and the flushing outlet-valve, with means for manually unseating said outlet-valve, an overflow-pipe connected to said outlet-valve, a locking-lever pivoted at one end to swing laterally to and from said inlet-valve, a roller pivoted to said lever and adapted to roll under the valve when it is unseated, a return and downward curve on the opposite end of said lever, a float at the end of this curved end of said lever, a transverse partition in said tank integral with its bottom and sides for a portion of the tank's height and located between said lever-float and the pivotal end of said lever and an aperture near the bottom of said partition whereby as the valve is raised it is locked open by said lever and its roller, and as the water recedes a portion of it is confined by said partition and discharged through said aperture in a predetermined differential period of time from that required for the discharge of the main body of the water,

whereby said locking-lever is automatically actuated to lock said valve open and release it at the proper time, as set forth.

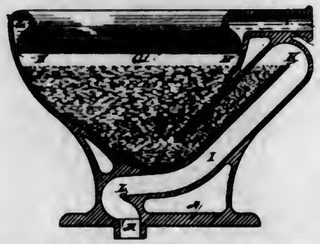
4. The combination in a flushing-tank, of a tank having a float-controlled supply inlet-valve, a discharge-valve, an overflow-pipe connected therewith, means substantially as shown and including a rock-arm and a pivotal connection between said rock-arm and said valve for unseating said valve, a lever pivoted at one end and having a float at its free end arranged and adapted substantially as herein shown and described for locking said valve open, and a transverse partition in said tank integral with its bottom and sides for a portion of its tank's height, arranged to inclose between it and one end of said tank said locking-lever's float, and adapted to confine a portion of the water during its discharge for a predetermined outflow and to actuate said locking-lever to control the closing of said valve, substantially as described.

5. The combination with the tank and the float-controlled inlet-valve, of a discharge-valve provided with a flanged valve-seat, a disk valve adapted to said valve-seat and enough larger in diameter to form a projecting flange, means for unseating said valve, a block secured to the flange of said valve-seat a semicircular-shaped lever pivoted at one end to said block, a float on the opposite end of said lever, a roller pivoted to said lever and arranged and adapted to be engaged by said valve-disk when it is unseated and moved back, and to be moved under its edge by said float when the valve-disk is raised above said roller, and a transverse partition in said tank integral with its bottom and sides and having an aperture at its bottom of predetermined size and interposed between the pivotal end of said lever and said float, whereby a portion of the water in said tank is held and confined and gradually discharged for a predetermined outflow and inflow, and said float is thereby sustained to operate said lever and roller and to control the closing of said valve, substantially as described.

6. The combination in a flushing-tank of a tank having a transverse partition adapted to divide a portion of its height into two unequal parts, a discharge-valve, means for unseating said discharge-valve, a lever pivoted at one end in operative relation to said valve and adapted to engage the same when it is unseated, a semicircular hook formed on the opposite end of said lever and extending over said partition and down toward the bottom of the tank, a float on the end of the hooked end of said lever, and a discharge-aperture in the bottom of said partition, substantially as and for the purpose specified.

7. The combination in a flushing-tank, of an automatic-controlled water-inlet valve, a discharge-valve, and means for manually unseating the same, with a transverse partition in said tank adapted to delay the outflow of a portion of the normal discharge of the tank, and a float-controlled locking-lever pivoted to move laterally in operative relation to said discharge-valve, and arranged to coact with said partition and the delayed contents of said tank to lock said valve in opened position and to release the same after a predetermined outflow, as specified.

577,900. WATER-CLOSET. DAVID S. WALLACE, Denver, Colo., assignor to the Wallace Plumbing Improvement Company, same place. Filed May 12, 1896. Serial No. 591,286. (No model.)



Claim.—1. In a siphon water-closet, the combination of a bowl and supporting-base, means for flushing said bowl, a discharge-passage extending first upward from said bowl and adapted to coöperate therewith to form a trap and then downward under said bowl to form a long siphon-leg, then reversed upon itself by a short, sharp backward and then a short, downward turn at the end of said siphon-leg between the bottom of said base and the bottom of said bowl, with a straight, transverse turning edge or partition, and flat portions forming the floor of the passage at and adjacent to said edges at the turns at the top and bottom of said siphon-leg, substantially as described.

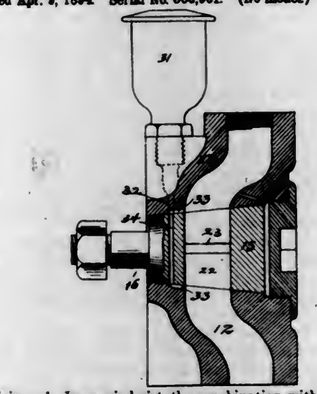
2. The combination in a single-trap water-closet, of a trapped bowl having a flushing-rim and a supporting-base, a siphon discharge-passage comprising a short and long siphon-leg, a partition between said siphon-legs having a straight, transverse edge and a flat floor portion at and adjacent to the edge, with the long siphon-leg having a flat floor portion along the lower part of the long siphon-leg terminating in a straight, transverse terminal edge extending across the full width of said passage, a semicircular reverse or backward curve or turn in said passage concentric to said flat, straight edge at the lower end of said long siphon-leg, an opposing curve in the wall of the passage opposite said reverse concentric curve and leading downward and backward from the terminal edge of the long siphon-leg, and a downward passage through said base from said opposing curve and from said concentric curve at an approximately perpendicular point below the straight transverse terminal edge of the lower end of the long siphon-leg, whereby the water in passing through the tortuous passage is forced to form itself at the lower end of the long siphon-leg into an air-tight lock or seal.

3. The combination of a single-trap bowl having a flushing-rim and a supporting-base, with a siphon discharge-passage having a long siphon-leg curving under the bowl and a flat floor portion at the lower end of said siphon-leg terminating in a straight, transverse edge, a vertically-arranged semicircular concentric reverse and backward curve to the direction of the siphon-leg circling around said terminal edge, a curved wall in said passage extending downward and rearward from said terminal edge and arranged opposite and to oppose the lower portion of said semicircular curve and a sharp, downward turn in the direction of said passage through said base from the vertical diameter of said semicircular curve, as set forth.

4. In a siphon water-closet the combination of the bowl, a flushing-rim forming a part thereof, an integral rearward extension and supporting-base, a water-passage opening into and through said extension and communicating with the flushing-rim, a round or oval projecting portion on said rearward extension adapted to form a connecting-nipple and containing the water-passage to the flushing-rim, and a band annulet or cincture around the end of said projecting connecting-nipple, with a siphon-passage through said base having a flat floor portion and straight transverse terminal edge at the lower end of its long siphon-leg and a reverse turn in said discharge-passage around the said terminal edge of the siphon-leg, a sharp, downward turn in said passage through said base from the end of said reverse curve in approximately a vertical plane below the terminating edge of the floor of the long siphon-leg, and through its terminal edge, and a straight, transverse terminating edge to the partition between the short and long siphon-legs of said discharge-passage, substantially as described.

5. The combination with the bowl, its flushing-rim and supporting-base, means for flushing said rim, with a siphon-discharge-passage provided with a short and long siphon-leg and having at the lower portion of said long siphon-leg a flat, straight transverse floor extending to and terminating the long siphon-leg in a straight, transverse edge, a semicircular sweep of said passage around said terminal edge, a backward and downward curved relief-space directly under said terminal edge and a sharp, downward exit-course to said discharge-passage directly below said terminal edge, substantially as described.

577,901. AIR-HOIST. CHRISTOPHER WEATHERSON, Chicago, Ill. Filed Apr. 9, 1894. Serial No. 506,961. (No model.)

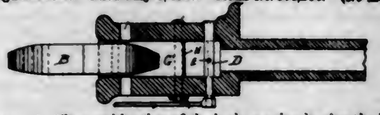


Claim.—1. In an air-hoist, the combination with a power-cylinder, a pipe or passage for supplying air thereto, an oil-reservoir having its delivery at the periphery of the valve and an oil-channel through the body of the valve whereby the lubricant may be distributed, substantially as described.

2. In an air-hoist, the combination with a power-cylinder, of a pipe or passage supplying air thereto, an oil-reservoir having its delivery at the periphery of the valve, an oil-channel through the body

of the valve whereby the lubricant may be distributed, and a valve-casing having oil-chambers therein to which the air is admitted, substantially as described.

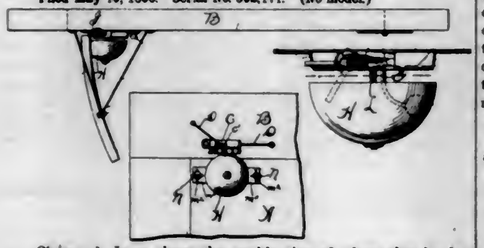
577,902. CAR-COUPLING. MARLON WELLS and JOHN LOVETT, Haughville, Ind. Filed July 6, 1896. Serial No. 598,210. (No model.)



Claim.—1. The combination of the body portion having the head provided with a frontal opening, an opening or recess at each side, a vertical pivotal pin-hole at each side, the vertical frontal pin-hole, and the rear vertical hole for a shaft; the hook-bars pivoted within the side openings, said bars being provided at the forward end with the hook, at the inner side with the swelled portion, and at the rear end with the lug and a horizontal transverse bolt-hole; the spring having its central portion seated against the said swelled portions of said bars and its ends pressing against said lugs at the rear end of said bars; the vertical rotatable shaft mounted centrally in the said hole at the rear of said head, and provided with a transverse hole near its center and a lever removably secured to its lower end for rotating it; the chain secured at its ends to the rear ends of said bars by means of eyebolts secured in the said bolt-holes, said chain passing through the hole in said shaft, and the coupling-bar, substantially as shown and described, for the purposes set forth.

2. In a car-coupling, the combination with a head having the side openings, of the hook-bars having the hook and gage-lip at forward end, the swelled portion at the inner side, and the lug and bolt-hole at rear end, said bars being pivotally mounted within said side openings; the vertical shaft mounted in suitable openings centrally at the rear part of said head, said shaft having the chain-hole and the uncoupling-lever secured to its lower end; the spring pressing the rear end of said bars apart; the chain passing through said shaft and attached at its ends to the rear end of said bars, with suitable uncoupling-rods attachable to said uncoupling-lever, substantially as shown and described, for the purposes set forth.

577,903. BURGLAR-ALARM. AUGUST S. WESTER, Chicago, Ill. Filed May 19, 1896. Serial No. 592,171. (No model.)



Claim.—1. In an alarm, the combination of a base-plate having flanges projecting upward and provided with notches, a cap-plate having flanges projecting downward and provided with notches corresponding with the notches aforesaid, a shaft journaled in said notches, a hammer carried by the shaft, a spring for actuating the shaft, and a trigger carried by the shaft, substantially as set forth.

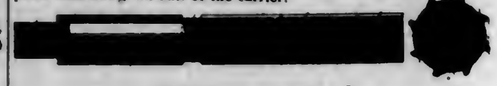
2. In an alarm, the combination of a bell, a hammer, a shaft carrying the hammer, a spring operatively connected with the shaft, means for holding the hammer out of contact with the bell, a pivoted trigger carried by the shaft and a rack adapted to engage the trigger, substantially as set forth.

3. In an alarm, the combination of a bell, a hammer, a shaft carrying the hammer, a spring operatively connected with the shaft, a stop for holding the hammer normally out of contact with the bell, a pivoted trigger carried by the shaft, and a rack adapted to engage the trigger, substantially as set forth.

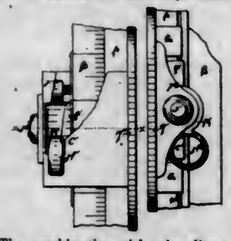
4. In an alarm, the combination of a bell, a hammer, a shaft carrying the hammer, a spring operatively connected with the shaft, a pivoted trigger carried by the shaft, a stop for limiting the movement of the trigger in one direction, a spring for holding the trigger in normal position and permitting it to yield in the other direction, and a rack adapted to engage the trigger, substantially as set forth.

577,904. EXPANSIBLE REAMER. BAXTER D. WHITNEY, Winchendon, Mass. Filed June 17, 1893. Serial No. 477,991. (No model.)

Claim.—In a reamer, a central body or carrier, a series of plates seated upon said carrier, each plate carrying two cutting edges which are placed equidistant each side of a radial plane containing the axis, and means for adjusting each plate longitudinally upon the carrier, so as to expand the cutting edges in a direction parallel to said radial plane containing the axis of the carrier.



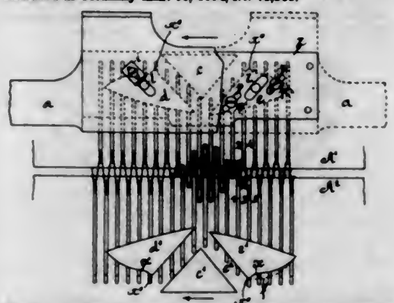
577,905. LEVELING-ROD. CHARLES F. WILSON, Ottawa, Ill. Filed Jan. 4, 1894. Serial No. 495,722. (No model.)



Claim.—1. The combination with a leveling-rod comprising two or more longitudinal sections adapted to move lengthwise with respect to each other; of the clamp mounted on the rod and connected to one of the sections thereof and adapted to adjustably fix the sections with respect to each other; the said clamp comprising a frame, a member carried by and permanently connected to and movable with respect to the frame and having a circular inclined plane upon one of its faces, and a rotatable or partially-rotatable member having a circular inclined plane upon its face, contiguous to the first-named member, adapted to impinge against the inclined plane of said member and also having a trunnion journaled in one of the bars of the frame, substantially as specified.

2. The combination with a leveling-rod comprising two or more longitudinal sections adapted to move lengthwise with respect to each other, and a target; of a clamp mounted on the rod and connected to one of the sections thereof and adapted to adjustably fix the said sections with respect to each other; the said clamp comprising a frame connected to the target, a member carried by and permanently connected to and movable with respect to the frame, and having a circular inclined plane upon one of its faces, and a rotatable or partially-rotatable member having a circular inclined plane upon its face, contiguous to the first-named member, adapted to impinge against the inclined plane of said member and also having a trunnion journaled in one of the bars of the frame, substantially as specified.

577,906. WIRE-KNITTING MACHINE. EMIL WOHLGEMUTH, Thum, Germany. Filed Feb. 1, 1895. Serial No. 537,010. (No model.) Patented in Germany Mar. 11, 1894, No. 78,585.



Claim.—1. In a knitting-machine the combination with the main frame, of a reciprocating slide *a*, a frame N carried by the slide, conical rollers B' B² having convergent axes, the gear-wheels K' K¹ connected with the rollers, the reciprocating slide I and stops on the frame, gear-wheels G G³ H' H¹ on the slide, a fixed rack M on the frame and an adjustable wire-guide, all as specified.

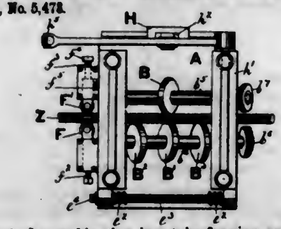
2. In a knitting-machine the combination with a reciprocating slide *a* of a triangular cam concave at *x* in proximity to one of the angles a plate *b* slotted as at *p* in a direction parallel with one of the faces of the triangular cam-screws *p'* a projection *l* and an adjustable stop *i* substantially as set forth.

3. In a knitting-machine the combination with the main frame, of a reciprocating slide *a* a plate *b* slotted as at *p* the triangular cams *d*, *d'*, *e*, *e'*, each concave as at *x* in proximity to one of its angles, the screws *p'* projections *l* and adjustable stops *i* all combined and arranged as and for the purpose specified.

4. In a knitting-machine, the combination with the main frame, of a reciprocating slide *a*, a frame N carried by the slide, conical rollers B' B² with convergent axes, gear-wheels K' K¹ connected with the rollers, a reciprocatory slide I, stops I' on the main frame, gear-wheels G' G³ H' H¹ on the slide, a fixed rack M on the frame, a wire-guide D, a screw adjustment therefor, a feed-roller E, and a tension-roller on a counterbalanced lever F, substantially as set forth.

5. In a knitting-machine, the combination with the main frame, of a reciprocating slide *a*, a frame N carried by the slide, conical rollers B' B² with convergent axes, gear-wheels K' K¹ connected with the rollers, a reciprocatory slide I, stops I' on the main frame, gear-wheels G' G³ H' H¹ on the slide, and a fixed rack M on the frame, substantially as set forth.

577,907. MACHINERY FOR MANUFACTURING SEAMLESS STEEL TUBES. ROBERT WOOTTON, Birmingham, England, assignor to the British Tube Company, Limited, Smethwick, England. Filed Jan. 20, 1896. Serial No. 576,188. (No model.) Patented in England Mar. 15, 1895, No. 5,478.

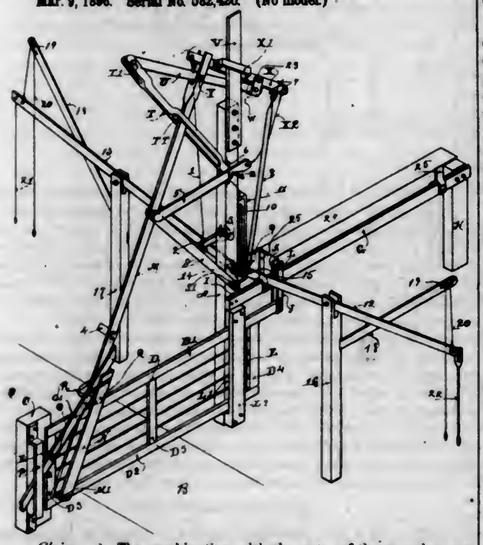


Claim.—1. In combination in a tube-forming machine, the pair of spindles b^4, b^5 arranged in parallel vertical planes and at an angle to each other in the horizontal plane, a series of rollers on one shaft of substantially the same diameter relative to each other and a single roller on the other shaft arranged to coact with one of the series of rollers, and a bar C acting in conjunction with the single roller and with the series of rollers, substantially as described.

2. In combination with the pair of spindles and the rollers thereon for acting upon the tube, the supporting-bar C having a yielding wearing-surface, substantially as described.

3. In combination with the pair of spindles and the rollers thereon for acting upon the tube, the supporting-bar C having a yielding wearing-surface formed of wood or like material, substantially as described.

577,908. SLIDING GATE. JOHN ALLEN, Boulder, Colo. Filed Mar. 9, 1896. Serial No. 582,420. (No model.)



Claim.—1. The combination with the gate, of the carrying-arm having a loop in which the front end of said gate moves and is supported, a terminal post having a slot, a gate-latch pivoted to said gate and connected to said carrying-arm and arranged to be moved by said carrying-arm as the gate closes in front of said gate into the slot of said terminal post, substantially as described.

2. The combination with the gate, the inclined track, the carrying-arm, the lever pivoted to the top of said carrying-arm, the stationary support for said lever, a guide and bracing-lever, a post supporting said levers, and said gate, a controlling-lever journaled to said post to reciprocate vertically thereon and arranged to operate said carrying-arm, a rod pivoted at one end to said controlling-lever, two oppositely-disposed operating-levers extending along the roadway in opposite directions pivoted to a post and connected together at their inner ends with said rod, means connected with said controlling-lever, for locking said gate both in an open and closed position, a terminal post on the opposite side of said roadway, means connected with said carrying-arm and gate and said terminal post for locking said gate to said terminal post against lateral displacement, and means connected with the outer ends of said operating-levers for moving them to open and close said gate, substantially as described.

3. The combination with a gate of a carrying-arm pivoted thereto, a guide and bracing-lever pivoted at one end to said carrying-arm, a post by the roadway adapted to slidably support said gate and to which the opposite end of said guide and bracing-lever is pivoted, a supporting-arm rigidly secured to said post, a lever pivoted to the upper end of said carrying-arm and to the outer end of said rigid arm, an extension secured to said post adapted for a guideway, a controlling-lever having a sleeve portion slidably secured to said extension, a pivoted connection between the one end of said lever and said controlling-lever whereby they are moved together and adapted to permit a slight predetermined movement of said controlling-lever on its pivot independent of said lever, and means substantially as herein described for tilting said controlling-lever and for reciprocating the same on said extension to move said lever and carrying-arm to open, close, and lock said gate.

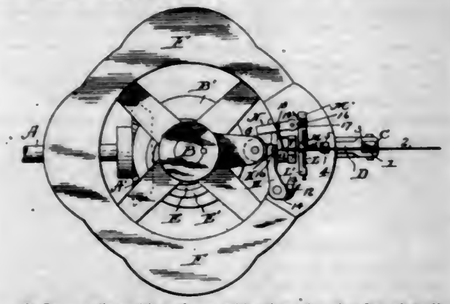
4. The combination with a gate of a rearward extension thereto, a roller-hanger having a roller journaled therein secured to said extension, an inclined track arranged in operative engagement with the roller of said hanger and adapted to support the rear end of said gate, a post by the roadway, a guide-slot in said post in which said gate is confined, a carrying-arm pivoted to the lower front portion of said gate, a vertical extension to said post adapted for a guideway a controlling-lever having a sleeve portion adapted to slide on said extension, a lever pivotally connected at one end to a stationary arm secured to said post, a lever pivotally secured at one end to said stationary arm, and at the opposite end pivoted to said controlling-lever in a manner to allow said controlling-lever a slight predetermined swinging movement independent of said lever, a pivotal connection between said carrying-arm and said lever intermediate of its ends, and means substantially as herein set forth connected with said controlling-lever for operating it to reciprocate said gate across the roadway and lock it to its terminals.

5. The combination with a rolling gate of a supporting-post for said gate, a carrying-lever pivoted to said gate at one end and at its opposite end to a lever pivoted to a stationary arm secured to said post, a controlling-lever pivotally secured to the opposite end of the lever, to which said carrying-arm is pivoted and having a predetermined movement on its pivot independent of said lever, an extension on said post adapted for a guideway, a sleeve portion on said controlling-lever adapted to said guideway, a rod pivotally secured at one end to one end of said controlling-lever, a pin projecting from the opposite end of said rod, a strap on the side of the main post arranged and adapted to form a slideway-space between it and said post, a slide-slot in said strap through which said pin extends, operating-levers pivoted to posts by the roadway oppositely disposed from one another and operatively connected together at their inner ends by said pin, a hook-latch pivoted to said post, a rope connecting said hook-latch to the opposite end of said controlling-lever, a latch-plate on said carrying-arm arranged in the path of said hook-latch, a second hook-latch pivoted to said carrying-arm, a rope connecting its free end to the end of said controlling-lever adjacent to said rod, a pin secured to said post in the path of said second-named hook-latch and ropes or rods connected to the outer ends of said operating-levers whereby they may be manipulated to open and close said gate from the roadway, substantially as described.

577,909. NAIL-MACHINE. WILLIAM B. BENNETT, Sterling, Ill., assignor of three-fifths to John V. Emmitt and Charles H. Richardson, same place. Filed Nov. 14, 1896. Serial No. 612,114. (No model.)

Claim.—1. In a nail-machine, the combination of a circular plate F, a rotating shaft B seated centrally in said circular plate, means substantially as shown for projecting a wire from the exterior to the interior of said circular plate, suitable grippers G, severing and pointing knives L and M, arm H pivotally seated at one end on said cir-

cular plate, and having its free end projected over the inner end of said wire, and an arm J affixed to said shaft B, and adapted in the rotation of the latter to drive the free end of said arm H down upon said projected wire to form the head of the nail; substantially as shown, and for the purpose described.



2. In a nail-machine, the combination of a circular plate F, a rotating shaft B seated centrally within said circular plate, one or more series of mechanisms located around said circular plate, and adapted to advance the wire radially toward the center thereof, and to point and sever nails from said wire, and for gripping said wire while being headed, a corresponding series of arms H, pivoted to said circular plate at one end and having their opposite or free end projected over the locality of the inner ends of said wires, respectively, and an arm J keyed to the shaft B, and adapted to have its outer end sweep around within said circular plate, and successively drive the free ends of said arms H outward to form the head of the nail; substantially as shown, and for the purpose described.

3. The grippers G G, pivoted vertically in the frame of the machine, the rotating collar R provided with a cam S, the pivoted arm T provided with the opposite and oblique projections 21, the toggles 22, and the returning-spring 23; substantially as shown, and for the purpose described.

4. The combination of the stationary knife L seated on one side of the wire 2, and a reciprocating block M' provided with a knife M seated on the opposite side of said wire 2, lever N pivotally connected at its outer end to knife-block M', pivoted intermediately to the plate F, and an orbitally-moving arm J, adapted to engage and move laterally the opposite end of said arm N, and thereby force the inner ends of the knives L and M through the wire 2; substantially as shown, and for the purpose specified.

5. In a nail-machine, the combination of a heading-arm H pivoted at one end to the frame of the machine, and provided at its opposite end with a header K, located over the projected end of the wire 2, and an orbitally-moving arm J adapted to engage and force the free end of the arm H outward upon said projected wire in the manner substantially as shown, and for the purpose herein named.

6. The combination of the horizontally-oscillating arm H provided with the vertical semicircular opening 9 and with the dovetailed recess 10 in the walls of said opening 9, and the half-cylindrical head K seated in said opening and provided with the semiannular exterior dovetailed collar 11 adapted to loosely fit said recess 10 and provided further with a dovetailed base adapted to traverse conformable ways 8 formed in the frame of the machine, substantially as shown and for the purpose described.

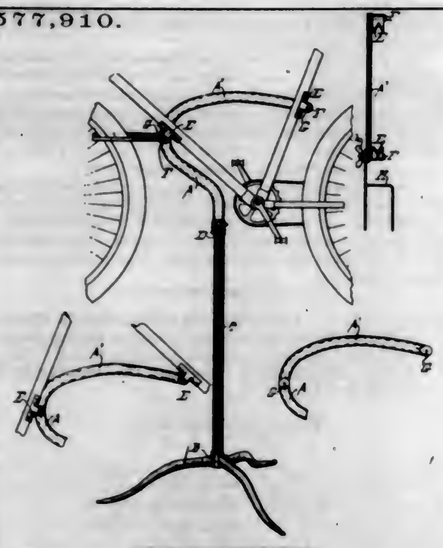
577,910. BICYCLE REST AND REPAIR STAND. GEORGE R. BIERBACH, Milwaukee, Wis. Filed June 6, 1896. Serial No. 594,466. (No model.)

Claim.—1. A bicycle-stand, consisting in the curved arm or bar located upon a suitable support, and having on one side thereof two pivotally-attached holding-plates adapted to engage the frame-rods of a bicycle and permit the latter to become wedged in between them, substantially as described.

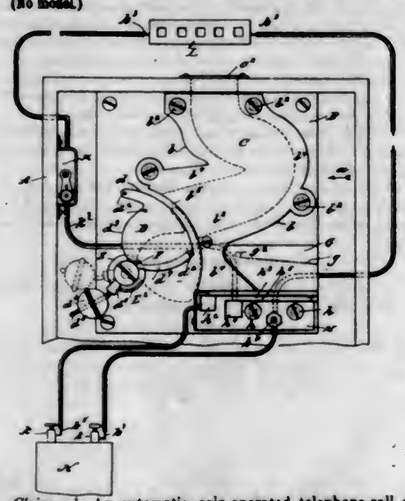
2. A bicycle rest and repair stand, consisting in the combination with a suitable support, of the sickle-shaped arm or bar attached at one end to the support, and provided with pivotally-attached V-shaped holding-plates adapted to engage the frame-rods of a bicycle, and permit the latter to become wedged in between them, together with lugs or stops formed on the side of the arm and adapted to prevent said holding-plates from swinging out of a position to engage the frame-rods, substantially as described.

3. A bicycle rest and repair stand, consisting in the combination with a suitable support, of the arm or bar attached to the support, and provided with pivotally-attached reversible holding-plates, and a lug or stop attached to said arm or bar, and adapted to hold said plates in a position for engaging the frame-rods in either an upright or reversed position, substantially as described.

577,910.



577,911. AUTOMATIC TELEPHONE-CALL DEVICE. EDWARD P. BOLAND, New York, N. Y. Filed Apr. 6, 1896. Serial No. 586,463. (No model.)

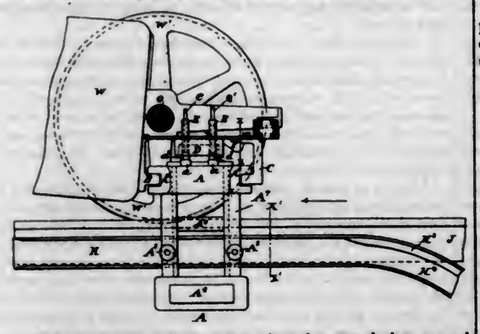


Claim.—1. An automatic coin-operated telephone-call device, comprising a box or casing in which is placed a passage for coin, a pivotally-supported receptacle which is adapted to receive said coin and to eject the same, a spring onto which said coin is adapted to roll, and another spring with which the first-named spring is adapted to be brought in contact by said coin and a battery or other suitable source of electrical supply which is in circuit with said springs and the central station, substantially as shown and described.

2. An automatic coin-operated telephone-call device, comprising a box or casing in which is placed a passage for coin, a pivotally-supported receptacle which is adapted to receive said coin and to eject the same, a spring onto which said coin is adapted to roll, and another spring with which the first-named spring is adapted to be brought in contact by said coin and a battery or other suitable source of electrical supply which is in circuit with said springs and the central station, and said box being also provided with a buzzer or bell, which is also in said circuit, substantially as shown and described.

577,912. ELECTRIC RAILWAY. SAMUEL G. BROWN, Baltimore, Md., and WILLIAM B. UPTON and JOSEPH COLVIN, Washington, D. C. Filed Feb. 26, 1896. Serial No. 580,658. (No model.)

Claim.—1. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a contact-box provided with automatically-adjustable contact-bars, a plow adapted to be connected with said contact-box and in contact with said adjustable contact-bars and adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, and means for disengaging said plow from said contact-box.



2. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a contact-box provided with automatically-adjustable contact-bars, a plow adapted to be connected with said contact-box and in contact with said adjustable contact-bars and adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, and means for automatically disengaging said plow from said contact-box.

3. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move having a horizontal offset, channel-rails located in the conduit below the slot-rail and provided with a horizontal offset and adapted to support said plow when disengaged from the car, mechanism for connecting said plow to the car, and means consisting of the said horizontal offsets in the slot and channel rails for moving the plow from engagement with the car in the travel of said plow along said offsets.

4. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move and having a horizontal offset, channel-rails located in the conduit below the slot-rail for supporting the plow when disengaged from the car and provided with a horizontal offset located in the same vertical plane as the offset of the slot-rail, mechanism for connecting said plow to the car, and means consisting of the said horizontal offsets in the slot and channel rails for moving the plow from engagement with the car in the travel of said plow along said offsets.

5. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car and provided with rollers, a slot-rail in which said plow is adapted to move having a horizontal offset, channel-rails located in the conduit below the slot-rail adapted to receive said rollers on the plow and support the plow thereby when disengaged from the car and having a horizontal offset, mechanism for connecting said plow to the car, and means consisting of the said horizontal offsets in the slot and channel rails for moving the plow from engagement with the car in the travel of said plow along said offsets.

6. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car and provided with rollers, a slot-rail in which said plow is adapted to move having a horizontal offset, channel-rails located in the conduit below the slot-rail adapted to receive said rollers on the plow and support the plow thereby when disengaged from the car and having a horizontal offset located in the same vertical plane as the offset of the slot-rail, mechanism for connecting said plow to the car, and means consisting of the said horizontal offsets in the slot and channel rails for moving the plow from engagement with the car in the travel of said plow along said offsets.

7. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, mechanism for connecting said plow to the car, and a slot-rail in which said plow is adapted to move provided with a horizontal offset position of the track which offset is adapted to disengage the plow from the car in the travel of the said plow along said horizontal offset.

8. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move in the travel of the car, mechanism for connecting said plow to the car, and channel-rails located in the conduit below the slot-rail and provided with a horizontal offset which is adapted to disengage the plow from the car in the travel of said plow along said horizontal offset.

9. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move in the travel of the car, channel-rails into which the plow is guided by said slot-rail and conductor-rails and adapted to support the plow when disengaged from the car, mechanism for connecting said plow to the car, and means for disengaging said plow from the car.

10. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car and provided with rollers, a slot-rail in which said plow is adapted to move in the travel of the car, channel-rails into which said rollers on the plow are guided by said slot-rail and conductor-rails and adapted to support the plow when disengaged from the car, mechanism for connecting said plow to the car, and means for disengaging said plow from the car.

11. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a contact-box provided with automatically-adjustable contact-bars, a plow adapted to be connected to said contact-box and in contact with said adjustable contact-bars to carry the electric current to and from said motor for propelling the car, and a yielding shoe on each side of said plow adapted to move in contact with said conductor-rails and to automatically adjust said plow to the variations of said conductor-rails.

12. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a contact-box provided with automatically-adjustable contact-bars, a plow adapted to be connected to said contact-box and in contact with said adjustable contact-bars to carry the electric current to and from said motor for propelling the car, a yielding shoe on each side of said plow adapted to move in contact with said conductor-rails and to automatically adjust said plow to the variations of said conductor-rails, and springs bearing on said shoes for holding said shoes in contact with said conductor-rails.

13. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow connected to the said car adapted to carry the electric current to and from said motor for propelling the car and provided on each side with a shoe adapted to move in contact with said conductor-rails, and insulated shoe-boxes in which the shoes are located.

14. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow connected to the said car adapted to carry the electric current to and from said motor for propelling the car and provided on each side with a yielding shoe adapted to move in contact with said conductor-rails and to automatically adjust said plow to the variations of the conductor-rails, and insulated shoe-boxes in which the shoes are located.

15. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow connected to the said car adapted to carry the electric current to and from the motor for propelling the car and provided on each side with an insulated shoe-box, and a yielding shoe on each side located in said insulated shoe-boxes and adapted to move in contact with said conductor-rails and to automatically adjust said plow to the variations of the conductor-rails.

16. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails for carrying the electric current to and from said motor for propelling the car, a positive and a negative contact-head on said plow, an insulated contact-box, and a yielding positive and a yielding negative contact-bar on opposite sides of said contact-box and supported thereby and respectively in contact with said positive

and negative contact-heads and adapted to be automatically kept in contact with said positive and negative contact-heads.

17. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails for carrying the electric current to and from said motor for propelling the car, a positive and a negative contact-head on said plow, an insulated contact-box, a positive and a negative contact-bar on opposite sides of said contact-box and supported thereby and respectively in contact with said positive and negative contact-heads, and means acting on said bars for automatically keeping said positive and negative bars respectively in contact with said positive and negative heads.

18. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails for carrying the electric current to and from said motor for propelling the car, a positive and a negative contact-head on said plow, an insulated contact-box, a yielding positive and a yielding negative contact-bar on opposite sides of said contact-box and supported thereby and respectively in contact with said positive and negative contact-heads and adapted to be automatically kept in contact with said positive and negative contact-heads, and positive and negative electric connections respectively connected to said positive and negative bars for carrying the electric current through the motor.

19. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails for carrying the electric current to and from said motor for propelling the car, a positive and a negative contact-head on said plow, an insulated contact-box, a yielding positive and a yielding negative contact-bar on opposite sides of said contact-box and supported thereby and respectively in contact with said positive and negative contact-heads and adapted to be automatically kept in contact with said positive and negative contact-heads, and insulated positive and negative electric connections respectively connected to said positive and negative bars for carrying the electric current through the motor.

20. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow connected to the said car adapted to carry the electric current to and from said motor for propelling the car and provided on each side with a yielding shoe adapted to move in contact with said conductor-rails and to automatically adjust said plow to the variations of the said conductor-rails, a positive and a negative contact-head on said plow, an insulated contact-box, and a yielding positive and a yielding negative contact-bar on opposite sides of said contact-box and supported thereby and respectively in contact with said positive and negative contact-heads and adapted to be automatically kept in contact with said positive and negative contact-heads.

21. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move, channel-rails located in the conduit below the slot-rail and adapted to support said plow when disengaged from the car, mechanism for connecting said plow to the car, means for disengaging said plow from the car, and a friction-brake located in the said channel-rails adapted to stop the plow in its travel along said channel-rails after the disengagement of said plow from the car.

22. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move, channel-rails located in the conduit below the slot-rail and adapted to support said plow when disengaged from the car, mechanism for connecting said plow to the car, and a yielding friction-brake located in the said channel-rails adapted to stop the plow in its travel along said channel-rails after the disengagement of said plow from the car.

23. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move, channel-rails located in the conduit below the slot-rail and adapted to support said plow when disengaged from the car, mechanism for connecting said plow to the car, means for disengaging said plow from the car, and means located in said channel-rails for preventing the rocking of the plow after the disengagement of said plow from the car.

24. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move, channel-rails located in the conduit below the slot-rail and adapted to support said plow when disengaged from the car, mechanism for connecting said plow to the car, means for disengaging said plow from the car, and a filler located in said channel-rails for reducing the opening in said rails and adapted to prevent the rocking of the plow when disengaged from the car.

25. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a contact-box plate, an insulated contact-box secured thereto, supporting-hangers connected to the said contact-plate for supporting the plow in its connection with the car, and means for disengaging said plow from the car.

26. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a contact-box plate, an insulated contact-box secured thereto, supporting-hangers connected to the said contact-plate and provided on the lower ends with inwardly-turned flanges adapted to fit between the jaws on the plow and thereby support the plow in its connection with the car, and means for disengaging said plow from the car.

27. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, mechanism for connecting said plow to the car, means for disengaging said plow from the car, and means for supporting said plow when disengaged from the car.

28. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, mechanism for connecting said plow to the car, means for automatically disengaging said plow from the car, and channel-rails located in the conduit for supporting said plow after its disengagement from the car.

29. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car and provided with rollers, and channel-rails located in the conduit and adapted to receive the rollers on said plow and support the plow after its disengagement from the car.

30. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails for carrying the electric current to and from said motor for propelling the car, a positive and a negative contact-head on said plow, an insulated contact-box composed of two sections, a positive and a negative contact-bar located in cavities on opposite sides of said contact-box and respectively in contact with said positive and negative contact-heads and bolts connected to said contact-bars and springs located around said bolts and adapted to act on said contact-bars to automatically keep said bars in contact with said positive and negative contact-heads.

31. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails for carrying the electric current to and from said motor for propelling the car, a positive and a negative contact-head on said plow, an insulated contact-box composed of two sections, a positive and a negative contact-bar located in cavities on opposite sides of said contact-box and respectively in contact with said positive and negative contact-heads, bolts connected at their lower ends to said contact-bars and their upper ends adapted to move in cavities in said contact-box in the adjustment of said contact-bars, and springs located around said bolts and adapted to act on said contact-bars to automatically keep said bars in contact with said positive and negative contact-heads.

32. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move having a horizontal offset, channel-rails located in the conduit below the slot-rail and provided with a horizontal offset and with a vertical offset and adapted to support said plow when disengaged from the car, mechanism for connecting said plow to the car, means consisting of said horizontal offsets in the slot and channel rails for moving the plow from engagement with the car in the travel of said plow along said offsets, a plow pit-vault in which said channel-rails are located, drop-traps over said pit-vault and adapted when opened to permit the travel of said disengaged plow along the vertical offset of said channel-rails into the plow pit-vault, and mechanism for opening said drop-traps.

33. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a slot-rail in which said plow is adapted to move having a horizontal offset, channel-rails located in the conduit below the slot-rail and provided with a horizontal offset and with a vertical offset and adapted to support said plow when disengaged from the car, mechanism for connecting said plow to the car, means consisting of said horizontal offsets in the slot and channel rails for moving the plow from engagement with the car in the travel of said plow along said offsets, a plow pit-vault in which said channel-rails are located, drop-traps over said pit-vault and adapted when opened to permit the travel of said disengaged plow along the vertical offset of said channel-rails into the plow pit-vault, mechanism for opening said drop-traps, and mechanism for automatically closing said drop-traps after the passage of the disengaged plow along the channel-rails into the plow pit-vault.

34. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, channel-rails located in the conduit and provided with a horizontal offset for disengaging the plow from the car in the travel of said plow along said offset and adapted to support said plow when disengaged from the car, a plow pit-vault in which said channel-rails are located, and a vertical offset in said channel-rails for guiding the disengaged plow into the plow pit-vault.

35. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow consisting of front and rear legs, an insulated cap-box located around the upper ends of said legs, insulated shoe-boxes at the lower ends of said legs, a yielding shoe on each side located in said insulated shoe-boxes and adapted to move in contact with said conductor-rails to carry the electric current to and from said motor, an insulated conducting-wire located in each leg, flexible wires connecting said yielding shoes with said insulated conducting-wires in the legs of the plow, a cross-bar connected to said front and rear legs for preventing the rear leg from engaging with notches in the slot-rail in the travel of the plow, a positive and a negative contact-head on said insulated cap-box, an insulated contact-box, a yielding positive and a yielding negative contact-bar located on opposite sides of said contact-box and supported thereby and respectively in contact with said positive and negative contact-heads and adapted to be automatically kept in contact therewith, insulated positive and negative connection-stems respectively connected to the positive and negative contact-bars, and positive and negative electric wires leading to and from said motor connected respectively to the positive and negative connection-stems.

36. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, mechanism for connecting said plow to the car, means for disengaging said plow from the car, a plow pit-vault into which said plow is adapted to move when disengaged from the car, hinged drop-traps normally closing the entrance to said plow pit-vault, mechanism for opening said drop-traps to permit the travel of the disengaged plow into the plow pit-vault, and means for supporting said disengaged plow in its travel into said plow pit-vault.

37. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, mechanism for connecting said plow to the car, means for disengaging said plow from the car, a plow pit-vault into which said plow is adapted to move when disengaged from the car, hinged drop-traps normally closing the entrance to said plow pit-vault, mechanism for opening said drop-traps to permit the travel of the disengaged plow into the plow pit-vault, and means for guiding said disengaged plow into the plow pit-vault and adapted to support said disengaged plow in its travel into said plow pit-vault.

38. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a contact-box plate, an insulated contact-box secured thereto, and supporting-hangers connected to said contact-plate for supporting the plow in its connection with the car.

39. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, a contact-box plate, an insulated contact-box secured thereto, and supporting-hangers connected to said contact-plate and open at both ends for supporting the plow in its connection with the car.

40. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, mechanism for connecting said plow to the car, a contact-box having automatically-adjustable contact-bars with which said plow is in contact when said plow is connected to said contact-box, slot-rails in which said plow is adapted to move and which automatically disengages the plow from the car when the travel of said plow diverges in a horizontal plane from the line of travel of the car.

41. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails to carry the electric current to and from said motor for propelling the car, slot-rails in which said plow is adapted to move, channel-rails located in the conduit below the slot-rails and adapted to support said plow when disengaged from the car, mechanism for connecting the said plow, and yielding means to stop the plow in its travel along said channel-rails, after disengagement of said plow from the car.

42. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a contact-box, a plow consisting of front and rear legs, an insulated cap-box located around the open ends of said legs and provided with contact-heads, insulated shoe-boxes at the lower ends of said legs, a yielding shoe on each side located within the said shoe-boxes, and adapted to move in contact with said conductor-rails to carry the electric current to and from said motor, and insulating conductor-wire connecting said contact-heads with the flexible wires of the said yielding shoes, the said contact-box being provided with contact-bars in electrical connection with the contact-head of the plow and with stems to which are secured the positive and negative wires, leading to and from said motor.

43. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said rails to carry the electric current to and from said motor for propelling the car, a slot in which said plow is adapted to move, channel-rails located in the conduit below the slot-rails and adapted to support said plow when disengaged from the car and to guide it into the plow pit-vault, means for disengaging said plow from the car, and guide-rails located in said plow pit-vault to prevent the rocking of the plow, after disengaging said plow from the car.

44. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow pit-vault, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car and provided with rollers, slot-rails in which said plow is adapted to move in the travel of the car, channel-rails by which said rollers on the plow are guided, and which are adapted to support the plow when disengaged from the car and carry it into the plow pit-vault.

45. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow pit-vault, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car and provided with rollers, slot-rails into which the plow is adapted to move in the travel of the car, and means for disengaging the plow from the car, channel-rails curved in a horizontal plane and in a vertical plane, and again in a horizontal plane, into which the rollers of said plow are guided and which are adapted to support the plow when disengaged from the car and to carry it down into the plow pit-vault, and mechanism for connecting said plow to the car.

46. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a contact-box, a plow adapted to be connected with said contact-box and to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, and automatically-adjustable means on said contact-box with which said plow is in contact when connected to the contact-box and through which the electric current passes to and from the plow.

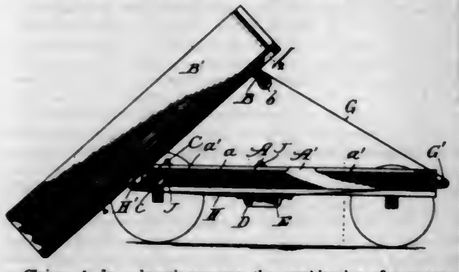
47. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a contact-box, a plow adapted to be connected with said contact-box and to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, automatically-adjustable means on said contact-

box with which said plow is in contact when connected to the contact-box and through which the electric current passes to and from the plow, and means for disengaging said plow from said contact-box.

48. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, positive and negative conductor-rails for the electric current, a contact-box, a plow adapted to be connected with said contact-box and to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car, automatically-adjustable means on said contact-box with which said plow is in contact when connected to the contact-box and through which the electric current passes to and from the plow, and means for automatically disengaging said plow from said contact-box.

49. In an electric railway, a car adapted to travel thereon and provided with a propelling-motor, conductor-rails for the electric current, a plow adapted to move in contact with said conductor-rails to carry the electric current to and from said motor for propelling the car and provided with jaws by which it is supported, supporting-hangers for supporting the plow in its connection with the car and provided with inwardly-turned flanges tapering at the ends and adapted to fit between said jaws and thereby support the plow.

577,913. DUMPING-WAGON. IRWIN R. CHRISTINGER, Chicago, Ill., assignor to Clinton S. Weeks and M. F. Christinger, same place. Filed May 20, 1896. Serial No. 592,248. (No model.)



Claim.—1. In a dumping-wagon, the combination of a wagon-frame provided with internal longitudinal recesses or channels extending substantially from end to end of the frame and having one pair of openings into the top of the recesses, and a wagon bed or body having two pairs of laterally-projecting pins extending into the recesses and supporting the bed upon the frame, one pair of pins being adapted to pass outwardly through the openings in the top of the recesses when the bed is tilted upon the other pair of pins as a pivot.

2. In a dumping-wagon, the combination of a wagon-frame provided with internal longitudinally-extending recesses or channels having corresponding side openings cut in the top flange of the recesses, a wagon body or bed, depending blocks upon the bed provided with side projecting portions engaged by the recesses and adapted to move therein and means for moving the bed upon the frame whereby as the bed is moved to tilting position the projecting portions of one of the blocks will be free to pass through the openings in the recesses to allow the bed to tilt.

3. In a dumping-wagon, the combination of a wagon-frame provided with internal longitudinally-extending recesses or channels having two corresponding side openings in the top flange of the recesses, a wagon body or bed, two depending blocks upon the bed, laterally-projecting rollers mounted upon the ends of each block and adapted to travel within the recesses, cables secured to the bed and means for operating the cables to move the bed upon the frame, whereby, as the bed is moved to a tilting position the rollers on one of the blocks will correspond in position with the openings in the recesses and be released from the recesses and be permitted to tilt.

4. In a dumping-wagon the combination with the running-gear, of a wagon-frame provided with internal recesses or channels having two corresponding side openings in the top flange of the recesses, the rear end of the recesses terminating at a point above the rear axle of the wagon, a wagon body or bed, two depending blocks upon the bed provided with laterally-extending portions engaged by the recesses and adapted to move therein, and means for moving the bed upon the frame, the blocks being so spaced upon the bed with respect to the two said openings that when the rear block has reached its rearward limit of movement above the rear axle, the position of the projecting portions of the front block will correspond with the openings in the recesses, whereby the wagon-bed is free to tilt.

5. The combination of a wagon-frame provided with internal recesses having corresponding side openings in their top, a wagon-bed, depending blocks thereupon provided with side projecting portions engaged by the recesses and adapted to travel therein and two winding-shafts journaled in the wagon-frame and cables connected therewith and with the front and rear portions of the wagon-body.

6. The combination of a wagon-frame with recesses *a* having openings A' in the top thereof, a wagon-bed, blocks B C having rollers *b c* respectively, a winding-shaft D, cable H connected thereto and to block C, winding-shaft E, cable G connected to shaft E and to block B and ratchet device F *f* at the end of the shaft.

7. The combination of wagon-frame A having recesses *a* and openings A', wagon-bed B', depending portions B C having sets of rollers *b c*, shafts D E journaled in frame A, pulleys G' H' at the front and rear respectively of the frame, cable H connected to shaft D and portion C and passing around pulley H' and cable G connected to shaft E and portion B and passing around pulley G'.

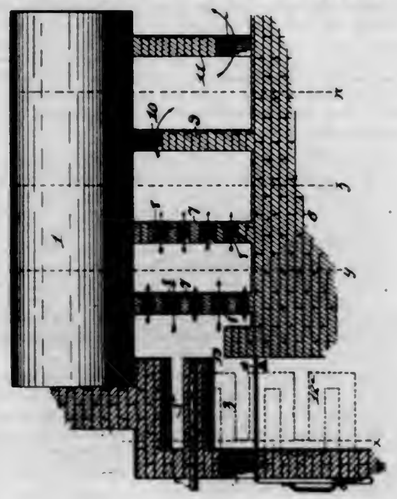
8. In a dumping-wagon, the combination of a wagon-frame having internal longitudinal recesses with oppositely-disposed openings on the top face of the recesses, a tilting wagon-body having two portions or strips upon the bottom thereof provided at their ends with rollers adapted to travel within the recesses when the wagon-body is horizontal, the rollers on the forward strips being adapted to pass out upwardly through the openings in the recesses when the wagon-body is tilted, at which time the set of rollers on the other strip have reached the rear limit of travel in the recesses and constitute pivots or fulcrum-points for the wagon-body, mechanism for moving the wagon-body backward to permit it to tilt and means for drawing it back again to a horizontal position and into normal position on the wagon-frame.

577,914. CALF-WEANER. GEORGE COOLEY, Guthrie, Okla. Filed Mar. 31, 1896. Serial No. 584,375. (No model.)



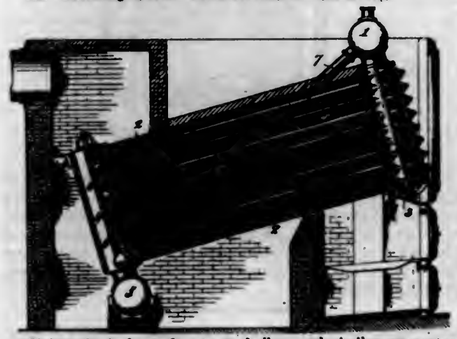
Claim.—The herein-described calf-weaner comprising essentially the oval ring adapted to receive the head of a calf, the U-shaped transverse bar D, connected at its ends to the ring about midway the length of the weaner, the curved longitudinal bars E, connected at their ends to the bar D, and to the rear portion of the ring, and adapted to bear upon the ground when the calf lowers its head, the portion F, of wire-gauze or intermeshed wire connected to the ring and the bar D, and bulged forwardly of the forward end of the ring, the bar I, connected to the forward end of the ring and to the bar U, at the middle thereof and having the portion *e*, projecting below the gauzed or intermeshed wire portion F, and adapted to engage the ground when the calf lowers its head, and the wire-gauzed or intermeshed wires connecting the bars E, the bar D, and portions of the ring in rear of the bar D, substantially as and for the purpose set forth.

577,915. SMOKE-CONSUMER. WILLIAM E. ELBERS, Hagen, Germany. Filed Oct. 29, 1895. Serial No. 567,289. (No model.)



Claim.—In a smoke-consumer, a series of irregular flues in the side walls of a furnace communicating with a space above the arch, a fuel-chamber below the arch and a combustion-chamber at the end of the arch; the air-space and fuel-chamber being connected with the combustion-chamber, blast-pipes leading through the arch and communicating with the combustion-chamber, supporting-walls for the boilers having irregular openings acting as baffle-plates, as and for the purpose described.

577,916. STEAM-BOILER. GODFREY ENGEL, South Baltimore, Md. Filed Aug. 4, 1896. Serial No. 601,599. (No model.)



Claim.—1. A drum for steam-boilers and similar apparatus, adapted to be directly connected to a series of tubes, having a curved surface, and having in said surface a series of independent bosses, the faces of which are provided with openings for the reception of the ends of the tubes and are substantially at right angles to their tubes, said bosses being arranged in steps upon the surface of the drum, and being separated from each other by curved portions of the drum, by which the form of the drum is retained, substantially as described.

2. A drum for steam-boilers and similar apparatus, adapted to be directly connected to a series of tubes, and consisting of a generally cylindrical drum, in the cylindrical surface of which are a series of independent bosses having faces, which are provided with openings for the reception of the tubes and are substantially at right angles to their tubes, said bosses being arranged in steps upon the cylindrical surface of the drum and being separated from each other by cylindrically-curved portions of the drum, by which the form of the drum is retained, substantially as described.

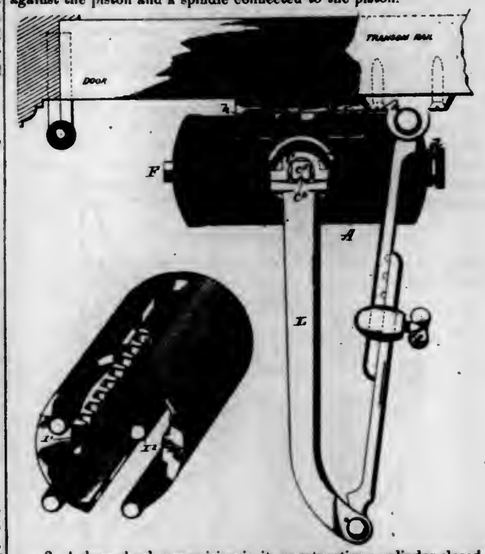
3. A drum for steam-boilers and similar apparatus, adapted to be directly connected to a series of tubes, and consisting of a generally cylindrical drum having stamped in its sides a series of independent bosses projecting partly inward and partly outward from the cylindrical shell of the drum, and having faces which are provided with openings for the reception of the tubes and are substantially at right angles to their tubes, said bosses being arranged in steps upon the cylindrical surface of the drum and being separated from each other by cylindrically-curved portions of the drum, by which the form of the drum is retained, substantially as described.

4. In a boiler, the combination, with a series of generating-tubes, of a drum adapted to be directly connected to said tubes, having a generally cylindrical form, and provided with a series of independent bosses, the faces of which are provided with openings for the reception of the tubes and are at substantially right angles to their tubes, said bosses being arranged in steps upon the cylindrical surface of the drum, and being separated from each other by cylindrical curved portions of the drum, by which the form of the drum is retained, substantially as described.

5. In a boiler, the combination, with a steam-drum and a series of inclined generating-tubes, of front and rear headers for connecting said tubes at the front and rear to each other and to the steam-drum, said headers being generally cylindrical in form, and having in their sides series of independent bosses, the faces of which are provided with openings for the reception of the tubes and are substantially at right angles to their tubes, said bosses being arranged in steps upon the cylindrical surface of the drum, and being separated from each other by cylindrically-curved portions of the drum, by which the form of the drum is retained, substantially as described.

577,917. LIQUID DOOR-CHECK. WILLIAM GILFILLAN, New York, N. Y. Filed Oct. 15, 1896. Serial No. 608,986. (No model.)

Claim.—1. A door-check comprising in its construction a cylinder closed at one end and provided with a removable cap at its other end, a piston located in said cylinder, means whereby the liquid may escape from in front of the piston, a spring supported at one end by a bearing carried by the removable cap and bearing at its other end against the piston and a spindle connected to the piston.



2. A door-check comprising in its construction a cylinder closed at one end and provided with a removable cap at its other end, a piston located in said cylinder and provided with a valve, a spring supported at one end by a bearing carried by the removable cap and bearing at its other end against the piston and a spindle connected to the piston.

3. A door-check comprising in its construction, a cylinder closed at one end and provided with a removable cap at its other end, a piston located in said cylinder means whereby the liquid may escape from in front of the piston, a plurality of springs supported at one end by a bearing carried by the removable cap and bearing at their other ends against the piston, and a spindle connected with the piston.

4. A door-check comprising in its construction a liquid-chamber closed at one end and provided with a removable cap at its other end, a piston located in said cylinder, means whereby the liquid may escape from in front of the piston, a plurality of spiral springs supported at one end by a bearing carried by the removable cap, and bearing at their outer end against the piston, means for simultaneously adjusting the tension of the several springs, and a spindle connected with the piston.

5. A door-check comprising in its construction a liquid-chamber closed at one end and provided with a removable cap at its other end, a piston within said cylinder, means whereby the liquid may escape from in front of the piston, a plurality of springs bearing at one end against the piston, a disk supporting the other end of the springs, a screw carried by the removable cap and passing through the disk, and a spindle connected with the piston.

6. A door-check comprising a liquid-chamber, a piston therein, a series of rods on the piston an adjustable disk carrying a series of tubes, spiral springs each mounted on a rod at one end and a tube at the other end and a spindle connected with the piston.

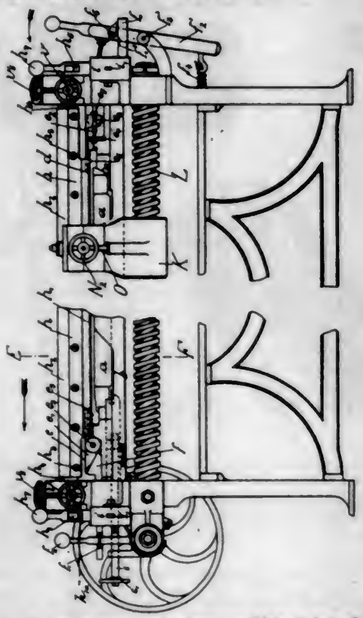
7. A door-check comprising a closed liquid-casing an elongated slotted piston therein, a rack carried by and within the slotted piston, springs for moving the piston in one direction and a spindle mounted in the closed casing and carrying a pinion engaging the rack on the piston.

8. A liquid door-check comprising a casing having a seat in its lower face and an opening in its upper face, an elongated slotted piston within said casing, a rack-bar secured to and within the piston, a spindle resting at its lower end in the seat in the casing and provided with a flange closing the opening in the upper face of the casing, a cap and washer for locking the spindle in position and a pinion on the spindle meshing with the rack-bar on the piston.

9. The combination with a plate having lips and screw-holes, of a casing having projections adapted to take over the lips on the plate and also provided with a lug or boss having screw-holes, substantially as set forth.

10. The combination with a plate having lips, a centrally-located notch and screw-holes, of a casing having projections adapted to take over the lips on the plate at opposite sides of the notch and also provided with a lug or boss having screw-holes.

577,918. APPARATUS FOR ATTACHING FILLETS TO FLATS OF CARD-CLOTHING. KARL GOLDSCHMIDT, Brünn, Austria-Hungary. Filed July 20, 1894. Serial No. 518,152. (No model.) Patented in England June 12, 1894, No. 11,402; in Belgium June 30, 1894, No. 110,456; in Spain Aug. 28, 1894, No. 16,044; in Austria Sept. 20, 1894, No. 44/4,977; in France Nov. 5, 1894, No. 239,261; in Italy Nov. 19, 1894, XXIX, 37,657, and LXXIV, 84; in Switzerland Nov. 30, 1894, No. 8,552, and in Germany May 16, 1895, No. 81,142.



Claim.—1. In an apparatus for fastening fillets to flats of cards, the combination with a trough-like bed-plate *b*, of adjustable block b' and stationary block b^3 mounted thereon, and a hand-wheel and screw adapted to adjust the said block b', catches c', c^3, respectively, attached to said blocks, the former being pivoted on pin c^4 and having an oblique surface c^5 on its under left side, while its right tapers into a hook c^6, and the catch c^3 being pivoted on a pin c^4 and provided on its left side with a hook c^7 for holding a cord c^8, a lever *f* pivoted on pin *f''* in guide-frame f^3 and adapted to force upward an end catch c' and the hook c^3 downward, a pulley c^9, fixed on the pin c^4 for guiding the cord c^8, a double lever f', pivoted on frame *b*, and held in position by spring f^4 and provided with hook f^5 which is connected by the cord c^8 with the hook c^7, and a pawl f_6, on the lever f'_2, all constructed and arranged substantially as herein shown and described.

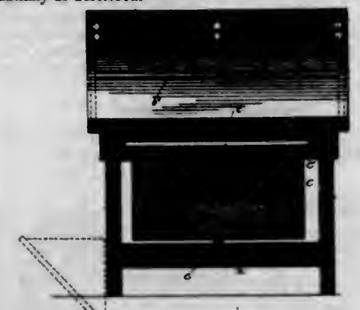
2. In an apparatus for fastening fillets to flats, the combination of plate *h* provided with teeth h', bar h^3 movable by screw-spindle and hand-wheel secured on said plate by screws h^2, swivel-pins h^4 pivoting said bar, arms h^5 on each end of said bar provided with notches h^6, levers h^7 provided with triangular pieces h^8 and pivoted on pivots h^9, and lever i' carrying a movable weight and pivoted on frame at i^3, all constructed and arranged substantially as herein shown and described.

3. In an apparatus for fastening fillets to flats constructed substantially as herein shown and described, the combination of head K, pressing-blocks in said head, screw-spindle l_1, supports M in said head, screw N, hand-wheel N^3, slide-arms O carrying screw-studs O', supporting-rollers O^2, spiral spring O^4, supports P, screws P', and clamping-blocks P^2, all constructed, arranged and adapted to operate as set forth.

577,919. KITCHEN-CABINET. WILLIAM H. HAIRE, Bristol, Tenn. Filed May 21, 1896. Serial No. 592,427. (No model.)

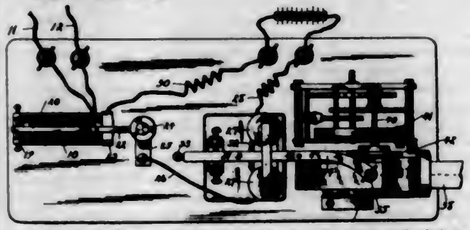
Claim.—1. A kitchen-cabinet comprising a bin or receptacle for flour or the like pivotally mounted on a rod seated in the frame of the cabinet, a cover pierced by the rod upon which the receptacle is mounted, the cover being capable of a slight up-and-down movement and being incapable of rotating, substantially as described.

2. A kitchen-cabinet comprising a pivoted bin or receptacle for flour or the like, the bin being divided into compartments, one compartment being arranged at each end of the bin, and being capable of swinging horizontally to expose the different compartments or to cover the same, and a cover arranged above the bin, the cover being capable of slight up-and-down movement, and incapable of rotating, substantially as described.



3. A kitchen-cabinet comprising a table portion suitably supported, a cover for the table portion made in two parts, one of which is movable, a bin for receiving flour or the like arranged below the table portion and divided into compartments, the bin being capable of swinging horizontally, and a cover arranged above the bin, the cover being capable of moving vertically and incapable of rotating, substantially as described.

577,920. TELEPHONE-CALL REGISTER. WILLIAM A. HECKARD and DORA OGDEN, Columbus, Ind. Filed June 8, 1896. Serial No. 594,634. (No model.)



Claim.—1. In a sender for a telephone-call register, a shaft forming part of an open electric circuit, a series of contact-wheels secured to said shaft, each of said contact-wheels being provided with a series of contact-points, a terminal also forming a part of said open circuit, means for causing said terminal to engage with the series of contact-points upon any one of said contact-wheels, an electric motor connected with said shaft, a terminal forming a part of the open motor-circuit, a lever also forming a part of said motor-circuit, means operated by the movement of said first-mentioned terminal for causing said lever to engage said last-mentioned terminal and thereby close the motor-circuit, a cam secured to the shaft and adapted to engage said lever, the said cam operating, during a portion of its revolution, to hold said motor-circuit closed, and also operating to open said motor-circuit, as and for the purpose set forth.

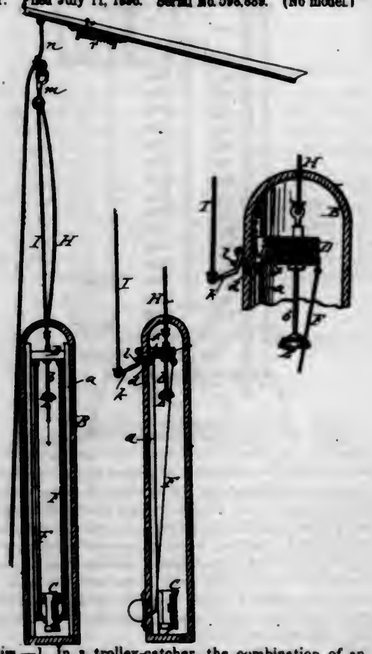
2. In a sender for a telephone-call register, a shaft forming a part of an open electric circuit, a series of contact-wheels secured to said shaft, each of said contact-wheels being provided with a series of contact-points, a series of keys pivoted one near each of said contact-wheels and each provided with a terminal adapted to be brought into the path of movement of said contact-points, all of said terminals being connected together so as to form a terminal of said open circuit, an electric motor connected with said shaft, a terminal forming a part of the open motor-circuit, a lever also forming a part of said motor-circuit, means operated by the movement of any one of the keys for causing said lever to engage said last-mentioned terminal and thereby close the motor-circuit, a cam secured to the shaft and adapted to engage said lever, the said cam operating, during a portion of its revolution, to hold said motor-circuit closed, and also operating to open said motor-circuit, as and for the purpose set forth.

3. In a sender for a telephone-call register, a shaft forming part of an open electric circuit, a series of contact-wheels secured to said shaft, each of said wheels being provided with a series of contact-points, a series of keys pivoted one near each of said contact-wheels and each provided with a terminal adapted to be brought into the path of movement of said contact-points, all of said terminals being connected together so as to form a terminal of said open circuit, an electric motor connected with and adapted to rotate said shaft, a terminal forming part of the open motor-circuit, a lever also forming part of said motor-circuit, an arm connected with said lever and adapted to be engaged by any one of said keys, whereby the said lever may be brought into engagement with the said last-mentioned terminal thereby closing the motor-circuit, a cam secured to the shaft and adapted to engage said lever, the said cam operating, during a portion of its revolution, to hold said motor-circuit closed, and also operating to open said motor-circuit, as and for the purpose set forth.

4. In a sender for a telephone-call register, a shaft forming part of an electric circuit, a series of contact-wheels secured to said shaft, each of said wheels being provided with a series of contact-points, a series of keys pivoted one near each of said contact-wheels and each provided with a terminal adapted to be brought into the path of movement of said contact-points, all of said terminals being connected together so as to form a terminal of said open circuit, an electric motor connected with and adapted to rotate said shaft, a terminal forming part of the open motor-circuit, a lever also forming part of said motor-circuit, an arm connected with said lever and adapted to be engaged by any one of said keys, whereby the said lever may be brought into engagement with the said last-mentioned terminal thereby closing the motor-circuit, a cam secured to the shaft and adapted to engage said lever, the said cam operating, during a portion of its revolution, to hold said motor-circuit closed, and also operating to open said motor-circuit, a catch pivoted to each of said keys, each of said catches being adapted to engage the arm connected with said lever and thereby hold the terminal of said key in the path of movement of said contact-points, and a guide placed in the path of movement of said catches and adapted to release said catches from said arm when the said cam operates to break the motor-circuit, all combined and arranged to coöperate substantially as and for the purpose set forth.

5. In a sender for a telephone-call register, a shaft forming part of an electrict circuit, a series of contact-wheels secured to said shaft, each of said wheels being provided with a series of contact-points, a series of keys pivoted one near each of said contact-wheels and each provided with a terminal adapted to be brought into the path of movement of said contact-points, all of said terminals being connected together so as to form a terminal of said circuit, means for rotating said shaft, a catch pivoted to each of said keys, an arm adapted to be engaged by any one of said catches and thereby hold the terminals in engagement with the contact-wheels, a cam mounted on the shaft and adapted to operate said arm, and a guide placed in the path of movement of said catches and adapted to release said catches from said arm when said cam moves said arm, all combined and arranged to coöperate substantially as and for the purpose set forth.

577,921. TROLLEY-CATCHER. THOMAS HOLAHAN, Rochester, N. Y. Filed July 11, 1896. Serial No. 598,889. (No model.)

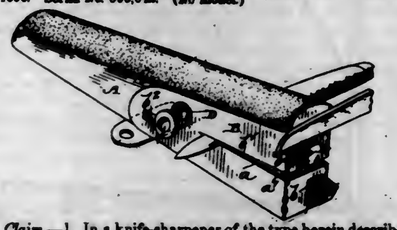


Claim.—1. In a trolley-catcher, the combination of an open-ended air-cylinder provided with a discharge-orifice; a slide movable

forward and back; a piston attached to the slide adapted to enter the open end of the cylinder; a connection attached to the slide; a spring-roller on which the connection winds; a spring-hook at the top of the casing and a corresponding hook on the slide, which two hooks engage together when the slide is raised; a latch for operating the spring-hook; a cord connecting the slide with the trolley-arm; and another cord connecting the latch with the trolley-arm, the whole arranged to operate in the manner and for the purpose specified.

2. The combination, with the trolley-arm, of a section hinged thereto to turn upward; a spring for forcing the same upward; and two cords connected at one end to a pendant of the hinged section, and at the other end, one with a winding apparatus for drawing the trolley down, and the other with a disengaging device that operates the locking devices of the winding apparatus, as herein shown and described.

577,922. KNIFE OR SHEARS SHARPENER. IRA J. IDE, ROBERT B. GILMOUR, and EMANUEL RICHARD, Duluth, Minn. Filed June 23, 1896. Serial No. 596,642. (No model.)



Claim.—1. In a knife-sharpener of the type herein described, the combination with a handle or stock provided with a guide-slot for the passage of the knife-blade, and inclined file-channels intersecting said slot; files or hones removably and adjustably applied in said file-channels, an apertured channel in the stock at the ends of the said file-channels for the reception and discharge of filings, and an adjustable cap constructed with apertures coinciding with the guiding-slot in the stock, and an adjusting-slot, and fastening means working in conjunction with said adjusting-slot, substantially as described.

2. The combination of the reversely-inclined files, the stock provided with a guiding-slot, and a cap provided with coinciding apertures, said slot and apertures serving for the passage of the knife against the files, and said parts being constructed to permit the files to be set inclined and to extend out beyond the stock, and to be fastened in such position as to permit a knife to be sharpened on certain portions of the files, and scissors or shears to be sharpened on other portions thereof, substantially as described.

3. The combination with a handle provided with a guide-slot and reversely-inclined file-channels intersecting said slot in opposite directions, and an adjustable cap having apertures in its end of greater diameter than the files and also provided with a guiding-slot corresponding with the apertures in the handle, means for securing the cap to the handle and adjusting it longitudinally, files removably fixed in said channels, an apertured channel for receiving and discharging the filings, a file or hone of suitable material affixed to one side of the stock, and means for securing said sharpener to a wall or other foundation, substantially as described.

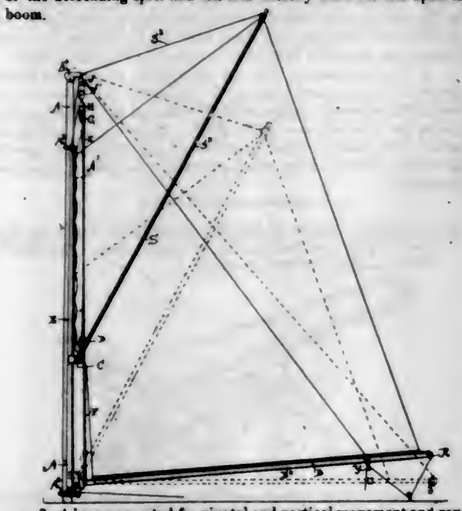
4. The combination of the stock or handle provided with a slot for the insertion of the article to be sharpened, the cap having similar coinciding apertures and made adjustable longitudinally on the stock, reversely-inclined files entering snugly into the apertures of the stock, and a means for fastening the cap in its adjusted binding position upon the files, the whole being such that the cap binds on the under inclined surface of one file and on the upper inclined surface of the other file when the cap is forced home and secured in its position by the fastening means.

577,923. SELF-REEFING SPRIT-SAIL RIG. LUCIAN A. KIMBALL, Providence, R. I. Filed July 13, 1896. Serial No. 598,235. (No model.)

Claim.—1. In a sprit-sail rig, a boom mounted for pivotal and vertical movement, and revolubly supported at its ends, a sprit mounted for pivotal and vertical movement and provided with hoisting means, an endless reefing-line engaging said sprit and boom near their inner ends, and a sail secured to said sprit and boom, all combined with each other and with a mast and adapted to serve as specified to automatically wind the sail upon the boom when the sprit is lowered and to unwind the sail when the sprit is hoisted.

2. A self-reefing sprit-sail rig, consisting of a boom revolubly supported at each end, a sprit mounted for pivotal and vertical movement and provided with hoisting means, and at its inner end with a clamping-buckle, a reefing-block, and an endless reefing-line wound

around said boom near its inner end and engaging said reefing-block and buckle, and a sail secured upon said boom and sprit, all combined with each other and with a mast, all arranged and adapted to serve as specified to automatically revolve said boom by the weight of the descending sprit and sail and thereby wind the sail upon the boom.



3. A boom mounted for pivotal and vertical movement and revolubly supported at each end, combined with a mast, a sprit mounted for pivotal and vertical movement, a sail secured to said boom and sprit, means for hoisting and lowering said sprit and sail, and other means for automatically revolving said boom by the weight of the descending sprit and sail.

4. A sprit mounted for pivotal and vertical movement, and a becket mounted for vertical movement and provided with an obliquely-directed slot, combined with each other, as shown, and with a mast and hoisting means.

5. In a sprit-sail rig, a becket mounted for vertical movement and provided with an obliquely-directed slot, a sprit having its lower end mounted for pivotal and vertically-inclined movement in said slot, and means for hoisting said becket, combined with each other and with a mast, all arranged and adapted to serve as and for the purpose specified.

6. A boom B, having a spindle-shaped inner end grooved as at b, a housing B', adapted to receive said spindle end of said boom, and provided with a downwardly-extending pintle b^3, a transverse bolt b', all combined with each other and with an open-jawed mast-clamp A^3 and automatically-removable link b^2, and adapted to serve as and for the purposes specified.

7. In a sail-rig, the boom-traveler T, provided with eyes T', T^2, adapted to receive the top-lift line, and to take up the slack thereof as the traveler is moved inward along the boom, and the sheet-block Y, suspended on said traveler, combined with each other and with a boom; said sheet-block being adapted to serve, as specified, to releasably lock the traveler on the boom, and said traveler being capable, under the strain of the top-lift line, of movement to the outer end of the boom, when the sheet-block is raised to release the traveler.

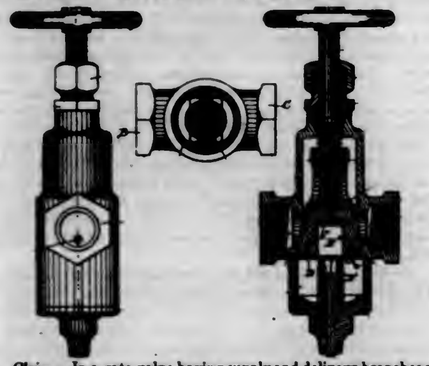
8. In a self-reefing sprit-sail rig, a boom, capable of being revolved upon its supported outer and inner ends, an endless reefing-line wound around said boom near its inner end, a sprit secured at its lower end to the mast and movable longitudinally of the latter, a buckle D, having its lower end secured to the lower end of said sprit and movable therewith and thereon, and its upper end secured to the sprit-halyard, said buckle engaging one side of said endless reefing-line, a mast, suitable systems of blocks suspended in vertical alinement with each other from the top of the mast, and a top-lift line, all combined with each other and with the sheet, whereby said reefing-line and sprit-halyard are drawn taut and the buckle D caused to firmly grip the engaged side of said reefing-line, and to retain its grip thereon while the sprit is descending, thereby causing the boom to revolve and roll the sail up on it.

9. In a sail-rig, a boom B and an endless brailing-line B^5 extending along the top and bottom sides of said boom and passing through the same near its outer and inner ends, combined with each other and with a sail and means for movably securing said sail upon said boom, and other means for securing the foot of said sail to said brailing-line, all arranged and adapted to serve as specified to allow the boatman by pulling on the lower portion of said brailing-line to brail the sail upon said boom without leaving his seat in the stern of the boat.

10. The boom B, endless brailing-line B^5, and a sail combined with each other and with a movable ring z surrounding said boom and brailing-line and adapted for movement along said boom to releasably clamp the brailing-line against the latter.

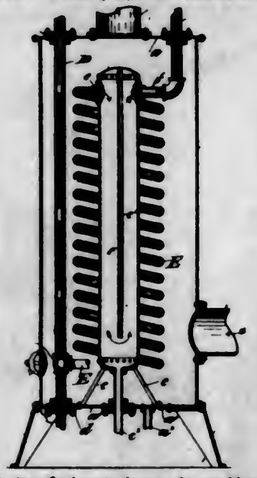
11. The buckle D, and a sprit S both connected and mounted for vertical movement, means for imparting downward vertical movement to the same, a boom B mounted for vertical movement and revolubly supported at its ends, an endless reefing-line E engaging said sprit and boom near their inner ends, and engaged as to one of its sides by said buckle D, all combined with each other and with a mast, sail, and means for depressing the outer end of said boom.

577,924. GATE-VALVE. HENRY H. LIBBEY, Boston, Mass. Filed June 20, 1896. Serial No. 596,260. (No model.)



Claim.—In a gate-valve having supply and delivery branches and valve-seats thereon combined with a perforated adjustable plug having an exhaust-port in communication with the delivery branch, a valve-seated recess in the under side of said plug and a hollow stem in the lower portion of the valve-shell, said stem having an exhaust-vent and having its upper end adapted to be closed against the valve-seated recess in the plug substantially as and for the purpose set forth.

577,925. FEED-WATER HEATER FOR BOILERS. JOHN LOTHER, Cincinnati, Ohio. Filed May 10, 1894. Serial No. 510,689. (No model.)



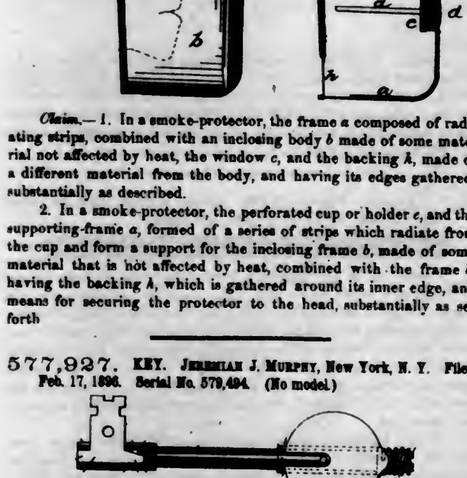
Claim.—1. In a feed-water heater the combination of the outer shell interposed in the escape-pipe of a steam-engine, a cylinder within said shell having a central partition dividing the same into two communicating chambers, the feed-water pipe passing through the shell and terminating in a coil surrounding said inner cylinder the terminal of the coil being connected to one chamber of said inner cylinder, and an outlet-pipe from the opposite chamber of said cylinder passing through the outer case to communicate with the boiler, whereby the water is compelled to travel through the coil and through both chambers of the inner cylinder before passing to the outlet-pipe, substantially as shown and described.

2. The combination of the outer case perforated at opposite ends, the branches of the exhaust-pipe communicating with said case, the inner cylinder supported above the bottom of said case, a partition in said cylinder dividing it into two chambers communicating with each other near the bottom, the feed-water pipe passing through the outer case, a coil surrounding the inner cylinder connected to the feed-water pipe and having its terminal connected to one of the chambers of the inner cylinder near its upper end, the discharge-pipe passing from the top of the opposite chamber, and a waste-pipe connected to the bottom of the inner cylinder and passing to the outside of the case, substantially as shown and described.

3. The combination of the outer shell interposed in the escape-pipe of a steam-engine, an inner cylinder supported within said case, a central partition within said cylinder extending to near the bottom thereof, a feed-water pipe passing into the case and terminating in a coil surrounding the inner cylinder and the terminal of said coil communicating with the inner cylinder near the top of one chamber, a discharge-pipe passing from the top of the outer chamber and through the outer case, a discharge-pipe leading from the bottom of the inner cylinder through the bottom of the outer case, and a discharge-pipe from the bottom of the outer case to carry off the water of condensation, substantially as shown and described.

4. The combination of the outer case interposed in the escape-pipe of a steam-engine, the inner cylinder supported centrally above the bottom of said outer case, the partition extending from the top of said cylinder to near the bottom thereof dividing the cylinder into two chambers, a feed-water pipe passing vertically through the outer case and having a lateral branch terminating in a coil surrounding the inner cylinder and communicating with one of its chambers near the top thereof, a discharge-pipe leading from the top of the opposite chamber through the outer case, and packing-glands for said feed and discharge pipes to prevent leakage and allow for the expansion and contraction of the pipes, substantially as shown and described.

577,926. FIREMAN'S MASK. AUGUSTA MILLER, Syracuse, N. Y. Filed Apr. 11, 1896. Serial No. 587,116. (No model.)



Claim.—1. In a smoke-protector, the frame a composed of radiating strips, combined with an inclosing body b made of some material not affected by heat, the window c, and the backing h, made of a different material from the body, and having its edges gathered, substantially as described.

2. In a smoke-protector, the perforated cup or holder e, and the supporting-frame a, formed of a series of strips which radiate from the cup and form a support for the inclosing frame b, made of some material that is not affected by heat, combined with the frame b, having the backing h, which is gathered around its inner edge, and means for securing the protector to the head, substantially as set forth

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577,927. KEY. JEREMIAH J. MURPHY, New York, N. Y. Filed Feb. 17, 1896. Serial No. 579,494. (No model.)

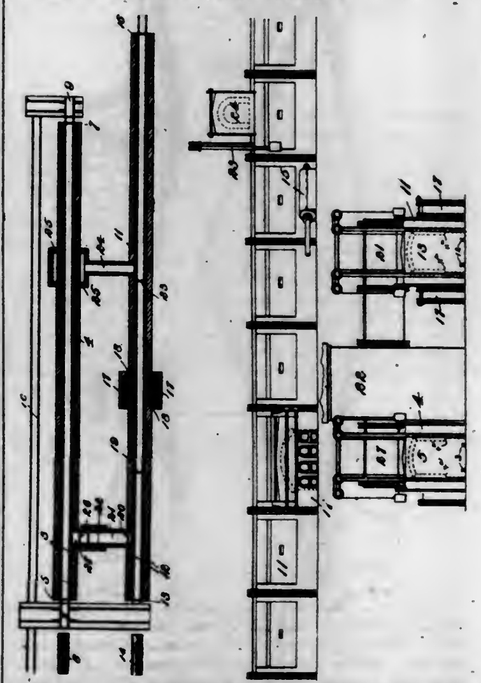


Claim.—1. The herein-described key comprising a tubular shaft or handle, in one end of which is formed a slot, through which the bit is adapted to be inserted, a sliding sleeve mounted on said tubular handle or shaft, a sliding rod mounted therein, and provided with a lug or extension adapted to engage a projection on the bit to lock the same in position, substantially as described.

2. The herein-described key, comprising a tubular shaft or handle in one end of which is formed a slot, through which a key-bit is adapted to be inserted, and means for locking said key-bit in position consisting of a sliding sleeve mounted on said tubular handle or shaft, and the sliding rod mounted therein, which is adapted to operate in connection with said bit, said key-bit being also provided with projections at each side thereof, in connection with one of which said sliding rod operates, and said sliding rod being provided at its outer end with a slot, and said tubular shaft or handle having a sleeve secured thereon, in the upper and lower sides of which are formed slots which register with similar slots formed in the tubular handle or shaft and a disk mounted in said slots, and pivotally and eccentrically connected with said sliding rod, whereby the latter may be operated to secure the key-bit in position, substantially as shown and described.

3. The herein-described key, comprising a tubular shaft or handle, in one end of which is formed a slot, through which the key-bit is adapted to be inserted, and means for locking said key-bit in position, consisting of a sliding sleeve mounted on said tubular handle or shaft, and a sliding rod mounted therein, which is adapted to operate in connection with said key-bit, said key-bit being also provided with projections at each side thereof, in connection with one of which said sliding rod operates, and said sliding rod being provided at its outer end with a slot, and said tubular shaft or handle with the sleeve secured thereon, in the upper and lower sides of which are formed slots which register with similar slots formed in the tubular handle or shaft, and a disk mounted in said slots, and pivotally and eccentrically connected with said sliding rod, whereby the latter may be operated to secure the key-bit in position, said disk being provided on one side with a semicircular projection and said tubular handle or shaft being provided at its outer end with a spiral spring which operates in connection with said semicircular projection, substantially as shown and described.

577,928. BRICK-KILN. THOMAS L. MYERS, St. Louis, Mo., assignor to the Fernholtz Brick-Press Company, same place. Filed July 15, 1896. Serial No. 599,231. (No model.)



Claim.—1. The combination with a drying-tunnel having a track extending therethrough, of an outside track extending from the rear end of the drying-tunnel to the front end of a burning-tunnel, a burning-tunnel, and transfer-cars cooperating with the ends of said outside track and the rear end of the drying-tunnel and the front end of the burning-tunnel; substantially as described.

2. The combination with drying and burning tunnels which are arranged parallel to each other, of furnaces on each side of the burning-tunnel, a flue connecting the rear ends of said two tunnels, a stack between the front ends of said tunnels, and flues leading from said tunnels to the stack; substantially as described.

3. The combination with drying and burning tunnels which are arranged parallel to each other, of furnaces on each side of the burning-tunnel, a flue connecting the rear ends of said two tunnels, a stack

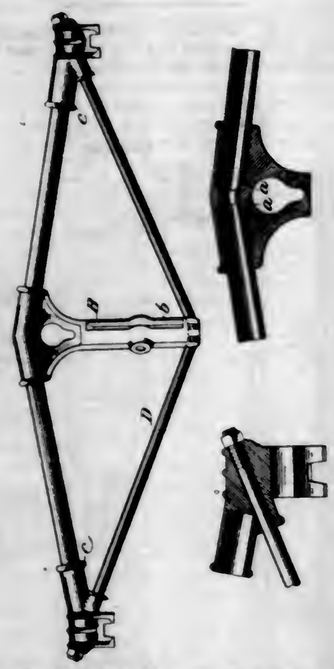
between the front ends of said tunnels, flues leading from said tunnels to the stack, and curtain dampers in the burning-tunnel between the furnaces, rear cross-flue, and stack-flue; substantially as described.

4. The combination with drying and burning tunnels which are arranged parallel to each other, of furnaces on each side of the burning-tunnel, a flue connecting the rear ends of said two tunnels, a stack between the front ends of said tunnels, flues leading from said tunnels to the stack, and dampers in said stack-flues between the tunnels and stack; substantially as described.

5. The combination with a drying-tunnel, of a track therethrough cars on said track, a transfer-car arranged at the rear end of the drying-tunnel, a track 10 for receiving cars from the transfer-car, a transfer-car located at the front end of the drying-tunnel for transferring the cars from track 10 to the burning-tunnel, and a burning-tunnel; substantially as described.

6. The combination with a drying-tunnel and a burning-tunnel arranged parallel to each other, tracks through said tunnels, a transfer-car cooperating with said tunnels, hydraulic cylinders for forcing brick-laden cars from the transfer-car into the tunnels, a transfer-car arranged at the rear end of the drying-tunnel, a track 10 for receiving cars from said last-named transfer-car, said track 10 also cooperating with the transfer-car at the front ends of the tunnels, and a track 1 cooperating with said last-named transfer-car; substantially as described.

577,929. **BRAKE-BEAM.** LEWIS R. POMEROY, East Orange, N. J., assignor to Frank W. Coolbaugh, same place. Filed Mar. 15, 1895. Serial No. 541,859. (No model.)



Claim.—In a brake-beam, the combination of a strut provided with tubular sockets in the head and also provided with means for the attachment of the brake-lever, a compression member consisting of two separate tubular parts whose inner ends are received in said sockets, a tension member engaging the strut at a point beyond the brake-lever attachment and having its two halves disposed at acute angles thereto, and brake-heads provided with socket-pieces integral therewith, the socket-pieces having tubular sockets for the outer ends of the compression member and sockets for the ends of the tension member disposed at acute angles with respect to the said tubular sockets and passing through the brake-heads behind the ends of the compression member so as not to intersect said compression member, substantially as and for the purpose set forth.

577,930. **GUITAR, &c.** CHAR PRINCE, Bainbridge, N. Y., assignor of one-half to Don A. Gilbert, same place. Filed Jan. 27, 1896. Serial No. 577,013. (No model.)

Claim.—1. A guitar or like instrument provided with a fret and a capo-tasto bridge movable alternately into position for use substantially as shown and described.

2. A capo tasto composed of a support, a rocking bridge-carrier and a fret carried by said bridge-carrier substantially as shown and described.



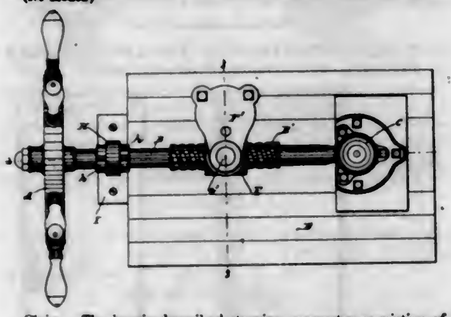
3. A capo tasto composed of a support a bridge-carrier rocking therein and having seats for the spring and the spring engaging said seats whereby to hold the bridge-carrier in either of its two positions, substantially as set forth.

4. A capo tasto comprising the support having a recess and a shelf therein, the bridge-carrier having seats for the spring and its bridge arranged to abut the shelf in the support and the spring substantially as set forth.

5. A guitar having its neck provided with an undercut seat, and an opening leading therefrom to the back of the neck, the support fitted in said undercut seat the rocking carrier having the bridge and the fret, the handle and the spring substantially as set forth.

6. A capo tasto composed of a support, a rocking bridge-carrier and a spring engaging said bridge-carrier and adapted to hold it in either of its positions substantially as set forth.

577,931. **SHIP'S STEERING APPARATUS.** CHARLES H. RICHARDSON, Gloucester, Mass. Filed Mar. 23, 1896. Serial No. 584,409. (No model.)



Claim.—The herein-described steering apparatus consisting of a wheel-shaft B universally jointed or pivoted at its rear end and having a screw-threaded portion B' engaging a nut E pivotally connected to the rudder-post and a roller H journaled on said shaft and adapted to be supported on a stationary rail or plate I, substantially as and for the purpose set forth.

577,932. **FOUNTAIN-PEN.** GUSTAV A. SPIES, Irwin, Pa. Filed Apr. 18, 1896. Serial No. 588,090. (No model.)



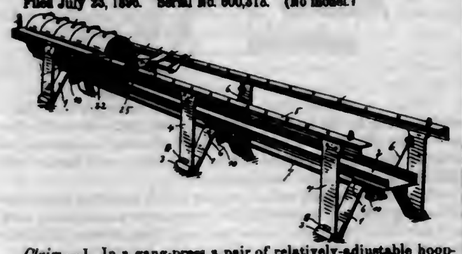
Claim.—1. In a fountain-pen, the holder proper forming the reservoir, a plug in the upper end of the reservoir and the lower end being adapted to receive a sleeve securing the pen-point holder thereto, a rod extending through the plug and holders and engaging the pen-point, said rod having a collar forming a seal against the plug, a collar and washer to engage the lower end of the reservoir and an adjustable feed-regulating collar, and springs on the rod between the said collars to retract the rod when depressed, substantially as shown and described.

2. In a fountain-pen, the combination of the holder proper forming the reservoir, the reservoir being connected to the pen-point holder by a sleeve, a rod extending through said holders and engaging the underneath side of the pen-point, said rod carrying a collar at the outlet and inlet part of the reservoir, an adjustable feeding-collar in the pen-point holder, and being also provided with coil-springs between said collars to retract the rod when depressed, substantially as shown and described.

3. In a fountain-pen, the combination of the holder forming the reservoir, said holder having a plug in its upper end, a rod extending through said plug and holder and engaging the pen-point, said rod having a collar at the outlet and inlet part of the reservoir, washer *h'* at the inlet-collar, an adjustable feeding-collar in the pen-point holder, said rod having a coil-spring engaging the end of the reservoir and the washer *h'* to retract the rod when depressed and the holder provided with removable cap ends, substantially as shown and described.

4. In a fountain-pen, the reservoir and pen-point holder connected by a sleeve, a plug in the end of the reservoir, a rod extending through the plug, reservoir and sleeve with its end adapted to lie under the pen-point, a washer guarding the aperture of the plug, a collar controlling the flow from the reservoir, an adjustable feeding-collar arranged in the rod, a spring arranged in the reservoir encircling the rod for holding the rod elevated and a spring arranged in the sleeve to hold the collar in contact with the reservoir-discharge substantially as described.

577,933. **CHEESE-PRESS.** DANIEL A. SPRAGUE, Poland, N. Y. Filed July 23, 1896. Serial No. 600,318. (No model.)



Claim.—1. In a gang-press a pair of relatively-adjustable hoop-clamping bars and mechanism for moving them relatively in effecting the clamping of the hoops, substantially as set forth.

2. In a gang-press a laterally-movable hoop-clamping bar, mechanism for moving it laterally and an opposing bar, substantially as set forth.

3. In a gang-press a movable follower, a fixed head, laterally-movable side bars and means for operating the side bars, substantially as set forth.

4. In a gang-press a movable follower, a fixed head, laterally-movable side bars movably attached to the fixed head and means for moving the side bars laterally, substantially as set forth.

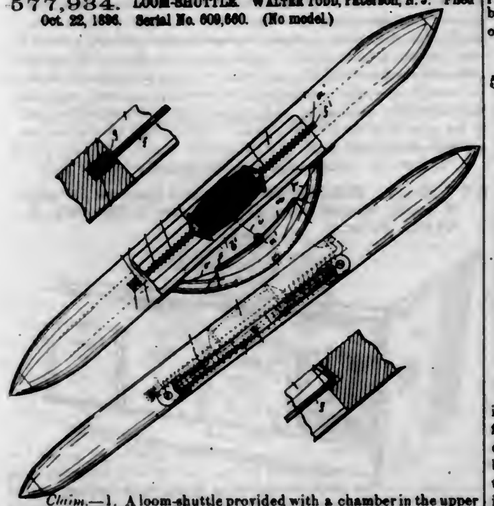
5. In a gang-press a movable follower, a cross-head, laterally-movable side bars therefor and means for laterally moving the side bars, substantially as set forth.

6. The combination in a gang-press of a frame, a trough-hoop support, a movable follower, a fixed head, laterally-movable side bars and mechanism for moving the side bars, substantially as set forth.

7. The combination in a gang-press of a trough-hoop support, laterally-movable side bars, mechanism for moving the side bars laterally, and a movable follower and support slidingly mounted on the trough, substantially as set forth.

8. In a gang-press a hoop-support, a pair of relatively-adjustable hoop-clamping bars and mechanism for moving them relatively in effecting the clamping of the hoops, substantially as set forth.

577,934. **LOOM-SHUTTLE.** WALTER TODD, Paterson, N. J. Filed Oct. 22, 1896. Serial No. 609,660. (No model.)



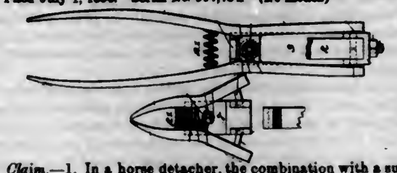
Claim.—1. A loom-shuttle provided with a chamber in the upper side thereof, a shaft longitudinally arranged in said chamber and removably secured to the shuttle, a bobbin slidingly arranged on said shaft and adapted to revolve thereon, and a spiral spring surrounding said shaft and on each side of the bobbin and adapted to normally hold said bobbin in position, substantially as described.

2. A loom-shuttle, provided with a chamber in the upper side thereof, a horizontally-arranged recess in said shuttle and on one end of said chamber, an open slot or groove also in said shuttle and on the other side of said chamber, a shaft removably arranged in said recess and slot and adapted to support a bobbin which latter is free to revolve and slidingly arranged on said shaft, and a spiral spring on each side of the bobbin and surrounding the shaft to normally hold said bobbin in position, substantially as described.

3. The combination with the shuttle-body provided in its front portion with an elongated slot, a bow or conductor on the front portion of the shuttle-body and in alinement with the elongated slot and provided with an eye, a bridge in said bow and also provided with an eye, a spiral spring on each side of the conductor and secured with its outer portion to and within the said bow or conductor and penetrating with its inner portion the respective side of the bridge, and a loop on the inner end of each spiral spring, all said parts, substantially as and for the purposes described.

4. The combination with the shuttle-body and the bobbin carried thereby, of a bow or conductor at the front portion of the shuttle-body, and provided with an eye, a bridge traversing said bow and also provided with an eye, a spiral spring on each side of the conductor and secured with its inner end to and within said conductor, and penetrating with its other end the bridge, and a loop on the free end of each spiral spring, all said parts, substantially as and for the purposes described.

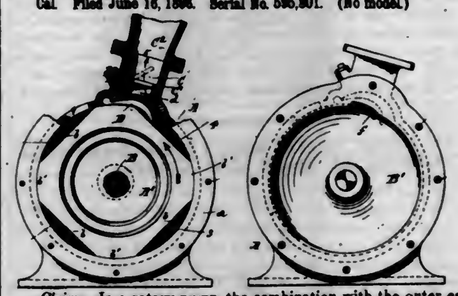
577,935. **HORSE-DETACHER.** JOHN F. TURNER, Bertram, Tex. Filed July 1, 1896. Serial No. 597,754. (No model.)



Claim.—1. In a horse detacher, the combination with a support, of a combined clamp and coupling-box for securing the support to the axle of the vehicle, a shaft adapted for reception in the coupling-box, and spring-pressed operating-levers pivoted to the support and having locking-pins passing through the coupling-box and normally in engagement with the shaft, said levers being adapted for manipulation so that their lower ends may be spread and locking-pins withdrawn from the shaft.

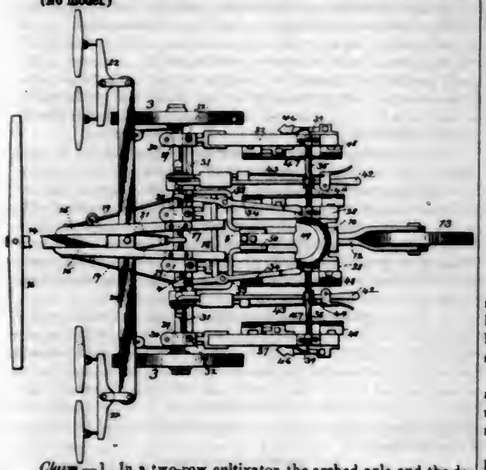
2. In a horse-detacher, the combination with the vehicle-axle, of a support having a bifurcated lower end straddling said axle, a combined clamping-plate and coupling-box connected to the bifurcated end of the support under the axle, a shaft having its end located in the coupling-box, spring-pressed operating-levers pivoted to the support and having locking-pins adapted to pass through the coupling-box and into the shaft, and an abutment-plate for limiting the spread of the operating-levers.

577,936. **ROTARY PUMP.** ERNEST J. VERRUE, San Francisco, Cal. Filed June 16, 1896. Serial No. 595,801. (No model.)



Claim.—In a rotary pump, the combination with the outer casing, of a revolving drum having a series of straight faces separated from each other by rounding corners located within the casing, a drive-shaft for the drum, an outlet-port in the casing, a valve-chamber with which the outlet-port communicates, a valve located within the valve-chamber, an inlet-port in the casing, a valve hinged to the inner face of the casing, a spring for maintaining said valve downward, the cover secured to the casing, and of a water-opening formed in said cover through which water is admitted to prevent the formation of a vacuum within the casing.

577,937. CULTIVATOR. WILLIAM A. WHITMEL and SAMUEL WHITMEL, Sumner, Nebr. Filed May 22, 1896. Serial No. 592,651. (No model.)



Claim.—1. In a two-row cultivator, the arched axle and the depending U-shaped bar secured thereto, combined with a Y-shaped frame bolted to the upper portion of said bar and extending rearwardly therefrom, a yoke pivoted to the rear end of the said frame, supporting-wheels on the axle and pivoted yoke, and braces extending from the lower portion of said bar to the frame, substantially as described.

2. In a two-row cultivator, the arched axle, the depending U-shaped bar secured thereto, the Y-shaped frame secured to the said depending bar, combined with an arched bar 18 secured to the said frame, bars 15 rigidly secured to the top horizontal portion of the axle and to the arched bar 18, and a tongue pivoted at its rear end between the bars 15, substantially as described.

3. In a two-row cultivator, the combination of the axle, bars 15 rigidly secured to the supporting-frame, the tongue pivoted at its rear end between said bars, a neck-yoke at its outer end, a draft-evener pivoted midway of its length to the bars 15, doubletrees at each end of the draft-evener, four pulleys on the draft-evener arranged as described, a pulley on the supporting-frame, and a draft chain or cable passing around the pulleys and secured at its ends to the ends of the axle, substantially as described.

4. In a two-row cultivator, a double-arched axle and a frame secured thereto and extending rearwardly therefrom, combined with clips loosely supported on the lower horizontal portions of said axle, shovel-beams hinged to said clips, arched bars connecting the clip of each outer beam with that of the adjacent inner beam, a post extending upwardly from the said frame, a lever fulcrumed on the post and connected at its forward end to the arched bar, substantially as and for the purpose specified.

5. In a two-row cultivator, two pairs of shovel-beams hinged at their forward ends to the axle, combined with arched bars connecting the rear ends of the beams forming each pair, plates secured to the axle and having teeth formed therein, a lever pivoted to each of said plates and provided with a latch to engage the teeth, and a grooved roller loosely mounted on each lever and supported on a track formed in said arched bars, substantially as and for the purpose specified.

577,938. GLOVE. EDMUND B. WHITNEY, Gloversville, N. Y. Filed Nov. 24, 1896. Serial No. 613,352. (No model.)



Claim.—An improved article of manufacture comprising a glove or mitten having a thumb, an S-shaped slit, reinforcing-flaps turned up from said slit and secured to opposite sides of said thumb, substantially as described.

577,939. BOTTLE. HARM AHLRICHS, Petersburg, Ill. Filed May 8, 1896. Serial No. 590,680. (No model.)



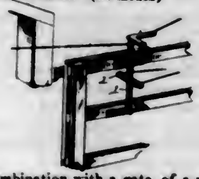
Claim.—1. A bottle formed with a neck having a cap with a small opening for the insertion of a corkscrew, and with a chamber by the side of said neck with an opening affording communication between the chamber and the neck at the bottom of the former, substantially as herein shown and described.

2. A bottle formed with a chamber by the side of its neck, with an opening affording communication between the chamber and neck near the lower end of the former, said neck being formed with interior prongs, as set forth.

3. The combination with a bottle having a neck and a side chamber, the neck formed with prongs upon its inner wall and the chamber having a side opening near its lower end, of a cork inserted through the chamber and side opening into the neck, and a cap to the neck formed with an opening for the insertion of a corkscrew, as set forth.

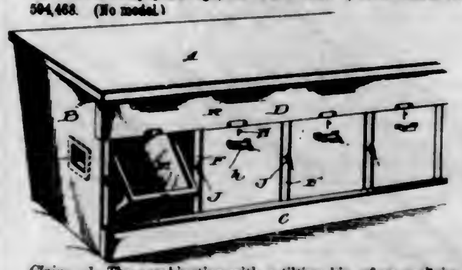
4. The combination with a bottle having a neck and side chamber with side opening near its lower end, of a slide adapted to close said opening, as set forth.

577,940. GATE. JOSEPH A. ANTHONY, Paris, Tenn. Filed Apr. 11, 1896. Serial No. 585,340. (No model.)



Claim.—The combination with a gate, of a post arranged adjacent to one end of said gate, said gate hinged to said post, a shaft loosely journaled to the gate and provided at its upper end with two angle portions, said portions extending in different directions; posts or uprights arranged at opposite sides of the gate, operating-levers pivotally secured to said posts, connections secured to said levers and each directly connecting them to one of the angle portions of the shaft, posts or uprights arranged adjacent to the gate and provided with catches, a latch carried by the gate and adapted to engage with said catches when the gate is in its closed and open positions; horizontally-arranged connections connected at one end with the latch-operating mechanism; and rocker, a lever secured to the shaft to the arms of which lever the opposite ends of said connections are secured, as set forth.

577,941. STORE-CABINET. WILLIAM H. BASTIN and LAWRENCE M. SHAFER, Murphysborough, Ill. Filed June 6, 1896. Serial No. 594,468. (No model.)



Claim.—1. The combination with a tilting bin, of an endwise-movable and partially-rotatable rod, and an arm carried thereby adapted to engage means on the bin to hold it in its tilted position; and means for normally holding said rod in its rearmost position substantially as described.

2. The combination with a tilting bin, and a notched plate on the end wall thereof of a rod mounted for endwise and rotary movement, and means for normally holding said rod in its rearmost position and an arm carried by said rod and adapted to engage the notched plate: substantially as described.

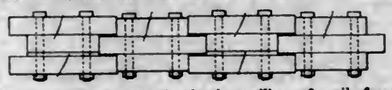
3. The combination with a tilting bin, and a notched plate on the end wall thereof, of a rod mounted for endwise and rotary movement, and an arm carried by said rod and adapted to engage the notched plate, and a spring around said rod to normally force it inward; substantially as described.

4. The combination with a tilting bin, and the end wall of the case, having a chamber and a slot, of a rod mounted for rotary and endwise movement in the end wall of the case, means for normally forcing the rod to its rearmost position and holding it out of engagement with the notched plate on the bin, and an arm carried by the said rod at its inner end and adapted when the rod is pulled forward and partially rotated to enter said slot and engage a notched plate on the bin; substantially as described.

5. The combination with a tilting bin, and the end wall of the case, having a chamber and a slot, of a rod mounted for rotary and endwise movement in the end wall of the case, and an arm carried by the said rod at its inner end and adapted when the rod is pulled forward and partially rotated to enter said slot and engage a notched plate on the bin, and a spring around said rod within said chamber; substantially as described.

6. The combination with a tilting bin, and the end wall of the case, having a chamber, and a slot, of a rod mounted for rotary and endwise movement in the end wall of the case, and an arm carried by the said rod at its inner end and adapted when the rod is pulled forward and partially rotated to enter said slot and engage a notched plate on the bin, a spring around said rod within said chamber, and a plate on the end wall of the case covering said chamber; substantially as described.

577,942. SHEET-PILE. EDWIN R. BEARDSLEY, Chicago, Ill. Filed Mar. 7, 1896. Serial No. 582,908. (No model.)



Claim.—1. The combination in sheet-piling, of a pile formed of planks as described, with tongues upon both edges, and a like-formed mating pile with corresponding grooves in both edges, said grooves in said mating pile adapted to be increased in width beyond the normal thickness of the planks forming said pile by means of packing-pieces interposed or inserted between the faces of said planks, substantially as set forth.

2. The combination in sheet-piling formed by a series of alternate piles, one of which is provided with tongues upon both edges, and the other with corresponding grooves in both edges, said grooves being enlarged in width by packing-pieces as described, of shoes secured to the lower or pointed ends of said piles; said shoes formed to project over the sides of one tongue and over the inside edges of one of the grooves in each of said piles as described, adapted to clear away the dirt or earth from the edges, and from the tongues and grooves of said piles, to prevent binding, and to allow play between said tongues and grooves, substantially as set forth.

577,943. LAMP ATTACHMENT. MARY W. BEATON, Bellows Falls, Vt. Filed May 19, 1896. Serial No. 592,144. (No model.)



Claim.—1. A lamp provided at each side with opposing sockets, in combination with the transparent globes containing liquid seated in said sockets and located upon opposite sides of the burner, the projecting necks at the tops of said globes, and the lamp-shade having the rings or loops for engaging said necks, substantially as described.

2. The combination with a burner, of upper and lower frames having oppositely-disposed sockets approximately in vertical relation, and a lens having oppositely-disposed necks to enter the said sockets, substantially as and for the purpose set forth.

3. In combination, a burner, upper and lower frames having bearings or sockets at opposite points and approximately in vertical line, and transparent globes having neck portions fitted in the sockets, substantially as and for the purpose set forth.

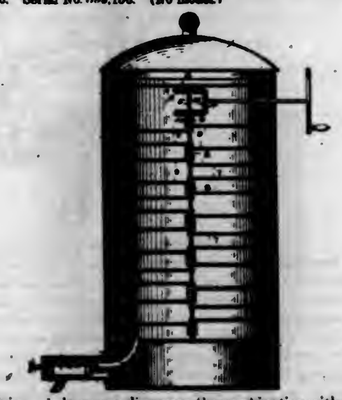
4. A lamp provided at one side of its fount with a socket, in combination with a transparent globe adapted to contain liquid and seated in said socket, an upwardly-projecting neck on said globe, and a lamp-chade having a loop for embracing said neck, whereby said shade is supported, substantially as described.

577,944. BOTTOM FOR METALLIC VESSELS. TRISTRAM D. BROWN, Canandaigua, N. Y., assignor to the Lisk Manufacturing Company, Limited, same place. Filed Dec. 30, 1895. Serial No. 573,778. (No model.)



Claim.—A bottom for metallic vessels, consisting of a metallic sheet having in its central portion a complete convexity, said complete convexity within the sides of the vessel merging into an annular depression, said depression surrounding the convex portion of the sheet, said depression having an elevated edge abutting against the sides of the vessel, said convexity adapted to direct the sediment in the vessel into the annular depression, and the elevated edge surrounding the depression also adapted to direct the sediment into the depression.

577,945. EGG-BEATER. ARTHUR W. DAVIS, Meridian, Miss., assignor of one-half to William Lindsay Robb, same place. Filed July 14, 1896. Serial No. 599,158. (No model.)



Claim.—1. In an egg-dispenser, the combination with a receptacle, of a casing in fluid communication therewith, and provided with a discharge-spout, and a dispensing-cylinder movable within the casing and provided with a discharge-orifice adapted to be brought in alinement with the spout and also having a perforated cut-off plate having a solid portion which prevents the admission of the eggs into the dispensing-cylinder when the orifice therein is in alinement with the spout.

2. In an egg-dispenser, the combination with a receptacle provided with an opening, of a casing connected to the receptacle and in communication therewith through the opening, said casing being provided with a discharge-spout, a dispensing-cylinder having a discharge-orifice and movable in the casing, a cut-off plate connected to the cylinder by arms thereby providing inlet-openings, a push-rod connected to the dispensing-cylinder and passing through the casing being provided with a thumb-button, and a spring encircling the push-rod and located between the casing and the thumb-button.

3. In an egg-beater, the combination with a receptacle, of a spindle, wire loops constituting dashers, which wire loops have their ends secured to the spindle and said loops lying on opposite sides of the spindle in alternate relation, and additional and larger wire loops

made from a single piece of wire which is bent into said additional wire loops on opposite sides of the spindle in alternate relation and is twisted around said spindle between the adjacent additional loops to form sleeves which are loose on the spindle, the smaller loops being adapted to pass in and out of the larger loops, means for driving the spindle, and means for operating the additional wire loops.

4. In an egg-beater, the combination with a receptacle and dispensing mechanism, of a spindle located within the receptacle, a gear connected to said spindle, wire loops comprising dashers which are connected to the spindle in alternate relation on opposite sides thereof, sleeves loosely encircling the spindle, a gear connected to one of said sleeves, larger wire loops comprising dashers which are connected to the sleeves and disposed in alternate relation on opposite sides of the spindle, the respective sets of dashers being located in alinement, a second spindle, a gear connected thereto which meshes with the two other gears, and a crank connected to the spindle, said parts being so disposed and related that when the crank is turned the dashers will rotate in opposite directions and will pass in and out of each other.

577,946. AGRICULTURAL IMPLEMENT. GEORGE W. DYCUS, Liberty Hill, Tex., assignor of one-half to J. B. Prewitt, same place. Filed June 26, 1896. Serial No. 597,023. (No model.)



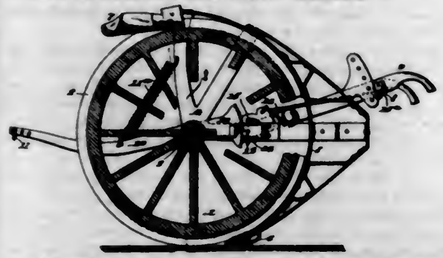
Claim.—1. In an implement for the purposes aforesaid, the combination of longitudinal bars extending in parallel relation, a stub-tongue secured between the front ends of the longitudinal bars and bearing a sweep and gage-wheel, a stock secured between the rear ends of the longitudinal bars and having a blade at its lower end, the longitudinal bars being spaced apart by the stub-tongue and stock and connected together by the same means employed for securing the said stub-tongue and stock in place, and standards attached to the rear ends of the longitudinal bars and bearing blades substantially as set forth.

2. In an agricultural implement for the purpose aforesaid, the combination of longitudinal bars, a stub-tongue secured between the front ends of the longitudinal bars, draft-bars applied to the outer side of the longitudinal bars and having their front end portions bent outwardly, thence forwardly, and fastenings passing through corresponding openings in the draft-bars, longitudinal bars and stub-tongue and connecting them together, substantially as set forth.

3. In an agricultural implement for the purpose specified, the combination of longitudinal bars, a stub-tongue secured between the front ends of the longitudinal bars and bearing a sweep and a gage-wheel, a stock secured between the rear ends of the longitudinal bars and having an opener and a grain-spout, standards secured to the sides of the longitudinal bars and having covering-blades at their lower ends connected therewith by break-pins, handles removably fitted to the longitudinal bars, and uprights for bracing the said handles detachably connected with the rear ends of the longitudinal bars, substantially as set forth.

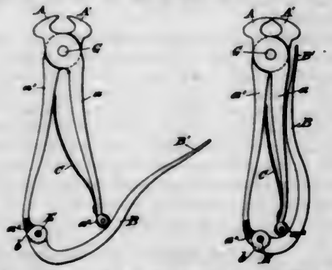
4. The herein-described implement, comprising longitudinal bars disposed in parallel relation, a stub-tongue having a clevis at its front end and having its rear portion inserted between the front ends of the longitudinal bars, draft-bars placed against the outer sides of the longitudinal bars and having their front ends deflected outwardly, thence forwardly, fastenings for connecting the draft-bars, longitudinal bars and stub-tongue, a stock bearing a sweep secured to the stub-tongue, a gage-wheel vertically adjustably connected with the said stub-tongue, a stock having an opening blade and a grain-spout secured between the rear ends of the aforesaid longitudinal bars, standards secured to the rear ends of the longitudinal bars and having covering-blades connected therewith by break-pins, and handles detachably connected with the longitudinal bars, substantially as and for the purpose set forth.

577,947. DITCHING-PLOW. CHARLES I. FLORA, Burgoon, Ohio. Filed May 22, 1896. Serial No. 592,627. (No model.)



Claim.—In a ditching-plow the combination of a kerf-cutting wheel having a grooved periphery and flanges on each side thereof, a frame mounted upon the axis of said wheel, a metallic strip constituting a part of said frame and partially surrounding the periphery of said wheel, a plow-point at the lower end of said strip, a bifurcated draw-bar pivotally connected to the axis of said wheel and extending forwardly to the front of the machine, springs connecting said draw-bar and said frame, a segmental rack on the rear end of one of the arms of said draw-bar, a pinion engaged by said rack, a ratchet-wheel rigidly connected to said pinion and a pawl controlling said ratchet-wheel and adapted to be operated from a point adjacent to the handle-bars of the machine, substantially as and for the purpose described.

577,948. TOOL. CAMPBELL FORD and FRANK MAHLER, San Francisco, Cal. Filed July 6, 1896. Serial No. 598,229. (No model.)



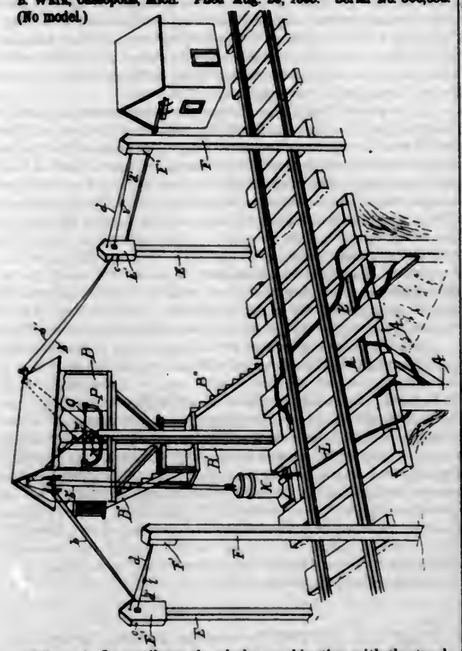
Claim.—1. In a tool or instrument, having arms or extensions a a' projecting from a pivot or fulcrum G for operating said tool or instrument, the lower end of arm or extension a' farthest from said pivot or fulcrum G having a hinged joint or additional fulcrum E, a portion of said hinge being flattened and projecting as shown at a^3; a lever B pivoted at and forming at b said hinge, flattening and projection; a roller a^3 journaled at the lower end of arm a farthest from said pivot or fulcrum G and a spring C attached to the arm a; all operating substantially as and for the purpose herein described.

2. In a tool or instrument, having arms or extensions a a' projecting from a pivot or fulcrum G for operating said tool or instrument, the lower end of arm or extension a' farthest from said pivot or fulcrum G having a hinged joint or additional fulcrum E, a portion of said hinge being flattened and projecting as shown at a^3; a lever B pivoted at and forming at b said hinge, flattening and projection; pins or rollers D, D' fastened or journaled at one end of lever B, and spring C attached to arm a; all operating substantially as and for the purpose herein described.

3. In a tool or instrument, having arms or extensions a, a' projecting from a pivot or fulcrum G for operating said tool or instrument, the lower end of arm or extension a' farthest from said pivot or fulcrum G having a hinged joint or additional fulcrum E, a portion of said hinge being flattened and projecting as shown at a^3; a lever B

pivoted at and forming at b said hinge, flattening and projection; pin or roller D^3 fastened or journaled on lever B; slot F at the lower end of the arm a farthest from said pivot or fulcrum G, and the spring C attached to the arm a; all operating substantially as and for the purpose herein described.

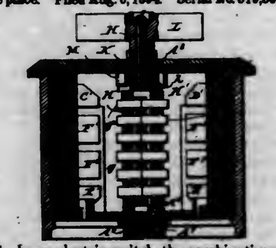
577,949. DANGER-SIGNAL. DANIEL A. GORDON and BENJAMIN R. WEIR, Cassopolis, Mich. Filed Aug. 29, 1895. Serial No. 560,852. (No model.)



Claim.—1. In a railway-signal, the combination with the track-supporting framework, of the lever mounted in said framework, the cables suspended over the track, the signals mounted to travel upon said cables, the electric circuit, the signal-operating mechanism included with a source of electricity in said circuit and mechanism connecting said lever with said circuit whereby by a movement of said lever the circuit is effected to cause a display of said signals.

2. In a railway-signal, the combination of the track-supporting framework, the movable suspended signals, the electric circuit including an alarm and the signal-operating mechanism, a circuit-break in said circuit and a lever mounted in said framework and connected with said circuit-break, substantially as specified.

577,950. DOUBLE-POLE REVERSING SNAP-SWITCH. HERMANN A. GORN, New York, N. Y., assignor to the Otis Brothers & Company, same place. Filed Aug. 6, 1894. Serial No. 519,507. (No model.)



Claim.—1. In an electric switch, the combination with the main-line terminals, of the working terminals, intermediate insulated contacts between each main-line terminal and working terminal, and a rotating portion provided with connecting-contacts arranged to complete the circuit between each main-line terminal and working terminal through the intermediate contacts, thereby including the intermediate contacts in the circuit on each side of the working terminals, substantially as described.

2. In a reversing-switch, the combination with the main-line terminals, of the two divided working terminals, two rows of intermediate insulated contacts between each main-line terminal and the corresponding working terminal, and a rotating portion provided with connecting-contacts arranged to complete the circuit between the main-line terminals, the intermediate insulated contacts and one of the divided working terminals on each side of the working terminals according to the direction in which it is turned, substantially as described.

3. In a reversing-switch, the combination with the oppositely-arranged plates carrying the circuit-terminals and intermediate contact-blocks, of a rotating shaft carrying connecting-contacts, means for operating the shaft manually, and automatic means for completing the movement of the shaft, substantially as described.

4. In a reversing-switch, the combination with the oppositely-arranged circuit-terminals, of a rotating shaft between the terminals carrying connecting-contacts, a sleeve loosely connected to said shaft, a cam connected to the sleeve, and springs operating on the cam, substantially as described.

5. In a reversing-switch, the combination with the oppositely-arranged circuit-terminals, of a revolving shaft carrying connecting-contacts, a sleeve mounted on the shaft and engaging pins projecting therefrom, a cam connected to the sleeve, springs engaging the cam, and a handle for engaging the sleeve, substantially as described.

6. In a reversing-switch, the combination with the circuit-terminals, of a shaft having at one end a locking device, and having at the other end a sleeve loosely engaging the shaft and provided with a cam, substantially as described.

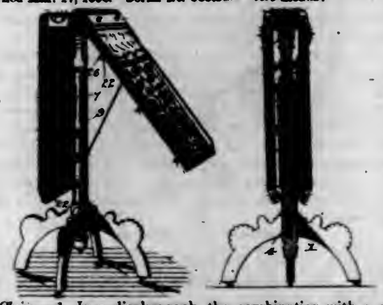
7. In a reversing-switch, a shaft carrying the connecting-contacts, the shaft being composed of two parts embracing the contacts between them, the contacts being insulated from the parts, substantially as described.

8. In a switch, a shaft carrying connecting-contacts, the shaft being made in two parts, in combination with the connecting-contacts in the form of plates supported by and between the parts and insulated therefrom, substantially as described.

9. In a switch, the combination with the oppositely-arranged plates supporting the circuit-terminals, of a rotating shaft carrying the connecting-contacts and arranged between the plates, a handle connected to the shaft and having a projection, and a stop or projection mounted on the case to limit the movement of the handle, substantially as described.

10. In a switch, the combination with the inclosing case, of the oppositely-arranged removable plates supporting circuit-terminals and intermediate contact-blocks, and insulating material interposed between the contact-blocks, substantially as described.

577,951. DISPLAY-RACK. WILLIAM F. GRAY, Millersburg, Ohio. Filed Mar. 17, 1896. Serial No. 583,589. (No model.)



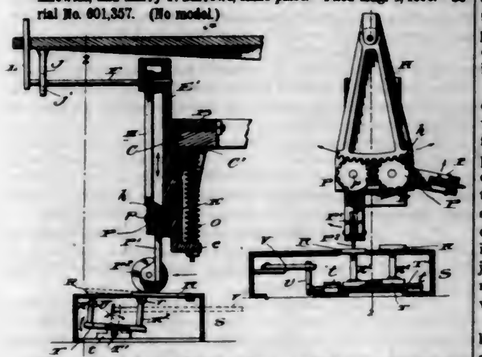
Claim.—1. In a display-rack, the combination with a suitable standard having a longitudinal recess therein, of a folding leaf hinged at its upper end to said standard, a rod or brace having pivotal connection with said leaf, a friction-slide connected to said rod and reciprocating in said recess, and a tension-spring carried by said slide, substantially as described.

2. The combination with a suitable stand, of a hollow cross-head in the form of a closed box provided with openings in its ends, folding leaves hinged to said cross-head, extension-racks supported on said leaves, and extensible supports slidingly mounted in said cross-head and adapted to be moved independently in opposite directions through the openings in the ends of the cross-head, said supports being provided with handles, substantially as described.

3. In a display-rack, the combination with a standard, and a folding leaf having a hinged connection therewith, of a rod or brace attached at one end to said leaf, and a slide connected to the opposite end of said rod and engaging the standard, and provided with a tension device for resisting the movement of the slide, and also having provision for adjusting the pressure of the tension device, substantially as described.

4. As an article of manufacture, a semicylindrical sliding support of sheet material, having its longitudinal edges reinforced by a piece of wire, the said wire being extended beyond one end of the support and fashioned into a loop constituting a handle by means of which the support may be manipulated, substantially as described.

577,952. AUTOMATIC SWITCH. THOMAS B. GRIFFIN, Three Rivers, Mich., assignor of one-fourth to Frank B. Watson, Laurence D. Knowles, and Harry P. Barrows, same place. Filed Aug. 1, 1896. Serial No. 601,357. (No model.)



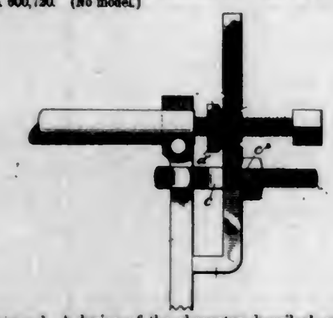
Claim.—1. A device for operating a switch, comprising a segment-gear carried by the car, pinion-wheels geared to said segment member, and means for rocking the segment, whereby tripping members integral with the pinions are thrown into such a position as to cause a tilting mechanism to be operated whereby a switch may be operated, substantially as shown and described.

2. A device for operating a switch comprising a gear-segment secured on a yoke carried on the under side of a car, combined with the pinion-wheels pivoted on said yoke, the teeth of said pinion-wheels meshing with teeth of the segment-gear, wheels pivoted to the free ends of the integral projections of the pinion-wheels, and the shaft keyed to the upper end of the segment-gear, and tilting plates and connections for setting the switch, substantially as shown and described.

3. In a device for operating a switch, the combination with the truck, and the block C secured thereto, of the yoke, an integral flanged portion of said yoke working in a recess or slot in the block C, a spring O interposed between a lower projection of the flanged portion of the yoke and a projection on the said block, and of the means for tripping the rocking plate whereby the switching is effected, substantially as shown and described.

4. In combination with the plates K, whose ends are provided with integral lugs designed to be loosely seated in holes in the casing carrying the tilting and rocking plates, the opposite ends of the said plates having eyes, of the rocking plate T, the posts R^3 thereon, the said eyes pivoted to the upper ends of the posts R^3, the angle-lever pivoted within the casing, and having connection at one end with a frog, its other end bifurcated, and the shaft T rigidly held to the said plate T and provided with a crank the upper end of which is held between the bifurcated ends of the angle-lever, substantially as shown and described.

577,953. DEVICE FOR REMOVING CRANKS FROM BICYCLE-SHAFTS. ISAAC B. HAWES, Kankakee, Ill. Filed July 27, 1896. Serial No. 600,720. (No model.)



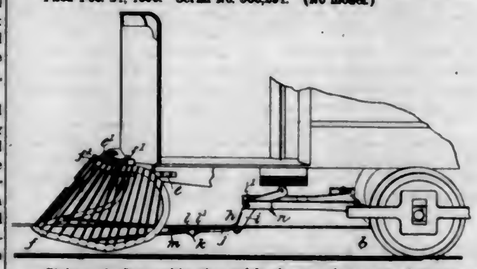
Claim.—1. A device of the character described, comprising a clamping-plate, a draft-bolt adapted to engage a portion of the mechanism, and a screw or bolt passing through a portion of the clamping-plate and adapted to engage the part to be disconnected, whereby one element may be readily removed from another without injury, substantially as described.

2. A disconnecting tool or device, comprising a clamping-plate having a bent or angularly-formed end adapted to abut against the surface of a bicycle-crank, a draft-bolt having a screw-threaded body portion passing through the clamping-plate, a nut arranged on said draft-bolt adapted to hold the crank and clamping-plate in their proper relative positions, a screw or bolt passing through a portion of the clamping-plate, adapted to abut against the crank or driving-shaft, and a nut arranged on the screw and engaging the clamping-plate so as to prevent its rotation, whereby the crank may be readily disconnected from its shaft without injury to the machine or any of its parts, substantially as described.

3. In a tool of the character described, the combination with a clamping-plate having a longitudinally-extending slot and provided with a bent or angularly-formed end adapted to abut against the surface of a bicycle-crank, a draft-bolt having a screw-threaded body portion passing through the slot in the clamping-plate, a nut arranged on said draft-bolt adapted to hold the crank and clamping-plate in their proper relative positions, a screw or bolt passing through the slot of the clamping-plate adapted to abut against the end of the driving-shaft, a nut arranged on the screw and engaging the clamping-plate so as to prevent its rotation, together with means for adjusting the draft-bolt and the screw, whereby various adjustments may be secured and the crank readily disconnected from its shaft without injury to any part of the machine, substantially as described.

4. A disconnecting tool or device, comprising a clamping-plate having a longitudinally-extending slot and provided with a bent or angularly-formed end adapted to abut against the surface of a bicycle-crank, a draft-bolt having a screw-threaded body portion passing through the slot in the clamping-plate, a nut arranged on said draft-bolt and provided with a projection or teats adapted to engage transverse grooves or recesses in the outer surface of the clamping-plate, a screw or bolt passing through the slot of the clamping-plate adapted to abut against the end of the driving-shaft, and a nut arranged on the screw and provided with projections or teats adapted to engage transverse grooves in the inner surface of the clamping-plate, whereby various adjustments may be secured and the crank readily disconnected from its shaft without injury to any part of the machine, substantially as described.

577,954. CAR-FENDER. CHARLES A. HATCH, Hartford, Conn. Filed Feb. 21, 1896. Serial No. 580,291. (No model.)



Claim.—1. In combination with the running-gear of a car or like vehicle, a car-body mounted on the frame of the running-gear, a yielding support between the running-gear and car-body, a fender suspended from the car-body, mechanism supported on the frame of the running-gear and connecting the car-body with the fender whereby the horizontal position of the lower edge of the fender is controlled by the horizontal position of the car-body, and a stop to limit the downward movement of the fender during the movement of the car-body, all substantially as described.

2. In combination with the running-gear of a car, a car-body mounted on the frame of the running-gear, a yielding support between the car-body and running-gear, a lever pivoted to the running-gear frame and with one end in rolling contact with the bottom of the car-body, a fender pivoted to the car-body, and a connecting-rod between the fender and the end of the lever, all substantially as described.

3. In combination, a running-gear frame, car-wheels mounted therein, a car-body mounted on the running-gear frame and having a yielding support thereon, a fender pivotally supported from the car-body and having a limited lateral swinging movement on its support, a bracket fast to the running-gear frame, a bent lever pivotally supported on the bracket, one end of said lever held in contact with the under surface of the car-body and the other end connected to the fender by flexible connecting means, the said connection between the car-body and the feeder determining the horizontal position of the lower edge of the car-fender, all substantially as described.

4. In combination, a car-body, a running-gear frame, wheels supported in said frame, springs or like yielding connections interposed between the car-body and the running-gear frame, a fender supported from the car body and having a limited lateral swinging movement on its supports, mechanism connecting and interposed between the car-body and the fender said mechanism including an adjustable connecting-rod and whereby the horizontal position of the bottom of the fender with reference to the car-track is controlled and determined by the horizontal position of the car-body, all substantially as described.

5. In combination with a car-body, the running-gear with its frame, the yielding support located between the car-body and the running-gear frame, a curved guide-rod secured to the car-body, a fender pivotally supported on the guide-rod and having a limited lateral sliding movement thereon, a spring normally holding the fender with its center line in line with the center of the car-body, a bracket secured to the running-gear frame, a bent lever pivoted to the bracket and having its upper end in contact with the under surface of the car-body, a connecting-rod pivotally attached to the lower end of said lever, a socket-piece adjustably secured to the connecting-rod, braces extending from the socket-piece to the car-fender, and means for adjustably clamping the socket-piece on the connecting-rod, all substantially as described.

6. In combination with the running-gear of a car or like vehicle, a car-body mounted on the frame of the running-gear, a fender secured to the car-body, a yielding support between the car-body and the running-gear frame, a lever pivoted to the running-gear frame and with one end in rolling contact with the car-body, a connecting-rod secured to the opposite end of the lever and to the fender-frame, and means for varying the length of the connecting-rod, all substantially as described.

7. In combination with the running-gear of a car or like vehicle, a car-body mounted on the frame of the running-gear, a yielding support between the car-body and running-gear frame, a fender suspended from the car-body and having a limited lateral swinging movement on its support, mechanism supported on the frame of the running-gear and operatively connected to the car-fender and the car-body whereby the horizontal position of the lower edge of the fender is controlled by the horizontal position of the car-body, all substantially as described.

8. In combination with the running-gear of a car, or like vehicle, a car-body mounted on the frame of the running-gear, a yielding support between the car-body and running-gear frame, a fender suspended from the car-body and having a limited lateral swinging movement on its support, mechanism supported on the frame of the running-gear and connecting the car-body and the fender whereby the horizontal position of the lower edge of the fender is controlled by the horizontal position of the car-body, and adjusting means for varying the position of the lower edge of the fender with reference to the car-body, all substantially as described.

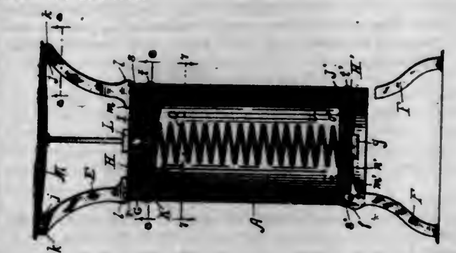
9. In combination with the running-gear of a car or like vehicle, a car-body mounted on the frame of the running-gear, a yielding support between the running-gear frame and car-body, a fender supported on the car-body and having a limited lateral swinging movement on its support, mechanism supported on the frame of the running-gear and connecting the car-body and fender whereby the horizontal position of the fender is controlled by the horizontal position of the car-body, and a stop to limit the downward movement of the fender, all substantially as described.

577,955. FOLDING SEAT. JOHN HEARTTAGEN, Allentown, Pa. Filed July 20, 1896. Serial No. 599,764. (No model.)

Claim.—1. In a folding seat of the class described, the combination of the casing A, having the grooves *t*, *t'*, and *v*, and provided with a cover B, and hinged doors D, with the seat-supporting mechanism, consisting of the disk K, having guides *n*; locking-bars J, having pins *o*; a circular plate I, having segmental slots *p*; a disk G, having ears *s*, and notches *v'*; the key L, having a square shank; the arms E, pivoted between the ears *s*, and having projecting portions *m*, and shoulders *l*; the plate H; the metal fasteners N, attached to the seat M, and having ears *k*, between which the upper ends of the arms E, are fastened, and the slots *j*; the strap *i*, having the buckle *h*, and the seat M, all substantially as shown and described.

2. In a folding seat of the class described, the combination of the casing A, having grooves *t*, *t'*, and *v*, and the seat-supporting mechanism, with the leg-operating mechanism, consisting of the disk G', having guides *n'*, and ears *s'*; the notched plate H', having the key *g*; the sliding locking-bars J', having pins *o'*, and the legs F, having the projections *m'*, and notched shoulders *f*, substantially as shown and described.

3. In a portable seat, the combination of the casing A, having grooves *v*, *t*, and *t'*; with the locking-bars J, having pins *o*, the plain disk K, having guides *n*, the circular plate I, having segmental slots *p*, the sliding disk G, having notches *v'*, and ears *s*, the notched plate H, the seat-supporting arms E, which support the seat M; the key L, operating the disks K, and G, the plates H, and I, and the bars J; the spring O; the sliding disk G', having guides *n'*, and ears *s'*, to which are secured the legs F, the locking-bars J', the notched plate H', having segmental slots, the key *g*, and the legs F, substantially as shown and described.



4. In a folding seat, having an outer casing, the leg and seat operating mechanism comprising the circular plate I, the plain disk K, the sliding disks G, and G', the notched plates H, and H', the locking-bars J, and J', adapted to be projected into circular grooves in said outer casing, the keys L, and *g*, the seat-supporting arms E, and the legs F, both adapted to be locked by said plates, disks and bars, in combination with the seat M, secured to said arms E, by means of the fasteners N, attached thereto, substantially as set forth.

5. The combination in a folding seat, of the outer casing A, having the grooves *v*, *t*, and *t'*, the top cover B, hinged thereto, and the doors D, secured to the bottom thereof, the seat M, secured to the arms E, by the fasteners N, the arms E, pivotally secured to the disk G, the notched plate H, adapted to rest upon the disk G. The circular plate I, beneath the disk G, and provided with the segmental slots *p*, the locking-bars J, having the pins *o*, and adapted to enter the groove *t*, the plain disk K, securing said locking-bars against the plate I, the key L, the spring O, the disk G', at the lower end, having ears *s'*, the locking-bars J', having pins *o'*, the plate H', having segmental slots to receive the pins *o'*, of the bars J', the legs F, secured to the ears *s'*, of the disk G', all as shown and described.

577,956. INHALER. ALEXANDER HENDERSON, Kansas City, Mo. Filed June 4, 1896. Serial No. 594,257. (No model.)



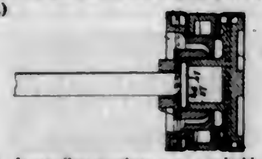
Claim.—1. A respirator, consisting of a body portion of flexible material adapted to be secured to the face and having its front and rear portions open, an annular metallic band secured within the body portion and adapted to strengthen the same, annular flanges extending inwardly from the band, filtering material for closing the opening in the front and secured in position by the flanges on the band, a band on the outside of the body portion and over the band on the inside, securing means passing through the body portion for securing the bands together, and an exhaust-valve located in the body portion and in the rear of the filtering material, substantially as described.

2. A respirator, consisting of a body portion of flexible material adapted to be secured to the face and having its front and rear parts open, a metallic band secured within the body portion and adapted to strengthen the same, a band on the outside of the body portion and over the band on the inside, securing means passing through the body portion for securing the bands together, filtering material within the body portion and located between the bands and closing the opening in the front, and an exhaust-valve located in the body portion and in the rear of the filtering material, substantially as described.

3. A respirator, consisting of a body portion adapted to be secured to the face and having its front and rear parts open, a metallic band secured within the body portion and adapted to strengthen

the same, an annular flange extending inwardly from the band, filtering material secured to the flange and closing the opening in the front, and an exhaust-valve located in the body portion and in the rear of the purifying material, substantially as described.

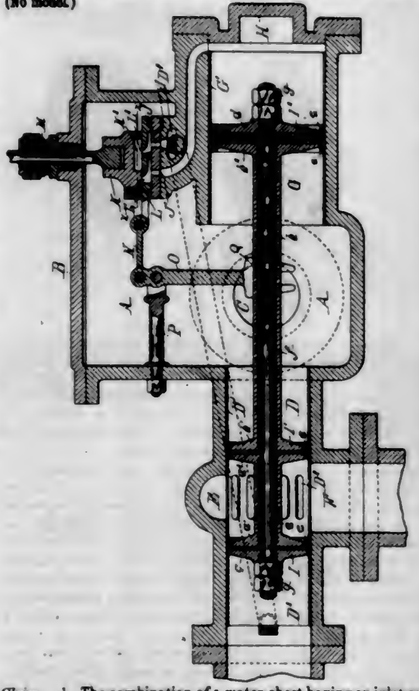
577,957. **OIL-MEASURING PUMP.** AL H. HERRON, St. Louis, Mo., assignor to the Anthony Wayne Manufacturing Company, same place and Fort Wayne, Ind. Filed May 11, 1896. Serial No. 591,125. (No model.)



Claim.—1. In an oil-measuring pump, a suitable pump-cylinder, a sectional piston operating therein, said piston comprising a lower section having an exteriorly-screw-threaded central extension, a ring passed over said extension, a cup passed over said extension and opening upwardly, a middle section or ring interposed between the lower section and the cup and embracing the latter, suitable packing-rings interposed between the several sections and having outwardly-deflected walls embracing the peripheries of the cup and lower section, and suitable wire loops interposed between the deflected walls of the packing-rings and the walls of the sections embraced by them, the lower end of the piston-rod being loosely carried by the ring passed over the extension of the lower section, substantially as set forth.

2. In an oil-measuring pump, a suitable cylinder and piston therefor, a discharge-pipe leading from the cylinder, a gooseneck forming a continuation of the discharge-pipe, a vent-tube located at the crown of the arch of the gooseneck, said tube having a lower end inclined toward the open end of the gooseneck, and a flap vent-valve adapted to close or cover the passage of the vent-tube and carried by the inclined end of said tube, substantially as set forth.

577,958. **VALVE FOR HYDRAULIC ELEVATORS.** WILLIAM H. HULTGREN, Detroit, Mich., assignor of one-half to the Gardner Elevator Company, same place. Filed Nov. 4, 1895. Serial No. 567,845. (No model.)



Claim.—1. The combination of a water-chest having an inlet and an outlet passage, a piston-valve controlling said outlet-passage, a piston of greater area than said piston-valve, connected thereto and fitting a portion of the chest communicating at the forward side of the piston with the inlet-passage, a valve-seat in the main part of the chest, ports in said seat leading respectively to that portion of the chest behind the piston, and to an exhaust-passage and a two-part valve controlling said ports consisting of a pilot-valve, having means for operating it from outside the chest and an automatic cut-off, the latter being operatively connected with said piston.

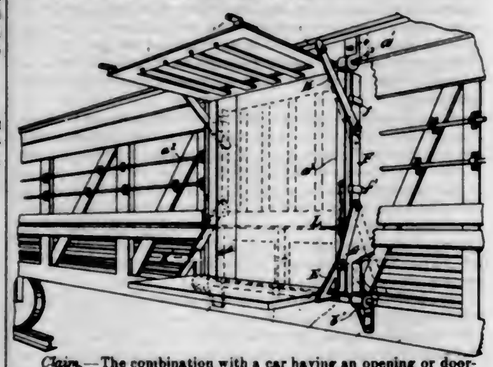
2. The combination with a water chest or cylinder, and a piston therein adapted to operate the main valve of a hydraulic elevator, of a two-part valve controlling the movement of the piston comprising a pilot-valve and a cut-off arranged to have a cross sliding movement in relation to each other, said cut-off being operatively connected with the piston.

577,959. **BOLT OR SPIKE EXTRACTOR.** JOHN HUMPHREYS, Henderson, Ky., assignor of one-half to Solomon M. Stevens, Lake, Ind. Filed June 23, 1896. Serial No. 596,905. (No model.)



Claim.—The combination with a suitable base, of an extracting-bar slidingly mounted thereon and provided with a claw at or near one end, a lever and suitable connections between such lever and the extracting-bar for actuating the latter, and a grapple comprising pivoted jaws connected to a common block, the latter being adapted to be removably inserted in the claw and provided with a rounded or spherical head, substantially as described.

577,960. **CAR-DOOR.** LEO JACOBS, Kansas City, Mo. Filed Oct. 15, 1896. Serial No. 608,941. (No model.)

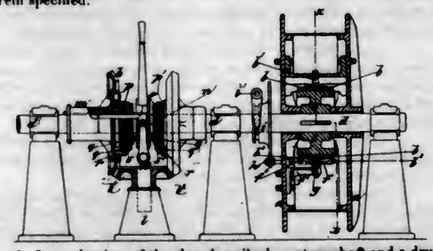


Claim.—The combination with a car having an opening or doorway in its side walls and with the standards on each side of said opening of a vibrating shutter hinged at one side to the side of the car above the said doorway and a crank connected with and extending outwardly from the end portion of said shutter at a suitable distance from the hinged portion of the shutter in the direction of the vibrating portion, sliding bars arranged in suitable guides on said standards and a link pivotally connected at one end with the upper end of one of said sliding bars and with the crank on said shutter at the other end, a rocking bar journaled at each end in suitable sockets on the side of the car beneath the doorway and a bell-crank lever connected with said bar, and an outwardly-extended vibrating platform adapted to close the doorway conjointly with the shutter connected at one side with said rocking bar and with one arm of said bell-crank lever and a link pivotally connected at one end with the other arm of the bell-crank lever and with the lower end of the sliding bar at the other end of said lever as and for the purpose described.

577,961. **COIL CLUTCH AND BRAKE.** WILLIAM H. LINDSAY, Bristol, England. Filed May 7, 1896. Serial No. 590,531. (No model.)

Claim.—1. In mechanism of the class described, a rotary shaft and a drum mounted loosely thereon, in combination with a spring-coil surrounding the shaft and centrally secured to the drum, and provisions connected with the ends of the coil and operable from the outside for torsionally moving said ends to tighten the grip of such coil, all arranged for joint operation substantially as herein specified.

2. In mechanism of the class described, a rotary shaft and a drum mounted loosely thereon, in combination with a double spring-coil surrounding the shaft in opposite directions, arranged as shown so that the tendency of one part of the coil to tighten shall be offset by the tendency of the other part of the coil to become relaxed by the friction, and with provisions connected with the ends of the coil for tightening and relaxing the grip of such coil at will, substantially as herein specified.



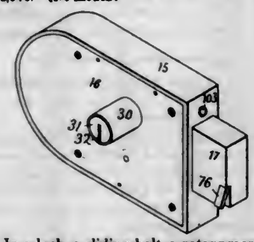
3. In mechanism of the class described, a rotary shaft and a drum mounted loosely thereon, in combination with a double spring-coil surrounding the shaft, arranged as shown, so that the tendency of one part of the coil to tighten shall be offset by the tendency of the other part of the coil to become relaxed by the friction, and with a lever *f* turning on a center revolved with the drum and connected with the ends of the coil and having an arm *g*, and the rod *h* and its connections for tightening and slackening the grip of both parts of such double coil, all arranged for joint operation substantially as herein specified.

4. In mechanism of the class described, a shaft and a drum mounted loosely thereon, in combination with a double spring-coil surrounding the shaft, arranged as shown so that the tendency of one part of the coil to tighten shall be offset by the tendency of the other part of the coil to become relaxed by the friction, and with a lever *f* turning on a center revolved with the drum and connected with the ends of the coil and having an arm *g* as shown, and the rod *h* and its connections for tightening and relaxing the grip of both parts of such double coil, and with adjusting-screws *f*' to adjust the connection of the lever to the two parts of the coil independently, all arranged for joint operation substantially as herein specified.

5. In mechanism of the class described, a rotary shaft and a drum mounted loosely thereon, in combination with a spring-coil centrally secured to the part to be driven and surrounding the shaft, and provisions operable from the outside for torsionally moving the ends of the spring to tighten and relax the grip of the same, and with a separate coupling and controlling means *n* for connecting and disconnecting the shaft, all arranged for joint operation substantially as herein specified.

6. In mechanism of the class described, a rotary shaft and a drum mounted loosely thereon, in combination with a spring-coil surrounding the shaft, and provisions operable from the outside for tightening and relaxing the grip of such coil, and with a separate coupling and controlling means *n* for connecting and disconnecting the shaft and with the gear-wheels *k*, *k'*, *k*^{3}, for allowing the relative motions of the two parts *d*, *d'*, of the shaft to be reversed at will, all arranged for joint operation substantially as herein specified.

577,962. **LOCK.** JOHN J. LINK, St. Louis, Mo. Filed Mar. 2, 1896. Serial No. 581,576. (No model.)



Claim.—1. In a lock, a sliding bolt, a rotary member carried by said bolt, the axis of said rotary member being parallel with said bolt, dogging devices carried by said rotary member normally locking said member and thereby said bolt against longitudinal movement, and means for actuating said rotary member to disengage said dogging devices.

2. In a lock, a sliding bolt, a rotary member carried by said bolt, the axis of said rotary member being parallel with said bolt, dogging devices carried by said rotary member normally locking said member and thereby said bolt against longitudinal movement, and a key provided with means for actuating said rotary member to release said dogging devices so that said bolt may be thrown back.

3. In a lock, a sliding bolt, a rotary member carried by said bolt, the axis of said rotary member being parallel with said bolt, dogging devices carried by said rotary member, a spring normally holding said dogging devices in position to lock said bolt against longitudinal movement, and means for actuating said rotary member to disengage said dogging devices so that said bolt may be thrown back.

4. In a lock, a sliding bolt, a rotary member carried by said bolt, the axis of said rotary member being parallel with said bolt, dogging devices carried by said rotary member and normally locking said bolt against longitudinal movement, a rotary spindle, suitable actuating devices carried by said spindle for rotating said rotary member to disengage said dogging devices and for throwing said bolt.

5. In a lock, a sliding bolt, a rotary member carried by said bolt and normally locking said bolt against longitudinal movement, the axis of said rotary member being parallel with said bolt, a rotary spindle, actuating devices carried by said spindle for rotating said rotary member to release said bolt and for throwing said bolt, a spring returning said bolt to its normal position, and a spring returning said actuating devices to their normal position.

6. In a lock, a sliding bolt, a rotary member carried by said bolt and normally locking it against longitudinal movement, a movable member carried by said bolt and adapted to make contact with the striking-plate, and connections between said movable member and rotary member, whereby the contact of said movable member with the striking-plate will rotate said rotary member and release said bolt.

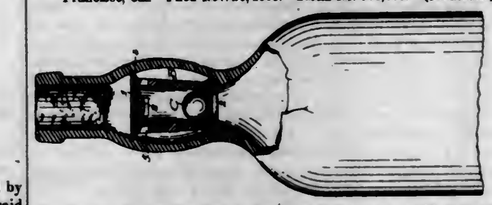
7. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, a rotary spindle operated from one side of the lock, actuating devices carried by said spindle for disengaging said dogging devices and throwing said bolt, a second rotary spindle operated from the opposite side of the lock and engaging with said actuating devices, a pivotally-mounted plate locking said latter-named spindle against rotation, and means on the exterior of the lock for moving said pivotally-mounted plate to engage it with or disengage it from said latter-named spindle.

8. In a lock, a sliding bolt, pivotally-mounted dogging devices carried by said bolt and projecting in the path of the key, a stop provided with openings through which said dogging devices project, a projection on one side of each of said dogging devices normally engaging with said stop, and a projection on the other side of each of said dogging devices and engaging with said stop when the dogging devices are moved more than a predetermined distance.

9. In a lock, a non-rotary bolt, a rotary member normally locking said bolt against longitudinal movement, the axis of said rotary member being parallel with said bolt, means for actuating said rotary member to release said bolt, a key-cylinder receiving said key and rotating with it, a device carried by said key-cylinder for throwing said bolt after it has been released by said key, a rotary spindle, and means carried by said spindle for actuating said rotary member to release said bolt and for throwing said bolt.

10. In a lock, a lock-case carried by a door, a plate of conducting material carried by the door-frame and normally in contact with the said lock-case, a suitable contact-conductor carried by said lock-case but insulated therefrom, means within said case for placing said contact-conductor in electrical communication with said case, a spring-actuated conductor normally pressing against said contact-conductor, an electric circuit connecting said spring-actuated contact and plate of conducting material, and a suitable alarm and source of electrical energy in said circuit.

577,963. **NON-REFILLABLE BOTTLE.** CHARLES A. LORD, San Francisco, Cal. Filed Nov. 28, 1895. Serial No. 570,175. (No model.)



Claim.—In combination, a bottle and a stopper, said stopper having an upper plate 1, lateral projections 3, a hollow body B with a valve-seat and openings 5 below the projections, said stopper being made of rigid material and having its projections permanently embedded in the wall of the bottle-neck to hold the stopper against removal with a space between it and the wall of the bottle, substantially as described.

577,964. **CLAMP FOR VIOLIN-STRINGS.** JOHN B. MAHONEY, Afton, Minn. Filed May 12, 1896. Serial No. 591,263. (No model.)

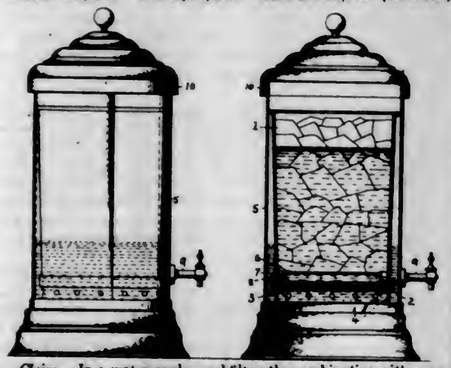
Claim.—1. In combination with the tailpiece of a violin, the clamp secured thereto, consisting of two similar connected jaws, the bolt

screw-threaded in the lower jaw and passing loosely through the upper jaw, and securing the clamp to the tailpiece, and the thumb-nut threaded upon the bolt above the clamp for closing the jaws upon an intermediate string.



2. In combination with the tailpiece of a violin, the clamp secured thereto consisting of two similar connected jaws, the bolt screw-threaded in one jaw and passing loosely through the other, and securing the clamp to the tailpiece, the thumb-nut threaded upon the bolt above the clamp for closing the jaws upon an intermediate string, and the soft lining upon the inner face of the jaws to prevent injury to the string.

577,965. **WATER FILTER AND COOLER.** ALPHONSE MAJOR, New York, N. Y. Filed Nov. 3, 1895. Serial No. 568,322. (No model.)



Claim.—In a water cooler and filter, the combination with a vessel having an inner annular groove and a flange corresponding with the lower wall of the groove, and a filtering-stone supported upon the said flange and cemented at its edge into the aforementioned annular groove, of an ice-rest comprising an elevated perforate portion and a depending rim terminating in an outer flange to obtain an extended bearing upon the filtering-stone directly above the aforesaid inner flange, substantially as shown and described.

577,966. **BOTTLE.** CHARLES H. PARSONS, Goshen, Ind., assignor of one-third to Charles Kolb, same place. Filed June 27, 1896. Serial No. 597,214. (No model.)



Claim.—A bottle formed with a tapered neck and an exterior annular groove and the neck formed at the mouth with an inwardly-extending flange, a stopper fitted in the lower portion of said neck, a glass stopper inserted in the outer end of the neck and provided with springs having one end secured within the body of said stopper and their other ends extended outward and upward and terminating in line with the outer end of the cork, and a rubber ring arranged in the space between the two stoppers and adapted to be placed over the broken edge of the neck when the same is severed, all substantially as described.

577,967. **BICYCLE-LAMP.** DAVID R. REYNOLDS, Philadelphia, Pa. Filed Apr. 8, 1896. Serial No. 586,719. (No model.)



Claim.—1. The combination with the frame of a bicycle, and a lamp-case removably attached to said frame, of an oil-receptacle independently hinged to said frame and adapted to be folded close to the fork when not in use, substantially as described.

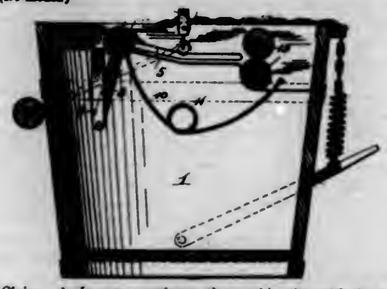
2. The combination with the frame of a bicycle, and a lamp-case detachably connected thereto, of an oil-receptacle having an independent hinged connection with said frame, whereby said receptacle may be folded when the lamp-case is removed, and means whereby said receptacle may be detached, substantially as described.

3. An oil-receptacle provided with a sleeve-bearing, in combination with a clip adapting the receptacle to be removably attached to a bicycle, said clip having a spindle which enters the sleeve-bearing and is provided with a stop coacting with a shoulder formed in the sleeve-bearing, substantially as and for the purpose described.

4. The hollow cylindrical or disk-shaped wick-cap, in combination with the clip by means of which said cap is removably attached to the machine, substantially as described.

5. The combination with a cycle-frame, of an oil-receptacle connected directly thereto and capable of being folded against said frame, and means on said frame for holding said receptacle when it is folded against said frame, substantially as described.

577,968. **MOP-WRINGER.** WILLIAM H. STRUBLE and LEVI IRELAND, Fredericktown, Ohio. Filed June 24, 1896. Serial No. 596,711. (No model.)



Claim.—1. In a mop-wringer, the combination with the pail and the curved foot-lever pivoted thereto, of the cross bars or plates formed with inclined slots, the rotatable rolls located one above the other, journaled in said plates, the movable and rotatable roll, the journals of which travel in said slots, the toggle-levers pivotally connected with said plates and journals, the chains connected with the lower ends of said levers passing over said journals, and down the outside of the pail and connected with the foot-lever and the springs connected with the journals of said roll and with the cross bars or plates; substantially as described.

2. In a mop-wringer, the combination with the pail, the curved foot-lever pivoted thereto, the cross bars or plates formed with inclined slots and the parallel rolls journaled in said plates, one above the other, of the movable and rotatable roll, the journals thereof working in said slots, the springs provided with coils intermediate their ends, secured to said plates and their opposite ends bent around said journals, and bent upwardly forming guide-arms, the bars pivoted respectively to said journals and to the cross-plates and pivotally connected at their lower ends, the chains connected with the lower ends of said bars and passing over said journals, and secured to the foot-lever and the rollers and guide-yokes between which said chains pass; substantially as described.

577,969. **BLUING AND STARCHING COMPOUND FOR LAUNDRY USE.** CLIFFORD A. TANEY, St. Joseph, Mo. Filed Oct. 26, 1895. Serial No. 567,024. (No specimens.)

Claim.—1. The compound described comprising powdered starch, powdered Prussian blue, and a powdered substance which when combined with a liquid will form a solvent, substantially as specified.

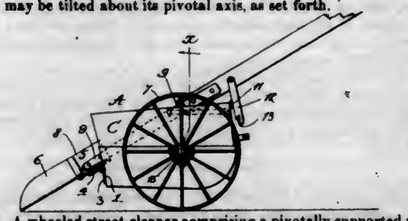
2. The composition of matter described consisting of starch, borax, Prussian blue, sal-soda, glue, and oxalic acid, combined in the manner and proportions specified.

3. The compound described comprising powdered starch, powdered Prussian blue, a powdered substance which when combined with a liquid will form a solvent and powdered borax, substantially as specified.

577,970. **STREET-CLEANER.** JAMES B. TILTON, Fresno, Cal., and MORTON G. BUSHELL, Chicago, Ill., assignors to Frederick C. Austin, Chicago, Ill. Filed Jan. 24, 1896. Serial No. 576,023. (No model.)

Claim.—1. A wheeled street-cleaner comprising a scraper for collecting the debris, and a pivotally-supported receptacle for holding the same, the scraper having a hinge connection with the receptacle and being provided with a tongue or handle whereby the cleaner may be propelled bodily along the street, and the scraper independently manipulated at the same time, as set forth.

2. A wheeled street-cleaner comprising a pivotally-supported receptacle; a scraper extending at least to the receptacle, whereby the debris may be caused to pass from the scraper to the receptacle without elevating the scraper; and a tongue or handle attached to the cleaner near the junction of the scraper and receptacle, whereby the latter may be tilted about its pivotal axis, as set forth.



3. A wheeled street-cleaner comprising a pivotally-supported receptacle provided with means for vertical adjustment, and a scraper attached to the receptacle by a hinged connection and being provided with a tongue or handle rigidly connected therewith, substantially as described.

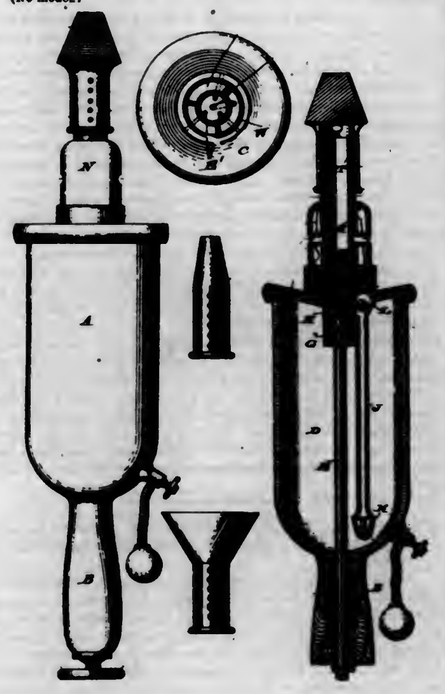
4. In a street-cleaner, a scraper having a hinge connection with a wheeled receptacle, a handle or tongue rigidly connected with the scraper for propelling the cleaner; and means for locking the handle into rigid relation with the receptacle whereby the scraper may be held clear of the pavement.

5. In a street-cleaner, a scraper having a hinge connection with a wheeled receptacle; a handle rigidly connected with the scraper and extending rearwardly to form a push tongue or handle for propelling the cleaner; and a locking device consisting of the dog 12 pivoted on the tongue or handle and provided with a notch 13 adapted to engage a lug or projection 11 upon the receptacle, and thereby allow the forward part of the cleaner to be tilted and held clear of the pavement, substantially as described.

6. A wheeled street-cleaner comprising a body having a hinged scraper, a pair of levers pivoted to the respective sides of the body and carrying the wheel-axles; means for locking the levers into rigid relation with the body; and a handle connected with the scraper.

7. A wheeled street-cleaner comprising a body having a hinged scraper, a handle connected with the scraper, and a removable drawer within the body.

577,971. **COMBINED SOLDERING-IRON, BRAZIER, &c.** PETER V. BERGEN, Philadelphia, Pa. Filed June 15, 1896. Serial No. 595,538. (No model.)



Claim.—1. In a combined soldering-tool and brazier, a casing with a cap, a passage-way therein, means for controlling said passage, a chamber in communication with said passage-way and a burner communicating with said chamber, the latter surrounding said burner, said parts being combined.

2. In a combined soldering-tool and brazier, a casing with a cap, a valve-stem mounted in said casing, its other end forming a valve for a passage-way in said cap, a chamber connected with said cap and communicating with said passage-way, a burner connected by a second passage-way in said cap with said chamber, said chamber surrounding said burner, and the walls of said chamber having air-passages leading to said burner, and a perforated tube above said burner, said parts being combined.

3. In a combined soldering-tool and brazier, a casing with a cap on one end and a handle on the other, a chamber outside of said casing and in communication with the same, a valve-stem controlling a passage in said cap, a burner within said chamber and in communication with the same, and a tube in said casing having at its opposite ends, valves controlling a passage-way in said cap to said chamber, said parts being combined.

4. A casing with a cap on one end and a handle on the other, a chamber outside of said casing, a passage-way in said cap leading from within the casing to said chamber, a rotary valve-stem controlling said passage-way, a burner within said chamber having a communication therewith, a perforated tube outside of said burner, and a valve with means for forcing air into said casing, said parts being combined.

5. A casing with a handle on one end, a cap on the other and having inner and outer lugs thereon, passage-ways therein, a casing on said outer lug forming a chamber in communication with the inside of said casing, a valve-stem controlling a passage-way leading from within said casing, a burner within said chamber, a perforated tube outside of said burner, a tube in said casing having alternating operating-valves at its opposite ends and means for filling any pressure in said casing, said parts being combined.

577,972. **BOX.** HENRY WEDEKINDT, Jr., Buffalo, N. Y. Filed Aug. 27, 1896. Serial No. 604,061. (No model.)

Claim.—1. The combination with a box and its cover, of a connection for the cover arranged at a distance from the ends thereof and comprising an upper leaf or hinge member secured to the cover and adapted to stand parallel with the adjacent side wall of the box when the cover is opened and lowered, a lower leaf hinged at its upper end to the outer end of said upper leaf and capable of sliding vertically on the side wall of the box, and a retaining device applied to the same side wall of the box and arranged to engage with said lower leaf and confine the same against the box when the cover is closed and to engage with and confine said upper leaf when the cover is lowered beside the box, substantially as set forth.

2. The combination with the body of a box having a pin or bolt projecting from one of its side walls, and a cover for the box, of an attachment for the cover comprising an upper hinge member or leaf secured to the cover and having a longitudinal slot extending inwardly from its inner end and adapted to receive the pin or bolt of the box-body when the cover is opened and lowered, and a lower vertically-sliding leaf hinged at its upper end to said upper leaf and having a longitudinal slot which receives said pin or projection when the cover is closed, the slots of the two leaves forming a continuous slot which extends across the joint of the hinge, substantially as set forth.

3. The combination with the body of the box having a headed pin or projection and the cover, of an attachment for the cover comprising an upper slotted member secured to the under side of the cover and a lower slotted member hinged to said upper member and provided with a longitudinal slot connecting with the slot of the upper member and adapted to receive the headed projection of the box-body, the cover being provided opposite the slot of the upper member with a transverse groove opening at the outer edge thereof and adapted to receive the head of said projection, substantially as set forth.

577,973. APPARATUS FOR TRUING AND BURNISHING METALLIC BEARING-SURFACES. WILLIAM H. WHITTEMORE, Rockaway, N. J. Filed May 27, 1896. Serial No. 593,226. (No model.)



Claim.—1. In combination, a rotatable spindle, a ball-bearing surface, hardened-steel balls running loosely on said ball-bearing surface, with means for rotating said spindle and for forcing the same into contact with said balls.

2. A device for truing and polishing ball-bearing surfaces, comprising a rotatable part having a curved periphery, mechanism for holding the bearing to be acted upon, polishing-balls running loosely on the surface of the bearing to be acted upon, and mechanism for forcing said rotatable part against the polishing-balls for effecting the rotation of said balls by frictional contact therewith.

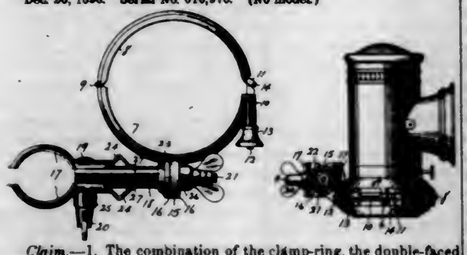
3. The combination of the ball-bearing cup, devices for holding the same, a rotatable spindle, hardened polishing-balls running loosely between the spindle and the cup, and means for forcing said spindle into contact with said balls for effecting the rotation of the same.

4. The combination of the rotatable spindle, a stationary ball-bearing surface adapted to receive and contain a circular row of polishing-balls, a plunger, and a spring normally tending to raise said plunger vertically within said ball-bearing surface and within the circle of balls to confine said balls in position, substantially as specified.

5. The combination of the frame, a spindle mounted therein, devices for rotating said spindle and vertically adjusting the same, a bearing-surface, and polishing-balls running loosely therein, substantially as specified.

6. The combination of the frame, the rotatable spindle, the revoluble table having threaded openings in its upper face and edge holding-notches, a spring adapted to engage with and hold said notches, peripheral openings in the table, and a handle adjustably secured in one of said openings.

577,974. LANTERN-HOLDER. FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 28, 1896. Serial No. 616,976. (No model.)



Claim.—1. The combination of the clamp-ring, the double-faced and reversible hinge-bracket 15 rigidly secured to said ring, the bracket-adjusting shaft having secured thereon a companion hinge-bracket, clamping-jaws for attaching said bracket-adjusting shaft to a support, and devices for attachably and detachably securing said clamp-ring and its hinge-bracket to said bracket-adjusting shaft with either face of the hinge-bracket 15 against the face of its companion hinge-bracket, as may be desired, substantially as described.

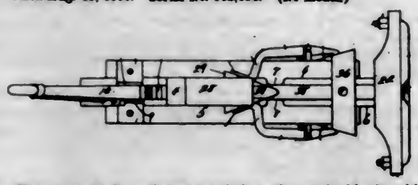
2. The clamp-ring with its meeting ends arranged to move to and from each other and having near one of said ends a socket 10, the screw-adjustable slide guided longitudinally within said socket for connecting the said ends, and supporting devices for said clamping-ring, substantially as described and for the purpose specified.

3. The combination of the clamp-ring for receiving and holding a round body portion of a lantern and with the lantern forming a swivel-joint permitting the lantern to be turned horizontally on its vertical axis, a hinge-bracket rigidly secured to said ring, a companion hinge-bracket having devices for securing the complete holder to a vehicle, and means for adjustably securing said hinge-brackets together and forming the joint for tipping said clamp-ring on a horizontal axis substantially as described.

4. The combination of the hinge-bracket 15 for supporting a lantern, with a bracket-adjusting shaft having a companion bracket thereon, the clamping-jaws secured to one end of said bracket-adjusting shaft by means of the transverse bolt 19 and nut 20, said clamping-jaws being longitudinally recessed for fitting the sides of said shaft to hold them in alinement therewith substantially as described and for the purpose specified.

5. The combination of the hinge-bracket 15 for supporting a lantern, with a bracket-adjusting shaft having a companion bracket, and the double-ended clamping-jaws secured on said bracket-adjusting shaft and arranged to be changed end for end, substantially as described.

577,975. FLOOR-CLAMP. LESLIE BURNELL, Red Lodge, Mont. Filed Aug. 13, 1896. Serial No. 602,636. (No model.)

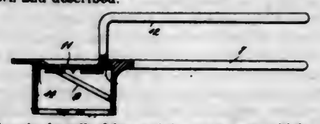


Claim.—1. A floor-clamp, consisting of a main block, which is adapted to be clamped to a floor-beam, said block being provided with a sliding bar which is mounted longitudinally of its upper side, and which is provided with a cross-head, which is adapted to force the floor-boards into position, said sliding bar being also provided at the end thereof, opposite said cross-head, with ratchet-teeth, and said main block being provided with upwardly-directed jaws between which is pivoted a lever, the end of which is provided with ratchet-teeth which are adapted to operate in connection with those formed in the sliding bar, said sliding bar being also provided with a wedge-shaped head, and said main block with pivoted side arms, the upper ends of which are curved inwardly, and provided with jaws, between which said head is adapted to be forced, and the lower ends of said arms being provided with inwardly-directed prongs or jaws which are adapted to be forced into a floor-beam, said sliding bar being provided adjacent to the cross-head with a cross-block, the ends of which are provided with backwardly-directed wedge-shaped jaws which operate in connection with said pivoted arms, substantially as shown and described.

2. A floor-clamp consisting of an oblong block provided with a longitudinally-extending slot, a longitudinally-movable bar mounted in said slot, lugs or projections secured to the forward portion of said block and adapted to hold the said bar in position, standards secured to upwardly-directed jaws secured to the rear portion of said block, a lever pivoted therebetween, a sliding bolt on said lever and adapted to engage the toothed end of one of said jaws, means for operating the said plate adjacent to the upper end of said lever, a rack-bar formed on the upper portion of said bar and adapted to be engaged by the lower end of said lever, outwardly-directed jaws secured to either side of said block arms pivoted therebetween, said arms extending backwardly across the back of said block, curved ends formed on the upper portion of said arms, outwardly-inclined heads secured on the said ends, a raised longitudinal portion centrally secured to said sliding bar, a wedge-shaped head mounted therein and adapted to engage said inwardly-inclined head on said curved end of said arm, inwardly-directed prongs secured to the lower end of said arms and adapted to pass under the said block, a block secured to the lower bar near the forward end of the same, downwardly-directed wedge-shaped bars mounted thereon and extending in a backward direction, cross-heads secured on the outer end of said sliding bar, a longitudinal buffer or plate mounted therein, annular bars in either end of said plate having screw-threaded ends thereon and adapted to pass through longitudinal openings within the said cross-head and be adjusted thereon and an outwardly-inclined spur adapted to engage a beam, said parts being combined substantially as and for the purpose described.

577,976. LEMON-JUICE EXTRACTOR. CHARLES B. CARTER, Bordentown, N. J. Filed July 1, 1896. Serial No. 597,687. (No model.)

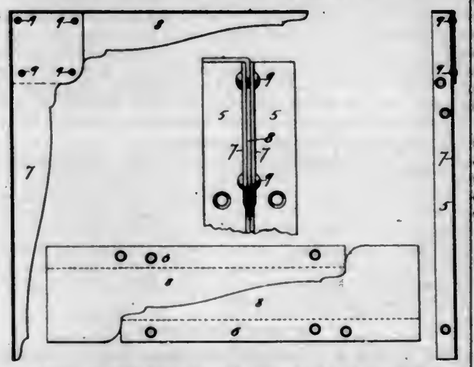
Claim.—1. The herein-described lemon-juice extractor, which comprises two parts, one of which consists of a cylindrical cup-shaped receptacle, having a perforated bottom, and a handle connected with one side thereof, said receptacle being provided in its opposite sides with spiral ribs as described, and the other part consisting of a circular disk or head, having an angular handle connected therewith, and being provided on its opposite sides with lugs or projections, which are adapted to operate in connection with said ribs, substantially as shown and described.



2. The herein-described lemon-juice extractor, which comprises two parts, one of which consists of a cylindrical cup-shaped receptacle, having a perforated bottom, and a handle connected with one side thereof, said receptacle being provided in its inner side walls, with two spiral ribs, one of which begins opposite the handle, and extends downwardly, and around one side of the receptacle, and terminates below the handle, and the other of which begins adjacent to the handle, and extends downwardly and around the opposite side, and terminates opposite the handle, and the other part consisting of a circular disk or head provided with an angular handle, and with lugs or projections on the opposite sides thereof, which are adapted to operate in connection with said ribs, substantially as shown and described.

3. The herein-described lemon-juice extractor, which comprises two parts, one of which consists of a cylindrical cup-shaped receptacle, having a perforated bottom, and a handle connected with one side thereof, said receptacle being provided in its inner side walls with two spiral ribs, one of which begins opposite the handle, and extends downwardly, and around one side of the receptacle, and terminates below the handle, and the other of which begins adjacent to the handle, and extends downwardly and around the opposite side, and terminates opposite the handle, and the other part consisting of a circular disk or head provided with an angular handle, and with lugs or projections on the opposite sides thereof, which are adapted to operate in connection with said ribs, said disk or head being also provided on its under side with radial ribs or projections, substantially as shown and described.

577,977. SHEET-METAL SHELF-BRACKET. THOMAS CORSCADEN, New Britain, Conn., assignor to the Stanley Works, same place. Filed Dec. 8, 1896. Serial No. 493,154. (No model.)

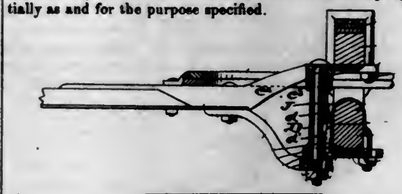


Claim.—A sheet-metal bracket consisting of wall and shelf plates and flat integral strengthening-ribs tapered substantially from end to end, each of said plates and its rib being cut from sheet metal and bent on a single longitudinal line between its cut edges to the form of an L shape in cross-section, the two tapering strengthening-ribs being arranged with their wider ends at the angle of the wall and shelf plates, with their said wider ends mechanically secured together and with the tapered cut outer edge of each rib extending from their junction to the narrow ends of said ribs, substantially as described and for the purpose specified.

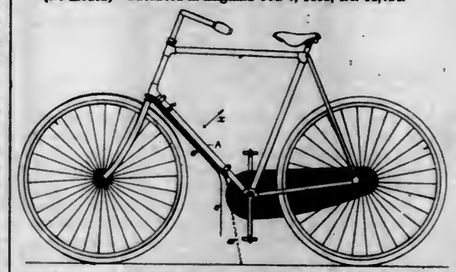
577,978. FIFTH-WHEEL. JOSIAH D. DORT, Flint, Mich. Filed Aug. 31, 1896. Serial No. 604,346. (No model.)

Claim.—1. The combination of the axle, the king-bolt socket having two diverging arms which are fastened to the axle, and an axle-plate lying against the bottom of the axle and having forward and rearward projections, the latter being provided with a hole which receives the lower end of the king-bolt socket, and a slot connected with said hole, with a two-legged clip, the rear leg of which lies in said slot and has an integral head on its lower end, said clip passing over the axle and through the forward projection of the axle-plate, substantially as and for the purpose specified.

2. The combination of the axle, a king-bolt socket having two diverging arms which are fastened to the axle, and a vertical slot between said arms, and an axle-plate lying against the under side of the axle and having forward and rearward projections, the latter being provided with a hole which receives the lower end of the king-bolt socket, and a slot connected with said hole, with a two-legged clip which passes over the axle, the rear leg entering the groove in the king-bolt socket and passing through said slot in the axle-plate, and an integral head on the lower end of said rear clip-leg, substantially as and for the purpose specified.



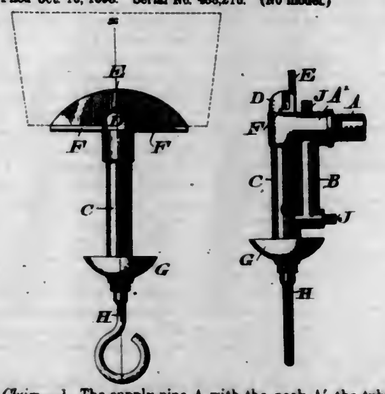
577,979. STAND AND MUD-GUARD FOR BICYCLES. FRANK S. FOLEY, Norwich, England. Filed Sept. 25, 1896. Serial No. 606,962. (No model.) Patented in England Oct. 7, 1895, No. 18,721.



Claim.—1. In combination with the frame of a bicycle a pair of struts pivoted thereto adapted to diverge and capable of being turned down against the ground or folded up into a higher position as shown, a pair of mud-guards adapted to be attached to the said struts, a pair of springs *c c'* acting on the said struts, a pair of levers arranged to lock at will the said struts in their upper and folded position, a slotted plate engaged by the said levers and springs acting on the said levers substantially as set forth.

2. In combination with a bicycle-frame, a pair of struts hinged thereto in such manner that they may turn upward and fold together on the said frame a plate having slots formed therein and attached to the said frame, and devices also connected to the said frame which enter the said slots and lock the struts against divergence substantially as set forth.

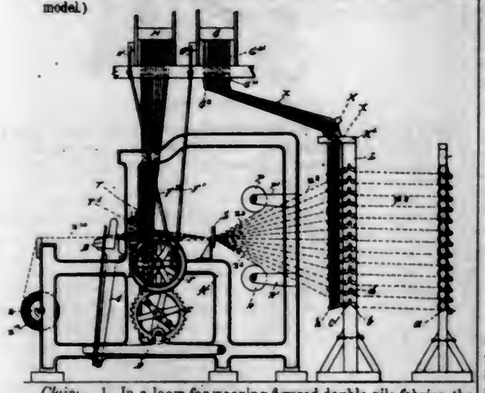
577,980. VAPOR-BURNER. HENRY GETZBORER, Philadelphia, Pa. Filed Oct. 16, 1893. Serial No. 488,216. (No model.)



Claim.—1. The supply-pipe A with the neck A', the tube B extending downwardly, from said neck, the tube C, parallel with said tube B and joining the bottom thereof, the tip D at the top of said tube C, and the flat deflector E which latter rises from the side of the latter and is formed with the flange F extending laterally from the lower edges of the opening in the tip, said parts being combined substantially as described.

2. The supply-pipe A, the neck A', the pipe B, extending downwardly from said neck; the pipe C parallel with said pipe B and joining the bottom thereof, the tip D on said pipe C, the cup G and valve H, the tip D at the top of said pipe C, the deflector-plate E connected with said tip and rising partly above the same, and the flange F integral with and extending at a right angle from said deflector on opposite sides of the said tip at the base of the opening therein, the parts named being combined substantially as described, forming an improvement in vapor-burners.

577,981. LET-OFF MECHANISM FOR LOOMS. JAMES A. GILLILAN, Paterson, N. J., assignor to the Peerless Plush Manufacturing Company, same place. Filed Mar. 23, 1896. Serial No. 584,543. (No model.)



Claim.—1. In a loom for weaving figured double-pile fabrics, the combination with the bobbin-board containing the pile-warp, an intermediate frame, of a series of tension-rollers *b c* and *d* mounted on said intermediate frame, (the last named being a loose roller) a group of three tension-rollers being provided for each spool of pile-warp on the bobbin-board, and adapted to permit the pile-warp to pass from said spool through its respective set of tension-rollers and from them to the loom, a ratchet-plate secured to one end of each of the tension-rollers *c*, a lever provided with a working pawl adapted to engage each of said ratchet-plates, a stop-pawl for each of said ratchet-plates, a jacquard on said loom, means for operating it, the needles of the jacquard, and cords connecting the needles of said jacquard with the series of levers on said intermediate frame, substantially as shown and for the purposes specified.

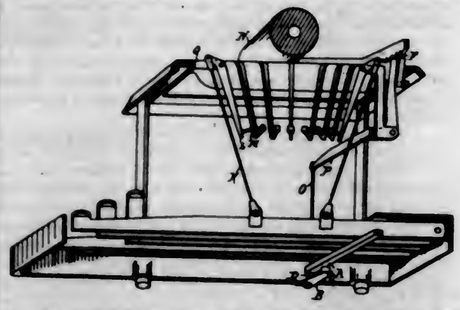
2. In a loom for weaving figured double-pile fabrics the combination with the jacquard provided with needles, and means for operating it, of a series of tension-rollers, *b*, *c*, and *d* mounted on a suitable frame so as to permit the pile-warp from each bobbin or from any desired group of bobbins to pass between its respective set of rollers on its way to the loom, the rollers *d* being loose and resting on the rollers *b* and *c* in the various groups of three, a ratchet-wheel secured to one end of the roller *c* in each of said groups of tension-rollers, a lever provided with a working pawl secured to the tension-roller frame to operate each group of tension-rollers, and a stop-pawl adapted to engage each of said ratchets, cords connecting said levers with the needles of the jacquard, guides for said cords, the operation of the jacquard causing said levers and pawls or any desired number of them to revolve the required number of rollers, each pile-warp or any desired group of pile-warps having a separate and independent controlling device, substantially as shown and described.

3. In a Jacquard loom for weaving figured double-pile fabrics, the combination with the needles of the jacquard of a series of tension-rollers *b c* and *d* mounted on a suitable frame in groups of three, the rollers *c* in each group being provided at one end with a ratchet-plate, a lever for each series or group of rollers, cords connecting said levers with the needles of the jacquard, a working pawl secured to each lever to operate said ratchet-plates, stop-pawls to engage the same, each set of rollers being adapted to control the delivery of one or more warp-threads to the loom as required by the pattern being woven and means for operating the whole, substantially as shown and for the purposes specified.

4. The needles of a Jacquard machine in combination with tension-rollers in groups of three mounted on a suitable frame, a lever for each group secured to said frame, cords connecting said levers and needles, one of the rollers in each group being provided with a ratchet-plate, a pawl secured to each lever to operate said ratchet, a stop-pawl to engage the same, and means for operating the jacquard-needles, substantially as shown and described and for the purposes specified.

5. The combination with a series of groups of tension-rollers *b c* and *d* mounted on suitable frame so as to permit the pile-warp to pass between or to be held by the rollers of said groups as said warps come from the bobbins to the reed on loom, the roller *c* in each group being provided with a ratchet-wheel on one end, for each group, of a lever provided with a pawl to operate the said ratchet, needles for working the pattern and cords connecting the lever of each group of rollers with its respective needle to control each warp-thread independently of the others, a Jacquard machine and means for operating it, substantially as shown and described.

577,982. TYPE-WRITING MACHINE. FREDERIC W. HILLARD, Newark, N. J. Filed Nov. 16, 1891. Serial No. 412,018. (No model.)

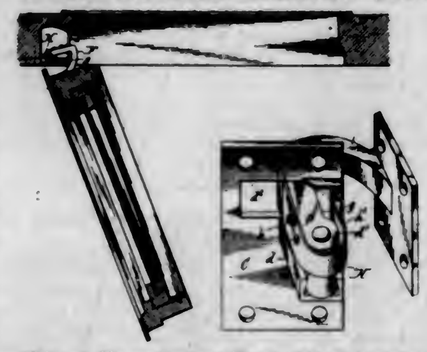


Claim.—1. In a type-writing machine, the combination of a key, a repulser therefor normally free from the key, a speed-escapement, means for depressing the key and disengaging the normally engaging members in the escapement, means for bringing the said repulser into action while the normally engaging members are disengaged, and means for restoring the key and the escapement to their normal positions, substantially as described.

2. In a type-writing machine, the combination of a key, a repulser therefor normally free from the key, an escapement comprising two members which normally engage together and can be disengaged and reëngaged and one of which can be spaced step by step with respect to and under control of the other, means for depressing the key and disengaging the escapement members, means for feeding the spaced member when disengaged, means for bringing the said repulser into action while the normally engaging escapement members are disengaged, and means for restoring the key and the escapement to their normal positions, substantially as described.

3. In a type-writing machine, the combination of a key, a repulser therefor normally free from the key, an escapement comprising a rack which can be spaced step by step and a dog which normally engages therewith and can be disengaged and reëngaged, means for depressing the key and disengaging the dog from the rack, means for spacing the rack when disengaged, means for bringing the repulser into action while the normally engaging dog is disengaged from the rack, and means for restoring the key and the escapement to their normal positions, substantially as described.

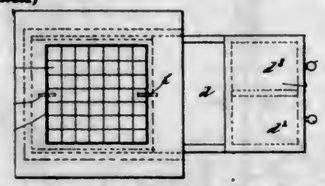
577,983. CARRIAGE-DOOR HINGE. EDWARD L. HOFFMANN, Buffalo, N. Y. Filed Oct. 19, 1896. Serial No. 609,260. (No model.)



Claim.—1. The combination with a fixed hinge member or leaf having a transverse slot and a bracket projecting rearwardly from said leaf, of a movable hinge member or leaf having an angular arm extending through the slot of the fixed member and pivoted at its inner end to said bracket and a stop-spring carried by the inner portion of said angular arm and arranged on the front side thereof, said spring being arranged to come in contact with said fixed leaf in the open position of the hinge, substantially as set forth.

2. The combination with a fixed hinge member or leaf provided with a transverse slot, a bracket projecting rearwardly from said leaf and carrying an upright pintle and a web or abutment arranged at the outer edge of said slot, of a movable hinge member or leaf having an angular arm extending through the slot of said fixed leaf and provided at its inner end with an eye journaled on said pintle and a U-shaped spring extending around the eye of said arm and having one of its branches secured to the rear side of said arm and its other branch arranged on the front side of said arm and at a distance therefrom, said front branch being adapted to come in contact with the abutment of said fixed leaf, substantially as set forth.

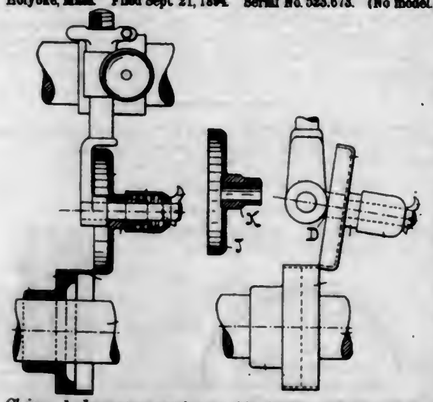
577,984. COMBINED TABLE AND CHECKER-BOARD. FRANK HOROVITZ, New York, N. Y. Filed Jan. 22, 1896. Serial No. 576,380. (No model.)



Claim.—1. The combination with a table, in the top of which is formed a rectangular opening, and a game-board of the same size and form as the said opening the surface of said board being designed to represent a checker-board, chess-board, or other game-board, of a sliding drawer, which is provided with a number of compartments, two of which are covered and one of which is provided with a door in the side thereof, substantially as shown and described.

2. The combination with a table, in the top of which is formed an opening, and a game-board of the same size and form pivoted in said opening said board being designed to represent a checker-board, chess-board or other game-board, of a sliding drawer, which is provided with a number of compartments, two of which are covered, and one of which is provided with a door or doors in the sides thereof, and another compartment which is designed to receive a music-box, substantially as shown and described.

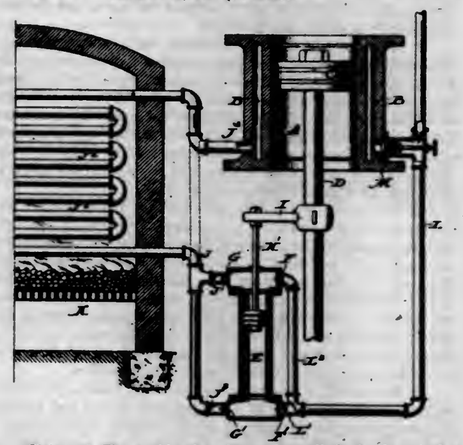
577,985. PAPER-CUTTING MACHINE. HERMAN I. KOSKEL, Holyoke, Mass. Filed Sept. 21, 1894. Serial No. 523,673. (No model.)



Claim.—1. In a rotary cutting-machine having separately-mounted cutters, a cup-shaped cutter provided with a hub mounted loosely upon its supporting-shaft, a cap mounted loosely on the supporting-shaft and bearing on the hub, a latch for securing the cap and cutter against longitudinal movement and a spring inclosed by the cap and acting upon the cutter, substantially as described.

2. In a rotary cutting-machine having separately-mounted cutters, a cup-shaped cutter provided with a hub mounted loosely upon its supporting-shaft, a cap mounted loosely on the supporting-shaft and bearing on the hub, a latch pivoted to the end of the supporting-shaft adapted to hold the cap when in its transverse position and to permit the same and the cutter to be removed when turned to extend in the direction of the length of the shaft, and a spring inclosed by the cap and acting upon the cutter, substantially as described.

577,986. APPARATUS FOR CONVEYING HEAT TO ENGINE-CYLINDERS. ARTHUR MARIGNAL, Philadelphia, Pa., assignor to the Southwark Foundry and Machine Company, same place. Filed Aug. 24, 1893. Serial No. 483,900. (No model.)



Claim.—1. The combination of an engine-cylinder having a jacket B surrounding it, of an air-pump, a conduit leading from the pump to the jacket B, and a conduit as L leading from the jacket to the suction side of the pump, said jacket having no outlet save that leading to the pump and so that the body of air inclosed is constantly acted on by the pump without being permitted to escape.

2. The combination with an engine-cylinder having a jacket as B surrounding it, of an air-pump, a conduit leading from the pump to the jacket B, a return-conduit L leading from the jacket to the entrance port or ports of the pump, and a snifting-valve controlling the passage of gas from the jacket to conduit L.

3. The combination with an engine-cylinder having a jacket as B surrounding it, of an air-pump, a conduit leading from the pump to the jacket B, a return-conduit L leading from the jacket to the entrance port or ports of the pump, a snifting-valve controlling the passage of gas from the jacket to conduit L, and a valve N situated in conduit L and arranged to give access to the same from the air when the pressure in said conduit falls below a determined amount.

4. The combination with an engine-cylinder having a jacket as B surrounding it, of an air-pump and furnace and conduit leading from the pump to the furnace, through the furnace to the jacket B, a return-conduit L leading from the jacket to the entrance port or ports of the pump, and a snifting-valve controlling the passage of the gases from the jacket to conduit L.

577,987. CUT-OFF. VIRGIL B. NUCKOLS and PHILIP L. RAMSEY, Elkton, Ky. Filed June 24, 1896. Serial No. 596,786. (No model.)



Claim.—1. In a cut-off of the class described, the combination of a vessel, a truncated cylindrical hood covering the top of the vessel and composed of straight sides and a curved top extending from one side of the vessel to the other and provided at one side with a liquid-discharge opening, a curved slide arranged within the hood, guided on the curved top thereof and provided with an exterior operating handle, and a spout mounted within the hood adjacent to the discharge-opening, and arranged to coöperate with the curved slide to cut off the flow of the liquid, substantially as described.

2. In a cut-off as described, the combination of the holder having a hood covering the top and provided with a single discharge-opening, a curved cut-off slide arranged within the hood and normally

held in closed position and having hand-operated devices for swinging it to an open position, and a spout or guide member for leading the liquid to the discharge-opening, said spout having its upper end in close contact with one side of the curved cut-off slide, the latter being adapted to enter the space between the spout and the hood, substantially as shown and described.

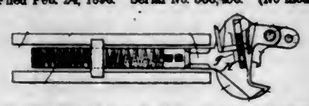
3. In a cut-off of the class described, the combination, with a molasses or similar holder, of a hood applied thereto and provided with an opening for the passage of the contents of said holder, a spring-actuated slide disposed in said hood and adapted to cut off the flow of said contents through said opening, a spout also disposed in said hood and adapted to guide the contents to the opening thereof, said spout having its upper end extended above the lower edge of the discharge-opening and in close contact with the cut-off, and means for operating the slide, substantially as set forth.

4. In a cut-off of the class described, the combination, with a molasses or similar holder, of a hood applied thereto and provided with an opening for the passage of the contents of said holder, a shaft arranged within said hood, supporting-arms secured to said shaft, a slide carried by said supporting-arms and adapted to cut off the flow of the contents of the hood through the opening thereof, springs secured to the inner sides of said hood and adapted to normally hold said cut-off slide over said opening to close the same, and a lever secured to said shaft and adapted to operate the cut-off slide to uncover the opening of the hood, substantially as set forth.

5. In a cut-off of the class described, the combination, with a molasses or similar holder, of a hood applied thereto and provided with an opening for the passage of the contents of said holder, a shaft arranged within said hood, supporting-arms secured to said shaft, a cut-off slide carried by said supporting-arms and adapted to normally close the opening of the hood, springs secured to the inner sides of said hood and adapted to hold the cut-off slide in its normal position, a spout also secured within the hood and together with one side of the latter forming a pocket for the reception of the cut-off slide, and means for operating said cut-off slide, substantially as set forth.

6. In a cut-off of the class described, the combination, with a molasses or similar holder, of a hood applied thereto and provided with an opening for the passage of the contents of said holder, a shaft arranged within said hood and having its ends extending through the sides thereof, a slide carried by said shaft and adapted to cut off the flow of said contents through the opening of the hood, and a U-shaped yoke-lever arranged on the outside of the hood and having its ends secured to the ends of the shaft and adapted to operate said shaft to uncover the opening in the hood, substantially as set forth.

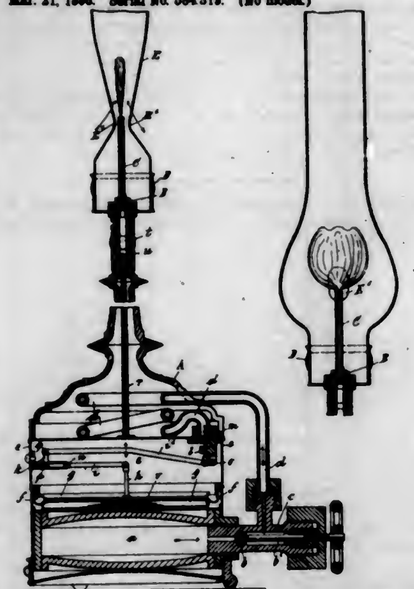
577,988. CAR-COUPLING. CHARLES H. W. RELYEA, North Adams, Mich. Filed Feb. 24, 1896. Serial No. 580,458. (No model.)



Claim.—1. The herein-described car-coupler, which consists of a coupling-head which is connected with a car as described, said coupling-head being provided on its outer side with two shoulders or projections, one of which is provided with a transverse slot or cavity, between which is pivoted a knuckle, said knuckle being provided with an outwardly and inwardly curved shoulder or projection, and with a shank which extends inwardly, and is curved in the direction of the shoulder or projection, and provided at its end with two hooks or projections, and said coupling-head being provided with a diagonal slot, and with a transverse chamber formed therein, into which the shank of the knuckle projects, and said head being also provided with a compound hook or claw which is pivoted in said slot, and which is adapted to operate in connection with the shank of the knuckle, and the pivot pin or bolt of said hook or claw being provided with an arm with which is connected a rod or bar, which extends backwardly and is connected with the car, and by which said hook or claw is operated, substantially as shown and described.

2. A car-coupler consisting of two separate parts, one of which is adapted to be connected with each of the cars to be coupled, each of said parts comprising a coupling-head which is suitably connected with the car, and which is provided with a yielding spring-bearing, each of said heads being also provided at their outer sides with projections or jaws in one of which is formed a transverse cavity or recess in which is pivoted a knuckle, said knuckle being provided with an outwardly and inwardly curved shoulder or projection, and with a shank which extends inwardly and is curved in the direction of said shoulder or projection, and provided at its end with two hooks or projections, and said coupling-head being also provided with a transverse chamber into which said shank projects, and with a diagonal slot in which is pivoted a compound hook or claw, which is adapted to operate in connection with the hooks or projections, at the end of the shank of the knuckle, and means for operating said hook or claw, substantially as shown and described.

577,989. LAMP. AUGUST H. J. SCHÜLER, Berlin, Germany. Filed Mar. 21, 1896. Serial No. 584,319. (No model.)



Claim.—1. In combination in a lamp, a chamber *a* in the bottom of the lamp, an upper part A, the pipe *d* leading from the chamber *a* and into the upper casing A, the pressure-chamber *e* interposed between the lower chamber *a* and the upper part A, the diaphragm and valve in said chamber *e* with lever connections between them, the burner and the pipe *r* extending from the chamber *e* upwardly through the upper part A, substantially as described.

2. In combination in a lamp, a chamber *a* in the lower part thereof, the upper part A, the pressure-chamber *e* between the lower chamber and the upper part, the flexible tube extending from the chamber *a* and coiled within the upper part A, the diaphragm and valve mechanism in the pressure-chamber *e*, a valve controlling the pipe *d*, the burner and the pipe leading upwardly from the pressure-chamber *e* to the burner, substantially as described.

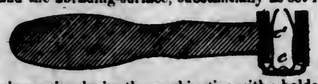
577,990. BICYCLE. GEORG R. F. VON STEGMANN, New York, N. Y. Filed Apr. 13, 1896. Serial No. 587,342. (No model.)



Claim.—A locking device for the steering-wheels of bicycles and similar vehicles, comprising guiding-flanges secured to the forked stem above the socket of the frame, a locking-block, set between the flanges, a key sliding vertically between the guiding-flanges, a tension-spring set between the key and the forked stem and pressing it against the locking-block, depressions in the key adapted to engage the block and hold it in position and slots in the socket of the frame adapted to receive the end of the key whereby said forked stem is locked in position relatively to the socket.

577,991. SHARPENING-TOOL. PRESTON W. STRONG, Brooklyn, N. Y. Filed July 12, 1895. Serial No. 555,702. (No model.)

Claim.—1. In a sharpening device, the combination with a holder, of an abrading-plate therein, and a spring normally in contact with and pressing against an abrading-surface of said plate, and in contact with said abrading-surface between the fixed portion and the free end of said spring, the portion of said spring from the line of contact with the abrading-surface to the outer free end of the spring being inclined at an acute angle to the abrading-surface so as to constitute an inclined spring-guide to receive the edge to be sharpened between this guide and the abrading-surface, substantially as set forth.



2. In a sharpening device the combination with a holder of abrading means held therein, with two exposed abrading-surfaces facing in opposite directions and with two inclined spring-guides oppositely arranged, each spring-guide being normally in contact with and pressing against one of said exposed abrading-surfaces, substantially as set forth.

3. In a sharpening device the combination with a holder of two abrading-plates held therein with exposed abrading-surfaces oppositely arranged, and two inclined spring-guides each in contact with one of said plates at an exposed surface thereof, substantially as set forth.

4. In a sharpening device, a holder having a bottom part and sides and having two pockets formed therein, one at each side, and each pocket adapted to receive an abrading-plate and to hold the same with its inner face exposed, and a bowed spring adapted to press against the inner exposed surfaces of both abrading-plates, and having inclined guide-surfaces above lines of contact with such plates, substantially as set forth.

5. In a sharpening device, a holder having a bottom part and sides and having two pockets formed therein, one at each side, in combination with two abrading-plates, one in each pocket, the opposite inner surfaces of said plates being exposed, and a spring extending up from the bottom part of the holder and pressing against said exposed inner surfaces of the abrading-plates, substantially as set forth.

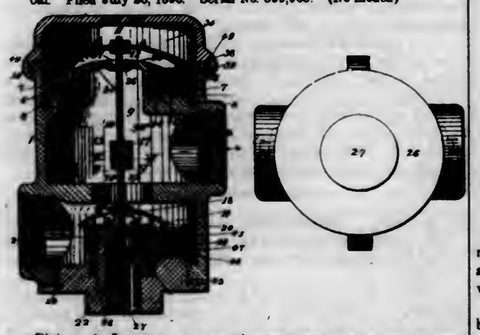
6. In a sharpening device the combination with a holder of an abrading-plate held in said holder with an exposed abrading-surface and an inclined spring-guide in contact with said exposed abrading-surface at separate points on a substantially transverse line, substantially as set forth.

7. In a sharpening device the combination with a holder having a pocket therein open at one side to expose an abrading-surface of said plate, and a spring on said holder having corrugations therein arranged to come in contact with the exposed abrading-surface at separate points on a substantially transverse line, said spring having an inclined guide-surface above said line of contact with the abrading-surface, substantially as set forth.

8. In a sharpening device, in combination, a holder having a bottom part and sides and having pockets formed therein and two abrading-plates in said pockets with opposite exposed surfaces, a spring pressing against said exposed surfaces of the abrading-plates and terminating in oppositely-arranged inclined guides, and a handle extending from one side of said holder, substantially as set forth.

9. In a sharpening device, in combination, a holder having a bottom part and sides and having flanges forming pockets at each side thereof, two abrading-plates, one in each pocket, said plates having exposed inner abrading-surfaces, a bowed spring pressing against said exposed abrading-surfaces on substantially transverse lines and terminating in oppositely-arranged inclined guides, and a handle extending from one side of said holder, substantially as described

577,992. GAS-GOVERNOR. CHARLES A. SWITZER, Los Angeles, Cal. Filed July 20, 1896. Serial No. 599,905. (No model.)

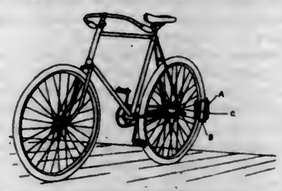


Claim.—1. In a gas-governor the combination, of a suitable casing having gas inlet and discharge openings, a gas-chamber, a governing-chamber, a partition located between said chambers, a pocket in said partition, and a mercury-containing reservoir located in said pocket, substantially as set forth.

2. In a gas-governor the combination, of a suitable casing, a float, a valve, a stem connecting the float with the valve, a plug secured to the casing and having a pocket, a mercury-holding reservoir resting in said pocket, and an annular mercury-holding chamber having connection with said reservoir, substantially as set forth.

3. The combination of the pressure-float 4, having stem 9, the sleeve 13 fixed to said stem 9, the valve 18 having stem 14, working in said sleeve, and the spring connected at its respective ends to the sleeve and stem 14, for drawing said stems together with a yielding pressure, substantially as and for the purpose set forth.

577,993. BICYCLE-SUPPORT. CHARLES H. THURSTON, Worcester, Mass. Filed May 25, 1896. Serial No. 593,096. (No model.)



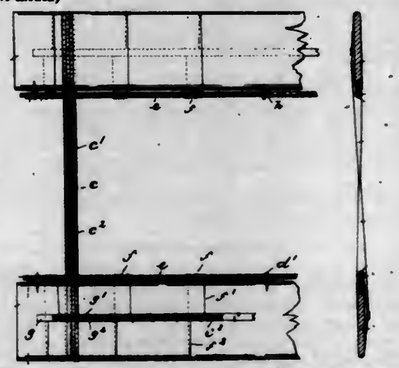
Claim.—1. The combination of a base-piece or bracket, a socket-piece, a rod or bolt for pivotally connecting said parts, and a clamping-nut threaded onto the rod for securing the parts in their adjusted position, substantially as described.

2. The combination of a sheet-metal base-piece or bracket having lugs or projections at opposite ends, a wire socket-piece having loops or eyes, a clamping rod or bolt engaging said loops or eyes and pivotally connecting the socket-piece with the base-plate, and a clamping-nut for securing the parts in their adjusted position, substantially as described.

3. The combination of a sheet-metal base-plate having lugs or projections at its opposite ends, a wire socket-piece having loops or eyes, a clamping bolt or rod engaging said loops or eyes and pivotally connecting the socket-piece with the base-plate, said clamping-rod having a hooked or bent portion at its end to prevent the same from turning, and a butterfly clamping-nut threaded onto the clamping-rod for holding the parts in their adjusted position, substantially as described.

4. The combination of a bicycle-support comprising a base-plate A, a wire socket-piece or frame B, a clamping-bolt for pivotally connecting said parts and securing them in their adjusted position, and, a locking-chain and padlock for securing the bicycle-wheel in the socket-piece, substantially as described.

577,994. HARNESS SHIFTER AND ADJUSTER FOR LOOMS. JOHN D. ULRICH, Haldon, N. J. Filed Dec. 9, 1896. Serial No. 614,987. (No model.)



Claim.—1. The combination with the shafts and the harness carried thereby, of a rod revolubly arranged on each of said shafts, and a series of cords adapted to be operated by said rod and connected with said harness, substantially as and for the purposes described.

2. The combination with the shafts and the harness carried thereby, of a rod revolubly arranged on each of said shafts, and a series of cords coiled around each rod and secured at their free ends to the said harness, substantially as and for the purposes described.

3. The combination with the shafts and the harness carried thereby, of a rod revolubly arranged on the inner edge of each shaft, and of a series of cords coiled around each rod and secured thereto, one end of each cord being connected with the harness, while its other end passes first over the outer edge of its respective shaft and is then secured to the said harness, substantially as and for the purposes described.

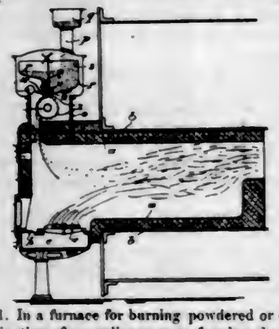
4. The combination with the shafts and the harness carried thereby, of a strip secured to the connecting edge or band of said harness, and means for raising and lowering said strip, substantially as and for the purposes described.

5. The combination with the shafts and the harness carried thereby, of a strip secured to the said harness, a rod revolubly arranged on each shaft, and means operated by said rod for raising and lowering said strip, substantially as and for the purposes described.

6. The combination with the shafts and the harness carried thereby, of a strip secured to the said harness and at right angles thereto, a rod revolubly arranged on each shaft, and a series of cords coiled around each rod and secured with their free ends to the said strip, substantially as and for the purposes described.

7. The combination with the shafts and the harness carried thereby, of a strip secured to the said harness and at right angles thereto, a rod revolubly arranged on each shaft, and of a series of cords coiled around each rod and secured thereto, one end of each cord being secured directly to the strip, while its other end passes first over the outer edge of its respective shaft and is then secured to the said strip, substantially as and for the purposes described.

577,995. FURNACE FOR BURNING COAL-DUST. GUSTAV UBBEN, Magdeburg, Germany. Filed Aug. 29, 1896. Serial No. 604,330. (No model.) Patented in Switzerland July 22, 1895, No. 10,714; in England July 24, 1895, No. 14,132; in France July 24, 1895, No. 249,148; in Belgium July 29, 1895, No. 116,738, and in Austria Nov. 26, 1895, No. 45/4,475.



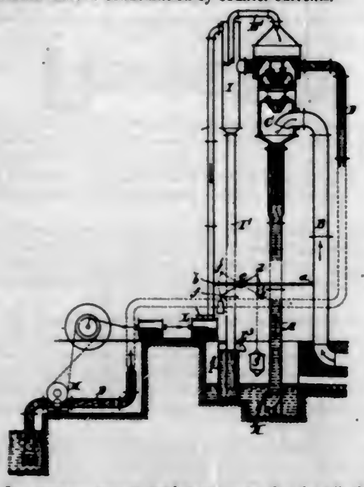
Claim.—1. In a furnace for burning powdered or disintegrated fuel the combination of an ordinary grate forming the front part of the base of the fire-chamber, and of a feed-channel being situated above the said grate, traversing the top cover of the fire-chamber and extending over the whole width or nearly the whole width of the fire-chamber, with a fuel-feed device comprising a feed-roller roughened or provided with appropriate recesses and a fuel-receptacle set in rocking motion by the said roller, substantially as described.

2. In a furnace for burning powdered or disintegrated fuel the combination of an ordinary grate forming the front part of the base of the fire-chamber and of a feed-channel being situated above the said grate, traversing the top cover of the fire-chamber and extending over the whole width or nearly the whole width of the fire-chamber, with a fuel-feed device comprising a feed-roller roughened or provided with appropriate recesses, a fuel-receptacle set in rocking motion by the said roller, and a scraping device or devices acting upon the said feed-roller, substantially as described.

577,996. CONDENSER. FRANZ J. WEISS, Basle, Switzerland. Filed Dec. 5, 1896. Serial No. 614,645. (No model.) Patented in England Sept. 17, 1892, No. 16,670; in Germany Mar. 11, 1893, No. 67,485, and in Austria-Hungary Mar 23, 1893, No. 41,975 and No. 4,270.

Claim.—1. The method of condensing steam and other vapors, which consists in exhausting or rarefying the air in the condenser, causing the condensing water and steam to pass through the condenser in counter-currents alternating with parallel currents, and temporarily admitting steam to the air-suction pipe to lower the vacuum and bring the condensation that is effected by the parallel currents back to condensation by counter-currents.

2. The method of condensing steam and other vapors, which consists in exhausting or rarefying the air in the condenser, causing the condensing water and steam to pass through the condenser in counter-currents alternating with parallel currents, and temporarily admitting the exhaust-steam of the engine to the air-suction pipe to lower the vacuum and bring the condensation that is effected by the parallel currents back to condensation by counter-currents.
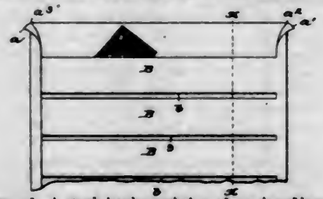


3. In a counter-current condenser arranged as described to work at intervals as a parallel-current condenser, a pipe *a b* connecting the steam-pipe and the air-suction pipe and a cock to open and close said pipe.

4. In a counter-current condenser arranged as described to work at intervals as a parallel-current condenser, a pipe *a b* connecting the steam-pipe and the air-suction pipe, a cock as *c* whereby said pipe is opened and closed and means as described whereby said cock is opened when the condenser temporarily works as a parallel-current condenser and closed when it resumes normal operation.

577,997. WITHDRAWN.

577,998. STOCK-BOOK. PHILIP M. WOLSIEFFER, Chicago, Ill. Filed Nov. 28, 1896. Serial No. 613,788. (No model.)

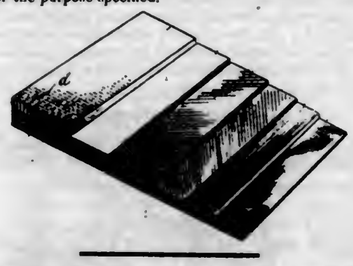


Claim.—1. A stock-book consisting of a series of leaves each leaf being made of a single sheet of paper comprising a body portion, A, and a series of strips, B, which are provided with adhesive lower edges, and which are folded and gummed flatly upon the body portion, forming a series of pockets, the leaves being bound so that their pocket-bearing sides fall upon the left side when the book is opened, substantially as shown and described.

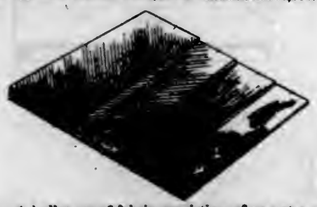
2. A stock-book, consisting of a series of pocket-bearing leaves, bound so that the pockets fall upon the left side when the book is opened, the leaf consisting of a single sheet of paper cut to form a body portion, A, and a series of horizontal strips, B, the latter being provided with adhesive lower edges folded and flatly gummed upon the body portion, and forming a series of pockets which are supported at the binding edge by the protecting-strip *a'* and by the fold *a*, at the outer edge, substantially as shown and described.

577,999. BULLET-PROOF FABRIC. CASIMIR ZEGLEN, Chicago, Ill. Original application filed Apr. 24, 1896, Serial No. 588,874. Divided and this application filed June 8, 1896. Serial No. 594,657. (No specimens.)

ioning of felt, the whole being suitably secured together, substantially as and for the purpose specified.

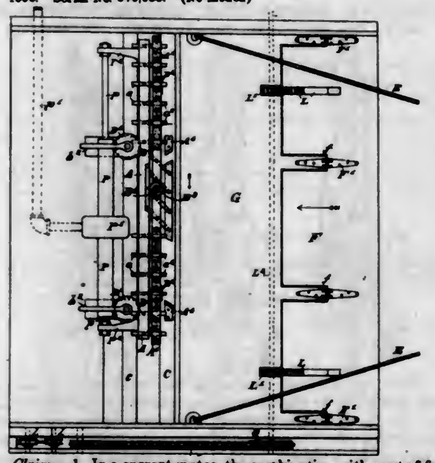


578,000. BULLET-PROOF FABRIC. CASIMIR ZEGLEN, Chicago, Ill. Original application filed Apr. 24, 1896, Serial No. 588,874. Divided and this application filed June 8, 1896. Serial No. 594,657. (No specimens.)



Claim.—A bullet-proof fabric consisting of an outer covering of canvas, a layer of unwoven hair or wool, and a plurality of inner layers, each composed of strong strands or cords laid side by side compactly together, the cords of the different layers being arranged at an angle to each other, the whole fabric being compactly bound together by stitching, substantially as described.

578,001. CURRENT-MOTOR. CHARLES A. BARRON, Seattle, Wash., assignor to the Current Motor Company, same place. Filed Jan. 27, 1896. Serial No. 576,933. (No model.)



Claim.—1. In a current-motor, the combination with a set of fins placed at an angle with the current and constrained to a reciprocating motion across the current of means deriving their power from the current, for reversing the angle of the fins at the end of each reciprocation, substantially as shown and described.

2. In a current-motor the combination with a set of fins placed at an angle with the current and constrained to a reciprocating motion across the current and means for maintaining their relative positions, of means for reversing the angle of the fins independent of the particular fins being reversed, substantially as shown and described.

3. In a current-motor the combination with a frame constrained to reciprocate across the current and a set of fins therein adapted to be held at an angle to the current, of means independent of the fins being reversed, for reversing the angle of said fins at the end of each reciprocation of the frame, substantially as shown and described.

4. In a current-motor, the combination with a power-frame, fins pivoted at their ends in said frame, and guiding mechanism which will permit said frame and vanes to reciprocate across the current, of connections between said fins whereby they are held at the same angle with the current, and means independent of the fins being reversed for reversing said fins at the end of each reciprocation of the power-frame, substantially as shown and described.

5. In a current-motor, the combination with a power-frame, fins pivoted therein and held at an angle with the current, and guiding mechanism which will permit the frame to reciprocate across the current, of means for reversing the angle of the fins at the end of each reciprocation, a power-transmitting mechanism and direct connections from the reciprocating frame to the said power-transmitting mechanism substantially as shown and described.

6. In a current-motor the combination with a power-frame, fins pivoted therein and held at an angle with the current, guiding mechanism which will permit the power-frame to reciprocate across the current, of a pump and direct connections from the power-frame to the pump, and means for automatically reversing the angle of the fins at the end of each reciprocation, substantially as shown and described.

7. In a current-motor, the combination with a power-frame, fins pivoted therein and held at an angle with the current, and thrust-rollers placed under and at the back of the frame upon which it reciprocates, of automatic means for reversing the angle of the fins at the end of each reciprocating motion, substantially as shown and described.

8. In a current-motor the combination with a main power-frame, fins pivoted therein and held at an angle with the current, and guides upon which said frame may reciprocate, of a reversing-frame, supporting and guiding devices for the same permitting a slight reciprocation on the main power-frame, fins pivoted in said reversing-frame and held at an angle with the current, connections from the reversing-frame to the fins on the main frame for reversing said fins, and means for reversing the angle of the fins in the reversing-frame at the end of each stroke, substantially as shown and described.

9. In a current-motor the combination with a main power-frame, fins pivoted therein and held at an angle with the current, and guide-rollers upon which said main power-frame can reciprocate, of a reversing-frame supported upon the main power-frame and capable of a limited reciprocation thereon, fins pivoted therein and held at an angle with the current, connections from the reversing-frame to the fins of the main power-frame, and means for reversing the angle of the fins in the reversing-frame at the end of each stroke, substantially as shown and described.

10. In a current-motor the combination with a main power-frame, fins pivoted therein and held at an angle with the current, and guide-rollers upon which said main power-frame can reciprocate, of a reversing-frame supported upon the main power-frame and capable of limited reciprocation thereon, fins pivoted therein and held at an angle with the current, connections from the reversing-frame to the fins of the main power-frame, a bar connecting the fins of the reversing-frame, and fixed tappets at each end of the stroke to engage said connecting-bar and reverse the fins of the reversing-frame, substantially as shown and described.

11. In a current-motor, the combination with power-frames having a reciprocating motion across the current, and a common connection for said frames, of pivoted fins in said frames having a limited angular motion upon their pivots each side of the center, and means independent of the fins being reversed for reversing the angle of the fins at the extremity of their stroke, substantially as shown and described.

12. In a current-motor the combination with frames constrained to reciprocate across the current and fins or paddles pivoted therein and adapted to be held at an angle with the current, of means whereby one portion of the fins or paddles are reversed by the remainder and those first reversed are enabled to reverse the other portion, substantially as shown and described.

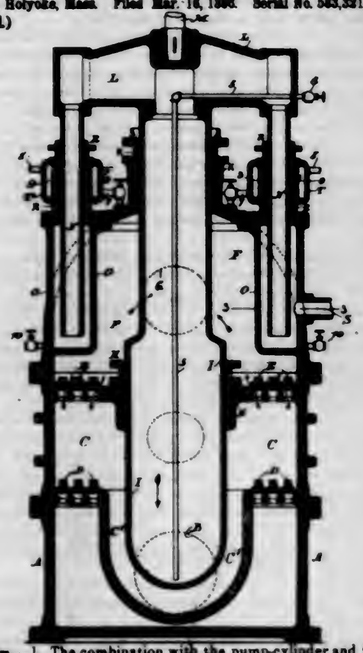
13. The combination with a current-motor adapted to be operated submerged, of an anchorage consisting of a frame having an apron sloping upward and backward from the upstream edge, a pivoted section thereof adapted to be turned so as to have an opposite slope, means to change its position at will and means for holding it from moving downstream, substantially as shown and described.

14. The combination with a current-motor adapted to be operated submerged of an anchorage consisting of a frame having an apron sloping upward and backward from the upstream edge, a pivoted section thereof adapted to be turned so as to have an opposite slope, a rack and segment, one upon the fixed and the other upon the pivoted section, means for turning said pinion from a distance, and means for holding the anchorage from moving downstream, substantially as shown and described.

15. The combination with a current-motor adapted to be operated submerged, of an anchorage consisting of a frame having an apron sloping upward and backward from the upstream edge, a pivoted section thereof adapted to be turned so as to have an opposite slope, a rack and segment, one upon the fixed and the other upon the

pivoted section, a sprocket-wheel attached to said pinion, an idler sprocket-wheel, a chain passing over both, cords fastened to opposite sides of said chain whereby the sprocket-wheels and the pinion may be rotated in opposite directions, guide-wheels for said cords and means for preventing the anchorage from moving downstream, substantially as shown and described.

578,002. **BALANCING APPARATUS FOR PUMPS.** REUA H. CLARK, Northampton, Mass., assignor to the Deane Steam Pump Company, Holyoke, Mass. Filed Mar. 16, 1896. Serial No. 583,321. (No model.)



Claim.—1. The combination with the pump-cylinder and the induction and eduction valves, of a discharge-chamber and discharge-pipe, a hollow plunger, a hollow cross-head connected to the plunger and tubular balancing-plungers, and cylinders within which such plungers act, and a pipe for supplying a fluid under pressure to act against the balancing-plungers, substantially as set forth.

2. The combination with the pump-cylinder and the induction and eduction valves, of a discharge-chamber and discharge-pipe, a hollow plunger, a balancing plunger or plungers and cylinders in which such balancing-plungers act, and a hollow connection to the hollow plunger and a pipe for supplying a fluid under pressure to act against the balancing-plungers, substantially as set forth.

3. The combination in a balancing-pump, of a hollow differential plunger, larger at its lower portion than at its upper portion, the pump-cylinder and valves, a discharge-chamber for receiving the liquid from the pump, and balancing-plungers secured by means of hollow connections to said differential plunger, substantially as set forth.

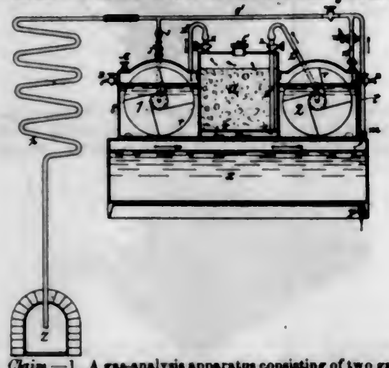
4. The combination with a vertical pump-cylinder, having induction and eduction valves, of a discharge-chamber and discharge-pipe, a hollow pump plunger or plungers, forming a reciprocating fluid-reservoir, the balancing-plungers and their hollow connections to the pump-plunger, and means for maintaining in this reservoir a fluid-pressure to act against the balancing-plungers, substantially as set forth.

5. The combination in a balancing-pump, of a hollow plunger, and pump-cylinder, induction and eduction valves, balancing-plungers and hollow connections between the hollow plunger and the balancing plunger or plungers, cylinders in which such balancing-plungers act, and water-jacketed stuffing-boxes around the balancing-plungers, and means for causing water or other liquid to circulate through the same for cooling such plungers and glands, substantially as set forth.

6. The combination in a balancing-pump, of a hollow plunger and pump-cylinder, induction and eduction valves, balancing-plungers and hollow connections between the plungers and the balancing-plungers, cylinders in which such balancing-plungers act and blow-off cocks at the lower ends of the cylinders of the balancing-plungers, substantially as set forth.

7. The combination in a balancing-pump, of a hollow plunger forming a storage-chamber for fluid under pressure, a pump-cylinder, induction and eduction valves, a discharge-chamber and discharge-pipe, tubular balancing-plungers and cylinders in which such plungers act and hollow connections uniting the hollow plunger and the balancing-plungers, a pipe for supplying a fluid under pressure into the hollow plungers and the cylinders of the balancing-plungers, and a discharge-pipe extending down within the hollow plunger and a blow-off valve for the same, substantially as set forth.

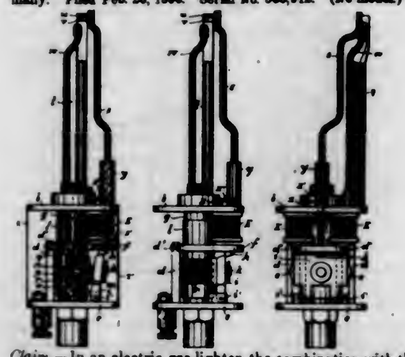
578,003. **CHEMICAL APPARATUS.** GEORGE CRAIG, Glasgow, Scotland. Filed Oct. 15, 1896. Serial No. 608,035. (No model.)



Claim.—1. A gas-analysis apparatus consisting of two gas-meters 1 and 2, an intermediate absorbing vessel *u*, meter inlet-pipes J' and L'; pipes K' and O' and *n'*; stop-cocks J, K, L, O, and *n*; and aspirator *x* all arranged, combined and operating substantially as hereinbefore set forth and shown.

2. A gas-analysis apparatus comprising two gas-meters, an intermediate vessel containing material which shall absorb the constituent desired to be estimated, and an aspirator or suction-pump, all combined and operating substantially as hereinbefore set forth.

578,004. **IGNITING DEVICE.** ALFRED CHARNICKOW, Berlin, Germany. Filed Feb. 26, 1896. Serial No. 580,912. (No model.)



Claim.—In an electric gas-lighter, the combination with the gas-supply pipe *g*, of the elastic sleeve *l* surrounding it, the valve-chamber *p*, the valve *m* which is pressed into opened position by a spring *r*, an electromagnet *e* for shutting off the supply of gas, the armature *i* for said magnet *e*, which armature *i* acts on the valve *m*, the electromagnet E for opening the supply of gas and igniting the gas, an armature *f* for said magnet E, the lug *h* on the armature *f* for engaging and holding the armature *i* in closed position, whereby the armature *f* when attracted by its magnet E, releases the armature *i* and permits the spring *r* to open the valve *m*, substantially as herein shown and described.

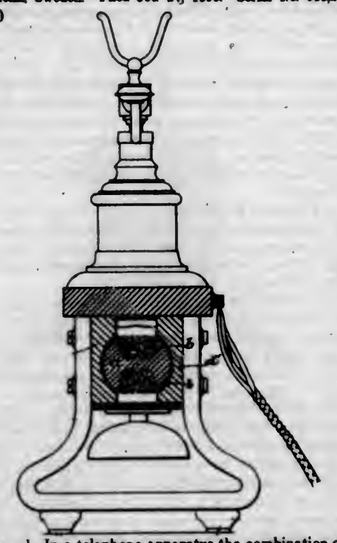
578,005. **KNITTING-MACHINE.** JAMES I. BOX, Reading, Pa. Filed Jan. 16, 1896. Serial No. 575,733. (No model.)

Claim.—1. A needle-throwing-down cam for a knitting-machine, having a hook end, terminating in a right-angled offset or stop, extending therefrom in a direction approximately parallel to the edge of the body of said cam, thereby providing a definite space for the needle-heels extending from said offset to said edge of the body, whereby the needle-heels are positively retained upon the cams until they should be released by the movement of the latter, substantially as described.

2. In a knitting-machine, the combination with the cam-cylinder, of a pivoted arm, and a pivoted throwing-down cam carried by said arm and having an independent movement thereon in one direction, said cam having a hook end, terminating in a right-angled offset extending therefrom in a direction approximately parallel with the edge of the cam, substantially as described and for the purpose specified.



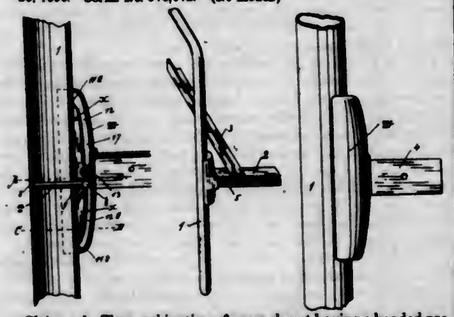
578,006. **TABLE-TELEPHONE APPARATUS.** LARS M. ERICSSON, Stockholm, Sweden. Filed Oct. 27, 1896. Serial No. 610,214. (No model.)



Claim.—1. In a telephone apparatus the combination of the rotary core, the pole-pieces and the horseshoe magnets attached thereto at each end, said magnets extending downwardly from the core and having broadened and spreading base portions to serve as supporting-feet, substantially as described.

2. In a telephone apparatus the combination of the rotary core, the pole-pieces and the magnets of horseshoe shape extending downwardly from opposite ends of the pole-pieces to form the supporting-feet, substantially as described.

578,007. **BEDSTEAD.** OSCAR S. FOSTER, Utica, N. Y., assignor to the Foster Brothers Manufacturing Company, same place. Filed Jan. 20, 1896. Serial No. 576,072. (No model.)



Claim.—1. The combination of a round post having a headed projection and a bed-frame or rail fixture having a grooved face to receive the post a groove to receive the headed projection and having inclined grooves in its oppositely-disposed parts adapted to receive the head of the projection, substantially as set forth.

2. The combination of a round post having a headed projection and a bed-frame or rail fixture having a grooved face adapted to receive the post and oppositely-disposed inclined wedge-shoulders adapted to simultaneously engage the head of the projection, said shoulders terminating at one end in the grooved face, substantially as set forth.

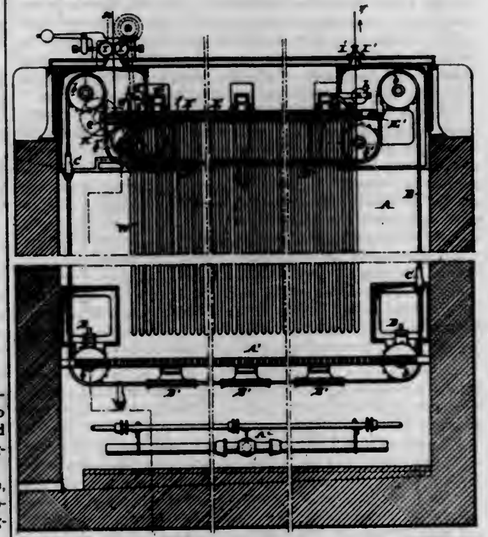
3. The combination of a bedpost having a headed projection and a reversible side-rail or frame fixture, having two sets of oppositely-disposed wedging parts, adapted to wedge between the post and the head of the post projection, substantially as set forth.

4. The combination of a bedpost having a headed projection, a rail or frame fixture having wedging portions *x*, *x* and portions abutting on the post above and below said wedging portions.

5. The combination with a bedpost having a headed projection, of a rail or frame fixture having a grooved face adapted to receive the side of the post and a groove to receive the headed projection and two sets of wedging projections *x x* and *x' x'*, substantially as set forth.

6. The combination with a bedpost of a post-fixture *n* having a cross-head 6 and a lower projection 9 in combination with a frame-fixture, adapted to engage thereon, substantially as set forth.

578,008. **APPARATUS FOR STEAMING FABRICS.** CHARLES J. GADD, Philadelphia, Pa., assignor to the H. W. Butterworth & Sons Company, of Pennsylvania. Filed Nov. 26, 1896. Serial No. 613,264. (No model.)



Claim.—1. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames guided in suitable guides, rotary shafts, and power-transmitting connections between the said shafts and the reciprocating pusher-frames for operating the pushers.

2. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames guided in suitable guides, rotary shafts, and power-transmitting connections between the said shafts and the reciprocating pusher-frames for operating the pushers with a quick forward motion and a slow return motion.

3. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames provided with two racks and guided in suitable guides, rotary shafts, and segmental gears of

different diameters respectively meshing with the two racks of each pusher-frame for moving the said frames forward with a greater speed than that imparted on the backward movement.

4. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames provided with two racks guided in suitable guides, rotary shafts, and segmental gears of different diameters respectively meshing with the two racks of each pusher-frame for moving the said frames forward with a greater speed than that imparted on the backward movement and so formed in the arc of the circle which they include as to produce a period of rest of the pusher-frame upon its extreme backward movement.

5. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames guided in suitable guides, rotary shafts, power-transmitting connections between the said shafts and the reciprocating pusher-frames for operating the pushers, a series of pivoted friction-creating fingers for holding the fabric upon the rods when pushed forward by the pushers, and weights for adjusting the tension of said friction-creating fingers upon the fabric.

6. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames guided in suitable guides, rotary shafts, power-transmitting connections between the said shafts and the reciprocating pusher-frame for operating the pushers, a series of pivoted friction-creating fingers for holding the fabric upon the rods when pushed forward by the pushers, weights for adjusting the tension of said friction-creating fingers upon the fabric, and means for limiting the downward movement of the friction-creating fingers.

7. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames guided in suitable guides, rotary shafts, power-transmitting connections between the said shafts and the reciprocating pusher-frames for operating the pushers, a series of pivoted friction-creating fingers for holding the fabric upon the rods when pushed forward by the pushers, weights for adjusting the tension of said friction-creating fingers upon the fabric, and adjusting devices for adjusting the extent of downward movement of the friction-creating devices without limiting the upward movement thereof.

8. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped attached to the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames guided in suitable guides, rotary shafts, power-transmitting connections between the said shafts and the reciprocating pusher-frames for operating the pushers, inclined discharging-guides at the rear of the longitudinal guides and from which the conveyers are adapted to remove the liberated rods, and friction-creating devices acting upon the transverse rods near the discharging end of the guides to offer a resistance to their premature liberation from the longitudinal guides.

9. In a machine for steaming, aging, or drying textile or other fabric, the combination of two longitudinal guides arranged at a distance apart and having their forward ends provided with horizontal guides unobstructed from above, transverse rods over which the fabric is looped supported by the said guides, suitable conveying devices adapted to deposit rods at intervals upon the horizontal guides, reciprocating pushers for simultaneously pushing both ends of the rod over the horizontal guides, pusher-frames guided in suitable guides, rotary shafts, power-transmitting connections between the said shafts and the reciprocating pusher-frames for operating the pushers, inclined discharging-guides at the rear of the longitudinal guides and from which the conveyers are adapted to remove the liberated rods, friction-creating devices acting upon the transverse rods near the discharging end of the longitudinal guides to offer a resistance to their premature liberation from the horizontal guides, and means to adjust the tension of said friction-creating devices.

10. In a machine for steaming, aging, or drying textile or other fabric, the combination of the longitudinal guides E having the horizontal guide extensions *e*, the reciprocating frames K having pushers *k* and provided with racks K′ and K², segmental gears M and N respectively adapted to said racks K′ and K², and power devices for rotating the said segmental gears.

11. In a machine for steaming, aging, or drying textile or other fabric, the combination of the longitudinal guides E having the horizontal guide extensions *e*, the reciprocating frame K having pushers *k* and provided with racks K′ and K², segmental gears M and N respectively adapted to said racks K′ and K², power devices for rotating the said segmental gears, and pawls *m* extending downward and in the path of the transverse rods being operated upon by the pushers *k*.

12. In a machine for steaming, aging, or drying textile or other fabric, the combination of the longitudinal guides E having the horizontal extensions *e*, reciprocating pushers *k* carried by frames each having a rack, a rotating segmental gear adapted to mesh with each of said racks to produce a forward motion of the pushers and their frames, and means to return the pushers and their frames when liberated by the gears.

13. In a machine for steaming, aging, or drying textile or other fabric, the combination of longitudinal guides for the transverse supporting-rods, reciprocating pushers for moving the rods over the guides, and rotating power devices for intermittently acting upon the pushers for causing their reciprocation.

14. In a machine for steaming, aging, or drying textile or other fabric, the longitudinal guides in combination with transverse rods for supporting the fabric, means for feeding the rods over the guides, and friction-creating devices for holding the rod and fabric consisting of fingers *g* carried in pivoted arms G and provided with adjusting devices *i* for adjusting the downward movement of the arm G.

15. In a machine for steaming, aging, or drying textile or other fabric, the longitudinal guides in combination with transverse rods for supporting the fabric, means for feeding the rods over the guides, friction-creating devices consisting of fingers *g* carried in pivoted arms G and provided with adjusting devices *i* for adjusting the downward movement of the arm G, and adjustable weights G′ for creating the necessary downward pressure of the fingers upon the fabric and rods to hold them in position when pushed forward.

16. In a machine for steaming, aging, or drying textile or other fabric, the combination of horizontal guides, transverse rods attached to said guides for supporting the fabric, means to move the rods over the guides, and friction-creating devices for holding the fabric upon the rods consisting of pivoted arms G having a weight G′ and the friction-creating finger *g* vertically adjustable in the arm G and means for adjusting the downward movement of the arm G.

17. In a machine for steaming, aging, or drying textile or other fabric, the combination of longitudinal guides, a series of transverse rods for supporting the fabric in loops sustained by said guides, power devices for moving said rods intermittently over the said guides, movable friction-creating devices acting upon the rearmost rod in the guides to hold the cloth upon the rod and hold the rod against accidental liberation, and cam devices controlled by the next adjacent rod to raise the friction-creating devices to liberate the fabric and rearmost rod so that it may be discharged.

18. In a machine for steaming, aging, or drying textile or other fabric, the combination of longitudinal guides, a series of transverse rods for supporting the fabric in loops sustained by said guides, power devices for moving said rods intermittently over the said guides, friction-creating devices consisting of a pivoted lever having a pressure-foot acting upon the rearmost rod in the guides to hold the cloth upon the rod and hold the rod against accidental liberation, and cam devices carried by the pivoted lever and displaced laterally so as to be acted upon and be controlled by the part of the next adjacent rod not covered by the fabric to raise the friction-creating devices to liberate the fabric and rearmost rod so that it may be discharged.

19. In a machine for steaming, aging, or drying textile or other fabric, the combination of longitudinal guides, a series of transverse rods for supporting the fabric in loops sustained by said guides, power devices for moving said rods intermittently over the said guides, movable friction-creating devices acting upon the rearmost rod in the guides to hold the cloth upon the rod and hold the rod against accidental liberation, cam devices controlled by the next adjacent rod to raise the friction-creating devices to liberate the fabric and rearmost rod so that it may be discharged, oblique discharge-guides at the discharge end of the longitudinal guides to receive the liberated rods, and conveyer devices for removing the liberated rods and returning them to the opposite end of the longitudinal guides.

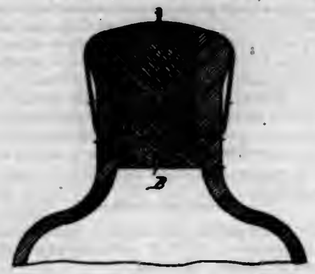
578,009. BILLIARD-CUSHION. STEPHEN DE GAETANO, Brooklyn, N. Y. Filed June 23, 1896. Serial No. 596,572. (No model.)



Claim.—1. In a billiard or pool table, the combination, with the elastic cushion, of an elastic strip curved in cross-section and embedded in and beneath the upper surface of said cushion, between the upper outer and inner edges thereof.

2. In a billiard or pool table, the combination, with its elastic cushion, of a strip of hair-cloth curved in cross-section and embedded in and beneath the upper surface of said cushion, between the upper outer and inner edges thereof.

578,010. PROTECTIVE BOTTLE, &c. ALICE M. GILLAM, Flushing, N. Y. Filed Oct. 27, 1896. Serial No. 610,189. (No model.)

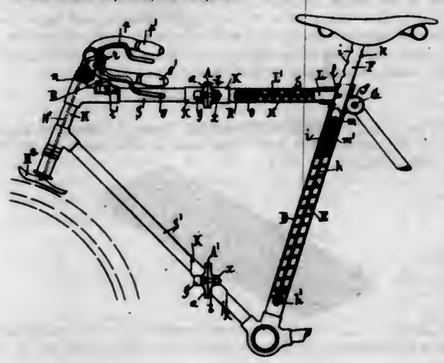


Claim.—1. In a protective bottle, the combination with the bottle-neck and a cork or stopper therefor, of two wires each having an enlarged head of a color conspicuously distinguishable from the color of both wire and bottle-neck adapted to be embedded in the neck, said wires adapted to be drawn over and down upon the stopper and to be inseparably united to each other, substantially as and for the purposes described.

2. In a protective bottle, the combination with the bottle-neck and a cork or stopper therefor, of two wires each of which is provided with an enlarged colored glass head, said heads adapted to be embedded in and securely united to the bottle-neck, and said wires adapted to be drawn over and down upon the stopper and to be inseparably united to each other by welding, substantially as and for the purposes described.

3. In a protective bottle, the combination with the bottle-neck, a cork or stopper therefor and a metallic cap for said stopper, of two wires each of which is provided with an enlarged colored glass bead adapted to be embedded in and securely united to the bottle-neck, and said wires adapted to be drawn over and down upon the stopper and to be inseparably united to each other and to the metallic cap of the stopper by welding, substantially as and for the purposes described.

578,011. BICYCLE. PIERRE L. GIRARDET, Fils, Paris, France. Filed Feb. 20, 1896. Serial No. 580,100. (No model.) Patented in France Nov. 29, 1895, No. 243,223.



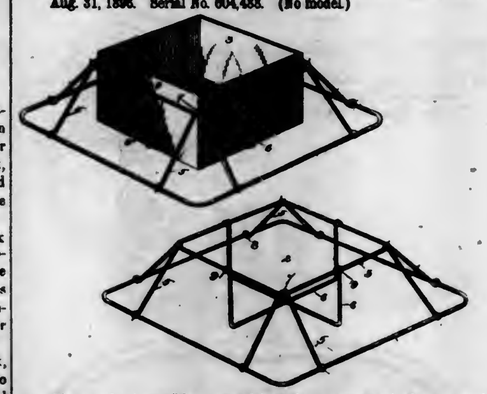
Claim.—1. A bicycle having its upper horizontal and lower diagonal frame-tubes divided in the same vertical plane, and jointed or hinged together as described, abutting flanges on the tube-sections, swiveled locking-bolts carried by the flanges of one section of the tubes, and adapted to pass through recesses in the opposing flanges and be turned at right angles to lock the sections together, as specified.

2. A bicycle having its upper horizontal and lower diagonal frame-tubes divided in the same vertical plane and jointed or hinged together as described, abutting flanges on the tube-sections, swiveled locking-bolts carried by the flanges of one section of the tubes, and adapted to pass through recesses in the opposing flanges and be turned at right angles to lock the sections together, and an adjusting and tightening nut carried by each of the said bolts for the purpose specified.

3. A bicycle having its upper horizontal and lower diagonal frame-tubes divided in the same vertical plane and jointed or hinged together as described, abutting flanges on the tube-sections, swiveled locking-bolts carried by the flanges of one section of the tubes, and adapted to pass through recesses in the opposing flanges and be turned at right angles to lock the sections together, and offsets on the flanges having the recesses with which offsets said bolts are adapted to engage as described.

4. A bicycle having its upper horizontal and lower diagonal frame-tubes divided in the same vertical plane and jointed or hinged together, as described, the reinforcing-sleeves, the flanges integral with said sleeves the interlocking tenons and sockets on and in the said flanges, swiveled locking-bolts carried by the flanges of one section of the tubes and adapted to pass through recesses in the other flanges and to be turned at right angles to lock the sections together.

578,012. CUSPIDOR. JOHN L. HARRIS, Webster, S. D. Filed Aug. 31, 1896. Serial No. 604,488. (No model.)



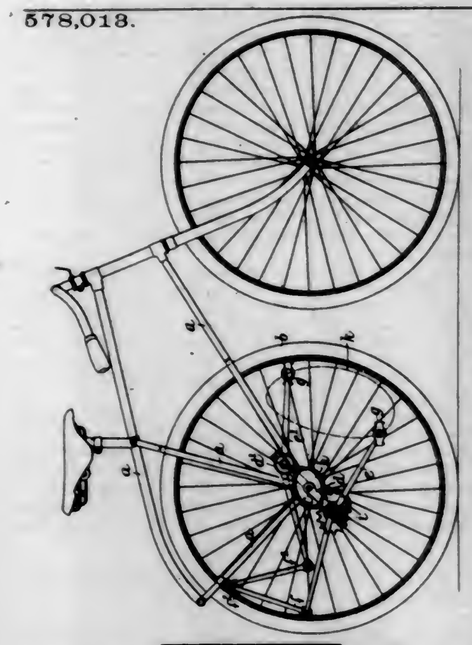
Claim.—1. A cuspidor comprising a base composed of upper and lower frames, the lower frame forming the bottom of the base and adapted to rest upon the floor, and the upper frame being of less diameter than the lower one, the inclined braces connecting the frames and forming a tapering base, and the rectangular hangers suspended from the upper frame, arranged at an angle to each other and forming a socket, and a removable receptacle arranged within the socket, substantially as described.

2. A cuspidor comprising a base composed of upper and lower rectangular frames, the upper frame being smaller than the lower one, the inverted-V-shaped braces arranged at an inclination, disposed at the corners of the frames and provided at their tops and bottoms with eyes receiving the frames, and the rectangular hangers arranged at right angles to each other and provided at their tops with eyes receiving the upper frame, whereby they are suspended therefrom, and a removable receptacle arranged within the upper frame and supported by said hangers, substantially as described.

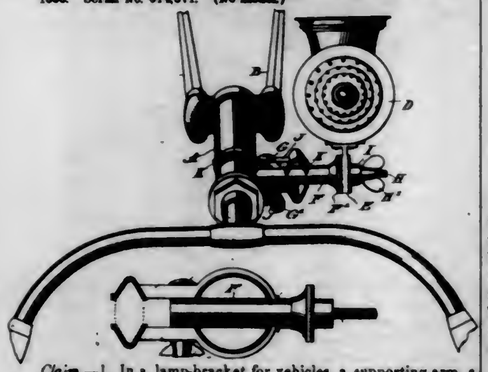
578,013. BICYCLE. JOHN HARRISON, Stamford, England. Filed Feb. 11, 1895. Serial No. 537,962. (No model.)

Claim.—In a velocipede having cranks actuated by pedal-bars mounted upon said cranks and severally connected at their ends to links depending from the frame, the combination with the pedal-bars and with a sun-wheel having its periphery eccentric to the axis of rotation, and located on a driving shaft or hub, of an elliptical planet-wheel fixed on one of said pedal-bars and having its axis at the center of the ellipse and gearing into said sun-wheel, the combination serving to insure an approximately elliptical pedal-path, all substantially as set forth.

578,013.



578,014. LAMP-BRACKET. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 8, 1896. Serial No. 614,871. (No model.)



Claim.—1. In a lamp-bracket for vehicles, a supporting-arm, a transverse bearing-shoulder near its outer end, a projection on the lamp for detachably securing the lamp on said arm, and a clamp operating in line with and on said arm, and clamping said projection against said shoulder.

2. In a lamp-bracket for vehicles, a supporting-arm, a transverse bearing-shoulder near its outer end, an adjustable clamp near its inner end, a projection on the lamp for detachably securing the lamp on said arm, and a clamp operating in line with and on said arm, and clamping said projection against said shoulder.

3. In a lantern-holder, an arm, a clamp near one end thereof, a transverse piece engaging said clamp, a lamp-supporting member adjustable on said arm, and a clamp for said member, one part of which clamp engages said transverse piece.

4. A lamp-bracket for cycles, comprising, a supporting-arm, a shoulder near its outer end, adjusting-clamps near its inner end, a bolt for operating said clamps, a shank, one end of which engages said bolt while the opposite end projects beyond said supporting-arm, and means for detachably securing the lamp to the outer end of said arm.

5. A lamp-bracket for cycles, comprising, a tubular supporting-arm, a shoulder near its outer end, adjusting-clamps near its inner end, a clamp-operating bolt, a shank within said arm engaging one end of said clamp-operating bolt the opposite end projecting through said supporting-arm, and means for detachably and adjustably securing said lamp to the outer end of said arm.

6. A lamp-bracket for cycles, comprising a tubular supporting-arm, an annular shoulder near its outer end, adjusting-clamps toward its inner end, a clamp-engaging bolt, a shank within said tubular arm one end of said shank engaging said clamp-operating bolt, the opposite end projecting through and beyond said supporting-arm, a connecting-piece carried by the body of the lamp and bearing against said shoulder when the parts are assembled, substantially as described.

7. A lamp-bracket for cycles comprising, a tubular supporting-arm, an annular shoulder near its outer end, reversible clamps pivotally mounted upon a bolt G near its inner end, the inner ends of said clamps bearing against said supporting-arm, a shank within said tubular supporting-arm, one end of which engages the bolt G, the opposite end being screw-threaded, a connecting-piece E substantially ring-shaped and carried by the body of the lamp B, and a set-nut H' operating upon said shank H.

8. In a lamp-bracket for bicycles and other vehicles, a lamp-supporting arm, provided at its inner end with reversible clamps, loosely mounted at a point intermediate in their length upon a bolt transversely placed with respect to said supporting-arm.

9. In a lamp-bracket for bicycles and other vehicles, a lamp-supporting arm provided at its inner end with reversible clamps, pivotally mounted at a point intermediate in their length, said clamps having on one side of said pivotal support substantially semicircular recesses adapted to receive a cylindrical frame-tube, and on the other side of said pivotal support with substantially V-shaped recesses adapted to engage a flattened frame-tube such as a bicycle-fork.

10. In a lamp-bracket for bicycles and other vehicles, reversible clamps pivotally mounted at a point intermediate in their length, one end of each of said clamps being bent into substantially semicircular form to engage with a cylindrical frame-tube, the opposite ends being provided with substantially V-shaped recesses to engage a flattened frame-tube, and recesses K K in the ends of said clamps, substantially as described.

578,015. NON-REFILLABLE BOTTLE. HENRY JUCKETT, Snow Hill, Md., assignor of one-half to D. H. Lewis, same place. Filed Oct. 12, 1896. Serial No. 608,627. (No model.)



Claim.—1. The combination of a bottle having its neck open at its top and provided at one side with an outlet located below the upper edges of the neck, a stopper secured within the neck of the bottle, provided with a solid imperforate top to close the said neck and having a series of transverse passages or openings and connecting-recesses forming a tortuous passage, the upper terminus of the latter being arranged opposite the said outlet, and a valve mechanism arranged within the neck of the bottle and located below the stopper, substantially as described.

2. The combination of a bottle having its neck open at the top and provided at one side of the same with an auxiliary neck, forming an outlet and located below the upper edges of the neck of the bottle, the latter having the lower portion of its neck contracted to form a valve-seat, and a stopper secured within the upper portion of the neck of the bottle, having a solid imperforate top to close the same and provided with a series of horizontal passages, and upper and lower recesses connecting the same, whereby a tortuous passage is provided, said passage having its upper terminus located at the auxiliary neck, substantially as described.

578,016. COMMUTATOR-BRUSH. JESSE F. KISTER and FISHER C. ATHERTON, Buffalo, N. Y. Filed June 16, 1896. Serial No. 595,752. (No model.)



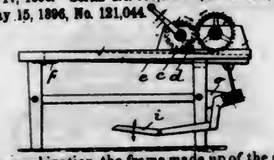
Claim.—1. A commutator-brush consisting of a corrugated core and a wire-gauze covering surrounding the core, substantially as set forth.

2. A commutator-brush consisting of a grooved core, a lubricant arranged in some of the grooves of the core while the remaining grooves remain unobstructed and form air-passages, and a body or covering surrounding the core, substantially as set forth.

3. A commutator-brush consisting of a transversely-corrugated core forming longitudinal grooves in its opposite sides, a lubricant arranged in the grooves in one side of the core and a body or covering surrounding the sides of the core, substantially as set forth.

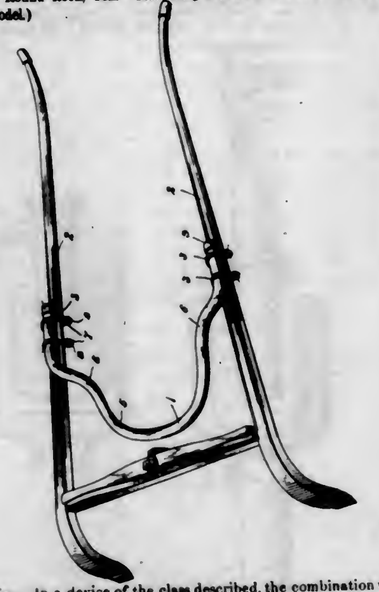
4. A commutator-brush consisting of a corrugated core and a wire-gauze body or covering wound around said core, substantially as set forth.

578,017. MANGLE. ROBERT LEISTIKOW, Bornstedt, Germany. Filed Sept. 17, 1896. Serial No. 606,080. (No model.) Patented in Belgium May 15, 1896, No. 121,044.



Claim.—In combination, the frame made up of the side rails with a cross-rail at one end, a single roller at the other end of the table, a table hinged to the cross-rail and extending thence beneath the roller at the opposite end of the table, the bar *d* rigidly attached to the side rails and extending over the table adjacent to the single roller and the foot-lever connected to the table for operating the same, substantially as described.

578,018. HOLDBACK FOR VEHICLE-THILLS. LIVINGSTON M. MAYS, Round Rock, Tex. Filed July 29, 1896. Serial No. 600,923. (No model.)



Claim.—In a device of the class described, the combination with a pair of thills, of a substantially U-shaped holdback having its terminals disposed longitudinally of and arranged on the upper faces of the thills, caps fitting over the ends of the holdback and forming exterior annular shoulders, the clips arranged in pairs at each end of the holdback and securing the same to the thills, and the blocks or wedges interposed between the holdback and the upper faces of the thills, arranged between the pairs of clips and held against forward movement by the shoulders formed by the clips, said blocks or wedges being adapted to raise the holdback to secure the proper adjustment, substantially as described.

578,019. KNOCKDOWN SHOW-CASE. FELIX E. MISTROT, Bryan, Tex. Filed Mar. 21, 1896. Serial No. 584,290. (No model.)

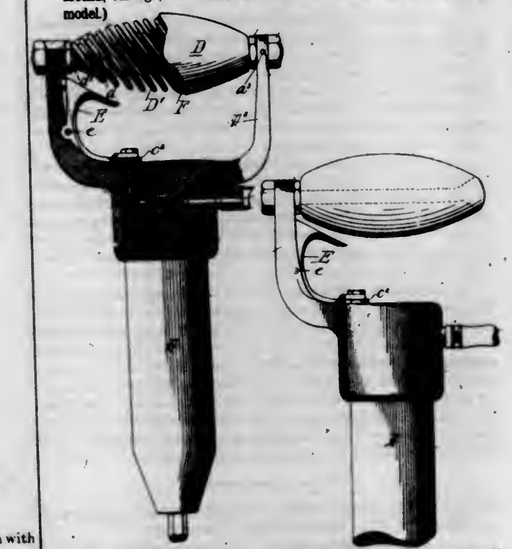
Claim.—1. A knockdown show-case comprising duplicate top and bottom rectangular frames provided at their corners with mortises, and in their directly-opposite surfaces with panel-receiving grooves intersecting said mortises, corner-posts provided at their ends with integral tenon projections, and with vertical grooves disposed in the same vertical plane with those of the top and bottom frames, metal socket-pieces fitting in said mortises and provided in their edges with notches registering with the grooves of the top and bottom frames, panels removably fitted at their edges in the grooves for receiving the same and also engaging in the notches of said metal socket-pieces, and a separate top finishing-frame detachably fastened on the main top frame, substantially as set forth.



2. A knockdown show-case, comprising a top frame, a bottom frame, uprights interposed between said frames and provided with end tenons removably inserted in corresponding mortises in the base and top frames, metal sockets inserted in the mortises of the base-frame and embracing the tenons of the uprights and also provided with lateral openings for suitable fasteners, and base-plates formed integrally with said sockets and underlying the base-frame, substantially as and for the purpose described.

3. A knockdown show-case, comprising a base-frame and a top frame both of which are formed with mortises, uprights interposed between said frames and having end tenons removably inserted in the mortises thereof, the said frames and uprights being grooved to receive glass panels, and a metal socket for each upright, the said socket being located within one of the aforesaid mortises and provided with notches for the reception of the edges of the glass panels, substantially as described.

578,020. HANDLE FOR PNEUMATIC TOOLS. WILLIAM M. MORSE, Chicago, Ill. Filed Nov. 25, 1895. Serial No. 570,048. (No model.)



Claim.—1. As a new article of manufacture, a grip for a handle consisting of a spring embedded in rubber or other suitable material, and a stud rigid with the grip and projecting from it for supporting or securing said grip.

2. A grip for a handle consisting of a helical coil of spring-wire wound into the form of an elongated oval, the individual turns of which coil are parallel and wound with a relatively long pitch, an enveloping mass of rubber within which said coil is embedded, and means for supporting the handle-grip comprising a stud upon the handle projecting within and fitting the interior of the end of the coil, substantially as set forth.

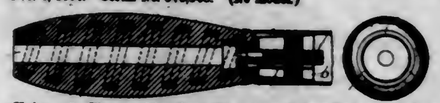
3. A grip for a handle-bar consisting of a helical coil of spring-wire wound into the form of an elongated oval, embedded in a solid mass of rubber or other elastic material and supported at its ends by a stud projecting within the coil a short distance only.

4. A handle consisting of a helical coil of spring-wire wound into the form of an elongated oval, the individual turns of which coils are

parallel and wound with a relatively long pitch, a mass of rubber filling and covering said coil, and means for supporting the handle-grip embracing yoke-arms, studs mounted upon said yoke-arms provided with flaring or conical head portions arranged to extend within the ends of said handle-grip a short distance only, whereby said handle-grip is left unsupported throughout its central portion and free to yield, substantially as described.

5. A grip for a handle consisting of a coil of spring-wire of helical form embedded in rubber or other suitable material, a stud rigid with the grip and projecting from it for supporting or securing said grip.

578,021. HAND-GRIP. WILLIAM M. MORSE, Chicago, Ill. Filed Feb. 8, 1896. Serial No. 578,566. (No model.)



Claim.—1. The combination with a bicycle handle-bar, of a handle, comprising an elongated open coil of spring-wire, rigidly attached to the end of the handle-bar and forming an elastic prolongation thereof, and a mass of yielding material enveloping the coil both exteriorly and interiorly of the same.

2. The combination with a bicycle handle-bar, a handle comprising a supporting-stud rigidly secured to the end of the handle-bar, an elongated open coil of spring-wire surrounding and rigidly attached to the stud so as to form an elastic prolongation of the handle-bar, and a mass of yielding material enveloping the coil both exteriorly and interiorly of the same.

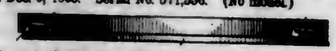
3. A device for absorbing vibration comprising a support provided with a tubular stud adapted to be expanded into outwardly-flaring form, rigidly secured to the vibratory part, a helical coil of spring-wire contracted at one end and engaged with the exterior of said tubular stud and a continuous cushioning covering inclosing said coil.

4. A device for absorbing vibration comprising a double-ended thimble one end of which forms a tubular stud adapted to be expanded into outwardly-flaring form and the other end of which forms an attaching device adapted to be expanded or contracted into rigid engagement with the vibratory part, a helical coil of spring-wire having the form of an elongated oval, within one end of which said tubular stud is expanded and a continuous cushioning covering inclosing said coil and supporting-stud.

5. A device for absorbing vibration comprising a double-ended thimble, each end of which is split longitudinally for a portion of its length, a coil of spring-wire one end of which is engaged with one of the thimble ends, a continuous elastic covering enveloping said coil and means for expanding both thimble ends, one within said coil and the other within any suitable socket on the vibratory part, substantially as described.

6. A device for absorbing vibration comprising a double-ended thimble, each end of which is split longitudinally for a portion of its length, a coil of spring-wire one end of which is engaged with one of the thimble ends, a continuous elastic covering enveloping said coil and means for simultaneously expanding both thimble ends, one within said coil and the other within any suitable socket on the vibratory part, comprising a conical or flaring end within one part of the thimble, a conical or flaring washer within the other part of the thimble and a screw-bolt or head which engages said washer and the stem of which engages said end, substantially as described.

578,022. FIFTH-WHEEL. CHRISTEN NIELSON, Brooklyn, N. Y. Filed Dec. 9, 1895. Serial No. 571,536. (No model.)

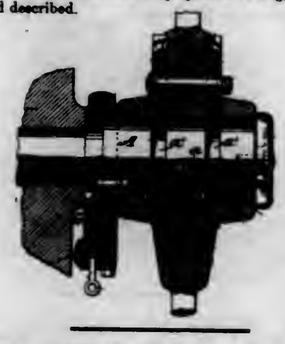


Claim.—In fifth-wheels the combination with straight cylindrical rollers of bearing-plates having concave bearing-surfaces.

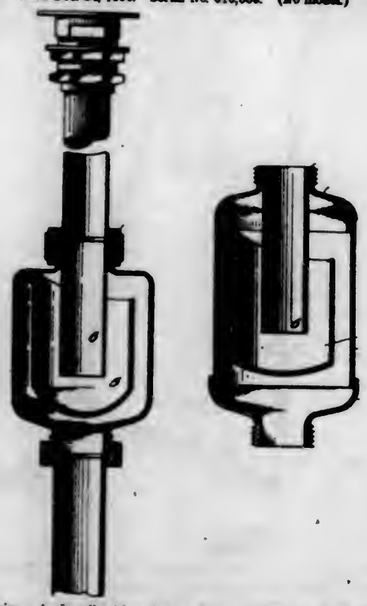
578,023. CLUTCH. HERMAN OSWALD, Brooklyn, and CELESTIN F. VIEILLARD, Woodhaven, N. Y. Filed Apr. 25, 1896. Serial No. 547,110. (No model.)

Claim.—1. The combination with a wheel and a shaft mounted to rotate thereon, said shaft having a circumferential groove in its surface and the hub of the wheel having a recess opening from its adjacent surface, of a dog mounted in said recess and projecting from the surface to move in the groove in said shaft, said dog having both ends alike and being reversible in said recess and a sliding part mounted in a longitudinal groove in the shaft and adapted to be moved to obstruct or to leave unobstructed the path of said projection from said wheel, substantially as shown and described.

2. The combination with two members of a mechanism to be connected or disconnected and adapted to rotate in contact, the one with the other, one of said members having a projection or dog and the other member having a notch or recess, of a sliding key carried in the adjacent surface of the second member and having a notch and adapted to be moved into the path of said projection or key, a cam or switch which is mounted on the stationary frame of the mechanism and with which the key is adapted to be brought into contact in its revolution, said cam or switch having a supplementary incline or cam-surface, and means to move said cam or switch into the path of said key and into the notch or recess in the second member, whereby the key is first moved to disconnect said members and then further by the supplementary incline to effect a clearance between the side of the notch of the key and said projection or dog, substantially as shown and described.



578,024. LIQUID-SEAL TRAP. CHARLES PERKIN, Philadelphia, Pa. Filed Dec. 24, 1896. Serial No. 616,889. (No model.)

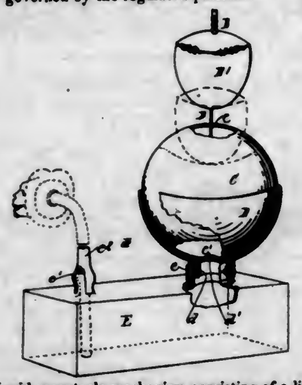


Claim.—1. In a liquid-seal trap, the combination of a main body, a seal-cup disposed therein having a point of attachment to the upper portion of said main body and tapering downwardly from both sides of said point of attachment to the opposite side of the seal-cup, and a seal-tube within the seal-cup.

2. The combination with the main trap-body having an inlet-opening for liquid and an outlet-opening at opposite ends, and in line with each other, a seal-cup concentrically located within the trap-body, and a seal-tube loosely seated within said inlet-opening, and projecting concentrically within the seal-cup, whereby the seal-tube may be readily removed from the seal-cup and main trap-body for cleaning or repairing the trap-body.

578,025. AUTOMATIC LIQUID-DISTRIBUTING MACHINE. JAMES J. RIDGE, and EVERETT B. LUNDY, Boston, Mass. Filed Nov. 13, 1895. Serial No. 568,851. (No model.)

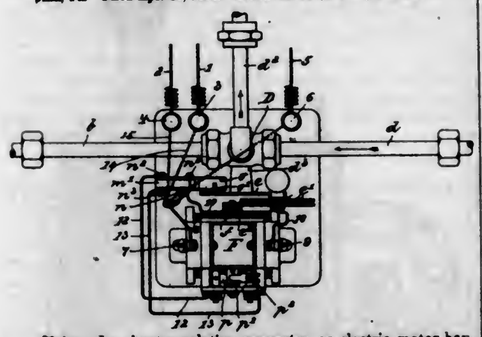
Claim.—1. A liquid-receptacle mechanism consisting of a liquid-containing tank, a discharge-pipe in communication with the tank and having one end immersed in the liquid and near the bottom of the receptacle, the collar and opening *e*, the ball-holding cup, having a hole in communication with the opening *e*, and secured to the tank, the elastic hollow ball C suitably fitted to or in cup, and having the holes *e* and *e'* therein, the whole to be operated by any suitable power mechanism, capable of producing a reciprocating movement which in its action produces compression of the elastic hollow ball so as to create a pressure of air whereby the liquid in the tank is ejected through the discharge-pipe in the form of a quick stream or squirt, in quantity governed by the regulated pressure.



2. A liquid-receptacle mechanism consisting of a liquid-containing tank, a discharge-pipe in communication with such tank and having one end immersed in the liquid and near the bottom of the tank, the collar and opening *e*, the ball-holding cup, such having a hole in communication with the tank-opening *e* and secured to the tank, the elastic hollow air-compressing ball suitably fitted to or in such cup, and the holes *e* and *e'* therein, in combination with weight B' and its connecting-rod B said weight and rod employed for the purpose set forth in specification.

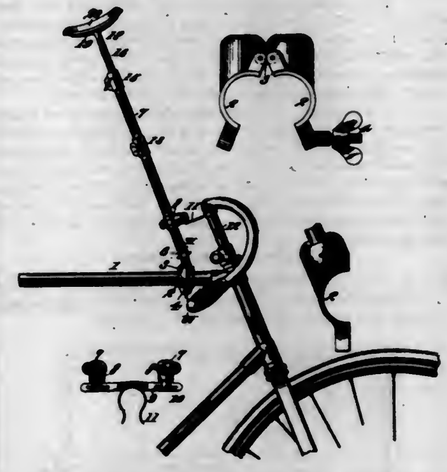
3. A liquid-receptacle mechanism consisting of tank E, a discharge-pipe e^4, collar and opening *e*, a ball-holding cup D, an elastic hollow air-compressing ball C with holes *e* and *e'*, as above described, in combination with the weight B' and its connecting-rod B designed to depress the air-compressing ball so as to create a pressure of air within the receptacle, whereby the liquid in the tank is ejected through the discharge-pipe in quantity governed by the regulated pressure, and the avoidance of waste of the liquid by dripping when the compression ceases, as described in specification.

578,026. HEAT-REGULATOR. WILLIAM J. ROBINSON, Philadelphia, Pa. Filed Apr. 16, 1896. Serial No. 587,798. (No model.)



Claim.—In a heat-regulating apparatus, an electric motor having a stationary field-magnet, a thermostat in circuit with said motor, a rotating armature for the motor, a shaft operated by said armature, a gear-wheel operated by said shaft, pins carried by said gear-wheel, a bracket, a double-armed switch pivoted in said bracket and adapted to be raised and lowered by said pins, the contacts n' and n^5, located on one side of said bracket and traversed by one arm of said switch, the contacts n and n^4, located upon the other side of the bracket and traversed by the other arm of said switch, the contact-pieces n^6 and n^3 to which the respective arms of the switch are pivoted, an electric connection between the contacts n^3 and n^4 and the respective brushes of the rotating armature, and electric connections between the other contact-strips and the themostat, all arranged so that in one position of the switch the circuit is completed in one direction through the armature and in the other position of the switch the circuit is reversed through said armature, substantially as described.

578,027. SHOULDER-REST FOR BICYCLES. GEORGE O. ROGERS, St. Louis, Mo., assignor of one-half to Stephen E. Greenwell, same place. Filed Sept. 9, 1895. Serial No. 561 921. (No model.)



Claim.—1. A shoulder-rest attachment for a bicycle-frame comprising a clamp adapted to be secured to the upper bar of the frame, the spreading tubes secured to the clamp, the springs located in the tubes, and the spreading carriers having rods adapted to slide in the tubes and supported on the springs, substantially as described.

2. In a shoulder-rest for attachment to bicycles, the combination of a clamp adapted to be secured to the frame of a bicycle, sockets in said clamp, upwardly-extending tubes, balls connected to the lower end of said tubes, and adapted to fit in said sockets, yielding shoulder-pieces located in the upper ends of the said tubes and suitable means for relatively adjusting the said tubes, substantially as and for the purpose set forth.

3. In a shoulder-rest for attachment to bicycles, the combination of a clamp, adapted to be secured to the frame of a bicycle, upwardly-extending tubes provided with a connection to said clamp whereby the tubes can be moved in any direction, and yielding shoulder-pieces located in the upper ends of said tubes, substantially as shown and described.

4. In a shoulder-rest for bicycles, the combination of a clamp adapted to be secured to the frame of a bicycle, upwardly-extending tubes provided with ball-and-socket connection to said clamp, shoulder-pieces carried on rods adapted to fit in the upper ends of said tubes, and springs located in the tubes arranged to control the movement of said shoulder-pieces, substantially as and for the purpose set forth.

5. In a shoulder-rest for bicycles, the combination of a clamp adapted to be secured to the frame of a bicycle, upwardly-extending tubes provided with loose connections to said clamp, a flexible connection between said tubes, and shoulder-pieces located at the upper ends of said tubes, substantially as and for the purpose set forth.

6. In a shoulder-rest for bicycles, the combination of a clamp adapted to be secured to the frame of the bicycle, upwardly-extending tubes provided with loose connections to said clamp, shoulder-pieces located at the upper ends of said tubes, a spring connecting said tubes, and a cross-bar arranged to limit the outward and inward movement of said tubes, substantially as and for the purpose set forth.

7. In a shoulder-rest for bicycles the combination of a clamp adapted to be secured to the frame of a bicycle, upwardly-extending arms, each provided with a ball-and-socket connection to said clamp, yielding shoulder-pieces located at the upper ends of said arms and suitable means for relatively adjusting the said tubes, substantially as shown and described.

8. In a shoulder-rest for bicycles, the combination of a clamp adapted to be secured to the frame of the bicycle, an upwardly-extending-arm provided with ball-and-socket connection to said clamp, a shoulder-piece at the upper end of said arm, and a spring arranged

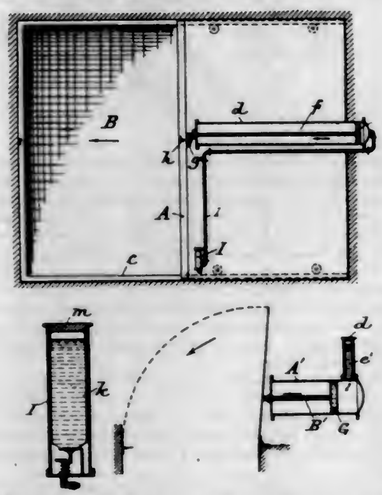
to control the movement of said shoulder-piece, substantially as and for the purposes set forth.

9. In a shoulder-rest for bicycles, the combination of a clamp adapted to be secured to the frame of a bicycle, upwardly-extending arms provided at their lower ends with ball-and-socket connection to said clamp, and members carrying the balls of said connection, said members having hinged connection with said arms, tubes arranged to telescope in the upper ends of said arms, and shoulder-pieces fitted to said tubes and springs arranged to control the movement of said shoulder-pieces, substantially as and for the purpose set forth.

10. In a shoulder-rest for bicycles, the combination of a clamp adapted to be secured to the frame of a bicycle, upwardly-extending arms provided with ball-and-socket connection to said clamp, and an adjustable cross-piece connecting said arms, and a spring adjustably secured to said arms, and shoulder-pieces located at the upper ends of said arms, substantially as and for the purpose set forth.

11. In a shoulder-rest for bicycles, the combination of a clamp adapted to be secured to the frame of a bicycle, upwardly-extending arms provided with ball-and-socket connection to said clamp, shoulder-pieces located in the upper ends of said arms, an adjustable cross-piece connecting said arms, and a spring-clamp on said cross-piece adapted to be thrown into engagement with the frame of the bicycle when the shoulder-rest is not in use; substantially as and for the purpose set forth.

578,028. APPARATUS FOR AUTOMATICALLY CLOSING BULKHEAD-DOORS. ALEXANDER VON DER ROPP, Berlin, Germany. Filed June 12, 1896. Serial No. 595,300. (No model.)



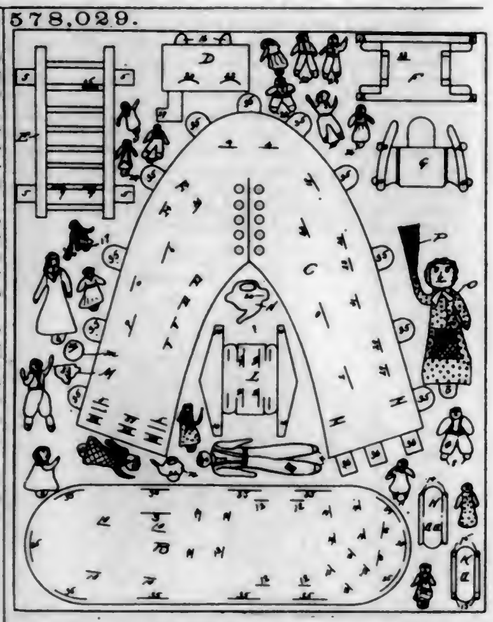
Claim.—1. In combination with the movable door, a piston connected therewith, a cylinder for the piston, a breakable vessel containing an expansible fluid, a chamber containing said vessel and communicating with the cylinder and means for breaking the said vessel and releasing the expansible fluid to operate the piston and the door, substantially as described.

2. In combination with the movable door, a cylinder, a piston therein for operating the door and a fragile receptacle containing a fluid adapted to expand when released therefrom, said receptacle being arranged to be broken to discharge its fluid into the cylinder, substantially as described.

578,029. TOY CARD. NORA M. RUSSELL, Hempstead, N. Y. Filed Apr. 22, 1896. Serial No. 588,608. (No model.)

Claim.—As a new article of manufacture and amusement a toy having a card, separate parts of a shoe formed thereon, a stove also formed thereon and being adapted to be cut out and folded, a ladder formed on said card, side extensions on said ladder, a figure thereon representing a bed, legs also formed on said card and being adapted to engage said shoe, extensions on said stove adapted to pass through slits in said shoe, a figure on said card representing a chair and being adapted when cut out to engage said shoe, chairs also formed and provided with extensions, cups and saucers formed on said card and being adapted to engage said table, other figures representing an old woman and children, all being provided with means for respectively engaging the one with another substantially as described and set forth.

578,029.

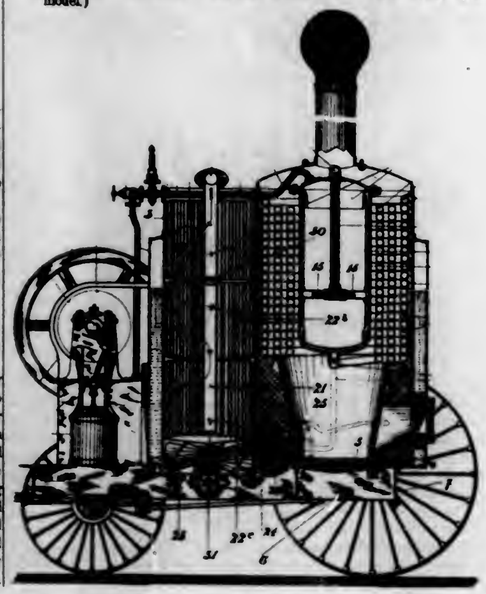


578,030. GUN-BARREL WITH BLUED OR BROWNED BORE. JOSEPH SIEGER, Los Angeles, Cal. Filed Mar. 22, 1893. Serial No. 467,179. (No model.)



Claim.—The new article of manufacture set forth comprising a gun-barrel having a blued or browned bore.

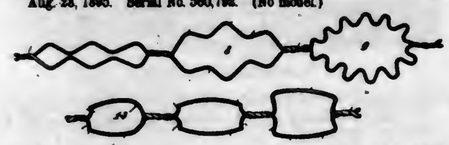
578,031. BOILER AND CONDENSER PLANT FOR HEATING FEED-WATER. FRANZ SKVARA, Warsaw, Russia, assignor to Ernst Buchholtz, same place. Filed Feb. 18, 1896. Serial No. 579,698. (No model.)



Claim.—1. In a steam-power plant, the combination with an engine and a steam-generator, having a narrow space between the two vessels 9 and 10, and means for delivering the steam to the engine, of a condenser, a water-jacket surrounding said generator and said condenser, and means for conducting the surplus exhaust into said water-jacket, and for feeding the generator out of said condenser and out of said jacket, substantially as set forth.

2. In a steam-power plant, the combination with an engine and a steam-generator, having a narrow space between the two vessels 9 and 10, and means for delivering the steam to the engine, of a condenser, a water-jacket surrounding said generator and said condenser, a feed-pump having its suction end connected with said condenser and also with the water-jacket, and a vapor-pipe leading the suplus exhaust into said water-jacket, substantially as set forth.

578,032. FENCE-WIRE. DATUS C. SMITH, Yonkers, N. Y. Filed Aug. 28, 1895. Serial No. 560,792. (No model.)



Claim.—1. A fence-wire consisting of a pair of strands or wires twisted together at intervals and spread apart between the twisted portions so as to form an alternating series of twists and elongated visible open loops; each member of the composite wire being bent outwardly at its junction with the twist at an angle thereto and extending thence substantially parallel with the twisted portions to its junction with the bend uniting the same with the next adjacent twist; whereby an alternating series of twists and transversely-extending elastic open loops are provided without interlacing or connecting with adjacent wires or loops and an elasticity is imparted to the fence which adapts it to automatically adjust itself to changes of temperature while securing the necessary tension on the wires, substantially as described.

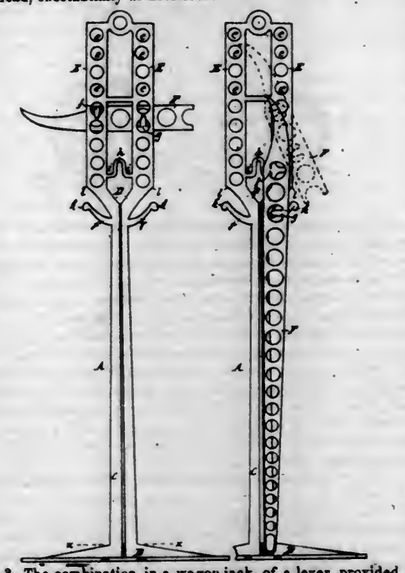
2. A longitudinally elastically extensible fence-wire adapted to extend horizontally and be secured to fence-posts suitably spaced apart, comprising a pair of strands closely twisted together at intervals throughout its length and provided with an elastic open loop or eye between each pair of twists, so as to form an alternating series of twisted and looped portions; said loops or eyes having their sides crimped or undulating and formed by bending the strands in opposite directions transversely of said twists, so as to extend on opposite sides thereof, whereby an elastic wire is secured having conspicuous loops along its length and which will automatically adjust itself to various changes of temperature and maintain at all times the necessary tension thereon, substantially as described.

3. A longitudinally elastically extensible fence-wire adapted to extend horizontally and be secured to fence-posts suitably spaced apart, comprising a pair of strands closely twisted together at intervals throughout its length and provided with an elongated elastic loop or eye between each pair of twists, so as to form an alternating series of twisted and looped portions; said loops or eyes having angular undulating sides and formed by bending the strands in opposite directions transversely of said twists, so as to extend on opposite sides thereof, whereby an elastic wire is secured having conspicuous elongated loops and which will automatically adjust itself to various changes of temperature and maintain at all times the necessary tension thereon, substantially as described.

578,033. WAGON-JACK. JOSEPH J. ADGATE, Liberty, N. Y. Filed Dec. 16, 1896. Serial No. 615,840. (No model.)

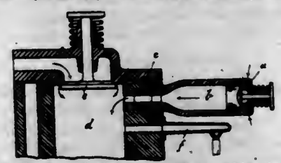
Claim.—1. The combination, in a wagon-jack, of a lever, provided with a fulcrum-hook and a locking-hook, relatively reversed near opposite edges of the same side thereof, an upright standard, a standard-head embodying two parallel bars each pierced by a series of lever-hook seats, each series of seats reversing its functions when the standard and lever are relatively reversed, the standard being provided on each side with separate slotted detaining-seats for the lever-hooks, wherein the lever when not in use may be locked, by its hooks, in a suspended vertical position, substantially as described.

2. The combination, in a wagon-jack, of an upright standard, provided near its top with branching arms, and supporting a standard-head, embodying two parallel bars, joined by an intermediate cross-brace, each bar being pierced by a series of lever-hook seats, and having vertical edges, the inner edges descending to a hook-seat at the end of said cross-brace, and the outer edge terminating above the end of one of the branching arms, a lever, provided with a fulcrum-hook and a locking-hook, relatively reversed, near opposite edges of the same side thereof, said hooks, when the lower edge of the lever is uppermost, being adapted to grasp the vertical edges of either of the standard-head bars, with a sliding grip, till the uppermost lever-hook descends to the upper-hook seat, and then to permit the lever to swing into a vertical position, and to be so held by the locking of the lower hook between the branching arm and the standard-head, substantially as described.



3. The combination, in a wagon-jack, of a lever, provided with a fulcrum-hook and a locking-hook, relatively reversed near opposite edges of the same side thereof, an upright standard, a standard-head embodying two parallel bars each pierced by a series of lever-hook seats, each series of seats reversing its functions when the standard and lever are relatively reversed, the standard being provided on each side with separate detaining-seats for the lever-hooks, wherein the same may be locked, by its hooks, in a suspended position, by swinging the lever from a horizontal into a vertical position, and from which it can only be unlocked by the reverse movement, substantially as described.

578,034. VAPORIZER FOR PETROLEUM-ENGINES. OSWALD BOMBORN, Magdeburg-Buckau, Germany. Filed May 23, 1896. Serial No. 592,733. (No model.) Patented in Germany May 21, 1896, No. 87,462.

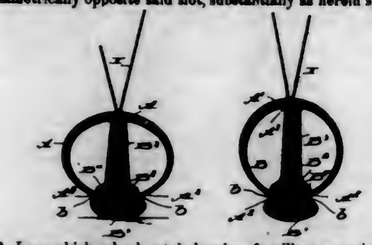


Claim.—1. In an explosive-engine, the combination of the working cylinder, a vaporizing-chamber and ignition-chamber, a passage from the cylinder to the vaporizing-chamber, a valve controlling said passage and means for so timing the operation of said valve that the same shall open momentarily immediately after the explosion, whereby the hot products of combustion may heat the vaporizer, substantially as and for the purposes described.

2. In an engine of the character described, the combination of a cylinder, a vaporizing-chamber in communication therewith, a heating-chamber surrounding said vaporizing-chamber and in communication with the cylinder, with a valve controlling the inlet from the vaporizing-chamber to the cylinder, a valve controlling the outlet from the cylinder to the heating-chamber, and means for timing the operation of both valves, whereby the valve from the vaporizing-chamber is opened after the explosion in the cylinder and the outlet-valve to the heating-chamber is opened after the evaporation of the charge in said cylinder, substantially as and for the purposes described.

578,035. VEHICLE-WHEEL. CHARLES E. BULKLEY, Summit, N. J. Filed Apr. 16, 1896. Serial No. 587,850. (No model.)

Claim.—1. In a vehicle-wheel, a tubular rim of resilient material, having a peripheral slot on the line of the tread, the free edges and side walls of the tube serving as springs to support the load, in combination with an annular shoe serving as a bearing-surface for the wheel, and having a flange B^3 bearing against the inner face of the rim diametrically opposite said slot, substantially as herein specified.



2. In a vehicle-wheel, a tubular rim of resilient material having a peripheral slot on the line of the tread, the free edges and side walls of the tube serving as springs to support the load, in combination with an annular shoe matching said slot and held therein to serve as a bearing-surface for the wheel, and having a supporting-flange extending across the rim and bearing against the inner face thereof diametrically opposite said slot, all substantially as herein specified.
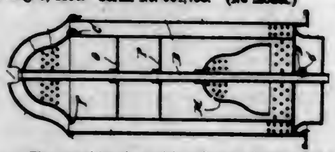
3. In a vehicle-wheel, a tubular rim of resilient material, reinforced interiorly along the line of attachment of the spokes to receive the latter and having a peripheral slot on the line of the tread, in combination with an annular shoe matching to and held in said slot to serve as a bearing-surface for the load and having a portion extending across the rim and bearing on said reinforce, substantially as herein specified.

4. In a vehicle-wheel, a tubular rim of resilient material, receiving the spokes in a thickened portion and gradually thinned therefrom toward a peripheral slot formed on the line of the tread, in combination with an annular shoe matching to and held in said slot to serve as a bearing-surface for the wheel and having a portion extending across the rim and bearing against said thickened portion, substantially as herein specified.

5. In a vehicle-wheel, the tubular rim crescent-shaped in cross-section, the thickened portion A′ receiving the spokes, and the thin lips A^3 having their adjacent ends rounded and the peripheral slot *a* between them, in combination with the annular shoe having the grooves *b* engaged by said lips, the neck being thickened to form the bearing-surface B^4 on the interior of the rim and the tread B′ on the exterior thereof and the flange B^3 within the rim, all substantially as herein specified.

6. In a vehicle-wheel, the tubular rim crescent-shaped in cross-section, the thickened portion A′ receiving the spokes, the additional strengthening-rib A^3 thereon, and the thin lips A^3 having the peripheral slot *a* between them, in combination with an annular shoe having grooves *b* engaged by said lips, the bearing-surface B^4 on the interior face of the rim, the tread B′ on the exterior thereof and the flange B^3 extending vertically across the interior of the rim and abutting against said rim, all substantially as herein specified.

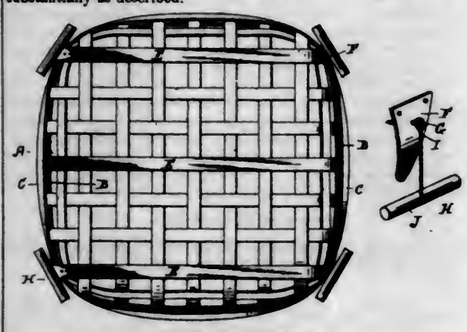
578,036. LAMP-BURNER. JAMES COLLINGE, Preston, England. Filed Aug. 5, 1896. Serial No. 601,753. (No model.)



Claim.—The combination with a lamp of the herein-described burner consisting of two vertical tubular casings, one adapted to be placed within the other, and each provided with openings or perforations in its lower side, a wick-tube passing through the base and upwardly through the inner casing, a burner-cone hinged to the top of each casing, and provided with flame-slots and means for retarding the flow of the air through the central tubular casing and for heating the same, consisting of perforated air-distributers, said base being provided with a wick-adjuster, and the cone within the inner tubular casing being perforated near the top thereof, substantially as shown and described.

578,037. BASKET. DANIEL J. GOOCH, Oxford, N. C. Filed Apr. 11, 1896. Serial No. 586,411. (No model.)

Claim.—A basket having the outer rim C and the braces E, the plates F secured to said outer rim and braces, and the handles composed of the shanks I and handpieces J, said handles having the inner ends of their shanks hinged to the plates, for the purpose set forth, substantially as described.



578,038. CUTTING ATTACHMENT FOR PLIERS. AUGUST H. HEITERMANN, Jersey City, N. J. Filed Aug. 19, 1896. Serial No. 603,214. (No model.)



Claim.—As a new article of manufacture, pliers provided with jaws, each having a transversely-extending notch or recess on the inner side thereof, a transversely-extending blade or plate countersunk in each of said jaws, an angular arm secured to each of said plates, screws holding the same in position and passing through said angular arms into the screw-threaded transverse bores formed in each of said jaws, a collar or washer secured to each of said screws and mounted thereon between their respective jaws and arms, the inner end of said plates or blades being beveled or sharpened, all of said parts being combined substantially as and for the purposes described.

578,039. MUCILAGE-BOTTLE. CHAUNCEY S. KELLOGG, McComb, Miss., assignor of one-half to Oliver Benton Quin, same place. Filed Jan. 4, 1896. Serial No. 574,349. (No model.)

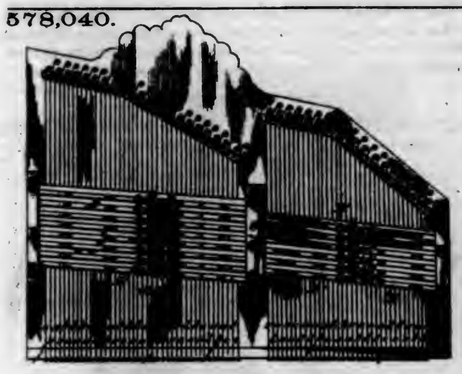


Claim.—The combination with a mucilage-bottle A, provided with a suitable support and having a cover provided with a depending annular flange adapted to inclose the neck of the bottle, said cover having formed in the central portion thereof an extension in which is formed a hole, of a wire F, provided with a spiral having a brush attached to one end thereof, the other end being provided with an integrally-formed handle, substantially as shown and described.

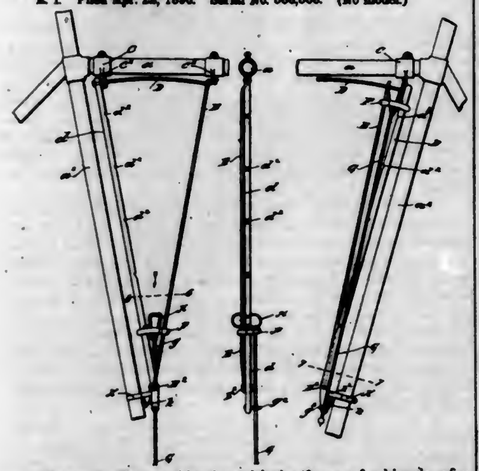
578,040. MUSICAL INSTRUMENT. WILLIAM P. KEITLER, Reading, Pa. Filed Jan. 11, 1896. Serial No. 575,133. (No model.)

Claim.—The combination with a musical instrument having a double keyboard and strings arranged thereon to represent the chromatic scale, of a central overhanging bracket located between said keyboards, and outer overhanging brackets secured to the outer edges of said keyboards, major and minor key bars alternately arranged over said strings and having projecting end portions fitting under said brackets, studs projecting from the under sides of said projecting end portions, a corresponding series of studs projecting from the sounding-board of said instrument beneath said brackets, and springs encircling both sets of studs and adapted to hold said key-bars in a normally-raised position, the inner ends of said key-bars fitting beneath said central bracket, and the outer ends thereof fitting beneath said outer brackets, substantially as set forth.

578,040.



578,041. BICYCLE-SUPPORT. CHARLES C. LA RIVIERE, Newport, R. I. Filed Apr. 22, 1896. Serial No. 588,568. (No model.)



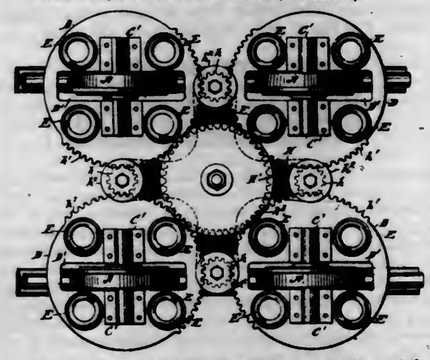
Claim.—1. The combination with the frame of a bicycle, of a support which is pivotally connected with the upper horizontal rod of the frame, said support consisting of a rod which is connected with said rod of the frame, and parallel therewith, to one end of which is secured a bar which extends parallel with one of the upright rods of the frame, and on the opposite end of which is mounted a rod which is free to slide thereon, the lower end of said rod being pivotally connected with said bar adjacent to the lower end thereof, and a link mounted on said bar, and said rod and free to slide thereon, and provided with an auxiliary rod which extends downwardly through a ring or loop connected with the lower end of said bar and means for holding the auxiliary rod in position, substantially as shown and described.

2. The combination with the frame of a bicycle, of a support which is pivotally connected with the upper horizontal rod of the frame, said support consisting of a rod which is connected with said rod of the frame, and parallel therewith, to one end of which is secured a bar which extends parallel with one of the upright rods of the frame, and on the opposite end of which is mounted a rod which is free to slide thereon, the lower end of said rod being pivotally connected with said bar adjacent to the lower end thereof, and a link mounted on said bar, and said rod and free to slide thereon, and provided with an auxiliary rod which extends downwardly through a ring or loop connected with the lower end of said bar, said bar being provided with notches or recesses, and means connected with said link and operating in connection with said notches or recesses to hold the same in a raised or lowered position, substantially as shown and described.

3. The combination with the frame of a bicycle, of a support which is pivotally connected with the upper horizontal rod of the frame, said support consisting of a rod which is connected with said rod of the frame, and parallel therewith, to one end of which is secured a bar which extends parallel with one of the upright rods of the frame, and on the opposite end of which is mounted a rod which is free to slide thereon, the lower end of said rod being pivotally connected with said bar adjacent to the lower end thereof, and a link mounted on said bar, and said rod and free to slide thereon, and provided with an auxiliary rod which extends downwardly through a ring or loop connected with the lower end of said bar, said bar being provided with notches or recesses, and means connected with said link and operating in connection with said notches or recesses, to hold the same in a raised or lowered position, consisting of a spring-lock which is detachably connected with said link and which is provided with a projection which operates in connection with said notches or recesses, substantially as shown and described.

4. The combination with the frame of a bicycle, of a support which is pivotally connected with the upper horizontal rod of the frame, said support consisting of a rod which is connected with said rod of the frame, and parallel therewith, to one end of which is secured a bar which extends parallel with one of the upright rods of the frame, and on the opposite end of which is mounted a rod which is free to slide thereon, the lower end of said rod being pivotally connected with said bar adjacent to the lower end thereof, and a link mounted on said bar, and said rod, and free to slide thereon, and provided with an auxiliary rod which extends downwardly through a ring or loop connected with the lower end of said bar, said bar being provided with notches or recesses and means connected with said link and operating in connection with said notches or recesses to hold the same in a raised or lowered position, consisting of a spring-lock which is detachably connected with said link and which is provided with a projection which operates in connection with said notches or recesses, and a spring-yoke connected with the lower end of the upright rod of the frame, which is adapted to hold the lower end of the support, when the bicycle is in use, substantially as shown and described.

578,042. CAR-TRUCK. CHARLES C. MOORE, New York, N. Y. Filed Nov. 21, 1896. Serial No. 612,935. (No model.)



Claim.—1. A railway-truck wherein each wheel thereof is formed with a short independent horizontal axle and provided with a central vertical axle, combined with a top plate in which said vertical axles are journaled and with a rotating plate for each wheel held below each of the said horizontal axles substantially as described.

2. A railway-truck wherein each wheel thereof is formed with a short independent horizontal axle and with a central vertical axle, combined with a top plate in which said vertical axles are journaled, a rotating plate for each wheel held below each of the said horizontal axles, and a supporting-plate provided with wheels for spacing the adjacent edges of the said rotating plates substantially as described.

3. A railway-truck wherein each wheel thereof is formed with a short independent horizontal axle and with a central vertical axle, combined with a top plate in which said vertical axles are journaled a rotating plate for each wheel held below each of the said horizontal axles, and a supporting-plate provided with pinions or cog-wheels for spacing the adjacent edges of the said rotating plates the latter being formed with rack-teeth substantially as described.

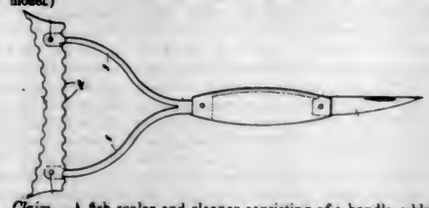
4. A railway-truck wherein each wheel is formed with a short independent horizontal axle and provided with a central vertical axle a top plate on which said vertical axles are journaled, a rotary plate for each wheel held below the said horizontal axles and a supporting-plate provided with wheels for spacing the adjacent edges of the said rotating plates and flanges above said spacing-wheels which overlap the upper surfaces of the said rotating plates substantially as described.

5. A railway-truck wherein each wheel is formed with a short horizontal axle and a central vertical axle and a main top plate in which said vertical axles are journaled in combination with rotating plates held below the said horizontal axles, and equalizing-plates above said horizontal axles and springs interposed between the said rotating and equalizing plates substantially as described.

6. A railway-truck wherein each wheel is provided with a short horizontal axle and a central vertical axle in combination with the top plate G in which said vertical axles are journaled, rotating plates D provided with journal-boxes for the said horizontal axles, equalizing-plates F and springs E, E' arranged substantially as and for the purposes described.

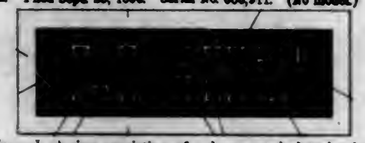
7. In a railway-truck the rotating plates D arranged in pairs transverse to the track and in which the wheels are journaled on short horizontal axles in combination with means substantially as set forth for binding said rotating plates together to prevent lateral spreading as and for the purposes specified.

578,043. **FISH SCALER AND CLEANER.** ALFRED H. PASCOE, Pass Christian, Miss. Filed Oct. 21, 1896. Serial No. 609,573. (No model.)



Claim.—A fish scaler and cleaner consisting of a handle, a blade in one end thereof, a shank secured to the opposite end of said handle, two arms fastened to said shank, a transverse blade mounted between said arms having a concave outer surface, and teeth formed on both edges of said blade, said parts being combined substantially as described.

578,044. **SHEET-METAL SIGN.** WILLIAM PATHIE, Worcester, Mass. Filed Sept. 25, 1896. Serial No. 606,911. (No model.)



Claim.—1. A sign consisting of a sheet-metal plate having in its face an etched or sunken panel with a surrounding marginal border revealing the metallic surface of the plate, said panel covered with enamel and forming the letter-field; and having its letters or characters respectively composed of an inner-part letter or character formed as an opening entirely through the sheet metal, and a corresponding outer-part letter or character represented by a surrounding margin revealing the metallic face of the plate as an outline about said letter-opening within the enamel field, and provided with a backing-sheet of colored xylonite or similar flexible semitransparent material, substantially as and for the purpose set forth.

2. The combination as described, with the sign comprising the sheet-metal plate having the paneled face filled or coated with enamel, the letters or figures formed with an inner portion extending through the metal sheet, and an outer portion showing as a narrow metallic margin between the opening and enamel surface, and the backing of colored xylonite or similar semitransparent material, of the sheet-metal back plate having openings therethrough that correspond in position with the letter-openings in the front sign-plate, for the purpose set forth.

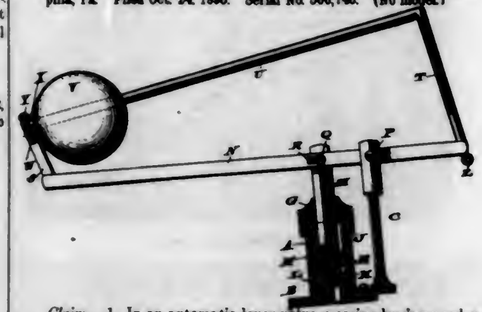
3. A sheet-metal sign having the letters or characters thereof composed of an inner-part letter, formed as an opening through the metal sheet, and an outer-part letter consisting of a narrow face margin of metal around said opening showing the face of the sign-plate, within a surrounding panel having a facing of baked enamel, as set forth.

578,045. **CORSET.** MINNIE SCHACHT, New York, N. Y. Filed Aug. 25, 1896. Serial No. 603,576. (No model.)



Claim.—A corset provided with the two overlapping portions B, C, the part C being provided with the two rows of perforations G, H, and the strip I, provided with two rows of perforations, combined with the part B provided with a row of perforations D, through its edge, and a strip Q, provided with perforations, and the two independent lacing-cords O, S, substantially as shown and described.

578,046. **SAFETY-VALVE.** CHARLES M. SHELDRAKE, Philadelphia, Pa. Filed Oct. 24, 1896. Serial No. 566,746. (No model.)



Claim.—1. In an automatic lever-valve, a casing having a valve-seat, an outlet-passage therein above said seat, a valve adapted to contact with said seat and having a valve-stem attached thereto, the inlet to said casing being through said seat and said valve being adapted to be raised by the pressure of the incoming fluid, a standard adjacent said casing, a bar fulcrumed on said standard, means for causing said bar and valve-stem to move in unison, uprights of unequal length attached to said bar, a rod connecting said uprights, and a sliding weight movable upon said rod, substantially as described.

2. In an automatic lever-valve, a casing having a seat therein, an outlet-passage above said seat, a valve adapted to contact with said seat having a valve-stem attached thereto, the inlet of said casing being through said seat, and said valve being adapted to be raised by the pressure of the incoming fluid, said valve having a plurality of pistons, the upper piston being provided with packing on its upper side, and its lower piston having packing on its lower side, a packing-less cap for said casing, a standard adjacent said casing, a bar fulcrumed on said standard, a pin common to said bar and valve-stem, uprights of unequal length attached to said valve-stem, a rod connecting said uprights, and a weight movable upon said rod, substantially as described.

3. In an automatic lever-valve, a casing with an inlet in its base, and an outlet in its side, a valve-seat in which said inlet-passage is located, a post located adjacent said casing, a valve in the latter, a cap on said casing, a stem for said valve movable in said cap, a bar fulcrumed on said post, and having a slot therein, a pin common to said bar and stem, uprights of unequal length mounted on said bar, the longer upright being nearer to said post, a rod joining said uprights, and a weight movable on said rod, substantially as described.

4. In an automatic lever-valve, a casing A, post C, the pistons J and K, having the packings L and M on their upper and lower sides respectively, the valve-stem H, the bar N, fulcrumed in said post C, and having a slot therein, a pin Q common to said slot and stem, the members S and T, an adjustable bar U and a weight V movable thereon, substantially as described.

5. In an automatic lever-valve, a casing having a valve seat, an outlet-passage therein above said seat, a valve adapted to contact with said seat and having a valve-stem attached thereto, the inlet to said casing being through said seat, and said valve being adapted to be raised by the pressure of the incoming fluid, a standard adjacent said casing, a bar fulcrumed on said standard, a pin common to said bar and valve-stem, uprights of unequal length attached to said bar, a rod connecting said uprights, and a recessed weight having a roller journaled therein, said roller being adapted to contact with said rod, substantially as described.

578,047. **LASH-ROUNDING MACHINE.** FREDERICK STAHL, Lancaster, and HENRY C. STAHL, Mechanicsburg, Pa. Filed Sept. 22, 1896. Serial No. 606,685. (No model.)

Claim.—1. In a machine for rounding lashes and similar articles, the combination of a belt, a roller pressing against the belt, and means for rotating and reciprocating the roller, substantially as described.

2. In a machine for rounding lashes and for similar work, the combination of rollers carrying a belt, an intermediate roller pressing upon the belt, and means for imparting power to one of the belt-carrying rollers, and means for reciprocating the intermediate roller, substantially as described.

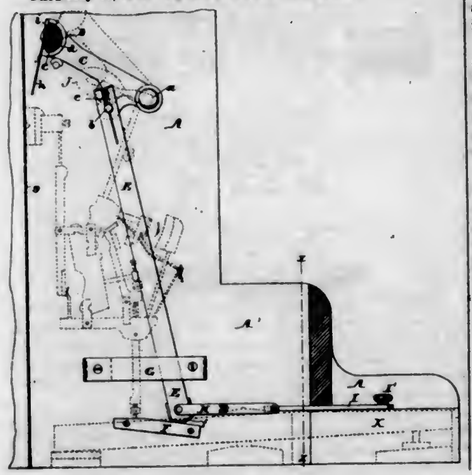
3. In a machine for rounding lashes and for similar work, the combination of a traveling belt, a roller pressing upon the belt, a series of pockets to receive and guide the articles to be treated, and means for reciprocating the roller and the pockets, substantially as described.



4. In a machine for rounding lashes, and for similar work the combination of a traveling belt, a roller lying upon the belt, a series of pockets to receive and feed the article to be treated, means for reciprocating the pockets, and means for reciprocating the roller through a wider range than that given the pockets, substantially as described.

5. In a machine for rounding lashes and for similar work the combination of a traveling belt, a roller pressing upon the belt, a series of pockets to receive and guide the articles to be treated, means for reciprocating the roller and the pockets and a series of pins or snubbing-posts adapted to retard the progress of the lashes and stretch them, substantially as described.

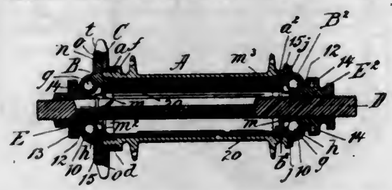
578,048. **MANDOLIN ATTACHMENT FOR PIANOS.** ALBERT H. STUART, Boston, Mass., assignor to Abbie H. Stuart, same place. Filed May 13, 1896. Serial No. 591,373. (No model.)



Claim.—1. In combination with the string and action of a piano, the rail D secured at each end to a lever or radius-arm C; the spring-metal tongues *h* secured to said rail and projecting downward therefrom; the stud *b* set in the lever C; the strut E having its upper end bifurcated; the block F; link H; and operating-rod I, I', all constructed, arranged and operating substantially as described.

2. In combination with the strings and action of a piano, the rail D secured at each end to a lever or radius-arm C; the stud *b* set in a lever or radius-arm C; the strut E connected to said stud *b*; the block F for supporting the strut E; means for moving the lower end of said strut longitudinally of said block F; and a device secured to and projecting downward from said rail D between the strings and the hammers of the action, to modify the tone of strings.

578,049. **BALL-BEARING.** GEORGE T. WARWICK, Newark, N. J. Filed Mar. 16, 1896. Serial No. 583,367. (No model.)



Claim.—1. In combination, a hub or corresponding part, a shaft or axle, an annular ball-case removably confined in the hub, and having an internal ball-groove, a cone entering the annular ball-case, the balls and a ball-retainer removably applied within the ball-case, and having a circular edge of such retainer located at a distance from the farther edge of the ball-groove which distance is less than the diameter of the balls, and a spring for confining the retainer in the ball-case, substantially as described.

2. In combination, a hub or corresponding part, a shaft or axle, a ball-case, removably confined in the hub, having an internal ball-groove, and having an annular seat back of the ball-groove, a cone and the balls, and a ball-retainer consisting of an annular shell with a base-flange, the latter resting on the said annular seat, while the end of the annular part has a position to so close the annular mouth of the ball-race as to prevent the accidental displacement of the balls, and a means for detachably holding the ball-retainer in its juxtaposition, substantially as described.

3. In combination, a hub or corresponding part, a shaft or axle, a ball-case, removably confined in the hub or like part, having an internal ball-groove, an annular seat back of said groove, and a small annular groove back of said seat, a cone and the balls, the annular ball-retaining shell having the flange m^3 to rest on said seat, and the circularly-bent spring m^3 having the angularly-bent finger-lugs 18 18, all arranged substantially as described and shown.

4. In combination, a hub or corresponding part, a shaft or axle, a ball-case, removably confined in the hub or like part having an internal ball-groove, an annular seat back of the groove, a small annular groove 15 back of said seat, and said case having its internal wall 20 from said groove rearwardly flaring, a cone and the balls, the annular ball-retaining shell having the flange m^3 to rest on said seat, and the circularly-bent spring adapted by constriction to be snapped into said groove 15, substantially as described and shown.

5. In a bicycle or analogous vehicle, in combination, the hub, a sprocket-wheel, externally screwing onto the hub, said sprocket having a flanged rim, the ball-case having the serrated periphery, screwing into the end of the hub, with its said serrated portion within said rim-flange of the sprocket, the balls in said ball-case, and a set-screw passed through the said flange to engagement in one of the peripheral serrations in the ball-case, substantially as described.

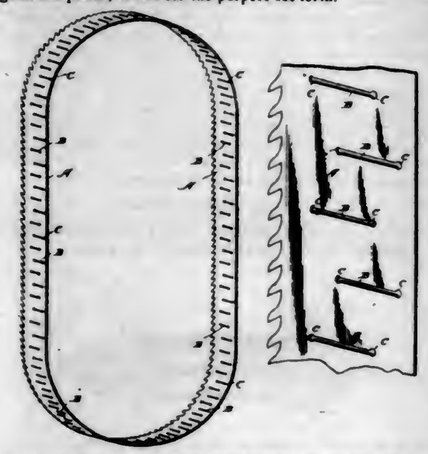
6. In a bicycle or analogous vehicle the combination with the annular ball-case having at its outer end the conical or dome-shaped portion 10 which terminates in the groove and end flange, and the balls in said ball-case, of a cone bearing upon the balls through the central opening in the ball-case, and having the annular flange with a groove therein in which to closely accommodate the end flange on the ball-case, for the purposes set forth.

578,050. **BAND-SAW.** CLINTON H. WESTON, La Crosse, Wis. Filed Jan. 4, 1897. Serial No. 617,953. (No model.)

Claim.—1. As an improved article of manufacture, a band-saw blade provided with a series of transverse parallel slots, as and for the purpose set forth.

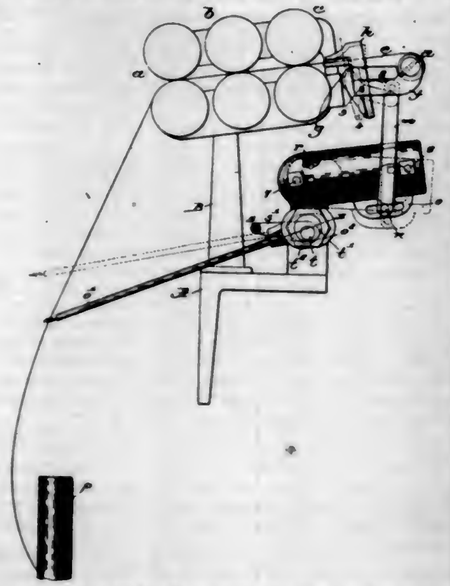
2. As an improved article of manufacture, a band-saw provided with a series of parallel slots, arranged transversely to the length of the blade, as and for the purpose set forth.

3. As an improved article of manufacture, a band-saw provided with a series of transverse parallel slots B B, arranged in alternate longitudinal planes, as and for the purpose set forth.



4. As an improved article of manufacture an endless band-saw, provided with a series of transverse parallel slots of equal length, the end of each alternate slot being located nearer the cutting edge than the same end of the other alternate slot, substantially as and for the purpose set forth.

578,051. SPINNING-MACHINE. WILLIAM H. ALLEN, Salem, Mass. Filed June 17, 1896. Serial No. 595,842. (No model.)



Claim.—1. A set of rolls, a roving-rod, a roving-guide attached to said rod and extended therefrom toward the bite of the said rolls to support the roving close to said guide, a vertically-sliding clamp shaped to embrace said guide when it descends on the roving, and an independent carrier for said clamp, combined with a yarn-guide, and means intermediate it and said clamp to open and close the same, substantially as described.

2. A set of rolls, a roving-rod having an attached guide to support the roving, a sliding clamp, a radius-bar mounted loosely on said roving-rod and extended toward said rolls, and a cam carried by said radius-bar, combined with a yarn-guide and connections between it and said cam to close and open said clamp, substantially as described.

3. A set of rolls, a roving-rod, a roving-guide attached to said rod and extended toward the bite of the said rolls to support the roving near said rolls, a vertically-sliding clamp having a parting device to act on the roving lying on said guide, and an independent carrier for said clamp, combined with a yarn-guide, and means intermediate said yarn-guide and clamp to open and close the latter, substantially as described.

4. A set of rolls, a support for a roving located at the rear of said rolls, a sliding clamp to act on said roving when the yarn breaks in front of the said rolls, a yarn-guide composed of a rod having at one end a thread-eye, and presenting at its opposite end a slotted tubular box, a pivot for said yarn-guide, a roll located in said box, and an adjustable stop located in that one of the slots of the box substantially in the same vertical plane as the pivot of the yarn-guide, said stop arresting said roll in said box in a position to enable it to substantially counterbalance the yarn-guide when acted upon by the yarn, and a second stop connected with the said box near its outer end to arrest the said roll after the breaking of the yarn, said roll by its change of position actuating the yarn-guide with its maximum force to operate the clamp and cause it to move quickly to part the roving after the yarn breaks, substantially as described.

5. A set of rolls, a support for a roving located at the rear of said rolls, a sliding clamp to act on said roving when the yarn breaks in front of said rolls, a yarn-guide composed of a rod having at one end a thread-eye and presenting at its opposite end a slotted tubular box, a pivot for said yarn-guide, a roller located in said box, and two adjustable stops located in the slots of the said tubular box, the adjustment of said stops in said box limiting the movement of the roll in the box whereby one and the same roll may both substantially counterbalance the lever and on the breaking of the yarn effect the movement of said lever with a maximum force, to quickly actuate the thread-clamp to drop on and part the roving, substantially as described.

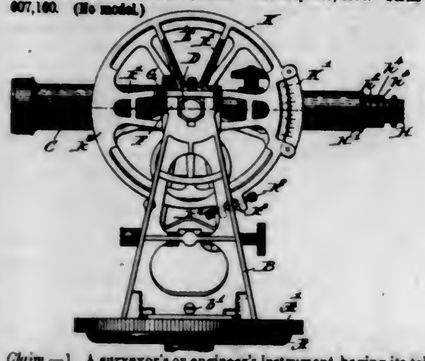
6. The yarn-guide having a slotted hub, combined with a rod, an eccentric loose on said rod, and a clamp to hold the hub of the said guide on the eccentric, substantially as described.

7. A roving-rod having an attached guide and a clamp to act on and hold a roving supported by said guide, combined with means to move said clamp backwardly when acting on the said roving to part the same, the said clamp having thereafter a forward movement to carry the roving toward the rolls, substantially as described.

8. A guide to support the roving, a sliding clamp to act on said roving preparatory to parting it, and a cam to cause the said clamp to descend, combined with a pivoted yarn-guide, a freely-movable weight adapted to roll thereon, and connections between said cam and yarn-guide whereby the said weight by its action after the yarn breaks moves the said cam and clamp with a maximum of power, substantially as described.

9. A guide to support the roving, a pivoted clamp to act on said roving preparatory to parting it, a cam to cause the said clamp to descend, means to move the said cam to enable the clamp to hold the roving firmly, and a tailpiece to act on and turn the said clamp forwardly on its pivot when the clamp is being opened to release the roving, substantially as described.

578,052. ENGINEER'S OR SURVEYOR'S INSTRUMENT. CHRISTIAN L. BENSON, Boston, Mass. Filed Sept. 28, 1896. Serial No. 607,160. (No model.)



Claim.—1. A surveyor's or engineer's instrument, having its telescope mounted for horizontal pivotal movement relatively to its base, and means to adjust said telescope eccentrically to the center of said pivotal movement, said means moving the whole telescope bodily and simultaneously over parallel to itself, to correct the error of collimation for short distances, substantially as described.

2. A surveyor's or engineer's instrument, having its telescope mounted on a base-plate for horizontal pivotal movement relatively to its base, and means to bodily adjust said telescope and its bearings on said base-plate, substantially as described.

3. In a surveyor's or engineer's instrument, having a telescope, a base-plate, and standards supporting said telescope, a base on said base-plate and pivotally movable on the base, means to move said standards laterally relatively to said base-plate, said means including set-screws to accurately position said standards in the desired adjustment, substantially as described.

4. A surveyor's or engineer's instrument, comprising a telescope, a base-plate, standards supporting said telescope on said base-plate, and a connection between the lower ends of said standards, said connection having a central oblong aperture provided with a set-screw at either end thereof and adapted to fit over a boss provided on said base-plate, said set-screws being adapted to coöperate with said boss to shift the standards and telescope laterally relatively to the base-plate, substantially as described.

5. A surveyor's or engineer's instrument having a telescope, standards therefor, a connection at the lower end of said standards, said connection being provided with a central oblong aperture, set-screws at either end of said aperture, a base-plate having a central circular boss at its upper side adapted to fit snugly within said aperture and posts fixed in said boss and adopted to coöperate with said set-screws for the purpose of laterally adjusting said standards and telescope relatively to said base-plate, substantially as described.

6. A telescope having its main tube adjacent the eyepiece provided with an integral extension, as A^3, said extension having a plurality of saw-cuts therein to thereby provide a spring tongue or portion, directly in the body or main telescope-tube, and having an eyepiece adapted to fit within said tube directly against said extension as a bearing and to be held snugly therein by said spring tongue or portion, substantially as described.

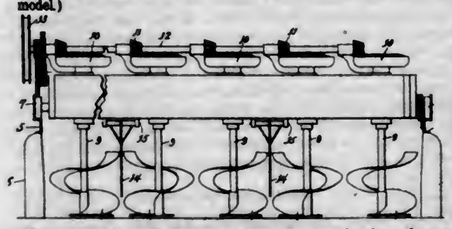
7. A telescope having its main tube adjacent the eyepiece provided with an integral extension as A^3, said exension having a plurality of saw-cuts therein, to thereby provide a spring tongue or portion directly in the body or main telescope-tube, and an eyepiece adapted to fit within said tube directly against said extension as a bearing and to be held snugly by said spring tongue or portion, said eyepiece being provided with an exterior focusing-thread, and said extension having a screw to coöperate with said focusing-thread, substantially as described.

8. In an engineer's or surveyor's instrument, the combination with a telescope, its supports, and vertical circle, of a circular guard for said circle, said guard being concentric therewith and having a peripheral flange overhanging said circle as a protection therefor, and a vernier mounted at the extreme rear side of said guard adjacent the normal position of the eyepiece of the telescope, substantially as described.

9. In an engineer's or surveyor's instrument, the combination with a telescope, its supports and vertical circle, of a circular guard for said circle, said guard being concentric therewith and having a peripheral flange overhanging said circle as a protection therefor, and a vernier mounted at the extreme rear side of said guard adjacent the normal position of the eyepiece of the telescope, said vernier and the graduations of said circle being disposed in a plane oblique to the general direction of said circle, substantially as described.

10. In an engineer's or surveyor's instrument, the combination with a telescope, its supports and vertical circle, of a circular guard for said circle, said guard being concentric therewith and having a peripheral flange overhanging said circle as a protection therefor, and a vernier mounted at the extreme rear side of said guard adjacent the normal position of the eyepiece of the telescope, said vernier and the graduations of said circle being disposed in a plane oblique to the general direction of said circle, and said guard having means to adjust the same relatively to the standards of the instrument, substantially as described.

578,053. MALT TURNING AND STIRRING MACHINE. JOHN F. DORNFELD, Chicago, Ill. Filed June 11, 1896. Serial No. 595,152. (No model.)



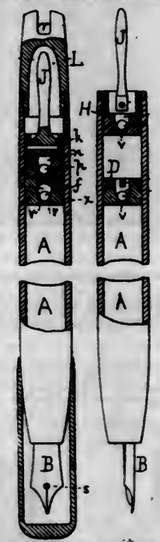
Claim.—1. In a malt-stirring machine, the combination, of a carriage reciprocative over a malting-floor, a series of vertically-disposed spiral shovels, means for rotating said shovels, and one or more blades placed between one or more sets of shovels.

2. In a malt-stirring machine, the combination of a carriage reciprocative over a malt-floor, a series of vertically-disposed spiral shovels, means for rotating said shovels, and one or more pivoted depending blades arranged between the shovels.

3. In a malt-stirring machine, the combination, of a carriage reciprocative over a malting floor, a series of vertically-disposed spiral shovels so geared that any portion of one is half a rotation in advance of the corresponding portion of the other, whereby two adjacent points of their outer edges are always opposite, means for rotating the several shovels in the same direction, whereby said opposite edges will pass each other in opposite directions, and one or more blades placed between one or more sets of shovels.

4. In a malt-stirring machine, the combination, of a carriage reciprocative over a malting-floor, a series of vertically-disposed spiral shovels so geared that any portion of one is half a rotation in advance of the corresponding portion of the other, whereby two adjacent points of their outer edges are always opposite, means for rotating the several shovels in the same direction, whereby said opposite edges will pass each other in opposite directions, and one or more pivoted depending blades arranged between the shovels.

578,054. FOUNTAIN-PEN. WILLIAM I. FERRIS, Stamford, Conn. Filed Dec. 24, 1896. Serial No. 616,901. (No model.)



Claim.—1. In a fountain-pen, the combination of a hollow penholder, a stationary partition situated near the top and containing a valve, and a piston just above it containing a second valve.

2. In a fountain-pen, the combination of a hollow penholder, a removable cap closing the upper end, a stationary partition situated near the top and containing a valve, and a piston just above it containing a second valve.

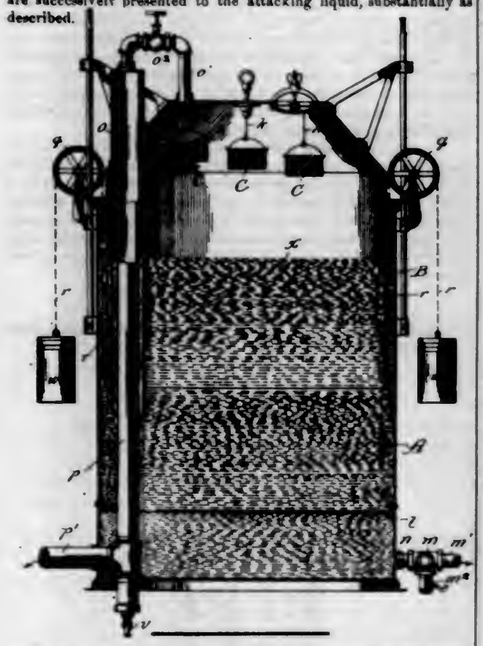
3. In a fountain-pen, the combination of a hollow penholder, a removable cap closing the upper end, a stationary partition near the top and containing a valve, and a piston just above it containing a second valve; both stationary partition and piston having small longitudinal openings to allow gravity to withdraw any surplus of ink above the piston.

578,055. ACETYLENE-GAS GENERATOR. HENRY F. FULLER, Chicago, Ill., assignor to the Walmsley, Fuller & Company, same place. Filed Nov. 2, 1896. Serial No. 610,851. (No model.)

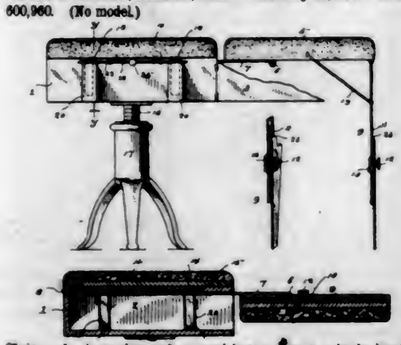
Claim.—1. In a gas-generator of the character described the combination with the outer tank and the inner movable tank provided with a closed top, a plurality of hanger-rods of unequal length separately secured to the under side of said top, and depending inside the inner tank, a plurality of open-work holders for the solid material, said holders being removably suspended from the lower ends of said holder-rods whereby they are caused to assume different heights with relation to the liquid-level in the generator, and a manhole in said top adjacent to the said holders to permit access thereto, provided with a closure, substantially as and for the purpose set forth.

2. In a gas-generator of the character described, the combination with the outer tank and the inner tank movable vertically therein,

of a series of separate and independent holders for the solid material, each of which is supported in the generator in fixed relation to the other and to the points of support at a different altitude from that of any other of the series, whereby the separate bodies of material are successively presented to the attacking liquid, substantially as described.



578,056. EXTENSIBLE AND ADJUSTABLE MUSIC-STOOL. ALFRED J. GAUTRAU, Stamford, Conn. Filed July 29, 1896. Serial No. 600,960. (No model.)



Claim.—1. A music-stool comprising a seat 4, a body having a recess 2, slides 7 and a seat 5 hinged to the slides and adapted when in the closed position to lie with the slides within the recess and in the open position to be turned over upon the slides.

2. In a music-stool the combination with a body having a recess 2, of a seat 5, slides by which said seat is carried and which are adapted to lie with the seat in the recess in the closed position, an adjustable standard by which the outer end of seat 5 is supported when in the open position and an independent seat 4 which is carried by the body.

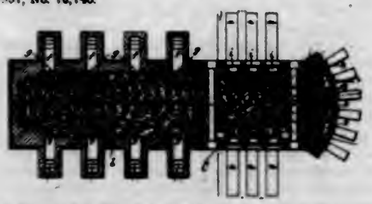
3. The combination with a body having a recess 2 and a seat 5, slides by which said seat is carried and which are adapted to lie with the seat in the recess in the closed position and an adjustable standard by which the outer end of seat 5 is supported when in the open position, of a seat 4 which is carried by the body and means for raising and lowering said seat independently of seat 5 substantially as described for the purpose set forth.

4. In a music-stool the combination with a body having pockets 20 and stops 19 within said pockets, of a seat having on its under side spring-racks adapted to lie within the pockets and to slide over the stops when moved upward and to engage the stops to hold the seat at the raised position and rods 22 having finger-pieces 25 by which the spring-racks may be disengaged from the stops when it is desired to lower the seat.

578,057. LAUNDRY POLISH. JOHN F. GILMORE, Philadelphia, Pa., assignor of one-half to Ralph Coman Savoye, same place. Filed Aug. 6, 1896. Serial No. 601,892. (No specimens.)

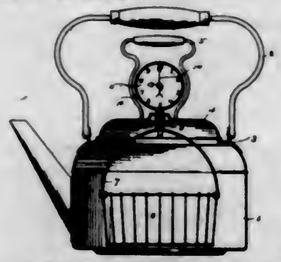
Claim.—A laundry polish consisting essentially of paraffin and other waxes, in combination with paraffin-oil and glycerin, substantially as described.

578,058. GLASS TANK AND BLOWING FURNACE. EMILE GOBBE, Jumet, Belgium, assignor of one-half to James A. Chambers, Pittsburg, Pa. Filed Sept. 8, 1896. Serial No. 605,132. (No model.) Patented in France Feb. 1, 1887, No. 181,246, and in Belgium Mar. 17, 1887, No. 78,740.



Claim.—A longitudinally-extending glass-tank furnace having a melting-section provided with gas and air entrances, a cooling-section having side walls parallel with those of the melting-section, and having in each of said walls a series of blowing-ports to provide for the heating of the glass in the blowing thereof, and blowing-platforms with intermediate spaces at right angles to the walls of the melting-chamber and beyond the same a series of gathering-ports, substantially as set forth.

578,059. TIME-ALARM. JAMES G. HALLAS, Waterbury, Conn., assignor, by direct and mesne assignments, to the American Brass Novelty Company, Grand Haven, Mich. Filed July 22, 1895. Serial No. 556,714. (No model.)



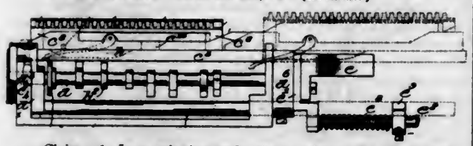
Claim.—1. In a utensil of the character described the combination with a case, a dial and a gong, of a time-shaft journaled in the case and having at one end a pointer and at the other end a disk having a notch 21 inclined on one side, an oscillating segment having a notch 24, a spring 30 acting on the segment, a bell-crank lever one arm of which carries a striker and the other a lug adapted to register with the notches and a spring 19 acting on the bell-crank lever so that when the time-shaft and disk are rotated in setting the pointer, the lug will ride up the incline and out of the notches after which spring 30 will return the segment to its normal position and in the return movement the lug will ride on the periphery of the disk until the lug registers with both notches when spring 19 will throw the lug into the notches and the striker against the gong.

2. In a utensil of the character described the combination with a case, a dial and a gong, of a time-shaft journaled in the case and having at one end a pointer and at the other end a disk having a notch 21 inclined on one side and on its face pins 29, an oscillating segment whose periphery corresponds with the periphery of the disk and which is provided with a notch 24 and a lug 28, a spring 30 acting on the segment whose oscillation is limited by the pins, a bell-crank lever one arm of which carries a striker and the other a lug adapted to register with the notches at the expiration of the time for which the pointer has been set and with lug 28 should the pointer, shaft and disk be turned entirely around in setting and a spring 19 acting on the bell-crank lever substantially as described for the purpose set forth.

578,060. OIL-DRESSING FOR HARNESS. CHARLES R. HOUSE, Yates, Mich. Filed Apr. 20, 1896. Serial No. 588,376. (No specimens.)

Claim.—An improved oil-dressing composed of logwood, dropblack, fish-oil, copperas, soap, vinegar, extract of potatoes, melted rubber, cottolene, and water, all in the proportions set forth.

578,061. SPINNING-MULE. SAMUEL JACKSON, Pawtucket, R. I. Filed Aug. 24, 1895. Serial No. 560,372. (No model.)



Claim.—1. In a spinning-mule, the quadrant, the chain-holder movable thereon, the carriage and its spindles, the chain-holder regulator, and means controlled by the varying tension of the thread to impart a predetermined varying effective movement to said regulator and means to vary said predetermined movement, substantially as described.

2. The quadrant, its screw and pinion to rotate the same, and the chain-holder, the carriage, its spindles, and the actuator moved by varying tension of the threads, combined with the toothed regulator, the lifter for raising and lowering the same on relative movement of it and the said regulator, connections between said actuator and regulator for moving the latter by the former, and a series of stop-surfaces, and means to automatically move the same into position to cause relative movement of the lifter and regulator for varying the effective travel of the latter, substantially as described.

3. The quadrant, its screw and pinion to rotate the same, the chain-holder, the carriage, its spindles, and the actuator moved by varying tension of the thread, the stationary support, the regulator, the shaft connected and movable longitudinally with the said regulator, the lifter movable with and independently of said regulator and adapted on independent movement to raise and lower the said regulator, a series of stop-surfaces on the said shaft, and devices on the said lifter to cooperate with said surfaces to cause independent movement of the lifter and regulator, and means to rotate said shaft at each complete movement of the regulator, substantially as described.

4. In a spinning-mule, the quadrant, the chain-holder movable thereon, the carriage and its spindles, the chain-holder regulator, means controlled by the varying tension of the thread to impart a predetermined varying effective movement to said regulator, said means including a rotatable shaft and a plurality of independent ears projecting therefrom, said ears having a substantially spiral arrangement on said shaft, substantially as described.

5. In a spinning-mule, the quadrant, the chain-holder movable thereon, the carriage and its spindles, the chain-holder regulator, means controlled by the varying tension of the thread to impart a predetermined varying effective movement to said regulator, said means including a rotatable shaft, and a plurality of independent ears projecting therefrom, said ears having a substantially spiral arrangement on said shaft, and certain of said ears being wider than the others, substantially as described.

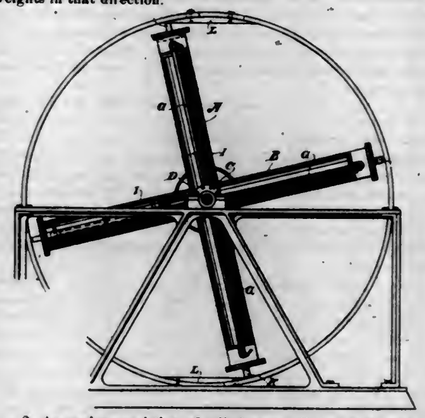
6. In a spinning-mule, the quadrant, the chain-holder movable thereon, the carriage and its spindles, the chain-holder regulator, means controlled by the varying tension of the thread to impart a predetermined varying effective movement to said regulator, said means including a rotatable shaft, and a plurality of independent stop-collars on said shaft, each collar having an ear projecting therefrom, the collars being adjustable longitudinally on said shaft, substantially as described.

7. In a spinning-mule, the quadrant, the chain-holder movable thereon, the carriage and its spindles, the chain-holder regulator, means controlled by the varying tension of the thread to impart a predetermined varying effective movement to said regulator, said means including a rotatable shaft, having a pawl and ratchet connected therewith to rotate the same, a spirally-arranged series of stop-surfaces on the shaft, a rod adapted to operate said pawl, and an actuator for said rod, substantially as described.

8. In a spinning-mule, the quadrant, the chain-holder movable thereon, the carriage and its spindles, the chain-holder regulator, means controlled by the varying tension of the thread to impart a predetermined varying effective movement to said regulator, said means including a rotatable shaft having a pawl and ratchet connected therewith to rotate the same, a spirally-arranged series of stop-surfaces on the shaft, means to operate said pawl and ratchet, and means to render said pawl and ratchet inactive when the top is built to its thickness, substantially as described.

578,062. ROTATING GRAVITY-ENGINE. HENRY L. LICHTNER, San Francisco, Cal. Filed July 20, 1896. Serial No. 599,570. (No model.)

Claim.—1. An engine consisting of cylinders standing radially with relation to a journal-shaft to which they are centrally connected so as to revolve therewith, weights slidable from end to end of said cylinders, pipes connecting the opposite ends of the cylinders with the hollow shafts or trunnions about which they are revoluble, an actuating device whereby the valves are opened when the ends of the cylinders successively pass the lowest point in their revolution, whereby the weights are forced to the opposite and upper ends of the cylinders, exhaust-pipes connecting the ends of the cylinders with the shaft or trunnion opposite to the inlet-pipe for the escape of steam, and mechanism for opening the exhaust-valves when they reach the upper part of their revolution, whereby the upper ends of the cylinders are opened to allow the escape of the steam and free movement of the weights in that direction.



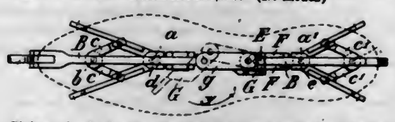
2. An engine consisting of cylinders standing radially with relation to a journal-shaft to which they are centrally connected so as to revolve therewith, weights, forming pistons, slidable from end to end of said cylinders, pipes or passages connecting the opposite ends of the cylinders with the hollow shafts or trunnions about which they are revoluble, a supply-pipe and an exhaust-pipe, and a circle or segment within which the cylinders rotate, having a flattened or differently-curved portion at two opposite sides against which the valve-stems impinge whereby steam is admitted to and exhausted from the cylinders.

578,063. NUT-LOCK. EDWARD W. LYNCH, Brainerd, Minn. Filed Feb. 10, 1896. Serial No. 578,702. (No model.)



Claim.—In a nut and bolt lock, the combination with a rectangular groove formed longitudinally in said bolt from the beginning of the threaded end to a distance beyond the threads thereon, of a rectangular tapering key adapted to be inserted in said groove between the nut and said bolt and rest in said groove, the rectangular corners of the upper face of said key adapted to cut into the threads on said nut and the face of the key to meet in rigid contact with said threads, substantially as shown and described.

578,064. SKATE. JOHN E. MARTIN, Haida, Austria-Hungary. Filed Dec. 1, 1896. Serial No. 614,063. (No model.)



Claim.—1. A skate comprising a runner, a foot-plate secured thereto and of a width substantially equal to the thickness of said runner, a pair of toe-clips and a pair of heel-clips foldable against the said foot-plate, for the purpose set forth.

2. A skate comprising a runner, a foot-plate secured thereto and of a width substantially equal to the thickness of the runner, a pair

of toe-clips, a pair of heel-clips foldable against the sides of the foot-plate, and a locking device to lock said clips against folding, for the purpose set forth.

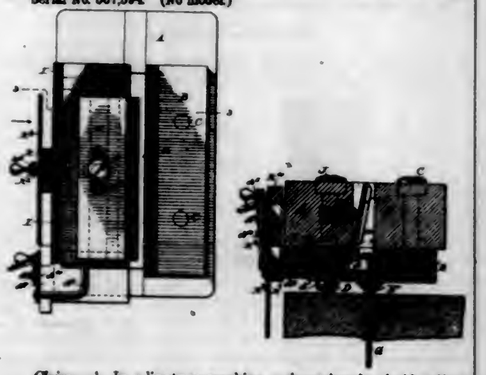
3. A skate comprising a runner, a foot-plate secured thereto and of a width substantially equal to the thickness of such runner, a pair of toe-clips, and a pair of heel-clips pivotally connected to and between said foot-plate and runner and constructed to assist in supporting the foot and to fold against the sides of the plate, in combination with locking devices to lock said clips against folding, for the purpose set forth.

4. A skate comprising a runner, a foot-plate secured thereto and of a width substantially equal to the thickness of the runner, a pair of toe-clips, and a pair of heel-clips movable on pivots arranged between said plate and runner to and from the plate and constructed to assist in supporting the foot; in combination with mechanism for limiting the movement of said clips from the plate, and locking devices for locking said clips against movement toward such plate, for the purpose set forth.

5. In a skate, the combination with the runner, the foot-plate secured thereto and of a width substantially equal to the thickness of said runner, toe-clips, a fixed pivot therefor, heel-clips, a shiftable pivot therefor, said pivots having their bearing in said foot-plate and runner, and a pair of radius-rods pivotally connecting the toe and heel clips in pairs; of a link connected with the heel-clip bearings, a sliding rod connected with the toe-plate bearings, and a lever connected with said link and rod to impart to the same a reciprocal movement lengthwise of the foot-plate and runner, substantially as and for the purpose set forth.

6. In a skate, the combination with the runner, the foot-plate secured thereto and of a width substantially equal to the thickness of said runner, toe-clips, a fixed pivot therefor, heel-clips, a shiftable pivot therefor, said pivots having their bearing in said foot-plate and runner, and a pair of radius-rods pivotally connecting the toe and heel clips in pairs; of a link connected with the heel-clip bearings, a sliding rod having its inner end screw-threaded and its outer end connected with the toe-plate bearings, a nut adjustable on said rod, and a lever connected with said link and rod to impart to the same a reciprocal movement lengthwise of the foot-plate and runner, substantially as and for the purpose set forth.

578,065. **TRIMMING ATTACHMENT FOR LINOTYPE-MACHINES.** HENRY P. MERRELL, Brooklyn, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed Oct. 30, 1896. Serial No. 567,394. (No model.)



Claim.—1. In a linotype-machine, a slug-trimming knife adjustable longitudinally in the direction of the length of the slug, whereby it will be caused to dress the slug for a greater or a less portion of its length.

2. In a linotype-machine, a slug-trimming knife adjustable toward and from the path of the slug, and also adjustable in the direction of the length of the slug.

3. In a linotype-machine, a slug-trimming knife mounted to move on guides in the direction of its length, in combination with means for effecting such movement and locking the knife in its adjusted position.

4. In a linotype-machine and in combination with the longitudinal sliding slug-trimming knife, the lever for moving the same, and locking devices to secure the parts.

5. In a linotype-machine, the combination of a supporting-plate movable horizontally, a slug-trimming knife mounted and movable vertically on said plate, and means for moving and securing said parts.

6. In a linotype-machine and in combination with slug-trimming knives, the yielding plate having transverse ribs to guide slugs having overhanging characters.

578,066. **SHOE LACER AND LACING.** WILLIAM W. MUNSELL, Evanston, Ill. Filed Jan. 31, 1895. Serial No. 536,776. (No model.)



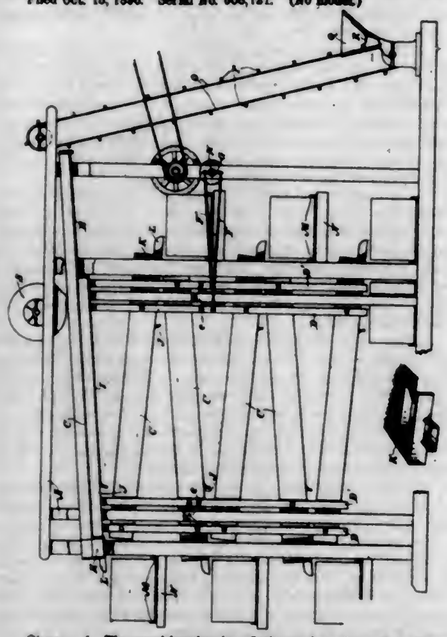
Claim.—1. As a new and useful article of manufacture a lacing-string composed of elastic and non-elastic parts, the non-elastic parts being secured into the lower eyelets and the elastic part being endless so that it may be laced around the hooks *c* and be secured without a knot, substantially as and for the purpose described.

2. As a new and useful article of manufacture a lacing-string for the purpose described, having its intermediate length composed of elastic material and its extremities composed of flexible non-elastic material, substantially as set forth.

3. As a new and useful article of manufacture a lacing-string of substantially uniform diameter or thickness throughout its entire length having a section of the length of its lacing medium composed of flexible elastic rubber and the balance thereof of non-elastic material arranged end to end with the said elastic section and forming a continuation of the lacing medium, substantially as set forth.

4. As a new and useful article of manufacture a lacing-string of substantially uniform diameter or thickness throughout its entire length having its lacing medium composed of a plurality of rubber sections alternating with a plurality of non-elastic sections, said elastic and non-elastic sections being arranged end to end throughout the length of the string, substantially as set forth.

578,067. **FRUIT-GRADER.** SMITH MCGARVIN, San José, Cal. Filed Oct. 13, 1896. Serial No. 608,721. (No model.)



Claim.—1. The combination in a fruit-grader of a series of superposed oppositely-inclined screens having perforations of diminishing diameter from top to bottom, parallel receiving-floors beneath each screen, means for discharging from each of said floors to the screen next below, means for discharging from the lower ends of each of the screens into receiving-boxes, and oppositely-oscillating frames, at each end of the screens, to which the screens are connected alternately, so that those inclining in one direction will be carried by one frame, and those in the opposite direction by the other.

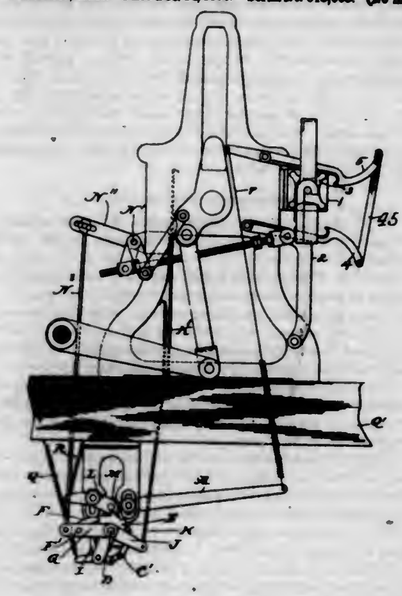
2. The combination in a fruit-grader of a series of superposed oppositely-inclined screens with perforations of gradually-diminishing size from the upper to the lowermost, a slotted extension from the upper end of the topmost screen, for the separation of leaves and dirt, floors parallel with and below each of the screens to receive the fruit which passes through, having openings at the lower end by which said fruit is delivered upon the upper end of each succeeding screen, a concentrating discharge into which the fruit delivered from the upper surfaces of the screens is received and conveyed to boxes, vertical frames, at each end of the screens, to which the screens are alternately attached, a shaft with oppositely-placed cranks and pitmen connecting with the frames whereby the series of screens are oscillated in opposite directions, and springs connecting each frame with an intermediate fixed support, by which the frames are supported and given an upward and return movement.

3. The combination in a fruit-grader of a series of superposed, oppositely-inclined screens and conveying-floors, spaced frames in which said screens are mounted, spring-arms having one end fixed to a main frame intermediate of the spaced frames, and the upper end bent at an angle therewith and connected with the frames carrying the screens, cranks by which the screen-carrying frames are oscillated, said springs acting in conjunction therewith to allow the frames and screens to be drawn downward when moved in one direction, and thrown upward and counterbalanced when moved in the opposite direction.

4. The combination, in a fruit-grader, of a series of superposed oppositely-inclined screens having perforations decreasing in diameter from the top downward, each of said screens having a concentrating trough or hopper with walls converging from the sides toward the center, and a centrally-disposed discharge-opening, receiving and directing floors for said screens, a fixed frame, vertical frames, at each end of the screens, to which the latter are alternately connected, means for oscillating said screens and springs connected with the fixed and movable frames, and having outwardly-turned ends to produce a diagonal motion and return of the screens to the normal position.

5. An improved fruit-grader consisting of a fixed frame, a series of superposed oppositely-inclined and independently-oscillating screens having receiving and directing floors, each of said screens having a concentrating-hopper with a central discharge and converging sides, superposed extensions of the fixed frame, forming a box-support under each discharge, and having guide-rails, vertical frames at each end of the screens, and connected with alternate screens, springs connected at opposite ends with the fixed and movable frames and imparting a diagonal motion and return of the screens, means for oscillating the screens, a supply and distributing belt having transverse slats and a receiving-hopper having a flexible bottom with a free edge adapted to yield as the slats pass it.

578,068. **JACQUARD MECHANISM FOR LOOMS.** ALONZO R. PATTEN, Providence, R. I., assignor to the Knowles Loom Works, Worcester, Mass. Filed Dec. 14, 1896. Serial No. 615,695. (No model.)



Claim.—1. The combination with reversible feeding devices for the cards of a jacquard mechanism, and a lever A by means of which the direction of feed may be reversed, of a pattern-surface having indicators to act upon lever A and determine its action, an actuating-pawl and ratchet for said pattern-surface, a device to control the engagement of said pawl with said ratchet, a hooked upright in the jacquard mechanism, and connections whereby the action of said pawl-controlling device is determined by the movement of the said upright, substantially as described.

2. The combination with reversible feeding devices for the cards of a jacquard mechanism, and the lever A whereby the directions of feed may be reversed, of a pattern-surface having indicators to act upon lever A and determine its action, an actuating-pawl and ratchet for said pattern-surface, a pawl-lifter I, a lever on which said pawl-lifter is mounted, a spring to move the pawl-lifter in one direction, and a hooked upright in the jacquard mechanism connected with said lever and serving to move the pawl-lifter in the other direction, the action of said pawl-lifter being determined by the movement of the said upright, substantially as described.

578,069. **ELECTRIC MOTOR.** HARRY A. STOCK, Millersburg, Pa. Filed Apr. 15, 1896. Serial No. 587,708. (No model.)



Claim.—1. An alternating-current motor all of whose field-poles are at any instant of the same sign, in combination with two sets of armature-poles which at any given instant are of opposite signs, and coils wound on all of the said poles connected to a source of alternating current, substantially as described.

2. In an alternating-current motor, the combination of an armature, coils wound thereon, a field-magnet, coils wound on said field-magnet, and connections from all of the coils to a source of alternating current, the connections being so made that those of the field-poles which are directed toward the armature are at any given instant all of the same sign, but change their polarity from instant to instant, substantially as described.

3. In an alternating-current motor a field-magnet having poles arranged in two sets in different planes, the two sets being staggered, and an armature having poles arranged in two sets side by side, and not staggered, substantially as described.

4. In an alternating-current motor a field-magnet having poles arranged in two sets in different planes, the two sets being staggered, in combination with an armature having poles arranged in two sets side by side, and not staggered, and a commutator having two sets of bars alternately arranged, each set being connected together, substantially as described.

5. In an alternating-current motor, a field-magnet having poles arranged in two sets in different planes, the two sets being staggered, in combination with an armature having poles arranged in two sets side by side, and not staggered, and a commutator having active bars, and having a number of inactive bars, one between every pair of active bars, and an electrical connection between all of the inactive bars, substantially as described.

6. In an electric apparatus, the combination with a field-magnet and an armature of a commutator provided with a set of inactive bars and with two sets of active bars, all of the active bars in each set being connected together, and all of the inactive bars being connected together, and each set of active bars being connected to a different end of the armature-winding, substantially as described.

578,070. **ELECTRODE.** ALBERT R. WOOLF, New York, N. Y., assignor to Rosamond Woolf, same place. Filed Jan. 13, 1896. Serial No. 575,373. (No model.)

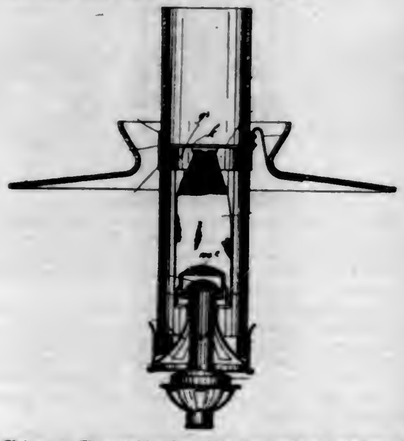


Claim.—1. An electrode for electrolysis of saline solutions consisting of an exposed thin plate of metal or metals of the platinum

group, said plate being comparatively long from end to end, and narrow from its inner attached edge to its outer free edge, a connected conducting-plate of base metal, the platinum-compound plate being attached at its long edge to a similar edge of said conducting-plate and having a long free edge, and a coating of insulating material applied to the surface of said conducting-plate, and to the joint at the attached edges of said plates to protect them from the corrosive action of gases, substantially as described.

2. An electrode for electrolysis of saline solutions consisting of an exposed thin plate of metal or metals of the platinum group, said plate being comparatively long from end to end, and narrow from its inner attached edge to its outer free edge, a connected conducting-plate of base metal, the platinum-compound plate being attached at its long edge to a similar edge of said conducting-plate and having a long free edge, and a coating of insulating material applied to the surface of said conducting-plate, to the joint at the attached edges of said plate and to the ends of said platinum plate, to prevent the corrosive action of gases and give greater strength and rigidity to the electrode, substantially as described.

578,071. GAS-BURNER. SAMUEL BERNHEIM, New York, N. Y.
Filed Jan. 2, 1896. Serial No. 574,176. (No model.)

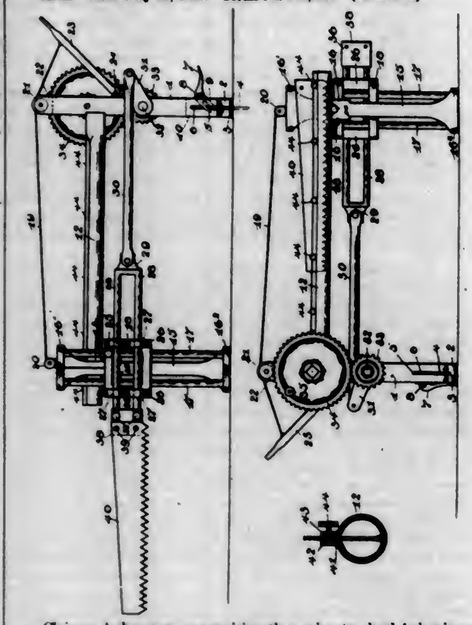


Claim.—1. The combination with a burner-head, substantially as herein shown and described, of a lower chimney composed of a number of glass rods connected by annular metallic end pieces, the bottoms of which end pieces are outwardly beveled or inclined to fit the incline portion of the burner, an annular head or cap provided with a depending annular flange, and adapted to engage the upper end or head pieces of the lower chimney, said head or cap being provided with an upwardly-directed flange, and an upper or supplemental chimney secured within said flange, and the cross-bar adapted to rest upon the horizontal portion of said head or cap, and a canopy supported by said rod, as and for the purpose set forth.

2. The combination with a burner-head, substantially as herein shown and described, of a lower chimney composed of a number of glass rods connected by annular metallic end pieces, the bottoms of which end pieces are outwardly beveled or inclined to fit the incline portion of the burner, an annular head provided with a depending annular flange, and adapted to engage the upper end pieces of the lower chimney, said head being provided with an upwardly-directed flange, and an upper or supplemental chimney secured within said flange, and the cross-bar adapted to rest upon the horizontal portion of said head, curved spring shade-holders attached to the upwardly-directed annular flange of the head, and a shade adapted to be supported by the outer or free ends of said holders, as and for the purpose set forth.

3. The combination with a burner-head, substantially as herein shown and described, of a lower chimney composed of a number of glass rods connected by annular metallic end pieces, the bottoms of which end pieces are outwardly beveled or inclined to fit the incline portion of the burner, an annular head provided with a depending annular flange, and adapted to engage the upper end pieces of the lower chimney, said head being provided with an upwardly-directed flange, and an upper or supplemental chimney secured within said flange, and the cross-bar adapted to rest upon the horizontal portion of said head, curved spring shade-holders attached to the upwardly-directed annular flange of the head, and a shade adapted to be supported by the outer or free ends of said holders, said burner being provided with a gallery having slits or perforations for the admission of air, and an annular band mounted thereon below the top of the burner, and a screen of wire mesh or similar material supported by said band, and a superimposed screen above the first-mentioned screen also supported by said annular band, and a depending annular head connected with said band and extending below the top of the burner-tube to direct the air upwardly thereto, as and for the purpose set forth

578,072. PORTABLE DRAG-SAW. JAMES BIRRELL, Gaylord, Mich. Filed July 29, 1896. Serial No. 600,916. (No model.)



Claim.—A drag-saw, comprising the main standard 1, having a horizontal transverse foot 2 formed with vertical guide-holes 3 3 and the slots 6 and 10, the cross-bar 5 mounted in the slot 6 and provided with prongs 4 4 projecting into the guide-holes 3 3, the lever 7 fulcrumed in a bracket secured to said standard and having its bifurcated arm 9 projecting into the slot 10 to engage the bar 5, the main brace 12 formed with the longitudinal recess 41, the jaw 43 of which is provided with set-screws 44 and having the dovetail guide-slot 13 and set-screw 14, the adjustable standard 15 provided with the removable guide-rods 17 17, in combination with the carriage 18, the cross-head 29, having parallel arms 28 28 and saw-block 36 and the connecting-rod 30, pivoted at one end to the cross-head and at the other to the crank 31 secured on one end of the shaft 32, journaled in the standard 1, and provided with the pinion 33, meshing with the gear-wheel 34, provided with a crank-handle, substantially as and for the purpose set forth.

578,073. POROUS DIAPHRAGM. HENRY BLUMENBERG, Jr., Wakefield, N. Y. Filed Nov. 15, 1895. Serial No. 569,104. (No specimens.)

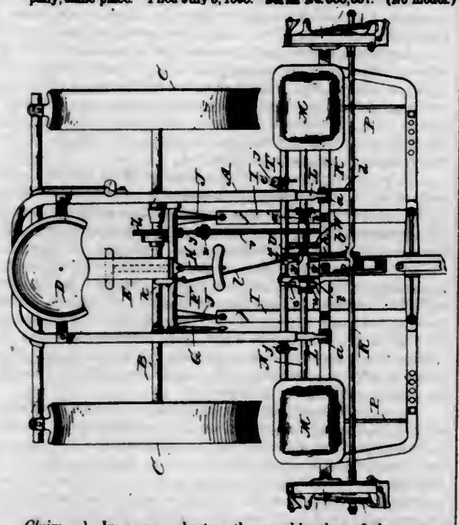
Claim.—1. The herein-described method of making diaphragms, consisting of treating asbestos with acid to remove the metallic salts and toughen it, combining a binding material with the asbestos, forcing the binding material into the pores of the asbestos under high pressure, and finally baking at a high temperature, which changes the asbestos from a fibrous into a crystalline state.

2. The herein-described method of making diaphragms, which consists in treating asbestos with acid to remove the metallic salts and toughen it, and finally forcing binding material into the pores of the asbestos under high pressure.

3. The herein-described method of making diaphragms, which consists in forcing a binding material into the pores of the asbestos, and finally baking the same at a high temperature which changes the asbestos from a fibrous to a crystalline state.

4. The herein-described method of making diaphragms which consists in treating asbestos with acid to remove the metallic salts and toughen it, combining a binding material with the asbestos, and finally baking it at a high temperature which changes the asbestos from a fibrous to a crystalline state.

578,074. CORN-PLANTER. ARTHUR F. BROWN and CLEMENT W. MICHAEL, Dayton, Ohio, assignors to The Stoddard Manufacturing Company, same place. Filed July 5, 1895. Serial No. 555,037. (No model.)



Claim.—1. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft therefor, a rock-shaft connected to said valves, a constantly-revolving member on said feed-shaft, a locking member carried by said shaft, and means within reach of the driver's foot for engaging the locking member with the revolving member to actuate the seed-dropping mechanism, substantially as described.

2. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft therefor, a rock-shaft connected to said valves, a second rock-shaft connected to check-row mechanism, means for coupling said rock-shafts for double action, a constantly-revolving member on said feed-shaft, a locking member carried by said shaft, and means actuated by the check-row mechanism for engaging the locking member with the revolving member, substantially as described.

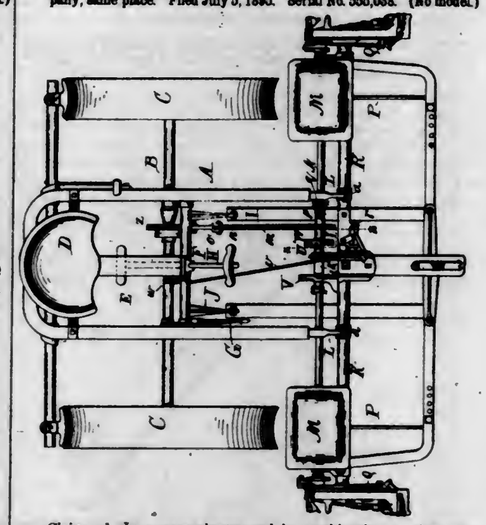
3. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft therefor, a rock-shaft connected to said valves, a second rock-shaft connected to check-row mechanism, means for coupling said rock-shafts for double action, a constantly-revolving member on said feed-shaft, a locking member carried by said shaft, means within control of the driver's foot, means actuated by the check-row mechanism, and hand means, any one of which means may be employed for engaging the locking member with the revolving member, substantially as described.

4. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft therefor, a rock-shaft connected to said valves, a ratchet fast on the feed-shaft and carrying a spring-projected dog, a constantly-revolving wheel with teeth in the path of the nose of said dog, a fixed disk with depressions for receiving said dog when disengaged from the teeth of the wheel, and a dog actuated by the rock-shaft for forcing said first-named dog out of a depression and into engagement with the constantly-revolving wheel, whereby the feed-shaft becomes locked to said wheel, substantially as described

5. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft therefor, a rock-shaft connected to check-row mechanism, means for connecting said rock-shafts for double action, a ratchet fast on the feed-shaft, and carrying a spring-projected dog, a fixed disk with depressions for receiving said dog when disengaged from the teeth of the wheel, and a dog actuated by either of said rock-shafts for forcing said first-named dog out of a depression and into engagement with the constantly-revolving wheel, substantially as described.

6. In a corn-planter, the combination of the constantly-revolving crown-wheel, W, mounted on the feed-shaft, N, the ratchet, U, fast on said shaft and carrying the housing, *q*, provided with the spring-projected dog, *r*, the fixed recessed disk, V, the rock-shaft, T, connected to the valves in the seed-spouts and carrying dog, A', to engage the ratchet, the rock-shaft, R, connected to the check-row mechanism by means of crank-arms, *e*, and the link, *k*, for coupling said rock-shafts for double action, substantially as described.

578,075. CORN-PLANTER. ARTHUR F. BROWN and CLEMENT W. MICHAEL, Dayton, Ohio, assignors to The Stoddard Manufacturing Company, same place. Filed July 5, 1895. Serial No. 555,038. (No model.)



Claim.—1. In a corn-planter and in combination, seed-spouts, seeding mechanism for depositing the seed in the spouts, check-row mechanism, a revolving member constantly driven by the traction of the machine, a single shaft connected at its ends to said check-row mechanism and to the seeding mechanism, and a clutch controlled by the check-row mechanism for locking said shaft to the constantly-revolving member at predetermined intervals, substantially as described.

2. In a corn-planter and in combination, seed-spouts with valves therein, seeding mechanism for depositing the seed in the spouts, check-row mechanism, a revolving member constantly driven by the traction of the machine, a single shaft connected at its ends to said check-row mechanism, seeding mechanism, and the valves in the spouts, and a clutch controlled by the check-row mechanism for locking said shaft to the constantly-revolving member at predetermined intervals, substantially as described.

3. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft for actuating said seed-dropping mechanism and valves, a wheel thereon revolved by the machine, clutch mechanism adjacent thereto, and mechanism within reach of the driver's foot for coupling said clutch mechanism to the revolving wheel to actuate the valves and dropping mechanism, substantially as described.

4. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft for actuating said seed-dropping mechanism and valves, a wheel thereon revolved by the machine, clutch mechanism adjacent thereto, and automatic check-row mechanism connected to the ends of said shaft for coupling said clutch mechanism to the revolving wheel to actuate the dropping mechanism, substantially as described.

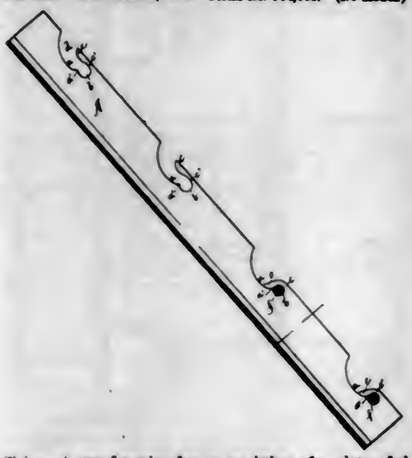
5. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft for actuating said seed-dropping mechanism and valves, a wheel thereon revolved by the machine, clutch mechanism adjacent thereto, foot-actuating means for said clutch mechanism, and automatic check-row mechanism for coupling said clutch mechanism to the revolving wheel to actuate the dropping mechanism, substantially as described

6. In a corn-planter, the combination of the runner-frame carrying seed-dropping mechanism with valves in the spouts, a rotatable feed-shaft for actuating said seed-dropping mechanism and valves, ratchet mechanism for said shaft coupled to check-row forks, tappet-wipers on said shaft engaging cranks connected to said valves, a wheel on said shaft revolved by the machine, and clutch mechanism adjacent thereto with means for coupling said clutch mechanism to the revolving wheel upon the partial rotation of the shaft, substantially as described.

7. In a corn-planter, the combination of the rotatable feed-shaft, N, connected to the dropping mechanism and the valves in the spouts, a constantly-revolving clutch-wheel as, W, thereon, a ratchet fast on said shaft adjacent to the clutch-wheel and carrying a locking-dog, a fixed disk, as V, with depressions for causing the engagement and dis-

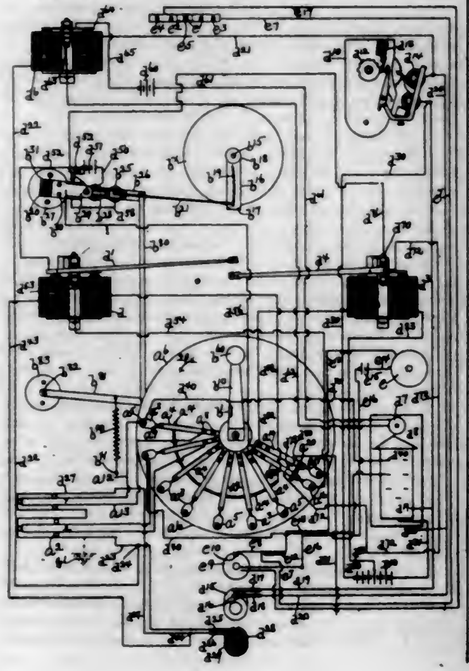
engagement of the clutch mechanism, a lever pivoted to the runner-frame, and a dog carried on said lever engaging the ratchet, substantially as described.

578,076. STAY FOR WIRE FENCES. GILBERT H. BROWN, Dayton, Ohio. Filed Mar. 30, 1896. Serial No. 584,069. (No model.)



Claim.—A stay for wire fences, consisting of a plate of sheet metal bent in its longitudinal center in V shape, and having in its edges a series of slots forming pockets *c*, the lower terminal of each of said tongues being of less diameter than the remaining portions, as at *c'*, and the space of the entrance to said pockets between the widest diameter of the tongues, being essentially the same as the diameter of the pockets in order that a wire may be inserted in said pockets that will entirely fill the same, thereby avoiding any unoccupied space in the pockets after the wires are inserted, substantially as herein shown and described.

578,077. TESTING APPARATUS FOR ELECTRIC AUTOMATIC SYSTEMS. CHARLES BURGNER, Newton, Mass., assignor to the Boston Automatic Fire Alarm Company, Portland, Me. Filed Dec. 17, 1896. Serial No. 615,984. (No model.)



Claim.—1. In a testing apparatus, the combination of the following instrumentalities, viz: an inclosing case provided with a door, a recording-surface located within said case, a stylus or marking device coöperating therewith, an electromagnet to operate said stylus, a plurality of circuit-controllers located in said casing and each included in an independent circuit, a circuit-terminal coöperating with the circuit-controllers, an electromagnet included in circuit with the said circuit-terminal, a disk or dial having openings in line with the said circuit-controllers, and a movable arm or pointer provided with a plunger or arm adapted to enter said openings and move one member of the said circuit-controllers into engagement with the said circuit-terminal, substantially as described.

2. In a testing apparatus, the combination of the following instrumentalities, viz: an inclosing case, a recording-surface located therein, a stylus or marking device coöperating with said surface, a registering-electromagnet to operate said stylus, an electromagnet controlling the operation of the registering-magnet, a plurality of circuit-controllers, each provided with a movable member, a circuit-terminal coöperating with the said movable members and included in circuit with the electromagnet controlling the registering-magnet, a movable pointer or arm, mechanism connected to said pointer and to the registering-magnet to effect the proper positioning of the stylus with relation to the recording-surface when the said pointer is moved, and means to effect the operation of the magnet controlling the registering-magnet, substantially as described.

3. In a testing apparatus, the combination of the following instrumentalities, viz: an inclosing case, a recording-surface located therein, a stylus or marking device coöperating with said surface, a registering-electromagnet to operate said stylus, an electromagnet controlling the operation of the registering-magnet, a plurality of circuit-controllers, each provided with a movable member, a circuit-terminal coöperating with the said movable members and included in circuit with the electromagnet controlling the registering-magnet, a movable pointer or arm, mechanism connected to said pointer and to the registering-magnet to effect the proper positioning of the stylus with relation to the recording-surface when the said pointer is moved, an additional circuit-controller provided with two movable members insulated from each other, a trouble-electromagnet included in circuit with one of said movable members, an armature for said trouble-magnet controlling in part the circuit of the registering-magnet, a circuit-terminal coöperating with one of said movable members and connected in circuit with the armature of the trouble-magnet, and a second circuit-terminal coöperating with the second movable member and connected to the ground, substantially as described.

4. In a testing apparatus, the combination of the following instrumentalities, viz: a recording-surface, a stylus or marking device coöperating therewith, an electromagnet to operate said stylus, a plurality of circuit-controllers normally closed and forming part of the circuits to be tested, a circuit-terminal coöperating with the movable members of said circuit-controllers, an electromagnet connected in circuit with said terminal and governing the operation of the registering-magnet, and means to operate the movable members of the said circuit-controllers, substantially as described.

5. In a testing apparatus, the combination of the following instrumentalities, viz: a recording-surface, a stylus or marking device coöperating therewith, an electromagnet to operate said stylus, a movable support for the said electromagnet, a movable pointer or arm operatively connected to said support to move the same, a plurality of circuit-controllers provided with movable members adapted to be operated by the movable arm or pointer, a circuit-terminal coöperating with said movable members, an electromagnet connected in circuit with said circuit-terminal and adapted to be included in circuit with said circuit-controllers, and an armature for said electromagnet governing the operation of the registering-magnet, substantially as described.

6. In a testing apparatus, the combination of the following instrumentalities, viz: a recording-surface, a stylus or marking device coöperating therewith, an electromagnet to operate said stylus, a movable support for the said electromagnet, a movable pointer or arm operatively connected to said support to move the same, a plurality of circuit-controllers provided with movable members adapted to be operated by the movable arm or pointer, a circuit-terminal coöperating with said movable members, an electromagnet connected in circuit with said circuit-terminal and adapted to be included in circuit with said circuit-controllers, and an armature for said electromagnet governing the operation of the registering-magnet, and a visual indicator also governed by said armature, substantially as described.

7. In a testing apparatus, the combination of the following instrumentalities, viz: a recording-surface, a stylus or marking device coöperating therewith, a registering-magnet to operate said stylus, a movable support for said registering-magnet, a rotating shaft operatively connected with the movable support to effect the movement of the same, a pointer mounted upon said shaft, a plunger carried by said pointer, a plurality of circuit-controllers normally included in the circuits to be tested and provided with movable members, a circuit-terminal coöperating with the said movable members, an electromagnet connected in circuit with the circuit-terminal, an armature for said electromagnet controlling the operation of the registering-magnet, a second electromagnet included in circuit with the circuit-terminal and adapted to be energized by the engagement of the movable member of the circuit-controller with the said circuit-terminal, and an audible signal controlled by the said electromagnet, substantially as described.

8. In a testing apparatus, the combination of the following instrumentalities, viz: a recording-surface, a stylus or marking device, coöperating therewith, an electromagnet to operate said stylus, a circuit-controller provided with two movable members insulated from each other, one of which is included in circuit with the said registering-magnet, a trouble-electromagnet connected to the other movable member of the circuit-controller, independent circuit-terminals coöperating with the said movable members, one of which is connected in circuit with the registering-magnet and the other of which is connected with the ground, an armature for said electromagnet normally included in circuit with the registering-magnet, whereby the engagement of the movable members of the circuit-controller with their coöperating terminals may effect the energizing of the registering-magnet in the absence of a ground on the circuits to be tested, and may effect the energizing of the trouble-electromagnet in case of a ground on the circuit to be tested, substantially as described.

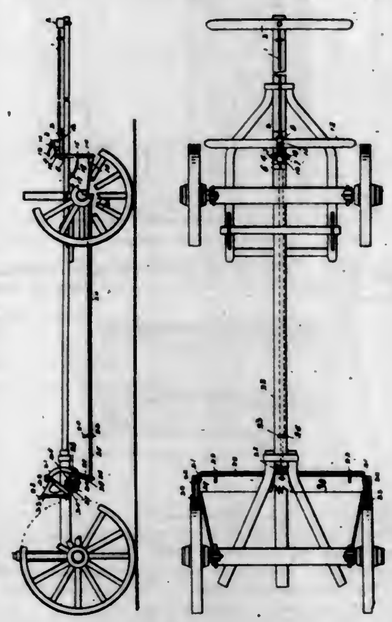
9. In a testing apparatus, the combination of the following instrumentalities, viz: an inclosing case provided with a door, a circuit-controller located in said case and consisting of circuit-terminals and an insulated movable member, an audible signal controlled by said circuit-terminals and normally inactive when the door is closed but adapted to become active when the door is opened, a rotatable shaft, a circuit-controller governed by said shaft and controlling the operation of the audible signal independent of the first-mentioned circuit-controller, whereby the audible signal may be maintained operative when the shaft is rotated irrespective of the condition of the first circuit-controller, substantially as described.

10. In a testing apparatus, the combination of the following instrumentalities, viz: an inclosing case, a movable recording-surface located therein, a stylus or marking device coöperating with the said recording-surface, a registering-electromagnet to operate said stylus, a movable support for said registering-magnet, a rotating shaft, a cam mounted on said shaft, mechanism connected to said movable support and operated by the said cam to properly position the marking-stylus with relation to the recording-surface, a pointer or arm fast on the said shaft, a plunger carried by said pointer, a plurality of circuit-controllers provided with movable members adapted to be individually operated by said plunger, a circuit-terminal coöperating with the movable members, an electromagnet connected with said circuit-terminal and included in circuit with the circuits to be tested, an armature for said electromagnet governing the operation of the registering-magnet, substantially as described.

11. In a testing apparatus, the combination of the following instrumentalities, viz: an inclosing case, a movable recording-surface located therein, a stylus or marking device coöperating with the said recording-surface, a registering-electromagnet to operate said stylus, a movable support for said registering-magnet, a rotating shaft, a cam mounted on said shaft, mechanism connected to said movable support and operated by the said cam to properly position the marking-stylus with relation to the recording-surface, a pointer or arm fast on the said shaft, a plunger carried by said pointer, a plurality of circuit-controllers provided with movable members adapted to be individually operated by said plunger, a circuit-terminal coöperating with the movable members, an electromagnet connected with said circuit-terminal and included in circuit with the circuits to be tested, an armature for said electromagnet governing the operation of the registering-magnet and a visual indicator also operated by said armature, substantially as described.

12. In a testing apparatus, the combination of the following instrumentalities, viz: an inclosing case, a movable recording-surface located therein, a stylus or marking device coöperating with said recording-surface, a registering-electromagnet to operate said stylus, a movable support for said registering-magnet, a rotating shaft, a cam mounted on said shaft, mechanism connected to said movable support and operated by the said cam to properly position the marking device or stylus with relation to the recording-surface, a pointer or arm fast on the said shaft, a plunger carried by said pointer, a plurality of circuit-controllers provided with movable members adapted to be individually operated by said plunger, a circuit-terminal coöperating with the movable members, an electromagnet connected with said circuit-terminal and included in circuit with the circuits to be tested, an armature for said electromagnet governing the operation of the registering-magnet and of a visual indicator, an audible signal, an electromagnet in circuit with the said circuit-terminal and controlling the said audible signal, a signal-transmitting mechanism located in said case, a circuit-controller for said signal-transmitting mechanism mounted on the said shaft and adapted to short-circuit the said signal-transmitting mechanism, an independent circuit-controller comprising two movable members insulated from each other and adapted to be operated by the said plunger, independent circuit-terminals coöperating with said movable members, one of the said movable members being connected with the registering-magnet, a trouble-electromagnet connected to the other of the said movable members, a ground connected to one of the circuit-terminals for said movable members, an armature for the trouble-magnet connected in circuit with the other terminal for the said movable members and normally connected in circuit with the registering-magnet, substantially as described.

578,078. AUTOMATIC WAGON-BRAKE. ERRI S. CHATFIELD, Addison, N. Y. Filed Nov. 19, 1896. Serial No. 612,741. (No model.)

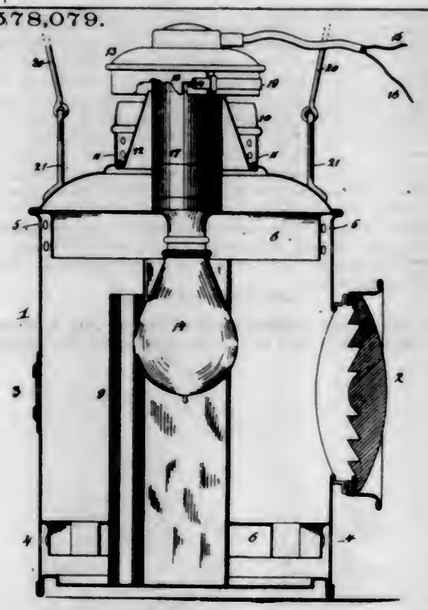


Claim.—An automatic wagon-brake comprising the rod 1 connected to the shoe 4, the latter provided with a longitudinal dovetail slot 5, which engages a reversely-shaped web 6 secured to the tongue, said shoe being formed with integral vertical ears 7 7 and a threaded vertical stud 10 upon which the doubletree 12 is mounted, the lever 14 fulcrumed in the forward end of the pivoted bar 15 and having its upper end pivoted to the ears 7 7 of said shoe, the bar 19 pivoted at its forward end to the lower end of said lever, and its rear end engaging a guide 20 fixed on the forward axle, and provided with an eyebolt 21, in combination with the adjustable connecting-rod 22 25, the rock-shaft 28 mounted on the fixed brake-beam 30 and provided with the integral lever 27 and crank-arms 31 31, the brackets 35 mounted on said fixed brake-beam and provided with the integral arms 34', and the wedge-shaped bracket 32 pivoted to the crank-arms 33 33 and in sliding contact with the arm 34' of the brackets 35, substantially as and for the purpose set forth.

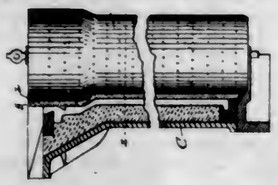
578,079. CONVERTIBLE SIGNAL-LAMP. CHARLES H. DRESSEL, New York, N. Y. Filed June 20, 1895. Serial No. 553,423. (No model.)

Claim.—The combination of the lamp-body having at its top a ring 10 surrounding an opening into the lamp-body and formed with perforations in its lower part, such ring being constructed to serve as a supporting-bearing, above such perforations, and a removable and replaceable closing-cap carrying an electric lamp adapted to fit and be supported upon the bearing portion of the ring, substantially as set forth.

578,079.



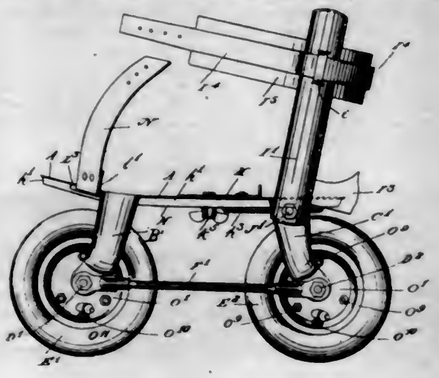
578,080. CORE AND ART OF MAKING SAME. MORDECAI H. FLETCHER, Cincinnati, Ohio. Filed Nov. 11, 1896. Serial No. 568,536. (No model.)



Claim.—1. The improved core for casting hollow objects of metal, consisting of a metal core-bar, having applied thereto a concentric combustible layer of finely-divided woody matter or vegetable fiber held together by a cement that loses its cementing quality when highly heated, and upon this a second or finishing layer of loam to form the casting-surface, substantially as set forth.

2. A combustible foundation for the loam surface of cores, consisting of a comminuted, woody fiber, or similar material moistened with starch paste and applied to and dried upon a core-bar as an independent layer, substantially as set forth.

578,081. ROLLER-SKATE. FRANK I. GIBBS and WILLIAM WRIGHT, Birmingham, England. Filed Aug. 12, 1895. Serial No. 559,065. (No model.) Patented in England Dec. 11, 1894, No. 24,038.

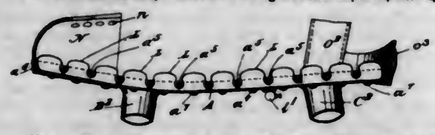


Claim.—1. In a skate the combination of a foot-plate A, an under plate H extending substantially parallel with the plate A and from front to rear of the skate, the bar L' extending longitudinally between the two plates, the grippers with connections to the said bar, the spring m^7 connected to the sliding bar, said spring and grippers being arranged between the two plates, substantially as described.

2. In combination, a foot-plate, the wheels having their journals supported thereby, the grippers L^3, L^3 sliding bar L', the spring connected therewith, the heel-plate and the adjusting device consisting of the headed screw K^4 engaging the heel-plate and the slide and the nut for setting the screw in any desired position and thus adjusting the grippers, substantially as described.

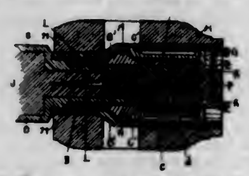
3. In combination, the foot-plate, having the depending horns, a plate H secured to the bottom thereof, the horn-pieces G secured to the depending horns of the foot-plate and the grippers L^3 L^3 with means for operating the same arranged between the foot-plate and the plate H, substantially as described.

578,082. ROLLER-SKATE. FRANK I. GIBBS and WILLIAM WRIGHT, Birmingham, England. Filed Aug. 12, 1895. Serial No. 559,066. (No model.) Patented in England Dec. 11, 1894, No. 24,038.



Claim.—In a roller-skate of the kind herein referred to, the combination with the metallic tread-plate A made with cross-bars a^6 of the inflatable india-rubber pad or cushion L fitting in said tread-plate under between and above the cross-bars to form a pneumatic tread substantially as hereinbefore described.

578,083. WAGON-HUB. WILLIAM G. HOWARD and ANTON ROLAND, Champaign, Ill. Filed Apr. 3, 1896. Serial No. 586,069. (No model.)



Claim.—1. The combination with the spindle and the removable cone-bearer thereon and means for centering the cone-bearer on the spindle, of the hub having an internal sleeve fitted to and bearing upon the cone-bearer, for the purpose and substantially as described.

2. The combination of the spindle, the removable cone-bearer thereon, the removable annular bearing on opposite sides of the cone-bearer and means for retaining these parts on the spindle; with the sleeve fitted in the hub having an annular conical recess fitting the cone, substantially as described.

3. The combination of the spindle, the removable non-rotatable cone-bearer and removable annular bearers fitted thereon; with the hub, having an internal sleeve provided with an annular conical recess fitting the cone, said sleeve being made in two parts separable at the apex of the annular recess, for the purpose and substantially as described.

4. The combination of the spindle, the removable cone-bearer A, and the removable annular bearers L and E on opposite sides thereof; with the sleeve formed of parts B, C, having flanges B' C' fitted together over the cone-bearer, substantially as described.

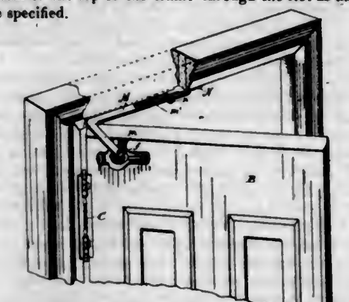
5. The combination of the axle, the spindle D, the screw-bolt F, and the cone-bearer A, with the hub, the sleeve therein formed of sections B, C, the cap K, and pin G, all substantially as described.

6. The combination with the spindle, the cone-bearer A, and annular bearers L and E on opposite sides thereof; with the sleeve formed of parts B, C, having flanges B' C' fitted together over the cone-bearer, the spindle-fastening bolt F, the cap K and pin G, all substantially as described.

578,084. DOOR-CHECK. JOHN F. LAKE, Toronto, Canada. Filed Apr. 14, 1896. Serial No. 587,503. (No model.)

Claim.—1. The combination with a door swung on double-acting spring-hinges, of a liquid door-check and a flat arm secured at one end to the operating-spindle of the liquid-check, arranged to cross over the top edge of the door and underneath the top of the door-frame, and a longitudinally-adjustable connection between the arm and bottom of the top portion of the frame as and for the purpose specified.

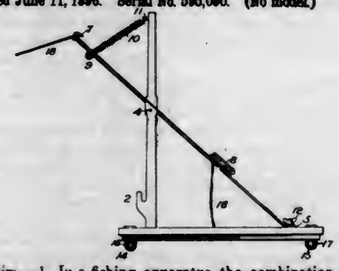
2. The combination with a door swung on double-acting spring-hinges, of a liquid door-check having a central operating-spindle suitably journaled in the top and bottom of the chamber and suitably connected to a piston of an L-shaped arm secured to the top of the spindle at one end and having the other end slotted and designed to be in alinement with the door when closed and a pin connecting it to the bottom of the top of the frame through the slot as and for the purpose specified.



3. The combination with a door swung on double-acting spring-hinges, of a liquid door-check and arm connecting the spindle of same to the bottom of the top of the frame as specified, a piston also suitably connected to the spindle by a jointed arm and a plurality of ports extending from the outer end of the cylindrical end of the liquid-chamber into a separate passage-way and means in the head of the piston for allowing the liquid to escape into the other portion of the chamber upon an extra pressure being exerted upon the door in the same direction to which it is closing as and for the purpose specified.

4. The combination with a door swung on double-acting spring-hinges, of a liquid door check or closer and arm connecting the spindle of same to the bottom of the door-frame as specified, a piston also suitably connected to the spindle by a jointed arm and a plurality of ports extending from the outer end of the cylindrical end of the liquid-chamber into a separate passage-way and a sleeve provided with slots and an open end in the head of the piston and a spring-pressed plug held in such sleeve, so as to normally close the slots as and for the purpose specified.

578,085. FISHING APPARATUS. LUTHER J. MELL, New York, N. Y., assignor of one-half to William S. Anderson, Mount Vernon, N. Y. Filed June 11, 1896. Serial No. 595,090. (No model.)



Claim.—1. In a fishing apparatus, the combination with a permanent support, of a standard or upright connected to the support, and a fishing-rod secured to the standard and also fastened to the support.

2. In a fishing apparatus, the combination with a standard or upright adapted for attachment to a permanent object, of a fishing-rod connected to the standard and to the permanent object, and a spring connecting the fishing-rod to the standard and adapted to offer resistance to the movement of the fishing-rod, substantially as described.

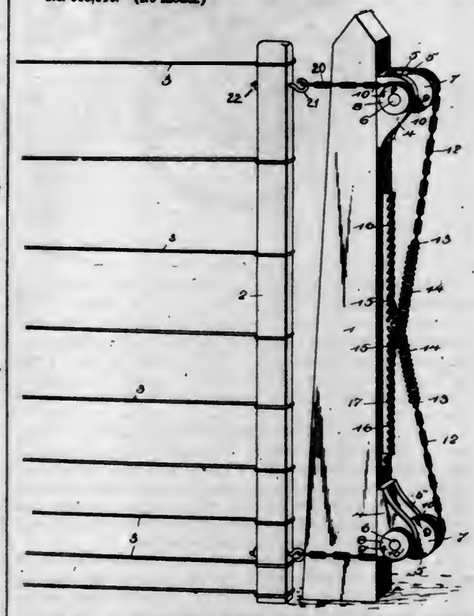
3. In a fishing apparatus, the combination with a standard or upright adapted for attachment to a permanent object, of a fishing-rod having its upper portion pivoted to the standard and its lower portion fastened to the permanent object, and a coil-spring connecting the free end of the fishing-rod to the upper end of the standard, substantially as described.

4. In a fishing apparatus, the combination with a standard or upright adapted for attachment to a permanent object, of a fishing-rod made of a spring wire or rod, said fishing-rod having its upper portion connected to the standard and its lower end connected to the permanent object and being provided with a hook or loop on its upper end and having a cleat on its lower portion, substantially as described.

5. In a fishing apparatus, the combination with a standard or upright adapted for attachment to a permanent object, of a fishing-rod formed of a piece of spring wire or rod pivoted to the standard and having its lower end secured to the permanent object, said fishing-rod being provided with an eye or loop for the fishing-line at its upper free end, and a coil-spring connecting the fishing-rod to the standard, substantially as described.

6. In a fishing apparatus, the combination with a standard or upright having a prong on its lower end and provided with a cleat adapted to receive the blows of a hammer or other implement for driving the prong in a support, of an inclined fishing-rod connected to the standard and to the support, substantially as described.

578,086. AUTOMATIC TENSION DEVICE FOR WIRE FENCES. CHARLES B. MCDANIEL, Germantown, Ohio. Filed Nov. 28, 1896. Serial No. 613,810. (No model.)



Claim.—1. An automatic tension device for wire fences, comprising the vertical bar 2, the fixed post 1, the brackets 4, the transverse shafts 6 journaled in said brackets, and provided with a grooved eccentric pulley and the grooved small pulleys, chains 12 secured at one end to the pulley 7 and at the other end to spiral springs adjustably secured to the post, the chains 20, one end of each of which is removably secured to the small pulleys 8 and at the other end to the hooks 21 adjustably secured in said bar 2, substantially as set forth.

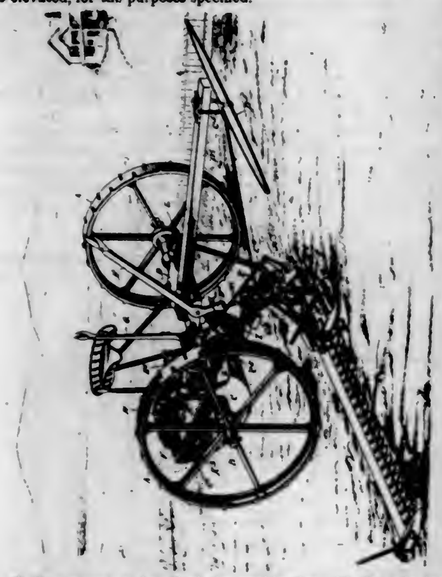
2. In an automatic tension device for wire fences, the combination with the post and the bar carrying the fence-wires, of sheaves eccentrically mounted on said post, flexible connections between the sheave and the fence-wire-carrying bar, springs, the inner ends of which are adjustably secured to the posts and the outer ends of which are fastened to a flexible connection secured to the eccentric sheaves, substantially as set forth.

578,087. MOWING-MACHINE. JAMES P. RITCHIE, Ritchie, Tenn. Filed Dec. 7, 1895. Serial No. 571,378. (No model.)

Claim.—1. In a mowing-machine as described, a frame held to swing on the axle, a tongue-frame secured to the axle, a shaft held to rock on the swing-frame, having a crank portion connected with the sickle-frame, said sickle-frame being hinged to the swing-frame, a single operating-lever secured to the tongue-frame, and connected to the swing-frame, and mechanism operated by the rise and fall of the swing-frame adapted to impart a rocking movement to the aforesaid rock-shaft for the purposes described.

2. In a mower as described, the combination with the axle, the swing-frame, the sickle, mechanism pivotally joined to the swing-frame, and the tongue-frame, of a rock-shaft journaled on the swing-frame, having a crank member connected to the sickle-carrier, and a

spring-actuated mechanism connected to the tongue-frame and the rock-shaft, adapted to exert a rocking force on such rock-shaft when it is elevated, for the purposes specified.

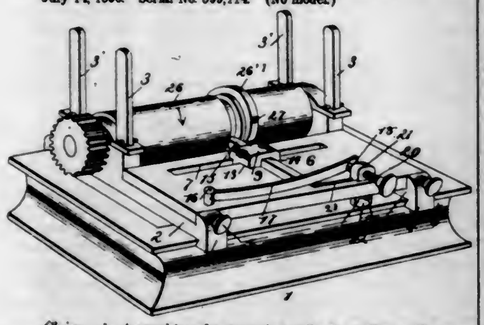


3. In a mower as described the combination with the swinging frame, the tongue-frame having a segmental rack portion, and the finger-bar hinged to the front end of the swinging frame, of the rock-shaft H, having a crank-member A, connected with the finger-bar, and provided with a segmental gear held to mesh with the rack portion on the tongue-frame, and the lever F, pivoted to the tongue-frame having a crank portion, connected to the swinging frame all arranged substantially as shown and for the purposes described.

4. In a mowing-machine as described, in combination a tongue-frame secured to the drive-axle, a swinging frame hinged thereto, a sickle-carrier pivotally connected to the swinging frame, a rock-shaft journaled on the swinging frame having a crank member connected with the sickle-carrier, and means mounted on the tongue-frame, and connected to the rock-shaft and swinging frame, for rocking the shaft as the swing-frame is raised or lowered as specified.

5. In a mowing-machine as described the combination with the swinging frame, the rock-shaft H, journaled thereon and connected with the sickle mechanism as described, of the tongue-frame having a segmental member G, the segmental gear I, held on the shaft H, the rod J, held to slide on the tongue-frame, having one end connected with the gear I, at a point below its normal axial line, the spring L, and the lever E, connected with the tongue-frame and the shaft H, all arranged substantially in the manner shown and for the purposes described.

578,088. TOOL FOR CUTTING IRREGULAR GROOVES IN ROLLS OF ROLLING-MILLS. JACOB G. WALTER, Altoona, Pa. Filed July 14, 1896. Serial No. 599,114. (No model.)



Claim.—1. A machine for grooving rolls for rolling-mills, comprising the adjustable cross-arms, provided with standards 3 3′ and integral lugs 4 having lag-screws 5, and the plate 6 provided with the slot 23, the adjustable lug 21 having the adjusting-screw 20, the spring 17 secured at one end to the stud 16 on the face of the plate 6, also provided with the longitudinal slot 7, in combination with the tool-post 9, adjustably secured in said slot 7, and provided with the rectangular slot 14, the grooving-tool 15, mounted in said slot 14 and provided with a laterally-projecting stud 28, and the pattern 26 removably secured to the roll by means of the sunken-head set-screws 27, substantially as and for the purpose set forth.

2. A machine for making irregular grooves in the rolls of rolling-mills, comprising the pattern secured to the roll, the tool-rest, the tool-post adjustably secured therein, and the grooving-tool mounted in said tool-post and provided with a slot 30, in which is adjustably secured the stud 28, on the projecting end of which is mounted a friction-roller, substantially as shown and described.

3. A machine for grooving the rolls of rolling-mills, comprising the bed-frame 1, the adjustable cross-arms 2 2, having standards 3 3′, and integral lugs 4 provided with lag-screws 5, the plate 6 secured on said arms, between the standards 3 3′ and the lugs 4, by said lag-screws, and provided with the stud 16, the spring 17 having one end secured to said stud, the adjusting-screw 20 engaging the opposite end of said spring and mounted in the lug 21, the leg 22 of which is adjustably secured in a slot 23 in said plate, in combination with the tool-post 9 adjustably secured in the longitudinal slot 7 in said plate 6, and provided with the rectangular slot 14, the grooving-tool 15 mounted in said slot, and provided with a slot 30, a stud 28 adjustably secured therein and provided with a friction-roller, and the pattern or templet 26, against the periphery of which said friction-roller on the stud 28 bears, substantially as and for the purpose set forth.

578,089. PROCESS OF EXTRACTING GOLD AND SILVER FROM ORES. JEAN F. WEBB, St. Louis, Mo. Filed June 20, 1896. Serial No. 596,261. (No specimens.)



Claim.—1. The process or method herein described for the extraction of gold and silver from their crushed ores, consisting in saturating the ores in a solution of potassium cyanid, and then applying a current of air from beneath in substantially the manner set forth.

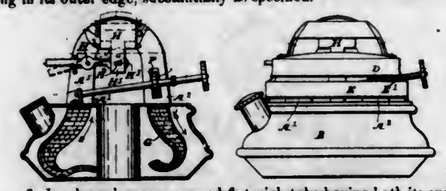
2. The process or method herein described for the extraction of gold and silver from their crushed ores, consisting in saturating the ores in a solution of potassium cyanid and then applying a current of compressed air from beneath and maintaining the same throughout the leaching process, substantially as set forth.

3. The process or method herein described for the extraction of gold and silver from their crushed ores, consisting in saturating the ores in a solvent solution of potassium cyanid, then applying a current of compressed air from beneath and maintaining the same throughout the leaching process, then shutting off the current, then applying a current of compressed air on top of the solution after the ore-containing vat has been closed at top and a drain at the bottom has been opened and maintaining the same until the solution has been driven out of the ore, substantially as set forth.

4. The process or method herein described for the extraction of gold and silver from their crushed ores, consisting in saturating the ores in a solvent solution of potassium cyanid, then applying a current of compressed air from beneath and maintaining the same throughout the leaching process, then shutting off the current, then applying a current of compressed air on top of the solution after the ore-containing vat has been closed at top and a drain at the bottom has been opened, and maintaining the same until the solution has been driven out of the ore, then shutting off the current of air, then admitting water to the vat, then introducing a compressed-air current at the bottom of the vat and finally introducing a current of compressed air on top after the vat has been again closed at top and a drain opened at bottom, substantially as set forth.

578,090. LAMP-BURNER. WILLIAM BOURKE, Brooklyn, N. Y., assignor to James F. McGuire, same place. Filed Aug. 5, 1896. Serial No. 601,711. (No model.)

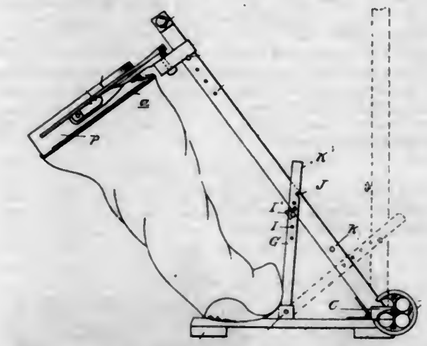
Claim.—1. In a lamp-burner, a curved flat wick-tube having both its ends opening into the oil-chamber of a lamp and its two flat sides being substantially in the same plane, and having a combustion-opening in its outer edge, substantially as specified.



2. In a lamp-burner, a curved flat wick-tube having both its ends opening into the oil-chamber of a lamp and its two flat sides being substantially in the same plane, and having a combustion-opening in its outer edge, in combination with a wick-moving device, substantially as specified.

3. In a lamp-burner, a flat wick-tube provided with a combustion-opening between its ends, and upon its edge, and having a wick-moving mechanism, and adapted to burn a flat wick from its edge, substantially as specified.

578,091. BAG-HOLDER. CASHIE J. CAIN, Stockbridge, Mich. Filed Sept. 18, 1896. Serial No. 606,254. (No model.)



Claim.—1. In a bag-holder, the combination of a platform, a standard, an elongated-U-shaped brace pivoted to the platform and embracing the standard, a cross-bar spanning this brace in front of the standard and adjustably secured thereto, a shoulder or pin on the standard adapted to engage on the cross-bar, notches in the brace near the ends and pins on the standard with which the notches are adapted to engage in the vertical position of the standard, substantially as described.

2. In a bag-holder, the combination with the platform, the standard hinged to the platform near one end and adapted to tilt over the platform, an elongated brace pivoted at its end to the platform and lying adjacent to the standard, and having a series of apertures, a detachable cross-bar adapted to engage in any one of the apertures, a headed stop or hook on the standard adapted to impinge upon the cross-bar, pins K on the sides of the standard with which notches in the brace are adapted to engage, the handle K′ formed by an extension of the brace beyond the standard, and a bag-holder carried by the standard, substantially as described.

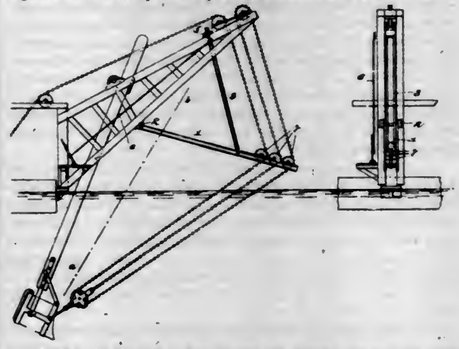
3. A bag-holder comprising a standard, a bracket thereon, an arm secured at or near its middle to said bracket, a bag-distending jaw secured to one end thereof, a lever pivoted to the other end of the arm, the complementary jaw secured to said lever, and means for holding the lever and arm in fixed relation to one another, substantially as described.

4. In a bag-holder, the combination of a bracket, a curved arm secured thereto to project upon both sides of the bracket, the bag-distending jaw secured to one end of the arm, a lever pivoted to the other end, a complementary jaw secured to the end of the lever, and a ratchet-bar on the opposite end of the curved arm with which the end of the lever is adapted to engage.

5. In a bag-holder, the combination with a supporting means, of an arm attached thereto, a bag-distending jaw carried by one end of the arm, a lever pivoted to the arm at or near its other end and carrying a second jaw, and means for holding the lever and arm in fixed relation to one another.

578,092. DREDGE-CRANE. WILLIAM CLIFFORD, Duluth, Minn. Filed Apr. 21, 1896. Serial No. 588,494. (No model.)

Claim.—1. In a dredge, the crane, boom and dipper thereof, the combination with the operating-chain, of an arm pivoted upon the crane, a link connecting the arm with the crane, and a lock for holding said link in its operative position, substantially as set forth.



2. In a dredge, the crane, boom and dipper thereof, the combination with the operating-chain, of an arm pivoted upon the crane, a link connecting the arm with the crane, and a lock making frictional contact with said link for locking the same in any position of its movement, substantially as set forth.

3. In a dredge, the crane, boom and dipper thereof, the combination with the operating-chain, of an arm pivoted upon the crane, a link connecting the arm with the crane, a stop 15 at the upper end of said link, and a buffer 16 on the crane with which said stop engages, substantially as set forth.

4. In a dredge, the crane, boom and dipper thereof, the combination with the operating-chain, of an arm pivoted upon the crane, a link connecting the arm with the crane, and a manually-operated lock engaging with said link, substantially as set forth.

5. In a clamp for dredges, the combination with the block 8, having ears 14 thereon, an eccentric 11 engaging with said block, and carrying a shaft 9, and the locking-plates 13 in combination with the links 3, 3, passing between said plates and ears, substantially as set forth.

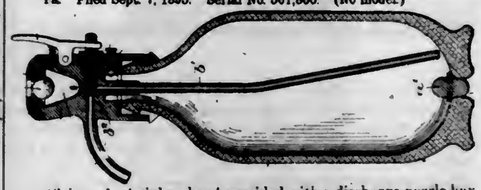
578,093. BLUE DYE. ALBERT CORENZI, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Dec. 21, 1896. Serial No. 616,535. (Specimens.) Patented in Germany Sept. 19, 1895, No. 86,971; in France Dec. 12, 1895, No. 252,415, and in England Dec. 12, 1895, No. 23,853.

Claim.—1. The process herein described of producing a blue basic dyestuff, which consists in heating diethylsafranin with paraphenylenediamin in presence of an indifferent solvent, substantially as set forth.

2. The process herein described of producing a blue basic dyestuff which consists in heating diethylsafranin obtained from diethylparaphenylenediamin and anilin with paraphenylenediamin under pressure and in presence of an indifferent solvent, substantially as described.

3. As a new product, the blue dyestuff obtained by heating diethylsafranin with paraphenylenediamin in the presence of an indifferent solvent, said dyestuff being a brownish-black powder, soluble in water and alcohol with a pure blue color; in concentrated sulfuric acid with a green color, turning on addition of water first to a pure blue and then to a reddish blue; being insoluble in ether, benzene and ligroine, and separating from its aqueous solution on addition of a caustic alkali or ammonia blue flakes from its color-base, substantially as set forth.

578,094. SIPHON-BOTTLE. GEORGE CORBIN, Jr., Philadelphia, Pa. Filed Sept. 7, 1895. Serial No. 561,860. (No model.)



Claim.—1. A siphon-head provided with a discharge-nozzle having communication with the interior of the bottle to which the head may be applied, a manually-operated release-valve to control such communication, an open charging-chamber formed in said head above

the nozzle, a passage or passages adapted to provide communication between said chamber and the interior of the bottle, a valve-seat at the mouth of said chamber, and a valve or seal therefor, substantially as described.

2. A siphon-head provided with a discharge-nozzle having communication with the interior of the bottle to which the head may be applied, a manually-operated release-valve to control such communication, an open charging-chamber formed in said head above the nozzle, a passage or passages adapted to provide communication between said chamber and the interior of the bottle, a valve-seat at the mouth of said chamber, and a seal contained in said chamber and adapted to be seated by the pressure of the confined gases within the latter, substantially as described.

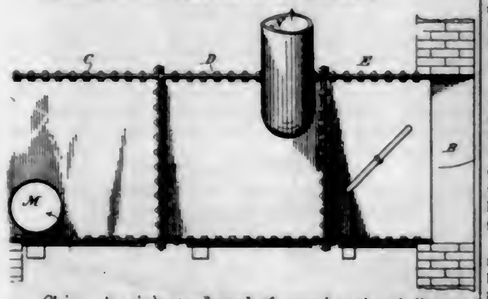
3. A siphon-head provided with a discharge-nozzle, a depending tube, a manually-operated release-valve that controls the communication between said nozzle and tube, an open charging-chamber formed in said head above the nozzle a passage or passages to provide communication between said chamber and the interior of the bottle to which the head may be applied, a valve-seat at the mouth of said chamber, and a seal contained in said chamber and adapted to be seated by the pressure of the confined gases within the bottle, substantially as described.

4. A siphon-head provided with a discharge-nozzle, a depending tube, a manually-operated release-valve that controls the communication between said nozzle and tube, an open charging-chamber formed in said head above the nozzle, a passage or passages adapted to provide communication between said chamber and the interior of the bottle to which the head may be applied, a valve-seat at the mouth of said chamber, a seal contained in said chamber and adapted to be seated by the pressure of the confined gases within the bottle, and a spring-actuated snifter-valve below said chamber, substantially as described.

5. A siphon-head provided with a discharge-nozzle, a depending tube, a manually-operated release-valve that controls the communication between said nozzle and tube, an open charging-chamber formed in said head above the nozzle, a passage or passages adapted to provide communication between said chamber and the interior of the bottle to which the head may be applied, a screw-collar on said head, an annular gasket fitted to the inner edge of said collar, and a spherical ball contained in the chamber and adapted to be seated against the gasket by the pressure of the confined gases within the bottle, substantially as described.

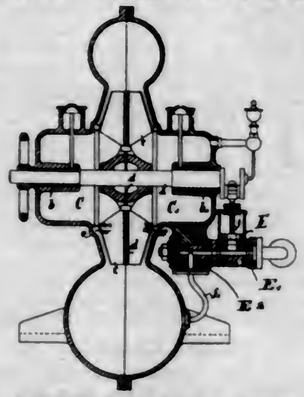
6. A siphon-head provided with a discharge-nozzle, a depending tube, a manually-operated release-valve that controls the communication between said nozzle and tube, an open charging-chamber formed in said head above the nozzle, a passage or passages adapted to provide communication between said chamber and the interior of the bottle to which the head may be applied, a screw-collar on said head, an annular gasket fitted to the inner edge of said collar, a spherical ball contained in the chamber and adapted to be seated against the gasket by the pressure of the confined gases within the bottle, a vent or passage in the side of the head, at a point below the release-valve, and a spring-controlled valve fitted to said vent or passage, the stem of said valve projecting exteriorly of the head, substantially as described.

578,095. AIR-HEATER. ROBERT CRAWFORD, New York, N. Y. Filed July 13, 1896. Serial No. 598,916. (No model.)



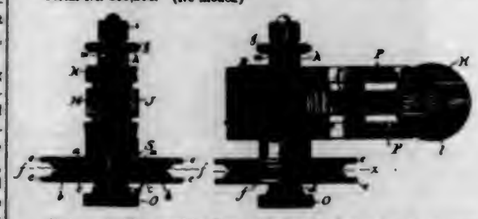
Claim.—An air-heater formed of several sections built up of angle-plates detachably secured together by means of bolts, provided with intermediate longitudinal partitions forming between them a main flue and forming between them and the adjacent walls of the heater air-flues, series of pipes in each section disposed across the same in staggered lines provided with threaded ends and detachably secured in said partitions by means of lock-nuts, said air-flues connecting through said pipes and provided with transverse partitions to deflect the air-current alternately from one flue to the other through the several series of air-pipes, substantially as described.

578,096. BLOWER. FRIEDRICH EHRHARDT, Wellesweiler, Germany. Filed Oct. 13, 1896. Serial No. 608,128. (No model.)



Claim.—A ventilator having lateral suction-pipes and central lower delivery-pipes, and a fan c having central partition *d*, angle-rings W W' and a corresponding annular depression formed in the fan-casing, a fan-shaft having crank exterior of the casing, a compressed-air cylinder E to drive said fan-shaft, a hollow trunnion E' mounted in the ventilator-casing the interior of said trunnion communicating with the bottom of said cylinder and a pipe connection to conduct the exhaust-air into the blower, and means for supplying compressed air to the cylinder and suitable ports in said trunnion and cylinder substantially as described.

578,097. THREAD-FEEDING DEVICE FOR SEWING-MACHINES. GIBBONS FRANK, Philadelphia, Pa. Filed Nov. 16, 1887. Serial No. 255,296. (No model.)



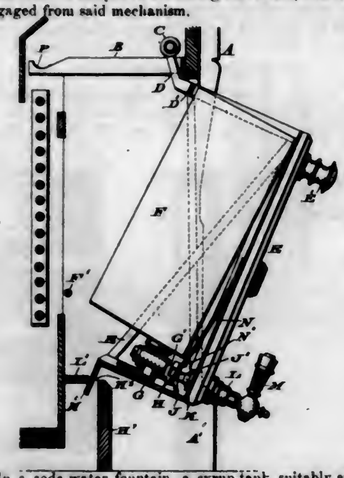
Claim.—1. The combination, with the stitch-forming mechanism and its driving-shaft and with the thread-supply, of a thread-feeding wheel intermediate between said supply and said stitch-forming mechanism, said thread-feeding wheel having a periphery adapted to receive one or more turns of the thread and frictionally engaging the same by winding contact alone, means substantially as set forth whereby the periphery of said wheel may be enlarged and contracted, and intermittently-acting rotating mechanism substantially as described for said wheel, said rotating mechanism being positively driven from said driving-shaft, whereby the feeding of the thread in conformity with the demands of the stitch-forming mechanism is effected without pinching, substantially as set forth.

2. The combination, with the stitch-forming mechanism and the thread-supply, of an intermediately-placed thread-feeding wheel comprising several segments mounted upon independent supports; a movable cone upon which the supports of said segments rest, and by whose adjustment said supports may be moved radially to increase or diminish the periphery of the wheel; and a shaft supporting said thread-feeding wheel and its cone, said shaft being operatively related to the main driving-shaft of the machine, substantially as set forth.

3. The combination of the driving-shaft, N, the wheel, K, having flanges, *a*, *c*, and a central cavity, S, the segments, *b*, moving freely between said flanges, the inwardly-projecting supports, *c*, extending into said cavity, the cone-nut, O, engaging with a thread upon the end of the driving-shaft and the rubber band, *f*, surrounding the outer periphery of said segments, substantially as and for the purposes set forth.

578,098. SODA-WATER FOUNTAIN. ROBERT M. GREEN and ROBERT M. GREEN, Jr., Philadelphia, Pa. Filed Dec. 2, 1896. Serial No. 614,179. (No model.)

Claim.—1. In a soda-water fountain, a syrup-tank suitably supported, outlet-controlling mechanism therefor, and means for imparting to said tank a compound oscillating movement, whereby it will be disengaged from said mechanism.



2. In a soda-water fountain, a syrup-tank suitably supported, outlet-controlling mechanism therefor, and means for imparting to said tank a compound oscillating movement whereby it will be disengaged from said mechanism, and access can be had to the interior.

3. In a soda-water fountain, a syrup-tank, discharging mechanism a compartment or chamber in which the same is suspended, and means for imparting to said tank an oscillating movement, independent of said compartment, whereby the movement of the chamber disconnects said discharging mechanism.

4. In a soda-fountain, a syrup-tank, having a faucet and operating mechanism therefor, and means for imparting a compound movement to said tank, in combination with means for disconnecting said operating mechanism from the discharge-plug of said faucet, during said compound movement.

5. In a soda-fountain, a syrup-tank within a suspended container, in combination with means for oscillating said tank with its container and for simultaneously disconnecting the outlet-controlling mechanism of the tank from its actuating device, so that said tank may be readily withdrawn.

6. In a soda-water fountain a syrup-tank, means for supporting the same, means for imparting to the upper portion of said tank a forward movement and simultaneously to the lower portion of said tank a backward movement both independent of the containing-chamber, whereby the faucet of said tank is disconnected from its operating mechanism.

7. In a soda-water fountain, a syrup-tank, a suspended container therefor, a faucet for said tank, the plug of said faucet being detachably connected with its actuating device, means for oscillating said tank with its container and for simultaneously disconnecting said plug from said actuating device.

8. In a soda-water fountain, a movable container E, runways adjacent thereto, arms projecting from said container and having rollers thereon adapted to travel on said runways, a depression in the rear of the latter, a tank supported in said container, a faucet attached to said tank, an operating device for said faucet, the plug of said faucet being detachably connected with said device, springs attached to said container and having their free ends bearing on said tank, stationary pins interposed between said springs and the container, and a rear cross pin or rod adapted to contact with the rear wall of said tank while the same is assuming a substantially upright position.

9. In a soda-water fountain a suspended container, a tank supported therein, and a flange depending from the base of the container, said flange being confined or inserted in an adjacent opening or passage, in combination with means for projecting the upper portion of the tank beyond the front casing of the fountain, and means for disconnecting the outlet-controlling mechanism of the tank from its actuating device.

10. In a soda-water fountain, a container, a tank supported therein, a faucet attached to said tank, the plug of said faucet having a recessed head, a stem operated from the exterior of the container and having a tongue or key adapted to interlock with said recessed head, means for oscillating said container and means for causing said head and tongue to become disengaged when said container is in a tilted position, so that the tank may be readily withdrawn, together with means for causing said container to return and assume an upright position after the tank has been withdrawn.

11. In a soda-water fountain, a suspended container, rollers attached thereto, a runway for said rollers having a depression in its rear portion, a tank supported in said container, a faucet attached to said tank, an actuating device detachably connected with said faucet, and means for oscillating said tank and container and for simultaneously moving said faucet out of engagement with its actuating device, in combination with means for automatically causing the interlocking of said actuating device and faucet when said tank assumes an upright position.

12. In a soda-water fountain, a syrup-tank, a discharging mechanism, a support for said tank, means for imparting to said tank a compound oscillatory movement, whereby it can be withdrawn from its support, and means for returning said tank into position and reëngaging its discharging mechanism.

13. In a soda-water fountain, a syrup-tank having a faucet and operating mechanism therefor, means for imparting to said tank a compound oscillatory movement, and means for automatically locking or unlocking said faucet and its operating mechanism during said movement.

14. In a soda-fountain, a tank-container having a faucet-operating mechanism connected therewith, a tank adapted to be withdrawn from said container, and having a discharge-plug and means for automatically connecting and disconnecting said plug and faucet-operating mechanism.

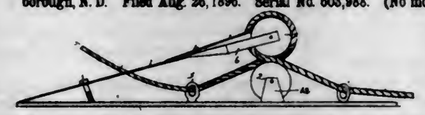
15. In a soda-fountain, a suspended tank-container having a faucet-operating mechanism connected therewith, a tank in said container, and means connected with said container and bearing against the lower end of the front of said tank for assisting in imparting a compound oscillatory movement to said tank.

16. In a soda-fountain, a suspended tank-container, a tank supported in said container, and a stationary pin adapted to contact with the lower portion of the rear of said tank, thereby imparting a forward movement to said tank on the pushing inwardly of said container.

17. In a soda-fountain, an oscillating tank-container having a faucet-operating mechanism connected therewith, a tank in said container adapted to be withdrawn from the top thereof, a spring connected with said container and adapted to contact with said tank, and a stationary pin limiting the movement of the free end of said spring.

18. In a soda-fountain, an oscillating tank-container having a faucet-operating mechanism connected therewith, a tank in said container having a discharge-plug, a spring connected with said container, a stationary pin controlling the free end of said spring for automatically connecting or disconnecting said faucet-operating mechanism and said discharge-plug, and a stationary pin adapted to contact with the rear of said tank for imparting a forward movement thereto.

578,099. TWINE TENSION DEVICE. CHARLES HANSON, Hillsborough, N. D. Filed Aug. 26, 1896. Serial No. 603,988. (No model.)



Claim.—A twine tension device consisting of a roller mounted on a base, a spring-section mounted on said base a roller journaled in the said section and playing opposite the first said roller, the twine passing between the two said rollers, a bolt or other device connecting the spring-section and the base and adapted to regulate the pressure of the upper roller; a spring-arm mounted on said spring-section, one end of the said arm bearing against the roller in the spring-section, a bolt or other device connecting said arm and section and adapted to regulate the pressure on the said roller.

578,100. WIRE-FASTENER. WILLIAM G. HAY, Jacksonville, Mo. Filed Apr. 7, 1896. Serial No. 586,579. (No model.)



Claim.—1. In a wire-fastener, a nail or staple having an overhanging head, in combination with a clamping-plate having its upper face opposing the under face of said head, one of said faces having a pair of angular holding edges separated by an intermediate recess and

the other face having one or more angular ridges arranged to register with said recess, substantially as described.

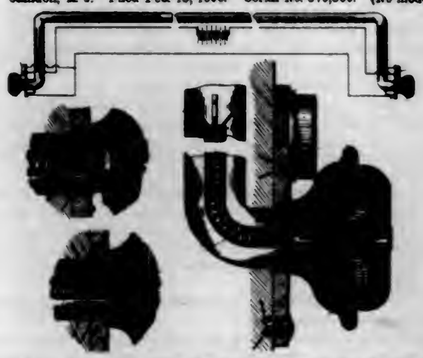
2. In a wire-fastener the combination with a nail or staple having longitudinal angular flanges and an intermediate recess upon the under side of its head, of a clamping-plate having one or more angular ridges upon its surface arranged to register with the recess between the flanges on the head, substantially as described.

3. In a wire-fastener the combination with a nail or staple having longitudinal angular flanges and an intermediate recess upon the under side of its head, of a clamping-plate having one or more angular ridges upon its surface arranged to register with the recess and a perforation at one end through which the body of the nail is adapted to pass, substantially as described.

4. A nail or staple having a head wider than the body and formed substantially at right angles thereto, the under side of the head being recessed longitudinally and provided with angular longitudinal side flanges, substantially as described.

5. A nail or staple having a wedge-shaped point or points, and a head C having the recess E, the angular flanges F, and inclined sides G, substantially as described.

578,101. SPEAKING-TUBE ATTACHMENT. EDWIN C. HESS, Camden, N. J. Filed Feb. 15, 1896. Serial No. 579,369. (No model.)



Claim.—1. An attachment for speaking-tubes comprising an extensible tubular section arranged within the tube proper with a space therebetween, a mouthpiece on the tube proper and a receiver on the tubular section adapted to be drawn within the mouthpiece as and for the purpose described.

2. An attachment for speaking-tubes, comprising an extensible tubular section arranged within the tube proper, so as to leave a space therebetween, a spider on the inner end of the extensible section to permit said space, a receiver on the other end of the extensible section and a mouthpiece on the end of the tube proper, as and for the purpose described.

3. In a device of the character described, a tube proper, a mouthpiece on the end thereof, a flexible tubular section arranged within the tube proper, a spider on the end of the flexible section adapted to connect it with the tube proper, and a receiver on the other end of the flexible section adapted to fit within the mouthpiece, as and for the purpose described.

4. An attachment for speaking-tubes comprising an extensible tubular section arranged within the tube proper with a space therebetween, a spiral spring secured within the tubular section, a mouthpiece on the tube proper and a receiver on the tubular section as and for the purpose described.

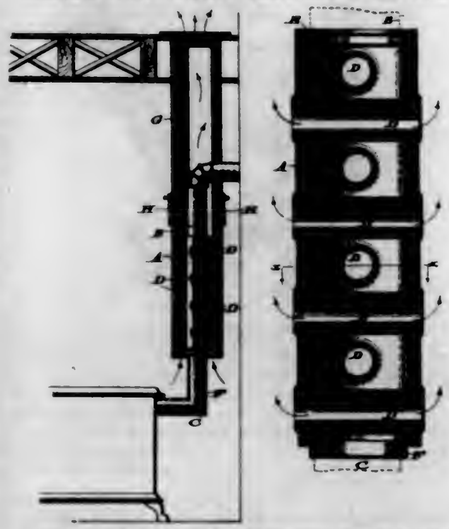
5. In a device of the character described a flexible tube having a button secured thereon and a receiver journaled on said button as and for the purpose described.

6. In a device of the character described a flexible tube having a grooved button secured thereon and a receiver having a pocket in which said button is inclosed whereby the receiver may be turned at different angles to the tube as and for the purpose described.

7. An attachment for speaking-tubes consisting of an extensible tube secured within the ordinary tube, a grooved button secured on the end thereof, a mouthpiece on the ordinary tube and a receiver journaled on the button as and for the purpose described.

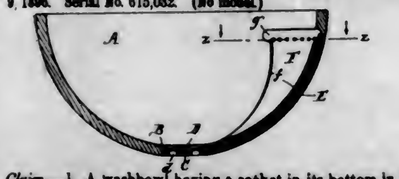
8. In a device of the character described a tube proper, a spider secured therein, an extensible tube of smaller diameter than the tube proper attached to the spider, a spiral spring within the extensible tube, a mouthpiece on the end of the tube proper, a grooved button having a tube-section secured within the end of the extensible tube and a receiver having a pocket containing the button and an opening to the pocket of greater diameter than the tube-section and less diameter than the button through which the tube-section projects forming a universal joint between the extensible tube and the receiver and said receiver being normally contained within the mouthpiece by means of the action of the spiral spring as and for the purpose described.

578,102. RADIATING ATTACHMENT FOR STOVEPIPES. JAY H. HOOVER, Pottsville, Pa., assignor of one-third to John H. Kaiser, same place. Filed Nov. 14, 1895. Serial No. 568,928. (No model.)



Claim.—A drum with air-flues therein, annuli connected with the ends of said drum, pipes connected with said annuli, a jacket open at bottom surrounding said drum, and a portion of the pipe above the same, and a register in said jacket.

578,103. WASHBOWL. FRANK JONES, Chicago, Ill. Filed Dec. 9, 1896. Serial No. 615,032. (No model.)



Claim.—1. A washbowl having a socket in its bottom in which are openings, in combination with a disk having openings therein and flanges on the under face of said disk and surrounding the openings therein and entering the openings in the bottom of the said socket, and another disk located on said first-named disk and adapted to retain water in the bowl, substantially as specified.

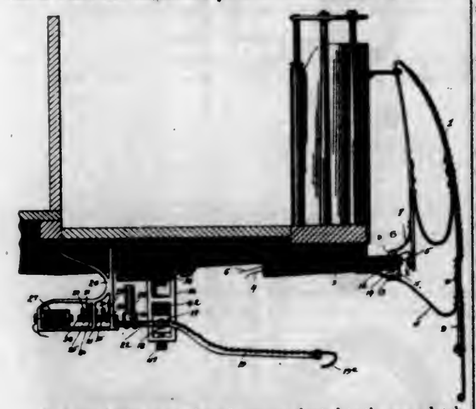
2. A washbowl having a socket in its bottom in which are openings, in combination with a disk having openings therein and flanges on the under face of said disk and surrounding the openings therein and entering the openings in the bottom of said socket, another disk located on said first-named disk and provided with openings adapted to register with the holes in the first-named disk, and means for rotating the upper disk, substantially as specified.

3. A washbowl provided with a discharge-opening, a rotatable disk covering said discharge-opening, a lever for rotating said disk, a recess formed in the bowl for receiving said lever, and flanges at the sides of said recess beneath which said lever can be swung, substantially as specified.

4. The combination with the bowl A having an annular socket B provided with openings *d*, a disk C having openings *b* and flanges *c* that project into the openings *d* to hold the flange against rotation, a disk D also within the socket B and upon the disk C and being provided with openings *e* adapted by the rotation of the disk to be brought in line with the openings in the disk C, and a curved lever E secured at one end to said disk D, substantially as specified.

578,104. CAR-FENDER. PAUL JONES, Cincinnati, Ohio. Filed July 15, 1896. Serial No. 599,267. (No model.)

Claim.—1. A car-fender consisting of a scoop so pivoted as to guard the truck-wheels of the car, means for holding said scoop in its elevated position, a magnet for releasing said scoop, a solenoid for depressing the outer end of the scoop and means for closing the circuit in which said magnet and solenoid are included, as specified.



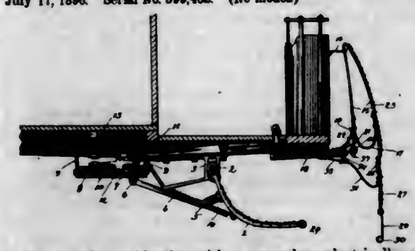
2. A car-fender consisting of a scoop pivoted to the car, a latch-rod for holding said scoop in its elevated position, a magnet for withdrawing said rod from engagement with the scoop, a core carried by the scoop, a solenoid adapted to attract said core and means for closing the circuit in which said magnet and solenoid are included, as shown and described.

3. In a car-fender, the combination of a scoop pivoted to the car, a latch-rod for holding said scoop in its elevated position, an armature carried by said rod, a magnet for attracting said armature, a core loosely mounted upon an extension of the scoop, a compressible plug for holding said core normally in its proper relative position to said extension, a solenoid arranged to attract said core, and a buffer-frame adapted to close the circuit in which said magnet and solenoid are included when coming in contact with an obstruction, as shown and described.

4. In a car-fender, the combination of a buffer-frame, carrying contact-points, contact-points located upon the car, means for holding the contact-points upon said buffer-frame against the contact-points upon the car when said frame comes in contact with an obstruction, a circuit in which said contact-points are located, a magnet also located in said circuit, an armature arranged within the magnetic field of said magnet, a point carried by said armature, a rod connected to but insulated from said armature, a point carried by said rod, points 31 and 33, arranged to act in conjunction with the points carried by the armature and rod respectively, a solenoid adapted to be energized when the armature has been attracted by its magnet, a core arranged to be drawn within the solenoid, a scoop pivoted to the under side of the car having an extension to which the core is loosely attached and a compressible plug adapted to hold said core in its proper relative position to said extension, substantially as and for the purposes set forth.

5. In combination with the scoop of a car-fender of the character described, a lever 53, carrying a contact-point 56, carried by a swing, a buffer-pin 60, arranged to force said lever upward, an arm 69, carried by a depending shield, also adapted to force said lever upward, and a latch for retaining the points in contact as specified.

578,105. CAR-FENDER. PAUL JONES, Cincinnati, Ohio. Filed July 17, 1896. Serial No. 599,482. (No model.)

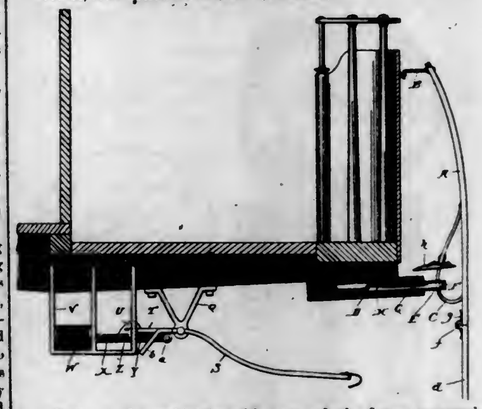


Claim.—1. In combination with a car and an electrically-operated fender carried beneath said car, of a buffer-frame carried upon the end of said car, contact-points carried by said frame, contact-points carried upon the car, a shield hinged to said buffer-frame, and means for closing the circuit for vitalizing the magnet when said shield is swung rearward, substantially as and for the purpose set forth.

2. In combination with a fender of the character described, a buffer-frame secured to the end of the car, contact-points carried by said frame, contact-points carried by the car, springs for holding the frame in a forward position, wires for connecting the contact-points with the circuit, a shield hinged to the frame, an apron depending from the shield, springs carried by said shield, springs 33 carried by the car, against which the first-named springs bear, whereby when either the buffer-frame or shield is forced rearward the circuit will be closed, substantially as and for the purpose set forth.

3. The herein-described combination of a scoop-frame pivoted to the under side of the car, mechanism for holding said fender in an elevated position, means—as an electromagnet and armature located within the field thereof—for tripping said frame, contact-points located upon the car, a buffer-frame secured to the end of the car, springs for holding said frame in a forward position, contact-points arranged upon said frame, wires for connecting the last-named contact-points with the feed-wire, wires for connecting the first-named contact-points with the magnet, a shield hinged to the buffer-frame, an apron depending from said shield, springs for holding said shield and apron forward, springs 33 so arranged as to serve as circuit-makers, and springs 31 secured to the shield and adapted to so move the springs 33 as to make the circuit, substantially as and for the purposes set forth.

578,106. CAR-FENDER. PAUL JONES, Cincinnati, Ohio. Filed Oct. 31, 1896. Serial No. 610,666. (No model.)



Claim.—1. In combination with a car, a fender-frame supported by the dashboard of said car, a spring carried by said frame, a housing having projecting ears between which the spring is guided, an electric circuit, a circuit-closure adapted to be operated by the rearward portion of the fender-frame, means for retaining said frame in its backward position, a scoop-frame pivoted beneath the car, a latch-hook for retaining said frame in its normally-elevated position, a solenoid arranged to retract the latch-hook when the circuit is closed, and rolls carried by the core of the solenoid and arms on the scoop-frame cooperating with the rollers for giving the scoop-frame an initial downward movement, as specified.

2. In combination, an electric circuit, a solenoid included within said circuit, a core arranged to be drawn within the solenoid when the latter is vitalized, a scoop-frame pivoted beneath the car and having an extension, a latch-hook carried by the core and adapted to engage said extension, inclined arms formed with the scoop-frame, rolls carried by a rod connected to the core and arranged to act upon the inclined arms, and means for closing the circuit when the fender meets sufficient resistance, substantially as and for the purpose set forth.

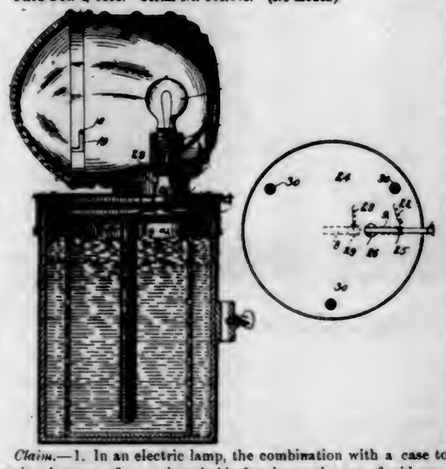
3. In combination with a car, a fender-frame carried upon the dashboard thereof, of an electric circuit, a circuit-making mechanism under control of the fender, a scoop-frame pivoted beneath the car, an extension formed with said frame, a latch-hook for engaging said extension, a rod upon which said hook is formed, a core attached to the rod, a solenoid adapted to draw the core inward when vitalized by the closing of the circuit, inclined arms formed with the scoop-frame, and rolls carried by the rod for operating upon the arms to depress the outer end of the scoop-frame, substantially as and for the purpose set forth.

4. In combination with a scoop-frame and actuating mechanism of the character described, of a housing, a lever I pivoted therein, a circuit leading from the solenoid-actuating mechanism to contact-

points, one of which is carried by the lever, and the other by a suitable spring, a spring for holding the lever in its normal position, a latch-nose formed upon said lever, a spring C carried by the fender and held in its normal position by a pin F, and a spring G to which said pin is attached, all arranged substantially as and for the purpose set forth.

5. The herein-described combination of a fender A, supported by the dashboard of a car, a spring C carried thereby, a housing D having projecting ears which act as guides for the spring, a spring G, a pin F carried by said spring for holding the spring C in its normal position between the ears, a lever I pivoted within the housing, said lever having a latch-nose formed thereon and adapted to engage with the spring C, when the latter is forced rearward, a spring K for holding the lever in its normal position, a contact-point M carried by the lever, a contact-point N carried by a suitable spring, circuit-wires leading to and from contact-points, a solenoid included within the circuit, a suitable bracket for supporting said solenoid, a core arranged in proper position to the solenoid, a rod carried by said core, a latch-hook formed with the rod, hangers projecting downward from the under side of the car, a scoop-frame pivoted between said hangers, an extension T formed with said frame and with which the latch-hook is adapted to engage, inclined arms also formed with the scoop-frame, rolls carried by the rod for actuating said arms, and springs Z for returning the solenoid to its normal position, substantially as and for the purpose set forth.

578,107. ELECTRIC LAMP. MILTON M. KOHN, Chicago, Ill. Filed Dec. 4, 1896. Serial No. 571,073. (No model.)



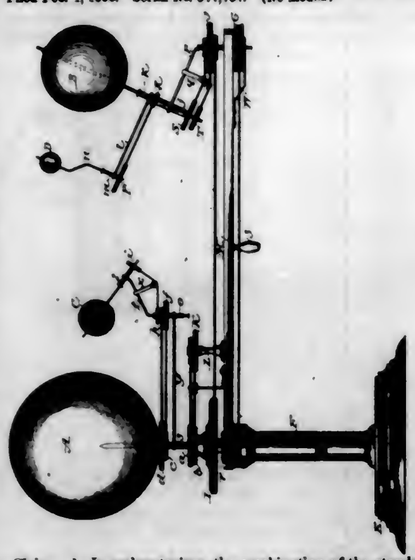
Claim.—1. In an electric lamp, the combination with a case to contain a battery, of a cap detachably fitted over the top of said case, contact-pieces connected to the positive and negative elements and mounted upon an insulating-plate which forms a seal for the battery, contacts mounted upon the detachable cap and electrically engaged with the contacts upon the seal-plate when said cap is fitted upon the case, and a hand-operated switch pivoted upon the cap to cut the lamp into and out of circuit, substantially as described.

2. In an electric lamp, the combination with a case to contain a battery, of a detachable cap fitting over the end of said case, an insulating-plate forming a permanent seal for the battery and a support for the battery elements, a reflector carried by the detachable cap, an electric lamp mounted in a socket on the reflector, contacts mounted upon said sealing plate and cap, respectively, and brought into electrical engagement by fitting the cap upon the case, and a switch pivoted upon the cap, substantially as described.

3. In an electric lamp, the combination with a case to contain an electric battery, of a detachable cap for said case, a reflector mounted on said cap, an electric lamp carried by said reflector, an insulating-plate in said cap, contact-plates carried thereby, corresponding contact-plates mounted on an insulating seal-plate and connected to the poles of the battery, said contacts being engaged with those carried by the cap when said cap is attached to said case, and a switch pivoted on the cap for cutting said lamp into and out of circuit, substantially as described.

4. In an electric lamp, the combination with a case to contain an electric battery of a detachable cap for said case, a reflector on said cap, an electric lamp carried by said reflector, a switch on the cap, and contacts carried by the cap and by a permanent seal for the battery, automatically engaged with each other when the cap is attached to the case, substantially as described.

578,108. PLANETARIUM. ALEXANDER LAING, Essex, Canada. Filed Feb. 1, 1896. Serial No. 577,757. (No model.)



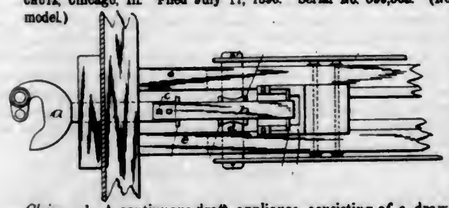
Claim.—1. In a planetarium, the combination of the standard F carrying the sun-globe A and the stationary disk I, the arm H pivoted to said standard, the bent rod P having its vertical arm passed through the outer end of arm H and supported by the plate W, the pulley G firmly secured to rod P beneath arm H, the triple pulley J loosely carried by rod P, above arm H, the sleeve *j* secured to the upper end of rod P, the sleeve *k* revolubly supported in sleeve *j*, and having the pulley S fast to its lower end, an earth-supporting rod passing through sleeve *k*, carrying an earth-globe at its upper end and having the pulley T fast to its lower end, the rod *q* fast to the bent portion of arm P and carrying four idlers at its lower end, and separate belts passed respectively from the upper part of standard F around pulley G, from disk I around the lower member of the triple pulley J, from the middle member of pulley J beneath the two idlers on arm *q* to and around pulley T, and a belt passing from the upper member of pulley J beneath two of the iders on arm *q* to and around pulley S, the whole being arranged and combined so that, as the arm H is rotated around standard F the parallelism of the earth's axis will be constantly maintained, as well as the earth rotated on its axis and revolved around the sun, substantially as described.

2. In a planetarium the combination of a standard, a rotatable arm pivoted to said standard, the rod P carried at the outer end of said arm, the sleeve *j* supported at the outer end of said rod, the sleeve *k* carried by sleeve *j*, the pulley R fast to sleeve *j*, the arm *l* carried by sleeve *k* and having the sleeve *m* secured at its outer end, the bent rod *n* passing through sleeve *m*, carrying moon-ball at its upper end and having pulley P fast to its lower end, and a belt from pulley R to and around pulley P, substantially as described, for the purpose specified.

3. In a planetarium, the combination of the standard F provided with an upwardly-projecting spindle, the stationary pulleys *c* and *d* firmly fixed to said spindle, the sleeve *s* loosely supported by said spindle, the arm *y* attached to sleeve *s* and having fast to its outer end sleeve *o*, the bent rod *t* supported by sleeve *o*, the pulley *f* fixed to rod *t*, the pulley *h* loosely carried by rod *t*, a collar 2 mounted at the outer end of said rod *t*, a planet-supporting spindle carried by collar 2, having the ball C fixed to its upper end, and the pulley *i* attached to its lower end, the bar *x* attached to the bent portion of the rod *t*, carrying two idlers fast to its lower end, and separate belts passed respectively from stationary pulley *c* around pulley *f*, from stationary pulley *d* crosswise to and around the lower part of pulley *h* and from the upper part of pulley *h* beneath the idlers on the bar *x* to and around pulley *i*, substantially as described.

4. In a planetarium the combination of a standard F provided with an upwardly-projecting spindle, a sleeve *s* loosely carried by said spindle, an arm *y* attached to said sleeve *s*, carrying at its outer end the planet C with rotating mechanism, the stationary disk *a* fast to sleeve *s*, and the stationary disk *b* firmly fixed to the tapered part of standard F, the rotatable arm H pivoted to standard F, the stud L firmly fixed to the arm H and carrying at its upper end the differential loose pulley K, a belt passing from the lower part of pulley K to and around stationary disk *b*, and a cross-belt from the upper part of pulley K to and around the stationary disk *a*, the whole being arranged and combined so that, as the arm H is rotated around standard F, the parallelism of the axis of planet C will be constantly maintained, also the planet will be rotated on its axis and at the same time revolved around the sun, all substantially as described.

578,109. DRAFT-GEAR FOR FREIGHT-CARS. ARTHUR LIPSCHUTZ, Chicago, Ill. Filed July 17, 1896. Serial No. 599,562. (No model.)



Claim.—1. A continuous-draft appliance consisting of a draw-bar, a spring strap or yoke secured to the draw-bar, a draft-key independent of the draw-bar and laterally extended through the spring strap or yoke, draft-rods respectively secured to the ends of the draft-key and springs on each side of the draft-key.

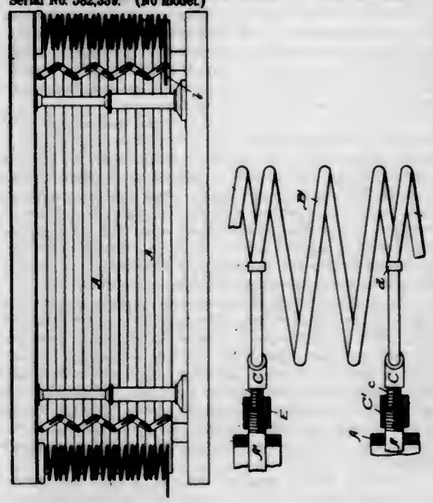
2. A continuous-draft appliance consisting of a draw-bar, a spring strap or yoke secured to the draw-bar, a draft-key, a twin follower through which the draft-key passes, springs disposed on either side of the draft-key and bearing against the twin follower and draft-rods secured to the ends of the draft-key.

3. In a continuous-draft appliauce consisting of a draw-bar, a spring strap or yoke secured to the draw-bar, a draft-key independent of the draw-bar and laterally extended through the spring strap or yoke, draft-rods respectively secured to the ends of the draft-key and springs on each side of the draft-key together with a follower and a stop or stops engaging the follower to limit the traverse of the draw-bar.

4. A continuous-draft appliance consisting of a draw-bar, a spring strap or yoke secured to the draw-bar, a draft-key independent of the draw-bar, longitudinally-extended sills having slots therein through which the draft-key passes and in which said key has its movement independent of the draw-bar, draft-rods secured to the ends of the draft-key and a spring or springs acted upon by the draft-key and spring-yoke.

5. A continuous-draft appliance consisting of a draw-bar, a spring strap or yoke secured to the draw-bar, a draft-key independent of the draw-bar and laterally extended centrally through the spring-yoke, a twin follower through which the draft-key passes, a pair of springs, one on each side of the twin follower, the one ends of which springs bear against said twin followers and followers within the end portions of the spring-yoke against which the other ends of the springs bear.

578,110. STEAM FEED-PIPE FOR PLATEN LUMBER-DRIERS. FRANCIS W. MALLETT, New York, N. Y., assignor to George B. Howard, same place, and Aaron S. Nichols, Chicago, Ill. Filed Mar. 9, 1896. Serial No. 582,339. (No model.)



Claim.—1. The combination with the movable platens of a lumber-drier, of a flexible coiled feed-pipe connected to the platens and adapted to move with them, substantially as specified.

2. The combination with the movable platens of a lumber-drier, of a flexible coiled feed-pipe consisting of short coiled sections and couplings uniting the same, said feed-pipe being connected to the platens and adapted to move with them, substantially as specified.

3. The combination with the movable platens of a lumber-drier, of a flexible coiled feed-pipe consisting of short coiled sections and couplings serving both to unite the adjacent sections together and as a means of joining the platens to the feed-pipe, substantially as specified.

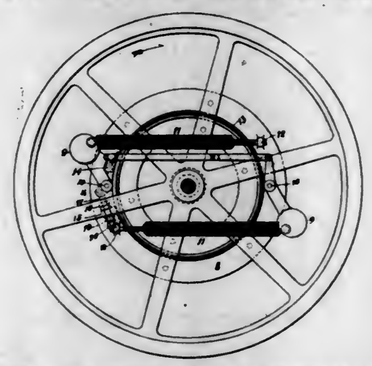
4. The combination with the movable platens of a lumber-drier, of a flexible coiled feed-pipe connected to the platens and adapted to move with them, and stays for preventing flexure in said feed-pipe at the joints, substantially as specified.

5. The combination with the movable platens of a lumber-drier, of a flexible coiled feed-pipe connected to the platens and adapted to move with them, and stays rigid with the platens for holding the pipe against flexure at the joints, substantially as specified.

6. The combination with the movable platens of a lumber-drier, of a flexible coiled feed-pipe coupled to the platens and stays attached to the couplings uniting the feed-pipe to the platens, and serving to hold the feed-pipe rigid at its junction with the couplings, substantially as specified.

7. The combination with the movable platens of a lumber-drier, of a flexible coiled feed-pipe connected to the platens and adapted to move with them, the feed-passages connecting the feed-pipe with the platens being graduated to regulate the amount of steam admitted to the platens, substantially as specified.

578,111. CENTRIFUGAL SPEED-REGULATOR. LEWIS H. NASH, South Norwalk, Conn., assignor to the National Meter Company, New York, N. Y. Filed Jan. 19, 1895. Serial No. 535,523. (No model.)



Claim.—1. The combination with a driving part and a separate driven part of a pulley-wheel, a flexible friction-band, a spring or yielding member between said friction member and its actuating parts and a governor attached to the driven part controlling the tension of said friction member on the driving part to regulate the speed of the driven part.

2. In a governor device the combination with the friction member of a spring or yielding member such as 19 between said friction member and the governing member.

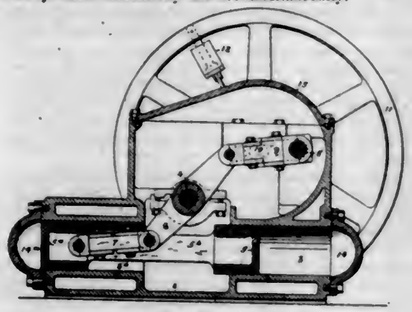
578,112. GAS-ENGINE. LEWIS H. NASH, South Norwalk, Conn., assignor to the National Meter Company, New York, N. Y. Filed June 17, 1891. Serial No. 396,561. (No model.)

Claim.—1. In a gas-engine the combination of a plurality of power-cylinders with their respective pistons, a governor and mechanism operated by said governor for automatically varying the power developed when both cylinders are in action by changing the power developed in one cylinder without changing the power developed in another.

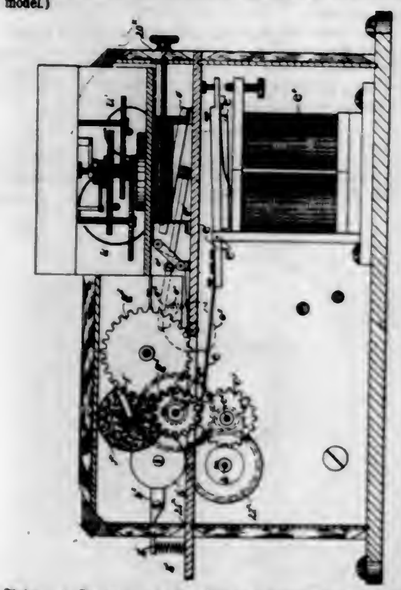
2. In a gas-engine, the combination of a plurality of power-cylinders with their respective pistons, a governor and mechanism operated by said governor for automatically varying the power developed when both cylinders are in action by changing the power developed in one cylinder throughout its entire range without changing the power developed in the other.

3. In a gas-engine the combination of a plurality of power-cylinders with their respective pistons, a governor for automatically con-

trolling the power developed in a plurality of said cylinders and mechanism operated thereby for varying the power developed in the different cylinders successively and not simultaneously.



578,113. MESSAGE-RECORDING INSTRUMENT. BERNICE J. NOYES, Boston, Mass. Filed June 25, 1896. Serial No. 596,894. (No model.)



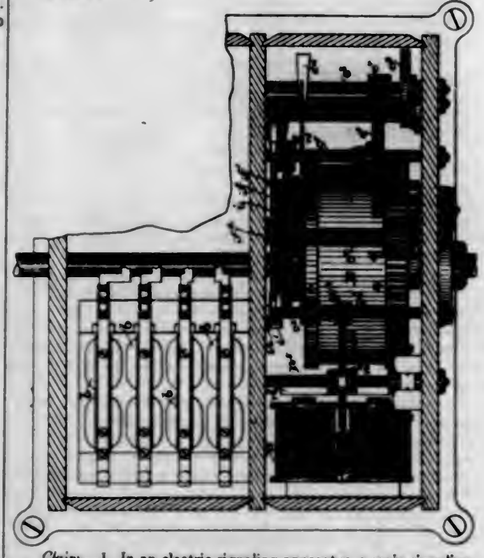
Claim.—1. In a message-recording instrument, adapted to be connected with and operated by several signaling-circuits, the combination of time-printing indicators and a platen, a paper-feeding device for feeding a strip of paper between them, electromagnetically-operated marking devices one for each circuit connected with the instrument, located close to said time-printing indicators, for recording a message on the moving strip of paper, a motor mechanism for operating said paper-feeding device, a starting-magnet for releasing it common to all the circuits, a cam secured to one of the shafts of said motor mechanism, and a lever actuated by it bearing said platen, substantially as described.

2. In a message-recording instrument, adapted to be connected with and operated by several signaling-circuits, the combination of time-printing indicators and a platen, a paper-feeding device for feeding a strip of paper between them, electromagnetically-operated marking devices one for each circuit connected with the instrument, located close to said time-printing indicators, for recording a message on the moving strip of paper, a motor mechanism for operating said paper-feeding device, having a stop-wheel and a releasing-lever engaging it whereby the motor mechanism runs a certain length of time each time it is let off, an electromagnet for operating said releasing-lever common to all the circuits, a cam secured to one of the shafts of said motor mechanism, and a lever actuated by it bearing said platen, substantially as described.

3. In a message-recording instrument, adapted to be connected with and operated by several signaling-circuits, a motor mechanism, a starting-magnet for releasing it common to all the circuits connected with the instrument, paper-feeding devices operated by said motor mechanism, several marking devices arranged side by side, and pen-magnets cooperative therewith, one for each circuit connected with the instrument for recording the message on the moving strip of paper, a time-printing device located in juxtaposition to said marking devices comprising time-printing indicators over which the paper travels, the platen o' located beneath the paper, pivoted arm o^3 carrying said platen, its extension o^4, and the cam o^5 secured to one of the shafts of said motor mechanism, substantially as described.

4. The combination with a motor mechanism, of time-printing indicators and means for operating them, a platen, a pivoted arm carrying it having an extension o^4 and a cam o^5 operated by said motor mechanism, an inking-ribbon overlying said time-printing indicators, two rolls over which it passes, or upon which it is wound, one of which is provided with means for manually winding it and the other with a toothed wheel, and a latch operated by said platen for intermittingly operating said toothed wheel to move along the ink-ribbon step by step, substantially as described.

578,114. ELECTRIC SIGNALING APPARATUS. BERNICE J. NOYES, Boston, Mass. Filed July 11, 1896. Serial No. 598,839. (No model.)



Claim.—1. In an electric signaling apparatus, a main signaling-circuit, signal-transmitting devices for operating said circuit adapted to transmit a differentiating impulse with some signals and not others, and a signal-receiving instrument for receiving all the signals, combined with an auxiliary circuit, a signal-receiving instrument operated by it, an automatic switch for controlling the operative condition of said auxiliary circuit, means for operating said switch controlled by the differentiating impulses, a restoring device for said switch, and means for operating said auxiliary circuit operated by the main signaling-circuit, substantially as described.

2. In an electric signaling apparatus, a main signaling-circuit, signal-transmitting devices for operating said circuit adapted to transmit a differentiating impulse with some signals and not others, and a signal-receiving instrument for receiving all the signals, combined with an auxiliary circuit, a signal-receiving instrument operated by it, an automatic switch for controlling the operative condition of said auxiliary circuit, means for operating said switch controlled by the differentiating impulses, a train-controlled restoring device for said switch, and means for operating said auxiliary circuit operated by the main signaling-circuit, substantially as described.

3. In an electric signaling apparatus, a main signaling-circuit, signal-transmitting devices for operating said circuit adapted to transmit a differentiating impulse with some signals and not others, and a signal-receiving instrument for receiving all the signals, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a circuit-closing switch for said auxiliary circuit, an operating device for said circuit-closing switch operated by the differentiating impulses, a restoring device for said switch, and a circuit-closing device for said auxiliary circuit operated by the main signaling-circuit, substantially as described.

4. In an electric signaling apparatus, a main signaling-circuit, signal-transmitting devices for operating said circuit for short and long intervals of time, producing impulses of short and long duration, and a signal-receiving instrument for receiving all the signals, combined with an auxiliary circuit, a signal-receiving instrument operated by it, an automatic switch for controlling the operative condition of said auxiliary circuit, means for operating said switch controlled by the impulses of long duration only, a restoring device for said switch and means for operating said auxiliary circuit operated by said main signaling-circuit, substantially as described.

5. In an electric signaling apparatus, a main signaling-circuit, signal-transmitting devices for operating said circuit and adapted to transmit a differentiating impulse with some signals and not others, a message-recording instrument for receiving all the signals having a paper-moving train and paper-marking devices, combined with an auxiliary circuit, a signal-receiving instrument operated by it, an automatic switch for controlling the operative condition of said circuit, means for operating said switch controlled by the paper-moving train, and a restoring device for said switch also operated by said paper-moving train, and means for operating said auxiliary circuit operated by the main signaling-circuit, substantially as described.

6. In an electric signaling apparatus, a main signaling-circuit, signal-transmitting devices for operating said circuit for short and long intervals of time, producing impulses of short and long duration, and a message-recording instrument for receiving all the signals, having as a coöperative part of it a paper-moving train and paper-marking devices, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a switch for controlling the operative condition of said circuit, an operating device for said switch operated by said paper-moving train and controlled by the main signaling-circuit, and a restoring device for said switch also operated by said paper-moving train, and means for operating said auxiliary circuit operated by the main signaling-circuit, substantially as described.

7. In an electric signaling apparatus, a main signaling-circuit, signal-transmitting devices for operating said circuit for short and long intervals of time, producing impulses of short and long duration, and a message-recording instrument for receiving all the signals, having as a coöperative part of it a paper-moving train and paper-marking devices, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a circuit-closing switch for said auxiliary circuit, an operating device therefor, operated by the paper-moving train which requires for its operation a long interval of time, to be thereby operated by the impulse of long duration only, a restoring device for said switch, and a circuit-closing device for said auxiliary circuit operated by the main signaling-circuit, substantially as described.

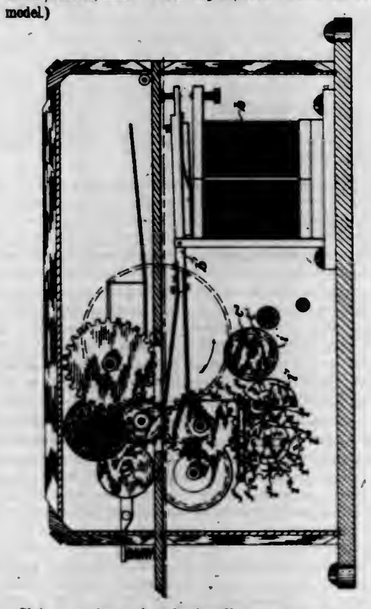
8. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not with others, and a signal-receiving instrument with which all of said signaling-circuits are connected, constructed and arranged to receive all the signals, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a switch for controlling the operative condition of said auxiliary circuit, means for operating said switch controlled by the differentiating impulse of any one of the signal-transmitting devices of any circuit, and a number of circuit-operating devices for said auxiliary circuit, corresponding to the number of signaling-circuits, and adapted to be operated by said signaling-circuits, substantially as described.

9. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not with others, and a signal-receiving instrument with which all of said signaling-circuits are connected, constructed and arranged to receive all the signals, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a switch for controlling the operative condition of said auxiliary circuit, means for operating said switch controlled by the differentiating impulse of any one of the signal-transmitting devices of any circuit, a restoring device for said switch, and a number of circuit-operating devices for said auxiliary circuit, corresponding to the number of signaling-circuits, and adapted to be operated by said signaling-circuits, substantially as described.

10. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating said circuits adapted to transmit a differentiating impulse with some signals and not with others, and a message-recording instrument having a paper-moving train and a number of paper-marking devices corresponding to the number of signaling-circuits, each paper-marking device having an electromagnet as an operating member which is connected with or operated by one of the signaling-circuits, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of circuit-operating devices for said auxiliary circuit corresponding to the number of main signaling-circuits, the armature-levers of the electromagnets of the paper-marking devices forming the actuators for said circuit-operating devices, and a switch for controlling the operative condition of said auxiliary circuit, substantially as described.

11. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating said circuits adapted to transmit a differentiating impulse with some signals and not with others, and a message-recording instrument having a paper-moving train and a number of paper-marking devices corresponding to the number of signaling-circuits, each paper-marking device having an electromagnet as an operating member which is connected with or operated by one of the signaling-circuits, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of circuit-operating devices for said auxiliary circuit corresponding to the number of main signaling-circuits, the armature-levers of the electromagnets of the paper-marking devices forming the actuators for said circuit-operating devices, and a switch for controlling the operative condition of said auxiliary circuit, and means for operating it automatically controlled by said differentiating impulses, and means for restoring it, substantially as described.

578,115. ELECTRIC SIGNALING APPARATUS. BERNICE J. NOYES, Boston, Mass. Filed July 21, 1896. Serial No. 600,075. (No model.)



Claim.—1. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not with others, and a signal-receiving instrument for receiving all the signals of all the circuits, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of switches for controlling the operative condition of said auxiliary circuit, corresponding to the number of main signaling-circuits, means for operating said switches controlled by the differentiating impulses, and an independent restoring device for each switch, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by said main signaling-circuits, substantially as described.

2. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not with others, and a signal-receiving instrument for receiving all the signals of all the circuits, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of switches for controlling the operative condition of said auxiliary circuit, corresponding to the number of main signaling-circuits, means for operating said switches controlled by the differentiating impulses, and an independent train-controlled restoring device for each switch, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by said main signaling-circuits, substantially as described.

3. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not with others, and a signal-receiving instrument for receiving all the signals of all the circuits, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of circuit-closing switches for said auxiliary circuit, independent operating devices for said switches

controlled by the differentiating impulses, and restoring devices for said switches, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by said main signaling-circuits, substantially as described.

4. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit signal impulses of short and long duration, and a signal-receiving instrument for receiving all the signals of all the circuits, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of switches for controlling the operative condition of said circuit, corresponding to the number of main signaling-circuits, independent operating devices for said switches controlled by the impulses of long duration only, a restoring device for said switches, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by said main signaling-circuit, substantially as described.

5. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them, adapted to transmit a differentiating impulse with some signals and not with others, and a message-recording instrument for receiving all the signals of all the circuits, having a paper-moving train and paper-marking devices, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of switches for controlling the operative condition of said auxiliary circuit, independent operating devices for said switches operated by the paper-moving train, and restoring devices for said switches also operated by said paper-moving train, and a number of circuit-operating devices for said auxiliary circuit, corresponding to and operated by said main signaling-circuits, substantially as described.

6. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating said circuit adapted to transmit signal impulses of short and long duration, and a message-recording instrument for receiving all the signals of all the circuits, having a paper-moving train and paper-marking devices, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of switches for controlling the operative condition of said auxiliary circuit, independent operating devices for said switches operated by said paper-moving train on reception of the impulses of long duration only, and restoring devices for said switches also operated by said paper-moving train, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by said main signaling-circuit, substantially as described.

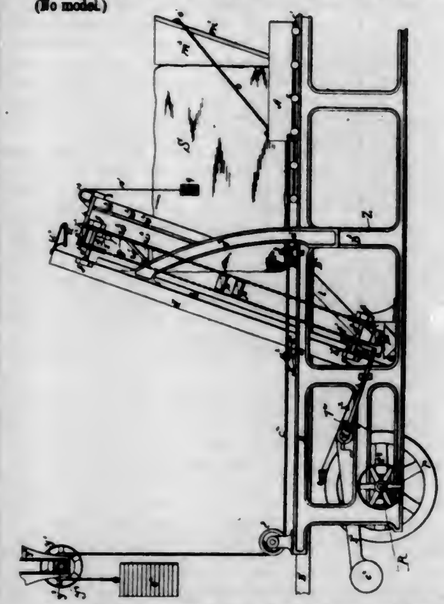
7. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit signal impulses of short and long duration, and a message-recording instrument for receiving all the circuits having a paper-moving train and paper-marking devices, combined with an auxiliary circuit, a signal-receiving instrument operated by it, a number of circuit-closing switches for said auxiliary circuit, independent operating devices therefor operated by the paper-moving train which require for their operation a long interval of time to be operated by the impulse of long duration only, restoring devices for said switches, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by said main signaling-circuit, substantially as described.

8 In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not others, a message-recording instrument having a paper-moving train and a number of paper-marking devices corresponding to the number of signaling-circuits, each paper-marking device having an electromagnet as an operating member operated by one of the signaling-circuits, combined with an auxiliary circuit, a number of switches for controlling its operative condition, independent operating devices for said switches operated by the paper-moving train but controlled respectively by the electromagnets of the paper-marking devices, and restoring devices for said switches, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by the main signaling-circuit, substantially as described.

9. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not others, a message-recording instrument having a paper-moving train and a number of paper-marking devices corresponding to the number of signaling-circuits, each paper-marking device having an electromagnet as an operating member operated by one of the signaling-circuits, combined with an auxiliary circuit, a number of switches for controlling its operative condition, independent operating devices for said switches operated by the paper-moving train but controlled respectively by the electromagnets of the paper-marking devices, and independent restoring devices for said switches operated by said paper-moving train and controlled respectively by the electromagnets of said paper-marking devices, and a number of circuit-operating devices for said auxiliary circuit corresponding to and operated by the main signaling-circuits, substantially as described.

10. In an electric signaling apparatus, a number of main signaling-circuits, signal-transmitting devices for operating them adapted to transmit a differentiating impulse with some signals and not others, a message-recording instrument having a paper-moving train and a number of paper-marking devices corresponding to the number of signaling-circuits, each paper-marking device having an electromagnet as an operating member operated by one of the signaling-circuits, combined with an auxiliary circuit, a number of switches for controlling its operative condition, independent operating devices for said switches operated by the paper-moving train but controlled respectively by the electromagnets of the paper-marking devices, and restoring devices for said switches, and a number of circuit-operating devices for said auxiliary circuit corresponding to the number of signaling-circuits, the armature-levers of the electromagnets of the paper-marking devices forming the actuators of said circuit operating devices, substantially as described.

578,116. **STONE-SAWING MACHINE.** JAMES PECKOVER, Philadelphia, Pa., assignor, by mesne assignments, to the Rapid Stone Saw Company, of New Jersey. Filed Mar. 13, 1896. Serial No. 583,027. (No model.)



Claim.—1. In a stone-sawing machine, the combination with the two trackways of different height and width, the lower and narrower of said ways being between the rails of the higher and wider one, of the middle and front cars arranged to travel on said lower and narrower way, and a rear car mounted to travel on the higher of said ways and adapted to pass over and by the said middle car, substantially as described.

2. In a stone-sawing machine, the combination with a frame having two trackways of different height and width, of front and middle cars arranged to travel on the lower and narrower of said ways, a rear car mounted to travel on the higher and wider trackway and adapted to pass said middle car, cables attached to said rear car, bearings for said cables, and counterweights attached to the cables, substantially as specified.

3. In a stone-sawing machine, the combination with the two trackways of different height and width, and with the front and middle cars arranged to travel on the lower and narrower of said ways, of a rear car mounted to travel on the higher and wider trackway and adapted to pass the said middle car, a cable attached to said rear car, a rotary shaft having a bearing over which the said cable passes, a weight or weights attached to the free end of the said cable, and means whereby power may be applied to said shaft independently of the said weights, substantially as specified.

4. In a stone-sawing machine, the frame having the two trackways of different height and width, the front, middle and rear cars, the rear car being mounted on the higher and wider of said trackways and the front and middle cars upon the lower one, the rails of said lower trackway having depressions therein to receive the rollers

of the middle car, adjustable dogs for securing the stone to the said rear car, and fastening devices for said dogs, substantially as specified.

5. In a stone-sawing machine, the combination of the reciprocating saw-frame, the driving-shaft, the rock shaft journaled intermediately of the driving-shaft and the saw-frame, the lever attached to said shaft and operatively connected at one end to the driving-shaft and at the other end to the saw-frame, and a counterweight applied to said rock-shaft and acting through the same and through the said lever to balance the saw-frame, substantially as specified.

6. In a stone-sawing machine, the combination of the reciprocating saw-frame, the driving-shaft, its balance-wheel, the rock-shaft, the lever attached to said shaft and operatively connected to both the balance-wheel and the saw-frame, the arms or rods also connected to said rock-shaft, and the adjustable weights carried thereby, substantially as specified.

7. In a stone-sawing machine, the combination with the rear car having the inclined rear end portion, of the parallel slab m' in front of said end wall, the series of stone-holding dogs adapted to be held between said slab and end wall, and means for adjusting and securing the said dogs, substantially as specified.

8. In a stone-sawing machine, an endless carrier arranged to travel around the stone and having a series of plates or buckets arranged to receive the abrading material discharged from the saws and to convey the same back for reuse, said plates or buckets having inclined bottom portions and open at their lowest sides, substantially as specified.

9. In a stone-sawing machine, the combination with the pair of endless bands, the obliquely-journaled shafts which carry the same, and means for imparting motion thereto, of a series of buckets suspended from said bands and arranged to receive the abrading material discharged from the saws and to carry the same above the stone for reuse, together with means for causing the gradual discharge of the material from said buckets at the proper time, substantially as specified.

10. In a stone-sawing machine, the combination with a pair of endless bands, the obliquely-journaled shafts which carry the same, and means for imparting motion thereto, of a series of buckets suspended from said bands and arranged to receive the abrading material discharged by the saws and to discharge the same above the stone for reuse, of means for adjusting the inclination of said buckets during a portion of their travel, substantially as specified.

11. In a stone-sawing machine, the combination with a stone carrying and supporting car, of an endless carrier arranged to travel around the stone on the car, a series of buckets suspended from said carrier and open at their lowest sides, an inclined plate arranged to convey the abrading material discharged from the saws to the buckets at the lower transverse portion of the said carrier, said plate having its lower edge extending diagonally across the line of said buckets, and means for causing the discharge of the material from said buckets at points above the stone, substantially as specified.

12. The combination with a stone-carrying car, of an endless carrier arranged to travel around the stone when on said car, said carrier having a series of buckets, a plate arranged to convey the abrading material discharged from the saws to the lower line of said buckets, a tank or receptacle below such line of buckets, and means for causing the discharge of the material from said buckets at points above the stone, substantially as specified.

13. In a stone-sawing machine, the combination with an endless carrier having a series of buckets arranged to collect the abrading material discharged from the saws, and to convey the same back over the stone, said buckets being arranged to discharge at one side, of a water-pipe extending diagonally above the upper line of said buckets and arranged to discharge water thereon, substantially as specified.

14. In a stone-sawing machine, the combination with an endless carrier having a series of buckets arranged to collect the abrading material discharged from the saws and to carry the same to points above the stone, said buckets being arranged to discharge at one side thereof, of a water-pipe above the upper line of buckets and having discharge-openings in its lower side, a series of shields n^3, fitted to said pipe and a series of rubber bands held in said shields and adapted to close the said discharge-openings, substantially as specified.

15. In a stone-sawing machine, the combination with the endless carrier having the buckets arranged to discharge abrading material at points above the stone, of a water-pipe having discharge-openings in its under side, and arranged to discharge water upon the said buckets, and movable bands held on said pipe and operating to control the said openings, substantially as specified.

16. In a stone-sawing machine, the vertically-movable frame above the stone, guides in which said frame is supported to move in a plane parallel with the saw-frame, a series of channels or troughs supported on said frame and having each a receiver adapted to rest on the stone, said receivers having openings at one side to permit the saws to play therethrough, and counterbalancing-weights applied to said frame, substantially as specified.

17. The combination, in a stone-sawing machine, with means for supplying abrading material to the saws, of a series of receivers for such material, said receivers being open at one side to permit the saws to play therethrough and means for vertically adjusting the said receivers, substantially as specified.

18. The combination with the endless carrier having a series of endless buckets arranged to discharge abrading material at points above the stone, of a series of pockets arranged to receive the material discharged from the said buckets, a series of conducting-channels movably connected to the said pockets, a second series of channels into which the first-named series are arranged to discharge, and receivers which catch the material from said channels and supply it to the saws, substantially as specified.

19. The combination with a horizontally-movable car A, and with the saw-frame mounted to reciprocate in an inclined plane, of the slab m' at the rear portion of said car and parallel with the saw-frame, a series of wedge-shaped blocks adapted to fit between the said slab and the rear end of the stone on the car to form narrow spaces between them for the reception of abrading material, substantially as specified.

20. In a stone-sawing machine, the slotted stone-clamp having a hook portion at one end and having its slot closed at the opposite end, a series of blocks adapted to be inserted through said slot, and a wedge or key also adapted to be driven through said slot, substantially as and for the purpose described.

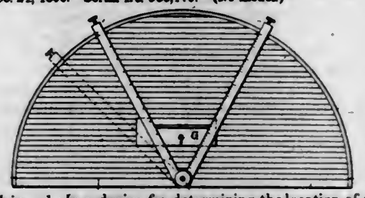
21. In a stone-sawing machine, the saw-frame having slotted end bars, parallel screw-rods seated in opposite sides of the slots thereof, half-nuts adapted to engage the threads of said rods and also grooved to receive the saw-blades, substantially as described.

22. The saw-frame having a pair of parallel threaded rods at each end portion, a series of saws whose end portions are adapted to fit between the said rods, and half-nuts fitted to engage the said rods and also to engage the end portions of the saws, each of said end portions being held between a pair of said half-nuts, substantially as specified.

23. In a stone-sawing machine, the saw-frame having slotted or split end bars the slots whereof have laterally-offset grooves or recesses, a threaded rod seated in each of said recesses, and half-nuts fitted to engage the said rods and slotted to receive the end portion of the saw-blades, substantially as specified.

24. In a stone-sawing machine, the combination with the saw-frame having the slotted or split end bars the slots whereof are provided with opposite laterally-offset recesses, of the screw-rods seated in said recesses, the half-nuts engaging said rods and placed opposite to each other on each pair of the rods, and the saw-blades having thickened central portions whose ends engage grooves in the said nuts, said blades also having thinner portions at each side each of which is notched to form a saw, substantially as specified.

578,117. **DEVICE FOR DETERMINING LOCATIONS OF DISTANT OBJECTS.** WILLIAM C. RAFFERTY, Governor's Island, N. Y. Filed Feb. 21, 1896. Serial No. 580,179. (No model.)



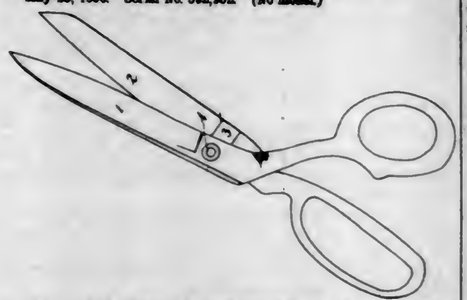
Claim.—1. In a device for determining the location of a distant object, the combination with a base having parallel straight divisions, a scale or graduation and movable arms mounted upon a common pivot, of a spacing-piece adapted to be placed upon said base and between said arms and indicating by a recording-scale upon one of said arms the location of a distant object relatively to a point occupying a fixed relation to a known base-line, substantially as set forth.

2. In a device for determining the location of a distant object, the combination with a base having parallel straight divisions, a scale or graduation and movable arms mounted upon a common pivot, of a spacing-piece adapted to be placed upon said base and between said arms, and means for determining, according to the scale employed, the position of the point of location of the device relatively to a distant object when the relativity of such point to a common base-line is known, substantially as set forth.

3. In a device for determining the location of a distant object, the combination with a base having parallel divisions, a scale or graduation and pivotally-mounted arms, of a spacing-piece comprising a support, and means carried thereby for limiting the movement of said support between said arms and toward their pivotal point, substantially as set forth.

4. In a device for determining the location of a distant object, the combination with a base having parallel divisions, a scale or graduation and pivotally-mounted arms, of a spacing-piece comprising a base or support, a piece thereon adapted to be placed between said arms, and a mark or other indication upon said support, substantially as set forth.

578,118. SHEARS. EDWARD A. SAUNDERS, Saginaw, Mich. Filed May 25, 1896. Serial No. 592,962. (No model.)

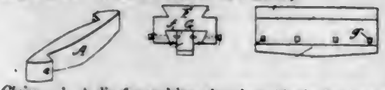


Claim.—1. In shears, the combination with the two blades, a rectangular recess in one of the blades extending from the back of the blade to near its inner edge, an oblong slot in the recess both recess and slot transverse of the blade, a circular recess in the other blade, and a circular hole in the middle of the recess, of a link having a rectangular part and a circular part, the circular part secured at one end of the rectangular part on the upper surface of the rectangular part, and therefore not in the same plane, the rectangular part adapted to enter the rectangular recess in one of the blades and provided with a lug passing through the oblong slot but smaller than the slot, thereby affording the rectangular part a limited lateral movement, the circular part fitting the circular recess in the other blade and provided with a circular lug passing through the hole in the center of the recess, and means as specified for holding the lugs, substantially as and for the purpose set forth.

2. In a pair of shears, the combination with the two blades of the shears, a rectangular recess in one of the blades extending from the back thereof to near its front edge and having an oblong slot in the recess through the blade, the other blade having a circular recess and a hole through the center of the recess, of a link having a rectangular part adapted to fit the rectangular recess in one of the blades, a lug on the rectangular part passing through the oblong slot in the recess and smaller than the slot, a nut on the end of the lug holding the rectangular part in the recess in any position in which it may be adjusted in the oblong slot, the link having a circular part on the end of the rectangular part and not in the same plane with the rectangular part, the circular part smaller than the hole in the circular recess of the other blade and adapted to pass through it and be secured upon the outside thereof, and a washer fitting the circular recess of the blade and having a hole adapted to receive the circular part of the link, the hole being eccentric to the washer, substantially as and for the purpose set forth.

3. In a pair of shears, a link between the shears providing the means for joining them comprising a rectangular part adapted to fit a rectangular recess in one of the blades and having a lug extending therefrom through an oblong slot in the recess, the lug smaller than the slot, whereby the rectangular part can be moved laterally in its recess, the link having a circular part at the inner end of the rectangular part and not in the same plane, the circular part having a lug adapted to pass through a hole in a circular recess in the other blade, whereby the link may be secured between the blades by nuts or otherwise upon the outer ends of the lugs, substantially as and for the purpose set forth.

578,119. DIE FOR CUTTING OUT PLOWSHARE-BLANKS. HENRY G. SAWYER and EDWARD A. HENDRICKS, Carpentersville, Ill., assignors to the Star Manufacturing Company, same place. Filed Aug. 21, 1896. Serial No. 603,460. (No model.)

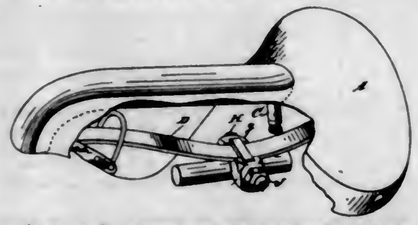


Claim.—1. A die for making plowshare-blanks having a double cutting edge and curved sides and provided with angular shoulders, the outer part of said shoulders being joined to the extreme ends of the body of the die on the median line thereof, substantially as described.

2. A die for making plowshare-blanks having a double cutting edge and curved sides, the die being wider at its center than at its ends and provided with a shoulder at each end and on opposite sides of the body of the die, each of said shoulders being connected with the other side at the extreme ends of the die and on the median line thereof, substantially as described.

3. A die for making plowshare-blanks having a double cutting edge, shoulders on opposite sides of said die adjacent to the ends thereof, the body of the die having curved sides which extend from the extreme end of the die to the base of the shoulder, substantially as described.

578,120. BICYCLE-SADDLE. BENJAMIN S. SEAMAN, Canton, Ohio. Filed July 14, 1896. Serial No. 599,107. (No model.)



Claim.—1. In a bicycle-seat, the combination with the seat-leather or flexible material having a groove in its pommel-section, of a pneumatic cushion seated in said groove and extending upward above the plane of the saddle leather or material, substantially as set forth.

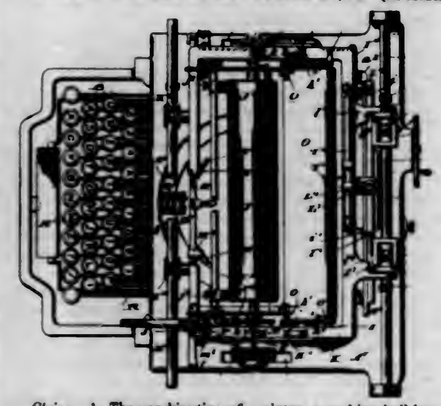
2. In a bicycle-seat, the combination with the seat leather or material having a groove in its pommel-section, of a pneumatic cushion removably secured in said groove and extending upward above the plane of the seat-section, substantially as set forth.

3. In a bicycle-seat, the combination with the seat leather or material having a longitudinal groove stamped in the pommel-section thereof, of a tubular pneumatic cushion seated in said groove and extending above the seat-surface, and a covering-strip embracing the upper side of the cushion and having its edges secured to the opposite sides of the groove, substantially as set forth.

4. The combination with the seat-frame and post, of a shell having integral laterally-projected threaded studs, a slot, and an aperture beneath the slot, the traveling clamping-blocks having inclined serrated edges and the offsets, *c*, and the binding-nuts, J, substantially as set forth.

5. In a bicycle-seat, the combination with the seat leather or material, the cantle-section of which is of usual form and the pommel-section of which has a central longitudinal groove, of a pneumatic tube seated in said groove and extending above the seat-surface, substantially as set forth.

578,121. TYPE-WRITING MACHINE. CHARLES SPIRO, New York, N. Y. Filed June 29, 1896. Serial No. 594,474. (No model.)



Claim.—1. The combination of a platen, a rocking bail located beneath the platen, a key-lever, and connections between the key-lever and the bail, a bar pivotally mounted on said bail, and a jointed connection between said bar and the platen-support, and pivotal connections between the support and the platen-carrying frame; substantially as described.

2. The combination of a platen-carrying frame, a paper-table and a jointed connection between the same, a key-lever, a rocking bail located beneath the platen, and intermediate connections between the key-lever and bail and between the bail and the jointed connection between the platen and paper-table, whereby the depression of the lever moves the platen and paper-table on the pivot of said jointed connection; substantially as described.

3. The combination of a platen-carrying frame, and a paper-table pivotally connected thereto by means of a downwardly-breakable joint, a key-lever, and intermediate connections, whereby the depression of the lever moves the platen and paper-table on the pivotal connection therebetween, and means for locking the platen and table against tilting; substantially as described.

4. The combination of a platen-carrying frame and a paper-table pivotally connected thereto by a jointed connection, a key-lever and intermediate connections whereby the depression of the lever moves the platen and paper-table on the pivotal connection therebetween, and means for automatically locking the platen and table against tilting: substantially as described.

5. The combination of a platen-carrying frame, a paper-table pivotally connected therewith by a jointed connection, a lock for locking the same against tilting, a key-lever, and connections whereby the depression of the lever first disengages the lock and then tilts the platen and paper-table; substantially as described.

6. The combination of a platen-carrying frame, a paper-table connected for simultaneously tilting movement with the platen to and from each other, means for locking the same together against such movement, a key-lever, and mechanism for removing said lock and tilting the platen and paper-table; substantially as described.

7. The combination of a platen-carrying frame and paper-table pivotally connected therewith and mounted on a rocking carrier, a key-lever, and connections between the same and said carrier for tilting the platen and paper-table: substantially as described.

8. The combination of a platen-carrying frame and a paper-table pivotally connected to move together and mounted on independent pivots to move simultaneously toward or from each other, a key-lever, a rocking bail connected therewith, and means connecting the bail and the carrier of the paper-table; substantially as described.

9. The combination of a platen-carrying frame, a paper-table pivotally connected therewith, a key-lever, a rocking bail actuated thereby and located beneath the platen, a connection between said bail and the paper-table carrier, and means for locking the platen and table against tilting: substantially as described.

10. The combination of a platen-carrying frame, a paper-table pivotally connected therewith, a key-lever, a rocking bail actuated thereby and located beneath the platen, a connection between said bail and the paper-table carrier, and means for automatically locking the platen and table against tilting; substantially as described.

11. The combination of a platen-carrying frame, a paper-table mounted to rock, and pivotally connected with the platen, a rocking bail, a key-lever connected therewith, a lock for the platen, and connections with the bail for disengaging the lock and tilting the platen; substantially as described.

12. The combination of a platen and a paper-table mounted to rock and detachably mounted on independent pivots on the platen-frame and connected therewith by a jointed connection; substantially as described.

13. The combination of a platen, a paper-table pivotally and detachably mounted thereon, and means engaging one of the pivots of the table to lock the platen and table against tilting movement: substantially as described.

14. The combination of a platen and a paper-table pivotally mounted on the carrier thereof, a lock for preventing tilting movement of the table and platen, and a cam for disengaging the lock and mounted for actuation by a key-lever; substantially as described.

15. The combination of a platen and a paper-table pivotally connected together, a lock engaging one of the pivots thereof, a cam for disengaging the lock, and a key-lever for actuating the same; substantially as described.

16. The combination of a platen-carrying frame, a paper-table pivotally connected therewitb and pivotally connected at its rear edge, a lock for preventing tilting movement of the platen and table, a rocking frame for the paper-table, and a cam on said frame for disengaging the lock; substantially as described.

17. The combination of a platen-carrying frame and a paper-table mounted at its rear end for rocking movement pivotally connected to be tilted simultaneously, said paper-table being also mounted on an independent pivot at its rear edge, and an automatic lock for preventing such tilting movement; substantially as described.

18. The combination of a platen-carrying frame and a paper-table mounted at its rear end for rocking movement pivotally connected for conjoint tilting movement, the latter pivoted at its rear edge on a pivot independent of the pivotal connection between said table and platen, an automatic lock for preventing such movement, and a rocking frame for the paper-table having means for disengaging said lock; substantially as described.

19. The combination of a platen-carrying frame, a paper-table mounted at its rear end for rocking movement pivotally connected therewith and constructed to move simultaneously in opposite directions, a rocking frame carrying a paper-table, a pivoted lock for preventing tilting movement of the platen and paper-table, and means on the said rocking frame for engaging the pivoted lock; substantially as described.

20. The combination of a platen-carrying frame, and a paper-table pivotally connected for conjoint movement, a rocking frame carrying the paper-table, a lock for preventing tilting movement of the platen and table, a key-lever, and a rocking bail connected therewith and with the said rocking frame: substantially as described.

21. The combination of a platen-carrying frame, and a paper-table pivotally connected therewith, a lock for preventing tilting movement of the platen and paper-table, a key-lever, a rocking bail connected therewith, a rocking frame carrying the paper-table and adapted to operate said lock, and a connection between the rocking bail and the rocking frame; substantially as described.

22. The combination of a platen-carrying frame, a paper-table detachably and pivotally connected therewith, a pivoted lock adapted to cooperate with one of the pivots of the table to prevent tilting movement thereof, and means on the paper-table carrier for actuating said lock; substantially as described.

23. The combination of a platen-carrying frame, and a paper-table mounted for conjoint tilting movement, a pivoted arm having a hook to engage one of the pivots between the table and the platen and provided with an arm carrying a roller, and the rocking frame carrying the paper-table having a portion adapted to engage said roller; substantially as described.

24. The combination of a platen-carrying frame, and a paper-table pivotally connected for conjoint tilting movement, means for preventing such movement, and means on the paper-table carrier for disengaging the lock to permit of the tilting movement; substantially as described.

25. The combination of a rocking frame, a paper-table carried thereby, a finger-lever mounted in one of the end plates of said frame, and projections on said plate actuating the rocking frame; substantially as described.

26. The combination of a platen and a paper-table pivotally united for conjoint tilting movement on said pivot, said paper-table being pivotally mounted on an independent pivot at its rear edge, a lock for preventing such movement, and a finger-lever provided with projections for actuating the rocking frame carrying the paper-table and for disengaging said lock; substantially as described.

27. The combination of a carriage, a platen, a paper-table pivotally and detachably connected with the frame thereof, and line-feed mechanism removably mounted upon said carriage; substantially as described.

28. The combination of a carriage, a rocking frame thereon, a paper-table carried by said rocking frame, pivotally and detachably connected therewith, and a platen detachably mounted on the carriage and detachably connected with the paper-table; substantially as described.

29. The combination of a carriage, a rocking frame thereon, a paper-table pivotally mounted at its rear edge on the said rocking frame, and a platen detachably mounted on the carriage and detachably and pivotally connected with the paper-table: substantially as described.

30. The combination with the platen and the ratchet, of a rotatable regulator, a lever pivotally mounted on one of the end plates of the platen-carrier frame, and having a curved extension, said lever being mounted to engage the end of said regulator, and a roller journaled in the free end of said extension and bearing against the ratchet to prevent retrograde movement thereof; substantially as described.

31. The combination with the platen and the ratchet, of a rotatable regulator, a lever pivotally mounted on one of the end plates of the platen-carrier frame, and having a curved extension, said lever being mounted to engage the end of said regulator, and a roller journaled in the free end of said extension and bearing against the ratchet to prevent retrograde movement thereof, said platen, its carrier, and the ratchet and lever being all removable bodily from the carriage of the machine; substantially as described.

32. The combination with the platen and the ratchet, of a rotatable regulator, a lever pivotally mounted on one of the end plates of the platen-carrier frame, and having a curved extension, said lever being mounted to engage the end of said regulator, and a roller journaled in the free end of said extension and bearing against the ratchet to prevent retrograde movement thereof, and a spring around the pivot of said lever with one end attached to the lever, and the other to the end plate of the platen-frame; substantially as described.

33. The combination of the line-space lever and a line-space gage rotatably mounted thereon, and having its inner end provided with

a series of notches at varying distances from the end to limit the rotation of the platen; substantially as described.

34. The combination of a line-space lever, a line-space gage rotatably mounted thereon and held against endwise movement and having a series of depressions, and means engaging said depressions for holding the same in its adjusted position; substantially as described.

35. The combination of the line-space lever, a line-space gage rotatably mounted therein and provided with depressions, and a vertically-disposed spring-actuated pin held in the lever and adapted to engage said depressions to lock the gage in its adjusted position; substantially as described.

36. The combination of the carriage and the platen and its ratchet with a pivoted pawl having a cam portion projecting therefrom near its center, and a pin projecting laterally from the carriage for engaging the upper face of the same to automatically throw said pawl out of engagement with the ratchet; substantially as described.

37. The combination of the carriage and the platen and its ratchet with a pivoted pawl having a cam portion projecting therefrom near its center, a pin on the carriage for engaging the same to automatically throw said pawl out of engagement with the ratchet, and a spring acting on said pawl to throw it into engagement with the ratchet; substantially as described.

38. The combination with the platen and the platen-carrier, of a rod connecting the end plates thereof, and spring-metal paper-guides carried by the said rod and extended to the front of the platen and having its end bent upon itself, and a set-screw passed through the rod and bearing against the free portion of the guide to adjust the same; substantially as described.

39. The combination with the platen and the platen-carrier, of a scale pivotally mounted on the platen-carrier and extended beneath the same, and a roller carried by said scale adapted to bear upon the under side of said platen; substantially as described.

40. The combination of the platen, the platen-carrier, the scale pivotally mounted on the carrier, the roll parallel with the platen, the springs acting on the pivots of the scale, and the paper-guides connected at one end to said scale; substantially as specified.

41. The combination with the platen and the platen-carrier, of a finger concentric with the platen and composed of two parts slidingly connected and one of which is pivotally mounted and a roller carried by one of said parts; substantially as described.

42. The combination with the platen and the platen-carrier, of the roll parallel with the platen and bearing against the under side thereof, and the finger adjustable on the platen-carrier and provided with a roll movable to and from the first-mentioned roll; substantially as described.

43. The combination with the platen and the platen-carrier and the rod connecting the end plates thereof, of a slide mounted on said rod and a two-part, adjustable finger with one part slidingly mounted upon the other and both carried by the slide and provided with a roller; substantially as described.

44. The combination with the platen and platen-carrier and rod connecting the end plates thereof, of a slide adjustably sleeved on the rod, a curved part pivotally mounted on the slide, and a curved part carrying a roller and adjustable on said pivoted, curved part; substantially as specified.

45. The combination with the platen and platen-carrier and rod connecting the end plates thereof, of a slide adjustably sleeved on the rod, a curved part pivotally mounted on the slide, a curved part carrying a roller and adjustable on said pivoted, curved part, and a spring around the pivot of the pivoted, curved part; substantially as described.

46. The combination with the platen, of the paper-holding finger composed of two parts, one pivotally mounted and one mounted to slide on the other, and adjustable concentric with the platen and carrying a roller adapted to bear against the under side of said platen; substantially as described.

47. The combination with the platen and the roller parallel therewith, of an adjustable paper-holding finger having a pivotally-mounted curved part and an adjustable part slidingly mounted on a fixed part and carrying a roller adapted to bear against the under side of the platen; substantially as described.

48. The combination with the rear guide-rod and the roller-frame movable thereon, of the platen-carriage detachably connected with said roller-frame, and the paper-table pivotally mounted in the carriage and pivotally and detachably connected with the roller-frame; substantially as described.

49. The combination with the rear guide-rod and the roller-frame movable thereon, of the platen-carriage pivotally and movably connected with said roller-frame, and the paper-table pivotally mounted in the carriage and pivotally and detachably connected with the roller-frame; substantially as described.

50. The combination with the rear guide-rod and the roller-frame movable thereon, of the platen-carriage pivotally connected with said roller-frame, and the paper-table pivotally mounted in the carriage and pivotally and detachably connected with the roller-frame, and means for limiting the pivotal movement of said parts; substantially as described.

51. The combination with the step-by-step feed rack-bar, of a rocking frame mounted to move therewith, and the platen-carriage removably connected with said roller-frame, and the paper-table pivotally mounted in the carriage, and pivotally and detachably connected with the roller-frame; substantially as described.

52. The combination with the step-by-step feed rack-bar and the roller-frame mounted to move therewith, of a platen-carriage removably and pivotally connected with said roller-frame, and the paper-table pivotally mounted in the carriage and pivotally and detachably connected with the roller-frame; substantially as described.

53. The combination with the rear guide-rod and the step-by-step feed-rack and the roller-frame mounted to move therewith, of the platen-carriage pivotally connected with the roller-frame, and the paper-table pivotally mounted in the carriage and pivotally and detachably connected with the roller-frame, and means for guiding the platen-carriage in its movements; substantially as described.

54. The combination with the rear guide-rod, the step-by-step feed-rack and the roller-frame mounted to move therewith, of the platen-carriage pivotally connected with the roller-frame, and the paper-table pivotally mounted in the carriage and pivotally and detachably connected with the roller-frame, and means on the said rack for guiding the platen-carriage in its movements; substantially as described.

55. The combination with the platen-carrier mounted to reciprocate from front to rear, and a platen and paper-table carried thereby and mounted to tilt simultaneously in opposite directions, of a shift-lever and connection for moving said carrier bodily; substantially as described.

56. A platen-carrying frame mounted for reciprocation from front to rear and vice versa, combined with a platen mounted therein and a paper-table movable with said carrier, said platen and paper-table being mounted on independent pivots and connected by an independent lever to tilt simultaneously in opposite directions; substantially as described.

57. A platen-carriage mounted for reciprocation from front to rear and vice versa, combined with a platen and a paper-table pivotally connected therewith and mounted on the carriage to move with the same in its reciprocations and to be tilted simultaneously in opposite directions; substantially as described.

58. The combination with the back and front guide-rods, of a platen-carriage mounted to slide thereon and also for reciprocation from front to rear, a paper-table pivotally mounted in a carriage and pivotally connected with the platen-supports to tilt toward and from the platen simultaneously with its tilting movement, and a pivotal connection between the paper-table and the rear guide-roller supports; substantially as described.

59. The combination with the rear guiding-roller frame, of a platen-carriage pivotally connected therewith and mounted for simultaneous bodily reciprocation at right angles to the length of the guide-rod and for tilting movement in a plane parallel with said rod, a pivoted lever, and pivotal connections detachably connected with and constructed and arranged to tilt said carriage; substantially as described.

60. The combination with the pivotally-mounted front guide-rod, of a shift-lever mounted on the pivot of said guide-rod and having notches to engage a projection or stop on the support of the guide-rod, and a spring connecting said shift-lever with a fixed part of the frame; substantially as specified.

61. The combination with the pivotally-mounted front guide-rod and the supporting-arm thereof having a rearward extension, of a key-lever connected with said extension, a shift-lever mounted on the pivot of the guide-rod and having shoulders to engage a pin on the support of the guide-rod, and a spring connecting said shift-lever with a fixed part of the frame; substantially as described.

62. The combination with the carriage and the movable bail beneath all of the key-levers, of a keyboard-lock comprising a vertically-reciprocatory headed part and a pivoted part mounted on a vertical pivot, and adapted to be moved on said pivot to engage beneath the head of the vertical part, locking connections between said pin and the key-lever, and means carried by the carriage to engage and actuate said pivoted part; substantially as described.

63. The combination with the carriage and the movable bail beneath all of the key-levers, of a keyboard-lock comprising a vertically-reciprocatory headed part and a pivoted part mounted on a vertical pivot, and adapted to be moved on said pivot to engage beneath the head of the vertical part, locking connections between said pin and the key-lever, means carried by the carriage to engage and actuate said pivoted part, and releasing means therefor actuated from the keyboard for lifting the carriage to disengage its means from said pivoted part; substantially as described.

64. The combination with the carriage and the movable bail beneath all of the key-levers, of a keyboard-lock comprising a vertically-reciprocatory headed part, and a pivoted part, mounted on a vertical pivot, and adapted to be moved on said pivot to engage beneath the head of the vertical part, locking connections between said pin and the key-lever, means carried by the carriage to engage and actuate said pivoted part, releasing means therefor actuated from the keyboard for lifting the carriage to disengage its means from said pivoted part, and a spring constructed and arranged to normally hold the pivoted part away from the vertically-reciprocatory part; substantially as described.

65. The combination with the carriage and the movable bail beneath all of the key-levers, of a keyboard-lock comprising a vertically-reciprocatory pin, an arm mounted on a vertical pivot, means on the carriage to engage said arm to move it under the head of said vertical pin, locking connections between said pin and the key-lever, and mechanism whereby said pin is thrown vertically into operation and released from the keyboard; substantially as described.

66. The combination with a movable bail extended under the key-levers and the carriage, of a lock therefor comprising a vertically-reciprocatory pin mounted to be thrown into operation by the movement of the carriage and to be released by the shift-key; substantially as described.

67. The combination with a movable bail extended under the key-levers and the carriage mounted for reciprocation from front to rear, of a lock therefor embodying a vertically-reciprocatory headed pin mounted to be thrown into operation by the longitudinal movement of the carriage and to be released by the front-to-rear reciprocation thereof; substantially as described.

68. The combination with a movable bail extended under the key-levers and the carriage mounted for movement from front to rear, of a lock against longitudinal movement of said carriage, and embodying a vertically-reciprocatory headed pin, and a releasing device mounted on the carriage; substantially as described.

69. The combination of the movable bail extended under the key-levers and the carriage and a lock therefor embodying an arm depending from the carriage and serving both as a retainer and a releaser, and a vertically-reciprocatory headed pin and a pivoted part interposed between said pin and arm; substantially as described.

70. The combination with the movable bail extended beneath all of the key-levers and the carriage and a bifurcated arm depending therefrom, of a vertically-movable stop, means for reciprocating the same vertically through the top of the machine, and a pivoted part adapted to engage therewith and to be actuated by said arm; substantially as described.

71. The combination with the movable bail extended beneath all of the key-levers and the carriage and a bifurcated arm depending therefrom, of a vertically-movable headed pin, means for reciprocating said pin through an opening in the top of the frame, and a horizontally-movable pivoted lever arranged in the path of said arm; substantially as described.

72. The combination with the movable bail extended beneath all of the key-levers and the carriage and a bifurcated arm depending therefrom, of a vertically-movable headed pin and a horizontally-movable pivoted lever arranged in the path of said arm, a vertical projection on said lever, means for vertically reciprocating said pin, and a spring acting on said lever in opposition to the movement of the carriage; substantially as described.

73. The combination with the movable bail extended beneath all of the key-levers and the carriage mounted for bodily reciprocation from front to rear, of a bifurcated arm depending therefrom, a vertically-movable headed pin mounted for actuation by the space-bar, and a horizontally-movable pivoted lever having a projection adapted to be engaged by said bifurcated arm; substantially as described.

74. The combination with a movable bail extended beneath all of the key-levers, the carriage and a keyboard-lock therefor embodying a headed pin mounted for vertical reciprocation through an opening in the top of the frame, with its head above the top of said frame of means for varying the point in the line of travel of the carriage at which said lock shall be thrown into operative position; substantially as described.

75. The combination with the carriage and a vertically-movable stop mounted for vertical reciprocation through an opening in the top of the frame, of a pivoted lever and a bifurcated arm depending from and adjustably mounted on the carriage to coöperate with said lever; substantially as described.

76. The combination with the carriage and the column rack-bar, of a lever pivotally mounted on the step-by-step feed rack-bar for coöperation with the column rack-bar; substantially as described.

77. The combination with the carriage and the column rack-bar mounted on the top of the frame at the rear, of the step-by-step feed rack-bar and a lever pivotally mounted thereon and adapted to be turned on its pivot to be thrown into or out of operative relation with the column rack-bar; substantially as described.

78. The combination with the step-by-step feed-pawls and the block on which they are mounted, of a roller-abutment therefor; substantially as described.

79. The combination with the step-by-step feed-pawls and the block upon which they are mounted, of a spring connected with said block and a thumb-screw accessible from the rear of the machine for regulating the tension; substantially as described.

80. The combination with the step-by-step feed-pawls and the block in which they are mounted, of a spring connected at one end to said block, and a thumb-screw mounted in a lug depending from the top of the machine and connected with the other end of said spring; substantially as described.

81. The combination with the carriage having notched lugs, of platen-holding arms pivotally mounted on the carriage and having depressions to receive the platen-journals and springs arranged between said depressions and the pivots of the arms, and a stop for the arms to the rear of their pivots; substantially as described.

82. The combination with the ribbon and ribbon-spools of an automatic reversing mechanism and a simultaneously-operating lateral ribbon-shift device embodying a yoke, a cam and a ratchet-and-pawl mechanism; substantially as described.

83. The combination with the ribbon and ribbon-spools and ribbon-feeding mechanism, of automatic ribbon-reversing devices and an automatic lateral shift for the ribbon embodying a yoke, a cam and a ratchet-and-pawl mechanism, actuated by the winding of the ribbon upon one of the spools; substantially as described.

84. The combination with the ribbon and ribbon-spools and ribbon-feed mechanism, of a combined automatic reversal and lateral shift actuated by the tension of the ribbon thereon, the lateral shift embodying a yoke, a cam and a ratchet-and-pawl mechanism; substantially as described.

85. The combination with the ribbon and ribbon-spools and the feed mechanism for the same, of the pivoted frame at each side of the machine and rollers carried by said frames and adapted to bear against the ribbon on the spool; substantially as described.

86. The combination with the ribbon, ribbon-spools and feed mechanism, of rocking frames at opposite sides of the machine, rollers carried thereby and adapted to bear on the ribbon between the heads of the spool, a pivoted bail having upwardly-extending portions engaging said rollers; substantially as described.

87. The combination with the ribbon, ribbon-spools and ribbon-feed, of a rocking frame having a cross-rod, rollers mounted to revolve thereon, and a pivoted bail adapted to move said rollers and actuated by the lateral shift devices; substantially as described.

88. The combination with the ribbon, ribbon-spools and feed mechanism, of a rocking frame, a pawl carried thereby, a pivoted bail having a yoke, and a vertical shaft carrying a cam operating between the arms of the yoke and a ratchet to be engaged by said pawl; substantially as described.

89. The combination with the ribbon, ribbon-spools and feed mechanism, of a rocking frame, a pawl carried thereby, a pivoted bail having a yoke and a vertical shaft carrying a cam operating between the arms of the yoke and a ratchet to be engaged by said pawl, and a spring-arm on the rocking frame to engage a shoulder on the shaft of the ribbon-feed mechanism; substantially as described.

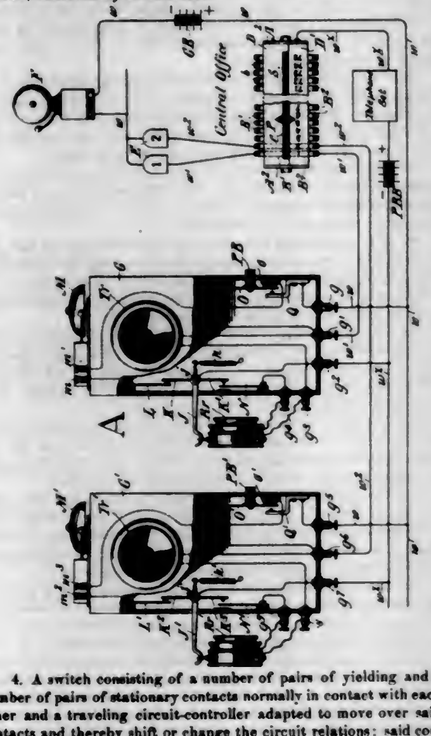
90. The combination with the ribbon, ribbon-spools and feed mechanism, of a rocking frame, a pawl carried thereby, a pivoted bail having a yoke, and a vertical shaft carried thereby, a pivoted bail having a yoke, and a vertical shaft carrying a cam operating between the arms of the yoke, and a ratchet to be engaged by said pawl, a spring-arm on the rocking frame to engage a shoulder on the shaft of the ribbon-feed mechanism, and a pivoted arm actuated by the movement of the rocking frame to permit of endwise movement of said shaft; substantially as described.

578,122. COMBINED TELEPHONE AND ANNUNCIATOR SYSTEM. JAMES R. STROUD, New York, N. Y., assignor to the Tucker Electrical Construction Company, same place. Filed July 31, 1896. Serial No. 601,258. (No model.)

Claim.—1. A switch having a series of yielding contact-arms and a corresponding series of stationary contacts with circuit connections running to independent calling-circuits and an annunciator provided with an independent drop for each pair of such contacts, in combination with controlling mechanism having movement over said yielding contacts and provided with an indicator adapted to indicate the number of the circuit to be controlled or effected, substantially as described.

2. A switch consisting of a number of yielding and a number of stationary contacts connected in multiple to two independent battery-circuits and an operating and indicating handle adapted to move over said yielding contacts so as to change the circuit relations when depressed and to simultaneously indicate that the circuit change has or has not been effected according to its position, substantially as described.

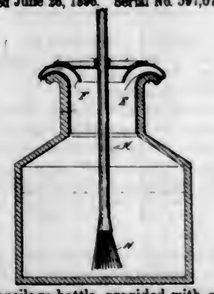
3. A switch consisting of a number of yielding and a number of stationary contacts connected to two independent battery-circuits, and an operating and indicating handle provided with means for locking it from turning when the indicating-handle points in one direction and additional means for locking or holding it in operative relation with the yielding contacts when depressed and rotated to a second position, substantially as described.



4. A switch consisting of a number of pairs of yielding and a number of pairs of stationary contacts normally in contact with each other and a traveling circuit-controller adapted to move over said contacts and thereby shift or change the circuit relations; said controller being provided with means for indicating its position relative to the independent pairs of contacts and additional means for locking it in that position which changes the normal relation to the circuits, substantially as described.

5. A switch consisting of a number of pairs of yielding and stationary contacts, a traveling circuit-controller adapted to move over said pairs of contacts, and an indicator adapted to indicate the individual number of each circuit, in combination with an indicating and operating handle carried by the controller and adapted when moved to various positions to indicate the circuit relations, together with yielding means for holding said controller out of operative relation with the contacts, substantially as described.

578,123. MUCILAGE-BOTTLE. FREDERICK VAN GERPEN, New York, N. Y. Filed June 26, 1896. Serial No. 597,073. (No model.)



Claim.—1. A mucilage-bottle, provided with a neck, the upper end of which is provided with an outwardly and downwardly curved flange, and a removable tubular neck attachment which is adapted to be inserted into said neck, and to closely fit the same, said neck attachment being provided at its upper end with an outwardly and downwardly curved flange or rim which is adapted to rest upon the flange or rim formed on the neck, and to the outer edge of which is secured an inwardly and downwardly curved flange, the inner edge of which projects inwardly, within the body portion of the tubular attachment, and a removable cap or cover which is adapted to be placed thereover, and through which is passed the handle of the brush, substantially as shown and described.

2. A mucilage-bottle, provided with a neck, the upper end of which is provided with an outwardly and downwardly curved flange, and a removable tubular neck attachment which is adapted to be inserted into said neck, and to closely fit the same, said neck attachment being provided at its upper end with an outwardly and downwardly curved flange which is adapted to rest upon the flange or rim formed on the neck, and to the outer edge of which is secured an inwardly and downwardly curved flange, the inner edge of which projects inwardly, within the body portion of the tubular attachment, and a removable cap or cover which is adapted to be placed thereover, and through which is passed the handle of a brush, said cap or cover being provided centrally with a tubular opening through which the handle is passed, and the outer edge thereof, being curved upwardly and outwardly so as to conform to the shape of the inwardly and downwardly curved flange formed on the tubular attachment, substantially as shown and described.

578,124. SADDLE-PAD. WILLIAM VOELKER, Somerville, Mass. Filed May 4, 1896. Serial No. 590,108. (No model.)



Claim.—1. A saddle-pad composed of a series of metallic springs, and flexible connections to join the ends of said springs, said connections being free to yield to conform to the shape of the back of the animal, substantially as described.

2. A saddle-pad composed of a series of metallic springs, and flexible connections to join the ends of said springs, said connections being free to yield to conform to the shape of the back of the animal, combined with a pad interposed between said springs and the back of the animal and on which said springs rest throughout their length, substantially as described.

3. A saddle-pad composed of a series of elliptic metallic springs having a plurality of coils, and connecting devices extended through said coils, said connecting devices being flexible and free to yield in the direction of their length, substantially as described.

4. A saddle-pad composed of two series of springs one series being separated from the other, each series being mounted on flexible connections united together, substantially as described.

5. A saddle-pad composed of a series of parallel elliptic wire metallic springs and flexible connections uniting the opposite ends of said springs, said connections being free to yield and to adapt themselves to the shape of the back of the animal, substantially as described.

6. A saddle-pad composed of a series of parallel elliptic wire metallic springs and flexible connections uniting the opposite ends of said springs, said connections being free to yield and adapt themselves to the shape of the back of the animal, combined with a pad against which the under side of each of said springs rests between its opposite ends, leaving a space between the top and under sides of said springs in which the members of said springs may move when the pad is in use, substantially as described.

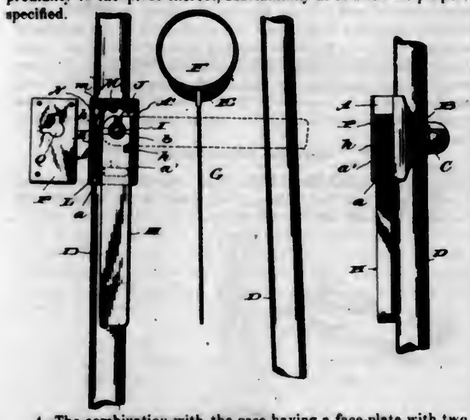
7. A harness-pad composed of a series of elliptic metallic springs having a plurality of coils, and spirally-coiled springs extended through the said coils at the ends of said springs and holding them in position parallel one to the other whereby the said springs are enabled to exert a yielding pressure on the back of the animal in parallel lines, substantially as described.

578,125. BICYCLE-LOCK. CY WARMAN, Washington, D. C. Filed Oct. 27, 1896. Serial No. 610,182. (No model.)

Claim.—1. The combination with the case and the pivoted locking-arm, of the oppositely-disposed pivotally-mounted pawls adapted to engage a notch in said arm, as and for the purpose specified.

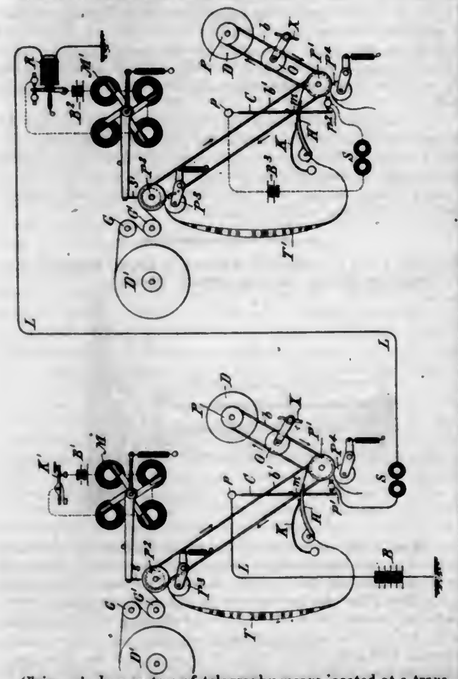
2. The combination with the pivoted locking-arm having a notch, of the pivoted pawl having a tapered portion, the independent pawl mounted with its free end in proximity to the said tapered portion, and a spring having its opposite ends acting upon the two pawls, substantially as shown and described.

3. The lock composed of the case open at the bottom and upon one side, the locking-arm pivotally mounted within the case and having a notch at its inner end and a notch upon its outer face, the two oppositely-extending independently-pivoted pawls, and the spring arranged within the case with its ends acting one upon each pawl in proximity to the pivot thereof, substantially as and for the purpose specified.



4. The combination with the case having a face-plate with two keyholes at right angles to each other, and a pivoted locking-arm, of a locking-pawl, a supplemental retaining-pawl, and a spring mounted to act simultaneously upon both of said pawls, as shown and described.

578,126. TELEGRAPHY. RODERICK H. WEBBY, Arlington, N. J., assignor of one-half to Walter P. Phillips, New York, N. Y. Filed Sept. 4, 1896. Serial No. 604,855. (No model.)



Claim.—1. In a system of telegraphy means located at a transmitting-station for transmitting Morse characters over a main line joining the same with a receiving-station; means located at the receiving-station for making upon a record-strip a permanent record of said characters and consisting of electromagnetic apparatus controlled by the current impulses transmitted, and mechanism for continuously moving the record-strip under a stylus carried by the armature of said electromagnetic apparatus, in combination with mechanism for independently continuously moving the completed record-strip in such manner as to successively actuate a Morse sounder included in a local circuit, both of said mechanisms being driven by a single source of power as an electric motor and provided with regulating mechanism for varying the speed at which they are driven, substantially as described.

2. In a system of telegraphy located at a transmitting-station for automatically transmitting Morse characters over a main line joining the same with a receiving-station; means located at the receiving-station for making upon a record-strip a permanent record of said characters and consisting of electromagnetic apparatus controlled by the current impulses transmitted, and mechanism for continuously moving the record-strip under a stylus carried by the armature of said electromagnetic apparatus, in combination with mechanism for independently continuously moving the completed record-strip in such manner as to successively actuate a Morse sounder included in a local circuit, both of said mechanisms being driven by a single source of power as an electric motor and provided with regulating mechanism for varying the speed at which they are driven, substantially as described.

3. In a system of telegraphy a Morse key included in a local circuit with an electromagnet, the armature of which is provided with a stylus adapted to indent a permanent record upon a record-strip; mechanism for continuously moving said record-strip; independent mechanism for continuously moving said record-strip through a transmitter adapted to cause the record to transmit electrically the Morse characters over a main line joining a receiving-station, both of said mechanisms being driven by a common source of power and provided with means for regulating the movement of the record-strip, in combination with an electromagnet located at the receiving-station for receiving the current impulses transmitted, the armature of said electromagnet being provided with an indenting-stylus; mechanism for continuously moving a record-strip beneath said stylus and independent mechanism for moving the completed record-strip in such manner as to control the operation of a local Morse sounder, said independent mechanism being driven by a common source of power as an electric motor and provided with means for varying the speed at which they are moved, substantially as described.

4. An instrument for reproducing Morse or analogous telegraphic characters, consisting of an embossed fillet or tape; a transmitting conducting-arm pivotally secured at substantially right angles to the direction of the motion of said tape and provided with a moving conducting contact-point at its free or lower end adapted to make electrical contact with a stationary or fixed contact included in an electrical circuit, in combination with a straight stiff spring carried by the conducting-arm and adapted to make frictional contact with the embossments or indentations of the fillet or tape and to yield only in the direction of the movement of said tape, substantially as described.

5. An automatic transmitter provided with a conducting transmitting-arm and a straight stiff spring adapted to make mechanical contact with the embossments of a transmitting-fillet, in combination with an arm adapted to act as a guide for said transmitting-fillet, said arm being provided with a downward or angular inclination at one side of the conducting transmitting-arm whereby the embossments after carrying said movable arm to the extreme limit of its stroke are released as the fillet is drawn forward, substantially as described.

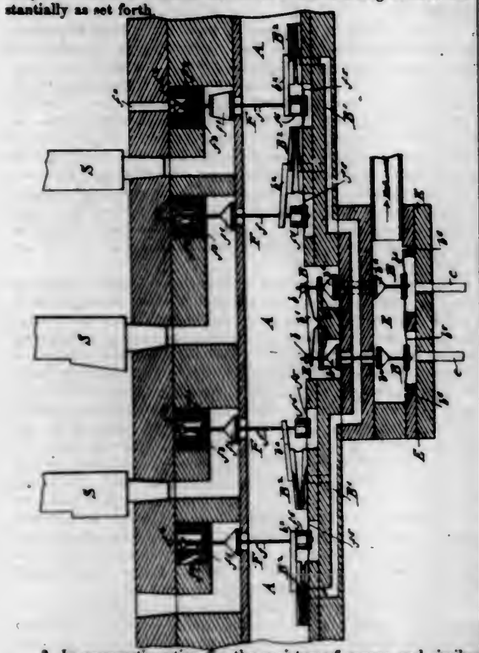
6. In an automatic transmitter a pivoted conducting transmitting-arm provided with means for making mechanical contact with the embossments or indentations of a transmitting-fillet, said means consisting of a straight stiff spring adapted to yield only in the direction of the movement of the fillet; a guide for the fillet located substantially at right angles to the transmitting-arm, said guide being provided with a downwardly-inclined surface adapted to suddenly release the transmitting-arm when it reaches the extreme limit of its stroke, substantially as described.

578,127. MECHANICAL MUSICAL INSTRUMENT. EMIL WELTE, New York, N. Y. Filed Feb. 12, 1896. Serial No. 579,061. (No model.)

Claim.—1. In pneumatic musical instrument, the combination, with the pneumatic-actions of the registers and for the valves of the sounding devices, of a wind-chest extending over the register-actions and the diaphragms of the valves of the sounding devices, an exhaust-chest below the pneumatic register and valve actions, ducts leading from said register and valve actions to the register-pneumatics and to the diaphragms of the valves of the sounding devices, said pneumatics being actuated by the register-actions, and means for connecting the pneumatics with the valves of the sounding devices, substantially as set forth.

2. The combination, with a number of registers, of a pneumatic-action for each register, each action being composed of a setting and actuating valve, a centrally-fulcrumed lever connecting the setting and actuating valves of each action, a wind-chest extending above the pneumatic-actions of the registers, an exhaust-chest located below said actions, ducts connecting the wind and exhaust chests with the

register-pneumatics, and pneumatics actuated by said actions and adapted to retain or release the valves of the sounding devices, substantially as set forth.



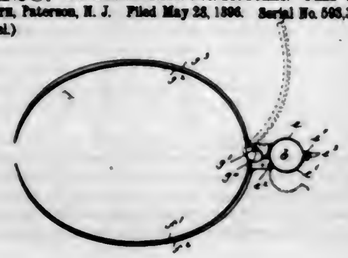
3. In pneumatic-action for the registers of organs, and similar instruments, the combination of a setting-valve connected with a diaphragm at its lower end, an actuating-valve also connected with a diaphragm at its lower end, a centrally-fulcrumed lever connecting the upper ends of the setting and actuating valves, and ducts leading from the actuating-valves to the registers, the upper portions of said valves being located in the wind-chest and the lower parts of said valves in the exhaust-chest, substantially as set forth.

4. In a pneumatic-action for the registers of organs and similar instruments, the combination of a register-action composed of a setting-valve and an actuating-valve a centrally-fulcrumed lever connecting the upper ends of the setting and actuating valves, and ducts leading from the wind and exhaust chests to the registers, the ends of said ducts terminating in the wind-chest being made somewhat larger than the ends terminating in the exhaust-chest for facilitating the actuations of the register-valves, substantially as set forth.

5. The combination, with the sounding devices and the valves of the same, of pneumatic-actions for operating the valves of said sounding devices, ducts leading from the pneumatic-actions to said valves, a wind-chest extending over said pneumatic-actions and the diaphragms of the valves of said sounding devices, and an exhaust-chest located below said valve-actions, the wind-chest and exhaust-chest being connected with the ducts leading from the pneumatic-actions to the valves of the sounding devices, substantially as set forth.

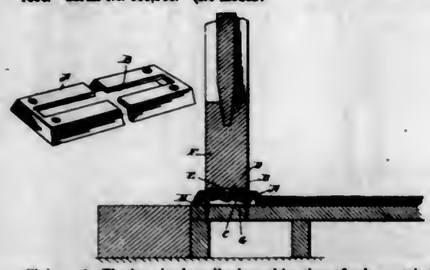
6. A valve for the sounding devices requiring a heavy pressure of air, such as trumpets, &c., consisting of a stem, a double valve on the upper part of said stem, a diaphragm at the lower end of the stem, a valve-cup open at the bottom and connected at its upper part with the atmosphere, a button at the upper end of the stem, and a spring between the button and the bottom of the valve-cup, substantially as set forth.

578,128. PARCEL-CARRIER FOR BICYCLES. FRED W. WENTWORTH, Paterson, N. J. Filed May 28, 1896. Serial No. 593,392. (No model.)



Claim.—A luggage-carrier for bicycles consisting of a block, a caliper-shaped grip and clamp carried thereby, the members *f* and *e* of the grip and the clamp respectively being integral with the block and having their concave sides disposed in opposite directions, and the members *g* and *d* of the grip and the clamp respectively being pivotally connected to the block, the pivoted end of the member *g* being provided with flat faces arranged substantially at right angles to each other, and a spring arranged in said block between the members *e* and *g* of the clamp and the grip respectively, said spring being adapted to come into contact with the faces of the member *g* and to retain said member in an open or closed position, substantially as described.

578,129. CARPET OR DOOR STRIP. SAMUEL W. WILT, Toll Gate, W. Va., assignor to J. H. Gregg, West Union, W. Va. Filed Sept. 12, 1896. Serial No. 605,560. (No model.)

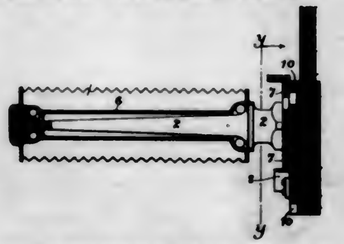


Claim.—1. The herein-described combination of a door-strip having a slot formed therein, springs attached to the under side thereof, a roll journaled upon said springs so as to project through the slot, and a trough so arranged as to catch water passing through said slot, substantially as and for the purpose set forth.

2. A door-sill, comprising a sheet-metal strip so bent as to form a space therebetween and the floor, two springs secured to the under side of the strip, a roll journaled upon said springs and adapted to project through a slot formed in the strip, a trough located beneath the strip, and nails or screws for securing the device in place, as specified.

3. The herein-described combination of the strip A having a slot formed therein, springs C secured to the under side of said strip, journals D carried by the springs, a roll E adapted to turn in said journals, and a trough located beneath the strip arranged to catch the water passing through the slot and convey the same to an outlet, substantially as and for the purpose set forth.

578,130. BICYCLE. ABRAHAM L. ADAMS, Bridgeport, Conn. Filed Sept. 19, 1896. Serial No. 562,971. (No model.)



Claim.—The combination of the fixed crank having a plurality of notches, the disk journaled within said crank, the pedal-spindle extending from said disk eccentric to the axial center of the same, the sliding plate also carried by said disk and independent of the pedal and provided with a stud capable of engaging with said notches, and a spring acting against said plate whereby said stud is normally engaged with said notches while the depression of the plate disengages the stud from the notches, substantially as set forth.

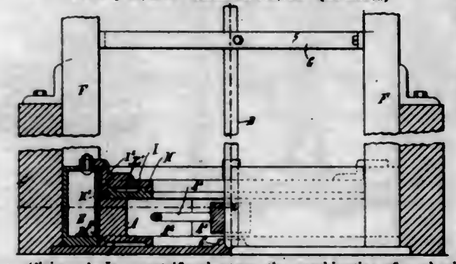
578,131. COMBINATION BATTERY-CELL. HENRY A. C. ANDERSON, New York, N. Y. Filed Oct. 30, 1895. Serial No. 567,339. (No model.)

Claim.—1. A battery-cell, the same consisting of an external perforated zinc cup, a negative electrode within the cup, and an exciting-filling for said cup surrounding the said negative electrode, whereby when the said cell is exhausted it may be restored by placing it within a receptacle containing an exciting liquid, the perforations permitting the exciting liquid to come in contact with the filling, and the cell to be used again as a dry battery, or be employed as a wet battery by letting it remain within the said receptacle, substantially as described.



2. A battery-cell, the same consisting of an external apertured zinc cup provided with a non-conducting cap at the top, a negative electrode suspended within the cup, and an exciting-filling surrounding the said negative electrode, the apertures in the said cup permitting of the passage of an exciting liquid to the interior of the cup, whereby the said cell may be employed as a dry battery and when exhausted may be placed without change of parts within a receptacle containing an exciting liquid and be restored for use as a dry battery or may be employed as a wet battery, substantially as described.

578,132. ROTARY PUMP. JOHN S. ATTENHOFER, New Orleans, La. Filed May 16, 1896. Serial No. 591,754. (No model.)



Claim.—1. In a centrifugal pump, the combination of a wheel consisting of buckets arranged within a horizontal annular space surrounding the center, spokes connecting the said buckets with a central hub, annular plates fixed to the sides of said buckets, both of said plates having a recessed ring in their outer sides, the recess being formed by two projecting rings, with a discharge-casing surrounding the periphery of the wheel, and annular cover-plates attached thereto and covering the annular plates of the wheel, the upper of said fixed plates having projecting rings to go outside of the side projecting rings on the wheel-plate, substantially as described.

2. In a centrifugal pump, the combination of a revolving wheel consisting of two annular plates, having buckets between them and spokes connecting the same with the center, with a discharge-casing surrounding the periphery of the wheel and having plates attached thereto and inclosing the annular wheel-body, the adjacent surfaces of the annular wheel-body and inclosing plates having non-registering projecting annular flanges near their outer and inner edges, adapted to fit one within the other, substantially as described.

3. In a centrifugal pump, the combination of a revolving wheel having a central circular open space on each side thereof, spirally-curved spokes leading from the center to the outer rim of this open space, with a rim attached to the outer rims of the spokes consisting of two annular side rings and buckets between the same cast integral with and forming a continuation of the spokes, said buckets coming to a sharp edge at their inner end and thickening toward their outer end, forming passages between them of substantially equal cross-section, a casing surrounding the wheel and having one or more discharge-pipes leading therefrom, fixed annular plates attached to said casing and embracing the sides of the wheel, and packing-rings interposed between the periphery of the wheel and the surrounding casing, substantially as described.

578,133. FOLDING MECHANISM FOR BAGS, &c. BENJAMIN F. BROWN, Fitchburg, Mass., assignor to the Brown Bag Filling Machine Company, same place. Filed July 1, 1896. Serial No. 597,713. (No model.)



Claim.—1. In an apparatus for folding, a folding blade or device, a folding-bed, means to rotate said bed, a series of nip-rolls lying against the periphery of and surrounding said bed and movable therewith, combined with means to move each of said nip-rolls over the surface of said bed independently each of the other of said nip-rolls, as and for the purposes described.

2. A folding-bed, a series of nip-rolls cooperating therewith, and an interposed yielding surface, combined with a guide near each end of said bed, into each of which guides are entered the journals of a series of nip-rolls, said rolls being loosely mounted outside said folding-bed and adapted to be rolled independently over said bed to catch and hold the paper to be folded, the said elastic surface serving to keep the nip-rolls frictionally in the position in which they are left about the surface of the bed, substantially as described.

3. In an apparatus for folding, a folding-bed, heads provided with grooves, a series of independently-movable nip-rolls surrounding said bed and having their journals guided by said grooves, and an interposed yielding jacket, combined with a folding-blade, and with devices to engage and move said nip-rolls to cause the same to travel upon the said bed to grasp and hold firmly the folded material, substantially as described.

4. In an apparatus for folding, a rotatable folding-bed, a series of independently-movable nip-rolls cooperating therewith, guides for the journals of said nip-rolls, and an interposed yielding jacket, combined with a folding-blade, and with devices to engage and move said nip-rolls to cause the same to travel upon the said folding-bed to grasp and hold firmly the folded material, and stops to move the said nip-rolls in an opposite direction to effect the release of the said material, substantially as described.

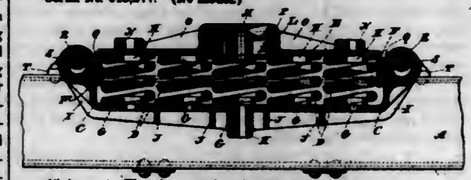
5. A rotatable folding-bed having an elastic jacket, two disks or plates having grooves, a series of nip-rolls entered loosely in said grooves and guided thereby, combined with a folding device, and with means to move said nip-rolls independently with relation to the surface of said jacket, to operate, substantially as described.

578,134. BICYCLE-TIRE. JOHN A. BURTON, Skaneateles, N. Y. Filed Sept. 26, 1896. Serial No. 607,011. (No model.)



Claim.—As a new article of manufacture, the removable bicycle-tire herein described, consisting of three separable segmental sections forming when placed together the complete tire, each of said sections being formed of cylindrical pieces of cork each having a central opening and being cemented together with such openings in alinement, whereby a central passage is formed through the said sections, and an endless coil-spring inserted in the continuous passage formed by the three sections placed together, whereby the said sections are removably held on the rim of the wheel, as and for the purpose set forth.

578,135. CENTER-BEARING-BOLSTER ATTACHMENT FOR CAR-TRUCKS. EDWARD CLIFF, Newark, N. J. Filed Dec. 11, 1896. Serial No. 615,277. (No model.)



Claim.—1. The elongated casing C and the elongated top or cover E thereon, combined with the springs held between said casing and cover, and means for permitting the said casing to have a lateral movement with the car-body, said casing, cover and springs constituting a center bearing adapted to receive the king pin or bolt connected with the car-body; substantially as set forth.

2. The center-bearing bolster comprising the elongated casing, the series of springs therein and the top or cover for said casing and provided with the center-bearing surface, said top or cover being adapted to have a lateral movement within said casing, combined with means securing said casing to the beams A, B, and permitting said casing to have a lateral movement; substantially as set forth.

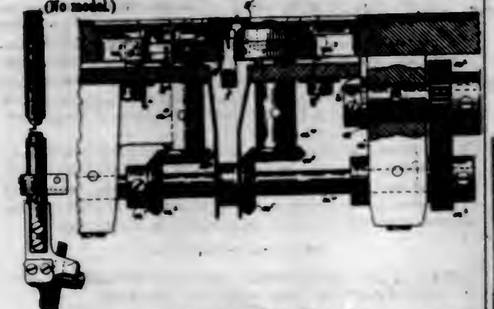
3. The center-bearing bolster comprising the casing having sleeves at its ends, the springs within said casing and the top or cover for said casing and springs, combined with the bearings secured to the truck-

frame and the transverse shafts or rollers entering said sleeves and bearings; substantially as set forth.

4. The center-bearing bolster comprising the casing inclosing the springs and having a yielding top or cover to receive the car-body, combined with the end bearings on said casing, the transverse shafts passing through said bearings and the rigid bearings to receive the ends of said shafts, the said end bearings and the said rigid bearings being out of central alinement with one another; substantially as set forth.

5. The center bearing comprising a casing, springs therein, and a cover mounted on said springs and adapted to receive the car-body and king-pin, combined with means securing said casing and permitting the same to have lateral motion toward either side of the car-truck; substantially as set forth.

578,136. SEWING-MACHINE. WILBUR F. DIAL and GEORGE H. DIMOND, Bridgeport, Conn., assignors to The Wheeler & Wilson Manufacturing Company, same place. Filed Jan. 3, 1896. Serial No. 574,220. (No model.)



Claim.—1. An eye-pointed needle, and a hook having a circular movement in a horizontal plane and provided with a point to take a loop of thread from the needle, and a thread-case open at its outer end for the reception of a bobbin, and having at its outer edge an inturned fixed lip overhanging the open end of the thread-case, the wall of said thread-case being cut away opposite said fixed lip, combined with a bobbin adapted to be inserted in said thread-case at its cut-away portion by a lateral and downward movement, said bobbin being thus put under said lip, substantially as described.

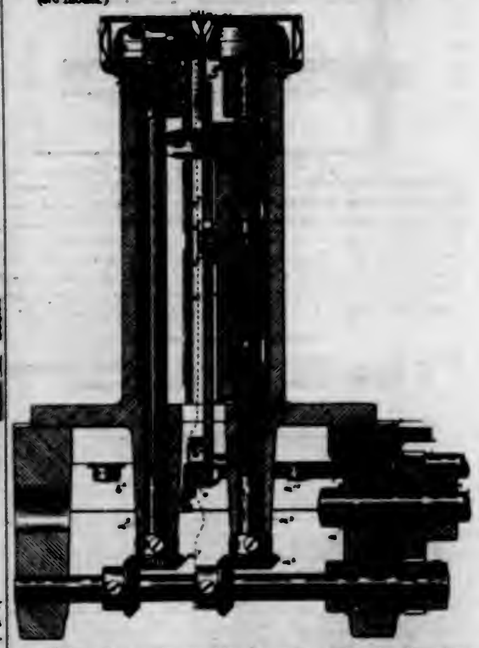
2. An eye-pointed needle, and a hook having a circular movement in a horizontal plane to take a loop of thread from the needle, a bobbin and a thread-case having an open outer end for the reception of the bobbin, said case having extended outwardly from its outer end a lug g^3 and at a short distance therefrom having an inwardly-turned fixed lip overhanging the space in the thread-case, the wall of the thread-case being cut away opposite said fixed lip, combined with means to cooperate with said outwardly-turned lug to restrain the thread-case from rotation, substantially as described.

3. A throat-plate having a needle-hole, a boss extended downwardly near said hole, a thread-case having a thread-guide, and a bobbin of under thread therein, a hook carrying said thread-guide arranged to be rotated in a horizontal plane and having a point and an upwardly-extended flange forming a continuation thereof, said thread-guide being located below the plane of the flange, whereby the said flange, at the root of the point, acts in the movement of the hook against the under thread between the said boss and the thread-case to draw from the thread-case some under thread, preparatory to the action of the take-up, to be used in the next stitch, combined with a take-up and means to actuate it at a time when the bobbin-thread is off the said flange and lies between the said point and the heel of the hook, substantially as described.

4. A needle, a needle-bar, means to move it, a circularly-moving hook having a flange provided at its inner side wtih a groove, combined with a bobbin-case having an annular projection entering said groove and provided with a notch or opening into which the loop of needle-thread is put by rotation of the hook during the action of casting the loop about the bobbin-case, the said projection having other notches in which loose ends of thread may be caught to thus prevent said loose ends from clogging the movement of the hook, substantially as described.

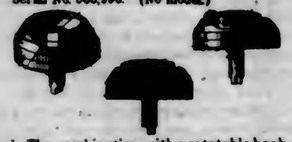
5. The tube extended up through the head of the machine, means to lift said tube and the presser-foot bar located within said tube and extended above its open upper end, and a presser-foot secured to the lower end of said bar, combined with a spring to normally act on said bar between the shoulder at its top and the top of said tube to enable the spring to lift the bar within the tube, and with a locking device cooperating with said bar, tube and spring to lock the foot in its operative position, substantially as described.

578,137. SEWING-MACHINE. WILBUR F. DIAL and GEORGE H. DIMOND, Bridgeport, Conn., assignors to The Wheeler & Wilson Manufacturing Company, same place. Filed Jan. 3, 1896. Serial No. 574,230. (No model.)



Claim.—In a sewing-machine for sewing with a plurality of needles, the following instrumentalities, viz: a bed having a stationary division, a feeding mechanism, the chief lever or part of which, carrying the feed-dog, is mounted on said stationary division, combined with two separable independent upright arms arranged at opposite sides of said stationary division, each arm carrying its own hook or loop-taker and an actuating-shaft therefor, to operate, substantially as described.

578,138. LOOP-TAKER FOR SEWING-MACHINES. WILBUR F. DIAL and GEORGE H. DIMOND, Bridgeport, Conn., assignors to The Wheeler & Wilson Manufacturing Company, same place. Filed Feb. 27, 1896. Serial No. 580,996. (No model.)



Claim.—1. The combination with a rotatable hook or loop-taker, having an unobstructed chamber at its face, and a thread-case normally retained in said hook or loop-taker leaving the latter free to be rotated about it, said thread-case having its open end exposed to present an unobstructed central cavity, and having a part of its circular wall cut away to gain access to the cop-cover, said hook, in action, passing the loop of needle-thread about the thread-case and between the latter and the hook, of a cop-cover composed of an end piece and vertical walls leaving a centrally-unobstructed interior to contain a ball of thread, the walls of said cop-cover entering the cavity of the thread-case and inclosing said ball of thread, the end piece of the cop-cover shielding said ball from the action of the loop of needle-thread, substantially as described.

2. The combination with a rotatable hook or loop-taker having an unobstructed chamber at its face, and a thread-case normally retained in said hook or loop-taker, leaving the latter free to be rotated about it, said thread-case having at its open exposed end an inturned lip under which is an unobstructed central cavity, the wall of the thread-case opposite said lip being cut away, of a cop-cover composed of a notched end piece to be entered by said lip and having vertical walls leaving a centrally-unobstructed interior to contain a ball of thread, the walls of said cop-cover entering the cavity of the thread-case and inclosing said ball of thread, the end piece of the cop-cover shielding said ball from the action of the loop of needle-thread, substantially as described.

578,139. ELECTRIC SWITCH. WILLIAM W. DOTY, New York, and JAMES A. MACKENZIE, Mount Vernon, N. Y., assignors of three-fifths to Charles J. Bickman, Joseph C. Grauten, and Charles C. Grauten, New York, N. Y. Filed July 1, 1896. Serial No. 597,765. (No model.)



Claim.—1. An electrical switch, provided with a pair of solenoids adapted to be energized by a current under the control of the operator in charge of an approaching car, and bell-crank levers connected with and operated by the said solenoids, and adapted to engage the switch-point on opposite sides, to shift the latter from the main track to the side-track or vice versa, substantially as shown and described.

2. An electrical switch, comprising a switch-point mounted to swing, bell-crank levers adapted to engage the said point on opposite sides, solenoids for operating the said bell-crank levers, and means substantially as described, for energizing either of the said solenoids to shift the switch-point into the desired position, as set forth.

3. An electrical switch, comprising a pair of solenoids adapted to shift the switch-point, and an automatic switch for controlling the current passing to the respective solenoid, said switch comprising a current-reversing bar which forms the armature of a solenoid and is moved endwise upon a fixed central pivot, substantially as shown and described.

4. An electrical switch, comprising an insulated track-section, an automatic controlling-switch connected with the said track-section, for sending current from the car through the said section to the said switch, a pair of solenoids controlled from the said automatic switch and bell-crank levers engaging the switch-point and actuated by said solenoids, substantially as shown and described.

5. An electrical switch, comprising a pair of solenoids bell-crank levers operated thereby and adapted to shift the switch-point, an automatic switch for controlling the current passing to the respective solenoid, and means for sending a current to the said switch, as set forth.

6. An electrical switch, comprising an insulated track-section, an automatic controlling-switch connected with the said track-section, for sending current from the car through the said section to the said switch, a pair of solenoids for throwing the switch-point and controlled from the said automatic switch, and bell-crank levers engaging opposite sides of the switch-point and actuated from the said solenoids to shift the switch-point, substantially as shown and described.

7. An automatic electrical switch, comprising two electromagnets arranged opposite each other, a lever adapted to rock between the said electromagnets, and an armature-lever fitted to slide on the said rocking lever and adapted to be attracted by either electromagnet, substantially as shown and described.

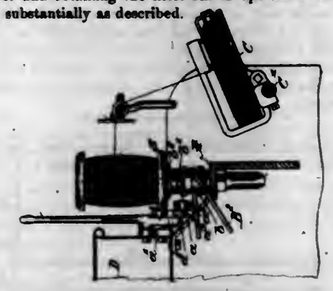
8. An automatic electrical switch, comprising two electromagnets arranged opposite each other, a lever adapted to rock between the said electromagnets, an armature-lever fitted to slide on the said rocking lever and adapted to be attracted by either electromagnet, and contact-plates connected with a source of supply and adapted to be alternately engaged by the ends of the said rocking lever, to connect the electromagnet with the corresponding contact-plates, substantially as shown and described.

9. An automatic electrical switch, comprising two electromagnets arranged opposite each other, a lever adapted to rock between the said electromagnets, an armature-lever fitted to slide on the said rocking lever and adapted to be attracted by either electromagnet, contact-plates connected with a source of supply and adapted to be alternately engaged by the ends of the said rocking lever, to connect the electromagnet with the corresponding contact-plate, and two solenoids having connection with the said electromagnets and actuated by the current passing through the corresponding contact-plate, armature and electromagnet, substantially at shown and described.

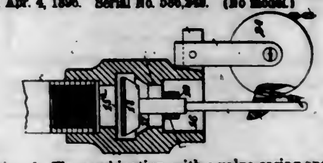
578,140 SPOOLING-MACHINE. WILLIAM F. DRAPER and ALONZO H. ELOADER, Hopedale, Mass., assignors to the Hopedale Machine Company, same place. Filed Nov. 12, 1895. Serial No. 568,727. (No model.)

Claim.—1. In a spooling-machine, a rotating seat for the spool, a spool adapted to rest on and be rotated by frictional contact with said seat, a lifter-bar having a roll thereon and limiting-stops, and an actuating-lever provided with a stud to engage and move said bar, to bring the roll into engagement with and to lift the spool from its seat, the stops limiting the movement of the lever, substantially as described.

2. In a spooling-machine, a rotating seat for the spool, a spool adapted to rest on and be rotated by frictional contact with said seat, a lifter-bar adapted at times to raise the spool from its seat, limiting-stops on said bar and a cam-surface between them, and an actuating-lever having a stud to contact with and move over the cam-surface, to operate the lifter-bar, the stops limiting the movement of the actuating-lever and retaining the lifter-bar in operative or inoperative position, substantially as described.



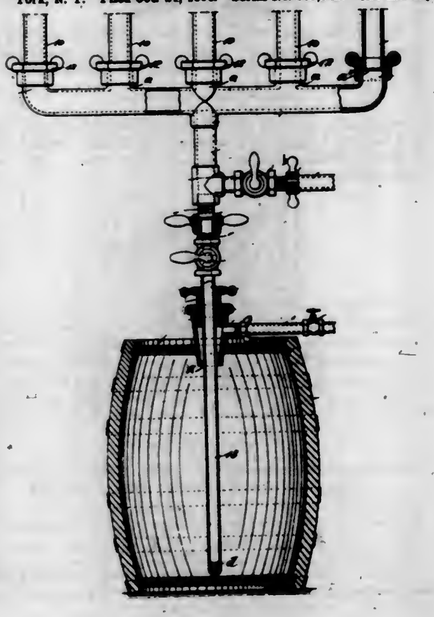
578,141. DEVICE FOR WATERING STOCK. REUBEN G. FAY, Harlan, Iowa, assignor to himself and Frank W. Hazzard, same place. Filed Apr. 4, 1896. Serial No. 586,249. (No model.)



Claim.—1. The combination, with a valve-casing open at one end and arranged at the opposite end to receive a pipe, the said casing being provided with a conical valve-seat, a correspondingly-shaped valve fitted to the said seat, and a valve-stem attached to the valve, extending through the open end of the valve-casing, of a pulley supported from the valve-casing, an arm located in front of the pulley and beneath the valve-casing, having an opening therein for the passage of the valve-stem, a chain attached to the valve-stem and passed upward and over the said pulley, and a float attached to the said chain, as and for the purpose set forth.

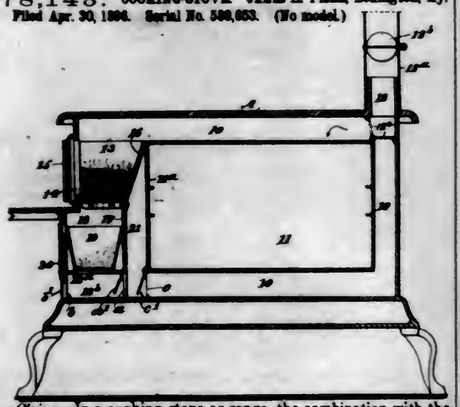
2. The combination with a valve-casing and a valve, of an arm supported from the casing and through which the stem of the valve passes, a pulley adjacent to the arm, a float, and a connection between the float and the valve-stem, substantially as described.

578,142. DEVICE FOR CLEANING PIPES. JACOB PIERS, New York, N. Y. Filed Oct. 21, 1896. Serial No. 609,549. (No model.)



Claim.—An apparatus for cleaning pipes, comprising a receptacle for containing a cleansing liquid, a hollow tapering coupling-plug in the receptacle and having a branch inlet connected with an air-supply pipe, a lift-pipe leading from near the bottom of the receptacle through the coupling-plug and provided with a valve, a branch pipe having a central inlet on its under side and a plurality of nipples on its upper side and with which the pipes to be cleaned are adapted to be connected, a tubular connection between the lift-pipe and the inlet of the branch pipe, and a cold-water pipe connected with the said connection and provided with a valve, substantially as herein shown and described.

578,143. **COOKING-STOVE.** JAMES H. PIKE, Lexington, Ky. Filed Apr. 30, 1896. Serial No. 590,653. (No model.)



Claim.—In a cooking stove or range, the combination with the front wall of the oven therein, of a back plate for the fire-chamber, an upright partition, spaced from said front wall and supporting the back plate, to permit the said back plate to lean its upper edge against the front wall of the oven, a damper adapted to control an opening in the lower part of the upright partition, and a damper controlling an opening at the front of a horizontal flue below the oven, as specified.

578,144. **PIPING OR TUBING FOR DRAWING OFF BEER.** JAMES L. FORT and GEORGE R. HOBY, Barnsley, England. Filed May 7, 1895. Serial No. 548,436. (No model.) Patented in England Nov. 7, 1894, No. 21,419.



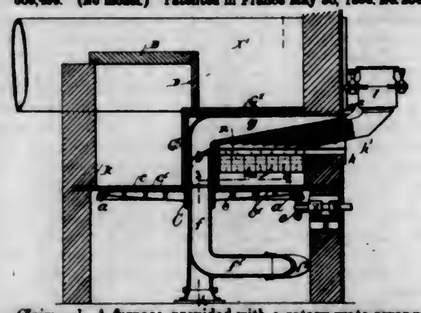
Claim.—The combination with glass tubing and a pliable and non-metallic packing-ring of a concavo-convex coupling-box substantially as described and for the attainment of the objects specified.

578,145. **SAFETY DEVICE FOR WINDOW-CLEANERS.** JOHN F. GIETLER, Brooklyn, N. Y., assignor of two-thirds to Charles C. Willges and Frank J. Werner, same place. Filed Nov. 11, 1896. Serial No. 611,739. (No model.)



Claim.—A safety device of the class described, comprising a belt, shoulder-straps permanently connected at one end to the said belt, and removably connected at their other ends to said belt, cords having their ends forked, hooks on the ends of the forked members, the inner hooks being adapted to connect with the said belt and shoulder-straps, and keepers adapted to be fixed to the window-casing and to be engaged by the hooks on the ends of the outer forked members, substantially as shown and described.

578,146. **SELF-FEEDING SMOKE-CONSUMING FURNACE.** CHARLES GROLL, Roubaix, France. Filed Oct. 21, 1896. Serial No. 609,499. (No model.) Patented in France May 30, 1896, No. 256,696.



Claim.—1. A furnace, provided with a rotary grate arranged in the combustion chamber, a vault or ceiling forming a passage leading rearwardly from one half of the grate, another vault forming a passage leading forwardly to the other half of the grate, and a transverse channel connecting the rear portions of said passages, the forwardly-leading passage being connected to the chimney at its front end, substantially as described.

2. A furnace, provided with a rotary grate arranged in the combustion-chamber, a vault or ceiling forming a passage leading rearwardly from one half of the grate, another vault forming a passage leading forwardly to the other half of the grate, a vertical wall at the rear ends of said vault, and a transverse channel connecting said passages behind said vertical wall, the forwardly-leading passage being connected to the chimney at its front end, substantially as described.

3. In a smoke-consuming furnace a grate mounted to turn, a coal-feeder above the grate, a radial chamber, placed above the coal-feeder and connected, at the center of the grate, with the standard around which the said grate revolves, in order that, on the one hand, the fresh air coming from the front into the said chamber may become heated in moving toward the central standard or pillar, and then be driven out by the help of steam-jets to supply the grate, and, on the other hand, that the air-jets issuing from one of the walls of the chamber and in the foot of the walls of the coal-feeder placed in the said chamber, may prevent the combustion-gases from penetrating into the coal-feeder, and make them, on the contrary, follow their path in the direction of the rotation of the grate and give the results as hereinbefore specified.

4. In a smoke-consuming furnace an automatic coal-feeder consisting of a hopper or conveying-worm, a cylinder the periphery of which has regularly-arranged apertures which distribute the coal into chutes leading to partitions placed one above the other in a channel placed radially with respect to the grate, the said partitions being either stationary or reciprocating in straight lines and letting fall the fresh coal onto the coal in a state of ignition and in greater quantity there where the combustion is most intense, and in less quantity where the combustion is the least intense, substantially as shown and described.

5. The combination of the hollow standard, the grate mounted to turn thereon, and the fuel-feeder arranged above the grate, the chamber in which said fuel-feeder is arranged communicating with the hollow of the standard, substantially as described.

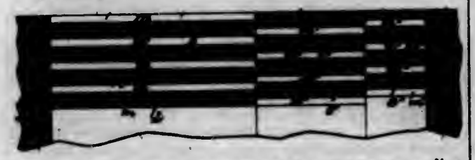
6. The combination of the grate and the fuel-feeder comprising a series of superposed inclined walls or partitions terminating at different points of the grate, substantially as described.

7. The combination of the grate and the fuel-feeder comprising a series of superposed inclined walls or partitions terminating at different points of the grate, said partitions being transversely convexed in an upward direction, substantially as described.

8. The combination of the grate, the fuel-feeder above the same, a tube or channel for supplying fresh air to the chamber in which said feeder is located, and nozzles through which said air may issue into the combustion-chamber, substantially as described.

9. A circular grate, comprising a series of radial arms each of which is provided with a longitudinal or radial aperture or recess, and grate-sections or grate-bars having lugs adapted to fit into said recesses, substantially as described.

578,147. **SCREEN-SHUTTER FOR COLOR PHOTOGRAPHY.** FREDERICK J. HARRISON, Orange, N. J., assignor to the E. & H. T. Anthony & Company, of New York. Filed Aug. 5, 1896. Serial No. 601,708. (No model.)



Claim.—1. A color-value screen comprising a transparent medium interposed between the light and the sensitive surface, the ends of said medium being opaque, and the intermediate portions sectionally colored, and ruled with opaque lines, the lines in adjoining sections breaking joints, and means to move said medium, for the purposes set forth.

2. A color-value screen comprising a flexible, transparent medium interposed between the light and the sensitized surface, said medium being sectionally colored and ruled with opaque lines, the lines in adjoining sections breaking joints with each other, and means to move the said medium, for the purposes set forth.

3. The combination in a photographic apparatus, of a color-value screen, comprising a movable, transparent medium sectionally colored and ruled, substantially as set forth, and a fixed line-screen, which partially obstructs the light, both of said devices being interposed between the lens and the sensitive surface, for the purposes set forth.

4. The combination in a photographic apparatus of a color-value screen, composed of a flexible ribbon, the ends whereof are opaque and the intermediate portions sectionally colored and ruled, substantially as set forth, and a fixed line-screen, which partially obstructs the light, both of said devices being located between the lens and the sensitive surface, for the purposes set forth.

5. The combination in a photographic apparatus of a color-value screen, composed of a flexible ribbon, the ends whereof are opaque and the intermediate portions sectionally colored and ruled, substantially as set forth, a fixed line-screen, which partially obstructs the light, both of said devices being located between the lens and the sensitive surface, and means to move said flexible ribbon, for the purposes set forth.

6. The combination in a photographic apparatus of a frame embodying rollers, a flexible, transparent ribbon, portions whereof are sectionally colored and ruled, substantially as set forth, supported upon said rollers, means applied to one of said rollers whereby it is positively rotated, means applied to the other thereof, to control the action of said motor, and a fixed, line-screen, which partially obstructs the passage of the light, said line-screen, and said color-value screen being located between the lens and the sensitized surface, for the purposes set forth.

7. A color-value screen, comprising a transparent medium adapted to be interposed between the light and the sensitive surface, said medium being sectionally colored and ruled on one side with opaque lines, leaving exposed spaces between them and lined upon the back side with fine lines, for the purposes set forth.

8. A color-value screen, comprising a transparent medium interposed between the light and the sensitized surface, the ends whereof are opaque, and the portions between the ends sectionally colored and ruled on one side in such manner as that the rulings break joints, and fine, opaque lines on the back thereof, for the purposes set forth.

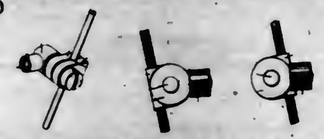
9. A color-value screen, comprising a flexible, transparent medium, sectionally colored and ruled on one side with opaque lines, which in adjoining sections break joints with each other, and fine, opaque lines produced on the rear thereof, for the purposes set forth.

10. A color-value screen comprising a movable, transparent medium, interposed between the light and the sensitive surface, said medium being sectionally colored transversely, and ruled with opaque lines which run in the direction of its movement, the lines in the differently-colored sections breaking joints with each other, for the purposes set forth.

11. A color-value screen, comprising a transparent medium interposed between the light and the sensitive surface, the ends of the said medium being opaque and the intermediate portions sectionally colored transversely and ruled with opaque lines, which run in the direction of its movement, the lines in the differently-colored sections breaking joints with each other, for the purposes set forth.

12. A plate-holder having rollers at opposite sides to which is attached a flexible color-value screen composed of transparent material, which is sectionally colored transversely, the differently-colored sections being ruled with opaque lines, running in the direction of its movement, and which break joints with said lines in the adjoining sections, and guiding devices to direct said flexible screen across the face of the said sensitive surface, for the purposes set forth.

578,148. **CYCLOMETER TAPPET OR ACTUATING DEVICE.** EDWIN HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed Oct. 5, 1896. Serial No. 607,982. (No model.)



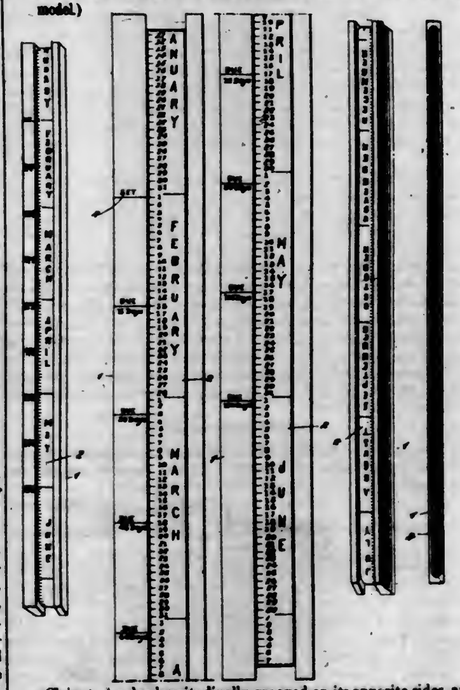
Claim.—1. In a cyclometer tappet or striker, the combination of the spoke-clamp, and a tappet that is adjustably connected to said clamp, whereby its position relative to the clamp may be changed substantially as and for the purpose shown.

2. In a cyclometer-tappet, the combination of the spoke-clamp, the tappet-support rotatably adjustable relative to said clamp and the tappet eccentrically mounted on said support, substantially as and for the purpose set forth.

3. In a cyclometer tappet or striker, the combination of the tappet-support, and an adjustable spoke-clamp, adapted to have its position changed relative to the tappet, substantially as and for the purpose set forth.

4. In a cyclometer tappet or striker, the combination of the screw, the two clamp-plates, the nut on the screw, and the tappet on the nut, substantially as and for the purpose specified.

578,149. **RULER AND TIME-COMPUTING DEVICE.** MOSES ISAACS, New York, N. Y. Filed Nov. 24, 1896. Serial No. 613,276. (No model.)

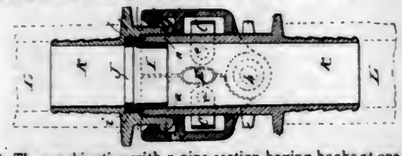


Claim.—A ruler longitudinally grooved on its opposite sides, and its ends transversely rounded, a setting-mark on the body of the ruler, other marks on the body portion indicating maturity-dates, and an endless band movable in the channels and extended around the rounded end portions, the said band having marked upon it the months of a year and the day dates of the month, and the said band being wholly exposed on the sides of the ruler, substantially as specified.

578,150. **HOSE-COUPLING.** JOHN KERR, New York, N. Y. Filed Dec. 27, 1895. Serial No. 573,445. (No model.)

Claim.—1. A coupling, comprising a pipe-section, hooks pivoted exteriorly on the said section and provided with interior shoulders to act as a stop for the end of a mating pipe-section, and means for pressing the hooks toward each other, substantially as shown and described.

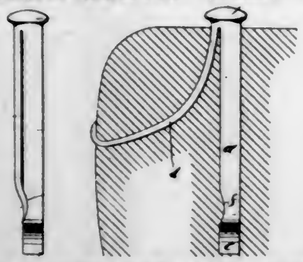
2. A coupling, comprising a pipe-section, hooks pivoted exteriorly on said section and provided with recesses in their adjoining edges forming an opening to permit of the insertion of a tool to force the hook-sections from each other, and means for pressing the hooks toward each other, substantially as shown and described.



3. The combination with a pipe-section having hooks at one end and a packing-sleeve interiorly of the said hooks and spaced therefrom, of a mating pipe-section whose end is adapted to fit between the said hooks and packing-sleeve, said mating section having pivoted to it hooks adapted to surround the hooks of the other section, and means for pressing the pivoted hooks together, substantially as shown and described.

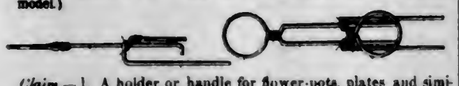
4. The combination with a pipe-section having hooks at one end, and an interior sleeve spaced from said hooks, of a mating section whose end is adapted to fit between said sleeve and hooks, said mating section having pivoted to it hook members arranged to surround the hook of the other section, and means for pressing the pivoted hooks toward each other, substantially as shown and described.

578,151. **RAILWAY-SPIKE.** JENS K. KNUDSEN, Engadine, Mich. Filed Nov. 3, 1896. Serial No. 610,904. (No model.)



Claim.—A railway-spike having a rigid body portion at one end of which is a head and at the opposite end of which is a point, the body portion having an indentation in one side and adjacent to the point, and a pliable prong formed integral with the body portion and immediately adjacent to the head thereof, the prong normally lying snugly against the side of the body portion, and terminating in a free end at the indentation in the body portion, the free end of the prong being pointed and curved to lie snugly within the indentation, substantially as described.

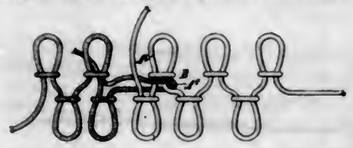
578,152. **HANDLE FOR FLOWER-POTS OR DISHES.** WILLIAM C. KRICK, Brooklyn, N. Y. Filed Oct. 21, 1896. Serial No. 609,493. (No model.)



Claim.—1. A holder or handle for flower-pots, plates and similar articles consisting of a wire bent so that the ends form two shanks extending in the same direction, the two parts of the wire at the inner ends of the shank portions being bent to one side and in the same direction, and having eyes formed therein whose axes extend in the same direction as the shanks, in combination with a handle consisting of a wire bent in the form of a staple or double-pointed pin, each side thereof passing through one of the eyes in the other piece and having at its outer end a short bend in the direction of the shanks of the other piece, substantially as described.

2. A holder or handle for flower-pots, plates and similar articles consisting of a wire bent so that the ends form two shanks extending in the same direction, the two parts of the wire at the inner ends of the shank portions being bent to one side and in the same direction, and having eyes formed therein whose axes extend in the same direction as the shanks, and having its loop, or connecting portion, bent back upon itself parallel with the shanks with the loop toward the points of the shanks, in combination with a handle consisting of a wire bent in the form of a staple or double-pointed pin, each side thereof passing through one of the eyes in the other piece and between the loop end and shank thereof, and having at its outer end a short bend in the direction of the shanks of the other piece, substantially as described.

578,153. **MITTEN OR LIKE FABRIC.** ISAAC W. LAMB, Perry, Mich., assignor to the Lamb Glove and Mitten Company, same place. Filed Apr. 27, 1896. Serial No. 589,251. (No specimens.)



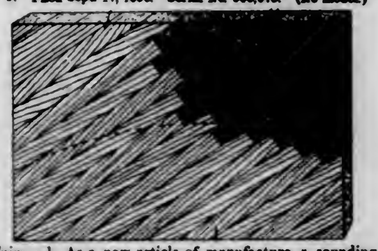
Claim.—1. A mitten or like fabric, comprising two ribbed fabrics, of which the selvage-yarn of one fabric is extended between the front and back loops of the selvage of the other fabric, to form the two fabrics into one piece, substantially as shown and described.

2. A blank for mittens and other articles, made from two knit fabrics each formed by its own thread, each fabric having front and back loops, and the yarn connecting the front and back loops at the inner end of each course of one fabric being carried about the corresponding portion of yarn at the adjacent end of the course of the other fabric, substantially as described.

3. A blank for a mitten-hand, consisting of a plain fabric with parallel sides for the hand or wrist, and with tips having tapering sides, the blank being made from two knit fabrics connected at approximately the center of the blank, each fabric being formed by its own thread and having front and back loops, and the yarn connecting the front and back loops at the inner end of each course of one fabric being carried about the corresponding portion of yarn at the adjacent end of the course of the other fabric, substantially as described.

4. A mitten consisting of two knit halves sewed together at one of their edges and each formed by a separate thread, said threads forming front and back loops, the yarn connecting the front and back loops at the opposite edge of each course of one half being carried about the corresponding portion of yarn at the adjacent edge of the course of the other half, and a thumb sewed to said halves at their connecting-seam, substantially as described.

578,154. **SOUNDING-BOARD.** JAMES C. LIVINGSTON, Little Falls, N. Y. Filed Sept. 17, 1896. Serial No. 606,073. (No model.)



Claim.—1. As a new article of manufacture, a sounding-board for musical instruments, having its treble formed of hard wood, and its bass of soft wood, as set forth.

2. As a new article of manufacture, a sounding-board for musical instruments, provided with strips, each formed of a hard and a soft wood, the hard wood being at the treble end of the strip and the soft wood at the bass end thereof, as set forth.

3. As a new article of manufacture a sounding-board for musical instruments, comprising a plurality of diagonally-arranged strips, some of which are made of a hard and a soft wood, the hard wood of the said strips being at the treble ends and the soft wood at the bass ends, as specified.

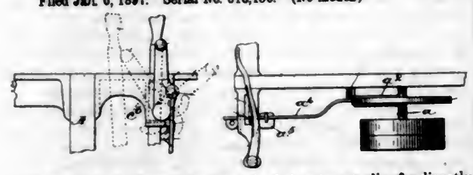
4. As a new article of manufacture a sounding-board for musical instruments, comprising a plurality of diagonally-arranged strips, some of the strips being formed of a hard and a soft wood, the soft wood being at the bass ends of the strips and the hard wood at the treble ends and formed of a plurality of sections, as set forth.

5. As a new article of manufacture, a sounding-board with the line of joints running from the left-hand lower corner to the right-hand upper corner, and having its treble made of hard-grained dense strips of wood, substantially as shown and described.

6. A sounding-board formed of strips of wood secured together at their sides and arranged diagonally, some of the strips being made in sections joined endwise and of a different grain and density, substantially as shown and described.

7. A sounding-board formed of strips of wood secured together at their sides and arranged diagonally, some of the strips being made in sections joined endwise and of a different grain and density, the sections having a double-bevel lap-joint, substantially as shown and described.

578,155. **BRAKE MECHANISM FOR LOOMS.** JOHN T. MEATS, Taunton, Mass., assignor to the Mason Machine Works, same place. Filed Jan. 6, 1897. Serial No. 618,156. (No model.)



Claim.—1. In a loom, a brake, a single hand-controller for directly operating said brake, a shipper coöperating with said hand-controller whereby stopping movement of said shipper automatically causes movement of said hand-controller to apply said brake; said hand-controller being adapted for engagement by the operator's hand for manually moving the same independently of said shipper, to release said brake while the loom is stopped, substantially as described.

2. In a loom, a brake, a single hand-controller for directly operating the same, a coöperating shipper arranged to cause movement of said hand-controller in one direction to apply the brake when said shipper is moved from running position to stop the loom; said hand-controller being adapted for engagement by the operator for moving the same independently of said shipper in an opposite direction from its movement by said shipper to release the brake when the loom is stopped, substantially as described.

3. In a loom, a shipper, a brake, a single hand-controller pivotally mounted on a suitable support for directly operating the said brake, a connection joined to said hand-controller at one side the dead-center of the latter and normally tending to move said hand-controller in one direction to apply the brake, said shipper when in running position preventing such movement, release of the said shipper permitting such movement, said hand-controller having also a movement in an opposite direction to carry said connection to the opposite side said dead-center, to release said brake, substantially as described.

4. In a loom, a shipper, a brake, a single hand-controller pivotally mounted on a suitable support for directly operating the said brake, a connecting-rod jointed thereto at that side its dead-center opposite said shipper, said hand-controller having a movement toward said shipper to carry said joint to the opposite side said dead-center, and one or more stops to retain said controller in an intermediate position when said shipper is in running position, substantially as described.

5. In a loom, a brake, a fixed support, a single hand-controller mounted on said fixed support for directly operating the said brake, a shipper adapted to directly engage said hand-controller, whereby stopping movement of said shipper automatically causes movement of said hand-controller to apply the brake, said hand-controller having a movement independent of said shipper to release said brake while the loom is stopped, substantially as described.

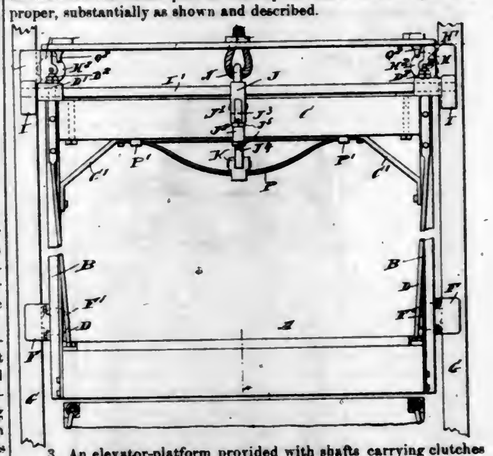
6. In a loom, a frame, a shipper, a brake, a single hand-controller therefor connected with said brake to both apply and release the latter, said shipper when in running position preventing movement of said hand-controller to apply the brake, stopping movement of said shipper automatically causing movement of said controller to apply the brake, said hand-controller being mounted on said frame independent of said shipper and being movable by hand independently of said shipper, substantially as described.

7. In a loom, a shipper, a brake, a single hand-controller for said brake mounted independently of said shipper, connections permanently connecting said hand-controller and said brake, stopping movement of said shipper automatically moving said hand-controller to apply the brake, substantially as described.

578,156. **ELEVATOR-PLATFORM.** ALPHONSO E. PELHAM, New York, N. Y. Filed Oct. 2, 1896. Serial No. 607,645. (No model.)

Claim.—1. The combination with the guide-posts of the elevator-shaft, the elevator-platform, a top or cover for said platform, clutches adapted to grip said guide-posts on the breaking of the hoisting-cable, friction-rollers bearing on said guide-posts, and castings secured to said platform and formed with integral slides engaging said guide-posts and also with integral bearings for the shafts of said clutches and of said friction-rollers, and said castings also forming a support for said top or cover for the platform, substantially as described.

2. An elevator-platform, provided with shafts carrying clutches adapted to engage the guide-posts, arms held on the said clutch-shafts, links formed with turnbuckles and connected with said arms, a head connected with the said links, a pin connected with said head, an eyebolt and jam-nut connected with said pin and with the lifting or hoisting cable, and a spring held in the said head and resting with its ends on the under part of the top cross-beam of the platform proper, substantially as shown and described.



3. An elevator-platform provided with shafts carrying clutches adapted to engage the guide-posts, arms held in the said shafts, and links connected with the said arms and made in sections connected with each other by turnbuckles, to permit of lengthening or shortening the links to adjust the clutches relative to the guide-posts, substantially as described.

4. The combination with the guide-posts of the elevator-shaft, the elevator-platform, standards held on the said platform, braces for the said platform and standards, friction-wheels engaging the said posts, castings resting on the upper ends of the said standards and fastened by bolts formed on the said braces, each casting being formed with integral slides engaging said guide-posts and also with integral bearings for the said friction-wheels, substantially as shown and described.

5. An elevator-platform comprising a platform, standards held on the said platform, braces for the said platform and standards, castings resting on the upper ends of the said standards and fastened by bolts formed on the said braces, each casting being formed with integral guideways and bearings for friction-wheels engaging the guide-posts, shafts journaled in said castings and carrying at their ends clutches for engagement with the sides of the guide-posts, arms held on the said clutch-shafts, adjustable links and turnbuckles with jam-nuts connected with said arms, a head connected with the said links, a pin pivotally connected with the said head, and eyebolt and jam-nut connected with said pin and connected with the hoisting-cable, and a spring held in the said head and resting with its ends on a cross-beam connecting the said standards with each other, substantially as shown and described.

6. An elevator-platform, provided with castings, each provided with vertically-disposed parallel integral slides for engagement with the guide-posts, and also with longitudinally-extending integral bearings for the clutch-shafts and with transverse bearings for the guide-post friction-rollers, substantially as shown and described.

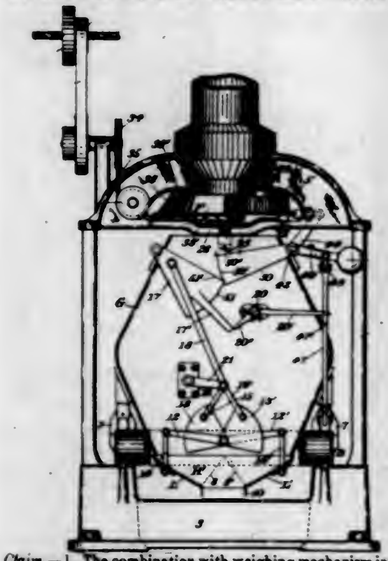
578,157. **WASHBOARD.** JOHN H. REIMERS, Cleveland, Ohio, assignor to the American Washboard Company, same place. Filed Dec. 28, 1895. Serial No. 573,623. (No model.)



Claim.—1. A washboard having in combination therewith a brand-board, a protector and arms connected to the protector and pivotally mounted on the washboard-frame in such relation to the head-piece and cross-bar as to permit of its being shifted from a position of protector use adjacent to the head-piece to a position of protector use adjacent to, but above the cross-bar, and in the latter position to form in connection with the brand-board, a soap box or receptacle, substantially as set forth.

2. A washboard having in combination therewith a brand-board, a protector, arms connected to the protector and pivotally mounted on the washboard-frame in such relation to the head-piece and cross-bar as to be capable of being adjusted to a position of protector use adjacent to, but above the cross-bar, where it forms in connection with the brand-board a soap box or receptacle, and to a position of protector use adjacent to the head-piece and a lock for holding the protector in the latter position, substantially as set forth.

578,158. **WEIGHING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn. Filed July 6, 1896. Serial No. 598,064. (No model.)



Claim.—1. The combination with weighing mechanism including a bucket, of a movable feed-table; a deflecting-blade for said feed-table, said blade being movable to regulate the amount of material supplied to the bucket by the feed-table; and means controlled by the weighing mechanism for actuating said blade during the weighing of a load.

2. The combination with weighing mechanism including a bucket, of a rotary feed-table; a deflecting-blade for said feed-table; and means controlled by the weighing mechanism for actuating said blade during the weighing of a load.

3. The combination with weighing mechanism including a bucket, of a feed-table; a reciprocatory deflecting-blade for said feed-table; and means controlled by the weighing mechanism for imparting a stroke to said blade in one direction during the weighing of a load.

4. The combination with weighing mechanism including a bucket, of a rotary feed-table; a reciprocatory deflecting-blade projectable across the plane of said table; and means controlled by the weighing mechanism for imparting a stroke to said blade in one direction during the weighing of a load.

5. The combination with weighing mechanism including a bucket, of a movable feed-table; a reciprocatory deflecting-blade supported independently of the feed-table and movable about an axis parallel with that of the feed-table; and means controlled by the weighing mechanism for imparting a stroke to said blade in one direction during the weighing of a load.

6. The combination with weighing mechanism including a bucket, of a movable feed-table; a reciprocatory deflecting-blade for said feed-table; and instrumentalities controlled by the weighing mechanism, for actuating said blade during the weighing of a load and for stopping the same on the completion of such load.

7. The combination with weighing mechanism including a bucket, of a movable feed-table; a reciprocatory deflecting-blade therefor; means controlled by the weighing mechanism for imparting a stroke to said blade in one direction during the weighing of a load; and a supply-chute located over said feed-table.

8. The combination with weighing mechanism including a bucket, of a movable feed-table having a wall extending partially about the same; a deflecting-blade movable between the ends of said wall; and means controlled by the weighing mechanism for imparting a stroke to said blade during the weighing of a load.

9. The combination with weighing mechanism including a bucket, of a movable feed-table; a reciprocatory deflecting-blade for said table, supported independently of the same; and means for imparting a stroke to said blade in one direction during the weighing of a load, said means being operative with the weighing mechanism.

10. The combination with a bucket having a closer, of a movable feed-table; a deflecting-blade projectable across the plane of said table; and reciprocally-effective stops operative, respectively, with said blade and closer.

11. The combination with a scale-beam and a bucket supported thereby, of a movable feed-table and its actuating mechanism, and a deflecting-blade for said table operated by the scale-beam.

12. The combination with a scale-beam and a bucket supported thereby, of a movable feed-table; a deflecting-blade for said feed-table projectable across the plane of said table by the scale-beam; and a counterweighted lever connected to said blade.

13. The combination with a feed-table, of a deflecting-blade therefor; actuating mechanism for said members; a bucket and its supporting scale-beam; and a shaft mounted on said bucket and operatively connected with said deflecting-blade and scale-beam.

14. The combination with a feed-table, of a deflecting-blade therefor; actuating mechanism for said members; a bucket and its supporting scale-beam; a shaft mounted on said bucket and having crank-arms operatively connected with said blade and with the scale-beam, one of said arms being loose on said shaft; and a counterweighted lever rigidly attached to said shaft.

15. The combination with a feed-table and with a deflecting-blade therefor, of actuating mechanism for said members; a bucket and its supporting scale-beam; a shaft having arms operatively connected to said blade and scale-beam, one of said arms being loose on said shaft; and a counterweighted lever rigidly connected to said shaft and provided with a projection adapted to bear against said loosely-mounted arm.

16. The combination with a feed-table and with a deflecting-blade therefor, of actuating mechanism for said members; a scale-beam; a bucket supported by said scale-beam and provided with a closer; a shaft on said bucket having a crank-arm connected to said blade; an arm loosely movable on said shaft and operatively connected with the scale-beam; a counterweighted lever on said shaft; a stop also on said shaft and a coacting stop operative with the closer.

17. The combination with a bucket having a closer, of holding means embodying a latch, operative for maintaining said closer in its normal position; a feed-table; a deflecting-blade for said table; and a shaft operatively connected with said scale-beam by a thrust-rod provided with a latch-tripping device.

18. The combination with a bucket, of a hopper supported for movement relatively thereto, one of the walls of said hopper constituting a closer for the discharge-outlet of said bucket; and means normally operative for maintaining said hopper against movement.

19. The combination with a bucket, of a hopper supported for movement relatively thereto and having an outlet, one of the walls of said hopper constituting a closer for the discharge-outlet of said bucket; and means normally operative for maintaining said hopper against movement.

20. The combination with a bucket having a pair of discharge-outlets, of a discharge-hopper supported for movement relatively to the bucket and having oppositely-inclined walls constituting closers for said outlets, said hopper also having a discharge-opening; and a conduit extending about said discharge-opening.

21. The combination with a bucket having a pair of discharge-outlets, of a discharge-hopper supported for movement relatively to the bucket and having oppositely-inclined walls constituting closers for said outlets, said hopper also having a discharge-opening; a conduit extending about said discharge-opening; and a pair of counterweighted levers supported on the bucket and provided with links connected to said hopper.

578,159. **WEIGHING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn. Filed Aug. 26, 1896. Serial No. 603,975. (No model.)

Claim.—1. The combination with weighing mechanism including a bucket, of a feeder operable for delivering a stream of material to said bucket; driving mechanism for said feeder; a valve located above and movable toward the feeder during the weighing of a load; and valve-actuating means.

2. The combination with weighing mechanism including a bucket, of a feeder operable for delivering a stream of material to said bucket; driving mechanism for said feeder; a valve located above said feeder; and means for moving said valve toward the feeder at differential speeds.

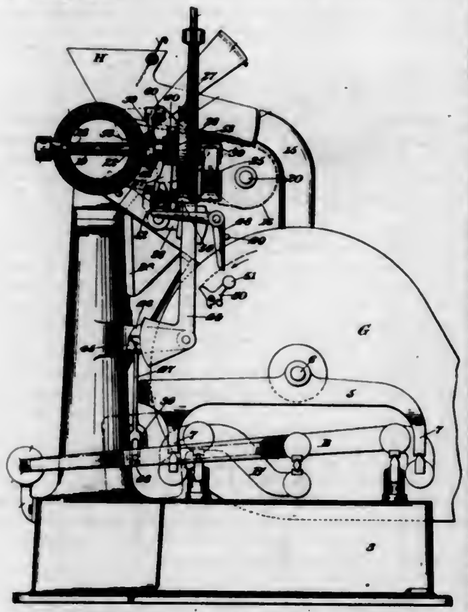
3. The combination with a feeder, of driving mechanism for said feeder; a valve; and successively-effective actuators for moving said valve toward the feeder at differential speeds.

4. The combination with a feeder and its driving mechanism, of a valve; mechanism for imparting a primary movement to said valve; and independent means operative with the feeder-driving mechanism, for imparting a final movement to said valve.

5. The combination, with a bucket, and with stream-supply means therefor; of a stream-controlling valve; and a plurality of successively operative and independently-mounted actuators for effecting the closure of said valve at differential speeds.

6. The combination with weighing mechanism embodying a bucket, of a feeder consisting of a belt supported by a pair of rolls; means for rotating one of said rolls; and a valve located above the feeder-belt and movable toward the upper run thereof during the weighing of a load; and valve-actuating mechanism.

7. The combination with weighing mechanism embodying a bucket, of a feeder operable for delivering a stream of material to said bucket; driving mechanism for said feeder; a stream-controlling valve; mechanism for actuating said valve to cause it to intersect the body of material supported on the feeder; means for intercepting said valve when it has nearly reached the feeder, whereby said feeder will deliver a relatively fine stream to the bucket; and valve-actuating means.



8. The combination with weighing mechanism embodying a bucket, of a feeder operable for delivering a stream of material to said bucket; mechanism for driving said feeder at a uniform velocity during the weighing of a load; a valve located above and movable toward said feeder during the weighing of a load; and means for effecting the closure of said valve at differential speeds.

9. The combination with a bucket, of supply means therefor; a valve; beam mechanism for supporting said bucket and for also positively imparting a primary closing movement to said valve; and instrumentalities for effecting a further and accelerated movement to said valve.

10. The combination with a bucket, of a feeder operable for delivering a stream of material to said bucket; driving mechanism for said feeder; a valve; beam mechanism for supporting the bucket and for also imparting a primary closing movement to said valve; and means operative with the feeder-driving mechanism, for imparting a further closing movement to said valve.

11. The combination, with weighing mechanism, and with stream-supply means therefor; of a reciprocatory stream-controller; and successively-effective and independently-mounted mechanisms for imparting differential speeds, respectively, to said stream-controller on one of its strokes.

12. The combination, with weighing mechanism, of a feeder, and its driving mechanism; a stream-controller; an actuating member for the latter, located to receive its stream-controller-actuating force from the feeder-driving mechanism; and means for throwing said actuating member into operative connection with the feeder-driving mechanism at a predetermined point.

13. The combination with stream-supply means and a stream-controlling valve, of a shaft having a worm; and an operating-lever for the valve, carrying a threaded block adapted to be thrown into mesh with the worm to thereby actuate the valve.

14. The combination with stream-supply means and with a stream-controlling valve, of a shaft having a worm; and an operating-lever for said valve, carrying a threaded oscillating block adapted to be thrown into mesh with the worm to thereby actuate the valve.

15. The combination with stream-supply means and with a stream-controlling valve, of a shaft having a worm; a segmental notched blade connected to said valve; an operating-lever for said valve, said lever having a threaded block and also having a projection normally bearing against the curved face of the blade; and means for partially closing said valve, whereby the blade will concurrently be moved and the notch therein caused to come opposite the projection on said lever into which said projection may be thrust, whereby the thread of the block will be caused to mesh with the worm to thereby further actuate the valve.

16. The combination with a feeder having a shaft provided with a gear, of a second shaft also having a gear meshing with said first-mentioned gear; a worm on said second shaft; a stream-controlling valve; and an operating-lever for the valve, carrying a threaded block adapted to be thrown into mesh with the worm to thereby actuate the valve.

17. The combination with beam mechanism and with a bucket supported thereby, of stream-supply means for said bucket; a stream-controlling valve having a rod operatively connected thereto and operable by the beam mechanism; a shaft having a worm; and an operating-lever for said valve, carrying a threaded block adapted to be thrown into mesh with the worm.

18. The combination with beam mechanism and with a bucket supported thereby, of stream-supply means; a stream-controlling valve having a stop operative therewith; a rod attached to said stop and operable by the beam mechanism; a shaft having a worm; an operating-lever for the valve having a threaded block adapted to be thrown into mesh with the worm; and a stop operative with the bucket and coacting with said first-mentioned stop.

19. The combination with beam mechanism and with a bucket normally held against discharge movement by means comprehending a latch, of stream-supply means; a stream-controlling valve having a rod attached thereto, said rod being operated by the beam mechanism; a shaft having a worm; an operating-lever for the valve, having a block adapted to be thrown into mesh with the worm; and a tripper for the latch, mounted on said rod.

20. The combination with stream-supply means, of a shaft having a worm; an operating-lever for the valve, carrying a threaded block adapted to be thrown into mesh with the worm to thereby actuate the valve; and resetting means for said lever.

21. The combination with weighing mechanism embodying a bucket, of stream-supply means for said bucket; an operating-lever for the valve, carrying a threaded block adapted to be thrown into mesh with the worm to thereby actuate the valve; and means operated by the bucket for resetting said lever.

22. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a self-operative belt-shipper; means for normally holding said belt-shipper against movement; and releasing and resetting instrumentalities for said belt-shipper, cooperative with and controlled by the weighing mechanism.

23. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a belt-shipper; a catch normally holding said belt-shipper against movement; and tripping means for said catch, cooperative with and controlled by the weighing mechanism.

24. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a belt-shipper; a catch normally holding said belt-shipper against movement; and means operative with the weighing mechanism for tripping said catch.

25. The combination with a bucket and a scale-beam for supporting the same, of a feeder and its driving mechanism including fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a belt-shipper; a catch normally operative for holding said belt-shipper against movement; and a rod for tripping said catch, said rod being operated by the scale-beam.

26. The combination with a bucket and a scale-beam for supporting the same, of a feeder and its driving mechanism including fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a belt-shipper consisting of a counterweighted angle-lever, one of the arms of which has a lug; a catch for engaging said lug to thereby hold the belt-shipper against movement; and a depending rod connected to said catch and having a bifurcation which straddles a pin on the scale-beam.

27. The combination with weighing mechanism embodying a bucket, of a feeder; a shaft connected to said feeder by gearing for driving the same; a worm and fast and loose pulleys on said shaft; a stream-controlling valve; an operating-lever for said valve, having a block provided with a thread adapted to be thrown into mesh with the worm; a belt shiftable from one of said pulleys to the other; and a belt-shipper.

28. The combination with weighing mechanism embodying a bucket, of a feeder; a shaft connected by gearing to said feeder, said shaft carrying a worm and fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a valve; two pivotally-connected levers, one of which is counterweighted and the other of which

has a threaded block adapted to be thrown into mesh with the worm; and a belt-shipper.

29. The combination with weighing mechanism embodying a bucket, of a feeder; a shaft connected by gearing to said feeder, said shaft carrying a worm and fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a valve; two pivotally-connected levers, one of which is counterweighted and the other of which has a threaded block adapted to be thrown into mesh with the worm; a resetting-lever adapted to impinge against a projection on the operating-lever; and means for actuating said resetting-lever.

30. The combination with weighing mechanism embodying a bucket, of a feeder; a shaft connected by gearing to said feeder, said shaft carrying a worm and fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a valve; two pivotally-connected levers, one of which is counterweighted and the other of which constitutes a valve-operating lever and has a threaded block adapted to be thrown into mesh with the worm; a resetting-lever adapted to impinge against a projection on the operating-lever; means for actuating said resetting-lever; and a device carried by the bucket for actuating said resetting-lever.

31. The combination with weighing mechanism embodying a bucket, of a feeder; a shaft connected by gearing to said feeder, said shaft carrying a worm and fast and loose pulleys; a belt shiftable from one of said pulleys to the other; a valve; two pivotally-mounted levers, one of which is counterweighted and the other of which constitutes an operating-lever for said valve, it being provided with a threaded block adapted to be thrown into mesh with the worm; a belt-shipper; a resetting-lever adapted to impinge against a projection on the operating-lever; a device carried by the bucket and located to impart a blow to said resetting-lever; and a connection between the counterweighted lever and the belt-shipper.

32. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft having fast and loose pulleys; a valve; and an operating-lever for said valve, having an oscillating threaded block adapted to be thrown into mesh with a worm on said shaft and also against a disk on one of said pulleys.

33. The combination with stream-supply means and with a valve, of a power-shaft having a gear thereon; a power-transmitting device operative with said valve; and means for throwing said power-transmitting device into operative relation with said gear.

34. The combination with a feeder and its driving mechanism including a shaft provided with an eccentric, of a valve; mechanism for actuating said valve; and a rod connected to said valve and provided with a strap embracing the eccentric on said shaft.

35. The combination with beam mechanism and with a bucket supported thereby, said bucket being oscillatory for discharging the load; of a rocker supported independently of the bucket and operatively connected thereto; detent means for said rocker; stream-supply means for the bucket; a valve; and a pair of coacting stops cooperative, respectively, with said valve and rocker.

36. The combination with beam mechanism, of a frame supported thereby and carrying an oscillatory bucket; a rocker mounted on the frame and connected to the bucket by a link; detent means for said rocker; stream-supply means for the bucket; a valve having a stop; a second stop coacting therewith; and a rod operatively connecting said second stop with said rocker.

37. The combination with beam mechanism embodying a main scale-beam consisting of two relatively long counterweighted arms and a pair of auxiliary scale-beams consisting of two shorter arms which bear, against the long arms of the main scale-beam, said respective beams being suitably fulcrumed; of a frame supported by the beam mechanism; a bucket journaled in said frame for oscillatory movement; means normally operative for maintaining the bucket against such movement; means for supplying said bucket with a stream of material; and stream-controlling mechanism.

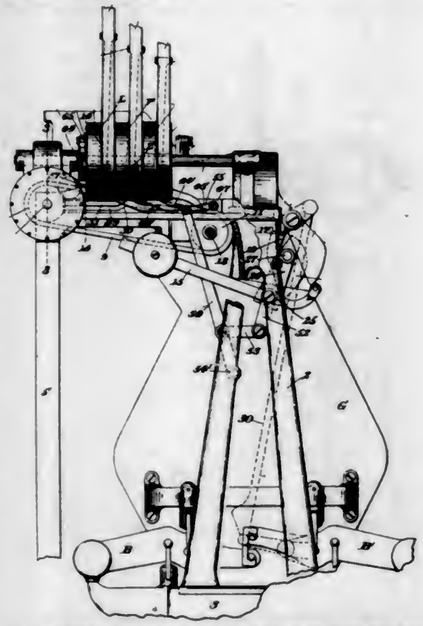
578,160. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 14, 1896. Serial No. 606,797. (No model.)

Claim.—1. The combination with a shaft carrying fast and loose pulleys; of a belt shiftable from one of said pulleys to the other, and vice versa; a belt-shipper having a projection; and a reciprocatory block having a recess of different depths in which said projection is located.

2. The combination with a shaft carrying a series of fast and loose pulleys; of a series of belts shiftable, respectively, from the fast to the loose pulleys, and vice versa; a reciprocatory block having a recess of different depths; and a series of belt-shippers having projections of different lengths located in said recess.

3. The combination with a shaft carrying a series of fast and loose pulleys; of a series of belts shiftable, respectively, from the fast to the loose pulleys, and vice versa; a reciprocatory block having a cam-recess of different depths; and a series of belt-shippers having projections of different lengths located in said recess.

4. The combination with a shaft having a series of fast and loose pulleys; of a series of belts shiftable, respectively, from the fast to the loose pulleys, and vice versa; a reciprocatory block having a recess of different depths; and a series of belt-shipping levers having projections of different depths located in said recess, one of said levers being counterweighted.



5. The combination with weighing mechanism including a bucket, of a feeder and its driving mechanism comprehending a shaft carrying fast and loose pulleys; a belt shiftable from one of said pulleys to the other, and vice versa; a belt-shipper having a projection; a reciprocatory block having a recess of different depths in which said projection is located, said block being operative with, and controlled by, the weighing mechanism.

6. The combination with weighing mechanism including a bucket, of a feeder and its driving mechanism comprehending fast and loose pulleys; a driving-belt; a self-active belt-shipper having a projection; and a reciprocatory block having a recess of different depths in which said projection is located, said block being operative with, and controlled by, the weighing mechanism.

7. The combination with weighing mechanism including a bucket, of a feeder and its driving mechanism comprehending a shaft provided with a series of fast and loose pulleys; a series of belts normally carried by the loose pulleys; and belt-shipping means controlled by the weighing mechanism, for successively shipping said belts from the loose pulleys to the fast pulleys and for returning the same to their normal positions during the weighing of a load.

8. The combination with weighing mechanism, of a feeder and its driving mechanism including a series of fast and loose pulleys; a series of driving-belts; independently-operative belt-shippers, each of which has a projection; a cam-recessed reciprocatory block adapted to receive said projection to effect the successive operation of said belt-shipper; and means controlled by the weighing mechanism for reciprocating said block.

9. The combination with weighing mechanism and with a feeder and its driving mechanism including fast and loose pulleys, of a belt; a belt-shipper consisting of a counterweighted pivotally-mounted lever, one of the arms of which has a projection; a recessed reciprocatory block in the recess of which said projection is located; and means controlled by the weighing mechanism, for reciprocating said block.

10. The combination with weighing mechanism including a bucket, of a feeder and its driving mechanism comprehending a shaft carrying fast and loose pulleys; a driving-belt; a belt-shipping lever having a projection; a reciprocatory block having a cam-recess, the working face of which is of different pitches, and which is adapted to receive the projection of said belt-shipping lever; and means operative with the weighing mechanism, for actuating said block.

11. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt; a belt-shipping lever having a projection; a valve; an operating device for said valve; and a reciprocatory block having a recess of different depths adapted to receive said projection, said block being also connected to the valve-actuating device, whereby it will be reciprocated by said device.

12. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt; a belt-shipper having a projection; a valve having an operating-lever connected thereto; and a reciprocatory block having a recess adapted to receive said projection, said block being also operatively connected to said lever.

13. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt; a belt-shipper having a projection; a valve; an operating-lever for said valve having a projection to which is connected a rock-arm pivoted to the valve; a second rock-arm on said projection; a lever connected to said second rock-arm; and a reciprocatory block having a recess adapted to receive the projection of said belt-shipper and operatively connected to said last-mentioned lever.

14. The combination with framework and with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt; a belt-shipper having a projection; a valve; an operating-lever for the valve, mounted on the framework and having a rock-arm connected to a projection on said lever, said rock-arm being pivoted to the valve; a second rock-arm on the projection of said lever; a lever mounted on the framework of the machine and connected by a link to said last-mentioned rock-arm; and a reciprocatory block having a recess adapted to receive the projection on said belt-shipper and connected by a link to said last-mentioned lever.

15. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt; a belt-shipper having a projection; a rock-shaft having a valve connected thereto; a cam depending from said shaft; an operating-lever for said valve adapted to engage said cam; and a reciprocatory block having a recess adapted to receive said projection and operatively connected to the valve-operating lever.

16. The combination with weighing mechanism including a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt shiftable from one of said pulleys to the other, and vice versa; an eccentric attached to the fast pulley, a strap on said eccentric, having a rod; a reciprocatory bar provided with fingers adapted to come in contact with the mass of material on the feeder; operative connections between said bar and eccentric-rod; a reciprocatory block having a recess of different depths; a counterweighted belt-shipper having a projection adapted to travel in said recess; and means operative with the weighing mechanism, for reciprocating said block.

17. The combination with weighing mechanism embodying a bucket, and with a feeder; of driving mechanism for said feeder, including fast and loose pulleys; a belt; a belt-shipper having a projection; an eccentric attached to one of said pulleys; a strap on said eccentric having a rod; a reciprocatory bar having projecting fingers adapted to come in contact with the mass on the feeder; operative connections between said bar and eccentric-rod; and a reciprocatory block controlled by the weighing mechanism and having a recess adapted to receive the projection on the belt-shipper.

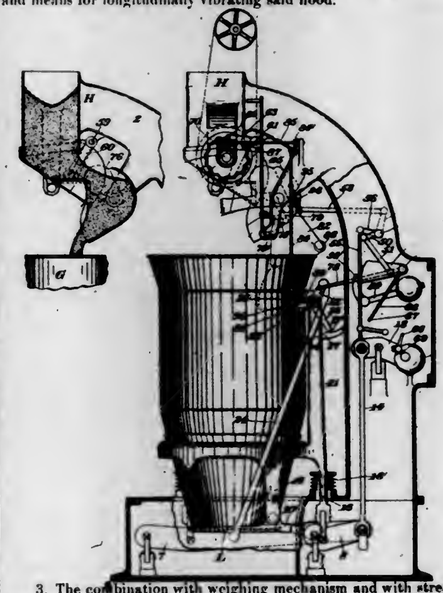
18. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including fast and loose pulleys; a belt; a belt-shipper having a projection; a reciprocatory block controlled by the weighing mechanism and having a recess adapted to receive said projection; an eccentric on one of said pulleys; a strap on said eccentric having a rod; a bar having projecting fingers adapted to come in contact with the material of the feeder; and a rock-shaft operatively connected, respectively, to said bar and eccentric-rod.

19. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a series of fast and loose pulleys; belts shiftable from the fast to the loose pulleys, and vice versa, during the weighing of a load; a series of belt-shipping levers having projections, one of which projections is longer than the others, and one of said levers being counterweighted; a reciprocatory block having a recess of different depths adapted to receive said projections; and means operative with the weighing mechanism, for imparting a stroke in one direction to said block during the weighing of a load.

578,161. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 17, 1896. Serial No. 606,102. (No model.)

Claim.—1. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper having a drip-opening in a wall thereof, of a hood located over said drip-opening; a valve; and means controlled by the weighing mechanism, for vibrating said hood.

2. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper having a drip-opening in a wall thereof, of a hood located over said drip-opening; a valve; and means for longitudinally vibrating said hood.



3. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper having a drip-opening in a wall thereof, of a hood located over said drip-opening; a valve; and means for vibrating said hood simultaneously in longitudinal and transverse directions.

4. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper provided with a reciprocatory bottom having a drip-opening, of a hood located over said drip-opening; a valve; and means for vibrating said hopper-bottom and hood.

5. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper provided with an inclined vibratory bottom having a drip-opening; of a stream-controller operable within said hopper, contiguous to said inclined bottom and located over the drip-opening therein; means for vibrating said stream-controller; and a cut-off valve for said hopper.

6. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper having a drip-opening in a wall thereof, of a hood located over said drip-opening; a valve; and means for vibrating said hood.

7. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper having a movable bottom provided with a projecting and suitably-supported stub-shaft, of a power-shaft carrying a wheel having a cam-groove therein between the walls of which groove a pin on said stub-shaft is located; and means controlled by the weighing mechanism for rotating said shaft.

8. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper, of a stream-controller located within said hopper; a shaft operatively connected to said stream-controller and provided with an arm; a power-shaft carrying a wheel having cam-grooves between the walls of which pins on said first-mentioned shaft and the arm thereon are located; and means for rotating the power-shaft.

9. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper the bottom of which is movably mounted and is provided with a projecting stub-shaft, of a stream-controller connected to a shaft which has an arm; a power-shaft carrying a wheel having cam-grooves on its periphery and one of its faces, between the walls of which grooves pins on the stub shaft, said second-mentioned shaft, and the arm of the latter are located; and means for rotating said power-shaft.

10. The combination with weighing mechanism and with stream-supply means therefor, of a valve; a power-shaft provided with a gear; a toothed segment operative with said valve and adapted to mesh with said gear; and means for uncoupling said gear from the power-shaft.

11. The combination with weighing mechanism embodying a bucket having a closer, of stream-supply means; a valve; a power-shaft having a gear; a toothed segment operative with said valve and adapted to mesh with said gear; and means operated by the closer for uncoupling said gear from the power-shaft.

12. The combination with weighing mechanism and with stream-supply means therefor, of a valve: a power-shaft carrying a gear; driving mechanism for said power-shaft; a toothed segment operative with the valve and adapted to mesh with said gear; a peripherally-grooved slidable clutch member on said power-shaft, having lugs adapted to engage cooperating lugs on a face of the gear; a rock-shaft provided with an arm or arms located between the walls of the groove in said slidable clutch member; and means for operating said rock-shaft.

13. The combination with weighing mechanism embodying a bucket having a closer, of stream-supply means; a valve: a power-shaft having a gear; a toothed segment operative with said valve and adapted to mesh with said gear; and successively effective means operative, respectively, with the closer and with the valve, for uncoupling said gear from, and coupling it to, said power-shaft.

14. The combination with weighing mechanism and with stream-supply means therefor embodying a hopper, of a stream-controller located within said hopper; means for vibrating said stream-controller: a valve having a toothed segment; a power-shaft provided with a gear adapted to mesh with said toothed segment; and means for rotating said power-shaft.

15. The combination with beam mechanism and with a bucket supported thereby, of a closer for said bucket; a closer-supporting shaft having an arm; a valve provided with a toothed segment; a power-shaft and its driving mechanism, said power-shaft having a gear; a slidable clutch member on said power-shaft, having lugs adapted to engage cooperating lugs on said gear; a rock-shaft having an operating-arm for said slidable clutch member; and a rod operatively connected to said rock-shaft, said rod being furnished with a projection adapted to receive a blow from a projection on the arm of the closer-supporting shaft on one of the closer movements.

16. The combination with beam mechanism and with a bucket supported thereby, of a closer for said bucket; a closer-supporting shaft having an arm: a valve provided with a toothed segment; a power-shaft and its driving mechanism; said power-shaft having a gear; a sliding clutch member on said power-shaft having lugs adapted to engage cooperating lugs on said gear; a rock-shaft having an operating-arm for said clutch member; and a rod operatively connected to said rock-shaft, said rod being furnished with a by-pass adapted to receive a blow from a projection on the arm of the closer-supporting shaft on one of the closer movements.

17. The combination with beam mechanism and with a bucket supported thereby, of a closer for said bucket; a closer-supporting shaft having an arm; a valve provided with a toothed segment; a power-shaft and its driving mechanism, said power-shaft having a gear; a peripherally-grooved slidable clutch member on said shaft, having lugs adapted to engage cooperating lugs on the gear; a rock-shaft having arms located between the walls of the groove on said slidable clutch member and having also a third rock-arm: and a rod depending from said last-mentioned rock-arm and having a projection near the lower end thereof adapted to receive a blow from a projection on the arm of the closer-supporting shaft on one of the closer movements.

18. The combination with beam mechanism and with a bucket supported thereby, of a closer for said bucket; a closer-supporting shaft having an arm: a valve provided with a toothed segment; a power-shaft and its driving mechanism, said power-shaft having a gear: a slidable clutch member on said power-shaft, having lugs adapted to engage cooperating lugs on the gear; a rock-shaft having an operating-arm for said slidable clutch member; a rod operatively connected to said rock-shaft, said rod being furnished with a projection adapted to receive a blow from a projection on the arm of the closer-supporting shaft on one of the closer movements; and a link pivoted to said rod and connected to the closer-supporting shaft.

19. The combination with beam mechanism and with a bucket supported thereby, of a hopper: a stream-controlling valve for said hopper; a cam; an interposed shaft supported independently of the valve and operatively connected, respectively, to said valve and cam; and a counterweighted lever adapted to engage said cam.

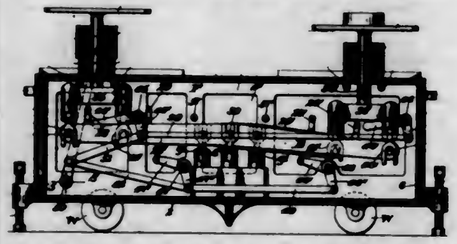
20. The combination with beam mechanism and with a bucket supported thereby, of a hopper; a stream-controlling valve for said hopper; a valve-closing cam; a shaft supported independently of the valve and having crank-arms operatively connected, respectively, to the valve and cam by rods; and a counterweighted lever adapted to engage said cam.

21. The combination with beam mechanism and with a bucket supported thereby, of a hopper; a stream-controlling valve for said hopper; and a shaft supported independently of the valve and having a crank-arm to which is pivoted a depending rod the free end of which is adapted to bear against a scale-beam, said shaft also having a second crank-arm connected by a rod to the valve mechanism.

22. The combination with beam mechanism and with a bucket supported thereby, of a hopper; a stream-controlling valve for said hopper; a cam; a shaft having three crank-arms, to each of which is connected a rod, two of said rods being attached, respectively, to the valve and cam, the free end of the other rod bearing against a scale-beam; and a counterweighted lever adapted to engage said cam.

23. The combination with beam mechanism and with a bucket supported thereby, of a hopper; a stream-controlling valve for said hopper; a cam; a shaft having three crank-arms, to which are pivoted rods, two of said rods being attached, respectively, to the valve and cam, the free end of the other rod being adapted to bear against a scale-beam; a counterweighted lever adapted to engage said cam: a depending rod carried by said cam and having a projection adapted to be engaged by a cooperating projection on a stop located on the counterpoised side of said scale-beam.

578,162. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 21, 1896. Serial No. 606,490. (No model.)



Claim.—1. A balance comprising a suitable framework embodying beam-supports; beam mechanism comprising a plurality of beams located side by side in substantial horizontal parallelism and pivotally supported upon beam-supports; a pair of platforms supported one upon each end of the beam mechanism for vertical movement; means for retaining the platforms in parallelism; and means for shifting the beam mechanism and platforms out of operative relation with one another and into an inoperative position with relation to their respective supports.

2. A balance comprising a suitable framework, balance-beams pivotally supported on said framework, and platforms pivotally supported upon said beams; beam and platform shifting mechanism in operative relation with the beams and platforms and operable for simultaneously shifting the beams and platforms into an inoperative position with relation to their respective supports and also operable for carrying said beams and platforms into operative position with relation to their respective supports; stops for limiting the shifting movements of the beams and platforms; and means for holding the beams and platforms against accidental movement in their inoperative positions.

3. The combination with a balance-beam supported for oscillatory movement, and with a platform removably supported at each end of said beam; of a rock-shaft having a rocker in operative relation with each platform; one or more rock-shafts, each having a rocker, in operative relation with said beam; an actuating mechanism in connection with said rock-shaft and effective for rocking the rocker to shift the beam and platforms out of operative relation with each other and into an inoperative position with relation to their respective supports.

4. In an apparatus of the class specified, the combination with beam mechanism pivotally supported for oscillatory movement, and with platforms pivotally supported one at each end of said beam mechanism; of beam and platform shifting mechanism embodying rockers in operative relation with the beam mechanism and operable for shifting the beam mechanism out of operative relation with its supports; rockers in operative relation with the platforms and operable for shifting the platforms out of operative engagement with the beams; connecting devices between the several rockers; an actuator in operative connection with said connecting devices; and a locking device for locking the actuator in its different positions.

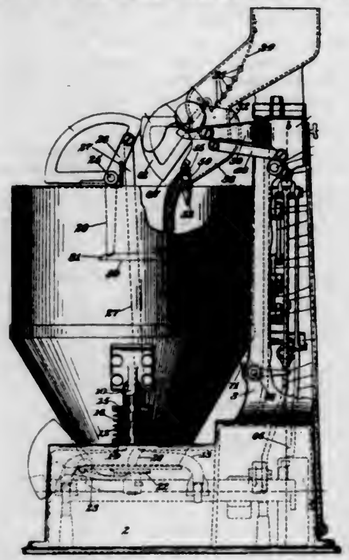
5. In an apparatus of the class specified, the combination with a suitable framework; of beam mechanism comprising two beam-frames located one within the other in substantially horizontal parallelism and pivotally supported for oscillatory movement; a platform carried at each end of said beam mechanism and pivotally connected with each of said beam-frames; and equalizing-beams pivotally supported upon the framework and so connected with opposite platforms as to retain said platforms in parallelism during the oscillatory movements of the beams.

6. In an apparatus of the class specified, the combination with a suitable framework; of two sets of beams of relatively different lengths pivotally supported side by side with their axes of movement coincident; two vertically-movable platforms each pivotally supported at opposite sides of its vertical axis upon the outer ends of the long and short beams, respectively; oscillatory means for maintaining the platforms with their vertical axes in parallel planes; shifting devices in operative relation with the beams and platforms and operable for shifting the platforms out of operative relation with the beams and simultaneously shifting the beams out of operative relation with their supports; stops for limiting the shifting movement of the beams and platforms; and means for locking the beams and platforms in their inoperative positions.

7. The combination, with a suitable framework having knife-edge bearings, of oscillatory beams having knife-edge pivots at the middle portions thereof movably supported on said bearings and also having knife-edge pivots at opposite ends thereof; platforms having knife-edge bearings supported upon the knife-edge pivots at opposite ends of the beams; and means for shifting the knife-edge pivots and knife-edge bearings out of operative engagement with one another.

8. In an apparatus of the class specified, the combination with a suitable framework having a knife-edge bearing embodying two relatively-transverse guideways and a V-shaped bearing-face; of a beam supported for oscillatory movement in one of said guideways and having the knife-edge pivots supported in the other guideway; two platforms pivotally supported at opposite ends, respectively, of said beam; beam and platform shifting devices operable for shifting the beam with its knife-edge pivot out of engagement with the bearing-face of the knife-edge bearing; and stop devices for preventing the accidental displacement of the beam and pivot from their respective guideways.

578,163. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 30, 1896. Serial No. 607,398. (No model.)



Claim.—1. The combination with weighing mechanism embodying two counterweighted scale-beams the weights of which have bucket-supporting arms, said arms extending away from each other, and a bucket carried by said arms; of a supply-hopper; a valve for said hopper, controlled by the weighing mechanism; a load-beam formed integral with and extending from one of the beam-weights; a sliding weight on said beam; and means for maintaining said sliding weight in an adjusted position.

2. The combination with a hollow base having two longitudinal chambers and a communicating transverse chamber, of weighing mechanism embodying two counterweighted scale-beams supported for movement within said longitudinal chambers; and a bucket carried by said scale-beams; a load-beam connected to one of said beam-weights; a weight longitudinally movable in the transverse chamber and sliding on said load-beam: and means for maintaining said sliding weight in an adjusted position.

3. The combination with a hollow base having two longitudinal chambers, of weighing mechanism embodying two counterweighted scale-beams the weights of which are located in said longitudinal chambers, said weights also having arms extending away from each other: a bucket; and posts connected to said bucket and passing through openings in the base, said posts having transverse bars provided with notched bearings resting on knife-edges on the beam-arms.

4. The combination with a hollow base having two longitudinal chambers, of weighing mechanism embodying two counterweighted scale-beams the weights of which are located in said longitudinal chambers, and a bucket; posts connected to the bucket and passing through openings in the base, each of said posts being joined to a transverse bar provided with notched bearings resting on knife-edges on the scale-beams; and dust-guards disposed about said openings.

5. The combination with a hollow base having two longitudinal chambers and a communicating transverse chamber, of weighing mechanism comprehending a pair of counterweighted scale-beams located in the longitudinal chambers; a bucket; posts connected to said bucket and passing through openings in the base, each of said posts being joined to a transverse bar provided with notched bearings resting on knife-edges on the scale-beams; a weighted load-beam extending from one of the beam-weights, the weight of said load-beam being longitudinally adjustable in said transverse chamber; rings disposed about said openings; complemental rings on said posts, joined to the other rings by extensible dust-guards disposed about said posts; and a hopper having a valve controlled by the weighing mechanism.

6. The combination with a base having interior longitudinal and transverse chambers, of weighted beams supported in the longitudinal chambers in parallelism with each other and extending into the transverse chamber; arms outwardly projecting from each of said beams, the arms of one beam projecting in an opposite direction from those of the other; connected laterally-extending counterweighted arms projecting from said beams; and a load-receiver supported by the outwardly-projecting arms, for the purpose specified.

7. The combination with a U-shaped base having interior longitudinal and transverse chambers, of weighted beams supported in the longitudinal chambers in parallelism with each other and extending into the transverse chamber; a series of separated arms outwardly projecting from one side of each of said beams, the arms of one beam projecting in an opposite direction from those of the other; laterally-extending counterweighted arms connected together and projecting from the inner sides of said beams; and a load-receiver supported by the series of outwardly-projecting arms, for the purpose specified.

8. The combination with weighing mechanism embodying a bucket, of a supply-hopper; a valve for said hopper; a rod operative with said valve; a rock-shaft having a screw; and a collar embracing said screw and operatively connected to said rod.

9. The combination with weighing mechanism embodying a bucket, of a supply-hopper; a valve for said hopper; a rod operative with said valve; a rock-shaft having a screw; a collar embracing said screw and operatively connected to said rod; and a crank-arm on said shaft.

10. The combination with weighing mechanism embodying a bucket, of a supply-hopper; a valve for said hopper; a rod operative with said valve; a rock-shaft having a screw; a collar embracing said screw; and a link pivotally connected, respectively, to said collar and rod.

11. The combination with a bucket and beam mechanism for supporting the same, of a supply-hopper; a valve for said hopper; a rod cooperative with the valve and beam mechanism; a rock-shaft having a screw; and a collar embracing said screw and operatively connected to said rod.

12. The combination, with a bucket having a closer, of means including a latch for holding said closer against movement; a shaft mounted in the framework, said shaft carrying a lug; a latch-tripper connected to the outer end of said shaft; a hopper; a valve for said hopper; a rod operatively connecting said valve and provided with a projection for engaging said lug; and means for shifting said rod, whereby on the upstroke thereof it will engage the lug, rock the shaft, and trip the latch.

13. The combination with weighing mechanism embodying a bucket, of a supply-hopper; a valve for said hopper; a rod operative with said valve; a rock-shaft having a screw; a collar embracing said screw and operatively connected to said rod; and a guide for said collar.

14. The combination with weighing mechanism embodying a bucket, of a supply-hopper; a valve for said hopper; a rod operative with said valve; a rock-shaft having a screw; a collar embracing said screw and having an arm provided with an eye; and a pin passing through said eye.

15. The combination with beam mechanism and a bucket supported thereby, of a lever shiftably supported by the beam mechanism; a hopper; a valve; and a rod operatively connected to said valve and having a hook for normally engaging a projection on said shiftable lever.

16. The combination with beam mechanism and a bucket supported thereby, of a lever shiftably supported by the beam mechanism; a hopper and its valve; a rod operatively connected to said valve and having a hook for normally engaging a projection on said lever; and shifting means for said rod.

17. The combination with a pair of counterweighted scale-beams the weights of which are furnished with counterweighted arms, of a lever shiftably connected to a lug on one of the beam-weights and resting on a stud on the weight of one of said arms; a bucket; a hopper; a valve for said hopper; and a rod operatively connected to said valve and having a hook adapted to engage a projection on said shiftable lever.

18. The combination with a hopper, of a valve therefor; a cam operative with said valve; and two operatively-connected levers, one of which is adapted to actuate said cam.

19. The combination with a hopper, of a valve therefor; a cam operative with said valve; and two operatively-connected levers, one of which is adapted to actuate said cam, the other lever being counterweighted.

20. The combination with a hopper, of a valve therefor; a cam operative with said valve; a lever adapted to actuate said cam; a counterweighted lever; and a link pivoted, respectively, to said levers.

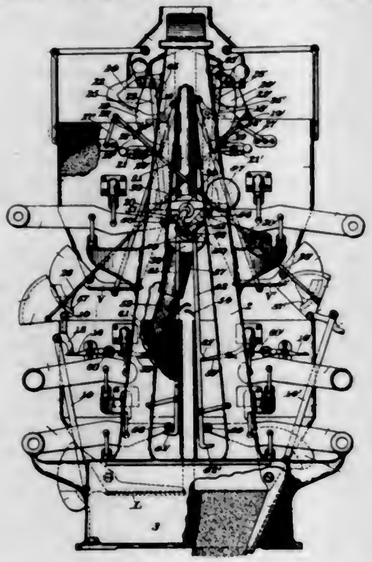
21. The combination with beam mechanism, of a bucket supported thereby; a hopper; a valve; a rod cooperative with the beam mechanism and with said valve; a cam operative with said valve; and a pair of operatively-connected levers, one of which is adapted to actuate said cam.

22. The combination with weighing mechanism embodying a bucket, of a supply-hopper; a valve therefor; a lever operatively connected to said valve; and a stop mounted on the beam mechanism and adapted to engage said lever at a predetermined point to thereby hold said valve.

23. The combination with beam mechanism and a bucket, of a hopper; a valve; a lever; a rock-shaft operatively connected, respectively, to said valve and lever; and a stop adapted to successively engage and release said lever at predetermined points.

24. The combination with a bucket having a closer, and means embodying a latch, for holding the same against movement; a rock-shaft having a lug; a reciprocatory rod having a projection adapted to engage said lug; a latch-tripper on said shaft; a second rock-shaft operatively connected to the closer and having a stop; a hopper and its valve provided with a stop coacting with said first-mentioned stop.

578,164. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 30, 1896. Serial No. 607,399. (No model.)



Claim.—1. The combination with weighing mechanism embodying a load-receiver, of main supply means for said load-receiver; a force-feeder; a device communicating with said feeder and serving to direct a continuously-running drip-stream to said load-receiver; and connections between said device and the weighing mechanism.

2. The combination with a plurality of weighing mechanisms, each embodying a load-receiver, and with main supply means for said load-receivers; of means controlled by said weighing mechanisms for alternately directing a continuously-running drip-stream to said load-receivers.

3. The combination with weighing mechanism embodying a load-receiver, of a meter and its supply mechanism; instrumentalities for effecting the discharge of said meter, whereby its contents are delivered to said load-receiver to constitute the major part of a load to be weighed thereby; means for directing a continuously-running drip-stream to said load-receiver; and devices connecting said last-named means with the weighing mechanism.

4. The combination with weighing mechanism embodying a load-receiver, of main supply means therefor; means for maintaining a continuously-running drip-stream; a movable spout located to direct said drip-stream toward and from the load-receiver; and actuating mechanism for said spout controlled by the weighing mechanism.

5. The combination with weighing mechanism embodying a load-receiver, of main supply means therefor; means for maintaining a continuously-running drip-stream; a movable spout located to direct said drip-stream toward and from the load-receiver; and actuating mechanism for said spout, controlled by the weighing mechanism.

6. The combination with weighing mechanism embodying a load-receiver, of main supply means therefor; means for maintaining a continuously-running drip-stream; an oscillatory spout located to direct said drip-stream toward and from a load-receiver; and means for imparting differential oscillatory movements to said spout.

7. The combination with a plurality of weighing mechanisms, each embodying a load-receiver; of means for maintaining a continuously-running stream of material; a movable spout located to alternately deliver said stream to the load-receivers; and means controlled by the weighing mechanisms for imparting movements of variable speeds to said spout.

8. The combination with weighing mechanism including a load-receiver; of main supply means therefor; instrumentalities for supplying a drip-stream to said load-receiver; and an inclined baffle-plate located relatively to the bucket and adapted to receive the impact of the drip-stream to check the momentum thereof.

9. The combination of a plurality of weighing mechanisms, each embodying a load-receiver; of main supply means for said load-receivers; instrumentalities for alternately delivering a drip-stream to said load-receivers; and inclined baffle-plates located relatively to the load-receivers, one of which overlaps the other, said baffle-plates being adapted to receive the impact of said drip-stream to check the momentum thereof.

10. The combination with weighing mechanism including a load-receiver having an inclined baffle-plate, of main supply means for said load-receiver; and means for maintaining and for directing a continuously-running drip-stream to said load-receiver, the impact of said drip-stream being received by the baffle-plate to check its momentum.

11. The combination with a bucket having at its upper side an acute angular baffle-plate formed integral therewith, of main supply means for said bucket; and instrumentalities for maintaining and delivering a continuously-running drip-stream to said bucket, the impact of said drip-stream being received by the inclined portion of the baffle-plate to check its momentum.

12. The combination with weighing mechanism embodying a load-receiver, of supply means therefor including a casing having an outlet; a feeder located within said casing and consisting of a shaft having oppositely-disposed conveyer-screws thereon, for feeding supplies of material from opposite directions toward said outlet; a movable spout connected with said outlet; and connections between said spout and the weighing mechanism.

13. The combination with weighing mechanism embodying a load-receiver, of main supply means therefor; a casing having an outlet; a feeder located within said casing and consisting of a shaft having oppositely-disposed conveyer-screws; a swinging drip-spout located to receive a stream of material from said outlet; and connections between said spout and the weighing mechanism.

14. The combination, with weighing mechanism embodying a load-receiver, of main supply means therefor; a casing having an outlet; a force-feeder located within said casing; a movable drip-spout located to receive a stream of material from said outlet; and connections between said spout and the weigbing mechanism.

15. The combination with weighing mechanism embodying a load-receiver, of main supply means therefor; a horizontal casing having an outlet; a force-feeder within said casing; and an oscillatory drip-spout located to receive a stream of material from said outlet.

16. The combination with weighing mechanism embodying a plurality of buckets, of a supply-hopper; a casing having an outlet and provided with pipes communicating with said hopper; a feeder located within said casing and consisting of a shaft having oppositely-disposed conveyer-screws; and a movable drip-spout for conveying material from said feeder to said buckets.

17. The combination with a force-feeder, of weighing mechanism embodying a load-receiver; an oscillatory spout located to receive a stream of material from said feeder and to direct said stream toward and from the load-receiver; and means for imparting differential movements to said spout.

18. The combination with a supply-hopper, of weighing mechanism embodying a load-receiver; an interposed meter adapted to receive a stream of material from said hopper to form a load therein; means for effecting the discharge of the meter contents into the load-receiver; a casing communicating with said supply-hopper and having an outlet; a force-feeder located in said casing; and an oscillatory drip-spout disposed relatively to, and adapted for receiving a stream of material from, the outlet in said casing, and for also delivering said stream to said load-receiver.

19. The combination with a force-feeder, of weighing mechanism embodying a bucket; an oscillatory spout adapted to deliver a stream of material to said bucket; means for effecting a primary movement of said spout; and independent means for imparting a final movement thereto, both of said means being controlled by the weighing mechanism.

20. The combination with a force-feeder, of weighing mechanism embodying a bucket, of an oscillatory spout adapted to deliver a stream of material to said bucket; means operative with the weighing mechanism, for imparting a primary movement to said spout; and means independent of the weighing mechanism, for effecting a final movement thereof.

21. The combination with a force-feeder, of a bucket and a supporting scale-beam therefor, of an oscillatory spout adapted to deliver a stream of material to said bucket; means operative with said scale-beam, for effecting a primary movement of said spout; and means independent of said scale-beam, for effecting a final movement thereof.

22. The combination with a plurality of load-receivers, of separate means for alternately delivering main charges of material to said load-receivers; and a movable spout located alternately to direct a drip-stream to said load-receivers.

23. The combination with a bucket and a scale-beam for sustaining the same, said scale-beam having a projection; of an oscillatory spout adapted to deliver a stream of material to said bucket; a supporting-shaft for said spout; and a yoke on said shaft, having a hooked rod connected thereto, the hook of which is engaged by said projection.

24. The combination with a bucket and with a scale-beam for sustaining the same, said scale-beam having a projection; of an oscillatory spout and its supporting-shaft having a yoke connected thereto; a rod attached to said yoke and having a hook which is engaged by said projection; a sleeve on said shaft, having shouldered arms; and a weighted shifting arm loose on said shaft and adapted to engage alternately said shouldered arms.

25. The combination with a bucket, a closer, and means including a latch for holding said closer against movement; of a lever mounted on the bucket and adapted to engage said latch; and a reciprocatory rod having a projection for engaging said lever on one of the strokes of said rod.

26. The combination with a bucket, a closer, and means including a latch for holding said closer against movement, said latch carrying a by-pass; of a lever mounted on the bucket and located to engage said by-pass; and a reciprocatory rod having a projection for engaging said lever on one of the strokes of said rod.

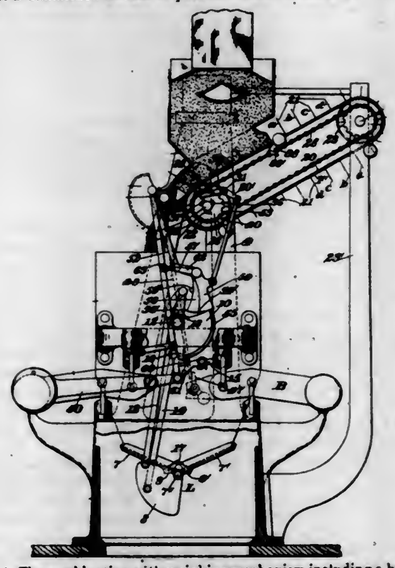
27. The combination with a bucket, a closer, and means including a latch for holding said closer against movement; of a lever located to engage said latch; an oscillatory spout adapted to deliver a stream of material to said bucket; a supporting-shaft for said spout; a yoke on said shaft, having a rod connected thereto which is provided with a projection, said yoke having shouldered arms; a sleeve loose on said shaft, provided with a counterweighted arm and also having shouldered arms which are alternately engaged by the arms of the yoke; and a second sleeve on said shaft, having shouldered arms which are alternately engaged by said counterweighted arms.

578,165. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 3, 1896. Serial No. 610,951. (No model.)

Claim.—1. The combination, with a hopper, of a conveyer having a series of blades thereon, one or more of which extend outward beyond the other of the series.

2. The combination, with a hopper, of a conveyer having a series of blades and mounted to be driven by a supply of material passing through said hopper, one or more of said blades extending outward beyond the others of the series.

3. The combination, with weighing mechanism including a load-receiver, of a hopper having an inclined portion; an inclined conveyer disposed between the hopper and the load-receiver, said conveyer having a series of blades thereon and being driven by a supply of material passing through the hopper, certain of said blades being wider than the remainder of the series and being also located at regular intervals along the feed-conveyer; and means for intermittingly arresting the action of said conveyer when the wide blades are opposite the discharge edge of the inclined portion of the hopper, to thereby permit a diminished stream to pass into the load-receiver.



4. The combination with weighing mechanism including a bucket of a hopper; an intermediate feed-conveyer; a brake for said feed-conveyer; and means controlled by the feed-conveyer, for actuating said brake.

5. The combination with weighing mechanism including a bucket, of a hopper; an intermediate feed-conveyer; a brake for said feed-conveyer; means carried by the feed-conveyer, for actuating said brake; and instrumentalities operated by the weighing mechanism for releasing said feed-conveyer.

6. The combination with a bucket and its supported beam mechanism, of a hopper; a feed-conveyer located between the hopper and the bucket; a brake for said feed-conveyer; means carried by said feed-conveyer, for actuating the brake; and instrumentalities operated by the beam mechanism, for releasing said feed-conveyer.

7. The combination with weighing mechanism including a bucket, of a hopper; a feed-conveyer intermediate the hopper and the weighing mechanism, said feed-conveyer having a series of blades thereon, one or more of which extend outward beyond the others of the series.

8. The combination with a hopper, of a cooperative feed-conveyer having a series of blades certain of which are wider than the others, said wide blades being located at intervals and in sets along the feed-conveyer.

9. The combination, with weighing mechanism including a load-receiver, of a hopper; a conveyer located below said hopper and having a shaft; an escapement-wheel and chain carried by said shaft; a brake for engaging said escapement-wheel; and means carried by said chain, for actuating said brake.

10. The combination, with weighing mechanism including a load-receiver, of a hopper; a conveyer located below said hopper and having a shaft; an escapement-wheel and chain carried by said shaft; a brake for engaging said escapement-wheel; and a counterweighted dog on said chain, for actuating said brake.

11. The combination, with weighing mechanism including a load-receiver, of a hopper; a conveyer located below said hopper and having a shaft; a series of escapement-wheels on said shaft; and means for intermittingly engaging said wheels, to thereby stop the conveyer.

12. The combination, with weighing mechanism including a load-receiver, of a hopper; a conveyer located below said hopper and having a shaft; a series of escapement-wheels carried by said shaft; a lever having a series of arms adapted to intermittingly engage said escapement-wheels; and means for actuating said lever.

13. The combination, with weighing mechanism including a load-receiver, of a hopper; a conveyer consisting of an endless belt and its supporting-shafts; sprocket-wheels carried by said shafts; sprocket-chains connecting said sprocket-wheels; a plurality of escapement-

wheels carried by one of the shafts; a lever having a series of arms located to intermittingly engage the escapement-wheels; and pivotally-supported counterweighted dogs carried by said chains and adapted to intermittingly engage and operate said lever-arms.

14. The combination, with weighing mechanism including a load-discharge member, of a hopper; a conveyer having a stream-reducing blade operable for diminishing the volume of a stream of material issuing from said hopper at a predetermined point; means for stopping the motion of the conveyer when the stream is thus diminished; and reciprocatory stops operative, respectively, with said conveyer and load-discharge member, one of them being adapted to hold the latter against premature movement during the load-supply period and the other being adapted to hold the conveyer against motion on the discharge of a load.

15. The combination with weighing mechanism including a load-discharge member, of a hopper; a feed-conveyer cooperative with said hopper and having a stream-reducer; a brake for said feed-conveyer; and reciprocally-effective stops, one of which is operative with the load-discharge member and the other of which is directly connected to the feed-conveyer brake.

16. The combination, with weighing mechanism including a shiftable load-discharge member, of a hopper; a conveyer having a series of blades, one or more of which extend outward beyond the others of the series; and a stop member operative with said conveyer and adapted to limit the movement of said load-discharge member.

17. The combination, with a bucket having a discharge-outlet; of a closer for said outlet, consisting of two leaves hinged together at the middle and joined to the bucket at their point of connection, one of said closer-leaves being counterweighted; a compound toggle, two of the members of which are connected, respectively, to one of the closer-leaves and the counterweight of the other closer-leaf, the third toggle member being mounted upon the bucket; and a detent for engaging said last-mentioned toggle member.

18. The combination with weighing mechanism including a bucket, of a hopper; a feed-conveyer; a brake for said feed-conveyer; means for actuating said brake, to throw it into its effective position to stop the feed-conveyer; a blade operatively connected to said brake; and instrumentalities operative with the weighing mechanism, for imparting a movement to said blade to return the brake to its ineffective position.

19. The combination with weighing mechanism including a bucket, of a hopper; a feed-conveyer; a brake for said feed-conveyer; means for actuating said brake, to throw it into its effective position to stop the feed-conveyer; a blade operatively connected to said brake and having an extension; and a reciptocatory rod operative with the weighing mechanism and having a projection adapted to engage said extension to thereby return the brake to its ineffective position.

20. The combination with weighing mechanism including a bucket, of a hopper; a feed-conveyer; a brake for said feed-conveyer, consisting of a lever; means for actuating said brake, to throw it into its effective position to stop the feed-conveyer; a blade; a rod connected to said blade and to the brake; a reciprocatory rod having a by-pass actuator thereon adapted to engage an extension of said blade to thereby return the brake to its ineffective position.

21. The combination with weighing mechanism including a bucket, of a hopper; a feed-conveyer; a brake for said feed-conveyer; a pair of blades mounted on the bucket, one of which is connected to said brake and has an extension; a valve connected to the other blade, said blades constituting stops; a reciprocatory rod having a projection adapted to engage said extension on one of the strokes of said rod; and a stop connected to the closer and cooperative with said first-mentioned stop.

22. The combination with weighing mechanism including a bucket having a closer; of means including a latch, for normally holding said closer against movement; a hopper; a feed-conveyer having a stream-reducing blade thereon; means for stopping said feed-conveyer at a predetermined point in its travel; a valve; means for holding said valve in its wide-open position during the movement of the feed-conveyer and for releasing the same subsequent to the stoppage thereof; and a latch-tripper connected to said valve.

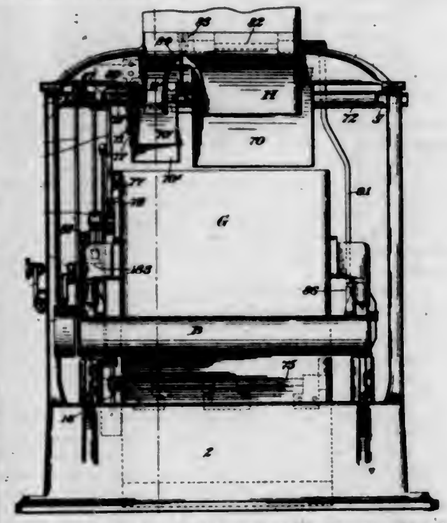
23. The combination with a bucket having a discharge-outlet; of a closer for said outlet, consisting of two leaves hinged at the middle and joined to the bucket at their point of connection; a compound toggle operatively connected to the closer; and a detent for engaging one of the toggle members.

578,166. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 24, 1896. Serial No. 613,257. (No model.)

Claim.—1. The combination, with stream-supplying means; of a pair of stream-controlling valves disposed side by side, one supported by the other; and means for actuating said valves.

2. The combination, with stream-supplying means; of a pair of oscillatory stream-controlling valves disposed side by side, one supported by the other; and means for actuating said valves.

3. The combination, with stream-supplying means; of a pair of oscillatory stream-controlling valves disposed side by side, one supported by the other, and having their axes of movement coincident; and means for actuating said valves.



4. The combination, with stream-supplying means; of a pair of stream-controlling valves disposed side by side, one supported at its opposite sides by the other; and means for actuating said valves.

5. The combination, with stream-supplying means; of a pair of oscillatory stream-controlling valves disposed side by side, one pivotally supported at its opposite sides by the other; and means for actuating said valves.

6. The combination, with stream-supplying means, of a main valve; a pair of auxiliary valves carried by said main valve; and means for actuating said valves.

7. The combination, with stream-supplying means, of a main valve; an auxiliary valve carried by the main valve; a cut-off valve carried by said auxiliary valve; and means for actuating said valves.

8. The combination, with stream-supplying means, of a pair of stream-controlling valves disposed side by side, one supported by the other; a cut-off valve carried by one of said first-mentioned valves; and means for actuating said valves.

9. The combination, with stream-supplying means; of an oscillatory main valve and an oscillatory auxiliary valve disposed side by side, the latter carried by the former; a cut-off valve carried by said auxiliary valve; and means for actuating said valve.

10. The combination, with stream-supplying means; of an oscillatory main valve and an oscillatory auxiliary valve disposed side by side, the latter carried by the former, and having their axes of movement coincident; a cut-off valve carried at the forward end of said auxiliary valve; and means for actuating said valves.

11. The combination, with stream-supplying means; of an oscillatory main valve and an oscillatory auxiliary valve disposed side by side, the latter carried by the former, and having their axes of movement coincident; an oscillatory cut-off valve carried at the forward end of said auxiliary valve; and means for actuating said valves.

12. The combination, with stream-supplying means; of a main valve; a pair of auxiliary valves carried by said main valve; means for closing the main valve; and means for subsequently closing the auxiliary valves.

13. The combination, with stream-supplying means; of a main valve; an auxiliary valve carried by the main valve; a cut-off valve carried by said auxiliary valve; means for successively closing the main valve and the auxiliary valve; and means for closing the cut-off valve relatively to the auxiliary valve.

14. In a weighing-machine, the combination, with stream-supplying means, of a stream-controlling valve; valve-actuating means; a valve-operated drip-lever supported independently of the valve and adapted to stop the same; and means for holding said drip-lever against movement during the drip period.

15. In a weighing-machine, the combination, with stream-supplying means, of an oscillatory stream-controlling valve; valve-actuating means; a valve-operated rock-shaft supported independently of the valve; a valve-stopping drip-lever secured to said rock-shaft; and means for holding said drip-lever against movement during the drip period.

16. The combination, with stream-supplying means and with a load-discharger; of a main valve and an auxiliary valve disposed side by side, the latter carried by the former; means for actuating said valves; and alternately-effective valve-opening-movement and load-discharging-movement limiters.

17. The combination, with stream-supplying means and with a load-discharger; of a main valve and an auxiliary valve disposed side by side, the latter carried by the former; means for actuating said valves; and alternately-effective valve-opening-movement and load-discharging-movement limiters, the former operative with the load-discharger, for limiting the opening movement of the valves, and the latter operative with the auxiliary valve, for limiting the discharging movement of the load-discharger.

18. The combination, in a weighing-machine, with stream-supplying means and with valve mechanism, of weighing mechanism embodying a load-discharger; and a load-discharger tripper operative from different parts of the valve mechanism.

19. The combination, with stream-supplying means and with oscillatory valve mechanism, of weighing mechanism embodying a load-discharger; and a load-discharger tripper operative from opposite sides of the axis of the valve mechanism.

20. The combination, in a weighing-machine, with stream-supplying means and with a pair of stream-controlling valves, of weighing mechanism embodying a load-discharger; and a load-discharger tripper in operative relation with both of said valves.

21. The combination, in a weighing-machine, with stream-supplying means and with a pair of stream-controlling valves, of weighing mechanism embodying a load-discharger; and a load-discharger tripper operatively connected with both of said valves.

22. The combination, in a weighing-machine, with stream-supplying means and with a pair of stream-controlling valves, of weighing mechanism embodying a load-discharger; and a load-discharger tripper carried and operative by both of said valves.

23. The combination, in a weighing-machine, with stream-supplying means and with a pair of stream-controlling valves, of weighing mechanism embodying a load-discharger; and a load-discharger tripper operative by one of said valves and having a multiplied tripping movement from the other.

24. The combination, in a weighing-machine, with stream-supplying means and with a pair of stream-controlling valves, of weighing mechanism embodying a load-discharger; and a load-discharger tripper operative by one of said valves and having an oscillatory multiplied movement from the other.

25. The combination, with stream-supplying means and with a pair of oscillatory stream-controlling valves, of weighing mechanism embodying a load-discharger; a load-discharger tripper; and operating connections to said tripper from one side of the axis of one valve and from the opposite side of the axis of the other valve.

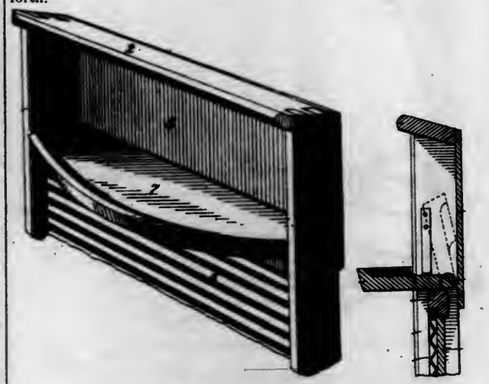
26. The combination, with stream-supplying means and with a pair of oscillatory stream-controlling valves facing in the same direction and having a common axis of movement, of weighing mechanism embodying a load-discharger; a load-discharger tripper; and operating connections to said tripper from opposite sides of the axis of movement of said respective valves.

27. The combination, in a weighing-machine, with stream-supplying means and with a pair of stream-controlling valves; of weighing mechanism embodying a scale-beam, a bucket, and a bucket-latch; and a valve-operated latch-tripper movable bodily in unison with the descent of the scale-beam and having a relatively rapid tripping movement as compared with the descent of said beam.

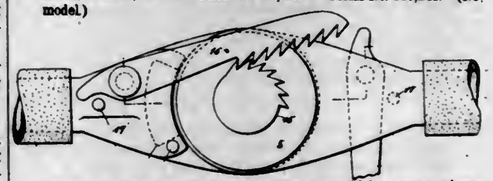
28. The combination, with stream-supplying means and with a pair of stream-controlling valves facing in the same direction and having a common axis of movement; of weighing mechanism embodying a scale-beam, a bucket, and a bucket-latch; a thrust-rod pivotally connected to one of said valves, in the rear of the axis of movement thereof, and having its lower end in operative relation with the scale-beam; a latch-tripper pivotally supported on said thrust-rod and having one end thereof in position to trip the bucket-latch; and connections between the other end of said latch-tripper and the opposite side of the other valve, for imparting a multiplied tripping movement to the latch-tripper.

578,167. WASHBOARD. JAMES T. SARGENT, Cleveland, Ohio, assignor to the American Washboard Company, same place. Filed Dec. 28, 1895. Serial No. 573,068. (No model.)

Claim.—A washboard having in combination a frame consisting of side bars, head-piece and cross-bar, a brand-board arranged at one side of a plane passing through the axes of the side bars, and a protector provided with pivot-pins mounted in the side bars in such relation to the cross-bar and brand-board, that with the usual infolding capacity, it may also when unfolded or set in operative position, rest upon or be supported by the cross-bar, and form a protector and in connection with the brand-board, a soap-box, substantially as set forth.



578,168. AIR-BRAKE HOSE-COUPLING. ERNEST W. SHORTRIDGE, Kenova, W. Va. Filed Oct. 17, 1896. Serial No. 609,241. (No model.)



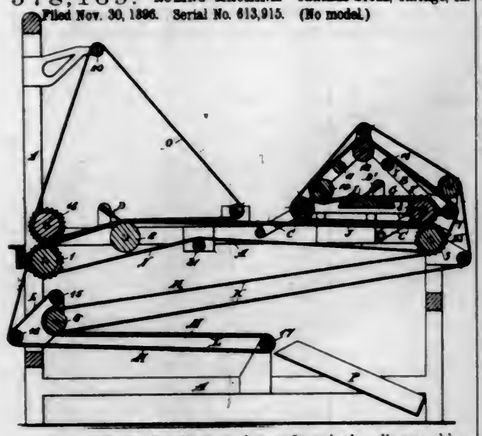
Claim.—1. An air brake hose-coupling, comprising two sections, each provided with a longitudinal duct for communication with an air pipe or tube, a forwardly-extended frame portion on each coupling-section having a circular opening, a hollow plug-valve mounted to rotate in said circular opening and having a port adapted for communication with the duct in the coupling-section, and also having a port or opening at its inner end, whereby communication is provided from one hollow plug-valve to the other, a segmental rack on the outer surface of each plug-valve, and a rack-bar pivotally connected to each section, the rack-bar of one section being adapted for engagement with the segmental rack of the other section, substantially as specified.

2. An air-brake hose-coupling, comprising two sections, each provided with a longitudinal duct for communication with an air-pipe, and with a circular opening in front of the duct, hollow plug-valves mounted in the openings, and each having a port adapted to communicate with the duct and an opening in its side for establishing communication between the valves, a segmental rack on the outer surface of each valve, a pivoted rack-bar on each section and adapted to engage the segmental rack of the other section, and stops for limiting the movement of the said rack-bars, substantially as described.

3. An air-brake hose-coupling, comprising two sections each provided with a longitudinal duct, a circular opening in front of the duct, and arc-shaped slots leading into the openings, hollow plug-valves mounted in the openings, each valve being provided with a port in its periphery and in one side, and with peripheral lugs working in the said arc-shaped slots, a segmental rack on the outer surface of each valve, and a pivoted rack-bar on each section and adapted to engage the segmental rack of the opposing section, substantially as described.

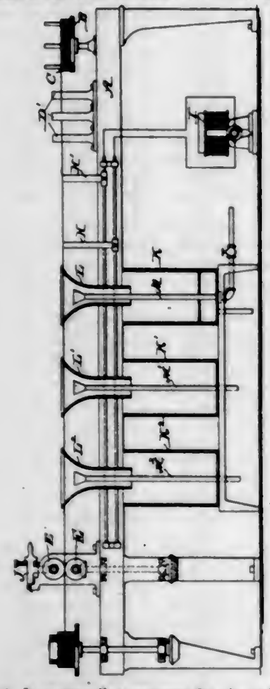
4. An air-brake hose-coupling, comprising two sections, each having a longitudinal duct, a forwardly-extended frame portion on each section provided with a circular opening, a segmental lug on the forward end of each frame portion, means on each section for engaging the said segmental lug of the other section, to prevent a lateral detachment of one section from the other, a pin in one section adapted to be engaged by the lower end of the lug on the other section, hollow plug-valves mounted to rotate in the opening of each frame portion, each hollow plug-valve having a lateral port adapted for communication with the duct leading to the sections of the coupling, and also having an opening or port at its inner end, means for limiting the rotary movement of the plug-valves, a segmental rack on the outer end of each plug-valve, and a rack-bar pivotally connected to each section of the coupling, the rack-bar of one section being adapted for engagement with the segmental rack of the other section, substantially as specified.

578,169. RULING-MACHINE. CHARLES STOLL, Chicago, Ill. Filed Nov. 30, 1896. Serial No. 613,915. (No model.)



Claim.—A double-ruling attachment for a single-ruling machine, comprising an auxiliary frame having rollers and cords or bands passing about the same and coöperating to secure the reversal of the paper, a ruling device carried upon this frame, arms pivoted to the auxiliary and main frames by which the auxiliary frame may be raised clear of the main frame, and means by which the roller carrying the back strings at the rear end may be shifted between the main and the auxiliary frames, substantially as described.

578,170. ANNEALING APPARATUS. CHARLES P. TURNER, New York, N. Y., assignor to himself, and John H. Bolles, Colorado Springs, Colo. Filed Feb. 3, 1896. Serial No. 578,541. (No model.)



Claim.—1. In an annealing apparatus for wire and the like, mechanism for feeding the wire over the contact-plates, the said mechanism comprising a spool on which the wire is coiled a revoluble drum on which the wire is wound, a vertically-arranged shaft carrying the said drum, feed-rolls for drawing the wire from the spool, horizontally-arranged shafts carrying the said feed-rolls and provided with gear-wheels meshing with each other, a vertically-arranged shaft provided with a bevel gear-wheel engaging a bevel-gear on the shaft of the lower feed-roll, a main driving-shaft for imparting motion to the said vertically-arranged shafts, and means for controlling the bite of the feed-rolls on the wire, substantially as shown and described.

2. An annealing apparatus for wire and the like comprising a wire-feeding device, contact-plates over which the wire is fed by such feeding device, the said contact-plates being connected with an electric-current generator, and means for subjecting the wire successively to the action of water, dilute acid, and water, after passing over the contact-plates, whereby the wire is cooled and scaled, pickled, and the acid washed from the surface thereof, substantially as described.

578,171. ELECTROLYTICAL APPARATUS. CHARLES P. TURNER, New York, N. Y. Filed Feb. 3, 1896. Serial No. 578,542. (No model.)



Claim.—1. An electrolytical apparatus, comprising a tank adapted to contain the electrolyte and provided with an electrode, and a transversely-partitioned receptacle adapted to contain the ore and to be set in said tank, the said receptacle having perforated walls and being made of a non-conducting fabric coated with a conducting substance, and means for connecting said substance with a source of electrical supply, so as to form the other electrode, substantially as described.

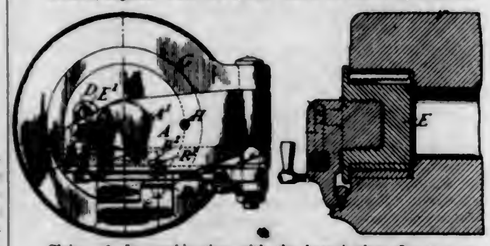
2. An electrolytical apparatus, provided with an anode consisting of a non-conducting receptacle coated with an anticorrosive substance and provided with an outer coating of a conducting material, and means for connecting said outer coating with the positive pole of a source of electrical supply, substantially as shown and described.

3. A receptacle adapted to constitute the anode of an electrolytical apparatus, said receptacle consisting of a frame, a lining secured to said frame and forming the walls of the receptacle, the lining being made of a non-conducting open fabric so as to afford perforations for the entrance of the electrolyte, and a conducting-coating for the lining, said coating being provided with means for connecting it with the positive pole of a source of electrical supply, substantially as described.

4. A receptacle adapted to constitute the anode of an electrolytical apparatus, consisting of bars forming a frame, an open-meshed or porous non-conducting fabric secured to said bars and forming the walls of the receptacle, and a conducting substance on the outer surface of said walls, said substance being provided with means for connecting it with the positive pole of a source of electrical supply, substantially as described.

5. A receptacle adapted to constitute the anode of an electrolytical apparatus, consisting of bars forming a frame, an open-meshed or porous fabric secured to said bars and forming the walls of the receptacle, an anticorrosive coating on the outer surface of said fabric, and a conducting substance on said coating, said substance being provided with means for connecting it with the positive pole of a source of electrical supply, substantially as described.

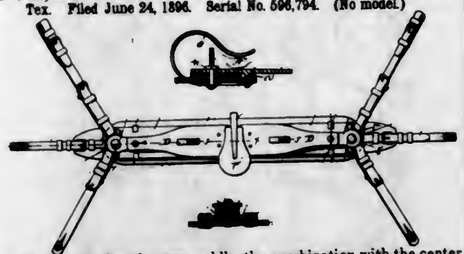
578,172. BREECH-LOADING ORDNANCE. DOUGLAS VICKERS, Sheffield, England. Filed Mar. 6, 1896. Serial No. 582,093. (No model.)



Claim.—1. In combination with the breech-plug of a gun, an actuating-lever a carrier in which is fitted a sliding bar, its one end having a pin working in a slotted hole in the actuating-lever, its other end connected by a link to a stud projecting from the breech-plug, substantially as and for the purpose set forth.

2. In combination with the breech-plug of a gun, an actuating-lever a carrier in which is fitted a sliding bar, its one end having a pin working in a slotted hole in the actuating-lever, its other end connected by a link to a stud projecting from the breech-plug, a hook projecting down from the carrier adapted to engage with a hook on the breech of the gun, and a bolt having a projection on its stem engaged in a slot partly inclined of the sliding bar, substantially as and for the purpose set forth.

578,173. HARNESS AND SADDLE. EMIL VOGTSBERGER, Austin, Tex. Filed June 24, 1896. Serial No. 596,794. (No model.)



Claim.—1. In a harness-saddle, the combination with the center casting, or crown-piece, A, the small saddle having a depending lug, the pad, and the skirt and jockey portions, of the water-hook having an arm extending through and underneath the pad and engaged with the lug of the small saddle, which lug also extends through the said pad, and the removable securing-screw, substantially as specified.

2. In a harness-saddle, the combination with the center casting, or crown-piece A, having a central loop at its rear edge, the pad, the skirt and the jockey portions, and the small saddle which has a lug extending through the said loop and through the pad, of the water-hook having an arm extending through the pad and back underneath the same into engagement with the said lug, and the upper spring portion, and the removable screw which passes through the said arm, the pad, the casting, the skirt portions, and the small saddle, and extended to meet the spring portion of the said water-hook, substantially as specified.

3. In a harness-saddle, the combination with the pad, and the small saddle having a lug extending through said pad, of the water-hook having a rearwardly-bent arm, extending through and underneath the pad and engaged with the said lug, substantially as specified.

4. In a harness-saddle, the combination with the saddle proper, the small saddle and the pad, of the water-hook having an upper spring portion, and a lower rigid portion which extends through and back underneath the pad, and a screw which passes up through said arm, saddle, and small saddle, and is extended up to meet the spring portion of said hook, substantially as specified.

5. In a harness-saddle, the combination of the center casting, or crown-piece, the small saddle having a depending lug, the pad, the skirt and jockey portions, the flat springs interposed between said skirt and jockey portions, the water-hook having an arm extending underneath the pad and engaging said depending lug, and the terrets which extend through the casting, the jockeys, the springs, the casting and the skirt portions, substantially as specified.

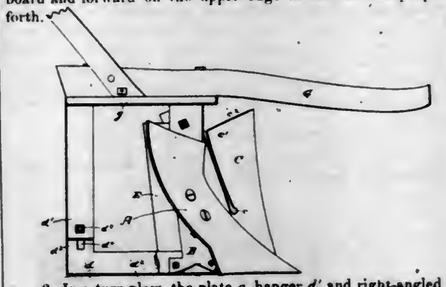
6. In a harness-saddle, the combination with a curved center casting, or crown-piece, having rabbeted end portions, and with the skirt and the jockey portions, of the spring-plates interposed between the skirt and jockey portions and seated at their upper ends upon the rabbeted portions of said center casting, the water-hooks having the threaded shanks which extend through the skirt and jockey portions and through the said springs and castings, and nuts on the inner ends of said shanks, substantially as specified.

7. In a harness-saddle, the clips secured thereto, one at each side portion, the washer seated between said clips and the saddle, the removable screws passing through said clips, washers, and saddle, and the triple-loop pieces having a loose bearing on said washers and to which the traces, the shaft-tugs and bearing-straps, and the pull-back straps are connected, substantially as specified.

8. In a harness-saddle, the combination with a trace having an eye therein, of the metallic eye S secured to the under side of the trace end and cut away at *s* below the front portion of the trace-eye, its rear portion having a flanged portion S′ which extends up through the rear portion of the eye and above the upper edge of the same, substantially as specified.

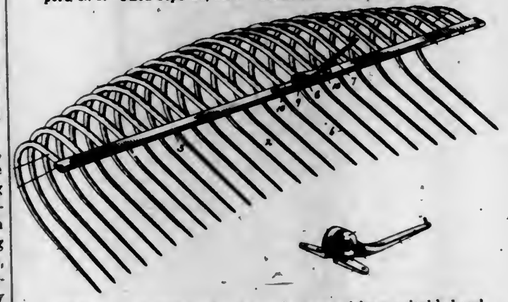
578,174. CORN OR COTTON TURN-PLOW. HENRY WANZER, Dry Grove, Miss. Filed Oct. 20, 1896. Serial No. 609,475. (No model.)

Claim.—1. In a turn-plow, the scraper C split vertically to form the wing *c*′, the latter being bent on the rear edge toward the mold-board and forward on the upper edge as and for the purpose set forth.



2. In a turn-plow, the plate *g*, hanger *d*′ and right-angled heel-piece d^2 d^3 combined with the landside and plow-beam as shown and for the purpose specified.

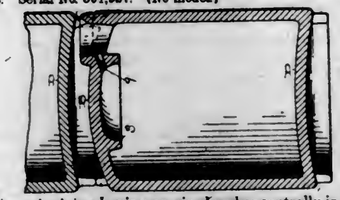
578,175. OYSTER OR CLAM RAKE. WILLIAM H. WATTS, Keyport, N. J. Filed Sept. 20, 1895. Serial No. 563,105. (No model.)



Claim.—1. An improved oyster-rake, comprising a suitable head, a plurality of teeth united rigidly thereto, each tooth being straight for a short distance from the rake-head, prolonged further in a curve substantially that of a semicircle, and terminating in a straight end portion tangential to said curve and in parallelism with its initial straight portion, the initial straight portion and also the radius of curvature increasing in length in each successive tooth from the ends toward the middle of the rake, and the points of said teeth alining in a rearwardly-bent curve, whereby a bowed or arched rake is formed which is adapted in conjunction with the pressure of the water to gather and retain its load with certainty, substantially as described.

2. An improved oyster-rake, comprising a suitable head, a plurality of teeth united rigidly thereto, each tooth being straight for a short distance from the rake-head, prolonged further in a curve substantially that of a semicircle, and terminating in a straight end portion tangential to said curve and in parallelism with its initial straight portion, the initial straight portion and also the radius of curvature increasing in length in each successive tooth from the ends toward the middle of the rake, and the points of said teeth alining in a rearwardly-bent curve, whereby a bowed or arched rake is formed which is adapted in conjunction with the pressure of the water to gather and retain its load with certainty, a handle connected pivotally to said rake-head, and a clamping device for holding said handle stationary at any desired angle, substantially as described.

578,176. JUG. ARTHUR J. WEEKS, Akron, Ohio. Filed May 18, 1896. Serial No. 591,927. (No model.)

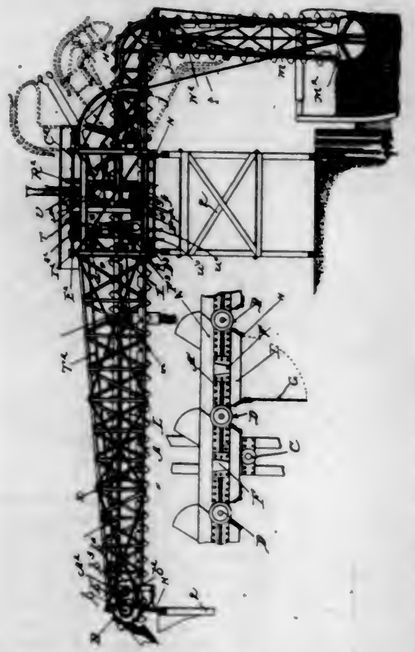


Claim.—1. A jug having an air-chamber centrally in its top and a spout at one side of the top, and a vent-passage from the inside of said spout to said chamber, substantially as described.

2. A jug having a convex top portion and an inwardly-projecting wall on the inside of said top about the center thereof, a spout outside said wall and a vent-passage through the side of said spout and through said wall into said chamber, substantially as described.

3. The jug described having a walled air-space in its top, a spout outside said wall and a vent-passage through the side of said spout into said air-space on a line substantially with the front edge of the spout, whereby an instrument can be introduced at any time into said passage through the spout to remove obstructions, substantially as described.

578,177. CONVEYER. JOHN A. WERNER, Chicago, Ill. Filed Aug. 10, 1895. Serial No. 558,925. (No model.)



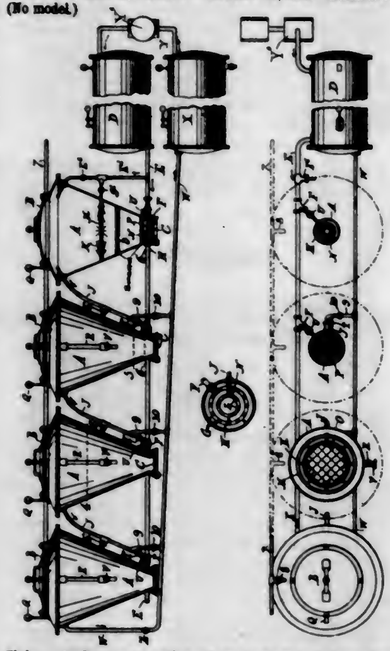
Claim.—1. In combination, a trestle or frame adapted to be placed parallel to a dock, a track supported thereon, a second trestle or frame arranged parallel to the first and a distance therefrom, a conveyer extending across between said trestles and supported at each end thereby, said conveyer being shiftable along said trestle longitudinally of the same and the elevator-leg overhanging the side of the first trestle, substantially as described.

2. In combination, the horizontal frame, the boom pivoted to the end thereof, the elevator-leg freely suspended and depending from said boom, and the guide-rope attached to the end of said leg and guided around said boom, said rope being wound around drums carried in said frame whereby the end of said leg may be adjustable toward and from said frame independently of said boom, substantially as described.

3. In combination, the frame, the buckets, the pivoted boom carrying the quadrant, the worm meshing therewith with means for operating the same to raise the boom, a leg hung from said boom and an independent pivoted frame, interposed between and connecting the leg and boom, substantially as described.

4. In combination in a conveyer, the main shaft, the chain of buckets, the means for driving the same operated through said shaft, the clutch R for disconnecting said shaft from said means, the three-part shaft E^3, c, and C^3, the conveyer movable along its support through the shaft E^3, the leg operated through the shaft C^3, the clutches T and V for connecting and disconnecting the shafts E^3 and C^3 from the shaft c, the shaft A carrying a driving-pulley, the belt connection between said pulley and shaft c for rotating said shaft, the elevator-leg, the drums D^3, the cables connected to said leg and drums, the connection between said drum and the shaft H^3 for rotating the drums, the clutch Z^3 for disconnecting said drums from said connections, the friction-pulley B^3 carried by the main shaft, the pulley O^3 adapted to engage therewith to operate said conveyer, and the means for disengaging the pulley O^3 from the pulley B^3, substantially as described.

578,178. PROCESS OF AND APPARATUS FOR EXTRACTING PRECIOUS METALS FROM SLIMES, &c. DAVID WHITE and THOMAS M. SIMPSON, Stawell, Victoria. Filed Nov. 13, 1896. Serial No. 612,018. (No model.)



Claim.—1. In an extraction of precious metals from slimes and other auriferous and argentiferous material, the process which consists in mixing the said material with a cyanid solution out of contact with the atmosphere, then agitating the mixture by passing gas under pressure through the same, then passing gas under pressure together with the gases which arise from the action of the cyanid on the first material through another mixture of cyanid solution and the aforesaid material out of contact with the atmosphere and then drawing off the solution containing the precious metal, substantially as described.

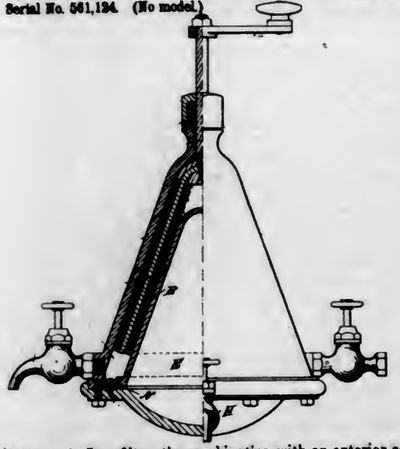
2. In the extraction of precious metals from slimes and other auriferous and argentiferous material, the process which consists in mixing the said material with a cyanid solution in a closed vessel, then agitating the mixture by passing a gas under pressure through the same, then passing gas under pressure, together with the gases arising from the action of the cyanid solution in the said material through another quantity of said material and cyanid solution in a closed vessel, then conveying the gases back to the source of compression and drawing off the solution containing the precious metal and extracting said metal, substantially as described.

3. In apparatus for the extraction of precious metals from auriferous and argentiferous material, the combination with a receiver, of a plurality of conical vats or chambers, having removable covers, discharge-doors at the bottoms, graded perforated partitions in said vats, a perforated pipe in each of said vats near the bottom thereof, a second perforated pipe in the said vats above the aforesaid perforated pipe, a pipe communicating from the upper portion of each vat to the perforated pipes in the adjacent vat and return-pipes from the said vats, substantially as described.

4. In apparatus for the extraction of precious metals from slimes and other auriferous and argentiferous material, the combination with receivers, of a plurality of conical vats or chambers having removable covers, discharge-doors at their bottoms, graded perforated partitions in the said vats, circular perforated pipes in the said vats near the bottoms thereof, another perforated pipe above the aforesaid perforated pipes inside of said vats, a pipe from one of said receivers connected with the said perforated pipes, pipes leading from the upper portion of one vat and communicating with perforated pipes near the bottom and middle of another vat, and return-pipes leading from the said vats to one of the receivers and gages carried by the said vats, substantially as described.

5. In apparatus for the extraction of precious metals from slimes and other auriferous and argentiferous material, a conical vat or chamber, provided with graded perforated partitions, a removable cover, a discharge-door at the bottom, a circular perforated pipe in said vat between said door and the lowest partition, a circular perforated pipe on the same level with and concentric with the aforesaid pipe, a circular perforated pipe mounted in said vat above the top partition, pipes communicating with the upper portion of said vat and with the perforated pipes and gages carried by the said vat, substantially as described.

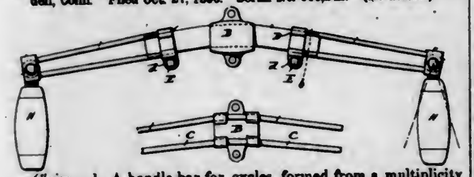
578,179. FILTER. EDWARD WOLFORD, Ellwood City, Pa., assignor of one-half to Lemuel L. Morris, same place. Filed Aug. 31, 1895. Serial No. 561,124. (No model.)



Claim.—1. In a filter, the combination with an exterior conical shell, an inner correspondingly-shaped filtering medium, and a lower cap closing the bottom of said shell, of a shaft having sliding and rotary movement in said casing, a brush secured on said shaft, and formed with depending arms adapted to contact with the inner face of said shell and with said filtering medium and means for imparting motion thereto, as and for the purpose set forth.

2. In a filter, the combination with an exterior conical shell, an inner conical filtering medium, and a lower cap closing the bottom of said filter, of a shaft mounted to turn in bearings in the upper end of said exterior shell and passing through a stuffing-box on the outside thereof, a U-shaped scrubbing device formed of depending arms arranged to contact with the opposite faces of said shell and said filtering medium, and operating means for said shaft, substantially as set forth.

578,180. HANDLE-BAR FOR CYCLES. HENRY A. WOOD, Meriden, Conn. Filed Oct. 27, 1896. Serial No. 610,242. (No model.)



Claim.—1. A handle-bar for cycles, formed from a multiplicity of wires secured together at their ends, substantially as described.

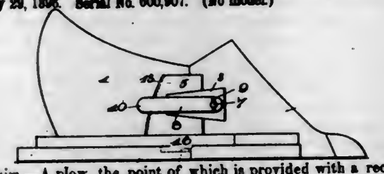
2. The herein-described handle-bar for cycles, consisting of a central portion and ends adapted to be clamped thereto, said end portions consisting of a multiplicity of wires secured together at their ends, substantially as described.

3. The herein-described handle-bar for cycles, consisting of a curved central portion and ends adapted to be clamped thereto, said end portions consisting of a multiplicity of wires secured together at their ends, substantially as described.

4. The herein-described handle-bar for cycles, consisting of a central portion and ends formed from a multiplicity of wires, and connected together at their inner ends by a clamp for connection with the said central portion, and at their outer ends by plates between which the grips are secured, substantially as described.

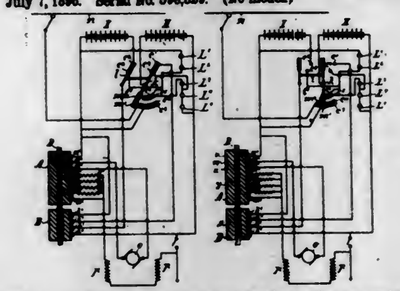
5. The herein-described handle-bar for cycles, consisting of a central portion and ends formed from a multiplicity of wires, and connected together at their inner ends by a clamp for connection with the said central portion, and at their outer ends by plates between which the grips are secured, one of said plates formed with a rib, and the stem of the grips formed with radial grooves to receive said rib, substantially as described.

578,181. PLOW. MURRAY M. WROTEN, Mer Rouge, La. Filed July 29, 1896. Serial No. 600,907. (No model.)



Claim.—A plow, the point of which is provided with a rectangular dovetail tongue 16 and a wedge-shaped dovetail tongue 3, provided with an integral stud 7, on which is mounted a pivoted clamping-arm 8, in combination with a moldboard having an integral brace 5 having a wedge-shaped dovetail recess 4, and a shoe provided with a rectangular dovetail recess 15, substantially as and for the purpose set forth.

578,182. APPARATUS FOR REGULATING AND MODIFYING ELECTRIC CIRCUITS. GUSTAV F. C. ADAM, Hanover, Germany. Filed July 7, 1896. Serial No. 598,339. (No model.)

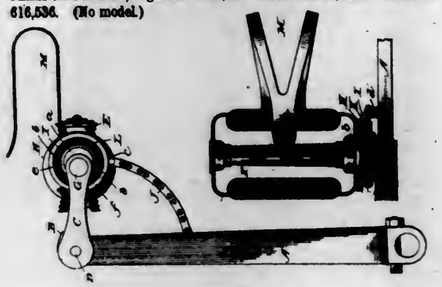


Claim.—1. In an electric car, deriving its motive current partly from a line-wire and partly from a storage battery, which in turn is charged from the line-wire during the trip a current-switching device composed of a main switch for connecting the motor with the line-wire or storage battery and also connecting the battery with the line-wire, and two additional switches of which one controls the motor and resistances and the other switches the battery in series or parallel, which two switches are so connected as to permit each to perform its function but to return to the initial position together, substantially as herein shown and described.

2. In a switch for electric-motor cars the combination with the switch-drums A and B of the dog w on the drum A the pawl x fixed on said dog, the neck v on the drum B provided with recesses v' v^3, the fixed support y, the spring-pawl y′ on the same, the cord b^{11} and spring b^{12} substantially as herein shown and described.

3. In an electric-motor car, the combination of a main switch, two auxiliary switches, a motor, electric lamps and a storage battery in sections, in such manner that the main switch serves for connecting the motor with the line-wire or storage battery and also connecting the storage battery with the line-wire for charging the battery, the lamps being connected in series and parallel with the motor or battery respectively when the current is taken from the line-wire for power or for charging battery, and when the current for the motor is taken from the battery, two lamps are connected with each battery-section, the auxiliary switches serving for connecting the motor with resistances and for connecting the battery-sections in series or parallel, substantially as herein shown and described.

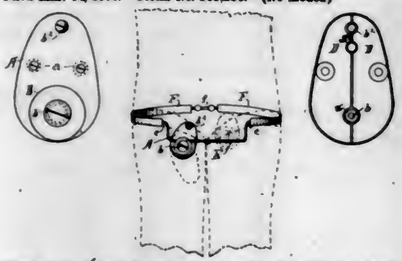
578,183. CRANK AND PEDAL MECHANISM FOR BICYCLES. JAMES C. ANDERSON, Highland Park, Ill. Filed Dec. 21, 1896. Serial No. 616,536. (No model.)



Claim.—1. In a crank mechanism for bicycles, the combination with a crank A, pedal E F, and pivoted crank extension C, intermediate mechanism between the crank A and the pedal-shaft whereby the travel of the pedal-shaft and rotation of the pedal positively causes the extension C to approach the crank during the rear and upward travel of the pedal, as hereinbefore described.

2. In combination with the crank A, pivoted extension C, having eccentric wrist *a*, and the pedal-shaft G secured in the end of extension C, the pedal E F, disk H, having stud *b*, chain-pulley disk I, with stud L, and connecting-chain J, substantially as and for the purpose set forth.

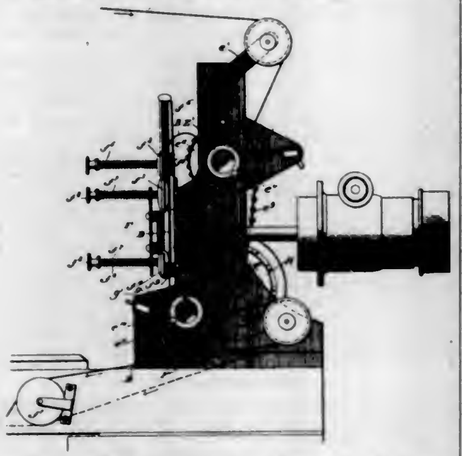
578,184. TRUSS. HARRISON V. APPLEY, Grand Rapids, Mich. Filed Mar. 14, 1896. Serial No. 583,230. (No model.)



Claim.—1. A truss-belt divided front and back, the front ends connected by a wire support bent near the point of connection to follow the depressions of the inguinal regions, and thence bent to form a horizontal connecting-bar for the support of the pads, and suitable adjustable fastening at the back; in combination with pads constructed with a solid base A, a clamp-plate as C, and a divided plate as at D, and screws for adjusting the same to control the density of the pad, substantially as, and for the purpose set forth.

2. A truss-pad constructed with a solid base-plate as A, a clamp-plate as C and a divided adjusting-plate as D, and screws for adjusting the same to control the density of the pad, substantially as, and for the purpose set forth.

578,185. VITASCOPE. THOMAS ARMAT, Washington, D. C. Filed Sept. 26, 1896. Serial No. 607,058. (No model.)



Claim.—1. The combination with a film or strip, of a tension device for yieldingly holding said film, a drum engaging the film, a wheel or disk provided with projections or portions forming a series of peripheral recesses, and a rotating element provided with a projection adapted to successively enter the recesses and engage a portion of the wheel at each revolution so as to intermittently rotate the drum and move the film with a gradual start-and-stop motion, whereby a very small and light drum may be employed and a positive intermittent motion imparted to the film so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

2. The combination with a film or strip, of a tension device for yieldingly holding said film, a drum engaging the film, a wheel or disk provided with peripheral slots or recesses, and a rotating element provided with a lateral projection adapted to successively enter the slots or recesses and engage a portion of the wheel at each revolution so as to intermittently rotate the drum and move the film through the tension device, whereby a very small and light drum may be employed and a positive intermittent motion imparted to the film so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

3. The combination with a film or strip, of a tension device for yieldingly holding said film, a drum engaging the film, a wheel rotating with said drum and provided with peripheral slots or recesses, a rotating element provided with a lateral projection adapted to successively enter the slots and engage portions of the wheel during a small portion of each revolution so as to intermittently rotate the drum and move the film through the tension device, and means for holding the drum and slotted wheel stationary during the greater portion of each revolution of the rotating element and for alining said wheel so as to permit the projection to readily enter the slots, whereby a very small and light drum may be employed and a gradual start-and-stop intermittent motion imparted to said drum so as to avoid racking and jolting of the machinery and unnecessary wear and strain upon the film, substantially as described.

4. The combination with a film or strip, of a tension device, a drum engaging the film so as to draw or force the same past said tension device, a peripherally-slotted wheel rotating with the drum and provided with concave depressions between said slots, a rotating element provided with a lateral projection adapted to enter the slots and engage portions of the wheel so as to intermittently rotate the same, and a disk or circular plate having a recessed portion adapted to engage the depression in the slotted wheel, whereby a very light and small drum may be employed and a gradual start-and-stop intermittent motion imparted to said drum so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

5. The combination with a film or strip, of a tension device, a drum engaging the film so as to draw or force the same through said tension device, a peripherally and radially slotted or recessed disk or wheel rotating with said drum and provided with concave depressions between said slots, a rotating element provided with a projection adapted to successively enter the slots and engage portions of the wheel so as to intermittently rotate the same, and a disk or circular plate having a peripheral recessed portion positioned with respect to the projection so as to permit rotary motion of the slotted wheel and having its periphery adapted to engage the depressions in said slotted wheel so as to hold the drum stationary for an interval of time in excess of the interval of rotation, whereby a very light and small drum may be employed and a gradual start-and-stop intermittent motion imparted to said drum so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

6. The combination with a film or strip, of a feed-drum engaging the film so as to impart movement thereto when rotated, mechanism for rotating said drum, a tension device through which the film passes, a second drum engaging the film so as to move the film forward through said tension device, a peripherally-slotted wheel rotating with said latter drum and provided with concave depressions between said slots, a rotating element of greater diameter than the slotted wheel provided with a lateral projection adapted to enter the slots and engage portions of the wheel so as to intermittently rotate the same, and a recessed disk or circular plate having its periphery adapted to engage the depressions in the slotted wheel so as to intermittently hold said wheel stationary, whereby a very light and small drum may be employed and a gradual start-and-stop intermittent motion imparted to said drum so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

7. The combination with a film or strip, of a feed-drum engaging the film so as to impart movement thereto when rotated, a tension device through which the film passes, mechanism for constantly rotating the drum so as to provide slack on one side of the tension device, a second drum engaging the film so as to move said film forward through said tension device, a peripherally-slotted wheel rotating with said latter drum and provided with concave depressions between said slots, a rotating element comprising two disk-like portions, one of which has a lateral projection adapted to enter the slots and engage portions of the wheel so as to intermittently rotate the same, and the other with a peripherally-recessed portion located adjacent to the projection so as to permit rotary motion of the slotted wheel and having its periphery adapted to engage the depressions in said slotted wheel so as to intermittently hold said wheel stationary, whereby a very light and small drum may be employed and a gradual start-and-stop intermittent motion imparted to said drum so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

8. The combination with a film or strip, of a tension device, a drum engaging the film so as to draw or force the same past the tension device, a peripherally-slotted wheel rotating with said drum and provided with concave depressions between said slots forming a substantially Maltese-cross-shaped wheel, a rotating element provided with a lateral projection adapted to enter the slots and engage portions of the wheel so as to intermittently rotate the same, and a recessed disk or circular plate adapted to engage the depressions in the slotted wheel so as to intermittently hold the drum stationary, whereby a very light and small drum may be employed and a gradual start-and-stop intermittent motion imparted to said drum so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

9. The combination with a film or strip, of a feed-drum engaging the film so as to impart movement thereto when rotated, a shaft to which said drum is secured, a tension device for holding the film, a second drum engaging the film so as to draw or force said film past the tension device, a peripherally-slotted wheel rotating with said drum, a rotating element provided with a lateral projection adapted to enter the slots and engage portions of the wheel so as to intermittently rotate the same, means for intermittently holding the slotted disk and drum stationary for intervals of time in excess of the intervals of rotation, a shaft to which the rotating element is secured, together with a sprocket-wheel and chain connection between this latter shaft and the feed-drum shaft so as to be simultaneously operated, whereby simple operating mechanism and a very light and small drum may be employed and a gradual start-and-stop intermittent motion imparted to said drum so as to avoid racking and jolting of the mechanism and unnecessary wear and strain upon the film, substantially as described.

10. The combination with a film or strip and means for intermittently moving the same so as to successively expose the pictures thereon, of a tension device provided with three or more yielding parts or members for holding the film so as to insure prompt action of one or more of said members the instant the film has moved the desired distance, substantially as described.

11. The combination with a film or strip and means for imparting movement to the same, of a tension device provided with three or more independent spring-pressed members or parts for yieldingly holding the film so as to insure promp action of one or more of said members the instant the film has moved the desired distance; the upper member exerting less pressure than the others and serving to act as a brush to clear the film of dust as well as to exert tension on said film, substantially as described.

12. The combination with a film or strip, of a tension device comprising a stationary member, three spring-pressed members arranged one above the other and adapted to yieldingly press the film against said stationary member, and guides arranged upon the upper and lower members for alining the film; said upper member exerting less pressure upon the film than the other members and serving also as a brush to free the film from dust, substantially as described.

13. The combination with a film or strip, of a tension device, means for intermittently moving said film so as to impart a step-by-step movement thereto, and mechanism for feeding the film so as to provide slack therein between the same and said tension device; said tension device being provided with three yielding parts or members for holding the film so as to insure prompt action of one or more of said members the instant the film has moved the desired distance, substantially as described.

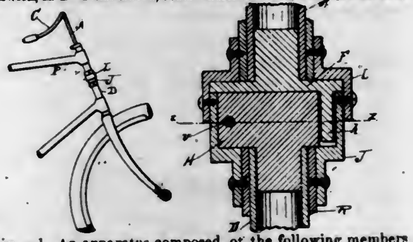
14. The combination with a film and means for operating the same so as to successively expose a portion thereof, of two or more banks of spools or rollers around which the film passes, each comprising two series or rows of rollers of varying diameters forming a series of pairs, the banks being opposed to each other, and the rollers of one bank opposed to the spaces between the rollers of the opposite bank, so that the film may pass around the larger rollers of one bank to the smaller rollers of the other bank successively, and then around the larger rollers of the latter bank to the smaller rollers of the first-mentioned bank in a similar manner, whereby a great length of film may be arranged in a very compact space, substantially as described.

15. The combination with an endless film and means for operating the same so as to successively expose a portion thereof, of a casing or closure provided with a cover or lid and guiding-slots through which the film may pass, and two banks of spools or rollers around which the film passes, each comprising two series or rows of rollers of varying diameters forming a series of pairs, the banks being opposed to each other and the rollers of one bank opposed to the spaces between the rollers of the opposite bank, so that the film may pass around the larger rollers of one bank to the smaller rollers of the other bank successively, and then around the larger rollers of the latter bank to the smaller rollers of the first-mentioned bank in a similar manner, whereby a great length of film may be arranged and protected in a very small space, substantially as described.

16. The combination with an endless film, and means for operating the same so as to successively expose a portion thereof, of a casing or closure provided with a cover or lid, guiding-slots through which the film passes, a guide-roller for the film arranged adjacent to one of the guiding-slots, and two banks of spools or rollers around which the film passes, each comprising two series or rows of rollers of varying diameters forming a series of pairs, the banks being opposed to each other and the rollers of one bank opposed to the spaces between the rollers of the opposite bank, so that the film may pass around the larger rollers of one bank to the smaller rollers of the other bank successively, and then around the larger rollers of the latter bank to the smaller rollers of the first-mentioned bank in a similar manner; said banks having two or more of their rollers adjustable and one of the rollers journaled in an arm pivoted to the casing, whereby long and varying lengths of film may be arranged and protected in a very compact space, substantially as described.

17. In a device of the character described, a drum comprising a body portion and a covering of soft rubber provided with projections adapted to engage apertures or perforations in a film and serve as an abutting or engaging surface therefor, substantially as described.

578,186. BICYCLE GUIDING-STEM. BENJAMIN ARNOLD, East Greenwich, R. I. Filed Nov. 9, 1896. Serial No. 611,439. (No model.)



Claim.—1. An apparatus composed of the following members a divided stem or shaft, a stationary tube to receive said stem, a head made fast to the end of one division of said stem, and having a recess made in its periphery the bottom of the recess sloping in toward the center of the head from its middle to the ends of the recess, a case attached to the stationary tube and having a chamber in its end to receive said head, two rolls made to turn freely in the ends of said recess when the head is in said chamber, springs to press said rolls from the ends of the recess, a plate made fast to the end of the other division of the stem, and having a stud in its face fitted to just go between said rolls, a cap covering said plate and secured to the case aforesaid, substantially as described.

2. The combination of the parts of the stem A D, tube R and case J fast thereon, a cap L secured to the case J, head H fast on the stem D, rolls *n n'* held in recess in said head, springs *r* bearing on said rolls, plate F with stud *h*, substantially as described.

578,187. WINDOW-FRAME. CLARENCE R. ARNOLD and ALBERT M. LICHTENBERGER, Wellsville, Ohio. Filed Oct. 10, 1895. Serial No. 565,274. (No model.)



Claim.—The combination of a window-frame provided with inner and outer sashways, movable sections 6 and 7 hinged to the window-frame and fitting in recesses or cut-away portions thereof and completing the same, the sections 6 carrying the portion 9 of the bead 10 and adapted to provide an entrance to the ways of the inner or lower sash to permit the same to be removed from and replaced in the window-frame, and the other section carrying the parallel portions 11 and 12 of the beads 13 and 14 of the inner and outer sashways and providing, when swung open, an entrance to both of said ways to permit the outer or upper sash to be removed, and curved bolts mounted on the hinged sections at the inner edges thereof and concealed within the same and disposed transversely of the window-frame in position for engaging the adjacent portion thereof when the sections are closed, substantially as described.

578,188. COMBINED PLANTER AND FERTILIZER-DISTRIBUTER. JAMES H. BAILEY, Leading Creek, W. Va. Filed Mar. 26, 1896. Serial No. 584,950. (No model.)



Claim.—In a planter, the combination with a beam, a hopper supported thereby, and seed-dropping mechanism, of a plow-stock attached to the said beam and bearing a double-pointed shovel, a curved brace connecting the lower end of the plow-stock with the front portion of the beam, a standard located immediately in the rear of the plow-stock, an opener secured to the lower end of the standard and having its nose engaged with and braced by the plow-stock, and a brace connected with the lower portion of the standard and passing through the aforesaid plow-stock and beam, substantially as shown for the purpose described.

578,189. INK-WELL. STEPHEN G. BALDWIN, Marion, Ind. Filed Apr. 19, 1894. Serial No. 508,074. (No model.)



Claim.—The combination with an ink-well, of an approximately rectangular closed reservoir having a flat top and bottom, the upper end being formed solid as described, a vertical screw-threaded opening, a vertical adjustable screw in said opening, the small pen-opening extending through the top end of the reservoir opposite the solid end, the downwardly-extending tube leading from the pen-opening and provided at or near its lower portion with an ink-opening, for the purpose set forth.

578,190. ERASER. WILLIAM A. BARR, Paconian Springs, Va. Filed Jan. 23, 1897. Serial No. 620,237. (No model.)



Claim.—1. An eraser adapted to be used on a finger comprising an eraser-holder having a loop, and a ring the free ends of which are adapted to engage said loop, substantially as described.

2. An eraser adapted to be used on a finger, comprising an eraser-holder provided with a loop, and a ring having shoulders and overlapping ends, said ends adapted to engage the loop on the holder, and one of the ends provided with a flange adapted to engage the shoulder on the opposite end, substantially as described.

3. An eraser adapted to be used on the finger comprising an eraser-holder provided with upturned sides, an eraser secured between said sides, and a loop on the under side thereof, and a ring the ends of which are adapted to engage said loop, substantially as described.

578,191. PNEUMATIC TIRE. EDWARD C. BARTLETT and WILLIAM A. MURRACH, Lorain, Ohio. Filed July 28, 1896. Serial No. 600,817. (No model.)

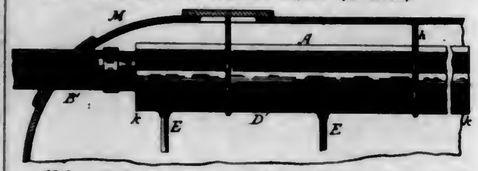


Claim.—1. A pneumatic tire comprising a series of independently-inflated sections in the form of oblong hollow bulbs or sacks, the said sections being made longitudinally elastic and transversely inelastic and inclosed within a continuous outer tube, substantially as and for the purpose described.

2. A pneumatic tire comprising a continuous outer tube containing a number of independently-inflated sections, each consisting of a hollow sack of resilient material reinforced by a band of inelastic fabric, whereby each section is made elastic and expansible in one direction only, substantially as described.

3. In a pneumatic tire, the combination with an outer case, of a series of independently-inflated sections arranged therein, the said sections being elastic longitudinally and inelastic transversely and having their ends reduced in diameter, whereby they may be crowded endwise upon each other, substantially as shown for the purpose described.

578,192. STEAM-SEPARATOR. HENRY H. BATES, Washington, D. C. Filed Oct. 22, 1896. Serial No. 609,725. (No model.)



Claim.—1. In a steam-separator for boilers, a scroll-shaped pipe, closed at the ends except an outlet, and having a narrow tangential opening extending along the length of the pipe on its curved portion, substantially as specified.

2. In a steam-separator for boilers, a scroll-shaped pipe, closed at the ends except an outlet, and having a narrow tangential opening extending along the length of the pipe on its curved portion, in combination with a tangential chute conterminous with said opening and a screen of foraminous material guarding the entrance of the said chute, substantially as specified.

3. In a steam-separator, a scroll-shaped outer pipe or drum having a narrow tangential opening extending along the pipe, in combination with an inner scroll-shaped pipe centrally located therein, having a narrow tangential opening extending along its length and reversely placed with reference to the tangential opening of the said outer pipe, substantially as specified.

4. In a steam-separator, a scroll-shaped outer pipe or drum, having a narrow tangential opening extending along its length, a scroll-shaped inner pipe centrally located within the said outer pipe, having a narrow tangential opening extending along its length and reversely placed with reference to the tangential opening of the said outer pipe, the ends of the said scroll-pipes being closed except at an exit-aperture located at one end of the inner scroll-shaped pipe, with a tubular pipe leading from said aperture, substantially as specified.

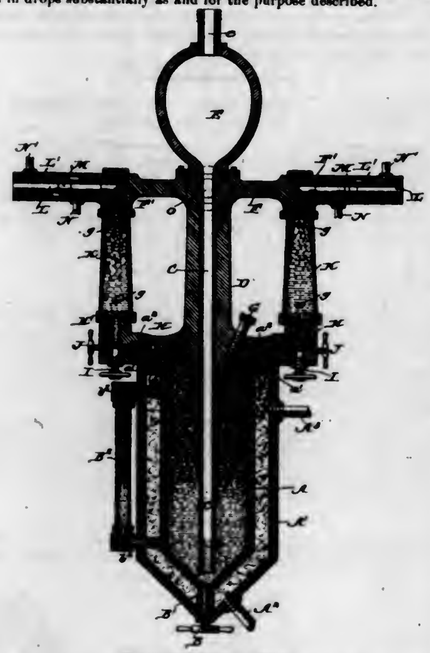
5. In a steam-separator, a scroll-shaped outer pipe or drum, having a narrow tangential opening extending along its length, a scroll-shaped inner pipe centrally located within the said outer pipe, having a narrow tangential opening extending along its length and reversely placed with reference to the tangential opening of the said outer pipe, the ends of the said pipes being closed except at an exit-aperture located at one end of the inner scroll-shaped pipe, a tubular exit-pipe, a trough affixed beneath the said scroll-shaped outer pipe along its length, perforations in the said outer pipe between it and the said trough, inclined projections adhering to one side of the perforations extending below the shell of the said outer pipe within the trough, and outlet-pipes extending from the said trough below the low-water line of the boiler, substantially as specified.

6. A steam-separator for boiler interiors, consisting of the scroll-shaped pipe or drum A having the narrow tangential opening *c* extending along its length, tangential chute *b*, screen *s*, scroll-shaped pipe B centrally located within the said pipe A, having a narrow tangential opening *p* extending along its length and reversely placed with reference to the tangential opening of the said pipe A, the ends of the said scroll-shaped pipes being closed except an exit-aperture at one end of the inner pipe B, exit-pipe *B'*, perforations *e*, projections *d*, trough D, and outlet-pipes E, all substantially as specified.

578,193. LUBRICATOR. JOHN C. BAUER, Remsen, Iowa. Filed Oct. 23, 1896. Serial No. 586,610. (No model.)

Claim.—1. A lubricator for steam-engines comprising an inner reservoir A for oil having a perforated and conical lower end, and an outwardly-turned and screw-threaded flange *a* at the top, an outer casing A' surrounding the same and having at its upper end an inturned and screw-threaded flange *a'* meshing with the thread of flange *a*, and a screw-threaded and perforated bottom end, the said perforation being concentric with that in the oil-reservoir A, and a tubular connecting plug or thimble B' screwed into the registering openings in the bottoms of the two chambers and serving to connect and hold the two, and having also a valve B to discharge the contents of the inner or oil receptacle substantially as shown and described.

2. A lubricator for a steam-engine comprising an outer jacket or casing and within it an oil-receptacle, a head H closing the upper end of the same and formed in one piece with a stem D and cross-bar F, and having also oil-ducts a^2 in the same and a filling-plug G, in combination with the tube C leading from the condenser extending through stem D to the lower part of the oil-reservoir, the glass tube K connecting the arm F and head H, said arm and head being also provided with channels and valves for regulating the passage of the oil in drops substantially as and for the purpose described.



578,194. NUT-LOCK. JOHN H. BAUSER, Greenville, Pa. Filed Aug. 31, 1896. Serial No. 604,489. (No model.)



Claim.—1. A nut provided with a locking-block mounted to slide in an inclined direction upon the nut and having a threaded or serrated inner end to engage the threads of a bolt upon which the nut is fitted, and adjustable means for applying pressure to the outer end of the locking-block to force its inner end into frictional contact with the bolt, substantially as specified.

2. A main nut having a cross-sectionally dovetailed seat provided with an inclined floor, a locking-block fitted to slide in said seat with its inner end serrated or threaded to engage the threads of a bolt and with its outer plane extremity exposed at the contiguous surface of the nut, a lock-nut adapted to bear against said plane extremity of the block, and means for securing the lock-nut against independent rotation, substantially as specified.

578,195. DISHER AND MOLD. CHARLES M. BEATTY, Tarentum, Pa. Filed Aug. 22, 1896. Serial No. 603,615. (No model.)



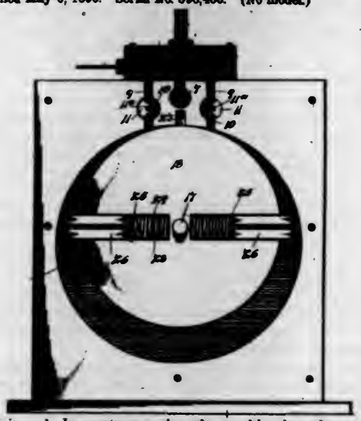
Claim.—In a disher and mold, the combination of the mold, a cap secured over the apex of said mold, a handle attached to said cap and having a slot in the under side thereof, a shaft on the apex of said mold, said shaft having a square upper end and a beveled bushing thereon and cutters journaled on the lower end, a crank secured upon the upper end of the shaft, an operating-rod pivoted to said crank, a finger-catch on said rod, said catch carrying a slide, a spring in the handle and a removable cap on the outer end of said handle, substantially as shown and described.

578,196. CENTER PUNCH. ISRAEL BECK, Philipsburg, Pa., assignor of one-half to Harry J. Beck, same place. Filed May 16, 1896. Serial No. 591,529. (No model.)



Claim.—The combination with the body portion having radially-extending arms provided with chambers having stops *f* at their outer end, and plates secured to said arms to close said chambers, said plates being provided with longitudinal slots, of jaws B having arms D formed with grooves *d* to engage the side of the longitudinal slots, and having rack-arms C, the outer ends of which are provided with stops F to abut against the stops *f* and limit the movement of the jaws, a hollow shaft mounted centrally of the jaws, a gear-wheel carried at the lower end of said shaft and engaging all of the rack-arms, a punch mounted for reciprocation in said shaft and provided with a collar *i* and a spring for lifting said punch, substantially as shown and described.

578,197. ROTARY ENGINE. SIGLE S. BLEVINS, Ottawa, Kans. Filed May 6, 1896. Serial No. 590,466. (No model.)



Claim.—1. In a rotary engine, the combination of a gear-wheel adapted to be rotated by means of the engine, a valve for reversing the engine, regulating-valves for cutting off the motive medium, connections between the reversing and cut-off valves and the gear-wheel, and means for changing the relative location of the gear-wheel to alter the cut-off when the piston reaches any required position in its stroke or travel, substantially as set forth.

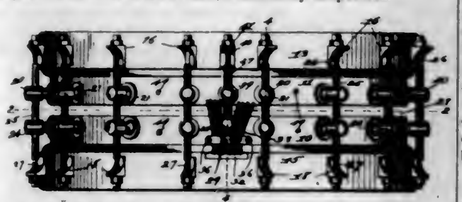
2. In a rotary engine, the combination of a valve for controlling the supply of motive medium so as to reverse the engine, valves for controlling the cut-off, a gear-wheel having connection with the cut-off-controlling valves and rotated when the engine is in operation, and a hand-lever having connection with the reversing-valve and the gear-wheel to control the position of each, substantially as and for the purpose set forth.

3. In a rotary engine, the combination of a gear-wheel caused to revolve with the axle of the engine, a hanger loosely mounted upon the axle, a second gear-wheel in mesh with the first-mentioned gear-wheel and carried by the hanger, rocker-valves for controlling the cut-off and operatively connected with the second gear-wheel, a reversing-valve, and a hand-lever having connection with the reversing-valve and the said hanger, substantially as and for the purpose specified.

578,198. DRUM. EMILE BOULANGER, St. Louis, Mo. Filed Nov. 9, 1896. Serial No. 611,493. (No model.)

Claim.—1. In a drum, a shell consisting of two parallel hoops, posts projecting from said hoops, tension-rods mounted with their

tubular portions passing through said posts and means of securing said tubular portions to said posts whereby said hoops are held rigidly in position relative to each other, substantially as specified.



2. In a drum, a shell consisting of two hoops placed in parallel positions, posts placed with their ends against the outer face of said hoops, tension-rods mounted with their tubular portions inserted through said posts and screws inserted from the inner face of said hoops through said posts and engaging said tubular portions as required to hold said tubular portions securely in position relative to said posts, substantially as specified.

3. In a drum, means of stiffening the shell, which means consists of a disk centrally located, rods extending radially from said disk and having screw-threaded outer ends, and sockets rotatably mounted in the shell of the drum and engaging said screw-threaded outer ends, substantially as specified.

4. In a drum, means of stiffening the shell, which means consists of a disk centrally located, rods extending radially from said disk and having screw-threaded outer ends, sockets rotatably mounted in the shell of the drum and engaging said screw-threaded outer ends; and a suitable covering for said rods whereby the sound is deadened, substantially as specified.

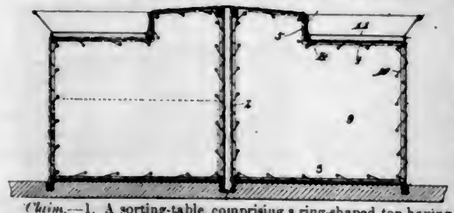
5. In a drum, a shell consisting of two parallel hoops, means of holding said hoops rigidly in position relative to each other, and means of stiffening said shell; which means consists of a disk centrally located, rods extending radially from said disk and having screw-threaded outer ends, and sockets rotatably mounted in the shell of the drum and engaging said screw-threaded outer ends, substantially as specified.

6. In a drum, a shell consisting of two parallel hoops, means of holding said hoops rigidly in position relative to each other and means of stiffening said shell; which means consists of a disk centrally located, rods extending radially from said disk and having screw-threaded outer ends, and sockets rotatably mounted in the shell of the drum and engaging said screw-threaded outer ends; and a suitable covering for said rods whereby the sound is deadened, substantially as specified.

7. In a drum, the posts 20 and 24 mounted with their ends against the outer face of the shell, the tubes 25 mounted in the outer ends of said posts and connecting said posts, and the screws 23 inserted from the inner face of the shell of the drum through said shell and into said posts and having their points engaging in apertures in said tubes, substantially as specified.

8. In a drum, the washers 21 placed against the outer face of the drum-shell, the washers 22 placed against the inner face of the drum-shell and in alinement with said washers 21, the posts 20 and 24 placed with their ends against the washers 21, the tubes 25 placed in bearings in the outer ends of said posts 20 and 24, the screws 23 inserted from the inside of the drum-shell through the washers 22, through the drum-shell, through the washers 21 and screw-seated in said posts 20 and 24 and having their points engaging in apertures in said tubes 25, brackets attached to the tension-rims of the drum, and tension-rods operating in said brackets and screw-seated in the ends of said tubes, substantially as specified.

578,199. SORTING-TABLE. EDMOND F. B. BOURKE, Vancouver, Canada. Filed May 29, 1896. Serial No. 593,559. (No model.)

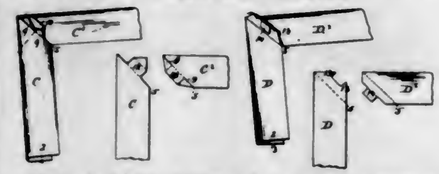


Claim.—1. A sorting-table, comprising a ring-shaped top having inward and ontward upwardly-extended flanges, a number of radially-disposed supporting-walls, and means for removably securing the inner edges of said walls together, substantially as specified.

2. A sorting-table, comprising a top having an upwardly-extended peripheral flange and a central opening, and a number of radially-disposed supporting-walls, each consisting of a metal frame and a cover of textile material, the lower ends of the inner and outer rods of the frame being extended below the bottom rod for engagement in sockets, substantially as specified.

3. A sorting-table, comprising a ring-shaped top having inner and outer upwardly-extending flanges, radially-disposed supporting-walls, each comprising a metal frame having projections at its lower end to engage in sockets, a securing device for the upper inner ends of the walls, textile material secured to the frames, and receiving-boxes, substantially as specified.

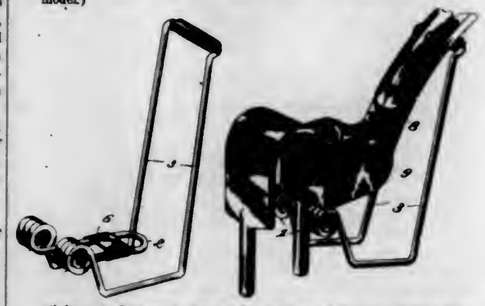
578,200. PICTURE-FRAME. JOHN A. BOWER, Pittsburg, Pa. Filed Nov. 5, 1896. Serial No. 611,086. (No model.)



Claim.—1. A frame consisting of a series of side pieces, each having a front and rear part, the front part of each piece terminating in a diagonal or miter cut, and the rear part having triangular portions of each end bent up rearwardly of said rear part to constitute a member to unite it to the bent end of another side piece substantially as described.

2. A frame consisting of a series of side pieces, each having a front and rear part, the front part of each piece ending in a miter cut, and the rear part having each end bent rearwardly of said rear face upon a miter-line parallel with the miter cut and the portions beyond said miter-line, clasped together, substantially as described.

578,201. THILL-SUPPORT. GEORGE L. BOWMAN and ROSS BOWMAN, Stoyestown, Pa. Filed June 1, 1896. Serial No. 593,726. (No model.)



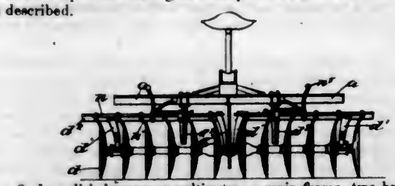
Claim.—1. In an attachment for thill-couplings, the combination with the thill-supporting arms having inwardly-bent extremities, of the tube secured to one of said arms into which the bent end of the opposite arm is adapted to spring, and the antifriction-roller oversetting said tube to furnish a uniform bearing for the thill and prevent the spreading of the arms by the weight of the thill and shaft, substantially as described.

2. In a thill-support of the character described, the combination of the tongue thereof of a reinforcing-plate embracing the members of the tongue, so as to prevent the same from spreading, substantially as specified.

578,202. DISK HARROW OR CULTIVATOR. ALBERT BRAMER and DAVID BRAMER, Boston, Mass. Filed Nov. 1, 1895. Serial No. 567,781. (No model.)

Claim.—1. In a disk harrow or cultivator, a cross-bar, two couplings mounted on and adjustable along said cross-bar, brackets *c* pivotally connected therewith to turn on horizontal axes, said brackets each having two downwardly-projecting lugs c^4, c^5, one above the other in alinement, two disk-gang frames each having a hanger provided with two recesses which receive said lugs c^4, c^5, substantially as described.

2. In a disk harrow or cultivator, the combination with two disk-gang frames, brackets *c* to which they are pivotally connected, the T cross-bar *a*, couplings thereon each composed of a block *b* formed with a vertical passage adapting it to fit the under side of said cross-bar, and also formed with a curved bearing-surface for said bracket *c*, a plate b^3 which rests upon said cross-bar, and U-shaped straps b^4 connecting said parts *b*, b^3, which also embrace and hold the brackets *c* upon the bearing-surfaces provided for them, substantially as described.



3. In a disk harrow or cultivator, a main frame, two brackets *c* pivotally connected therewith to turn on horizontal axes, stops to prevent said brackets from swinging outwardly or away from each other, each bracket having two downwardly-projecting lugs c^4, c^5, one above the other in alinement, and two disk-gang frames each having a hanger provided with recesses which receive said lugs, substantially as described.

4. In a disk harrow or cultivator, a main frame, two brackets *c* pivotally connected therewith to turn on horizontal axes, each bracket having two downwardly-projecting lugs c^4, c^5, one above the other in alinement, two disk-gang frames each having a hanger provided with two recesses which receive said lugs c^4, c^5, the uppermost recess in each hanger being elongated to permit the disk gang to rock or tilt in addition to turning on a vertical axis, substantially as described.

5. In a disk harrow or cultivator, a main frame, two brackets *c* pivotally connected therewith to turn on horizontal axes, each having two downwardly-projecting lugs c^4, c^5, one above the other in alinement, two disk-gang frames each having a hanger provided with two recesses which receive said lugs c^4, c^5, substantially as described.

6. In a disk harrow or cultivator, a main frame, two brackets *c* depending therefrom, each having two downwardly-projecting lugs c^4, c^5, one above the other in alinement, two disk-gang frames each having a hanger provided with two recesses which receive said lugs c^4, c^5, on the brackets, the uppermost recess in each hanger being elongated to permit the disk gang to rock or tilt in addition to turning on a vertical axis, substantially as described.

7. In a disk harrow or cultivator, a main frame, two brackets depending therefrom each having two downwardly-projecting lugs, one above the other in alinement, two interchangeable disk-gang frames, each having a hanger with recesses which receive said lugs, and a locking device for said parts, substantially as described.

8. In a disk harrow or cultivator, a main frame, two brackets depending therefrom, each having two downwardly-projecting lugs, one above the other in alinement, two interchangeable disk-gang frames, each having a hanger with recesses which receive said lugs, and a spring-pressed latch *e* pivoted to the bracket *c* and bearing against the lug c^4, substantially as described.

9. In a disk harrow or cultivator, a main frame, two interchangeable disk gangs connected thereto, scrapers for the disks of said gangs, a scraper-bar to which they are attached, a bracket n^2 secured to the middle of the disk-gang frame-bar, having lugs n^3, n^4, a bifurcated foot-lever n^5 turning on the lug n^3, link n^6 connecting said foot-lever with the scraper-bar, and spring n^7 attached at one end to the foot-lever at a point above the lug n^3, and attached at its other end to the lug n^4, substantially as described.

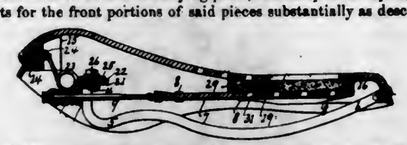
578,203. NUT-LOCK. WILLIAM J. BRIDGES, Indianapolis, Ind. Filed Feb. 24, 1896. Serial No. 580,391. (No model.)



Claim.—A nut-lock, for the joints of railroad-tracks, consisting of the elongated washer-plate K, serving as washers on more than one of the rail-bolts; locking-plates pivotally and slidingly jointed together with their overlapping ends, independently of the washer-plate, and having their outer ends secured to the outer ends of the washer-plate by the locking-pins N, put loosely through the two plates, and the spring pins or keys Q, in the locking-pins, substantially as and for the purpose described.

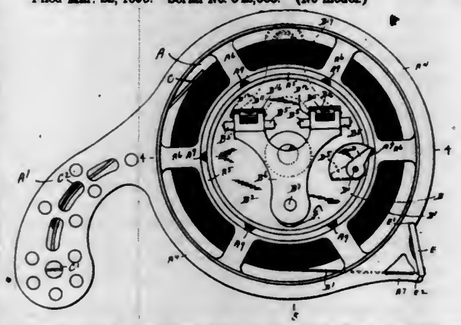
578,204. SADDLE. HENRY BRIGGS, Hasbrouck Heights, N. J. Filed Apr. 24, 1896. Serial No. 588,933. (No model.)

Claim.—1. A saddle comprising two superposed seat-pieces having a common attachment for their rear portions, the upper piece being extended to form a pommel, and having its seat portion made to form a cover for the underlying piece, and independent spring-supports for the front portions of said pieces substantially as described.



2. The combination with a saddle and a support arranged under the saddle and extending toward the pommel, of a tension device located beneath the saddle and connected with the latter, said tension device and saddle having independent spring or yielding connections with the end of the support which extends toward the pommel substantially as described.

578,205. TAPE-MEASURE. WILLIAM H. BROWN and WILLIAM H. DE LONG, Worcester, Mass.; said De Long assignor to said Brown. Filed Mar. 22, 1895. Serial No. 542,863. (No model.)



Claim.—1. In a tape-measure the case, or shell A comprising the central stud A^2, rim A^4, ring A^5 uniting spokes A^3 connecting said central stud and said rim, short spokes A^3 connecting said rim and said ring A^5, a barrel carried on said central stud and means for connecting said barrel and said ring, substantially as described.

2. In a tape-measure, the combination of a case or shell comprising a ring A^5 having notches A^6, a rotating barrel held in said case and a pawl pivoted on said barrel and adapted to engage said notches and check the rotation of said barrel, substantially as described.

3. In a tape-measure, the combination of a case or shell, a barrel held in said shell having a flange B^6 bent as at B^{12}, a spur B^{13} and a tape having a perforated end detachably engaging said spur, substantially as described.

4. In a tape-measure, the combination of the case or shell, a barrel rotating in said case, lever B^8 hinged to said barrel, rolls B^{11} carried by said lever, blade-springs B^{12} attached to said barrel and bearing against said rolls, stud B^7 carried by the end of said lever and a roll B^9 provided with an enlarged or flaring base B^{10}, substantially as described.

5. In a tape-measure, the combination of a case or shell, a handle projecting therefrom, a rotating barrel held in said case, a blade pivoted in said handle and having its free end arranged to bear upon the tape as it is wound upon said barrel, and a spring applied to said blade to press it upon the tape, substantially as described.

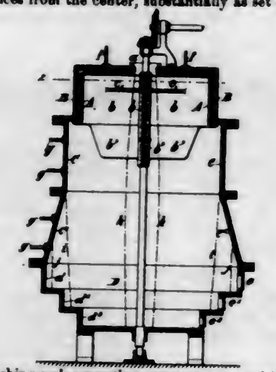
6. In a tape-measure, the combination of a case or shell, a handle projecting from the side of said case, a rotating barrel held in said case and provided with a notch in its periphery, a blade pivoted in said handle with its free end arranged to bear upon the tape as it is wound upon said barrel and to engage said notch as the tape is unwound and a spring applied to said blade, substantially as described.

7. In a tape-measure, the combination with a case or shell provided with the notches E' and E^2, of a rotating barrel held in said case, a tape wound upon said barrel, a ring carried by the free end of said tape adapted to lie in said notches, and means for holding said barrel from rotation, substantially as described.

578,206. APPARATUS FOR WASHING AND SEPARATING MINERALS, METALS, &c. PHILIPPE BUNAU-VARILLA, Paris, France. Filed Sept. 26, 1895. Serial No. 563,788. (No model.)

Claim.—1. An apparatus for washing and separating minerals, metals, coal or other substances, comprising a stationary receptacle having an internal circular surface of a diameter increasing from the top toward the bottom and provided in its smaller end with a rotary bell having an orifice for the entrance of the water and materials to

be treated, the said apparatus having at its larger end outlets at different distances from the center, substantially as set forth.

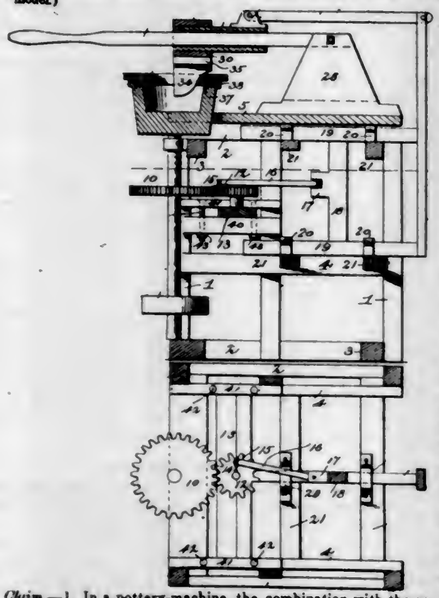


2. A washing and separating apparatus, comprising a stationary receptacle having an internal circular surface of a diameter increasing from the top toward the bottom, and provided in its smaller end with a rotary bell having an orifice for the entrance of the water and materials to be treated, a central shaft, vanes connecting the said bell to the said shaft, a plate below the orifice in the bell and connected to the central shaft, and outlets at the bottom of the receptacle at different distances from the center, substantially as set forth.

3. A washing and separating apparatus comprising a stationary receptacle having an internal circular surface of a diameter increasing from the top toward the bottom, a rotary bell in the smaller end of the receptacle, the said bell having an orifice for the entrance of the water and materials to be treated, outlets at the bottom of the receptacle, and water-jets at the side of the receptacle, all substantially as set forth.

4. An apparatus for washing and separating minerals, metals, coal or other substances, comprising a stationary receptacle having an internal circular surface of a diameter increasing from one end toward the other, and provided in its smaller end with a rotary bell having an orifice for the entrance of the water and materials to be treated, the said apparatus having at its larger end outlets at different distances from the center, and injectors *f f* between the bell and the receptacle, substantially as set forth.

578,207. POTTERY-MACHINE. JOHN F. BURSON and GEORGE C. BURSON, Rogers, Ohio. Filed June 22, 1896. Serial No. 596,431. (No model.)



Claim.—1. In a pottery-machine, the combination with the rotatable shaft, the jollie-head, the cog-wheel, the differential pinion meshing therewith and the crank-pin, of the crank, the slide-bars connected therewith, the upright, the arm pivoted thereto, the pivoted pull-down, the movable sleeve on said pull-down pivotally connected with said arm, the tool-holder adjustably secured thereto, formed with a slot in its bottom and provided with a horizontal portion, and the adjustable tool having a rectangular head; substantially as described.

2. In a pottery-machine, the combination with the rotatable shaft, the jollie-head, the cog-wheel, the differential pinion meshing therewith formed with a number of holes at varying distances from the center and the removable and replaceable crank-pin adapted to engage therewith, of the crank, the slide-bars connected therewith, the upright, the arm pivoted thereto, the pivoted pull-down, the movable sleeve on said pull-down pivotally connected with said arm, the tool-holder adjustably secured thereto, formed with a slot in its bottom and provided with a horizontal portion and the adjustable tool having a rectangular head, substantially as described.

3. In a pottery-machine, the combination with the frame, the rotatable shaft, the jollie-head, the cog-wheel secured to said shaft, the pinion meshing therewith, the adjustable cross-bars having semicircular recesses to receive the journal of said pinion, the beams on which the ends of said bars rest, the clamping-bars, the screw-bolts and the nuts, of the crank-pin on said pinion, the crank, the slide-bars, the upright, the arm pivoted thereto, the pivoted pull-down, the movable sleeve thereon, pivoted to said arm, the adjustable tool-holder and the removable tool connected therewith, substantially as described.

4. In a pottery-machine, the combination with the rotatable shaft, the circular jollie-head, the removable cover having an oval opening therein and provided with lugs fitting in recesses in the head, the cog-wheel located on said shaft, the differential pinion meshing therewith, and the crank-pin on said pinion, of the crank, the slide-bars connected therewith, the upright, the arm pivoted thereto, the pivoted pull-down, the movable sleeve on said pull-down pivotally connected with said arm, the tool-holder adjustably secured thereto and the adjustable tool, substantially as described.

578,208. REIN-HOLDER. FRANK W. CAIN, Elkhorn, Wis. Filed June 10, 1896. Serial No. 594,990. (No model.)



Claim.—1. In a rein or line holder the combination of a post having threads on its lower end adapted to screw into the saddle or back-pad, the curved spring securely held between said post and saddle and adapted to tightly press against the upper portion of the post, substantially as described.

2. A rein-holder comprising a post having a screw-threaded end formed integral with the lower portion thereof and a flat curved spring secured to the lower portion thereof, and having its upper portion curved so as to form a loop, and the opposite free end of said spring to bear against said post, substantially as described.

3. The combination with the saddle or back-pad of a rein-holder secured thereto comprising a post provided with a screw-threaded end formed integral therewith and adapted to enter said back-pad or saddle, a flat curved spring leaving an opening in one of its ends so as to fit said screw-threaded end and rest between said saddle or back-pad and the bottom of the post, and having its opposite free ends curved to form a loop and to bear against the post, for the purpose set forth.

578,209. HOLLOW AUGER. HANNING A. CARLSON, St. Louis, Mo. Filed Sept. 14, 1896. Serial No. 605,736. (No model.)

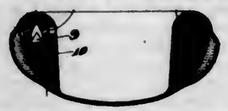
Claim.—1. In a hollow auger, a non-rotatable center piece having a longitudinal slot through its center, means of operating said center piece, a shell rotatably and slidingly mounted upon said center piece, cutting edges upon the lower end of said center piece, a collar loosely mounted upon the upper end of said shell, a gear upon the upper end of said shell and above said collar, arms projecting in opposite directions from said collar outwardly and upwardly, alined bearings in the upper ends of said collar, a shaft mounted in said bearings and extending through said slot in said center piece, a gear upon said shaft and meshing with the gear upon said shell, and operating-handles upon said shaft, substantially as specified.

2. In a hollow auger, a non-rotatable center piece having a longitudinal slot through its center, teeth upon the lower end of said center piece, an operating-handle upon the upper end of said center piece, a shell rotatably and slidingly mounted upon said center piece, a collar loosely mounted upon the upper end of said shell, a gear upon the upper end of said shell and above said collar, alined bearings attached to said collar, a shaft mounted in said bearings and extending through said slot in said center piece, a gear upon said shaft and meshing with the gear upon said shell, and operating-handles upon said shaft, substantially as specified.



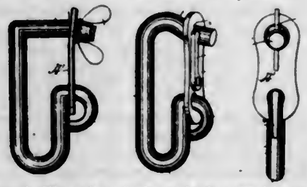
3. In a hollow auger, a non-rotatable center piece having a longitudinal slot through its center, an operating-handle upon the upper end of said center piece, teeth upon the lower end of said center piece, a shell rotatably and slidingly mounted upon said center piece, a gear upon the upper end of said shell, bearings alined with each other and with said shell, a shaft mounted in said bearings and extending through said slot in said center piece, a gear upon said shaft and meshing with the gear upon said shell, and operating-handles upon said shaft, substantially as specified.

578,210. PESSARY. NEWTON E. CHARLTON, Trinidad, Colo. Filed June 3, 1896. Serial No. 594,086. (No model.)



Claim.—A cup-shaped soft-rubber pessary, comprising a thin bottom, an inner wall which gradually thickens from its junction with the bottom to its top, an outer wall forming with the inner wall an annular chamber, a recess formed in the thickened wall, a valve-casing in said recess, and a spring-pressed plug-valve in the casing for controlling a port leading from the chamber to the cup, substantially as specified.

578,211. SAFETY-CLEVIS. BYRON O. CLARK, Pasadena, Cal. Filed Apr. 29, 1896. Serial No. 589,453. (No model.)



Claim.—1. The safety-clevis set forth comprising a link consisting of a side member having at one end a transverse pin, and having at its other end a hook; and having for its other side member a removable closure attached to the hooked end of the body and adapted at its other end to fit upon the pin; and means for holding the closure in its closed position.

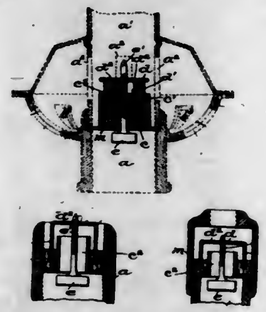
2. The safety-clevis set forth comprising a body formed into hook shape at one end and provided at its other end with a pin arranged transverse the body of the clevis; the latch pivoted by one end to the hook-shaped end of the body and having its other end arranged to fit upon the pin and to form a closure for the open side of the clevis, and means for fastening the latch to the pin.

3. A clevis composed of a metal link having one side divided near the middle thereof, one portion of the divided side of the link being formed into a pin projecting substantially at right angles to the longitudinal portion, and having at its extremity an oblique bend, the other divided portion of the link being recurved upon itself to form a pivot-seat for the latch; a latch pivoted on the pivot-seat and having in its free end an opening adapted to receive the oblique end of the pin; and means for fastening the latch upon the pin.

4. A safety-clevis comprising a link open at one side and provided at one end with a laterally-projecting pin screw-threaded at its end; a latch pivoted to the link at the other end of the side opening and provided with a hole arranged to receive the pin; and a nut screwed upon the pin to hold the latch in place.

5. The clevis set forth comprising a body formed at one end into a laterally-projecting pin, and having its other end bent into hook shape and provided with an eye; a latch or gate having one end pivoted in the eye and having its other end arranged to fit upon the pin and to draw upon and rigidly connect the hook-shaped end and the pin; and means for securing the latch upon the pin.

578,212. GAS-REGULATOR FOR WELSBACH BURNERS. OREN R. CLINE, El Dorado, Kans. Filed June 9, 1896. Serial No. 594,819. (No model.)



Claim.—1. In a burner mixing air and gas, the combination with the burner-tube and its surrounding air-chamber, with regulating air-inlets; of a regulating-valve placed in the burner between the initial gas-pressure and the air-chamber, said valve consisting of an annular liquid-seal chamber with a central opening, an inverted cup with perforated top, the perforations of which lead into the mixing-chamber above, and a valve and valve-stem, the latter attached to the inverted cup and descending through the annular seal and attached at its lower end to the valve substantially as and for the purpose described.

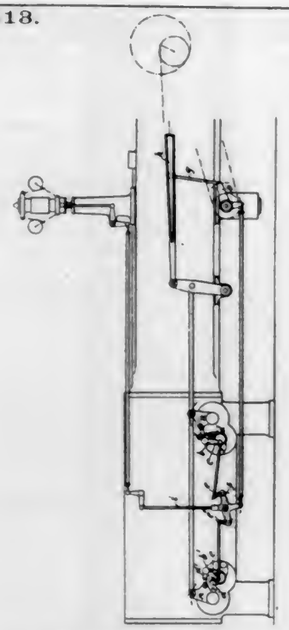
2. In a burner mixing air and gas, the combination with the burner-tube made in upper and lower sections *a* and *a'* with openings a^3 in the upper section, and an air-chamber with regulating-inlets surrounding the same, an annular liquid-seal chamber having a marginal flange at its lower edge retained between the abutting ends of the two burner-tube sections and separating the initial gas-pressure from the air-pressure, an inverted cup with perforated top, the perforations of which lead into the mixing-chamber above, and a valve and valve-stem the latter connected to the inverted cup and extending through the liquid-seal chamber and connected to the valve below the same substantially as and for the purpose described.

578,213. VALVE-GEAR. JOHN COCHRANE, Barrhead, Scotland, and WILLIAM CAMERON, Maryport, England. Filed May 4, 1896. Serial No. 590,128. (No model.) Patented in England Nov. 24, 1894, No. 22,800.

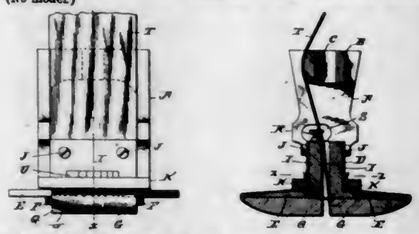
Claim.—1. In release-gear, the combination of a lever *a* secured to the exhaust-valve spindle, a lever *c* freely hung on the steam-valve bracket, and a coupling-link connecting the said levers, with a lever *b* hung on the lever *c*, and provided with a detent *a*, and a projection secured to the steam-valve spindle.

2. In release-gear, the combination of levers *b* provided with detents *a*, with a horizontal oscillating lever, two bell-crank levers hung thereon, and connections between the said levers *b* and the said bell-cranks and between the bell-cranks and the governor, substantially as and for the purposes set forth.

578,213.



578,214. SANDPAPERING AND BUFFING MACHINE. THOMAS E. KEAVY, Philadelphia, Pa. Filed May 7, 1896. Serial No. 590,602. (No model.)



Claim.—1. In a chuck of the character described, a disk having cut-away portions in its perimeter in which strips of abrading material are adapted to be held as and for the purpose described.

2. In a chuck of the character described, a disk having eccentric cut-away portions in its perimeter in which split strips of abrading material are adapted to be held as and for the purpose described.

3. In a chuck of the character described, a body having a passage therethrough, a disk carried by said body said disk having cut-away portions in its perimeter, pads carried upon the under side of said disk, clamps pivoted to the chuck, spring-plates against which the clamps are adapted to bear, and latches for securing said clamps against said plates, substantially as shown and described.

4. In a chuck, a disk having cut-away portions in its perimeter, said cut-away portions being slightly eccentric with relation to said disk, pads secured upon the under surface of said disk, and clamps pivoted to the chuck whereby strips of abrading material may be secured in place and the edges thereof prevented from catching upon the object being buffed, as specified.

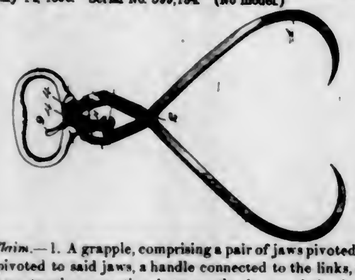
5. A chuck consisting of a body having formed therewith a disk, ribs upon the bottom of the disk, said disk having a central slot and portions of its perimeter cut away eccentrically, pads held between the ribs on either side of the slot, spring-plates secured to the body of the chuck, clamps pivoted to said body and provided with notched ends, latch-rods slidable in suitable bearings in the body, eccentric-pins on the latch-rods to engage the notched ends, springs forcing the rods downward, means for turning the rods whereby the clamps are forced against the spring-plates and strips of abrading material passed through the slot and over the pads having their ends split longitudinally to fit the cut-away portion, said split ends secured between the spring-plates and clamps, as and for the purpose described.

6. The herein-described combination of a body having formed therewith a disk, ribs upon the bottom of said disk, said disk having portions of its perimeter cut away eccentrically, pads held by said ribs, plates I secured to the body of the chuck, clamps K pivoted to said chuck and provided with noses M, in which are notches N, latch-rods held in suitable bearings, springs for forcing said rods downward, and eccentric-pins projecting from the lower ends of said rods adapted to enter the notches N, whereby when the rods are turned upon their axes the clamps are forced against the action of the plates I, substantially as and for the purposes set forth.

7. In a chuck, a disk having a passage therethrough, and provided with a cut-away portion in its perimeter, strips of abrading material projecting through the passage and having their ends split longitudinally, as and for the purpose described.

8. A buffing-tool consisting of a disk, an opening therethrough, two sections of abrasive material passed through said opening and drawn over the edges of the disk and so split longitudinally as to approximately conform to the periphery of said disk, substantially as described.

578,215. GRAPPLE. WILLIAM COULTER, Lorain, Ohio. Filed July 14, 1896. Serial No. 599,184. (No model.)



Claim.—1. A grapple, comprising a pair of jaws pivoted together, links pivoted to said jaws, a handle connected to the links, the latter forming a toggle connection between the jaws and the handle, and a locking-pawl carried by said handle and adapted to engage the jaws to hold the same in open position, substantially as set forth.

2. A grapple, comprising a pair of jaws pivoted together and having their lower ends enlarged and provided with teeth, links pivoted to said jaws, a handle connected to the links, the latter forming a toggle connection between the jaws and the handle, and a locking-pawl carried by the handle and adapted to engage the jaws to hold the same in open position, substantially as set forth.

3. A grapple, comprising a pair of jaws pivoted together, links pivoted to said jaws, a handle connected to the links, offsets formed in said links and adapted to permit free movement of the jaws, and a locking-pawl carried by the handle and adapted to engage the jaws to hold the same in open position, substantially as set forth.

4. A grapple, comprising a pair of jaws pivoted together, links pivoted to said jaws, a handle-loop connected to said links, and a locking-pawl pivoted to the handle-loop and having its upper end lying within the outline of the loop, said pawl being adapted to hold the jaws in open position, substantially as set forth.

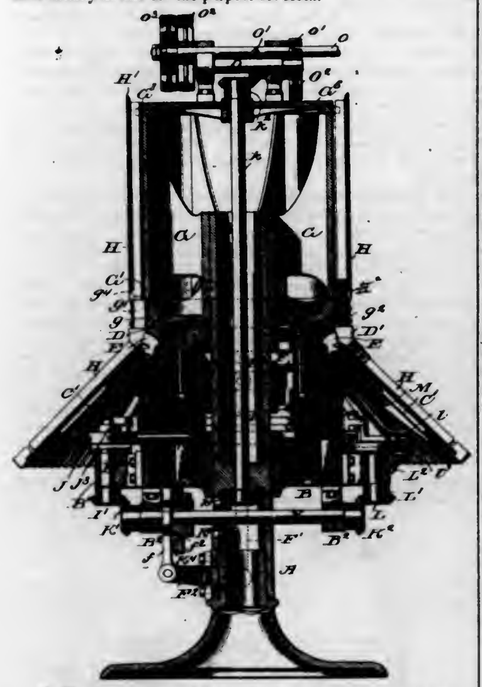
5. A grapple, comprising a pair of jaws pivoted together, the pintle of said pivot having one of its ends projecting beyond the jaws, a pair of links pivoted to each of said jaws, a handle connected to said links, and a locking-pawl carried by said handle, said pawl being provided with a notch adapted to engage the projecting end of the pintle of the jaws and hold the latter in open position, substantially as set forth.

6. A grapple, comprising a pair of jaws pivoted together, the pintle of said pivot having one of its ends projecting beyond the jaws, a pair of links pivoted to each of said jaws, a handle connected to said links, a stop secured on said handle and adapted to prevent the jaws closing entirely together, shoulders also formed on said handle, and a locking-pawl carried by the handle and adapted to be limited in its movement by said shoulders, said pawl being provided with a notch adapted to engage the projecting end of the pintle of the jaws and hold the latter in open position, substantially as set forth.

7. A grapple, comprising a pair of jaws pivoted together, a pair of links pivoted to each of said jaws and each provided with an offset, the offsets of each pair of said links being oppositely inclined to the offsets of the other pair to permit free movement of the jaws, a handle connected to said links, a stop secured on said handle and adapted to prevent the jaws closing entirely together, and means for holding said jaws in open position, substantially as set forth.

578,216. TYPE-DISTRIBUTING MACHINE. PAUL F. COX, Chicago, Ill., assignor to the Cox Type Setting Machine Company, same place. Filed June 10, 1896. Serial No. 594,989. (No model.)

Claim.—1. The combination with a notched casting; a lever pivoted on a support beside the casting and having a tooth adapted to engage a notch thereof, a lever pivoted on the first lever having a bent arm adapted to engage another notch of the annulus, and means substantially as described for moving the toothed levers into engagement with the notches, then forcing the teeth of the levers apart; then moving them together and withdrawing them from the notches; substantially as and for the purpose set forth.



2. The combination of the notched casting, the pivoted lever as *m*, the lever as M pivoted to lever *m*, and means for moving said levers into and out of engagement with the notches of the casting and rocking one lever upon the other, substantially as described.

3. The combination with the notched casting; the pivoted lever as *m*, the lever M pivoted to lever *m*; the spring M^3 and means substantially as described for operating said levers, substantially as and for the purpose described.

4. The combination of the notched annulus, the levers as *m*, M, arranged substantially as described; with the cam-disk, and the sliding bar for vibrating said levers, and a spring for rocking lever M on lever *m* all substantially as and for the purpose set forth.

5. The combination with the casting, the adjustable toothed lever, the rocking lever pivoted to the swinging end of the adjustable lever; and means for swinging said levers toward and from the annulus and rocking the rocking lever, substantially as described.

6. The combination of the notched annulus, the adjustable lever as *m*, the rocking lever as M pivoted on lever *m*; the spring M^2, the slide *l* and cam-disk L^2, all substantially as and for the purpose described.

7. In a type-distributing machine, an undistributed-type reservoir, consisting of the casting *g* having slots *g'*, with the casting G having slotted flanges G', G^2, all substantially as and for the purpose described.

8. In a type-distributing machine, the combination of the reservoir having slots *g'* in its lower end, and flanges G', G^2, above said slots *g'*, said flanges being slotted at points coincident with slots *g'*; with the removable type-line holders H fitted over slots *g'* and retained by the slots in the flanges, all substantially as and for the purpose described.

9. In a type-distributing machine the combination of the standard, the casting B and the type-reservoir supported on said standard; and the rotatable test-plate disk supported on said casting; with means for rotating the test-plate disk, and the mechanism for registering the same with the channels of the reservoir, comprising the levers *m*, and M, the slide *l*, and cam L^2, and means for rotating said cam, all substantially as and for the purpose described.

10. The combination of the type-reservoir, and test-plate disk, substantially as described, and the mechanism for rotating the disk, comprising the shaft I, eccentric *i*, lever i^3, dog *j*, bar J^3, and cam J', substantially as described, at one side of the disk; and the mechanism for registering the disk and reservoir, consisting of the shaft L, cam L^2, bar *l*, and levers M, *m*, substantially as described; with the horizontal shaft K, geared at its opposite ends to shafts I and L respectively, and mechanism for rotating said shaft, all substantially as and for the purpose set forth.

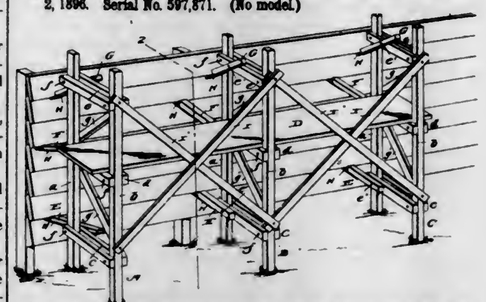
11. In a type-distributing machine, the combination of the stationary type-reservoir mounted on a central hollow standard; the rotatable test-plate disk D below the reservoir, the rotatable type-holder support C connected to the disk; the type-pushers E in the slots of the disk; the pusher-operating plate F; the notched annulus *b*, and the bottom casting B fixed to the support and upholding the parts *b*, C, D, and F; with the shaft K transfixing the support below the casting B and suspended from the latter, the disk-rotating mechanism supported on one side of casting B and driven from one end of shaft K; the disk-registering mechanism supported on the opposite side of casting B and driven from the other end of shaft K; the mechanism for vibrating plate F, also driven from shaft K; and the vertical shaft and gearing substantially as described for driving shaft K, all substantially as and for the purpose described.

12. The combination of a rotatable notched casting, a swinging lever; and a dog on said lever adapted to engage the notches of the casting; with the rotating shaft parallel with the axis of the casting, the eccentric thereon and connections between said eccentric and lever for vibrating the latter, a cam on said shaft and a sliding plate or bar pivoted to the dog and having a pin engaging the cam whereby the dog is thrown into and out of engagement with the notches of the casting at the proper times during the reciprocations of the lever, substantially as and for the purpose described.

13. The combination of the horizontal rotatable notched annulus; the horizontally-swinging lever i^3; and the dog *j* pivoted on the lever; with the vertical rotating shaft, the eccentric *i* thereon, the eccentric-strap *i'*, connected to the lever; a cam-grooved disk J on said shaft, and the sliding bar J^3 operated by said cam and pivotally connected to the dog *j*, substantially as and for the purpose described.

14. In a type-distributer, the combination of the supporting-standard, the bifurcated vibrating pusher-plate F, the oscillating lever as F^3 pivoted on the standard and connections between the lever and plate for vibrating the latter; with the rotary shaft K carrying cam-disk as K^4, the slotted slide-rod embracing said shaft and operated by said cam, and connected to and actuating lever F^3, all substantially as and for the purpose described.

578,217. SELF-SUPPORTING STAGE. HUGH CUMMINGS, Kinston, N. C., assignor of one-half to J. B. Cummings, same place. Filed July 2, 1896. Serial No. 597,871. (No model.)



Claim.—The self-supporting stage herein shown and described comprising a series of independent upright frames each having a pair of posts united rigidly together by cross-rails and strengthened by diagonal braces; a platform, D, fitted between the posts of the frames and resting upon the cross-rails thereof; and a series of holding-arms pivoted to each of said frames to be projected beyond the frames or to be folded alongside of the same, each holding-arm provided at its free end with a projecting retainer adapted to be inserted between the overlapping edges of a siding, as and for the purposes described.

578,218. LOG-CARRIER. ROBERT E. L. DAGGS and AERO J. DAGGS, Phœnix, Ariz. Filed July 14, 1896. Serial No. 599,167. (No model.)

Claim.—1. In a log-carrier, the combination of a truck, a substantially vertical standard mounted on the truck, a lever disposed longitudinally of the truck and fulcrumed intermediate of its ends on the standard, and log-engaging devices connected with the lever in advance and in rear of the pivotal point, substantially as described.

2. In a log-carrier, the combination of a truck, a standard mounted on the truck and disposed substantially vertically, a longitudinally-

disposed operating-lever fulcrumed adjacent to its front end on the standard, front and rear hangers mounted on the operating-lever in advance and in rear of the fulcruming-point, the front hanger being pivoted to the lever, and the rear hanger being slidingly mounted thereon and capable of movement longitudinally thereof, and front and rear log-engaging devices connected with the hangers, substantially as described.



3. In a log-carrier, the combination of a truck, a standard mounted on the truck and disposed substantially vertically, a longitudinally-disposed operating-lever fulcrumed adjacent to its front end on the standard, front and rear hangers mounted on the operating-lever in advance and in rear of the fulcruming-point, the front hanger being pivoted to the lever and the rear hanger being slidingly mounted thereon and capable of movement longitudinally thereof, front and rear tongs, each composed of two sides or members, one of the sides being provided with an opening receiving the other side and limiting the swing thereof, whereby the tongs are held sufficiently open to enable them to engage a log automatically, and links connecting the upper arms of the tongs with the hangers and forming a toggle connection, substantially as described.

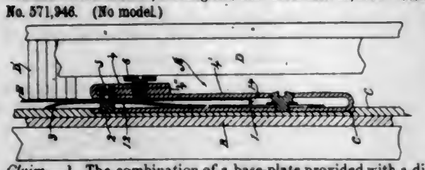
4. In a log-carrier, the combination of a truck, a vertical standard mounted thereon and provided with a longitudinal opening, an operating-lever adjustably fulcrumed, at a point intermediate of its ends in an opening of the standard, rectangular hangers mounted on the lever and located in advance and in rear of the standard, a pin adjustably pivoting the front hanger to the lever, a roller mounted in the upper portion of the rear hanger and arranged to ride on the upper edge of the operating-lever, and front and rear log-engaging devices connected with the hangers, substantially as described.

5. In a log-carrier, the combination of a drop-axle, wheels journaled thereon, hounds extending forward from the axle, a pole connected with the hounds, a substantially vertical standard centrally mounted on the axle, braces disposed in pairs at the sides of the carrier, connected at their upper portions to the top of the standard and having their lower terminals secured respectively to the axle and to the hounds, a lever fulcrumed on the standard, and log-engaging devices connected with the lever and located in advance and in rear of the fulcruming-point, substantially as described.

6. In a log-carrier, the combination of a truck, an operating-lever fulcrumed intermediate of its ends and disposed longitudinally of the truck, front and rear log-engaging devices connected with the lever and located in advance and in rear of the fulcruming-point, draft-chains connected with the front log-engaging devices at opposite sides of a log, and a doubletree connected with the draft-chain, substantially as described.

7. In a log-carrier, the combination of a truck, an operating-lever disposed longitudinally thereof and fulcrumed intermediate of its ends, front and rear log-engaging devices depending from the lever, draft-chains connected with the front log-engaging devices at opposite sides of a log, a doubletree connected with the front ends of the draft-chains, a centrally-arranged chain connected with the truck and with the doubletree, and a chain suspending the doubletree from the truck, substantially as described.

578,219. PUNCHING ATTACHMENT FOR PRINTING-PRESSES. WILLIAM C. DILLINGHAM, Los Angeles, Cal. Filed Dec. 12, 1895. Serial No. 571,946. (No model.)



Claim.—1. The combination of a base-plate provided with a die-pin and adapted to be fastened to the tympan of a press; a guide-spring fastened to the base-plate and projecting forward beyond the die-pin and arranged to normally stand substantially flush with the die-pin and bent down at its front end to form a guide to carry a sheet over the die-pin; a die-plate provided with a hole to fit the die-pin and adapted to move toward and from the die-pin and the guide-spring; and means to normally hold the die-plate retracted from the die-pin and guide-spring.

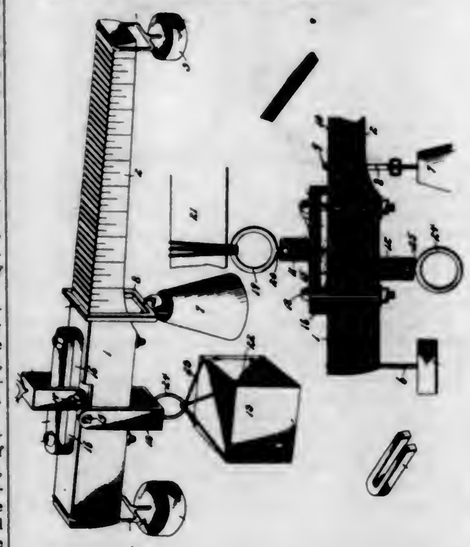
2. A printing-press punch comprising a strip of spring-steel doubled upon itself to form a base-plate and a die-plate, the base-plate being provided with a die-pin and the die-plate being provided with a hole to fit the die-pin, the die-plate being provided on its outer face with a projection to engage the furniture of the form to prevent such form from coming into direct contact with the face of the die-plate and closing the hole in the die-plate while the punch is being operated.

3. The combination of the base-plate provided with the die-pin; the die-plate provided with the hole to fit the die-pin; the spring connecting the die-plate with the base-plate; the sheet guiding and lifting spring fastened to the base-plate; and the side projections for fastening the base-plate to the tympan of the press, substantially as set forth.

4. A printing-press punch attachment comprising the base-plate adapted to be fastened to the tympan of the press and provided with the die-pin; the die-plate provided with the hole to fit the die-pin; and the sheet guiding and lifting spring adjustably fastened to the base-plate and arranged substantially flush with the top of the die-pin.

5. A printing-press punch comprising a strip of steel doubled upon itself to form a base-plate and a die-plate, the base-plate being provided with a die-pin and adapted to be fastened to the tympan of a press, and the die-plate being thickened at its free end and having such thickened portion provided with a die-hole to fit the die-pin, and also provided with an adjusting-screw screwed into such free end, projecting therefrom and adapted to be engaged by the furniture of the form to prevent such furniture from closing the die-hole while the punch is being operated.

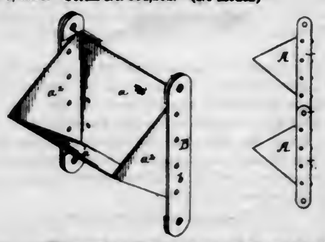
578,220. SCALE. JORDAN C. DIXON, Fort Ritner, Ind. Filed Nov. 4, 1896. Serial No. 611,068. (No model.)



Claim.—1. In a scale, the combination of a scale-beam, weights, a stationary knife-edge bearing mounted on the scale-beam, an adjustable knife-edge bearing arranged on the scale-beam, movable U-shaped supports located at opposite sides of the adjustable knife-edge bearing, fastening devices passing through and securing the supports at any desired adjustment, the upper and lower loops connected with the knife-edge bearings, and a receptacle suspended from the lower loop and adapted to receive the object to be weighed, substantially as described.

2. In a device of the class described, the combination of a scale-beam, a stationary knife-edge bearing mounted thereon, a lower loop depending from the said bearing, a movable knife-edge bearing triangular in cross-section and arranged at the top of the scale-beam, the substantially U-shaped supports arranged on the scale-beam and having their inner ends beveled to conform to the configuration of the adjustable bearing, a plate arranged on the supports and engaging the same, and fastening devices passing through the plate and the scale-beam and arranged in the openings of the supports, substantially as described.

578,221. BUCKET ELEVATOR. JAMES M. DODGE, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed Sept. 3, 1895. Serial No. 561,282. (No model.)



Claim.—1. The combination in an elevator-bucket, of the body, perforated projections at each side and extending above and below the body, said projections being increased in thickness at the perforations, substantially as and for the purpose set forth.

2. The combination in an elevator-bucket, of the body, the angle-plates secured at the corners formed by the back and sides of the body and extending above and below the bucket, substantially as described.

3. The combination in an elevator-bucket, of the body, angle-plates at the corners formed by the back and sides of the body, said angle-plates extending above and below the body, and a portion of the back section on each angle-plate being bent over upon the side portion so as to form a double bearing for the pivot-bars, substantially as described.

4. The combination in a bucket elevator, of the buckets, perforated projections extending above and below the buckets, pivot-bars adapted to pass through the perforations and to secure the buckets together, said pivoted bars being reduced at the bearing-points of the buckets whereby shoulders are formed to prevent the accidental displacement of the bars, substantially as described.

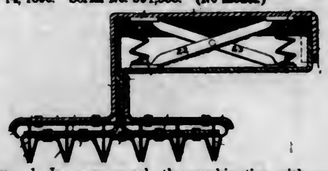
578,222. ARTIFICIAL LIMB. MARTIN R. DONALDSON and WILLIAM KEMPOEL, Duluth, Minn. Filed July 25, 1896. Serial No. 600,547. (No model.)



Claim.—1. An artificial limb provided with a separated yielding pneumatic socketed portion comprising an inner sleeve of leather, two separated rubber sleeves about the same, and an outer protecting-sleeve about the outer sleeve; the two rubber sleeves being joined at their upper and lower edges so as to form an air-tight air-receptacle, and provide a stout durable upper edge above the wooden portion of the limb; and a nipple inserted into the upper edge of the socketed portion, for the introduction of air, substantially as and for the purpose described.

2. In an artificial limb the combination with a limb proper, of a pneumatic socket, a base to receive the same and rubber cushions adapted to engage said plate and support said socket, substantially as described.

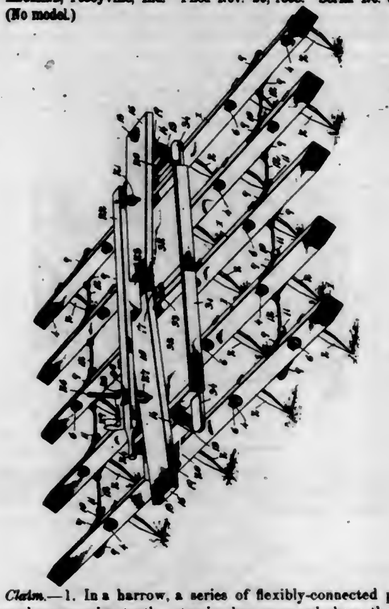
578,223. CURRYCOMB. LARS R. ELVING, Otho, Iowa. Filed May 14, 1896. Serial No. 591,555. (No model.)



Claim.—1. In a currycomb, the combination with a main back of a handle-section connected thereto, teeth also connected to the main back, a supplemental back, scrapers connected to the supplemental back which are also adapted to house the teeth, a handle-section connected to the supplemental back, levers pivoted together and having their ends bearing against the respective handle-sections, and springs for keeping said handle-sections normally separated.

2. In a currycomb, the combination with a main back which is provided with a handle-standard that terminates in a handle-section, of teeth carried by the main back, a supplemental back, scrapers for the teeth connected to the supplemental back, a guide secured to the supplemental back which slides in the handle-standard and is formed into a handle-section, crossed levers pivoted together each having their ends bearing against the respective handle-sections and coil-springs interposed between the ends of the levers whereby the handle-sections are normally kept extended.

578,224. HARROW. ALEXANDER W. ENGLAND and FRANK D. ENGLAND, Pressyville, Ind. Filed Nov. 29, 1895. Serial No. 570,514. (No model.)



Claim.—1. In a harrow, a series of flexibly-connected parallel harrow-bars carrying teeth, a tension-bar arranged above the entire series of harrow-bars and flexibly connected at its opposite ends respectively to the front and rear of the said harrow-bars, said tension-bar being provided at an intermediate point with a normally upwardly-broken hinge-joint, a lever pivotally connected at one end to the tension-bar at one side of its hinge-joint and bearing directly on the bar over the hinge-joint, and an adjustable connection between the lever and the tension-bar at the side of the hinge-joint opposite the pivotal connection of the lever with the bar, substantially as set forth.

2. In a harrow, a series of flexibly-connected parallel harrow-bars carrying teeth, and the front and rear of which bars are provided on the upper sides with projections, and a self-adjusting weight-frame arranged on top of the harrow-bars and consisting of separate shallow weight-boxes hinged together at their inner meeting ends and provided at their outer ends with offstanding retaining-arms engaging at one side of said projections, substantially as set forth.

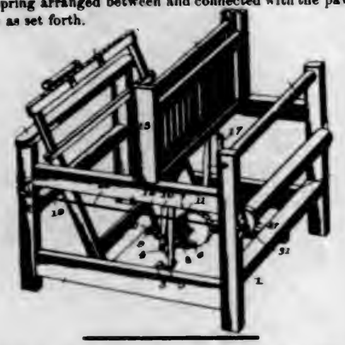
3. In a harrow, a series of flexibly-connected harrow-bars, the front and rear of which bars carry on their upper sides supporting-rollers, a tension-bar resting on said supporting-rollers and flexibly connected at its opposite ends respectively to said front and rear harrow-bars and provided at an intermediate point with a normally open hinge-joint, and means for closing the hinge-joint of said bar to straighten the same, substantially as set forth.

4. In a harrow, a series of flexibly-connected parallel harrow-bars, a tension-bar flexibly connected at its opposite ends respectively to the front and rear of said harrow-bars and consisting of separate bar-sections hinged together at their inner meeting ends, which hinge-joint is normally broken upwardly, an adjusting-lever arranged above the tension-bar and pivotally connected at one end to one of the sections thereof, said lever being provided at an intermediate point with a block bearing on the tension-bar over the joint thereof, and near the end opposite its pivoted end with a bolt-opening, a bolt arranged in said bolt-opening and loosely connected with the tension-bar section immediately therebelow, and an adjusting-nut mounted on said bolt above said lever, substantially as set forth.

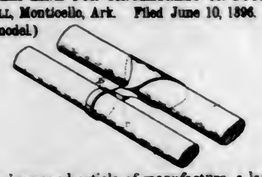
578,225. HAND-LOOM FOR CARPET-WEAVING. CHARLES W. EVELESOR, St. Paris, Ohio. Filed Dec. 26, 1895. Serial No. 573,359. (No model.)

Claim.—In a hand-loom, the combination with the main frame

having fixed vertical guides, and the swinging lay-frame pivotally supported within the main frame at one side of said guides; of a pair of vertically-reciprocatory heddle-frames mounted in said fixed guides, a single transverse shaft mounted in the lower part of the main frame and having at each side of its center a pair of oppositely-extending cranks, a pair of pitmen pivotally connected at their upper ends to each heddle-frame and at their lower ends to correspondingly-disposed cranks of the crank-shaft, a ratchet-wheel secured fast on the shaft intermediate of its ends, a pair of pawls disposed respectively above and below the ratchet-wheel and pivotally connected at one end with the lay-frame, the lower of said pawls being connected with the lay-frame approximately in line with the pivot or fulcrum thereof so as to have substantially no longitudinal movement, and the upper of said pawls being provided at its free end with a rearwardly-deflected tooth adapted to engage the teeth of the ratchet-wheel, and a single spring arranged between and connected with the pawls, substantially as set forth.



578,226. LAP-LINK FOR SINGLETREES OR DOUBLETREES. JOHN C. FINNELL, Monticello, Ark. Filed June 10, 1896. Serial No. 595,046. (No model.)



Claim.—As an improved article of manufacture, a lap-link having a broad bearing-flange at its larger end, the whole being formed with single and double tree eyes, formed by twisting the body of the link upon itself between said eyes, substantially as shown and described.

578,227. BICYCLE-TIRE. WILLIAM P. FOGARTY and AUGUST C. KRUEGER, Chicago, Ill. Filed Oct. 3, 1895. Serial No. 564,488. (No model.)

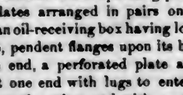


Claim.—1. In a tire, the combination of an interior air-tube and an exterior covering for said tube, formed of hide, said hide being tanned upon the surface that forms the tread of the tire and provided with a portion underlying said surface which is untanned, substantially as and for the purpose specified.

2. In a tire, the combination of an interior air-tube and an exterior covering for said tube formed of hide, said hide being tanned upon the surface forming the tread of the tire and upon the surface resting against the air-tube, and provided with a central portion underlying and intervening between said surfaces which is untanned, substantially as and for the purpose specified.

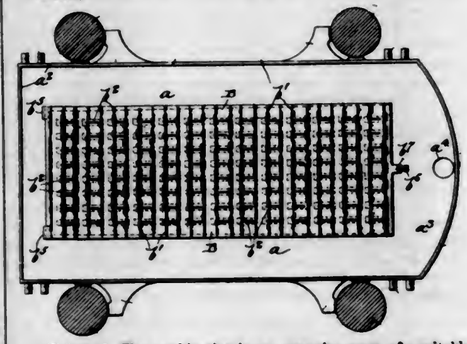
578,228. STRING-BALL FOR LACINGS OF GLOVES. WILLIAM F. FOSTER, New York, N. Y.; Livingston Gifford, Bertha M. Foster, and T. N. Foster, executors of said William F. Foster, deceased, assignors to the Foster, Paul & Company, of New Jersey. Filed June 20, 1893. Serial No. 478,280. (No model.)

Claim.—1. As an article of manufacture, a string-ball, cup shape in form, having a base extending transversely to the sides of the ball and formed with a perforation, the side walls and the base being each formed with a split smaller than the diameter of said perforation, the split in the base leading from the perforation therein and connecting with the split in the side, substantially as and for the purposes described.



2. As an article of manufacture, a string-ball, cup shape in form, having a base extending transversely to the sides of the ball and formed with a perforation, the side wall and the base being each formed with a split, the split in the side extending from the base to the outer edge of the side where the sides of the split are caused to recede from each other, and the split in the base leading from the perforation therein and connecting with the split in the side, substantially as and for the purposes described.

578,229. BOX AND PLATE FOR OIL-PRESSES. AUGUST FREDRICKSON, Meridian, Miss. Filed May 13, 1896. Serial No. 591,421. (No model.)



Claim.—1. The combination in an expressing-press, of a suitable oil-meal-receiving box provided at its sides with tapering grooves and a perforated plate adapted to be applied upon said box and provided with tapering side flanges that enter the tapering grooves in the box and thus jam the box and plate together upon the longitudinal movement of the latter substantially as described.

2. The combination in an expressing-press, of boxes and plates arranged in pairs one above the other, each pair comprising an oil-receiving box, the entire under surface of which is concaved so that every point of contact will be a working surface to force the material toward the center, and a perforated plate applied above the box and provided at one end with lugs to enter lug-apertures in the box, and at the other end with a securing-bolt adapted to engage the side of the box and thus hold the perforated plate in position, substantially as described.

3. The combination in an expressing-press, of guiding-standards, and boxes and plates arranged in pairs one above the other, each pair comprising an oil-receiving box having longitudinal grooves upon its upper surface, pendent flanges upon its bottom and lug-receiving apertures at one end, a perforated plate arranged above said box and provided at one end with lugs to enter the said lug-apertures in the box and at the other end with a securing-bolt adapted to engage the side of the box and thus hold the perforated plate in position substantially as described.

578,230. GYMNASTIC CLUB. RALPH R. GIBSON, Boston, Mass. Filed June 29, 1896. Serial No. 597,318. (No model.)

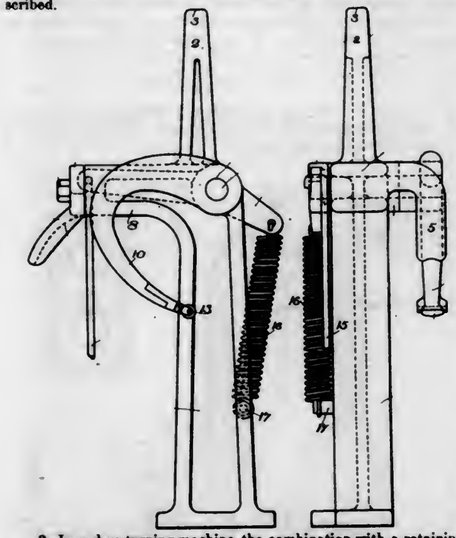


Claim.—1. A gymnastic club D, adjustably arranged upon a graduated stem having a handle at its end substantially as and for the purpose set forth.

2. In combination a club D adjustably secured on a stem B, a notched locking-plate *d*, *d'*, secured to the lower end of said club and an auxiliary testing-weight F having hooks *f*, *f*, adapted to interlock with the plate *d* on the club D substantially as and for the purpose set forth.

578,231. SHOE-TURNING MACHINE. GEORGE H. GIFFORD, Brockton, Mass. Filed Oct. 2, 1896. Serial No. 607,704. (No model.)

Claim.—1. In a shoe-turning machine, the combination with a retaining-iron engaging the counter of the shoe, of a movable turning-iron arranged to enter the foot-opening of the shoe while held on the retaining-iron and to move forward toward the toe of the shoe, and mechanism for actuating the turning-iron, substantially as described.



2. In a shoe-turning machine, the combination with a retaining-iron engaging the counter portion of a shoe, of a yoke shape pivoted turning-iron arranged to enter the foot-opening of a shoe while held by the retaining-iron and to advance toward the toe, and mechanism for actuating said iron, substantially as described.

3. In a shoe-turning machine, the combination with a retaining-iron engaging the counter of a shoe, of a turning-iron movable from the foot-opening toward the toe portion of the shoe, a lever for moving it in one direction and a spring for moving it in the other direction, substantially as described.

578,232. BUNG. CHARLES A. GILDEMEYER, Haddonfield, N. J. Filed Feb. 21, 1896. Serial No. 580,253. (No model.)



Claim.—1. The combination of a bung having a dog or dogs pivoted thereto with an opening centrally disposed therein into which the dogs may extend, and a plug adapted to enter said opening and act upon the dogs to force them out so as to lock the bung to the barrel, substantially as described.

2. The combination of a bung having a central opening, pivoted locking-dogs hung to said bung, lips extending beyond the lower edges of the dogs, with a plug adapted to be driven into the opening and to force the dogs out so as to lock the bung to the barrel, the lips holding the plug when driven past the dogs to free them, so that the plug can be removed with the bung, substantially as described.

3. The combination of a bung, locking-dogs pivoted thereto, said bung having a central opening, side openings communicating with said central opening and forming vent-passages, a plug adapted to the central opening so as to force the dogs out to lock the bung to the barrel, the parts being so arranged that the plug can be driven part way through the bung to vent the barrel without releasing the dogs, substantially as described.

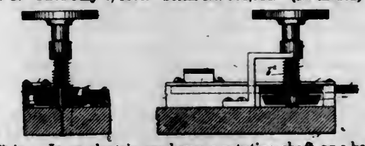
4. The combination of the barrel, a bung adapted thereto and having a flange *b*, a rubber gasket under the flange and adapted to rest upon the fixed portion of the barrel and form a seal, said bung having extensions *b'*, locking-dogs pivoted to said extensions, lips b^2 projecting beyond the dogs, with a plug adapted to the central opening in the bung, said plug forming the lock, substantially as described.

5. The combination with a barrel having a bung-hole provided with a bushing, of a bung having a reduced portion, a gasket carried thereby, a flange extending over said gasket, locking-dogs pivoted to the bung and having a portion *d'* adapted to extend under the bushing, said bung having a central opening, with a plug adapted to enter the central opening and act upon the dogs so as to force them under the bushing and thus lock the bung to the barrel, the upper surface of the dogs being tapered so that the plug may readily act thereon, substantially as described.

6. The combination of the barrel having a bung-hole therein, a bung adapted to the same, means for securing the bung in the bung-hole, with a bail for securing said bung to the barrel, said bail being hinged to a plate G secured to the barrel adjacent to the bung-hole, and provided with hooked ends adapted to enter depressions in the rim or flange of the bung, said plate G being flush with said flange of the bung and the bail so as to protect the latter, substantially as described.

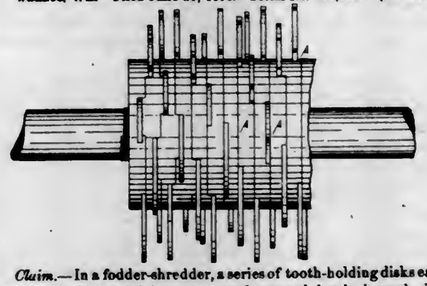
7. The combination with a bung having a central opening and mechanism for locking the bung to the barrel extending into the opening, of a yielding locking-plug adapted to be forced into said opening and to lock the said mechanism to the barrel, substantially as described.

578,233. ELECTRIC-ARC LAMP. ANTON GUENDEL, New York, N. Y. Filed July 7, 1896. Serial No. 598,311. (No model.)



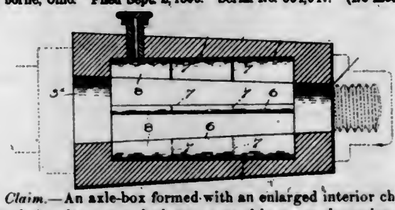
Claim.—In an electric-arc lamp, a rotating shaft on a base-plate, two simultaneously-rotating gear-wheels or friction-rollers with different diameters having their outer peripheries beveled and being attached to the said shaft, and two ratchet or friction bars guided in casings attached to the base-plate and having their contact edges beveled to correspond with the bevels of the gear-wheels or friction-rollers, one of the bars being engaged by one gear-wheel or friction-roller and the other one by the second gear-wheel or friction-roller, in combination with carbon-holding brackets attached to the said ratchet-bars, substantially as set forth.

578,234. FODDER-SHREDDER. WILLIAM GUTENKUNST, Milwaukee, Wis. Filed June 29, 1896. Serial No. 597,338. (No model.)



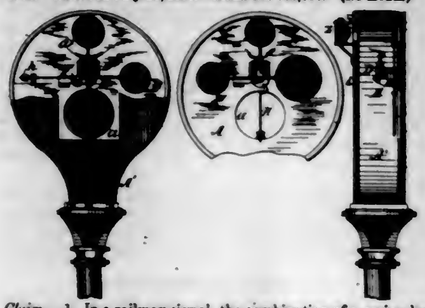
Claim.—In a fodder-shredder, a series of tooth-holding disks each formed with teeth-retaining recesses of unequal depths in each side, whereby the teeth are held in a position with their planes of rotation in juxtaposition; said disks being also provided with projections D adapted to interlock in the deeper recesses of the adjacent plates, whereby the teeth of the respective disks are held in place and the disks are made to support each other against the annular strain, substantially as described.

578,235. BOX FOR VEHICLE-AXLES. THOMAS J. HALE, Claiborne, Ohio. Filed Sept. 2, 1896. Serial No. 604,647. (No model.)



Claim.—An axle-box formed with an enlarged interior chamber and axle-bearings, curved wings arranged in an annular series around said chamber and extending the full length thereof, and partitions arranged in said wings to prevent the oil gravitating to one end when the box is canted to one side, substantially as shown and described.

578,236. **RAILWAY-SIGNAL.** WILLIAM F. HALL, Greenwich, Conn., assignor to the Hall Signal Company, of Maine. Filed Nov. 23, 1892. Renewed July 28, 1896. Serial No. 600,856. (No model.)



Claim.—1. In a railway-signal, the combination of a casing having two registering apertures, one in the front and one in the back of the casing for a day-signal and having a third aperture in the front for a night-signal, a day-signal disk within said casing movable before and away from its apertures and mounted upon a shaft, with two or more night-signal disks mounted upon the same shaft and adapted to be made visible at night through said third aperture, substantially as set forth.

2. In a railway-signal, the combination with an inclosing casing having two apertures in the face thereof, one for a day and one for a night signal, a danger day-signal disk of colored material and a sight-signal disk of translucent material mounted upon a common shaft and arranged to concurrently indicate "danger" when appearing at said apertures, a supplementary night-signal disk made of translucent material mounted upon the said shaft and adapted to indicate "clear" at the night-signal aperture concurrently with the clearing of said danger-signal, armatures mounted upon the said shaft and an electromagnet adapted to revolve such armatures and thus shift the signals, with means for illuminating said night-signals, substantially as set forth.

3. In a railway-signal, the combination of a casing provided with two registering apertures in front and back for a day-signal and an aperture in front for a night-signal, a day-signal disk and two or more night-signal disks arranged to move in and out of register with their apertures, the day-disk being less in diameter than its apertures whereby when it registers with its apertures an annulus of sunlight surrounds it, substantially as set forth.

4. In a railway-signal, the combination of a plate provided with two apertures, one for a day-signal and one for a night-signal, a day-signal disk and two night-signal disks pivotally mounted behind the plate, the day-signal disk being arranged to move in and out of register with its aperture and the night-signal disks being arranged to move in and out of register with their aperture alternately, substantially as set forth.

5. In a railway-signal, the combination of a casing provided with two registering apertures in front and back for a day-signal, and an aperture in front for a night-signal, a day-signal disk arranged to move in and out of register with its apertures and two night-signal disks arranged to move alternately in and out of register with their aperture, substantially as set forth.

6. In a railway-signal, the combination of a plate provided with two apertures, one for a day-signal and one for a night-signal, a danger day-signal disk and two night-signal disks, one a danger-disk and the other a safety-disk, pivotally mounted behind the plate, the day-signal disk being arranged to move in and out of register with its aperture and the night-signal disks being arranged to move in and out of register with their aperture alternately, substantially as set forth.

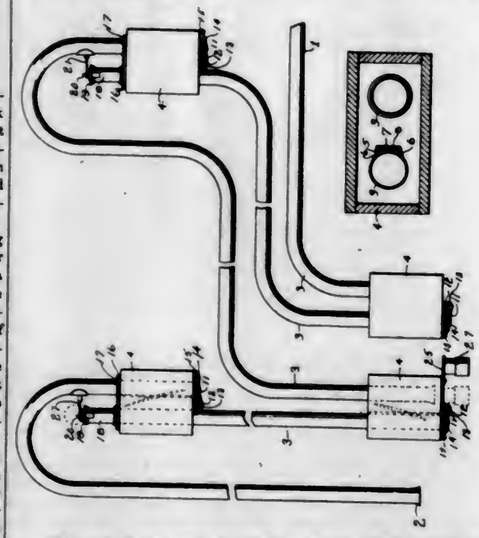
7. In a railway-signal, the combination of a casing provided with two registering apertures in front and back for a day-signal, and an aperture in front for a night-signal, a danger day-signal disk arranged to move in and out of register with its apertures, and two night-signal disks, one a danger-disk and the other a safety-disk, arranged to move alternately in and out of register with their aperture, substantially as set forth.

8. In a railway-signal, the combination of a casing provided with two registering apertures in front and back for a day-signal, and two registering apertures in front and back for a night-signal, a day-signal disk arranged to move in and out of register with its apertures and two night-signal disks arranged to move alternately in and out of register with their apertures, and a lantern mounted upon the back of the casing behind the night-signal apertures, substantially as set forth.

9. The combination with the case and an electromagnet having prolongated poles, of a rotary plate E', armature E having wings e, e_1, signal-disks S, R and G, all rigidly connected so as to move with said rotary plate and armature, and suitable supporting-brackets, substantially as set forth.

10. In a railway-signal, the combination of a plate provided with two apertures, one for a day-signal and one for a night-signal, three signal-disks pivotally mounted behind said plate so as to move in and out of register with the apertures, whereby two disks register conjointly at both apertures at one time and the third disk registers with one of the apertures at another time, substantially as set forth.

578,237. **PNEUMATIC-DESPATCH SYSTEM.** HENRY A. HANLIN and DAVID HUNTER, Minneapolis, Minn. Filed May 4, 1896. Serial No. 590,182. (No model.)



Claim.—1. A pneumatic-despatch system, comprising a series of receiving and despatch boxes located at a central station, a series of receiving and despatch boxes located at outer or individual stations, a pipe connecting the sending or despatch portion of each box at the individual stations with the receiving portion of one of the boxes at the central station, a pipe connecting the sending or despatch portion of such box at the central station with the receiving portion of the box of another individual station, and means for creating an air current or draft through all of said pipes and boxes.

2. A pneumatic-despatch system comprising a series of sending and receiving boxes located at a central station, receiving and sending boxes located at several individual stations, pipes looped back and forth between the central station and the individual stations, and connecting the sending or despatch portion of each box at an individual station with the receiving portion of one of the boxes at the central station, and connecting the sending or despatch portion of such box at the central station with the receiving portion of a box at a different individual station, and means for creating an air current or draft through all of said pipes and boxes.

3. A pneumatic-despatch system comprising a series of receiving and despatch boxes, located at a central station, a series of receiving and despatch boxes located at individual stations, pipes looped back and forth and connecting, in series, the boxes at the individual and central stations, and means for creating an air draft or current through all of said pipes and boxes.

4. The combination, with the terminal box forming a connection between the receiving and sending end of pneumatic tubes, of a balanced valve located in one of said tubes and arranged to be closed by the passage of the carrier in the tube and to be opened by the air-current.

5. The combination, in a pneumatic-despatch system, with a terminal box 4 having a pipe 3 extending therein and provided with an opening in its wall within said box, a valve 7 pivotally supported in said opening, said pivot being arranged nearer one end of the valve than the other, for the purpose set forth.

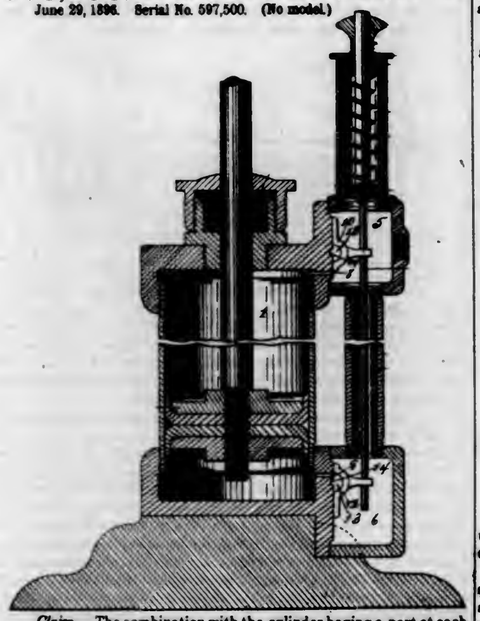
6. The combination, with the terminal box 4, of the pipe 3 having its delivering end extending through said box and provided within said box with an opening in its side wall, the valve 7 pivoted in said opening, by a pivot located nearer one end than the other, and an independent valve or door arranged to close the end of said pipe.

7. The combination, with the box 4 and the pipe 3, provided with the opening in its side within said box, of the valve 7 pivoted in said opening, the independent valve 11 closing the end of said pipe, the eccentric 13 arranged upon the axis of said valve, and the spring 14 connected to said eccentric.

8. The combination, with the box 4 and the receiving-pipe 3, of the plate 16 arranged upon said box and provided with an opening coinciding with the end of said pipe, the pivoted plate 17 arranged upon said plate 15 and provided with the open-ended receptacle 18 having the hinged cover 19, and suitable means for automatically opening and closing said cover as said plate 17 is moved back and forth, for the purpose set forth.

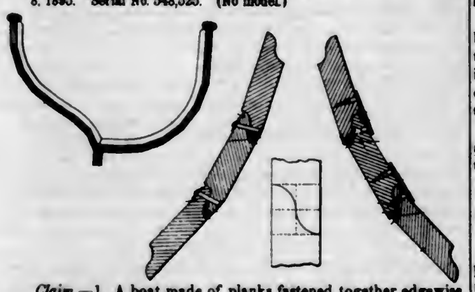
9. The combination, with the terminal box 4, and the pipe 3 having an open end within said box, an opening in said box below the end of said pipe, a plate pivoted to said box, and a telescoping receptacle carried by said plate.

578,238. **GOVERNOR.** ALLEN O. HANEY, Milford, Ind. Filed June 29, 1896. Serial No. 597,500. (No model.)



Claim.—The combination with the cylinder having a port at each end, the piston located therein, the piston-rod, the valve-chambers communicating therewith, one of which is provided with an opening adapted to be connected with a closed storage-tank, the slide-valves and the valve-rod to which they are secured, of the cylinder connected with one of the valve-chambers, the piston located therein and secured to the valve-rod, the screw-cap having a central screw-threaded opening, the tube engaging therewith through which the valve-rod passes, and the coiled spring; substantially as described.

578,239. **BOAT.** HENRY A. HOUSE, Bridgeport, Conn. Filed May 8, 1895. Serial No. 548,525. (No model.)



Claim.—1. A boat made of planks fastened together edgewise, both edges of said planks conforming substantially to ogee curves, substantially as described.

2. A boat made of planks, each of which has both of its edges conforming substantially to ogee curves, and suitable securing means passing through the edges of adjacent planks, for holding them in fixed relation to each other, substantially as described.

3. A boat made of planks or strakes, the edges of each of which are parallel in cross-section, conforming substantially to ogee curves, and extend in a diagonal direction with respect to the faces of the plank, and means for securing the planks together to hold them in fixed relation to each other, substantially as described.

4. A boat made of planks, each of which has both its edges conforming to symmetrical ogee curves, the curve at one edge of a plank being reversely arranged with respect to the curve at the opposite edge, and means for securing the planks together, to hold them in fixed relation to each other, substantially as described.

5. A boat made of planks each of which has both of its edges conforming to ogee or reverse curves the reverse portions of each curve being segments of true circles of substantially the same diameter, and suitable securing means passing through the edges of adjacent planks for holding them in fixed relation to each other, substantially as described.

578,240. **FIREPLACE.** FRANKLIN R. HUMPHREYS, Mason City, Iowa. Filed Apr. 30, 1896. Serial No. 589,672. (No model.)



Claim.—1. In a fireplace-heater an oxygen-burner composed of upper and lower sections provided with openings movable into and out of register substantially as shown and described.

2. In a fireplace-heater, an oxygen-burner comprising a lower section having a concave plate and an opening through the same, and an upper section having a convex plate and an opening through the same, and a distributer communicating with said opening, the said convex and concave plates being fitted together substantially as shown and described.

3. In a fireplace-heater, an oxygen-burner composed of a lower section and an upper section movable upon said lower section and provided with projecting arms adapted to play between the bars of the grate as said section is moved substantially as shown and described.

4. The combination of the fireplace having a hot-air space or chamber and a flue or flues leading therefrom, the smoke-flue leading from the fireplace, and the fresh-air flue leading downward along the smoke-flue and opening into the hot-air space or chamber substantially as shown and described.

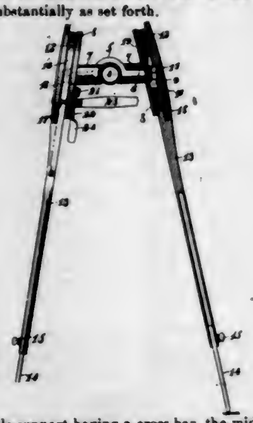
5. The combination of the fireplace the hot-air space or chamber, the chimney having the smoke-flue leading from the fireplace, the fresh-air flue leading down alongside the smoke-flue and opening into the hot-air space, such fresh-air flue being provided near the top of the chimney with weather-vane devices arranged to take in air on the windward side substantially as shown and described.

6. In a fireplace-heater, an oxygen-burner composed of upper and lower sections one of such sections being movable with respect to the other substantially as set forth.

578,241. **BICYCLE-SUPPORT.** THOMAS JEFFERSON, Spearfish, S. D. Filed Mar. 24, 1896. Serial No. 584,594. (No model.)

Claim.—1. In a bicycle-support, the combination of a cross-bar having its central portion bent to engage one side of one of the brace-bars of the bicycle-frame, sleeves carried on the end portions of said cross-bar and having their inner surfaces adapted to engage the opposite sides of the brace-bar, to hold the cross-bar in place thereon,

nuts screwing on the cross-bar outside the sleeves, and supporting-arms adapted to be raised and lowered and carried at the ends of the cross-bar, substantially as set forth.



2. A bicycle-support having a cross-bar, the middle of which is provided with a bend, a sleeve fitted on each end of the cross bar and each bearing against the bend therein, the inner end of each sleeve being concave to receive a portion of the bicycle, the outer end of each sleeve being provided with a disk fixed thereto, means by which the sleeves and their disks are secured to the cross-bar, a collar rockably carried on each disk, a supporting-arm rigid with each collar, and a spring-dog coöperating with each collar by which the collars are held at different positions, substantially as described.

3. In a bicycle-support, the combination of a cross-bar having a bend in its center, a sleeve at each end of the cross-bar each sleeve being engaged with the bend, and having its inner end concave to receive a portion of the bicycle, a disk rigidly carried by the outer end of each sleeve, supporting-arms pivotally carried by the disks and means for holding the supporting-arms at different positions, substantially as described.

578,242. METHOD OF MAKING PICKS OR OTHER TOOLS. WILLIAM R. JENKINS, Bellefonte, Pa. Filed Apr. 1, 1896. Serial No. 585,802. (No model.)



Claim.—1. The method employed in making tools having ears projecting adjacent to the eyes, which consists in forming a blank comprising a body having flanges at opposite sides, removing portions of each flange at each side of its longitudinal center, and forming an eye through the body portion of the blank that is in line with the space between the remaining flange portions, substantially as and for the purpose specified.

2. The method employed in making tools having ears projecting adjacent to the eyes, which consists in taking a blank comprising a body having two oppositely-projecting flanges, removing portions of the latter at each side of the longitudinal center of each flange, bending the remaining portions of said flanges to cause them to extend outwardly in lines parallel, or substantially parallel, with each other, and forming an eye through the body portion of the blank that is in line with the space between said flange portions after they have been so bent, substantially as and for the purpose shown.

3. The method employed in making tools having ears projecting adjacent to the eyes, which consists in taking a bar having two oppositely-projecting flanges so as to be T-shaped in cross-section cutting said bar into blanks, taking each blank and removing portions of each of said flanges, so as leave a lug or ear on each side of the blank, bending said lugs at a right angle to make them project outwardly from the blank in the same direction, and then forming an eye in the blank in line with the space between the lugs or ears, substantially as and for the purpose described.

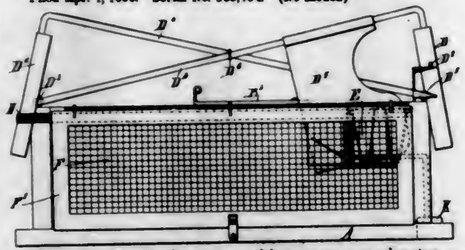
578,243. COIN-PURSE. BOYD KEITH, Kansas City, Mo. Filed Dec. 21, 1896. Serial No. 616,566. (No model.)

Claim.—1. A coin-purse, comprising a flexible body portion provided with a pocket at one end, and a pocket at the other end; the mouth of one pocket sloping upwardly from one side to the other, substantially as described.



2. A coin-purse, comprising a flexible body portion having rounded ends, a pocket secured at one end and having its base or bottom rounded to correspond with said end of body portion, and a pocket at the opposite end which increases in depth from one side of the body portion to the other, substantially as described.

578,244. ANIMAL-TRAP. JAMES M. KELLOGG, Bozeman, Mont. Filed Apr. 1, 1896. Serial No. 585,734. (No model.)



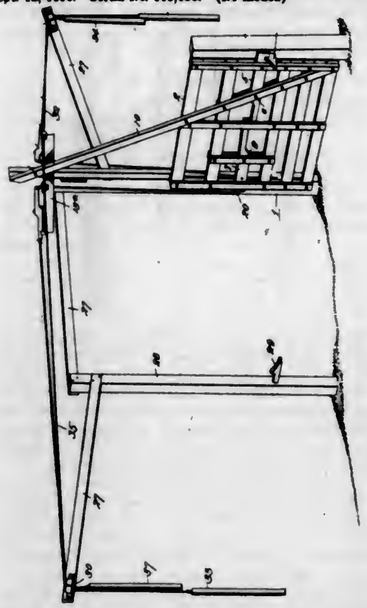
Claim.—1. An animal-trap, comprising an entrance-chamber, a cage, a gangway connecting the chamber with said cage, doors for closing said chamber, a spring-pressed wheel for controlling said doors, a platform held in the bottom of said chamber and connected with said wheel to release the latter, and a door for opening and closing the entrance to said gangway, said door moving with the chamber-doors, substantially as shown and described.

2. An animal-trap having an entrance-chamber, a cage communicating with the entrance-chamber, a spring-pressed shaft, a wheel fixed to the shaft, the wheel having arms projecting outward therefrom, a door for the entrance-chamber, the arms of the wheel being capable of engaging a portion of the door to lift the door, an arm located between the entrance-chamber and cage, the arm having a projection capable of engaging the arms of the wheel to stop the movement thereof, a second and pivotally-mounted arm located adjacent to the projection of the first arm and capable of being engaged by the arms of the wheel immediately prior to the engagement of the arms of the wheel within the projection of the first arm, a locking-arm capable of engaging the second arm to hold the same from movement, a lever fulcrumed at the under portion of the cage, a block carried by one arm of the lever and engaging the locking-arm, and a platform carried by the opposite end of the lever and located within the entrance-chamber, substantially as described.

3. A trap having an entrance-chamber, a cage in communication with the entrance-chamber, a door for the entrance-chamber, an arm pivotally mounted between the entrance-chamber and cage, a gate pivoted adjacent to the arm and having a portion engaging the same, the arm having a projection extending out of the trap, a shaft revolubly mounted in the trap, a spring pressing the shaft, an armed wheel fixed to the shaft, the arms of the wheel being capable of engaging the projection of the arm and of engaging a part of the door to lift the door, a second arm pivoted in the trap and engaged by the arms of the wheel, the second arm being engaged immediately before the engagement of the wheel with the projection on the first arm, a locking-arm engaging the second arm, a lever fulcrumed beneath the trap, a block carried by one arm of the lever and engaging the locking-arm, and a platform carried by the opposite end of the lever and located within the entrance-chamber, substantially as described.

4. A trap having an entrance-chamber, a cage in communication with the entrance-chamber, a lever fulcrumed beneath the trap, the lever extending to the entrance-chamber, a locking-arm capable of being tripped by the lever, a shaft revolubly mounted in the trap, a spring pressing the shaft, an armed wheel carried by the shaft, a pivotally-mounted arm located between the entrance-chamber and the cage, the arm having a projection engaged by the arms of the wheel, means adjacent to the arm by which the arm is removably held from movement, a second arm capable of being engaged by the arms of the wheel, the second arm being normally held by the locking-arm, and a door capable of being raised by the arms of the wheel, substantially as described.

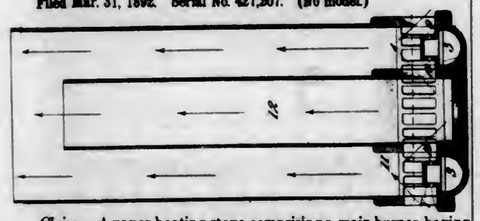
578,245. GATE. ADONIRAM J. KINNAIRD, Standish, Mo. Filed Sept. 12, 1896. Serial No. 605,633. (No model.)



Claim.—1. The combination with a swinging gate, a hook-carrying post, and a latch carried by said gate, for engagement with said hook, and consisting of two sections pivoted to said gate with the rear section overlapping the front section, of a bar carried by and extending at an angle to the gate, and provided with an opening, antifriction-rollers arranged edge to edge above and at opposite sides of said opening, a lever pivoted upon said bar, a cord connecting said lever and the rear end of the rear section of the latch, and extending through the opening of said bar and between said rollers, a bracket to limit the lateral independent movement of said lever, and means to operate said lever, substantially as described.

2. The combination with a post, a gate hinged thereto, and provided with a latch, and a hook-carrying post for engagement with said latch, of a bar carried by and extending at an angle to the gate, and provided with a pair of perforations, and with a pair of antifriction-rollers over each perforation, a pair of levers mounted upon said bar and having their inner ends overhanging said rollers, flexible connections between said levers and said latch, whereby the lateral movement of the former will disengage the latter from said hook-carrying post, means to operate said levers, and brackets to limit the lateral movement of said levers, independent of the gate movement, substantially as described.

578,246. VAPOR-BURNER. BENJAMIN S. KOLL, St. Louis, Mo. Filed Mar. 31, 1892. Serial No. 427,207. (No model.)



Claim.—A vapor heating-stove comprising a main burner having a central opening, the inner and outer grates, the inner and outer cylinders mounted on their respective grates, and the cap having inner and outer flanges provided with jet-holes; substantially as described.

578,247. SPOOLER-GUIDE. HENRY LAWRENCE, Milford, Mass., assignor to the Hopedale Machine Company, Hopedale, Mass. Filed Sept. 28, 1896. Serial No. 607,168. (No model.)

Claim.—1. A spooler-guide, comprising a fixed blade having a laterally-extended foot substantially parallel thereto, a movable blade yieldingly mounted thereon substantially midway between the ends thereof and adapted to tip, and independent adjustable means to act upon the movable blade near its ends and normally maintain the blades a predetermined distance apart, substantially as described.



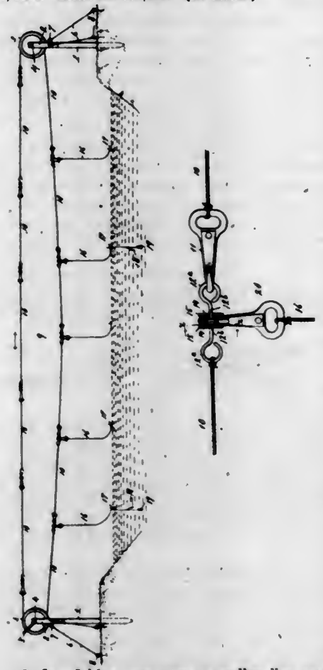
2. A spooler-guide, comprising a fixed blade having a laterally-extended foot, a movable blade yieldingly mounted thereon at a point substantially midway between the ends of the blade, and a slot-and-pin connection between said movable blade and the foot, substantially as described.

3. A spooler-guide, comprising a fixed blade having a base to form a clamp member, a coöperating adjustable clamp member, a movable blade connected with the fixed blade, and a spring to act upon the movable blade at a point substantially midway between the ends thereof and to normally move it toward the fixed blade, whereby the movable blade may tip about its yielding support, substantially as described.

4. A spooler-guide, comprising a fixed blade, an attaching-clamp therefor, said blade having a laterally-extended foot provided with a vertical socket, a movable blade mounted on said foot and having a projection between its ends to enter said socket, a spring in the socket to act upon the projection and normally raise the movable blade, permitting the latter to tip, and adjustable stops carried by one blade to coöperate with lugs on the other blade, to regulate the normal distance between the blades, substantially as described.

5. A spooler-guide, comprising a blade having a laterally-extended foot, a tipping, spring-controlled blade mounted between its ends on the foot, and movable toward and from its fellow blade, said spring-controlled blade and foot being connected by a headed screw on one and extended through a slot in the other, and means adjacent both ends of and to regulate the normal distance between the blades, substantially as described.

578,248. FISHING APPARATUS. JOSEPH W. LAYNE, Higginsville, Mo., assignor of one-half to Daniel Hoefer, same place. Filed June 26, 1896. Serial No. 597,055. (No model.)

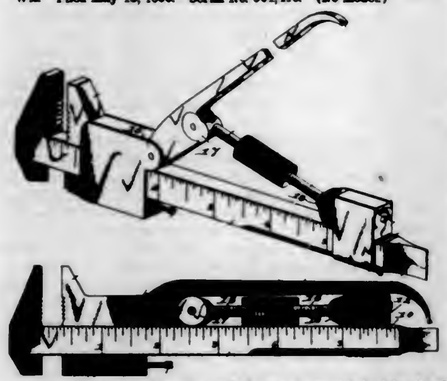


Claim.—1. In a fishing apparatus, an endless line, consisting of a number of sections, double-eye links connecting said sections and provided each at its middle with a pair of enlargements or flanges, drop-

lines provided with the usual appurtenances, snap-hooks attached to the upper ends of said drop-lines, and loosely embracing said double-eye links between said flanges, substantially as and for the purpose set forth.

2. In a fishing apparatus, a pair of pulley-carrying stakes suitably supported, an endless line, mounted upon the pulleys carried by said stakes, and consisting of a number of sections, a corresponding number of snap-hooks carried by said sections, a corresponding number of double-eye links, each consisting of two sections and connecting one end of one section with the snap-hook attached to the adjacent section, and flanged collars secured together and embracing the inner ends of said double-eye link-sections so as to constitute a swivel connection between them, substantially as and for the purpose set forth.

578,249. COMBINATION-TOOL. MELVIN D. LETTER, Delavan, Wis. Filed May 13, 1896. Serial No. 591,410. (No model.)



Claim.—1. The combination with the stock provided with a fixed jaw, of a sliding jaw, an operating-lever having pivotal connection with the sliding jaw, a sleeve on said stock, and a connection interposed between said lever and sleeve and pivotally connected to said lever, said connection being made extensible in length whereby the distance between the lever and sleeve may be varied, substantially as described.

2. The combination with the stock provided with a fixed jaw, of a sliding jaw, an operating-lever having pivotal connection with the sliding jaw, and an extensible connection interposed between said lever and the stock and pivotally connected to the lever, intermediate the ends of the latter, said connection consisting of reversely-threaded sections and a connecting-turnbuckle, all arranged substantially and for the purpose described.

3. In a wrench having a fixed and sliding jaw, the combination with the sliding jaw, of an operating-lever, a sleeve embracing the stock and adapted to slide longitudinally thereon, a dog carried by said sleeve and adapted to be moved into and out of engagement with teeth on the stock, and a connection interposed between said sleeve and the operating-lever, substantially as described for the purpose set forth.

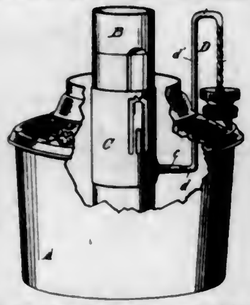
578,250. FODDER-SHREDDER. LOUIS HOLLAND-LETZ, Crown Point, Ind. Filed Sept. 28, 1896. Serial No. 607,182. (No model.)



Claim.—1. A fodder-shredder comprising a plate consisting of two parts set at opposite inclines to each other and crossing at their centers, a plurality of straight, outwardly-projecting knives mounted upon the periphery of said plate, and knives provided with bent portions at their outer ends, mounted upon each of said two parts of said plate, said bent portions thereof extending from the face of one part toward the adjacent corresponding face of the other of said parts of said plate.

2. A fodder-shredder comprising a plate consisting of two parts mounted upon a hub set at opposite inclines to each other and crossing at their centers, lugs upon said plate adapted to engage and determine the positions of knives mounted thereon, a plurality of straight outwardly-projecting knives mounted upon the periphery of said plate, and knives provided with bent portions at their outer ends mounted upon each of said two parts of said plate, said bent portions thereof extending from the face of one part to the adjacent corresponding face of the other of said parts of said plate.

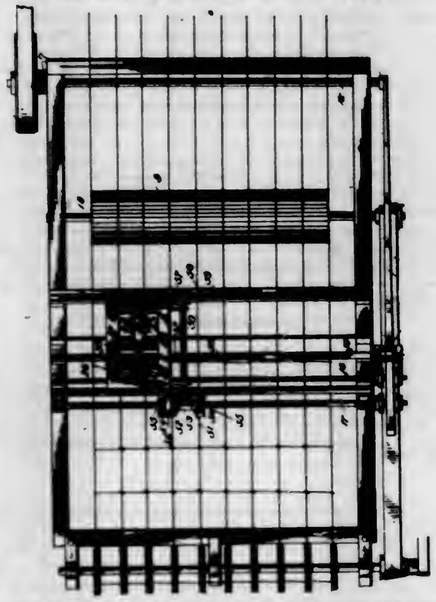
578,251. WICK-LIFTING DEVICE. CHARLES MASCHMEYER, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed June 18, 1895. Serial No. 553,211. (No model.)



Claim.—1. In a lamp in combination a wick-sleeve, a draw-bar adapted to engage with said sleeve and formed with two substantially parallel stems one of which has a screw-thread of quick pitch, a hoop in the top of the lamp, a suspension-nut removably secured in said hoop and a rotatable operating-nut passing through and fixed except as to rotation in said suspension-nut in which it has a long, vertical bearing said operating-nut being internally screw-threaded to receive said screw-threaded stem, substantially as described.

2. In a lamp in combination a wick-sleeve, a draw-bar adapted to engage with said sleeve and formed with two substantially parallel stems one of which has a screw-thread of quick pitch, an operating-nut above the top of the lamp provided with an internal thread for engaging the thread of said stem, means in the top of said lamp for securing said operating-nut except as against rotation and a tube or cover within the lamp surrounding said screw-threaded stem and acting to protect said stem from immersion in the oil, substantially as described.

578,252. FENCE-MACHINE. ELISHA C. MATHEWS, Jacksonville, Ill. Filed June 3, 1896. Serial No. 594,751. (No model.)



Claim.—1. In a fence-machine, the combination of a bed, a track mounted on the bed and provided with upwardly-projecting lugs, a carriage adapted to travel over the bed and carrying the twisting devices, a shaft mounted on the carriage and provided with radial arms or knockers adapted to engage the lugs on the track, and mechanism for intermittently rotating the said shaft and thereby causing the travel of the carriage.

2. In a fence-machine, the combination of the bed, standards erected thereon, tracks secured to and extending between said standards, lugs projecting upward from said tracks, a carriage adapted to travel over the bed, a rotary shaft mounted on the carriage and provided with radial arms or knockers adapted to engage the lugs projecting from the tracks, a shaft mounted on the standards, means for rotating said shaft, and a pinion slidingly mounted on said shaft and held to the carriage so as to transmit motion to the shaft on the carriage.

3. In a fence-machine, the combination of the angular shaft, a pinion mounted thereon and having an angular hub or sleeve fitted around the shaft, and rollers mounted on the ends of the sleeve and bearing on the shaft.

4. In a fence-machine, the combination with an operating-shaft, of a gear-wheel loosely mounted thereon and provided with tapered recesses in its side face, a disk or collar secured on the shaft adjacent to the gear-wheel, a sliding collar mounted on the shaft adjacent to the disk, and a pin carried by said collar and projecting through the disk to engage the recess in the side of the gear-wheel.

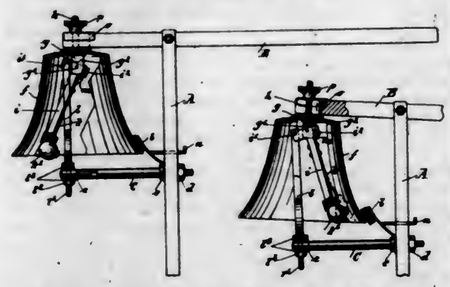
5. The combination with an operating-shaft, of a gear-wheel loosely mounted thereon, and provided with tapered recesses in its side faces, disks secured to the shaft adjacent to the gear-wheel, sliding collars mounted on the shaft beyond the disks, pins carried by said collars and projecting through the disks to engage the recesses in the sides of the gear-wheel, and a link secured to and connecting the said collars.

6. The combination with the parallel shafts, of gear-wheels loosely mounted thereon and intermeshing, said gear-wheels having tapered recesses in their sides, disks secured on the shafts next the gear-wheels, sliding collars mounted on the shafts beyond the disks, pins carried by said collars and projecting through the disks to engage the recesses in the gear-wheels, and means for sliding the collars.

7. The combination with the operating-shaft, of a gear-wheel loosely mounted thereon, means for locking the said wheel to the shaft, a reciprocating rack-bar meshing with the gear-wheel, and a keeper passing over the rack to maintain the same in mesh with the gear-wheel.

8. In a fence-machine, the combination with the carriage and the hangers depending therefrom and having grooved enlargements at their lower ends, of a frame fitted between said hangers and provided at its ends with enlargements having annular ribs adapted to engage the grooved enlargements of the hangers and thereby support the frame, and means for rotating the said frame.

578,253. BELL. ROWLAND H. MAYLAND, Freeport, N. Y. Filed May 13, 1896. Serial No. 591,400. (No model.)



Claim.—1. The herein-described improvement in bells, consisting of a vibratile shell capable of oscillating movement, a lever-tongue pivotally supported therein, means for checking the backward movement of the said lever-tongue when the bell is oscillated, and a spring-tongue supported on the lever-tongue, and carrying a hammer, all substantially as specified.

2. The herein-described improvement in bells, consisting of a vibratile shell capable of oscillating movement, a lever-tongue supported therein, also capable of oscillating movement when the bell is oscillated, means for regulating and checking the backward movement of the said lever-tongue, and a spring-tongue supported on the lever-tongue and carrying a hammer, all substantially as specified.

3. A bell comprising a vibratile shell provided with shoulders g^3 g^3 in combination with an actuating tongue-lever provided with arms i' i^3, and a spring-tongue supporting a hammer, substantially as described.

4. A bell comprising a vibratile shell provided with shoulders g^3 g^3 in combination with an actuating lever-tongue provided with arms i' i^3, the set-screw m, and a spring-tongue supporting a hammer, substantially as described.

5. A bell comprising a vibratile shell capable of oscillatory movement with means for oscillating the same, a lever-tongue pivotally supported therein, deriving operative movement from the movement of the shell, means for checking the backward movement of the said lever-tongue and the upward movement of the shell, and a spring-tongue borne upon the lever-tongue, carrying a hammer, all substantially as specified.

6. In a bell, the combination with a standard A, and a lever B, of a vibratile shell, an actuating lever-tongue, means for checking the upward movement of said shell and the backward movement of the said lever consisting substantially of the shoulders g^3 g^3, the arms i' i^3, and operative connections between one of said arms and the standard A, and a spring-tongue supporting a hammer, substantially as described.

7. In a bell, the combination with a standard A, and lever B, of a vibratile shell, an actuating lever-tongue, means for checking the upward movement of said shell and the backward movement of the said lever, consisting substantially of the shoulders g^3, g^3, the arms i' i^3, the yoke l, connections between the said yoke and the standard A, and a spring-tongue supporting a hammer, substantially as described.

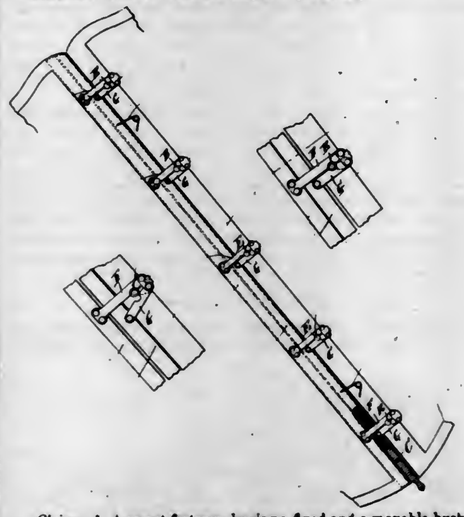
8. In a bell, the combination with a standard A and lever B, of a vibratile shell, an actuating lever-tongue, means for checking the upward movement of said shell and the backward movement of the lever, consisting substantially of the shoulders g^3 g^3; the arms i' i^3 the yoke l, brace C, and a spring-tongue supporting a hammer, substantially as described.

9. In a bell, the combination of a vibratile shell with means for moving the shell, an actuating lever-tongue, means for checking the upward movement of said shell and the backward movement of the lever, a spring-tongue supporting a hammer, and a spring-check for the bell, substantially as described.

10. In a bell, the combination of a vibratile shell, with means for moving the shell, an actuating lever-tongue, means for checking the upward movement of said shell and the backward movement of the lever, a spring-tongue supporting a hammer, a spring-check for the bell provided with a muffler, and means for adjusting said spring-check, substantially as described.

11. A bell comprising a vibratile shell in combination with a lever-tongue pivotally supported therein, means for checking the backward movement of the said lever-tongue, and a spring-tongue actuated by the said lever-tongue, and supporting a hammer, substantially as specified.

578,254. CORSET-FASTENER. CARLTON H. MERRILL, Troy, N. Y. Filed June 16, 1896. Serial No. 595,724. (No model.)



Claim.—1. A corset-fastener, having a fixed and a movable busk and provided with a pair of jaws, of which one is fixed to the fixed busk and the other of which is pivotally connected with the free end of the first jaw and also pivotally connected with the movable busk, substantially as shown and described.

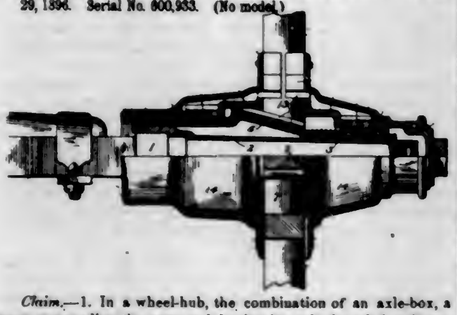
2. A corset-fastener, comprising three busks, of which one is movable and the second carries studs, a rigid jaw secured on the third busk, and a movable jaw pivotally connected with the outer end of the rigid jaw and with the said movable busk, the adjacent edges of the said jaws being formed with recesses for engaging the shanks of the said studs, substantially as shown and described.

3. A corset-fastener, comprising three busks, of which one is movable and the second carries studs, a rigid jaw secured on the third

busk, and a movable jaw pivotally connected with the outer end of the rigid jaw and with the said movable busk, the adjacent ends of the said jaws being formed with recesses for engaging the shanks of the said studs, and springs for holding the said movable busk in an uppermost position, substantially as shown and described.

4. A corset-fastener having a fixed and a movable busk, a jaw fixed to the fixed busk and projecting laterally therefrom, and a second jaw pivoted to the outer end of the first jaw and extending inwardly toward the fixed busk and having its inner end pivoted to the movable busk, whereby the busk may slide to swing the second jaw bodily toward and from the first jaw, substantially as described.

578,255. HUB. GEORGE MILLER, San Antonio, Tex. Filed July 29, 1896. Serial No. 600,933. (No model.)

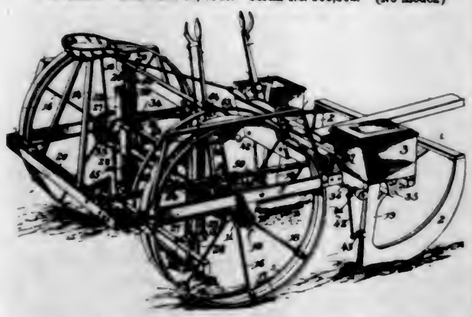


Claim.—1. In a wheel-hub, the combination of an axle-box, a sleeve surrounding the same and having its ends threaded and provided at an intermediate point with a conical seat, a spider extending around the seat and composed of two sections or rings provided with inwardly-extending lugs, spokes arranged in the spider and engaging said seat, washers arranged at each side of the spoke ends, nuts arranged on the ends of the sleeve for adjusting said washers, and the outer casings threaded on the sleeve and engaging the sections or rings of the spider, substantially as described.

2. In a wheel-hub, the combination of an axle-box, a sleeve surrounding the same, having its ends threaded and provided at an intermediate point with a conical seat, a spider surrounding the seat, spokes fitted in the spider and engaging said seat, washers arranged at the inner ends of the spokes and engaging the same at opposite sides of the hub, said washers being double-L-shaped in cross section, adjusting-nuts arranged on the threaded portions of the sleeve and engaging the washers, and means for supporting the spider, substantially as described.

3. In a wheel-hub, an axle-box, and a sleeve surrounding the same and having its opposite ends threaded and provided at an intermediate point with a conical seat, in combination with a spider extending around said seat, spokes fitted therein and having beveled ends for engaging said seat, washers arranged at each side of the spoke ends, nuts on the ends of the sleeve for adjusting said washers, and the outer casing-sections inclosing the washers and nuts and bearing against said spider, the outer ends of said sections having a threaded engagement with said sleeve and bearing against said nuts and serving as lock-nuts therefor, substantially as described.

578,256. CORN-PLANTER. NATHANIEL V. MOORE, Yates Centre, Kans. Filed Mar. 17, 1896. Serial No. 583,592. (No model.)



Claim.—1. In a planter, the combination with the seed-dropping mechanism comprising valves in the grain-spouts, a rock-shaft operatively connected with the valves, a tappet mounted upon the rock-shaft, and a spring for returning the rock-shaft and attached parts to a normal position, of a marker having projections, a lever adapted to engage with the tappet of the rock-shaft and extending within the path of the marker projections, a drive-wheel, and a clutch between the marker and drive-wheel for throwing the parts into and out of gear, substantially as and for the purpose set forth.

2. In a planter, the combination with the seed-dropping and marking mechanisms, and a drive-wheel, of a clutch comprising a plate having an annular rim or flange projecting from one side, a companion plate having a center or enlargement to extend within the space inclosed by the aforesaid annular rim, spring-actuated pawls carried by the said center and adapted to bear outwardly against the said annular rim, a sleeve movable to and from the plates and having tapering projections to be projected across the path of the pawls to disengage them from the rim, and actuating mechanism for the said sleeve, substantially as set forth.

3. In a planter, the combination with the planting and marking mechanisms, of a drive-wheel, and a clutch, the latter comprising a plate having a lateral rim, a companion plate, spring-actuated pawls carried by the last-mentioned plate and adapted to engage with the rim of the first-mentioned plate, and a sleeve movable to and from the plates and having tapering projections to be projected across the path of the spring-actuated pawls to disengage them from the said rim, substantially in the manner and for the purpose set forth.

4. In a planter, the combination with the seed-dropping and marking mechanisms, of a drive-wheel, and a clutch, the latter embodying a plate having a lateral rim, a companion plate having a center to enter the space inclosed by the rim and provided with a series of circular seats and outwardly-flaring cut-away portions, pawls having cylindrical heads which obtain bearings in the said circular seats and having their outer ends expanded and adapted to bear against the inner side of the rim, springs for holding the pawls in engagement with the rim, and a sleeve movable to and from the plates and having tapering projections to operate through openings in one of the plates to engage with the pawls and release them from the said rim, substantially as and for the purpose set forth.

5. A marker for planters, comprising in combination end pieces connected together in a substantial manner, guides having firm connection with the end pieces, indenting-bars, guide-rods having connection with the indenting-bars and operating in the said guides, direction-rods operatively connected with the indenting-bars, and springs supported by the direction-rods and adapted to force the indenting-bars into the ground and admit of their yielding when meeting with an unyielding obstruction, substantially as and for the purpose set forth.

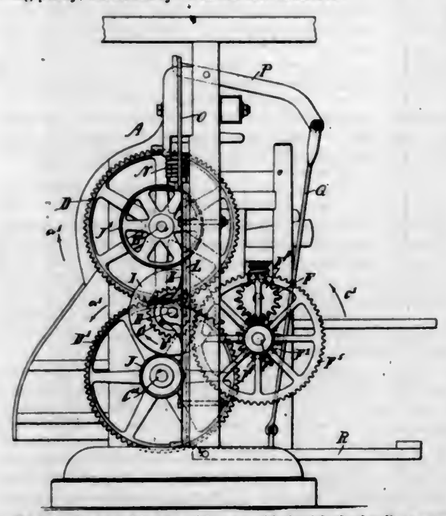
6. A marker for planters, comprising the following elements in combination: connected end pieces, frames having connection with the end pieces, indenting-bars, direction-rods having attachment with the indenting-bars and operating through the frames, and having their projecting ends threaded and supplied with nuts by means of which the outward movement of the indenting-bars is regulated, springs mounted upon the outer portions of the direction-rods, and adjusting-nuts for varying the tension of the said springs, substantially in the manner set forth for the purpose described.

7. The herein-described marker, comprising end pieces, transverse bars connecting the end pieces, frames supported by the transverse bars, guides secured to the end pieces, rods operating in the guides and having connection at their outer ends with indenting-bars, direction-rods operating through the frames and provided with means to limit their outward movement, indenting-bars having connection with the direction-rods, springs mounted upon the outer portion of the direction-rods, and means for adjusting the tension of the springs, substantially as and for the purpose set forth.

578,257. LEATHER-WASHING MACHINE. JAMES MCKENZIE and CHARLES O. SHAW, Cheboygan, Mich. Filed Mar. 31, 1896. Serial No. 585,586. (No model.)

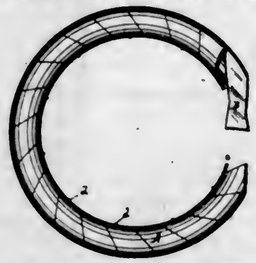
Claim.—1. A leather-washing machine, comprising two revoluble brushes geared together, feed-rolls adapted to be driven forward and backward to feed the leather to and from the said revoluble brushes, driving friction-pulleys held on the shafts of said revoluble brushes, and a driven friction-pulley intermediate of said friction-pulleys and adapted to be moved in frictional contact with either driving friction-pulley, said driven friction-pulley being geared with one of the feed-rolls, substantially as shown and described.

2. A leather-washing machine, comprising two revoluble brushes geared together, feed-rolls adapted to be driven forward and backward to feed the leather to and from said revoluble brushes, driving friction-pulleys held on the shafts of said revoluble brushes, a driven friction-pulley intermediate of said friction-pulleys and adapted to be moved in frictional contact with either driving friction-pulley, said driven friction-pulley being geared with one of the feed-rolls, a spring for holding said driven friction-pulley normally in contact with one of the driving-pulleys, and a treadle-and-lever mechanism under the control of the operator for moving said driven friction-pulley out of contact with one driving-pulley and in contact with the other driving-pulley, substantially as shown and described.



3. A leather-washing machine provided with feed-rolls geared together and rotating in unison, an independent gear-wheel secured on the shaft of one of the feed-rolls, a friction-pulley mounted to rotate loosely a pinion secured to the face of said pulley and in mesh with said independent gear-wheel and means whereby said friction-pulley may be driven in opposite directions to reverse the movement of the feed-rolls, substantially as shown and described.

578,258. TIRE FOR BICYCLES. EDWARD NELSON, Providence, R. I. Filed Jan. 4, 1897. Serial No. 617,888. (No model.)



Claim.—1. In a tire for bicycles and other vehicles the combination of a specially-wound strip of metal B, having a series of beveled angular swells, of equal dimensions, throughout its length, and one or more strips of metal extending longitudinally along the inner surface of the shell thus formed, and attached thereto at intervals, substantially as and for the purposes set forth.

2. A tire for bicycles and vehicles consisting of a spirally-wound strip of metal B, having a series of beveled angular swells, of equal dimensions throughout its length, as and for the purposes set forth.

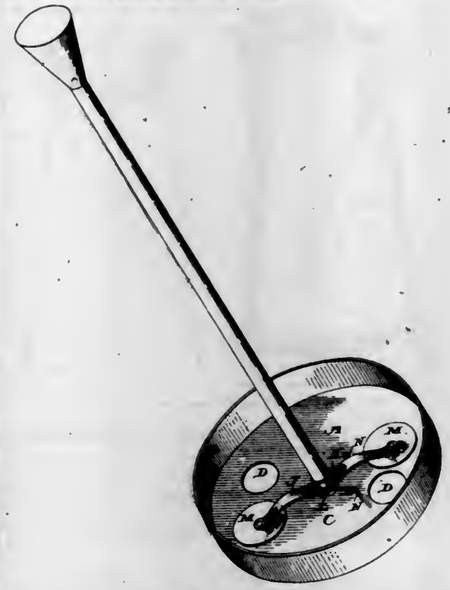
3. In a tire for bicycles and vehicles the combination of a spirally-wound strip of metal B, having a series of angular swells, of equal dimensions, throughout its length, and one or more strips of metal extending longitudinally along the inner surface of the shell thus formed, and attached thereto at intervals, substantially as and for the purposes set forth.

4. A tire for bicycles and vehicles consisting of a spirally-wound strip of metal B, having a series of angular swells, of equal dimensions, throughout its length, as and for the purposes set forth.

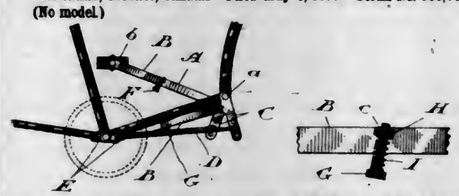
578,259. MILK-SKIMMING DEVICE. JANE B. NEWKIRK, La Porte, Ind. Filed June 6, 1896. Serial No. 594,517. (No model.)

Claim.—1. A skimming device consisting of the casing having the openings arranged in line and on each side of the center of the casing, the valves for controlling the openings, the spring for pressing the valves down, and the handle connected with the casing and valves and operating in the manner described.

2. A skimming device consisting of the disk or casing having the openings arranged in line and on each side of the center of the casing, the handle connected to the casing, the flat spring, the valves carried by said spring, for controlling the openings and the stops or pins to limit the movement of the valves.



578,260. DRIVING-GEAR FOR BICYCLES. JAMES OAG and JOHN MCDONALD, Toronto, Canada. Filed May 8, 1896. Serial No. 590,742. (No model.)



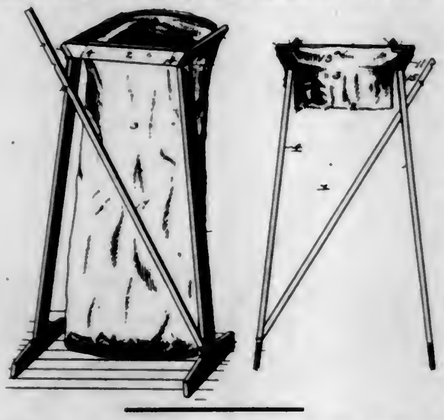
Claim.—In a bicycle, the combination with the bent lever A, pivoted to the frame of the bicycle; the pedal *b* connected to the long arm B of the bent lever; the crank E connected with the axle of the driving sprocket-wheel F of the ordinary gearing; and the pitman D connecting the said crank with the short arm C of the bent lever and situated under said bent lever; of a buffer connected with the long arm of said bent lever and constructed and arranged to come into contact with the pitman D and throw the crank over the dead-center when the said bent lever approaches the said pitman, substantially as and for the purpose specified.

578,261. BAG-HOLDER. LEEMAN C. PALMER, Lowman, N. Y. Filed Dec. 31, 1895. Serial No. 573,952. (No model.)

Claim.—1. A bag-holder comprising a horizontal bag-receiving frame open at its front and composed of a back and parallel sides rigidly connected with the back, means for securing a bag to the bag-receiving frame and for holding the mouth of the bag open, a pair of standards or bars hinged at their upper ends to the sides of the bag-receiving frame, provided at their lower ends with longitudinally-disposed feet and arranged to swing transversely of the bag-holder, said standards or bars being adapted to raise or lower the horizontal bag-receiving frame without affecting the means for attaching a bag to the same, and an inclined brace located at the back of the bag-holder, pivoted at its lower end to the bottom of one of the standards and detachably engaging the other standard near the top thereof, the upper end of the brace being located in rear of the bag-holding frame and within easy reach of the operator, substantially as described.

2. A bag-holder comprising a horizontal bag-receiving frame open at its front and comprising a back and parallel sides, means for supporting the horizontal frame, and a substantially rectangular

clamping-frame located within and engaging the bag-receiving frame, hinged at its terminals to the back of the same and having its ends angularly bent and inwardly offset, and forming rear shoulders adapted to engage a bag, whereby the latter is prevented from slipping forward off the supporting and clamping frames, substantially as described.



578,262. BICYCLE-BELL. HERBERT S. PULLMAN, Meriden, Conn. Filed June 8, 1896. Serial No. 594,670. (No model.)



Claim.—In a single-stroke bicycle-bell, the combination with a clip having its upper member constructed with a carrier-arm, of a gong connected with the said member of the clip, a sheet-metal finger-lever pivoted to the outer end of the said carrier-arm apon the upper face thereof, and constructed with an integral stop-finger turned downward and outward across the plane of and so as to engage with one edge of the said arm, a spring attached to the said finger and to the said member of the clip, a yielding wire passed through and rigidly secured to the said sheet-metal finger-lever, and a striker mounted upon the outer end of the said wire and normally held thereby out of contact with the bell with which it engages consequent upon the yielding of the wire due to the sudden stoppage of the lever by the stop-finger thereof, substantially as described.

578,268. FILTERING-FAUCET. NELLIE M. REDMAN, Philadelphia, Pa., administratrix of James Chase, deceased, assignor to Minerva A. Chase, Rochester, N. Y. Filed May 18, 1896. Serial No. 592,010. (No model.)



Claim.—1. The combination with a faucet-casing having an inlet and an outlet, and a rotary plug arranged in the casing and having upper and lower ports to communicate with said inlet and outlet, of a filtering disk or medium supported within the rotary plug between said upper and lower ports, a spider bearing against the filtering disk or medium, and a spring acting on the spider to press the same against the said filtering disk or medium, substantially as described.

2. The combination with a faucet-casing having an inlet and an outlet, of a rotary plug arranged in the casing and having upper and lower ports to communicate with said inlet and outlet, a filtering disk or medium detachably supported within the plug between said upper and lower ports and removable and replaceable through one end of the plug, a spider bearing against the filtering disk or medium, a spring acting upon the spider to press the same upon the filtering disk or medium, and a screw-cap screwed into one end of the rotary plug and acting to place the spring under tension, substantially as described.

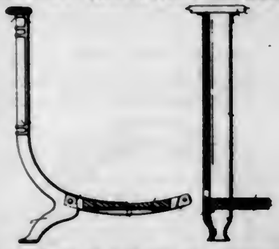
3. The combination with a faucet-casing having an inlet and an outlet, of a rotary plug arranged in the casing and having an internal flange or shoulder and ports arranged above and below said flange or shoulder to communicate with the inlet and outlet of the casing, a filtering disk or medium detachably mounted on said flange or shoulder within the rotary plug, a spider bearing against the filtering disk or medium, and a spring acting upon the spider to press the same against the filtering disk or medium, substantially as described.

4. The combination with a faucet-casing having an inlet and an outlet, of a rotary plug arranged in the casing and having an internal flange or shoulder and ports arranged above and below said flange or shoulder to commnnicate with the inlet and outlet of the casing, a filtering disk or medium detachably mounted on said flange or shoulder within the rotary plug, a spider bearing against the filtering disk or medium, a spring acting upon the spider to press the same against the filtering disk or medium, and a screw-cap screwed into the upper end of the rotary plug and acting to place the spring under tension, substantially as described.

5. The combination with a faucet-casing having opposite passages 14 and 15 and an inlet 3 and discharge nozzle or spout 2 communicating, respectively, with said passages, of a rotary plug arranged within the casing and having an internal flange or shoulder, ports 26, 27, and 30 arranged above said flange or shoulder and ports 28, 29, and 31 arranged below said flange or shoulder, a filtering disk or medium detachably mounted on the flange or shoulder within the rotary plug, a spring-pressed device for yieldingly pressing the filtering disk or medium against the flange or shoulder of the plug, and means for turning the plug, substantially as described.

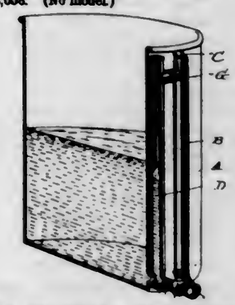
6. The combination with a faucet-casing having an inlet and an outlet, of a rotary, hollow plug arranged in the casing and having an internal flange or shoulder and ports located above and below said flange or shoulder to communicate with the inlet and outlet, a filtering disk or medium detachably mounted on the flange or shoulder within the rotary plug, a spider arranged under and supporting the filtering disk or medium, a spider arranged over and bearing against said filtering disk or medium, a spring acting against the uppermost spider, and means for placing the spring under tension, substantially as described.

578,264. BATH-TUB. EDWARD M. REINHARDT, San Diego, Cal. Filed July 21, 1896. Serial No. 600,011. (No model.)



Claim.—In a frame for bath-tubs, the combination with the four independent legs, of the arched transverse integral braces detachably connected to and connecting the respective pairs of said legs, and having each an inwardly-projecting transverse ledge or flange, and the longitudinal plano-concave board whose end portions are seated on the said ledges or flanges and to the concave face of which the bottom portion of the tub is fitted, substantially as specified.

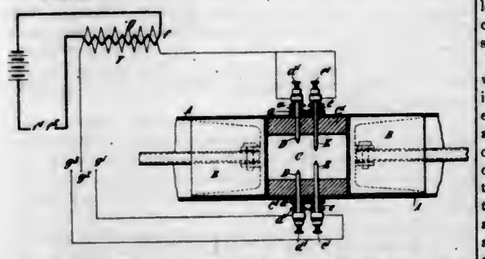
578,265. TANK. ROBERT E. L. RICE, New Orleans, La., assignor of one-half to Frederick W. Young, same place. Filed Nov. 23, 1896. Serial No. 613,058. (No model.)



Claim.—1. The combination of a tank, a spout connected with the tank and communicating with the interior of the same adjacent to its upper end, a pipe B, having its upper end open and arranged to receive from the spout, a pipe D, connected with the interior of the tank adjacent to the lower end thereof and extending upwardly and having its upper end open, and a pipe connecting the pipes D, and B; said pipe being arranged in a plane below the spout, substantially as and for the purpose set forth.

2. The combination of a tank, a pipe D, connected with the interior of the tank adjacent to the lower end thereof and extending upwardly and having its upper end open, a pipe G, connected at one end to the pipe D, at an intermediate point in the length thereof, and a pipe connected with the opposite end of the pipe G, and adapted to be connected with a point of discharge, substantially as specified.

578,266. OIL, GAS, OR LIKE ENGINE. WALTER ROWBOTHAM, Birmingham, England. Filed Apr. 30, 1896. Serial No. 589,776. (No model.)



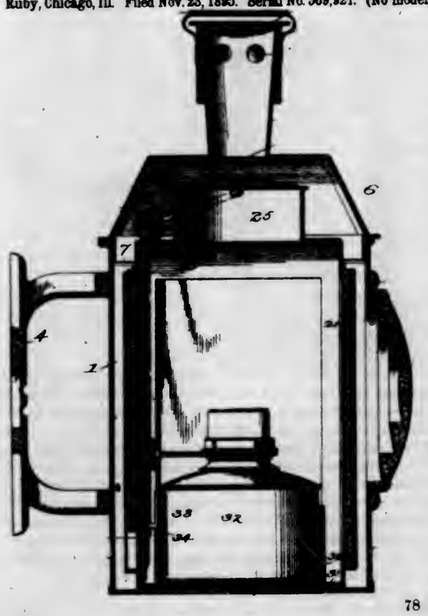
Claim.—1. The combination with the working cylinder or combustion-chamber of an explosive-engine, of electrodes arranged to pass a silent electric discharge through the explosive mixture in said cylinder or chamber, substantially as described and for the purpose specified.

2. The combination with the working cylinder or combustion-chamber of an explosion-engine, of adjustable electrodes which are so arranged that a silent electric discharge is passed through the explosive mixture while the latter is under compression for the purpose specified.

3. The combination with the working cylinder or combustion-chamber of an explosion-engine, of two pairs of electrodes one pair acting as sparking or ignition electrodes and the other as silent-discharging electrodes for the purpose specified.

4. The combination with the silent-discharging electrodes of sparking contact devices for igniting the explosive mixture the said sparking devices consisting of pivoted fingers carried by the pistons and sliding on one of the aforesaid silent-discharging electrodes as the pistons complete their inward stroke substantially as described.

578,267. SIGNAL-LANTERN. HARRY K. RUBY, Columbia, Pa., assignor of two-thirds to Walter B. Ruby, York, Pa., and Emerson J. Ruby, Chicago, Ill. Filed Nov. 23, 1895. Serial No. 569,921. (No model.)



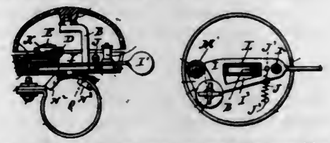
Claim.—1. In a signal-lantern, the combination with the outside case formed with vertical air-tubes, each tube extending from the lower to the upper portion of the case and open at top and bottom, of a hand-lantern located in said case and formed with recesses receiving a portion of the vertical air-tubes to hold said hand-lantern in place, substantially as and for the purposes described.

2. In a signal-lantern, the combination of the outside case having air-inlet openings at its lower portion and provided with a cover 6 having a chimney provided with openings, the hand-lantern with transparent sides and provided with the dome 25 extending up into the cover 6 and having perforations in its top beneath the chimney to the cover, and the vertical air-tubes located between the sides of the hand-lantern and the outside case and communicating at their lower ends with the outside of the case and at their upper ends discharging into the cover of the case below the dome to the lantern, substantially as and for the purposes described.

3. In a signal-lantern, the combination of the outside case formed with air-inlets in its lower portion and provided with a cover 6 having a chimney formed with perforations in its sides and top, a shield extending over the perforations in said top and a depending hood around the perforations in its sides, a hand-lantern located inside said case and having transparent sides and provided with an apertured dome extending up into the cover of the case beneath the chimney to the cover, said dome having imperforate sides, and vertical air-tubes located between the sides of the lantern and sides of the case and communicating at their lower ends with the outside of the case and at their upper ends discharging into the cover of the case below the dome to the lantern, substantially as and for the purposes described.

4. In a signal-lantern, the combination of the outside case having air-inlets at its lower portion and a cover with a chimney, a hand-lantern provided with an apertured dome and transparent sides and inclosed in the case so as to leave a space between the sides of the lantern and of the case extending from the lower to the upper portion of the case, and air-tubes located between the sides of the lantern and outside case and dividing the space at intervals around the lantern, substantially as and for the purposes described.

578,268. BICYCLE-BELL. LEVERETT A. SANFORD, Bristol, Conn., assignor of one-half to Dunbar Brothers, same place. Filed Aug. 3, 1896. Serial No. 601,410. (No model.)



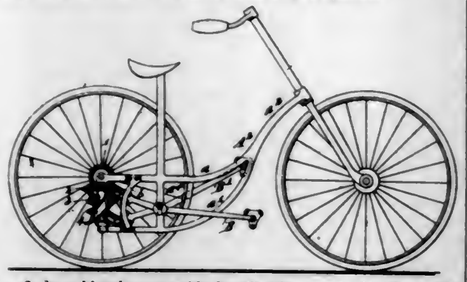
Claim.—1. In a bell, the combination with a cup-like base, of a gong arranged concentrically therewith, a bent gong-post having the gong secured to its outer end, and having its inner end secured to the center of the cup-like base, a rebounding striker, a carrier therefor having its free or inner end extended inward so as to swing in the bend of the bent gong-post, a pinion connected with the outer end of the said carrier, an operating-lever having a clearance-space through which the post passes, constructed at its inner end with teeth for engagement with the said pinion, whereby the carrier is oscillated, and constructed at its outer end with a finger-piece which extends through the said base, and a spring connected with the lever, substantially as set forth.

2. In a bell, the combination with a cup-like base, of a gong arranged concentrically therewith, a bent gong-post passed through the center of the cup-like base, a striker, mechanism for swinging the same through the bend of the bent gong-post, and a clip secured to the lower end of the gong-post which is for that purpose extended through the under face of the base, substantially as set forth.

3. In a bicycle-bell, the combination with a base and a gong, of a striker and means for operating the same, and a clip composed of an angularly-bent sheet-metal frame-piece rigidly secured by means of its central portion to the lower face of the base, having two pairs of arms inclined with respect to each other, having a finger projecting beyond one pair of arms, a transversely-arranged retaining-wire connecting the other pair of arms, and a pin, the said clip also comprising a strap having one end secured to the finger of the frame-piece, and its opposite end formed with a series of perforations and introduced into the frame-piece under the retaining-wire in position to have its free end engaged with the said pin which enters one of the said perforations.

578,269. BICYCLE. DETALMO DI BRAMA SAVORGNAN, Rome, Italy, assignor to Cora Ann Slocomb di Brazza Savorgnan, Moruzzo, Italy, and New York, N. Y. Filed Sept. 4, 1895. Serial No. 561,460. (No model.)

Claim.—1. In a bicycle, a cam-block having a spiral cam-groove, a foot-operated lever, antifriction-rollers carried on the said lever, the said antifriction-rollers having their axes arranged in different vertical and different horizontal planes, each roller comprising an outer shell, two segmental sections within said shell, bearing-rollers movable in grooves formed in said segmental sections and also in grooves on the supporting-bars extended from the foot-lever, and a guide for each of said antifriction-rollers, substantially as specified.



2. In a bicycle, a cam-block, a foot-lever engaging therewith, antifriction-rollers journaled on portions projecting from said lever, the said antifriction-rollers having their axes arranged in different vertical planes and also in different horizontal planes, and a guide-track for each of said antifriction-rollers, substantially as specified.

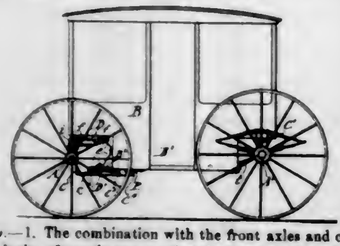
3. In a bicycle, a foot-lever having a fulcrum comprising a portion of the frame provided with recesses substantially V-shaped in cross-section and having their apexes at the ends of the fulcrum of the lever, bearing-blocks removably secured to the foot-lever and having knife-edged bearings in the apex of the said recesses, means for preventing a vertical movement of the lever relatively to the frame, and adjustable bearing-points for preventing a lateral movement of said lever, substantially as specified.

4. In a bicycle, a foot-lever, knife-edged bearing-blocks on said lever, recesses in the frame in which said blocks engage, bearing-blocks rigidly mounted on the frame and engaging in recesses formed in the lever, for preventing an upward movement of the lever relatively to the frame, and adjustable bearing-points for preventing the lateral movement of the lever relatively to the frame, substantially as specified.

5. In a bicycle, a spirally-grooved block having gear connections with the drive-wheel of a machine, a fulcrumed foot-lever having an engagement in said spiral groove, a second foot-lever having operative connection with the first-named foot-lever, upwardly and rearwardly extended arms on said first-named foot-lever arranged respectively at the upper and lower sides thereof, the axes of the horizontal portions of said arms being arranged in different vertical planes, antifriction-rollers mounted on said arms, and guides secured to the frame upon which said rollers move, substantially as specified.

6. In a bicycle, a frame provided with a transverse recess, a plate removably secured to the frame and having a transverse recess registering with the recess of the frame, a lever, knife-edged bearing-blocks on the lever having bearings on blocks on the frame, brackets extended from the frame, adjustable bearing-points on said brackets and fingers extended from the frame and against which said points engage, substantially as specified.

578,270. **VEHICLE.** AUGUST SCHUBERT, Oneida, N. Y. Filed Aug. 17, 1896. Serial No. 602,962. (No model.)



Claim.—1. The combination with the front axles and centrally-depressed body, of a spring supporting the front portion of the body on said axle, a fifth-wheel pivoted back of the axle and connected at opposite ends respectively to the spring and to the body and provided with a vertical intermediate portion sliding in a vertical box on the axle and thereby coupling said body longitudinally to the axle.

2. The combination with the front axle and the body formed with a depressed central portion, of a spring mounted on said axle, a fifth-wheel pivoted back of said axle and connecting the front portion of the body to the spring, a fifth-wheel on the depressed portion of the body, and a reach connecting the latter fifth-wheel to the front running-gear and provided with an intermediate vertical portion sliding in a vertical box fixed to the front axle, as set forth.

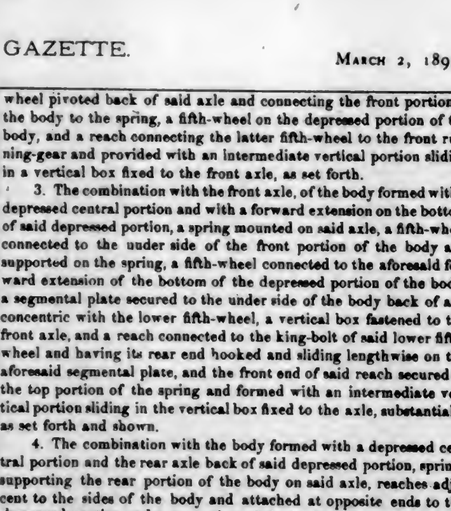
3. The combination with the front axle, of the body formed with a depressed central portion and with a forward extension on the bottom of said depressed portion, a spring mounted on said axle, a fifth-wheel connected to the under side of the front portion of the body and supported on the spring, a fifth-wheel connected to the aforesaid forward extension of the bottom of the depressed portion of the body, a segmental plate secured to the under side of the body back of and concentric with the lower fifth-wheel, a vertical box fastened to the front axle, and a reach connected to the king-bolt of said lower fifth-wheel and having its rear end hooked and sliding lengthwise on the aforesaid segmental plate, and the front end of said reach secured to the top portion of the spring and formed with an intermediate vertical portion sliding in the vertical box fixed to the axle, substantially as set forth and shown.

4. The combination with the body formed with a depressed central portion and the rear axle back of said depressed portion, springs supporting the rear portion of the body on said axle, reaches adjacent to the sides of the body and attached at opposite ends to the depressed portion and rear portion of the body and formed with intermediate vertical portions, and vertical boxes fastened to the rear axle and embracing the vertical portions of the reaches, as set forth.

5. In combination with the axles, the body formed with a depressed central portion and springs supporting said body, vertical boxes on the axles, reaches formed with vertical portions sliding in said boxes, and antirattling linings on the inner sides of said boxes, as set forth.

6. In combination with the front running-gear, the wagon-body formed with a depressed central portion and with a forward extension of the bottom of said depressed portion, two fifth-wheels attached respectively to the front end portion of the body and to the aforesaid extension, and braces secured to the central portion of the upright end of the depressed body portion and extending forward and to the aforesaid portions of the wagon-body, as set forth.

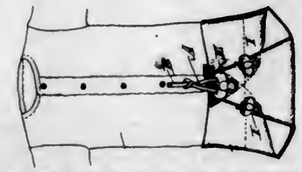
578,271. **FURNACE FOR REDUCING ORES.** EMIL A. F. SCHULTZE, Baltimore, Md. Filed Feb. 24, 1896. Serial No. 580,456. (No model.)



Claim.—1. The furnace herein described, comprising the structure A, a fuel-chamber in the lower part thereof provided with a grate and an ash-pit below the grate, a coil of steam-pipe about the fuel-chamber located within the furnace-wall and having its inlet at the upper coil and its exit at the lower coil beneath the grate, a transverse partition over the fuel-chamber and constituting the floor of the ore-chamber, an ore-chamber above the fuel-chamber, charging-chutes opening into the ore-chamber, a blast-pipe opening into the ash-pit, a blast-pipe surrounding the ore-chamber and having branch blast-pipes leading therefrom through the walls of the ore-chamber and opening into the base thereof, and lateral passages leading from the top of the fuel chamber into the base of the ore-chamber.

2. The furnace herein described, comprising the structure A, a fuel-chamber in the lower part thereof, provided with a grate and an ash-pit below the grate, a coil of steam-pipe about the fuel-chamber located within the wall thereof and having its inlet at the upper coil and its exit at the lower coil beneath the grate, a transverse partition over the fuel-chamber and constituting the floor of the ore-chamber, an ore-chamber above the fuel-chamber, charging-chutes opening into the ore-chamber, a blast-pipe opening into the ash-pit, a blast-pipe surrounding the ore-chamber and having branch blast-pipes leading therefrom through the walls of the ore-chamber and opening into the base thereof, lateral passages leading from the top of the fuel-chamber into the base of the ore-chamber, and a vertical pipe N, connecting the blast-pipes of the fuel-chamber and the ore-chamber.

578,272. **DIAPER FASTENER AND SUPPORTER.** LIZZIE G. SCULLY, Rome, N. Y. Filed June 19, 1896. Serial No. 596,164. (No model.)



Claim.—1. A fastener of the class described, comprising an elastic band adapted to engage a loop on a baby's garment, a button on one end of the said band, a locking-plate held on the other end of the said band and adapted to engage the said button, elastic bands held on the said button, a second button held on one end of the said second-named elastic band, and a locking-plate held on the other end of the said second-named elastic band, the said last-mentioned locking-plate being adapted to engage the said second button, substantially as shown and described.

2. A device of the class described, comprising a band adapted to engage a loop on a garment, a button held on one end of the said band and formed with a plate and a headed pin, a locking-plate secured on the other end of the said band and formed with a slot enlarged at one end to pass over the head of the pin and engage the material passing over the said pin, and bands secured to the button-plate at the lower side corners and each provided at one end with a button and at the other end with a locking-plate, for the corresponding button, substantially as shown and described.

578,273. **WEATHER-STRIP.** JAMES L. SMITH, Princeton, Ind. Filed Feb. 14, 1896. Serial No. 579,278. (No model.)



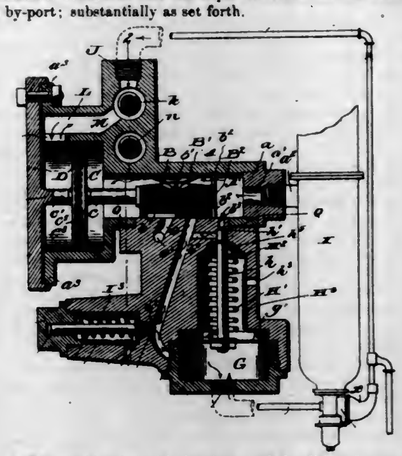
Claim.—In combination, a carpet-strip having in its outer edge a concaved seat, a resilient tubular weather-strip seated therein, and a threshold-strip located outside of the tubular strip and having its abutting edge undercut on a straight bevel from top to bottom to form an elevated lip for engaging the upper portion of the tubular strip and also to provide a water-space at the side of the tubular strip, the said threshold-strip being provided on its bottom side with transverse drain-grooves leading from the water-space outward, substantially as described.

578,274. **VALVE.** JACOB A. STARRETT and EDWIN F. WELSH, Wilmerding, Pa., assignors of one-eighth to William F. Kimmick, same place. Filed Dec. 14, 1896. Serial No. 615,648. (No model.)

Claim.—1. In a valve mechanism of the class described, the combination with a piston and a slide valve connected to move therewith, of a retaining-valve, a port leading from the chamber in which the slide-valve works, a connection between the port and the chamber of the retaining-valve, and a regulating-valve arranged in a chamber having communication with said port and with the chamber in which the slide-valve works; substantially as described.

2. In a valve mechanism of the class described, the combination of a piston and a slide-valve mounted to move therewith, and having a port upon its under face, of a chamber connected with the triple valve, a port affording communication between said chamber and the chamber of the slide-valve, a chamber connected with said port, and having a retaining-valve therein, and a port affording communication between said port and the chamber of the slide-valve; substantially as described.

3. The combination with the piston and the slide-valve connected to move together, of an auxiliary reservoir connected with the chamber in which said valve works, a chamber connected with the triple valve, a port connecting said chambers, a by-port connecting said port and valve-chamber, and a valve connected to a diaphragm in the chamber connected with the triple-valve exhaust and controlling said by-port; substantially as set forth.



4. The combination with the piston and the slide-valve connected to move together, of an auxiliary reservoir connected with the chamber in which said valve works, a chamber connected with the triple valve, a port connecting said chambers, a by-port connecting said port and valve-chamber, a valve connected to a diaphragm and controlling said by-port, and a chamber connected with the first-mentioned port, and provided with a retaining-valve; substantially as described.

5. The combination with the piston and the slide-valve mounted to move together, and the valve having a port upon its under face, of an auxiliary reservoir connected with the valve-chamber, a chamber connected with the triple valve, a diaphragm in said chamber, a valve connected with the diaphragm and controlling a port from the valve-chamber, a port connecting said chambers, and connected with the port from the valve-chamber, an exhaust-port from said valve-chamber, and a retaining-valve disposed at right angles to said port; substantially as described.

6. The combination with the main chamber and the piston and slide-valve, of an auxiliary reservoir connected with said chamber, the oppositely-disposed valves controlling the passage between the chamber on the left of the piston and the train-pipe, and a connection between the same and the train-pipe; substantially as described.

7. The combination with the main chamber and the piston, and slide-valve, of an auxiliary reservoir connected with said chamber, the oppositely-disposed valves controlling the passage between the chamber on the left of the piston and the train-pipe, a connection between the same and the train-pipe, and a retaining-valve arranged parallel with the stem of the piston; substantially as described.

8. The combination with the valve-chamber and the piston and slide-valve connected to move together, of the auxiliary reservoir connected to said chamber upon one side of the piston, a connection with the train-pipe upon the opposite side of the piston and oppositely-disposed valves controlling the passage from the train-pipe to said chamber; substantially as described.

9. The combination with the valve-chamber and the piston and slide-valve connected to move together, of the auxiliary reservoir connected to said chamber upon one side of the piston, a connection with the train-pipe upon the opposite side of the piston, and oppositely-disposed valves controlling the passage from the train-pipe to said chamber, one of said valves being provided with a supplementary feed-valve; substantially as described.

10. The combination with the valve-chamber and the piston, and slide-valve mounted to move together, of the guide on the end of said valve having openings, the auxiliary reservoir, a connection between the same and the chamber at one end of said valve, and connection between the train-pipe and the other end of said chamber and oppositely-disposed valves controlling the passage from the train-pipe connection to the chamber on the left side of the piston; substantially as described.

11. The combination with the main casting having valve-chamber, the auxiliary reservoir connected to one end of said chamber, the piston and valve connected to move together in said chamber, the valve having a port upon its under side, the connection with the

train-pipe, the valve having a feed-valve, the connection between its chamber and one side of the piston, the oppositely-disposed valve, the exhaust-port from the valve-chamber communicating with the port in the slide-valve, the chamber connected with the triple valve, a port between the same and the valve-chamber, and a retaining-valve controlling a port connected with said port; substantially as described.

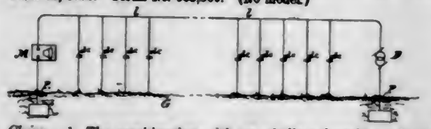
12. The combination with the cylinder and triple valve, of a valve controlling the release of fluid from the train-pipe, a movable piston normally exposed to fluid under pressure and controlling the release-valve, and a passage for releasing fluid under pressure from one side of the movable piston, and a valve-controlled passage and by-port upon the opposite side of the piston and a retaining-valve and chamber communicating with said port; substantially as described.

13. The combination with the train-pipe, cylinder, and triple valve, of the main chamber of the valve a chamber connected with the triple-valve exhaust and the passage-way connecting said main chamber with the chamber connected with the triple-valve exhaust, and an automatic regulating-valve interposed between said exhaust and the main chamber of the valve; substantially as described.

14. The combination with the chamber with its slide-valve, of the auxiliary reservoir connected with said chamber, the triple valve, a connection with the exhaust thereof, a chamber communicating with said connection, and an automatic, regulating-valve interposed between the exhaust connection and the said chamber; substantially as described.

15. The combination with the chamber and its slide-valve of the auxiliary reservoir connected with said chamber, the triple valve, a connection with the exhaust thereof, a chamber communicating with said connection, an automatic regulating-valve interposed between the exhaust connection and the said chamber, and a port connecting said chambers with a by-port leading from said port and controlled by said valve; substantially as described.

578,275. ELECTRIC CIRCUIT. JOHN S. STONE, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed Sept. 10, 1896. Serial No. 605,369. (No model.)

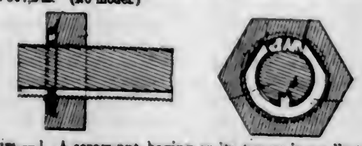


Claim.—1. The combination with an air-line electric conductor having definite capacity and self-induction, of a cable conductor consisting of an electrical conducting-core, provided with a longitudinally-discontinuous paramagnetic sheath of such dimensions as to so increase the self-induction of the conducting-core that the ratio of the capacity to the self-induction of the conducting-core shall be equal to the ratio of the capacity to the self-induction of the air-line conductor.

2. An electric conductor consisting of a conducting-core provided with a longitudinally-discontinuous paramagnetic sheath conductively separated from said conducting-core, substantially as described.

3. A heterogeneous electrical circuit, composed of sections the electromagnetic constants of each of which are so proportioned to each other and to the constants of the other sections that there can be no reflection at the junction of the sections when a variable current traverses the said circuit, substantially as described.

578,276. NUT-LOCK. GUSTAVUS E. STRAUSS, New York, N. Y., and EMIL KLANN, West Hoboken, N. J. Filed June 27, 1896. Serial No. 597,342. (No model.)



Claim.—1. A screw-nut having on its top an inwardly-tapering excavation provided with lateral ribs or serrations and an open spring-acting ring having its outer periphery beveled to correspond with the taper of the excavation and placed into the latter, the corners of the ring engaging the ribs or serrations of the excavation, substantially as set forth.

2. A screw-nut having on its top an excavation and a spring-acting open ring placed into the excavation and being provided with an inwardly-extending projection, in combination with a screw-bolt having a longitudinal groove, the said projection of the open ring extending into the said groove of the screw-bolt, substantially as set forth.

3. A screw-nut having on its top an excavation provided with lateral ribs or serrations and an open spring-acting ring provided with an inwardly-extending projection the ends of the ring engaging the ribs or serrations of the said excavation, in combination with a screw-bolt having a longitudinal groove in which the projection of the said ring is located, substantially as and for the purpose set forth.

578,277. GATE. JOHN D. THOMPSON, Atoka, Tenn. Filed Dec. 17, 1896. Serial No. 616,044. (No model.)



Claim.—The combination with a gate, and a latch, of the latch-post having the slot *e*, the fixed pin *e'* and the bolt-passage opening into the slot above said pin, and the slidable bolt fitted in said passage and provided with the shouldered outer end, said bolt adapted to be engaged by a pronged key for moving the bolt endwise, as and for the purposes described.

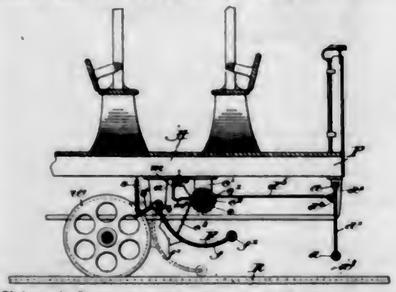
578,278. MATRIX. LOUIS C. TIBBOTS, Brooklyn, N. Y. Filed Nov. 19, 1896. Serial No. 612,692. (No specimens.)



Claim.—1. A paste as described, consisting of water, alum, flour, ocher, rosin, ground cloves, sugar, starch, gum-arabic, white glue, in the proportions specified.

2. A matrix formed of a number of layers of tissue-paper held together by a paste composed of water, alum, flour, ocher, rosin, ground cloves, sugar, starch, gum-arabic and white glue substantially as described.

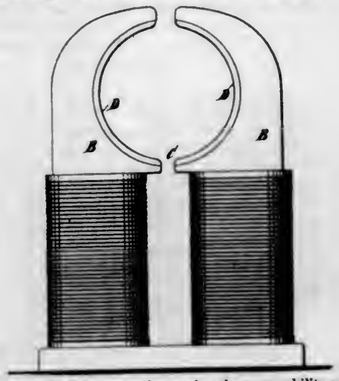
578,279. CAR-FENDER. JAMES E. TREAT, Boston, Mass. Filed June 5, 1896. Serial No. 594,397. (No model.)



Claim.—1. In an apparatus of the class described, a pivotally-mounted fender, a depending detector located in advance thereof, means including a ratchet-wheel to raise the fender into elevated position, and a detent composed of a unitary structure adapted at one end to engage the ratchet, and at its other end positively connected to the detector and directly movable thereby in one direction into engagement with the ratchet-wheel, to normally retain the fender in elevated position, and in the other direction out of engagement with the ratchet-wheel to release the fender, substantially as described.

2. In an apparatus of the class described, a pivotally-mounted fender, a detector adapted to be struck and moved by an object on or between the tracks, a detent connected to said detector, and a ratchet adapted to be engaged by said detent, combined with a latch or holder to retain said detent out of engagement with said ratchet when the fender is tripped, substantially as described.

578,280. DYNAMO-ELECTRIC MACHINE AND ELECTRIC MOTOR. CHARLES P. TURNER, New York, N. Y. Filed Nov. 25, 1895. Renewed July 11, 1896. Serial No. 598,906. (No model.)

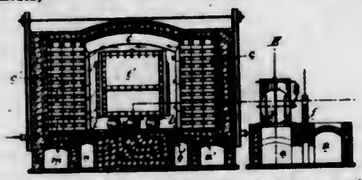


Claim.—1. The method of increasing the permeability of the field-magnets of dynamos and electric motors, which consists in electrically depositing on the polar extremities of the field-magnet, a coating of iron, substantially as specified.

2. A field-magnet for dynamos and electric motors having the faces adjoining the armature formed of chemically-pure iron, substantially as specified.

3. A field-magnet for dynamos and electric motors, formed of commercial wrought or cast iron with a facing of pure iron formed on the surfaces which adjoin the armature, substantially as specified.

578,281. METHOD OF ANNEALING AND APPARATUS THEREFOR. HOWARD WOOD, Conshohocken, Pa., assignor to the Alan Wood Company, of Pennsylvania. Filed Mar. 31, 1896. Serial No. 585,537. (No model.)



Claim.—1. An annealing-furnace consisting of a central chamber open at both ends, a regenerator arranged upon each side of the furnace and provided with a series of horizontal passages opening into the interior of the annealing-furnace, and a series of gas-flues arranged in the floor of the annealing-furnace and close to the base of the regenerators, in combination with a cooling-chamber of the same size as the annealing-chamber and arranged in line therewith, and removable doors for each end of the annealing-furnace and the distant end of the cooling-chamber.

2. An annealing-furnace consisting of a central chamber open at both ends, a regenerator arranged upon each side of the furnace and provided with a series of horizontal passages opening into the interior of the annealing-furnace, and a series of gas-flues arranged in the floor of the annealing-furnace and close to the base of the regenerators, in combination with a cooling-chamber of the same size as the annealing-chamber and arranged in line therewith, removable doors for each end of the annealing-furnace and the distant end of the cooling-chamber, and an annealing-box adapted to substantially fit the interior cross-section of the annealing-furnace, means to convey the box through the annealing-furnace into the cooling-chamber, a valve device for causing the air to pass through one regenerator and the products of combustion through the other regenerator together with gases from the gas-flues adjacent to the regenerator from which the air passes, and vice versa.

3. In an annealing-furnace structure a central annealing-chamber having adjacent to each side flues for admission of gas, and also regenerators forming the walls of the chamber and each furnished with a series of lateral apertures at different elevations for the admission of air formed at an angle to the flues for the gas, in combination with flues and valves for admitting air to either regenerator and connecting the other with the escape or chimney flue.

4. In an annealing-furnace structure a central annealing-chamber having adjacent to each side flues for admission of gas in a substantially vertical direction, and also regenerators furnished with a series of lateral apertures for the admission of air horizontally at an angle to the flues for the gas, in combination with flues and valves for admitting air to either regenerator and connecting the other with the escape or chimney flue, a cooling-furnace arranged in alinement with the annealing-furnace between the gas-flues, and a removable door or partition between the two furnaces.

5. An annealing-furnace formed of a tube of refractory material of rectangular cross-section and provided with side walls furnished with a series of lateral air passages or flues and gas-flues in the floor, in combination with a gas-tight annealing-box substantially similar in shape to that of the furnace but of slightly smaller cubical capacity and supported above the floor of the furnace whereby the admixed air and gases may envelop the annealing-box with a uniform layer of heating-gases, a cooling-chamber of similar shape to the furnace and arranged in line with it, and a door between the annealing-furnace and cooling-chamber.

6. An annealing-furnace formed of a tube of refractory material of rectangular cross-section and provided with side walls furnished with a series of lateral air passages or flues and gas-flues in the floor, in combination with a gas-tight annealing-box substantially similar in shape to that of the furnace but of slightly smaller cubical capacity and supported above the floor of the furnace whereby the admixed air and gases may envelop the annealing-box with a uniform layer of heating-gases, a cooling-chamber of similar shape to the furnace and arranged in line with it, a door between the annealing-furnace and cooling-chamber, and valve devices for admitting gas through the floor of the furnace first on one side of the annealing-box and then on the other and simultaneously admitting air from the side wall adjacent to the incoming gas and delivering the resulting products of combustion from the series of flues or passages in the opposite side wall or the opposite side of the annealing-furnace, and vice versa, whereby the heating effect on the annealing-box is substantially uniform.

7. In annealing-furnace the compartment *t* in which the articles to be annealed are placed provided with gas-flues *l* arranged in the floor near the bottom of the compartment in two rows one on each side of the center, and a series of laterally-directed air-apertures opening into the compartment from each side at a series of different elevations to the gas-apertures and at an angle thereto, in combination with valve devices for causing the air to pass into the furnace through one series of air-apertures and out of it by the other series of air-apertures, and vice versa.

8. In an annealing-furnace the compartment *t* in which the articles to be annealed are placed provided with gas-flues *l* arranged in two rows one on each side of the center, regenerators forming lateral walls of the compartment and each provided with a series of laterally-directed air-apertures opening into the compartment from each side at a series of different elevations to the gas-apertures and at an angle thereto and in combination with valve devices for causing the air to pass into the furnace through one series of air-apertures and out of it by the other series of air-apertures, and vice versa, whereby the regenerators are used alternately to heat the air.

9. An annealing-furnace combined with gas-inlets in its floor, two regenerators arranged on opposite sides of the furnace and forming the lateral walls thereof and having inlets therefrom into the furnace-chamber above the gas-inlets, and valve devices for causing the air to pass through either regenerator desired before passing into the furnace-chamber.

10. The method of heating a box in the process of annealing consisting in enveloping one side of the box with a fuel-gas, and projecting currents of air onto the said fuel-gas at an angle to its flow and at different elevations relatively to the box, whereby the fuel-gas is gradually consumed and caused to move closely over the surface of the annealing-box.

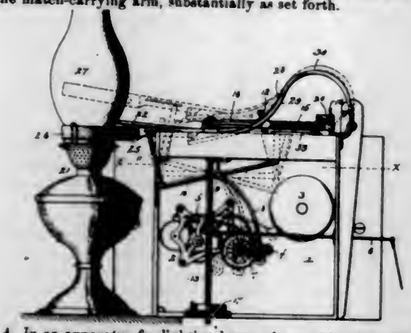
578,282. TIME-LAMPLIGHTER. COLQUITT H. BIGBY, Boyd, Ark., assignor of one-half to W. T. Hudgens, same place. Filed Nov. 27, 1896. Serial No. 613,598. (No model.)

Claim.—1. In a lamp-lighting appliance, the combination of a spring-actuated shaft, a match-carrying arm attached thereto, a rock-shaft provided with oppositely-disposed stops to alternately engage with the match-carrying arm and check its movement, and actuating mechanism for the rock-shaft, substantially as set forth.

2. In a lamp-lighting apparatus, the combination of a rotatable shaft, a match-carrying arm attached to the said shaft, a rock-shaft, a rod secured to the rock-shaft intermediate of its ends and having its terminal portions bent to provide stops, and actuating mechanism for operating the rock-shaft to alternately project and withdraw the said stops from the path of the match-carrying arm, substantially as specified.

3. In an apparatus for lighting lamps, the combination of a shaft, an actuating-spring having connection with the shaft for turning the latter, a ratchet-wheel applied to the shaft, a match-carrying arm

loosely mounted upon the said shaft and provided with a dog to engage with the teeth of the ratchet-wheel, stops for limiting and properly positioning the match-carrying arm, and actuating mechanism for the stops to alternately project and withdraw them from the path of the match-carrying arm, substantially as set forth.

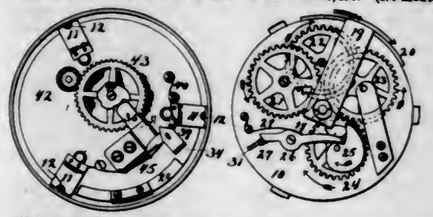


4. In an apparatus for lighting lamps, the combination with the igniting devices, of a chimney-holder, means for elevating and lowering the chimney-holder, a wheel applied to the pivotal or axial support of the chimney-holder, and a device engaging frictionally with the wheel for controlling the descent of the chimney-holder and chimney, substantially as set forth.

5. In an apparatus for lighting lamps, the combination of a match-carrying arm, stops for limiting the throw and properly positioning the match-carrying arm, a chimney-holder raised and lowered by means of one of the said stops, and actuating mechanism for moving the match-carrying arm and the said stops, whereby upon releasing the match-carrying arm the chimney-holder is elevated and the controlling-stop is projected across the path of the match-carrying arm, and whereby upon releasing the match-carrying arm a second time after the lamp has been lighted the chimney-holder is lowered, substantially as set forth.

6. In a lamp-lighting apparatus, the combination of a match-carrying arm, actuating mechanism therefor, a pivotally-supported chimney-holder, and a bracket-support for holding the chimney-holder elevated and turned aside to permit the descent of the chimney by means of the match-carrying arm, substantially as set forth.

578,283. **RECORDING APPARATUS.** WILLARD L. BUNDY, Binghamton, N. Y. Filed Feb. 3, 1896. Serial No. 578,490. (No model.)



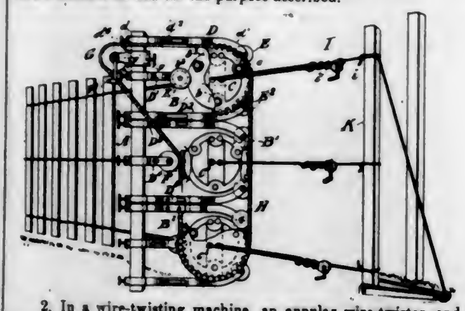
Claim.—1. The combination with a wheel and a casing mounted upon and rotated by the revolution of the wheel, of a train of gearing and a cam upon the terminal gear stepped to indicate a fixed distance of travel by said wheel for each revolution of said cam, and a weight pivoted upon an arbor concentric to said casing and adapted to swing thereon to maintain a vertical position and thereby drive said gearing.

2. The combination with a time-indicating dial, its inclosing casing, and a wheel upon which the casing is mounted, a slide a needle mounted therein, a stepped cam engaging with said slide and means to actuate said needle to mark said dial at each successive step of said cam, and means to rotate said cam.

3. The combination with a wheel, a casing mounted thereon, a time-indicating dial within it and means to rotate it, in combination with a train of gearing within said casing, a cam upon the terminal gear thereof, a needle actuated by said cam to mark said dial at each revolution of said cam, a stepped cam actuated by said gearing, a slide engaging with the latter cam and guiding said needle to shift the marking upon said dial at each step of this cam, and a weight pivoted concentric with said casing and driving said gearing by maintaining its vertical equilibrium when the wheel revolves.

578,284. **WIRE-FENCE MACHINE.** MORTIMER CAHILL, Lawrence, Kans. Filed June 29, 1896. Serial No. 597,340. (No model.)

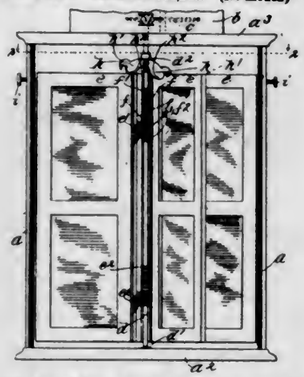
Claim.—1. In a wire-twisting machine, an annular wire-twister, and a guide-frame composed of a standard and laterally-extended arms, said arms having separate adjustably-connected parts extending in the direction of and also tangentially to the periphery of said twister, and having inwardly-bent outer forked ends and antifriction guide-rollers in said forked ends, and also adjustably connected with said standards as and for the purpose described.



2. In a wire-twisting machine, an annular wire-twister, and a guide-frame composed of a standard and laterally-extended arms, said arms extending in the direction of and also tangentially to the periphery of said wire-twister, and having inwardly-bent outer ends and antifriction-rollers in said ends, said arms having separate adjustably-connected parts, as and for the purpose described.

3. In a wire-twisting machine, an annular wire-twisting plate, having apertures for the separate wires, a standard and laterally-extended arms extending in the direction of and tangentially to the periphery of said wire-twisting plate, and having inwardly-curved outer forked ends, and separate adjustably-connected parts, and grooved guide-rollers in said outer forked ends of said arms, for the purpose specified.

578,285. **DISPLAY DEVICE.** THOMAS J. CHENEY, Chicago, Ill. Filed Nov. 6, 1896. Serial No. 611,211. (No model.)



Claim.—1. In a display device, the combination of a series of leaves rotatably mounted in the same axial line, with a trip-carrier arranged to move about said axial line, and a movable trip attached to said carrier, said trip being provided with a catch for engaging said leaves, and a runner formed to ride upon the margins of the leaves and thereby maintain the catch out of engagement therewith, said leaves being arranged to leave a space between the successive first and last leaves of the series adapted to receive said runner and thereby permit of the engagement of the catch with the last leaf of the series, substantially as described.

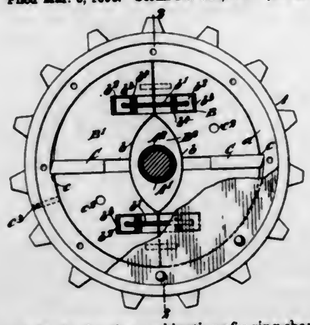
2. In a display device, the combination of a series of leaves rotatably mounted in the same axial line, with a carrier arranged to move about said axial line, said carrier supporting a catch for engaging said leaves, and a runner formed to ride upon the margins of the leaves and thereby maintain the catch normally out of engagement therewith, and means for engaging said catch with one of said leaves, substantially as described.

3. In a display device, the combination of a motor *c* with a vertical shaft adapted to be rotated thereby, a trip-carrier *g* secured to said shaft, a movable trip *h* supported upon said carrier, said trip being provided with a catch *h'* and a runner h^3, a series of leaves rotatably mounted in the same vertical axial line and restricted in number so that the majority thereof may be disposed upon one side of a plane extending through said axial line, said runner being adapted

to ride upon the top margins of the leaves to prevent the engagement of said catch therewith, said trip being adapted to bring its catch into engagement with the last leaf of the series upon the disengagement of the runner with said leaves, substantially as described.

4. In a display device, the combination of a motor *c* with a vertical shaft d^3 adapted to be rotated thereby, a trip-carrier *g* secured to said shaft, a movable trip *h* supported upon said carrier, said trip being provided with a catch *h'* and a runner h^3, a sleeve d^3 loosely surrounding said shaft, a series of leaves rotatably mounted upon said sleeve and restricted in number so that the majority thereof may be disposed upon one side of a plane extending through the axis of said shaft, said runner being adapted to ride upon the top margins of the leaves to prevent the engagement of said catch therewith, said trip being adapted to bring its catch into engagement with the last leaf of the series upon the disengagement of the runner with said leaves, substantially as described.

578,286. **BICYCLE-BRAKE.** FRANK J. COOMBS, Columbia Falls, Mont. Filed Mar. 6, 1896. Serial No. 582,057. (No model.)



Claim.—1. In a brake, the combination of a ring-shaped sprocket-wheel, brake-shoes upon which the sprocket-wheel is free to turn in one direction, but is locked thereto when turned in the opposite direction, a pedal-shaft, and a connection between the pedal-shaft and brake-shoes, whereby the brake-shoes can be thrown into frictional engagement with the sprocket-wheel when the pedals are turned in opposite directions, substantially as described.

2. In a brake, the combination of a ring-shaped sprocket-wheel, brake-shoes upon which the sprocket-wheel is free to turn in one direction but is locked thereto when turned in the opposite direction, a pedal-shaft, a cam on the pedal-shaft, a sleeve mounted to turn on the pedal-shaft, and a cam on the sleeve, the said cams being arranged in an opening between the brake-shoes, substantially as described.

3. In a bicycle, a pedal-shaft, a sleeve mounted to rotate on said shaft, a ring-shaped sprocket-wheel, side plates or covers secured to the wheel and loosely mounted respectively on the shaft and sleeve, a cam on the shaft, a cam on the sleeve, and segmental brake-shoes within and upon which the ring-shaped wheel is free to turn in one direction, but is locked thereto when turned in the opposite direction, the said brake-shoes being adapted to be moved into frictional engagement with the wheel by said cams, substantially as specified.

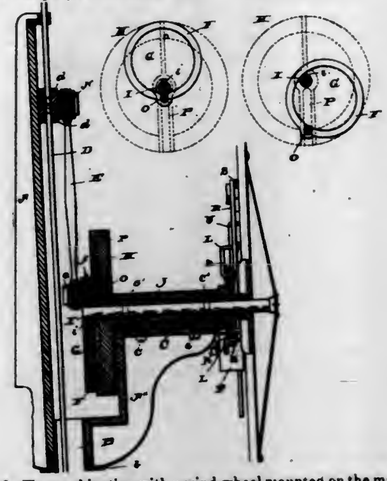
4. In a bicycle, a pedal-shaft, a pedal-sleeve mounted to rotate thereon, cams carried by the shaft and sleeve, a ring-shaped sprocket-wheel loosely mounted on the shaft and sleeve, brake-shoes movable into engagement with the wheel by means of said cams, and spring-impelled dogs carried by the brake-shoes and adapted to engage with shoulders formed in the wheel, substantially as specified.

5. In a brake, the combination of a pedal-shaft, a pedal-sleeve mounted to turn on the shaft, cams carried by the sleeve and shaft respectively, a ring-shaped sprocket-wheel loosely mounted on the shaft and sleeve, segmental brake-shoes yieldingly connected together and having an opening in their adjacent edges to receive the said cams, and spring-pressed dogs carried by the brake-shoes and engaging shoulders on the spocket-wheel, substantially as described.

6. In a brake, the combination of a pedal-shaft, a pedal-sleeve mounted to turn on the shaft, cams carried by the sleeve and shaft, a ring-shaped sprocket-wheel loosely mounted on the shaft and sleeve, segmental brake-shoes having openings in their adjacent edges to receive the cams, spring-pressed blocks in the brake-shoes, links connecting the blocks, and spring-pressed dogs having beveled ends and engaging shoulders on the sprocket-wheel, substantially as herein shown and described.

578,287. **WINDMILL.** GEORGE I. CURTIS and OLEY E. PETERSON, Cache County, Utah. Filed Oct. 12, 1895. Serial No. 565,532. (No model.)

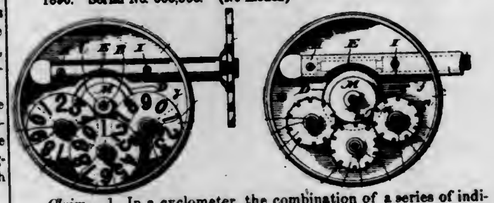
Claim.—1. A self-governing windmill, comprising a main driving-shaft, on the outer end of which is mounted the solid wind-wheel, and its inner end provided with an eccentric and an eccentric-strap, in which is mounted a wrist-pin, to one end of which the connecting-rod of the pump-rod is secured, and having its opposite end mounted in a radial slot in the face of a rotating disk mounted upon the inner end of a sleeve rotating on the main driving-shaft, substantially as and for the purpose set forth.



2. The combination with a wind-wheel mounted on the main driving-shaft I, the inner end of which is provided with the eccentric G and strap F having wrist-pin O adjustably secured in the slot P in the disk H mounted on the sleeve J, journaled on the main shaft I, and means substantially as described, for varying the position of said sleeve with reference to the main shaft, substantially as and for the purpose set forth.

3. The combination with a wind-wheel, the rotating frame of which is provided with a pivoted lever having an adjustable weight, and connected by a rod as L to the disk K, mounted on one end of the sleeve J, the opposite end thereof being formed with a disk H having a radial slot P, in which is adjustably mounted the wrist-pin O secured to the eccentric-strap F on the eccentric G mounted on the main driving-shaft I, journaled in said sleeve J, substantially as and for the purpose set forth.

578,288. **CYCLOMETER.** WILLIAM W. DUDLEY, Trenton, N. J., assignor to the Trenton Watch Company, same place. Filed Sept. 21. 1896. Serial No. 606,580. (No model.)

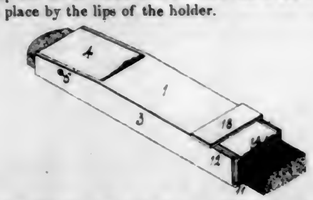


Claim.—1. In a cyclometer, the combination of a series of indicators comprising numeral-bearing disks, an arbor for each of said disks, gearing between the arbors, a dial concentric with one of said disks, a hand for said dial, an arbor carrying said hand, and gearing between said arbor and one of the disk arbors, substantially as and for the purpose set forth.

2. In a cyclometer, the combination of a driving-shaft having a worm, a worm-wheel, an arbor on which the latter is mounted carrying a hand, a plate having a dial for said hand, a series of disk indicators having each an arbor, said plate having a display-opening for each indicator, gearing between each of said arbors and the worm-wheel arbor, a dial on said plate concentric with an intermediate one of the disks, a hand for said dial, an arbor passing through the disk arbor carrying said hand, and gearing between said hand-carrying arbor and the arbor of the highest-indication disk of the series, substantially as and for the purpose described.

578,289. **ERASER.** AUGUSTUS C. EHNOLM, Rockford, Ill. Filed Nov. 21, 1896. Serial No. 613,012. (No model.)

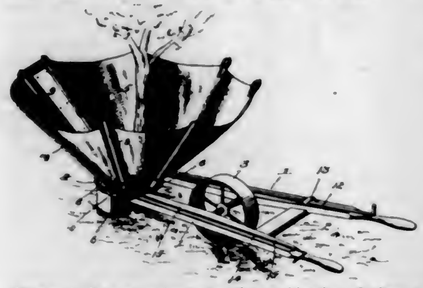
Claim.—1. The combination of a holder, one end being open having two opposite edges provided with lips, a brush located within the holder, a cap and a link connection between the brush and cap, the cap held in place by the lips of the holder.



2. The combination of a holder, one end being open, having two opposite edges provided with lips, one face of the holder provided with two lengthwise slots terminating in enlargements, a brush located within the holder, a cap, a linked connection between the brush and cap whereby the cap is held by the lips of the holder when the brush is not in use and capable of holding the brush extended when in use.

3. The combination of a holder, having a portion of its top cut away, a jaw having a pivotal connection with the holder and closing the cut-away portion and having its inner end turned downward, a spring located loosely within the holder having one end resting upon the bottom of the holder and its upper end resting against the inner end of the pivoted jaw adjacent to its downturned end.

578,290. PRUNE-HARVESTER. ABRAHAM B. ENNS, Dallas, Oreg., assignor of one-half to George McGowan and Archie McGowan, same place. Filed June 6, 1896. Serial No. 594,609. (No model.)



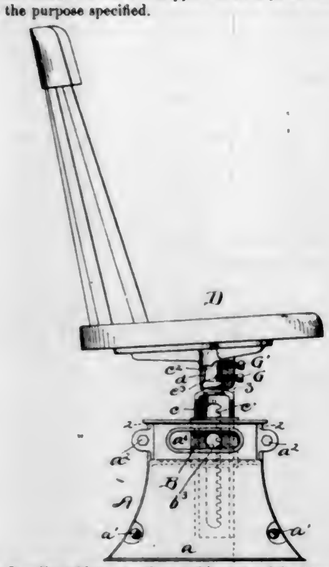
Claim.—1. In a prune-harvester, the combination of a base provided at intervals with a series of sockets which incline upwardly and outwardly, a series of rods having their lower ends detachably fitted within the said sockets, and a textile fabric conforming to the flare of the rods and removably connected at its upper end therewith, substantially as set forth.

2. In a prune-harvester, the combination of a base having an inwardly-extending passage and provided with a circular series of sockets inclining upwardly and outwardly, a series of rods removably fitted within the sockets, a textile fabric conforming to the flare of the rods and having detachable connection at its upper end with the outer extremities of the said rods, and formed in a side with a passage corresponding to the passage of the base, and a flap for closing the said passage of the flaring body, substantially as and for the purpose set forth.

3. The herein-described prune-harvester, comprising longitudinal bars connected near their rear ends and mounted intermediate of their ends upon a ground-wheel, a base secured to and connecting the front ends of the longitudinal bars and having an inwardly-extending passage, and provided with a circular series of sockets which incline upwardly and outwardly, rods removably fitted to the said sockets, a textile fabric conforming to the flare of the rods and secured thereto at its upper end, and having a passage in register with the passage of the base, a flap for closing the opening in the flaring body, and a plate slidably mounted with respect to the base and having a notch to register with the passage therein to secure a snug fit between the base and the tree to which the device is applied, substantially as set forth.

578,291. ADJUSTABLE SEAT. HARVEY B. HITSHEW, Cleveland, Ohio, assignor to the Cleveland School Furniture Company, same place. Filed Sept. 14, 1896. Serial No. 605,716. (No model.)

Claim.—1. In adjustable seats, the combination of a base having in its upper end a recess, two clamping-jaws in said recess and movable laterally toward and from each other and movable simultaneously forward and backward in said recess, a seat-support vertically movable between said clamping-jaws and means for fastening the jaws in the base, and the seat-support in said jaws, substantially as and for the purpose specified.

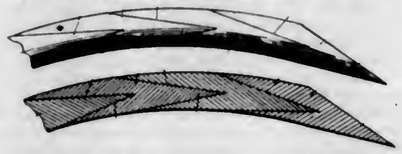


2. In adjustable seats, the combination of the base composed of two sections having a recess between them, two clamping-jaws horizontally movable in said recess, a seat-support vertically movable between said jaws, a device for clamping said base-sections, substantially as and for the purpose specified.

3. In adjustable seats, the combination of the base composed of two base-sections, having a recess between them, and having the horizontal ribs a^4 projecting into said recess, two clamping-jaws lying in said recess, having horizontal grooves b which receive said ribs, the seat-support lying between said jaws, a device for clamping said base-sections, substantially as and for the purpose specified.

4. In an adjustable seat, the combination of two base-sections having horizontal slots a^5, the horizontally-movable clamping-jaws which lie between said sections, each having a hole b^3, the seat-support vertically movable between said clamping-jaws, and having a vertical slot c and the rack-teeth c', a device for clamping said base-sections, substantially as and for the purpose specified.

578,292. WHEEL-RIM. WILLIAM A. JOHNSON, Aurora, Ill., assignor of one-half to A. Walter Johnson, Council Bluffs, Iowa. Filed July 1, 1896. Serial No. 597,744. (No model.)

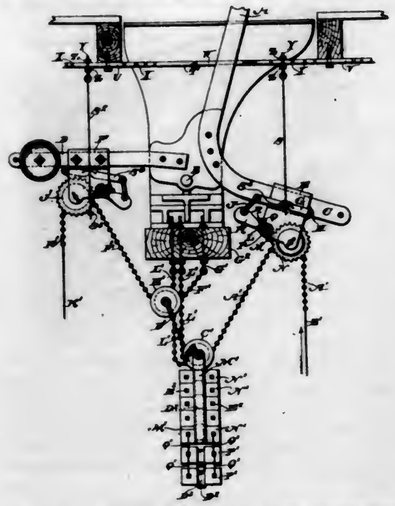


Claim.—1. A wood rim composed of sections, each section being provided at one end with a V-shaped recess terminating in a single acute angle and provided at its other end with a V-shaped tongue tapered upon both its outer and inner sides to a sharp edge, the tongue of one section entering the recess of the adjoining section and extending to a point in radial alinement with or beyond the lapping portions of the next adjoining section, substantially as described.

2. A wood rim composed of a number of similar sections, each provided at one end with a V-shaped tongue extending longitudinally of the grain of the wood and which tapers to a sharp edge, and at its opposite end with a recess of corresponding shape also extending longitudinally of the grain of the wood, each of said sections being fashioned from a piece of wood in its natural state without creating or bending the same, substantially as described.

3. A wood-rim section having one end tapered in a direction longitudinally of the grain on both its outer and inner sides to a sharp edge, and its other end recessed longitudinally of the grain of the wood between its outer and inner sides to form a V-shaped seat, the said section being cut from a piece of wood in its natural state and shaped to constitute a portion of a wheel-rim without bending or altering the fibers of the wood, substantially as described.

578,293. COMPENSATING DEVICE FOR RAILROAD SIGNALS, SWITCHES, &c. JOSHUA W. JONES, Harrisburg, and JOSEPH R. JONES, Philadelphia, Pa., assignors of one-third to Thomas A. Jones, Philadelphia, Pa. Filed Sept. 25, 1896. Serial No. 606,951. (No model.)



Claim.—1. In a compensating device, a lever having oppositely-extending arms with yokes thereon, ratchet-wheels journaled in said yokes and having sprocket-hubs, a traveling pulley supported on a chain having one end secured to a fixed support, and its other end passing over one of said sprocket-hubs and connected with a signal or other device, a weighted pulley supported on a chain having one end secured to said traveling pulley and its other end passed over the other sprocket-hub and connected with said device, and mechanisms connected with said yokes for automatically locking and unlocking said ratchet wheel and hubs.

2. In a compensating device, a lever having arms with yokes mounted thereon, each of said yokes having a ratchet-wheel with a sprocket-hub and a spring-controlled pawl engaging said ratchet-wheel, mechanism for automatically releasing said pawl on alternate movements of said arms, chains connected with fixed support and passing over said hubs respectively, a traveling pulley on one of said chains, and a weight-pulley on the other chain, and chains secured to said fixed support and to links on the axle of said weight-pulley.

3. In a compensating device, a lever, a yoke on an arm thereof, a ratchet-wheel journaled in said yoke, a spring-controlled pawl pivotally mounted and adapted to engage said wheel, a lever suitably fulcrumed and having a link common to itself and to said dog, and a depending rod passing through an opening in said lever and provided with a nut thereon for actuating said lever at proper intervals, in combination with a weighted chain passing over said wheel and adapted to lead to a signal-arm.

4. In a compensating device, an operating-lever suitably fulcrumed, arms extending laterally therefrom, yokes mounted on said arms, ratchet-wheels journaled in said yokes, weighted chains passing around hubs on said ratchet-wheels and having connections leading to a signal-arm, switch, &c., pawls pivotally supported and adapted to engage said wheels, levers suitably fulcrumed, links common to said levers and dogs, and means for locking and unlocking the latter, whereby one of said dogs and its wheel are enabled to be in engagement when in elevated position, and are disengaged when in depressed position.

5. In a compensating device for a signal-arm, a yoke suitably supported, a ratchet-wheel journaled therein, a pawl mounted on said yoke, a spring adapted to normally cause the nose of said pawl to engage said wheel, a lever suitably fulcrumed, a link common to said lever and pawl, a connection from said lever to a fixed point, a weighted chain passing over a suitable portion of said wheel, and connections therefrom to a signal, switch &c.

6. In a compensating device, an operating-lever having laterally-extending arms thereon, yokes mounted on said arms having ratchet-wheels journaled therein, pawls adapted to engage said wheels, a link-and-lever connection common to said dogs and to said yoke, a rod having one end attached to a fixed point and its other end passing freely through said lever, a nut on said rod underneath said lever, a weighted chain passing over said ratchet-wheels, and connections from said chain adapted to lead to a signal-arm, switch, &c.

7. In a compensating device, a yoke, a ratchet-wheel journaled therein, a pawl pivotally mounted adjacent said wheel, a counterbalance attached to said pawl, a spring bearing on the latter, a link-and-lever connection common to said pawl and yoke, a connection from said lever to a fixed point, and connections passing over said wheel and adapted to lead to a signal-arm, switch, &c.

8. In a compensating device, a plurality of ratchet-wheels suitably supported, pawls adapted to unlock said wheels when in depressed position, a link-and-lever connection common to said dogs and to their support, and a connection from said lever to a fixed point, in combination with chains or other connections passing over said wheels, one of said connections being secured to a fixed point and carrying a traveling pulley, and the other of said connections being secured to said pulley and carrying a traveling weight.

9. In a compensating device, laterally-extending arms, ratchet-wheels journaled upon each of said arms, pawls for locking said wheels, and a link-and-lever connection for operating said pawls, in combination with chains adapted to lead to a signal, switch, &c., passing over said wheels, one of said chains being attached to a fixed point, and carrying a traveling pulley, while the other of said chains is attached to said pulley and carries a traveling weight.

10. In a compensating device, laterally-extending arms, ratchet-wheels suitably journaled thereupon, pawls adapted to engage and lock and unlock said wheels, a link-and-lever connection for operating each of said pawls, a connection leading from each of said levers to the offset ceiling-bar P, means for supporting said bar, weighted chains passing over suitable portions of said wheels, and connections from the latter adapted to lead to a signal, switch, &c.

11. In a compensating device, laterally-extending arms, ratchet-wheels suitably journaled thereupon, pawls adapted to automatically engage and lock and unlock said wheels, means for releasing the latter, chains passing over suitable portions of said wheels, connections from said wheels adapted to lead to a signal-arm, switch, &c., a pulley supported upon one of said chains, a strap or yoke attached to said pulley and depending therefrom, a plurality of weights carried by said strap, and means for adding or subtracting weights to said strap.

12. The herein-described weight consisting of the end portions B^2, and the connecting-neck C^2 having its upper and lower faces out of alinement with the upper and lower faces of said end portions.

13. The herein-described weight consisting of the end portions B^2, and the connecting-neck C^2 having its upper and lower faces out of alinement with the upper and lower faces of said end portions, said neck being also provided with curved sides.

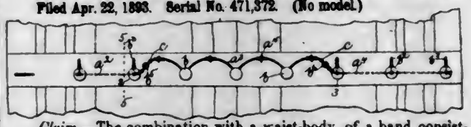
14. In a compensating device, a yoke or strap consisting of two upright members joined together at their extremities, in combination with a weight adapted to be inserted within said strap, said weight being provided with end portions, and a connecting-neck having its upper and lower faces out of alinement with the upper and lower faces of said end portions.

15. In a compensating lever, an operating-lever having laterally-projecting arms, compensating devices mounted on each arm, an offset ceiling-bar suitably supported, and a link-and-lever connection to each compensating device, in combination with connections leading from said last-mentioned levers to an eyebolt supported in said ceiling-bar, the position of said eyebolts being adjustable according to requirements.

16. In a compensating device, an operating-lever, a laterally-extending arm, a ratchet-wheel mounted thereon, a pawl engaging said wheel, a yoke in which said pawl and wheel are supported, a link-and-lever connection for said pawl, and a spring, said spring being mounted on a suitable portion of said pawl and having its ends deflected, one of said ends engaging said yoke, and the other end engaging said pawl.

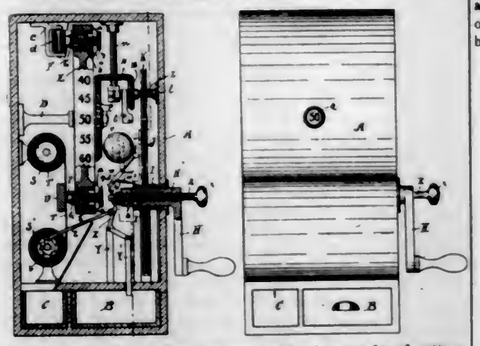
17. In a compensating device, an operating-lever, a laterally-extending arm, a yoke mounted on the latter, a ratchet-and-pawl device supported by said yoke, means for unlocking said pawl at the proper intervals and restoring a spring, said spring being mounted on a suitable portion of said pawl and having its ends deflected, one of said ends engaging said yoke, and the other end engaging said pawl.

578,294. DETACHABLE WAISTBAND. JOHN E. LEAVITT, Boston, Mass., assignor of one-half to Edwin G. Carleton, Malden, Mass. Filed Apr. 22, 1893. Serial No. 471,372. (No model.)



Claim.—The combination with a waist-body, of a band consisting of the parts a^3 a^4 secured on the inside of the waist-body, and the elastic portion a^3 detachably secured to the waist-body on the outside of the same, and connections joining the ends of the elastic portion a^3 to the parts a^3 a^4, substantially as described.

578,295. CASH-REGISTER. HOSEA W. LIBBEY, Boston, Mass. Filed May 15, 1896. Serial No. 591,634. (No model.)



Claim.—1. In a cash-register a wheel having a series of cutters near its outer edge, their centers being parallel with the axis of the wheel, a die or stamp within each of said cutters, springs within said cutters for pressing the dies or stamps forward and means for operating said wheel cutters and dies substantially as set forth.

2. In a cash-register a wheel having upon its periphery a series of numbers and a series of cutters near its outer edge, a stamp within each of said cutters, a series of gears operated from a crank to rotate said wheel, and an inking-roll with which the dies come in contact as the wheel is rotated, two rollers for carrying a strip of paper that passes over a block in front of the lowest cutter and means for operating said cutter, die, and paper strip substantially as set forth.

3. In a cash-register having a wheel fitted with cutters and dies as described, a push-rod for operating said cutters and dies in combination with a gong and lever operated from said push-rod a bell-crank also operated from said push-rod, a paper-roller, a pawl-lever for rotating said paper-roller and a bar for locking the money-drawer all arranged and operated substantially as set forth.

4. In a cash-register a wheel having numbers upon its periphery a series of hollow cutters around its outer edge, said cutters being arranged with their centers parallel with the axis of said wheel, springs for holding said cutters in their normal position, a stamp or die arranged within each of said cutters and a spring within the cutter for retaining the die in its normal position substantially as set forth.

5. In a cash-register a wheel having numbers upon its periphery a series of hollow cutters and dies arranged near its outer edge and parallel with the axis of said wheel, an alarm-gong and a money-drawer the combination therewith of a push-rod, a gong-striker thrown back by said push-rod, a spring for throwing the striker against the gong, a bell-crank, a rod or bar for locking the money-drawer, the bell-crank being operated by said push-bar and a spring for retaining the push-bar in its normal position substantially as set forth.

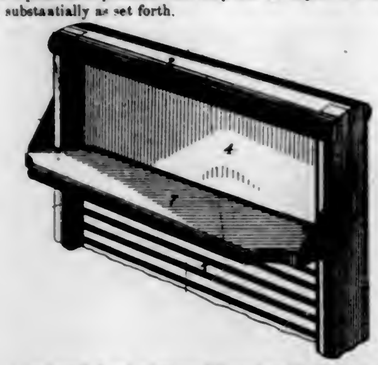
6. In a cash-register an indicating-wheel, a series of cutters around said wheel, dies within the cutters, a roller for inking the dies, two rollers for carrying a strip of paper, a gong and a gong-striker, a money-drawer and a coupon-drawer, a drawer-locking device and a bell-crank for operating the same and the paper-roller, a crank and series of gears for rotating the indicating-wheel and a push-bar for operating the cutters, dies, gong-striker, and bell-crank substantially as set forth.

578,296. WASHBOARD. JAMES T. SARGENT and JOHN H. REIMERS, Cleveland, Ohio. Filed Jan. 4, 1896. Serial No. 574,334. (No model.)

Claim.—1. A double-faced washboard having in combination therewith a fixed brand-board, arms pivotally mounted in the frame of the washboard, and a protector attached to the outer ends of the arms, the construction and arrangement of the parts being such that the protector may be swung on its pivotal support from one side to the other of the washboard to a position near the cross-bar, there to serve both as a protector and soap-holder, substantially as set forth.

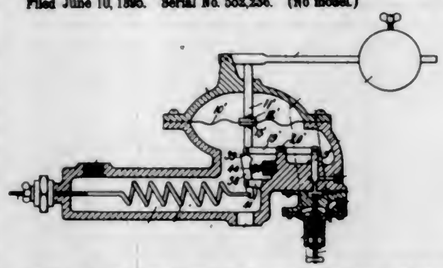
2. A double-faced washboard having in combination therewith a fixed braod-board, a protector, arms attached to the protector and pivotally mounted on the frame of the washboard, the construction and arrangement of the parts being such that the protector may be swung on its pivotal support from one side to the other of the washboard to a position of protector use adjacent to the head-piece or to the cross-bar, and in the latter position to also serve as a soap-box, substantially as set forth.

3. A double-faced washboard having in combination therewith a brand-board, arms pivotally mounted on the washboard-frame, and a protector adjustably mounted on said arms whereby the protector may be reversed from one side of the washboard to the other and adjusted to a position of protector use adjacent to the head-piece, or to a position of protector and soap-box use adjacent to the cross-bar, substantially as set forth.



4. A double-faced washboard having in combination therewith a brand-board, arms pivotally mounted on the washboard-frame, a protector adjustably mounted on said arms, whereby the protector may be reversed from one side of the washboard to the other, and adjusted to a position of protector and soap-box use adjacent to the cross-bar, or to a position of protector use adjacent to the head-piece, and a catch for holding the protector in the latter position, substantially as set forth.

578,297. EXPANSION-REGULATOR FOR REFRIGERATING-MACHINES. ELIEL L. SHARPNECK and GEORGE F. KNOX, Chicago, Ill. Filed June 10, 1895. Serial No. 552,236. (No model.)



Claim.—1. In a refrigerating apparatus, a valve, arranged to control the flow of refrigerant to the expansion chamber or coils, means for seating said valve by excess of pressure, and means arranged in the path of flow of the refrigerant and adapted to be actuated by variations of temperature thereof, for locking said valve in seated position: as and for the purpose set forth.

2. In a refrigerating apparatus a valve, arranged to control the flow of refrigerant to the expansion coils or chamber, means normally tending to unseat said valve, means adapted to be actuated by excess of pressure for seating said valve, and means arranged in the path of flow of refrigerant from the expansion coils or chamber, and actuated by variations in temperature of said refrigerant, for locking and releasing said valve; as and for the purpose set forth.

3. In a refrigerating apparatus, a valve arranged to control the flow of refrigerant to the expansion coils or chamber means normally tending to unseat said valve, means actuated by excess of pressure for seating said valve, and means for retaining said valve to its seat, said means adapted to be automatically released by variations in temperature of the refrigerant from said expansion coils or chamber; as and for the purpose set forth.

4. In a refrigerating apparatus, a valve arranged to control the flow of refrigerant, said valve adapted to be seated by excess of pressure of the refrigerant, means for locking said valve to its seat, and means for releasing said valve, comprising a thermostat arranged in the path of flow of the refrigerant from the expansion coils or chamber, and means for adjusting the action of said thermostat as and for the purpose set forth.

5. In a refrigerating apparatus, a valve arranged to control the flow of refrigerant, means for locking said valve to its seat, a spring arranged in the path of flow of the refrigerant from the expansion coils or chamber and connected to said locking means, and adapted to release the same by the expansion thereof, due to the decrease of temperature of said refrigerant; as and for the purpose set forth.

6. In a refrigerating apparatus, a valve arranged to control the flow of refrigerant, a pivoted latch arranged to hold said valve to its seat, and a thermostat arranged in the path of flow of gases from the expansion coils or chamber, adapted to control said latch; as and for the purpose set forth.

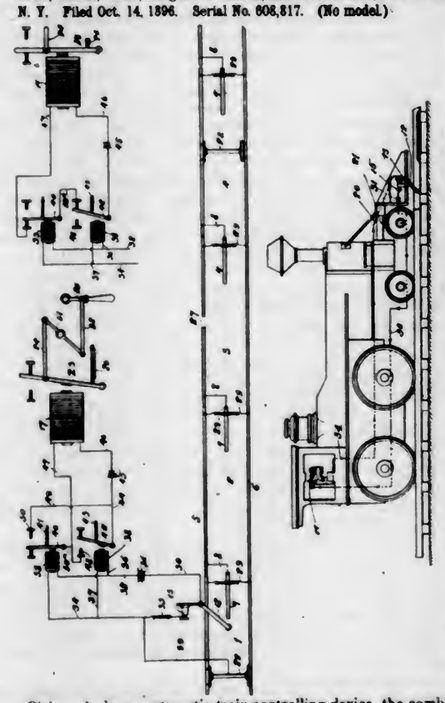
7. In a refrigerating apparatus, a valve arranged to control the flow of refrigerant, a pivoted latch for holding said valve to its seat, and a spring arranged in the path of flow of the gases from the expansion coils or chamber and adapted by the expansion and contraction thereof, due to variations in the temperature of said gases, to actuate said latch: as and for the purpose set forth.

8. In a refrigerating apparatus, a valve arranged to control the flow of refrigerant, a pivotal catch, a spring arranged in the path of flow of gases from the expansion coils or chamber, attached to said catch, whereby the expansion or contraction of said spring, due to variations in temperature of said gases, effects a movement of said catch to release said valve or to hold the same to its seat; as and for the purpose set forth.

9. In a refrigerating apparatus, a valve arranged to control the flow of refrigerant, a pivoted latch for holding said valve to its seat, a thermostat arranged in the path of flow of the gases from the expansion chamber or coils and adapted to actuate said latch, and means for adjusting said thermostat; as and for the purpose set forth.

10. In a refrigerating apparatus, a passage through which the refrigerant flows to the expansion coils or chamber, a valve arranged to control the flow of refrigerant and a safety-valve arranged in said passage, yielding means adapted to hold said valve normally unseated, said yielding means adapted to be actuated by excess of pressure to seat said valve to cut off the flow of refrigerant, and means for adjusting the tension of said yielding means, whereby the point at which the flow of refrigerant is cut off may be regulated; as and for the purpose set forth.

578,298. TRAIN-CONTROLLING DEVICE. CHRISTOPHER A. SHEA, Milton, Mass., assignor to himself, and Peter Bodine, New York, N. Y. Filed Oct. 14, 1896. Serial No. 608,817. (No model.)



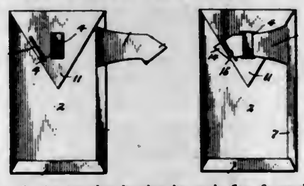
Claim.—1. In an automatic train-controlling device, the combination of a train-circuit consisting of a battery, a resistance and an electromagnet, a track-circuit consisting of the two rails of the track, resistance-coils connecting opposite rails, and a short auxiliary contact-rail connected to one of the track-rails, the contact-lever carried by the train and adapted to cut in the train-circuit through the track-circuit, and electromagnetic mechanism carried on the train and connected with the air-brake valve-lever, and adapted by the opening or short-circuiting of the train or track circuit to operate the brakes substantially as specified.

2. In an automatic train-controlling device, the combination of a closed train-circuit consisting of a battery, a resistance and two electromagnets, one of which is operated by an increase of current and the other by a decrease of current, a track-circuit consisting of the two rails of the track, a resistance connecting opposite rails and a short auxiliary contact-rail connected to one of the track-rails, a contact-lever carried by the train and adapted to cut in the train-circuit through the track-circuit, and electromagnetic mechanism carried on the train and connected to the air-brake valve-lever and adapted by the opening or short-circuiting of the train or track-circuit to operate the brakes and stop the train, substantially as specified.

3. In an automatic train-controlling device, the combination of a train-circuit consisting of a source of electricity, a resistance, and electromagnetic mechanism operated by an increase of current and also by a decrease of current, a track-circuit consisting of the two rails of the track, a resistance connecting opposite rails, a short auxiliary contact-rail connected to one of the track-rails, a contact-lever carried by the train and adapted to cut in the train-circuit through the track-circuit, and an electromagnet on the train and connected with the air-brake valve-lever and adapted by the opening or short-circuiting of the train or track circuit to operate the brakes and stop the train, substantially as specified.

4. The combination herein described, of a closed train-circuit consisting of a battery, a resistance, an electromagnetic mechanism operated by an increase or a decrease of current, a track-circuit consisting of the rails of the track, a resistance connected thereto, and a contact-rail connected to one of the track-rails, and a contact-arm carried by the train and adapted to cut in the track-circuit through the train-circuit, substantially as specified.

578,299. ENVELOP. CHARLES A. SNOW, Lime Springs, Iowa, assignor of one-fourth to Charles N. Flagler, same place. Filed Aug. 19, 1896. Serial No. 603,250. (No model.)

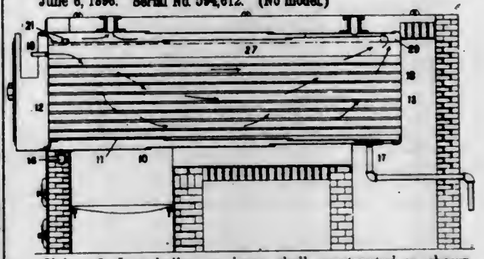


Claim.—1. An envelop having its main flap formed with spaced parallel slits forming a loop, and comprising an end flap having an aperture adapted when said flap is folded to overlie said slits, and a laterally-disposed tab integral with the body of the envelop and adapted to be inserted through said aperture and slits and under the loop, substantially as and for the purpose described.

2. An envelop, comprising the main body portion, a main side flap having spaced parallel slits, an end closing-flap having a rectangular aperture which may be brought over said slits and also provided with an auxiliary slit at one side of said aperture, and a lateral tab forming an extension of the body of the envelop, the same being adapted to be inserted as to its end portion through said aperture and the several slits, substantially as described.

3. An envelop having its main flap provided with spaced parallel slits forming an intermediate loop, an end flap having an aperture adapted to fold and overlie the slits and loop, a tab integral with the body of the envelop designed to be inserted through said aperture and slits and under the loop, and a lateral extension as 5 underlying the slits as and for the purposes described.

578,300. BOILER. FRED T. STEVENS, Bryant's Pond, Me. Filed June 6, 1896. Serial No. 594,612. (No model.)



Claim.—1. In a boiler, an inner shell constructed as shown whereby it can be substantially filled with tubes which are, in operation, always covered by the feed-water, and an outer shell inclosing

the inner shell, the front and back heads serving for both inner and outer shells, said inner shell having an overflow-opening located near its back end at its top and a vent-pipe near its front end at its top, substantially as and for the purposes set forth.

2. In a boiler, the inner and outer shells composed of plates, diverging from the back head; the front head 12; and the back head 13; said inner shell being provided with the overflow-opening 20 and the back blow-off 17, and said outer shell being provided with the front blow-off 16, substantially as described.

3. In a boiler, the inner and outer shells composed of plates, diverging from the back head; the front head 12; and the back head 13; said inner shell being provided with the overflow-opening 20, the vent-pipe 21, and the back blow-off 17, and said outer shell being provided with the front blow-off 16, substantially as described.

4. A boiler comprising the inner shell 11 eccentrically placed within the outer shell 10, said inner shell having the overflow-opening 20 located as shown so that the inner shell may be nearly filled with tubes and thereby permitting the maintaining of two different water-levels, the water-level of the space between said shells being near the horizontal center line of the boiler, and the water-level of the inner shell being near its top, the feed-water entering the inner shell and overflowing therefrom into the space between the shells, substantially as described.

5. A boiler comprising the inner shell placed eccentrically within the outer shell, said inner shell having the set of tubes 18, and being provided with the overflow-opening so placed as to permit the maintaining of two separate water-levels within the boiler, and being also provided with the vent-pipe 21 by means of which the surging of the water within the inner shell is prevented, the feed-water entering the inner shell and overflowing therefrom into the space between the shells, substantially as described.

6. A boiler provided with an inner and an outer shell, said inner shell being provided with the feed-pipe located near the front head and the overflow-opening located at the top of the inner shell near the back head, and said outer shell provided with the nozzle located near the front head, by means of which, in operation, the combined natural and forced circulation is in lines directly opposed to that taken by the products of combustion from the grate to the smoke-arch, substantially as and for the purposes set forth.

578,301. WITHDRAWN.

578,302. COFFIN. JOHN D. TURNEVILLE, Fulton, Ky., assignor of one-half to John J. Strickland, St. Louis, Mo. Filed May 5, 1896. Renewed Jan. 13, 1897. Serial No. 619,107. (No model.)



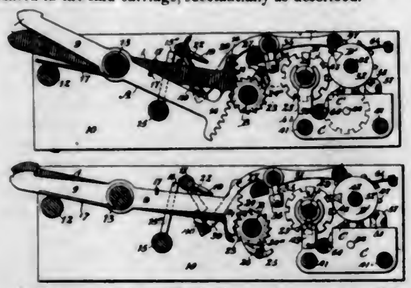
Claim.—1. The herein-described casket or coffin consisting of the case made of a single piece, a projection or ledge surrounding the exterior surface of the same and formed integral therewith, the handles secured thereto, a lid for the case provided with grooves to enter the flange of the case proper, a flange around the interior of the case, a lid resting thereon for the purposes set forth, a tube formed on the lower lid, a corresponding tube on the upper lid in alinement with each other and a closure for the outer opening of the upper lid, and a valve, for the purpose set forth.

2. A coffin or casket consisting of the case made of a single piece, a projection or ledge surrounding the exterior surface of the same and formed integral therewith, the handles secured thereto, a lid for the case provided with grooves to enter the flange of the case, a flange around the interior of the case, a lid resting thereon, a tube formed on both the upper and lower lids and in alinement with each other, a closure for the outer opening of the upper lid, a valve for the same for the purposes set forth, and openings in said tube communicating with the space between the inner and outer lids, as set forth.

578,303. TYPE-WRITING AND ADDING MACHINE. JACOB C. WOLFE, New York, N. Y. Filed May 16, 1895. Renewed June 27, 1896. Serial No. 597,261. (No model.)

Claim.—1. The combination with the frame, the carriage, and the keys of a type writer, of a frame secured to the type-writer frame, adding-wheels mounted in the frame, means for operating the said wheels from the keys of the type-writer, a movable support connected with the carriage of the type-writer and tens-carrying wheels mounted in the said support, substantially as described.

2. The combination with the frame, the carriage, and the keys of a type-writer, of a frame secured to the frame of the type-writer, adding-wheels mounted in the frame, means for operating the said wheels from the keys of the type-writer, a carriage mounted in the frame and connected with the operating mechanism of the adding-wheels and with the type-writer carriage, and tens-carrying wheels mounted in the said carriage, substantially as described.



3. The combination with the frame, the carriage, and the keys of a type-writer, of a frame secured to the type-writer frame, adding-wheels mounted in the frame, means for operating the wheels from the keys of the type-writer, a carriage carrying the transmitting-wheel of the operating mechanism and connected with the type-writer carriage, and tens-carrying wheels mounted in the said carriage, substantially as described.

4. The combination with the frame, the carriage, and the keys of a type-writer, of a frame secured to the type-writer frame, adding-wheels mounted in the frame, a carriage in the frame adjacent to the adding-wheels and connected with the type-writer carriage, tens-carrying wheels mounted in the said carriage, actuating-levers operated by the type-writer keys, and intermediate mechanism between the actuating-levers and the adding-wheels for operating the latter, substantially as described.

5. The combination with the frame, the carriage, and the keys of a type-writer, of a frame secured to the type-writer frame, toothed adding-wheels mounted in the frame, a carriage in the frame adjacent to the adding-wheels, and connected with the type-writer carriage, tens-carrying wheels in the said carriage, a toothed transmitting-wheel carried by the carriage, actuating-levers operated by the keys of the type-writer, and intermediate mechanism between the actuating-levers and the transmitting-wheel, substantially as described.

6. In an adding attachment for type-writers, the combination with a supporting-frame, of toothed adding-wheels mounted in the frame, a sliding carriage, tens-carrying wheels mounted in the carriage, means for operating the adding-wheels, and a locking-bar carried by the carriage and engaging the teeth of the adding-wheels to hold them stationary, substantially as described.

7. In an adding attachment for type-writers, the combination with a supporting-frame, of adding-wheels mounted in the frame and provided with teeth, a sliding carriage, tens-carrying wheels mounted in the carriage, a locking-bar secured to the carriage and grooved to receive the teeth of the adding-wheels, a toothed transmitting-wheel movable with the carriage and meshing with the teeth of the adding-wheels, and means for operating the transmitting-wheel, substantially as described.

8. In an adding attachment for type-writers, the combination with a frame, adding-wheels therein, and means for operating the said wheels, of a sliding carriage, tens-carrying wheels mounted in the carriage and provided with teeth, and a guide-bar secured in the frame and provided with a rib adapted to enter the space between the teeth of the tens-wheels to hold the said wheels in alinement, substantially as described.

9. In an adding attachment for type-writers, the combination with adding-wheels provided with teeth, actuating-levers, and means for operating the adding-wheels from the actuating-levers, of a pivoted alining-bar engaging the adding-wheels between the teeth thereof and provided with a forwardly-projecting arm having a projection thereon, and a locking-shaft operated by the actuating-levers and provided with a projection for engaging the projection of the alining-bar, substantially as described.

10. In an adding attachment for type-writers, the combination with adding-wheels, actuating-levers, and means for operating the adding-wheels from the actuating-levers, of a pivoted alining-bar engaging the adding-wheels, and provided with a forwardly-projecting arm carrying a latch, a locking-shaft provided with a pin with which the latch of the alining-arm engages, substantially as described.

11. In an adding attachment for type-writers, the combination with adding-wheels, actuating-levers, and means for operating the wheels from the actuating-levers, of a pivoted alining-bar engaging the adding-wheels and provided with a forwardly-projecting arm, a latch on said arm of the alining-bar, and a locking-shaft provided with a number of pins corresponding in number to the actuating-levers, and with a pin for engaging the latch of the arm of the alining-bar, substantially as described.

12. In an adding attachment for type-writers, the combination with adding-wheels, actuating-levers, and means for operating the adding-wheels from the actuating-levers, of a spring-actuated lock-shaft above the actuating-levers and provided with pins, one above each actuating-lever, and with a detent at one end, and a ratchet-wheel on the power-transmitting shaft of the operating mechanism, substantially as and for the purpose set forth.

13. In an adding attachment for type-writers, the combination with adding-wheels, actuating-levers, and means for operating the adding-wheels from the actuating-levers, of an alining-bar engaging the adding-wheels, a lock-shaft above the actuating-levers and operated thereby, means for operating the alining-bar from the lock-shaft, and a pawl-and-ratchet mechanism between the lock-shaft and the power-transmitting shaft of the operating mechanism, substantially as described.

14. In an adding attachment for type-writers, the combination with an actuating-lever having a toothed segment, of a power-transmitting shaft, a ratchet-wheel secured to the shaft, a pinion loose on the said shaft and provided with an arm, a double spring-actuated pawl pivoted on the arm of the pinion, and a stop-bar above the power-transmitting shaft and with which the pawl engages, substantially as and for the purpose specified.

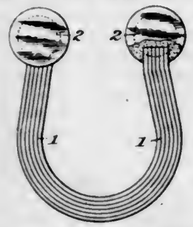
15. In an adding attachment for type-writers, the combination with a series of actuating-levers having toothed segments, of a power-transmitting shaft, ratchet-wheels secured to the shaft, pinions loose on the said shaft and each provided with an arm, a double spring-actuated pawl carried by the arm of each pinion, a stop-bar above the power-transmitting shaft and with which the pawls engage, a shaft above and in front of the stop-bar and provided with trip-fingers, and shoes pivoted on the trip-fingers, substantially as described.

16. In an adding attachment for type-writers, the combination of a shaft having endwise movement, actuating-levers mounted upon the shaft and movable therewith, and a plate having right-angled slots through which the actuating-levers project, whereby provision is made for moving the said levers out of registry or alinement with the keys of the type-writer and locking the same, substantially as described.

17. In an adding attachment for type-writers, the combination with a longitudinally-grooved shaft or rod provided with annular grooves, of adding-wheels mounted on the shaft or rod and each provided with a spur projecting into the hub, and a key fitting in the longitudinal groove of the shaft or rod and provided with teeth, substantially as and for the purpose set forth.

18. In an adding attachment for type-writers, the combination with a supporting-frame, a driven shaft mounted in the frame, and a transmitting toothed wheel mounted to slide on the said shaft, of a carriage provided with an arm engaging the hub of the transmitting-wheel, tens-carrying wheels mounted in the carriage and having teeth in two planes, one plane being concave and the other convex at the teeth, and adding-wheels mounted in the frame and provided with a plurality of teeth on one side and a single tooth on the opposite side, substantially as described.

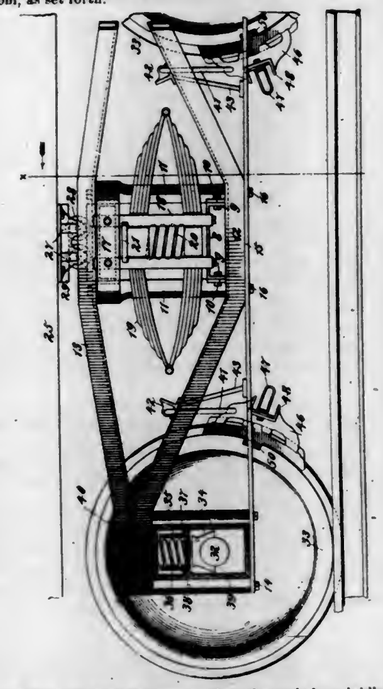
578,304. ELECTRIC RAIL-BOND. BUDD J. JONES, Chicago, Ill. Filed Apr. 29, 1896. Serial No. 589,580. (No model.)



Claim.—An electric rail-bond, comprising a loop shaped body portion, formed of a series of strands or bars arranged side by side, so as to have lateral compactness, and rivet-studs secured by casting or otherwise to the ends of such body portion and arranged to project laterally therefrom, substantially as set forth.

578,305. CAR-TRUCK. HUGH BAINES, Brooklyn, N. Y., assignor to the Baines Car Truck Company, New York, N. Y. Filed June 7, 1892. Serial No. 435,868. (No model.)

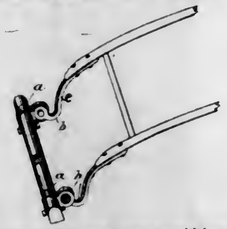
Claim.—1. The combination in a car-truck of elliptic springs and coil-springs, the elliptic springs being arranged parallel with the length of the car and at the end of the bolster and outside of the frame, and so arranged as to take the entire weight of the car when the latter is empty, and the coil-springs being located inside of, and adapted to operate as supplementary springs to, the elliptics, and to come into play only when the car is loaded, with the bolster and the bottom transom, as set forth.



2. In a car-truck the combination of an axle-box rigidly secured in the truck-frame and springs located within the axle-box and between the journal of the axle and the top of the axle-box, and a containing-cup in which the said spring is located, all adapted to operate substantially as and for the purposes set forth.

3. In a car-truck the combination of the upper arch-bar, the inverted arch-bar and the cross-brace 42 adapted to operate as a carrier for the brake-hanger and as a truss for the truck-frame, the said cross-brace being connected to the inverted arch-bar, substantially as and for the purposes set forth.

578,306. THILL-COUPLING. EDSON T. MARTIN, Portland, Oreg., assignor of two-thirds to J. W. Foster and Joseph Delsman, same place. Filed Nov. 28, 1893. Serial No. 492,280. (No model.)

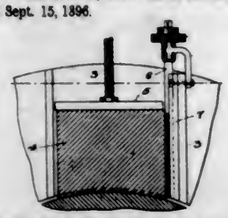


Claim.—1. A clip with a boss thereon, said boss having a socket-bearing with a segmental notch cut in the wall thereof, and a cam-face adjacent to the notch, in combination with a thill-iron having a hollow bearing fitting into the socket-bearing and notched adjacent to the hollow bearing to form a neck and shoulder, said neck having movement in the segmental notch and the shoulder riding on the cam-face.

2. A thill-coupling comprising a clip with a boss thereon, said boss having a recessed socket-bearing, a cam-face and segmental notch, a thill-iron having a hollow bearing, a shoulder fitting the recess, a neck having movement in the segmental notch, and a bolt for securing the parts together.

REISSUES.

11,590. WOOD-GRINDING APPARATUS. EDWARD F. MILLARD, Jackson, Mich. Filed Nov. 23, 1896. Serial No. 613,187. Original No. 567,720, dated Sept. 15, 1896.



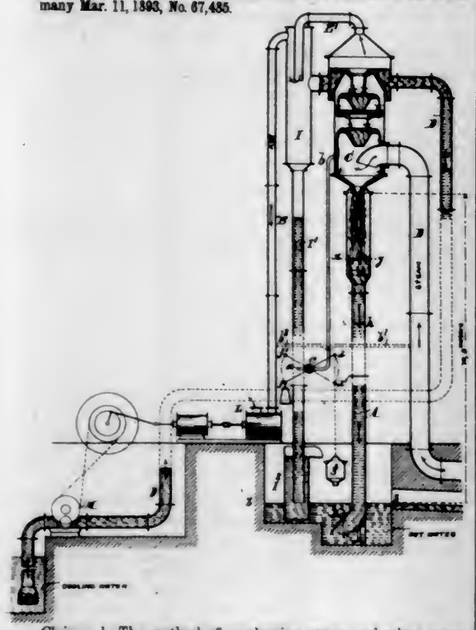
Claim.—1. In wood-grinding apparatus a hopper to contain the wood blocks in process of reduction, provided with one or more moving feed-surfaces upon which said block is made to rest and travel, said feed-surfaces being fixed relatively with respect to the hopper, substantially as stated.

2. In wood-grinding apparatus, a hopper for wood blocks, a back plate, and a moving feed-surface as a part of said back plate to support said blocks, and mechanism to move the feed-surface to obviate friction produced by the forward travel of the blocks, substantially as explained.

3. In grinding apparatus, a revoluble grinder, a hopper cooperating with said grinder, a back plate to support the wooden block against the thrust of the grinder, combined with a follower to push the block toward the grinder, and a feed device forming a surface portion of the back plate and movable with the block, substantially as described.

4. The combination with a revoluble grinder, one or more hoppers circumferentially of the grinder, a follower for each hopper, mechanism for actuating said follower, and a movable hopper-surface comprising one or more stationary screws for rotation, a sleeve-post to prevent endwise movement of the screw, and mechanism for producing rotation of the screws, substantially as set forth.

11,591. CONDENSER. FRANZ J. WEISS, Basle, Switzerland. Filed Sept. 21, 1896. Serial No. 606,598. Original No. 496,761, dated May 2, 1893. Patented in England Sept. 17, 1892, No. 16,670, and in Germany Mar. 11, 1893, No. 67,435.



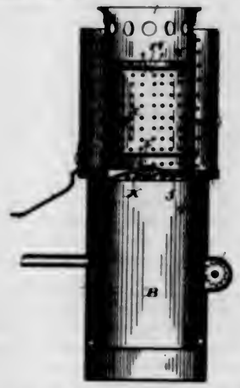
Claim.—1. The method of condensing steam and other vapors, which consists in exhausting or rarefying the air in the condenser, causing the condensing water and steam to pass through the condenser in counter-currents alternating with parallel currents, and temporarily admitting air into the condenser to lower the vacuum and bring the parallel-current condensation back to condensation by counter-currents.

2. The method of condensing steam and other vapors, which consists in exhausting or rarefying the air in the condenser, causing the condensing water and steam to pass through the condenser in counter-currents alternating with parallel currents, and temporarily admitting air into the pipes in connection with the condenser to lower the vacuum and bring the parallel-current condensation back to condensation by counter-currents.

3. In a counter-current condenser the combination with the air-suction pipe of the condenser of a water-barometer pipe I' a connection between the interior of the condenser and the outer air, a pail suspended below the overflow of the water-barometer waste-pipe and means as described for temporarily opening the connection to the outer air said means being actuated by the weight of the water flushing into the pail, substantially as specified.

4. In a counter-current condenser the combination with the air-suction pipe of the condenser of a water-barometer waste-pipe I' a connection between the air-suction pipe and the outer air, a pail suspended below the overflow of the water-barometer waste-pipe and means as described for temporarily opening the connection to the outer air, said means being actuated by the weight of the water flushing into the pail, substantially as specified.

11,592. HYDROCARBON-BURNER. ATWELL J. BLACKFORD, Medina, Ohio, assignor of one-half to the Durand Manufacturing Company, same place. Filed Apr. 16, 1896. Serial No. 587,873. Original No. 518,305, dated Apr. 17, 1894.



Claim.—1. An Argand burner having at the upper end of its wick-tube a vaporizing-channel in communication with the wick, an outer combustion-tube, an inner perforated combustion-tube, a perforated air-retarding diaphragm spanning the upper end of the wick-tube adjacent the vaporizing-channel, and just below it, and a perforated diaphragm spanning the lower end of the perforated combustion-tube just above the vaporizing-channel, the parts cooperating to retard upward draft and force air through the inner combustion-tube at the point of vaporization, while allowing an upward escape of unvitiated air to within the inner combustion-tube above the said upper diaphragm, for the purpose described.

2. A burner of the type described, having an annular vaporizing-chamber, perforated combustion-tubes surrounding said chamber, a perforated diaphragm situated within the inner perforated tube just above but adjacent the vaporizing-point to arrest and deflect the air through the perforated tube into the mixing-chamber, and permit part of the air to pass into the tube above, and a diaphragm within and spanning the upper portion of the inner tube below its top and provided with a central opening, and imperforate adjacent the wall of the tube whereby most of the air is confined between the diaphragms and forced through the inner perforated tube into the mixing-chamber, and permit an escape of unvitiated air through said central opening to feed the interior of the flame thereabove.

3. In a burner of the type described comprising a burner having inner and outer combustion-tubes constituting a mixing-chamber between them, the inner tube perforated and a diaphragm situated within and at the upper portion of the inner tube and having a central opening, whereby nearly all the upflowing air is retarded within the tube and forced through it into the mixing-chamber and part permitted to pass through said central opening to supply the interior of the flame above with oxygen.

4. A burner of the type described comprising a burner having a mixing-chamber and an inner perforated combustion-tube, the combination therewith of a diaphragm situated within the tube having a central opening, whereby the upflowing air adjacent the perforated tube is retarded and forced therethrough into the mixing-chamber.

5. A burner of the type described, comprising a burner having combustion-tubes forming between them a mixing and combustion chamber, a diaphragm having a central opening situated within the upper portion of the inner tube and below its upper end, the inner tube having passages or openings above and below the diaphragm which establish communication between the inner tube and the mixing and combustion chamber.

6. A burner of the type described, comprising a burner having inner and outer combustion-tubes constituting a mixing-chamber between them, a diaphragm with a central opening situated within the inner tube below its upper end, the inner tube perforated below said diaphragm, and provided with large openings at a point above said diaphragm.

7. A burner of the type described comprising inner and outer perforated tubes constituting a mixing and combustion chamber between them, the inner tube perforated and open at its lower end to the atmosphere, a perforated diaphragm situated within the inner tube near its lower end, a diaphragm with a central opening within the inner tube and situated near its upper end, and openings in said inner tube situated at a point above the said centrally-perforated diaphragm.

8. In an oil-burner, the body of the burner constructed for a wick, the combustion-tubes connected together and free to rotate on the burner, and a single projection on the outer tube forming a pivot on which to tilt said tubes to light the burner, and continued outwardly from the tubes to constitute a handle for rotating said tubes, substantially as described.

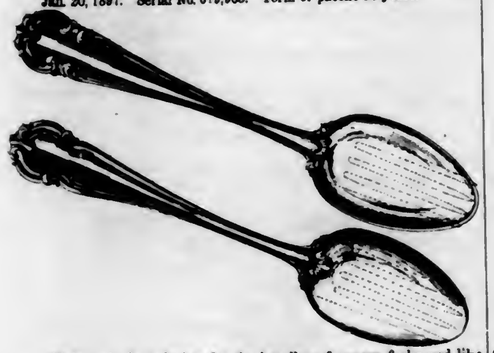
9. The burner, and connected inner and outer perforated combustion-tubes having a chamber between them, the inner tube being provided with a diaphragm in its upper end having a central air opening or passage and the said inner tube extended above the outer tube and having a series of large openings about its top above said diaphragm, said inner tube being imperforate between said diaphragm and said openings, substantially as described.

10. The burner described having a pair of perforated combustion-walls and two perforated diaphragms spanning the interior of the burner and arranged respectively in about the plane of the base of the flame and some distance above such base and forming a cooling and air-collecting chamber between them, substantially as described.

11. A burner of the type described, having an annular vaporizing-chamber, perforated combustion-tubes above the vaporizing-chamber, a perforated diaphragm situated within the inner perforated tube just above but adjacent the vaporizing-point to arrest air and reflect the same through the perforated tube into the mixing-chamber and permit part of the air to pass into the tube above, and a perforated diaphragm within and spanning the upper portion of the inner tube below its upper extremity, whereby most of the upflowing air is confined between the diaphragms and forced through the inner perforated tube into the mixing-chamber and a portion of unvitiated air permitted to escape through the upper diaphragm to feed the interior of the flame thereabove.

DESIGNS.

26,696. HANDLE FOR SPOONS, &c. AUGUST MILLER, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Jan. 20, 1897. Serial No. 619,985. Term of patent 14 years.



Claim.—1. In a design for the handles of spoons forks and like articles, the front face as herein shown and described.

2. In a design for the handles of spoons forks and like articles, the back face as herein shown and described.

3. The design for the handles of spoons forks and like articles consisting of the front face and the back face as herein shown and described.

26,697. LENS FOR EYEGLASSES. PRICE C. CLAFLIN, Washington, D. C. Filed Jan. 25, 1897. Serial No. 620,693. Term of patent 14 years.



Claim.—The design for cataract-lenses for eyeglasses and spectacles, substantially as herein shown and described.

26,698. CRUMB-TRAY. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Jan. 25, 1897. Serial No. 620,702. Term of patent 3½ years.



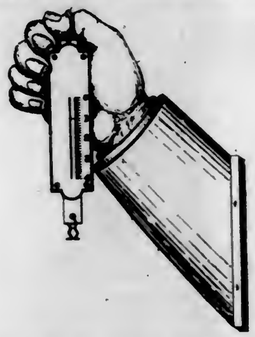
Claim.—The design for a crumb-tray, as herein shown and described.

26,699. CRUMB-SCRAPER. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Jan. 25, 1897. Serial No. 620,703. Term of patent 3½ years.



Claim.—The design for a crumb-scraper, as herein shown and described.

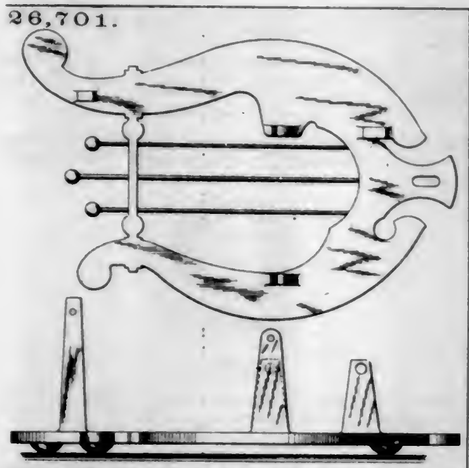
26,700. BRACKET. EMIL BERBRACH, Brooklyn, N. Y. Filed Jan. 19, 1897. Serial No. 619,813. Term of patent 7 years.



Claim.—The design for a bracket herein shown and described.

26,701. PHONOGRAPH-FRAME. GIANNI BETTINI, New York, N. Y. Filed Jan. 23, 1897. Serial No. 620,473. Term of patent 14 years.

26,701.



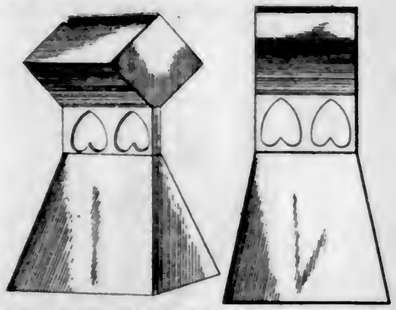
Claim.—The design for a phonograph-frame, substantially as shown and described.

26,702. PICTURE-FRAME MOLDING, &c. CHARLES BOSWORTH, Brooklyn, N. Y. Filed Jan. 11, 1897. Serial No. 618,884. Term of patent 3½ years.



Claim.—The design for a molding for a picture-frame, or the like, substantially as herein shown and described.

26,703. MATCH-SAFE. NICHOLAS ALTMYER, Coggon, Iowa. Filed Jan. 20, 1897. Serial No. 619,983. Term of patent 14 years.



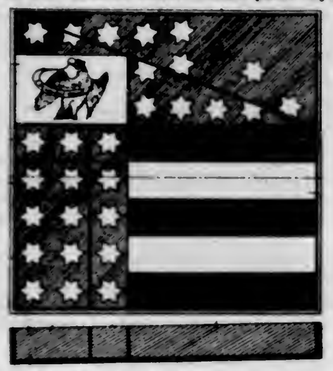
Claim.—The design for a match-safe herein shown and described.

26,704. BOX. CHARLES A. MORNINGSTAR, Columbus, Ohio, assignor to William A. Gill, same place. Filed Dec. 18, 1896. Serial No. 616,197. Term of patent 14 years.



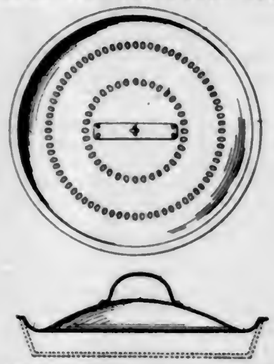
Claim.—The design for a box consisting of a straight vertical flange, a flat bottom, a swelled or expanded body portion having a straight vertical wall and having its upper and lower edges similarly rounded off to meet said flange and bottom respectively, and a cover having a depending flange to fit over the box-flange, a beaded beveled portion above said flange, and a bead above said bevel, and a flat top surface, as shown and described.

26,705. PUZZLE-BOX. JULIUS L. HANSON, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,666. Term of patent 14 years.



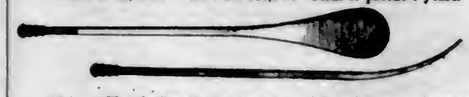
Claim.—The design for a puzzle-box as herein shown and described.

26,706. FRYING-PAN COVER. CHRISTIANA EAGLE, Weston, Canada. Filed Jan. 19, 1897. Serial No. 619,814. Term of patent 7 years.



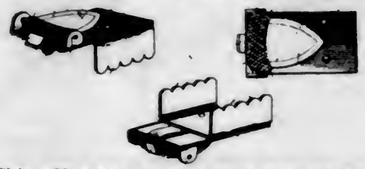
Claim.—The design for a frying-pan cover or lid herein shown and described.

26,707. TAMPON-CARRIER, &c. ULRICH HARDER, St. Louis, Mo. Filed Dec. 19, 1896. Serial No. 616,343. Term of patent 7 years.



Claim.—The design for a tampon-carrier and tongue-depressor substantially as herein shown and described.

26,708. CLASP. WILLIAM A. JOHNSTON, Homer, La. Filed Jan. 19, 1897. Serial No. 619,815. Term of patent 7 years.



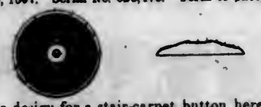
Claim.—The design for a clasp herein shown and described.

26,709. LOCK-CASE. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Jan. 21, 1897. Serial No. 620,151. Term of patent 14 years.



Claim.—The design for a lock-case substantially as herein shown and described.

26,710. STAIR-CARPET BUTTON. DAVID WALKER, Newark, N. J. Filed Jan. 23, 1897. Serial No. 620,476. Term of patent 7 years.



Claim.—The design for a stair-carpet button herein shown and described.

26,711. STAIR-CARPET BUTTON. ROBERT H. WARREN, Newark, N. J. Filed Jan. 23, 1897. Serial No. 620,475. Term of patent 7 years.



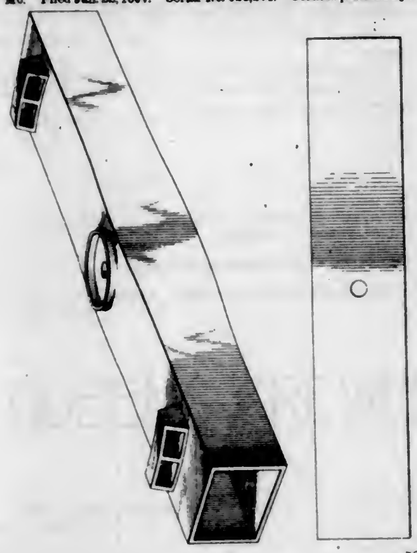
Claim.—The design for a stair-carpet button herein shown and described.

26,712. WASHER FOR BOLTS. FRANK K. WAGNER, Philipsburg, Pa. Filed Jan. 21, 1897. Serial No. 620,148. Term of patent 7 years.



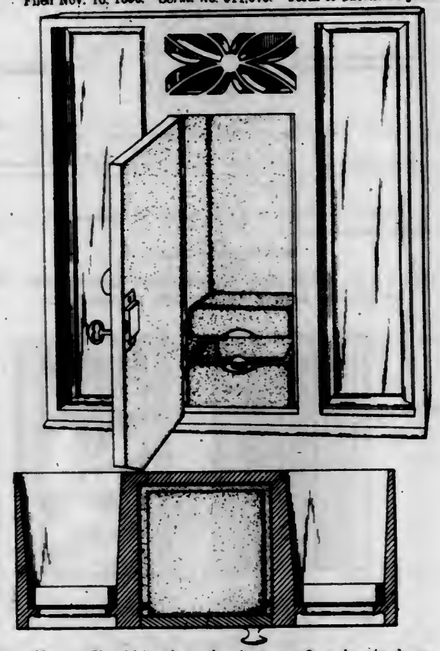
Claim.—The design for a washer for bolts and nuts, substantially as herein shown and described.

26,713. CAR-TRUCK BOLSTER. EDWARD F. GOLTRA, St. Louis, Mo. Filed Jan. 22, 1897. Serial No. 620,271. Term of patent 14 years.



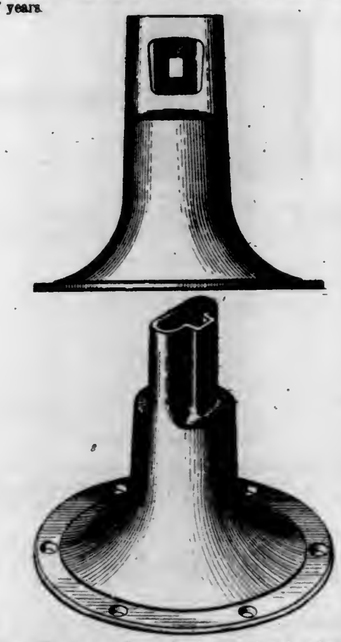
Claim.—The design for a car-truck bolster, substantially as herein shown and described.

26,714. SLEEPING-CAR SAFE. ISAAC FREED, Harrisburg, Pa. Filed Nov. 10, 1896. Serial No. 611,676. Term of patent 14 years.



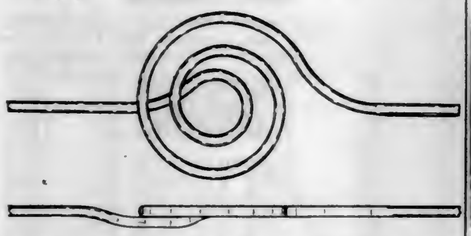
Claim.—The design for a sleeping-car safe, as herein shown and described.

26,715. PEDESTAL FOR FURNITURE. GABRIEL A. BOSRICK, Boston, Mass. Filed Jan. 25, 1897. Serial No. 620,696. Term of patent 7 years.



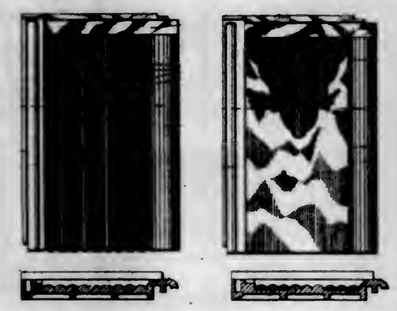
Claim.—The design for a furniture-pedestal, substantially as herein described.

26,716. SOLID SPINDLE FOR BEDSTEADS. WILLIAM HESS, Buffalo, N. Y. Filed Nov. 13, 1896. Serial No. 612,026. Term of patent 14 years.



Claim.—The design of a solid spindle for bedsteads as herein described and set forth.

26,717. ROOF-TILE. CLIFTON KEISER, Zanesville, Ohio. Filed Apr. 22, 1896. Serial No. 588,642. Term of patent 7 years.



Claim.—The design for a roofing-tile substantially as herein shown and described.

26,718. PLATE-GLASS. WILLIAM LENDER, Allegheny, Pa. Filed Dec. 21, 1896. Serial No. 616,541. Term of patent 14 years.



Claim.—The design for plate-glass, substantially as shown and described.

26,719. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley, Joseph Bromley, and Edward Bromley, same place. Filed Jan. 22, 1897. Serial No. 620,275. Term of patent 7 years.



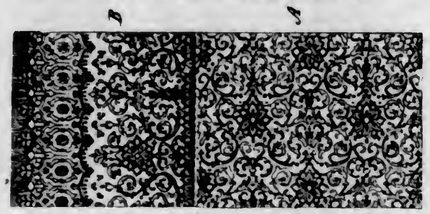
Claim.—The design for a rug substantially as shown and described.

26,720. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley, Joseph Bromley, and Edward Bromley, same place. Filed Jan. 22, 1897. Serial No. 620,276. Term of patent 7 years.



Claim.—The design for a rug, substantially as shown and described.

26,721. CARPET. WINTHROP L. JACOBS, East Orange, N. J., assignor to the Bigelow Carpet Company, of Massachusetts. Filed Jan. 22, 1897. Serial No. 620,272. Term of patent 3½ years.



Claim.—1. In the design for a carpet, the body A, substantially as shown.

2. In the design for a carpet, the border B, substantially as shown.

3. The design for a carpet consisting of the body A, and the border B, substantially as shown.

TRADE-MARKS

REGISTERED MARCH 2, 1897.

29,612. PARLOR GAME APPARATUS. PARKER BROS., Salem, Mass. Filed Jan. 25, 1897.

PILADEX

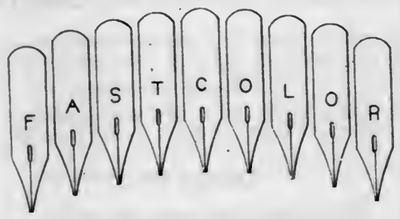
Essential feature.—The word "PILADEX." Used since March 5, 1896.

29,613. WRITING-PAPERS. THE MITTINEAGUE PAPER COMPANY, West Springfield, Mass. Filed Jan. 13, 1897.

STRATHMORE.

Essential feature.—The word "STRATHMORE." Used since December 1, 1895.

29,614. PENS. ELEAZER KEMPSHALL, Boston, Mass. Filed Jan. 23, 1897.



Essential feature.—A fanciful arrangement of pens bearing the letters "FASTCOLOR." Used since January 1, 1897.

29,615. NEEDLES. THOMAS HARPER, Redditch, England. Filed Jan. 12, 1897.

QUEENS CREWEL

Essential feature.—The words "QUEENS CREWEL." Used since June 26, 1886.

29,616. OPTIC GLASSES AND INSTRUMENTS. ARTHUR LÉVY, Paris, France. Filed Feb. 2, 1897.



Essential feature.—The monogram "IS." Used since September 1, 1896.

29,617. SHOES. CHARLES KALLMAN, Pittsburg, Pa. Filed Feb. 1, 1897.

Victor

Essential feature.—The word "VICTOR." Used since January 25, 1897.

29,618. RUBBER OR ELASTIC HEELS FOR BOOTS AND SHOES. DOMINICK A. MCDONALD, Boston, Mass. Filed Jan. 7, 1897.



Essential feature.—The word "MCDONALD" arranged within or upon a horseshoe-shaped or heel-shaped shield. Used since January 1, 1893.

29,619. ANTIFRICTION METAL. ROBERT B. WILSON, New York, N. Y. Filed Jan. 23, 1897.

THISTLE
BRAND

Essential feature.—The word-symbol "THISTLE BRAND." Used since May, 1889.

29,620. PACKING, GASKETS, AND RUBBER COMPOUND. THE PEERLESS RUBBER MANUFACTURING COMPANY, New York, N. Y. Filed Jan. 9, 1897.

RAIN-BESTO

Essential feature.—The compound word "RAIN-BESTO." Used since May 1, 1896.

29,621. GORING. CHADBOURNE & MOORE, Boston, Mass. Filed Nov. 11, 1896.

REX

Essential feature.—The word "REX." Used since June 1, 1896.

29,622. GORING. CHADBOURNE & MOORE, Boston, Mass. Filed Nov. 11, 1896.



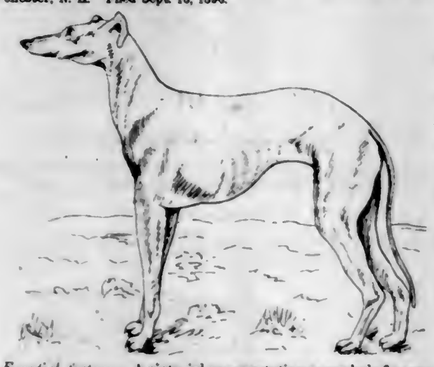
Essential feature.—A representation of a crown. Used since June 1, 1896.

29,623. TWILLED COTTON AND MIXED FABRICS. OTIS COMPANY, Palmer, Mass. Filed Nov. 5, 1896.

SERGINE

Essential feature.—The word "SERGINE." Used since September 15, 1896.

29,624. SHEETINGS, DRILLS, AND DUCKS. STARK MILLS, Manchester, N. H. Filed Sept. 16, 1896.



Essential feature.—A pictorial representation or symbol of a greyhound standing with head erect. Used since July 14, 1896.

29,625. COTTON GOODS, ESPECIALLY SHEETINGS AND DRILLINGS. TATA & CO., Bombay, India. Filed Nov. 30, 1896.



Essential feature.—A representation of a group of mandarins. Used since August 1, 1896.

29,626. MEDICINE FOR THE EYE. LUIGI VARESIO, Monongahela City, Pa. Filed Jan. 11, 1897.



Essential feature.—The word "PELLERINA." Used for upward of two hundred years.

29,627. HAIR AND SCALP REMEDIES. LAURA P. ELLIOTT, Newton, Mass. Filed Nov. 28, 1896.



Essential feature.—A representation of an adult female standing in a furnished room before a mirror, with luxuriant hair let down, and a youthful female sitting by and looking up at the adult female. Used since May, 1896.

29,628. MOUTH-WASH AND TOOTH-POWDER. HENRY IEVERS, Quebec, Canada. Filed Dec. 21, 1896.

"Q-C"

"LIQUID TOOTH POWDER"

Essential feature.—The combined letters and words "Q-C LIQUID TOOTH POWDER." Used since February 15, 1895.

29,629. TOILET ARTICLES AND PREPARATIONS. LAZELL, DALLEY & COMPANY, New York, N. Y. Filed Dec. 14, 1896.

EMPIRE VIOLET.

Essential feature.—The words "EMPIRE VIOLET." Used since July 1, 1896.

29,630. CAUSTIC SODA AND SILICATE OF SODA NOT USED IN CONNECTION WITH COMPOUNDS FOR SCALDING RAW WOOL. JOSEPH CROSFIELD & SONS, LIMITED, Warrington, England. Filed Oct. 15, 1896.



Essential feature.—A representation of a horseshoe and the word "HORSESHOE." Used since January, 1896.

29,631. LYE. WILLIAM H. PRIEMEYER, St. Louis, Mo. Filed Jan. 4, 1897.

FRANKLIN

Essential feature.—The word "FRANKLIN." Used since January 9, 1895.

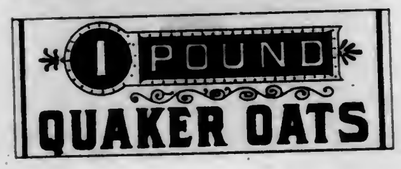
29,632. ROLLED OATS. THE AMERICAN CEREAL COMPANY, Akron, Ohio, Chicago, Ill., and Cedar Rapids, Iowa. Filed Jan. 15, 1897.











Essential feature.—The figure and word "1 POUND," the figure being in white on a circular red ground and the word in white on a rectangular red ground. Next to said figure and word appear the words "QUAKER OATS," in letters the upper portion of which are in red and the lower portion in black. To the right of these words and at the top of the facsimile appears the word "QUAKER" in white letters on a red ground, and below said word appears the representation of a person clad in Quaker garb, said representation being on a white ground surrounded by a rectangular yellow border, and adjacent to said border are a number of yellow grain-bearing stalks on a blue ground. Below the figure and stalks appears the word "ROLLED" in red letters, arranged on a white scroll having a yellow border, and below this appear the words "WHITE OATS," said words being in white lettering on a red ground. Below these words appear the name and address of the company. To the right of these words and representation appear words in eight different languages, describing the manner of preparation and use. To the right of these words appear within a rectangular blue ground, angularly disposed, the words "QUAKER OATS," and above these words appear the figure and word "1 POUND" in blue lettering, and the word "PURE" in red lettering, arranged on a white-and-red scroll. Intertwined between these features appear representations of grain-stalks on a yellow ground. The lower half, the division being on an inclined line, is colored red. Below the words "QUAKER OATS" are the words "MANUFACTURED BY" within a rectangular border. Below said words appear the name and address of the company. The facsimile is in two parts, as shown, one of which appears as above described, while the other has a yellow ground and shows the figure of a person clad in Quaker garb and having disposed at the sides thereof the words "QUAKER BRAND." Above the figure appear the words "USE ONLY," and below appear the words "ROLLED OATS." Used since November 9, 1896.

29,633. CONDIMENTS. THE PAPOLA COMPANY, Portland, Oreg. Filed Jan. 20, 1897.

PAPOLA

Essential feature.—The word "PAPOLA." Used since September 1, 1896.

29,634. CITRUS FRUITS, SUCH AS ORANGES, LEMONS, AND GRAPE FRUIT. WILLIAM R. WALL, Tustin, Cal. Filed Dec. 29, 1896.



Essential feature.—A representation of a cock or rooster. Used since March 1, 1885

29,635. CANDY. JAMES A. MCCLURE & SONS, New York, N. Y. Filed Jan. 26, 1897.

YALLER KID

Essential feature.—The words "YALLER KID." Used since October 25, 1896.

29,636. BEER. ACME BREWING COMPANY, Macon, Ga. Filed Jan. 21, 1897.



Essential feature.—The monogram "A B Co" on a globe. Used since June, 1895.

29,637. PORT WINE. SAMUEL STREIT & Co., New York, N. Y. Filed Nov. 10, 1896.



Essential feature.—The letter, word, character, and abbreviation "A. FERREIRA & Co." and the representation of an ox-cart bearing a cask behind which is seated a teamster. Used since August 25, 1896.

29,638. WHISKY. JOHN OSBORN'S SONS & COMPANY, New York, N. Y., and Philadelphia, Pa. Filed Jan. 11, 1897.

OLD

45

Essential feature.—The word and number "OLD 45." Used since June 1, 1896.

29,639. WHISKY. EDWIN WALTERS, Baltimore, Md. Filed Jan. 21, 1897.



Essential feature.—A representation of a heraldic crowned lion's head and the words "PRIVATE STOCK." Used since November 12, 1895.

29,640. GIN AND OTHER SPIRITUOUS LIQUORS. NATIONAL DISTILLING COMPANY, Milwaukee, Wis. Filed Jan. 28, 1897.



Essential feature.—The word "MISTLETOE." Used since December 28, 1896.

29,641. GIN. THE FIRM OF PIETER HOPPE, Schiedam, Netherlands. Filed June 21, 1895.

NIGHTCAP

Essential feature.—The words "NIGHT CAP." Used since March 23, 1872.

29,642. LOCKS AND LATCHES AND KEYS. THE YALE & TOWNE MANUFACTURING COMPANY, Stamford, Conn. Filed Jan. 29, 1897.

PARACENTRIC

Essential feature.—The word "PARACENTRIC." Used since 1890.

29,643. WOOD AND STEEL BORING-TOOLS. H. H. MATHEW COMPANY, Shelburne Falls, Mass. Filed Jan. 27, 1897.



Essential feature.—A diamond-shaped figure with the letter "S" inclosed therein. Used since 1876.

29,644. BICYCLES. SCHOVERING, DALY & GALES, New York, N. Y. Filed Feb. 2, 1897.

GOTHAM

Essential feature.—The word "GOTHAM." Used since November 1, 1892.

29,645. LAWN-MOWERS AND LAWN-TRIMMERS. PASTIME LAWN MOWER COMPANY, Detroit, Mich. Filed Feb. 3, 1897.

PASTIME

Essential feature.—The word "PASTIME." Used since June 1, 1896.

29,646. TONICS AND REMEDIES FOR ALCOHOLISM AND OTHER NERVOUS DISEASES. GEORGE L. WEED, WAYNE W. WILSON, and BENJAMIN F. CHADSEY, Brooklyn, N. Y. Filed Jan. 5, 1897.



Essential feature.—The words "ELECTRO PINE DEW DROPS FOR DRINKERS." Used since October 1, 1896.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Western District of Virginia.

WALTER BAKER & CO., LIMITED, *v.* BAKER.

Decided September 5, 1896.

1. TRADE-MARK—"GERMAN SWEET CHOCOLATE"—VALID—INFRINGED.

The words "German Sweet Chocolate" (German being the name of the individual who registered the trade-mark) are proper in a trade-mark, since "German" is not used in a geographical sense, and is infringed by the words "Germania Sweet Chocolate."

2. SAME—USE OF ONE'S NAME—CONTROLLING BY INJUNCTION.

A man has the right to the use of his own name so long as he uses it honestly and so as not to injure another having the same name, and to prevent such injury he may be required to use his name in a specific manner, pointed out in an injunction.

3. IDENTITY OF NAMES—UNFAIR COMPETITION.

One who enters into competition with another person of the same name who has an old and well-established business must differentiate his goods more carefully than is necessary in the case of a competitor of a different name.

4. UNFAIR COMPETITION—DATE OF ESTABLISHING BUSINESS.

It is unfair competition for the defendant to advertise that his chocolate business was established in 1785, though his ancestors of the same name had been engaged in a wholesale grocery business since about that date, when it appears that the complainant advertises truthfully of his chocolate business that it was established in 1780.

STATEMENT OF THE CASE.

This was a bill in equity to restrain alleged unfair competition in trade.

This is a suit brought for the purpose of restraining unfair competition in trade. The original bill was filed by Henry L. Pierce, and a supplemental bill has been filed by said Pierce and Walter Baker & Co., Limited, citizens of the State of Massachusetts, against W. H. Baker, a citizen of the State of Virginia, residing in the Western District of Virginia.

The evidence establishes the following material facts: The complainant, Walter Baker & Co., Limited, is engaged in the business of manufacturing chocolate and other preparations of cocoa. This business was established by one James Baker, about the year 1780, at Dorchester, Mass. It was afterward carried on by his son, Edmund Baker, his grandson, Walter Baker, and after the death of said Walter Baker, in 1854, it was continued by one Sidney Williams and Henry L. Pierce, and is still carried on under the name of Walter Baker & Co., Limited. The business has been extensive and successful, and its preparations of cocoa have a high reputation in the markets of the United States. They have been awarded many premiums at exhibitions from the year 1850 to the present time, and a large amount of money has been expended annually in advertising the goods. There are four classes of the goods manufactured by complainant which it is claimed have been subjected to unfair competition.

First. "Baker's Premium No. 1 Chocolate" is put up and sold in cakes on which is stamped "W. Baker, No. 1, Dorchester, Mass.," in large capitals, with certain marks and lines. The cakes weigh one-half pound each and are so shaped that two cakes are wrapped each in a separate wrapper and then together in one wrapper and sold in one-pound packages. These packages are wrapped in blue paper with a yellow label thereon. Upon the top and bottom of this yellow label is a scroll of intertwined leaves, and at each end a coat of arms surmounted by a flag also surmounted by a scroll of intertwined leaves, bearing in the upper center the words "Baker's Chocolate," in large type, and the words "W. Baker & Co., Dorchester, Mass.," in small capitals, with a list of some other articles manufactured by the complainant. The blue wrapper and yellow label have been used by the complainant and its predecessors for more than forty years.

Second. A preparation of powdered cocoa put up by complainant in half-pound tin cans of an oblong shape, on the lid end of which are stamped the words "Walter Baker & Co.'s Breakfast Cocoa," and around these cans is wrapped a label, on one face of which are prominently displayed the words "Established 1780" and "Walter Baker & Co.'s Breakfast Cocoa, Dorchester, Mass.," with a medallion and directions for using. On the opposite face is a picture of a girl holding a tray and cup, with the words "La Belle Chocolatiere," which picture has been used by complainant for many years as a trade-mark.

Third. The complainant has for many years manufactured a sweet chocolate called "German Sweet Chocolate," the word "German" being displayed on a label which is duly registered as a trade-mark under the laws of the United States. At each end of the label are the words "Sweet Chocolate," and on the back of the cake a small picture of "La Belle Chocolatiere" and the words "Trade-Mark, W. Baker & Co., Registered."

Fourth. Complainant manufactures and puts up a brand of chocolate called "Vanilla Chocolate." It has a white wrapper with the words "Baker's Vanilla Chocolate" printed on it. It also has on it the complainant's trade-mark, "La Belle Chocolatiere," and in small letters the words "W. Baker & Co., Registered Trade-Mark."

In June, 1894, the respondent, W. H. Baker, a citizen of Winchester, Va., entered into an arrangement with one J. Elwood Sanders by which said Sanders became and is the chief salesman and manager of the respondent's chocolate business. At first the chocolate goods were manufactured by P. Griffing Company, of New York. These goods were delivered to the respondent in New York city, and were by him labeled and put upon the market. In September, 1894, about the time this suit was brought, the respondent purchased the plant of said P. Griffing Company, in New York, and since that time the goods have been manufactured at the same factory, with Joseph Griffing superintending the

same for the respondent. The chocolate goods put up and sold by the respondent which are involved in this suit are as follows: First. A plain chocolate put up in packages, each containing two cakes, each cake weighing one-half pound. These cakes are wrapped in a blue wrapper, on which is a yellow label. At the top and bottom of the label is a scroll of leaves. At each end is a coat of arms partially surrounded by a scroll of leaves. At the top are the words "Established in Mercantile Business 1785." Below these words, in large type, are the words "W. H. Baker & Co.'s Chocolate, Premium No. 1." Then, in smaller type, is given a description of the goods and directions for using. At the bottom of the label are the words, in small capitals, "W. H. Baker & Co., Winchester, Va." Following these words, in smaller type, are the words "Producers of Premium Chocolate, Breakfast Cocoa, Sweet and Vanilla Chocolate." The wrapper is of the same shade of blue as the wrapper of the complainant on its plain chocolate, described as "Baker's Premium No. 1 Chocolate." The yellow label is the same in length and width as the yellow label of the complainant, but the yellow color is a shade lighter than that of the complainant's label. The cakes of chocolate are the same in size and mold as those of the complainant. They have stamped on them the words "W. H. Baker & Co., Winchester, Va." and the same lines and marks as on the complainant's cakes. Second. The powdered cocoa put up by the respondent under the name of "W. H. Baker & Co.'s Breakfast Cocoa." This is put up in half-pound cans of the same shape and size as those used by the complainant for putting up its "Breakfast Cocoa." On the lid or opening end of the can are stamped the words "W. H. Baker & Co.'s Breakfast Cocoa." On one face of the can are the words "Established in Mercantile Business 1785," in smaller type, and the words "Winchester, Va.," in small capitals. On the opposite face of the can is a picture of the bust of a girl in the act of drinking from a cup, and in large letters the words "Baker's Cocoa." Third. The respondent's manufacture of "Germania Sweet Chocolate." This has a label with the words, in capitals, "Germania Sweet Chocolate." At each end of the label are the words "Sweet Chocolate," in small capitals. On the upper edge are the words "Established in Mercantile Business 1785," and on the lower edge, in very small capitals, the words "W. H. Baker & Co., Producers of Chocolate and Cocoa Preparations, Winchester, Va., Philadelphia, Pa., New York." Fourth. The brand of respondent's "Baker's Vanilla Sweet Chocolate." This consists of a white wrapper, with the words "Baker's Vanilla Sweet Chocolate," in capitals. At the upper edge are the words "Established in Mercantile Business 1785." The complainant claims that it has, as against the respondent and all others, the exclusive right to use, in connection with the manufacture and sale of chocolate and other preparations of cocoa, the designation "Baker," "W. Baker," and "W. Baker & Co.;" that said names are so closely associated in the public mind with the product of its factory that no other person can use the word "Baker" in connection with the sale of chocolate and other preparations of cocoa or on the labels and wrappers of such goods without leading the public and dealers to believe that the goods are those of the complainant.

Mr. W. L. Putnam, *Mr. George G. Grattan*, and *Mr. Rowland Cox* for the complainant.

Mr. John Vincent and *Mr. Robert T. Barton* for the respondent.

PAUL, *J.*, (after stating the facts:)

The first question presented by the foregoing statement of facts for the determination of the court is as to the power of a court of equity to enjoin a man from using his own name in connection with any business in which he wishes to engage. Very elaborate arguments have been made by counsel on this question and numerous decisions of the State and Federal courts cited. The result of these decisions is that a man has a right to use his own name in connection with any business he honestly desires to carry on. The doctrine is equally well settled that equity will direct how a man shall use his name in his purpose to denote his own individuality. He will not be allowed to so use his own name as to work an injury to another having the same name, nor to perpetrate a fraud upon the public. In *Meyers* v. *Medicine Co.* (7 C. C. A., 558; 58 Fed. Rep., 884) the court says:

> While the right of no one can be denied to use his name in connection with his business or in connection with articles of his own production, so as to show the business or product to be his, yet he should not be allowed to designate his article by his own name in such a way as to cause it to be mistaken for the manufacture or goods of another already in the market under the same or a similar name. Whether it be his name or some other possession, every one, by the familiar maxim, must so use his own as not to injure the possession or right of another. The question is therefore resolved into one of fact, upon the evidence spread upon the record—whether the means here employed expose the unwary to mistake one man's goods for the goods of another?

In *Landreth* v. *Landreth* (22 Fed. Rep., 41) the doctrine is thus stated:

> Of course a party cannot be debarred from the right to use his own name in advertising his goods and putting them on the market, but where other persons bearing the same surname have previously used the name in connection with their goods in such manner and for such a length of time as to make it a guaranty that the goods bearing the name emanated from them, they will be protected against the use of that name, even by a person bearing the same name, in such form as to constitute a false representation of the origin of the goods.

In that case Judge Dyer said:

> Now, as I have said, the defendant's label is, as it seems to me, a palpable imitation of the complainants'. In the color of the ink used, in the arrangement of the words, and in the general style of the labels, he has, so to speak, dressed his goods in the garb previously adopted by the complainants. Whether intended or not, this necessarily operates a fraud upon them, and upon the public.

In a recent case (*Pillsbury* v. *Flour Mills*) decided by the Circuit Court of Appeals, Seventh Circuit, (12 C. C. A., 432; 64 Fed. Rep., 841,) the court said:

> The general principles by which courts are guided in such cases are well and correctly stated in *Cement Co.* v. *Le Page*, (147 Mass., 206; 17 N. E., 304,) as follows: "A person cannot make a trade-mark of his own name, and thus debar another having the same name from using it in his business, if he does so honestly, and without any intention to appropriate wrongfully the good-will of a business already established by others of the name. Every one has the absolute right to use his own name honestly in his own business for the purpose of advertising it, even though he may thereby incidentally interfere with and injure the business of another having the name. In such case the inconvenience or loss to which those having a common right to it are subjected is *damnum absque injuria*. But, although he may thus use his name, he cannot resort to any artifice or do any act calculated to mislead the public as to the identity of the business firm or establishment, or of the articles produced by them, and thus produce injury to the other beyond that which results from the similarity of names."

The respondent in his answer and in his testimony avers that he had no intention of infringing on the rights of the complainant. He has taken the testimony of a number of witnesses to prove his high character as a citizen and business man. In the argument great stress is laid upon this testimony by respondent's counsel as negativing the idea of a fraudulent purpose on the part of the respondent in dressing up his goods in imitation of the complainant's. The court cannot give to this evidence the weight to which counsel insist it is entitled. It must in this case, as in every case where

intent is the subject of investigation, deduce the intent from the acts of the respondent. These constitute the proof as to the purpose of the respondent, and by them the court must be guided. The evidence shows that the respondent prior to 1894 had never engaged in the business of a dealer in chocolate and had no experience in the manufacture of the same; that in the months of May and June of that year he had several conferences with one J. Elwood Sanders, then in the employ of Rockwood & Co., manufacturers and sellers of chocolate. The respondent engaged the services of Sanders and commenced the sale of chocolate. The respondent states that a partnership was at that time contemplated between himself and Sanders and the firm-name of W. H. Baker & Co. adopted; but that partnership was not formed, nor has the respondent had a partner at any time in the chocolate business. With regard to his conferences with Sanders the respondent is asked:

> Did you know that Walter Baker & Co. was an old established house in the business for a great many years?

He says:

> I did.
> It did not strike you, then, when Walter Baker's goods were ordered by you and of you in your grocery business that they were spoken of simply as "Baker's goods;" that is, prior to the time you went into the chocolate business? A. I think so.
> Did Sanders suggest to you, in any of your conversations, that the name "Baker" would be an advantage to you in the chocolate business, on account of the reputation of Walter Baker & Co.? A. He may have suggested something of that kind, but I did not pay any attention to it, because of the fact that I did not intend to sell my chocolate on the reputation of any one else, but by price and quality to attract the trade to me.

It is clearly apparent from the testimony of the respondent and from other evidence in the cause that in the arrangement between the respondent and Sanders respondent's name of "Baker" was to play a prominent part in the sale of his chocolate goods. When this testimony is taken in connection with the similarity in the shape and size between the cakes of chocolate manufactured for the respondent by P. Griffing Company and the chocolate cakes of the complainant and the stamps and lines thereon, the identity in color of the blue wrappers and the similarity of the yellow labels on each, the identity in shape and size of the tin cans used by each for putting up cocoa and the similarity of the stamps and inscriptions thereon, the simulation of the inscriptions on the complainant's "German Sweet Chocolate" and its "Vanilla Chocolate," it is impossible to escape the conclusion that it was the purpose of the respondent to put upon the market his goods in such condition and appearance that the same might be readily accepted as the goods of the complainant. That such was the result the evidence abundantly shows. The testimony of witnesses for complainant and for defendant, respectively, clearly establishes the fact that the complainant's goods had a high reputation of long standing with jobbers and retailers in the trade and with consumers. A number of dealers testify that complainant's goods had become well known as "Baker's Chocolate," and that when "Baker's Chocolate" was called for it was understood to be Walter Baker's chocolate that was intended. The evidence shows that the complainant's goods were advertised widely at great expense, from $60,000 to $160,000 being annually expended for advertising them in trade journals, in family and household papers, and by other means such as would bring a knowledge of these goods not only to the jobber and retailer but also to the consumer. It is a pertinent fact to be noted in this connection that respondent's advertisements of his goods were inserted in journals that reached the trade and not the consumer and that his circulars were sent to the jobbers and the trade. The testimony of grocers and consumers, taken in Baltimore, Philadelphia, and other cities, abundantly shows that great confusion exists in the trade and with the public between the goods of the complainant and those of the respondent and that both the trade and the public were deceived into purchasing the goods of respondent when they thought they were getting those of complainant. This deception arises from the points of resemblance between the wrappers, labels, inscriptions, designations, shapes of cakes, cans, etc., of the complainant and those of the respondent.

The respondent claims that in using the blue wrapper and yellow label upon his plain chocolate he has used what he terms the "livery of plain chocolate." He files as exhibits the products of several other American manufacturers of chocolate inclosed in blue wrappers with yellow labels; but it is readily noticeable that these all differ from complainant's wrapper and label in such plainly-distinctive characteristics as to guard against deception and prevent confusion with the goods of complainant. Maillard, Miller, Barker, Rockwood & Co., and other American manufacturers of chocolate use blue wrappers with yellow labels, but the labels differ widely from that of complainant in every respect except in the color. The name of each of these different manufacturers, made prominent on his label, is a distinctive feature to attract attention to the real maker and to prevent confusion with the goods of other manufacturers. The name of respondent being the same as that of complainant, it is incumbent upon him to more widely differentiate his goods from those of complainant than is required of another manufacturer having a different name.

The respondent states in his answer that—

> he has from the beginning, and day by day, in the whole conduct of his business, by letter-heads, price-lists, cards, most extensive advertisements, and in every way known to commercial methods, warned dealers and the public against the possibility of confusing respondent's name with that of any other Baker & Co. engaged in the chocolate business.

This he says he has done by conspicuously printing on his letter-heads and in his advertisements—

> positively no connection with any other Baker & Co., chocolate makers—

and by an advertisement as follows:

> You will find other brands of chocolate and cocoa placed on the market under the name of Baker & Co., but take only that having the initials "W. H. Baker & Co.," and then you will always be satisfied.

Conspicuously with these announcements also appear the words "Established in Mercantile Business 1785." A similar defense was made in the case of *Pillsbury* v. *Flour Mills*, (12 C. C. A., 432; 64 Fed. Rep., 841,) and in that case the court said:

> The answer asserts that "they have always stated and made known to their customers that said flour so handled by them

under said brand is not the flour of the complainants, but is a flour put up under said brand by themselves, manufactured from Minnesota wheat, and that said flour, in their judgment, is equal to, if not superior to, that sold by Pillsbury-Washburn Flour-Mills Company, Limited." It may be remarked in passing that, if these brands are so dissimilar that the "most casual observer" cannot be imposed upon, why assure purchasers, wholesale and retail dealers, who are expected to be, and are naturally, more careful than a purchaser of a single package, that the goods sold were not the product of the Pillsbury Mills? If the dissimilarity was manifest, there would seem to exist no necessity for such assurance; and yet we are inclined to give credence to the assertion of the appellants in this respect, and therein we think we discover the key-note of this scheme. They sell their goods with the false and simulated brand upon them to wholesale and retail dealers at a price below that for which the genuine product of the Pillsbury Mills can be purchased by them. They disclose to the retail dealer their mode of procedure and their object. They appeal to the greed of their customers to purchase an inferior quality of flour, thus falsely branded with the name of a superior article, that the dealers may palm it off as the genuine article. No ingenuity could devise a more effectual way to pirate a good-will.

We may in this case with the same propriety ask, if the goods of the respondent are so distinctly marked as to prevent confusion with those of the complainant, why the necessity of these frequent warnings to the public that they are not the goods of the complainant? A careful consideration of the evidence and an inspection of the packages, cans, wrappers, labels, inscriptions, etc., of the goods of complainant and those of the respondent can lead the court to no other conclusion than that there was a deliberate purpose to place the goods of the respondent upon the market in a guise resembling the complainant's goods as nearly as possible so as to avoid a direct imitation.

The words "Established 1780," printed on complainant's goods, are intended to and do truthfully convey to the public mind the idea that Walter Baker & Co. is an old, firmly-established, successful, and reliable concern. This is the well-known purpose of an announcement of this kind. It secures in the public mind for the party using it a well-earned and deserved confidence in its integrity, based on its long and successful career in the business in which it is engaged. The respondent had not been engaged in the manufacture and sale of chocolate and other preparations of cocoa such a length of time as justified him in announcing to the dealers in and consumers of chocolate goods that the firm of W. H. Baker & Co. had been carrying on this business since the year 1785. He could not honestly and truthfully do so. He had only commenced the chocolate business in 1894, under the firm-name of W. H. Baker & Co., when he was, as now, the only member of the firm. He claims that he has a right to put upon his goods the words "Established in Mercantile Business 1785" because his ancestors and other kindred of the name of Baker had been engaged in a wholesale merchandise business at Winchester, Va., since about the year 1785, and he was connected with a firm in that line of business at the time he went into the chocolate business. It is admitted that he is the only member of the chocolate firm of W. H. Baker & Co., and that neither the wholesale merchandise firm of Baker & Co., at Winchester, nor any member of it except himself is connected with the chocolate business. In using the words "Established in Mercantile Business 1785" it is palpable that the words "in Mercantile Business" were inserted for the sole purpose of avoiding a direct imitation of the words "Established 1780" used by complainant on its goods. The use of the words "Established in Mercantile Business 1785" could have had no other purpose than to convey to the public mind the idea that the firm of W. H. Baker & Co., manufacturers of chocolate, is the same as Walter Baker & Co., or W. Baker & Co., which had long used the words "Established 1780," and with which dealers and consumers had become familiar, and, as the evidence shows, did in fact have that effect. This deceptive and misleading statement is not only made on the goods of the respondent, but is printed as part of all his circulars, bill-heads, letter-heads, and advertisements. As showing the misleading effect of this statement, the evidence discloses that the *Pennsylvania Grocer*, a paper published at Pittsburg, Pa., in its issue of November 16, 1895, made an editorial notice of respondent's goods, advertised in said paper, in which it said:

These goods have borne the test for upward of one hundred years, and have steadily grown in public favor, until to-day they are without successful rival.

In his evidence respondent's witness House, who was the author of the editorial, says:

I looked over the advertisement of W. H. Baker & Co., and at the top saw something about 1785, and, without reading carefully, I accepted as a matter of course that they had been in business that long, and concluded that they had been in the chocolate and cocoa business that long; and that is where I got my idea.

In the preparation of his goods the respondent has closely imitated the goods of the complainant in the most prominent characteristics in which they are presented to the public. In the plain chocolate the most striking of these prominent characteristics are the shape and size of the packages, the blue wrapper, and the yellow label adopted by the complainant, with the prominent words "Baker's Chocolate." The respondent puts up his goods in packages of the same shape and size, with blue wrapper and yellow label, with the prominent words "W. H. Baker & Co.'s Chocolate." The prominent features of the package containing the powdered cocoa prepared by the complainant which are imitated by the respondent are the shape and size of the tin cans; the words "Walter Baker & Co.'s Breakfast Cocoa" stamped on the lid end of the can; on one side the same words, in large capitals, with a shield in the middle, and the words "Established 1780;" on the reverse side a picture of "La Belle Chocolatiere" and the words "W. Baker & Co. Registered Trade-Mark." The respondent adopts a tin can of the same shape and size as the complainant's, with the words "W. H. Baker & Co.'s Breakfast Cocoa" stamped on the lid end of the can. On one side of the can, in large capitals, are the words "W. H. Baker & Co.'s Breakfast Cocoa, Established in Mercantile Business 1785." On the reverse side is a picture of the bust of a girl and the words "Baker's Cocoa," in large capitals, and in small capitals the words "Trade-Mark."

The distinctive features of the complainant's label on its "German Sweet Chocolate" are the words "German Sweet Chocolate" across it in large type. The picture of the chocolate-girl, with the name of Walter Baker & Co., are pasted on the

reverse side of the package. Across each end of the label are the words "Sweet Chocolate." The respondent's label on his "Germania Sweet Chocolate" is of the same shape and size as complainant's label on its "German Sweet Chocolate," and has on it, in large letters, the words "Germania Sweet Chocolate," and across each end the words "Sweet Chocolate." The cakes of this brand of respondent's chocolate are of the same shape and size as the complainant's cakes of "German Sweet Chocolate." The evidence shows that the word "German," used by the complainant, was adopted as a trade-mark because of Samuel German, a person employed by the complainant in connection with the manufacture of this kind of chocolate, which has become widely and favorably known as "German Sweet Chocolate." The trade-mark was registered by Samuel German himself, and afterward assigned to complainant, by whom it has been used a long time, and has become identified with its preparations of sweet chocolate. The respondent claims that the word "German," being a geographical name, cannot be appropriated as a trade-mark; but the word "German," as used by the complainant, is not used in a geographical sense, but it is the name of an individual, adopted as an arbitrary or fancy name. It is in no wise descriptive of the quality of the chocolate in connection with which it is used. Does the word "Germania," adopted by the respondent as a trade-name for his sweet chocolate, so nearly resemble the word "German" as to make it an infringement of the complainant's trade-name? The court is of opinion that it does. The word "Germania" does not describe any quality or ingredient of respondent's sweet chocolate, and no reason is given for its adoption, and it would be difficult to suggest any reason other than a desire on the part of the respondent to give to his sweet chocolate a designation as closely resembling that of a well-known product in the market so as to avoid a direct adoption of the trade-name of the rival maker. "Germania" is as much like "German" as "Cottileo" is like "Cottolene," (*N. K. Fairbank Co.* v. *Central Lard Co.*, 70 O. G., 635; 64 Fed. Rep., 133,) or as "Mojava" is like "Momaja," (*American Grocery Co.* v. *Bennett, Sloan & Co.*, 71 O. G., 1770; 68 Fed. Rep., 539,) or as "Cellonite" is like "Celluloid," (*Celluloid Manufg. Co.* v. *Cellonite Manufg. Co.*, 41 O. G., 693; 32 Fed. Rep., 94.) In all of these cases the courts held that there were infringing resemblances. Confusion between two brands of chocolate, one styled "German Sweet Chocolate" and the other "Germania Sweet Chocolate," might have been readily anticipated. The respondent acknowledges that such confusion did arise. He admits in his answer, after referring to orders which he had received for his "German Sweet Chocolate," that the possibility of confusion was manifest, and that it was enough to induce him to suspend the further sale of this brand of chocolate, and that on September 8, 1894, he directed his salesmen to take no further orders for this brand of chocolate, and he states that since that date no order for this chocolate has been filled by him; but he says that he does not concede that the use of the word "Germania" is an infringement on the word "German" and that he will renew his sales of his sweet chocolate if he sees fit to do so.

The resemblance between respondent's "Vanilla Sweet Chocolate" and the complainant's chocolate called "Baker's Vanilla Chocolate" is less striking than is the case with regard to other kinds of chocolate goods of which complaint is made in this suit. Complainant's cakes are put up in white wrappers, on which (and not on a separate label pasted thereon) the inscription is printed in black-letter script. The inscription is:

Baker's Vanilla Chocolate. Walter Baker & Co., Ltd. Dorchester, Mass. Established 1780. Gold Medal, Paris, 1878—

and words descriptive of the goods and a guaranty of their purity. On respondent's cakes is pasted on the wrapper a white label printed in fancy letters and colors, the distinctive features of which are the words "Baker's Vanilla Sweet Chocolate," a representation and the name of a fleur-de-lis, the words "Established in Mercantile Business 1785," and on one end the words "W. H. Baker & Co., Winchester, Va., Philadelphia & New York." The court sees in these two labels no resemblance of which the complainant has the right to complain, except the use of the word "Baker" in connection with the words "Vanilla Sweet Chocolate" on respondent's label and the words "Established in Mercantile Business 1785." The words "Vanilla Sweet Chocolate" describe the ingredients of the preparation.

The respondent, entering the chocolate market under a firm-name so nearly resembling that of the complainant, an old-established and well-known concern, did not make the effort incumbent on him to distinguish his goods from those of the complainant so as to prevent confusion. An inspection of the great number of cans, labels, inscriptions, designations, and characteristic marks of other dealers in chocolate, American and foreign, produced as evidence in this cause, shows that there is no difficulty in one dealer so preparing his goods as to distinguish them from those of another. With the widest field from which to select wrappers, labels, cans, inscriptions, words, phrases, and designations the respondent has so nearly simulated in these respects the chocolate goods of the complainant as to lead dealers and consumers to believe that they were buying the complainant's goods, when they were really getting those of the respondent. To prevent this confusion and to protect the complainant and the public against this unfair competition and deception, an injunction will be entered restraining the respondent in the following particulars: from using in connection with his business as a maker and seller of chocolate and other preparations of cocoa the words "& Co.;" the words "Established in Mercantile Business 1785;" from the use of the yellow label on his plain chocolate; and he will be required to substitute another and entirely different label therefor. In the manufacture and sale of his powdered cocoa he will be

restrained from using cans of the same shape as those of the complainant and from using the words "Breakfast Cocoa" in connection with the word "Baker" and from using on the side of the can on which now appears a picture of the bust of a girl the words "Baker's Cocoa;" from using the word "Germania" on the label of his sweet chocolate. On the label of his "Vanilla Sweet Chocolate" he will be required to use his name of "Baker" in such way as will make it plainly distinguishable from the name of the complainant.

The court will not enjoin the respondent, as prayed in the bill, from using his name "Baker" in connection with the manufacture and sale of chocolate, nor will it enjoin him from using the blue wrapper on his plain chocolate, as wrappers of this color have long been in very general use among manufacturers and sellers of chocolate goods. For the same reason the court will not enjoin the respondent from making his plain chocolate in the same-shaped cakes or molds as those of the complainant. Considerable evidence has been taken in this cause as to the quality, respectively, of the goods sold by the complainant and those sold by the respondent; but in the argument this branch of the case was very cursorily treated by counsel on both sides, and the court, with its views as to the material grounds on which its decision must rest, has not deemed it necessary to discuss this question.

U. S. Circuit Court—Southern District of New York.

SOCIÉTÉ FABRIQUES DE PRODUITS CHIMIQUES DE THANN ET DE MULHOUSE *v.* SANDER *et al.*

Decided December 28, 1896.

INJUNCTION—IMPORTATION OF INFRINGING ARTICLE.

Injunction will be granted against the attorneys-at-law of an absent defendant to prevent importation of an infringing article when such attorneys are acting as attorneys-in-fact for such absent defendant.

STATEMENT OF THE CASE.

The bill of complaint charged that defendant Sander in January, 1896, caused to be delivered at the port of New York ten kilograms of a substance invoiced simply as "powder" and entered as of a value of $3,606, but which was in reality a very precious perfume-powder—to wit, artificial musk—in a highly-concentrated form, having a market value abroad of over thirty-three thousand dollars; that this substance, known commercially as "Musk-Baur," was the discovery of Albert Baur, complainant's assignor, and covered by the patent in suit, (No. 451,847, dated May 5, 1891;) that the patent had been absolutely respected since its grant, and complainant had supplied the entire consumption of artificial musk; that defendant Sander could not be found, but was apparently operating at a safe distance beyond the jurisdiction of the United States courts; that the only visible agents he employs are attorneys and counsellors at law, (the defendants Hatch, Wickes & Clute;) that said attorneys appeared for said Sander in the proceedings in the district court instituted for the forfeiture of the merchandise, and also before the Treasury Department in attempting to compromise said proceedings and to obtain an order for sale of the merchandise; and the bill prayed that the defendants Hatch, Wickes & Clute be enjoined from in any manner acting as the agents or attorneys-in-fact of said Sander in any attempt or proceeding looking to the removal of said merchandise from the custody of the officials of the United States.

Defendant Sander did not appear or answer. The answer of defendants Hatch, Wickes & Clute denied any attempt to obtain possession of the merchandise and averred that they are attorneys-at-law, solicitors, or proctors; that as such they had been retained by said Sander in certain forfeiture proceedings pending in the United States district court and to present a petition for compromise of said proceedings to the Secretary of the Treasury, and that all their acts in the premises were done in pursuance of said retainer as attorneys-at-law, solicitors, and proctors for said Sander.

Mr. Anthony Pollok and *Mr. Philip Mauro* for the complainant.

Mr. W. C. Low for the defendants.

LACOMBE, *J.*:

This cause coming on to be heard upon motion of complainant for a preliminary injunction against the defendants, as prayed in the bill of complaint, the defendant Sander not having been found and not appearing in person or by attorney to answer to the bill, and the defendants Hatch, Wickes & Clute appearing and answering, and the bill, answer, and motion papers having been considered by the court, and the motion having been argued by Philip Mauro, Esq., for the complainant and by Walter Carroll Low, Esq., for the answering defendants, it is this 28th day of December, 1896—

Adjudged and ordered that a preliminary injunction issue; that the said defendants Edward S. Hatch, Thomas P. Wickes, and Frank M. Clute, their and each of their agents, attorneys, servants, clerks, and workmen be and are hereby enjoined, as prayed in said bill of complaint, from taking or attempting to take the possession of the two cases of perfume-powder specified in said bill of complaint or of any portion thereof, or from delivering the same to said Sander or to any agent, representative, or associate of said Sander, or from removing the same from the custody of the officials of the United States, and from in any manner acting as the agents or attorneys-in-fact of the said Sander for the purposes above specified, provided that this order is not to operate in restraint of the said Hatch, Wickes & Clute in appearing and acting for said Sander as attorneys-at-law, counsellors, or proctors in the forfeiture proceedings pending in the United States District Court for the Southern District of New York.

PATENT LAW OF CEYLON.

Ordinance Enacted by the Governor of Ceylon, with the Advice and Consent of the Legislative Council Thereof.

[*From an Official Print by H. C. Cottle, Acting Government Printer, Colombo, Ceylon.*]

No. 16.—1892.

AN ORDINANCE TO CONSOLIDATE AND AMEND THE LAW RELATING TO THE GRANTING OF EXCLUSIVE PRIVILEGES TO INVENTORS.

Preamble.

A. E. HAVELOCK.

Whereas it is expedient to amend the law relating to the granting of exclusive privileges to inventors: Be it therefore enacted by the Governor of Ceylon, with the advice and consent of the Legislative Council thereof, as follows:

Title and Commencement.

First. This ordinance may be cited as "The Inventions Ordinance, 1892," and shall come into force on the first day of July, 1893.

Repeal.

Second. (1) The ordinances described in the first schedule are hereby repealed to the extent specified in the third column thereof.

(2) But this repeal of ordinances shall not affect any exclusive privilege acquired, or any conditions or restrictions imposed with respect to any privilege, or any right or liability accrued or incurred under any of those ordinances before the commencement of this ordinance, or any relief in respect of any such privilege, right, or liability.

(3) Any ordinance or document referring to any ordinance hereby repealed shall be construed to refer to this ordinance or the corresponding portion thereof.

Definitions.

Third. In this ordinance, unless there is something repugnant in the subject or context—

(1) "Invention" includes an improvement;

(2) "Inventor" does not include the importer into Ceylon of a new invention unless he is the actual inventor;

(3) "Petitioner" means a person who has petitioned under this ordinance for leave to file a specification of an invention, whether he has filed the specification or not;

(4) "Assign" includes a grantee of the exclusive privilege of making, selling, or using an invention, or of authorizing others so to do, during the term for which the privilege is to continue or may be extended, or for any shorter term;

(5) "Inventor," "actual inventor," and "petitioner" include the executors, administrators, or assigns of an inventor, actual inventor, and petitioner, as the case may be;

(6) "Manufacture" includes any art, process, or manner of producing, preparing, or making an article, and also any article prepared or produced by manufacture;

(7) "Write" includes print, lithograph, photograph, engrave, and every other mode in which words or figures can be expressed on paper or on any substance;

(8) "Colonial Secretary" means any person acting as and for the Colonial Secretary, and includes any assistant to the Colonial Secretary to the extent to which he may be authorized by general or special order of the Governor to discharge the functions of the Colonial Secretary under this ordinance.

Petition for Leave to File Specification.

Fourth. (1) The inventor of a new manufacture or two or more persons, some or one of whom only are or is the true and first inventors or inventor of a new manufacture, may petition the Governor for leave to file a specification thereof.

(2) Any person, whether a British subject or not, may petition for such leave.

(3) The petition must be in writing signed by the petitioner or petitioners, or, in case the petitioner or petitioners shall be absent from Ceylon, by an agent authorized thereto on his or their behalf, and in the form A in the second schedule, or in such other form as may be from time to time prescribed, if the inventor or inventors has or have not obtained a patent in the United Kingdom, and in the form B in the said schedule, or in such other form as may be from time to time prescribed, if he or they has or have obtained a patent in the United Kingdom.

(4) The petition must contain a declaration to the effect that the petitioner is in possession of an invention, whereof he, or in the case of a joint petition one or more of the petitioners, claims or claim to be the true and first inventor or inventors, and for which he or they desires or desire to obtain leave to file a specification; and it must state the name, occupation, and address of the petitioner or petitioners, and, where a patent has been obtained in the United Kingdom, the date of the patent and the date of the actual sealing thereof, and must describe with reasonable precision and detail the nature of the invention and of the particular novelty whereof it consists, and be supplemented by such further particulars relating to the invention, and by such drawings or photographs illustrative thereof, as the Governor in Executive Council may see fit to require from the petitioner or petitioners.

(5) If in any case it appears to the Governor in Executive Council that a petition ought to be further supplemented by a model of anything alleged to constitute an invention, he may require the petitioner or petitioners to furnish such a model neatly and substantially made of durable material, and of dimensions not exceeding those, if any, specified in the requisition therefor.

Order to File Specification.

Fifth. (1) Upon a petition under the last foregoing section the Governor in Executive Council may, after such inquiry as he thinks fit, make an order authorizing the petitioner or petitioners to file a specification of the invention.

(2) Before making an order under subsection (1), the Governor in Executive Council shall direct that the petition be referred for inquiry and report to any person whom he thinks fit.

(3) Before such petition is so referred, the petitioner or petitioners shall deposit with the Colonial Secretary, within such time as the Governor in Executive Council may by rule or otherwise prescribe, such sum to defray the fee to be paid to the referee as the Governor in Executive Council may determine.

(4) If the sum is not deposited within the time prescribed, the petition may be rejected.

(5) If the person to whom the petition is referred reports that the nature of the invention and of the particular novelty whereof it consists is not sufficiently described, or that it has not been supplemented by such particulars relating to the invention, or by such drawings or photographs as the Governor in Executive Council may have required, the Governor in Executive Council may require that the petition may be amended or further supplemented before the petition is proceeded with.

Application in Respect of Contemporaneous Inventions.

Sixth. (1) If two or more petitions are made on the same day for leave to file specifications of inventions which appear to the Governor in Executive Council to be identical, or so similar as to be practically identical, the Governor in Executive Council may in his discretion authorize both or all the petitioners, subject to the other provisions of this ordinance, to file specifications of their respective inventions.

(2) If they petition on different days for leave to file specifications of such inventions as aforesaid, the petitioner or petitioners who applied on the first of the different days shall be deemed to have a preferential claim to an order authorizing the filing of his or their specifications.

Acquisition and Continuance of Exclusive Privilege.

Seventh. (1) If within six months from the date of an order under section 5, subsection (1), or within such further time, not exceeding three months, as the Governor in Executive Council in his discretion may, on cause shown to his satisfaction, and on payment of the fee prescribed in that behalf in the fourth schedule, see fit to allow, the petitioner or petitioners causes or cause a specification of his or their invention to be filed in manner by this ordinance required, and the fee prescribed in the fourth schedule in respect of the filing of the specification to be paid, the petitioner or petitioners shall, subject to the other provisions of this ordinance, be entitled to a grant to be issued by the Governor under the public seal of the colony, in the form set forth in the third schedule, or in such other form as may be from time to time prescribed, of the exclusive privilege of making, selling, and using the invention in Ceylon, and of authorizing others so to do, for a term of fourteen years from the date of the delivery to, or receipt by, the Colonial Secretary of the petition.

(2) But an exclusive privilege in respect of an invention of a new manufacture shall, notwithstanding anything in subsection (1), cease if the inventor or inventors fails or fail to pay within the time limited in that behalf by the fourth schedule any fee prescribed in that schedule in respect of the continuance of the privilege.

(3) If, nevertheless, in any case, by accident, mistake, or inadvertence, the inventor or inventors fails or fail to pay any such fee within the time so limited, he or they may apply to the Governor in Executive Council for an enlargement of the time for making the payment.

(4) Thereupon the Governor in Executive Council may enlarge the time accordingly on payment of the fee prescribed in that behalf in the fourth schedule, and subject to the following conditions, namely:

(*a*) The time for making a payment shall not in any case be enlarged for more than three months; and

(*b*) If any action is instituted in respect of an infringement of the exclusive privilege committed after a failure to make a payment within the time limited for the making thereof, and before the enlargement of that time, the court disposing of the action may, if it thinks fit, refuse to award or give any damages in respect of the infringement.

Form and Contents of Specification.

Eighth. (1) A specification filed under this ordinance must be in writing, signed by the petitioner or petitioners, must commence with the title, and must set forth the precise invention in respect of which the petitioner or petitioners claims or claim to become entitled to an exclusive privilege.

(2) If the specification is of an invention which is an improvement only, it must by explicit language distinguish between what is old and what is claimed to be new.

(3) Every specification must explain the principle of the invention set forth therein, and the best and latest mode in which the petitioner or petitioners has or have contemplated applying

that principle, and must describe the manner of making and using the invention in such full, clear, concise, and exact terms as to enable any person of ordinary skill in the art or science to which the invention appertains, or with which it is most closely connected, to make or use the same.

(4) Every specification must end with a distinct statement of the invention claimed.

Mode of Filing Petition and Specification.

Ninth. Every petition for leave to file a specification, and every specification filed under this ordinance, must be left with, or sent by post to, the Colonial Secretary, and the date of the delivery or receipt thereof shall be indorsed thereon, and recorded in his office.

Register of Inventions.

Tenth. (1) A book, to be called the "Register of Inventions," shall be kept in the office of the Colonial Secretary, wherein shall be entered and recorded every petition for leave to file a specification, every order made on such petition, every specification filed in pursuance thereof, and every subsequent proceeding relating to the invention described therein, except the report of the referee.

(2) Petitions for leave to file a specification shall be numbered consecutively in the order in which they are delivered or received, and be dated as of the day of their delivery or receipt, and shall be entered in the Register of Inventions in the order of their respective numbers.

(3) A reference shall be made in that Register, in the margin of the entry of each petition, to every order on or in respect of the petition, to the specification, if any, filed in pursuance thereof, and to every subsequent proceeding relating to the invention which forms the subject of the petition.

Address Book.

Eleventh. (1) Another book, to be called the "Address Book," shall be kept in the office of the Colonial Secretary, wherein any person or persons filing a specification under this ordinance, or any person or persons in whom an exclusive privilege acquired under this ordinance, or any share or interest therein, may become vested, may from time to time cause to be stated some place in the colony where notice of any rule or proceeding relative to the exclusive privilege may be served on him or them.

(2) A reference to each entry in the Address Book shall be made in the Register of Inventions in the margin of the entry in that Register of the petition for leave to file the specification.

Provisions with Respect to the Register and Book.

Twelfth. (1) Every entry in the Register of Inventions or Address Book, and every document entered and recorded in the Register, shall, for the purposes of the law of evidence for the time being in force, be deemed to be a public document, and shall be open to the inspection of any person at all reasonable times in the office of the Colonial Secretary. Provided that the report of the referee shall not in any case be published or open to public inspection and shall not be liable to production or inspection in any legal proceeding unless the court having power to order discovery in such legal proceeding shall certify that such production or inspection is desirable in the interests of justice and ought to be allowed.

(2) The books kept under section 13 and section 32 of "The Inventions Ordinance, 1859," shall be deemed to be parts of the Register of Inventions and Address Book respectively.

Extension of Exclusive Privilege.

Thirteenth. (1) The petitioner or petitioners to whom an exclusive privilege has been granted under section 7 of this ordinance may, at any time not more than one year and not less than six months before the time limited for the expiration of an exclusive privilege under the said section, petition the Governor in Executive Council for an extension of the privilege for a further term.

(2) When a petition is made under subsection (1), the Governor in Executive Council may, if he thinks fit, refer it to the district court of Colombo for report.

(3) Such court shall, in making its report, have regard to the nature and merits of the invention in relation to the public, to the profits made thereby, and to all the circumstances of the case.

(4) The procedure on the reference shall be such as the court thinks fit, and may include the issuing of citations calling upon persons claiming to have any interest in the reference to appear before the court on the day in which the reference is to be considered, or on any day to which the consideration thereof may be adjourned, and make with respect thereto any representations which they may see fit in relation to any of the matters to which the court is required by the last foregoing subsection to have regard in making its report.

(5) If the Governor in Executive Council is of opinion, or, where a reference under subsection (2), if the court reports that the petitioner or petitioners has or have been inadequately remunerated by his or their exclusive privilege, the Governor in Executive Council may, on payment of the fee prescribed in that behalf in the fourth schedule, make an order extending the term of the privilege for a further term not exceeding seven, or, in exceptional cases, fourteen years from the expiration of the first term of fourteen years.

(6) But an exclusive privilege of which the term has been extended under the last foregoing subsection shall, notwithstanding anything in that subsection, cease if the petitioner or petitioners fails or fail to pay before the expiration of each year of such extended term the fee prescribed in the schedule aforesaid in respect of the continuance of the privilege.

Imposition of Conditions with Respect to Exclusive Privileges.

Fourteenth. An order under section 5, subsection (1), authorizing the filing of a specification, or under section 13, subsection (5), extending the term of an exclusive privilege, may be made subject to such conditions as the Governor in Executive Council thinks expedient.

Exclusive Privilege to Bind Crown.

Fifteenth. (1) An exclusive privilege under this ordinance shall have to all intents the like effect as against Her Majesty the Queen, her heirs and successors, as it has against a subject.

(2) But the officers or authorities administering any department of the service of Her Majesty may, by themselves, their agents, contractors, or others, at any time after the delivery of the receipt of the petition for leave to file the specification of an invention, use the invention for the services of the Government on terms to be before or after the use thereof agreed on, with the approval of the Governor in Executive Council, between those officers or authorities and the inventor or inventors, or, in default of such agreement, on such terms as may be settled by the Governor in Executive Council.

Petition for Leave to File Memorandum or Amended Specification.

Sixteenth. (1) If after the filing of the specification the petitioner or petitioners has or have reason to believe that through mistake or inadvertence he or they has or have erroneously made any misstatement in his or their petition or specification, or included therein something which at the date of the delivery or receipt of the petition was not new, or whereof he or some or one of them was not the inventor, or that the specification is in any particular defective or insufficient, he or they may petition the Governor in Executive Council for leave to file a memorandum pointing out the misstatement, or disclaiming any part of the alleged invention, or for leave to file an amended specification, as the case may be.

(2) The petition must be in writing, signed by the petitioner or petitioners, and must state how the error, defect, or insufficiency occurred, and that it was not fraudulently intended.

(3) Upon the petition the Governor in Executive Council may make an order allowing the memorandum or amended specification to be filed.

(4) No amendment shall be allowed that would make the specification, as amended, claim an invention substantially larger than or substantially different from the invention claimed by the specification as it stood before amendment.

(5) The provisions of section 5 with respect to petitions, and of section 8 with respect to specifications, shall apply, so far as they can be made applicable, to petitions and to amended specifications, repsectively, made and filed under this section.

Effect of Amended Specification.

Seventeenth. An amended specification filed under the last foregoing section shall, except as to any action or proceeding relating to the exclusive privilege which may be pending at the time of the filing of the amended specification, have the same effect as if it had been the specification first filed: Provided that nothing in an amended specification shall be construed to extend or enlarge an exclusive privilege before acquired.

Bar to Exclusive Privilege in Certain Cases.

Eighteenth. A person shall not be entitled to an exclusive privilege under this ordinance—

(*a*) If the invention is of no utility, or

(*b*) If the invention at the date of the delivery, or receipt of the petition for leave to file the specification thereof, was not a new invention within the meaning of this ordinance, or

(*c*) If the petitioner or some one or more of the petitioners is or are not the inventor or inventors thereof, or

(*d*) If the original or any amended specification does not fulfil the requirements of this ordinance, or

(*e*) If the original or any subsequent petition relating to the invention or the original or any amended specification contains a wilful or fraudulent misstatement, or

(*f*) If the petition for leave to file the specification of the invention was made under this ordinance after the expiration of one year from the date of the acquisition of an exclusive privilege in respect of the invention in any place beyond the limits of the colony and the United Kingdom.

Novelty of Invention Dependent on Public Use or Knowledge Thereof Before Petition to File Specification.

Nineteenth. An invention shall be deemed a new invention within the meaning of this ordinance if it has not before the date of the delivery or receipt of the petition for leave to file the specification thereof been publicly used in any part of the colony or of the United Kingdom, or been made publicly known in any part of the colony or of the United Kingdom by means of a written publication.

Effect of Public Use or Knowledge of Invention in Fraud of Inventor.

Twentieth. The public use or knowledge of an invention before the date of the delivery or receipt of the petition for leave to file a specification thereof shall not be deemed a public use or knowledge within the meaning of this ordinance if the knowledge has been obtained surreptitiously or in fraud of the inventor or inventors, or has been communicated to the public in fraud of the inventor or inventors or in breach of confidence: Provided that the inventor or inventors has or have not acquiesced in the public use of his or their invention, and that, within six months of that use, he or they petitions or petition for leave to file a specification.

Effect of Temporary Use of Invention in Public by Inventor or Inventors or by His or Their Leave.

Twenty-first. Use of an invention in public by the inventor or inventors thereof, or by his or their servant or agent, or by any other person by his or their license in writing, for a period not exceeding one year immediately preceding the date of the delivery or receipt of his or their petition for leave to file a specification thereof, or knowledge of the invention resulting from such use thereof in public, shall not be deemed a public use or knowledge within the meaning of this ordinance.

Effect of Public Use or Knowledge of Patented Invention Between Application for the Patent and Petition to File Specification.

Twenty-second. If the inventor or inventors who has or have obtained a patent for his or their invention in the United Kingdom causes or cause a petition for leave to file a specification of the invention under this ordinance to be delivered or received by the Colonial Secretary within twelve months from the date of actual sealing of the patent, the invention shall be deemed a new invention within the meaning of this ordinance, if it was not publicly used or known in the colony at or before the date of the application for the patent, notwithstanding that it may have been publicly used or known in the colony or in some part of the United Kingdom before the date of the delivery or receipt of the petition under this ordinance for leave to file the specification.

Effect of Like Public Use or Knowledge of Unpatented Invention.

Twenty-third. If the inventor or inventors petitions or petition for leave to file a specification under this ordinance while his or their application for a patent is pending in the United Kingdom, and the interval between the date of his or their application for the patent and the date of the delivery or receipt of his or their petition under this ordinance does not exceed twelve months, the invention shall not be deemed to have been publicly used, or made publicly known, within the meaning of this ordinance, by reason only of the invention having been used, or a description thereof having been published, in the colony or in any part of the United Kingdom during the interval.

Effect of Public Use or Knowledge of Invention After Admission to an Exhibition.

Twenty-fourth. If an inventor, being the exhibitor of his invention at an industrial or international exhibition, certified as such by the Governor, causes a petition for leave to file a specification of the invention to be delivered to or received by the Colonial Secretary within six months from the date of the admission of the invention into that exhibition, the invention shall not be deemed to have been publicly used, or made publicly known, within the meaning of this ordinance, by reason only of the invention having at any time after its admission into the exhibition been publicly used or made publicly known.

Cessation of Exclusive Privilege by Order of the Governor.

Twenty-fifth. (1) An exclusive privilege acquired under this ordinance shall cease if the Governor in Council declares the privilege, or the mode in which it is executed, to be mischievous to the State, or generally prejudicial to the public.

(2) It shall also cease if a breach of any condition on which the petitioner or petitioners was or were authorized to file a specification, or on which the term of the exclusive privilege was extended, is, on an application under this ordinance to the district court of Colombo proved to the satisfaction of that court, and if the Governor in Executive Council thereupon declares the privilege to have ceased.

Cessation of Exclusive Privilege on Revocation or Expiration of Patent.

Twenty-sixth. (1) An exclusive privilege acquired under this ordinance in respect of an invention for which a patent has been obtained in the United Kingdom shall cease on the revocation or expiration of the patent.

(2) Such a privilege in respect of an invention for which a patent has not been obtained in the United Kingdom shall cease on the revocation or expiration of any patent or exclusive privilege which has been obtained or acquired for or in respect of the invention in any other country.

Action for Infringement of Exclusive Privilege.

Twenty-seventh. (1) Any person or persons may institute an action in the district court of Colombo against any person who, during the continuance of an exclusive privilege acquired by him or them under the ordinance in respect of an invention, makes, sells, or uses the invention without his or their license, or counterfeits or imitates it.

(2) The action shall not be defended upon the ground of any defect or insufficiency of the specification of the invention, or upon the ground that the original or any subsequent petition relating to the invention, or the original or any amended specification contains a wilful or fraudulent misstatement, or upon the ground that the invention is of no utility.

(3) Nor shall it be defended upon the ground that the plaintiff or plaintiffs was or were not the inventor or inventors, unless the defendant or defendants shows or show that he or they is or are the actual inventor or inventors or has or have obtained from the actual inventor or inventors a right to make, sell, or use the invention, or to counterfeit or imitate it, as the case may be.

(4) Nor shall it be defended upon the ground that the invention was not new, unless the defendant or defendants or some person through whom he or they claims or claim has or have, before the date of the delivery of the petition for leave to file the specification, publicly or actually used in the colony or any part of the United Kingdom the invention, or that part of it with respect to which the exclusive privilege is alleged to have been infringed.

Application to Declare Exclusive Privilege in Respect of an Invention Not to Have Been Acquired.

Twenty-eighth. Any person or persons may apply to the district court of Colombo for a rule to show cause why the court should not declare that an exclusive privilege in respect of an invention to be specified in the rule has not been acquired under the ordinance by reason of all or any of the objections following (to be specified in the rule), that is to say—

(*a*) That the invention is of no utility, or

(*b*) That the invention was not at the date of the delivery or receipt of the petition for leave to file the specification a new invention within the meaning of this ordinance, or

(*c*) That the petitioner was not or none of the petitioners was the true inventor thereof, or

(*d*) That the original or any amended specification does not fulfil the requirements of this ordinance, or

(*e*) That the petitioner or petitioners has or have knowingly or fraudulently included in the petition for leave to file the specification or in the original or any amended specification, as part of his or their invention, something which was not new, or whereof he or they or some one or more of them was or were not the inventor or inventors, or

(*f*) That the original or any subsequent petition relating to the invention, or the original or any amended specification, contains a wilful or fraudulent misstatement, or

(*g*) That some part of the invention, or the manner in which that part is to be made and used, as described in the original or any amended specification, is not thereby sufficiently described, and that this insufficiency was fraudulent and is injurious to the public.

Like Application as to Part of Invention.

Twenty-ninth. Any person or persons may apply to the district court of Colombo for a rule to show cause why the court should not declare that an exclusive privilege in respect of any part of an invention to be specified in the rule has not been acquired under this ordinance, by reason of all or any of the objections following (to be specified in the rule), that is to say—

(*a*) That that part of the invention is wholly distinct from the other parts thereof, and is of no utility; or

(*b*) That that part of the invention was not, at date of the delivery or receipt of the petition for leave to file the specification, a new invention within the meaning of this ordinance; or

(*c*) That the petitioner was not, or none of the petitioners was, the true inventor or inventors of that part of the invention; or

(*d*) That that part of the invention, or the manner in which it is to be made and used, is not sufficiently described in the original or any amended specification, and that this insufficiency is injurious to the public.

Security for Costs of Application Under Either of the Two Last Foregoing Sections.

Thirtieth. The said district court may in this behalf require a person applying for a rule under either of the two last foregoing sections to give security for the payment of all costs incurred or likely to be incurred by any person or persons appearing to show cause against the rule.

Application on Breach of Condition.

Thirty-first. (1) Any person authorized by the Governor in Executive Council in this behalf may apply to the district court of Colombo for a rule to show cause why the question of the breach of any condition on which leave to file a specification has been granted, or any other question of fact on which the cessation of an exclusive privilege under section 25 may, in the judgment of the Governor in Executive Council, depend, should not be tried in the form of an issue directed by the court.

(2) If the rule is made absolute, the court, unless the breach or other matter of fact is admitted, may direct the issue to be tried, and certify the result of the trial to the Governor in Executive Council.

Notice of Proceedings to Persons Interested.

Thirty-second. (1) Notice of any rule obtained or proceeding taken under section 28, section 29, or section 31, shall be served on all persons appearing from the Address Book to be proprietors of the exclusive privilege, or to have shares or interests therein, and it shall not be necessary to serve the notice on any other person.

(2) The notice shall be deemed to be sufficiently served if a copy thereof is left at the place for the time being stated in the Address Book, by delivering the copy to any person resident at or in charge of the place, or, if there is no person resident at or in charge of the place, or if the place is not within the local limits of the jurisdiction of the court, by causing the notice to be sent to the place by post by a registered letter directed to the person to whom the notice is addressed.

Order on Application.

Thirty-third. (1) If it appears to the district court of Colombo at the hearing of an application under section 28 or section 29, that by reason of any of the objections specified in the rule the exclusive privilege in the invention or in any part thereof has not been acquired, the court shall make an order accordingly, and thereupon the petitioner or petitioners shall, so long as the order continues in force, cease to be entitled to the exclusive privilege.

(2) If it appears to the district court of Colombo, at the hearing of any such application as last aforesaid, that the petitioner or petitioners has or have in the description of his or their invention in the petition for leave to file a specification thereof, or in the original or any amended specification, erroneously included something which at the date of the delivery or receipt of the petition for leave to file the specification was not new, or whereof he or they was or were not the inventor or inventors, or that the specification is in any particular defective or insufficient, but that the error, defect, or insufficiency was not fraudulently intended, the court may adjudge the exclusive privilege to have been acquired and to be valid, save as to the part thereof affected by the error, defect, or insufficiency; or

(3) If it appears to the district court of Colombo that the error, defect, or insufficiency can be amended without injury to the public, the court may adjudge the exclusive privilege in respect of the whole of the invention to be valid, and may, upon such terms as it thinks reasonable, order the specification to be amended in any particular in which it is erroneous, defective, or insufficient; and thereupon the petitioner or petitioners shall,

within a time to be limited by the court for the purpose, file in the office of the Colonial Secretary a specification amended according to the order.

(4) The provisions of section 17 with respect to the effect of such specifications shall apply, so far as they can be made applicable, to an amended specification filed under this section.

(5) An exclusive privilege in respect of an invention shall not be defeated upon the ground that the petition for leave to file the specification of the invention contains a misstatement, unless the misstatement was wilful or fraudulent.

Delivery of Particulars.

Thirty-fourth. (1) In an action for the infringement of an exclusive privilege acquired under this ordinance the plaintiff shall deliver with his plaint particulars of the breaches complained of in the action, and the defendant shall deliver a written statement of the particulars of the grounds, if any, upon which he means to contend that the plaintiff is not entitled to an exclusive privilege in respect of the invention.

(2) In like manner, upon an application to the district court of Colombo under section 28, section 29, or section 31, the person making the application shall deliver particulars of the objections or grounds on which he means to rely.

(3) At the hearing of any such action or application, or at the trial of any issue arising out of any such application, evidence shall not be allowed to be given in proof of any breach of the exclusive privilege, or of any ground impeaching the validity of that privilege, or of any objection or ground affecting such a privilege, unless such breach or other matter as aforesaid has been stated in the particulars delivered under this section.

(4) If it is alleged that the invention was publicly used or known before the date of the delivery or receipt of the petition for leave to file the specification thereof, the places where and the manner in which the invention was so publicly used or known shall be stated in the particulars.

(5) Notwithstanding anything in the foregoing portion of this section, the court in which the action or application is pending, or an issue arising out of the application is being tried, may allow the plaintiff or defendant, respectively, to amend the particulars delivered under this section upon such terms as it thinks fit.

Title of Actual Inventor to Exclusive Privilege in Case of Fraud.

Thirty-fifth. If in an action instituted in the district court at any time within fourteen years from the date of the filing of a specification of an invention under this ordinance the actual inventor proves to the satisfaction of the court that the petitioner or petitioners was or were not the actual inventor or inventors, and that at the time of the petition for leave to file the specification the petitioner or petitioners knew or had reason to believe that the knowledge of the invention was obtained by himself or themselves or by some other person surreptitiously or in fraud of the actual inventor, or by means of a communication made in confidence by the actual inventor to him or them or to any person through whom he or they derived the knowledge, the court may make a decree declaring an exclusive privilege in respect of the invention to be vested, subject to the other provisions of this ordinance, in the actual inventor for a term of fourteen years from the date on which the petition was delivered to, or received by, the Colonial Secretary, and requiring the petitioner or petitioners to account for and pay over to the actual inventor the profits derived by him or them from the invention, or so much of those profits as the court, having regard to the degree of diligence exerted by the actual inventor in proceeding under this section and to all the other circumstances of the case, may see fit to require the petitioner or petitioners to pay.

Transmission of Copies of Decrees and Orders to Colonial Secretary.

Thirty-sixth. A court making a decree in an action under section 27 or section 35, or an order on an application under section 28, section 29, or section 31, shall send a copy of the decree or order, as the case may be, to the Colonial Secretary, who shall cause an entry thereof and reference thereto to be made in the Register of Inventions and against any entry in the Address Book affected thereby.

Registration of Cessation of Exclusive Privilege.

Thirty-seventh. In the following cases, namely, (*a*) when an exclusive privilege acquired under this ordinance has ceased under section 7 or section 13 by reason of a fee in respect of the continuance of the privilege not having been paid within the time limited by the fourth schedule for the payment thereof, and the period, if any, within which an order might have been made for enlarging the time for the making of the payment has expired, (*b*) when an exclusive privilege acquired under this ordinance has been declared by the Governor in Executive Council under section 25 to have ceased, (*c*) when an exclusive privilege acquired under this ordinance has ceased under section 26 by reason of the revocation or expiration of a patent or exclusive privilege, (*d*) when the whole or any part of an exclusive privilege acquired under this ordinance has ceased under section 33 in consequence of an order under that section, (*e*) when an exclusive privilege has been declared by a decree to have vested in an actual inventor under section 35, (*f*) when an exclusive privilege acquired under this ordinance has ceased by reason of the expiration of the term for which it was acquired, the Colonial Secretary shall cause an entry with respect to the cessation or vesting of the exclusive privilege to be made in the Register of Inventions, and a reference to that entry to be made in the margin of the entry in that Register of the petition for leave to file the specification of the invention.

Rectification of Register of Inventions or Address-Book.

Thirty-eighth. (1) If any person is aggrieved by an entry in the Register of Inventions or Address Book, or by the omission of an entry therefrom, and a proceeding is not provided in the foregoing portion of this ordinance whereby the register or book may be rectified, he may apply to the district court of Colombo for an order for the rectification of the register or book, and the court may make such order on the application as it thinks fit.

(2) A copy of the order shall be forwarded by the court to the Colonial Secretary, who shall cause an entry thereof and reference thereto to be made in the Register of Inventions and against any entry in the Address Book affected thereby.

(3) When the Colonial Secretary is a party to an application under this section, the costs of another party thereto shall not be adjudged to be payable by the Colonial Secretary.

Power for Governor in Executive Council to Require Grant of Licenses.

Thirty-ninth. If on the petition of any person interested it is proved to the Governor in Executive Council that, by reason of an inventor who has acquired an exclusive privilege under this ordinance failing to grant licenses on reasonable terms, (*a*) the exclusive privilege is not being worked in Ceylon, or (*b*) the reasonable requirements of the public with respect to the invention cannot be supplied, or (*c*) any person is prevented from working or using to the best advantage an invention of which he is possessed, the Governor in Executive Council may order the inventor to grant, or may himself on behalf of the inventor grant, licenses on such terms as to the amount of royalties, security for payment, or otherwise, as the Governor in Executive Council, having regard to the nature of the invention and the circumstances of the case, may deem just.

Subscription of Specifications and Petitions.

Fortieth. If the petitioner or petitioners or any of them is or are absent from Ceylon, a petition for leave to file a specification, or a petition for leave to file a memorandum or amended specification, may, instead of being signed by the petitioner or petitioners under section 4, section 8, or section 16, as the case may be, be signed on behalf of the petitioner or petitioners by an agent in Ceylon authorized by him or them in writing in that behalf.

Verification of Petitions.

Forty-first. (1) A petition under this ordinance for leave to file a specification, memorandum, or amended specification must be verified by the person or persons making the petition.

(2) If the person or persons is or are absent from Ceylon, the petition may be verified by the agent who signs the petition on his or their behalf.

(3) The verification must be signed by the person or persons making it, and must be to the effect that the facts stated in the petition are true to his or their knowledge, except as to matters stated on information and belief, and that as to those matters they are believed by him or them to be true.

Agents.

Forty-second. Subject to the provisions of the two last foregoing sections and of any other enactment for the time being in force, any act which is required or authorized by this ordinance to be done by any person may be done on his behalf by an agent in Ceylon having authority in writing from that person so to do the act.

Right of Appeal Saved.

Forty-third. All decisions and orders of the district court of Colombo made under the authority of this ordinance shall be subject to an appeal to the Supreme Court, and every such appeal shall be brought on and prosecuted in manner provided in the "Civil Procedure Code, 1889," and shall be subject to the provisions of the said code; and subject to the provisions and limitations contained in the said code, any party or parties to any action or proceeding under this ordinance may appeal to Her Majesty in Council from any formal judgment, decree, or sentence of the Supreme Court, or against any rule or order made by such court, and having the effect of a formal or definitive sentence.

Fees.

Forty-fourth. (1) There shall be paid in respect of the several proceedings specified in the fourth schedule the fees in that schedule prescribed.

(2) The Governor in Executive Council may, if he thinks fit, reduce any of those fees and revoke or vary the reduction.

(3) The fees payable under this section shall be collected by means of stamps or otherwise as the Governor in Executive Council directs.

(4) A proceeding in respect of which a fee is payable under the fourth schedule shall be of no effect unless the fee has been paid.

Rules and Forms.

Forty-fifth. (1) The Governor in Executive Council may make such rules and prescribe such forms as he thinks necessary for carrying out the purposes of this ordinance, and may alter or amend either of the forms in the second and third schedules.

(2) Rules under this section may provide, among other matters, for the printing of specifications, memoranda, and amended specifications, and for the distribution or sale of printed copies thereof.

Passed in Council the sixteenth day of November, one thousand eight hundred and ninety-two.

H. L. CRAWFORD,
Clerk to the Council.

Assented to by His Excellency the Governor the twenty-first day of November, one thousand eight hundred and ninety-two.

E. NOEL WALKER,
Colonial Secretary.

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Amendments to the Patent Laws of the United States.

The amendments to the patent laws approved March 3, 1897, will appear in THE OFFICIAL GAZETTE of March 16.

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The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electrical Engineer, New York, a weekly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1895.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 86 pages. In paper covers, $1.50.

Vol. 12. Appendix No. 12, July 1, 1892, to June 30, 1893. One volume, 80 pages. In paper covers, $1.50.

Vol. 13. Appendix No. 13, July 1, 1893, to June 30, 1894. One volume, 70 pages. In paper covers, $1.50.

Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 68 pages. In paper covers, $1.50.

DISCLAIMER.

567,694.—*William P. Smith*, Albany, N. Y. IMPROVEMENT IN THE PROCESS OF PRODUCING AND COATING PATTERNS. Patent dated September 15, 1896. Disclaimer filed February 26, 1897, by the patentee.

Enters his disclaimer:

"To such interpretation of the word 'metallizing,' which appears in the claims, as would make it include *silver* as a preliminary coating on the surface of the mold or pattern preparatory to the deposition thereon of metal to form a matrixel."

Label.

6,547.—Title: "ALBUMINIZED FOOD." *Smith, Kline & French Company*, Philadelphia, Pa. Application filed October 5, 1896.

Issue of March 9, 1897.

Patents	390—No. 578,307 to No. 578,705, inclusive.
Designs	33—No. 26,722 to No. 26,754, inclusive.
Trade-Marks	49—No. 29,647 to No. 29,695, inclusive.
Labels	1—No. 6,547.
Prints	None.
Reissues	None.
Total issue	482

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	3	.....	New Hampshire	3	.....
Arizona Territory	.....	.....	New Jersey	24	2
Arkansas	2	.....	New Mexico Territ'y	.....	.....
California	15	.....	New York	70	10
Colorado	1	.....	North Carolina	.....	.....
Connecticut	16	.....	North Dakota	.....	.....
Delaware	1	.....	Ohio	26	.....
District of Columbia	4	.....	Oklahoma Territory	.....	.....
Florida	1	.....	Oregon	2	.....
Georgia	1	.....	Pennsylvania	4	4
Idaho	1	.....	Rhode Island	3	1
Illinois	37	5	South Carolina	.....	.....
Indian Territory	1	.....	South Dakota	.....	1
Indiana	13	.....	Tennessee	3	.....
Iowa	6	.....	Texas	11	.....
Kansas	3	.....	Utah	.....	.....
Kentucky	2	.....	Vermont	.....	.....
Louisiana	3	1	Virginia	3	3
Maine	.....	.....	Washington	1	.....
Maryland	6	2	West Virginia	3	.....
Massachusetts	28	8	Wisconsin	12	.....
Michigan	8	1	Wyoming	.....	.....
Minnesota	8	1	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	18	1	Total to citizens of the United States	390	40
Montana	1	.....			
Nebraska	2	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	1	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	1	.....
Austria-Hungary	2	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	.....	.....
Belgium	.....	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	1	.....
Brazil	.....	.....	Orange Free State	.....	.....
Canada	6	3	Portugal	.....	.....
Canary Islands	.....	.....	Queenaland	.....	.....
Cape Colony	.....	.....	Russia	.....	.....
Ceylon	.....	.....	Scotland	.....	.....
Chile, Republic of	.....	.....	South African Republic	.....	.....
China	.....	.....	South Australia	.....	.....
Cuba	.....	.....	Straits Settlements	.....	.....
Denmark	.....	.....	Sweden	.....	.....
England	13	2	Switzerland	3	.....
France	2	1	Victoria	1	.....
Germany	12	4	West Australia	.....	.....
Guatemala	.....	.....			
India	.....	.....			
Ireland	.....	.....			
Italy	.....	.....	Total to citizens of foreign countries	42	10

APPLICATIONS UNDER EXAMINATION.

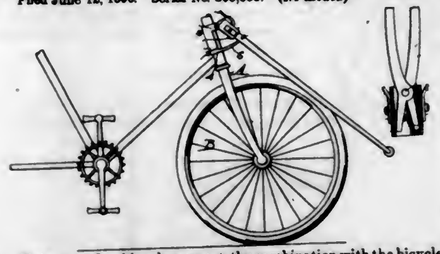
Condition at Close of Business March 2, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears.—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 2	Feb. 19	257
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 2	Feb. 14	196
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Feb. 2	Feb. 11	123
215	XVII. Paper Manufactures and Printing.	Feb. 2	Feb. 6	129
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 3	Feb. 5	249
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 2	Feb. 5	211
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 3	Feb. 3	175
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 3	Feb. 3	235
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 3	Feb. 2	142
253	X. Carriages and Wagons	Feb. 3	Feb. 2	287
246	I. Tillage and Fences	Feb. 2	Feb. 2	167
221	XXIII. Instruments of Precision, Acoustics, etc.	Feb. 2	Jan. 19	331
106	II. Farm Stock, Products, etc.	Feb. 2	Dec. 24	421
	Between one and two months.			
248	XVIII. Steam-Engineering, etc	Jan. 7	Feb. 5	244
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders	Jan. 25	Feb. 3	334
256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 23	Feb. 1	281
98	XXI. Textiles, etc	Jan. 30	Jan. 30	191
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 26	Jan. 29	378
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Jan. 27	Jan. 27	191
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Jan. 27	Jan. 27	231
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 12	Jan. 27	176
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Jan. 22	Jan. 26	327
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Jan. 4	Jan. 26	463
243	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Jan. 25	Jan. 25	204
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Jan. 11	Jan. 22	289
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Jan. 11	Jan. 22	355
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 22	Jan. 21	257
158	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Jan. 14	Jan. 14	302
85	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 18	Jan. 9	408
240	VII. Harvesters, Games and Toys, and Velocipedes.	Jan. 7	Jan. 6	1286
102	XIX. Stoves and Furnaces	Jan. 5	Jan. 2	402
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 2	Jan. 2	278
	Between two and three months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 21	Dec. 29	613
	Total number of applications awaiting action			10,208
	Under one month in arrears.			
	Designs	Feb. 9	Feb. 23	146
	Trade-Marks	Feb. 5	Feb. 13	100

PATENTS

GRANTED MARCH 9, 1897.

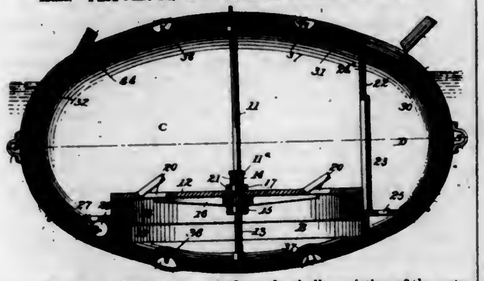
578,307. BICYCLE-SUPPORT. ANDREW A. AMES, Dover, N. H. Filed June 12, 1896. Serial No. 595,333. (No model.)



Claim.—1. In a bicycle-support, the combination with the bicycle-frame, of a casing or housing hinged thereto, supporting-legs pivoted to the casing, a spreader for spreading said legs when they are forced thereon, adjustable slides adapted to engage with the legs and prevent the latter from spreading too far, and means for locking the slides in adjusted position, substantially as described.

2. In a bicycle-support, the combination with a casing or housing hinged to the bicycle-frame, of a pair of supporting-legs pivoted to the casing, a spring for keeping the free ends of said legs normally together, and a spreader adapted to open or spread the legs when they are made to straddle it, said spreader being formed into hooks which receive the legs and hold them in raised position and out of engagement with the spreader when the support is not in use.

578,308. MARINE SAFE-FLOAT. JOSIAH B. ANDERSON, Boston, Mass. Filed June 24, 1896. Serial No. 596,780. (No model.)



Claim.—1. In a marine safe-float, the shell consisting of the outer metal armor-plate, the inner metal plate, and the intermediate layers of asbestos, cork and asphaltum, substantially as described.

2. In a marine safe-float, the shell consisting of the outer armor-plate of metal, the inner layer of metal, intermediate layers of asbestos, cork, and asphaltum, and wire fabric arranged between said intermediate layers, substantially as described.

3. In a marine safe-float, the ellipsoidal shell in combination with the vertical central post extending across within the shell, said post being rigidly connected at top and bottom with the shell, substantially as described.

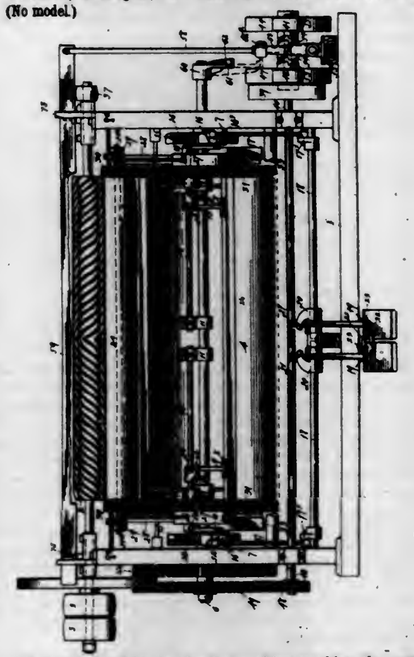
4. In a marine safe-float, the combination with the shell and the central stationary post, of the vertically-adjustable floor arranged to separate the mail and bullion compartments, said floor being supported by the post, substantially as described.

5. In a marine safe-float, the combination with the casing and the central threaded post, of the internally-threaded sleeve upon the post, the floor supported by said sleeve, and the locking-nut threaded upon the sleeve, substantially as described.

6. In a marine safe-float, the combination with the shell, the stationary post, and the wall 19, of the floor 12 adjustable on the post and the depending flange 18 attached to the floor, substantially as described.

7. In a marine safe-float, the combination with the shell, of the vertical partition separating the compartments C and D, and the vertically-adjustable floor separating the compartments C and B, the compartment B being expansible to provide more or less storage room, as desired, for coin, bullion, and other valuables, substantially as described.

578,309. HIDE AND LEATHER WORKING MACHINE. GEORGE W. BAKER, Wilmington, Del. Filed Mar. 5, 1896. Serial No. 581,948. (No model.)



Claim.—1. In a hide and leather working machine, the combination with a rotary, reciprocating winding-drum of comparatively large diameter, its work-holding clamp, and operating mechanism, and with a tool-cylinder above said drum, of an intermediate cylinder between said drum and tool-cylinder, and means for rotating said intermediate cylinder reversely to the rotation of the drum and tool-cylinder, substantially as specified.

2. A hide and leather working machine having a rapidly-rotating tool-cylinder, a slowly-rotating winding-drum, and an intermediate table-cylinder, together with mechanism whereby said table-cylinder is rotated reversely to the drum and to the tool-cylinder, and at a slow rate of speed, substantially as specified.

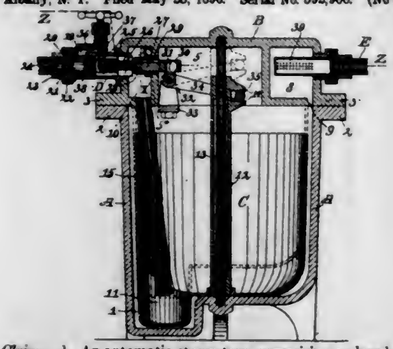
3. In a hide and leather working machine, the combination with the large winding-drum, and its rotating, adjusting and reversing mechanisms, of a table-cylinder above said drum and having a rotary and an oscillatory movement, and a tool-cylinder which coacts with said table-cylinder, substantially as specified.

4. In a hide and leather working machine, the combination with the large rotary, reciprocatory winding-drum, having an automatic work-holding clamp, and the rotary tool-cylinder above said drum, of arms loosely mounted on the shaft of said drum and capable of rotating both with and on said shaft, a cylinder journaled in said arms and situated intermediately of the drum and the tool-cylinder, stops for limiting the movement of the said arms, and gear for rotating said cylinder, substantially as specified.

5. In a hide and leather working machine, the combination with the large rotary reciprocatory winding-drum, its rotating and reversing mechanism and automatic work-clamp, and with a rotary tool-cylinder journaled above said drum, of counterweighted arms journaled to swing on the drum-shaft, and having frictional devices whereby they rotate with said shaft in one direction, stops for limiting the movement of the said arms, a cylinder carried thereby, and gear between the cylinder-shaft and the drum-shaft, substantially as specified.

6. In a hide and leather working machine, the combination with the main frame, and with the tool-cylinder journaled at the upper portion of the same, said frame having lugs 64 behind said cylinder, of arms 63 pivotally connected to said lugs, a slotted frame carried by said arms, a carriage adapted to move longitudinally in said frame, and provided with a grinding or sharpening device, means for operating said carriage, means for securing said frame in operative relation to said tool-cylinder, and stops which coact with extensions of said arms 63 to support said frame when swung upwardly and backwardly out of operative position, substantially as specified.

578,310. AUTOMATIC STEAM-TRAP. JAMES H. BLESSING, Albany, N. Y. Filed May 25, 1896. Serial No. 592,900. (No model.)



Claim.—1. An automatic steam-trap, comprising a closed vessel, a floatable bucket contained in said vessel, a valve and its operating mechanism controlled by said bucket, and a removable bonnet which forms a closure for said vessel and is provided with three separate chambers that are formed in said bonnet; one of said chambers being connected with an inlet water-pipe and having an outlet-port arranged to deliver water directly into said closed vessel, a second chamber adapted to temporarily contain a volume of water and having an inlet water-pipe—which forms a communication between the upper part of said chamber and the interior of the bucket—and an outlet water-pipe—which forms a communication between the bottom of said chamber and the lower part of the closed vessel—so as to deliver from said chamber directly beneath said bucket, and a third chamber having a pipe arranged for conducting water from the bucket into said chamber, and a discharge-pipe leading from the third chamber, as herein specified.

2. In an automatic steam-trap, the combination of a closed vessel, an open-top bucket arranged to rise and fall in said vessel, a valve operated by said bucket and adapted to close the opening of a valve-seat, and a removable disk or annulus arranged exteriorly to the body of the trap and provided with a discharge-orifice having a smaller opening than the bore of the valve-seat; whereby a retardation of the discharge of water will be effected, as herein specified.

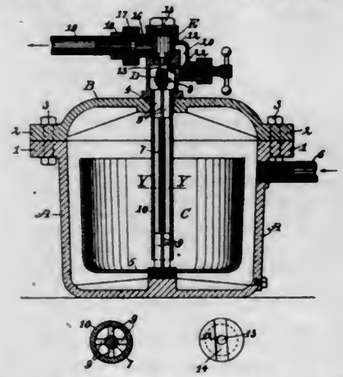
3. In an automatic steam-trap, the combination of a closed vessel provided with a removable bonnet which forms a closure for said vessel; said bonnet containing three separate chambers which are formed therein—one of said chambers having a supply-pipe leading thereinto and an outlet-port formed in its bottom to communicate with the interior of said vessel, the next chamber being adapted to temporarily contain a volume of water, and the third chamber having a pipe that conducts the water from the closed vessel into said chamber and a discharge-pipe that leads from said chamber, an open-top bucket arranged to rise and fall in said vessel, and a discharge-valve operated by said bucket and arranged to govern the outflow of water from the trap, as herein specified.

4. In a steam-trap, the combination of a bonnet, B, provided with a chamber, 10, a valve-stem, 27, fitted to move through a wall of said chamber and having a longitudinal groove, 29, adapted to form a communication between the recess in said bonnet and the chamber 10; said valve-stem having a retractive movement whereby communication through said groove will be closed, as herein specified.

5. In a steam-trap, the combination of a valve-casing, D, provided with a valve-seat, 19, a removable disk, 20, held in said valve-casing independently of said valve-seat, and provided with a discharge-orifice, 21, whose area is smaller than that of said valve seat; said disk being exchangeable for one having a discharge-orifice of different caliber, whereby the steam-trap will be rendered operative under a different pressure, as and for the purpose specified.

6. In a steam-trap, the combination, with a closed vessel, A, a bonnet, B, which forms a closure for said vessel, a bucket, C, arranged to rise and fall in said vessel, a chamber, 10, formed in the bonnet B, and provided with a pipe, 15, leading into the bucket C, a valve-casing, D, attached to the bonnet B and provided with a valve-seat, 19, and with an annulus or disk, 20, that has a discharge-orifice, 21, of smaller caliber than the bore of said valve-seat, of a valve, 25, operated by the bucket C and having—in its stem—a longitudinal groove, 29, arranged to intermittently form a communication between the recess of the bonnet B and the chamber 10; the pipe 15 being adapted to convey the water from the bucket C into the chamber 10, as and for the purpose specified.

578,311. AUTOMATIC STEAM-TRAP. JAMES H. BLESSING, Albany, N. Y. Filed June 3, 1896. Serial No. 594,065. (No model.)



Claim.—In an automatic steam-trap, the combination, with a casing, A, a bonnet, B, secured to and forming a closure for the top of said casing, a valve-casing, E, secured to the upper side of said bonnet, a pendent guide-sleeve, 10, secured to the lower side of the valve-casing and arranged to extend into the interior of the trap; said valve-casing and guide-sleeve being combinedly removable from the bonnet B without removing the latter from the casing A, a valve-seat, 12, removably secured in said valve-casing and having a discharge-opening, 13, of smaller caliber than the bore of the guide-sleeve, and a discharge-pipe, 19, leading from the valve-casing E, of a bucket, C, arranged to automatically rise and fall in the casing A, a stem, 7, erected centrally on the bottom of the bucket C and having guide-wings, 9, fitted to slide loosely in the guide-sleeve 10, a valve, D, attached to the stem 7 and detachable from the latter without removing the bonnet B from the casing; said valve being arranged to close the discharge-opening 13, and a water-inlet pipe, 6, secured to the casing A, as herein specified.

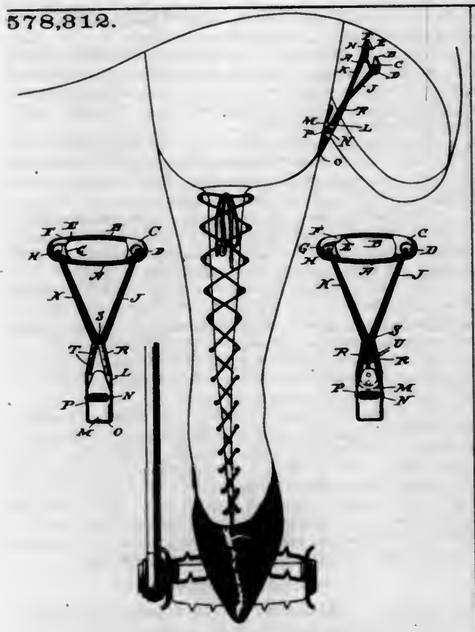
578,312. ATTACHMENT FOR SKIRTS. SADI W. BODINE, New York, N. Y. Filed June 2, 1896. Serial No. 593,964. (No model.)

Claim.—1. A skirt-attaching device consisting of a fastening member provided with one fixed and one movable arm, openings or eyes in both ends of said member, a second fastening device constructed substantially as shown and described, and a flexible connection between the two openings or eyes of the fastener A and the second fastening device, all arranged as described and adapted to operate substantially as set forth.

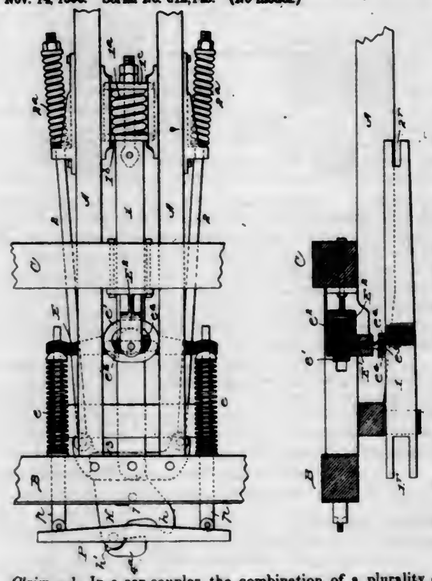
2. In an attachment for a skirt, a fastening device consisting of the fixed arm A, the movable spring-arm B, the frame C provided with opening D, the catch-frame F provided with opening H, a retaining-shoulder G, a second fastening device constructed substantially as shown and described, and flexible connections J, K fixedly secured to one member of the attachment and movably secured to the other.

3. In an attachment for skirts, the combination of a fastening device provided with one fixed and one movable arm having means at the extreme ends of the device for securing a connection thereto, a second and lower fastening device constructed and arranged substantially as shown and described, and a V-shaped flexible connection extending between the upper portion of the lower fastening device and the extreme ends of the upper fastening device, as and for the purpose set forth.

578,312.



578,313. CAR-COUPLING. HARRY C. BUHOUP, Chicago, Ill. Filed Nov. 14, 1896. Serial No. 612,145. (No model.)



Claim.—1. In a car-coupler, the combination of a plurality of stems, a cross-bar with which the stems are pivotally connected, and a coupler-head detachably connected with the cross-bar; substantially as and for the purposes specified.

2. In a car-coupler, the combination with a plurality of stems, and an interposed cross-bar, of a coupler-head adjustable on the cross-bar; substantially as and for the purposes specified.

3. In a car-coupler, the combination with a coupler-stem and its draft and buffer spring, of one or more supplemental springs arranged to resist the reaction or rebound of the buffer-spring; substantially as and for the purposes specified.

4. In a car-coupler, the combination of a plurality of stems, the center stem having a spring subject to compression in either pulling or buffing, and side stems provided with springs arranged to be in compression to the extent at least of the movement or travel of the center spring when said center spring is compressed by either a pulling or buffing strain, substantially as and for the purposes specified.

5. In a car-coupler, the combination with a plurality of stems, and a detachable coupler-head, of an interposed cross-bar with which the stems are pivotally connected, and a plurality of draft-springs one of which springs is also a buffer-spring, and one or more of which are in compression when the buffer-spring is in its normal condition; substantially as and for the purposes specified.

6. The combination of a platform-buffer having an equalizer, a coupler-stem, and an interposed rotatable shaft actuated from the coupler-stem and which actuates the equalizer to project the platform-buffer; substantially as and for the purpose specified.

7. The combination with the platform-buffer, and an equalizer having a cam-ring, of a coupler-stem, and an interposed shaft having a cam arranged within the cam-ring of the equalizer, and a cross-bar which engages pins or projections on the conpler-stem; substantially as and for the purposes specified.

8. In a car-coupler, the combination with a coupler-head, of a reversible pivoted knuckle adapted to rotate in either direction, and locking mechanism for securing the knuckle against rotation, whereby the coupler may be converted from a Master Car-Builders' type to a Miller-hook type of coupler, substantially as and for the purposes specified.

9. The combination in a coupler, of a reversible knuckle adapted for either a right or left hand coupler, and means for locking the knuckle; substantially as and for the purposes specified.

10. The combination in a car-coupler, of a reversible knuckle, and a plurality of locking devices arranged to lock the tailpiece of the knuckle against movement in either direction; substantially as and for the purposes specified.

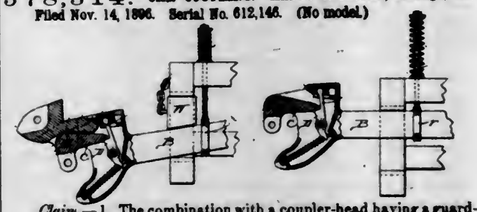
11. The combination in a car-coupler, of a reversible knuckle, a wing-lock, and a sliding locking-block actuated by the wing-block; substantially as and for the purposes specified.

12. In a car-coupler, the combination with the knuckle and its tailpiece, of a locking device, and a disk or ring arranged in the path of the tailpiece of the knuckle and back of the advanced position of the locking device; substantially as and for the purposes specified.

13. In a car-coupler, the combination with a coupler-head having a disk pocket over the path of the tailpiece of the knuckle, of a knuckle having a tail-piece, a lock which engages said tailpiece, and a loose disk or ring arranged in the pocket of the coupler-head and which projects into the path of the tailpiece of the knuckle back of the advanced position of the locking device; substantially as and for the purposes specified.

14. In a car-coupler, the combination with a coupler-head having a slot back of the knuckle-ears for the passage of the tailpiece of a knuckle, of a reversible knuckle adapted to rotate in either direction, and means for locking said knuckle against rotation, substantially as and for the purposes specified.

578,314. CAR-COUPLING. HARRY C. BUHOUP, Chicago, Ill. Filed Nov. 14, 1896. Serial No. 612,146. (No model.)



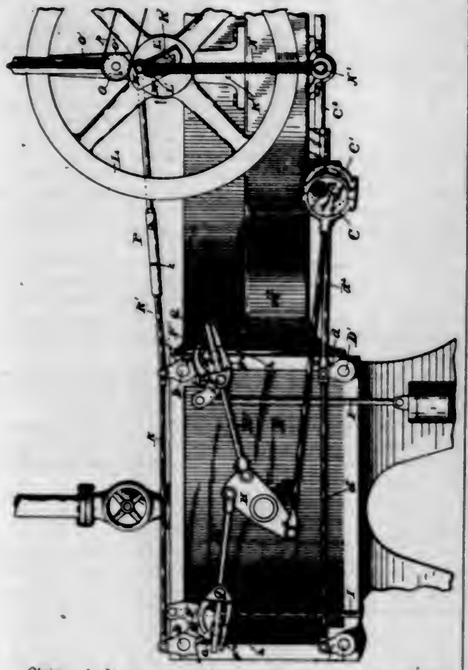
Claim.—1. The combination with a coupler-head having a guard-arm and knuckle-ears, of a plurality of knuckles or hooks pivoted on the knuckle-ears of the head and arranged to rotate in both directions, and means for locking said knuckles, substantially as and for the purposes specified.

2. In a car-coupler, the combination with a coupler-head and knuckle of the Master Car-Builders' type, of a hook of the Miller type mounted on the knuckle and movable therewith, and means for locking said knuckle and hook, substantially as and for the purposes specified.

3. In a car-coupler, the combination with the coupler-head, of a knuckle or right-hand coupling device, a hook or left-hand coupling device, said knuckle and hook having a common pivot and separate tailpieces, and a plurality of locking devices for securing said hook and knuckle, substantially as and for the purposes specified.

4. In a car-coupler, the combination with a coupler-head, of a knuckle and its tailpiece and a hook and its tailpiece said hook and knuckle having a common pivot, a wing-lock for the tailpiece of the knuckle and a lock for the tailpiece of the hook the latter connected with and operated from the former, substantially as and for the purposes specified.

578,315. GOVERNOR FOR STEAM-ENGINES. ARTHUR CHANDLER, Kokomo, Ind. Filed May 11, 1896. Serial No. 591,013. (No model.)

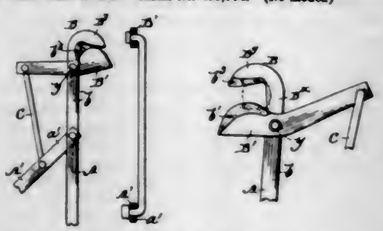


Claim.—1. In a governor for steam-engines, a shaft having a crank connected with the governing-toe which regulates the cut-off mechanism, a balance-wheel or pendulum mounted on the shaft, and means, substantially as described, for actuating the balance-wheel or pendulum and imparting a constant unvarying oscillatory movement thereto.

2. In a governor for steam-engines, a shaft having a crank connected with the governing-toe which regulates the cut-off mechanism, a balance-wheel or pendulum mounted on the shaft and means for actuating the balance-wheel or pendulum and imparting a constant unvarying oscillatory movement thereto, consisting of a revoluble friction-wheel, a plate having a longitudinal slot shaped as described and shown, through which the shaft is projected, spurs or fingers on the shaft to work in the slot and a spring to force the plate upwardly, substantially as described and for the purposes set forth.

3. In a governor, the combination with a shaft and a balance-wheel or pendulum mounted thereon, and a pair of diametrically opposite spurs or fingers on said shaft, of a plate having a longitudinal slot shaped at the ends as described and shown, and in which the spurs or fingers on the shaft operate so as to move the plate longitudinally, a spring to force the plate in an upward direction and control the length of the stroke of the balance-wheel or pendulum, and a revoluble friction-wheel to contact with one end of the slotted plate when the plate is forced out by the action of the spurs in the slot, substantially as described and specified.

578,316. TREE-TRIMMER. EDMUND M. CHUMARD, Brooklyn, Pa. Filed June 4, 1892. Serial No. 435,531. (No model.)



Claim.—1. A pair of shears, one of whose blades has a cutting edge with a bevel on the outside, and the other has a cutting edge with a bevel on the inside, said cutting edges being arranged to pass each other in shearing, substantially as described.

2. In a pair of shears, the combination of the blade B' having the beveled cutting edge b', beveled on the outside, with the blade B having the cutting edge b^3 beveled on the inside, said edges being arranged to pass each other in shearing, and a pivot on which said blades turn, substantially as described.

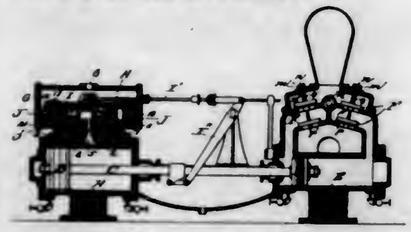
3. In a pair of shears, the combination of a cutting-blade B' and a hook-shaped cutting-blade B having cutting edges b^3, b^2, disposed at an angle to each other, said cutting edges being beveled on opposite sides of the blade, substantially as described.

4. In a pair of shears, the combination of a cutting-blade B', and a cutting-blade B having cutting edges b^2 b^3 both disposed opposite to the cutting edge of the blade B', said edges b^3 b^2 being oppositely beveled with regard to each other, substantially as described.

5. In a pair of shears, the combination of a blade B' having its outer surface beveled at b', a blade B having two cutting edges b^2, b^3 disposed at an angle to each other, said cutting edge b^2 being nearest the pivot of the shears and having its outer surface beveled off, and said cutting edge b^3 being farthest from said pivot and having its inner surface beveled off, reversely to b^3, and a pivot on which said blades turn, substantially as described.

6. In a pair of shears, the combination of a blade B' having its outer surface beveled at b', a blade B having two cutting edges b^2 b^3 disposed at an angle to each other, said cutting edge b^2 being nearest the pivot of the shears and having its outer surface beveled off, and said cutting edge b^3 being farthest from said pivot and having its inner surface beveled off, reversely to b^3, a pivot on which said blades turn, an operating-lever, and a link connecting said lever with one of said blades, said link having a projecting end to form a stop when the blades are closed, substantially as described.

578,317. STEAM-PUMP. WILLIAM W. COREY, Jr., St. Louis, Mo. Filed Oct. 26, 1896. Serial No. 610,069. (No model.)



Claim.—1. The combination with a steam-chest formed with a concaved valve-seat, of a semicircular fluid-thrown valve arranged therein, and a mechanically-operated slide-valve which engages the flat face of the fluid-thrown valve: substantially as described.

2. The combination with a steam-chest, of a fluid-thrown valve which is semicircular in cross-section, plugs in the steam-chest for limiting the movement of said valve, and a slide-valve which is mounted upon the flat faces of the fluid-thrown valve and plugs: substantially as described.

3. The combination with a steam-chest formed with a concaved valve-seat, of a fluid-thrown valve arranged in said seat, one face of which is flat, and a slide-valve which is arranged upon said flat face of the fluid-thrown valve, whereby, should the fluid-thrown-valve be worn, it can be ground into its seat, and the casing and valve planed off to be flush with each other; substantially as described.

4. The combination with a fluid-thrown valve having three chambers, two of which are constantly open to the live motive fluid, and the other to the exhaust, of a slide-valve for controlling the admission and exhaust of the motive fluid to and from the ends of said fluid-thrown valve: substantially as described.

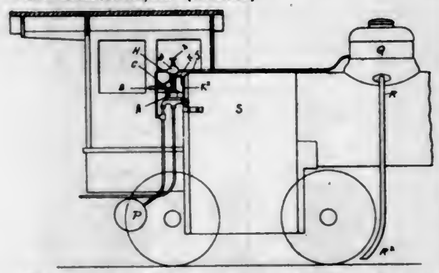
5. The combination with a semicircular fluid-thrown valve which is formed with three chambers, two of which are constantly open to the live motive fluid, and the other to the exhaust, of a slide-valve operating above the fluid-thrown valve, the ends of said slide-valve resting upon the ends of the fluid-thrown valve and its casing, so as to form closed chambers at the ends of the fluid-thrown valve: substantially as described.

6. The combination with a fluid-thrown valve, of a steam-chest in which said valve is mounted, ports 11 and 21, in said steam-chest which lead from the ends of the fluid-thrown-valve chamber, ports 15 and 20 which lead into the exhaust, plugs J, ports 12 and 14, and 18 and 19, in said plugs, ports 10 and 16 in the plugs for admitting live motive fluid to the ends of the fluid-thrown valve, and a slide-valve having ports 13 and 17 for coöperating with the ports 12 and 14, and 18 and 19 respectively, said slide-valve also coöperating with the inlet-ports 10 and 16; substantially as described.

7. The combination with a steam-chest, of a semicircular fluid-throwo valve arranged therein, said valve being provided with three chambers, two of which are constantly open to the live motive fluid, and the other to the exhaust, of a slide-valve provided with crossports in its ends which coöperate with suitable ports to control the exhaust from the ends of the fluid-thrown-valve chamber, and inlet-ports which open into the steam-chest and to the ends of the fluid-thrown-valve chamber, which inlet-ports are also controlled by the slide-valve; substantially as described.

8. The combination with a steam-chest formed with a concaved valve-seat, of ribs extending along the side edges of said valve-seat, a fluid-thrown valve arranged in said seat, one face of which is flat and flush with said ribs, and a mechanically-operated valve coöperating with the flat face of said fluid-thrown valve, and with the upper faces of the ribs at the ends of the chest, substantially as described.

578,318. BLAST-CONTROLLING VALVE FOR TRACK-SANDING APPARATUS. THEODORE H. CURTIS, Cleveland, Ohio. Filed Oct. 30, 1896. Serial No. 610,634. (No model.)



Claim.—1. In combination, a track-sanding apparatus with a fluid-pressure pipe thereto, an engineer's brake-valve, a valve in the fluid-pressure pipe, a handle to actuate said valve, said handle operating within a hand's grasp of the handle of the engineer's brake-valve and the handle of the engineer's brake-valve having movement independent of the handle which actuates the valve in the fluid-pressure pipe, substantially as described.

2. The combination, with a pipe with the main reservoir, discharging into the track-sanding apparatus, of a controlling-valve located in the pipe and having the axis of its movable parts central or parallel with the axis of the engineer's brake-valve, and a handle to actuate the controlling-valve extending to operative hand-grasping proximity of the handle of the engineer's brake-valve, substantially as described.

3. An air-blast-controlling valve in combination with a track-sanding apparatus and an engineer's brake-valve, the blast-controlling valve comprising a casing with a fluid-pressure passage therein with main and secondary valves to open and close the fluid-pressure passage, and a handle operating within a hand's grasp of the handle of the engineer's brake-valve to actuate the main valve, said handle having movement independent of the handle of the engineer's brake-valve, the secondary valve being operated by a connection extending through the casing, substantially as described.

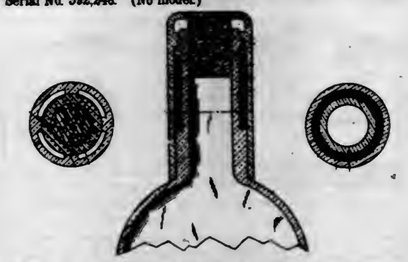
4. For the purpose set forth, an engineer's brake-valve, in combination with a track-sanding apparatus with a fluid-pressure passage thereto, and main and secondary valves to open and close the said fluid-pressure passage, the main valve being actuated by a handle which operates within a hand's grasp of the handle of the engineer's brake-valve and having independent movement thereof.

578,319. SHIELD AND BRACE FOR TOOL-HANDLES. REINHOLD C. DOERNTE and JOSEPH FIERECKEL, Iron River, Mich. Filed Dec. 11, 1896. Serial No. 615,286. (No model.)



Claim.—A shield and brace for tool-handles formed in one piece adapted to fit the handle exteriorly of the tool proper having upright end walls and yielding side walls having toothed edges which slope or taper rearwardly from said end walls, whereby said edges enter the ax-handle crosswise of the grain, substantially as shown and described.

578,320. DEVICE FOR DETECTING FRAUDULENT REFILLING OF BOTTLES. JOHN FAWCETT, Boston, Mass. Filed May 20, 1896. Serial No. 592,248. (No model.)

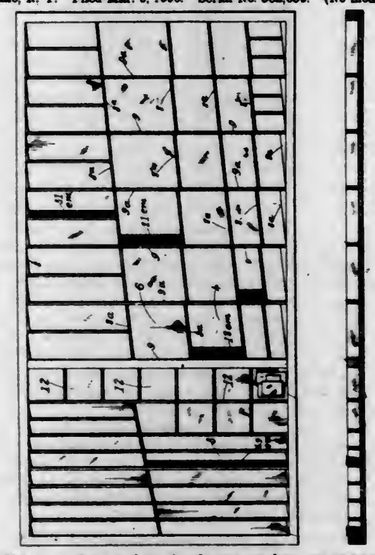


Claim.—1. A bottle provided with a visible compartment containing a substance adapted to be visibly defaced by contact with the contents of the bottle, and an opening connecting the neck of the bottle and said compartment in such manner that a portion of the liquid contents of the bottle must pass through said opening when the bottle is poured from, substantially as described.

2. A bottle having a neck, a cylinder surrounding the same and providing a compartment between itself and the neck, an opening connecting the interior of the neck and said compartment in such manner that a portion of the liquid contents of the bottle must pass through said opening when the bottle is poured from and a substance arranged in said compartment to be visibly defaced by contact with the liquid contents of the bottle, all substantially as described.

3. A bottle having a neck, a closed cylinder surrounding the same and supported by suitable shoulders, said cylinder being secured to the bottle, an opening connecting the interior of the neck of the bottle with the space surrounding the exterior thereof in such manner that a portion of the liquid contents of the bottle must pass through said opening when the bottle is poured from, and a substance within said cylinder adapted to be defaced by contact with the liquid contents of the bottle, for the purpose set forth.

578,321. PRINTER'S RULE-CASE. JOSEPH W. FAYLANGER, Buffalo, N. Y. Filed Mar. 6, 1896. Serial No. 582,089. (No model.)

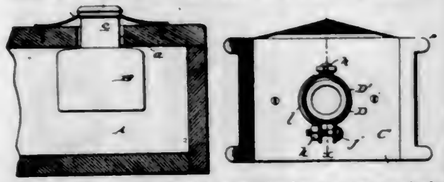


Claim.—1. In a printers' rule-case, a box or compartments, adapted to receive and hold printers' rule, having its walls set in the form of a rhomb or rhomboid, or an oblique-angled parallelogram, as and for the purposes described.

2. In a printer's rule-case, the combination with the outer supporting-frame and bottom of the case, of a series of compartments varying in size and adapted to receive printers' rules varying corre-

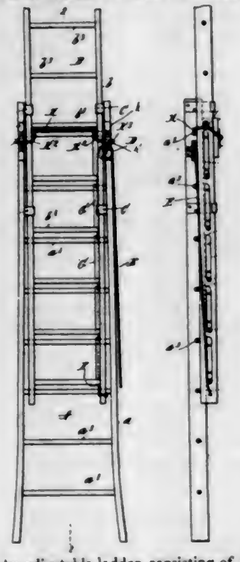
spondingly in size, and adapted to fit snugly in their respective compartments, each compartment having the form of an oblique-angled parallelogram, to prevent the rules from falling flat as and for the purposes described.

578,322. INK-WELL HOLDER. LEONIDAS C. FERRELL, New Orleans, La. Filed Nov. 17, 1896. Serial No. 612,484. (No model.)



Claim.—The combination of a desk having an aperture in its top, a bottle having its neck extending upwardly through the said aperture, and a plate of resilient sheet metal arranged upon the desk-top and having a central aperture registering with the aperture in the desk-top and receiving the bottle-neck and also having the resilient tongues exerting a pressure against the bottle-neck, substantially as specified.

578,323. EXTENSION-LADDER. JOHN C. FERRIS, Millville, N. Y. Filed Feb. 18, 1896. Serial No. 579,639. (No model.)

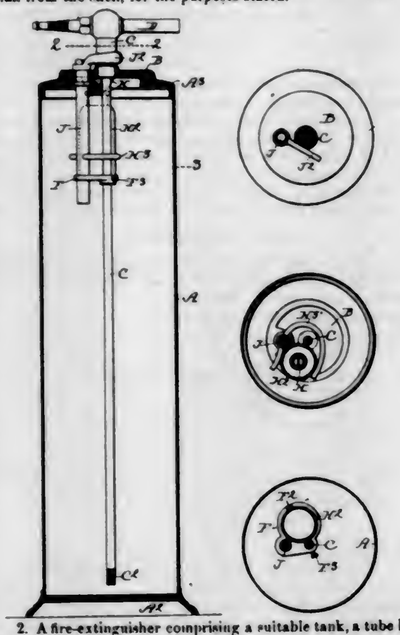


Claim.—1. An adjustable ladder, consisting of two sections one of which is mounted on the other and adapted to slide thereon, clamps or bands attached to the stationary section and adapted to hold the adjustable section in position, a pulley mounted on the upper end of the stationary section, a cord or rope passed over said pulley and having its ends secured to the lower end of the adjustable section, a swinging bail attached to the stationary section, and cleats secured to the inner surface of one of the sides, of the adjustable section and extending from one of the rounds to within a short distance of the round above it, said parts being constructed, combined and arranged substantially as shown and described.

2. In an adjustable ladder, consisting of two sections, one of which is mounted on the other and adapted to slide thereon, as means for holding the sliding section in position, the combination of cleats secured on the inner surface of one of the sides of the adjustable section and a swinging bail attached to the stationary section, substantially as herein shown and described.

578,324. FIRE-EXTINGUISHER. HARVEY L. FISHER and JESS MCKERCHER, Des Moines, Iowa. Filed Apr. 15, 1896. Serial No. 587,740. (No model.)

Claim.—1. In a fire-extinguisher, the combination of a tank, a screw-cap in the top of the tank, a tube passed through the cap, a shelf on the tube, a bottle designed to rest on the shelf, a stopper secured to a stationary support and designed to enter the mouth of the bottle and a shaft passed through the cap having an arm on its end to engage the bottle, whereby the bottle may be moved laterally to fall from the shelf, for the purposes stated.



2. A fire-extinguisher comprising a suitable tank, a tube leading from its interior, a shelf adjustably fitted to the tube, a hemispherical stopper fixed to the tank above the shelf a bottle designed to rest on the shelf with said stopper in its top a stem rotatably mounted in the tank, a device on one end thereof to engage the bottle and a lever on its other end for the purposes stated.

3. A fire-extinguisher comprising a suitable tank, a tube leading from its interior, a shelf adjustably fitted to the tube, a hemispherical stopper fixed to the tank above the shelf, a bottle designed to rest on the shelf with said stopper in its top, a stem rotatably mounted in the tank an approximately U-shaped rod on its lower end to support the bottle against lateral movement and when the stem is rotated force the bottle from the shelf, and a lever on the upper end of the stem for the purposes stated.

4. A fire-extinguisher comprising a suitable tank, a cap screwed into its top, a tube fixed in the cap to extend to a point near the bottom of the tank, a cross-head on top of the tube, having a passage in one branch communicating with the tube, a shelf adjustably fitted to the tube below the cap, a stem rotatably mounted in the cap, a lever at its top and an approximately U-shaped rod at its other end, a hemispherical stopper fixed to the cap and a suitable bottle, substantially as and for the purposes stated.

578,325. ADJUSTABLE DESK-TOP. ANDREW FLEMING, Ashland, Ky. Filed May 22, 1896. Serial No. 592,581. (No model.)



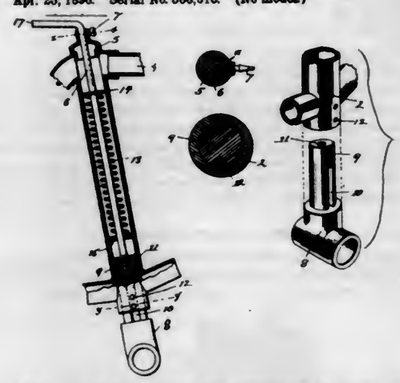
Claim.—1. An attachment for desks, &c., comprising a base-frame, a top or writing-bed hinged at its front edge thereto, an adjustable brace for regulating the inclination of the writing-bed, a tape connected to the brace for adjusting the same, and a spring interposed between the brace and the part to which the brace is connected, substantially as described.

2. An attachment for desks, &c., comprising two members hinged together one constituting a base-frame and the other a writing-bed, one of said members being provided with a series of notches, an adjustable brace hinged to the other member to engage with its free end the said notches, and a tape connected to the brace and extending outwardly between the members at their hinged portions, whereby the brace may be adjusted to elevate the free end of one member relatively to the other member, substantially as described.

3. An inclined desk-top or writing-bed provided in its upper surface with a groove or depression comprising a shallow and a deepened portion forming between them a shoulder extending substantially at a right angle to the surface of said top, in combination with a guard in the form of a strip hinged on its under side and intermediate its longitudinal edges within said groove and at the junction of the shallow and deepened portions thereof, said strip being adapted to be folded flush with the upper surface of the top or to be turned into a position substantially at right angles thereto with one edge projecting above said top and the other edge abutting against said shoulder and lying in the deepened portion of the groove, substantially as described.

4. The combination with the base-frame, of a top or writing-bed hinged thereto, one of said parts being provided with a series of notches, springs arranged at opposite sides of the mouth of each notch, and a brace interposed between the base and the writing-bed and having its end formed to enter any one of said notches and to be held frictionally by said springs, substantially in the manner and for the purpose described.

578,326. BICYCLE. CHARLES E. FOX, Minneapolis, Minn. Filed Apr. 23, 1896. Serial No. 588,810. (No model.)



Claim.—1. In a velocipede the combination of a frame having a hollow upright, a shaft-hanger movable with respect to the frame and having a portion arranged in the hollow upright and provided with a threaded socket in its upper end, a post having its lower end threaded and inserted in the threaded socket of the hanger, a seat supported by said post and a spring arranged in the hollow upright and interposed between a projection on the post and a projection on said upright, substantially as and for the purpose set forth.

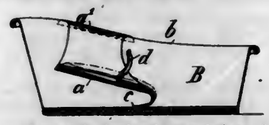
2. In a velocipede the combination of a frame having a hollow upright, a shaft-hanger movable with respect to the frame and having a portion arranged in the hollow upright, a post, a seat supported by said post and a spring arranged in the hollow upright and interposed between a projection on the post and a projection on said upright: the said post being adjustably connected with the hanger whereby the tension of the spring may be regulated, substantially as and for the purpose set forth.

3. In a velocipede the combination of a frame having a hollow upright, a shaft-hanger movable with respect to the frame and having a portion arranged in the hollow upright and provided with a threaded socket in its upper end, a post having its lower end threaded and inserted in the socket of the hanger and also having a longitudinal groove; said post being designed to carry a seat, an adjustable guide carried by the frame and extending into the groove of the post, and a spring arranged in the upright and interposed between a projection on the post and a projection on the upright, substantially as specified.

578,327. DEVICE FOR SUPPORTING BATHERS IN BATH-TUBS. CARL G. FRIEDLAENDER, Hamburg, Germany. Filed Aug. 1, 1896. Serial No. 601,334. (No model.)

Claim.—1. An attachment for bath-tubs consisting of an inclined rest provided with hooks for hooking the same to the sides of the bath-tub, and with horns *d*, for the purpose set forth.

2. An attachment for bath-tubs consisting of an inclined seat provided with hooks for hooking the same to the sides of the bath-tub and with a recurved spring extension having bearing on the bottom of the tub, for the purpose set forth.



3. An attachment for bath-tubs consisting of an inclined rest having its sides bent to form hooks adapted to engage the sides of the bath-tub, and provided with horns *d*, and with a recurved spring extension *c* adapted to rest on the bottom of said tub, the said attachment formed of a single piece of sheet metal, substantially as and for the purpose set forth.

578,328. TROUSERS-HANGER. JAMES K. GARSON, Pittsburg, Pa. Filed Apr. 6, 1896. Serial No. 586,384. (No model.)

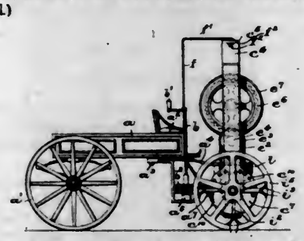


Claim.—1. In a device of the class described, a trousers-hanger, comprising a substantially horizontally-disposed supporting-bar, a double hook depending from the rear end of the supporting-bar, adapted to straddle the upper edges of a pair of trousers and capable of engaging the back buttons thereof, a pair of double hooks located at the front of the supporting-bar, capable of straddling the top of a pair of trousers to engage the front buttons thereof and having a swinging movement and means for connecting the front hooks with the front of the supporting-bar and for permitting the hooks an upward-and-downward movement independent of the said bar to enable them to adjust themselves to the style or cut of a pair of trousers, substantially as described.

2. In a device of the class described, a trousers-hanger comprising a substantially horizontally-disposed supporting-bar, a double hook depending from the rear end of the supporting-bar, a pair of double front hooks located at the front of the supporting-bar, and a substantially horizontally-disposed link-bar carrying the front double hooks at its terminals and movably connected intermediate of its ends with the front of the supporting-bar, whereby the front double hooks are permitted an upward-and-downward movement independent of the supporting-bar, substantially as and for the purpose described.

3. In a device of the class described, a hanger comprising a substantially horizontally-disposed supporting-bar, a double hook depending from the rear end thereof, a zigzagly-bent wire disposed longitudinally of the supporting-bar, located at the front thereof and forming a series of recesses at the lower edge of the same, a pair of double hooks located at the front of the supporting-bar, and a link-bar carrying the front double hook at its terminals and connected intermediate of its ends with a zigzagly-bent wire and adapted to engage the recess thereof, said link-bar enabling the front hooks to be adjusted longitudinally of the supporting-bar and permitting the same to move upward and downward independently of the supporting-bar, substantially as and for the purpose described.

578,329. PROPELLING DEVICE FOR VEHICLES. FRANK GRUBER, Newark, N. J. Filed Feb. 29, 1896. Serial No. 581,323. (No model.)



Claim.—1. In a vehicle of the class herein set forth, the combination, with the body and a reach or tongue extending therefrom, of a frame pivotally connected with said reach or tongue, wheels, as *i*, having hubs which carry said frame, annular rims i^5 and stops i^6, an axle loosely arranged in bearings in said frame, a propelling mechanism connected with said axle, and spider-arms i^3 at or near the free ends of said axle, adapted to engage with said stops i^6, substantially as and for the purposes set forth.

2. In a vehicle of the class herein set forth, the combination, with the body and a reach or tongue extending therefrom, of a main frame pivotally connected with said reach or tongue, an axle rotatively arranged in bearings on said frame, a frame *g* pivotally arranged on said axle and adjustably connected with the main frame, and an operating mechanism in said frame *g*, substantially as and for the purposes set forth.

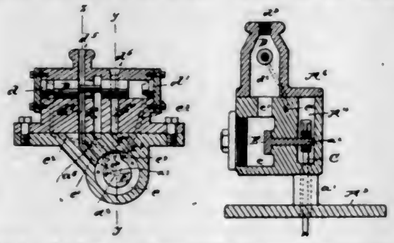
3. In a vehicle of the class herein set forth, the combination, with the body and a reach or tongue extending therefrom, of a main frame pivotally connected with said reach or tongue, an axle consisting of two parts rotatively arranged in bearings in said frame, a clutch for connecting said parts of the axle, consisting of a clutch-collar on each axle-section, a cam-sector on said reach or tongue, and a spring-actuated post or arm for automatically operating one of said clutch-collars, and an operating-gear mechanism connected with said main frame and geared with said axle, substantially as and for the purposes set forth.

4. In a vehicle, in combination, with an axle, a wheel *i*, comprising, a hub having suitable arms i^3, a wheel-casing i^4, loosely arranged on said hub, having a flange i^5 and stops or projections thereon, with which the free ends of said arms i^3 can be brought into operative engagement, substantially as and for the purposes set forth.

5. In a vehicle, the combination, with an axle, a wheel *i* comprising, a hub having suitable arms i^3, a wheel-casing i^4 loosely arranged on said hub, annular rims thereon, a flange i^5, and stops or projections on said flange with which the free ends of said arms can be brought into operative engagement, and antifriction-rollers between said rims and on the outer peripheral surface of said flange i^5, all substantially as and for the purposes set forth.

6. In a vehicle of the class herein set forth, the combination, with the body and a reach or tongue extending therefrom, of a main frame pivotally connected with said reach or tongue, an axle, a frame *g* on said axle, and means on said main frame for adjustably connecting said main frame with the frame *g*, consisting, of bolts g^4 adapted to be arranged in perforations in the frame *g* and in perforations c^{10} in the main frame, and an operating mechanism in said frame *g*, substantially as and for the purposes set forth.

578,330. PNEUMATIC PUMP. FREDERIC A. HALSEY, Sherbrooke, Canada. Filed Dec. 26, 1891. Serial No. 416,126. (No model.)



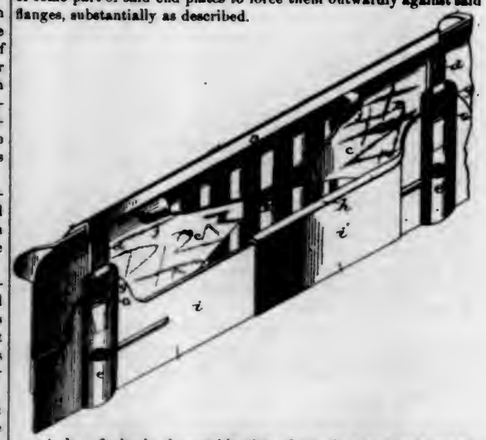
Claim.—In a pneumatic pump which comprises a water-chamber having a valved water inlet and outlet, an air-passage at or near its top, a main valve controlling said passage and a float in said water-chamber adapted to move therein by and with the inflow and outflow of water thereto and therefrom, in combination with a supplementary valve working in a chamber in constant communication with the live-air supply and seating against and governing air-ports in said chamber-wall, a valve-operating stem extending through said live-air-chamber wall into a chamber in constant communication with said water-chamber, and a stem-operating balance-lever on said valve-stem and connected to said float; substantially as and for the purpose specified.

578,331. ADJUSTABLE FIREBACK. EDWARD H. HEADFORD, Dubuque, Iowa, assignor to the Schreiber & Couchar Manufacturing Company, same place. Filed July 6, 1896. Serial No. 598,106. (No model.)

Claim.—1. In a fireback, the combination of a main plate having marginal, longitudinal flanges to retain the end plates, and end plates adapted to slide freely between said flanges and having a flexible tailpiece bent slightly toward said main plate and bearing on the same when in position, whereby the end plates are forced against said retaining-flanges elastically, substantially as described.

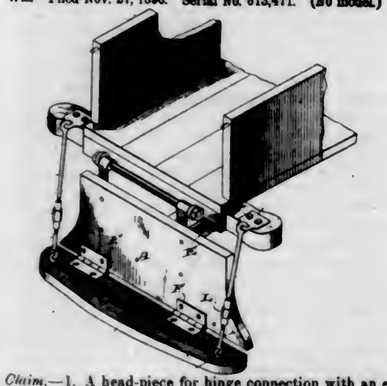
2. In a fireback, the combination of a main plate having marginal, longitudinal retaining-flanges for end plates, and a longitudinal bearing-rib near the middle thereof, of end plates fitting movably between said flanges, and having each a tailpiece normally bending slightly toward said main plate, and when in position bearing flexibly against said bearing-rib, substantially as and for the purpose set forth.

3. In a fireback, the combination of a main plate having marginal, longitudinal, beveled flanges to retain end plates, and end plates adapted to slide between said marginal flanges loosely except as pressed away from said main plate and into closer contact with its flanges, and having a backwardly-extending projection bearing on some plane portion of the main plate and tending by the deflection of some part of said end plates to force them outwardly against said flanges, substantially as described.



4. In a fireback, the combination of a main plate having longitudinal retaining-flanges for end plates and a longitudinal bearing-surface for a flexible portion of said end plates, a pair of end plates fitting movably in said flanges, and having each a flexible, inwardly-bent tailpiece impinging on said bearing-surface, and dovetailed transverse rib to engage a bottom plate, a pair of bottom plates engaging said end plates by dovetailed grooves, and tapered wedges or keys to retain them in position, substantially as and for the purpose set forth

578,332. END-GATE STEP FOR WAGONS. WILLIAM HEATON, New Berlin, Wis., assignor of one-half to Charles Bensene, Tess Corners, Wis. Filed Nov. 27, 1896. Serial No. 613,471. (No model.)



Claim.—1. A head-piece for hinge connection with an end-gate having like connection with a wagon-body, and links for attachment to the head-piece and wagon-body as a means for bringing said head-piece from vertical to horizontal position when said end-gate is swung down.

2. A head-piece for hinge connection with an end-gate having like connection with a wagon-body, and turnbuckle-links for attachment to the head-piece and wagon-body as a means for bringing said head-piece from vertical to horizontal position when said end-gate is swung down.

3. As an attachment for a hinge-drop end-gate of a wagon, a head-piece having hinges for connection with the gate and provided with eyes, link-rods having ends thereof joined to the eyes, and eye-plates engaging the other ends of the link-rods for connection with the rear end sill of the wagon, said head-piece constituting a normally-vertical extension of the end-gate convertible to a horizontal step when said gate is swung down.

4. A hinged end-gate of a wagon-body, a head-piece hinged to the end-gate and provided with eyes, other eyes in connection with the projecting ends of the rear wagon-body sill, and link-rods connecting the head-piece eyes with the sill-eyes, said head-piece constituting a normally-vertical extension of the end-gate convertible to a horizontal step when said gate is swung down.

5. A hinged end-gate of a wagon-body provided with a wear-plate for contact with the rear end of a running-gear reach-pole, a head-piece hinged to the end-gate, and links in eye connection with the head-piece and rear sill of the wagon-body.

578,333. PIPE. HENRY B. HILGEMAN, St. Louis, Mo. Filed Dec. 10, 1896. Serial No. 615,111. (No model.)



Claim.—1. As a new article of manufacture, a pipe having a glass lining and a layer of cement surrounding the glass.

2. As a new article of manufacture a pipe having a glass lining and a layer of hydraulic cement surrounding the lining.

3. As a new article of manufacture, a pipe having a lining formed of a glass tube, and having a layer of cement surrounding the tube.

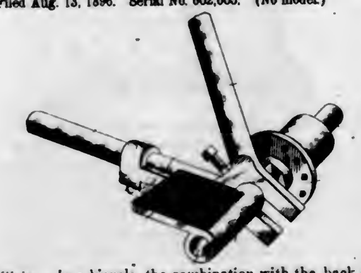
4. The combination of a conduit, composed of a glass lining coated with hydraulic cement, and a conductor of electricity within the conduit.

578,334. MAKING TANNIN EXTRACT. MAX HÖNIG, Brünn, Austria-Hungary. Filed Sept. 29, 1896. Serial No. 607,348. (No specimens.) Patented in Austria Apr. 11, 1896, No. 46/1,453.

Claim.—1. In a process for the extraction of tannin from sulfite cellulose lyes, neutralizing the same with a suitable calcium salt, clarifying, and concentrating the neutral clarified lye, converting the lime therein into a substantially insoluble compound by means of an acid, eliminating from the lye the free volatile acids by means of heat, filtering, and then concentrating the filtrate to a suitable degree, for the purpose set forth.

2. In a process for the extraction of tannin from sulfite cellulose lyes, neutralizing the same with lime, clarifying, and concentrating to from about 15° to 16° Baumé, converting the lime into an insoluble compound by means of sulfuric acid, eliminating from the lye the free volatile acids by heat, filtering, and concentrating the filtrate to from about 28° to 30° Baumé, substantially as set forth.

578,335. BICYCLE-STEP. JOHN M. HUGHES, Brooklyn, N. Y. Filed Aug. 13, 1896. Serial No. 602,605. (No model.)



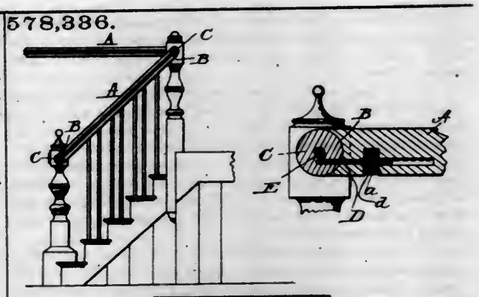
Claim.—In a bicycle, the combination with the back forks, the backstays, the rear axle, and an extension of said axle, of a step consisting of a sleeve in which the extension of said axle is adapted to fit, a broad, flat rectangular portion on said sleeve constituting the bearing-surface of the step, a forwardly-extending arm on said step lying in close contact with said fork, a clip upon the front end of said arm adapted to embrace said fork, and a pivotally-mounted locking-arm on the under side of said clip, substantially as and for the purpose described.

578,336. RAIL FOR STAIRCASES. SAMUEL HUNTER, Leechburg, Pa. Filed Sept. 2, 1896. Serial No. 604,654. (No model.)

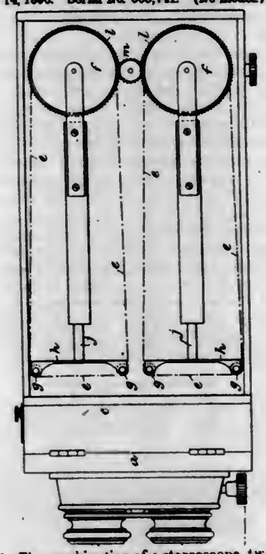
Claim.—1. The rail A to which is secured the knob C by the bolt D, in combination with the newel-post provided with the bolt E and nuts *e e* and *e'*, substantially as and for the purpose set forth.

2. The rails A A, having lateral semicircular recessed end B and recess *a*, in combination with the bolt D and nut *d* and the cylindrical knobs C C, having recess *c* and plugs *c'*, and the double-ended bolt E, having nuts *e' e'*, substantially as shown and described.

578,336.



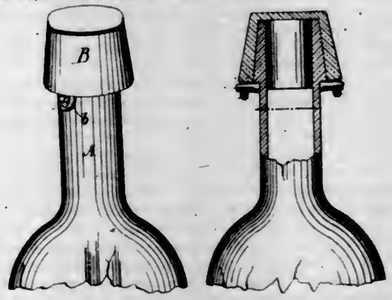
578,337. STEREOSCOPE. LOUIS JEFFERY, London, England. Filed Sept. 14, 1896. Serial No. 605,741. (No model.)



Claim.—1. The combination of a stereoscope, two rollers, means for driving the rollers in the same direction, two endless bands carrying panoramas, each passing partly around one of the rollers, and means for keeping the bands distended.

2. The combination of a stereoscope, two rollers, means for driving the rollers in the same direction, two cross-heads, two pairs of rollers carried by the cross-heads, two endless bands carrying panoramas, each passing partly around one of the first rollers and one pair of the rollers on the cross-heads, and springs tending to force the first rollers and the cross-heads apart.

578,338. SAFETY-BOTTLE. WILLIAM H. S. JENISON, Apponaug, R. I., assignor of one-half to William Barton, Providence, R. I. Filed Oct. 23, 1896. Serial No. 609,833. (No model.)



Claim.—1. An improved safety-bottle, comprising the neck portion having the laterally and oppositely projecting nibs or studs; in combination with a cap-piece adapted to fit upon and close the mouth

of the neck and provided with downwardly-projecting nibs or fingers formed of glass or other fragile material and adapted to be permanently sealed around the nibs upon the neck, substantially as and for the purpose set forth.

2. In an improved safety-bottle, comprising the conical neck portion having the diametrically opposite laterally-projecting nibs or studs, the combination therewith of a cap-piece fitting and inclosing the mouth portion of the neck and provided on its bottom edge with oppositely-arranged nibs or fingers projecting downwardly from a point to one side the transverse central plane of the cap and formed of glass or other fragile material, said nibs or fingers being adapted to be permanently sealed around the nibs upon the neck, substantially as and for the purpose set forth.

3. The combination of the neck of a bottle, comprising the neck portion having lateral projections: with a cap adapted to inclose the mouth of said neck portion and provided with exterior bottom projections formed of glass or analogous fragile material and adapted to be permanently sealed in engagement with the projections upon the neck by heating, whereby said fragile projections must be broken in the operation of opening the bottle, substantially as and for the purpose set forth.

4. As an improved article of manufacture, a safety-bottle comprising the neck having a conical mouth portion and lateral nibs or projections on opposite sides thereof and formed in its entirety of glass or analogous fragile material, and a corresponding cap-piece closing the mouth portion of said neck and provided with exterior bottom nibs or projections permanently sealed in engagement with the projections upon the neck, the cap-piece being formed in its entirety of glass or analogous fragile material, and having its bottom portion thicker at the sides from which the nibs project, substantially as and for the purpose set forth.

5. An improved safety-bottle, comprising in combination with the neck having lateral nibs or projections: a cap-piece inclosing the mouth of said neck and provided with exterior bottom nibs or projections formed of glass or analogous fragile material of lesser thickness than the bottom of the cap and permanently sealed around the nibs upon the neck, whereby disconnection of the cap-piece from the neck can only be effected by breaking said fragile sealing nibs or projections, substantially as and for the purpose set forth.

578,339. PUMP-ROD ELEVATOR. OTHELLO W. KING, Franklin, Pa. Filed June 6, 1896. Serial No. 594,563. (No model.)



Claim.—1. A pump-rod extractor or elevator comprising jaws pivotally mounted together and formed with handles, and clamps pivotally connected together and pivotally mounted in the jaws, and the latter having portions overlapping the clamps, substantially as described.

2. A pump-rod extractor or elevator comprising jaws pivotally mounted together and formed with handles, and clamps pivotally connected together and pivotally mounted in the jaws, and the latter having portions overlapping the clamps, and a link pivotally mounted on one handle to engage the other, substantially as described.

3. A pump-rod extractor or elevator comprising jaws pivotally mounted together and formed with handles, and clamps pivotally connected together and pivotally mounted in the jaws, and the latter having portions overlapping the clamps, and a link pivotally mounted on one handle to engage the other, and one of the handles provided with a swivel, substantially as described.

4. The combination with the jaws pivotally mounted and having eyes, of the clamps pivotally mounted on pins held in said eyes and hinged together, said jaws being provided with plates overlapping the clamps, substantially as described.

5. The combination with the jaws pivotally mounted and having eyes, of the clamps pivotally mounted on pins held in said eyes and hinged together, said jaws being provided with plates overlapping the clamps, and the hinge of the clamps provided with a lug for forcing the pump-rod off, substantially as described.

6. The combination with the jaws pivotally mounted and having eyes, of the clamps pivotally mounted on pins held in said eyes and hinged together, said jaws being provided with plates overlapping the clamps, and the hinge of the clamps provided with a lug for forcing the pump-rod off, and the outer end of one clamp formed with a lug entering an opening in the opposite end of the other clamp, substantially as described.

578,340. PROCESS OF EXTRACTING PRECIOUS METALS FROM THEIR ORES. WILLIAM A. KOHEMAN, Chicago, Ill. Filed Oct. 26, 1895. Serial No. 567,008. (No specimens.)

Claim.—The process of extracting precious metal from the ore containing it, which consists in wetting the ore, in a pulverized condition, with just sufficient cyanogen-containing solution to moisten the ore and reduce the mass to the condition of mud, maintaining the saturated ore in a quiescent state for a prolonged period of time, then diluting the mass and subjecting it to agitation for a suitable period of time, separating the resultant solution from the ore by filtration and finally precipitating the precious metal from said solution, substantially as and for the purpose set forth.

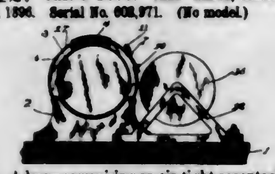
578,341. PROCESS OF RECOVERING PRECIOUS METALS FROM CYANID SOLUTIONS CONTAINING THEM. WILLIAM A. KOHEMAN, Chicago, Ill. Filed Oct. 26, 1895. Serial No. 567,009. (No specimens.)



Claim.—1. The process of recovering, by precipitation, the precious metal, or metals, contained in a cyanogen-containing solution, which consists in subjecting said solution to contact with an alloy composed of lead and zinc and in which lead is the preponderating metal in weight, substantially as and for the purpose set forth.

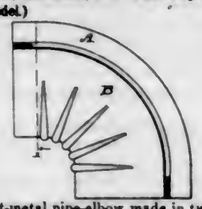
2. The process of recovering, by precipitation, the precious metal, or metals, contained in a cyanogen-containing solution which consists in subjecting said solution to contact with an alloy composed of lead, zinc and aluminium, substantially as and for the purpose set forth.

578,342. SHIP'S BUOY. CARL LANER, Marshall, Minn. Filed Aug. 17, 1896. Serial No. 603,071. (No model.)



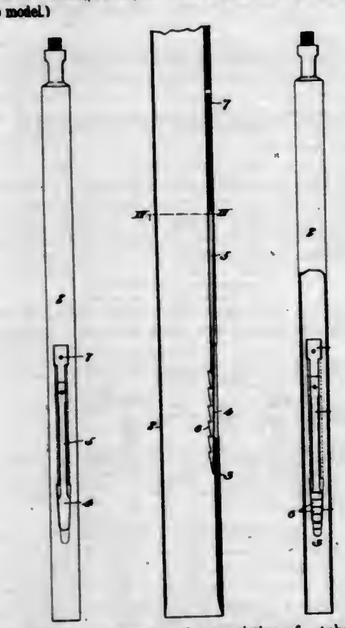
Claim.—A buoy comprising an air-tight receptacle provided with a cover 4, lined with rubber packing, adapted to be held in position by means of a curved hinged clamp secured to the buoy at one end by means of a hinge, said clamp being provided with a lip having an eye adapted to register with an eye 9 and lip 10 secured to the buoy for locking said cover, pins projecting from the bottom of said buoy adapted to fit in corresponding recesses in the buoy-seat, and means for connecting the buoy to the vessel comprising a reel and cable, said cable being attached to the buoy by means of an eye 13, substantially as described.

578,343. SHEET-METAL ELBOW. CHARLES LINDEMANN and AUGUST LINDEMANN, Milwaukee, Wis. Filed Aug. 23, 1890. Serial No. 362,814. (No model.)



Claim.—A sheet-metal pipe-elbow made in two parts constituting back and throat sections united by longitudinal seams, the throat-section being larger than the back-section and crimped in its shortest curve to avoid excessive draw or flow of stock toward its longitudinal edges.

578,344. SUCKER-ROD SOCKET. BENJAMIN MAMBETH and DAVID W. BLACK, Butler, Pa. Filed May 2, 1896. Serial No. 589,983. (No model.)

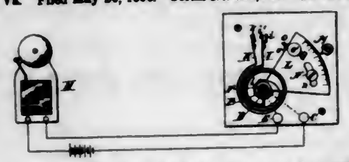


Claim.—1. A sucker-rod socket consisting of a tube having an eccentric hole therein, and a jaw secured in the thicker portion of the tube-wall, substantially as described.

2. A sucker-rod socket consisting of a tube having an eccentric hole therein, and a sliding jaw secured in the thicker portion of the tube-wall, substantially as described.

3. A sucker-rod socket consisting of a tube having an eccentric hole therein, a slot in the thicker side of the tube, and a sliding spring-jaw movable within said slot, substantially as described.

578,345. THERMAL CIRCUIT-CLOSER. HOSEA F. MAXIM, Norfolk, Va. Filed May 29, 1896. Serial No. 593,643. (No model.)



Claim.—1. In an electric signaling apparatus, the combination with signaling mechanism, and a relatively stationary contact connected with one terminal of an electric circuit, of two thermostats arranged in said circuit, one of which is adapted to close a circuit through the signaling mechanism either by contact with the other thermostat or by contact with the relatively stationary contact, substantially as set forth.

2. In an electric signaling apparatus, the combination with a signal or alarm mechanism, and a relatively stationary contact connected with one terminal of an electric circuit which includes the signal mechanism, of two thermostats connected with opposite sides of said circuit and both arranged to move toward the relatively stationary contact, said thermostats being of different resistance, substantially as and for the purpose set forth.

3. In an electric signaling apparatus, the combination with a signal or alarm mechanism and a relatively stationary contact connected with one terminal of an electric circuit including the signal mechanism, of a thermostat connected with the other terminal of said circuit and adapted to contact with the relatively stationary contact, and a second thermostat connected with the same terminal of the circuit as the relatively stationary contact and moving in a path parallel to the first said thermostat, said thermostats being of different resistances whereby on a sudden increase in temperature the more sensitive one will contact with the less sensitive one and thereby close a circuit through the signal mechanism independently of the relatively stationary contact, substantially as set forth.

4. In an electric signaling apparatus, the combination with a signal or alarm mechanism, and a relatively stationary contact connected with one terminal of an electric circuit including the signal or alarm mechanism, of two concentric spiral thermostats connected with opposite terminals of said electric circuit and of different resistance, substantially as set forth, for the purpose specified.

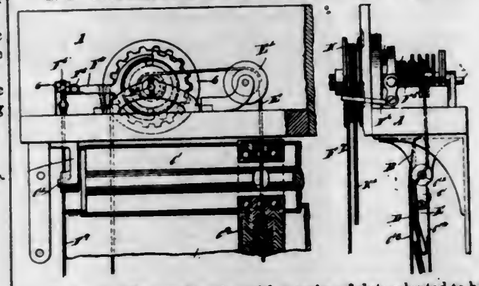
5. In an electric signaling apparatus, the combination with a signal or alarm mechanism, a relatively stationary contact connected with one terminal of an electric circuit including the signal mechanism, of a thermostat connected with the other terminal of the electric circuit and having contacts *i*, *i'*, on opposite sides thereof, that at *i* being adapted to contact with the relatively stationary contact, and a second thermostat, more sensitive than that aforesaid, connected with the same terminal of the electric circuit as the relatively stationary contact and adapted to contact with the adjacent contact *i'*, on the first thermostat, substantially as set forth.

6. A thermostat comprising two parallel expansible bars of different strength, and each adapted to be connected with one terminal of an electric circuit, and a relatively stationary contact arranged in the path of one of said bars and adapted to be connected with one terminal of an electric circuit, substantially as set forth.

7. A thermostat consisting of two concentrically-arranged spirally-formed expansible members insulated from each other and each adapted to be connected with one terminal of an electric circuit, and a movable graduated plate electrically connected with one of said expansible members and carrying a contact which extends into the path of the other of said expansible members, the two members being of different resistances, substantially as set forth.

8. In an electric signaling apparatus, the combination of two expansible bars of different resistance arranged to move through intersecting paths, signaling mechanism, electric circuits including the signaling mechanism and said expansible bars, and a relatively stationary contact connected with one terminal of one circuit and arranged in the path of one of the expansible bars, substantially as set forth.

578,346. VENETIAN BLIND. CHARLES L. MILLER, New York, N. Y. Filed June 20, 1896. Serial No. 596,271. (No model.)



Claim.—1. The combination with a series of slats adapted to be folded one on top of the other, of a hoisting-cord connected with the bottom slat, and a drum having a central flange formed with an aperture for the passage of the said hoisting-cord, the latter being adapted to wind and unwind on the said drum, substantially as shown and described.

2. A device of the class described, provided with a hoisting-drum formed with a central flange having an aperture for the passage of the hoisting-cord, to permit the latter to equalize and to wind up the two runs of the hoisting-cord on the two parts of the drum separated by the said flange, substantially as shown and described.

3. A device of the class described, comprising a drum adapted to wind up and unwind a cord, rope, cable, chain or the like, a pinion held on the said drum, an eccentric mounted to rotate and provided with internal gear-teeth in mesh with the said pinion and also provided with external gear-teeth, and a fixed internal gear-wheel in mesh with the said external gear-teeth to permit the latter to roll off on the fixed internal gear-wheel, substantially as shown and described.

4. A device of the class described, comprising a series of slats, a hoisting-cord connected with the bottom slat, a drum mounted to revolve and adapted to wind up and unwind the said hoisting-cord, and a mechanism for rotating the said drum in either direction and locking it in this position, the said mechanism comprising a pinion rotating with the said drum, an eccentric mounted to rotate and formed with internal gear-teeth in mesh with the said pinion and also provided with external gear-teeth, and a fixed internal gear-wheel in mesh with the said external gear-teeth, substantially as shown and described.

5. A device of the class described, comprising a series of slats, a hoisting-cord connected with the bottom slat, a drum mounted to

revolve and adapted to wind up and unwind the said hoisting-cord, a mechanism for rotating the said drum in either direction and locking it in this position, the said mechanism comprising a pinion rotating with the said drum, an eccentric mounted to rotate and formed with internal gear-teeth in mesh with the said pinion and also provided with external gear-teeth, and a fixed internal gear-wheel in mesh with the said external gear-teeth, and means substantially as described, for turning the said eccentric in either direction, as set forth.

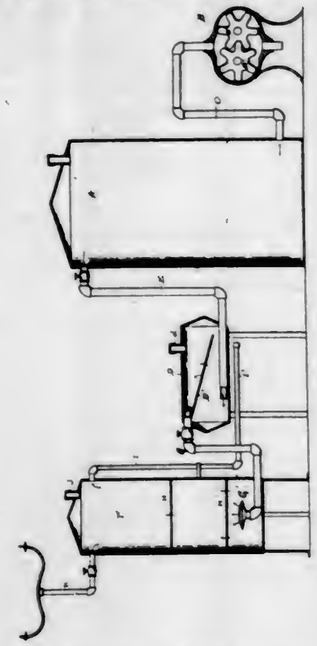
6. A device of the class described, comprising a series of slats, a hoisting-cord connected with the bottom slat, a drum for winding up and unwinding the said hoisting-cord, a shifting lever for disengaging the said drum from its rotating mechanism, and a stationary friction-disk adapted to be engaged by a flange of the said drum, substantially as shown and described.

7. A device of the class described, comprising a series of slats, a top slat, tabs connecting the said top slat with the series of slats, means substantially as described, for turning the said top slat into an open, partly open or closed position, the said means comprising a pulley held on the top slat, a pull-cord for the said pulley, a spring for returning the said pulley to a normal position, a pawl carried by the pulley, and a fixed ratchet-wheel adapted to be engaged by the said pawl, as set forth.

8. A device of the class described, comprising a series of slats, a top slat, tabs connecting the said top slat with the series of slats, means substantially as described, for turning the said top slat into an open, partly open or closed position, the said means comprising a pulley held on the top slat, a pull-cord for the said pulley, a spring for returning the said pulley to a normal position, a pawl carried by the pulley, and a fixed ratchet-wheel adapted to be engaged by the said wheel, and a releasing device for the said pawl, consisting of two fixed lugs adapted to be engaged by an arm on the said pawl, substantially as shown and described.

9. A device of the class described, comprising a spring-pressed pulley attached to the top slat, a pull-cord connected with the said pulley, a pawl fulcrumed on the face of the said pulley and formed with an arm, a spring pressing the said pawl, a fixed ratchet-wheel adapted to be engaged by the said pawl, and fixed lugs adapted to be engaged by the arm of the said pawl, substantially as shown and described.

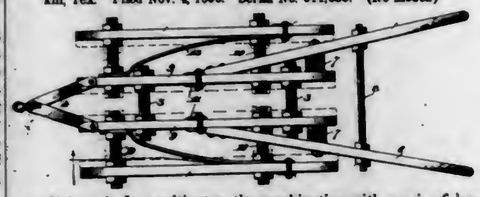
578,347. **GAS-GENERATING MACHINE.** FRANCIS L. MITCHELL, Dallas, Tex. Filed Apr. 4, 1896. Serial No. 586,242. (No model.)



Claim.—1. In apparatus for generating hydrocarbon vapors, the combination with an air-reservoir, of the retort D, having therein a single transverse, oblique partition-wall D, extending from the upper forward end thereof to a point near the lower rear end, and perforated for a portion of its length, a pipe extending from the air-reservoir into said retort and to a point underneath the upper end portion of said partition-wall, a second retort and reservoir, a pipe connecting the same with the upper forward portion of the retort D, and means for heating said retort D, substantially as specified.

2. Apparatus for generating hydrocarbon vapors comprising an air-reservoir, a force-pump for supplying the same, a heating-retort connected to said reservoir, and having therein an inclined deflecting-partition perforated for a portion of its length and dividing the retort into upper and lower chambers having communication with each other at one end of said partition, and also through the perforations of the latter, said retort being designed to contain a hydrocarbon fluid, a combined retort and reservoir also designed to contain a hydrocarbon fluid, and having perforated horizontal partition-walls therein, a pipe connecting the lower portion of said retort and reservoir with the heating-retort and a pipe leading from the upper portion of said retort or reservoir back underneath said heating retort and having burners, substantially as specified.

578,348. **EXPANSION-CULTIVATOR.** WILLIAM M. MOORE, Luffkin, Tex. Filed Nov. 4, 1896. Serial No. 611,055. (No model.)

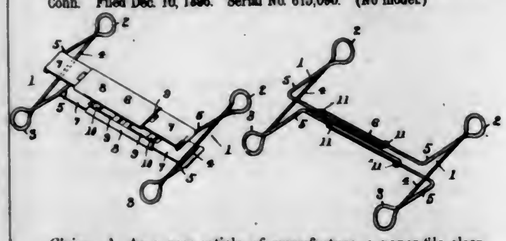


Claim.—1. In a cultivator, the combination with a pair of longitudinal bars bearing cultivating devices, and tie-rods provided with clamp-nuts for adjusting the said bars laterally, of a spring-brace interposed between the said bars for strengthening the implement and serving as a means to spread the said bars when the connecting means are loosened, substantially as set forth.

2. In a cultivator, the combination with a pair of longitudinal bars bearing cultivating devices, and tie-rods having clamp-nuts for laterally adjustably connecting the said bars, of a spring-brace extending diagonally between the said bars and having elongated openings at its ends to receive the tie-rods, substantially as and for the purpose set forth.

3. The herein-described cultivator, comprising independent sections of similar construction, tie-rods having clamp-nuts for adjustably connecting the said sections, draft-bars applied to the inner bars of the sections, handles secured at their lower ends to the said inner bars, means for adjustably connecting the handles, diagonally-disposed spring-braces interposed between the longitudinal bars of each section, and tie-rods for connecting the bars of the sections, substantially as and for the purpose set forth.

578,349. **PAPER-FILE CLASP.** VERRENICE MUNGER, Ansonia, Conn. Filed Dec. 10, 1896. Serial No. 615,090. (No model.)



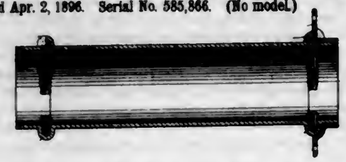
Claim.—1. As a new article of manufacture, a paper-file clasp comprising the side frames, consisting of the coils 2 and 3, the connecting-bars 4 and the yieldable ends 5, and the bands 8 connecting the two.

2. As a new article of manufacture, a paper-file clasp comprising two side frames consisting of the coils 2 and 3, the connecting-bar 4 and the yieldable ends 5, in combination with adjustable cross-bands, substantially as shown and described.

3. As a new article of manufacture, a paper-file clasp consisting of two yieldable side frames, in combination with the adjustable cross-bands comprising the sheet-metal end pieces 7, the hood 8, partially inclosing said pieces and in which said pieces 7 slidably operate, and means for limiting such sliding movement.

4. As a new article of manufacture, a paper-file clasp comprising two side frames, each consisting of coils 2 and 3 a connecting-bar and yieldable end pieces, in combination with adjustable cross-bands consisting of end pieces 7, hood 8, all adapted to operate as shown.

578,350. **BICYCLE-HUB.** JOSEPH MCCAIN, Chicago, Ill., assignor, by direct and mesne assignments, to Frederick P. Becker, same place. Filed Apr. 2, 1896. Serial No. 585,866. (No model.)



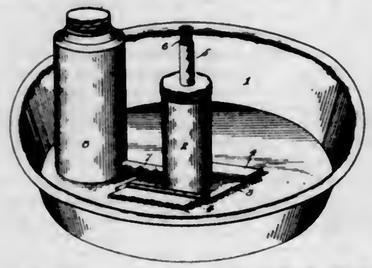
Claim.—In a bicycle, the combination with a hub-tube having an annular bead formed therein near each of its ends, said bead provided with several indentations pressed therein, of spoke-rings, having their inner surfaces conform to the end of the tube and the bead, and having lugs adapted to interlock with the indentations of the bead: substantially as and for the purpose set forth.

578,351. **CHROME BRICK.** NIVEN MCCONNELL, Munhall, Pa. Filed July 8, 1896. Serial No. 598,500. (No specimens.)

Claim.—1. An a new article of manufacture, a brick containing chrome ore, a refractory clay, and alkali matter.

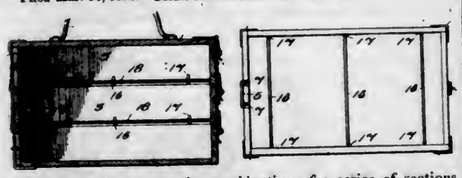
2. A brick composed of chrome ore, bauxite and lime.

578,352. **INSECT-DESTROYER.** JAMES J. MCMILLEN, Van Wert, Ohio. Filed Apr. 25, 1896. Serial No. 589,110. (No model.)



Claim.—The combination of a receptacle provided on the upper face of its bottom with opposite parallel ways, a vertical lamp extending slightly above the upper edges of the receptacle and provided at its bottom with a horizontal plate forming a slide and fitting in the said ways, an oil-reservoir located beyond the ways and resting upon the bottom of the receptacle, and a horizontal tube rigidly connecting the reservoir and the lamp, located at the bottoms thereof and forming a passage for oil, substantially as described.

578,353. **EGG-CRATE.** WILLIAM H. NELSON, Kingsville, Mo. Filed Mar. 31, 1896. Serial No. 585,643. (No model.)

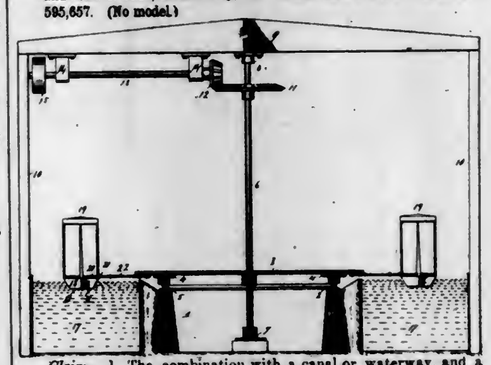


Claim.—1. In a crate, the combination of a series of sections each of which is provided with means adapted to prevent independent sliding thereof, inverted-U-shaped loops secured at one end of said sections and having their lower ends bent at an angle to form hooks, the hooks of each of said loops being adapted to enter spaced notches formed at the upper edge of the section immediately below and thereby engage with the upper end of the loop on said lower section, and latches secured to the other end of the sections and adapted, with the U-shaped loops, to lock the sections together, substantially as set forth.

2. In a crate, the combination of a series of sections, inverted-U-shaped loops secured at one end of said sections and having their lower ends forming hooks, the hooks of each of said loops being adapted to engage with the loop on the section immediately below, and latches secured to the other end of the sections, said latches comprising a securing-plate provided with an eye, a hasp hinged to said securing-plate and having an aperture adapted to receive the eye of the latch on the section immediately below, and a hook pivoted to said hasp and adapted to pass through the eye of said section to secure said eye in the aperture of the hasp, said latches and the U-shaped loops being adapted to lock the sections of the crate together, substantially as set forth.

3. In a crate, the combination of a series of sections, the substantially U-shaped loops secured to the sections at one end of the crate and provided at the terminals of their sides with hooks, the loops being arranged so that the hooks of one loop will engage the transverse portion of the adjacent loop whereby the series of sections are connected, and means for fastening the sections together at the other end of the crate, substantially as described.

578,354. **MARINE MERRY-GO-ROUND.** ARTHUR R. NEWTON and JOHN C. BELL, Kansas City, Mo. Filed June 15, 1896. Serial No. 595,657. (No model.)



Claim.—1. The combination with a canal or waterway, and a series of antifriction-rollers arranged in different horizontal planes below the surface of the water, of boats traveling upon said canal or waterway and provided at the front and inner margins of their bottoms with strips to induce the boats to roll in one direction, and with similar strips at the rear and outer margins of the bottoms to induce them to roll in the opposite direction, substantially as described.

2. The combination with a rotary platform, and a circular surrounding canal or waterway, of boats upon said waterway, transverse rods journaled upon said boats at their middle, links hinged at their outer ends to said rods and at their inner ends to said platform, brace-rods also hinged to said links and to said boats and platform, and antifriction-rollers arranged in the path of said boats and submerged in the canal or waterway, substantially as described.

3. The combination with a rotary platform, and a circular surrounding canal or waterway, of boats upon such waterway, transverse rods journaled upon said boats at their middle, links hinged at their outer ends to said rods and at their inner ends to said platform, brace-rods also hinged to said links and to said boats and platform, antifriction-rollers arranged in the path of said boats and submerged in the canal or waterway, and strips secured to the front and inner, and rear and outer margins of the bottom of each boat, substantially as shown and described.

578,355. **APPARATUS FOR MAKING PAPER OR OTHER TUBES.** FREDERICK W. OLIVER, London, England. Filed July 18, 1896. Serial No. 599,710. (No model.)

Claim.—1. The combination of a drum, a mandrel parallel to the axis of the drum and adjacent to its periphery and means for causing the mandrel to roll upon the curved surface of the drum.

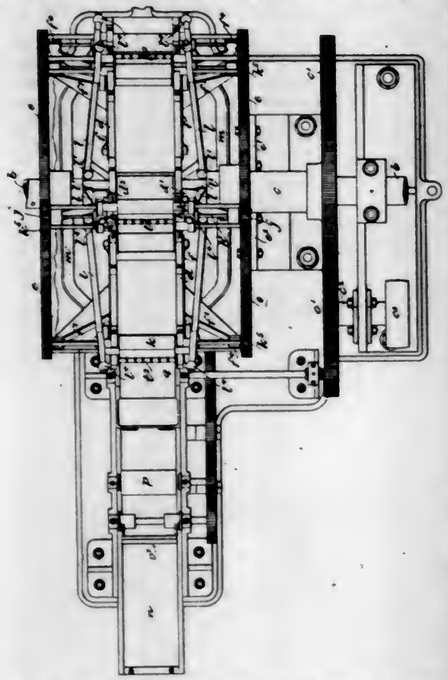
2. The combination of a drum, a mandrel and pressing-rolls parallel to the axis of the drum and adjacent to its periphery, means for causing the mandrel to roll upon the curved surface of the drum and means for causing the rolls to roll upon the mandrel.

3. The combination of a drum, a mandrel parallel to the axis of the drum and adjacent to its periphery, a ring of teeth fixed relatively to the drum, a pinion carried by the mandrel gearing with the ring of teeth and means for rolling the pinion around the ring of teeth.

4. The combination of a drum, a mandrel and pressing-rolls parallel to the axis of the drum and adjacent to its periphery, a ring of teeth fixed relatively to the drum, pinions carried by the mandrel and by the rolls gearing with the ring of teeth and means for rolling the pinions around the ring of teeth.

5. The combination of a drum, frames on each side of the drum, means for rotating the frames relatively to the drum, radial guides in the frames, arms working in the guides, bearings at the ends of the arms, mandrels working in the bearings, links pivoted to the guides and to the arms, bearings in the links, pressing-rolls working in these bearings, a ring of teeth on each side of the drum and fixed relatively

to it, pinions carried by the mandrels and by the rolls gearing with the rings of teeth and means for moving the arms in the radial guides.



6 The combination of a drum, frames on each side of the drum, means for rotating the frames relatively to the drum, radial guides in the frames, arms working in the guides, bearings at the ends of the arms, mandrels working in the bearings, links pivoted to the guides and to the arms, bearings in the links, pressing-rolls working in these bearings, a ring of teeth on each side of the drum and fixed relatively to it, pinions carried by the mandrels and by the rolls gearing with the rings of teeth, curved guides around the mandrels and means for causing them to approach the mandrels when the feed has taken place.

7. The combination of a drum, a mandrel made in halves parallel to the axis of the drum and adjacent to its periphery, means for causing the mandrel to roll upon the curved surface of the drum and means for causing the halves of the mandrel to separate longitudinally to discharge the finished tube.

8. The combination of a drum, a mandrel made in halves and pressing-rolls parallel to the axis of the drum and adjacent to its periphery, means for causing the mandrel to roll upon the curved surface of the drum, means for causing the rolls to roll upon the mandrel, and means for causing the halves of the mandrel to separate longitudinally to discharge the finished tube.

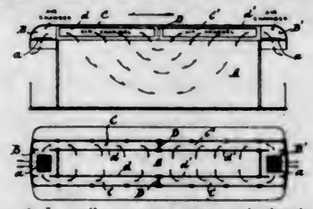
9. The combination of a drum, a mandrel made in halves parallel to the axis of the drum and adjacent to its periphery, a ring of teeth fixed relatively to the drum, a pinion carried by the mandrel gearing with the ring of teeth, means for rolling the pinion around the ring of teeth and means for causing the halves of the mandrel to separate longitudinally to discharge the finished tube.

10. The combination of a drum, a mandrel made in halves, and pressing-rolls parallel to the axis of the drum and adjacent to its periphery, a ring of teeth fixed relatively to the drum, pinions carried by the mandrel and by the rolls gearing with the ring of teeth, means for rolling the pinions around the ring of teeth and means for causing the halves of the mandrel to separate longitudinally to discharge the finished tube.

11. The combination of a drum, frames on each side of the drum, means for rotating the frames relatively to the drum, radial guides in the frames, arms working in the guides, bearings at the ends of the arms, mandrels made in halves working in these bearings, links pivoted to the guides and to the arms, bearings in the links, pressing-rolls working in these bearings, a ring of teeth on each side of the drum and fixed relatively to it, pinions carried by the mandrels and by the rolls gearing with the rings of teeth, means for moving the arms in the radial guides and means for causing the halves of the mandrel to separate longitudinally to discharge the finished tube.

12. The combination of a drum, frames on each side of the drum, means for rotating the frames relatively to the drum, radial guides in the frames, arms working in the guides, bearings at the ends of the arms, mandrels made in halves working in these bearings, links pivoted to the guides and to the arms, bearings in the links, pressing-rolls working in these bearings, a ring of teeth on each side of the drum and fixed relatively to it, pinions carried by the mandrels and by the rolls gearing with the rings of teeth, curved guides around the mandrels, means for causing them to approach the mandrels when the feed has taken place and means for causing the halves of the mandrel to separate longitudinally to discharge the finished tube.

578,356. VENTILATING RAILROAD-CARS. JAMES M. PALMER, Boston, Mass., assignor to Caroline F. Palmer and William L. Palmer, same place. Filed Jan. 30, 1896. Serial No. 576,067. (No model.)

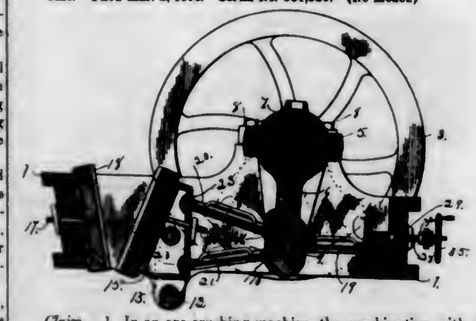


Claim.—1. In a railway-car a transverse air-chamber at each end of the car, under the hood, each of said chambers communicating with the outer atmosphere and by lateral openings with longitudinal air-channels on each side of the car the ends of which open into the transverse air-chambers, a central partition in each of said longitudinal air-channels and openings from said longitudinal air-channels to the interior of the car substantially as and for the purposes set forth.

2. In a railway-car an air-channel on each side of the car divided at its center by a partition the outer end of one half of both said air-channels communicating by lateral openings with a transverse air-chamber under the hood at one end of the car and the outer end of the other half of said air-channels communicating by lateral openings with a transverse air-chamber under the hood at the other end of the car and an opening, under the hood, to each of said transverse air-chambers for the admission or exit of air, and openings from the air-channels into the car substantially as set forth.

3. In a railway-car a transverse air-chamber at each end of the car, longitudinal air-channels on each side of the car, communicating with said transverse air-chambers at each end, a partition in the center of each of said longitudinal air-channels, an opening under the hood of the car, into the said air-chambers and openings from the air-channels into the car, the area of the openings from the air-chambers into the air-channels being much less than the area of the opening from said air-channels into the car, so that, the air will be distributed into the car at a proportionately less rate or as the areas of the inlets into said air-chambers are to the areas of the openings from the air-channels into the car substantially as set forth.

578,357. CRUSHING-MACHINE. LEROY S. PROUTS, Canton, Ohio. Filed Mar. 2, 1896. Serial No. 581,529. (No model.)



Claim.—1. In an ore-crushing machine, the combination with a suitable base or frame carrying a stationary crushing-jaw, 18, of a transverse shaft 12 carried by said frame in rear of but on a plane lower than that of the stationary jaw, an arm or post 14 mounted upon each end of said shaft outside of the frame, a shaft 24 mounted in the upper ends of said arms or posts, a crushing-head centrally mounted upon said latter-named shaft so as to oscillate thereon, a crushing-jaw carried by the crushing-head, and means for oscillating the crushing-head, substantially as described.

2. In an ore-crushing machine, the combination with a suitable supporting base or frame, of a stationary crushing-jaw carried by said frame, a rocking post 14 pivotally connected to each side of the frame in rear of the stationary jaw, a transverse shaft 24, carried by said rocking posts, an oscillatory crushing-head 15 centrally mounted upon said transverse shaft, a crushing-jaw carried by the said head, means for oscillating the crushing-head, an adjustably-mounted transverse bar 31 at the rear of the machine and a rod 25 connecting each end of said bar with the rocking posts, substantially as described.

3. In a rock-crushing machine, the combination with a suitable base or frame, of a transverse shaft provided with an eccentric, a pitman connected to said eccentric, a stationary crushing-jaw, a centrally-pivoted and adjustably-mounted oscillating crusher-head operating to and from said jaw, a pair of toggle-links arranged between the jaw and pitman, and a single toggle-link bearing against the rear side of the pitman and frame of the machine, substantially as described.

4. In a rock-crushing machine, the combination with a suitable base or frame, carrying a stationary crushing-jaw, of a transverse power-shaft provided with an eccentric, a pitman depending from said shaft, a shaft 12, carried by depending bearing-lugs 13 on said frame in rear of but on a plane lower than that of the stationary jaw, an arm or post 14 mounted upon each end of said shaft, a shaft 24 mounted in the upper ends of said posts, a crushing-head centrally mounted upon said latter-named shaft so as to oscillate thereon, a crushing-jaw carried by the crushing-head, a pair of toggle-links located between the crushing-head and pitman, said links bearing upon opposite sides of the fulcrumed point of the crushing-head, and a horizontal toggle-link bearing against the rear face of the pitman and frame of the machine, substantially as described.

578,358. CAMPING-BAG. THOMAS C. PHELPS, Newton, Mass. Filed May 18, 1896. Serial No. 592,029. (No model.)

Claim.—1. A combined sleeping-bag and bed comprising an outer bag having transverse strips upon its under side and each doubled to receive a support, said bag having an opening upon its upper side substantially in the form of an equilateral triangle, and closing means for said opening, substantially as described.

2. A combined sleeping-bag and bed comprising an outer bag having transverse strips upon its under side and each doubled to receive a support, said bag having an opening upon its upper side substantially in the form of an equilateral triangle, and closing means for said opening, and a plurality of independent bags nested together within the outer bag and of similar outline and provided with openings along the sides, substantially as described.

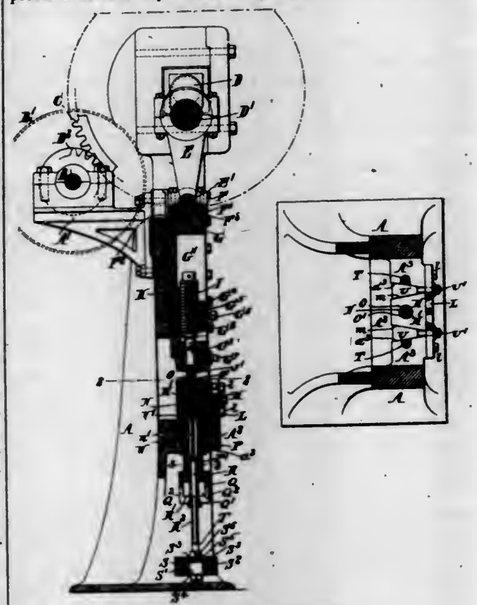
578,359. RIVET-HEADING MACHINE. FERDINAND PHILIPS, Philadelphia, Pa. Filed Apr. 29, 1896. Serial No. 589,549. (No model.)

Claim.—1. In a rivet-heading machine the combination with a die as O having a perforation O′ in which the rivet rests, of a rod as W longitudinally movable in perforation O′, means as nut Q adjustable to and from die O for supporting rod W, a reciprocating rod-raiser or cross-bar S moving through a determined path unaffected by the adjustment of nut Q and an adjustable stop as S^2 secured to bar S and through which it acts upon the rod.

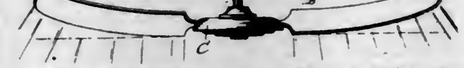
2. In a rivet-heading machine the combination with a die as O having a perforation O′ in which the rivet rests, of an externally-threaded hollow sleeve P secured in line with the die, an adjusting-nut Q adapted to screw on said sleeve P and having slots Q^2 formed in it to permit the escape of water, and a knock-out rod as R passing through and adapted to be supported by the nut as specified.

3. In a rivet-heading machine having a perforated die as O and a knock-out rod movable therein, the combination with a reciprocating bar as S adapted to act upon and raise the pin at proper intervals and having an opening in its face, of a break-bar S^3 supported over said opening at its ends only and by means of which the knock-out rod is raised.

4. In a rivet-heading machine having a perforated die as O and a knock-out rod movable therein, the combination with a reciprocating bar as S adapted to act upon and raise the pin at proper intervals, and having a circular threaded opening in its face, of a screw S^3 having an opening S^4 formed through it and a break-bar S^3 supported at its ends only across said opening.

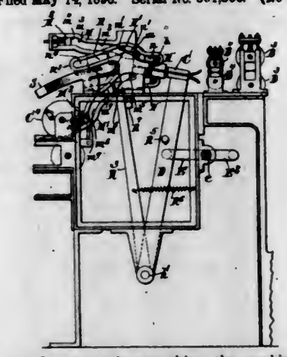


578,360. FAN. JAMES J. PHILLIPS and CHARLES E. THOMAS, New Orleans, La. Filed Oct. 24, 1895. Serial No. 566,736. (No model.)



Claim.—The combination with a suitable hub, of blades of approximately flat form in cross-section having their longitudinal edges parallel, and curved or bent gradually from their inner to their outer ends and in a plane transverse to the flat sides, said blades being secured in the hub in a pitched or oblique manner substantially as and for the purpose set forth.

578,361. PAPER-BAG MACHINE. WILLIAM B. PURVIS, Philadelphia, Pa., assignor to the Eastern Paper Bag Company, of Connecticut. Filed May 14, 1896. Serial No. 591,506. (No model.)



Claim.—1. In a paper-bag machine, the combination with moving sectional suction-formers by which the paper tube-section is carried, of stationary slotted or grooved cams for the sections of the

formers, and guide projections carried by the former-sections and extending into the cam grooves or slots, whereby the suction-formers are caused to move apart and vary their angular relations when operated.

2. In a paper-bag machine, the combination with the moving suction-formers, and cam devices for moving them apart when they are operated, of an independent movable frame located in front of the moving suction-formers, folding-wings carried by the movable frame and adapted to fold down upon the opened suction-formers when the movable frame is moved forward, and means to move said movable frame forward at a certain period in the forward movement of the suction-formers.

3. In a paper-bag machine, the combination with moving suction-formers and cam devices for moving them apart when they are operated, of an independently-movable frame arranged in front of the moving suction-formers, folding-wings R, R, carried by the movable frame, stationary cams S, S, arranged in front of the folding-wings R, R, and adapted to close them when the frame which carries them is moved forward, and devices to move the said frame forward at a certain period in the forward movement of the suction-formers.

4. In a paper-bag machine, the combination with the movable suction-formers, devices to open up said suction-formers when they are moved forward, power devices for moving said formers, a movable frame located in front of the suction-formers and arranged in the path of the devices for moving the formers so as to be actuated by said devices at a certain moment in the movement thereof, and folding-wings R, R, carried by the movable frame and adapted to be closed upon the opened faces of the suction-formers when the frame which carries them is moved forward.

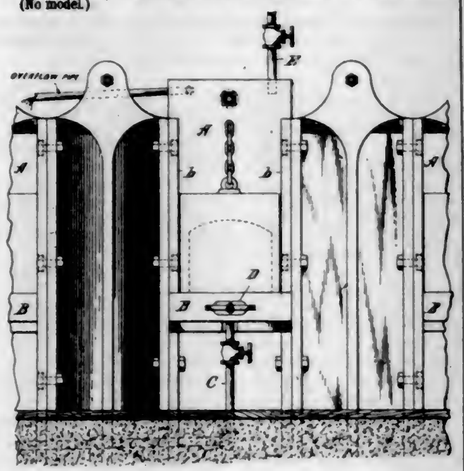
5. In a paper-bag machine, the combination with the movable sectional suction-formers, the cam devices for moving the suction-formers apart and the rocking-lever D for reciprocating the formers, of the rocking frame R^4 located in front of the lever D and adapted to be rocked thereby at a certain period in its movement, the spring folding-wings R, R, carried by the frame R^4 and the cams S, S in front of the wings R, R, adapted to act thereon and close the wings when the frame R^4 is rocked.

578,362. HAND-MIRROR OR BRUSH. ERNEST A. REINHARDT, Montreal, Canada. Filed Mar. 20, 1895. Serial No. 542,459. (No model.)



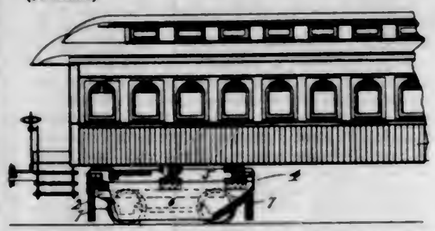
Claim.—In a hand-mirror or analogous device the combination of a handle, neck and body B, B', a sheet of non-fragile material M, with the decorative sheet P between, and a channeled strip of metal A extending in a single piece around the edges with a joint in such strip at the end of the handle, the removable pins E joining the ends separately and removably to the handle, the cap F covering such joint and pins, and the screw G confining it independently to the handle, all arranged to serve substantially as herein specified.

578,363. FURNACE-DOOR FRAME. BYERS G. ROSS and JOHN T. JOHNSON, Washington, Pa. Filed Nov. 25, 1896. Serial No. 613,396. (No model.)



Claim.—A furnace-door frame, consisting of an upper and lower portion each provided with receptacles for containing water, and connected with each other by passage-ways permitting of a continuous circulation of the water, said lower receptacle being formed with a bottom sloped toward the center for carrying off any sediment which might form or collect in said receptacle, an outlet at or near the bottom for discharging the superfluous or heated water and a hand-hole for cleaning said receptacle, substantially as shown and described.

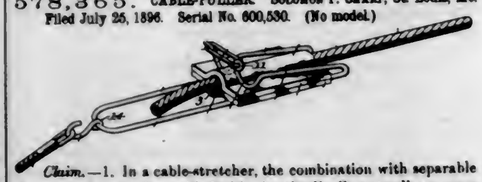
578,364. DEVICE FOR DEADENING NOISE OF TRAINS. JOHN W. SEAVOLT, Lock 53, Md. Filed June 18, 1896. Serial No. 596,002. (No model.)



Claim.—1. The combination with a car-body and a truck on the under side thereof, of a casing surrounding said truck and interposed between the truck and floor of the car, the said casing having its top side and end pieces made with double walls, with sawdust or other non-vibrating substance inserted between said walls, substantially as and for the purpose described.

2. The combination with a car-body and a truck on the under side thereof, of a casing having top pieces fitting over the upper side of said truck and located beneath the floor of the car, and side and end pieces hinged to said top pieces fitting down around the sides of said truck, the top, side and end pieces of said casing being formed with double walls having sawdust or other non-vibrating material inserted between said walls, substantially as and for the purpose described.

578,365. CABLE-PULLER. SOLOMON P. SHARP, St. Louis, Mo. Filed July 25, 1896. Serial No. 600,530. (No model.)



Claim.—1. In a cable-stretcher, the combination with separable clamp members, each provided with a longitudinally-extending groove in which the cable is received, of a spring-fastener having portions which bind against the respective clamp members.

2. In a cable-stretcher, the combination with clamp members each provided with a longitudinal groove adapted to receive the cable, said members being separable, of a spring-fastener having a body which binds against one of the clamp-sections and spring-arms which bind against the other section.

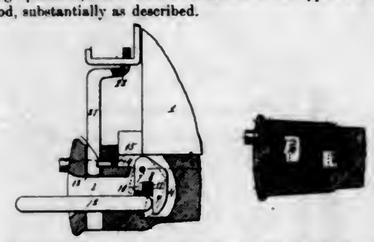
3. In a cable-stretcher, the combination with clamp members between which the cable is received, of a fastener having a body which binds against one of the clamp members, and spring-arms provided with fingers which bind against the other clamp member, and means for locking said members together.

4. In a cable-stretcher, the combination with separable clamp members between which the cable is received, of a fastener constructed of a single piece of spring-rod having a body which binds against one of the clamp members, and arms provided with curved fingers which bind against the other clamp member, and a link connecting the fingers.

5. In a cable-stretcher, the combination with separable clamp members each provided with a longitudinally-extending depression which receives the cable, of a fastener constructed of a single piece of spring-rod provided with longitudinally-extending parallel portions which bind against one of the clamp members, and parallel arms provided with curved fingers which bind against the other clamp member, a link connecting the curved fingers, and a hook connected to the fastener.

578,366. CAR-COUPLING. JAMES E. SMITH, Kansas City, Mo. Filed July 11, 1896. Serial No. 598,867. (No model.)

Claim.—1. A car-coupling, comprising a draw-head provided with the customary flaring mouth and registering pin-hole, and in addition with a chamber communicating with the pin-hole and with a passage or cavity communicating with said chamber, a plate arranged in said chamber and projecting into the pin-hole and provided with a headed arm which extends forwardly through said recess or passage, a spring bearing against the draw-head and the head of said arm, so as to hold the same yieldingly in its advanced position, a coupling-pin in said pin-hole and resting upon said plate and provided at its upper end with an aperture, a vertical slide-rod secured at the end of the car and provided with an arm engaging said aperture, whereby the coupling-pin may slide forward and backward upon said arm without injury, as the draw-heads come together and spring apart in the coupling operation, and a handle connected to the upper end of said slide-rod, substantially as described.



2. A car-coupling, comprising a draw-head provided with the customary flaring mouth and registering pin-hole, and in addition with a chamber communicating with the pin-hole and with a passage or cavity communicating with said chamber, a plate arranged in said chamber and projecting into the pin-hole and provided with a headed arm which extends forwardly through said recess or passage, a spring bearing against the draw-head and the head of said arm, so as to hold the same yieldingly in its advanced position, a coupling-pin in said pin-hole and resting upon said plate and provided at its upper end with an aperture, a vertical slide-rod secured at the end of the car and provided with an arm engaging said aperture, whereby the coupling-pin may slide forward and backward upon said arm without injury, as the draw-heads come together and spring apart in the coupling operation, a handle connected to the upper end of said slide-rod, chains connected to said slide-rod, levers connected to said chains and mounted upon the car and projecting in opposite directions, and guide-loops for said levers, substantially as described.

3. In a car-coupling, the combination of a draw-head, provided with the usual flaring mouth or passage and a communicating pin-hole, and, in addition, having said passage enlarged so as to form an internal shoulder, a link-arm pivotally mounted in said enlarged opening, and bifurcated to form a long arm to come in contact with said shoulder, and a shorter arm, a block of yielding material fitted between said arms, a coupling-link in said draw-head and engaged by said yielding block of the arm, so that said link shall maintain a horizontal position, and a pin in said pin-hole for engagement with said link, substantially as described.

578,367. METHOD OF MANUFACTURING YEAST FROM MOLASSES. GUSTAVE SOBOTKA, New York, N. Y., and ADOLPH KLIENETSCHEK, Baltimore, Md. Filed Jan. 26, 1895. Serial No. 536,377. (No specimens.)

Claim.—1. In the art of manufacturing yeast from molasses, substantially as described, the improved step in the process, which consists in purifying and bleaching the molasses by treating the same with oxidizing and reducing agents preparatory to mixing the resultant liquid with nitrogeneous substances, substantially as set forth.

2. In the art of manufacturing yeast from molasses, the method of purifying and bleaching the molasses, which consists in treating the same with oxidizing agents, then raising the temperature to nearly the boiling-point, then reducing the temperature to about blood heat, then diluting with water, and then treating the liquid with sulfurous acid or equivalent reducing agent, substantially as described.

3. The process of producing a yeast medium from molasses, which consists essentially in first treating the molasses with an oxidizing agent, then raising the temperature of the molasses to nearly the boiling-point, then gradually reducing the temperature to a moderate or blood heat, then diluting the molasses with water, then treating the liquid with sulfurous acid or equivalent reducing agent, then gradually raising the temperature of the liquid to the boiling-point so as to drive off or vaporize the sulfurous acid, and finally mixing the liquid thus produced with nitrogeneous substances, substantially as described.

4. As an improvement in the art of manufacturing yeast, the method of utilizing molasses and the waste material from starch and other factories in the production of an alcoholic liquor adapted for use as a yeast medium, which consists in first raising the temperature of the molasses to nearly the boiling-point and then gradually lowering the temperature to a moderate or blood heat, then diluting with water, next treating the resulting liquid with sulfurous acid and allowing it to stand for a sufficient time to permit decomposition, then gradually raising the temperature of the liquid to about the boiling-point and forcing air into the liquid to vaporize the sulfurous acid, and finally treating the liquid thus purified and bleached with soluble nitrogeneous substances obtained from the residuum of starch and other factories, substantially as described.

5. The method of manufacturing yeast from molasses, which consists in raising the temperature of the molasses to nearly the boiling-point and gradually lowering the temperature to about a blood heat, then diluting with water, next treating the resulting liquid with sulfurous acid and allowing it to stand for a sufficient time to permit decomposition, then gradually raising the temperature of the liquid to about the boiling-point, then forcing air into the liquid to vaporize the sulfurous acid, then treating the liquid thus purified and bleached with nitrogeneous substances, then cooling to about 30° centigrade and finally treating with yeast to produce fermentation, substantially as described.

6. The process of producing a yeast medium from molasses which consists in treating the molasses with oxidizing and reducing agents and then mixing the liquid thus treated with nitrogeneous substances preparatory to treating with yeast, substantially as described.

7. The process of producing a yeast medium from molasses, which consists essentially in first treating the molasses with oxidizing agents, then raising the temperature of the molasses to nearly the boiling-point, then gradually reducing the temperature to a moderate or blood heat, then diluting the molasses with water, then treating the resultant liquid with sulfurous acid or equivalent reducing agent, then gradually raising the temperature of the liquid to the boiling-point, and introducing air into the liquid so as to drive off and eliminate the sulfurous acid, and finally mixing the liquid thus produced with nitrogenous substances, substantially as described.

8. The improvement in the art of manufacturing yeast from molasses, which consists in treating the molasses with oxidizing agents, then raising the temperature of the molasses to nearly the boiling-point, then reducing the temperature to approximately a blood heat, then diluting with water, then treating with reducing agents, then raising the temperature to the boiling-point and introducing air so as to expel the sulfurous acid, then treating the liquid with nitrogeneous substances, and finally adding yeast to produce fermentation, substantially as described.

578,368. DERRICK. GEORGE V. STALLINGS, Strawn, Tex., assignor of one-half to Samuel E. Stallings, William E. Stallings, and Robert H Jones. Filed July 1, 1896. Serial No. 597,771. (No model.)

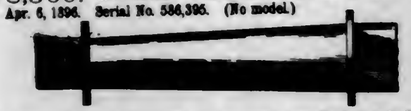


Claim.—1. The combination with a base-piece, of a derrick-frame mounted to rotate thereon, an upright rising centrally from said derrick-frame having a roller in the upper end or extension thereof, a cross-beam on said upright having an opening in its outer end in which is mounted a roller, a steadying-lever pivoted to the opposite end of said cross-beam, a bracing-beam having bifurcated ends secured to the lower part of said derrick-frame and extending upwardly therefrom diagonally, the arms thereof surrounding said upright and said steadying-lever, a roller in the upper end of said bracing-beam, a basket or gripping device secured to the outer end of said steadying-lever, a drum mounted to rotate in said derrick-frame and a cord attached to said drum, passing around the rollers in said cross-beam, said upright and said bracing-beam and attached at its outer end to said steadying-lever, substantially as and for the purpose described.

2. The combination with a base-piece mounted upon rollers, of a derrick-frame mounted to rotate thereon and having antifriction-rollers on the under side thereof, an upright rising centrally from said derrick-frame having a gudgeon upon its lower end which projects through the bottom of said derrick-frame and fits an opening in said base-piece, constituting the pivot upon which said derrick-

frame rotates, a roller mounted in the upper end or extension of said upright, a cross-beam on said upright having an opening in one end in which is mounted a roller, a steadying-lever pivoted to the opposite end of said cross-beam, a basket or gripping device attached to the outer end of said lever, a bracing-beam having bifurcated ends attached to the lower part of said frame and extending diagonally therefrom, the arms thereof surrounding said upright and said steadying-lever, a roller in the upper end of said bracing-beam, a drum having a peripheral groove therein mounted to rotate in uprights secured to one side of said derrick-frame, handles upon the outer edge of said drum having openings therethrough, a stop-bar having an inturned outer end adapted to fit within the opening in one or the other of said handles, and a cord attached to said drum, passing around the rollers in said cross-beam, said upright and said bracing-beam and attached at its outer end to said steadying-lever, substantially as and for the purpose described.

578,369. NUT-LOCK. WILLIAM H. STARR, Liberty, Nebr. Filed Apr. 6, 1896. Serial No. 586,395. (No model.)



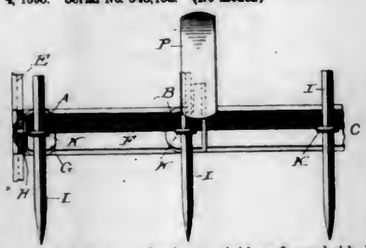
Claim.—In a device of the character described a spindle, a threaded shank formed therewith having a recess formed near its inner end, a nut threaded thereon and having a slot on one side terminating in an opening, a spring-pressed lever pivoted in the slot, a detent formed on the inner end of the lever adapted to be normally pressed through the opening in the nut into the recess of the shank, said lever having its outer end projecting beyond the surface of the nut and a right-angular foot formed thereon adapted to protect the groove and fit in a seat formed in the end of the nut.

578,370. JUG. HENRY STILES, Cleveland, Ohio. Filed Nov. 14, 1894. Serial No. 528,759. (No model.)



Claim.—A jug or a similar vessel having arched and longitudinally straight sides and top, a flat bottom, flat ends and a projecting spout at one side, substantially as set forth.

578,371. HARROW. WILLIAM STRAIT, Elmira, N. Y. Filed May 4, 1895. Serial No. 548,132. (No model.)

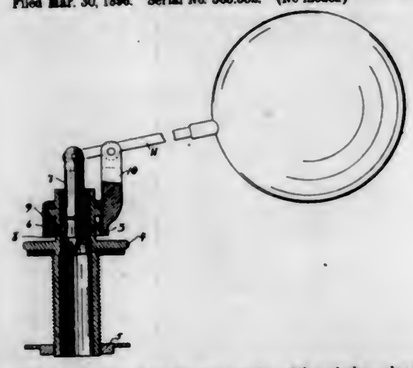


Claim.—1. In a harrow, having a rigid perforated side bar, an angle-iron tooth-bar, an angle-iron tooth-seat having a stud projecting therefrom through the perforation in the side bar parallel with the tooth-bar, a tooth seated in said tooth-seat, and a bolt engaging the tooth and passing through the tooth-seat and tooth-bar, substantially as described.

2. In a harrow the combination with an angular tooth-bar, of an angular tooth-seat seated therein, a shoe carried by the tooth-seat and below the tooth-bar, a tooth extending above the tooth-bar, a bolt secured to the tooth and passing through the tooth-seat and tooth-bar at the junction of their angles and means for securing the said bolt.

3. In a harrow, the combination with an angle-iron tooth-seat provided with notches and with an end wall disposed at right angles to the tooth-seat and provided with a pivot-stud parallel to said seat, of a tooth and a tooth-bar secured against the opposite sides of the tooth-seat by a single bolt.

578,372. WATER-COCK. EDWARD A. STRONG, Indianapolis, Ind. Filed Mar. 30, 1896. Serial No. 585,332. (No model.)

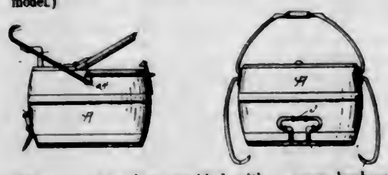


Claim.—1. In a valve, the combination of the tubular valve-casing having a radial discharge-opening therein, the plunger mounted in said valve-casing so as to slide longitudinally therein past said discharge-opening, and the annular flexible packing mounted upon and surrounding the plunger, said plunger having a reduced portion extending within the lower edge of the annular packing so as to admit the water-pressure to the interior of the packing, all substantially as set forth.

2. In a valve, the combination of the tubular valve-casing having a radial discharge-opening therein, the plunger mounted in said valve-casing so as to slide longitudinally therein past said discharge-opening, and the annular flexible packing mounted upon and surrounding the plunger, said plunger having a conical lower end, the arrangement being such that the base of said conical end lies above the lower edge of the annular packing, substantially as and for the purpose set forth.

3. In a valve, the combination of the tubular valve-casing having a radial discharge-opening therein, the plunger mounted in said valve-casing so as to slide longitudinally therein past said discharge-opening, the annular flexible packing mounted upon and surrounding the plunger, and the cap 9 mounted upon the valve-casing and provided with a downwardly-extending lip thereby forming a chamber which communicates directly with the radial discharge-opening, substantially as and for the purpose set forth.

578,373. SAP-BUCKET. JACKSON A. TAYLOR and JAMES S. PARKER, Woodville, Ala. Filed Sept. 30, 1896. Serial No. 607,484. (No model.)



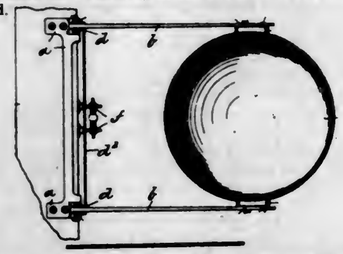
Claim.—1. A bucket provided with a cover, backwardly and downwardly extending prongs near the bottom of the bucket, and pivoted hooks attached to the upper end of said bucket.

2. A bucket provided with a cover having a stationary section and a hinged section, a sap-spout extending from said stationary section, downwardly and backwardly projecting prongs near the bottom of said bucket, and pivoted hooks near the upper end of said bucket.

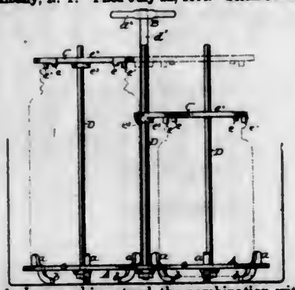
3. A bucket provided with downwardly and backwardly projecting prongs near its bottom, and pivoted arms at its upper end portion, said arms being provided with backwardly-bent end portions to form hooks.

578,374. WASHBASIN. WILLIAM E. TRULL, Philadelphia, Pa., assignor of one-half to Elison M. Cooper, same place. Filed Oct. 31, 1896. Serial No. 610,672. (No model.)

Claim.—The combination, of a bracket, two pivotal arms connected therewith and the free ends of said arms pivoted to a basin provided with pins engaging recesses located in the free ends of said arms, locking-pawls adapted to engage notches of said arms to sustain the same and said basin in substantially horizontal position and a bar connecting said pawls and arranged so that when shifted said pawls are released from the notches of said arms to permit said arms and basin to fall in a substantially downward direction, substantially as described.



578,375. COOKING-STAND FOR PRESERVING-CANS. LAURA E. TYGERT, Albany, N. Y. Filed July 22, 1896. Serial No. 600,114. (No model.)



Claim.—1. In a cooking-stand the combination with device A, described, adapted to retain the lower end of a can, jar or other vessel in place from shifting, of a handle adapted to serve as a means for transferring the stand to or from a cooking vessel, substantially as and for the purposes set forth.

2. In a cooking-stand the combination with an encircling web provided with devices described for retaining the lower ends, or bottom portions of two cans, jars, or other vessels, each of different diameter in place when respectively seated in their retaining devices, and a handle adapted to serve as a means for transferring the stand to or from a cooking vessel substantially as and for the purposes set forth.

3. In a cooking-stand, the combination, with device A described, adapted to hold in place cans, jars or other vessels, of two different sizes, one at a time, by their respective lower end portions, an upper-end-retaining device and a retaining-rod between device A, and said upper-end-retaining device, of a handle adapted to serve as a means for transferring the stand to or from a cooking vessel, substantially as and for the purposes set forth.

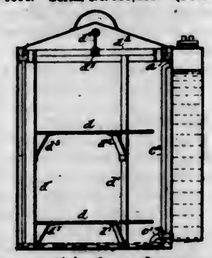
4. In a cooking-stand, the combination with a lower-end-retaining device A comprising web *c* and downwardly-projected holding-lips *b b* and a handle, of an upper-end-retaining device substantially as and for the purposes set forth.

5. In a cooking-stand for holding cans, jars or other vessels, the combination of a lower-end-holding device comprising web *c*, downwardly-projected holding-lips *b b* set on a circular line of one given diameter, and upwardly-projected retaining-posts *a a* set on a circular line of a different diameter, of a handle for transfer of said stand with can, jar or other vessel therein, to or from a cooking vessel, substantially as and for the purposes set forth.

6. In a cooking-stand, the combination with device A described adapted to hold a can, jar or other vessel in place by its lower end portion, of an upper-end-retaining device C provided with two or more downwardly-projected holding-lips adapted to engage with the upper end portions of the supported vessels, of like or different diameters, a retaining-rod fixed with device A, and holding with device C and adapted to allow the latter to be placed or displaced at will, and a handle adapted to serve as a means for transferring the stand to or from a cooking vessel, substantially as and for the purposes set forth.

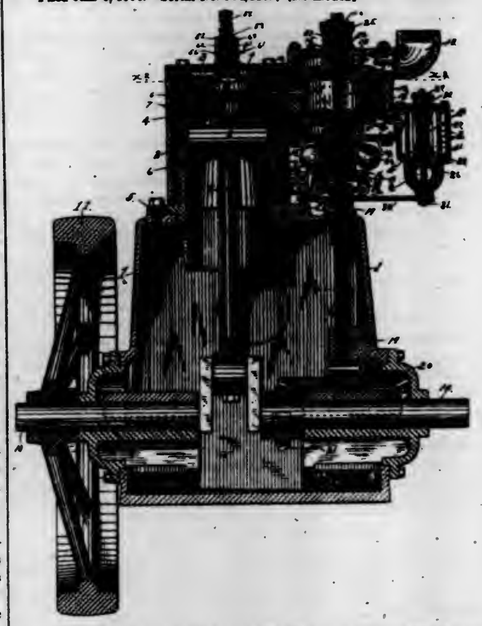
7. In a cooking-stand, for holding cans, jars, or other vessels the combination of two or more lower-end-holding devices A, described, a corresponding number of upper-end-retaining devices C, described, one or more retaining-rods secured to devices A and adapted to be placed at will into engagement with the upper ends of the vessels, and a handle adapted to serve as a means for transferring the cooking-stand to or from a cooking vessel, substantially as and for the purposes set forth.

578,376. STERILIZER. JOHN W. WALLACE, Brooklyn, N. Y. Filed May 28, 1896. Serial No. 593,413. (No model.)



Claim.—As a new article of manufacture, a sterilizer comprising a main body, which constitutes a sterilizing-chamber, and a closed tank or reservoir for water connected at the bottom with the said chamber by a faucet whose outlet is slightly above the bottom of the said chamber, and connected at the top with the said chamber by a vent pipe or tube which terminates near the bottom of the said chamber; substantially as described.

578,377. EXPLOSIVE-ENGINE. JESSE WALRATH, Racine, Wis. Filed Jan. 6, 1896. Serial No. 574,418. (No model.)



Claim.—1. In an explosive-engine, the combination with the cylinder and piston, of a combined explosion-chamber and valve-chest, outside the cylinder but communicating therewith, a valve-gear shaft extending through said chamber, a pair of disk valves on said shaft, within said chamber, connected thereto for rotation therewith but free to slide thereon, which valves are spring-seated against opposite walls of said chamber and control, respectively, one the admission and the other the exhaust of the explosive mixture, and an electric igniter operated by said shaft, substantially as described.

2. In an explosive-engine, the combination with the cylinder and piston, of the combined explosion-chamber and valve-chest, outside the cylinder but communicating therewith, the gear-shaft 19, driven from the engine-shaft and extending through said chamber, the disk valves 16 and 17, in said chamber, connected to turn with but free to slide on said shaft and having hollow stems projecting outward through the walls of said chamber, the springs 23 on said valve-stems, operating to seat said valves, cooperating ports in said valves and their seats, an electric igniter having its electrodes in said chamber with one thereof carried by said gear-shaft, and a governor with governing-valve controlling the supply of explosive mixture to said engine, according to load, substantially as described.

3. In an explosive-engine, the combination with a governor, of a governing-valve seat, having a series of parallel rows of openings

or passages, a governing-valve thereon, having a corresponding parallel series of surfaces, for controlling said rows of openings, and a casing inclosing said valve and valve-seat, having inlets for the supply of the air and gas, or the air and oil and provided with an outlet leading to the distribution-valve chest, whereby said casing, valve and valve-seat, constitute a commingling-chamber, for the explosive materials, and the supply thereof to the distribution-valve, is controllable, according to load, by an extremely small movement of said governing-valve, substantially as described.

4. In an explosive-engine, the combination with a governor, of a governing-valve, valve-seat and casing, which seat is of cylindrical form and provided with a multiplicity of passages, arranged in parallel rows, lengthwise thereof, and which valve is mounted therein for rotary movement, and is provided with a series of radial wings, spaced apart from each other, corresponding to and for the control of said rows of openings in the seat, and which casing is provided with suitable inlets for the air and gas or oil, and with a suitable outlet to the distribution-valve chest, all substantially as and for the purposes set forth.

5. In a starter for explosive-engines, the combination with a breech-block and firing device, of a charge-magazine constructed to retain a paper wad or disk, at or near its delivery end, insertible from the breech end thereof, for retaining and protecting the charge, and a permanent washer or cap-holder securable at the breech end of said magazine and provided with a perforated cap-seat, whereby the charge can be held and fired without the use of a cartridge and be protected from the combustion-chamber of the engine without the use of a cut-off cock, substantially as described.

6. The starter for explosive-engines, comprising the magazine 56 having the wad-seat *g* and the cap-holder seat *g'*, the breech-block 57 equipped with the spring-seated firing-hammer 58 and separably connectible to said magazine, and the permanent cap-holder 62 provided with a perforated seat for a fulminating-cap 63, all for coöperation, substantially as described.

7. In an electric igniter for explosive-engines, the combination with the rotary or spindle electrode, of a combined torsion and compression spring applied to said spindle and operative both to seat the spindle and return the same to normal position after its release from the wiper-electrode, and devices for independently adjusting the tension of said spring at will, either in respect to torsion or compression, substantially as described.

8. In an electric igniter for explosive-engines, the combination with the rotary or wiper electrode, of the rocking or spindle electrode and the parts for controlling the same, comprising the insulated sleeve 47, the flanged nut 48, the rotatively-adjustable cap 51, seated on said nut, the longitudinally-adjustable collar 52, on said spindle, the spring 54 having one end held by said collar and the other passed out through a passage in the flange of said nut and engaged by said cap, all coöperating substantially as and for the purposes set forth.

9. In an electric igniter for explosive-engines, the combination with the rotary or wiper electrode, of a rocking or spindle electrode, and parts for controlling the same, comprising the insulated sleeve 47, the flanged nut 48, the rotatively-adjustable cap 51, seated on said nut, and the spring 54 having one end secured to said spindle and its other end secured to said adjustable cap, substantially as described.

578,378. ANNEALING-KILN. EDWARD WALSH, Jr., St. Louis, Mo. Filed May 14, 1895. Serial No. 549,287. (No model.)

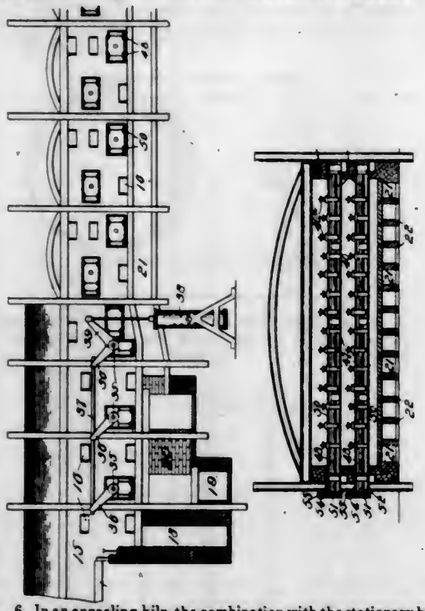
Claim.—1. In an annealing-kiln, the combination with cams which are alternately oppositely centered, and the means for revolving said cams, of traveling bars which rest upon the cams through the medium of cam-blocks, and a strap on some of said blocks for connecting one end only of said bars to the cams; substantially as described.

2. In an annealing-kiln, the combination with a series of traveling bars, of means for imparting a cyclical movement to said bars, said means comprising a series of oppositely-centered revolving cams to which are imparted complete revolutions, said bars being connected at one of their ends only to a set of cams; substantially as described.

3. The combination with side plates, of cam-blocks arranged between said plates at different points, strips which are supported by the blocks, and non-heat-conducting material which is arranged above the strips and between the side plates continuously the length of the strips; substantially as described.

4. The combination with angle-irons forming side plates, of cam-blocks arranged therebetween at different points, strips which are supported at their ends by the blocks, bolts passing through the side plates and under the strips for supporting the middle portion of the strips, and non-heat-conducting material between the side plates and on the strips; substantially as described.

5. In an annealing-kiln, the combination with the stationary bars 23, of bar-rests 24 for supporting the same, elevator-bars 29, which normally rest upon table-like extensions 24ª extending from said bar-rests, below the plane of the supports for the stationary bars 23 and means for operating the elevator-bars; substantially as described



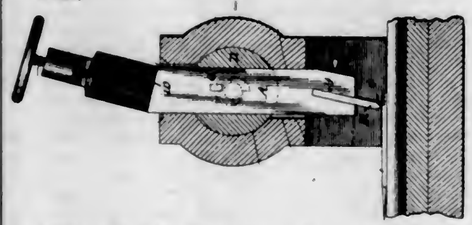
6. In an annealing-kiln, the combination with the stationary bars, of bar-rests therefor which permit expansion and contraction of said stationary bars, elevator-bars which normally rest upon table-like extensions extending from said bar-rests below the plane of the supports for the stationary bars, slotted projections extending down from said elevator-bars, and elevating-levers having pins in the ends which pass through said slots for permitting expansion and contraction of said bars, and at the same time forming a connection which permits the elevating-levers to swing and raise the elevator-bars; substantially as described.

7. The combination with stationary bars which consist of two side plates, a rod, and non-heat-conducting material between the plates, of bar-rests provided with jaws to receive said bars and having an independent support for the movable elevator-bars in a plane below the jaws for the stationary bars, and elevator-bars which are supported in their normal positions upon said independent supports; substantially as described.

8. The combination with cam-shafts which extend transversely the kiln, of cams mounted on said shafts, traveling bars which are actuated by said cams, bearings for said shafts, worm-wheels on the ends of the shafts, I-beams for supporting bearings, said beams extending out beyond the side wall of the kiln, bearings on said projecting ends, and a worm-shaft mounted in said bearings; substantially as described.

9. In a kiln, the combination with the walls, of beams which extend from wall to wall and project outside, traveling bars arranged in the kiln, and means for actuating said traveling bars, said means being mounted upon the projecting ends of the beams; substantially as described.

578,379. MACHINE FOR CUTTING FILES OR RASPS. ALFRED WEED, Anderson, Ind. Filed Apr. 4, 1896. Serial No. 586,218. (No model.)

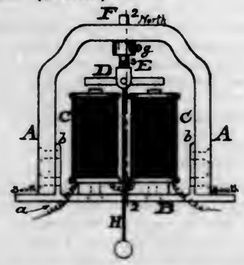


Claim.—1. In a file cutting machine, the combination with the frame, of a guide free to oscillate upon the frame, a plunger carrying a beveled-edge cutting-tool and adapted to reciprocate in the guide, means for reciprocating the plunger, mechanism for moving the guide in one direction when the plunger is being elevated, and devices for limiting the oscillation of the guide, substantially as described.

2. In a file-cutting machine, the combination with the frame, of a guide free to oscillate upon the frame, devices for limiting the oscillation of the guide, a plunger carrying a beveled-edge cutting-tool and adapted to reciprocate in the guide, a compression-spring set at an angle with respect to the plunger for moving it in one direction, substantially as described.

3. In a file-cutting machine, the combination with the frame, of a guide free to oscillate upon the frame, bearings for limiting the oscillation of the guide, a plunger provided with an inclined socket and adapted to reciprocate in the guide without lateral play, a beveled-face cutting-tool secured in the socket of the plunger, means for reciprocating the plunger, and devices for maintaining the plunger in contact with one of its bearings when it is elevated, substantially as described.

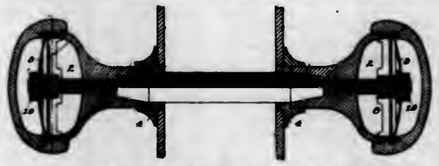
578,380. CALL-RINGER FOR TELEPHONES. JOSEPH A. WILLIAMS and SAMUEL ABBOTT, Cleveland, Ohio. Filed Apr. 10, 1896. Serial No. 587,041. (No model.)



Claim.—1. In a ringer for telephones, a tripolar permanent magnet A and an electromagnet C fixed between the legs of the magnet A, whereby the lines of polarity in both of said magnets are on the same plane, as and for the purpose specified.

2. The combination of the tripolar magnet A and base-piece B, with the electromagnet C, armature D and yoke E, supported by said magnet A, substantially as described.

578,381. KNOB ATTACHMENT. EDWARD S. WINCHESTER, Boston, Mass. Filed Mar. 11, 1896. Serial No. 582,742. (No model.)



Claim.—1. The combination with the spindle, of the sleeve applied to the same to turn therewith, a knob removably interlocked with said sleeve and movable endwise with relation to the spindle, and a confining-spring acting respectively on the spindle and the knob and tending to hold the knob and sleeve yieldingly in engagement and the knob yieldingly against endwise movement; whereby the knob may be disengaged from the sleeve by its endwise movement against the influence of the spring.

2. The combination with the spindle of the sleeve applied thereto to turn therewith, a knob removably interlocked with the sleeve and movable endwise with relation to the spindle, a nut or stop screwed on the end of the spindle, and a spring acting on the knob and the nut and serving to hold the same yieldingly interlocked; whereby the knob and sleeve may be disengaged by the endwise movement of the former, after which the knob may be turned to screw the nut on the spindle and vary the tension of the confining-spring.

3. The combination with the spindle, of the sleeve applied thereto, the nut screwed on the spindle, the knob interlocked with the sleeve and the spring-plate fixed to the nut and bearing against the knob.

4. The combination with the spindle, of the knob comprising the inner and outer separable members applied to the spindle, the nut screwed on the spindle, and the spring bearing on the nut, and the outer member of the knob and acting to maintain yieldingly the engagement of the two parts of the knob.

5. The combination with the spindle, of the sleeve applied thereto, the knob interlocked with the sleeve, the nut on the spindle, the spring acting on the nut and the knob, and the stop for the spring.

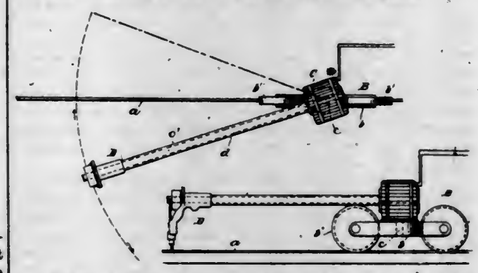
6. The combination with the spindle, of the sleeve applied thereto, the knob interlocked with the sleeve, the nut on the spindle, the spring-plate fixed to the nut and provided with the arms bearing on the knob.

7. The combination with the spindle, of the sleeve applied thereto, the knob interlocked with the sleeve, the nut on the spindle the spring-plate fixed to the nut and bearing against the knob and the stop-plate carried by the knob and formed with an opening through which the nut may play

8. The combination with the spindle fixed against endwise movement, of a knob comprising an inner member applied to the spindle and formed with lugs and recesses and an endwise-movable outer member formed with lugs and recesses interlocked with those on the inner member and a spring located between said parts and acting to yieldingly maintain their connection.

9. The combination with the spindle, of the knob comprising an inner member applied to the spindle, and an outer separable member, said parts being formed with interlocking lugs and recesses, a nut applied to the spindle, and a spring-plate fixed to the nut and bearing against the knob.

578,382. CLOTH-CUTTING MACHINE. JOHN WOLF, Jr., Cincinnati, Ohio, assignor to the Wolf Electrical Promoting Company, same place. Filed July 20, 1896. Serial No. 599,865. (No model.)



Claim.—1. In a cloth-cutting machine, the combination with a suitable carriage, of a motor secured thereon by a pivotal connection adapting it to be swung or rotated about said pivot as an axis, a support for a cutter, a sleeve extending from said motor to said support, and a shaft inclosed in said sleeve operatively connected with the armature of the motor and having its opposite end connected with a cutter carried by said support so as to impart movement to the cutter, substantially as described.

2. In a cloth-cutting machine, the combination with a suitable carriage adapted to travel back and forth along a track, of a rotary electric motor secured to said carriage by a pivotal connection adapted to permit the motor to swing or oscillate on said pivot as a center, a shaft extending outwardly from the motor and directly connected to the armature thereof so as to be rotated thereby, a bracket or support for the outer end of said shaft, a cutter carried by said support, and connections between the cutter and said shaft for imparting motion to the cutter, substantially as described.

3. In a cloth-cutting machine, the combination with a carriage adapted to travel back and forth along a suitable track, of an electric motor pivotally secured upon said carriage so as to swing or oscillate thereon, a shaft extending directly from and connected with the armature of the motor so as to rotate with said armature, a bracket or support in which the outer end of said shaft is journaled, a cutter carried by said support operatively connected with said shaft, and means for connecting the motor with said support so as to adapt the support and cutter to be swung laterally toward either side of the line of travel of the carriage, substantially as described.

4. In a cloth-cutting machine, the combination with a suitable carriage adapted to travel along a track, of a rotary electric motor pivoted upon said carriage, a shaft connected with the armature of said motor and extending directly therefrom, having its outer end journaled in a knife-bar support, a frame-piece extending from said motor to said support in the plane of the shaft so as to form a rigid connection between said support and motor, a knife-bar guide carried by said support, a knife-bar arranged to reciprocate in said guide, and connections between said knife-bar and said shaft for imparting movement to the knife, substantially as described.

5. In a cloth-cutting machine, the combination with a cutter and its actuating mechanism, of a pendent support for said cutter and a foot-plate pivoted to said support and adapted to be swung upwardly out of the path of the cutter into a position to permit the cutter to penetrate through the body of the cloth, substantially as described.

6. In a cloth-cutting machine, the combination with a cutter and its actuating mechanism, of a support for said cutter and a foot-plate pivoted to said support and adapted to be swung upwardly into a

position to permit the cutter to penetrate through the body of the cloth, together with a pivotally-supported arm provided with a roller and adapted to swing downwardly so as to support the cutter and its actuating mechanism above the material to be cut, substantially as described.

7. A cloth-cutting machine, comprising a bracket or frame, a rotatable shaft having a portion thereof journaled in said bracket, means for rotating the shaft, a guide arranged on the bracket, a knife-bar provided with a knife or cutter adapted to reciprocate in said guide, means for connecting the rotatable shaft and the knife-bar so as to reciprocate the latter, and a standard provided with a foot-plate pivotally held to the guide so as to swing upwardly thereon, substantially as described.

8. A cloth-cutting machine, comprising a bracket or frame, a rotatable shaft having a portion thereof journaled in said bracket, means for rotating the shaft, a guide arranged in the bracket, a knife-bar provided with a knife or cutter adapted to reciprocate in said guide, means for connecting the rotatable shaft and the knife-bar so as to reciprocate the latter, a standard provided with a foot-plate pivotally held upon the guide so as to permit it to be swung upwardly thereon, and an arm provided with a roller pivoted to the guide and adapted to swing downwardly so as to support the guide and cutting mechanism above the material to be cut, substantially as described.

9. In a cloth-cutting machine, the combination with a bracket or frame having a knife-bar guide thereon, of a knife-bar arranged to reciprocate in said guide, an electric motor, a shaft directly connecting the armature of said motor with said bracket, connections between said shaft and knife-bar for imparting a reciprocating movement to the knife, a frame-piece or sleeve extending from the motor to said bracket, a carriage mounted on an elevated track, and a depending bar connecting said carriage and frame-piece or sleeve, so as to portably support said motor and the knife-bar and its actuating mechanism, substantially as described.

10. A cloth-cutting machine, comprising a carriage adapted to travel along a track, an electric motor pivotally mounted upon said carriage, a shaft extending outwardly from the motor and adapted to rotate with the armature thereof, a bracket or support having one end of the shaft journaled therein, a sleeve surrounding the shaft and connecting the bracket with the motor so as to move in unison therewith, a guide provided with a guard at its lower end rotatably held in the bracket or support, a cross-head slidingly held upon the bracket, a knife-bar, having one end rotatably held to the cross-head and adapted to reciprocate in and rotate with the guide, a knife or cutter secured to the knife-bar, a crank-disk arranged upon the end of the shaft, a connecting-rod having its ends pivoted to the cross-head and the disk so as to reciprocate the knife-bar, and means for supporting the knife-operating mechanism above the material to be cut, substantially as described.

11. A cloth-cutting machine, comprising a carriage adapted to travel along a track, an electric motor pivotally mounted upon said carriage, a shaft extending outwardly from the motor and adapted to rotate with the armature thereof, a bracket or support having one end of the shaft journaled therein, a sleeve surrounding the shaft and connecting the bracket with the motor so as to move in unison therewith, a guide rotatably held in the bracket or support, a cross-head slidingly held upon the bracket, a knife-bar provided with a knife or cutter having one end rotatably held to the cross-head and its body portion adapted to reciprocate in and rotate with the guide, connections between the shaft and the cross-head for reciprocating the knife-bar, and a standard provided with a foot-plate and removably held to the guide, substantially as described.

12. A cloth-cutting machine, comprising a carriage adapted to travel back and forth along a track, a motor mounted upon said carriage, a shaft extending outwardly from said motor, a bracket or support having a portion of the shaft journaled therein, a knife-bar guide arranged upon the bracket, a knife-bar provided with a knife or cutter, a cross-head connected to the knife-bar, a crank secured to the shaft, a connecting-rod pivoted to the crank and cross-head for reciprocating the knife-bar, a standard removably secured to the knife-bar guide, and means for supporting the machine above the material when the standard is removed, substantially as described.

13. A cloth-cutting machine, comprising a carriage and a track along which said carriage may travel, a motor mounted upon said carriage, a bracket or support arranged at a distance from the motor, a rigid connection between the bracket and motor, a knife-bar guide supported upon the bracket, a knife-bar provided with a knife and means connecting the knife-bar to the shaft for reciprocating said knife-bar, a removable standard secured to the guide, and an arm adjustably held to the guide and provided with means forming a temporary support for the machine when the standard is removed, substantially as described.

14. A cloth-cutting machine comprising a carriage adapted to travel along a track, an electric motor pivotally mounted upon said carriage, a shaft extending outwardly from the motor and adapted to rotate with the armature thereof, a bracket or support having one end of the shaft journaled therein, a sleeve surrounding the shaft and connecting the bracket with the motor, a knife-bar guide provided with a handle and rotatably held in the bracket or support, a cross-head slidingly held upon the bracket, a knife-bar having one end rotatably held to the cross-head and adapted to reciprocate in and rotate with the guide, connections between the shaft and the cross-head, and means for supporting the knife-operating mechanism above the material to be cut, substantially as described.

578,383. PIGMENT. RUDOLF ALBERTI, Magdeburg, Germany. Filed July 31, 1895. Serial No. 557,743. (No specimens.) Patented in Germany July 6, 1894, No. 80,751; in England Feb. 6, 1895, No. 2,636, and in Austria Mar. 8, 1895, No. 45/312.

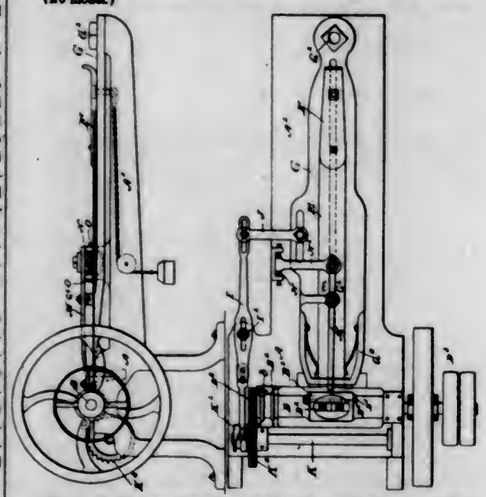
Claim.—1. An improved process for the manufacture of paint pigment consisting in heating a mixture of sulfate of zinc and calcium carbonate (or calcium oxid, or barium carbonate) gradually to a moderate temperature until decomposition takes place and the resulting volatile matter is almost entirely volatilized, and in afterward grinding the substance thus produced substantially as hereinbefore described.

2. The improved process of manufacturing paint pigment from calcium carbonate, calcium oxid, barium carbonate and like compounds, which process consists in adding sulfate of zinc to such compounds, melting the mass under heat, forming zinc oxid, decomposing most of the zinc sulfate in the mass, continuing the heat until substantially all volatile matter is driven off, cooling the resulting product, and reducing it to a powder.

578,384. PROCESS OF MAKING ACETANILID, &c. PETER T. AUSTEN, Brooklyn, and HERBERT C. TUTTLE, New York, N. Y. Filed Nov. 24, 1896. Serial No. 613,311. (No specimens.)

Claim.—The within-described process of producing acetanilid or the acetoluids, which consists in mixing dilute acetic acid as hereinbefore described with the amin, and subjecting the mixture to heat and pressure above or in excess of that of the atmosphere until the conversion is satisfactorily completed, substantially as and for the purpose described.

578,385. MACHINE FOR MANUFACTURING NAILS. GEORGE D. BARTLETT, Plymouth, Mass. Filed Apr. 30, 1895. Serial No. 547,632. (No model.)



Claim.—1. In a machine for cutting nails, a pair of knives wider than the plate to be cut, one knife having a prominent portion at the mid-width, and the other knife correspondingly recessed and a fixed guide on each side and relatively wider than the width of the plate, in combination with mechanism for shifting the plate alternately to the right and left between the successive cutting operations so as to treat the plate alternately on the right and left sides of the space and thereby produce nails each having substantially parallel body and tapering point with the point in the center line of the nail, and with means for arresting the forward motion of the plate at each side of the moving knife, substantially as specified.

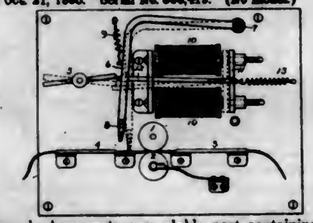
2. In a machine for cutting shoe-nails and analogous nails, an actuated head carrying a knife having an irregular cutting edge, a bed holding a stationary knife correspondingly irregular, a vibrating carrier for the plate and plate-feeding mechanism, in combination with internal spring-guides G^3, which carry the plate yieldingly to the right and left, all arranged for joint operation substantially as herein specified.

3. In a machine for cutting shoe-nails and analogous nails, a continuously-revolving head carrying a knife having an irregular cutting edge, a bed holding a stationary knife correspondingly irregular, a vibrating carrier for the plate, mechanism carried thereon for feeding the plate forward at each movement, internal spring-guides G^3 which carry the plate yieldingly to the right and left, and external fixed guides A^3 which receive the impact of the plate and insure its exactly correct position at each cut, all combined and arranged for joint operation substantially as herein specified.

4. In a machine for cutting shoe-nails and analogous nails, having knives B^3 and D, with irregular cutting edges, the vibrating feeder G and means for actuating it to shift the plate to the right and left, and the single gage M actuated thereby through the connections I, J, so as to vibrate farther and be presented to arrest the plate by contact near its outer edge on each side respectively, as herein specified.

5. In a machine for cutting shoe-nails and analogous nails, having knives B^3 and D, the vibrating feeder G, and means for actuating it to shift the plate to the right and left, and the single gage M actuated thereby through the connections I, J, so as to vibrate farther and be presented to arrest the plate by contact near its outer edge on each side, and the pivot-block G^2 and adjusting-screws O to allow of adjustment of such gage, all arranged for joint operation substantially as specified.

578,386. TELEGRAPHIC REGISTER. CLARENCE E. BEACH, Binghamton, N. Y., assignor to the Star Electric Company, of New York. Filed Oct. 21, 1895. Serial No. 566,412. (No model.)



Claim.—1. A magnet; a revoluble part containing projections capable of engaging with a latch; a latch operated by the magnet and controlling the motion of the revoluble part, and a slide or beam operated by the collision of the revoluble part and latch, substantially as and for the purpose described.

2. A magnet; a revoluble part containing projections capable of engaging with a latch; cylinders for automatically supplying paper to the machine; a latch actuated by the magnet and controlling the motion of the revoluble part and cylinders, and a slide or beam so operated by the collision of the revoluble part and latch as to impress signs or characters upon the paper whenever the motion of the revoluble part and cylinders is interrupted by the action of the latch, as and for the purpose described.

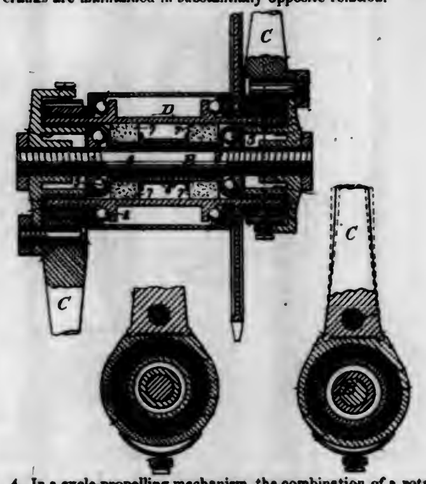
3. A magnet; a latch actuated thereby; a revoluble part containing projections capable of engaging with said latch; cylinders for automatically supplying paper to the machine whenever the motion of the revoluble part is not restrained by the latch; a slide or beam adapted to derive a reciprocating or oscillating motion from the collision of the revoluble part and latch, and suitable signs or characters attached to said slide or beam for stamping or embossing the paper, as and for the purpose described.

578,387. PROPELLING MECHANISM FOR CYCLES. GERARD BERRMAN, New York, N. Y. Filed July 3, 1896. Serial No. 597,919. (No model.)

Claim.—1. In a cycle, the combination with a driven element, of two flexible cranks rigidly connected with relation to each other in substantially opposite radial positions upon their axis of rotation, and clutch mechanism operated by the flexure of said cranks whereby to engage with said driven element.

2. In a cycle, the combination of a rotary pedal-actuated driving part, a rotary driven part, the one having a round grip surface or surfaces, the other having a crank capable of flexure from its normal radius in either a forward or backward rotary direction, grip members operatively connected with said crank whereby they are rendered active by said flexure, and elastic means tending to resist motion of said flexure in either direction and to support the crank at an intermediate position of flexure whereby the grip members are released.

3. In a cycle-propelling mechanism, the combination of a rotary driven member, driving means and clutch mechanism thereon intermittently engaging with said driven member, rotary crank-supports, pedal-cranks flexibly mounted on said supports and engaging said clutch mechanism so as to actuate the same by the flexure of said cranks, and connecting means through the axis of rotation of the crank-supports rigidly connecting said supports together whereby the cranks are maintained in substantially opposite relation.



4. In a cycle-propelling mechanism, the combination of a rotary driven member, rotary driving means and clutch mechanism thereon intermittently engaging with said driven member, pedal-cranks movably mounted on said rotary driving means upon a center of flexure eccentric to the axis of rotation thereof and engaging said clutch mechanism so as to actuate the same by the flexure of said cranks in either direction, and elastic means tending to resist motion of said flexure in either direction and to support each crank at an intermediate position of flexure.

5. In a cycle, the combination of a rotary driven part having an annular flange or other round grip-surface, and driving mechanism comprising annular grip members engaging by diametric movement in any direction with said flange or surface and a pedal-crank movably connected to said grip members so as to actuate them in opposed directions simultaneously by an initial movement of flexure of said crank in either a forward or backward rotary direction and suitable means whereby said crank is supported to revolve upon its axis of rotation.

6. In a cycle, the combination of a driven rotary part on a fixed axis, having an annular flange, a diametrically-movable internal grip member and shaft within said flange, a pedal-crank fulcrumed on a pivot eccentric to said shaft and connected thereto, an annular grip member external to said flange, projections on said crank near its fulcrum engaging with said external grip member, elastic means for centering said shaft, and elastic means for pressing said external grip member against the projections of the crank and thereby releasing said grip member and also centering the crank at a normal intermediate position of movement or flexure about its pivot.

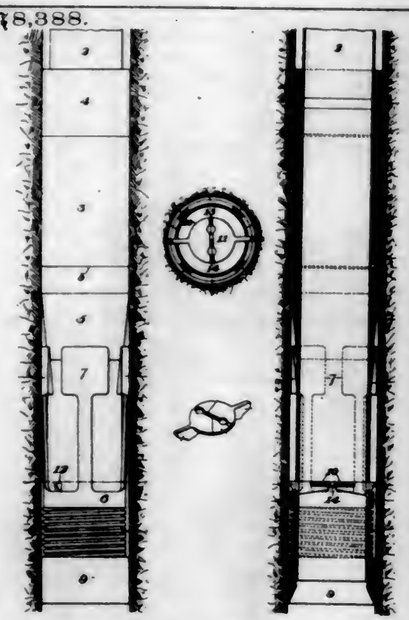
7. In a propelling mechanism for cycles, the combination of a driven shaft having an annular flange at each end, a pedal-shaft elastically journaled within said driven shaft, pedal-cranks eccentrically pivoted on each extremity of the pedal-shaft, grip members on said pedal-shaft internal to said flanges having operative connection to said pedal-cranks, said parts arranged whereby rotative force applied to said pedal-cranks shall cause the grip members to clutch both sides of said flanges.

578,388. PACKER. DAVID W. BLACK, Butler, Pa., assignor to Benjamin Masseth, same place. Filed May 2, 1896. Serial No. 589,977. (No model.)

Claim.—1. A lock for oil-well packers, consisting of a body portion having arms arranged to project through slots in the packer, said body portion being provided with an intermediate hinging or bending portion arranged to be actuated by a falling weight; substantially as described.

2. A lock for oil-well packers, consisting of a body portion having arms extending through slots in the packer, said body portion being weakened transversely, and having a bending or flexible strip crossing the weakened portion and connecting the parts on each side thereof; substantially as described.

578,388.



578,389. COOKING UTENSIL. CHARLES E. CHALLIS, London, England. Filed Feb. 14, 1896. Serial No. 579,219. (No model.) Patented in England Oct. 20, 1893, No. 19,771.



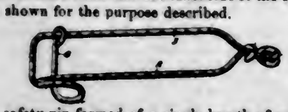
Claim.—1. In an article of manufacture, a cooking utensil having an externally-convex bowl, said bowl having sides slightly tapering, a ring-flange having openings therein secured to the under side of said bowl, a handle integral with said flange, a plate adapted to fit over said bowl, a cylindrical-shaped cover having one end closed and being provided with a screw-thread on its inner face, a corresponding and engaging thread on the outer upper edge of said bowl, ears on said cover, bails fitting in said ears adapted to engage on opposite sides said bowl and a handle likewise engaging said ears, all of said parts being combined substantially as described.

2. As an article of manufacture, a cooking utensil having a bowl of externally-convex, slightly-tapering-sided form, a ring-flange having serrations or openings secured to the under portion of said utensil, a handle engaging said flange, a plate adapted to snugly fit over said bowl, and a cylindrical-shaped cover having one end closed and being adapted to fit over said untensil, all of said parts being combined substantially as specified.

3. As an article of manufacture, a cooking utensil having an externally-shaped convex bowl, said bowl having sides slightly tapering, a ring-flange having serrations or channels therein secured to the under side of said bowl, a handle engaging said flange, a plate adapted to fit over said bowl, a cylindrical-shaped cover having one end closed and adapted to fit over said utensil and means for securing said cover to said utensil, ears on said cover, bails fitting in said ears adapted to engage on opposite sides said bowl and a handle likewise engaging said ears, all of said parts being combined substantially as described.

578,390. SAFETY-PIN. WILLIAM R. COLBATH, Weston, Mich., assignor of one-half to Hiram Ira Colbath, Walworth, Mich. Filed Apr. 9, 1896. Serial No. 586,852. (No model.)

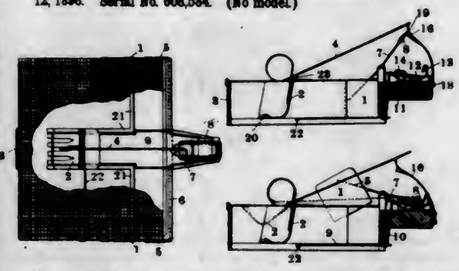
Claim.—1. In a safety-pin formed of a single length of spring-wire, the combination of approximately parallel members, one of the members having its terminal pointed, the other member having its end portion bent toward the pointed member, thence about parallel with the pointed member, thence into an eye at right angles to the plane of both members forming a runner and toward the member from which it first departed, forming a cross-brace in advance of the eye, and looped around the latter member, the pointed member engaging with the cross-brace and the inner side of the eye-runner substantially as shown for the purpose described.



2. In a safety-pin formed of a single length of spring-wire, the combination of approximately parallel members formed by doubling the wire upon itself, a series of coils at the folded end of the wire disposed at right angles to the plane of the said members and to one side of the said plane and on a line passing midway between the aforesaid members, and having the terminal portion of one extreme coil bent about the terminal portion of the other extreme coil, substantially in the manner shown for the purpose described.

3. A new article of manufacture, a safety-pin constructed from a single length of spring-wire which is doubled upon itself, forming parallel members, one of the members being pointed and the other member having its end portion bent toward the pointed member, thence about parallel with the pointed member, thence into an eye or loop at right angles to the plane of both members and toward the member from which it first departed and looped therearound, and having a series of coils at the folded end disposed at right angles to the plane of the said members and to one side of the said plane and on a line passing midway between the members, and having the terminal portion of one extreme coil bent around the terminal portion of the other extreme coil, substantially in the manner shown for the purpose set forth.

578,391. ANIMAL-TRAP. FRED COLE, Kankakee, Ill. Filed Oct. 12, 1896. Serial No. 608,584. (No model.)



Claim.—1. In an animal-trap, the combination of a frame therefor forming a trap-compartment; a gate depending from a pivotal support, and having an arm secured thereto adapted to engage a latch so as to hold said gate in an open position; the latch 12 adapted to engage said arm; the tilting lever 11 adapted to tip the latch so as to release said arm; a tilting platform in the compartment for actuating the lever; and an exit-gate, depending from a pivotal support and having an arm adapted to move the other arm into reëngagement with the latch when said exit-gate is opened.

2. In an animal-trap, the combination of a frame therefor forming a trap-compartment; a gate depending from a pivotal support, and having an arm 7 secured thereto; the latch 12 adapted to engage the arm 7 so as to hold said gate in an open position; the tilting lever 11; a tilting platform in the compartment for actuating the lever; the member 16 adapted to engage the arm 7 so as to lock said gate in a closed position; and an exit-gate having an arm adapted to release the arm 7 from the member 16, and to move same into reëngagement with the latch when said exit-gate is opened.

3. In an animal-trap, the combination of a frame therefor forming a trap-compartment; a gate depending from a pivotal support, and having an arm 7 secured thereto; a latch adapted to engage the arm 7 so as to hold said gate in an open position; a tilting platform in said compartment adapted to release the arm 7 from the latch; a member 16 adapted to engage the arm 7 so as to lock said gate in a closed position; and an exit-gate having an arm adapted to release the arm 7 from the member 16, and to move same into reëngagement with the latch when said exit-gate is opened.

578,392. VEHICLE-WHEEL RIM. WILLIAM DE LANY, Cobourg, Canada. Filed Nov. 19, 1895. Serial No. 569,380. (No model.)

Claim.—1. In a wheel-rim, a circular strip having grooves and a wooden flange-strip on either side having a bead adapted to fit in one of the grooves, the grain in the flange-strips being so disposed that it will run from the outer edge downward toward the center, as and for the purpose described.

2. In a device of the character described, a rim composed of a layer 5, having its grain running lengthwise, a layer of strips 4 having the grain running diagonally to that of layer 5, a second layer of strips 3 with their grain at right angles to that of layer 4, a layer 2 having its grain lengthwise and provided with grooves and flange-strips 1, having beads to fit in the grooves of layer 2, and running from its outer edge downward toward the center, as and for the purpose described.



3. A vehicle-wheel rim, comprising a circular strip of wood having a groove in either side thereof, and two flange-strips, each having a tongue adapted to fit into a groove in the circular strip, said flange-strips having the grain of the wood disposed radially and inclining inwardly toward the center of the longitudinal axis of the wheel, for the purpose described.

578,393. COMBINED VAPOR-BATH AND INHALING APPARATUS. CHARLES W. DRAPER, Herington, Kans. Filed Feb. 11, 1896. Serial No. 578,886. (No model.)



Claim.—1. A vapor-bath cabinet, having openings in its floor, a vapor-chamber thereunder, a perforated or pervious seat in the cabinet and a depending pervious tubular valance or extension to connect the seat with the floor-openings, substantially as set forth.

2. A vapor-bath cabinet, having a vapor chamber, or supply, and a perforated or pervious seat having a tubular supporting arm or standard connecting it with the vapor chamber or supply, substantially as set forth.

3. A vapor-bath cabinet, having a vapor-chamber thereunder, a vertical tube extending from the vapor-chamber up into the cabinet, and a seat having a tubular angular arm or standard to support it and supply it with vapor, the vertical member of the standard or arm entering and turning in the said tube, substantially as set forth.

4. A vapor-bath cabinet, having a vapor-chamber below it and valved openings connecting the two, a horizontally-swinging seat having a depending tubular portion to register with said valved openings, and a tubular supporting-standard communicating with the vapor-chamber and having a valve or cock, substantially as set forth.

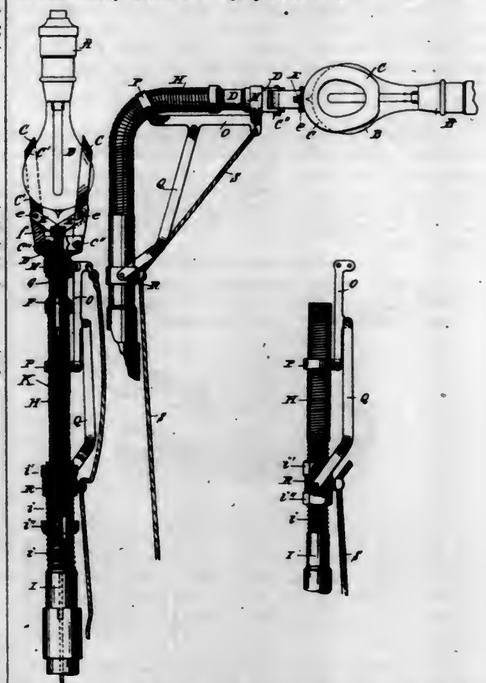
5. A vapor-bath cabinet having openiags in its floor, a vapor-chamber thereunder, and a perforated or pervious seat within the cabinet, which seat is provided with a depending tubular portion adapted to register with said openings, substantially as set forth.

578,394. MANIPULATING DEVICE FOR INCANDESCENT LAMPS. JOSEPH J. DUNN and JOHN W. REMAN, Boston, Mass. Filed Mar. 9, 1896. Renewed Feb. 4, 1897. Serial No. 622,025. (No model.)

Claim.—1. The herein-described incandescent-lamp-manipulating device consisting of a pair of pivoted expansion-jaws, pivoted to a case or shell, a flexible shaft or spring attached to said shell, a spring-pressed expander-rod arranged within the latter and links connecting said rod to the jaws and means substantially as described for closing and adjusting the position of said jaws, as and for the purpose set forth.

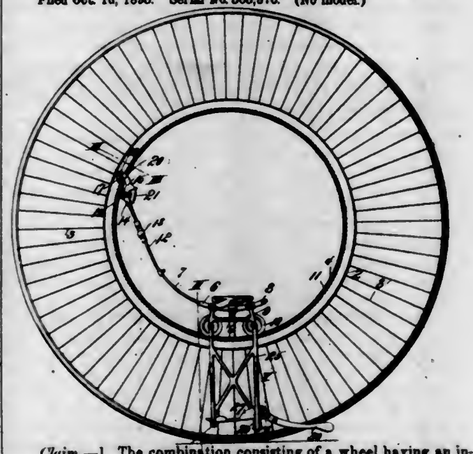
2. The herein-described incandescent-lamp-manipulating device, consisting of a pair of pivotal expansion-jaws, a spring-pressed expander-rod, and links pivoted to said rod and jaws, a tubular rod or stem and a flexible connection between said stem and jaws, a take-up ratchet-wheel located at the lower end of said rod and a cord or suitable flexible connection between said expander and ratchet-wheel substantially as and for the purpose set forth.

3. The herein-described incandescent-lamp-manipulating device, consisting of a pair of pivotal expansion-jaws, a tubular handle and intermediate flexible connections, a link O pivotally connected to the jaw-holder and guided on the flexible connection, a link Q pivoted to the link O and pivotally connected to a ring R adjustable on the handle substantially as and for the purpose set forth.



4. In a manipulating device for incandescent lamps in combination, a pair of expansion-jaws mounted upon a flexible shaft, a rod or handle attached to the latter and means for closing said jaws against the lamp, and holding them in proper position relative to the lamp as herein set forth and described.

578,395. UNICYCLE. HUBERT R. ESTES, St. Louis, Mo., assignor, by mesne assignments, of one-half to John W. Estes, same place. Filed Oct. 16, 1895. Serial No. 565,870. (No model.)



Claim.—1. The combination consisting of a wheel having an inner rim, a seat for the rider placed on said inner rim, a ratchet formed on the inner rim, and means for continuously drawing said seat forward of the line of gravity, consisting of a pawl adapted to engage the ratchet and carried on a fork having a telescope connection with the seat, substantially as described.

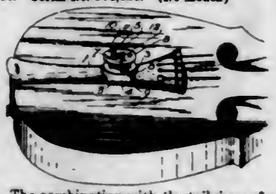
2. The combination consisting of a wheel, a seat for the rider carried by a frame placed upon an inner rim within said wheel, stir-

rups suspended by hangers from said frame, and having the toe pivoted and the heel free to move in a vertical plane, and spurs carried on the heels of said stirrups, adapted to be pressed into contact with the ground, substantially as described.

3. The combination consisting of a wheel provided with an outer and an inner rim, a frame carrying a saddle and adapted to ride upon said inner rim, a means of drawing said frame forward of the line of gravity, consisting of a ratchet in a recess in said inner frame, a pawl to engage said ratchet, and a telescope connection with the said frame and suitable means for guiding and braking the device, substantially as described.

4. In a unicycle, the combination of a wheel having an inner and outer rim, a ratchet formed on the inner rim, a saddle mounted on rollers which travel over the inner rim, a pawl mounted in a casting carried by a telescopic rod adapted to be yieldingly held in engagement with the ratchet, and said telescopic rod being connected with the saddle, substantially as shown and described, and for the purpose set forth.

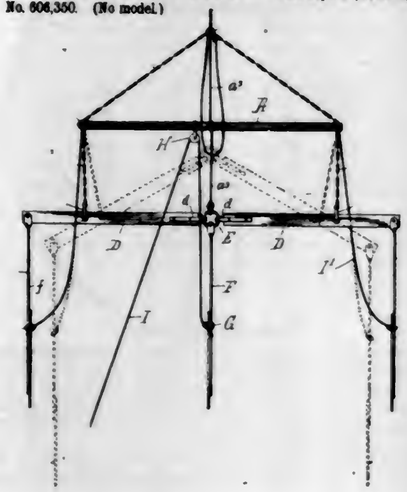
578,396. VIOLIN ATTACHMENT. ALBERT S. FILSON, Winston, Mont., assignor of one-half to Samuel A. White, same place. Filed July 13, 1896. Serial No. 598,920. (No model.)



Claim.—1. The combination with the tailpiece of a stringed musical instrument, of a reel attachment therefor consisting of a base-plate having arms or extensions thereon adapted to embrace said tailpiece for securing said attachment thereto, a post or spindle rising centrally from said base-plate, having a laterally-sliding pin in its outer end, a reel or drum mounted to rotate on said post or spindle, having recesses therein adapted to be engaged by said stop-pin, substantially as and for the purpose described.

2. The combination with the tailpiece of a stringed musical instrument, of a reel attachment therefor consisting of a base-plate having arms or extensions thereon adapted to embrace said tailpiece for the purpose of securing said attachment thereto, a post or spindle rising centrally from said base-plate having a peripheral groove thereon and a dovetailed groove in its outer end, a reel or drum mounted to rotate on said post or spindle having radially-disposed recesses in its upper surface adjacent to the opening through said reel, a pin projecting through said reel and engaging the peripheral groove in said post or spindle and a stop-pin mounted to slide in the dovetailed groove in the upper end of said post or spindle and adapted to fit within the recesses in the top surface of said reel, substantially as and for the purpose described.

578,397. APPARATUS FOR HOISTING AND CONVEYING BUNDLES. GEORGE D. FOSTER, Preston, Iowa. Filed Sept. 19, 1896. Serial No. 606,350. (No model.)



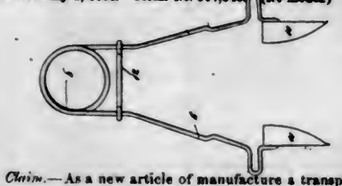
Claim.—1. An apparatus for hoisting bundles and the like, comprising an oscillatory bar, a plurality of releasable grappling devices suspended from said bar and means for effecting the release of one of said grappling devices and interconnections operating to automatically effect the release of the remaining grappling devices upon the release of the first.

2. An apparatus for hoisting bundles and the like, comprising an oscillatory bar, suspension-cables connected, one at a point between its ends and at one side of the center thereof and the other to the longer end, a releasable grappling device connected with each end, a trip-rope for releasing the load from the grappling device at the longer end of the bar and connection operating to automatically release the other grappling devices when the bar is oscillated.

3. An apparatus for hoisting bundles and the like, comprising a horizontally-suspended spreader-bar, a pair of interconnected oscillatory bars suspended from said spreader-bar, a plurality of releasable grappling devices suspended from said equalizing-bars and means for effecting the release of all of said grappling devices upon the tripping of one.

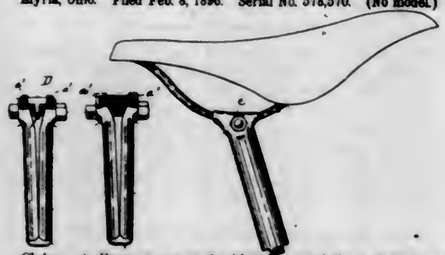
4. An apparatus for hoisting bundles and the like, comprising a horizontally-suspended spreader-bar, a pair of equalizing-bars suspended from said spreader-bar and having their proximate ends flexibly connected with each other, each of said bars being suspended from a point between its ends and nearer the free or unconnected end thereof, a releasable grappling device mounted upon the free end of each equalizing-bar, and a third releasable grappling device connected with the proximate ends of both equalizing-bars, a tripping-rope extending from the trip of the central grappling device to an overhead pulley and tripping-ropes connecting the trip of each of the end grappling devices with a relatively stationary overhead part whereby the tripping of the central grappling device will operate to automatically trip the other grappling devices.

578,398. TRANSPLANTER. EDWARD P. FOX, Paterson, N. J. Filed July 2, 1896. Serial No. 597,843. (No model.)



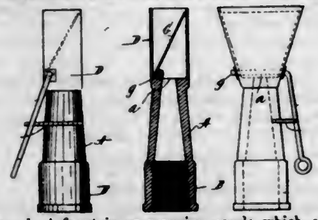
Claim.—As a new article of manufacture a transplanting device for flowers and plants consisting of a strong metal wire having formed centrally therein a spring ring or head, the separate sides thereof being directed downwardly then outwardly, arms formed thereby, outwardly-curved shoulders or projections formed in said arms and at a predetermined distance below said head, outwardly-curved loops formed in said arms at a predetermined distance below said shoulders, extensions formed on said arms and below said loops, shovels having segmental or semicircular upper ends and cut-away sides secured to said extensions, a sliding cross head or bar mounted on the upper portions of said arms, a ring or eye secured to and integral with said cross-head at either end thereof and having passed therethrough said arms, all of the said parts being combined substantially as and for the purposes described.

578,399. SEAT-POST FOR BICYCLES. ARTHUR L. GARFORD, Elyria, Ohio. Filed Feb. 8, 1896. Serial No. 578,570. (No model.)



Claim.—A direct seat-post for bicycles consisting of two semi-cylindrical legs, the edges of which are adapted to contact, and a loop connecting the lower ends of said legs, said parts being made integrally from the same piece of sheet metal, the legs near their upper ends being bent outwardly to form two interior transverse grooves *a'*, combined with a bolt which passes through the upper ends of said legs and adapted to draw them together, substantially as and for the purpose specified.

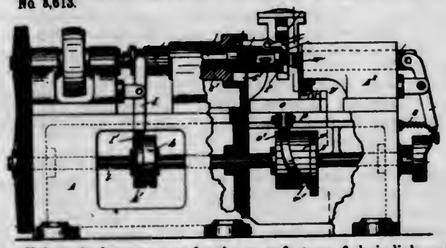
578,400. SPRAYING-NOZZLE. CHARLES P. GILMORE, Chillicothe, Ohio. Filed Mar. 13, 1896. Serial No. 583,728. (No model.)



Claim.—1. A fountain or spraying nozzle, which consists of a tube which is adapted to be connected with a water-pipe, said tube being provided with a head or casing which constitutes the nozzle proper, and is oblong in form and rectangular in cross-section, the wider sides thereof, being flat and parallel and the narrow sides or ends being outwardly inclined or divergent, and a valve which is pivoted therein, and which is of substantially the same form as the sides of the head or casing, and means for operating said valve, substantially as shown and described.

2. A fountain or spraying nozzle, which consists of a tube which is adapted to be connected with a water-pipe, said tube being provided with a head or casing, which constitutes the nozzle proper, and which is oblong in form and rectangular in cross-section, the wider sides thereof, being flat and parallel, and the narrow sides or ends being outwardly inclined or divergent, and a valve which is pivoted therein, and which is of substantially the same form as the sides of the head or casing, and means for operating said valve, consisting of an arm, which forms a part of the shaft on which the valve is mounted, and which extends through one of the diverging sides of the head or casing and backwardly adjacent to the tube to which the nozzle is secured, and a rack-bar formed on or secured to said tube in connection with which said arm operates, substantially as shown and described.

578,401. APPARATUS FOR MANUFACTURING CHAIN-LINKS AND RINGS. CARL GRÜNER, Schwerte, Germany. Filed June 6, 1895. Serial No. 551,679. (No model.) Patented in England Apr. 30, 1895, No. 8,613.



Claim.—1. In apparatus for the manufacture of chain-links and rings the combination of a forming-mandrel, mechanism for imparting intermittent motion to the mandrel, a feeding device mounted on a slide, and composed of means for advancing the rod, mechanism connecting the said slide with a power-shaft for imparting a longitudinal movement to the slide, a reciprocating cutter-mandrel, mechanism for imparting motion thereto, a clamp adjacent to the forming-mandrel and a cutter and mechanism for operating the same, substantially as and for the purpose specified.

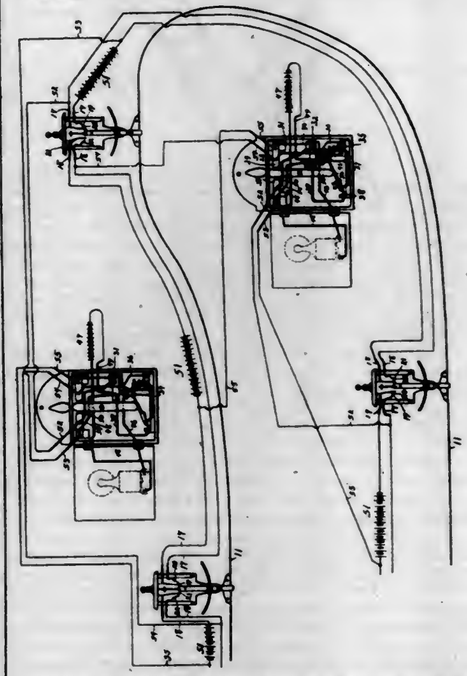
2. In apparatus for the manufacture of chain-links and rings the combination of a forming-mandrel, a longitudinally-moving feeding device, composed of means for advancing the rod, a reciprocating cutter-mandrel, a cutter, and operating mechanism, substantially as and for the purpose specified.

3. In apparatus for the manufacture of chain-links and rings the combination of a forming-mandrel, a clamp adjacent thereto, a cutter, feed-rollers mounted on a movable slide, and a lever ratchet and pawl for operating the feed-rollers arranged to be operated by the cutter-lever, substantially as specified.

4. In apparatus for the manufacture of chain-links and rings, the combination with rod-feeding means, and a movable cutter, of two mandrels arranged in line with each other and provided with means for bringing their ends together to bend the link or ring and for separating them to discharge the bent blank; in combination with a clutch for connecting one of said mandrels with a power-shaft, the cam and connections for periodically engaging and disengaging said clutch, the cam for separating the mandrels periodically, and the means for periodically severing the rod and feeding it for a new link, substantially as described.

5. In apparatus for the manufacture of chain-links and rings, the combination with bending devices, composed of two separate mandrels arranged in line with each other, one of them being provided with a cutter, of feed-rolls for advancing the rod, a movable cutter arranged to cooperate with the cutter on the mandrel, the cutting edges being in the same plane as the axis of the bending-mandrel although preferably obliquely transverse to such axis, whereby the rod may be held by the feed-rolls until the blank has been fully bent; substantially as described.

578,402. CAR-ANNOUNCER. WILLIAM A. HEDKARD and DORA OGDEN, Columbus, Ind. Filed May 14, 1896. Serial No. 591,500. (No model.)



Claim.—1. The combination with a pair of open circuits each containing a pair of terminals an electromagnet connected with each of said circuits, a lever pivoted near said terminals and adapted, when swung upon its pivot by the movement of a car, to bring one pair or the other of said terminals into engagement with each other and thereby energize said magnet, means for returning said lever to its normal position, an armature pivoted near said magnet and provided with a dog, the said armature being adapted to be operated upon by said magnet, an open circuit containing an electric signal, a pivoted arm adapted to close said circuit by engagement with a suitable terminal, said arm being adapted to be engaged by said dog and thereby held out of engagement with said terminal, and means for throwing said lever into engagement with said dog, substantially as set forth.

2. In an apparatus of the class described, the combination with a pair of open circuits, of an electromagnet common to both of said circuits, means for closing either of said circuits and thereby energizing said magnet, an open signal-circuit, a pivoted lever controlled by said magnet and adapted, when released, to close said signal-circuit, a lever adapted to cut out said magnet from either of said first-mentioned circuits, and also adapted to engage the signal-circuit-closing lever and to thereby maintain an open signal-circuit when the magnet is in connection with both of said first-mentioned circuits.

3. In an apparatus of the class described, the combination with a pair of open circuits, an electromagnet common to both of said circuits, means for closing either of said circuits and thereby energizing said magnet, an open signal-circuit, an armature carrying a dog and adapted to be operated by said magnet, a pivoted lever adapted to be engaged by said dog and adapted, when released by said dog, to close said signal-circuit, a pivoted lever adapted to cut out said magnet from either of said first-mentioned circuits, and also arranged to engage said signal-circuit-closing lever and to thereby maintain an open signal-circuit when the magnet is in connection with both of said first-mentioned circuits.

4. In an apparatus of the class described, the combination of wires 17, 17, and 18, 18, terminals 19, 20, 21, 22, lever 13, conductors 52, 53, 54 and 55, terminals 26, 27, 28, and 29, conductor 31, terminals 32 and 33, conductors 30 and 34, conductor 36, magnet 35, armature 40, dog 41, conductors 37 and 39, lever 42, terminal 44, and a signal connected by suitable conductors to terminal 44 and lever 42, all combined and arranged to coöperate substantially as and for the purpose set forth.

578,408. TUBULAR FRAME-JOINT. THOMAS R. JEFFERY, Chicago, Ill. Filed Nov. 11, 1895. Serial No. 568,520. (No model.)

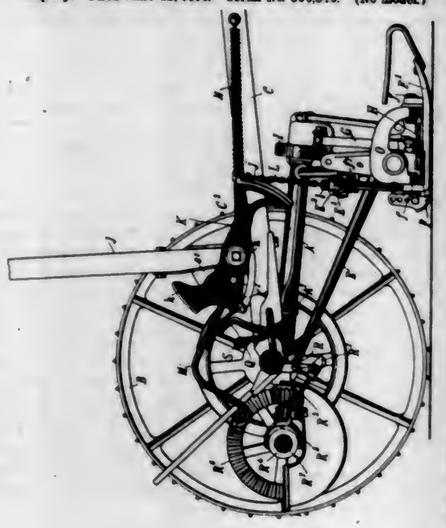


Claim.—1. A tubular frame-joint comprising a tubular cross-head and two tubular arms or sockets diverging from each other in a plane transverse to the cross-head; said joint being made from two pieces of sheet metal, one of which comprises the portion of the entire fitting which is defined between two planes which contain the axis of the cross-head and the axes of the arms respectively; and the other of which comprises the remainder of said fitting; one of said parts having the edges adjacent to said planes extended circumferential with respect to said cross-head and arms respectively to afford surface for lap and junction with the other part; substantially as set forth.

2. A tubular frame-joint comprising a tubular cross-head and two tubular arms or sockets diverging from each other in a plane transverse to the cross-head; said joint being made from two pieces of sheet metal, one of which comprises the portion of the entire fitting which is defined between two planes which contain the axis of the cross-head and the axes of the arms respectively; and the other of which comprises the remainder of said fitting; one of said parts having the edges adjacent to said planes extended and chamfered upon one surface, and the other part having the corresponding edges chamfered upon the opposite surface; substantially as set forth.

3. A tubular frame-joint comprising a tubular cross-head and two tubular arms or sockets diverging from each other in a plane transverse to the cross-head; said joint being made from two pieces of sheet metal, one of which comprises the portion of the entire fitting which is defined between two planes which contain the axis of the cross-head and the axes of the arms respectively; and the other of which comprises the remainder of said fitting; said parts being brazed together at their corresponding edges; substantially as set forth.

578,404. MOWER. EDWARD A. JOHNSTON and BERT R. BENJAMIN, Chicago, Ill., assignors to the McCormick Harvesting Machine Company. Filed June 22, 1896. Serial No. 596,519. (No model.)



Claim.—1. In combination in a mowing-machine with the main frame and a raising device mounted thereon, a coupling-frame pivoted to the main frame, a finger-bar pivoted to the coupling-frame, a connection from the raising device to the finger-bar, the attachment of the connection to the finger-bar being between the pivot and the grass end of the finger-bar, and a post on the finger-bar over which the connection passes, substantially as and for the purpose specified.

2. In combination in a mowing-machine, a main frame and coupling-frame pivoted thereto, a finger-bar pivoted to the coupling-frame, a raising device mounted on the main frame and connected with the coupling-frame and finger-bar, the point of attachment of the connection to the finger-bar being between the pivot and the grass end of the finger-bar, a post on the finger-bar that extends above the pivot of the finger-bar to the coupling connection and over which the connection from the lifting device passes, whereby the strain thrown upon the connection by the lifting device will be exerted to rock the finger-bar on its pivot, substantially as and for the purpose specified.

3. In combination in a mowing-machine with the main frame and its cutting apparatus, consisting of the coupling-frame pivoted to the main frame and the finger-bar pivoted to the coupling-frame, a lifting device pivoted on the main frame, a connection extending from the lifting device to the finger-bar, which connection passes beneath a pulley attached to the coupling-frame and extends over a post on the finger-bar and downwardly from the extremity of the post outward toward the end of the finger-bar, where it is attached, and a spring to act upon the connection, whereby the spring aids in lifting the coupling-frame and finger-bar and in folding the finger-bar vertically.

4. In combination in a mowing-machine, a device for handling the coupling-frame and finger-bar of a mowing-machine, consisting of a lifting-lever pivoted on the frame of the mower, a flexible connection uniting the lifting-lever with the finger-bar and passing under a pulley attached to the coupling-frame, a stop on the flexible connection, and a spreader-bar pivoted to the coupling-frame through which the chain passes on its way to the finger-bar, and against which the stop strikes, swinging the spreader-bar on its pivot as the coupling-frame and finger-bar float over the ground in mowing.

5. In combination in a mowing-machine, with the main frame mounted upon the truck, the coupling-frame pivoted thereto and a finger-bar pivoted to the coupling-frame, a lifting-lever pivoted on the main frame, one arm of which is connected with the finger-bar by means of a flexible connection that passes under a pulley that is mounted on a bearing connected with the coupling-frame, an arm pivoted to the bearing that supports the pulley, against which arm a stop fastened to the flexible connection strikes and swings the arm around its pivot when the coupling-frame and finger-bar are dropped to the ground, whereby the strain of the coupling-frame and finger-bar on the flexible connection is thrown from the pulley and the effective lifting force on the finger-bar is increased, substantially as and for the purpose specified.

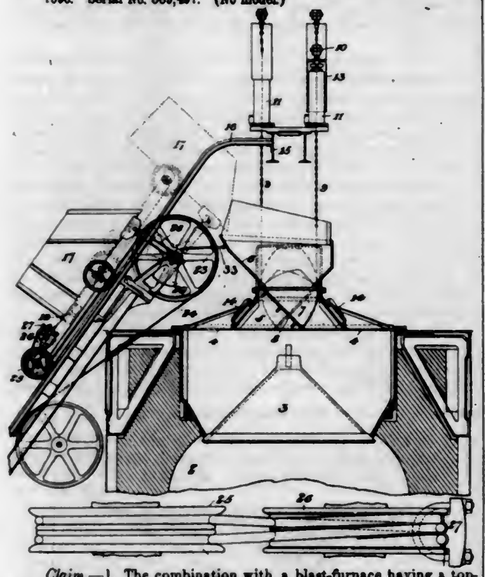
6. In combination in a mowing-machine, with the main frame, a coupling-frame pivoted thereto, a finger-bar pivoted to the coupling-frame, a lifting device pivoted on the main frame and connected to the coupling-frame, a lifting device consisting of a hand-lever pivoted upon the machine, a primary lever pivoted on the same center as the lifting-lever, one arm of the primary lever being connected to the coupling-frame and finger-bar, a secondary lever pivoted to the primary lever, one arm of which is drawn against the lifting-lever by a spring, substantially as and for the purpose specified.

7. In combination in a mowing-machine, a hand-lever pivoted upon the machine, a flange against which a dog on the hand-lever travels, a stop on the flange to hold the hand-lever from being thrown too far forward, a primary lever pivoted on the machine and fitted with a stop against which the hand-lever strikes when power is applied to the hand-lever to rock the primary lever on its pivot, a connection uniting one arm of the primary lever with the coupling-frame and finger-bar of the mower, a secondary lever pivoted to the other arm of the primary lever, one arm of which secondary lever is held against the hand-lever by a spring which reacts between the machine-frame and the other arm of the secondary lever, all substantially as and for the purpose specified.

8. In combination in a mowing-machine, with the main frame and coupling-frame pivoted thereto, a finger-bar pivoted to the coupling-frame, a hand-lever pivoted on the main frame, a primary lever pivoted on the main frame, against one arm of which the hand-lever comes in contact when it is rocked on its pivot, one arm of the primary lever being connected by a flexible connection that passes beneath a pulley attached to the coupling-frame and extends to a point of attachment on the finger-bar that is positioned outward from the pivot of the finger-bar to the coupling-frame, an arm pivoted on the bearing of the pulley beneath which the flexible connection passes, which arm is rocked on its pivot around the center of the pulley, and changes the direction of the strain upon the connection, whereby power is transferred to the finger-bar, raising the outer end of the finger-bar before the inner end is raised, substantially as and for the purpose specified.

9. In combination in a mowing-machine, a main frame having a tongue connected thereto, a cutting apparatus pivotally connected to the main frame, a draft-plate attached to the tongue, a pivot on the plate located outside of the transverse plane that contains the line on which the plate turns when reversed for attachment beneath the tongue, a draft-lever pivoted on the plate and a draft-rod connecting the draft-lever with the cutting apparatus, substantially as set forth.

578,405. HOISTING AND CHARGING APPARATUS FOR BLAST-FURNACES. JULIAN KENNEDY, Pittsburg, Pa. Filed Apr. 29, 1896. Serial No. 589,497. (No model.)



Claim.—1. The combination with a blast-furnace having a top-closing plate, of a chute in said plate, and a valve arranged to close said chute, said valve being provided with means for tilting the same in opposite directions, each end forming a hinge as the other end is lowered; substantially as described.

2. The combination with a blast-furnace having a top plate, of a chute leading through said plate, and a valve arranged to close said chute, said valve having at each side upwardly-projecting wings and being provided with means for tilting the same in either direction; substantially as described.

3. The combination with a blast-furnace having a top-closing plate, of a chute leading through said plate and provided with a hopper, a loose valve arranged to close the lower end of the hopper, said valve having hinging portions at each end, and motive cylinders having flexible connections with said valve, whereby the valve may be tilted downwardly in either direction; substantially as described.

4. The combination with a blast-furnace having a top plate provided with a charging-chute, of a valve having a hinge portion at each end and arranged to tilt in either direction, said valve having at each side projecting wings, and motive cylinders having depending flexible connections with said valve; substantially as described.

5. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon said track, a swinging bucket pivoted to the forward portion of the carriage and having projections upon its forward portion and swinging arms at the upper end of the track arranged to engage such projections and positively move the front end of the bucket downwardly.

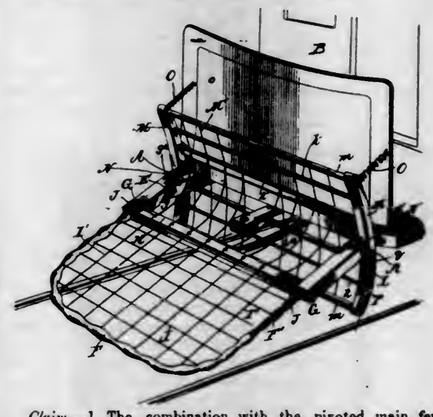
6. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon said track, a bucket pivoted to the forward portion of the carriage, said bucket having near its front end projecting pins, and pivoted counterweighted arms mounted near the upper end of the track and arranged to engage said pins and thereby dump the bucket; substantially as described.

7. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon said track, and a double cable passing over a wheel at the upper end of the track and thence over two loose pulleys upon the carriage, said cable also passing with a single loop about another pulley upon the carriage; substantially as described.

8. The combination with an inclined track, of a carriage movable thereon, said carriage having journaled thereon two adjacent loose pulleys and having also a single compensating pulley in line with said pulleys, and a double cable having a single loop passing about the compensating pulley and thence passing over the two loose pulleys; substantially as described.

9. The combination with an inclined track, and a carriage movable thereon, of two adjacent pulleys loosely mounted upon the carriage, a compensating pulley in line with said loose pulleys, a wheel mounted at the upper end of the track, and a double cable passing over the wheel at the upper end of the track and thence over the loose pulley upon the carriage, said cable having a single loop passing around the compensating pulley and secured thereto by clamping mechanism; substantially as described.

578,406. CAR-FENDER. ADOLF J. KNAUER, Philadelphia, Pa. Filed May 19, 1896. Serial No. 592,198. (No model.)



Claim.—1. The combination with the pivoted main fender mounted on fixed pivots, of the secondary fender arranged at substantially a right angle to the main fender and pivotally mounted on the rear end of the main fender to the rear of the pivot of the latter, substantially as specified.

2. The combination with the pivoted main fender, of the secondary fender disposed at substantially a right angle to the main fender and pivotally mounted thereon to the rear of the pivot thereof for simultaneous movement with the main fender but in the opposite direction whereby the one is thrown up as the other is thrown down, substantially as specified.

3. The combination with a pivoted fender, of a secondary fender pivotally supported solely from the main fender to the rear of the pivot thereof and extended above and below the main fender and having its upper end spring-held, as set forth.

4. The combination with the arms extended forward from the end of a car and having inclined upper front ends, of the fender having side bars formed with inclined walls and mounted on pivots held in said arms and bars, and means for moving the fender on its pivot, and a substantially vertically-disposed secondary fender pivotally supported on the rear ends of said side bars, as set forth.

5. The combination with the arms extending forward from the end of a car and having inclined upper faces at their forward ends, of the fender having its side bars formed with inclined walls and concaved shoulders, and the secondary fender having its side bars formed with lugs and pivotally mounted on the rear ends of the side bars of the front fender, as set forth.

6. A car-fender having its surrounding frame composed of ratan, as set forth.

7. A car-fender having its surrounding frame composed of braided ratan, as shown and described.

8. A frame for a car-fender composed of ratan having a soft covering, as set forth.

9. A frame for a car-fender composed of braided ratan covered with a soft material, substantially as shown and described.

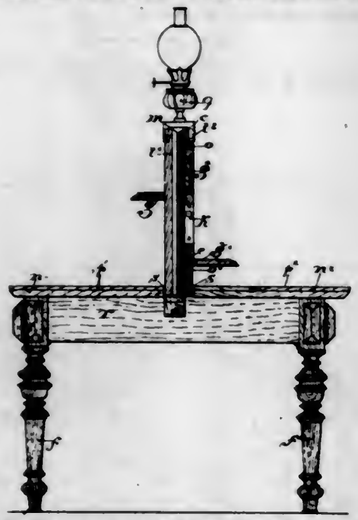
10. A fender composed of side bars pivotally mounted, a cross-bar connecting the side bars, a frame of ratan having its ends secured in the front ends of the side bars, and a netting secured to said frame and cross-bar, substantially as shown and described.

11. The combination of two fenders mounted for simultaneous movement upon independent pivots, the secondary fender being disposed at a right angle to the other and supported therefrom to the rear of its pivot, substantially as described.

12. The combination of two fenders mounted for simultaneous movement upon independent pivots, with the pivot of one of said fenders upon the side bars of the other, and to the rear of the pivot thereof, with the upper end of the secondary fender connected by springs with the front end of a car, substantially as specified.

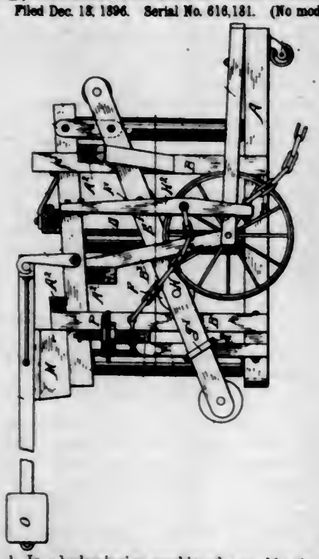
13. The combination of two fenders mounted at substantially right angles to each other for simultaneous movement, the one being pivotally mounted on the other to the rear of its pivot and extended above and below the same, substantially as specified.

578,407. **TABLE.** GEORG KÖHLER and KARL SCHUCHARDT, Weimar, Germany. Filed July 30, 1896. Serial No. 601,077. (No model.)



Claim.—In a table capable of being converted into a writing-desk, the combination of a divided top, comprising a fixed part and a movable part, with a plate superposed on said top and consisting of two connected flaps, and turn-down shelves fitted to the under face of the said flaps, the said shelves being adapted to hold writing utensils and to be moved into and retained in a vertical position substantially as set forth.

578,408. **HEDGE-LAYING MACHINE.** JACOB V. LATTNER, Chatham, Ill. Filed Dec. 18, 1896. Serial No. 616,131. (No model.)



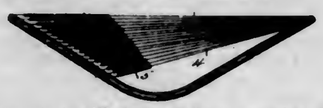
Claim.—1. In a hedge-laying machine the combination of rearwardly-converging bottom rails, rearwardly-converging top rails, vertical rollers turning in bearings on said bottom rails and top rails, a tongue detachably connected with said bottom rails, links connected with said top rails, side bars connected with said links, stirrups adjustably connecting said side bars with the main frame, transverse rollers turning in bearings on said bars; hooks secured to said top rails and adapted to support the tongue on the top of the machine and a weight carried on said tongue, substantially as set forth.

2. In a hedge-laying machine the combination of a main structure consisting of rearwardly-converging bottom rails, rearwardly-converging top rails, vertical rollers turning in bearings on said top rails and bottom rails, side bars, transverse rollers turning in bearings on said side bars; a cross-piece secured to said top rails; an evener pivotally connected with said main frame, draft-bars pivotally connected with said evener, draft-chains connected with said draft-bars and stay-chains connecting said draft-bars with said cross-piece, as set forth.

3. In a hedge-laying machine the combination of rearwardly-converging bottom rails, rearwardly-converging top rails, vertical rollers turning in bearings on said bottom rails and top rails, side bars having a hinge connection with said top rails, transverse rollers turning in bearings on said side bars, vertical posts and rails connecting said bottom rails and top rails, stirrups adjustably connecting said side bars with said vertical rails, wings connected with said bottom rails, supporting-wheels turning on shafts carried on said wings, an evener-bar pivotally connected with the main frame, draft-bars pivotally connected with said evener-bar, draft-chains connected with said draft-bars, stay-chains connecting said draft-bars with the main frame, a tongue connectible with the front ends of the bottom rails, a tool-box supported on the top rails, hooks connected with the top rails and adapted to retain the tongue in position on top of the tool-box and a weight adjustable on said tongue, as set forth.

4. In a hedge-laying machine the combination of a main frame, a tool-box supported on said main frame, hooks connected with the main frame, a tongue adapted to rest on said tool-box and engage with said hooks and a weight adjustable on said tongue, as set forth.

578,409. **SADDLE.** HOWARD W. LESTER, East Hartford, Conn., assignor of one-half to Frederick C. Rockwell, Hartford, Conn. Filed May 31, 1895. Serial No. 551,098. (No model.)



Claim.—1. A saddle having a frame consisting of a single rod bent to rise toward the front and form a narrow pommel and to rise toward the rear and form a wide cantle, with individual spans having flexible non-elastic-strand seat-sections near to and connected with the cantle and elastic spring-sections near to and connected with the pommel, the non-elastic and the elastic sections of each span being connected together, substantially as specified.

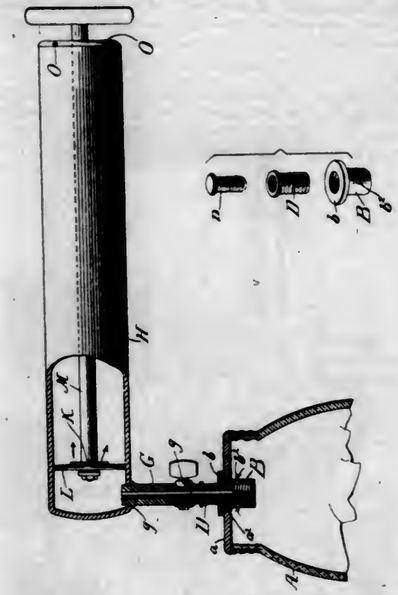
2. A saddle having a frame consisting of a single rod bent to rise toward the front and form a narrow pommel and to rise toward the rear and form a wide cantle, with individual spans having flexible non-elastic-strand seat-sections near to and connected with the cantle, flexible non-elastic strand-holding sections near to and connected with the pommel, and elastic spring-sections between and connecting the strand-sections of each span, said spring-sections being located nearer the pommel than the cantle, substantially as specified.

3. A saddle having a frame consisting of a single rod bent to rise toward the front and form a narrow pommel and to rise toward the rear and form a wide cantle, with individual spans having flexible non-elastic-strand seat-sections near to and connected with the cantle, and spiral spring-sections near to and connected with the pommel, said strand-sections being adjustably connected with the spring-sections whereby each span may be independently lengthened or shortened, substantially as specified.

578,410. **AIR-EXHAUST DEVICE.** ERNEST LORD, Schaghticoke, N. Y. Filed July 9, 1896. Serial No. 598,518. (No model.)

Claim.—1. In a device for exhausting the air from cans, jars or other vessels, the combination with an air-pump of a tube provided with a valve which is secured in one end thereof, a sleeve mounted on the lower end of said tube and a tubular plug closed at its lower end and provided with side ports or openings, substantially as shown and described.

2. In a device for exhausting the air from cans, jars or other vessels, the combination with an air-pump of a tube provided with a valve which is secured in one end thereof, a sleeve mounted on the lower end of said tube and a tubular plug closed at its lower end and provided with side ports or openings, said tubular plug being adapted to be secured in the cap or cover of the can, jar or other vessel, substantially as shown and described.



3. In a device for exhausting the air from cans, jars or other vessels, the combination with an air-pump of a tube provided with a valve which is secured in one end thereof, a sleeve mounted on the lower end of said tube and a tubular plug closed at its lower end and provided with side ports or openings, said tubular plug being adapted to be secured in the cap or cover of the can, jar or other vessel, and the air-pump being provided with a piston and piston-shaft, on which is mounted a flexible washer, said washer being reversed on said piston and the air in the operation thereof being passed backwardly through the piston, substantially as shown and described.

4. In an air-exhaust device for cans, jars or other vessels, the combination of the tubular plug as B which is secured in the cap or cover thereof, a screw-threaded sleeve as D which is mounted in said tubular plug, a tube as G mounted in said sleeve and provided with an air-pump, said tubular plug being closed at the bottom and provided with side ports or openings and said sleeve being adapted to be closed after the tube is removed therefrom by a screw-threaded plug, substantially as shown and described.

578,411. **SAIL ATTACHMENT FOR BICYCLES.** THOMAS LOTHRINGTON, Ardmore, Ind. Ter., assignor of one-half to Albert Elmo Nelson, same place. Filed Aug. 17, 1895. Serial No. 559,656. (No model.)



Claim.—1. A sail attachment for bicycles, comprising a slotted casing, a spring-roller mounted in the casing, a sail secured to the roller, and a gaff hinged to the casing and adapted to close the slot of the casing, when the sail is wound upon the roller, substantially as described.

2. A sail attachment for bicycles, comprising a slotted casing, a taperiug and spring-actuated roller mounted in the casing, a sail secured to the roller, and a gaff hinged to the upper end of the casing and adapted to fold down over the slot of the casing, substantially as described.

3. A sail attachment for bicycles, comprising a slotted casing, a spring-roller in the casing, a sail secured to the roller, a gaff hinged to the casing and adapted to fold over the slot of the casing when the sail is furled, and a chain or cord attached to the gaff for withdrawing the sail from the casing, substantially as described.

4. In a sail attachment for bicycles, the combination with a casing and a sail adapted to be furled in said casing, of a gaff hinged to the casing, and stops for limiting the swinging movement of the gaff, substantially as described.

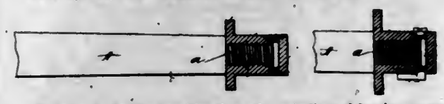
5. In a sail attachment for bicycles, the combination with a slotted casing, a spring-roller in the casing, and a sail secured to the roller, of a gaff hinged to the casing, and adjustable stops for limiting the swinging movement of the gaff, substantially as described.

6. A sail attachment for bicycles, comprising two slotted casings, spring-rollers in the casings, sails secured to the rollers, gaffs hinged to the casings, and chains or cords secured to the gaffs for withdrawing the sails from the casings, substantially as described.

7. A sail attachment for bicycles, consisting of two slotted tubes, tapering and spring-actuated rollers mounted in the casings, sails secured to the rollers, gaffs hinged to the casings to fold over the slots of the casings when the sails are furled, stops for limiting the swinging movement of the gaffs, and chains or cords for withdrawing the sails from the casings, substantially as herein shown and described.

8. In a sail attachment for bicycles the combination with a slotted casing, of a tapering and spring-actuated roller mounted in the casing, and a sail secured to the roller, substantially as and for the purpose specified.

578,412. **LOCK-NUT.** ROBERT L. LUMSFORD, Savannah, Ga. Filed Apr. 22, 1896. Serial No. 588,615. (No model.)



Claim.—1. In the combination of a spindle-rod having a screw-threaded extension, said extension being provided at its outer end with a transverse, semicircular groove, of a nut having a central bore therein and being adapted to engage said screw-threaded extension, said nut having its outer end closed and inner end open, said nut also having therein a transverse bore of corresponding size to said groove, of a locking-bolt adapted to enter said bore and snugly fit in said groove, and said bolt having an oblong rectangular cavity therein, substantially as and for the purposes described.

2. A nut-locking device having a spindle, a screw-threaded extension on said spindle, a nut with a central bore and having its outer end closed and inner end opened, adapted to engage said extension, said extension being provided on its outer end with a semicircular groove and said nut having near its outer end a transversely-extending circular bore of corresponding size to said groove, a locking-bolt having an oblong rectangular cavity therein and being adapted to snugly fit in said transversely-extending bore and groove, all of said parts being combined substantially as described.

3. In a nut-lock, a spindle, a screw-threaded extension thereon having a transversely-extending semicircular groove in the end thereof, a nut having a central bore, closed outer and open inner ends, outwardly-extending flange on said inner end, a transversely-extending bore near said outer end, a circular-shaped bolt adapted to snugly fit in said transversely-extending bore and groove and having an oblong rectangular cavity therein, and a crank adapted to engage one end of said bolt, all of said parts being combined substantially as described.

578,413. **LEATHER-DRESSING.** MICHAEL T. MAGUIRE, Philadelphia, Pa. Filed Feb. 23, 1892. Serial No. 422,455. (No specimens.)

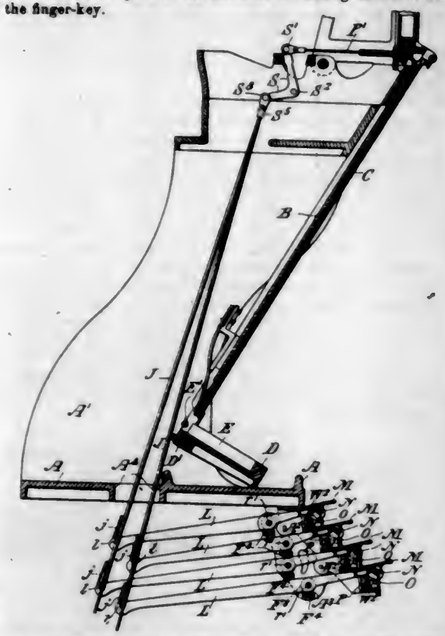
Claim.—The herein-described dressing for leather, consisting of Japan wax, paraffin-oil, neat's-foot oil, anilin-black, and beef-oil, in substantially the proportions specified.

578,414. **TYPE-SETTING MACHINE.** RICHARD J. MOXLEY, Brooklyn, N. Y., assignor to the Empire Type Setting Machine Company, New York, N. Y. Filed May 28, 1896. Serial No. 593,385. (No model.)

Claim.—1. The combination of a lever, a finger-key pivoted to the lever, a rotating shaft and devices attached to the lever, and actuated by the finger-key, engaging with devices on the shaft, whereby the latter are caused to move the former during part of a revolution.

2. The combination of a finger-lever, a finger-key pivoted to the lever, a rotating shaft and devices attached to the lever and actuated by the finger-key, engaging with devices on the shaft, whereby the latter are caused to move forward during a part of a revolution, and devices substantially as described for releasing and restoring the engaging devices to their normal position at the end of the partial revolution of the shaft.

3. The combination of a finger-lever, a pivoted finger-key and devices on the front plate of the machine for limiting the movement of the finger-key.



4. The combination of a finger-lever, a finger-key pivoted thereto, a dog pivoted to the end of the lever actuated by the finger-key, a tooth pivoted to the lever with which the dog engages, and a cam rotating on a shaft engaging with the tooth.

5. The combination of a finger-lever, a finger-key pivoted thereto, a dog pivoted to the end of the lever actuated by the finger-key, a tooth pivoted to the lever, with which the dog engages, a spring for keeping the dog and tooth in engagement, except when depressed by the finger-key, a cam rotating on a shaft actuated from a suitable source of power engaging with the tooth, and a spring for forcing the tooth into engagement with the cam when released by the dog.

6. The combination of a finger-lever, a rotating shaft carrying a cam, a tripper and a dog attached to the lever substantially as described.

7. The combination of a binder, sliding up and down in a slot on the frame of the machine, means for regulating the longitudinal movement of the binder when desired, and a plate fitting over the opening of the slot in which the binder slides, and holding the binder after adjustment, in a fixed position.

8. The combination of a binder sliding up and down on slots on the frame of the machine, provided with a friction-pulley on the surface of which runs a driving-belt, devices for regulating the length of the binder at will, and a clamp for holding the binder in a fixed position after adjustment.

9. The combination of a binder provided with a friction-pulley in an opening in the frame of the machine, and a clamp sliding on the frame over the opening in which the binder slides.

10. The combination of the pivoted lever, the finger-key, the hanging tooth, and the dog N pivoted upon the lever provided with the shoulders n^2 and n^4 and the stud n' for carrying a spring.

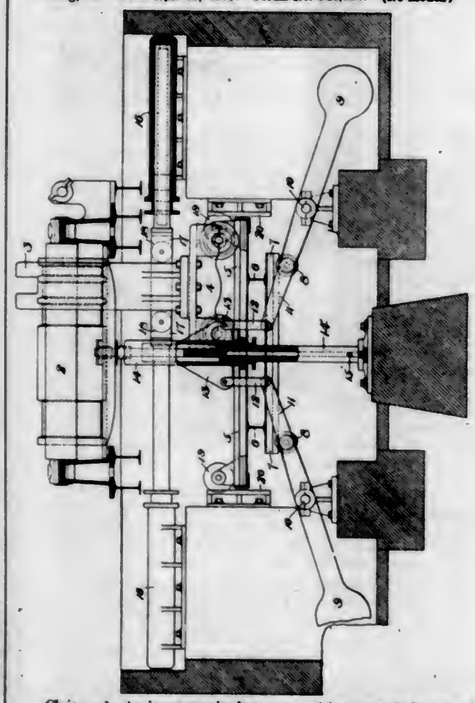
11. The combination of the pivoted lever, the finger-key, the dog pivoted upon the lever, the hanging tooth and the rotating shaft carrying the cam P, provided with the shoulders p' and p^3 and the points p^2 p^3 arranged to engage with the hanging tooth.

12. The combination of the pivoted lever, the finger-key, the rotating shaft carrying a suitable cam, the dog pivoted upon the lever and the hanging tooth O also pivoted on the lever, provided with the shoulders o^2, o^4 and o^5 arranged to engage with the cam and the dog, and provided with a suitable spring device for holding it when released from the dog against the cam.

13. The combination of the pivoted lever, the rotating shaft carrying a cam, the hanging tooth, the dog pivoted upon the lever, and the finger-key M pivoted on the lever, and provided with the stud m^5, for limiting its movement, and the catch m^4 for engaging with the shoulder upon the dog.

14. The combination of the pivoted lever L, the rotating shaft carrying the cam P, provided with the shoulders p', p^3, the hanging tooth O pivoted on the lever, provided with the shoulders o^2, o^4 and o^5, and the countersunk opening o^3 containing a spring, the dog N also pivoted upon the lever, provided with the shoulder n^3 engaging with the shoulder o^4 of the tooth O, and a finger-key M pivoted on the lever, provided with the stud m^5 for limiting its movement, and the catch m^4 for engaging with the shoulder upon the dog.

578,415. INGOT-MANIPULATOR. GEORGE W. MCCLURE, Pittsburg, Pa. Filed Apr. 20, 1895. Serial No. 546,527. (No model.)



Claim.—1. An ingot-manipulator comprising oppositely-extending lever-arms, rollers mounted in stationary bearings upon said arms, a finger-bar platform resting directly upon and carried by said rollers, and means for swinging the lever-arms.

2. An ingot-manipulator comprising oppositely-extending lever-arms, rollers mounted in stationary bearings upon said arms, a platform resting directly upon and carried by said rollers, a truck movable upon the platform and carrying the finger-bars, and means for swinging the lever-arms.

3. In an ingot-manipulator, a movable truck carrying finger-bars, and a motive cylinder having actuating connections with a yoke taking about a finger-bar, substantially as described.

4. In an ingot-manipulator, a movable truck carrying finger-bars, and a motive cylinder having actuating connections with a yoke taking about a finger-bar, said yoke having antifriction-rollers pivoted therein; substantially as described.

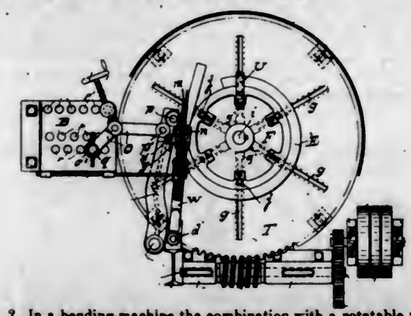
5. In an ingot-manipulator, a movable truck carrying finger-bars, and two motive cylinders in line with each other and having their plungers connected to a common yoke taking about a finger-bar; substantially as described.

6. In an ingot-manipulator, a truck carrying the finger-bars and movable upon a platform, pivoted levers having rollers upon which said platform rests, and rollers pivoted in the platform and arranged to roll upon fixed guides; substantially as described.

7. In an ingot-manipulator, a truck carrying the finger-bars, and movable upon a platform, pivoted arms having rollers upon which said platform rests, and a motive cylinder having links connecting its movable element to levers upon the shafts of said arms; substantially as described.

578,416. BENDING-MACHINE. CHRISTEN NIELSON and RICHARD A. BERGEN, Brooklyn, N. Y. Filed Sept. 19, 1896. Serial No. 606,432. (No model.)

Claim.—1. A bending-machine comprising a suitable frame, a shaft vertically pillowed therein, a rotatable platform, secured to the shaft, rollers supporting the platform, pillowed in the frame of the machine, gearing for rotating the platform, an exchangeable disk, serving as a pattern or mandrel, and secured concentrically to the platform, a horizontally-movable arm, pivoted on a shaft, set in the frame, a roller, set on the end of the arm and a toggle-joint, hinged thereto, a screw, operating the toggle-joint, a stationary plate, secured upon the frame, adjoining the rotary platform and provided with rows of holes for securing the toggle-joint and the screw-block for operating the toggle-joint in required position, a swinging lever-bracket, composed of extensible arms, a head-block, rigidly secured to the lower arm of the lever-bracket and pivoted to the upper arm, a roller set in this head-block and projecting therefrom, and means for raising and lowering the lever-bracket to and from the platform, and means for holding the roller in position on the platform.



2. In a bending-machine the combination with a rotatable platform, an exchangeable pattern-disk, secured concentrically to the platform, and with a horizontally-movable arm, having a roller secured thereto, of an adjustable toggle-joint, hinged to the lever, a screw-block and a screw, winding through the screw-block and operating the toggle-joint.

3. In a bending-machine the combination with a rotatable platform, an exchangeable pattern-disk, secured concentrically to the platform, and with a horizontally-movable arm, having a roller secured thereto, and with an adjustable toggle-joint, hinged to the lever, a screw-block and a screw, winding through the screw-block and operating the toggle-joint, of a stationary plate, provided with series of holes, adapted to receive the pin, fixing the end of the toggle-joint, and the stem of the screw-block for the purpose of adjusting the position of the toggle-joint correspondingly with the exchangeable pattern.

4. In a bending-machine the combination with a rotatable platform, an exchangeable pattern-disk, secured concentrically to the platform, and with a horizontally-movable arm, having a roller secured thereto, and with an adjustable toggle-joint, hinged to the lever, a screw-block and a screw, winding through the screw-block and operating the toggle-joint, and with a swinging lever-bracket, carrying a roller-bearing head, of an extensible brace, composed of two alternately-slotted bars and held together by two screw-bolts, each bolt being fixed in one bar and sliding in a corresponding slot of the other bar, a lever fulcrumed on a pin pillowed in blocks, secured to one of these bars, a link, hinged to the shorter arm of the lever and connected to a standard secured to the other bar, whereby the bracket may be lengthened or shortened by changing the position of the lever.

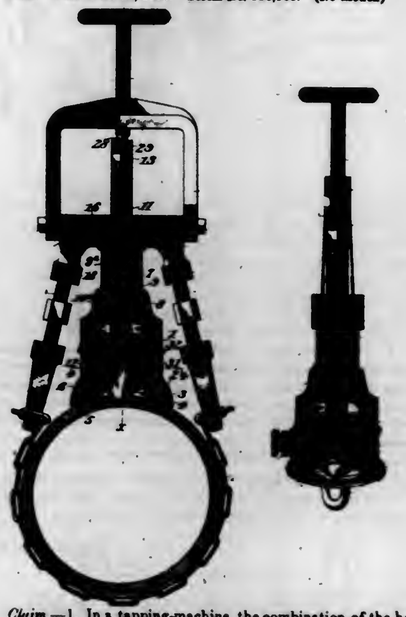
5. In a bending-machine comprising a suitable frame, a shaft vertically pillowed therein, a rotatable platform, secured to the shaft, rollers supporting the platform, pillowed in the frame of the machine, gearing for rotating the platform, an exchangeable disk, serving as a pattern or mandrel, secured concentrically to the platform, a horizontally-movable arm, pivoted on a shaft, set in the frame, a roller, set on the end of the arm and a toggle-joint, hinged thereto, a screw, operating the toggle-joint, a stationary plate, secured upon the frame, adjoining the rotary platform and provided with rows of holes for securing the toggle-joint and the screw-block for operating the toggle-joint in required position, a swinging lever-bracket, composed of extensible arms, a head-block, rigidly secured to the lower arm of the lever-bracket and pivoted to the upper arm, a roller set in this head and projecting therefrom, and means for raising and lowering the lever-bracket to and from the platform, the combination with the swinging lever-bracket, carrying a roller in its projecting end, of a set-screw, set in a boss attached to the end of the bracket and adapted to engage against the horizontal lever, thereby sustaining the swinging lever-bracket in position.

578,417. METHOD OF ORNAMENTING METAL SURFACES. JOHN F. A. NIEPRASCHK, Chicago, Ill. Filed May 11, 1896. Serial No. 591,151. (No specimens.)

Claim.—1. The improvement in ornamenting metal surfaces consisting in coating the metal with a priming of oil-colored paint, and thoroughly drying the same, then applying a surface coat of varnish, and finally sprinkling the surface while wet with benzin or its equivalent hydrocarbon product, mixed with dry color as bronze, as herein described.

2. The improvement in ornamenting surfaces consisting in coating the metal with background of paint, and thoroughly drying the same, then applying a surface coat of varnish slightly colored, of different shade or tint from that of the background, and finally sprinkling the surface while wet with a different mixed color or bronze spatter liquid to blend with the color of the varnish, as herein described.

578,418. TAPPING-MACHINE. WALTER S. PAYNE, Fostoria, Ohio. Filed Feb. 12, 1895. Serial No. 538,165. (No model.)



Claim.—1. In a tapping-machine, the combination of the hollow casing-body provided in one side with an oiling hole or opening, the tapping mechanism, a circularly-adjustable cut-off ring or band mounted to turn on the casing and provided with a hole or opening adapted to be carried in and out of alinement with the hole or opening in the casing, and an adjustable valve fitted in the ring or band and adapted to be adjusted over said latter hole or opening when not in use substantially as set forth.

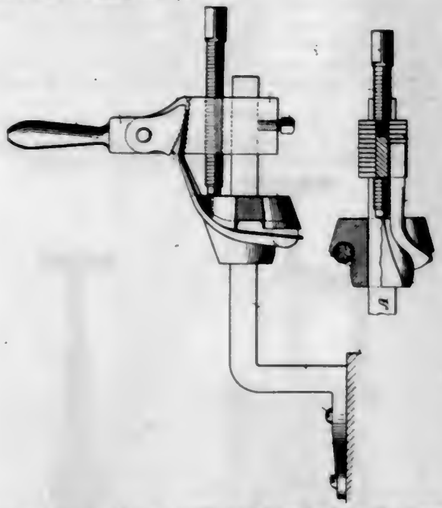
2. In a tapping-machine, the combination of the hollow casing-body provided in one side with an oiling hole or opening and with an exterior annular flange above said hole or opening, a circularly-movable cut-off ring or band mounted for a limited movement on the casing and provided with an oiling hole or opening and with an offstanding interiorly-threaded collar adjacent to said hole or opening, and an exteriorly-threaded screw-plug mounted within said collar and adapted to work over the hole or opening in the casing-body when the hole or opening in the ring or band is thrown out of alinement therewith, substantially as set forth.

578,419. HARNESS-TOOL. DAVID PIERCE, West Bend, Wis., assignor of one-half to William A. Forest, same place. Filed May 1, 1896. Serial No. 589,819. (No model.)

Claim.—1. A crupper-shaper consisting of a supporting-bar, a former loose on the bar longitudinally of the same, a block on said bar provided with a set-screw, an upper central web and beveled serrated faces on opposite sides of the web; another block pivoted to the web astraddle of the same and provided with a handle, as well as curved serrated faces that are opposite the serrated surfaces of the rigid block; and a screw-rod adjustable in said rigid block to exert pressure against said former.

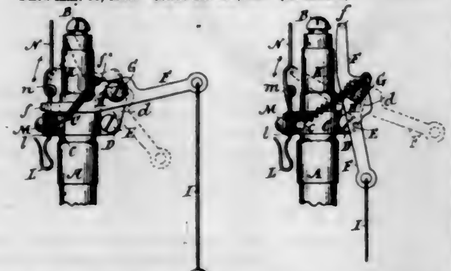
2. A crupper-shaper consisting of a bar for attachment to a suitable support, a former loose on the bar longitudinally of the same, a clamp having detachable connection with the bar, a set-screw carried by the clamp for adjustment against said bar, and a screw-rod adjustable in said clamp against the former.

3. A crupper-shaper consisting of a bar having a right-angle shank, a former loose on the bar longitudinally of the same, a clamp having detachable connection with the bar, a set-screw carried by the clamp for adjustment against said bar, and a screw-rod adjustable in said clamp against the former.



4. A crupper-shaper consisting of a bar having a right-angle shank provided with a foot attachable to a support, a former loose on the bar longitudinally of the same, a clamp having detachable connection with the bar, a set-screw carried by the clamp for adjustment against said bar, and a screw-rod adjustable in said clamp against the former.

578,420. ELECTRIC GAS-LIGHTER. FREDERICK N. PIKE, New York, N. Y., assignor of one-third to Edward N. Dickerson, same place. Filed Mar. 11, 1896. Serial No. 582,715. (No model.)



Claim.—1. An electric gas-igniter consisting of a support for the terminals of an electric circuit, one of said terminals consisting of an arm pivotally mounted on said support and provided with a slot at its pivotal point and a catch at one end adapted to engage and draw the other terminal to a point close to the point of emergence of the gas where engagement is broken, and means for automatically returning the pivoted arm to its normal position, through another path of movement, so that it will not pass through the flame, substantially as specified.

2. In an electric gas-igniter, the combination of a support or collar attached to the gas-fixture, an electric terminal consisting of a lever pivotally mounted on said support and provided with a slot, a second electric terminal mounted on said support and insulated therefrom, and consisting of a wire bent at a point to give clearance to the other terminal and normally maintained in an upright position, a catch on the end of the pivoted lever for engaging with the other terminal, whereby the pivoted lever engages the other terminal to draw the same to a point close to the point of emergence of the gas where contact is broken, and a spring secured to said lever and support to return the lever to its normal position through a lower plane of movement without passing through the flame, substantially as specified.

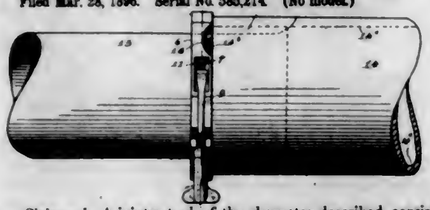
3. The combination in an electric gas-igniter of a terminal lever-arm F provided with slot H and pivoted to the collar C, a spring K attached to said arm F and to the collar C, a terminal N also secured to said collar and insulated therefrom, and adapted to be engaged by a catch *f* on said lever F to draw the terminal N to position close to the burner B, where contact is broken to ignite the gas, substantially as shown and described.

578,421. WRENCH. EDWIN H. REED, Omaha, Nebr. Filed Feb. 1, 1896. Serial No. 577,756. (No model.)



Claim.—The combination with a stock provided with an opening passing through the same and a crescent-shaped seating communicating with said opening, and a clutch comprising a stop in the form of a disk, having a projecting operating-stem connected to said disk extending from one side, and a crescent-shaped clutching-nib eccentrically positioned and extending from the opposite side, said nib being adapted to work into said seating.

578,422. PIPE-JOINTER. GEORGE RICHARDSON, Bridgeport, Conn. Filed Mar. 28, 1896. Serial No. 585,214. (No model.)



Claim.—1. A jointer-tool, of the character described, consisting of a series of three or more segmental blocks whose inner curved surfaces are adapted to fit, substantially, the outer cylindrical surface of a pipe, an independent flexible binder on which said blocks are loosely strung, one end of said binder anchored to the free end of said jointer and means connected to the opposite end of said binder whereby all of the blocks are made to conform to the outer surface of a pipe combined with means for locking the jointer, substantially as set forth.

2. A jointer-tool, comprising, in combination, a series of segmental blocks, each of which blocks is made hollow and has end walls provided with holes; a flexible binder passing through said holes; one end of said binder anchored to the free end of said jointer, and means connected to the opposite end of such binder so that all of said segmental blocks may be made to conform to the outer cylindrical circumference of a pipe, for the purpose specified.

3. A jointer-tool of the character described, comprising, in combination, a series of segmental blocks whose inner curved surfaces are adapted to conform to the outer cylindrical surface of the smaller of two pipes, telescoped together, while one of the vertical faces of the segmental blocks abuts the end of the larger pipe; a flexible binder extending longitudinally through the several segmental blocks, and means for locking them to the pipe, for the purpose described and set forth.

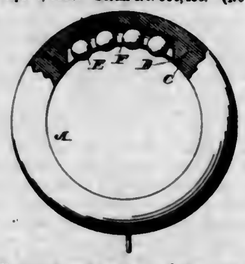
578,423. HAND-STAMP. LEWIS H. RICHARDSON, Boston, Mass. Filed July 31, 1896. Serial No. 601,164. (No model.)



Claim.—1. In a hand-stamp of the character described, in combination, the frame A; the bars or hangers B, B' secured to the ends of and extending down below the frame; a type-bar or type-roll supported rotatively by said hangers and formed with a plurality of flat surfaces adapted to receive different characters or inscriptions: the lifting arm or lever F pivotally secured to one end of the frame, formed with the portion F' which overlaps and lies normally upon the upper end of the frame and with the upturned portion F''; a spring supported by the frame and bearing normally against said upturned portion; a ratchet rigidly secured to one end of the type-roll; and a pawl extending from the lifting-arm through guides supported by the frame into engagement with said ratchet, substantially as set forth.

2. In a hand-stamp of the character described, in combination, the frame A; the bars or hangers B, B' secured to the ends of and extending down below the frame; a type-bar or type-roll supported rotatively by said hangers and formed with a plurality of flat surfaces adapted to receive different characters or inscriptions; the lifting arm or lever F pivotally secured to one end of the frame, formed with the portion F' which overlaps and lies normally upon the upper end of the frame and with the upturned portion F''; a spring supported by the frame and bearing normally against said upturned portion; a ratchet rigidly secured to one end of the type-roll: the pawl F pivotally secured at its upper end to the lifting-arm and with its lower end in engagement with said ratchet; the retaining-pawl P secured at one end to the frame and its opposite end bearing on the ratchet: and the spring D secured to the hanger B and bearing against one of the spindles extending from the type-roll: all substantially as described.

578,424. CURTAIN-POLE RING. JULIUS A. RINGS, New York, N. Y. Filed Apr. 7, 1896. Serial No. 586,486. (No model.)

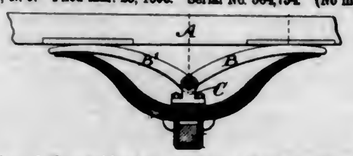


Claim.—1. The combination of a wooden ring with a metallic tube bent to the same arc as the ring and sunk therein, and antifriction-balls within said tube, and projecting slightly therefrom, substantially as shown.

2. A curtain-pole ring, composed of a turned-up ring, having in combination therewith a tube, provided with openings, and a series of balls within said openings and projecting beyond the surface of the metal tube, substantially as set forth.

3. A curtain-pole ring having on its inner side a short channel, in combination with a tube bent to the curvature of the ring, said tube, having therein one or more antifriction-balls, which project beyond the inner surface of said tube, substantially as set forth.

578,425. VEHICLE-SPRING. MARTIN L. SENDERLING, Jersey City, N. J. Filed Mar. 25, 1896. Serial No. 584,734. (No model.)



Claim.—1. In combination, a support, a lever pivoted at one end to the support, a spring forming a support for the free end of the lever and a vehicle-body sustained by the lever, the connection between the body and the lever being such that the bearing-point, as the load increases, will shift from its starting-point to a point nearer the fulcrum of the lever than the point where the lever bears upon the spring, substantially as set forth.

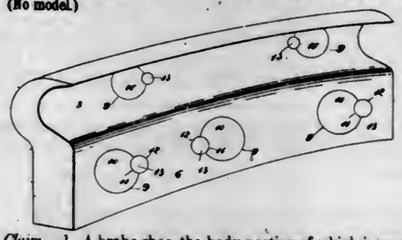
2. A support, a pair of levers pivoted at one end to the support and extending in opposite directions therefrom, springs interposed between the base of the support and the free ends of the levers and a load-sustaining body having bearings upon the levers, the connection between the body and the levers being such that the bearing-points, as the load increases, will shift from the starting-points to points nearer the fulcrum of the lever than the bearing-points of the levers upon the springs, substantially as set forth.

578,426. SADDLE. JOHN C. SMITH, Hartford, Conn. Filed Aug. 27, 1895. Serial No. 560,716. (No model.)

Claim.—A saddle consisting of a frame having a narrow pommel and a wide cantle and a seat formed of independently-attached flexible strands, each strand having a short single section of textile elastic fabric with one end connected to the pommel, and a long section of a plural number of non-elastic textile cords of smaller diameter, the several smaller cords of each strand being connected close together to the single elastic section of each strand but diverging therefrom and being connected to the cantle at a distance from each other, substantially as specified.



578,427. BRAKE-SHOE FOR RAILWAY-CARS. CHARLES T. STEWART, Bloomfield, N. J. Filed Sept. 4, 1896. Serial No. 604,854. (No model.)

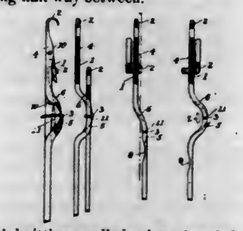


Claim.—1. A brake-shoe, the body portion of which is provided with conical transverse bores, passages or openings, the larger ends of which are directed inwardly, said brake-shoe being composed of cast-iron or similar material, and conical plugs which are composed of hard chilled iron or steel, which are keyed in said transverse bores, passages or openings, by means of conical key-plugs which are passed through corresponding openings formed in said conical plugs, and the body of the shoe, and the larger ends of which are directed inwardly, substantially as shown and described.

2. A brake-shoe of the usual form provided at one side with a segmental circular flange or rim in which is formed a corresponding groove which is adapted to receive the flange or rim of a car-wheel, the body of said brake-shoe, and the back of the segmental or circular flange or rim being provided with transverse bores or passages which are conical in form, and in which are inserted conical plugs of hard chilled iron or steel, said plugs being keyed in said bores or passages by means of conical key-plugs which are passed through corresponding openings formed in said conical plugs, and the material of the shoe, and the larger ends of which are directed inwardly, substantially as shown and described.

578,428. RIGHT-AND-LEFT KNITTING-MACHINE NEEDLE. GEORGE F. STURGESS, Leicester, England. Filed Dec. 30, 1895. Serial No. 573,648. (No model.)

Brief.—To facilitate transferring loops from one needle to another or the introduction of additional needles. The needle consists of two connected stems, one at the right and the other at the left of a longitudinal axis, such axis in the case of dial and cylinder needles being in the line of the hook of the other needle and in the case of adjacent needles being half-way between.



Claim.—1. A knitting-needle having a beveled part 11, substantially as and for the purposes set forth.

2. A knitting-needle having a reduced part 8 and a side bend in the stem forward of the needle-foot, substantially and for the purposes set forth.

3. A knitting-needle having a beveled part 11 and a reduced part 8, substantially and for the purposes set forth.

4. A knitting-needle having provisions for carrying its loop sidewise into line with the axis of an adjacent needle, substantially and for the purposes set forth.

5. A knitting-needle having provisions for carrying its loop sidewise into line with the axis of an adjacent needle, a beveled part 11 and reduced part 8, substantially and for the purposes set forth.

6. A knitting-needle having its knitting-stem diverted to a side line, forming a linking-stem parallel to but in the rear of the knitting-stem, whereby an adjacent needle may slide in the front of, or at the

back of the junction of the two stems, substantially and for the purposes set forth.

7. A knitting-needle having a part of the stem for linking and a part of the stem for knitting, the knitting part being of less width, than the total width of the needle, substantially and for the purposes set forth.

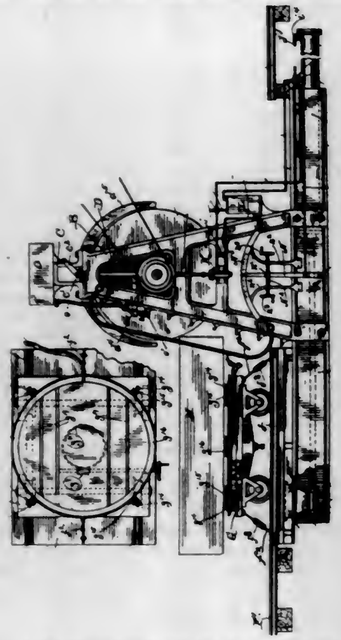
8. A knitting-needle having a right stem and a left stem, connected to each other, whereby a loop thereon may take a side turn to the knitting-line of an adjacent needle for the said adjacent needle to link it up, substantially and for the purposes set forth.

9. A right-and-left knitting-needle, substantially as and for the purposes set forth.

10. A knitting-needle having a side stem disposed on a line outside the axis of the needle, substantially and for the purposes set forth.

11. A knitting-needle having a stem outside the axis of the needle, bent across the axis and continued on another line on the opposite side of the axis, substantially and for the purposes set forth.

578,429. STONE-CUTTING MACHINE. CHARLES W. TREIL, Chicago, Ill. Filed Mar. 30, 1896. Serial No. 585,380. (No model.)

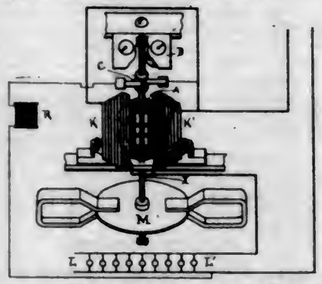


Claim.—1. The combination with the frame, the cutter and the platen, of hydraulic devices for operating the platen, and means for controlling the inlet and discharge of said hydraulic devices, comprising a valve, a lever operatively connected with the valve-stem, a swiveling nut secured to said lever, an adjusting-screw passing through said nut and provided with a hand wheel or wheels, and a graduated scale over which the end of the lever passes.

2. The combination with the frame, cylinder and the platen and with hydraulic devices for moving said platen, of a pump for driving said hydraulic devices, and adjustable connections between the pump-plunger and driving-shaft, comprising a sleeve pivoted eccentrically to a rigid part on the shaft, a locking-bolt for securing said sleeve in different positions, a cam on the sleeve, and a pitman connecting said cam and plunger, the aperture in the sleeve through which the shaft passes being enlarged to permit a shifting of the sleeve to vary the eccentricity of the cam.

578,430. ELECTRIC METER. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Aug. 26, 1889. Serial No. 321,986. (No model.)

Claim.—1. The combination in an electric meter, of a rotating armature in a circuit of high resistance in derivation to the work and traversed by a current which is practically constant for all speeds of rotation while connected to a source of practically constant potential, a set of coils traversed by, or responding to, the variable current fed to the consumption devices, said coils furnishing a whole or a part of the field in which said armature revolves, a retarding device moved by said armature consisting of a conductor movable in a magnetic field and consuming energy of rotation therein, and a registry device for counting the turns of the revolving armature.



2. In an electric meter, the combination with the armature-coils carrying a practically constant current, of the main field producing or energizing coils in which a rotating armature moves, and an accessory or initial field-circuit supplied with current from any suitable source such as a derived circuit around the consumption devices, a constant battery-current, or the like.

3. The combination of the following elements in an electric meter, a rotating shaft connected with a registry system for recording its revolutions, an armature-coil system mounted upon said shaft and provided with a suitable commutator, connections to said commutator from a circuit in derivation to the consumption devices and having a difference of potential at its terminals substantially constant in amount irrespective of the changes of resistance in the part of the circuit containing the consumption devices, said armature-circuit being constructed as described to be traversed by a very small current practically constant in amount although the speed of the motor may change under variations in the strength of its other element, a field for rotating said armature produced by coils in series with or responding to the current fed to the consumption devices, and a retarding device carried by said armature-shaft consisting of magnets and closed conductors in relative movement, whereby Foucault or induced currents or magnetic losses are generated, substantially as described.

4. The method of measuring electric energy or current which consists in establishing a field by the current flowing to the devices, causing said field to envelop or act upon a rotating-armature-coil system traversed by a current which is substantially constant in amount under all conditions of working of the meter with variable work, retarding the revolutions of said armature-coil system by a magnetic field acting on a closed conductor, and counting the revolutions of the rotating-armature-coil system, substantially as described.

5. The combination with an electric circuit containing translating devices, of an electric motor whose field-energizing coils are in the main circuit to the translating devices, and whose armature is traversed by current maintained substantially constant irrespective of variations in the work and consequent change of speed of the motor, said motor having a loading or retardation which is substantially *nil* under very low rotations and which increases directly as the speed of rotation increases.

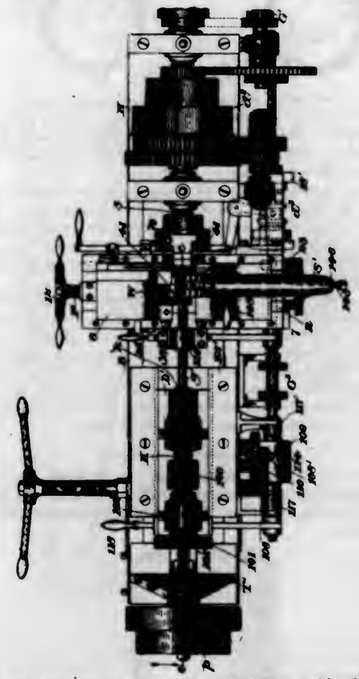
6. An electric meter for constant-potential circuits having a motor whose rotative energy depends upon the action of a field variable with the consumption of current, or number of translating devices in use, said motor having a constant armature, irrespective of the variations in the working, in combination with a retarding device consisting of an electric generator of induced currents of variable amount in proportion to the speed of rotation and with a constant or nearly constant field.

7. A meter for alternating electric currents, consisting of a motor having field-magnet coils connected in series with the work-circuit, armature-coils connected across the work-circuit and carrying a current which is substantially constant in amount under all conditions of working, a counting, registering or indicating device operated by the movements of the armature, and a retarding device applied to the armature.

578,431. TURNING AND DRILLING MACHINE. WILLIAM W. TUCKER, Hartford, Conn. Filed Oct. 19, 1896. Serial No. 609,346. (No model.)

Claim.—1. In a machine of the class specified, the combination of a work-spindle; a rotative drill-spindle; a cutter-carrying slide supported intermediate said spindles, for movement in a plane transverse to the axis of said spindles; means for rotating the two spindles concurrently in relatively opposite directions; and means for advancing the drill-spindle and cutter-slide concurrently in relatively intersecting planes.

2. In a machine of the class specified, the combination with a work-spindle and with rotating mechanism therefor; of a rotative drill-spindle; a cutter-slide; feed mechanism coöperatively connecting the drill-spindle and cutter-slide and embodying means for simultaneously advancing and retracting the drill-spindle and cutter-slide with relatively varying velocities of a predetermined ratio and in relatively transverse planes; and means for rotating the drill-spindle.



3. In a machine of the class specified, the combination with a rotative work-spindle; of a rotative drill-spindle located in axial alinement with the work-spindle; independent driving devices in connection with the work-spindle and drill-spindle and effective for rotating the two spindles in relatively opposite directions and at relatively variable velocities; a cutter-slide supported for movement in a plane transverse to the axis of and between the work-spindle and drill-spindle; and feed mechanism coöperatively connecting the drill-spindle and cutter-slide and effective for simultaneously advancing and retracting the said drill-spindle and cutter-slide at predetermined relative velocities.

4. In a machine of the class specified, the combination with a work-spindle and its carrier and with a drill-spindle and its carrier; of two oppositely-disposed cutter-slides located at opposite sides, respectively, of the common axis of said spindles; means for rotating the work-spindle; and feed mechanism operatively connecting the two cutter-slides and the spindle-carrier and operable for simultaneously advancing the two cutter-slides toward the axis of the drill-spindle and for simultaneously advancing the drill-spindle at a predetermined velocity with relation to the velocity of feed movement of the cutter-slides.

5. In a machine of the class specified, the combination with a work-spindle and its carrier and with a drill-spindle and its carrier; of two oppositely-disposed cutter-slides located at opposite sides, respectively, of the common axis of said spindles; means for rotating the work-spindle and drill-spindle concurrently in opposite directions and at predetermined relative velocities; and feed mechanism operatively connecting the two cutter-slides and the spindle-carrier and automatically operative for simultaneously advancing the two cutter-slides toward the axis of the drill-spindle and for simultaneously advancing the drill-spindle carrier at a predetermined velocity with relation to the velocity of feed movement of the cutter-slides.

6. In a machine of the class specified, the combination with a work-spindle and a drill-spindle and with independent driving mechanism in operative connection with and adapted for rotating the work-spindle and drill-spindle in opposite directions at relatively varying velocities of a predetermined ratio; of two cutters located at opposite sides, respectively, of the axis of the drill-spindle; cutter-carrying slides on which said cutters are mounted; and feed mechanism operatively connecting the drill-spindle and cutter-slides and effective for advancing the drill-spindle and for simultaneously advancing the cutter-slides toward each other and in a plane intersecting the axial line of the drill-spindle.

7. The combination with a suitable supporting-frame and with a rotative work-spindle, of two tool-carriers supported one for movement in the plane of the axis of said spindle and the other for movement in a plane transversely to said axis; an actuating-connector between and effective for advancing and retracting the two carriers concurrently; a tool-carrying spindle rotatively mounted upon one of said carriers; and means for rotating said spindle simultaneously with the advancing movement of the carrier.

8. The combination with a suitable supporting-frame and with a rotative work-spindle, of two tool-carriers supported one for movement in the plane of the axis of said spindle and the other for movement in a plane transversely of said axis; an actuating-connector between and effective for advancing and retracting the two carriers concurrently and embodying a time-train for effecting a predetermined ratio of movement between said carriers; means in connection with each carrier and operable for automatically stopping the advancing movement of said carriers at predetermined points within the range limit thereof; a rotating tool carried by one of said carriers; and means for rotating said tool throughout the advancing movement of said carrier.

9. The combination with a suitable supporting-frame and with a rotative work-spindle journaled in said frame, of two tool-carriers supported one for movement in the plane of the axis of said spindle and the other for movement in a plane transversely of said axis; an actuating-connector between and effective for advancing and retracting the two carriers concurrently; a tool-spindle rotatably mounted upon one of said carriers; driving mechanism for said tool-spindle, embodying a driving-shaft journaled in a fixture of the frame; a gear-wheel splined to the driving-shaft and movable longitudinally with the tool-spindle; and a gear carried by the tool-spindle and meshing with the gear on the driving-shaft.

10. The combination with a suitable framework, of two tool-carriers supported for advancing and retractive movements in relatively transverse planes; drop-feed mechanism in connection with each tool-carrier; and a speed-reducing train of gears operatively connecting the two drop-feed mechanisms.

11. In a machine of the class specified, the combination with a suitable framework and with a rotative work-carrying spindle journaled in bearings on said framework, of two tool-carrying slides supported for movement in opposite directions and in a plane transversely of the longitudinal axis of the work-spindle and having, respectively, right and left hand feed-screw bearings; a feed-screw having right and left hand threads in engagement with the right and left hand screw-threaded bearings of the tool-carrying slides; a drill-spindle carrier supported on the frame, for movement longitudinally thereof and having a rack; a feed-shaft journaled transversely in the framework of the machine and having a pinion in mesh with said rack; and connecting driving mechanism between the rack, pinion-shaft, and feed-screw, and embodying means for rotating the pinion-shaft and feed-screw at relatively varying velocities of a predetermined ratio.

12. The combination with a suitable framework and with a rotative work-carrying spindle journaled on said framework, of a tool-carrying slide supported for movement in a plane transverse to the axis of the work-carrying spindle; two oppositely-disposed cutting-tools supported at opposite ends, respectively, of said slide, with their cutting-faces at opposite sides, respectively, of the axis of the work spindle; means for reciprocating said slide, to cause the tools to successively act upon the work carried by the spindle; and a reactionary steady-rest supported in position to engage the work carried by the spindle.

13. The combination with a suitable framework, a work-carrying spindle, and with means for rotating said spindle; of a cutter-slide supported for movement in a plane transverse to the axis of said spindle; a steady-rest supported in operative relation with the work-carrying spindle and embodying two coöperative reciprocatory members, one of which has a bearing-face for engaging the work and the other of which constitutes a thrust member for normally holding the first-mentioned member in engagement with the work; means carried by the cutter-slide, for retracting the thrust member automatically upon the retractive movement of the slide; means in connection with the bearing member, for retracting the same upon the retractive movement of the thrust member; and means for reciprocating the cutter-slide.

14. The herein-described steady-rest, it comprising a suitable frame having angularly-disposed bearings whose axes are in relatively intersecting planes; a bearing member shiftably supported in one of said bearings and having an inclined face normally intersecting the axis of the other bearing; a thrust member shiftably supported in the other bearing and having an inclined bearing-face in normal engagement with the bearing-face of the bearing member; a spring in

connection with the thrust member and effective for normally thrusting said member against the bearing member: means for retracting the thrust member; and means for retracting the bearing member simultaneously with the retractive movement of the thrust member.

15. The herein-described steady-rest for a machine of the class specified, it consisting of a suitable frame having two angularly-disposed bearings whose axes are in relatively intersecting planes; two cooperative members shiftably supported in said bearings, and one of which members is actuated by the other in one direction; and means in connection with the two members, for effecting a simultaneous retracting movement of said members.

16. In a machine of the class specified, the combination with the framework and with a rotative work-carrier: of a steady-rest supported in operative relation with said work-carrier and comprising two cooperative spring-actuated members, one of which constitutes a thrust member for imparting an advancing movement to the other member; and means for retracting the thrust member.

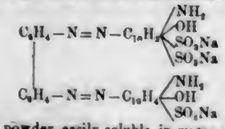
17. In a machine of the class specified, the combination with the framework and with a rotative work-carrier; of a steady-rest supported in operative relation with said work-carrier and comprising a shiftably-supported, reactionary bearing member; a thrust member supported with its longitudinal axis in a plane intersecting the axial plane of the bearing member, and said two members having coacting wedge-faces; a spring in operative connection with, and effective for automatically advancing, the thrust member; and a tension device in connection with the thrust member, for regulating the thrust of said member and the bearing stress of the bearing member.

18. In a machine of the class specified, the combination with the work spindle, the turning-down cutter, and the drill-spindle; of a compound oil-feeding apparatus comprising two independent rotary pumps mounted upon the same shaft; means for rotating said shaft; an oil-tank; two independent suction-pipes leading from the oil-tank to the two pumps; two independent feed-pipes leading one from one pump to the drill-spindle and the other from the other pump to a point above the turning-down cutter; and a valve and overflow-pipe in connection with each pipe.

578,432. DARK-BLUE AZO DYE. MORITZ ULRICH and JOHANN BAMMANN, Elberfeld, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Apr. 16, 1895. Serial No. 545,945. (Specimens.)

Claim.—1. The process for the production of dark-blue substantive dyestuffs consisting of combining one molecular proportion of a tetrazotized diamin with one molecular proportion of amidonaptholdisulfo-acid ($NH_2 : SO_3H : SO_3H : OH = 2:3:6:8$) and one molecular proportion of amidonaphtholmonosulfo-acid ($NH_2 : SO_3H : OH = 1:4:8$) or alkaline salts thereof in the manner hereinbefore described.

2. As a new article of manufacture the dyes which may result from combining one molecular proportion of a tetrazotized diamin with one molecular proportion of amidonaptholdisulfo-acid ($NH_2 : SO_3H : SO_3H : OH = 2:3:6:8$) and one molecular proportion of amidonaphtholmonosulfo-acid ($NH_2 : SO_3H : OH = 1:4:8$), or alkaline salts thereof having in case benzidin be used the formula:

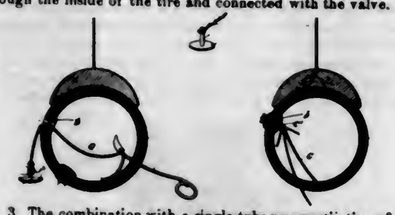


forming a dark powder easily soluble in water with a bluish-black color, almost insoluble in alcohol, soluble in ammonia liquid with a violet-blue color, being slightly soluble in strong soda-lye with a violet color, soluble in concentrated sulfuric acid (66° Baume) with a greenish-blue color, which turns on the addition of ice-water to this sulfuric-acid solution first into bluish-violet and then darkish-violet flakes are precipitated on addition of acetic acid (concentrated) to the hot watery solution of the dyestuff a violet solution results, producing on unmordanted cotton darkish-blue shades fast to the action of alkali and acid, being diazotizable, when fixed on the fiber, and subsequently giving when combined with so-called "developers" especially with beta-naphthol and metatoluylenediamin darker and faster shades.

578,433. PNEUMATIC-TIRE REPAIRER. RICHARD WEHL, Dedance, Ohio. Filed May 21, 1896. Serial No. 592,466. (No model.)

Claim.—1. The herein-described method of repairing punctured single-tube tires which consists in first drawing a string through the puncture from the inside; then introducing a patching-plug from the exterior into the interior of the tire and by means of the string drawing the stem thereof through the opening, then introducing an adhesive between the plug and the margin of the puncture.

2. The combination with a single-tube pneumatic tire, of a valved opening thereinto located in the side thereof, and a string extending through the inside of the tire and connected with the valve.



3. The combination with a single-tube pneumatic tire, of a valve located in the side of the tire between the rim and the tread and opening thereinto, and a string extending through the inside of the tire and having its ends secured to the valve and adapted to be brought outward through the opening.

4. A single-tube pneumatic tire formed with an elongated opening in the side thereof, said opening having reinforced edges, a stopper or valve removably secured in said opening for closing the same, and a string extending through the inside of the tire and having its ends connected with the inner part of the valve and adapted to be drawn out through the opening in the tire.

5. The combination with a single-tube pneumatic tire, of a valved opening thereinto, a string extending through the tire and secured to the valve on the inside of the tire, and a hook adapted to pass through a puncture in the walls of the tire and to engage the string to draw it outward through the opening through which said hook was introduced, and a plug of repair material adapted to be fastened to the string and introduced into the tire through the valved opening and thence drawn into position to close the puncture.

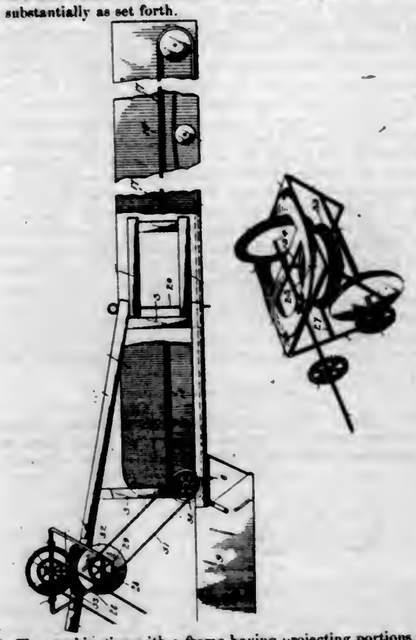
578,434. FIRE-EXTINGUISHER. DAVID WHITE, New York, N. Y., assignor, by mesne assignments, to the Knickerbocker Fire Extinguisher Company, same place. Filed May 26, 1896. Serial No. 593,163. (No model.)



Claim.—A hand fire-extinguisher comprising a metallic body portion, an ejecting-nozzle struck up therefrom, a cap controlling the flow of liquid through said nozzle soldered to said body portion, with means connected to said cap for removing the same, an inlet-port connected with the extinguisher, the valve-seat whereof is struck up therefrom, and a sealing-cap sealing the opening in said port, substantially as described.

578,435. FEEDER FOR CORN-SHELLERS. MELVIN J. WISE, Roberts, Ill. Filed May 8, 1896. Serial No. 590,770. (No model.)

Claim.—1. In combination, a box or trough comprising side pieces having their upper portions flaring and a piece interposed between and connecting the side pieces along the line of flexion intermediate of their top and bottom edges, forming an elevated bottom, pulleys at the ends of the box, an endless carrier supported by the pulleys and the elevated bottom and having its lower portion completely inclosed by the lower portion of the side pieces, and rollers located at intervals in the length of the box and journaled to the side pieces thereof below the said bottom and adapted to support the lower portion of the said endless carrier above the lower edges of the side pieces, substantially as set forth.



2. The combination with a frame having projecting portions, of a box or trough, strips applied to the sides of the box or trough and adapted to overlap the projecting portions of the frame, and rods passing through corresponding openings in the overlapping portions of the frame and strips, substantially as and for the purpose set forth.

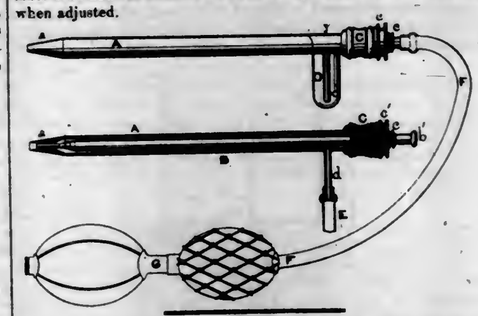
3. In combination, a frame, a carrier having connection with the frame, a gearing-head for transmitting motion to the carrier, means for adjustably connecting the gearing-head with the frame, an annulus supported by the gearing-head and adapted to be turned thereon, means for positively securing the annulus in an adjusted position, and a shaft mounted in bearings provided on the annulus and meshing with the gearing supported by the said head, and adapted to be driven from a suitable source of power, substantially in the manner and for the purpose described.

4. In combination, a frame, a carrier connected with the frame, a gearing-head having adjustable connection with the frame and comprising similar side pieces of triangular form, a rectangular-shaped plate connecting the side pieces at one of their bases, transverse bars connecting the base portions of the said side pieces, a vertical shaft, a twin gear secured to the said shaft, a horizontal shaft, a gear-wheel secured to the horizontal shaft and meshing with a toothed portion of the twin gear and adapted to transmit motion to the carrier, a second horizontal shaft, a gear-wheel secured to the latter shaft and meshing with the other toothed portion of the said twin gear and adapted to be driven from a suitable source of power, and means for securing the last-mentioned shaft in an adjusted position, substantially in the manner set forth for the purpose described.

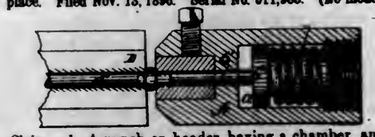
578,436. ATOMIZER. THOMAS WOODRUFF, Withington, England. Filed July 6, 1896. Serial No. 598,212. (No model.)

Claim.—1. An appliance for spraying medicated and other solutions constructed with two concentric tubes both drawn to a fine nozzle at one end the nozzle of the inner one projecting into that of the outer one in combination with the cover C which seals the end of the outer tube A, the screw *c* for adjusting the position of the inner tube and the check-nut *c'* for locking the two tubes in position when adjusted.

2. In an appliance for spraying medicated or other solutions the combination with the inner and outer concentric tubes A and B the nozzles *a* and *b* one projecting into the other, the receiver D and tube *d* for supplying the solution and the tube E and bellows or bulb G for forcing air through to create a spray, of the cover C which seals the end of the outer tube A the screw *c* for adjusting the position of the inner tube and the check-nut *c'* for locking the two tubes in position when adjusted.



578,437. PUNCH OR HEADING DEVICE. WILLIAM G. ALLEN, Hartford, Conn., assignor to the American Specialty Company, same place. Filed Nov. 13, 1896. Serial No. 611,863. (No model.)



Claim.—1. A punch or header having a chamber, and a perforation extending from the face of the punch to said chamber, in combination with a plunger comprising a shank working in said perforation, and a head in said chamber, a spring in the latter tending to throw the plunger forward, and means whereby the movement of said plunger may be adjusted, substantially as described.

2. In a heading device for making rivets and similar articles, the combination with the anvil or holder having a socket for receiving the blank, of a punch comprising a casing having a chamber therein and a perforation extending from the face of the punch to said chamber, a plunger comprising a shank working in the perforation and a head in said chamber, a spring in the latter surrounding said head and tending to throw the plunger forward, and a plug closing the end of the chamber and forming a rigid bearing for the head of the plunger, substantially as described.

3. A punch or header having a chamber, and a perforation extending from the face of the punch to said chamber, in combination with a plunger comprising a shank working in said perforation, a head on the plunger working in the chamber, a spring in the chamber tending to throw the plunger forward, and an adjustable plug or closure for the chamber forming a rigid bearing for the head of the plunger, substantially as described.

578,438. ADVERTISING AND VENDING MACHINE. FRANK M. ARCHER, New York, N. Y., assignor to Siegfried Silberberg, same place. Filed Jan. 25, 1896. Serial No. 576,897. (No model.)

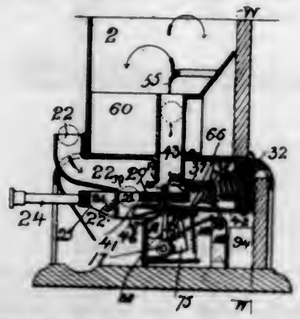
Claim.—1. In a machine of the class described, the combination with a slot or passage for receiving the coins or counters of a vertical passage 43, a push-rod 24, means for preventing retraction of the push-rod when once started inward with a coin or counter in position until a full rearward movement has been made, and means for throwing the coin or counter up through the passage 43, substantially as shown and described.

2. In a machine of the class described, the combination with an inclined passage for receiving the coins or counters, of a vertical passage 43, a push-rod 24, for carrying the coin or counter rearward, a movable support for the coin or counter beneath the passage 43, a striking-spring 42 beneath the support for the coin, and mechanism for retracting the spring 42 and for releasing the same upon the full inward movement of the push-rod 24 so as to throw the coin or counter up through the passage 43, substantially as shown and described.

3. In a machine of the class described, the combination with a passage for receiving the coins or counters, of a vertical passage 43, a coin-spring 41 for supporting the coin or counter beneath the passage 43, a push-rod 24 for forcing the coin or counter upon the spring 41, and means for moving the spring 41 so as to throw the coin or counter up through the passage 43 upon the full rearward movement of the push-rod, substantially as shown and described.

4. In a machine of the class described, the combination with a passage for receiving the coins or counters, of a vertical passage 43,

a coin-spring 41 for supporting the coin or counter beneath the passage 43, a push-rod for forcing the coin or counter upon the spring 41, a striking-spring 42 located beneath the spring 41, and means for retracting and then releasing the spring 42 secured to the push-rod whereby upon the inward movement of the push-rod the spring 42 is first retracted and then released so as to throw the coin or counter up through the passage 43, substantially as shown and described.



5. In a machine of the class described, the combination with a passage for receiving coins or counters, of a vertical passage 43, a coin-spring 41 for supporting the coin or counter beneath the passage 43, a push-rod 24 for forcing the coin or counter upon the spring 41, a striking-spring 42 located beneath the spring 41, and a retracting device 44 for retracting and then releasing the spring 42 secured to the push-rod, substantially as shown and described.

6. In a machine of the class described, the combination with a passage for receiving the coins or counters, of a vertical passage 43, a coin-spring 41 for supporting the coin or counter beneath the passage 43, a push-rod 24 for forcing the coin or counter upon the spring 41, a striking-spring 42 located beneath the spring 41, a retracting device 44 secured to the push-rod for retracting the spring 42 secured to the push-rod and provided with ratchet-teeth 46, and a lug secured to the spring 42 adapted to engage with the teeth 46, substantially as shown and described.

7. In a machine of the class described, the combination with a passage for receiving the coins or counters, of a push-rod 24 having a coin-receiving slot 30 smaller than the coin or counter required to operate the machine, and a passage 22' adjacent to the slot 30 for returning too-large coins or counters or any excessive number of coins to the operator, substantially as shown and described.

8. In a machine of the class described, the combination with a plurality of slits or passages as 90, 91, 92 and 93, adapted to receive coins or counters fortuitously or otherwise, of a catch or lever 66 adjacent to each of said slits or passages adapted to be actuated by the pressure of the coin in the slit or passage, a rock-shaft 102 having levers or fingers 106 adjacent to each of the catches or levers 66 adapted to be rocked by the movement of either of said catches or levers, a register or counter adapted to be actuated by the movement of the rock-shaft, and means for forcing coins or counters in the slits or passages against the catches or levers 66, substantially as shown and described.

9. In a machine of the class described, the combination with a plurality of compartments having tilting pans or bottoms 62, of catches or levers 66 holding said bottoms or pans in place, a coin slit or passage leading to each of the catches or levers 66 one to each, and mechanism for forcing a coin or counter located in any of the slits or passages against its catch so as to release and dump its particular bottom or pan 62, substantially as shown and described.

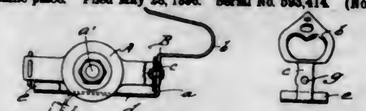
10. In a machine of the class described, the combination with a plurality of compartments having tilting pans or bottoms 62, of catches or levers 66 holding said bottoms or pans in place, a coin slit or passage leading to each of the catches or levers 66 one to each, means for fortuitously directing coins or counters into any of the compartments having the tilting bottoms or into the coin slits or passages, and mechanism for forcing coins or counters located in the coin slits or passages against the adjacent catch or lever 66, so as to release the tilting pan or bottom held in place thereby, substantially as shown and described.

11. In a machine of the class described, the combination with a slot or passage for receiving the coins or counters of a vertical passage 43, a push-rod 24, means for preventing retraction of the push-rod when once started inward with a coin or counter in position until a full rearward movement has been made, means for throwing the coin or counter up through the passage 43, a plurality of compartments having tilting bottoms or pans 62 held in a closed position by movable catches or levers 66 and a coin slit or passage open at the top leading to each of said catches 66, the construction being such that the coins or counters thrown up through the vertical passage 43 will be fortuitously directed either into one of the tilting-pan compartments, or into one of the coin-slits behind one of the catches 66 whereby such catch may be moved through the medium of such coin or counter so as to release its tilting pan, substantially as shown and described.

12. In a machine of the class described, the combination with a passage for receiving the coins or counters, of a vertical passage 43, a coin-spring 41 for supporting the coin or counter beneath the passage 43, a push-rod 24 for forcing the coin or counter upon the spring 41, a striking-spring 42 located beneath the spring 41, means for retracting and then releasing the spring 42 secured to the push-rod whereby upon the inward movement of the push-rod the spring 42 is first retracted and then released so as to throw the coin or counter up through the passage 43, a plurality of compartments having tilting bottoms or pans 62, held in a closed position by movable catches or levers 66, and a coin slit or passage open at the top leading to each of said catches 66, the construction being such that the coins or counters thrown up through the vertical passage 43 will be fortuitously directed either into one of the tilting-pan compartments or into one of the coin-slits behind one of the catches 66 whereby such catch may be moved through the medium of such coin or counter so as to release its tilting pan, substantially as shown and described.

13. In a machine of the class described, a coin or counter deflector 50, supported by a sliding piece 110, which piece 110 is moved in and along a sliding piece 113 by a screw 112, the sliding piece 113 being supported in and moved along a support 114 in another direction by a screw 115, substantially as shown and described, and for the purposes set forth.

578,439. PEDAL ATTACHMENT FOR BICYCLES. WILLIAM A. BARBER, Reading, Pa., assignor of one-half to William Storm Miller, same place. Filed May 28, 1896. Serial No. 593,414. (No model.)



Claim.—As a new article of manufacture a toe-clip adapted to be secured to a bicycle-pedal, having an integrally-formed bendable arm *d* with a rigidly-attached weight at the extremity thereof, whereby to regulate the normal position of the pedal substantially as set forth.

578,440. KNIFE-SHARPENER. ELIE BRAUDIN, Rhinelander, Wis. Filed July 25, 1896. Serial No. 600,482. (No model.)



Claim.—1. The herein-described knife-sharpener, comprising a standard or support, arms extending from said standard or support and provided with inner convexed faces, and files adapted to rest against said convexed faces, as set forth.

2. The herein-described knife-sharpener, comprising a standard or support, arms extending from said standard or support and having overhanging hook-like portions, and files adjustably mounted between said arms, as set forth.

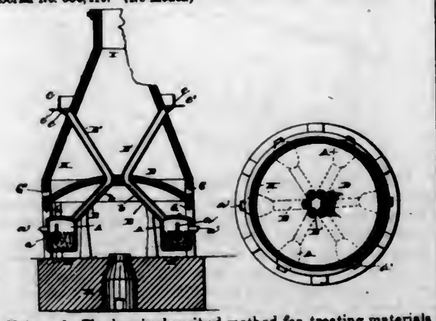
3. The herein-described knife-sharpener, comprising a standard or support, arms extending from said standard or support and having upper hook-like portions and inner convexed faces, and files adjustably mounted between said arms, as set forth.

4. The herein-described knife-sharpener, comprising a standard or support having upper V-shaped extensions, arms extending from said standard or support adjacent said extensions, and files adapted to rest on said extensions and adjustably mounted between said arms, as set forth.

5. The herein-described knife-sharpener, comprising a standard or support having V-shaped extensions, arms extending from said standard or support adjacent said extensions and having upper hook-like ends, and files adapted to rest on said extensions and adjustably mounted between said arms, as set forth.

6. The herein-described knife-sharpener, comprising a standard or support having V-shaped extensions, arms extending from said standard or support adjacent said extensions and having inner convex faces, and files adjustably mounted between said arms and having outer flat sides adapted to rest against the convex faces of said arms and provided with inner convex faces, substantially as and for the purpose set forth.

578,441. GLASS-FURNACE. SIMEON BESSELL, Pittsburg, Pa., assignor to Henry H. Bliss, Washington, D. C. Filed July 11, 1890. Serial No. 558,419. (No model.)



Claim.—1. The herein-described method for treating materials in the manufacture of glass, which consists in passing them in a stream through a heated duct surrounded by a gas-chamber, passing heated currents of gas or the gaseous products of combustion through said chamber around said duct and therewith melting said materials while passing through the duct, and excluding said gases and products of combustion from said materials while melting them, receiving the molten material in a collector closed against the entrance of the products of combustion, heating the said collector to maintain the material in a fluid state while so isolated, and withdrawing it therefrom for working, substantially as set forth.

2. The herein-described method for treating materials when melting them in the manufacture of glass, which consists in passing them in a stream through a duct situated in the inclosed exhaust-passage of a combustion-chamber directing currents of heated gases or products of combustion against and around said duct from which duct the gases and products of combustion are excluded, arresting said materials at one or more stages in said duct while so passing, and receiving the molten material from said duct in a heated collector closed against the entrance of the products of combustion, substantially as set forth.

3. The herein-described method of fusing materials and treating them after fusion in the manufacture of glass, the same consisting in passing the said materials through a heated duct which is surrounded by inclosed currents of heated gases or products of combustion, then delivering the fused glass to a heated collector closed against the entrance of the products of combustion, and continuously withdrawing it therefrom, for working, substantially as set forth.

4. The herein-described method of fusing materials and treating them after fusion in the manufacture of glass, the same consisting in passing the said materials through a fusing-duct to a collector which receives the molten glass, producing by combustion in a fire-chamber a mass of heated air and gases dividing the said mass into a larger part and an independent smaller part, and simultaneously directing the larger part against and around the melting-duct, and the smaller part against and around said collector, whereby a higher heat is imparted to said duct than to said collector, and excluding the said heated gases and products of combustion from said duct and collector, substantially as set forth.

5. The herein-described method of fusing materials and treating them after fusion in the manufacture of glass, the same consisting in passing said materials along a fusing-duct heated by currents of gas or products of combustion inclosed in a chamber around said duct but excluded therefrom, said duct being inclined whereby the glass can more or less clear itself while therein, receiving said glass in a heated collector or chamber also closed against the entrance of the products of combustion and where it is allowed to stand till entirely cleared and withdrawing it from another heated chamber communicating with that aforesaid at points below the surface, substantially as set forth.

6. In a glass-melting mechanism, the combination of the closed heated collector having a working hole for withdrawing glass, a closed melting chamber or duct communicating with the collector, the heating-chamber inclosing said collector and duct, the reservoir as at C, means for regulating the passage of material from the reservoir to the collector, and a partition or wall *a* providing a passage-way for the melted material below the surface of the molten glass in the withdrawing-chamber, substantially as set forth.

7. In a glass-melting mechanism, the combination with the closed heated collector of the closed melting-duct, which is inclined to permit the material to pass through it by gravity and which is provided with steps or arresting devices, and the heating-chamber inclosing said duct and collector, substantially as set forth.

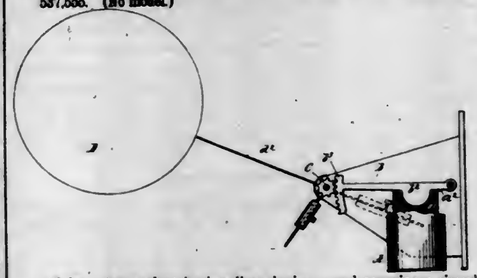
8. In a glass-melting mechanism the combination with the fusing-duct, and the collector connected with the fusing-duct, of the fire-chamber, the passage-way for the products of combustion around the collector through which they can pass and from which they can escape, and the passage-way for the products of combustion around the melting-duct through which they can pass and from which they can escape independently of the aforesaid passage-way, substantially as set forth.

9. The combination with the fusing-duct, and the collector connected with the fusing-duct, of the fire-chamber, two exhaust-flues for the final escape from the furnace of the products of combustion, one of the said escape-flues being adjacent to the collector, the two passage-ways through which can pass independently two bodies of heated gas, one around the collector and one around the fusing-duct, said passage-ways connecting with said exhaust-flues, and means for regulating or graduating the flow of said bodies of gas through said passages, substantially as set forth.

10. The combination with the fusing-duct B, and the collector A connected with the fusing-duct, of the fire-chamber, the flues N N leading from the fire-chamber, and the flue or chamber E' leading from flues N, through which the heated gases can rise and pass above the fusing-duct, the flues N', N', leading from the fire-chamber in front of those at N, and adjacent to the collector, and escape flues or passages severally communicating with chamber E' and flues N', substantially as set forth.

11. The combination with the fire-chamber, of the inclined fusing-duct arranged directly above the fire-chamber, the collector at the inner end of the fire-chamber communicating with the fusing-duct and having its rear or receiving part exposed to the heated gases, the chamber or flue E', directly above the fusing-duct, the ducts N, leading from the fire-chamber to said chamber E', the exhaust-flue therefor, the flues N', around the discharging parts of the collector and communicating with the fire-chamber, and the exhaust-flue therefor separate from the exhaust-flue from chamber E', substantially as set forth.

578,442. DEVICE FOR OPERATING SIGNALS. SAMUEL S. BOGART, Schraalenburg, N. J., assignor to the Electric Selector and Signal Company, of West Virginia. Filed Feb. 7, 1895. Serial No. 537,555. (No model.)

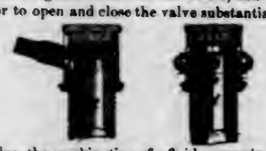


Claim.—In an electric signaling device, a rod carrying a signal at one end and attached near its other end to a properly-journaled shaft, carrying a pinion, in combination with a fulcrumed armature-lever, provided at its free end with a rack meshing with the pinion on the shaft, and carrying a convex armature located between the fulcrum and the free end of the armature-lever, an electromagnet provided with a pole conforming in shape to the convex armature, and the counterbalance d^3, whereby the weight of the signal is adjusted to be raised by a magnet of little power, and is lowered by its own weight aided by the counterbalance.

578,443. VALVE. LOUIS H. BRINKMAN, Brooklyn, N. Y., assignor to the New York Pipe Bending and Machine Company, same place. Filed Sept. 23, 1895. Serial No. 563,302. (No model.)

Claim.—1. In a valve, the combination of a fluid-conveying tube, a casing-tube sleeved thereon, an end plug held in said casing-tube, and a valve-tube longitudinally movable in said fluid-conveying tube, said fluid-conveying and casing tubes provided with one or more fluid-passages and said valve-tube closing said fluid-passages by contact with said end plug, substantially as set forth.

2. The combination of a fluid-conveying tube, a casing-tube sleeved thereon, an end plug held in said casing-tube, and a valve-tube longitudinally movable in said fluid-conveying tube, said fluid-conveying and casing tubes being provided with one or more fluid-passages and said valve-tube closing said fluid-passages by contact with said end plug, and a yoked lever pivoted upon said casing-tube and means connecting said lever and valve-tube, and means for actuating said lever to open and close the valve substantially as set forth.



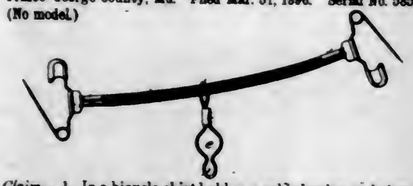
3. In a valve, the combination of a fluid-conveying tube, a casing-tube sleeved thereon, a removable end plug adjustably held in said casing-tube and having a yielding inner surface, a valve-tube longitudinally movable in said fluid-conveying tube, said fluid-conveying and casing tubes being provided with one or more fluid-passages, and said valve-tube closing said fluid-passages by contact with the yielding surface of said end plug, a peripheral packing between said valve-tube and casing, said fluid-passages being located between said end plug and peripheral packing, substantially as set forth.

4. The combination of a fluid-conveying tube, a casing-tube sleeved thereon, a removable end plug adjustably held in said casing-tube and having a yielding inner surface, a valve-tube longitudinally movable in said fluid-conveying tube, said fluid-cooveying and casing tubes being provided with one or more fluid-passages, and said valve-tube closing said fluid-passages by contact with the yielding surface of said end plug, a peripheral packing between said valve-tube and casing, said fluid-passages being located between said end plug and peripheral packing, a lever pivoted upon said casing-tube and a valve-stem projecting through the casing and engaging with said lever, and means for actuating said lever to open and close the valve, substantially as set forth.

5. In a valve, the combination of a fluid-conveying tube, a casing-tube sleeved thereon, an end plug held in said casing-tube, a valve-tube longitudinally movable in said fluid-conveying tube, said fluid-conveying tube terminating some distance from the inner surface of the end plug so as to form an annular chamber about the upper end of the valve-tube and said casing-tube being provided with one or more fluid-passages leading outward from said annular chamber, and a peripheral packing between said valve-tube and casing, substantially as set forth.

6. The combination of a fluid-conveying tube, a casing-tube sleeved thereon, an adjustable end plug held in said casing-tube, a valve-tube longitudinally movable in said fluid-conveying tube terminating some distance from the inner surface of the end plug so as to form an annular chamber about the upper end of the valve-tube and said casing-tube being provided with one or more fluid-passages leading outward from said annular chamber, and a peripheral packing between said valve-tube and casing, a valve-stem projecting from said valve-tube, a pivoted lever engaging with said valve-stem, a fluid-receptacle adapted to be supplied through said fluid-passages, and a float-ball in said fluid-receptacle actuating said pivoted lever, substantially as set forth.

578,444. BICYCLE-SKIRT FASTENER. SARAH C. CLAGETT, Prince George County, Md. Filed Mar. 31, 1896. Serial No. 585,545. (No model.)



Claim.—1. In a bicycle-skirt holder, a cable having an independent and complete fastener at each end; in combination with a holder sliding on the cable, substantially as described.

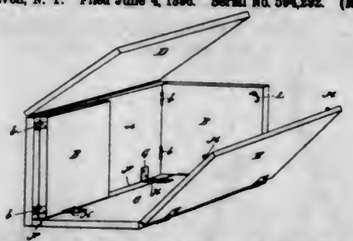
2. In a bicycle-skirt holder, an elastic cable having a fastener at each end; in combination with a holder sliding on the cable, substantially as described.

3. In a bicycle-skirt holder, a cable having an independent and complete fastener at each end; in combination with a holder consisting of a loop surrounding the cable and a second loop at an angle to the first loop, said second loop having an open ring adapted to engage a button, said holder sliding on the cable, substantially as described.

4. In a bicycle-skirt holder, a cable having an independent and complete fastener at each end each fastener adapted to be secured to a fabric; in combination with a holder consisting of a loop surrounding the cable and a second loop adapted to engage a button, said holder sliding on the cable, substantially as described.

5. In a skirt-holder, the combination of a strip of material, clasps at opposite ends thereof, and a clamp intermediate said ends.

578,445. COLLAPSIBLE BOX. HERBERT A. CORLISS, Wood Haven, N. Y. Filed June 4, 1896. Serial No. 594,292. (No model.)



Claim.—A collapsible or folding box or crate, substantially as herein shown and described, consisting of a back A, ends B, a bottom C, front E and a top or cover D, said back A, having secured along one edge thereof, a strip F to which the bottom is hinged, the ends B being hinged to the back A and adapted to be folded thereupon over the strip F, which strip, is secured in position by angular plates G, to one end of which plates are secured the hinges H attaching the back A to the bottom C, the top B and the front E, being provided with three-plate hinges K and the ends B having secured thereto hooks L to retain the front E in connection therewith, all constructed and arranged as herein specified.

578,446. COMBINATION CHAIR AND IRONING-BOARD STAND. BASIL H. COOPER, Bluefield, W. Va., assignor of one-half to Andrew P. Gladden, same place. Filed Aug. 12, 1896. Serial No. 602,464. (No model.)



Claim.—In a device of the character set forth, the combination with a chair having a seat and supporting-legs, the rear supporting-legs extending upwardly and connected by a pair of cross-bars slightly separated one from the other, of a supplemental seat hinged to the seat of said chair, supplemental legs connected thereto, extended upwardly and connected by a cross-bar, and an ironing-board, one end of which is adapted to be inserted between said pair of cross-bars, and the outer end of which is adapted to rest upon the cross-bars connecting said supplemental legs, substantially as and for the purpose described.

578,447. BARBED-WIRE FENCE. SAMUEL DEFF, Jansville, Idaho. Filed Apr. 11, 1896. Serial No. 587,135. (No model.)

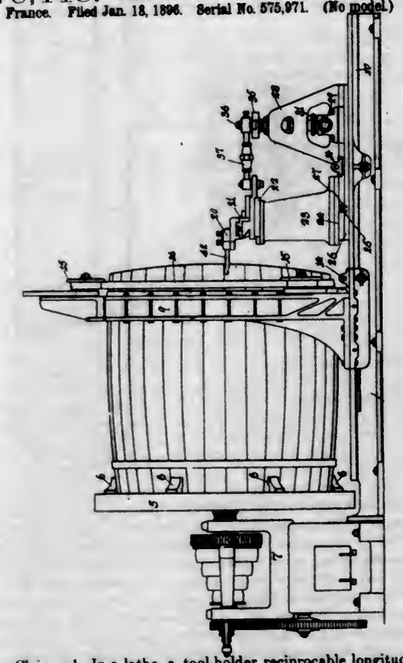


Claim.—1. A barbed fencing-strip having the barbs stamped therefrom in pairs, with a line of separation between the members of each pair of barbs at an angle to the edges of the strip, substantially as described.

2. A fencing-strip of cheap metal having prongs stamped therefrom with their ends turned under to prevent injury to anything coming in contact therewith, substantially as described.

3. A fencing-strip of cheap metal having prongs stamped therefrom in pairs, with a line of separation between the members of each pair at an angle to the edges of the strip and the ends of said prongs turned under to prevent injury to anything coming in contact therewith, substantially as described.

578,448. BARREL-MAKING. ADOLPHE FRUHINSHOLZ, Nancy, France. Filed Jan. 18, 1896. Serial No. 575,971. (No model.)



Claim.—1. In a lathe, a tool-holder reciprocable longitudinally of the lathe-bed and adjustable laterally of said bed so as to engage the tool with the end of the work at different points longitudinally and laterally, of a vertical shaft in said bed adjustable laterally thereof, a rotary shaft extending transversely of the bed and geared to the vertical shaft, and a connection from said vertical shaft to the tool-holder for reciprocating the tool, as and for the purpose set forth.

2. The combination with the reciprocating and laterally-adjustable tool-holder, of a vertical shaft independently adjustable across the bed of the lathe, a connection to said shaft by which it is rotated at twice the speed of the lathe-head, and an extensible connection between said shaft and the tool-holder, substantially as and for the purpose set forth.

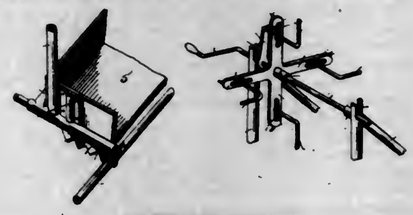
3. The combination with the reciprocating and laterally-adjustable tool-holder, of a vertical shaft independently adjustable across the bed of the lathe, a connection to said shaft by which it is rotated at twice the speed of the lathe-head, a diametrically-slotted disk at the upper end of said shaft, a wrist-pin located adjustably therein, and an extensible pitman connected to said pin and to the tool-holder, as and for the purpose set forth.

4. The combination with the fixed universal plate or lathe-head, of the ring-plate adjustable to and from the lathe-head, and rollers mounted upon said plate and radially adjustable with relation thereto, said rollers being flanged upon one side, and adapted to furnish a bearing for one of the clamping or truss hoops against the chime side of which the flanges of said rollers engage, substantially as and for the purpose set forth.

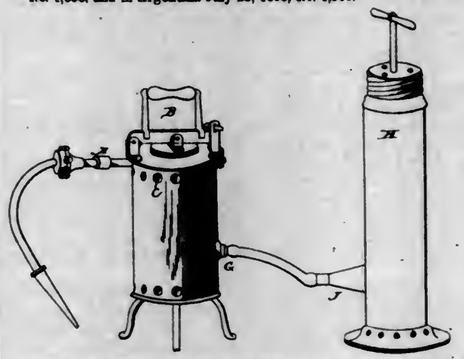
578,449. REEL-CARRIER. WARNER E. GEHLER, Macomb, Ill. Filed Mar. 2, 1896. Renewed Jan. 11, 1897. Serial No. 618,896. (No model.)

Claim.—1. In a reel-carrier, a frame mounted upon front and rear wheels, a platform permanently secured to the frame, a serrated flange depending from the forward axle and a spring-arm secured to the rear wheel-support and coacting with the serrated flange to adjustably secure the rear wheel in any predetermined position.

2. In a reel-carrier, a frame mounted upon front and rear wheels, a platform secured upon the frame, a serrated flange depending from the front axle, a spring-arm secured to the rear wheel normally in engagement with the serrations of the flange, sockets secured upon the front end of the platform and a guide removably secured in the sockets, whereby it can be reversed or removed as desired.

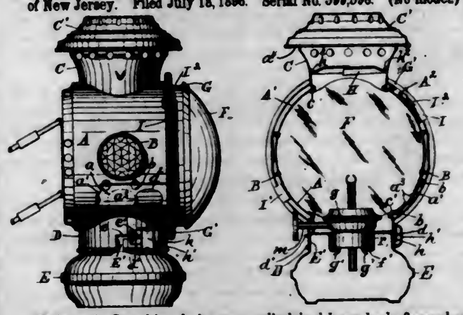


578,450. ANT-DESTROYER. ANTONIO GUERRA, Buenos Ayres, Argentina. Filed Sept. 26, 1895. Serial No. 563,793. (No model.) Patented in Uruguay Aug. 2, 1894, No. 101; in Brazil Mar. 25, 1895, No. 1,838, and in Argentina July 25, 1895, No. 1,563.



Claim.—In combination, in an ant-destroyer, the outer perforated shell having an inwardly-extending top flange, an imperforate inner shell depending from the center of said flange, a cross-bar provided with a handle pivoted to said flange, a cover depending from said cross-bar, and adapted to close said inner shell, and a perforated disk adapted to receive the combustible compound arranged intermediately of said inner shell, substantially as described.

578,451. BICYCLE-LAMP. GEORGE HAVELL and AUGUST H. MEYER, Newark, N. J., assignors to the Havell Manufacturing Company, of New Jersey. Filed July 18, 1896. Serial No. 599,598. (No model.)



Claim.—1. In a bicycle-lamp, a cylindrical lamp-body formed of sheet metal having a flange turned outwardly at the front edge and rolled into the annular bead A′ with notch A^3 in one side, and the lens F having the lens-ring G with bead at the edge forming the annular recess G′, and the lugs I, I′, projected inward from the bead at opposite edges of such recess and adapted to fit the rear side of the bead A′, substantially as herein set forth.

2. In a bicycle-lamp, a sheet-metal lamp-body A of horizontal cylindrical shape with lens attached to the front end, and a substantially round lighting-opening *a* in the side, with isolated integral tongues stamped from the sheet metal of the shell at the corners of the said opening, and bent outwardly and then parallel with the shell, and a slide fitted between such tongues and the shell and provided

with an aperture a^2 having the lug a^3 formed integral with the slide at one end of the aperture a^2, and bent into the opening a to form a stop for the slide when opened and closed respectively, substantially as herein set forth.

3. In a bicycle-lamp, the combination, with the lamp-body and means for securing an oil-cup detachably thereon, of the oil-cup having in the top the recess r with locking-flange f in the bottom provided with notches f', the detachable burner having the body and bottom formed in one piece and fitted within said recess, and the bottom being formed with the opposite integral ears g' stamped from the metal of the bottom, and bent to pass through the notches f' and clamp the under side of the flange f when suitably rotated, substantially as herein set forth.

4. In a bicycle-lamp, the combination, with the lamp-body and means for securing an oil-cup detachably thereon, of the oil-cup having in the top the recess r with locking-flange f in the bottom provided with notches f', the detachable burner having the body and bottom formed in one piece and fitted within said recess, and the bottom being formed with the opposite integral ears g', stamped from the metal of the bottom, and bent to pass through the notches f' and clamp the under side of the flange f, the polygonal feed-spindle projected from the side of the burner above the top of the oil-cup, and the bracket s upon the top of the oil-cup to arrest the burner when locked in the recess, and the spindle being held against the bracket by the frictional contact of the lugs g' with the flange f, and thus held from rotation, substantially as herein set forth.

5. In a bicycle-lamp having oil-cup at the bottom and smoke-funnel at the top, with smoke-outlets a at the upper end, and tongues A^3 bent inward from the sides below such outlets, of the collapsible deflecting-collar H fitted to spring into the funnel in contact with the said lugs, as and for the purpose set forth.

6. In a bicycle-lamp having oil-cup at the bottom and smoke-funnel at the top, with annular flange a^4 and perforations at the upper end and tongues A^3 bent inward from the sides below such perforations, of the cap C having its margin seamed over the edge of the flange a^4, and the collapsible deflecting-collar H fitted to spring into the funnel in contact with the said tongues, as and for the purpose set forth.

7. In a bicycle-lamp having a socket to embrace a supporting-bracket, the combination, with said socket, of the elliptic spring O having hooked lugs o^3 at opposite ends to movably clamp the edge of the socket at the upper and lower ends, substantially as herein set forth.

8. In a bicycle-lamp having a socket N hinged thereto, to embrace a supporting-bracket p, with hinge-loops m' at the opposite ends of said socket, of the elliptic spring O having hooked lugs o^3 at opposite ends, fitted movably over the said hinge-loops, as and for the purpose set forth.

578,452. FLUXING-MACHINE. MILLARD J. HAWKINS, Farnham, N. Y. Filed Aug. 15, 1896. Serial No. 602,844. (No model.)

Claim.—1. The combination with a can-conveyer, of a movable brush-carrier provided with an actuating device which is engaged by the moving cans and receives its motion therefrom, whereby the carrier is driven from said conveyer through the intervention of the cans and remains at rest when no can engages with the actuating device, substantially as set forth.

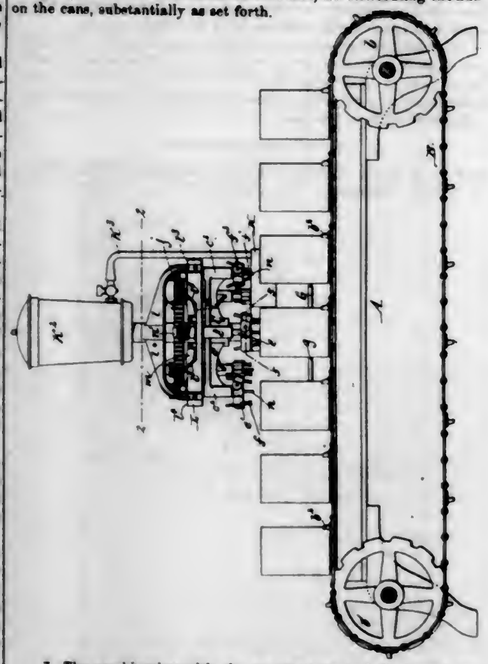
2. The combination with the can-conveyer, of a movable brush-carrier provided with a number of fluxing-brushes which are engaged successively with the cans on the conveyer, and a movable shifting-arm connected with the brush-carrier and adapted to project into the path of the cans so that the brush-carrier is operated by the forward movement of the cans, substantially as set forth.

3. The combination with the can-conveyer, of a rotary brush-carrier provided with brushes which are engaged successively with the cans on the conveyer, and a rotary star-wheel connected with said carrier and having its arms moved successively into the path of the cans on the conveyer, substantially as set forth.

4. The combination with a can-conveyer, of a rotary carrier provided with a brush which is adapted to engage with a can, and a guide whereby the can is caused to move in the same arc in which the brush moves while the latter is in engagement with the can, substantially as set forth.

5. The combination with a can-conveyer, of a rotary carrier provided with a brush which is adapted to engage with a can, and guide-rails arranged on opposite sides of the can-conveyer and adapted to engage with opposite sides of the can and cause the same to move forward in the same arc in which the brush moves while the latter is in engagement with the can, substantially as set forth.

6. The combination with the can-conveyer and the rotary carrier, of an annular row of rotary fluxing-brushes journaled in said carrier, the several brushes being turned with the carrier for bringing them successively into engagement with the cans and each brush being capable of rotation about its own axis, for distributing the flux on the cans, substantially as set forth.



7. The combination with the can-conveyer and the rotary carrier, of an annular row of brush-spindles journaled in said carrier so as to rotate bodily around the axis of the carrier, and a stationary gear-wheel which meshes with gear-pinions on the brush-spindles and whereby each of the latter is caused to rotate individually about its own axis while rotating with the carrier, substantially as set forth.

8. The combination with a can-conveyer and a rotary carrier arranged above the same, of brushes mounted in said carrier and capable of vertical movement independent of each other while rotating with said carrier, and shifting mechanism whereby each brush is lowered when it has arrived over a can to apply the flux and is raised from the can after the flux has been applied, substantially as set forth.

9. The combination with a can-conveyer and a rotary carrier arranged above the same, of brushes mounted in said carrier and capable of vertical movement independent of each other while rotating with said carrier, and a guide-ring provided with a depression over said conveyer, whereby the brushes are successively lowered and raised as they pass over the conveyer and the cans carried thereby, substantially as set forth.

10. The combination with a can-conveyer, a rotary carrier, and a brush mounted in said carrier and capable of vertical movement while rotating therewith, of a flux-pan arranged underneath the path of the brush, and shifting mechanism whereby the brush is lowered into the pan to receive the flux and raised out of the pan while being carried over the same, substantially as set forth.

11. The combination with a can-conveyer, a rotary carrier, and a brush mounted on said carrier and capable of vertical movement while rotating therewith, of a flux-pan arranged underneath the path of the brush, shifting mechanism whereby the brush is lowered into the pan to receive the flux and raised out of the pan while being carried over the same, and shifting mechanism whereby the brush is lowered when it has arrived over a can to apply the flux and is raised after the flux has been applied, substantially as set forth.

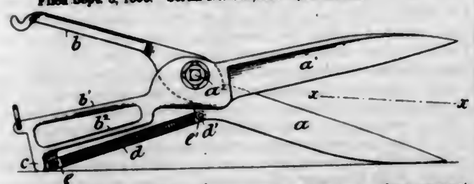
12. The combination with a can-conveyer, a rotary carrier, and a brush mounted in said carrier and capable of vertical movement while rotating therewith, of a flux-pan arranged underneath the path of the brush, and a guide-ring provided with a depression over said pan and with a depression over said conveyer, whereby the brush is raised and lowered in passing over said pan and subsequently in passing over said conveyer, substantially as set forth.

13. The combination with the can-conveyer, of a rotary carrier, a brush mounted in the same and capable of vertical movement, a lifting-lever connected with said brush and pivoted on the carrier, and a stationary guide engaging with the lifting-lever and provided with elevated and depressed portions whereby the brush is raised and lowered while rotating with the carrier, substantially as set forth.

14. The combination with the can-conveyer and the flux-pan, of a vertical arbor arranged adjacent to said conveyer and pan, a horizontally-rotating carrier journaled on said arbor and arranged to swing over said conveyer and pan, an annular row of vertical spindles journaled in said carrier and provided with fluxing-brushes, a stationary gear-wheel secured to the arbor and meshing with pinions on the upper ends of the spindles, lifting-levers loosely connected with the spindles and pivoted with their inner ends on the carrier, and a guide-ring connected with the arbor and provided with a bearing-surface on which the outer ends of said levers are supported, said bearing-surface having depressed portions over the conveyer and pan and elevated portions between the depressed portions, substantially as set forth.

15. The combination with the spindle provided with a laterally-projecting arm, of a clamp pivotally secured to said arm by a transverse screw and provided with a recessed jaw and a brush clamped between said jaw and arm, substantially as set forth.

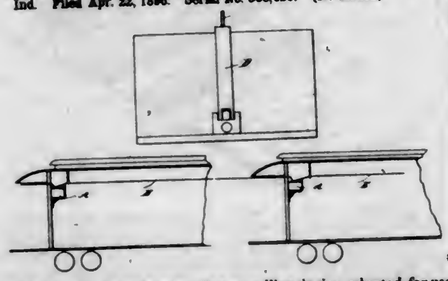
578,453. SHEARS. DANIEL H. HOLLINGSWORTH, Brooklyn, N. Y. Filed Sept. 8, 1896. Serial No. 605,096. (No model.)



Claim.—1. A pair of shears comprising blades, a pivot connecting the blades, the handle b' provided with an inclosing guard extending the full length of the handhold, a spring connected to the heel of one blade and to the under side of the aforesaid guard, a table rest or guide projecting from the under side of the guard and protecting the outer end of the spring, said spring adapted for retaining the blades in open position, and means for locking the blades in closed position.

2. A pair of shears comprising blades, a pivot connecting the blades, the handle b' provided with an inclosing guard extending the full length of the handhold, a spring connected to the heel of one blade and to the under side of the aforesaid guard, a table rest or guide projecting from the under side of the guard and protecting the outer end of the spring, said spring adapted for retaining the blades in open position, and at all times in the open and closed position of the blades being parallel with the hand-guard, and means for locking the blades in closed position, comprising a ring loosely secured to one handle and a spur integral with the other handle.

578,454. STATION-INDICATOR. WILLIAM H. HOLLOWAY, Brazil, Ind. Filed Apr. 22, 1896. Serial No. 588,623. (No model.)



Claim.—1. A station signaling or calling device, adapted for use in connection with tramway and other cars, said devices consisting of a box or casing which is adapted to be secured within a car, and being provided with an opening in the side thereof, and with a vertical extension through which passes a vertically-movable bolt, said box or casing being also provided with a pivoted lever which is provided with a pawl which is adapted to operate in connection with said bolt, and said lever being adapted to be operated by a cord which is connected therewith, said box or casing being also provided adjacent to said opening with two rollers, one of which is mounted above the other, and also with two spring-rollers which are suitably mounted therein, on which is placed a strip or belt, on which are placed at regular intervals, the names of the stations on the line, which belt is in connection with the vertically-fixed bolt hereinbefore mentioned and by means of which the said belt is released at predetermined intervals, substantially as shown and described.

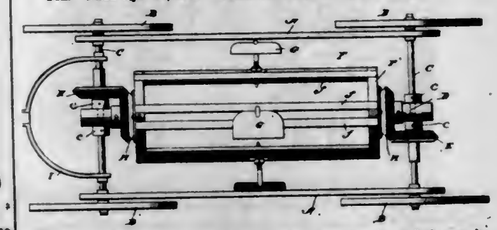
2. A station signaling or calling device, adapted for use in connection with tramway and other cars, said device consisting of a box or casing which is adapted to be secured to the end of a car, and being provided with an opening in the side thereof, and with a vertical extension through which passes a vertically-movable bolt, said box or casing being also provided on its upper side with a pivoted lever which is provided with a pawl which is adapted to operate in connection with said bolt, and said lever being adapted to be operated by a cord which is connected therewith, said box or casing being also provided adjacent to said opening with two rollers, one of which is mounted above the other, and also with two spring-rollers which are suitably mounted therein, on which is placed a strip or belt, on which are placed at regular intervals, the names of the stations on the line, the strip or belt which is provided with the names of the stations, being also provided at regular intervals with transverse strips or plates which are secured thereto, which are adapted to operate in connection with said vertically-movable bolt, substantially as shown and described.

3. A station signaling or calling device, for use on tramway and other cars, comprising a box or casing having an opening in the front thereof, said box or casing being provided with two rollers which are mounted therein adjacent to said opening and at the upper and lower sides thereof, and with two spring-rollers on which is mounted a strip or belt on which the names of the stations on the line are placed, and means whereby the rollers are allowed to actuate, consisting of a vertically-movable bolt, which is adapted to operate in connection with transverse strips or plates secured to said belt; substantially as shown and described.

4. A station signaling or calling device, for use on tramway and other cars, comprising a box or casing having an opening in the front hereof, said box or casing being provided with two rollers which are mounted therein adjacent to said opening and at the upper and lower sides thereof, and with two spring-rollers on which is mounted a strip or belt on which the names of the stations on the line are placed, and means whereby the rollers may be allowed to actuate, consisting of a vertically-movable bolt, which is adapted to operate in connection with transverse strips or plates secured to said belt, and means under the control of the conductor for operating said bolt, substantially as shown and described.

5. A station signaling or calling device, for use in tramway and other cars, comprising a box or casing having an opening in the front thereof, said box or casing being provided with two rollers which are mounted therein adjacent to said opening and at the upper and lower sides thereof, and with two spring-rollers on which is mounted a strip or belt on which the names of the stations on the line are placed, and means whereby the rollers may be allowed to actuate, consisting of a vertically-movable bolt, which is adapted to operate in connection with transverse strips or plates secured to said belt, and means under the control of the conductor for operating said bolt, consisting of a lever which is pivotally supported and provided with a pawl which is adapted to operate in connection with a notch or recess formed in said bolt, substantially as shown and described.

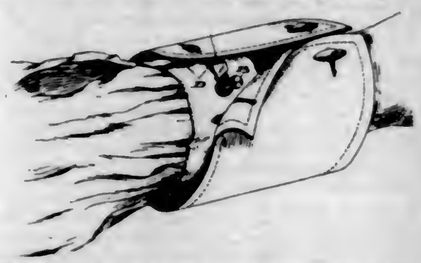
578,455. COTTON-CHOPPER. BENJAMIN F. HOPKINS, Huntsville, Tex. Filed Apr. 24, 1896. Serial No. 588,925. (No model.)



Claim.—1. In a cotton-chopper, the combination of the main frame, the axles journaled therein and rigidly attached to the drive-wheels, the central shaft D which is supported upon the axles between the collars c c that are rigid on the axles, the revolving, cylindrical frame on the shaft D, said frame consisting of the end pieces F' and the connecting parts f and carrying the hoes G, the gearing-wheels H attached to the revolving frame, and the gearing-wheels E on the axles and meshing with the gears H, substantially as described.

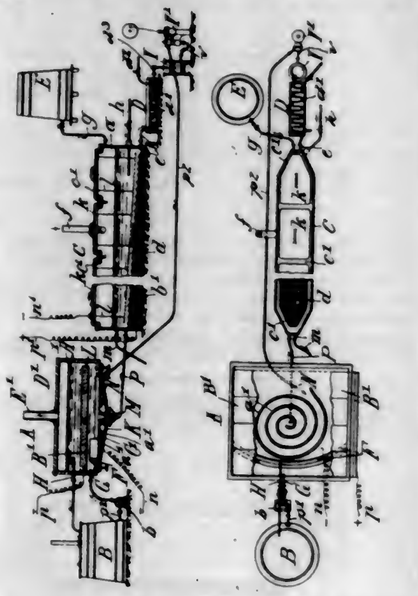
2. In a cotton-chopper, the combination with the main frame, of axles journaled therein and rigidly attached to the drive-wheels, a central longitudinal beam having journals formed in the ends thereof for reception of the axles, collars on the axles for controlling lateral movement of the beam, a revolving frame supported loosely on the central beam and carrying the hoes, and suitable gearing connection between said revolving frame and the axles.

578,456. LINK-CUFF HOLDER. JOSEPH ICHHEIMER, New York, N. Y. Filed Sept. 25, 1896. Serial No. 606,954. (No model.)



Claim.—A cuff-holder having a button or stud at one end and a sole or loop at the other end, the parts carrying the said loop and button being jointed together, substantially as and for the purposes hereinbefore set forth.

578,457. PROCESS OF AND APPARATUS FOR SIMULTANEOUSLY PRODUCING AMMONIA, SODIUM HYDROXID, AND CHLORIN. CARL KELLNER, Vienna, Austria-Hungary. Filed Feb. 24, 1896. Serial No. 580,566. (No model.) Patented in Germany July 14, 1893, No. 80,300; in Switzerland July 14, 1893, No. 7,023; in Belgium July 14, 1893, No. 105,556; in England July 14, 1893, No. 13,723; in Sweden July 14, 1893, No. 5,505; in Norway July 14, 1893, No. 3,651; in France July 15, 1893, No. 231,554; in Italy Sept. 30, 1893, XXVII, 34,582, LXVII, 453, and in Austria-Hungary Oct. 22, 1893, No. 37,778 and No. 58,884.



Claim.—1. In the electrolytic decomposition of alkali-metal chlorids in presence of a mercury cathode and a suitable anode, the improvement which consists in decomposing the chlorid, forming an amalgam, and imparting to the amalgam a gyrating motion toward a central point, for the purpose set forth.

2. In the electrolytic decomposition of alkali-metal chlorids in presence of a mercury cathode and a suitable anode, the improvement which consists in maintaining the cathode in the form of a comparatively thin layer in continuous motion in a helical direction toward a central point and causing the amalgam formed to flow off at said central point, for the purpose set forth.

3. In the production of alkali-metal hydroxids, the improvement which consists in first forming an alkali-metal amalgam with mercury, decomposing the amalgam by contact with a solution (preferably heated) of the nitrate of such alkali metal, and converting the chemical energy of the reaction into electrical energy, substantially as set forth.

4. In the production of alkali-metal hydroxids, the improvement which consists in first forming an alkali-metal amalgam with mercury and causing the amalgam to flow over a conductive surface in the presence of a solution of the nitrate of such alkali metal and a suitable electrode, for the purpose set forth.

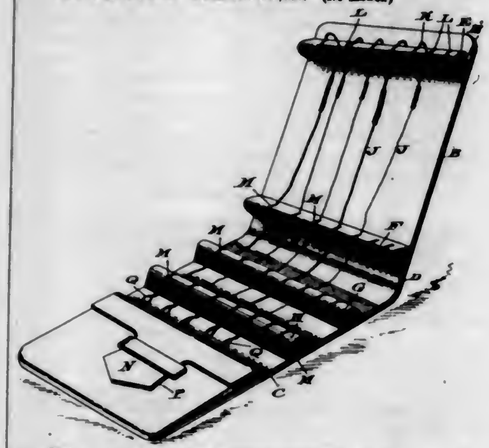
5. The herein-described process of obtaining alkali-metal hydroxids and chlorin and ammonia as by-products, which consists in electrolytically decomposing a chlorid of such metal in presence of a mercury cathode whereby chlorin and alkali-metal amalgam are formed, collecting the former and bringing the latter in contact with a solution (preferably heated) of a nitrate of said metal in presence of a suitable electrode, whereby ammonia and an alkali-metal hydroxid are formed.

6. In the production of alkali-metal hydroxids, the herein-described continuous process, which consists in causing a solution of a chlorid of an alkali metal to continuously flow over a mercury cathode, regenerating the solution on its way back to such cathode, causing the amalgam to continuously flow in contact with a solution (preferably heated) of a nitrate of such metal and back again to the electrolyte, and collecting the chlorin, ammonia and alkali-metal hydroxid obtained separately, substantially as set forth.

7. The herein-described electrolyzer comprising a vessel provided with a conical bottom having a helical rib starting about the central or deepest point, and with an outflow-orifice at said deepest point of the bottom, a vertical curvilinear cross-partition on one side of said helical rib and an anode extending across the vessel from one of its end walls nearly to the other a little above said cross-partition, said vessel provided with an inlet-port below the anode in rear of the cross-partition and with an outlet-port above said anode on the inlet side of such vessel, substantially as and for the purpose set forth.

8. The herein-described decomposing vessel provided with a transversely ribbed or corrugated conductive bottom inclining from the supply to the discharge end, an electrode constructed in the form of a grate or grid suspended above said bottom parallel therewith, electric conductors connected with the bottom and electrode respectively, means for closing the vessel gas-tight and means for heating the contents of such vessel, substantially as and for the purpose set forth.

578,458. FISH-HOOK BOOK. GEORGE KNERR, Camden, N. J. Filed Aug. 25, 1896. Serial No. 603,839. (No model.)



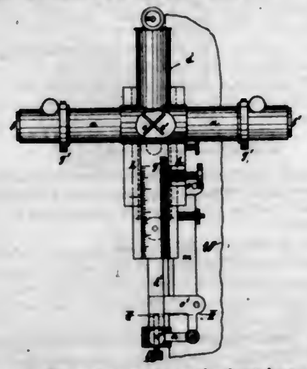
Claim.—1. A book for fish-hooks, consisting of covers having a flexible connection and provided with ledges extending transversely thereon, each of said ledges having slits therein, and a ledge on each of said covers being adapted to contact with the opposite cover, one of said latter-mentioned ledges being near the front or outer end of its cover, and the other one of said ledges being intermediate of said first ledge and the rear ends of the covers.

2. A book for fish-hooks, consisting of covers having a flexible connection, and provided with ledges extending transversely thereon, said ledges having slits thereon, and a ledge on each of said covers being in contact with opposite cover and ledges on the covers near the back of the book being adapted to contact with each other.

3. A book for fish-hooks, consisting of the flexibly-connected covers B and C, the ledges E and F on said cover B and the ledges G and H on said cover C, said ledges extending parallel with the connection of said covers and being slitted, and the ledge E having a shoulder E' extending longitudinally thereon, and the slits in said ledges being covered when said book is closed.

4. In a fish-hook book, the covers B and C in combination with slitted ledges on the cover C and the slitted ledge E on the cover B, said ledge E having a shoulder on the rear thereof.

578,459. INSTRUMENT FOR MEASURING TEMPORARY AND PERMANENT STRESSES IN IRON BRIDGES. OSKAR LEUNER, Dresden, Germany. Filed Mar. 30, 1896. Serial No. 585,388. (No model.) Patented in France Jan. 6, 1896, No. 250,236.



Claim.—1. The optical instrument having tube *a*, with objectives *b*, *b'*, at its opposite ends, and oppositely-arranged reflectors *c*, *c'*, at its middle between said objectives, and having the eyepiece-tube *d*, mounted on the middle of said tube *a*, so as to rotate on its own axis, said tube *d*, having eyepiece *e*, and mirror *f*, whereby the images within the range of both objectives *b*, *b'*, are simultaneously observed at the eyepiece *e*, in combination with the frame *m*, adapted to be fastened to a fixed object, the carrier *k*, *k'*, journaled to swing on said frame *m*, means for micrometrically adjusting said carrier *k*, *k'*, on the frame *m*, and for clamping it thereto, sleeve *i*, longitudinally adjustable on carrier *k*, *k'*, in a direction perpendicular to the axis on which the said carrier swings on the frame *m*, guide *h*, having pivot-stud entering said sleeve *i*, whereby said guide is capable of swinging in a plane at right angles to that in which said carrier *k*, *k'*, swings, means for micrometrically adjusting said guide *h*, and for clamping it in place on the sleeve *i*, a sliding plate *g*, sliding on the guide *h*, in a direction perpendicular to that in which the said sleeve *i*, slides on the carrier *k*, *k'*, said tube *a*, of the optical instrument being mounted to turn axially on said sliding plate *g*, whereby said optical instrument is capable of universal adjustment, and suitable scales to enable the adjustment to be read and noted, substantially as set forth.

2. The optical instrument for simultaneously viewing objects located in different directions, having, in combination, the tube *a*, with objectives *b*, *b'*, at its opposite ends, and oppositely-arranged reflectors *c*, *c'*, at its middle between said objectives, and having the eyepiece-tube *d*, mounted on the middle of said tube *a*, and having eyepiece *e*, and mirror *f*, whereby the images of objects located in different directions and within the range of both objectives *b*, *b'*, are simultaneously observed at the eyepiece, substantially as set forth.

3. An optical instrument for simultaneously viewing objects located in different directions, having, in combination, an eyepiece, two oppositely-arranged reflectors adapted to reflect objects located in different directions from the instrument, and a single mirror intermediate between said double reflectors and said eyepiece for directing the images of said differently-located objects from both reflectors to said eyepiece, substantially as set forth.

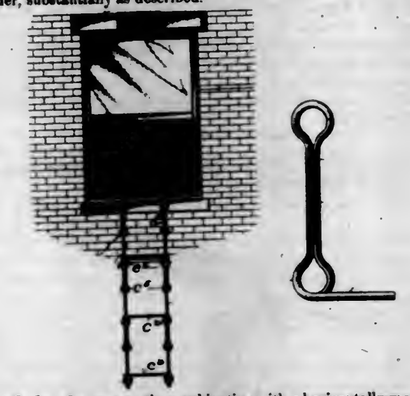
4. An optical instrument having, in combination, an eyepiece, and oppositely-arranged reflectors for directing to said eyepiece the images of objects located in different directions, substantially as set forth.

5. An optical instrument for simultaneously viewing objects located in different directions, having, in combination, an eyepiece, and means for directing to said eyepiece in juxtaposition with each other the images of two objects which are located in different directions from the instrument, substantially as set forth.

6. The support or mount for an optical instrument, comprising in combination, means for permitting the longitudinal adjustment of said instrument in two directions perpendicular to each other, and for permitting the axial adjustment of said instrument on three axes, each of said axes being perpendicular to the other two, substantially as set forth.

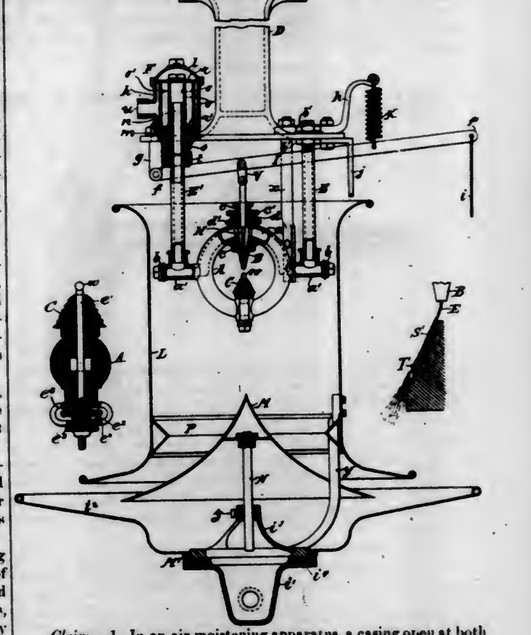
578,460. FIRE-ESCAPE LADDER. THOMAS F. MASON and GEORGE W. SHEARER, Lamb, Ill. Filed Oct. 24, 1896. Serial No. 609,928. (No model.)

Claim.—1. A fire-escape ladder comprising a plurality of plain side links, each formed of a single piece of metal bent upon itself to form a double shank with loops at each end, connecting-links between the plain links and each constructed of a single piece of metal bent to form a double shank with a loop at each end, and a laterally-extending arm at one end, and rungs connecting the links of the ladder, substantially as described.



2. In a fire-escape, the combination with a horizontally-mounted bar adapted to be attached to the inside of a window-casing, of a flexible ladder connected to said bar and comprising flexible small link chains, and a ladder proper connected to the same and consisting of a plurality of plain links, each formed of a single piece of metal bent upon itself to form a double shank, with a loop at each end, connecting-links between the plain links, and each comprising a single piece of metal bent upon itself to form a double shank with loops at each end, and a laterally-projecting arm, and rungs connecting the links of the latter, substantially as described.

578,461. APPARATUS FOR MOISTENING AIR. EMILE MERTZ, Basle, Switzerland. Filed Aug. 29, 1894. Serial No. 521,588. (No model.)

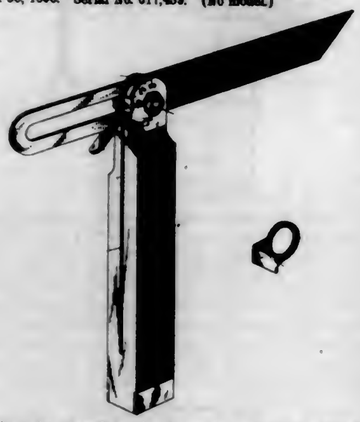


Claim.—1. In an air-moistening apparatus, a casing open at both ends, a nozzle for discharging diverging fine streams of water in the form of a conical sheet, and pulverizing-surfaces, in combination with a cone C under said nozzle and having horizontal annular ribs in the path of said streams of water, a ball *e* surmounting said cone, a rod *e'* carrying said ball and vertically adjustable to vary the degree in which it is tangentially struck by the streams of water coming from the nozzle, substantially as described and for the purpose specified.

2. In an air-moistening apparatus, a casing open at both ends, a hollow nozzle, a movable cleaning-needle therein, said nozzle dis-

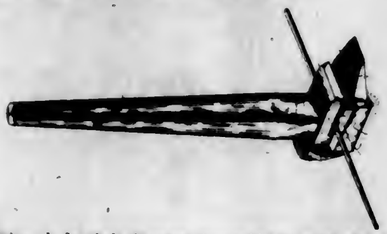
charging diverging fine streams of water in the form of a conical sheet, and pulverizing-surfaces, in combination with means for moving the said cleaning-needle, consisting of a lever l, a stop j therefor, a spring K holding said lever normally toward said stop, a cord connected to said lever for pulling it down, and a link V connecting said lever and needle together, whereby to advance the needle into the nozzle for cleaning it the lever can be pulled down by the cord, and when released the lever will be lifted by said spring and the needle will be returned to its normal position, substantially as and for the purpose set forth.

578,462. BEVEL. THOMAS R. MORRIS, Billington, Tex. Filed Dec. 30, 1896. Serial No. 617,439. (No model.)



Claim.—In a bevel, a suitable stock or handle, a slotted blade pivotally connected to the upper end thereof, and index-plate secured to the stock or handle, a pointer consisting of a ring, an angle-plate, and a point on the extremity thereof, said pointer being connected to the stock by bolt and nut and the outer portion of the angle-plate extending through the slot in the blade, substantially as and for the purpose set forth.

578,463. WIRE-CUTTER. JOHN H. NASH, Stockton, Cal. Filed May 23, 1896. Serial No. 592,721. (No model.)

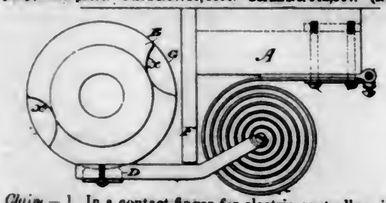


Claim.—1. In a bale-tie cutter, the combination with a head having a slot attached to receive the bale-tie, of a handle secured to said head whereby the latter may be rocked, and a cutting-blade formed of two portions which are disposed at an angle to each other, one of said portions being pivoted or hinged to the under side of the head and the other portion adapted to move past the slot, said parts being so disposed as related that when the head is rocked, the pivoted portion of the blade will be actuated by contact with the bale and the free portion of said blade made to move across the slot and cut the tie or band.

2. In a bale-tie cutter, the combination with a head provided with a slot adapted to receive the tie and having a handle connected to the head, of a cutting-blade formed of two portions disposed at an angle to each other, one portion being pivotally connected to the head and the other portion provided with a cutting edge adapted to move across the slot.

3. In a bale-tie cutter, the combination with the head provided with a wire or tie receiving slot and also having a guide-slot, said head being formed into an upper lip and a lower extended toe having an inclined or beveled face, of a handle connected to the blade, a cutting-blade formed of two portions extending at an angle to each other, one portion being adapted for movement in the guide-slot, and the other portion being located under the head, and screws passing loosely through the last-named portion of the cutting-blade and into the head whereby said cutting-blade is pivoted or hinged.

578,464. CONTACT-FINGER FOR ELECTRIC CONTROLLERS. EUGENE C. PARHAM, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Nov. 18, 1896. Serial No. 612,567. (No model.)



Claim.—1. In a contact-finger for electric controllers, in combination, a magnetizable finger member, means for magnetizing said member, and a contact carried by said member and carried between the poles thereof.

2. In an electric controller, in combination, a rotatable drum carrying suitable contacts, a plurality of fixed fingers contiguous thereto, said fingers each comprising a magnetizable finger member, a contact carried thereby, and an energizing-coil about, and electrically in series with, said finger member.

3. In a contact-finger for electric controllers, a spring constituting the field-coil of an electromagnetic arc-interrupter and adapted to press the contact portions of the finger against the contact portions of the controller-drum.

4. In combination with a contact-finger for electric controllers, a spring electrically connecting a desired part of the outside circuit with the contact-fingers and constituting the field-coil of an electromagnetic arc-interrupter, said spring being also adapted to press the contact portions of the said finger against the contact portions of the controller-drum.

5 A contact-finger for electric controllers comprising, in combination, a magnetizable finger member, a contact carried thereby, and a spring adapted to press said contact toward the controller-drum and to constitute an energizing-coil for said magnetizable member.

6. In an electric controller, in combination, the finger-board of the controller, a plurality of magnetizable finger members, and an energizing-coil for each of said members constituting means for securing it to the finger-board.

7. In a contact-finger for electric controllers, in combination, a helical spring constituting the energizing-coil of an electromagnet, and a contact-carrying finger constituting the core of the electromagnet.

8. In an electric controller, in combination, a rotatable drum and a plurality of fixed contact-fingers contiguous thereto, each of said fingers comprising a magnetizable contact-carrying member and a spring adapted to hold said member in a yielding-contact relation with the drum and adapted to magnetize said member.

9. In a contact-finger for electric controllers, in combination, a member composed of magnetizable material and carrying a contact, a field-coil adapted to magnetize and secure in position said member, said contact being magnetically between the poles of said member.

10. In a contact-finger for electric controllers, a fork made of magnetic conducting material, with two prongs which are adapted to become opposite magnetic poles when energized by a suitable field-coil surrounding a part of said fork, and a contact-piece carried between the prongs and near the free ends thereof.

11. In a contact-finger for electric controllers, in combination, a magnetizable fork carrying a contact between its prongs and means for magnetizing said fork.

12. In a contact-finger for electric controllers, in combination, a magnetizable member carrying a contact, means adapted to hold said member in a desired position and magnetize it, said contact being magnetically between the poles of said member.

13. In a contact-finger for electric controllers, in combination, a fork carrying a contact between its prongs, said prongs constituting the poles of an electromagnet and a suitable field-coil about a part of said fork and in series therewith.

14. In a contact-finger for electric controllers, a helical spring secured at its outer end to the finger-board of the controller and connected electrically to a suitable part of the circuit, and having its inner end connected to a magnetizable finger and in circuit with the contact carried thereby.

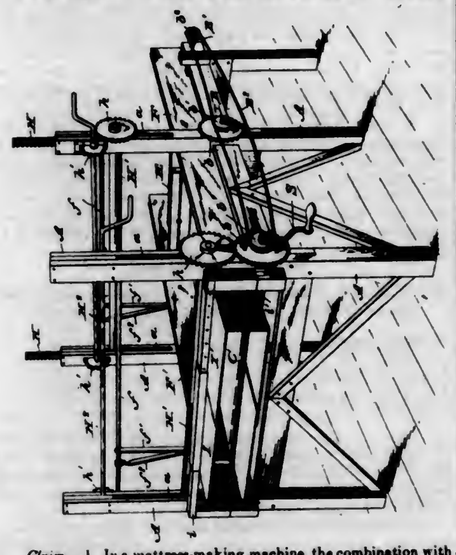
15. In a contact-finger for electric controllers, in combination, a magnetizable fork, a contact between the prongs of said fork, a helical spring adapted to energize said fork and deliver current thereto, said spring being adapted to secure the fork in its proper position.

578,465. PROCESS OF MANUFACTURING METALLIC ALLOYS. CHARLES PARKAGOTT, Putney, England. Filed Aug. 31, 1896. Serial No. 604,486. (No specimens.) Patented in England Dec. 13, 1895, No. 23,950.

Claim.—1. The herein-described metallic alloy, consisting of copper, nickel, spelter, iron, cobalt and magnesium.

2. The process of manufacturing metallic alloy consisting of melting the nickel and clearing it from impurities, adding the magnesium in minute charges, stirring the mass with plumbago rods, then adding an equal quantity of copper the whole being well mixed, admixing with this mass a fused portion of copper, iron, and cobalt well stirring the material, then applying the spelter and stirring with a charred wooden rod until the material is thoroughly mixed and the dross and impurities are on the surface, removing said impurities and pouring the alloy into molds, as described.

578,466. MATTRESS-MAKING MACHINE. HENRY C. RIEPE, Mason City, Iowa. Filed Oct. 22, 1896. Serial No. 609,667. (No model.)



Claim.—1. In a mattress-making machine, the combination with the supporting-frame, of an endless apron mounted therein, a cross-piece D secured upon the apron at one side and provided with apertured lugs *d* one of which is swiveled, set-screws carried by the lugs, rods passed through said apertured lugs and held in engagement therewith by the set-screws, and an adjustable follower attached to the forward ends of the rods, said follower consisting of two sections in sliding engagement with each other; the press-box mounted above the endless apron and having one side laterally adjustable with respect to the frame, substantially as shown and described.

2. In a mattress-making machine, the combination with the supporting-frame having an endless apron mounted therein, of a follower secured to the apron and adjustable laterally thereon; the press-box having a longitudinal board mounted upon the apron at one side thereof, transverse rods secured at their ends to the upper part of the supporting-frame, and bars f' and f^2 secured to the longitudinal board and extending to the transverse rods which pass through apertures therein, one of each pair of bars being at an angle to provide an inclined brace, substantially as shown and described.

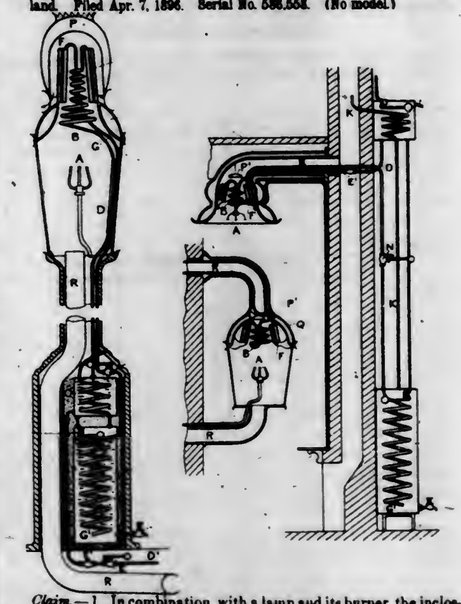
3. In a mattress-making machine, the combination with the supporting-frame and press-box, an endless apron therein, of a supplemental frame attached to the forward end of the main frame on a line with the endless apron and presenting upper and lower cross-bars *i* and *i'*, a laterally-adjustable mouth or funnel supported by the supplemental frame and consisting of telescopic sections I and I', the inner edges of one section being turned over the cross-bars *i* and *i'* and secured thereto, while the inner edges of the other section are turned over side cross-bars and permitted to slide thereon; together with a bracket or slide K having projections *k* carrying thumb-screws which impinge against the cross-bars of the supplemental frame, substantially as shown and described.

4. In a mattress-making machine, the combination with the supporting-frame and press-box, an endless apron therein, the supporting-frame presenting uprights which project above said apron and provide guides, of bars mounted to slide vertically in said guides, rollers H' journaled in the bars, gear-wheels mounted on the ends of the rollers, and means for raising and lowering the bars; together with the rollers or shafts over which the endless apron passes, means for turning said shafts in unison, and gear-wheels on the ends of said shafts adapted to mesh with the gear-wheels of the rollers H' when the bars are lowered, substantially as shown and for the purpose set forth.

5. In a mattress-making machine, the combination with the supporting-frame and press-box, an endless apron therein, the supporting-frame presenting uprights which project above said apron and provide guides, of vertical rack-bars mounted to slide in said guides, rollers H' journaled in the rack-bars, gear-wheels mounted on the ends of the rollers, and transverse shafts having pinions which mesh with the rack-bars; together with the rollers or shafts over which the endless apron passes, means for turning said shafts in unison, and gear-wheels on the ends of said shafts which mesh with the gear-wheels of the rollers H' when the rack-bars are lowered, substantially as shown and described.

6. In a mattress-making machine, the combination with the supporting-frame and press-box, an endless apron therein, the supporting-frame presenting uprights which project above said apron and provide guides, of vertical rack-bars mounted to slide in said guides, rollers H' journaled in the rack-bars, gear-wheels *h* mounted on the ends of the rollers, and transverse shafts having pinions which mesh with the rack-bars; together with the rollers or shafts over which the endless apron passes, gear-wheels *b* and sprocket-wheels *b'* and *b²* mounted on the ends of said shafts, and a chain connecting the sprocket-wheels, substantially as shown, whereby the gear-wheels *h* will be brought into mesh with the gear-wheels *b* when the rollers H' are lowered, and thereby turn the latter when the apron is operated, for the purpose set forth.

578,467. SYSTEM AND APPARATUS FOR HEATING WATER BY WASTE SOURCES OF HEAT. HUGH M. ROBINSON, London, England. Filed Apr. 7, 1896. Serial No. 586,558. (No model.)



Claim.—1. In combination, with a lamp and its burner, the inclosing shell or casing for said burner, the steam-generating coil above the burner and within the chamber, the superheating-chamber F also in said chamber above the burner forming the walls of the passage through which the heat and products of combustion escape, said coil being connected with the superheater, a water-heating tank and the pipe leading from said superheater to the said tank, substantially as described.

2. In combination, the burner, the shell or casing inclosing the said burner, the steam-generating coil above the burner, the superheater also above the burner forming the walls of the passage for the escaping products and connected with the heating-coil, the water-heating tank, the pipe connection between the same and the superheater, the supply-tank above the water-heating chamber, the pipe between the same and the steam-coil above the burner, and the pipe extending from the top of the water-heating tank through the supply-tank and coiled therein, whereby the said supply-tank feeds the steam-generating coil and is in turn heated by the steam supplied by said coil to the water-heating tank, substantially as described.

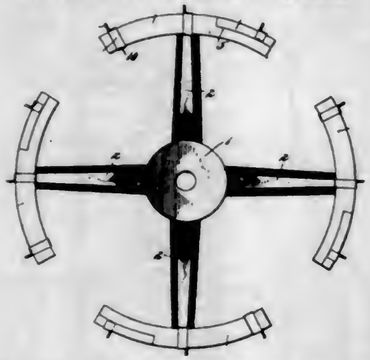
3. In combination, the burner, the shell or casing inclosing the same, the coil above the burner, and the superheating-chamber also above the burner and surrounding the heating-coil, said superheating-chamber forming the walls of the escape-passage for the products of combustion of the burner, and connected to the steam-generating coil, substantially as described.

4. In combination, the burner, a vaporizer acted upon thereby, a superheater connected to the vaporizer, a supply-pipe for feeding water under pressure to the vaporizer, a non-return check-valve on the water-pipe to prevent the pressure in the vaporizer and superheater from forcing back the water and for feeding the water to the vaporizer in limited quantities, a discharge-pipe for the steam from the superheater and a pressure-valve in said pipe for holding the pressure in the superheater until a predetermined degree has been reached.

5. In combination, the burner, the vaporizer, the superheater connected with the vaporizer, the water-supply pipe leading to the vaporizer, a check-valve and a reducing-valve therein controlling the supply-pressure to the vaporizer and preventing the return of the water, the discharge-pipe for the steam from the superheater, and a controlling weighted valve in said pipe adapted to resist water-supply pressure but to open when the steam-pressure in the vaporizer reaches a certain point.

6. In combination, a vaporizer, a burner, a superheating-chamber, a water-supply pipe to the vaporizer, means therein for controlling the supply of pressure-water to the vaporizer, a steam-pipe leading from the superheater, means for controlling the discharge of steam therethrough when a predetermined pressure has been reached, a hot-water tank, the said steam-pipe opening therein from the superheater, an auxiliary water-supply tank in the water-pipe, a ball-tap for controlling the supply of water to the hot-water tank from the supply-tank and an open exit-pipe for the surplus steam, said pipe passing through the water-supply tank, substantially as described.

578,468. COTTON-CHOPPER. WILLIAM T. RUSK, Nacogdoches, Tex. Filed Dec. 21, 1896. Serial No. 616,497. (No model.)



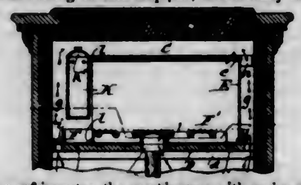
Claim.—1. In a cotton-chopper, a wheel comprising a series of rim-sections having spaces between their opposing ends, and having a terminal portion formed with a depression, plates seated in the depressions and coming flush with the tread-surface and edges of the rim-sections and adjustable to vary the extent of the space between adjacent rim-sections, and means for securing the plates in an adjusted position, substantially as set forth.

2. In a cotton-chopper, a wheel composed of rim-sections having spaces between their opposing ends, plates applied to the rim-sections and adjustable to vary the space between the rim-sections, means for securing the plates in an adjusted position, and blades applied to the rim-sections and to the plates, substantially as set forth.

3. In combination, a wheel, and a blade comprising a plate having an edge portion bent substantially at right angles, forming a cutter, and having its end portions bent to embrace the edges of the rim of the wheel, substantially as set forth.

578,469. REFRIGERATOR. JOHN J. SCHNEIDER, Buffalo, N. Y. Filed Mar. 14, 1896. Serial No. 583,231. (No model.)

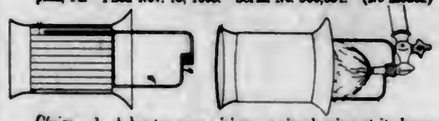
Claim.—1. In a refrigerator, the combination with the ice-chamber provided with cleats or supports, of a removable bottom board or partition resting on said cleats and provided in its upper surface with channels or grooves and an opening toward which said channels lead, a removable drip-pan resting directly on said channeled bottom board and having a discharge-spout which passes through the opening of said board, said opening being larger than said spout for forming a water-passage between its edge and the spout, a conduit communicating with said spout and said opening, and a bottomless ice-receptacle resting on said drip-pan, substantially as set forth.



2. In a refrigerator, the combination with an ice-chamber and a provision-chamber, of a removable partition separating said chambers and forming the bottom of said ice-chamber, a removable drip-pan resting loosely upon said partition and having a discharge-spout, and a bottomless ice-receptacle removably seated in said pan, said ice-chamber having a door of sufficient size to permit the removal of said partition, said drip-pan and said ice-receptacle, substantially as set forth.

3. In a refrigerator, the combination with an ice-chamber, of an ice-receptacle removably arranged in said chamber and having an open end, and a fixed water tank or cooler arranged outside of the ice-receptacle and extending across the open end thereof, whereby the water-tank closes the open end of the ice-receptacle when the latter is in place and at the same time permits the removal of said receptacle without disturbing the water-tank, substantially as set forth.

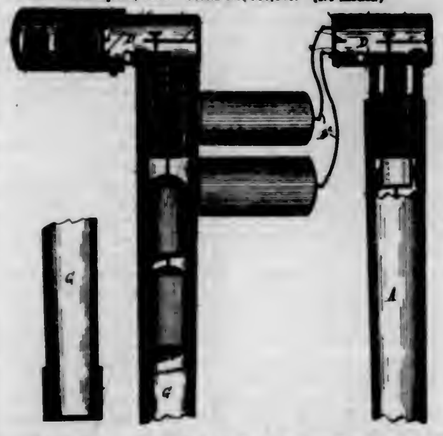
578,470. PORTABLE HEATER. WILLIAM A. SHEPARD, Philadelphia, Pa. Filed Nov. 15, 1895. Serial No. 568,051. (No model.)



Claim.—1. A heater comprising a casing having at its lower end an outwardly-flared flange, a spirally-formed corrugated or fluted plate vertically disposed within said casing to provide a plurality of unobstructed air-passages, and a support attached to said casing and adapted to elevate the same above a flame.

2. A portable heater for attachment to a gas or other burner, comprising a cylindrical casing having at its base an outwardly-flared flange, a spirally-formed corrugated or plated plate vertically disposed within said cylinder and providing a plurality of unobstructed air-passages, a plate supported above but in proximity to the top of the cylinder, and a support attached to the lower end of the cylinder for holding the same above a flame.

578,471. ELECTRICAL CANE. WALTER N. SHERMAN, Merced, Cal. Filed Apr. 2, 1896. Serial No. 585,873. (No model.)



Claim.—1. A walking-stick having a chamber therein and a hollow handle, combined with an electric battery, the parts of which are arranged within said chamber and nested metallic electrodes attached to the handle of the cane, and forming a part thereof, substantially as shown and described.

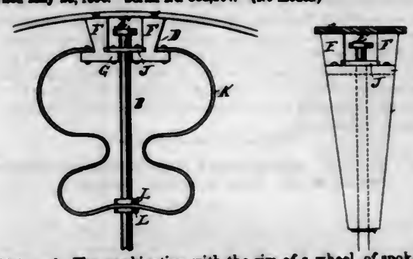
2. The combination with a walking-stick, of a cylinder forming a part of the handle thereof, carrying the electrodes and the cords and the sponges, and the cells and coils and connections arranged within the body portion of the cane, substantially as specified.

3. The combination with a walking-stick, of a cylinder forming part of the handle thereof, carrying the electrodes, and the cords and the sponges, and the cells and coils and connections arranged within the body portion of the cane, and detachably and removably supported therein, substantially as described.

4. The combination with a cane having a chamber therein, of the primary and secondary coils and their supports, and the cells within said cane, the interrupter and adjusting-screw, and the removable cylinder carrying electrodes, substantially as described.

5. The combination with a cane, having a chamber therein, of the primary and secondary coils and their supports, and the cells within said cane, the interrupter and adjusting-screw, and the removable cylinder carrying electrodes, and a switch for controlling the current, substantially as described.

578,472. WHEEL. HORATIO W. SOUTHWORTH, New York, N. Y. Filed May 29, 1896. Serial No. 593,567. (No model.)



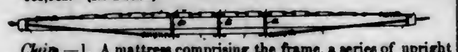
Claim.—1. The combination with the rim of a wheel, of spokes having a sliding connection therewith and laterally removable therefrom, and a spring connection between the spokes and the rim, as and for the purpose set forth.

2. In a wheel, the combination with the rim, of spoke-guides connected thereto and provided with lateral openings for the removal of the spokes, the spokes suitably secured to the hub and fitted to slide in said guides, and springs attached at their ends respectively to the spokes and to the rim in a manner to provide a resilient connection between them.

3. In a wheel, the combination with the rim, of spoke-guides secured thereto and each provided with a lateral opening to receive the spoke, a split ring fitted to the spoke and secured to the guide for retaining the spoke in place, and a spring connected to the spoke and to the guide for the purpose set forth.

4. The combination with the rim provided with the spoke-guides secured thereto substantially as shown and described, headed spokes removably secured in said guides, and a double-gooseneck spring secured at its middle to the spoke by suitable collars or projections and at its ends to the sides of the guides.

578,473. MATTRESS OF STEEL WIRE. THEODOR V. SVANE, Fastningen, Christiania, Norway. Filed Aug. 26, 1896. Serial No. 603,962. (No model.)



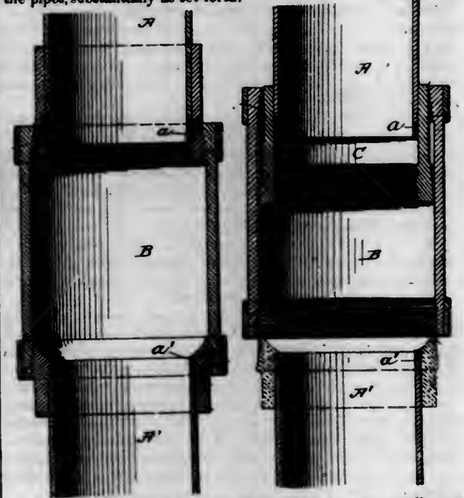
Claim.—1. A mattress comprising the frame, a series of upright pins or supports, the flat plates at the upper and lower ends of the supports and adjustable strainer means connected with the lower plates, each of said plates extending laterally around the end of the support and each plate being independent of those of the other pins substantially as described.

2. A mattress comprising a frame, a series of upright pins or supports, having perforated plates at their upper and lower ends, straining means connecting the lower perforated plates with the frame, and connecting means between the upper perforated plates, said upper perforated plates forming parts of the mattress-top substantially as described.

3. A mattress comprising a frame, the angular supporting-piece having divergent arms with plates on the upper ends thereof and with the lower perforated plate and straining means connected with the lower perforated plate, substantially as described.

578,474. PIPE-COUPLING. JOHN THOMPSON and FRANK A. PHILLIPS, New York, N. Y. Filed Dec. 11, 1896. Serial No. 615,334. (No model.)

Claim.—1. In a pipe-coupling, the combination with the pipes to be joined, relatively fixed at a certain distance apart, of a sleeve, longer than the distance between the pipes to be joined but of larger diameter than the pipes, and two bushings engaging respectively, by screw-threads, with the two pipe ends, and with the two ends of said sleeve each of said bushings being shorter than the distance between the pipes, substantially as set forth.



2. The combination, with two fixed pipes, of a pipe-coupling consisting of a sleeve longer than the distance between the pipes but of a diameter sufficiently larger than the pipes to enable it to be introduced cantwise between and over the same, and two bushings shorter than the distance between the pipes and engaging respectively by internal screw-threads with the two pipe ends and by external screw-threads with the two ends of the aforesaid sleeve, substantially as set forth.

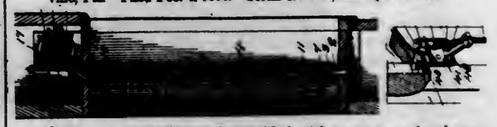
3. The combination with two pipes, of a coupling for the same, consisting of two bushings screwed respectively onto the ends of said pipes, and a sleeve engaging with both of said bushings by internal screw-threads tapered in the same direction, substantially as and for the purpose set forth.

4. The combination with two pipes relatively fixed at a certain distance apart, of a coupling for the same consisting of two bushings screwed respectively onto the ends of said pipes, the combined length of the bushings being less than the distance between the pipes, and a sleeve longer than the distance between the pipes, engaging with both of said bushings by internal screw-threads, substantially as and for the purpose set forth.

5. The combination with two pipes relatively fixed at a certain distance apart, of a coupling for the same consisting of two bushings screwed respectively on the ends of the pipes, each of said bushings being shorter than the distance between the end of the other bushing when screwed home and the end of the opposite pipe, and a sleeve longer than the distance between the pipes and screwed onto both of said bushings.

6. The combination with two pipes relatively fixed at a certain distance apart, of a coupling for the same consisting of two bushings screwed respectively on the ends of the pipes, one of said bushings being shorter than the distance between the end of the other bushing when screwed home and the end of the opposite pipe, and a sleeve longer than the distance between the pipes and screwed onto both of said bushings.

578,475. AUTOMATIC WINDOW. WILLIAM W. TIDD, Jacksonville, Fla. Filed Feb. 4, 1896. Serial No. 578,041. (No model.)



Claim.—1. A window-sash provided with tongues or beads extending longitudinally of its edges, in combination with a window-casing having side grooves in which said tongues or beads move, and also having an opening in its sill portion, the said opening extending longitudinally of the sill and downward entirely through the same

and adapted to receive the tongue or bead on the bottom rail of the sash, substantially as described.

2. The combination with a window-frame having a longitudinal slot or opening in its sill, of a sliding sash provided as to its bottom edge with a depending longitudinal tongue adapted to enter the slot or opening in the sill, said slot or opening extending downward entirely through the sill, substantially as and for the purpose described.

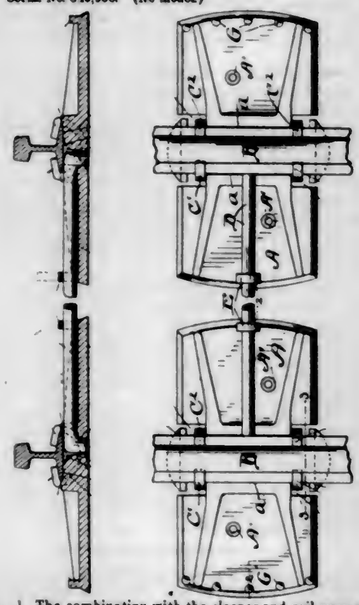
3. In a window, a window-frame having a flange extending longitudinally of the sill and projecting upward therefrom, said flange being provided with an opening or slot extending entirely through it and the sill, in combination with a sliding sash having a tongue or bead on its bottom edge adapted to enter said opening or slot, substantially as described.

4. The combination with a sliding window-sash having side rails extending above its top rail, said side rails and their extending portions each having a vertical series of indentations in one of the exposed faces thereof, and the casing within which said sash is mounted to slide, of a spring-roller extending parallel to the sash and provided at or near each end with fixed peripheral teeth adapted to engage said indentations, said roller being supported in the casing in such position that its peripheral teeth engage the indentations in the extended portions of the side rails when the sash is closed, and a locking device to hold the window in its closed position against the force of the spring-roller, substantially as described.

5. The combination with a sliding sash, and means for giving the same a normal upward tendency, of a sash-check consisting of a bail-shaped elbow-lever, a metal frame or clip secured to the casing and having said lever journaled therein and also provided with a stop-arm for limiting the movement of the lever, a reciprocating bolt carried by one arm of the lever and adapted to engage the sash, a spring interposed between the lever and the frame for holding the bolt normally in engagement with the sash, and an operating connection attached to the lever and extending to within reach of an attendant, whereby the check may be thrown out of action, substantially as described.

578,476. METALLIC SLEEPER FOR RAILWAY-TRACKS.

THOMAS D. WEST and GEORGE H. BOYD, Sharpsville, Pa. Filed May 20, 1896. Serial No. 549,938. (No model.)

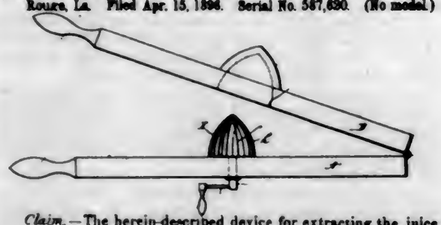


Claim.—1. The combination with the sleeper and rail supported thereby, the sleeper being provided with two perforations at opposite sides, respectively, of the base of the rail, and the portion of the sleeper, between said perforations, being provided with a semicylindrical or convex under side, of a semicylindrical or approximately semicylindrical metallic fastening-strip engaging said convex surface and extending upwardly through the aforesaid perforations and overlapping the rail-base at each side of the rail-web, substantially as shown, for the purpose specified.

2. The combination with the sleeper and rail supported thereby, of a securing-strip extending in under the seat-bearing portion of the sleeper and overlapping the rail-base at each side of the rail-web, the seat-bearing portion of the sleeper being provided with a recess arranged transversely of said portion and between the securing-strip and adjacent edge of the sleeper, and the metallic strip extending through said recess and overlapping the outer sides of the securing-strip at each side of the rail, substantially as shown, for the purpose specified.

578,477. LEMON-JUICE EXTRACTOR.

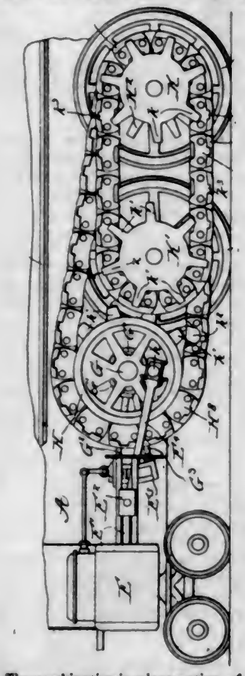
FRED W. WRIGHT, Baton Rouge, La. Filed Apr. 15, 1896. Serial No. 587,630. (No model.)



Claim.—The herein-described device for extracting the juice of lemons and other fruit consisting of two hinged parts having handles formed on their free ends, one of said parts carrying a cone having a corrugated outer surface mounted on a shaft passing through said part, the outer end of said shaft having a shank and handle whereby the cone may be rotated, the other of said parts being provided with an opening above which is placed a hollow cone adapted to receive the first-mentioned cone, constructed and adapted to operate in the manner specified.

578,478. STEAM-ENGINE.

JOHN F. BERMINGHAM, Marceline, Mo. Filed May 25, 1896. Serial No. 592,979. (No model.)

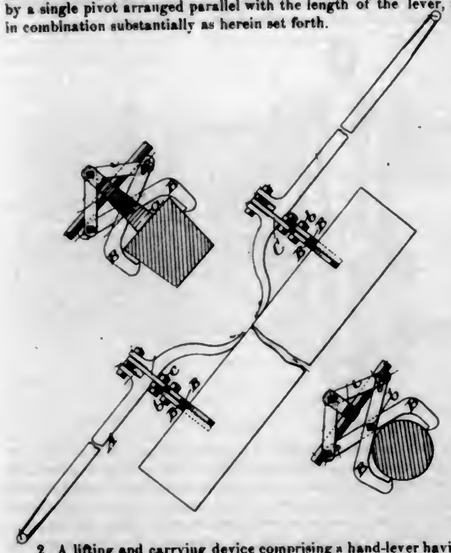


Claim.—The combination in a locomotive, of the steam-cylinders, piston-rods and cross-heads, the connecting-rods, an elevated shaft supported upon the locomotive-frame and carrying the eccentrics of the link-motion with which shaft said connecting-rod is coupled, sprocket-wheels upon the ends of said shaft, sprocket-wheels upon the projecting axle of the trailing drivers, sprocket-chains connecting the two pairs of sprocket-wheels, a second pair of sprocket-wheels upon said axle, sprocket-wheels upon the projecting axle of the leading drivers, and a chain belt connecting said sprocket-wheels, substantially as described.

578,479. DEVICE FOR LIFTING, MOVING, AND CARRYING HEAVY BODIES.

DANIEL BRODERICK, Laurel Hill, N. Y. Filed Nov. 17, 1896. Serial No. 612,473. (No model.)

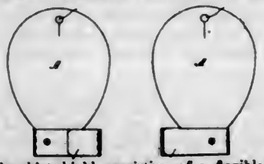
Claim.—1. A lifting and carrying device comprising a hand-lever, a pair of grappling hooks or tongs, and a pair of toggle-links each link connected by a separate pivot with one of the stocks of said hooks or tongs and both links being connected with the lever by a single pivot arranged parallel with the length of the lever, all in combination substantially as herein set forth.



2. A lifting and carrying device comprising a hand-lever having a downwardly-projecting foot, a pair of grappling hooks or tongs, and a pair of toggle-links, each link connected by a separate pivot with one of the stocks of the said hooks or tongs and both links being connected by a single pivot with an upward projection on the said lever, all in combination substantially as herein set forth.

578,480. SHIRT-SHIELD.

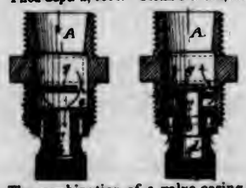
GEORGE CANE, Los Angeles, Cal. Filed Oct. 16, 1894. Serial No. 526,233. (No model.)



Claim.—The shirt-shield consisting of a flexible body portion, having a buttonhole at its upper end adapted to engage a button or stud upon the neckband of a shirt, and having secured to its lower end a clip provided with a spring-finger to engage the lap of the shirt at the placket thereof, substantially as set forth.

578,481. SELF-REVERSING CHECK-VALVE.

JOHN S. COX, Paterson, N. J. Filed Sept. 2, 1896. Serial No. 604,606. (No model.)

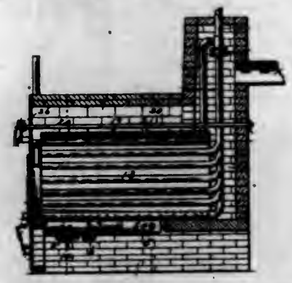


Claim.—1. The combination of a valve-casing having in it two opposite valve-seats, and a puppet-valve which has an opening directly through it, the flange of the said valve seating against one of said seats to check the flow through the valve-casing in one direction only and the crown of the said valve seating against the other of said seats to check the flow in the other direction only, substantially as herein described.

2. The combination with a valve-casing containing two opposite valve-seats one of which is annular with central and side openings and the other of which is arranged transversely to the casing but has passages at its sides, of a hollow puppet-valve which has a passage directly through it, the stem of said valve fitting the central opening in said annular seat and the flange of said valve seating against said annular seat for controlling the side openings therein, and the crown of the said valve seating against said transversely-arranged seat for closing the passage through the valve itself, substantially as herein described.

578,482. HEATING SYSTEM.

HARVEY K. EMMERSON, Norwalk, Ohio. Filed Mar. 23, 1895. Serial No. 542,952. (No model.)



Claim.—1. The combination with a heat-generating device having a grate, of an arched series of water-circulating pipes arranged within the fire-box and extending longitudinally thereof, the terminal pipes of said series being located contiguous to the plane of the grate, whereby the pipes are arranged at the top and sides of the fire-box, and the rear ends thereof being upturned in a common plane to pass into the flue of the heat-generating device and being connected terminally by suitable conductors, the conductors at the front ends of the pipes being arched, substantially as specified.

2. The combination with a heat-generating device, of a series of parallel closely-spaced water-circulating pipes communicating with each other at their extremities and extending through the fire-box to form the arched top thereof, a hollow water-back arranged above and contiguous to the series of water-circulating pipes, and outflow and return pipes communicating with both the circulating-pipes and the water-back at opposite ends thereof, substantially as specified.

3. The combination with a furnace having a fire-box provided with an arched top, of an arched series of parallel, terminally-connected water-circulating pipes arranged longitudinally in and near the top of the fire-box, to form the sides and top of the fire-box, a hollow water-back arranged above the water-circulating pipes and conforming with the series of water-circulating pipes to the top of the fire-box, said water-back having a sheet-metal inner or lower side whereby heat is readily communicated to the contents thereof, and outflow and return pipes communicating with opposite ends of the water-circulating pipes and with the water-back at contiguous points, substantially as specified.

4. A furnace having a fire-box including a grate, water-circulating pipes arranged in the fire-box and communicating with outflow and return pipes, said water-circulating pipes being arranged in an inverted-V-shaped series with the downwardly-deflected sides of the series arranged contiguous to the plane of the grate, tubular perforated burners arranged at opposite sides of the fire-box adjacent to the line of intersection of the series of water-circulating pipes with the plane of the grate, said burner-tubes being mounted for partial rotation, whereby they may be turned to project flame toward the fuel on the grate or toward the water-circulating pipes, and supply-pipes communicating with the burners, substantially as specified.

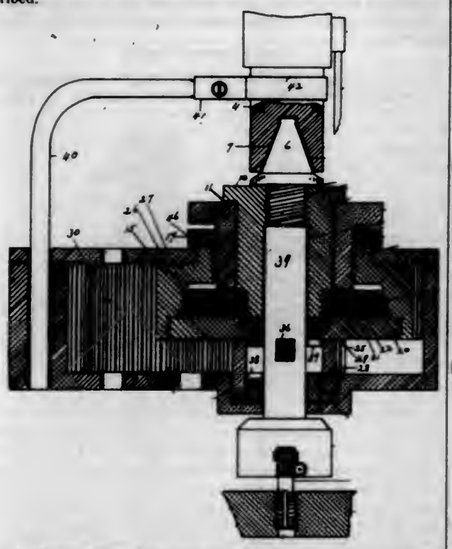
578,483. AUTOMATIC FRICTION TAPPING ATTACHMENT.

FRANKLIN A. ERRINGTON, Edgewater, N. Y. Filed July 21, 1894. Serial No. 518,251. (No model.)

Claim.—1. The combination of a friction-disk having a hub provided with a bearing surface or surfaces adapted to afford longitudinal resistance, another disk surrounding said hub and capable of rotation independent thereof, a screw-threaded adjusting-ring adapted to coact with said bearing surface or surfaces of said hub to move one of said disks longitudinally to adjust the tension of their frictional contact, and a check-nut to hold said adjusting-ring in position when adjusted, substantially as described.

2. The combination of a friction-disk having a hub projecting from its outer face, said parts having a concentric bore opening on their inner face and said hub being provided with a bearing surface or surfaces adapted to afford longitudinal resistance, another disk surrounding said hub and capable of rotation independent thereof, a screw-threaded adjusting-ring adapted to coact with said bearing surface or surfaces of said hub to move one of said disks longitudinally against the other, a check-nut to hold said adjusting-ring in position

when adjusted, a spindle socketed in said concentric bore, and means to connect one of said disks with said spindle, substantially as described.



3. The combination of a friction-disk having a hub provided with a bearing surface or surfaces adapted to afford longitudinal resistance, another disk surrounding said hub and capable of rotation independent thereof, a screw-threaded adjusting-ring adapted to coact with said bearing surface or surfaces of said hub to move one of said disks longitudinally against the other, a check-nut to hold said adjusting-ring in position when adjusted, a longitudinally-movable spindle provided with a clutch, one of said disks being provided with a clutch to engage said spindle-clutch to turn said spindle in one direction, and means connected with one of said disks to turn said spindle in the opposite direction, substantially as described.

4. The combination of a driving friction-disk, a friction-driven disk surrounding said driving friction-disk and having a concentric screw-threaded bore, an externally-screw-threaded adjusting-ring independent of said driving friction-disk, located in and meshing with said screw-threaded bore of said friction-driven disk to adjust the tension of the frictional contact of said disks, said ring having a concentric bore to admit means for connecting said driving friction-disk with a rotative driving part, and a check-nut to hold said adjusting-ring in position, substantially as described.

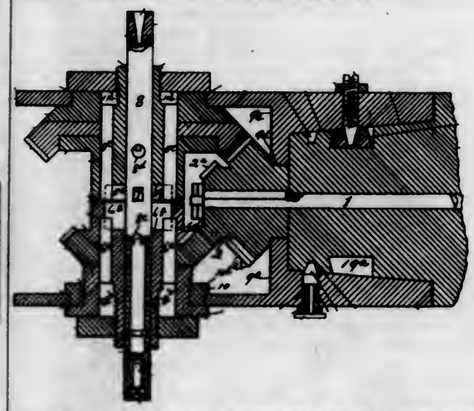
5. The combination of a disk having a hub, a bearing-surface connected with said disk and adapted to afford longitudinal resistance, another disk surrounding said hub and having a centrally-located screw-threaded bore, an externally-screw-threaded adjusting-ring interposed between said last-mentioned disk and said hub to form a bearing for said last-mentioned disk on said hub and adapted to mesh with said screw-threaded bore of said last-mentioned disk and to bear against the bearing-surface connected with said first-mentioned disk to move one of said disks longitudinally against the other, and a check-nut to lock said adjusting-ring in position substantially as described.

6. The combination of a friction-disk, a bearing-surface connected therewith, a wheel composed of two parts, means to connect said parts of said wheel together, one of said parts of said wheel having a centrally-located screw-threaded bore, a screw-threaded adjusting-ring provided with a bearing-surface to bear against said surface of said friction-disk, a check-nut to hold said adjusting-ring in position, a spindle, means connected with the other of said parts of said wheel to turn said spindle in one direction, and means connected with one of said parts of said wheel to turn said spindle in the opposite direction, substantially as described.

578,484. CONCENTRIC DRILLING AND TAPPING MACHINERY. FRANKLIN A. ERRINGTON, Edgewater, N. Y. Filed Oct. 25, 1895. Serial No. 566,908. (No model.)

Claim.—1. The combination of a swivel-head, a spindle carried thereby and having each of its ends provided with means for connection with a tool or tool-holder, and a reversing mechanism also carried by said swivel-head to rotate said spindle in opposite directions, substantially as described.

2. The combination of a spindle having each of its ends provided with means for connection with a tool or tool-holder, means to turn said spindle in opposite directions, means to swivel said spindle to bring its ends to register alternately with the same point, and an automatic locking mechanism to lock said spindle automatically in axial alinement with said point, substantially as described.



3. The combination with a supporting-frame of a swivel-head connected therewith by a swivel-joint, a pinion projecting into said swivel-head, two concentric wheels journaled in said swivel-head and meshing with said pinion, two clutch formations one of said clutch formations being connected with one of said wheels and the other of said clutch formations with the other of said wheels, a spindle, the axis of said spindle being concentric with the axes of said wheels, and a third clutch formation located between said wheel clutch formations and connected with said spindle, substantially as described.

4. The combination with a supporting-frame, of a swivel-head connected therewith by a swivel-joint, one of said parts having an index bore or bores and the other of said parts having a locking pin or pins to mesh with said index bore or bores, to lock said swivel-head at certain intervals to said supporting-frame, a pinion projecting into said swivel-head, two wheels journaled in said swivel-head and meshing with said pinion, two clutches, one of said clutches being connected with one of said wheels, and the other of said clutches with the other of said wheels, and a spindle provided with a clutch or clutches for engagement with said wheel-clutches, substantially as described.

5. The combination of a swivel-head adapted for connection by a swivel-joint with a supporting part, a pinion projecting therein, two concentric wheels journaled in said swivel-head and meshing with said pinion, one of said wheels being of greater diameter than the other, two clutch formations one of said clutch formations being connected with one of said wheels and the other of said clutch formations with the other of said wheels, and a spindle provided with a clutch or clutches for engagement with said wheel-clutches, substantially as described.

6. The combination of a bevel-pinion carrying two sets of driving-faces, the pitch cone of one of said sets of driving-faces lying within that of the other, two concentric bevel-wheels meshing respectively with said sets of driving-faces of said pinion, a spindle, means for connecting said spindle alternately with either of said wheels, and means for swiveling said spindle, substantially as described.

7. The combination of a friction-disk, a screw-threaded hub projecting therefrom, a wheel surrounding said hub, a screw-threaded adjusting-ring to mesh with said screw-threaded hub to move one of said parts longitudinally, a check-nut to hold said adjusting-ring in position when adjusted and a pinion meshing with said wheel, substantially as described.

8. The combination of a friction-disk having a screw-threaded hub, another disk surrounding said hub, one of said disks being provided with a positive clutch, a screw-threaded adjusting-ring meshing with said screw-threaded hub to move one of said disks longitudinally, a check-nut to hold said adjusting-ring in position when adjusted, and a spindle having a clutch adapted to engage said disk-clutch, substantially as described.

9. The combination of a friction-disk having a screw-threaded hub, a check-nut surrounding said hub, one of said parts having an indenture and the other a projection meshing therewith to connect said disk and said check-nut to rotate together by a slip-joint permitting of their independent longitudinal movement, another disk also surrounding said hub and located between said first-mentioned disk and said check-nut and capable of rotation independent thereof, a screw-threaded adjusting-ring meshing with said hub to adjust the tension of the frictional contact of said parts, one of said disks being provided with a positive clutch, and a spindle having a clutch adapted to engage said disk-clutch, substantially as described.

10. The combination of a disk having a recess or clutch-chamber in its face and an eccentrically-located longitudinal bore opening partly on the face of said recess or clutch-chamber and indenting the side wall thereof, a clutch-pin located in said bore and projecting longitudinally from the face of said recess or clutch-chamber, part of the periphery of said clutch-pin being embedded in the supporting-indenture thus provided in the side wall of said recess or clutch-chamber and part thereof extending laterally into said recess or clutch-chamber, whereby said clutch-pin is relieved from shearing strain, and a spindle provided with a clutch for engagement with said clutch-pin, substantially as described.

11. The combination of two disks and means for rotating said disks in opposite directions, one of said disks having a recess or clutch-chamber in its face and an eccentrically-located longitudinal bore opening partly on the face of said recess or clutch-chamber and indenting the side wall thereof, a clutch-pin located in said eccentrically-located bore and projecting longitudinally from the face of said recess or clutch-chamber, part of the periphery of said clutch-pin being embedded in the supporting-indenture thus provided in the side wall of said recess or clutch-chamber and part thereof extending laterally into said recess or clutch-chamber, a clutch connected with the other of said disks, and a spindle having a clutch located between said disk-clutches and adapted to engage with either thereof to turn said spindle, substantially as described.

12. The combination of two disks and means for rotating said disks in opposite directions, each of said disks having a central bore or bearing, one of said disks having a recess or clutch-chamber within the plane of its inner face, a clutch-pin connected with said disk and projecting from the face of said recess or clutch-chamber, the inner end of said clutch-pin also lying within the plane of the inner face of said disk, another clutch connected with the other of said disks, a spindle journaled in said bores or bearings of said disks, and a clutch connected with said spindle for engagement with either of said disk-clutches, substantially as described.

13. The combination of a bearing-piece having two bores, one of said bores extending through an arm of said bearing-piece, a pinion journaled in the other of said bores, said bores being bored at an angle to each other, a bearing-ring having a smooth periphery fitting into said bore in said arm and terminating in a shoulder or flange, said bearing-ring also having a screw-threaded bore, a wheel journaled concentrically with said bore in said arm, an elevating-screw meshing with said screw-threaded bore of said bearing-ring to raise said wheel into mesh with said pinion, and having a shoulder or flange to jam against the abutting surface of said bearing-ring, said flanges of said bearing-ring and of said elevating-screw being of greater diameter than said bore in said arm, whereby said flanges form a bearing on both sides of said arm to prevent longitudinal movement of said parts in said bore in said arm, substantially as described.

14. The combination of a spindle having an axial socket, said spindle being provided with a clutch formation to enable it to impart rotary motion, the walls of said axial socket being indented by a concentric groove, and a spring extending along said groove, and extensible into said socket, substantially as described.

15. The combination of a spindle having an axial bore or socket, a smaller transverse bore passing through the axis of said spindle, the center of said transverse bore being located farther along said spindle than said axial bore or socket extends into said spindle, said axial bore or socket and said transverse bore being connected together, a concentric groove cut in the walls of said bore or socket, and a spiral spring inserted in said groove, substantially as described.

16. The combination of a spindle provided with a clutch formation and having an axial socket, the walls of said socket being indented by a concentric groove, a spiral spring placed along said concentric groove, and a shank adapted to enter said socket and provided with a clutch to engage said spindle clutch formation, said shank having a shoulder to coact with said spring to connect said shank longitudinally with said spindle, substantially as described.

17. The combination of a tool-holder provided with transversely-movable gripping means and having an axial socket whose side walls are indented by a concentric groove, and a spiral spring placed along said groove, substantially as described.

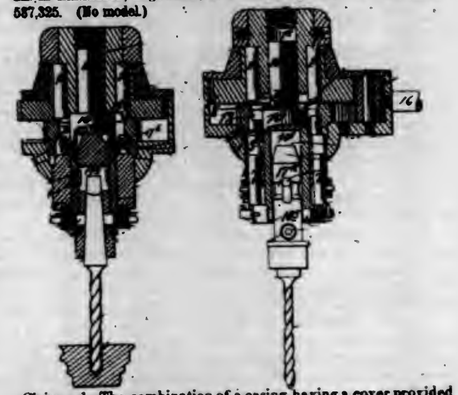
18. The combination of a tool-holder having an axial bore meeting a transverse bore, a sliding nut adapted to enter said transverse bore, one of said parts having an indenture extending through part of its length and the other a projection meshing therewith to limit the traverse and prevent the rotation of said sliding nut in said transverse bore, said sliding nut having a transverse bore meeting a screw-threaded bore, and a set-screw meshing with said screw-threaded bore in said sliding nut, substantially as described.

19. The combination of a tool-holder having an axial bore meeting a transverse bore, a sliding nut meshing with said transverse bore and having a transverse bore meeting a screw-threaded bore, and a set-screw meshing with said screw-threaded bore in said sliding nut, substantially as described.

20. The combination of a tool-holder having an axial socket meeting a transverse bore, said axial socket being provided with a plurality of elastic centering-pieces, a sliding nut adapted to enter said transverse bore in said tool-holder, said sliding nut having a transverse bore meeting a screw-threaded bore, and a set-screw meshing with said screw-threaded bore in said sliding nut, substantially as described.

21. The combination of two disks, a casing carrying gearing to rotate said disks in opposite directions, a spindle, a clutch connected therewith, one of said disks having an eccentrically-located clutch-pin bearing extending longitudinally through from the inner to the outer surface of said disk, a clutch-pin located in said clutch-pin bearing and adapted to engage said spindle-clutch, and another clutch connected with the other of said disks, whereby said clutch-pin can be readily adjusted longitudinally in its bearing, substantially as described.

578,485. DRILLING AND TAPPING ATTACHMENT. FRANKLIN A. ERRINGTON, Edgewater, N. Y. Filed Apr. 13, 1896. Serial No. 587,325. (No model.)



Claim.—1. The combination of a casing having a cover provided with a bearing-aperture, a gear-wheel having a hub projecting through said bearing-aperture beyond said cover, a detachable collar surrounding said projecting end of said hub and attached thereto by a set-screw to confine said cover between said collar and said wheel, said wheel having an axial bearing and an eccentrically-located clutch-pin bearing, a clutch-pin located in said clutch-pin bearing, a spindle journaled in said axial bearing, a clutch connected to rotate with said spindle, another wheel having a clutch, and gearing carried by said casing to rotate said wheels in opposite directions, substantially as described.

2. The combination of two wheels, each of said wheels being provided with a clutch, a spindle pierced by a clutch-bar and having an alining and supporting shoulder or collar 10^4, to bear against the surface of one of said wheels and to reinforce said spindle where said clutch-bar passes through it, and a casing carrying gearing to rotate said wheels in opposite directions, substantially as described.

3. The combination of a rotative spindle having an axial socket, a locking-pin carried by said spindle and extensible into said socket, said locking-pin being provided with a lug, a non-rotative part, an ejector-cam connected with said non-rotative part, and means to move said ejector-cam to and from engagement with said lug of said locking-pin, substantially as described.

4. The combination of a rotative spindle having an axial socket, a locking-pin carried by said spindle and extensible into said socket, said locking-pin being provided with a lug, a non-rotative part, and a longitudinally-movable ejector-cam, said non-rotative part and said cam being connected together by a slip-joint located eccentrically to the axis of said spindle to hold said cam from rotation with said spindle during the engagement of said cam with said lug of said locking-pin, substantially as described.

5. The combination of a rotative spindle having an axial socket, a locking-pin carried by said spindle and extensible into said socket, said locking-pin being provided with a projection, a non-rotative part, and a longitudinally-movable cam connected with said non-rotative part to operate said locking-pin, said spindle also having an external

flange provided with a slot to receive said projection of said locking-pin, substantially as described.

6. The combination of a rotative spindle having an axial socket, a locking-pin carried by said spindle and extensible into said socket, said locking-pin being provided with a lug, a non-rotative part, and a longitudinally-movable cam connected with said non-rotative part and adapted to operate said locking-pin, said spindle also having a flange to arrest the longitudinal movement of said cam, substantially as described.

7. The combination of a rotative spindle provided with an axial socket and having a transverse bore opening upon said socket, a spring-plate provided in said transverse bore of said spindle, a locking-pin also provided with a spring-plate and located in said transverse bore of said spindle, a spiral spring surrounding said locking-pin and located between said spring-plates to extend said locking-pin into said socket, and cam mechanism to withdraw said locking-pin from said socket, substantially as described.

8. The combination of a rotative spindle having an axial socket, two locking-pins carried by said spindle, each of said locking-pins being provided with a spring to extend it into said socket and a lug to withdraw it therefrom, a non-rotative part, and a ring provided with two ejector-cams to coact with said lugs, said ring being connected with said non-rotative part by a slip-joint located eccentrically to the axis of said spindle, substantially as described.

9. The combination of a spindle having an axial socket, a locking-pin carried by said spindle and extensible into said socket, and a shaft having a tapered end, a transverse bore, and a flange extending beyond its periphery below the center of said bore, substantially as described.

10. The combination of a spindle having an axial socket and a catch extensible into said socket, with an independent shaft whose diameter permits it to be freely inserted into and removed from said socket during the rotation of said spindle, and means to connect said spindle and shaft together in rotary driving engagement, said shaft having a shoulder that is so located along the periphery of said shaft that said shoulder is above said catch before said spindle and shaft enter into said rotary driving engagement to connect said spindle and shaft longitudinally together while permitting one to rotate independently of the other, substantially as described.

11. The combination of a spindle having an axial socket, a locking-pin carried by said spindle and extensible into said socket, with a shaft adapted to enter said socket and provided with a transverse bore and a shoulder located along its periphery between said transverse bore and the inner end of said shaft, substantially as described.

12. The combination of two screw-threaded jaws, a ring surrounding said jaws and having alined transverse bores in its opposed walls, a right and left threaded screw journaled in said transverse bores in said ring and meshing with the threads of said jaws, means provided at each of said transverse bores to prevent end movement of said screw in said ring, and means to retain said jaws in mesh with said screw, substantially as described.

13. The combination of a body having a rack, a spring located under said rack, another part having a rack to mesh with said body-rack, and a push-button carried by said last-mentioned part and provided with a plane surface to bear directly upon the outer ends of the teeth of said body-rack to disconnect said racks, substantially as described.

14. The combination of a body having a jaw-slot, a ring surrounding said body, a clamping-screw located in said jaw-slot and journaled in said ring, and two concentrically-movable screw-threaded jaws located in said jaw-slot and meshing with said clamping-screw, substantially as described.

15. The combination of a body having a jaw-slot, a ring surrounding said body, a clamping-screw located in said jaw-slot and journaled in said ring, lock-nuts on the ends of said clamping-screw, and screw-threaded jaws located in said jaw-slot and meshing with said clamping-screw, substantially as described.

16. The combination of a body having a jaw-slot, a ring surrounding said body and longitudinally movable thereon, a right and left threaded screw located in said jaw-slot and journaled in said ring, two jaws, one side of said jaws bearing upon one of the side walls of the jaw-slot and the other side of said jaws being screw-threaded to mesh with said screw and having projections that extend beyond said screw-threaded portions of said jaws over and under said screw, whereby said ring can be clamped to said body by the lateral pressure exerted by said threaded parts when under strain, substantially as described.

17. The combination of a body having two jaws, means to move said jaws together the lower portions of said jaws having opposing alining surfaces, the upper portions of said jaws overhanging said lower portions and having two parallel driving-surfaces extending inward beyond said lower alining surfaces at an acute angle to the direction of movement of said jaws, substantially as described.

18. The combination of a body having a pair of concentrically-movable jaws provided with alining faces, and a pair of parallel driving-fingers fastened to the upper surface of said jaws and extending inward beyond said lower alining faces at an acute angle to the direction of movement of said jaws, substantially as described.

19. The combination of a body having a jaw-slot, a ring surrounding said body, a spline or splines partly embedded in said body and partly in said ring to connect said parts together, a clamping-screw located in said slot in said body and journaled in said ring, and two screw-threaded jaws located in said slot in said body and meshing with said clamping-screw, substantially as described.

20. The combination of a body, a longitudinally-movable part connected with said body, a pair of jaws supported by said longitudinally-movable part, said longitudinally-movable part being provided with means to move said jaws together, and means to lock said longitudinally-movable part at intervals along said body, substantially as described.

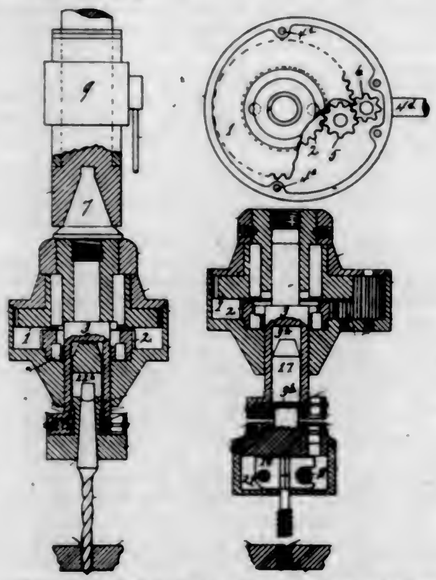
21. The combination of a body, a longitudinally-movable ring surrounding said body, a pair of screw-threaded jaws, a clamping-screw journaled in said ring and meshing with said screw-threaded jaws, and means to lock said longitudinally-movable ring at certain intervals along said body, substantially as described.

22. The combination of a body having a rack or racks, a longitudinally-movable ring surrounding said body and provided with a rack or racks, means to disengage said racks, a pair of jaws supported by said ring, and means to move one of said jaws toward the other, substantially as described.

23. The combination of a body having a rack or racks, a longitudinally-movable ring surrounding said body and having a rack or racks to engage said body rack or racks, a spring or springs to hold said racks in mesh, means to disengage said racks, a pair of jaws supported by said ring, and means to move said jaws together, substantially as described.

24. The combination of a body having a transverse jaw-slot and a longitudinal groove or grooves in its periphery, a rack or racks located in said groove or grooves, a longitudinally-movable ring surrounding said body and having a rack or racks to engage said body-racks a punching pin or pins carried by said ring, a spring or springs located in said longitudinal groove or grooves to hold said body and ring racks in engagement, a pair of jaws supported by said ring, and means to move said jaws together, substantially as described.

578,486. DRILLING AND TAPPING ATTACHMENT. FRANKLIN A. ERRINGTON, Edgewater, N. Y. Filed July 24, 1896. Serial No. 600,360. (No model.)



Claim.—1. A spindle having one of its ends provided with an axial socket and a coupler-clutch having opposite sides oppositely undercut, combined with a shaft adapted to enter said socket and provided with a coupler-clutch having opposite sides oppositely undercut to engage said spindle coupler-clutch, substantially as described.

2. The combination of a spindle having an axial socket opening on its face, said face being provided with a coupler-clutch, the walls of said socket being indented by a concentric groove, and a spring extending along said groove and extensible into said socket, with a shaft adapted to enter said socket and provided with a shoulder to coact with said spring and a coupler-clutch to engage said spindle coupler-clutch, substantially as described.

3. The combination of two disks provided with coupler-clutches, the coupler-clutch of one of said disks having opposite sides oppositely undercut, the coupler-clutch of the other disk having clutch-faces adapted to engage with said undercut coupler-clutch, the distance between the clutch-faces of the second-mentioned coupler-clutch being greater than the distance between the undercut edges of the first-mentioned coupler-clutch, to enable the latter to pass between said clutch-faces, substantially as described.

4. The combination of two disks, one of said disks being provided with a sectoral coupler-clutch having its radial sides oppositely undercut, and the other of said disks having a coupler-clutch provided with clutch-faces to mesh with said sectoral coupler-clutch, the distance between said clutch-faces of the second-mentioned coupler-clutch being greater than the distance between the undercut edges of said sectoral coupler-clutch, substantially as described.

5. The combination of two disks, one of said disks being provided with a sectoral coupler-clutch having its radial sides oppositely undercut on a bevel, and the other of said disks having a coupler-clutch provided with clutch-faces that are correspondingly beveled to mesh with the radial sides of said sectoral coupler-clutch, the distance between said clutch-faces of the second-mentioned coupler-clutch being greater than the distance between the undercut edges of said sectoral coupler-clutch, substantially as described.

6. The combination of two wheels, each of said wheels being provided with a clutch, means to rotate said wheels in opposite directions, a tool-holder having a coupler-clutch, a spindle having a clutch to connect said spindle with either of said wheels and a coupler-clutch to connect said spindle with said tool-holder, said coupler-clutches being undercut to a greater degree than said wheel-clutches, to enable said coupler-clutches to remain in mesh to draw said spindle-clutch out of engagement with either of said wheel-clutches, substantially as described.

7. The combination of a disk having two coupler-clutches one of said coupler-clutches being rigidly connected to said disk, and the other thereof being connected to said disk by a slip-joint to permit the distance between said coupler-clutches to vary, with another disk having a coupler-clutch to mesh with said first-mentioned coupler-clutches, substantially as described.

8. The combination of a disk having two coupler-clutcher one of said coupler-clutches being rigidly connected to said disk and the other thereof being connected to said disk by a slip-joint to permit it to slide independently of said disk, and an adjustable friction mechanism to regulate the action of said sliding coupler-clutch, substantially as described.

9. The combination of a disk having a concentric groove in its face, driving-pins located in said groove, a coupler-clutch rigidly connected with said disk, another coupler-clutch having a grooved flange that is located in the concentric groove of said disk between said driving-pins, the distance between said pins being greater than the length of said clutch-flange to permit one of said coupler-clutches to move independently of the other, a friction-piece located in the groove of said clutch-flange, and means to connect said flanged coupler-clutch longitudinally with said disk, substantially as described.

10. The combination of a disk having a concentric groove the side walls of which have two opposing indentations, a pin located in said concentric groove, the sides of said pin being embedded in said indentations, and a coupler-piece adapted to enter said groove to engage said pin, substantially as described.

11. A disk having an axial shaft projecting from its upper face, said face being provided with a coupler-clutch, said shaft having a shoulder and a cylindrical slideway of reduced diameter extending below said shoulder, and said disk having an axial socket-opening on its lower face, substantially as described.

12. The combination of a spindle provided with a coupler-clutch and having an axial socket, a catch carried by said spindle and extensible into said socket, an independent tool-holder provided with a coupler-clutch and having an axial shaft adapted to be inserted into and removed from said socket during the rotation of said spindle, said shaft having a shoulder that is so located along the periphery of said shaft that said shoulder is above said catch before said coupler-clutches enter into rotary engagement to connect said spindle and shaft longitudinally together, said shaft also having a cylindrical slideway of reduced diameter extending below said shoulder for a distance greater than the depth to which the faces of said coupler-clutches mesh when in rotary engagement to enable said shaft to slide independently of said catch to permit said coupler-clutches to engage and disengage, substantially as described.

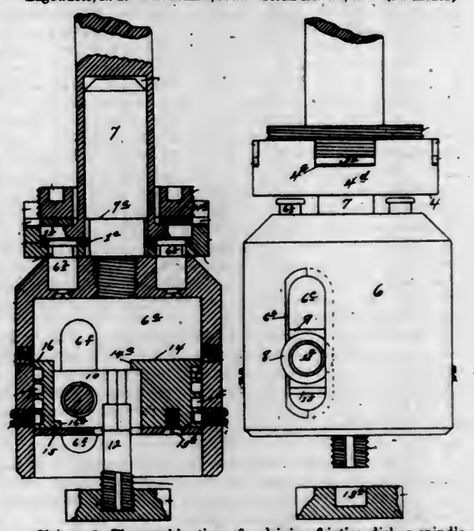
13. The combination of a spindle having an axial socket, the walls of said socket being indented by a concentric groove, an independent shaft adapted to be inserted into and removed from said socket during the rotation of said spindle, a spring carried by one of said parts, means to connect said spindle and shaft together in rotary driving engagement, said shaft having a shoulder so located along the portion of said shaft that enters said socket that said spring, said shoulder and said groove are in coöperative position to connect said spindle and said shaft longitudinally together before said shaft enters into rotary driving engagement with said spindle, substantially as described.

14. The combination of two screw-threaded jaws, a ring surrounding said jaws and having opposing internal counterbores provided with thrust-plates, a right and left threaded screw journaled in said counterbores, its ends being adapted to engage said thrust-plates to prevent end movement of said screw, and means to keep said jaws in mesh with said screw, substantially as described.

15. The combination of two screw-threaded jaws, a ring surrounding said jaws and having opposing transverse bores in its sides, one end of said ring being inclosed to form a face-plate having a concentric opening, a right and left threaded screw journaled in said side bores of said ring, means to prevent end movement of said screw and means to retain said jaws in mesh with said screw, substantially as described.

16. The combination of two screw-threaded jaws, each of said jaws having a smooth slideway on the opposite side of its center to that upon which it is screw-threaded, a ring surrounding said jaws and having two sets of opposing transverse bores in its sides, a right and left threaded screw journaled in one of said sets of transverse bores and meshing with the screw-threaded side of said jaws, a smooth guide-rod located in the other of said sets of transverse bores and meshing with said slideway of said jaws, and means to prevent end movement of said rod and screw, substantially as described.

578,487. TAPPING ATTACHMENT. FRANKLIN A. ERRINGTON, Edgewater, N. Y. Filed Jan. 2, 1897. Serial No. 617,838. (No model.)



Claim.—1. The combination of a driving friction-disk, a spindle projecting therefrom, a screw-threaded adjusting-ring surrounding said spindle, a check-washer interposed between said adjusting-ring and said driving friction-disk, and a friction-driven disk located on the other side of said driving friction-disk and provided with screw-threads to mesh with the screw-threads of said adjusting-ring, said check-washer and said friction-driven disk being connected together to turn in unison by a slip-joint whereby said last-named parts can have independent longitudinal movement toward and from each other, substantially as described.

2. The combination of a driving friction-disk, a spindle projecting therefrom, a screw-threaded adjusting-ring surrounding said spindle, a check-washer interposed between said adjusting-ring and said driving friction-disk and provided with a lug upon its periphery, a cup-shaped friction-driven disk having a slot in its side wall to receive the lug of said check-washer and also having screw-threads to mesh with the screw-threads of said adjusting-ring, substantially as described

3. The combination of a spindle having a flange and an axial socket, a disk connected with said flange, said disk having an axial

bore and being provided with a coupler-clutch, and another disk having an axial shank to enter said socket and a coupler-clutch to engage said coupler-clutch of said disk, substantially as described.

4. The combination of a spindle having a flange and an axial socket, a disk connected with said flange and having an axial bore that registers with said socket, said parts having an axial recess of greater diameter than said axial socket and located between their opposed surfaces, a retaining-spring located in said recess and extensible into said socket, said disk having an eccentrically-located coupler-clutch, and another disk having an axial shank to enter said socket and a coupler-clutch to engage the sides of said coupler-clutch, substantially as described.

5. The combination of two disks, one of said disks being provided with a coupler-clutch having opposite sides oppositely undercut at a right angle, and the other of said disks having a coupler-clutch provided with correspondingly undercut clutch-faces, the distance between said clutch-faces of the second-mentioned coupler-clutch being greater than the distance between the undercut edges of said first-mentioned coupler-clutch, to enable the latter to pass between said clutch-faces, substantially as described.

6. The combination of two screw-threaded jaws, a tubular body surrounding said jaws and having an opening in its side wall, a right and left threaded screw meshing with said jaws and having a portion located in said opening, means to prevent end movement of said screw in said body, and means to retain the opposed faces of said jaws parallel with the axis of said body, substantially as described.

7. The combination of two screw-threaded jaws, a tubular body surrounding said jaws and having an opening in its side wall, a right and left threaded screw meshing with said jaws and having a portion located in said opening, a thrust-nut located in said opening and connected with said screw to resist end movement thereof, said body being provided with means to prevent end movement of said thrust-nut in either direction, and means to retain the opposed faces of said jaws parallel with the axis of said body, substantially as described.

8. The combination of two screw-threaded jaws, a tubular body surrounding said jaws and having an opening in its side wall, a right and left threaded screw meshing with said jaws and having a portion located in said opening, a thrust-nut attached to said screw to turn therewith and journaled in said opening, the outer face of said thrust-nut having a bearing against the inner surface of said body and the inner face of said thrust-nut having a bearing against the outer surface of said body, to prevent end movement of said screw in said body in either direction, and means to retain the opposed faces of said jaws parallel with the axis of said body, substantially as described.

9. The combination of two screw-threaded jaws, a tubular body surrounding said jaws and having an opening in its side wall, a right and left threaded screw having a portion located in said opening, a thrust-nut attached to said screw to turn therewith and journaled in said opening, the wall of said opening being indented by a lateral recess in which is located said thrust-nut and which recess has end walls that hold said thrust-nut from end movement in either direction, and means to retain the opposed faces of said jaws parallel with the axis of said body, substantially as described.

10. The combination of two screw-threaded jaws, a tubular body surrounding said jaws and having an opening in its side wall, a right and left threaded screw meshing with said jaws and having a portion located in said opening, means to prevent end movement of said screw in said body, and an alining piece located between said jaws and the inner wall of said body and connected with said body to rotate in unison therewith, substantially as described.

11. The combination of a tubular body, a centering and alining mechanism surrounded by and longitudinally movable along said body, and means to connect said mechanism to said body to rotate in unison therewith, substantially as described.

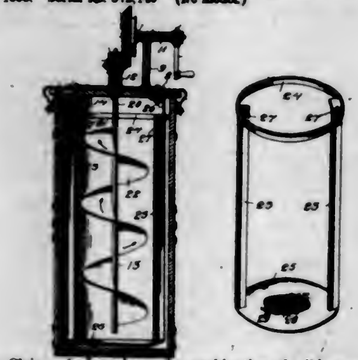
12. The combination of two screw-threaded jaws, a tubular body surrounding said jaws, a right and left threaded screw meshing with said jaws, said jaws and screw being longitudinally movable along and connected to said body to rotate in unison therewith, and means to center and aline said screw and jaws in said body, substantially as described.

13. The combination of two screw-threaded jaws, a tubular body surrounding said jaws, a right and left threaded screw meshing with said jaws, said jaws and screw being connected to rotate in unison with and being longitudinally movable along said body, means to center and aline said screw and jaws in said body, and means to lock said jaws to said body to prevent said longitudinal movement, substantially as described.

14. The combination of two screw-threaded jaws, a tubular body surrounding said jaws, a right and left threaded screw meshing with said jaws, said jaws and screw being longitudinally movable along and connected to said body to rotate in unison therewith, means to prevent end movement of said screw in said body, and an alining piece, said jaws being connected with said alining piece to move longitudinally therewith and to slide transversely independently thereof, said alining piece and said body having the one an indenture or indentures and the other a projection or projections to mesh with said indenture or indentures to lock said alining piece to said body at certain intervals along the length thereof, substantially as described.

15. The combination of two screw-threaded jaws, a tubular body surrounding said jaws and having an opening in its side wall, a right and left threaded screw meshing with said jaws and having a portion located in said opening, the length of said opening in a direction parallel with the axis of said body being greater than the diameter of said screw to permit said screw and jaws to move longitudinally along said body, said body being provided with means to prevent end movement of said screw in either direction, and means to retain the opposed faces of said jaws parallel with the axis of said body, substantially as described.

578,488. CHURN. JOSEPH JAQUE, St. Louis, Mo. Filed Dec. 14, 1896. Serial No. 572,146. (No model.)



Claim.—1. In a churn, the combination of a lid or cover adapted to be removably fitted upon a receptacle, a dasher, operating mechanism mounted upon the cover, and a breaker-frame secured to and carried by the cover and having opposite cross-sectionally flat breaker strips or bars disposed diagonally with relation to the diameter of the receptacle and curved laterally at their upper ends, as at 27, to deflect the contents of the receptacle inwardly, said strips supporting a butter-gathering dish below the lower end of the dasher, substantially as specified.

2. In a churn, the combination with a receptacle, of a rotary dasher-shaft and means for operating the same, a continuous flat spirally-disposed dasher-blade carried by and concentric with the dasher-shaft, and approximately vertical opposite breaker strips or bars arranged in fixed positions in the receptacle with their inner edges contiguous to the peripheries of the coils of the blade, said strips or bars being disposed cross-sectionally at an angle to the diameter of the receptacle, and hence diagonally with relation to the direction of movement of the whirling contents of the receptacle, to deflect the contents inwardly, substantially as specified.

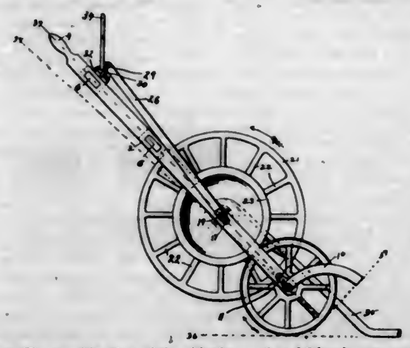
3. In a churn, the combination with a receptacle having a removable lid or cover, of a rotary dasher-shaft mounted in and supported by the lid or cover, operating mechanism for the dasher-shaft also carried by the lid or cover, and a continuous flat spirally-disposed dasher-blade carried by the dasher-shaft and adapted to exert a downward pressure upon the contents of the receptacle, the upper portion of the dasher-shaft being hollow or tubular with an inlet-opening above the plane of the lid or cover and outlet-openings within the receptacle contiguous to the upper end of the dasher-blade, substantially as specified.

578,489. REEL FOR SPRINKLING-HOSE. CHARLES KESSLER, Troy, Ohio. Filed Oct. 20, 1896. Serial No. 609,404. (No model.)

Claim.—1. In a reel for sprinkling-hose, the combination of a wheeled carriage, a winding-reel adjustably mounted thereon in slotted ways and having one or more disks thereon adapted to be brought into frictional driving contact with the wheels of said carriage by the adjustment of said reel, a yielding or springy operating means for manually adjusting said winding-reel, and arms 10 on and normally supporting said carriage, substantially as specified.

2. In a reel for sprinkling-hose, the combination of a wheeled carriage, a winding-reel mounted to reciprocate thereon in slotted ways, said winding-reel having one or more disks thereon adapted to be brought into frictional driving contact with the wheels of said carriage when said reel is reciprocated, connecting-rods 26 between crank-arms 30 and shaft 19 upon which said winding-reel is supported, and a yielding or springy operating-handle for the crank-arms 30, substantially as specified.

3. In a winding-reel for sprinkling-hose, the combination of a two-wheeled truck or carriage supporting a winding-reel adapted to be driven by frictional contact with said truck or carriage wheels, and curved arms 10 having integral fastening projections 11 and being secured to said truck or carriage by nuts 12 and rigid collars 8 and 9 upon an axle for said wheels, for supporting said truck or carriage in an upright position in connection with said truck-wheels, substantially as specified.



4. The combination of the side frames 2 and 3 having operating-handles 4 and 5, cross-frame 6 at one end and shaft 7 at the other, curved arms 10 on said side frames 2 and 3, said shaft passing through said side frames and curved arms 10 and clamping the same together between collars 8 and 9 and their nuts 12, and wheels 13 and 14 upon shaft 7 respectively adjacent to collars 8 and 9, said wheels being held in position by collars 15 and 16 respectively, substantially as specified.

5. The combination of a two-wheeled truck or carriage having side frames 2 and 3 and one or more cross-frame pieces 6, of a winding-reel consisting of end disks 21 having a series of spokes 22, a friction disk or flange 23 and hub 24 provided with a bearing for shaft 19 supporting said reel, said end disks being connected by a substantially circular portion 25; collars 20 on shaft 19 for engaging slots 17 and 18 respectively in side frames 2 and 3; connecting-rods 26 between the outer ends of shaft 19 and crank-arms 30 on shaft 31 having a series of bearing-boxes 32 secured to the frame-pieces, said shaft 31 being provided in its center with an integral operating-handle formed with loop 33 to provide a handhold 34; said friction disks or flanges 23 of the winding-reel being adapted to be forced into frictional driving contact with the two wheels of the truck or carriage, substantially as specified.

578,490. BICYCLE-SUPPORT. DANIEL KNOWLES, Norfolk, Va. Filed July 3, 1896. Serial No. 598,021. (No model.)

Claim.—1. In an apparatus for the purpose described, the combination with an elevated guideway, of a carrier movable on said guideway, and one or more clamps flexibly connected to said carrier so as to permit lateral movement and adapted to engage with the frame of a bicycle, substantially as set forth.

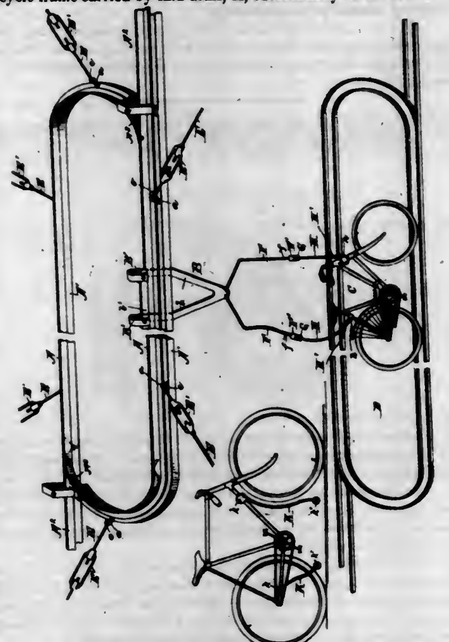
2. In an apparatus for the purpose described, the combination of a bottom guide for the wheels of a bicycle, an upper guide situated above the head of the rider, and an intermediate frame suspended from the upper guide to provide vertical support for and hold the bicycle in the lower guide, substantially as set forth.

3. In an apparatus for the purpose described, the combination with a bicycle having a rider's seat, a bottom guide for the wheels of the bicycle, an elevated guide, and an intermediate frame suspended from said elevated guide and attached to the bicycle both in front and in rear of the rider's seat, said suspended frame providing a vertical support for the bicycle and acting to maintain the wheels thereof in the bottom guide, substantially as set forth.

4. In an apparatus for the purpose described, the combination with a bicycle having a rider's seat, an elevated guide, and an intermediate frame having an upper portion engaging said elevated guide and a lower portion engaging the bicycle at two points longitudinally of the length thereof, said upper and lower portions of said intermediate frame being flexibly connected to permit lateral motion of the bicycle while supported vertically, substantially as set forth.

5. In an apparatus for the purpose described, the combination of an elevated guide, a bottom guide, a bicycle having its wheels fitted to the bottom guide, and an intermediate frame suspended from the upper guide and adapted to engage with and support the bicycle, said frame consisting of two sections flexibly connected together to permit lateral motion of the bicycle while its wheels are in contact with the bottom guide, substantially as set forth.

6. In a bicycle-supporting apparatus, the combination of a guideway, means for supporting the guideway in an elevated position, a carrier mounted on said guideway to move longitudinally thereon, the depending arms, F, connected to the carrier, arms, H, loosely connected to the carrier-arms, and the clamps for engaging with a bicycle-frame carried by said arms, H, substantially as set forth.



7. In a bicycle-supporting apparatus, the combination with an elevated support, a trolley-like carrier mounted on the upper edge of said support to move longitudinally thereof, a sectional depending arm connected at one end to said trolley-like carrier and provided at its other end with means for attachment to a bicycle-frame, and means for flexibly connecting the sections of said arm, substantially as set forth.

8. In a bicycle-supporting apparatus, the combination with an elevated support or guideway, an overrunning trolley-like carrier mounted on said support to move longitudinally thereof, and means depending from said carrier for supporting a bicycle, such means being adapted to yield both laterally and vertically according to the movements of the bicycle, substantially as set forth.

9. In an apparatus for the purpose described, the combination with a bicycle, of an elevated guideway, a guiding device fitted to said way, and an intermediate frame connecting the bicycle and elevated guiding device and adapted to vibrate laterally relatively to the latter, substantially as set forth.

10. In an apparatus for the purpose described, the combination with a bicycle, of an elevated guide, a guiding device bearing on vertical lines against said guide, and an intermediate frame between the bicycle and the guiding device and adapted to vibrate laterally while the guiding device is bearing vertically on the guide, substantially as set forth.

578,491. TOY. DANIEL KNOWLES, Norfolk, Va. Filed July 3, 1896. Serial No. 598,023. (No model.)



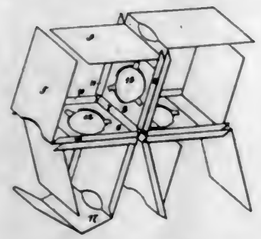
Claim.—1. A toy consisting of a bat, a holder or receptacle secured to one side of said bat, a yielding ring secured about the open

end of said holder, and a dart adapted to fit within said holder and be held therein by the said ring, substantially as set forth.

2. A toy consisting of a bat having on one side a plane face, whereby it is adapted for use in striking, and having on the opposite face a cup or socket, and a dart or projectile adapted to be propelled by a blow from the plane side of the bat and to be seated within the said cup, substantially as set forth.

3. A toy consisting of a bat having a holder or receptacle with a conical cavity, and a dart, conical in form and narrower at its larger end than the wider part of the cavity in the holder, substantially as set forth.

578,492. GAME APPARATUS. JAMES R. LADD, Roland Park, Md. Filed Oct. 13, 1896. Serial No. 608,717. (No model.)



Claim.—1. In a game apparatus, the combination of a number of cases arranged one above the other and connected together by centrally-located pivotal fastening devices, substantially as described.

2. In a game apparatus, the combination of a number of cases arranged one above the other each having one end only open, and connected together by centrally-located pivotal fastening devices, substantially as described.

3. In a game apparatus, the combination of a number of cases arranged one above the other and connected together by centrally-located pivotal fastening devices, said devices being provided with stops limiting the rotation of the boxes from their initial position to motion in but one direction, substantially as described.

4. In a game apparatus, the combination of a number of cases arranged one above the other and connected together by centrally-located pivotal fastening devices, said devices being provided with stops limiting the rotation of the boxes from their initial position to motion in but one direction and also fitted with stops limiting the rotation of each box to a definite angle relative to the box next below it.

5. In a game apparatus, the combination of a number of cases arranged one above the other and connected together by pivotal fastening devices, upon which they may be rotated in parallel planes and fitted with a single flap or cover arranged to close all the boxes and to prevent their rotation relative to each other when so closed.

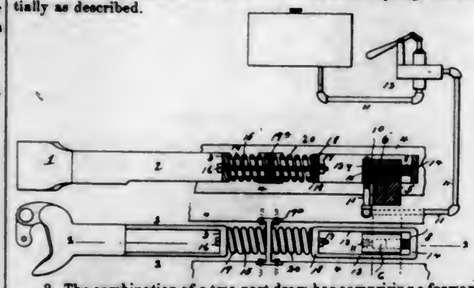
6. In a game apparatus, the combination of a number of cases arranged one above the other and connected together by a pivotal fastening device formed of two flat pieces with circular apertures in which are two or more radial projections, so proportioned and spaced that when bent through the apertures of the adjacent pieces, these radial projections will secure the cases together, but leave them free to be rotated around their centers as axes through a predetermined angle.

7. In a game apparatus, the combination of four cases superimposed upon one another and secured together by a centrally-located pivotal fastening device, substantially as described, each of the three upper cases adapted to rotate upon its pivot ninety degrees, the lower boxes carrying those above them as they rotate through their prescribed angle.

8. In a game apparatus, the combination of several boxes secured together by pivotal joints, the adjacent walls of the two boxes being provided with coincident circular apertures and supplemental sheets of suitably stiff material, each provided with a similar coincident circular aperture and inwardly-projecting tongues, said tongues being bent in opposite directions through the apertures in adjacent sides of the boxes and clenched thereon, substantially as described.

578,493. DEVICE FOR UNITING CARS. ARTHUR G. LEONARD, New York, N. Y. Original application filed July 10, 1893, Serial No. 480,014. Divided and this application filed Mar. 9, 1894. Serial No. 503,019. (No model.)

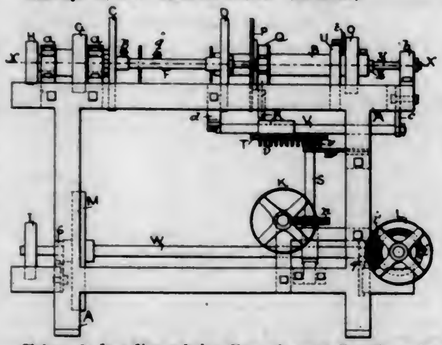
Claim.—1. The combination with the car, of the two-part draw-bar comprising the bar 2 and head 1 and the rear rectangular yoke, a draw-bolt movably connecting said two parts, rigid abutments on the ends of the bolt to enable either part to be bodily moved by the other in either direction, an abutment fixed to the car and interposed between said movable parts, a spring between each of said movable parts and the car-abutment, and a hydraulic device fixedly secured within said yoke and having a plunger, said plunger having a rearward movement against the yoke to move the latter rearwardly against the stress of the forward spring, and resist forward movement of the bar, the fore part of the draw-bar being capable of movement rearwardly against the stress of the forward spring, substantially as described.



2. The combination of a two-part draw-bar comprising a forward draw-head and a rear rectangular yoke, a draw-bolt movably connecting the head and yoke having nuts on its ends, a rigid abutment through which the draw-bolt movably passes, a spring located between said draw-head and rigid abutment and about the bolt, with a spring located between said abutment and the yoke, a hydraulic cylinder fixedly secured within the yoke and having a ram to act rearwardly on said yoke against the stress of the forward spring and means for forcing fluid under pressure into said cylinder and against said ram, substantially as described.

3. The combination with the car-sill 5, of the two-part draw-bar, the draw-bolt 15 movably connected with the front and rear sections of said bar, the fixed abutment 19a, through which said draw-bolt movably passes, springs 19 and 20 about the draw-bolt and between said fixed abutment and the movable portions of said bar, said rear section having side plates 13 and rear plates 14 forming a yoke, the chambered cylinder 6 secured to said sill within and between the side plates 13, a plunger 8 movable in the chamber and adapted to engage the cross-plate 14, and a hydraulic device connected with the chamber adapted to operate upon the plunger to move the rear section of the draw-bar rearwardly against the stress of the spring 19, substantially as described.

578,494. SPINNING-JENNY. GEORGE H. MARSH, Paterson, N. J. Filed Apr. 13, 1896. Serial No. 587,353. (No model.)



Claim.—1. In a flier, tubular flier-rods extending through one head of the flier, in combination with a supplemental traverse flier-head provided with flier-arms constructed to travel back and forth in the tubular flier arms, a roller secured to each of said traverse flier-arms and projecting through a longitudinal slot in tubular flier-arms, to distribute the fiber on the bobbin, the traverse motion being communicated to the supplemental traverse-head by means of a rack and pinion, substantially as shown and described.

2. The combination with a jenny and mechanism for operating the same, of a cup-shaped friction-wheel, a rotary tubular shaft, to which said friction-wheel is secured, a spool onto which thread is wound, said tubular shaft being provided with means to engage one head of spool to cause said spool and tubular shaft to revolve together, a spindle on which said tubular shaft and spool turn, a balance-weight loosely mounted on said tubular shaft inside of said friction-wheel, rollers in recesses formed in sides of said balance-weight, projecting slightly beyond the edges thereof and running on the inside

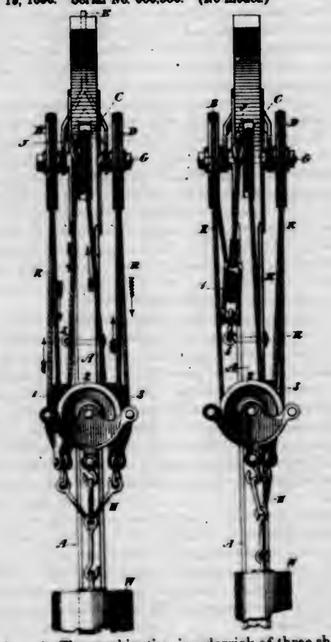
of the rim of the friction-wheel, said balance-weight provided with a projecting central portion the top thereof forming a shoulder, and a lever attached to the framework of the machine and resting on said shoulder, and a weight on the outer end of said lever to hold it down on said shoulder, substantially as shown and described and for the purposes specified.

3. In a spinning-jenny, a flier having rotary heads, with tubular flier-rods provided with a longitudinal slot, and extending through to the outer face of one of said heads, in combination with a stationary tubular shaft secured to framework of machine, to serve as a bearing for one of the flier-heads and for a supplementary traverse flier-head, a supplementary rotary traverse flier-head, provided with a grooved collar mounted to rotate and travel on said stationary tubular shaft, and having flier-rods to fit into and to travel back and forth in the tubular flier-rods, rollers around which the thread passes secured to said traverse flier-rods and extending through the slots in the tubular flier-rods, to distribute the thread on the spool, said stationary tubular shaft also serving as a bearing for a revolving tubular shaft, such a revolving tubular shaft extending through the stationary tubular shaft and head proper of the flier, and having an enlarged end inside of said flier-head and provided with means for engaging head of spool, a spool, a spindle mounted on the frame of machine and passing through the rotary shaft inside of stationary tubular shaft, and through the spool, a carriage supported on a longitudinal rail, a strap connecting said carriage to a collar on the supplemental traverse flier-head and means for imparting the traversing motion to said carriage and traverse flier-head, substantially as shown and described and for the purposes specified.

4. In a spinning-jenny, a flier having rotary heads and tubular flier-arms in combination with a supplemental rotary traverse flier-head having flier-rods, extending into the tubular rods of the flier, and a stationary tubular shaft on which the supplemental traverse flier-head rotates and travels substantially as shown and described and for the purposes specified.

5. In a spinning-jenny, a flier having rotary heads and tubular flier-arms in combination with a supplemental rotary traverse flier-head having flier-rods extending into the tubular rods of flier, and a stationary tubular shaft on which the supplemental traverse flier-head rotates and travels and means for imparting the traverse motion to said supplemental or traverse flier-head, substantially as shown and described and for the purposes specified.

578,495. DERRICK. DANIEL R. MORAN, New York, N. Y. Filed Sept. 19, 1896. Serial No. 606,336. (No model.)



Claim.—1. The combination in a derrick of three sheaves; three pulleys, each pulley independently detachably attached to a common hanger, and a rope or cable operating upon the pulleys and sheaves, substantially as specified and set forth.

2. The combination in a derrick of three sheaves, and three pulleys, on which a rope operates, and stops for the pulleys 1, and 2, to which they may be attached, or to the hanger H, at the option of the operator, substantially as specified and set forth.

3. The combination in a derrick of three sheaves, and three pulleys, one of which pulleys is attached to the boom of the derrick, the other two pulleys being independently attached to the load, substantially as specified and set forth.

4. The combination in a derrick of three sheaves, and three pulleys, two of which pulleys are attached to the boom of the derrick, the other pulley being alone attached to the load substantially as specified and set forth.

5. The combination in a derrick of three sheaves three pulleys and a rope common to all, the pulleys being so arranged that they encircle the boom when in a nearly vertical position, substantially as specified and set forth.

578,496. BALL-BEARING. JOHN J. HARBAUGH, Lecsport, Pa. Filed Oct. 31, 1896. Serial No. 610,717. (No model.)

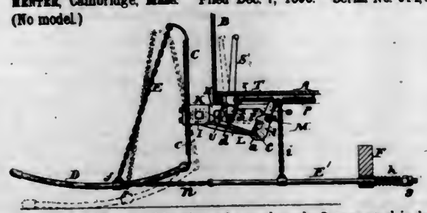


Claim.—1. The herein-described improved ball-bearing, comprising a cup-like member, a bearing-cone located within said cup-like member, an annular space being formed between the periphery of the latter and the inner wall of said cup-like member, balls adapted to travel in said annular space, a disk of translucent material adapted to cover said annular space, and a ring adapted to engage said cup-like member and secure said disk in position, as and for the purpose set forth.

2. The herein-described improved ball-bearing, comprising a cup-like member, a bearing-cone located within said cup-like member and having an annular bead, an annular space being formed between said bead and the inner periphery of said cup-like member, balls adapted to travel in said annular space, a disk of translucent material adapted to cover said annular space, and a ring adapted to receive said disk and bind the same against the rear face of said cup-like member and the bead of said cone, as set forth.

3. The herein-described improved ball-bearing, comprising a cup-like member having an annular threaded flange, a bearing-cone located within said cup-like member and having an annular bead, an annular space being formed between said bead and the inner periphery of said cup-like member, balls adapted to travel in said annular space, a disk of translucent material adapted to cover said annular space, and a threaded ring adapted to engage the threaded flange of said cup-like member and provided with a ledge or flange adapted to receive said translucent disk, substantially as and for the purpose set forth.

578,497. LIFE-GUARD FOR STREET-CARS. GEORGE A. PARMENTER, Cambridge, Mass. Filed Dec. 7, 1896. Serial No. 614,734. (No model.)



Claim.—1. The combination of a rocker-shaft mounted in bearings on the end of a car; a pair of elliptic or leaf springs firmly secured to said rocker-shaft and projecting above and below the same; a fender or scoop pivoted to the lower ends of said springs and suspended by a suitable connection from their upper ends; a rearwardly-projecting arm rigidly secured upon said rocker-shaft; a second rocker-shaft mounted in bearings beneath the car-platform; a tumbler-arm secured upon said pendent from said second rocker-shaft and provided with the lugs *a* and *b* and the detent *c*; means for normally holding said tumbler-arm in engagement with said rearwardly-projecting arm to hold the scoop in raised position; and means for tripping said tumbler-arm to permit the scoop to fall to the ground.

2. The combination of the rocker-shaft I; the leaf-springs C, C, secured to said shaft and projecting above and below the same with both the upper and lower ends thereof free to yield; the scoop D piv-

oted to the lower ends of said springs and suspended from the upper ends thereof and movable about its pivotal connection to said springs; means for locking said scoop in its normal raised position; means for disengaging said locking devices to permit said scoop to fall to the ground; and a yielding connection between the rear cross-rod of said scoop and the truck-frame.

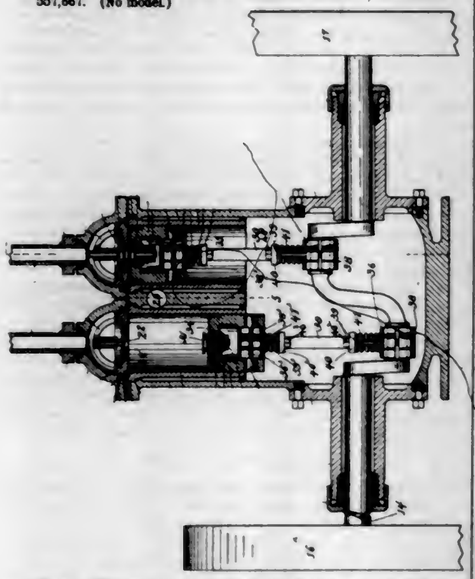
3. The combination of the rocker-shaft I; the springs C, C; the scoop D; the suspension-chains E; the arm L; the rocker-shaft M; the tumbler-arm *l*; the arm O; the spring *p*; the link T; the lever S S'; the pilot-board F; the rod E' provided with a head or collar *g*; the spring *h*, and the flexible connection *n*, all constructed arranged and operating substantially as described.

578,498. POCKET-BOOK. CHARLES PIERS, Jr., New York, N. Y. Filed Mar. 12, 1896. Serial No. 582,925. (No model.)



Claim.—As an improved article of manufacture, a combination pocket-book having the usual change-receptacles, an extra pocket open on all sides except the back whereby the pocket can receive an article longer than the pocket-book, and a spring having opposite connected parts, one part of the spring being secured to the back and the other part to the change-pocket whereby the open pocket is closed, substantially as described.

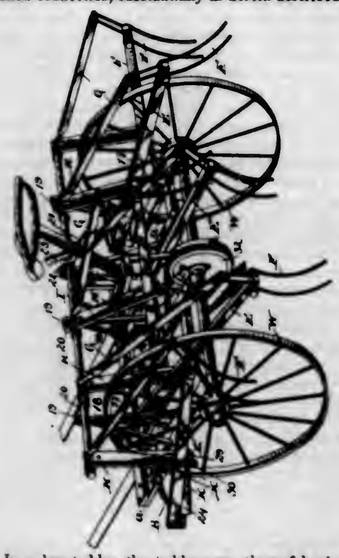
578,499. COMPRESSOR FOR REFRIGERATING-MACHINES. FREDERICK O. PIERSON, Oshkosh, Wis. Filed July 31, 1895. Serial No. 557,867. (No model.)



Claim.—The combination, of a shell, a cylinder within the upper portion of the shell and removed therefrom to form an annular space to which the inlet leads, the lower end of the annular space opening into the lower space of the shell, and the cylinder provided near its upper end with an annular lateral shoulder fitting a corresponding recess in the shell, the extremity of the cylinder forming an upwardly-projecting annular tongue, a plate for the upper end of the cylinder having a valve-opening therein, said plate provided upon its under side with an annular groove to receive the upwardly-extending tongue of the cylinder, and upon its edge with a lateral annular flange, and upon its upper side provided with an upwardly-extending spider having a hub projecting therefrom, a valve regulating the valve-opening, the stem of said valve being guided in the hub, a cap for the upper end of the shell, having a flange bolted to a corresponding flange of the shell, and also provided with an annular shoulder adapted to receive the lateral annular flange of the plate, and a reciprocating piston within the cylinder provided with a valve-regulated opening, substantially as described.

578,500. HAY-TEDDER. EDMUND D. REYNOLDS and OLIVER B. REYNOLDS, Brockton, Mass. Filed Mar. 27, 1896. Serial No. 585,061. (No model.)

Claim.—1. A hay-tedder having approximately horizontal arms, a connection depending from the machine and having a fixed suspension from above, and spring-plates carried by the forward ends of the arms and having their rear ends connected with the lower ends of the fixed connection, substantially as herein described.



2. In a hay-tedder, the tedder-arms thereof having separated spring-plates secured at their forward ends to the under side of the forward portion of the arms, and having their opposite rear ends joined or connected to a fixed connection whereby the arms yield when meeting an obstruction, and forks carried by the rear ends of the arms, substantially as herein described.

3. In a hay-tedder, the substantially rigid tedder-arms having the forks at one end and having their opposite ends mounted upon the crank-shaft of the machine, the depending links having a fixed connection above and having their lower ends bifurcated, and adapted to straddle the arms, and independent spring-plates secured in pairs at their forward ends to the under side of the arms and having their rear ends joined together, with the extremity of one plate attached to the lower end of the contiguous link, whereby the tedder-arms yield against the power of the springs.

4. In a hay-tedder having a crank-shaft, the tedder-arms mounted at their forward ends upon said shaft, forks carried by the rear ends of said arms, and links depending from a fixed connection above and having their lower ends embracing the arms at points between the front and rear ends, in combination with a spring connection between the links and arms having one end secured to the arms and the other end secured to the links, substantially as herein described.

5. In a hay-tedder having a crank-shaft, tedder-arms and links for suspending the arms from a fixed connection above, the plates K and K' forming a spring connection between the links and arms and adapted to yield when a predetermined strain is brought upon the forks, substantially as herein described.

6. In a hay-tedder having a crank-shaft, tedder-arms and links having a fixed connection above, a duplex spring connection between the links and forward portions of the arms, said springs being secured at their forward ends to the forward ends of the arms and having their opposite ends secured to the links, the springs being separated and one inclined with relation to the other, whereby they are depressed and come together for a portion of their surfaces when the rear of the arms is lifted, substantially as herein described.

7. In a hay-tedder, the combination of the main frame, the crank-shaft, the tedder-arms mounted at their forward ends on said shaft, the forks carried by the rear ends of the arms, the links having an upper fixed connection and having lower ends forked over the arms back of the crank-shaft, a spring-plate lying under the arm and secured by its front end thereto, a second plate below the arm, inclined with relation to the opposing plate, and having its front end secured to the forward end of the arm, said springs having their rear ends united and attached to the ends of the links below the arms, substantially as herein described.

8. An arm or bar pivotally hung at one portion and having its opposite portion capable of movement, and a yielding connection formed of spring-plates separated to form a converging space, the separated portions of the plates being connected with the pivotal end of the arm or bar and the contracted portions connected to a fixed support at a point between opposite ends of the arm or bar.

9. An arm or bar pivotally hung at one end and having the opposite end capable of a swinging movement and a spring connection between the arm or bar and a fixed support intermediate of the ends of the arm or bar, said spring connection consisting of a member substantially parallel with the bar and a second member inclined with relation to the first member, separated from the latter at one end and having the opposite end connected to the first member, the separated ends of the spring being secured to the bar and the connected ends to the support whereby a movement of the free end of the arm or bar causes the straight member of the spring and the free end of the inclined member to be depressed and the middle portion of the inclined member to be bowed into contact with successive portions of the straight member.

10. A spring connection interposed between a fixed support and a pivotally-hung arm or bar whose free end is capable of a swinging movement, said connection consisting of two superposed members separated at one end said separated ends secured to the bar and the opposite ends brought together and joined at the support whereby one of said members serves as a brace for the other member and has its middle portion adapted for gradually-progressive engagement with the contiguous surface of the other member to equalize the resistance thereof, and maintain a substantially uniform resistance to the lifting action of the arm from the beginning of its movement to the completion thereof.

11. In a hay-tedder, the tedder-arms and their actuating mechanism, the spring-forks secured near their centers to the rear ends of the arms, having extensions above and below, bars extending from forks to a fixed support above, means for detachably connecting the upper ends of the forks to the bars, consisting of opposing castings one on each side of the bars said castings being hinged together at one end and means whereby the free ends of the castings are detachably bolted to each other and to the bars.

12. In a hay-tedder, the tedder-arms and forks, means for operating the same, the suspending-links, the bars connecting the upper ends of the forks with the links, said links being bifurcated to receive the bars, pins passing through the bars and links, a casting on each link having an eye and having side lugs to embrace the links and prevent endwise movement of the pin, a shaft passing through the eye and suspending the links, and about which the links pivot, standards or supports, arms fixed to the shaft and fulcrumed on the standards and means for raising and lowering the tedder-arms and connections.

13. In a hay-tedder, the crank-shaft, the tedder-arms and forks operated thereby, the driving mechanism including a shaft having a gear-wheel and sprocket each having a clutch-surface, and means for throwing the gear and sprocket into and out of gear comprising spaced lugs, a bolt adapted to slide therein and to shift the driven gear, an eccentrically-mounted plate or disk fulcrumed on said slidable bolt and adapted to engage the inner walls of the spaced lugs, and force the bolt in and out, said plate or disk having depending wings and a turnable rod slidably mounted in the bolt for operating the disk axially.

14. In a hay-tedder, the combination, of the tedder-arms, the bars G, means whereby the arms and bars are operatively secured, the forks, the upper ends of which are mounted in the rear ends of the bars, the short spools seated in sockets made partly through the side faces of the arms, and receiving the coils of the forks, a bolt passing through each arm and its spools and means for securing the bolt.

578,501. MUSICAL INSTRUMENT. SEBASTIAN SCHOTT, Kansas City, Mo., assignor of one-half to George Bugg, Chicago, Ill. Filed Aug. 22, 1896. Serial No. 603,656. (No model.)

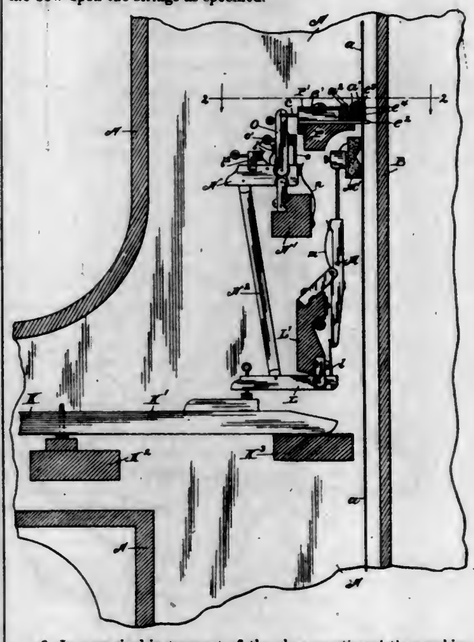
Claim.—1. In a musical instrument of the class mentioned the combination with the strings of an endless bow supported on pulleys and having one part arranged parallel with the plane of the strings, a rest provided with sliding blocks carrying a roller upon each side of the bow-actuating mechanism connecting with the pulleys for propelling the bow, and actuating mechanism connecting the sliding blocks with the key-levers for deflecting the bow upon the strings as and for the purpose specified.

2. In a musical instrument of the class mentioned the combination with the strings of a rest I' provided with sliding blocks in proximity to the strings as and for the purpose specified.

3. In a musical instrument of the class mentioned, the combination with the bow and strings of a rest provided with sliding blocks and means in connection with the sliding blocks for deflecting the bow upon the strings as specified.

4. In a musical instrument of the class mentioned the combination with the bow of a rest, sliding blocks upon the rest and a pair of rollers in connection with each of the sliding blocks arranged as shown relatively to the bow, as and for the purpose specified.

5. In a musical instrument of the class mentioned, the combination with the bow and strings of a rest, sliding blocks upon the rest, and a roller in connection with each of the sliding blocks for deflecting the bow upon the strings as specified.



6. In a musical instrument of the class mentioned the combination with the bow and strings of a rest, sliding blocks upon the rest and a felt roller in connection with each of the sliding blocks for deflecting the bow upon the strings as specified.

7. In a musical instrument of the class specified the combination with the bow and strings of a pair of felt rollers in connection with each of the sliding blocks, said rollers being arranged upon opposite sides of one part of the bow and in lines falling between strings in unison as and for the purpose specified.

8. In a musical instrument of the class mentioned the action comprising levers L and N, having a link connection, upright piece O, and sliding block *c'* provided with a bow-deflecting roller, the lever L being in connection with the key-lever substantially as specified.

9. In a musical instrument of the class mentioned the combination with a rest provided with sliding blocks having one end coupled by actuating mechanisms with the key-levers and the other end provided with means for deflecting the bow as specified.

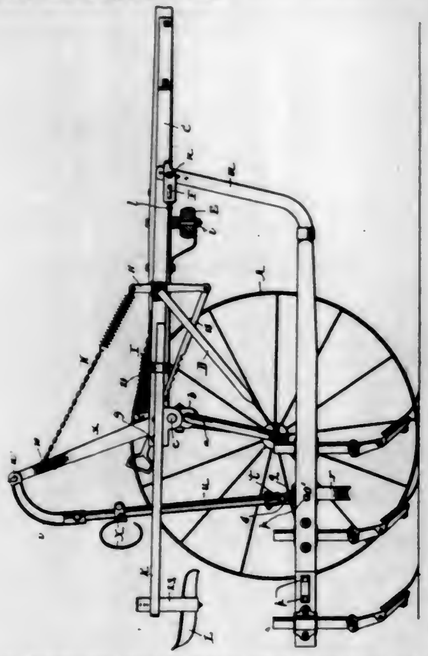
578,502. WHEEL-CULTIVATOR. WILLIAM SORBY, Racine, Wis., assignor to the J. I. Case Plow Works, same place. Filed Sept. 18, 1896. Serial No. 606,283. (No model.)

Claim.—1. In cultivators, the combination with the main frame and its wheel-axle, of the shovel-beams swung from said frame at its forward end, the upright radius-arm, the suspension-rod pivotally joined back of the axle to the radius-arm and shovel-beam respectively, and the spring-lifter extended from the frame in substantially horizontal direction and united at the rear to said radius-arm near the pivot thereof, whereby the rocking shift of such radius-arm, as the shovel-beam rises toward riding position, promotes the leverage of said spring-lifter and maintains the counterpoise effect thereof, substantially as described.

2. In cultivators, the combination with the main frame and its wheel-axle, of the shovel-beam swung from said frame at its forward end, the upright radius-arm, the suspension-rod having a curved upper terminal and pivotally joined back of the axle to the radius-arm and shovel-beam respectively, and the spring-lifter extended from the frame in substantially horizontal direction and united at the rear to said radius-arm near the pivot thereof, substantially as described.

3. In cultivators, the combination with the main frame and its wheel-axle, of the shovel-beam swung from said frame at its forward end, the upright radius-arm, the spring-lifter united to said arm near the pivot thereof and extended to the frame, the suspension-rod pivotally joined back of the axle to the radius-arm and shovel-beam

respectively and the spring-regulator extending from the frame and at the rear united to the radius-arm near the suspension-rod pivot thereon, substantially as described.



4. In cultivators, the combination with the main frame and its wheel-axle of the shovel-beam swung from said frame at its forward end, the upright radius-arm, the suspension-rod pivotally joined back of the axle to the radius-arm and shovel-beam respectively, the spring-regulator extended forward from the radius-arm, the rocking shifter connected thereto, and the rack-link within the driver's control to vary the position of said shifter, substantially as described.

5. In cultivators, the combination with the main frame and its wheel-axle of the shovel-beam swung from said frame at its forward end, the upright radius-arm, the suspension-rod pivotally joined back of the axle to the radius-arm and shovel-beam respectively, the spring-regulator extended forward from the radius-arm, the shifter uniting said regulator at front with the main frame, and suitable means under control from the driver's seat on the machine to vary the position of such shifter, substantially as described.

6. In cultivators, the combination with the spindle members for the main wheels, and with the transverse tie-rod of the union-couplers interposed between said members and rod to join them together, the team-pole secured centrally to the tie-rod and the rocking radius-arms to sustain the gang-beams at the rear, said arms being sleeved upon the tie-rod, between the pole and couplers respectively, substantially as described.

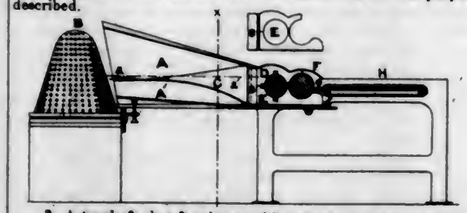
7. In cultivators, the combination with the spindle members for the main wheels, and with the transverse tie-rod of the union-couplers interposed between said members and rod to join them together and the cross-wedges abutting against the parts named to hold them rigidly in assigned relation, substantially as described.

8. In cultivators, the combination with the U-axle for the carrying-wheels having saddle-lugs at the arch bends of said axle, of the main-frame side bars secured to the axle adjacent said lugs and the channel-form seat-bars fitting over such lugs and at their forward ends adjustably clipped to the side bars, substantially as described.

578,503. MANUFACTURE OF FELT HATS. ROBERT STALKER, GEORGE BATY, and JAMES JOHNSTON, Stockport, England, assignors to said Baty, and Albert Turner and Arnold Turner, Denton, England. Filed Dec. 7, 1895. Serial No. 571,427. (No model.)

Claim.—1. In a machine for manufacturing felt hats the combination with the delivery-trunk of a partition placed horizontally dividing it into a number of chambers with discharge-apertures at different horizontal levels, whereby the fur is caused to be deposited simultaneously in belts or bands at different levels to form the hat-body thus providing for the use of different grades of fur for different portions of the hat substantially as described.

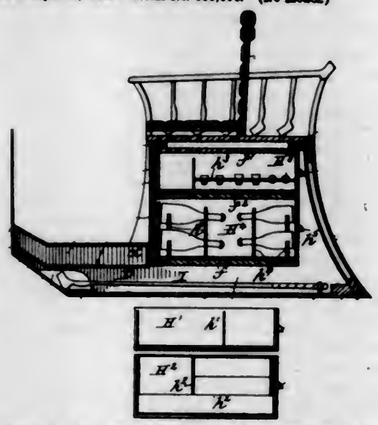
2. A machine for manufacturing felt hats comprising a forming-cone B, a delivery-trunk A a partition C inserted in the trunk by which it is divided into horizontal compartments to allow of two different grades of fur being passed through separately at the same time, feed-brushes D and F, a division-plate E surrounding the feed-brushes and a feed-table H provided with dividing-strip to prevent the mixing of the fur thereon substantially as and for the purpose described.



3. A trunk for hat-forming machines having a partition C comprising two surfaces, one inclined above and the other below the horizontal plane and connected together by a vertical piece *a'* to divide the trunk into a number of chambers one above the other at the delivery end

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578,504. VEHICLE-BODY. JEROME STIVERS, New Rochelle, N. Y. Filed Sept. 14, 1896. Serial No. 605,696. (No model.)



Claim.—1. In a vehicle-body, a casing suspended therein and forming with the floor and sides of the body a compartment, a series of partitions mounted in one end of the said compartment, and a rack mounted in the opposite end of the said compartment.

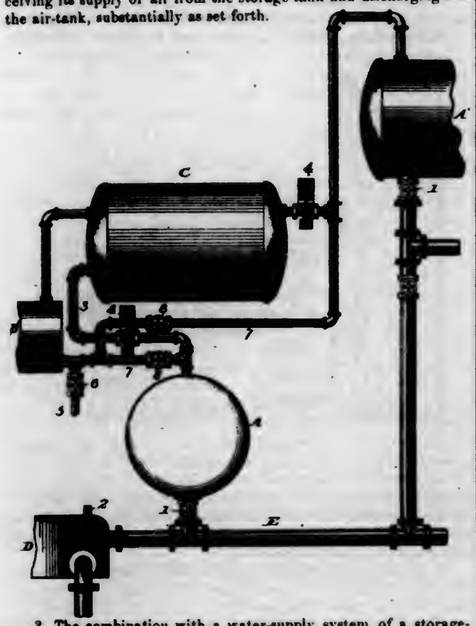
2. In a vehicle-body, the sides thereof having sections projecting forward from the same, supports connecting said sides, a flooring mounted between the lower edges of said sides, a flooring mounted between said projecting sections and above the first-mentioned flooring, and a casing suspended between the upper parts of said sides and having its bottom substantially level with the flooring mounted between the projections, said sides, projections, floorings, and casing forming a compartment extending the entire length and width of the body of the vehicle.

3. In a vehicle-body, the sides thereof having sections projecting forward from the same, a flooring mounted between the lower edges of said sides, a flooring mounted between said projecting sections and above the first-mentioned flooring, a casing suspended between the upper parts of said sides and having its bottom substantially level with the flooring mounted between the projections, said sides, projections, floorings, and casing forming a compartment, a series of partitions mounted in the forward end of said compartment, and a rack mounted in the rear end of the same.

578,505. APPARATUS FOR WATER-SUPPLY SYSTEMS. WILLIAM E. WORTHEN, New York, and OSCAR DARLING, Babylon, N. Y.; said Worthen assignor to Robert E. Hawley, Brooklyn, N. Y. Filed June 2, 1896. Serial No. 594,008. (No model.)

Claim.—1. In a water-supply system, a storage-tank communicating with the delivery-main, and a pump for supplying the tank with water, a compressed-air tank and means for supplying it with air under high pressure and a communication between the air-tank and the water-tank provided with a reducing-valve, substantially as set forth.

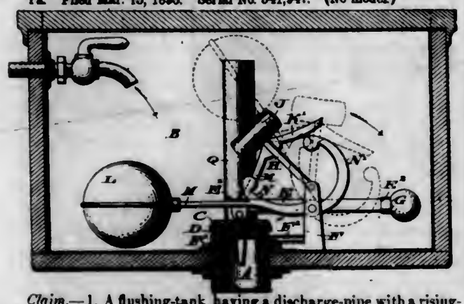
2. In a water-supply system, a storage-tank communicating with the delivery-main, and a pump for supplying the tank with water, a compressed-air tank, an air-compressor for supplying it with air under high pressure and a communication between the air-tank and the water-tank provided with a reducing-valve, the air-compressor receiving its supply of air from the storage-tank and discharging into the air-tank, substantially as set forth.



3. The combination with a water-supply system, of a storage-tank and an air-pressure tank communicating with each other through a pipe provided with a reducing-valve, a water-supply pump communicating with the storage-tank and provided with an air-inlet 2, and means for supplying the air-tank with air under high pressure and a delivery-main communicating with the storage-tank, substantially as set forth.

4. In a water-supply system, a storage-tank and water feed-pump therefor, an air-tank, and air-compressor therefor, a service-main communicating with the storage-tank, a communication provided with a reducing-valve between the storage and air tanks, and an independent communication between the storage-tank and the inlet-port of the air-compressor, substantially as set forth.

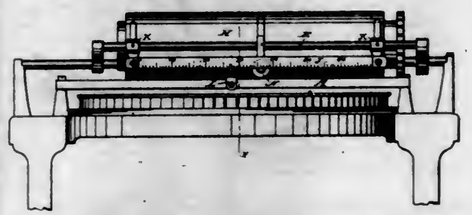
578,506. FLUSH-TANK. CHARLES A. BLESSING, Philadelphia, Pa. Filed Mar. 15, 1895. Serial No. 541,947. (No model.)



Claim.—1. A flushing-tank, having a discharge-pipe with a rising-and-falling valve therein, a weighted rocking beam having a suitable bracket on the floor of said tank, a weighted arm or hammer pivoted to said standard and provided with wings adapted to engage opposite ends of said beam and a float with a pivoted lever having fingers on opposite sides of its axis adapted to engage said weighted arm.

2. The valve-outlet A having a collar with the bracket F thereon, the rising-and-falling valve C in said outlet the rocking beam E pivoted at one end, the weighted arm H with wings K, K' adapted to engage portions of said beam opposite the pivot, and a float having a lever pivoted to said bracket and having fingers adapted to engage opposite sides of said weighted arm.

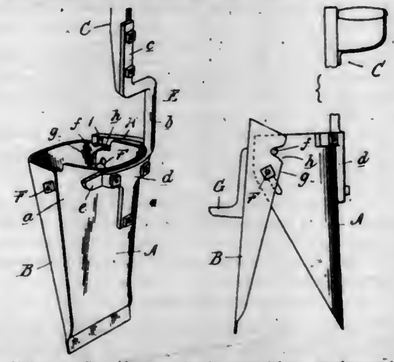
578,507. TYPE-WRITING MACHINE. WILLIAM H. BRIGGS, Brooklyn, N. Y., assignor, by direct and mesne assignments, to Clarence W. Seamans and Ernest R. Barron, same place, and Daniel C. Roundy, Chicago, Ill., executors of James Densmore, deceased. Filed Mar. 22, 1890. Serial No. 344,866. (No model.)



Claim.—1. In a type-writing machine, the combination with the paper-carriage, of a graduated scale thereon, an index on the main frame, and a scale on the under side of the platen-frame in close proximity to the platen and arranged to be brought into view when the platen-frame is turned back.

2. In a type-writing machine, the combination of a hinged and traveling paper-carriage, a scale arranged on the under side of the platen near where the line of writing occurs and in substantially a horizontal plane, and marked to read from left to right another scale arranged upon and at the front of said paper-carriage in substantially a vertical plane and also marked to read from left to right and corresponding exactly with the first-mentioned scale, and a pointer or index fixed or stationary at the front of the paper-carriage in proximity to the front paper-carriage scale and in line with the impression-point; substantially as set forth.

578,508. POTATO-PLANTER. ADONIRAM J. COLBURN, Greenville, Mich., assignor to the Gordon Hollow Blast Grate Company, same place. Filed Sept. 14, 1896. Serial No. 605,767. (Model.)



Claim.—1. In a planter, a beak, comprising a stationary jaw and a jaw slidably and pivotally secured to the stationary jaw, and a stop device to prevent the sliding movement of said jaw when the planter is being withdrawn from the ground.

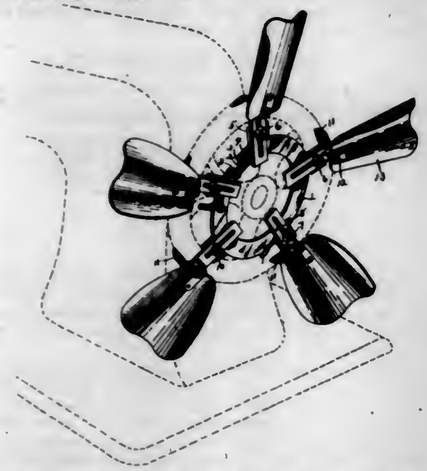
2. In a planter, the combination with the beak comprising a stationary jaw and a movable jaw hinged thereto so as to have a swinging and a longitudinally-sliding movement, of means for holding said jaw free to swing except in its closed position, and for locking it in said position, consisting of a lug or pin on one jaw, and a rigid shoulder on the other jaw, adapted to engage the pin and having a segmental holding portion, and a locking portion at substantially right angles thereto.

3. In a planter, the combination with a beak comprising a stationary jaw, and a movable jaw hinged thereto adapted to lock in its closed position by a longitudinally-sliding movement, of means for preventing the accidental opening of said jaws, consisting of the spring H, secured to one jaw and bearing on the upper edge of the other jaw.

4. In a planter, the combination with the beak and the handle therefor, of the bracket E connecting said handle and beak having the U-shaped portion *b* with the upper securing portion *c*, the lower securing portion *d* and the spur *e* for the purpose described.

5. In a potato-planter, a beak comprising a stationary jaw, a movable jaw having a pivotal and sliding connection therewith, and means for locking the jaws in closed position consisting of a projection on one jaw and a locking-shoulder on the other jaw engaging said projection.

578,509. FAN ATTACHMENT FOR SEWING-MACHINES. WILLIAM H. DRAYTON, Washington, D. C. Filed Apr. 9, 1896. Serial No. 586,766. (No model.)



Claim.—1. A fan attachment consisting of a central portion, hooks extending radially from said portion and adjustably secured to said portion, fans mounted on said adjustable hooks.

2. A fan attachment consisting of a central portion, hooks extending radially from said portion, and adjustably secured to said portion.

3. A fan attachment consisting of a central portion, said portion having radial extensions, blades adjustably secured to said extensions beyond the periphery of the central portion.

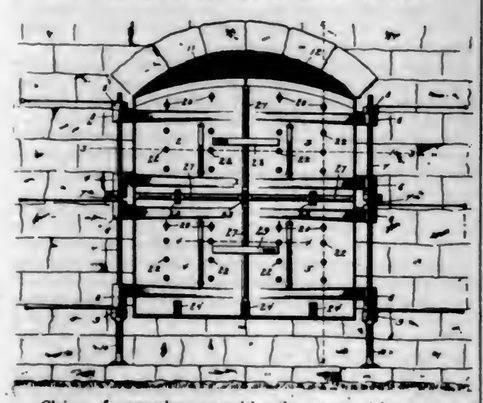
4. A fan attachment consisting of a central portion, said portion having radial extensions, said extensions having along their edges flanges, blades adjustably secured to said extensions.

5. A fan attachment consisting of a central portion, said portion having extensions, threaded bolts attached to said extensions, radially-extending shanks having elongated perforations, said perforations receiving the said bolts, blades mounted on said shanks.

6. A fan attachment consisting of a central portion, threaded bolts attached to said portion, radially-extending shanks having elongated perforations, said perforations receiving the said bolts, hooks fashioned at the ends of the shanks.

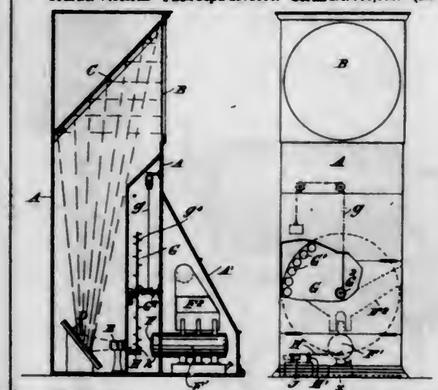
7. A fan attachment consisting of a central portion, threaded bolts attached to said portion, radially-extending shanks having elongated perforations, said perforations receiving the said bolts, hooks fashioned at the ends of the shanks, tongues attached to the shanks, blades mounted on said tongues.

578,510. DOOR FOR COKE-OVENS. CHARLES W. GARLAND, McDowell, W. Va., assignor of one-half to C. W. Shafer, Keystone, W. Va. Filed July 22, 1896. Serial No. 600,124. (No model.)



Claim.—An oven-door comprising the upper and lower pairs of doors hinged at their outer edges and provided with perforations, the lower doors being provided at their upper and lower edges with openings 23 and 24, and the removable linings detachably interlocked with the doors, forming intervening spaces between them and the doors and provided with openings corresponding with the openings 23 and 24, substantially as described.

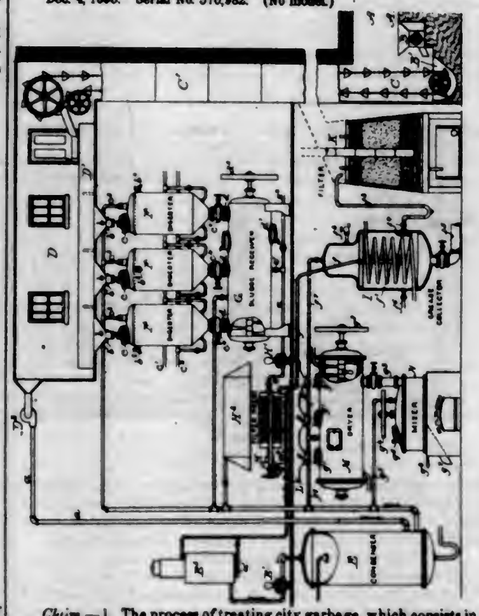
578,511. SELF-ACTING STEREOPTICON. LOUIS H. HART, Melbourne, Victoria. Filed Sept. 22, 1896. Serial No. 606,659. (No model.)



Claim.—1. In combination with the upright casing, having a screen B in its upper front face, the reflector in rear of said screen, the reflector at the lower part of the casing, the slide-carrying wheel turning on a horizontal axis at the front of the casing, means for moving and controlling the carrier, the casing A′ extending forward from the lower part of the main casing and the lantern in said forward extension, substantially as described.

2. In combination, the main casing having the screen in its upper front face, the reflector C in rear thereof, the lower reflector D, the chamber at the lower front part of the casing, the slide-carrier arranged therein, the casing A′ at the front of the main casing, the lantern therein and the split flue leading from the lantern to both sides of the casing A′, substantially as described.

578,512. PROCESS OF AND APPARATUS FOR MAKING FERTILIZERS. HASCAL A. HOSEL, Port Chester, N. Y., assignor of one-fourth to Russell S. Penniman and John C. Schrader, Dover, N. J. Filed Dec. 4, 1895. Serial No. 570,982. (No model.)



Claim.—1. The process of treating city garbage, which consists in reducing the garbage to a sludgy or liquefied condition by the digesting action of hot water and steam under pressure, and then separating the grease and other flowable or fluid matters from the solid constituents of the sludge, by the direct and forced filtration of the liquefied sludge while well heated and the sludge being under heavy pumping-pressure, substantially as described.

2. The process of treating city garbage, which consists in reducing the garbage to a sludgy or liquefied condition by the digesting action of hot water and steam under pressure; then separating the solid matter from the sludge while in its normal liquefied condition and well heated, by forcible filtration of the sludge, and thereby expelling the water and grease, and then forcing hot water through the solid matter, for relieving it from offensive odors and also from such greasy matter as might be left therein, substantially as described.

3. The process of treating and utilizing city garbage, which consists in reducing the garbage to a sludgy or liquefied condition; then while the sludge is well heated separating the solid from the liquid matter, by the forcible filtration of the liquefied sludge, for expelling with the waste fluids such grease as would impair the solid matter for use in fertilizers; then drying said solid matter, and then mixing the same with suitable powdered phosphatic fertilizing ingredients and converting the mass into a dry and finely-powdered condition, substantially as described.

4. The process of treating city garbage, which consists in reducing the garbage to a sludgy or liquefied condition; then while the liquid sludge is well heated separating the solid matter from the liquid constituents of the sludge by the forcible filtration of the liquid sludge, and then separating and removing grease from the filtered liquid, substantially as described.

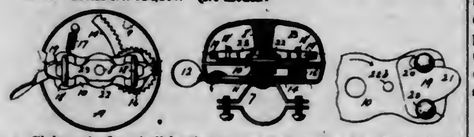
5. In a garbage-reduction plant the combination with a tightly-closable chamber for the initial reception of garbage, as from wagons or carts, of an elevated tightly-closable chamber and one or more underlying digesters to which the garbage may be delivered by gravitation; an endless chain and bucket elevator extending from the lower chamber to the upper; a casing inclosing said elevator and affording an air or vapor duct from the lower chamber, to said upper chamber; means for exhausting air and offensive vapors from said inclosed spaces by way of the upper chamber, and means for disposing of said vapors by combustion, substantially as described.

6. In a garbage-reduction apparatus, the combination with one or more digesters for reducing garbage to a sludgy condition, of a closable sludge-receiver G provided with means for agitating its contents; a filter-press; a forcing-pump connected by a pipe respectively with said press and receiver, and a vessel provided with a cock near its top and serving as a grease-collector receiving the liquid matter from said press by way of a conducting-pipe, and separating the grease from said liquid, substantially as described.

7. In a garbage-reduction apparatus, the combination with a grease-collecting chamber, of a feeding pipe or duct terminating and discharging centrally within the chamber; means for heating the contents of said chamber; a discharge-cock near the top of said chamber for drawing off the grease; a waste-discharge pipe leading from near the bottom of the chamber outside and upwardly to the desired grease-line level within the chamber, and thence to its point of discharge, substantially as described.

8. In a garbage-reduction apparatus, the combination substantially as described, of a filter-press and its forcing-pump, a vapor-collecting hood over the press, an underlying trough provided with one or more gated discharge-ports, a drier provided with means for heating it, and having suitable stirrers, and receiving-ports having tight covers, a fertilizer-mixer below the drier, communicating therewith by way of a gated duct or pipe, and provided with a stirrer, and means for heating its contents for drying the said drier and mixer being closable during their operation, and connected with means for disposing of the offensive vapors evolved from the mixer and the drier, and from the press during the discharge of its solid contents.

578,513. BICYCLE-BELL. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 2, 1896. Serial No. 614,167. (No model.)



Claim.—1. In a bell having a revolving striker, a swinging hammer mounted on said striker having its axis located to one side of its striking-nose and means for holding the hammer squarely in position on the striker under centrifugal force substantially as described.

2. In a bell having a revolving striker, a swinging hammer mounted on said striker and having duplex axes upon either of which it may swing according to the direction that the said striker is revolved, substantially as described.

3. In a bell, the revolving striker, the hammer mounted thereon and having two pivot-bearings while the said striker is provided with two pivots upon either of which the said hammer may swing, substantially as described.

4. In a bell, the revolving striker carrying two pivots, a hammer having the two open pivot-bearings 20 and a striking-nose between them, a stop to prevent the said hammer from working inwardly when the bell is not in use, and means for preventing said hammer from working off over the ends of said pivots substantially as described.

5. In a bell having a revolving striker for carrying a hammer, the swinging hammer having a striker-nose, and an axis on which it swings located to one side of the central longitudinal line of said hammer, and means for preventing said nose from swinging into a position in alinement with the striker and hammer-axes, substantially as described.

6. In a bell having a revolving striker, the swinging hammer mounted thereon having a striking-nose, and an axis located at one corner of said hammer in advance of said nose, substantially as described.

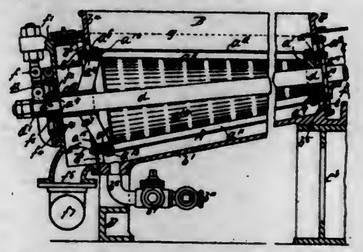
578,514. SUBSTITUTE FOR BILLIARD-CHALK. WILLIAM HOSKINS, La Grange, and WILLIAM A. SPINES, Chicago, Ill. Filed Feb. 4, 1896. Serial No. 578,042. (No specimens.)

Claim.—1. A substitute for billiard-chalk composed of pulverized silica or its equivalent, and a binding agent compacted into blocks or cakes, substantially as described.

2. A substitute for billiard-chalk composed of normally white pulverized silica, a binding agent and a coloring agent, compacted into blocks or cakes, substantially as described.

3. A substitute for billiard-chalk composed of pulverized silica, corundum, a binding agent and a coloring agent, such as chrome-green, the whole being compacted into cakes or blocks, substantially as described.

578,515. PULP-STRAINER. ROBERT G. HUTCHISON, Sittingbourne, England. Filed Oct. 3, 1896. Serial No. 607,777. (No model.) Patented in England Apr. 6, 1893, No. 7,112.



Claim.—1. A pulp-strainer apparatus consisting of a vat a conical strainer suspended therein with its upper surface below and parallel with the surface of the pulp, and its axis at an inclination, and with all the taper of its form disposed toward the part below its upper surface and where the density of the pulp is the greatest, and presenting an acting surface inclined to and acting against the flow of the pulp, and means for imparting continuous rapid combined endwise and radial pulsations to said strainer, as set forth.

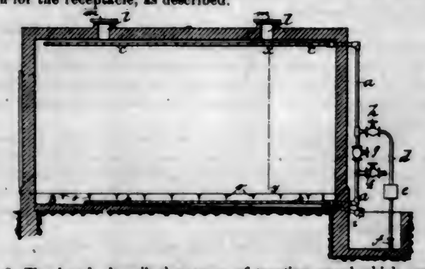
2. In a strainer, in combination, a shaft d, shouldered at d^3, and reduced at d^4, coned strainer ends a', a^4, supported by the shaft and held against the abutments thereof, end rings a^9, a^{10}, connecting-rails a^{11}, and conical strainer-plates a^{12}, as set forth.

3. In combination, a shaft d, shouldered at d^3, and reduced at d^4, coned strainer ends a', a^4, supported by the shaft and held against the abutments thereof, end rings a^9, a^{10}, connecting-rails a^{11}, and conical strainer-plates a^{12}, a vat B, having a semiconical inclined bottom b', and through end openings b^4, b^4, and an outlet f', flexible diaphragms e, f^3, connecting the strainer with the vat and the outer casing, and means of pivotally supporting the shaft at one end, and of imparting to it at the other end combined endwise and radial pulsating movements, as set forth.

578,516. METHOD OF AND APPARATUS FOR IMPREGNATING AND DYEING WOOD. PAUL JAESER, Esslingen, Germany, assignor of one-half to Frederick Cirkel, Ottawa, Canada. Filed Jan. 10, 1896. Serial No. 574,945. (No model.)

Claim.—1. In an apparatus for treating wood as described, the combination with a closed fluid-tight kiln or receptacle, of a steam-pipe having cocks g k branch pipes b b and c c communicating with the steam-pipe and arranged at the bottom and top respectively of

the receptacle, a pipe *d* in communication with the steam-pipe and having a cock, and a pump in communication with the pipe *d* and a drain for the receptacle, as described.



2. The herein-described process of treating wood which consists in placing the wood in a fluid-tight receptacle in superposed layers, as described, filling the spaces between the pieces of each layer with dry material such as specified containing a chemical substance soluble in water, and then admitting steam at a temperature not exceeding 100° Celsius, into the receptacle.

3. The herein-described process of treating wood which consists in placing the wood in a fluid-tight receptacle in superposed layers as described, filling the spaces between the pieces of each layer with dry material such as specified containing a chemical substance soluble in water, admitting steam at a temperature not exceeding 100° Celsius into the receptacle, and then admitting steam under increased pressure and simultaneously admitting fluid containing dissolved chemical substance.

578,517. **HOSE-NOZZLE.** FRANK R. JOHNSON, Greensburg, Pa., assignor to John T. Kelly, Brooklyn, N. Y., and George M. Jones, Pittsburg, Pa. Filed Feb. 18, 1896. Serial No. 578,820. (No model.)



Claim.—1. In a nozzle, the combination of a rotary body portion having a valve-seat at the upper end and an interior threaded portion below the same, of a spindle having exterior threads engaging with the threads of the body portion and an angular portion below the same, said spindle having a central passage leading from the base toward the top thereof and terminating in side ports, a valve beyond said ports, a base connection having an angular seat engaging with the base of said spindle, and a collar connecting the hose connection, and body portion, substantially as set forth.

2. In a nozzle, the combination with a rotary body portion having threads therein, of a hollow spindle with openings therein and a threaded portion engaging with the threads in said body portion, said spindle below said threaded portion having a straight square shank, and a hose connection having a square seat therein adapted to receive said shank, substantially as set forth.

578,518. **FAN.** HORACE D. JONES, Portsmouth, Ohio, assignor of one-half to Henry L. Calkins, Covington, Ky. Filed July 30, 1896. Serial No. 601,071. (No model.)

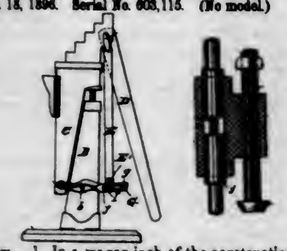


Claim.—1. A fan comprising a fan-body, a handle formed of a single piece, the free ends of said handle bent back within their length, eyelets for the passage of said free ends and clips to secure the fan-body between said free ends, substantially as described.

2. A fan comprising a fan-body, the handle, the supporting free ends integral with said handle and clips binding the members of said supporting free ends, as set forth.

3. A fan comprising a fan-body, a handle, supports for said body integral with said handle, eyelets for the passage of said supports and clips adapted to secure the fan within said supports and to bind the same, for the purpose set forth.

578,519. **WAGON-JACK.** SAM S. JOY, New Market, N. H. Filed Aug. 18, 1896. Serial No. 603,115. (No model.)

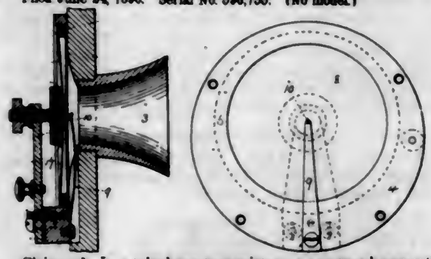


Claim.—1. In a wagon-jack of the construction shown, comprising a suitable standard, an adjustable step-piece, and an operating-lever, a lever pivoted at a point between its ends to the standard and pivotally connected at one end to the adjustable step-piece, and a bar attached at one end to the operating-lever and adjustably connected at its opposite end to said pivoted lever, said connection being capable of adjustment toward or away from the pivotal point of said lever, substantially for the purpose set forth.

2. In a wagon-jack, the combination with the adjustable step-piece and operating-lever of a metal cap fitting the lower end of the adjustable step-piece and perforated on opposite sides, a step-adjusting lever composed of two sections and carrying at one end an adjustable connection for the operating-lever, and a bolt or rivet passing through said perforated cap and step-piece and serving the purpose of a pivotal connection for one end of the step-adjusting lever, with the step-piece.

3. As a means of varying the leverage of wagon-jacks, a suitable standard, a lever consisting of two parallel members pivotally connected between its ends and at opposite sides of the standard one end of said lever being pivotally attached to an adjustable step-piece and the other end of each member being provided with an elongated opening having grooves on their adjacent sides and depressions near each end, a suitable casting fitting the said groove and provided with spring-actuated studs passing through said elongated openings and having each a shoulder fitting the said depressions, the said adjustable step-piece, an operating-lever, and a bar pivotally attached at one end to said casting and at the other to said operating-lever.

578,520. **TELEPHONE-TRANSMITTER.** NATHANIEL LOMBARD, Boston, Mass., assignor of one-half to Henry A. Clark, Brookline, Mass. Filed June 24, 1896. Serial No. 596,755. (No model.)



Claim.—1. In a telephone-transmitter, an apertured supporting-ring, an internal circumferential flange thereon, a diaphragm loosely resting upon said flange, a pin centrally of said diaphragm, and a spring having its free end connected with the pin, the tension of said spring serving to normally maintain the diaphragm in a concavo-convex position.

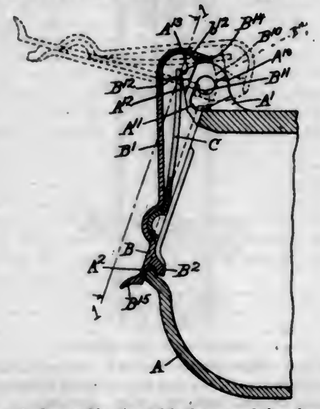
2. In a telephone-transmitter, a vibrating diaphragm consisting of a flexible plate adapted for support within a stationary holder and without mechanical attachment thereto, a loose pin centrally from the surface of said plate, and spring mechanism to maintain the surface of the plate convex toward the mouthpiece of the transmitter.

3. In a telephone-transmitter, the combination with the casing, a mouthpiece, a fixed apertured supporting-ring, and a stationary arm carrying an electrode for variable resistance, of a vibrating diaphragm resting within the ring, and spring mechanism which maintains the diaphragm in position, said mechanism being attached to the center of the diaphragm, substantially as specified.

4. In a telephone-transmitter the combination with a casing, a mouthpiece therefor, a stationary apertured holding-ring, a fixed arm carrying a single electrode, of a vibrating diaphragm suitably supported in said ring, and one or more partitions extending across the electrode to create a plurality of conjointly-operating cells in the surface of the electrode contiguous to that of the diaphragm, substantially as described.

5. In a telephone-transmitter, an inclosing casing, a mouthpiece therefor, a stationary apertured holding-ring secured to said casing, a fixed electrode formed with a plurality of cells to contain granular carbon as a variable-resistance medium, an upright arm to uphold said electrode and attached to but insulated from said ring, combined with a flexible diaphragm supported on the holding-ring without attachment thereto, spring mechanism from a central point in said diaphragm, and means to adjust said spring mechanism, whereby the diaphragm is compelled to vibrate while under tension, substantially as set forth and stated.

578,521. **CAR-AXLE BOX AND LID.** ALVIN C. MCCORD, Chicago, Ill. Filed Nov. 18, 1896. Serial No. 612,580. (No model.)



Claim.—1. In combination with the car-axle box having the lug A' at the top, said lug having trunnion-sockets in its opposite sides, and slots leading from the rear of the lug to such sockets respectively, and having the forwardly-projecting angle A^{13} in front of the pivoted line of the hinge; the lid having the hood B' overhanging the lug, and the spring secured to the lid and extending within such hood and bearing upon said forwardly-projecting angle of the lug: the hood having trunnions projecting inwardly toward each other from its opposite sides adapted to seat in the trunnion-sockets and to enter the same through the slots leading thereto.

2. In combination with a box having at the upper side a boss provided with pivot-bearings for the lid which are elongated in the direction of the face of the box, the lid pivoted to the box at such elongated bearing and having a hood which overhangs the pivot; a spring secured to the lid and extending within such hood and bearing upon the forward side of the lug with a tendency to hold the lid closed, said hood being adapted to come into contact with and stop at the upper side of the lug above the pivot and rearward of the bearing of the spring against such lug when the pivot is at the lower limit of the elongated bearing, and to be clear of the upper surface of the lug when the pivot is at the upper limit of the bearings.

3. In combination with the box, the lid hinged thereto at the top and adapted to swing about its hinge to reach the face of the box and to slide at said hinge transversely to the pivot thereof and in a direction parallel to the face of the box; abutments on the box and lid respectively which are engaged throughout the swinging movement of the lid about its hinge-pivot until the lid seats on the face of the box and pass out of engagement at the point at which the lid so seats, whereby the sliding movement of the lid is prevented until the lid is seated on the face of the box and permitted after such seating has occurred; and means for locking the lid by such sliding.

4. In combination with the box, the lid hinged thereto and adapted to swing about its hinge to reach the face of the box, the pivot of such hinge being fixed with respect to the lid, and the box having bearings for such pivot slotted or elongated in a direction parallel to the face of the box, the lid and box having coöperating parts about the lid-pivot, of which the part which pertains to the lid bears on the part which pertains to the box while the lid is swinging over from open to closed position at the upper limit of the range of the sliding movement of the pivot, the said part on the box being cut away at least to a line parallel with the box-face commencing at the last point passed by the part on the lid when the lid reaches the box-face; whereby said part on the box presents obstruction to the sliding movement of the lid until the latter is seated on the face of the box and offers no obstruction to the sliding movement thereafter; and means for locking the lid by such sliding movement.

5. In combination with the box, the lid hinged thereto and adapted to swing about its hinge to reach the face of the box, the pivot of such hinge being fixed with respect to the lid, and the box having bearings for such pivot slotted or elongated in a direction parallel to the face of the box, the lid and box having coöperating parts about the lid-pivot, of which the part which pertains to the lid bears on the part which pertains to the box while the lid is swinging over from open to closed position at the upper limit of the range of the sliding movement of the pivot, said part on the box being cut away to a line parallel with the box-face commencing at the last point passed by the part on the lid when the lid reaches the box-face, whereby said parts pass out of engagement obstructive to the sliding movement of the lid when the lid reaches the box-face, one of said parts being continued from the point at which they pass out of such engagement in a plane parallel to the face of the lid, whereby reverse rotation after the sliding of the lid is prevented.

6. In combination with the box and the lid hinged thereto at the upper side and adapted to swing about such hinge to reach the face of the box and to slide on the face of the box, the lid and the box having coöperating abutments, the abutment on the lid riding on the abutment of the box as the lid swings about its pivot at the upper limit of the range of its sliding movement; the one of said abutments which is interior or nearer the pivotal axis of the hinge being cut away at the plane of a chord of the arc of the path of contact of the two abutments in the swinging movement of the lid, and parallel to the plane of its sliding movement on the box-face, the other abutment being cut away at a plane coinciding with the plane of said chord when the lid is seated on the box-face.

7. In combination with the box and the lid hinged thereto at the upper side and adapted to swing about such hinge to reach the face of the box and to slide on the face of the box, the abutment on the lid riding on the abutment of the box as the lid swings about its pivot at the upper limit of the range of its movement, said abutment on the lid being so located that from the point at which it is in a plane containing the axis of the pivot of the hinge and parallel to the face of the box until the lid reaches the face of the box, it travels through less than ninety degrees about the axis of the pivot, said abutment on the box being cut back toward said axis at least to a line parallel to a plane at the face of the box commencing at the point reached by the corner of the abutment on the lid when said lid reaches the box-face.

8. In combination with the box having the lug A' at the top provided with pivot-bearings for the lid which are elongated in the direction of the face of the box: the lid pivoted at such bearings and adapted to slide on the face of the box and having an abutment B^{12}, whose corner rides over the lug as the lid swings about said pivot at its highest position, said corner being so located that from the point at which it is in line with the center of its elongated bearing until the lid reaches the face of the box, it travels through less than ninety degrees about the center of said swinging movement, said lug being cut back toward said center, at least to a line parallel to the face of the box, commencing at the point reached by said corner when the lid reaches the box-face.

9. In combination with the box having the lug A' at the top provided with pivot-bearings for the lid which are elongated in the direction of the face of the box, the lid pivoted at such bearings and adapted to slide on the face of the box and having an abutment B^{12} whose corner rides over the lug as the lid swings about said pivot at its highest position, said corner being so located that from the point at which it is in line with the center of said elongated bearing until the lid reaches the face of the box, it travels through less than ninety degrees about the center of said swinging movement; said lug being cut back toward the center, at least to a line parallel to the face of the box, commencing at the point reached by said corner when the lid reaches the box-face, the lid having a lip on its inner surface adapted to overhang and engage within the lower margin of the box-opening, the sliding movement permitted by the elongation of the bearings being greater than the engagement of the lip behind said margin.

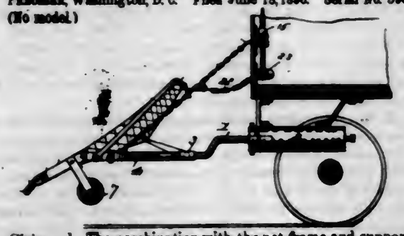
10. In combination with the car-axle box having a boss at the top provided with a pivot-bearing for the lid elongated in the direction of the face of the box, and the lid pivoted at such elongated bearings; the lug being apertured from side to side at the upper end of said elongated bearing to receive the pivot-bolt; the bolt-aperture thus provided being more extensive in some directions than the pivot-

bearings, whereby a bolt suitable for said bolt-aperture, being inserted therethrough, is retained at the upper end of said elongated bearings notwithstanding their elongation.

11. A car-axle-box lid of pressed sheet metal formed from a blank having the lug B^4 terminating in the rivet-terminal b^4 and folded to embrace the pivot bolt or trunnion; the rivet-terminal b^4 penetrating the sheet metal and clenched down thereupon; substantially as set forth.

12. In combination with the box having the lug A' at the top, the lid hinged at such lug and adapted to slide at the hinge transversely to the pivot thereof; the lug having the forwardly-projecting angle A^{13} in front of the pivotal line of the hinge; the spring C secured to the lid and having its upper end adapted to bear upon said projecting angle, and extending thence in a direction approaching the plane of the face of the box; substantially as set forth.

578,522. SAFETY-GUARD FOR STREET-CARS. RICHARD F. PRESSNER, Washington, D. C. Filed June 13, 1896. Serial No. 596,021. (No model.)



Claim.—1. The combination with the net-frame and supporting-frame, of the swinging buffer-frame having a buffer extending across its front end, the said buffer consisting of a front elastic rod and a rear rod, both rods extending transversely of the frame, and an elastic fabric connecting said rods, substantially as described.

2. The combination of the net-frame and supporting-frame, said net-frame extending upwardly and rearwardly and having its upper bar dropped down below its upper edge, and a yielding rope or other connection extending across the net-frame above said bar, substantially as described.

3. The combination of the cylinders containing the spring-actuated supports, and the movable frame carrying the net-frame and the rearwardly-extending rods, each of the rods working through an opening in one of the sliding supports and provided with a hook-like projection engaging the sliding support, as and for the purpose set forth.

4. The combination with the car, of the guard-frame, carrying the net, means for resiliently pressing said frame forward and allowing it to yield laterally in either direction, a chain detachably connected to the top of the net-frame at each side of the car and extending directly backward through the dashboard, a pulley supporting each chain where it passes through the dashboard, two independent levers pivoted on the dashboard one at either side of the car and each being connected to its adjacent chain, and means for locking the levers in their adjusted positions, substantially as described.

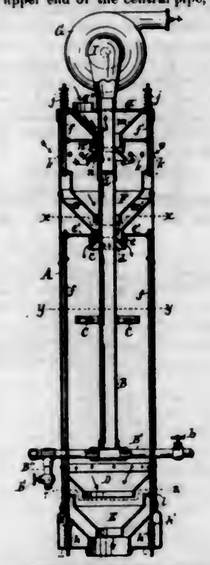
578,523. WHEAT-STEAMER. FREDERICK F. QUITZO, Minoa, N. Y. Filed May 25, 1896. Serial No. 593,009. (No model.)

Claim.—1. The combination in a wheat-steaming apparatus with the cylindrical casing, the central vertical steam-pipe therein containing perforations, a partition in the central pipe, perforations above the partition to admit air, a blower connected to the upper end of the pipe, and means to automatically regulate the supply of grain passing through the casing, as set forth.

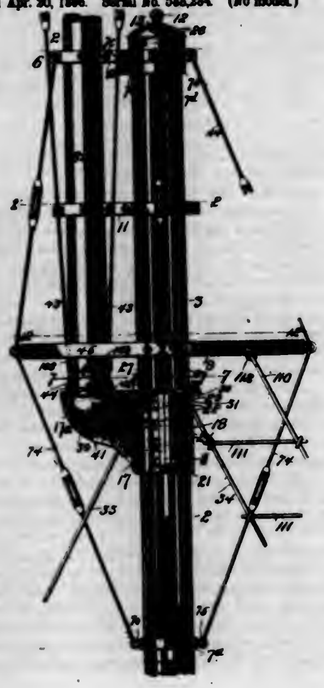
2. The combination in a wheat-steaming apparatus with the cylindrical casing, the central vertical steam-pipe therein containing perforations, a partition in the central pipe, means to automatically regulate the supply of grain, perforations above the partition to admit air, a blower connected to the upper end of the pipe, and means to automatically regulate the supply of grain passing through the casing, as set forth.

3. The combination in a wheat-steaming apparatus with the cylindrical casing, the central vertical steam-pipe therein containing perforations, a partition in the central pipe, perforations above the partition to admit air, the casing also having perforations therein to admit air, a pocket surrounding the pipe having an inclined bottom, a valve near the upper part of the casing, above the said perforations, the stationary part of the valve being a conical hood, rods connecting the said pocket with the movable member of the valve, springs on the rods to raise the valve, the inlet for the grain, and means connected with the upper end of the central pipe to force air through the apparatus, as set forth.

4. The combination in a wheat-steaming apparatus, of a vertical cylindrical casing, a horizontal steam-pipe extending through the lower part of the casing, a vertical central pipe extending upward from the horizontal pipe, and through the upper end of the casing, a horizontal partition in the vertical pipe, holes below the partition for the escape of steam, self-regulating means for the supply of grain passing therethrough, holes above the partition in the pipe for air, self-regulating means for the supply of grain in the upper part of the casing separate from that in the lower part, an inlet in the upper end of the casing for the grain, inlets for air in the sides of the casing, an outlet in the bottom thereof, and a rotary fan provided with a casing connected to the upper end of the central pipe, as set forth.



578,524. FLAG STAFF OR MAST. WILLIAM A. REID, St. Louis, Mo., assignor to the H. O. Nelson Manufacturing Company, of Missouri. Filed Apr. 30, 1896. Serial No. 588,284. (No model.)



Claim.—1. The combination in a mast or flagstaff of a mainmast; a bracket secured to and upheld by the mainmast; a topmast whose lower end rests upon the bracket, and which is sustained by such bracket; and vertical braces secured to the topmast at their upper ends, and to the bracket at their lower ends, and holding the topmast down and securing it to the bracket.

2. The combination of a mainmast; a bracket secured thereto and supported thereby, and having a step for a topmast; a topmast resting in the step in the bracket; and a brace secured to the mainmast and embracing the topmast, provided with inwardly-projecting set-screws, whose inner ends rest against the sides of the topmast, and enable it to be adjusted and caused to assume a vertical position.

3. The combination in a staff or mast, of a mainmast; a topmast-bracket encircling the mainmast; vertical braces running up from the bracket and securing it to the mainmast, and preventing its moving downward; mainmast-guys secured at their upper ends to the bracket and preventing its moving upward; a topmast resting on the bracket, and means securing it to the mainmast.

4. The combination of a mainmast; a bracket; means clamping the bracket around the mainmast; braces running up from the bracket and securing it to the mainmast; guys running from the bracket to the ground, and both holding the mainmast vertical and preventing the bracket from rising; a topmast resting on the bracket, and means securing the topmast to the mainmast.

5. The combination of a mainmast; a bracket; a step in the bracket for a topmast; a cavity in the bracket below the step; a drainage-passage leading out from the cavity for the escape of water; and a topmast resting in the step substantially as described.

6. The combination of a mainmast 1, formed of one or more clusters of pipes, arranged with one in the center of each cluster, and the others in a circle around it; a core-piece surrounding the central pipe and secured thereto, and bracing the outer pipes against inward pressure; a bracket 8, having clamping parts 17, and 18; having grooves 19, for the reception of the outer sides of the outer pipes; and flanges 20, and 21, pierced by bolt-holes; bolts passing through said bolt-holes securing said flanges together and clamping the parts 17 and 18, around the mast and said core-piece being located within the portion of the mast, surrounded by said clamping parts; an arm 17^a, extending out from the part 17; and a topmast supported by said arm, substantially as described.

7. The combination of a mainmast composed of one or more clusters of pipes secured together; a bracket secured to the mainmast; a topmast resting on the bracket, composed of sections of pipe, having their ends secured together; a screw-sleeve coupling, connecting two of said sections; a spreader, secured to said topmast between said coupling and the lower end of the topmast; and braces passing over said spreader, and having their lower ends secured to said bracket, and their upper ends secured to said coupling, substantially as described.

8. The combination of a mainmast; a bracket clamped to said mainmast, and having a step therein for a topmast; a topmast whose lower end rests in said step; a crosstree above said bracket surrounding the mainmast; and consisting of a hoop and braces, two of which braces span the topmast; set-screws projecting inward through said braces, and resting against the topmast, and by means of which the topmast is adjusted; and braces extending up and down from the crosstree, and having their ends secured to parts connected to the mainmast, substantially as described.

9. The combination of a mainmast; a bracket clamped to said mast, and having a step for a topmast; a topmast resting in said step; braces secured to the bracket and running thence upward and being secured to the topmast; a crosstree above the bracket; means connected with the crosstree, for adjusting the topmast in a vertical position; above the crosstree a brace 11, connecting the mainmast and topmast, and bracing the topmast in position, above the brace 11, a brace 10, clamped to the mainmast and upheld by S-rods, securing the mainmast and the topmast together, and bracing the topmast in position; braces running from the crosstree to the brace 10; a band around the mainmast, below the crosstree; a coupling below the band; means connecting the band and the coupling; and braces running from the band to the crosstree, substantially as described.

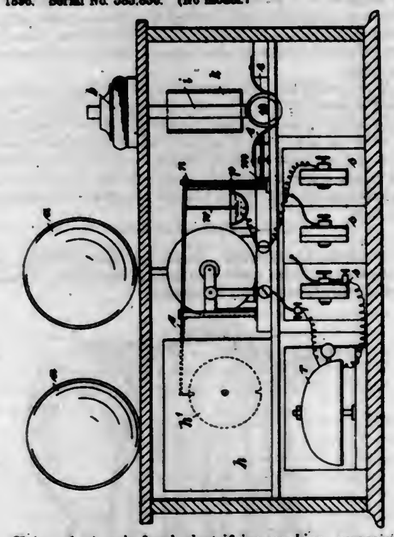
10. The combination of a mainmast; a topmast, and a bracket secured to the mainmast, and supporting the weight of the topmast, and having a supporting-arm 19 consisting of a rib 35, a sole 36, provided with the topmast-step 37; a part 39, rounded on its under side, and containing beneath the step 37, a cavity 40, drained by a passage 41, substantially as described.

578,525. TIRE-TIGHTENER. HENRY HEMBERT, Galveston, Tex. Filed May 22, 1896. Serial No. 592,663. (No model.)

Claim.—In a device of the class described, the combination of a tire provided at its ends with inwardly-extending lugs having threaded openings, one of the lugs being provided with a recess, an adjusting-screw engaging the threaded openings of the lugs and connecting the ends of the tire, a spacing-block mounted on the adjusting-screw and provided at one side with a recess, washers arranged at opposite sides of the spacing-block, and a locking-plate constructed of metal and arranged contiguous to one of said lugs, said locking-plate being provided with oppositely-extending tongues 10 and 11 struck up from the metal of the plate, the tongue 10 engaging the recess of the tire and the other tongue 11 extending through the adjacent washer and engaging the recess of the spacing-block, whereby the adjusting-screw is locked against retrograde rotation, substantially as described.



578,526. COIN-FREED APPARATUS FOR ADMINISTERING ELECTRICITY. KARL RUDOLPH, Pressnock, Germany. Filed Mar. 18, 1896. Serial No. 583,836. (No model.)



Claim.—1. A coin-freed electrifying-machine, comprising two springs arranged below the slot through which the coin is dropped, a lever mechanism operated by the movement of one of the springs under the weight of the coin, and connections for controlling and operating the electric circuit, substantially as described.

2. In combination, the springs *e*, *e* adapted to receive the coin, the wheel *h'* having notches, the lever *o*, the electric contact *p*, *w* controlled thereby, and the levers *n* and *m* between the lever *o* and the spring-contacts and bearing on one of said contacts, substantially as described.

578,527. BLANK FOR MAKING SPONGE-RUBBER TYPE-BASES. LOUIS K. SCOFFORD, Chicago, Ill., assignor to the Superior Rubber Type Company, same place. Filed Dec. 21, 1896. Serial No. 616,374. (No model.)



Claim.—A molded blank for sponge-rubber type-bases, comprising an integral strip of sponge-rubber, provided with equidistant, parallel, severing-grooves, which are molded in the blank and afford smooth or finished surfaces on all edges of the type-bases cut from the said blanks.

578,528. CAR-FENDER. CYRUS SHIREY, Pittsburg, Pa., assignor of one-half to John K. Sterrett, same place. Filed Nov. 19, 1896. Serial No. 612,752. (No model.)

Claim.—1. In a car-fender, the combination with a car, of a fender supported thereby, laterally-extensible wings on said fender, springs for throwing out said wings, and wedge-blocks engaging said wings and adapted to withdraw the same, substantially as set forth.



2. In a car-fender, the combination with a car, of a fender supported thereby, laterally-extensible wings adapted to extend out beyond the body of the fender, springs for normally forcing said wings outwardly, studs on said wings, wedge-blocks engaging said studs and adapted to draw in said wings, substantially as set forth.

3. In a car-fender, the combination with a car, of a rear section suspended therefrom and adapted to swing back and forth, of a forwardly-extending section secured to said rear section, laterally-extensible wings on said forward section, connections between said rear section and an operating-lever, springs for forcing out said wings, and connections between said rear section and said wings, whereby said wings are drawn in as said rear section is drawn back, substantially as set forth.

4. In a car-fender, the combination with a car, of a rear section suspended therefrom and adapted to swing back and forth, a forwardly-extending section secured to said rear section, laterally-extensible wings on said forward section, connections between said rear section and an operating-lever, springs for forcing out said wings, studs on said wings, wedge-blocks engaging said studs, and connections between said rear section and said wedge-blocks, substantially as set forth.

578,529. PITCHER. SAMUEL G. VOGELEY, Pittsburg, Pa., assignor to the United States Glass Company, same place. Filed Aug. 7, 1896. Serial No. 601,963. (No model.)



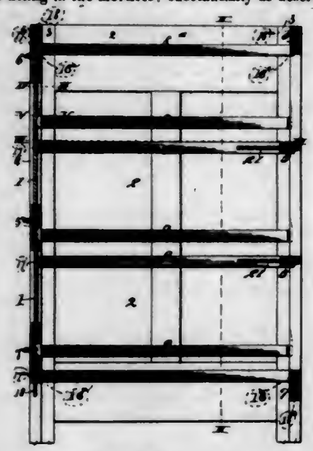
Claim.—1. The combination of a pitcher having a lip on one side of its top and an integral transverse rib opposite thereto, and a lid having a lower recess fitting over said rib and a lifter projecting outwardly beyond said recess, substantially as set forth.

2. The combination of a pitcher having an annular seat on its top, a lip on one side of its top, an integral transverse rib on the opposite side, and a raised rim extending from the lip to the rib, and a lid fitting on said seat and within said rim, and having a lower recess fitting over said rib and a lifter projecting outwardly beyond said recess, substantially as set forth.

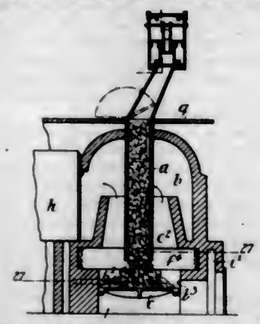
578,530. FURNITURE. LEONARD A. WILLIAMS, St. Louis, Mo., assignor of one-half to O. H. Vorn Brock, same place. Filed Mar. 23, 1896. Serial No. 584,452. (No model.)

Claim.—1. A piece of furniture comprising oppositely-arranged front and rear pilasters 4 having horizontal semicircular dovetail grooves 17, the top and bottom runners 8 having vertical dovetail tenons occupying the said grooves, and the top and bottom rails 6, 7; substantially as described.

2. A piece of furniture comprising oppositely-arranged front and rear pilasters 4 having horizontal semicircular grooves 19, the intermediate runners 8 having vertical dovetail tenons 20 occupying the said grooves, and mortised outer ends, and the parting-rails 5 having tenons 22 fitting in the mortises; substantially as described.



578,531. FURNACE FOR BURNING BAGASSE, SAWDUST, &c. WILLIAM P. ANELL, Hinckley, England. Filed Oct. 11, 1893. Serial No. 487,905. (No model.) Patented in British Guiana May 7, 1892, No. 3,057, and in Barbadoes July 18, 1892, No. 69, and Nov. 21, 1892, No. 71.



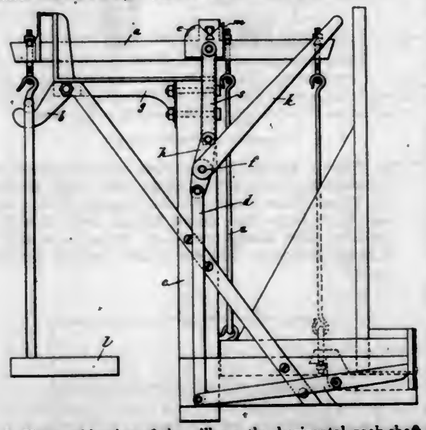
Claim.—1. A furnace for burning bagasse, or megass, diffusion-chips, sawdust or similar fuel, having a centrifugal combustion-chamber constituting a part of the furnace, such chamber being combined with a central outlet surrounded by said chamber, the combination serving not only to circulate the flame in the central chamber but also to utilize the heat that otherwise would be lost, and to retain and consume the heavier or unburned carbon or fuel flecks, before the flames have parted with their heat, all substantially as set forth.

2. In a furnace, a chamber forming part of the same having in its wall a tangential inlet flue or flues admitting the spent products of combustion and causing them to have a rotary or whirling action, such flue being combined with and surrounding a central outlet through which the gases or lighter products of combustion may pass and escape, while the heavier or unburned carbon or fuel flecks are retained as set forth, by the centrifugal force of the said whirling action, and the centrifugal chamber having the relation to the fire-chamber as shown.

578,532. WEIGHING-MACHINE. ALBERT ARNCKE, Stettin, Germany. Filed Dec. 20, 1894. Serial No. 532,396. (No model.) Patented in Germany Aug. 1, 1894, No. 80,621, and in England Nov 19, 1894, No. 22,364.

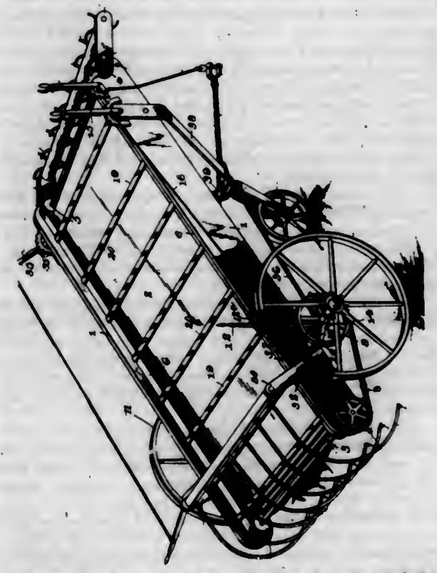
Claim.—1. A weighing-machine comprising a pillar having a laterally-extending arm, a weigh-beam normally seated directly on the arm, a middle bearing having a stop extending over and normally seated directly on the weigh-beam, the middle bearing being normally out of contact with the axis thereabove, and means for raising and lowering the middle bearing of the weigh-beam for engaging and disengaging the axis of the weigh-beam for raising and lowering the latter; substantially as described.

2. A weighing-machine comprising a pillar having a laterally-extending arm provided with a bracket, a weigh-beam normally supported on the arm, a weight-pan connected with the weigh-beam and normally supported on the bracket, a middle bearing normally supported on the weigh-beam, out of contact with the axis of the latter, and means for raising and lowering the middle bearing for engaging and disengaging the axis of the weigh-beam for raising and lowering latter with the weight-pan; substantially as described



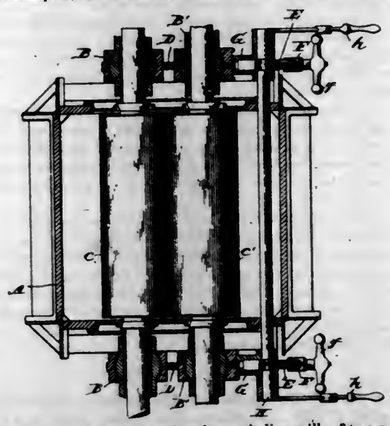
3. The combination of the pillar c, the horizontal rock-shaft *f* journaled in the pillar, the arm *g* secured to the pillar, the bracket *b* secured to the arm, the weight-pan *l* supported on the bracket, the weigh-beam *a*, with which the weight-pan is connected, having an axis, the middle bearing *m* adapted to slide on the pillar and to engage the axis of the weigh-beam, the vertical cross-bars *h* mounted on the rock-shaft, the vertical rods *s* whereby the middle bearing and the cross-bars are connected, and means for swinging the cross-bars for raising and lowering the middle bearing; substantially as described.

578,533. HAY-LOADER. CLIFTON C. AIKMAN, Dana, Ind. Filed Apr. 6, 1896. Serial No. 544,785. (No model.)



Claim.—In a hay-holder, the combination of a rake, an elevator cooperating with the rake, actuating mechanism for operating the elevator, a clutch for throwing the elevator in and out of gear, a lever accessible from the ground and having connection with the said clutch, a locking device to hold the lever in an adjusted position, a bell-crank lever having one arm in engagement with the said lever, a second lever accessible from the load, and a flexible connection between the second lever and the aforesaid bell-crank lever whereby upon operating the said second lever the first-mentioned lever will be released from its locking device and will be simultaneously actuated to throw the elevator out of gear, substantially in the manner set forth.

578,534. GRAIN-REDUCING MACHINERY. JAMES R. ALLFREE, Indianapolis, Ind. Filed Aug. 9, 1894. Serial No. 519,786. (No model.)



Claim.—1. The combination, in a grinding-mill, of two roll-carriers, one of which is resilient; rods connected with one of the carriers; a bearing-plate pivotally secured to the other roll-carrier, and a yoke loosely connected with the rods and adjustable on the bearing-plate, substantially as and for the purpose specified.

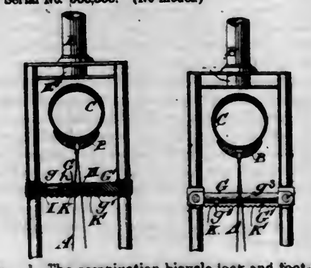
2. The combination, in a grinding-mill, of two roll-carriers, one of which is movable, a bearing-plate taking against one of the carriers; a yoke movable upon the bearing-plate; rods connecting the other carrier and the yoke; an eccentric shaft connecting the bearing-plate and the yoke, and adapted to move one of them relatively to the other and means for actuating the eccentric shaft, substantially as and for the purpose specified.

3. The combination, in a grinding-mill, of two roll-carriers, one of which is resilient; rods connected with one of the carriers; a bearing-plate taking against the other roll-carriers; a yoke movable upon the bearing-plate; an eccentric shaft connecting the bearing-plate and the yoke and adapted to move one of them relatively to the other, and means for actuating the eccentric shaft, substantially as and for the purpose specified.

4. The combination, in a grinding-mill, of two roll-carriers, one of which is resilient; threaded rods on each side of the roll-bearings connected with one of the carriers; a yoke loosely mounted on and connecting the rods and having a bearing on the other carrier; threaded sleeves on the rods adapted to engage with the yoke; means for rotating the sleeves and springs having a bearing on the yoke and the rods, substantially as and for the purpose specified.

5. The combination, in a grinding-mill, of roll-carriers B and B', adjusting-rods, D, bearing-plates, G, taking against one of the roll-carriers; yokes, E, connecting the rods, and adjustable on the rods, an eccentric shaft, H, adapted to move the yokes, relatively to the bearing-plates, and threaded sleeves, F, adapted to engage with the yokes, substantially as and for the purpose specified.

578,535. BICYCLE-LOCK. THOMAS W. APPLEYARD, Brooklyn, N. Y., assignor to Louis T. Duryea, Glencove, N. Y. Filed Apr. 22, 1896. Serial No. 588,533. (No model.)



Claim.—1. The combination bicycle-lock and foot-rest, comprising two movable members secured to the bicycle-frame, the said members being provided with means for interlocking them when they are

moved into engagement with each other, the said members forming foot-rests when moved away from each other, substantially as set forth.

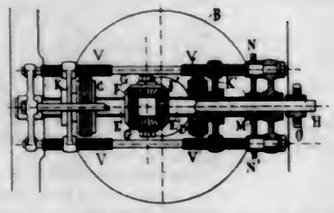
2. A combination bicycle-lock and foot-rest, comprising two swinging members, secured to the fork sides of the bicycle-frame, the said members being provided with means for interlocking them when they are swung inwardly and adapted to form foot-rests when they are swung outwardly, substantially as set forth.

3. A bicycle-lock comprising two swinging members secured to the fork sides of a bicycle and a locking device carried by one of the swinging members in position to engage the other swinging member when the two are swung together to interlock the two members, substantially as set forth.

4. A bicycle-lock, comprising swinging members secured to the fork sides of a bicycle, a sliding bolt carried by one of said members adapted to enter a socket in the other member when the two members are swung together, the said bolt being adapted to be engaged by the key to withdraw it for releasing the two members, substantially as set forth.

5. A bicycle-lock, comprising swinging members secured to the fork sides of a bicycle and adapted to interlock when swung inwardly, a sliding bolt in one of the members adapted to enter a socket in the other member when the two members are swung together, means for yieldingly holding the bolt at the limit of its forwardly-sliding movement, the said bolt being provided with a series of teeth adapted to be engaged by a key for sliding it rearwardly to release the two members, substantially as set forth.

578,536. MECHANISM FOR TRANSMITTING POWER AT VARIABLE SPEEDS. PAUL AURIOT, Paris, France. Filed June 27, 1896. Serial No. 597,103. (No model.) Patented in France Jan. 4, 1896, No. 252,956.



Claim.—1. In a power-transmitting mechanism, the combination with a rotating disk, of a shaft carrying gears, sleeves mounted to rotate upon the opposite ends of said shaft and having thereon gears meshing with the gears on said shaft, friction-rollers longitudinally movable on said sleeves and bearing against said disk at opposite sides of the center thereof, and means for moving said rollers toward and from the center of said disk, substantially as described.

2. In a power-transmitting mechanism, the combination with a rotating disk, of a shaft carrying gears at an angle thereto, sleeves located upon the opposite ends of said shaft to rotate thereon and having beveled gears meshing with the gears on said shaft, friction-rollers longitudinally movable on said sleeves and bearing against said disk at opposite sides of the center thereof, an operating-screw parallel with said shaft and having its ends threaded, carriers for said rollers engaging said operating-screw, and means for rotating said screw to shift said rollers longitudinally upon the sleeves, substantially as described.

3. In a power-transmitting mechanism, the combination with a rotating disk, of a shaft carrying gears, sleeves located upon the opposite ends of said shaft and having thereon gears meshing with the gears on said shafts, friction-rollers longitudinally movable on said sleeves and bearing against said disk at opposite sides of the center thereof, operating-screws upon opposite sides of said shaft, carriers for said rollers engaging said screws, gears upon said screws, and gearing meshing with the gears upon said screws to simultaneously rotate both screws, substantially as described.

4. In a power-transmitting mechanism, the combination with a rotating disk, of a shaft having an extension at an angle therefrom and beveled gears located upon said extension, sleeves upon the opposite ends of said shaft and having beveled gears thereon meshing with the gears upon said shaft, friction-rollers longitudinally movable upon said sleeve and bearing upon said disk at opposite sides of the center thereof, operating-screws upon opposite sides of said shaft, carriers for said rollers having screw-threaded extensions engaging said screws, and means for simultaneously rotating said screws, substantially as described.

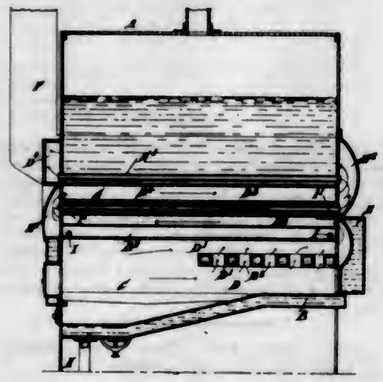
578,537. CLASP. WILBER L. BARBOUR, New York, N. Y. Filed June 13, 1896. Serial No. 595,502. (No model.)

Claim.—1. A supporting-plate in combination with one or more swinging leaves attached thereto, and spring clamping-jaws, controlling such leaf or leaves, substantially as described.



2. A supporting-plate, bearing ribs or corrugations on its surfaces, in combination with one or more swinging leaves, attached thereto, having similar ribs or corrugations and spring clamping-jaws, controlling such leaf or leaves, substantially as described.

578,538. BOILER. THOMAS BARNES, Vancouver, Canada, assignor to himself, Henry O'Hara, Henry Lomas, Robert Smith, Edward Clayton, Thomas Turner, Daniel Snell, James Austin, William Campbell, John Howe, George Hunt, Ludwig Hullgien, Robert McMurry, J. A. Tomlinson, Alfred Studden, Robert Innes, Walter Barnes, and Francis H. Sankey, same place. Filed Feb. 25, 1896. Serial No. 580,663. (No model.)



Claim.—1. A boiler, provided with a series of segmental and longitudinally-extending water-legs which form a series of similarly-shaped channels for the products of combustion, said channels being connected together alternately at opposite ends of the boiler, whereby said products are caused to traverse said channels consecutively, a vertically-disposed water-leg for connecting the lowermost water-leg with the uppermost water-leg, and provided with openings in its sides and nipples for connecting said openings in the sides of the vertical water-leg with the intermediate water-legs, substantially as shown and described.

2. A boiler, comprising a shell having longitudinally-extending water-legs forming between them conveying-channels, and hoods at the opposite ends of the boiler, for alternately connecting the ends of the channels to circulate the heat through the channels or flues to the smoke-stack, the lower hoods being provided with water-jackets, substantially as set forth.

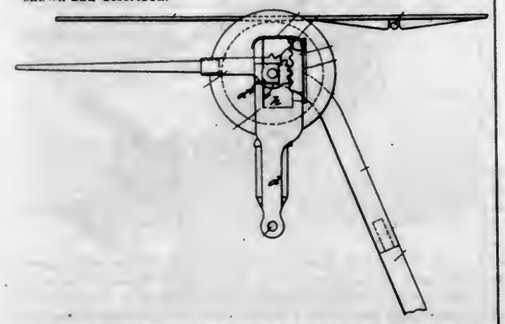
3. A boiler comprising a shell, a series of segmental and longitudinally-extending water-legs which form a series of similarly-shaped channels for the products of combustion, a fire-box formed between the lowermost of said water-legs, and an intermediate segmental water-leg between the two lowermost legs and extending from the rear end of the boiler to the fire-box, substantially as shown and described.

4. A boiler comprising a shell, a series of segmental and longitudinally-extending water-legs which form a series of similarly-shaped channels for the products of combustion, a fire-box formed between the lowermost of said water-legs, and an intermediate segmental water-leg between the two lowermost legs and extending from the rear end of the boiler to the fire-box, said intermediate water-leg being formed with pipes or passages for the smoke and gases to pass from a bottom channel to the next channel above, substantially as described.

5. A boiler, substantially as described, comprising a shell, and a plurality of segmental water-legs arranged one above the other in said shell, the lower portion of the lowermost water-leg terminating short of the front end of the boiler, as set forth.

578,539. TROLLEY-SUPPORT. EDWARD BLAKEY, Jersey City, N. J., assignor of one-half to Edgar Whitmore, Brooklyn, N. Y. Filed Dec. 4, 1895. Serial No. 571,035. (No model.)

Claim.—1. The combination with a trolley-arm, of a main frame or yoke connected therewith, the sides of which are directed upwardly, a supplemental frame or yoke pivotally connected with the upper end thereof, the sides of which are directed upwardly, and a spring-supported frame or yoke mounted and free to slide therein, in the upper end of which is mounted a trolley-wheel, substantially as shown and described.



2. The combination with a trolley-arm, of a main frame or yoke connected therewith, the sides of which are directed upwardly, a supplemental frame or yoke pivotally connected with the upper end thereof, the sides of which are directed upwardly, and a spring-supported frame or yoke mounted and free to slide therein, in the upper end of which is mounted a trolley-wheel, and guide arms or rods mounted on the shaft on which the trolley-wheel is mounted and means whereby they may be automatically raised or lowered, substantially as shown and described.

3. The combination with a trolley-arm, of a main frame or yoke connected therewith, the sides of which are directed upwardly, a supplemental frame or yoke pivotally connected with the upper end thereof, the sides of which are directed upwardly, and a spring-supported frame or yoke mounted and free to slide therein, in the upper end of which is mounted a trolley-wheel, and guide arms or rods mounted on the shaft on which the trolley-wheel is mounted, and means whereby they may be automatically raised or lowered, and the shaft on which the trolley-wheel is mounted being perforated and provided with a packing or filling of absorbing material, substantially as shown and described.

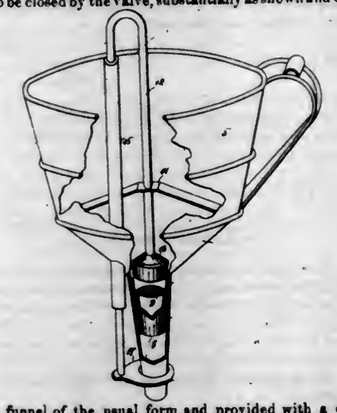
4. In a trolley-support, the combination with a trolley-arm, of a main frame or yoke connected therewith by means of a swivel joint or coupling, a supplemental frame or yoke pivotally suspended therein, a spring-supported frame or yoke mounted in said supplemental frame or yoke, and provided at its upper end with shoulders or projections which are free to slide in vertical slots formed therein, a trolley-wheel mounted on a shaft which extends through said spring-supported frame or yoke, and guide arms or rods provided with heads which are mounted on said shaft each side of said trolley-wheel, and means whereby the same may be automatically raised or lowered, substantially as shown and described.

5. The combination with a trolley-arm, of a frame or yoke which is connected therewith by means of a swivel joint or coupling, and in which is mounted a supplemental frame or yoke, within which is mounted a spring-supported sliding or depressible frame or yoke, in which is mounted a trolley-wheel, substantially as shown and described.

6. The combination with a trolley-arm, of a frame or yoke which is connected therewith by means of a swivel joint or coupling, and in which is mounted a supplemental frame or yoke, within which is mounted a spring-supported sliding or depressible frame or yoke, in which is mounted a trolley-wheel, and guide arms or rods mounted at each side of said trolley-wheel, and means for raising and lowering the same, substantially as shown and described.

578,540. FUNNEL. ARSON F. BORLAND, Winnipeg, Canada. Filed June 18, 1896. Serial No. 595,998. (No model.)

Claim.—1. A funnel of the usual form, provided with a discharge-spout, the upper end of which is adapted to be closed by a vertically-movable valve, a vertically-movable rod mounted in said funnel, and provided with a valve, and its upper end with an arm which is connected therewith, and which extends downwardly parallel therewith, and which passes through a vertical tube secured in the funnel, and which projects through the bottom thereof, said arm being provided at its lower end with an attachment which is adapted to strike the neck of the bottle or other vessel to be filled when the discharge-spout of the funnel is inserted thereinto, said spout being also provided at its upper end with a detachable tube, in which is placed a screen or strainer, and the upper end of which fits within said spout, and is adapted to be closed by the valve, substantially as shown and described.



2. A funnel of the usual form and provided with a discharge-spout, the upper end of which is adapted to be closed by a vertically movable valve, a vertically-movable rod mounted in said funnel, and provided with a valve and at its upper end with an arm which is connected therewith, and which extends downwardly parallel therewith, and which passes through a vertical tube secured in the funnel, and which projects through the bottom thereof, said arm being provided at its lower end with an attachment, which is adapted to strike the neck of the bottle or vessel to be filled when the discharge-spout of the funnel is inserted thereinto, said spout being also provided at its upper end with a detachable tube, in which is placed a screen or strainer, and the upper end of which fits within said spout, and is adapted to be closed by said valve, said valve-rod being passed through and vertically movable in a cross-bar plate arranged within said funnel, substantially as shown and described.

578,541. COIN-TRAY. JOHN F. BREDOW, Davenport, Iowa. Filed Feb. 25, 1896. Serial No. 580,657. (No model.)



Claim.—1. A coin-tray having a series of coin-channels gradually diminishing in depth toward their delivery ends and extending in parallel and diagonal relation, and opening at the side of the tray facing the user and closed at their opposite ends which ends are inclined to compel the coin to assume an echelon position, substantially as set forth.

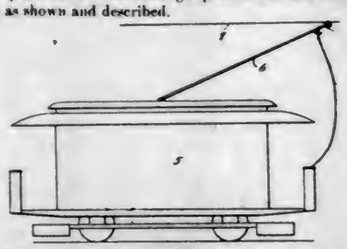
2. A coin-tray rectangular in form and divided by a diagonal strip into two parts to receive, respectively, the coin in stock and the loose coin for making change, the latter part having a series of diagonally-disposed coin-channels which are open at their lower ends to admit of the coin being swept therefrom, and the other part having pins provided in groups to receive the coin in stacks, substantially as and for the purpose set forth.

3. A coin-tray rectangular in form and divided on a diagonal line into separate parts which are adapted to be placed the one upon the other, one part having a series of diagonally-disposed coin-channels which gradually decrease in depth from their upper to their lower or open ends, the closed ends of the channels being inclined, and the other part of the tray having parallel strips spaced apart and provided with pins arranged in groups to hold the coin in stacks, substantially as described for the purpose set forth.

578,542. TROLLEY-ROPE PROTECTOR. HERAN M. BROOKS, New Haven, Conn. Filed Aug. 26, 1896. Serial No. 603,961. (No model.)

Claim.—1. The combination with the rope or cord of a trolley-

arm or pole, of a shield or guard connected therewith, adjacent to said trolley arm or pole, said shield or guard being cup-shaped in form, and provided with a discharge-spout at one side thereof, substantially as shown and described.



2. The combination with a trolley arm or pole, of a cord or rope connected therewith, and under the control of the motorman, said cord or rope being connected with said trolley arm or pole, by means of a ring provided with a shank to which is secured a ring to which said rope or cord is attached, and a cup-shaped shield or guard connected with one of said parts, said shield or guard being provided with a discharge-spout at one side thereof, substantially as shown and described.

3. The herein-described means for connecting a cord or rope with a trolley arm, or pole, consisting of a ring which is adapted to be connected with the pole, and provided with a shank the end of which is screw-threaded, a cup-shaped guard or shield mounted thereon, and another ring connected with said screw-threaded shank to which the cord or rope is secured, said shield or guard being provided with a discharge-spout at one side thereof, substantially as shown and described.

4. The herein-described device for connecting a cord or rope with the trolley arm or pole of a trolley-car, said device being provided with a shield or guard to prevent water from running down the cord or rope, substantially as shown and described.

578,543. CALENDERING-ROLL. JAMES BUTTERWORTH, Philadelphia, Pa., assignor to the H. W. Butterworth & Sons Company, of Pennsylvania. Filed Sept. 9, 1896. Serial No. 605,269. (No model.)

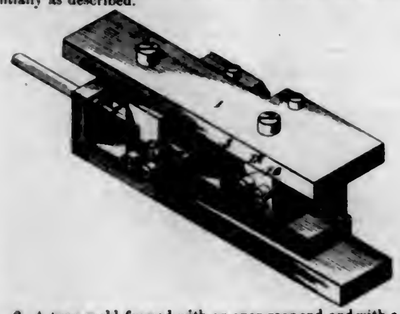


Claim.—1. A calendering-roll composed of an intimate mixture of cotton and excelsior compressed into the requisite form.

2. As a new article of manufacture a polishing or calendering body composed of fine thread-like vegetable fiber such as cotton and excelsior in a greatly coarser form uniformly intermingled and compressed into a solid form.

578,544. TYPE-MOLD. WILLIAM F. CAPTAIN, LOUIS W. KLOTZ, and GEORGE F. WELLS, St. Louis, Mo. Filed Oct. 8, 1896. Serial No. 608,234. (No model.)

Claim.—1. A type-mold formed with an open rear end and with a groove in its back, in combination with a nipple-plate formed with a perforation, and with a rib on the face thereof fitting said groove, and a cutter carried by said mold and working in the groove: substantially as described.



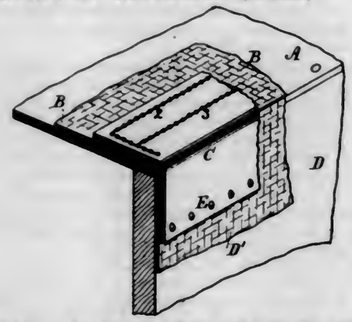
2. A type-mold formed with an open rear end and with a groove in its back, in combination with a nipple-plate formed with a central offset portion having a perforation, and with a rib on the face thereof fitting in said groove and a cutter carried by said mold and working in the groove; substantially as described.

3. The combination of a mold formed with an open rear end and with a groove in its back, a nipple-plate and a cutter carried by the mold to cut a groove in the heel of the type; substantially as described.

4. The combination of a mold formed with an open rear end, a nipple-plate and a cutter carried by the mold to cut a groove in the heel of the type, substantially as described.

5. The combination of a mold formed with an open rear end, a removable nipple-plate arranged to normally close said rear end, a cutter carried by the mold to cut a groove in the heel of the type, and means for automatically returning the cutter to its normal position, substantially as set forth.

578,545. TRUNK OR VALISE. GEORGE CROUCH, New York, N. Y. Filed Dec. 4, 1896. Serial No. 614,399. (No model.)



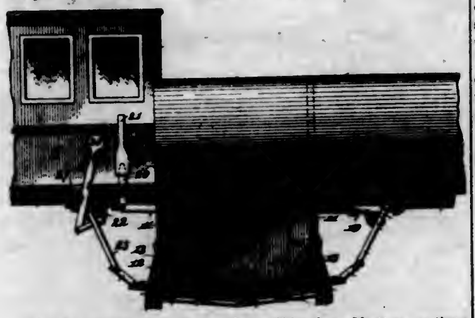
Claim.—1. In a trunk or similar article having a body of millboard and a surface of canvas or other covering material, an angle-strip of leather or similar material sewed near its edge to the covering material and afterward secured to the surface of such millboard by the adhesive material employed to unite the covering material to the surface of such millboard, substantially as set forth.

2. A trunk or similar article having millboard forming one portion, such as the front, top or back and an end of wood connected to the millboard, a canvas or other covering material, and an angle-strip sewed to the covering material near its edge, and such covering material glued to the millboard to firmly unite one part of the angle-strip to the millboard, the other part of the angle-strip being bent and lying flat upon the wooden end, and tacks driven through the angle-strip and into the wood for holding the edge of such angle-strip to the end of the trunk, substantially as set forth.

578,546. LOCOMOTIVE ASH-PAN. SUMNER F. CUMMINGS, Del Rio, Tex. Filed Aug. 29, 1896. Serial No. 604,302. (No model.)

Claim.—1. In a locomotive ash-pan, the combination of a bottom composed of sections inclining upwardly in opposite directions from an intermediate point, means for operating the sectional bottom, and a cross-bar forming a stop for the inner ends of the bottom sections and having a cap to extend thereover, substantially as set forth.

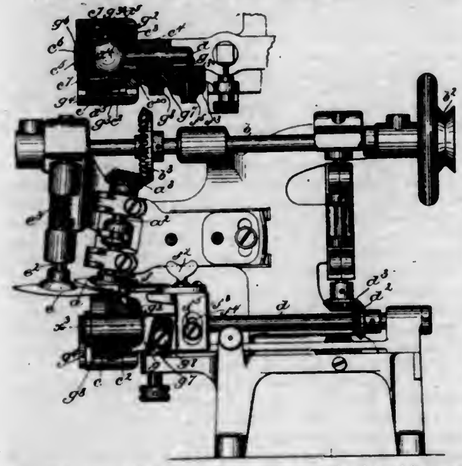
2. In a locomotive ash-pan, the combination of a bottom slidably mounted, a cross-bar limiting the inner movement of the said bottom, rollers for supporting the bottom and relieving the friction incident to its sliding movements, a frame protected by wire fabric and pivoted at its upper edge and normally inclining from the perpendicular and having its lower edge resting upon the slidable bottom, and a door closing an opening in the end of the ash-pan directly opposite the pivoted frame, substantially as described.



3. In a locomotive ash-pan, the combination of bottom sections inclining upwardly in opposite directions from an intermediate point, independent actuating mechanism for each section, a cross-bar forming a stop to limit the inner movement of the said sections and having a cap to extend thereover, pivoted frames oppositely inclining and having their openings protected by wire fabric, and doors closing openings in the ends of the ash-pan directly opposite the pivoted frames, substantially as shown and described.

4. In a locomotive ash-pan, the combination of movable bottom sections, independent actuating mechanism for sliding the said bottom sections, oppositely-inclining frames pivotally supported and having their lower edges resting upon the respective bottom sections and forming scrapers, and having their openings protected by wire fabric, and doors closing openings in the ends of the ash-pan directly opposite the said pivoted frames, substantially as shown for the purpose described.

578,547. SKIVING-MACHINE. EUGENE F. DAVENPORT, Boston, Mass., assignor to George W. Brown and Charles H. Bayley, same place. Filed Nov. 13, 1896. Serial No. 611,961. (No model.)



Claim.—1. In a skiving-machine, the combination with a cutting-blade, of a cutting-bed for presenting the stock to said cutting-blade consisting of a rotatable drum, and means for adjusting said drum to vary the axis of rotation thereof with relation to the cutting plane of the blade, substantially as described.

2. In a skiving-machine, the combination with the cutting-blade of a cutting-bed comprising a drum mounted on a rotating shaft and adapted to support the stock and present it to said cutting-blade, a driving-shaft for rotating said drum, a universal joint connecting said shaft and said drum, and means for adjusting the axis of rotation of said drum relative to that of its driving-shaft, substantially as described.

3. In a skiving-machine, the combination with the cutting-blade of a cutting-bed consisting of a drum mounted on a rotating shaft and adapted to support the stock and present it to said cutting-blade, a shaft for rotating said drum, a universal joint connecting said shaft and said drum, a support having bearings for said drum, and means for adjustably securing said support to the frame of the machine, substantially as described.

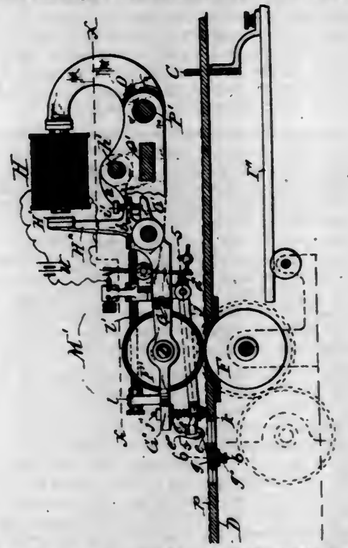
4. In a skiving-machine, the combination with the cutting-blade, of a cutting-bed for presenting the stock to said cutting-blade consisting of a rotatable drum, means for adjusting said drum to vary the axis of rotation thereof with relation to the cutting plane of the blade; and a gage for the stock adjacent to the periphery of said drum and movable therewith; whereby it retains the same relation to the periphery thereof when the axis of rotation is varied, substantially as described.

578,548. APPARATUS FOR MAKING SULFURIC ACID. LOUIS DERUELLE, St. Louis, Mo., assignor to the Laclede Fire Brick Manufacturing Company, same place. Filed Mar. 4, 1896. Serial No. 581,727. (No model.)



Claim.—An earthenware chemical ring comprising a cylindrical body and inwardly-projecting alternating long and short radial corrugations disconnected from each other so as to provide free flanges; substantially as described.

578,549. PAPER-REGISTERING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y., assignor to the Dexter Folder Company, New York, N. Y. Filed Aug. 9, 1895. Serial No. 558,742. (No model.)



Claim.—1. In an electrically-controlled point-feed registering-machine, the combination with the paper-shifting mechanism, electromagnets controlling said mechanism, and a circuit maker and breaker controlling said magnets, of a tongue engaging the edge of the slit in the paper during the shifting thereof and sustained yieldingly to move with the paper and thereby actuate the circuit maker and breaker.

2. In an electrically-controlled point-feed registering-machine, the combination with the paper-shifting mechanism, electromagnets controlling said mechanism and a circuit maker and breaker controlling said magnets, of a bridge sustained under the plane of the shifting paper and rising therefrom to open the slitted part of the paper, and a tongue engaging the edge of the slit during the shifting of the paper and sustained yieldingly to move with the paper and thereby actuate the circuit maker and breaker.

3. In an electrically-controlled point-feed registering-machine, the combination with the paper-shifting mechanism, electromagnets controlling said mechanism, and a circuit maker and breaker controlling the magnets, of a bridge located under the plane of the shifting paper and in the path of the slit thereof, a paper-depressor in front of said bridge and in conjunction with the same serving to open the slitted part of the paper, and a tongue engaging the edge of the slit and sustained yieldingly to move with the paper and thereby actuate the circuit maker and breaker.

4. In an electrically-controlled point-feed registering-machine, the combination with the paper-shifting mechanism, electromagnets controlling said mechanism, and a circuit maker and breaker controlling said magnets, of a bar extending horizontally under the plane of the paper in transit and parallel with the line of travel thereof, a bridge connected to said bar adjustably toward and from the paper-shifting mechanism and rising from the bar to open the slit in the overlying paper, and a tongue engaging the edge of the slit and sustained yieldingly to the contact with the shifting paper and thereby actuate the circuit maker and breaker.

5. In an electrically-controlled point-feed registering-machine, the combination with the paper-shifting mechanism, electromagnets controlling said mechanism, and a circuit maker and breaker controlling said magnets, an upwardly-projecting bridge located under the plane of the shifting paper, a tongue entering the slit in the paper and sustained yieldingly to the contact with the shifting paper and thereby actuates the circuit maker and breaker, and an upwardly-curved lip projecting forward over the tongue to insure and limit the degree of the entrance of the tongue into the slit of the paper as set forth.

6. In combination with the paper-shifting mechanism, electromagnets controlling said mechanism and a circuit maker and breaker controlling the magnets, an upwardly-projecting bridge under the plane of the shifting paper, a paper-depressor in front of said bridge, a tongue over the aforesaid plane entering the slit in the paper and sustained yieldingly to move with the paper, and thereby actuate the circuit maker and breaker, and a forwardly-projecting lip over the tongue to limit the degree of entrance of said tongue into the slit as set forth.

7. In combination with a paper-shifting mechanism comprising a vertically-movable frame over the plane of the paper in transit, a paper-gripping member on said frame, an electromagnet lifting said frame by means of the armature and a circuit maker and breaker controlling said magnet, an arm connected to the aforesaid frame yieldingly to the contact with the shifting paper and actuating the aforesaid circuit maker and breaker as set forth.

8. In combination with a paper-shifting mechanism comprising a vertically-movable frame over the plane of the paper in transit, a paper-gripping member on said frame, an electromagnet lifting said frame by means of the armature and a circuit maker and breaker controlling said magnet, an arm pivoted at one end to the aforesaid frame and suspended at the opposite end from the same, a spring depressing the suspended end of the arm, a paper-depressor on said depressed end of the arm, an upwardly-projecting bridge under the plane of the shifting paper in front of the aforesaid paper-depressor, and in conjunction therewith opening the slit in the paper, and a tongue sustained between said depressor and bridge to enter the slit, and connected to the arm yieldingly to the contact with the shifting paper and thereby actuates the circuit maker and breaker as set forth.

9. In combination with the rotary paper-shifting roller F vertically-movable frame G roller F' pivoted to said frame and the electromagnet H having its armature lifting said frame under the influence of the magnet, the bracket *a* mounted longitudinally adjustable on the aforesaid frame, the electric terminal secured to said bracket, the cooperating terminal *f'* pivoted to the bracket, the longitudinally-movable rod *d*, engaging at one end the pivoted terminal, the tongue *e* attached to the opposite end of said rod, and the upwardly-projecting bridge *g* under the plane of the shifting paper in front of the aforesaid tongue substantially as and for the purpose set forth.

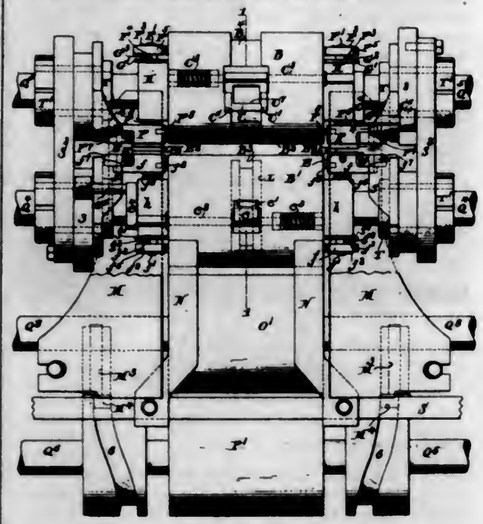
10. In combination with the roller F' and its supporting-arm G, a pointing attachment supported on said arm adjustable in a vertical direction to sustain said attachment in proper position in relation to the plane of the sheet to be registered as set forth.

11. In an automatic point-feed paper-registering machine, the combination with the paper-shifting mechanism, of a slit-opener consisting mainly of a projection under the plane of the travel of the sheet and in the path of the slit therein whereby the slitted portion of the paper is strained from the plane of the main portion of the sheet.

12. In an automatic point-feed paper-registering machine, the combination with the paper-shifting mechanism, of an upwardly-projecting bridge directly under the plane of the travel of the sheet and in the path of the slit therein, and a sheet-depressor in front of said bridge and in conjunction therewith opening the aforesaid slit.

578,550. PAPER-BAG MACHINE. CHARLES E. DOLIN, Philadelphia, Pa., assignor to the Union Bag and Paper Company, Chicago, Ill.

Filed Apr. 4, 1896. Serial No. 586,160. (No model.)



Claim.—1. In a paper-bag machine mechanism for spreading out the diamond fold on the end of a bellows-folded tube comprising rotating central grippers C *c* arranged to seize the top and bottom plies of the bellows-folded blank and spread it open at its end, rotating side grippers E E *c c* arranged to pass between the bellows folds of the bag, engage its corners and spread out the blank in the plane of the bottom to be formed thereon, mechanism for engaging and disengaging the grippers and the blank as described and mechanism for drawing the diamond-folded blanks from the path of the grippers after they have released it.

2. In a paper-bag machine mechanism for spreading out the diamond fold on the end of a bellows-folded tube comprising rotating central grippers C *c* arranged to seize the top and bottom plies of the bellows-folded blank and spread it open at its end, rotating side grippers E E *c c* arranged to pass between the bellows folds of the bag, engage its corners and spread out the blank in the plane of the bottom to be formed thereon, mechanism for engaging and disengaging the grippers and the blank as described, a transverse creaser arranged to crease the blank on the line about which the diamond is spread open and at a time prior to the distention of the diamond fold, and mechanism for drawing the diamond-folded blanks from the path of the grippers after they have released it.

3. In a paper-bag machine mechanism for spreading out the diamond fold on the end of a bellows-folded tube, comprising rotating central grippers C *c* arranged to seize the top and bottom plies of the bellows-folded blank and spread it open at its end, rotating side grippers E E *c c* arranged to pass between the bellows folds of the bag, engage its corners and spread out the blank in the plane of the bottom to be formed thereon, mechanism for engaging and disengaging the grippers and the blank as described, a rotating transverse creaser arranged to crease the blank on the line about which the diamond is spread open and at a time prior to the distention of the diamond fold, and mechanism for drawing the diamond-folded blanks from the path of the grippers after they have released it.

4. In a paper-bag machine, mechanism for spreading out its diamond fold on the end of a bellows-folded tube consisting of rolls as B and B', between which the bellows-folded blanks are fed in combination with central grippers C and *c*, one secured to each roll and arranged to seize the top and bottom plies of the blank as it enters between said rolls, side grippers as E E and *c c*, one pair attached to and rotating with each roll, said grippers being adapted to move in between the rolls and between the bellows folds of the blank and to clamp the blank to the faces of the rolls at its corners and mechanism for operating the grippers to cause them to engage and disengage the blank at proper times.

5. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube, comprising rotating central grippers C *c*, one secured to each roll and arranged to seize the top and bottom plies of the blank as it enters between said rolls, side grippers, as E E and *c c*, one pair attached to and rotating with each roll, said grippers being adapted to move in between the rolls and between the bellows folds of the blank and to clamp the blank to the faces of the rolls at its corners, mechanism for operating the central grippers whereby the lower gripper first engages the lower ply of the blank and the upper gripper afterward engages the upper ply and mechanism for engaging and disengaging the side grippers.

6. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube consisting of rolls, as B and B', between which the bellows-folded blanks are fed in combination with central grippers C and *c*, one secured to each roll and arranged to seize the top and bottom plies of the blank as it enters between said rolls, side grippers as E E and *c c*, one pair attached to and rotating with each roll, said grippers being adapted to move in between the rolls and between the bellows folds of the blank and to clamp the blank to the faces of the rolls at its corners, mechanism for operating the central grippers whereby the lower gripper first engages the lower ply of the blank and the upper gripper afterward engages the upper ply and mechanism for engaging and disengaging the side grippers.

7. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube consisting of rolls, as B and B', between which the bellows-folded blanks are fed in combination with central grippers C and *c*, one secured to each roll and arranged to seize the top and bottom plies of the blank as it enters between said rolls, a lifter as D arranged to lift the blank as it enters between the rolls so as to bring its upper ply to position to be engaged by the upper gripper, said grippers as E E and *c c*, one pair attached to and rotating with each roll, said grippers being adapted to move in between the rolls and between the bellows folds of the blank and to clamp the blank to the faces of the rolls at its corners and mechanism for operating the grippers to cause them to engage and disengage the blank at proper times.

8. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube consisting of rolls, as B and B', between which the bellows-folded blanks are fed in combination with central grippers C and *c* moving with and acting against the upper and lower roller respectively, mechanism whereby the lower gripper is first closed and then the upper gripper and whereby they are opened after they have opened the end of the blank, a lifter as D arranged to lift the end of the blank after its lower ply has passed beneath the lower gripper and before the upper gripper closes, side grippers as E E *c c*, one pair attached to and rotating with each roll, said grippers being adapted to move in between the rolls and between the bellows folds of the blank and to clamp the blank to the face of the roll at its corners, mechanism for engaging and disengaging said side grippers and a creaser arranged to crease the blank transversely on the line about which the diamond fold is opened and at a time prior to the distention of the diamond.

9. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube consisting of rolls, as B and B', between which the bellows-folded blanks are fed in combination with central grippers C and *c*, one secured to each roll and arranged to seize the top and bottom plies of the blank as it enters between said rolls, side grippers, as E E and *c c*, one pair attached to and rotating with each roll, said grippers being adapted to move in between the rolls and between the bellows folds of the blank and to clamp the blank to the faces of the rolls at its corners, mechanism for operating the grippers to cause them to engage and disengage the blank at proper times, and a creaser as I J secured to rolls B B' in the rear of the side grippers and arranged to crease the blank transversely as described.

10. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube consisting of rolls, as B and B', between which the bellows-folded blanks are fed, said rolls having flatted sides B^3 and B^3, in combination with central grippers C and *c*, one secured to each roll and arranged to seize the top and bottom plies of the blank as it enters between said rolls, side grippers as E E and *c c*, one pair attached to and rotating with each roll, said grippers being adapted to move in between the rolls and between the bellows folds of the blank and to clamp the blank to the flatted faces of the rolls at its corners and mechanism for operating the grippers to cause them to engage and disengage the blank at proper times.

11. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube, comprising rotating side grippers as E E *c c* adapted to engage the blank at its corners and spread it out on the plane of the bag-bottom to be formed in combination with springs arranged to push and hold the gripper-jaws outward from the face of the rolls said springs being adapted to yield to the pressure exerted by the jaws upon each other as they come together prior to engaging the blank, mechanism arrange to throw the jaws into the bellows folds and down upon the corners of the blank and mechanism for retracting the jaws from the blank after they have spread it out.

12. In combination with the rotating gripper-holding block H, a pivot-pin F' rotatable and longitudinally movable therein, means as cams G^2 F^2 whereby a rotation of pin F' causes it to move longitudinally, a spring as F^4 tending to force and hold the pin F' in its outermost position longitudinally, a spring as F^5 tending to force and hold the pin F' in its outermost position angularly, means as a cam for turning the pin in opposition to spring F^5 and a gripper as E secured to and moving with the pivot-pin as and for the purpose specified.

13. In a paper-bag machine, mechanism for spreading out the diamond fold in the end of a bellows-folded tube, comprising rotating central grippers C *c*, the gripper C being slotted as shown at C' and the gripper *c* of such dimensions as to permit it to pass through said slot as the grippers rotate to position to engage the end plies of the blank, in combination with rotating side grippers E E and *c c* arranged to engage with the corners of the bellows folds and spread open the blank on the plane of the bottom to be formed thereon.

14. In a paper-bag machine, mechanism for spreading out the downward fold on the end of a bellows-folded tube comprising rolls B B' between which the blanks are fed the roll B being centrally slotted at B^4 in combination with central grippers C *c* secured to said rollers, the gripper C being slotted, as shown at C', and the gripper *c* of such breadth as to permit it to pass into the slots as the rolls rotate to the position where the blank is engaged, and side grippers E E *c c* secured to the rolls and arranged to engage the corners of the bellows-folded blank and spread it out on the plane of the bottom to be formed.

15. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube comprising rolls B B' between which the blanks are fed, the roll B being centrally slotted at B^4, in combination with central grippers C *c* secured to said rollers, the gripper C being slotted as shown at C', and the gripper *c* of such breadth as to permit it to pass into the slots as the rolls rotate to the position where the blank is engaged and mechanism as specified for engaging and disengaging said grippers whereby the gripper *c* first acts to engage the lower ply of the blank and the gripper C then engages the upper ply.

16. In a paper-bag machine, mechanism for spreading out the diamond fold on the end of a bellows-folded tube comprising rolls B B', central and side grippers revolving with said rolls and operating to distend the blank as described, in combination with wing-folders M M operating to press the blank against the face of the rolls and having flanges M' M' arranged to guide the edges of the blank and prevent undue strains on its pasted seam.

578,551. VEHICLE-TIRE. CHARLES E. DURYEA, Peoria, Ill., assignor to The Indiana Rubber and Insulated Wire Company, Marion, Ind. Original application filed Dec. 28, 1891, Serial No. 416,306. Divided and this application filed June 8, 1896. Serial No. 594,734. (No model.)



Claim.—1. A pneumatic tire provided with a semiliquid or free-flowing sealing agent or cement within its air-chamber, substantially as described.

2. An air-containing tube for pneumatic tires provided interiorly with a gummy liquid designed to flow within said tube, substantially as described.

3. The combination with the air-containing tube of pneumatic tires, of a gummy liquid contained therein and designed by redistribution due to movement of the tube to form an interior liquid coat-

ing adapted to be forced by escaping air into leaks or apertures in said air-containing tube, substantially as described.

4. The combination with the air-containing tube of pneumatic tires of a foreign substance contained therein and adapted to be converted into a gummy liquid to heal punctures in said tube, substantially as described.

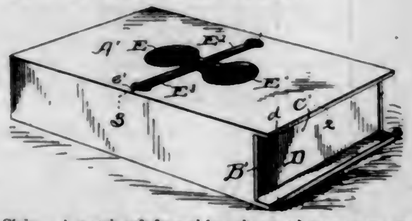
5. A pneumatic tire provided within its air-chamber with a free semiliquid substance adapted to coagulate when exposed to the external atmosphere to seal a puncture or vent in the tire, substantially as described.

6. A pneumatic tire having within its air-chamber a free liquid cement or sealing agent constituents of which will evaporate when exposed to the outer air, substantially as described.

7. A pneumatic tire having within its air-chamber a cement or sealing agent which remains normally in a liquid state, but which hardens or coagulates when exposed to the outer air, to effect the sealing of a vent or fissure in the tire, substantially as described

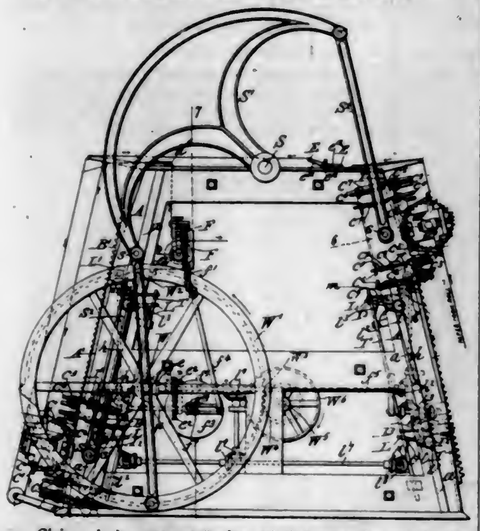
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578,552. MATCH-SAFE. CALEB EDERSOLD, Ravenna, Ohio. Filed June 13, 1896. Serial No. 596,090. (No model.)



Claim.—A match-safe formed box shape and open at one end or side, said end or side having the top and bottom extending over or beyond the sides, in combination with a match-box adapted to enter the safe, said match-box being, when in position in the safe, within or beyond the extending portions of the safe, and an opening in the match-box to extract the matches.

578,553. PRINTING-PRESS. DAVID I. EDERSON, Worcester, N. Y. Filed Feb. 4, 1893. Serial No. 461,043. (No model.)



Claim.—1. In a web-perfecting printing-press, the combination of the relatively-inclined type-beds, the traveling impression-cylinders cooperating therewith, the operating means to which each cylinder is connected and by which each cylinder is positively reciprocated in opposite directions, and means for guiding a web successively around the said cylinders, substantially as described.

2. In a web-perfecting printing-press, the combination of two oppositely-inclined type-beds, two traveling impression-cylinders cooperating therewith, the operating means to which each cylinder is connected and by which each cylinder is positively reciprocated in opposite directions, and means for guiding a web successively around the said cylinders, substantially as described.

3. In a web-perfecting printing-press, the combination of the type-beds inclined slightly from the perpendicular and facing outwardly, the independently-constructed carriages reciprocating thereon in opposite directions, the impression-cylinders mounted therein, and the guide-rolls carrying the web up one of the type-beds where it passes through one of the carriages and around the impression-cylinder mounted in the said carriage where it is printed on one side, then carrying the web through the machine and looping it on the opposite side with the inner portion of the loop parallel with the other type-bed where it passes through the other carriage and around the impression-cylinder mounted in the said second carriage and is perfected, substantially as described.

4. In a web-perfecting printing-press, the combination of the relatively-inclined type-beds, the independently-constructed carriages reciprocating thereon in opposite directions, the impression-cylinders mounted in the said carriages, and the guide-rolls supporting the web over one of the type-beds where it passes through one of the carriages and around the impression-cylinder mounted in the said carriage and is printed on one side, then carrying it through the machine and looping it with the inner portion of the loop parallel with the other type-bed where it passes through the other carriage and around the impression-cylinder mounted in the said second carriage and is perfected, substantially as described.

5. In a web-perfecting printing-press, the combination of the relatively-inclined type-beds, the carriages mounted thereon, the impression-cylinders carried by the said carriages, the working beam connected with the said carriages to reciprocate the same, and the guide-rolls supporting the web over one of the type-beds where it passes through one of the carriages and around the impression-cylinder mounted in the said carriage and is printed on one side, then carrying it through the machine and looping it with the inner portion of the loop parallel with the other type-bed where it passes through the other carriage and around the impression-cylinder mounted in the said second carriage and is perfected, substantially as described.

6. In a printing-press, the combination of the type-beds, the carriages mounted thereon, the impression-cylinders supported by the said carriages, and the mechanism reciprocating the said carriages in opposite directions consisting of the working beams connected at their ends with the said carriages, and the fly-wheels keyed on a common shaft and connected with the said working beams, substantially as described.

7. In a web-perfecting printing-press, the combination of two oppositely-inclined type-beds, two traveling impression-cylinders cooperating therewith, the operating means to which each cylinder is connected and by which each cylinder is positively reciprocated in opposite directions, means for guiding a web successively around the said cylinders, and a feed mechanism for intermittently feeding the web through the press between the strokes of the cylinders, substantially as described.

8. In a web-perfecting printing-press, the combination of two oppositely-inclined type-beds, two traveling impression-cylinders cooperating therewith, the operating means to which each cylinder is connected and by which each cylinder is positively reciprocated in opposite directions, means for guiding a web successively around the said cylinders, a feed mechanism for intermittently feeding the web through the press between the strokes of the cylinders, and the registering device interposed between the impression mechanisms and in the path of the web, substantially as described.

9. In a web-perfecting printing-press, the combination of two oppositely-inclined type-beds, two traveling impression-cylinders cooperating therewith, the working beam to which each cylinder is connected and by which each cylinder is positively reciprocated in opposite directions, and means for guiding a web successively around the said cylinders, substantially as described.

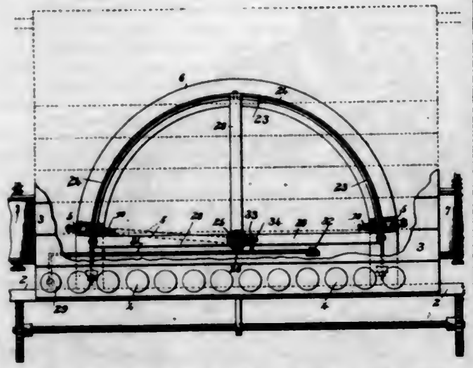
578,554. TYPE-WRITING MACHINE. ROBERT J. FISHER, Athens, Tenn. Filed Sept. 8, 1896. Serial No. 605,163. (No model.)

Claim.—1. In a type-writing machine, the combination with a pivotal type-bar, of a type head or carrier movably supported thereon, the same being movable to its adjusted position by centrifugal force, when the type-bar is moved to the printing position, substantially as specified.

2. In a type-writing machine, the combination with a pivotal type-bar, of a type head or carrier movably supported thereon, the same being movable to its adjusted position by centrifugal force, means carried by the type-bar for holding the type head or carrier in its normal position, and manually-operated mechanism for actuating said means to release the type head or carrier, substantially as specified.

3. In a type-writing machine, the combination with a pivotal type-bar, of a type head or carrier movably supported thereon and capable of a plurality of positions, the same being movable to one position by centrifugal force, when the type-bar is extended or moved

to its printing position, and being returnable to its other or normal position, when the type-bar is retracted or returned to its normal position, a locking device carried by the type-bar for holding the type head or carrier in its normal position, and manually-operated means for disengaging the locking device, substantially as specified.



4. In a type-writing machine, the combination with a pivotal type-bar, of a type head or carrier movably supported thereon, the same being movable to one position by centrifugal force and returnable to its normal position by a yielding force, a locking device carried by the type-bar for holding the type head or carrier in its normal position, and a key-actuated trip for disengaging said locking device, substantially as specified.

5. In a type-writing machine, the combination with a pivotal type-bar, of a type head or carrier movably supported thereon, the same being adapted to be moved to one position by centrifugal force and being returnable to its normal position by a yielding force, a locking device carried by the type-bar and normally arranged in engagement with the type head or carrier to maintain it in its normal position, and a key-actuated trip yieldingly held out of and adapted to be moved into the path of a trip-arm forming a part of said locking device, substantially as specified.

6. In a type-writing machine, the combination with a pivotal type-bar, of a type head or carrier movably supported thereon, the same being adapted to be moved to one position by centrifugal force and being returnable to its normal position by a yielding force, a locking device carried by the type-bar for securing the type head or carrier in its normal position, and fixed and movable trips for cooperating with a trip-arm forming a part of said locking device, the fixed trip being permanently arranged in the path of the trip-arm, and the movable trip being capable of adjustment into and out of the path of the trip-arm, substantially as specified.

7. In a type-writing machine, the combination with a pivotal type-bar, of a pivotal type head or carrier adapted to be moved to one position by centrifugal force and being returnable to its normal position by a yielding force, a locking device carried by the type-bar for securing the type head or carrier in its normal position, said locking device including a trip-arm, a stationary trip arranged permanently in the path of said trip-arm for moving the locking device into engagement with the type head or carrier, and a key-actuated movable trip yieldingly held out of and adapted to be adjusted into the path of the trip-arm to provide for disengaging the locking device from the type head or carrier, substantially as specified.

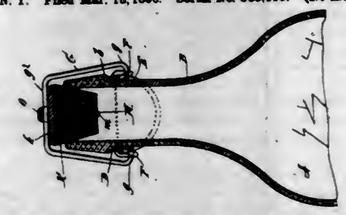
8. In a type-writing machine, the combination with a pivotal type-bar, of a pivotal type head or carrier adapted to be moved to one position by centrifugal force and being returnable to its normal position by a yielding force, a locking device carried by the type-bar for engagement with the type head or carrier to secure it in its normal position and yieldingly held in either its operative or inoperative position, and stationary and movable trips for actuating said locking device, the former being permanently arranged in operative position and the latter being adjustable into and out of operative relation with the locking device, substantially as specified.

9. In a type-writing machine, the combination with a pivotal type-bar, of a pivotal type head or carrier adapted to be moved to one position by centrifugal force and being returnable to its normal position by a yielding force, a pivotal trigger adapted to be arranged in engagement with the type head or carrier to secure it in its normal position and having a trip-arm, and fixed and movable trips for engagement with said trip-arm, the former being permanently in operative position and the latter being spring-actuated and adapted for movement into and out of engagement with the trip-arm, substantially as specified.

10. In a type-writing machine, the combination with a pivotal type-bar, of a pivotal type head or carrier adapted to be moved to one position by centrifugal force and being returnable to its normal position by a yielding force, a pivotal trigger carried by the type-bar to maintain the type head or carrier in its normal position and having a trip-arm, a brake-spring arranged in contact with a friction-surface of the trigger to hold the latter in either its operative or inoperative position, and fixed and movable trips for cooperation with said trip-arm, the latter being adjustable into and out of operative position, substantially as specified.

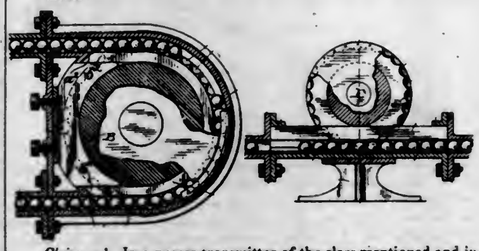
11. In a type-writing machine, the combination with a pivotal type-bar, a type-carrier movably supported thereon, and means, as a trigger, for normally holding the type-carrier in one position, a trip for engagement with the trigger and mounted for movement into and out of operative relation with a trip-arm carried by the trigger, and means for actuating said trip, including a spider, a sliding spring-returned stud carrying the spider, and a case-key lever operatively connected with said stud, substantially as specified.

578,555. STOPPER FOR BOTTLES. JOHN FITCHIE, Brooklyn, N. Y. Filed Mar. 13, 1896. Serial No. 583,699. (No model.)



Claim.—The herein-described bottle having a neck B, near the upper end of which is formed an outwardly-directed annular shoulder *b*, below which is mounted a spring band or ring D provided with a yoke E, in which are formed near each end thereof spring-rings F, in which are mounted the ends *g* of the bail G, and mounted on the transverse head of said bail is a conical stopper K provided with a cap-plate *k* which is secured to the outer end or base of the stopper, by means of a spiral spring M, which passes downwardly through the stopper, and is provided with a hook or head *m*, on the upper surface of which is formed a ring O, through which the transverse head of said bail passes, all constructed and adapted to operate as herein set forth and shown.

578,556. MEANS FOR TRANSMITTING POWER. JOHN FLINDALL, Chicago, Ill. Filed July 29, 1896. Serial No. 600,880. (No model.)



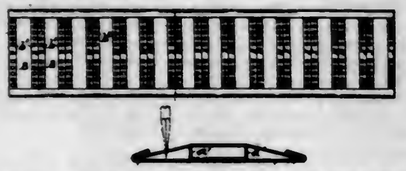
Claim.—1. In a power-transmitter of the class mentioned and in combination a tubular way provided with an open-sided section, a sheave provided with pockets and a key-seat cutting through the pockets and extended beyond the bottom of the pockets toward the axis, and a key extended through the key-seat in the sheave and along the open-sided section of the way and secured substantially as and for the purpose specified.

2. In a power-transmitter of the class mentioned and in combination a tubular way provided with a curved open-sided section, a sheave provided with pockets and a key-seat cutting through and below the bottom of the pockets, a sheave having its rim in the curved open-sided section, a key in the key-seat and partially encompassing the sheave, with its ends abutting the ends of the open-sided section, and a support for the ends of the key as specified.

3. In a power-transmitter of the class mentioned the combination with the tubular way provided with an opening at one side, of a sheave having its rim provided with pockets and a key-seat and arranged in said opening and a key having its ends secured to the way and extended over the opening parallel with the bore of the tube as specified.

4. In a power-transmitter of the class mentioned the tubular way comprised of sections connected as shown and rested on supports disconnected therefrom and provided with a key-covered opening for connecting the sheaves, having greater length than the arc of the sheave covered by the way as specified.

578,557. SALES-INDICATING TABLET. HARRY H. FREER and COLIN MACCALLUM, Pontiac, Mich. Filed Nov. 2, 1896. Serial No. 610,823. (No model.)



Claim.—1. A tablet provided with perforated cards, having a cover-strip over the perforations, said cover-strip constructed to indicate a desired amount, substantially as set forth.

2. A tablet having in combination, a supporting-tray and perforated cards, provided with cover-strips constructed to indicate desired amounts, substantially as described.

3. A tablet having in combination, a supporting-tray, provided with longitudinal flanges intermediate its edges and perforated cards supported upon said tray, said cards provided with cover-strips constructed to indicate given amounts, substantially as and for the purpose set forth.

4. A tablet having in combination, a supporting-tray and perforated cards, provided with cover-strips constructed to indicate desired amounts, said cards made removable from the tray, substantially as described.

5. A tablet having in combination, a tray constructed with grooves at its lateral edges and with a flange intermediate said edges, and perforated cards provided with cover-strips constructed to indicate given amounts, arranged substantially as and in the manner described.

578,558. SCRAPER. WELLINGTON G. FULLER and GRANT WINNER, Whitehall, Wis. Filed Mar 25, 1896. Serial No. 584,845. (No model.)

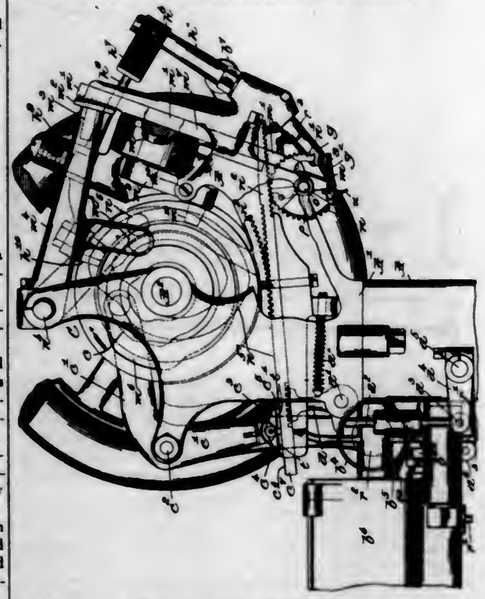


Claim.—A combined rake and scraper comprising a straight handle provided with a tapering square end, a detachable head provided with a longitudinal scraping edge and having rake-teeth at the opposite edge, the diverging braces arranged in the same plane as the handle and having their outer ends bent parallel to the handle threaded and passing through perforations of the detachable head, said braces being flattened and perforated at their opposite ends, bolts passing through the perforations and the handle for permanent attachment thereto, and nuts arranged on the threaded ends of the braces and engaging the outer face of the head to force the latter inward on the tapering end of the handle, substantially as and for the purpose described.

578,559. SHOE-SEWING MACHINE. LOUIS GODDU, Winchester, Mass., assignor to James W. Brooks, trustee, Petersham, Mass. Filed Jan. 4, 1896. Serial No. 574,299. (No model.)

Claim.—1. In a sewing-machine, a needle-segment, its attached needle and a straight bar toothed at its under side to engage the teeth of said needle-segment and toothed also at its upper side, combined with a toothed sector to engage the teeth at the upper side of the said bar and means to actuate said toothed sector, the action of a toothed sector on one edge of said bar tending to always keep the teeth at the lower edge thereof in correct engagement with the teeth of the segment, substantially as described.

2. The welt-guide segment, its attached welt-guide, and a bar-sliding toothed sector, combined with a sliding bar having two sets of rack-teeth, one of which is engaged by the bar-sliding toothed sector, while the other of said sets engages the welt-guide segment, a spring to cause said bar to keep the welt-guide against the upper, and means to actuate the said bar-sliding toothed sector to cause the sliding bar to remove the welt-guide from the work, when the latter is to be taken from the machine, substantially as described.



3. A sewing-machine containing the following instrumentalities, viz: a hooked needle, a stationary inwardly-inclined channel-gage to enter the channel in the face of the sole and sustain the material in opposition to the thrust of the needle, said gage having a hollow shank, a rotatable thread-presenter located in said hollow shank, and a welt-guide having a lip extended from it at its side in contact with the upper, the said lip acting to bend the upper closely into the channel or shoulder made at the edge of the said sole at or near the stitch-making point, a segment to which said welt-guide is attached, and means to move said segment to operate substantially as described.

4. A sewing-machine containing the following instrumentalities, viz: a curved hooked needle, a stationary inwardly-inclined channel-gage to enter a channel cut in the face of the inner sole and sustain it in opposition to the thrust of said needle, a straight slide bar having a feeding-point, and means to actuate the said point to cross the arc in which the needle works, said point entering the top of the between substance of the sole to feed the same, combined with an independent welt-guide to act upon the upper and press it firmly in contact with the channel or corner made in the edge of the sole, and with mechanism to automatically release the pressure of said welt-guide from the upper preparatory to the feeding operation, substantially as described.

5. In a sewing-machine, a welt-guide a toothed segment upon which said welt-guide is mounted, and a bar having teeth in engagement with the teeth of the said segment, and two sets of ratchet-teeth, combined with a movable carrier and two oppositely directed or pointed pawls adapted to engage each with the ratchet-teeth of the said bar to move and lock the same alternately, as and for the purposes set forth.

6. In a sewing-machine the following instrumentalities viz: a channel-gage composed of a tube having a finger or extension to enter the channel, a thread-presenter made hollow at its lower end and provided with a hook, and a hooked needle adapted to enter the hollow lower end of the said thread-presenter, combined with means to move the said thread-presenter to carry the thread across and about the needle in order that the hook thereof may take the said thread when the needle is retracted, substantially as described.

7. The tube-like channel-guide having an extension or finger and provided with a hole for the passage of the thread, combined with a thread-presenter made hollow at its lower end and provided with a hook h, a bevel-gear h^3, a bevel-gear h^3, a rod to move the bevel-gear h^3, and means to rotate said rod backward and forward, substantially as and for the purpose described.

8. In a sewing-machine, a guideway pivotally mounted upon the frame, means to oscillate the said guideway, and a toothed bar placed in said guideway and provided with a feed-point, combined with a lever, means to move it, and a pivoted toothed block mounted upon the end of said lever and in engagement with the said bar, to operate, substantially as described.

9. In a sewing-machine, a rigid stationary channel-gage to enter the channel in the face of the inner sole, a welt-guide segment, its attached welt-guide, a sliding rack-bar having teeth to engage the teeth of the said segment, and a bar-sliding toothed sector, combined with a spring to act on said bar and normally keep said welt-guide pressed toward the upper, thereby permitting the said guide to adapt itself to variations in the thickness of the upper, substantially as described.

10. The combination with an inwardly-inclined stationary channel-gage to enter the channel in the face of the inner sole, a hooked needle, its toothed segment, and means to move the same, of a welt-guide, a toothed segment to which it is attached, a toothed sliding bar engaging said segment, means to normally press the said bar with a yielding pressure in a direction to keep the welt-guide against the upper, feeding mechanism containing a straight feed-point to enter the between substance of the sole, and means to act on said sliding bar to remove the welt-guide from the work for a uniform distance after each stitch preparatory to feeding the shoe, no matter what the thickness of the upper, substantially as described.

11. In a sewing-machine, a guideway pivoted between its ends, a toothed bar free to slide in said guideway, a feeding-point attached to said bar, a lever having a segmental toothed block pivotally mounted thereon and engaging the teeth of the said bar, and means to move said lever, combined with means to oscillate said guideway with its contained bar, whereby the said bar is moved laterally while the feeding-point is in the work to thus feed the same, substantially as described.

12. The hooked needle, the channel-gage, the thread-presenter carried thereby to present the thread to the needle, and a take-up acting directly on the thread between the channel-gage and the wax-box, and means to operate it to give up and pull off thread and to hold the same until needed by the requirements of the needle, substantially as described.

13. The combination with the hooked needle, its toothed segment, and means to move the same, of a welt-guide, a toothed segment to which it is attached, a toothed bar engaging said segment, means to normally press the said bar with a yielding pressure in a direction to keep the welt-guide against the upper, and means to move the said bar in the direction to increase the normal pressure of the welt-guide on the upper and lock the said guide in place while the needle enters the work, substantially as described.

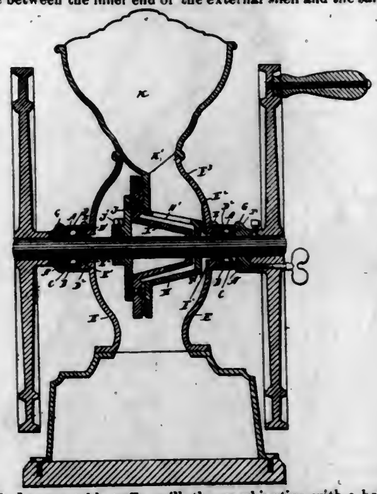
14. A stationary channel-gage or work-support, having a hollow shank, and a hooked needle to enter the material and present its hook at one side of the shank of said channel-gage, combined with a circularly-movable thread-presenter, lying in the said hollow shank, and means to move said thread-presenter to wrap the thread about said needle, substantially as described.

15. In a sewing-machine, the guideway having a pivot or stud m^3, an arm attached to said stud and provided with a roller or other stud, a cam to engage said roller-stud to oscillate said guideway, a toothed feeding-bar fitted to slide in the said guideway and provided with a feeding-point, combined with a lever having a segmental toothed block pivotally mounted upon its end to engage the teeth of said feeding-bar, to operate substantially as described.

578,560. PORTABLE COFFEE-MILL. LEWIS F. GRISWOLD, Meriden, Conn., assignor to The Charles Parker Company, same place. Filed Aug. 31, 1896. Serial No. 604,414. (No model.)

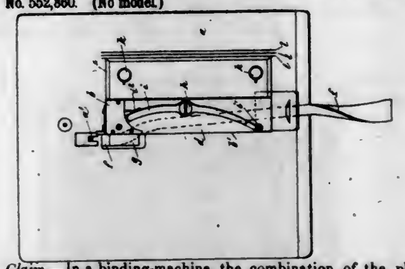
Claim.—1. In a ball-bearing for coffee-mills, &c., the combination with a cylindrical sheet-metal external shell, formed at its outer end with an integral inwardly-turned retaining-flange, of a sheet-metal internal shell having a sleeve of smaller diameter than the said external shell, an integral shoulder located at a right angle to and extending outward from the outer end of the said sleeve, and a bearing-flange formed integral with the said shoulder, fitting closely within the outer end of the external shell, and coacting with the said flange and shoulder in forming a runway for a circle of balls the outward thrust of which is met by the said flange and the outer end of the external shell, the annular space between the inner end of the external shell and the sleeve receiving the support for the ball-bearing.

2. In an independently-organized ball-bearing for portable coffee-mills, the combination with a cylindrical external sheet-metal shell, having an integral inwardly-turned retaining-flange which is located at its outer end, of a sheet-metal internal shell having at its inner end a sleeve of smaller diameter than and concentric with the external shell, an integral outwardly-extending shoulder located at a right angle to the said sleeve, and an outwardly-projecting bearing-flange formed integral with the outer end of said shoulder, fitting closely within the outer end of the external shell, and coacting with the said shoulder and retaining-flange to form a runway for the circle of balls, the outward thrust of which is met by the said flange, and the outer end of the external shell the said flange of the internal shell and a portion of the external shell being adapted by the formation of an annular bead in one shell and the formation of a corresponding annular groove in the other shell to take into each other for holding the two shells together, and the outer shell being utilized for holding the ball-bearing in place upon its support, which occupies the annular space between the inner end of the external shell and the said sleeve



3. In a portable coffee-mill, the combination with a body comprising an upper and lower portion, of which the lower portion is formed with two outwardly-projecting semi-detached hubs located opposite each other in vertical planes, and in part projecting above the upper edge of the said lower portion of the body; of two independently-organized ball-bearings removably applied to the respective hubs, a shaft passing through the said hubs and bearings and running upon the balls of the latter, fly-wheels applied to the ends of the shaft, collars interposed between the fly-wheels and the ball-bearings for preventing the endwise play of the shaft, and coffee-grinding devices actuated by the shaft.

578,561. BINDING ATTACHMENT FOR SEWING-MACHINES. URBAN GÜTLING, Würzburg, Germany. Filed June 14, 1895. Serial No. 552,860. (No model.)



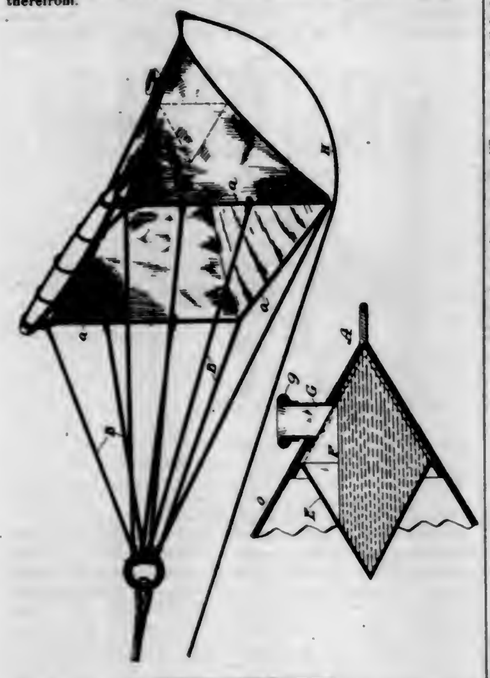
Claim.—In a binding-machine, the combination of the plate a having needle-opening a', the box b mounted upon the plate a and having a guiding edge b' and a braid-channel e, the projecting shoulder g secured to the box b, a lid d closing the channel e, and a spring-lever locking the lid in position, substantially as set forth.

578,562. MARINE DRAG. WILLIAM H. HART, Brooklyn, N. Y. Filed May 20, 1896. Serial No. 592,270. (No model.)

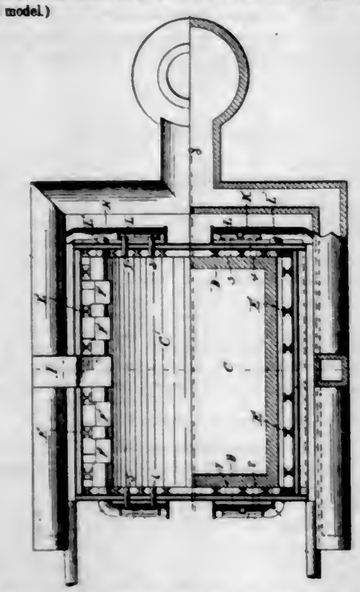
Claim.—1. A marine drag having an open mouth and flexible walls of canvas capable of being distended by the pressure of the water when put overboard, an oil-chamber constituting a permanent part of the drag formed within the interior thereof and having a flexible wall against which the pressure of the water acting within the drag is exerted to expel the oil from the oil-chamber.

2. A marine drag tapering from the mouth to the end and having therein an oil-chamber whose walls are porous and against one of the flexible walls of which the pressure of the water within the drag is exerted.

3. A marine drag tapering from the mouth to the rear end and having a flexible transverse partition therein of approximately the shape and dimensions of the drag between such partition and the end thereof, whereby the pressure of the water within the drag is exerted upon the partition to gradually force the flexible partition back into the end of the drag forming the oil-chamber to thereby expel the oil therefrom.



578,563. TANK FOR MANUFACTURING WINDOW-GLASS. POLIDORE HENRI, Hartford, Ind. Filed Oct. 10, 1895. Serial No. 565,283. (No model.)

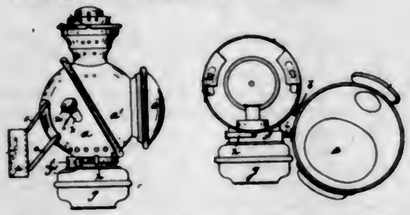


Claim.—1. In a glass-melting tank, the combination with the tank, of downwardly-extending exits leading from opposite sides of the tank, conduits located on opposite sides of the tank in which the exits terminate one end of the conduits being closed and the opposite end terminating in the stack, air-inlet flues located adjacent the conduits, and adapted to be heated thereby extending parallel therewith and then upwardly leading into one end of the tank, and flues leading from the air-inlet flues extending parallel with the tank and then upwardly and leading into the opposite end of the tank, substantially as described.

2. In a glass-melting tank, the combination with the tank, of an exit leading from the tank, a conduit in which the exit terminates, one end of the conduit being closed and the opposite end terminating in the stack, an air-inlet flue located adjacent the conduit, and adapted to be heated thereby, extending parallel therewith and leading into one end of the tank, and a flue leading from the air-inlet flue and terminating in the opposite end of the tank on the same horizontal plane as the air-inlet flue, substantially as described.

3. In a glass-melting tank, the combination with the tank, of downwardly-extending exits leading from opposite sides of the tank, conduits located on opposite sides of the tank in which the exits terminate, one end of the conduits being closed and the opposite end terminating in the stack, air-inlet flues located in the side wall of the conduits and extending parallel therewith and then upwardly and terminating in horizontal pipes, closed at both ends, and located at one end of the tank, pipes leading from the horizontal pipe into the tank, flues leading from the air-inlet flues extending parallel with the tank and then upwardly and terminating in horizontal pipes at the opposite end of the tank, and pipes leading from the horizontal pipe into the tank, substantially as described.

578,564. VELOCIPEDE-LAMP. JOHN M. HERMAN, Newark, N. J. Filed July 6, 1896. Serial No. 598,066. (No model.)



Claim.—1. The improved lamp in which are combined two semi-spherical sections hinged together at one side, the joint being equatorial and extending diagonally with relation to the vertical axis of the case, the rear section having the burner and bracket connections and the other having the dome and lens substantially as set forth.

2. The improved lamp in which are combined two semicylindrical sections hinged together one of which is provided with a lens and dome and the other with a collar to receive the burner and bracket attachments, the meeting edges of said sections extending diagonally between the dome and bracket attachments, at one side of the lamp and lens and collar at the other side and forming an equatorial joint, substantially as set forth.

578,565. PENHOLDER. HERBERT R. JARVIS, Huntington, N. Y. Filed Aug. 4, 1896. Serial No. 601,590. (No model.)



Claim.—1. The combination with a tubular penholder, having an opening in the back or upper side thereof, of a spring-plate secured therein, and provided with a pin or plug which projects through said opening, said spring-plate being carried outwardly, and being provided in front of said pin or plug with a tubular portion which acts in connection with the tubular holder to hold the pen, and the outer end of said spring-plate being pointed, and the sides thereof, curved in the direction of the pen, substantially as shown and described.

2. The combination with a tubular penholder, provided with an opening in its upper side or back, of a spring-plate secured therein, and provided with a pin or plug which projects through said opening, said spring-plate being adapted to act in connection with said tubular holder, to hold the pen, and being provided with a point which bears on the under side of the pen, when the latter is in position, and the sides thereof being curved upwardly or in the direction of the pen, substantially as shown and described.

578,566. TREATING STARCH. JULIUS KANTOROWICZ, Breslau, Germany. Filed Mar. 30, 1896. Serial No. 585,467. (No specimens.)

Claim.—The process of producing dry digested starch, which is soluble in water, which consists in subjecting the digested starch to the action of magnesium sulfate for separating it from its solution, washing the separated starch, drying it, and finally pulverizing it, substantially as herein set forth.

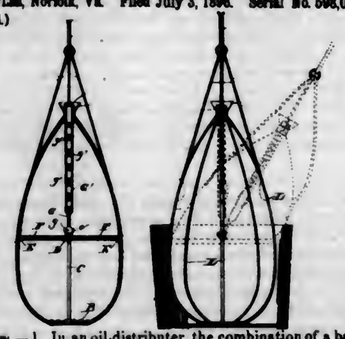
578,567. MOUTHPIECE FOR WIND INSTRUMENTS. HENRY P. KEYES, New Haven, Conn., assignor of one-half to Marvin Smith, same place. Filed Aug. 3, 1896. Serial No. 601,426. (No model.)



Claim.—1. A mouthpiece for wind instruments of the trumpet type constructed with one or more spirally-arranged ribs or webs for imparting spiral rotary movement to the column of air forced into the mouthpiece by the user.

2. The combination with a mouthpiece for a wind instrument of the trumpet type, of an independently-formed stem adapted to be introduced into the said mouthpiece, and having one or more spirally-arranged ribs or webs for imparting spiral rotary movement to the column of air forced into the mouthpiece by the user.

578,568. OIL-DISTRIBUTER FOR CALMING WAVES. DANIEL KNOWLES, Norfolk, Va. Filed July 3, 1896. Serial No. 598,022. (No model.)



Claim.—1. In an oil-distributer, the combination of a bag having an internal spreader or brace near its lower end, and a filling-tube having one end communicating with the mouth of the bag and its other end loosely connected with the said brace, substantially as and for the purpose set forth

2. In an oil-distributer, the combination of a bag, and means for holding the end portion of the bag opposite to the mouth thereof vertical while said mouth and portion of the bag adjacent thereto may be inclined to the vertical, substantially as set forth.

3. In an oil-distributer, the combination of a bag, a stationary rod arranged within and connected to the bottom of the bag, a perforated filling-tube having one end in line with the mouth of the bag and its other end loosely connected with said stationary rod, and a cap for closing the outer end of the filling-tube, substantially as set forth.

4. In an oil-distributer, the combination of a bag, a bottom plate for the plate, a rod extending upward from said plate, a ring or hoop arranged above the bottom plate and connected with the rod, a filling-tube loosely connected with said rod and extending to the mouth of the bag, and a cap for closing the outer end of said tube, substantially as set forth.

5. In an oil-distributer, the combination of a bag, a stationary rod arranged within the lower portion of the bag and having a socket formed in its upper end, a filling-tube extending inward from the mouth of the bag and having at its inner end a ball fitting in the socket in the said rod, and a cap for closing the outer end of the filling-tube, substantially as set forth.

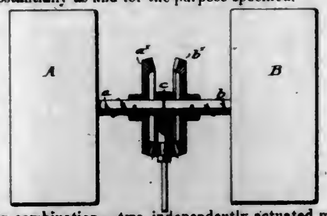
6. In an oil-distributer, the combination of a bag, a filling-tube connected with and extending inwardly from the mouth of the bag, and means connecting the tube with the bottom of the bag, substantially as set forth.

7. In an oil-distributer, the combination of a bag, a filling-tube connected with both the top and bottom of the bag, and a cap for closing the outer end of said tube, substantially as set forth.

8. In an oil-distributer, the combination of a bag, a bottom plate arranged within the bag, a brace extending continuously from such bottom plate to the mouth of the bag, the portion of such brace adjacent to the mouth of the bag being tubular to serve as a filling tube, and a cap for closing the outer end of such tube, substantially as set forth.

578,569. DIFFERENTIALLY-ACTUATED TRIPPING MECHANISM. SAMUEL L. G. KNOX, New York, N. Y. Filed June 18, 1896. Serial No. 595,992. (No model.)

Claim.—1. In combination,—two independently actuated motive mechanisms normally driven in opposite directions at the same speed,—a normally idle differential gearing connective of said two mechanisms, which is thrown into action by a variance of the speed or the stoppage of either mechanism,—and a tripping mechanism connected with and operated by the action of the differential gearing,—substantially as and for the purpose specified.



2. In combination,—two independently actuated motive mechanisms normally driven in opposite directions at the same speed,—a normally idle differential gearing connective of said two mechanisms, which is thrown into action by a variance of the speed or the stoppage of either mechanism,—and a tripping mechanism connected with and operated by the action of the differential gearing,—and a safe time-lock mechanism the actuation of which the operation of the tripping mechanism occasions,—substantially as and for the purpose specified.

3. In combination,—two independently actuated motive mechanisms having each a driven shaft, and the shafts of both of which are alined and normally rotated in opposite directions at the same speed,—a normally idle differential gearing connective of said two shafts, which is thrown into action by the differential movement of either, and which is composed of a pair of counterpart beveled spur-wheels respectively affixed to the respective shafts, and of a beveled pinion engaged with both wheels and mounted upon a pinion-carrying-bar the axis of which is coincident with the common axis of the shafts, and which is adapted to be circumferentially shifted by the differential movement of either wheel,—and a tripping mechanism connected with and operated by the action of the pinion-carrying-bar of said differential gearing,—substantially as and for the purpose specified.

4. In combination,—two independently actuated motive mechanisms having each a driven shaft, and the shafts of both of which are alined and normally rotated in opposite directions at the same speed,—a normally idle differential gearing connective of said two shafts, which is thrown into action by the differential movement of either, and which is composed of a pair of counterpart beveled spur-wheels respectively affixed to the respective shafts, and of a beveled pinion engaged with both wheels and mounted upon a pinion-carrying-bar the axis of which is coincident with the common axis of the shafts, and which is adapted to be circumferentially shifted by the differential movement of either wheel,—a tripping mechanism connected with and operated by the action of the pinion-carrying-bar of said differential gearing,—and a safe bolt work mechanism the actuation of which the operation of the tripping mechanism occasions,—substantially as and for the purpose specified.

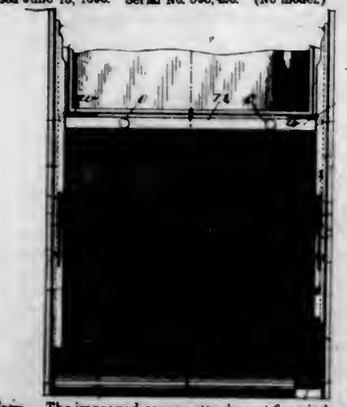
578,570. ORNAMENTAL FABRIC. JOHN LANCASTER and CHARLES WITTBECK, New York, N. Y. Filed Nov. 17, 1896. Serial No. 612,504. (Specimens.)



Claim.—1. As a new and useful article of manufacture, ornamented fabric having weft or filling threads on one side of the median line of the said fabric displaced in parts of their length to thereby present figured effects and the weft or filling threads on the opposite side of the median line of the fabric, substantially as described.

2. As a new and useful article of manufacture, the herein-described ornamented fabric having upon one part of its surface figured effects produced by displacing portions of the length of the weft or filling threads and upon another portion of its surface figured effects produced by pressing the portion of the cloth having the first-named figured effects against an unornamented portion of the cloth, substantially as described.

578,571. WINDOW-SCREEN. EMANUEL LARSON, Traver, Cal., assignor, by direct and mesne assignments, of two-thirds to Alexander Hillstrom, Tulare County, and George X. Wendling, Hanford, Cal. Filed June 13, 1896. Serial No. 595,426. (No model.)



Claim.—The improved screen attachment for windows consisting of the roller-case adapted for application on the window-sill between the jamb-linings with free space between its upper inner edge and the sash-frame, the spring-roller concealed in the case and pivoted in the end plates of the case, the screen carried on the roller, the bar attached to the end of the screen and provided with means for detachable connection with the window-sash, the upright bars attached to the ends of the roller-case suitably for lodgment in the angles between the sash and the jamb-linings and being grooved for the edges of the screen, and slotted for the clamps, and the clamps in the said slots of the bars and adapted for gripping the screen against the groove-walls, said screen having its edges extended into the grooves substantially as described.

578,572. SUNSHADE. FRANK R. LASHELLS, Sacramento, Cal. Filed Aug. 5, 1896. Serial No. 601,698. (No model.)



Claim.—1. In combination with a sunshade, a vertically-adjustable supporting-standard therefor and a means for carrying the standard, consisting of a waist-belt to be fitted to the user, an upwardly-diverging back-frame secured to the waist-belt and to which the standard is secured, and devices passing over the shoulders and connecting the top of the back-frame with the waist-belt in front.

2. In combination with a sunshade, a vertically-adjustable supporting-standard therefor and a means for carrying the standard, consisting of a waist-belt to be fitted to the user, an upwardly-diverging back-frame secured to the waist-belt and to which the standard is secured, shoulder-pieces pivotally secured to the upper end of said back-frame, and straps secured to said shoulder-pieces and passing down in front and detachably connected to the waist-belt.

3. A body-harness for supporting a standard, said harness comprising a waist-belt, a back-frame secured thereto, and consisting of a piece of wire bent at its middle and having its sides diverging upwardly, and to which the standard is secured and devices passing over the shoulders and connecting the top of the back-frame with the waist-belt in front.

4. A body-harness for supporting a standard, said harness comprising a waist-belt, a V-shaped back-frame secured thereto and to which the standard is secured, shoulder-pieces pivotally secured to the upper end of the back-frame, and straps secured to said shoulder-pieces and passing down in front and detachably connected to the waist-belt.

5. A body-harness for supporting a standard, said harness comprising a waist-belt, a back-frame secured thereto and to which the standard is secured, said frame having means for laterally widening or contracting it, and devices passing over the shoulders and connecting the top of the back-frame with the waist-belt in front.

6. A body-harness for supporting a standard, said harness comprising a waist-belt, a back-frame secured thereto and to which the standard is secured, said frame consisting of wire, the ends of which overlap at the top, and are fitted into a sleeve, with a set-screw, whereby they may be drawn apart or forced together, and fixed, to widen or contract the said frame, and devices passing over the shoulders and connecting the top of the back-frame with the waist-belt in front.

7. In combination with a sunshade, a body-harness to be secured to the user, and a standard supporting the sunshade and secured to the back of the body-harness by a controllable hinge adapting said standard to be swung forward and back and fixed, said joint comprising a shaft supported by the harness and having a flange-head, a sliding friction-washer on the shaft, and a spring and nut for operating it, and a foot of the standard, pivoted on the shaft, and adapted to be frictionally held between the washer and the flange-head of the shaft.

8. In combination with a sunshade, a body-harness to be secured to the user and a standard supporting the sunshade and secured to the back of the body-harness, said standard being severed and having its severed ends provided with disks set side by side, a pivot-pin connecting the two, and a spring-actuated pawl, and a ratchet-wheel controlling the connection, and means for relieving the control whereby the joint may be bent or held rigid, said means consisting of a wire connected with the pawl and thence extending to the sunshade within reach of the user and bell-cranks with which the wire is connected.

9. In combination with a sunshade, a supporting-standard therefor and the adjustable connection between the two consisting of the cross-rod of the shade, having the ratchet-wheel, the bracket of the standard in which the cross-rod is pivoted, and the spring-pawl engaging and controlling said ratchet.

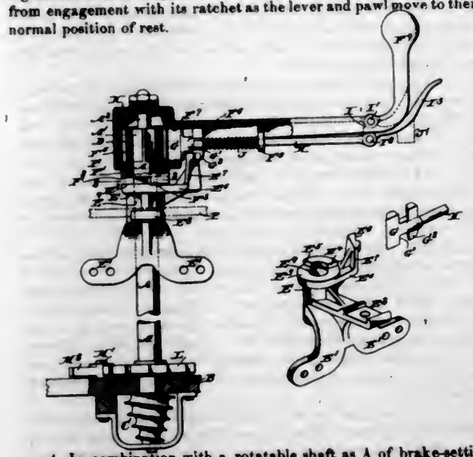
10. An improved sunshade and support comprising a standard connected with said shade by a controllable hinge-joint adapting the shade to be turned to various angles, said standard having a controllable hinge-joint in itself whereby it may be swung from side to side, and a controllable slip-joint to lengthen and shorten it, a body-harness to fit the person of the user, and a controllable hinge connection between said standard and the body-harness whereby the standard may be swung forward and back.

578,573. BRAKE-ACTUATING MECHANISM. CHARLES LINDSTRÖM, Altoona, Pa. Filed Jan. 18, 1897. Serial No. 619,521. (No model.)

Claim.—1. In combination with a rotatable shaft as A of brake-setting mechanism having a ratchet and pawl adapted to hold the brake closed, of a bearing-piece as E for the upper part of shaft A, said bearing-piece having a stop-lug as E^4 E^5, a clutch arranged to engage and turn the shaft in a direction to set the brakes, and a lever pivoted on shaft A arranged to actuate said clutch when moved in one direction and to move freely in the reverse direction said lever having a stop-lug as F^3 adapted to engage the lug E^4 E^5 and thus limit the motion of the lever in both directions.

2. In combination with a rotatable shaft as A of brake-setting mechanism having a ratchet and pawl adapted to hold the brake closed, of a bearing-piece as E for the upper part of shaft A, said bearing-piece having a stop-lug as E^4 E^5, a clutch arranged to engage and turn the shaft in a direction to set the brakes, a lever pivoted on shaft A arranged to actuate said clutch when moved in one direction and to move freely in the reverse direction said lever having a stop-lug F^3 adapted to engage lug E^4 E^5 and thus limit the motion of the lever in both directions, and an automatic clutch-releasing device whereby the clutch and shaft are disengaged when the lever is in its normal position of rest.

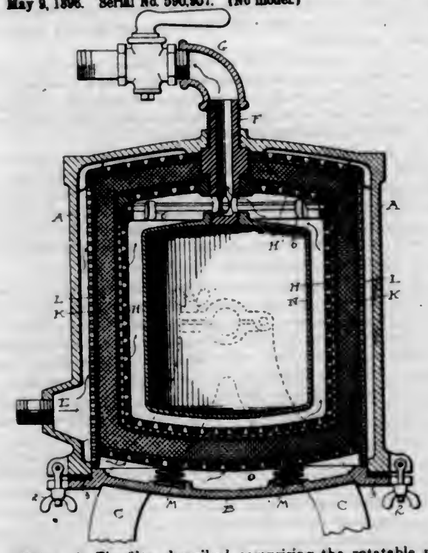
3. In combination with a rotatable shaft as A of brake-setting mechanism having a ratchet and pawl adapted to hold the brake closed, of a ratchet D and pawl as G constituting a clutch for rotating the shaft in a direction to set the brake, a lever pivoted on the shaft A and arranged to carry and move the pawl G, and a pawl-retracting device as E^7 arranged to act directly upon and withdraw the pawl from engagement with its ratchet as the lever and pawl move to their normal position of rest.



4. In combination with a rotatable shaft as A of brake-setting mechanism having a ratchet and pawl adapted to hold the brake closed, of a ratchet D and pawl as G constituting a clutch for rotating the shaft in a direction to set the brake, a lever pivoted on the shaft A and arranged to carry and move the pawl G, a pawl-retracting device as E^7 arranged to act directly upon and withdraw the pawl from engagement with its ratchet as the lever and pawl move to their normal position of rest, and a pawl-releasing device as rod H and grip-latch I^3 arranged on the pivoted lever to provide for the release of pawl G at will.

5. In combination with a rotatable shaft as A of brake-setting mechanism having a ratchet and pawl adapted to hold the brake closed, of a ratchet D and pawl as G constituting a clutch for rotating a shaft in a direction to set the brake, a lever pivoted on the shaft A and arranged to carry and move the pawl G, and a pawl-retracting device as E^7 secured to a bearing for the upper end of shaft A and arranged to act directly upon and withdraw the pawl from engagement with its ratchet as the lever and pawl move to their normal position of rest.

578,574. FILTER. CHARLES H. LOEW, Cleveland, Ohio. Filed May 9, 1896. Serial No. 590,957. (No model.)



Claim.—1. The filter described comprising the rotatable main casing and the tubular coupling forming a liquid-passage projected into one end and center of said casing and provided with lateral passages near its inner end, in combination with chamber H forming an open-work internal wall and engaged about said coupling above said passages, and a hermetically-sealed displacement member suspended from said coupling beneath said passages, substantially as described.

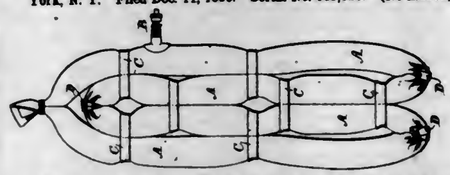
2. The casing A having trunnions, the chamber H within the same and the coupling F connecting said parts and having lateral inlet-passages within said chamber and closed at its lower end, in combination with the displacement member N suspended from said coupling below said passages, the said coupling F terminating within the said part H and means to support the part H in operative position, substantially as described.

3. The filter described consisting of the outer cylindrical casing having trunnions, the tubular coupling set centrally into one end of the casing and having side inlet-passages within the casing and closed at its inner end, in combination with the chamber H having a cover H′ engaged centrally about said coupling, the packing round about the outside of the said parts H and H′, the follower O and the supporting parts M at the bottom and the removable end B of the casing, said parts constructed and arranged substantially as described.

4. The combination with the main casing of the filter having trunnions at its sides, the coupling F entering the casing at one end and the cover B secured to the other end, the internal chamber H and the separate end part H′ thereof engaged on said coupling, the displacement member N within said chamber and threaded on the end of said coupling F, the filtering material packed about the outside of the chamber H, the follower O and the supports M interposed between said follower and the cover B of the main casing, substantially as described.

5. The filter described comprising the outer casing A closed at one end and the temporarily-attached cover B at the other end, and the tubular coupling F entering the closed end of the casing, in combination with the interior chamber H and the separate cover H′ therefor sleeved onto the inner end of the coupling F, the internal wall L between the casing and chamber H and the packing of filtering material between said wall L and chamber H, H′, the follower O and the parts M interposed between said follower and the cover B, substantially as described.

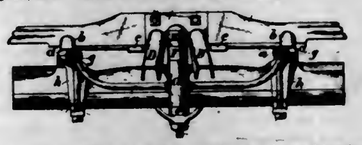
578,575. SADDLE-PAD FOR HARNESS. WILLIAM MATHIS, New York, N. Y. Filed Dec. 11, 1896. Serial No. 615,328. (No model.)



Claim.—1. A pad for harness made of a rubber tube laid backward and forward with the different portions closely adjacent to each other, and a band around the rubber tube at each end bend to contract the same and insure an opening for the inflating air between one portion of the tube and the next, substantially as set forth.

2. A pad for harness made of a rubber tube laid backward and forward with the different portions closely adjacent to each other, and bands or straps for holding the portions of the rubber tube in their proper relative positions, and a band passed around the rubber tube at the bend to contract the same and insure an opening for the inflating air between one portion of the tube and the next, substantially as set forth.

578,576. FIFTH-WHEEL. HORACE E. MORRILL, Dayton, Ohio, assignor to the Dayton Malleable Iron Company, same place. Filed May 29, 1896. Serial No. 593,537. (No model.)



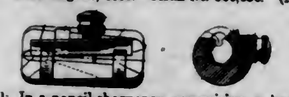
Claim.—1. A fifth-wheel for vehicles, having a king-bolt in rear of the axle, an upper fifth-wheel member secured to the bolster, a lower fifth-wheel member secured to the axle, brace-arms from said lower member, and a collar surrounding the king-bolt and held by said brace-arms and interposed between a central clip-tie on the axle and a fixed bearing on the bolster, substantially as described.

2. A fifth-wheel for vehicles, having a king-bolt in rear of the axle, an upper fifth-wheel member secured to the bolster, a lower fifth-wheel member secured to the axle, brace-arms from said lower

member carrying a collar surrounding the king-bolt, and a clip embracing the axle directly in front of said collar and provided with a bearing for the king-bolt, substantially as described.

3. A fifth-wheel for vehicles, having a king-bolt in rear of the axle, a bearing-plate with a collar therefor, secured to the bolster, a collar therefor secured to the upper fifth-wheel member, a collar therefor secured to the lower fifth-wheel member by brace-arms, a clip embracing the axle directly in front of said last-named collar and having its tie extended to encircle the king-bolt, substantially as described.

578,577. LEAD-PENCIL SHARPENER. WILLIAM M. MOSELEY, Elgin, Ill. Filed Aug. 21, 1895. Serial No. 560,030. (No model.)



Claim.—1. In a pencil-sharpener comprising a body portion, a bore and a cutting-blade, means for locating the cutting-blade in operative position consisting of stops engaging the converging surfaces of the blade, which form its cutting edge, substantially as described.

2. In a pencil-sharpener comprising a body portion, a bore, a cutting-blade seat and a cutting-blade, means for locating the cutting-blade in operative position, consisting of stops engaging one of the two converging surfaces which form the cutting edge of the blade, while the other of said surfaces lies upon the seat, substantially as described.

3. In a pencil-sharpener comprising a body portion, a bore, a cutting-blade seat and a cutting-blade, means for preventing lodgment of material severed from the pencil, consisting of a clearance-groove passing beneath the blade, substantially as described.

4. In a pencil-sharpener comprising a body portion, a bore, a cutting-blade seat and a cutting-blade, means for retaining the pencil within the bore, consisting of a projection on the interior surface of the bore adapted to engage the pencil, substantially as described.

5. In a pencil-sharpener comprising a body portion, a bore, a seat for a cutter, a three-sided cutting-blade of such symmetrical form that either of the two converging surfaces which form its cutting edge may rest upon the seat without disarranging the cutting edge from its operative position, substantially as described.

6. In a pencil-sharpener comprising a body portion, a bore, a seat for a cutter, a three-sided blade of such symmetrical form that either of the two converging surfaces which form its cutting edge may rest upon the seat without disarranging the means for clamping the blade.

7. In a pencil-sharpener, comprising a body portion, a bore, a cutting-blade seat and a cutting-blade, a recess intersected by the plane of the cutting-blade seat, and a clamping-stud adapted to engage said recess, substantially as described.

8. In a pencil-sharpener comprising a body portion, a bore, a cutting-blade seat, a cutting-blade and a clamping-stud, a threaded recess in the body portion adapted to be engaged by the threaded exterior of the stud, the said recess being intersected by the plane of the cutting-blade seat, substantially as described.

9. In a pencil-sharpener comprising a body portion, a bore, a cutting-blade seat, a cutting-blade, and a clamping-stud, the axis of the stud being so arranged in relation to the blade that the back margin of the latter is impinged upon by that portion only of the end of the stud which is revolving toward the plane of the cutting-blade seat, substantially as described.

10. In a pencil-sharpener the combination of a body portion, a bore, a seat for a cutting-blade, a cutting-blade, stops for locating the cutting-blade in operative position, a clamping-stud and a projection on the interior surface of the bore, substantially as described.

11. In a pencil-sharpener, the combination of a body portion, a bore, a seat for a cutting-blade, a cutting-blade, stops for locating the cutting-blade in operative position, a clamping-stud, a clearance-groove and a projection on the interior surface of the bore, substantially as described.

12. In a pencil-sharpener, the combination of a body portion, a bore, a seat for a cutting-blade, a longitudinally-adjustable cutting-blade, stops for locating the cutting-blade in operative position, a clamping-stud and a projection on the interior surface of the bore, substantially as described.

13. In a pencil-sharpener, the combination of a body portion, a bore, a seat for a cutting-blade, a longitudinally-adjustable cutting-blade, stops for locating the cutting-blade in operative position, a clamping-stud, a clearance-groove and a projection on the interior surface of the bore, substantially as described.

14. In a pencil-sharpener, the combination of a body portion, a bore, a seat for a cutting-blade, a reversibly-adjustable cutting-blade, stops for locating the blade in operative position, a clamping-stud and a projection on the interior surface of the bore, substantially as described.

15. In a pencil-sharpener, the combination of a body portion, a bore, a seat for a cutting-blade, a reversibly-adjustable cutting-blade, stops for locating the blade in operative position, a clamping-stud, a projection on the interior surface of the bore and a clearance-groove, substantially as described.

16. In a pencil-sharpener, the combination of a body portion, a bore, a seat for a cutting-blade, a longitudinally and reversibly adjustable cutting-blade, stops for locating the blade in operative position, a clamping-stud and a projection on the interior surface of the bore, substantially as described.

17. In a pencil-sharpener, the combination of a body portion, a bore, a seat for a cutting-blade, a longitudinally and reversibly adjustable cutting-blade, stops for locating the blade in operative position, a clamping-stud, a projection on the interior surface of the bore, and a clearance-groove, substantially as described.

18. The body portion of a pencil-sharpener comprising a bore, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat and stops for locating the cutting-blade in operative position, substantially as described.

19. The body portion of a pencil-sharpener comprising a bore, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat, stops for locating the cutting-blade in operative position, and a clearance-groove, substantially as described.

20. The body portion of a pencil-sharpener comprising a bore, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat, stops for locating the blade in operative position, and a projection on the interior surface of the bore, substantially as described.

21. The body portion of a pencil-sharpener comprising a bore, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat, stops for locating the cutting-blade in operative position, a clearance-groove and a projection on the interior surface of the bore, substantially as described.

22. The body portion of a pencil-sharpener comprising a bore with its axis inclined to the axis of the body portion, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat, and stops for locating the cutting-blade in operative position, substantially as described.

23. The body portion of a pencil-sharpener comprising a bore with its axis inclined to the axis of the body portion, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat, stops for locating the cutting-blade in operative position and a clearance-groove, substantially as described.

24. The body portion of a pencil-sharpener comprising a bore with its axis inclined to the axis of the body portion, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat, stops for locating the cutting-blade in operative position, and a projection on the interior surface of the bore, substantially as described.

25. The body portion of a pencil-sharpener comprising a bore with its axis inclined to the axis of the body portion, a cutting-blade seat, a threaded recess intersected by the plane of the cutting-blade seat, stops for locating the cutting-blade in operative position, a clearance-groove and a projection on the interior surface of the bore, substantially as described.

26. The combination with a pencil-sharpener, comprising a body, a conical bore therein and a cutting-blade projecting at its edge within the periphery of said conical bore, of a screw-threaded stud tapped into said body and projecting at its inner end within the periphery of said conical bore, substantially as described.

27. A pencil-sharpener, comprising a body provided with a conical bore or recess, a cutter-blade seat intersecting the periphery of said conical bore to form a throat-opening, a cutter-blade mounted upon said seat and projecting at its cutting edge within said throat, and a clearance-space extending out across the face of said seat beneath the cutter-blade thereon from a point below the apex of the conical recess, substantially as described.

28. A pencil-sharpener, comprising a cylindrical body, a tapered or conical bore having its axis inclined at an angle to the axis of said body, a cutter-blade seat substantially tangential to the periphery of said conical bore, a cutter-blade triangular in cross-section mounted upon said seat, overhanging arms formed integrally with said body engaging the upper surface of said blade, and a retaining-stud arranged to impinge against the rear of said blade to hold the latter in operative position between its seat and said overhanging arms, substantially as described.

29. A pencil-sharpener, comprising a cylindrical body having a cutter-blade seat, a conical recess or bore extending inwardly from one end of said body and intersecting at its periphery the plane of said cutter-blade seat, the axis of said bore being inclined to the axis of the cylindrical body, a cutter-blade mounted upon the seat, and means for holding the same in position, substantially as described.

30. A pencil-sharpener comprising a body portion and bore, a cutting-blade seat, a triangular cutting-blade and a stop to engage one of the two oblique surfaces of the blade which unite to form a cutting edge, and a clamping-stud, the arrangement of the axis of which in relation to the blade being such that a portion only of the end of the stud will engage the back margin of the blade, substantially as described.

31. A pencil-sharpener comprising a body portion, a bore, the axis of which is inclined with relation to the axis of the body portion, a cutting-blade seat and a cutting-blade, the cutting edge of the latter being so arranged with relation to the axis of the inclined bore that the line of the cutting edge is not parallel to and does not intersect the axis of the bore, whereby a cylindric, instead of a conical end, is given to the graphite core of the pencil being sharpened.

32. In a pencil-sharpener the combination of a body portion, an inclined bore, a cutting-blade seat and cutting-blade stops for locating the blade in operative position, a clamping-stud and a clearance-groove, the latter in the blade-seat extending from the intersection of the latter with the bore at that part of the intersection opposite where the graphite core of the pencil joins the wood, substantially as described.

33. A pencil-sharpener comprising a body portion, a bore, a cutting-blade, the two oblique surfaces of which unite to form a cutting edge, means for preventing the movement of the cutting-blade toward the bore beyond the operative position of the blade, consisting of a bearing surface or part on the body portion against which one of the oblique surfaces of the blade abuts and a stop engaging the rear or outer edge of the blade, substantially as described.

34. A pencil-sharpener comprising a body portion having a seat for a cutter, a cutting-blade having two oblique surfaces which unite to form its cutting edge, a bearing surface or part on the body portion engaging one of said oblique surfaces whereby the other oblique surface is held upon the said seat and the position of the cutting edge determined, and a stop engaging the back or outer edge of the cutter, substantially as described.

35. A pencil-sharpener comprising a body portion provided with a seat for a cutter, a cutting-blade having two oblique surfaces which form a cutting edge, surfaces on the body portion engaging one of said oblique surfaces whereby the other surface is held to said seat, and an adjustable stop engaging the back or outer margin of the cutter, substantially as described.

36. A pencil-sharpener comprising a body portion having a seat for a cutter, a three-sided cutting-blade the two oblique sides of which unite to form a cutting edge, a stop on the body portion to engage the third or outer side of the cutter, and means for removably securing the cutter to its seat whereby it may be reversed end for end, or shifted endwise thereon comprising stops on the body portion engaging one of the oblique surfaces when the other is upon said seat, substantially as described.

37. A pencil-sharpener comprising a cutting-blade, a body portion provided with a seat for the cutting-blade, and means for holding the cutting-blade in place, comprising stops engaging the oblique surface of the cutting-blade by which its cutting edge is formed at its side opposite that which is in contact with said seat, and a screw acting against the outer edge of the cutting-blade to hold the same in contact with said stops, substantially as described.

578,578. RHODAMIN DYE. CARL O. MÜLLER, Basle, Switzerland, assignor to Basle Chemical Works Bindschedler, same place. Filed June 30, 1896. Serial No. 597,643. (Specimens.) Patented in France Mar. 6, 1895, No. 245,563, and in England Mar. 8, 1895, No. 4,995.

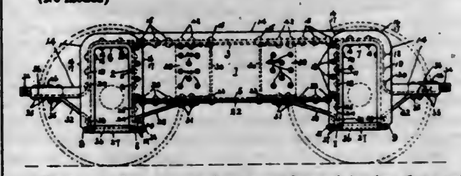
Claim.—1. The improvement in the manufacture of rhodamin dyes, consisting in the production of a coloring-matter by the condensation of one molecule of the dialkylamidoöxybenzoylbenzoic acid, obtained by the action of one molecule anhydrous phtalic acid on one molecule dialkylmetaämidophenol, with one molecule of a metaamidophenol, as described.

2. The improvement in the manufacture of rhodamin dyes, consisting in the production of a coloring-matter by the condensation of one molecule of the dialkylamidoöxybenzoylbenzoic acid, derived from one molecule anhydrous phtalic acid and one molecule dialkylmetaämidophenol, with one molecule of metaämidocresol ($CH_3:NH_2:OH=1:2:4$) as described.

3. The improvement in the manufacture of rhodamin dyes, consisting in the production of a coloring-matter by the condensation of one molecule of the dialkylamidoöxybenzoylbenzoic acid, derived from one molecule anhydrous phtalic acid and one molecule dialkylmetaämidophenol, with one molecule of metaämidocresol ($CH_3:NH_2:OH=1:2:4$) and the subsequent conversion of the product of condensation thus obtained into salt by heating it in an acid.

4. As a new article of manufacture, the herein-described unsymmetrical dimethylmethyl-rhodamin dye, derived from dimethylamidoöxybenzoylbenzoic acid and metaämidocresol ($CH_3:NH_2:OH=1:2:4$) and dyeing with tannin and tartar emetic mordanted cotton in vividly-red tints, soluble in water with a red coloration, in alcohol with a yellowish fluorescence and in concentrated sulfuric acid with a yellow coloration turning to red on addition of water.

578,579. STEEL RAILWAY-FREIGHT-CAR TRUCK. FREDERICK S. OWEN, Waltham, Mass. Filed Jan. 6, 1897. Serial No. 618,135. (No model.)



Claim.—1. In a car-truck, a central panel having flanges inwardly turned at each side and end, pedestals of U section secured to the end flanges and projecting below the panel, and a bar of U section seated upon the top flange of the panel and upon the pedestals but within the flanges thereof, turned down over the outer leg of the pedestals within their flanges and thence turned and projecting outward at about midway of the pedestal length, and united to the central panel and the pedestals, substantially as set forth.

2. In a car-truck, a central panel having inwardly-projecting flanges from each side and from each end, the ends of the panel passing within the flanges of pedestals of U section and thereto secured through the panel and pedestal-flange, and through the panel-flange and pedestal, a bar of U section seated upon the top flange of the panel and upon the pedestals within their flanges and secured to the panel-flange and to the pedestals at their tops and outer sides and thereafter outwardly turning and projecting, and a bar secured to the lower flange of the panel, then turned down passing within the pedestal-flanges and secured to the panel-flange and the pedestal, in manner substantially as described.

3. In a car-truck, a central panel substantially as described and united to pedestals of U section at its ends, and at its top to a U-section bar embracing the pedestals and braces from the inner pedestal-legs to a bar secured to the inner legs of the pedestal and the central panel in manner and form substantially as described.

4. In a car-truck a central panel flanged as set forth, pedestals doubly secured to the ends of the panel, a bar secured to the lower flange of the panel and the pedestals, an overlapping bar secured to the upper flange of the panel and the upper and outer sides of the pedestals, and a brace secured to the outer lower pedestal-leg and the overlapping bar, substantially as set forth.

5. In a truck, a central panel flanged upon its sides and ends, double-flanged pedestals of inverted-U shape secured to the ends of the panel, a bar overlapping the outer side of the pedestals and seated upon the top thereof and the panel, a bar secured to the lower edge of the panel and the pedestals, braces from the pedestals to the panel, braces from the pedestals to the bar overlapping and seated on the pedestals and within its flanges, and ties seated and secured to the pedestal-legs in manner and form substantially as set forth.

6. In a truck-frame, central panel therefor having flanges at each end, flanges at the top and bottom thereof, broadened at the center and tapering thereafter toward each end, and transoms of U section extending transversely from the inside of one panel to the inside of the other panel, the ends of the transoms passing between the upper and lower flanges of the panel and thereafter outwardly turned and seated upon the panel, and means to secure the transom ends to the panels, their flanges, the pedestal-braces, and the bar overlapping the panels upper flange and the pedestals in manner and form substantially as described

7. In a truck, side panels formed and united at their end flanges to pedestals of U shape and U section, at their upper flanges to transoms and a bar of U section overlapping and secured to the pedestals at their top and outer side, at their bottom flanges to transoms, to a bar also united to the pedestals at their inner side, and to braces secured to the pedestals at their outer end, and to the panel the lower bar and transoms at their inner end, means to secure transoms to the panels, and means to tie the transoms at their center at their upper and lower parts, substantially as described.

8. In a truck, a central panel, pedestals secured thereto as described, a lower bar and braces secured thereto, an upper bar embracing the panel and pedestals and secured thereto and thereafter outwardly turned, end braces from the pedestals to the upper bars and transverse ties seated on and secured to the outwardly-turned ends of the upper bars, and reaching across from side to side of the truck, all in form and attachment in substance as and for the purposes set forth.

9. In a truck, central-flanged panels, pedestals of U section and ∩ shape, overlapping and secured thereto, lower bars secured to the

panels and the pedestals inner leg, braces from the inner leg of the pedestals to the lower bar and panel and secured thereto and to the transom's end flanges, overlapping bars upon the upper part of the panel, and the pedestals at their tops and outer sides and secured thereto, transverse ties from the outer ends of the overlapping bars and seated thereon, and braces secured to the lower end of the outer pedestal-legs and to the outer end of the overlapping bars and the cross-ties, substantially as described.

10. In a car-truck, a central panel having upper and lower inwardly-projecting flanges embracing and secured to transoms, pedestals of U section secured to the central panel by means of inwardly-projecting flanges formed thereon and by double flanges on the pedestals, a bar secured to the lower flange of the central panel and thereafter downwardly turned to fit the pedestals inner legs and secured and braced to the panel and pedestals, an upper bar of U section secured to the upper flange of the central panel, passing within the flanges at the top and outer side of the pedestals and secured thereto, its outer ends turned outwardly and braced to the outer pedestal-legs, and means upon the outer ends of the upper bars ends for their connection from one side to the other of the truck outside of the wheels, substantially as described.

578,580. **SUBSTANTIVE COTTON DYE.** FERDINAND PETERSEN, Basle, Switzerland, assignor to Ferd. Petersen & Co., Schweizerhalle, near Basle, Switzerland. Filed July 3, 1896. Serial No. 597,953. (Specimens.)

Claim.—1. The improvement in the manufacture of substantive cotton dyestuffs consisting in the combination of a molecule of the tetrazo derivative of the Griess benzidinsulfo-acids with two molecules of gammaamidonaphtholsulfo-acid

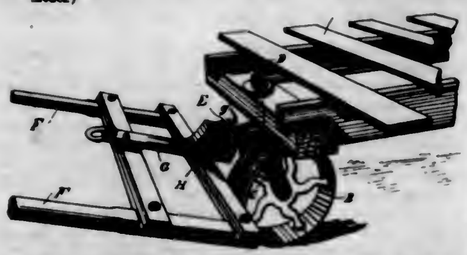
2. The improvement in the manufacture of substantive cotton dyestuffs consisting in the combination of one molecule of the tetrazo derivative of the Griess benzidinsulfo-acids with two molecules of gammaamidonaphtholsulfo-acid, the further diazotation of the dyestuff thus obtained and the subsequent combination of the diazotized dyestuff with two molecules of developing agents.

3. The improvement in the manufacture of substantive cotton dyestuffs consisting in the combination of one molecule of the tetrazo derivative of the Griess benzidinsulfo-acids with two molecules of gammaamidonaphtholsulfo acid, the further diazotation of the dyestuff thus obtained and the subsequent combination of the diazotized dyestuff with two molecules of aromatic amido compounds.

4. The improvement in the manufacture of substantive cotton dyestuffs consisting in the combination of one molecule of the tetrazo derivative of the Griess benzidinsulfo-acids with two molecules of gammaamidonaphtholsulfo-acid, the further diazotation of the dyestuff thus obtained and the subsequent combination of the diazotized dyestuffs with two molecules of an aromatic metadiamin.

5. As a new article of manufacture, the herein-described blue-black substantive cotton dyestuff derived from a Griess benzidinsulfo-acid, gammaamidonaphthol sulfo-acid and paraphenylenediamin, which constitutes in dry state a black powder, dyes cotton an intense blue-black fast to light and washing, is readily soluble in both cold and hot water, insoluble in alcohol, dissolves in concentrated sulfuric acid with a bluish-green coloration and in water with reddish-brown coloration and gives when hydrochloric acid is added to its aqueous solutions a reddish-brown precipitate and when caustic soda is added to its aqueous solutions a brown precipitate.

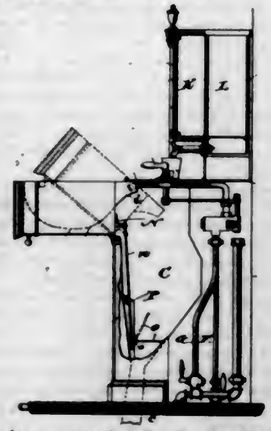
578,581. **DRAFT CONNECTION FOR VEHICLES.** JAMES PORTEOUS, Fresno, Cal. Filed June 15, 1896. Serial No. 595,670. (No model.)



Claim.—1. In vehicles having a swiveling wheel, the pivot-pin of said wheel having its lower portion bent substantially horizontal with its extremity formed with a hook for engagement with interchangeable coupling attachments.

2. A draft connection for a vehicle having a single, centrally-disposed pivotal front wheel, said connection consisting of the pivotal pin of the wheel-bearing, said pin having its lower extremity formed with a hook, a coupling-bar on the draft device, said bar having its rear extremity formed with wide parallel-spaced jaw-plates adapted to receive the hook between them and to furnish a bearing for said hook, and a cross-pin passing through the jaw-plates and engaging the hook.

578,582. **FOLDING WASHSTAND.** AUGUST RAPP, Chicago, Ill., assignor to the Pullman's Palace Car Company, same place. Filed May 1, 1896. Serial No. 472,609. (No model.)



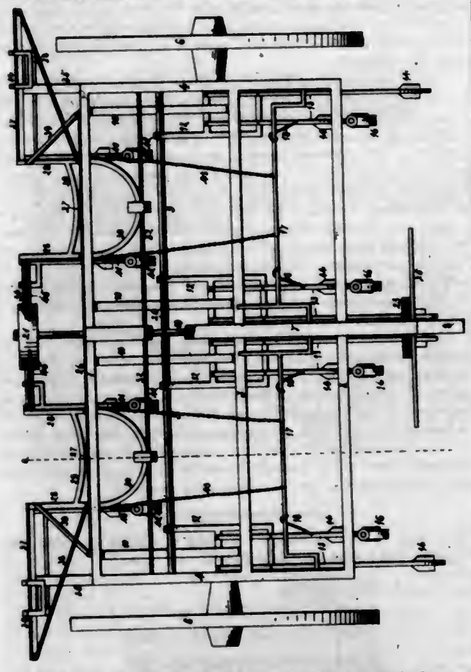
Claim.—In a washstand of the class described, the combination with a cabinet or casing having a transverse partition, a bowl hinged to the base portion of the cabinet and having a rearward extension engaging beneath the partition when the bowl is lowered, a sink in the base portion of the casing having a drain-pipe connected therewith, a valve closing the entrance to the drain-pipe and an operating-rod pivotally connected with the bowl and adapted to engage the valve whereby to open the latter as the bowl is raised and to permit the valve to close by gravity after the bowl is raised, substantially as described.

578,583. **CRUTCH ATTACHMENT.** WILLIAM J. ROBINSON, Etna, Pa. Filed July 24, 1896. Serial No. 600,410. (No model.)



Claim.—The combination with an ordinary double clutch having angularly-disposed longitudinal bars, a ferrule upon the lower ends thereof and a cap having an opening therein fitting said ferrule; of an attachment therefor consisting of a bur secured in a socket formed between the inner edges of said longitudinal bars, and having threaded opening therein; a cross-bar connecting said longitudinal bars; a rod projecting through said cross-bar and having a pointed lower end adapted to project through the opening in said cap, and provided with screw-threads engaging the threaded portions of said bur, and an operating handle or wheel upon the upper end of said rod, substantially as and for the purpose described.

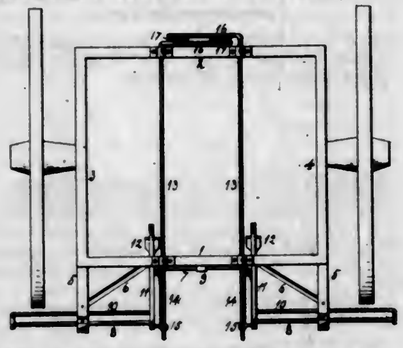
578,584. **CULTIVATOR.** WILLIAM G. SCOTT, Rock Dell, Minn. Filed Aug. 31, 1896. Serial No. 604,462. (No model.)



Claim.—1. In a cultivator, the combination of a main frame, a supplemental frame located in advance of the main frame, having a slidable connection with the main frame transverse to the line of draft, and supporting a series of shovels, and means for moving it.

2. In a cultivator, the combination of a main frame, a supplemental frame having a slidable connection with the main frame, supporting a series of shovels, means for moving the supplemental frame, and a rearwardly-extending yoke-brace for the supplemental frame.

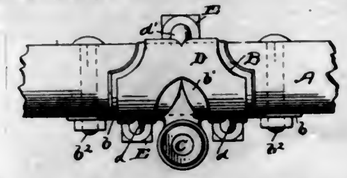
578,585. **CULTIVATOR.** WILLIAM G. SCOTT, Rock Dell, Minn. Filed Oct. 27, 1896. Serial No. 610,235. (No model.)



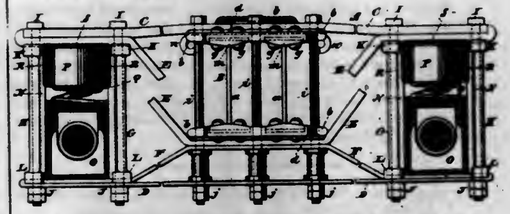
Claim.—In a cultivator, the combination of a main frame, a supplemental frame located in advance of the main frame having a slidable connection with the main frame transverse to the line of draft and supporting a series of shovels and two rocking foot-levers supported by the main frame having a connection with the slidable frame for moving it.

578,586. **KING-BOLT SOCKET.** HENRY C. SWAN, Oshkosh, Wis. Filed July 25, 1896. Serial No. 600,481. (No model.)

Claim.—The combination of a plate B having a vertical part and a curved top, and a vertical king-bolt socket which is formed centrally upon the vertical part of the plate B and is integral therewith, with the axle, a clip embracing said plate and axle, and having a single leg at one end and two legs at the other end which lie on opposite sides of the king-bolt socket, and the clip-yoke, substantially as and for the purpose specified.



578,587. **CAR-TRUCK.** BENJAMIN W. TUCKER, Newark, N. J., assignor to Edward Cliff, same place. Filed Jan. 5, 1897. Serial No. 618,007. (No model.)



Claim.—1. In a car-truck the vertical pedestal-bars G, H, having the guiding and rubbing flanges N and provided with apertures to receive the bolts I, combined with the axle-box, the spring seated therein and the inverted socket having upon its opposite edges the flanges to engage the flanges N; substantially as set forth.

2. In a car-truck frame the upper and lower bars C; E, and D, F, respectively, combined with the vertical pedestal-bars interposed between said upper and lower bars and having at their ends the recesses to receive the edges of the bars E, F, the bolts passing through said upper and lower bars and said pedestal-bars, the axle-boxes held between said pedestal-bars, the springs above said boxes and the spring-sockets held between the upper portions of said pedestal-bars and provided with the flanges R, S, to engage said pedestal-bars and said bar E; substantially as set forth.

3. In a car-truck, the sides and the transom composed of the transverse beams, the upper and lower plates riveted to the ends of said beams and extending inward and outward laterally beyond the vertical plane of the sides and longitudinally beyond the transom-beams, combined with bolts passing through said plates and through the sides; substantially as set forth.

4. In a car-truck, the sides, and the transom connecting the same and composed of the transverse beams and the upper and lower plates riveted to the ends of said beams and having the longitudinal gibs or flanges to engage the bars of said sides, combined with vertical bolts passing through said plates and said sides; substantially as set forth.

5. In a car-truck, the sides, and the transom connecting the same and composed of the transverse beams and the upper and lower plates riveted to the ends of said beams and recessed at their inner side to receive said ends, combined with vertical bolts passing through said plates and said sides; substantially as set forth.

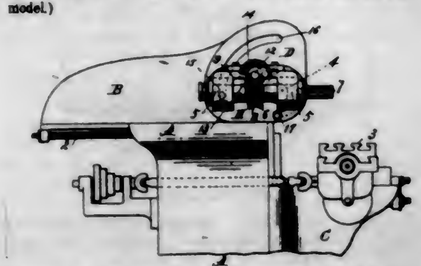
6. In a car-truck, the sides, and the transom connecting the same and composed of the transverse beams and the upper and lower plates riveted to the ends of said beams, said plates having at their inner sides the recesses to receive said ends and at their outer sides the longitudinal gibs or flanges to engage the bars of said sides, combined with bolts passing through said plates and said sides; substantially as set forth.

7. In a car-truck, the sides, and the transom connecting and bolted to the same and extending outward beyond the vertical plane of said sides, said transom being composed of the transverse beams and the horizontal plates extending entirely across and connecting the ends of said beams and being riveted thereto; substantially as set forth.

8. In a car-truck, the sides, and the transom connecting and bolted to the same and extending outward beyond the vertical plane of said sides, said transom being composed of the transverse flanged beams and the plates extending across and connecting the ends of said beams and riveted thereto beyond the outer and inner vertical planes of said sides; substantially as set forth.

9. For a car-truck, the transom composed of the parallel rolled flanged beams, the upper and lower plates secured to and connecting the ends of said beams and adapted to be secured within the sides of the truck-frame, the center-bearing connecting said beams at their center, and the brake-hangers connecting said beams adjacent to their ends; substantially as set forth.

578,588. MILLING-MACHINE. CHARLES R. VAN NORMAN, Springfield, Mass. Filed May 14, 1896. Serial No. 591,510. (No model.)



Claim.—In a milling-machine having a main head horizontally movable, an auxiliary head secured to the side of said main head, and adjustable thereon in a vertical plane, a tool-carrying spindle rotatably supported in said auxiliary head, and means for driving said spindle consisting of the worm-gear 8, the shaft 12, provided with bearings in said auxiliary head, a driving-pulley on said shaft, and a worm 13, fixed thereon in operative relation with said worm-gear, substantially as described.

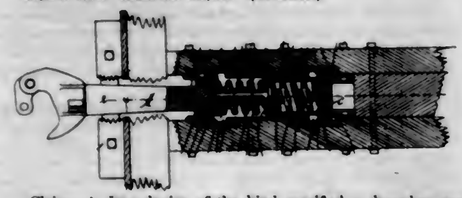
578,589. DESK IMPLEMENT. RICHARD R. VERPOS, Summit, N. J. Filed Dec. 7, 1896. Serial No. 614,672. (No model.)



Claim.—1. As a new article of manufacture, a desk implement of transparent material of flat circular form having a central cavity in its upper surface, an annular recess in its under surface, and a collection of flat superposed rings within said annular recess upon whose faces are printed the calendar months, one entire ring at a time being visible through the transparent material, and means for holding the same in place, substantially as set forth.

2. As a new article of manufacture, a desk implement preferably of glass of flat circular form having a slightly-convex upper surface and a central cavity therein, a cushion for pins within said cavity and having an annular recess in its under surface, a collection of flat superposed rings of paper or similar material within said annular recess upon whose upper faces are printed the calendar months, one on each ring to be seen through the glass, and a round rubber band for holding the said rings in place, substantially as set forth.

578,590. DRAW-BAR ATTACHMENT FOR CAR-COUPLINGS. HENRY C. WILLIAMSON and HERMAN PRIEM, Michigan City, Ind. Filed Sept. 3, 1896. Serial No. 605,139. (No model.)



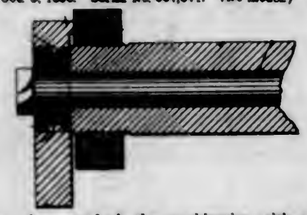
Claim.—1. In a device of the kind specified, a draw-bar provided with a loop rigidly secured thereto, a follower within said loop and adapted to be engaged by the rear end of the same, a box or casing within said loop and abutting against said follower, an opening in the forward end of said box or casing, a plunger having an enlarged rear end adapted to fit within said casing provided with a shank adapted to pass through said opening therein and abutting at its other end against a follower adapted to be engaged by the rear end of the draw-bar, a cushion interposed between the head of said casing and said foremost follower, and a cushion within said casing interposed between said enlarged end of said plunger and said rearmost follower, substantially as described.

2. In a device of the kind specified, the combination with a draw-bar having a loop rigidly secured thereto, followers within said loop at opposite ends thereof, a box or casing within said loop abutting against said rearmost follower, a plunger abutting against said foremost follower and having an enlarged end adapted to fit within said casing, and cushions interposed between said head of said box or casing and said foremost follower and between said enlarged head of said plunger and said rearmost follower, of guide-castings rigidly secured to the draft-beams of the car and provided with shoulders adapted to limit the movements of said followers to hold said rearmost follower rigid upon imparting a buffing impetus and to hold said foremost follower rigid upon imparting a draft impetus, substantially as described.

3. In a device of the kind specified, the combination with a draw-bar having a loop rigidly secured thereto, followers within said loop, a box or casing abutting against said rearmost follower, a plunger abutting against said foremost follower and having an enlarged end adapted to fit within said casing, and cushions interposed between said head of said box or casing and said foremost follower and between said enlarged head of said plunger and said rearmost follower, of draft-beams provided with gains on their inner faces adapted to receive two recessed portions of guide-castings secured to said inner faces of said draft-beams and adapted to receive said followers and limit the movements of the same in either direction to limit the extent of compression of said cushions, and transmit the strain thereon in either direction to said draft-beams at two points, substantially as and for the purpose set forth.

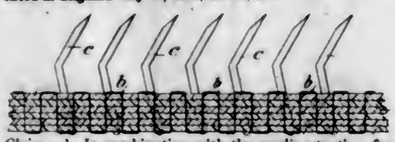
4. In a device of the kind specified, the combination with the draft-beams gained at two points on their inner faces and adapted to receive guide-castings having recessed portions adapted to enter said gains, of a draw-bar attachment comprising a plurality of cushions arranged in tandem between two followers adapted to enter said recessed portions of said guide-castings, said recesses being limited in extent to less than the limit of compression of said cushions and adapted to limit the movements of said followers in accordance therewith, substantially as and for the purpose described.

578,591. NUT-LOCK. WILLIAM C. ALTHER, Columbus, Ohio. Filed Oct. 5, 1896. Serial No. 607,871. (No model.)



Claim.—In a nut-lock the combination with a spindle, a nut thereon and a disk secured against the end of said spindle, a peripheral groove in said disk and oppositely-located ways leading to said groove, of a ring *g* having oppositely-located forwardly-projecting lugs, the latter being adapted to enter said disk-groove through the medium of said ways, substantially as and for the purpose specified.

578,592. CARD-CLOTHING. ELIJAH ASHWORTH, Manchester, England. Filed July 10, 1896. Serial No. 598,665. (Model.) Patented in England July 27, 1895, No. 14,295.



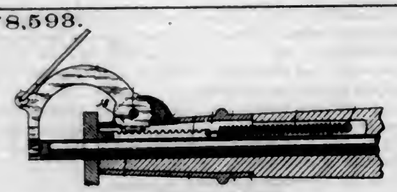
Claim.—1. In combination with the carding-teeth, a foundation in which said teeth are inserted, said foundation consisting of a plurality of layers of material stitched together, substantially as described.

2. The improved wire card having a foundation composed of several layers of woven fabric stitched together as hereinbefore set forth.

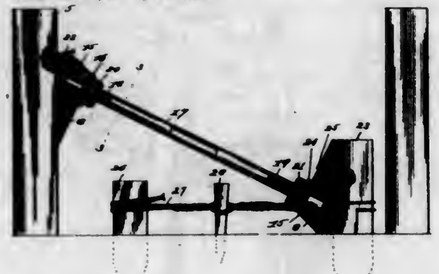
578,593. HORSE-DETACHER. HENRY H. BERNARDS, Milwaukee, Wis., assignor of one-half to Frank Schroff, same place. Filed May 18, 1896. Serial No. 591,894. (No model.)

Claim.—In a horse-detacher, the combination, of a whiffletree, a rod extending therefrom, a rack disposed longitudinally of the whiffletree, a coiled spring disposed, and secured at one end, in a recess of the whiffletree, and having its opposite end secured to the rack-bar, a pivoted arm having one end against the end of the rod, and its pivoted end formed into a toothed segment, the teeth thereof adapted to mesh with the teeth of the rack-bar, and means for turning the pivoted arm on its pivot to free its onter end from the end of the rod, and to cause the actuation of the rack-bar, said rack-bar on its outward movement adapted to act on the trace carried by the rod, and push said trace laterally off the rod.

578,593.



578,594. FENCE-BRACE. JAMES BOND, Hannibal, Mo., assignor of one-half to George A. Bond, Kansas City, Mo. Filed Sept. 28, 1896. Serial No. 607,239. (No model.)



Claim.—1. In a device of the class described, a suitable support positioned upon the ground and near the fence-post, a triangular block against said support with its inclined face toward the fence-post, a triangular block against the upper end of the fence-post with its inclined face toward the first-mentioned triangular block, a rod having its ends screw-threaded and slidingly mounted in said blocks, and nuts upon said screw-threaded ends of said rod and engaging said inclined faces, substantially as specified.

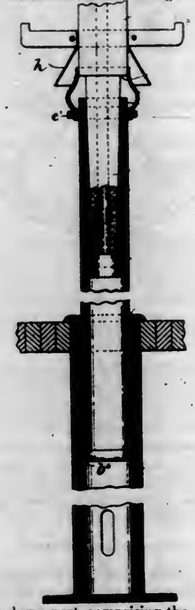
2. In a device of the class described, the block 8 against the face of the post and having the opening 15 in its side opposite the post, the stake 23 inserted in the ground, the block 8 against the face of said stake 23 which is toward the post, the pipe 17 having the screw-threaded ends 18 and 19, the nuts 20 and 21 upon said screw-threaded ends, the washers 16 and 24 upon said screw-threaded ends and said screw-threaded ends being inserted in the openings 15 in said blocks 8, substantially as specified.

3. In a device of the class described, the combination with a fence-post of the stakes 23 and 26 driven firmly into the ground and in a line with said fence-post, the block 8 against the face of the stake 23 which is toward said fence-post, the block 8 against the face of said fence-post which is toward said stake 23 and near the upper end of said fence-post, the pipe 17 having the screw-threaded ends 18 and 19, the nuts 20 and 21 upon said screw-threaded ends, the washers 16 and 24 upon said screw-threaded ends, said screw-threaded ends being inserted in the openings 15 in said blocks 8, the tension-wires 27 connecting the stakes 23 and 26, and the tension-stake 28 inserted between the strands of said tension-wires, substantially as specified.

4. In a device of the class described, the combination with a fence-post of the stakes 23 and 26 driven firmly into the ground and in a line with said fence-post, the block 8 against the face of the stake 23 which is toward said fence-post, the block 8 against the face of said fence-post which is toward said stake 23 and near the upper end of said fence-post, the pipe 17 having the screw-threaded ends 18 and 19, the nuts 20 and 21 upon said screw-threaded ends, the washers 16 and 24 upon said screw-threaded ends, said screw-threaded ends being inserted in the openings 15 in said blocks 8, the tension-wires 27 connecting the stakes 23 and 26, the tension-stake 28 inserted between the strands of said tension-wires, the stake 29 driven firmly in the ground upon the side of said post opposite the stake 26, the tension-wires 30 connecting said stake 29 with said post, and the tension-stake 31 inserted between the strands of said tension-wire, substantially as specified.

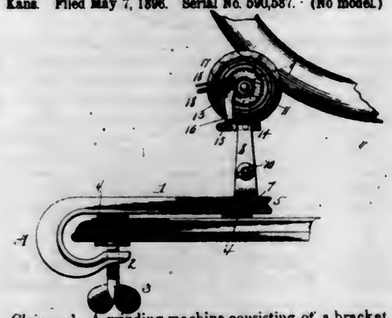
578,595. ELECTRIC-LAMP POST. JAMES BUCKNER, Boston, Mass., assignor to the Boston Electric Insulated Pole Company, same place. Filed June 8, 1896. Serial No. 594,659. (No model.)

Claim.—1. An electric-lamp post comprising the cast-iron socket adapted to be inserted in the ground and provided with an internal seat or shoulder b^4 below its upper end, the tubular wrought-iron section having its lower end inserted in said socket and resting on the said seat, and provided at its upper end with a tapered socket, the said cast-iron socket being larger than the portion of the wrought-iron section inserted in it, so that an annular cavity having the shoulder b^4 for its bottom is formed between the cast-iron socket and wrought-iron section, a packing, and a wooden section having its lower end fitted in the socket of the wrought-iron section.



2. An electric-lamp post comprising the tubular metallic base-section having a tapered socket, the elongated wooden section having a metallic lamp-holder at its upper end and a tapered shank at its lower end formed to enter the said socket, the wooden shank being self-adjusting in the socket to compensate for shrinkage of the wood, and a hood affixed to the wooden section above the metallic section, said hood being arranged to prevent the entrance of water into the joint between the wooden and metallic sections and to prevent water flowing downwardly on the wooden section from passing uninterruptedly onto the metallic section.

578,596. GRINDING-MACHINE. JOSEPH M. CRUMM, Jr., Topeka, Kans. Filed May 7, 1896. Serial No. 590,587. (No model.)

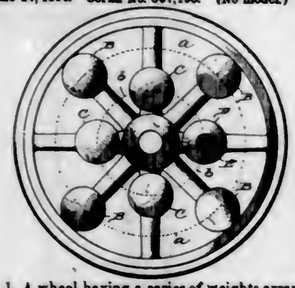


Claim.—1. A grinding-machine consisting of a bracket, a standard adjustably secured thereto, a rotary grinding-wheel carried by said standard, and a rest approximately U-shaped in cross-section adapted to receive and support a blade, substantially as set forth.

2. A grinding-machine consisting of a bracket, a standard adjustably secured thereto, a rotary grinding-wheel carried by said standard and an approximately U-shaped rest adapted to receive and support a blade, the said rest being arranged at an angle to the grinding-surface of wheel whereby the edge of the blade is ground with a bevel, substantially as set forth.

3. A grinding-machine, a bracket provided at one end with a clamping-screw and with oppositely-located side grooves at its other end, a bifurcated standard adapted to embrace and travel in the grooved portion of said bracket, a screw for locking said standard on the bracket, a shaft carried by the standard, a grinding-wheel and a friction-wheel secured to said shaft and a rest removably and adjustably secured to said standard, substantially as set forth.

578,597. VEHICLE-WHEEL. PHILIP Z. DAVIS, Lometa, Tex. Filed June 27, 1896. Serial No. 597,193. (No model.)

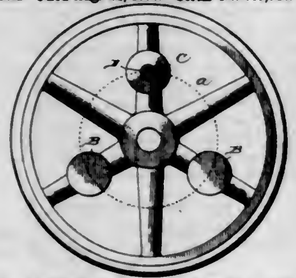


Claim.—1. A wheel having a series of weights arranged at equal distances apart in a circle adjacent to and coinciding with the axis of the wheel, and a series of weights arranged at equal distances apart on a circle adjacent the periphery of and coinciding with the axis of the wheel the weights of both circles being at equal angular distances apart relative to the circumference of the wheel, substantially as described.

2. A wheel having a series of weights arranged in a circle and a weight arranged on the line of a circle within the series of weights, all of said weights being an equal angular distance apart relative to the center of the wheel, substantially as described.

3. A wheel for a locomotive having a series of weights arranged in a circle thereon and a series of weights arranged on the line of a circle within the outer series of weights, the weights of each circle being an equal angular distance apart relative to the center of the wheel, substantially as described.

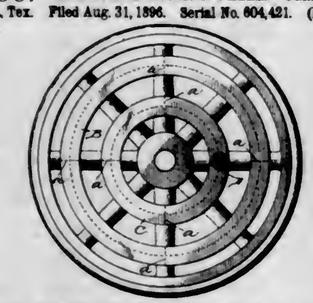
578,598. LOCOMOTIVE DRIVE-WHEEL. PHILIP Z. DAVIS, Lometa, Tex. Filed Aug. 21, 1896. Serial No. 603,516. (No model.)



Claim.—1. A locomotive drive-wheel having a series of weights arranged on the line of a circle within the circumference of the wheel at equal angular distances apart relative to the center of the wheel, whereby the vertical and horizontal forces generated during the revolution of the wheel are balanced, substantially as described.

2. A locomotive drive-wheel having three equal weights arranged on the line of a circle midway the center and circumference of the wheel and at equal angular distances apart relative to the center of the wheel, whereby the vertical and horizontal forces generated during the revolution of the wheel are balanced, substantially as described.

578,599. LOCOMOTIVE DRIVING-WHEEL. PHILIP Z. DAVIS, Lometa, Tex. Filed Aug. 31, 1896. Serial No. 604,421. (No model.)

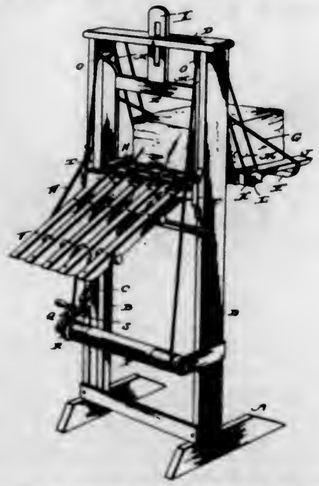


Claim.—1. A driving-wheel for locomotives having a balancing-weight of annular form between its circumference and center and concentric therewith, substantially as described.

2. A driving-wheel for locomotives having a balancing-weight of annular form within its circumference and adjacent thereto and concentric therewith, and a similar weight within the circle of the first-named weight and adjacent to the axis of, and concentric with said wheel, substantially as described.

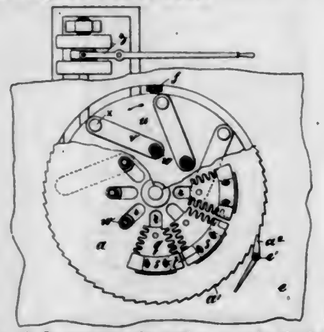
3. A driving-wheel for locomotives having a balancing-weight within its circumference and concentric therewith, said weight consisting of a series of segments arranged end to end to form a ring, substantially as described.

578,600. ICE-ELEVATOR. JOHN R. DELL, Paulding, Ohio. Filed July 14, 1896. Serial No. 599,136. (No model.)



Claim.—In an elevator, the combination of the frame, the pivoted delivery-platform on one side of the frame, the rod for sustaining the platform when in use, the traveling frame mounted in the main frame, the rigid support carried by the traveling frame, the tilting platform mounted in the traveling frame, mechanism for tilting the platform and moving the frame, and an adjustable stop to limit the movement of the frame and determine when the platform shall tilt.

578,601. APPARATUS FOR GATHERING OR SETTING UP STAVES FOR CASKS. ALEXANDER DUNBAR, Liverpool, England. Filed May 5, 1896. Serial No. 590,320. (No model.) Patented in England Mar. 3, 1893, No. 4,999; in Spain Feb. 5, 1894, No. 15,487; in France Feb. 8, 1894, No. 236,129; in Belgium Feb. 10, 1894, No. 108,661; in Italy Feb. 19, 1894, No. 35,735; in Germany Mar. 2, 1894, No. 79,057; in Austria July 13, 1894, No. 3,198; in Hungary Nov. 7, 1895, No. 4,517, and in Portugal Jan. 20, 1896, No. 2,067.



Claim.—1. In apparatus for setting up and gathering staves, the combination of a table and disk, one of which is rotatable relatively to the other and is provided with a detent arranged to prevent movement in one direction, radially-movable gathering-pieces upon the table, a head secured to the table and arranged to hold the upper ends of the staves in place, and link connections between the disk and the gathering-pieces, arranged to move said pieces inwardly and gather the staves; substantially as described.

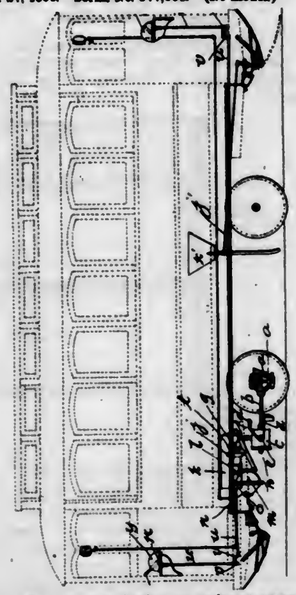
2. In apparatus for setting up and gathering staves, the combination of a rotatable table and a rotatable disk, one of which is rotatable relatively to the other and is provided with a detent arranged to prevent movement in one direction, radially-movable gathering-pieces upon the table, and link connections between the gathering-pieces and the disk; substantially as described.

3. In apparatus for setting up and gathering staves, a table having radially-movable gathering-pieces, said pieces having at their adjacent edges interfitting projections arranged to interlock with each other when near the center of the table; substantially as described.

4. In apparatus for setting up and gathering staves, the combination of a table and a disk, one of which is rotatable relatively to the other and is provided with a detent arranged to prevent movement in one direction, radially-movable gathering-pieces upon the table, a support upon the table carrying an adjustable head above the same, and link connections between the disk and the gathering-pieces, arranged to move said pieces inwardly and gather the staves; substantially as described.

5. Apparatus for setting up and gathering staves comprising the spindle *b*, slotted table *a*, disk *u*, crenelated gathering-pieces *q* free to slide in the slots *r*, dogs *s* attached to the gathering-pieces *q*, links *v* connecting the gathering-pieces *q* to the disk *u*, the head *i* with its support and the detent a^2, substantially as set forth.

578,602. VACUUM-BRAKE. ADAM M. GOODWIN, Pittsburg, Pa. Filed Jan. 27, 1896. Serial No. 577,001. (No model.)



Claim.—1. In a vacuum-brake, an exhaust-pump, a four-way valve-casing having a flexible connection with the exhaust-pump, pipe connections to the diaphragm and vacuum chambers, and a fender and open-air ports, cylinder and pipe connections for operating the fender, said valve-casing having a tapered plug secured therein by a nut, and provided with ports adapted to connect with the ports of the valve-casing when the same is operated, substantially as shown and described.

2. In a vacuum-brake, a valve having a tapered plug connected to the brake-lever through the valve-rod, a cylinder and connections for operating the fender, whereby the cylinder connected to the car may be filled with or emptied of air, such as described.

3. A vacuum-brake having a fender operating in conjunction therewith, said fender being of a curved shape and having piston-rods connected to the rear shaft, the other ends of said piston-rods carrying piston-heads operating in cylinders secured to the car, said cylinders being connected to the operating-valve by pipes, substantially as shown and described.

4. A vacuum-brake having a fender operating therewith when the brake is applied to its full power, said fender being operated through cylinders connected to the main valve, and carrying levers connected to a rod operating the sand-box valve, whereby the sand is applied to the rails when the fender is operated, substantially as shown and described.

5. In a vacuum-brake and fender combined, a fender secured to the car-body by a shaft suspended in brackets, said shaft carrying levers connected to a rod operating the sand-box valve, piston-rods connected to said shaft operating in cylinders, said cylinders being connected to the main valve by pipes, and springs arranged at the sides of the fender for supporting the same when not in use, substantially as shown and described.

6. In a vacuum-brake, the eccentric and strap secured to the car-axle, said strap having an oil-pocket and being connected to the hollow piston-rod, a piston-head carried by the rod, a cylinder secured to the truck, a flexible connection between the cylinder and the valve-casing, a vacuum-chamber, a diaphragm-chamber, fender connections between the vacuum-chamber, diaphragm-chamber and fender substantially as described.

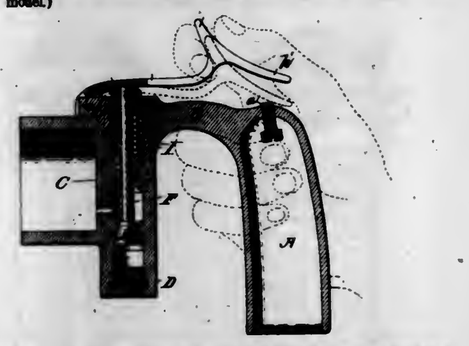
7. In a vacuum-brake and fender combined, an exhaust-pump secured to the trucks and connected to the main valve, said valve being also connected to the diaphragm and vacuum chambers, the diaphragm-chamber being connected to the counter-lever operating the brake-beam, and means whereby the brake and fender are operated, substantially as shown and described.

8. In a vacuum-brake and fender combined, a main valve connected to the brake-lever by valve-rods and cranks, and adapted to operate the fender through connecting-pipes and cylinders, substantially as shown and described.

9. The combination of a fluid-pressure brake, a controlling-valve and a car-fender controlled by said valve, as set forth.

10. The combination of a fluid-pressure brake, a controlling-valve, a car-fender, a fluid-cylinder, a piston working in the cylinder and connected with the fender and suitable communication between the cylinder and controlling-valve, as set forth.

578,603. HANDLE FOR DIRECT-ACTING ENGINES. THOMAS R. HILL, Philadelphia, Pa., assignor to the Chouteau Manufacturing Company, of Missouri. Filed June 16, 1896. Serial No. 595,749. (No model.)



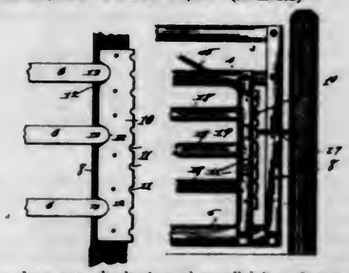
Claim.—1. The combination with the handle-base and handle, a passage for the motive fluid, a valve for controlling the passage of the motive fluid, and a lever for operating said valve, said lever being provided with one or more projections, whereby it may be operated by the thumb, or one or more fingers of either hand: substantially as described.

2. In a handle for direct-acting engines, the combination with the handle-base and handle, a passage for the motive fluid arranged in the base of the handle, a valve for controlling said passage, a lever for operating said valve, a spring for forcing said lever outwardly, said spring also normally closing the passage controlled by the valve by forcing the valve to its seat, and an adjustable plug threaded through the handle, the end of said plug being in the path of the outer or free end of the lever, for limiting the inward movement of said lever, and thereby controlling the opening of the valve, substantially as described.

3. The combination with the handle-base and handle, a passage for the motive fluid, a valve for controlling the passage of the motive fluid, a lever for operating said valve, said lever being provided with one or more projections, whereby, it may be operated by the thumb or one or more fingers of either hand, a spring for closing said valve and forcing the lever outwardly, and means for limiting the travel of said lever, whereby the opening controlled by the valve may be regulated by predetermined adjustment; substantially as described.

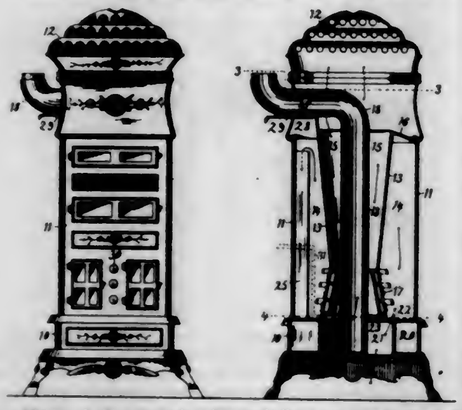
4. The combination with the handle-base and handle, a passage for the motive fluid, a valve for controlling said passage, and a lever H for operating said valve, said lever having a hornlike projection extending outwardly and forwardly from near its free end, a rearward extension *h'* back of said hornlike projection, and lateral wings *h''* extending downwardly and outwardly from said rearward projection; substantially as described.

578,604. FARM-GATE. JOHN F. KLINGELSMITH, St. Louis, Mo. Filed Mar. 23, 1896. Serial No. 584,432. (No model.)



Claim.—In a gate, the horizontal parallel bars 3, 4 and 5, the intermediate parallel bars 6, the vertical parallel bars 7, 8 and 9 arranged in pairs transversely of and one upon each side of said horizontal bars and at right angles thereto, the board 10, having the series of notches 11 on its front edge and the semicircular notches 12 on its rear edge, placed between the bars 8 with the front ends of the bars 6 in said semicircular notches 12, said bars 6 having their front ends rounded to form joints with said notches 12, the bolts 14 connecting the horizontal and vertical bars and acting as hinge-pins, and the link 15 pivotally attached at one of its ends to the bar 3 in front of and adjacent to the upper ends of the bars 7, with its free end encircling the bars 8 and engaging the notches 11 in the front face of the board 10, substantially as specified.

578,605. VAPOR-BURNING STOVE. BENJAMIN S. KOLL, St. Louis, Mo. Filed Mar. 19, 1896. Serial No. 583,942. (No model.)



Claim.—1. In a vapor-burning or similar stove, a suitable shell or casing, a burner within said shell or casing, a combustion-chamber surrounding said burner, a heating-chamber within said combustion-chamber, a central updraft-flue within said heating-chamber, said flue communicating with the stovepipe, and a downdraft-flue wholly within said shell or casing opening into the combustion-chamber near the top of said chamber and communicating with said updraft-flue through the stove-base.

2. In a vapor-burning or similar stove, a suitable shell or casing, a burner within said shell or casing, a combustion-chamber around said burner, a heating-chamber within the combustion-chamber, a central updraft-flue within said heating-chamber, said flue communicating with the stovepipe, a circulating-chamber in the base of the stove, and deflecting-plates dividing said circulating-chamber into passages, said circulating-chamber communicating with the combustion-chamber through a downdraft-flue and also communicating with said updraft-flue.

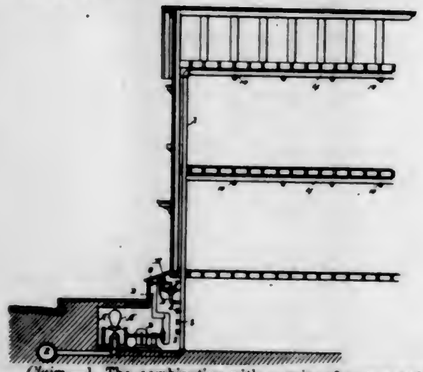
3. In a vapor-burning or similar stove, a suitable shell or casing, a burner within said shell or casing, a combustion-chamber around said burner, a heating-chamber within said combustion-chamber, a central updraft-flue within said heating-chamber, a downdraft-flue wholly within said shell or casing opening into the combustion-chamber near the top of said chamber, a circulating-chamber in the base of the stove communicating with said updraft and downdraft flues, and deflecting-plates dividing said circulating-chamber into passages.

4. In a vapor-burning or similar stove, a suitable shell or casing, a burner in said shell or casing, a combustion-chamber around said burner, a heating-chamber within said combustion-chamber, a central updraft-flue within said heating-chamber, an air-chamber in the stove-base opening into said heating and combustion chambers, a circulating-chamber in the stove-base surrounding said air-chamber, said circulating-chamber communicating with said updraft-flue, and a downdraft-flue opening near the top of the combustion-chamber, said downdraft-flue communicating with said circulating-chamber.

5. In a vapor-burning or similar stove, a suitable main shell or casing, a substantially cylindrical shell located centrally within said main shell and dividing it into an outer combustion-chamber and an inner heating-chamber, an annular vapor or similar burner beneath said inner shell, an updraft-flue passing through said burner and inner shell and communicating with the stove-base, and a downdraft-flue within said outer or main shell also communicating with the stove-base.

6. In a vapor-burning or similar stove, an outer shell or casing, a substantially cylindrical shell situated centrally within said outer shell and dividing it into an outer combustion-chamber and an inner heating-chamber, an annular burner situated between the lower end of said inner shell and the stove-base, an updraft-flue passing through said burner and inner shell, an air-chamber in said stove-base and communicating with said heating-chamber and said combustion-chamber, a circulating-chamber in the stove-base surrounding said air-chamber, and communicating with said updraft-flue, and a downdraft-flue communicating with said circulating-chamber and opening into the combustion-chamber near its top.

578,606. FIRE-EXTINGUISHING APPARATUS. HARVEY LAMB LUFKIN, New York, N. Y.; Mary D. Lufkin administratrix of said Harvey Lamb Lufkin, deceased. Filed Feb. 10, 1890. Serial No. 339,865. (No model.)



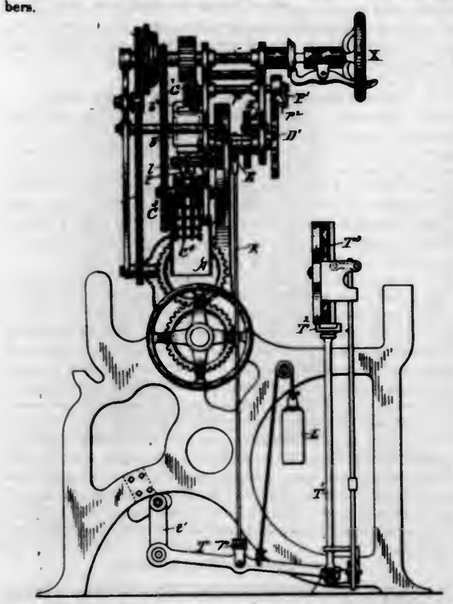
Claim.—1. The combination with a series of water-conducting pipes arranged within a building and connected with the street, said pipes provided with nozzles constructed to be unsealed by heat, a pump for such series of conducting-pipes, and a conductor extending from the pump to a source of motive power, of a cut-off connected with the pump, and a diaphragm connected to automatically operate said cut-off on unsealing the nozzles to start the pump into operation upon the occurrence of a fire in the building supplied by said pump, substantially as described.

2. The combination of a series of buildings each provided with a water-conducting pipe having branches and nozzles and means for unsealing said nozzles by the action of heat, a water-main and series of pumps for pumping water therefrom through the conducting-pipes, a motor for each pump, a central source of power for all the motors, and an automatic cut-off connected with each motor for shutting off the motor-fluid on the opening of said nozzles and arranged in a position accessible from the outside of the building, substantially as described.

578,607. SHUTTLE-BOX MECHANISM. ANDREW LUSCOMB, Fall River, Mass. Filed June 17, 1896. Serial No. 595,866. (No model.)

Claim.—1. A shuttle-box-operating mechanism comprising the following instrumentalities in combination: shuttle-box supports and connections therewith to a compound shifting device consisting of a plurality of independently-movable eccentric members, each member by its movement contributing to the movement of the whole shifting device, the said members having each an actuating-train of mechanism and a selecting device adapted to throw the train into or out of action at periods predetermined by the said selecting device.

2. A shuttle-box-operating mechanism comprising the following instrumentalities in combination: shuttle-box supports and connections therewith to a compound shifting device consisting of a plurality of independently-movable eccentrics of diverse eccentricity, each member serving as the eccentric-strap for the member next inferior to it in eccentricity, the connections with the shuttle-box supports being so arranged as to receive the resultant movement of the eccentric members, and means for independently actuating the said members.



3. A shuttle-box-operating mechanism comprising the following instrumentalities in combination: shuttle-box supports and connections therewith to a compound shifting device consisting of a plurality of independently-movable eccentrics, contained within and operating on an inclosing eccentric-strap, the said inclosing strap being connected with the shuttle-box supports, each eccentric member of the compound shifting device being actuated by connections with a train of intermittent gears, said train of gears being controlled with shipper mechanism whereby the train may be alternately thrown into and out of operation, and selectors designed and adapted to operate upon and actuate the said shippers at predetermined periods.

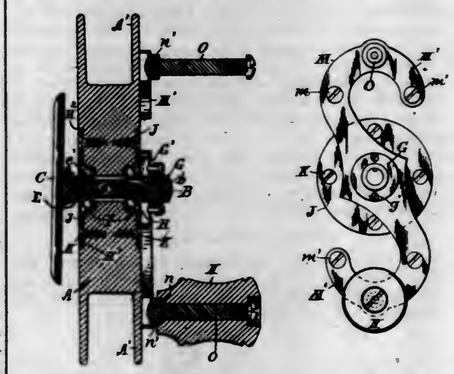
4. A shuttle-box-operating mechanism for a loom comprising the following instrumentalities in combination: a movable shuttle-box, its supports, said supports being connected with the straps of a compound lifting device which consists of a plurality of eccentrics, each independently movable on its axis and actuated by an intermittently-rotatable star-wheel, each star-wheel being controlled and operated by a pin-wheel mounted on a longitudinally-movable shaft rotating a cam on each of said shafts and a shipper operating in conjunction with the cam to move the shaft longitudinally, said longitudinal movement being designed and adapted to throw the pin-wheel into and out of mesh with the star-wheel, a pattern-chain and connections therewith to the shipper for operating the same, and connections whereby the pattern-chain is moved progressively in harmony with the mechanism of the loom.

5. A shuttle-box-operating mechanism comprising the following instrumentalities in combination: shuttle-box supports and connections therewith to a compound shifting device consisting of a system of independently-movable eccentrics, the said system of eccentrics operating on a common eccentric-strap, said strap being connected with the shuttle-box supports, each eccentric member of the system being actuated by connections with a train of intermittent gears, said train controlled by shipper mechanism whereby the train may be alternately thrown into and out of operative mesh, automatic devices for locking each of said trains of gears simultaneously with the shipper movement which throws it out of mesh, and selective mechanism designed and adapted to operate upon and actuate the said shippers at predetermined periods.

6. In a loom the combination with a driving-shaft, of connections between said driving-shaft and shuttle-box-operating mechanism, said connections comprising the following instrumentalities in combination: two clutch members, the one rigidly connected with the driving-shaft, the other similarly connected with the train of shuttle-box mechanism: means for exerting pressure which holds the clutch members in clutch under normal conditions of operation, the said pressure being so adjusted that the application of an abnormal load on the shuttle-box mechanism will overcome the pressure and cause the clutch members to release their hold upon each other and automatic means for holding said members out of clutch after they have released their hold upon each other.

7. In a shuttle-box-operating mechanism a compound driving-shaft comprised of the following instrumentalities in combination: a driving-wheel in positive driving connection with the main shaft of the loom, said driving-wheel connected with clutch mechanism which constitutes the driving connection between the wheel and the shuttle-box mechanism, said clutch mechanism composed of two members normally held in mesh with each other by spring or other pressure, the interlocking mesh of said clutch members being provided with surfaces inclined to the direction of the driving pressure exerted through the clutch, the said pressure being adjusted to retain the clutch members in contact during normal operation of the machine and to yield whenever abnormal loads are put upon the driving mechanism by the shuttle-box mechanism and thus to permit the inclined surfaces of the clutch-mesh to slide by each other and throw the clutch members apart against the said pressure and automatic means for holding said members out of clutch after they have released their hold upon each other.

578,608. BALL-BEARING FISHING-REEL. AUGUST F. MEISELBACH and WILLIAM MEISELBACH, Newark, N. J. Filed Nov. 14, 1896. Serial No. 612,097. (No model.)



Claim.—1. In a fish-reel, the combination, with the stud having cones and suitable balls, of a body having the concentric sockets I formed in its opposite sides, ball-races formed with hubs H adapted to fit such sockets and provided with flanges H′, and the sides of the body having recesses slightly larger than such flanges, to receive the same without centering them, so that the hubs may be centered exclusively by the sockets, substantially as herein set forth.

2. In a fish-reel, the combination, with a stud having cones and suitable balls, of a body having the concentric sockets I formed in its opposite sides, and the ball-races formed of sheet metal with the hubs H, flanges H′ provided with clearance-holes, and the covers J unprovided with any centering devices and secured over such flanges by the screws K inserted through said clearance-holes, so as to clamp the flange without displacing the same laterally, substantially as shown and described.

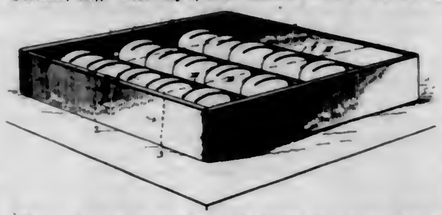
3. The combination, with a fish-reel body having ball-bearings in opposite sides, of the stud B provided with shoulder *e*, the cone E fitted against such shoulder and the foot-piece C secured upon the stud against such cone, and an adjustable cone to hold the reel in place, as and for the purpose set forth.

4. The combination, with a fish-reel body having ball-bearings in opposite sides, of the stud B having a fixed cone at its base, the adjusting-cone F with means to hold it from turning upon the stud, and an adjusting-nut connected with the adjustable cone by a friction-clutch, as and for the purpose set forth.

5. The combination, with a fish-reel body having ball-bearings in opposite sides, of the stud B having a fixed cone at its base, the adjusting-cone F with means to hold it from turning upon the stud, and provided with the flange *f*′ and the nut G and collar *g* pressed together upon the flange *f*′ by screws *g*′, as and for the purpose set forth.

6. The combination, with a wooden fish-reel body, of the crank-plate M having crank-pin O and provided with the extension M′ curved inwardly toward the center of the reel, and the screws *m*, *m*′ for securing the plate and its extension to the reel-body adjacent to the crank-pin, as and for the purpose set forth.

578,609. EGG-TURNER FOR INCUBATORS. ROBERT A. MOORE, Portland, Oreg. Filed May 5, 1896. Serial No. 590,990. (No model.)

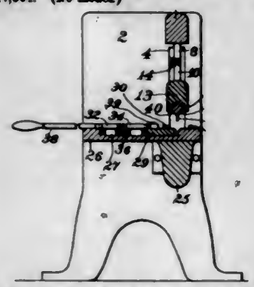


Claim.—1. In a device of the kind described, a tray, a pair of oppositely-disposed arms pivotally mounted in the tray, normally arranged horizontally and capable of oscillation to carry them from one side of their pivots to the other, a horizontal bar rigidly connected to and carried by said arms, and a series of individual egg-holders mounted on the bar conforming to the configuration of an egg and disposed longitudinally of the arms whereby eggs will be held normally in a horizontal position and will be completely reversed without shock or jar when the arms are swung from one side of their pivots to the other substantially as shown and described.

2. In a device of the class described, a tray, oppositely-disposed arms arranged in pairs and pivoted at opposite sides of the tray, the arms at one side of the tray being pivoted intermediate of their ends to form lever-arms, the bars rigidly connected with the lower ends of said arms, egg-holders mounted on the bars and disposed longitudinally of the arms, and the shifting-bar pivotally connected to the upper ends of the lever-arms substantially as shown and described.

3. In a device of the kind described, the combination with the tray, of the combined holder and turner, said combination holder and turner comprising the side pieces, the lever-arms pivoted thereto, the cross-bars connecting the lower ends of said lever-arms, the shifter-bar connected to the upper ends of the lever-arms, said cross-bars being preferably V-shaped in cross-section, and the holders attached to the said cross-bars, substantially as and for the purpose described.

578,610. MACHINE FOR FORMING CORNER-STRIPS. WILLIAM C. PENDLETON, Warren, Ohio, assignor to the Youngstown Iron and Steel Roofing Company, Youngstown, Ohio. Filed Jan. 4, 1897. Serial No. 617,891. (No model.)



Claim.—1. In a machine for forming corner-strips, the combination of a frame, a die-carrier, a male die secured to said carrier, mechanism arranged to reciprocate said carrier and die, suitable guides for said carrier, a table, a female die supported by the table and consisting of a fixed portion and a movable portion, and devices adapted to actuate the movable portion of said female die, substantially as described.

2. In a machine for forming corner-strips, the combination of a frame, a die-carrier, a male die secured to said carrier, a series of toggle-joints pivotally attached to said frame and die-carrier, a connecting-rod pivotally secured to each of said toggle-joints, mechanism arranged to reciprocate said rod, suitable guides for said carrier, a table, a female die supported by the table and consisting of a fixed portion and a movable portion, and devices adapted to actuate the movable portion of said female die, substantially as described.

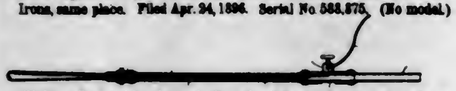
3. In a machine for forming corner-strips, the combination of a frame, a die-carrier, a male die secured to said carrier, mechanism arranged to reciprocate said carrier and die, suitable guides for said carrier, a table, a female die supported by the table and consisting of a fixed portion and a movable portion, a series of toggle-joints pivotally attached to said table and to the movable portion of said female die, a connecting-rod pivotally secured to each of said toggle-joints, and devices adapted to reciprocate said rod, substantially as described.

4. In a machine for forming corner-strips, the combination of a frame, a die-carrier, a male die secured to said carrier, a series of toggle-joints pivotally attached to said frame and die-carrier, a connecting-rod pivotally secured to each of said toggle-joints, mechanism arranged to reciprocate said rod, suitable guides for said carrier, a table, a female die supported by the table and consisting of a fixed portion and a movable portion, a series of toggle-joints pivotally attached to said table and to the movable portion of said female die, a connecting-rod pivotally secured to each of said last-mentioned series of toggle-joints, and devices adapted to reciprocate said rod, substantially as described.

5. In a machine for forming corner-strips, the combination of a frame, a die-carrier, a male die secured to said carrier, mechanism arranged to reciprocate said carrier and die, suitable guides for said carrier, a table having a longitudinal groove, one side of said groove constructed to constitute the fixed portion of a female die, a plate movable laterally within said groove and constructed to constitute the complemental portion of said female die, a series of toggle-joints pivotally attached to said table and to said movable plate, a connecting-rod pivotally-secured to each of said toggle-joints, and devices adapted to reciprocate said rod, substantially as described.

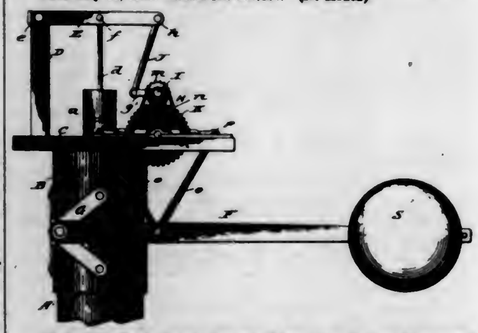
6. In a machine for forming corner-strips, the combination of a frame, a die-carrier, a male die secured to said carrier, said male die having two inclined converging surfaces and a projecting blade, a series of toggle-joints pivotally attached to said frame and die-carrier, a connecting-rod pivotally secured to each of said toggle-joints, mechanism arranged to reciprocate said rod, suitable guides for said carrier, a table having a longitudinal groove, one side of said groove constructed to constitute the fixed portion of a female die corresponding to said male die, said table provided with a bead upon its upper surface, a plate movable laterally within said groove and constructed to constitute the complemental portion of said female die, said plate provided with a bead upon its upper surface, a series of toggle-joints pivotally attached to said table and to said movable plate, a connecting-rod pivotally secured to each of said last-mentioned series of toggle-joints, and devices adapted to reciprocate said rod, substantially as described.

578,611. ELECTROTHERAPEUTIC SYRINGE. JOHN D. RIVELY, Pittsburg, Pa., assignor of two-thirds to Louis F. Wentz and James D. Irons, same place. Filed Apr. 24, 1896. Serial No. 588,875. (No model.)



Claim.—In combination, a bulb, a flexible pipe leading therefrom, a second flexible pipe, a metallic sleeve between them carrying a binding-post, a casting in the end of the second pipe, a detachable nozzle thereon, a conduit leading therethrough, a socket in the end of the casting, and a wire extending through the second pipe into the socket and electrical connections, substantially as described.

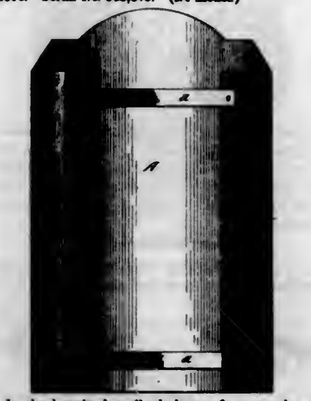
578,612. WAVE-MOTOR. DAVID F. SPANGLER, Santa Ana, Cal. Filed May 19, 1896. Serial No. 592,167. (No model.)



Claim.—1. In the herein-described invention, the combination of a pier, an annular flange situated thereon, a cylinder *a* projecting upwardly therefrom, a cylinder B rotating around said pier, a platform C situated on the top of the said cylinder B, said platform having a hole *c* through which the upper end of the cylinder *a* projects, substantially as described.

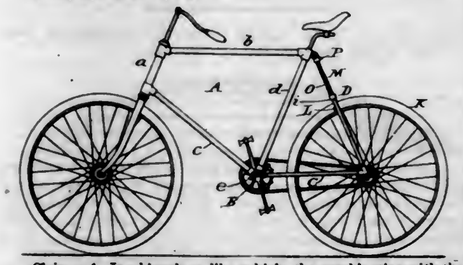
2. In the herein-described device, the combination of a pier or pile A, a cylinder rotating over said pier, platform secured to said cylinder, gear-supporting frame secured to said platform, a shaft journaled in lower part of said frame, a toothed wheel keyed on said shaft, a circumferential rim placed on the side of said wheel, a bracket secured to the side of said cylinder, a lever pivoted to said bracket, a buoyant float attached to the free end of the said lever, rods hinged at an intermediate point of said lever, friction-clamps gripping said circumferential rim, the said rods connecting the said friction-clamps and the operating-lever F, substantially as set forth and described.

578,613. SIGN. ROBERT F. TIMMONS, Coshocton, Ohio. Filed June 1, 1896. Serial No. 593,575. (No model.)



Claim.—In the herein-described sign, a framework, said framework consisting of rectangular wooden uprights, curved braces secured to the top and bottom of the front edges of the said uprights, zigzag braces secured to the top and bottom of the rear edges of the said framework, a curved sign-board secured to the said framework, substantially as set forth and described.

578,614. BICYCLE OR LIKE VEHICLE. CHARLES L. TRAVIS, Minneapolis, Minn., assignor to the Hygienic Wheel Company, Philadelphia, Pa. Filed Dec. 17, 1895. Serial No. 572,433. (No model.) Patented in Belgium Mar. 17, 1896, No. 120,374, and in Italy Mar. 31, 1896, XXXI, 41,078, LXXX, 378.



Claim.—1. In a bicycle or like vehicle, the combination with the rigid front frame; of the jointed rear frame flexibly connected thereto; said rear frame having a yielding member embodying two tubular sections adapted to telescope; and a coiled spring encircling said sections.

2. In a bicycle or like vehicle, the combination with the rigid front frame; of the jointed rear frame flexibly connected thereto, said rear frame comprising the rear-wheel fork, and a yielding brace flexibly connected to the rear end of the latter, and to the upper end of the front frame, the yielding portion of the brace comprising two tubular telescopic sections encircled by a coiled spring.

3. A spring member for bicycle-frames, comprising a fork adapted to embrace a wheel, a tubular casing secured to the head of the fork, a spring also secured to the head of the fork and encircling the tubular casing, a socket or cap-piece secured upon the upper end of the spring; and a tubular casing secured to the socket or cap-piece and adapted to telescope with the casing carried by the head of the fork.

4. In combination with the rigid front frame, the jointed rear frame flexibly connected therewith, the spring member of which comprises a fork or brace connected to the rear end of the rear-wheel fork; a tubular shell extending upwardly from the head of the fork; a coiled spring having its lower end secured to said head and encircling the tubular shell; a socket or cap-piece secured to the upper end of the spring and provided with a tubular shell adapted to telescope with the tubular shell carried by the head of the fork; and means for flexibly connecting said socket to the upper end of the saddle-post standard.

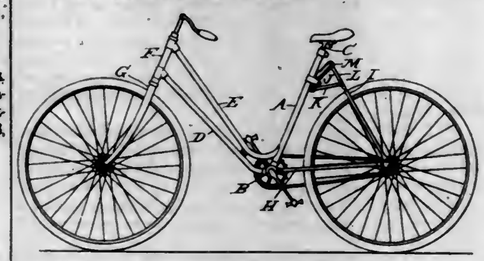
5. In a bicycle or like vehicle, the combination with the rigid front frame; of the jointed rear frame flexibly connected thereto; said rear frame having a yielding member embodying two tubular sections adapted to telescope, and fitting air-tight one within the other; and a spring coacting with and tending to elongate said yielding member.

6. A spring member for bicycle-frames embodying two telescopic sections forming an inclosed air-chamber; a check-valve communicating with said chamber; and a coiled spring encircling said telescopic sections and tending normally to keep said sections in an extended position.

7. In a bicycle, the combination of the rigid front frame; the rear jointed frame flexibly connected therewith; said rear frame comprising the rear-wheel fork connected to the front frame at or near the pedal-shaft hanger; a brace or fork flexibly jointed to the rear-wheel fork at or near its end; a tube mounted upon the head of brace; a spiral spring also mounted on said head and encircling the tube; a cap-piece or socket secured upon the upper end of the spring, and flexibly secured to the upper end of the saddle-post standard; a tube extending from the cap-piece and telescoping with the lower tube; and an outwardly-seating air-check communicating with the air-space formed by the telescoping tubes.

8. In combination with the pedal-shaft hanger having perforated lugs formed thereon, the web or frame E, comprising a tubular head having slots formed therein to receive the lugs; a pin passing through the tubular head and openings in the lugs; a slot in the head; a hole in the pin in line with said slot; and a key rigidly secured to the barrel and passing into the hole in the pin, whereby said pin is prevented from turning or moving endwise.

578,615. BICYCLE. CHARLES L. TRAVIS, Minneapolis, Minn., assignor to the Hygienic Wheel Company, Philadelphia, Pa. Filed May 11, 1896. Serial No. 591,105. (No model.)



Claim.—1. In combination with the frame of a bicycle or like vehicle, a pressure device standing normally at an angle thereto, and an interposed pneumatic cushion or buffer, said pressure device being adapted to swing gradually into approximate alinement with the frame, and thereby to press upon the cushion with a gradually-increasing surface.

2. In combination with the rigid front frame of a bicycle; a rear frame jointed thereto; and an interposed pneumatic cushion or buffer, the parts being arranged substantially as described, whereby when the bicycle passes an obstruction pressure will automatically be brought to bear at or near one end of the buffer gradually toward the other end.

3. In a bicycle the combination of a rigid front frame; a rear-wheel fork pivotally connected thereto; a brace pivotally connected to the fork at or near its end; a triangular frame pivotally connected to the upper end of the fork and to the front frame, and having that member located next to the front frame curved in cross-section; and an elastic buffer or cushion secured to the curved member.

4. In a bicycle the combination of a front frame; a rear-wheel fork pivotally connected thereto; a brace pivoted to the fork at or near its end; a pressure device pivoted to the upper end of the brace and to the front frame; and an elastic cushion interposed between the pressure device and the main frame and extending above and below the pivotal connection of the pressure device to the main frame.

5. In a bicycle the combination of the front frame and pillar-post; a pneumatic cushion held against said post and designed to be compressed directly thereon; and a rear frame jointed to the pillar-post and bearing against the pneumatic cushion, whereby when the machine passes over an obstruction the rear frame will press the cushion directly upon the pillar-post.

6. In combination with the front frame of a bicycle; a rear-wheel fork pivoted thereto; a brace pivotally connected to the fork at or near its rear end; a frame comprising two tubular members K and L, and a semicircular plate M, said plate being pivotally connected to the pillar-post and diverging from said post on both sides of the pivotal point; and an elastic cushion seated upon said semicircular member and bearing at its lower end against the pillar-post.

7. In a bicycle or like vehicle, the combination of the front frame and the rear-wheel fork pivotally connected thereto; the brace I pivoted to the rear fork at or near its end; the frame J pivoted to the upper end of said brace; said frame comprising the members K, L and M, the latter being semicircular in cross section and provided with the pivotal connection O: a flexible tube R secured to said plate M, and strap P passing about the pillar-post of the front frame and terminating in the rearwardly-extending lugs *a*, *a*, between which the plate M is pivoted.

578,616. WEATHER-STRIP. GEORGE M. WHITE, Jefferson, Iowa. Filed Nov. 27, 1896. Serial No. 613,676. (No model.)



Claim.—1. In a weather-strip, the combination of the housing, with the barrel inclosed by the housing and having an apron, the keeper secured to one end of the housing and forming a bearing for the barrel, and a spring having one end connected to the barrel and the other end attached to the said keeper, as set forth.

2. In a weather-strip, the combination with a suitable housing, and a barrel operated in the housing and having an apron, of means for operating the barrel comprising a plate-spring having a lug or keeper at each end, one of said keepers being secured upon the inside of the barrel and the other keeper adjustably attached to the housing and forming a bearing for the barrel, as set forth.

3. The combination with a weather-strip housing having a central longitudinal bore, and a mouth smaller than the bore, of the tube or barrel operated in the bore and having an apron operating through said mouth, a keeper adjustably secured to one end of said housing and upon which the tube or barrel is oscillated, a keeper secured upon the inside of the barrel, and a spring inclosed by the barrel and attached to the keepers, as set forth.

4. The combination with the housing having a longitudinal bore, a mouth opening from said bore smaller than the latter, of the tube or barrel operated in the bore, the apron operated through the mouth, the keeper secured to and closing one end of the said bore and forming a bearing for the said tube or barrel, a similar keeper secured in the barrel, and a spring adjustably secured in the barrel by said keepers, as set forth.

5. In a weather-strip, the combination of the housing, with the barrel having an apron provided with a slot, the keeper secured to the housing and having a flange inclosing one end of the barrel and engaging said slot, and a spring having one end attached to the keeper and the other end connected to the barrel, as set forth.

578,617. FENCE-MAKING APPLIANCE. JOSEPH C. WILKIN, Athens, Ohio. Filed June 30, 1896. Serial No. 597,580. (No model.)



Claim.—1. The combination with a bar bent at its forward end to form a laterally-projecting loop, the inner closed end of which constitutes a rigid jaw, of a cam pivoted to the outer end of the loop, substantially as set forth.

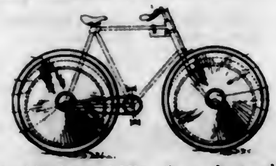
2. The combination with a bar bent at one end to form a laterally-projecting loop, the end of the loop extending laterally beyond the opposite side of the bar, of a cam pivoted to the outer end of said loop, substantially as set forth.

3. The combination with a bar having a hook formed on one end, and having its opposite end bent to form a laterally-projecting loop the free end of which projects from the side of the bar opposite the loop, about the length of the latter, of a cam provided with a toothed edge, said cam being pivoted to the free or outer end of the loop, substantially as set forth.

4. The combination with a bar bent at its forward end to form two arms having a slot between them and a jaw at one end of said slot, of a clamping jaw or cam pivoted to one of said arms and having a toothed edge to act in conjunction with the other jaw to clamp a wire, and a stop on said clamping jaw or cam adapted to engage one of said arms, substantially as and for the purpose set forth.

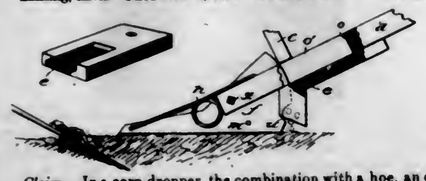
578,618. WHEEL FOR VEHICLES. FREDERICK G. ATKINSON, Washington, D. C. Filed Dec. 9, 1896. Serial No. 615,019. (No model.)

Claim.—1. A wheel having a yielding tire and a supplemental unyielding tire surrounding and unattached to the first, the two tires being adapted to rotate independently, whereby a protection against puncturing the yielding tire is provided, substantially as described.



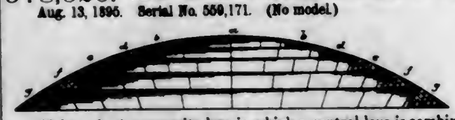
2. A wheel having a yielding tire, and a supplemental unyielding tire surrounding and unattached to the first, and having inclosing sides, the two tires being adapted to rotate independently, whereby a protection against puncturing the yielding tire and means for keeping clean the track formed by the outer tire are provided, substantially as described.

578,619. AUTOMATIC CORN-DROPPER. SEYMOUR A. AYRES, Lansing, Mich. Filed June 8, 1896. Serial No. 594,711. (No model.)



Claim.—In a corn-dropper, the combination with a hoe, an outer casing attached to the hoe-handle, the said casing forming a reservoir for the reception of the seed to be planted, a slot in the bottom of the said reservoir or casing, a lever in the said slot, a cut-off brush *e* in the said slot, a lever *f* swinging in the said slot on a bolt *x*, a spring *h* for holding down the said lever, the said lever *f* to be operated by the pressure of the earth when the hoe is struck into the earth, substantially as set forth.

578,620. LENS. EDWARD W. BARKER, Philadelphia, Pa. Filed Aug. 13, 1896. Serial No. 602,171. (No model.)



Claim.—1. A composite lens in which a central lens is combined with a series of concentric annular lenses, all of the lenses being of the same focus, and one of the inner faces of each of the concentric annular lenses having the direction of the versed sine of that portion of the complete arc presented by the convex face of the lens, which constitutes the outer face of each lens, substantially as specified.

2. A composite lens in which a central lens is combined with a series of concentric annular lenses, all of the lenses having the same focus, and each of said concentric annular lenses being composed of separate segments, one of the inner faces of each of which has the direction of the versed sine of that portion of the complete arc presented by the outer convex face of the lens which constitutes the outer face of each lens, substantially as specified.

3. A composite lens consisting of a central lens and one or more concentric annular lenses, all of said lenses having the same focus, and one of the inner faces of each lens having the direction of the versed sine of that portion of the complete arc presented by the outer convex face of the lens which constitutes the outer face of each lens, substantially as specified.

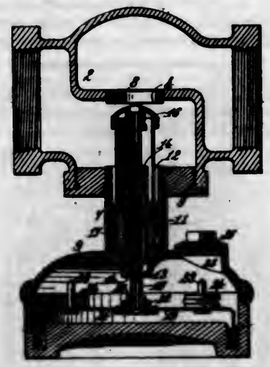
4. A composite lens consisting of independent segmental lenses, so formed as to have the same focus and combined with means for independently mounting and adjusting the same.

5. A composite lens consisting of a central lens and a series of concentric annular lenses composed of segments, in combination with means whereby each segment is supported and adjusted independently of the others.

6. The combination in a lens, of the central lens, a series of concentric annular lenses composed of sections, supporting-rings alternating with said annular lens-rings, and adjusting-screws carried by said supporting-rings, and provided with means for engaging with the lens-sections, substantially as specified.

7. The combination in a lens, of the annular lens-rings composed of segments, the intervening annular supporting-rings, adjusting-screws carrying hollow blocks which support the segments, and radial screws for laterally adjusting said hollow blocks, substantially as specified.

578,621. GAS-PRESSURE REGULATOR. CHARLES E. BELT, Baltimore, Md. Filed Aug. 5, 1896. Serial No. 601,719. (No model.)



Claim.—1. In a gas-pressure regulator, the combination with a valve-casing having inlet and outlet chambers and a valve-port intermediate said chambers, of a closed cup-chamber arranged below the valve-casing and communicating therewith, an inverted cup sealed in a body of mercury contained in said chamber, a hollow valve-spindle attached at its lower end to said cup and communicating with the space beneath the latter, and a valve fitted on the upper open end of said valve-spindle, said valve being exposed to the pressure of the gas in the outlet-chamber of the valve-casing and operating to control the passage of the gas through the said valve-port, substantially as described.

2. In a gas-pressure regulator, the combination with a valve-casing having inlet and outlet chambers and a valve-port intermediate said chambers, of a closed cup-chamber arranged below the valve-casing and communicating therewith, an inverted cup sealed in a body of mercury contained in said chamber, means for adjusting the weight of said cup, a hollow valve-spindle attached at its lower end to said cup and communicating with the space below the latter, a valve fitted on the upper open end of said valve-spindle, said valve being exposed to the pressure of the gas in the outlet-chamber of the valve-casing and operating to control the passage of the gas through the said valve-port, and means for preventing the entrance of gas into the cup-chamber above the cup, substantially as described.

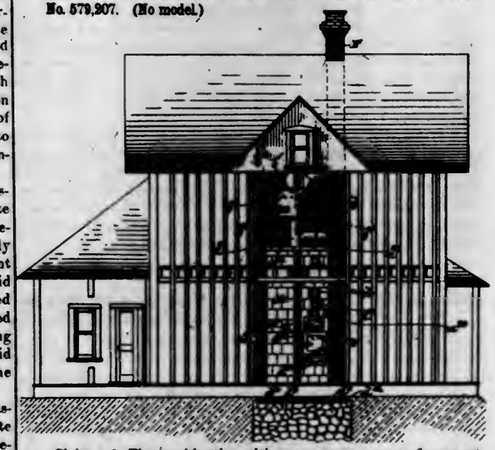
3. In a fluid-pressure regulator, the combination with a valve-casing having inlet and outlet chambers and a valve-port intermediate said chambers, of a closed cup-chamber arranged beneath the valve-casing and communicating therewith and provided on its bottom with an annular sealing-channel adapted to contain mercury, an inverted cup dripping into the mercury contained in said channel, means for weighting said cup, a hollow valve-spindle attached at its lower end to said cup and communicating with the space below the latter, a valve fitted on the upper open end of said valve-spindle, said valve being exposed to the pressure of the gas in the outlet-chamber of the valve-casing and operating to control the passage of the gas through the said valve-port, and means for preventing the entrance of gas into the cup-chamber above the cup, substantially as described.

4. In a gas-pressure regulator, the combination with a valve-casing having inlet and outlet chambers and a valve-port intermediate said chambers, of a closed cup-chamber arranged beneath the valve-casing and communicating therewith and provided on its bottom with an annular sealing-channel adapted to contain mercury, an inverted weighted cup dipping into the mercury contained in said channel, a hollow valve-spindle attached at its lower end to said cup and communicating with the space below the latter, a valve fitted on the upper open end of said valve-spindle, said valve being exposed to the pressure of the gas in the outlet-chamber of the valve-casing and operating to control the passage of the gas through the said valve-port, and a hollow plunger depending from said valve and sealed at its lower end in a body of mercury surrounding the hollow valve-spindle, substantially as described.

5. In a gas-pressure regulator, the combination with a valve-casing having inlet and outlet chambers and a valve-port intermediate said chambers, of a hollow neck depending from said valve-casing and terminating at its lower end in a cup-chamber, an annular sealing-chamber formed in the walls of said neck, an inverted cup dipping into a body of mercury contained in said cup-chamber, a hollow valve spindle passing through said hollow neck and at its lower end attached to said cup and communicating with the space beneath the latter, a valve fitted on the upper open end of said valve-spindle, said valve being exposed on its upper side to the pressure of the gas in the outlet-chamber of the valve-casing and operating to control the passage of the gas through the said valve-port, and a hollow plunger depending from said valve and sealed at its lower end in a body of mercury contained in the annular sealing-chamber in said neck, substantially as described.

6. In a gas-pressure regulator, the combination with a valve-casing having a valved port, a hollow neck depending from said casing and terminating in a cup-chamber, an inverted cup sealed in a liquid contained in said cup-chamber, a hollow valve-spindle passing through the hollow neck and at its lower end attached to said cup and communicating with the space below the latter, a valve fitted on the upper open end of said valve-spindle, said valve being exposed on its upper side to the pressure of the gas in the outlet-chamber of the valve-casing and operating to control the passage of the gas through the valve-port, means for preventing the entrance of gas into the cup-chamber above the cup, a plurality of vertical projecting pins arranged on the upper side of the cup, removable weights disposed about said pins and a plug for closing an aperture formed in the upper portion of the cup-chamber and adapted to successively register with the said pins when the cup is rotated, substantially as described and for the purpose specified.

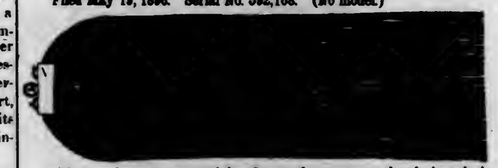
578,622. COMBINED HEATING AND COOKING STOVE, &c. FRIEDRICH W. G. BOETTCHER, Duluth, Minn. Filed Feb. 14, 1896. Serial No. 579,207. (No model.)



Claim.—1. The combination with two or more groups of compartments situated one group above another, of a heater extending from one group to the other, and having substantially uniform dimension from its top to its bottom, means for retarding the flow of products through the heater, and means for carrying away the products of combustion, substantially as described.

2. A combined heater and cooking-stove comprising a fire-box, an oven adjustably mounted above the same and closing the cross-section of the heater but provided with suitable recesses for the upward passage of heat about the same, and a damper for closing the rear recess so as to cut off the heat from that part of the oven, substantially as described.

578,623. HAIR SWITCH. JAMES Y. BORDEN, Philadelphia, Pa. Filed May 19, 1896. Serial No. 592,168. (No model.)

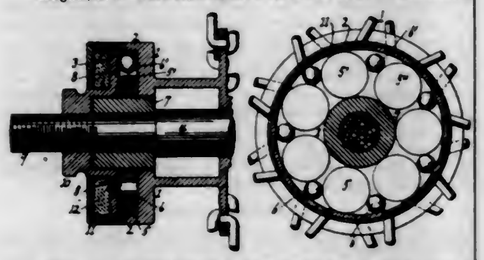


Claim.—1. As a new article of manufacture a coreless hair switch made up of a series of strands of the hair weft secured together in the form of a loop, with strands of hair weft forming a heading for the loop, the hair of the exterior strands extending over the loop and covering it, substantially as described.

2. As a new article of manufacture, a coreless switch made in two sections, each section composed of a series of strands of hair secured together in the form of a loop and heading-strands secured thereto, forming a pliable and flat base, with complementary fastenings on the headings of the two strands for detachably securing the same together, substantially as described.

3. As a new article of manufacture, a hair switch composed of a series of loops, each loop being formed of a series of strands of hair weft secured together forming a flat base with complementary fastenings upon the edges of the outermost loop, whereby the said loops may be secured together to form a hollow switch, substantially as described.

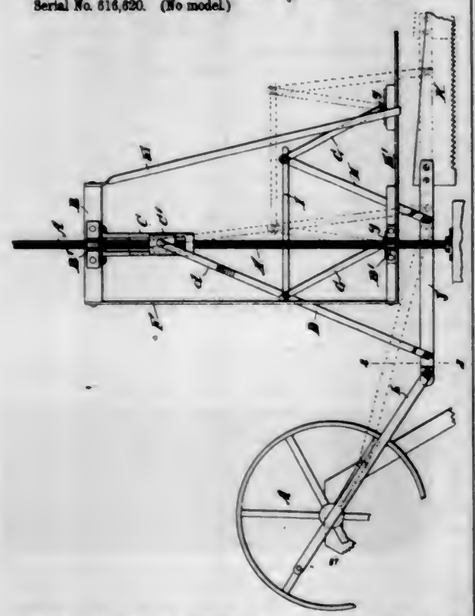
578,624. ANTIFRICTION-BEARING. HENRY BRIGGS, Hasbrouck Heights, N. J. Filed Sept. 24, 1896. Serial No. 606,832. (No model.)



Claim.—1. An antifriction-bearing comprising a box or race, a shaft in the box, disks interposed between the shaft and box-wall, and balls interposed between the disks, said disks being of less width than the diameter of the balls and the race having its top and bottom constructed to snugly contain and guide the balls while maintaining the flat faces of the disks free from contact with said top and bottom, substantially as described.

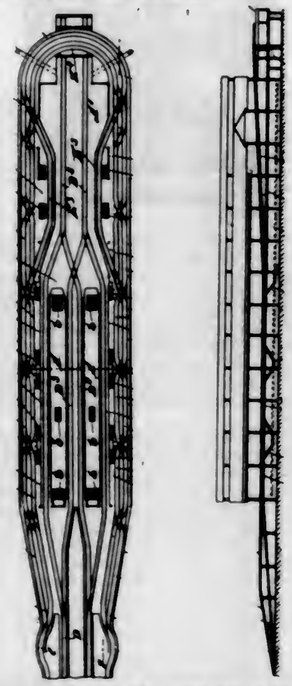
2. An antifriction-bearing comprising a box or race, a shaft in the box, disks interposed between the shaft and box-wall, and balls interposed between the disks and located at the outer half of the disks, said balls being of greater diameter than the width of the disks and arranged to ease rotation and reduce friction during end thrusts, and said disks being arranged to ease rotation and reduce friction during vertical thrusts, substantially as described.

578,625. SAWING-MACHINE. ALBERT C. CALKINS, Santa Barbara, Cal., assignor to William S. Day, same place. Filed Dec. 22, 1896. Serial No. 616,620. (No model.)



Claim.—In a sawing-machine, the combination with upright guides, a frame supported upon said guides and capable of vertical adjustment thereon, a yoke consisting of two parallel bars forming the lower part of said frame, a block sliding vertically in guides supported in the upper part of said frame, a pendulum-rod pivoted at its upper end to said block and at its lower end to the saw-frame, pairs of supporting-bars pivoted on opposite sides of the yoke and separated longitudinally thereon, the first pair of said bars being pivoted at the upper end to the pendulum-rod near its middle, a horizontal connecting-bar pivoted to the upper ends of both pairs of supporting-bars, an auxiliary pendulum-rod pivoted to the upper end of the second pair of supporting-bars and at its lower to the saw-frame, and means for reciprocating the saw, substantially as described.

578,626. TERMINAL FOR RAILWAYS. DAVID F. CARVER, Brooklyn, and JOHN C. BRACKENRIDGE, Richmond Hill, N. Y. Filed Nov. 11, 1896. Serial No. 611,725. (No model.)

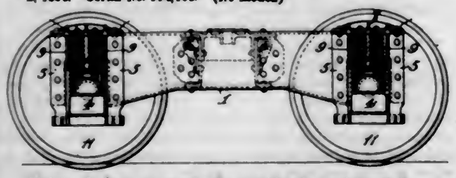


Claim.—1. A railway-terminal, comprising an elevated platform, galleries beneath the platform, passenger-ways leading to the platform and galleries, main tracks leading to the platform, sidings arranged in connection with the main tracks, a tail-switch beyond the said sidings, an outside elevated structure at each side of the platform, main outside tracks on said outside structure, a series of sidings arranged in connection with said outside main tracks, connecting at both their ends with the latter, an additional siding along the above-mentioned tail-switch, and an elevated loop connecting the outside tracks, and inclining to the main tracks, substantially as described.

2. A railway-terminal, comprising central tracks and switches therefor, side-tracks outside of the same, a series of sidings for the side-tracks, and an elevated loop connected by inclines at each side of the central tracks and curved to leave the latter unobstructed, substantially as described.

3. A terminal for railways, comprising inside tracks having their complement of terminal switches, and outside tracks including a loop elevated above the inside tracks and their switches, and connected by inclines with the outside tracks, substantially as described.

578,627. CAR-TRUCK. JOHN W. CLOUD, Chicago, Ill. Filed Dec. 2, 1896. Serial No. 614,163. (No model.)

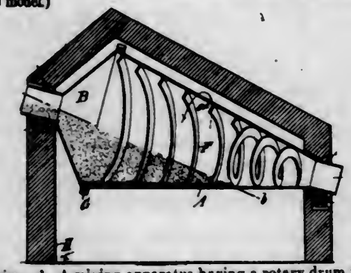


Claim.—1. In a car-truck, the combination, substantially as set forth, of a plate-metal side-frame member, having lower axle-box recesses near its ends, and inwardly-extending flanges turned on its upper and lower sides forming a channel-section, the upper flange extending throughout its length, and pedestals secured to the web of the side-frame member on each side of the axle-box recesses, and to the top flange of the side frame.

2. In a car-truck, the combination, substantially as set forth of a plate-metal side-frame member, having lower axle-box recesses near its ends, and upper and lower flanges, the upper flange extending throughout its length, and pedestals extending through said axle-box recesses and having inwardly and outwardly extending upper flanges, the vertical portions of said pedestals being secured to the web of the side-frame member, and their inwardly-extending upper flanges being secured to the upper flange of the side-frame member.

3. In a car-truck, the combination, substantially as set forth, of a plate-metal side-frame member, having lower axle-box recesses near its ends, and upper and lower flanges, the upper flange extending throughout its length, pedestals secured to the web of the side-frame member, at the sides of the axle-box recesses, said pedestals having outwardly-extending upper flanges and inwardly-extending upper flanges secured to the upper flange of the side-frame member, axle-boxes fitting in said pedestals, and one or more springs located above the axle-boxes on each side of the side-frame member, the outer springs bearing at top against the outer flanges of the pedestals, and the inner springs bearing at top against the upper flange of the side-frame member.

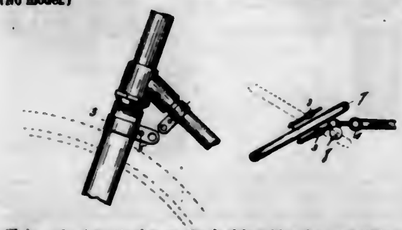
578,628. MIXING AND HEATING APPARATUS. AUGUSTUS S. COOPER, Santa Barbara, Cal. Filed Mar. 27, 1896. Serial No. 585,063. (No model.)



Claim.—1. A mixing apparatus having a rotary drum formed of two intercommunicating and connected cones having coextensive bases and sides of unequal lengths and angles, the bases being placed together, the longer of the cones having its lowermost side line approximately horizontal and the shorter of the cones having its lowermost side line inclined upward from the lowermost side line of the longer cone, and a spiral blade within the longer cone, substantially as described.

2. A mixing apparatus having a rotary drum formed of two intercommunicating and connected cones with coextensive bases and sides of unequal lengths and angles, the bases being placed together, the longer of the cones having its lowermost side line approximately horizontal and the shorter of the cones having its lowermost side line inclined upward from the lowermost side line of the longer cone, the drum being mounted on an inclined axis whereby this disposition of side lines is attained and a spiral blade in the longer cone, substantially as described.

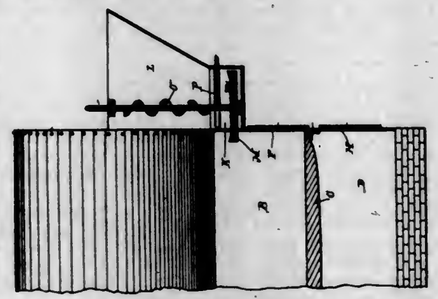
578,629. ATTACHMENT FOR LOCKING BICYCLES. EDWARD P. DOWD, East St. Louis, Ill. Filed Apr. 17, 1896. Serial No. 588,057. (No model.)



Claim.—1. An attachment for locking bicycles, consisting of a clip designed to be removably and adjustably attached near the upper end of the lower brace-bar, an apertured extension attached to said clip, a second clip designed to be removably and adjustably attached to one of the arms of the steering-post and in horizontal alinement with the first mentioned clip, a second apertured extension attached to said second clip and projecting toward said first-mentioned apertured extension and a padlock designed to connect said apertured extensions when the wheels of the bicycle stand at an angle relative to each other and it is desired to secure said wheels in such position, substantially as specified.

2. An attachment for locking bicycles, consisting of a clip removably and adjustably attached near the upper end of the lower brace-bar, an apertured extension attached to said clip, clips removably and adjustably attached to the arms of the steering-post in horizontal alinement with the first-mentioned clip, apertured extensions attached to said last-mentioned clips and projecting toward said first-mentioned apertured extension, and a padlock designed to connect said first-mentioned apertured extension with either one of said last-mentioned apertured extensions, when it is desired to lock the wheels of the bicycle in positions at angles relative to each other, substantially as specified.

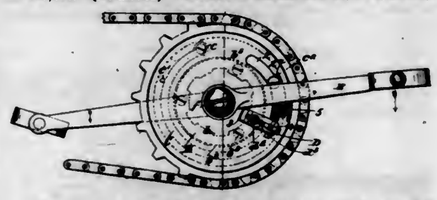
578,630. MECHANICAL STOKING APPARATUS. JOHN A. ERICKSON, Malden, Mass., assignor of two-thirds to Robert C. Claus, Belmont, and Richard C. H. Voigt, Boston, Mass. Filed June 9, 1896. Serial No. 594,869. (No model.)



Claim.—1. In a mechanical stoking apparatus a hopper arranged in front of the boiler, furnace or heating device, one or more rotary shafts arranged therein with distributing-disks secured to the lower end of such shaft, and a helical feed-screw or disintegrator attached to said shaft and one or more gates for regulating the fuel-supply substantially as and for the purpose set forth.

2. In a mechanical stoking apparatus, the combination with a boiler-furnace, of a feed-hopper arranged in front of the furnace, a vertical shaft arranged in said hopper, a rotary distributing-disk arranged on the lower end of said shaft, a rotary disintegrating or feed device arranged on the shaft above the disk, and a gate disposed between the disk and disintegrator for regulating the supply of fuel to the furnace, the said hopper being hinged at one side to the front of the furnace, whereby the hopper and its contained feed mechanism may be swung out of position when not in use, substantially as described.

578,631. STOP-MOTION BRAKE AND FOOT-REST FOR BICYCLES. SILAS FADER, Vancouver, Canada, assignor of three-fourths to Adolphus Williams and John T. Carroll, same place, and the Massey-Harris Company, Toronto, Canada. Filed Oct. 20, 1896. Serial No. 609,426. (No model.) Patented in Canada Oct. 28, 1896, No. 53,910.



Claim.—1. In a stop-motion brake and foot-rest for bicycles, the combination with the crank-axle and the pedal-cranks, and a drive-wheel loosely mounted on such axle having a brake flange, of a disk fixedly held on the axle, a band-brake carried thereby and arranged to be engaged by the retarding movement of one of the pedal-cranks, whereby it is moved into engagement with the brake-flange, and a lock mechanism connected with the brake-band, adapted to positively connect the loose wheel and the disk when the said brake-band is relieved from pressure of the pedal-crank and to be moved out of a locked position by back pressure on the pedal-crank as set forth.

2. The combination with the axle and a drive-wheel loosely held thereon, having a fixed brake-flange, of a disk fixedly secured to the axle, a spring-band held on such disk to encircle the said brake-flange, the free end thereof being projected in the path of one of the pedal-cranks, said disk having a lug, a crank loosely held on the axle adapted

to engage the brake-band by a retarding pressure thereon, and a locking means for connecting the loose and fixed members arranged to be moved to an unlocked position by the brake-band as it is moved toward the brake-flange, substantially in the manner shown and for the purposes described.

3. In a stop-motion brake and foot-rest for bicycles, the combination of a fixed disk upon a crank-shaft, having an extending sleeve and a flange B having recesses *b*, a stout spring secured to and placed at a distance from the axis of the said disk, a projecting lug on one end of the spring and made to pass through an opening in the fixed disk and engage a loosely-mounted pedal-crank on the said shaft, a slot in the said spring placed at some distance from its projecting lugged end; of a sliding plate on the opposite side of the said disk, having projections at each end, the one projecting portion passing through an aperture in the disk and into the slot in the spring, and the other projection passing through a slot to within the said disk at a point toward its center, substantially as specified.

4. In a stop-motion brake and foot-rest for bicycles the combination of a fixed disk upon a crank-shaft, a stout spring held on the disk around the shaft and at some distance from its axis, the loose end thereof projecting through the said disk and being engaged by a loosely-mounted pedal-crank on the said shaft and a projecting shoulder upon the said disk, and made to engage the opposite side of the pedal-crank; of a loosely-mounted sprocket-carrying disk mounted and arranged to turn in close proximity to the fixed disk; an extending flange having a band on its periphery, and recesses on its inner side secured to the loosely-mounted disk within the arc of the spring on the fixed disk; a slidable plate arranged upon the outer side of the fixed disk having projections on each end which pass through the slotted apertures in the said disk, the projection on the outer end engaging in a slot in the spring which encircles the band-covered flange on the loosely-mounted disk, and the projection on the opposite end of the slidable plate, when in its normal position is engaged by one of the recesses on the inner side of the band-covered flange secured to the loose disk, and thereby locking the same substantially as and for the purposes hereinbefore set forth.

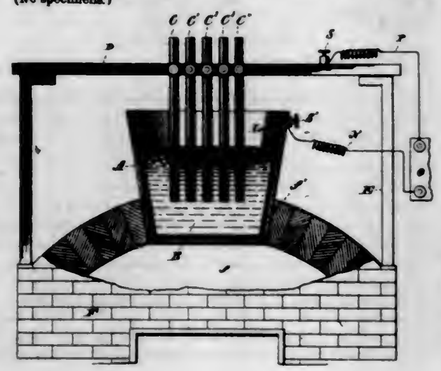
5. The combination, with the crank-axle, the pedal-crank loosely held thereon, the disk fixedly held thereon, having a crank-engaging stop member 5, and an opening 2, having a recess a^3, disposed adjacent the member 5, and a spring brake-band held on the disk, having one end secured thereto and its free end projected through the opening 2, and provided with a pedal-crank-engaging portion, said end being normally held in the recess a^3 of the drive wheel or disk having a brake-flange provided with a series of internal recesses *b*, and the plate D, held to slide on the fixed disk, having a member adapted to engage the recesses *b*, and having its other end connected to the free end of the brake-band, all being arranged substantially as shown and described.

578,632. HAIR-TONIC. MICHEAL J. FLEMING, Portland, Oreg. Filed May 11, 1896. Serial No. 591,192. (No specimens.)

Claim.—1. The method of producing the composition hereinbefore described, which consists in mixing water containing iron oxid, with rum, and hot bear's grease; then maintaining the mixture for several hours at a heat slightly below 212° Fahrenheit; next, successively shaking and thoroughly cooling the mixture, as specified.

2. The improved remedy for baldness, consisting of water containing iron oxid, rum, and bear's grease, the proportions being one-half of the water to a double quantity of each of the other ingredients, as specified.

578,633. PROCESS OF REDUCING ALUMINIUM. FRANK A. GOOCH, New Haven, Conn. Filed May 11, 1896. Serial No. 591,023. (No specimens.)



Claim.—1. As an improvement in the art of manufacturing aluminium, the herein-described process which consists in fusing together sodium fluorid, the oxid of aluminium and a suitable hydrous chlorin compound of aluminium, and passing an electric current through the fused mass, substantially as described.

2. As an improvement in the art of manufacturing aluminium, the herein-described process which consists in fusing together sodium fluorid, alumina and a suitable hydrous chlorid of aluminium, and passing an electric current through the fused mass, substantially as described.

3. As an improvement in the art of manufacturing aluminium, the herein-described process which consists in fusing together sodium fluorid, alumina and the hydrous crystalline chlorid of aluminium, whose symbol is $Al_2Cl_6.12H_2O$, and passing an electric current through the fused mass, substantially as described.

4. As an improvement in the art of manufacturing aluminium, the herein-described continuous process which consists in fusing together sodium fluorid, the oxid of aluminium and a suitable hydrous chlorin compound of aluminium, passing an electric current through the fused mass, and adding to the bath from time to time suitable quantities of the oxid of aluminium, substantially as described.

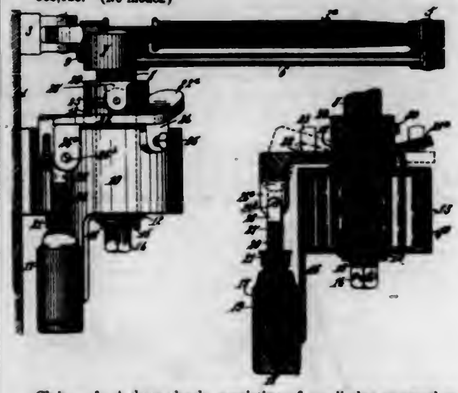
5. As an improvement in the art of manufacturing aluminium, the herein-described continuous process which consists in fusing together sodium fluorid, alumina and a suitable hydrous chlorid of aluminium, passing an electric current through the fused mass, and adding to the bath from time to time suitable quantities of alumina, substantially as described.

6. As an improvement in the art of manufacturing aluminium, the herein-described continuous process which consists in fusing together sodium fluorid, alumina and the hydrous crystalline chlorid of aluminium, whose symbol is $Al_2Cl_6.12H_2O$, passing an electric current through the fused mass, and adding to the bath from time to time suitable quantities of alumina, substantially as described.

7. As an improvement in the art of manufacturing aluminium, the herein-described process which consists in fusing together sodium fluorid and the hydrous crystalline chlorid of aluminium in excess of the amount thereof which will dissolve in the sodium fluorid used, and passing an electric current through the fused mass, substantially as described.

8. As an improvement in the art of manufacturing aluminium, the herein-described continuous process which consists in fusing together sodium fluorid and the hydrous crystalline chlorid of aluminium in excess of the amount thereof which will fuse in the sodium fluorid used, passing an electric current through the fused mass, and adding to the bath from time to time suitable quantities of alumina, substantially as described.

578,634. DOOR-CHECK. CHARLES S. GOODING, Brookline, and VICTOR BEAUREGARD, Boston, Mass. Filed Apr. 2, 1896. Serial No. 585,925. (No model.)



Claim.—1. A door-check, consisting of a cylinder or vessel provided internally with a liquid-compression chamber and a separate liquid-overflow chamber arranged in juxtaposition to each other, and a plunger constructed to enter into and to entirely leave the said compression-chamber, so that when the plunger enters the compression-chamber, the liquid therein overflows therefrom into the overflow-chamber through a restricted passage about the exterior of the plunger and when the plunger leaves the compression-chamber, the latter is in free or unobstructed communication with the overflow-chamber from which the liquid instantly flows into the compression-chamber, substantially as described.

2. The combination with a cylinder or vessel containing liquid, and a plunger working in the cylinder or vessel, of a lever for reciprocating the plunger, and a roll which travels back and forth in contact with said lever from one side to the other of the lever-fulcrum for positively reciprocating the plunger, substantially as described.

3. The combination with a cylinder or vessel containing liquid, and a plunger working in the cylinder or vessel, of a lever for actuating the plunger, a roll-track provided on the plunger-actuating lever, a roll adapted to travel on the roll-track from one side to the other of the lever-fulcrum, and means for moving the roll over the track to move the plunger first in one direction and then in the opposite direction, substantially as described.

4. The combination of a plunger, a liquid-containing cylinder or vessel confining a body of liquid and constructed with a compression-chamber and an overflow-chamber which is in free communication with the compression-chamber when the plunger is withdrawn from the latter, a lever for causing the plunger to enter and leave the compression-chamber, and a roll for operating said lever to move the plunger first in one direction and then in the opposite direction, substantially as described.

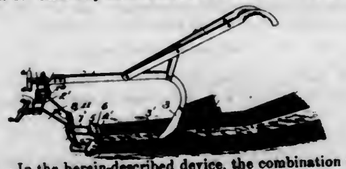
5. The combination in a door-check, of a liquid-holding cylinder, and a plunger, with a lever for moving one of said parts on the other, and a roll which travels back and forth in contact with the lever and operates to swing said lever first in one direction and then in the opposite direction, substantially as and for the purposes described.

6. The combination with a suitable mechanism for closing a door, of a cylinder or vessel confining a body of liquid, a plunger working in the cylinder or vessel, a rocking lever or frame pivotally connected with the plunger, and a roll movable over the rocking lever or frame to rock the same and thereby move the plunger first in one direction and then in the opposite direction, substantially as described.

7. The combination with suitable mechanism for closing a door, of a cylinder or vessel, a plunger working in the cylinder or vessel, a rocking lever or frame pivotally connected with the plunger and having a cam-track, and a roll forming a part of and moved by the door-closing mechanism for rocking said lever or frame, substantially as described.

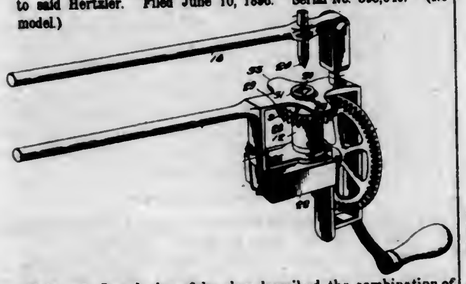
8. The combination with a spring door-closing mechanism, of a fluid cylinder or vessel confining a body of fluid, a plunger working in the cylinder or vessel, a rocking lever or frame connected with the plunger and having a cam-track, and an arm moved by the door-closing mechanism and provided with a roll which travels on the cam-track of the rocking lever or frame for rocking the latter, substantially as described.

578,635. POTATO-DIGGER. CHARLES D. HERSHEY, Hall's Corners, N. Y. Filed July 18, 1896. Serial No. 599,607. (No model.)



Claim.—In the herein-described device, the combination with a plow, a doubletree connected to the beam of said plow, coupling-rods attached to the said doubletree, twisted links attached to the said coupling-rods and to clevises, the said clevises, clevis-plates clamped to the ends of a series of rods, the rear ends of said rods terminating upwardly, the spaces between said rods growing wider toward the rear, substantially as set forth and described.

578,636. DEVICE FOR REMOVING TIRE-BOLTS. JOHN F. HERTZLER and FRANK ROGERS, Lawrence, Kans.; said Rogers assignor to said Hertzler. Filed June 10, 1896. Serial No. 595,049. (No model.)



Claim.—1. In a device of the class described, the combination of a frame, a nut-engaging spindle journaled thereon, a screw fixed to the frame and extending upward therefrom, a yoke or frame having a threaded opening and adjustably mounted on the screw, and a lever fulcrumed in the yoke or frame, arranged to clamp the rim of the wheel between it and the frame, and provided with means for engaging the head of a bolt, substantially as described

2. In a device of the class described, the combination of a frame, a bar extending longitudinally therefrom and forming a handle, a screw fixed to the frame and extending upward from the top of the same, a yoke having a threaded opening and adjustably mounted on the screw, a lever fulcrumed on the yoke and provided with means for engaging the head of a bolt, a vertically-disposed spindle journaled in the frame, a pinion mounted on the spindle, and a gear-wheel meshing with the pinion, substantially as described.

3. In a device of the class described, the combination of a frame, a vertically-disposed spindle journaled therein and provided with a nut opening or bore extending entirely through it, a gearing for rotating the spindle, a box arranged beneath the spindle and provided at its top with an opening and detachably interlocked with the frame at one end, and a spring-catch mounted on the box at the other end thereof and detachably engaging the frame, substantially as described.

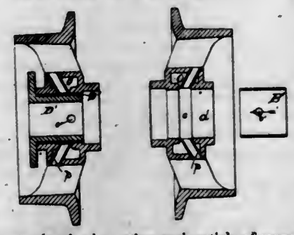
4. In a device of the class described, the combination of a frame provided with a substantially rectangular upper portion, and a depending oblong portion, a vertical spindle journaled in the upper portion of the frame and having a nut-receiving opening extending entirely through it, a pinion mounted on the spindle, a shaft journaled on the lower portion of the frame and projecting from the inner side thereof, a gear-wheel fixed to the shaft and meshing with the pinion, a box mounted beneath the spindle and provided, at its inner end, with an opening receiving the adjacent end of said shaft, and a spring-catch mounted on the other end of the box and comprising a pair of jaws provided with inwardly-extending bends to engage the upper portion of the frame, and arms embracing the opposite edges of the frame, substantially as described.

5. In a device of the class described, the combination of a frame provided with upper and lower bearing-openings, a polygonal spindle having a rounded upper end arranged in the upper bearing-opening, a bearing-plate having a journal or head fitting in the lower bearing-opening, said bearing-plate being provided with an opening to receive the lower end of the spindle, an adjustable collar mounted on the spindle, a spiral spring interposed between the bearing-plate and collar, a pinion mounted on the spindle and located above the adjustable collar, a sleeve concealing the adjustable collar and the spring, and a gear-wheel meshing with the pinion, substantially as described.

6. In a device of the class described, the combination of a frame, a nut-engaging spindle journaled thereon, a lever connected with the frame and provided with means for engaging the head, gearing for rotating the spindle, and a removable socket fitting within the spindle, adapted to enable the nut-receiving opening to be varied in size to operate on different nuts, and provided with a horizontal flange extending from the engaging end of the spindle, said removable socket being provided with resilient longitudinally-disposed arms 33 frictionally engaging the inner face of the spindle, substantially as described.

7. In a device of the class described, the combination of a frame provided with a projection, a spindle journaled on the frame and having a nut-engaging opening, a pinion mounted on the spindle, arranged adjacent to the said projection and provided with marks adapted to register with the projections to indicate the position of the spindle, and a gear-wheel meshing with the pinion, substantially as described.

578,637. WHEEL. HENRY D. HIBBARD, High Bridge, N. J., assignor to the Taylor Iron and Steel Company, same place. Filed July 6, 1896. Serial No. 598,187. (No model.)



Claim.—1. A car-wheel or other such article of manganese steel or other metal which practically cannot be machined, said article having a thin metal bushing expanded into place in its hub and another bushing fixed into the expanded bushing, substantially as described.

2. A car-wheel or other such article of manganese steel or other metal which practically cannot be machined, said article being cast with an oil-cavity and an opening therefrom to the axial hole, a thin

bushing expanded into the latter and another bushing fixed into the expanded bushing, the bushings having openings for the passage of oil, substantially as described.

578,638. STOVEPIPE-COUPLING. THOMAS HOLLAND, Spokane, Wash. Filed Mar. 26, 1896. Serial No. 584,972. (No model.)

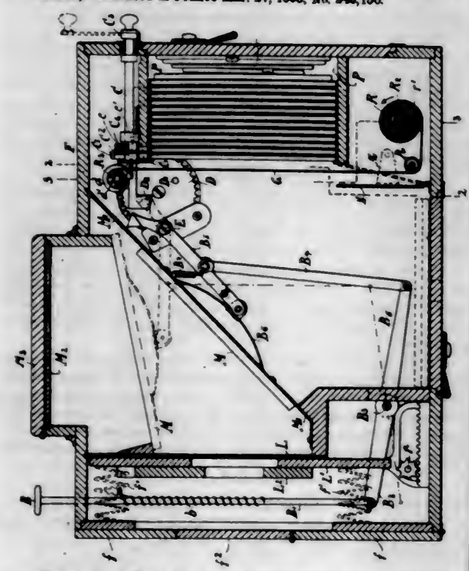


Claim.—1. The combination with a pipe-section having an aperture in one end, of a coupling-plate having a pin near one end registering with said aperture and an offset opposite end, a screw working through coincident apertures in the adjoined pipe-section and said offset, and a second screw arranged to enter coincident apertures in said latter section and said coupling-plate intermediate of its ends, substantially as set forth.

2. In a pipe-coupling, the coupling plate or bar having an outwardly-projecting locking-pin at or near its upper end arranged to enter an aperture in the pipe-section, and offset oppositely at its lower end, and adjusting means connected thereto at said offset end and a point intermediate of its ends, substantially as set forth.

3. In a pipe-coupling, the coupling-plate provided with outwardly-projecting, transversely-alined locking-pins at its upper end and with an offset lower end; a screw-threaded aperture being formed in the offset and in the coupling therebeyond, and the adjusting-screws entering said apertures, substantially as set forth.

578,639. MAGAZINE-CAMERA. LODEWYK JAN RUTGER HOLST, Amsterdam, Netherlands. Filed Feb. 4, 1896. Serial No. 578,014. (No model.) Patented in France Mar. 27, 1895, No. 246,150.

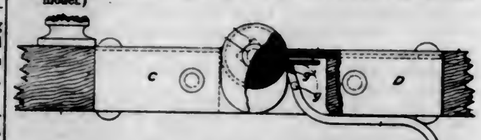


Claim.—1. A divided or mirror camera-provided with means for tipping forward the exposed plates on their lower edges, in combination with a pivoted mirror and lateral operating-levers having pivots situated behind the said mirror, whereby the latter can be arranged so near the lens-board that the exposed plate can be tipped forward behind the mirror, substantially as described.

2. A camera having a change-box and pivoted mirror, and a flexible shutter provided with a small opening for instantaneous exposure and with a large opening for time exposure through which latter opening the sensitized plates can be passed in combination with a roller for the shutter, a lever connected with the mirror, a pawl detaining the roller and acted on by said lever, whereby the flexible shutter is rolled up and the narrow opening passes in front of the plate, a wheel actuated by the roller and provided with a pin adapted to come in contact with the said lever to again stop the shutter until the said pawl again engages with the roller when the mirror is lowered, substantially as described.

3. A camera having a change-box, means for changing the plates, and a flexible shutter provided with a small opening for instantaneous exposure and a large opening for time exposure through which latter opening the sensitized plates can be passed, in combination with a roller for the shutter and a pawl detaining the roller and a lever operated by the means for changing the plates and adapted to set free the said pawl before the front plate is released so that the shutter is rolled up farther in order to bring its large opening in front of the plate either for the purpose of time exposure or for changing the exposed plate which is tipped forward through the said opening, substantially as described.

578,640. CHILD'S CARRIAGE. ARABELLA J. M. HURDLE, Southampton, England. Filed July 21, 1896. Serial No. 599,993. (No model.)

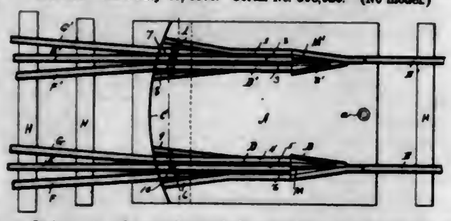


Claim.—1. A joint for adjustably connecting the shaft-handle to a child's mail-cart, said joint being constructed of a cylindrical inner member or boss fixed immovably in position between the cheeks of the one part or shoe and an encircling spring-strap fixed to the other part or shoe, in combination with a bent lever pivoted between the cheeks of the said shoe and adapted to act on a lip at the free end of the spring-strap, in such manner as to draw it tight about the boss and so render the joint rigid as described.

2. A joint for adjustably connecting the shaft-handle to a child's mail-cart, comprising a shoe provided with cheek-pieces having angular openings therein, an apertured cylinder having angular ends fitting in the openings of the cheek-pieces, a second shoe having cheek-pieces, a bolt passing through the cheek-pieces of the second shoe and the cylinder, a strap having one end secured to the said second shoe and passing around the cylinder, and a pivoted lever engaging the free end of the said strap, substantially as described.

3. A joint for adjustably connecting the shaft-handle to a child's mail-cart, consisting of a shoe adapted to be secured to the frame and provided with cheek-pieces having angular openings therein, an apertured cylinder having angular ends fitting in the openings of the cheek-pieces, a second shoe adapted to be secured to the thill-handle and provided with cheek-pieces, a bolt passing through the cylinder and the cheek-pieces of the thill-handle, a spring-strap having one end secured to the shoe of the thill-handle passing around the cylinder and provided with a lip at its free end, and a bent lever pivoted to the shoe of the thill-handle and engaging with its end the lip of the strap, substantially as herein shown and described.

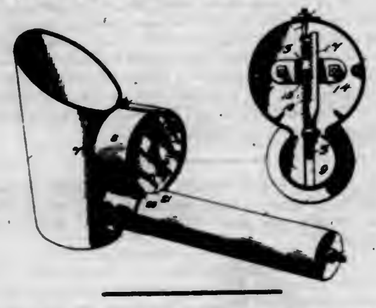
578,641. RAILWAY-SWITCH. WILLIAM H. JACKSON, Indianapolis, Ind. Filed July 13, 1896. Serial No. 598,929. (No model.)



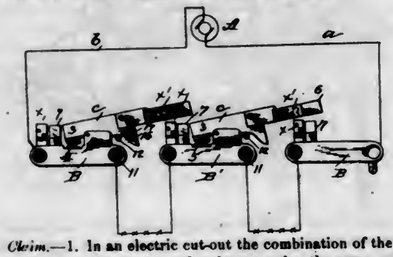
Claim.—A railway safety-switch, comprising in combination the table suitably supported and secured at one end by a pivot-bolt, and at its opposite end supported upon rollers; the pair of frogs situated near the pivotal end of said table; said frogs each having three rails converging toward a point connecting the rails of a main track, the central one of which three rails is a pivotally-supported tapering-pointed piece spring-pressed toward the outer rail; the series of switch-rails connecting the rails of said frogs, and the bevel-pointed rails spring-pressed against adjoining switch-rails as shown, with suitable means for moving the rolling end of said table so that said switch-rails may be brought in line with the fixed rails of the track, substantially as described, for the purposes set forth.

578,642. WEIGHING-SCOOP. DANIEL R. JOSLYN, Gurdon, Ark. Filed Apr. 15, 1896. Serial No. 587,673. (No model.)

Claim.—The combination with a scoop having a rigid beam projecting rearwardly therefrom, of a hollow tubular handle through which said beam extends longitudinally and upon the rear closed end of which it is pivotally mounted, a case supported by the front end of the handle and interiorly in communication therewith, the rear side of said case having a dial traversed by a pointer and covered by a transparent protecting medium, yielding devices for normally holding the scoop in its elevated position, and connections between the beam and said pointer whereby the depression of the latter is indicated upon the dial, substantially as specified.



578,643. ELECTRIC CUT-OUT. DAVID B. KIRCH, Pittsburg, Pa. Filed Sept. 26, 1896. Serial No. 607,076. (No model.)



Claim.—1. In an electric cut-out the combination of the switch piece or lever and the rotary plug for operating the same, said plug being adapted to a socket and freely removable and carrying the loop or branch wire to connect the same electrically in circuit, substantially as described.

2. In combination, the socket-plate, the plug adapted thereto and carrying the loop-wire electrically to connect the same with the socket-plate, and the switch-lever pivoted on the socket-plate, said lever being operated by turning the plug, substantially as described.

3. In combination, the socket-plate, the switch-lever and a contact therefor, and the rotary plug adapted to the socket-plate, said plug having a pin to bear on the switch-lever and being adapted to connect with the loop-wire, substantially as described.

4. In combination, the socket-plate, the rotary plug having a pin 12 and a connection 15 for the loop-wire, the switch-lever pivoted to the socket-plate and having a projection to be operated by the pin on the plug.

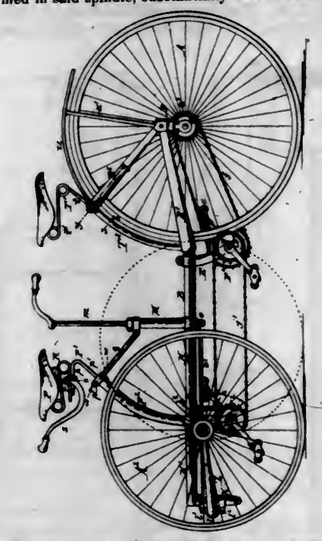
5. In combination, a plate having sockets at its opposite ends, the contact on the plate, the ears also thereon, the switch-lever pivoted in the ears and the removable plugs carrying the loop-wires adapted to the sockets, one of said plugs being adapted to operate the switch-lever when turned, substantially as described.

578,644. VELOCIPEDE. HENRY G. LATH, Friendship, N. Y., assignor to the Pope Manufacturing Company, Portland, Me. Filed Feb. 2, 1888. Serial No. 262,707. (No model.)

Claim.—1. In a velocipede, the combination with two front steering-wheels and a single rear driving-wheel and its axle provided with a sprocket-wheel, of two crank-shafts arranged in front of said rear wheel and provided with sprocket-wheels connected by a drive-chain arranged on one side of the center of the machine, and a drive-chain connecting the sprocket-wheel of the rear driving-wheel with the sprocket-wheel of one of said crank-shafts and arranged on the opposite side of the center of the machine, substantially as set forth.

2. The combination with the axle of the rear driving-wheel provided with a sprocket-wheel, and a crank-shaft provided with two sprocket-wheels of different diameters, of the main frame provided with a socket or opening, a bearing-box provided with a spindle engaging in said socket and arranged on one side of the center of the bearing-box, whereby the distance between the sprocket-wheels of the axle and crank-shaft can be varied by reversing the driving-wheel in the main frame, and either sprocket-wheel of the crank-shaft can be connected with the sprocket-wheel of the axle by the same drive-chain, substantially as set forth.

3. The combination with the main frame of a velocipede provided with a socket or opening, of a bearing-box provided with an eccentric spindle engaging in said socket and a horizontal pin or bolt secured to the main frame and engaging in an annular groove or recess formed in said spindle, substantially as set forth.



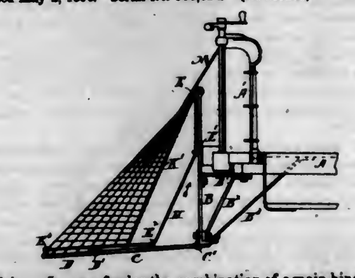
4. The combination with the main frame, a single rear driving-wheel and two front steering-wheels, of a horizontal frame or bar connecting said steering-wheels and capable of being turned into a vertical position, to reduce the width of the machine, substantially as set forth.

5. In a velocipede, the combination with the main frame, a rear driving-wheel and a crank-shaft, of two front steering-wheels arranged outside of said crank-shaft, and a curved frame connecting said steering-wheels and attached to the main frame and composed of two arms passing outwardly from the main frame and extending rearwardly outside of the orbits or circles described by the cranks, substantially as set forth.

6. In a velocipede, the combination with a rear driving-wheel and two front steering-wheels, of a main frame provided at its front end with a spindle, an auxiliary frame provided at its rear end with a socket adapted to fit over said spindle, and at its front end with a spindle, a frame or bar connecting the front steering-wheels, and a steering-head attached to said frame or bar, and adapted to be applied either to the spindle of the main frame or to the spindle of the auxiliary frame, substantially as set forth.

7. The combination with the main frame, composed of a front section provided at its rear end with a socket or sleeve and a rear section having a spindle, of a saddle-support secured to said front section and a crank-shank bracket attached to said sleeve or socket, substantially as set forth.

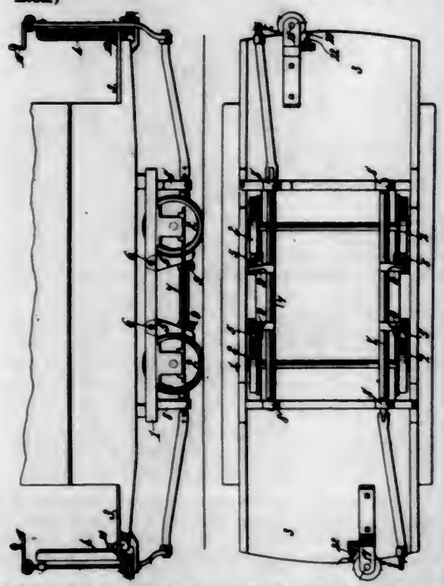
578,645. CAR-FENDER. GEORGE LEARMOUTH, Boston, Mass. Filed May 2, 1896. Serial No. 590,094. (No model.)



Claim.—In a car-fender the combination of a main hinged framework extending horizontally from the end of the car and having hinged to it a tilting frame of full width also extending horizontally; a network extending from the upper part of the dashboard to the front and sides of the tilting frame and provided with ropes H H' connected with the said tilting frame, ropes K K' supporting the net-

work at the sides, diagonal ropes L L passing underneath the network and drawing-up rope M attached to upper cross-rope H' all operating together substantially as and for the purpose set forth.

578,646. **BRAKE FOR STREET-RAILWAY CARS.** JEREMIE LEBRARD, Cohoes, N. Y. Filed June 2, 1896. Serial No. 594,003. (No model.)



Claim.—1. In a car-brake, the combination with the brake-shoes pivotally suspended from the car-truck, of a longitudinally-arranged rock-shaft journaled beneath one side of the truck close to the inner sides of the car-wheels and provided with cam-lugs adapted to have a wedging engagement with the said brake-shoes to force them against the wheels, substantially as described.

2. In a car-brake, the combination with the brake-shoes pivotally suspended from the car-truck, of a longitudinally-arranged rock-shaft journaled beneath one side of the truck close to the inner sides of the car-wheels and provided with outwardly-projecting cam-lugs adapted to have a wedging engagement with the said brake-shoes to force them against the wheels, an operating-lever connected with one end of said rock-shaft, and means for locking the brakes, substantially as described.

3. In a car-brake, the combination with the brake-shoes pivotally suspended from the car-truck, of a rock-shaft journaled longitudinally beneath one side of the truck close to the inner sides of the car-wheels and provided with cam-lugs adapted to have a direct wedging engagement with the said brake-shoes to force them against the wheels, means for locking the brakes and rock-shaft, and a spring for returning the rock-shaft to normal position when released, substantially as described.

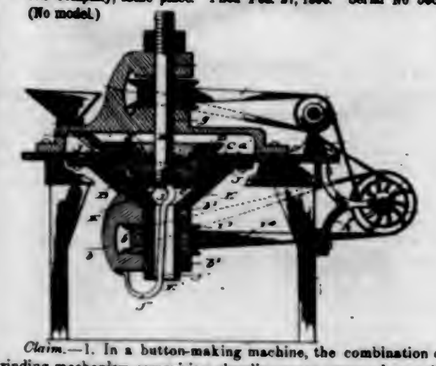
4. In a car-brake, the combination with the brake-shoes pivotally suspended from the car-truck, of a rock-shaft journaled longitudinally beneath one side of the truck close to the inner sides of the car-wheels and provided with cam-lugs adapted to have a wedging engagement directly with the said brake-shoes to force them against the wheels, means for operating and locking said rock-shaft, an arm carried by the rock-shaft, and a spring adapted to act on said arm to return the rock-shaft to normal position when released, substantially as described.

5. In a car-brake, the combination with the brake-shoes pivotally suspended from the car-truck, of a rock-shaft journaled beneath the truck adjacent to the inner sides of the car-wheels and provided with cam-lugs adapted to have a wedging engagement with the said brake-shoes to force them against the wheels, a lever on one end of said rock-shaft, a cranked spindle provided with a pulley, a chain connecting said pulley with the lever on the rock-shaft, pawl-and ratchet mechanism to lock the spindle, and a foot-lever to control said pawl-and-ratchet mechanism, substantially as described.

6. In a car-brake, the combination with the brake-shoes pivotally suspended from the car-truck on each side, of two longitudinally-arranged rock-shafts journaled beneath opposite sides of the truck adjacent to the inner sides of the car-wheels, cam-lugs carried on said rock-shafts and adapted to have direct wedging engagement with the said brake-shoes to force them against the wheels, and means for operating said rock-shafts separately from opposite ends of the car, substantially as described.

7. In a car-brake, the combination with the brake-shoes pivotally suspended from the car-truck on each side, of two rock-shafts journaled beneath the truck adjacent to the inner sides of the car-wheels, one of said rock-shafts being extended beneath the forward platform and the other beneath the rear platform, cam-lugs carried on said rock-shafts and adapted to have wedging engagement with the said brake-shoes to force them against the wheels, a lever on the extended end of each rock-shaft, a cranked spindle having a pulley connected with said lever by a chain, pawl-and-ratchet locking mechanism, and a spring to return each rock-shaft to normal position when released, substantially as described.

578,647. **BUTTON-MAKING MACHINE.** ELIHU LIPPITT, Cleveland, Ohio, assignor, by mesne assignments, to the Buckeye Pearl Button Company, same place. Filed Feb. 27, 1896. Serial No. 580,931. (No model.)



Claim.—1. In a button-making machine, the combination of a grinding mechanism comprising abrading-cones arranged one within the other with their working surfaces opposite to each other, and a feed mechanism situated between said cones for presenting button-blanks in operative relation to said working surfaces of the cones, as and for the purposes described.

2. In a button-making machine, of a grinding mechanism comprising a female abrading-cone having an inner working surface, and a male abrading-cone supported, partially or wholly, within the female cone to have its outer working surface opposed to the inner working surface of said female cone, combined with mechanism for driving one or both of said cones, and a feed device extending between the cones to present button-blanks to the working surfaces of said cones, substantially as and for the purposes described.

3. In a button-making machine, the abrading-cones arranged one within the other to have their working surfaces opposed to each other, in combination with an irregular feed track or guide situated between said abrading-cones, to present button-blanks to the working faces of both cones, substantially as and for the purposes described.

4. In a button-making machine, the combination of abrading-cones, arranged one within the other, and a helical or coiled feed guide or track supported between, and out of contact with, the working surfaces of said abrading-cones, as and for the purposes described.

5. In a button-making machine, the combination of abrading-cones arranged one within the other and having their working surfaces opposed to each other, means for rotating said cones in opposite directions, and a fixed feed track or guide having a helical or spiral portion situated between the working surfaces of said abrading-cones, substantially as and for the purposes described.

6. In a button-making machine, the combination of a female abrading-cone, a male abrading-cone supported within said female cone, and a feed track or guide attached at its ends to the machine-framing and having a helical or coiled portion which surrounds the male cone and is within the female cone, substantially as and for the purposes described.

7. In a button-making machine, the combination of a female abrading-cone having an opening at its apex, a carrier in which said cone is mounted, a hollow spindle or shaft rigid with said carrier and arranged to receive button-blanks as they are discharged through the opening in the female cone, a male cone suspended within said female cone, means for rotating one or both of said cones, and a feed mechanism to direct button-blanks between the working surfaces of said cones, substantially as and for the purposes described.

8. In a button-making machine, the abrading-cones, the axes of which are vertical, arranged one within the other, and the female cone having a discharge-opening at its apex, in combination with a hollow spindle, a carrier mounted on said spindle and attached to the female cone, a suspended shaft attached to the male cone, and a helical or spiral feed-track situated between said cones and having its upper end attached to the machine-framing and with its other end carried through said hollow spindle and also attached to the machine-framing, substantially as described.

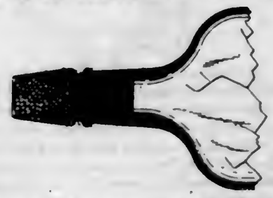
9. The combination of a female abrading-cone having a discharge-opening *c*, a hollow spindle below said discharge-opening, a carrier attached to the spindle and to the female cone, a feed-track situated in said cone and the spindle and having a discharge-bend at or about the point where it passes through female cone, a male cone suspended within said female cone, and means for rotating said cones, substantially as and for the purposes described.

10. The combination of a female abrading-cone, the axis of which is vertical, of a male abrading-cone suspended within said female cone and adjustable relatively thereto, and a feed device to direct blanks between the working surfaces of said abrading-cones, substantially as and for the purposes described.

11. In a button-making machine, the combination of a hollow spindle having the carrier, a female abrading-cone supported on said carrier and having a discharge-opening at its bottom, a vertical shaft carrying a male cone which is arranged within the female cone, a power-shaft, gear connections between said power-shaft and the two cone-shafts, and a feed device situated between the working faces of said abrading-cones, substantially as and for the purposes described.

12. In a button-making machine, an abrading mechanism consisting of oppositely-rotating cones arranged one within the other and having opposing working faces and one cone rotating at higher speed than the other cone, combined with a feed track or guide along which button-blanks are adapted to move and to present their faces to the working surfaces of said cones, substantially as and for the purposes described.

578,648. **BOTTLE.** WILLIAM W. MANGUM, Jr., Nixon, Tenn. Filed Sept. 12, 1896. Serial No. 605,653. (No model.)



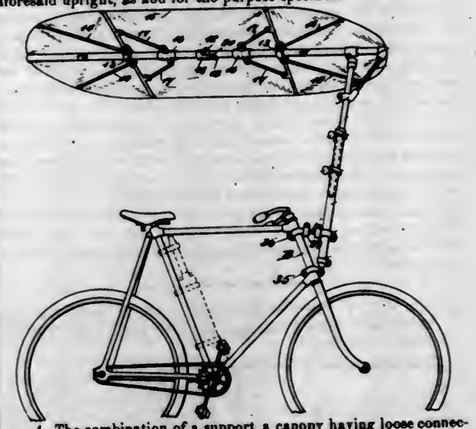
Claim.—A bottle having a contracted neck with oppositely-disposed circumferential grooves in the inner and outer surfaces thereof, and a series of perforations in the weakened portion of the neck formed by said grooves and an internal annular recess just above said grooves, in combination with a sealing-cork fitting within the lower end of said neck, a disk of cork or other light material fitting within said neck just above said sealing-cork and a stopper of glass, porcelain, or the like, fitting within the upper end of said neck having longitudinal grooves in its outer surface near its lower end, and an annular groove just above said longitudinal grooves, the said stopper being held permanently in place by means of cement located between the outer surface of said stopper and the inner surface of said neck, and fitting within the grooves in said stopper and the annular recess in said neck, substantially as and for the purpose described.

578,649. **BICYCLE-CANOPY.** ADOLPH MAIR, Carbondale, Pa. Filed Nov. 3, 1896. Serial No. 610,914. (No model.)

Claim.—1. The combination, with a canopy for a bicycle or for other vehicles, of an upright, a swivel connection between the upright and the forward portion of the canopy, and a spring attached to the upright and to the canopy in advance of its connection with the upright, as and for the purpose specified.

2. The combination, with a canopy for bicycles or other vehicles, of an upright having a swivel connection with the forward portion of the canopy, a spring attached to the upright and to the canopy in advance of its connection with the upright, a standard, means for adjusting the upright in the said standard, and devices carried by the standard and arranged for engagement with the frame of the bicycle, as and for the purpose specified.

3. The combination, with a canopy for bicycles or other vehicles, of an upright having a swivel connection with the forward portion of the canopy, a spring attached to the upright and to the canopy in advance of its connection with the upright, a standard, means for adjusting the upright in the said standard, clamps adapted one for attachment to the upright and the other for attachment to the bicycle-frame, an adjustable rod connecting the two clamps, and a third clamp having a hinged connection with the lower portion of the aforesaid upright, as and for the purpose specified.

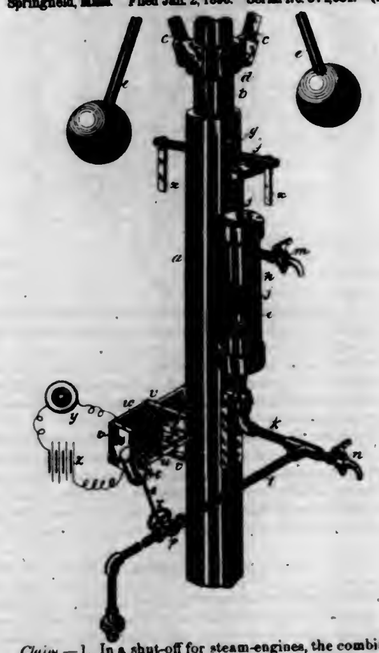


4. The combination of a support, a canopy having loose connection therewith, and a spring connected to the canopy and to the support and holding the canopy yieldingly in its normal position, substantially as described.

5. The combination of a support, a canopy pivoted thereon, and a spring connected to the canopy and to the support and exerting an influence on the canopy in a line transverse to the pivot thereof, substantially as described.

6. In a canopy, the combination of two pivotally-connected rods, a sleeve fixed to each rod, ribs pivoted to the sleeves, a cover connected to the ribs, a runner carried by each rod, and links respectively connected to the runners and to portions of the ribs, substantially as described.

578,650. **STOP DEVICE FOR ENGINES.** THOMAS D. MILLER, Springfield, Mass. Filed Jan. 2, 1896. Serial No. 574,061. (No model.)

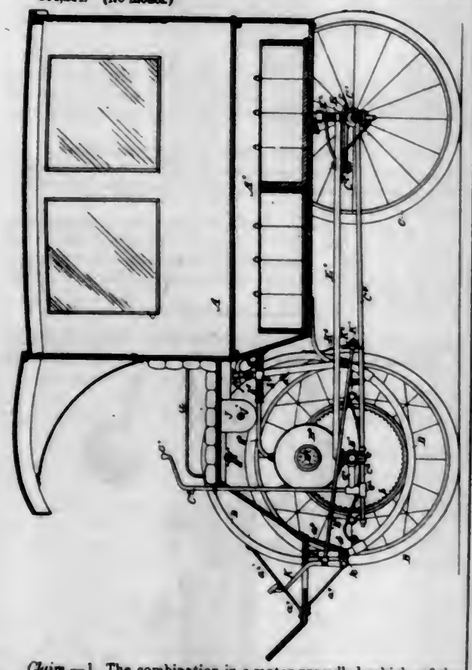


Claim.—1. In a shut-off for steam-engines, the combination with the governor-post, the governor, and the valves of the engine-cylinder, of a movable cross-rod in the governor-post, suitable connections between the cross-rod and the engine-cylinder valves, a steam-cylinder, a piston in the steam-cylinder arranged to move the said cross-rod, a steam-pipe leading from the engine-boiler into the steam-cylinder below the piston, and a valve in the steam-pipe to control the admission of steam to the steam-cylinder.

2. In a shut-off for steam-engines, in combination with the governor, and the engine-cylinder valves, and the governor-post, of a cross-rod in the governor-post suitably connected to the valves in the engine-cylinder, a steam-cylinder secured to the governor-post, a piston in the steam-cylinder having its rod arranged to support and move the cross-rod, a steam-pipe leading into the lower end of the steam-cylinder, a valve in the steam-pipe, and means substantially as described for opening and closing the said valve.

3. In combination with the governor of a steam-engine and the valve-controlling mechanism, of a shut-off mechanism comprising a cross-rod *f*, in the governor-post, connecting-rods *x*, *x*, leading to the grab-hooks of the cylinder-valves, a cylinder *h*, a piston *l* having the rod *j* in contact with the cross-rod *f*, a steam-pipe *k*, *l*, a valve *p*, in the steam-pipe, a lever *s* to turn the valve, a weight on the lever, an electromagnet, an armature formed with an arm *u* to engage and hold the weight, an electric circuit, and a make-and-break device in the circuit.

578,651. MOTOR-PROPELLED VEHICLE. HENRY G. MORRIS and PEDRO G. SALOM, Philadelphia, Pa. Filed July 6, 1896. Serial No. 598,211. (No model.)



Claim.—1. The combination in a motor-propelled vehicle, of the frame having circular end sections connected together and an axle mounted on said frame, substantially as described.

2. The combination in a four-wheeled vehicle, of the front and rear axles connected together by a perch, a frame consisting of two circular sections carrying one axle and transverse pieces connecting the circular sections together, substantially as described.

3. The combination in a motor-propelled vehicle, of the front axle, driving-wheels thereon, with a pivoted rear axle having wheels thereon, means for turning the said axle, a frame consisting of two circular tubular sections connected together by transverse tubes, springs coupled to the circular sections and supporting the front axle and means for driving the wheels on the front axle, substantially as described.

4. The combination in a motor-propelled vehicle, of the front axle, driving-wheels thereon, two electric motors mounted on the front axle, one motor geared to one driving-wheel and the other motor geared to the other driving-wheel, a rear axle, wheels thereon, a pivot for the rear axle, steering mechanism connected to the rear axle and tubular framework supporting the front axle and the forward portion of the body of the vehicle, the rear portion of the vehicle being supported by the rear axle, substantially as described.

5. The combination in a motor-propelled vehicle, of the circular tubular sections D D, cross-tubes *d*, *d'*, d^2, d^3 connecting the circular sections together front and rear axles, wheels therefor, the vehicle-body having a seat and foot-board, the foot-board being secured to the cross-tube *d*, the seat being mounted on the cross-tubes *d'*, d^2 and the main body of the vehicle being coupled to the tubes d^2, d^3 the rear of the vehicle being supported by the rear axle, substantially as described.

6. The combination in a motor-propelled vehicle, of the front axle, driving-wheels thereon, a pivoted rear axle, wheels thereon, a steering-shaft at the forward end of the vehicle having a pinion, a rod connected to the rear axle at one side of the pivot and having a rack at its opposite end with which the pinion meshes so that on turning the shaft the rear axle will be turned upon its pivot, substantially as described.

7. The combination in a motor-propelled vehicle, of the tubular framework, a front axle, its springs secured to the framework, a pivoted rear axle, a cross-bar above the rear axle, a perch extending from said cross-bar to the front axle, a block *e* on the end of the perch, a bracket extending from said block and carrying a bearing and a slideway, a steering-shaft adapted to the bearing and a rod geared to said steering-shaft and adapted to the slideway, said rod being coupled to the rear shaft, substantially as described.

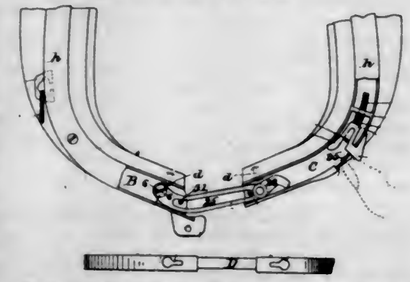
8. The combination in a motor-propelled vehicle, of the front and rear axles, driving-wheels on the front axle, a frame consisting of two circular tubular sections connected together by cross tubes or rods, clips on the said circular sections, springs coupled to said clips and adapted to the front axle, two motors mounted on the axle, one motor gearing with one driving-wheel and the other motor gearing with the other driving-wheel, bearings b^4 on the tubular frame, a rod b^3 coupled to each motor and extending through the bearing and two springs on the rod, one on one side of the bearing and the other on the opposite side of the bearing, substantially as described.

578,652. CIGAR OR CIGARETTE HOLDER. ARTHUR C. MORRISON, Uniontown, Ky. Filed Apr. 21, 1896. Serial No. 588,458. (Model.)



Claim.—A cigarette-holder, formed of a length of spring-wire, the middle portion of which is bent and spread transversely to form a base whereon the holder may rest, and each end portion of the wire being bent upwardly and then horizontally, the horizontal portions normally running approximately parallel to each other, and the extremities of the wire being bent upwardly from the horizontal portions and respectively curved to form eyes for holding the cigarette, substantially as described.

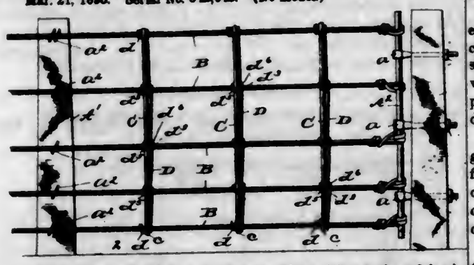
578,653. HAMES. PETER MCAULAY, Boston, Mass. Filed Dec. 30, 1896. Serial No. 617,500. (No model.)



Claim.—1. In a hame-coupling, the combination with the hames, of the longitudinally-slotted connecting-link pivoted at one end to one of the hames and sliding within the hollow portion of the opposite hame, a stop-pin passing through the slot in the link for limiting the outward movement of the ends of the hames from each other, a dog pivoted to the free end of the connecting-link and having a hook or projection at its outer end adapted to engage an aperture in the wall of the casing in which the connecting-link slides, and a spring-actuated sliding catch-bolt provided with a thumb-piece, and having a tongue or projection adapted, when the hames are brought together, to pass behind the dog and lock the same within the aperture in the casing, all constructed to operate substantially as described.

2. The combination with a divided horse-collar having headed studs projecting from the inner sides of its lower ends, of the hames provided with buttonhole-slots engaging said studs, and the fastening-bolts *g*, *g*, for securing the upper portions of the hames to the collar, substantially as described.

578,654. WIRE FENCE. PETER NOVERRY, Adrian, Mich. Filed Mar. 21, 1896. Serial No. 583,645. (No model.)



Claim.—In a wire fence, the combination with a series of horizontal fence-wires, of a series of vertical stay-wires secured at their ends to the top and bottom fence-wires by being turned about the same to form retaining-loops, and a locking-wire for each stay-wire, the said locking-wire being first coiled around the top fence-wire on one side of the stay-wire, thence around the fence-wire on the other side of the stay-wire, thence downward and under the next fence-wire and under and diagonally upward and across the same, thence diagonally downward and around the stay-wire and under and around the fence-wire, thence over the fence-wire and downward to the next fence-wire, and so on throughout the entire series, the lower end of the stay-wire being finally secured to the bottom fence-wire, substantially as described.

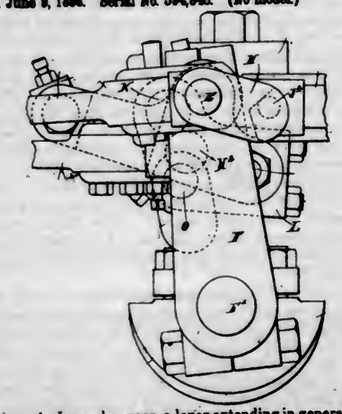
578,655. CEILING CUT-OUT. HARRY T. FAIRTE, Philadelphia, Pa., assignor to the H. T. Fairte Company, same place. Filed May 8, 1896. Serial No. 592,507. (No model.)



Claim.—1. The combination in a ceiling cut-out of the body portion having terminal plates thereon, one plate having a recess and the other a headed retainer, with a cap having terminals, one terminal having a tongue adapted to fit loosely in the recess in one of the plates of the body so as to form a loose hinge on which the cap can swing vertically, the other terminal being slotted so as to engage with the headed retainer, substantially as described.

2. A binding-post consisting of a single piece of sheet metal cut and bent so as to form a pair of jaws, an attaching-lug projecting in the opposite direction from said jaws, and a connecting-web bent so as to bring the jaws and attaching-lug back to back, substantially as described.

578,656. VALVE-GEAR. FRANKLIN PILKINGTON, Anniston, Ala. Filed June 9, 1896. Serial No. 594,840. (No model.)



Claim.—1. In a valve-gear, a lever extending in general direction the same as the valve-stem and operating said valve-stem, an eccentric of fixed and one of variable throw connected to said lever and having practically equal moving effect thereon and in the same direction when the variable eccentric is at its maximum, and link connections between the eccentrics and said lever whereby decreasing the throw of the variable eccentric will give a vertical vibration to the said lever, substantially as shown and described.

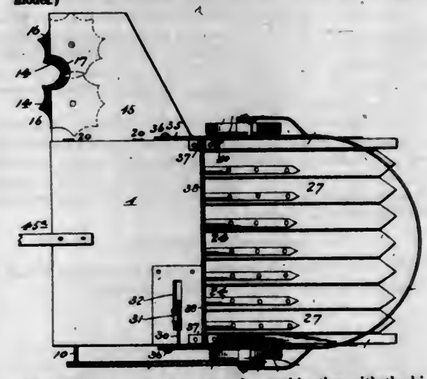
2. A valve-gear comprising a rocker-arm connected with the governor-eccentric, a yoke carried by the said rocker-arm and having connection with the shaft-eccentric, and a lever having a link suspension from said yoke and from a fixed point, connected with the slide-valve and also with the said yoke through the medium of an interposed lever, and said interposed lever, substantially as shown and described.

3. A valve-gear comprising a rocker-arm controlled from the governor-eccentric, a yoke hung on the said rocker-arm and controlled from the shaft-eccentric, an arm hung on the said yoke, a lever fulcrumed in the said yoke and controlling the slide-valve, and a link connecting the said lever with the yoke, substantially as shown and described.

4. A valve-gear comprising a rocker-arm controlled from the governor-eccentric, a yoke hung on the said rocker-arm and controlled from the shaft-eccentric, an arm hung on the said yoke, a lever fulcrumed in the said yoke and controlling the slide-valve, a link connecting the said lever with the yoke, and a second rocker-arm having a pin engaging the said arm, substantially as shown and described.

5. A valve-gear comprising a rock-arm connected to the governor-eccentric, a yoke suspended upon the rock-arm having a horizontal lever attached to one end thereof, an eccentric of fixed throw attached to said yoke below its pivot, a lever carried upon link connections from said yoke-lever and in general occupying the same direction as the valve-stem, and connected at one end to the valve-stem, substantially as described.

578,657. CORN-HARVESTER. PETER F. RICKER and ANDREW PLACK, Galion, Ohio. Filed Mar. 19, 1896. Serial No. 583,945. (No model.)



Claim.—1. In a corn-harvester, the combination with the hinged tilting platform, the shaft journaled thereto, provided at the outer end with a sprocket-wheel and at the inner end with a knuckle, of the shaft having a corresponding knuckle engaging therewith, the beveled pinions, the beveled pinions engaging therewith, and the rotatable overlapping polygonal disks; substantially as described.

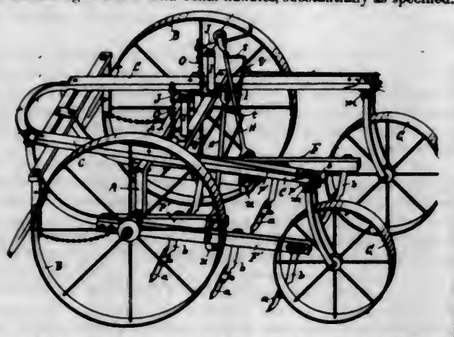
2. In a corn-harvester of the character described, the combination with the flat oscillating bars having beveled edges, the rods secured to the front ends thereof, and means for operating the same, of the pivoted yoke, comprising the metal rod bent into semicircular form and the ends inclined downwardly and formed into eyes pivotally connected with the machine, the transverse shaft located in rear of the pivotal points of said yoke, the arms secured to each end of said shaft, the brackets at the upper ends thereof, the pins, the rollers engaging with the horizontal portion of the yoke to hold it in operative position and adapted to engage with the inclined ends of the yoke to elevate the same, and the handle secured to one of said arms, substantially as described.

578,658. CULTIVATOR. GEORGE W. RIFE, Boston, Ind. Filed Jan. 11, 1897. Serial No. 618,847. (No model.)

Claim.—1. A cultivator having a main frame supported partly upon ground-wheels, a seat attached to said frame supported by caster-wheels, locking mechanism applied to said caster-wheels which are under the control of the operator, and means for simultaneously operating the locks of both caster-wheels, gangs of cultivator-teeth hinged to the frame and operating inside of the tread of the caster-wheels, substantially as specified.

2. A tongueless cultivator having a main frame supported partly upon ground-wheels and partly upon caster-wheels swiveled on the

main frame, locking mechanism applied to said caster-wheels, gang-beams carrying cultivator-teeth, hinged to the main frame and working inside of the tread of the caster-wheels, handles connected to said gang-beams, a member lying in the path of the movement of said handles and connected to both sets of caster-wheel locking mechanisms, whereby they are simultaneously operated to release the lock by the raising of one of said beam-handles, substantially as specified.

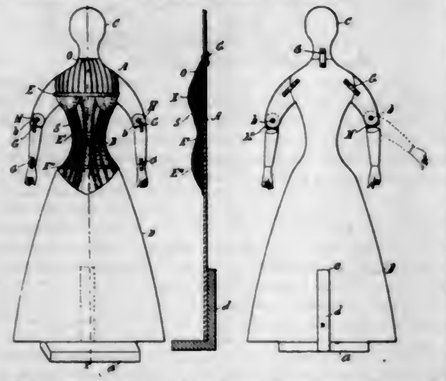


3. In a tongueless cultivator the frame of which is supported partly upon ground-wheels and the rear end upon caster-wheels swiveled to the sides of the main frame and at the rear thereof, gang-beams carrying cultivator-teeth hinged to the main frame and working inside of the tread of said caster-wheels, spring-controlled locks connected to the swivels of each caster-wheel and means for simultaneously operating said locks for releasing and securing them and under the control of the operator, substantially as specified.

4. In a cultivator employing a main frame supported upon wheels, gang-beams carrying cultivator-teeth and connected to the main frame by laterally and vertically moving hinges, lifting-handles hinged to said gang-beams at one end and supported upon a swiveling lever and springs connected to said swiveling lever for regulating the movement thereof, substantially as specified.

5. In a cultivator employing gang-beams having a main frame supported upon ground-wheels, in combination with handles H hinged to said gang-beams, a swiveling lever supported upon a standard, springs attached to and controlling said swiveling lever, and antifriction-wheels pivoted to said handles and traveling upon said swiveling lever, substantially as specified.

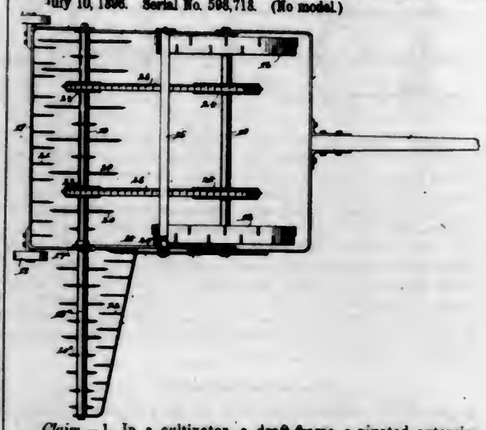
578,659. DISPLAY-FIGURE. OAKLEY SHELBOK, New York, N. Y. Filed May 15, 1896. Serial No. 591,647. (No model.)



Claim.—1. In a display dress-figure the combination with the main part composed of the upright board A shaped to approximately represent the outline of the human figure and mounted on a suitable base, and with movable parts conforming to and concomitant to the said figure, of hinge-joints composed respectively of the button H and screw-bolt *b*, connecting portions of said movable parts to each other and flexible metallic strips G connecting the movable parts to said main figure, for permitting adjustment of the movable parts in relation to the main figure, substantially as and for the purpose described.

2. In a display dress-figure the combination with the main part composed of the upright board A shaped to approximately represent the outline of the human figure and mounted on a suitable base, and with movable parts conforming to and concomitant to the said figure, of hinge-joints composed respectively of the button H and screw-bolt *b*, connecting portions of said movable parts to each other, and flexible metallic strips G connecting the movable parts to said main figure, for permitting adjustment of the movable parts in relation to the main figure, and having segmental pieces E, E', E², hinged to suitable portions of the main part and connected by a half-corset substantially as and for the purpose herein shown and described.

578,660. CULTIVATOR. LOUIS H. SMITH, El Cajon, Cal. Filed July 10, 1896. Serial No. 598,718. (No model.)



Claim.—1. In a cultivator, a draft-frame, a pivoted extension from the same, a cultivator-shaft journaled in the extension from the draft-frame, a cleaner-frame having pivotal connection with the extension from the draft-frame, and means for raising and lowering the cleaner-frame, substantially as described.

2. In a cultivator, a cultivator-shaft the main portion whereof is journaled in the frame of the machine, an extension for the said cultivator-shaft projected beyond a side of the frame, and cleaner-teeth arranged to receive between them the cultivating-teeth of the cultivator-shaft and the extension thereof, substantially as shown and described.

3. The combination, with a frame, an axle journaled therein, supporting-wheels carried by the said axle, and a cultivator-shaft journaled in the rear portion of the said frame, having radially-disposed teeth, of an extension from the cultivator-shaft, likewise provided with radial teeth, a cleaner-frame pivotally connected with the main frame, the teeth of the said cleaner-frame being arranged to alternate with the teeth of the cultivator-shaft and its extension, and an adjusting device for raising and lowering the said cleaner-frame, as and for the purpose set forth.

4. The combination, with a frame, an axle journaled therein, supporting-wheels carried by the said axle, and a cultivator-shaft journaled in the rear portion of the said frame, having radially-disposed teeth, of an extension from the cultivator-shaft, likewise provided with radial teeth, a cleaner-frame pivotally connected with the main frame, the teeth of the said cleaner-frame being arranged to alternate with the teeth of the cultivator-shaft and its extension, an adjusting device for raising and lowering said cleaner-frame, the teeth of the cultivator-shaft being graduated in length in direction of the outer end of the extension of the main cultivator-shaft, the cleaner-frame being given a corresponding inclination to the line of graduation of the cultivator-teeth, and wheels located upon the rear main portion of the cleaner-frame, as and for the purpose set forth.

5. A cultivator having a main frame formed of two pivotally-connected sections, a tongue connected to one section, a cultivator-shaft journaled in the second section, a cleaner-frame pivotally connected to said second section, and means for changing the relative positions of the said second section and the cleaner-frame, substantially as described.

6. A cultivator having a main frame formed of two pivotally-connected sections, a cultivator-shaft journaled in one of said sections and projected beyond the section, a cleaner-frame pivoted to said section, a yoke-frame extending with the extension of the cultivator-shaft and moving in unison with the cleaner-frame, and means for changing the relative positions of the yoke and cleaner frames with the section of the main frame to which the cleaner-frame is pivoted, substantially as described.

7. A cultivator having a main frame, wheels for carrying the main frame, a transverse cultivator-shaft revolubly mounted in the main frame and extending beyond one side of the same to form an auxiliary cultivator-shaft, means for driving the cultivator-shaft, cultivator-teeth secured to the cultivator-shaft, a cleaner-frame pivoted to the main frame, an auxiliary cleaner-frame extending outward with the auxiliary cultivator-shaft and connected to move with the first-named cleaner-frame and cleaner-teeth secured to the cleaner-frames and coacting with the cultivator-teeth, substantially as described.

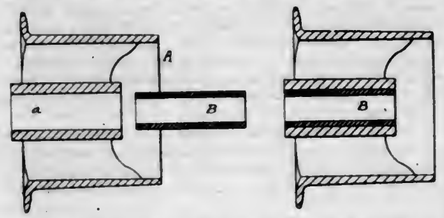
578,661. SPROCKET-CHAIN. HARRY E. STAHL and FRANK T. CORYELL, Trenton, N. J.; said Coryell assignor to said Stahl. Filed Jan. 10, 1896. Serial No. 575,041. (No model.)

Claim.—1. In a sprocket-chain, the combination with the link-bars and their connecting-pins, each of which has a head at one end and a groove near its opposite end, of spring-metal latch devices for securing said link-bars, said devices having each at one end an open slot which engages the groove of one of said pins, and also inwardly-bent lateral lugs d^3 adapted to catch over the upper and lower edges of one of the link-bars, said device also having means for holding one of said pins from turning in said bars, substantially as specified.

2. In a sprocket-chain, a link consisting of two parallel side bars and two connecting pins or journals passed loosely through the said bars from opposite sides, and having each a head at one end, and a groove near its opposite end, and two removable spring-latch devices applied one to the outer face of each link-bar, each of said devices having an open slot at one end which engages the groove of one of the pins, and a tail or extension at its opposite end which engages the head of the other pin, substantially as specified.

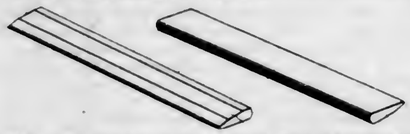
3. In a sprocket-chain, the combination with the links having the removable side bars, and the removable pins or journals which connect the said bars and which have each a slotted head at one end, and a surrounding groove or depression near its opposite end, of removable latch devices, each of which engages the groove of one pin of each link, and the slotted head of the other pin, substantially as specified.

578,662. CAR-WHEEL, &c. WILLIAM J. TAYLOR, Bound Brook, N. J., assignor to the Taylor Iron and Steel Company, High Bridge, N. J. Filed Jan. 4, 1897. Serial No. 617,970. (No model.)



Claim.—A car-wheel or other such article of manganese steel or other metal which cannot be practically machined, said article having a metal bushing of machinable ductile metal expanded into place in its hub, substantially as described.

578,663. CURTAIN-SLAT. ABSEL F. TEMPLE, Muskegon, Mich., assignor to the Stewart Hartshorn Company, Newark, N. J. Filed Feb. 15, 1896. Serial No. 579,382. (No model.)

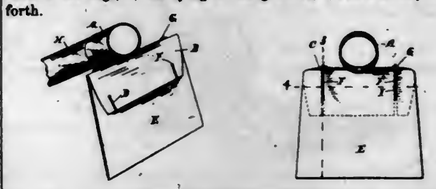


Claim.—As an improvement in curtain-slats, a slat chamfered at the thin edge so as not to tear the curtain when inserted therein.

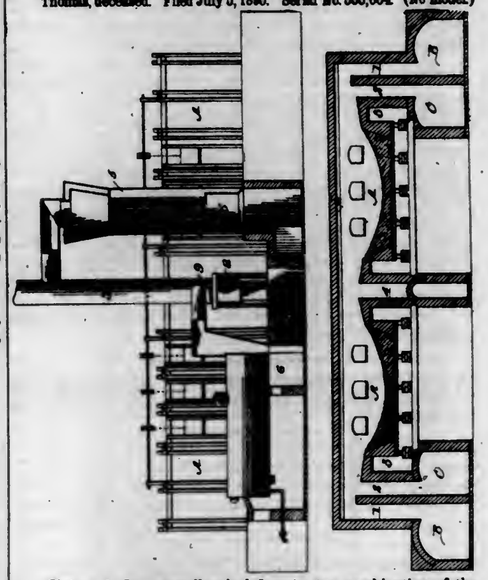
578,664. HOE. GEORGE W. THOMAS and SAMUEL BRANCH, Lexington, Ark. Filed Oct. 12, 1896. Serial No. 608,625. (No model.)

Claim.—1. A handle-socket A for a garden implement provided with a supporting-plate having perforated flanges or lugs at its edges and on either side of the socket, and disposed at an angle to the plate, in combination with a blade secured to the plate, and securing-bolts which pass through the blade and the plate, and through the said perforated lugs, whereby different blades may be applied to and removed from the handle-socket and plate, without disturbing the handle which is supported in the socket A, substantially as set forth.

2. A handle-socket for a garden implement provided with a supporting-plate having perforated lugs, C, at its upper edge, in combination with a hoe-blade having the grooves, I, I, and the angular bolts, F, passing through the blade and the plate, and the perforations in the lugs, C, and lying in the grooves, I, substantially as set forth.



578,665. METALLURGICAL FURNACE. WILLIAM J. THOMAS, Canal Dover, Ohio; Hannah Thomas administratrix of said William J. Thomas, deceased. Filed July 5, 1895. Serial No. 555,004. (No model.)



Claim.—1. In a metallurgical furnace the combination of the furnace, the boiler, the hearth or hearths, the air and gas flues connected with the hearth or hearths, a flue between the boiler and furnace by which to conduct the surplus heat to the boiler and valve-controlled connections between said flue and the air and gas flues substantially as shown and described.

2. In a metallurgical furnace substantially as described the combination of the two hearths, the main gas-flue between the same, the side gas and air flues connected with the hearths, connections between said air and gas-flues and the main gas-flue, valves controlling such connections and the boiler connected with said main gas-flue all substantially as shown and described.

3. In a metallurgical furnace the combination of the two hearths extending side by side, the intermediate gas-flue arranged longitudinally between said hearths, the outer air and gas flues extending longitudinally along the outer sides of said hearths and connections between said outer flues and the intermediate flue and between the outer flues and the hearths substantially as shown and described.

578,666. LAWN-MOWER. JOHN W. THORNBURG, Guyandotte, W. Va. Filed Mar. 17, 1896. Serial No. 583,567. (No model.)

Claim.—1. The combination of a supporting-frame, a main shaft carrying ground-wheels, a finger-plate adapted to operate contiguous to and parallel with the surface of the ground, a stub-shaft rising centrally from the finger-plate, a cutter-wheel mounted upon the stub-shaft above and supported by the surface of the plate and having at its upper side a pulley, a cap removably fitted upon the upper reduced end of the stub-shaft to cover the pulley and having a depending flange surrounding the pulley and terminating contiguous to the upper surface of the cutter-wheel, said cap being provided in the rear side of its flange with an opening, means for securing the cap to the stub-shaft and thereby holding the cutter-wheel in operative re-

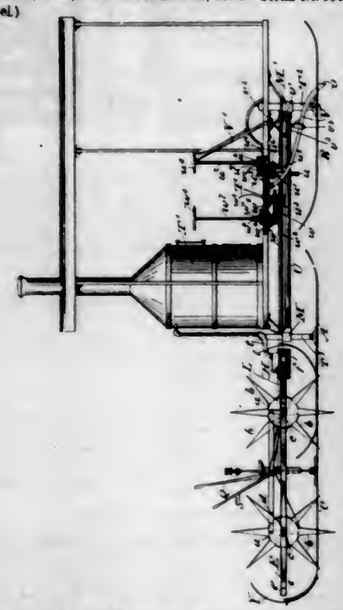
lation with the finger-plate, and an operating-belt extending through the opening in the rear side of the cap and traversing the inclosed pulley, substantially as specified.



2. A rotary cutter-wheel provided near its periphery with cross-sectionally-dovetailed parallel-sided seats open at their outer ends and at their lower reduced sides, imperforate knives having shanks shaped cross-sectionally to correspond with and fitted in said seats, and set-screws mounted in the wheel and impinging terminally against the broad or enlarged upper sides of said shanks to force the same toward the reduced or lower sides of the seats and secure the knives firmly against displacement, substantially as specified.

3. The combination with a supporting-frame and ground-wheels, of a finger-plate, a stub-shaft rising vertically from the finger-plate, a cutter-wheel mounted upon said stub-shaft and having a disk or body portion provided with a depending peripheral rib, said peripheral rib being provided at intervals with cross-sectionally-dovetailed parallel-sided seats which are open at their lower sides and at their outer and inner ends, knives having cross-sectionally-dovetailed parallel-sided shanks fitted in said seats and capable of radial adjustment, said shanks being adapted to project terminally through the open inner ends of the seats below the plane of the body portion of the cutter-wheel, and means, as set-screws mounted in the body portion of the wheel and impinging terminally against the broad or enlarged upper sides of the shanks, for securing the knives against radial displacement and holding them at the desired adjustment, and means for communicating motion from the ground-wheels to the cutter-wheel, substantially as specified.

578,667. COMBINED POWER SLEIGH AND CARRIAGE. JOHN M. TRULL, Trull, Colo. Filed Nov. 30, 1894. Serial No. 530,502. (No model.)



Claim.—1. In a sleigh having forward and rear runners, said runners connected in pairs each by a pivoted transverse piece, said pivoted transverse piece being connected to the block-pieces M, M, and movable vertically at its ends, a connection between said transverse piece and the runners, and means for moving same a designated distance, substantially as set forth.

2. In a sleigh having forward and rear runners, said runners movably connected in pairs by a pivoted transverse piece, said pivoted transverse piece being connected to the block pieces M, M, and movable vertically at its ends, a horizontal bar movably connected with said transverse piece, and means for turning said horizontal bar a designated distance, substantially as set forth.

3. In a sleigh having forward and rear runners, said runners connected in pairs each by a pivoted transverse piece, a horizontal bar secured movably to said transverse piece, a piece having a knuckle-joint secured to each end of said horizontal bar, and knuckle-joints formed in the opposite end of each of said pieces secured to said bar, at right angles to said first-mentioned knuckle-joint, to movably connect the said horizontal bar with the said transverse pieces, and means for turning the said horizontal bar, substantially as set forth.

4. In a sleigh having forward and rear runners, said runners movably connected in pairs each by a pivoted cross-piece, a horizontal bar movably secured to said cross-piece, a cog-wheel upon said bar, a pinion meshing with said cog-wheel, said pinion secured upon a shaft suitably journaled, said shaft also carrying a bevel-gear, another bevel-gear connected with a hand-wheel and meshing with said first-mentioned bevel-gear, substantially as set forth.

5. In a sleigh having runners, said runners movably connected in pairs each by a transverse piece pivoted to the machine-frame, the said transverse piece having a vertical movement at its ends, and means for imparting by said transverse piece a positive vertical movement to said runners, substantially as set forth.

6. In a sleigh having runners, said runners movably connected in pairs by a pivoted transverse piece, means for imparting a positive vertical movement to said runners, and a guide to direct said movement of each of said runners, substantially as set forth.

7. In a sleigh having runners, said runners movably connected in pairs by pivoted transverse pieces, means for imparting a positive vertical movement to said runners, a vertical guide-piece connected with each of said runners, and a socket connected with the sleigh-frame for receiving said vertical guide-piece, substantially as set forth.

8. In a vehicle having runners, and a device for raising and lowering said runners on one side of said vehicle and oppositely affecting the runners on the other side thereof, a lock consisting of a piece for removably engaging a portion of said raising and lowering device, to arrest the movement thereof, substantially as set forth.

9. A convertible sleigh and wheeled vehicle comprising a frame having runners, propelling-wheels having radial arms or blades and means for driving said wheels, a friction-brake applied to said propelling-wheels, means for regulating the depth of the projecting of the propeller-blades below the runners, a steering device, and means for adjusting the relative positions of the runners to maintain the platform in an even plane on uneven roads, together with means for adjusting wheels to said vehicle in place of the runners, substantially as set forth.

10. In a power-sleigh the combination of vertically-movable and self-adjustable runners, a pair of propelling-wheels arranged tandem-wise, means for driving said wheels, and means upon said wheels for engaging with the surface of the path traveled, substantially as set forth.

11. A power-sleigh having a pair of propelling-wheels pivoted thereto tandem wise, means for driving said wheels comprising a crank on one of said wheels and a disk or drum on the other of said wheels, a connecting-rod between said crank and disk, a pitman-rod pivotally connected with said connecting-rod, and a piston-rod connected with said pitman-rod, all to rotate the propelling-wheels, substantially as set forth.

12. In a power-sleigh, having a propelling-wheel whose periphery extends below the sleigh-runners, a post or upright pivotally secured to a cross-spring borne by uprights, a lever having a rectangular arm, a friction-piece encircling said post and a link pivotally connecting said arm and friction-piece, and arranged to be operated by said lever to raise the propelling-wheel, substantially as set forth.

13. In a power-sleigh, having a propelling-wheel, a friction-brake and means for applying said brake, substantially as set forth.

14. In a power-sleigh, having a propelling-wheel, a drum secured upon the shaft of said wheel, on either side thereof, a double lever and a band applied to the surface of each of said drums, said bands being connected with and operated by said lever, substantially as set forth.

15. In a sleigh having vertically-adjustable forward and rear runners, bars connecting opposite forward and rear runners, and means for moving said bars to alter the relative and positive positions of two pairs of said runners, substantially as set forth.

16. In a sleigh having forward and rear runners, rack-bars connecting opposite forward and rear runners, a pinion at the point of intersection of said racks, a cog-wheel carried by said pinion and another pinion meshing with said cog-wheel, said second-mentioned pinion connected with and operated by a hand-wheel, substantially as set forth.

17. A snow-packer for sleighs comprising a semicircular sheet of metal and means for connecting the same, substantially as set forth.

18. In a combined sleigh and wheeled vehicle, hooked bars adapted to support the frame and slidable vertically in guides arranged between said frame and said bars, the said hooked bars having axle-journals, substantially as set forth.

578,668. MEANS FOR SECURING PROTECTING-PLATES TO CONCRETE. HENRY H. WAINWRIGHT, Washington, D. C. Filed June 9, 1896. Serial No. 594,537. (No model.)



Claim.—1. In means for protecting the edges or angles of concrete masses, the combination with a plate adapted to fit over and conform to the edge or angle to be protected; of a plurality of stays attached to said protecting-plate; and bolts passing through said stays and adapted to be inserted into partially-formed concrete mass while in a plastic state; the said stays and bolts being of a material that will be corroded by the concrete and will thus form a rust-joint therewith when completed, whereby the said protective plate is held in position, substantially as described.

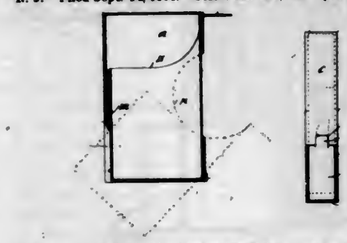
2. In an apparatus for protecting the edges of concrete masses, the combination with a plurality of protecting-plates, of stay-plates attached to said protecting-plates and projecting into the concrete material, and bolts passing through pairs of said stay-plates connecting them together, substantially as described.

3. In an apparatus for protecting the edges or angles of concrete masses, the combination with a protecting-plate, of stay-plates attached to said protecting-plates and projecting into the concrete material; a longitudinal bar connecting said stay-plates, and bolts connected to said longitudinal bar and extending into the concrete mass, said bolts being composed of a material that will become corroded by said concrete and thus form a rust-joint therewith whereby the said protective plate is held in position thereon, substantially as described.

4. In an apparatus for protecting the edges or angles of concrete masses, the combination with a plurality of protecting-plates, of stay-plates attached to said protecting-plates, and projecting into the concrete material; a longitudinal bar connecting pairs of said stay-plates, and bolts connected to said longitudinal bar and extending into said concrete mass; the said stay-plates and said bolts being of a material which will be corroded by the concrete and will form a rust-joint therewith, substantially as described.

5. In an apparatus for protecting the edges of concrete masses, the combination with a plurality of protecting-plates, of stay-plates projecting into the concrete material from said protecting-plates and made of material that will be corroded by said concrete, and bolts passing through pairs of said stay-plates connecting them together, substantially as described.

578,669. CIGARETTE-BOX. HOWARD WATKINS, South Orange, N. J. Filed Sept. 14, 1896. Serial No. 605,753. (No model.)



Claim.—1. A portable box, comprising two sections one rockable in the other, and a tongue-and-slot connection between said sections at one edge of each affording a hinge-joint therefor, substantially as described.

2. A portable box for cigarettes and the like, comprising an outer section having parallel walls, a closed top, open at the bottom and partly open at the rear edge, the opposite edge being open except at the bottom where a cross-bar is located, the rear wall of said section being transversely slotted near its lower edge, the other box-section being insertible within the outer section and open at the top, having less length than the outer section except the front wall whereon a tab is formed at the upper end, said inner box-section having a tongue on its rear wall that is notched on one edge and adapted to detachably interlock with the slot of the outer box-section to form a hinge-joint, substantially as described.

3. A cigarette-box or like receptacle, comprising two sections, one rockable in the other, and both detachably connected by a tongue-and-slot connection that affords a hinged joint, the outer section having the forward edges of its side walls scalloped and separated except at the top and back and bottom, a transverse bar joining the lower portions of said front edges, and serving as a check to limit the outward rocking movement of the inner box-section, substantially as described.

4. In a two-part portable box, the combination with an outer box-section having its rear edge wall of less length than side walls of said box-section, leaving an opening therein below said rear wall, the front of the outer box-section being open but having a rigid cross-bar at the lower ends of its side walls, of an inner box-section having a hinged connection with the outer box-section at the lower edge of the rear wall of said outer box-section, and limited in its outward rocking movement by contact with the rigid cross-bar on the outer box-section, substantially as described.

5. A box having two sections, one received within the other, one of said sections having a tongue in removable connection with the other section, such tongue forming a flexible connection between the two sections whereon they may swing to open and close the box, substantially as described.

6. A box having two sections, one of which has a tongue capable of removable connection with the second section, the tongue forming a flexible connection whereon the two sections may swing to open and close the box, substantially as described.

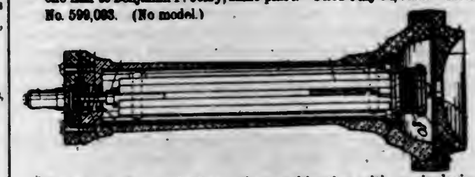
7. A box having two sections, one with a slot and the second with a tongue, the tongue having a notch in one side and being capable of moving laterally to engage said notch with one end of the slot whereby to flexibly connect the sections, substantially as described.

8. A box having two sections, one of which is received within the other, the inner section having a tongue with a notch in one side and the outer section having a slot receiving the tongue, and the notch of the tongue being engaged with one end of the slot, substantially as described.

9. A box having two sections with a hinged connection and received one within the other, the outer section having its front side, its bottom and a portion of its rear side open, the lower end of the front being provided with a transverse bar serving to engage and to limit the movement of the inner section when the same swings to open the box, substantially as described.

10. A box formed of two sections, each being composed of flexible sheet material, one of said sections having an integral portion passing through and connecting with the material of the second section whereby the two sections are pivotally connected, substantially as described.

578,670. TELEPHONE. JOHN WHIGHI, Boston, Mass., assignor of one-half to Benjamin F. Colby, same place. Filed July 14, 1896. Serial No. 599,093. (No model.)



Claim.—1. In a telephone, the combination with an inclosing casing provided with a diaphragm, of a permanent magnet provided with a front pole-piece, a spring interposed between the said casing and the said magnet and acting on the latter in a direction to move the pole-piece away from the said diaphragm, and means to limit the movement of the pole-piece away from the diaphragm, substantially as described.

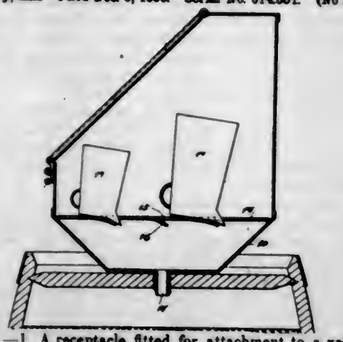
2. In a telephone, the combination with an inclosing casing provided with a diaphragm, of a permanent magnet provided with a front pole-piece, a spring interposed between the said casing and the said magnet and acting on the magnet in a direction to move the pole-piece away from the said diaphragm, and means to limit the movement of the pole-piece away from the diaphragm, and means to limit the movement of the pole-piece toward the said diaphragm, substantially as described.

3. In a telephone, the combination with an inclosing case having its rear end provided with an opening, a permanent magnet within said casing provided with a front pole-piece and with an extension projecting through the opening in the rear end of the said case, a spring encircling the projecting end of the magnet within the said opening, means attached to said case against which one end of the said spring abuts, and means on the extension of the magnet against

which the other end of the said spring bears, substantially as and for the purpose specified.

4. In a telephone, the combination with an inclosing case having its rear end provided with an opening, a permanent magnet within said casing provided with a front pole-piece and with an extension projecting through the opening in the rear end of the said case, a spring encircling the projecting end of the magnet within the said opening, means attached to said case against which one end of the said spring abuts, and adjustable means on the extension of the magnet against which the other end of the said spring bears, substantially as and for the purpose specified.

578,671. **LIQUID-MEASURE DRAIN.** SAMUEL J. WEBDON, Montgomery, Ala. Filed Dec. 5, 1896. Serial No. 614,551. (No model.)



Claim.—1. A receptacle fitted for attachment to a vessel, the said receptacle being provided with a partition located above its bottom, in which partition slots are made, one wall of each slot being deflected in a downwardly direction, as and for the purpose specified.

2. A receptacle for the purpose described, provided with a contracted base portion, and a partition located within the receptacle above its contracted base, which partition has slots produced therein, a wall of each slot being carried downward in direction of the base and below the partition to form a lip, as and for the purpose set forth.

3. In a drain for measures, a receptacle provided with a cover, and a tube in its bottom arranged for introduction into a barrel or a like vessel, and a partition located within the receptacle below the cover and above the base, which partition is provided with a series of slots, a wall of each slot being downwardly bent in direction of the base to a point below the under face of the partition, as and for the purpose set forth.

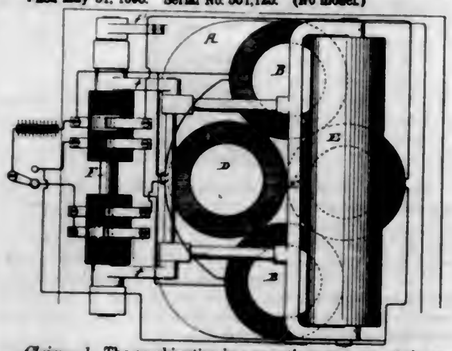
4. In a drain for measures, a receptacle having a contracted bottom, and means for connecting the bottom with the interior of a vessel, and a partition removably located within the receptacle at a point above the contracted bottom, the said partition being provided with a series of slots, one wall of each slot being bent downward below the under face of the partition, whereby the lip of a measure may be introduced into any of the slots, the lip of the measure being supported upon and arranged to extend beyond the lower edge of a deflected wall of a slot, as and for the purpose set forth.

578,672. **FLOAT-VALVE.** HUBERT K. WOOD, Hartford, Conn. Filed Jan. 9, 1896. Serial No. 574,828. (No model.)



Claim.—A valve comprising a valve casing or body having an inlet-port, an outlet-port, and a valve-seat; a reaction-chamber below and with which said outlet-port communicates, said chamber having concaved walls and a discharge-opening; a valve disposed in the reaction-chamber and adapted to engage the valve-seat and provided with radial wings or flanges engaging the walls of the outlet-port for regulating the movement of said valve, said wings or flanges having their lower ends cut away or beveled adjacent to the upper face of the valve to form an annular recess intermediate of said valve and the flanges or wings and in proximity to the valve-seat when said valve is about to engage the same, to thereby permit the fluid divided by said wings or flanges to unite into one stream or sheet around the top of the valve when the same is closing on its seat and thus prevent the hissing of the same; and means for actuating the valve.

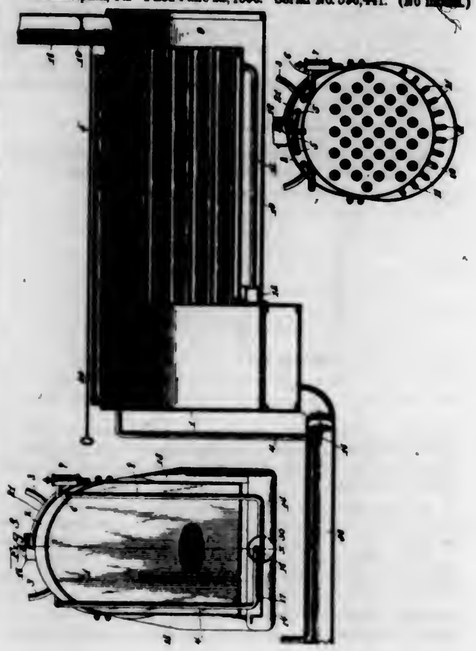
578,673. **MAGNETIC APPARATUS.** AUGUST BOETCHER, Philadelphia, Pa., assignor of one-half to Franklin Duane, New Brunswick, N. J. Filed May 31, 1896. Serial No. 551,125. (No model.)



Claim.—1. The combination in magnetic apparatus, of the magnets B and D, the magnet D being so arranged in advance of the magnet B that the cores will overlap, a plain cylindrical armature, a frame in which the armature is mounted, circuit-closers operated by the armature whereby the armature will be attracted first by one magnet and then when above the core of said magnet will be attracted by the other magnet so as to give the armature a long movement in one direction, with means for returning the armature to its first position, substantially as described.

2. The combination in magnetic apparatus, of magnets B and D, the magnet D being so arranged in advance of the magnet B that the cores will overlap, a shaft, an arm connected to said shaft, a frame E' connected to said arm, a plain cylindrical armature mounted in bearings in the frame and adapted to roll over the ends of the cores of the magnets, with circuit-closers operated by the armature whereby the armature will be attracted first by one magnet and then by the other so as to give the armature a long movement, and means for returning the armature to its first position, substantially as described.

578,674. **LOCOMOTIVE OR OTHER BOILER.** EDMUND INGRAHAM, Philadelphia, Pa. Filed June 22, 1896. Serial No. 596,441. (No model.)

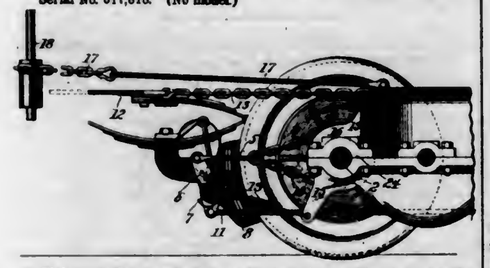


Claim.—1. In combination with a boiler, a jacket inclosing the upper portion thereof, a coil of pipe arranged within the jacket, a feed-water pipe leading to the coil, a pipe leading from the coil to the injector or pump, a jacket inclosing the lower portion of the boiler, a series of pipes connected with the lower portion thereof, and a receiving-tank to which the opposite ends of the pipes are connected, substantially as described.

2. In combination with a boiler, jackets inclosing the upper and lower portions thereof, a series of pipes connected to the lower part of the boiler, a tank lying on the lower jacket to which the pipes are connected, a coil of pipes arranged within the jacket, a feed-water pipe, a pipe connection between the coil and injection-pump, and pipe connections for carrying the exhaust from the jacket, substantially as described.

3. The herein-described combination of a boiler, a jacket inclosing the upper portion thereof, a jacket inclosing the lower portion thereof, a coil of pipe 5 arranged within the first-named jacket, a feed-water pipe leading to said coil, a pipe leading from said coil to the injector or pump, a series of pipes 11 arranged within the lower jacket, said pipes being connected with the boiler, a tank also located within said jacket with which the opposite ends of the pipes 11 are connected, passage-ways 13 leading from the lower jacket, pipes 14 leading from said passage-ways, and a pipe 15 with which the last-named pipes are connected and through which the feed-water pipe passes, substantially as and for the purposes set forth.

578,675. **STREET-CAR BRAKE.** BUDD J. JOWER, Chicago, Ill., assignor of one-third to Chris T. Powell, same place. Filed Jan. 2, 1897. Serial No. 617,818. (No model.)



Claim.—1. In a car-brake mechanism, the combination with the brake-applying drum, and its operative connections with the car-platform and with the brake-beams, of a moving cam portion at one end of said drum, a stationary cam portion attached to a non-rotary part of the car-truck, and a spring located between the abutment of the stationary cam portion and the point of frictional contact of the winding-drum and the car-wheel, substantially as set forth.

2. In a car-brake mechanism, the combination with the brake-applying drum and its operative connections with the car-platform and with the brake-beams, of a moving cam portion at one end of said drum, and a stationary cam portion attached to a non-rotary part of the car-truck, one of said cam portions having a resilient nature, so as to yield to an excess of force substantially as set forth.

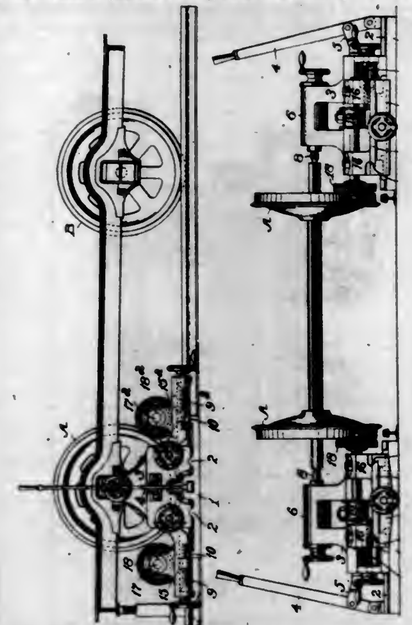
3. In a car-brake mechanism, the combination with the brake-applying drum, and its operative connection with the car-platform and with the brake-beams, of a moving cam portion at one end of said drum, and a stationary cam portion attached to a non-rotary part of the car-truck, said movable cam portion being formed by a series of segmental cam-shaped springs, substantially as set forth.

4. In a car-brake mechanism, the combination with the brake-applying drum, and its operative connections with the car-platform and with the brake-beams, of a moving cam portion at one end of said drum, and a stationary cam portion attached to a non-rotary part of the car-truck, said movable cam portion being formed by a series of segmental cam-shaped springs, having lateral end projections, substantially as set forth.

5. In a car-brake mechanism, the combination with the brake-applying drum, and its operative connections with the car-platform and with the brake-beams, of a sleeve extension on the axle embracing the yoke of the motor, that forms a bearing for said drum, substantially as set forth.

578,676. **MECHANISM FOR GRINDING CAR-WHEELS.** JOHN MURPHY, Pittsburg, Pa. Filed Jan. 2, 1897. Serial No. 617,753. (No model.)

Claim.—1. In a mechanism for grinding car and locomotive wheels while in position under the car or locomotive, the combination of a track adapted for ordinary truck purposes, centering devices arranged in line with each other on opposite sides of the track, and adapted to engage and hold the axles of the wheels as against lateral movements, means for moving the centering devices toward and from each other, grinding-wheels, and means for shifting the positions of the grinding-wheels with relation to the centering devices, said parts being so arranged as to leave an unobstructed track for the movements of the wheels to position to be ground, substantially as set forth.



2. A mechanism for grinding car and locomotive wheels having in combination two head-blocks, means for moving the head-blocks toward and from each other, axle-centering devices mounted on the head-blocks, a grinding-wheel mounted on each of the head-blocks, and means for shifting the grinding-wheels, substantially as set forth.

3. A mechanism for grinding car and locomotive wheels having in combination two head-blocks, means for moving the head-blocks toward and from each other, axle-centering devices mounted on the head-blocks, two grinding-wheels mounted on each of the head-blocks on opposite sides of the centering device, and means for shifting the grinding-wheels, substantially as set forth.

4. A mechanism for grinding car and locomotive wheels having in combination two head-blocks, means for simultaneously moving the head-blocks toward and from each other, axle-centering devices mounted on the head-blocks, a grinding-wheel mounted on each of the head-blocks and means for shifting the grinding-wheels, substantially as set forth.

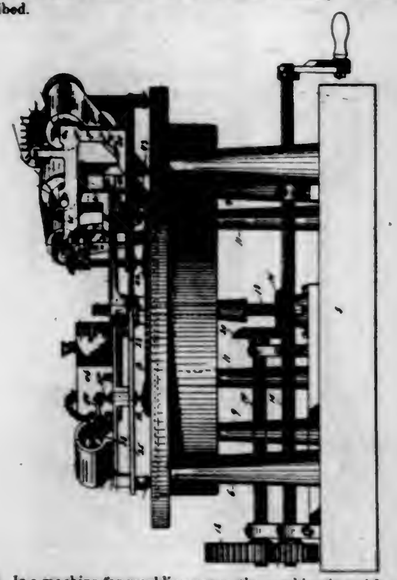
578,677. **MACHINE FOR MARBLING PAPER.** JOSIAH M. REED, Park Ridge, N. J., assignor to William Hughes, Cranford, N. J. Filed May 25, 1896. Serial No. 593,020. (No model.)

Claim.—1. In a machine for marbling paper, the combination with a suitably-supported main tank or vessel, of a plurality of rollers supported thereover, one of which is adapted to receive a roll of paper, and one of which is mounted directly over said tank, said paper being adapted to be passed around said last-named roller, and to be rewound on another roller, and a color tank or receptacle provided with a perforated bottom, said main tank or vessel being adapted to receive sizing, on which the colors are deposited, and said paper-roller, and said color tank or receptacle being adapted to be carried around said main tank or receptacle, substantially as shown and described.

2. In a machine for marbling paper, the combination with a suitably-supported annular tank or vessel, of a revoluble frame mounted thereover, three rollers supported on said frame, and at one side thereof, a supplemental roller supported immediately below two of said rollers, and immediately over said tank or vessel, a color tank or receptacle also supported on said revoluble frame, and provided with a perforated bottom, and means for revolving said frame, substantially as shown and described.

3. In a machine for marbling paper, the combination with a suitably-supported annular tank or vessel, of a revoluble frame mounted thereover, a paper-roller supported above said annular frame, a roller

at each side thereof, around one of which the paper is adapted to be drawn, and upon the other of which the paper is adapted to be rewound, a supplemental roller directly below two of said rollers, and directly over one side of said tank or vessel, said supplemental roller being provided with a plurality of radial rods or arms, and means for revolving said rollers, and a color-tank mounted on said frame, and provided with a perforated bottom, and means for revolving said frame around said annular tank or vessel, substantially as shown and described.



4. In a machine for marbling paper, the combination with a suitably-supported annular tank or vessel, of a vertical shaft passing centrally therethrough, a frame mounted on said shaft and revoluble around and over said tank or vessel, a plurality of paper-rollers mounted on said revoluble frame, one of which is adapted to receive a roll of paper which is adapted to be passed over another roller adjacent thereto, and to be rewound on the third roller, at the opposite side thereof, a supplemental roller mounted below two of said rollers, and directly over one side of said annular tank or vessel, and provided with a plurality of radial arms or rods, and color-tanks also mounted on said revoluble frame, and provided with perforated bottoms, substantially as shown and described.

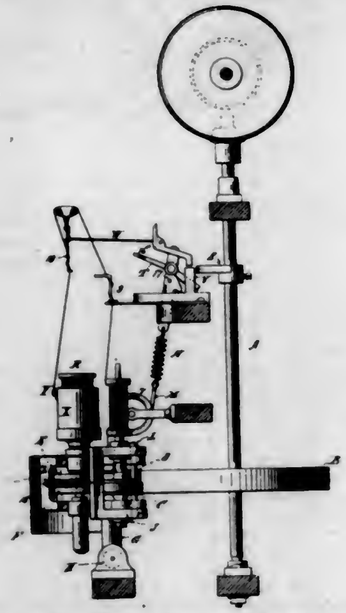
5. In a machine for marbling paper, the combination with a suitably-supported annular tank or vessel, of a vertical shaft passing centrally therethrough, a frame mounted on said shaft and revoluble around and over said tank or vessel, a plurality of paper-rollers mounted on said revoluble frame, one of which is adapted to receive a roll of paper, and which is adapted to be passed over another roller adjacent thereto, and to be rewound on a third roller at the opposite side thereof, a supplemental roller mounted below two of said rollers, and directly over one side of said annular tank or vessel, and provided with a plurality of radial arms or rods, and color-tanks also mounted on said revoluble frame, and provided with perforated bottoms, an air-pump in communication with said tanks, and means for operating said rollers and said air-pump, substantially as shown and described.

6. In a machine for marbling paper, the combination with a suitably-supported annular tank or vessel, of a vertical shaft passing centrally therethrough, a frame mounted on said shaft, and revoluble around and over said tank or vessel, a plurality of paper-rollers mounted on said revoluble frame, one of which is adapted to receive a roll of paper, which is adapted to be passed over another roller adjacent thereto, and to be rewound on a third roller at the opposite side thereof, a supplemental roller mounted below two of said rollers, and directly over one side of said annular tank or vessel, and provided with a plurality of radial rods or arms, and color-tanks also mounted on said revoluble frame, and provided with perforated bottoms, an air-pump in communication with said tanks, and means for operating said rollers and said air-pump, consisting of a gearing suitably supported adjacent to said annular tank or vessel, and vertical shafts, one of which is provided with a pinion which operates in connection with said gear-ring and with a crank which is connected with the piston-rod of the air-pump, and the other being provided with a pinion, which operates in connection with said gear-ring and with a beveled gear-wheel which operates in connection with a corresponding beveled gear-wheel mounted on the shaft of one of said rollers, substantially as shown and described.

7. In a machine for marbling paper, the combination with a suitably-supported annular tank or vessel, of a vertical shaft passing therethrough, and adapted to be revolved by means of transverse shafts, and gear-wheels suitably supported below said tank or vessel, a frame mounted upon said vertical shaft, above said tank or vessel, and revoluble thereon, three rollers supported upon said frame, and arranged in line with each other, and a supplemental roller mounted below said rollers, and immediately over one side of said tank or receptacle, and provided with a plurality of radial arms or rods, and color-tanks also mounted on said revoluble frame, and provided with perforated bottoms, an air-pump in communication with said color-tanks and means for revolving said rollers, and for operating said air-pump, consisting of a gear-ring suitably supported above and concentrically of said tank or vessel, and vertical shafts which are operated thereby, one of which is provided with a crank, which is connected with the piston-rod of the air-pump, and the other with a beveled gear-wheel, which operates in connection with a corresponding beveled gear-wheel mounted on the shaft of one of said rollers, substantially as shown and described.

8. In a machine for marbling paper, the combination with a suitable revoluble frame, of an annular tank or vessel supported thereunder, a plurality of paper-rollers supported above said frame, a supplemental roller supported immediately below the same, and immediately over said tank or vessel, said annular tank or vessel being adapted to receive sizing, tanks 46 adapted to contain coloring material and to deposit said material on the sizing, and means for revolving said paper-rollers, and the supplemental roller, substantially as shown and described.

578,678. SPINNING, DOUBLING, AND TWISTING MACHINE. FRANCIS SEYMOUR, Paterson, N. J., assignor to the Automatic Company, New York, N. Y. Filed Feb. 24, 1890. Serial No. 341,483. (No model.)



Claim.—1. The combination in a spinning, doubling and twisting machine, of two spinning-spool spindles and provided with friction-wheels, a receiving and twisting spool spindle provided with a friction-wheel driven by one of the before-mentioned friction-wheels, a frame upon which all of said spindles are mounted, and a friction driving-gear directly engaging the said friction-wheels on the said spinning-spool spindles, substantially as specified.

2. The combination in a spinning, doubling and twisting machine, of two spinning-spool spindles, and a receiving and twisting spool spindle, with a friction-wheel mounted upon each of said spindles, and a driving-wheel having its circumference in direct engagement with the friction-wheels mounted upon the spinning-spool spindles, the friction-wheel upon the receiving and twisting spool spindle impinging against one of the other friction-wheels and being driven thereby, substantially as specified.

3. The combination of a driving-wheel, two spindles each provided with a friction-wheel, a frame in which said spindles are mounted a stationary support on which said frame is hinged enabling it to swing toward or away from the driving-wheel, and an intermediate pivotal connection substantially as shown, enabling the frame to swing about an axis at right angles to its first-mentioned movement, as shown and described.

4. The combination of the driving-wheel B, the frame Z carrying the spindle for the receiving-spool R, the friction-wheel F secured to said spindle, the pivoted frames J J each carrying a spindle for a spinning-spool, said frames supported upon the frame Z, the springs K K and the friction-wheels D, C, secured to the latter-named spindles substantially as specified.

5. The combination of a driving-wheel, two spinning-spool spindles, friction-wheels attached to such spindles, means for causing the friction-wheels to be held in yielding peripheral contact with the driving-wheel, a receiving-spool spindle, a friction-wheel attached to this spindle, means for driving this friction-wheel, and guides for leading threads from the spinning-spools to the receiving-spool, substantially as specified.

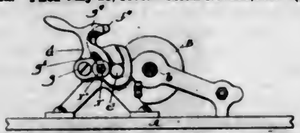
6. The combination of two spindles carrying spinning-spools and provided with friction-wheels, a spindle carrying a receiving and twisting spool and also provided with a friction-wheel, a driving-wheel for rotating the friction-wheels of the two first-mentioned spindles, springs for causing frictional contact between the two first-mentioned friction-wheels and said driving-wheel, and a spring for causing frictional contact between the driving-wheel and the friction-wheels secured to the spindles carrying the spinning-spools, substantially as specified.

7. The combination of the driving-wheel B, the spindles 5 and 6, the wheels D and C attached thereto and frictionally driven from said driving-wheel, the flier X and the receiving-spool R, the wheels E and F of different diameters attached respectively thereto, and frictionally driven from said wheels C and D, substantially as specified.

8. The combination of a number of supports for spools, a spindle for a receiving-spool, a frame carrying said spool-supports and spindle and having a hinged connection with its support and also a pivotal connection permitting said frame to swing about either a horizontal or a vertical axis, means for uniting or bringing together a plurality of threads and leading them to a receiving-spool, a flier, a traversing mechanism for moving the flier lengthwise of the spindle and carrying the receiving-spool, and wheels for driving said spindle by frictional contact, substantially as described.

9. The combination of the spindle 1 adapted to support a spool and provided with a longitudinal slot and a reversing-screw, the tubular flier X adapted to revolve about the spindle, the latch 4 mounted in a bearing screwed to the flier and entering the thread of the reversing-screw, the wheel F provided with a screw 11 entering the longitudinal slot in the spindle, for actuating the spindle, the wheel E rigidly affixed to the flier and having a different diameter from that of the wheel F so that said spindle and flier may be relatively operated at different speeds, the friction-wheels D C impinging against the wheels E F, and the wheel B for frictionally driving the wheels D C, substantially as described.

578,679. TYPE-WRITING MACHINE. ZALMON G. SHOLES, Evanston, Ill., assignor, by mesne assignments, to Charles N. Fay, Chicago, Ill. Filed July 29, 1895. Serial No. 556,576. (No model.)



Claim.—1. In a type-writer, the combination with a rotary platen and with means for turning the same to expose the line of printing, of a latch for locking the platen when turned to position to expose the printed line, said latch being normally out of position to lock the platen as said platen is shifted to expose the print, but being manually movable into fixed position to lock said platen when it is upturned to expose the print, substantially as described.

2. In a type-writing machine, the combination with a platen and with means for turning the same to expose the line of printing and with a suitable part projecting therefrom and movable therewith, of a latch for locking said platen when upturned to expose the print, said latch being pivoted to swing forward and being provided at its front edge with a forwardly-projecting open hook or extension adapted to be manually moved in front of said projecting part in order to rigidly retain said part until said latch is manually shifted out of its path, substantially as described.

3. In a type-writing machine, the combination with a platen and its tilting sustaining-frame whereby said platen may be upturned to expose the line of printing, of a latch whereby the platen-frame may be locked when turned to expose the printed line, said latch being normally out of position to lock the platen as said platen is shifted to expose the printing, but being manually movable and being provided at its front with a forwardly-projecting open hook whereby the platen-frame may be rigidly locked in its upturned position, substantially as described.

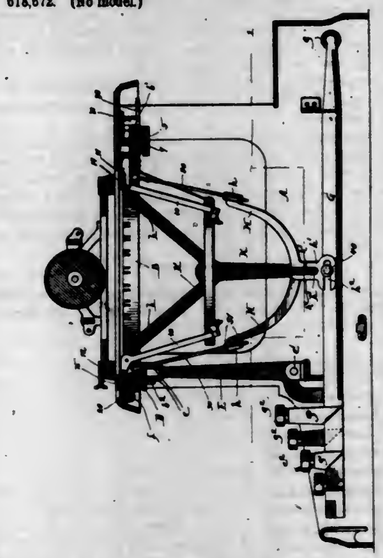
4. In a type-writing machine, the combination with a rotary platen and its tilting sustaining-frame, of a pivoted latch-plate G for sustaining said platen-frame in upturned position and a suitable friction device engaging said latch-plate and serving to hold it in any position at which it may be manually set, substantially as described.

5. In a type-writing machine, the combination with a rotary platen and its tilting sustaining-frame, of standards wherein said frame is journaled, one of said standards being provided with an open seat, and a latch-plate having at its front one hook or extension to obstruct said open seat and having at its front another hook or extension to retain the platen-frame in upturned position, substantially as described.

6. In a type-writing machine, the combination with a platen and its tilting sustaining-frame, of a pivoted latch-plate formed with a slot, a pin within said slot, and a hook or projection extending from said latch-plate and serving to retain the platen-frame in upturned position.

7. In a type-writing machine, the combination with a rotary platen and its tilting sustaining-frame, of standards wherein the journals of said sustaining-frame are mounted, one of said standards being provided with an open seat, and a pivoted latch-plate G having a hook or extension g' to retain the platen-frame journal in position and having a hook or extension g^4 to engage the projecting end of the platen-journal when the platen-frame and platen are turned to expose the printing.

578,680. TYPE-WRITING MACHINE. ZALMON G. SHOLES, Evanston, Ill., assignor, by mesne assignments, to Charles N. Fay, Chicago, Ill. Filed Mar. 28, 1895. Renewed Jan. 9, 1897. Serial No. 618,672. (No model.)



Claim.—1. In a type-writing machine, a hanger for sustaining the type-bar comprising two journal-arms whereby the trunnions or journals of the type-bar are held, said journal-arms being independently adjustable toward and from the printing-point, a cap for clamping said arms in position and a screw for fixing said cap in place.

2. In a type-writing machine, the combination with a disk or plate for sustaining the type-bars, provided in its upper face with a series of radial grooves 13, of independently-adjustable journal-arms 11 mounted in said grooves 13 and a cap-plate 14 resting upon and extending between said journal-arms 11, and a screw connecting said cap-plate with said disk.

3. In a type-writing machine the combination with a series of key-levers and with a shifting disk or plate provided with a series of type-bars, of suitable connections uniting said type-bars and their key-levers, and a shifter whereby said connections are caused to shift in unison with said disk or type-plate.

4. In a type-writing machine, the combination with a series of key-levers and with a shifting disk or plate provided with a series of type-bars, of suitable connections uniting said type-bars and their key-levers and a shifter connected to said disk or plate and to said connections, whereby said connections are caused to shift with said disk or plate.

5. In a type-writing machine, the combination with a series of key-levers and a shifting disk or plate provided with a corresponding series of type-bars, of a series of bars or connections united to said type-bars and united by a shifting connection with said key-levers and a shifter fixed to and depending from the under side of said disk or plate and united with the bars that connect the type-bars and the key-levers, whereby said bars are caused to move with said disk or plate and independently of said key-levers.

6. In a type-writing machine, the combination with a series of key-levers and with a shifting disk or plate, provided with a corresponding series of type-bars and with a series of connections uniting said type-bars and said key-levers, of a shifter for causing the unison movement of said connections with said disk or plate, said shifter comprising arms depending from each side of the disk or plate and connected with the several type-bar connections.

7. In a type-writing machine, the combination with a series of key-levers and with a shifting disk or plate, provided with a corresponding series of type-bars, of a series of bars H connected to said type-bars and united by pin-and-slot connections with the type-levers whereby said bars may be shifted back and forth independently of said levers, and a shifter connecting said bars with said disk or plate to effect unison movement of such parts.

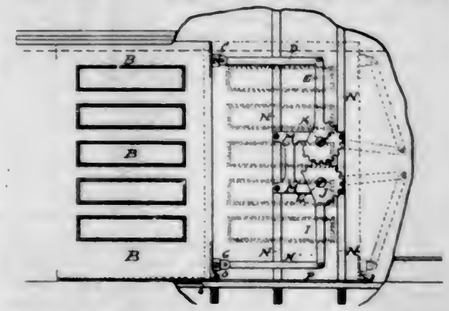
8. In a type-writing machine, the combination with a series of key-levers and with a shifting disk or plate, provided with a corresponding series of type-bars, of a series of bars or connections united with said type-bars and with said key-levers and movable back and forth independently of said key-levers at their points of connection with said levers, and a shifter united to said disk or plate and to said bars or connections.

9. In a type-writing machine, the combination with a series of key-levers and with a shifting disk or plate, provided with a corresponding series of type-bars, of bars H having dependent portions h' provided with horizontal slots h^3 and vertical slots h^3, pins 40 connecting said bars with the key-levers, and a shifter comprising arms K connected to the disk or plate, said arms K being united by the rod k' extending through the slots h^3 of the bars H.

10. In a type-writing machine, a key-lever having its outer portion bent over and parallel with the plane of the lever to form a support for the finger-piece.

11. In a type-writing machine, the combination with a rigid keyboard and a shifting disk or plate B carrying type-bars, and with an upper-case key-lever E, of a shifting-lever D extending across and beneath the front of the top plate of the main frame, said shifting-lever D being pivoted at one end and being connected at its opposite end to the upper-case lever and connected intermediate its ends to the disk or plate.

578,681. SLIDING-DOOR MECHANISM. CHAUNCEY F. SKILLING, Los Angeles, Cal. Filed Aug. 12, 1896. Serial No. 552,073. (No model.)



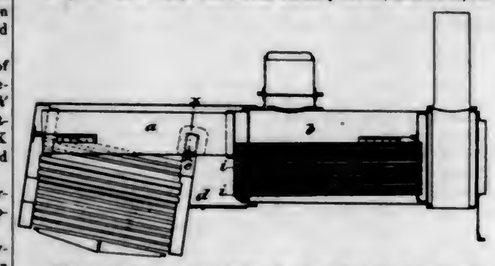
Claim.—1. The parallel-motion mechanism consisting of a pair of toothed segments, whose teeth are geared together, said segments being each formed with an arm, so that movement of either segment and its arm upon the axis thereof in one direction produces an equal or opposite movement of the other segment or arm on its axis in the opposite direction, the upper of said arms being connected to the adjusting device at the upper part of the inner edge of the sliding door, and the lower arm being connected to the adjusting device at the lower part of the inner edge of the sliding door, the door being supported upon the rollers and rail, so that by sliding movement being imparted to the door, or rotary movement being imparted to the circular toothed segments, there is produced a parallel motion of the said door, the whole operating together in the manner and for the purposes substantially set forth.

2. The adjustable attachment at the lower part of the inner edge of the sliding door, for connecting said sliding door with the lower link of the parallel motion, the adjustment consisting of a bracket-piece, carrying the antifriction-roller at its bottom, and having horizontal parallel slides or guides, the sliding piece between said slides or guides, and formed with a slot, the bolt and nut, all operating together in the manner and for the purposes substantially as set forth.

3. In the sliding-door mechanism the combination of the rail with its inner end upturned, the antifriction-roller at the bottom of the door running on said rail, the antifriction-roller in the outer end of the rail for rotating by contact with and bearing upon it of the groove or rail in the under edge of the sliding door, the said rail being placed in the lower part of the space within the wall whereinto the sliding door passes, all operating together in the manner and for the purposes substantially as set forth.

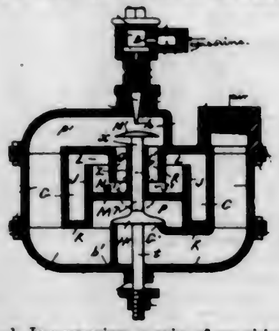
4. The combination of parallel-motion mechanism, sliding door, parallel attachments at the upper and lower parts of the sliding door, respectively, links for connecting the upper and lower attachments of the door with the upper and lower arms of the parallel-motion mechanism, the antifriction-roller in the lower adjusting attachment, the rail on which said roller operates, and the roller in the under end of said rail for carrying the weight of the sliding door antifrictionally, all operating together in the manner and for the purposes substantially as set forth.

578,682. LOCOMOTIVE-BOILER. CARL STROOMANN, Cologne, Germany. Filed Oct. 17, 1895. Renewed Jan. 28, 1897. Serial No. 621,124. (No model.) Patented in Germany Dec. 21, 1891, No. 65,093.



Claim.—In a locomotive-boiler, the combination of a fire-tube section, a fire-box section connected with the rear end thereof, and a combustion-chamber between the lower parts of the two sections; the fire-box section provided with water-tubes and a boiler *a*, the latter located between the water-tubes and the crown of the boiler proper, and having its forward end connected with the fire-tube section above the middle line thereof, so that the two sections shall have a uniform surface of evaporation, the sides of the boiler *a*, provided with the chamber *c*, substantially as and for the purpose set forth.

578,683. VAPORIZER. GEORGE H. TREGURTHA, Malden, Mass. Filed Apr. 29, 1896. Serial No. 589,564. (No model.)



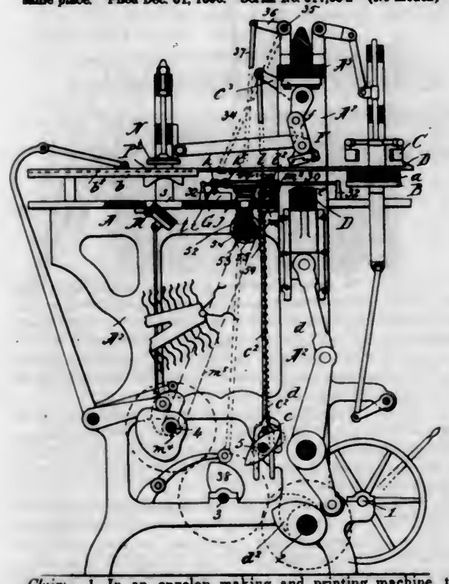
Claim.—1. In a vaporizer, a series of vaporizing annular chambers, concentric with each other, an outlet to the outer annular chamber, an air-passage leading to the central annular chamber extending nearly around the chambers, a valve to said air-passage, an inlet for the gasolene into the end of said air-passage, a valve to said inlet, a disk or plate in the end of said air-passage below said gasolene-valve and connected to said air-valve for operation thereof.

2. In a vaporizer, a series of vaporizing-chambers, consisting of a central annular chamber open at its top, and open at its bottom into an outer annular chamber, the latter annular chamber open at its top into the third and outer annular chamber, the annular chambers being concentric with each other, an outlet to the outer annular chamber, an air-passage leading to the central annular chamber extending nearly around the chambers, a valve to said air-passage, an inlet for the gasolene into the end of said air-passage, a valve to said inlet, a disk or plate in the end of said air-passage below said gasolene-valve and connected to said air-valve for operation thereof.

3. In a vaporizer, vaporizing-chambers, an outlet thereto, an air-passage leading to the vaporizing-chambers extending nearly around the same, a valve to said air-passage, an inlet for the gasolene into the end of said air-passage, a valve to said inlet, a disk or plate in the end of said air-passage below said gasolene-valve and connected to said air-valve for operation thereof.

4. In a vaporizer, vaporizing-chambers, an outlet thereto, an air-passage leading to the vaporizing-chambers extending nearly around the same, an escape-outlet to said air-passage, a valve to said air-passage, an inlet for the gasolene into the end of said air-passage, a valve to said inlet, a disk or plate in the end of said air-passage below said gasolene-valve and connected to said air-valve for operation thereof.

578,684. ENVELOP MAKING AND PRINTING MACHINE. JOHN VIEHE, Holyoke, Mass., assignor to the Holyoke Envelope Company, same place. Filed Dec. 31, 1896. Serial No. 617,634. (No model.)



Claim.—1. In an envelop making and printing machine, the combination with a type-form and support therefor and an ink-fount provided with an inking-roller, to the rear thereof, of three disks arranged in a line substantially parallel with the length of the ink-roll intermediate between the type and said roll, a support in which the middle one of said disks is removably mounted, a roll having fixed bearings between the type and said disks and a movable roll for carrying ink from the ink-fount roll onto the disks and means for imparting the bodily reciprocatory movement thereto, means for carrying ink from the disks to said roll forward of the disks, and a roll for carrying ink from the last said roll across and upon the type and means for imparting thereto its reciprocatory movement, substantially as described.

2. In an envelop making and printing machine, the combination with a type-form and support thereof and separate ink-compartments to the rear of the type-form having a roll receiving ink from both of said compartments, of three disks arranged intermediate between the type-form and said ink-fount roll, the middle one of which is removably mounted and means for imparting rotational movements to said disks, a roll *m*, located between the type-form and said disks and a movable roll for carrying ink from the ink-fount roll onto and across the disks and a roll for carrying ink from the latter to said roll *m*, and means for imparting a bodily reciprocatory movement thereto, and a roll for carrying ink from the roll *m* across the type and means for imparting its backward and forward movements, substantially as and for the purposes described.

3. In an envelop making and printing machine, the combination with a type-form and support therefor and separate ink-compartments to the rear of the type-form having a roll which receives ink from both of said compartments, of three disks arranged intermediate between the type-form and said ink-fount roll the middle one of which is removably mounted and means for imparting rotational movements to said disks, a roll *m*, having its surface peripherally divided between its ends, located between the type-form and said disks, and a movable roll for carrying ink from the ink-fount roll onto and across the disks, and a roll for carrying ink from the latter to said roll *m*, and means for imparting a bodily reciprocatory movement thereto, and a roll for carrying ink from the roll *m*, across the type and means for imparting thereto its backward and forward movements, substantially as and for the purposes described.

4. In an envelop making and printing machine, the combination with a type-form and support therefor and an ink box or fount to the rear of the type-form having a roll therein and having a partition which divides the ink-fount into two compartments and which bears peripherally on the ink-fount roll, of three disks arranged intermediate between the type-form and said ink-fount roll, rotatable supports in which the disks are removably mounted, and means for imparting rotational movements to one of said rotatable supports and gears connecting one of said supports with another, a roll *m*, located between the type-form and said disks and a movable roll for carrying ink from the ink-fount roll onto, and across the disks and a roll for carrying ink from the latter to said roll *m*, and means for imparting a bodily reciprocatory movement thereto, and a roll for carrying ink from the roll *m* across the type and means for imparting thereto its reciprocatory movements, substantially as and for the purposes described.

5. In an envelop making and printing machine, the combination with a type-form and support therefor and an ink-fount having an ink-roll, of two or more disks having their tops in a common plane and each provided with a depending stem, a support for each disk consisting of a shaft 45 bearing a flanged top and provided with a socket opening to its top in which said stem is removably fitted and engaged, the said shaft being journaled vertically through the table and having a gear on its bottom in mesh with the corresponding gear on the adjacent disk-support, means for imparting a rotational movement to one of said disks, means for conveying ink from the ink-fount roll onto the disks and from the latter onto the type, substantially as and for the purposes set forth.

6. In an envelop making and printing machine, the combination with a type-form and support therefor, and an ink-fount having an ink-roll, of two or more disks having their tops in a common plane and each provided with a depending stem, recessed in its end, a disk-support consisting of a shaft 45 and a flanged top and provided with a socket opening to its top and having the cross-pin 52 with which the recessed end of the disk-stem is engaged, the said shaft being journaled vertically through the table and having a gear on its bottom in mesh with the corresponding gear on the adjacent disk-support, means for imparting a rotational movement to one of said disks, means for conveying ink from the ink-fount roll onto the disks and from the latter onto the type, substantially as and for the purposes set forth.

7. In an envelop making and printing machine, the combination with the table, a type-form and support therefor, and an ink-fount having an ink-roll, of the three disks having their tops in a common plane and each provided with a depending stem, a tubular top-flanged bushing supported upon and extending down through the table, and receiving on its lower screw-threaded end a clamp-nut, a disk-support consisting of shaft 45, having flanged top and provided with a socket, opening to its top, in which the disk-stem is removably fitted and engaged, the lower portion of each disk-support being extended below said bushing and receiving thereon a gear 46, to mesh with the corresponding gear of the adjacent disk-support, means for rotating one of said disk-supports, a means for conveying ink from the fount-roll onto the disks, and means for receiving ink from the disks and supplying it on the type, substantially as described.

8. In an envelop making and printing machine, the combination with the table, a type-form and support therefor, and an ink-fount having an ink-roll, of the three disks having their tops in a common plane, and each provided with a depending stem, a tubular top-flanged bushing supported upon and extending down through the table and receiving, on its lower screw-threaded end a clamp-nut, a disk-support consisting of shaft 45, having flanged top and provided with a socket, opening to its top, in which the disk-stem is removably fitted and engaged, the lower portion of each disk-support being extended below said bushing and receiving thereon the gears 47, to mesh with the corresponding gear on the adjacent disk-support, and a second gear also on one of the disk-supports, a shaft having a gear in mesh with said second gear, and means for imparting a rotational movement to said shaft, means for conveying ink from the fount-roll onto the disks and from the latter onto the type, substantially as described.

9. In an envelop making and printing machine, the combination with a table, the type-form and support therefor, and an ink-fount and roll, of the three disks having their tops in a common plane and each provided with a rotatable support journaled through and depending below the table and with which support the disk is removably engaged, the said supports being geared together and one thereof having thereon an additional gear, a shaft geared to the last said gear and having fixed thereon a ratchet-wheel and loose thereon a pinion which carries a pawl that engages said ratchet-wheel, a rack-bar meshing the said pinion and means for imparting thereto its reciprocatory movement, and distributing-rolls for conveying ink from the fount-roll to the disks, and from the latter to the type, substantially as described.

10. In an envelop making and printing machine, the combination with a type-form and support therefor and an ink-fount provided with an inking-roller, to the rear thereof, of two or more disks arranged with their tops level and in a line substantially parallel with the length of the ink-roll intermediate between the type and said roll, a roll *m* having fixed bearings between the type and said disks and means for rotating it, and the roll m^3 in peripheral contact on said roll *m* and journaled to slide endwise in the bearings provided therefor, and means for imparting thereto its endwise movement, a movable roll for carrying ink from the ink-fount roll onto the disks and means for imparting the bodily reciprocatory movement thereto, means for carrying ink from the disks to said roll *m* and a roll for carrying ink from the last said roll across and upon the type, and means for imparting thereto its reciprocatory movement substantially as described.

11. In an envelop making and printing machine, the combination with a type-form and support therefor and an ink-fount provided with an inking-roller, to the rear thereof, of two or more disks arranged with their tops level and in a line substantially parallel with the length of the ink-roll intermediate between the type and said roll, a roll *m* having fixed bearings between the type and said disks and means for rotating it, and the roll m^3 in peripheral contact on said roll *m* and journaled to slide endwise in the bearings provided therefor, and having the flanged collar on its end; the rock-shaft P having a forked arm engaging said flanged collar, a movable roll for carrying ink from the ink-fount roll onto the disks and means for imparting the bodily reciprocatory movement thereto, means for carrying ink from the disks to said rolls *m* m^3 and a roll for carrying ink from the last said rolls across and upon the type, and means for imparting thereto its bodily reciprocatory movement, substantially as described.

12. In an envelop making and printing machine, the combination with a table, the type-form and support therefor, and an ink-fount and roll to rear of the type-form, of the three disks having their tops in a common plane located between the type and ink-fount, and each provided with a rotatable support journaled through and depending below the table and with which support the disk is removably engaged, the said several supports being geared together and one thereof having thereon an additional gear, a shaft geared to the last said gear and having fixed thereon a ratchet-wheel and loose thereon a pinion which carries a pawl that engages said ratchet-wheel, a rack-bar meshing the said pinion and means for imparting thereto its reciprocatory movement, the roll *m*, the rolls *k* k^3 and *l* l^3 united to move in unison, and means for moving them, substantially as and for the purposes set forth.

13. In an envelop making and printing machine, the combination with a table having at a rear portion thereof an ink-fount and at a front portion thereof a type-form support, and a platen having an adjustable and interchangeable tympan bed or section at one portion at its base, two or more disks *j* intermediate between the type-form and ink-fount, one of which is removably mounted, the roll *m* between the disks and the type-form, the rolls *k* k^3 and *l* l^3 movable in unison, means for imparting thereto their reciprocatory movements, means for imparting rotational movements to the said disks, and means for operating the type-form against the platen all substantially as and for the purposes described.

14. In an envelop making and printing machine, the combination with a table having at a rear portion thereof separate ink-fount compartments and a roll in each and at a front portion thereof a type-form support and a platen having an adjustable and interchangeable tympan bed or section at one portion of its base, two or more disks *j* detachably mounted intermediate between the type-form and ink-fount, the roll *m* between the disks and the type-form, the rolls *k* k^3 and *l* l^3 movable in unison, together with means for imparting thereto their reciprocatory movements, means for imparting rotational movements to the said disks and means for operating the type-form against the platen all substantially as and for the purposes described.

15. In an envelop making and printing machine, the combination with a type-form and ink distributing and supplying devices therefor of a platen body or bed having a socket 20 opening to its impact-face, a movable platen-section 22 having its side grooved fitted in said socket, the screw 23 threading through the platen-body, entering the said socket and having a forcing bearing, the end of the screw 24 entering the platen-body and engaging in said groove of the section 22 substantially as described.

16. A platen consisting of a body formed steplike and with a dovetailed way in the depressed portion thereof and having in the prominent portion thereof a socket-opening to its face, the dovetailed platen-section *g*, and the section *h* which is fitted in said socket adapted for movement toward and from the face of the platen, means for so adjusting it, and a set-screw for confining it in its adjustment substantially as described.

17. In an envelop making and printing machine, the combination with a type-form and means for inking same and means for conveying blanks subject to the action thereof, and for conveying them away therefrom, of a folding-bed adjacent to which the blank is conveyed having an interchangeable, removably-attached face-section with prominent portions, in the same plane, corresponding to the lines of folding and gum-sticking, said prominent portions being, within the margin of said section, recessed to correspond to the lines of printing, and yet affording approximately-continuous prominent surfaces to properly support the envelop under the hard pressure for setting the gum, substantially as described.

578,685. PROCESS OF AND APPARATUS FOR PRODUCING CALCIUM CARBID. EDWIN R. WHITNEY, Manchester, N. H. Filed May 25, 1896. Serial No. 592,999. (No model.)



Claim.—1. The herein-described process of producing calcium carbid, which consists in mechanically compacting fragmentary charcoal into separate columns and moving said columns longitudinally toward each other, utilizing said columns as electric conductors for the formation of an arc between the ends thereof, and feeding a mixture of pulverized lime and pulverized charcoal into and through the said arc, substantially as described.

2. The herein-described process of producing calcium carbid, which consists in subjecting a moving mixture of pulverized lime and pulverized charcoal to the action of a number of separate electric arcs proceeding from charcoal electrodes and crossing each other, substantially as described.

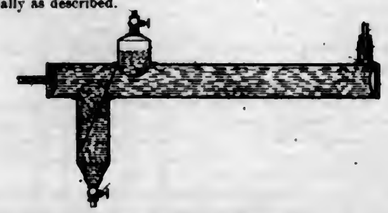
3. The combination of a hopper and a fusing-chamber, the former opening into the latter, a number of pairs of charcoal electrodes projecting into such fusing-chamber and adapted to form electric arcs which cross one another through the mass of material to be decomposed, a perforated support for such material and a collecting vessel beneath it for the reception of the fused mass, substantially as described.

4. The combination with the chamber *a*, of the feed-hopper a^3 containing the mixing device, the tubular passages *b* each provided with a compressor and adapted to receive charcoal, the conducting-linings b^5 for the said passages, the generators B having their terminals connected respectively to the linings of diametrically opposite passages, the removable grating a^5 forming the lower wall of the said chamber, and the receiver a^7 removably secured to the under side of the chamber *a*, all substantially as and for the purpose described.

578,686. MECHANICAL PURIFIER. HERBERT B. WRIGHT, Chicago, Ill., assignor of two-thirds to Edwin P. Monroe and James W. Seyk, same place. Filed May 11, 1896. Serial No. 591,043. (No model.)

Claim.—1. A receptacle for liquid consisting of a horizontal cylinder, an injector discharging into the receptacle, at one end of the cylinder on the upper side thereof, a pipe extending to the injector from an ordinary feed-water injector, a second pipe extending to the injector from the boiler whereby hot and cold water are forced into the receptacle, a discharge-pipe through the center of the head of the discharge end of the receptacle extending therefrom back to the boiler, a dome near the discharge end of the receptacle, and a well in the receptacle between the dome and the discharge end; substantially as described.

2. A receptacle for liquid consisting of a horizontal cylinder, an injector discharging into the receptacle at one end of the cylinder on the upper side thereof, a pipe extending to the injector from an ordinary feed-water injector, a second pipe extending to the injector from the boiler whereby hot and cold water are forced into the receptacle, a discharge-pipe through the center of the head of the discharge end of the receptacle extending therefrom back to the boiler, a dome near the discharge end of the receptacle, and a well in the receptacle between the dome and the discharge end with a deflector-plate extending from the upper side of the cylinder adjacent to the dome into the well and near to the bottom thereof; substantially as described.



578,687. MEANS FOR SEVERING UNCUT EDGES OF LEAVES IN MAGAZINES, BOOKS, &c. WILLIS S. ABBOT, Chicago, Ill., assignor to the Abbot Leaf Cutter Company, Los Angeles, Cal. Filed June 10, 1896. Serial No. 594,980. (No model.)



Claim.—1. A magazine, book or other publication composed of a series of leaves made up into forms having connected edges, and having each form of the publication provided with a device secured to the publication and laid between the uncut leaves thereof in position to sever the uncut leaves so as to permit the pages to be opened up, substantially as and for the purposes described.

2. A magazine, book or other publication provided with means for severing the uncut edges of its leaves, said means comprising a thread or its equivalent lying within the fold constituting the uncut edges of each form embraced within the publication, said thread or its equivalent uniting the adjoining uncut pages of each two forms embraced within the publication, substantially as and for the purposes described.

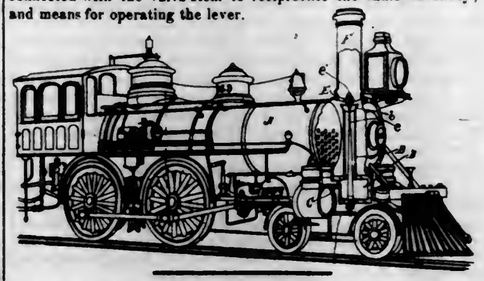
3. A magazine, book, or other publication composed of a series of leaves made up into forms having connected longitudinal and transverse edges and provided with a thread or its equivalent secured to the publication and lying within the folds constituting the longitudinal and transverse uncut edges of each form of the publication, substantially as and for the purposes described.

4. A magazine, book or other publication provided with means for severing the uncut edges of its leaves, said means comprising a thread or its equivalent lying within the fold constituting the transverse uncut edges of the leaves, and a thread or its equivalent lying within the fold constituting the longitudinal uncut edges of the leaves, said two threads or equivalents being joined together so that they may coact to cut the longitudinal and transverse uncut edges of the leaves, substantially as and for the purposes described.

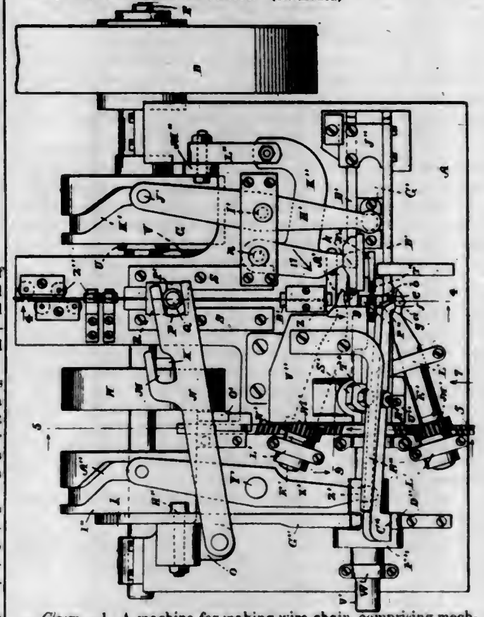
578,688. STEAM-ENGINE EXHAUST AND DRAFT DEVICE. LEGGORA A. BLUBAUGH and WILLIAM C. SIMPSON, Redlands, Cal. Filed June 18, 1894. Renewed Dec. 17, 1895. Serial No. 572,467. (No model.)

Claim.—1. In a steam-engine the combination of a tubular valve and valve-stem having the top thereof arranged opening from the stacker-box up through the valve into the smoke-stack, such valve being arranged to reciprocate to increase or decrease the size of the exhaust-passage, and suitable means for reciprocating such valve.

2. In a steam-engine, the combination with a smoke-stack and a stacker-box of a conical steam-jet-spreading valve-plug centrally arranged with relation to the smoke-stack; an exhaust stand pipe extending from the stacker-box; a discharge-mouth on the stand-pipe, the inner wall of which discharge-mouth flares from the inner wall of the stand-pipe at an angle corresponding to that of the inverted cone of the valve-plug and arranged wholly below the smoke-stack so that an extension of the flaring mouth would contact with the lower end of the inside of the wall of the smoke-stack, the internal diameter of said flaring mouth being less at the bottom and greater at the top than the greatest diameter of the conical plug; a valve-stem carrying said valve-plug and extending therefrom through the stand-pipe into the stacker-box; a guide for such valve-stem; a lever connected with the valve-stem to reciprocate the same vertically; and means for operating the lever.



578,689. CHAIN-MACHINE. RICHARD A. BREUL, Bridgeport, Conn., assignor to the Bridgeport Chain Company, same place. Filed Sept. 19, 1895. Serial No. 562,936. (No model.)



Claim.—1. A machine for making wire chain, comprising mechanism for forming the initial bends at opposite ends of a wire blank, and rotary coilers having their axes arranged at an angle to each other and also to the mechanism which forms the initial bends and which act on the wire to bend it in a spiral path around the mandrels.

2. A machine for making wire chain, comprising mandrels about which the coils of the link are formed, coilers arranged at angles to the axes of the mandrels, and means for partially rotating the coilers to bend the ends of the wire blank around the mandrels.

3. A machine for making wire chain, comprising mandrels about which the wire blank is coiled, means for feeding the wire into position on one side of one mandrel and on the opposite side of the other mandrel, mechanism for then bending the wire about the mandrels to form eyes at each end of the blank, and the loop-forming mechanism between the mandrels for forming the loop and bringing the eyes together.

4. A machine for making wire chain, comprising mandrels about which the wire blank is coiled, means for feeding the wire into position on one side of one mandrel and on the opposite side of the other mandrel, coilers for bending the ends of the wire in opposite directions around the mandrels, clenching devices for closing the ends of the wire and means for forming the loop.

5. A machine for making wire chain, comprising mandrels about which the coils of the link are formed, rotary coilers having their axes arranged at angles to the axes of the mandrels, means for operating the coilers, and mechanism for further bending the ends of the wire projecting from the coils.

6. A machine for making wire chain, comprising the mandrels about which the wire is coiled, supports for the wire, means for moving the mandrels vertically, devices coöperating with the mandrels to bend the wire, and devices for then further bending the wire to complete the coils.

7. A machine for making wire chain, comprising the mandrels, free to move both vertically and laterally, devices for bending the ends of the wire blank about the mandrels, means for bending the wire near each coil to cause the coil to assume angles to the axis of the wire, and the loop-forming mechanism.

8. A machine for making wire chain, comprising the mandrels adapted to move in opposite directions, means for moving the mandrels in opposite directions, mechanism coöperating with the mandrels to act upon a wire blank to bend the ends thereof in opposite directions, and mechanism for completing the coils of the link.

9. A machine for making wire chain, comprising the hinged mandrels about which the ends of a wire blank are coiled, means coöperating with the mandrels to bend the wire blank about their ends, a slide provided with extensions having cams acting upon the mandrels to move them in opposite directions, and means for operating the slide.

10. A machine for making wire chain, comprising the hinged mandrels, means coöperating therewith to give to the wire blank the initial bends, the slide having cams acting on the mandrels, the coilers having their axes arranged at angles to the axes of the mandrels, and means for partially rotating the coilers.

11. A machine for making wire chain, comprising the movable mandrels, means for moving them in opposite directions to bend the wire blank in opposite directions at its opposite ends, coilers for bending the ends of the wire to form the eyes at opposite ends of the blank, clenchers for further bending the extremities of the wire, and the loop-forming mechanism for completing the link.

12. A machine for making wire chain, comprising the mandrels about which the wire is coiled, means for coiling the wire about the mandrels, the clenching-levers, means for moving them in planes parallel with the axes of the mandrels, mechanism for then moving the clenching-levers transversely to the axes of the mandrels to further bend the extremities of the wire, and rammers acting upon the ends of the clenching-levers to complete the formation of the coil.

13. In a machine for making wire chain, the combination with the mandrels about which the wire is coiled, the coilers, means for giving them approximately a half-turn around the mandrels, clenching levers whereby the ends of the wire are bent forward, inward, and returned against the connecting-wire of the link, and means for shaping the coils and the connecting-wire simultaneously with the clenching operation, substantially as described.

14. A machine for making wire chain, comprising the mandrels about which the ends of the wire blank are coiled, means for coiling the ends of the blank about the mandrels, the clenching-levers one of which is arranged above and the other below the mandrels, and mechanism for operating the clenching-levers.

15. A machine for making wire chain, comprising the hinged mandrels, means coöperating therewith to partially bend the wire blank, springs for holding the mandrels in their normal position, means for actuating the mandrels to partially bend a wire blank, and mechanism for curling the ends of the wire blank around the mandrels.

16. A machine for making wire chain, comprising mandrels about which the ends of a wire blank are coiled, the coilers having their working ends shaped to engage with the ends of the wire projecting from the mandrels, and having their axes arranged at an angle to each other and diverging from their working ends outwardly, pinions carried by the mandrels, and a reciprocating rack-bar engaging the pinions to give a partial turn to the coilers.

17. A machine for making wire chain, comprising mandrels about which the ends of a wire blank are coiled, means for coiling the ends of the wire about the mandrels, the clenching-levers, means for moving them forward in planes parallel with the axes of the mandrels, mechanism for then moving the ends of the clenching-levers transversely to the axes of the mandrels, and mechanism for forming the loop.

18. In a machine for making wire chain, the combination with means for forming the coils, of the clenching-lever herein described, provided with the recesses *e*, *f* and *g*, and the lugs *p*.

19. In a machine for making wire chain, the rammers herein described, provided with the supports *b*, for the link-blank, in combination with the mandrels, the clenchers and the coilers, substantially as set forth.

20. A machine for making wire chain, comprising the mechanism for forming the coils at opposite ends of a wire blank, a loop-former pivotally connected with a reciprocating slide, and dies between which the former operates to form the loop.

21. A machine for making wire chain, comprising mechanism for forming coils at opposite ends of a wire blank, means for then bending the connecting-wire near the coils before the operation of the loop-forming mechanism to cause the coils to assume angles to the axis of the connecting-wire, a loop-former, and dies between which the connecting-wire is forced by the loop-former.

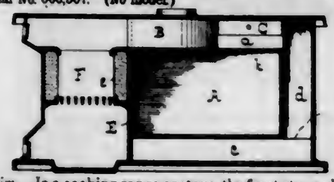
22. In a machine for making wire chain, the combination, substantially as set forth, of the mandrels about which the ends of a wire blank are bent, the rotary, diverging coilers, the pivoted clenching-levers, the rocker-arm having rollers engaging the clenching-levers, means for operating the rocker-arm, levers arranged transversely to the clenching-levers and to which they are pivotally connected, and means for operating said levers, the organization being such that the clenching-levers are moved both transversely relatively to the axes of the mandrels, and also in planes parallel therewith.

23. In a machine for making wire chain, the combination with mechanism for forming the coils, clenching-levers operating upon the projecting ends of the coils, the dies arranged between the clenching-levers and having recesses in their faces in which the loop is formed, and a loop-former operating between the dies.

24. The combination with mechanism for feeding the wire blank, of devices for forming the coils at opposite ends of the blank, mechanism for bending the connecting-wire near the coils, to cause the coils to assume angles relatively to the axis of the connecting-wire, and mechanism for then bending the connecting-wire to form the loop and thus complete the link.

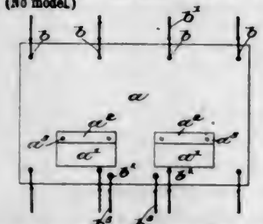
25. The combination with the wire-feeding mechanism, of the mandrels, the clenchers and the rammers, each of which is provided with a support for the wire blank, and which receives the wire blank when it is fed into the machine.

578,690. COOKING RANGE OR STOVE. RICHARD J. BROCKMEYER and JOSEPH A. BROCKMEYER, Baltimore, Md. Filed Apr. 7, 1896. Serial No. 586,507. (No model.)



Claim.—In a cooking range or stove, the front stove-plate thereof having an opening above and below the oven, combined with a hollow oven-door with the inside plate thereof provided with openings which register with those in the front plate of the stove when the door is closed, a gravity-closing valve over each opening, and the stove and inner door plates provided with spurs which serve to open the valves as the oven-door is closed, and thereby induce a downward current of products of combustion through the hollow door, when the direct-draft damper is closed, substantially as specified.

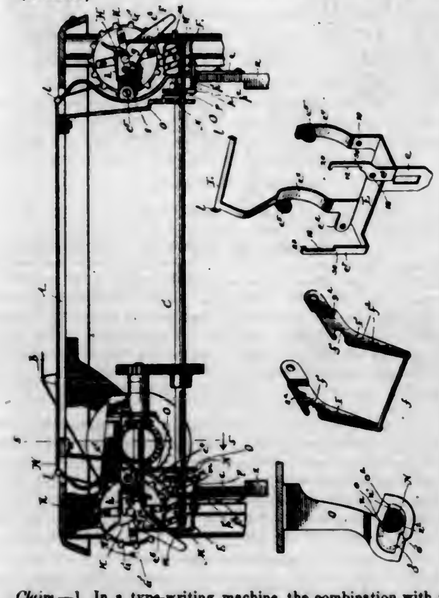
578,691. COMBINED PONCHO, BLANKET, KNAPSACK, AND SHELTER-TENT. HERBERT I. CONANT, Boston, Mass., assignor to the Conant Rubber Company, same place. Filed May 14, 1895. Serial No. 549,228. (No model.)



Claim.—1. The herein-described tent-poncho, the same consisting of a rectangular fabric *a*, having a length greater than its breadth, provided along its opposite edges with fasteners and adjacent one of its long edges with a plurality of pockets *a'* open at their edges parallel to said long edges adjacent the middle of the poncho, and closures for the said pockets, said pockets terminating short of the middle of the poncho and adapted to be folded longitudinally over and back into a flat roll, for use as a knapsack to be thrown across the shoulder, the pockets being separated as shown a distance to permit them to lie against and to cover the chest and back of the carrier, substantially as described.

2. The herein-described tent-poncho, the same consisting of a rectangular fabric provided along its opposite edges with eyelets *b*, and at one of its said edges with eyelets b^2 and fastening-cords b^3, said cords being spaced apart as shown to secure the poncho close around the neck of the wearer, and provided at one side with one or more pockets *a'* opening substantially parallel to said edges having closing-flaps a^2 and fastening devices therefor, substantially as described.

578,692. TYPE-WRITING MACHINE. CHARLES N. FAY, Chicago, Ill. Filed Apr. 4, 1895. Renewed Jan. 9, 1897. Serial No. 618,673. (No model.)



Claim.—1. In a type-writing machine, the combination with a laterally-movable spool-carrier and spool supported thereby and with means for automatically shifting said carrier back and forth, of a wheel for imparting revolution to said spool, a shaft mounted in said carrier and suitably geared to said wheel and with suitable mechanism for imparting revolution to said shaft as said carrier is shifted back and forth.

2. In a type-writing machine, the combination with a laterally-movable spool-carrier and spool supported thereby and with means for automatically shifting said carrier back and forth, of a wheel for imparting revolution to said spool, a shaft mounted in said carrier and suitably geared to said wheel, said shaft having one of its ends projecting beyond its bearing whereby the shaft may be manually turned.

3. In a type-writing machine, the combination with a laterally-movable spool-carrier and ribbon-spool and means for automatically shifting said carrier back and forth, of a wheel and worm supported by said carrier for effecting the longitudinal advance of the ribbon and suitable means for imparting movement to said worm.

4. In a type-writing machine, the combination with a laterally-movable spool-carrier and spool supported thereby, and with means for automatically shifting said carrier back and forth, of a worm and wheel sustained by the carrier and serving to impart revolution to the spool, the shaft of said worm being provided with a wheel having projections, and a shifter adapted to engage the projections of said wheel in order to impart revolution to said worm.

5. In a type-writing machine, the combination with a laterally-movable spool-carrier and spool supported thereby, and with means for automatically shifting said carrier back and forth, a wheel and worm sustained by said carrier and movable therewith, a spur-wheel connected to the shaft of said worm and a shifter for turning said spur-wheel, said shifter being provided with shoulders to engage the projections of the spur-wheel.

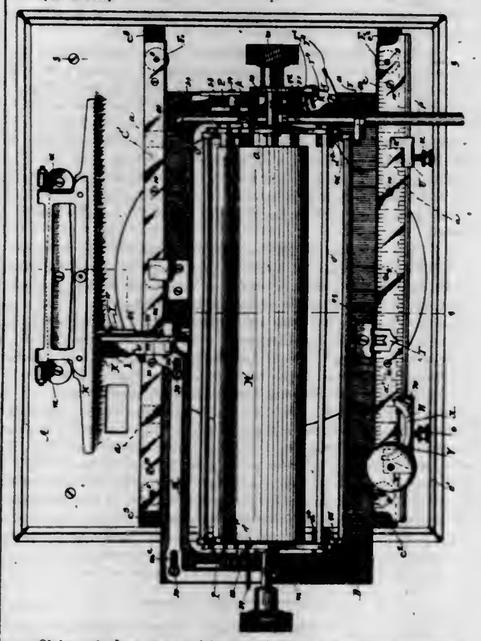
6. In a type-writing machine, the combination with a laterally-movable spool-carrier and spool supported thereby, and with means for automatically shifting said carrier back and forth, of a wheel and worm supported by said carrier for effecting the longitudinal advance of the ribbon, a wheel connected to the worm-shaft and provided with projections, and a fixed shifter having oppositely-disposed shoulders or stops interposed in the path of said projections in order to engage the same and thus effect the turning of the wheel, in the same direction at each end of the travel of the carrier.

7. In a type-writing machine, the combination with a laterally-movable spool-carrier and spool supported thereby, and with means for automatically shifting said carrier back and forth, of a wheel and worm supported by said carrier for effecting the longitudinal advance of the ribbon, a spur-wheel connected to the worm-shaft and a fixed shifter having oppositely-arranged stops or projections to engage the projections of the spur-wheel and having parts serving to limit the revolution of said spur-wheel.

8. In a type-writing machine the combination with a ribbon-spool-carrying frame, of a ribbon-spool and a wheel for imparting revolution to said spool, a shaft whereby said spool and wheel are carried, gear mechanism supported by said spool-carrying frame for driving said spool and a vertically-movable support for said spool-shaft having open journal-bearings to receive said shaft, said movable support serving to effect the disengagement of said spool from the gear mechanism whereby it is driven.

9. In a type-writing machine, a spool-carrying frame E provided with the upwardly-extending arms e^3 and e^4 and a spool-support comprising arms F and F' pivotally connected to said arms e^3 and e^4 at their rear and connected at their front by a cross-bar whereby the support may be shifted to move the spool from engagement with its actuating mechanism.

578,693. TYPE-WRITING MACHINE. CHARLES N. FAY, Chicago, Ill. Filed Apr. 4, 1895. Renewed Jan. 9, 1897. Serial No. 618,674. (No model.)



Claim.—1. In a type-writing machine, the combination with a paper-carriage, of an escapement mechanism for said carriage comprising a horizontally-arranged and vertically-movable rack-bar, a fixed and a limber pawl sustained by said carriage for engagement with said rack-bar, a rearwardly-projecting laterally-rigid guide-support attached to said paper-carriage and whereby one of said pawls is sustained in manner free to reciprocate in a direction at right angles to the path of travel of said carriage and a release-key mounted upon the carriage and whereby said reciprocating pawl may be withdrawn from engagement with said rack-bar.

2. In a type-writing machine, the combination with a paper-carriage and with a tilting platen-frame and platen sustained thereby, of an escapement mechanism comprising a horizontally-arranged and vertically-movable rack-bar and a pair of pawls mounted upon the rear of said carriage and independent of said tilting platen-frame, and a laterally-rigid guide for one of said pawls and whereby it is sustained in manner free to reciprocate in a direction at right angles to the path of travel of the carriage, a laterally-rigid reciprocating pawl-carrier mounted upon said guide whereby said reciprocating

pawl is sustained and a release-key mounted upon the carriage and engaging said laterally-rigid pawl-carrier to effect its reciprocation in order to withdraw it from engagement with the rack-bar.

3. In a type-writing machine, the combination with a paper-carriage, of an escapement mechanism for said carriage comprising a movable rack-bar, a pair of pawls for engaging said rack-bar, one of said pawls being fixed upon said carriage and the other of said pawls being mounted upon said carriage in manner free to reciprocate in a direction transverse to the path of travel of said carriage, suitable mechanism for guiding said pawl in its reciprocating movement, a cam for withdrawing said pawl from engagement with the rack-bar and a release-key for operating said cam.

4. In a type-writing machine, the combination with a paper-carriage, of an escapement mechanism for said carriage comprising a movable rack-bar, a pair of pawls for engaging said rack-bar, one of said pawls being sustained upon said carriage in manner free to reciprocate in a direction transverse to the path of travel of said carriage, a fixed pawl mounted upon the carriage, an arm for sustaining said fixed pawl, a reciprocating carrier whereon said reciprocating pawl is mounted and a release-key for retracting said reciprocating carrier and a pawl from engagement with the rack-bar.

5. In a type-writing machine, the combination with a paper-carriage, of an escapement mechanism for said carriage comprising a horizontally-arranged and vertically-movable rack-bar and a pair of pawls for engaging said rack bar, one of said pawls being sustained upon said carriage in manner free to reciprocate in a direction transverse to the path of travel of said carriage, a reciprocating pawl-carrier for supporting said reciprocating pawl, and a sliding release-key comprising an angular bar having a finger-piece at one end adjacent the center of the carriage and having its opposite end cam-shaped to engage said reciprocating pawl-carrier in order to retract the pawl from engagement with the rack-bar.

6. In a type-writer the combination with a top plate A of the main frame, and with a sliding paper-carriage, of front and rear rails upon the top plate and between which said sliding paper-carriage is guided, the front carriage-rail being formed of superposed sections, the upper section of said front carriage-rail projecting forwardly beyond the lower section and at a distance above the top plate of the main frame, a margin-stop adjustably mounted upon the forwardly-projecting portion of the upper section of said front carriage-rail, and an arm extending forwardly from the carriage above said front carriage-rail and arranged to engage said adjustable margin-stop.

7. In a type-writing machine, the combination with a top plate A of the main frame, of a sliding paper-carriage, front and rear guide-rails for said carriage, said front guide-rail having its upper portion extended forwardly beyond its lower portion and raised at a distance above the top plate and provided with a projecting flange, an adjustable dovetailed margin-stop fitted upon said forwardly-projecting flanged upper portion of the front carriage-rail and a projecting arm extending forwardly from the paper-carriage over said front rail and into position to engage said adjustable margin-stop.

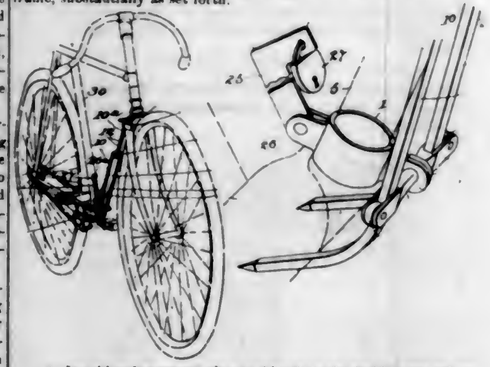
8. In a type-writing machine, the combination with the top plate A of the main frame, and with the sliding carriage D mounted thereon and having a forwardly-projecting stop or arm, of front and rear rails C and C' between which said carriage is supported in manner free to slide, said front rail C having a forwardly-projecting flanged portion with unobstructed ends raised above the top plate of the main frame and an adjustable margin-stop mounted upon said forwardly-projecting portion of said front rail and removably connected therewith whereby said margin-stop may be withdrawn endwise from the rail so that the carriage can be slipped from engagement with the rails.

578,694. BICYCLE-SUPPORT. ALBERT I. GALLAWAY, Morristown, N. J., assignor of one-half to David Sayre Enslee, same place. Filed Aug. 24, 1896. Serial No. 603,712. (No model.)

Claim.—1. In a bicycle-support, the combination of a guide swiveled to the main frame upon a transverse horizontal pivot, the supporting-arms slidingly engaging said swivel-guide and adapted to swing vertically thereupon in the longitudinal plane of the bicycle, a securing device on the lower forward reach of the bicycle-frame adapted to secure the supporting-arms in elevated position, and a fastening device adjacent to the swivel-guide adapted to secure said supporting-arms in lowered position, substantially as set forth.

2. In a bicycle-support, the combination of the adjustable supporting-arms, means for securing the arms in elevated position, and a swiveled guide for said arms comprising a split ring or collar having perforated ears, the threaded bolt passing through said ears, and guide arms or brackets having threaded openings working upon the threaded bolt and securing the split ring to the machine-frame, substantially as set forth.

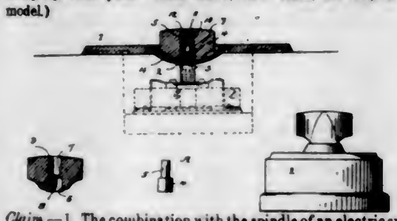
3. In a bicycle-support, the combination of the adjustable supporting-arms, means for securing the arms in elevated position, and a swiveled guide for said arms comprising a split ring or collar having perforated ears or lugs, the threaded bolt passing through said lugs, and the guide-brackets having bifurcated ends in which are journaled antifriction-rollers, and threaded openings which work upon the ends of the threaded bolts and secure the ring or collar to the machine-frame, substantially as set forth.



4. In a bicycle-support, the combination of suitable supporting-arms, guides swiveled to the bicycle-frame upon a transverse horizontal pivot, said supporting-arms slidingly engaging the guides and adapted to swing in the longitudinal plane of the bicycle, means for supporting said arms in elevated position, and a pivotally-mounted fastening-plate secured to the bicycle-frame adjacent to the swivel-guides and adapted to engage the supporting-arms for locking them in lowered operative position, said fastening-plate being pivoted to enable it to automatically adjust itself to the formation of the bicycle-frame, substantially as set forth.

5. In a bicycle-support, the combination of the supporting-arms, guides in which the supporting-arms are adjustably mounted, means for securing the arms in elevated position, a ring or collar secured to the machine frame adjacent to the crank-bearing, a plate formed with a right-angled projection and pivoted to said ring or collar, and means of engagement between the supporting-arms and the right-angled projection of said plate, substantially as set forth.

578,695. TURN-BUTTON FOR ELECTRICAL SWITCHES. JACOB S. GIBBS, Hartford, Conn., assignor to the Gibbs Electric Manufacturing Company, same place. Filed Jan. 6, 1897. Serial No. 618,142. (No model.)



Claim.—1. The combination with the spindle of an electric switch, of a turn-button or key fitted to said spindle and adapted to rotate it, said button or key being also mounted to have a limited movement in the direction of the axis of said spindle, and a spring confined within said button or key and between suitable abutments to yieldingly press the button or key against the cover or face-plate of the switch.

2. The combination with the spindle of an electric switch having an angular portion and a reduced outer portion adjacent thereto, of a turn-button or key fitted to the angular portion of the spindle to rotate it and having an internal shoulder, and a spring located in the key and around the reduced portion of the spindle and bearing against the shoulder of the key, and means connected with the spindle for retaining the outer end of the spring in position.

3. The combination with a spindle-head having an angular portion and a rounded portion, of a handle or key having an angular recess to receive the angular portion of the spindle-head, an opening 8 surrounded by a shoulder and an opening 9, the rounded portion of the spindle-head lying in openings 8 and 9, a spring surrounding the rounded portion of the spindle-head and bearing upon the shoulder and a screw engaging the upper end of the spindle-head and having a head lying within opening 9 against which the other end of the spring bears, the normal action of the spring being to press the handle or key downward on the spindle-head, substantially as described, for the purpose set forth.

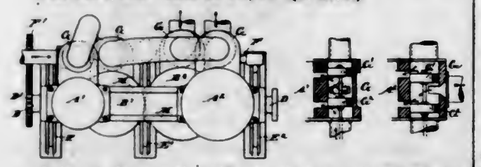
578,696. MACHINE FOR INSERTING FASTENINGS IN BOOTS, SHOES, &c. GEORGE N. GORDON, Malden, Mass., assignor to the Wire Grip Fastening Company, Chicago, Ill. Filed Aug. 3, 1896. Serial No. 601,420. (No model.)



Claim.—1. A nose or lift plate for use in a machine for inserting fastenings into boot-heels, combined with a depressor to act on and depress the edges of larger intermediate lifts next the top lift of the heel, substantially as described.

2. The nose or top lift plate provided at its under side with an edge gage and a depressor having a beveled edge and attached to said plate, said depressor serving to act upon and depress the edges of larger intermediate lifts next the top lift, combined with a feeding device to act upon and feed the heel, substantially as described.

578,697. STEAM-ENGINE. NATHANIEL G. HERRESHOFF, Bristol, R. I., assignor to the Herreshoff Manufacturing Company, same place. Filed Dec. 2, 1896. Serial No. 570,781. (No model.)



Claim.—1. In an engine with two or more pairs of cylinders and cranks, having one cylinder of each pair above and partially overlapping its mate, the lower cylinders of the two pairs being in direct contact with each other and having the several valve-chambers out of the plane of the axes, the combination therewith of the frame M constituting with the cylinders a rigid supporting-girder performing the functions of a bed-plate, and the frames E, E', E², connecting such girder with the shaft-bearings, the several last-mentioned frames being arranged so far out of the line of the cylinders as to allow the removal of the heads and pistons from the lower ends of the lower cylinders after detaching the slides without disturbing the frames, all substantially as herein specified.

2. In a compound engine with the cylinder and cranks in pairs, the double-piston valves G', G², working in the valve-chests A', A², arranged as described, the valve-chest for the high-pressure cylinder receiving steam between the pistons and exhausting at the ends, and the valve-chests for the low-pressure cylinders each receiving its weaker steam at the ends and exhausting from the space between the valve-pistons, all combined and arranged substantially as herein specified.

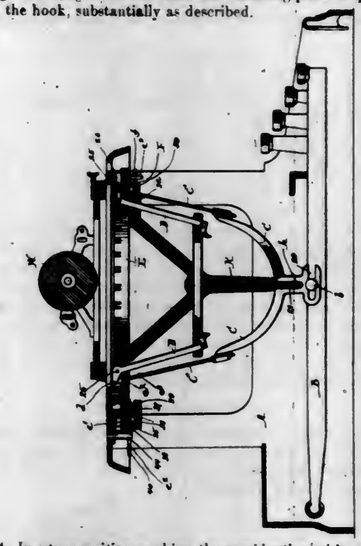
3. An engine having two pairs of cylinders, with double-piston valves for each, the valve for a cylinder of one pair having the steam-inlet pipe opening into the space between pistons and its exhaust connected with the space between pistons of the valve belonging to the second cylinder of the same pair, and the exhaust of said second valve being connected with the end spaces of the valves of both cylinders of the second pair, substantially as described.

578,698. TYPE-WRITING MACHINE. HENRY HOCHKLASEN, Chicago, Ill., assignor, by mesne assignments, to Charles N. Fay, same place. Filed Mar. 28, 1895. Renewed Jan. 9, 1897. Serial No. 618,671. (No model.)

Claim.—1. In a type-writing machine, the combination with a main frame, of a type-bar carrier or disk E located beneath the top plate of said main frame and having lateral and rearward extensions e and e', the ball-bearings 35 and bearing-blocks or hangers 32 attached to the under side of the top plate and whereby said lateral extensions are supported and the ball-bearings 36 and hangers 37 attached to the under side of the top plate and whereby said rearward extension e' is supported, substantially as described.

2. In a type-writing machine, the combination with a type-bar, of a hanger-rod provided with a hook and with a retaining-piece mounted on a fixed pivot adjacent the end of said rod and arranged to swing in the vertical plane of said rod and serving to close said hook, substantially as described.

3. In a type-writing machine, the combination with a type-bar, of a hanger-rod provided with a hook and with a retaining-piece for closing said hook, said retaining-piece being mounted upon a fixed pivot adjacent the end of the hanger-rod, said retaining-piece being provided at the end farthest from the hook with a latch adapted to engage the hanger-rod and hold the retaining-piece in position to close the hook, substantially as described.



4. In a type-writing machine, the combination with a body to be shifted to effect the printing of upper-case letters or the like, of a main upper-case key-lever for effecting the shift of said body, a supplemental key-lever pivotally connected to said upper-case key-lever and provided at one side of its pivotal point with a finger-piece whereby both it and the main key-lever may be depressed, a stop or projection for engagement with said supplemental key-lever at the opposite side of its pivotal point, said supplemental key-lever being arranged to escape engagement with said stop or projection when the main key-lever is operated, but serving when its own finger-piece is depressed to engage said stop or projection and lock the main key-lever in depressed position, substantially as described.

5. In a type-writing machine, the combination with a body to be shifted to effect the printing of upper-case letters or the like, of a main upper-case key-lever for effecting the shift of said body, a supplemental key-lever pivotally connected to said upper-case key-lever and provided at its outer end with a finger-piece whereby both it and the main key-lever may be depressed and provided at its inner end with a hook, said finger-piece and said hook being at opposite sides of the pivotal point of said supplemental lever, and a stop or projection for engagement with the hooked end of said supplemental key-lever, said supplemental key-lever being arranged to escape engagement with said stop or projection when the main key-lever is operated, but serving when its own finger-key is depressed to engage said stop or projection and lock the main key-lever in depressed position, substantially as described.

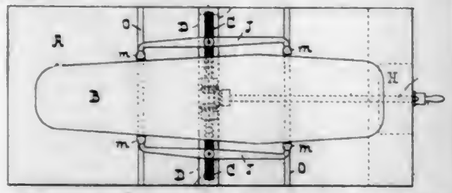
6. In a type-writing machine, the combination with the body to be shifted to effect the printing of upper-case letters or the like, of a main upper-case key-lever for effecting the shift of said body, a supplemental key-lever pivotally connected to said upper-case key-lever and provided at one end with a finger-piece whereby both it and the main key lever may be depressed and provided also with an inwardly-projecting end held normally in such position that it will not engage with the stop or projection when the main key-lever is depressed but will engage with said stop or projection when the supplemental key-lever is depressed; said main and supplemental key-levers being arranged with respect to each other also in such manner that a slight depression of the main key-lever will release the supplemental key-lever from its locked position, substantially as described.

578,699. CASKET-CLAMP FOR HEARSES. WILLIAM LEONHARDT, Baltimore, Md., assignor to the Leonhardt Wagon Manufacturing Company, same place. Filed June 29, 1896. Serial No. 597,336. (No model.)

Claim.—1. In combination with the platform of a hearse, two centrally-pivoted cross clamping-arms having clamping-heads at their ends, and means to contract and distend the said pivoted arms, substantially as specified.

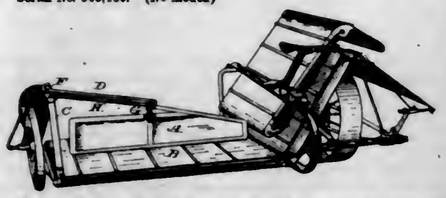
2. In combination with the platform of a hearse, a slotted plate

secured transversely of the platform, two screws underneath the platform which is slotted to correspond with the slotted plate, a nut on each screw having a pivot which extends through the slotted plate, a cross-arm on each pivot having clamping-heads at its ends and suitable gearing to effect the rotation of the screws, substantially as specified.



3. In combination with the platform of a hearse, a slotted plate situate transversely of the platform, two screws underneath the platform which is slotted to correspond with the slotted plate, a nut on each screw having a pivot which extends through the slotted plate, a cross-arm on the pivot having clamping-heads at its ends, a miter gear-wheel at the end of each screw, another miter gear-wheel in mesh with the others and a shaft and crank-handle to revolve the third miter gear-wheel, substantially as specified.

578,700. GRAIN-SHIELD FOR HARVESTERS. ROBERT C. LIVERSAY and HENRY F. CRANDALL, Milwaukee, Wis., assignors to the Milwaukee Harvester Company, same place. Filed Sept. 21, 1895. Serial No. 563,189. (No model.)



Claim.—1. In a harvester, a grain-shield supported over and parallel with the platform by a horizontally-swinging arm pivoted to said shield and to the outer end of the platform, bridging the space between the outside divider and the adjacent end of the shield, and serving as a guide to support the heads of long grain and conduct the same over said space to said shield, substantially as and for the purposes set forth.

2. In a harvester, the combination of a grain-shield supported over and parallel with the platform by a horizontally-swinging arm pivoted to said shield and to the outside divider, and bridging the space between said divider and the adjacent end of the shield, and a rod parallel with said arm pivoted at one end to said divider and at the other to an arm on said shield, so as to hold said shield, in whatever position it is set, parallel with the platform, substantially as and for the purposes set forth.

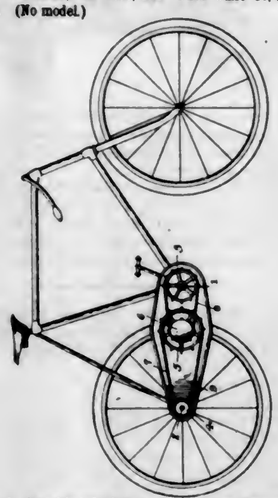
3. The combination with a harvester, of a grain-shield supported over and parallel with the platform by a horizontally and vertically swinging arm having hinge or pivot connections with said shield and with a part of the machine adjacent to the outer end of the platform, and an arc with which the outer end of said arm is adapted to engage, substantially as and for the purposes set forth.

4. The combination with a harvester, of a grain shield supported over and parallel with the platform by a vertically and horizontally swinging arm having hinge or pivot connections with said shield and with a part of the machine adjacent to the outer end of the platform, and a rod parallel with said arm, pivoted to an arm on said shield and to a part of the machine so as to hold said shield parallel with the platform in whatever position it may be set, substantially as and for the purposes set forth.

5. The combination with a harvester, of a grain-shield supported and held over and parallel with the platform by a horizontally and vertically swinging arm, an associated parallel rod having hinge or pivot connections equidistant from each other with said shield and with a part of the machine adjacent to the outer end of the platform, and a serrated arc attached to the machine concentric with the pivot connection between it and said arm and adapted to engage with the outer end of said arm and thereby hold said shield in any desired position in which it may be set, substantially as and for the purposes set forth.

6. The combination with a harvester, of a grain-shield supported over and parallel with the platform from a part of the machine adjacent to the outer end of the platform and inclined on its upper edge downwardly toward its inner end, which terminates at a distance from the elevator so as to facilitate the movement of overhanging grain to the elevator, substantially as and for the purposes set forth.

578,701. BICYCLE DRIVING-GEAR. CHARLES A. METTE and EDDY S. RAYBURN, San José, Cal. Filed June 17, 1895. Serial No. 553,134. (No model.)



Claim.—1. In a bicycle driving mechanism, the combination with the driving-wheel and the crank-axle, of duplicate sprocket-wheels fast on one of said parts and both located upon the same side of the machine, a sprocket-wheel fast on the other part, and a journalless triplex sprocket-wheel interposed between the single and duplicate sprocket-wheels and operatively connected therewith by drive-chains, whereby the intermediate triplex sprocket automatically takes up slack in the drive-chains, substantially as described.

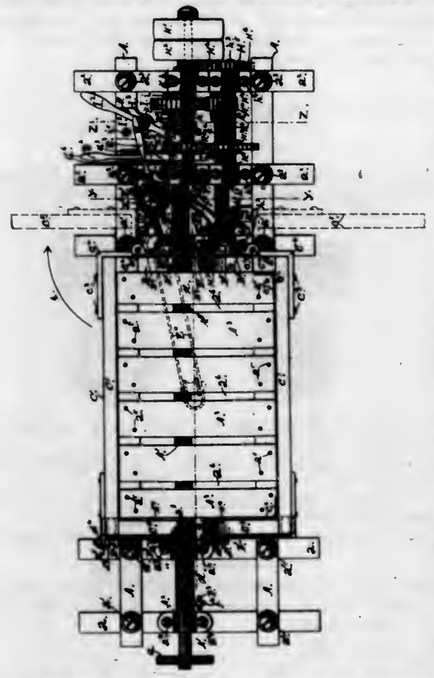
2. In a bicycle driving mechanism, the combination with the crank-axle, of duplicate sprocket-wheels fixedly mounted thereon, at or near one end and both upon the same side of the machine, a sprocket-wheel carried by the driving-wheel of the machine, and a journalless triplex sprocket-wheel interposed between said duplicate sprockets and the sprocket on the driving-wheel, said triplex sprocket being suspended upon and by means of sprocket-chains extending in opposite directions therefrom to and around the duplicate and drive-wheel sprockets, whereby said intermediate sprocket is adapted to automatically take up slack in the sprocket-chains, substantially as specified.

3. In a bicycle driving mechanism, the combination with the crank-axle, of duplicate sprocket-wheels fixed thereto at or near one end and both upon the same side of the machine, a sprocket-wheel having a rigid connection with the driving-wheel, an inclosing case comprising an oppositely-disposed pair of plates arranged upon each side of said sprocket-wheels and supported in the manner described, and a journalless triplex sprocket-wheel arranged intermediate of the crank-axle and drive-wheel axle and suspended only upon the drive-chains passing around the same and extending in opposite directions to said duplicate sprockets and drive-wheel sprocket, said intermediate sprocket being arranged within and adapted to move vertically between and be guided by the side plates of the inclosing case, whereby the proper alinement of said intermediate gear is preserved and slack in the drive-chains automatically taken up, substantially as set forth.

4. In a bicycle, the combination of the front and rear sprockets, with a set of intermediate sprockets between the front and rear sprockets connected thereto by chains and suspended by the chains, substantially as described.

578,702. BALING-PRESS. SIMON B. MINNICH, Landisville, Pa., assignor to Mary C. Minnich, same place. Filed June 21, 1895. Serial No. 553,514. (No model.)

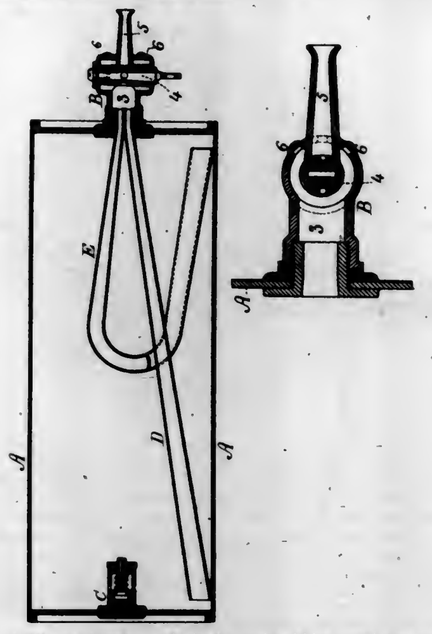
Claim.—1. In a press of the character described having a base-framework as shown, with the baling-case having the rear-end-wall portions rigidly secured to said framework as shown, and the swinging side and front-end wall portions as described having their inwardly-projecting rear-end edges hinged to the outer edges of said rigid rear-end-wall portions, of the clamp device comprising the strap, D^2, with the inner end roller, d', rigidly secured to one of the swinging wall portions, as shown: the strap, D^3, having the hook, d^3, at one end and the other end pivoted to the head of the bolt, D^4, as shown; the bolt, D^4, having its screw-threaded shaft with the clamp-nuts, d^4, thereon, adjustably secured to the forward end of the strap, D^2, as shown; the strap, D^3, having its rearward end rigidly secured to the side of the other swinging wall portion, as shown; the arched guide-strip, D^5, placed over the strap, D^2, having its extremities secured to the front wall of said swinging portion as shown; the lever-arm, D^7, passed underneath said guide-strip and pivoted thereto, as shown; the links, D^6 D^6, having their upper ends pivoted to the lower end of said lever-arm, D^7, and their lower ends pivoted to said strap, D^2, as shown; all substantially as and for the purpose hereinbefore set forth.



2. In a press of the character described, with the base-framework having the longitudinal beams and the under and upper cross-pieces secured together as shown; the baling-case, with the fixed back and the hinged side and front-end wall wings, secured in position to said framework; and the windlass underneath the case, with the ratchet-wheel and pawl to keep it from turning, and journaled in bearings also secured to the framework; of a bracket-plate with a ring-socket in its upper face and rearward of the case secured to the adjacent upper cross-piece of said framework, a tubular shaft having its lower end rotatably seated in the socket of said bracket, a two-limbed brace-arm having a ring at one end loosely embracing the shaft, and the feet of its limbs rigidly secured to the fixed back of the case, and a lever-arm having one end rigidly secured to said shaft to rotate the same, a horizontal crane-arm having two parallel limbs with their rearward ends rigidly secured to the upper end of the shaft, inclined brace-bars having their lower ends rigidly secured to the body of the shaft and their upper ends to the limbs well toward their forward ends, grooved pulleys near to the forward and rear ends of the crane-arm pivoted between the limbs thereof, a chain mounted on the pulleys and having its ends downwardly depending the forward one at the axis of the case and the rearward one in the hollow of the shaft, a balance-weight secured to the extremity of the said rearward end and the press-beam with the attached follower-plate suspended from the extremity of the said forward end, and chains connecting the extremities of the said press-beam with the body of the windlass, all substantially as described and for the purpose hereinbefore set forth.

578,703. FIRE-EXTINGUISHER. EDWARD M. PARKER and WILLIAM H. COULSON, Jersey City, N. J. Filed Apr. 27, 1896. Serial No. 589,197. (No model.)

Claim.—1. The combination with the holding vessel in a fire-extinguisher of two pipes coming closely together at one end and opening into a common discharge, the other ends of such pipes opening within and near the respective ends of the vessel so that the discharge of gas by either pipe promotes the discharge of liquid by the other pipe, substantially as specified.



2. The combination with the fire-extinguishing vessel A to contain suitable fluids under pressure, of the exit-pipe 3 and a cock or valve, the pipe D substantially straight and reaching to near the distant end of the vessel A, the pipe E that is bent with its receiving end near the exit-pipe A so that the apparatus is adapted to discharge the fluid contents with uniformity when held in any desired position, substantially as set forth.

3. The combination with the vessel holding fire-extinguishing material, of a discharge-head having at one end an opening leading into the vessel, a plug or cock with a surrounding barrel and a discharge or jet tube, a perforated casing around the cock, the space inclosed by the same being open to the pipe leading into the vessel holding fire-extinguishing material, there being fusible material within the perforations in the casing so that the contents of such fire-extinguishing vessel can discharge through the perforated casing when the temperature rises sufficiently and independently of the cock or valve, substantially as set forth.

4. The combination with the vessel for holding fluids under pressure, of a discharge-head having a valve or cock to be actuated by hand, and a perforated casing around the same and easily-fused material in the perforations, the interior of the casing opening into the pipe leading to the cock or valve, and pipes within the holding vessel that come together at one end in the pipe leading to the plug or cock and the other ends of such pipes open near the respective ends of the holding vessel, substantially as set forth.

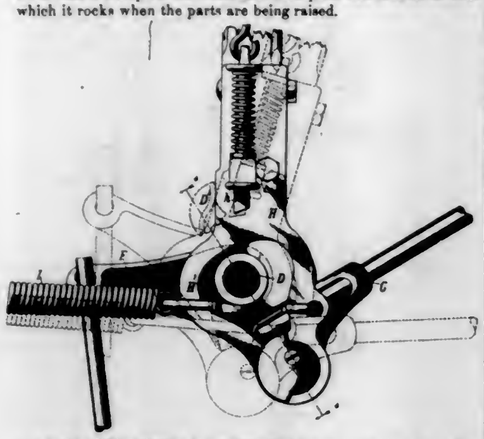
578,704. MOWING-MACHINE. HENRY E. PRIDMORE, Chicago, Ill. Filed July 18, 1892. Serial No. 440,337. (No model.)

Claim.—1. In combination in a mowing-machine, a primary lever pivoted on the machine, one arm of which is connected with the coupling-frame, a hand-lever pivotally connected to the primary lever at a point outside the pivot of the primary lever, a stop on the machine-frame and a spring acting on the hand-lever between its connection to the primary lever and the stop.

2. In combination in a mowing-machine, a primary lever pivoted on the machine, one arm of which is connected to the coupling-frame by a stiff link, a hand-lever pivotally connected to the other arm at a point below the pivot of the primary lever, a stop on the machine-frame above the connection of the hand to the primary lever, and a spring acting on the hand-lever between the stop and the connection of the hand and primary levers.

3. In a mowing-machine in combination, a primary lever pivoted on the machine one arm of which is connected with the coupling-frame, a hand-lever pivotally connected with the other arm at a point in a plane which is below the pivot of the primary lever, a stop on the machine above the pivot of the primary lever, a spring acting

on the hand-lever between the connection of the hand and primary levers and the stop on the frame and a stop for the hand-lever over which it rocks when the parts are being raised.

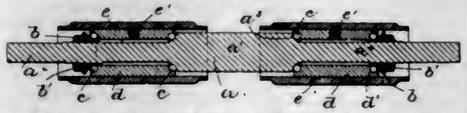


4. In a lifting device, in combination, a primary lever pivoted to the frame of the machine, a hand-lever pivotally connected to the primary lever and having its pivot eccentric to that of the pivot of the primary lever, a spring reacting between the hand-lever and the machine-frame, a stop located on the machine-frame, against which stop the spring holds the lever when the parts are at work, and a secondary stop which serves as a lock between the hand and the primary levers while the parts are being raised, and which is so located that the initial movement of the hand-lever stretches the spring as the power exerted on the hand-lever by the operator is transmitted to the coupling-frame and finger-bar.

5. In a raising device in combination, a primary lever pivoted to the machine, one arm of which is connected with the coupling-frame, a foot-lever pivoted on the primary lever, stops on the foot and primary levers to limit their movement, a hand-lever mounted on the foot-lever on a pivot that is eccentric to the pivot of the foot-lever on the primary lever, means for locking the hand and primary levers when the parts are being raised by the hand-lever, a stop for the hand-lever, located on the frame of the machine and a spring reacting between the frame of the machine and the hand-lever, and attached to the hand-lever between the pivot of the hand-lever on the foot-lever and the stop on the frame of the machine.

6. In a raising device for handling the coupling-frame, the cutter-bar portion of mowing-machines, in combination, a primary lever pivoted to the machine and connected to the coupling-frame, a foot-lever pivoted to the primary lever, a hand-lever pivotally connected to the primary lever on a pivot that is formed on the foot-lever eccentrically to its pivot to the primary lever, a spring reacting between the machine-frame and the hand-lever, a stop located on the machine-frame, on the same side of the hand-lever as the direction in which the spring tends to rock the hand-lever on its pivot, the stop on the machine-frame forming the pivot upon which the hand-lever vibrates as the coupling-frame and finger-bar portion of the mower rise and fall in their travel over the ground.

578,705. TOP ROLL. LEON W. CAMPBELL, Woonsocket, R. I., assignor of one-half to Malcolm Campbell, Boston, Mass. Filed Nov. 11, 1896. Serial No. 611,719. (No model.)



Claim.—1. An improved top roll, comprising a central bearing, an outer shell, an interposed sleeve secured to said shell to turn therewith, and antifriction devices interposed between the bearing and the sleeve.

2. An improved roll top comprising a central bearing, a sleeve revoluble around the bearing, antifriction devices interposed between the bearing and the sleeve, and an outer shell placed on the sleeve and confined thereon, whereby the shell is held against longitudinal movement and is capable of rotating with the sleeve.

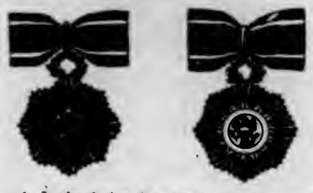
3. An improved top roll comprising an arbor having cone-bearings, a revoluble sleeve secured on the main arbor, antifriction-balls between the sleeve and the bearings, and a removable cylindrical shell mounted on the sleeve and having devices for connecting it to said sleeve to turn therewith.

4. An improved top roll, comprising a central arbor equipped with bearing-cones, one of which is adjustable, an outer removable revoluble shell, a sleeve turning on said central arbor and secured to said shell so as to turn therewith, the said sleeve being counterbored at its ends, and antifriction-balls interposed between said counterbored ends and the cone-bearings of the central arbor.

5. An improved top roll comprising a central arbor having a concavo-cone bearing-surface a^3, an adjustable concavo-conical nut b, a locking nut b', a sleeve counterbored at its ends, antifriction-balls placed between said counterbored ends, and said concavo-conical bearings, a removable cylindrical shell, and means for temporarily securing the shell to the sleeve.

DESIGNS.

26,722. BADGE. HOWARD S. ROBBINS, New York, N. Y., assignor to Frederick Dent Grant, trustee. Filed Jan. 20, 1897. Serial No. 619,987. Term of patent 14 years.



Claim.—1. In the design for a badge, the obverse substantially as shown and described.

2. In the design for a badge, the reverse substantially as shown and described.

3. In the design for a badge, a suspension device of the form substantially as shown.

4. The design for a badge, substantially as described and shown.

26,723. HANDLE FOR KNIVES. WILLIAM SCHMACHTENBERG, New York, N. Y. Filed Jan. 18, 1897. Serial No. 619,686. Term of patent 3½ years.



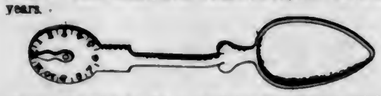
Claim.—The design for a metallic handle for jack knives as herein shown and described.

26,724. SPOON. NELSON GOODELL, Philadelphia, Pa. Filed Dec. 9, 1896. Serial No. 615,062. Term of patent 3½ years.



Claim.—The design for a spoon herein shown and described.

26,725. MEDICINE-SPOON. JAMES BERNARD WILSON, Philadelphia, Pa. Filed Jan. 25, 1897. Serial No. 620,691. Term of patent 14 years.



Claim.—The design for a medicine-spoon substantially as described and shown.

26,726. BONBON-LIFTER. GRACE ROBARTS, New York, N. Y. Filed Jan. 25, 1897. Serial No. 620,700. Term of patent 7 years.



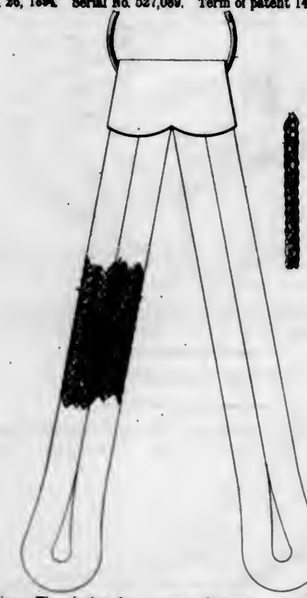
Claim.—The design for a lifter for bonbons and like articles, substantially as shown and described.

26,727. NECKTIE-RETAINER. WILLIAM F. SMITH, San Francisco, Cal. Filed Jan. 29, 1897. Serial No. 621,247. Term of patent 7 years.



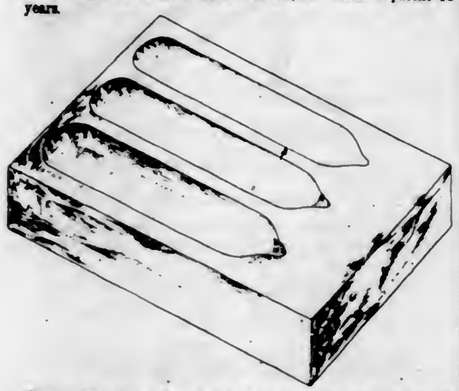
Claim.—The design for a necktie-retainer, substantially as herein shown and described.

26,728. SUSPENDER-END. WILBUR F. OSBORNE, Ansonia, Conn., assignor of one-half to the Ansonia O. & C. Company, same place. Filed Oct. 26, 1894. Serial No. 527,089. Term of patent 14 years.



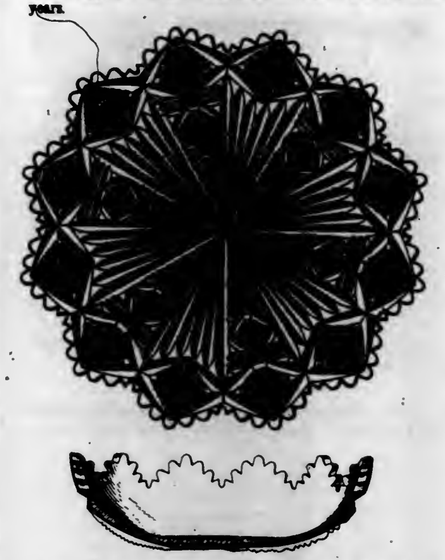
Claim.—The design for a suspender-end as herein shown and described.

26,729. HOLDER FOR BOTTLES. EUGENE L. JACQUES, Waterbury, Conn. Filed Jan. 28, 1897. Serial No. 621,104. Term of patent 14 years.



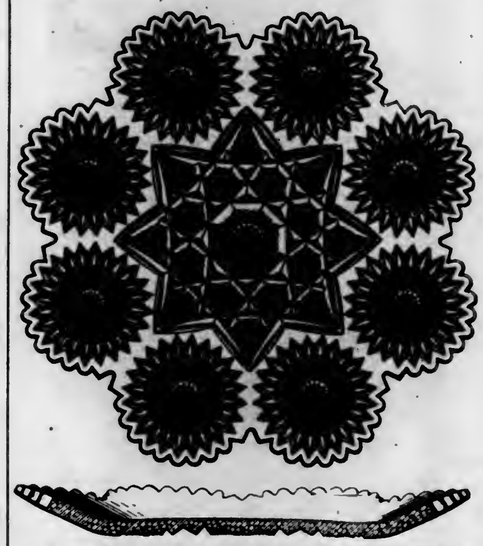
Claim.—The design for a holder for ginger-ale and like bottles herein shown and described.

26,730. GLASS VESSEL OR DISH. THOMAS G. HAWKES, Corning, N. Y. Filed Feb. 1, 1897. Serial No. 621,573. Term of patent 14 years.



Claim.—The design for a glass vessel or dish; substantially as herein shown and described.

26,731. GLASS VESSEL OR DISH. THOMAS G. HAWKES, Corning, N. Y. Filed Feb. 1, 1897. Serial No. 621,574. Term of patent 14 years.



Claim.—The design for a glass vessel or dish: substantially as herein shown and described.

26,732. SNAP-HOOK. JAMES C. COVERT, Watervliet, N. Y. Filed Jan. 29, 1897. Serial No. 621,244. Term of patent 14 years.



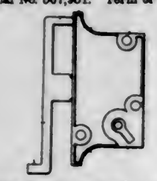
Claim.—The design for a snap-hook substantially as shown and described.

26,733. CASTER-PIN. DAVID NICKEL, Morris, Ill. Filed Dec. 17, 1896. Serial No. 616,072. Term of patent 7 years.



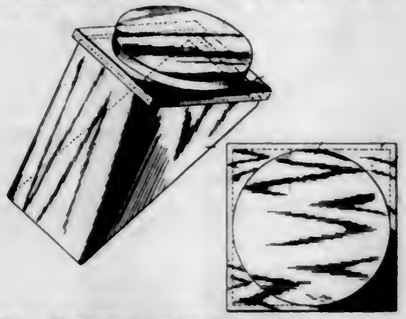
Claim.—The design for a caster-pin: substantially as shown and described.

26,734. PADLOCK-CASE. JACOB S. PEACOCK, Lancaster, Pa. Filed Nov. 4, 1896. Serial No. 567,951. Term of patent 7 years.



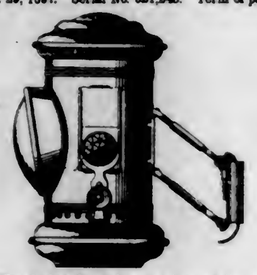
Claim.—The design for the case of a padlock, substantially as shown and described.

26,735. LENS FOR SIDEWALKS. JAMES MAGHUREN, Chicago, Ill. Filed Jan. 28, 1897. Serial No. 621,107. Term of patent 7 years.



Claim.—The design for a sidewalk lens or light, substantially as herein shown and set forth.

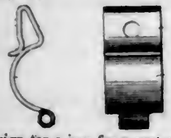
26,736. BICYCLE-LAMP. LOUIS P. WHITEMAN, New York, N. Y. Filed Jan. 29, 1897. Serial No. 621,245. Term of patent 7 years.



Claim.—The design for a lamp, substantially as shown and described.

26,737. WITHDRAWN.

26,738. JAW FOR SEAT-CLAMPS FOR BICYCLES. EDWARD P. CHALFANT, Kenosha, Wis. Filed Nov. 16, 1896. Serial No. 612,367. Term of patent 7 years.



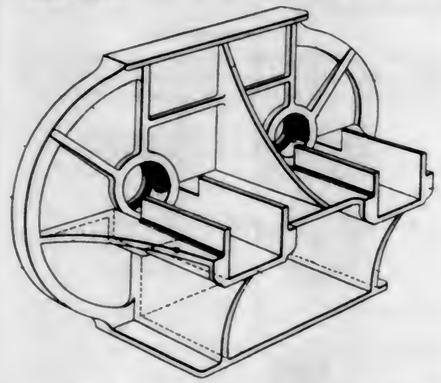
Claim.—The design for a jaw for a seat-clamp for bicycles, substantially as shown and described.

26,739. TANDEM-BICYCLE FRAME. HENRY G. PIFFARD, New York, N. Y. Filed Dec. 14, 1896. Serial No. 615,696. Term of patent 7 years.



Claim.—The design for a tandem-bicycle frame, substantially as shown and described.

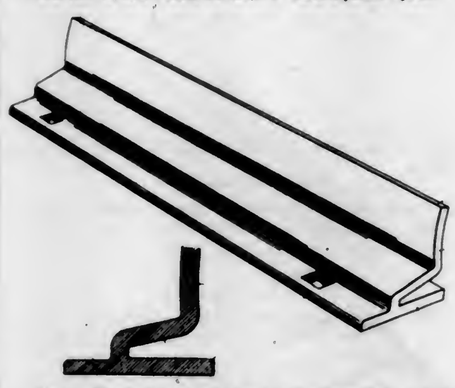
26,740. HEAD-PLATE FOR ROTARY BLOWERS. JOHN T. WILKIN, Connersville, Ind. Filed Sept. 24, 1896. Serial No. 606,900. Term of patent 14 years.



Claim.—The design for head-plates for rotary blowers, herein shown and described.

26,741. WITHDRAWN.

26,742. RAIL-JOINT CHAIR. EDWARD P. CALDWELL, Chicago, Ill. Filed Nov. 16, 1896. Serial No. 612,374. Term of patent 7 years.



Claim.—The design for a rail-joint chair substantially as herein shown and described.

26,743. RAILROAD-SPIKE. THOMAS J. JETT, Harriman, Tenn., assignor of one-half to L. Tyler Davis, same place. Filed Nov. 10, 1896. Serial No. 611,682. Term of patent 7 years.



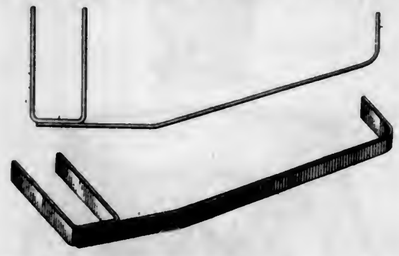
Claim.—The design for a railroad-spike, substantially as herein shown and described.

26,744. TUBULAR LADDER-RUNG. WILLIAM ANDREW MCMECHAN, St. Clairsville, Ohio. Filed Dec. 14, 1896. Serial No. 615,697. Term of patent 14 years.



Claim.—The design for a tubular ladder-rung, substantially as herein shown and described.

26,745. MAIN FRAME FOR HEADERS. SAMUEL K. DENNIS, West Pullman, Ill., assignor to the Piano Manufacturing Company, Chicago, Ill. Filed Nov. 16, 1896. Serial No. 612,373. Term of patent 14 years.



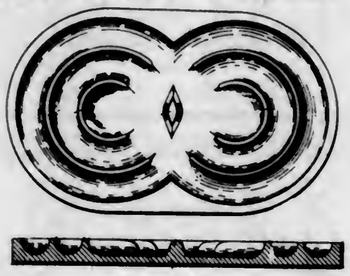
Claim.—The design for a main frame for headers herein shown and described.

26,746. SCOOP. FRANKLIN B. FRASE, Rochester, N. Y. Filed Aug. 25, 1896. Serial No. 603,901. Term of patent 14 years.



Claim.—The design for scoops substantially as herein shown and described.

26,747. GAME-BOARD. THOMAS M. SIMCOE, Allentown, Pa. Filed Dec. 29, 1896. Serial No. 617,408. Term of patent 3½ years.



Claim.—The design for a game-board substantially as herein shown and described.

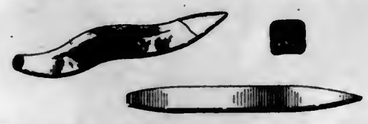
26,748. TOY. GRANVILLE W. WRIGHT, New Haven, Conn. Filed July 23, 1896. Serial No. 600,309. Term of patent 3½ years.





Claim.—The design for a toy substantially as herein shown and described.

26,749. CIGAR, &c. FRANK B. KAISER, Cincinnati, Ohio. Filed Jan. 12, 1897. Serial No. 619,001. Term of patent 14 years.



Claim.—The design for a cigar, cheroot, or stogie, substantially as herein shown and described.

26,750. ORNAMENTAL PATTERN OR PRINT FOR CIGAR-BOXES. NICHOLAS WITSCH, Jersey City, N. J., assignor to the American Lithograph Company, New York, N. Y. Filed Jan. 18, 1897. Serial No. 619,683. Term of patent 7 years.



Claim.—The design for an ornamental print or pattern for cigar-boxes, substantially as shown and described.

26,751. FONT OF TYPE. HERMAN INLENBURG, Philadelphia, Pa., assignor to the American Type Founders Company, Newark, N. J. Filed Sept. 29, 1896. Serial No. 607,374. Term of patent 7 years.

ABCDEFGHIJKLMNO

PQRSTUVWXYZ

abcdefghijklmno

pqrstuvwxyz

1234567890

Claim.—The design for a font of type as herein described and as shown in the accompanying typographical impression.

26,752. KNITTED UNDERSHIRT. AMELIA DAVIS, Phoenixville, Pa. Filed Sept. 9, 1896. Serial No. 605,336. Term of patent 7 years.



Claim.—The design for a knitted undershirt, substantially as described and shown.

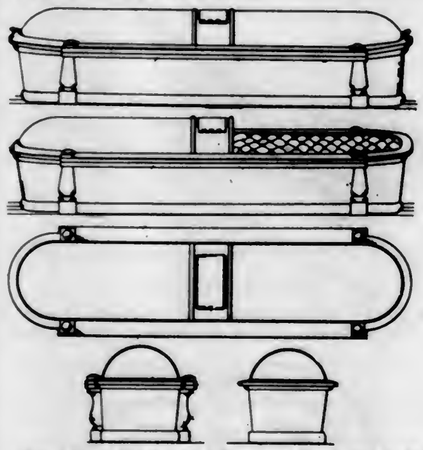
26,753. OVERCOAT. FREDERICK L. SAMPSON, St. Paul, Minn. Filed Oct. 29, 1894. Serial No. 527,343. Term of patent 7 years.





Claim.—The design for an overcoat, substantially as herein shown and described.

26,754. BURIAL-CASKET. WILLIAM S. JONES, Owosso, Mich., assignor to L. E. Woodward, same place. Filed Jan. 11, 1897. Serial No. 618,882. Term of patent 14 years.



Claim.—The design for a burial-casket, as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 9, 1897.

29,647. WATCHES, WATCH-MOVEMENTS, AND PARTS OF WATCHES. AMERICAN WALTHAM WATCH COMPANY, Boston and Waltham, Mass. Filed Feb. 9, 1897.

Cronometro Victoria

Essential feature.—The words "CRONOMETRO VICTORIA." Used since July 1, 1894.

29,648. WATCHES, MOVEMENTS, AND PARTS OF WATCHES. AMERICAN WALTHAM WATCH COMPANY, Boston and Waltham, Mass. Filed Feb. 10, 1897.

Cronometro Superior

Essential feature.—The words "CRONOMETRO SUPERIOR." Used since September 1, 1894.

29,649. WATCHES, WATCH-MOVEMENTS, AND PARTS OF WATCHES. AMERICAN WALTHAM WATCH COMPANY, Boston and Waltham, Mass. Filed Feb. 11, 1897.

Cronometro Supremo

Essential feature.—The words "CRONOMETRO SUPREMO." Used since September 1, 1894.

29,650. MEAL-TICKETS. CHARLES M. KNUDSON, Andover, S. D. Filed May 20, 1896.



Essential feature.—A picture of a man holding an open book before him and the accompanying name "C. M. KNUDSON." Used since April 6, 1896.

29,651. COTTON GOODS. BURTON BROS. & CO., New York, N. Y. Filed Feb. 4, 1897.

RIBBON CLOTH

Essential feature.—The words "RIBBON CLOTH." Used since December 1, 1895.

29,652. COTTON GOODS. BURTON BROS. & CO., New York, N. Y. Filed Feb. 4, 1897.

NEARSILK

Essential feature.—The word "NEARSILK." Used since December 1, 1896.

29,653. BOOTS AND SHOES. RICE & HUTCHINS, INCORPORATED, Boston, Mass. Filed Feb. 6, 1897.



Essential feature.—A pictorial representation of a man and woman dressed in outing costume and walking together. Used since March 10, 1896.

29,654. ASPHALT-FELT. THOMAS J. HIND, Boston, Mass. Filed Feb. 1, 1897.



Essential feature.—A representation of the head of a hind. Used since December 3, 1896.

29,655. CERTAIN NAMED SPORTING GOODS. HIBBARD, SPENCER, BARTLETT & COMPANY, Chicago, Ill. Filed Dec. 14, 1896.

[redacted]

Essential feature.—The word "AJAX." Used since January 1, 1886.

29,656. PASTILS. AUGUSTE ARTHUR GÉRAUDEL, Ste. Menehould, France. Filed Jan. 18, 1897.

Essential feature.—The monogram "A G" contained in a six-pointed star. Used since 1882.

29,657. CURE FOR PAIN AND FOR GENERAL PURPOSES OF A LINIMENT. CHARLES A. BOWMAN, Peoria, Ill. Filed Jan. 18, 1897.

GEE WHIZ

Essential feature.—The words "GEE WHIZ." Used since December 1, 1896.

29,658. CHEMICALS HAVING A NARCOTIC INFLUENCE. THE FIRM OF E. MERCK, Darmstadt, Germany. Filed Jan. 14, 1897.

PERONIN

Essential feature.—The word "PERONIN." Used since October 30, 1896.

29,659. REMEDY FOR DISEASES OF THE THROAT AND LUNGS. ROBERT E. FLEISCHER & Co., New York, N. Y. Filed Jan. 15, 1897.

Coughrane

Essential feature.—The word "COUGHRANE." Used since January 1, 1896.

29,660. COUGH REMEDY. LOUIS RICHARD BARIDON, Montreal, Canada. Filed Jan. 26, 1897.

BAUMERHUMAL

Essential feature.—The word "BAUMERHUMAL." Used since February 5, 1891.

29,661. PATENT MEDICINES IN LIQUIDS, PILLS, POWDERS, ELIXERS, SALVES, CORDIALS, AND MEDICINAL PLASTERS. HOME LABORATORY ASSOCIATION, Newark, N. J. Filed Dec. 10, 1896.



Essential feature.—The letters "H. L.," preferably in monogram, surrounded wholly or partially by the representation of a wreath or garland of leaves or flowers, the said wreath and monogram being surmounted by a mortar and pestle. Used since November 1, 1896.

29,662. MEDICINAL TONIC. JOHN H. WINKELMANN, Baltimore, Md. Filed Feb. 5, 1897.

COCATON

Essential feature.—The word "COCATON." Used since January 18, 1897.

29,663. PORTER. MILLER BREWING COMPANY, Rochester, N. Y. Filed June 25, 1896.



Essential feature.—An eagle in flight holding in its talons a keg or barrel with the initials "M. B. Co." on the end and the words "LONDON PORTER" beneath. Used since January 21, 1896.

29,664. DISTILLED LIQUORS. HIRAM WALKER & SONS, LIMITED, Walkerville, Canada. Filed Feb. 4, 1897.



Essential feature.—A capsule having a figured band associated with a shield and crown. Used since November 10, 1896.

29,665. NAILS AND TACKS. FAST COLOR NAIL AND TACK COMPANY, Boston, Mass. Filed Jan. 22, 1897.



Essential feature.—An arbitrary or fanciful arrangement of nails or tacks bearing the letters "FASTCOLOR." Used since January 1, 1897.

29,666. CAMS. FRASER & CHALMERS, Chicago, Ill. Filed Feb. 4, 1897.

BLANTON

Essential feature.—The word "BLANTON." Used since May 1, 1894.

29,667. FILTERS. CHARLES T. STRAUSS, New York, N. Y. Filed Feb. 10, 1897.

SARTUS

Essential feature.—The word "SARTUS." Used since November 2, 1896.

29,668. CYCLES. THE ROVER CYCLE COMPANY, LIMITED, Coventry, England. Filed Feb. 1, 1897.

ROVER

Essential feature.—The word "ROVER." Used since 1884.

29,669. PIANOS. FREEBORN G. SMITH, New York, Brooklyn, and Saratoga Springs, N. Y., Jersey City, N. J., Washington, D. C., Chicago, Ill., and Kansas City, Mo. Filed Feb. 15, 1897.

Whittier

Essential feature.—The word "WHITTIER." Used since April 1, 1895.

29,670. MANDOLINS. LYON & HEALY, Chicago, Ill. Filed Dec. 22, 1896.

Cremonatone

Essential feature.—The word "CREMONATONE." Used since October 1, 1896.

29,671. PARLOR-GAME APPARATUS. PARKER BROS., Salem, Mass. Filed Jan. 22, 1897.



Essential feature.—A pictorial representation of several persons grouped about a table in various attitudes and engaged in the common purpose of maintaining a bladder-like body in the air with their hands. Used since April 15, 1896.

29,672. TROUSERS, COATS, AND VESTS. REINACH, ULLMAN & COMPANY, Chicago, Ill. Filed Jan. 23, 1897.



Essential feature.—The words "MODEL CUSTOM PANTS CO." and a conventional representation of a double eagle bearing a shield-shaped figure upon its breast with the letter "M" upon the face thereof. Used since January 1, 1894.

29,673. TROUSERS. B. J. WOLF & SONS, New Orleans, La. Filed Jan. 28, 1897.

HUMBOLDT

Essential feature.—The word "HUMBOLDT." Used since July 1, 1896.

29,674. FLAGS, BUNTING, AND DECORATIONS. ANNIN & Co., New York, N. Y. Filed Jan. 8, 1897.

ANNIN

Essential feature.—The word "ANNIN." Used since January 3, 1847.

29,675. LEATHER. M. STRAUS & SONS, Newark, N. J. Filed Jan. 23, 1897.

BEAVER

Essential feature.—The word "BEAVER." Used since 1894.

29,676. CIGARETTES. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed Jan. 28, 1897.



Essential feature.—The word "CRIMPS" and the representation of a cigarette and of an ancient lamp. Used since June 10, 1896.

29,677. SMOKING AND CHEWING TOBACCO AND TOBACCO PRODUCTS FOR USE IN VETERINARY REMEDIES, INSECTICIDES, AND SHEEP-DIP. THE TOBACCO WAREHOUSING AND TRADING COMPANY, Danville, Va. Filed Feb. 1, 1897.

T.W.T.

Essential feature.—The letters "T. W. T." Used since December 26, 1896.

29,678. SMOKING AND CHEWING TOBACCO AND TOBACCO PRODUCTS FOR USE IN VETERINARY REMEDIES, INSECTICIDES, AND SHEEP-DIP. THE TOBACCO WAREHOUSING AND TRADING COMPANY, Danville, Va. Filed Feb. 1, 1897.

COLONIAL

Essential feature.—The word "COLONIAL." Used since December 26, 1896.

29,679. SMOKING AND CHEWING TOBACCO AND TOBACCO PRODUCTS FOR USE IN VETERINARY REMEDIES, INSECTICIDES, AND SHEEP-DIP. THE TOBACCO WAREHOUSING AND TRADING COMPANY, Danville, Va. Filed Feb. 1, 1897.

SWIMBATH

Essential feature.—The word "SWIMBATH." Used since December 26, 1896.

29,680. WHISKY. GOODERHAM & WORTS, LIMITED, Toronto, Canada. Filed Jan. 18, 1897.



Essential feature.—The word "SPECIAL," in script, ending with a paraph and written between a representation of two medallions. Used since March, 1890.

29,681. LAGER-BEER. THE ESTATE OF JACOB FLOCK, Williamsport, Pa. Filed Jan. 20, 1897.



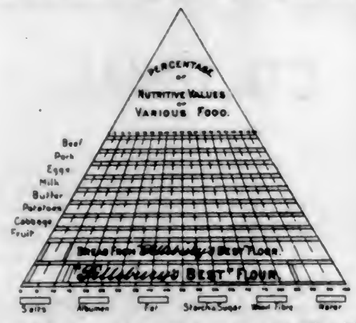
Essential feature.—A representation of the terrestrial globe with a glass of beer standing on top. Used since May 27, 1891.

29,682. LAGER-BEER. THE ESTATE OF JACOB FLOCK, Williamsport, Pa. Filed Jan. 20, 1897.



Essential feature.—A representation of the terrestrial globe having a glass of beer standing on top, accompanied by the words "ESTABLISHED 1854" and the words "IT STANDS ON TOP." Used since May 27, 1891.

29,683. FLOUR AND CEREAL FOODS. PILLSBURY-WASHBURN FLOUR MILLS COMPANY, Minneapolis, Minn. Filed Jan. 19, 1897.



Essential feature.—A pyramid shown as a triangle with a table of the nutritive value of various foods appearing thereon. Used since November 1, 1896.

29,684. WASHING-BLUE. C. H. FISCHER & Co., New York, N. Y. Filed Feb. 11, 1897.



Essential feature.—A representation of a group or series of balls. Used since September, 1873.

29,685. CANDLES, MATCHES, DISINFECTANTS, AND CERTAIN NAMED LAUNDRY ARTICLES. CHARLES SIMPSON, Northampton and Liverpool, England. Filed Jan. 4, 1897.

SIREN

Essential feature.—The word "SIREN." Used since March 29, 1895.

29,686. TOILET, BATH, AND LAUNDRY SOAP. VACUUM SOAP COMPANY, Philadelphia, Pa., and Chicago, Ill. Filed Feb. 5, 1897.

WHITE CHIEF

Essential feature.—The words "WHITE CHIEF." Used since October, 1894.

29,687. DYESTUFF. BADISCHE ANILIN AND SODA FABRIK, Ludwigshafen, Germany. Filed Dec. 10, 1896.

PALATINE

Essential feature.—The word "PALATINE." Used since November 1, 1889.

29,688. DYESTUFF. BADISCHE ANILIN AND SODA FABRIK, Ludwigshafen, Germany. Filed Dec. 10, 1896.

MARS

Essential feature.—The word "MARS." Used since July 1, 1895.

29,689. DYESTUFF. BADISCHE ANILIN AND SODA FABRIK, Ludwigshafen, Germany. Filed Dec. 10, 1896.

NEPTUNE

Essential feature.—The word "NEPTUNE." Used since July 1, 1896.

29,690. REFINED PETROLEUM-OIL. TIDE WATER OIL COMPANY, New York, N. Y. Filed Jan. 18, 1897.

NIEVE

Essential feature.—The word "NIEVE." Used since July 22, 1889.

29,691. POTASH FERTILIZER. BOWKER FERTILIZER COMPANY, Boston, Mass. Filed Dec. 19, 1896.



Essential feature.—The words "BOWKER'S WOOD-ASH FERTILIZER" and a representation of a log. Used since November 15, 1896.

29,692. REMEDIES FOR DISEASES OF THE THROAT AND LUNGS. HARRY F. LINDEMAN, Baltimore, Md. Filed Jan. 11, 1897.

GLASSBLOWERS

Essential feature.—The word "GLASSBLOWERS." Used since October, 1893.

29,693. CLINICAL INSTRUMENTS AND APPLIANCES. HERCULES SANCHE, Detroit, Mich., assignor to the Animarium Company, New York, N. Y. Filed Oct. 24, 1896.



Essential feature.—The word "ANIMATOR" in connection with the representation of a rectangular plate having rounded corners and a disk or circular plate with which a cord or wire is connected. Used since August 1, 1893.

29,694. WOOD-SCREWS. THE AMERICAN SCREW COMPANY, Providence, R. I. Filed Jan. 25, 1897.



Essential feature.—A representation of an eagle, with its wings spread, just alighting or alighted upon a globe and bearing in each talon or with its feet resting upon a bundle of screws. Used since May 22, 1876.

29,695. BICYCLES, TRICYCLES, AND MOTOR-CARRIAGES. LUTHER G. BILLINGS, New York, N. Y. Filed Feb. 11, 1897.

MONAD

Essential feature.—The word "MONAD." Used since January 6, 1897.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

REPORT

OF THE

COMMISSIONER OF PATENTS

TO CONGRESS,

FOR THE YEAR ENDING DECEMBER 31, 1896.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 31, 1897.

To the Senate and House of Representatives of the United States of America in Congress assembled:

I have the honor to submit the following report of the business of this Office for the year ending December 31, 1896:

RECEIPTS.

Detailed statement of all moneys received for patents, for copies of records or drawings, or from any source whatever.

Applications:	
Cash received	$1,175,751 00
Cash refunded	5,080 00
Net cash	1,170,671 00
Certificates of deposit	28,084 00
Total cash and certificates	1,198,755 00
Copies:	
Cash received	98,957 07
Cash refunded	6,850 51
Net cash	92,106 56
Certificates of deposit	449 75
Total cash and certificates	92,556 31
Recording assignments:	
Cash received	21,219 34
Cash refunded	1,073 15
Net cash	20,146 19
Certificates of deposit	103 00
Total cash and certificates	20,249 19
Subscriptions to Official Gazette:	
Cash received	12,565 04
Cash refunded	91 01
Net cash	12,474 03
Certificates of deposit	48 30
Total cash and certificates	12,522 33
Registration of prints and labels:	
Cash received	613 00
Cash refunded	624 00
Net cash	−11 00
Certificates of deposit	−12 00
Total cash and certificates	−23 00
Aggregates.	
Cash received	$1,309,105 45
Cash refunded	13,718 67
Net cash	1,295,386 78
Certificates of deposit	28,673 05
Total cash and certificates	1,324,059 83

EXPENDITURES.

Approximate amounts expended and incurred under the several appropriations from January 1, 1896, to December 31, 1896.

	Expended.	Liabilities.	Total.
Salaries	$687,366 65		$687,366 65
Official Gazette, illustrations	40,535 88		40,535 88
Photolithographing	59,186 40	$5,072 40	64,258 80
Scientific Library	1,449 16		1,449 16
Transportation of publications to foreign governments	498 95		498 95
International Union for Protection of Industrial Property		700 00	700 00
Totals	789,037 04	5,772 40	794,809 44

Estimated amounts reported by the Department of the Interior as expended on account of this Office from January 1, 1896, to December 31, 1896.

Stationery	$12,077 38
Postage on foreign matter	2,242 16
Printing and binding	272,142 00
Watch force	16,600 00
Furniture	3,088 71
Carpets	715 72
Ice	402 35
Telephones	120 00
Washing towels	101 91
Sundries	11,164 04
Total	318,604 27
Aggregate amount of expenditures	$1,113,413 71

RECEIPTS OVER EXPENDITURES.

Total receipts	$1,324,059 83
Total expenditures	1,113,413 71
Receipts over expenditures	210,646 12

Statement of balance in the Treasury of the United States on account of the patent fund.

*Amount to the credit of the fund January 1, 1896	$4,507,993 35
Amount of receipts during the year 1896	1,324,059 83
Total	5,832,053 18
Deduct expenditures for the year 1896	1,113,413 71
Balance January 1, 1897	4,718,639 47

*NOTE.—Corrected from statement furnished by the Department, from which it appears that the Patent Office expenditures on account of printing and binding during the year 1895 were $269,407.74 instead of $247,514.76, the amount previously furnished by the Office of the Secretary to the Commissioner of Patents, which reduces the surplus turned into the Treasury during the year 1895 by $21,892.98.

SUMMARY OF THE BUSINESS OF THE PATENT OFFICE.

Number of applications for patents for inventions	42,077
Number of applications for patents for designs	1,828
Number of applications for reissues of patents	77
Total number of applications	43,982
Number of caveats filed	2,271
Number of applications for registration of trade-marks	2,005
Number of applications for registration of labels	59
Number of applications for registration of prints	36
Number of disclaimers filed	9
Number of appeals on the merits	1,412
Total	5,792
Total number of applications, etc., requiring investigation and action	49,774
Number of patents issued, including designs	23,312
Number of patents reissued	61
Total	23,373
Number of trade-marks registered	1,813
Number of labels registered	1
Number of prints registered	32
Total	1,846
Number of patents expired during the year	12,133
Number of patents withheld for non-payment of final fees	4,736

PATENTS ISSUED.

Patents issued to the citizens of the United States, with the ratio of population to each patent granted.

States and Territories.	Patents and designs.	One to every—
Alabama	109	13,880
Arizona Territory	13	4,586
Arkansas	84	13,430
California	526	2,134
Colorado	234	1,761
Connecticut	983	759
Delaware	49	3,438
District of Columbia	205	1,123
Florida	55	7,116
Georgia	128	14,354
Idaho	20	4,219
Illinois	2,041	1,874
Indiana	615	3,564
Indian Territory	12	
Iowa	399	4,791
Kansas	258	5,531
Kentucky	198	9,387
Louisiana	133	8,410
Maine	130	5,085
Maryland	269	4,009
Massachusetts	1,901	1,177
Michigan	701	2,987
Minnesota	350	3,719
Mississippi	47	27,438
Missouri	660	4,059
Montana	68	1,943
Nebraska	151	7,012
Nevada	9	5,084
New Hampshire	109	3,454

Patents issued—Continued.

States and Territories.	Patents and designs.	One to every—
New Jersey	994	1,453
New Mexico Territory	12	12,700
New York	3,882	1,545
North Carolina	68	23,738
North Dakota	34	5,373
Ohio	1,613	2,276
Oklahoma Territory	16	3,864
Oregon	90	3,486
Pennsylvania	2,319	2,207
Rhode Island	249	1,383
South Carolina	36	31,976
South Dakota	47	6,995
Tennessee	140	12,625
Texas	297	7,527
Utah	39	5,390
Vermont	91	3,652
Virginia	154	10,753
Washington	111	3,147
West Virginia	86	8,890
Wisconsin	474	3,558
Wyoming	22	2,759
United States Army	11	
United States Navy	12	
Total	21,285	

Patents granted to citizens of foreign countries.

Argentina	2
Austria-Hungary	61
Bahama Islands	1
Belgium	26
Brazil	5
British Guiana	1
Canada	244
Canary Islands	1
Cape Colony	1
Ceylon	1
Chile	4
Colombia	1
Costa Rica	1
Cuba	4
Denmark	10
Ecuador	1
England	617
France	194
Germany	543
Guatemala	1
Hawaii	2
India	5
Ireland	13
Island of Guernsey	1
Island of Jersey	1
Italy	20
Jamaica	1
Japan	1
Mexico	10
Netherlands	9
New South Wales	21
New Zealand	26
Norway	3
Orange Free State	1
Peru	1
Russia	15
Scotland	39
South Australia	4
Spain	5
Straits Settlements	1
Sweden	40
Switzerland	64
Tasmania	1
Trinidad	1
Venezuela	3
Victoria	20
Total	2,027

The following tables present a comparative statement of the business of the Patent Office since the enactment of the statute of 1836 and exhibit in detail the business of the Office during the last calendar year:

Comparative statement of the business of the Office from 1837 to 1896, inclusive.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1837			435	$29,289 08	$33,506 98	
1838			520	42,123 54	37,338 92	$4,784 62
1839			425	38,019 97	34,543 51	3,476 46
1840	765	228	473	38,056 51	39,020 67	
1841	847	312	495	40,413 01	52,666 87	
1842	761	291	517	36,505 63	31,241 43	5,264 20
1843	819	315	519	35,315 81	30,776 96	4,538 85
1844	1,045	380	497	42,509 26	36,344 53	6,164 73
1845	1,246	452	503	51,076 14	39,395 65	11,680 49
1846	1,272	448	638	50,264 16	46,158 71	4,105 45
1847	1,531	533	569	63,111 19	41,878 35	21,232 84
1848	1,628	607	653	67,576 69	58,905 84	8,670 85
1849	1,955	595	1,077	80,752 78	77,716 44	3,036 34
1850	2,193	602	993	86,927 05	80,100 95	6,826 10
1851	2,258	760	872	95,738 61	86,916 93	8,821 68
1852	2,639	996	1,019	112,056 34	95,916 91	16,139 43
1853	2,673	901	961	121,527 45	132,869 83	
1854	3,324	868	1,844	163,789 84	167,146 32	
1855	4,435	906	2,013	216,459 35	179,540 33	36,919 02
1856	4,960	1,024	2,505	192,588 02	199,981 02	
1857	4,771	1,010	2,896	196,132 01	211,582 09	
1858	5,364	943	3,710	208,716 16	198,193 74	10,522 42
1859	6,225	1,079	4,538	245,942 15	210,278 41	35,663 74
1860	7,653	1,084	4,819	256,352 50	252,820 80	3,531 79
1861	4,643	700	3,340	187,354 44	221,491 91	
1862	5,098	824	3,521	215,754 99	182,810 39	32,944 06
1863	6,014	787	4,170	195,503 20	189,414 14	6,179 15
1864	6,972	1,063	5,020	240,919 98	229,868 00	11,051 98
1865	10,664	1,937	6,616	348,791 84	274,199 34	74,592 50
1866	15,269	2,723	9,450	495,665 28	361,724 28	133,941 10
1867	21,276	3,597	13,015	646,581 92	639,263 32	7,318 60
1868	20,445	3,705	13,378	681,565 86	628,679 77	52,886 09
1869	19,271	3,624	13,986	698,145 81	486,430 74	206,715 07
1870	19,171	3,273	13,321	669,456 76	557,147 19	112,309 57
1871	19,472	3,366	13,033	678,716 46	562,091 64	116,624 82
1872	18,246	3,090	13,590	696,726 39	605,595 00	34,131 39
1873	20,414	3,248	12,864	708,191 77	691,178 98	12,012 79
1874	21,602	3,181	13,599	738,278 17	679,288 41	58,989 76
1875	21,638	3,064	14,837	743,453 36	721,657 71	21,795 65
1876	21,425	2,697	15,595	757,987 65	652,542 60	105,445 05
1877	20,308	2,809	14,187	732,342 85	613,152 62	119,190 23
1878	20,260	2,755	13,444	725,375 55	593,082 89	132,292 66
1879	20,059	2,620	13,213	703,931 47	529,638 97	174,292 50
1880	22,012	2,490	13,947	749,685 32	538,805 17	210,880 15
1881	26,059	2,406	16,584	853,665 89	605,173 28	248,492 61
1882	31,522	2,553	19,207	1,009,219 45	683,867 67	325,351 78
1883	34,576	2,741	22,383	1,146,240 00	675,234 96	471,005 14
1884	35,600	2,582	20,413	1,075,798 80	970,579 76	105,219 04
1885	35,717	2,552	24,233	1,188,089 15	1,024,378 85	163,710 30
1886	35,908	2,513	22,508	1,154,551 40	992,503 45	162,047 95
1887	35,618	2,622	21,477	1,144,509 60	994,472 22	150,037 38
1888	35,797	2,251	20,506	1,118,516 10	973,108 78	145,407 32
1889	40,575	2,481	24,158	1,281,728 05	1,052,955 96	228,772 09
1890	41,048	2,311	26,292	1,340,372 66	1,099,297 74	241,074 92
1891	40,552	2,406	25,244	1,271,285 78	1,139,713 35	131,572 43
1892	40,753	2,290	23,559	1,286,331 88	1,110,739 24	175,592 59
1893	38,473	2,247	23,769	1,242,871 64	1,141,088 45	101,893 19
1894	38,439	2,286	20,867	1,187,499 58	1,100,047 12	87,392 46
1895	40,680	2,415	22,057	1,245,246 93	1,106,889 49	138,857 44
1896	43,982	2,271	23,373	1,324,059 88	1,113,413 71	210,646 12

Statement showing the number of the first patent, Design patent, and reissued patent, and the number of the first certificate of registration of a Trade-Mark and a Label issued in each calendar year since July 28, 1836, when the present series of numbers of Letters Patent commenced, together with the total number of each issued during the year.

[The number of patents granted prior to the commencement of this series of numbering (July 28, 1836) was 9,957.]

Year.	Number of first patent and certificate issued in each calendar year.					Number of patents and certificates of registration issued during each calendar year.						
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Total certificates.
1836 (July 28)	1											
1837	110					109						
1838	546		1			436						
1839	1,061		7			515		6				
1840	1,465		20			404		13				
1841	1,928		30			458		10				
1842	2,413		36			490		6				
1843	2,901	1	49			488		13				
1844	3,395	15	60			494	14	11	519			
1845	3,873	27	67			478	12	7	497			
1846	4,348	44	78			475	17	11	503			
1847	4,914	103	91			556	59	13	628			
1848	5,409	103	105			495	60	14	569			
1849	5,908	109	128			584	46	23	653			
1850	6,981	258	158			988	49	30	1,067			
1851	7,865	341	184			757	90	25	872			
1852	8,622	431	209			890	109	20	1,019			
1853	9,512	540	229			846	86	29	961			
1854	10,358	626	258			1,759	57	28	1,844			
1855	12,117	683	286			1,892	70	51	2,013			
1856	14,009	753	337			2,315	107	83	2,505			
1857	16,324	860	420			2,696	113	97	2,896			
1858	19,010	973	517			3,467	102	126	3,695			
1859	22,477	1,075	643			4,165	108	231	4,504			
1860	26,642	1,183	874			4,303	183	292	4,778			
1861	31,005	1,366	1,106			3,040	142	147	3,329			
1862	34,045	1,508	1,253			3,221	195	116	3,532			
1863	37,266	1,708	1,369			3,781	176	227	4,184			
1864	41,047	1,879	1,506			4,638	139	248	5,025			
1865	45,685	2,018	1,844			6,099	221	296	6,616			
1866	51,784	2,239	2,140			8,874	294	290	9,458			
1867	60,658	2,533	2,430			12,301	325	400	13,026			
1868	72,959	2,858	2,890			12,544	446	420	13,410			
1869	85,503	3,304	3,250			12,967	506	534	13,997			
1870	98,460	3,810	3,784	1		12,151	737	439	13,333	121		121
1871	110,617	4,547	4,223	122		11,697	905	464	13,066	486		486
1872	122,304	5,452	4,987	608		12,200	894	529	13,613	491		491
1873	134,504	6,336	5,216	1,000		11,616	747	501	12,864	492		492
1874	146,120	7,083	5,717	1,591	1	12,230	896	483	13,599	559	232	791
1875	158,350	7,909	6,200	2,150	233	13,291	915	631	14,837	1,138	232	1,370
1876	171,641	8,884	6,831	3,288	465	14,172	802	621	15,595	959	472	1,431
1877	185,813	9,686	7,452	4,247	987	12,920	699	568	14,187	1,216	392	1,608
1878	198,733	10,385	8,020	5,468	1,329	12,345	590	509	13,444	1,455	492	1,947
1879	211,078	10,975	8,529	6,918	1,821	12,133	592	488	13,213	872	355	1,227
1880	223,211	11,567	9,017	7,790	2,176	12,926	515	506	13,947	349	203	552
1881	236,137	12,082	9,523	8,139	2,379	15,548	505	471	16,524	834	202	1,036
1882	251,685	12,647	9,994	8,973	2,581	18,135	861	271	19,267	947	304	1,251
1883	269,820	13,508	10,265	9,920	2,895	21,196	1,020	167	22,383	902	906	1,808
1884	291,016	14,528	10,432	10,822	3,791	19,147	1,150	116	20,413	1,021	513	1,534
1885	310,168	15,678	10,548	11,843	4,304	23,331	773	129	24,233	1,067	391	1,458
1886	333,494	16,451	10,677	12,910	4,695	21,797	595	116	22,508	1,029	378	1,407
1887	355,291	17,046	10,793	13,999	5,073	20,429	949	99	21,477	1,133	380	1,513
1888	375,720	17,905	10,902	15,072	5,453	19,585	835	86	20,506	1,059	327	1,386
1889	395,305	18,890	10,978	16,131	5,780	23,300	723	75	24,158	1,229	319	1,548
1890	418,665	19,533	11,053	17,360	6,099	25,322	896	84	26,292	1,415	304	1,719
1891	443,987	20,439	11,137	18,775	6,403	22,328	836	80	23,244	1,702	137	1,899
1892	466,315	21,275	11,217	20,537	6,540	22,661	817	81	23,559	1,737	6	1,743
1893	488,976	22,002	11,308	22,274	6,546	22,768	902	99	23,769	1,677	*2	1,677
1894	511,744	22,904	11,397	23,951	(*)	19,875	928	64	20,867	1,806	*4	1,812
1895	535,305	23,922	11,461	25,757	7	20,893	1,115	59	22,067	1,829	*3	1,890
1896	552,502	25,037	11,520	27,586	10	21,807	1,445	61	23,273	1,813	†1	1,846

*Prints. †32 Prints.

The following statement shows, for purposes of comparison, the approximate cost of photolithographing the OFFICIAL GAZETTE and of doing other photolithographic work from 1884 to the present time:

Statement of prices paid for photolithographic work since 1884–85.

Year.	Contractor.	Patents issued.	Official Gazette.		Publishing expired patents.	Total Official Gazettes.
			Per page.	Number of copies.		
1884–85	Norris Peters	21,496	$7 86	6,500		$30,614 40
1885–86	do	24,134	7 45	6,500		44,351 00
1886–87	do	21,731	7 45	6,500		41,868 40
1887–88	do	20,653	7 45	6,500		41,182 60
1888–89	do	21,518	7 45	6,500		43,999 70
1889–90	do	25,857	7 45	7,450		58,992 40
1890–91	do	25,307	7 45	7,000		65,906 10
1891–92	Norris Peters Co	23,626	7 45	7,000		52,969 50
1892–93	do	23,408	7 45	7,000		54,908 30
1893–94	National Lithographic Co	22,546	6 30	7,000	$4,999 70	49,997 70
1894–95	Norris Peters Co	20,745	5 25	7,000		38,297 88
1895–96	A. B. Graham	22,791	5 10	7,000		42,326 30
1896–97	Norris Peters Co	a24,000	4 50	7,000		a35,000 00

Year.	Contractor.	Drawings of Letters Patent per sheet, current issues.			Other lithographic work.	Total.
		Thin copies.	Thick copies.	Bond copies.		
			Cents.	Cents.		
1884–85	Norris Peters	$0 01	3	3	$78,671 99	$118,286 39
1885–86	do	01	3	3	84,940 19	129,291 19
1886–87	do	01	3	3	79,509 57	121,377 97
1887–88	do	01	3	3	77,907 96	119,091 56
1888–89	do	01	3	3	83,284 54	127,284 24
1889–90	do	01	3	3	101,292 67	160,285 07
1890–91	do	01	3	3	110,998 97	176,905 07
1891–92	Norris Peters Co	b1 48	3	3	99,992 58	152,962 08
1892–93	do	b1 48	2	3	99,788 92	154,787 22
1893–94	National Lithographic Co	b1 46	3	3	94,911 33	144,909 03
1894–95	Norris Peters Co	b 95	2	2	60,482 04	98,779 92
1895–96	A. B. Graham	c 93	.0175	.0175	58,866 60	101,192 90
1896–97	Norris Peters Co	d 01 / c 80	.01	.015	a59,000 00	a94,000 00

a Estimated amounts for current year. b For 102 copies. c For 100 copies. d Two proof copies each.

Table showing the number of patents in the Scientific Library issued by the United States and the estimated number granted in foreign countries from the earliest period to December 31, 1896.

Countries.	To 1870, inclusive.	1871 to 1896.	Total.
Austria-Hungary	15,350	72,798	88,148
Bahamas		2	2
Barbadoes		98	98
Belgium	35,044	97,348	132,392
Bolivia	42	62	104
Brazil	185	2,409	2,594
British Guiana	32	92	124
British Honduras	1	9	10
Canada	4,081	53,752	57,833
Ceylon	58	349	407
Chile	20	235	255
Denmark	464	7,798	8,262
Fiji Islands		20	20
Finland	112	554	666
France	103,934	171,017	274,951
Germany*	9,996	97,588	107,584
Great Britain	53,408	184,812	238,220
Guatemala		51	51
Hawaii		127	127
Hong-Kong		28	28
India	445	4,445	4,890
Italy and Sardinia†	4,723	36,678	41,401
Jamaica	22	105	127
Japan		2,881	2,881
Leeward Islands		11	11
Liberia		2	2
Luxemburg		2,701	2,701
Malta		15	15
Mauritius	113	209	322
Mexico	22	1,799	1,821
Netherlands	4,535		4,535
Newfoundland	40	186	226
New South Wales	296	7,005	7,301
New Zealand	109	4,976	5,085
Norway	737	5,602	6,339
Portugal	245	2,012	2,257
Queensland	67	3,017	3,084
Russia	1,464	5,010	6,474

Table showing the number of patents in the Scientific Library, etc.—Continued.

Countries.	To 1870, inclusive.	1871 to 1896.	Total.
St. Helena		4	4
South Australia	123	1,782	1,905
Spain		17,821	17,821
Straits Settlements		60	60
Sweden	1,629	8,975	10,604
Switzerland		12,679	12,679
Tasmania	43	1,176	1,219
Trinidad	6	116	122
Tunis		189	189
Turkey		542	542
Venezuela		108	108
Victoria	822	8,700	9,522
Western Australia		1,045	1,045
Total foreign	228,108	819,120	1,057,228
United States	120,573	463,752	584,325
Grand total	358,681	1,282,872	1,641,553

*Includes Baden, Bavaria, Hanover, Prussia, Saxony, and Würtemberg, to July 1, 1877, when the new German patent law went into effect. Since that date all patents are issued by the Imperial German Patent Office.

†Sardinia, 1848–1863. Italy, 1864–1896.

SUMMARY OF TABLES.

In 1896 there were received 42,077 applications for patents, 1,828 applications for designs, 77 applications for reissues, 2,271 caveats, 2,005 applications for registration of trade-marks, 59 applications for registration of labels, and 36 applications for prints. There were 23,312 patents granted, including designs, 61 patents reissued, 1,813 trade-marks registered, and 1 label and 32 prints. The number of

patents which expired was 12,133. The number of patents which were by operation of law forfeited for non-payment of the final fee was 4,736. The total expenditures were $1,113,413.71. The receipts over expenditures were $210,646.12, and the total balance to the credit of the Patent Office in the Treasury of the United States amounts to $4,718,639.47.

In proportion to population more patents were issued to citizens of Connecticut than to those of any other State, one to every 759 inhabitants; and next in order, in proportion to population, come the District of Columbia with one to every 1,123; Massachusetts with one to every 1,177; Rhode Island with one to every 1,383; New Jersey with one to every 1,453; New York with one to every 1,545; Colorado with one to every 1,761, and Illinois with one to every 1,874. The States to whose citizens the fewest patents were granted in proportion to the number of inhabitants are South Carolina, one to every 31,976; Mississippi, one to every 27,438; North Carolina, one to every 23,793; Georgia, one to every 14,354; Alabama, one to every 13,880, and Arkansas, one to every 13,430.

As to foreign countries, 617 patents were granted to residents of England, a larger number than to residents of any other foreign country; to those of Germany, 543; of the Dominion of Canada, 244; of France, 194; of Switzerland, 64; of Austria-Hungary, 61; of Sweden, 40; of Scotland, 39; of Belgium, 26; of New Zealand, 26; of New South Wales, 21; of Italy, 20; of Victoria, 20; of Russia, 15; of Ireland, 13; of Denmark, 10; of Mexico, 10; of the Netherlands, 9; of Brazil, 5; of India, 5; of Spain, 5; of Chile, 4; of Cuba, 4; of South Australia, 4; of Norway, 3; of Venezuela, 3; of Argentina, 2; of Hawaii, 2; and one each to citizens respectively of the Bahama Islands, British Guiana, the Canary Islands, Cape Colony, Ceylon, Colombia, Costa Rica, Ecuador, Guatemala, the Island of Guernsey, the Island of Jersey, Jamaica, Japan, the Orange Free State, Peru, the Straits Settlements, Tasmania, and Trinidad.

STATE OF THE WORK.

At the close of the year 1896 every division in the Office was in such condition respecting its work that an application for a patent filed in any of them would receive an examination upon the merits within thirty days. This was the result of a determined effort upon the part of the entire force, extending over months, to achieve this enviable record. But the next week the work again fell into arrears in some divisions, and it cannot be maintained at that level with the present force.

ACTIONS OF THE OFFICE.

The Office received during the year 1896, 45,987 original applications for patents, for designs, for reissues, and for the registration of trade-marks, an average of 884 cases each week. In addition there came before the Office for reconsideration and action 121,375 old applications, either by reason of the filing of amendments and other writings or under Rule 65, which requires the Office to make a reëxamination of all cases which for six months the applicants have neglected to prosecute.

On December 31, 1896, there were pending in the Office awaiting its action 3,140 new applications, including trade-marks and designs, and 5,727 amended cases, a total of 8,867.

On December 31, 1896, there were pending in the Office awaiting the action of applicants, exclusive of interferences, 52,495 cases. The following shows by periods the time these applications have been pending:

Number pending two years and less	31,837
Number pending two years and less than five years	18,697
Number pending five years and less than ten years	1,812
Number pending ten years and less than fifteen years	142
Number pending fifteen or more years	9

On December 31, 1896, there were pending in the Office, exclusive of interferences, 61,145 live cases, many of which had been acted upon repeatedly. 21,352 of these applications have been pending two years or more; 1,939 have been pending five years or more; 149 have been pending ten years, and 12 have been pending fifteen years. There were 101 reissue applications that have been pending five years. I find that only in 487 applications which have received consideration by the Office had action on the full merits been withheld because of informalities.

REVISED RULES OF PRACTICE.

The rules of procedure have been revised on the following lines:

First. To remove from the rules those sections of the Revised Statutes which have from time to time been incorporated in them, and in place of incorporating certain sections in the rules it has been decided to publish the statutes, revised to the present time, in full in the same pamphlet with the rules.

Second. Matters of mere information and advice not made rules, but yet incorporated in many places in the rules, have been removed to the appendix of the pamphlet edition, and this information has been somewhat expanded to cover the substance of the customary letters to this Office for information.

Third. To collate all references to the same point in one place, and generally to exclude them from every other place, and this was thought desirable for the sake of clearness.

Incidentally the rules incorporate amendments which have been made during the last four years in their proper order without change. Amended Rule 64, requiring actions of the Office to be directed throughout to the merits, appears as Rule 25 in this revision. The rule requiring reëxamination *sua sponte* by the Office after six months' inaction by the applicant appears as Rule 28 in this revision. The five years' rule appears as Rule 30, and the six months' rule appears as Rule 63.

As these rules have been in effect in the Office, the first for about three years and the others for nearly two years, they cannot be regarded as changes in the present rules. Apart from these the changes are not numerous, but the principal ones are as follows:

Rule 29 provides the same showing as a prerequisite to an interference with an unexpired domestic patent that is required to overcome a foreign patent or a description.

Rule 31 conforms the practice respecting entering of amendments containing new matter to that in other cases, leaving the question of new matter to be disposed of by an action of the Examiner thereon instead of by petition for refusing to enter it.

Rule 32 provides a remedy, so far as the Office is concerned, for a mistake in the nonjoinder or misjoinder of parties, and in its last paragraph enables applications to be joined where this may be done without incorporating new matter not already before the Office in some other application.

Rule 36 provides for entering a claim after final rejection for the purpose of consideration on appeal without application to the Commissioner, and the whole matter of entering amendments during interference after final rejection or after allowance is left to the Examiner without application to the Commissioner.

Rule 38, in addition to prescribing the practice for the preparation of interferences, is intended to draw into the interference in the first instance all applicants who are at that time before the Office with reference to the same subject-matter, and this rule and Rule 51 are intended to prevent an interference from being a second time fought over through every tribunal in the Office and in the Court of Appeals of the District of Columbia upon the motion of an applicant already before the Office when the interference was originally declared and who has been purposely awaiting the result of the interference only to set on foot the same contention with the prevailing party in the first interference.

Rule 39 in its provision respecting the seniority of parties returns to the practice prevailing until about five years ago, by which seniority of parties was determined by the filing date of application, but the revised rules provide that when a patent is involved in interference the patentee shall be the senior party.

The first duties of the Primary Examiner in declaring an interference are all stated in Rule 39. His duties in dissolving an interference are all stated in Rule 47. The duties of the Examiner of Interferences are stated in Rule 48. But except as above noted no change has been made in the practice of the Office respecting these matters.

Rule 49 restricts motions intended for delay, and discourages successive motions and other devices to put off the decision of the question arising upon the merits.

Rule 67, making questions *inter partes* before the Primary Examiner also *inter partes* on appeal, conforms to the present practice of the Office.

Rules 87 and 88 distinctly provide for the full effect of those equitable principles which in exceptional cases cannot be disposed of except in verbal violation or contradiction of the rules; but these principles cannot, of course, apply to the functions of the Office as an office of registration of instruments affecting titles to patents, nor is it intended to leave an open door for claiming in numerous cases that some exception to the rules should be allowed. They are intended to meet that class of cases which are recognized by the spirit and practice of courts of equity, and not in any manner to abrogate the rules on slight pretext or on insufficient grounds.

The full text of the rules is as follows:

CORRESPONDENCE.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

POWERS OF ATTORNEY.

6. Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

APPLICATIONS.

7. A complete application must comprise a petition, specification, oath, and, when the nature of the case admits, drawings. Only when models or specimens are called for by the Office will they be retained as parts of the application.

8. The following order of arrangement must be observed in framing the specification:

(1) Preamble stating the name and residence of the applicant and the title of the invention, and, if the invention has been patented abroad, the countries in which it has been so patented and the date and number of each patent;

(2) General statement of the object and nature of the invention, except in design applications;

(3) Brief description of the several views of the drawings;

(4) Detailed description;

(5) Claims;

(6) Signature of inventor;

(7) Attestation of two witnesses.

9. All parts of an application, papers in prosecution thereof, actions therein, and the depositions in contested cases must be plainly printed or written, in the English language, on legal-cap paper, on but one side, and leaving a wide margin on the left. Interlineations and erasures must be clearly referred to in marginal notes.

10. Every application signed or sworn to in blank or without the actual inspection by the applicant of

the petition and specification and every application of which any part has been altered or partly filled up after being signed or sworn to will be stricken from the files.

11. If several inventions claimed in a single application be of such a nature that a single patent may not be issued to cover them, the inventor will be required to limit the description, drawing, and claim of the pending application to the one invention which he may elect.

12. When an applicant files two or more applications relating to the same subject-matter of invention, all showing but only one claiming the same thing, the applications not claiming it must contain references to the application claiming it.

13. A reservation for a future application will not be permitted in a pending application.

14. When a forfeited application is renewed, the petition, specification, oath, and drawing of the original application may be used.

15. Papers not amounting to a complete application will be returned on request.

16. Neither files, records, models, specimens, nor compositions of matter, which by official requirement have become parts of pending cases or patent cases, will be returned; nor will they be taken from the Office for any purpose except in cases where certified copies or duplicates are not sufficient, and then only in the custody of an official where he will not be required to part with the actual possession.

17. Applications will be preserved in secrecy, except as provided in the interference rules; but copies of the files of abandoned applications, upon petition therefor, for sufficient cause, properly verified and served on the applicant or his attorney, will be furnished when ordered by the Commissioner.

OATHS.

18. The applicant, if the inventor, must make oath that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent, that he does not know and does not believe that the same was ever before known or used, and must state of what country he is a citizen and where he resides. In every original application the applicant must state, under oath, whether the invention has been patented to himself, or to others with his knowledge or consent, in any country, and, if it has been, the country or countries in which it has been patented, giving the date and number of each patent; that it has not been patented in any other country than those mentioned, and that, according to his knowledge and belief, the invention has not been in public use or on sale in the United States for more than two years prior to the application in this country, and this oath must be subscribed by the affiant.

An additional oath will be required in cases where the applications have not been filed in the Patent Office within a reasonable time after the execution of the original oath.

DRAWINGS.

19. The drawing must show (1) every feature of the invention covered by the claims. When the invention consists of an improvement upon an old machine, the drawing must (2) exhibit the invention itself disconnected from the old structure, (3) and also in another view the specific improvement and such parts of the old structure as necessarily coöperate with it. (4) Pure white paper must be used, (5) ten by fifteen inches in size, (6) of a thickness corresponding to three-ply bristol-board, (7) calendered and smooth. (8) The views must be made with the pen only, in india-ink, to secure black and solid lines, (9) and with the fewest lines consistent with clearness. (10) They must not be too fine or crowded. (11) Surface shading must be open. (12) The different views must be consecutively numbered. (13) The same reference numerals or letters must refer to the same parts throughout all the views. (14) One of the shorter edges must be the top, (15) and a clear space of an inch and a quarter below the top marginal line must be left blank for the heading, which will be supplied by the Office in uniform style. (16) Each sheet must be signed by the inventor or the name of the inventor must be signed on the drawing by the attorney in fact (17) at the lower right-hand corner, with reference to the heading, (18) attested by two witnesses at the lower left-hand corner, (19) all views and signatures must be within marginal lines one inch from the edges, and if the drawing be arranged lengthwise of the sheet (20) the views and reference-numerals must read when the heading is toward the right. (21) One of the views best calculated to explain the nature of the invention must be designed with special reference to its reproduction in THE OFFICIAL GAZETTE on a reduced scale of about one-eighth. (22) No professional designations or advertisements or addresses will be permitted upon the face of the drawings, (23) and the drawings must not be folded for transmission to the Office.

20. All reissue applications must be accompanied by new drawings upon as large a scale as the original drawings.

MODELS.

21. The model, if called for, must clearly exhibit every feature of the mechanism which forms the subject of a claim of invention, must not be more than one foot in length, width, or height, and must be substantially made.

REISSUES.

22. The application for a reissue must be accompanied by the original patent, by an offer to surrender it if reissued, and by a certified abstract of title, giving the names of all assignees owning any interest in the patent. In case the application be made by the inventor it must be accompanied by the written assent of such assignees. If the reissue be refused, the original patent will, upon request, be returned.

23. An applicant for reissue must file with his petition a statement on oath as follows:

(1) That the original patent is inoperative or invalid.

(2) That such patent is inoperative or invalid by reason of a defective or insufficient specification, particularly specifying such defects or insufficiencies, or

(3) That such patent is inoperative or invalid by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, distinctly specifying the part or parts so alleged to have been improperly claimed as new.

(4) Specifying the facts which constitute the inadvertence, accident, or mistake under which the patent originally issued.

(5) That said errors arose without any fraudulent or deceptive intention on the part of the applicant.

THE EXAMINATION.

24. Applications will be examined in their order of filing; but the following applications will have precedence over others, in the order numbered:

(1) Applications wherein the inventions are deemed of peculiar importance to some branch of the public service, and when for that reason the head of a Department of the Government requests immediate action, and the Commissioner so orders;

(2) Applications for reissues;

(3) Applications covering inventions patented by the same inventor in foreign countries, and applications interfering therewith;

(4) Applications which would interfere with another application or with an unexpired patent;

(5) Cases remanded by an appellate tribunal for further action by the Office;

(6) Amended applications.

25. Where the specification and claims are such that the invention may be understood, the examination of a complete application and the action thereon will be directed throughout to the merits; but in each letter the Examiner shall state or refer to all his objections. Only in cases presenting patentable substance will requirements in matters of form be insisted on.

26. Suspensions of actions on applications will be granted only for cause and for a reasonable time specified.

REJECTIONS AND REFERENCES.

27. Upon the rejection of a claim in an application upon references the Examiner will cite the best at his command, fully identified, giving also the class and subclass when patents are cited, and will apply them to the rejected claim. When the rejection is made on facts, the data will be specific, and when within the personal knowledge of an officer of the Bureau they will be supported, when called for, by his affidavit.

28. An applicant will be considered to persist in his claim for a patent without altering his specification in case he fail to act in prosecution of the same for six months after the Office action thereon, and thereupon the Examiner will make a reëxamination of the case.

29. When a claim in an application is rejected on reference to a domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing of the application on which the domestic patent issued, or before the foreign patent was issued, or before the date of the printed publication, then the patent or publication cited will not bar the grant of a patent to the applicant. When the rejection is on reference to an unexpired domestic patent which claims the rejected invention, a like affidavit to like facts will be a prerequisite to an interference involving the application and the patent.

30. In every case pending before the Office more than five years in which the record raises the presumption that there have been intentional delays in prosecution the Examiner may require the applicant to show cause why the case was not more rapidly prosecuted, and at the hearing thereon or upon failure of the applicant to appear the Examiner will determine, under all the circumstances of the case, whether there have been intentional and unreasonable delays in prosecution, and upon finding the fact to be so he will reject the case for that reason.

AMENDMENTS.

31. Before final rejection and as often as the Examiner raises new objections or presents new references or reasons for rejection the applicant may amend, but not to incorporate new matter which is a departure from the invention originally presented, unless to combine applications. Amendments objectionable for new matter and departure will be entered for consideration, and when the scope of the claims is affected the claims will be rejected, and in every case the Examiner will require the objectionable new matter to be canceled.

32. New parties may be admitted to a pending application as joint inventors, or some of the parties may be dropped, where they all consent in writing and where the non-joinder or misjoinder was by mistake and without fraudulent intent.

And applications may be amended by dividing out distinct though related inventions or by uniting two or more applications where the inventions are related, but not to put the contents of a later application into an earlier one.

33. In every amendment the matter to be stricken out or inserted must be specified and the point indicated where the erasure or insertion is to be made.

34. When an applicant presents a claim for matter originally shown or described but not substantially embraced in the statement of invention or claim originally presented, he will file a supplemental oath to the effect that the subject-matter of the proposed amendment was part of his invention, was invented before he filed his original application, was not known or used before his invention, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

35. During the pendency of an interference amendments of an application will not be entered, except to withdraw subject-matter not adjudged to interfere, or to avoid interference, or to disclaim,

or to claim a patentable invention claimed by another party and shown and described but not claimed by the party who amends, or to comply with the Examiner's requirements, or to add necessary parties, or to drop parties.

36. After final rejection amendments will not be entered, except to conform to the requirements of the Examiner, or to cancel claims, or to present the twice-rejected claims and the related parts of the specification and drawings in better form for consideration on appeal.

37. After the allowance of an application amendments will not be entered except by leave and for cause.

INTERFERENCES.

38. Before an interference will be declared the invention which is to form the subject of the controversy must be claimed by every party and must be considered to be patentable to every party in the absence of the others. When an applicant who is required to put his application in other respects in condition for interference fails to do so for thirty days, he will nevertheless be made a party to the interference and the proceeding will not be further delayed.

39. When patentable substance has been found in an original or reissue application, which is also claimed, and it is found by the Primary Examiner that matter claimed therein would interfere with any pending application, or with an unexpired patent, the Primary Examiner will declare an interference, that the question of priority of invention may be determined; he will clearly define the issue or issues, designating the claims involved in each count, and will prepare notices of interference for all the parties, embodying the issues and the claims involved and disclosing the name and residence of each party, and of his attorney, and of any assignee, and if any party be a patentee, the date and number of the patent; he will determine the seniority of the parties by the filing dates of their respective applications, except when an unexpired patent is involved, in which case the patentee will be the senior party, or, if there be more than one patent involved, the patentee filing first will be senior; and he will forward to the Examiner of Interferences the notices and a statement disclosing the foregoing matters.

40. Each party to the interference will be required to file a concise preliminary statement of the following facts, under oath, on or before a date to be fixed:

(1) The date of original conception of the invention set forth in the declaration of interference;

(2) The date upon which a drawing of the invention was made;

(3) The date upon which a model of the invention was made;

(4) The date upon which the invention was first disclosed to others;

(5) The date of the reduction to practice of the invention;

(6) A statement of the extent of use of the invention.

If a drawing or model has not been made, or if the invention has not been reduced to practice or disclosed to others, or used to any extent, the statement must specifically disclose these facts.

When the invention was made abroad the statement must set forth:

(1) That applicant made the invention set forth in the declaration of interference;

(2) Whether or not the invention was ever patented; if so, when and where, giving the date and number of each patent;

(3) Whether or not the invention was ever described in a printed publication; if so, when and where, giving the title, place, and date of such publication;

(4) Whether the invention was ever introduced into this country; if so, giving the circumstances, with the dates connected therewith, which are relied upon to establish the fact.

41. The statement must be sealed up in a separate envelop before filing, and the name of the party filing it, the title of the case, and the subject of the invention indicated on the envelop.

42. The preliminary statements will not be open to the inspection of opposing parties until each shall have been approved, or the time for filing the same shall have expired, and it also appears that further testimony must be submitted. After the time for filing preliminary statements has expired, and after the approval of such as have been submitted, the parties will be permitted to see and to obtain copies of each other's file-wrappers and so much of their contents as relate to the interference.

43. From any party in default in filing or perfecting his preliminary statement no testimony will be received to prove that he made the invention at a date prior to his application.

44. When an application is involved in an interference in which a part only of the invention is included in the issue, the applicant may file certified copies of the parts of the specification, claims, and drawings which cover the interfering matter, and such copies may be used in the proceeding in place of the original application, and the application will then be withheld from inspection.

45. When an application involved in an interference shows and describes, without claiming, a patentable invention claimed by another party thereto, the applicant may, at any time within twenty days after the preliminary statements have been approved, on motion duly made, file an amendment of his application claiming such invention, and on the admission of such amendment such claim will be included in the interference.

46. When there is ground for belief that a party in an interference has not received the notice of the proceeding and does not know of it, further notice will be given in THE OFFICIAL GAZETTE.

47. The Primary Examiner will dissolve an interference, first, when no interference in fact exists; second, when there has been such irregularity in declaring the same as will preclude the proper determination of the question of priority or originality; third, when the claims involved in the interference are not patentable; fourth, when a party has no right to make the claims; fifth, upon the filing of a declaration of abandonment of invention; sixth, upon the filing of a disclaimer of all the interfering matter or on the filing of a declaration of abandonment of the application, if in either case this is done before the preliminary statements are open to opponents; but if filed later the consideration of such disclaimer or declaration of abandonment will be postponed until after a decision of the question of priority or originality of invention.

48. The Examiner of Interferences will issue the notices of the interference proceeding, will fix times for filing the preliminary statements and determine their sufficiency, will fix times for the taking of testimony, will transmit allowable motions concerning the burden of proof, patentability, interference in fact, and irregularity in declaring the interference to the Primary Examiner, and will himself decide all other motions and questions of form and procedure in interference practice, and will determine the questions of priority or originality of invention, and fix the limit of appeal.

49. Motions made in good faith within twenty days after the preliminary statements have been approved and not intended for delay will be decided on interlocutory hearing, but not motions that can be as well determined at the hearing on the merits or afterward. Successive motions will not be heard, nor will motions made later than twenty days after the preliminary statements have been approved, unless upon a showing that they could not have been made earlier.

50. Motions will not operate as a stay, except by leave, for cause.

51. In interference cases, when another applicant appears who will ultimately be in interference concerning the same subject-matter, he and all the parties to the pending proceeding will be notified, and on seasonable motion by any of them he may be made a party to the pending proceeding upon such terms as to testimony that may already have been taken as the Examiner of Interferences may prescribe, if such course would more advantageously dispose of the whole contention between all parties, and under the same condition, when new references are discovered, the interference may be suspended to consider them.

52. In interference cases the question of priority or originality of invention will be determined, either upon the testimony, or upon a concession of priority, or by judgment against the junior parties upon the record, or by default.

53. Whenever a final award of priority has been made in an interference, the claims of the defeated party involved in the issue which are made or can be made by the prevailing party will be finally rejected; but other claims which cannot be made by the prevailing party may be allowed to a defeated party.

54. The application of the successful party in interference cases will not be passed to issue until the limit of appeal has expired, and in cases decided by the Commissioner not until forty days after the date of his decision, unless the defeated parties shall waive their right of appeal.

TESTIMONY IN INTERFERENCES, PUBLIC-USE PROCEEDINGS, AND OTHER CONTESTED CASES.

55. Reasonable notice shall be given to opposing parties, as hereinafter provided, of the time when and place where depositions will be taken, of the cause or matter in which they are to be used, and of the names and residences of witnesses to be examined, and the opposing party shall have full opportunity to cross-examine the witnesses. Neither party shall take testimony in more than one place at the same time, nor so nearly at the same time that reasonable opportunity for travel from one place of examination to the other cannot be had.

56. Service of such notice may be made (1) by delivering a copy of the notice to the adverse party or to his attorney; (2) by leaving a copy at the usual place of business of the adverse party or with his attorney or some one in his employment; (3) when such adverse party or his attorney has no usual place of business, by leaving a copy at his residence, with a member of his family over fourteen years of age and of discretion; (4) by transmission by registered letter; (5) by express, or (6) in such manner as the Commissioner may order. Such notice shall, with sworn proof of the fact, time, and mode of service thereof, be attached to the depositions, whether the opposing party shall have cross-examined or not.

57. Each witness before testifying shall be duly sworn according to law by the officer before whom his deposition shall be taken. The pages of each deposition must be numbered consecutively and the name of the witness written at the top of each page. The testimony will be taken in answer to interrogatories, with the questions and answers committed to writing in their regular order by the officer, or in his presence by some person not interested in the case either as a party thereto or as attorney; but the depositions may be written out by other persons in the presence of the officer or may be taken stenographically in presence of the officer, and when written out shall be read by or to the witness and then signed by him in the presence of the officer. The officer shall annex to the deposition his certificate showing (1) the due administration of the oath by the officer to the witness before the commencement of his testimony; (2) the name of the person by whom the testimony was written out, and the fact that, if not written by the officer, it was written or taken stenographically in his presence; (3) the presence or absence of the adverse party; (4) the place, day, and hour of commencing and taking the deposition; (5) the reading by or to each witness of his deposition before he signs the same, and (6) the fact that the officer was not connected by blood or marriage with either of the parties, nor interested, directly or indirectly, in the matter in controversy. The officer shall sign the certificate and affix thereto his seal of office, if he have such seal. He shall then, without delay, securely seal up all the evidence, notices, and paper

exhibits, inscribe upon the envelop a certificate, giving the title of the case, the name of each witness, and the date of sealing, address the package, and forward the same to the Commissioner of Patents. If the weight or bulk of an exhibit shall exclude it from the envelop, it shall be authenticated by the officer and transmitted in a separate package, marked and addressed as above provided.

58. Upon notice given to the opposite party before the closing of the testimony any official record and any special matter contained in a printed publication, if competent evidence and pertinent to the issue, may be used as evidence at the hearing.

59. All depositions which are taken must be duly filed in the Patent Office. On refusal to file, the Office at its discretion will not further hear or consider the contestant with whom the refusal lies, and the Office may, at its discretion, receive and consider a copy of the withheld deposition, attested by such evidence as is procurable.

60. By leave of the Commissioner, first obtained, testimony may be taken in foreign countries upon complying with the following requirements:

(1) Such permission will be granted only upon motion duly made designating a place for the examination of the witnesses at which an officer duly qualified to take testimony under the laws of the United States in a foreign country shall reside, and it must be accompanied by a statement under oath that the motion is made in good faith and not for purposes of delay, setting forth the names of the witnesses, the particular facts to which it is expected each will testify, and the grounds on which is based the belief that each will so testify.

(2) It must appear that the testimony desired is material and competent and that it cannot be taken in this country at all or without hardship and injury to the moving party greatly exceeding that to which the opposite party will be exposed by the taking of such testimony abroad.

(3) Upon the granting of such motion a time will be set within which the moving party shall file in duplicate the interrogatories to be propounded to each witness, and serve a copy of the same upon each adverse party, who may, within a designated time, file, in duplicate, cross-interrogatories. Objections to any of the interrogatories or cross-interrogatories may be filed at any time before the depositions are taken, and such objections will be considered and determined upon the hearing of the case.

(4) As soon as the interrogatories and cross-interrogatories are decided to be in proper form the Commissioner will cause them to be forwarded to the proper officer with the request that, upon payment of or satisfactory security for his official fees, he notify the witnesses named to appear before him within a designated time and make answer thereto under oath, and that he reduce their answers to writing and transmit the same, under his official seal and signature, to the Commissioner of Patents, with the certificate prescribed in Rule 57.

(5) By stipulation of the parties the requirements of paragraph 3 as to written interrogatories and cross-interrogatories may be dispensed with, and the testimony may be taken before the proper officer upon oral interrogatories by the parties or their agents.

61. In contested cases six copies of the printed testimony, including the notices of the interference and the preliminary statements, must be furnished one week before the day of hearing; but testimony filed in manuscript cannot be withdrawn by the parties for printing. When desired, the Office will print the testimony at the cost of the parties.

62. Testimony taken in any proceeding in the Patent Office may be used in any other proceeding between the same parties, so far as relevant and material.

APPEALS, PETITIONS, AND MOTIONS.

63. In appealable cases in which no limit of appeal is fixed no appeal will be entertained by any tribunal in the Office unless taken within six months from the action which puts the case in condition for appeal, unless it be shown to the satisfaction of the Commissioner that such delay was unavoidable.

64. Petitions to the Commissioner will lie only from actions which in substance have been twice considered by the Examiner or a second consideration waived.

65. The action of the Primary Examiner or of the Examiner of Interferences will not be reviewed or his discretion controlled in matters of form or procedure, except when there has been an abuse of discretion.

66. No appeal on the patentability of an opponent's claim or upon an opponent's right to make the claim will be heard.

67. Questions *inter partes* before the Primary Examiner will be *inter partes* on appeal.

68. In *ex parte* cases matters of form and procedure, when reviewable under the foregoing rules, and the question of division, may be brought up by petition to the Commissioner. In contested cases matters of form and procedure may be brought up by appeal on motion.

69. Appeals and petitions must contain a specific statement of the reasons therefor.

70. Notices of appeals and motions in contested cases must be served upon all the opposing parties unless such notice is dispensed with for cause.

71. In *ex parte* cases upon the filing of an appeal or petition the Primary Examiner shall, ten days before the date of hearing, furnish the appellate tribunal and the appellant or petitioner with a statement of the grounds of his decision.

72. In contested cases the parties will file six copies of their printed briefs, the junior party or the appellant five days before the hearing and the senior party or the appellee one day.

73. The Examiners-in-Chief and the Examiner of Interferences will direct the attention of the Commissioner to any matter which in any case before them establishes the fact that no interference exists, or that there has been fatal irregularity in declaring the same, or which amounts to a bar to the grant of a patent, or which anticipates any claim.

74. When an appeal is taken to the Court of Appeals of the District of Columbia, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within forty days from the date of the decision appealed from, his reasons of appeal, specifically set forth in writing.

75. Cases heard by an appellate tribunal will not be further acted upon by the Primary Examiner except for the consideration of matters not adjudicated, nor will amendments be received except to carry out recommendations or official requirements, unless by consent of the Commissioner.

76. Cases will not be reheard except upon the principles applied by courts in the granting of rehearings or upon the principles governing new trials at law.

ALLOWANCE.

77. After the notice of allowance of an application is given, the case will not be withdrawn from issue on account of any mistake or change of purpose of the applicant or of his attorney, nor for the purpose of enabling the inventor to procure a foreign patent, nor in any other case, without the approval of the Commissioner.

78. The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

79. The patent will be delivered or mailed on the day of its date to the attorney of record, if there be one; if not, to the patentee; or, if the attorney so request, to the patentee or assignee of an interest therein.

ASSIGNMENTS.

80. If the assignee hold an undivided part interest, the patent will, upon request, issue jointly to the inventor and the assignee; but the assignment must first have been entered of record and at a day not later than the date of the payment of the final fee; and if the assignment be dated subsequently to the execution of the application, it must give the date of execution of the application, or the date of filing, or the serial number.

81. No instrument will be recorded which does not, in the judgment of the Commissioner, amount to an assignment, grant, mortgage, lien, incumbrance, or license, or which does not affect the title of the patent or invention to which it relates. Such instrument should identify the patent by date and number; or, if the invention be unpatented, the name of the inventor, the serial number, and date of the application should be stated.

82. An order for a copy of an assignment must give the book and page of the record.

CORRECTION OF PATENTS.

83. Whenever a mistake, incurred through the fault of the Office, is clearly disclosed by the records or files of the Office, a certificate stating the fact and nature of such mistake, signed by the Secretary of the Interior, countersigned by the Commissioner of Patents, and sealed with the seal of the Patent Office, will, at the request of the patentee or his assignee, be indorsed without charge upon the Letters Patent and recorded in the records of patents, and a printed copy thereof attached to each printed copy of the specification and drawing.

Whenever a mistake, incurred through the fault of the Office, constitutes a sufficient legal ground for a reissue, such reissue will be made, for the correction of such mistake only, without charge of Office fees, at the request of the patentee.

Mistakes not incurred through the fault of the Office and not affording legal grounds for reissues will not be corrected after the delivery of the Letters Patent to the patentee or his agent.

CAVEATS.

84. Caveats must comprise a petition, a specification, oath, and, when the nature of the case admits of it, a drawing.

PAYMENTS AND FEES.

85. All payments to the Office must be made in certificates of deposit, post-office money-orders, or certified checks, payable to the order of the Commissioner of Patents or indorsed to him, or in cash, and must be accompanied by a letter stating the amount and for what purpose it is to be applied. After the payment of money has been made, except for final fees, it will not be repaid upon a change of purpose or the abandonment of any application or appeal.

86. Office fees must be paid in advance and all transportation charges prepaid.

EQUITY.

87. The Office, to the extent of its jurisdiction, will consider equitable rights and apply equitable remedies, and whenever the foregoing rules and the established rules of equity are at variance respecting the same matter the rules of equity will prevail, except in matters concerning the ownership or title of inventions, applications, patents, or interests therein.

88. It is the design of the Constitution and the patent laws to secure to the inventor not that which is a matter of common right, nor the property of another, but what he has himself created. The duty of the Office is to grant nothing which already belongs to the domain of the public, but, on the other hand, not to withhold from the inventor any portion of the full benefit of his invention. Its function is to draw the line with even justice between the two.

The foregoing rules are intended to secure this object, and therefore are to be construed and applied in that sense and toward that end.

The foregoing rules are hereby established for the conduct of proceedings in the Patent Office and all other rules and practices, inconsistent herewith, are hereby repealed and annulled, and these regulations will be in effect on and after February 9, 1897.

CIVIL SERVICE IN THE PATENT OFFICE.

In 1869 the Patent Office was reorganized under the direction of the Hon. Samuel S. Fisher, Commissioner of Patents, and the system of competitive and non-competitive examinations for appointments and promotions was introduced. In 1871 a general law was passed by Congress authorizing the

President to establish rules and regulations for the admission of persons in the civil service, but for lack of continued appropriations by Congress the rules were suspended by the President in 1875. In the Patent Office the rules were, however, continued, and to greater or less extent followed, until the law of January 16, 1883, went into effect. Since then the civil service law and rules have been in full effect.

Partly as the result of the act of 1883 and partly as a result of competitive examinations held ever since Commissioner Fisher's incumbency of office in 1869 to 1871 the examining corps at the present time consists of the following force: 33 Primary Examiners, 30 of whom received their appointments as Primary Examiners upon competitive examinations and 3 without; 34 First Assistant Examiners, 33 of whom received their appointments as such upon competitive examinations and 1 without; 38 Second Assistant Examiners, 32 of whom received their appointments as such upon competitive examinations, 5 without, and 1 by reduction from First Assistant Examiner; 43 Third Assistant Examiners, 34 of whom received their appointments as such upon competitive examinations and 9 without; 52 Fourth Assistant Examiners, 39 of whom received their appointments upon competitive examinations, 1 without, 1 by transfer from another Department, and 11 by reduction from higher grades.

Under the present administration 64 original appointments have been made in the examining corps in the lowest grade strictly upon competitive examinations conducted under the direction of the Civil Service Commission, and 3 appointments have been made by transfers from other Bureaus or Departments in the lowest grade. During the same period there have been made 141 promotions within the Office in the corps. All the original appointments were made first for the probationary period of six months, and in all cases but one the appointments were made permanent at the end of the probationary period. A specimen set of the examination papers upon which several appointments have been made is here submitted.

SERIES No. 85. Oct., '96. Sheet 1.

TIME.	
Commenced	
Finished	
MARKS.	
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
Total	
Average	

UNITED STATES CIVIL SERVICE COMMISSION.

DEPARTMENTAL SERVICE—PATENT OFFICE—SPECIAL.

Assistant Examiner Examination.

Examination Number: ..

N. B.—Eight consecutive hours are allowed for this examination. The sheets are numbered from 1 to 5, inclusive. Each competitor should be certain that all the sheets are issued to him.

FIRST SUBJECT—Physics.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Each answer should be numbered to correspond with the number of the question. Illustrate by diagram when practicable.

Question 1. What are the laws of fluid pressure due to gravity? Find the total pressure in dynes on the bottom and sides of a cubical vessel (volume 1L.), half filled with mercury and the remainder filled with water. (Specific gravity of mercury=13.6.) [Give work in full.]

Question 2. Define capacity for heat, specific heat, calorie. Describe the Bunsen ice calorimeter and its method of use.

Question 3. What is meant by the critical angle, and how is it related to the refractive index? What is the critical angle for the surface of separation between air and a medium of refractive index 2?

Question 4. Deduce the formula for the tangent galvanometer. What is the difference between a tangent and a sine galvanometer?

Question 5. What laws govern the production of induced currents? What is Lenz's law? Illustrate by an example.

(N. B.—The competitor will not write in the form below.)

CENTRAL BOARD OF EXAMINERS' REPORT OF MARKS.

(ASSISTANT EXAMINER EXAMINATION.)

Washington, D. C., ..., 189..

Subjects.	Averages.	Relative weights.	Products of averages multiplied by weights.
First—Physics		1	
Second—Technics		1	
Third—Mathematics and chemistry		1	
Fourth—Mechanical drawings		1	
Total		4	
General average			

SERIES No. 85. Oct., '96. Sheet 2.

TIME.	
Commenced	
Finished	
MARKS.	
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
Total	
Average	

UNITED STATES CIVIL SERVICE COMMISSION.

DEPARTMENTAL SERVICE—PATENT OFFICE—SPECIAL.

Assistant Examiner Examination.

Examination Number: ..

SECOND SUBJECT—Technics.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Each answer should be numbered to correspond with the number of the question. Illustrate by diagrams when practicable. Give work in full and plainly indicate the answers.

Question 1. Describe the manufacture of water gas. How are the by-products separated?

Question 2. Describe the manufacture and galvanizing of iron wire.

Question 3. Describe the safety devices commonly employed on passenger elevators.

Question 4. Describe the manufacture of bicycle tubing.

Question 5. Describe the construction of a polyphase motor, and explain its mode of operation.

SERIES No. 85. Oct., '96. Sheet 3.

TIME.	
Commenced	
Finished	
MARKS.	
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
Total	
Average	

UNITED STATES CIVIL SERVICE COMMISSION.

DEPARTMENTAL SERVICE—PATENT OFFICE—SPECIAL.

Assistant Examiner Examination.

Examination Number: ..

THIRD SUBJECT—Mathematics and Chemistry.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Each answer should be numbered to correspond with the number of the question. Illustrate by diagrams when practicable. Give work in full and plainly indicate the answers.

Question 1. (*a*) What number added to both terms of the ratio *a*:*b* will double the ratio? (*b*) What number added to each of the numbers $\frac{1}{5}$, 1, $\frac{88}{5}$, and 42 will make them the four terms of a proportion?

Question 2. Solve the equations

$$2x+20y=5xy$$

$$\frac{1}{x^2}+\frac{1}{100y^2}=\frac{17}{400}$$

Question 3. Determine the numbers of regular convex polyhedrons possible.

Question 4. How may the molecular weight of a chemical compound that is volatile without decomposition be determined? Explain fully the fundamental principles involved.

Question 5. Point out the similarities and differences between the three elements Cl, Br, and I, and also of their corresponding compounds with silver.

SERIES No. 85. Oct.-'96. Sheet 4.

TIME.	
Commenced	
Finished	
MARKS.	
Sheet 4	
Sheet 5	
Total	
Average	

UNITED STATES CIVIL SERVICE COMMISSION.

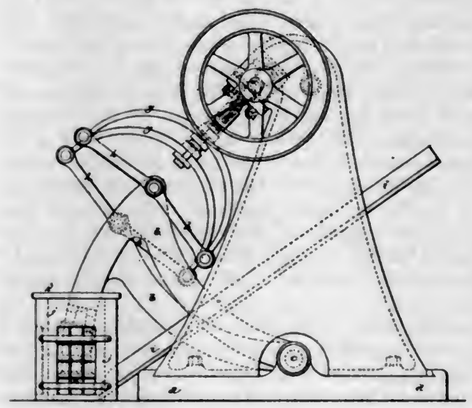
DEPARTMENTAL SERVICE—ASSISTANT EXAMINER EXAMINATION—PATENT OFFICE.

Examination Number:..

FOURTH SUBJECT—Mechanical drawings.

Describe the construction and operation of the machine shown in this drawing, naming the different views shown, and the mechanical powers that appear. State the use of the machine.

Fig. 1.



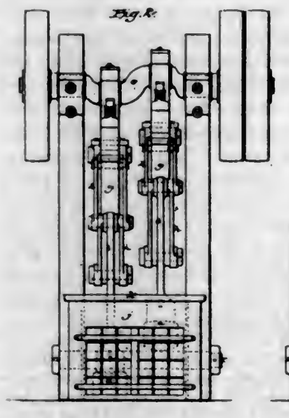
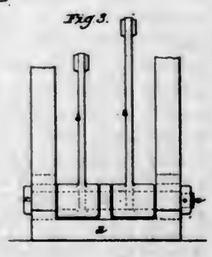


Fig. 3.



SERIES No. 85. Oct.-'96. Sheet 5.

TIME.	
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UNITED STATES CIVIL SERVICE COMMISSION.

DEPARTMENTAL SERVICE—ASSISTANT EXAMINER EXAMINATION—PATENT OFFICE.

Examination Number:..

FOURTH SUBJECT—Mechanical Drawings—*Continued.*

Describe the construction and operation of the machine shown in this drawing, naming the different views shown, and the mechanical powers that appear. State the use of the machine.

Fig. 1.

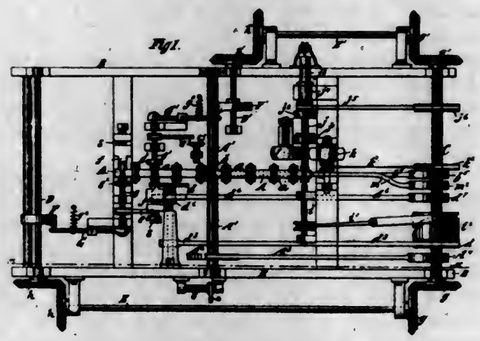


Fig. 2.

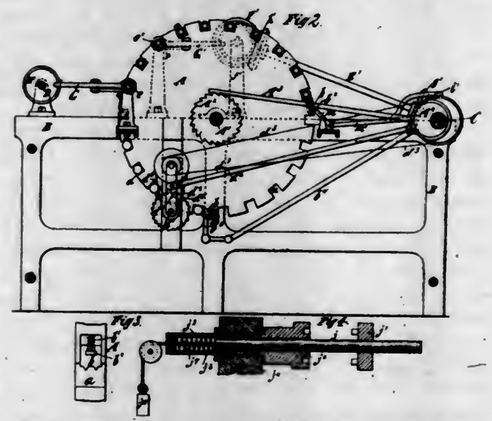


Fig. 3. *Fig. 4.*

Of the 67 men so appointed 6 had obtained a scientific education in the Massachusetts Institute of Technology, 13 at Worcester Polytechnic Institute, 2 at the Rensselaer Polytechnic Institute, 2 at the Royal Polytechnic Institute at Munich, 5 at Cornell, 2 at Johns Hopkins, 2 at Yale, 3 at the Naval Academy, 6 at the University of Michigan, 5 at Lehigh University, 1 in Berlin, Germany, and 1 in London. Of the others 10 had achieved what may fairly be considered an equivalent education by private study or in other ways, and the remaining number had less advantages in the way of formal education and training. Of the whole number appointed 32 had had experience in the practice of one or another of the industrial arts, of from one to three years, before their appointments. Of the whole number it may be said that they have made good records in the Office, and of some that they have made highly meritorious records. Of the whole number 9 have resigned to take better po-

sitions in scientific or technical pursuits, 1 has died, and 1 has been transferred to another Bureau.

During the present administration promotions in the corps have been made as follows: 57 from the grade of Fourth to Third Assistant Examiners, all upon competitive examinations held within the Office, and in each case the man standing highest on the list was selected; 40 from the grade of Third to Second Assistant Examiners, all upon competitive examinations held within the Office, and in each case the man standing highest on the list was selected; 25 from the grade of Second to First Assistant Examiners, all as the result of competitive examinations, and in all but two the highest on the list was chosen, and in the two exceptional cases the apparent cause for a different selection was subsequently removed and their promotions followed.

From First Assistant Examiners, Law Clerks, and Chief Clerk to Primary Examiners 9 promotions have been made, all as the result of competitive examinations. Seven were selected as standing highest on the list, and 2 from those standing lower down were selected by reason of records and achievements in the Office as Law Clerk and as Chief Clerk, which were regarded as determining the fitness upon strictly civil service grounds. From the examining corps 2 Primary Examiners have been appointed by the President and confirmed by the Senate for the position of Examiner-in-Chief upon the same principle of selection.

In selecting Fourth Assistant Examiners for temporary appointment, as hereinbefore recited, I had in each case before me the names of three candidates certified by the Civil Service Commission, and in making the selection consideration was given to the circumstance, first, that the candidate was shown by the affidavits attached to the examination papers, and intrinsically by the papers themselves, to have had that discipline of mind which comes from systematic intellectual pursuits under advantageous circumstances; second, that the candidate had had experience in the industrial and mechanical pursuits or had shown exceptional aptitude for such pursuits, and, third, that so far as the papers showed or a judgment thereon could be formed the candidate would with experience probably achieve that higher discipline and that combination of attainments in law and aptitude for the applied sciences that would fit him to become a Primary Examiner.

In no case have political considerations entered into the question of appointments or promotions, and except in three cases the political preferences of the candidate have not been known.

I think it may be said without ostentation and without mental reservation that the civil service law and the rules under it and the practice grounded upon both have been sincerely applied both in the letter and in the spirit.

At the beginning of this administration there were 605 employees in the Patent Office, of which all of the Assistant Examiners, 167 in number, were in office upon a tenure of merits and achievements alone. The Primary Examiners might have been appointed upon non-competitive examinations, but none were so appointed. The librarian, 3 Assistant Chiefs of Divisions, and 260 members of the clerical force were within the classified service, under the full operation of competitive examinations as to appointments. The Examiner of Interferences, the Chief Clerk, the Financial Clerk, 3 Chiefs of Divisions, and clerk to the Commissioner were not within the classified service, but have since been placed under it. So also of the messenger and property clerk, the 3 messengers at $840, the 20 assistant messengers at $720, and the 15 messenger boys at $360 a year.

On May 6, 1896, by reason of the clerical and grade duties performed by members of the laboring force receiving $600 and $480 a year, 66 out of the whole number of 90 were placed under the classified service.

The 5 clerks at $1,800 were in office and in the same positions prior to this administration. Of the 6 clerks at $1,600, 5 are in the same positions, and 1 was promoted on August 1, 1894; of the 14 clerks at $1,400, 9 were in their present positions prior to the present administration, and 5 have been appointed or promoted during the last four years; of the 51 clerks at $1,200, 38 were in their present positions, 12 have been promoted or appointed, and 1 reduced from a higher grade during this administration; the position of skilled laborer is filled by a reduction made during the present administration from the examining corps; of the 3 skilled draftsmen at $1,200 and the 4 at $1,000, 3 are in the same positions, and 1 has been appointed during the last four years; of the 25 clerks at $1,000 a year, 11 are in the same positions, 13 have been promoted or appointed, and 1 reduced from a higher grade during the last four years; of the 5 model attendants at $1,000, 3 are in the same positions and 2 have been promoted during the present administration; of the 10 model attendants at $800, 3 are in the same positions held prior to this administration, 6 have been appointed or promoted, and 1 reduced from a higher grade during the last four years; of the 60 copyists at $900 a year, 25 are in the same positions, 33 have been promoted or appointed, and 2 reduced during the last four years; of the 76 copyists at $720 a year, 20 are in the same positions, 48 have been promoted or appointed, and 8 reduced during the last four years. The messenger and property clerk at $1,000 was appointed February 15, 1894. Of the 3 messengers at $840, 1 was in the same position, and 2 have been since appointed; of the 20 assistant messengers at $720 a year, 5 were in their present positions, 14 have been appointed or promoted, and 1 reduced under the present administration; of the 45 laborers at $600, 6 are in the same positions, 36 have been appointed or promoted, and 3 reduced from higher grades during the present administration; of the 45 laborers at $480 a year, 14 are in the same positions, 30 have been appointed or promoted, and 1 reduced during the last four years; and of the 15 messenger boys at $360 a year, 3 are in the same positions, and 12 have been appointed during the last four years.

The best results of the civil service system cannot be realized until the Office is fairly representative of the political parties in the country in the political preferences of its individual members. This at present is not the case, for, although the civil service act has been in operation somewhat over twelve years, and though eight of those years have been under Democratic administrations and four under a Republican administration, the *personnel* of the Patent Office is probably four-fifths Republican to-day. Of the Examiners-in-Chief, 2 are Republicans and 1 a Democrat, 2 having been appointed under the present administration. Of the Primary Examiners, including the Examiner of Interferences, 26 are Republicans and 7 are Democrats. Of the 3 Chiefs of Divisions, 2 are Democrats and 1 Republican. Of the 3 Assistant Chiefs of Divisons, all are Republicans. The librarian, the machinist, and the Financial Clerk are all Republicans. Of the force in the four rooms of the Commissioner and Assistant Commissioner, 7 in number, 5 are Republicans and 2 are Democrats. Of the 5 $1,800 clerks, which include the Application Clerk and the Clerk of Interference and Appeal Records, all are Republicans. Of the 6 clerks at $1,600, all are Republicans. Of the 14 clerks at $1,400, I cannot speak so positively, but nearly all are Republicans, and of the remainder of the force I am not able to speak so positively, nor is it necessary. No inquiry has ever been made, nor will it be proper to make it, but these things transpire in various ways and come to be sufficiently understood; but the total result is that a body of opinion is formed with a distinct political bias, not outspoken but real, and not always friendly. One result is unusual professions of loyalty during the early stages of an administration, not always followed by acts and expressions entirely consistent therewith.

But these are the unfortunate incidents of the civil service system in its transitional stage from a force almost wholly of one political party to one only approximately representative of the strength of parties among the people. As a whole it may be said without fear of even attempted contradiction that political expression and political independence of action are upon a satisfactory basis in the Patent Office, and that the civil service system has been fully justified here in its tendencies and in its results.

REGULATIONS RESPECTING PROMOTIONS.

There is now under way a plan for the regulation of promotions in the Patent Office under the direct supervision of the Civil Service Commission. If its introduction has not been finally determined upon, I suggest some considerations why it may not be found desirable. For examining candidates for admission to the force and for furnishing highly efficient officers for this Bureau there is little room for doubt as to the highly satisfactory working of the civil service law and rules; but there is provided a probationary period for testing the eligibility and competence of the candidate, and this part of the system rightly presupposes that such a test is of as much value in making a final appointment as the examination. It is found to be so in practice, and still more must this be so of years of tests. If now promotions are not to be in the untrammeled discretion of the Commissioner from the records of work of the officers of the Bureau and from personal observation of their fitness, capacity, industry, willingness, and study, but is to be determined by a few hours of examination conducted here, the result of which is to be transmitted to the Civil Service Commission and by them certified back here as occasion may call for promotions, the administrative head of this Bureau will be the Civil Service Commission. I incline strongly to the opinion that promotions within the Office and the relative merits of the members of the force can best be determined here, determined far better and more justly than any examination can determine the question.

Some of these considerations are based upon the special character of the work of the Patent Office. Even the strictly clerical work so intimately concerns questions of science on the one side and of law on the other and also concerns questions of practice under the necessarily technical rules of procedure of the Patent Office that a general examination which would be likely to bring to the head of the list those most competent for the various forms of special work would be difficult to frame. To the good administration of the Office and to the development of the civil service system the discretion of the head of the Office is, in my judgment, a necessary element.

Examinations conducted by the Office for its own information, even concerning work of such varied character as I have briefly indicated, are proper and valuable, but to enlarge examinations to determine the whole field of choice and exclude discretion would impose upon the Office a weak and nerveless administration which in the end would not sustain itself either in the result or in the estimation of intelligent critics.

I have a further objection to promotions by general committees, extending through all bureaus in a department so segregated as is this, and have no disposition to take part in promotions in other bureaus about which I can have no comprehensive knowledge, and on the same ground have no desire for the assistance of members of a board from other bureaus to attempt and to suggest promotions in this Bureau. I have little hesitation in recommending, if a recommendation under this head may be permitted, that promotions in the Patent Office may be left, as now, substantially in the discretion of the Commissioner, enlightened but not controlled by such examinations within the various classes as he may see fit to conduct and guided by such principles as his superiors may see fit to lay down by executive order.

PRICES OF PRINTED COPIES OF PATENTS.

Under the act of May 19, 1896, section 493 of the Revised Statutes of the United States was amended,

fixing the price of uncertified printed copies of specifications and drawings so that the maximum cost of a copy shall be ten cents. On May 25, 1896, the Commissioner fixed the following schedule of prices, to go into effect July 1, 1896:

For single copies or any number of unclassified copies	.05
For copies by subclasses	.03
For copies by classes	.02
For the entire set of patents issued	.01

Under this statute, taken in connection with section 4903 of the Revised Statutes, I think that the Commissioner may properly accompany the reasons for the rejection of an application with copies of the United States patents relied on as references by the Examiner and transmit them without charge to the applicant. Section 4903 is as follows:

Sec. 4903. Whenever, on examination, any claim for a patent is rejected, the Commissioner shall notify the applicant thereof, giving him briefly the reasons for such rejection, together with such information and references as may be useful in judging of the propriety of renewing his application or of altering his specification; and if, after receiving such notice, the applicant persists in his claim for a patent, with or without altering his specifications, the Commissioner shall order a reëxamination of the case.

But an administrative difficulty is met in the fact that the Office would be required under that procedure to select and transmit more copies of patents than now, and for this work, largely increased under the reduction in prices, the force is now quite inadequate. Class orders for copies have within the last few months increased to such proportions that with its best endeavors the Office is now about five weeks in arrears. It is therefore necessary to defer such a practice to such time as the Office can be supplied with a further force. During the year 1896 printed copies of patents were disposed of as follows: Sold, 775,192; used by the Office, 362,874; furnished other Departments, 17,128; sent to foreign governments, 504,453; total, 1,659,647. Increase since reduction in price shown here: From January to July, 334,931 copies were sold; from July to January 1, 1897, 440,261, an increase of 105,330 since the price was reduced.

THE GROWTH OF THE SYSTEM AND ITS ATTENDANT NEEDS.

By reference to the tables it will be seen that the number of applications of all kinds for patents and for the registration of trade-marks was last year nearly three thousand in excess of the largest previous year in the history of the Patent Office. Accompanying this increase in the work of the examining divisions is a somewhat larger increase of work in the clerical divisions, and there has been no increase in the force of the Patent Office since 1891, when 15 were added, and no substantial increase since 1885, when 58 were added. It is not thought best to press for increases of expenditure in every branch of this Bureau, and yet it may be well to look forward to that equipment for the Patent Office which I am sure will be provided whenever the subject receives that full consideration which its place in the Government and its contribution to the industrial growth of the country and to its wealth are fully appreciated. The work has outgrown the force now provided to accomplish it. Not only the applications are more in number, but the search in each case covers a continually-expanding field, and, again, the number of claims in each case and their fine distinctions render the examination more exacting and discriminating. It would not be an overliberal increase in the force for the work of examination alone should 10 Primary Examiners and 50 Assistant Examiners be presently provided to be employed wholly upon the regular examination work.

I therefore recommend that the Patent Office be provided with additional force in the examining corps, as follows: 10 Primary Examiners, 10 First Assistant Examiners, 10 Second Assistant Examiners, 15 Third Assistant Examiners, 15 Fourth Assistant Examiners.

The necessary clerical, messenger, and laboring force to accompany these new divisions is estimated to be: 10 clerks at $1,200, 10 copyists at $900, 10 messengers at $720, 10 laborers at $480, and I recommend that these be provided.

CLASSIFICATION DIVISION.

I have from time to time recommended a classification division rather than ask for any increase in the force for mere examination, and I think that this requirement must ultimately be granted, but it is not by any means the sufficient response to the needs of the Office. Since I first called the attention of Congress to this subject there have been important increases in the total number of patents issued by this and the foreign governments, and the field of search to ascertain the patentability of an invention now extends to 574,368 United States patents and to over 1,058,000 foreign patents. Accordingly, I again submit that the following force should be provided in order to establish a classification division in the Patent Office.

1 Chief of Classification Division	$2,750
2 First Assistant Examiners (each)	1,800
2 Second Assistant Examiners (each)	1,600
3 Third Assistant Examiners (each)	1,400
36 Fourth Assistant Examiners (each)	1,200
2 Clerks (each)	1,200
2 Permanent Clerks (each)	1,000
2 Copyists (each)	900
2 Assistant Messengers (each)	720
Total	$64,500

As I have heretofore said to the Congress, I regard even the somewhat large expenditure of $64,500 a year for the estimated period of five years required for the completion of this work as a most just and proper expenditure, literally exacted by the development of the system, as a necessary addition to the equipment of the Office, and a just appropriation of a part of the accumulated fees received from inventors, which in 1896 amounted to $210,646.12 over and above the annual expenditures of the Office in the administration of the system.

ROOM.

The long-recognized need for more room for the Patent Office has been repeatedly stated, and various plans for effecting it have been considered. This entire building is not excessive for the present needs of the Patent Office.

Respectfully submitted,

JOHN S. SEYMOUR,

Commissioner of Patents.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 78—No. 11. TUESDAY, MARCH 16, 1897. PRICE—$5 per year.

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DISCLAIMER.

565,975.—*James H. George*, New York, N. Y. IMPROVEMENT IN SYSTEM FOR ELECTROPLATING VESSELS. Patent dated August 18, 1896. Disclaimer filed March 10, 1897, by the *American Ship Copper Plating Co.*, of West Virginia, the present assignee.

Enters its disclaimer:

"To those claims of said patent which are in the following words, to wit:

"1. In a system for electroplating vessels, the combination of one or more portable baths, a pump for providing a continuous supply of solution thereto, and an air-exhauster for producing suction against said bath, substantially as set forth.

"2. In a system for electroplating vessels, one or more baths having concaved webs, an air-exhauster and a line of pipes connecting said baths and exhauster, in combination with a trap and drain-tank in the line of said pipe for trapping the solution which escapes from said baths, substantially as set forth.

"3. In a system for electroplating vessels the combination of a solution-supply pump, a main supply-pipe, a main reservoir and a main supply-pipe from the reservoir to the pump, said pipe extending thence entirely around the vessel, terminating in the top of said reservoir, an air-exhauster and a single pipe leading to a trap and drain-tank, a branch pipe extending along each side of the vessel from said trap, each of said branch pipes having at intervals nipples and valves for attaching supply-pipes to the lower side of the baths, with said baths and the main supply-pipes having at intervals nipples and valves for attaching branch pipes to the baths, substantially as set forth.

"5. In a system for electroplating vessels the combination with portable baths, of an exhaust-pump, conduits leading therefrom, and a trap in the line of said conduits which exhausts air from the baths to receive the fugitive solution from said baths, a drain-tank and a connection between said drain-tank and main reservoir, and a pump for forcing the solution from the drain-tank to the main reservoir, substantially as set forth.

"7. The herein-described system of providing a constant supply and an equable pressure in the plating-baths, which consists in providing a series of portable baths on the vessel, in combination with a stand-pipe, a pump, a continuous conduit from the pump along said series of baths and into said stand-pipe, a main reservoir, and an overflow-pipe from said stand-pipe to the main reservoir, substantially as set forth.

"8. A bath having a suction-flange around its edges, provided with a nipple connecting with the interior of the bath on its lower side, a vent-cock on the upper side, and a nipple and cock connecting with the suction-flange on the lower side, substantially as set forth.

"9. A bath provided with a suction-flange around its edges, in combination with a nipple communicating with the interior of the bath on its lower side, a vent-cock on the upper side, a nipple and a cock connecting with the suction-flange on its lower side, and a series of anode-holders in the side walls of the bath, substantially as set forth.

"10. A bath having a nipple in its lower side connecting with a flexible supply-pipe, in combination with said flexible conduits, a main supply-conduit, and a pump for supplying said electrolyte through said conduit, the lower end of said flexible supply-pipe having a short supplementary or drain pipe, union and valve, and a return-conduit connecting with said drain-pipe, substantially as set forth.

"11. A bath provided with a nipple in its lower side, in combination with a flexible supply-pipe leading from the lower side of the bath to a supply-conduit, having a short supplementary drain-pipe, union and valve near its lower end leading to a return-conduit, a flexible overflow-pipe from the upper side of the bath, also leading to said return-conduit, and in combination therewith, substantially as set forth.

"12. In a system for electroplating vessels a series of plating-baths each having a suction-flange, in combination with an air-exhauster suitably located at one end of the vessel, a conduit extending from said pump along each side of the vessel, a trap and drain-tank in the line of said conduits, adjacent to the pump, and flexible pipes between the suction-flanges of the bath and said conduits, substantially as set forth.

"13. In a system for electroplating vessels a bath having an inlet-tube at its lower side, and a horizontal perforated tube within the bath connected therewith and located between the anode and the cathode surfaces, in combination with an overflow-pipe at its upper side, substantially as set forth.

"14. In a system for electroplating vessels, a main reservoir, a supply-conduit leading therefrom, and extending entirely around the vessel and terminating in the same reservoir, said conduit having a pump for forcing the solution therethrough, in combination with portable baths on the vessel, each having a flexible conduit from its lower side to the main conduit, a discharge-conduit which extends alongside the vessel and terminates in the reservoir, and a flexible conduit between the upper end of the bath and the discharge-conduit, whereby a constant current of solution is moved upwardly over the surface treated, substantially as set forth.

"15. In combination with a bath for electroplating external surfaces, a horizontal pipe in its lower side, with a series of orifices, and an overflow at the upper side of said horizontal pipe and overflow-orifices being between the anode and cathode surfaces, a pump for supplying a constant volume of solution to said baths, and drain-pipes to convey the overflow back to the main reservoir, substantially as set forth.

"16. A bath having a suction-flange around its edges, provided with a nipple connecting with the interior of the bath of the lower side, a vent-cock, and an overflow connection on the upper side, and a nipple and cock connected with the suction-flange on the lower side, substantially as set forth.

"This disclaimer is made without prejudice to claims 4 and 6 of said patent, the intention being to disclaim inventorship of those combination features to which the claims disclaimed are limited, but to which said claims 4 and 6 are not limited."

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1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

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Bound half-turkey 2 50
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Issue of March 16, 1897.

Patents	415—	No. 578,706 to No. 579,120, inclusive.
Designs	28—	No. 26,755 to No. 26,782, inclusive.
Trade-Marks	16—	No. 29,696 to No. 29,711, inclusive.
Labels	None.	
Prints	None.	
Reissues	None.	
Total issue	459.	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	2		New Hampshire	2	
Arizona Territory			New Jersey	12	1
Arkansas	3		New Mexico Territ'y		
California	10	1	New York	66	
Colorado	1		North Carolina		
Connecticut	24	1	North Dakota		
Delaware	3		Ohio	30	2
District of Columbia	10		Oklahoma Territory		
Florida	1		Oregon	4	
Georgia	5		Pennsylvania	45	
Idaho			Rhode Island	3	
Illinois	44	2	South Carolina	1	
Indian Territory	1		South Dakota		
Indiana	13		Tennessee	6	1
Iowa	8	1	Texas	3	
Kansas	2		Utah	1	
Kentucky	2	1	Vermont		
Louisiana		1	Virginia	2	
Maine	3		Washington	3	
Maryland	6		West Virginia	4	
Massachusetts	41		Wisconsin	7	
Michigan	9	3	Wyoming		
Minnesota	4		U. S. Army	1	
Mississippi	3		U. S. Navy		
Missouri	3				
Montana			Total to citizens of the United States	400	14
Nebraska	2				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands	1	
Austria-Hungary	2	1	Newfoundland		
Barbadoes			New South Wales	1	
Belgium			New Zealand	1	
Bermuda			Norway		
Brazil			Orange Free State		
Canada	5		Portugal		
Canary Islands			Queensland		
Cape Colony			Russia		
Ceylon			Scotland		
Chile, Republic of			South African Republic		
China			South Australia		
Cuba	1		Straits Settlements		
Denmark	1		Sweden		
England	12		Switzerland		
France	2	1	Victoria		
Germany	17		West Australia		
Guatemala					
India					
Ireland					
Italy			Total to citizens of foreign countries	43	2

APPLICATIONS UNDER EXAMINATION.

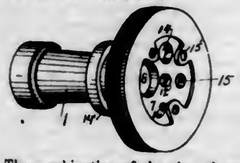
Condition at Close of Business March 9, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears.—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 9	Feb. 26	273
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Feb. 10	Feb. 18	137
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 9	Feb. 18	170
215	XVII. Paper Manufactures and Printing.	Feb. 9	Feb. 16	124
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 10	Feb. 15	201
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 10	Feb. 11	213
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 9	Feb. 10	191
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 9	Feb. 9	150
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Feb. 9	Feb. 9	182
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 11	Feb. 6	202
246	I. Tillage and Fences	Feb. 10	Feb. 2	224
106	II. Farm Stock, Products, etc.	Feb. 9	Jan. 2	384
	Between one and two months.			
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 2	Feb. 10	332
253	X. Carriages and Wagons	Feb. 8	Feb. 8	310
248	XVIII. Steam-Engineering, etc	Jan. 11	Feb. 6	271
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Jan. 25	Feb. 2	343
243	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Feb. 1	Feb. 1	214
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 28	Feb. 1	284
256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 23	Feb. 1	282
98	XXI. Textiles, etc	Feb. 1	Jan. 30	195
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 26	Jan. 29	308
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Jan. 27	Jan. 28	261
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 26	Jan. 27	167
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 18	Jan. 26	370
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Jan. 22	Jan. 23	357
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Jan. 20	Jan. 23	322
221	XXIII. Instruments of Precision, Acoustics, etc.	Feb. 3	Jan. 20	357
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Jan. 18	Jan. 18	337
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 14	Jan. 14	295
102	XIX. Stoves and Furnaces	Jan. 14	Jan. 14	500
240	VII. Harvesters, Games and Toys, and Velocipedes.	Jan. 14	Jan. 11	1317
	Between two and three months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Jan. 7	Feb. 2	495
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 21	Jan. 14	620
	Total number of applications awaiting action			10,563
	Under one month in arrears.			
	Designs	Feb. 12	Mar. 1	175
	Trade-Marks	Feb. 19	Mar. 2	102

PATENTS

GRANTED MARCH 16, 1897.

578,706. **NOZZLE.** DON R. ADAMS, Chicago, Ill., assignor of one-half to Romulus Nehemiah Graham, Fort Worth, Tex. Filed May 4, 1896. Serial No. 590,902. (No model.)



Claim.—1. The combination of the pipe, the plate 10 provided with an eccentric socket, the perforated plate, the flanged ring, the milled ring connected to said latter plate, and a pivot secured to said plate and having a foot loosely stepped in the center of plate 10, the plate being fixed upon the pipe by means of its socket, substantially as described.

2. The combination of the pipe, the plate 10 provided with an eccentric socket, the perforated plate, the flanged ring, the milled ring connected to said latter plate, and a pivot secured to said plate and having a foot loosely stepped in the center of plate 10, the plate being fixed upon the pipe by means of its socket, and said pipe having an extension 5 fitting a countersunk recess 6 in the perforated plate, substantially as described.

3. The combination of the pipe, the plate 10 provided with an eccentric socket, the perforated plate, the flanged ring, the milled ring connected to said latter plate, and secured to said plate and having a foot loosely stepped in the center of plate 10, the plate being fixed upon the pipe by means of its socket, said pipe having an extension 5 fitting a countersunk recess 6 in the perforated plate, and a stuffing-box to close the joint between the pipe and the plate 10, a packing-ring between said plate and the perforated plate, and a packing seated in the end of the pipe also bearing against the perforated plate whereby the connections back of the latter packing are made air-tight, substantially as described.

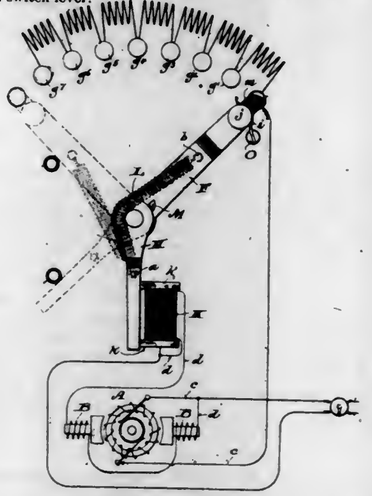
4. In combination a pipe, a perforated plate rotatably mounted upon the end of the pipe, a flanged ring to hold the perforated plate upon the pipe, a plate 10 to hold the ring to the pipe and thereby hold the rotating perforated plate, an exterior operating-ring fixed to said perforated plate, and a locking device to lock the two rings and plate 10, substantially as described.

5. In combination a pipe, a perforated plate rotatably mounted upon the end of the pipe, a flanged ring to hold the perforated plate upon the pipe, a plate 10 to hold the ring to the pipe and thereby hold the rotating perforated plate, an exterior operating-ring fixed to said perforated plate, a stuffing-box 14 engaging a socket fixed to plate 10 and a locking device engaging the said box to lock it and the plate to the pipe, substantially as described.

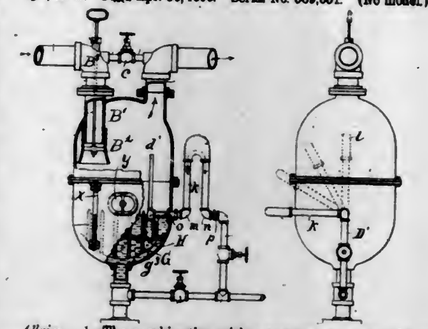
578,707. **CONTROLLING MECHANISM FOR ELECTRIC MOTORS.** FRANK R. BACON, Milwaukee, Wis. Filed Dec. 21, 1896. Serial No. 616,397. (No model.)

Claim.—1. In electric-motor-controlling mechanism of the class described, the combination with the series of contacts, back-stops and electromagnet of a rheostat, and a switch-lever pivotally connected to a pin on said rheostat, of a switch-arm independently pivoted on said pin and adapted to be held against the core of said magnet when the latter is energized, and a spring connected to said switch-arm so as to always draw said arm away from said magnet when the latter is deënergized, irrespective of the position of the switch-lever.

2. In electromotor-controlling mechanism of the class described, the combination with the series of contacts, back-stops and electromagnet of a rheostat, of a switch-lever pivotally connected to a pin on said rheostat and provided with a rigid projecting lug adjacent to its pivoted end, a switch-arm independently pivoted on said pin and adapted to be held against the core of said magnet when the latter is energized, and provided with a rigid projecting lug on its pivoted end in the path of travel of the lug on the switch-lever, and a retracting-spring connected to said switch-arm, and always acting against the force of the magnet, whereby when the said switch-arm is away from the core of the magnet it can only be brought against the latter by the engagement of the two lugs consequent upon a movement of the said switch-lever.



578,708. **GREASE-SEPARATOR.** WILLIAM J. BALDWIN, Brooklyn, N. Y. Filed Apr. 30, 1896. Serial No. 589,651. (No model.)



Claim.—1. The combination with a grease-separator, of a vertically-adjustable inlet connection adapted to be moved toward and from the water-level in the separator, and an outlet connection, a channel connecting the same, and a valve controlling said channel, substantially as and for the purpose described.

2. The combination with a grease-separator, of an inlet connection adapted to direct the incoming fluids upon the surface of the water in the separator and an outlet connection, an overflow, and adhesive surfaces arranged in the grease-separator partly below the normal water-level therein, substantially as described.

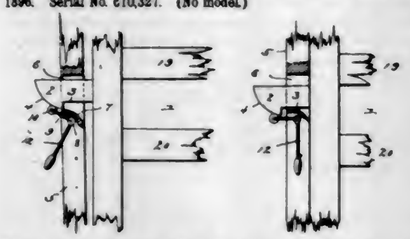
3. The combination with a grease-separator, of an overflow thereon adapted to rotate in a vertical plane and be set in different levels, substantially as described.

4. The combination with a grease-separator, of adhesive surfaces arranged partly below the normal water-level therein, and an adjustable overflow adapted to vary the normal water-level within limits, substantially as described.

5. In a grease-separator, a shell divided internally into a plurality of cells, openings of relatively small area connecting contiguous cells near the bottom, and an inlet connection adapted to project the incoming fluid upon the surface of the water in the separator, substantially as described.

6. In a grease-separator, an adjustable inlet-pipe having its mouth above the water-level in the separator and adapted to be raised and lowered as desired and project the incoming fluids upon the surface of the water in the separator, substantially as described.

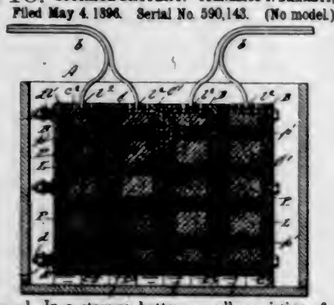
578,709. GATE. REUBEN K. BALL, Claypool, Ind. Filed Oct. 23, 1896. Serial No. 610,327. (No model.)



Claim.—1. A gate comprising the posts 13 and 14, the cross-brace 15 connecting said posts, the vertical bracket 16, its lower end pivotally supported on said brace, and having the upper end of one of its parallel arms terminating in a spindle 21, journaled in the arm 23 rigidly secured to the post 14, and the friction-roller 24 mounted between the parallel arms of said bracket 16, the gate-panel 1, its bar 19 having a longitudinal bearing on said friction-roller, and provided with the rigid bar 2, having recess 3 and beveled end 4, the post 5 formed with the longitudinal slot 6 and the lever 8 fulcrumed on said post and provided with the transverse horizontal roller 10 and the integral handle 12, substantially as and for the purpose set forth.

2. The combination with the gate-panel 1 provided with the rigid bar 2 having recess 3 and beveled end 4, of the post 5 provided with slot 6, and the lever 8 fulcrumed on said post and provided with the roller 10, substantially as and for the purpose set forth.

578,710. STORAGE BATTERY. CORNELIUS T. BARRETT, Brooklyn, N. Y. Filed May 4, 1896. Serial No. 590,143. (No model.)



Claim.—1. In a storage battery a cell consisting of a plate of pumice-stone to which the peroxid or equivalent material is applied in combination with a confining envelop of lead having openings for the admission of the acidulated fluid, substantially in the manner and for the purpose described.

2. In a storage battery a cell consisting of a perforated plate of pumice-stone in and upon which the peroxid or equivalent material is deposited in combination with a confining envelop of lead having openings for the admission of the acidulated fluid, substantially in the manner and for the purpose described.

3. In a storage battery a cell consisting of a plate of porous material to which the peroxid or equivalent material is applied, said plate being formed with grooves in its edges for the admission of the acidulated fluid, in combination with a confining envelop of lead having openings for admitting said acidulated fluid to the said grooves in the said porous plate substantially in the manner and for the purpose described.

4. In a storage battery a cell consisting of a perforated plate of porous material in and upon which the peroxid or equivalent material is deposited, said porous plate being formed with grooves in its longitudinal edges, in combination with a confining envelop of lead formed with openings coinciding with the said grooves in said porous plate for the admission of the acidulated liquid to the porous plate, substantially in the manner described.

5. In a storage battery, a cell consisting of a perforated plate of porous material in and upon which the peroxid or equivalent material is deposited, said porous plate being formed with grooves in its longitudinal edges, in combination with a confining envelop of lead formed with openings coinciding with the said grooves in said plate and with perforations in its top for the admission of the acidulated liquid to the porous plate, substantially in the manner and for the purpose described.

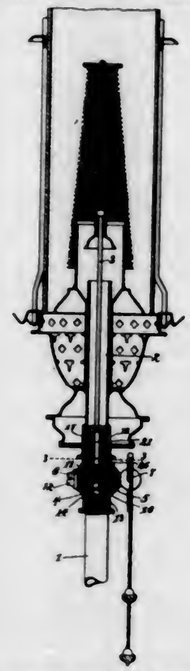
6. In a storage battery, a cell consisting of a porous plate to which the peroxid or equivalent material is applied, a layer of coke-dust covering in whole or in part the peroxid or equivalent material, and a confining envelop of lead having an opening for the admission of the acidulated liquid to the said porous plate, substantially in the manner and for the purpose described.

7. In a storage battery, the combination of a cell consisting of a porous plate to which the peroxid or equivalent material is applied, a confining envelop of lead having openings for the admission of the acidulated liquid to the said porous plate, and a cell-holder of insulating material formed with openings communicating with the openings in the leaden envelop, substantially in the manner and for the purpose described.

8. In a storage battery, the combination of a cell consisting of a porous plate of pumice-stone to which the peroxid or equivalent material is applied, a confining envelop of lead having openings for the admission of the acidulated liquid to the said porous plate, and a cell-holder of insulating material formed in halves fitting together with openings between them communicating with the openings in the leaden envelop, substantially in the manner and for the purpose described.

9. In a storage battery, the combination of a cell consisting of a porous plate of pumice-stone to which the peroxid or equivalent material is applied, a confining envelop of lead having openings for the admission of the acidulated liquid to the said porous plate, a cell-holder of insulating material formed in halves fitting together with openings between them communicating with the openings in the leaden envelop, and means for holding the halves of the holder together with an elastic pressure for the purpose and substantially in the manner described.

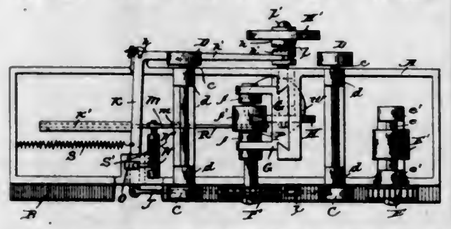
578,711. BY-PASS VALVE FOR WELSBACH OR OTHER INCANDESCENT GAS-BURNERS. GEORGE S. BARROWS, Philadelphia, Pa., assignor to the Welsbach Light Company, Gloucester City, N. J. Filed Mar. 26, 1896. Serial No. 584,904. (No model.)



Claim.—1. In a by-pass valve for Welsbach and other incandescent gas-burners having a pilot-light concentric with the main burner, the combination of a casing having a seat and an inlet-opening thereto and having a transversely-ranging threaded opening 25, and having longitudinally-ranging openings, channels or passages whereof three communicate with the part 25 and lead one to the pilot-light and two to the seat and whereof the others do not communicate with the part 25 and lead from the seat directly to the main burner; screws applied to the part 25; and a plug to the interior of which gas is admitted and which is provided at its upper portion with an opening as 28 and with passages, openings or channels as 19 and 20, substantially as described.

2. In combination a casing having a seat and an inlet opening, passage or channel thereto, and having a transversely-ranging threaded opening, passage or channel 25, and having longitudinally-ranging openings, channels or passages whereof three intersect the part 25; parts as 24, for closing the upper portion of two of said channels, passages or openings, screws applied to the part 25, and a plug to the interior of which gas is admitted and which is provided at its upper portion with an opening, as 28, and with openings, channels, or passages as 19 and 20, substantially as described.

578,712. PLANING-MACHINE. LEANDER L. BARTLETT, Montague, Mass. Filed Oct. 21, 1896. Serial No. 609,521. (No model.)



Claim.—1. In combination, the frame or bed, the feed-rollers, the vertically-movable cutter-frame carrying the cutter, the cam for raising the cutter-frame normally out of action, the clutch for connecting the cam to a continuously-running part of the machine, the movable projection in the path of the section to be operated upon, operating connections whereby the movement of said projection will throw the cam into action, means for holding the clutch-sections in engagement during the entire revolution of the cam, and means operated by the cam at the completion of its revolution for returning all the parts to normal position, substantially as described.

2. In a machine for planing taper-sections, the combination with a cutter and a cam for shifting the same, of the means for automatically starting said cam by the stock comprising the cam-shaft, the clutch, the pivoted lever K having an arm engaging one member of the clutch, the lever I having a projection in the path of the stock, the link connecting the lever I with the lever K and the sliding bolt for locking the lever K in one position, substantially as described.

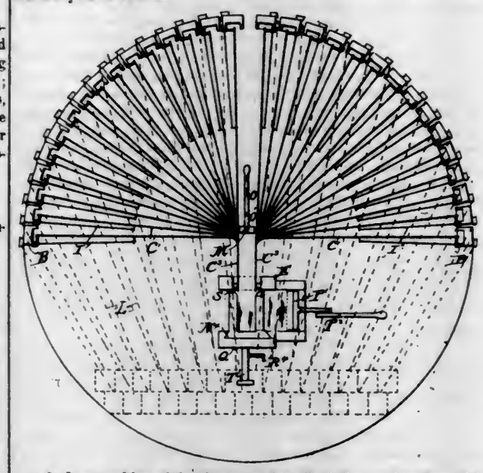
3. In combination, the cutter, the cam for lifting the same, the cam-shaft, the clutch thereon, the lever K having an arm engaging one member of the clutch, the lever I having a projection arranged in the path of the stock to be operated upon, the link connecting the lever I to the lever K, the bolt for locking the lever K in one position and the means for releasing the bolt, substantially as described.

4. In combination, the cutter, the cam for lifting the same, the cam-shaft, the clutch thereon, the lever K having an arm engaging one member of the clutch, the lever I having a projection arranged in the path of the stock to be operated upon, the link connecting the lever I to the lever K, the bolt for locking the lever K in one position, the pivoted arm engaging the bolt, the pin carried by said cam, the pivoted arm operated thereby, and the link connecting the arm with the arm engaging the bolt whereby the bolt is retracted, substantially as described.

578,713. TYPE-SETTING MACHINE. JEROME B. BELL, Wilmington, Del. Filed Apr. 9, 1894. Serial No. 506,922. (No model.)

Claim.—1. In a machine of the character described, the combination with a supporting table or bed, of ways or supports for the type-bars or matrices, said ways being arranged in two series as described, having their lower assemblage portions or ends arranged at different elevations and in two vertical planes, and their upper distributive portions also arranged at different elevations and in two vertical planes corresponding with their respective assemblage portions, and type-bars arranged to travel along the ways and having their printing-characters arranged upon opposite edges, as described.

2. In a machine of the character described, the combination with a supporting table or bed, of ways or supports for the type-bars or matrices, said ways being arranged in two series as described, having their lower assemblage portions or ends arranged at different elevations and in two vertical planes and their upper distributive portions also arranged at different elevations and in two vertical planes corresponding with their respective assemblage portions and type-bars arranged to travel along the ways and having their printing-characters arranged upon opposite edges and a vertically-movable galley adapted to receive the assembled type and to distribute said type-bars or matrices upon the distributive portions of the ways, substantially as described.



3. In a machine of the character described, the combination with a supporting table or bed, of ways or supports for the type-bars or matrices, said ways being arranged in two series as described, having their lower assemblage portions or ends arranged at different elevations and in two vertical planes and their upper distributive portions also arranged at different elevations and in two vertical planes corresponding with their respective assemblage portions, the type-bars arranged to travel along the ways and having their printing-characters arranged upon opposite edges and a vertically-movable galley comprising a box-shaped frame provided with a vertical slot adapted to receive the assembled type-bars or matrices, and a horizontal slot intersecting said vertical slot to permit an impression to be taken therethrough as described, said galley being adapted to be elevated to bring the type-bars or matrices into position to permit the type-bars or matrices to be distributed onto the distributive portions of the ways, substantially as specified.

4. In a machine of the character described, the combination with a supporting table or bed, of ways or supports for the type-bars or matrices, said ways being arranged in two series as described having their lower assemblage portions or ends arranged at different elevations and in two vertical planes and their upper distributive portions also arranged at different elevations and in two vertical planes corresponding with their respective assemblage portions, and type-bars or matrices arranged to travel along the ways and having their printing-characters arranged upon opposite edges and a vertically-movable galley comprising a box-shaped frame provided with a vertical slot adapted to receive the assembled type-bars or matrices and a horizontal slot intersecting said vertical slot to permit an impression to be taken therethrough as described, said galley being adapted to be elevated to bring the type-bars or matrices into position to permit the type-bars or matrices to be distributed onto the distributive portions of the ways and a reciprocating follower operating within the vertical slot of the galley to push the type-bars or matrices out of the same onto their respective ways, substantially as specified.

5. In a machine of the character described, the combination with a supporting table or bed, of ways or supports for the type-bars or matrices, said ways being arranged in two series as described, having their lower assemblage portions or ends arranged at different elevations and in two vertical planes, and their upper distributive portions also arranged at different elevations and in two vertical planes corresponding with their respective assemblage portions and type-bars or matrices arranged to travel along the ways and having their printing-characters arranged upon opposite edges and a vertically-movable galley adapted to receive the assembled type-bars or matrices and distribute them upon the distributive portions of the ways and a vertical upright provided with a way or groove within which said galley is adapted to slide as described.

6. In a machine of the character described, the combination with a supporting bed or table, of a series of supporting-uprights extending around a portion of said table, uprights carried by said table in

front of the former uprights, a number of ways or supports for the type-bars or matrices supported by the various uprights, said ways being arranged in two series having their lower assemblage portions or ends arranged at different elevations and in two vertical planes and their upper distributive portions also arranged at different elevations and in two vertical planes corresponding with their respective assemblage portions and type-bars or matrices arranged to travel along the ways and having their printing-characters arranged upon opposite edges, a galley adapted to receive the assembled type-bars or matrices and permit an impression to be taken therefrom, and a supporting-upright for said galley, substantially as specified.

7. In a machine of the character described, the combination with a supporting bed or table, of a series of uprights carried thereby and provided with vertical grooves, a series of ways for the type-bars or matrices consisting of the upper and lower wires forming guideways or supports for the type-bars along which the latter are adapted to travel, and supported by the uprights, said wires having their outer ends terminating within the grooves of the uprights and being provided with the distributive and assemblage portions described, and uprights carried by the table to which the said distributive and assemblage portions are secured, substantially as described.

8. In a machine of the character described, the combination with a supporting bed or table, of ways or supports for the type-bars or matrices, said ways being arranged in two series as described and being provided with the reversely-inclined portions meeting at an angle and having offsets X^4 at such point and type-bars or matrices adapted to travel along said ways, as described.

9. In a machine of the character described, the combination with a supporting bed or table, of a series of uprights carried thereby and provided with vertical grooves, a series of ways for the type-bars or matrices consisting of the upper and lower wires forming guideways or supports for the type-bars along which the latter are adapted to travel and supported by the uprights, said wires having their outer ends terminating within the grooves of the uprights and being provided with the distributive and assemblage portions described, and uprights carried by the table to which said distributive and assemblage portions are secured, and guards secured to the supporting-uprights at a point adjacent to the outer ends of the lower wires, and extending vertically over the grooves in the uprights.

10. In a machine of the character described, the combination with a supporting table or bed, of ways or supports for the type-bars or matrices, each of said ways comprising an upper wire having a distributive portion and a portion adapted to serve as a reservoir for type-bars or matrices, and a lower wire having an assemblage portion and a portion adapted to serve as a reservoir for type-bars or matrices, and a latch or escapement device for each of the reservoir portions of the upper and lower wires, said escapement devices being connected together and adapted to be simultaneously operated to simultaneously release the type-bars from the reservoir portions of the upper and lower wires.

578,714. WATERPROOF ARTICLE AND PROCESS OF PREPARING IT. SOLOMON BENNETT, London, England. Filed June 20, 1896. Serial No. 596,310. (No specimens.)

Claim.—1. As a new article of manufacture, a fibrous material saturated with oily liquid and having a strongly-adherent, partially-penetrating coat of nitrocellulose.

2. The process herein described, which consists in saturating fibrous material with oily liquid and then applying a coating of nitrocellulose solution, which penetrate partially into the material thus saturated.

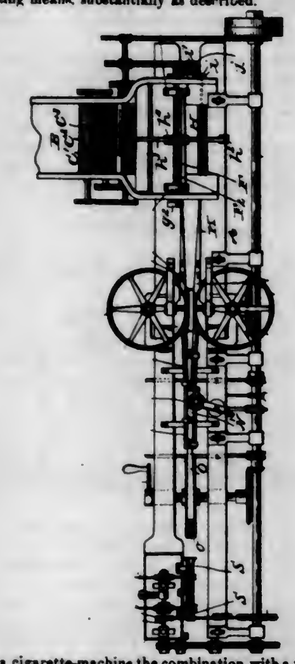
578,715. CIGARETTE-MACHINE. JOHN E. BUCKLIN and JOSEPH F. HARTIGAN, Washington, D. C., assignors to Lorenzo D. Lorents, trustee, same place. Filed Oct. 16, 1895. Renewed Aug. 11, 1896. Serial No. 602,459. (No model.)

Claim.—1. In a cigarette-machine the tobacco-feeding devices including among their members a conveyer, a multimotioned feeding-rake, the retaining-comb and a cleaner for engaging and removing the tobacco from said rake and operating means, substantially as described.

2. In a cigarette-machine the tobacco-feeding devices including among their members, a conveyer, a series of compressing-rolls disposed above said conveyer in a plane inclined thereto, the multimotioned rake, a retaining-comb and operating means, substantially as described.

3. In a cigarette-machine the tobacco-feeding devices including among their members a conveyer, a series of compressing-rolls disposed above said conveyer in a plane inclined thereto, each of said rolls being operated at greater speed than the preceding roll, the multimotioned rake and the retaining-comb and operating means, substantially as described.

4. In a cigarette-machine the tobacco-feeding devices including among their members a conveyer, a series of compressing-rolls, located above said conveyer, a series of picker-rolls alternating with the compressing-rolls, all of said rolls being located in a plane inclined to said conveyer, each of said rolls being operated at a greater speed than the preceding roll, the multimotioned rake, and the retaining-comb and operating means, substantially as described.



5. In a cigarette-machine the combination with a tobacco-carrying belt, of a dumping device located above the same, a conveyer, the retaining-comb, the multimotioned rake coöperating therewith for removing the tobacco from said conveyer, and delivering it to said dumping device and devices for operating said dumping device to discharge the tobacco upon the tobacco-carrying belt, substantially as described.

6. In a cigarette-machine the combination with the tobacco-carrying belt, of a dumping device located above the same, the tobacco-conveyer, a retaining-comb, a multimotioned rake, a movable cleaner for engaging said rake, and operating means, substantially as described.

7. In a cigarette-machine the combination with the tobacco-carrying belt, of a tobacco-guide located above the same having its sides flaring outwardly adjacent to the tobacco-feeding devices, said sides being provided with gradually-approaching arched portions beyond the feeding devices, dumping devices above said tobacco-guide, tobacco-feeding devices for depositing tobacco upon said dumping devices and operating means, substantially as described.

8. In a cigarette-machine the combination with the tobacco-carrying belt, of the tobacco-guide having arched portions overhanging said belt, the horizontal rod-forming wheels having peripheral flanges above said belt, the vertical grooved forming-wheel having a peripheral portion between the plain portions of the faces of said horizontal wheels and pivoted fingers having arched portions forming continuations of said tobacco-guide and adjusting devices for regulating the pressure of said fingers upon the tobacco, substantially as described.

9. In a cigarette-machine the combination with the stem-forming trough provided with a paper-guide, and belt-guide depending therefrom, and a paper-guiding rod at its ioner end, of the forming-tube located in said trough having horizontal guides for engaging the edges of the belt and paper, a belt-guiding rod at its inner end, the stem-forming belt and operating means, substantially as described.

10. In a cigarette-machine the combination with the stem-forming tube and the belt having a portion passing through said tube, of a pivotally-mounted frame carrying the pasting mechanism, devices for securing said frame rigidly in operative position and devices for adjusting said frame and pasting mechanism vertically whereby said pasting mechanism may be released and swung away from said tube and belt, substantially as described.

11. In a cigarette-machine the combination with the stem-forming tube and the belt having a portion passing through said tube, of a pasting mechanism including among its members a pasting-wheel having a beveled pasting edge, a paste-receptacle above said wheel, having a discharge-aperture directly over said beveled edge at a distance from the forming-tube and an adjustable gate for said discharge-aperture, substantially as described.

12. In a cigarette-machine the combination with the stem-forming tube and the belt having a portion passing through said tube, of a pasting mechanism including among its members, a pasting-wheel having a beveled pasting edge, a paste-receptacle above said wheel having a discharge-aperture directly over said beveled face at a distance from the said tube, an adjustable gate for said aperture, a follower in said paste-receptacle, means for moving said follower mechanically to force the paste through said aperture and a hand-operated device for adjusting said follower, substantially as described.

13. In a cigarette-machine a pasting mechanism including a paste-receptacle having an inclined bottom, a follower within the receptacle and a discharge-aperture adjacent to said bottom, a paste-wheel beneath said receptacle having a beveled face beneath said aperture and an adjustable gate for said aperture, substantially as described.

14. In a cigarette-machine the combination with devices for forming a cigarette-stem, and means for adjusting the reciprocating mechanism, to vary the throw of the knives, of a longitudinally-reciprocating cutting mechanism provided with two cutter-blades, one adjustable toward and from the other, means for reciprocating said mechanism and means for forcing said cutters across the path of the said cigarette-stem, substantially as described.

15. In a cigarette-machine the combination with the stem-forming devices, of a reciprocating frame, a pair of cutters mounted thereon, one adjustable toward and from the other, a cam for moving said cutters across the path of said stem and reciprocating said frame longitudinally of said stem, said cam having tapering recessed portions at each end engaging parts connected with its operating-shaft and adjusting devices passing through said recessed portions and engaging the said parts to vary the throw of the cam, substantially as described.

578,716. TELEGRAPH FIRE-HOSE. JOSEPH BUCHTEL, Portland, Oreg. Filed Apr. 14, 1896. Serial No. 587,497. (No model.)



Claim.—1. In a telegraph fire-hose, the combination of a hose-section adapted to be connected with the fire-engine or water-plug, and a series of sections, each carrying conductor-wires, one of such sections having a nozzle provided with a circuit-closer, of an independent pipe-section connecting the ordinary hose and the telegraph-hose and carrying a signal apparatus, a cut-off valve, a relieve-cock and a draw-cock, all arranged substantially as shown and described.

2. The combination with the ordinary hose, of the pipe-sections having a cut-off valve, cocks on each side of valve, the telegraph-hose composed of sections carrying conductor-wires, the signal apparatus, the nozzle and circuit-closer, substantially as shown and described.

3. The combination with the ordinary hose, of the pipe-section having a cut-off valve, cocks on each side of the valve, the telegraph-hose composed of sections carrying conductor-wires, the nozzle, the circuit-closer, and a chemical fire-engine connected with said cocks, substantially as described.

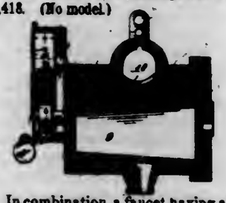
578,717. NUT-LOCK. PERCY R. BUDLONG, Washington, D. C. Filed May 12, 1896. Serial No. 591,280. (No model.)



Claim.—1. The combination with the end of a spindle, of a vehicle, or other article, which is provided with a longitudinal cavity or chamber, and a screw-thread, and said screw-thread being provided with longitudinal open spaces, of a nut which is similarly threaded and provided with longitudinal unthreaded spaces, and a spring-operated plug, which is mounted in, and adapted to slide in said cavity or chamber, the outer end of said plug being angular in cross-section, and adapted to enter a corresponding chamber or cavity, formed in the nut, and being also provided with a cylindrical extension which passes through a circular opening formed in the nut, said chamber or cavity in the spindle and said plug being both angular in cross-section, and means for limiting the inward movement of the plug, consisting of ribs or projections formed thereon, and adapted to move in grooves formed in the walls of said chamber or cavity, substantially as shown and described.

2. The combination with a spindle or bolt the end of which is exteriorly screw-threaded and provided with longitudinal unthreaded portions a^2, said screw-threaded ends being also provided with a bore in the outer portion of which are formed slots or grooves, of a plug D mounted in said bore and provided with ribs or projections *d* adapted to engage said slots or grooves in bore of the spindle, a spiral spring mounted in said bore and adapted to force said plug outwardly, and a nut having a screw-threaded bore provided with longitudinal unthreaded portions, said bore being diminished in diameter beyond the screw-threaded portion to form steps or shoulders adapted to correspond with the forward end of said plug, whereby, when the nut is secured in position said plug prevents the rotation of the same in the manner set forth.

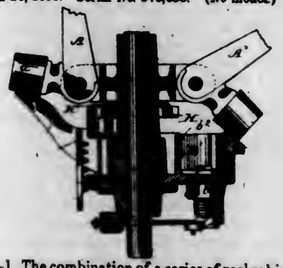
578,718. AUTOMATIC MEASURING, REGISTERING, AND RECORDING FAUCET. MARK BUFORD, Philadelphia, Pa., assignor to the Association American Inventors, same place. Filed Dec. 7, 1895. Serial No. 571,418. (No model.)



Claim.—1. In combination, a faucet having a housing, a sprocket-wheel receiving motion from the faucet-valve said valve having a roller working in a slot of the faucet, said sprocket-wheel actuating a strip of paper or other suitable material arranged within the housing said strip having apertures to receive the teeth of the sprocket-wheel, as and for the purpose described.

2. In combination with a measuring-faucet, a housing secured to the casing of said faucet and provided with a cover which may be secured in position by locking, a sprocket-wheel receiving its motion from the valve of said faucet, and actuating a strip of paper or other suitable material arranged in a coil within said housing, said strip having holes formed therein at predetermined intervals, adapted to be engaged by the teeth of said sprocket, notches cut in said paper opposite certain of said holes, and consecutive numbers printed upon said strip, as and for the purposes set forth.

578,719. REEL-RAKE FOR REAPERS. WILLIAM BUTTERFIELD, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Jan. 20, 1896. Serial No. 576,053. (No model.)



Claim.—1. The combination of a series of reel raking-arms adapted to move upon a vertical axis, a cam surrounding said axis for controlling the said arms, said cam provided with a switch which is closed by the said arms and opened at intervals by a spring, a latch by which the said switch is locked in its closed position and by the movement of which it is released when desired, a segment-carrying lever adapted to strike the said latch to release the said switch and to fall back against a stop when said switch is released, a worm rotated at a definite speed relative to the rotation of the said reel raking-arms and adapted to engage the said segment-lever to raise it, supporting mechanism for the said segment-lever adapted to be rocked upon a substantially vertical axis by the opening of the said switch to carry the said lever away from the said worm, and the said stop to limit the fall of the said lever when the said switch is opened, substantially as described.

2. The combination of a series of reel raking-arms adapted to move upon a vertical axis, a cam surrounding said axis for controlling the said arms, said cam provided with a switch which is closed by the said arms and opened at intervals by a spring, a latch by which the said switch is locked in its closed position and by the movement of which it is released when desired, a segment-carrying lever adapted to strike the said latch to release the said switch and to fall back against a stop when said switch is released, suitable gearing rotated at a definite speed relative to the rotation of the said reel raking-arms and adapted to engage the said segment-lever to raise it, supporting mechanism for the said segment-lever adapted to be rocked by the opening of the said switch to rock the said lever away from the said gearing, and the said stop to determine the distance through which the said lever shall fall when the said switch is opened, substantially as described.

3. The combination of a series of reel raking-arms adapted to move upon a vertical axis, a cam surrounding said axis for controlling the said arms, said cam provided with a switch which is closed by the said arms and opened at intervals by a spring, a latch by which the said switch is locked in its closed position and by the movement of which it is released when desired, a segment-carrying lever adapted to strike the said latch to release said switch and to fall back against a stop when said switch is released, a worm rotated at a definite speed relative to the rotation of the said reel raking-arms and adapted to engage the said segment-lever to raise it, supporting mechanism for the said segment-lever adapted to be rocked by the opening of the said switch to carry the said lever away from the said worm, and the said stop adjustably supported upon said supporting mechanism, the adjustability of which determines the point to which the said segment-carrying lever shall fall, substantially as described.

4. The combination of a series of reel raking-arms adapted to move upon a vertical axis, a cam surrounding said axis for controlling the said arms, said cam provided with a switch which is closed by the said arms and opened at intervals by a spring, a latch by which the said switch is locked in its closed position and by the movement of which it is released when desired, a segment-carrying lever adapted to move the said latch to release the said switch and to fall back against an adjustable stop when said switch is released whereby the position to which the said lever shall fall is determined, a worm rotated at a definite speed relative to the rotation of the said reel raking-arms and adapted to engage the said segment-lever to raise it, supporting mechanism for the said segment-carrying lever adapted to be rocked by the opening of the said switch and having an indexed quadrant in which is a series of adjustment-notches and the said stop adjustable upon the said indexed quadrant, substantially as described.

5. The combination of a series of reel raking-arms adapted to move upon a vertical axis, a cam surrounding said axis for controlling the said arms, said cam provided with a switch which is closed by the said arms and opened at intervals by a spring, a latch by which the said switch is locked in its closed position and by the movement of which it is released when desired, a segment-carrying lever adapted to strike the said tripping-lever to release the said switch and to fall back against a stop when said switch is released, a worm rotated at a definite speed relative to the rotation of the said reel raking-arms and adapted to engage the said segment-lever to raise it, supporting mechanism for the said segment-carrying lever adapted to be rocked by the opening of the said switch and having an indexed quadrant in which is a series of adjustment-notches and the said stop adjustable upon the said indexed quadrant, and a spring-held lever to adjust the said stop upon the said quadrant, substantially as described.

6. The combination of a series of reel raking-arms adapted to move upon a vertical axis, a cam surrounding said axis for controlling the said arms, said cam provided with a switch which is closed by the said arms and opened at intervals by a spring, a latch by which said cam-switch is locked in its closed position and by the movement of which it is released when desired, a segment-carrying lever adapted to be raised to strike the said latch to release the said switch and to fall back against a stop when said switch is released, a worm rotated at a definite speed relative to the rotation of the said reel raking-arms, supporting mechanism for the said segment-carrying lever connected by a spring-rod to said switch, whereby the said segment-carrying lever is rocked away from the said worm when the said switch is opened, the said spring connection providing a yielding engagement between the said segment-carrying lever and the said worm, and the said stop to limit the fall of the said lever when the said switch is opened, substantially as described.

7. The combination of the switch-controlling support, having a quadrant in which is a series of notches, an adjustable stop pivoted thereto, an adjustment-lever carrying a latch to secure the said stop to the said quadrant, the said lever being spring-held against the said stop and pivoted thereon, substantially as described.

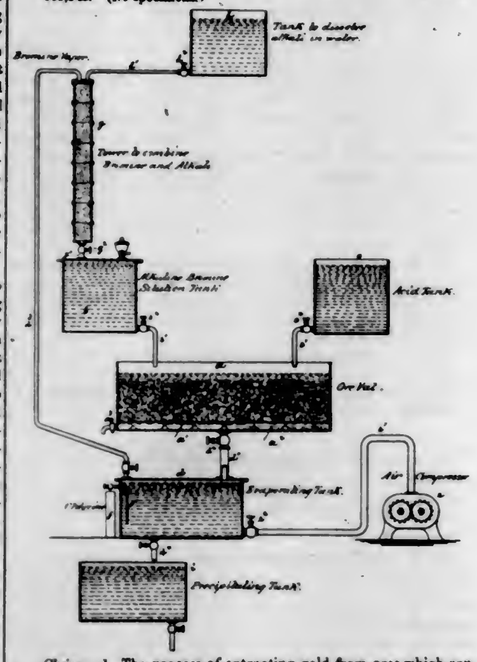
8. The combination of the reel raking-arms, their controlling-cam, having a switch, with a latch by which the said cam-switch is locked in its closed position and by the movement of which it is released when desired, a worm, a worm-segment lever adapted to be released by the said worm to move the said latch and to fall back to its initial position when the said switch is released, an adjustable stop against which the said segment-carrying lever falls whereby the adjustability of said stop provides various initial positions of said segment-lever, substantially as described.

9. The combination of the reel raking-arms, the controlling-cam and the switch of a reaper, a latch by which the said cam-switch is locked in its closed position and by the movement of which it is released when desired, a worm rotated at a definite speed relative to the rotation of the said reel raking-arms, a segment-carrying lever actuated by the said worm to strike the said tripping-lever, an arm adapted to follow the said segment-carrying lever as it is moved toward the said tripping-lever, supporting mechanism for the said segment-carrying lever adapted to be rocked upon its pivot to move the said segment-carrying lever away from the said worm, mechanism under the control of the operator, connected to the said arm, whereby the said supporting mechanism is rocked and the said segment-carrying lever is carried to a position near to the said tripping-lever and whereby the said segment-carrying lever is disengaged from the said worm, raised to almost its extreme position and allowed to reengage the said worm to trip the said switch at a proper time in the rotation of the reel raking-arms and at will, substantially as described.

10. The combination of the reel rake-arms and the cam of a reaper with a worm, a segment-carrying lever actuated by the said worm to raise it to trip the switch, supporting mechanism for the said segment-carrying lever and mechanism under the control of the operator whereby the said supporting mechanism can be rocked to carry the said lever away from its actuating-worm to prevent the switch from being opened, substantially as described.

11. In a switch-controlling device for self-rake reapers, the combination of a lever having a segment, gearing adapted to engage said segment, to raise the said lever, a support for said lever adapted to be rocked to carry the said segment-lever away from said gearing, an arm adapted to raise said lever when the same is disengaged from said gearing, and a lever having a rod connection with said arm and under the control of the operator whereby the said segment-lever can be disengaged from the said gearing and be raised to nearly its extreme position, substantially as described.

578,720. PROCESS OF EXTRACTING GOLD FROM ORES. HENRY R. CAMEL, New York, N. Y. Filed Sept. 10, 1896. Serial No. 605,345. (No specimens.)

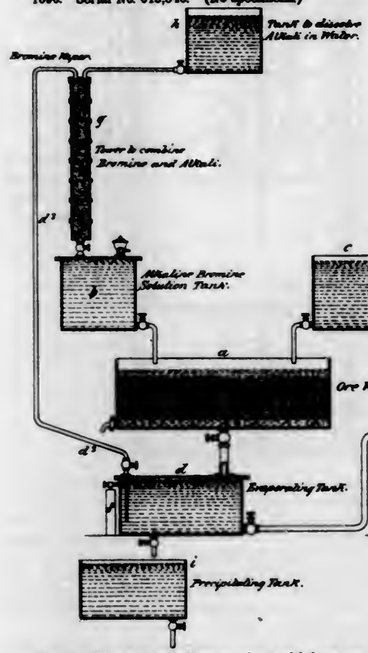


Claim.—1. The process of extracting gold from ores which consists in gradually percolating a solution of a bromin compound of an alkaline base capable of being decomposed by an acid, through a body of ore containing a suitable percentage of a substance having acid properties, the ore being maintained in a quiescent state during such percolation, substantially as specified.

2. The process of extracting gold from ores which consists in gradually percolating a solution of a bromin compound of an alkaline base capable of being decomposed by an acid, through a body of ore containing a suitable percentage of a substance having acid properties, the ore being maintained in a quiescent state during such percolation, and covering the ore during the treatment by a layer of a liquid capable of absorbing any bromin fumes that may arise from the ore, substantially as specified.

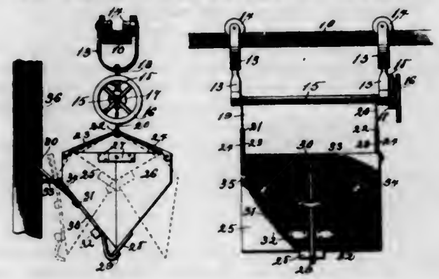
3. The process of treating auriferous ores which consists in subjecting the ore to the action of a solution of a bromin compound of an alkaline base, so as to form active bromin in the body of the ore, setting free the combined bromin, vaporizing the bromin, mixing it with a subdivided body of a solution of an alkali, and precipitating the gold, substantially as specified.

578,721. PROCESS OF EXTRACTING GOLD FROM ORES. HENRY R. CAMEL, New York, N. Y. Original application filed Sept. 10, 1896, Serial No. 605,345. Divided and this application filed Nov. 24, 1896. Serial No. 613,340. (No specimens.)



Claim.—The method of extracting gold from ores which consists in gradually percolating an acid solution through a body of ore impregnated with a solution of a bromin compound of an alkaline base, the ore being maintained in a quiescent state during percolation, substantially as specified.

578,722. MANURE-CARRIER. DAVID B. CHERRY, Knoxville, Iowa. Filed June 15, 1896. Serial No. 595,715. (No model.)

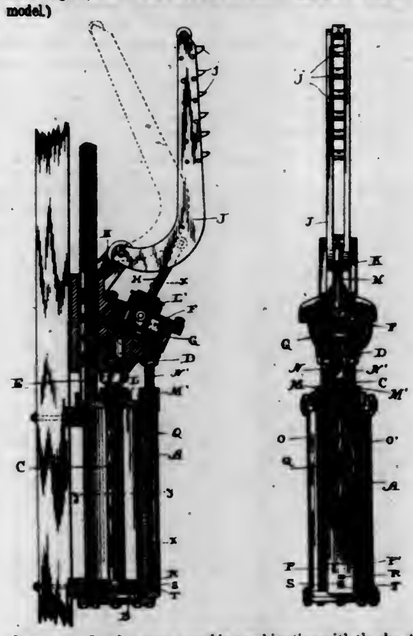


Claim.—1. A manure-carrier, comprising a track, hangers depending from said track, which hangers are each formed in two sections swiveled together, a shaft rotatably mounted in said hangers, chains secured to and adapted to be wound upon said shaft, a receptacle secured to the opposite ends of said chains, manually-operated devices for rotating said shaft, comprising a hand-wheel on one end of said shaft, pawl-and-ratchet mechanism interposed between said shaft and said hangers whereby the shaft is held against reverse rotation, and means for dumping the contents of said receptacle comprising tripable lock mechanism on the receptacle and a post arranged adjacent to the line of travel of the receptacle to engage the same.

2. A manure-carrier, comprising a track, hangers depending from said track and swiveled at their centers, and a receptacle depending from said hangers, which receptacle is formed in two sections hinged together and is provided with a hopper-bottom, and means for locking said sections together comprising a hook 29 on one of said sections, a plate 28 on the other of said sections arranged to be engaged by the hook 29, a lever 30 carrying said hook, the upper end of which lever is bent laterally from the receptacle; in combination with a post arranged adjacent to the path of travel of the receptacle and a bail 33 inclosing the upper outer projecting end of the lever 30 and arranged to be engaged and oscillated by the said post to approximate the lever to the receptacle and release the hook from the plate 28, as set forth.

3. A manure-carrier comprising a track, hangers arranged to travel upon said track, a receptacle formed in two sections hinged together and suspended from said hangers, an interlocking hook and plate arranged normally to engage and retain the sections of the receptacle in close relations, a lever carrying said hook, a bail pivoted to the receptacle and embracing said lever, an arm 34 on said bail arranged to limit the downward movement thereof, an arm 33 on said bail arranged to limit the upward movement thereof and a post set adjacent to the line of travel of the receptacle on the track so as to engage and move the bail upwardly whereby the lever is approximated to the receptacle and the interlocking hook and plate disengaged.

578,723. LOG-TURNER. CHARLES E. CLARK, Belmont, N. Y. Filed Aug. 29, 1894. Renewed Feb. 11, 1897. Serial No. 622,997. (No model.)



Claim.—1. In a log-turner and in combination with the dog thereof, a cylinder, a piston working therein, a second cylinder arranged outside the first cylinder and carried by the rod of said piston away from the first cylinder, and a piston working in said second cylinder, substantially as described.

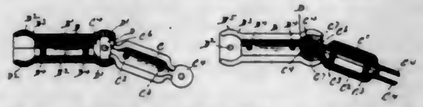
2 In a log-turner and in combination with the dog thereof, a cylinder, a piston working therein, a second cylinder arranged diagonally above the first cylinder and carried by the rod of the piston thereof, and a piston working in said second cylinder, substantially as described.

3. In a log-turner, the combination of two cylinders, two pistons working therein, and a dog connected with both pistons, one of said cylinders being formed in a cross-head carried by one of the pistons above the main cylinder, substantially as described.

4. The combination in a log-turner, of a cylinder, a piston working therein, a second cylinder carried by the rod of said piston away from the first cylinder, a piston working in said second cylinder, a steam-passage connected with the first cylinder, and a tube carried by the second cylinder and entering into said steam-passage to admit steam to said second cylinder, substantially as described.

5. The combination in a log-turner, of a cylinder A, a piston B working therein, a cross-head D carried by the rod of piston B, a cylinder F formed in said cross-head, a trunk-piston G working in said cylinder F, and a dog J pivotally connected with both pistons, all substantially as described.

578,724. FLEXIBLE SHAFT. GEORGE H. COATES, Worcester, Mass. Filed Feb. 7, 1896. Serial No. 578,342. (No model.)



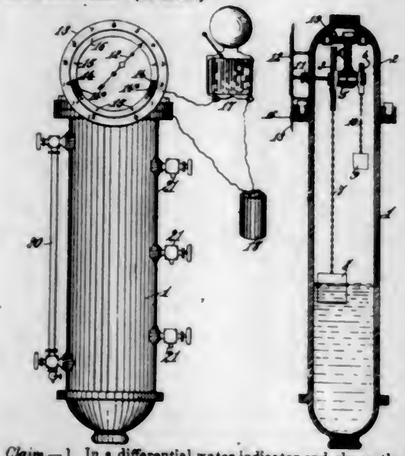
Claim.—1. In a flexible shaft, the combination of a series of links B and intermediate links C, lugs C^4 projecting from the ends of said intermediate links, pivotal pins by which said lugs are united, rocking bars pivoted on said pivotal pins, and a series of links alternating with said intermediate links and having their ends pivotally connected with said rocking bars.

2. In a flexible shaft, comprising a series of links, the links C, said links being made in halves C, C^3, lugs C^4 projecting from the ends of said links, pivotal pins C^5 carried by said lugs, rocking bars D pivoted on said pins and alternating links B pivotally connected with said rocking bars, substantially as described.

3. In a flexible shaft, comprising a series of links the links B, said links being made in halves B' B^3, and having the enlarged ends B^3, and a series of alternating links with their ends entering said enlarged ends B^4 of the links B, and pivotally connected therewith, substantially as described.

4. In a flexible shaft, comprising a series of links, the combination of a series of links provided with enlarged ends, as at B^3, a series of intermediate links provided at their ends with lugs inclosed in said enlarged ends, bars held by said enlarged ends and passing between said lugs, and pins held in said lugs and serving to retain said bars between said lugs, substantially as described.

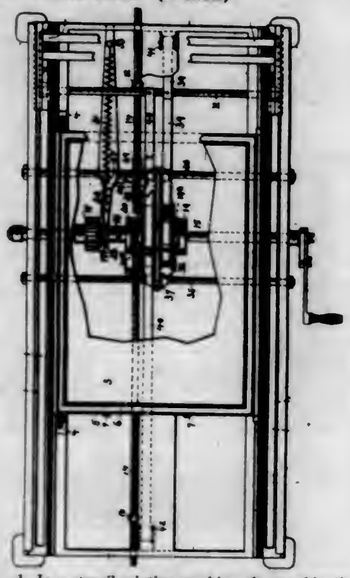
578,725. WATER-INDICATOR AND ALARM. GEORGE W. COOLEY and HENRY F. LOGER, Minneapolis, Minn. Filed Aug. 15, 1895. Serial No. 559,413. (No model.)



Claim.—1. In a differential water-indicator and alarm, the combination of a water-chamber having mounted therein a rotary shaft, two wheels of unequal diameter secured to said shaft, a partially-submerged weight suspended by a long chain from the larger wheel, a counterweight suspended by a short chain from the smaller wheel, an index-finger carried by the wheel-shaft, a dial-plate, an insulated ring supported by said plate and provided with series of holes adjacent to figures of the scale on the dial-plate, a plug adapted to be placed in either of said holes and provided with an elongated head for contact of the index-finger, and an electric alarm, substantially as described.

2. In a differential water-indicator and alarm, the combination of a water-chamber provided with a removable dome having a cross bar or plate supported in its upper part and a hanger attached to said bar, two wheels of unequal diameter fixed to a common shaft mounted in said hanger and provided with ball-bearings, a partially-submerged weight of low specific gravity suspended by a long chain from the larger wheel, a counterweight of high specific gravity suspended by a short chain from the smaller wheel, an index-finger carried by the wheel-shaft, an indicator-dial, and an alarm, substantially as described.

578,726. STENCIL-PRINTING MACHINE. ALBERT B. DICK, Chicago, Ill., assignor to the A. B. Dick Company, same place. Filed Sept. 10, 1896. Serial No. 562,050. (No model.)



Claim.—1. In a stencil-printing machine, the combination of a traveling carriage for carrying a printing-roller, a shaft adapted to revolve constantly in one direction, two drums loosely mounted on said shaft, belts connecting said drums with said carriage for imparting a forward-and-backward movement to the carriage, a clutch mechanism for alternately engaging said drums with the shaft, and pins projecting in the path of the carriage and adapted to be moved thereby, said pins being connected with and controlling the clutch mechanism, substantially as set forth.

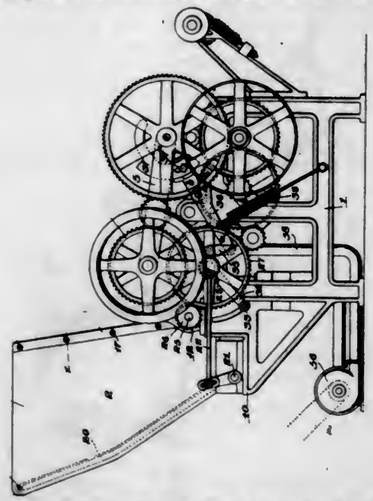
2. The combination of a shaft, a sleeve thereon and geared thereto, clutch-boxes rigidly attached to said sleeve, counterparts to said clutch-boxes loosely mounted on said sleeve, means for preventing a lateral movement of the counterparts, a collar on said sleeve, a lever adapted to shift said collar, and springs connected to said lever to hold said collar steadily in one position until moved by said lever, substantially as set forth.

578,727. MATCH-MAKING MACHINE. JOSEPH C. DONNELLY, Philadelphia, Pa. Filed Apr. 16, 1895. Serial No. 545,908. (No model.)

Claim.—1. In a match-making machine, the splint-containing hopper comprising a bottom portion, a front plate provided with longitudinal grooves therein, the ribs or walls of which are perforated, the side plates having their forward edges fitted to said grooves, the securing-screws, and the interposed tapering washers in said ribs or walls, substantially as described.

2. In a match-making machine, the splint-containing hopper consisting in the combination of the bottom plate provided with parallel grooves for each of the sides, the front plate provided with corresponding grooves, and the side plates having their lower and forward edges fitted to said grooves, substantially as described.

3. In a match-making machine, the splint-containing hopper consisting in the combination of the bottom plate provided with parallel grooves for each of the sides, the front plate provided with corresponding grooves, the walls or ribs of which are perforated, and the side plates having their lower and forward edges fitted to said grooves, together with the securing-screws, substantially as described.



4. In a match-making machine, the splint-containing hopper consisting in the combination of the bottom plate provided with parallel grooves for each of the sides, the front plate provided with corresponding grooves, the walls or ribs of which are perforated, and the side walls having their lower and forward edges fitted to said grooves, together with the securing-screws and the interposed tapering washers, substantially as described.

5. In a match-making machine, the combination with the feed device, and bunching mechanism coacting therewith, of a hopper comprising a bottom plate provided with a number of parallel grooves for each of the laterally-adjustable sides, the front plate provided with corresponding grooves, the side plates having their lower and forward edges fitted to said grooves, and a central partition dividing said hopper into two compartments both of which communicate with the feed device, substantially as specified.

6. In a match-making machine, the combination with the duplex feeding device and with duplex bunching mechanism coacting therewith, of the hopper having a central partition which divides it into two compartments, one of which communicates with each end portion of said feeding device, said hopper having laterally-adjustable sides, means for securing said adjustable sides in parallel relation to said portion, and means arranged at the discharge portions of the hopper-compartments in contact with the feed device, for the purpose of insuring the uniform passage of splints from said compartments to the feeding device, substantially as specified.

7. In a match-making machine the combination of a hopper, a feed-drum adjacent to the discharge of said hopper, a roller also adjacent to said discharge and in contact with said feed-drum, a coiling-web running around said drum, a hinged arm whose free end portion is adjacent to the periphery of said drum, a coiling-spool mounted on said arm, means for maintaining the splints upon said drum during their passage from the hopper to said spool, and means actuated by the movement of said hinged arm to automatically arrest the passage of splints to the said drum at predetermined times, substantially as specified.

8. In a match-making machine, the combination with a hopper, a transversely-notched and circumferentially-grooved feed-drum adjacent to the discharge thereof, a web running around said drum, a roller also adjacent to said discharge and in contact with said drum, means for varying the diameter of said roller, a depending curved finger adjacent to said roller, a segmental guard-plate above said roller, and adjacent to the periphery of the drum, and an inclined clearing-finger arranged to engage the circumferential grooves of the said drum, substantially as specified.

9. The combination, with the hopper or source of splint-supply, and the feed device, of the interposed shaft, a rubber roller thereon, clamping-heads on each side of said roller, one of said heads being seated against a shoulder of said shaft and a set-nut fitted to the shaft against the other of said heads and adapted to be forced against the head to effect the peripheral adjustment of said roller, substantially as described.

10. The combination, with the hopper, or source of splint-supply, and the feed device, of the interposed shaft, a series of rubber rollers thereon, clamping-heads on each side of each roller, one head of each pair being seated against a shoulder of the shaft and set-nuts fitted to the shaft adjacent to the opposite heads of the respective rollers and adapted to effect the independent peripheral adjustment of said rollers, substantially as described.

11. In a match-making machine, the combination, with the hopper or source of splint-supply, the feed device, the spool, its support, and the bunching-web coacting with said feed device and spool, of a shoe interposed between said web and feed device below the discharge of the hopper and adapted to be raised thereto and thereby force the adjacent portion of the web away from the feed device toward said discharge, and means for actuating said shoe, substantially as described.

12. In a match-making machine, the combination, with the hopper or source of splint-supply, the feed device, the spool, its support, and the bunching-web coacting with said feed device and spool, of a shoe interposed between said web and feed device below the discharge of the hopper, and adapted to be raised thereto and thereby force the adjacent portion of the web away from the feed device toward said discharge, and means for automatically actuating said shoe when the coil of splints has reached a predetermined size, substantially as described.

13. In a match-making machine, the combination, with the hopper or source of splint-supply, the feed-drum, the spool, its support, and the bunching-web coacting with said feed device and spool, of a normally-inactive shoe interposed between said web and feed device, a lever supporting said shoe, and a connection between said lever and the spool-support, whereby the shoe is operated when the coil has reached a certain size and said web is thereby forced away from the periphery of said drum and toward the discharge-opening and the passage of splints to the drum arrested, substantially as described.

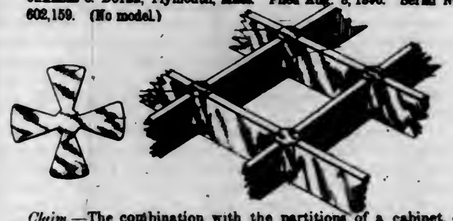
14. In a match-making machine, the combination, with the hopper or source of splint-supply, the feed device, the spool, its support, and the bunching-web coacting with said feed device and spool, of the check-shoe arranged to force said web beyond the drum and toward the discharge of the hopper, a sectional supporting-lever therefor, the parts of the lever being hingedly connected and provided with a coacting adjusting device, and a trip connection between the lever and the spool-support, substantially as described.

15. In a match-making machine, the combination with the source of splint-supply, the feed device which receives the splints from said source, the bunching-web coacting with said feeding device, the hinged arm whose free portion is adjacent to said feed device, a bunching-spool on said arm, a check device for arresting the passage of splints to the feeding device and a lever one arm of which carries said check device, and whose opposite arm is operatively connected with the said hinged arm, whereby said lever and thereby the check device is operated by a predetermined position of said hinged arm, substantially as specified.

16. In a match-making machine, the combination with a source of splint-supply, a feed device, and bunching or assembling mechanism coacting therewith, of a compound lever provided at one end with a device adapted to arrest the passage of splints to said feed device, but which is normally inactive, a segment at the opposite end of said lever, and adjustably connected therewith, said segment having an operative engagement with a movable supporting-arm of the bunching or assembling mechanism, a spring connected to said lever and acting thereon with a force opposed to that exerted on the segment by said arm, and means whereby said lever may be adjusted to regulate the position of its check device with respect to the feed device, substantially as specified.

17. In a match-making machine, the combination, with the perforated feed-drum, the spool, its supporting and operating parts, and the web coacting with said spool and drum, of a chamber disposed within said drum to communicate with the perforations in the drum after they have passed the spool, and means for injecting air into said chamber, substantially as described.

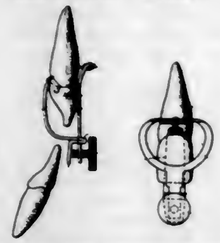
578,728. MEANS FOR SECURING PARTITIONS OF CABINETS. CHARLES C. DOTEN, Plymouth, Mass. Filed Aug. 8, 1896. Serial No. 602,159. (No model.)



Claim.—The combination with the partitions of a cabinet, of clasps engaging with the intersecting angles of the partitions, and

composed of a central portion, provided with four arms, the ends of which are made broader than the other parts thereof, to be placed respectively in the angles formed by the partitions, substantially as and for the purpose above described.

578,729. DENTAL CLAMP. J. AUSTIN DUNN, Chicago, Ill. Filed Jan. 15, 1896. Serial No. 575,637. (No model.)



Claim.—1. A dental clamp comprising an outer or labial jaw, an inner jaw provided with an opening through which the labial jaw loosely passes, a thumb-screw working in a threaded hole in said labial jaw, and bearing against the end of said inner jaw, said thumb-screw adapted when operated to move the jaws so as to clamp them to, or unclamp them from the tooth.

2. A dental clamp comprising an inner jaw, a labial jaw connected therewith, a beak adapted to come in contact with the tooth, and pivotally connected with one of said jaws, at the end thereof, said beak interposed between the jaw to which it is pivoted at substantially right angles thereto and the tooth, and adapted to adjust itself to the shape of the tooth when engaging the same, and a controlling mechanism by which said jaws are moved with relation to each other.

3. A dental clamp comprising a labial jaw, an inner jaw, having the inner surface of the end engaging the tooth-concave so as to conform to the linguo-gingival ridge, said inner jaw being curved so as to pass beneath the tooth, and provided with a loop through which said labial jaw passes, a set-screw passing through said labial jaw and engaging the inner jaw, said set-screw adapted when operated to move the two jaws with relation to each other, a beak pivotally connected with said labial jaw, and adapted to conform to the shape of the tooth substantially as described.

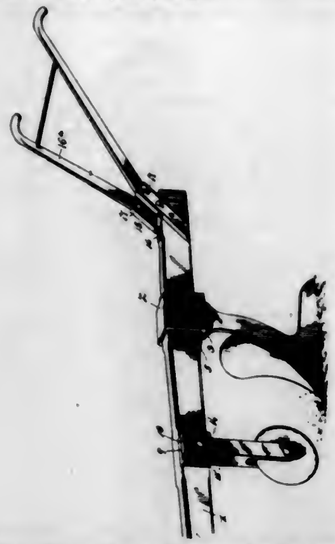
4. A dental clamp comprising an inner jaw, a labial jaw connected therewith, having a beak pivotally connected thereto and adapted to adjust itself to the shape of the tooth when engaging the same, said beak provided with a series of engaging surfaces of different dimensions so as to accommodate itself to different-sized teeth, and a controlling mechanism by which said jaws are moved with relation to each other.

5. A dental clamp comprising an inner jaw, the tooth-engaging end of which is curved slightly upward and is concave on the inner side so as to conform to the linguo-gingival ridge of the tooth, said inner jaw being bent outwardly so as to pass beneath the tooth and bent back upon itself so as to form a loop, a labial jaw provided with a beak pivotally connected therewith, said beak having a series of engaging surfaces so as to adapt itself to teeth of different sizes, said labial jaw projecting loosely through an opening in the loop of the inner jaw, the end of said inner jaw projecting in a line substantially parallel with the labial jaw and a thumb-screw passing through said labial jaw and engaging the projecting end of said inner jaw, said thumb-screw adapted when operated to move the jaws with relation to each other.

578,730. PLOW. WILLIAM EASLEY, Calhoun, Ky., assignor of one-half to V. T. Stateler, same place. Filed Oct. 24, 1896. Serial No. 609,949. (No model.)

Claim.—1. In an agricultural implement, the combination with a plow beam or stock, of a cuff secured to the said beam and having a space between the bottom side of the beam and the lower side of the cuff, and having a longitudinal slot extending through the front end of the cuff, an earth-treating device having a T-head to pass into the said slot and recess and interlock with the lower portion of the cuff, and means for securing the T-head in place, substantially as set forth.

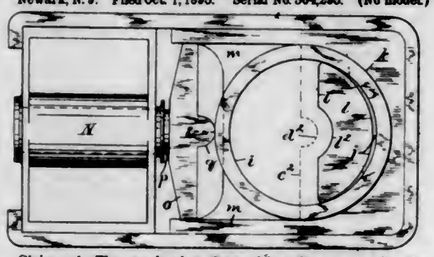
2. In an agricultural implement, the combination of a beam or stock, a cuff secured thereto and having a longitudinal slot in its lower side extending through the front end, and having a space between the bottom side of the beam and the said lower side of the cuff, an earth-treating device having a head of approximately T form to slip into the said space and slot and interlock with the cuff, and a catch for holding the said head in engagement with the cuff, substantially as and for the purpose set forth.



3. In combination, a beam, a cuff secured to the beam and having a recess between its lower side and the bottom of the beam, and having a longitudinal slot in its lower side opening through the front end, an earth-treating device having an approximately T-head to enter the said recess, and a catch secured to the beam in front of the cuff and engaging with the front end of the T-head to hold it in engagement with the cuff, and adapted to have its rear portion pressed into a recess formed in the beam, substantially as and for the purpose set forth.

4. In combination, a beam, a block secured to a side of the beam and having a vertical recess in its onter face, the vertical walls of the recess being undercut, a colter or stem having a shank to snugly fit within the recess of the block and having a longitudinal slot and its outer face corrugated, a plate having its inner face corrugated to fit the outer face of the said shank, and a fastening for securing the parts in an adjusted position, substantially as set forth.

578,731. WROUGHT-METAL GEAR-WHEEL AND MECHANISM FOR MAKING SAME. ULRICH EBERHARDT and FRED L. EBERHARDT, Newark, N. J. Filed Oct. 1, 1895. Serial No. 564,295. (No model.)



Claim.—1. The mechanism for making, from a circular ring, a wrought-metal semiwheel-section with diametral clamp-bar, which consists of means for retaining one half of such circular ring in semicircular form, and means for simultaneously upsetting the metal in the opposite semicircular side of the ring and shaping the same into a diametral clamp-bar, substantially as herein set forth.

2. The mechanism for making a wrought-metal semiwheel-section, which consists of a mold provided with a semicircular recess *k*, and segmental boss *l* having a segmental recess l^2 in the middle, and a cross-head *o* movable toward the segment *l*, and provided with convex projection *q*, the whole adapted to retain one half of a circular blank in a semicylindrical form to shape the remaining hole of the ring into a diametral bar with semihub and semibore, substantially as herein set forth.

3. A blank for a wrought-metal semiwheel-section with projecting semihub upon the side of such section, consisting of a wrought-metal ring of uniform width and provided with lugs *r* upon both edges of the ring, such lugs being of uniform projection from the edge of the ring, as herein set forth.

4. A blank for a wrought-metal semiwheel-section with projecting semihubs upon opposite sides and clamp-bars of less width than the rim, consisting of a wrought-metal ring of uniform width upon one half of its periphery, and provided upon the remaining half with opposite lugs *r* and recesses *s* at the ends of the lugs, in the edges of the ring, the lugs being of uniform projection from the edge of the ring, substantially as herein set forth.

578,732. SHOE-BLACKING CASE. CHARLES E. ECKFELD, Uhrichsville, Ohio. Filed July 13, 1896. Serial No. 598,919. (No model.)



Claim.—1. In a blacking-box the combination with the box proper, of a reversible cover, and arms adjustably connecting the cover to the box.

2. In a blacking box or casing, the combination with the box proper, of a reversible cover, and arms pivotally connected to the cover and slidably connected to the box.

3. In a blacking box or casing, the combination with the box proper, of brackets connected thereto, a reversible cover, blocks pivoted to the cover, and arms connected to the pivot-blocks and slidable in the brackets.

4. In a blacking box or casing, the combination with the box proper, of brackets connected thereto, a reversible cover, blocks pivoted to the cover, and arms freely slidable through the brackets being provided with lower heads and upper ends which screw into the pivot-blocks.

578,733. CLUTCH MECHANISM. WILLIAM H. EDDY, Worcester, Mass. Filed Mar. 19, 1896. Serial No. 583,920. (No model.)



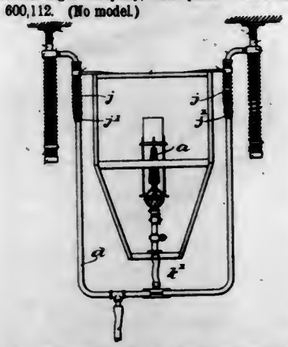
Claim.—In a clutch mechanism, the combination, with a shaft, of a pulley journaled thereon, one side or face of which is provided with an annular groove and two diametrically opposite pins, an expansion-ring secured to the side of the hub within the groove, a disk adjacent to the hub and provided with three hollow hubs, one of which is within the groove and the other two are arranged diametrically opposite to each other and are located in line with the pins of the pulley, a rotatable spindle within one of the hubs, one end of which is provided with a flat plate that fits between the ends of the expansion-ring, and the opposite end of which is provided with an arm, and a sliding cone upon the shaft, the inner or tapering end of which is provided with two oppositely-extending arms, the outer end of each arm being provided with a laterally-extending pin, said pins projecting through the diametrically oppositely-arranged hubs so as to engage with the pins on the pulley, and the end of the cone engaging with the arm upon the spindle, substantially as set forth.

578,734. HANDLE FOR BICYCLES. FRED R. FANNING, Newburyport, Mass. Filed July 30, 1896. Serial No. 601,005. (No model.)



Claim.—A pneumatic pad, covering or cushion for the handles of bicycles and similar vehicles, which consists of a central tubular part and of an outer casing which is connected with said tubular part at each end, whereby a space between said outer casing and said tubular part is formed, which is adapted to be filled with air, said central tubular part and said outer casing being composed of flexible material, said pad, cushion or covering being provided in one side thereof with an oblong opening and said outer casing being provided with an air-valve through which said space may be filled with air, substantially as shown and described.

578,735. INCANDESCENT-LIGHT FIXTURE FOR RAILWAY-CARS, &c. SIMEON R. FARRADAY, Gloucester City, N. J., assignor to the Welsbach Light Company, same place. Filed July 22, 1896. Serial No. 600,112. (No model.)



Claim.—1. In combination a cradle, spring-supports for said cradle, a mantle-carrier, and spring-supports interposed between the cradle and mantle-carrier, substantially as described.

2. In combination ways, posts or pillars, collars at or near the ends thereof, a cradle provided with guides coöperating with said posts, ways or pillars, and spring-supports interposed between said guides and collars, substantially as described.

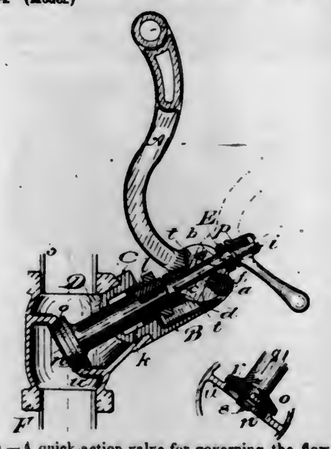
3. In combination ways, posts or pillars, a cradle provided with guides coöperating with said posts, ways or pillars, spring-supports interposed between said guides and posts, ways or pillars, a mantle-carrier provided with guides coöperating with ways on the cradle, and spring-supports interposed between the cradle and mantle-carrier, substantially as described.

4. In combination a post or pillar, a spring-sleeve mounted thereon, a guide coöperating with the post or pillar and sleeve, and a spring carried by the sleeve and supporting the guide, substantially as described.

5. In combination a spring-supported cradle, a mantle-carrier, springs and guides for connecting the carrier and cradle, a flexible connection for supplying gas to the cradle, and flexible connection for supplying gas from the cradle to the carrier, substantially as described.

6. In combination pillars, posts or ways, a cradle, guides and springs for connecting the cradle and pillars, posts or ways, a mantle-carrier, guides and springs for connecting the mantle-carrier and cradle, and flexible connections for supplying gas, substantially as described.

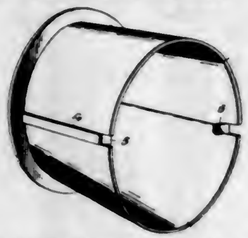
578,736. STEAM OR WATER THROTTLE-VALVE. CHARLES J. GUSTAFSON, Chattanooga, Tenn. Filed July 14, 1894. Serial No. 517,524. (Model.)



Claim.—A quick-action valve for governing the flow of steam, air, water or other gases and liquids, said valve combining in its

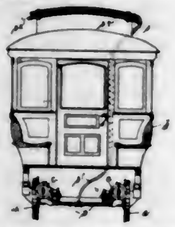
structure the body F, cap C, eccentric-lever A and the reciprocating valve-stem D with its shoulders *b c* and carrying the lock-nut *i* and the washers E E.

578,737. STOVEPIPE-THIMBLE. PHILIP J. HAAS, Marengo, Iowa, assignor of one-half to Christian C. Haas, same place. Filed Oct. 25, 1896. Serial No. 566,875. (No model.)



Claim.—A stovepipe-thimble provided at its outer end with an outwardly-extending flange, and composed of two sections of sheet metal having their longitudinal edges folded and interlocked and forming longitudinal seams at opposite sides of the thimble, the latter being split above and below the inner terminals of the seams and having the separated end portions of the seams bent inward at right angles to form stops, the sheet metal of the seams being folded and interlocked to the extreme outer ends of the lugs, substantially as and for the purpose described.

578,738. PNEUMATIC MOTOR-CAR. HERMAN HAUPT, Washington, D. C., assignor to the General Compressed Air Company, New York, N. Y. Filed May 23, 1895. Renewed Jan. 22, 1897. Serial No. 620,283. (No model.)



Claim.—In a motor-car, the combination with the engines, the air-reservoirs, the hot-water reservoir on the car-truck, and the connections for passing the air through the hot water on its way to the engine-cylinders, of a condenser on the car-roof, comprising the expanded receptacle p^3, divided into compartments p^5 by the partitions p^4 and having the drip-passages p^7 and discharge-outlet p^6, and suitable piping connecting the exhaust-ports of said engines with the receiving end of said condenser, substantially as and for the purposes set forth.

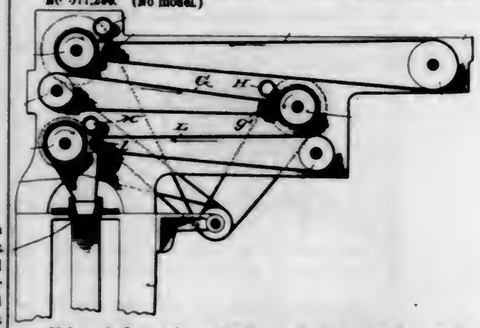
578,739. PRINTING-PRESS. CHARLES G. HARRIS, Niles, Ohio. Filed July 31, 1894. Serial No. 519,116. (No model.)



Claim.—1. In a printing-press having an impression-cylinder, a shaft extended longitudinally over said cylinder and mounted at its ends, said ends being cranked, a spring encircling said shaft, holding-pins adjustably mounted on the latter, a flange with which one of the cranked ends of said shaft is designed to engage, and a stop adjacent to the other cranked end of said shaft, substantially as set forth.

2. A printing-press having its impression-cylinder provided with a longitudinal peripheral groove, a spring-held shaft located in said groove, supports for said shaft at the ends of said cylinder, said shaft having cranked ends, holding-pins on said shaft, a curved flange with which one of the cranked ends of said shaft is designed to engage, and a stop for limiting the movement of said shaft, substantially as set forth.

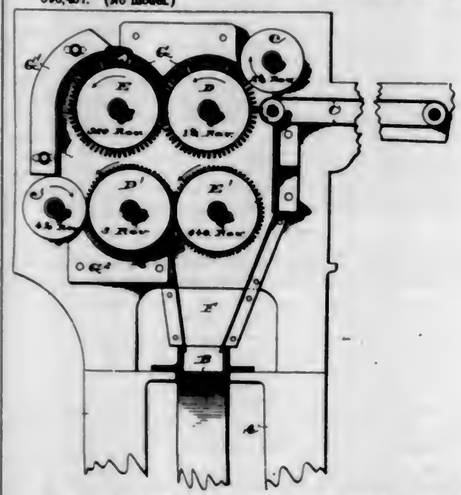
578,740. TOBACCO FEEDING AND DRESSING MECHANISM. JOSEPH F. HARTIGAN, Washington, D. C. Filed Jan. 29, 1896. Serial No. 577,299. (No model.)



Claim.—1. In a tobacco feeding and dressing mechanism, the combination with the tobacco-receiving belt and a carding-roller therefor, of a spreading-belt adapted to receive the tobacco from said carding-roller, means for driving said belt at a greater speed than the receiving-belt, a carding-roller for said spreading-belt, a delivery-belt adapted to receive the tobacco from the carding-roller for the spreading-belt, and means for driving said delivery-belt at a lower rate of speed than the spreading-belt to accumulate the loosened tobacco upon the delivery-belt, substantially as described.

2. In a tobacco feeding and dressing mechanism, the combination with the receiving-belt, a compressing-roller and a carding-roller adjacent to its delivery end, the spreading-belt adapted to receive tobacco from said carding-roller, a compressing-roller adjacent to the delivery end of said spreading-belt located closer to said belt than the distance between the receiving-belt and its compressing-roller, a carding-roller for said spreading-belt, means for driving said spreading-belt at greater speed than the receiving-belt, a delivery-belt adapted to receive the tobacco from said carding-roller for the spreading-belt, means for driving the receiving-belt at a lower rate of speed than the spreading-belt to accumulate the loosened tobacco upon said receiving-belt, and a compressing-roller for said delivery-belt located closer thereto than the distance between the spreading-roller and its compressing-roller, substantially as described.

578,741. FEEDING DEVICE FOR CIGARETTE-MACHINES. JOSEPH F. HARTIGAN, Washington, D. C. Filed July 8, 1896. Serial No. 598,437. (No model.)



Claim.—1. In a feeding mechanism for cigarette-machines, the combination with the first and second carrying-rolls, of the picker interposed between the carrying-rolls, a shield and pressure-roller inclosing said devices, a part of said shield or casing adjacent to said picker being adjustable to and from the same, substantially as described.

2. In a feeding mechanism for cigarette-machines, the tobacco-dressing devices consisting of a carrying-roller, a picker therefor, a second carrying-roller, a picker therefor, an endless carrier delivering tobacco to the first carrying-roller, a hopper receiving the tobacco from the second picker and devices extending around and inclosing the carrying-rollers and pickers from the endless carrier to the hopper, consisting of a pressure-roller, two shields, a second pressure-roller adjacent to the second carrying-roller and a concave extending from said second pressure-roller to the hopper, substantially as described

3. In a feeding mechanism for cigarette-machines, the combination with an endless receiving feed-carrier and a toothed carrying-roll, the upper faces of both moving in the same direction, the carrying-roll moving at a slightly greater speed than the feed-carrier, of a pressure-roller serving to grip the tobacco at the discharge end of the carrier and to press the tobacco upon the teeth of the carrying-roller, a shield parallel with the travel of the teeth of the said roller to hold the tobacco upon the same, and a picker moving in the same direction as the carrying-roller and taking the tobacco from the carrying-roller, substantially as described.

4. In a feeding mechanism for cigarette-machines, the combination with a receiving feed-carrier, of a toothed carrying-roll for taking the tobacco from the said carrier, a picker taking the tobacco from the said carrying-roll, a second carrying-roll taking the tobacco from the said picker and a second picker taking the tobacco from said second carrying-roll, all of said instrumentalities engaging the same side of the sheet of tobacco in its progress through the mechanism, substantially as described.

5. In a feeding mechanism for cigarette-machines, the combination with an endless-belt-receiving carrier, a toothed carrying-roller taking the tobacco from said carrier, a picker for taking the tobacco from the carrying-roller, a second carrying-roller receiving the tobacco from the picker, a second picker taking the tobacco from the said second carrying-roller, a pressure-roller for each carrying-roller and a hopper, said hopper receiving the tobacco from the second picker, the said second carrying-roller and second picker being located directly beneath the first carrying-roller and picker, and in position to catch the droppings between the receiving-carrier and the first carrying-roller and between the first carrying-roller and the first picker, substantially as described.

6. In a feeding mechanism for cigarette-machines, the combination with a receiving feed-carrier, of a toothed carrying-roller moving in the same direction and at a slightly greater speed than the receiving-carrier, a picker moving in the same direction as the carrying-roller and with great rapidity, a second toothed carrying-roller receiving the tobacco from said picker, said second toothed carrying-roller moving at a slightly greater speed than the first-mentioned carrying-roller and a second picker taking the tobacco from the second carrying-roller, said second carrying-roller and its picker being located directly beneath the first carrying-roller and picker, substantially as described.

578,742. WOVEN FABRIC. ALFRED HEALD, Philadelphia, Pa. Filed June 8, 1896. Serial No. 594,722. (Specimens.)

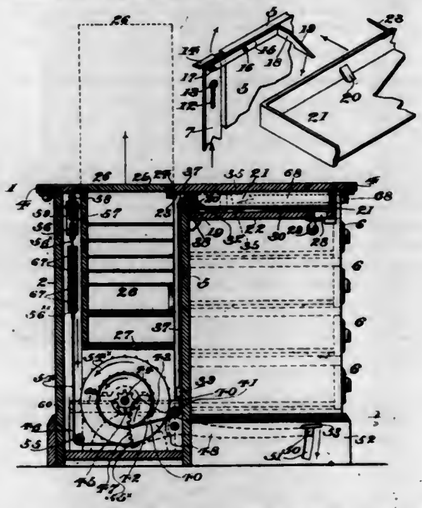


Claim.—1. A woven fabric in which an ingrain ply composed of interwoven warps and wefts, and a damask ply composed of warps and thick and thin wefts are combined as described, whereby the face of the fabric is composed in part of an ingrain ply with the warps up, in part of a damask ply, and in part of damask weft-threads overlying the damask warps, substantially as specified.

2. A woven fabric in which an ingrain ply composed of interwoven warps and wefts, and a damask ply composed of warps and thick and thin wefts are combined as described, whereby the face of the fabric is composed in part of an ingrain ply, in part of a damask ply with the warps up, and in part of damask weft-threads overlying the damask warps and tied down by the ingrain warp, substantially as specified.

3. A woven fabric in which an ingrain ply composed of interwoven warps and wefts, a damask ply composed of warps and thick and thin wefts, and a backing-ply, are combined as described, whereby the face of the fabric is composed in part of an ingrain ply, in part of a damask ply with the warps up, and in part of damask wefts overlying the damask warps, the backing-wefts being united to the face fabric by means of warp-threads engaging said backing-wefts and wefts of the face fabric, substantially as specified.

578,743. DESK. HORACE D. HERMANY, Philadelphia, Pa., assignor of one-half to John I. Mathias, Mahanoy City, Pa. Filed July 23, 1896. Serial No. 600,187. (No model.)



Claim.—1. A desk having movable pigeonholes, mechanism for raising and lowering said pigeonholes, means for operating said mechanism, a counterbalance for said pigeonholes, a drawer having connection with said raising and lowering mechanism, and movable supports for said pigeonholes when in elevated position.

2. A flat-top desk, having movable pigeonholes in the rear portion thereof, connections from said pigeonholes to a system of counterbalances, connections from the latter to a drum, a shaft upon which said drum is mounted, pinions carried by said shaft, a rack adapted to engage said pinions, connections from said rack to a treadle, a drawer supported within the desk and connections from said drawer to said drum.

3. A desk having movable pigeonholes, a drawer, a drum mounted in said desk and having chain connections with said pigeonholes and drawer, gearing connected with said drum and a lever and treadle for operating said gearing.

4. A desk having movable pigeonholes, a drawer with mechanism for raising or lowering said pigeonholes, means with operating mechanism for supporting said pigeonholes in raised position, and counterbalance-weights connected with said pigeonholes and with said raising and lowering mechanism.

5. A desk having movable pigeonholes, a drawer, drums mounted in said desk, the chain 37 passing over the roller 38, the block 39 connected with the lower end of said chain, a chain 40 connected with each of said drums, pinions secured on the shaft of said drums, and a bar with a rack at one end engaging said pinion and a treadle on the other end.

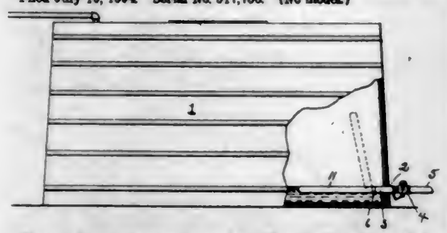
6. A desk, having pigeonholes, in its rear portion, a drawer having thereon means for locking said pigeonholes when in depressed position, and connections from said drawer for raising and lowering said pigeonholes.

7. A desk having movable pigeonholes, a drawer, mechanism for raising and lowering said pigeonholes, the strip 60 connected with said pigeonholes, the bar 56 having the chains 57 connected with its ends and passing over the pulley 58, and connected with the strip 60, the depending rods 56× with cross-bar 56×× carrying weights, and the chain 54 connecting said bar 56, and a drum of said raising and lowering mechanism.

8. A desk having movable pigeonholes, mechanism connected with a treadle for raising and lowering said set, a counterbalance for said pigeonholes, a drawer having flexible connections with said raising and lowering mechanism, and movable supports for said pigeonholes when in elevated position.

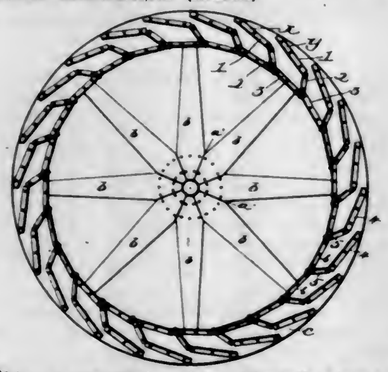
9. A desk having a drawer and on each side thereof side drawers, bars guided on the wall of said desk, mechanism connected with said bars and engaged by said first-mentioned drawer for locking and unlocking simultaneously said side drawers, in combination with pigeonholes in said desk, mechanism for raising and lowering said pigeonholes, means for operating said mechanism, a counterbalance for said pigeonholes, movable supports for said pigeonholes, when in elevated position, and means on said first-mentioned drawer for locking said pigeonholes, when in depressed position.

578,744. AUTOMATIC CUT-OFF FOR OIL-TANKS. GEORGE W. HESS, Haskins, Ohio, assignor of one-half to H. J. Leary, Toledo, Ohio. Filed July 16, 1894. Serial No. 517,738. (No model.)



Claim.—In an automatic cut-off for oil-tanks, the draw-off pipe, a valve-seat section 6 secured thereto, the forward annular edge thereof being ground to form a seat, a groove in the upper side thereof, a float comprising a shell having a cut-off 10 secured in its rear end, a projection extending therefrom and passing in the groove in the section 6 and pivoted therein, whereby the cut-off 10 moves in the arc of a circle to close or open the entrance to the seat-section and draw-off pipe.

578,745. OVERSHOT OR UNDERSHOT WHEEL OR PROPELLING MACHINERY. JOHN H. HIGGINBOTHAM, Cornelia, Ga. Filed Apr. 24, 1896. Serial No. 588,864. (No model.)



Claim.—A water-wheel, consisting of the shaft A; hubs *a*, arms *b*, bolted to said hubs; sections *c*, secured to the inner faces of the arms *b*; bucket-walls *d*, consisting of the planes 1, 2, 3 and perforated flanges 4, 5, 6, 7, 8 and 9, the planes 3, having perforations 10 and 11, and riveted together forming a complete and continuous inner wall and bottoms, and outer walls for the buckets, the flanges secured to the inner faces of sections *c*, substantially as shown and described and for the purposes set forth.

578,746. PROCESS OF AND APPARATUS FOR EXTRACTING GOLD FROM ORES. BERTRAND C. HIXMAN, New York, N. Y. Filed Mar. 5, 1896. Serial No. 581,871. (No model.)

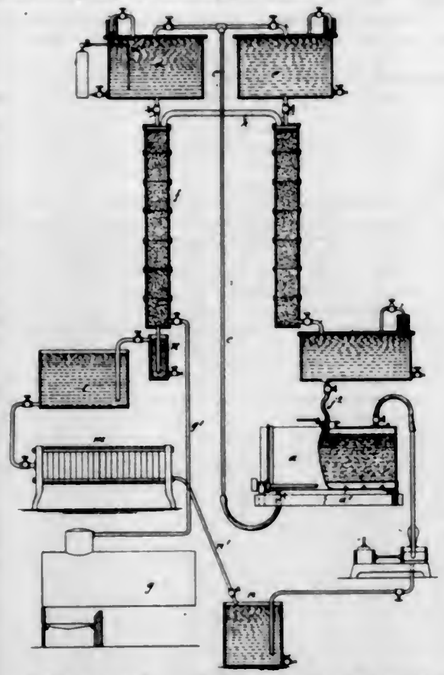
Claim.—1. The process of extracting gold from ore, which consists in treating the ore with bromin, filtering the solution, increasing its surface by subdivision, separating the free bromin from the subdivided solution by vaporization, and precipitating the gold, substantially as specified.

2. The process of extracting gold from ore, which consists in treating the ore with bromin, filtering the solution, increasing its surface by subdivision, separating the free bromin from the subdivided solution by vaporization, condensing the bromin vapors, and precipitating the gold, substantially as specified.

3. The process of extracting gold from ore, which consists in treating the ore with bromin, adding a reagent to set free the bromin, subdividing the solution to increase its surface, separating the bromin from the subdivided solution by vaporization, and precipitating the gold, substantially as specified.

4. The process of extracting gold from ore, which consists in treating the ore with bromin, adding chlorin to the solution, subdividing the solution to increase its surface, separating the bromin from the subdivided solution by vaporization, and precipitating the gold, substantially as specified.

5. The process of extracting gold from ore, which consists in treating the ore with bromin, adding chlorin, subdividing the solution to increase its surface, vaporizing the bromin and chlorin from the subdivided solution, condensing the bromin and chlorin vapors, and precipitating the gold, substantially as specified.



6. The process of extracting gold from ore, which consists in treating the ore with bromin, adding chlorin, subdividing the solution to increase its surface, vaporizing the bromin and chlorin from the subdivided solution, condensing the bromin and chlorin vapors, precipitating the gold, and adding the condensed halogens to a fresh body of ore, substantially as specified.

7. An apparatus for extracting gold from ore, which consists of a vaporizing-tower filled with pebbles or other obstructive bodies, a dissolving vessel and a condensing-tower communicating with the vaporizing-tower, and a vaporizing-pipe that communicates with the lower end of the vaporizing-tower, substantially as specified.

8. An apparatus for extracting gold from ore, which consists of a dissolving vessel, a pair of intermediate tanks connected therewith, a vaporizing and a condensing-tower connected respectively to the intermediate tanks and also to each other, and a vaporizing-pipe communicating with the lower end of the vaporizing-tower, substantially as specified.

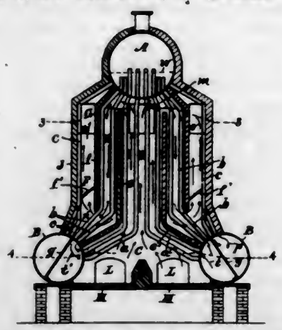
9. An apparatus for extracting gold from ore, which consists of a vaporizing-tower, a dissolving vessel and a vaporizing-pipe communicating respectively with the upper and lower ends thereof, a liquid seal at the bottom of the vaporizing-tower and a receiving or precipitating tank communicating with the liquid seal, substantially as specified.

10. An apparatus for extracting gold from ore, which consists of a vaporizing-tower, a dissolving vessel and a condensing-tower communicating with the vaporizing-tower, and a vaporizing-pipe and a receiving or precipitating tank communicating with the lower end of such tower, substantially as specified.

11. An apparatus for extracting gold from ore, which consists of a dissolving vessel, a pair of intermediate tanks connected therewith, a vaporizing and condensing tower connected respectively to the intermediate tanks and also to each other, and a vaporizing-pipe and a receiving or precipitating tank communicating with the lower end of the vaporizing-tower, substantially as specified.

12. The combination in an apparatus for extracting gold from ore, of the following elements: a dissolving vessel, a pair of intermediate tanks connected therewith, a vaporizing and a condensing tower connected respectively to the intermediate tanks, and also to each other, a vaporizing-pipe communicating with the lower end of the vaporizing-tower, a liquid seal at the bottom of such tower, a receiving or precipitating tank communicating with the liquid seal, and a filter-press communicating with the receiving or precipitating tank, substantially as specified.

578,747. STEAM-BOILER. JOHN J. HOGAN, Middletown, N. Y. Filed Jan. 16, 1896. Serial No. 575,744. (No model.)



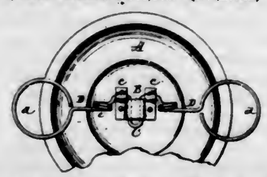
Claim.—1. In a boiler, the combination, with a steam-drum sustained above the fire-grate, with distributing-drum at the side of the grate, of groups of water-tubes forming ascending and descending channels for the water, and connected with separate longitudinal portions of the distributing-drum, and a partition extended from side to side of the distributing-drum between the mouths of the ascending and descending tubes, and arranged with passages *h* between the ends of the partition and the heads of the drum, the whole arranged and operated as and for the purpose set forth.

2. In a boiler, the combination, with a steam-drum sustained above the fire-grate, with distributing-drum at the side of the grate, of three groups of water-tubes extended from separate longitudinal portions of the distributing-drum to separate longitudinal portions of the steam-drum, substantially as set forth, a casing inclosing the boiler adjacent to the outer groups of tubes, the partitions *e* and *f* extended upward and downward longitudinally of the boiler between the groups of tubes to produce descending and ascending smoke-flues, a fire-box over the grate, and the outer flue having the chimney-opening G at the top, as and for the purpose set forth.

3. In a boiler, the combination, with a steam-drum sustained above the fire-grate, with distributing-drum at the side of the grate, of three groups of water-tubes connecting the steam and distributing drums and arranged substantially as set forth, a casing inclosing the boiler adjacent to the outer groups of tubes, and the partitions *f* and *e* extended respectively downward and upward from the steam and distributing drums between the groups of tubes and producing descending and ascending smoke-flues, a fire-box over the grate, the breeching H with flue-openings G and G′ connecting the ascending flue and the fire-box respectively with the breeching, and the dampers N and *f*′ applied to such openings, the whole arranged and operated substantially as herein set forth.

4. In a boiler, the combination, with a steam-drum sustained above the fire-grate, with distributing-drums at the opposite sides of the grate, of three longitudinal groups of water-tubes connecting each of the distributing-drums with the steam-drum, and arranged substantially as set forth, a casing inclosing the boiler adjacent to the outer groups of tubes, the partitions *e* and *f* extended respectively upward and downward from the steam and distributing drums between the groups of tubes, and producing descending and ascending smoke-flues, a fire-box over the grate, a breeching H with flue-opening G′ to such fire-box, and flue-openings G from the tops of the ascending flues to the said breeching, with dampers N and *f*′ for connecting the fire-box and the ascending flue respectively with the breeching, the whole arranged and operated substantially as herein set forth.

578,748. FLUE-COVER. ERNST H. HUENEFELD, Cincinnati, Ohio. Filed Nov. 5, 1896. Serial No. 611,102. (No model.)



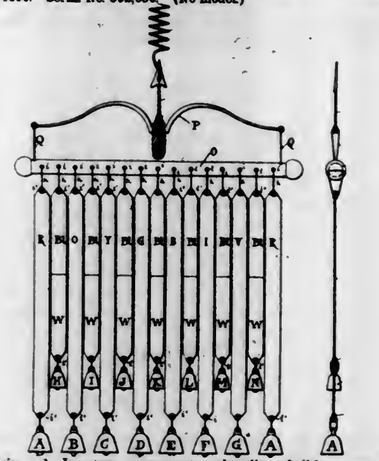
Claim.—1. The combination with a flue-stopper having a loop or pocket on its rear face, of a spring-retaining device comprising two spring-arms and a centrally-located tongue integral with the arms, the said tongue adapted to enter the loop or pocket, substantially as set forth.

2. The combination with a flue stopper or cover provided on its rear face with a loop or pocket, the latter having projecting lips, of a spring-retaining device comprising two spring-arms and a centrally-located tongue, the said tongue adapted to be secured within the loop or pocket with portions of the spring-arms resting under the lips, substantially as set forth.

3. The combination with a flue stopper or cover provided on its rear face with a loop or pocket, of a spring-retaining device comprising two spring-arms and a centrally-located integral tongue adapted to enter the loop or pocket, the ends of the spring-arms being provided with hooks adapted to engage the lower end of the tongue, substantially as set forth.

4. The combination with a flue-stopper provided on its rear face with a loop or pocket, the latter having projecting lips, of a spring-retaining device comprising two spring-arms and a centrally-located tongue, which latter is retained in the loop or pocket by the projecting lips, the spring-arms being provided at their free ends with hooks adapted to engage the tongue, substantially as set forth.

578,749. TOY. JOHN R. H. HYDE, New York, N. Y. Filed May 22, 1896. Serial No. 592,636. (No model.)

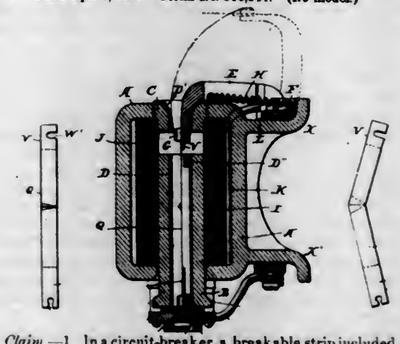


Claim.—1. In a toy; a support, a plurality of ribbons suspended from said support, and each of said ribbons having a bell attached at the free end thereof, the ribbons differing from each other in color, and the bells differing in tone, substantially as described.

2. In a toy; a support, a plurality of ribbons detachably suspended from said support and each of said ribbons having a bell attached at the free end thereof, the ribbons differing from each other in color, and the bells differing in tone, substantially as described.

3. In a toy; a support, a plurality of ribbons detachably suspended from said support and each of said ribbons having a bell detachably suspended from the free end thereof, the said ribbons differing from each other in color, and the bells differing in tune, substantially as described.

578,750. CIRCUIT-BREAKER. HERBERT P. KELLY, Philadelphia, Pa. Filed Apr. 7, 1896. Serial No. 586,511. (No model.)



Claim.—1. In a circuit-breaker, a breakable strip included in the circuit, and mechanical means controlled by the circuit for mechan-

ically breaking the strip without previously fusing it, substantially as described.

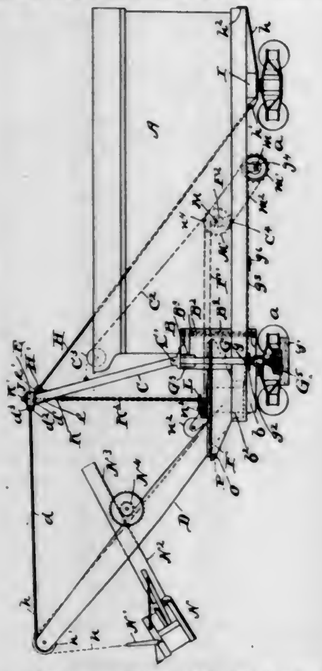
2. In a circuit-breaker, the combination with an electromagnet, of a weakened conducting-strip included in the circuit of the magnet, a support for said strip, and electromagnetic means mechanically impinging on said support to break the strip, substantially as described.

3. In a circuit-breaker, the combination with an electromagnet, of a weakened conducting-strip included in the circuit of the magnet, a movable support for one end of the strip, and a core electromagnetically operated to mechanically impinge upon the support and break the strip, substantially as described.

4. In a circuit-breaker, the combination with an electromagnet, of a breakable conducting-strip included in the circuit of the magnet, a pivoted spring-controlled support for one end of the strip, and a core electromagnetically operated to impinge upon the support to break the strip, substantially as described.

5. In a circuit-breaker, the combination of the magnet, the hollow core, the incombustible lining, the breakable strip mounted within the core, and the spring-actuated support for said strip, substantially as described.

578,751. **EXCAVATOR.** GEORGE W. KING, Marion, Ohio. Filed Mar. 9, 1896. Serial No. 582,324. (No model.)



Claim.—1. An excavator comprising a body portion A, a suitably-actuated turn-table supported at the forward end of the body portion, the boom operatively connected with said table, a raised frame or platform B overhanging the rear portion of the turn-table, the so-called "A-frame" mounted upon the forward portion of said raised platform or frame and connected with the boom, and the external braces having their upper portions receiving their support near the upper or forward portion of said raised frame or platform, and the lower portion of said braces receiving their support near the lower part of the machine's body portion, substantially as set forth.

2. An excavator comprising a body portion; a suitably-actuated turn-table supported at the forward end of the body portion: the boom or crane; a braced platform or frame overhanging the rear portion of the table; the A-frame mounted upon said overhanging frame or platform; a connection between the boom and A-frame's upper end, and the parts being so arranged that the boom shall be capable of swinging laterally and rearwardly of a line arranged at a right angle to the machine's body portion, and, in said rearwardly-swung position, shall engage or abut the A-frame and A-frame-supporting platform or frame, substantially as set forth.

3. An excavator comprising a body portion A, a suitably-actuated turn-table F supported at the forward end of the body portion, the boom or crane, a rigidly-braced platform or frame overhanging the rear portion of the table, the so-called "A-frame" C mounted upon said overhanging frame or platform, a connection between the boom and upper end of the A-frame, and the arrangement of parts being furthermore such that the boom shall be capable of swinging laterally and rearwardly of a line arranged at a right angle to the machine's body portion, substantially as shown, for the purpose specified.

4. An excavator comprising a body portion A; a suitably-actuated turn-table F placed low down relative to, and suitably supported at the forward end of, the body portion; the boom or crane; a rigid platform or frame overhanging the rear portion of the table; the so-called "A-frame" C mounted upon said overhanging frame or platform; a suitable connection between the boom and upper end of the A-frame; an external and lateral brace arranged at the side of said overhanging platform or frame, and the arrangement of parts being furthermore such that the boom shall be capable of swinging laterally and rearwardly of a line arranged at a right angle to the machine's body portion, and, in said rearwardly-swung position, shall engage or abut the brace, A-frame, and A-frame-supporting platform or frame, substantially as shown, for the purpose specified.

5. An excavator comprising a body portion A; a suitably-actuated turn-table F suitably supported at the forward end of the body portion; the boom or crane; a rigid platform or frame overhanging the rear portion of the table; the so-called "A-frame" C mounted upon said overhanging frame or platform; a suitable connection between the boom and upper end of the A-frame, and a brace or braces, for bracing said overhanging platform or frame laterally and externally, and connected with the upper and lower portions of said frame or platform, substantially as set forth.

6. An excavator comprising a body portion A; trucks *a a* supporting opposite ends, respectively, of the body portion; a rigid raised platform or frame B erected at the forward end of the body portion above the forward truck, and having its lower portion extended forwardly to form a bolster *b* over said truck; the suitably-actuated turn-table supported from a forward extension of said bolster, and having its rear portion overhung by the upper portion of said platform or frame; boom or crane; the so-called "A-frame" mounted upon said upper portion of the table-overhanging frame or platform, and a suitable connection between the boom and upper end of the A-frame, substantially as set forth.

7. The combination with the car or body portion, rear truck, bolster over said truck, and suitably-supported so-called "A-frame" at or near the forward end of the body portion, of a connection between the upper end of said frame and rear end of the car, said connection extending from said frame downwardly and rearwardly to and in under the aforesaid bolster and thence to and hooks over or overlaps the rear end of the car, substantially as shown, for the purpose specified.

8. The combination of the car or body portion; rear truck; bolster over said truck; metallic bar or strap extending in under and forwardly of the bolster, and rearwardly thereof to and overhooking or overlapping the rear end of the car; the so-called "A-frame" at or near the forward end of the car; the metallic cap or head embracing the upper end of said frame and having a rearwardly-projecting ear or member; the rod H arranged between and detachably secured to said rearwardly projecting member of the aforesaid head and the forward end of the aforesaid strap or bar, substantially as and for the purpose set forth.

9. The combination with the swinging boom; so-called "A-frame;" the cap or head *e* embracing the upper end of said frame and provided, at its upper end, with the vertical cylindrical lug or bearing E having a seat E' at its lower end and externally, and the connection between the boom and said bearing and terminating, at its inner end, in the sleeve or collar *d'* engaging the aforesaid seat and embracing the lug: of the washer J mounted upon the upper end of the lug and overlapping the collar, and means for holding said washer in place, substantially as set forth.

10. The combination with the machine's body portion, turn-table, boom, so-called "A-frame," connection between the boom and upper end of the A-frame, and connection between said frame's upper end and body portion rearward of the frame, all relatively arranged substantially as indicated, of a chain or twistable connection K^2 between said frame's upper end and the turn-table, substantially as and for the purpose set forth.

11. The combination with the swinging boom: the A-frame provided, at its upper end, with the vertical cylindrical lug or bearing E having a seat E' at its lower end and externally, and the connection between the boom and said bearing and terminating, at its inner end, in the sleeve or collar *d'* engaging the aforesaid seat and embracing the lug; of the washer resting upon the upper end of the lug and overlapping the collar, a member bearing downwardly upon said washer and a chain or twistable connection between the boom, at or near the latter's lower pivotal center, and the aforesaid bear-down member, substantially as and for the purpose set forth.

12. The combination with the machine's body portion; turn-table; boom; so-called "A-frame;" connection between the A-frame's upper end and body portion rearward of said frame; the cap or head *e* embracing the upper end of said frame and provided with the upwardly-projecting vertical cylindrical lug E and the shoulder or seat E' at the lower end of said lug; the connection between the boom and upper end of the A-frame and terminating, at its inner end, in a sleeve or collar embracing the aforesaid lug and resting upon the aforesaid seat; of a washer J resting upon said lug and overlapping said collar; an upright bolt centrally of said lug and arranged with its shank projecting above the lug; a member upon the bolt-shank above and bearing upon the washer, and a chain extending from the head of the bolt to the turn-table and suitably connected at its upper end and lower end to the bolt's head and table, respectively, substantially as and for the purpose set forth.

13. The combination with the machine's body portion; turn-table; boom; so-called "A-frame;" connection between the A-frame's upper end and body portion rearwardly of said frame; the cap or head *e* embracing the upper end of said frame and provided with the upwardly-projecting vertical cylindrical lug E and the shoulder or seat E' at the lower end of said lug; the connection between the boom and upper end of the A-frame and terminating, at its inner end, in a sleeve or collar embracing the aforesaid lug and resting upon the aforesaid seat; of a washer J resting upon said lug and overlapping said collar; an upright eyebolt centrally of said lug and arranged with its shank projecting above the lug; a nut, or nuts, mounted upon the bolt-shank above the washer; means for preventing turning of the bolt, and a chain extending from the eye of the bolt to the turn-table and having its opposite ends suitably connected to the bolt's eye and table, respectively, substantially as and for the purpose set forth.

14. The combination with the suitably-supported boom, and boom-swinging turn-table having, in its forward side, an opening engaged by the boom, which opening extends downwardly through, and forwardly to the forward extremity of the table; of a safety bolt or member extending across the opening below the boom and instrumental in tying together the portions of the table at opposite sides of said opening, and said safety-bolt or connecting member having a support incapable of resisting a blow delivered thereon by the boom should the latter accidentally fall, substantially as and for the purpose set forth.

15. The combination with the suitably-supported boom, and boom-swinging turn-table having, in its forward side, an opening engaged by the boom, which opening extends downwardly through, and forwardly to the forward extremity of, the turn-table: of a safety bolt or member extending across said opening below the boom and instrumental in tying together the portions of the table at opposite sides of said opening, and the holes in the table's members through which said safety member extends being elongated downwardly and open at their lower ends, and the two plates supporting opposite ends, respectively, of the bolt, and riveted to the adjacent portions of the turn-table, substantially as shown, for the purpose specified.

16. The turn-table in a machine of the character indicated, composed of the centrally-located hub having a pocket or pockets for the reception of the boom; two vertically-arranged plates f^3 f^3 arranged between the rear and forward extremities of the table and at opposite sides, respectively, of the hub; horizontally-arranged segmental plates f^5 forming the upper surface of the table around the latter's hub; the angle-irons f^4; the segmental band f^7; angle-plates f^6; plates f^9, and braces f^{10}, all arranged and secured in place, substantially as shown, for the purpose specified.

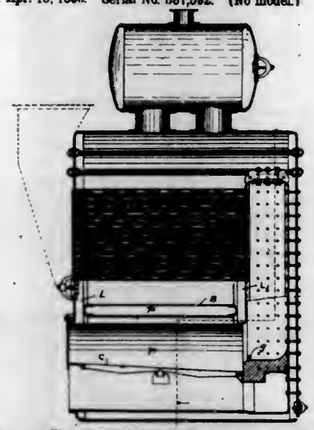
17. In a machine of the character indicated, the combination with the upright screw adapted to bear upon the base or platform of an external brace of the machine and a stationary nut engaging said screw: of a chain-pulley operatively mounted upon the screw; a suitably-driven shaft supported below the car-body; two drums loose upon said shaft; a clutch for each of said drums for controlling operative connection between the respective drum and shaft, and cable operatively engaging the different drums and leading from one of said drums to and over the pulley and thence to the other drum, substantially as and for the purpose set forth.

578,752. **BUFFER.** SIDNEY D. KING, Dunmore, Pa. Filed Aug. 20, 1896. Serial No. 603,381. (No model.)



Claim.—A buffer comprising two telescoping sections and springs interposed between them whereby to retain them yieldingly apart, one section having lugs at diametrically opposite points, and the other recesses for the passage of these lugs, the lugs admitting of a rocking sliding connection between the two sections, substantially as set forth.

578,753. **MARINE STEAM-BOILER.** OLOF KLING, Chicago, Ill. Filed Apr. 15, 1896. Serial No. 587,592. (No model.)



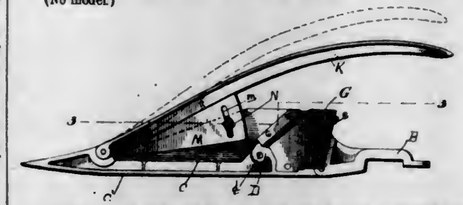
Claim.—1. The combination with the two water-jacketed fire-box drums, of the main-flue shell located centrally above the two and at a short distance from each and provided at its ends with water-legs forming an open connection between it and the corresponding ends of the water-jackets of the drums.

2. The combination with the two water-jacketed fire-box drums, of the main-flue shell located centrally above the two at a suitable distance from each and provided at its ends with water-legs connecting it with the drum-jackets, and smoke-flues located centrally in the legs at one end of the main shell and connecting the fire-boxes with the flues of the latter.

3. The combination with the two separated fire-box drums, of the water-jackets encircling said drums, respectively, the main-flue shell located above said drums and having its end sheets extended below the corresponding ends of the drums and rigidly united to the latter to form one whole of the drums and shell, water-legs connecting corresponding ends of the three members, and sheet-metal flues extending from the rear ends of the drums upward into the main shell and receiving the ends of the flue-tubes therein.

4. In a boiler of the class described, the combination of a main-flue shell and fire-box drums independent of the flue-shell, and with water-legs connecting the fire-box drums at each end, and at a point intermediate between the ends the sheets of metal forming the flue-sheets of the main shell extending downward and forming sides of the water-legs, substantially as shown and described.

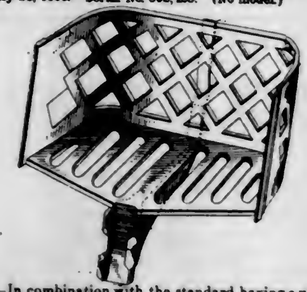
578,754. **GRAIN-DISLODGING ATTACHMENT.** MICHAEL P. KNEIFL, New Castle, Nebr. Filed Dec. 3, 1896. Serial No. 614,324. (No model.)



Claim.—1. In combination with the heel having a recessed portion, adapted to fit over a finger-bar, the shoe C, pivoted in a recess of the heel, the rod E secured at one end to a pin *d*, its other end adjustably held to an extension of the heel, and a spring F on said rod, substantially as shown and described.

2. In combination with the heel and shoe pivoted together as described, of the rod E, having an eye at one end and secured to shoulders of the board or shoe, the said rod inclined backward at an angle, and passed through an upwardly-extending portion of the heel, a nut *e* for adjusting the angle at which it is desired to work the device, substantially as shown and described.

578,755. BOOK-RACK. ALLEN D. LINN, Grand Rapids, Mich., assignor to the Grand Rapids School Furniture Company, same place. Filed May 21, 1896. Serial No. 592,425. (No model.)



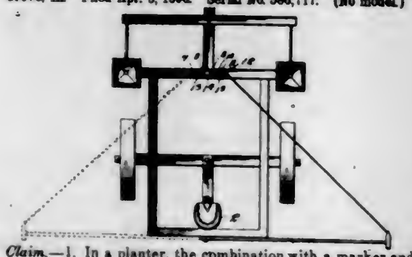
Claim.—In combination with the standard having a vertical web and side flanges, the adjacent seat-backs abutting against said web, the rack or receptacle having an open side conforming to said adjacent backs, and the bracket carried by said rack and having lugs adapted to engage the flanges on the standard, substantially as described.

578,756. LOCK SEALING-CAP FOR BOTTLES. SCHUYLER W. MORGAN, Concord, N. H. Filed May 25 1896. Serial No. 592,958. (No model.)



Claim.—The herein-described non-refillable bottle having a neck in which an ordinary cork is inserted and upon which sealing-wax, plaster-of-paris, or other like material may be placed, the said neck having flaring upper ends and being substantially elliptical in cross-section at a point near its upper end, the longer sides of said neck having inwardly-extending flanges thereon, and a cap or cover for said bottle having a lug extending down into said neck with the projections on the sides of said lug adapted to engage the under side of said flanges, said cap or cover having a broad base or bearing-surface which is adapted to rest upon the upper end of the neck of the bottle, substantially as and for the purpose described.

578,757. PLANTER ATTACHMENT. SQUIRE W. MYERS, Sugar Grove, Ill. Filed Apr. 3, 1896. Serial No. 586,717. (No model.)



Claim.—1. In a planter, the combination with a marker and its brace, of a standard comprising oppositely-curved arms, a sleeve shiftably mounted upon the said arms, and a sliding connection between the front end of the brace and the sleeve, whereby the said connection may occupy the lowest position upon either adjustment of the sleeve, substantially as set forth.

2. In a planter, the combination with a marker and its brace, of a standard comprising oppositely-curved arms formed with stops or shoulders, a sleeve shiftably mounted upon the arms and limited in its movements by the stops thereof, and a slidable connection between the said sleeve and the front end of the aforesaid brace, whereby the said connection may occupy the lowest position at either adjustment of the said sleeve, substantially as specified.

3. In a planter, the combination with a marker and its brace, of a standard having oppositely-disposed arms, a sleeve shiftably mounted upon the arms, a sliding connection between the brace and sleeve, and direction-arms exterior to the arms of the standard and curving inwardly and rearwardly toward their free ends, substantially as set forth for the purpose described.

578,758. LUBRICATOR. EDWARD MCCORKINDALE, Holyoke, Mass. Filed July 20, 1896. Serial No. 599,894. (No model.)



Claim.—1. In a lubricator, the combination with a journal, of a lubricating-roller in contact therewith, and a lubricant-receptacle located above the lubricating-roller and provided with openings which allow the lubricant to drip onto the lubricating-roller.

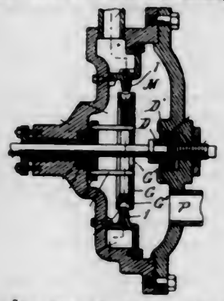
2. In a lubricator, the combination with a journal, of a lubricating-roller, a lubricant-receptacle, a feed-tube adapted to deliver the lubricant onto the roller, and a wick for elevating the lubricant into the feed-tube.

3. In a lubricator, the combination with a journal, of a lubricating-roller, a lubricant-receptacle, a feed-tube which projects up into the lubricant-receptacle and is adapted to deliver the lubricant onto the roller, and a wick extending into the receptacle and the feed-tube being adapted for elevating the lubricant into the latter.

4. In a lubricator, the combination with a journal, of a lubricating-roller in contact with the journal, a lubricant-receptacle, a feed-tube projecting up into said receptacle and adapted to deliver the lubricant onto the roller, a wick having a portion located in the receptacle, and a pin projecting down into the feed-tube and to which the wick is connected.

5. In a lubricator, the combination with a journal, of a lubricating-roller, a lubricant-receptacle, a feed-tube projecting up into said receptacle and adapted to deliver the lubricant onto the roller, a pin having an eye at its lower end and provided with an upper head, and a wick passing through the eye of the pin and having a portion lying in the receptacle, said pin being located in the feed-tube.

578,759. ROTARY ENGINE. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Oct. 30, 1893. Serial No. 489,469. (No model.)



Claim.—1. In a rotary steam-engine, the combinatin of a steam-ring having a series of tangentially-inclined nozzles, a wheel within the ring having a series of tapering inclined pockets arranged to receive the discharge therefrom, and an annular exhaust-passage between the outer edges of the ring and upper edge of the pockets and common to all the pockets, substantially as described.

2. In a rotary steam-engine, the combination with a casing having a steam-ring therein, and a circular series of tangentially-inclined jet-nozzles in the inner wall of the ring, of a wheel within the ring having a series of axially-inclined pockets in its periphery of a width greater than the width of the jet-nozzles and arranged centrally in line with and in close proximity to the discharge ends of the jet-nozzles, their outer edges being beyond the plane of the nozzle, thereby forming continuous exhaust-passages on opposite sides of the pockets, substantially as described.

3. In a rotary engine, the combination with a driven wheel, of a rigid shaft loosely passing therethrough, fixed bearings for the shaft and yielding supporting connections between the shaft and wheel, substantially as described.

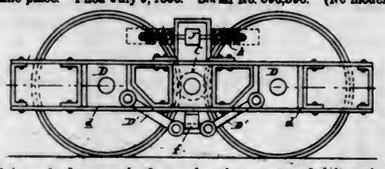
4. In a rotary steam-engine, the combination with a circular series of jet-nozzles, of a wheel having a circular series of pockets in line with the nozzles, a shaft, and a yielding supporting connection between and fixedly secured to the shaft and wheel, substantially as described.

5. In a rotary engine, the combination of a rigid shaft journaled in stationary bearings, a driven wheel centrally apertured to loosely

embrace the shaft, and an elastic supporting connection between the wheel and shaft, whereby a mininum vibration is transmitted to the bearings, substantially as described.

6. In a rotary engine, the combination of a rigid shaft journaled in stationary bearings, a centrally-apertured driven wheel loosely embracing the shaft and spring-arms connected at one end to the wheel and at the other end to the shaft, substantially as described.

578,760. SYSTEM OF MOTOR-TRUCKS. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed July 9, 1896. Serial No. 598,590. (No model.)



Claim.—1. In a truck, forward and rear sets of drive-wheels, a friction-roller placed between them and arranged to rotate in contact therewith, constant contact maintained by the weight of the car acting on the movable bearing of the friction-roller, a motor connected with and adapted to operate said friction-roller, for the purpose set forth.

2. In a truck, forward and rear sets of drive-wheels, a friction-roller, a motor connected with and adapted to operate said friction-roller, said friction-roller and drive-wheels so arranged in relation to each other that the roller shall be in contact with one of the forward and one of the rear wheels of each set in such manner that the rotation of the friction-roller will put in revolution both sets of wheels in the same direction, constant contact between the friction-roller and the drive-wheels maintained by the weight of the car acting on the movable bearing of the drive-wheels, for the purpose set forth.

3. In a truck, forward and rear sets of drive-wheels journal-boxes for said wheels movable horizontally, a roller arranged to make frictional contact with one of the forward and one of the rear wheels of each set, a motor, said roller connected therewith, a car mounted on supports connected with said movable journal-boxes the weight of the car causing the drive-wheels to press against the roller, for the purpose set forth.

4. In a truck, a friction-roller, a motor adapted to impart rotary motion to said roller, forward and rear sets of drive-wheels engaging with said roller, the bearings of said drive-wheels movable horizontally, a frame adapted to carry the car, a saddle supporting said frame, said saddle mounted in said truck, connections between the journal-boxes of the drive-wheels and the saddle, the weight of the car on the saddle, forcing the drive-wheels in contact with the friction-roller, for the purpose set forth.

5. In a truck, the combination of a drive-wheel, a friction-roller, a movable journal-box for said drive-wheel, a car mounted on said truck, means for connecting the supports of said car with the movable journal-box, the weight of the car causing the journal-box of the drive-wheel to so move as to increase the pressure of the drive-wheel upon the friction-roller, for the purpose set forth.

6. In a truck, a friction-roller, a motor adapted to impart rotary motion thereto, a drive-wheel in contact with said friction-roller, a movable bearing for said drive-wheel, and means for increasing the pressure of said drive-wheel against said friction-roller by the weight of the car acting on the journal-box of said drive-wheel, for the purpose set forth.

7. In a truck, a drive-wheel, a roller in frictional contact therewith, a car supported upon a frame, connections between said frame and the journal-box of the drive-wheel and the friction-roller, the weight of the car on the frame operating to draw the drive-wheel and the friction-roller together, for the purpose set forth.

8. In a truck, a motor, a drive-wheel, a friction-roller, said motor adapted to impart a rotary motion to said friction-roller, a movable bearing for said friction-roller in the truck-frame, a car mounted on said truck-frame, a lever connecting the movable journal-box of said friction-roller to said motor, the weight of the car tending to force the friction-roller against the drive-wheel, substantially as described.

578,761. BICYCLE-SUPPORT. WILLIAM J. MCGINNIS, Washington, D. C. Filed May 5, 1896. Serial No. 590,260. (No model.)

Claim.—1. A stand or support for cycles composed of a cone or socket, the headed legs and the base loosely joined to said legs for the purpose set forth.

2. A portable cycle-support composed of the cone-shaped socket, the hinged triangular frame composed of the headed legs and a base, substantially as set forth.

3. In a support for bicycles the combination of a hinged frame having headed legs, one of said legs carrying a yoke or collar and adapted to hold the frame in a triangular position and a base flexibly attached to said legs for the purposes set forth.

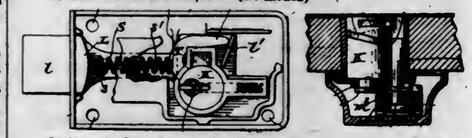


578,762. FISHING-LINE ATTACHMENT. LEONARD H. MCMAHON, Salem, Oreg. Filed Aug. 28, 1896. Serial No. 604,282. (No model.)



Claim.—As an improved article of manufacture the device described formed from a single piece of wire and comprising the shank adapted to be connected to a leader or line and the portion at one end of the shank reduced in thickness and coiled so as to form an eye, substantially as and for the purpose set forth.

578,763. LOCK. WALTER S. NASH, Knoxville, Tenn. Filed July 14, 1896. Serial No. 599,092. (No model.)



Claim.—1. In a door-lock, the combination of a rotary key-cylinder, a peripheral groove upon said cylinder, extending laterally and parallel to the base of said cylinder and opening at one end into a spiral groove also in the periphery of said cylinder, a bolt provided with a head or a lateral projection adapted to move in said lateral and spiral grooves and susceptible of being elevated and depressed by the action of said spiral groove upon the head or lateral projection on said bolt, a latch-tumbler, provided with an arm, and so adapted as to be responsive to the rotation of the key-cylinder, a spring-latch provided with a projection, against which engages said tumbler-arm, and a recess or well so adapted as to receive the lower portion of said bolt, substantially as described.

2. In a door-lock the combination of a rotary key-cylinder, a peripheral groove in said cylinder, which extends laterally about said cylinder and parallel to its base for a portion of the way around the same and then spirally descends once around said cylinder, a bolt provided with a head or a laterally-projecting pin engaging in the peripheral groove in said cylinder, a spring-latch provided with a projection at one end and a well or recess, into which is projected the base of said bolt, a latch-tumbler loosely fitted about the reduced end of said key-cylinder and provided with an arm so adapted as to normally engage said projection on said latch, a horizontal projection or stud on said tumbler-arm, and an escutcheon attached to the base of the reduced end of said key-cylinder, provided with a laterally-projecting pin or stud, which normally engages with the horizontal projection or stud on said tumbler-arm, and proper instrumentalities for holding the mechanism in operative position, substantially as described.

3. In a door-lock, the combination of a rotary key-cylinder and an auxiliary cylinder coupled thereto by means of a connecting rod or shaft, and so adapted as to rotate with said key-cylinder, a peripheral groove in said auxiliary cylinder, which extends laterally about said auxiliary cylinder, and parallel to its base, for a portion of the way aronnd the same, and then spirally descends once around said auxiliary cylinder, a bolt provided with a head or a laterally-projecting pin engaging in the peripheral groove in said auxiliary cylinder, a spring-latch provided with a projection at one end and a well or recess into which may be projected the base of said bolt, a latch-tumbler loosely fitted about the reduced end of said auxiliary cylinder and provided with an arm so adapted as to normally engage in said projection on said latch, a horizontal projection or stud on said tumbler-arm, and an escutcheon attached to the base of the reduced end of said auxiliary cylinder provided with a laterally-projecting

pin or stud which normally engages with the horizontal projection or stud on said tumbler-arm and proper instrumentalities for holding the mechanism in operative position substantially as described.

578,764. DEVICE FOR TIGHTENING GAGE-BARS. NELS NELSON, Attleborough, Mass., assignor of one-half to Olof Pharson, same place. Filed Apr. 22, 1896. Serial No. 588,593. (No model.)



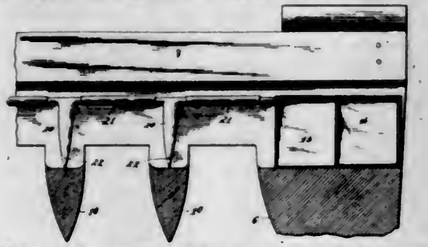
Claim.—In a gage or like instrument, a device for tightening the sliding bar thereof, consisting of a tongue formed between the bar and the tightener, made by cutting a slot through the bar-hole a part of the width of the block, a parallel slot made in the block, and a bent lever pivoted in said slot.

578,765. COOKING UTENSIL. MARY F. O'CALLAGHAN, Watervliet, N. Y. Filed Dec. 19, 1896. Serial No. 616,241. (No model.)



Claim.—The herein-described cooking utensil, the same consisting of a vessel or receptacle which is provided with vertical partitions whereby a plurality of chambers or compartments are formed, one of said compartments being provided with upright keepers secured to or formed on its walls, and a slide mounted therein, the wall of a vessel near the bottom thereof, and between said keepers being provided with perforations or openings which are adapted to be closed by said slide, substantially as shown and described.

578,766. MOWING AND REAPING MACHINE. HENRY E. OLSON, Chicago, Ill. Filed Apr. 17, 1896. Serial No. 588,022. (No model.)



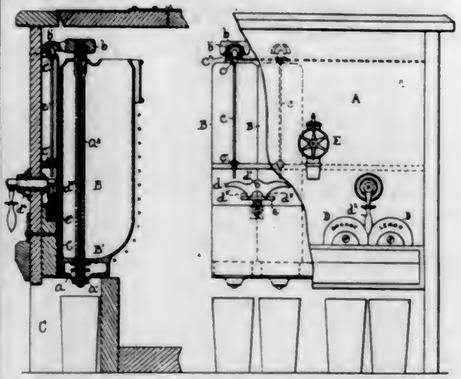
Claim.—1. In a machine of the character described, a truck formed of bars of metal and supported by two wheels, a bracket depending sidewise from said truck, a finger-bar attached to said bracket, knives supported by said finger-bar, guards also supported by said bar, a pump arranged upon the finger-bar, a plunger thereof being attached to the knife-head so as to reciprocate with the knife, a pitman and crank-wheel for reciprocating said knife, suitable gears for connecting said crank-wheel with the truck-wheels, and means for conveying air from the pump to suitable openings in the guards, substantially as and for the purposes set forth.

2. In a machine of the character described, a finger-bar supported upon a suitable bracket having guards secured thereto, knives adapted to reciprocate upon said bar, nozzles carried by said guards, a pump-cylinder to which said nozzles are connected by suitable pipes, a plunger adapted to reciprocate within said cylinder, and means for reciprocating said plunger, substantially as and for the purposes set forth.

3. In combination with the truck of a machine of the character described, a cutter-bar carried by a suitable bracket depending sidewise from said truck, guards attached to said finger-bar, knives adapted to reciprocate upon said bar, a pump-cylinder arranged upon the finger-bar, a plunger adapted to reciprocate within said cylinder, means for reciprocating said plunger, nozzles carried by the guards, pipes for connecting said nozzles with the cylinder, and passages formed in the guards at an angle to the vertical through which the air from the pump is projected to act upon the grain, as and for the purposes set forth.

4. The herein-described combination of a frame supported by two truck-wheels, a bracket depending sidewise from said frame, a finger-bar carried by said bracket, guard-shoes attached to said bar and having openings 24 and flanges 23, the latter forming air-passages, nozzles carried by said guards having openings 22 in their outer ends, a pump 15 connected to said nozzles by pipes 21, a plunger adapted to reciprocate within said pump, a knife-head and knife carried thereby a connection 17 for communicating motion from said knife-head to said plunger, a crank-wheel adapted to receive its motion from the truck-wheels by suitable gearing, a pitman for imparting reciprocating motion from said crank-wheel to the knife-head, and a pipe 25 leading from the pipes 21 and provided with a number of openings upon its rear side through which air may be projected against the grain, as specified.

578,767. VALVE-OPERATING MECHANISM FOR SYRUP-JARS. JOHN ORNEROD, Brooklyn, N. Y., assignor to the American Soda Fountain Company, New York, N. Y. Filed Aug. 27, 1895. Serial No. 560,637. (No model.)



Claim.—1. In a soda-water fountain, the combination with the valve-rods of two adjacent syrup-jars, of the lifting-rod for each valve-rod, the rocking lever for raising said lifting-rods, the handle for operating said lever, and the spring for returning said lever to its normal position, substantially as set forth.

2. In a soda-water fountain, the combination with the valve-rods of two syrup-jars, of the lifting-rod for each valve-rod, the rocking lever for raising said lifting-rods, a handle for operating said lever, and a spring-pressed plate engaging with the said rocking lever, whereby it is returned to its normal position, substantially as set forth.

3. In a soda-water fountain, the combination with the valve-rods of two syrup-jars, of the lifting-rod for each valve-rod, the rocking lever for raising said lifting-rods, the handle for operating said lever, two shoulders on said lever, and a spring-pressed plate with which either one of said shoulders will engage when the lever is operated, whereby the lever is returned to its normal position, substantially as set forth.

4. In a soda-water fountain, the combination of the case, syrup-jars provided with valves and valve-operating devices within said case, the rocking lever within said case situated so as to engage adjacent valve-operating devices, the spring for returning said lever to its normal position, the spindle extending through the case and the handle on said spindle outside the case, substantially as set forth.

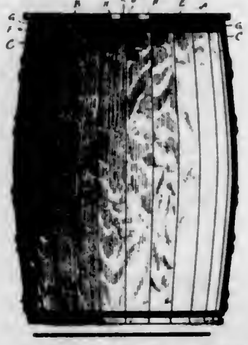
5. In a soda-water fountain, the combination of the case, a syrup-jar within the case and provided with a valve at its lower end, a valve-rod passing through the jar, an arm extending out from said valve-rod, a lifting-rod adapted to engage beneath said arm, a lifting device engaging beneath the lower end of said lifting-rod, but unconnected with the same, and an operating device passing through the front wall of the case and operatively connected with said lifting device, substantially as set forth.

6. In a soda-water fountain, the combination of the case, a syrup-jar within the case and provided with a valve at its lower end, a valve-rod passing through the jar, a lifting-rod adapted to engage with said valve-rod, a rocking lever engaging beneath the lower end of said lifting-rod, but unconnected with the same, and an operating device passing through the front wall of the case and operatively connected with said rocking lever, substantially as set forth.

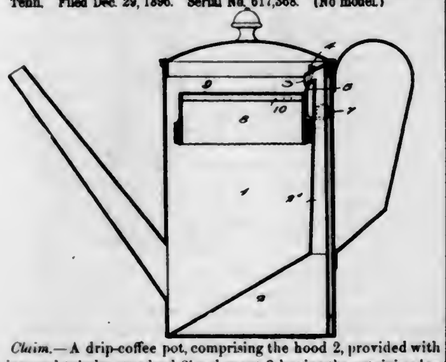
578,768. BARREL-COVER. MARTIN H. PARKS, Winchendon, Mass. Filed Dec. 19, 1895. Serial No. 572,671. (No model.)

Claim.—1. The within-described cover consisting of a circular board B, provided with a pair of parallel elongated openings H, H, forming a handle I between them, and a circular board D of less diameter than the board B and provided with a circular concentric recess E on one side forming a rim G at its edge, said rim G being united to the under side of said board B, substantially as described.

2. In a barrel-cover the combination of a circular board B provided with elongated openings H H and a handle I, a circular board D attached concentrically to said board B and provided with a recess E, a rod J extending lengthwise across said handle I and having its ends bent and passing through said boards B and D, and nuts K held upon the ends of said rod whereby said boards B and D are attached, substantially as described.

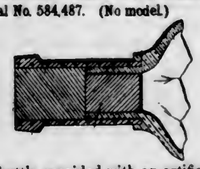


578,769. DRIP-COFFEE POT. JOHN F. PIERCE, Elizabethton, Tenn. Filed Dec. 29, 1896. Serial No. 617,368. (No model.)



Claim.—A drip-coffee pot, comprising the hood 2, provided with the integral tubular standard 2' and spout 3 having the retaining-lug 4, in combination with the percolator 8, provided with the fixed yoke 5, having the integral horizontal arms 7 7, substantially as shown and described.

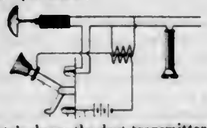
578,770. BOTTLE. JOHN F. POPE, Ottumwa, Iowa. Filed Mar. 23, 1896. Serial No. 584,487. (No model.)



Claim.—1. A bottle provided with an artificial neck of asbestos having a strengthening-wire embedded therein said neck being molded into the glass of the bottle, substantially as specified.

2. A bottle provided with an artificial neck provided with openings and molded to the bottle with the glass thereof projecting through said openings, as set forth.

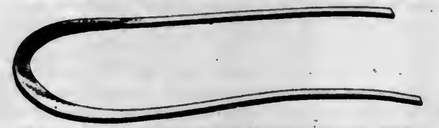
578,771. CUT-OUT AND AGITATOR FOR DUST-TRANSMITTERS FOR TELEPHONES. SAMUEL B. RAWSON, Elyria, Ohio, assignor to the Rawson Electric Company, same place. Filed June 14, 1895. Serial No. 552,799. (No model.)



Claim.—1. In a telephone, the dust-transmitter on a jointed arm, a battery-wire connected to said arm and movable therewith, the bell connections having fingers in position to be engaged and thrown into circuit by said arm in one position, and the transmitter having a finger connected to the battery-circuit and in position to be engaged by the arm when in another position, all combined substantially as described.

2. The backboard having the insulated jointed arm connected thereto, the bell-circuit having fingers in position to be engaged by said arm when swung upward, the transmitter having a finger in position to be engaged by said arm when swung downward, the battery-circuit connected to said arm and transmitter, and the dust-transmitter carried by said arm, all combined and arranged substantially as described.

578,772. BREAST-COLLAR AND TRACE. FRANK RAYNOR, Stryker, Ohio. Filed Feb. 3, 1896. Serial No. 577,898. (No model.)



Claim.—As a new article of manufacture, a harness breast-strap and tugs made in one piece and formed by severing from a section of leather a strip comprising two parallel portions and a connecting curved end portion, said strap being then stretched to eliminate the curve and change the plane of the strip so that the breast-strap portion may lie with its flat side instead of its edge against the breast of the animal, substantially as and for the purposes described.

578,773. PENHOLDER. SAMUEL M. RHOAD, Montgomery, Pa. Filed July 21, 1896. Serial No. 600,006. (No model.)



Claim.—A penholder comprising the handle 1, the sleeve 2 secured to one end thereof, and provided with the spring sides 6 6, in combination with the cylindrical socket 4, mounted at one end in the sleeve 2 by a rivet 5, and the longitudinally and axially adjustable cylindrical holder 8 mounted on said socket, and provided with the removable pen-point 9, substantially as and for the purpose set forth.

578,774. THILL-SUPPORT. MERTON L. RICE and JOHN D. RICE, Utica, Mich. Filed July 29, 1896. Serial No. 600,902. (No model.)



Claim.—1. As a new article of manufacture, an adjustable strap, provided at one end with a spring-hook and at the other with a ring, and having its body portion between said hook and ring provided with an angular shoe lined with felt or other material and having slotted ears through which said strap passes, substantially as and for the purpose set forth.

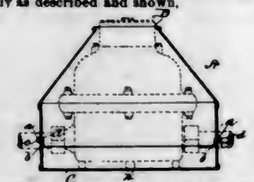
2. As a new article of manufacture, a thill-support for vehicles, comprising an angular slotted shoe lined with felt or other material and in which is adjustably secured a flexible strap, one of the ends of which is provided with a spring-hook and the other with a permanent ring, substantially as and for the purpose set forth.

3. As a new article of manufacture, a thill-support for vehicles, comprising an angular slotted shoe lined with felt or other material and in which is adjustably secured a flexible strap, one of the ends of which is provided with a permanent ring, and the other terminating in an adjustable loop in which is secured a spring-hook, substantially as and for the purpose set forth.

578,775. METER-SEAL. HENRY RINGNER, Peoria, Ill. Filed Apr. 8, 1896. Serial No. 544,883. (No model.)

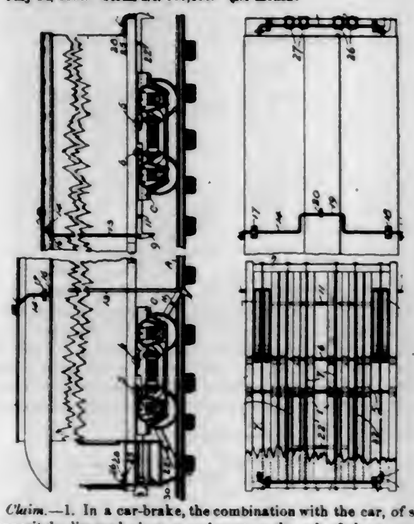
Claim.—1. In a meter-seal, the combination of sections A and C, each provided with an outwardly-bearing flange having a series of

perforations and the tie *d*, laced through the perforations to hold the sections together and a seal for securing the ends of the lace together, all substantially as described and shown.



2. In a meter-seal consisting of the casing composed of sections A and C, section A provided with a sight-opening B, section C having the small outlet-opening *n*, and openings as *f*, for the admission of pipes leading to and from the meter, section A having the depending flange *b*, for fitting in the top of section C, and the outwardly-bearing flange *a*, provided with a series of perforations, and section C also provided with the outwardly-bearing flange *c*, provided with a series of perforations matching the perforations in flange *a*, of the section A and the tie *d*, laced through the perforations in the flanges and the ends thereof secured together as at *e*, and properly sealed, all substantially as described and shown.

578,776. CAR-BRAKE. STEPHEN ROGERS, Waldo, Ark. Filed July 14, 1896. Serial No. 599,153. (No model.)



Claim.—1. In a car-brake, the combination with the car, of sets of oppositely-disposed pivot-grapples at each end of the car, and means for individually operating each set and for holding the same in raised position.

2. In a car-brake, the combination with the car, of grapples pivoted thereto, a rotatable shaft, means for locking the same, and a connection between said shaft and the grapples whereby the latter may be held suspended.

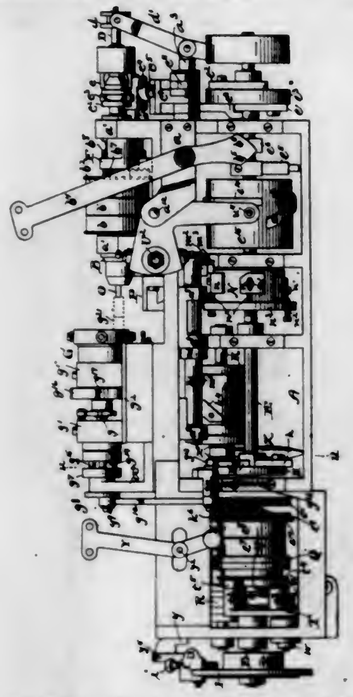
3. In a car-brake, the combination with the car, of grapples pivoted thereto, a rotatable shaft provided with a handle, a keeper adapted to engage with the handle and lock the shaft, and a connection between the shaft, and the grapples.

4. In a car-brake, the combination with a frame connected to the car, of grapples pivoted to the frame, a rotatable shaft provided with arms, cables connected to the grapples and having links which receive the arms, and means for locking said shaft so that the grapples will be held raised.

5. In a car-brake, the combination with a frame connected to the car, of grapples pivoted to the frame, a rotatable shaft provided with arms and a handle, a pivoted keeper adapted to engage with the handle and lock the shaft, and cables connected to the grapples and having links which receive the arms.

578,777. SCREW-MACHINE. FREDERICK SCHULER, Cleveland, Ohio. Filed Nov. 16, 1896. Serial No. 612,353. (No model.)

Claim.—1. In a screw-machine, in combination, the live-spindle, a pulley tight thereon, a pulley loose thereon, a gear tight to said loose pulley, a gear tight to the spindle, a rocker pivoted concentrically with said spindle, means for fixing its position, connected gears mounted on said rocker, and an idler-gear whereby motion is transmitted from one gear on the spindle to the other, and a belt-shipper, substantially as and for the purpose specified.



2. In a screw-machine, in combination, the live-spindle, a pulley loose thereon, a gear tight to said pulley, a gear tight to the spindle, a rocker hung upon said spindle, and means for securing it in fixed position, a shaft mounted thereon, two gears tight to said shaft, and an idler-gear, substantially as and for the purpose specified.

3. In a screw-machine, in combination, the live-spindle, a tight pulley thereon, a loose pulley thereon, means for transmitting motion from the loose pulley to the spindle, a belt-shipper lever having on one arm two cam-surfaces, the driving-shaft, and two arms adjustably secured thereto for engagement with the said cam-surfaces, substantially as and for the purpose specified.

4. In a screw-machine, the described means for operating the cone which actuates the chuck, consisting of the following parts in combination, the fork-lever movable longitudinally with respect to the live-spindle, an operating-pin secured thereto, a three-arm lever having on the segment-shaped end of the work-arm spiral cams for engagement with said operating-pin, a rotating disk, and adjustable cams secured thereto, which engage with and alternately operate the two work-arms of said lever, substantially as and for the purpose specified.

5. In a screw-machine, in combination, the tubular live-spindle, tubular chuck, levers for operating the chuck, a cone for actuating said levers, a sliding sleeve having a fork for moving said cone and an operating-pin, a pivoted lever having two power-arms and a segment-shaped work-arm, cams upon the end of this work-arm for engagement with said operating-pin, and cams for engaging said power-arms alternately, substantially as and for the purpose specified.

6. In a screw-machine, the means substantially as described for moving the tool-slide, consisting of a segment-shaped rocker pivoted to a fixed stud, cams on its surface, a pin projecting from the tool-slide into engagement with said cams, an operating-lever pivoted on the same stud, rotating cams for engaging with one arm of said lever, and means for adjustably connecting said segment-shaped arm and the operating-lever, substantially as and for the purpose specified.

7. In a screw-machine, the means substantially as described for moving the tool-slide, consisting of a rocker having a segment-shaped end, cams thereon engaging a pin on the tool-slide, a bell-crank operating-lever having in one arm a curved slot, adjustment-screws which enter the ends of this slot, a pin on the rocker which enters this slot between said screws, and rotating cams engaging with the other arm of the bell-crank lever, substantially as and for the purpose specified.

8. In a screw-machine, in combination, the turret-slide, a stud secured thereto, the main shaft, a secondary shaft, a suitable connecting mechanism, a drum longitudinally movable upon said secondary shaft having cams on its surface, said drum also having a circumferential groove in which said stud engages, a longitudinal sliding bar having a projection which engages with said surface cams, and having also a stop-collar and a second projection, a drum secured to the main shaft, adjustable dogs thereon adapted to engage with the last-named projection on said bar, substantially as and for the purpose specified.

9. In a screw-machine, in combination, the turret-slide, the main shaft, a secondary shaft driven therefrom, a disk secured to said secondary shaft, a drum loosely mounted on said shaft, pins parallel with the shaft secured to said disk passing loosely through holes in the hub of said drum, cams secured to the face of said drum, a sliding rod having a projection adapted to engage with said cams, a stop-collar on said rod, a second projection on said rod, a drum secured to the main shaft, adjustable dogs secured to the surface of said drum, and a stud secured to the turret-slide entering a circumferential groove in the drum first named, substantially as and for the purpose specified.

10. In a screw-machine, in combination, the main shaft, two pulleys loosely mounted thereon, a secondary shaft, gears transmitting motion from one of said pulleys through the secondary shaft to the main shaft, a silent feed mounted on the secondary shaft, mechanism intermediate of the other loose pulleys and said silent feed, gears transmitting motion from said silent feed to the first-named loose pulley, substantially as and for the purpose specified.

11. In a screw-machine, in combination, the main shaft, two pulleys loosely mounted thereon, two gears fast to one of the said loose pulleys, a gear fast upon the main shaft, two gears fast on the secondary shaft in mesh, as described, whereby motion is transmitted from said loose pulley to the main shaft, a sleeve loose upon the secondary shaft, a gear fast thereto in mesh with one of the gears secured to said loose pulley, a silent feed on said sleeve, and mechanism intermediate of the other loose pulley and silent feed, substantially as and for the purpose specified.

12. In a screw-machine, in combination, the main shaft, a pulley loosely mounted thereon, an eccentric disk rotating with said pulley, a ram-bar operated by said eccentric disk, a lever operated by said ram-bar, a secondary shaft, a silent feed mounted thereon, mechanism intermediate of said lever and silent feed whereby the latter is operated, and a train of gears transmitting motion from said silent feed to the main shaft, substantially as and for the purpose specified.

13. In a screw-machine, in combination, the main shaft, a pulley loosely mounted thereon, an eccentric disk rotating with said pulley, means for varying the eccentricity of said disk, a ram-bar engaging said disk, a lever operated by said ram-bar, a silent feed operated by said lever, and a train of gears transmitting motion from said silent feed to the main shaft, substantially as and for the purpose specified.

14. In a screw-machine, in combination, the main shaft, a pulley loosely mounted thereon, a transversely-movable eccentric disk connected with said pulley and having an eccentric hole, a cone longitudinally movable upon the main shaft within the disk and in engagement therewith, mechanism operated by said eccentric disk whereby the main shaft is rotated, a lever for moving said cone, and adjustable cams for operating said lever, substantially as and for the purpose specified.

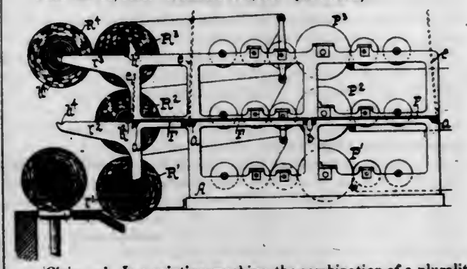
15. In a screw-machine, in combination, the main shaft, a pulley loosely mounted thereon, an eccentric disk rotating with the pulley, a ram-bar operated by said disk, a lever operated by said ram-bar, a sleeve mounted on the secondary shaft, a disk rotating with said sleeve, mechanism for transmitting motion from the sleeve to the main shaft, two oscillating disks mounted axially with respect to said sleeve, clutching devices for alternately connecting said two disks with the disk which is fast to said sleeve, and two links respectively connecting these two disks with said lever, substantially as and for the purpose specified

16. In a screw-machine, in combination, the main shaft, two pulleys loosely mounted thereon, mechanisms for transmitting motion at different speeds from said pulleys respectively to the shaft, a belt-shipper lever, a longitudinally-movable bar for operating said lever, a spring for moving said bar in one direction, a rotating disk, dogs adjustably secured thereon, and a plate having a beveled end secured to said bar, substantially as and for the purpose specified.

17. In a screw-machine, in combination, a belt-shipper lever, a longitudinally-movable bar, a spring, an eccentrically-curved plate on the end of said bar, a rotating disk, radially-adjustable dogs secured thereto for engagement with said plate, substantially as and for the purpose specified.

18. In a screw-machine, in combination, the turret-slide, the turret-spindle mounted therein, and a ratchet secured to said turret-spindle with an oscillating sleeve mounted in the fixed support concentric with said turret-spindle, a pawl carried thereby, a connecting-rod pivoted on a crank-pin secured to said sleeve, a pivoted lever to which the other end of said connecting-rod is pivoted, a rotating disk, and cams secured thereto for operating said lever, substantially as and for the purpose specified.

578,778. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Jan. 30, 1895. Serial No. 536,638. (No model.)

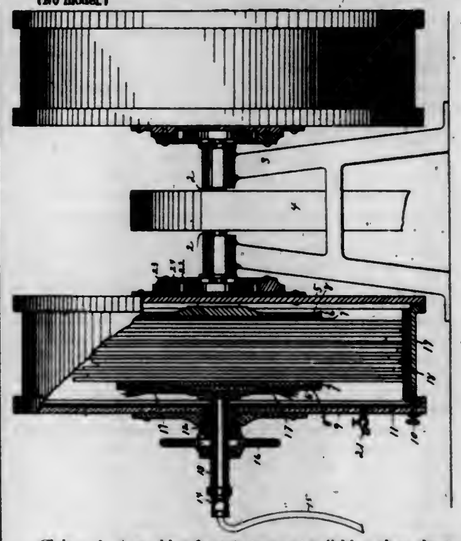


Claim.—1. In a printing-machine, the combination of a plurality of printing-presses arranged one above another, holders for roll-spindles at one end of said machine, and also one above another, rails or extensions for the presses above the lower press extending beyond said holders a distance sufficient to allow hoisting of the upper roll or rolls wholly clear of the roll or rolls underneath when the latter are in position in said holders and arranged to receive and hold the roll-spindles, and a hydraulic hoist for hoisting the rolls to the upper rails, substantially as described.

2. In a printing-machine, the combination of three or more printing-presses arranged one above another in parallel planes, and skeleton framework supporting the journals of the printing-presses and one or more foot-boards pivoted on horizontal axes and extending along the framework and lying normally horizontally and adapted to be swung upward out of the way to afford ready access to the plate or other cylinders of the middle press or presses, substantially as described.

3. In a printing machine, the combination of three or more printing-presses arranged one above another in parallel planes, a skeleton framework having horizontal cylinder-journal-supporting parts, and uprights connecting said horizontal parts, and one or more foot-boards pivoted to said framework on horizontal axes and normally lying horizontally and adapted to be swung upward alongside the uprights, whereby ready access may be had to the plate or other cylinders, substantially as described.

578,779. MACHINE FOR GRINDING AND POLISHING GLASS. PHILLIP SEMMER, Irwin, Pa. Filed Dec. 10, 1896. Serial No. 571,662. (No model.)



Claim.—1. A machine for grinding and polishing plane sheets of glass and other plane surfaces, consisting of a horizontal cylinder

adapted to receive the glass, the glass resting on edge in the cylinder, and a cushion located in said cylinder, said cylinder having a revolving motion.

2. A machine for grinding and polishing glass, consisting of a cylinder adapted to receive the glass, and a cushion located in said cylinder, said cushion being secured to the cylinder at intervals and between the intervals extending toward the center of the cylinder.

3. A machine for grinding and polishing plane sheets of glass and other plane surfaces, consisting of a horizontal cylinder adapted to receive the glass, and perpendicularly-arranged grinding-disks located in said cylinder, said cylinder having a revolving motion.

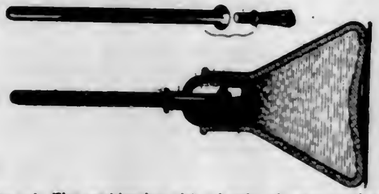
4. A machine for grinding and polishing plane sheets of glass and other plane surfaces, consisting of a horizontal cylinder adapted to receive the glass, the glass being adapted to rest on edge in the cylinder, a removable side closing one end of the cylinder, and perpendicularly-arranged grinding-disks located in said cylinder, said cylinder having a revolving motion.

5. A machine for grinding and polishing plane sheets of glass and other plane surfaces, consisting of a horizontal cylinder adapted to receive the glass, the glass resting on edge in the cylinder, a perpendicular grinding-disk permanently secured to one end of the cylinder, and a grinding-disk perpendicularly arranged and adjustably secured to the opposite end of the cylinder, said cylinder having a revolving motion.

6. A machine for grinding and polishing plane sheets of glass and other plane surfaces, consisting of a cylinder adapted to receive the glass, and a laterally-adjustable grinding-disk secured to one side of the cylinder, said cylinder having a revolving motion.

7. A machine for grinding and polishing plane sheets of glass and other plane surfaces, consisting of a cylinder adapted to receive the glass, and a laterally-adjustable grinding-disk secured to one side of the cylinder, and a device for retaining said disk in a desired position, said cylinder having a revolving motion.

578,780. **MUCILAGE-BRUSH.** JOSEPH F. SMITH, Anacostia, D. C. Filed June 1, 1896. Serial No. 593,827. (No model.)

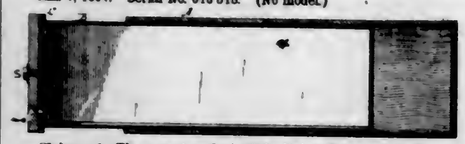


Claim.—1. The combination with a bottle, of a stopper therefor adapted to fit within the neck of said bottle, the said stopper being tubular in form and having a contracted neck at the upper end thereof, a handle or gripping device on said neck, a vertically-reciprocable tubular handle carrying a brush at its lower end, fitting within the opening in said neck and having an elongated slot in each side thereof, a pin passing through the neck of said stopper and the elongated slots in said handle, a coil-spring fitting within said handle, engaging the upper end thereof and bearing against said pin and a stop on the lower end of said handle for limiting the upward movement thereof, substantially as and for the purpose described.

2. The combination with a bottle, of a stopper therefor adapted to fit within the neck of said bottle, the said stopper being tubular in form and having a contracted neck at the upper end thereof, a handle or gripping device on the upper end of said neck, a vertically-reciprocable tubular handle carrying a brush at its lower end, fitting within the opening in said neck and having an elongated slot in each side thereof and crimped at its lower end forming an annular shoulder upon its outer side and a groove upon its inner side, a brush adapted to fit within the lower end of said tubular handle and be held in place by the engagement of the shoulder upon its casing with the groove on the inner surface of said handle, a pin passing through the neck of said stopper and the elongated slots in said handle, a coil-spring fitting within said handle, engaging the upper end thereof and bearing against said pin and a washer secured to the lower end of said handle, adapted to engage the inner surface of said stopper adjacent to the neck thereof to limit the upward movement of said handle and to complete the closure of the opening through said neck.

3. The combination with a bottle for containing mucilage, of a stopper therefor adapted to fit within the neck of said bottle, the said stopper being tubular in form, with a contracted neck having an annular flange or shoulder at the upper end thereof, a vertically-reciprocable tubular handle fitting the opening in said neck, having an elongated slot in each side thereof and crimped at its lower end, forming an annular shoulder upon its outer side and a groove upon its inner side, a brush adapted to fit within the lower end of said tubular handle and be held in place by the engagement of a shoulder upon its casing with the groove on the inner surface of said handle, a washer surrounding said handle and resting upon the shoulder at the lower end of said handle, a pin passing through said neck and the elongated slots in said handle and a spring fitting within said tubular handle, engaging the upper end thereof and bearing against said pin, substantially as and for the purpose described.

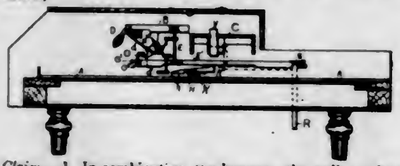
578,781. **COFFIN.** EDWARD L. SNADER, New York, N. Y. Filed Jan. 7, 1897. Serial No. 618,318. (No model.)



Claim.—1. The case A and air-tight lining B in combination with the frame C, secured to lining B and having its edges projecting to rest upon the edges A' of the outer case A, constructed substantially as described, and packed cover I all constructed, arranged and operated substantially as described.

2. The case A, lining B, frame C, removable end cover I brace D and adjusting-screw S in combination with the L-shaped lugs E E arranged on opposite sides and opening in opposite directions as set forth.

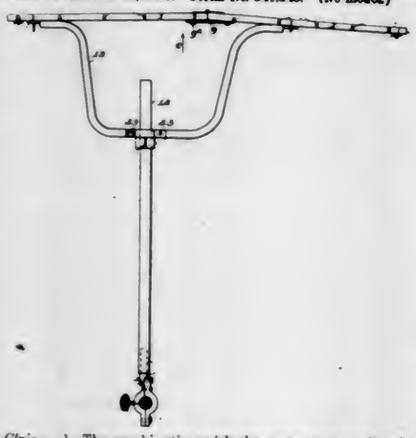
578,782. **PIANOFORTE OR PIANETTE.** JOSEPH STRONG, Lismore, New South Wales. Filed Jan. 31, 1896. Serial No. 577,601. (No model.)



Claim.—1. In combination, the hammer, the ordinary keys, the intermediate bars E' with connections to the hammers, and the compounding mechanism, both the ordinary keys and the compounding mechanism being arranged over the intermediate bars E' and at different points along the same to act thereon independently, substantially as described.

2. In combination, the hammers, the keys, the compounding mechanism, the intermediate bars E', a hopper pivoted to the intermediate bar and engaging the hammers, an adjustable escapement comprising a rail and a piece on the hopper to contact therewith and the adjustable check-buffer M on the hopper, both the keys and the compounding mechanism being arranged at different points over the bars E', substantially as described.

578,783. **BICYCLE-CANOPY.** CHARLES STURLL, Bridgeport, Conn. Filed Mar. 11, 1895. Serial No. 541,245. (No model.)

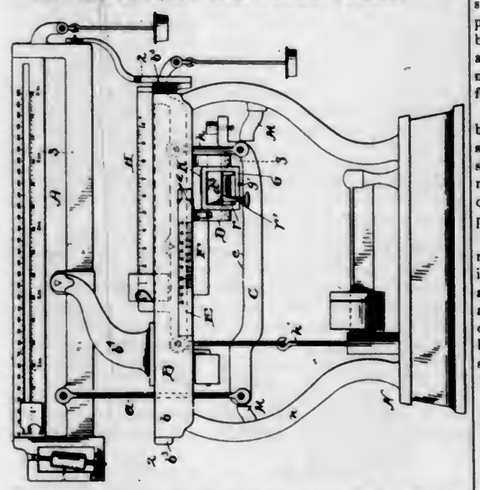


Claim.—1. The combination with the clamps adapted to be secured to the handle-bar of a bicycle, and each consisting of two connected semicircular sections one of which is formed with an apertured

head, the horizontally-swinging extension pivotally connected therewith, provided with a vertical stud at its outer end, and the vertical removable tube in the lower end of which said stud fits, of the vertically-movable slides on said tube, the curved arms pivotally connected therewith, and the collapsible canopy removably secured to the upper end of said arms, substantially as described.

2. The combination with the clamps adapted to be secured to the handle-bar of a bicycle, and the removable tubes connected therewith, of the vertically-movable slides on said tubes, provided with oppositely-extending lateral wings in different longitudinal planes, the arms pivotally connected therewith, and the removable and collapsible canopy connected with the upper ends of said arms, substantially as described.

578,784. **COMPUTING-SCALE.** JOHN H. SWIHART, Cleveland, Ohio. Filed Nov. 24, 1896. Serial No. 613,339. (No model.)



Claim.—1. In a computing-scale, the combination of a fixed frame member having parallel front and back plates, with a fulcrum-carriage movable upon said plates, a movable fulcrum-block mounted on said carriage, and a rate-beam below said fulcrum-block, substantially as and for the purpose specified.

2. In a computing-scale, the combination of a fixed frame member having parallel front and back plates, which plates are grooved horizontally upon their inner faces, with a fulcrum-carriage which slides in said grooves, a vertically-movable fulcrum-block mounted on said carriage, and a rate-beam below said fulcrum-block having a notched upper edge, substantially as and for the purpose specified.

3. In a computing-scale, the combination of a fixed frame member having parallel front and back plates, which plates are grooved horizontally upon their inner faces, with a fulcrum-carriage having wheels which enter said grooves, a vertically-movable fulcrum-block mounted upon said carriage, and a notched rate-beam below said fulcrum-block and adapted to be engaged by it when it is moved down, substantially as and for the purpose specified.

4. In a computing-scale, the combination of a horizontally-movable carriage having two end pieces, and a rectangular bar connecting them, with a fulcrum-block lying between said end pieces and vertically movable upon said rectangular bar, horizontal guides for said carriage, and mechanism for moving said fulcrum-block up and down, with a notched rate-beam into and out of engagement with which the fulcrum-block is carried by its vertical movement, substantially as and for the purpose specified.

5. In a computing-scale, the combination of a graduated rate-beam, a movable fulcrum-carriage, a fulcrum mounted upon said carriage and movable into and out of engagement with said rate-beam, a stationary rate-plate graduated to correspond with the rate-beam, and a pointer secured to the fulcrum-carriage and movable in a path adjacent to said rate-plate, substantially as and for the purpose specified.

6. In a computing-scale, the combination of a notched rate-beam, a horizontally-movable fulcrum-carriage above said rate-beam, a vertically-movable fulcrum mounted on said carriage, and mechanism for moving said fulcrum up and down, with a stationary graduated rate-plate, and a pointer secured to the fulcrum-carriage and movable in a path adjacent to said graduated rate-plate, substantially as and for the purpose specified.

7. In a computing-scale, the combination of a notched rate-beam and a correspondingly-notched stationary rate-bar, with a carriage movable upon a fixed horizontal support, and a vertically-movable fulcrum-block mounted on said carriage, having a finger which will engage with the notched rate-bar, and a sharp-edged fulcrum which will engage with the rate-beam when the fulcrum-block is moved toward said rate-beam, substantially as and for the purpose specified.

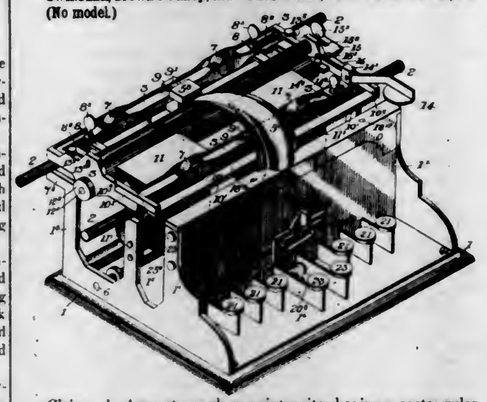
8. In a computing-scale, the combination of a notched rate-beam and a correspondingly-notched stationary rate-bar, with a carriage movable upon a fixed horizontal support, a vertically-movable fulcrum-block mounted upon said carriage and adapted to be moved into and out of contact with the notched edge of the rate-beam, a spring-actuated bar mounted on said fulcrum-block having a finger which will engage with said stationary notched bar, substantially as and for the purpose specified.

9. In a computing-scale, the combination of a notched rate-beam suspended at its ends on two freely-swinging links, immovable stops placed close to the respective ends of said rate-beam whereby a slight but limited longitudinal movement of the rate-beam is permissible, and a fulcrum movable in a path parallel to the rate-beam and also movable into and out of engagement therewith, substantially as and for the purpose specified.

10. In a computing-scale, the combination of a notched rate-beam suspended at its ends on two freely-swinging links, immovable stops placed close to the respective ends of said rate-beam whereby a slight but limited longitudinal movement of said rate-beam is permissible, and a fulcrum movable horizontally and vertically into and out of engagement with said rate-beam, substantially as and for the purpose specified.

11. In a computing-scale, the combination of a horizontal notched rate-beam suspended at its ends on two freely-swinging links and two immovable stops placed close to the ends of said rate-beam, whereby a slight but limited movement of said rate-beam is permissible, with a horizontally-movable fulcrum-carriage, a vertically-movable fulcrum-block mounted on said carriage, a finger carried by said fulcrum-block, and a fixed notched bar with which said finger will engage, substantially as and for the purpose specified.

578,785. **TYPE-WRITING MACHINE FOR THE BLIND.** ALBERT SWINDLER, Brown's Valley, Ind. Filed Oct. 16, 1895. Serial No. 565,916. (No model.)



Claim.—1. A punctograph or point-writer having a rectangular carriage-frame provided with a paper-feed and line-spacing mechanism, the same comprising an actuating feed-roller, the thumb-wheel, impelling-gears, and retaining stop-gears fixed rigidly upon the ends of the actuating-roller axle for impelling, stopping, and retaining said roller in the proper line-space, an auxiliary reciprocating roller having its axle ends working in reciprocal slot-openings in the carriage-frame for permitting the roller to adjust itself automatically to the thickness of the paper, a pair of bent steel springs secured to the carriage-frame and pressing down upon the auxiliary-roller axle ends to hold it normally against the actuating-roller for feeding the paper, and a line-spacing, rack-raising lever having a bent spring-hook at its inner end adapted to engage the serratures of the impelling-gears for operating the actuating feed-roller by a stroke on the outer end of said lever and a movable frame supporting said lever adapted to be adjusted longitudinally and to be fixed rigidly upon the carriage-frame for the purpose of setting the lever in engagement with the proper impelling-gear to write the Braille or New York system respectively as may be desired, substantially as specified.

2. A punctograph or point-writer having a rectangular carriage-frame provided with a mechanical device for stopping and retaining

the actuating feed-roller in the proper line-space, the same consisting of an adjustable beat steel spring having a pair of arms projecting inwardly and downwardly from its opposite ends and sides, the reciprocal bent ends of said arms being adapted to operate against the serrated periphery of the retaining stop-gears for stopping and retaining the actuating feed-roller in the proper line-space, a retaining thumb-screw working through a reciprocal opening in the bent steel spring adapted to be adjusted longitudinally upon its table-like supporting-lug and to be rigidly fixed thereon by the retaining thumb-screw so as to set the proper arm against the desired retaining stop-gear for writing the Braille or New York system respectively, substantially as specified.

3. A punctograph or point-writer having a rectangular carriage-frame provided with a hinged feed-rack having the under side of the front portion formed with a series of transverse grooves adapted to reciprocally receive the upper ends of the oscillating T and feed and check levers of the carriage-feed mechanism successively and consecutively as they are caused to complete an oscillation about their pivotal pins and arms projecting rearwardly over the carriage-frame and hinged thereto for enabling the rack to be raised above the ends of the oscillating levers to run the carriage manually in either direction without manipulating the machine, and a projecting pin or stud on the right arm of the feed-rack adapted to play in a reciprocal slot of the line-spacing, rack-raising lever for lifting the feed-rack by a stroke on the outer end of said lever, and a steel spring secured to the carriage-frame just back of the arm, pressing down upon said arm, so as to return the feed-rack to its normal position over the ends of the oscillating levers on releasing the stroke on the outer end of the line-spacing, rack-raising lever, substantially as specified.

4. A punctograph or point-writer having a carriage-feed mechanism, the same comprising a supporting-frame secured at the upper end to the irregular spacer-frame and at the lower inner end to the inside projection of the machine-supporting frame, an oscillating retaining T-lever pivoted to the supporting-frame and adapted to oscillate longitudinally with the grooves on the under side of the carriage-feed rack, an auxiliary feed and check lever pivoted in a reciprocal opening in the outer arm of the retaining T-lever and adapted to be impelled out of and back into said grooves by an oscillation of the retaining T-lever and to oscillate transversely with the grooves when disengaged therefrom, a straight steel spring secured to the supporting-frame pressing down upon the inner arm of the retaining T-lever, an elbow-lever pivoted about its longitudinal center to the supporting-frame operating against the under side of the retaining T-lever arm, and a feed-bar suitably connected by a rod to the inner end of the elbow-lever, having inward-projecting arms fulcrumed on the machine screw-rod forming an axis of oscillation for the feed-bar adapted to be oscillated thereon by a stroke on the outer end of the key-levers causing the retaining T-lever and its auxiliary feed and check lever to make one complete oscillation about their pivotal pins for feeding the carriage regularly and uniformly in manipulating the machine, substantially as specified.

5. A punctograph or point-writer having a point-spacing mechanism, the same comprising a space-bar having the rear ends of its arms fulcrumed on the machine screw-rod and its front portion provided with a series of regular and irregular slots, an angle-lever consisting of a lower and an upper arm pivoted about their angle center to the projecting arm of the irregular supporting-frame, a rod suitably connecting the lower angle-lever arm with the front portion of the space-bar, a forked traveler-rod pivoted to the upper angle-lever arm, its two outer members being adapted to pass through reciprocal openings or slots in the lower portion of the screw-shank of the traveler and of a projection of the irregular frame, a rectangular traveler adapted to travel on the irregular spacer-frame, having a screw-shank adapted to work through and to travel in a reciprocal opening in said frame, a spiral expansion-spring encircling said screw-shank and circular washers encircling the screw-shank at the ends of said spring all for the purpose of holding the traveler normally against its reciprocal frame, a connecting-spring hooked at one end to the screw-shank expansion-spring of the traveler and at the other to the auxiliary feed and check lever of the carriage-feed mechanism, and an irregular spacer-frame formed with all the necessary slits, openings, and projections essential to the proper fixture and complete operation of its several working parts and adapted to be rigidly fixed by set-screws to the under side of the front frame-piece of the machine, all for the purpose of point-spacing the puncture-line uniformly and causing the carriage to be fed regularly by each stroke on the outer ends of the key-levers in manipulating the machine, substantially as specified.

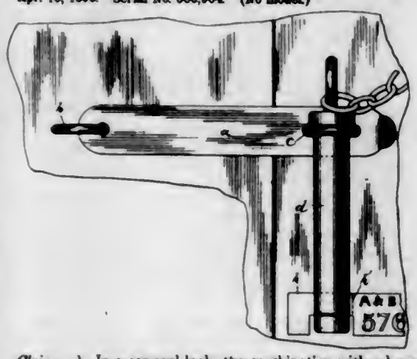
6. A punctograph or point-writer having a space-bar shifter, the same comprising a shifter-rod having a circular-shaped enlargement at the inner end encircling the machine screw-rod and reciprocally receiving the inner end of the space-bar arm fulcrumed upon said screw-rod and a reciprocal circular screw-nut at the outer end of the shifter-rod, having an annular rim reciprocally overlapped by a holder adapted to be rigidly fixed to the supporting-frame of the machine by a set-screw so as to hold the space-bar shifter in the proper position to which it is impelled by the manipulation of the circular screw-nut to set the proper slots of the space-bar directly under the key-levers for writing the Braille or New York system respectively, substantially as specified.

7. A punctograph or point-writer having a mechanism for cutting off one point-space to write a musical notation the same comprising an adjustable space-bar fixed movably upon the irregular spacer-frame of the point-spacing mechanism and adapted to infringe the distance of one point-space upon the oscillating carriage-feed levers, an oscillatory lever having a hook-and-eye connection with said space-bar and pivoted at the lower end in a little supporting-frame rigidly fixed to the front frame-plate of the machine having its projecting end working in a reciprocal slot in the front frame-plate and a reciprocal slot running diagonally across the body of the movable thumb-slide actuating the oscillatory lever to impel the movable space-bar inwardly or outwardly so as to infringe or to release its infringement upon the carriage-feed levers, a thumb-slide fixed movably upon the front frame-plate, having a diagonal reciprocal slot for the reception of the projecting end of the oscillatory lever and adapted to be moved longitudinally to actuate the oscillatory lever, and a thumb-block fixed movably to the base frame-plate, having a longitudinal reciprocal slot for the reception of the thumb-screw adapted to be manipulated to fix the block rigidly to the base frame-plate to add to the blank space the distance that has been taken away by the infringement of the space-bar upon the carriage-feed levers for reducing the point or punctured space, substantially as specified.

8. A punctograph or point-writer having a puncturing mechanism, the same comprising a series of key-levers rigidly fixed upon cylindrical hubs adapted to oscillate upon the machine screw-rod forming an axis of oscillation for the reciprocal cylindrical hubs and the key-levers rigidly fixed thereon, and a series of puncturing-rods having a ball-and-socket connection with the inner ends of the key-levers and adapted to work in and through reciprocal openings in the circular point-changer for puncturing the paper as it passes between the circular point-changer and the outer end of the gooseneck projection above it, having the under side thereof pierced with a series of little sockets for the reception of the ends of the puncturing-rods to puncture the paper by manipulating the outer ends of the key-levers, substantially as specified.

9. A punctograph or point-writer having a system point-changer, the same comprising a circular body portion adapted to fit into a reciprocal circular aperture in the rear frame-piece and provided with a series of reciprocal openings for the reception of the puncturing-rods and a small annular groove around its periphery, and a controlling arm or lever projecting downwardly from the bottom of the annular groove and bent at right angles with an outer screw end having a reciprocal cone-nut thereon, the screw end working in an elongated reciprocal slot in the rear frame-piece the ends of said slot being suitably formed so as to reciprocally receive the cone-nut for securely setting the point-changer after it has been turned into the proper position for writing the Braille or New York system respectively, substantially as specified.

578,786. SEAL-BOLT. GEORGE S. TIFFANY, Chicago, Ill., assignor of one-half to Thomas S. Wheelwright, Highland Park, Ill. Filed Apr. 10, 1896. Serial No. 586,904. (No model.)

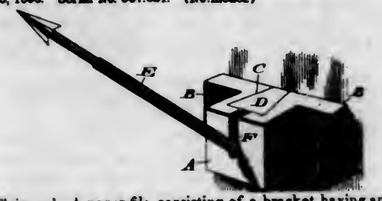


Claim.—1. In a car-seal lock, the combination with a hasp and a staple, of a pin containing the seal-lock and comprising a shell provided with a shoulder or lateral extension at one end and open at the opposite end, a plunger extending into the open end of said shell, a catch for locking said plunger in said shell when thrust in except when the plunger is rotated, transverse slots provided at the open end of said shell and a transverse slot in the plunger registering with the slots in said shell when the plunger is thrust in, a flat seal fitting in said slots and provided with extensions on opposite sides of the shell to prevent the withdrawal of the seal, the shank of said pin passing through the eye of the staple and resting with the shoulder on one side of the staple and the locked seal on the other side, substantially as described, and for purpose set forth.

2. In a car-seal lock, the combination with a staple and a hasp, of a pin for insertion through said staple and provided with transverse slots within which a flat or sheet-like seal is clamped, the ends of the seal thus extending beyond the pin to prevent the withdrawal thereof through the staple, said pin being provided with a longitudinal ridge fitting in a slot extending from the eye of the staple and preventing the rotation of the pin or the wrapping of the ends of the seal about the pin, whereby the withdrawal of the pin before the seal is removed is prevented, substantially as described.

3. The combination with the staple c, of a hasp *a* fitting over the same, a pin containing the seal-lock and comprising the shell *d* provided at the upper end with a shoulder or lateral extension and provided in the end with the transverse slots d^4 d^4, the plunger *e* extending into said shell and provided with the transverse slot registering with the slots d^4 d^4 when the plunger is thrust in, said plunger being provided with a peripheral channel e^3, a pin or projection on the shell extending into said peripheral channel to limit the movement of the plunger, and a catch for locking said plunger within the shell when thrust in except when the plunger is rotated, substantially as described.

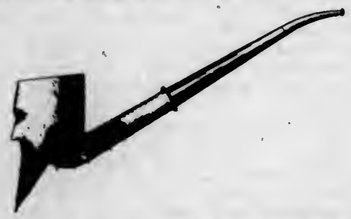
578,787. PAPER-FILE. STEPHEN B. TILY, Philadelphia, Pa., assignor of one-half to Frederick L. Keene, same place. Filed Apr. 15, 1896. Serial No. 587,621. (No model.)



Claim.—1. A paper-file, consisting of a bracket having an opening therein, and a vertical slot in its front wall, a block of dovetail shape both in vertical and horizontal cross-section, adapted to be seated in said opening, and an impaling-pin projecting from said block, through said slot, said slot being of less width than said block, said parts being combined substantially as described.

2. A paper-file consisting of a bracket having a recess C therein and a slot F in its front wall communicating with said recess of less width than the same, the block D dovetailed in both vertical and horizontal cross-section tapering from top to bottom and from front to rear, and occupying said recess, and the impaling-pin E secured to said block and projecting through said slot, said parts being combined, substantially as described.

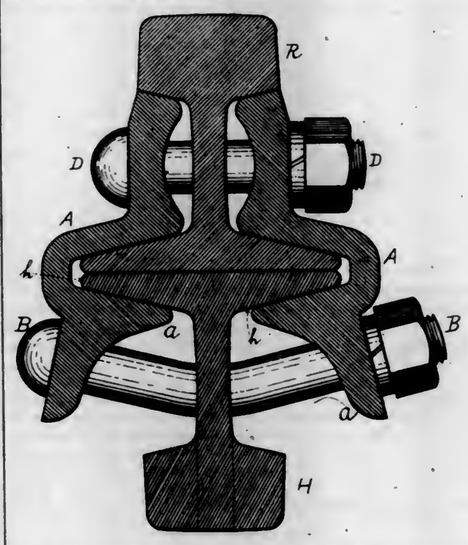
578,788. TOBACCO-PIPE. JAMES TOWNSEND, National Soldiers' Home, Va. Filed Feb. 12, 1896. Serial No. 579,019. (No model.)



Claim.—A smoker's pipe having a stem and bowl and having a downwardly-extending opening communicating at an acute angle with the stem, and having a lug extending partially across the said downwardly-extending opening, for the purpose and substantially in the manner described.

578,789. RAILROAD-RAIL JOINT. JEFFERSON D. TRAMMELL, Palestine, Tex. Filed Aug. 24, 1896. Serial No. 603,745. (No model.)

Claim.—1. The combination in a railroad-rail joint of the main rails, the T-shaped splice-rail H, having opposite lateral flanges, the said splice-rail adapted to fit centrally under and parallel with the main rails between the adjacent cross-ties, the angle splice-bars, the upper parts of which are of the usual form, fitting in between the head and base of the main rails, having a portion of their lower or lateral flanges extended outward and downward over and slightly beyond the edge of the base of the main rails and connected near the outer edge of said base with depending, inwardly-projecting jaws adapted to fit under and against and grip the lateral flanges of the splice-rail, and to receive through holes the upwardly-inclined ends of the truss-bolts B, connecting the said opposite jaws in a swinging trusslike form downward through the vertical member of the splice-rail, as and for the purposes specified.



2. The combination in a railroad-rail joint of the T-shaped splice-rail H, fitting under the main rails, having its opposite ends abutting against the adjacent cross-ties, and its opposite lateral flanges, *h h*, supported upon inwardly-projecting jaws depending from the lower or lateral flanges of the angle splice-bars, and its vertical member supported by the truss-bolts B, and the combination clamping and truss bolts B passing through the vertical member of said splice-rail and having their opposite ends curved upward and extending out through holes in the depending jaws, connecting said jaws in a swinging trusslike form downward through the vertical member of the splice-rail, as and for the purposes specified.

3. The combination in a railroad-rail joint of the opposite angle splice-bars bolted to the main rails, each having jaws depending from their lower or lateral flanges, the said jaws projecting inwardly and under the opposite lateral flanges of the splice-rail and adapted to receive and clamp, viselike, the said opposite flanges and the opposite edges of the main-rail base firmly in between the said jaws and the lateral flanges of the angle splice-bars, and the truss-bolts B, connecting the said opposite jaws in a downward trusslike form through the vertical member of the splice-rail, and the vertical member of the said splice-rail pressing upon the downward curve of said bolts; said bolts having the usual form of head and screw on their respective ends, as and for the purposes specified.

4. The combination in a railroad-rail joint of the opposite jaws, *a a*, depending from the lower lateral flanges of the opposite angle splice-bars and projecting under the opposite lateral flanges, *h h*, of the splice-rail, the splice-rail having its opposite lateral flanges supported upon said jaws and the downwardly-curved combination clamping and truss bolts B connecting the said opposite jaws and supporting at their centers the vertical member of the splice-rail in a swinging trusslike form, as and for the purposes specified.

5. The combination in a railroad-rail joint of the swinging truss-bolts B, the splice-rail H, centrally under and parallel with the main rails and extending equally under the adjacent ends of the main rails, having a central vertical member and two upper equal lateral flanges, the vertical member of the said splice-rail supported by the swinging truss-bolts, and the opposite jaws, *a a*, depending from the lower lateral flanges of the angle splice-bars and projecting under the lateral flanges of the splice-rail jointly supporting the opposite lateral flanges of the splice-rail and the opposite inclined ends of the swinging truss-bolts, as and for the purposes specified.

578,790. FRUIT-PITTER. PRENTICE M. TRASK, Columbia, Cal. Filed June 11, 1896. Serial No. 595,094. (No model.)



Claim.—1. The combination with a removably-mounted elastic cushion having central opening and slots extending from diametrically opposite sides thereof, of metallic plates having their outer ends secured and their inner ends concaved and disposed and applied over the cushion and having a slot between their adjacent faces, substantially as described.

2. The combination with a removably-mounted elastic cushion having central openings and slots extending from diametrically opposite sides thereof, of metallic plates having their outer ends secured and their inner ends concaved and disposed and applied over the cushion and having a slot between their adjacent faces, and a substantially circular opening at the center thereof whereby the metallic plates protect the elastic cushion and receive the impact of the pitter and fruit, substantially as described.

578,791. PADLOCK. WILLIAM F. TROAST and JACOB R. ANWAKE, Lancaster, Pa., assignors to the Slaymaker-Barry Company, same place. Filed Aug. 15, 1896. Serial No. 559,371. (No model.)



Claim.—1. The combination, in a padlock, of a case having a bight therein, a lever carrying a bolt adapted to be projected across the bight, a detent, a tongue connected with the lever, a latch pivoted in a groove in the tongue, a hook on the latch adapted to take over the detent, the engagement of the hook with the detent holding the bolt in a retracted position, a lip on the hook constructed to be engaged by a body entering the bight when the hook is engaged with the detent, whereby the hook is released from the detent, and means for automatically projecting the bolt across the bight when the hook is released from said detent, for the purpose specified.

2. The combination, in a padlock, of a case having a bight therein, a lever fulcrumed between its arms, a bolt on one of said arms constructed to be projected across the bight, a detent, a hook connected with the other lever-arm and adapted to take over the detent when the bolt is in a retracted position, a lip on the hook constructed to be engaged by a body entering the bight when the hook is engaged with the detent, whereby the hook is released from the detent, and means for automatically projecting the bolt across the bight when the hook is released from said detent, for the purpose specified.

3. The combination, in a padlock, of a case having a bight therein, a lever fulcrumed between its arms, a bolt on one of said arms, constructed to be projected across the bight, a detent, a tongue on the other lever-arm, a latch pivoted in a groove in the tongue, a hook on the latch adapted to take over the detent when the bolt is in a retracted position, a lip on the hook constructed to be engaged by a body entering the bight when the hook is engaged with the detent, whereby the hook is released from the detent, and means for automatically projecting the bolt across the bight when the hook is released from said detent, for the purpose specified.

4. The combination, in a padlock, of an annular case having a bight therein, a lever fulcrumed between its arms, a segmental bolt on one of said arms playing adjacent to the rim of the case and constructed to be projected across the bight, a segmental tongue on the other lever-arm playing adjacent to the rim of the case on the side of the bight opposite the bolt, a latch pivoted in a groove in the tongue, a hook on the latch adapted to take over an end of the rim when the bolt is retracted, a lip on the hook constructed to be engaged by a body entering the bight when the hook is engaged with the end of the rim, whereby the hook is released from the end of the rim, and means for automatically projecting the bolt across the bight when the hook is released from said rim, for the purpose specified.

5. The combination, in a padlock, of an annular case having a bight therein, a lever fulcrumed between its arms below said bight, a segmental bolt on one of said arms playing adjacent to the rim of the case and constructed to be projected across the bight, a segmental tongue on the other lever-arm playing adjacent to the rim of the case on the side of the bight opposite the bolt, a latch pivoted in a groove in the tongue, a hook on the latch adapted to take over an end of the rim when the bolt is retracted, a lip on the hook constructed to be engaged by a body entering the bight when the hook is engaged with the end of the rim, whereby the hook is released from the end of the rim, and a coiled spring behind the bolt adjacent to the rim of the case, one end of said spring bearing against the heel of the bolt and the other end against a shoulder in the case, substantially as and for the purpose specified.

6. The combination, in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a shifting connection between said levers, and a key adapted to impart motion to the actuating-lever, for the purpose specified.

7. The combination, in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a pin on the bolt-lever engaging a curved slot in the actuating-lever, and a key adapted to impart motion to the actuating-lever, for the purpose specified.

8. The combination, in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a shifting connection between said levers, and a tumbler securing the actuating-lever when the bolt is in a locking position, for the purpose specified.

9. The combination, in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a shifting connection between said levers, a tumbler securing the actuating-lever when the bolt is in a locked position, and a shifting connection between the actuating-lever and the tumbler, for the purpose specified.

10. The combination, in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a pin on the bolt-lever engaging a curved slot in the actuating-lever, a tumbler securing the actuating-lever when the bolt is in a locking position, and a shifting connection between the actuating-lever and the tumbler, for the purpose specified.

11. The combination, in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a shifting connection between said levers, a tumbler, and a pin on the tumbler engaging a curved slot in the actuating-lever and securing said lever when the bolt is in a locking position, said pin shifting into a stem of said slot to permit movement of the actuating-lever, for the purpose specified.

12. The combination, in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a shifting connection between said levers, the actuating-lever having a T-slot therein, a tumbler, and a pin on the tumbler engaging either end of the transverse part of said slot to secure the actuating-lever when the bolt is in a locking position, said pin shifting into the stem of said slot to permit movement of the actuating-lever, substantially as and for the purpose specified.

13. The combination in a padlock, of a lever, a bolt on said lever, a lever through which the bolt-lever is actuated, a pin on the bolt-lever engaging a curved slot in the actuating-lever, the actuating-lever having a T-slot therein, a tumbler, and a pin on the tumbler engaging either end of the transverse part of the T-slot to secure the actuating-lever when the bolt is in a locking position, said pin shifting into the stem of said slot to permit movement of the actuating-lever, substantially as and for the purpose specified.

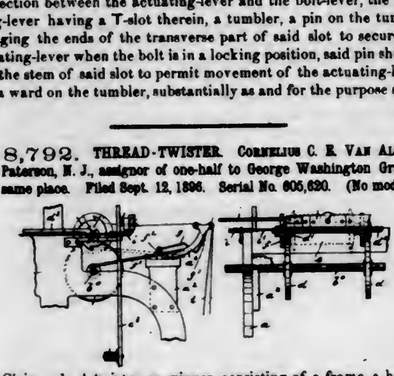
14. The combination, in a padlock, of an actuating-lever having a slot therein, the parts of which slot form an angle, a tumbler, and a pin on the tumbler engaging the part of said slot formed lengthwise of the lever to hold said lever in a locked position, said pin shifting into the part of said slot transverse of the lever to permit movement thereof.

15. The combination, in a padlock, of an actuating-lever having a T-slot therein, a tumbler, a pin on the tumbler engaging either end of the transverse part of said slot to secure the actuating-lever in a locked position, the pin shifting into the stem of said slot to permit movement of said lever, and a ward on the tumbler, substantially as and for the purpose specified.

16. The combination, in a padlock, of a case having a bight therein, a lever passing beneath the bight, a bolt on one arm of said lever constructed to be projected across the bight, a detent, a hook on the other arm of said lever and adapted to take over the detent when the bolt is in a retracted position, a lip on the hook and constructed to be engaged by a body entering the bight, whereby the hook is disengaged from the detent, means for automatically projecting the bolt across the bight when the hook is disengaged from the detent, a lever through which the bolt-lever is actuated, a shifting connection between the actuating-lever and the bolt-lever, and a tumbler adapted to secure the actuating-lever when the bolt is in a locking position, for the purpose specified.

17. The combination, in a padlock, of a case having a bight therein, a lever passing beneath the bight, a bolt on one arm of said lever constructed to be projected across the bight, a detent, a hook on the other arm of said lever and adapted to take over the detent when the bolt is in a retracted position, a lip on the hook and constructed to be engaged by a body entering the bight, whereby the hook is disengaged from the detent, means for automatically projecting the bolt across the bight when the hook is disengaged from the detent, a lever through which the bolt-lever is actuated, a shifting connection between the actuating-lever and the bolt-lever, the actuating-lever having a T-slot therein, a tumbler, a pin on the tumbler engaging the ends of the transverse part of said slot to secure the actuating-lever when the bolt is in a locking position, said pin shifting into the stem of said slot to permit movement of the actuating-lever, and a ward on the tumbler, substantially as and for the purpose specified.

578,792. THREAD-TWISTER. CORNELIUS C. R. VAN ALSTINE, Paterson, N. J., assignor of one-half to George Washington Graham, same place. Filed Sept. 12, 1896. Serial No. 605,620. (No model.)



Claim.—1. A twister or spinner, consisting of a frame, a hollow slotted shaft in said frame, a loop on one end of said shaft and arranged at right angles to the center line thereof, means on the end of the shaft for guiding the yarn clear of the slot and means for revolving said shaft, all said parts, substantially as and for the purposes described.

2. A twister or spinner, consisting of a frame, a hollow slotted shaft in said frame, a loop on one end of said shaft and at right angles thereto, a loop on the other end of the shaft and in alinement with the center line thereof, and means for revolving said shaft, all said parts, substantially as and for the purposes described.

3. A twister or spinner, consisting of a frame, a hollow shaft in said frame and provided with an elongated slot, a grooved pulley mounted on said shaft and also provided with a slot communicating and in alinement with the slot of the hollow shaft, a loop at one end of the shaft and at right angles thereto, and means for operating the pulley, all said parts, substantially as and for the purposes described.

4. A twister or spinner, consisting of a frame, a hollow shaft in said frame and provided with an elongated slot, a grooved pulley mounted on said shaft and also provided with a slot communicating and in alinement with the slot in the hollow shaft, a loop arranged at one end of the shaft and at right angles to the center line thereof, a loop centrally arranged on the other end of the shaft and in alinement therewith, and means for operating the pulley, all said parts, substantially as and for the purposes described.

5. A twister or spinner, consisting of a frame provided at one side thereof with a slot, a hollow shaft arranged in said frame, a pulley on said shaft, said pulley and shaft being provided on one side with an open slot, capable of being brought in alinement with the slot in the frame, a loop arranged on one end of the shaft and at right angles to the center line thereof, a loop on the other end of the shaft and in alinement therewith, and means for operating the pulley, all said parts, substantially as and for the purposes described.

6. The combination with the reciprocating bar of a doubler, a bracket-plate adjustably arranged on said bar, means for locking said bracket-plate in its adjusted positions, a hollow shaft arranged in said bracket-plate, a loop on one end of the shaft and at right angles thereto, and means for revolving said shaft, all said parts, substantially as and for the purposes described.

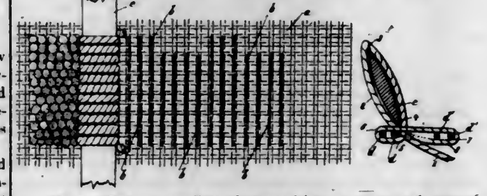
7. The combination with a bar, of a bracket-plate arranged on and pivoted with one end to said bar and provided at its other end with an elongated slot, a spring controlling said bracket-plate, a pivoted lever adapted to lock said plate against the action of the spring when in normal position, and to engage the slot of said bracket when out of normal position, a hollow shaft arranged in said bracket-plate, a loop on one end of said shaft and at right angles thereto, and means for revolving the shaft, all said parts, substantially as and for the purposes described.

8. The combination with a bar, of a bracket-plate arranged on and pivoted with one end to said bar and provided at its other end with an elongated slot, a spring controlling said bracket-plate, a pivoted lever adapted to lock said plate against the action of the spring when in normal position and to engage the slot of said bracket-plate when out of normal position, a hollow shaft arranged in said bracket-plate, a loop on one end of said shaft and at right angles thereto, a loop at the other end of the shaft and in alinement with the center line thereof, and means for revolving the shaft, all said parts, substantially as and for the purposes described.

9. The combination with a bar, of a bracket-plate arranged on said bar and provided at one side with a transverse open slot penetrating said bracket to about its center, a hollow shaft arranged in said bracket-plate, a pulley on said shaft, said pulley and shaft being provided at one side with an open slot, adapted to be brought in alinement with the transverse slot of the bracket-plate, a loop on one end of said shaft and at right angles thereto, and means for revolving the pulley, all said parts, substantially as and for the purposes described.

10. The combination with a bar, of a bracket-plate arranged on said bar and provided at one side with a transverse open slot penetrating said bracket to about its center, a hollow shaft arranged in said bracket-plate, a pulley on said shaft, said pulley and shaft being provided at one side with an open slot, adapted to be brought in alinement with the transverse slot of the bracket-plate, a loop on one end of said shaft and at right angles thereto, a loop at the other end of the shaft and in alinement with the center line thereof, and means for revolving the pulley, all said parts, substantially as and for the purposes described.

578,793. NEEDLEWORK FABRIC. JULIUS VIALON, Cassel, Germany. Filed Apr. 30, 1896. Serial No. 589,686. (No specimens.)



Claim.—Smyrna needlework comprising an open-mesh canvas backing having loose loops 2, 3, 4, and double tight loops 5, 6 and 7, 8 passing respectively around adjacent pairs of weft-threads *d*, *d* and *d'*, *d'* of the piece of canvas, substantially as herein shown and described.

578,794. BOOT OR SHOE. JOHN F. WARNER, Boston, Mass. Filed June 2, 1896. Serial No. 594,040. (No model.)

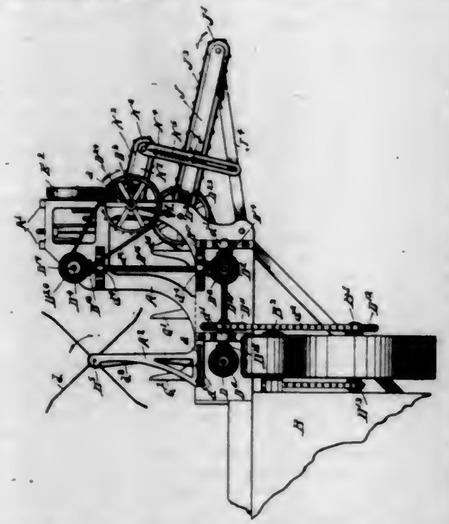


Claim.—In a boot or shoe, a filling, to be placed between the outer and inner soles, consisting of a tubulated elastic fabric each tube of which is elastic and compressible and interiorly connected to air-passages whereby the boot or shoe is thoroughly ventilated, substantially as and for the purpose set forth.

578,795. BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES. GEORGE F. WEISS, Springfield, Ill. Filed Aug. 10, 1896. Serial No. 602,267. (No model.)

Claim.—1. In a band-cutter and feeder for threshing-machines the combination of the main frame provided with slots, rotatable shafts on said main frame, one of said shafts being movable in the slots in said main frame, side pieces J and K' supported on said shafts

respectively, rollers J^3 and K secured to and turning with the shafts D^3 and D^4 respectively, rollers J' and K^3 turning in bearings on the side pieces J and K' respectively, studs on the side pieces J, endless conveyer-belts J^2 and K^2 respectively, carried on the rollers J' and J^3 and the rollers K^3 and K, slotted links K^4 sliding on the studs on the side pieces, J, springs secured to said links and connected with said studs, and springs secured to the main frame and connected with the movable shaft, as set forth.



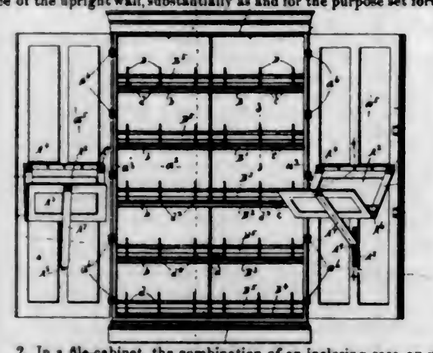
2. In a band-cutter and feeder for threshing-machines the combination of a main frame, a table on said main frame, a long conveyer-section connected with the main frame, a short conveyer-section automatically adjustable relative to said long conveyer-section, props pivotally connected with the main frame and supporting the outer end of said long conveyer-section, reciprocating cutters adapted to cut the bands of and divide longitudinally the bundles as successively presented by said conveyer-sections, rakes adapted to separate the divisional parts of said bundles and propel them forward on said table, an extension-conveyer traveling in a direction transverse to said table and a rotatable reel adapted to sweep the grain from said table onto said extension-conveyer, as set forth.

3. In a band-cutter and feeder for threshing-machines, the combination of a main frame, crank-shafts turning in bearings on said main frame, knife-bars connected with said crank-shafts, blades connected with said knife-bars, fly-wheels secured to said crank-shafts, bundle-conveyers adapted to convey bundles into position to be split longitudinally by said blades and reciprocating rakes adapted to separate the divisional parts of said bundles and propel them forward, as set forth.

4. In a band-cutter and feeder for threshing-machines, reciprocating rakes adapted to cooperate with a bundle-splitting device and provided with upwardly-projecting fingers, each having a vertical edge and a sloping edge, said fingers being so placed that those fingers which are contiguous to the bundle-splitting device have forwardly-sloping front edges and vertical rear edges, and all the other fingers have vertical front edges and rearwardly-sloping rear edges; in combination with a slatted table through which the fingers of said rakes operate, means for conveying bundles to said table, and means for cutting the bands and splitting said bundles longitudinally immediately before their delivery to said rakes, as set forth.

578,796. CABINET-FILE. ARTHUR J. WELLS, Syracuse, N. Y. Filed Nov. 26, 1894. Serial No. 530,022. (No model.)

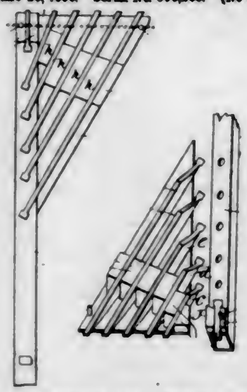
Claim.—1. The combination of a substantially upright wall, a transverse rail or bar secured to the upright wall and provided with a series of supporting-shoulders having their inner edges separated from the adjacent face of the upright wall, a substantially horizontal wall arranged beneath said rail or bar and provided with a series of supporting-shoulders arranged beneath and in advance of the former shoulders and normally-fixed partitions adjustable toward and away from each other, said partitions having engaging portions arranged one above and in advance of the other and detachably engaged with the shoulders of said walls, the upper engaging portions of the partitions being provided with shoulders interposed between the inner edges of the shoulders provided upon the rail or bar and the adjacent face of the upright wall, substantially as and for the purpose set forth.



2. In a file-cabinet, the combination of an inclosing case, an upright door or cover for said case, a movable shelf supported on the door or cover and consisting of a section hinged to the door and a second section hinged to the former section and provided with an arm projecting beyond the hinge for said sections, and a stop upon the door or cover for engaging said arm and holding the shelf in its operative position, substantially as described.

3. In a file-cabinet, the combination of an inclosing case, an upright door or cover for said case, a movable shelf supported on the door or cover and consisting of a section hinged to the door, a second section hinged at its inner edge to the lower edge of the former section and provided with a projecting arm, a stop upon the door or cover for engaging said arm and holding the shelf in its operative position, and a flexible strip secured to the adjacent portions of the inner faces of said sections, substantially as described.

578,797. MUSICAL INSTRUMENT. ELMER WEBSTER, Chicago, Ill. Filed June 20, 1896. Serial No. 596,365. (No model.)



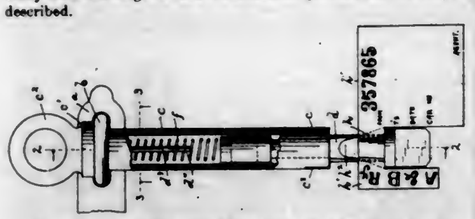
Claim.—1. In combination with a musical instrument of the single-pipe pattern supplied with a number of tone-altering holes and a whistle end of the triangular keyboard projecting at the side of the pipe substantially as shown and described.

2. In combination with a musical wind instrument of the single-pipe pattern supplied with a number of tone-altering holes, and a whistle end of keyboard, the keys arranged side by side their free or finger ends alined transversely to the length of the pipe near the end opposite the embouchure end, all substantially as set forth.

578,798. SEAL-LOCK. THOMAS S. WHEELWRIGHT and GEORGE S. TIFFANY, Highland Park, Ill. Filed Aug. 13, 1896. Serial No. 602,596. (No model.)

Claim.—1. In a pin for seal-locks the combination with a shell having at the lower end transverse slots for the reception of a sheet-like seal, of a plunger extending into said shell and carrying a transverse slot for the reception of said seal the seal being locked in said slots when the plunger is thrust in, a catch for locking said plunger within the shell, and a spring situated between the plunger and the shell for maintaining said plunger in the outer position unless the catch be thrown into engagement, whereby the partial insertion of the plunger is prevented, substantially as described.

2. A seal for locks comprising the intermediate portion h for passage through slots in the lock, laterally-extended portions h' h' on each side of said intermediate portion, and a tongue h^3 extending laterally from the edge of said intermediate portion, substantially as described.

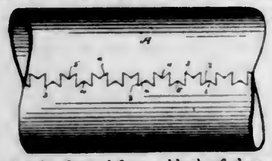


3. The combination with the shell and the plunger carrying registering transverse slots, of the sheet-like seal having an intermediate portion passing through said slots, laterally-extended portions resting upon opposite sides of the shell to prevent the withdrawal of the seal from the slots without breaking the seal, and the tongue extending from the edge of said intermediate portion and resting above the ends of the slots in the shell to necessitate the breaking of the seal upon both sides of the shell, substantially as described.

4. In a pin for seal-locks, the combination with a shell, of a plunger between which and the shell the seal is locked to prevent the rotation of the plunger, a spring-rod extending longitudinally from the upper end of said shell and carrying a lateral extension or catch on the end, the end of said plunger being provided with a transverse slot extending partially across the end thereof and a shoulder beneath said slot, whereby the spring-rod is flexed when the plunger is thrust in to cause the catch to engage said shoulder while a half-rotation of the plunger brings said transverse slot opposite the catch and permits the withdrawal of the plunger, substantially as described.

5. The combination with a pin having a bore in the end, of a plunger extending into said bore, means for locking a seal between said plunger and pin when the plunger is thrust in, a shelf provided upon the side of said pin, an upturned end provided on said plunger and coacting with said shelf when the plunger is thrust in, and a catch for locking said plunger within the pin except when the plunger is rotated, substantially as described.

578,799. SHEET-METAL TUBE. FRANK A. WILMOT, Bridgeport, Conn. Filed Mar. 13, 1896. Serial No. 583,061. (No model.)



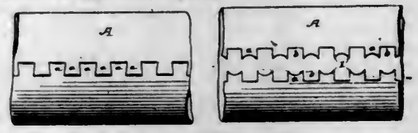
Claim.—1. A tube formed from a blank of sheet metal having upon its edges a continuous series of interlocking projections and depressions, said depressions having angular lugs at their bases and said projections having angular recesses at their ends leaving points 3 at the edges thereof, so that when the final compression is given to the blank said lugs will engage the recesses in the corresponding projections and will force the side walls of the projections outward into engagement with the side walls of the corresponding depressions, thereby clenching the edges of the blank in the interlocked positions.

2. A tube formed from a blank of sheet metal having upon its edges interlocking projections and depressions, said depressions being provided at their bases with lugs having flattened tips and the front walls of the corresponding projections being recessed as shown so that when the final compression is given to the blank the lugs will force the side walls of the projections outward into engagement with the side walls of the depressions and the edges of the blank will be clenched in the interlocked position leaving openings through the joint between the tips of the lugs and the bases of the recesses as and for the purpose set forth.

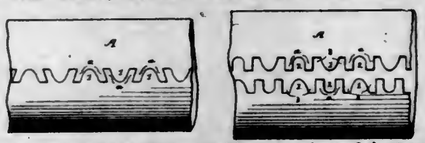
578,800. SHEET-METAL TUBE. FRANK A. WILMOT, Bridgeport, Conn. Filed June 8, 1896. Serial No. 594,647. (No model.)

Claim.—1. A tube formed from a blank of sheet metal having upon its edges interlocking projections and recesses, the meeting edges of said projections and recesses differing from each other in outline so that when the blank is compressed circumferentially metal is displaced sidewise to clench the edges firmly together, the said differences in the outline of the edges comprising curved and substantially straight edges.

2. A tube formed from a blank of sheet metal having upon its edges interlocking projections and recesses having substantially straight sides, the ends of the projections being concaved and the bottoms of the recesses being substantially straight, so that when the blank is compressed circumferentially metal is displaced sidewise to clench the edges firmly together.



578,801. SHEET-METAL TUBE. FRANK A. WILMOT, Bridgeport, Conn. Filed Sept. 29, 1896. Serial No. 607,350. (No model.)



Claim.—1. The method of uniting two edges of sheet metal which consists in forming said edges with interlocking projections and recesses, some of the projections having sides which are inclined in opposite directions, and then forcing the projections and recesses together edgewise and thereby alternately displacing portions of the metal laterally and in opposite directions to alter the shape of the said projections and recesses, whereby the parts will be firmly clenched together.

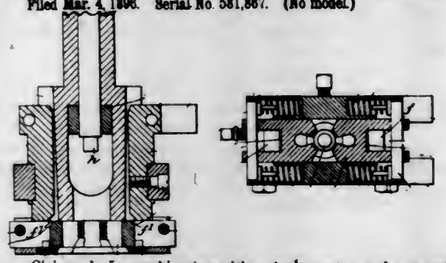
2. The method of making sheet-metal tubing which consists in first forming the edges of the blank with interlocking projections and recesses, some of the projections of one edge differing in outline from the opposite recesses of the other edge, and then forcing the projections and recesses together edgewise and thereby laterally displacing portions of the metal to alter the shape of the said projections and recesses, whereby the parts will be firmly clenched together.

3. A tube formed from a blank of sheet metal having upon its edges a continuous series of interlocking projections and recesses portions of which have oppositely-inclined sides to form cam-surfaces so that, when a circumferential compression is given to the blank, metal is displaced in alternate opposite directions and locks the said edges against separation.

4. A tube formed from a blank of sheet metal having its edges provided with interlocking projections and recesses, the ends of some of said projections or recesses differing in outline from the ends of the corresponding parts so that, when the blank is compressed circumferentially, metal is displaced sidewise and clenches the edges firmly together.

5. A tube formed from a blank of sheet metal having upon its edges interlocking alternate projections a and recesses b subdivided by the notches 2 in the projections a and the cam-shaped lugs 1 in the recesses b, the said lugs 1 being wider than the notches 2, whereby, when the blank is compressed circumferentially, the portions of the metal each side of the notches 2 are displaced sidewise and interlocked.

578,802. THREAD-CUTTER. GEORGE E. WITHERELL, Hartford, Conn., assignor to the Hartford Machine Screw Company, same place. Filed Mar. 4, 1896. Serial No. 581,867. (No model.)



Claim.—1. In combination with a body part, a yoke movable lengthwise of the body part, bolts pivoted to the yoke, a frame supported on the bolts and a sectional tool located in the path of movement of the bolts and having a movement in a plane at right angles to the axis of the body part, all substantially as described.

2. In combination with a body part, a yoke supported on and having a movement lengthwise of the body part, bolts pivoted to the

yoke, sectional dies located in the path of movement of the bolts and having a movement transversely of the axis of the tool, and a trip device supported on and secured to the yoke and in the path of movement of the work operated on, all substantially as described.

3. In combination with a body part, a box located in a head in the body part, a yoke supported on and having a movement lengthwise of the body part, bolts pivoted to the yoke, dies located in the box in the body part and in the path of movement of the bolts, all substantially as described.

4. In combination with a body part, a box located in a head in the body part, a yoke supported on and having a movement lengthwise of the body part, bolts pivoted to the yoke, dies located in the box in the body part and in the path of movement of the bolts, and springs located in spring-chambers in the head and normally thrusting the dies apart, all substantially as described.

5. In combination with a body part, dies located therein, bolts located on opposite sides of the body part for operating the dies, means for moving the bolts lengthwise of the body part, and an adjusting-frame loosely secured to the bolts, all substantially as described.

6. In combination with a body part, bolts located on opposite sides of the body part, means for moving the bolts lengthwise of the body part, dies located in the body part in the path of movement of the bolts, an adjusting-frame loosely secured to the bolts, and an adjusting-screw borne in the adjusting-frame, all substantially as described.

7. In combination with a body part, a yoke borne on and movable lengthwise of the body part, bolts pivoted to the yoke, dies located in the body part in the path of movement of the bolts, and an adjusting-frame supported on said bolts to secure simultaneous lateral movements, all substantially as described.

8. In combination with a body part, a yoke borne on and movable lengthwise of the body part, bolts pivoted in the yoke, dies located in the body part in the path of movement of the bolts, an adjusting-frame supported on the bolts, to secure simultaneous lateral movement, and an adjusting-screw located in the adjusting-frame appurtenant to one of said bolts, all substantially as described.

9. In combination with a body part, a yoke borne on and movable lengthwise of the body part, bolts pivoted to the yoke on opposite sides of the body part, a box located in the body part, dies located in the body part in said box and in the path of movement of the bolts, and a cap secured on a dovetailed projection from the body part and forming one of the walls of the box, all substantially as described

10. In combination with a body part, pivoted bolts movable lengthwise of the body part, dies located in the path of movement of the bolts, cam-surfaces located on the dies and bolts in such relative arrangement as to allow the bolts to be thrust back of the dies, whereby they are locked against backward movement, all substantially as described.

11. In combination with a body part, a yoke borne on and movable lengthwise of the body part, bolts pivoted to the yoke, dies located in the body part in the path of movement of the bolts, and cam-surfaces located on the dies and bolts in such relative arrangement as to allow the bolts to be thrust back of the dies, whereby they are locked against backward movement, all substantially as described.

12. In combination with a body part, a yoke borne on and movable lengthwise of the body part, dies located in the body part, bolts pivoted to the yoke and adapted to move the dies inward and to lock them against backward movement.

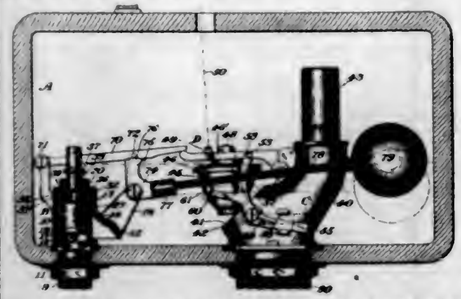
13. In combination with a body part, bolts located on opposite sides of the body part, means for moving the bolts lengthwise of the body part, dies located in the body part and adapted to be operatively connected with the bolts, an adjusting-frame loosely mounted on the bolts, an adjusting-screw borne in the adjusting-frame, and a lock-screw also borne in the frame.

578,803. VALVE MECHANISM. HUBERT K. WOOD, Hartford, Conn. Filed May 28, 1896. Serial No. 593,423. (No model.)

Claim.—1. A valve comprising a chambered valve-casing having an inlet and an outlet port; a main-valve member therein; and a normally freely-movable supplemental valve disposed in the main valve and automatically movable to regulate the closing movement of the main valve.

2. A valve comprising a chambered valve-casing having an inlet and an outlet port; a main-valve member having a longitudinal bore forming a supplemental-valve chamber; and a ball-valve disposed in the chamber of the main valve and operable to regulate the closing movement of said main valve.

3. A valve comprising a chambered valve-casing having an inlet and an outlet port; a main-valve member disposed therein and having a longitudinal bore of differential diameters; a removable, longitudinally-bored plug fitting in that part thereof having the largest diameter and forming a supplemental-valve chamber; and a supplemental-valve member therein operable to regulate the closing movement of the main-valve member.



4. A valve comprising a chambered valve-casing having an inlet and an outlet port; a valve member operable therein and having a longitudinal bore of differential diameters; a nipple disposed in one end of said member and having a longitudinal perforation; a longitudinally-bored plug disposed in that portion of the bore having the largest diameter and forming a supplemental-valve chamber; and a supplemental-valve member in said chamber operable to regulate the closing movement of the main valve.

5. A valve comprising a chambered valve-casing having an inlet and an outlet port; a valve member therein having a longitudinal bore forming a supplemental-valve chamber; a plate disposed at the lower end of said supplemental chamber and having a slot of differential diameters; and a supplemental-valve member operable in said supplemental-valve chamber to control the closing movement of said main valve and adapted to regulate the flow of water through said slotted plate.

6. A valve comprising a chambered valve-casing having an inlet and an outlet port; a main valve in said casing having a longitudinal bore of differential diameters; a longitudinally-perforated nipple disposed in one end of said valve member; a longitudinally-bored plug disposed in that portion of the valve-member bore having the largest diameter and thereby forming a supplemental-valve chamber, said plug having a conical seat; a slotted plate mounted on the lower wall of the supplemental-valve chamber; and a supplemental ball-valve operable in said supplemental-valve chamber to regulate the closing movement of the main valve.

7. A valve comprising a chambered valve-casing having an inlet and an outlet port; a main-valve member in said chambered casing and having a longitudinal bore of differential diameters; a longitudinally-perforated nipple disposed in one end of said valve member; a longitudinally-bored plug disposed in that portion of the bore of the valve member having the largest diameter and thereby forming a supplemental-valve chamber, said plug having a two-way passage connecting its longitudinal bore with the main-valve chamber and also having a conical seat; a plate having a slot of differential diameters mounted on the lower wall of the supplemental-valve chamber; a ball-valve operable in said supplemental chamber to regulate the closing movement of said valve; and means secured to said longitudinally-bored plug for operating said main valve.

8. The combination of a tank, valve mechanism therein comprising a casing having an outlet-port; a valve member pivotally secured to said casing and operable to close said port and having a laterally-extending stop device; means for actuating said valve member to open said port; a bell-crank lever pivotally secured to the casing and having a weighted end and operable on the actuation of the valve member to hold said member open, said lever having a laterally-extending arm; and a float pivotally secured in position and adapted to have its rod engage said laterally-extending arm of the bell-crank lever, to thereby disengage said lever from the stop device of the valve member and permit said valve member to close.

9. The combination of a tank, an inlet-valve comprising a chambered casing having an inlet and an outlet port and a valve member operable therein; means for actuating said valve member; an outlet-valve comprising a casing having an outlet-port; a valve member operable to close said port; means for actuating said outlet-valve member, to thereby open said outlet-port and simultaneously actuate the inlet-valve; means for holding said outlet-valve member open during a predetermined period in the operation of the apparatus; and means operable to engage said valve-member-holding means to thereby disengage the same from the outlet-valve member and permit the closing of the same and to simultaneously engage the inlet-valve-actuating means and hold the same open after the outlet-valve member is closed.

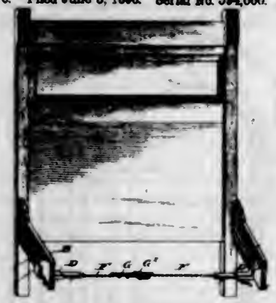
10. The combination of a tank, valve mechanism therein comprising an inlet-valve and means for actuating the same, and an outlet-valve and means for actuating the same, said outlet-valve being operable to open the inlet-valve; means for holding said outlet-valve open; and means operable to engage the outlet-valve-holding means to actuate the same and permit the closing of said outlet-port and to simultaneously engage the inlet-valve-actuating means, to thereby hold said inlet-valve open after the closing of said outlet-valve.

11. The combination of a tank, valve mechanism therein comprising an inlet-valve, and means for actuating the same, and an outlet-valve and means for actuating the same, said outlet-valve being operable to actuate the inlet-valve to open the same; means for holding said outlet-valve open; and a float operable to actuate said outlet-valve-holding means, to thereby release the same from the outlet-valve member and permit the closing thereof and to simultaneously engage the inlet-valve-actuating means to hold the same open after the closing of the outlet-valve member.

12. The combination of a tank, valve mechanism therein comprising an inlet-valve having an actuating-lever provided with a stop device; an outlet-valve, an actuating-lever secured thereto and adapted to engage the inlet-valve-actuating lever on the opening movement of said outlet-valve, and thereby open the inlet-valve; means for actuating said outlet-valve to open the outlet-port; means operable on the opening movement of said outlet-valve to hold said valve open; and means operable to engage the stop device of the inlet-valve-actuating lever, to hold the same open after the closing of the outlet-valve and also operable to engage the outlet-valve-holding means to disengage the same from the outlet-valve member and permit the closing thereof.

13. The combination of a tank, valve mechanism therein comprising an inlet-valve having a valve-actuating lever and a laterally-extending stop thereon; an outlet-valve having an actuating-lever also provided with a laterally-extending stop and adapted to engage the inlet-valve-actuating lever, to thereby open the inlet-valve; means for actuating the outlet-valve; a lever pivotally secured in position and adapted to engage said laterally-extending stop of the outlet-valve-actuating lever, to thereby hold said outlet-valve member open, said lever also having a laterally-extending arm; and a float pivotally secured in position to engage the laterally-extending arm of the lever, to thereby disengage said lever from the stop of the outlet-valve-actuating lever and permit the closing movement of said outlet-valve member, said float having a cam-face adapted to engage the laterally-extending stop of the inlet-valve-actuating lever and thereby hold the same open during a predetermined period in the operation of the mechanism.

578,804. BRACE FOR BEDSTEADS. JOSEPH F. ANDERSON, Washington, D. C. Filed June 3, 1896. Serial No. 594,060. (No model.)



Claim.—1. An improved bedstead-brace, comprising end clamping devices embodying a base portion or plate having an upwardly-projecting flange at the outer end and provided with an adjustable slide, the side piece of the bedstead-frame being adapted to be clamped between said flange and the slide, chains extending from said clamping devices, and an intermediate lever having pivotally-mounted plates to which are respectively connected the ends of the chains, substantially as and for the purpose set forth.

2. An improved bedstead-brace, comprising end clamping devices embodying a base portion or plate having an upwardly-projecting flange at the onter end and provided with a slide adjustable upon said base portion, the side pieces of the bedstead-frame being adapted to be clamped between said flange and the slide, means for securing the slide in adjusted position, chains extending from said clamping devices, and an intermediate lever having a pivotally-mounted end plate and a plate pivotally mounted in rear of said end plate, the ends of the chains being respectively connected to said pivotally-mounted plates, substantially as and for the purpose set forth

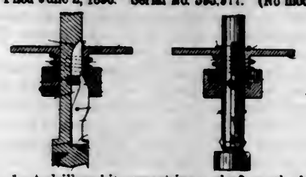
3. An improved bedstead-brace, comprising the end clamping devices embodying the base portion or plate having an upwardly-projecting flange at the outer end and provided with the slide embracing said base portion and carrying a pivoted cam-piece adapted to bear against said base-plate, the sides of the bedstead-frame being adapted to be clamped between said flange and the slide, the chains connected with the clamping devices and extending therefrom, and the lever having the pivotally-mounted end plate and the plate pivotally mounted in rear of the latter, said plates being on opposite sides of the lever and respectively connected to the chains, substantially as and for the purpose set forth.

4. In an improved bedstead-brace, comprising the chains adapted to extend from the bedstead-frame, the intermediate lever carrying pivotally-mounted plates at its fulcrum end to which plates the chains are respectively connected, the pivot pin or rivet of the plate being arranged in a longitudinally-disposed slot formed in the lever-bar and having end recesses, substantially as and for the purpose set forth.

5. An improved bedstead-brace, comprising chains adapted to extend from the bedstead-frame, and an intermediate lever carrying pivotally-mounted plates or links respectively connected to the chains, the lever being adapted to tighten up the chains when it is carried around to reversed position, substantially as and for the purpose set forth.

6. In an improved bedstead-brace, clamping devices embodying the base portion or plate having the upwardly-projecting flange at its outer end, the slide embracing said base portion and slotted, substantially as set forth, and a cam-piece pivotally mounted upon said slide and bearing against the base portion, in combination with chains extending from said clamping devices, and means for tightening said chains, substantially as and for the purpose set forth.

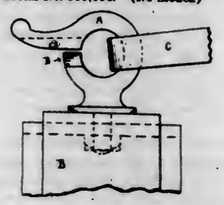
578,805. DRILL-BIT OR SIMILAR TOOL. THOMAS H. ANSARLE, Attleborough, Mass., assignor of one-half to Edwin R. Hale, same place. Filed June 2, 1896. Serial No. 593,977. (No model.)



Claim.—1. A drill or bit comprising a shaft on the lower end of which is formed a drill-head, said shaft being provided in one side with a longitudinal slot which extends downwardly into said head, a lever pivotally mounted in said slot, and provided at its lower end with a reamer-head which extends into the slot formed in the drill-head, and means connected with the shaft of the drill for throwing out the lower end of said lever, and the reamer-head while the drill or bit is in operation, consisting of a head mounted on said shaft, and a movable spring-supported plate mounted above said head, and said plate being provided with a depending sleeve or collar which is adapted to force the upper end of said lever inwardly, substantially as shown and described.

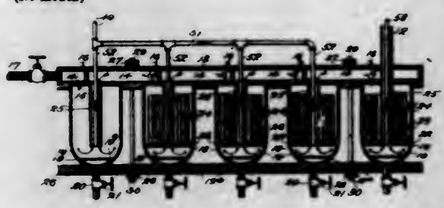
2. A drill or bit comprising a shaft on the lower end of which is formed a drill-head, said shaft being provided in one side with a longitudinal slot which extends downwardly into said head, a lever pivotally mounted in said slot, and provided at its lower end with a reamer-head which extends into the slot formed in the drill-head, and means connected with the shaft of the drill for throwing out the lower end of said lever, and the reamer-head while the drill or bit is in operation, consisting of a head mounted on said shaft, and a movable spring-supported plate mounted above said head, and said plate being provided with a depending sleeve or collar which is adapted to force the upper end of said lever inwardly, and said shaft and lever being provided with a spring which is adapted to force the upper end of said lever outwardly, substantially as shown and described.

578,806. CHECKREIN-HOOK. AUGUST H. ARP, Moline, Ill. Filed July 12, 1895. Serial No. 555,698. (No model.)



Claim.—A checkrein-holder comprising a split ring having one of its ends bent radially, the opposite end being beveled from side to side, said end and said ring being rectangular in cross-section and of the same radial thickness in cross-section the under face of said extension being beveled to correspond to said end, substantially as described.

578,807. **HYDRAULIC GOLD-SEPARATOR.** JOHN H. BARR and JAMES F. JOHNSON, Kansas City, Kans., assignors of one-third to William R. Harvey, Rosedale, Kans. Filed July 11, 1896. Serial No. 598,875. (No model.)



Claim.—1. In a hydraulic gold-separating machine, the combination of a number of jars adapted to contain a quantity of mercury, notched partition-plates within said jars and dividing them each into an upper and a lower chamber, valve-controlled pipes communicating with the chambers below said partitions, a casing divided into chambers and resting upon and closing the upper ends of said jars, and provided with perforations, which connect said chambers with said jars, pipes depending from said casing within said jars, and certain of them communicating each with a chamber of said casing, and the one of them which communicates with the first jar of the series extending up through the casing and adapted to discharge under pressure liquid containing gold and gold-bearing particles into the mercury of said jar, and a valve-controlled discharge-pipe, communicating with the chamber of the casing which communicates with the last jar of the series, substantially as described.

2. In a hydraulic gold-separating machine, the combination of a number of jars adapted to contain a quantity of mercury, notched partition-plates within said jars, and submerged in said mercury, valve-controlled pipes communicating with the chambers below said partitions, spider-frames within certain of said jars, amalgam plates carried thereby, a casing divided into chambers and resting upon the upper ends of said jars, and having perforations which connect said chambers with said jars, pipes depending from said casing within said jars, and certain of them communicating each with a chamber of said casing, and one of them extending up through the casing, a hopper communicating with said extended pipe, a valve-controlled discharge-pipe for water communicating with said hopper, and a valve-controlled discharge-pipe communicating with the chamber of the casing with which no pipe 25 directly communicates, substantially as described.

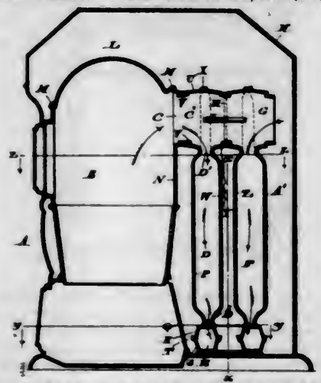
3. In a hydraulic gold-separating machine, a series of jars adapted to contain mercury, partition-plates below the mercury-level within said jars and provided with perforations, valve-controlled pipes communicating with the chambers below said partitions, amalgam plates arranged within said jars and having their lower ends submerged in mercury, a pipe to conduct the free-gold-bearing particles into the first jar below the mercury-level, a casing resting upon the upper ends of said jars and divided into chambers which each communicate with a jar, and short pipes depending from all the said chambers except the last one, into the jars below, and adapted to convey successively the free-bearing particles which escape from the preceding jars down into their respective jars below the mercury-level, and means to force said free-gold-bearing particles to follow such course, substantially as described.

4. In a hydraulic gold-separating machine, a series of jars adapted to contain mercury, partition-plates below the level of the mercury within said jars and provided with perforations, valve-controlled pipes communicating with the chambers below said partitions, amalgam plates arranged within said jars and having their lower ends submerged in mercury, a pipe to conduct the free-gold-bearing particles into the first jar below the level of the mercury, a casing resting upon the upper ends of said jars and divided into chambers which each communicate with a jar, and short pipes depending from all of said chambers except the last one into the jars below and adapted to convey successively the free-gold-bearing particles which escape from the preceding jars down into their respective jars below the mercury-level, means for forcing a liquid under pressure successively down through said pipes and up through said jars, in order to give the gold a thorough mercurial bath, a valve-controlled discharge-pipe for such liquid communicating with said casing, and injection-pipes for liquid under pressure extending downward into the jars below the mercury-level, substantially as and for the purpose set forth.

5. In a hydraulic gold-separating machine, a series of jars, adapted to contain mercury, partition-plates below the mercury-level within said jars and provided with perforations, valve-controlled pipes communicating with the chambers below said partitions, amalgam plates arranged within said jars and having their lower ends submerged in mercury, a pipe to conduct the free-gold-bearing particles into the first jar below the level of the mercury, a casing resting upon the upper ends of said jars and divided into chambers which each communicate with a jar, and short pipes depending from all of said chambers except the last one into the jars below and adapted to convey successively the free-gold-bearing particles which escape from the preceding jars down into their respective jars below the mercury-level, means for forcing a liquid under pressure successively down through said pipes and up through said jars, in order to give the gold a thorough mercurial bath, a valve-controlled discharge-pipe for such liquid communicating with said casing, injection-pipes for liquid under pressure extending downward into the jars below the mercury-level, a liquid-tank, an inclined chute to receive the liquid and conduct it to said tank, an elevated reservoir containing a heater and provided with a valve-controlled pipe for discharging liquid under pressure to said jars, a pipe connecting the liquid-tank and the liquid-reservoir, and means to elevate the liquid from the former up to the latter continuously, substantially as described.

6. In a hydraulic gold-separating machine, a series of jars adapted to contain mercury, partition-plates below the mercury-level within said jars and provided with perforations, valve-controlled pipes communicating with the chambers below said partitions, amalgam plates arranged within said jars and having their lower ends submerged in mercury, a pipe to conduct the free-gold-bearing particles into the first jar below the level of the mercury, a casing resting upon the upper ends of said jars and divided into chambers which each communicate with a jar, and short pipes depending from all of said chambers except the last one into the jars below and adapted to convey successively the free-gold-bearing particles which escape from the preceding jars down into their respective jars below the mercury-level, means for forcing a liquid under pressure successively down through said pipes and up through said jars, in order to give the gold a thorough mercurial bath, a valve-controlled discharge-pipe for said liquid communicating with said casing, injection-pipes for liquid under pressure extending downward into the jars below the mercury-level, a liquid-tank, an inclined chute to receive the liquid and conduct it to said tank, an elevated reservoir containing a heater and provided with a valve-controlled pipe for discharging liquid under pressure to said jars, a pipe connecting the liquid-tank and the liquid-reservoir, and means to elevate the liquid from the former up to the latter continuously, substantially as described.

578,808. **ATTACHMENT FOR HEATERS.** ISAAC BROOKE, Pottstown, Pa. Filed Nov. 5, 1896. Serial No. 611,069. (No model.)



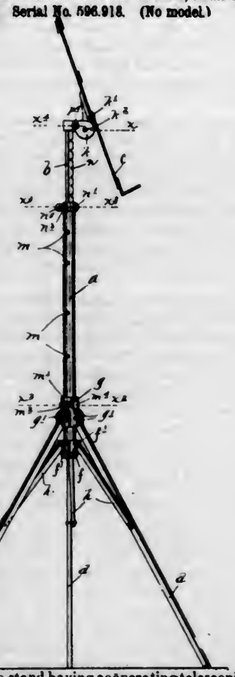
Claim.—1. In a heater, a smoke-outlet, an upright, corrugated chamber into which the products of combustion may be directed, an annular box with which said chamber communicates, a second upright chamber supported upon said box, a passage with which the latter chamber communicates, and an outlet for the heater, leading to any desired point

2. In a heater, a smoke-outlet, a flattened upright corrugated chamber into which the products of combustion may be directed, an annular box with which said chamber communicates, a second flattened corrugated upright chamber extending from said box, a passage with which the latter chamber communicates, each of said chambers having contracted necks, and an outlet for the heater leading to any desired point.

3. A heater having an outlet therefrom for the products of combustion, a longitudinal passage extending directly therefrom to the atmosphere and having a damper therein, a plurality of flattened corrugated upright auxiliary heating-chambers opening out of said longitudinal passage, and a lower annular box with which said flattened corrugated chambers communicate, and a casing surrounding said heater.

4. In a heater having a combustion-chamber, the outlet-passages C' G, communicating therewith, chambers D and E communicating with said passages, and having a contracted neck at top and bottom, said chambers having greater width than thickness, and consisting of the sections P and W, having corrugations therein, and the annular box E, into which said chambers discharge, said box having an opening at the top communicating with said chambers and consisting of the upper and lower sections R and S, suitably joined together, in combination with a damper located intermediate said passages C', G.

578,809. **MUSIC-STAND.** OTTO A. BRONSON, Minneapolis, Minn. Filed June 25, 1896. Serial No. 596,918. (No model.)



Claim.—1. A music-stand having cooperating telescopically-movable parts, the smaller member of which is notched, and a finger-operated lock-plunger mounted in the exterior telescopic section, with its stem extending substantially tangential to the periphery of the interior section and having a blade portion which is engageable with the notches thereof, substantially as described.

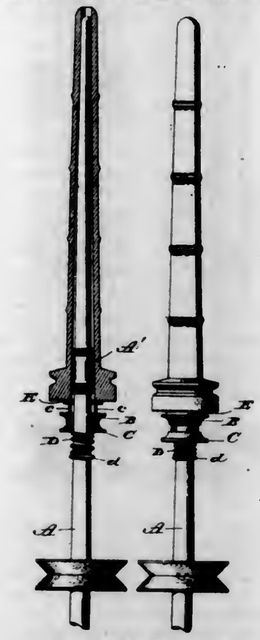
2. In a music-stand, the combination with the barrel-section provided with notches, of the sliding head or collar movable on said barrel-section, leg-sections operated by the movement of said collar, and a finger-operated lock-plunger mounted in said head or collar, with its stem portion extending substantially tangential to the periphery of said barrel, and provided with a blade portion which is engageable with the notches thereof, substantially as described.

3. In a music-stand, the combination with the barrel-section *a* provided with the notches *m*, of the leg-sections *d* attached to the lower end of the barrel by means of the arms *h*, the sliding head or collar *g* having pivotal connections to the upper ends of said leg-sections *d*, and the lock-plunger m^3 with blade m^3 engageable with said notches *m*, and having its stem extending substantially tangential to the periphery of the barrel *a* and subject to the action of the spring m^6, substantially as described.

4. The combination with the barrel *a* provided with a passage which is square in cross-section, of the square rod *b* provided with notches on one edge, and the finger-operated plunger n^3 with blade portion n^4 engageable with the notches of said rod and having its stem portion extending tangential to a circle struck from the center of said barrel and subject to the action of the spring n^6, substantially as described.

5. In a music-stand, the combination with the pair of pivotally-connected parts *k* and *k'*, the member *k'* having the notches *p'* and *p'* and the member *k* having the transverse plunger-seat, and the lock-plunger p^3 provided with blade p^3 adapted for engagement with said notches *p* and *p'*, under the action of the spring p^3, substantially as described.

578,810. **THREAD-HOLDER FOR SPINDLES.** OLIVER C. BURR, Westvale, Mass., assignor of one-half to Waldo L. Curtiss, Winsted, Conn. Filed Feb. 15, 1896. Serial No. 579,389. (No model.)



Claim.—1. In a thread-holder for spindles, the combination with a revoluble spindle having a fixed member thereon, of a second member independent of the fixed member and reciprocally mounted on the spindle, means to move said member away from the fixed member controlled by the bobbin as it is placed on the spindle, and a spring for actuating the movable member against the movement imparted thereto by the bobbin.

2. The combination with the spindle, of a collar fixed thereon, a second collar movable on the spindle and spring-actuated against the fixed collar, and pins projecting from the movable collar and adapted to contact with the bobbin when said bobbin is placed upon the spindle, substantially as shown and for the purpose set forth.

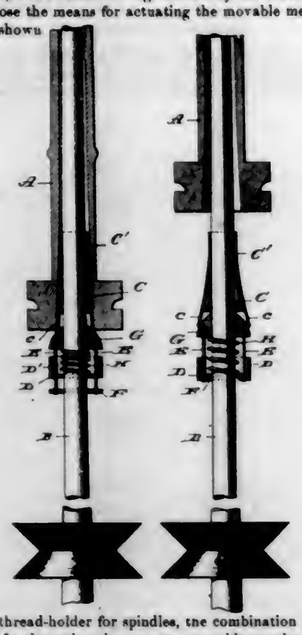
3. The combination with the spindle A having a fixed collar or ring, of a movable collar or ring having pins which project above the fixed collar or ring, and a spring mounted upon the spindle and in engagement with the movable collar, the bobbin when placed upon the spindle being adapted to bear against the upper ends of the pins, substantially as shown and for the purpose set forth.

4. In a thread-holder for spindles, the combination of a spindle having a suitable bobbin-holder mounted thereon, a fixed collar mounted upon the spindle below the bobbin-holder, a movable collar located below the fixed collar and provided with pins which project above the same, and a spring mounted on the spindle so as to force the movable collar against the fixed collar, the parts being organized substantially as shown and for the purpose set forth.

5. The combination with the spindle A having a fixed collar B mounted thereon and provided with vertical apertures *b b*, of a movable collar having pins which pass through the apertures in the fixed collar, a spring mounted upon the spindle to bear against the movable collar, and a washer E mounted upon the spindle to rest upon the upper ends of the pins; together with a bobbin-holder carried by the spindle above the washer, the parts being organized substantially as shown and for the purpose set forth

578,811. **COMBINED BOBBIN-HOLDER AND THREAD-CATCHER.** OLIVER C. BURR, Winsted, Conn., assignor of one-half to Waldo L. Curtiss, same place. Filed Nov. 4, 1896. Serial No. 610,997. (No model.)

Claim.—1. In a thread-holder for spindles, the combination with the revoluble spindle having a fixed member thereon, two members movable in unison and held in sliding engagement with the fixed member, means for moving one of the movable members toward the fixed member, and a band or ring carried by the fixed member to partially inclose the means for actuating the movable members, substantially as shown



2. In a thread-holder for spindles, the combination with a spindle having a fixed member thereon, two movable members connected to each other so that they will move in unison, one being spring-actuated toward the fixed member and the other spring-actuated away from the same, a spring encircling the spindle, and a ring to partially inclose the spring, substantially as shown.

3. In a thread-holder for spindles, the combination with the revoluble spindle having a fixed member thereon, a disk or washer below the same connected to another member having an inclined face; together with a bobbin-holder having arms which are moved inward by placing the bobbin thereon, said movement automatically actuating the movable member of the thread-catcher away from the fixed member, substantially as shown and for the purpose set forth.

4. In a bobbin and thread holder for spindles, the combination of the bobbin-holder adapted when engaged by the bobbin to actuate the thread-catcher to separate the thread-grasping members thereof, and means for actuating one of the movable members of the thread-holder so that it will move toward the fixed member thereof when the bobbin is raised, substantially as shown.

5. A bobbin-holder for spindles, consisting of a collar having arms and a conical frustum of elastic material secured to the spindle to engage the arms and provide means for forcing said arms outward.

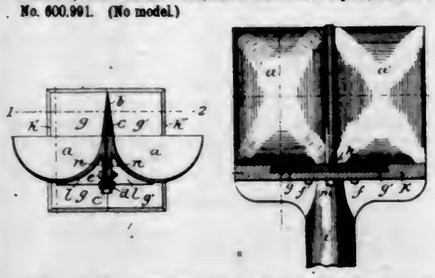
6. A bobbin-holder for spindles, consisting of a collar rigidly attached to the spindle and provided with arms the free ends of which are bent inward; together with means carried by the spindle for engaging the arms to force the same outward.

7. A bobbin-holder for spindles, consisting of a collar having arms and a section of cork carried by the spindle to engage the arms at a point above their lower ends, substantially as shown

8. In combination with the spindle and bobbin, of the bobbin-holder and thread-catcher devices, consisting of a sleeve having arms, means for forcing said arms outward carried by the spindle and located above the ends of said arms; the thread-catcher comprising a fixed member and movable members F and G, the upper movable member having an inclined face with which the ends of the arms of the bobbin-holder engage, so that when the arms of the bobbin-holder are forced inward said conical section will be moved upon the spindle, substantially as shown and for the purpose set forth.

9. In combination with a bobbin-holder having arms which are moved toward the spindle when engaged by the bobbin, of a thread-catcher comprising a member fixedly attached to the spindle, movable members above and below the fixed member and connected to each other, a spring for engagement with the fixed member and one of the movable members, the face of the movable member adjacent to the bobbin-holder being inclined, substantially as shown, whereby the inward movement of the arms of the bobbin-holder will actuate the movable members of the thread-catcher, for the purpose set forth.

578,812. **PERCUSSION WATER-WHEEL.** FRANCIS M. F. CASIN, Hoboken, N. J. Filed June 2, 1893. Renewed July 29, 1896. Serial No. 600,991. (No model.)



Claim.—1. In a water-wheel buckets, having base-plates and cheek-plates, preferably at right angles to each other, the buckets being fastened together by the cheek-plates, as and for the purpose set forth.

2. In a water-wheel buckets, having base-plates and cheek-plates, preferably at right angles to each other, in combination with the crown of the water-wheel, the said buckets being fastened together by the cheek-plates, and being fastened to the wheel-crown by the base-plates, as and for the purpose set forth.

3. In a percussion water-wheel a wheel-crown, having a circumferential central groove in combination with buckets, arranged in pairs and having base-plates, and distance-plates for filling the spaces between the base-plates of successive buckets, as and for the purpose set forth.

4. In a percussion water-wheel a pair of buckets, each member of the pair having a base-plate with one beveled edge, a wheel-crown having a circumferential central groove, dovetailed for receiving the base-plates, and distance-plates having beveled edges, the whole being arranged so, that the parts are capable of being dovetailed together, as and for the purpose set forth.

5. In a percussion water-wheel a series of buckets around the crown of the said wheel, the said buckets being arranged in pairs and having base-plates with beveled edges, a wheel-crown having a circumferential central groove, dovetailed for receiving the base-plates, and distance-plates having beveled edges, the said distance-plates being designed for filling the spaces between the base-plates of successive pairs of buckets, and the whole being arranged so, that the parts can be dovetailed together, as and for the purpose set forth.

6. In a percussion water-wheel a wheel-crown, having on its outer face two rings leaving a space between them, the inner edges of which rings are undercut, in combination with buckets arranged in pairs, that have base-plates, and with distance-plates, the latter filling the spaces between the said base-plates of the successive buckets, all of which plates are so beveled on their two outer opposite sides, as to dovetail and interlock with the undercut inner edges of the rings, and the base-plates on their edges facing the distance-plates being so beveled, and the distance-plates on their edges facing the base-plates being so undercut, as to dovetail and interlock with one another, as and for the purpose set forth.

7. In a percussion water-wheel a wheel-crown, having on its outer face distance-plates, filling the spaces between the base-plates of buckets, such distance-plates being undercut on the two opposite edges, that join the said base-plates, and both kinds of plates conforming in their shape to a concentric circular line with the wheel, in combination with buckets, that are provided with the base-plates as described, the latter being beveled on their opposite edges adjoining the distance-plates, so as to dovetail and interlock therewith as and for the purpose set forth.

8. In a water-wheel a pair of buckets, the outer edges of which form two immediately and directly adjoining parallelograms with right-angled corners, a wedge-shaped projecting piece, the sharp apex-line of which is parallel with the bucket edges but not in the same plane therewith and not in immediate proximity thereto but at a distance therefrom, and the base of which projecting piece covers the two adjoining edges of a pair of buckets, as and for the purpose set forth.

9. In a water-wheel a pair of buckets having a wedge-shaped piece with its base upon the top of the adjoining edges of the buckets, and locking devices for holding the wedge and the buckets firmly together, as and for the purpose set forth.

10. In water-wheel buckets, arranged in pairs on the crown of the wheel in each of which buckets the outer edges form a parallelogram, with the side lines of such parallelogram at right angles to one another, and sharp-edged pieces, each projecting out of the plane of edges, and resting with its base on one edge of such buckets and between the cavities of them, and having its sharp apex-line in the plane of rotation of the wheel and facing the central division-line of the water-jet, and the parallelogram of bucket edges standing in a radial plane to the wheel, as and for the purpose set forth.

11. The combination with the crown of a water-wheel, of a pair of buckets fastened to the said crown, each pair of buckets having a wedge-shaped piece resting on top of their immediately and directly adjoining edges and with its base covering these directly-adjoining edges, and the apex-line of which wedge-shaped piece is materially projecting beyond these adjoining edges and not in the same plane with the edges of the pair of buckets, as and for the purpose set forth.

12. The combination with the crown of a water-wheel, a groove in the said crown, and pairs of buckets having base-plates seated in the said groove, of wedge-shaped pieces surmounting the adjoining edges of a pair of buckets and projecting beyond the edges of the said pairs, as and for the purpose set forth.

13. In a water-wheel the combination with buckets set in series on the face of the said wheel of sharp-edged pieces, surmounting one edge of the said buckets on alternate sides, the said piece extending above and out of the said bucket, and having its outer face or edge, that is farthest from the center of the wheel, on a line, which is in the direction of the water-jet line, when the bucket comes to the starting-point of its effective and working travel, as and for the purpose set forth

14. In a water-wheel a pair of buckets, the outer edges of which pair as well as of each bucket in the pair form a straight-lined parallelogram, with no distinction between the cavities of the two buckets, by which they become distinct as right and left, lateral opposite parts in each bucket-cavity being equal and symmetrical, the cavities of both buckets in the pair being formed on the same core, and this core being formed by rounding off the two flat ends of a semicylinder, leaving the end edges of the base parallelogram of the semicylinder as the end edges also of the curved end faces formed by such rounding off, which latter is perfected by turning off the semicylinder on a second segmental line running at right angles to the semicircle of the semicylinder, the second segmental line ending in the two said end edges and having the same rise as the said semicircle and having its chords in the said base plane, leaving two opposite triangular parts of the curved face of the semicylinder intact, and leaving a central apex-point of both curved faces common to all, as and for the purpose set forth.

15. In a water-wheel a bucket, the outer or front edges of which form a parallelogram, and the concavity of which is the counterpart of a core, the transverse maximum section or section by the apex-point of which exclusively is substantially semicircular, and the central section of which, that is at right angles with the aforesaid maximum transverse section is mainly an arc of fewer degrees of a larger circle, having the same rise or maximum perpendicular to the base plane of the core, and in which bucket all points in the face of its cavity, as formed on the core as described, are situate either in the lines described as the main section-lines of the core, standing rectangular to one another, or situate in lines that are parallel to either of these two lines and standing rectangular on the front edges, on opposite sides, and in the cavity of which bucket all the lines in its face, leading from a point on one edge to the diagonally opposite point on the opposite edge, or leading over the described line of maximum transverse section from edge to edge, are true curves.

16. The combination of a water-wheel with a bucket, the outer or front edges of which bucket as well as all lines in its cavity drawn at uniform distance from such front edges, form a true and right-angled parallelogram, the dimensions of which parallelogram decrease toward the deepest point in the cavity, and the cavity of which bucket at its said deepest point has a depth of mainly half the shorter front edge, and the cavity of which bucket is formed by four triangular sides, that are curved in only one direction, and which sides stand at right angles to one another, each triangular curved side having one straight base-line or front edge and two side lines forming curves, which side lines join in a point, that is common to all and is the deepest point in the cavity, and in which cavity-face four perpendiculars dropped at right angles to one another from the said deepest point to the four front edges form, the one continuous pair of perpendiculars, a semicircle, and the other an arc of less degrees of a larger circle, both these arcs forming the two maximum sections of core and cavity

17. In a water-wheel a pair of buckets the members of which pair adjoin one another with one of their front edges directly in the central plane of rotation of the wheel, having a wedge-shaped piece provided with a sharp edge extending beyond the limit of the bucket edges, so that the water will be divided by it before reaching the bucket proper, as and for the purpose set forth.

18. In a water-wheel buckets with cavities equal in all and with equal opposite sides in each, arranged as right-sided and left-sided ones, such buckets having on their inner edge a water dividing and directing piece, provided with a straight sharp edge extending beyond the said inner edge, so as to portion out or distribute the water of a jet between the single buckets and to properly direct these portions into the right-side and left-side buckets, as they stand in series on the crown of the water-wheel, as and for the purpose set forth.

19. In a water-wheel a wheel proper forming one member, in combination with buckets forming another member, the said members interlocking one with the other, by means of beveled edges, the one having spaces for receiving dovetail-shaped members, which spaces are all equally distributed over the wheel-crown, and equally situate relative to the wheel, and into all of which spaces the dovetail-shaped members are received in the same direction and manner, and the base-line or base-face of which spaces is concentric with and circular as the wheel-face as and for the purposes set forth.

20. The combination with a percussion water-wheel and with buckets, two of which form a pair, supplementing one another as such in the function of dividing the water-jet and of directing its parts, such single buckets being set on two different sides of a central plane of rotation and following one another on the crown of the wheel, of a water dividing and directing piece with each single bucket, resting with its base on the inner edge of such single bucket, and with its body mainly in the said central plane of rotation and projecting beyond the edge of the bucket, its base and the bucket edges standing in a radial plane to the wheel, as and for the purposes set forth.

21. In a percussion water-wheel bucket, the front edges of which form a perfect right-angled parallelogram, and in which buckets all opposite parts of their cavities are symmetrical and equal in form and dimensions, and which buckets stand with the plane of their edges absolutely at right angles in all directions to the plane of rotation of the wheel, these buckets having on the edge confronting the central division-line of the water-jet in the plane of rotation and surmounting the said edge, a projecting piece dividing and directing the water of the jet, as and for the purpose set forth.

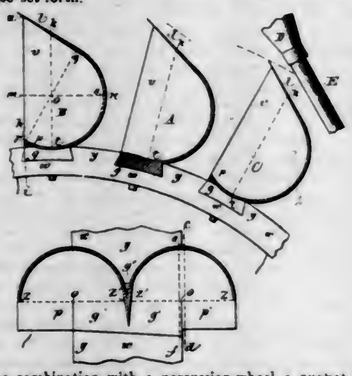
22. In a percussion water-wheel a pair of buckets, the front edges of which form two directly and immediately adjoining parallelograms situate in the same plane, and a projecting water-dividing and water-directing piece, the base of which covers the adjoining sides of the two parallelograms of edges, and the outer face or edge of which piece, being most remote from the center of the wheel, is within such tangent to the constructive working circumference of the wheel, as will strike this circumference in the end point of the radius, on which the next preceding pair of buckets in the order of facing the water-jet, is situate, and such tangent being also the line of direction of the water-jet, when the buckets first come into contact with the water-jet in their rotation, the said outer face or edge of the water dividing and directing piece being in consequence at an angle to its base of ninety degrees plus the degrees, that the buckets are distant from one another on the wheel-crown, as and for the purpose set forth.

23. In a percussion water-wheel a pair of buckets, the single members of which pair have front edges, that form a parallelogram, the plane of which parallelogram stands at right angles to the wheel's plane of rotation, and of which front edges one faces the central division-line of the water-jet in the wheel's plane of rotation, and a projecting piece on the last-specified front edge of each member of the pair, which projecting piece with its sharp front edge, that faces the jet, divides the water-jet centrally in the wheel's middle plane of rotation, causing one half of the jet only to enter into the cavity of one member of the pair of buckets and the other half into another member of a pair of buckets, such members standing on different sides of the middle plane of rotation of the wheel, and which projecting piece has its outer face or edge that is most remote from the center of the wheel, at an obtuse angle to its base-line, as and for the purpose set forth.

578,813. **PERCUSSION-WHEEL.** FRANCIS M. F. CASIN, Hoboken, N. J. Filed Sept. 7, 1895. Renewed Dec. 11, 1896. Serial No. 615,419. (No model.)

Claim.—1. In a percussion-wheel a bucket, the front edges of which, as well as all lines drawn on the face of the cavity at uniform distances from such front edges, form right-angled parallelograms, the parallelogram of the front edges having right-angled and sharp corners, the dimensions of parallelograms decreasing toward the deepest point in the cavity, the parallelogram of front edges having two short and two long edges comparatively, of which the longer pair until to about half the depth of the bucket decreases in length at a greater rate than the shorter pair decreases, the four lines of the parallelogram becoming equal at about such half depth and then remaining equal, until the deepest point in the bucket-cavity is reached, such deepest point not being in the center of the cavity but being nearer to the center of the wheel than is the center of the parallelogram of front edges, and the longitudinal maximum section of which

bucket is formed by a segment of a circle, less than half a circle, and of a tangent to the outer end of the segment, the radius of segment in the central longitudinal or maximum longitudinal section and the radius of the half-circle in the central transverse or maximum transverse section of the bucket-cavity being of equal length, as and for the purpose set forth.



2. The combination with a percussion-wheel, a oucket, and a water dividing and directing knife, that surmounts one front edge of the bucket and revolves with this front edge in a plane, that divides the water-jets into two parts, of a straight lip, which surmounts the one of the four bucket front edges, forming a rectangular parallelogram, that is most remote from the center of the wheel, and surmounts of this edge only the part, which is nearest to the knife, the said lip resting with one of its edges against one side of the knife, and against such side along the edge of the knife, that is most remote from the center of the wheel, the lip and the knife having their sharp front edges in suitable proximity, and the said lip having its outward side in the same plane with the next adjoining part of the outside face of the bucket and also in the same plane with the edge or face of the knife, that is most remote from the wheel-center, and parallel with the water-jet, when the bucket approaches the jet, and the said lip having an inward side, that forms a sharp front edge with its outward side, and a continuous face with the next adjoining part of the bucket-cavity face, and the said lip, having its inner side continuous with part of the adjoining bucket-cavity, forming with such next adjoining part a straight plane which stands at right angles to the plane of rotation of wheel and bucket, and having such inner side or face jointly with the adjoining straight part of the cavity-face in the position of a tangential plane relative to the adjacent curved part of the same cavity-face, as and for the purpose set forth.

3. The combination with a percussion-wheel and a bucket, the front edges of which bucket form a parallelogram, and with a water dividing and directing piece, blade or knife, that surmounts the front edge of the bucket and revolves in a plane, that divides the water-jet into two parts, of a curved or segmental plate or wing or apron, which surmounts part of the front edge of the bucket, that is nearest to the wheel-center, and the so surmounted part thereof being the one most remote from the knife, the said apron forming with its inner side a continuous curved face with the adjacent side of the bucket-cavity and with the curved part of the central longitudinal or maximum longitudinal section of the bucket-cavity a half-circle mainly, the said apron resting in part with its inner side edge against the base-plate of the bucket, the upper face of the base-plate of the bucket and the inner face of the bucket proper being made continuous, where the apron leaves the bucket edge free, as and for the purpose set forth.

4. In combination with a percussion-wheel and bucket, distance-plates on the face of the wheel-crown, being integral with the crown, filling the width of the crown and the space between the base-plates of buckets and having undercut edges across the crown-face, of which one is rectangular to the crown edges and the other diagonal thereto, as and for the purpose set forth

5. The combination with a percussion-wheel and with a pair of buckets and with a water dividing and directing piece, blade or knife, that surmounts two adjacent front edges of the pair of buckets and revolves with these adjacent front edges in a plane, that divides the water-jet into two parts, of a straight plate, wing, wedge or lip to each bucket of the pair, which lip surmounts of the bucket front edges the one, that is most remote from the center of the wheel, and of this edge the part nearest to the knife only, the two lips resting on opposite sides against the extreme edge of the knife, and having their sharp front edges in suitable proximity to the sharp front edge of the knife, and the two lips having their outward sides in the same plane, the one with the other, and also in the same plane with the next adjoining part of the outside of the pair of buckets and also in the same plane with the edge or face of the knife, that is most remote from the wheel-center and parallel with the water-jet, when the pair of buckets approaches the jet, and the said lips having their inward sides in one and the same plane and forming thereby a sharp front edge with their outward sides, which inward sides also are in the same plane and continuous with the next adjoining parts of the cavity-faces of buckets, and tangential to the curve or segment of the central longitudinal or maximum sections of the bucket-cavities, as and for the purpose set forth.

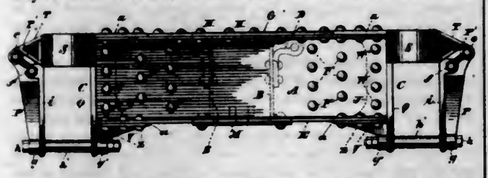
6. The combination with a percussion-wheel and a pair of buckets, the front edges of which form two parallelograms, and with a water dividing and directing knife, that surmounts two adjacent front edges of the pair of buckets and revolves with these adjacent front edges in the plane, that divides the water-jet into two parts, of a curved or segmental apron to each bucket, which apron surmounts a part of the front edge of each bucket, that is nearest to the wheel-center, the said part thereof being the part, that is most remote from the knife, the said aprons forming with their inner side a continuous curved face with the adjacent side of the bucket-cavities, and forming with the segment of the central longitudinal or maximum longitudinal section of each bucket-cavity a half-circle mainly, each apron resting with its inner side edge on opposite sides against the base-plate of the pair of buckets, as and for the purpose set forth.

7. The combination with a percussion-wheel a bucket and a water dividing and directiug blade or knife, that surmounts one front edge of the bucket, and with such front edge revolves in a plane, that divides the water-jet into two parts, of a straight plate, wing wedge or lip, which surmounts the bucket front edge, that is most remote from the center of the wheel, but of this front edge only the part, which is nearest to the knife, the said lip resting with one side edge against the extreme end of one side of the knife, the sharp front edges of lip and knife being in suitable proximity, the said lip having its outward side in the same plane with the next adjoining part of the outside face of the bucket and also in the same plane with the edge or face of the knife, that is most remote from the wheel-center and parallel with the water-jet, when the bucket approaches the jet, and the two sides of the lip forming a sharp front edge, that stands rectangular to the sharp front edge of the knife, and inward side of the lip forming a continuous plane with the next adjoining part of the bucket-cavity face, such plane being to the curve or segment of the central longitudinal or maximum longitudinal section of the bucket-cavity a tangential plane, and of a curved or segmental plate, wing or apron, that surmounts part of the bucket front edge, nearest to the wheel-center, and of such front edge the part, which is most remote from the knife, the said apron forming with its inner face or side a continuous curved face with one side of the bucket-cavity, and a complete half-circle with the segmental part of the central longitudinal or maximum longitudinal section of the bucket-cavity, as and for the purpose set forth.

8. The combination with a percussion-wheel and with a pair of buckets, all front edges of which are in one plane, and with a water dividing and directing knife, which surmounts one front edge of each bucket of the pair and revolves with these adjacent front edges in a plane, that divides the water-jet into two parts, of a straight lip in each bucket of the pair, each lip surmounting a part of the bucket front edge that is most remote from the center of the wheel, namely the part nearest to the knife, and each lip resting with one edge against the extreme end of one side of the knife, with the sharp front edges of the two lips forming a straight line, standing at right angles to the front edge of the knife and in suitable proximity thereto, both lips having their outward sides in the same plane with the extreme small edge or face of the knife and also with the next adjoining part of the outside face of the buckets and with one another, such plane standing at right angles to the plane of rotation of wheel and bucket and parallel with the water-jet, when the pair of buckets approaches the jet, and which lips have their inward sides in the same straight plane with the next adjoining part of the bucket-cavity face and with one another, the said straight plane being in a tangential position to the adjoining curved or segmental part of the cavity-face, and the inner and outer sides of the lips forming one sharp, straight front edge, and of a curved or segmental apron to each bucket of the pair, which apron surmounts part of the bucket front edge, that is nearest to the wheel-center, and the part thereof, that is most remote from the knife, each apron by its inner face forming a continuous face and curve with the adjoining bucket-cavity face, and complementing the segmental cavity-curve to a semicircular curved face, as and for the purpose set forth.

578,814. CAR-TRUCK. EDWARD CLIFT, Newark, N. J. Filed Nov. 2, 1896. Serial No. 610,790. (No model.)

Claim.—1. In a car-truck the side beams having flanges at their upper and lower edges, combined with the flanged pedestal-frames secured to the web of said side beams and having movable outer sides, and channel transom-beams extending transversely across the truck and having their flanges turned outward from one another and their ends turned toward the ends of the truck with their web portions in contact with the web portions of the side beams to which they are riveted, said channel transom-beams only extending part way toward the ends of the side beams: substantially as set forth.



2. In a car-truck, the flanged side beams, combined with pedestal-frames at the ends of the said side beams, said pedestal-frames comprising in an integral piece the upper horizontal flange, the inner vertical rubbing-flange, the inner vertical web-flange, the lower horizontal flange, the outwardly-extending flange, the outer movable frame secured to said last-mentioned flange and having the vertical rubbing-flange along its inner edge, the bolt closing the lower end of the pedestal, and the hinge and safety bolts securing the upper end of said movable frame; substantially as set forth.

3. In a car-truck, the channel side beams having their upper and lower flanges turned outward, and the pedestal-frames at the ends of said side beams, combined with the flanged bolster-beams whose flanges turn outward from one another and which extend transversely across the truck and have their web ends turned to contact with the webs of the side beams, whereby the plain surfaces of the side beams and the plain surfaces of the said bolster-beams are brought into close contact and are riveted together; substantially as set forth.

4. In a car-truck, the channel-iron side beams, having their upper and lower flanges turned outward, and the flanged bolster-beams extending across the truck and having their flanges turned outward from one another and their ends turned so that the web portion of the bolster-beams will contact with the web portion of the side beams, combined with the pedestal-frames at the ends of the side beams and the top plate connecting the side and bolster beams; substantially as set forth.

5. In a car-truck the rolled solid side beams, combined with pedestal-frames secured to said side beams and adapted to permit the axle-boxes to have a vertical movement therein, and the rolled channel transom-beams extending transversely across the truck and having their flanges turned outward from one another and their ends turned outward toward the ends of the truck but extending only part way to said ends of the truck, the web portions of the outwardly-turned ends of the said transom-beams being in contact with and riveted to the webs of the side beams; substantially as set forth.

6. In a car-truck, the side frames, combined with the pedestal-frames at each end of said side frames and each comprising the upper flange, the inverted spring-socket, the inner vertical rubbing-flange, the vertical web, the lower flanged bracket, the outer flange extending from said socket and forming an angular outer extension and thence depending downward below said socket, and the movable frame having rubbing surfaces and secured to the depending portion of said outer flange, and the two bolts securing the upper end of said movable frame, one bolt being below and inward from the vertical plane of the other; substantially as set forth.

7. In a car-truck, the commercial-rolled beam side frames having substantially vertical ends, combined with cast-metal flanged pedestal-frames secured to said vertical ends and having outer movable sides and the hinge and safety bolts securing said movable sides at their upper ends; substantially as set forth.

8. In a car-truck, the side beams, combined with the cast pedestal-frames secured thereto and having the flanges T provided with inclined shoulders P', and the movable outer frames P bifurcated at their upper ends to straddle said flange and having inclined edges to abut against said shoulders, and a bolt securing said side frame P to said flange T; substantially as set forth.

578,815. PROPELLING MEANS FOR BOATS. CAROLINE S. FRYER, New York, N. Y., administratrix of Richard Fryer, deceased, assignor of one-half to Joseph Ernest Gibbs, same place. Filed Dec. 18, 1896. Serial No. 616,110. (No model.)

Claim.—1. The combination with a boat, and the propeller-shaft, of a vertically-arranged shaft, means for transmitting the motion from said vertical shaft to the propeller-shaft, a spring-controlled drum loosely arranged on said vertical shaft, a ratchet-wheel slidingly mounted on said shaft, a series of spring-controlled pawls arranged on said drum and adapted to engage said ratchet-wheel, a rope coiled around said drum and secured thereto with one end, an oar or lever swiveled on said boat, and connected with its onter end to the other end of said rope, and a luff-tackle intermediately arranged between the end of said lever or oar and the drum and having the rope or cable passing through and over the same, all said parts being arranged, substantially as and for the purposes described.



2. The combination with a boat and the propeller-shaft, of a beveled pinion on the inner end of said propeller-shaft, a vertically-arranged shaft, a beveled gear-wheel on said shaft and meshing with the beveled pinion, a spring-controlled drum loosely arranged on said vertical shaft, a ratchet-wheel slidingly mounted on said shaft, a series of spring-controlled pawls arranged on said drum and adapted to engage said ratchet-wheel, a rope coiled around said drum and secured thereto with one end, an oar or lever swiveled on said boat, and connected with its outer end to the other end of said rope, and a luff-tackle intermediately arranged between the end of said lever or oar and the drum, and having the rope or cable passing through and over the same, all said parts being arranged, substantially as and for the purposes described.

3. The combination with a boat and the propeller-shaft, of a spring-controlled drum, means for transmitting the motion from said spring-controlled drum to the propeller-shaft, a rope coiled around said drum and secured thereto with one end, an intermediate luff-tackle having the rope or cable passing over the same, and an oar or lever swiveled on the boat and having the other end of said rope secured to its outer end, all said parts being arranged, substantially as and for the purposes described.

4. The combination with a boat and the propeller-shaft, of a vertically-arranged shaft, means for transmitting the motion from the vertical shaft to the propeller-shaft, a spring-controlled drum loosely mounted on said vertical shaft, a series of pulleys arranged on the side of the boat, an oar or lever swiveled on said boat, a pulley carried by the outer end of said oar, two pulleys loosely mounted on an axle supported by the boat, and a rope coiled around the drum and secured thereto with one end, and passing over the series of pulleys and secured with its other end to the outer end of the oar or lever, all said parts being arranged, substantially as and for the purposes described.

5. The combination with a boat and the propeller-shaft, of a vertically-arranged shaft, means for transmitting the motion from the vertical shaft to the propeller-shaft, a spring-controlled drum loosely mounted on said vertical shaft, a series of pulleys arranged on the side of the boat, an oar or lever swiveled on the said boat, a pulley carried by the outer end of said oar, two pulleys loosely mounted on an axle supported by the boat, a rope coiled around the drum and secured thereto with one end and passing over the series of pulleys and secured with its other end to the outer end of the oar or lever, and means for reversing the motion of the propeller-shaft, all said parts being arranged, substantially as and for the purposes described.

578,816. APPARATUS FOR PLACER-MINING, &c. CARROLL D. GALVIN, Chicago, Ill. Filed Apr. 29, 1896. Serial No. 589,489. (No model.)

Claim.—1. In apparatus of the character described, the combination with a tower, of divergent cableways extending from said tower the outer ends of said cableways being connected together and suitable anchors for retaining said cableways apart, substantially as described.

2. In apparatus of the character described, the combination with a tower, of divergent cableways, the outer ends of which are connected by block-and-tackle mechanism, and suitable anchors for retaining said cableways in position, substantially as described.

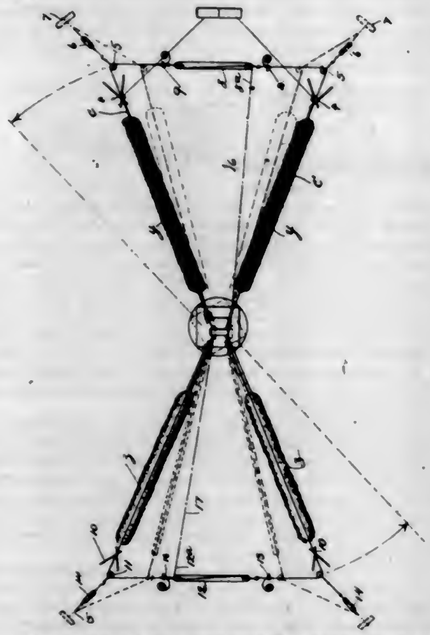
3. In apparatus of the character described, the combination with a tower, of divergent cableways extending from one side of said tower and divergent sluice-cables extending from the opposite side of said tower and sluices carried by said sluice-cables, substantially as described.

4. In apparatus of the character described, the combination with a tower, of a sluice-cable and a sluiceway suspended therefrom and formed of detachable sections, substantially as described.

5. In apparatus of the character described, the combination with a tower, of a sluice-cable extending therefrom, a sluiceway suspended from said cable and formed of sections having interlocking ends, substantially as described.

6. In apparatus of the character described, the combination with a tower, of a sluice-cable extending therefrom, a sluiceway suspended

from said cable and formed of sections, one section of said sluiceway being adapted to fit into the next adjoining section, substantially as described.



7. In apparatus of the character described, the combination with a tower, of a sluice-cable extending therefrom, a series of stirrups depending from said cable and a sectional sluiceway sustained by said stirrups, substantially as described.

8. In apparatus of the character described, the combination with a tower, of a sluice-cable extending therefrom, stirrups depending from said cable, cross-beams at the lower ends of said stirrups, a sectional sluiceway resting upon said cross-beams and side boards extending between said cross-beams adjacent said sluiceway, substantially as described.

9. In apparatus of the character described, the combination with a tower, of divergent sluice-cables extending therefrom, suitable anchors for retaining the outer portions of said cables at a distance apart, the ends of said cables being connected together and sluiceways suspended from said cables, substantially as described

10. In apparatus of the character described, the combination with a tower, of sluice-cables extending therefrom, sluiceways suspended from said cable and a shifting spout adjacent the tower and adapted to direct the refuse or tailings into either of said sluiceways, substantially as described.

11. In apparatus of the character described, the combination with a tower having a hopper in its upper portion, of an adjustable chute beneath the discharge end of said hopper and a screen beneath said chute, and inclined oppositely thereto substantially as described.

578,817. PROCESS OF REDUCING COPPER ORE AND MATTES. ARTHUR L. GRANT, Toronto, Canada, assignor to William James Urquhart, same place. Filed Oct. 24, 1896. Serial No. 566,728. (No specimens)

Claim.—1. The hereinbefore-described process of treating ores or mattes of copper and nickel, the same consisting in first roasting the ore or matte, next fusing it in the presence of silica and thereby reducing the copper and nickel into silicates, then precipitating the copper and part of the nickel with an excess of iron, drawing off the precipitated copper and nickel and adding another portion of iron to the silicates remaining in the furnace and finally drawing off the precipitated nickel and iron.

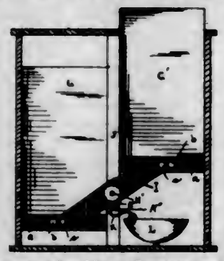
2. The hereinbefore-described process of treating ores or mattes of copper and nickel, the same consisting in first roasting the ore or mattes, next fusing it in the presence of silica and thereby reducing the copper and nickel into silicates, then precipitating the copper and part of the nickel with an excess of iron, drawing off the precipitated copper and nickel, then adding another portion of iron to the silicates remaining in the furnace and drawing off the precipitated nickel and iron, supplying a fresh charge of roasted ore or matte to the furnace, adding thereto the precipitated alloy of copper and nickel and finally drawing off the precipitated copper.

3. The hereinbefore-described process of treating ores or mattes of copper and nickel, the same consisting in first roasting the ore or mattes, next fusing it in the presence of silica and thereby reducing the copper and nickel into silicates and then precipitating the copper and part of the nickel with an excess of iron, drawing off the precipitated copper and nickel, then adding another portion of iron to the silicates remaining in the furnace, and drawing off the precipitated nickel and iron, supplying a fresh charge of roasted ore or mattes to the furnace, adding thereto the precipitated alloy of copper and nickel, drawing off the precipitated copper and then adding more iron sufficient to displace the remaining copper and part of the nickel and finally drawing off the precipitated copper and nickel.

4. The hereinbefore-described process of treating ores or mattes of copper and nickel, the same consisting in first roasting the ore or mattes, next fusing it in the presence of silica and thereby reducing the copper and nickel into silicates, then precipitating the copper and part of the nickel with an excess of iron, and drawing off the precipitated copper and nickel, and then adding another portion of iron to the silicates remaining in the furnace, and drawing off the precipitated nickel and iron, supplying a fresh charge of roasted ore or matte to the furnace, adding thereto the precipitated alloy of copper and nickel and drawing off the precipitated copper, next adding more iron sufficient to displace the remaining copper and part of the nickel, drawing off the copper and nickel and finally adding a pig of nickel and iron and drawing off the precipitated nickel.

5. The hereinbefore-described process of treating ores or mattes of copper and nickel, the same consisting in first roasting the ore or mattes, next fusing it in the presence of silica and thereby reducing the copper and nickel into silicates, then precipitating the copper and part of the nickel with an excess of iron, and drawing off the precipitated copper and nickel, then adding another portion of iron to the silicates remaining in the furnace and drawing off the precipitated nickel and iron, supplying a fresh charge of roasted ore or matte to the furnace, adding thereto the precipitated alloy of copper and nickel and drawing off the precipitated copper, next adding more iron sufficient to displace the remaining copper and part of the nickel, drawing off the copper and nickel, adding a pig of nickel and iron and drawing off the precipitated nickel and finally adding sufficient iron to displace the remaining nickel, and drawing off the precipitated nickel and iron.

578,818. MATCH-CABINET. SANFORD GREEN, Brighton, Iowa, assignor to Charles A. Dewey, Canton, and Basil W. Thompson, Peoria, Ill. Filed Sept. 7, 1896. Serial No. 561,743. (No model.)



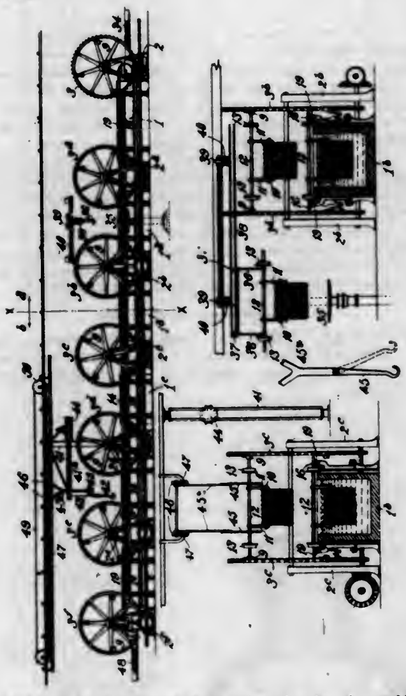
Claim.—1. In a match-cabinet, the combination with a hopper having an inclined bottom and provided with a delivery-opening, a slide moving through the hopper past the lower edge of its bottom and having its upper end shaped to carry a match to said opening, a shaft journaled longitudinally through said cabinet and having a knob outside the same, and an arm fast on the shaft with its end loosely connected with said slide; of a ratchet fast on the shaft, an escapement engaged by the ratchet, a clapper moved by the escapement, and a bell which the clapper strikes at each movement of the shaft, as and for the purpose set forth.

2. In a match-cabinet, the combination with a receptacle containing a hopper having an inclined bottom, said receptacle having a delivery-opening near its top, a slide moving through the hopper and its upper end adapted to deliver a match out said opening, and manually-operated devices for raising and lowering said slide; of a bell within the cabinet, a ratchet mounted on said operating devices, an escapement engaging the ratchet, and a clapper carried by the escapement adjacent the bell whereby the latter is rung at each upward movement of the slide, as and for the purpose set forth.

3. In a match-cabinet, the combination with the receptacle having a transverse partition and containing hoppers on opposite sides thereof, the receptacle having delivery-openings above the hoppers, slides on opposite sides of the partition moving through said hoppers

and having their upper ends shaped to carry one match to each delivery-opening, a shaft journaled longitudinally through said partition and having a knob outside the receptacle, and an arm fast on the shaft with its ends loosely connected with said slides; of a ratchet fast on the shaft, an escapement engaged by the ratchet, a clapper moved by the escapement, and a bell which the clapper strikes at each movement of the shaft, as and for the purposes set forth.

578,819. APPARATUS FOR TREATING WIRE, &c. WILL L. HAYES and LAURENCE W. JERNBERG, Cleveland, Ohio; said Jernberg assignor to said Hayes. Filed Apr. 29, 1896. Serial No. 589,541. (No model.)



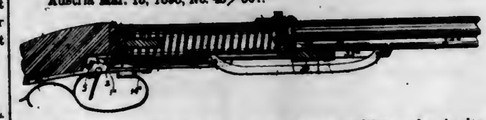
Claim.—1. In an apparatus for treating wire, &c., the combination of a series of two or more vats, mechanism for receiving a bundle of wire at a point outside of the first vat and depositing it in the same, mechanism for shifting a bundle along the vats, mechanism for transferring the bundle from one vat to the next succeeding vat, mechanism for lifting a bundle from the last vat of the series and depositing it at a point outside of the vat, and mechanism for placing a bundle of wire in the apparatus at an intermediate point, substantially as set forth.

2. In an apparatus for treating wire, &c., the combination of a series of two or more vats, mechanism for receiving a bundle of wire at a point outside of the first vat and depositing it in the same mechanism for transferring the bundle from one vat to the next succeeding vat, mechanisms for lifting the bundle along the vats, mechanism for lifting a bundle from the last vat of the series and depositing it at a point outside of the vat, and mechanism for removing a bundle from the apparatus at an intermediate point, substantially as set forth.

3. In an apparatus for treating wire, &c., the combination of a series of two or more vats, mechanism for transferring a bundle of wire from one vat to the next succeeding vat, a vertically-movable platform arranged at one side of the transferring mechanism and a carrying device movable in two directions, at right angles, and parallel to the direction of movement of the transfer mechanism, substantially as set forth.

4. In an apparatus for treating wire, &c., the combination of a series of two or more vats, mechanism for transferring a bundle of wire from one vat to the next succeeding vat, an elevated carrying mechanism provided with hooks, said carrying mechanism being so arranged that its hooks may be shifted into engagement with a bundle of wire while supported by the transfer mechanism, substantially as set forth.

578,820. MAGAZINE AIR-GUN. THEODOR HORNHAUER, Dresden, Germany, assignor of one-fourth to Frederick Arno Huller, same place. Filed Nov. 29, 1895. Serial No. 570,349. (No model.) Patented in Austria Mar. 13, 1895, No. 45/867.



Claim.—1. In an air-gun, a breech-barrel, having a slot in its lower side, a tubular plunger placed therein, a spring for driving the plunger forward, a sear which engages with the plunger, the pivoted gun-barrel, combined with a lever pivoted to the gun-barrel at its forward end, and connected at its rear end to the rear end of the plunger, and provided at its rear end with a cross-pin, and a guideway formed under the breech-barrel for the pin to slide in, substantially as described.

2. In an air-gun, the combination with the stock, of the hub-block, the breech-barrel having an air-chamber at its forward end, a spring-actuated plunger-cylinder fitted therein, a longitudinal slot at the under side of the said plunger-cylinder, parallel grooved guide-plates upon the under side of the breech-barrel, a gun-barrel pivoted to the breech-barrel and a lever pivoted to the breech-barrel and having a head fitted to slide and be retained between said guide-plates, substantially as described.

3. The breech, and a push-pin which passes therethrough, combined with the plunger, the sear having a shoulder against which the pin presses, a spring placed under the rear end of the sear to disengage it from the plunger when released by the trigger, and the trigger, substantially as shown.

578,821. FRAME FOR EYEGLASSES. SALOMON HUMMEL, Vienna, Austria-Hungary. Filed Oct. 31, 1896. Serial No. 610,665. (No model.)



Claim.—The combination with the separable frame *a*, *b*, of an eyeglass, the ends of which are each vertically slotted, of the catch *g*, pivotally connected with one end of said frame within the slot thereof, a ledge *i*, formed in the other slotted end of the frame, a finger *h*, formed on said catch *g*, and adapted to rest on said ledge, and projections *g'* and *g²*, formed at the ends of said catch, whereby the catch may be articulated within the slot of the frame and the said catch and ledge arranged so as to be concealed when the frame is locked, substantially as described.

578,822. SCARF-PIN SECURER. IRA H. JOHANNES, Washington, D. C. Filed June 25, 1896. Serial No. 596,876. (No model.)



Claim.—1. A securer for pins or the like consisting of a spirally-coiled wire having its inner face flat or straight, and loops or eyes formed at one end and extending in opposite directions.

2. A securer for pins or the like consisting of a tapered coil having thereon lateral projections arranged transversely opposite each other and extending from the coil in opposite directions.

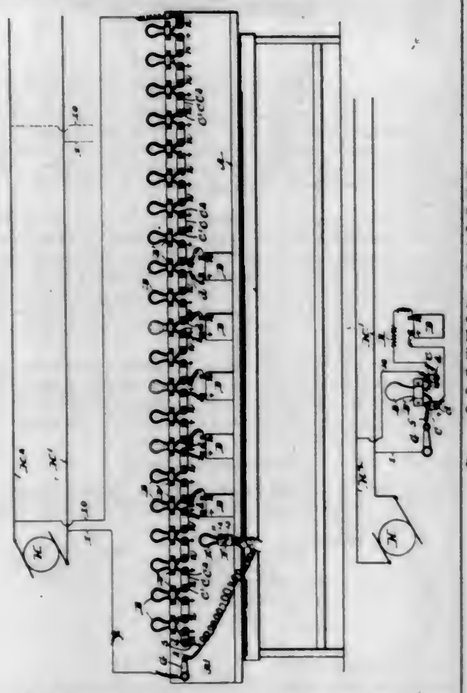
3. A securer for pins and the like consisting of a spiral coil having lateral projections thereon extending directly outward therefrom in opposite directions.

4. A securer for pins or the like, consisting of an open-ended spiral formed of wire terminating at opposite ends, one end of the wire being looped transversely ontward in opposite directions to form lateral projections on opposite sides of the holder, substantially as described.

5. A securing device for pins and similar articles, consisting of an open-ended tapered spiral having the inner faces of the coils thereof flat or plane.

578,823. CHARGING SECONDARY BATTERIES. ISIDOR KITSEE, Philadelphia, Pa. Filed Nov. 2, 1896. Serial No. 567,715. (No model.)

Claim.—1. In combination, a charging plant for secondary cells consisting of a circuit carrying a current of comparative high electromotive force, a series of incandescent lamps of comparative small resistance placed in multiple arc as to the main circuit but in series as to each other, and sets of secondary batteries, placed each in multiple arc to one of said small-resistance lamps.



2. A charging plant for secondary batteries consisting of a number of incandescent lamps of comparatively small resistance, placed in series as to each other and connected to one common incandescent circuit of comparatively high potential, each lamp being provided with an individual subcircuit designed to be closed around one battery set, said lamp-circuit also containing an additional lamp provided with a resistance-circuit adapted to be opened and closed, shunting said additional lamp.

3. A charging plant for secondary cells consisting of a circuit carrying a current of comparatively high electromotive force, a series of incandescent lamps of comparatively small resistance placed in multiple arc as to the main circuit but in series as to each other, sets of secondary batteries the terminals of each set of which are connected each to the terminals of one small-resistance lamp and means for throwing said lamps in and out of the circuit.

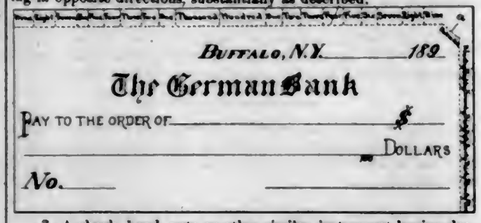
4. In a charging plant for secondary batteries, a number of incandescent lamps connected in series as to each other, each pole of each lamp being connected to a conducting-plate adapted to receive the terminal of one pole of a battery set, substantially as and for the purpose specified.

5. A charging-circuit for secondary cells consisting of a number of incandescent lamps connected in series as to each other, the terminals of each lamp being provided with means for the insertion of a battery set in shunt or multiple arc, said charging plant being also provided with a guide-lamp adapted to give with the aid of resistance, different glow intensities, substantially as and for the purpose specified.

578,824. **CHECK, BOND, NOTE, &c.** LEO LOEBER, Buffalo, N. Y. Filed Feb. 26, 1896. Serial No. 580,819. (No specimens.)

Claim.—1. A bank-check, comprising a body portion having on one edge two series of coupons, each series numbered consecutively from an intermediate starting-point outward, each series commencing with a certain figure and increasing in multiples thereof.

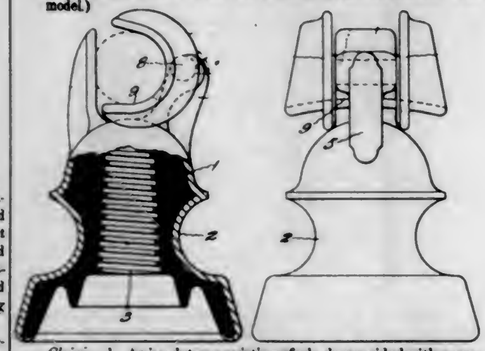
2. A check, bond or other similar instrument having marginal figures or numerals designating characters, the longitudinal marginal arrangement consisting of the thousands and hundreds designating characters situated side by side near the center of the edge of the check, the numbers representing hundreds and thousands beginning adjacent to each of the thousand and hundred characters and counting in opposite directions, substantially as described.



3. A check, bond, note or other similar instrument having designating-characters on its margin, adapted to be removed, the arrangement being with the thousands and hundreds designating characters situated side by side near the center of the edge of the check, and counting from these characters in opposite directions, and the transverse marginal arrangement of the fractions of a hundred, the same arranged to count toward the hundreds, for the purpose described.

4. A check, note, bond or other similar instrument having marginal designating-characters adapted to be removed, the arrangement of the designation with the thousands and hundreds being near the longitudinal edge thereof with the characters counting therefrom in opposite directions, a transverse marginal arrangement of the fractions of a hundred counting toward the hundred numbers, and a diagonal perforation across the corner of the check connecting the hundreds and the fractions thereof, substantially as described.

578,825. **INSULATOR.** HENRY H. LOBDELL, Hartford, Conn., and WILLIAM P. D. CRANE, Orange, N. J., assignors to the Johns-Pratt Company, Hartford, Conn. Filed Oct. 24, 1896. Serial No. 609,980. (No model.)



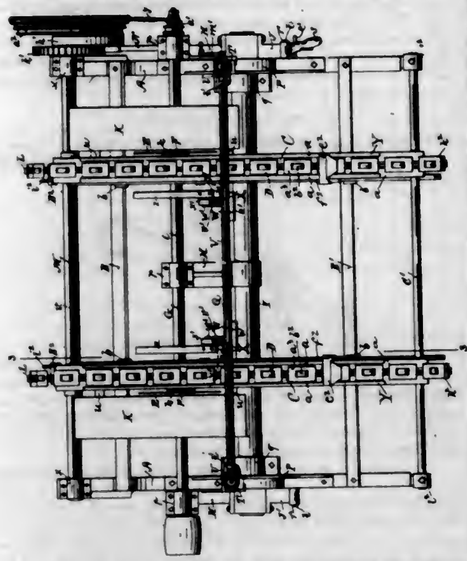
Claim.—1. An insulator consisting of a body provided with means for attachment to a support and having arms that project upwardly from opposite sides of the body near the top, fingers loosely connected with and movable between the arms, a part of the fingers being adapted to support the wire and a part of the fingers being caused to embrace the wire by the action of the weight of the wire, substantially as specified.

2. An insulator consisting of a body provided with means for attachment to a support and having arms that project upwardly from opposite sides of the body near the top, fingers loosely connected with and movable between the arms in such manner that the weight of the wire which they support causes them to be so moved as to lessen the distance between themselves and thus be forced to grasp the wire, substantially as specified.

3. An insulator consisting of a body provided with means for attachment to a support and having arms that project upwardly from opposite sides of the body near the top, fingers loosely connected with and movable between the opposite arms in such manner that when the wire to be supported is in position between the arms above the center of the body the lower part of the fingers lie beneath and form the immediate support of the wire and the upper part of the fingers extend above and are caused to embrace the wire by the action of the weight of the wire, substantially as specified.

4. An insulator consisting of a body having an interior mass of insulating compound and an exterior metallic case, integral arms projecting from the upper end of the case, connected fingers loosely connected to one of the arms in such manner that when a wire is in position between the arms the lower part of the fingers lie beneath the wire and the upper part of the fingers extend over the wire, substantially as specified.

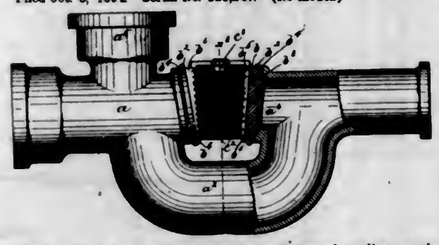
578,826. **SAWING-MACHINE.** BENJAMIN G. LUTHER, Worcester, Mass. Filed Jan. 22, 1894. Serial No. 497,705. (No model.)



Claim.—1. In a sawing-machine, the combination with the parallel chain-carrying frames, and the saws connected with the said frames, of the chains provided with the engaging dogs, means for driving the chains, the guards for depressing the dogs of the chain, and means for raising the guards to allow the dogs to engage with the edge of the board, substantially as described.

2. In a sawing-machine, the combination with the parallel chain-carrying frames, and the saws connected with the said frames, of the chains provided with the engaging dogs, means for driving the chains, the guards for depressing the dogs of the chain, the cams for operating the guards, and the pin-carrying wheels for engagement with the cams, substantially as described.

578,827. **SANITARY TRAP.** MYLES F. MORAN, Lynn, Mass. Filed Oct. 8, 1894. Serial No. 525,247. (No model.)



Claim.—1. A trap having a bend or U-shaped sealing portion located between its inlet and outlet, and provided with oppositely-located openings in said U-shaped portion, combined with exteriorly-removable covers for said openings and an external retaining device interposed between said covers and holding both covers seated in their corresponding openings, substantially as described.

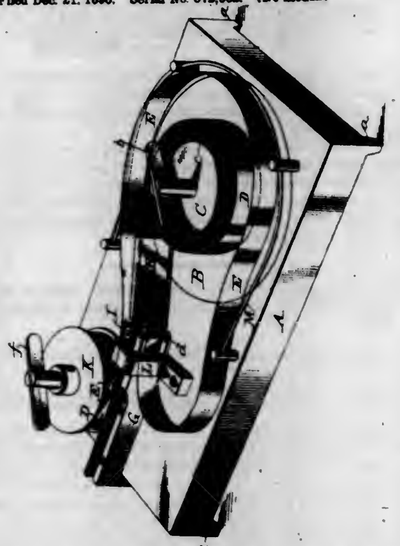
2. The combination with a trap having a U-shaped sealing portion and an inlet at one side and an outlet at the other side thereof, provided with oppositely-located openings in the U-shaped portion, of exteriorly-removable covers for said openings and an adjustable fastening device cooperating with both said covers, substantially as described.

3. The combination with the trap having a U-shaped sealing portion located between its inlet and outlet and provided with oppositely-located openings in said U-shaped portions and exteriorly-removable flanged covers seating over said openings and a fastening device interposed between the said covers and maintaining both seated in their corresponding openings, substantially as described.

4. The combination with a trap having a U-shaped sealing portion and an inlet at one side and an outlet at the other side thereof, provided with oppositely-located openings in the U-shaped portion, of covers for said openings provided upon their outer faces with key-seats and a wedge-shaped fastening device or key to cooperate with said key-seats and maintain the covers seated in the openings, substantially as described.

5. A trap having a bend or U-shaped sealing portion located between the inlet and outlet, one of the branches of said sealing portion having an opening therein between the bow of the seal and the end of the branch whereby direct access may be had to the interior of the sealing portion, combined with an exteriorly-removable cover for the opening, and an external retaining device interposed between the exterior of said cover and the opposite branch of the sealing portion to maintain the cover seated in the opening, substantially as described.

578,828. **HOLDER FOR TYPE.** JOHN L. MCMILLAN, Ilion, N. Y. Filed Dec. 21, 1895. Serial No. 572,882. (No model.)



Claim.—1. A magazine or holder for type, spaces, and the like, consisting essentially of two resilient flexible bands arranged to hold the type or other articles between them in a single line, substantially as described and shown.

2. In a magazine or holder for type, spaces, and the like, the combination of two resilient flexible bands adapted to clasp a line of type between them, and means for moving one of said bands longitudinally to advance the line of type.

3. In a magazine or holder for type, &c., the combination of a spool or drum; two resilient flexible bands attached thereto; a channel-bar or guideway to receive the type; and a second drum connected with one of the bands and serving to draw it from the first drum to and past the receiving end of the channel-bar or guideway.

4. In combination with a fixed guideway, a drum; a flexible type-holder comprising two resilient flexible bands adapted to wind about said drum; and a movable guide extending from the fixed guideway toward the drum, substantially as shown and described.

5. In combination with a fixed guideway, a drum; a flexible type-holder comprising two resilient flexible bands adapted to wind about said drum; a hinged guide extending from the fixed guideway toward the drum, and a roller located at the side of the type-holder opposite the hinge of the movable holder, for the purpose explained.

6. The herein-described magazine or holder comprising a bed or platform A; a disk B flush therewith; a drum C fixed to said disk; bands D and E attached to said drum; a fixed guideway G; a movable guide H, rollers I and J located beside the fixed guideway; and a winding-drum K adapted to take up the band D, all substantially as described and shown.

7. In combination with supply-drum C and take-up drum K, bands D and E attached to said drums; and means for rotating drum K.

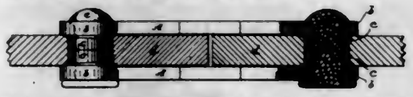
8. In combination with drums C and K; flexible bands D and E; a guideway entering between said bands; and a guard M, to confine the band E, substantially as set forth.

9. In combination with drum K and bands D, E; a motor for rotating said drum, the drum being detachable from the motor; and a detent for holding said motor out of action when drum K is disconnected therefrom.

10. In combination with spring-motor P, Q, R, S, and driven spindle O, a magazine substantially such as described and shown, having a drum K adapted to enter into and to pass out of operative engagement with said motor.

11. In combination with a flexible magazine substantially as described, a motor for paying out the contents of the magazine, the magazine being separable from the motor; a locking-dog T to lock or release the motor; and a detent U adapted to hold the dog in position to engage or to release the motor, as required.

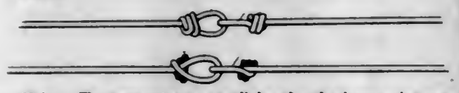
578,829. **RAIL-BOND FOR ELECTRIC RAILWAYS.** THOMAS J. MCTIGHE, Brooklyn, N. Y., and SUMNER W. CHILDS, Natick, Mass. Filed Oct. 9, 1896. Serial No. 608,426. (No model.)



Claim.—1. A duplex rail-bonding device, consisting of two metallic conductors, one on each side or face of the rail, and having inwardly-projecting ends and means for drawing said ends into a single hole in the rail and securing them therein.

2. A duplex rail-bonding device consisting of two metallic conductors having their corresponding ends adapted to enter a single hole in the rail at opposite sides or faces thereof, and having one or both said corresponding ends of tubular form, and a metal rivet passing through one or both ends and capable of upsetting to hold the said ends in contact with the rail.

578,830. **CHECK-ROW CHAIN OR WIRE.** JAMES W. PARKER, West Pullman, Ill. Filed June 10, 1896. Serial No. 595,011. (No model.)



Claim.—The connection for the links of a check-row wire, consisting of forming the meeting ends of the wires with eyes having one member of each eye lying parallel with the main wire, coiled about the two contiguous strands in the direction toward the base of the eye forming an oval conical wrapping with the apex on the main wire and the base embracing the base of the eye, and the extreme end of the wire forced down tightly against the basic coil, whereby the eye is firmly braced and a conical surface presented to the dropping-forks of the check-rower, substantially as and for the purpose set forth.

578,831. **VALVE.** JOHN PLATT, Westfield, N. J. Filed May 19, 1894. Serial No. 511,809. (No model.)



Claim.—1. The combination of a rotating and longitudinally-moving piston-valve and valve-box, one of said members being provided with a packing-ring and the other having a port traversed by said ring during the operation of the valve and formed of narrow spiral slots extending in the line of movement of the piston and beyond the limit of movement of the piston when moving with the free edge of the packing next the edge of the port, whereby the cutting of the packing on the edge of the port is prevented, substantially as described.

2. The combination with the valve-box A having packing 2, and inlet-port *a*, exhaust-port *b* and cylinder-port *c*, of a piston having packing 3 and a port formed of narrow slots extending in the line of movement of the piston and of such length that the edge of the port does not pass the free edge of the packing on the movement of the piston toward the free edge, the port in the valve-box traversed by the packing 3 being formed of narrow slots extending in the line of movement of the piston and beyond the limit of movement of the free edge of the packing on the movement of the piston with the free edge in advance, substantially as described.

3. The combination with the valve-box A having packing 2, and inlet-port *a*, exhaust-port *b* and cylinder-port *c*, of a rotating and longitudinally-moving piston having packing 3 and a port formed of narrow spiral slots extending in the line of movement of the piston and of such length that the edge of the port does not pass the free edge of the packing on the movement of the piston toward the free edge, the port in the valve-box traversed by the packing 3 being formed of narrow spiral slots extending in the line of movement of the piston and beyond the limit of movement of the free edge of the packing on the movement of the piston with the free edge in advance, substantially as described.

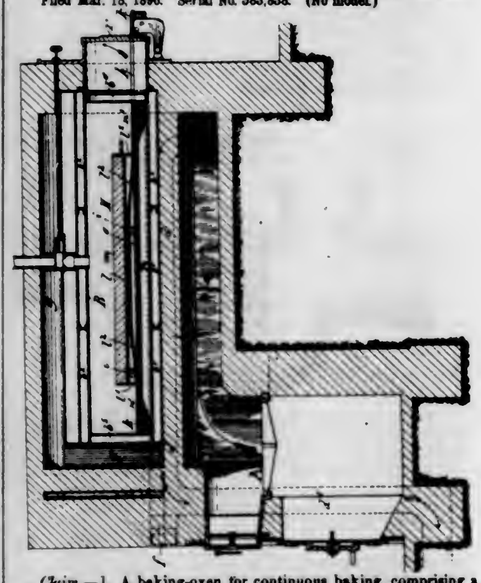
578,832. **DEVICE FOR HANDLING LUMBER.** JEROME B. POPE, Minco, Ind. Ter. Filed Aug. 17, 1896. Serial No. 602,970. (No model.)



Claim.—1. A device for handling lumber, consisting of two pivoted levers, one of said levers having a recurved point upon its outer end and being recurved at its rear end to fit the hand, the other lever being of a bell-crank shape and having a point projecting from its short end toward the first point, and the rear end of said lever having a loop therein, substantially as described.

2. In a device for handling lumber, the combination of a straight lever having upon one end thereof a recurved hook and a recurved hand-guard upon the opposite end, both of the same curving toward the same side of the lever, with a bell-crank lever pivoted to the said lever and having a sharp point projecting from the short end thereof toward the hook upon the first lever, the short arm of the bell-crank lever being about half the length of the short arm of the straight lever, and a loop in the rear end of the bell-crank lever substantially as described.

578,833. **BAKE-OVEN.** ADOLPH RAUHER, Munich, Germany. Filed Mar. 18, 1896. Serial No. 583,838. (No model.)



Claim.—1. A baking-oven for continuous baking, comprising a longitudinal conduit *a*, a fireproof vault covering the conduit and made red-hot by the fire-gases passing through the conduit, serving as a constant source of strong ground heat for the baking-space located above the same; and side pipes leading from the flue *a*, substantially as described.

2. A baking-oven comprising a fireplace A, the conduit *a*, the fireproof vault C, the pipe *d* and a jacketed baking-room B, substantially as described.

3. A baking-oven comprising a baking-room B, air-spaces surrounding the same, side pipes *d* and spaces *e* running along the longitudinal sides and over the baking-room B in which the heat

radiated by the pipes *d* rises and is stored over the same in order to produce sufficient heat for the top part thereof and an exterior jacket *g* surrounding the baking-room, substantially as described.

4. In combination in a baking-oven, a baking-room and a movable baking-hearth H comprising a hearth-plate and a hearth-frame made of plates inclosing a hollow space open in the center below the hearth and closed at the sides, to let the ground heat reach the middle of the hearth-plate.

5. In a baking-oven, the combination of the fireplace A, the conduit *a*, the fireproof vault C and pipes *d* with a baking-room divided in two by a longitudinal partition *p* and a removable baking-hearth plate in each division, substantially as described.

6. In combination in an oven, a baking-room, a hearth-plate and a hearth-frame having an open center below the hearth-plate with inclosing side walls, substantially as described.

7. In combination in an oven, the baking-chamber, the hearth-plate, the hearth-frame having inclined plates open in the center, and the inclined plates *n'* with the perforated slides, substantially as described.

8. In combination in an oven, a baking-chamber, a movable hearth and a door movable to and from the upper surface of the hearth when the same is drawn out, said door when lowered being adapted to clear the hearth-plate of the baked material, substantially as described.

9 In combination in a baking-oven, the baking-chamber, a movable hearth-plate and a door movable to and from the upper surface of the hearth-plate, said door having a plate with an inclined edge to clear the hearth-plate of the baked material, substantially as described.

578,834. **PEN.** ROCHFORT W. ROBINSON, San Antonio, Tex., assignor of one-third to Lafe Harpole and James Tharp, same place. Filed July 7, 1896. Serial No. 598,292. (No model.)



Claim.—The combination with a pen, of wings connected to the sides of the pen and located underneath the latter, said wings being substantially flat and converging inwardly toward the body of the pen to meet along a centrally-disposed line, and provided with inclined nibs, which abut upon the nibs of the pen.

578,835. **CRICKET-STUMP.** JOSEPH ROWLEY, Dukinfield, England. Filed Oct. 15, 1896. Serial No. 608,959. (No model.)



Claim.—In holders or supports for cricket-stumps, in combination a base-piece, pivoted sockets or stump-holders carried upon pins or spindles which engage in apertures in said base-piece; plates or rings encircling said pins or spindles and bearing in grooves thereon and having a screwed prolongation thereon upon which a thumb-screw engages for the purpose of locking the pins or spindles in position.

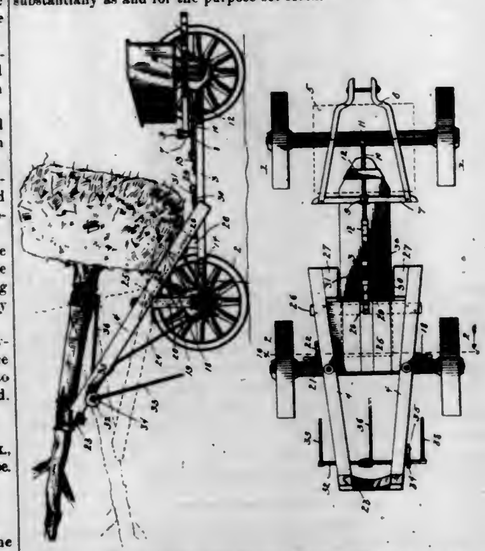
578,836. **TREE EXTRACTOR AND CARRIER.** JOHN A. RUTHERFORD, Hyattville, Ohio. Filed Sept. 9, 1896. Serial No. 605,328. (No model.)

Claim.—1. In a tree extractor and carrier, the combination of front and rear trucks, a coupling-board, and a rod having pivotal connection at one end with a truck and rockably connected with the coupling-board, whereby the said truck is adapted to turn about a vertical and a horizontal axis, substantially as and for the purpose set forth.

2. In a tree extractor and carrier, the combination of front and rear trucks, a coupling-board, a rod rockably connected with the coupling-board and having pivotal connection with a truck, hounds secured to the movable truck and having a rear connecting-bar, and a clip secured to the coupling-board and adapted to have the connecting-bar of the hounds operate loosely therethrough, substantially as set forth.

3. In a tree extractor and carrier, the combination of a truck having a high bolster, a derrick secured to the bolster intermediate of its ends, a truss-brace for strengthening the derrick, a platform near the inner or lower portion of the derrick forming a base for the roots of the tree, and a windlass near the upper end of the derrick for winding up the rope secured to the base portion of the tree, substantially as and for the purpose set forth.

4. In a tree-extractor, the combination of a derrick adapted to be stood on end and having its upper portion resting against the tree to be uprooted, means for securing the upper portion of the derrick to the tree, a truck secured to the derrick between its ends and forming a fulcrum therefor, a block and tackle independent of the truck and derrick for extracting the tree, and draft-ropes between the block and tackle and the truck, whereby a continued application of the force applied for uprooting the tree will move the loaded truck away from the trench provided to receive the lower end of the derrick, substantially as and for the purpose set forth.



5. In a tree extractor and carrier, the combination of a truck, a coupling-board, a derrick mounted upon the truck intermediate of its ends and comprising longitudinal bars and an intermediate platform, and a latch-bar slidingly mounted upon the coupling-board and adapted to engage with a projecting portion of the derrick to secure the latter to the coupling-board, substantially as set forth.

6. In combination, a truck, a derrick mounted upon the truck, a coupling-board, draft-chains for connecting the coupling-board to the truck, and a windlass and elevating-chains mounted upon the truck and adapted to make connection with the coupling-board for lifting the latter to admit of the draft-chains being attached thereto, substantially as set forth.

7. In combination, a coupling-board, a truck, a derrick mounted upon the truck and comprising side bars and an intermediate platform, and blocks secured to the lower ends of the said side bars and coming upon opposite sides of the coupling-board, substantially as shown for the purpose described.

578,837. **BICYCLE-SADDLE.** BENJAMIN S. SEAMAN, Canton, Ohio. Filed July 22, 1896. Serial No. 600,155. (No model.)

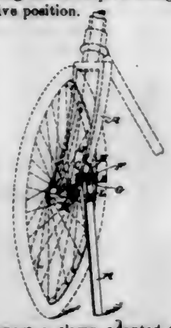


Claim.—In a bicycle-saddle, the combination with a supporting-frame, of a support, E, attached thereto and consisting of a solid pommel-section formed by folding the material transversely upon itself and having a cantle-section divided into diverging flexible strands integral with the pommel-section, and a saddle-leather covering said support and having a cross-bar at its pommel-section to slip under the supporting-frame, and lacings at its cantle-section for attachment to the cantle-section of the supporting-frame, whereby the covering is capable of being attached and detached, substantially as set forth.

578,838. **BICYCLE-SUPPORT.** HUGO SERALD, Philadelphia, Pa. Filed Oct. 1, 1896. Serial No. 607,599. (No model.)

Claim.—1. A bicycle-support consisting of a clamp B, means for securing the same upon a bicycle-fork, one member of said clamp

having a ledge E thereupon, with a shoulder adjacent thereto, an arm pivoted to said ledge, and provided with a recess near its point of attachment, and a yielding device adapted to engage said recess when said arm is in inoperative position.



2. In a bicycle-support, a clamp adapted to be attached to a bicycle-fork, said clamp being composed of the members C and D pivoted to each other, the member D being provided with a ledge E and the shoulder F, a fastening device for said clamp and the spring H having the deflected end J, in combination with an arm attached to said ledge E, and provided with the recess L near one end thereof, said recess being adapted to be engaged by said spring.

3. A bicycle-support having a clamp with a ledge on the outer face of one of its members with a shoulder rising from one of the sides thereof, an arm pivoted on said ledge, and a spring secured to said clamp and having a deflected end engaging a recess in said arm, said arm being adapted to contact with the ground

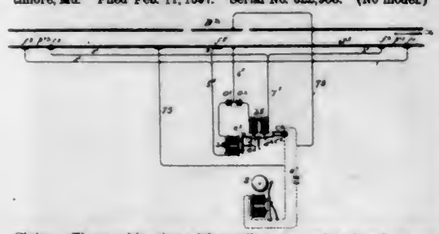
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578,839. **PROCESS OF MAKING AROMATIC NITROSULFO CHLORIDS.** BRUNO R. SEIFERT, Radebeul, Germany, assignor to Chemische Fabrik von Heyden Gesellschaft mit Beschränkter Haftung, same place. Filed May 9, 1896. Serial No. 590,943. (No specimens.) Patented in Belgium July 27, 1896, No. 116,732.

Claim.—1. The within-described process for the manufacture of aromatic nitrosulfo chlorids consisting in treating aromatic nitro compounds with chlorhydrin sulfuric acid in excess of one molecule, substantially as herein described.

2. The within-described process of manufacturing aromatic nitrosulfo chlorids consisting in first heating together a mixture of an aromatic nitro compound and chlorhydrin sulfuric acid in excess as stated to produce the expulsion of hydrochloric acid, next pouring the liquid mass of this reaction onto ice to produce the precipitation of nitrobenzene-sulfo chlorid and straining off the latter from the mother-lye, next covering the nitrobenzene sulfonic acid in the mother-lye into sodium salt, and finally treating the latter salt with the chlorid of a mineral acid to obtain therefrom a further small quantity of nitrobenzene-sulfo chlorid, substantially as herein described.

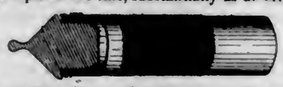
578,840. **RAILWAY-CROSSING SIGNAL.** CHARLES SELDEN, Baltimore, Md. Filed Feb. 11, 1897. Serial No. 622,953. (No model.)



Claim.—The combination with a railroad-crossing signal adapted to be set from either side of the crossing and provided with resetting devices for throwing it out of action at or about the time the train reaches the crossing, of a supplemental circuit and circuit-closer operated by the train for keeping the signal temporarily in action while the train is passing said signal, as and for the purpose described.

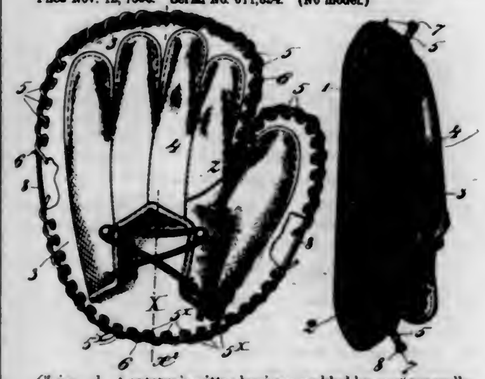
578,841. **PROCESS OF AND APPARATUS FOR HEMMING ENDS OF INCANDESCENT MANTLES.** EMIL SKRIWAN, Vienna, Austria-Hungary. Filed Dec. 18, 1896. Serial No. 616,172. (No model.)

Claim.—1. A process for hemming the ends of incandescent mantles which consists of placing the mantle over a hollow cylinder with its end flush with the end of the said cylinder, placing the strip of material forming the hem round the end of the cylinder outside the mantle with about half its breadth extending above the end of the cylinder, tucking the extending part of said strip into the cylinder, and properly smoothing the same therein by means of a stopper to fit the cylinder and provisionally securing the hem to the mantle end by means of a pin or the like, substantially as described.



2. An apparatus for securing the hem to the ends of incandescent mantles, consisting of a hollow cylinder having in its end a suitable slot extending vertically downward and a stopper having annular flange to fit the end of said cylinder in the manner and for the purpose substantially as described.

578,842. **CATCHER'S MITTEN.** ADOLF SLOMKA, New York, N. Y. Filed Nov. 12, 1896. Serial No. 611,824. (No model.)

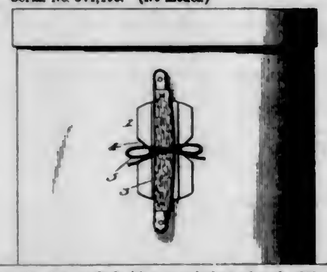


Claim.—1. A catcher's mitten having a padded body of generally oval form extending down to cover the hand at the wrist, a hand-retaining glove on the back of said body, and a stiff wire 8, extending entirely around the margin of said body and secured thereto, substantially as set forth.

2. A catcher's mitten having an oval, padded body and a hand-retaining glove secured on the back of said body in such position that the latter protects the wrist portion of the hand, and having a stiff, protecting wire 8 extending about the entire periphery of the said body and inclosed in a sheath forming one of the plies of the same.

3. A catcher's mitten having a body composed of a padded front portion 1, and a back portion 3, these parts being secured permanently together at their margins about the upper portion of the mitten and detachably together about the lower part, which protects the wrist, and said mitten having also a hand-retaining glove on the back of the body and a stiff guard-wire extending about the entire body and occupying a pocket in the margin of the portion 1, substantially as set forth.

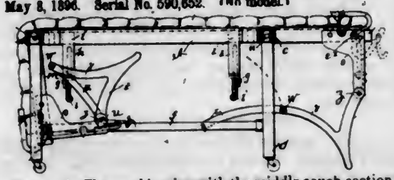
578,843. **SAMPLE-HOLDER.** WALTON D. SMITH, Prophetstown, Ill., assignor of one-half to Fred L. Adams, same place. Filed Dec. 5, 1895. Serial No. 571,193. (No model.)



Claim.—1. A sample-holder consisting of a flexible paster, the body of which is provided with a plain attaching side flat throughout its entire area and having thereon an adhesive coating, and a reinforcing-strip on its obverse side, said paster-body being also provided in directly opposite edges with open reëntrant cuts or notches forming eyes extending to the edges of said reinforcing-strip, and a flexible tie passed around the gummed side of the paster-body and lying within the eyes so as to bind against the edges of said strip, substantially as set forth.

2. As an article of manufacture, a card of sample-holders comprising a plurality of flexible pasters arranged end to end in longitudinal alinement, the body of each paster being provided with a plain attaching side flat throughout its entire area and having thereon an adhesive coating, a single continuous reinforcing-strip connecting the entire series of flexible pasters and attached to the obverse side thereof, each of said paster-bodies being further provided in directly opposite edges with open reëntrant cuts or notches forming eyes extending to the edges of said strip, substantially as set forth.

578,844. **FOLDING COUCH-BED.** DAVID C. STORR, New York, N. Y., assignor of one-half to Edward A. Cook, Boston, Mass. Filed May 8, 1896. Serial No. 590,652. (No model.)



Claim.—1. The combination with the middle couch-section of the frame, and the side wings pivoted thereto, of the wing-supporting legs pivoted to the wings and having the inwardly-projecting arm, the cross-bars of the legs of the couch-section, and the links connecting said arms to the cross-bars to stay the legs when supporting the wings, and to fold under the couch when the wings fold down, said wings being independent of each other substantially as described.

2. The combination with the middle conch-section of the frame and the side wings pivoted thereto, of the wing-supporting legs pivoted to the wings and having the inwardly-projecting arms, the cross-bars of the legs of the couch-section and the links connecting said arms to the cross-bars to stay the legs when supporting the wings, and to fold under the couch when the wings fold down, and lock the wings in the folded positions substantially as described.

3. The combination of the middle couch portion, side wings pivoted thereto, legs for supporting the wings pivoted to them, cross-bars of the legs of the couch-section, the arms and links connecting said legs with the cross-bars and the pivot-rod to which the legs of each wing are coupled positively for folding one by the other substantially as described.

4. The combination with the middle conch-section and the folding wings, of the mattress-clamps consisting of the bent arms pivoted to the wing-bars and carrying a rod in the free end adapted to swing over the edges of the mattress, the hooks for securing the clamp on the mattress, and means for engaging the clamp by the hooks substantially as described.

578,845. **ROTATING CYLINDER FOR GERMINATING AND DRYING GRAIN.** JAMES A. TILDEN, Hyde Park, Mass., assignor to the Hersey Manufacturing Company, Boston, Mass. Filed Aug. 6, 1894. Serial No. 519,566. (No model.)

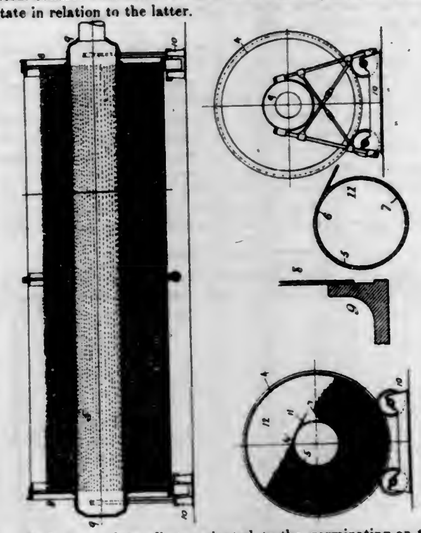
Claim.—1. In a rotating cylinder adapted to the germinating or to the drying of grain, or to both, the combination of an exterior rotating cylinder with a concentric stationary internal cylinder, said external cylinder having lateral contact only at the heads with said internal cylinder, substantially as described.

2. In a rotating cylinder adapted to the germinating or to the drying of grain, or to both, the combination of an external cylinder with a concentric internal cylinder, the said cylinder passing freely without circumferential contact through heads which are connected to the outside cylinder, the said inside cylinder being supported at the ends by extension-heads outside of the said external cylinder-heads, substantially as described.

3. In a rotating cylinder adapted to the germinating or to the drying of grain, or to both, the combination with an external cylinder of an internal stationary cylinder in lateral contact only provided with a shelf projecting from said stationary cylinder, adapted to cause the thorough mixing of the grain, substantially as described.

4. In a rotating cylinder adapted to the germinating or to the drying of grain, or to both, the combination of an external cylinder with an internal stationary cylinder free circumferentially, a portion of said stationary cylinder as at 6 to 7, adjacent to the annular space between said cylinders, being made of non-perforated material, the air passing entirely through that part of the cylinder which is adjacent to the grain, substantially as described.

5. In a rotating cylinder adapted to the germinating or to the drying of grain, or to both, the combination with an external cylinder, and an internal stationary cylinder passing freely through heads secured to said external cylinder, said heads being adapted to make lateral contact with heads secured to the inside cylinder and free to rotate in relation to the latter.



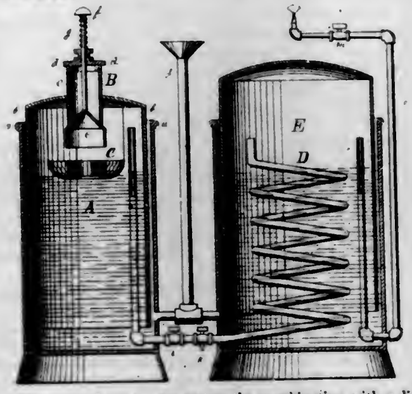
6. In a rotating cylinder adapted to the germinating or to the drying of grain, or to both, the combination of an exterior rotating cylinder provided with flexible heads, with a concentric stationary internal cylinder provided with extension-heads, said flexible heads being adapted to be brought into lateral contact with said extension-heads and maintained there by the pressure of the material in the annular space between the two cylinders.

578,846. **FAN ATTACHMENT FOR SEWING-MACHINES.** PAUL O. WIEDEMANN, New York, N. Y. Filed Dec. 3, 1896. Serial No. 614,292. (No model.)



Claim.—An open-ring spring held at its ends combined with concave plates fastened thereto and provided with guideways arranged to receive fan-blades as and for the purpose specified.

578,847. **ACETYLENE-GAS GENERATOR.** CLEMENTINA H. WILCOX, Minneapolis, Minn. Filed Dec 5, 1896. Serial No. 614,594. (No model.)

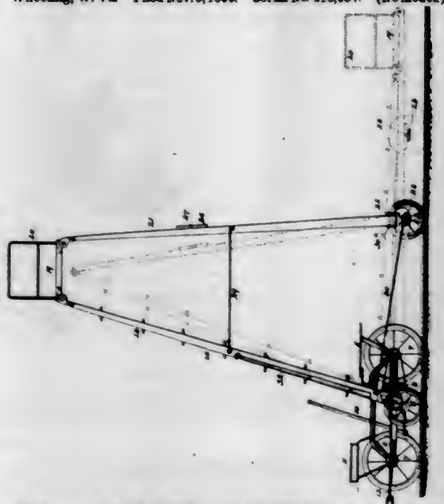


Claim.—1. In a gas-generator, the combination with a liquid-holding tank open at its upper end and closed at its lower end, of an inverted case closed at its upper end and open at its lower end, located in said liquid-holding tank; a charger set into the dome or cover of said inverted case; said charger embodying a vertical cylinder, open at both ends, a centrally-pierced cover, and a conical bottom for said vertical cylinder, a rod extending from the apex of said conical bot-

tom and through the said cover, and a spring-coil inclosing the said rod and bearing upon the said cover; and a basket suspended from the dome or roof of the said inverted case; substantially as shown, and for the purpose specified.

2. In a gas-generator, the combination of the liquid-holding tank, the rising-and-falling gas-holding case, located in said liquid-holding tank and provided with a basket for holding a gas-generating material, the charger opening into and carried by the gas-holding case in its up-and-down movement, and provided with a centrally-pierced cover, a conical bottom, a rod extending from the said conical bottom and through the said pierced cover, and a spring-coil inclosing the said rod and pressing upon said cover, whereby the said cover may be raised upon the said rod for filling the said charger, and the said bottom may be forced downwardly by the said rod for emptying the said charger, substantially as shown and for the purposes specified.

578,848. TROLLEY REPAIR-WAGON. WILLIAM B. WOODS, Wheeling, W. Va. Filed Nov. 3, 1896. Serial No. 610,957. (No model.)



Claim.—1. A trolley repair-wagon, comprising a front truck-frame, an independent adjustable rear truck-frame, a ladder pivotally connected at the lower end to the front truck, a rear supporting-frame pivotally connected at its upper end to the ladder-frame to fold thereunder when the said ladder-frame is lowered, and having its lower end detachably connected to the rear truck, and means for holding the folded ladder and supporting-frame and the rear truck in a locked connection when such ladder and supporting-frames are lowered thereon substantially as shown and described.

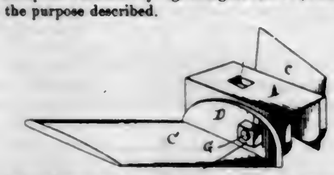
2. In a mechanism of the character described, the combination with the front or carrier truck and the adjustable rear truck, of the ladder-supports 15, the rear supports 21, the platform 19 having pivotal connection with the supports 15 and 21, said supports 15 and 21 having means for detachably connecting them with the front and rear trucks respectively, and stay-chains for holding the rear truck to its adjusted position substantially as shown and described.

3. In a mechanism as described the combination with the front supporting-truck, the ladder-frame pivotally connected at the lower end to the front truck, the adjustable rear truck having a stud member 28, of the rear supports detachably connected at the lower ends to the adjustable truck, a cross member 26 having an opening 27, said rear supports having pivotal connections with the front or ladder frame, and means for holding the rear truck to its adjusted position substantially as shown and described.

4. A trolley repair-wagon comprising a front or carrier truck and an independent adjustable rear truck, a front ladder-frame pivotally connected at the lower end to the front truck, a rear supporting-frame detachably connected at the lower end to the rear truck, a supporting-platform having pivotal connections with the upper ends of the ladder and rear supporting-frame, stay-rod 30, hook-rods 32, and the chain connection all being arranged substantially as shown and for the purposes hereinbefore described.

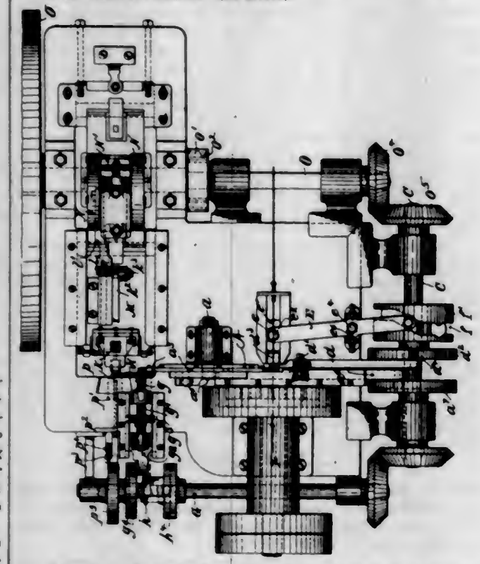
578,849. PLOW ATTACHMENT. HENRY C. ALEXANDER, Erastus, Ga., assignor of one-half to Robert B. Alexander, same place. Filed Aug. 10, 1896. Serial No. 602,316. (No model.)

Claim.—1. A plow attachment comprising a clamp with parallel sides having the forward corners of its downwardly-flanged sides rounded off, and wings having flanges adjustably secured to the sides of the clamp at substantially right angles thereto, substantially as and for the purpose described.



2. A plow attachment consisting of a clamp having its downwardly-flanged sides rounded off at the forward corners, and its upper and side walls provided with holes having polygonal walls, wings having flanges arranged parallel with the sides of the clamp and having polygonal walls fitting in the holes of the side walls of the clamp, and having bolts passed through the flanges and sides and having polygonal heads and nuts upon their outer ends, all as and for the purpose specified.

578,850. MACHINE FOR MAKING RIVETS, THUMB-TACKS, OR LIKE ARTICLES. WILLIAM G. ALLEN, Hartford, Conn. Filed May 9, 1896. Serial No. 590,945. (No model.)



Claim.—1. In a machine for making tacks or rivets, the combination of swaging devices, heading devices, feeding devices, for supplying the stock to the swaging devices, means for transferring the blanks from the swaging devices to the heading devices, and actuating mechanism for the specified elements, substantially as described.

2. In a machine for making tacks or rivets, the combination of swaging-dies, means for feeding a blank between the dies, an intermittently-operating carrier for the swaged blank, a heading device independent of the swaging-dies, and actuating mechanism for the dies, carrier, and heading device, substantially as described.

3. The combination of the swaging-dies, means for feeding a blank between the dies, a disk-shaped carrier having a series of receptacles for the blanks, means for advancing the carrier intermittently while the swaging-dies are out of action, a heading device independent of the swaging-dies, means for delivering the blanks successively to the heading device, and actuating mechanism for the several parts, substantially as described.

4. The combination of the swaging-dies, means for feeding the wire stock between said dies, a cutter, means for actuating said cutter, a carrier, means for delivering the severed blank to the carrier, and heading mechanism independent of the swaging-dies, substantially as described.

5. In a machine for making tacts and rivets, the combination of swaging-dies, means for feeding a blank between the dies, an intermittently-operating carrier for the swaged blank, a pointing device, a heading device independent of the swaging-dies, and actuating mechanism for the dies, carrier, and pointing and heading devices, substantially as described.

6. The combination of the swaging-dies, means for feeding blanks between the dies, a disk-shaped carrier having a series of receptacles for the blanks, means for advancing the carrier intermittently, a heading device, an auxiliary carrier for delivering the blanks from the disk carrier to the heading device, and means for transferring the blanks from one carrier to the other, substantially as described.

7. The combination of swaging-dies and actuating mechanism therefor, a carrier adjacent to said dies, means for intermittently moving said carrier, a feeding device for feeding the wire stock to the swaging-dies and to the carrier, a cutter for severing a blank from the stock, a pointing device, and a heading device, substantially as described.

578,851. HOSE-SUPPORT. ORIN BAGLEY, Sutton, N. F. Filed Jan. 14, 1896. Serial No. 575,476. (No model.)



Claim.—In a device of the class described comprising a tape having a hook secured rigidly to one end thereof, and a second hook consisting of a sheet-metal blank having one end bent upon itself to form the hook proper, the body portion of said blank having wings bent to lie parallel with said body on the opposite side of the hook to form a tube, said tape being passed through the tube and adapted for adjustment therein.

578,852. HAND-SHIELD. SAMUEL F. BARKE, Philadelphia, Pa. Filed July 20, 1895. Serial No. 556,549. (No model.)

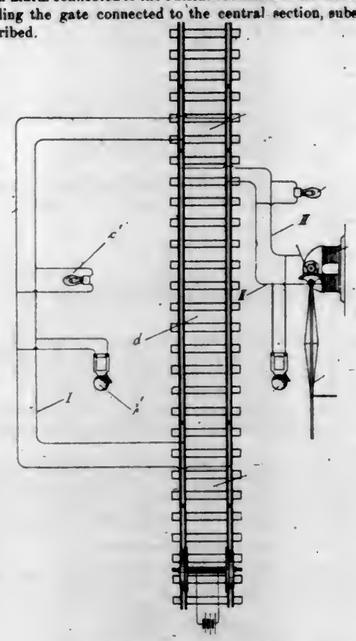


Claim.—1. As a new article of manufacture, a hand-shield made of a piece of material which extends around the entire hand and having a palm-piece secured thereto, the shield having a slit for the passage of the thumb, said slit being so shaped as to form from the material composing the shield a flap to protect the thumb, and the palm-piece being also provided with a projecting flap extending over the flap formed by the slit in the shield, the flap of the palm-piece being free to yield to conform to and protect the base of the thumb when the latter is passed through the slit in the shield, substantially as described.

2. As a new article of manufacture, a hand-shield of the character described having means for securing it to the hand, consisting of the main portion 1 having a slit therein for the passage of the thumb, a flap formed by said slit, the palm-piece secured to the main portion and having an additional thumb-protecting flap, and loops for engaging the fingers, said loops being formed of a strap integral with the main portion of the shield, substantially as described.

578,853. ARRANGEMENT FOR CLOSING OR OPENING BARS AT RAILROAD-CROSSINGS. HERMANN BIERMANN, Breslau, Germany. Filed Apr. 6, 1896. Serial No. 586,445. (No model.)

Claim.—An apparatus for automatically actuating a crossing-gate and sounding an alarm comprising a rail in three insulated sections, an alarm connected to the outside sections and an electric motor controlling the gate connected to the central section, substantially as described.



578,854. SAFETY-RAIL FOR PREVENTING DERAILMENTS. HERMANN BIERMANN, Breslau, Germany. Filed Aug. 27, 1896. Serial No. 604,890. (No model.)



Claim.—In a safety-rail for railroads the combination of the rail-body with a longitudinal rib a jointed to the latter and to be turned downward and means for erecting the rib when the train approaches and for turning it down again after the train has passed, as and for the purpose set forth

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578,855. LOAD-BINDER. HARRY M. BRADLEY, Cañon, Colo. Filed Mar. 12, 1895. Serial No. 541,449. (No model.)



Claim.—A load-binder comprising a portable windlass-frame, adapted to be arranged on top of a load centrally thereof and composed of a flat base having parallel end bars and provided with a central longitudinally connecting-bar and inverted-V-shaped sides secured to the terminals of the end-bars, a windlass-shaft journaled in suitable bearings of the sides of the portable frame, a ratchet-wheel centrally fixed to the windlass-shaft, a pair of binding-ropes secured intermediate of their ends to and wound on the windlass-shaft at opposite sides of the ratchet-wheel and extending forward and rearward from the portable frame and designed to be secured to the front and back of a vehicle, an operating-lever fulcrumed on the windlass-shaft adjacent to the ratchet-wheel, an actuating-pawl pivoted to the

operating-lever and engaging the ratchet-wheel at the top thereof, a latch-lever mounted on the operating-lever, adjacent to the handle thereof, and connected with the actuating-pawl, a resilient check-pawl located below the ratchet-wheel, secured to the connecting-bar of the base and engaging the ratchet-wheel at the bottom thereof, and a curved arm extending from the check-pawl, arranged substantially concentric with the ratchet-wheel and forming a foot-piece, substantially as and for the purpose described.

578,856. **FLIER FOR SPINNING-MACHINES.** EDWARD E. BRADLEY, Stonington, Conn. Filed Aug. 29, 1896. Serial No. 604,286. (No model.)

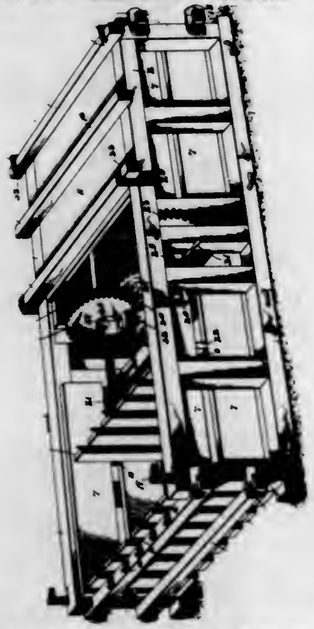


Claim.—1. The combination with a spinning-flier, of a device for attaching the flier to a bobbin consisting of a peg adapted to be inserted into and self-retained in the bore of the bobbin and constituting a pivot for the flier, substantially as herein described.

2. The combination with a spinning-flier of a supporting-pivot having an elastic stock to be inserted into a bobbin, substantially as herein described.

3. The combination with a spinning-flier of a device for attaching the same to a bobbin, consisting of a pivot having an elastic stock for insertion into the bobbin and having also a collar for keeping the flier out of contact with the bobbin, substantially as herein described.

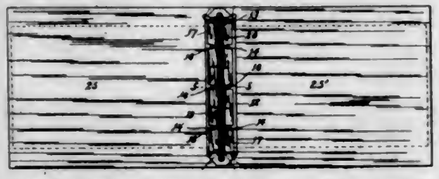
578,857. **BALING-PRESS.** MELVIN E. BROWN, Newman, Ill. Filed June 8, 1895. Serial No. 552,127. (No model.)



Claim.—In a baling-press, the combination with end baling-chambers and mechanism for alternately compressing the bales therein, of pairs of fixed fastenings at the outer ends of the said chambers, corresponding pairs of pivoted fastenings at the inner ends thereof, and a cover adapted to be slid from one baling-chamber to the other and provided with cross-bars which have their end portions projected beyond the sides of the press and notched to alternately receive the respective fixed and pivoted fastenings whereby the said cover is held in place and the press braced at its open side, substantially in the manner set forth.

578,858. **CLIP FOR HOLDING SHEETS OR BLANKS OR THE LIKE.** SIDNEY G. BROWN, Milwaukee, Wis. Filed Sept. 30, 1896. Serial No. 607,421. (No model.)

Claim.—1. The combination, of a bottom or base plate provided with upwardly-extending opposite bearings, arranged a desired distance apart, shafts journaled in said bearings, plates mounted on the shafts so as to be turned therewith or thereon, a rod connecting the bearings, a spring or springs encircling the rod, and having downwardly-extending ends adapted to bear against the respective plates, and means for turning the plates so as to rotate them together to effect their simultaneous raising or lowering, or to operate them independently, to effect their independent turning.

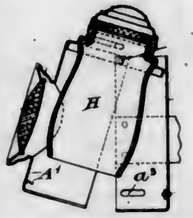


2. The combination, of a bottom or base plate provided with upwardly-extending opposite bearings, arranged a desired distance apart, shafts journaled in said bearings, handles for turning the shafts, plates rigid to the shafts, a rod connecting the bearings, and a spring or springs encircling the rod and having downwardly-extending ends adapted to bear against the respective plates.

3. The combination, with a base extending longitudinally for a desired distance, of a clip or holding device, said clip or holding device connected to and intersecting the base at a medial point, and separating said base into two divisions adapted to contain blanks or sheets, the clip consisting of upwardly-extending bearings and pivoted plates arranged between and journaled in the bearings, and extending downwardly in opposite directions and at opposite inclines, and adapted, when down, to clamp the inner edges of sheets or blanks to the base, said sheets or blanks being disposed in the two divisions formed by the clip or holding device.

4. The combination, with a base extending longitudinally for a desired distance, of a clip or holding device secured to and intersecting the base at a medial point, and consisting of upwardly-extending bearings, shafts journaled in said bearings, plates mounted on the shafts so as to be turned therewith or thereon, and extending downwardly therefrom in opposite directions and at opposite inclines, a rod connecting the bearings, and a spring or springs encircling the rod, and having downwardly-extending ends adapted to bear against the respective plates.

578,859. **LANTERN.** GEORGE S. BROWN, New Britain, and EDWARD C. FOWLER, Bristol, Conn., assignors to the Bristol Brass and Clock Company, New York, N. Y. Filed Dec. 14, 1896. Serial No. 615,560. (No model.)



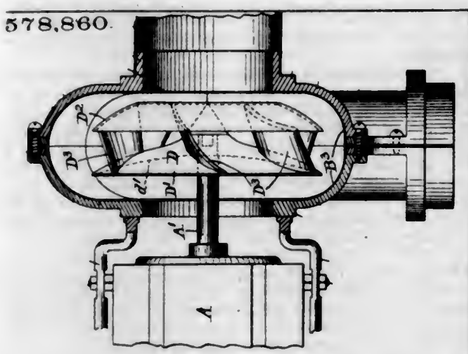
Claim.—In a lantern a body portion cylindrical in cross-section, the said body portion consisting of a stationary back section and a swinging front section hinged thereto, a top secured to the swinging front section, a lens-holder and lens carried by the front section, a fount removably secured to the back section, said fount carrying a suitable burner and draft-plate, and a transparent chimney removably secured between the said top and draft-plate, substantially as set forth.

578,860. **ORGAN-FAN AND CASE.** MELVILLE CLARK, Chicago, Ill. Filed Sept. 9, 1895. Serial No. 561,879. (No model.)

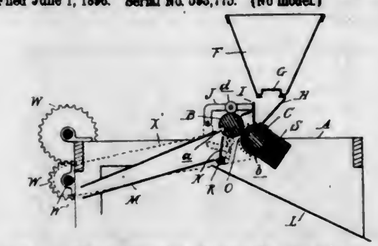
Claim.—1. An organ-fan comprising a suitable case and a rotary fan-wheel within the case having its vanes laterally inclosed throughout their whole length and their edges at their outer ends oblique to the plane of rotation.

2. An organ-fan comprising, in combination with a suitable case, a fan-wheel within the case having its vanes laterally inclosed between the disks of the wheel, said vanes being curved in the plane of rotation and having their edges at their outer ends oblique to the plane of rotation, whereby the air is drawn through the fan by its rotation without tendency to pulsate or vibrate with musical tone.

578,860.



578,861. **BEAN-PICKER.** GEORGE F. CRIPPEN, Ypsilanti, Mich. Filed June 1, 1896. Serial No. 593,775. (No model.)



Claim.—1. The combination of two rolls, adapted to revolve in proximity to each other, one having a yielding surface and the other a hard polished surface with a longitudinal groove formed therein, means for feeding the beans to be separated into the throat between said rolls, (whereby the poor beans will first be drawn between said rolls by their frictional contact therewith, and the remainder will be carried through in the groove in the roll) and means for directing the beans discharged from the groove into a separate receptacle.

2. The combination with two rolls adapted to revolve in proximity to each other, one having a yielding surface and the other a hard polished surface with a longitudinal groove formed therein, of a hopper above said rolls for the beans to be separated, a mechanical feed therefor adapted to discharge the beans periodically into the throat between said rolls, and a vibrating wing below said rolls adapted to direct the separate discharges into different receptacles.

3. The combination with the rolls B and C in proximity to each other, the former provided with the longitudinal groove *a*, of a hopper above said rolls, a mechanical feed from said hopper to the throat between the rolls, the gate I above and the swinging wing N below said rolls, and mechanism timed to operate the parts substantially as and for the purpose described

4. In a bean-picker, the combination of a roll having a hard polished surface and provided with a longitudinal groove, and a roll journaled in proximity thereto provided with a yielding surface, for the purpose described.

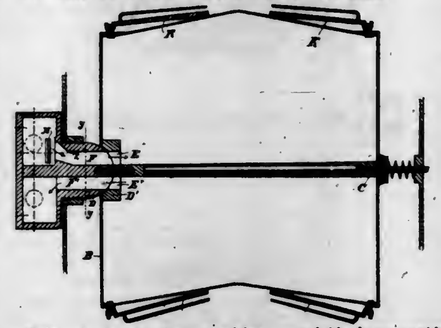
5. In a bean-picker, the combination with a hopper, two rolls below said hopper in proximity to each other, one being provided with a longitudinal groove, a movable gate between the hopper and the rolls, means moving with one roll for operating said gate, a plurality of chutes below the rolls, a movable wing adapted to direct the beans passing between the rolls into one of said chutes, and means operated by one of said rolls for shifting said wing.

6. In a bean-picker, the combination with a frame, a hopper, a reciprocating feed-bar in said hopper, two rolls, journaled in the frame in proximity to each other, one provided with a longitudinal groove, means for directing the beans from the hopper to the rolls, a movable gate, means operated by one of said rolls for moving said gate, a plurality of chutes below the rolls, a swinging wing adapted to direct the beans passing between the rolls into one of said chutes, means operated by one of said rolls for shifting said wing, mechanism for driving said rolls, and means for reciprocating said feed-bar.

578,862. **INSECTICIDE.** ANDREW H. DANFORTH, Leominster, Mass., assignor, by direct and mesne assignments, to the Danforth Chemical Company, Saco, Me. Filed May 23, 1896. Serial No. 592,852. (No specimens.)

Claim.—As an improved article of manufacture, a bug-exterminator consisting of a composition of zinc oxid and ammonium chlorid the zinc oxid being in excess of the ammonium chlorid, substantially as and for the purpose specified.

578,863. **GAS-METER.** ELIAS R. DE LA MATYR, San Francisco, Cal. Filed Mar. 27, 1896. Serial No. 585,048. (No model.)



Claim.—1. A gas-meter comprising a revoluble drum provided with a plurality of compartments having flexible walls or diaphragms, means acting on the diaphragms at the rising side of the drum to force said diaphragms inward, a valve operated by the turning of the drum and constructed to admit the flow of gas to and its exit from two of the adjacent compartments simultaneously, said valve comprising two valve-seats arranged concentrically with the axis of the drum, one of which valve-seats is attached to and turns with the drum and the other of which is non-rotative and a spring acting in the direction of the axis of the drum and operating to hold said valve-seats in contact with each other, whereby said valve remains tight notwithstanding wear in the valve-seats, substantially as described.

2. A gas-meter comprising a revoluble drum provided with a plurality of compartments having flexible walls or diaphragms means acting on the diaphragms at the rising side of the drum to force said diaphragms inward, a valve actuated by the turning of the drum and operating to admit the gas to and permit its exit from said compartments in succession and springs applied to act on the said diaphragms to aid in the expanding of the same, subetantially as described.

3. A gas-meter comprising a revoluble drum provided with a plurality of compartments having flexible walls or diaphragms, a valve actuated by the turning of the drum and operating to admit gas to and permit its exit from the said compartments in succession, frames engaging the diaphragms at opposite sides of the drum and springs acting on said frames, in a direction to move the diaphragms outwardly, substantially as described.

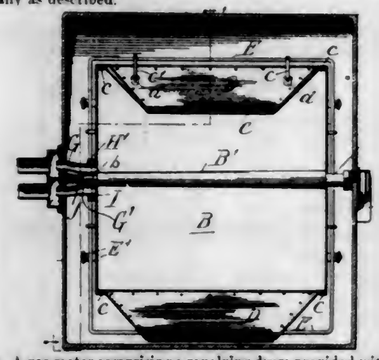
4. In a meter, a revoluable expansible compartment-drum inlet and outlet ports to each compartment and main inlet and outlet passages so disposed that the revolution of the drum brings each compartment alternately into communication with the main inlet and outlet passages and a swinging pendulum valve suspended in front of the inlet-passage so as to close it if the apparatus be tilted to one side.

5. In a meter a revoluble expansible compartment-drum, inlet and outlet ports to each compartment, main inlet and outlet passages so disposed that the revolution of the drum brings each compartment alternately into communication with the main inlet and outlet passages, a valve consisting of a stationary face having ports communicating respectively with the main inlet and outlet passages and a movable face carried by the drum and having ports connecting with each of the compartments thereof, a shaft with inclined sides extending through the center of the drum and having connection with the exit-passage through the valve-faces whereby any water of condensation will follow the inclined surface of the shaft and be discharged through said opening.

578,864. **GAS-METER.** ELIAS R. DE LA MATYR, San Francisco, Cal. Filed July 1, 1896. Serial No. 597,706. (No model.)

Claim.—1. A gas-meter comprising a revoluble drum provided with a plurality of compartments having flexible walls or diaphragms, a closed casing surrounding the drum, means acting on the diaphragms at the rising side of the drum to force said diaphragms inward, and a valve operated by the turning of the drum, said valve comprising two valve-seats arranged concentrically with the axis of the drum, one of said valve-seats being attached to one end of the drum to turn with the same and provided with a series of annularly-arranged ports each of which communicates with one compartment of the drum, the other valve-seat being supported upon the wall of the casing to bear against the valve-seat on the drum and provided with a series of an-

nularly-arranged gas supply and discharge parts coöperating with those of the rotating seat, and of such length as to establish communication with two parts of the moving valve-seat at a time, substantially as described.



2. A gas-meter comprising a revolving drum provided with a plurality of compartments having flexible walls or diaphragms, means acting on the diaphragms at the rising side of the drum to force said diaphragms inward, a valve operated by the turning of the drum acting to admit the flow of gas to and its exit from the said compartments in succession, an exterior closed case or inclosure surrounding the drum, the interior of said casing or inclosure being connected with the delivery side of the drum by a minute passage or orifice, and means operated by the turning of the drum for alternately closing and opening said minute passage or orifice, substantially as described.

3. A gas-meter comprising a revolving drum provided with a plurality of compartments having flexible walls or diaphragms, means acting on the diaphragms at the rising side of the drum to force said diaphragms inward, a valve operated by the turning of the drum acting to admit the flow of gas to and its exit from the said compartments in succession, an exterior closed case or inclosure surrounding the drum, the interior of said casing or inclosure being connected with the delivery side of the drum by a minute passage or orifice, said passage or orifice being formed by means of ports in the stationary and movable parts of the main valve whereby the same is intermittingly opened in the turning of the drum, substantially as described.

4. A gas-meter comprising a revoluble drum provided with a plurality of compartments having flexible walls or diaphragms, a valve actuated by the turning of the drum and acting to bring the compartments successively into connection with inlet and outlet passages, and means connecting the diaphragm on opposite sides of the drum embracing adjusting devices by which the quantity of gas passing through the respective compartments may be accurately regulated, substantially as described.

5. A gas-meter comprising a revoluble drum having the form of a regular polygon and having a plurality of compartments, the outer walls of which are formed by flexible diaphragms, a valve actuated by the turning of the drum and acting to bring the compartments successively into connection with inlet and outlet passages, and means for connecting the diaphragms on opposite sides of the drum comprising rigid frames having transverse connected parts which extend across the ends of the drum and are provided with adjustable connections by which their length may be changed to regulate the quantity of gas expelled from each compartment, substantially as described.

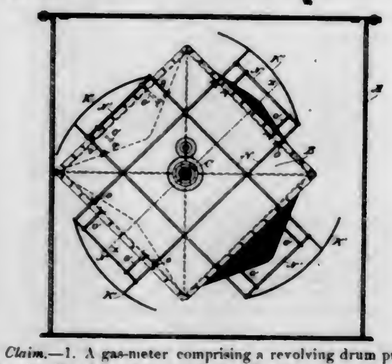
6. A gas-meter comprising a revoluble drum provided with a plurality of compartments having flexible walls or diaphragms, means acting on the diaphragms at the rising side of the drum to force said diaphragms inward, a valve comprising two valve-seats arranged concentrically with the axis of the drum, one of said valve-seats being attached to and turning with the drum and the other being non-rotative, inlet and outlet passages attached to the non-rotative seat and connected with supply-passages by flexible connections affording freedom of movement in the said non-rotative seat, and a spring applied to the non-rotative seat to hold said valve-seats in contact with each other, substantially as described.

7. A gas-meter comprising a revoluble drum provided with a plurality of compartments having flexible walls or diaphragms, a casing surrounding the drum, means acting on the diaphragms at the rising side of the drum to force the same inward, a valve comprising two valve-seats arranged concentrically with the axis of the drum, one of said valve-seats being attached to and turning with the drum and the other being non-rotative, supply and delivery pipes attached to the wall of said casing, inlet and outlet passages attached to the non-rotative valve-seat having communication with the said supply and delivery pipes and connected with the wall of the case by means of flexible diaphragms, and a spring applied to the non-rotative valve-seat to hold such valve-seats in contact with each other, substantially as described.

8. The combination with the revolving drum and exterior case of a valve consisting of a seat turning with the drum and a non-rotative seat, inlet and outlet passages attached to the non-rotative seat and passing through holes in the wall of the case, flexible diaphragms attached to the wall of the case around said holes and to the said passages, so as to movably support the non-rotating valve-seat, supply and delivery pipes attached to the wall of the casing outside of the last-named diaphragms and a spring acting on the non-rotative valve-seat to hold the seats in contact with each other, substantially as described.

9. The combination with the revoluble drum, of a valve embracing a rotary valve-seat actuated by the drum, and a non-rotative valve-seat, arranged concentrically with each other, one of said seats having segmental recesses formed in its contact-face and overlapping each other radially to insure the removal of foreign particles from between the contact-faces, substantially as described.

578,865. GAS-METER. ELIAS B. DE LA MATYR, San Francisco, Cal. Filed Nov. 15, 1895. Renewed July 1, 1896. Serial No. 597,786. (No model.)



Claim.—1. A gas-meter comprising a revolving drum provided with a plurality of compartments having flexible walls or diaphragms, means acting on the diaphragms at the rising side of the drum to force the diaphragms inward, and a valve operated by the turning of the drum and constructed to admit the flow of gas to and its exit from two of the adjacent compartments simultaneously, whereby a constant flow of gas through the apparatus is maintained, substantially as described.

2. A gas-meter comprising a revolving drum provided with a plurality of compartments having flexible walls or diaphragms, means acting on said diaphragms at the rising side of the drum to force said diaphragms inwardly and a rotary valve comprising a valve-seat turning with the drum and having ports leading to the several compartments, and a stationary valve-seat having inlet and outlet ports which communicate with gas inlet and outlet passages and are each of such length as to establish connection with two adjacent ports in the moving part at once, substantially as described.

3. A gas-meter comprising an exterior closed case or inclosure, a revoluble drum mounted in said case and provided with a plurality of compartments each having a flexible wall or diaphragm, means acting on the said diaphragms at the rising side of the drum to force the same inwardly and a valve actuated by the turning of the drum and operating to admit gas to and permit its escape from two adjacent compartments in succession, substantially as described.

4. A gas-meter comprising a revoluble drum provided with a plurality of compartments having movable walls, a valve actuated by the turning of the drum and operating to admit the gas to and permit its exit from the said compartments in succession and a closed casing surrounding the drum, said casing being in communication with a discharging-compartment at the rising side of the drum, whereby a pressure is maintained on the outside of the drum equal to that in the delivery-pipe leading from the meter, substantially as described.

5. A gas-meter comprising a revoluble drum having the form of a regular polygon and divided into compartments by radial partitions extending to the angles of the polygon, the sides of the drum consisting of movable walls or flexible diaphragms, means for giving inward and outward movement to the walls or diaphragms whereby those at opposite sides of the drum are moved together, and a valve actuated by the turning of the drum and acting to bring the compartments successively into connection with inlet and outlet passages

6. A gas-meter comprising a revoluble drum provided with a plurality of compartments each having a movable wall, and a valve actuated by the turning of the drum for supplying gas to and permitting its escape from the several compartments in succession, said valve being constructed to maintain the gas-inlet in communication with each compartment during the descent of the latter at one side of the axis of the drum from a point above to a point below the axis whereby the weight of the movable walls will aid in filling the compartment, substantially as described.

7. A gas-meter comprising a revoluble drum provided with a plurality of compartments each having a movable wall, means acting on the said movable walls to throw those on the ascending side inward when those on the descending side are thrown outward, and a valve comprising stationary and rotating valve-seats arranged concentrically to the axis of the drum, the stationary valve-seat having elongated ports which supply gas to the compartments continuously during their descent at one side of the axis of the drum from a point above to a point below the axis of the same and permit its escape from said compartments during their ascent at the opposite side thereof, to a point above said axis, substantially as described.

8. A gas-meter comprising a revoluble drum having the form of a regular polygon and having a plurality of compartments, the outer walls of which are formed by flexible diaphragms, a valve actuated by the turning of the drum and acting to bring the compartments successively into connection with inlet and outlet passages, and means for connecting the diaphragms on opposite sides of the drum, comprising rigid frames having longitudinal parts which extend over the flexible outer walls of the compartments, and transverse connecting parts which extend across the ends of the drums, substantially as described.

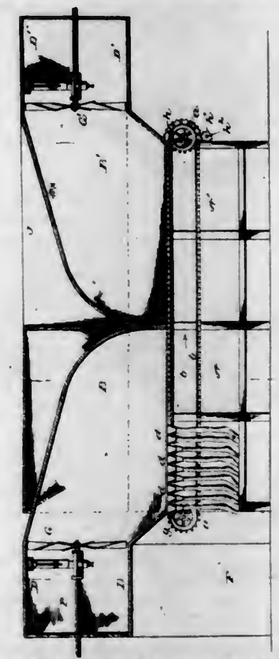
9. In a meter for measuring gas, an exterior casing, a hollow stationary shaft fixed therein having one end connected with a source of supply, and the other end discharging within the casing, a compartment-drum having a central sleeve fitting and turnable upon the exterior of the fixed hollow shaft, radial diaphragms extending from the sleeves to the angles of the drum, flexible exterior weighted sides movable to and from the center whereby the chambers in the drum are successively enlarged and contracted, passages through the stationary shaft and the drum-sleeve which are coincident when it arrives at a certain point in its rotation whereby gas may flow into the corresponding member, other passages adapted to coincide upon the opposite end and opposite side of the shaft and sleeve, whereby the contraction of said opposite chamber will expel the gas, and connections between each opposite pair of movable sides whereby the expansion of one acts to contract the other.

10. In a gas-meter an exterior case having a horizontal holiow shaft fixed therein, the central part of said shaft being closed and the ends slotted upon opposite sides, a receiving-chamber exterior to the casing A upon one side with which the receiving end of the hollow shaft communicates, a bracket within the casing A by which the opposite end of the shaft is supported so that the discharge end opens into the exterior casing, a compartment-drum, the exterior sides of which are adapted to expand and contract so as to enlarge and diminish the compartments, a sleeve extending through the center of the drum fitting and turnable upon the stationary shaft C, slots or openings made in said sleeve, opening into each compartment and coinciding at one point of the revolution of the drum with the inlet-slots of the stationary shaft, other slots formed at the opposite end of the sleeve from each compartment adapted to coincide with the discharge-slot of the stationary shaft upon the opposite side of the inlet, connections made between the movable sides of each two opposite compartments of the drum whereby the expansion of one of said sides acts directly to contract the opposite side and expel the contents of its compartment, a register and mechanism connecting it with the drum whereby the amount passing through the apparatus is indicated.

11. In a gas-meter, an exterior containing case, a gas-supply chamber at one end, a fixed central hollow centrally-closed shaft, one end of which opens into said gas-supply chamber and the other is supported so as to deliver within the main exterior case and a discharge-passage from said case, a compartment-drum having a sleeve fitting and turnable upon the stationary shaft, slots in said sleeve connecting with each compartment at opposite ends, a slot made in the stationary shaft near the inlet and with which each of the compartments is successively brought into communication by the rotation of the drum whereby gas is allowed to enter the compartment and expand the outer movable side, a corresponding slot in the opposite end of the stationary shaft situated upon the opposite side thereof with which each of the compartments successively communicates after having been filled and the connection with the supply cut off, yokes or frames surrounding the drum out of contact therewith and standards by which the opposite sides of said frames are connected with the movable sides of the opposite compartments of the drum whereby the expansion of one compartment acts directly to contract the other and expel the gas therefrom, and to so change the relative weights of the sides of the drum that the latter will be constantly rotated by the inflow and expulsion of the gas.

12. In a gas-meter, an exterior containing case with a supply-chamber, and a discharge-passage, a fixed hollow centrally-closed shaft, one end of which communicates with the supply-chamber and the other with the interior of the case, a compartment-drum with outwardly-expansible sides and a central bearing-sleeve revoluble upon the fixed shaft, slots in the shaft and sleeve near the inlet end, which coincide so that each chamber is filled with gas while traveling downward, discharge-slots which coincide when the chambers are traveling up the opposite side, rods connecting the movable sides of oppositely-situated chambers, whereby the expansion of the filling-chambers acts to contract and discharge those with which they are connected, curved arms carried by the movable sides and a stop so disposed that the arms carried by the chambers about to be emptied, will engage the stop and regulate the movement of the drum and each chamber will be expanded and filled and the one connected with it correspondingly contracted before the arms can pass the stop.

578,866. APPARATUS FOR OXIDIZING STOCKINGS. ORMROD DUCKWORTH, Norristown, Pa., assignor to the Lawrence Manufacturing Company, Lowell, Mass. Filed Feb. 16, 1893. Serial No. 462,620. (No model.)



Claim.—1. The within-described carrier for a stocking drying or oxidizing machine, said carrier consisting of an open-bottomed trough-like bar provided with means for retaining the stockings with their upper ends distended so as to receive air which passes through the bar, substantially as specified.

2. The within-described carrying-bar for a stocking drying or oxidizing machine, said carrier consisting of an open-bottomed trough-like bar having toothed strips on opposite sides of the same, substantially as specified.

3. The within-described carrying-bar for a stocking drying or oxidizing machine, said carrier consisting of an open-bottomed trough-like bar, wider in cross-section at the top than at the bottom, and having near the bottom means for retaining the stockings with their upper ends distended, substantially as specified.

4. A stocking drying or oxidizing machine in which open-bottomed bars, provided with means for retaining the stockings with their upper ends distended, are combiued with a carrier for said bars, a hood or casing above said carrier, and means for causing a flow of air through said hood and into and through the bars and the stockings thereon, substantially as specified.

5. The combination in a stocking drying or oxidizing machine, of a series of bars provided with means for suspending the stockings with their upper ends distended, a carrier for said bars, a casing having a hood above the carrier, a lateral flue, a vertical stack com-

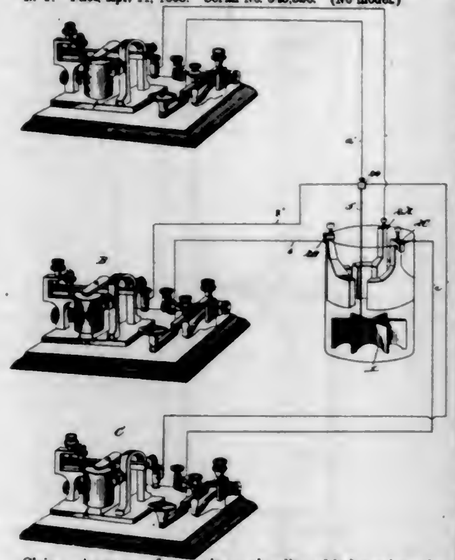
municating therewith, and a fan between the lateral flue and the hood, substantially as specified.

6. The combination in a combined stocking drying and oxidizing machine, of a series of stocking-holding bars, a carrier therefor, a duplex casing, and air flues and circulating devices whereby the air which is brought into contact with the stockings in drying the same is again brought into contact with the stockings at a further point in their travel, substantially as specified.

7. The combination in a combined stocking drying or oxidizing machine, of a series of stocking-holders, a carrier therefor, a duplex casing, air flues and circulating devices whereby the air which is brought into contact with the stockings in drying the same is collected and again brought into contact with the stockings, and means for heating the air in its passage from one part of the machine to the other, substantially as specified.

8. The combination in a combined stocking drying and oxidizing machine, of a series of stocking-holders, a carrier therefor, a duplex casing, air flues and circulating devices whereby the air which comes into contact with the stockings in drying the same is collected and again brought into contact with the stockings, and means for moistening the air in its passage from one part of the machine to the other, substantially as specified.

578,867. ELECTRIC BATTERY. HOWARD N. FARLEY, Warwick, N. Y. Filed Apr. 11, 1895. Serial No. 545,323. (No model.)



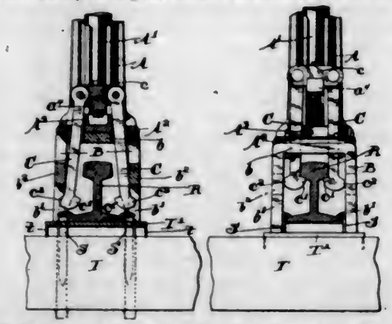
Claim.—A system of operating a plurality of independent electrical instruments consisting of a single battery-cell having a single electronegative element and a plurality of electropositive elements, said electropositive elements being grouped at spaced distances apart and having no metallic contact within or exterior to the cell, a single conductor leading from the negative element and carrying a common connector, and a series of separate pairs of circuit-wires, one of the wires of each pair connecting with an electropositive element of the cell and the other wire of the same pair connecting with said common connector, substantially as set forth.

578,868. METHOD OF PRODUCING METALS AND ALLOYS. HANS GOLDSCHMIDT, Essen-on-the-Ruhr, Germany. Filed Dec. 14, 1896. Serial No. 615,700. (No specimens.)

Claim.—The method of producing metals and alloys from metallic compounds containing oxygen, sulfur, or chlorin, consisting in finely pulverizing the compound, mixing it with finely-pulverized metallic aluminium, heating a small portion of that mixture to initiate the reaction of said portion, without bringing the said portion out of contact with the remaining main portion, and letting the reaction then transfer itself to said remaining main portion, causing a continuation of the process by the heat developed by said initial reaction, as set forth.

578,869. JACK FOR SEATING TIE-PLATES. PATRICK HALEY, Chicago, Ill. Filed Aug. 17, 1896. Serial No. 602,995. (No model.)

Claim.—1. In a device of the class described, the combination with a suitable standard adapted to rest upon a railway tie-plate, of a vertically-movable member supported by the standard, means for connecting said vertically-movable member with a rail, and means for forcing said movable member upward with reference to the standard and thereby forcing the standard downward upon the tie-plate.



2. In a device of the class described, the combination with a suitable mast provided with lifting devices, of arms adapted to engage the head of a rail, and a standard adapted to rest upon a tie-plate, whereby said tie-plate will be seated in place by the downward movement of the standard and the upward movement of the mast.

3. The combination with a suitable jack having a standard and a mast adapted to be forced upward in said standard, of arms pivoted to said mast and adapted to engage with the head of a rail, a foot-piece secured to said standard and adapted to rest upon a tie-plate, the upward movement of the mast being adapted to force said tie-plate into its seat upon the tie.

4. The combination with a suitable jack having a standard and a mast adapted to be raised or lowered in said standard, of arms pivoted to said mast and formed with hooked ends c', and cams c^3, a foot-piece secured to said standard and having portions lying in the path of said cams and adapted to force said arms toward each other during the upward movement of the mast.

5. The combination with a lifting device comprising a standard, mast, and a suitable device for raising or lowering the mast in the standard, of arms pivoted to said standard and formed with hooked ends c', and cams c^3, a foot-piece B, and suitable means for spreading said arms apart during the downward movement thereof.

6. The combination with a suitable lifting device comprising a standard and suitably-guided mast adapted to be raised or lowered in said standard, of arms pivoted to said mast and adapted to engage with the head of a rail and the spreader A^3, adapted to force said arms apart during their downward movement.

7. In a device of the class described, the combination with a suitable lifting device comprising a standard and a mast adapted to be raised or lowered in said standard, of arms pivoted to said mast and formed with hooked ends adapted to engage with the head of a rail, and with cams c^3, and a foot-piece adapted to rest upon the tie-plate and having a portion lying in the path of the cams and adapted to force said arms into engagement with the head during the upward movement of the arms, said arms being adapted to be separated during the downward movement thereof; substantially as described.

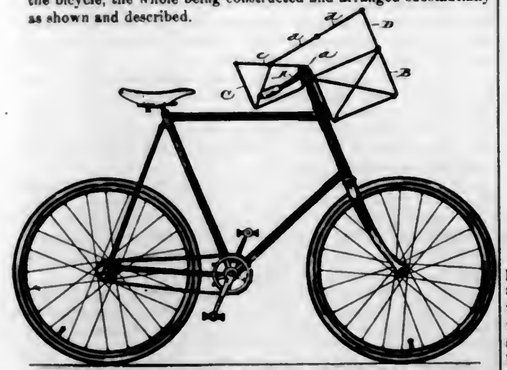
8. The combination with a standard and mast formed with a foot a^4, of a block c, secured to said foot, arms pivoted to said block and formed with hooks adapted to engage the head of a rail, and cam portions c^3, a foot-piece secured to said standard adapted to rest upon a tie-plate and having a portion lying in the path of the cams c^3, and adapted to force the arms into engagement with the rail during the upward movement of the arms, and a spreader A^3, adapted to separate said arms during the downward movement thereof; substantially as described.

578,870. ACTIVE MASS FOR ELECTRIC ACCUMULATORS. SIEGFRIED HANNACHER, Berlin, Germany. Filed June 27, 1895. Serial No. 554,280. (No specimens.)

Claim.—An active mass for electric accumulators, consisting of basic phenylates of lead mixed with the oxids of lead, as and for the purpose set forth.

578,871. BICYCLE NEWSPAPER-RACK. FRANCIS M. HATCH, South Bend, Ind. Filed July 3, 1896. Serial No. 598,058. (No model.)

Claim.—1. The combination, with a bicycle, of a newspaper-rack composed of cage-like sections arranged to be mounted upon and carried by the handle-bar of the bicycle, said sections embodying rods or wires entering into the construction of both and having bends therein between the sections adapted to rest upon the handle-bar of the bicycle, the whole being constructed and arranged substantially as shown and described.



2. A newspaper-rack for bicycles composed of three sections, the supporting-point being located between the two lower sections, and the third section being a foldable section located above the first section, substantially as shown and described.

3. The combination, in a newspaper-rack, of the main section B, the second section C, the bends or loops a between said two sections adapted to rest on the bicycle handle-bar, said second section having brace-rods e which run from its upper edge to the loop a, and the folding top section D having the jointed stay-rods d, said last-named section being adapted to be folded down to within the first section when required, all substantially as shown and described.

578,872. STRINGED MUSICAL INSTRUMENT. CHARLES HENLEIN, Cincinnati, Ohio. Filed July 6, 1896. Serial No. 598,075. (No model.)

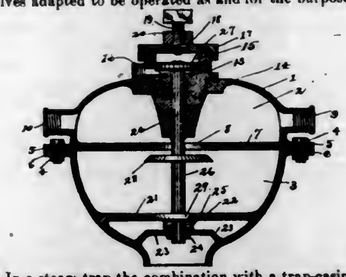


Claim.—1. The hereinbefore-described instrument having the short neck, wide finger-board and the added string, said neck being of such length that all the fingering may be accomplished while the hand is in a single position, substantially as shown and described.

2. The combination in a mandolin of the body, the neck, the wide finger-board and head, and the additional fifth string, said neck and finger-board between the head and body being of such length that all the fingering may be accomplished while the hand is in a single position, substantially as shown and described.

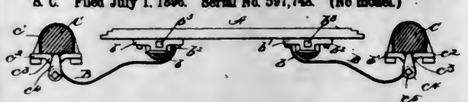
578,873. STEAM-TRAP. EDWARD Z. HERMANBADER and WILLIAM H. BLANDY, Columbus, Ohio. Filed Mar. 27, 1896. Serial No. 585,090. (No model.)

Claim.—1. In a steam-trap the combination with the trap-casing having an upper and lower compartment, a valve-opening between said compartments and a similar valve-opening in the bottom of said casing and pipe-necks leading outward from said upper compartment, one of said necks communicating with a source of steam-supply, of an air-chamber 15 arranged adjacent to said casing, an air-inlet in the lower portion thereof, a valve stem or rod 26 working through said air-chamber and in said trap-casing, a piston-head 27 on the upper end of said stem and valves 28 and 29 carried on said stem, said valves adapted to be operated as and for the purpose set forth.



2. In a steam-trap the combination with a trap-casing having a partition 7 and bottom plate 21, a valve-opening 8 in said partition and a similar opening 22 in said bottom plate, pipe-necks extending from the upper portion of said trap, of an air-operated valve stem or rod within said trap, valves 28 and 29 carried on said rod and a spring-support beneath said lower valve 29 and adapted to normally hold the latter in a slightly-open position, substantially as and for the purpose specified.

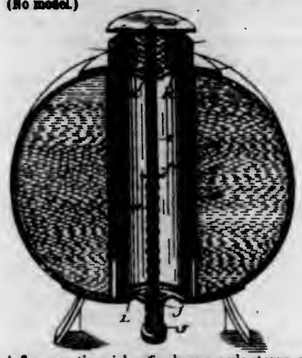
578,874. BUGGY-SPRING. COLUMBUS W. HEWITT, Darlington, S. C. Filed July 1, 1896. Serial No. 597,748. (No model.)



Claim.—1. The combination of the plate A, provided with vertical perforations a; bearings b', secured to the bottom of said plate, and each having a square horizontal perforation; square bolts b^3, one secured in each of said perforations; springs B, having coiled ends b, and eyes c, the coiled ends of the springs b, secured to bolts b^3, and working in the bearings b'; bearings d, secured in the eyes c; washers d^2, secured to the outer ends of bearings d, and against the ends of the walls of eyes c; side-bars C; clips c', fitting over said side-bars; pendants c^4, swiveled to said clips; eyes c, bearings d, and washers d^2, pivoted between the lower ends of said pendants, substantially as shown and described and for the purposes set forth.

2. The combination of the plates A, provided with the vertical perforations a; bearings b', secured to the bottom of said plates A, by means of bolts and nuts b^3, and having square horizontal perforations; square bolts b^3, one fitting in each of said perforations; springs B, having coiled ends b, and eyes c, the extreme ends of said coils rigidly secured to the square bolts b^3, and working in the bearings b' and perforations a; side-bars C, one on each side of the vehicle; clips c', fitting over said bars; plates c^3, provided with the downward bends c^5; pendants c^4, swiveled in said downward bends; horseshoe-bearings d, having washers d^2, and fitting in the eyes c, of said spring; the eye ends of the springs B and bearings d, pivoted between the lower ends of said pendants by means of bolts c^3, substantially as shown and described and for the purposes set forth.

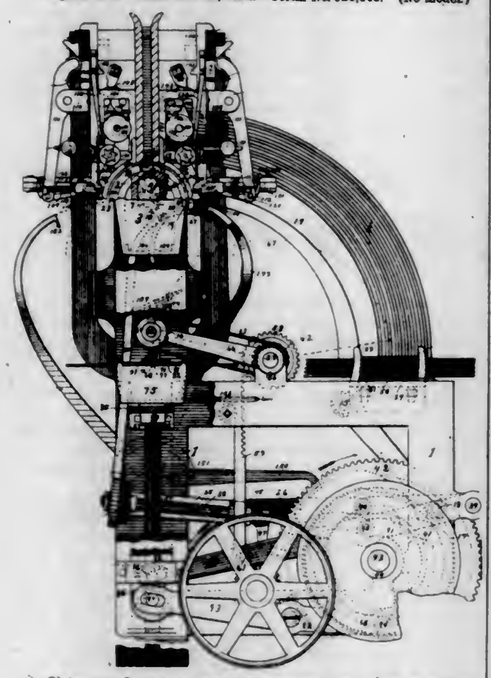
578,875. LAMP-BURNER. SIDNEY A. HOOVER and AARON LOUGHEED, Port Arthur, Canada. Filed Mar. 20, 1896. Serial No. 584,114. (No model.)



Claim.—A flame-extinguisher for lamps or lanterns, consisting of a bowl or oil-receptacle, a sleeve within the bowl extending from the top to the bottom, a perforated tube surrounding the sleeve to form a

wick-chamber, a perforated tube within the top of the sleeve, the lower end of which is provided with a flange bearing against the inner face of the sleeve, a disk fitted to the top of the perforated tube overlapping the said sleeve, a screw-threaded pin depending from the under side of the disk, an actuating-rod located within the said sleeve extending below the bottom of the bowl, the upper end of which is fitted to the said pin, a thumb-nut fitted to the lower end of the actuating-rod, a guide connected to the bottom of the sleeve to maintain the actuating-rod in its proper position, a cross-pin fitted to the actuating-rod between the guide and the top disk, a spring coiled on the actuating-rod between the cross-pin and the said guide, substantially as specified.

578,876. **BASKET-MAKING MACHINE.** EMMET HORTON, Dundee, N. Y., assignor to The Horton Basket Machine Company, Washington, D. C. Filed Nov. 24, 1894. Serial No. 529,865. (No model.)



Claim.—1. In a basket-making machine, the combination with a form and mechanism for placing about the form the blanks composing the bottom and sides of the basket, of a band feeding and adjusting mechanism, and a nailing mechanism arranged to be automatically advanced toward and away from the form, whereby the assembled parts are united and the nailing mechanism moved out of the way of the assembling mechanism as and for the purpose set forth.

2. In a basket-making machine the combination with a form and mechanism for automatically assembling the bottom, sides and bands about the form, of a nailing mechanism arranged to be moved toward and away from the form.

3. In a basket-making machine the combination with a form, and mechanism for placing the body portion of the basket about the form, of a band feeding and adjusting mechanism, and a nailing mechanism adapted to apply nails and unite the bands and sides upon two or more sides of the form at one operation.

4. In a basket-making machine the combination with a form, and assembling and uniting mechanism, of a band feed hopper or chute centrally disposed above the form, and mechanism for separately removing and transferring the bands from the chute to the sides of the form.

5. In a basket-making machine the combination with a form, and mechanism for assembling the body portions about its bottom and sides, band-rollers traveling in opposite directions about the form, a clamping mechanism for holding the bands in lapped position and uniting mechanism.

6. In a basket-making machine, the combination with a form and mechanism for pressing or folding the body portion of the basket over the form, of a band-feeding mechanism arranged and adapted to advance a pair of bands to the form in position to be united to the inner and outer edges of the basket sides, and uniting mechanism, substantially as described.

7. In a basket-making machine, the combination with a form and mechanism for pressing or folding the body portion of the basket over the form, of wrapping devices arranged to wrap the bands about the form, and uniting mechanism.

8. In a basket-making machine, the combination with a form and mechanism for pressing or folding the body portion of the basket over the form, of a band-feeding mechanism consisting of a hopper or folder for the bands and devices for cutting out a pair of bands and feeding them to the form in position to be united to the inner and outer edges of the basket sides

9. In a basket-machine the combination with a form, of a device for folding or pressing over the form the blanks constituting the bottom and sides of the basket, and a band-feeding mechanism arranged and adapted to feed bands to the form in position to be united to the inner and outer edges of the sides, substantially as described.

10. In a basket-making machine, the combination with the form of a gravity band-feeding device, an oscillating, transferring-head adapted to remove and transfer single bands from the hopper to the form, means for folding the body portion over the form, and means for uniting the same and the bands, substantially as described.

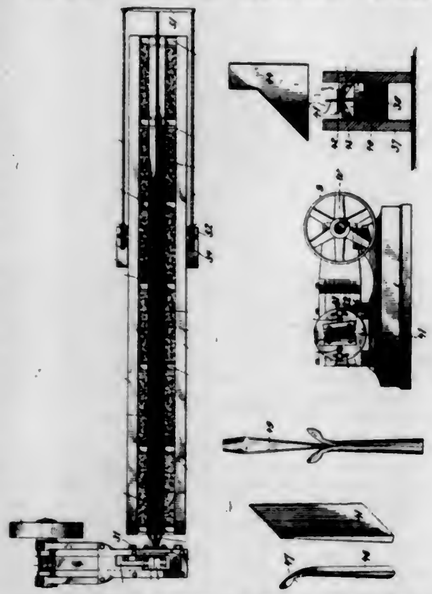
11. In a basket-making machine, the combination with the form of band-wrapping devices, a nailing mechanism, a mechanism for pressing or folding the body portion of the basket to the form, and automatic presser-feet adapted to press and hold the lapped ends of the band to the action of the nailing mechanism, substantially as described.

12. In a basket-making machine, the combination of a suspended form, and mechanism for automatically pressing or folding the body portions over the form, a band-feeding mechanism, and a nailing mechanism arranged to apply nails to all sides of the form simultaneously.

13. In a basket-making machine, and in combination with a form, a clamp for pressing the blanks for the body portion of the basket over the form, a holder for the stacked blanks, and a needle-arm arranged and adapted to separately pick up and transfer the blanks from the holder to the clamp and in position to be pressed over the form, as and for the purpose set forth.

14. In a basket-making machine, a form in combination with mechanism for pressing or folding the bottom and side portions of the basket over the form, and band-wrapping rollers arranged to travel around the form, substantially as described.

578,877. **APPARATUS FOR MAKING HALF-ROUNDS.** JOHN W. HUSSEY, Brooklyn, N. Y., assignor of one-half to Clarence W. Seamans, same place. Filed Apr. 1, 1895. Serial No. 544,037. (No model.)



Claim.—1. The combination of a stationary forming-die, a combined reciprocatory shearing and forming die, arranged in alinement therewith, and a laterally-arranged independent stationary guiding and shearing die contiguous to and with its guide-opening in advance of the stationary forming-die and coöperating with the reciprocatory forming and shearing die; the construction and arrangement being such that the reciprocatory die in connection with the lateral die first cuts off the forward end of the blank, fed transversely through the lateral die, and then forces the detached portion of the blank into the stationary forming-die, and in coöperation therewith presses the blank into the desired shape, as set forth.

2. The combination with a stationary forming-die, and a reciprocatory shearing and forming die, of a laterally-arranged independent, stationary shearing-plate having a guide-opening through its body contiguous to the forming-die, as set forth.

3. The combination with a stationary forming-die provided with an integral stop, of a reciprocating forming-die having a shearing edge, and a lateral independent, stationary die coöperating with the shearing edge of the reciprocating die, and having formed in its body a lateral passage-way for the blank arranged in line with said stop; substantially as described.

4. The combination with a stationary forming-die and a reciprocating forming-die having a shearing edge, of an independent lateral adjustable shearing-die coöperating with the latter and having a guide-opening for the passage of the blank: substantially as described.

5. The combination with a stationary forming-die and a reciprocating forming-die having a shearing edge, of an independent lateral shearing-die having a guide-opening arranged at an inclination to the shearing edge of the reciprocating forming-die and coöperating therewith in the feeding, guiding and severing of the blank; substantially as described.

6. The combination with a stationary forming-die and a reciprocating forming-die having a shearing edge, of an independent lateral die having a guide-opening through its body and a cold-water chamber surrounding said guide-opening; substantially as described.

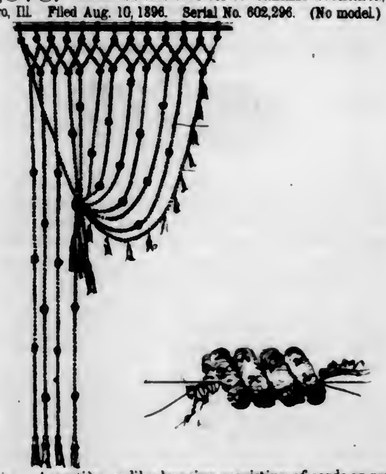
7. The combination with a stationary forming-die and a reciprocating forming-die having a shearing edge, of an independent lateral hollow die having a shearing edge and a guide-opening, and ingress and egress pipes communicating with the interior of said die for the passage therethrough of cold water; substantially as described.

8. The combination with the forming-dies, of a lateral circular die-plate, having slots and securing means, also an elongated guide-opening, a water-chamber, and means for supplying the same; substantially as described.

9. The combination with the forming-dies, and the shearing-die having a guide-opening, of the lateral furnace provided interiorly with means for supporting the blanks in upright positions and for guiding the blanks therethrough, and feeding them into the guide-opening in the shearing-die; substantially as described.

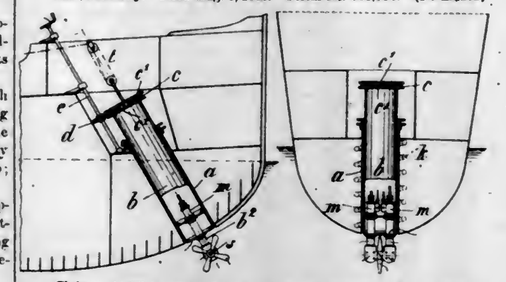
10. The combination with the forming-dies and the shearing-die having a guide-opening and a cold-water chamber, of a deflector, and a lateral adjacent furnace having a guide-slot for the blanks arranged substantially coincident with the guide-opening, substantially as described.

578,878. **ORNAMENTAL HANGING.** CHARLES W. JACKSON, Chicago, Ill. Filed Aug. 10, 1896. Serial No. 602,296. (No model.)



Claim.—A portière or like hanging consisting of cords or ropes, each formed of central longitudinal strands, and other filling-strands embracing both plain and chenille strands coiled together and passing between said longitudinal strands, one of said longitudinal strands being treated with an adhesive material which hardens upon drying and serves to confine the coils of the filling-strands and to hold the several strands constituting the entire cord or rope in proper relation to each other.

578,879. **STEERING APPARATUS.** JOACHIM JOHANNSEN, Lübeck, Germany. Filed Aug. 1, 1896. Serial No. 601,350. (No model.)



Claim.—1. The combination with a vessel provided with a well opening into the water on a line with the keel and at a point distant from the driving-propeller, of a casing closed at bottom and adapted to be displaced in said well in the plane of and about its longitudinal axis, a steering-propeller, its shaft revoluble in bearings secured to the bottom of said casing, a motor and suitable connections for transmitting power from said motor to the propeller-shaft and revolving the same, for the purpose set forth.
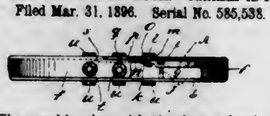
2. The combination with a vessel provided with a well having a forward inclination and opening into the water at a point of the keel near the bow, of a casing closed at bottom and adapted to be displaced in said well in the plane of and about its longitudinal axis, bearings secured to the bottom of the casing, a steering-propeller, its shaft revoluble in said bearings, a motor, and suitable connections for transmitting power to and revolving the propeller-shaft, for the purpose set forth.

3. The combination in a vessel provided with a well opening into the water, of a casing closed at bottom and adapted to be displaced in said well in the plane of and about its longitudinal axis, a steering-propeller revolubly supported below said casing, a motor carried by the latter, and suitable connections between a driving element of the motor and the propeller-shaft, for the purpose set forth.

4. The combination with a vessel provided with a well opening into the water, of a casing closed at bottom and adapted to be displaced in said well in the plane of and about its longitudinal axis, tubular legs projecting from the bottom of the casing and leading into the same, two-part housings secured to said tubular legs, a crank-shaft having its bearings in said housings, a steering-propeller secured to the crank-shaft between the housings and a suitable motor and transmitting appliances for revolving said shaft, substantially as and for the purpose set forth.

5. The combination with a vessel provided with a well opening into the water, a casing closed at bottom and adapted to be displaced in said well in the plane of and about its longitudinal axis, housings, tubular connections extending from the bottom of and leading into the casing and connecting said housings thereto, a crank-shaft revoluble in bearings in said housings, a steering-propeller secured to the crank-shaft between the housings, a motor contained in the casing, and suitable connecting-rods connecting the driving element of the motor with the cranks of the crank-shaft, substantially as and for the purpose set forth.

578,880. **BAG LATCH AND LOCK.** CHARLES A. JOHNSON, New Britain, Conn. Filed Mar. 31, 1896. Serial No. 585,538. (No model.)



Claim.—1. The combination with the jaw A having the cover-flange *f*, and the jaw *b*, pivoted to said jaw A, and having the hook-catch *j*, of the spring-latch *g* secured to the cover-flange *f*, the knob *l* exterior to jaw A and connected to the free end of the spring-latch through the slot *m* ranging transversely of the jaw; the locking slide-bolt *n*, connected with the laterally-sliding knob *q*, exterior to said jaw A, and the locking-button connected through the cover-flange to the pivoted knob *t*, substantially as described.

2. The combination with the jaw A having the cover-flange *f*, and the jaw *b* pivoted to said jaw A, and having the hook-catch *j*, of the spring-latch *g* secured to the cover-flange *f*, the knob *l* exterior to jaw A and connected to the free end of the spring-latch through the slot *m* ranging transversely of the jaw; the locking slide-bolt *n*

connected with the laterally-sliding knob *q*, exterior to said jaw A, the locking-button connected through the cover-flange to the pivoted knob *t*, and the false knob *u* of like character and apparently of like relation to said interior movable parts of the lock as the knobe c nnected with the said movable parts, substantially as described.

578,881. **DRAFT APPLIANCE FOR TOBACCO-PIPES.** FREDERICK J. KALDENBERG, Tarrytown, N. Y., assignor to M. S. Kaldenberg, same place. Filed June 25, 1896. Serial No. 596,885. (No model.)



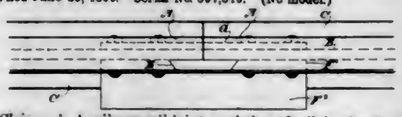
Claim.—1. A draft appliance for a tobacco-pipe, comprising a disk which fits into the tobacco-receiving bowl of the pipe near the bottom of the same, thus serving as a partition between the stem of the pipe and the tobacco in the bowl, and a slender tube fixed in said disk and extending upward into the tobacco-space in the pipe-bowl, said tube having in it a series of perforations at different levels to receive the smoke from the burning tobacco, said perforated tube being closed at one end and open at the other end to the draft-passage through the stem of the pipe.

2. A draft appliance for a tobacco-pipe, comprising a disk adapted to fit into the tobacco-receiving bowl of the pipe near its bottom and form a partition between the tobacco above and the smoke-passage below leading to the mouth, a slender, perforated, smoke-receiving tube fixed in said disk at its closed lower end and extending upward into the tobacco-space in the bowl, and a slender, imperforate draft-tube in the tobacco-space of the bowl, the upper end of said draft-tube communicating with the upper end of the smoke-receiving, perforated tube, and its open, lower end extending down through said partition-disk.

3. A draft appliance for a tobacco-pipe, comprising a bottom plate 1, adapted to fit into the pipe-bowl, one or more upright draft-tubes 3, fixed in and extending down through said plate, upright, perforated smoke-receiving tubes 4, fixed to the said plate at their lower ends, and a tubular ring 2, connecting the upper or outer ends of the tubes 3 and 4, substantially as and for the purposes set forth.

4. As an improved article of manufacture, a draft appliance for a tobacco-pipe of which the bowl is open at the top and has an outlet for the smoke at its bottom, said draft appliance comprising a disk 1, adapted to fit into the pipe-bowl as a partition between the tobacco above and the smoke-outlet below, and an upright tube fixed in said disk and projecting up into the tobacco-space in the bowl, and having in it perforations at different levels to receive the smoke from the burning tobacco, said perforated tube communicating at one end with the smoke-passage in the pipe when the appliance is placed therein, as set forth.

578,882. **RAILWAY-RAIL JOINT.** LEONARD W. KENNEDY, Oakland, Cal., assignor of one-half to Phillip G. Galpin, Berkeley, Cal. Filed June 29, 1896. Serial No. 597,319. (No model.)



Claim.—1. A railway-rail joint consisting of rails having the head cut away a short distance each way from the end upon one side, said cut-away portions having inwardly-diverging end walls forming a dovetail recess, and a plate adapted to fit the form of the side of the rail, having a dovetail head or extension to fit said recess and form a lock to hold the sections of the rails together and prevent a lateral shifting of the joint.

2. A joint-plate for the meeting ends of railway-rails, consisting of a body portion, the lower part of which is formed to rest upon the lower flanges of the rails, an extension beneath the rail-heads upon which they form contact each side of the joint, and a dovetail bevel extension projecting up flush with the upper surface of the rails at one side of the web, and forming a lock to hold the sections of the rail against lateral shifting of the joint.

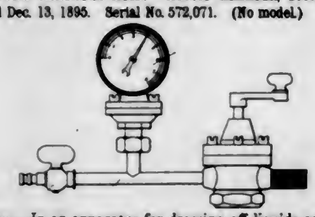
578,883. **WRAPPER.** EUGENE U. KIMBARK, Evanston, Ill. Filed Nov. 12, 1894. Serial No. 528,547. (No model.)

Claim.—1. The combination with a cylindric package, of a cylindric wrapper closely embracing the package and provided with a longitudinal weakened line substantially parallel to the axis of the cylindric package whereby when the wrapper is subjected to torsional strain it will be ruptured or broken along the line of weakness



2. The combination with a cylindric package, of a cylindric wrapper closely embracing the package and provided with a longitudinally-extending weakened line formed by closely-adjacent elongated perforations lying substantially in a line parallel to the axis of the cylindric package, whereby when the wrapper is subjected to torsional strain it will be ruptured or broken along the line of perforations.

578,884. **APPARATUS FOR DRAWING OFF LIQUIDS CONTAINING CARBONIC ACID.** AUGUST KREMPER, Breslau, Germany. Filed Dec. 13, 1895. Serial No. 572,071. (No model.)



Claim.—In an apparatus for drawing off liquids containing carbonic acid the combination of a filling-head having a closing contrivance between the bottle and the collecting vessel, with a manometer connected with the upper part of the bottle, and with a delivery-cock for the pressure prevailing above the liquid; as and for the purpose set forth.

578,885. **STOP AND WASTE COCK.** TIMOTHY J. LEAHY, Cleveland, Ohio. Filed Feb. 28, 1896. Serial No. 581,177. (No model.)



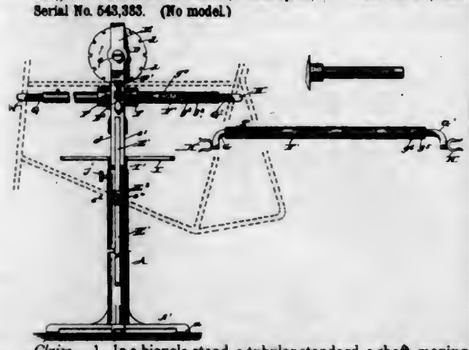
Claim.—1. In a stop and waste cock mechanism, the body, the plug having a single hole for effecting locking engagement therewith, and the reversible collar having a screw to engage said hole, and stops on said parts to limit the rotation of the plug, substantially as described.

2. The body of the device having a fixed projection to limit the rotation of the plug, and the plug having a single hole in its shank for the locking-screw of the collar, in combination with a reversible collar having a screw to engage in said hole, and a projection on said collar to engage the fixed projection on the body, substantially as described.

3. The body part, the plug having a four-sided shank and a single point between the sides of the shank for the engaging screw, a collar having a four-sided eye to engage said shank and a set-screw in the angle between said sides to lock the collar on the shank, and projections on the said parts to limit the rotation of the plug, substantially as described.

4. In a stop and waste cock mechanism, the body having a projection to limit the rotation of the plug and the plug in said body having a single point to lock the collar thereon, in combination with a collar removably secured on the shank of the plug and provided with two opposite checks to engage said stop and constructed to be set with the checks in different relations to the stop, substantially as described.

578,886. **BICYCLE-STAND.** NEVIN B. LE FEVER, Littlestown, Pa., assignor to Zachariah K. Loucks, Philadelphia, Pa. Filed Mar. 27, 1895. Serial No. 543,383. (No model.)



Claim.—1. In a bicycle-stand, a tubular standard, a shaft, moving freely in said standard, an arm having connections to hold a bicycle-frame, and disks, rigidly connected to each other at right angles, and hinged to said shaft, and said arm, whereby the latter, may move in any direction upon the former, substantially as described.

2. In a bicycle-stand, a tubular standard, a shaft therein, an arm having a cross-head, to receive a bicycle-frame, disks rigidly connected at right angles to each other, and provided with peripheral detents, hinged connections between said disks, shaft, and arm, and spring-pressed pawls upon said shaft, and said arm to engage the detents in said disks, substantially as described.

3. The combination in a bicycle-stand, of circular disks, rigidly connected together at right angles to each other, and provided with peripheral detents, with a fixed standard, and an arm having a cross-head, provided with stirrups to hold a bicycle-frame, and spring-pressed pawls, connected to said standard, and to said arm, to engage the detents in said disks, substantially as described.

4. In a bicycle-stand, the combination of a standard, having feet provided with dovetail grooves to engage floor-plates, a shaft within said standard, a collar upon said shaft having a tool rest or table connected thereto, and a set-screw therein to engage said shaft, an arm having a cross-head, provided with stirrups, and with a sliding hook to hold a bicycle-frame, a universal joint, having hinged connections to said standard, and said arm, and means to hold said arm, at any angle with said standard, substantially as described.

578,887. **PASTE FOR ELECTRIC ACCUMULATORS.** RICHARD LINDE, Berlin, Germany. Filed Feb. 24, 1896. Serial No. 580,560. (Specimens.)

Claim.—1. In a filling-paste for electric accumulators the combination of the lead oxids with a bitter principle for the purpose set forth.

2. In a filling-paste for electric accumulators the combination of the lead oxids with aloin for the purpose set forth.

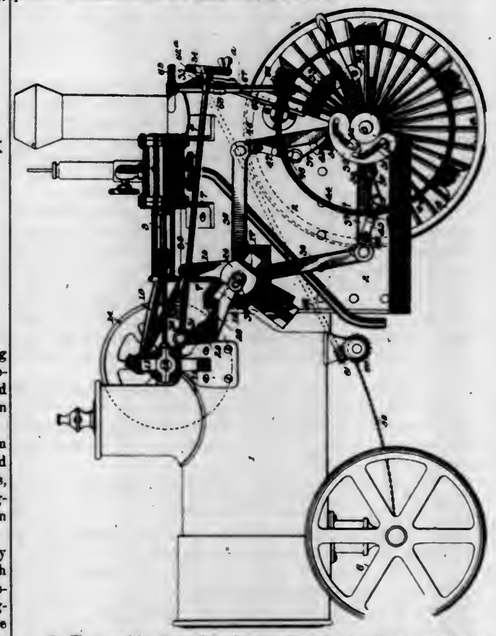
578,888. **TRACTION-ENGINE.** ANDREW J. MARTIN, Buffalo, N. Y. Mar. 11, 1896. Serial No. 582,752. (No model.)

Claim.—1. The combination with the wheel, of the clutch adapted to engage the same, a continuously-operating rocking lever, suitable connections between the clutch and the lever, a movable fulcrum on which the rocking lever rocks and means for moving and adjusting said fulcrum at will; whereby the stroke of the clutch may by varied to change the speed of the wheel.

2. The combination with the traction-wheel, of the driving-clutch adapted to engage the same, the continuously-operating rocking lever, the toggle-lever having one link connected to the clutch and the other link connected to the rocking lever and the fulcrum for the rocking lever adjustable to and from the point of connection of the toggle-link with said lever.

3. In a traction-engine the combination with the engine-shaft, of the rocking lever, the link connecting the same with the shaft, the traction-wheel, the clutch adapted to engage the same, the toggle-lever having one link connected to the clutch and the other link connected to the rocking lever and the movable fulcrum-block on which the rocking lever is mounted, said fulcrum-block being adjustable to and from the point of connection of the toggle-link with the lever.

4. The combination with the traction-wheel, of the two clutches adapted to engage and drive the same, the continuously-operating rocking lever, the two toggle-levers in the form of a quadrangle and each having one of its links connected to the clutches and its other links connected to the rocking lever, the movable fulcrum for the rocking lever, and means for adjusting said fulcrum to and from the point of connection of the links with the lever.



5. The combination with the traction-wheel, of the clutch for driving the same, the vibrating lever carrying the clutch, the continuously-operating rocking lever, the link connecting the vibrating lever with the rocking lever, the movable fulcrum for the rocking lever and means for adjusting the movable fulcrum in and out of line with the point of connection of the link with the rocking lever.

6. The combination with the rocking lever and driving-clutch operated thereby, of the movable fulcrum-block on which the lever is mounted, the elbow-lever joined at one end to said block, the nut pivoted to the other end of the lever and the rotary shaft mounted in bearings and screwed into said nut.

7. The combination with the traction-wheel provided with the lateral flange, of the clutch engaging said flange, the toggle-lever formed of two links pivoted together at their adjacent ends and one link pivoted at one end on the axis of the wheel and connected to the clutch and the other link movable to and from the axis of the wheel and means for moving said link as described.

8. The combination with the traction-wheel provided with the lateral flange, of the two toggle-levers mounted at one end on the axis of the wheel and having their opposite ends mounted on a common pivot, a reciprocating slide carrying said pivot, a fixed guideway in which the slide reciprocates to and from the axis of the wheel and clutches connected to said toggle-levers and engaging the flange on the wheel.

9. The combination with the wheel provided with the flange, of the arm or lever vibrating adjacent to the flange, the relatively movable clutch carried by said arm and formed with gripping-jaws between which the flange extends, a spring also carried by said vibrating arm or lever and acting on the clutch and holding it yieldingly in operative position, and means for adjusting and holding the clutch in different angular positions with relation to the lever.

10. The combination with the wheel provided with the flange, of the arm or lever vibrating adjacent to the flange, the clutch provided with gripping-jaws between which the flange extends, said clutch being pivoted to the lever, the spring also carried by said vibrating arm or lever and acting on the clutch and serving to hold it yieldingly in an operative position at an angle to the arm, and means for moving and holding said clutch at will, in line with or yieldingly at an angle to the arm

11. The combination with the wheel provided with the flange of the vibrating lever adjacent to the same, the clutch formed with gripping-jaws embracing the flange and pivoted at one end to the

lever, a pivoted spring finger also carried by said vibrating lever and engaging the opposite end of the clutch and means for adjusting said finger to throw the clutch on its pivot to different positions with relation to the lever.

12. The combination with the wheel provided with the flange of the vibrating lever or arm adjacent to the same, the clutch formed with gripping jaws embracing the flange, and pivoted at one end to the lever, the elbow-lever also pivoted to the arm and provided with a spring-finger engaging the clutch, a pin on the elbow-lever, a movable cam-plate provided with a slot to receive the pin, and means for moving said plate at will.

13. The combination with the wheel provided with the flange, of the two vibrating arms or levers adjacent thereto, the clutches pivoted at one end to said levers and provided with gripping-jaws embracing the flange, the elbow-levers pivoted to said arms, the springs fixed to said levers and engaging the free ends of the clutches, the pins on the elbow-levers, the cam-plate provided with the slots in which the pins engage and means for adjusting said plate.

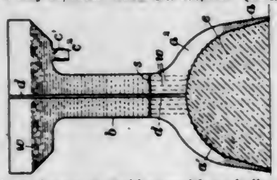
14. The combination with the traction-wheel, of the toggle-levers pivoted on its axis, and mounted at their opposite ends to move to and from the axis of the wheel, the clutches pivoted at one end on one of the links of the levers and provided with gripping-jaws between which the flanges extend, elbow-levers pivoted to the links, spring-fingers connected to the elbow-levers and engaging the clutches, the pins on said elbow-levers, the cam-plate provided with slots in which the pins extend, the sleeve encircling the axis of the wheel and connected to said cam-plate and the adjusting-lever connected to said sleeve.

15. The combination with the traction-wheel provided with the flange, of the driving-clutch engaging the same, the movable brake-lever provided with gripping-jaws between which the flange extends and means for moving said lever to cause the jaws to engage the opposite sides of the flange.

16. The combination with the traction-wheel provided with the flange, of the driving-clutch engaging the same, the brake-lever pivoted at one end and provided with gripping-jaws between which the flange extends, the nut pivoted to the opposite end of the lever and the rotary shaft mounted in fixed bearings and screwed into said nut.

17. The combination with the traction-wheel and the clutch for driving the same, of a T-shaped frame comprising a diagonally-extending slotted base-piece, a slotted plate extending at right angles from the middle of the slotted base, a rocking lever operated from the engine-shaft and extending between the slotted base and plate, a reciprocating slide in the base-slot, a pin connecting said lever and slide, links connecting the slide with the wheel-operating clutch; the said rocking lever having in its opposite side a longitudinal dovetail groove, a fulcrum-block mounted in the said lever-groove and turning loosely on a laterally-extending journal which forms the fulcrum of the rocking lever, and projects through the slotted frame-plate, an adjusting-arm connected to said journal or fulcrum to move said fulcrum-block up or down, substantially as set forth.

578,889. ICE-CREAM MOLD. CARSTEN MEINCKE, Elizabeth, N. J. Filed July 31, 1896. Serial No. 601,176. (No model.)

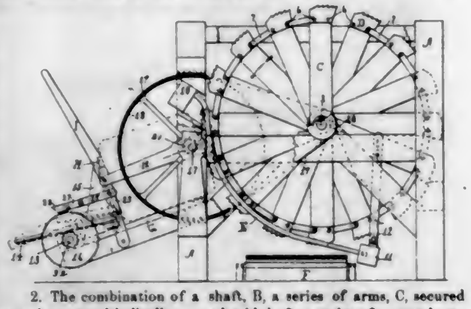


Claim.—1. An ice-cream mold comprising a hollow shell containing and surrounding the mold-cavity, a fluid-reservoir in communication with the interior of said hollow shell, and a perforated plate or screen interposed between said reservoir and hollow shell, as and for the purpose set forth.

2. An ice-cream mold comprising a hollow shell containing and surrounding the mold-cavity, a fluid-reservoir in communication with the interior of said hollow shell, and a vent-pipe connecting the bottom of the mold-cavity with the exterior of the mold, as and for the purpose set forth.

578,890. MACHINE FOR DEFIBERIZING COMPACTED JUTE. ROBERT C. MENZIES, Glens Falls, N. Y. Filed Sept. 12, 1894. Serial No. 522,798. (No model.)

Claim.—1. The combination, with a shaft, B, having a series of arms, C, arranged helically thereon; each of said arms being provided with a series of segmental plates, D, whose outer edges are serrated, a clearer or clearers, E, having an upper curved portion and a straight lower portion that is tangential to said curved portion; said clearers being arranged in such relation to the shaft B that the teeth of said serrated plates will protrude beyond said curved portion and be retracted at the straight portion of said clearers, of a feeding mechanism—substantially as described—whereby a bale of compacted material will be fed forward to the action of the teeth of the serrated plates, as and for the purpose specified.



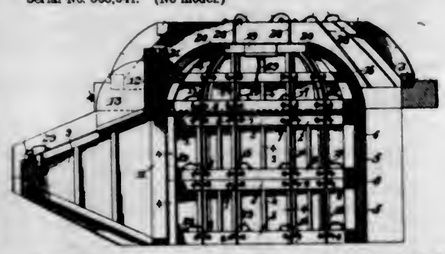
2. The combination of a shaft, B, a series of arms, C, secured to and arranged helically around said shaft, a series of serrated segmental plates, D, attached to the outer end of each of said arms, and a series of clearers, E, having an upper curved portion and a lower straight portion that is tangential to the curved portion; said clearers being adjustable with relation to the shaft B, as and for the purpose specified.

3. The combination of a shaft, B, provided with arms, C, having a series of serrated segmental plates, D, at their outer end, an intermediate shaft, 17, driven by the shaft B and having an eccentric, 21, connected to a rod, 25, provided with a longitudinally-adjustable head, 26, a shaft, 32, provided with a ratchet-wheel, 16—with which the head 26 intermittently engages—and having pinions, 13, secured thereon, racks, 14, which gear into said pinions, a face-board, H, hinged to said racks, and a feeding-table, G, on which said face-board is arranged to move, as and for the purpose specified.

4. The combination of a shaft, 17, an eccentric, 21, secured to said shaft, a rod, 25, moved by said eccentric and provided with a longitudinally-adjustable head, 26, and with a pawl, 27, that is hinged to said rod, and a ratchet-wheel, 16, with which said head and pawl are fitted to engage, as and for the purpose specified.

5. The combination of a shaft, B, a series of serrated plates, D, carried by and helically arranged around said shaft; the teeth of said plates having inclined edges at their foremost part, a series of clearers, E, arranged to remove the fibrous material from said serrated plates, and a conveyer, F, consisting of an endless belt that is arranged under said clearers and is adapted to convey the fibrous material away from the machine, as and for the purpose specified.

578,891. MEANS FOR CONSTRUCTING STORM-CELLARS, &c., OF CONCRETE. ROBERT G. MOON, Bedford, Iowa. Filed Mar. 31, 1896. Serial No. 585,641. (No model.)

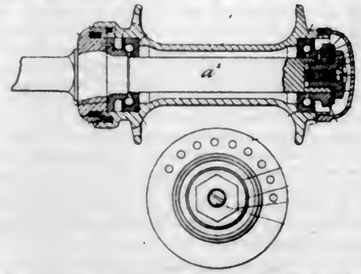


Claim.—1. In a mold or curb for constructing vaults and other subterraneous chambers having a cellar-way, the combination of an end and side pieces forming the cellar-way, a shield at the inner end of the cellar-way supported upon the side pieces at the inner ends thereof and comprising a vertical plate and end pieces, a crown, and a shield at the front end of the crown, comprising a vertical plate and end pieces to cooperate with the corresponding parts of the first-mentioned shield, substantially in the manner and for the purpose described.

2. In a mold or curb for constructing vaults and like chambers of concrete or plastic composition, an oval-shaped crown composed of a series of sections inclining toward their upper ends and held together by positive means, blocks placed between the upper ends of opposite middle sections, and a key interposed between the blocks, substantially as shown and described.

3. In a mold for constructing vaults and like chambers of concrete and plastic composition, the combination of a crown composed of a series of sections inclining toward their upper ends and held together by positive means, said crown being of oval shape and the sections having their upper ends forming a space of corresponding outline, blocks interposed between the upper ends of opposite middle sections, a key located between the blocks, and curved stays at the ends of the oval space and bearing against the upper edges of the end sections and against the ends of the blocks and key, substantially as set forth.

578,892. BALL-BEARING AXLE. CHARLES T. MCCUE, Hartford, Conn. Filed Dec. 7, 1896. Serial No. 614,846. (No model.)



Claim.—1. The combination with an axle-arm having a shoulder and a channel in the face thereof, of a cone surrounding the axle-arm at the base and secured thereto, there being a threaded socket opening at the outer end of the axle-arm, an axle-box having open and enlarged sockets at the opposite ends, cases located within said sockets, the inner end of the axle-box having two projecting flanges the outer of which fits upon the periphery of the shoulder and the inner flange fitting the channel in the face of the shoulder, a cone borne on the outer end of the axle-arm and adjustable lengthwise thereon, a tubular bolt with a threaded shank fitting the threaded socket in the end of the axle-arm, the head of the bolt overhanging the cone, and a set-screw fitting a threaded socket in the bolt and with its end projecting beyond the inner end of the bolt.

2. In a ball-bearing axle, in combination with the axle-arm having a central socket in the outer end, a cone adjustably mounted on the end of the axle-arm, and the cone-adjusting clamp comprising a tubular bolt having a threaded socket, and a threaded set-screw extending lengthwise through the bolt, and the ball-bearing case and balls.

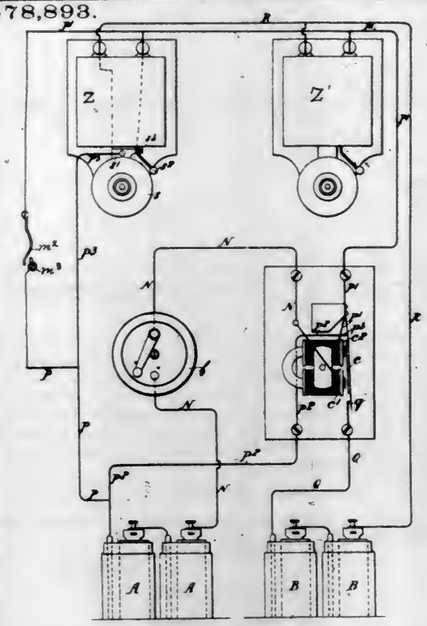
3. In combination with an axle-arm having a shoulder and an annular channel in the face thereof, an axle-box having two projecting flanges, the outer longer than the inner and adapted to embrace the flange formed at the outer edge of the shoulder on the axle-arm, annular washers lying within the channels, and ball-bearing cases and cones secured to the axle-box and axle-arm at the opposite ends of the box, and the bolt secured to the outer end of the axle-arm with its head overhanging the outer surface of the adjustable cone.

578,893. BURGLAR-ALARM. MARTIN P. MCDERMOTT, Auckland, New Zealand, assignor of one-half to John Logan Campbell, same place. Filed Aug. 7, 1896. Serial No. 602,064. (No model.) Patented in New Zealand Dec. 3, 1895, No. 828, and in New South Wales Feb. 3, 1896, No. 6,368.

Claim.—1. In combination the two batteries A, B, the alarm, the contacts to be closed by the unauthorized person, the magnet and the armature thereof, the line-wire N, extending from one pole of the battery to the magnets, the circuit-wires P', P extending from the magnets to the contacts and thence to the other pole of the battery, the contact p^3 and the wire leading therefrom to the battery A to maintain the circuit complete when the armature is attracted by the magnet upon the closing of the contacts, the circuit-wires leading from the battery B, said circuit including the contact q, the armature c and the alarms, and a switch controlling the circuit of the battery A whereby both circuits may be broken at one operation by deenergizing the magnets, substantially as described.

2. In combination with the batteries A, B, the circuit of the battery A comprising the line P', N, P^3 and P, the magnets in said circuit, the armature, the contact p^3 with the wire P^3 leading therefrom to the battery A to maintain the energy of the magnet, the bell Z having its hammer arranged to act as a circuit-closer when the same is tampered with whereby the magnets will be energized, a circuit leading from the battery B including the armature and the contact q, the bell Z', and the switch b for deenergizing the magnets, substantially as described.

578,893.



578,894. TYPE-BAR FOR TYPE-WRITING MACHINES. HUGH MCDOUGALL, Brooklyn, N. Y. Filed Apr. 15, 1896. Serial No. 587,598. (No model.)



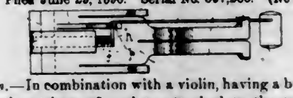
Claim.—1. The combination of the hollow or U-shaped bar 1 in one piece having type-socket portion 8 and means of pivotal support and the stiffening spring-bar 6 inserted and held therein and extending substantially from end to end thereof, substantially as set forth.

2. The combination of the hollow or U-shaped bar 1 in one piece having type-socket portion 8 and means of pivotal support, and the stiffening spring-bar within said bar 1 extending substantially from end to end thereof and held therein by inturned edges 7 thereof, substantially as set forth.

3. In a type-writer type-bar the combination of the hollow or U-shaped bar 1 of relatively soft metal and the spring stiffening-bar 6 of hard metal inserted therein and having the downwardly-bent portion 9 projecting below bar 1, substantially as set forth

4. In a type-writer type-bar the combination of the hollow or U-shaped bar 1 and the stiffening wire or bar 6 within said bar 1 having bent portion at 9 projecting through said bar 1 said bent portion having shoulder 10, substantially as set forth.

578,895. MUTE FOR VIOLINS. JOHN E. NAUDAIN, Baltimore, Md. Filed June 29, 1896. Serial No. 597,280. (No model.)

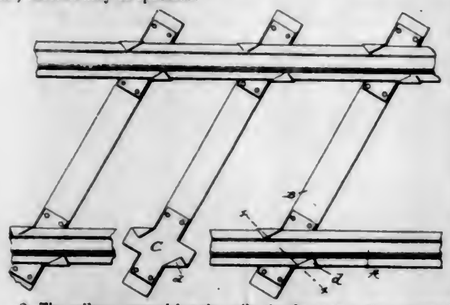


Claim.—In combination with a violin, having a bridge and a tail-piece for the strings, of a plate attached to the tailpiece, a mute adapted to slide longitudinally of the said plate, a moving device attached to the mute by means of a compressible connection, and a locking mechanism whereby when the mute is pushed against the bridge it is held thereat with some pressure, substantially as specified.

578,896. RAILWAY. JOHN I. NEWBURG, Vicksburg, Miss. Filed Sept. 8, 1896. Serial No. 605,084. (No model.)

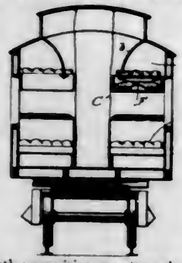
Claim.—1. The railway described comprising the rails, the sleepers or ties arranged beneath the rails and disposed at an acute angle thereto and the chairs formed from cruciform blanks of sheet metal; the said chairs being arranged beneath the rails and upon the sleepers or ties and having the alined arms or branches a, extending in the direction of the length of the sleepers or ties and connected thereto and the arms c, extending at right angles to the arms a, and the sleep-

ers or ties and having the portions *d*, bent over upon the base of the rails, substantially as specified.



2. The railway comprising the rails, the sleepers or ties arranged beneath the rails and disposed at an acute angle thereto, and the cruciform chairs arranged beneath the rails and upon the sleepers or ties and having the alined arms or branches *a*, extending in the direction of the length of the sleepers or ties and connected thereto and the arms *c*, extending at right angles to the arms *a*, and the sleepers or ties and having the portions *d*, extending over the base of the rails, substantially as and for the purpose set forth.

578,897. **SLEEPING-CAR.** JOHN I. NEWBURG, Vicksburg, Miss. Filed Sept. 8, 1896. Serial No. 605,065. (No model.)



Claim.—1. A berth comprising a rectangular receptacle or frame adapted to rest in a horizontal position, track-rails arranged upon the bottom of the receptacle or frame and extending in the direction of the width thereof, a carriage arranged and adapted to move in the receptacle or frame in the direction of the width thereof and having wheels adapted to travel on the track-rails, and springs interposed between opposite sides of the carriage and the opposite side walls of the receptacle or frame, substantially as and for the purpose set forth.
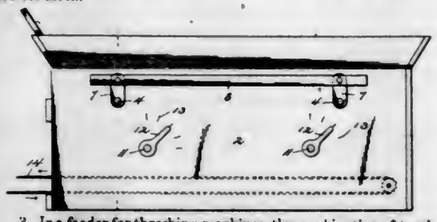
2. A berth comprising a receptacle or frame, a carriage arranged and adapted to move in the receptacle or frame, springs interposed between opposite sides of the carriage and the receptacle or frame, a frame mounted on springs carried by the carriage and a mattress arranged in said frame, substantially as and for the purpose set forth.

3. A berth for sleeping-cars and the like comprising a receptacle or frame, track-rails arranged upon the bottom thereof, the carriage arranged and adapted to move in the receptacle and comprising the parallel bars and the wheels arranged between said bars and upon the track-rails, the bow-springs having lugs connected to the parallel bars, the frame arranged upon and connected to said bow-springs and adapted to support a mattress and springs interposed between and connected to the opposite sides of the carriage and the receptacle or frame, substantially as specified.

578,898. **COMBINED SPREADER AND REGULATOR FOR THRESHING-MACHINES.** JAMES R. NUNAMAKER and MARCELLUS J. WILLIAMS, Ione, Oreg. Filed May 15, 1896. Serial No. 591,652. (No model.)

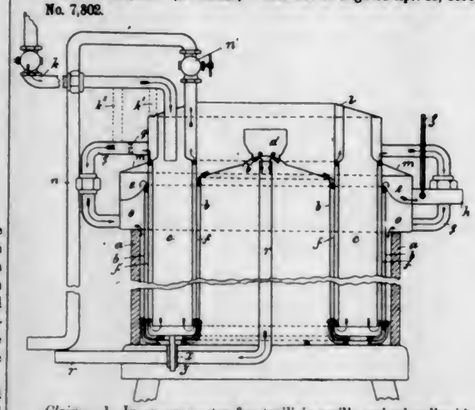
Claim.—1. In a feeder for threshing-machines, the combination with toothed bars, of a bed comprising a series of slats disposed alternately with the toothed bars, and means for supporting the bed at each end and admitting of the ends of the bed being independently or simultaneously adjusted vertically, substantially as set forth.

2. In a feeder for threshing-machines, the combination with the feeding mechanism comprising a series of elements disposed in parallel relation, of a series of slats forming a bed and alternating with the elements of the feeding mechanism, shafts having eccentric portions upon which the slats of the bed are mounted, a bearing of each slat being elongated longitudinally to admit of the effective distance between the eccentric portions varying when adjusting either end of the bed, and means for turning the shafts independently to raise or lower one or both ends of the bed, substantially as and for the purpose set forth.



3. In a feeder for threshing-machines, the combination of toothed bars, parallel shafts having eccentric portions upon which are mounted the end portions of the toothed bars, slats alternating with and arranged between the toothed bars and having their middle portions widened, and having the widened portions provided at one end with circular bearings and at the opposite end with elongated bearings, shafts arranged in a lower plane than the first-mentioned shafts and having eccentric portions mounted in the bearings of the widened portions of the slats, and means for independently turning the last-mentioned shafts for adjusting the slats vertically, substantially as and for the purpose set forth.

578,899. **APPARATUS FOR STERILIZING MILK, CREAM, &c.** ALEXANDER T. PFEIFF, Copenhagen, Denmark. Filed July 13, 1896. Serial No. 599,637. (No model.) Patented in England Apr. 13, 1896, No. 7,802.



Claim.—1. In an apparatus for sterilizing milk and other liquids, the combination with an exterior vessel, two interior annular vessels closed at their bottoms and of such relative cross-sections as to provide channels between the same and between the outer annular vessel and said exterior vessel, a closely-fitting lid over the innermost annular vessel, and an inverted bell suspended from said lid and extending to near the bottom of said innermost annular vessel, of means for admitting steam into said bell which divides into two streams in its passage through the apparatus, means for exhausting the steam from the apparatus, and means for admitting between said annular vessels the liquid to be sterilized and for discharging the same from the apparatus, substantially as set forth.

2. The combination with an exterior vessel, an annular vessel of less diameter arranged therein, a closely-fitting lid over the inner wall of said annular vessel and a second annular vessel arranged inside the first-mentioned annular vessel and of smaller cross-section, of a lid closely fitting over the top of the inner annular vessel, an inverted bell extending into said interior annular vessel to near its bottom, a pipe adapted to admit steam into said bell, exterior steam connections furnishing communication between said interior annular vessel and said exterior vessel, means for exit of the heating medium, and means for admitting the liquid to be sterilized between said annular vessels and for discharging the same from the apparatus, substantially as set forth.

3. The combination with an exterior vessel, two annular vessels arranged therein and of different cross-sections and of less diameter than said exterior vessel, a lid covering the top of the innermost annular vessel, an inverted bell extending into said innermost annular vessel, and means for admitting steam into said bell and permitting its passage in two streams from said innermost annular vessel, of a lid closely fitting over the inner wall of the exterior annular vessel and provided with an upwardly-bulged central portion, a steam-exhaust pipe the inner open end of which is within the bulged portion of said lid, and means for admitting the liquid to be sterilized between said annular vessels and for discharging the same from the apparatus, substantially as set forth.

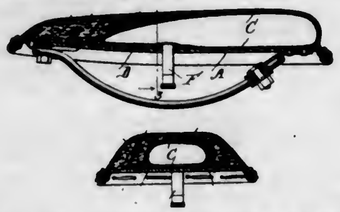
4. The combination with an exterior vessel, two annular vessels arranged therein and of different cross-sections and of less diameter than said exterior vessel, a lid covering the top of the innermost annular vessel, an inverted bell extending into said innermost annular vessel and means for admitting steam into said bell and permitting its passage in two streams through the apparatus, of a lid closely fitting over the inner wall of the exterior annular vessel, a steam-exhaust pipe the open end of which extends from near the under surface of said lid, and a funnel to receive the liquid to be sterilized provided with small perforations and arranged at the top of said lid whereby said liquid passes in a thin layer over said lid into the space between said annular vessels, substantially as set forth.

5. The combination with the exterior vessel *a*, the interior annular vessels *b f*, inverted bell *c*, and lids covering annular vessel *f* and the inner wall of annular vessel *b*, of means for admitting steam into the apparatus and for exhausting the same in two streams, and discharge-outlets for the water of condensation connected to the bottoms of said exterior vessel *a* and the interior annular vessel *f*, substantially as set forth.

6. The combination with exterior vessel *a*, and interior annular vessels *b f*, said exterior vessel *a* and annular vessel *f* connected by pipes *q* and channel *o* at the top of exterior vessel *a*, of steam inlet and outlet pipes and means for admitting the liquid to be sterilized between said annular vessels and discharging the same from the apparatus, substantially as set forth.

7. The combination with the exterior vessel *a*, interior annular vessels *b f*, and an annular channel *e* at the top of annular vessel *b*, of inverted bell *c*, lids *b' l*, means for conducting steam through the apparatus and discharging the same therefrom and means for admitting the liquid to be sterilized between annular vessels *b f* and discharging the same from the apparatus, substantially as set forth.

578,900. **BICYCLE-SADDLE.** JAMES E. PLEW, Chicago, Ill. Filed Sept. 14, 1896. Serial No. 605,811. (No model.)



Claim.—1. The combination with a practically rigid base, extending from front to the rear of a bicycle-saddle, with a soft or yielding nose or pommel superposed upon the forward part of such base and suitably secured in place; substantially as and for the purpose set forth.

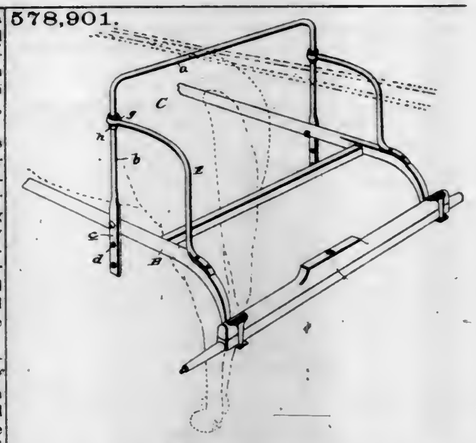
2. In a bicycle-saddle, the combination with a rigid base, extending from the front to the rear of the saddle and shaped and narrowed into a pommel or nose at the forward portion, with a superposed pneumatic cushion upon the pommel or nose, and suitably secured in place; substantially as and for the purpose set forth.

3. In a bicycle-saddle, the combination with a rigid base, extending from front to rear of the saddle and formed with a narrowed or nose portion and a widened or seat portion, with a superposed covering for the seat of comparatively inelastic material and a superposed pneumatic cushion for the nose or pommel portion and the whole covered with leather and fastened together; substantially as and for the purpose set forth.

578,901. **REIN-GUARD ATTACHMENT FOR SHAFTS.** ARCHIBALD B. RUE, Harrodsburg, Ky. Filed Sept. 3, 1896. Serial No. 604,702. (No model.)

Claim.—In a rein-support, the combination of a pair of shafts, the braces fixedly connected to the shafts and extending upwardly and forwardly and having the vertically-disposed eyes at their upper ends, the sleeves of rubber or other suitable material arranged in said eyes and having flanges bearing upon the same, and the support having the cross-bar and the arms depending from the ends of the cross-bar and extending through the rubber sleeves and the eyes of the braces and adjustably connected with the shafts substantially as specified.

578,901.



578,902. **SPRAYING-MACHINE AND PLUNGER THEREFOR.** ARTHUR H. RUGGLES, Los Angeles, Cal. Filed Feb. 4, 1896. Serial No. 578,017. (No model.)



Claim.—1. The combination set forth of the base provided with the annular base-seat and with the inlet-port and the outlet-port, each passing through the base and opening inside the base-seat; the air-chamber arranged with its lower end seated in the base-seat; the top or cap provided with the seat arranged to seat the top of the cylinder and seated upon such cylinder; the pump rigidly fixed to the cap and provided with the inlet and the outlet ports; a pipe arranged exterior to the cylinder and connecting the outlet-port of the pump with the inlet-port of the base; a discharge-pipe leading from the outlet-port of the base; a supply-pipe leading to the inlet-port of the pump, and suitable valves arranged to control the various passages.

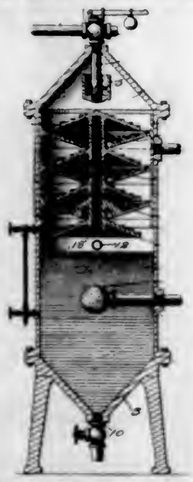
2. In a spraying-machine, the combination of the cast-metal base having the upwardly-projecting annular flange provided with the shoulder arranged to seat the bottom of the air-chamber cylinder, and having the inlet-port and the outlet-port passing through the flange below the shoulder; the air-chamber cylinder having its lower end seated upon the shoulder of the base-flange; the cap provided with a downwardly-projecting flange arranged to seat the upper end of the air-chamber cylinder, and having the pump-cylinder cast integral therewith; the packing arranged in the cylinder-seats; the pump having the inlet and the outlet ports; the pipe connecting the outlet-port of the pump with the inlet-port of the base; a discharge-pipe leading from the outlet-port of the base; a supply-pipe leading to the inlet-port of the pump; valves arranged to control the various passages; and the bolt-rods arranged to connect the base and the cap and to clamp them firmly upon the ends of the air-chamber cylinder.

3. In a spraying-machine, the combination of the cast-metal base having the upwardly-projecting annular flange provided with the shoulder arranged to seat the bottom of the air-chamber cylinder, and having the inlet-port and the outlet-port passing through the flange below the shoulder, and also provided with the screw-threaded openings arranged in the base outside of the flange; the air-chamber cylinder having its lower end seated upon the shoulder of the base-flange; the cap, provided with the downwardly-projecting flange arranged to seat the top of the air-chamber cylinder, and having the pump-cylinder cast integral therewith, and also provided with the bolt-holes arranged outside of the flange; the packing arranged in the cylinder-seats; the pump having the inlet and the outlet ports; the pipe connecting the outlet-port of the pump with the inlet-port of the base; a discharge-pipe leading from the outlet-port of the base; valves arranged to control the various passages; the bolt-rods having their lower ends screwed into the screw-threaded openings in the base, and their upper ends passed through the bolt-holes in the cap, and the nuts screwed upon the ends of the rods to clamp the base and the cap firmly against the ends of the cylinder.

4. In a pump, the plunger formed of drawn tubing having each end closed by means of a solid metal plug arranged to fit within the end of the plunger and provided with a shoulder arranged to fit

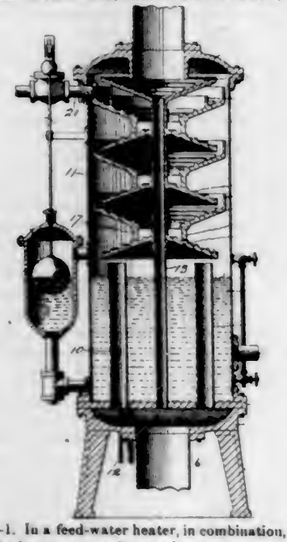
against the end of the plunger, one plug being provided with an upwardly-projecting ear, the plug and the tube being rigidly connected with each other by brazing or other suitable means, substantially as set forth.

578,903. **FEED-WATER PURIFIER.** WILBUR L. SHEPARD, Elmwood, Conn. Filed June 29, 1896. Serial No. 597,302. (No model.)



Claim.—A feed-water purifier consisting of a cylindrical shell with a conical cap and a conical base, a water-inlet passing through the conical cap and bearing a sprayer within the shell and a controlling-valve without the shell, a blow-out passing through the conical base and bearing a controlling-valve without the shell, a live-steam inlet passing through the shell above the middle, a feed-water outlet passing through the shell below the middle, said outlet being provided with a strainer, a shoulder formed on the inner walls of the shell, sediment-disks with central openings, flanged edges and annular ribs on their concaved upper surfaces, said flanges being superimposed and supported by the shoulder on the shell, and sediment-disks smaller in diameter than the former disks with central hubs and annular ribs on their convexed upper surfaces, said hubs being superimposed and supported at the center, substantially as specified.

578,904. **FEED-WATER HEATER.** WILBUR L. SHEPARD, Elmwood, Conn. Filed June 29, 1896. Serial No. 597,303. (No model.)



Claim.—1. In a feed-water heater, in combination, a shell with a hot-well in the lower part and a steam-chamber in the upper part, said steam-chamber being open to the hot-well, a steam-inlet above the hot-well, a steam-outlet below the hot-well, a water-inlet opening into the steam-chamber, a water-outlet opening from the hot-well, tubes extending from the steam-chamber above through the hot-well below to the steam-outlet, and sediment-disks located in the steam-chamber, substantially as specified.

2. In a feed-water heater, in combination, a shell with a hot well in the lower part and a steam-chamber in the upper part, said steam-chamber being open to the hot-well, a steam-inlet above the hot-well, a steam-outlet below the hot well, a water-inlet opening into the steam-chamber, a water-outlet opening from the hot-well, tubes extending from the top of the hot-well through the hot-well to the steam-inlet below, a tube extending from the top of the steam-chamber above through the steam-chamber and hot-well to the steam-outlet below, and sediment-disks located in the steam-chamber, substantially as specified.

3. In a feed-water heater, in combination, a shell with a steam-inlet, steam-outlet, water-inlet and water-outlet and having a hot-well and open steam-chamber, a disk located in the steam-chamber just below the steam-inlet for throwing back the steam as it leaves the inlet, said disk having an opening connected with a tube that extends to the steam-outlet for conveying away the matter separated from the steam, substantially as specified.

4. In a feed-water heater, in combination, a shell with a steam-inlet, steam-outlet, water-inlet and water-outlet and having a hot-well and open steam-chamber, sediment-disks located in the chamber, the upper of said disks being just below the steam-inlet for throwing back the steam as it leaves the steam-inlet, and a tube extending through the several disks and hot-well from the steam-inlet to the steam-outlet, substantially as specified.

5. In a feed-water heater, in combination, a shell with a steam-inlet, steam-outlet, water-inlet and water-outlet and having a hot-well and open steam-chamber, sediment-disks located in the steam-chamber, the upper of said disks being just below the steam-inlet and the others declining inward and outward so that the feed-water is caused to flow inward and downward, then outward and downward alternately from the water-inlet to the hot-well, and a tube extending from an opening in the upper disk through the other disks and hot-well to the steam-outlet, substantially as specified.

6. In a feed-water heater, in combination, a shell with a steam-inlet, steam-outlet, water-inlet and water-outlet and having a hot-well and open steam-chamber, sediment-disks located in the steam-chamber, the upper of said disks being just below the steam-inlet for throwing back the steam as it leaves the inlet and the other of said disks declining inwardly and outwardly alternately so the feed-water is caused to flow inward and outward in passing from the water-inlet to the hot-well, a tube extending from an opening in the upper disk through the other disks and hot-well to the steam-outlet, and tubes extending from the top of the hot-well through the hot-well to the steam-outlet, substantially as specified.

7. In a feed-water heater, in combination, a shell with a hot-well in the lower part, a steam-chamber in the upper part, said steam-chamber being open to the hot-well, a steam-inlet above the hot-well, a steam-outlet below the hot-well, a water-inlet opening into the steam-chamber, a water-outlet opening from the hot-well, sediment-disks located in the steam-chamber, and a passage for steam and overflow-water extending from near the lower of the sediment-disks downward through the hot-well to the steam-outlet below, substantially as specified.

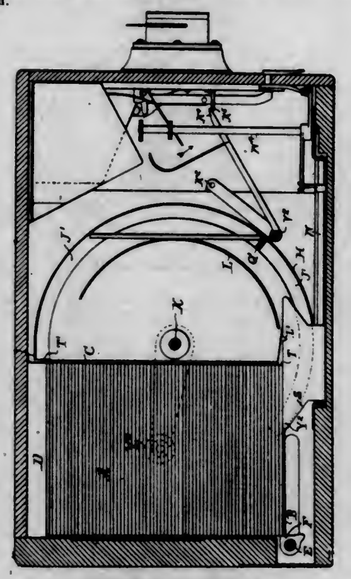
578,905. **MAGAZINE-CAMERA.** SAMUEL D. WILLIAMS, Newport, England. Filed June 14, 1894. Serial No. 514,622. (No model.) Patented in England Mar. 31, 1892, No. 6,243, June 7, 1893, No. 11,179, and Oct. 28, 1893, No. 20,379, and in France Apr. 4, 1893, No. 229,127.

Claim.—1. In a magazine-camera, the combination of a compartment for a quantity of separable films or plates normally out of the focal plane of the lens, a single handle rotatable only in one direction, a transferring device controlled by said handle and movable in one direction for moving the plate into the focal plane and thence into the compartment, and a cam for releasing the transferring device from the plate, as set forth.

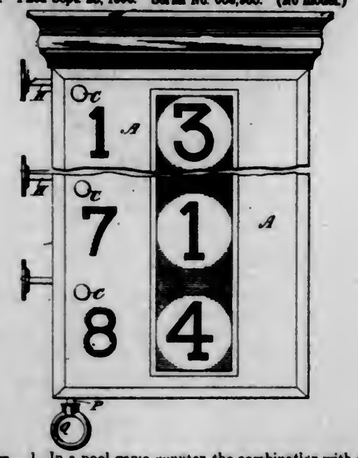
2. In a magazine-camera, the combination of a compartment for a quantity of separable films or plates, a single handle rotatable only in one direction, a transferring device controlled by said handle and movable in one direction for moving the film into the focal plane and thence back into the compartment, a cam for releasing the transferring device from the film, a rotatable disk separator for the films and connections with said handle for rotating said disk, as set forth.

3. In a magazine-camera, the combination of a compartment for a quantity of separable films, a revoluble disk separator, a spring-pressed telescope-shaft carrying the separator, an abutment for longitudinally moving the separated carrying-section of said shaft, means for exposing the separated film, and a lens, as set forth.

4. In a camera, the combination of the lens, the view-finder, a movable shutter carrying a mirror and having two openings each adapted to register with the lens, the one opening coacting with the mirror and the view-finder, and the other opening exposing the plate or film the said lens being common to the finder and to the plate or film, as set forth.



578,906. **POOL-GAME COUNTER.** FRANK B. WOOD, New York, N. Y., assignor to the Brunswick-Balke-Collender Company, Cincinnati, Ohio. Filed Sept. 25, 1896. Serial No. 606,935. (No model.)

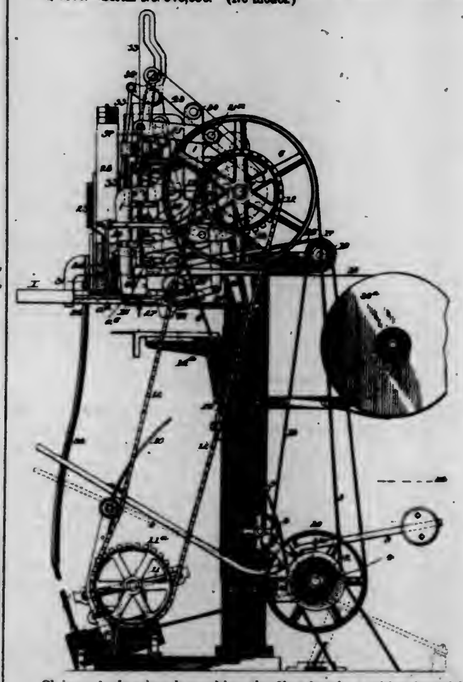


Claim.—1. In a pool-game counter, the combination with a suitable case having in its face a series of openings, for the display of a series of signs, or numbers, and a series of number, or sign drums, mounted so as to turn freely on a vertical shaft (in both directions); a series of ratchet-wheels each fast to one of said revoluble drums; a series of push-bars, one end of each of which protrudes through the side of said case, that it may be manipulated by hand and the other end of which operates as specified to actuate one of the said ratchet-wheels, and which, when in its normal position (or in a state of disuse) has its operative end, or point, located so that the said ratchet-wheel will be free to revolve in an opposite direction; the whole constructed, arranged and operating in the manner and for the purpose hereinbefore set forth.

2. In a pool-game counter, the combination with a suitable case, having a series of display-openings in its face, of the series of number, or sign drums; a series of mechanisms such as specified, under the control of the attendant for separately rotating said drums in one direction one number-space at a time; a series of detents under the control of the attendant; and a series of independently-acting springs, for effecting retrogade movements of the registering-drums; the combination being and operating so that after any one, or more, drums shall have been set to register a count, or score, any one or more of them can be separately set back one, or more, spaces, or counts, to register a reduction in a player's score, all substantially as hereinbefore set forth.

3. In a pool-game counter, the combination with a suitable case having a series of display-openings in its face, of the series of count-registering, revoluble, drums; means by which the attendant can rotate each of said drums independently to score a count; mechanism by which each drum can, under the control of the attendant, be returned, or set back, independently, one space, to effect a reduction in the score indicated; and means under the control of the attendant, by which all the registering, or counting drums, which may have been used during the scoring of the game, can be simultaneously returned to their initial position (so as to all register blank) or for reuse in a new game; the whole constructed, arranged and operating together in the manner and for the purposes hereinbefore described.

578,907. **BRUSH-MACHINE.** MCCLINTOCK YOUNG, Frederick, Md., assignor to the Palmetto Fiber Company, of Illinois. Filed Feb. 4, 1896. Serial No. 578,088. (No model.)



Claim.—1. In a brush-machine, the fiber-box in combination with the notched slide thereunder to separate a quantity of fibers to form a tuft, means for moving the slide under the box, the vertically-movable slotted slide, 32, to straddle the tuft, means for moving the said slide vertically, the slotted sliding guide 34, the driving-blade 37, means for moving said parts, a movable clamp adapted to grasp the wire to form a staple and present it beneath the guiding-slide, means for feeding the wire to the clamp and means for moving the latter, substantially as shown and described.

2. In a brush-machine the combination of a fiber separating and carrying blade, provided with a notch to gather a wisp of fiber and with a vertical opening adjacent to the notch to permit the downward passage of the fiber therethrough, and tuft-inserting mechanism adapted to carry the tuft downward through the blade.

3. In a brush-machine the combination with a wire-feeding mechanism of a movable clamp to receive a section of the wire, a movable slide adapted to bend a section of wire to form the staple and to retain the same temporarily, mechanism for moving the clamp with a section of the wire beneath the slide and means for driving the staple in the brush block.

4. In a brush-machine the combination with a fiber-box of a reciprocating slide provided with a notch to separate a wisp of fiber to form a tuft, means for reciprocating said slide, a slotted slide 32 to

straddle the separated tuft, a tuft-guide 66, means for reciprocating the same, wire feeding, cutting and carrying devices, a vertically-movable guiding-blade, a vertically-reciprocating driving-blade and means for operating said parts.

5. In a brush-machine the combination with the horizontally-movable notched slide adapted to separate a quantity of fibers to form a single tuft, of means for actuating the same, a vertically-movable fiber stop-plate having a depending finger adapted to be moved in the path of the separated tuft and formed with a slot to straddle the same, and means for securing said tuft in the brush-block.

6. In a brush-machine the combination of the driving-blade 37, of means for reciprocating the same, the lever 57 operatively connected to said blade to move bodily with the same, the guiding-slide 34 connected to the lever, and the fixed slotted frame engaged by the lever.

7. In a brush-machine the combination with the tuft separating and driving devices, of the wire-clamp movable bodily beneath the tuft-driving mechanism, means for feeding the wire to the clamp, means for cutting the wire and means for opening and closing said clamp to release and grasp the wire.

8. In a brush-machine the combination with the boring and tuft-inserting mechanisms and with means for driving said mechanisms simultaneously, of the support provided with studs, holders for the brush-blocks formed in their under sides with openings to receive the studs, and a device connecting and maintaining said holders fixedly with relation to each other a distance apart corresponding to the distance between the boring and tuft-inserting mechanisms.

9. In a brush-machine and in combination with the main frame, a belt-driven driving-pulley, 6, sustained thereby, a crank-shaft provided with pedals, a sprocket-wheel connected to said shaft, a second sprocket-wheel connected to the driving-pulley and a chain connecting said sprocket-wheels.

10. In a brush-machine and in combination with a tuft-driving device, means for operating it, a tuft guide or casing 66, movable in a direction transversely of the movement of the tuft-driver, and means for reciprocating the casing.

11. The combination with a boring mechanism of a tuft-inserting mechanism, means for operating said mechanisms simultaneously, a single supporting-table for the brush-blocks arranged beneath said mechanisms, two gage pins or stops fixed to the upper side of said table adjacent respectively to the said mechanisms, and two holders for the brush-blocks formed in their under sides to cooperate respectively with said gage pins or stops, substantially as described.

578,908. CHLOROCYANID SALTS AND PROCESS OF MAKING SAME. GEORGE J. ATKINS, London, England. Filed Oct. 3, 1896. Serial No. 607,763. (No specimens.) Patented in England Apr. 17, 1894. No. 7,648; in France Apr. 10, 1895, No. 246,546; in Belgium Apr. 10, 1895, No. 114,994; in Germany Apr. 11, 1895, No. 86,088; in Victoria Jan. 9, 1896, No. 12,801; in South Australia Jan. 10, 1896, No. 3,115; in New South Wales Jan. 11, 1896, No. 6,326; in Tasmania Jan. 13, 1896, No. 1,547; in New Zealand Jan. 27, 1896, No. 8,220, and in Western Australia Sept. 24, 1896, No. 747.

Claim.—1. The herein-described process of forming chlorocyanid salts or compounds consisting in fusing together a chlorid of an alkali and a compound of cyanogen with one or more bases, substantially as described.

2. The herein-described process of forming chlorocyanid salts or compounds consisting in fusing together ferrocyanid of an alkali such as potassium ferrocyanid and chlorid of an alkali such as sodium chlorid, substantially as described.

3. The improved chlorocyanid salts or compound consisting of a chlorid of an alkali and a compound of cyanogen fused together with one or more bases, one of which is electropositive to the metal to be dissolved.

4. The improved chlorocyanid salt or compound consisting of ferrocyanid of an alkali such as potassium ferrocyanid and chlorid of an alkali such as sodium chlorid fused together, substantially as described.

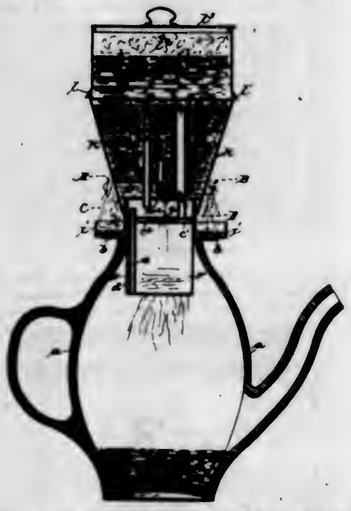
578,909. RAILROAD-LANTERN. EDWARD M. BARTRAU, Brookhaven, N. Y. Filed July 15, 1896. Serial No. 599,318. (No model.)

Claim.—In a railroad-lantern, the combination with the cylindrical base, of the lamp arranged therein, the annular shade-support, and the white shade supported thereon, the upright guides and the shade-holders sliding upon said guides, said shade-holders carrying shades of different colors, spring-clips at the bottom of the shade-holders, and the hinged arms, at the top of said shade-holders and the hinged levers connected to the bottom of said shade-holders, spring-clips for securing said levers in a vertical and horizontal position, all arranged substantially as shown and described.

578,909.



578,910. COFFEE-MACHINE. WARNERUS BORCHERS, Munich, Germany. Filed Apr. 5, 1895. Serial No. 544,634. (Model.)



Claim.—1. An apparatus for making coffee or the like, consisting of a boiler and a siphon connection leading therefrom, comprising a chamber *m* with a discharge-tube and tubes *o*, *p*, leading thereto having an intermediate space for compressed air at their upper ends, substantially as described.

2. In combination, a cylinder *d* having a flange to rest upon the coffee-pot, an alcohol-pan with an upwardly-extending ring or cylinder *k* to fit about the cylinder *d*, and a boiler above the pan having flaring sides and having a siphoning connection between itself and the cylinder *d*, substantially as described.

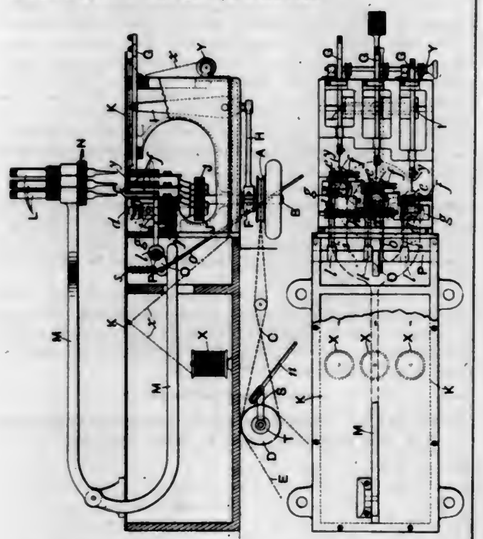
3. In combination, the cylinder *d* adapted to fit into the coffee-pot and having a sieve and an overflow-tube *e*, a water-boiler above the cylinder *d* and a siphon connection between the water-boiler and the cylinder *d*, substantially as described.

4. In combination in an apparatus for making coffee or the like, a boiler and a siphon connection leading therefrom comprising a chamber *m*, an outlet-tube therefrom, and a pair of tubes *o*, *p*, forming the connection between the boiler and chamber *m*, one of said tubes being closed at its upper end with an air-space between it and the upper end of the other tube and one of the said tubes having an open lower end connecting with the interior of the boiler.

578,911. TUCK-SEWING MACHINE. WILLIAM BOWDEN, Manchester, England. Filed Oct. 15, 1894. Serial No. 526,555. (No model.) Patented in England Apr. 30, 1894, No. 8,522, June 11, 1894, No. 11,257, and Sept. 3, 1894, No. 16,730.

Claim.—1. A tuck-sewing machine comprising a suitable bed-plate, a channel in said bed-plate provided with walls perpendicular to said bed-plate, means for folding the tuck in said channel, independent means for holding the tuck to receive the stitches and stitch-forming mechanism including a horizontally-arranged needle adapted to pass through the walls of the channel; substantially as described.

2. A tuck-sewing machine comprising a suitable bed-plate, a series of channels in said bed-plate each provided with walls perpendicular to said bed-plate, means for folding the tuck into said channels, independent means for holding the tuck to receive the stitches and stitch-forming mechanism including horizontal needles adapted to pass through the walls of the channels, said channels being arranged in different planes; substantially as described.



3. A tuck-sewing machine comprising a suitable bed-plate, a series of channels in said bed-plate each provided with walls perpendicular to said bed-plate, a series of adjustable depressors for folding the fabric in the channels, independent means for holding the tuck to receive the stitches and stitch-forming mechanism including horizontal needles adapted to pass through the walls of the channels, said channels being arranged in different planes; substantially as described.

4. In a tuck-sewing machine the combination with stitch-forming mechanism of a depressor, a presser-foot and means for simultaneously operating the depressor to form a fold in the fabric and forcing the presser-foot into holding contact with the latter; substantially as described.

5. In a sewing-machine the combination with stitch-forming mechanism of a vertically-movable depressor, a horizontal movable presser-foot and means for simultaneously operating the said depressor and foot, the one to fold the goods and the other to hold the folded goods to receive the stitches; substantially as described.

6. In a tuck-sewing machine the combination with the bed-plate having a plurality of channels in which the tucks are sewed, of means with which one of the side walls of each channel is provided, for varying its height, for the purpose of varying the width of the fabric between the tucks, substantially as described.

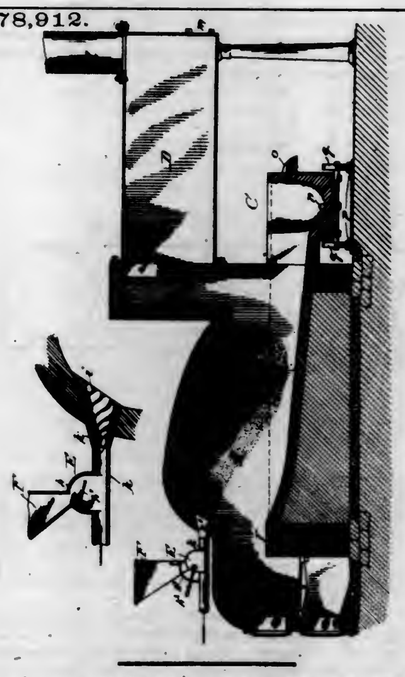
7. In a tuck-sewing machine, the combination with the bed-plate having a plurality of openings in which the tucks are sewed, of gage-pieces removably secured to one of the walls of each of said channels for varying the height thereof and thereby the width of fabric between the tucks, substantially as described.

8. In a tuck-sewing machine having a series of channels to receive the fold of the fabric and a series of depressors to form the fold, the combination with each channel of a presser-foot, a bar to which the same is secured, a spring in engagement with said bar for normally holding the presser-foot into contact with the tuck, and a cam adapted to engage said bar for forcing the presser-foot out of engagement with the tuck; substantially as described.

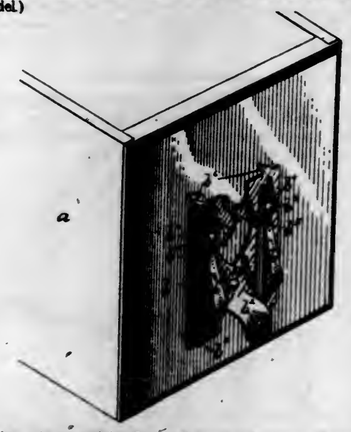
578,912. PROCESS OF REDUCING ORES. HENRY L. BRIDGMAN, Chicago, Ill. Filed May 22, 1895. Serial No. 550,943. (No specimens.)

Claim.—The combined process of roasting and smelting sulfur-bearing ores, which consists in finely subdividing the ore, spraying it into the upper part of the heated chamber by means of and in contact with air, whereby the sulfur is oxidized, allowing the desulfurized particles to subside upon the hearth of said chamber and effecting their reduction on said hearth, the two operations being carried on simultaneously and continuously, substantially as described.

578,912.



578,913. DRAWER-PULL AND SAMPLE-HOLDER. GEORGE W. CAMPBELL, Kenton, Ohio. Filed Mar. 25, 1896. Serial No. 584,892. (No model.)



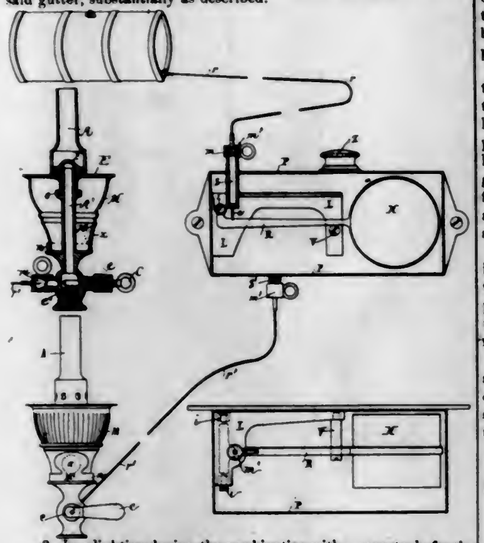
Claim.—As an article of manufacture, a drawer-pull and sample-holder formed from a single plate of metal by punching and bending the material thereof to form an outwardly and downwardly projecting handle and outwardly and upwardly projecting spring-arms each having a compound curve to form auxiliary bearing-surfaces adjacent to the plate, and fastening cleats or projections also formed from said plate, substantially as specified.

578,914. LIGHTING DEVICE. PIERRE J. CARNIEN, Montbéliard, France, assignor of two-thirds to Antoine Yvonnet, Roanne, and Marius Billion, Paris, France. Filed Aug. 8, 1896. Serial No. 602,124. (No model.) Patented in France Jan. 16, 1894, No. 235,498, and in England May 6, 1896, No. 10,568.

Claim.—1. In a vapor-burner, the combination with a receptacle for the lighting liquid, of a flexible capillary tube extending from the receptacle to the burner to feed the liquid constantly and regularly to the burner, substantially as described.

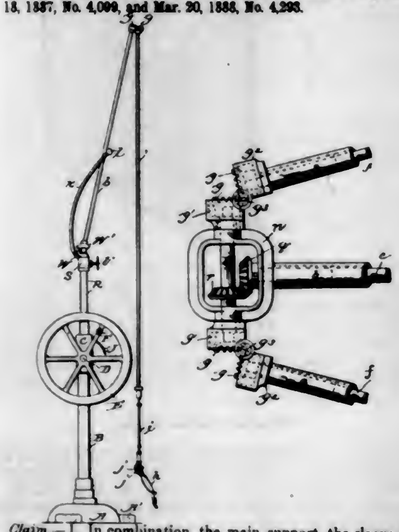
2. In a lighting device, the combination with a receptacle for the lighting liquid and means for feeding the liquid to a burner, of a burner provided with a supply-tube, a casing surrounding said supply-tube

to form a heating-chamber, an annular gutter located upon said supply-tube within said casing, and means establishing communication between said supply-tube and gutter to supply the lighting liquid to said gutter, substantially as described.



3. In a lighting device, the combination with a receptacle for the lighting liquid and means for feeding the liquid to a burner, of a burner provided with a supply-tube having a screw-threaded upper end, a casing surrounding said supply-tube to form a heat-chamber, a heating-disk located at the upper portion of said casing, an annular gutter located upon said supply-tube adjacent to said heating-disk, means for establishing communication between said supply-tube and gutter to supply the lighting liquid to said gutter, and a screw-threaded burner-cap adjustable in its relation to said gutter, substantially as described.

578,915. APPARATUS FOR DRIVING CUTTERS FOR CLIPPING HORSES, &c. WILLIAM CLARK, London, England. Filed Nov. 9, 1895. Serial No. 568,467. (No model.) Patented in England Mar. 18, 1887, No. 4,099, and Mar. 20, 1888, No. 4,293.



Claim.—1. In combination, the main support, the sleeve S, the piece W integral with said sleeve, the piece W' hinged to said piece W, the tube *b* on said piece W', the springs *k*, *k* fixed to W, with roller *l*, bearing on said tube *b* and holding it normally in a vertical position, substantially as and for the purposes set forth.

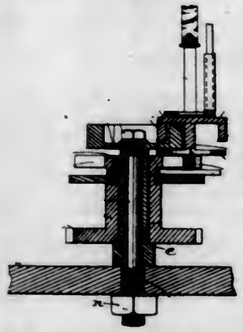
2. In combination, the main support, the shaft Q, gearing driving the same, the sleeve S rotatable about main support, the hinged box W, W' on said sleeve, the tube *b* on W' with contained shaft *c*, the gearing Z *a d*, in said box W W' driving said shaft *c*, while by means of said sleeve S, box W, W' and gearing Z *a d*, said shaft *c* is capable of rotative and angular movement in relation to said main support, the vertical springs *k*, *k*, secured to W, the roller *l* at their free ends bearing on said tube *b* to automatically raise said tube *b* to a vertical position when released, substantially as set forth.

3. In combination, the main support, the tube *h*, the shaft *c* therein, the springs *k k*, supporting the tube *b*, the shaft Q connected to the shaft *c* for driving the same, said shaft being capable of angular movement in a vertical plane and rotary movement in a horizontal plane, with relation to the said shaft Q, the tube *e* hinged to and hanging from the top of the tube *b*, the shaft *f* in said tube *e*, the gearing *g*, *g*, between the shafts *c* and *f*, the clipping instrument *h* flexibly connected to and driven by said shaft *f*, the said instrument *h* and shafts *c* and *f* being extensible in any direction from the main support, substantially as described.

4. In combination, the main support, the sleeve S, the piece W integral with said sleeve, the pieces W', W' hinged to said piece W, the tubes *b b* on said pieces W', the springs *k k* fixed to W, and supporting said tubes, the shafts *c c* within said tubes and driven from the shaft Q, by gearing Z, *a*, *d*, *d*, substantially as and for the purpose set forth.

5. In combination, the tube *b* with shaft *c*, the frame *n* with spindle *p*, the gears *q r* driving the spindle *p* from said shaft *c*, the tubes *e e* hinged to and hanging from said frame *n*, and the shafts *f*, *f*, in said tubes *e e* driven from said spindle *p* by gears *g*, *g*, *g*, *g*, substantially as and for the purpose set forth.

578,916. BRAIDING-MACHINE. OTTO DICKHAUS, Jersey City, N. J. Filed July 21, 1896. Serial No. 600,057. (No model.)



Claim.—1. In a braiding-machine, the combination with a bed-plate, upright shafts extending from the bed-plate, and race-plates arranged upon said upright shafts, said race-plates being provided with recessed flanges, of gear-wheels arranged on the upright shafts, rotary carriers connected with the gear-wheels, stationary spacing-plates arranged between the gear-wheels and the rotary carriers, and racers for carrying the bobbins, said racers being provided with parallel webs or flanges for engaging the flanges of the race-plates, and being operated by the carriers, substantially as set forth.

2. In a braiding-machine, the combination with a bed-plate, upright shafts extending from said bed-plate and race-plates fixed to the upright shafts and provided with recessed or notched flanges, of intermeshing gear-wheels provided with hubs turning on the upright shafts, radially-notched carriers connected with the hubs of the gear-wheels, abutting spacing-plates received on contracted portions of the hubs of the gear-wheels, and racers for the bobbins, said racers consisting of plates provided with depending webs or flanges adapted to engage the flanges of the race-plates and a guide-pin adapted to engage in the recesses of the rotary carriers, substantially as set forth.

578,917. PILE FABRIC. MARGUERITE DROLET, Montreal, Canada. Filed Feb. 8, 1897. Serial No. 622,468. (No specimens.) Patented in Canada Sept. 14, 1896, No. 53,465.

Claim.—1. A fabric consisting of a suitable backing having raised loops or tufts of wool or other material secured thereto, and an interposed layer of the same material, substantially as and for the purposes specified.

2. A fabric comprising a suitable backing, having raised loops secured thereto formed from strands of unspun wool, the ends of each strand being secured by a double stitch or knot, and an interposed layer of wool, substantially as and for the purposes specified.

3. A fabric comprising a suitable backing having raised loops formed from strands of unspun wool, the said strands passing through the backing and having their ends secured by a double stitch or knot and an interposed layer of wool, substantially as and for the purposes specified.



578,918. FILE FOR HOLDING PAPERS. GEORGE O. FARRER, Oconto, Wis. Filed Aug. 7, 1896. Serial No. 602,017. (No model.)

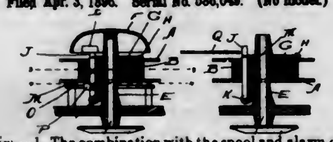


Claim.—1. The combination with the base and the hollow posts mounted thereon to rock, of the pivotally-mounted clip adapted to engage over the upper ends of said post, as set forth.

2. The combination with the base with its groove, of the rod mounted in said groove to rock, the hollow posts carried by the ends of said rod, and the pivotally-mounted clip adapted to engage over the upper ends of said posts, substantially as specified.

3. The combination with the base and the pivotally-mounted rod carrying hollow posts, of the pivotally-mounted clip and the wire having its ends extending at right angles to its length, substantially as and for the purpose specified.

578,919. INK-RIBBON MECHANISM. DORR E. FELT, Chicago, Ill. Filed Apr. 3, 1896. Serial No. 586,049. (No model.)



Claim.—1. The combination with the spool and alarm of a spring-lever J located upon the side of the spool and in which power is stored by the ribbon wound upon the spool, and means essentially as described for causing the lever to sound the alarm in cases where it is released gradually from the ribbon, substantially as specified.

2. The combination with the spool of the lever J lying alongside of the spool so it will be encircled by the ribbon and pivoted to the spool at one end, and a spring G acting to force the other end of the lever outward, and cause it to sound an alarm or actuate a reversing device, substantially as specified.

3. The combination with the spool, the spring and the lever, actuated by the spring of the ratchet-ring and the pawl upon the lever, substantially as specified.

4. The combination with the spool, the alarm, the spring and the lever actuated by the spring, of the ratchet-ring and the pawl upon the lever, substantially as specified.

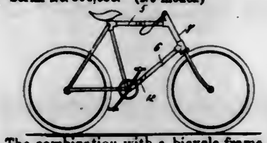
5. The combination with the rotating spool, of the spring, the lever actuated by the spring, both spring and lever being carried by the spool, and a stationary cam-surface also adapted to act upon the lever and compress the spring, substantially as specified.

578,920. PACKAGE FOR MUSTARD, &c. CHARLES GULDEN, Jr., New York, N. Y. Filed June 9, 1896. Serial No. 594,835. (No model.)



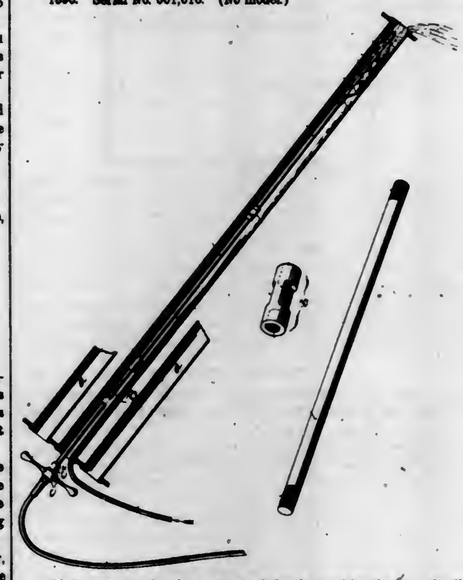
Claim.—In a package for mustard or analogous article of commerce, the combination of a bottle A having a lip 2, a concave arched spring-clasped member 1 partially surrounding the said lip and removable therefrom, a lid or cover 3 hinged to the said part 1 and provided with a clasp 4 and an aperture 8 for the passage of a spoon and a sealing-disk of cork or analogous material located beneath the cover and lugs or ears 6 thrown down from the cover and securing the said disk to the lid or cover by its rear edges only, substantially as described.

578,921. BICYCLE. FRED E. GUY, New York, N. Y. Filed June 18, 1896. Serial No. 596,058. (No model.)



Claim.—The combination with a bicycle-frame, connecting-bars of which are formed of hinged sections, the side of the bars adjacent to the hinged connection being flattened longitudinally forming cavities or recesses, whereby the outer portion of the hinge is flush with the surface of the section and a tubular clamp, the longitudinal sections of which are hinged at one side thereof, the free sides being provided with a longitudinal rib provided with clamping devices, substantially as described.

578,922. TUBE-CLEANER. HARRIS F. HALL, Jersey City, N. J., assignor of one-half to Nicholas B. Trist, Pittsburg, Pa. Filed Aug. 4, 1896. Serial No. 601,610. (No model.)



Claim.—1. A tube cleaner embodying in combination:—a flexible driving shaft,—means for occasioning the rotation of said shaft,—a rigid driving rod connected with and driven by said shaft,—a cleaning head connected and rotating with the outer end of the driving rod,—and a manipulating handle swiveled with respect to, and for controlling the longitudinal movement of, the driving rod and cleaning head,—substantially as set forth.

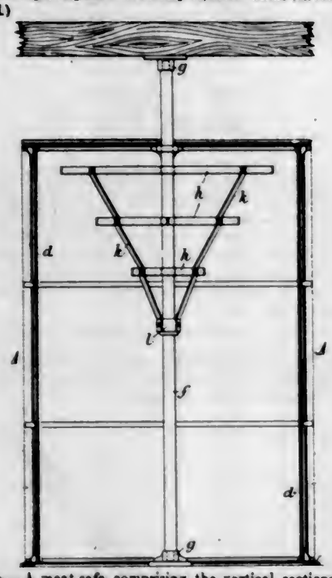
2. A tube cleaner embodying in combination:—a flexible driving shaft,—means for occasioning the rotation of said shaft,—a rigid driving rod connected with and driven by said shaft,—a cleaning head connected and rotating with the outer end of the driving rod and provided with circumferentially disposed cleaning rollers,—and a manipulating handle swiveled with respect to, and for controlling the longitudinal movement of, the driving rod and cleaning head,—substantially as set forth.

3. A cleaning head for a tube cleaner, composed of a plurality of longitudinally-extending carrying bars all connected together at both of their respective corresponding extremities, and each provided with a series of roller housings,—in combination with a plurality of cleaning rolls applied to said housings,—substantially as set forth.

4. A cleaning head for a tube cleaner, composed of a plurality of longitudinally-extending carrying bars all connected together at

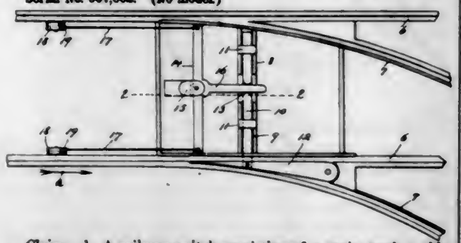
both of their respective corresponding extremities, and each provided with a series of roller housings,—in combination with an advance series of knife-edged cleaning rolls and a rear series of serrated cleaning rolls,—substantially as set forth.

578,923. MEAT-SAFE FOR BUTCHERS, &c. PHILIP HAMMOND, Attleborough, England. Filed July 22, 1896. Serial No. 600,136. (No model.)



Claim.—A meat-safe comprising the vertical sections A, each section consisting of a rectangular frame of angle-iron covered with screening material, the bolts securing the sides of said frames together, the rubber packing interposed between the junction of the sections, the channel-ring into which the lower ends of the sections fit, the revolving central pillar, the racks of different diameters about the same increasing from the bottom to the top of the series, each rack consisting of two semicircles the chords of which are clamped around the central pillar by bolts, and the cover or top of the safe having a central bearing for the revolving pillar, substantially as described.

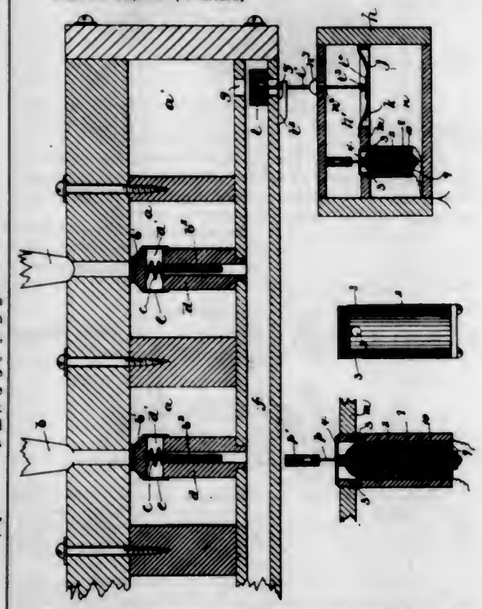
578,924. RAILWAY-SWITCH. ROBERT C. HART, New Haven, Conn., and ROBERT S. FIELD, Brooklyn, N. Y. Filed Sept. 26, 1896. Serial No. 607,062. (No model.)



Claim.—1. A railway-switch consisting of a main track a side-track adjacent thereto, a cross-head between said main track having in the upper portion a longitudinally-extending groove, a sliding bar actuating therein, cross-plates securing said bar in position, a switch-tongue pivotally connected with said sliding bar, said bar being provided midway thereof with a transverse groove having rounded side walls, a lever pivotally connected with a support, an arm secured centrally thereto and extending at right angles therefrom and passing through the said transverse groove, a rod secured to each end of said lever extending backwardly along the track a predetermined distance, a dog pivotally secured to each end of said rod, an upwardly-directed prong or projection secured to the free end of each of said dogs, a box or casing inclosing said cross-head and connecting parts and operating devices secured in the bottom of a car and adapted to act upon said switch mechanism, said parts being combined substantially as and for the purpose described.

2. An automatic railway-switch, a main track, a side-track adjacent thereto, a cross-head between said main rails a sliding bar secured in the upper portion of said cross-head, a switch-tongue pivotally engaging said bar, said bar being provided midway with a transversely-extending groove, a lever pivotally supported, an arm secured centrally thereto, a rod secured to either end of said lever and extending backwardly a predetermined distance along the track, a dog secured to the outer end of each of said rods, an upwardly-directed prong or projection in connection with each of said dogs, a casing engaging said operating parts, a car having on the bottom thereof a platform, a dashboard adjacent thereto vertically-movable bolts connected with said car between said axle, springs operating on said bolts, a lever pivoted in front of said bolts and engaging the same at their rear ends rods engaging the front ends of each lever, a second lever pivotally secured below the said platform and engaging the free end of said rod, an outwardly-directed arm engaging said last lever and means for actuating the same, all of said parts being combined substantially as and for the purpose described.

578,925. ELECTROPNEUMATIC ORGAN-ACTION. FRANCIS H. HASTINGS and FREDERICK J. FLANERTY, Weston, Mass., assignors to the Hook & Hastings Company, same place. Filed Mar. 12, 1896. Serial No. 582,848. (No model.)



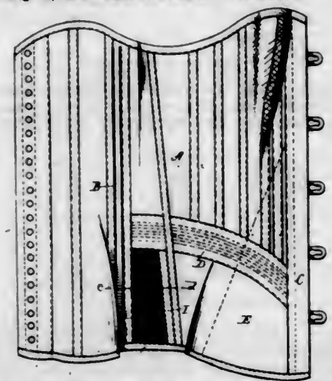
Claim.—1. In an apparatus of the character specified, an electromagnet comprising a tubular casing constructed to form a wind-passage between two chambers, a core and helix within said casing, and a loose armature formed as a valve adapted to close said wind-passage when the magnet is energized and to permit the movement of air in one direction therethrough when the magnet is demagnetized, the said armature-valve arranged to rest by gravity in closing position against the end of the casing and core.

2. In an apparatus of the character specified, the combination of a live-air chamber, a chamber separated therefrom by a partition having an air-passage, a loose armature-valve formed to close said passage, and arranged to rest by gravity in closing position and an electromagnet arranged to attract said valve and hold it in position to close said passage.

3. In an apparatus of the character specified, the combination of a live-air chamber, a chamber separated therefrom by a partition having an air-passage, a loose armature-valve formed to close said passage, an electromagnet arranged to attract said valve and hold it in position to close said passage, a pneumatic motor adapted to be operated by air-pressure when the valve is attracted by the magnet, and a valve closing the exhaust-port of the said second-named chamber and adapted to be opened by the operation of said motor.

4. In an apparatus of the character specified, the combination of a live-air chamber, a chamber having an exhaust-port and separated from the live-air chamber by a partition having an air-passage, an electromagnet having a tubular casing inserted in said passage, a loose armature formed as a valve adapted to close the passage, a diaphragm arranged to be moved by pressure in the live-air chamber when the valve is closed, an operating-rod connected with said diaphragm, and an exhaust-valve on said rod which closes the said exhaust-port when the diaphragm is depressed.

578,926. CORSET. FRANKLIN K. HICKOK, New Haven, Conn. Filed Aug. 10, 1896. Serial No. 602,227. (No model.)

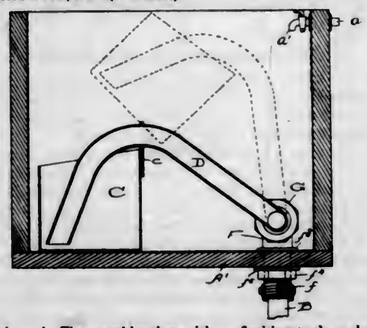


Claim.—1. The herein-described corset having a triangular-boned auxiliary section secured at its front edge to the front edge of the inner face of the corset proper, and at its lower edge to the lower edge of the corset proper, between which lines of attachment said section is free from the body of the corset, the bones of the said section extending parallel with the free edge thereof, substantially as described.

2. The herein-described corset, having a front section and a side stay, said front section comprising an upper boned portion and a lower unboned portion connected by a curved strip extending forward and downward from the said side stay, and an auxiliary boned stay extending from the forward edge of the corset rearward and downward over its inner face to the lower edge thereof, and so that the bones of the auxiliary stay cross the bones of the front section angularly at substantially the waist-line, substantially as described.

3. The herein-described corset having a front section and a side stay, said front section comprising an upper boned portion and a lower unboned portion connected by a curved strap extending downward and forward from the said side stay, an elastic section connected at its rear edge with the forward edge of said side stay, and at its forward edge to a short boned stay which extends downward from the lower edge of the curved strip to the lower edge of the corset, which short stay is secured to the lower unboned portion of the front section, substantially as described.

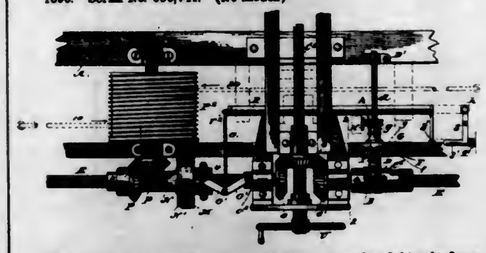
578,927. AUTOMATIC FLUSHING-TANK FOR WATER-CLOSETS, URINALS, &c. JOHN HOLLERAN, Notre Dame, Ind., assignor to the L. Wolff Manufacturing Company, Chicago, Ill. Filed Feb. 1, 1895. Serial No. 536,934. (No model.)



Claim.—1. The combination with a flushing-tank and its discharge-pipe, of a movable float-cup, a bent two-legged siphon extending over the top edge of the float-cup and having its open or free leg projecting down into the float-cup near the bottom thereof, and an elbow-coupling having its upright arm extending through the bottom of the flushing-tank and connected to said discharge-pipe, and its inner arm extending horizontally inside said tank, said siphon having at its inner leg a bent arm pivotally connected to the horizontal arm of said elbow-coupling, said float-cup being attached to said pivoted siphon and movable therewith, substantially as specified.

2. The combination with tank A of float C, pivoted siphon D connected to said float and provided with a bent end *d* forming the pivot of the float, and coupling F pivotally connected to the float, stuffing-box G, said pivoted end *d* of the siphon having a shoulder or flange *d'* and packing *g'*, and collar *g*, substantially as specified.

578,928. COMBINED SET-WORKS AND INDEX MECHANISM FOR SAWMILLS. ROBERT D. INMAN, Portland, Oreg. Filed Sept. 23, 1896. Serial No. 606,741. (No model.)



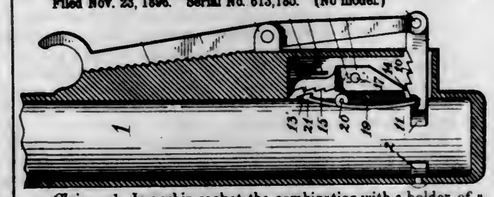
Claim.—1. A sawmill-carriage having a main drive-shafting rotated in reverse directions by the reciprocal movement of the carriage, screw-shafts for operating the knees, geared with such drive-shafting, the shaft *d* geared with the main drive-shafting, index devices mounted on the shaft *d*, said devices consisting of an indexing-wheel slidable and rotatable on the shaft *d*, said wheel having a clutch member, a fixed clutch member held on the shaft *d*, lever devices for sliding the rotatable wheel clutch, in engagement with the fixed clutch and means for rotatating the sliding wheel back to a normal or zero position as set forth.

2. In a sawmill-carriage, the combination with a main drive-shaft operated by the movement of the carriage, a knee-setting mechanism having a drive-shaft, having clutch-gear connections with the main drive-shaft, of an indexing device comprising a drive-shaft geared with the main drive-shaft, a clutch index-wheel fixedly held on such shaft, and index clutch-wheel held to rotate and slide on the shaft *d*, automatically rotated to a reverse or normal position when released from the fixed clutch-wheel and lever devices for shifting the slidable wheel in engagement with the fixed clutch-wheel as specified.

3. In a sawmill-carriage, the combination with the knees and the knee-setting mechanism, of an index means consisting of a drive-shaft geared with the setting mechanism a clutch-wheel fixedly held on the shaft, a sliding clutch-wheel loosely held on the shaft having index-marks on its periphery, a pointer, a lever for moving the slide-wheel in engagement with the fixed wheel and means for returning the index-wheel to normal position substantially as shown and for the purposes described.

4. In a sawmill-carriage as described, the combination with a knee, a screw-shaft for operating same, the shaft E geared with the screw-shaft, the operating-drum P^3 the sliding clutch N having gear P geared with the drum-shaft, the rock-shaft R, means for holding it to its normal position, the sliding disk M, toggles O' O' the pitman O all being arranged in the manner substantially as shown and described.

578,929. WHIP-SOCKET. ALLEN T. IRION, Morrisonville, Ill. Filed Nov. 23, 1896. Serial No. 613,185. (No model.)



Claim.—1. In a whip-socket, the combination with a holder, of a movable bar adapted to bind upon or clamp the whip, said bar being provided with teeth, a movable locking-bolt adapted to engage with said teeth and said bolt having teeth, and a member adapted to engage with the teeth of the locking-bolt.

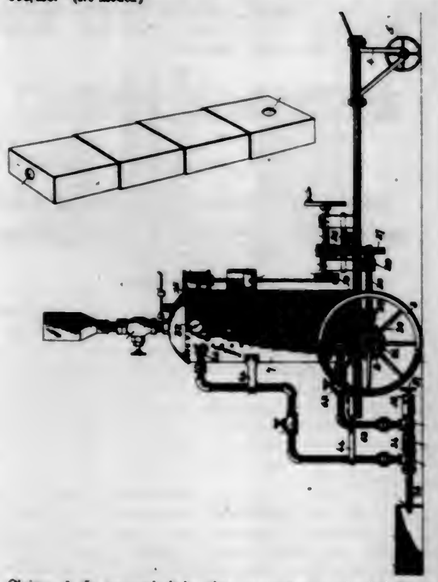
2. In a whip-socket, the combination with a holder, of a bar provided with teeth and adapted to bind on the whip, a movable locking-bolt adapted to engage with the teeth of the bar and also having teeth on its surface, a spring-pressed member normally in en-

gagement with the teeth of the locking-bolt, and a pivoted lever which is also pivoted to the bar.

3. In a whip-socket, the combination with a holder, of a clamping-bar having teeth and adapted to bind on the whip, a spring serving to retract said bar, a movable bolt adapted to engage with the teeth of the bar, and means for locking said bolt.

578,930. ASPHALT-PAVEMENT-HEATING APPARATUS.

CHARLES H. JOHNSON, Buffalo, N. Y. Filed July 8, 1896. Serial No. 598,433. (No model.)



Claim.—1. In an asphalt-heating apparatus, a wheeled frame having a main driving-axle, a reservoir-tank supported on the frame and adapted to hold oil and air under pressure, a hydrocarbon-burner having suitable pipe connections with the tank, an air-pump supported by the tank and having a delivery-pipe connection therewith, a suitably-supported operating-shaft having a pitman connection with the air-pump, gearing connections between said operating-shaft and the driving-axle, means for throwing said shaft out of gear with the driving-axle, and means manually to operate the said operating-shaft, substantially as set forth.

2. In an asphalt-heating apparatus, the combination of a reservoir-tank adapted to hold oil and air under the same pressure, a hydrocarbon-burner having separate oil and compressed-air supply pipe connections with the tank, and means for automatically charging the tank with compressed air by the forward or backward movement of the apparatus, substantially as set forth.

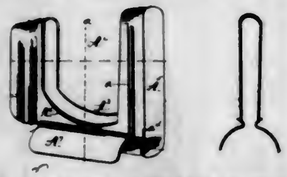
3. In an asphalt-heating apparatus, a wheeled frame having a main driving-axle, a reservoir-tank supported on the frame and adapted to hold air and oil under the same pressure, a hydrocarbon-burner having separate oil and compressed-air supply pipe connections with the tank, an air-pump supported at one side of the tank and having a delivery-pipe connection with the upper part thereof, a fixedly-positioned gear-pinion supported on the frame and having suitable driving connections with said driving-axle, an operating-shaft supported on the frame and carrying at one end a crank-disk having a pitman connection with the air-pump, and at its opposite end a crank-handle, and an adjustable pinion feathered for a sliding movement on said operating-shaft and adapted to mesh with said fixedly-positioned gear-pinion, substantially as set forth.

4. In an asphalt-heating apparatus, the combination with a hydrocarbon-burner, of an open-bottom pavement-hood comprising a series of telescoping box-sections and provided in one side with an orifice for the reception of the nose of the burner, the telescoping sections permitting of an adjustment of the box to cover different areas of pavement, substantially as set forth.

5. A hydrocarbon-burner comprising an outer casing-tube having a coupling-head at one end and a conical nose with discharge-orifice at the other end, a plug in one end of the coupling-head, an inner oil-tube arranged longitudinally within the casing-tube and provided at one end with a conical nose registering flat against the inner surface of the nose of the outer tube and provided in said nose with a series of exterior longitudinally-disposed air-distributing grooves or channels serving to discharge air into the discharge-orifice of the outer tube, said oil-tube being extended at one end through the plug at one end of the coupling-head, a valve-casing fitted on the projecting end of the oil-tube and having an interior valve-seat and an oil-supply-pipe connection, an air-supply-pipe connection with the outer casing-tube, and an adjustable valve-stem mounted in the valve-casing and carrying at its inner end a valve-disk and a needle-valve, said needle-valve extending longitudinally through the oil-tube and provided with a flat outer end working in the discharge-orifice of the inner oil-tube, substantially as set forth.

578,931. TEMPORARY CARTRIDGE-HOLDER.

THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 23, 1896. Serial No. 606,757. (No model.)



Claim.—1. A temporary cartridge-holder having a transversely-arranged finger-passage intersecting its closed outer edge, and extending nearly to its open inner edge, and having outwardly-turned guard-flanges located at its inner end for protecting the fingers and stiffening the holder.

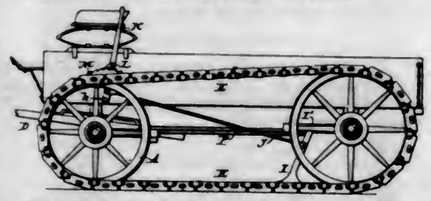
2. A temporary cartridge-holder having a transversely-arranged finger-passage and a locating-finger extending inward, and adapted to engage with the firearm to hold the holder against endwise displacement.

3. A temporary cartridge-holder having a transversely-arranged finger-passage intersecting its closed outer edge, and extending nearly to its open inner edge, guard-flanges located at the inner end of the said passage, two locating-flanges located at the inner edges of the side walls of the holder, and a locating-finger situated at the rear end of the holder which is closed.

4. A temporary cartridge-holder made from a single piece of sheet metal U-shaped in cross-section, tapering in width and thickness from its forward to its rear end, having its rear end closed and its forward end open, constructed with a transversely-arranged finger-passage, and provided with guard and locating flanges and a locating-finger, and formed with one or more cartridge-retaining ribs, and with a plurality of vertically-arranged corrugations.

578,932. TRACTION-WHEEL.

JAMES A. JUSTICE, Macoy, Ark. Filed June 3, 1896. Serial No. 594,069. (No model.)



Claim.—1. In a traction-engine a chain composed of inner and outer sections, the outer one forming a track and the inner one a path on which the wheels travel, combined with a brake-shoe arranged within the inner section, substantially as described.

2. A chain for a traction-vehicle comprising outer links having flanges and inner links of less width having their ends connected with the outer links and their flanges convex upon their adjacent faces, with the flanges of the inner links disposed opposite the spaces between the outer links, substantially as described.

3. A chain for a traction-vehicle comprising outer links having flanges and inner links of less width having their ends connected with the outer links and their flanges convex upon their adjacent faces, combined with a shoe pivotally mounted on the frame and traveling within the inner section of the chain, substantially as described.

4. A chain for the purpose described, comprising outer links having flanges and inner links of less width having flanges which are convex on their adjacent faces and extensions passed through transverse slots in the body portions of the outer links and bent in opposite directions to flexibly connect the inner and outer links to form a double chain, substantially as described.

578,933. LONG-SCREW PIPE COUPLING AND FITTING.

WILLIAM H. LE CHARD and JOHN A. BEST, Atlantic City, N. J. Filed Oct. 15, 1896. Serial No. 565,736. (No model.)



Claim.—1. In a pipe-coupling, a pipe having a plain surface, and a threaded surface at each end of the plain surface, one of said threaded surfaces being adapted for connection with a mating pipe or union, a packing ring or collar whose diameter is approximately equal to that of the pipe at its plain surface, while the thickness of the packing-ring is less than the length of the plain surface of the pipe, whereby said ring is adapted to slide on said plain surface, and a nut screwing on the other threaded surface to compress the said ring, substantially as described.

2. In a pipe-coupling, a pipe having a plain surface, and a threaded surface at each end of the plain surface, one of said threaded surfaces being adapted for connection with a mating pipe or union, a packing ring or collar of unbroken continuity and of a thickness smaller than the length of the said plain surface whereby the ring is adapted to slide on said plain surface, and a nut screwing on the other threaded surface of the pipe and adapted to compress the packing-ring, substantially as described.

3. In a pipe-coupling, a pipe having a plain surface and a threaded surface at each end of the plain surface, a packing ring or collar substantially wedge-shaped in cross-section and adapted to slide on the plain surface of the pipe, and internally-threaded tubular pipe-sections or nuts screwing on the threaded surfaces of the pipe, said sections having their ends opposed to the packing-ring conically recessed or cupped to conform to the shape of the side surfaces of the collar, said sections being adapted to engage and compress the packing-ring, substantially as described.

4. In a pipe-coupling, a pipe-section having a plain exterior surface located between two threaded surfaces, a packing ring or collar mounted on the plain surface, a lock or jam nut located upon the threaded surface, and having its end opposed to the packing ring or collar shaped to conform to the side surface of the same, and a fitting or like socket, having its outer face provided with a recess conforming in shape to the side contour of the packing ring or collar, whereby the ring or collar may be compressed within the outer recessed portion of the socket and the lock or jam nut, as and for the purpose specified.

5. In a pipe-coupling, a pipe having a plain portion and a threaded surface at the end of the said plain portion, a packing ring or collar of less thickness than the length of the plain portion of the pipe, whereby said ring is adapted to slide longitudinally on said plain portion or surface, a nut screwing on the threaded surface of the pipe to engage one end of the packing-ring, and an abutment located at the other end of the plain portion or surface and adapted to engage the opposite end of the packing-ring, substantially as described.

578,934. GAS-LIGHTING.

JOSEPH R. DE LÉRY, New York, N. Y. Filed June 29, 1896. Serial No. 597,405. (No model.)

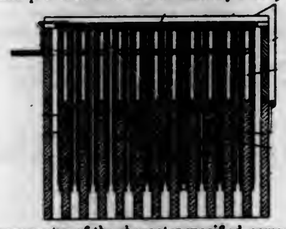


Claim.—The combination with a gas-burner adapted to throw a series of flames into the form of a crown, of a circular or disk-like web or netting of incandescing material arranged above the crown of flame in a horizontal plane, at such a level as to be struck by the tips of the flames only, substantially as described.

578,935. APPARATUS FOR MAKING INDEXES.

WILLIAM W. LE SEUR, Boston, Mass. Filed June 18, 1896. Serial No. 596,040. (No model.)

Claim.—1. An apparatus of the character specified, comprising a supporting frame or holder and a series of narrow elongated supports therein, separated by spaces adapted to receive groups of leaves, said spaces having stops or abutments at one or both ends, each support being formed to fit the back or connection between two groups of leaves, and provided with means whereby it may be heated.



2. An apparatus of the character specified, comprising a supporting frame or holder, a series of narrow elongated hollow supports therein, relatively arranged as described, and means for heating said supports.

3. An apparatus of the character specified, comprising a supporting frame or casing, a series of narrow elongated supports therein, having their upper edges below the level of the top of the holder, a fixed overhanging flange at one end of the casing, a movable flange at the other end of the casing and an intermediate cross-bar or clamp.

578,936. METALLIC PICTURE-FRAME.

RUDOLPH LIEBMANN, New York, N. Y. Filed Jan. 11, 1897. Serial No. 618,722. (No model.)



Claim.—1. A metallic picture-frame composed of an open flanged front, a flanged back, and an intermediate transparent covering for the picture; said front having one of its flanges bent down on the covering to form an opening for the insertion of the picture, and having the remaining flanges closed over the flanges of the back, substantially as described.

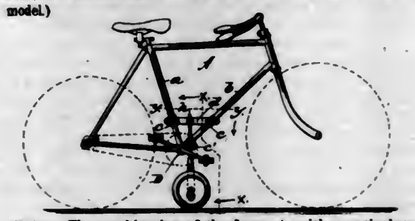
2. A metallic picture-frame composed of an open flanged front, a flanged back, and an intermediate transparent film held between the front and back; said front having one of its flanges bent down on the film to form an opening for the insertion of the picture, and having the remaining flanges closed over the flanges of the back, substantially as described.

3. A metallic picture-frame composed of an open flanged front, a flanged back having an opening therein to permit of the removal of the picture, and an intermediate transparant covering held between the front and back; said front having one of its flanges bent down on the covering to form an opening for the insertion of the picture, and having the remaining flanges closed over the flanges of the back, substantially as described.

4. A metallic picture-frame composed of an open flanged front, a flanged back provided with a supporting or suspending device, and an intermediate transparent covering held between the front and back; said front having one of its flanges bent down on the covering to form an opening for the insertion of the picture, and having the remaining flanges closed over the flanges of the back, substantially as described.

578,937. BICYCLE-SUPPORT FOR LEARNERS.

ISAAC N. LINCOLN, Providence, R. I. Filed Dec. 22, 1896. Serial No. 616,642. (No model.)



Claim.—The combination of the frame A, with a vertical standard B having steel rods A secured thereon, and adapted to embrace the lower portion of said frame, with the adjustable clamps c c hav-

ing side bosses formed thereon, connecting-bars *d d* provided with elongated slots *f f* and set-screws *e e* for securing the bars to the bosses of the clamps, said connecting-bars having vertical bearings *g g* centrally formed thereon, with adjusting-bolts *i i*, the clamp *c* having side vertical bearings *g g* with adjusting-bolts *i i*, said bearings of the connecting-bars and clamp adjusted in alinement with each other, respectively, to receive the rods *h h* of the standard and giving adjustment to the same, with means for adjusting the wheels C to the standard substantially as shown and described.

578,938. **ROTARY PUMP.** FRANK MARBURG, Jr., New York, N. Y. Filed Sept. 16, 1896. Serial No. 606,027. (No model.)



Claim.—1. In a rotary pump, the combination with a casing having in it induction and eduction chambers, piston and abutment chambers, and induction and eduction ports, of a rotating piston having projecting piston-heads adapted to engage corresponding recesses in the abutment, and a rotary abutment having in it cross-ports connecting the oppositely-arranged recesses therein, the said casing having in it ports connecting the abutment-chamber with the respective induction and eduction chambers and situated so as to be in communication with that piston-recess in the abutment which is being engaged by the piston-head as the pump operates, substantially as set forth.

2. In a rotary pump, the combination with a casing having in it induction and eduction chambers, piston and abutment chambers, induction and eduction ports arranged symmetrically in pairs about the piston-chamber, recesses 43 in the walls of the abutment-chambers and opposite the respective induction and eduction ports, and ports leading from two of said recesses to the induction-chamber and from the other two to the eduction-chamber, of the rotary piston 15, having piston-heads 19, and the rotary abutments, 25, 26, having recesses to receive said piston-heads, said recesses being in pairs, the elements of which are oppositely arranged, and said abutments having ports 11, connecting the opposite recesses of each pair, whereby when a piston-head is entering a recess in the abutment, the said recess will be opened for the escape of the incarcerated liquid.

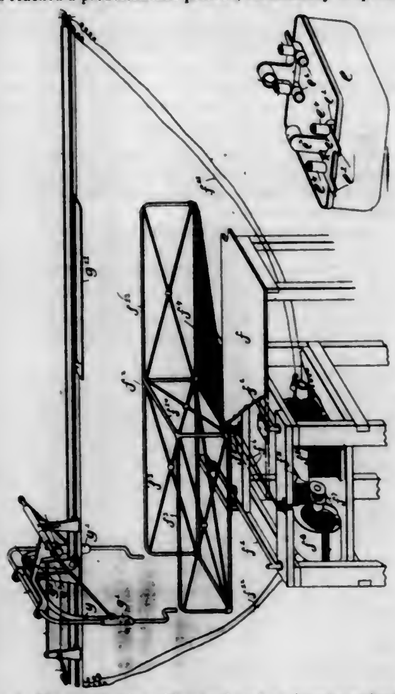
578,939. **ELECTRIC CARRIER APPARATUS.** HARRY M. NEER, Springfield, Ohio, assignor to O. S. Kelly, same place. Filed July 25, 1896. Serial No. 600,560. (No model.)

Claim.—1. In a carrier apparatus, a carrier-track and working conductors and substations along the line of said track, stationary auxiliary conductors adjacent to and parallel with said working conductors, and motors at said substations adapted to be thrown in circuit with said auxiliary conductors, a traveling car on said track, and means on said car for connecting said auxiliary conductors with the working conductors, substantially as specified.

2. The combination with a track and a car operating thereon, main conductors adjacent to said track, electric motors on said car supplied from said main conductors, substations along said track and receptacle-supporting devices at said substations, motors at said substations for operating said supporting devices, and means, as described, for throwing said station-motors into circuit with the main conductors by the operation of said car, substantially as specified.

3. The combination with a track and a car thereon, main conductors adjacent to said track, an electric motor or motors on said car supplied from said conductors, substations having supporting devices for carrying receptacles adapted to be engaged by said car, and traveling means at said substations for moving said receptacles into and out of position to be engaged by said car, and motors at said substations to operate said traveling devices, and branch circuits including said station-motors adapted to be connected to the main conductors by the operation of the traveling car, substantially as specified.

4. A track, a car traveling on said track, electric motors on said car, and conductors adjacent to said track to supply said car-motors, a traveling frame adapted to support one or more receptacles thereon, and an electric motor for operating said traveling frame, a normally open branch circuit from the main conductors through said station-motor, and means for closing said branch circuit to cause the current to pass through said station-motor when the traveling car has reached a predetermined position, substantially as specified.



5. The combination with a track and an electric carrier thereon, a traveling frame adapted to support receptacles to be engaged by said carrier, a motor for operating said traveling frame, and means, substantially as described, for operating said motor whenever the car has reached a predetermined position, substantially as specified.

6. The combination with a traveling frame and a receptacle thereon, a track having a traveling car thereon adapted to engage the receptacle on said frame, an electric motor for operating said traveling frame, said motor being in a normally open circuit including a switch as described, and means in said circuit for establishing an electrical connection through said motor by the operation of the traveling car when said switch has been closed, substantially as specified.

7. The combination with the traveling car and its supporting-track, of a substation having a traveling frame, supporting-rails on said frame for supporting receptacles to be engaged by said car, detachable supports for supporting said frame in proximity to the line of travel of said car, and means on said car for detaching said supports when the car has engaged the receptacle, substantially as specified.

8. The combination with a track and a car adapted to travel thereon, and a receptacle carried by said car, a substation having a traveling frame and detachable supports for said frame, one of said supports being adapted to be operated by the moving car to release said frame to cause it to move a limited distance, and the other support being adapted to be operated by a receptacle on said frame to completely release said frame and cause it to move with said receptacle, substantially as specified.

9. The combination with the track, a car thereon, and a receptacle adapted to be carried by said car, a substation adjacent to said track, a traveling frame at said substation, an electric motor arranged in a circuit adapted to be closed by said car to move said traveling frame, and two independent supports for said frame adapted to support the same when moved by said motor, means on said car for detaching one of said supports to produce a limited movement of said frame, and an intermediate device adapted to be operated by said receptacle to detach the second support from said frame and permit the same to move with said receptacle, substantially as specified.

10. The combination with the track, a car thereon, a receptacle adapted to be carried by said car, and a traveling frame adapted to support said receptacle adjacent to the line of travel of said car, stops on said frame to prevent a movement of said receptacle, and two independent detachable supports for said frame, one of said supports having means operated by said car to detach the same to permit the frame to be engaged by the second support when the receptacle is engaged by said car, and means connected with said second support for detaching the same to permit the frame to move with said receptacle when said receptacle is deposited from said car on said frame, substantially as specified.

11. The combination with the track, a car moving thereon, electric motors on said car, and a main circuit for supplying current to said motors, a station having a moving frame, and a motor for operating said frame, and auxiliary conductors connected to said station-motor adapted by the operation of said car to be brought in circuit with said main conductors, two independent detachable supports for said frame, one of said supports being adapted to be operated by said car to produce a limited movement of said frame, and the other support being adapted to be operated by the receptacle deposited from said car onto said frame, substantially as specified.

12. The combination with the track and a car thereon, a receptacle adapted to be carried by said car, an electric motor or motors on said car, and a main circuit for supplying current to said motor or motors, a traveling frame adjacent to said track, a motor adapted to operate said frame, and an auxiliary circuit including said motor, and means for connecting said auxiliary circuit to the main conductors by the operation of said car, two independent supports for said traveling frame, one of said supports being adapted to be detached by said car, and the other support being adapted to be detached by the receptacle discharged from said car, and a switch in said auxiliary circuit, substantially as and for the purpose specified.

13. The combination with a track, a motor-car thereon, and a main circuit for furnishing electric current to said motor, a series of substations along the line of said track, and receptacles at said substations adapted to be engaged by said car, and a central or receiving station having a traveling frame, and independent motors for operating said frame in opposite directions, and auxiliary circuits from said motors extending to points on said track on opposite sides of said receiving-station, and means for alternately closing said auxiliary circuits as the car approaches and leaves said station to cause said frame to move in opposite directions at said station, substantially as specified.

14. The combination with a track and a car thereon, substations arranged adjacent to said track, and a central or receiving station, a traveling frame at said receiving-station, said frame being divided into two parts, one part being adapted to receive receptacles from said traveling car, and the other part being adapted to support receptacles to be received by said car, removable stops supported adjacent to said track and adapted to retain the receptacles on said frame, and movable devices connected with said stops to cause said stops to be alternately moved away from and toward said traveling frame as the car passes said central station, substantially as specified.

15. The combination with a track and a car moving thereon, receptacles adapted to be carried by said car, and a frame for supporting said receptacles, movable stops arranged adjacent to said track and adapted to engage said receptacles on said frame, and operating devices adjacent to said track adapted to be successively moved by said car to withdraw and return said stops as said car passes said station, and means on said car for engaging said receptacles, substantially as specified.

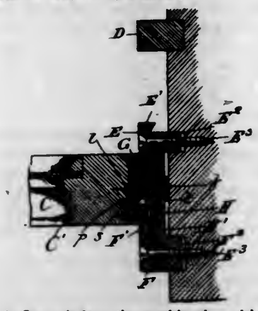
16. The combination with a moving car having longitudinal supporting-rails, and a receptacle adapted to be supported in proximity to the line of travel of said car and having engaging projections to engage said rails, said car being provided with friction-rollers adapted to engage on opposite sides and on top of said rails to permit said receptacle to move from end to end of said supporting-rails, substantially as specified.

17. The combination with a moving car and receptacles carried thereon, a movable frame arranged adjacent to the line of travel of said car, and a stationary table adjacent to said frame, said frame being adapted to contact with said receptacles to cause the same to fall partly on said table and partly on said frame, and means, substantially as described, for moving said frame to cause the receptacles to be deposited on said table, substantially as and for the purpose specified.

18. A motor-car consisting of independent trucks, and a frame pivoted to and depending from said trucks, independent motors at each end of said trucks, and track-wheels on the armature-shafts of each of said motors, and a track below said armature-shafts and wheels and on which said wheels run and on which the car is supported whereby the center of gravity of said motors is carried above the track-rails and the center of gravity of the motor-frame and the load below the track-rails, substantially as specified.

19. A motor-car consisting of independent trucks, and a frame pivoted to and depending from said trucks, independent motors at each end of said trucks, and a track arranged between said motors, and track-wheels on the inner ends of the armature-shafts of said motors above and adapted to rest on said track so that the center of gravity of the motors is carried above the track-rails and the center of gravity of the motor-frame below the track-rails, substantially as specified.

578,940. **WINDOW.** JACOB ORT, Wahoo, Nebr. Filed July 18, 1896. Serial No. 599,754. (No model.)

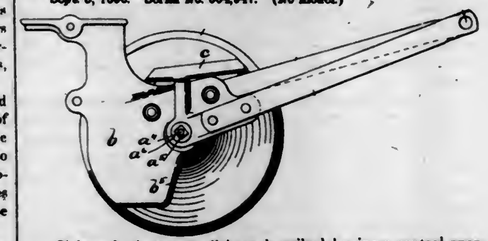


Claim.—1. In a window, the combination with a sash and frame, of separable suspending-stiles in which the sash is mounted to swing, said suspending-stiles being free to move vertically between the window-stops, movable sash-locking and draft-excluding tongues between the sash-stiles and suspending-stiles, engaging strips H' upon said suspending-stiles having their sides opposite the jambs beveled to afford reëntrant angles, and window-stops in the casing provided with engaging strips F' having their sides toward the jambs beveled to afford reëntrant angles to engage said first-mentioned angles, substantially as and for the purpose set forth.

2. In a window, the combination with the frame, of a sash having its stiles provided with longitudinal grooves *p*, separable supporting-stiles, in which the sash is mounted to swing, provided with longitudinal grooves *l*, sash-locking and draft-excluding tongues between the sash-stiles and supporting-stiles and pivotally connected with the latter to move within said recesses, draft-excluding strips of felt, or the like, contacting with said tongues, locking means for the tongues, engaging strips H' upon said supporting-stiles having their surfaces opposite the jambs beveled to afford reëntrant angles, and window-stops in the casing provided with engaging strips F', having their sides toward the jambs beveled to afford reëntrant angles to engage said first-mentioned angles, said stops being adjustable to regulate the freedom of the vertical movement of the sash, substantially as and for the purpose set forth.

3. In a window, the combination with the frame and sashes of separable supporting-stiles in which the sashes are mounted to swing, outer and inner stops extending flush with said supporting-stiles, and parting-stops extending flush with said supporting-stiles and provided with short strips or projections *h* which contact with the ends of the meeting-rails when the windows are closed, substantially as and for the purpose set forth.

578,941. **DISK FURROW-OPENER.** FRANK R. PACKHAM, Springfield, Ohio, assignor to the Superior Drill Company, same place. Filed Sept. 5, 1896. Serial No. 604,947. (No model.)



Claim.—1. A concave disk, as described, having a central opening, and a cup-shaped bearing-support secured about said opening, said bearing-support having a trunnion or journal which extends through said central opening, in combination with a bearing-support having a bearing to fit said trunnion and also adapted to extend through the opening in said disk and in the opposite direction, substantially as and for the purpose specified.

2. A concave disk having a central opening, and a cup-shaped bearing-support connected to said disk on the concave side with a trunnion extending through said opening, a bearing-support having a projecting bearing to fit over said trunnion and adapted to extend through the opening in said disk into said cup-shaped support, and

means for connecting said disk through said trunnion to said bearing-support, substantially as specified.

3. The combination with a concave disk and its bearing-support, of drag-bars connected to said support upon opposite sides thereof but on the same side of said disk, said drag-bars being connected at different vertical angles to said support and projecting at different lateral angles to a common line of attachment, substantially as specified.

4. The combination with a furrow-opening disk and its support, of the drag-bars connected to said support, one of said drag-bars being extended forwardly and upwardly in a line behind said disk, and the other drag-bar being extended forwardly and laterally as well as upwardly at a different vertical as well as lateral angle to the other bar, both of said bars having a common line of attachment, substantially as specified.

5. The combination with the concave disk, the cup-shaped bearing-support, the conical trunnion on said bearing-support extending through said disk, the projecting bearing on the disk-support extending into said cup-shaped bearing-support, a lubricating-channel extending from the top of said support, thence laterally through said bearing into the cup-shaped bearing-support, substantially as specified.

6. The combination with the disk and disk-support, of the lubricating-channel formed in said disk-support, and a cover or shield having a stem adapted to fit in said channel so as to form a cover for said channel and a support for said shield, substantially as specified.

7. The combination with the concave disk and its drag-bars, of a pivoted scraper pivoted to one of said drag-bars and formed of resilient material, the angle of said scraper and drag-bar being such that the scraper may be placed either behind or in front of said disk, substantially as specified.

8. The combination with the concave disk and the support therefor, of the conduit in said disk-support, said conduit being formed with one side open on a line substantially coincident with the side of said disk which is adapted to fit the same, substantially as specified.

578,942. ROTARY MEAT-CUTTER. FRANK H. PIERPONT, Hartford, Conn. Filed Dec. 22, 1894. Serial No. 532,666. (No model.)



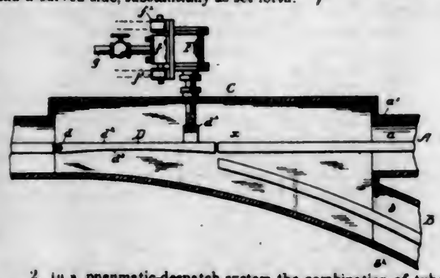
Claim.—1. A rotary meat-cutter having a case and a feed-screw, one of the said parts being constructed at its delivery end with an annular series of blind pockets, the said pockets being closed at both ends, and the said annular series being located in a plane at a right angle to the longitudinal axis of the part; and the other part being constructed with a cutting instrumentality located at its delivery end, arranged in a plane at a right angle to the longitudinal axis of the part, and adapted in the reach of its cutting action to coact with two separate points in the wall of each pocket, whereby the meat is cut as it enters the pockets and as it leaves them, substantially as described.

2. A rotary meat-cutter having a case and a feed-screw, one of the said parts being constructed at its delivery end with an annular series of blind pockets, the said pockets being closed at both ends, and the said series being located in a plane at a right angle to the longitudinal axis of the part, and the other of the said parts being constructed at its delivery end with a continuous cutting-rib, arranged in a plane at a right angle to the longitudinal axis of the part, and coacting with the said pockets to cut the meat as it enters and leaves them, substantially as described.

3. A rotary meat-cutter having a case and a feed-screw, one of the said parts being constructed at its delivery end with an annular series of blind pockets, and the other of the said parts being constructed at its delivery end with a continuous zigzag cutting-rib which coacts with the said pockets to cut the meat, substantially as described.

578,943. SWITCH-RAIL FOR PNEUMATIC-DESPATCH-TUBE SYSTEMS. CHARLES F. PIKE, Philadelphia, Pa. Filed May 31, 1895. Serial No. 551,216. (No model.)

Claim.—1. In a pneumatic-despatch-tube system, the single switch D composed of upper and lower members united together at their free ends, pivoted at their opposite ends, and having a straight and a curved side, substantially as set forth.



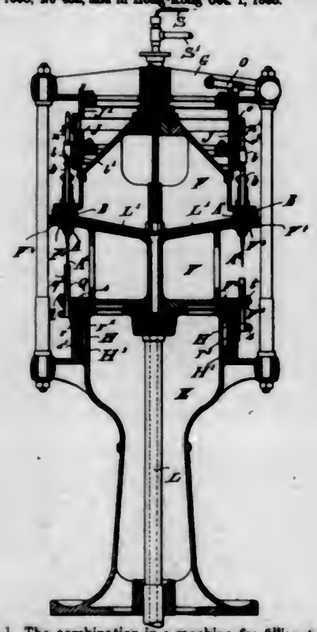
2. In a pneumatic-despatch system the combination of tube A, a loop or run-around P, junction-boxes for said tubes A and P, gates in tube A between said junction-boxes, actuating mechanism for said gates, a switch in one of said junction-boxes and actuating mechanism for setting said switch, substantially as set forth.

3. In a pneumatic-tube system, the combination of diverging or differently-leading lines A and B, switch-box C at the junction of said tubes, gates or valves R R in tube A, actuating mechanism therefor, a loop or run-around P having end junction-boxes p p' with tube A, a switch in box p and actuating mechanism, substantially as set forth.

4. In a pneumatic-tube system the combination of tube A having gates R R upwardly-extending pipes r^3 from said tube, caps r^5 for the pipes r^3 and actuating mechanism for gates R R inclosed in said pipes r^3 and caps r^5, substantially as set forth.

5. In a pneumatic-tube system, the combination of a loop-end junction-box p, a switch l' in said box, a pipe p^3 extending upwardly from said box, a cap p^4 for said pipe p^3 and actuating mechanism for the switch inclosed in said pipe p^3 and cap p^4, substantially as set forth.

578,944. APPARATUS FOR FILLING TUBES WITH VISCID OR SEMIFLUID MATERIAL. HERMANN PLATZ, Carlsruhe, Germany, and SAMUEL L. HUBER, Gravenhage, Netherlands, assignors to the Deutsche Metallpatronenfabrik, Carlsruhe, Germany. Filed Apr. 24, 1896. Serial No. 587,033. (No model.) Patented in Germany Dec. 9, 1894, No. 84,754; in England Jan. 19, 1895, No. 1,231; in France Jan. 19, 1895, No. 244,465; in Belgium Jan. 19, 1895, No. 113,708; in Switzerland Jan. 19, 1895, No. 9,894 and No 9,966; in Hungary Feb. 8, 1895, No. 2,138; in Austria June 9, 1895, No. 45 /3,079; in India Aug. 23, 1895, No. 2,417; in Straits Settlements Aug. 30, 1895, No. 330; in Ceylon Sept. 18, 1895, No 452, and in Hong-Kong Oct. 1, 1895.



Claim.—1. The combination in a machine for filling tubes, of a syringe A, adapted to be supplied with the viscid mass, and having a reciprocating plunger a tube-holder in line with the discharge of said syringe, and provisions for effecting a receding movement relatively between the syringe and the holder, and for rupturing the thread or filament of material after the descent of the plunger, substantially as herein specified.

2. The combination in a machine for filling tubes, of a syringe A, adapted to be supplied with the viscid mass, a tube-holder in line with the discharge thereof, and means for first effecting a comparatively-moderate receding movement relatively between the syringe and holder and thereafter abruptly increasing such movement, substantially as herein specified.

3. In a machine for filling tubes, the combination with a frame, of a syringe and a tube-holder adapted to hold a tube to receive the discharge therefrom, and both supported by said frame, and means such as the cam-grooves J^3, H^3, carriers l having roller l', slide r and its roller r', for effecting the vertical movement of the syringe-plunger and variable descending movement of the tube-holder, substantially as herein specified.

4. In a machine for filling tubes a number of syringes and corresponding number of tube-holders arranged around a revolving frame such as F, and means such as the cam-grooves J^3, H^3, carriers l having rollers l', slides r and their rollers r' for progressively depressing the syringe-plungers and variably lowering the tube-holders, substantially as herein specified.

5. In a machine for filling tubes, the combination with a plurality of syringes and independently-movable tube-holders, adapted to hold tubes to receive the discharge therefrom, of means such as the cam-grooves J^3 and H^3 carriers l having rollers l' and slides r and their rollers r' for successively operating the syringe-plungers, and for lowering the tube-holders, passages or conduits for supplying a viscid material to the syringes, and provisions for heating the walls of the passages or conduits, substantially as herein specified.

6. In a machine for filling tubes, the combination with a plurality of syringes and independently-movable tube-holders adapted to hold tubes to receive the discharge therefrom, of means such as the cam-grooves J^3, H^3, carriers l, having rollers l' and slides r and their rollers r' for successively operating the syringe-plungers and for lowering the tube-holders, channels or ducts connected with the syringes for supplying viscid material, and a stationary spindle located within the discharge-nozzle of each syringe and having its lower end notched, substantially as herein specified.

7. The combination in a tube-filling machine, of a piston and its plunger, means for vertically moving the latter, together with a tube-holding support and devices for imparting a variably-descending movement to the same to release the tube, substantially as herein specified.

8. The combination in a tube-filling machine, of a piston and its plunger, a moving part provided with a cam-groove, devices such as a roller engaging the same, for vertically reciprocating said plunger, and means for throwing said roller and plunger out of operation, substantially as herein specified.

9. The combination in a tube-filling machine, of a piston and its plunger, plunger-actuating means, and a coupling device for imparting the motion of the same to the plunger, said coupling device including a notched plate n^3, adapted to be turned to disengage the coupling, substantially as herein specified.

10. The combination in a tube-filling machine, of a piston and its plunger, plunger-actuating means, a coupling including a notched plate n^3, adapted to intermittently contact with a stop and be turned, and thereby successively disengage and restore the coupling connection, substantially as herein specified.

11. In a machine for filling tubes, the combination with a frame, of a plurality of syringes and tube-holders and means such as the cam-grooves J^3, H^3, for successively effecting the vertical movements of the syringe-plunger and tube-holder, together with a tube-feeder for delivering a tube to each holder as it becomes empty, substantially as herein specified.

12. The combination in a machine for filling tubes of a revolving frame carrying a plurality of syringes containing movable plungers, a corresponding number of tube-holders, and a fixed part of the frame provided with cam-grooves and connections traveling therein for successively depressing the plunger and tube-supports, together with a tube-feeder for delivering a tube to each holder as it becomes empty, substantially as herein specified.

13. The combination in a tube-filling machine, of a syringe and its movable plunger, plunger-actuating devices, and a coupling for imparting the motion to said plunger, the coupling device including a double socket of the syringe-carrier, the inner end m of which carries the fork m', and is vertically adjustable in the outer socket l, whereby the position of the syringe-plunger may be regulated, substantially as herein specified.

14. The combination in a tube-filling machine, of a syringe and its plunger-rod with the vertically-actuated carrier-sockets t, m, therein, of a device for coupling the plunger-rod with said sockets, consisting of two fork-shaped parts m' and n', connected to the carrier and rod respectively, and adapted to be relatively turned so that the prongs have mutual end bearings or interlock, substantially as herein specified.

15. The combination in a tube-filling machine including a syringe and plunger-rod movable therein, of a device for coupling the plunger-rod with its actuating means, and comprising the rotatable fork n', together with a plate n^3, which is held in position by a guide-surface J' so as to be prevented from turning and a recess in the said guide-surface provided with a slide o in one position of which the said plate passes over the recess without turning while in another position of the slide the plate and its fork are enabled to turn one-quarter around in the recess, substantially as herein specified.

16. The combination in a tube-filling machine including a movable syringe, its plunger-rod and its actuating means, of a device for coupling said rod to the actuating means and including a notched plate n^3, of a slide o, a pin o^3 adapted to engage one of its notches, whereby the plate will be turned as it runs past said slide, substantially as herein specified.

17. In a multiple filling-machine, the combination with the revolving frame F having the perforated ring F', of the tube-holder Q, movable vertically in said perforations, a slide r supporting each tube-holder and a cam-groove H' in the frame for actuating said slide, substantially as herein specified.

18. The combination in a tube-filling machine, of a syringe and its movable plunger-rod, the perforated ring F', a tube-holder Q, having two or more spring-limbs guided through an opening in the ring, and adapted when compressed to support a tube, together with connections for lowering said tube-holder to permit the release of the limbs and the fall of the tube, substantially as herein specified.

19. The combination in a tube-filling machine, of a syringe and its movable plunger-rod, a tube-holder Q guided in an opening and having the limbs q, and shorter spring-limbs q^3, the latter when contracted serving as an abutment for an inserted tube, and the former adapted to grip said tube by means of cheeks q', substantially as herein specified.

20. In a machine for filling tubes, a revolving frame, a series of syringes and tube-holders arranged around the same, one above the other, means such as the cams J^3, H^3, carrier l having rollers l', and slides r and their rollers r' for operating the syringe-plungers, and for effecting a variable descent of the tube-holders to automatically release the tubes when full, in combination with a tube-feeding device, the operation of the parts being so timed that each holder will release its tube as it approaches the feeder to secure another tube therefrom, substantially as herein specified.

21. In a machine for filling tubes, the combination of a revolving frame, a series of syringes and tube-holders arranged around the same, one above another, means such as the cams J^3, H^3, carrier l having rollers l', slide r and their rollers r', for operating the syringe-plungers and for effecting a variable descent of the tube-holders to automatically release the tubes when full and a clamp for guiding a tube to each tube-holder when empty, substantially as herein specified.

22. In a machine for filling tubes, a revolving frame, a series of syringes and tube-holders arranged around the same, one above another, means such as the cams J^3, H^3, carrier l having rollers l', slide r and their rollers r', for operating the syringe-plungers and for effecting a variable descent of the tube-holders to automatically release the tubes when full, a clamp for guiding a tube to each tube-holder when empty, in combination with a tube-feeding device, the operation of the parts being so timed that the device will deliver a tube to a clamp as an empty holder approaches the feeder, substantially as herein specified.

23. In a multiple tube-filling machine, the combination of two cam-grooves H', H^3, for actuating the tube-slide, one of which grooves effects the up-and-down motion of the tubes, while the other serves to hold the tubes in the lowered position, the guide-roller of the tube-slide being made to pass into one groove or the other according to the position of the switch K, substantially as described.

24. In combination with a tube-filling machine, such as herein referred to, of an apparatus for automatically feeding the empty tubes to the tube-holders and comprising a feed-channel N provided with an ejector x, a system of levers in operative relation thereto, and a revolving frame having pins or stops for actuating said lever system, whereby the ejector when in a raised position receives a tube from the tube-channel and when in a lowered position it delivers the tube into a channel leading to a passing tube-holder, substantially as herein specified.

25. The combination with a tube-filling machine, of a tube-feed apparatus including the feed-channel N, ejector x and an appliance for holding back the last tube in the feed-channel while a tube is being delivered by the ejector x, said appliance consisting of a spring-lever y adapted to press against the last tube and be moved away

from such tube when the ejector is in a raised position, together with a spindle *w* having an arm *w'*, and lever system actuating the ejector and for partly rotating the spindle, substantially as herein specified.

26. The combination with a frame, of a syringe and tube-holder adapted to hold a tube to receive the discharge therefrom, and both supported by said frame, and means such as the cam-grooves J^3, H^3, carrier *l* having roller *l'*, slide *r* and its roller *r'*, for effecting the vertical movement of the syringe-plunger and descent of the tube-holder, together with a feed-controlled channel, a device including a movable arm extending above the channel to be held elevated by the presence of the tubes, and a suitable indicating electric circuit adapted to be closed by the descent of the arm, substantially as herein specified.

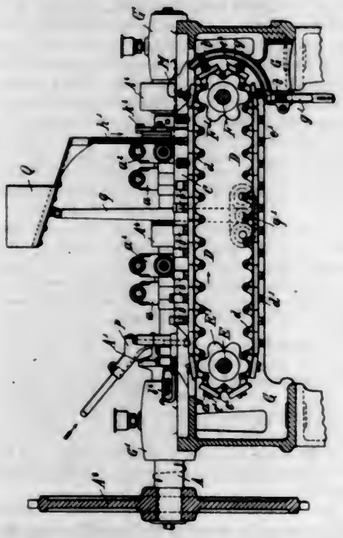
27. The combination with a tube-feed apparatus for filling-machines, provided with a feed-channel and tube-ejector, of a spring-lever *z*, adapted to close an indicating-circuit, and normally held in an open position by the tubes in the feed-channel, together with a spindle *w* having an arm w^5, and adapted to move the lever *z*, outward when the tube-ejector is in a raised position, substantially as herein specified.

28. The combination in a tube-feed device for filling-machines, of the tube-channel U in two parts, the part U^3 of which is pivoted a revolving frame having pins or studs *t* for moving the part U^3 outward, after a tube has passed into the holder Q in order to allow of the free onward motion of the tube in said holder, substantially as herein specified.

29. The combination with a multiple tube-filling machine, of an apparatus for cleansing the nozzles thereof, and including a vessel *p* and an endless traveling band Z, having a loop passing through water in the vessel P, while another part travels in the path of the nozzles whereby the mouths thereof pass in contact with the moistened band and are thus freed from the adhering viscid material, substantially as herein specified.

30. The combination in cleansing apparatus for tube-filling machines, of the endless traveling band having a loosely pendent loop, a driving-roller Y and a spring-pressing roller Y' gripping one side of said loop and for imparting the traveling motion to the band, and two spring-rollers X, X', nipping the other side of the loop, for maintaining the band in a stretched condition substantially as herein specified.

578,945. APPARATUS OR MACHINERY FOR CLOSING AND SECURING METAL TUBES. HERMANN PLATZ, Carlsruhe, Germany, and SAMUEL L. HUISER, Gravenhage, Netherlands, assignors to the Deutsche Metallpatronenfabrik, Carlsruhe, Germany. Filed Apr. 26, 1895. Serial No. 547,373. (No model.) Patented in Germany Oct. 17, 1894, No. 82,533; in England Jan. 19, 1895, No. 1,320; in France Jan. 19, 1895, No. 244,466; in Belgium Jan. 19, 1895, No. 113,707; in Switzerland Jan. 19, 1895, No. 9,893; in Hong-Kong Jan. 19, 1895; in Hungary Jan. 31, 1895, No. 2,089; in Austria May 16, 1895, No. 45/1,723; in Straits Settlements July 20, 1895, No. 422; in Ceylon Aug. 9, 1895, No. 431, and in India Aug. 22, 1895, No. 2,428.



Claim.—1. In a machine for closing tubes, the combination with a pair of dies and means for intermittently operating them, of a carrier longitudinally movable beneath the plane in which the dies are located and provided with a tube-holder for supporting a tube in a vertical position to bring its upper portion between said dies, substantially as herein specified.

2. In a machine for closing tubes, the combination with a pair of dies and means for intermittently operating them, of a carrier longitudinally movable beneath the plane in which the dies are located and provided with a movable tube-holder for supporting a tube in a vertical position and arranged to release the same when beyond the dies, substantially as herein specified.

3. In a machine for closing tubes, the combination with a pair of dies and means for intermittently operating them, of a carrier longitudinally movable beneath the plane in which said dies are located and provided with a holder for supporting a tube in a vertical position and a tube-feeder having a cut-off passage arranged to be opened for the descent of a tube when centered on the tube-holder of the carrier, substantially as herein specified.

4. In a machine for closing tubes, the combination with a pair of dies and means for intermittently operating them, of a carrier longitudinally movable beneath the plane in which the dies are located and provided with a tube-holder for supporting a tube in a vertical position, and a detent for successively locking and unlocking the carrier when it is in position beneath said dies, substantially as herein specified.

5. In a machine for closing tubes, the combination with a series of dies and means for intermittently operating them, of a series of longitudinally-movable carriers beneath the plane in which the dies are located and each provided with a tube-holder for supporting a tube in a vertical position to bring its upper portion between said dies, and actuating mechanism for imparting an intermittent movement to the carriers, substantially as herein specified.

6. In a machine for closing tubes, the combination with pressing and closing dies, and means for intermittently operating them, a pair of riveting-dies, a rivet feed-channel *h'*, movable relative to the last-mentioned dies, together with a series of longitudinally-movable carriers beneath the plane in which the several dies are located, and each provided with a clamp for holding a tube in a vertical position to bring its upper portion successively between the dies and actuating mechanism for imparting an intermittent movement to the carriers, substantially as herein specified.

7. In a machine for closing tubes, an endless chain with tube-holders, two opposite slides higher than said chain and at each side thereof, and a series of pairs of dies carried thereon, in combination with means as eccentrics for giving thereto a motion to and from each other at right angles to the motion of the chain, whereby the upper portion of the tubes carried in vertical position by the latter are successively moved between, closed together and moved out from the dies, substantially as herein specified.

8. In a machine for closing tubes of the class herein described, a movable tube-holder, an upper feed-channel above the same and closed by a tongue *o'* at its lower end, a lower channel formed of two hinged spring-flaps L so related that a tube-holder shall be arrested at the end of the lower tube-channel, in combination with each other and with levers connected with the tongue, adapted to withdraw it and to allow a tube to descend into the tube-holder and with flaps so combined as to press open to allow the tube-holder to pass with a tube, and with spring arranged to bring the tongue and flaps back to the usual position, all substantially as herein specified.

9. In a machine for closing tubes, the combination with a series of dies and means for intermittently operating them, of a longitudinally-movable chain beneath the plane in which the dies are located and carrying the holders for supporting the tubes in a vertical position, each tube-holder comprising fixed and spring sections, the arrangement being such that each link, when in a horizontal position will bear against the spring-section of the preceding link and thereby close its holder, substantially as herein specified.

10. In a machine for closing tubes, the combination with horizontally-operating riveting-dies having a pin and means for intermittently operating them, of a longitudinally-movable chain beneath the plane in which the dies are located, a vertically-movable rivet-channel having its discharge terminating contiguous to said dies and provided with a spring rivet-retaining tongue arranged to yield when the die-pin seizes a rivet, substantially as herein specified.

11. In a machine for closing tubes, the combination with a pair of horizontally-operating dies, and a shaft A for actuating them, of an endless carrier longitudinally movable below the plane in which the dies are located and provided with tube-holders for each supporting a tube in a vertical position to bring its upper portion between said dies, and a motion-imparting shaft for the endless carrier having a worm-wheel arranged to be engaged by a semiworm on the main driving-shaft A, substantially as herein specified.

12. In a machine for closing tubes, the combination with a series of horizontally-operating dies and means for intermittently actuating them, a longitudinally-movable chain beneath the plane of the dies and passing around a sprocket-wheel F, said chain carrying tube-holders for supporting tubes in a vertical position, each holder comprising fixed and spring sections, the arrangement being such that each link when in a horizontal position will bear against the spring-section of the link preceding and relieve the same as the chain passes around the wheel F', together with a curved channel contiguous to said wheel for receiving the tube ends and terminating in a discharge-passage *g'*, substantially as herein specified.

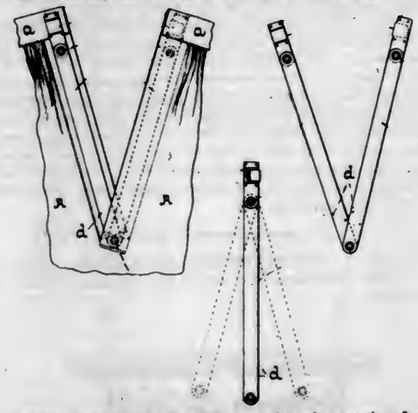
13. In a machine for closing tubes, the combination with suitable tube-holding means, of a pair of dies 1, 1, for compressing flatwise the upper and unfilled portion of the tube, and two pairs of dies 2, 2, 4, 4, subsequently operating successively on the same to bend and fold the closed portion of the tube, substantially as herein specified.

14. In a machine for closing tubes, the combination with suitable holding means, of a pair of dies 1, 1, for compressing flatwise the upper and unfilled portion of the tube, two pairs of dies 2, 2, 4, 4, subsequently operating successively on the same to bend and fold the closed portion of the tube, and a further series of pairs of dies 5, 5, 7, 7, arranged to act successively on such folded part to effect a second bending and folding, substantially as herein specified.

15. In a machine for closing tubes, a series of longitudinally-movable carriers such as those presented by the endless traveling chain D, and each provided with a tube-holder for holding a tube in a vertical position and actuating mechanism for imparting an intermittent movement to the carriers, in combination with a series of intermittently-operated dies 1, 1, 2, 2, 4, 4, for successively compressing and closing the upper portion of the tubes, substantially as herein specified.

16. In a machine for closing tubes, a series of longitudinally-movable carriers such as those presented by the endless traveling chain D, and each provided with a tube-holder for holding a tube in a vertical position and actuating mechanism for imparting an intermittent movement to the carriers, in combination with a pair of dies 1, 1, transversely ribbed and recessed respectively for compressing and transversely grooving the upper portion of a tube, and a second pair of dies 4, 4, for folding said compressed portion on the line of the groove, together with die-carrying slides B, C, and connections for intermittently effecting their approach and recession, substantially as herein specified.

578,946. PLACKET-FASTENER. JOHN R. RUECKERT, Baltimore, Md. Filed July 16, 1896. Serial No. 599,262. (No model.)

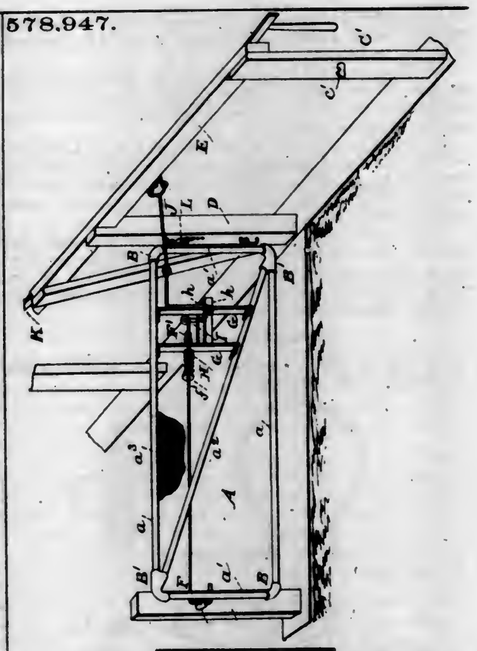


Claim.—A placket-fastener which consists of two strips of metal hinged together at their lower ends and adapted one to overlap the other when the device is closed, the said strips being in two jointed sections, the joints registering when the device is closed and coming immediately below the band of the skirt to which the device is applied, and one short or upper section provided with a hook, and the other section bent so as to produce an offset fitted to engage with the said hook, substantially as specified.

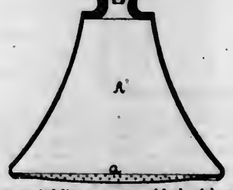
578,947. GATE. THEODORE SAWYER, Towanda, Ill. Filed Feb. 24, 1896. Serial No. 580,900. (No model.)

Claim.—The combination with a spring-closed gate-latch, of a journaled horizontal rod having two upwardly-bent arms with terminals extending horizontally in opposite directions parallel with the gate, one terminal being pivotally connected with the gate-latch and the other with a link which connects it with the hand-levers, as shown described.

578,947.



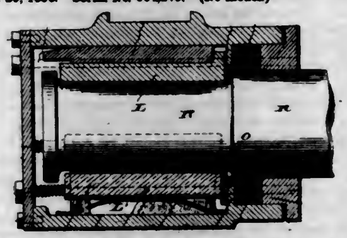
578,948. SPRINKLING-ROSE. HEINRICH SCHAFFRATH, Giessen, Germany. Filed Dec. 18, 1895. Serial No. 572,513. (No model.)



Claim.—1. A sprinkling-rose provided with means for its attachment to a water-supply and formed with an injector operated by the flow of water, for mixing air and water, substantially as described.

2. A sprinkling-rose provided with a water-supply nozzle extending in the axial direction of the rose, and lateral air-inlets located above the mouth of the nozzle; all acting for the mixing of air and water, substantially as described.

578,949. AXLE-BOX. JOHN W. SKILTON, Miami, Fla., assignor to Emily D. Skilton, same place, and Frank S. Lee, Linton, Fla. Filed Aug. 29, 1896. Serial No. 604,275. (No model.)



Claim.—1. The combination of the casing, the box therein with passages, the springs pressing upon the under side of the box, means interposed between the outer end of the box and the inner face of the end of the casing and the wicks in said passages and bearing against the under side of the axle, as set forth.

2. The combination of the casing, the box therein and having vertical passages, the springs beneath the box, and means acting on

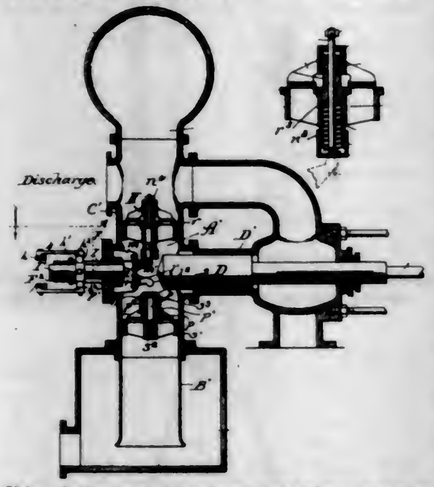
the outer end of the box to press its inner end against said packing, the wicks located in said passages, and the packing at the inner end of the box, as set forth.

3. The combination of the casing, the box, the springs beneath the same, the wicks, the felt strip at the inner end of the box, and the springs acting against the outer end of the box, substantially as and for the purpose specified.

4. The combination, with the casing having a flange, and the follower-plate having an inwardly-extending flange, of the packing between said flanges, the box within the casing, the springs acting on the outer end of said box and the wicks of sponge passed through said box, substantially as specified.

5. The combination, with the box having vertical passages, and the wicks passed therethrough, of the springs bearing upon the under side of said box, the felt strip at the inner end of the box, and the springs between the outer end of the box and the inner face of the end plate, substantially as shown and described.

578,950. PUMP. JOHN STUMPF, Chicago, Ill. Filed Nov. 2, 1896. Serial No. 610,831. (No model.)



Claim.—1. In a pump, a cylinder or chamber provided with an eduction-valve and an inwardly-lifting induction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with mechanical valve-moving means for the said induction-valve operatively connected with the driving mechanism and acting with the said auxiliary plunger in the direction of effecting closing movement of said induction-valve, substantially as and for the purpose set forth.

2. In a pump, a cylinder or chamber provided with an induction-valve and an outwardly-lifting eduction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with mechanical valve-moving means for the said eduction-valve operatively connected with the driving mechanism and acting with the said auxiliary plunger in the direction of effecting closing movement of said eduction-valve, substantially as and for the purpose set forth.

3. In a pump, a cylinder or chamber provided with an inwardly-lifting induction-valve and an outwardly-lifting eduction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with mechanical valve-moving means operatively connected with the driving mechanism and acting with the said auxiliary plunger in the direction of effecting closing movement of said valves alternately, substantially as and for the purpose set forth.

4. In a pump, a cylinder or chamber provided with an eduction-valve and an inwardly-lifting induction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with yielding mechanical valve-moving means for the said induction-valve operatively connected with the driving mechanism and acting with the said auxiliary plunger in the direction of effecting closing movement of said induction-valve, substantially as and for the purpose set forth.

5. In a pump, a cylinder or chamber provided with an induction-valve and an outwardly-lifting eduction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with yielding mechanical valve-moving means for the said eduction-valve operatively connected with the driving mechanism and acting with the said auxiliary plunger in the direction of effecting closing movement of said eduction-valve, substantially as and for the purpose set forth.

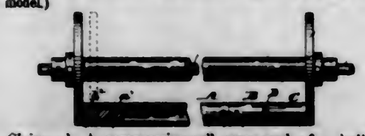
6. In a pump, a cylinder or chamber provided with an inwardly-lifting induction-valve and an outwardly-lifting eduction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with yielding mechanical valve-moving means operatively connected with the driving mechanism and acting with the said auxiliary plunger in the direction of effecting closing movement of said valves alternately, substantially as and for the purpose set forth.

7. In a pump, a cylinder or chamber provided with an inwardly-lifting induction-valve and an outwardly-lifting eduction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with said valve-operating lever mounted in the cylinder in the path of the auxiliary plunger, and to bring about closing movement of said valve in the movement of said auxiliary plunger in one direction, substantially as and for the purpose set forth.

8. In a pump, a cylinder or chamber provided with an eduction-valve and an inwardly-lifting induction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with an induction-valve-closing lever mounted in the cylinder in the path of the auxiliary plunger to be engaged thereby and bring about closing movement of said valve in the inward movement of said auxiliary plunger, substantially as and for the purpose set forth.

9. In a pump, a cylinder or chamber provided with an inwardly-lifting induction-valve and an outwardly-lifting eduction-valve, a main plunger and driving mechanism, an auxiliary plunger effective in the same cylinder and actuated from the driving mechanism, to alternately increase and diminish the fluid-pressure in the cylinder, while the main plunger is toward the opposite limits of its traverse, in combination with a valve-engaging lever for each of said valves, mounted in the cylinder in the path of said auxiliary plunger, and actuated thereby to effect closing movement of said valves respectively in the inward and outward movement of the auxiliary plunger, substantially as and for the purpose set forth.

578,951. COMPRESSION-ROLL FOR SLASHERS. JOHN SULLIVAN, Fall River, Mass. Filed Nov. 17, 1896. Serial No. 612,408. (No model.)



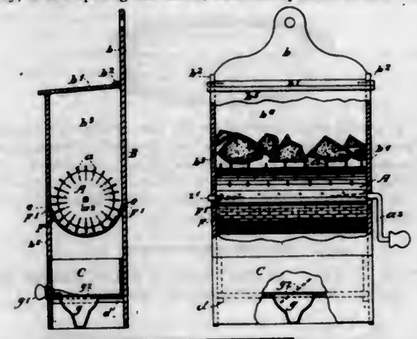
Claim.—1. A compression-roll composed of a hollow shell a spring-separated end piece at one end thereof, and a removable plug at the other end of said roll and forming part of the bearing-surface of said roll, to operate, substantially as described.

2. A compression-roll, presenting a hollow shell, a bushing therein having a pin, and a detachable plug having an enlarged head and a shank, the said shank entering the hole in said bushing leaving the head of the plug of the same diameter as the roll exposed at the end of the roll, it serving as a bearing-surface, substantially as described.

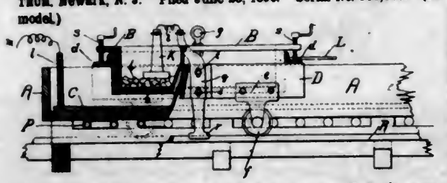
578,952. SALT-BOX. TELLEV TELLEFSEN, Seabold, Wash. Filed Aug. 2, 1896. Serial No. 557,939. (No model.)

Claim.—The combination of the box B, the perforated roughened concave F, the spiked cylinder, the removable drawer C, having a circular opening in its bottom, the flanged and dished funnel sunk therein, the revoluble drawer-knob *f*, having the offset stem

and the disk-formed cover attached thereto, and fitting, but moving freely, in said opening and funnel, substantially as set forth.



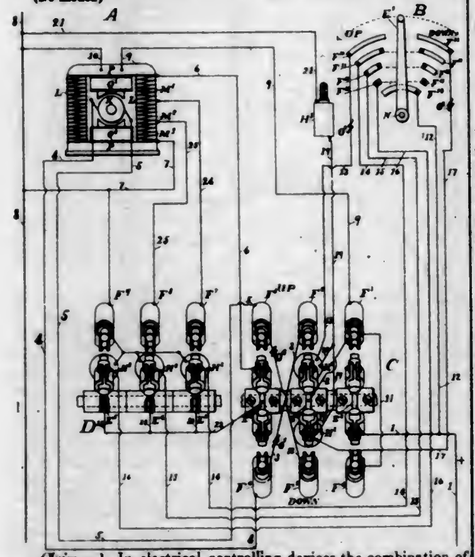
578,953. TANK FOR TREATING ALLOYS, &c. FREDERIC A. THUM, Newark, N. J. Filed June 25, 1896. Serial No. 596,826. (No model.)



Claim.—1. In an apparatus of the character specified, the combination of an electrolytic tank; anode-cells with permeable bottoms; carriages constructed to support said anode-cells when immersed into the tank and adapted to be moved horizontally; one or more cathodes placed upon the bottom of the tank, and suitable electric connections for the electrodes, substantially as and for the purpose specified.

2. In an apparatus of the character specified, the combination of an electrolytic tank; anode-cells with permeable bottoms; carriages constructed to support said anode-cells when immersed into the tank and adapted to be moved horizontally; means for vertically adjusting the anode-cells upon the carriages; one or more cathodes at the bottom of the tank; and suitable electric connections for the electrodes, substantially as and for the purpose specified.

578,954. ELECTRICAL CONTROLLING APPARATUS. BURTON C. VAN ETEN, San Francisco, Cal. Filed May 22, 1896. Serial No. 592,656. (No model.)



Claim.—1. In electrical controlling devices the combination of the main switch-lever E' placed in the elevator car or cage, contacts F¹⁰ and F¹⁸, double oscillating switches E³, E⁵, E⁴ turning on a central axis, solenoids for closing said switches to the right or to the left, and springs adapted to return and hold said switches in a central or neutral position when they are open, substantially as described.

2. In electrical controlling devices a main switch E' with successive contacts at each side for the series circuits, connected and in combination therewith the independent pivoted switches E⁶ E⁸ and E⁷ each closed by independent solenoids H² and opened by the springs I in the manner substantially as herein shown and described.

3. In electrical controlling devices, a triple oscillating reversing-switch, mounted and turning on an axis with a series of parallel contacts at both sides, two solenoids to move the switch, and a spring or springs to disengage and hold the same out of contact, in the manner and for the purposes substantially as shown.

4. In electrical controlling devices, a reversible motor and a triple reversing armature-circuit switch, mounted and turning on an axis in the manner described, solenoids to move the switch either way and reverse the motor, in the manner substantially as shown and described.

5. In electrical controlling devices, a reversible motor and a triple reversing armature-circuit switch, mounted and turning on an axis in the manner described, wires to cross and reverse the armature-circuit, solenoids to close the switch, and a spring or springs to open and hold it out of contact when the solenoid-circuit is open, substantially as described.

6. In electrical controlling devices, an electric motor, an oscillating reversing-switch with triple contacts at each side, solenoids to close the switch, and cross reversing-wires having supplementary switches O' and O⁴ to open the armature-circuit independent of the main reversing-switch, in the manner substantially as described.

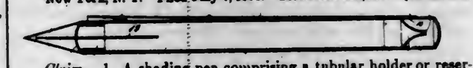
7. In electric controlling devices, an electric motor, main controlling switch-lever E' and an independent reversing-switch, series coils in the armature-circuit and in the motor-field, the series coils divided into sections, and the circuits therethrough closed by means of the switches E⁵, E⁶ and E⁷, actuated by the solenoids H², substantially as described.

8. In electrical controlling devices an electric motor having series coils wound upon the field-frame and divided into sections M' M³ M⁵ in the manner described, and in combination therewith the main switch E' dividing switches E⁵ E⁶ E⁷ and independent solenoids to operate the same all combined and operating in the manner substantially as described.

9. In electric controlling devices, the combination of the main controlling-switch E', with a reversing-switch in the armature-circuit, and a series of switches in the series circuit successively closed by solenoids, the latter energized and controlled by the main switch E', in the manner substantially as described.

10. In electric controlling devices, the main controlling-switch E', contacts F¹⁰ and F¹⁸, solenoids H', H³ and H⁵ with reversing and series switches combined and operating, in the manner and for the purposes substantially as described.

578,955. FOUNTAIN SHADING-PEN. FREDERIC VAN GERPEN, New York, N. Y. Filed July 7, 1896. Serial No. 598,338. (No model.)



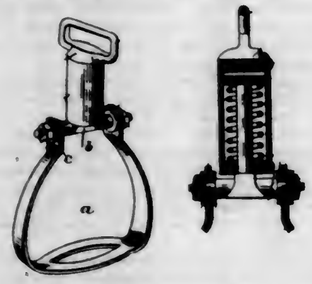
Claim.—1. A shading-pen comprising a tubular holder or reservoir, one end of which is provided with a pen which consists of two spring-plates which are brought together, to form a point, said end being also provided with a tubular plug, the outer end of which is closed, and a strip or plate of metal, which passes therethrough, and which terminates near the point of the pen, said strip or plate being corrugated longitudinally so as to form longitudinal grooves, substantially as shown and described.

2. A shading-pen comprising a tubular holder or reservoir, one end of which is provided with a pen which consists of two spring-plates which are brought together to form a point, said end being also provided with a tubular plug, the outer end of which is closed, and a strip or plate of metal, which passes therethrough, and which terminates near the point of the pen, said strip or plate being corrugated longitudinally so as to form longitudinal grooves, and said holder or reservoir being provided at its opposite end with a detachable section, in which is formed an air-vent, and a pivoted lever which is mounted on or centrally of the holder or reservoir, one end of which is adapted to close said air-vent, and the other end of which projects in the direction of the pen or point, and is supported by a spring, substantially as shown and described.

578,956. STIRRUP. GEORGE G. VANN, Galveston, Tex. Filed Aug. 1, 1896. Serial No. 601,368. (No model.)

Claim.—In a stirrup, the combination of the stirrup-frame or foot-piece having bearings in its two separated upper ends, the cross-

head between said ends having journals extending through the bearings thereof and provided with securing means at its outer ends, and formed with a central upwardly-extending rod rigid therewith, the head rigid on the upper end of said rod, the inclosing casing having the attaching means rigid with its upper end and the closed lower end through which said rod can freely slide, and an expansive coiled spring around said rod and between the head and lower end of the casing so that the rod and its head can freely turn and slide in the casing and are yieldingly upheld by said spring, substantially as described.



578,957. GARBAGE-CAN. GEORGE W. WALKER, Malden, Mass.
Filed July 1, 1896. Serial No. 597,058. (No model.)



Claim.—1. A garbage-can, having at its upper end a water-seal passage and provided with a cover having a flange to enter said water seal, said cover having an air-inlet, a valve therefor which is normally closed but which may be opened when the cover is to be removed, and means to automatically open said valve for removal of the cover, substantially as described.

2. A garbage-can, composed of a body, and a ring attached thereto near its upper end and extended upwardly to leave a space between the body and ring, said space being provided with an outlet to discharge any surplus water from the said space, and prevent its entering the interior of the can, combined with a cover having a flange to enter said space and the water therein, to constitute a water seal, and provided with an air-inlet and an automatically-operating valve which is normally closed, substantially as described.

578,958. BUFFING OR POLISHING DEVICE. HAROLD A. WEBSTER, Haverhill, Mass., assignor to the Globe Buffer Company, Boston, Mass. Filed Aug. 2, 1895. Serial No. 558,090. (No model.)



Claim.—An appliance of the character specified, comprising a yielding-surfaced rotary roll, a flexible cover of substantially rhomboidal form wrapped about said roll, one of the edges of said cover overlapping the other and said edges extending helically from one end of the roll to the other, clamping-fingers projecting over the ends of the overlapping portions of the cover and movable toward and from the axis of the roll, so that they may sink with the corresponding portions of the cover into the yielding surface of the roll, and means for adjusting and holding said clamping-fingers.

578,959. HAND-GRIP. ADOLPH R. WIENS and GERHARD J. BRANDS, Milwaukee, Wis. Filed Apr. 20, 1896. Serial No. 588,946. (No model.)

Claim.—1. A hand-grip comprising a skeleton frame, and a woven-cane jacket encompassing the frame.

2. A hand-grip comprising an elastic skeleton frame, and a woven-cane jacket encompassing the frame.

3. A hand-grip comprising a spring-metal grid, and a woven-cane jacket encompassing the grid.



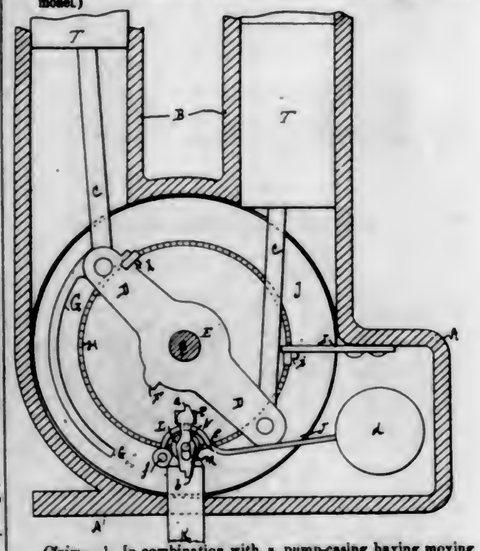
4. A hand-grip comprising suitable end pieces having longitudinal recesses and external shoulders, a spring-metal grid engaging said recesses and capable of longitudinal play therein, a woven-cane grid-covering jacket having the stakes at unfilled extremities thereof laid on said end pieces to abut the shoulders of the same, and ferrules positioned to inclose said stake extremities.

578,960. SCRAPER. GEORGE R. WILDER, Cambridge, Mass.
Filed Oct. 12, 1896. Serial No. 608,762. (No model.)



Claim.—A scraper, consisting of a blade, a handle, and a two-piece head, composed of a body and a cap, the body having a hollow shank b' to receive the handle, and a screw-hole in line with the end of the handle, the latter being fastened in the shank by a screw b^2, a guide-block c extending centrally from said body adjacent said screw-hole and having its sides cut away at c', said body surrounding said guide-block being hollowed and having its shell-like edges terminating in an oblong contour in a plane oblique to said handle, the rear part thereof extending from said shank to constitute a portion of a handhold and the forward part thereof ending in a straight edge substantially flush with said handle and shank, said cap being rounded and shell-like and having its edges terminating in an oblique contour in a plane to fit snugly opposite the like edges of said body, said blade having a slot c^3 to fit said cut-away block, a screw c^4, said cap and block being apertured to hold said screw, and a set-screw d for adjusting said blade, said set-screw being mounted in the rear extension of said body, all substantially as described.

578,961. OILING DEVICE. ALEXANDER T. BALLANTINE, Cleveland, Ohio, assignor to the Domestifroid Company, same place. Filed Sept. 19, 1895. Renewed Jan. 29, 1897. Serial No. 621,222. (No model.)



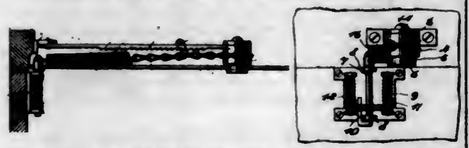
Claim.—1. In combination with a pump-casing having moving mechanism therein, an oil-inlet pipe, a valve controlling said inlet-pipe, a movable lever connected with said valve, and governed by a float, and two tappets on the moving mechanism adapted respectively to move said lever in one direction when raised, and in the other direction when lowered, and to thus open or close said valve, substantially as shown and described.

2. In combination with a pump-casing and moving mechanism therein, two tappets on said mechanism traveling in different paths, an oil-inlet pipe, a valve controlling said inlet-pipe, lever movably connected with said valve, shorter than the distance between the paths of said tappets, and a float operated by the oil in the pump-casing to carry said lever into the path of one tappet when the oil-level rises to a certain height, and into the path of the other tappet when the oil-level falls, whereby the valve is opened and closed by said tappets, substantially as shown and described.

3. In combination with a vessel and moving mechanism therein, two tappets moving in different paths, a valve controlling an inlet-pipe in said vessel, an actuating-lever movably connected with said valve, a float and a pivoted lever connected with said float and governing the position of said valve-lever, substantially as shown and described.

4. In combination with casing A, walking-beam D, having tappets F and G, inlet-pipe K, valve Q, lever M movably connected with valve Q, float d and pivoted rod e connected to lever M, substantially as shown and described.

578,962. DOOR SPRING AND CHECK. CHRISTIAN BAYER, New York, N. Y. Filed Jan. 5, 1897. Serial No. 618,065. (No model.)



Claim.—1. A door spring and check, comprising a swinging arm adapted to be mounted on a door-casing, a barrel on the free end of said arm, a block mounted to rotate in said barrel, a rod extended through said block, a shaft designed to rotate on a door and with which said rod is connected, a spring connected at one end to said shaft, a chain extended from the other end of said spring around the barrel on the arm, and means for connecting the end of the chain to the arm, substantially as specified.

2. A door spring and check, comprising a swinging arm designed to be supported on the door-casing, a tubular barrel on the free end of said arm, a block mounted to rotate in said barrel, a rod having connection with said block at one end, a vertical shaft to which the other end of said rod is attached, a plate on which said shaft is mounted to rotate, oppositely-coiled springs on said plate and having their ends connected with an upwardly-turned portion of the shaft, a mainspring attached at one end to the shaft, a chain extended from the other end of said spring aronnd the barrel, and a fastening device for said chain adjustable along the swinging arm, substantially as specified.

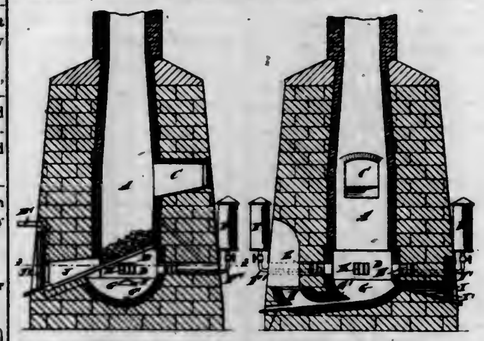
3. A door-check comprising a swinging arm having a longitudinal slot and rack-teeth on its lower side, a block mounted to rotate in a barrel on the free end of the arm, a rod having connection at one end with said block, a rotary shaft designed to be mounted upon a door and with which the opposite end of said shaft engages, oppositely-coiled springs having their ends in engagement with an upwardly-turned portion of the shaft, a mainspring attached at one end to the shaft, a chain extended from the opposite end of said mainspring around the barrel, and a dog to which the end of said chain is attached, the said dog being movable in a slot formed in the arm and having projections to engage the rack-teeth on the arm, substantially as specified.

578,963. SMELTING-FURNACE. CHARLES BISHOP, Tacoma, Wash. Filed Oct. 23, 1896. Serial No. 609,821. (No model.)

Claim.—1. A smelting-furnace, comprising a stack, a combustion-chamber having its bottom formed into a basin to receive the molten metal, a slag-discharge chamber, an inclined grate, the lower end of which projects into the said slag-discharge chamber, and a plurality of fire-boxes connected with an oil-supply and discharging into the combustion-chamber, substantially as described.

2. A smelting-furnace, comprising a stack, a grate at the lower end of the stack and arranged in an inclined position, a combustion-chamber under the grate, a slag-discharge chamber, into which the lower end of the grate projects a series of fire-boxes discharging into the said combustion-chamber from the sides thereof and each formed with a vaporizing-chamber, and a basin forming the bottom for the said combustion-chamber and adapted to receive the molten metal dropping through the grate and combustion-chamber, substantially as shown and described.

3. A smelting-furnace, comprising a stack, a grate at the lower end of the stack and arranged in an inclined position, a discharge-chamber into which one end of the grate projects, a combustion-chamber under the grate, a series of fire-boxes disharging into the said combustion-chamber from the sides thereof and each having a vaporizing-chamber, a basin forming the bottom for the said combustion-chamber and adapted to receive the molten metal dropping through the grate and combustion-chamber, a bullion-pot connected with the said basin, substantially as shown and described.



4. A smelting-furnace, comprising a stack, a grate at the lower end of the stack and arranged in an inclined position, a combustion-chamber under the grate, a series of fire-boxes discharging into the said combustion-chamber from the sides thereof and each formed with a vaporizing-chamber, a basin forming the bottom for the said combustion-chamber, and adapted to receive the molten metal dropping through the grate and combustion-chamber, and a slag-discharge leading from the upper end of the said basin to the outside of the furnace and into which the lower end of the grate projects, substantially as shown and described.

5. A smelting-furnace, comprising a stack having a charge-door located a suitable distance above the lower end of the stack, an inclined grate arranged in the bottom of the said stack and leading to a slag-chamber, a combustion-chamber under the grate, a series of fire-boxes opening into the said combustion-chamber from the sides thereof, a basin forming the bottom for the said combustion-chamber and having a metal-discharge channel in its bottom and a slag-discharge at its upper portion, and a bullion-pot connected with the said basin, substantially as shown and described.

6. A smelting-furnace, provided with a fire-box comprising hollow porous brick, an oil-feed pipe discharging into the said brick and connected with an oil-tank, a reflector for the said brick and located in the rear thereof, and a chamber connected with an air-supply and containing the said brick and reflector, the said chamber having a series of openings leading from the chamber to a combustion-chamber, substantially as shown and described.

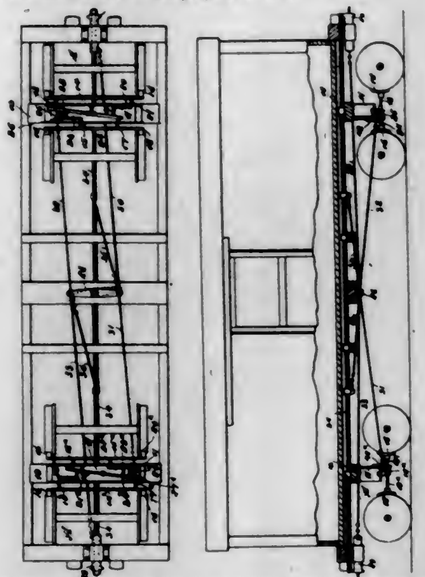
578,964. CAR-BRAKE. JOHN W. BUFORD, Jr., Jackson, Tenn. Filed Dec. 4, 1896. Serial No. 614,431. (No model.)

Claim.—1. In a car-brake, the combination, with the brake-beams, a lever located between the brake-beams and connected with the said beams near its ends, auxiliary levers located at opposite sides of the main lever, connecting the main lever also with the brake-beams, and a tension device connected with the main lever, of a draft-bar, a shifting lever, and connecting-rods uniting the draft-bar with the shifting lever and the shifting lever with the tension device, substantially as shown and described.

2. In a car-brake, the combination, with the brake-beams of a truck, a lever fulcrumed near its center, having link connections at opposite sides of opposite ends with the brake-beams, auxiliary levers having link connection with the main lever between its outer ends and center, the auxiliary levers being likewise connected with the brake-beams, one of the auxiliary levers being located at each side of the main lever and in opposite directions from its center, of a shifting lever, a draft-bar, a connecting-rod uniting the draft-bar with the shifting lever, a tension device attached to the main lever, located between the brake-beams at the inner side of the said lever, and a connecting-rod attached to the tension device and to the shifting lever, as and for the purpose set forth.

3. In a car-brake, the combination, with the brake-beams of a truck, a lever fulcrumed near its center, having link connections at opposite sides of opposite ends with the brake-beams, and auxiliary levers having link connection with the main lever between its outer ends and center, the auxiliary levers being likewise connected with the brake-beams and one of the auxiliary levers being located at

each side of the main lever and in opposite directions from its center, of a shifting lever, a draft-bar, a connecting-rod uniting the draft-bar with the shifting lever, a tension device attached to the main lever and located between the brake-beams at the inner side of the said lever, a connecting-rod attached to the tension device and to the shifting lever, a shaft having end movement, a connection between the said shaft and the said shifting lever, and a buffer-shaft adapted to be located upon a tender and arranged for engagement with the aforesaid shaft, as and for the purpose set forth.

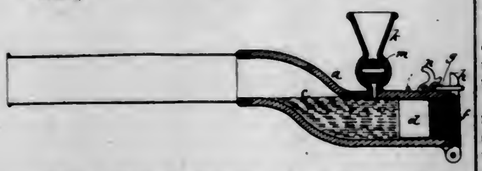


4. The combination of two brake-beams, a lever fulcrumed between the beams, a link pivoted to each arm of the lever and respectively pivoted to the brake-beams, two auxiliary levers respectively connected with the brake-beams and with the respective arms of the main lever, and means for actuating the main lever, substantially as described.

5. The combination of two brake-beams, a main lever fulcrumed between the brake-beams, a link connected to each arm of the main lever and respectively connected to the brake-beams, two auxiliary levers, one arm of each having connection with the respective brake-beams and the second arm of each auxiliary lever having connection with the respective arms of the main lever, a spring pressing the main lever, and means having connection with the main lever whereby it may be operated adversely to the spring, substantially as described.

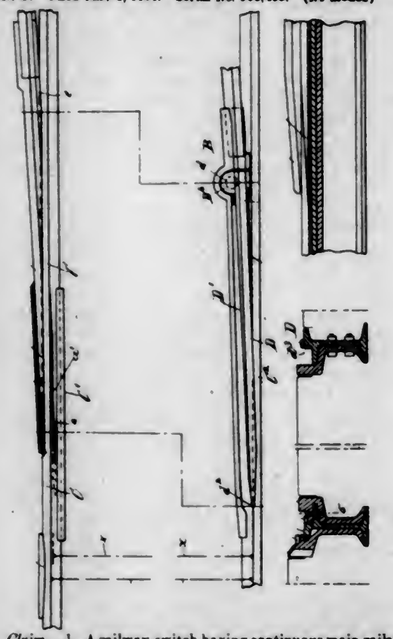
6. The combination with a car, of a shaft slidable longitudinally beneath the car, a shifting lever fulcrumed beneath the car and in connection with the shaft, two brake-beams removed from the shifting lever, a spring located between the brake beams and pressing the same apart to normally apply the brakes, means between the brake-beams for drawing them against the tension of the spring, and a connection between said means and the shifting lever, substantially as described.

578,965. FIRE-EXTINGUISHER. VALENTINE R. CAMPBELL, Saratoga Springs, N. Y. Filed Dec. 10, 1896. Serial No. 571,697. (No model.)



Claim.—A device for discharging water on fires, consisting of a gun with a curved breech for holding the water, a water-filling attachment provided with a cut-off, a breech-loading attachment for inserting the cartridge at the rear; and an attachment for discharging the gun, as described.

578,966. RAILROAD-SWITCH. DAVID F. CARVER, Brooklyn, N. Y. Filed July 8, 1896. Serial No. 598,403. (No model.)



Claim.—1. A railway-switch having continuous main rails spread wider than the normal gage of the railway, a stationary riser between the tread of one of said rails and the normal path of the flanges of wheels running straight through the switch, and a second riser outside the first-named riser, said second riser leading to the siding and projecting into the line of the tread of the wheels passing over the adjacent continuous rail, substantially as described.

2. A railway-switch having continuous main rails spread wider than the normal gage of the railway, a stationary riser between the tread of one of such continuous rails and the normal path of the flanges of wheels passing straight through the switch, and a second riser outside of the first-named riser, said second riser overlapping the tread of the adjacent main-line rail and leading to the tread of the siding-rail, substantially as described.

3. In a switch, main-line rails broadened wider than the normal gage of the railway, and a riser adjacent to one of said rails at the inside thereof extending on a line between the lines of the normal and broadened gages, substantially as described.

4. In a switch, continuous main-line rails broadened wider than the normal gage of the railway, and a riser adjacent to one of said rails, at the inside thereof, and rising to the top of said main rail, substantially as described.

5. A switch, having main rails wider than the normal gage of the railway, and a stationary riser adjacent to one of said rails at the inside thereof extending on a line between the lines of the normal and broadened gages, substantially as described.

6. A switch, having continuous main rails, siding-rails and an immovable stationary riser adjacent to the main rail at the inside of the curve, substantially as described.

7. A switch, having continuous main-line rails, spread wider than the normal gage of the railway, and a stationary riser outside of the main rail at the inside of the curve, said riser projecting into the path of wheels taking the siding, substantially as described.

8. In a switch, main-line rails, siding-rails, a riser for the flange of the wheels, and a second riser outside of and rising above the first riser, said second riser receiving the tread of the wheels and leading to the siding, substantially as described.

9. In a switch, continuous main-line rails, a riser for the wheel-flanges, adjacent to the main rail at the inside curve of the switch, a second riser outside the said main rail for receiving the treads of the wheels, and a guide-rail outside the second riser, substantially as described.

10. A switch having a guard outside of the non-continuous or siding rail, at the inside curve of the switch, said guard extending above the tread of such non-continuous rail and serving to prevent wheels running from such non-continuous rail from taking an improper direction, substantially as described.

11. A switch having main rails spread wider than the normal gage of the railway, and a non-continuous siding-rail at the inside of the switch, overlapping the tread of the adjacent continuous rail, substantially as described.

12. A switch in which the main-line rails are continuous, and in which the continuous rail at the inside curve of the switch is partly covered by a stationary riser, substantially as described.

13. A switch having continuous main rails, and an outside guard in front of the switch devices and overlapping the head or tread of the adjacent main rail, substantially as described.

14. A switch having the non-continuous siding-rail at the inside curve of the switch permanently extending laterally into the line of the tread of the adjacent main-line rail, substantially as described.

15. A switch having a guard between the siding and main rails, at the point of divergence, the said guard extending laterally within the tread-line of the said main rail, substantially as described.

16. A switch having a continuous main rail and adjacent non-continuous stationary siding-rail, the distance between the said non-continuous rail and the gage side of the continuous main rail being less than the width of the tread of the car-wheel, substantially as described.

17. A switch having a continuous main rail and an adjacent non-continuous, stationary rail, the latter having an inside guard at its point of divergence from the main rail, the distance between the said guard and the gage side of the continuous main rail being less than the width of the car-wheel tread, substantially as described.

18. A switch having a continuous main rail, and a stationary riser at the outside thereof, the distance from the gage side of the continuous main rail to the said stationary riser being less than the width of the car-wheel tread, substantially as described.

19. A switch having a tongue at one side and having at the opposite side a continuous main rail and fixed and immovable guiding devices which coact with the tongue and serve when the tongue is thrown to direct the wheels over and across the said continuous main rail.

20. A switch having a movable tongue and having, at the side opposite the tongue the following: a continuous main-line-rail tread, a non-continuous or terminating rail tread adjacent to said continuous tread and guiding devices non-reciprocating and otherwise immovable, said devices coacting with the tongue, and serving to transfer the wheels of a car across the said continuous-tread surface.

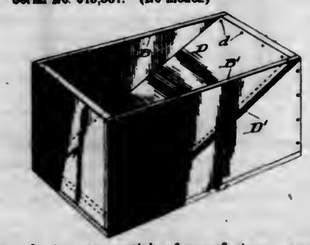
21. In a switch having a movable tongue and a continuous main rail at the opposite side to the tongue; a permanent immovable riser at said opposite side in the path of flanges taking the branch-line lead, but out of the path of flanges taking the main-line lead, said riser serving to transfer wheels from the branch-line lead, over and across said continuous main-line lead.

22. A switch having a continuous main-rail tread, a riser at the inside of the main rail and a surface in line with and beyond the riser, said surface being level with the said rail-tread for partly receiving the tread of wheels passing over the main rail when said wheels have passed the riser substantially as described.

23. In a switch having a continuous main-line tread, a riser at the inside of the continuous tread, said riser having a continuation level with the said tread at the inside and serving to receive the part of the tread of passing wheels which is between the flange of the wheels and the portion traveling the said main-rail tread, substantially as described.

24. A switch having a movable tongue at one side, a continuous main-rail tread at the opposite side, and switch devices arranged at said opposite side in connection with the continuous main tread, said devices having no moving parts, substantially as described.

578,967. BOX. FRANK H. CHASE, Chicago, Ill. Filed Nov. 25, 1896. Serial No. 613,387. (No model.)



Claim.—1. As a new article of manufacture, a packing-box having an inclined false bottom dividing its interior into two separate compartments disposed one above the other, and a separate removable cover for each of said compartments, the arrangement being such that, when the box is in upright position, by removing the cover which is for the time being at the top of the box access may be had to the top of the compartment which is for the time being uppermost, and by inverting the box and removing the other cover access may be had to the top of the other compartment, substantially as set forth.

2. As a new article of manufacture, a packing-box having an inclined false bottom extending over the entire area bounded by the sides of the box and dividing its interior into two separate compartments disposed one above the other, a separate cover for each of said compartments, each of said covers extending over the entire area bounded by the sides of the box, and means for removably securing said covers in place, the arrangement being such that, when the box is in upright position the entire top side of the compartment which is for the time being uppermost may be uncovered by removing the cover which is for the time being at the top of the box, and by inverting the box and removing the other cover the entire top side of the other compartment will be uncovered, substantially as set forth.

3. As a new article of manufacture, a packing-box having an inclined false bottom extending over the entire area bounded by the sides of the box and proceeding from the top of the box at one side thereof to the bottom of the box at the opposite side thereof, whereby the interior of the box is divided into two separate compartments, disposed one above the other, a separate cover for each of said compartments and means for securing said covers in place, the arrangement being such that, when the box is in upright position, by removing the cover which is for the time being at the top of the box access may be had to the top of the compartment which is for the time being uppermost, and by inverting the box and removing the other cover access may be had to the top of the other compartment, substantially as set forth.

4. As a new article of manufacture, a packing-box having an inclined false bottom extending over the entire area bounded by the sides of the box and proceeding from the top of the box at one side thereof to the bottom of the box at the opposite side thereof, whereby the interior of the box is divided into two separate compartments disposed one above the other, a separate cover for each of said compartments and means for removably securing said covers in place, one of the two sides which are crossed diagonally by the false bottom being removable, whereby access may be had to both of said compartments at one and the same time for the purpose of filling the box, the arrangement being such that, when the box is in upright position, by removing the cover which is for the time being at the top of the box access may be had to the top of the compartment which is for the time being uppermost, and by inverting the box and removing the other cover access may be had to the top of the other compartment, substantially as set forth.

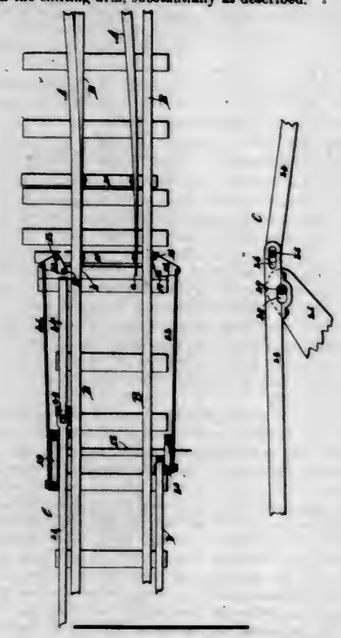
5. As a new article of manufacture, a packing-box having an inclined false bottom dividing its interior into two separate compartments disposed one above the other, a separate cover for each of said compartments, means for removably securing said covers in place, and means upon the outside of the box for indicating the position of the inclined false bottom, substantially as set forth.

578,968. SWITCH-OPERATING DEVICE. WILSON A. CLAFF, Pittsfield, Mass., assignor to Edward L. Pollock, same place. Filed June 16, 1896. Serial No. 595,743. (No model.)

Claim.—1. A railway-switch having main rails and pivoted switch-points, a transversely-sliding bar connected to the switch-points, two levers fulcrumed adjacent to the bar and pivotally connected thereto, a rod connected to each lever, a rock-shaft, an arm fixed to each end of the rock-shaft, to which arms the rods are respectively connected, a trip-rail having one end slotted and receiving a pin on one of the arms, the trip-rail being pivoted at its remaining end, two additional trip-rails respectively slidably connected to each other at their inner ends and one of the said additional trip-rails being slidably connected to the remaining arm, the outer end of each additional trip-rail being pivoted to the railway-bed, and a lever pivoted to one of the arms and capable of swinging to engage the arm whereby the lever may be turned to extend outwardly from the arm, substantially as described.

2. A railway-switch having main rails and pivoted switch-points, means for shifting the switch-points, two rods connected and actuating said means, a rock-shaft, a shifting arm fixed to each end of the rock shaft, the shifting arms being oppositely disposed and having the rods respectively connected thereto, a trip-rail having one end slidably connected to one of the shifting arms and having the remaining end pivoted to the railway-bed, and two additional trip-rails having their inner ends slidably connected with each other and one of the additional trip-rails being connected to the remaining shifting arm, the outer ends of the trip-rails being pivoted to the railway-bed, substantially as described.

3. A railway-switch having main rails and pivoted points, a rock-shaft, a shifting arm fixed to the rock-shaft, a trip-rail pivoted at one end to the railway-bed and having a slot in its remaining end, a pin on the shifting arm and passing through the slot of the trip-rail, a rod pivoted to the trip-rail and connected to the switch-points, and a lever fulcrumed to the shifting arm and having a notch receiving one edge of the shifting arm, the lever being capable of swinging away from the shifting arm, substantially as described.



578,969. **GRINDING AND SCOURING APPARATUS.** SCOTT D. COATES, Ellwood City, Pa., assignor of one-half to William B. Sterrit, Pittsburg, Pa. Filed Nov. 27, 1896. Serial No. 613,563. (No model.)



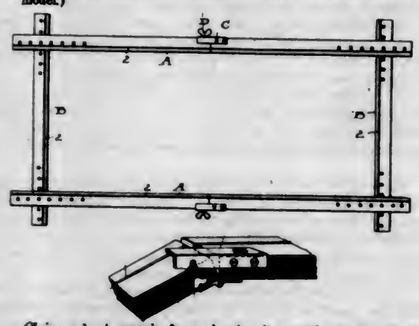
Claim.—1. In apparatus for grinding or scouring hollow open-top articles, a frame having means for securing the article thereto, means for clamping in place a closure for the open top of the article, and means for moving the frame to cause the grinding material to move over the inner surface of the article.

2. In apparatus for grinding or scouring hollow open-top articles, a frame having means for securing the article thereto, means for clamping in place a closure for the open top of the article, arms upon which the frame is mounted, and means for moving the arms to cause the grinding material to move over the inner surface of the article.

3. In apparatus for grinding or scouring hollow open-top articles, a frame arranged to fit the edge of the open-top article, means for clamping the article thereto, and means for moving the frame so as to cause the grinding material to move over the inner surface of the article.

4. In apparatus for grinding or scouring hollow open-top articles, a frame provided with clamps for securing two open-top articles face to face thereto, whereby each acts as a closure for the other, and means for moving the frame to cause the grinding material to move over the inner surfaces of the article.

578,970. **FRAME FOR DRYING LACE CURTAINS.** ROBERT S. COLLETT, Cleveland, Ohio. Filed July 6, 1896. Serial No. 598,111. (No model.)

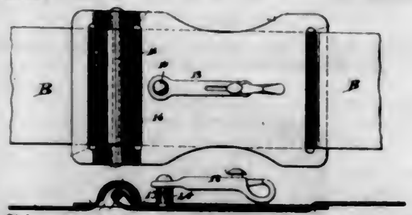


Claim.—1. A curtain-frame having bars with slits lengthwise on its top and inclined from bottom to top from the inner side of the bar, said slits having their walls constructed to take all the pull on the pins for fastening the curtain, and containing material to hold the pins upright, in combination with pins set into said slits and material, substantially as described.

2. The frame-bars having walled slits longitudinally in their top and flexible material in said slits to hold the pins in operating position and the said slits constructed to form bearings against the walls thereof for the curtain-fastening pins, substantially as described.

3. The bars substantially as described, provided with longitudinal inclined slits and a bracing material of fabric set into said slits between the walls thereof, said walls serving as bearings for the pins, substantially as described.

578,971. **TRACE-CARRIER.** EDWARD A. COTHAM and GEORGE WELLS, Monticello, Ark. Filed July 7, 1896. Serial No. 598,300. (No model.)

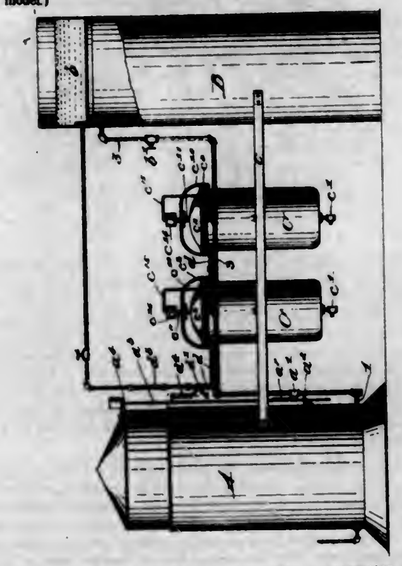


Claim.—1. A buckle comprising a body-plate having an arched cross-bar, a slot at each side of the cross-bar, teeth formed at the edge of the cross-bar, and a rod extending longitudinally beneath the said cross-bar, as and for the purpose set forth.

2. A buckle particularly adapted as a back-band buckle, consisting of a plate provided with a cross-bar extending from side to side, the said cross-bar being upwardly arched, its outer face being convexed and its inner surface concaved, its ends being substantially closed, the buckle being furthermore provided with a slot at each side of the arched cross-bar, teeth on a side edge of the said cross-bar, and a rod extending below the concaved surface of the cross-bar from end to end of the same, as and for the purpose specified.

3. A buckle having a body-plate, a cross-bar formed of a plate arched cross-sectionally and upwardly from the body-plate and having a tooth at one edge and a rod extending longitudinally beneath the cross-bar and through the concavity thereof, whereby a strap may pass over the cross-bar past the edge having the tooth and around the rod, substantially as described.

578,972. **ACETYLENE-GAS GENERATOR.** JAMES H. COUPER, Atlanta, Ga., assignor of one-half to John M. Sitton and Thomas V. Hubbard, same place. Filed Nov. 4, 1896. Serial No. 611,077. (No model.)



Claim.—1. In an acetylene-gas generator, a gasometer, and a holder capable of sustaining a high tension, a pipe entering the gas-space of both, a multiplicity of generators connected to said pipe and means for successively and automatically starting said generators upon the successive reductions of the gas-pressure in said gasometer below a given point, for the purposes specified.

2. In an acetylene-gas generator, a gasometer, a series of generators, pipes interconnecting same and exteuded to said gasometer, a water-supply source, and a pipe leading therefrom having branch pipes leading one to each generator, valves in said branch pipes and substantially in line, and a stepped arm carried on the movable element of the gasometer adapted to contact its steps successively with said valves, substantially as and for the purpose specified.

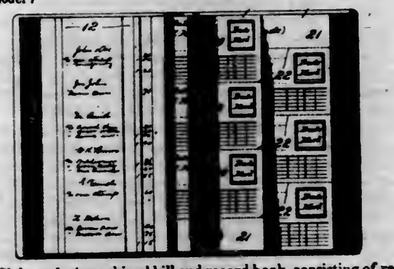
3. In an acetylene-gas generator, a gasometer, a series of generators, pipes interconnecting same and said gasometer, a water-supply source, a pipe leading therefrom, having branch pipes, one leading to each generator, a throttle-valve in each branch pipe, said throttle-valves being arranged substantially in line, guides on said gasometer one of which guides is carried on the movable element of said gasometer, a rod mounted slidably in said guides and having a weight on its upper end, said weight resting on top of the guides on said movable gasometer element and a stepped arm carried on said rod and adapted to successively strike and depress the levers of said valves, substantially as and for the purpose specified.

4. In an acetylene-gas generator, a gasometer and a generator, comprising a cylinder and a cap therefor, a stirrup adapted to engage said cylinder, a set-screw therein bearing normally on said cap, a pipe connecting said generator and gasometer, a valve therein, an arm on the stem of said valve, and an open-sided shield on the distal extremity of said arm adapted to swing over and guard the head of said set-screw against the affixing of a wrench, for the purpose specified.

5. In an acetylene-gas generator, a gasometer and a generator, comprising a cylinder and a cap therefor, a stirrup adapted to engage said cylinder, and a set-screw therein bearing normally on said cap, a pipe connecting said generator and gasometer, a valve therein, an arm on the stem of said valve, and an open-sided shield rotatably mounted on the distal extremity of said arm adapted to swing over and guard the head of said set-screw against the affixing of a wrench, for the purpose specified.

6. In an acetylene-gas generator, a gasometer, a high-pressure holder, bars extending between said gasometer and holder, a series of generators, secured to and suspended upon said bars, pipes interconnecting same and said gasometer and high-pressure holder, a water-supply source, and a pipe leading therefrom having branch pipes, one leading to each generator, a throttle-valve in each branch pipe, said throttle-valves being arranged substantially in line, guides on said gasometer one of which guides is carried on the movable element and a stepped arm carried on said rod and adapted to successively strike and depress the levers of said valves, substantially as and for the purpose specified.

578,973. **COMBINED BILL AND RECORD BOOK.** ROBERT G. CRAIG, St. Louis, Mo. Filed Oct. 17, 1896. Serial No. 609,172. (No model.)



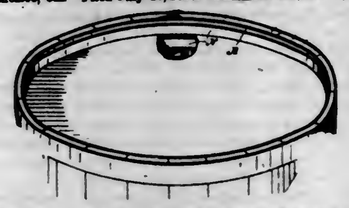
Claim.—1. A combined bill and record book, consisting of record-sheets and sheets of detachable blanks, there being two sheets of blanks for each record-page, the blanks of one sheet being upon a different part of the sheet than the blanks of the companion sheet, substantially as specified.

2. A combined bill and record book, consisting of record-pages and two or more sheets of detachable blanks for each record-page, the blanks of one sheet being upon a different part of the sheet than the blanks of the companion sheet, substantially as specified.

3. A combined bill and record book, consisting of record-sheets and two or more sheets of detachable blanks for each page of said record-sheets, the blanks of one sheet being upon a different part of the sheet than the blanks of the companion sheet, substantially as specified.

4. A combined bill and record book, consisting of record-sheets and two or more sheets of detachable blanks for each page of said record-sheets, the backs of said blanks being toward the corresponding pages of said record-sheets and the blanks of one sheet being upon a different part of the sheet than the blanks of the companion sheet, substantially as specified.

578,974. **COMPOSITE BARREL.** ORLIN W. CRAWFORD, San Francisco, Cal. Filed July 17, 1896. Serial No. 599,512. (No model.)

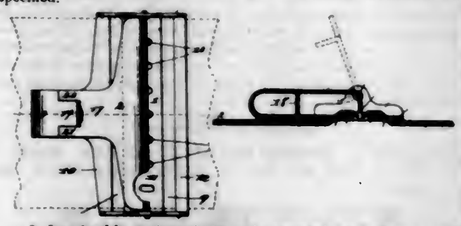


Claim.—As an improved article of manufacture, a barrel or package having a wooden exterior and a metal interior and consisting of an onter cylinder formed of hoops and longitudinally-disposed staves, and a metal lining, forming the interior of the barrel, and corresponding with the length of the staves whereby they extend between the outermost limits of the latter, interior hoops fixed directly against the metal lining at points inside of the ends of the same, wooden heads with metal plates covering their inner sides, adapted to rest upon the interior hoops, and other interior hoops placed upon the outer portions of the heads and against that portion of the metal lining which projects beyond the heads to the outermost limits of the staves, and securing devices passing through the hoops, staves, and overlapping edges of the lining.

578,975. **BACK-BAND BUCKLE.** JAMES W. CRONAN, Point Pleasant, Mo. Filed May 25, 1896. Serial No. 593,040. (No model.)

Claim.—1. In a buckle, a clamp having teeth, part of said teeth being designed to pass through the material to be engaged by the

buckle, and part of said teeth being designed to press into said material, and a gripping-plate under said teeth, said gripping plate having depressions by which the longer of said teeth are permitted to pass below the plane occupied by the said material, substantially as specified.



2. In a buckle, a pivoted clamp, long and short teeth upon said clamp, and a gripping-plate under said teeth, said gripping-plate having depressions designed to allow the points of the longer teeth to descend into a plane below the plane occupied by the band upon which the buckle is to operate, substantially as specified.

3. In a buckle, three parallel bars joined together at their ends, the central one of said bars being designed for a gripping-plate, depressions upon the upper face of said gripping-plate, ears at each end of and above said gripping-plate, an arm projecting from the outer edge of one of said bars and forming a hook, a clamp pivoted in said ears, and long and short teeth upon said clamp, said long teeth being designed to descend into said depressions, substantially as specified.

4. In a buckle, three parallel bars joined together at their ends, the central one of said bars being designed to operate as a gripping-plate, an arm projecting outwardly from the outer edge of one of the outer bars and forming a hook, ears at the ends of and above said gripping-plate, a clamp pivoted in said ears, long and short teeth upon said clamp, depressions in the upper surface of said gripping-plate and designed to receive the ends of said long teeth, an arm projecting backwardly from said clamp, the free end of said arm being split into three pieces and the central one of said pieces being bent downwardly at right angles to have its end engage said first-mentioned arm and the outer ones of said pieces projecting backwardly to engage upon either side of the free end of said first-mentioned arm, substantially as specified.

5. In a buckle, three parallel bars joined together at their ends, an arm projecting outwardly from the outer edge of one of the outer bars and forming a hook, a clamp pivoted above said bars, an arm projecting backwardly from said clamp, the free end of said arm being split into three pieces and the central one of said pieces being bent at right angles to engage said first-mentioned arm and thus close said hook, substantially as specified.

6. In a buckle, three parallel bars joined together at their ends, the central one of said bars being designed to operate as a gripping-plate, depressions from the face of said gripping-plate, said depressions being located approximately midway between the sides of said gripping-plate, and a pivoted clamp provided with teeth and in position to have the points of said teeth operate in said depressions, substantially as specified.

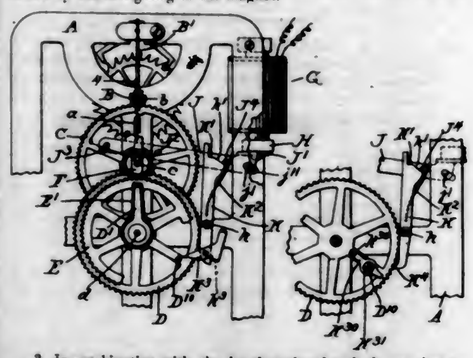
7. In a buckle, a gripping-plate, a series of depressions formed from the face of said plate, said depressions extending in a line longitudinally of the plate and at approximately the center of said plate, and a pivoted clamp provided with teeth and in position to have the points of said teeth operate in said depressions, said teeth, when in their locked position, extending directly toward points midway between the sides of said gripping-plate and on a line with the pivots of said clamp, substantially as specified.

8. In a buckle, a gripping-plate, a series of depressions formed from the face of said plate, said depressions extending in a line longitudinally of said plate and at approximately the center of said plate, a pivoted clamp provided with alternating long and short teeth and in position to have the points of said long teeth operate in said depressions and the points of said short teeth operate adjacent to the face of said plate, substantially as specified.

578,976. ELECTRIC CLOCK-SETTING MECHANISM. CHARLES M. CROOK, Elgin, Ill., assignor to Charles S. Burton, trustee, Chicago, Ill. Filed Jan. 11, 1897. Serial No. 618,806. (No model.)

Claim.—1. In combination with the hands-train of a clock, an electromagnet mounted on the clock-frame and a circuit in which the same is energized; an armature for said magnet and a lever connected thereto and actuated by the movement of the armature toward and from the magnet-poles, said lever having a pin or projection which, in said movement of the lever, is protruded through the plane of rotation of a wheel in said train and moved laterally after such protrusion to encounter a spoke or web of said wheel and rotate the same.

2. In combination with the hands-train of a clock, an electromagnet and a circuit in which the same is energized; a lever fulcrumed on the clock-frame and adapted to swing obliquely toward the plane of rotation of a wheel in said clock and having a pin or finger which, in such oblique movement, extends through and moves laterally in the plane of rotation of said wheel, and an armature for the magnet connected with said lever, whereby said movement of the lever is caused by the energizing of the magnet.



3. In combination with the hands-train of a clock, an electromagnet and a circuit in which the same is energized; an armature for the magnet and a lever connected to and actuated by the armature in the movement of the latter toward and from the magnet-poles, such lever having two pins or fingers which in such movement of the lever are protruded through the plane of a wheel of said train and moved laterally after such protrusion, said pins or fingers being so located that in such lateral movement they encounter the web or spokes of said wheel at opposite sides of the center of the wheel; whereby they tend, one to rotate the wheel, and the other to arrest its rotation.

4. In combination with the hands-train of a clock, an electromagnet and a circuit in which the same is energized, an armature for the magnet; a lever to which the same is attached having trunnions by which it is fulcrumed on the clock-frame, the bearing for one of said trunnions being elongated to permit one end of the armature to drop away from the magnet farther than the other, whereby the armature's movement toward and from the magnet causes the lever to swing toward and from the plane of rotation of a wheel in said train and also to oscillate in the general direction of such plane, said lever having a pin or finger which is protruded through the plane of such wheel by the first-mentioned movement of the lever, and moved laterally in such plane by the second-mentioned movement as and for the purpose set forth.

5. In combination with the clock-frame having front and back plates, the hands-train mounted on the front plate, the electromagnet mounted on the frame and the circuit in which it is energized; the lever-arm J having the trunnions j' and j^{10}, the former journaled in the front plate, and the latter in the back plate, the journal-bearing in said back plate being elongated or slotted in a direction approximating the general direction of the lever-arm; whereby said rear trunnion may have a movement in a direction to cause the lever-arm J to approach and recede from the front plate, said lever-arm having the pins J^9 and J^3 adapted to be protruded through a wheel in said hands-train by such movement of the rear trunnion, whereby the movement of the armature toward the magnet-poles after the pins are thus protruded causes the latter to encounter the web or spokes of such wheel to actuate the latter.

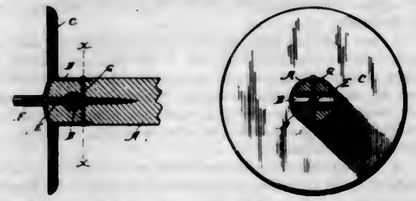
6. In combination with the hands-train of a clock, an electromagnet mounted on the frame and a circuit in which it is energized; an armature for such magnet and a lever connected thereto and actuated thereby and adapted to act upon a wheel in said train when the magnet is energized; a second lever adapted to lock the first lever against the movement in which it may actuate the said train-wheel, and an abutment on a wheel of the train adapted as such wheel rotates to actuate said locking-lever and disengage it from the first lever, whereby the synchronizing movement of the first lever is permitted only after the second lever has been actuated by said abutment.

7. In combination with a hands-train of a clock and an electromagnet mounted on the frame and a circuit in which such magnet is energized, an armature for the magnet; a lever connected to and actuated by the armature and adapted when so actuated to actuate a wheel of the hands-train to set the hands; a second lever adapted to lock the first lever against such setting movement; a wheel in the hands-train adapted to actuate the locking-lever, the means for the actuation of the lever by such wheel consisting of a dog pivoted on one of said parts and having a limited range of movement about its pivot and adapted to normally stand at one limit of said range of movement, and an abutment on the other of said parts adapted to encounter said dog as the wheel revolves, and cause it to be moved to the opposite limit as the wheel continues to revolve; whereby, at such opposite limit the engagement of the wheel and lever becomes positive and the lever receives the unlocking movement; the synchronizing-lever having an abutment which acts upon the locking-lever in the synchronizing movement to move said locking-lever in a direction to disengage the abutment and dog and permit the latter to resume its normal position, whereby the return of the locking-lever to locking position is permitted without causing a reëncounter of the dog and abutment.

8. In combination with the hands-train of a clock, an electromagnet mounted on the frame and a circuit in which such magnet is energized; an armature for the magnet; a lever to which the same is attached having trunnions by which it is fulcrumed on the clock-frame; the bearing for one of said trunnions being rotated to permit one end of the magnet to drop away from the trunnion farther than the other, said lever having a pin or finger which is protruded through the plane of rotation of a wheel in said train by the lateral movement of the lever which results from the straightening up of the armature when attracted toward the magnet; a locking device which prevents the oscillation of the lever about its fulcrum in a direction to permit the armature to approach the magnet and a stop projecting from the frame which prevents said lateral movement of the lever while the armature is prevented from approaching the magnet; whereby the finger of the lever is prevented from protruding into said wheel of the train without also moving in a direction to actuate said wheel.

9. In combination with the hands-train of a clock and an electromagnet mounted on the train and a circuit in which such magnet is energized, an armature for the magnet; a lever connected to and actuated by the armature and adapted when so actuated to actuate a wheel of the hands-train to set the hands; a second lever adapted to lock the first lever against such setting movement; a dog pivoted on said lever and having a limited range of movement with respect thereto and tending normally to stand at one limit of said range; a wheel in the train having an abutment which, as the wheel rotates, engages the dog when said dog is in said normal position and the lever is in locking position; the hand-setting lever having an abutment which engages the locking-lever in the setting movement of the former and actuates the locking-lever in a direction to disengage the dog from the abutment, substantially as and for the purpose set forth.

578,977. JACK-SPOOL. JAMES R. DUNGAN and SHERMAN KLINGIN, Little Falls, N. Y. Filed July 3, 1896. Serial No. 598,051. (No model.)

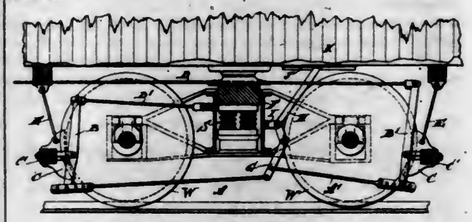


Claim.—1. A jack-spool consisting of two heads each provided with sockets for fitting over the ends of said shaft, threaded pins adapted to pass through said heads and be screwed into the shaft, rivets G passed through the ferrules and pins, and hard-wood plugs set in the ends of said shaft in front of said rivets, substantially as and for the purpose set forth.

2. In combination with the shaft of a jack-spool, two heads of circular shape, ferrules formed with said heads adapted to fit over the ends of the shaft, threaded pins adapted to pass through the central openings of said heads and be threaded into said shaft, spindles F formed with said pins, rivets G, by means of which the heads, shaft and pins are secured in their proper relative positions, and a plug B of hard wood placed in front of each of the rivets, substantially as shown and described.

578,978. AUTOMATIC SLACK-ADJUSTER FOR CAR-BRAKES. JAMES R. DOWNING and HARRY R. DOWNING, Arkansas City, Kans. Filed Jan. 20, 1897. Serial No. 619,843. (No model.)

Claim.—1. An automatic slack-adjuster for car-brakes, consisting of a bottom rod made in two parts, an equalizing-lever to which the two parts of the bottom rod are attached, and a bell-crank lever pivoted to the truck-frame, said bell-crank lever being connected at one end to the equalizing-lever and having its other end bearing against the bottom of the car-body, substantially as shown and described.

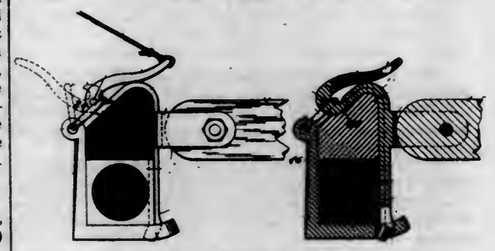


2. An automatic slack-adjuster for car-brakes, consisting of a bottom rod made in two parts, an equalizing-lever to which the two parts of the bottom rod are attached, and a lever pivoted to the equalizing-lever and operated by the variation in height of the car-body above the truck, to change the angle of the equalizing-lever and the length of the bottom rod, substantially as shown and described.

3. An automatic slack-adjuster for car-brakes, consisting of a bottom rod made in two sections, an equalizing-lever connected to both sections, and means operated by the variation in height of the car-body, to vary the position of the equalizing-lever and the length of the bottom rod, substantially as shown and described.

4. An automatic slack-adjuster for car-brakes, consisting of a bottom rod made in two sections, an adjustable connection between said sections adapted to vary the length of the bottom rod, and means operated by the variation in height of the car-body above the trucks, to operate said adjustment, substantially as shown and described.

578,979. HORSE-DETACHER. JAMES H. DUNNINGTON, Washington, Pa. Filed Dec. 30, 1896. Serial No. 617,494. (No model.)



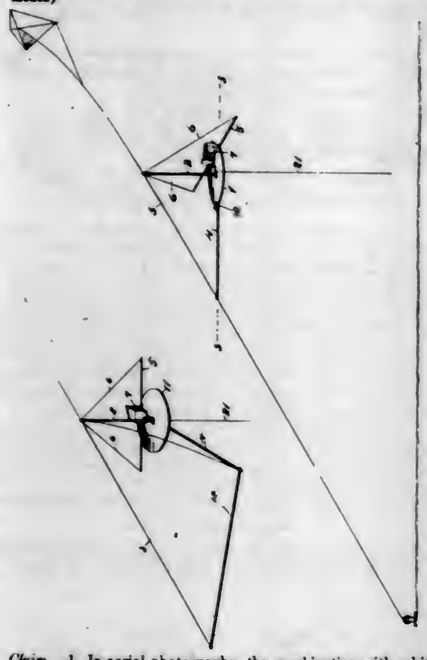
Claim.—1. A horse-detacher consisting of a clip made in two sections, one section being provided with a means for attachment to a thill, the lower end of the thill-carrying section being arranged to enter the lower portion of the opposing section, a lock-lever carried by the thill-section of the clip, and a link carried by the opposing section, through which the lock-lever is arranged to be passed, as and for the purpose specified.

2. In a horse-detacher, a clip comprising a body-section and a thill-carrying section, the thill-carrying section terminating at its lower end in a head which is loosely entered into the body-section, a lock-lever carried by the upper portion of the thill-section of the clip, having a cam-surface adjacent to its pivot, and a link carried by the body-section of the clip, adapted to be engaged by the cam portion of the lock-lever, as and for the purpose specified.

3. A horse-detacher consisting of a body-section of angular formation and a section arranged for attachment to a thill, the thill-section having one of its ends loosely entered into the body-section, the upper portion of the thill-section being arched, a lever fulcrumed upon the arched portion of the thill-section, being provided with hooks adjacent to its pivot, and a link carried by the upper portion of the body-section, being adapted for engagement by the hooks of the said lever, as and for the purpose set forth.

4. The combination, with an axle and axle-bed, of a horse-detacher comprising a body-section and a section fitted for attachment to a thill, the body-section being of angular formation, one member extending at the rear of the axle and axle-bed, the other member extending forwardly beneath the axle, being provided at its forward end with an opening, the thill-section terminating at its lower end in a head which is loosely fitted in the lower portion of the body-section, the upper portion of the thill-section being fitted to the upper portion of the axle-bed, and a lever fulcrumed upon the upper end of the thill-section, being provided with forwardly-extending lugs near its pivot, and a link carried by the upper portion of the body-section and adapted to be engaged by the hooks of the said lever, as and for the purpose set forth.

578,980. AERIAL PHOTOGRAPHIC APPARATUS. WILLIAM A. EDDY, Bayonne, N. J. Filed Nov. 24, 1896. Serial No. 613,302. (No model.)



Claim.—1. In aerial photography, the combination with a kite and kite-string, of a photographic camera supported by the string below the kite, and means for holding the camera to point in any desired direction relatively to the sailing direction of the kite, substantially as specified.

2. The combination with a kite and kite-string, of a hanger depending from the kite-string, a boom extended from the lower portion of said hanger to the kite-string, a platform supported by the hanger, and means for supporting a camera on the platform, substantially as specified.

3. An aerial photographic apparatus, comprising a hanger adapted to be secured to a kite-string, a boom extended from said hanger and adapted for connection to a kite-string, a platform mounted to rotate relatively to the hanger, means for securing the platform as adjusted, and a camera held adjustably mounted on the platform, substantially as specified.

4. An aerial photographic apparatus, comprising a hanger adapted for connection with a kite-string, a boom extended from the lower portion of said hanger and adapted for connection with a kite-string, a platform supported by the hanger, a camera-holder mounted on said platform, and means for operating the shutter of a camera in the holder, substantially as specified.

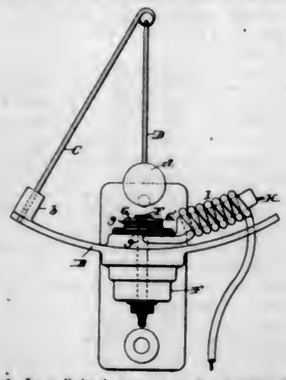
5. An aerial photographic apparatus, comprising a hanger adapted to be attached to a kite-string, a boom extended from the lower portion of said hanger and adapted for connection with the kite-string, a platform supported by said hanger, a camera-holder of box-like construction having a hinge connection at its front end with the platform, means for vertically adjusting the rear end of the holder, and means for operating the shutter of a camera in the holder, substantially as specified.

6. An aerial photographic apparatus, comprising a hanger adapted for connection with a kite-string, a boom extended from the lower end of said hanger and adapted for connection with the kite-string, a platform supported by the hanger, a camera-holder of box-like construction having hinge connection with the platform, means for elevating the rear end of the camera-holder, a hinged arm extended over said camera-holder and adapted to engage the shutter-operating button of a camera in the holder, and a string extended from said arm, substantially as specified.

7. An aerial photographic apparatus, comprising a hanger adapted for engagement with a kite-string, a platform supported by said hanger, a series of camera-holders mounted on said platform and pointed in various directions, and means for simultaneously operating the shutters of the cameras in the several holders, substantially as specified.

8. An aerial photographic apparatus, comprising a hanger adapted to be secured to a kite-string, a boom extended from the lower end of said hanger and adapted for connection with the kite-string, a cross-bar on the front end of said boom, braces extended from the ends of said cross-bar to a connection with the hanger, a platform supported by the hanger, and a camera-holder on the said platform, substantially as specified.

578,981. LIGHTNING-ARRESTER. WALTER K. FREEMAN, Fort Wayne, Ind. Filed July 5, 1895. Serial No. 555,051. (No model.)



Claim.—1. In a lightning-arrester, the combination with the bracket or support, fixed electrode carried thereby and the movable electrode having a magnetic pendulous end normally standing in proximity to but out of contact with the fixed electrode, of the curved electromagnet located in proximity to and at one side of the fixed electrode but out of the path of movement of the pendulous end of the movable electrode, whereby said movable electrode is permitted to have a free movement, said electromagnet being connected in circuit through the air-gap between the electrodes; substantially as described.

2. In a lightning-arrester, the combination with a bracket or support carrying a fixed electrode, and a magnetic pendulous electrode having a magnetic end suspended to normally hang in proximity to but out of contact with the fixed electrode, of an electromagnet curved to conform to the arc described by the pendulous position of the movable electrode, located at one side of said electrodes in position to deflect the pendulous electrode away from the fixed electrode, said magnet being connected in circuit through the air-gap between the electrodes; substantially as described.

3. In a lightning-arrester, the combination with the bracket or support and the pendulous electrode, of the insulated electrode projecting in proximity to, but not in contact with the pendulous electrode, the curved core on the bracket projecting laterally from the fixed electrode, and the circuit connections passing about said core; to constitute a magnet, and connected with the fixed electrode; substantially as described.

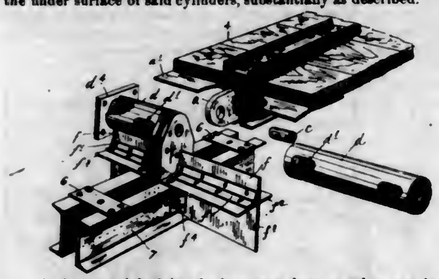
4. In a lightning-arrester the combination with the bracket or support and the pendulous or movable electrode, of the fixed electrode, an insulator for said electrode mounted in the bracket, a series of washers with interposed disks of insulation surrounding the fixed electrode, a core carried by the bracket and projecting at one side of the fixed electrode, and a circuit connection coiled about the core and connected with the bottom washer; substantially as described.

578,982. WATER-TIGHT HINGED JOINT FOR BEAR-TRAP DAMS OR OTHER USES. OTIS W. GETCHELL, Minneapolis, Minn. Filed Jan. 4, 1897. Serial No. 617,976. (No model.)

Claim.—1. A water-tight hinge-joint, for bear-trap dams or other uses, comprising spacing-cylinders and a follower-plate cooperating to fill and close the joint-space between the hinge-connected parts, substantially as described.

2. A water-tight hinge-joint, for bear-trap dams or other uses, comprising cylinders in the joint-space between the pivotally-connected parts, a follower-plate lapping the top surfaces of said cylinders, in the pivotal movement, and a yielding or spring abutment-plate water-pressed against the under surfaces of said cylinders, substantially as described.

3. A water-tight hinge-joint for bear-trap dams or other uses, comprising male and female hinge-lugs, closed cylinders in the joint-space between the pivotally-connected parts, with the ends of said cylinders abutting the female hinge-lugs, and said cylinders provided with hand-holes for the insertion and removal of the hinge-pins and other parts, a follower-plate lapping the top surfaces of said cylinders, and a yielding or spring abutment-plate water-pressed against the under surface of said cylinders, substantially as described.



4. A water-tight joint, for bear-trap dams or other uses, involving male and female hinge-lugs, spacing and filling cylinders in the joint-space between the hinge-connected parts, with their ends abutting said female hinge-lugs, and a yielding abutment-plate water-packed against the under surfaces of said cylinders, substantially as described.

5. In a bear-trap dam, the combination with a main leaf having the male hinge-lugs *a* and the follower-plates *a'*, of the female hinge-lugs made up of the plates *b b'* riveted together set between and riveted to channel-irons forming the anchored sills, the spacing-cylinders *g* carried by the hinge-pins, provided with the hand-holes *d'* and locked to the female hinge-lugs, the yielding or spring abutment-plates *f*, the horizontal plates f^2, the bottom filling-plates f^3 and angle-irons f' f^4 all arranged and operating, substantially as described.

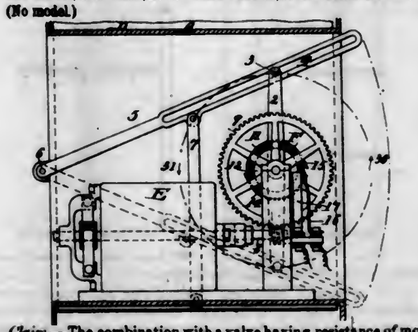
6. In a bear-trap for dams, the combination with a main leaf having the hinge-lug *a* and follower-plate *a'*, of the anchored lugs composed of the plates *b b'*, as described, the anchored sills composed of the channel-bars 7 tied together and embracing said anchored lugs with said lugs made fast thereto, the spacing-cylinders *d* with hand-holes *d'* carried on the hinge-pin *c* and held against rotation with their hand-holes facing downstream, the filling-plates *f* f^3 below said cylinders, the angle-irons f' f^4 and the socket-plates d^4, all arranged and operating substantially as described.

578,983. DEVICE FOR CONNECTING FLEXIBLE TUBING. JOSEPH B. GREEN, Janesville, Wis. Filed Nov. 18, 1895. Serial No. 569,363. (No model.)



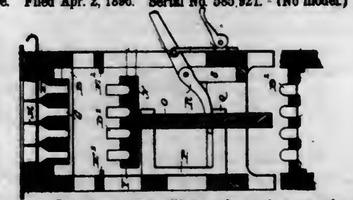
Claim.—In a hose-coupling, a tube having an externally-screw-threaded portion, and a series of annular tapering ribs at one end, the ribbed end being of less diameter than the screw-threaded portion, in combination with a nut having an internally-screw-threaded conical aperture the threads of the smaller portion of the nut engaging the threads on the sleeve, whereby the hose is clamped between the ribs on the sleeve and the threads in the nut, substantially as described.

578,984. TEMPERATURE-CONTROLLING APPARATUS. SIDNEY GREEN, New York, N. Y. Filed June 16, 1896. Serial No. 595,745. (No model.)



Claim.—The combination with a valve having resistance of movement in one direction, of an electric motor for actuating said valve, a rotary crank operated by the motor and acting on a vibrating arm connected with said valve so that a long radius of the arm is engaged in moving the valve against its resistance and a short radius of the arm is engaged when the valve is moved in an opposite direction, an electric generator, a main circuit, a circuit-closer, and an electric switch operated by said motor and electrically connected with the motor-operating circuit whereby the said crank is arrested at a point intermediate to its range of travel on said vibrating arm.

578,985. CAPSULE-FILLING MACHINE. FRANK R. GROVE, Mansfield, Ohio, assignor to Sarah Grove and George Mitchell, same place. Filed Apr. 2, 1896. Serial No. 585,921. (No model.)

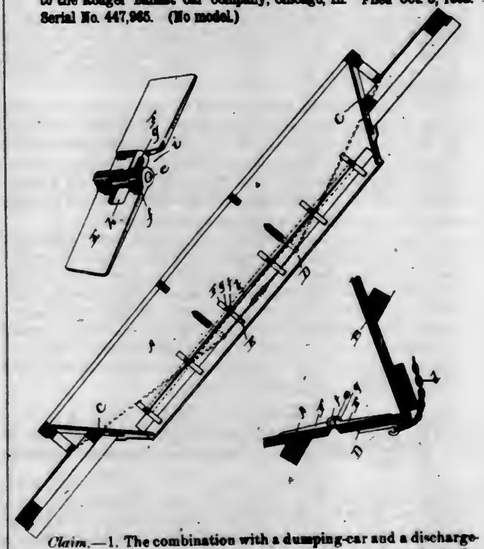


Claim.—1. In a device for filling and capping capsules a frame, having a box formed upon the top of the same, a recessed plate placed within the same the said recesses or depressions formed upon the upper side into square cells forming a knife-edge, the under side countersunk, to guide the ends of the capsules into line with the recesses or depressions, a slide placed above the said plate to retain the powder, a dividing-rack above the said recess or depression and adapted to divide the powder into equal parts, substantially as shown and described.

2. In a device for filling and capping capsules, a suitable frame provided upon the top with a recessed conducting-plate, a slide and a directing-rack located above the recessed conducting-plate, a table placed below the same operating in suitable guides and having a vertical movement, a capsule-plate having a number of cup-shaped recesses or depressions, a capsule-cap plate having a number of recesses or depressions, the said recesses or depressions reduced in size at or near the bottom and countersunk below the flanges, the capsule adapted to be filled by one movement of the machine, substantially as described and shown.

3. In a device for filling and capping capsules, perforated plates for receiving and spacing capsules, a plate for holding the caps, a suitable device to raise the capsules to be filled and hold until filled, suitable flanges formed in the frame to support the cap-plate, the said plate adapted to guide the capsules into the caps, substantially as shown and described.

578,986. DUMPING-CAR. ELI S. HART, Clinton, Iowa, assignor to the Rodger Ballast Car Company, Chicago, Ill. Filed Oct. 5, 1892. Serial No. 447,965. (No model.)



Claim.—1. The combination with a dumping-car and a discharge-door arranged longitudinally of the car and at an angle to the body, of a series of hinges constructed to move apart without disengage-

ment essentially as set forth, whereby the deflection of the center of the car-body is accommodated by the hinges and binding is obviated, substantially as specified.

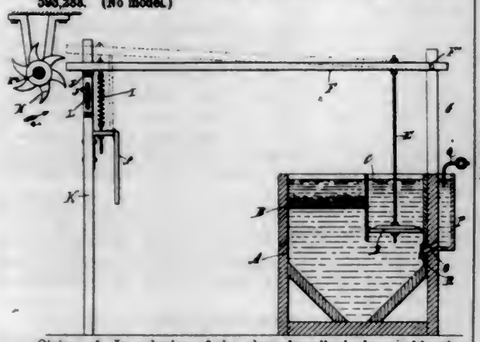
2. The combination with a dumping-car and a discharge-door arranged longitudinally of the car and at an angle to the body, of a series of hinges, one leaf of each of which has an elongated eye for the pintle, whereby the deflection of the center of the car-body is accommodated by the hinges and binding is obviated, substantially as specified.

578,987. MECHANISM FOR PROPELLING VESSELS. JASPER HAYS, Nashville, Tenn. Filed Mar. 24, 1896. Serial No. 584,667. (No model.)



Claim.—The combination with the hull having a compartment under the stern thereof, a horizontal shaft arranged parallel with the upper wall of the hull and carrying propellers, a shaft arranged above the horizontal shaft and at an incline and a single propeller on the outer end of said inclined shaft, said propeller being of larger size than the others and forming the outer propeller of the series.

578,988. DEVICE FOR OPERATING JIG-PLUNGERS. ADREN L. HEASTON, Bingham Cañon, Utah. Filed May 27, 1896. Serial No. 593,283. (No model.)



Claim.—1. In a device of the class described, the combination with a tank, a pivoted and spring-pressed lever above the tank, and a plunger secured to the lever near its pivoted end, of a support adjacent to the free end of the lever, a cushion on the support and against which the free end of the lever is normally held by its spring, and a cam engaging the said free end of the lever, substantially as described.

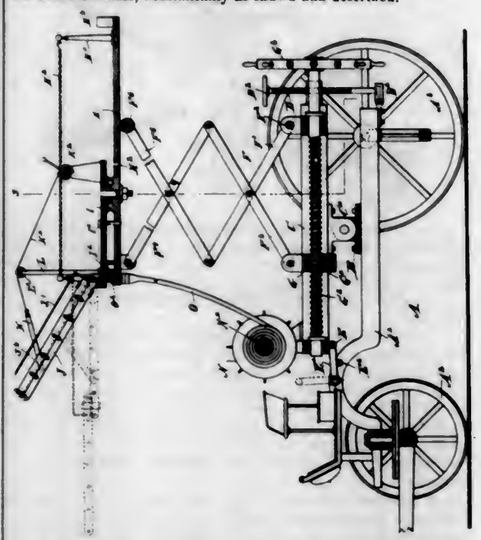
2. In a device of the class described, the combination with a tank, a lever pivoted at one end above the tank, and a plunger secured to the lever near its pivoted end, of a support adjacent to the free end of the lever, a cushion adjustably secured to the said support, a spring secured to the support and to the free end of the lever and normally holding the lever in engagement with the cushion, and a cam engaging the free end of the lever, substantially as described.

3. In a device of the class described, the combination with a tank having a bracket projecting upwardly therefrom, and provided with a sieve and a plunger-box, of a lever pivoted at one end to the bracket, a plunger-rod secured to the lever near its pivoted end and carrying a plunger at its lower end, a support adjacent to the free end of the lever, a cushion adjustably secured to the support, a spring secured to the support and lever and normally holding the free end of the lever in engagement with the cushion, and a cam engaging the free end of the lever, substantially as described.

578,989. FIRE-ESCAPE AND WATER-TOWER. MICHAEL W. HENNESSEY, Brooklyn, N. Y. Filed June 13, 1896. Serial No. 595,392. (No model.)

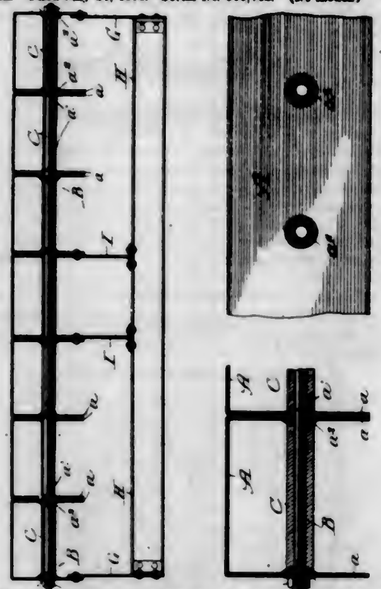
Claim.—1. A fire-escape, provided with a platform adapted to be raised and lowered, a turn-table mounted on the said platform, a ladder pivoted on the said turn-table, a yoke connected with the said ladder, a rope connected with the said yoke, and a windlass held on the said turn-table and on which winds the said rope, substantially as shown and described.

2. A fire-escape, provided with a platform adapted to be raised and lowered, a turn-table mounted on the said platform, a ladder pivoted on the said turn-table, a yoke connected with the said ladder, a rope connected with the said yoke, a windlass held on the said turn-table and on which winds the said rope, and a post carrying a pulley over which passes the said rope, the said post being held on the said turn-table, substantially as shown and described.



3. A fire-escape, provided with a truck, a platform-frame pivoted on the said truck, and a cross-bar adapted to support the free end of the said platform-frame, the said cross-bar being held on arms pivoted to the truck-frame, substantially as shown and described.

578,990. METALLIC RAILWAY-CAR. FRED HERON, Chicago, Ill. Filed July 20, 1896. Serial No. 599,762. (No model.)



Claim.—1. In a car of the class described, the combination of several metal channel-beams forming part of the structural members of a car, several of which are provided with cup-shaped projections and the next adjacent beams provided with cup-shaped recesses interlocking with the projections to prevent longitudinal or ordinary displacement, and bolt mechanism for tying the beams together at the points where the projections and recesses are located, substantially as described.

2. In a car of the class described, the combination of several channel-beams arranged lengthwise to form the platform of a car and with their legs extending downwardly, some of such beams having cup-shaped projections on their legs and the rest having cup-shaped recesses on their legs or flanges interlocking one with the other to prevent longitudinal and vertical displacement, bolt mechanism passed through the cup-shaped portions of the legs, and thimbles surrounding the bolts and contacting cup-shaped portions to act as spacers and in connection with the bolts to tie the parts together, substantially as described.

578,991. BELT-FASTENER. JONATHAN HILL, Jersey City, N. J. Filed Dec. 10, 1896. Serial No. 615,084. (No model.)

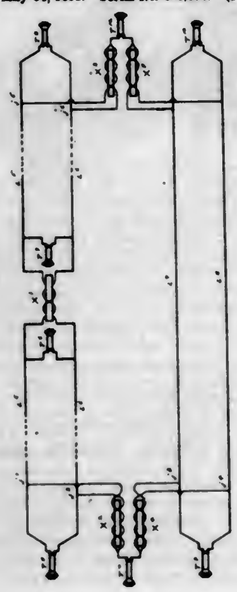


Claim.—1. A belt-fastener, consisting of a locking-bar terminating in heads which extend beyond one of the side faces of the bar, washers adapted to be passed over the heads of the locking-bar, and a key adapted to be passed through the washers and in engagement with the straight side face of the locking-bar, as and for the purpose specified.

2. The combination, with the ends of a belt, the said end portions of the belt being provided with alining openings, of locking-bars passed through registering openings in the belt, the said locking-bars terminating in heads at their ends and the heads extending beyond the outer side faces of the locking-bars, the inner side faces being substantially straight, washers passed over the heads of the locking-bars to an engagement with the belt, and keys passed through the washers to an engagement with the under or straight surfaces of the locking-bars, the ends of the said keys being bent upon the said washers, as and for the purpose specified.

3. The combination with a belt having its ends beveled and provided with registering openings at its end portions, of a locking-bar passed through registering openings, the said locking-bars extending beyond the outer faces of the belt, terminating in heads at their extremities, which extend beyond the plane of the upper side faces of the locking-bars, the bottom of the locking-bars being substantially straight, washers passed over the ends of the locking-bars to a position between the heads and the outer sides of the belt, and keys passed through the washers and through registering openings in the belt to an engagement with the under or straight surfaces of the locking-bars, the extremities of the keys being forced to an engagement with the washers, as and for the purpose set forth.

578,992. MULTIPLEX TELEPHONY. SILAS W. HOLMAN, Boston, Mass. Filed May 31, 1893. Serial No. 476,090. (No model.)



Claim.—1. In combination with two original metallic telephone-circuits, each consisting of two conductors and a telephone at each end of each, an added metallic telephone-circuit consisting, at each end, of a telephone, each terminal of which is connected in multiple with the two conductors of one original circuit through two wires wound equally about each portion of a magnetic core, in opposite directions regarding currents which flow through the two windings in multiple.

2. In combination with an original metallic telephone-circuit, consisting of two conductors and a telephone at each end, an added telephone-circuit consisting, at each end, of a telephone one terminal of which is connected in multiple with the two conductors of one original circuit through two wires wound equally about each portion of a magnetic core in opposite directions regarding currents which flow through the two windings in multiple, while the other terminal is connected to the corresponding telephone at the distant end by one or more conductors or by the earth.

3. In combination with two original metallic telephone-circuits, each consisting of two conductors and a telephone at each end of each, two wires connecting the two conductors of one original circuit to the two conductors of the other original circuit, said wires being wound equally about each portion of a magnetic core in opposite directions regarding currents which flow through the two windings in multiple.

4. In combination with two original metallic telephone-circuits, each consisting of two conductors and a telephone at each end of each, an added metallic telephone-circuit consisting, at each end, of a telephone, each terminal of which is connected in multiple with the two conductors of one original circuit through the two windings of a differentially-wound electromagnetic coil.

5. In combination with an original metallic telephone-circuit, consisting of two conductors and a telephone at each end, an added telephone-circuit consisting, at each end, of a telephone, one terminal of which is connected in multiple with the two conductors of one original circuit through the two windings of a differentially-wound electromagnetic coil, while the other terminal is connected to the corresponding telephone at the distant end by one or more conductors or by the earth.

6. In combination with two original metallic telephone-circuits, each consisting of two conductors and a telephone at each end of each, two wires connecting the two conductors of an original circuit to the two conductors of the other original circuit, said wires being differentially wound about a magnetic core.

7. As an equalizer for two undulatory currents flowing in multiple through two conductors, a double-wound impedance-coil, consisting of a magnetic core with two wires wound about each portion of it in opposite directions regarding currents which flow through the two windings in multiple, one of said windings being connected to each of said conductors.

8. In a line for electrical communication, the combination of two conductors; receiving and transmitting instruments connected therewith, and a differentially-wound electromagnetic coil which has its two windings respectively connected to the two conductors and which acts as an equalizer of the currents flowing in multiple therein and not as a transmitter or receiver.

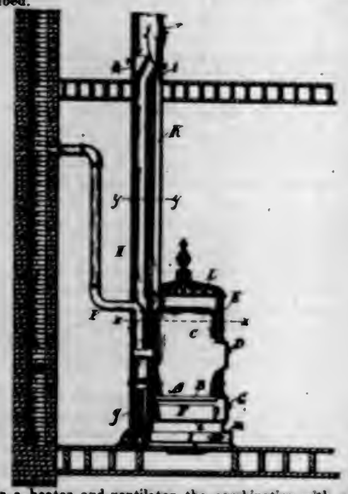
9. In combination with two original metallic telephone-circuits, each consisting of two conductors and a telephone at each end of each, an added metallic telephone-circuit consisting, at each end, of a telephone, each terminal of which is connected in multiple with the two conductors of one original circuit through two wires wound equally about each portion of a magnetic core, in opposite directions regarding currents which flow through the two windings in multiple.

10. In combination with an original metallic telephone-circuit, consisting of two conductors and a telephone at each end, an added telephone-circuit consisting, at each end, of a telephone, one terminal of which is connected in multiple with the two conductors of one original circuit through two wires wound equally about each portion of a magnetic core in opposite directions regarding currents which flow through the two windings in multiple, while the other terminal is connected to the corresponding telephone at the distant end by one or more conductors or by the earth.

578,993. HEATER AND VENTILATOR. JOSEPH W. JOHNSON, Hartwell, and WILLIAM W. ESSIGH, Cincinnati, Ohio, assignors to the Peck-Williamson Heating and Ventilating Company, of Ohio. Filed June 6, 1896. Serial No. 594,613. (No model.)

Claim.—1. In a heater and ventilator, the combination with an outer shell having an open top and a fresh-air register or opening in its bottom, of a heater within said shell, a vent-flue forming part of and extending up from said shell, said vent-flue being out of communication with said outer shell and having a foul-air register in its base, and a smoke-pipe for the heater entering said vent-flue and passing

upward therethrough in a vertical direction for a short distance to induce a draft in said flue, and then out to the chimney, substantially as described.



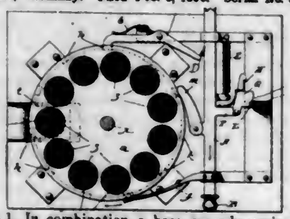
3. In a heater and ventilator, the combination with a double-walled outer shell having an open top and a fresh-air register or opening in its bottom, of a heater within said shell, a vent-flue forming part of and extending up from said shell, said vent-flue being out of communication with said outer shell and having a foul-air register in its base, and a smoke-pipe for the heater entering said vent-flue and passing upward therethrough in a vertical direction for a short distance to induce a draft in said flue, and then out to the chimney, substantially as described.

3. In a heater and ventilator, the combination with a heating-shell, of a vent-flue forming part of and extending up from said shell, a warm-air flue lying within said vent-flue and traversing said vent-flue for a part of its length, said warm-air flue communicating at its lower end with said shell and at its upper end with a register in the room above, substantially as described.

4. In a heater and ventilator, the combination of the heating-shell, a vent-flue forming part of and extending up from said shell, a warm-air flue within said vent-flue opening at its lower end into said shell and at its upper end at a register in the room above, a deflector in the vent-flue opposite said register and a second foul-air register in the vent-flue behind the deflector, substantially as described.

5. In a heater and ventilator having an exterior heating-shell with an open top for the escape of heated air into the room containing the heater and a warm-air flue extending upward from said heating-shell, the combination therewith of a deflector hinged adjacent to the warm-air flue so as to be adjustable in said shell, and means for operating said deflector from the room above, substantially as described.

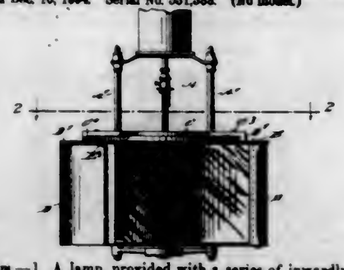
578,994. COIN-CONTROLLED VENDING-MACHINE. ABRAM JOSEPH, Berlin, Germany, assignor to John Osborn Toulkin, West End, near Berlin, Germany. Filed Feb. 8, 1896. Serial No. 578,507. (No model.)



Claim.—1. In combination, a base, an axle projecting upward therefrom, a cylinder journaled upon said axle, having holes, a series of tubes remaining stationary above the cylinder, the number of tubes being one less than the holes in the cylinder, a plate attached to the base beneath the cylinder whereby eggs are prevented from falling from the holes of the latter, an opening in the plate through which the eggs will fall, notches formed in the periphery of the cylinder, a spring-actuated lock engaging the notches, a pawl, a detent, a bar for actuating the pawl and a dog carried on the rear side of the bar to engage a notch in the frame, substantially as described.

2. In combination, a cylinder having notches in its periphery, an egg-holder over the cylinder, a lock engaging the notches, a pawl also engaging the notches for actuating the cylinder, a detent for engaging the lock, a spring-pawl having a nose engaging the notches of the periphery, and a dog on the rear of the bar to engage a notch of the frame, substantially as described.

578,995. LAMP. WILLIAM H. KINCAID, Santa Barbara, Cal. Filed Dec. 10, 1894. Serial No. 531,388. (No model.)



Claim.—1. A lamp, provided with a series of inwardly-converging reflectors grouped around a central light, and transparent panes located exteriorly of the said reflectors and extending from back of one reflector toward the reflecting-face of the adjacent reflector, substantially as described.

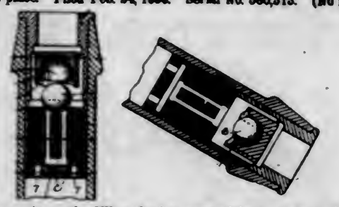
2. A lamp, provided with a frame consisting of two sections connected by a vertically-disposed hinge-joint and a series of light-directors secured to the said frame and grouped around a central light, substantially as described.

3. A lamp, comprising a frame having outwardly-diverging curved supports extending therefrom, and reflectors held in said supports and grouped around a central light, substantially as described.

4. A lamp, comprising a frame, radially-disposed reflectors secured thereto, and transparent panes each secured to the back of one reflector and extending toward the reflecting-face of the adjacent reflector, substantially as described.

5. A lamp, comprising a frame, radially-disposed reflectors secured thereto and transparent panes pivoted on the said reflectors to swing about vertical axes and extending between adjacent reflectors, substantially as described.

578,996. BOTTLE-STOPPER. THOMAS F. LANGLEY, Haverhill, Mass., assignor of two-thirds to Daniel G. Dunbar and Ed. M. Putnam, same place. Filed Feb. 24, 1896. Serial No. 580,313. (No model.)

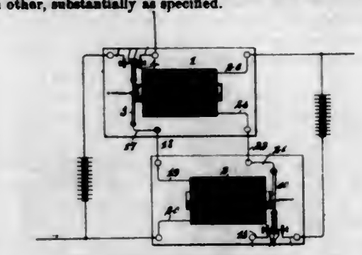


Claim.—An antirefilling device, comprising a casing adapted for insertion in a bottle-neck and provided with a valve-seat at its inner end, a check or stop between the valve-seat and the outer end or mouth of the casing, a valve movable in the casing between the seat and stop, its outer end being formed to abut against the stop, a guard secured in the casing between the stop and the mouth of the casing and provided in its under side with a recess having inclined sides, and a loose spherical weight interposed between the valve and guard and formed to enter the recess therein, said recess being of sufficient depth to give the weight a valve-closing movement, while the stop is arranged to hold the outer end of the valve at a distance from the guard when the valve is opened, whereby the ball in rolling from the recess is caused to close the valve and then lock it by entering the space between the guard and valve.

578,997. REPEATER. CHARLES W. LESSER, Cartinville, Ill. Filed Apr. 1, 1896. Serial No. 585,732. (No model.)

Claim.—1. A telegraph-repeater, comprising two relays provided with armature-levers each having two spring contacts, two stationary contact-points for each armature-lever, two batteries connected with the main lines and with the forward stationary contacts of the relays, and the electrical connections as herein described, whereby signals made on one line will be repeated on the other line.

2. A telegraph-repeater, comprising two relays provided with armature-levers each having two spring-contacts furnished with limiting-pieces, two stationary contact-points for each armature-lever, two batteries connected with the main lines and with the forward stationary contacts of the relays, and the electrical connections, the relays and their armatures being oppositely arranged with respect to each other, substantially as specified.

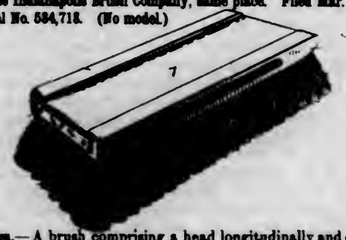


578,998. TRIPOD. ALBERT H. LOEBS, Rochester, N. Y. Filed Apr. 24, 1896. Serial No. 588,988. (No model.)



Claim.—In a device of the character described, lugs projecting both upward and downward from a disk having an opening therethrough, said lugs being curved on their inner faces to conform to the shape of a sphere, a sphere adapted to fit against said lugs, a rod secured in said sphere, said rod being adapted to engage slots formed in said lugs, a post projecting upward from the disk opposite one of the lugs said post having a screw-threaded hole formed in the post slanting downward, a thumb-screw journaled in said hole, a shoe swiveled thereto, said thumb-screw being diametrically opposite one of the lugs, as and for the purpose described.

578,999. BRUSH. EDWARD I. MILLER, Indianapolis, Ind., assignor to the Indianapolis Brush Company, same place. Filed Mar. 24, 1896. Serial No. 584,718. (No model.)

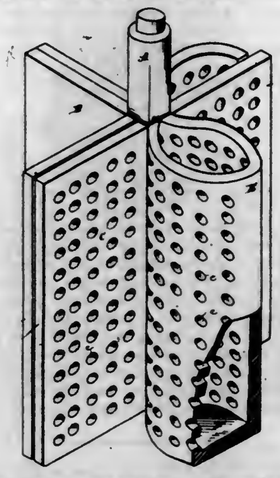


Claim.—A brush comprising a head longitudinally and centrally recessed in the back thereof with the edges of such recess provided with a groove, apertures extending through the brush-head, fibers inserted in such apertures, wires securing the fibers within such apertures, and a metallic strip placed within the recess in the back of the head and over the wires that secure the brush fibers, the edges of such strip extending into the groove at each side of the recess and its ends turned down and secured to the ends of the brush-head, substantially as shown and described.

579,000. CONVERSION OF SKINS INTO HORNY MATERIAL. CÆSAR MARTER, London, England, assignor to the Marioid Manufacturing (Parent) Company, Limited, same place. Filed May 11, 1896. Serial No. 591,147. (Specimens.) Patented in England Jan. 25, 1895, No. 1,230.

Claim.—The process of converting skins into material of a horny character, consisting in heating the same (after the conclusion of the bathing and drying processes), in oil or similar material at a temperature of about 250° Fahrenheit, or above, whereby the albuminous or similar substances are changed to a horny character; substantially as described.

579,001. BATTERY. STEPHEN J. MARTIN, Detroit, Mich. Filed May 27, 1896. Serial No. 593,355. (No model.)



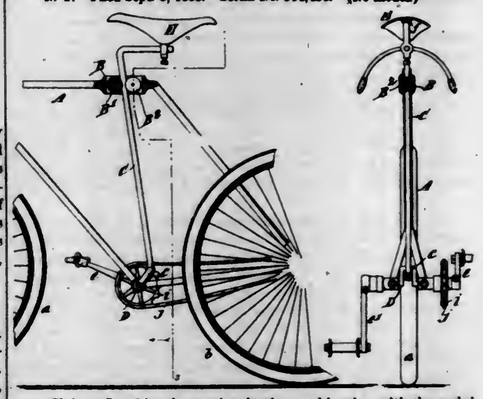
Claim.—1. In a secondary battery, an electrode consisting of a series of perforated tubes attached to and surrounding a central core said tubes adapted to contain the active material, substantially as described.

2. In a secondary battery, an electrode consisting of perforated tubes composed of conducting material, said tubes being formed around and integral with a central core which is prolonged into a stem for uniting the several elements, and being closed at their lower ends, and active material carried within said tubes, substantially as described.

3. In a secondary battery, an electrode consisting of four perforated tubes, secured to and formed around a central core in the form of a cruciform figure, said core arranged to project above the tubes for the purpose of uniting the several elements and a connecting-bar adapted to engage the projecting ends of said core, substantially as described.

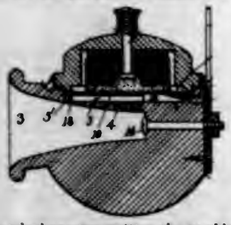
4. In a battery, the combination of the elements A', B', each of which consists of the core A, to which are secured the oval tubes E opposed to each other, and arranged around the core to form a cruciform figure, each tube of the positive element located between two of the negative element, active material located within said tubes, and connecting-bars adapted to unite the elements of each series, substantially as described.

579,002. TRICYCLE OR BICYCLE. NELSON MERRILL, Altamont, N. Y. Filed Sept. 5, 1895. Serial No. 561,438. (No model.)



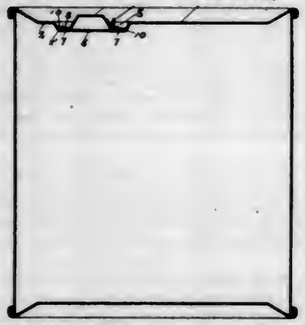
Claim.—In a bicycle or tricycle, the combination with the pedal-shaft having an intermediate crank, of a vertically-sliding saddle-supporting standard having its lower end secured to the said intermediate crank, and shoulder-straps secured to the saddle and adapted to be secured to the rider, whereby an upward pull will be exerted upon the said crank when the rider presses down upon the pedals, substantially as described.

579,008. TELEPHONE-TRANSMITTER. WILLIAM J. MOORE, Elmer, Mich. Filed May 25, 1896. Serial No. 592,956. (No model.)



Claim.—In a telephone-transmitter, the combination with a solid part having an annular funnel-shaped hole extending inwardly into the solid material, and having an annular hole intersecting said funnel-shaped hole and extending to a diaphragm, of a diaphragm resting on a ring of metal on a ledge of an annular enlargement of the intersecting hole, and the ring of metal, granular carbon, on said diaphragm, solid carbon resting against the granular carbon, a cap covering and securing the diaphragm, granular carbon and solid carbon to the solid part, a binding-post on the cap connecting the solid carbon to a source of electricity, and means for electrically connecting the metal ring, and means for pivoting the transmitter thus formed, as described.

579,004. CAN-STOPPER. FRANKLIN W. OLIN, East Alton, Ill. Filed Mar. 5, 1896. Serial No. 581,941. (No model.)



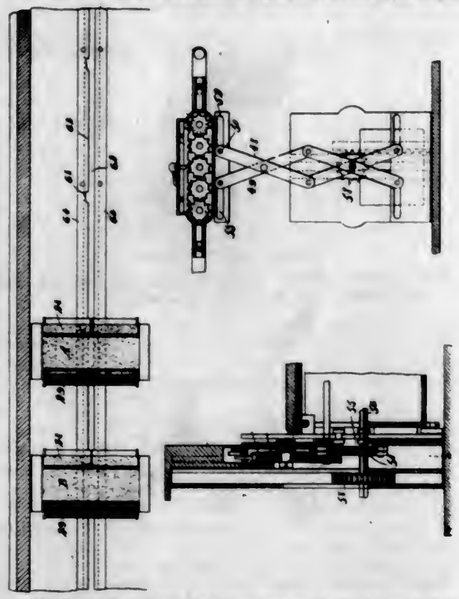
Claim.—1. In a combined can and stopper therefor, a suitable can cover or end, a depression formed in said cover, an opening formed in the base of the depression, a ledge surrounding the opening, a cap adapted to be placed over said opening and having a basal flange adapted to rest on the outer surface of the ledge, a series of openings formed in the flange, and lips forming a part of the ledge and adapted to be passed through the openings of the flange and bent in contact with the walls of the cap, substantially as set forth.

2. In a combined can and stopper therefor, a can top or cover, a depression formed in said cover, an opening formed in the base of said depression, a ledge surrounding the opening, an outwardly-conical cap having a peripheral flange at the base of the conical portion adapted to rest on the ledge formed about the opening of the depression of the cover, a series of openings formed in the flange adjacent to the lower edge of the conical portion of the cap, a corresponding series of lips formed along the free edge of the ledge, said lips being adapted to be passed through the series of openings and bent against the inclined walls of the conical portion of the cap, substantially as set forth.

3. In a combined can and stopper therefor, a can top or cover, a depression formed in said cover, an opening formed at the base of said depression, a ledge surrounding the opening, a cap having upwardly-inclined walls, a flange at the base of the inclined walls adapted to rest on the ledge formed about the opening of the cover, semicylindrical openings formed in the flange of the cap and located adjacent the lower edge of the inclined walls of the cap, a series of lips corresponding in number to the said openings and formed along the free edge of the ledge and integral therewith, said lips being adapted to be passed through the series of openings and their projecting ends deflected or bent into contact with the inclined walls of the cap, and a suitable water-tight layer of paint or similar material adapted to be interposed between the outer edge of the flange of the cap and the adjacent walls of the depression formed in the cover, substantially as set forth.

4. In a combined can and stopper therefor, a suitable can top or cover, an opening for the cover, a cap placed over the opening and having inclined walls, lips formed about the opening and adapted to be passed through the cap, and bent into contact with the inclined walls of the cap, substantially as set forth.

579,005. PARLOR AND SLEEPING CAR. JAMES M. OSGOOD, Boston, Mass. Filed Aug. 22, 1896. Serial No. 583,616. (No model.)



Claim.—1. In a parlor and sleeping car, in combination with curtains running parallel with the aisle, partitions folding into the framing of the car and when in use extending transversely, separating said car into sections, an intermediate partition dividing each state-room into two compartments, thereby furnishing a separate dressing-room for each berth contained in said compartments, substantially as specified.

2. In a parlor and sleeping car with partitions folding into the framing of the car and when in use extending transversely of the car, a bar attached to said partitions, provided with pins which interlock with ends of the berths, holding them to the partitions in a firm manner for night use and automatic locking devices on the partitions for engaging over the berths, substantially as specified.

3. A railway-car, partitions therein and adapted to be extended transversely of the car, to divide it into sections for night use, each section containing two chairs or seats capable of being converted into berths for night use a portion of one chair interlapping about half-way over the other chair, means for interlocking portions of the chairs with the partitions, whereby the chair portion may be independently detached from the partitions and swung up or down in a vertical position, thus providing a free space from the floor to the top of the car, substantially as specified.

4. A car, having a slot-track extended longitudinally of the car, a series of seats, each of said seats having a guide-block engaging in said slot-track, and a spring-actuated lever on the guide-block, for locking the seat in position in said guide-block, substantially as specified.

5. A car having a longitudinal channel formed in its floor, strips secured to said floor and overlapping said channel, one of said strips having shoulders formed in it, a series of seats, a guide-block on each seat having flanged portions to engage under the strips, and a locking-lever on the block to engage with one of said shoulders, substantially as specified.

6. A car, having recesses formed in its side wall, a receptacle adapted to fold therein, and a hinged cover for said recess, the said cover also forming a seat when arranged in a horizontal position, substantially as specified.

7. A parlor and sleeping car having a series of transversely-arranged seats, a series of seats at right angles thereto adapted to fold up against the side wall of the car and a receptacle having a front board and flexible sides pivoted rearward of each of said right-angle seats, substantially as set forth.

8. A parlor and sleeping car, having recesses formed in its side wall, partitions adapted to fold into said recesses, rods extended transversely of the car, pins projected from said rods and adapted to pass through holes in the partitions, and automatic latches carried by the partitions to engage with said pins and rigidly hold the partitions in their transverse positions, substantially as specified.

9. A parlor and sleeping car, having recesses in its side wall, partitions adapted to fold into said recesses and also to be moved transversely of the car, automatic means for locking said partitions in their transverse positions, car-seats adapted to be converted into berths, supports on the partitions with which the ends of the berth are to engage, and automatic latches for engaging over the ends of the berths, to prevent an accidental upward movement thereof, substantially as specified.

10. The combination with a seat, of a back-section having swinging connection therewith, the said back consisting of two sections, an extension-section pivotally connected to said back-section, a leg-rest having swinging connection with the seat, gearing for adjusting said back and leg-rest in unison, the said back and legs being each movable independently of the gearing, and means for locking the several sections in position, substantially as specified.

11. The combination with a car-seat, of leg-rests pivoted to one edge thereof, a back pivoted to the opposite edge thereof, a chain of gearing for operating said rests and back, the said rests and back also being movable independently of the gearing and a rack-bar for locking said gearing, substantially as specified.

12. The combination with a car-seat, of leg-rests pivoted to one edge thereof, a back pivoted to the opposite edge thereof, a chain of gearing for operating said rests and back, a rack-bar for locking said gearing, and a cam-lever for moving said rack-bar out of engagement with the gearing, substantially as specified.

13. The combination with a car-seat, of leg-rests pivotally connected to one side thereof, a back pivotally connected to the opposite side thereof, and consisting of sections adapted for independent movement with relation to each other, means for locking said back-sections to move in unison, means for locking the leg-rest sections to move in unison, a chain of gearing for operating the back-sections relatively to the seat and the leg-rest sections relatively to the seat, a rack for locking said gearing, a cam-lever for holding the rack out of engagement with the gear, locking mechanism between the back-sections and said gearing, and locking mechanism between the leg-rest sections and said gearing, substantially as specified.

14. A car-seat adapted to be converted into a berth, and comprising a base portion, a seat portion movable vertically with relation to the base portion, lazy-tongs mechanism for causing said movements, a pinion on a shaft of the lazy-tongs, a fixed rack with which the pinion engages, a leg-rest pivotally connected to one edge of the seat, and a back-rest pivotally connected to the opposite end of said seat; whereby said rests may be extended horizontally to form a berth, or moved into position to form a seat, substantially as specified.

15. A car-seat, comprising a base portion, a seat portion movable relatively thereto in a vertical direction, lazy-tongs links for causing said vertical movements, a pinion mounted on a shaft of the lazy-tongs, and a rack secured to the seat-boxing engaged by said pinion, substantially as specified.

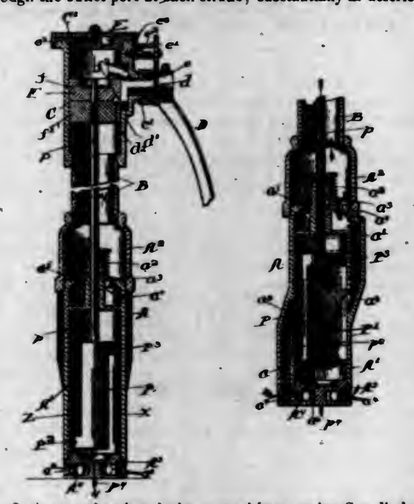
16. A car-seat, comprising a base portion, a seat movable vertically with relation thereto, a lazy-tongs mechanism for causing said vertical movements, a pinion carried by the lazy-tongs, a fixed rack engaged by the pinion, extensions pivotally connected with the opposite edges of the seat, and gearing for operating said extensions, substantially as specified.

17. A car-seat, comprising a base portion having casings at its upper end, gearing mounted in said casings, a rack-bar for engaging the gearing, a cam-lever for moving the rack-bar out of engagement with the gearing, a seat mounted on the support, extension-pieces pivoted to opposite edges of said seat, and detachable connections between the extensions and gearing, whereby the several sections may be moved in unison and whereby the sections may be independently moved, substantially as specified.

18. A car-seat, having transversely-concaved edges extending across the upholstering, and extension-pieces pivoted to the opposite edges and having convex portions extending across the upholstering to engage in said concavities, whereby a substantially unbroken surface may be provided between the extensions and seat when said extensions are extended horizontally, substantially as specified.

579,006. SYRUP-DRAWING DEVICE. EDWARD S. PALMELA, Chicago, Ill. Filed May 4, 1896. Serial No. 590,061. (No model.)

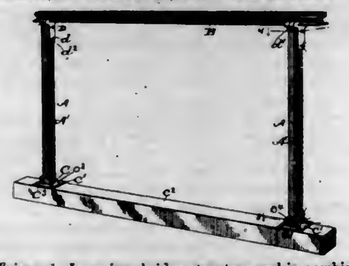
Claim.—1. In a device for drawing heavy liquids the combination with a longitudinally-reciprocating and laterally-oscillating slide-block, F, an operating-crank adapted to impart said motion to the slide-block, a casing C, adapted to guide said slide-block and provided with a suitable discharge-spout, of a pump-cylinder located within the barrel, a connecting-pipe B, connecting said casing with the pump-cylinder, said cylinder being provided with suitable inlet and outlet ports, a check-valve located at the end of said outlet-port, a piston P, comprising the main portion P', and overhanging lips P^2, P^2, said piston being connected with the slide-block F, and adapted to be moved simultaneously therewith whereby liquid may be drawn in between the overhanging lip and cylinder on one side of the piston and the liquid confined on the opposite side of the piston forced through the outlet-port at each stroke; substantially as described.



2. A syrup-drawing device comprising a casing C, a discharge-spout *c*, upon said casing, a shaft *d*, journaled in said casing, operating-crank D, and crank *d'*, mounted upon said shaft, the wrist-pin d^2, upon the crank *d'*, the slide-block F, reciprocating in said casing and having the socket f^2, adapted for engagement with the wrist-pin d^2, the cylinder A, having the inlet-port, *a*, and outlet-port *a'*, the pipe B, connecting said cylinder with the casing, the piston P, having the overhanging lips P^2, P^2, the piston-rod *p*, connecting said piston with the slide-block F, and the check-valve a^2, in the outlet-port *a'*.

3. A syrup-drawing device comprising a casing C, a discharge-spout *c*, upon said casing, a shaft *d*, journaled in said casing, operating-crank D, and crank *d'*, mounted upon said shaft, the wrist-pin d^2, upon the crank *d'*, the slide-block F, reciprocating in said casing and having the socketa f^2, adapted for engagement with the wrist-pin d^2, the cylinder A, having the inlet-port *a*, and outlet-port *a'*, the pipe B, connecting said cylinder with the casing, the piston P, having the overhanging lips P^2, P^2, the piston-rod *p*, connecting said piston with the slide-block, the check-valve a^2, in the outlet-port, the bottom portion A', struts a^6, connecting said bottom portion with the cylinder-head, and openings a^7, in the bottom of the inlet-port; substantially as described.

579,007. SUBSTRUCTURE FOR BRIDGES. WILLIAM R. PHELPS, Elmwood, Ill. Filed Nov. 19, 1895. Serial No. 569,400. (No model.)

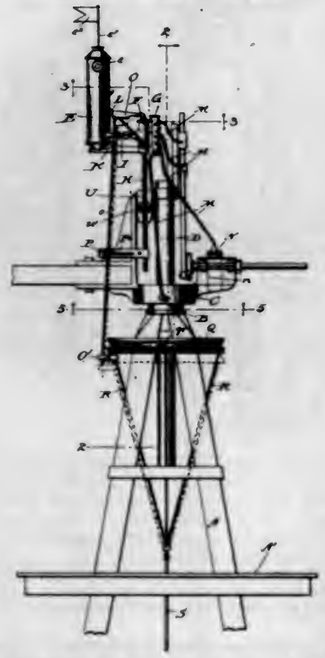


Claim.—1. In an iron-bridge structure and in combination substantially as described, a support, legs thereon, cap-plates at the upper end of each leg, each consisting of lower parts or portions fashioned to closely fit the sides of the legs, and oppositely-extending jaws at their upper ends, means for rigidly securing the cap-plates to the legs, and rail members threaded through and clamped between the jaws in a position transverse to the lower portion of the cap-plates.

2. In an iron bridge and in combination substantially as described, a base, legs extending up therefrom, cap-plates on the upper ends of

the legs each consisting of two like sections having lower portions fashioned to closely fit the sides of the legs, and oppositely-extending jaw-sections, means for rigidly securing the two sections of the plates respectively on opposite sides of the legs, and rails threaded through and clamped between the jaws in a position transverse to the lower portion of the cap-plates.

579,008. LUBRICATOR. LEMARUS C. POND, Belmond, Iowa. Filed July 17, 1896. Serial No. 599,471. (No model.)



Claim.—1. A lubricator having, in combination, a distributer provided with discharge-openings so located that the receding surface of the lubricant passes them in succession, whereby the supply of lubricant is cut off from them in succession, and a number of tubes or passages proceeding from said openings to the bearings to be lubricated, substantially as set forth.

2. In a lubricator, the combination of a reservoir, a distributer having a number of discharge-openings located at different levels, so that the receding surface of the lubricant passes them in succession, whereby the supply of lubricant is cut off from them in succession, tubes extending from said openings to the bearings to be lubricated, and means for intermittently charging the distributer with lubricant from the reservoir, substantially as set forth.

3. In a lubricator, the combination of a reservoir, a distributer having a number of discharge-openings located at different levels, so that the receding surface of the lubricant passes them in succession, whereby the supply of lubricant is cut off from them in succession, tubes extending from said openings to the bearings to be lubricated, and a valve for controlling the flow of oil from the reservoir to the distributer, substantially as set forth.

4. In a lubricator for windmills, the combination of a reservoir, a distributer having a number of discharge-openings located at different levels, a valve for controlling the flow of oil from the reservoir to the distributer, all of said parts being carried by the revoluble head of the mill, and means for operating the valve from the ground, substantially as set forth.

5. In a lubricator for windmills, the combination of a reservoir, means for conveying oil therefrom to the bearings to be lubricated, a valve for controlling the flow of oil from the reservoir, and means for operating the valve from the ground, said means including a depressible ring, spring-arms supporting the ring, and a connection extending from the valve and terminating below the ring and within reach thereof when depressed, substantially as set forth.

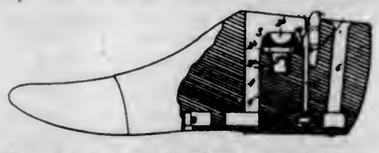
6. In a lubricator for windmills, the combination of a reservoir, a distributer having a plurality of discharge-openings located at different levels, tubes for conveying oil from said openings to the bearings to be lubricated, a valve for controlling the flow of oil from the reservoir to the distributer, and means for operating the valve from the ground, said means including a ring surrounding the tower, spring-arms proceeding from the tower and supporting the ring, and a connection extending from the valve and terminating below the ring and within reach thereof when depressed, substantially as set forth.

7. In a lubricator for windmills, the combination of a reservoir, means for conveying oil therefrom to the bearings to be lubricated, a valve for controlling the flow of oil from the reservoir, and means for operating the valve from the ground, said means including a depressible ring, a plurality of spring-arms connected at their outer ends to the ring and at their inner ends to the tower, a connection extending from the valve and terminating below the ring and in reach thereof when depressed, and a connection extending from the ring to the ground, substantially as set forth.

8. In a lubricator for windmills, the combination of a reservoir, means for conveying oil therefrom to the bearings to be lubricated, a valve for controlling the flow of oil from the reservoir, and a connection extending to the ground for operating said valve, said connection including a circumferentially-adjustable ring, spring-arms proceeding from the tower and supporting it, a rod proceeding downward from the valve and terminating at bottom within reach of the ring when depressed, and a guide through which said rod passes, said guide being adjustable for adjusting the position of the rod with relation to the ring, substantially as set forth.

9. In a lubricator for windmills, the combination with a reservoir and means for conveying oil therefrom to the bearings to be lubricated, said reservoir being movable from a vertical to a horizontal position, of a spring for holding the reservoir in vertical position, and a support upon which it bears when moved to horizontal position, substantially as set forth.

579,009. ARTIFICIAL FOOT. WILLIAM I. RICHEN, Cincinnati, Ohio. Filed June 29, 1896. Serial No. 597,384. (No model.)



Claim.—In an artificial foot, the combination of a recessed foot-body as described, with the socket-plug 3, a catch-bolt securing said plug to the foot-body, a wedge engaging the said catch-bolt with said plug, and the sole-plate, substantially as and for the purpose described.

579,010. WITHDRAWN.

579,011. BLAST-FURNACE HOISTING AND CHARGING APPARATUS. WILLIAM ROTTHOFF and MARVIN A. NEELAND, Duquesne, Pa. Filed Feb. 29, 1896. Serial No. 581,355. (No model.)

Claim.—1. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon the track, a pivoted hanger depending from the carriage and a bucket suspended therefrom, said bucket having a movable bottom; substantially as described.

2. The combination with a blast-furnace, having an inclined track leading to its top, of a carriage movable upon the track, a pivoted hanger depending from the carriage and a bucket suspended therefrom, said bucket having a downwardly-movable bell-shaped bottom; substantially as described.

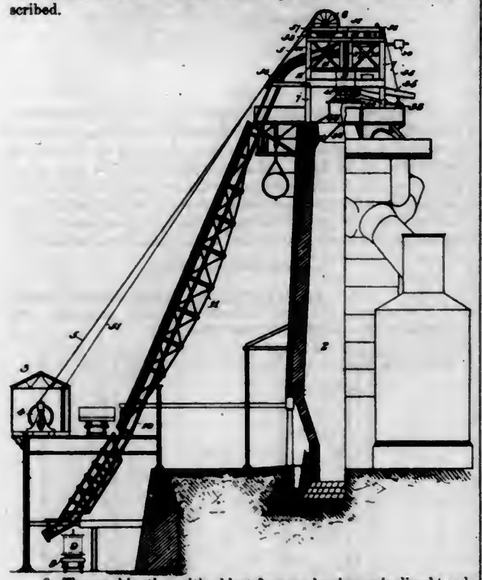
3. The combination with a blast-furnace, having an inclined track leading to its top, of a carriage movable upon the track, a hanger depending from the carriage, and a bucket having a movable bottom provided with a handle engaged with said hanger; substantially as described.

4. The combination with a carriage, having a depending hook, of a bucket having a movable bottom provided with a handle engaged by said hook; substantially as described.

5. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon said track and provided with a depending hook, and a support below the lower portion of the track having a bucket resting thereon, the hook being arranged to engage a handle upon the bucket as the carriage passes over the same; substantially as described.

6. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon the track, a bucket suspended from the carriage and having a movable bottom, and means for lowering the bucket when the carriage reaches a point above the furnace; substantially as described.

7. The combination with a blast-furnace, having an inclined track leading to a point above its top, of a carriage movable upon said track and having a bucket suspended from its forward portion, and a section of track carried in a vertically-movable frame and registering with the inclined track when in normal position; substantially as described.



8. The combination with a blast-furnace, having an inclined track leading to its top, of a carriage movable upon the track, a bucket suspended from the carriage and having a movable bottom, and a vertically-movable frame over the furnace, having a track arranged to register with the inclined track when in normal position; substantially as described.

9. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon the track, a bucket suspended from the carriage and having a movable bottom, and a section of track carried in a vertically-movable counterweighted frame above the furnace, said frame being arranged to move downwardly automatically as the carriage enters it; substantially as described.

10. The combination with a blast-furnace having an inclined track leading to its top, of a carriage movable upon the track, and having a depending hanger, a bucket having a movable bottom provided with a handle engaged by said hanger, and means for lowering the bucket when the carriage reaches a point above the furnace; substantially as described.

11. The combination of a blast-furnace, having an inclined track leading to a point above its top, a carriage movable upon said track, a sliding frame above the furnace which the forward portion of the carriage enters, and means for moving said frame; substantially as described.

12. The combination with a blast-furnace, having an inclined track leading to a point above its top, of a carriage movable upon said track, a sliding frame above the furnace which the forward portion of the carriage enters, and means arranged to be actuated by the carriage for moving said frame; substantially as described.

13. The combination of a blast-furnace, having an inclined track leading to a point above its top, a carriage movable upon said track, a sliding frame above the furnace which the forward portion of the carriage enters, and levers operated by the carriage and arranged to start the frame downwardly; substantially as described.

14. The combination with a blast-furnace, having an inclined track leading to a point above its top, of a carriage movable upon said track and having a depending bucket, a sliding frame above the furnace which the forward part of the carriage enters, and a counterweight for said frame arranged to hold it normally in elevated position, but which is overcome by the weight of the charged bucket; substantially as described.

15. The combination with a blast-furnace, having an inclined track leading to a point above its top, of a carriage movable upon said track, a sliding frame above the furnace which a portion at least of the carriage enters, and a counterweighted lever pivoted to said frame; substantially as described.

16. The combination with a blast-furnace, having an inclined track leading to a point above its top, of a carriage movable upon said track, a sliding frame above the furnace which a portion at least of the carriage enters, and a counterweighted lever pivoted to said frame, and having a dash-pot cylinder attached thereto; substantially as described.

17. The combination of a hoist-carriage, having at least two axles and provided with a swinging hook pivoted about its front axle, and a bucket having a movable bottom provided with a handle engaged by said hook; substantially as described.

18. A hoist-carriage having pivoted to its frame a bail to which the hoisting-rope is secured, said carriage having a pivoted depending hook arranged to support a bucket; substantially as described.

19. A hoist-carriage having pivoted to its frame a bail to which the hoisting-rope is secured, said carriage having a pivoted depending hook arranged to support a bucket, and being provided with a rest for the side of the bucket; substantially as described.

20. The combination with a blast-furnace, having a cylindrical upper casing, of a bucket having a movable bottom and arranged to seat upon said casing; substantially as described.

21. The combination with a blast-furnace, having a counterweighted gas-sealing bell, of a bucket having a movable bottom arranged to force the bell downwardly; substantially as described.

22. The combination with a blast-furnace, having a gas-sealing bell, of a bucket having a movable bottom and arranged to seat upon the casing of said bell; substantially as described.

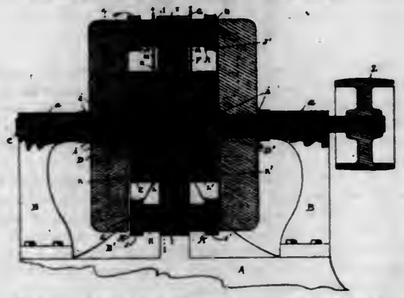
23. The combination with a blast-furnace, having an inclined track leading to its top and a car movable on said track, of a movable frame at the upper end of the track and arranged to receive a portion of the car, and a cord arranged to indicate the movements of said frame; substantially as described.

24. The combination with a blast-furnace, having an inclined track leading to its top and a carriage movable thereon and having a hanger, of a track passing beneath said inclined track, and having cars carrying buckets provided with handles arranged to be engaged by said hanger; substantially as described.

25. The combination with a blast-furnace, having an inclined track leading to a point above its top, of a sliding frame having an inclined section of track and mounted in a guideway upon the top of the furnace, a truck upon the inclined track, a bucket carried upon the forward portion of the truck and having a movable bottom, and guides within the guideway arranged to prevent the front portion of the truck from moving down the inclined track upon the sliding frame by the action of gravity; substantially as described.

26. The combination with a blast-furnace, having an inclined track leading to a point above its top, of a truck movable upon said track and having idle-wheels, a bucket suspended from the truck and having a movable bottom, a guideway mounted upon the top of the furnace, a sliding frame within the guideway carrying a section of inclined track, and guide-rails within the guideway arranged to be contacted with by the idle-wheel of the truck; substantially as described.

579,012. DYNAMO-ELECTRIC MACHINE. GUSTAVE A. SCHEEFFER, Peoria, Ill., assignor to the Royal Electric Company, same place. Filed Apr. 30, 1892. Serial No. 431,296. (No model.)



Claim.—1. In a dynamo-electric machine of the inductor type, the combination of a single field-magnet core parallel with and surrounding the shaft, a field-magnet coil wound thereon, a single set of armature-cores parallel with the shaft and arranged in a single circle, coils on said cores, an extension magnetically connecting the field-core with the armature-cores, and a rotatable disk with slots cut in its edge, extending from the end of the field-core to the ends of the armature-cores, and completing the magnetic circuit, substantially as described.

2. In a dynamo-electric machine of the inductor type, the combination of a shaft, a core, a pair of field-magnet coils surrounding said core, an extension for said core between the two field-magnet coils, a single set of armature-cores lying parallel with the shaft, ar-

ranged in a circle and connected to said extension, armature-coils on said cores, and a pair of inductors, capable of rotation relatively to said armature cores and coils, closing the magnetic circuit between the central core and the armature-cores, substantially as described.

3. In a dynamo-electric machine of the inductor type, the combination of a shaft, a core, a pair of field-magnet coils surrounding said core, an extension for said core between the two field-magnet coils, a single set of armature-cores connected to said extension and lying parallel to the shaft arranged in a circle, armature-coils on said cores, and a pair of inductors, in the shape of star disks, one at each end of the machine, capable of rotation relatively to said armature-coils, closing the magnetic circuit between the central core and the armature-cores, substantially as described.

4. In a dynamo-electric machine of the inductor type, the combination of a single field-magnet core parallel with and surrounding the shaft, a field-magnet coil wound thereon, a single set of armature-cores parallel with the shaft and arranged in a circle, coils on said cores, an extension magnetically connecting the field-core with the armature-cores, and a rotatable disk with slots cut in its edge, extending from the end of the field-core to the ends of the armature-cores, and completing the magnetic circuit, the field-magnet coils being wound on a frame of conducting material placed over the field-core, whereby any sudden change on the magnetomotive forces will be prevented from causing damage to the insulation, substantially as described.

5. The combination with the shaft carrying the separated pole-pieces each provided with peripheral polar projections separated by blocks of non-magnetic material, of the fixed core loosely encircling the shaft between the pole-pieces and provided with the central, peripherally-recessed annular flange, the transverse laminated bar-armatures fixed, respectively, in the recesses of the flange and extending from pole-piece to pole-piece, the secondary coils encircling the core upon opposite sides, respectively, of said flange, two sets of induction-coils mounted upon the opposite ends, respectively, of the armatures, and means for rotating the shaft.

6. In a dynamo-electric machine, the combination of a stationary electromagnet having its coils wound upon the magnetizable mass and separated by a central periphery which extends outwardly and is provided at its outer edge with depressions in which the armatures are carried, as described, the two revoluble polar disks divided at their respective circumferences by suitable blocks into independent polar projections, the series of armatures bearing between the polar disks and mounted in the depressions in the peripheral extensions of the core, and the two sets of induction-coils wound upon the respective ends of the armatures and in front of which are revolved the polar projections from the disks, all substantially as described and for the purpose set forth.

579,013. BOTTLE-STOPPER. FRANCIS SCHENKER, Vincennes, Ind. Filed Aug. 27, 1896. Serial No. 604,108. (No model.)



Claim.—1. The combination with a bottle having an opening of a slot adjacent said opening, a slide adapted to move in the slot to cover and uncover the opening, an inclined slot in the slide terminating in a depression and a pin adapted to play in the slot in the slide and enter the depression of the latter to retain the slide in a fixed position.

2. The combination with a bottle having an opening of a slot adjacent said opening, a slide adapted to move in said slot to cover the opening and means for locking the slide in the unopened position.

3. The combination with a bottle having an opening, of a slot adjacent the opening, a slide adapted to move in the slot to cover and to uncover the opening and a spring-catch adapted to hold the slide in an uncovered position.

4. The combination with a bottle having an opening surrounded by a flange, of a transverse slot formed in the flange, a spring-pin arranged in said slot, a slide adapted to move in the slot in engagement with the pin and a depression in the slide adapted to receive the pin to lock the slide.

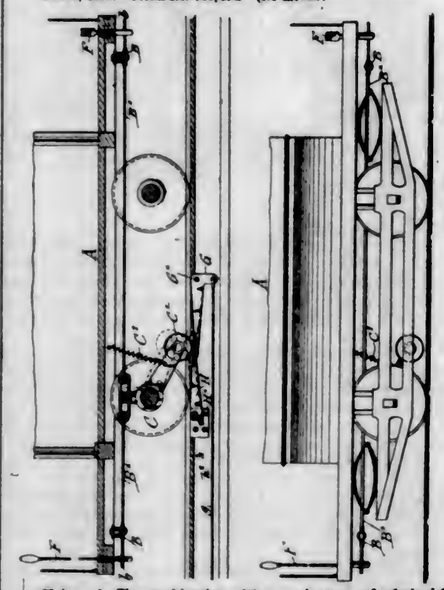
579,014. SEWING-MACHINE ATTACHMENT FOR MAKING DRESS-FACING. SIMEON J. SCHNORRENBERG and GEORGE SIMPSON, Oshkosh, Wis. Filed July 10, 1896. Serial No. 598,747. (No model.)

Claim.—1. In a sewing-machine attachment for producing dress-facing, the combination of a braid-doubling portion closed except at its ends, by a solid immovable wall, and an auxiliary gage wholly exterior to said doubling portion and disconnected from the same and adapted to be adjusted with respect to the doubling portion on a line at right angles to the line of movement of the work, and a thumb-nut for holding the gage in a fixed position, substantially as described.



2. In a sewing-machine attachment for producing dress-facing, the combination of a braid-doubling portion closed except at its ends by a solid immovable wall, a stationary projecting rib on said wall longitudinal to the same, and an auxiliary adjustable gage wholly exterior to said doubling portion and disconnected from the internal guiding-rib of the doubling portion so as not to be affected by the work passing through the doubling portion and a thumb-nut for holding the gage in an adjustable position, substantially as described.

579,015. RAILWAY-SWITCH. EDWARD SCHÜLER, Brooklyn, N. Y., assignor of one-half to Frederick Wendler, same place. Filed Feb. 8, 1897. Serial No. 622,404. (No model.)

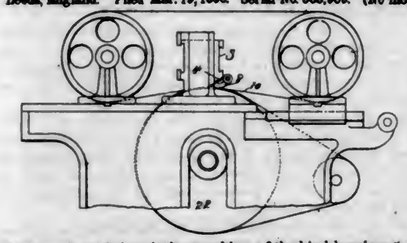


Claim.—1. The combination with a car-bottom, of a forked foot or hand operated lever at each end of the car, a transverse lever fulcrumed to the under side of the car connected by a central shank with said foot or hand lever, two angle-levers pivoted to one of the axles of the car and provided with rollers at their lower ends, connecting-rods between said transverse levers and the upper ends of said angle-levers, and springs for supporting said angle-levers in raised position, substantially as set forth.

2. The combination with angle-levers pivoted to one of the axles of the car and mechanism for raising or lowering said angle-levers from the platforms of the car, of a switch-tongue located at the point of connection of the side-track with the main track, a transverse bar applied with a pivot to said switch-tongue, elbow-levers arranged at each side of the track at some distance from said switch-tongue, connecting-rods between the transverse bar of the switch-tongue and the lower ends of the elbow-levers, a pointed guard-lever acting on the lower arm of the elbow-lever, substantially as set forth.

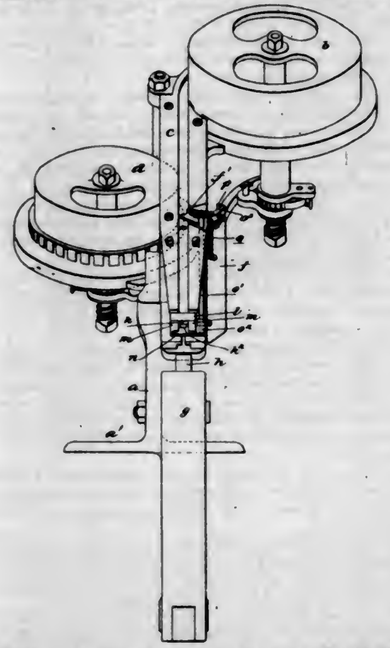
3. The combination with a pivoted switch-tongue located at the junction of the side-track with the main track, a transverse bar attached to the pivot of said switch-tongue, elbow-levers fulcrumed to parallel auxiliary rails located at some distance from said switch-tongue, one along each track-rail; connecting-rods between the lower ends of the elbow-levers and the transverse bar of the switch-tongue; a pointed guard-lever extending from the longer arm of the elbow-lever, and a recessed stop-plate engaging a heel of the pointed lever so as to limit the motion of the elbow-lever, pointed lever and switch-tongue, substantially as set forth.

579,016. FABRIC-PRINTING MACHINE. SAMUEL H. SHARP, Leeds, England. Filed Mar. 19, 1896. Serial No. 583,989. (No model.)



Claim.—In a fabric-printing machine, of the kind herein referred to, the combination with an endless stencil-sheet, an endless blanket, and a presser, of laterally-adjustable plows mounted near the ends of said presser and each provided with a lubricant-receptacle in its under side, substantially as herein described for the purpose specified.

579,017. BUTTON-SETTING MACHINE. ALFRED J. SHIPLEY, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed June 29, 1896. Serial No. 597,444. (No model.)



Claim.—1. In a button-setting machine, a button-head holder or die and means to feed button-heads thereto, the said button-head holder or die comprising a stationary anvil and a movable sleeve surrounding the same and provided with inclined lips leading into the said button-head holder and to a horizontal subway upon which the button-head rests while being applied, substantially as described.

2. A button-head holder, for button-setting machines, comprising an anvil, a movable sleeve surrounding such anvil and provided with inclined lips leading into the said holder and to a horizontal subway upon which the button-head rests while being applied, and a spring-gate for retaining the button-head within the holder, while being set, and permitting its escape, after being set, substantially as described.

3. In a button-setting machine, the combination with a button-head holder or die, a spring-gate for retaining the button-head within such holder, means to feed button-heads to such holder or die, a gate for controlling the button-feed, and a connection between such button-feed-controlling gate and the gate in the button holder or die, whereby as the button-holder gate is actuated to release the button-head, the button-feed-controlling gate is also actuated, substantially as described.

4. In a button-setting machine, the combination with a button-head holder or die, means to receive and apply tacks to the button-heads successively, hoppers for the button-heads and tacks, chutes leading from such hoppers respectively to the button-head holder or die and the tack-receiver, a gate or switch applied to the said chutes and controlling the feed, both of the button-heads and of the tacks, and means interposed between said gate or switch and the button-head holder or die and actuated by the withdrawal of a button-head from such button-head holder or die to operate the said gate or switch to feed another button-head and tack, substantially as described.

5. In a button-setting machine, the combination with the button-head hopper, a chute and a button-head holder or die, of a gate interposed in the path of exit of the button-head from the said button-head holder or die, a switch for controlling the feed of button-heads from the chute to the button-head holder or die, and a spring-stem interposed between the said gate and the said switch and operated by the said gate to actuate the said switch, substantially as described.

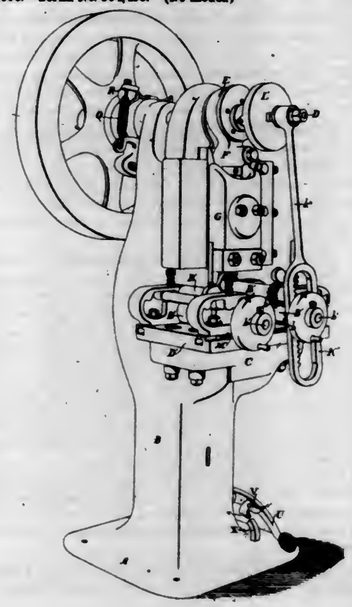
579,018. LAMP-BURNER. WILLIAM W. SMITH and JACOB M. ISENIG, Traverse City, Mich. Filed Feb. 19, 1896. Serial No. 579,907. (No model.)



Claim.—1. In combination, a lamp-burner having an air-duct at one side, a sleeve adapted to be fitted upon the wick-tube and having a slit in one side to receive the connecting portion between the air-duct and wick-tube, and formed at one edge with a vertical bearing, and a wick-trimmer journaled in the said bearing of the sleeve and adapted to operate over the latter in opposition to its straight side, and formed with an operating-handle extending within convenient reach, substantially as set forth.

2. The combination with a lamp-burner, of a sleeve adapted to be fitted upon the wick-tube and having a portion bent to provide a vertical bearing at one edge, a wire journaled in the said bearing and having its end portions bent, the lower bent end forming a handle and the upper bent end being flattened and sharpened to provide a wick-trimmer and extinguisher, and a spring for normally holding the wick-trimmer away from the wick-tube, substantially as shown and described.

579,019. PRESS. OBERLIN SMITH, Bridgeton, N. J. Filed June 5, 1896. Serial No. 594,453. (No model.)



Claim.—1. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide carried by the shaft, located at one side of the wheel, and movable into and out of engagement with the wheel side, a lever pivoted within an opening in the shaft, engaging the slide, and means for operating the lever, substantially as and for the purpose specified.

2. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide carried by the shaft located at one side of the wheel and movable into and out of engagement with the wheel side, a lever in an opening extending through the shaft from side to side, with one end engaging the slide, and means for operating said lever, that engage the end at the side of the shaft opposite the slide, substantially as and for the purpose shown.

3. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide carried by the shaft and movable into and out of engagement with the wheel, a lever pivoted within an opening extending diametrically through the shaft, and engaging said slide, a spring to move the lever in one direction, and means for moving the lever in opposition to the spring, that acts on the same part of the lever, relative to its fulcrum, that the spring does substantially as and for the purpose set forth.

4. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide carried by the shaft and movable endwise into and out of engagement with a projection on the side of the wheel, a lever pivoted within an opening extending diametrically through the shaft, a spring for moving the lever in one direction, and a cam for moving the lever in the opposite direction, substantially as and for the purpose described.

5. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide to clutch said parts together, a lever pivoted within an opening in the shaft, and connected with said slide, a spring for moving the lever in one direction, a pivoted arm having a stop to engage said lever, and a cam adapted to be engaged by the lever, substantially as and for the purpose set forth.

6. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide to clutch said parts together, a lever pivoted within an opening in the shaft, and connected with said slide, a spring, a cup-shaped piece fitting over the spring and engaging the lever, and means to move the lever in opposition to the spring, substantially as and for the purpose described.

7. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide to clutch said parts together, carried by one of the same, a lever within an opening in the slide-carrying part fulcrumed on a seat formed on the wall of said opening, and means to actuate the lever, substantially as and for the purpose shown.

8. In a clutch for presses, &c., the combination of a shaft, a wheel, a slide to clutch said parts together, carried by the shaft, a lever loosely mounted in an opening in the shaft, and having a bearing on a seat provided on the wall of the opening intermediate its ends, a spring for moving said lever and holding it to its bearing, and means to move it in opposition to the spring, substantially as and for the purpose shown.

9. In a clutch for presses, &c., the combination of a shaft, a wheel, a clutch-slide carried by the shaft, a lever loosely mounted in an opening in the shaft having a rounded enlargement whose surface rests in contact with a bearing in said opening, a spring for moving said lever and holding it to its bearing, and means to move the lever in opposition to the spring, substantially as and for the purpose set forth.

10. In a clutch for presses, &c., the combination of a wheel, a shaft having an enlargement at one side of the wheel, a clutch-slide to engage the wheel side, mounted in an opening in said enlargement, outside of the surface of the shaft-body within the wheel, a lever mounted in an opening extending through the shaft, and means acting on the lever to swing the same to move the slide substantially as and for the purpose described.

11. In a clutch for presses, &c., the combination of a wheel, a shaft having an enlargement, a clutch-slide round in cross-section, and mounted in an opening in said enlargement, a lever, round in cross-section, mounted loosely in an opening extending diametrically through the shaft, and at one end engaging the slide and means for acting on the other end of the lever to swing the same in opposite directions, substantially as and for the purpose specified.

12. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide for connecting them, means for moving said slide, a device to hold said slide from movement to clutching position, means for actuating said device and a lock to hold said slide inoperative, substantially as and for the purpose described.

13. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide for connecting them, a lever for moving said slide, means for moving said lever to thereby cause it to move the slide, and a lock adapted to engage said lever, substantially as and for the purpose described.

14. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide carried by the shaft, a lever for moving said slide, means for actuating the lever, and a lock mounted in the shaft to engage the lever so as to hold said slide inoperative, substantially as and for the purpose shown.

15. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide carried by the shaft, a lever carried by the shaft for actuating said slide, and a rod mounted in the shaft and adapted to be moved into contact with the lever to lock the same against movement, substantially as and for the purpose shown.

16. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide carried by the shaft, a lever engaging said slide, pivoted within an opening in the shaft, and a longitudinally-movable rod mounted in an opening in the shaft and adapted to be moved into and out of engagement with the lever, substantially as and for the purpose described.

17. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide carried by the shaft, a lever engaging said slide, pivoted within an opening in the shaft, and a longitudinally-movable threaded rod, mounted in an opening in the shaft, substantially as and for the purpose specified.

18. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide carried by the shaft, a lever engaging said slide, pivoted within an opening in the shaft, a longitudinally-movable threaded rod, mounted in an opening in the shaft, and a stop to limit the movement of said rod, substantially as and for the purpose shown.

19. The combination of a wheel, a shaft on which the same is loosely journaled, a clutch mechanism, a locking-rod for the clutch extending through an opening in the shaft, an oil-passage leading to said opening, and a passage or passages leading from said opening to the exterior of the shaft on which the wheel is mounted, substantially as and for the purpose set forth.

20. The combination of a wheel, adapted to be continuously rotated, a shaft on which the same is loosely journaled, provided with an oil passage or passages, a clutch mechanism for clutching the wheel and shaft together, and means for unclutching said parts and causing the stoppage of the shaft with its oil passage or passages at the lower side thereof, substantially as and for the purpose described.

21. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide, a lever to operate said slide, and an adjustably-mounted part that engages and operates the lever, substantially as and for the purpose specified.

22. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch-slide, a lever having one end engaging the latter, and an adjustable device for engaging the other end of the lever, substantially as and for the purpose shown.

23. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch mechanism, a cam to release the clutch, and an adjustable support for said cam, substantially as and for the purpose shown.

24. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch mechanism, an adjustably-mounted brake, and a clutch-releasing device supported on the latter, substantially as and for the purpose set forth.

25. In a clutch for presses, &c., the combination of a wheel, a shaft, a clutch mechanism, an adjustably-mounted brake, and a clutch-operating lever, pivoted to the brake, substantially as and for the purpose described.

26. In a feed mechanism for presses, &c., the combination of two rolls having each a gear, and adjustable toward and from each other, a rack-bar meshing with both gears, and means for driving one of the latter, substantially as and for the purpose set forth.

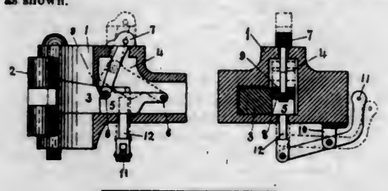
27. In a feed mechanism for presses, &c., the combination of two rolls, having each a gear, and adjustable toward and from each other, a rack-bar meshing with both gears, a rack meshing with one of said gears, and means to reciprocate said rack, substantially as and for the purpose set forth.

28. In a feed mechanism for presses, the combination of the ram-moving shaft, a crank carried thereby, the two sets of feed-rolls having each a gear, a rack connected with said crank and meshing with one of said gears, and a rack-bar meshing with both gears, substantially as and for the purpose described.

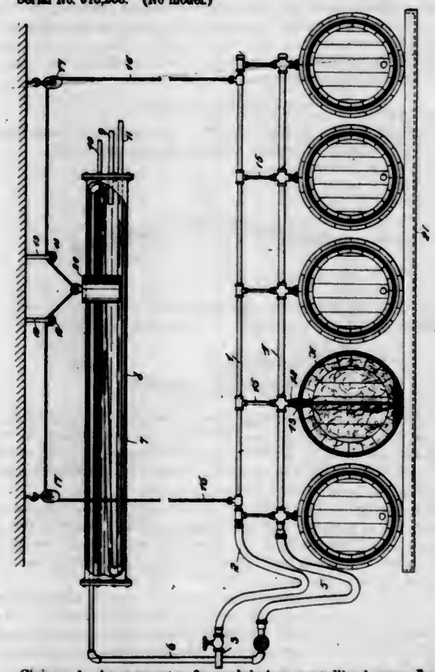
29. The combination of a ratchet-wheel, and a sliding pawl, having an abrupt side adapted for locking engagement with the teeth of the wheel, and a side or face that inclines from said abrupt side inward toward the wheel and engages the peripheral face of the tooth, substantially as and for the purpose specified.

579,020. CAR-COUPLING. CHARLES H. SMITH, Birmingham, Ala. Filed Oct. 12, 1896. Serial No. 608,555. (No model.)

Claim.—In a car-coupling, the draw-head, the pivoted jaw, provided with a tailpiece, and the tail-block pivoted at its rear end in the draw-head, combined with the tail-block lifter 7 loosely attached to the front end of the draw-head and by means of which the tail-block can be raised; the bearings 10 on the bottom of the draw-head, the bent lever 11 pivoted in the bearings, and the lifter 12 pivoted to the lever, and bearing at its upper end against the bottom of the tail-block; the tail-block being provided with a recessed groove, and the tail-lifter with a cross-pin which catches in the groove, substantially as shown.



579,021. APPARATUS FOR RECLAIMING CRYSTALLIZED SYRUP. EDWARD D. SMYTH, New York, N. Y. Filed Dec. 11, 1896. Serial No. 615,263. (No model.)



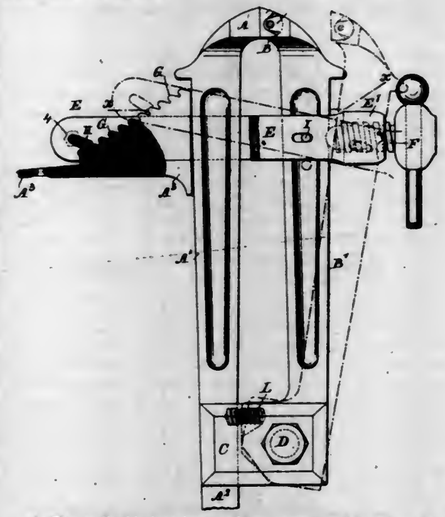
Claim.—1. An apparatus for reclaiming crystallized syrup from original packages, comprising a steam-inlet pipe, a steam-outlet pipe, a nipple on the outlet-pipe, a bushing adjustable on the nipple and adapted for engagement in the bung-hole of a barrel, an injecting-tube extended from the steam-inlet pipe through the nipple and designed to extend nearly to the bottom of a barrel, and a counterbalancing mechanism for assisting in raising the several pipes, substantially as specified.

2. An apparatus for reclaiming crystallized syrup from barrels, comprising a steam-inlet pipe and steam-outlet pipe, a flexible connection between the steam-inlet pipe and the steam-supply pipe, a condenser, a flexible connection between the outlet-pipe and said condenser, steam-injecting tubes extended from the steam-inlet pipe to the steam-outlet pipe and designed to pass downward into barrels, nipples on the outlet-pipe, bushings having screw-thread engagement with said nipples and adapted to engage in the bung-holes of barrels, a rope extended from the apparatus through pulleys secured to an overhead support, and a counterbalance connected with said rope, substantially as specified.

579,022. VISE. WILLIAM R. SHEDDEKER, Jersey City, N. J. Filed Oct. 8, 1896. Serial No. 608,205. (No model.)

Claim.—1. The combination with the jaws and jaw-levers, of straps extending one at each side of the jaw-levers, a nut portion uniting the front ends of the straps and a movable cross-key near the back ends of the straps, and a stepped incline or rack behind the stationary jaw, substantially as set forth.

2. The combination with the jaws and jaw-levers in a vise, of straps extending at the sides of the jaw-levers united by a nut portion at the front end, a screw passing through such nut portion and acting upon the movable jaw, a cross-pin in mortises through the straps and nuts for holding the cross-pin in position, and a stepped incline or rack behind the stationary jaw for receiving the cross-key, substantially as set forth.



3. The malleable-iron jaws and jaw-levers, each jaw-lever being H-shaped in section, in combination with straps passing at the sides of the jaw-levers, there being a nut uniting the outer ends of the straps, a cross-key through the straps near their rear ends and a stepped incline or rack engaging the cross-key, substantially as set forth.

4. The combination with the stationary and pivoted jaws and their jaw-levers, of straps passing at each side of the jaw-levers and having a nut uniting their front ends, a cross-key through the rear portions of the straps, and a stepped incline or rack having rounded edges to the teeth, the front edge of the cross-key fitting the rounded edges of the teeth, substantially as set forth.

5. The combination with the stationary jaw and its jaw-lever, of a moving jaw and its pivoted jaw-lever, straps passing at each side of the jaw-levers and united at their outer ends by a nut, a screw passing through such nut, a stepped incline behind the stationary jaw, a cross-key passing through the straps near their rear ends, and a pin or screw for supporting the strap upon the moving jaw, substantially as set forth.

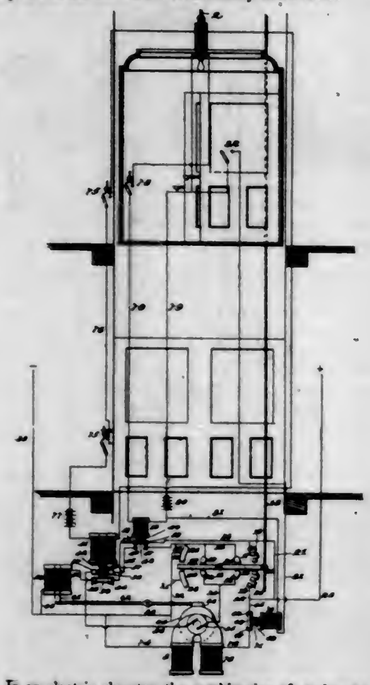
579,023. FOLDING SQUARE. EDWARD G. STOY, Philadelphia, Pa., assignor of one-half to Albert A. Clem, same place. Filed Mar. 16, 1896. Serial No. 583,430. (No model.)



Claim.—A square consisting of a beam formed of a single piece of material having its back extend approximately midway of its length and being cut away the remainder of its length, a plate arranged on the back extending the length of the beam, a spring secured on the under surface of the back and extending over the cut-away portion thereof, a blade having an extension to abut the back plate, said blade having an enlarged shank fitting in the enlarged way formed in the beam, the blade proper having its forward end fitting in a reduced slot formed in the opposite end of the beam as and for the purpose described.

579,024. ELECTRIC ELEVATOR. SAMUEL D. STROHM, Philadelphia, Pa., assignor to the Strohm Elevator Safety Device Company, same place. Filed Apr. 4, 1896. Serial No. 586,215. (No model.)

Claim.—1. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, a switch controlling the circuit to said motor, a solenoid or magnet for operating said switch, a safety-circuit including said solenoid or magnet, and a closer or breaker in said safety-circuit controlled by a door opening on the elevator-shaft, substantially as set forth.



2. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, a switch controlling the circuit of said motor, a solenoid or magnet for operating said switch, a safety-circuit including said solenoid or magnet, and a series of closers or breakers in said safety-circuit controlled by the landing-door, substantially as set forth.

3. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, two switches controlling the circuit of said motor, a solenoid or magnet for operating each of said switches, a safety-circuit including one of said solenoids or magnets, a series of closers or breakers in said safety-circuit controlled by the landing-door, a safety-circuit including the other of said solenoids or magnets, and a closer or breaker in the latter circuit controlled by the car-door, substantially as set forth.

4. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, a switch controlling the circuit of said motor, a solenoid or magnet for operating said switch, a safety-circuit including said solenoid or magnet, a closer or breaker in said safety-circuit controlled by a door opening on the elevator-shaft, and a brake for said motor, operated by said switch when the same is moved to break the motor-circuit, substantially as set forth.

5. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, a switch controlling the motor to said circuit, a brake-shoe for said motor, a solenoid or magnet for operating said brake-shoe, a circuit for said solenoid or magnet also controlled by said switch when the latter is moved to break the motor-circuit, a solenoid or magnet for operating said switch, a safety-circuit including said solenoid or magnet, and a closer or breaker in said safety device, controlled by a door opening on the elevator-shaft, substantially as set forth.

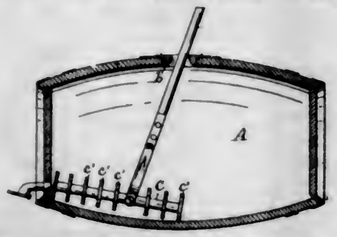
6. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, two switches controlling the circuit to said motor, a brake-shoe for said motor, a solenoid or magnet for operating said brake-shoe, a circuit for said solenoid or magnet controlled by said switches when the same are moved to break the motor-circuit, a solenoid or magnet for operating each of said switches, a safety-circuit including one of said solenoids or magnets, a series of closers or breakers in said safety-circuit controlled by the landing-door, a safety-circuit for the other of said solenoids or magnets, and a closer or breaker in the latter circuit controlled by a car-door, substantially as set forth.

7. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, a switch controlling the armature-circuit to said motor, a solenoid or magnet for operating said switch, a safety-circuit including said solenoid or magnet, a closer or breaker in said safety-circuit controlled by a door opening on the elevator-shaft, a switch in the field-circuit of the motor, a solenoid or magnet for operating said switch, and a switch in the car for controlling said solenoid or magnet, substantially as set forth.

8. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, a switch controlling the circuit to said motor, a solenoid or magnet for operating said switch, a safety-circuit including said solenoid or magnet, and a closer or breaker in said safety-circuit controlled by the latch of a door opening upon the elevator-door, substantially as set forth.

9. In an electric elevator, the combination of an elevator car or cage, an electric motor for operating the same, a switch controlling the circuit to said motor, a solenoid or magnet for operating said switch, a safety-circuit including said solenoid or magnet, and a series of closers or breakers in said safety-circuit controlled by the latches of the landing-doors, substantially as set forth.

579,025. BARREL-STIRRER. LOUIS C. STRONG, Seneca Falls, N. Y. Filed Mar. 30, 1896. Serial No. 585,342. (No model.)



Claim.—1. In a device for stirring the contents of cylindrical receptacles, adapted to be passed through the bung-hole of the receptacle, a lever, a bar pivoted intermediate its length to the end of the lever, and a series of plates having curved edges distributed along the said bar, as and for the purpose described.

2. In a device for stirring the contents of cylindrical receptacles, adapted to be passed through the bung-hole of the receptacle, a lever having its end bifurcated, a bar pivoted intermediate its length to the end of the lever in the bifurcation, and a series of disks secured at intervals upon said bar, as set forth.

3. In a device for stirring the contents of barrels, adapted to be passed through the bung-hole of the barrel, the combination of a lever having its lower end bifurcated, a bar pivoted intermediate its length to one side of its center, in the bifurcation, and a series of disks distributed distances apart along its length, as set forth.

4. In a device for stirring the contents of barrels, adapted to be passed through the bung-hole of the barrel the combination of a lever having its lower end bifurcated, a bar pivoted intermediate its length to one side of its center, in the bifurcation, a series of disks distributed distances apart along its length, and a bushing for the bung-hole encircling the lever, as and for the purpose set forth.

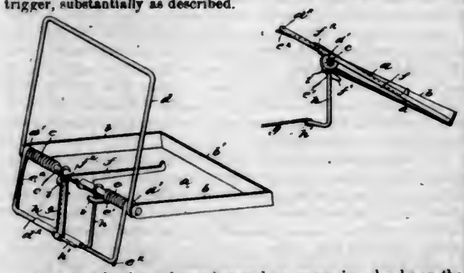
5. In a device for stirring the contents of barrels, adapted to be passed through the bung-hole therein, the combination of a lever, and a bar pivoted intermediate its length to the end of the lever, and having a plurality of scrapers thereon to engage the inner side of the barrel, the device being adapted for insertion in and removal from the barrel through the bung-hole, as set forth.

579,026. ANIMAL-TRAP. CHAUNCEY B. TRUMBLE, Groton, N. Y. Filed June 25, 1896. Serial No. 596,889. (No model.)

Claim.—1. A trap comprising a lower stationary jaw, an upper spring-jaw pivoted thereto, a knockdown or folding rest or stand for the lower jaw, a bait-trigger and a sear or detent, substantially as described.

2. A trap provided with a lower jaw, an upper jaw and means for setting and releasing the upper jaw, and a stand or rest pivoted to the rear of the lower jaw, and capable of being fixed at an angle to the lower jaw so as to support the trap at an inclination, substantially as described.

3. A trap having a lower jaw and a spring upper jaw pivoted thereto, a bait-trigger also pivoted to the lower jaw and engaging a notched portion of said lower jaw, and having a finger *f'* extending beneath the lower jaw and engaging it to prevent the trigger from flying upwardly unduly, and means for setting the upper jaw and trigger, substantially as described.

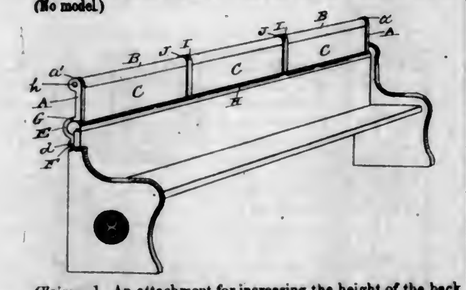


4. A trap having a lower jaw and an upper jaw, hooks on the lower jaw, and a knockdown or folding rest or stand having spring-limbs by which it is pivoted to the lower jaw and also by which the said rest or stand may be engaged with the said hooks to support the jaws in position for use, and which may be disengaged from the said hooks so as to enable the trap to be knocked down or folded for purposes of trans-portation and storage.

5. A trap having a lower jaw, an upper spring-jaw pivoted thereto, a folding or knockdown rest, also pivoted to the lower jaw, and having a foot, a bait-trigger pivoted to the lower jaw, and a detent or sear pivoted to the foot of the stand or rest, substantially as described.

6. A trap having a series of independent upper spring-jaws, a lower jaw common to all of the upper jaws, a series of setting devices for the upper jaws, and a stand or rest common to all of the upper jaws and connected in a folding manner to the lower jaw, substantially as described.

579,027. ATTACHMENT FOR EXTENSION OF PEW-BACKS. ISAAC H. WEBB, Sandy Lake, Pa. Filed July 3, 1896. Serial No. 598,027. (No model.)



Claim.—1. An attachment for increasing the height of the back of a pew or settee consisting of end brackets provided with a groove to receive the end of the panel, and an annular recess in the side of said brackets at the top thereof to receive the end of the rail and having formed on said brackets ears provided with apertures for receiving screws to engage in said panel, an aperture through the side of said brackets to insert a screw to secure the end of said rail thereto, said brackets formed with curved arms to engage with the top of said pew or the rail thereon, said arms having apertures therein to receive screws to secure said brackets to said pew, substantially as shown and described.

2. A bracket for securing a panel to church-pews consisting of a straight portion formed with a groove on each side for receiving the end of a panel, and having on its upper end a ring and upon its lower end an outwardly-curved semicircular arm terminating in a downwardly-extending lug parallel with said straight portion, and means for securing said bracket to said panel and pew, substantially as shown and described.

3. A bracket for extending the height of pews, consisting of a straight stem with a groove in one side thereof, and having upon its upper end a disk provided with an annular flange for receiving the end of a top rail, and terminating at its lower end with a backwardly-curved semicircular arm formed with a downwardly-projecting lug, and means for attaching the same to the pew-back and extension-panel, substantially as shown and described.

4. A bracket for securing a panel to the top of the back of a pew, consisting of a straight portion provided with a groove in one of its sides, an outwardly-curved semicircular arm formed therewith at the lower end thereof, said arm having a straight lug or extension formed on its end, apertures through said arm to receive screws therethrough, the upper end of said bracket having an annular flange formed on one side thereof, an aperture formed concentrically of said flange, the straight portion of said bracket having ears formed on the edge of the rear wall of said groove and provided with apertures to receive screws, substantially as shown and described.

5. In a bracket for securing a panel to the top of a church-pew, consisting of a straight portion formed with a groove on each side thereof, ears formed on the edges of the rear walls of said grooves and provided with apertures, the upper end of said bracket formed with a ring thereon, the lower end of said bracket provided with an outwardly-curved semicircular arm terminating in an extension or lug extending in a direction parallel with the straight portion of said bracket and provided with an aperture therethrough, an aperture formed in said arm at the upper end thereof, and an upwardly and outwardly projected stem formed on the curved arm, substantially as shown and described.

6. In an attachment for the top of the back of a pew; the combination with said pew, of grooved brackets, and a series of panels having a rail extending longitudinally of the tops thereof and supported therewith, the ends of said panels supported in grooves in the brackets, said brackets having formed therewith curved arms for encircling the rail at the top of the pew and said arms having apertures therein for inserting means to secure said brackets to said pew, and said brackets having means for holding said rail thereto and in contact with the upper edge of said panels, substantially as shown and described.

7. A paneled attachment for the backs of pews, seats and settees, consisting of end brackets provided with a groove to receive the ends of a panel and with an annular recess to support the ends of a rail extending longitudinally of the top of said panel, and said brackets formed with curved arms terminating in a straight extension, the rear walls of said grooves provided with ears with apertures therein for securing the ends of the panel in said grooves, the panel of said attachment provided with a grooved or channeled rail longitudinally of the top thereof, and apertures in the arms of said brackets for inserting means to secure said brackets on the top of a pew, seat or settee, substantially as shown and described.

8. In a paneled attachment for a pew, the combination with said pew, of grooved brackets supported on the back of the pew, of panels having the ends thereof secured in the grooves formed in said brackets, said brackets provided with curved arms terminating in a straight lug or extension, said arms and extension provided with apertures for inserting the means for securing said attachment to the top and back of said pew, the brackets used at the ends of said pew provided with an annular flanged recess having the ends of the rail secured therein, the brackets at the ends of the panels intermediate of said brackets attached to the ends of said pew having on the top end thereof a ring for holding said rail, and the curved arms of said brackets having an upwardly-projecting stem or hook thereon, substantially as shown and described.

9. A paneled attachment for increasing the height of pews consisting of the grooved brackets A and I provided with ears *c*, *c*, the panels C, secured to the brackets A, and I, at their ends in the groove *a* therein by the ears *c*, *c*, on said brackets, said brackets provided with the curved arms E, terminating in lugs or extensions F, said arms having apertures for inserting means to secure said arms to the top of the pew, the brackets A, provided with an annular flanged recess to receive the end of the rail B, said rail having the groove or channel *b* in which rests the upper edge of the panel C, said bracket, I, provided with the ring J, for supporting said rail B, therein and having on the arm E, thereof the upwardly and outwardly projecting stem or hook K, substantially as shown and described.

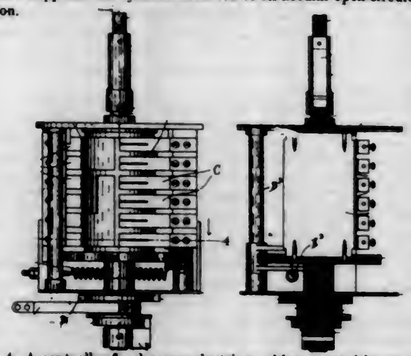
579,028. CONTROLLER FOR DYNAMO-ELECTRIC MACHINES. CLIFTON R. WOODS, Chicago, Ill., assignor, by direct and mesne assignments, to the American Electric Vehicle Company, same place. Filed Jan. 15, 1896. Serial No. 575,602. (No model.)

Claim.—1. A controller for dynamo-electric machines comprising a rotatable shaft having a cylinder rigidly connected therewith, said cylinder provided with a series of separated contacts, a series of brushes opposed to said contacts, an operating-handle connected with said shaft, a movable part associated with said cylinder and connected with a brake associated with the dynamo-electric machine, and a connection between said contact-cylinder and the movable part associated therewith, whereby said cylinder is automatically moved to its normal open-circuit position when the brake is applied.

2. A controller for dynamo-electric machines comprising a rotatable cylinder provided with a series of separated contacts, said cylinder mounted in a frame carrying a series of brushes opposed to said contacts, a movable part rotatably mounted upon the shaft of said cylinder and connected with a brake, associated with the dynamo-electric machine, the connection between the movable part and said brake being such that said movable part is operated by the movement of said brake.

3. A controller for dynamo-electric machines comprising a rota-

table cylinder provided with a series of separated contacts, a series of brushes opposed to said contacts, a movable part rotatably mounted upon the shaft of said cylinder and connected with a brake associated with the dynamo-electric machine, a cam on said movable part, a pawl connected with the contact-cylinder and adapted to engage said cam, the whole being so constructed that the pawl engages the contact-surface of the cam when the contact-cylinder is moved so as to connect the dynamo-electric machine in circuit, whereby when the brake is applied said cylinder is moved to its normal open-circuit position.



4. A controller for dynamo-electric machines comprising a rotatable cylinder provided with a series of separated contacts, a series of brushes opposed to said contacts, a movable part rotatably mounted upon the shaft of said cylinder and connected with a brake associated with the dynamo-electric machine, a spring associated with said movable part and adapted to normally hold said brake out of contact with its opposed surface, a cam on said movable part, a pawl connected with the contact-cylinder and adapted to engage said cam, the whole so constructed that the pawl engages the contact-surfaces of the cam when the contact-cylinder is moved so as to connect the dynamo-electric machine in circuit, whereby when the brake is applied said cylinder is moved to its normal open-circuit position.

5. A controller for dynamo-electric machines comprising a rotatable cylinder provided with a series of separated contacts, a series of brushes opposed to said contacts, a movable part rotatably mounted upon the shaft of said cylinder and connected with a brake associated with the dynamo-electric machine, a spring associated with said movable part and adapted to normally hold said brake out of contact with its opposed surface, a cam on said movable part, a pawl connected with the contact-cylinder and adapted to engage said cam, the whole so constructed that the pawl engages the contact-surfaces of the cam when the contact-cylinder is moved so as to connect the dynamo-electric machine in circuit, whereby when the brake is applied said cylinder is moved to its normal open-circuit position, and means associated with said contact-cylinder whereby the cylinder is rapidly moved at the point where the brushes leave one set of contacts to engage another, so as to prevent short-circuiting.

6. A controller for dynamo-electric machines comprising a rotatable cylinder provided with a series of separated contacts, a series of brushes opposed to said contacts, a movable part rotatably mounted upon the shaft of said cylinder and connected with a brake associated with the dynamo-electric machine, a spring associated with said movable part and adapted to normally hold said brake out of contact with its opposed surface, a cam on said movable part, a pawl connected with the contact-cylinder and adapted to engage said cam, the whole so constructed that the pawl engages the contact-surfaces of the cam when the contact-cylinder is moved so as to connect the dynamo-electric machine in circuit, whereby when the brake is applied said cylinder is moved to its normal open-circuit position, a notched or toothed wheel connected with said contact-cylinder and provided with a spring-pressed roller adapted to work in the notches thereon, and a flexible connection between said contact-cylinder and the handle of the controller, the parts so constructed that the change from one set of contacts to another is made instantaneously.

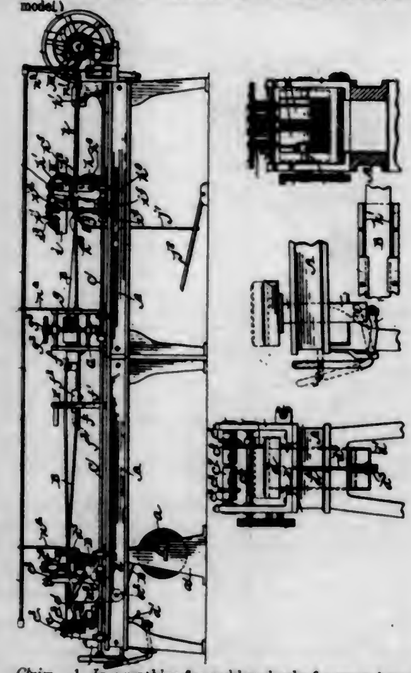
7. A controller for dynamo-electric machines comprising a rotatable cylinder provided with a series of separated contacts, a series of brushes opposed to said contacts, a sleeve connected with said cylinder, so as to have a limited motion with relation thereto, said cylinder connected with a controlling-handle, a spring connecting said controlling-handle and said cylinder, and a toothed or notched wheel also connected with said cylinder and provided with a spring-pressed roller adapted to engage the teeth or notches thereon, substantially as described.

8. A controller for dynamo-electric machines comprising a rotatable cylinder provided with a series of separated contacts, a series of brushes opposed to said contacts, means associated with said contact-cylinder whereby the cylinder is rapidly moved at the point where the brushes leave one set of contacts to engage another, so as to prevent short-circuiting, a movable part associated with said cylinder and connected with a brake associated with the dynamo-electric machine, the connection being such that said movable part is moved by the movement of the brake, a connection between said contact-cylinder and the movable part associated therewith, whereby said cylinder is automatically moved to its normal open-circuit position when the brake is applied.

9. The combination with a vehicle of an operating mechanism comprising a brake, a series of storage batteries divided into groups, one or more electric motors, a circuit-controlling device, and electric connections from said circuit-controlling device to said storage batteries and said motor or motors, said circuit-controlling device comprising a movable part, a series of contacts associated therewith, and so formed and positioned that the connection between said groups of storage batteries is varied so as to vary the current by varying the relative position of said contacts and a connection between said movable part and said brake whereby the circuit-controlling device is moved so as to break the circuit when the brake is applied.

10. In an electric system for vehicles, the combination of a brake, with a divided generator, one or more electric motors, a circuit-controlling device, and connections from said circuit-controlling device to said generator, and said motor or motors, said circuit-controlling device so constructed that when operated it varies the manner in which the parts of said divided generator are connected in circuit so as to vary the current, whereby the current is controlled without the aid of resistances, and a connection between said controller and said brake whereby the controller is moved so as to break the circuit when the brake is applied.

579,029. MACHINE FOR MAKING SHUCKS FOR PAPER BOXES. WILLIAM H. WUMSOW, Sr., Oshkosh, Wis., assignor of one-half to F. M. Clough, Lebanon, Pa. Filed Oct. 15, 1895. Serial No. 565,794. (No model.)



Claim.—1. In a machine for making shucks for paper boxes, the combination with feeding, gluing and scoring mechanisms, of a pivoted folding-bar and guiding-blocks on each side to fold the paper around the bar, substantially as described.

2. In a machine for making shucks for paper boxes, a pivoted folding-bar and guiding-blocks on each side to fold the paper around the bar, substantially as described.

3. In a machine for making shucks for paper boxes, the combination of a pivoted folding-bar and guiding-blocks on each side to fold the paper around the bar and a plate having an inclined flaring flange at one end adapted to complete the folding operation by turning the straight edge of the blank at right angles and lapping it, and the presser-rollers for pressing the blanks, substantially as described.

4. In a machine for making shucks for paper boxes the combination with means for feeding, gluing and scoring and folding the paper, of a cutting device consisting of a double wheel having rims for guiding the web to the knives and V-edged cutting-knives connecting the rims of the wheel, substantially as described.

5. In a machine for making shucks for paper boxes the combination with means for feeding, gluing and scoring and folding the paper, of a cutting device consisting of a double wheel having rims for guiding the web to the knives and V-edged cutting-knives connecting the rims of the wheel, a clutch and an operating-lever for throwing the cutting devices into and out of operation, at will, substantially as described.

579,030. BASKET. WILLIAM R. YERBY, Athens, Ga. Filed Mar. 3, 1896. Serial No. 581,670. (No model.)



Claim.—1. In a basket, an open framework comprising the annularly-grooved posts, the horizontal rectangular frames engaging with their outer angular corners the post-grooves, means for securing the upper ends of the posts and the upper frame together, and wires connecting the lower ends of the four posts, binding them in the angles of the lower frame and forming a bottom support, substantially as set forth.

2. In a basket, an open framework comprising the four corner-posts the upper and lower rectangular horizontal frames engaging the grooved portions of the posts with their corners, means for connecting the upper frame and the posts together, a wire connecting the lower ends of all of the corner-posts and binding them to the lower frame, and crossed wires connecting said binding-wire and provided with penetrating-points at their ends, substantially as set forth.

3. In a basket, a framework, comprising four posts having upper and lower annular grooves, the upper and lower horizontal rectangular frames, having corner extensions engaging said grooves, locking-wires B tied around the upper ends of the posts and corners of the upper frame, a wire C connecting all lower ends of all of the posts and binding them in the corners of the lower frame and the crossed wires connecting the wire C at opposite points and provided with penetrating-points, substantially as set forth.

4. A basket comprising an open frame, having penetrating-points in its lower portion and a bag suspended from its lower edge within the frame and engaged at its bottom by said penetrating-points, substantially as set forth.

5. A basket, consisting in the open rectangular framework composed of four vertical posts, upper and lower horizontal rectangular frames secured thereto and each formed of four bars, brace-wires and penetrating-points at the lower end of the framework, and a bag having pockets at its upper edges receiving the four upper bars, and the bottom of the bag being engaged by the penetrating-points and supported on said wires, substantially as set forth.

6. In a basket, an open framework comprising four annularly-grooved uprights or posts, upper and lower rectangular frames formed with interlocking mortises adapted to receive said posts with their outer angles, looped wires securing the upper frame to said posts in said outer angles, and a wire looped around the lower end of each post and tied together at its ends, thereby binding the lower frame to said posts, substantially as set forth.

7. In a basket, an open framework comprising the annularly-grooved posts, horizontal rectangular frames engaging with their outer angular corners the post-grooves, means for binding the upper frame and the upper ends of the posts together, a wire C passing around the lower ends of the posts, binding them in the angle of the lower frame and forming a bottom support, and wires D connecting opposite lengths of the wire C, whereby its four lengths are drawn inwardly and the lower end of the framework is firmly secured, as and for the purpose set forth.

579,031. MUSICAL INSTRUMENT. PAUL ZIEHMER, New York, N. Y. Filed Apr. 15, 1896. Serial No. 587,665. (No model.)

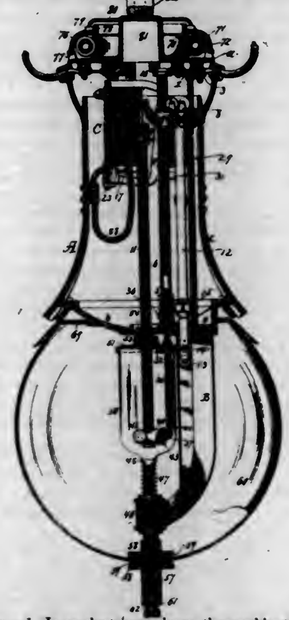
Claim.—1. A musical instrument having a casing provided with an intermediate horizontal keyboard-frame, depressible keys yieldingly supported in their normal positions and pivotally mounted upon suitable supports, terminally-supported sounding-bars arranged horizontally below the plane of the keys and respectively in the vertical planes thereof, sounders connected with the keys and arranged respectively in operative relation with the sounding-bars, key-dampers supported respectively by the keys and normally held in contact with the respective sounding-bars near their rear ends, a continuous horizontal damper-bar arranged above the plane of the sounding-bars and in a position transverse thereto at an intermediate point, foot-pedals, and connections between the foot-pedals and said damper-bar, whereby the latter may be moved either toward or from the plane of the sounding-bars, substantially as specified.



2. A musical instrument having resonant bars, spring-returned keys, spurred rotary sounders operatively connected with the keys and provided with cross-sectionally-angular hubs, and brakes having angular extremities to engage the angles of the said hubs, substantially as specified.

3. A musical instrument having resonant bars, resilient keys, spurred rotary sounders, yielding push-bars depending from the keys to engage the arms of the sounders, stop-brackets arranged in the paths of the push-bars, and an interposed cushion, substantially as specified.

579,032. ELECTRIC-ARC LAMP. THOMAS R. ADAMS, Cleveland, Ohio. Filed Oct. 1, 1896. Serial No. 607,551. (No model.)



Claim.—1. In an electric-arc lamp, the combination with the carbons and a clutch, of an electromagnet having pole-pieces at both ends, one of said pole-pieces having an inclined extension, an L-shaped armature, connections between said armature and clutch, said armature having the extremity of its shorter arm pivotally connected to the shorter pole-piece of the magnet and adapted to be attracted thereby, and the longer arm of said armature having an end face to be attracted by said inclined polar extension, whereby to effect a long and steady pull on said armature, substantially as set forth.

2. The combination in an arc-lamp, of a rod depending from the frame thereof, a vertically and laterally movable arc-inclosing globe-cover mounted on said rod, and means for normally retaining said globe-cover in a fixed position with relation to the globe.

3. The combination in an arc-lamp, of a rod movably attached to the lamp-casing, an arc-inclosing globe-cover movably mounted on said rod, means for normally securing said cover in position, and a carbon-holder at the lower end of said rod, substantially as set forth.

4. The combination in an arc-lamp, of a rod depending from the lamp-casing, an arc-inclosing globe-cover having a hole therein for the passage of the upper carbon, a perforated enlargement near the periphery of the cover for the passage of said rod and a set-screw passing through the wall of said enlargement and engaging said rod, substantially as set forth.

5. In an electric-arc lamp, the combination with a magnet, a pivoted armature and an air-pot, of an arm projecting from said magnet and serving as a stop for said armature and a support for said air-pot, substantially as set forth.

6. In an electric-arc lamp, the combination with a magnet and an armature pivoted at one end to one end of the magnet, of an arm secured to the other end of said magnet, an air-pot attached to said arm and a connection between the plunger of said air-pot and the armature in proximity to the pivoted end of the latter, substantially as set forth.

7. In an electric-arc lamp, the combination with a magnet having poles at its respective ends, of an L-shaped armature pivotally connected to one pole and adapted to be actuated by both poles and an air-pot attached to one end of said magnet and having its plunger connected with the L-shaped end of the armature, substantially as set forth.

8. In an electric-arc lamp, the combination with a magnet having poles at its respective ends and an armature adapted to be actuated simultaneously by both of said poles, of knife-edge hinge-pieces for the armature on the magnet and armature, bearings for said hinge-pieces secured to the magnet and armature and a support on the magnet and projecting under the armature, substantially as set forth.

9. In an electric-arc lamp, the combination with a magnet having pole-pieces at both ends, of an armature pivotally supported by one of said pole-pieces and adapted to be actuated by both of them, an arm projecting from the pole-piece adjacent to the free end of the armature, an air-pot attached to said arm, an arm projecting from the armature near the pivoted end of the latter, the plunger of the air-pot being attached to the arm on the armature, a clutch and a connection between said clutch and the arm on the armature, substantially as set forth.

10. In an electric-arc lamp, the combination with the lamp-casing and the negative binding-post, of a plate in the floor of the casing having a hole therein, a tubular rod electrically connecting said plate with the negative binding-post, a rod or bracket having its upper end movably inserted in the lower end of said tubular rod, said rod or bracket depending below the lamp-floor and having a carbon-holder at its lower end, means for normally securing said rod or bracket in position, and an arc-inclosing globe inclosing the lower portion of said rod or bracket and the carbon-holder, substantially as set forth.

11. In an electric-arc lamp, the combination with a rod or bracket depending from the lamp-casing and having a lateral arm at its lower end, of a carbon-holder comprising a rigid and a movable jaw, the rigid jaw having a perforated boss to receive the lateral arm on the rod or bracket, a screw passing through the wall of said boss and engaging said lateral arm, pintles on opposite sides of said boss, prongs projecting from the movable jaw and having pivotal bearings on said pintles, and a screw passing loosely through the free end of one jaw and entering a screw-threaded hole in the free end of the other jaw, substantially as set forth.

12. In an electric-arc lamp, the combination with the casing thereof, of a grooved ring located on the top of said casing, an annular series of insulators having bearings in said grooved ring, a resistance-coil passing through said insulators, and a cap covering said ring, coil and insulators, substantially as set forth.

13. In an electric-arc lamp, the combination with the casing thereof having a central projection, of a rheostat located on said casing, a cap covering said rheostat and having a central opening, a plate over said opening and a screw entering the projection on the casing and retaining said plate and cap in position, substantially as set forth.

14. In an electric-arc lamp, the combination with a casing having lugs on its top, of a rheostat located on said casing, a cap covering said rheostat and resting on said lugs, said cap having an opening in its center, lugs on said cap surrounding the opening, a dished plate resting on said lugs on the cap and covering said opening in the latter, and means for holding said cap and plate in position, substantially as set forth.

15. In an electric-arc lamp, the combination with the casing, a lamp-arm and a cross-head, of a clutch-blade secured to said cross-head and entering said arm, a clutch to grasp said blade, means for operating said clutch, and two wheels mounted at the lower end of said blade and at right angles to each other, substantially as set forth.

16. In an electric-arc lamp, the combination with the casing and a lamp-arm, of an arc-inclosing globe, a rod or bracket depending from the lamp-casing and entering said globe, a cover for said globe movably mounted on said rod or bracket, means for normally securing the cover to the rod or bracket, a coiled spring seated in the lower end of the lamp-arm and a socket-piece secured to the upper end of said spring and adapted to receive the lower end of the globe, substantially as set forth.

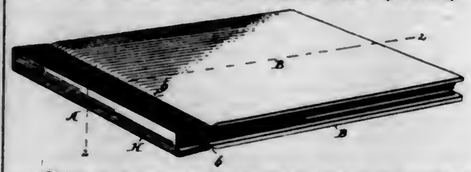
17. In an electric-arc lamp, the combination with the lamp-arm, of an extension depending from the lower end of said arm, an externally-screw-threaded sleeve mounted loosely on said extension, disks on said sleeve for attaching a globe thereto, and a cap removably attached to said extension and adapted to support said sleeve and the globe attached thereto, substantially as set forth.

18. In an electric-arc lamp, the combination with the lamp-arm, of a tubular extension depending from the lower end thereof, a sleeve loosely mounted on said extension, means for attaching a globe to said sleeve, a cap removably attached to said extension and adapted to support said sleeve and globe and means for lowering said cap and supporting said sleeve and globe in a lowered position, substantially as set forth.

19. In an electric-arc lamp, the combination with the lamp-arm, of a tubular extension depending therefrom, a sleeve loosely mounted on said extension, means for attaching a globe to said sleeve, a cap removably attached to said extension and adapted to support said sleeve and globe, a rod secured to said cap and projecting through the tubular extension, a head on said rod, a tube within said extension and having a shoulder at one end to receive said head, a shoulder at the other end of said tube, and a tapering portion within said extension to receive said last-mentioned shoulder on said tube, substantially as set forth.

20. In an electric-arc lamp, the combination with the lamp-casing and a rheostat thereon, of a binding-post, a flexible conductor covered with heat-proof material, attached at one end to the binding-post and having a block at the other end, said block being inserted into the end of the rheostat and a screw entering said block and bearing against the rheostat, substantially as set forth.

579,083. TEMPORARY BINDER OR HOLDER FOR PAPERS. JOSEPH BAER, Buffalo, N. Y., assignor to the Baker Jones & Company, same place. Filed Nov. 24, 1896. Serial No. 613,295. (No model.)



Claim.—1. A spring-back binder and holder for papers, comprising the cover-leaves, the stiff plates, C, with which the leaves are connected, and the springs which connect the plates and are arranged between them so as to serve as fulcrums on which the plates may be moved, and operating to force together the plates at their front edges, substantially as set forth.

2. The combination of the cover-leaves, B, the plates, C, the coiled springs connected with the plates and tending to force their front edges together, and arranged between them near their rear edges, whereby they hold the plates apart at the rear, substantially as set forth.

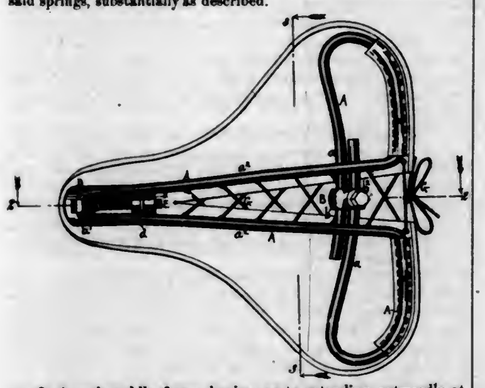
3. The combination of the cover-leaves, B, the plates, C, the coiled springs, D, arranged between the plates near their rear edges and having their ends connected with the plates, so as to force the front edges of latter together, and the rod F which passes through the springs and holds them in place, substantially as set forth.

4. The combination of the cover-leaves B, the plates C, the coiled springs, D, arranged between the plates near their rear edges and having their ends connected with the plates, so as to force the front edges of the latter together, and the strips of material, G, secured to the outside of the plates, C, substantially as set forth.

579,084. CYCLE-SADDLE. CHARLES F. BATT, Brooklyn, N. Y. Filed Aug. 19, 1896. Serial No. 603,247. (No model.)

Claim.—1. A cycle-saddle frame consisting of two continuous fore-and-aft springs united at the front and with the ends at the back curved outwardly, forwardly and then inwardly, and adjustably connected with each other, as and for the purpose set forth.

2. A cycle-saddle frame consisting of two continuous fore-and-aft springs united at the front and extending outwardly at the back and then inwardly, and with the ends adjustably connected with each other, in combination with a clamp permitting lateral adjustment of said springs, substantially as described.



3. A cycle-saddle frame having parts extending outwardly at the back of the saddle, and curved forwardly and inwardly and connected together at a point forward of the back of the saddle, as and for the purpose described.

4. A cycle-saddle frame having spring supporting parts extending outwardly at the back of the saddle and curved forwardly and inwardly in return-bends with the ends adjustably connected together at a point forward of the back of the saddle, as and for the purpose described.

5. A cycle-saddle frame having fore-and-aft supporting parts, in combination with a seat-post clamp having horizontal clamping-faces for the said supporting parts forming elongated slots through which said supporting parts pass, and in which they can be adjusted laterally, substantially as described.

6. A cycle-saddle frame having supporting spring-wires extending fore and aft adjustably connected at the back of the saddle in combination with a clamp having horizontally-elongated clamping-faces between which the said wires may be clamped in their various positions.

579,085. PROJECTILE. WILLIAM H. BELL, U. S. Army. Filed June 11, 1896. Serial No. 595,182. (No model.)



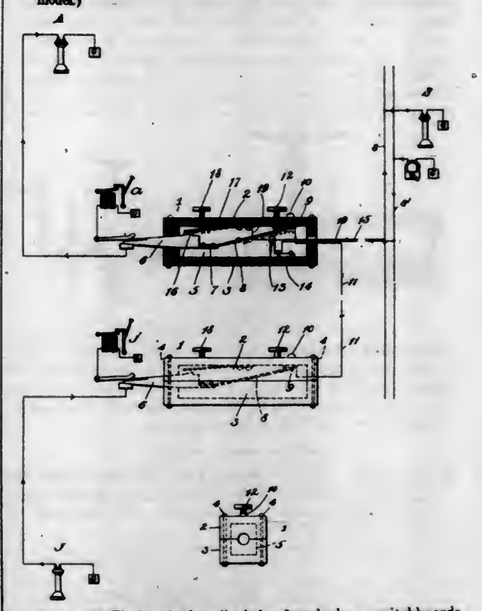
Claim.—1. In an elongated projectile, the combination with a shell provided with separate front and rear powder-chambers, the rear powder-chamber opening to the rear, of a plug provided with curved grooves therein, partly closing the rear powder-chamber, a frangible disk secured to one end of said plug and normally closing the end of said grooves, and means for holding said plug in the shell, substantially as described.

2. In an elongated projectile, the combination with a shell provided with separate front and rear powder-chambers, the rear powder-chamber opening to the rear, of a plug provided with curved grooves therein, partly closing the rear powder-chamber, a frangible disk secured to one end of said plug and normally closing the end of said grooves, and a slotted disk secured to the base of said shell, and to said plug, substantially as described.

3. An elongated projectile provided with a powder-chamber in the rear portion thereof and opening to the rear, a plug closing the rear end of said powder-chamber, and provided with curved grooves, similar to the grooves in rifling, opening from the front of the plug to the rear thereof, and serving as passages for the gases from said powder-chamber, with means for holding said plug against revolution in said projectile, substantially as described.

4. An elongated projectile provided with a powder-chamber for the bursting charge, and with a second powder-chamber in rear of the first and separated therefrom by a wall of metal, a plug closing the rear end of said second powder-chamber, and provided with curved grooves, similar to the grooves in rifling, opening from the front of the plug to the rear thereof, and serving as passages for the gases from said powder-chamber, with means for holding said plug against revolution in said projectile, substantially as described.

579,086. TELEPHONE-SWITCHBOARD PLUG. FRANK E. BOSONG, Watseka, Ill. Filed Sept. 16, 1896. Serial No. 606,000. (No model.)



Claim.—1. The herein-described plug for telephone-switchboards, comprising a non-conducting body portion, a conducting portion or head, a stationary contact, secured within said body portion and, designed to be electrically connected with a subscriber, a second stationary contact secured therein, and designed to be electrically connected with a signaling-current generator, a movable contact, connected to said conducting portion or head, and adapted to contact alternately with said stationary contacts, a second movable contact attached to the non-conducting body portion and adapted to be moved into contact with the conducting portion or head, said movable contact designed to be electrically connected with a central operator's telephone-set, and push-buttons for actuating said movable contacts.

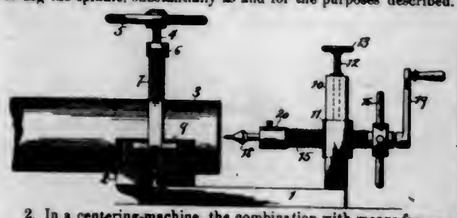
2. The combination with a central signaling-current generator, and a central operator's telephone-set, of a telephone-switchboard plug suitably connected therewith and wired to connect two subscribers' lines, means for cutting the calling subscriber and signaling-current generator alternately into circuit with the second subscriber, and means for maintaining the central operator's telephone-set constantly in circuit with said second subscriber, during such alteration.

3. The combination with a central signaling-current generator, of a telephone-switchboard plug suitably connected therewith and wired to connect two subscribers' lines, means for cutting the calling subscriber and signaling-current generator alternately into circuit with the second subscriber, an additional wire leading from said plug to a central operator's telephone-set and normally out of contact with a conducting-head carried by said plug, and means for electrically connecting said wire and conducting-head, whereby the operator's telephone-set may be cut into circuit with the second subscriber when either the signaling-current generator or calling subscriber is in circuit therewith, substantially as described.

4. The herein-described switchboard-plug, consisting of a non-conducting hollow body, a conducting point or tip carried thereby, a spring-contact 8 extending from said point into the hollow body, a second spring-contact 17 secured to the interior of the plug and normally out of contact with the conducting point or tip, a contact-plate 9 against which the spring-contact 8 normally rests, a contact 14 secured to the interior of the plug and normally out of contact with said spring-contact 8, and electrical conductors leading from the spring-contact 17 to a central operator's set and from the contact 14 to a calling-generator, and a third electrical conductor leading from the contact-plate 9, substantially as described.

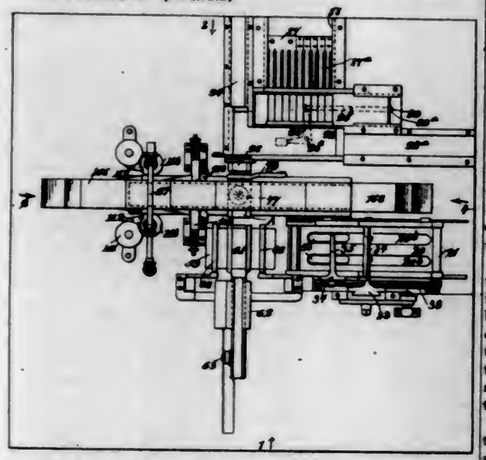
579,087. CENTERING-MACHINE. CHARLES O. BULOCK and ALEXANDER R. MCLAUCHLIN, York Haven, Pa., assignors of one-third to Milton R. Warner, Manchester, Pa. Filed Nov. 28, 1896. Serial No. 613,790. (No model.)

Claim.—1. In a centering-machine, the combination with means for holding the work while having a centering-hole made therein, of a fixed standard formed with a vertical way, a vertically-sliding block fitting in said way and internally screw-threaded, a screw having a bearing in a part of the standard and connected to said block for adjusting it vertically, a screw-threaded sleeve working in said block to adjust the drill to and from the work, and a spindle rotatable in said sleeve and provided with means for carrying a drill and for revolving the spindle, substantially as and for the purposes described.



2. In a centering-machine, the combination with means for supporting a drill and adjusting it vertically and feeding it horizontally, of means for holding the work to be bored comprising a seat, a bail pivotally secured at both ends to said seat, and a binding-screw working in said bail and adjusted to bear against the work to be clamped, substantially as and for the purposes described.

579,038. MACHINE FOR MAKING CIGARETTE-BOXES AND PACKING CIGARETTES. DOMINGO PERES Y BUSOT, Havana, Cuba, assignor to Alvarez, Lopez y Cia., same place. Filed Feb. 21, 1896. Serial No. 580,203. (No model.)



Claim.—1. A box-making machine, comprising a mold of substantially the shape of the box, a device for carrying the material into operative relation to said mold, means for folding the material around the mold, a conveyer having spaces or chambers adapted to receive the boxes, jaws located adjacent to said conveyer and arranged to take hold of one end of the box, means for carrying the mold with the box toward said jaws, mechanism for opening and closing the jaws, and devices for closing the ends of the boxes, substantially as described.

2. A feed device for paper or other material in sheets or rolls, said device comprising a slide carrying a fixed jaw, and provided with an approximately vertical slideway, an auxiliary slide mounted to move in said slideway, and carrying a jaw registering with the fixed jaw and adapted to clamp the material thereon, a vertically-movable track or rail engaged by said auxiliary slide, and means for operating said rail to separate the jaws or close them, substantially as described.

3. The combination of the jaws adapted to feed the material forward, the knives for cutting said material into pieces of appropriate length, a slide carrying a fixed jaw located in advance of the aforesaid feed-jaws, a movable jaw pivoted to the fixed jaw and adapted to clamp the forward edge of the material thereon, a pinion rigidly secured to said pivoted jaw, a slidable rack engaging said pinion, means for operating the rack, and means for moving the slide longitudinally to carry the cut material forward, substantially as described.

4. The combination of the stationary rest having a recess, the vertically-movable mold located above said rest, a carrier adapted to convey the paper or other material between the mold and the rest, the presser-plate arranged to move vertically in the recess of the rest and adapted to press the material against the under side of the mold, and the transversely-movable folders arranged laterally of the mold and adapted to bend the material around the same, substantially as described.

5. The combination of the vertically and longitudinally movable mold, a carrier for conveying the material to said mold, a folding device for bending the material around the mold, a conveyer having spaces or chambers to receive the mold and the unfinished box, a device for feeding the articles, such as cigarettes, to the unfinished box while the same is held in the conveyer, and means for closing the ends of the said box after the articles have been packed therein, substantially as described.

6. A conveyer-chain, the same consisting of links having vertically-movable top plates and laterally-movable sides, forming between them an expansible space or chamber adapted to receive a box, means for inserting a box into said chamber, and a device for moving the walls of the said chamber from each other while the link is in its receiving position, substantially as described.

7. A conveyer-chain, the same consisting of links having bottom walls and end walls rigidly connected thereto, a vertically-movable top wall, laterally-movable inner sides, springs for pressing said movable walls toward each other, said walls inclosing between them a space or chamber adapted to receive a box, and means for moving said walls from each other when the link is in its receiving position, substantially as described.

8. A conveyer-chain, the same consisting of links having bottom walls and end walls rigidly connected thereto, a spring-pressed top wall having vertically-movable projections extending through the bottom wall, laterally-movable inner sides controlled by springs, and having pins projecting through the bottom wall, said walls inclosing between them a chamber adapted to receive a box, and a cam mounted to turn about a stationary axis and arranged to engage the pins and projections from the movable walls of the link to expand the chamber formed by said walls when the link is in its receiving position, substantially as described.

9. The combination of a conveyer adapted to carry boxes with the open ends of the boxes protruding from the conveyer, stationary tucking-points adapted to engage the forward edges of the said protruding ends, swinging tucking-points arranged to engage the rear edges of the said protruding box ends, and spiral blades arranged to engage successively the upper and lower flaps of the box ends to fold them inward, substantially as described.

10. The combination of the conveyer adapted to carry boxes with the ends of the boxes protruding from the conveyer, stationary tucking-points adapted to engage the forward edges of the protruding box ends, pivoted tucking-points adapted to engage the rear edges of the said boxes, spiral blades arranged to engage the lower flaps of the said box ends and fold them upward, similar inverted spiral blades to engage the upper flaps of the box ends and fold them downward, and a gumming device arranged between the two sets of spiral blades to gum the protruding ends of the box, substantially as described.

11. The combination of the conveyer adapted to carry boxes with the ends of the boxes protruding from the conveyer, tucking devices arranged adjacent to the path of travel of the conveyer and adapted to engage the forward and rearward edges of the said protruding box ends to tuck them in so as to produce an upper and a lower flap on each of said box ends, and spiral blades arranged in the path of travel of said flaps and adapted to fold the same inward, substantially as described.

12. The combination of the conveyer adapted to carry boxes with the ends of the boxes protruding from the conveyer, tucking devices arranged adjacent to the path of travel of the conveyer and arranged to engage the forward and rearward edges of the said protruding box ends to tuck them in so as to produce an upper and a lower flap on each of said box ends, spiral blades arranged in the path of travel of said flaps to fold them inward, and a gumming device arranged between the said spiral blades to gum the said flaps, substantially as described.

13. An apparatus for packing cigarettes and other articles into boxes, comprising a conveyer or holder for the boxes, a receptacle adapted to contain said articles and provided with partitions to compel the articles to arrange themselves in regular rows, a comb-like plunger whose members or teeth are adapted to pass between said partitions to force the cigarettes out of the receptacle, a trough or table arranged to receive the articles discharged from said receptacle and provided with an outlet leading to the box, and a plunger arranged in line with said outlet to push the cigarettes into the box, substantially as described.

14. An apparatus for packing cigarettes and other articles into boxes, comprising a conveyer or holder for the boxes, a receptacle adapted to contain said articles and provided with partitions to compel the articles to arrange themselves in regular rows, a comb-like plunger whose members or teeth are adapted to pass between said partitions to force the cigarettes out of the receptacle, a trough or table arranged to receive the articles discharged from said receptacle and provided with an outlet leading to the box, a plunger arranged to move transversely of the cigarettes to crowd the same toward said outlet, and another plunger arranged to move longitudinally of the cigarettes and to push the same through the outlet, substantially as described.

15. An apparatus for packing cigarettes and other articles into boxes, comprising a holder for the boxes, a hopper adapted to receive the cigarettes, a shaking receptacle below the hopper, said receptacle having a series of parallel partitions whereby the cigarettes will be alined in regular rows, and means for pushing the cigarettes out of said receptacle and into the boxes, substantially as described.

16. An apparatus for packing cigarettes and other articles into boxes, comprising a holder for the boxes, a hopper adapted to receive the cigarettes and having openings in its end walls near the bottom thereof, a partitioned shaking receptacle into which the cigarettes are adapted to fall from the hopper, a comb-like plunger adapted to pass through the openings in the end walls of the hopper and between the partitions of the receptacle to push the cigarettes out therefrom, and means for conveying said cigarettes into the boxes, substantially as described.

17. An apparatus for packing cigarettes and other articles into boxes, comprising a holder for the boxes, a hopper adapted to receive the cigarettes and having openings in its end walls near the bottom thereof, a partitioned shaking receptacle into which the cigarettes are adapted to fall from the hopper, a comb-like plunger adapted to pass through the openings in the end walls of the hopper and between the partitions of the receptacle to push the cigarettes out therefrom, vertically-movable doors adapted to partly or entirely close the openings in the end walls of the hopper, and means for conveying the cigarettes into the boxes, substantially as described.

18. An apparatus for packing cigarettes and other articles into boxes, comprising a holder for the boxes, a hopper adapted to receive the cigarettes and having openings in its end walls near the bottom thereof, a partitioned shaking receptacle into which the cigarettes are adapted to fall from the hopper, a comb-like plunger having sundry of its prongs or teeth made in superposed detachable sections, said teeth being adapted to pass between the partitions of the receptacle to push the cigarettes out therefrom, vertically-movable doors adapted to partly or entirely close the openings in the end walls of the hopper, said doors alining with those teeth of the plunger which are made in sections, and means for conveying the cigarettes into the boxes, substantially as described.

19. An apparatus for packing cigarettes and other articles into boxes, comprising a holder for the boxes, a hopper adapted to receive the cigarettes and having openings in its end walls near the bottom thereof, a partitioned shaking receptacle into which the cigarettes are adapted to fall from the hopper, a slide located above the receptacle and controlling the entrance of cigarettes into the same, and means for pushing the cigarettes out of said receptacle and into the boxes, substantially as described.

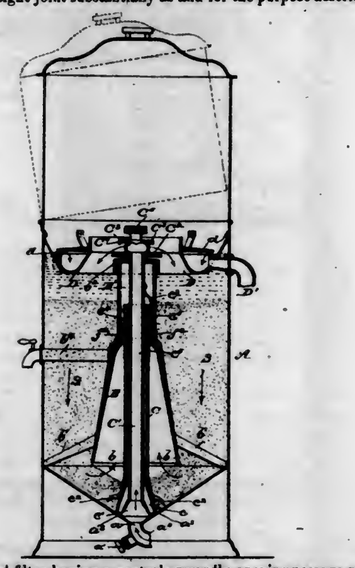
20. The combination of the mechanism for producing boxes having open ends, a conveyer or holder for said unfinished boxes, a device for alining cigarettes or like articles in regular rows, mechanism for pushing said alined cigarettes into the unfinished boxes, and a tucking device for closing the ends of the boxes, substantially as described.

21. The combination of the mechanism for producing boxes having open ends, a conveyer or holder for said unfinished boxes, the said holder being of less width than the boxes so that the box ends will protrude therefrom, mechanism for delivering the cigarettes or other article into said boxes, and a tucking device located in the path of travel of the protruding box ends, to close them, substantially as described.

579,039. FILTER. EDON A. BRAKEMAN, Western Port, Md., assignor of one-half to Charles B. Karn, same place. Filed Nov. 28, 1896. Serial No. 613,836. (No model.)

Claim.—1. A sand-filter having a central inlet at its bottom, and a central filtered-water chamber opening at its bottom into the sand-space around it, and a vertically-adjustable concentric tube arranged when in its lowest position to cut off the sand and admit only water through it, and when raised serving to admit both water and sand to the interior of said tube substantially as and for the purpose described.

2. A sand-filter having a central inlet at its bottom, and a central filtered-water chamber opening at its bottom into the sand-space around it, and two vertically-adjustable concentric tubes forming an upward passage-way for water and sand, both of said tubes being opened at their lower ends and forming a compound valve with the bottom of the filter to cut off the sand by their successive action, and form a tight joint substantially as and for the purpose described.



3. A sand-filter having a central upwardly-opening passage-way for sand and water, and a ring-shaped waste-trough surrounding the same and having an opening to receive the overflow of the scum and light impurities substantially as and for the purpose described.

4. A sand-filter comprising a case having a central inlet at its bottom, a central filtered-water chamber opening at its bottom into the sand-space around it, two vertically-adjustable concentric tubes forming at their lower ends a compound valve or progressive cut-off for the sand, and means for giving a successive adjustment to said tubes substantially as shown and described.

5. A sand-filter comprising a case having a central inlet at its bottom, a central filtered-water chamber opening at its bottom into the sand-space around it, a central tube for the upward passage-way of water and sand, and a ring-shaped discharge-trough for impurities arranged about the upper end thereof substantially as and for the purpose described.

6. The combination in a sand-filter of the outer case having conical bottom a^3, and inlet a of the concentric tubes C C' having bell-shaped or flared lower ends c c' said tubes being made vertically adjustable substantially as and for the purpose described.

7. The combination in a sand-filter, of the outer case having conical bottom with a central inlet, and a vertically-adjustable tube forming a water passage-way and a sand cut-off substantially as described.

8. The combination in a sand-filter, of the outer case having a conical bottom with a central inlet, a horizontal inlet-pipe a^2 with a detachable plug a' in its end, and a central and vertically-adjustable tube forming a water passage-way and a sand cut-off substantially as described.

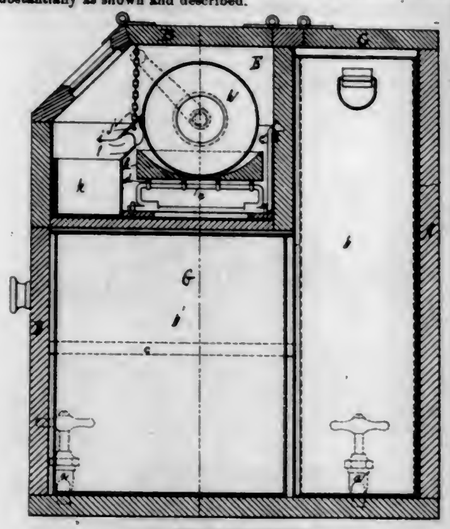
9. The combination with the outer and inner chambers A and B of a filter; of two concentric vertically-adjustable tubes C C' forming a compound valve at their lower ends, and having with each other a slot-and-pin connection c^4, and spring c^5, the outer tube being screw-threaded and held in the top of the inner chamber B, and the inner tube being provided with a current-deflector and operating-handle substantially as and for the purpose described.

579,040. ICE-CREAM FREEZER. GEORGE S. W. BROWN, Athens, Pa. Filed Apr. 6, 1896. Serial No. 586,327. (No model.)

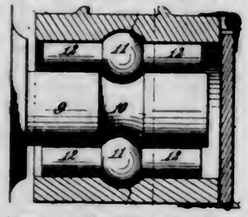
Claim.—1. In an ice-cream freezer, the inclosing frame, a revolving cylinder placed therein, and a receptacle that is vertically adjustable in relation to the cylinder for holding the mixture that is to be frozen, combined with a scraper that is suspended from the top of the inclosing frame by means of flexible connections, and which is suspended so as to bear against the cylinder, said scraper being provided with a handle that projects through the frame, substantially as described.

2. In an ice-cream freezer the combination of a frame or case, a freezing-cylinder therein, a scraper, and chains secured at their upper ends to the frame or case and bearing the scraper at their lower

ends in position to hang freely and rest against the freezing-cylinder substantially as shown and described.



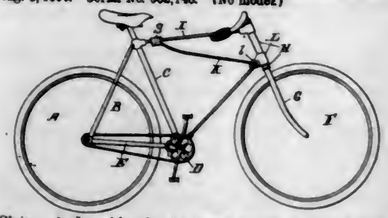
579,041. JOURNAL-BEARING. JAMES B. CHRISTOPHER, Mahanoy City, Pa. Filed Dec. 23, 1896. Serial No. 616,733. (No model.)



Claim.—1. In a journal-bearing, the combination with a journal-box having an annular groove formed on its interior, of a journal arranged in the box and having a circumferential groove midway between its ends, and a plurality of balls disposed in said grooves in contact with each other but normally out of contact with the journal and journal-box and provided with oppositely-projecting rollers disposed between the journal and the box and unconnected one with the other, substantially as described.

2. In a journal-bearing, the combination with a journal-box having an arc-shaped annular groove formed on its interior, of a journal arranged in the box and having a circumferential arc-shaped groove midway between its ends, said grooves being formed on arcs of the same circle, and a plurality of balls arranged in contact with one another in said grooves and provided with oppositely-projecting rollers disposed between the journal and journal-box and in contact therewith, the said balls being true spheres of a less diameter than the diameter of the circle on which the said arc-shaped grooves are formed, whereby the balls are normally out of contact with both the journal and journal-box, substantially as described.

579,042. BICYCLE. ALVIN R. CLARK, Richmond, Ind. Filed Aug. 8, 1896. Serial No. 602,148. (No model.)



Claim.—1. In a bicycle, the frame having an elastic upper connection between the front-fork-bearing tube and the seat-post, and an approximately V-shaped spring, the apex of which has a bearing on said front tube, one arm of said spring having a sliding bearing on said upper connection, and the other arm a connection with the saddle-post, substantially as specified.

2. In a bicycle, the combination with the seat-post, and the front-fork-bearing tube, of the elastic upper bar I connecting said tube, and post, and the approximately V-shaped spring whose apex is formed into a loop or coil which has a bearing on said front tube, and whose arms extend, one upwardly and rearwardly to the rear portion of the bar I, which it slidingly engages, and the other downwardly and rearwardly to the crank-shaft bearing to which it is jointed, substantially as specified.

579,043. DEVICE FOR APPLYING COATING MIXTURES. FRANK H. CLOUDMAN, Cumberland Mills, Me. Filed Sept. 15, 1896. Serial No. 605,916. (No model.)



Claim.—1. In a machine for coating paper and fabrics, the combination with a moving support, of the distributing-cylinder, having an elongated slot therein, and a distributing-lip in rear of said slot, the shoulder formed thereby being directed away from said slot, the edge of said shoulder being rounded, and adapted to smooth and distribute the coating material.

2. In a machine for coating paper and fabrics, the combination with the moving support for the article to be coated, of the distributing-cylinder having the longitudinal slot therein, the lip having a curved surface leading thereto, said curved surface being presented to the article to be coated, substantially as described.

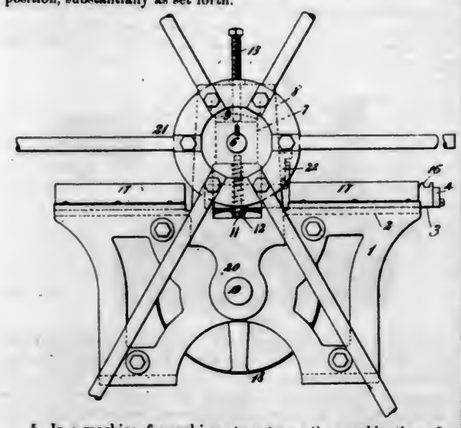
579,044. MACHINE FOR MAKING STEREOTYPES. BENJAMIN F. CURTIS, Brooklyn, N. Y., and DAVID H. TITSWORTH, Plainfield, N. J., assignors to the Potter Printing Press Company, Plainfield, N. J. Filed June 5, 1896. Serial No. 551,774. (No model.)

Claim.—1. In a machine for making stereotypes the combination of a roll, a bed movable beneath the same, adapted to carry a form or a stereotype, and geared with the roll, means for actuating the bed and roll, and a cutter mounted near the bed and adapted to be raised and lowered relative to the same, and means for holding the cutter in its raised and lowered position, substantially as set forth.

2. In a machine for making stereotypes the combination of a roll, a bed movable beneath and geared with the same, a roll beneath the bed and engaging the latter opposite the first roll, and a cutter mounted near the bed and adapted to be raised and lowered relatively to the same, and means for holding the cutter in its raised and lowered position, substantially as set forth.

3. In a machine for making stereotypes the combination of a roll, a bed movable beneath the same, means for actuating the bed and roll, a cutter adapted to be raised and lowered relative to the bed, stops for arresting it at the desired height above the bed, and means for holding it in its raised or in its lowered position, substantially as set forth.

4. In a machine for making stereotypes the combination of a roll, a bed movable beneath the same, means for actuating the bed and roll, a cutter-bar adapted to be raised and lowered relative to the bed, a cutter carried by and adjustable on said cutter-bar, stops for arresting said parts when the cutter is at the desired height above the bed, and means for holding the bar in its raised or in its lowered position, substantially as set forth.



5. In a machine for making stereotypes the combination of a roll, a bed movable beneath the same, supporting-brackets for the roll, means for actuating the bed and roll, a cutter-bar on said brackets and adapted to be raised or lowered relative to the bed, a cutter carried by the bar, stops on the brackets for arresting the bar and cutter when the latter is at the desired height above the bed, and means for holding the bar in the latter or in a raised position, substantially as set forth.

6. In a machine for making stereotypes the combination of a roll, a bed movable beneath the same, brackets at the sides of the bed, a roll mounted in said brackets, means for actuating the bed and roll, a cutter-bar having its ends mounted on the brackets and carrying a cutter, stops for limiting the upward movement of the cutter above the bed and clamps for securing said ends to the brackets with the cutter in a raised or lowered position, substantially as set forth.

579,045. PUZZLE. JOSEPH C. DANDO, Jr., Philadelphia, Pa. Filed June 18, 1896. Serial No. 596,032. (No model.)

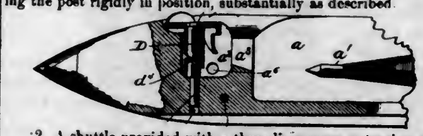


Claim.—1. The within-described puzzle consisting of a series of superposed disks of different diameters eccentrically pivoted upon the same axis and having letters or other characters formed upon them, substantially as specified.

2. The within-described puzzle consisting of a series of superposed disks of different diameters distinguished from each other in color, said disks being eccentrically pivoted upon the same axis, substantially as specified.

579,046. SELF-THREADING SHUTTLE. JEAN B. DAUDELIN, Fall River, Mass. Filed Aug. 12, 1896. Serial No. 602,565. (No model.)

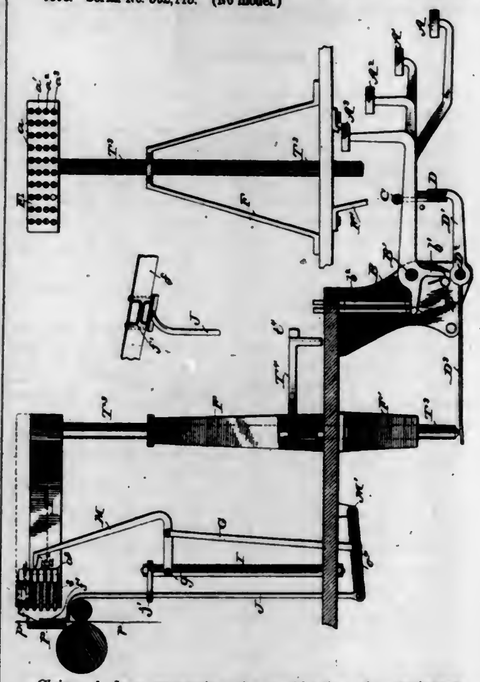
Claim.—1. A shuttle provided with a spindle-recess and a threading-recess forward of and communicating with the spindle-recess, a tension-post in said threading-recess having a stem engaging a recess in the shuttle-body, provided with an inclined thread-engaging groove and having a polygonal head and projecting portions below said head, and a threading-plate secured to the shuttle-body covering said threading-recess provided with a polygonal aperture to engage the polygonal head of said post, the adjacent portions of said plate engaging the projecting portions of said post below said head and holding the post rigidly in position, substantially as described.



2. A shuttle provided with a threading-recess, a tension-post in said recess having an inclined thread-groove therein, said post having a stem engaging an aperture in the shuttle-body, and having a polygonal head, a plate covering said threading-recess and having a polygonal aperture engaging the polygonal head of said post and means for removably securing said plate to the shuttle-body whereby said post may be adjusted by removing and replacing said plate, substantially as described.

3. A shuttle provided with a threading-recess, a delivery-eye at one side of said recess, a tension-post having a portion engaging a recess in the bottom of the threading-recess, said post being provided with a shoulder adjacent to the bottom of said threading-recess and inclined grooves extending from said shoulder upwardly and meeting at a point above said shoulder on the opposite side of the post, said post having a polygonal head, and a plate detachably secured to the shuttle-body extending over the threading-recess and having a polygonal aperture fitting the polygonal head of said post, whereby said post can be used with shuttles having the delivery-eye at either side of the said threading-recess, substantially as described.

579,047. TYPE-WRITING ATTACHMENT FOR ADDING-MACHINES. GEORGE W. DUDLEY, Charleston, W. Va., assignor to the Numerograph Manufacturing Company, same place. Filed May 19, 1896. Serial No. 592,115. (No model.)

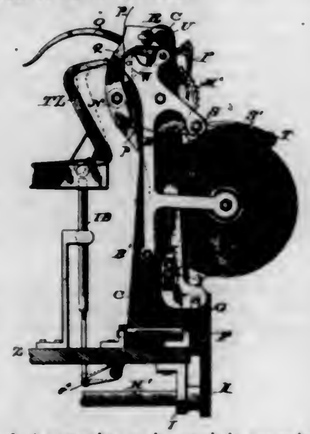


Claim.—1. In a type-writer, the combination of a stationary platen, a ribbon, a vertically-reciprocating ribbon-shifter, an arm connected to the lower end thereof and operating the same, an impact-bar made in the form of an elbow-lever, a rod connected to said elbow-lever and extending below and attached directly to the ribbon-shifting arm, to cause a simultaneous vertical motion of the ribbon-shifter and a motion of the upper end of the impact-bar substantially at right angles to that of the ribbon-shifter, and a type-carrying head

arranged between the platen and impact-bar and having both vertical and longitudinal series of spring-seated type-bars, and means for imparting both a vertical and longitudinal motion to the type-carrying head, substantially as shown and described.

2. The combination, in a type-writer, of a platen and the ribbon, and oscillating type-carrier T' with spring-seated type-bars arranged in vertical and longitudinal series, a vertically-adjustable and axially-oscillating shaft T^3 supporting the type-carrier, type-levers fulcrumed in front of said type-carrying shaft, an oscillating frame D D' D^2 fulcrumed beneath the fulcrum of the type-levers and having its rear extension D^3 resting beneath the type-carrying shaft T^3 and its front bar D formed with notched spaces d d' d^1 d^2 adapted to be operated upon by the key-levers resting above said notched spaces, as and for the purpose described.

579,048. TYPE-WRITING ATTACHMENT FOR ADDING-MACHINES. GEORGE W. DUDLEY, Charleston, W. Va., assignor to the Numerograph Manufacturing Company, same place. Filed May 19, 1896. Serial No. 592,116. (No model.)



Claim.—1. A type-writer carriage made in two main parts, the rear part having a platen and a feed-roll, and the front part having two bearings arranged in a vertical plane one above the other, the said two parts being hinged and provided with a spring for pressing them together to accommodate the reception and vertical feed of a blank-book substantially as and for the purpose described.

2. A type-writer carriage made in two main parts, the front part having two bearing-points for a book arranged vertically one above another, and the rear part carrying the platen and feed-roll, and jointed to the front part, and having a spring connection therewith to press it forwardly to the type-levers but allow it to yield backwardly therefrom to permit the insertion of a book substantially as and for the purpose described.

3. The combination with the stationary standards C having track-bar U of the laterally-adjustable carriage-frame A, having ball-bearings X Y V, rollers R at the top arranged to bear against the front side of the track-bar, and a paper roll projecting rearwardly to hold the roller R against its track-bar substantially as and for the purpose described.

4. The combination with the frame A bearing roller N and knife-bar Q; of the yielding frame B bearing platen, feed-roll, and paper roll, substantially as and for the purpose described.

5. The combination with the frame A bearing roller N and knife-bar Q; of the yielding frame B, bearing platen, feed-roll, and paper roll, and spring-pressed arms S with idle-roll T bearing upon the paper roll substantially as and for the purpose described

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579,049. BROADCAST SEEDER. GEORGE W. ELTEROTH, Matthews, Ind., assignor of one-third to Owen P. Nottingham, Trask, Ind. Filed Aug. 22, 1896. Serial No. 603,637. (No model.)

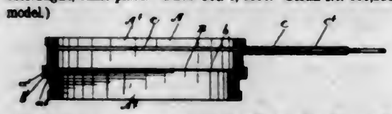
Claim.—1. In a broadcast seeder, a suitable box or frame, and a superposed hopper, in combination with a rotary distributer arranged under said hopper, means to control the discharge of seed from the hopper to the distributer, spring-actuated mechanism operatively connected to said distributer, and a movable stop for holding the actuating mechanism stationary or releasing the same, all arranged substantially as and for the purpose described.

2. In a broadcast seeder, a distributer-wheel comprising a base-disk, a hub carrying a series of radial vanes or blades of substantially U shape in cross-section at their outer ends, said vanes being rigidly attached to said disk and extending beyond the outer edge thereof and each consisting of a base-flange extending from the hub to the outer end of the vane, and an upper flange cut away adjacent to the hub to permit the seed to drop from the hopper to the disk in front of the blades, and the outer portion of said flange declining as it extends outward to form a tapering nozzle or discharge end, substantially as described.



3. In a broadcast seeder, a box or frame and a superposed hopper, in combination with a rotary distributer journaled horizontally under the hopper, means to control the discharge of seed from the hopper to the distributer, a train of gearing operatively connected with the distributer, and means for arresting and releasing the operative mechanism, substantially as described.

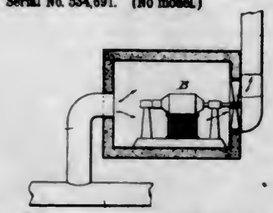
579,050. TOASTER. ARCHIBALD FAIRGRIEVE, Toronto, Canada, assignor of two-thirds to John W. Campbell and William Kirkpatrick McNaught, same place. Filed Oct. 8, 1896. Serial No. 608,211. (No model.)



Claim.—1. A toaster comprising a cylindrical body, a perforated diaphragm arranged centrally thereof, said body having a slot in the wall thereof above said diaphragm, and a rest formed of wire doubled intermediately the ends thereof being secured in the wall of said body opposite to said slot, and the bail portion thereof being extended through said slot to form a handle, substantially as described.

2. In combination the upper portion A, the rest supported in such portion, the U-shaped lower edge a' of such portion, the diaphragm B provided with perforations and having the U-shaped edge b' fitting within the U-shaped edge of the upper portion A' and the lower portion A^3 having the upper outwardly-turned lip fitting within the U-shaped inwardly-turned edge of the diaphragm as and for the purpose specified.

579,051. MEANS FOR PROTECTING ELECTRIC MACHINES FROM HEAT. JONATHAN P. B. FISKE, Alliance, Ohio. Filed Jan. 12, 1895. Serial No. 534,691. (No model.)



Claim.—The combination with an electric machine and a housing inclosing the same, the latter having openings in the ends, of a fan located in one of said openings, said fan being carried by the armature-shaft of said electric machine, substantially as set forth.

579,052. SEWING-MACHINE HEMMER. MARY R. K. FOWLKES and MARY E. J. BENNETT, Selma, Ala. Filed Oct. 15, 1896. Serial No. 608,929. (No model.)

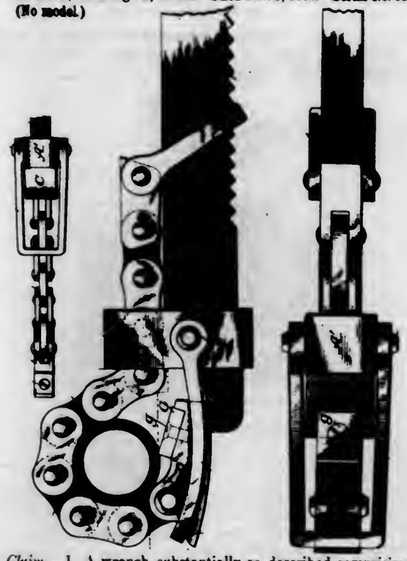


Claim.—1. A sewing-machine hemmer consisting of a long and longitudinally-slotted bar C having a hem-turner c c' on its end next to the needle and a slotted extension c^4 attached to the lower side of the hem-turner, a long and longitudinally-slotted gage-bar B with guide-foot at its end, a clamp-bolt detachably connecting the gage-bar to the under side of the slotted extension, and a cross-bar D, and clamp-bolt for adjustably fastening the hem-turner bar to its subjacent support substantially as and for the purpose described.

2. A sewing-machine hemmer comprising a base-plate A with longitudinal front slot a^5 and parallel graduations a^4; in combination with the longitudinally-slotted gage-bar B with foot b, the cross-bar D with clamp-bolt secured in the slot a^5 of the base-plate, and a separate hem-turner substantially as and for the purpose described.

3. A sewing-machine hemmer comprising a long and longitudinally-slotted bar C having a hem-turner c c' on its end next to the needle, and a slotted extension c^4 attached to the lower side of the hem-turner, a long longitudinally-slotted gage-bar B with guide-foot at its end, a clamp-bolt detachably connecting the gage-bar to the under side of the slotted extension, a base-plate A with longitudinal slot a^5 and graduated scale, a cross-bar D arranged above said plate at right angles to the said slot, and a clamp-bolt passing through the hem-turner bar, the cross-bar, and the base-plate, and detachably and adjustably connecting these parts substantially as and for the purpose described.

579,053. PIPE-WRENCH. WILLIAM H. FURBER and THOMAS BARRETT, Mannington, W. Va. Filed Dec. 5, 1896. Serial No. 614,557. (No model.)



Claim.—1. A wrench substantially as described comprising the handle the chain held at one end thereto and provided at its other end with a gripping-link, means for connecting said link with the handle and a projection or portion on the handle arranged to engage and operate the gripping-link substantially as shown and described.

2. A wrench-chain having at its free end a link or section jointed at one end to the adjoining link of the chain whereby its other end may be tilted and provided with a seat for the devices which connect it with the handle, combined with the handle and connecting devices, substantially as shown and described.

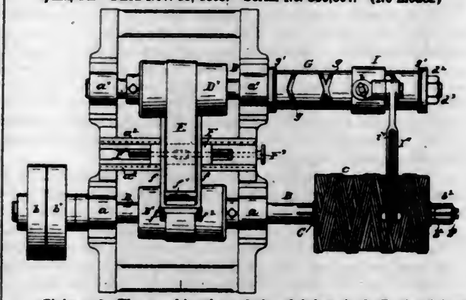
3. A chain wrench having its chain provided with a gripping-link and its handle provided with means for holding said link and with independent means for tilting the link substantially as shown and described.

4. In a wrench substantially as described, the combination of the chain having a gripping-link, the handle having a part or projection engaging said link, and the bail by which the said link is held in connection with the handle substantially as shown and described.

5. A wrench comprising the chain having a gripping-link and the handle-head provided with a chain-guide and opposite thereto with a projection by which to tilt the gripping-link, and the bail by which the link is held in connection with the handle substantially as shown and described.

6. The wrench herein described consisting of the chain having a loop at one end and a gripping-link at its other end, the handle having a serrated or notched edge and having its head provided with a guide, and a nose or projection by which to operate the gripping-link of the chain, and the bail pivoted to the handle and engaging the gripping-link substantially as shown and described.

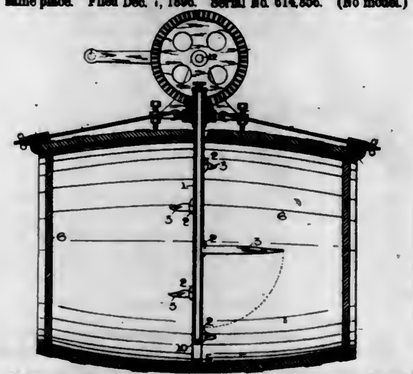
579,054. ROPE-COILING MACHINE. JOSHUA GARNED, Philadelphia, Pa. Filed Nov. 15, 1895. Serial No. 569,097. (No model.)



Claim.—1. The combination of the driving-shaft B, the driven shaft D, the said shaft B adapted to receive the drum on which the rope is to be coiled, a cam on the shaft D, a carrier adapted to be reciprocated by the said cam, conical pulleys oppositely arranged on the shafts B and D, a belt passing from one pulley to the other, a carriage F adapted to transverse ways on the bed of the machine, a screw for adjusting said carriage longitudinally with respect to the cone-pulleys, said carriage having arms extending on each side of the belt, with an adjustable pressure-roller carried by the arms and adapted to rest against the belt, substantially as described.

2. The combination in a rope-coiling machine, of the driving-shaft B, carrying the drum on which the rope is to be coiled, a driven shaft D parallel with the shaft B and having a double screw-cam thereon, buffers at each end of the screw-cam, a carrier controlled by said screw-cam and having an arm over which the rope passes, cone-pulleys on each shaft, a belt passing around said pulleys and means for adjusting said belt longitudinally of the cone-pulleys, substantially as described.

579,055. APPARATUS FOR MIXING LIQUIDS. ALFRED GATES, Liverpool, England, assignor to himself and John Hickman Dovener, same place. Filed Dec. 7, 1896. Serial No. 614,856. (No model.)



Claim.—1. Apparatus for mixing liquids comprising a spindle, a number of vanes or blades adapted to assume positions parallel, or approximately parallel, to the axis of the said spindle and also outwardly-extending or radial positions for use, and means for moving said blades or vanes from their said parallel or approximately parallel positions into their said outwardly-extending or radial positions.

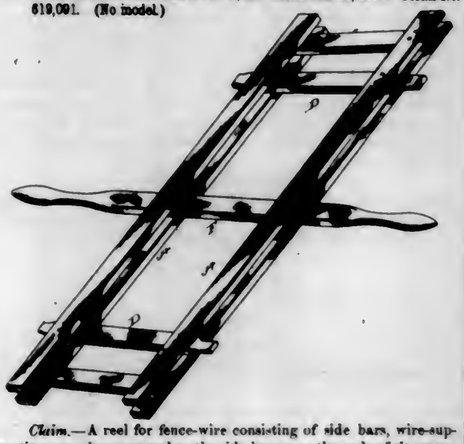
2. Apparatus for mixing liquids comprising a tubular spindle, a number of vanes or blades pivotally connected to the said spindle so as to be capable of assuming positions parallel, or approximately parallel, to the axis of the said spindle and also outwardly-extending or radial positions, and a rod adapted to be inserted into the said spindle and, when being so inserted to come into contact with the pivot ends or heels of the said vanes or blades and to move them from their said parallel or approximately parallel positions into their said outwardly-extending or radial positions.

3. Apparatus for mixing liquids comprising a spindle, a number of vanes or blades adapted to assume positions parallel, or approximately parallel, to the axis of the said spindle and also outwardly-extending or radial positions, means for moving the said vanes or blades from their said parallel, or approximately parallel, positions into their said outwardly-extending or radial positions, mechanism for rotating the said spindle, and means for supporting the said mechanism.

4. Apparatus for mixing liquids comprising a tubular spindle, a number of vanes or blades pivotally connected to the said spindle so as to be capable of assuming positions parallel, or approximately parallel, to the axis of the said spindle and also outwardly-extending or radial positions, a rod adapted to be inserted into the said spindle and, when being so inserted to come into contact with the pivot ends or heels of the said vanes or blades and to move them from their said parallel or approximately parallel positions into their said outwardly-extending or radial positions, bevel-gear for rotating the said spindle, a support for the said bevel-gear, and means for securing the said support to a barrel or other vessel.

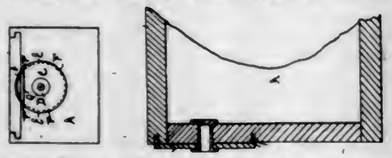
5. Apparatus for mixing liquids comprising a tubular spindle, a number of vanes or blades pivotally connected to the said spindle so as to be capable of assuming positions parallel, or approximately parallel, to the axis of the said spindle and also outwardly-extending or radial positions, a rod adapted to be inserted into the said spindle and, when being so inserted to come into contact with the pivot ends or heels of the said vanes or blades and to move them from their said parallel or approximately parallel positions into their said outwardly-extending or radial positions, bevel-gear for rotating the said spindle, a support for the said bevel-gear, hooks connected to the said support and means for adjusting the said hooks relatively to the said support for the purpose specified.

579,056. **REEL FOR FENCE-WIRE.** JONATHAN W. GIBSON and JAMES L. MCDONALD, Jacksonville, Ill. Filed Jan. 13, 1897. Serial No. 619,091. (No model.)



Claim.—A reel for fence-wire consisting of side bars, wire-supporting cross-bars secured to the side bars near the ends of the same, handles on the side bars between the center of the same and the wire-supporting bars, and an axle secured to the side bars at the center thereof and extending beyond the same and formed into supporting-handles.

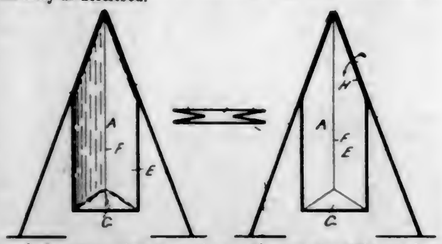
579,057. **BOX-FASTENER.** JAMES F. GILLILAND, Adrian, Mich., assignor to the Adrian Box Company of New Jersey, Jersey City, N. J. Filed June 5, 1896. Serial No. 594,416. (No model.)



Claim.—The combination with a box having formed in one end an arc-shaped groove, of a cover having formed in one end an arc-shaped groove adapted, when the cover is closed, to register with the groove in the box and form with the last-named groove a complete annular groove, and a button pivoted to the end of the box and provided on its inner face with an arc-shaped flange engaging and traveling in said grooves, said button having a segmental portion cut away, substantially as described.

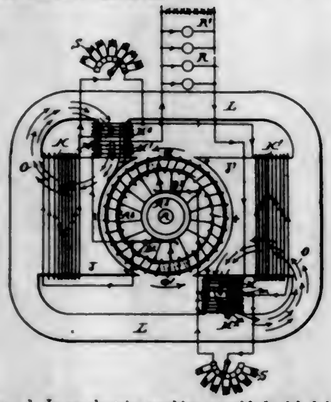
579,058. **TOY SAVINGS-BANK.** CHARLES G. GLOVER, Cambridge, Mass. Filed Jan. 30, 1896. Serial No. 577,418. (No model.)

Claim.—1. In a toy savings-bank, the combination of a stiff paper board folded centrally upon itself, and a receptacle formed of flexible material having closed sides and bottom and attached at its upper end to the inner adjacent faces of the folded paper board at or near the folded portion, and a slit or opening formed in one side of said folded board and the corresponding side of the receptacle, substantially as described.



2. In a toy savings-bank, the combination of a stiff paper board folded upon itself centrally, and a flexible bag attached at its upper end to the inner adjacent faces of the folded paper board at or near the folded portion, and a slit or opening formed in the paper board and bag, substantially as described.

579,059. **CONSTRUCTION AND REGULATION OF ELECTRIC MACHINES.** THOMAS H. HICKS, Detroit, Mich. Filed Feb. 23, 1895. Serial No. 539,506. (No model.)



Claim.—1. In an electric machine provided with field-magnets each having polar lips, the combination therewith of a short-circuiting magnet magnetically joined to only one polar lip of each field-magnet, substantially as described.

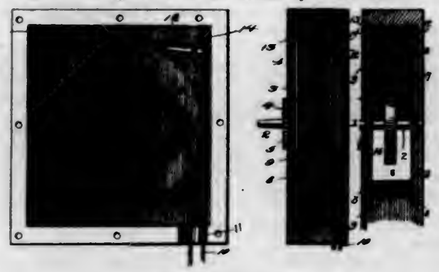
2. In an electric machine provided with a rotatable armature and field-magnets having polar lips at one end and two yokes L L joining the other ends of said magnets together, the combination therewith of short-circuiting electromagnets *m m'* magnetically joining only one polar lip of each field-magnet with one of said yokes for counteracting the demagnetizing power of said armature upon said polar lips to which the magnets *m m'* are joined, substantially as described.

3. The combination in an electric machine of two field-magnets with two yokes L L and two short-circuiting electromagnets *m m'*, each of said field-magnets having two polar lips, the outer ends of said field-magnets being joined together by said two yokes L L, one of said short-circuiting magnets *m m'* magnetically joining one polar lip of one field-magnet with one of said yokes and the other short-circuiting magnets magnetically joining one polar lip of the other field-magnet with the second yoke, substantially as described.

4. In an electric machine provided with field-magnets having polar lips, the combination therewith of short-circuiting magnets *m m'* located upon only one polar lip of each field-magnet, said short-circuiting magnets *m m'* being wound with coils of wire which are traversed by a current of electricity varying in volume, to counteract demagnetizing influences upon the polar lips upon which said short-circuiting magnets are located, substantially as described.

579,060. **FIRE-ESCAPE.** JOHAN H. HIGGINS, Ellsworth, Me. Filed Aug. 6, 1896. Serial No. 601,896. (No model.)

Claim.—In a fire-escape, the combination of a casing, a winding-shaft mounted in the casing, a drum arranged within the casing, mounted on the shaft and composed of a pair of end plates, transverse rods or fastening devices connecting the end plates and located at points between the center and periphery thereof, and a metal strip interposed between the end plates, supported by the transverse rods or fastening devices and forming a rectangular housing, a coiled spring arranged on the shaft within the housing and having one end attached to the shaft and its other end connected with one of the end plates, a rope or cable wound around the drum and arranged on the metal strip, a brake for controlling the rotation of the drum, and means for locking the shaft against rotation, substantially as described.



579,061. **CYCLING-SKIRT.** LENA L. HIRSH, York, Pa., assignor to David F. Hirsh, same place. Filed Apr. 2, 1896. Serial No. 585,942. (No model.)



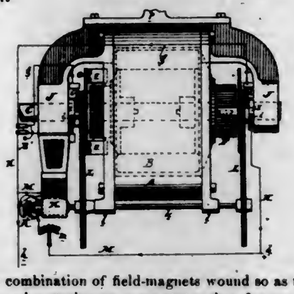
Claim.—1. A skirt for female bicycle-riders, comprising leg portions separate from each other, but formed as a part of the skirt, and leg-closing sections, B, each section, B, being substantially circular in outline, having an opening for and being arranged to be attached to the leg of the wearer, and attached along its edge to the leg portion of the skirt on a line substantially midway between the knee and the ankle, the said sections, B, being full, whereby they may be secured to the leg of the wearer in different positions, without exposure of the attachment, and with equal freedom of movement to the wearer, and whereby they operate to prevent the skirt from becoming inflated while the wearer is riding, substantially as set forth.

2. A skirt for female bicycle-riders, which is divided at the front but not at the rear, and comprising leg portions separate from each other, but formed as a part of the skirt, and leg-closing sections, B, each being substantially circular in outline, having an opening for and being arranged to be secured to the leg of the wearer, and secured at its edge to the leg portion of the skirt substantially midway between the ankle and the knee, the said section being full, substantially as set forth.

3. A bicycle-skirt comprising leg portions separate from each other, but formed as a part of the skirt, and leg-closing sections, each section being substantially circular in outline and having an opening for and being arranged to be attached to the leg of the wearer, and secured along its edge to the leg-section of the skirt at the lower portion thereof, the said leg-sections being full whereby they may be secured to the legs of the wearer in different positions thereon, and whereby they operate to prevent the skirt from becoming inflated while the wearer is riding, substantially as set forth.

579,062. **ELECTRIC MOTOR AND DYNAMO.** WILLIAM S. HORRY, Gloucester City, N. J., assignor to Rudolph M. Hunter, Philadelphia, Pa. Filed June 15, 1892. Serial No. 436,533. (No model.)

Claim.—1. The combination of field-magnets wound so as to have a rotating field, a stationary commutator therefor, a rotating armature therefor and a commutator secured to the rotating armature, rotating brushes for each of the commutators whereby the poles in the field-magnet are caused to be at an angle to the poles in the armature, a motor-circuit including the brushes for coupling the field in circuit with the armature, and power devices to revolve the brushes whereby the poles of the field and the armature may be caused to revolve independently of the rotation of the armature and its shaft



2. The combination of field-magnets wound so as to have a rotating field and a stationary commutator therefor, a rotating armature, rotating brushes for each of the commutators whereby the poles in the field-magnet are caused to be at an angle to the poles in the armature, a motor-circuit including the brushes and coupling the field in circuit with the armature, and power devices to rotate the brushes whereby the poles of the field and the armature may be caused to rotate independently of the rotation of the armature and its shaft, and means to control the speed of rotation of the brushes.

3. The combination of field-magnets wound so as to have a rotating field and a stationary commutator therefor, a rotating armature therefor and a commutator secured to the rotating armature, rotating brushes for each of the commutators whereby the poles in the field-magnet are caused to be at an angle to the poles in the armature, a motor-circuit including the brushes and coupling the field in circuit with the armature, power devices to rotate the brushes consisting of an electric motor and power-transmitting connections whereby the poles of the field and the armature may be caused to rotate independently of the rotation of the armature and its shaft, a circuit including the electric motor and connecting it in parallel with the motor which it controls, and suitable hand-operated means for controlling the regulating-motor for the purpose of varying the rotation of the brushes at will.

4. The combination of field-magnets wound so as to have a rotating field and stationary commutator therefor, a rotating armature therefor and a commutator secured to the rotating armature, rotating brushes for each of the commutators whereby the poles in the field-magnet are caused to be at an angle to the poles in the armature, a motor-circuit including the brushes and coupling the field in circuit with the armature, power devices to rotate the brushes consisting of an electric motor and power-transmitting connections whereby the poles of the field and the armature may be caused to rotate independently of the rotation of the armature and its shaft, a circuit including the electric motor and connecting it in parallel with the motor which it controls, suitable hand-operated means for controlling the regulating-motor for the purpose of varying the rotation of the brushes at will, and means to reverse the current in the armature of the large motor for the purpose of reversing the rotation of the shaft thereof.

5. The combination of the field-magnets and their commutators, with the armature and its commutator, independent rotating brushes for each of the commutators provided with rings I I respectively coupled with the brushes of the corresponding commutator, contacts resting upon the rings, electric circuits leading from the supply-conductors and including the several contacts and connecting the armature in series with the field-magnets, and means to rotate the brushes.

6. In a dynamo-electric machine, the combination of the means for producing rotating field-poles, means for producing rotating armature-poles in the same direction and speed as the field-poles, means for rotating the armature in one direction for energizing the field and armature coils, and means for controlling the speed of rotation and reversing the direction of the field of force.

7. In a dynamo-electric machine or motor, the combination of means for producing rotating field-poles, means for producing rotating armature-poles in the same direction and speed as the field-poles, means for rotating the armature in one direction, circuits connecting the armature and field-coils in series whereby the current in the armature is caused to pass through and energize the field-coils, and means for controlling the speed of rotation and reversing the direction of rotation of the field of force.

8. The combination of the field-magnets and their commutator, with the armature and its commutator, independent rotating brushes for each of the commutators provided with rings I I respectively

coupled with the brushes of the corresponding commutator, contacts resting upon the rings, electric circuits leading from the supply-conductors and including the several contacts in series whereby the brushes of the armature are coupled in series with the brushes of the field-magnets, and means to rotate the brushes.

9. The combination of the field-magnets and their commutator, with the armature and its commutator, independent rotating brushes for each of the commutators provided with rings I I respectively coupled with the brushes of the corresponding commutator, contacts resting upon the rings, electric circuits leading from the supply-conductors and including the several contacts in series, means to rotate the brushes consisting of sprocket wheels and chains L, a motor-shaft *k*, an electric motor K to rotate the shaft *k*, and means to control the speed of the motor K.

10. In an electric car, the combination of the supporting wheels and axles, a car-body supported upon the wheels and axles, an electric motor supported upon the axle and consisting of field-magnets having a commutator and journaled upon the axle, an armature having a commutator directly secured to the axle, brushes for each of the commutators, line conductors extending along the railway, a motor-circuit on the car receiving electricity from the line conductors and including the electric motor on the car, a regulating-motor adapted to rotate the brushes completely about the commutators, a motor-circuit in parallel with the motor on the axle including the regulating-motor, and means to control the regulating-motor from one end of the car.

11. In an electric car, the combination of the supporting wheels and axles, a car-body supported upon the wheels and axles, an electric motor supported upon the axle and consisting of field-magnets having a commutator and journaled upon the axle, an armature having a commutator directly secured to the axle, brushes for each of the commutators, line conductors extending along the railway, a motor-circuit on the car receiving electricity from the line conductors and including the electric motor on the car, a regulating-motor adapted to rotate the brushes about the commutators, a motor-circuit in parallel with the motor on the axle including the regulating-motor, means to control the regulating-motor from one end of the car, an independent frame supported upon the axles, and an elastic support between the field-magnets of the motor and the independent frame.

12. The combination of field-magnets wound so as to have a rotating field and a stationary commutator therefor, a rotating armature therefor and a commutator secured to the rotating armature, rotating brushes for each of the commutators whereby the poles in the field-magnet are caused to be at an angle to the poles in the armature, a motor-circuit including the brushes and coupling the field in circuit with the armature, power devices to rotate the brushes whereby the poles of the field and the armature may be caused to rotate independently of the rotation of the armature and its shaft, and power devices to vary the speed of rotation of the brushes and also reverse their direction of rotation.

13. The combination of field-magnets wound so as to have a rotating field and a stationary commutator therefor, a rotating armature therefor and a commutator secured to the rotating armature, rotating brushes for each of the commutators whereby the poles in the field-magnets are caused to be at an angle to the poles in the armature, a motor-circuit including the brushes and coupling the field in circuit with the armature, power devices to rotate the brushes consisting of an electric motor and power-transmitting connections whereby the poles of the field and the armature may be caused to rotate independently of the rotation of the armature and its shaft, a circuit including the electric motor and connecting it in parallel with the motor which it controls, and suitable hand-operated means for controlling the speed and direction of rotation of the regulating-motor for the purpose of varying the rotation of the brushes at will.

14. The combination of an electric car, a main electric motor mounted upon the car and consisting of field-magnets and armature one relatively movable with respect to the other and each provided with a commutator and also with revolving brushes for both commutators so arranged as to produce poles in the field-magnets at an angle to the poles of armature, a mechanical connection between the movable part of the motor and the axle of the car, a motor to revolve the brushes of each commutator at equal speeds, a source of electric energy, circuits including the several brushes of the motor in series and leading from the source of electrical energy, means to control the motor operating the brushes extending to one end of the car and composed of a device for varying the speed of the brush-operating motor and a device for reversing the direction of the rotation of the brushes, and a separate switch for reversing the main motor which is mechanically connected with the axle.

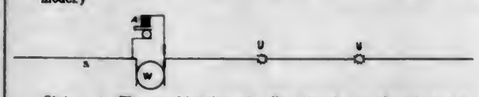
15. The combination of an electric car, an electric motor mounted upon the car and consisting of field-magnets and armature one relatively movable with respect to the other and each provided with a commutator and also with revolving brushes for both commutators so arranged as to produce poles in the field-magnets at an angle to the poles of the armature, a mechanical connection between the movable part of the motor and the axle of the car, a motor to revolve the brushes completely around each commutator at equal speeds, a source of electric energy, circuits including the brushes of the motor leading from the source of electrical energy, means extending to one end of the car to control the motor operating the brushes and composed of a device for varying the speed of the brush-operating motor and a device for reversing the direction of its rotation, and a separate switch for reversing the motor which is mechanically connected with the axle also extending to the end of the car.

16. In an electric car, the combination of the supporting wheels and axles, a car-body supported upon the wheels and axles, an electric motor supported upon the axle and consisting of field-magnets having a commutator journaled upon the axle and an armature having a commutator secured to the axle, brushes for each of the commutators, line conductors extending along the railway, a motor-circuit on the car receiving electricity from the line conductors and including the electric motor on the car, a regulating-motor adapted to rotate the brushes completely around their commutators, a motor-circuit in parallel with the motor on the axle and including the regulating-motor, means to control the regulating-motor from one end of the car, and a support for the regulating-motor whereby it is carried upon the axle and caused to move thereon with the propelling-motor.

17. The combination of field-magnets and armature one relatively movable with respect to the other and each provided with a commutator, with rotating brushes for both commutators so arranged as to produce poles in the field-magnets at an angle to the poles of the armature, suitable means consisting of an electric motor and power-transmitting connections for revolving the brushes, means to control the operation of the brush-operating motor, and means for securing the regulating-motor directly to the main frame of the main motor whereby the entire structure moves as a unit.

18. In an electric car, the combination of the supporting wheels and axles, a car-body supported upon the wheels and axles, an electric motor supported upon the axle and consisting of field-magnets having a commutator journaled upon the axle and an armature having a commutator secured to the axle, brushes for each of the commutators, line conductors extending along the railway, a motor-circuit on the car receiving electricity from the line conductors and including the electric motor on the car, a regulating-motor adapted to rotate the brushes completely around their commutators, a motor-circuit in parallel with the motor on the axle and including the regulating-motor, means to control the regulating-motor from one end of the car, and means to reverse the current in the armature of the main motor relatively to the field-magnets.

579,063. REGULATOR FOR ELECTRIC MOTORS. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the General Electric Company, of New York. Original application filed May 22, 1894, Serial No. 512,052. Divided and this application filed Jan. 13, 1896. Serial No. 575,197. (No model.)



Claim.—1. The combination of a line-circuit, an electric-power motor in said circuit, and a variable counter-electromotive-force generator interposed in the line-circuit in shunt relation to the power-motor and generating a counter electromotive force opposed to the initial electromotive force of the line-circuit consisting of a revolving armature, field-magnets for producing a field in the vicinity of the armature, and means for shifting the armature relative to the field or vice versa for producing a variation in the inductive relation between the armature and the field-magnets.

2. The combination of a line-circuit, an electric-power motor in said circuit, a variable counter-electromotive-force generator interposed in the line-circuit in shunt relation to the power-motor and generating a counter electromotive force opposed to the initial electromotive force of the line-circuit consisting of a revolving armature, field-magnets for producing a field in the vicinity of the armature, means for shifting the armature relative to the field or vice versa for producing a variation in the inductive relation between the armature and the field-magnets, and switch devices for throwing the armature and field first into series and then into parallel connection whereby the greatest resistance is secured at starting.

3. The combination of a constant-current circuit and power-motor arranged in said circuit, a revolving electromagnetic element in parallel with said power-motor, a magnetic field in the vicinity of said revolving electromagnetic element, and a switch for controlling the current delivered to the electromagnetic element and also for varying its speed of revolution, whereby the current in the power-motor may be regulated by the variable counter electromotive force in the regulator.

4. The combination of an electric circuit and power-motor arranged in said circuit, and a counter-electromotive-force regulator wholly independent of the field of the power-motor and arranged in a shunt-circuit about the entire power-motor.

5. The combination of an electric circuit and power-motor arranged in said circuit, a counter-electromotive-force regulator arranged in a shunt-circuit about the power-motor, and a hand-controlled device for varying the counter electromotive force produced in the counter-electromotive-force regulator, whereby the speed of the power-motor may be varied at will.

6. The herein-described method of regulating the speed of an electric-power motor on a constant-current circuit, consisting in maintaining the motor in series with other translating devices and supplying it with electricity from a circuit of constant current, producing a shunted path for the current having ohmic resistance about the armature of the power-motor, and producing in said shunted path a variable counter electromotive force to assist the ohmic resistance to a greater or less extent in opposing the passage of the current through the shunted path, and thereby vary within wide limits and without appreciable loss the current passing through the power-motor.

7. The herein-described method of regulating the speed of an electric-power motor on a constant-current circuit, consisting in maintaining the motor in series with other translating devices and supplying it with electricity from a circuit of constant current, producing a shunted path for the current having ohmic resistance about the armature of the power-motor, varying the ohmic resistance of said shunted path by hand regulation, and producing in said shunted path a variable counter electromotive force simultaneously with the variation of the ohmic resistance and inversely to it to assist the ohmic resistance to a greater or less extent in opposing the passage of the current through the shunted path, and thereby vary within wide limits and without appreciable loss the current passing through the power-motor.

579,064. TOOL-HOLDER. CHARLES W. JUSTUS, Lima, Ohio, assignor of one-half to Alvaro L. Bower, same place. Filed Nov. 5, 1896. Serial No. 611,150. (No model.)



Claim.—1. The combination of the holder having a cylindrical portion slotted at one end for the reception of a removable tool-shank pivoted in said slot; and a projecting lug substantially as described, with a sleeve having a longitudinal internal groove to permit it to be slipped over said lug, and having internal circumferential cam-grooves near its ends opening into said longitudinal groove, and adapted to engage said lug, for the purpose and substantially as described.

2. The combination of the handle, the holder attached thereto having a cylindrical portion slotted at its outer end as at D for the reception of a tool-shank, a pin J for pivoting said shank in the slot; and a lug E below said slot; with the sleeve F slipped over said slotted portion of the holder and having a longitudinal internal groove *f* and cam-grooves G and H near its opposite ends connecting with groove *f* and adapted to engage lug E, said sleeve being adapted to be adjusted substantially as described so as to prevent the shank turning on its pivot, all substantially as and for the purpose described.

579,065. EGG-TESTER. EDWIN LANE, Johnstown, Pa., assignor of one-half to Thomas J. Fearl, same place. Filed Jan. 12, 1897. Serial No. 618,991. (No model.)



Claim.—1. The combination in an egg-tester, of a box or receptacle having one of the end pieces thereof cut away at its upper end to provide a sight-opening, a lid hinged to the upper end of the box and provided with a depending portion adapted to close said sight-opening, and a tray located on a line with the sight-opening and having an inwardly-curved end adjoining the same: together with a mirror or reflecting-surface upon the bottom of the box, substantially as shown and described.

2. The combination in an egg-tester, of a box or casing having one of the end pieces thereof cut away at its upper end to provide a sight-opening, a lid hinged to the upper end of the box and provided with a depending portion adapted to close said sight-opening, strips secured below the upper edge of the box, and a tray resting upon said strips and provided upon its upper side with a transverse strip, the end of the tray adjoining the sight-opening being cut away or curved inwardly; together with a mirror or reflecting-surface located below the tray, substantially as shown and for the purpose set forth.

3. The combination in an egg-tray, of a box or casing having one of the end pieces thereof cut away at its upper end to present a sight-opening the lower edge of which extends from each side of the end piece downwardly and inwardly therefrom to near the center of said end piece where it is further curved downward to provide the extension *a* of the main opening; a lid hinged to the upper end of the box and provided with a depending portion which corresponds with the shape of the opening so as to close the same when the lid is closed; together with a tray supported in the box on a line with the sight-opening and provided with an inwardly-curved end adjoining said sight-opening, and a mirror secured in place below the tray, substantially as shown and for the purpose set forth.

579,066. FARM-GATE. GEORGE W. LILLY and JOHN R. LILLY, Sedalia, Mo. Filed Dec. 11, 1896. Serial No. 615,264. (No model.)



Claim.—1. In a gate of the class specified, the combination, with the gate proper, hinged and adapted to swing horizontally, and formed of horizontal slats and vertical connecting-bars pivoted together, of the triangular device D, hinged alongside the gate and formed of a right-angular rod and a tension-rod, and a toothed plate secured vertically to the gate proper, and engaging the pointed end of said device, as shown and described.

2. In a gate of the class specified, the combination, with the gate proper, hinged to swing horizontally and adapted to be adjusted vertically at its free end, and means for holding the gate at different elevations, of a slidable and slotted latch-slat, and a device attached to a fixed slat and engaging the slot, as shown and described to operate as specified.

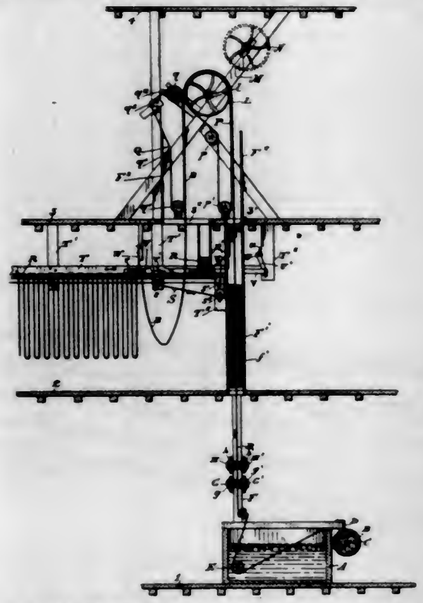
579,067. MACHINE FOR PAINTING CLOTH. ROBERT E. MENZIE, Toronto, Canada. Filed June 19, 1896. Serial No. 596,189. (No model.)

Claim.—1. In a machine for painting cloth the combination with the dipping-tank and means for guiding the cloth as it passes out therefrom, of a pair of circular brushes suitably journaled and set obliquely to the edge of the cloth and caused to rotate as to direction against the cloth and a supplemental pair of brushes suitably journaled and set obliquely to the edge of the cloth and parallel with the other pair and caused to rotate with the cloth as and for the purpose specified.

2. In combination the dipping-tank, the brushes, the drying-conduit, feeding means for the roll, I-bars and guideways for feeding same, the longitudinal supporting-bars and a carrying-chain traveling on suitable brackets at each end of the I-bars, and fingers on the chain for carrying the I-bars one at a time forward against the depending cloth and pushers for carrying the supporting I-bars for the festoons away from the end of the carrying-chain as and for the purpose specified.

3. In combination the dipping-tank, the brushes, the drying-conduit, feeding means for the roll, I-bars and guideways for feeding same, the longitudinal supporting-bars, means for carrying the I-bars from beneath the guideways into proximity with the adjacent I-bars supporting the festoons, and a counter-shaft provided with arms connected to bars having movement within the longitudinal supporting-bars and pivoted carrier-dogs on the reciprocating bars for carrying each I-bar and its adjacent ones preceding forward as and for the purpose specified.

4. In combination the dipping-tank, the brushes, the drying-conduit, feeding means for the roll, I-bars and guideways for feeding same, the longitudinal supporting-bars, means for carrying the I-bars from beneath the guideways into proximity with the adjacent I-bars supporting the festoons, and a counter-shaft provided with arms connected to bars having movement within the longitudinal supporting-bars, pivoted carrier-dogs on the reciprocating bars for carrying each I-bar and its adjacent ones preceding forward, and an arm on the end of the counter-shaft, a crank-disk on the main shaft and a connecting-rod between the arm and crank-disk as and for the purpose specified.



5. In a drying apparatus for a cloth-painting machine, the combination with means for feeding the cloth of a drying-conduit, I-bars adapted to be fed by gravity into position, carrying means for said bars adapted to move each bar against the cloth and carry the same along the conduit in festoons, and a depending finger adapted to act as a detent for the last forwardly-fed bar, substantially as described.

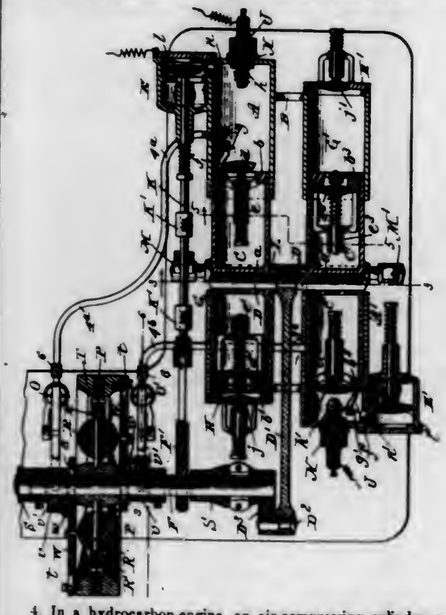
6. In a drying apparatus for a cloth-painting machine, the combination with means for feeding the cloth, of a drying-conduit, I-bars adapted to be fed by gravity into position, carrying means for said bars adapted to move said bars successively against the cloth and carry the same along said conduit in festoons, and a depending spring-finger having a curved lower end adapted to come in contact with the last forwardly-fed supporting-bar, substantially as described.

579,068. HYDROCARBON-ENGINE. EDWARD MERRY, Springfield, Mass., assignor of one-half to George D. Lytle, same place. Filed Feb. 8, 1896. Serial No. 578,454. (No model.)

Claim.—1. In a hydrocarbon or analogous engine, a working cylinder, an air-compressing cylinder, provided with an inlet-valve for the gases, and a tubular piston, provided with a valve at each end, combined with a connecting-rod, operated by said piston, and the crank-shaft, substantially as shown.

2. In hydrocarbon or other gas engines, the combination with the cylinder and piston thereof, of a crank-shaft and connections between said piston and crank-shaft, a balance-wheel on said crank-shaft having governor-balls sliding on radial arms therein, a pump-actuating cam free on said crank-shaft, and a pump located near said crank-shaft, and means of connection between one of said balls and said cam whereby, by the variable speed of the engine, movement is imparted to said governor-balls, causing the stopping and starting of said pump-actuating cam and pump, and pipe connections between said pump and the cylinder of the engine, substantially as set forth.

3. In hydrocarbon or other gas engines, the combination with the cylinder and piston thereof, of a crank-shaft and connections between the same and said piston, a balance-wheel on said crank-shaft having governor-balls sliding on radial arms therein, the plates W, fixed to said balls and having a sliding engagement with said crank-shaft and said balance-wheel, pump-actuating cams v, free on said crank-shaft and projection w, on the plates W, having an engagement with studs v', of said cams, whereby variations of the speed of the engine cause the engagement and disengagement of the said plates W, and the pump-actuating cam, substantially as set forth.



4. In a hydrocarbon-engine, an air-compressing cylinder, provided with an inlet-valve, a working cylinder placed in line with the said cylinder and provided with an outlet for the gases, and a tubular piston common to both cylinders and provided with a spring-actuated valve at each end, combined with a connecting-rod operated by the piston, the crank-shaft, a means for injecting vapor into the working cylinder, and a sparking mechanism, substantially as specified.

5. In a hydrocarbon-engine, an air-compressing and a working cylinder placed in alinement with each other, combined with a tubular piston provided with a spring-actuated valve in each end, and which piston acts as a receiver for a charge of compressed air which is discharged forcibly into the working cylinder to eject the gases after each discharge, substantially as described.

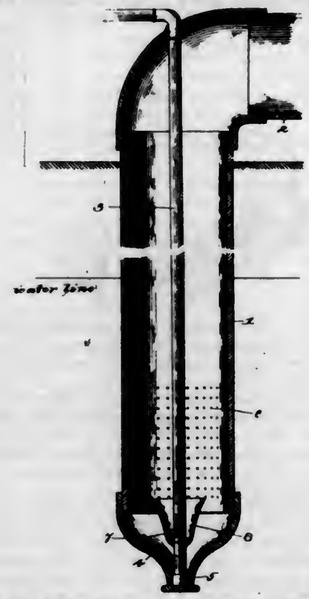
6. In a hydrocarbon-engine, the two air-cylinders, each provided with an air-inlet valve, two working cylinders provided with outlets for the gases, and two tubular pistons connected together, and provided with a valve in each end, combined with a single connecting-rod, and a shaft having but a single crank, whereby the two pistons unite in driving the crank-shaft by a single rod, substantially as set forth.

7. In a hydrocarbon-engine, an air-compressing cylinder, provided with an inlet-valve, and a working cylinder, provided with an outlet for the gases, combined with a tubular piston, provided with a removable cap and a spring-actuated valve at each end, a connecting-rod, crank-shaft, a mechanism for injecting vapor into the working cylinder, and a sparking device, substantially as shown.

8. In a hydrocarbon-engine, an air-receiving cylinder, provided with an inlet-valve, a working cylinder, provided with an outlet-chamber connected with the working cylinder, a valve in the outlet-chamber, and a mechanism for operating the valve, combined with a tubular piston, common to both cylinders, and provided with a valve at each end, a connecting-rod connected at one end to the piston, the crank-shaft, a means for injecting vapor into the working cylinder, and a sparking device, substantially as described.

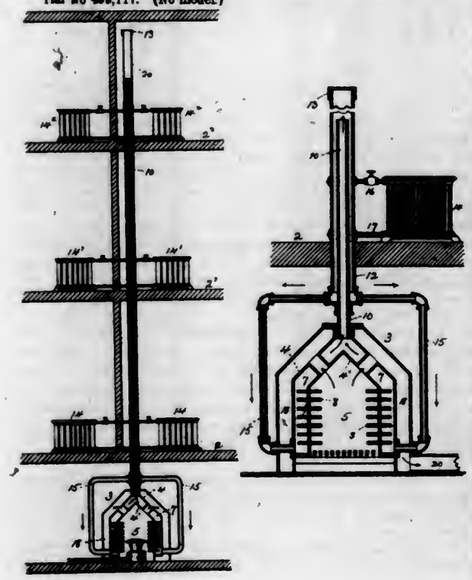
579,069. AIR-LIFT PUMP. WILLIAM MILLER and EDWARD O. THOMPSON, Thomasville, Ga. Filed Mar. 25, 1896. Serial No. 585,286. (No model.)

Claim.—1. In an air-lift pump, the combination of an uptake-pipe having a closed lower end and provided with lateral inlet-perforations whereby the liquid is introduced in radial streams, a concentric air-supply pipe provided with lateral air-outlet perforations below the plane of said inlet-perforations to discharge air radially, and an upwardly-flared deflecting and concentrating cup inclosing the portion of the air-supply pipe which is provided with air-outlet perforations and also arranged below said inlet-perforations, substantially as specified.



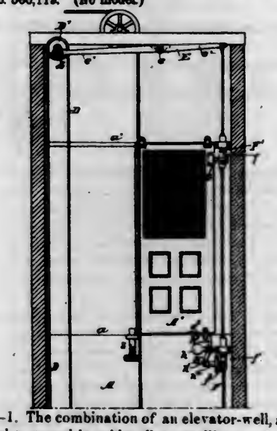
2. An air-lift pump having an uptake-pipe provided with lateral perforations, a cap closing the lower end of the uptake-pipe and provided with a central depression or socket, an air-supply pipe arranged concentrically in the uptake-pipe and stepped at its lower extremity in said central depression or socket, said air-supply pipe being provided below the plane of the perforations in the uptake-pipe with air-outlet perforations, and an upwardly flared or inverted bell-shaped deflecting and concentrating cup secured to the air-supply pipe at a point below the perforations therein and having its rim or periphery arranged above the plane of the air-outlet perforations and approximately in the plane of the lowermost inlet-perforations of the uptake-pipe, substantially as specified.

579,070. METHOD OF PIPING FOR HEAT DISTRIBUTION IN BUILDINGS. JOHN H. MILLS, Boston, Mass. Filed Feb. 5, 1894. Serial No. 499,117. (No model.)



Claim.—In a heating system adapted for steam and water circulation, the combination with a boiler or generator, and a suitable heating agency, of an outer distributing-pipe closed at the top and open at the bottom, a feed-pipe to enter the distributing-pipe at the bottom and extending within it to a plane above the radiators to be served, a plurality of radiators suitably connected to the outer pipe, and pipes from the base of the outer distributing-pipe to the bottom of the generator, substantially as explained.

579,071. ELEVATOR. JOHN S. MUCKLÉ, Philadelphia, Pa., assignor to M. R. Muckle, Jr., & Co., same place. Filed Feb. 20, 1896. Serial No. 580,119. (No model.)



Claim.—1. The combination of an elevator-well, a landing-door, a car adapted to travel in said well, controlling mechanism, a bolt on the door and a bolt on the wall of the well, locking mechanism connected to the controlling mechanism and adapted to be engaged either by the bolt on the door or the bolt in the well, substantially as described.

2. The combination of an elevator-well, a landing-door, a car adapted to travel in the well, a controlling-rope, a wheel at the head of the elevator-well around which the rope passes, a block and rope therefor connected to the wheel, a bolt on the door and a bolt on the wall of the elevator-well adapted to engage the block alternately, substantially as and for the purpose specified.

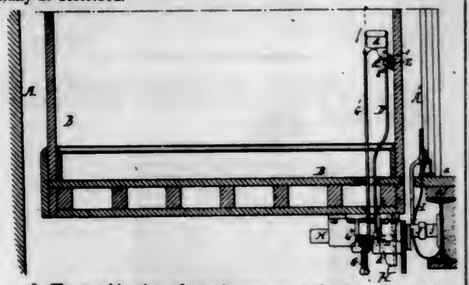
3. The combination of an elevator-well, a landing-door, a car, a controlling-rope and locking mechanism therefor, a bolt on the door adapted to engage said locking mechanism and a bolt on the well-wall adapted to engage said mechanism when not engaged by the bolt on the door, a latch on the well-wall to prevent the opening of the door and a striker on the car adapted to act upon the latch when at the landing so that the door can be opened, substantially as described.

4. The combination of an elevator-car, its controlling-rope, a wheel over which the rope passes, a lever so arranged as to vibrate as the wheel is turned, a cord, blocks on said cord arranged at intervals opposite the landing-doors of the elevator-well, said blocks having openings, landing-doors, bolts on the landing-doors adapted to engage with one set of blocks, a lever hung in the elevator-well engaging with the other set of blocks and acted upon by the door so that the door is locked when the elevator is in motion, and when the elevator is at a standstill opposite a landing the door is free to be opened, the opening of the door locking the controlling mechanism, substantially as described.

5. The combination in an elevator-car, of the landing-doors, the elevator-well, a headed bolt on each door, a weighted lever hung on the wall of the elevator-well adjacent to the door, a lug on the door acting upon said lever, a bolt controlled by the lever, the elevator-car, controlling-rope therefor, a wheel over which the rope passes, a crank-pin on the wheel, a lever having a slotted arm adapted to the crank-pin, a cord attached to the lever and extending down the elevator-well and having perforated blocks at intervals arranged opposite the headed bolts on each door and opposite the bolts connected to the weighted levers, the parts being so arranged that when the door is locked by the blocks the elevator-car is free to move, and when the door is opened, the controlling mechanism is locked, substantially as described.

579,072. ELEVATOR MECHANISM. JOHN S. MUCKLÉ, Philadelphia, Pa., assignor to M. R. Muckle, Jr., & Co., same place. Filed Dec. 31, 1896. Serial No. 617,640. (No model.)

Claim.—1. The combination of an elevator-car, a lever connected to controlling mechanism, a portion of said lever being independently movable, door-releasing means on the car connected to the independently-movable portion of the lever, a landing-door, and catch therefor adapted to be operated by the releasing means on the car, substantially as described.

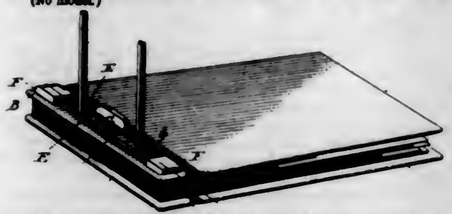


2. The combination of an elevator-car, a landing-door, a slide, a pivoted controlling-lever mounted on the car, having a pivoted handhold connected to the slide, a notched segment fixed in the car, the pivoted handhold having a lug adapted to a notch in the segment, so that the lever must be opposite the notch in the segment before the slide can be operated to release the door, and means for locking the handhold to the segment while the door is open, substantially as described.

3. The combination of the elevator-well, the door, an elevator-car, a pivoted lever D connected to the controlling mechanism, and having a pivoted handhold *d*, a bell-crank lever G on a horizontal pivot, a rod connecting the bell-crank lever with the handhold *d*, a second bell-crank lever G^3 arranged on a vertical pivot and connected to the bell-crank lever G, a slide H connected to the said lever G^3, a notched segment fixed in the car, the pivoted handhold *d* having a lug adapted to rest in the notch of the segment so that the lever cannot be moved in either direction until the handhold is turned on its pivot, substantially as described.

579,073. TEMPORARY BINDER OR HOLDER FOR PAPERS.

Joseph Myers, Buffalo, N. Y., assignor to the Baker, Jones & Company and Anna L. Myers, same place. Filed Nov. 24, 1896. Serial No. 613,287. (No model.)



Claim.—1. In a binder for papers, the combination of the pins or spindles upon which the papers are placed, and an adjustable clamp comprising a pair of resilient rods arranged side by side at a distance apart less than the diameter of the pins, blocks or caps in which the ends of the rods are held, and means for separating or spreading the rods, between the said blocks, substantially as set forth.

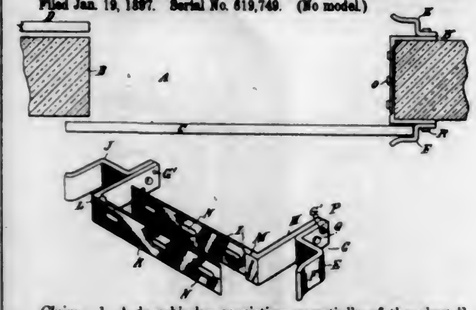
2. In a binder for papers, the combination of the pins or spindles, upon which the papers are placed, and an adjustable clamp, comprising a plate which is adapted to pass over the pins, a pair of resilient rods arranged side by side at a distance apart less than the diameter of the pins, blocks or caps in which the rods are held carried by the plate, and means for spreading the said rods apart to permit the clamp to be adjusted, substantially as set forth.

3. In a binder for papers, the combination of the pins or spindles upon which the papers are placed, and an adjustable clamp, comprising a plate which is adapted to pass over the pins, a pair of resilient rods E, arranged side by side at a distance apart less than the diameter of the pins, the blocks F in which the rods E are mounted secured to the plate, and a key for spreading or separating the rods, substantially as set forth.

4. The combination of a temporary binder for papers having hollow pins or spindles upon which the papers are placed, permanently secured to a supporting plate or board with a transfer-binder having pins or spindles to receive the papers, of a size to permit them to enter the said hollow pins or rods of the temporary binder, and means for securing the papers after they have been transferred upon the pins or spindles, substantially as set forth.

579,074. DOOR-BINDER.

Henry B. Newhall, Plainfield, N. J., and John H. Cook, Brooklyn, N. Y.; said Cook assignor to said Newhall. Filed Jan. 19, 1897. Serial No. 619,749. (No model.)



Claim.—1. A door-binder consisting essentially of the cleat F, the side bar H carrying the same and the bar I secured at right angles thereto and adapted to be fixed to the wall of the door-space, substantially as set forth.

2. In a binder mechanism for doors two binder locks or cleats each shaped and adapted to engage the edge of a door and hold the same in closed position against a wall, and bars carrying said binders and arranged at right angles thereto, and means for adjustably securing the said bars together and to the doorway-face of the wall, substantially as set forth.

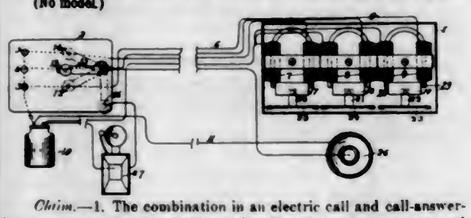
3. In combination with the binders F F carried by the bars I and elongated holes N in said bars whereby they can be secured together and to a wall, and adjusted to different thicknesses of walls.

4. In combination with the binders E J and the bars I K carrying the same, the bars being thinned or cut away as shown and provided with the bearing parts L M for the purpose set forth, and means for securing the said bars together and to the wall of a doorway.

5. In combination with the binders E J secured to the side bars H by the lugs P, the bars I K attached to said side bars at right angles, and means for adjustably securing said bars to the face of a doorway-wall.

579,075. ELECTRICAL CALL AND CALL-ANSWERING APPARATUS.

Edward H. Owen, Charles N. Williams, and Fred H. Donaldson, Garvanza, Cal. Filed Sept. 14, 1896. Serial No. 605,837. (No model.)



Claim.—1. The combination in an electric call and call-answering apparatus, of a case or holder, a plurality of electromagnets secured therein, an armature pivoted in juxtaposition to the poles of each magnet and provided with an attached sign or visual-signal device which is moved in a circular path by the motion of the armature, a switchboard having a plurality of contact-pieces and a plurality of push-buttons electrically connected with said contact-pieces, a switch movable into engagement with any one of said contact-pieces, a call-bell electrically connected with the switch, an electric generator, an electric circuit including the electromagnets, the switch, the contact-pieces, the push-buttons and the call-bell, and a device remote from the signs or visual-signal devices and switchboard for making and breaking the circuit independently of said push-buttons, substantially as and for the purposes described.

2. The combination in an electric call and call-answering apparatus, of a plurality of electromagnets, an armature pivoted to the poles of each magnet and provided with an attached sign or visual-signal device which is moved in a circular path by the motion of the armature, a switchboard having a plurality of contact-pieces and a plurality of push-buttons, a pivoted switch-lever movable into engagement with any one of said contact-pieces, a call-bell electrically connected with the switch-lever, an electric generator, an electric circuit including the electromagnets, the switch-lever, the contact-pieces, the push-buttons and the call-bell, and a push-button for making and breaking the electric circuit, substantially as and for the purposes described.

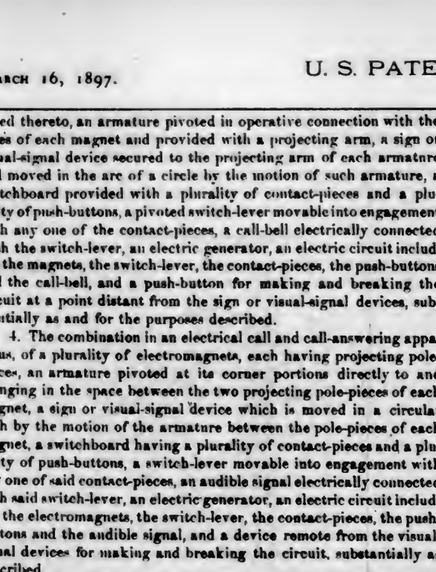
3. The combination in an electric call and call-answering apparatus, of a suitable case or holder, a plurality of electromagnets secured thereto, an armature pivoted in operative connection with the poles of each magnet and provided with a projecting arm, a sign or visual-signal device secured to the projecting arm of each armatnre and moved in the arc of a circle by the motion of such armature, a switchboard provided with a plurality of contact-pieces and a plurality of push-buttons, a pivoted switch-lever movable into engagement with any one of the contact-pieces, a call-bell electrically connected with the switch-lever, an electric generator, an electric circuit including the magnets, the switch-lever, the contact-pieces, the push-buttons and the call-bell, and a push-button for making and breaking the circuit at a point distant from the sign or visual-signal devices, substantially as and for the purposes described.

4. The combination in an electrical call and call-answering apparatus, of a plurality of electromagnets, each having projecting pole-pieces, an armature pivoted at its corner portions directly to and swinging in the space between the two projecting pole-pieces of each magnet, a sign or visual-signal device which is moved in a circular path by the motion of the armature between the pole-pieces of each magnet, a switchboard having a plurality of contact-pieces and a plurality of push-buttons, a switch-lever movable into engagement with any one of said contact-pieces, an audible signal electrically connected with said switch-lever, an electric generator, an electric circuit including the electromagnets, the switch-lever, the contact-pieces, the push-buttons and the audible signal, and a device remote from the visual-signal devices for making and breaking the circuit, substantially as described.

5. The combination in an electrical call and call-answering apparatus, of a plurality of electromagnets, an armature pivoted in juxtaposition to the poles of each magnet and provided with an attached sign or visual-signal device which is moved in a circular path by the motion of the armature, a switchboard having a plurality of contact-pieces and a plurality of independent push-buttons electrically connected with said contact-pieces, a switch common to all of the contact-pieces and movable over the same into engagement with any one thereof, a call-bell electrically connected with the switch, an electric generator, an electric circuit including the electromagnets, the switch, the contact-pieces, the independent push-buttons and the call-bell, and a push-button for making and breaking the said electric circuit independently of said push-buttons, substantially as and for the purposes described.

579,076. ELEVATOR.

William A. Placier and Harry W. Placier, London, Ohio. Filed Oct. 9, 1896. Serial No. 608,374. (No model.)



Claim.—1. In an elevator, the combination with spaced standards, upper and lower drums mounted to revolve between said standards, an endless band traveling around said drums, a platform having a hinged connection to said band and adapted to automatically adjust itself at substantially a right angle to the band in its ascent and to fold down parallel to the band in its descent, and a flexible brace interposed between the band and the platform to hold the latter in position when extending at an angle to the band, substantially as described.

2. In an elevator, the combination with spaced standards provided in their adjacent surfaces with longitudinal grooves, of an endless band arranged between the standards, cross-bars secured to said band and having their ends slidingly mounted in said grooves, shelves or steps pivotally connected to said cross-bars, and stay-chains for supporting said shelves horizontally and allowing the same to fold, substantially as described.

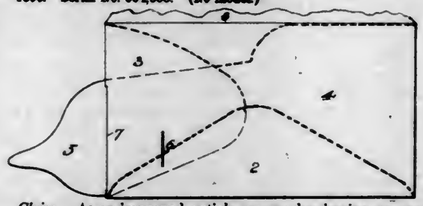
3. In an elevator, the combination with spaced standards having longitudinal grooves in their adjacent surfaces, of an endless band moving between said standards, cross-bars secured to said band and having their ends arranged to slide in said grooves, shelves or steps pivotally connected to said cross-bars, and stay-chains for supporting said shelves horizontally, the stay-chains of alternate shelves being reversely extended so that the alternate shelves will be supported horizontally upon the upwardly and downwardly moving portions respectively of the band and at the same time adapted to fold, substantially as described.

4. In an elevator, the combination with spaced standards having longitudinal grooves in their adjacent surfaces, of an endless band moving between said standards, cross-bars secured to said band and having their ends arranged to slide in said grooves, shelves or steps pivotally connected to said cross-bars and arranged in reversely-folding pairs, and stay-chains interposed between the free edges of said shelves and an intermediate cross-bar located between the cross-bars to which said shelves are connected, substantially as described.

5. In an elevator, the combination with four standards suitably connected and braced to form an upright frame which is substantially square in cross-section, said standards being provided upon their inner surfaces with guideways, of wheels or pulleys journaled in the upper and lower portions of said frame, spaced parallel bands running over said wheels or pulleys, cross-bars arranged in groups connecting said bands and having their ends projected to slide in said guideways, a series of automatically-folding shelves or steps pivotally connected to the outer bars in each group, and flexible braces connecting the shelves and the intermediate bars of the respective groups, substantially as described.

579,077. ENVELOP.

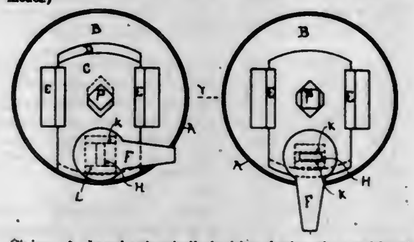
John Price, Dover, N. J. Filed Sept. 4, 1896. Serial No. 604,535. (No model.)



Claim.—As an improved article, an envelop having an opening in one end, and a slit near said end, and provided with a flap adapted to fold over said opening and have its end passed through said slit, substantially as described.

579,078. KNOB-SPINDLE FASTENER.

Joseph S. Randall, Grand Rapids, Mich. Filed June 15, 1896. Serial No. 595,627. (No model.)



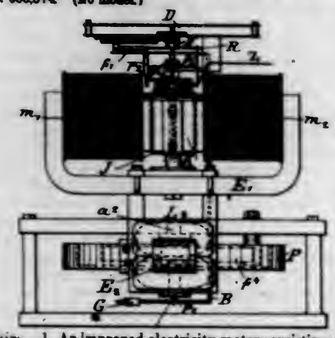
Claim.—1. In a knob-spindle-locking device, the combination of two plates superimposed one upon the other and provided with apertures through which the knob-spindle passes, said apertures being adapted to be thrown into and out of register by the movement of the plates, and means for moving said plates in opposite directions and locking them in position to prevent the rotation of the knob-spindle, substantially as described.

2. In combination with a spindle, two locking-plates adapted to move in opposite directions, a lever having a shank elongated in cross-section, said lever adapted to operate the said plates so as to move the same in opposite directions and thereby clamping and retaining the locking-plates securely in position upon the knob-spindle.

thereby preventing the moving of the door catch or bolt by means of the door-knob, substantially as described.

3. The combination with a knob-spindle and its escutcheon, of a supporting-plate arranged on the under or inner side of the escutcheon and provided with flanges struck up from said plate and bent toward one another to form guideways, two plates superimposed one upon the other in said guideways and provided with apertures through which the knob-spindle passes, said apertures being adapted to be thrown into and out of register by the movement of the plates, a lever having a shank elongated in cross-section and passing through openings in the plates and operating to move said plates in opposite directions and lock them in position on the knob-spindle to prevent the rotation of the latter, substantially as described.

579,079. **ELECTRICITY-METER.** AUGUST RAPS, Berlin, Germany, assignor to Siemens & Halske, same place. Filed July 25, 1896. Serial No. 600,574. (No model.)



Claim.—1. An improved electricity-meter consisting of a suitable direct-reading electrical measuring instrument an oscillating balance and a registering-wheel all said parts being concentrically pivoted, means for registering the revolutions of said wheel and means for coupling the said balance with the said wheel at every oscillation at the points indicated by the deflections of the needle of the measuring instrument.

2. An improved electricity-meter consisting of a suitable direct-reading electrical measuring instrument, a wheel provided with means for registering its revolutions, and an oscillating balance provided with a flexible tongue fixed in the plane of said wheel and adjusted in such a way as to just clear its circumference, the index or needle of the said measuring instrument being provided with a similar tongue, which is adjusted in such a way as to intercept the oscillatory motion of the first-mentioned tongue, substantially as and for the purpose described.

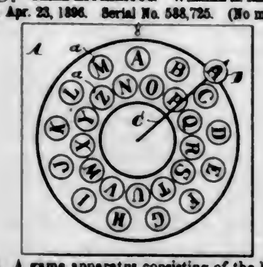
3. An improved electricity-meter consisting of a suitable direct-reading electrical measuring instrument, a wheel provided with a finely-toothed edge, means for registering the revolutions of said wheel an oscillating balance, provided with means for propelling said wheel at every oscillation at a rate proportional to the deflections of the needle of said measuring instrument and with an armature fixed at or near the circumference of said balance a fixed electromagnet and means to close and open the exciting-coils of said magnet at every oscillation of said balance substantially as and for the purpose described.

4. In an electricity-meter comprising an oscillating balance a direct-reading electrical measuring instrument a registering-wheel and means for coupling the said balance with the said registering-wheel at every oscillation of the former and at those points of every oscillation that are indicated by the needle of said measuring instrument, means for interrupting the exciting-current of the said measuring instrument once during every oscillation of the said balance, substantially as and for the purpose set forth.

5. In electricity-meters comprising a direct-reading electrical measuring instrument a registering-wheel, an oscillating balance and means for keeping up the oscillations of the same, a U-shaped rod pivoted concentrically with the aforesaid parts, and coupled to said balance by means of a spring which presses it against a projecting nose fixed on said balance, said U-shaped rod being intercepted by a plug-screw fixed in the frame of the instrument and being provided with means for intercepting the index of said measuring instrument and propelling the said registering-wheel, substantially as and for the purpose set forth.

6. In electricity-meters comprising a direct-reading electrical measuring instrument, a registering-wheel an oscillating balance, means for coupling said balance with said registering-wheel at those points of every oscillation of the same which are indicated by the needle of said measuring instrument and a fixed electromagnet acting upon an armature fixed on or near the circumference of said balance, means for exciting said electromagnet for a short time during every oscillation and means for leaving out one of the said excitations every time the oscillations of said balance have increased beyond a certain prefixed rate, substantially as and for the purpose set forth.

579,080. **GAME APPARATUS.** WILLIAM H. REIFF, Philadelphia, Pa. Filed Apr. 23, 1896. Serial No. 588,725. (No model.)

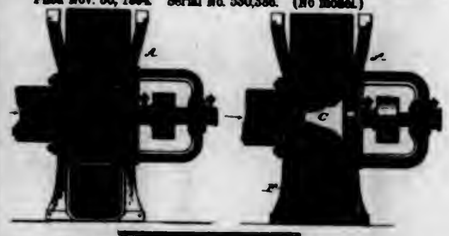


Claim.—1. A game apparatus consisting of the body-piece provided on its face with a series of letters or characters, and a button provided on opposite faces with letters or characters and having an elastic connection with the card and adapted to be projected forward by the elasticity of its connection and come to rest upon one of the letters or characters on the body-piece.

2. A game apparatus consisting of a card A provided on its face with a series of letters or characters, a button B connected with the card by an elastic connection C and having a series of faces each provided with a letter or character, substantially as and for the purpose described.

3. A game apparatus consisting of the body-piece provided on its face with a series of letters or characters, a button provided with a letter or character, and an elastic connection between the body-piece and the button, whereby the button may be projected forward by the elasticity of the connection and may come to rest upon one of the letters or characters of the body-piece.

579,081. **EXHAUST-FAN.** SAMUEL REMBERT, Memphis, Tenn. Filed Nov. 30, 1894. Serial No. 530,368. (No model.)



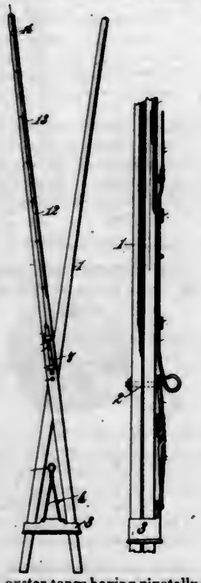
Claim.—1. The combination of the fan-case, having a lateral inlet, of the fan therein and having blades and the perforated or foraminous guard held to and revolving with the fan said guard being arranged between the blades of the fan and the side of the case having the inlet-opening, and spaced apart from such side of the case whereby to form a passage for the cotton and the like substantially as and for the purposes set forth.

2. The improved fan herein described comprising the case having the inlet in one of its sides, the fan supported in said case and having its blades set back from the inlet side of the case, and the guard consisting of a plate having numerous closely-arranged perforations secured rigidly to the edges of the blades and set back from the inlet side of the case forming a passage along said guard and between the same and the case all substantially as and for the purposes set forth.

3. A fan substantially as described having blades and provided with a guard held to and against the edges of said blades and extending outward to the outer extremities of said blades, and the casing having its inlet-opening on one side of and toward the said guard substantially as set forth.

4. The combination with the fan-case having an inlet at one side the fan in said case, the guard turning with the fan, arranged alongside the blades and extending throughout the space between said blades and the side inlet-opening such guard being spaced apart from said opening and the side of the casing in which said opening is formed whereby is provided a passage-way for cotton and the like alongside the guard substantially as and for the purposes set forth.

579,082. **OYSTER-TONGS.** SAMUEL T. RICHARDSON, Baltimore, Md., assignor of one-half to Albert H. Larduskey, same place. Filed July 7, 1896. Serial No. 598,297. (No model.)



Claim.—1. An oyster-tongs having pivotally-connected handles, an automatic locking-loop encircling the handles and located at a point between the handle-pivot and the lower ends of the handles, a device for supporting said loop raised in juxtaposition to the handle-pivot, and means for releasing the said supporting device from the locking-loop to permit the latter to automatically descend, substantially as described.

2. The combination with the pivoted handles of an oyster-tongs, of a locking-loop encircling the handles at a point between the handle-pivot and the lower ends of the handle, a plate movable on one of the handles and having means to engage and disengage a part of said locking-loop, and means for sliding the said plate to disengage the locking-loop and permit the latter to automatically descend, substantially as described.

3. The combination with the pivoted handles of an oyster-tongs, of a locking-loop encircling the handles and located at a point below the handle-pivot, a locking-loop-sustaining device arranged on one of the handles and having means to engage a part of the locking-loop, and means for operating the loop-sustaining device to release the said loop and permit it to automatically descend, substantially as described.

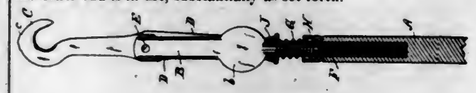
4. The combination with an oyster-tongs of a locking-loop between the pivot and the lower ends of the handles, a wire or cord attached to the locking-loop and having an eye to engage a projection on the handle, a keeper-plate movable in guides on the handle, one of its ends engaging and holding said eye, and a wire or rod attached to the keeper-plate and extending to a point where it can be operated by the one using the tongs, substantially as described.

5. The combination with the pivoted handles of an oyster-tongs, of a locking-loop inclosing the handles below their pivotal point, a wire or cord attached to the locking-loop and having an eye to engage a projecting point on the handle, a keeper-plate having a curved end bearing elastically upon the eye to retain it upon the projecting point, and a rod or wire lying in guide-staples on the handle to withdraw the keeper-plate and permit the locking-loop to fall by gravity, substantially as described.

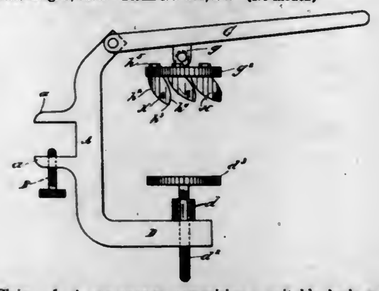
579,083. **REVERSIBLE PRUNING-TOOL.** DAVID C. SEARLES, Livermore Falls, Me. Filed Feb. 18, 1896. Serial No. 579,708. (No model.)

Claim.—1. In a pruning-tool, the hook-shaped cutter C and the saw D firmly united in one and constituting the tool proper, in combination with the forked head B and the pivot E through the extremity of the prongs of said head and centrally through the interposed reversible tool, and with the spring G and the inverted ferrule H forming a socket therefor, substantially as set forth.

2. In a pruning-tool, the forked head B having two flattened parallel prongs with enlargements *b* at their base, adapted to guard and conceal the dormant portions of the tool in both positions, and a stem or shank F inserted in the handle, in combination with the reversible tool C D pivoted between said prongs, and having projections *c d* at its respective ends, and with a spring-pressed collar surrounding said stem and adapted to hold either end of the tool fast while the other end is in use, substantially as set forth.



579,084. **CAN-OPENER.** ROSCOE B. STEWART, Osterdock, Iowa. Filed Aug. 5, 1896. Serial No. 601,750. (No model.)



Claim.—1. A can-opener, comprising a suitable body portion, which is adapted to be secured to a table or other support, and which is provided at its lower end with an arm through which passes a vertically-movable bolt or rod, which is provided at its upper end with a disk or plate, and said body portion being provided at its upper end with a pivoted lever, with the under side of which is pivotally connected a head or disk, to the under side of which is secured a plurality of cutting-blades which are arranged in a circle, substantially as shown and described.

2. A can-opener, comprising a suitable body portion, which is adapted to be secured to a table or other support, and which is provided at its lower end with an arm through which passes a vertically-movable bolt or rod, which is provided at its upper end with a disk or plate, and said body portion being provided at its upper end with a pivoted lever, with the under side of which is pivotally connected a head or disk, to the under side of which is secured a plurality of cutting-blades which are arranged in a circle, and which are projected forwardly and downwardly, substantially as shown and described.

3. A can-opener comprising a suitable body portion, which is adapted to be secured to a table or other support, and which is provided at its lower end with an arm through which passes a vertically-movable bolt or rod, which is provided at its upper end with a disk or plate, said body portion being provided at its upper end with a pivoted lever, with the under side of which is pivotally connected a head or disk, to the under side of which is secured a plurality of cutting-blades which are arranged in a circle, and which are projected forwardly and downwardly, said blades being also radially adjustable, substantially as shown and described.

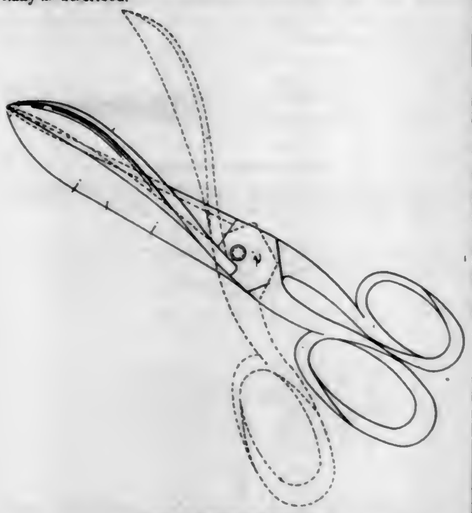
4. A can-opener comprising a suitable body portion, which is adapted to be secured to a table or other support, and which is provided at its lower end with an arm through which passes a vertically-movable bolt or rod, which is provided at its upper end with a disk or plate, said body portion being provided at its upper end with a pivoted lever, with the under side of which is pivotally connected a head or disk, to the under side of which is secured a plurality of cutting-blades which are arranged in a circle, and which are projected forwardly and downwardly, said blades being also radially adjustable and provided with means whereby the head of the can when cut out is removed, substantially as shown and described.

5. The herein-described device for opening cans, consisting of a suitable body portion, which is adapted to be secured to a table or other support, and which is provided at its lower end with a vertically-movable plate, which is adapted to support the can, and at its upper end with a pivoted lever to the lower side of which is pivoted a head or disk, said head or disk being provided with a plurality of downwardly-directed cutting-blades, which are arranged in a circle and by which the head of a can may be cut out at each depression of the lever, substantially as shown and described.

579,085. **SCISSORS OR SHEARS.** BRUNO WESSELMANN, Göttingen, Germany. Filed June 4, 1896. Serial No. 594,295. (No model.)

Claim.—Scissors or shears comprising a blade having a cutting edge of spiral or screw-threaded twist or shape, the main faces of the blades at the point having a corresponding direction, and passing

to vertical or approximately vertical position at the joint, substantially as described.

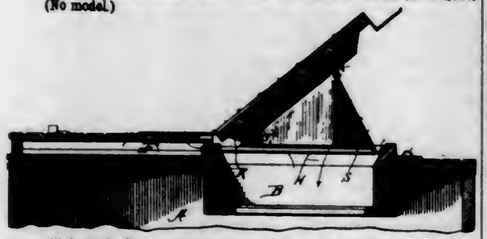


579,086. CAN-OPENER. HANS BERTRAM, Cambridge, Mass. Filed June 22, 1896. Serial No. 596,452. (No model.)



Claim.—In a can-opener, the combination with a handle flattened longitudinally on opposite sides, of a threaded tapering pivot-pin provided with a blank portion and connected to the handle, said pin projecting from one of the flattened sides thereof, cutting devices on opposite sides of the pivot-pin which comprise triangular cutting-knives having beveled edges and bases extending in right-angular relation to the knives, said bases being located on the same side as the pivot-pin and pressing against the flattened face or side, the aforesaid bases having portions which project out on opposite sides of the handle, clamping-plates located against the other flattened portion of the handle and provided with similar projecting ends, independent bolts passing through the projecting portions of the bases and plates and situated on opposite sides of the handle, and nuts on said bolts.

579,087. VENTILATOR-SCREEN FOR REFRIGERATOR-CARS. GEORGE P. BROWN, Jr., Chicago, Ill., assignor to the Wickes Refrigerator Car Company, Rochester, N. Y. Filed Jan. 10, 1896. Serial No. 574,966. (No model.)



Claim.—1. In a ventilator-car, an ice-aperture; a lid adapted to close the same; a ventilator-frame; an auxiliary screen-frame carrying screen-cloth hinged thereto; wings pivoted to the opposite sides of the said ventilator-frame, the wings and screen-frame being capable of being folded down upon the ventilator-frame, the said lid being pivotally connected to the car and adapted to swing down upon the hinged auxiliary frame and wings, substantially as described.

2. In a ventilator-car, a ventilator-frame, provided with an auxiliary screen-frame hinged thereto, and side wings also hinged to the ventilator-frame and adapted to fold thereon; and a raised deck on the car having a recess or space therein within which the said ventilator-frame, with its folded attachments thereto, can be housed, substantially as described.

3. In a ventilator-car, a ventilator-frame with an auxiliary screen-frame hinged thereto; triangular side wings hinged to the said ventilator-frame; and a lid attached to the car, provided on its under side with a groove into which the upper edge of the auxiliary frame and wings pass when the lid is swung over upon them, substantially as described.

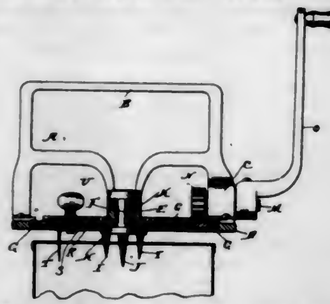
4. In a ventilator-car, a ventilator-frame; an auxiliary screen-frame carrying screen-cloth hinged thereto; wings hinged to said ventilator-frame; a lid attached to the car and adapted to be swung over upon the wings and auxiliary screen-frame; and a locking device for locking the lid down upon said wings and auxiliary screen-frame, substantially as described.

579,088. ORANGE-KNIFE. ANNA E. DREW, New York, N. Y. Filed Aug. 28, 1896. Serial No. 604,150. (No model.)



Claim.—An orange-knife made of a single piece of metal having a handle at one end, a forwardly-projecting tongue at the opposite end having a rounded lower edge constituting a shoulder or guide, a cutting-tooth upon the lower edge separated from said rounded portion or shoulder by a notch or recess, an upwardly-projecting arm located just opposite said tooth, and a flange upon the end of said arm, substantially as and for the purpose set forth.

579,089. CAN-OPENER. HIRAM A. FRANTZ, Tamaqua, Pa. Filed July 16, 1896. Serial No. 599,387. (No model.)

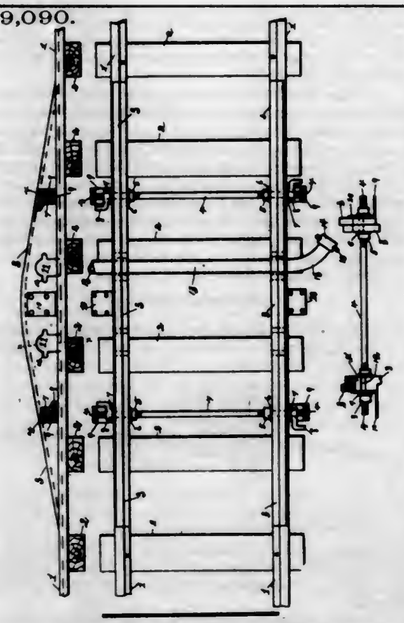


Claim.—In a can-opener, a frame, a handle provided on said frame, a flat ring rigidly secured to said frame, a hub formed with said frame, a stud secured in said hub, a disk formed with the lower end of the stud, prongs projecting downward from said disk, a gear-wheel journaled on said stud, said wheel fitting at its outer circumference in annular groove of the outer ring, lugs overhanging said groove and guiding said gear-wheel, a crank journaled in a bearing of the frame, a pinion carried on the inner end of the shaft, said pinion being adapted to mesh with the teeth of the gear-wheel, a blade, a shoe to which said blade is secured, a lug formed on said shoe adapted to slide in a slot formed in one of the spokes of the gear-wheel, a thumb-nut passed through said slot and threaded into the shoe to hold said shoe in any adjustment, as and for the purpose described.

579,090. HOSE-BRIDGE FOR RAILWAYS. CHARLES A. GRIMM and CHARLES J. GRIMM, Pittsburg, Pa. Filed Sept. 11, 1896. Serial No. 605,489. (No model.)

Claim.—A hose-bridge for railways comprising two inclined arched pieces having their base adapted to fit the rails and their upper edge shaped similar to form a temporary rail, plates secured to the outside of the said arched pieces, bent at right angles and having a series of holes for securing the device to the road-bed, openings formed within the said inclined arched pieces for the reception of the hose, in combination with the brace-rods 4, having nuts 5, washers 6 and 7, and crank-nuts 8, located near the corresponding ends of the said arched pieces whereby a rigid construction is effected, substantially as shown and described.

579,090.

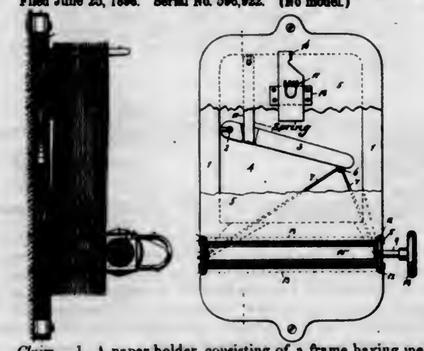


579,091. BURIAL-CASKET. WILLIAM HAMILTON, Allegheny, Pa. Filed Oct. 30, 1896. Serial No. 610,570. (No model.)



Claim.—A burial-casket having a removable rigid couch, shaped and upholstered in the manner of the body of a sofa or lounge, and without side boards.

579,092. PAPER-HOLDER. JAMES T. HOYT, New York, N. Y. Filed June 25, 1896. Serial No. 596,922. (No model.)



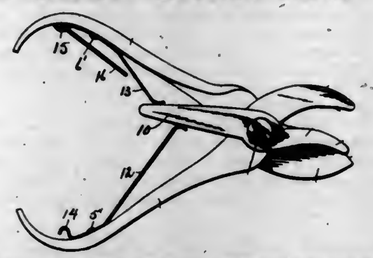
Claim.—1. A paper-holder, consisting of a frame having means for suspending a package of paper, guides extending from said frame, bearing-blocks supported by and slidable upon said guides, a feed-roller journaled in said bearing-blocks and moving therewith, a cord having its ends connected with the bearing-blocks, and a spring acting upon the cord to slide the bearing-blocks and press the feed-roller against the package of paper, substantially as described.

2. A paper-holder, consisting of a frame, having means for supporting a package of paper, guides extending from said frame, bearing-blocks carried by and slidable upon said guides, a feed-roller journaled in the bearing-blocks, a cord having its end connected with the bearing-blocks, a pivoted lever engaging the cord, and a spring acting upon the lever to hold the cord under tension, substantially as described.

3. A paper-holding frame or support provided with movable roller-bearings, a friction or feed roller mounted in the bearings, and a spring-actuated lever fulcrumed in the frame, said bearings being connected by a cord or flexible connection loosely connected to the lever substantially as described.

4. A paper-holder, consisting of a frame, wire guides secured to and projecting horizontally from said frame, slidable bearing-blocks having bent portions engaging the wire guides and movable thereupon, a feed-roller journaled in the bearing-blocks, and spring-actuated devices for sliding the bearing-blocks on said wire guides, substantially as and for the purposes described.

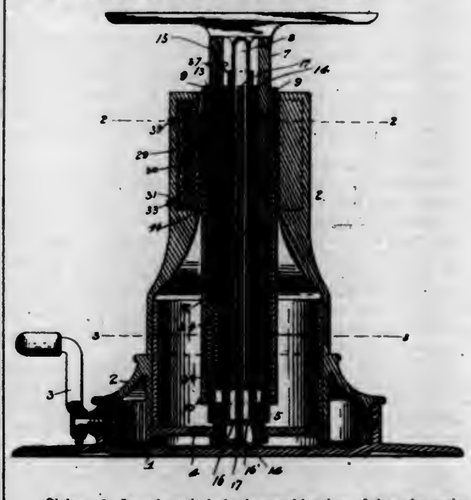
579,093. GRAPE-SHEARS. VANRENSSLAER W. KELLY, Fremont, Ohio. Filed Jan. 23, 1897. Serial No. 620,394. (No model.)



Claim.—1. In a shears of the class described, shear-blades and a clamping-plate pivotally secured together, handles extending rearwardly from the shear-blades, and a rearward extension upon the clamping-plate extending rearwardly between the handles, springs secured at one end to each of the handles, the opposite ends bearing against the extension of the clamping-plate with different tensions and upon opposite sides of the same.

2. In a shears of the class described, shear-blades and a clamping-plate carried by a common pivot, handles extending rearwardly from the shear-blades, one of the shear-blades having a cutting edge, the opposite one being formed with a shoulder, a clamping-plate having a forward extension of the same contour of the shoulder upon one of the shear-blades, a rearwardly-extending projection extending between the handles and the shear-blades, springs secured to the handles at one end, the opposite ends bearing against the opposite sides of the rearward extension of the clamping-plate at different points longitudinally of the same, whereby pressure of one spring upon the extension is greater than that of the pressure exerted by the opposite spring.

579,094. DENTAL CHAIR. MONT C. MERKER, Philadelphia, Pa. Filed Oct. 26, 1896. Serial No. 610,140. (No model.)



Claim.—1. In a dental chair the combination of the telescoping tubes mediately connected to the seat, two pumps, and separate passages one from each pump leading to a distinct tube whereby both pumps may be used to raise the chair, substantially as described.

2. In a dental chair the combination of the telescoping tubes mediately connected to the seat, two pumps, and separate passages one from each pump leading to a distinct tube whereby both pumps

may be used to raise the chair, the operating-levers, and the spring connected to the piston-rod of one of the pumps and adapted to be compressed by the operation of the levers and then to operate the pump to which it is connected, by its expansion, substantially as described.

3. The combination of pumps 18 and 19, a plunger-tube 8 bearing on the seat-frame, the oil-inlet tube 28 communicating with one of the pumps and with the said plunger-tube, the extension-tube 15 having at its foot a piston-packing, and the fixed tube 14 the space within said latter tube below the piston-packing of tube 15 communicating with a passage 27 leading to the other pump, all substantially as set forth whereby tubes 8 and 15 can be simultaneously and continuously raised by the pumps, substantially as described.

4. The combination in a dental chair of two pumps, mechanism to simultaneously move the pump-pistons in opposite directions, a spring connected with one of the pump-pistons and adapted to be compressed by said mechanism to empty one pump and fill the other, and an adjustable tension device to vary the initial tension of the said spring, substantially as described.

5. In seat raising and lowering mechanism the combination of a vertically-movable tube with a fixed part and an interposed endless series of balls arranged in an endless channel a part of said balls bearing upon the movable tube, said channel being formed in an adjustable receptacle, and devices for adjusting said receptacle to vary the friction on the balls.

6. In seat raising and lowering mechanism the combination of the pedestal, a tube fixed therein, a vertically-movable extension-tube and several series of balls bearing upon the extension-tube at distinct points in its circumference, and a device for varying directly the friction of one series of balls and indirectly varying that of the other series, substantially as described.

7. In seat raising and lowering mechanism the combination of the pedestal, a tube fixed therein, a vertically-movable extension-tube, several series of balls bearing upon the extension-tube at distinct points in its circumference, and a device for varying directly the friction of one series of balls and indirectly varying that of the other series, said device consisting of a rod or bar having an inclined face, and an adjustable ball-receptacle having a similar incline, substantially as described.

8. The combination of the pedestal 2, the vertically-movable tube 9 provided with lengthwise grooves both on its interior and exterior, a plunger-tube, guide-wheels journaled one in the pedestal and one in the plunger-tube and running in said exterior and interior grooves respectively, said wheels acting as antifriction devices for the several parts and also preventing the rotation both of tube 9 and of the plunger-tube, substantially as described.

9. In a dental chair a head-rest comprising two pads adapted to be separately manipulated to vary the inclination of either, and devices for clamping the pads in fixed relation to each other by simultaneous pressure on the face of the pads, as by suitably resting the head between them, substantialy as described.

10. In a dental chair a head-rest comprising two pads adapted to be separately manipulated to vary the inclination of either, and devices for clamping the pads in fixed relation to each other by simultaneous pressure on the face of the pads, as by suitably resting the head between them, said devices consisting of inclined planes formed on the pad-supports and adapted to be forced together and thus locked by such pressure.

11. In a head-rest the pad-supports comprising the arms provided with supporting-rings having their contiguous faces formed with similar opposing inclines, a support for the rings, a handle, screw-threaded to one end of said support, and a supporting-piece 45 fixed to said ring-support at its end opposite the handle, substantially as described.

12. In a head-rest the pad-supports comprising the arms provided with supporting-rings having their contiguous faces formed with similar opposing inclines and a support for the rings, and a washer or annulus provided with a projection, said ring-support having a groove to receive the projection and prevent the rotation of the washers, substantially as described.

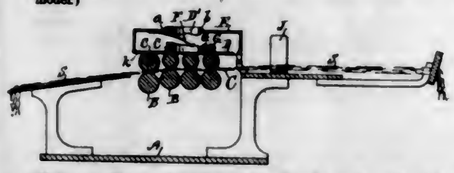
13. In a head-rest the pad-support having a slotted screw-threaded end in combination with a ball suitable for a ball-and-socket joint, said ball having a screw-threaded opening to receive the pad-support and a transverse opening to receive a securing-pin, and the pin, substantially as described.

14. In a head-rest the pad-support having a slotted screw-threaded end in combination with a ball suitable for a ball-and-socket joint, said ball having a screw-threaded opening to receive the pad-support and a transverse opening to receive a securing-pin, and the pin, said pin being tapered, substantially as described.

15. In combination a chair-pedestal, two pumps, a T-shaped lever pivoted to the pedestal the ends of the cross-piece of said lever being pivotally connected by intermediate parts with the pump-piston, whereby the pump can be worked by causing said lever to oscillate about its pivot, tubes containing a hydrostatic column, and a bent lever 20 having a fulcrum 21 and loosely connected within the pedestal to the foot of the said T-shaped lever and extended to the outside of said pedestal, whereby the bent lever oscillates said T-lever, substantially as described.

16. The combination in a dental chair of a plunger-tube 8 bearing against the seat-frame, a liquid-holding tank or reservoir, a pump situated in said reservoir, a central tube 17 situated within the plunger-tube and having free communication above with said latter tube throughout its entire length in every situation and communicating below with the pump, and a tube surrounding the plunger-tube, said latter tubes having at the foot of each a liquid-tight closure between it and said central tube, whereby the latter guides both of the former and whereby liquid can be forced through said central tube into the plunger to raise the seat, and means for raising the tube that surrounds the plunger, substantially as described.

579,095. CLEARER FOR DRAWING-ROLLS. JAMES THOMSON, Jr., Pawtucket, R. I. Filed Sept. 28, 1896. Serial No. 607,147. (No model.)



Claim.—1. The combination of the drawing-rolls, with a clearing-disk having its side arranged to bear upon the top rolls, and means for imparting rotary movement to the clearing-disk, substantially as described.

2. The combination of the drawing-rolls, with a clearing-disk having its side arranged to bear upon the top rolls, and means for causing the clearing-disk to bear with greater pressure upon the rolls at one side of its axis, than upon the other side, thus causing the rotation of the disk, substantially as described.

3. The combination of the drawing-rolls with a rotary clearing-disk provided with an opening or recess, adapted to receive the collected waste, substantially as described.

4. The combination of the drawing-rolls and the cover for the rolls, with the clearing-disk held for rotation in the cover, substantially as described.

579,096. COMBINED BOLT-STOP AND CARTRIDGE-EJECTOR FOR BOLT-GUNS. WILLIAM P. LARAWAY, Hartford, Conn., assignor to the Lee Arms Company, of Connecticut. Filed Apr. 20, 1896. Serial No. 588,263. (No model.) Patented in England May 5, 1896, No. 9,570; in France May 9, 1896, No. 256,228; in Belgium May 9, 1896, No. 121,276; in Italy May 9, 1896, LXXXI, 279, and in Austria July 28, 1896, No. 46/3,018.



Claim.—1 In a firearm, in combination with the bolt thereof, a detachable bolt-stop therefor, provided with an elastic receiver-engaging portion, and provided with an abutment 35, the abutment being provided with a stopping-face for the bolt, substantially at right angles to the motion thereof, and having an inclined rearward face whereby the stop may be sprung outwardly by the bolt in the assembling operation, substantially as described.

2. A bolt-stop and ejector provided with an elastic extension terminating in receiver-engaging flanges, the extended or elastic portion thereof being formed and set so as to hold the bolt-stop and ejector portion with spring tension normally toward their operative positions, substantially as described.

3. The herein-described bolt-stop, having an extended elastic portion provided with retaining-flanges, and having a latching-flange at its rearward end, an abutment integral therewith and projecting therefrom into the path of movement of the bolt, substantially as described.

4. A detachable combined bolt-stop and cartridge-ejector, consisting of an extended flexible plate provided at its ends with engaging and latching flanges respectively, and of an abutment integral therewith, and projecting therefrom into the path of movement of the bolt, provided with an extension projecting into the pathway of the extracted cartridge-shell, for the purpose specified.

5. In a firearm, in combination with the bolt thereof, a detachable combined bolt-stop and cartridge-ejector, consisting of a flexible plate provided at its ends with engaging and latching flanges respectively, and having a T-shaped projection extending laterally therefrom into the pathway of the bolt and of the extracted shell, the bolt having a lug B^3 for engaging with the abutment, the lug being slotted to allow of the passage of the cartridge-ejector, substantially as described.

6. A bolt-stop and ejector for the purpose specified, provided with a forwardly-extending flexible plate, terminating in receiver-engaging flanges, the rearward end being adapted as a latch, an abutment integral therewith and projecting therefrom into the path of movement of the bolt, having its front face substantially at right angles to the direction of movement of the bolt, and having its rearward face beveled, substantially as described and for the purpose specified.

7. In a firearm, in combination with the receiver thereof, a bolt-stop therefor, provided with a forwardly-extending elastic member terminating in receiver-engagiog flanges, its rearward end being adapted as a latch, a stop-abutment and an ejector integral therewith and extending laterally therefrom in the form of a T, into the path of movement of the bolt and the cartridge-shell, the receiver being recessed to receive the flange and the latching portions of the bolt-stop, and having a T-shaped mortise through its side wall to receive the inwardly-projecting stop-abutment and ejector.

579,097. MAGAZINE FOR FIREARMS. EDWARD G. PARKHURST, Hartford, Conn., assignor to the Lee Arms Company, of Connecticut. Filed Apr. 20, 1896. Serial No. 588,264. (No model.) Patented in England May 5, 1896, No. 9,570; in France May 9, 1896, No. 256,228; in Belgium May 9, 1896, No. 121,276; in Italy May 9, 1896, LXXXI, 279, and in Austria July 28, 1896, No. 46/3,018.



Claim.—1. In combination with a magazine, and with an operating-key mounted thereon, the herein-described dust-guard extending from the side wall of the magazine, and made substantially the width of the key, the latter being provided with a suitably-adapted slot therefor, substantially as described.

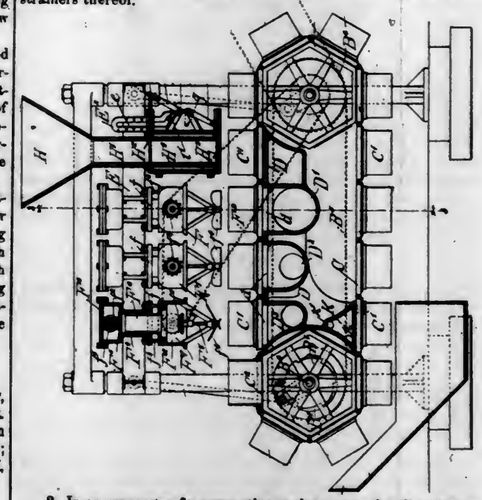
2. In combination with a firearm-magazine, the herein-described month-closer therefor, consisting of a plate pivotally mounted upon a side wall of the magazine and adapted when closed to form a continuation thereof, and to contract the upper portion of the cartridge-space so as to prevent the upward passage of the cartridges, a spring arranged and operating to normally press the closer to its closed position, and an operating-key extending from the magazine-closer to a location convenient to the hand of the operator, substantially as described.

3. In a firearm of the class specified, a magazine located below the breech-bolt in the vertical plane of the bore of the gun, having the upper portion of one of its side walls cut away, a closer fitted in the opening thus made and mounted upon hinges located at the ends of the closer, the upper margin of the closer forming a space-contracting wall of the magazine, and an operating-key located substantially midway of the length of the closer and integral therewith, substantially as described.

4. In a firearm of the class specified, a magazine located below the breech-bolt in the vertical plane of the bore of the gun, having the upper portion of one of its side walls cut away, a closer fitted in the opening thus made and mounted upon hinges located at the ends of the closer, the upper margin of the closer forming a space-contracting wall of the magazine, an operating-key located substantially midway of the closer and integral therewith, and a wire spring having a central loop which extends along and bears against the upper portion of the outside of the closer, the ends of the loop being coiled around the hinge-pin, and extending downwardly against the lower portion of the side wall of the magazine, whereby it normally holds the closer in its closed position, substantially as described.

579,098. APPARATUS FOR SEPARATING LIQUID FROM CRYSTALLINE SUGAR. JOHN V. SHALK, Chicago, Ill. Filed Jan. 17, 1895. Renewed Feb. 18, 1897. Serial No. 624,075. (No model.)

Claim.—1. In an apparatus for separating molasses or other liquid from crystalline sugar, the combination of a series of traveling vessels each provided with a strainer, a series of movable covers adapted to simultaneously close a corresponding number of said series of vessels and means for forcing fluid currents through said covers into and through the vessels which they close and outwardly through the strainers thereof.



2. In an apparatus for separating molasses or other liquid from crystalline sugar, the combination of a series of traveling vessels provided with strainers, of one or more receptacles communicating with a plurality of the said vessels through their strainers, a series of movable covers adapted to simultaneously close a corresponding number of said traveling vessels, means for forcing fluid through said covers into and through the vessels which they close and outwardly through the strainers thereof, and means for stirring the contents of said vessels while the fluid currents are being driven through them.

3. In apparatus for separating molasses or other liquid from crystalline sugar, the combination, with an endless carrier, of a series of straining vessels arranged at equal intervals upon said carrier, means for giving an intermittent movement to said carrier with suitable intervals of rest, one or more movable covers adapted to close a corresponding number of said vessels when at rest, a stirrer revolubly mounted upon each of said covers and adapted to enter the vessel closed thereby, means for revolving said stirrer when within the vessel, a valve in a passage through the cover which valve is automatically opened when the cover is seated upon the vessel, said passage being in communication with a source of fluid-pressure, and a liquid-receptacle communicating with the interior of the covered straining vessel or vessels through the strainer or strainers thereof.

4. The combination, with an endless carrier provided with a series of equally-spaced, open-topped straining vessels and means for intermittently moving said carrier with periods of rest between its successive movements, a series of chambered covers for a corresponding number of said straining vessels, said covers being each provided with a valved passage for the admission of a fluid under pressure, means for moving said covers to and from the vessels, and stirrers for agitating the contents of the vessels, whereby a mixture of sugar and molasses or other liquid placed in either of the stirring vessels on the carrier may be successively subjected to fluid currents that may be varied in kind for the separation of the molasses or other liquid from the crystalline sugar.

5. In combination with an endless carrier and a series of straining vessels mounted at equal intervals thereon, one or more automatically-moved vessel-covers provided each with a valved passage for the admission of a forcible fluid current when the cover is upon the vessel, and an automatic charging device arranged to charge the several vessels on the carrier successively as they advance with the carrier to their places beneath the cover or covers.

6. In apparatus for the separation of molasses or other liquid from crystalline sugar, the combination of an endless carrier, a series of equally-spaced strainer vessels mounted on said carrier, means for giving intermittent movement to said carrier, a series of liquid-receptacles severally arranged to communicate with the interior of a corresponding number of said vessels through their strainers, said receptacles being each provided with a discharge-opening, and means for forcing a fluid current through the contents of the vessel and outwardly through their strainers, whereby the liquid element of the mass in the vessels is discharged through their strainers into the several connecting receptacles, substantially as described.

579,099. SPECTACLE-FRAME. FREDERICK A. STEVENS, Providence, R. I., assignor to the Providence Optical Company, same place. Filed Sept. 30, 1896. Serial No. 564,198. (No model.)



Claim.—In a pair of spectacles, the joint-pieces formed with a filling-piece having the outer portion of its inner surface depressed, and a corresponding shell having its edge turned over the edge of the filling-piece, whereby the filling-piece and shell are secured to each other, substantially as described.

579,100. BELT-SHIFTER. FRANK TAYLOR, Plymouth, England. Filed June 25, 1894. Serial No. 515,619. (No model.) Patented in England Nov. 16, 1893, No. 21,942.



Claim.—1. In a belt-shifter, the combination of a spindle having a screwed end, a series of perforated rotary disks and a nut, the said disks being strung upon the said spindle and loosely clamped together thereon by means of the said nut and adapted to be rotated independently of each other.

2. In a belt-shifter, the combination of a spindle, and a series of perforated disks strung upon said spindle and turning thereon, each of the said disks being substantially of the same thickness as the belt and having their peripheries engaged by the edge of the belt, substantially as and for the purpose described.

3. A belt-shifter consisting of a draw-bar B provided with a pair of prongs or spindles, and a series of perforated disks D of substantially uniform diameters strung upon each of said spindles and turning thereon, each of the said disks being substantially the same thickness as the belt and adapted to have their peripheries engaged by the edges of the belt, substantially as and for the purpose set forth.

579,101. WOOD-PRESERVING COMPOUND. ROSE L. VALLEEN, Seattle, Wash. Filed July 13, 1896. Serial No. 599,004. (No specimens.)

Claim.—The herein-described fireproof composition of matter to be used for the preservation of wood and other combustible materials from igniting and from destruction by teredos by application of said composition, consisting of water, caustic soda, salt and blue vitriol, in the proportions herein specified.

579,102. CROCHET-MACHINE. JOHN ASHWORTH, Somerville, Mass., assignor, by mesne assignments, to Ellen Ashworth, same place. Filed Feb. 11, 1895. Serial No. 537,888. (No model.)

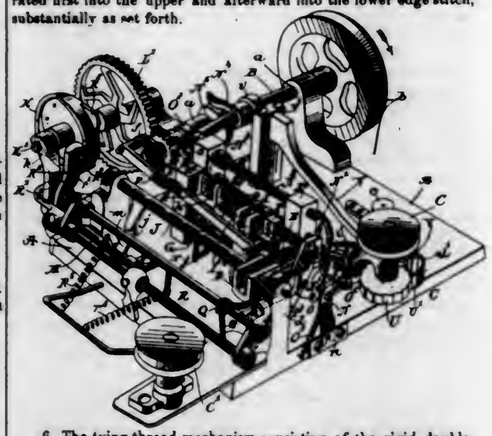
Claim.—1. The needles E, pitman F and sliding head F' in which the needles are secured, and the reciprocating rod G' carrying said head and the saddle-piece H, in combination with the elongated barb-protectors *e*, the block H' fixed thereto between the front and rear lugs of said saddle, and with the friction-clasp I *i*, holding the parts *e* with a yielding pressure, substantially as set forth.

2. The vibrating temple D provided at its free end with fingers D^3 around which the stitches are formed and from which they are drawn, and with the arms D' serving to hold the strands in position with relation to said fingers and the needles, substantially as set forth.

3. The temple D D' D^3 and means for giving to its free end a limited and intermittent vibratory movement, in combination with reciprocating needles adapted to enter the spaces between the fingers of the temple during the pauses in its movement, and with means for presenting the yarns or threads to be engaged by the barbs of the needles during such pauses, substantially as set forth.

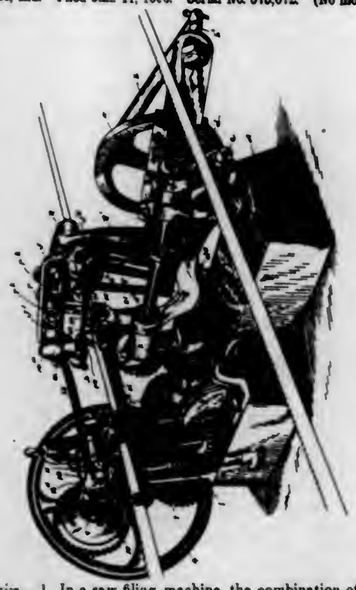
4. The vibrating temple having tapering terminal fingers, the barbed reciprocating needles E, and the barb-protectors *e* working within said needles and having a more limited reciprocating movement, in combination with the thread-guide N perforated for the passage of the several threads, and with means for giving such guide a rising-and-falling and a forward-and-backward movement at the proper time, substantially as set forth.

5. The temple, the reciprocating needles and barb-protectors, and the yarn-guide N having a composite motion, in combination with tying-thread mechanism adapted to present a tying-thread to be engaged alternately by the upper and lower needle and incorporated first into the upper and afterward into the lower edge stitch, substantially as set forth.



6. The tying-thread mechanism consisting of the rigid double-pointed hook P having its prongs beveled rearwardly, and a support on which such hook is mounted adjacent to the barbs of the needles when advanced, in combination with a tying-thread guide Q having an eye at its tip for the thread T, and with means for moving said guide-tip upwardly, forward and back, and downwardly to a central position, then, after a period of rest, downwardly, forward and back and upwardly to said position, substantially as set forth.

579,103. SAW-FILING MACHINE. JOHN C. BAILEY, Evansville, Ind. Filed Jan. 11, 1896. Serial No. 575,072. (No model.)



Claim.—1. In a saw-filing machine, the combination of a main shaft, a reciprocating frame pivotally mounted on said shaft and adapted to carry a file, means whereby the frame may be adjusted around the shaft and secured when adjusted, and means actuated from the main shaft and adapted to actuate the reciprocating frame, substantially as described.

2. In a saw-filing machine, the combination of a saw-guide, a reciprocating file-carrying frame, means adapted to reciprocate the frame, means adapted to produce a rising-and-falling motion of the file-frame, and means whereby the obliquity of the rising-and-falling motion to the horizontal plane of the saw may be changed, substantially as described.

3. In a saw-filing machine, the combination of a saw guide and clamp, a file-carrying frame, means whereby said file-carrying frame is reciprocated, means for lifting the file and holding it out of engagement during its backward movement, and means whereby the angle between the horizontal plane of the saw and the plane through which the file is adapted to rise may be changed, substantially as described.

4. In a saw-filing machine, the combination of a saw-guide, a pivotally-supported file-frame guide, a file-frame adapted to be carried upon said file-frame guide, means whereby a four-motion is imparted to said file-frame, means whereby the tang end of said file-frame can be vertically adjusted and means for adjusting the file-frame guide around the pivot center, substantially as described.

5. In a saw-filing machine, the combination of a saw-guide, a reciprocating file-frame, means whereby the tang end of the file-frame can be vertically adjusted, and means for adjusting the file-frame around an axis that is at right angles to the path of the saw parallel with said file, substantially as described.

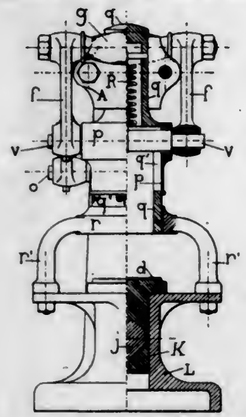
6. In a saw-filing machine, as a means for feeding the saw forward, a reciprocatory rod provided with a pawl, means adapted to adjust the pawl both vertically and longitudinally with respect to said rod, a friction-grip adapted to engage the saw and press it against the file, substantially as specified.

7. In a saw-filing machine, in combination with a reciprocating rod provided with a pawl adapted to feed the saw forward, a friction-grip adapted to engage the saw, and means for adjusting the grip vertically with respect to the rod, substantially as specified.

8. In a saw-filing machine, the combination with a saw-guide, a pivotally-supported file-carrying frame, means whereby a four-motion is imparted to said file, means for adjusting the file-frame guide around the pivot center of said pivotally-supported file-carrying frame, and means whereby the horizontal angle of said saw with said plane of motion may be varied, substantially as described.

9. In a saw-filing machine, the combination with a saw-guide and its support, of a file-carrying frame supported upon a pivot center, means whereby said file is given a four-motion in a plane at right angles to said saw-guide, means for adjusting the file-frame guide around the pivot center and means for operating said file-carrying frame, substantially as described.

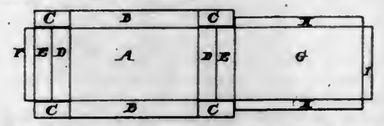
579,104. MACHINE FOR ATTACHING GASKETS TO CAN-HEADS. ISIDORE BLOCH, Paris, France, assignor to Edward Mamelsdorf, New York, N. Y. Filed Oct. 10, 1896. Serial No. 608,440. (No model.) Patented in France Oct. 25, 1895, No. 248,433.



Claim.—1. In a machine for attaching a gasket to can-heads, the combination with a standard, a yoke supported from the standard, and a stationary guide-cylinder projecting into the opening in the yoke, of a piston guided below the yoke, a cylindrical hollow plunger guided on the fixed guide-cylinder, and means for operating said piston and said hollow plunger, substantially as set forth.

2. In a machine for attaching gaskets to can-heads, the combination with the supporting-standard, a yoke supported at the lower part of the standard, and a stationary guide-cylinder supported from the upper part of the standard, of a piston guided in the lower part of the standard below said yoke, a hollow cylindrical plunger guided on said guide-cylinder, a hand-lever fulcrumed to the standard and pivotally connected with said plunger, and connections between the hand lever and piston, whereby the piston and the plunger are simultaneously operated, substantially as set forth.

579,105. PAPER BOX. ROBERT P. BROWN, Philadelphia, Pa., assignor to the Brown & Bailey Company, same place. Filed Feb. 19, 1895. Serial No. 538,946. (No model.)



Claim.—1. A knockdown box having a bottom A, sides B, B, formed of a single ply of material and provided with tongues C which are adapted to form part of the box ends, ends D, E, the parts D of which form the exterior of the box ends while the parts E fold down over the tongues C, and a false bottom G, integral with one of the end folds E and adapted to cover the bottom A fit against the walls of the box and serve as a lock to the opposite flange E.

2. A knockdown box having a bottom A, sides B, B, formed of a single ply of material and provided with tongues C which are adapted to form part of the box ends, ends D, E, the parts D of which form the exterior of the box ends while the parts E fold down over the tongues C, and a false bottom G, integral with one of the end folds E and adapted to cover the bottom A fit against the walls of the box and serve as a lock to the opposite flange E, said false bottom having outwardly-springing side flanges H, H, adapted to press against the sides B, B, of the box.

3. A knockdown box having a bottom A, sides B, B, formed of a single ply of material and provided with tongues C which are adapted to form part of the box ends, ends D, E, the parts D of which form the exterior of the box ends while the parts E fold down over the tongues C, and a false bottom G, integral with one of the end folds E and adapted to cover the bottom A and serve as a lock to the opposite flange E, said false bottom having side flanges H, H, adapted to press against the sides B, B, of the box, and an end flange I adapted to rest against the fold E to which the false bottom is not connected.

4. A knockdown box having a bottom A, sides B, B, formed of a single ply of material and provided with tongues C which are adapted to form part of the box ends, ends D, E, the parts D of which form the exterior of the box ends while the parts E fold down over the tongues C, and a false bottom G, integral with one of the end folds E and adapted to cover the bottom A fit against the box-walls and serve as a lock to the opposite flange E, said false bottom having outwardly-springing side flanges H, H, adapted to press against the sides B, B, of the box, and to abut at their ends against the sides of the end folds E.

5. A knockdown box having a bottom A, sides B, B, formed of a single ply of material and provided with tongues C which are adapted to form part of the box ends, ends D, E, the parts D of which form the exterior of the box ends while the parts E fold down over the tongues C, a terminal fold F on one fold E and a false bottom G, formed integral with the other fold E adapted to cover the bottom A and abut against the fold E to which it is not attached, said false bottom having side flanges H, H, adapted to lie against the sides B, B, of the box.

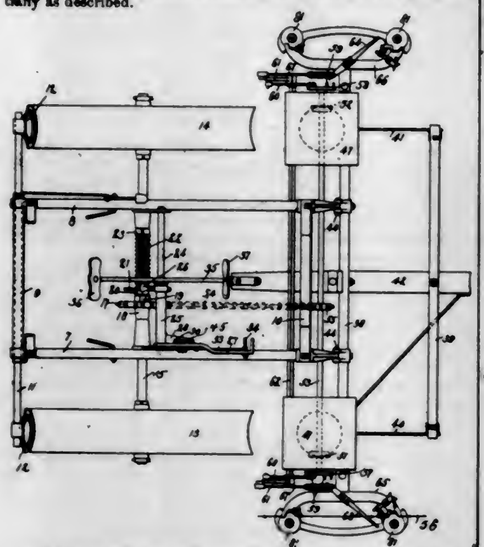
579,106. CORN-PLANTER. WILLIAM T. M. BRUNNEMER, Kankakee, Ill., assignor to The David Bradley Manufacturing Company, Chicago, Ill. Filed Aug. 9, 1895. Serial No. 558,717. (No model.)

Claim.—1. In a planter, the combination with a seed-receptacle, and a seed-tube, of a valve 70 in said tube adapted to retain the seed therein, said valve being fulcrumed intermediate its ends in the rear side of the tube, a spring 71 bearing against the forward side of said valve above its fulcrum to hold said valve normally in a forwardly-tilted closed position, a plunger 69 operated in the forward side of the seed-tube to open the valve and release the seed, and mechanism for operating said plunger, substantially as described.

2. In a planter, the combination with wheel and runner frames, of a transverse shaft carried by said wheel-frame, a sleeve 25 mounted upon said shaft, a foot-lever 35 connected to said sleeve, said foot-lever being also connected to said runner-frame, an arm projecting from said sleeve, a hand-lever pivoted to the wheel-frame, and a rod 29 connecting said hand-lever to said arm 28, and a spring 45 on said rod, to exert a yielding pressure downward on the runner-frame, the said hand-lever being adjustable to limit the depth to which the runners may enter the ground, substantially as described.

3. In a planter, the combination with wheel and runner frames, of a transverse shaft carried by said wheel-frame, a sleeve 25 mounted upon said shaft, a foot-lever 35 connected to said sleeve, said foot-lever being also connected to said runner-frame, an arm projecting from said sleeve, a hand-lever pivoted to the wheel-frame, a rod 29 connecting said hand-lever to said arm 28, and a spring 45 on said rod 29, whereby the runner-frame is held downward with a yielding pressure, the depth to which the runners may enter the ground being

limited by adjustment of the hand-lever, and the said foot-lever being adapted to lift the runners against the action of said spring, substantially as described.



4. In a planter, the combination with wheel and runner frames, of a transverse shaft carried by said wheel-frame, a sleeve 25 mounted upon said shaft, a foot-lever 35 connected to said sleeve, said foot-lever being also connected to said runner-frame, an arm projecting from said sleeve, a hand-lever pivoted to the wheel-frame, a rod 29 connecting said hand-lever to said arm 28, a spring 45 on said rod 29, and a locking-dog for said hand-lever, whereby the runner-frame is held downward with a yielding pressure and made adjustable to limit the depth of runners in the ground, substantially as described.

5. In a corn-planter, the combination with wheel and runner frames, of a reel supported thereby, means for driving said reel by the movement of the planter, bars 76 77, cross-bar 78 having notches 80, and a guide supported by said cross-bar, substantially as described.

6. In a planter, the combination with wheel and runner frames, of bars 74′ 75, bars 76′ 77 connected to said bars 74′ 75 and the said runner-frame, a reel supported by said bars 74′ 75, and means for driving said reel by the movement of the planter, substantially as described.

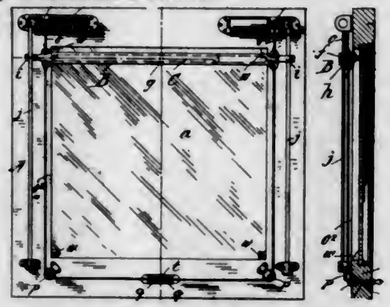
579,107. **BRUSH.** ALANSON C. ESTABROOK, Northampton, Mass., assignor to the Florence Manufacturing Company, same place. Filed Aug. 16, 1894. Serial No. 520,473. (No model.)



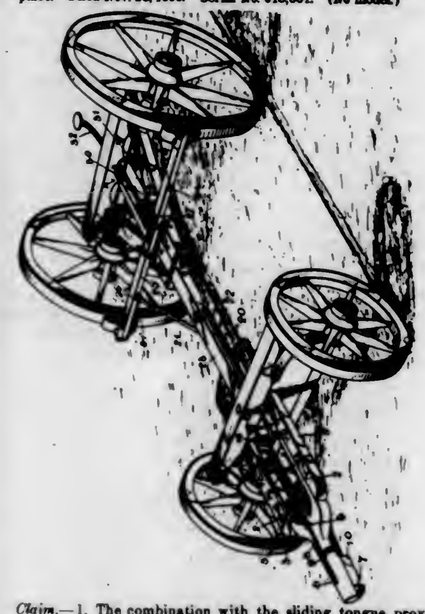
Claim.—A brush comprising two metallic shells—one for the face and one for the back—the shell for the face containing a mass of composition securing the bristles in place and reinforcing the said shell, said shell having perforations, bristles in said perforations, a reinforce for the shell for the back, and a securing-strip overlapping the joint between the shells for the face and back at the inner side thereof and having its upper and lower portions secured within the respective shells to unite the same, substantially as set forth.

579,108. **WINDOW-CLEANING DEVICE.** GEORGE EZEKIEL, Palmer, and EVERETT E. STONE, Springfield, Mass.; said Stone assignor of one-half his right to Chester W. Bliss, Springfield, Mass. Filed May 9, 1896. Serial No. 590,930. (No model.)

Claim.—The combination with a window, of a cleaning device therefor movably mounted thereon, and having its position on the outer side thereof alongside the glass, and comprising the holder which has the longitudinal groove opening at its edge toward the glass, and a cleaner consisting of a rigid body and yielding blade, the body being intermediately pivoted within the groove of the holder, being by the pivot restrained against displacement from within said groove, a spring *h* in the base of the said groove behind and against the rear edge of the body of the cleaner at each side of the said pivot, an operating-handle on the inside of the window, and connections between the handle and cleaner whereby when the latter is moved the cleaner will be also moved for its action on and across the glass, substantially as described.



579,109. **AUTOMATIC WAGON-BRAKE.** HUEY M. FLANAGAN, Water Valley, Miss., assignor of one-half to Ephraim J. England, same place. Filed Nov. 28, 1896. Serial No. 613,201. (No model.)



Claim.—1. The combination with the sliding tongue provided with the rod 8 and clevis 12, of the brake-rods 20 21 formed with the integral eye 19, the brake-beam 25 adjustably secured to the diverging outer ends of said rods, and the arm 29 secured to said brake-beam and provided with a notch 30, adapted to engage the cross-bar 31 secured to the rear hounds, substantially as shown and described.

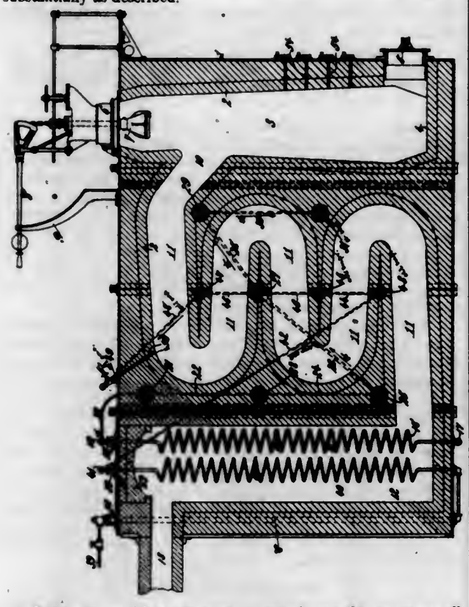
2. The combination of the sliding tongue, the clevis 12 secured to the rear end thereof, the brake-rods 20 21 having an integral eye 19 pivoted to said clevis, the brake-beam secured to the rear ends of said brake-rods 20 21, the notched arm 29 secured to said brake-beam and adapted to engage the cross-bar 31 when the brake is applied, and the hand-lever 32 in operative contact with said arm 29, substantially as and for the purpose set forth.

3. The combination of the sliding tongue, the rod 8 and clevis 12 mounted thereon and engaging the eye 19 of the brake-rods 20 21, the rear ends of which are adjustably secured to the sliding brake-beam, substantially as shown and described.

579,110. **APPARATUS FOR MANUFACTURING GAS.** WILLIAM H. HARRIS, Washington, D. C., assignor to William A. Milliken, same place. Filed May 9, 1895. Serial No. 548,779. (No model.)

Claim.—1. In a gas-making apparatus, the combination with a gas-generating chamber and a regenerating-chamber, of a series of steam-superheaters each consisting of a pipe, tube or passage located in the walls of the regenerator and each inclosing a series of baffles

provided with alternating straight and spiral passages to cause an intermittently-whirling motion of the passing fluid and throw it into frictional contact with the walls of the superheaters, and pipes or tubes connecting the said superheaters at their alternate ends and through which they communicate with the gas-generating chamber, substantially as described.



2. In a gas-making apparatus, a superheater for steam or oil, consisting of a pipe, tube, or passage, having therein a number of straight-fluted baffles and a number of spirally-fluted baffles placed end to end and alternating with each other, whereby the passing fluid is subjected to friction and an intermittently-whirling action and thrown into contact with the walls of the superheater, substantially as described.

3. In a gas-making apparatus, the combination with a serpentine regenerating-chamber, of a filling of spirally-fluted refractory bodies adapted to provide in said chamber a large number of tortuous heating and frictional passages, substantially as described.

4. In a gas-making apparatus, the combination with a gas-generator, of a regenerator having embedded in its walls a series of steam-superheaters and a series of oil-superheaters, each of said superheaters being provided in its interior with a series of fluted baffles and the steam-superheaters being in communication with the gas-generator below and above the bed of fuel therein, and the series of oil-superheaters being in communication with the regenerator-chamber through an injector-nozzle, substantially as described.

5. In a gas-making apparatus, the combination of a gas-generator provided at the top with a coal-feed and having inlets for steam above the fuel-bed and inlets for steam and air below the fuel, a serpentine regenerator-chamber communicating with the upper portion of the gas-generator, an exit-compartment communicating with the lower rear end of the serpentine regenerator-chamber, a series of steam-disintegrating superheaters and a series of oil-disintegrating superheaters embedded in the walls of the regenerator and communicating, respectively, with the gas-generator and the regenerator-chamber, and pipe-coils removably located in the exit-compartment of the regenerator and arranged for the introduction of steam and oil to the respective superheaters, substantially as described.

579,111. **PROCESS OF SEPARATING NICKEL FROM COPPER IN ORE OR MATTE.** NOAH V. HEINSTER, Brooklyn, N. Y., assignor of one-half to Albert R. Ledoux, New York, N. Y. Filed Jan. 18, 1896. Serial No. 575,976. (No specimens.)

Claim.—1. The process of separating copper from nickel in their sulfur compounds, consisting in fusing the mixed sulfids, treating the fused mass with sulfid of manganese and thereby effecting solution of the copper sulfid in said manganese sulfid, allowing the nickel to subside and removing the supernatant sulfids of manganese and copper.

2. The process of separating copper from nickel in their sulfur compounds, consisting in fusing the mixed sulfids, treating the fused mass with sulfid of manganese and an alkali sulfid and thereby effecting solution of the copper sulfid in said manganese sulfid, allowing the nickel sulfid to subside and removing the supernatant sulfid of manganese and copper.

3. The process of separating copper from nickel in their sulfur compounds consisting in fusing the mixed sulfids, treating the fused mass with sulfids of manganese produced by mixing the raw materials therefor with the ore or matte and thereby effecting solution of the copper sulfid in said manganese sulfid, allowing the nickel sulfid to subside and removing the supernatant sulfid of manganese and copper.

4. The process of separating copper from nickel in their sulfur compounds consisting in fusing the mixed sulfids, treating the fused mass with sulfid of manganese and sulfid of an alkali produced by mixing the raw materials therefor with the ore or matte and thereby effecting solution of the copper sulfid in said manganese sulfid, allowing the nickel sulfid to subside and removing the supernatant sulfid of manganese and copper.

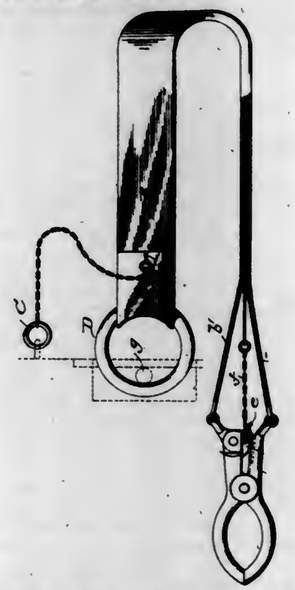
579,112. **LACING-HOOK.** ELEAZER KEMPSHALL, Newton, Mass., assignor to the Boston Fast Color Eyelet Company, Boston, Mass. Filed Feb. 24, 1897. Serial No. 624,789. (No model.)



Claim.—1. A lacing-hook composed or formed of celluloid, or other plastic material.

2. A lacing-hook composed or formed of celluloid or other plastic material, having a member formed to bear on the article to which the hook is to be attached, and means for attaching the hook to said article.

579,113. **ANIMAL-RELEASING DEVICE.** JOHN T. LALLY, Wilmington, Del., assignor to John H. Clay, Philadelphia, Pa. Filed Oct. 22, 1896. Serial No. 609,696. (No model.)



Claim.—1. An animal-releasing device consisting of a snap-hook the jaws of which are normally held together by a lever and a spring, said lever, a strap secured to one of said jaws, a wire passing between the leaves of said strap and secured to said lever, and a spring adapted to hold the lever in position, substantially in the manner and for the purposes described.

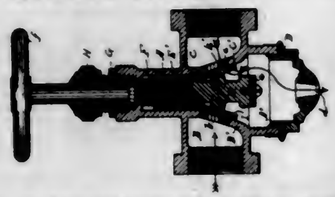
2. An animal-releasing device consisting of a snap-hook having jaws pivoted together, a lever pivoted in one of said jaws, a spring secured in the other jaw and adapted to hold said lever in its normal position, a wire secured to said lever and adapted to release it from its normal position, and means for securing the hook to a stall or other fixture, substantially as described.

3. In an animal-releasing device the combination with a hook having pivoted jaws, of a lever placed between said jaws and held in normal position by a spring secured to one of said jaws, means for

releasing said lever consisting of a wire or other cable one end of which is secured to said lever and the opposite end secured to a stall or other fixture so that when strain is placed on said cable the lever will be drawn from its normal position, substantially as set forth.

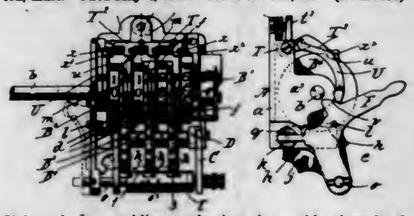
4. In an animal-releasing device the combination with a hook composed of jaws pivoted together of a cam-lever placed between the rear portion of said jaws, a spring holding said lever in normal position, a strap composed of two leaves one of which is secured to the lever and the other to one of the jaws of the hook, and a wire or other cable secured to the lever and adapted to draw it from its normal position in the manner and for the purposes described.

579,114. GATE-VALVE. HENRY N. LIBBEY, Boston, Mass., assignor of one-half to Charles P. Perkins, Danvers, Mass. Filed Mar. 2, 1896. Serial No. 581,611. (No model.)



Claim.—In a gate-valve having supply and delivery branches, and valve-seats thereon, combined with a perforated adjustable plug, valves or gates pivoted to the latter, one of said valves having a port or perforation, a valve on the lower end of the plug and an exhaust-port in the lower end of the valve-case adapted to be closed by the plug when the gate-valve is open and to serve as a relief-vent when the valve is closed substantially as and for the purpose set forth.

579,115. ADDING AND REGISTERING MECHANISM. CHARLES H. LITTLE, Melrose, Mass., assignor to Robert F. Herrick, trustee, Milton, Mass. Filed May 4, 1896. Serial No. 590,094. (No model.)



Claim.—1. In an adding mechanism, the combination of a fixed frame for a shaft having a series of suitably-notched registering-wheels thereon, and stop-fingers supported in proximity to said wheels, with a support pivotally hung on said frame for a shaft having thereon transfer-wheels and locking-wheels therefor, means on said support for locking together said locking-wheels in advance of the disengagement of the transfer-wheels from the registering-wheels, and means for automatically bringing said stop-fingers into position for engagement with the notches on said registering-wheels by the movement of said pivotally-hung support, substantially as described.

2. In an adding mechanism, the combination with the registering-wheels, each having notches, the locking-wheels and a movable carrier therefor, of a series of movable stop-fingers which normally are, by a member of said carrier, held out of position for engagement with the notched register-wheels, but which upon the shifting of said movable carrier are permitted to assume positions for engagement with said register-wheels, substantially as set forth.

3. In an adding mechanism, the combination with a series of register-wheels each with a notch *u*, and each, except the one of highest denomination, having a hub with a single notch and a single tooth which is in an offset plane from the notch, and each register-wheel, except the one of the lowest denomination, having a series of gear-teeth *w*, a rocker-bar T, having the spring-fingers to engage said notches *u*, and having the lever-arm U, the support or carrier pivotally mounted to swing downwardly and having journaled therein the scalloped locking-wheels and the toothed transfer-wheels, substantially as described, the bar mounted for endwise movement on said carrier and having at intervals of separation thereon the lugs which are provided with the convex extremities, the lever adapted to effect the downswinging of said carrier and the endwise movement of said bar and the projection *v*, which is movable as one with the carrier and adapted, as the carrier is returned to its normal position, to impinge against said lever U, all substantially as and for the purposes set forth.

579,116. DUMP-BED FOR WAGONS. HENRY D. LORASH and CHRISTIAN HILGENEKER, Indianapolis, Ind., assignors of one-half to Charles S. Cooper and Allen A. Russell, same place. Filed Oct. 10, 1896. Serial No. 608,486. (No model.)

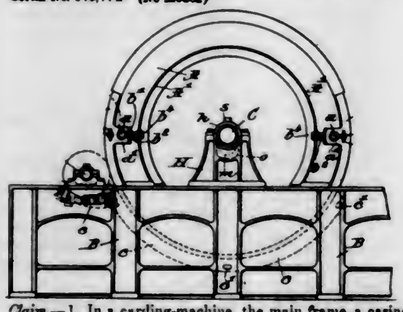


Claim.—1. In a dump-bed for wagons; the combination with a bottom consisting of a plurality of hinged and swinging sections having the front edge of each section supported by the section next in front of it in the manner substantially as shown and described, a crank secured to each of said sections said cranks being joined together by chains into groups, each chain increasing in length from the shortest chain which will connect the levers to the first crank for the purposes set forth, and hand-levers connected with the chains whereby the sections can be brought back into the plane of the bed-bottom after the load has been dumped but in the reverse order in which they were lowered in dumping.

2. In a dump-bed for wagons, a bottom consisting of a plurality of sections hinged so as to swing downwardly when the load is dumped, the said sections having their ends beveled on the under sides thereof, substantially in the manner as shown and for the purposes specified.

3. The combination with the sides A and ends B and B', forming the body of a dumping-bed, of the bottom sections C hinged to the sides A in the manner as described, the transverse bars G, plates E, cranks D', chains S connecting the cranks together in two series, said chains being of increasing length beginning in each series with the shortest chain which will extend from its operating-lever to the first crank of the series, and hand-levers K and M connected by chains with the series of cranks whereby the bottom sections can be returned to form the plane of the floor by moving the levers, all substantially as described and for the purposes specified.

579,117. CARDING-MACHINE. JOHN T. MEATS, Taunton, Mass., assignor to the Mason Machine Works, same place. Filed Dec. 2, 1895. Serial No. 570,774. (No model.)



Claim.—1. In a carding-machine, the main frame, a casing-support mounted thereon, means to adjust said support radially, and independent means to adjust said support circumferentially, substantially as described.

2. In a carding-machine, the main frame, a casing-support pivotally mounted thereon, means to adjust said support circumferentially, and independent means to move the casing radially relative to its pivot, substantially as described.

3. In a carding-machine, the main frame, a bearing-plate radially adjustable thereon, a casing-support pivotally mounted on the bearing-plate, and means to circumferentially adjust said casing-support, substantially as described.

4. In a carding-machine, the main frame, a slotted bearing-plate radially movable thereon, means to adjust it, a casing-support mounted to rock on said plate, a clamping-bolt extended through the fulcrum of said support and bearing-plate into the main frame, and means to adjust the casing-support circumferentially, substantially as described.

5. In a carding-machine, the licker-in bearing having a housing for the mote-knife, slotted in its side to receive the end of the knife, the length of the slot being equal to the width of the knife, and an adjustable supporting-screw to normally support the knife end above the slot to prevent entrance of the knife end thereinto, substantially as described.

6. In a carding-machine, the licker-in bearing having a down-turned portion, a guide-block pivotally mounted thereon, the under-

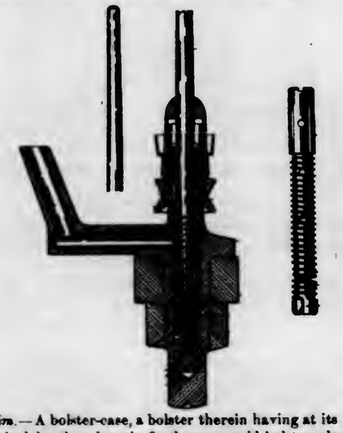
casing, a support therefor longitudinally movable on said block, a clamping-bolt forming the fulcrum for the guide-block and to clamp it and the support to the licker-in bearing, and means carried by the guide-block to adjust the support longitudinally thereon when unclamped, substantially as described.

7. In a carding-machine, the licker-in bearing having a down-turned portion, a guide-block pivotally mounted thereon, the under-casing, a slotted support therefor, longitudinally movable on said block, a clamping-bolt extended through the slot of the support and to clamp it to the licker-in bearing, and means carried by the guide-block to adjust the support longitudinally thereon when unclamped, combined with means carried by said support to adjust the under-casing vertically, substantially as described.

8. In a carding-machine, the licker-in bearing, a housing carried thereby for the mote-knife, and a mote-knife weakened at or near its end, as and for the purpose described.

9. In a carding-machine, the licker-in bearing having a housing for the mote-knife, a yielding support for the knife, and an adjusting-screw to limit the upward movement of the knife, substantially as described.

579,118. SPINDLE AND BEARING. LEANDER J. MURRAY, Milford, Mass., assignor to the Sawyer Spindle Company, Boston, Mass. Filed Oct. 26, 1896. Serial No. 610,077. (No model.)



Claim.—A bolster-case, a bolster therein having at its upper end a cylindrical head to loosely fit the case, said bolster also having a tapering bore, a spindle having a tapering pintle to enter therein, the body of the bolster being externally reduced in diameter, a step having a threaded shank to engage the lower end of the bolster, and a spring surrounding the reduced body of the bolster between it and the bolster-case, to form a yielding lateral cushion for the bolster, one end of the spring being attached to the bolster-head and its other end to the step, to form a yielding lock therebetween, substantially as described.

579,119. DAVIT. JAMES W. MCKINNON, New York, N. Y. Filed Oct. 4, 1895. Renewed Aug. 11, 1896. Serial No. 602,458. (No model.)

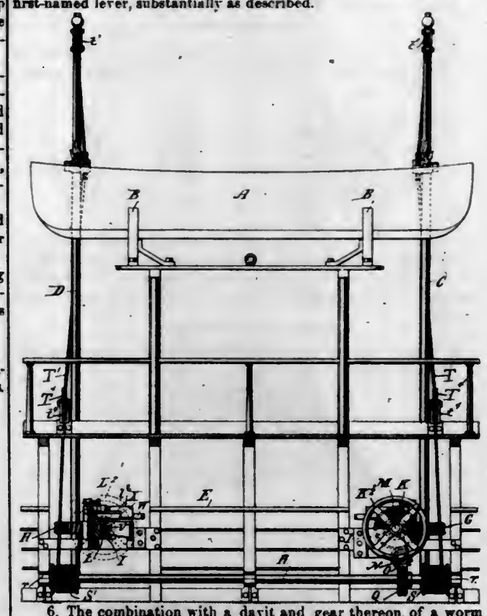
Claim.—1. The combination with a davit, of a gear on the davit, a worm meshing therewith, a clutch for actuating the worm, and devices actuated by said gear on the davit for throwing the clutch, substantially as described.

2. The combination with a davit of a hoisting-drum, a gear-train for operating the davit and drum, a clutch, a gear on the davit and means operated by said gear on the davit for throwing the clutch, substantially as described.

3. The combination with a davit, of a gear thereon, a worm meshing with said gear, a shaft driving the worm, a hoisting-drum, a gear on the shaft of said drum, a worm, meshing with the gear on the shaft of the drum, and a train of gears connecting the shafts which actuate said worms, substantially as described.

4. The combination with a davit, of a gear thereon a worm meshing therewith, a clutch for driving said worm, a lever for throwing said clutch, means on the davit for actuating said lever, a hoisting-drum, a gear therefor, a worm meshing therewith, a train of gears for actuating said last-named worm, and a clutch for actuating said train of gears, substantially as described.

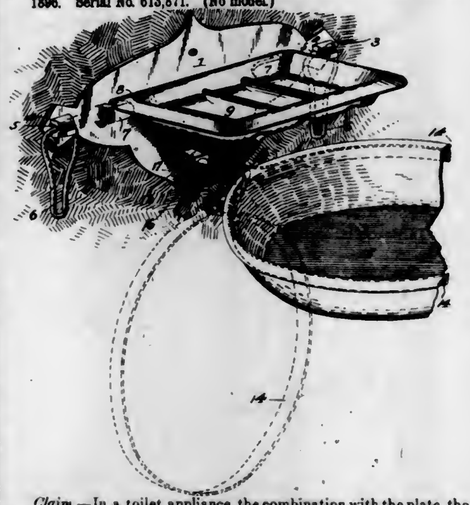
5. The combination with a davit, its gear, and a worm, therefor, of a clutch for actuating the worm, a lever pivotally connected therewith, an auxiliary spring-lever connected with the first-named lever by a separable connection, and an arm actuated by the gear of the davit, and being connected with the auxiliary lever and engaging the first-named lever, substantially as described.



6. The combination with a davit and gear thereon, of a worm meshing with said gear, a hoisting-drum, a gear-train for driving the same, a clutch on the worm and on the initial gear of the train, and a double clutch adapted to engage alternatively with the clutch on said worm and on said initial gear, substantially as described.

7. In a davit-operating mechanism, the combination of a davit, a gear thereon, mechanism for actuating said gear, and a clutch controlling said mechanism and adapted to be thrown by the revolution of the davit so as to arrest the davit at the outboard position, substantially as described.

579,120. TOILET APPLIANCE. MINNIE REINE, Wilmington, Del., assignor to Emma M. Tomson, Philadelphia, Pa. Filed Nov. 30, 1896. Serial No. 613,871. (No model.)



Claim.—In a toilet appliance, the combination with the plate, the pivoted washbowl-holder and the removable soap-holder, of the fastening nails or screws passing through holes near the ends of said plate and formed with slotted heads with inwardly-extending lugs, and the links engaging the slots in said heads and forming towel-holders, the construction being such that when the nails are driven home the lugs will abut against the plate and prevent disengagement of the links, substantially as described.

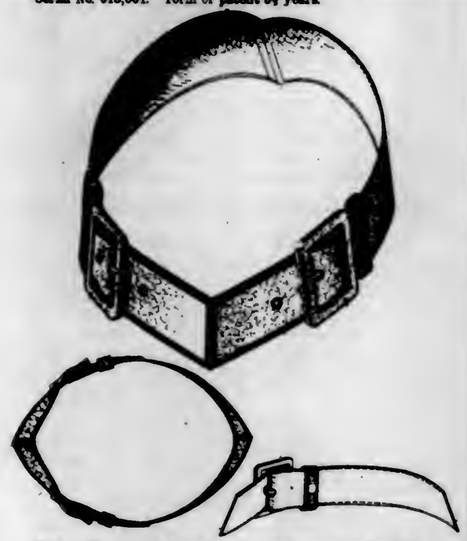
DESIGNS.

26,755. CAMPAIGN-BUTTON. WILLIAM G. ASHBY, Franklin, Va. Filed July 30, 1896. Serial No. 601,099. Term of patent 3½ years.



Claim.—The design for a campaign-button, consisting of the central portion *a* ornamented with the head or portrait of the candidate, and the series of radiating paddle-shaped projections *a'* surrounding said central portion and convexly curved, substantially as shown and described.

26,756. BELT. LOUIS SANDERS, Brooklyn, N. Y. Filed Dec. 9, 1896. Serial No. 615,061. Term of patent 3½ years.



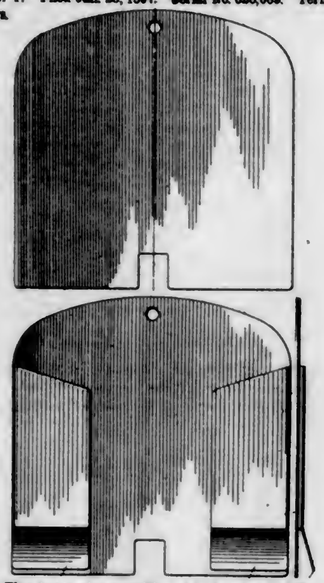
Claim.—The design for a belt herein shown and described.

26,757. DRESS-SHIELD. ISAAC R. KLEINERT, New York, N. Y., assignor to the I. R. Kleinert Rubber Company, same place. Filed Apr. 18, 1896. Serial No. 588,188. Term of patent 14 years.



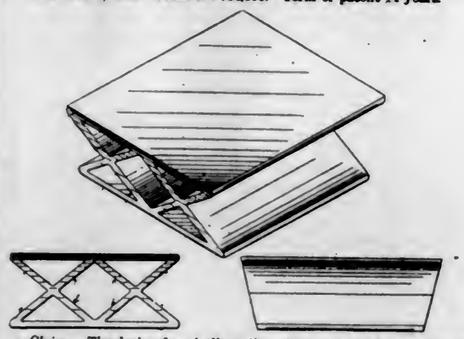
Claim.—The design for a shield, substantially as shown and described.

26,758. WRITING-SHIELD. THOMAS HENRY BURCHELL, New York, N. Y. Filed Jan. 25, 1897. Serial No. 620,689. Term of patent 14 years.



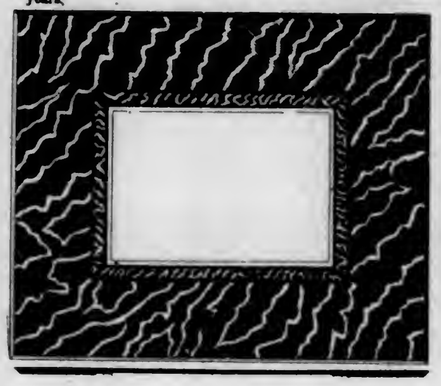
Claim.—The design for a writing-shield, substantially as shown and described.

26,759. HOLLOW TILE. HENRY A. MAURER, New York, N. Y. Filed Dec. 1, 1896. Serial No. 614,135. Term of patent 14 years.



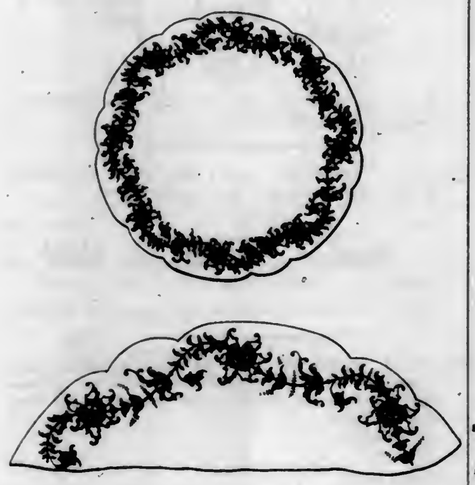
Claim.—The design for a hollow tile, substantially as herein shown and described.

26,760. PHOTOGRAPHIC MOUNT. JAMES W. MCCABE, New York, N. Y. Filed Jan. 16, 1896. Serial No. 575,781. Term of patent 7 years.



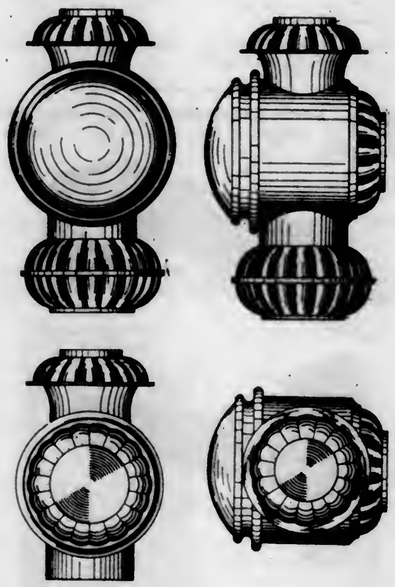
Claim.—The design for a photographic mount substantially as herein shown and described.

26,761. PLATE OR SIMILAR ARTICLE. ARMAND LESTR, Fenton, England, assignor to T. C. Brown-Westhead, Moore & Co., Stoke-upon-Trent, England. Filed Oct. 16, 1896. Serial No. 609,156. Term of patent 7 years.



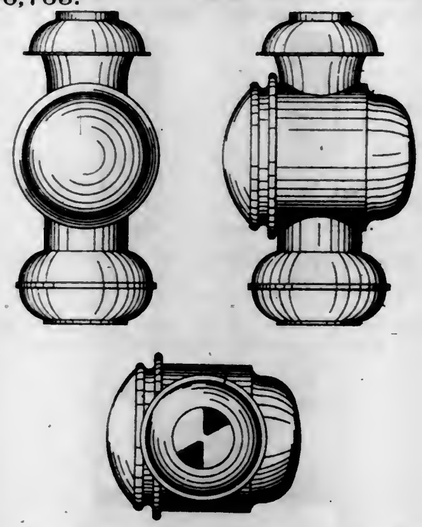
Claim.—The design for plates or similar articles, substantially as herein described.

26,762. BICYCLE-LAMP. GEORGE HAVELL and ALFRED G. WILLIAMS, Newark, N. J. Filed Oct. 15, 1896. Serial No. 609,029. Term of patent 7 years.



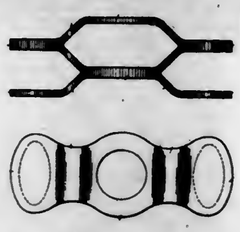
Claim.—The design for a bicycle-lamp, as shown and described.

26,763. BICYCLE-LAMP. GEORGE HAVELL and ALFRED G. WILLIAMS, Newark, N. J. Filed Oct. 15, 1896. Serial No. 609,030. Term of patent 3½ years.



Claim.—The design for a bicycle-lamp, substantially as herein shown and described.

26,764. CROWN FOR BICYCLE-FORKS. CHARLES H. METZ, Waltham, Mass., assignor to The Waltham Manufacturing Company, same place. Filed July 20, 1896. Serial No. 599,976. Term of patent 14 years.



Claim.—The design for a crown for bicycle-forks as herein shown and described.

26,765. BICYCLE-RACK. HENRY A. DOLGE, Dolgeville, N. Y. Filed Jan. 25, 1897. Serial No. 620,699. Term of patent 3½ years.



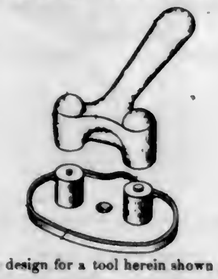
Claim.—The design for a bicycle-rack, substantially as shown and hereinbefore described.

26,766. WRENCH. ROBERT D. SHAFER, Fayette, Ohio. Filed Jan. 18, 1897. Serial No. 619,684. Term of patent 7 years.



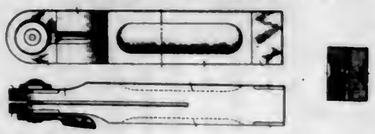
Claim.—The design for a wrench herein shown and described.

26,767. BUTTON-SETTING TOOL. WILLIAM B. H. DOWER, Newton, Mass. Filed Aug. 20, 1896. Serial No. 603,418. Term of patent 14 years.



Claim.—The design for a tool herein shown and described.

26,768. TOOL-HANDLE. JUSTUS A. TRAUT, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Jan. 26, 1897. Serial No. 620,836. Term of patent 14 years.



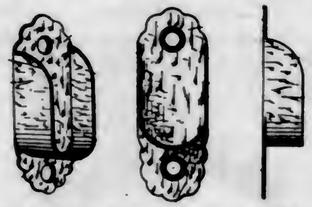
Claim.—The design for a tool-handle, substantially as herein shown and described.

26,769. TOOL-HANDLE. JUSTUS A. TRAUT, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Jan. 26, 1897. Serial No. 620,837. Term of patent 14 years.



Claim.—The design for a tool-handle, substantially as shown and described.

26,770. POLE-HOLDER. GEORGE S. WEBBER, Chicago, Ill. Filed Feb. 1, 1897. Serial No. 621,566. Term of patent 3½ years.



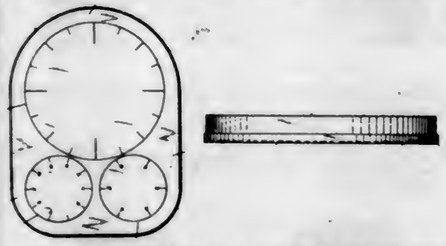
Claim.—The design for an exercising-pole holder, substantially as hereinbefore shown and described.

26,771. SHELF-KEY. AUGUST S. HELD, Freeport, Ill. Filed Dec. 28, 1896. Serial No. 617,268. Term of patent 14 years.



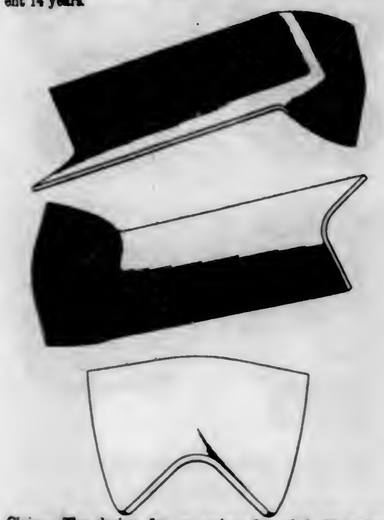
Claim.—The design for a shelf-key herein shown and described.

26,772. CASING FOR INDICATORS. JOHN C. HIRSCH, Allegheny, Pa., assignor of two-thirds to Frank Huckestein, same place, and Theodore Hirsch, Avalon, Pa. Filed Sept. 9, 1896. Serial No. 605,334. Term of patent 14 years.



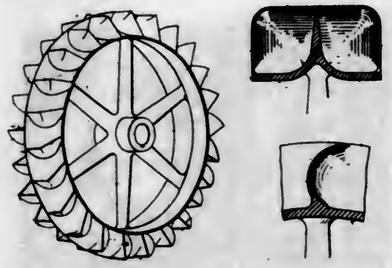
Claim.—The design for a box or casing for an indicator, substantially as herein shown and described.

26,773. ANCHOR FOR WINDMILL-TOWERS. OSCAR J. ZIEBLER, Freeport, Ill. Filed Dec. 28, 1896. Serial No. 617,267. Term of patent 14 years.



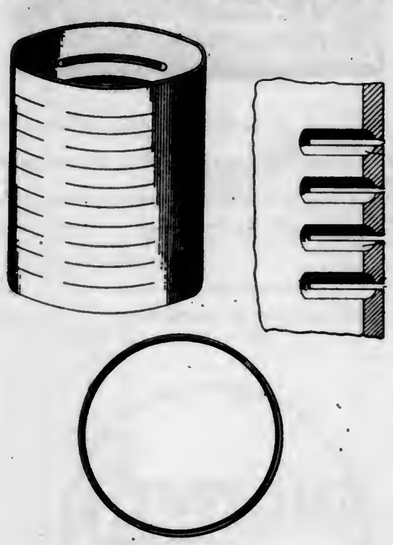
Claim.—The design for an anchor for windmill-towers herein shown and described.

26,774. HURDY-GURDY WATER-WHEEL. FRANCIS M. BOOKWALTER, Springfield, Ohio. Filed Mar. 27, 1895. Serial No. 543,404. Term of patent 7 years.



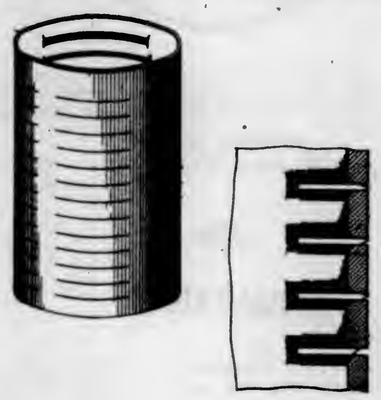
Claim.—The design for a hurdy-gurdy water-wheel herein shown and described.

26,775. WELL-STRAINER. AUGUST D. COOK, Lawrenceburg, Ind. Filed Jan. 7, 1897. Serial No. 618,419. Term of patent 14 years.



Claim.—The design for well-strainers herein shown and described.

26,776. WELL-STRAINER. AUGUST D. COOK, Lawrenceburg, Ind. Filed Jan. 7, 1897. Serial No. 618,420. Term of patent 14 years.



26,776.



Claim.—The design for well-strainers herein shown and described.

26,777. CORN-FORK. MARY M. DONNELLY, Pittsburg, Pa. Filed Nov. 3, 1896. Serial No. 610,966. Term of patent 7 years.



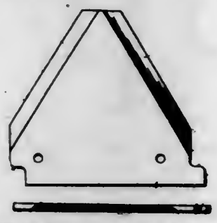
Claim.—The design for a corn-fork, substantially as shown and described.

26,778. SECTION-KNIFE FOR MOWING-MACHINES. WARREN M. BRINKERHOFF, Auburn, N. Y. Filed Jan. 26, 1897. Serial No. 620,535. Term of patent 14 years.



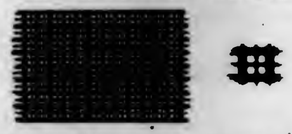
Claim.—The design for a section-knife for mowing-machines, substantially as herein shown and described.

26,779. SECTION-KNIFE FOR MOWING-MACHINES. WARREN M. BRINKERHOFF, Auburn, N. Y. Filed Feb. 23, 1897. Serial No. 624,501. Term of patent 14 years.



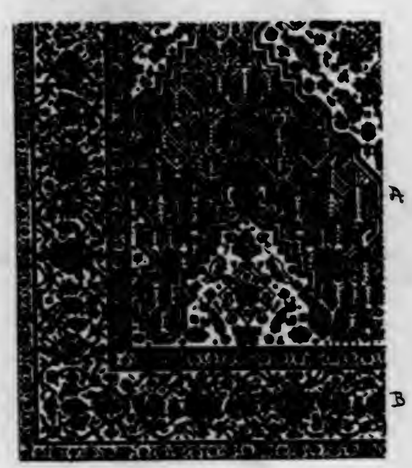
Claim.—The design for a section-knife for mowing-machines, substantially as herein shown and described.

26,780. WOVEN FABRIC. HARRY W. SMITH, Worcester, Mass. Filed Jan. 15, 1897. Serial No. 619,371. Term of patent 14 years.



Claim.—The design for woven fabrics substantially as herein shown and described.

26,781. CARPET. ARTHUR DANBY, Philadelphia, Pa., assignor to the Ivins, Dietz & Metager Company, same place. Filed Jan. 9, 1897. Serial No. 618,657. Term of patent 3½ years.

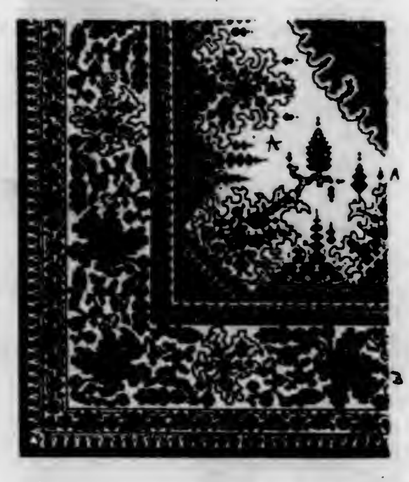


Claim.—1. In a design for a carpet fabric, the body A, substantially as shown.

2. In a design for a carpet fabric, the border B, substantially as shown.

3. The design for a carpet fabric comprising the body A and the border B.

26,782. CARPET. ARTHUR DANBY, Philadelphia, Pa., assignor to the Ivins, Dietz & Metager Company, same place. Filed Jan. 9, 1897. Serial No. 618,658. Term of patent 3½ years.



Claim.—1. In a design for a carpet fabric, the body A, substantially as shown.

2. In a design for a carpet fabric, the border B, substantially as shown.

3. The design for a carpet fabric comprising the body A and the border B.

TRADE-MARKS

REGISTERED MARCH 16, 1897.

29,696. PENS FOR VERTICAL WRITING. SPENCERIAN PEN COMPANY, Newark, N. J., and New York, N. Y. Filed Feb. 18, 1897.

SHAKESPERIAN

Essential feature.—The word "SHAKESPERIAN." Used since October 16, 1896.

29,697. BAKING-POWDER. MANUEL KAHN, Louisville, Ky. Filed Mar. 2, 1896.

OUR FLAG
BAKING POWDER

Essential feature.—The words "OUR FLAG BAKING POWDER." Used since May 15, 1890.

29,698. LINSEED-MEAL. THE CLEVELAND LINSEED OIL COMPANY, Cleveland, Ohio. Filed Oct. 7, 1896.

CLEVELAND
FLAX MEAL

Essential feature.—The words "CLEVELAND FLAX MEAL" within an ornamental circular border composed of substantially heart-shaped figures alternately arranged. Used since August 15, 1896.

29,699. WHISKY. JOHN BLANK & Co., New Orleans, La. Filed Jan. 25, 1897.

JB&Co

MOUNT AUBURN

Essential feature.—The monogram "J B & Co.," coupled with the words "MOUNT AUBURN." Used since January 14, 1896.

29,700. SALTS OF NATURAL APERIENT WATERS AND MEDICINAL PREPARATIONS CONTAINING SUCH SALTS. EMILY SAXLEHNER, Buda-Pesth, Austria-Hungary. Filed Apr. 10, 1896.

HUNYADI

Essential feature.—The word "HUNYADI." Used since March 15, 1863.

29,701. TONICS. BROWN MANUFACTURING COMPANY, Greeneville, Tenn. Filed Feb. 10, 1897.

RAMON'S Pepsin

Essential feature.—The words "RAMON'S PEPSIN." Used since 1895.

29,702. WITHDRAWN.

29,703. POULTRY, PIGEON, PET STOCK, AND VETERINARY REMEDIES. IMPERIAL REMEDY CO., Tiffin, Ohio. Filed Jan. 30, 1897.

JR Co

Essential feature.—The initials and abbreviation "J. R. Co." Used since June 1, 1896.

29,704. VETERINARY REMEDIES. CHARLES H. LANYON, Chicago, Ill. Filed Feb. 10, 1897.

PROF. ROUBIQUET'S
...GREAT...
DISCOVERY



Essential feature.—A pictorial representation of a horse and jockey in connection with the words "PROF. ROUBIQUET'S GREAT DISCOVERY." Used since June 1, 1892.

29,705. LINIMENTS OR OINTMENTS. JOHN V. CRUM, Des Moines, Iowa. Filed Jan. 19, 1897.



Essential feature.—A portrait of the registrant, with two crossed bats associated with the words "JOHN V. CRUM'S ATHLETIC RUB OUT." Used since about August 1, 1896.

29,706. SALVE. JULIAN MACRAE, Los Angeles, Cal. Filed Jan. 9, 1897.

MENSTRALINE.

Essential feature.—The word "MENSTRALINE." Used since November 13, 1895.

29,707. STOVE-CASTINGS. DETROIT STOVE WORKS, Detroit, Mich. Filed Feb. 16, 1897.



Essential feature.—A pictorial representation of a crown and the word "JEWEL" used in connection therewith. Used since 1877.

29,708. HEATING AND COOKING STOVES. DETROIT STOVE WORKS, Detroit, Mich. Filed Feb. 16, 1897.

JEWEL

Essential feature.—The word "JEWEL." Used since 1874.

29,709. FLUID OR OIL STOVES. NOVELTY MANUFACTURING COMPANY, Jackson, Mich. Filed Feb. 19, 1897.

SPLENDID NOVELTY

Essential feature.—The words "SPLENDID NOVELTY." Used since August 4, 1892.

29,710. FIRE-EXTINGUISHING APPARATUS. DUPALET ET D'ARNOULT, Paris, France. Filed Feb. 3, 1897.



Essential feature.—A pictorial representation of a building on fire, a fireman carrying an extinguishing apparatus on his back and directing a jet into the flame, and another fireman carrying a child and also an extinguishing apparatus and descending from the burning building by a ladder. Used since October, 1896.

29,711. ICE-SKATES. UNION HARDWARE COMPANY, Torrington, Conn. Filed Jan. 21, 1897.

CLUB SPECIAL

Essential feature.—The words "CLUB SPECIAL." Used since February, 1896.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Second Circuit.

TUTTLE *v.* CLAFLIN *et al.*

Decided February 23, 1897.

1. NEW TESTIMONY—REHEARING.

On a rehearing new testimony for the losing party not in harmony with previous silence of the same witness for the same party, when such testimony relates to an important feature of the case, is not adequate to satisfy a court that justice toward a losing party requires a rehearing.

2. SAME—SAME—PROFITS.

When a master's report was based upon facts relating to an industry which has long ceased to be active and when the time in which facts based upon the experience of actual manufacture can be ascertained has passed, it does not appear that anything will be gained by new testimony before a master upon the question of profits.

Before WALLACE, LACOMBE, and SHIPMAN, Judges.

Mr. Benjamin F. Lee for the complainant.
Mr. Edmund Wetmore for the defendants.

SHIPMAN, *J.*:

The defendants have moved that the decision upon this appeal (77 O. G., 973; 76 Fed. Rep., 227) be modified by directing that the case should be returned to the master for further evidence in regard to the cost of hand-made plaits, upon the ground that it has been ascertained by experiments that the cost of linen plaits made and ironed by hand of as marketable a quality as those made upon a machine would not have exceeded one cent per yard.

The counsel for the defendants states that this class of testimony was not deemed by him of importance upon the hearing before the master, because the complainant's testimony was to the effect that hand-made plaits could not in any event compete with machine-made plaitings on account of the inferiority of hand-made work.

We think that the counsel construed the testimony too literally. The witnesses were introduced for the purpose of proving the cost of hand-made linen and woolen plaitings, and their testimony related to the salable or merchantable character of the goods as they ordinarily could be presented by hand, and that linen and percale goods could not commercially compete with machine-made goods without an excessive expense. They went further than this and said that hand-made goods of linen could not be manufactured at any cost to compete in quality with the same kind of plaitings made by machinery, while one of these witnesses also said that he could not make narrow plaits in woolen goods so as to give satisfaction. This latter class of testimony wasnot true, as was shown by the defendants' witness, Mrs. Smith, and, indeed, it must have been well known that silk and woolen goods were, as a rule, hand-plaited in preference to running them through a machine.

The defendants were represented upon the hearing before the master by Mr. Asahel K. Smith, the superintendent of their manufacturing department, who asked his wife, under whose supervision the defendants' plaiting was made from the latter part of 1876 to the first part of 1880, to make experiments upon the subject of the cost of hand-made goods. Her experience made her an intelligent witness in regard to plaitings, and she made an experiment, but of so brief a character as to be of very little moment. The attempt of Mr. Smith to present information to the master upon the subject of profits stopped with this testimony. Mrs. Smith, however, also testified that the goods that were plaited upon the machines could be plaited by hand; that she did not know the actual expense of plaiting fine goods by hand, because no separate account was made of it; that silk and dress goods and woolen goods were generally hand-plaited at the complainant's factory during 1876 and subsequently, because the work upon fine goods was done better by hand than through a machine; that the character of the material made the difference between the results of hand-plaiting and of machine-plaiting, and that hand-made plaiting was sufficiently uniform for the ornamental uses to which the articles were put.

The questions of expense and of the proper standard of comparison for the purpose of an estimate of profits went to the master upon the testimony which the parties thus chose to give. The actual history of the manufacture fully justified the finding that in estimating the profits gained by the use of the patented machines the proper and the only proper standard of comparison was the expense of making the like articles by hand. In determining the amount of profits his estimates were based upon the only figures which the parties chose to give him.

The defendants now say by Mr. A. K. Smith, the same person who was silent before the master, that—

with the apparatus that we had in our employ during the time covered by the accounting it would have been entirely possible to have made by hand all of the plaitings which we made by machine and to supply our trade without any delay. At the

rate of wages we then paid, and carefully following the work step by step, I am able to say positively that the cost of the hand-plaiting and ironing each plait out so as to produce the result shown by the specimens above referred to would not have exceeded one cent a yard. A more accurate estimate would show about three-quarters of a cent; but it is certain that it would not have exceeded one cent a yard, and at that cost we could have furnished plaitings upon all the goods which we made and sold during the said period.

We do not doubt that the exhibits were made in the presence of Mr. Wetmore in the time that he states and as they are now presented; but the question is that of the cost of manufacture upon a commercial scale. The new information which Mr. Smith has obtained is not in harmony with his silence when he was also the representative of his employers and when cost was an important feature of the case. His single affidavit, made as the result of a short test by the work-people whom he employed, that linen plaitings can be made at one cent per yard is not adequate to satisfy a court that justice toward a losing party requires a rehearing.

Turning to the question whether, under any state of facts, it would be the more proper course to send back the case to the master, in the hope that another investigation might turn estimates into mathematical accuracy, it is to be recollected that this case is, by reason of its history, both remarkable and unique. The interlocutory decree was dated in March, 1884, and the master's report was dated August 24, 1893, and related to an industry which, as an active industry, died in 1879 or 1880. As the case presented itself before the master large profits had been undeniably made. This court thought that too little account had been taken of two subjects which would reduce the sums found by the master, but that if the case should be sent back the result would be another prolonged hearing necessarily based upon estimates by the experts on both sides, for the time when facts could be ascertained which were based upon the experience of actual manufacturers had been suffered to pass by. No new rule of law was announced in regard to the burden of proof or in regard to the necessity that the complainant should, in the cases which ordinarily come before the master, satisfy him by affirmative evidence of the amount of profits. The court was of opinion that justice to the defendants required a reduction of the amount which had been apparently made out by the testimony, and that for the purpose of bringing to a close a litigation which by its delays had become discreditable it was desirable that the court should take the responsibility of making a decision, modifying the amount found by the master to such an extent that the defendants should have no cause of complaint.

The motion is denied.

U. S. Circuit Court—District of Indiana.

BERNARDIN *v.* NORTHALL AND SEYMOUR, COMMISSIONER OF PATENTS.

Decided January 5, 1897.

1. INTERFERENCE—BILL IN EQUITY—JURISDICTION—RES ADJUDICATA—CITIZENS OF SAME STATE.

A demurrer setting forth no jurisdiction in a circuit court of an interference case decided by the Court of Appeals of the District of Columbia; that the matter is *res adjudicata;* that the circuit court has no jurisdiction to determine the jurisdiction of the Circuit Court of Appeals to entertain an appeal from the Commissioner of Patents, and that plaintiff and defendant are citizens of the same State overruled.

2. SAME—SAME—COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

The bill establishing the Court of Appeals of the District of Columbia and permitting appeals thereto from the decision of the Commissioner of Patents in interference cases did not by implication repeal the statute providing remedy by bill in equity in a circuit court.

3. SAME—SAME—JURISDICTION OF CIRCUIT COURT AND COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

The decision of the Court of Appeals of the District of Columbia is not conclusive upon a circuit court in patent matters, since the question of jurisdiction in such matters is not settled by a comparison of their relative dignity and importance. The appellate court merely affirms or reverses the Commissioner in accordance with the general office of an appelate tribunal. The trial in a circuit court is a judicial hearing by original bill.

4. SAME—SAME—CITIZENSHIP—SAME STATE.

The fact that plaintiff and defendant are citizens of the same State will not sustain a demurrer to a bill brought under Revised Statutes 4915.

Messrs. Butterworth & Dowell and *Messrs. Gilchrist & De Bruler* for the complainant.

Mr. Robert H. Parkinson and *Mr. W. H. Gudgel* for the defendants.

BAKER, *J.:*

This is a suit in equity by the complainant, who alleges that he was the true, original, and sole inventor of a new and useful improvement in bottle-sealing devices known as the "beaded sealing-cap" or "beaded cap," which invention was not known or used by others in this country and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, and which had not been in public use or on sale in the United States for more than two years prior to his application for a patent therefor; that William H. Northall was employed by complainant as his foreman, and that he thereby became acquainted with this invention and had knowledge of every step taken by complainant to procure a patent therefor and of his application for such patent and of the allowance of the same by the Commissioner of Patents; that while still in complainant's employ Northall entered into secret and clandestine correspondence with the Crown Cork and Seal Company, of Baltimore, Md., which resulted in Northall, in the interest of said company, applying for a patent for said invention as his own, and in thus getting up an interference with complainant, which resulted in tying up the issuance of the patent which had been already allowed to the complainant. The interference was prosecuted to final hearing in the Patent Office, and was there disallowed and the patent ordered to be issued to complainant. (71 O. G., 1159.) From this decision of the Commissioner Northall took an appeal to the Circuit Court of Appeals of the District of Columbia, by which court the decision of the Commissioner was reversed and a mandate sent down directing him to issue the patent for said invention to Northall. (74 O. G., 655.) The bill is full and formal in its statement of facts and must be held

sufficient, unless it is bad for the reason pointed out in Northall's demurrer thereto. The demurrer challenges the sufficiency of the bill for the following reasons:

First. The court has no jurisdiction of the cause of action set forth in the bill.

Second. There has been an adjudication of the matter here in controversy between the parties in the Circuit Court of Appeals of the District of Columbia, and, this controversy having been adjudicated, it cannot again be litigated in this court.

Third. This court has no jurisdiction to hear and determine the question of the jurisdiction of the Circuit Court of Appeals to entertain an appeal from the Commissioner of Patents.

Fourth. That this court has no jurisdiction of the case because it is shown that Bernardin and Northall are citizens of the same State.

This suit is brought under section 4915 of the Revised Statutes, which, so far as material, reads as follows:

Whenever a patent on application is refused either by the Commissioner of Patents, or by the Supreme Court of the District of Columbia upon appeal from the Commissioner, the applicant may have a remedy by bill in equity.

Section 4911 of the Revised Statutes provides:

If such party, except a party to an interference, is dissatisfied with the decision of the Commissioner, he may appeal to the Supreme Court of the District of Columbia, sitting *in banc.*

As the law stood prior to the passage of the act to establish a court of appeals for the District of Columbia, approved February 9, 1893, the course of practice and procedure in a patent case was as follows: An inventor was required to file his application for a patent in the Patent Office, one of the departments or divisions of the Interior Department, and to prosecute the same to a final hearing and determination before the Commissioner of Patents, and if the determination was adverse such party, except a party to an interference, if dissatisfied, might take an appeal to the Supreme Court of the District of Columbia, sitting *in banc*, in which court the appeal was heard and determined on the record brought up from the Patent Office, with the reasons assigned for such appeal. The determination of the supreme court sitting *in banc* was remitted to the Commissioner of Patents, who was required to grant or refuse a patent in accordance with the determination of the supreme court.

An interference case is one in which there are two or more applicants instead of one for the same invention or discovery. The parties are the United States and the applicants. In such cases the Commissioner of Patents decides whether either of the applicants is entitled to a patent, and, having determined that question, he decides which of the applicants is entitled to priority—that is, which was the first to do the several things which entitled him to a patent. No appeal was allowed in interference cases from the decision of the Commissioner. Where a patent in an interference case was refused by the Commissioner of Patents, or, in other cases, where the patent was refused by the Supreme Court of the District of Columbia sitting *in banc*, the remedy was a bill in equity in the circuit court of the United States having cognizance thereof. The purpose of this legislation is apparent. The Constitution and laws give a property right in his invention or discovery to an inventor, and it was the manifest legislative intent that such inventor should not be deprived of his property right in his invention until he had had his day in a court in which the party aggrieved by the determination of an executive officer might pursue his remedy judicially according to the practice of a court of chancery. The hearing and determination in the Supreme Court of the District of Columbia sitting *in banc*, while in a court having appellate jurisdiction in cases at law and in equity, was a proceeding in aid of the jurisdiction of the Patent Office, and consisted simply in reviewing the decision of an executive officer on the identical state of facts before that officer. The determination of that court worked no change in the nature of the proceeding. This is manifest from the fact that if the hearing and determination of the case on appeal to the Supreme Court of the District of Columbia sitting *in banc* were to be regarded as a hearing and determination of a strictly judicial character it is hardly to be supposed that after such judicial hearing and determination the question of the applicant's right to a patent would be allowed to be heard *de novo* by a bill in equity in a circuit court. These views are supported by *ex parte Greeley*, (4 O. G., 612; 6 Fish., 575; Fed. Cas., No. 5,745;) *in re Squire*, (C. D., 1877, 388; 12 O. G., 1025; 3 Ban. & Ard., 133; Fed. Cas., No. 13,269;) *Whipple* v. *Miner*, (C. D., 1883, 203; 23 O. G., 2236; 15 Fed. Rep., 117;) *Butler* v. *Shaw*, (21 Fed. Rep., 321;) *Butterworth* v. *Hoe*, (C. D., 1884, 429; 29 O. G., 615; 112 U. S., 50;) *Gandy* v. *Marble*, (C. D., 1887, 413; 390 O. G., 1423; 122 U. S., 432.)

The jurisdiction of this court to hear and determine the present bill is undoubted, unless the act to establish the Court of Appeals for the District of Columbia has taken it away. It is not claimed that this jurisdiction has been taken away by a direct repeal of the statute which conferred it. The contention is that prior to the creation of the Court of Appeals of the District of Columbia no appeal was allowed from the determination of the Commissioner of Patents in interference cases; that the sole remedy was by a bill in equity in the circuit court, and that, inasmuch as an appeal is now allowed by the act creating that court, it operates to repeal by implication the statute providing for a bill in equity in interference cases. It is also argued that the decision of the Court of Appeals is final and conclusive and that the dignity of the Court of Appeals is such that it would be unfit and indecorous for an inferior court, such as a circuit court of the United States, to reëxamine the applicant's right to a patent. It cannot be maintained that the jurisdiction of this court over the present suit is to be determined by a consideration of the relative dignity and importance of the two courts. Questions of jurisdiction can never be thus determined. But in point of antiquity the circuit court is the more ancient; in point of jurisdiction it is more ample, and in its composition it has a mem-

bership consisting of a justice of the Supreme Court and a circuit and district judge. But the argument of importance and dignity is rather invidious than relevant to the determination of the jurisdiction of this court.

It is firmly settled that a later statute will not be construed to repeal an earlier one by implication if it be possible to reconcile them and give effect to both. Repeals by implication are not favored, and to authorize such a construction of a later statute as to work the repeal of an earlier one the former must present a case of irreconcilable conflict with the latter. (*McCool* v. *Smith*, 1 Black., 459; *United States* v. *Walker*, 22 How., 299; *City of Galena* v. *Amy*, 5 Wall., 705; *Henderson's Tobacco*, 11 Wall., 652; *Arthur* v. *Homer*, 96 U. S., 137; *Chew Heong* v. *United States*, 112 U. S., 536.)

The ninth section of the act to establish the Court of Appeals of the District of Columbia presents no such case of irreconcilable conflict with section 4915 of the Revised Statutes as to work an implied repeal of the latter. An appeal may be prosecuted to the appellate court without taking away from the circuit court the original jurisdiction conferred upon it. The purpose of an appeal is simply to have a review of the decision of the Commissioner of Patents on the identical record before the latter officer. It is in no just sense a substitute for the trial provided for by a bill in equity in the circuit court. The decision on the appeal in no respect changes the character of the proceeding. All that the appellate court can do is to affirm or reverse the decision of the Commissioner of Patents. If a reversal occurs, the appellate court awards a mandate directing what decision shall be entered by the Commissioner of Patents; but it is the decision of the Commissioner of Patents, and not that of the appellate court, by virtue of which the patent must finally be granted. The office of an appellate tribunal is to direct an inferior court or officer from which an appeal is taken what decision or judgment shall be entered by such inferior court or officer. The decision or judgment must at last be entered by the inferior court or officer, and it then becomes the decision or judgment of such court or officer and not the decision or judgment of the appellate tribunal. The order of the appellate tribunal operates upon the court or officer below by directing what such officer or court shall do, but it is the order of the latter which must dispose of the matter in controversy.

From what has already been said it must be apparent that the doctrine of *res adjudicata*, so strongly urged by counsel for defendants, has no application. The appellate court hears and decides an executive or administrative question in aid of the Patent Office on the record made up in that Office, while the circuit court hears the case upon a bill in equity in due course of judicial procedure, not only on the evidence heard by the Commissioner of Patents and the Court of Appeals, but upon such additional evidence as either party to the suit may choose to present. The trial before the Court of Appeals is restricted and is in aid of an executive duty rather than a judicial hearing. The trial in the circuit court is in the strictest sense a judicial hearing by original bill, with all the powers of a court of equity at the service of the parties to the suit. The salutary principle that an inventor shall have his day in court and a right to a judicial hearing before being finally barred of his right to a patent, secured by section 4915 of the Revised Statutes, in my opinion remains unaffected by the act to establish the Court of Appeals of the District of Columbia.

The contention that this court cannot entertain jurisdiction of the present bill because Bernardin and Northall are both citizens of this State cannot be successfully maintained. The Revised Statutes (sections 629 and 711) give the Federal courts exclusive jurisdiction of causes relating to patents. This is the only court that could take cognizance of the present suit, because, being a patent case, no State court could take jurisdiction, and in the Federal courts the suit must be brought in the district whereof the plaintiff or defendant is a citizen. Here the demurrant is shown to be a citizen of the district of Indiana, and hence he is properly suable here.

The demurrer to the bill is overruled.

Laws Relating to Patents and Patent Causes Passed by the Fifty-fourth Congress.

An act revising and amending the statutes relating to patents.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section forty-eight hundred and eighty-six of the Revised Statutes be, and the same hereby is, amended by inserting on line four, after the word "country," the words "before his invention or discovery thereof," and on line five, after the word "thereof," the words "or more than two years prior to his application," so that the clause so amended will read as follows:

"SEC. 4886. Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor."

SEC. 2. That section forty-nine hundred and twenty of the Revised Statutes be, and the same hereby is, amended by adding to the third clause of said section after "thereof" and before "or" the following words: "or more than two years prior to his application for a patent therefor," so that the section so amended will read as follows:

"SEC. 4920. In any action for infringement the defendant may plead the general issue, and, having given notice in writing to the plaintiff or his attorney thirty days before, may prove on trial any one or more of the following special matters:

"First. That for the purpose of deceiving the public the description and specification filed by the patentee in the Patent Office was made to contain less than the whole truth relative to his invention or discovery or more than is necessary to produce the desired effect; or,

"Second. That he had surreptitiously or unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same; or,

"Third. That it has been patented or described in some printed

publication prior to his supposed invention or discovery thereof, or more than two years prior to his application for a patent therefor; or,

"Fourth. That he was not the original and first inventor or discoverer of any material and substantial part of the thing patented; or,

"Fifth. That it had been in public use or on sale in this country for more than two years before his application for a patent, or had been abandoned to the public.

"And in notices as to proof of previous invention, knowledge, or use of the thing patented, the defendant shall state the names of the patentees and the dates of their patents, and when granted, and the names and residences of the persons alleged to have invented or to have had the prior knowledge of the thing patented, and where and by whom it had been used; and if any one or more of the special matters alleged shall be found for the defendant, judgment shall be rendered for him with costs. And the like defenses may be pleaded in any suit in equity for relief against an alleged infringement; and proofs of the same may be given upon like notice in the answer of the defendant, and with the like effect."

SEC. 3. That section forty-eight hundred and eighty-seven of the Revised Statutes be, and the same hereby is, amended by inserting on line one, after the words "no person," the words "otherwise entitled thereto," and on line three, after the words "caused to be patented," the words "by the inventor or his legal representatives or assigns," and by erasing therein all that portion of the section which follows the words "in a foreign country," on lines three and four, and substituting in lieu thereof the following: "unless the application for said foreign patent was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country" so that the section so amended will read as follows:

"SEC. 4887. No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or caused to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country."

SEC. 4. That section forty-eight hundred and ninety-four of the Revised Statutes be, and the same hereby is, amended by striking out the words "two years" in every place where they occur and substituting in lieu thereof the words "one year," so that the section so amended will read as follows:

"SEC. 4894. All applications for patents shall be completed and prepared for examination within one year after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within one year after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable."

SEC. 5. That section forty-eight hundred and ninety-eight of the Revised Statutes be, and the same hereby is, amended by adding thereto the following sentence:

"If any such assignment, grant, or conveyance of any patent shall be acknowledged before any notary public of the several States or Territories or the District of Columbia, or any commissioner of the United States circuit court, or before any secretary of legation or consular officer authorized to administer oaths or perform notarial acts under section seventeen hundred and fifty of the Revised Statutes, the certificate of such acknowledgment, under the hand and official seal of such notary or other officer, shall be *prima facie* evidence of the execution of such assignment, grant, or conveyance," so that the section so amended will read as follows:

"SEC. 4898. Every patent or any interest therein shall be assignable in law by an instrument in writing, and the patentee or his assigns or legal representatives may in like manner grant and convey an exclusive right under his patent to the whole or any specified part of the United States. An assignment, grant, or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent Office within three months from the date thereof.

"If any such assignment, grant, or conveyance of any patent shall be acknowledged before any notary public of the several States or Territories or the District of Columbia, or any commissioner of the United States circuit court, or before any secretary of legation or consular officer authorized to administer oaths or perform notarial acts under section seventeen hundred and fifty of the Revised Statutes, the certificate of such acknowledgment, under the hand and official seal of such notary or other officer, shall be *prima facie* evidence of the execution of such assignment, grant, or conveyance.

SEC. 6. That section forty-nine hundred and twenty-one of the Revised Statutes be, and the same hereby is, amended by adding thereto the following sentence:

"But in any suit or action brought for the infringement of any patent there shall be no recovery of profits or damages for any infringement committed more than six years before the filing of the bill of complaint or the issuing of the writ in such suit or action, and this provision shall apply to existing causes of action," so that the section so amended will read as follows:

"SEC. 4921. The several courts vested with jurisdiction of cases arising under the patent laws shall have power to grant injunctions according to the course and principles of courts of equity, to prevent the violation of any right secured by patent, on such terms as the court may deem reasonable; and upon a decree being rendered in any such case for an infringement the complainant shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby; and the court shall assess the same or cause the same to be assessed under its direction. And the court shall the same power to increase such damages, in its discretion, as is given to increase the damages found by verdicts in actions in the nature of actions of trespass upon the case.

"But in any suit or action brought for the infringement of any patent there shall be no recovery of profits or damages for any infringement committed more than six years before the filing of the bill of complaint or the issuing of the writ in such suit or action, and this provision shall apply to existing causes of action."

SEC. 7. That in every case where the head of any Department of the Government shall request the Commissioner of Patents to expedite the consideration of an application for a patent it shall be the duty of such head of a Department to be represented before the Commissioner in order to prevent the improper issue of a patent.

SEC. 8. That this act shall take effect January first, eighteen hundred and ninety-eight, and sections one, two, three, and four, amending sections forty-eight hundred and eighty-six, forty-nine hundred and twenty, forty-eight hundred and eighty-seven, and forty-eight hundred and ninety-four of the Revised Statutes, shall not apply to any patent granted prior to said date, nor to any application filed prior to said date, nor to any patent granted on such an application.

Approved, March 3, 1897.

An act defining the jurisdiction of the United States circuit courts in cases brought for the infringement of Letters Patent.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in suits brought for the infringement of Letters Patent the circuit courts of the United States shall have jurisdiction, in law or in equity, in the district of which the defendant is an inhabitant, or in any district in which the defendant, whether a person, partnership, or corporation, shall have committed acts of infringement and have a regular and established place of business. If such suit is brought in a district of which the defendant is not an inhabitant, but in which such defendant has a regular and established place of business, service of process, summons, or subpœna upon the defendant may be made by service upon the agent or agents engaged in conducting such business in the district in which suit is brought.

Approved, March 3, 1897.

An act to authorize the Supreme Court of the United States to issue writs of *certiorari* to the Court of Appeals of the District of Columbia in the same cases and manner that it may do in respect of the Circuit Court of Appeals.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in

any case heretofore made final in the Court of Appeals of the District of Columbia it shall be competent for the Supreme Court to require, by *certiorari* or otherwise, any such case to be certified to the Supreme Court for its review and determination, with the same power and authority in the case as if it had been carried by appeal or writ of error to the Supreme Court.

Approved, March 3, 1897.

An act to amend the act creating the Circuit Court of Appeals in regard to fees and costs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the second section of an act to establish Circuit Courts of Appeals, passed March third, eighteen hundred and ninety-one, be amended so that the clause therein which now reads, "The costs and fees in the Supreme Court now provided for by law shall be costs and fees in the Circuit Courts of Appeals," shall read, "The costs and fees in each Circuit Court of Appeals shall be fixed and established by said court in a table of fees, to be adopted within three months after the passage of this act: *Provided*, That the costs and fees so fixed by any Court of Appeals shall not, with respect to any item, exceed the costs and fees now charged in the Supreme Court." Each Circuit Court of Appeals shall, within three months after the fixing and establishing of costs and fees as aforesaid, transmit said table to the Chief Justice of the United States, and within one year thereof the Supreme Court of the United States shall revise said table, making the same, so far as may seem just and reasonable, uniform throughout the United States. The table of fees, when so revised, shall thereupon be in force for each circuit.

Approved, February 19, 1897.

Convention Between the United States of America and the Empire of Japan.

PATENTS, TRADE-MARKS, AND DESIGNS.

Concluded at Washington January 13, 1897.
Ratification advised by the Senate February 1, 1897.
Ratified by the President February 2, 1897.
Ratified by the Emperor.
Ratifications exchanged at Tokyo March 8, 1897.
Proclaimed March 9, 1897.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas a Convention between the United States of America and the Empire of Japan securing immediate reciprocal protection for patents, trade-marks and designs, was concluded and signed by their respective plenipotentiaries at the city of Washington on the thirteenth day of January, one thousand eight hundred and ninety-seven, the original of which Convention being in the English language is word for word as follows:

The President of the United States of America and His Majesty the Emperor of Japan, being desirous of securing immediate reciprocal protection for patents, trade-marks and designs, have resolved to conclude a Convention for that purpose, and have appointed as their plenipotentiaries:

The President of the United States, the Honorable Richard Olney, Secretary of State of the United States; and His Majesty the Emperor of Japan, Toru Hoshi, Jushii, His Majesty's Envoy Extraordinary and Minister Plenipotentiary near the Government of the United States;

Who, after having communicated to each other their respective full powers, found in good and due form, have agreed as follows:

Article XVI of the Treaty of Commerce and Navigation between the United States of America and Japan concluded at Washington on the twenty-second day, the eleventh month, the twenty-seventh year of Meiji, corresponding to the twenty-second day of November, eighteen hundred and ninety-four of the Christian era, shall have full force and effect from the date of the exchange of ratifications of this Convention.

The present Convention shall be duly ratified by the President of the United States of America, by and with the advice and consent of the Senate thereof, and by His Majesty the Emperor of Japan in the usual manner; and the ratifications shall be exchanged at Tokyo as soon as possible.

In witness whereof, the respective plenipotentiaries have signed this Convention, and have thereunto affixed their seals.

Done, in duplicate original, at Washington, this thirteenth day of January in the one thousand eight hundred and ninety-seventh year of the Christian era.

RICHARD OLNEY. [SEAL]
TORU HOSHI. [SEAL]

And whereas the said Convention has been duly ratified on both parts and the ratifications of the two Governments were exchanged at Tokyo on the eighth day of March, one thousand eight hundred and ninety-seven;

Now, therefore, be it known that I, William McKinley, President of the United States of America, have caused the said Convention to be made public, to the end that the same and every clause thereof may be observed and fulfilled with good faith by the United States and the citizens thereof.

In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this ninth day of March in the year of our Lord one thousand eight hundred and ninety-seven and of the Independence of the United States the one hundred and twenty-first.

[SEAL] WILLIAM McKINLEY.

By the President:
JOHN SHERMAN,
Secretary of State.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 78—No. 12. TUESDAY, MARCH 23, 1897. PRICE—$5 per year.

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Attorneys.

(ORDER No. 1,119.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 24, 1897.

With the approval of the Assistant Secretary of the Interior, it is hereby ordered that Mr. Charles Lawrenson, or Mr. Charles Lawrenson Barritt, of Philadelphia, Pa., be and he hereby is disbarred from practice before the United States Patent Office, pursuant to section 487 of the Revised Statutes.

JOHN S. SEYMOUR,
Commissioner.

(ORDER No. 1,120.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 24, 1897.

With the approval of the Assistant Secretary of the Interior, it is hereby ordered that Mr. S. C. Fitzgerald, doing business as S. C. Fitzgerald & Co., of Washington, D. C., be and he hereby is disbarred from practice before the United States Patent Office, pursuant to section 487 of the Revised Statutes.

JOHN S. SEYMOUR,
Commissioner.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 11, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that the order of October 21, 1895, disbarring Daniel W. Bates, of Pittsfield, Mass., from practice before this Department and its Bureaus has this day been revoked.

Very respectfully,

E. WOMACK,
Chief Clerk.

The Commissioner of Patents.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.
Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.
Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.
Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.
Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.
Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.
Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.
Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.
Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.
Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.
Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 86 pages. In paper covers, $1.50.
Vol. 12. Appendix No. 12, July 1, 1892, to June 30, 1893. One volume, 80 pages. In paper covers, $1.50.
Vol. 13. Appendix No. 13, July 1, 1893, to June 30, 1894. One volume, 70 pages. In paper covers, $1.50.
Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 68 pages. In paper covers, $1.50.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Issue of March 23, 1897.

Patents	435—No. 579,121 to No. 579,555, inclusive.
Designs	35—No. 26,783 to No. 26,817, inclusive.
Trade-Marks	29—No. 29,712 to No. 29,740, inclusive.
Labels	None.
Prints	None.
Reissues	2—No. 11,593 to No. 11,594, inclusive.
Total issue	501

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	3	.....	New Hampshire	3	.....
Arizona Territory	.....	.....	New Jersey	14	.....
Arkansas	1	.....	New Mexico Territ'y	.....	.....
California	11	.....	New York	85	14
Colorado	3	.....	North Carolina	2	.....
Connecticut	21	.....	North Dakota	3	.....
Delaware	.....	.....	Ohio	35	.....
District of Columbia	3	.....	Oklahoma Territory	.....	.....
Florida	4	.....	Oregon	2	.....
Georgia	4	.....	Pennsylvania	46	4
Idaho	1	.....	Rhode Island	5	.....
Illinois	36	1	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	1	.....
Indiana	18	.....	Tennessee	6	.....
Iowa	9	.....	Texas	6	.....
Kansas	7	.....	Utah	.....	.....
Kentucky	1	.....	Vermont	4	.....
Louisiana	3	.....	Virginia	5	.....
Maine	1	.....	Washington	1	.....
Maryland	2	1	West Virginia	4	.....
Massachusetts	32	3	Wisconsin	11	.....
Michigan	16	.....	Wyoming	.....	.....
Minnesota	5	1	U. S. Army	.....	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	11	1			
Montana	1	.....	Total to citizens of the United States	433	25
Nebraska	5	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	.....	.....
Austria-Hungary	2	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	1	.....
Belgium	1	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Orange Free State	.....	.....
Canada	8	.....	Portugal	.....	.....
Canary Islands	.....	.....	Queensland	.....	.....
Cape Colony	.....	.....	Russia	.....	.....
Ceylon	.....	.....	Scotland	.....	.....
Chile, Republic of	.....	.....	South African Republic	.....	.....
China	.....	.....	South Australia	.....	.....
Cuba	.....	.....	Straits Settlements	.....	.....
Denmark	.....	.....	Sweden	.....	.....
England	10	.....	Switzerland	1	.....
Finland	1	.....	Victoria	.....	.....
France	3	.....	West Australia	.....	.....
Germany	9	3			
India	.....	1	Total to citizens of foreign countries	37	4
Ireland	1	.....			
Italy	.....	.....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 16, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 16	Mar. 5	282
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Feb. 16	Mar. 2	154
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 18	Feb. 20	257
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 16	Feb. 18	175
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 17	Feb. 17	172
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Feb. 17	Feb. 17	182
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Feb. 16	Feb. 16	233
253	X. Carriages and Wagons	Feb. 15	Feb. 9	324
246	I. Tillage and Fences	Feb. 16	Feb. 3	223
221	XXIII. Instruments of Precision, Acoustics, etc.	Feb. 17	Jan. 27	352
106	II. Farm Stock, Products, etc	Feb. 16	Jan. 15	331
	Between one and two months.			
215	XVII. Paper Manufactures and Printing.	Feb. 9	Feb. 18	165
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 9	Feb. 18	275
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 9	Feb. 17	337
98	XXI. Textiles, etc	Feb. 3	Feb. 17	204
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 15	Feb. 16	226
248	XVIII. Steam-Engineering, etc	Jan. 19	Feb. 13	265
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 12	Feb. 10	240
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Feb. 1	Feb. 10	325
243	XXV. Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Feb. 8	Feb. 8	211
256	V. Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 23	Feb. 8	292
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 5	Feb. 3	300
122	XXIV. Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Jan. 25	Feb. 3	334
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 5	Jan. 29	390
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	Jan. 22	Jan. 29	335
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 26	Jan. 27	186
102	XIX. Stoves and Furnaces	Jan. 21	Jan. 23	507
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Jan. 22	Jan. 22	328
240	VII. Harvesters, Games and Toys, and Velocipedes.	Jan. 18	Jan. 18	1351
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 26	Jan. 14	267
	Between two and three months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 18	Feb. 1	309
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 21	Jan. 13	656
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Jan. 11	Jan. 9	502
	Total number of applications awaiting action			10,780
	Under one month in arrears.			
	Designs	Feb. 18	Mar. 5	212
	Trade-Marks	Feb. 19	Feb. 27	157

PATENTS

GRANTED MARCH 23, 1897.

579,121. EYEGLASSES OR SPECTACLES. HENRY ABBOTT, New York, N. Y., assignor, by mesne assignments, to Laura Francis Abbott, East Orange, N. J. Filed July 5, 1893. Serial No. 479,625. (No model.)



Claim.—1. As a means for securing together the lenses and supporting parts of eyeglasses and spectacles, a clip overlapping the lens edge and a uniting substance between the clip and lens side, the clip and lens each having a well-defined cavity or pocket into which said substance enters to firmly interlock the parts, substantially as and for the purpose specified.

2. As a means for securing together the lenses and supporting parts of eyeglasses and spectacles, a clip overlapping the lens edge and a metallic filling between the sides of the clip and the lens sides, each side of the clip, and the adjacent side of the lens having a well-defined cavity or pocket to receive and contain a portion of said filling, whereby the parts are firmly interlocked, substantially as and for the purpose specified.

579,122. PNEUMATIC TIRE. EDGAR W. BALDING, Newark, N. J. Filed Mar. 17, 1896. Serial No. 583,574. (No model.)

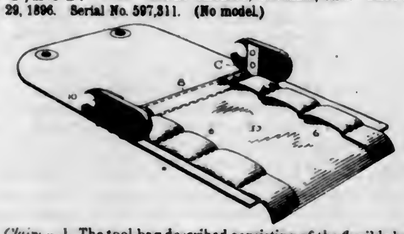


Claim.—1. In combination with a pneumatic tire, a rim, and interlocking transverse corrugations on each bounded upon each side with longitudinal corrugations, certain of the transverse corrugations at suitable intervals being of greater length than the others and extended across the planes of the longitudinal corrugations, substantially as and for the purpose described.

2. A pneumatic tire provided on its rim-surface with transverse corrugations of different lengths, and longitudinal corrugations bounding the transverse corrugations at each side and interrupted at intervals by the longer transverse corrugations which intersect therewith or across the plane of the longitudinal corrugations, substantially as and for the purpose described.

3. The combination with a rim, and a pneumatic tire, of interlocking longitudinal corrugations on said rim and tire, the said corrugations being spaced apart transversely and arranged at or near the edges of the rim and extending entirely around the rim and tire, and cross-corrugations extending transversely of the rim and tire and filling the space between the spaced longitudinal corrugations, substantially as described.

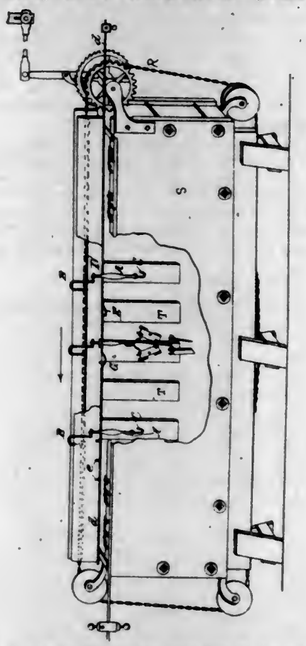
579,123. BAG. HENRY BISCHOFF, Cleveland, Ohio. Filed June 29, 1896. Serial No. 597,311. (No model.)



Claim.—1. The tool-bag described consisting of the flexible body, the end pieces and a rigid strip across the center of said body bracing said end pieces, and an apron for the tools secured beneath said rigid strip, substantially as described.

2. The body of the bag and end pieces secured thereto at its center and edges, a cross-brace having its ends bent at right angles and supporting said end pieces, and a tool-carrying apron overlapping said cross-brace and free at the other end, substantially as described.

579,124. ELECTROPLATING-HOOK. JOHN BOSSARD, Dubuque, Iowa. Filed Apr. 25, 1896. Serial No. 589,132. (No model.)



Claim.—1. A hook of the character described, consisting of a hooked upper portion for engaging with a carrier, a body swiveled to said hook, a lower portion from which the articles are suspended in the bath, means for causing the articles to be revolved while suspended from said hook in the bath and a carrier from which the hooks are suspended for advancing the articles along in the bath, as and for the purposes shown.

2. A hook for sustaining the articles in a depositing-bath, consisting of a hooked upper portion, for engagement with a carrier, a body swiveled to said upper portion, a lower portion from which the articles to be deposited upon are suspended in the bath, means for intermittently rotating the articles as they are drawn through the bath and a carrier from which the hooks are suspended, for advancing the articles in the bath, as and for the purposes shown.

3. A hook for sustaining the articles in the plating-bath, consisting of the hook B, body A, swiveled to the hook B, wheel Z, adjustably attached to said body A, means for attaching the articles to be deposited upon to the body and strip *d*, provided with projections *e*, as and for the purposes shown.

4. The combination in an electrodepositing device, of a carrier for drawing the articles through the bath, and a strip beneath said carrier, and a hook for sustaining the articles to be deposited upon in the bath, consisting of a hooked upper portion to engage with the carrier, a body swiveled to said upper portion and having projections thereon, a lower portion from which the articles are suspended in the bath and projections upon said strip below the carrier, for engaging

with the projections on said body, whereby the articles are rotated while being carried through the bath, for the purposes shown.

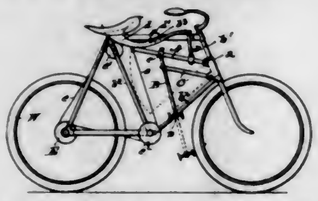
5. In combination with an electrodepositing device, having a carrier for drawing the articles through the bath and a strip beneath said carrier, a hook for sustaining the articles to be deposited upon in the bath, consisting of a hooked upper portion to engage with the carrier an enlarged body swiveled to the upper portion, a lower portion adapted to engage with the articles in the bath and means secured to the strip below the carrier, for engaging with the body of the hook, whereby the articles are intermittently rotated while drawn through the bath, and the bath is stirred.

6. The combination in an electrodepositing device, of a carrier for drawing the articles through the bath, a rigid strip beneath said carrier, provided with projections thereon, with a hook for sustaining the articles to be deposited upon in the bath, consisting of the hooked upper portion to engage with the carrier, a body swiveled to said hook and having projections thereon vertically adjustable and adapted to engage with the projections on said strip and means for attaching the articles to said body, as and for the purposes shown.

7. The combination in an electrodepositing device of a carrier for drawing the articles through the bath, a strip beneath said carrier, having projections upon its outer edge and a hook for sustaining the articles to be deposited upon in the bath, consisting of a hooked upper portion to engage with the carrier, a body swiveled to said upper portion and having projections at or near the outer edge of said strip and a lower portion for attachment to the articles in the bath, whereby the articles are rotated while being drawn through the bath, substantially as and for the purposes shown.

8. The combination in an electroplating device of a carrier for drawing the articles through the bath, a cathode strip *d*, below said carrier, one or more clamps G, attached to the outer edge of the cathode strip and provided with projections *f*, and a hook for suspending the articles in the bath from said carrier, having a hooked upper portion B, body A, swiveled to the hooked upper portion and a lower portion *b*, all combined substantially as and for the purposes shown.

579,125. BICYCLE. WILLIAM S. BREWER, New York, N. Y. Filed Oct. 10, 1895. Serial No. 565,206. (No model.)



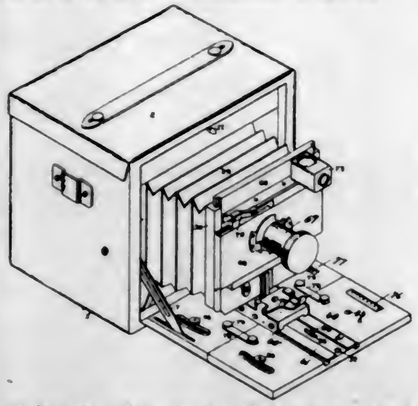
Claim.—1. In a bicycle, the combination of a seat-lever pivotally mounted on the top brace of the frame, a driving-lever pivoted to the front brace of the frame beneath and pivotally connected to the seat-lever, a bifurcated foot-hanger hung to said driving-lever, oscillating clutch devices upon the driving-wheel, and bands connecting the free end of the driving-lever with the clutch devices, respectively, substantially as set forth.

2. In a bicycle, of the character indicated, the combination of the pivoted seat-lever, the pivoted driving-lever linked thereto, the auxiliary lever pivoted in line with the driving-lever and oscillating parallel therewith, and the bifurcated foot-hanger pivoted to both driving and auxiliary levers, equidistant from their fulcrums, the oscillating clutches upon the driving-wheel, and band connections, thence with the driving-lever, substantially as set forth.

579,126. PHOTOGRAPHIC CAMERA. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed May 18, 1893. Serial No. 474,704. (Model.)

Claim.—1. In a camera, the combination with the inclosing casing embodying the sides, bottom and rear portions, and open at the front and top, of a camera-frame separate from the casing having the bottom board, a front board hinged to the latter at the front, a movable camera-front and ways therefor on the bottom and front boards, and the lid hinged to the upper portion of the camera-frame and coöperating with the rear and sides of the casing, substantially as described.

2. In a camera, the combination with the inclosing casing embodying the sides and bottom and having the hinged door at the rear, of the camera-frame separate from the casing having the bottom board, a front board hinged to the latter at the front, a movable camera-front and ways therefor on the bottom and front boards, the lid hinged to the upper portion of the camera-frame and coöperating with the sides of the casing and with the rear door, and a locking device between the lid and the rear door, substantially as described.



3. In a camera, the combination with the main supporting-frame, of the swing-back, the plates movable on the frame and to which the swing-back is pivoted to tilt vertically, and the independent levers pivoted to the frame and to the plates, substantially as described.

4. In a camera, the combination with the main frame, of the plates movable on the frame, and the swing-back pivoted on the plates to tilt vertically or laterally, substantially as described.

5. In a camera, the combination with the main frame, a supporting-plate 24 movable thereon in a horizontal plane, and having the stud 26 pivoted to the plate to turn in a horizontal plane, of the swing-back having an aperture in its side in which the stud 26 extends loosely, and a support for the opposite side of the swing-back; whereby the swing-back may be tilted vertically turning on the stud or its side moved backward and forward causing the stud to turn on its pivot.

6. In a camera, the combination with the main frame, and the two supporting-plates 24 movable thereon in a horizontal plane, and the studs 26 pivoted to the plates to turn in a horizontal plane, of the swing-back having the apertures in the sides in which the studs project loosely, and the independent levers pivoted to the frame and to the plate, substantially as described.

7. In a camera, the combination with the main frame, of the supporting-plates movable thereon, the swing-back pivoted on the plates to turn laterally, the pivoted levers engaging the plates and locking devices for securing the levers when adjusted, substantially as described.

8. In a camera, the combination with the main frame, of the supporting-plates movable thereon, the swing-back pivoted on the plates to turn laterally, the pivoted levers engaging the plates and having the studs and securing nuts, and the plates 33 with which said nuts coöperate, substantially as described.

9. In a camera, the combination with the main frame, of the supporting-plates movable thereon, the swing-back pivoted on the plates to turn laterally, the levers engaging the plates having the studs, the spring-operated plates having the centering-notches, and the securing-nuts, substantially as described.

10. In a camera, the combination with the main frame, of the supporting-plates movable thereon, the swing-back pivoted on the plates to tilt vertically, one of said plates having a depression and a centering-spring on the swing-back having a projection coöperating with said depression to hold the swing-back when the latter is in vertical position substantially as described.

11. In a camera, the combination with the main frame, of the supporting-plates movable thereon, the swing-back pivoted on the plates to tilt vertically, one of the plates having the extension, and the clamping-screw on the swing-back engaging the plate and securing the swing-back when adjusted, substantially as described.

12. In a camera, the combination with the main frame, of the supporting-plates movable thereon, the swing-back pivoted on the plates to tilt vertically, one of the plates having the extension, the bracket on the swing-back, the longitudinally-movable screw operating therein, and the securing-nut on the screw clamping the bracket and extension and holding the swing-back, substantially as described.

13. In a camera, the combination with the main frame, of the supporting-plates movable thereon, one of them having the extension, the pivoted studs on the plates, the swing-back loosely pivoted on the studs, detachable securing devices between the swing-back and plate extension, levers operating on the plates and detachable fastenings for said levers, substantially as described.

14. In a camera, the combination with the main frame and the slotted plates secured thereto, of the sliding plates having the lugs, the pins secured to the plates operating in the slots of the first-mentioned plates and having the studs pivoted thereon, the swing-back loosely pivoted on the studs, the levers pivoted on the pins, and fastening devices for holding the swing-back and the levers when adjusted, substantially as described.

15. The combination with the camera-back having the rearwardly-projecting extensions, of the plates pivoted thereon having the ears for coöperating with a focusing-frame or plate-holder and springs pressing the plates toward the back, substantially as described.

16. The combination with the camera-back having the rearwardly-projecting extensions, of the plates pivoted thereon having the ears for engaging a focusing-frame, and a single spring secured at its center and having its ends engaging two of said plates, substantially as described.

17. The combination with the camera-back having the rearwardly-projecting extensions and the slots extending parallel with the camera-back, of the ground-glass frame having the ears adapted to enter said slots and the pivoted plates on the extensions engaging said ears and springs for moving the pivoted plates, substantially as described.

18. The combination with the camera-back having the rearwardly-projecting extensions slotted on their inner sides and having the apertures extending through them, of the plates pivoted on the outer sides of the extensions having the ears projecting through the apertures, springs for moving them toward the back, and the ground-glass frame having the lugs at the sides, substantially as described.

19. The combination with the camera-back having the extensions provided with apertures, the plates pivoted on the outer sides of the extensions having ears extending through the apertures, and the springs secured to the extensions at their centers having their free ends engaging the plates, substantially as described.

20. In a camera, the combination with the bed or support having ways thereon, of the frame movable for focusing, the longitudinally-movable, pivoted focusing-lever connecting the frame and bed when moved longitudinally in one direction and detachable from one of them when moved in the other, substantially as described.

21. In a camera, the combination with the bed or support having ways thereon, of the movable lens-carrying frame, the longitudinally-movable focusing-lever pivoted to the bed and adapted to coöperate with the lens-carrying frame when moved longitudinally and then to actuate the latter when moved on its pivot, substantially as described.

22. In a camera, the combination with the bed or support having ways thereon, of the movable lens-carrying frame, having the recess in its under side, the longitudinally-movable focusing-lever having the pin adapted to engage the recess in the frame and the securing-screw for holding the focusing-lever, substantially as described.

23. In a camera, the combination with the bed or support having ways thereon, of the movable lens-carrying frame having the series of recesses in its under side, the focusing-lever having the slot and the engaging pin or projection and the pivot-pin in the bed, substantially as described.

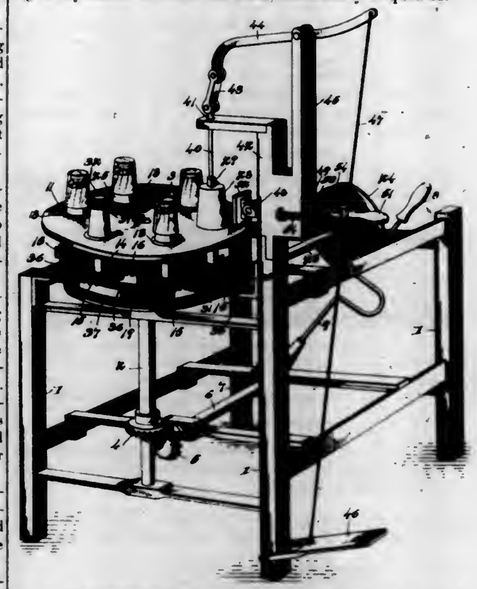
24. In a camera, the combination with the main frame, the hinged front having the ways thereon, and the lid or cover, of the catch on the frame coöperating with the front when closed, and the lock arranged beneath the cover for preventing the operation of the catch, substantially as described.

25. In a camera, the combination with the inclosing casing, the hinged front, the lid or cover, and the rear door, of the catch for retaining the front when closed, the lock for preventing its operation arranged beneath the lid, and coöperating catches on the lid and rear door, whereby the camera may be completely closed and locked by a single locking device, substantially as described.

579,127. GLASS-POLISHING MACHINE. ALPHONSUS D. BURAN, Tiffin, Ohio. Filed Aug. 3, 1896. Serial No. 601,544. (No model.)

Claim.—1. A glass-finishing machine having a rotary table, and means for imparting motion thereto, a plurality of polishing-shoes carried by the table with their axes perpendicular to the plane thereof, a coöperating complemental polishing-shoe arranged with its axis perpendicular to the plane of the table, operating devices for imparting rotary motion to one of the polishing-shoes, means for moving said complemental polishing-shoe axially to bring it into operative relation with a glass fitted upon an alined polishing-shoe on the table, and devices for raising the glasses successively from contact with the surfaces of the polishing-shoes carried by the table after removal from alinement with the complemental polishing-shoe, substantially as specified.

2. A glass-finishing machine having a rotary table and means for imparting motion thereto, a plurality of polishing-shoes carried by the table, plungers having their stems mounted in axial bores in said shoes and provided with projecting extremities, a yielding cam for imparting axial movement to the stems to elevate glasses from contact with the shoes, a coöperating polishing-shoe arranged with its axis perpendicular to the table, operating devices for imparting axial movement to said coöperating polishing-shoe, and means for imparting rotary motion to one of the shoes, substantially as specified.



3. A glass-finishing machine having a rotary table and means for imparting motion thereto, a plurality of supporting-disks mounted upon the table, means for rotating said disks independently of the movement of the table, polishing-shoes having extensions removably fitted in sockets in the supporting-disks, plungers having their stems mounted in axial bores in said shoes and disks and having projecting extremities, a cam for imparting axial movement to the stems to elevate the glasses upon said shoes, and a coöperating complemental polishing-shoe, and means for moving the same axially to bring it into operative relation with one of the glass-supporting shoes, substantially as specified.

4. A glass-finishing machine having a rotary table and means for communicating motion thereto, a plurality of supporting-disks mounted upon the table and provided with angular sockets, means for communicating rotary motion to the disks independently of the table, polishing-shoes having angular extensions fitted in said sockets and adapted to engage a glass to be polished, and a complemental polishing-shoe adapted to be fitted over one of the shoes carried by the table and provided with means whereby reciprocatory movement may be imparted thereto, substantially as specified.

5. A glass-finishing machine having a rotary table provided with a vertical main shaft, a plurality of supporting-disks mounted for rotation upon the table and having depending spindles terminating in pinions, a gear having its hub mounted upon a reduced portion of the main shaft and meshing with said pinions, means for communicating continuous rotary motion to said gear, feeding devices for imparting a step-by-step movement to the main shaft, and complemental shoes, one of which is arranged upon each supporting-disk, substantially as specified.

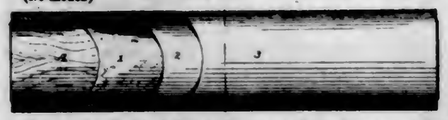
6. A glass-finishing machine having a rotary table and means for imparting a step-by-step movement thereto, supporting-disks mounted upon the table, means for communicating continuous rotary motion to said disks, polishing-shoes carried respectively by the supporting-disks, complemental polishing-shoes mounted for vertical movement and adapted to be arranged in operative relation with the shoes carried by the table, and means for operating said complemental shoes, said means including an operating-lever, a stem fixed to said complemental shoe and mounted in a guide, and connections between said stem and the lever, substantially as specified.

7. A glass-finishing machine having a movable table and means for communicating step-by-step forward movement thereto, rotary disks having cross-sectionally angular sockets and means for imparting continuous motion thereto, a vertically-reciprocable stem and means for imparting movement thereto, complemental interchangeable polishing-shoes each provided with an axial bore and an angular

extension, one of which is adapted to be fitted upon the extremity of said stem and the other of which is adapted to be seated in the socket of one of the supporting-disks, a plunger having its stem fitted in the axial bore of the shoe which is arranged upon the supporting-disk, and an incline or cam for engaging the extremity of said stem and dismounting the glass arranged upon the shoe, substantially as specified.

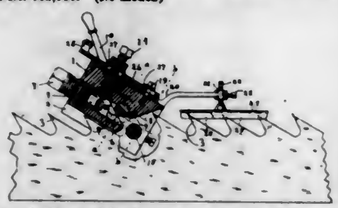
8. In a glass finishing machine, the combination with rotary glass-supporting devices, of a side-polisher consisting of a spring-actuated slide fitted loosely in a guide for vertical vibration and provided with a pivotal polishing-shoe which is normally held out of contact with a glass carried by the glass-supporting devices and which is provided with a convexed face, said slide being fitted at its outer extremity with a handle, substantially as specified.

579,128. FACING FOR WRITING-MACHINE PLATENS. HENRY O. CANFIELD, Bridgeport, Conn. Filed Nov. 29, 1895. Serial No. 570,510. (No model.)



Claim.—A cylindrical facing for type-writer platens consisting of a plurality of layers of soft-vulcanizing stock and of hard-vulcanizing stock, vulcanized together to form a practically single cylinder having a yielding inner layer and a relatively hard outer surface.

579,129. SAW-SWAGE. ARTHUR CARRIER, Bay City, Mich., assignor of one-half to Sarah A. Parke, same place. Filed Aug. 17, 1896. Serial No. 602,939. (No model.)

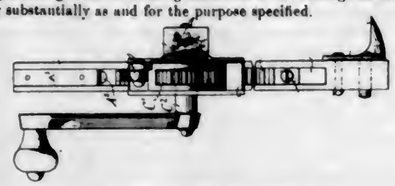


Claim.—1. The combination in a saw-swage of the swage-block provided with a central longitudinal slot for receiving the saw, an anvil-die passed into said block from its rear side and provided on the upper side of its inner end with an inclined die-face having a transversely-rounded surface, a cylindrical swaging-die passed into said block from one side and having its inner end portion extending across said anvil-die face, and provided on the portion opposing said anvil-die with a transverse recess for receiving the anvil-die and having on the bottom of said recess a die-face provided with a rounded front edge and with a longitudinal depression in its middle portion, a lever for oscillating the die, and the bolts for clamping the block upon the saw-tooth, substantially as set forth.

2. In a saw-swage the combination of the swage-block carrying an anvil-die and a cylindrical swaging-die passed from one side into said block and provided on its outer end with a lever for oscillating the die, with an arm-piece 26, provided with longitudinal slots 27, and adjustably secured to the block by bolts 14, and 19, passed through said slots and provided on its side with an arm-section 28, extending laterally toward said lever, an outer section 30, with its inner end pivotally connected to the outer end of said arm-section 28, and with its outer portion extending beyond the line of movement of said lever, and a spring for holding said outer arm-section in an extended or in an upturned position substantially as and for the purpose set forth.

579,130. CARPET-STRETCHER. DENNIS J. CARROLL, Rockford, Ill. Filed June 15, 1896. Serial No. 596,712. (No model.)

Claim.—In a carpet-stretcher, in combination, a main draft-bar, provided with a longitudinal groove therein and two openings through the bar near one of its ends, a toothed rack having holes for securing the rack in the groove, an anchor for engaging the floor, said anchor provided with a web having an opening therein for attachment to the main bar, a curving spike integral with the web and an oppositely-extending pin for receiving blows, a carriage on the main draft-bar, a draft-tree provided with draft-hooks and having a pivotal connection with the carriage, a pinion for engaging with the rack having journal-bearings in the carriage, a supporting-shaft for the pinion, a crank for rotating the shaft, a detent for locking the pinion, and a stop in the groove for limiting the travel of the carriage on the rack-bar substantially as and for the purpose specified.



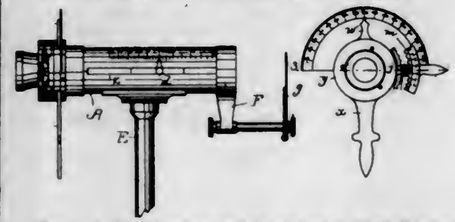
579,131. POTATO-DIGGER. FREDERICK O. CLAPP, Cuba, N. Y. Filed Jan. 14, 1896. Serial No. 575,452. (No model.)



Claim.—1. In a potato-digger, the combination with a centrally-disposed plow and the oppositely-disposed wheels having slotted peripheries and open on their adjacent ends, of the aprons relatively fixed and inclining toward each other to deposit their contents at the center of the machine, and a hopper arranged to receive the potatoes from both of said aprons, and having a slatted bottom, substantially as described.

2. The combination with the axle and the oppositely-disposed wheels having broad slatted treads and open on their adjacent ends, and the centrally-disposed plows adapted to throw the potatoes and earth into said wheels, of carriers on the inner periphery of said wheels, aprons relatively fixed and oppositely disposed and inclined toward the center and extended into said wheels and having slatted walls and a hopper disposed to receive the potatoes from said aprons and having its sides slatted and inclined, substantially as described.

579,132. OPTICAL INSTRUMENT. FRANK M. CLARK, Tilton, N. H. Filed Aug. 14, 1896. Serial No. 602,744. (No model.)



Claim.—1. In an instrument of the character specified two cylindrical lenses; mechanism for conjointly rotating said lenses in like direction to establish the axial line, and mechanism for rotating said lenses in opposite directions respectively, to ascertain the cylindrical power.

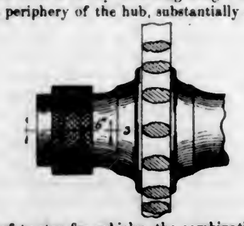
2. In an instrument for testing human eyesight a concave and a convex cylindrical lens having their axes normally in parallelism; and mechanism for rotating said lenses respectively in opposite directions simultaneously substantially as and for the purpose specified.

3. In an instrument of the class described two cylindrical lenses having their axes normally parallel; devices for rotating said lenses conjointly in one direction; an axis-scale; an index carried by said devices; mechanism for rotating said lenses respectively in opposite directions while the position of said index is sustained; and a scale for determining the rotation in opposition of said lenses substantially as set forth.

579,133. SAFETY-STEP FOR VEHICLES. JAMES T. COLE, Chicago, Ill. Filed July 15, 1896. Serial No. 599,218. (No model.)

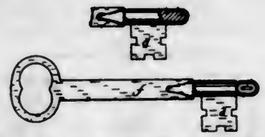
Claim.—1. In a safety-step for vehicles, the combination with the hub of the wheel, of a ring constituting the step revolubly mounted upon said hub, whereby the ring remains at rest when the foot is placed thereon, substantially as described.

2. In a safety-step for vehicles, the combination with the hub of the wheel carrying a channel, of a ring constituting the step revolubly mounted thereon and carrying a channel, antifriction devices between said ring and hub and moving within said channels, said ring being provided with inwardly-extending flanges at the edges closely engaging the periphery of the hub, substantially as described.



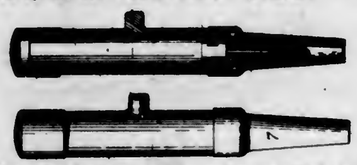
3. In a safety-step for vehicles, the combination with the hub of the wheel, of a ring constituting the step and provided with inwardly-extending flanges at the edges closely engaging the hub, peripheral channels being provided on the inner face of said ring, antifriction-balls resting between the channels in said ring and channels in the hub, and screws engaging holes in said ring situated in line with said channels to permit the insertion of the balls, substantially as described.

579,134. KEY. GARY P. COMBS and EDWARD L. WETZ, Dayton, Ohio, assignors to David E. Beeghley and Jacob H. Billman, same place. Filed Mar. 18, 1895. Renewed Dec. 10, 1896. Serial No. 615,232. (No model.)



Claim.—A key having the pilot end reduced in size and an annular groove formed at the inner terminal of said reduced portion, an oblong cap inclosing said reduced portion and having its inner end pressed into said annular groove whereby means are provided for preventing the key from being turned from without, substantially as described.

579,135. FOUNTAIN-BRUSH. HURVEY COOPER, Westfield, Mass. Filed Apr. 29, 1896. Serial No. 589,527. (No model.)



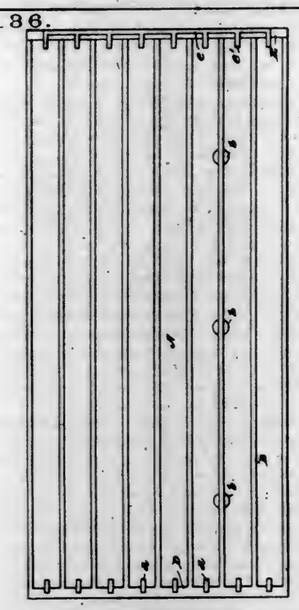
Claim.—In a fountain-brush the combination with the holder, the removable cap, the sleeve at the lower end thereof, the rubber tube secured to said holder and sleeve under tension and the inner tube having an opening therein, and the central feed-tube of the push button or pin, projecting through an opening in the holder and bearing against the rubber tube, the tube connected with the sleeves and the bristles; substantially as described.

579,136. FLOOR-DRAIN. HERBERT P. CRANE, Chicago, Ill. Filed May 8, 1896. Serial No. 590,658. (No model.)

Claim.—1. A floor-drain comprising in combination a metal frame having longitudinal ribs on its upper surface providing channels between them and transverse ledges at its ends whose upper surfaces are in the plane of the bearing edges of the ribs, spacing-lugs on the ledges and slats resting at their ends upon the ledges between the lugs the bodies of said slats being supported upon the upper edges of the longitudinal ribs, substantially as described.

2. A floor-drain comprising in combination a metal frame having an inclined upper surface and integral longitudinal parallel ribs upon said surface, providing channels of gradually-increasing depth from end to end, transverse ledges at its ends whose upper surfaces are in the plane of the bearing edges of the ribs, the said ribs affording at their deeper ends a seat for the lower ledge, and thereby forming, in combination with the ledge and bottom, openings for the escape of liquids, lugs on said ledges alternating in position with the ribs, and slats resting at their ends between said lugs and upon said ledges, and adapted to bear throughout their length upon the ribs, substantially as described.

579,136.



579,137. STAIRWAY. BERNHARD J. DANIELSON, Milwaukee, Wis. Filed June 13, 1896. Serial No. 595,407. (No model.)



Claim.—1. The combination, of a building, an angular partition extending vertically from the first floor upwardly, a platform, a series of steps leading from said platform upwardly to the first floor, said steps arranged along the outer face of one wall of the angular partition, a series of steps arranged within the angle of the angular partition, and extending from the first floor upwardly to a platform, another series of steps leading from this platform and winding around the outer faces of the walls of the angular partition, and leading to a story above, another platform arranged in the first story, a series

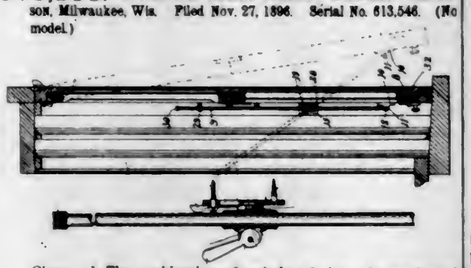
of steps ascending therefrom and leading to the second story, said steps adjacent to the outer faces of two walls of the angular partition, and a series of steps leading from the second story upwardly to an upper story, the upper portion of said steps arranged in the angle of the angular partition.

2. The combination, of a building, an angular partition therein extending from the first floor upwardly, a platform, a series of steps leading from said platform upwardly to the first floor, said steps arranged along the outer face of one wall of the angular partition, a series of steps arranged within the angle of the angular partition, and extending from the first floor upwardly to a platform, a vertical wall forming the side wall of the passage-way for these steps, and also forming a back wall for a closet, another partition extending outwardly from this back wall and forming one of the side walls of the closet, the other side wall of said closet being formed by the side wall of the building, another series of steps leading from the last-named platform and winding around the outer faces of the walls of the angular partition, and leading to the story above, another platform arranged in the first story, a series of steps ascending therefrom and leading to the second story, said steps adjacent to the outer faces of two walls of the angular partition, and a series of steps leading from the second story upwardly to an upper story, the upper portion of said steps arranged in the angle of the angular partition.

3. The combination, of a building, an angular partition therein extending vertically from the first floor upwardly, a platform, a series of steps leading from said platform upwardly to the first floor, said steps arranged along the outer face of one wall of the angular partition, a series of steps arranged within the angle of the angular partition, and extending from the first floor upwardly to a platform, another series of steps leading from this platform and winding around the outer faces of the walls of the angular partition, and leading to a story above, another platform arranged in the first story, a series of steps ascending therefrom and leading to the second story, said steps adjacent to the outer faces of the walls of the angular partition, and a series of steps leading from the second story upwardly to an upper story, the upper portion of said steps arranged in the angle of the angular partition, and the space in the second story not taken up by this final series of steps being formed into a closet.

4. The combination, of a building, an angular partition extending vertically from the first floor upwardly, a platform, a series of steps leading downwardly from said platform to the cellar or basement, a series of steps leading upwardly from said platform to the first floor, said steps arranged along the outer face of one wall of the angular partition, a series of steps arranged within the angle of the angular partition, and extending from the first floor upwardly to a platform, another series of steps leading from this platform and winding around the outer faces of the walls of the angular partition, and leading to a story above, another platform arranged in the first story, a series of steps descending therefrom and arranged against the inner side of a downwardly-extending portion of one of the walls of the angular partition, said steps leading to the cellar or basement, a series of steps ascending from this platform and leading to the second story, said steps adjacent to the outer faces of two walls of the angular partition, and a series of steps leading from the second story upwardly to an upper story, the upper portion of said steps arranged in the angle of the angular partition.

579,138. STORM AND SCREEN FRAME. BERNHARD J. DANIELSON, Milwaukee, Wis. Filed Nov. 27, 1896. Serial No. 613,546. (No model.)



Claim.—1. The combination, of a window-facing, a frame pivoted at its upper edge to the upper edge of the window-casing, a rod pivoted at or near the lower end of the frame, a swiveled sleeve secured to the inner side of the window-casing, said sleeve adapted to have the rod pass therethrough, and provided upon its outer side with an opening, a plate fitted in said opening, and a cam pivoted to the sleeve, and adapted to bear against the plate and to cause said plate to bear against the rod.

2. The combination, of a window-casing, a frame pivoted at its upper edge to the upper edge of the window-casing, a rod pivoted at or near the lower end of the frame, a swiveled sleeve secured to the inner side of the window-casing, said sleeve adapted to have the rod pass therethrough, and provided upon its outer side with an opening, a plate fitted in said opening and provided with shoulders bearing against the end bordering edges of the opening of the sleeve to prevent lengthwise slipping of the plate, and a cam adapted to bear against the plate, and to cause said plate to bear against the rod.

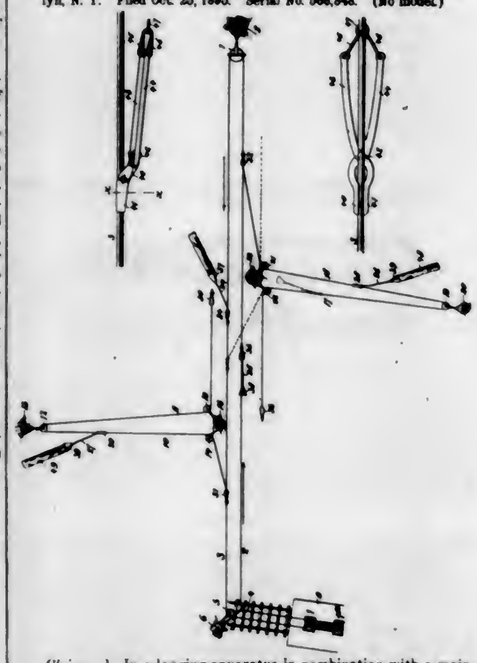
3. The combination, of a window-casing, a frame pivoted at its upper edge to the upper edge of the window-casing, a rod pivoted at or near the lower end of the frame, a plate secured to the side of the window-casing and provided with an elongated opening leading to a larger opening, a pivoted arm adapted to be turned so as to close the end of the elongated opening, a sleeve through which the rod passes, said sleeve provided with a projecting stem extending through the elongated opening of the plate, and formed or provided at its inner end with an enlargement or head adapted to be located between the inner face of the plate and the side of the window-casing, and means for holding the rod in adjusted position within the sleeve.

579,139. TOOTHPICK. GEORGE B. DEARDORFF, Canal Dover, Ohio. Filed Nov. 27, 1896. Serial No. 613,557. (No model.)



Claim.—As an improved article of manufacture a toothpick consisting of the handle A, provided with the recess *b*, having therein the tip *c*, the lateral opening *d*, leading into the recess *b*, substantially as and for the purpose specified.

579,140. LOGGING APPARATUS. JOSEPH H. DICKERSON, Brooklyn, N. Y. Filed Oct. 26, 1895. Serial No. 566,848. (No model.)



Claim.—1. In a logging apparatus, in combination with a main-line rope and a side-line rope, the following parts whereby the side-line rope is controlled, viz: a side-line tail-support, a sheave connected therewith and a means of attachment with the main-line rope, substantially as described.

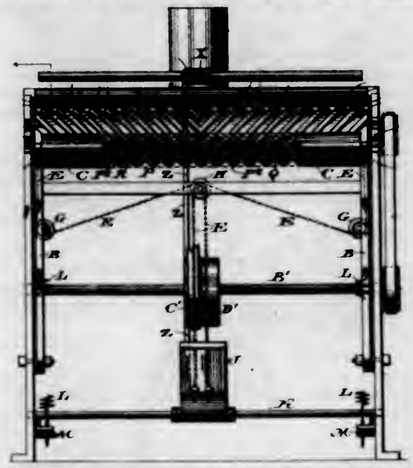
2. In a logging apparatus, in combination with a main-line rope and a side-line rope, the following parts whereby the side-line rope is controlled, viz. a side-line tail-support, a sheave connected therewith and means of attachment with the main-line rope at each end of the side-line rope whereby said side-line rope may be hauled in either direction by the main-line rope, substantially as described.

3. In a logging apparatus, in combination with a main-line rope and a side-line rope, the following parts whereby the side-line rope

is controlled, viz: a side-line tail-support, a side-line head-support, sheaves connected with said supports, a connection with the main-line rope at each end of the side-line rope and a side-line branch rope connected with the side-line rope, substantially as described.

4. In a logging apparatus, in combination with the main-line rope and two side-line ropes on opposite sides of said main line, the following parts for operating each of said side-line ropes, viz: a side-line head-support, a side-line tail-support, sheaves connected with said supports, an attachment with the main-line rope at the end of the said side-line rope, substantially as described.

579,141. MACHINE FOR TREATING SKINS. ROBERT N. DUNN, Philadelphia, Pa. Filed Mar. 10, 1896. Serial No. 582,562. (No model.)



Claim.—1. In a machine of the character described, a seasoning-roll having strips of absorbent material arranged spirally thereon, a trough above said roll having perforations in its base, a valved color-supply pipe discharging into said trough, means for holding a skin against said roll, and means for operating said holding means and said valve in unison, said parts being combined, substantially as described.

2. In a machine of the character described, a suitable housing, a roll journaled therein, said roll having oppositely-inclined helical grooves therein, a strip of felt or similar material inserted in said grooves, a rope adjacent to said felt for holding the same in position, a perforated trough located above said roll, a perforated discharge-pipe located above said trough, a receptacle and a valved connection intermediate the latter and said discharge-pipe, in combination with means for holding a skin against said roll operated in unison with the said valve, substantially as described.

3. In a machine of the character described, a suitable housing, a roll journaled therein, said roll being provided with oppositely-inclined helical ridges composed of felt or other similar material, a valved pipe extending longitudinally of said roll, a receptacle containing the material employed in seasoning or otherwise treating skins connected to said pipes, a treadle, connections intermediate said treadle and the valve in said pipe, means for holding said treadle normally in raised position, and said valve in closed position, arms pivotally mounted on said housing, a roll adapted to support a skin mounted on said arms, and connections from the latter leading to said treadle for bringing said roll in contact with the seasoning-roll, substantially as described.

4. In a machine of the character described, a seasoning-roll, the same consisting of a cylindrical body, having oppositely-inclined helical grooves therein, a piece of felt or similar material doubled upon itself and inserted in said grooves, and a rope located in the bottom of said grooves adjacent said felt and adapted to lock the latter in position, substantially as described.

5. In a machine of the character described, a suitable housing, an absorbent roll journaled therein, said roll being provided with oppositely-inclined helical ridges or convolutions, a perforated trough with a communicating supply-tank for applying a suitable fluid to said roll, and a roller intermediate said trough and said roll for causing said fluid to be evenly distributed upon the latter, substantially as described.

579,142. ARTIFICIAL CEMENT. WILLIAM P. EMERY, Topeka, Kans. Filed Aug. 5, 1895. Serial No. 558,299. (No specimens.)

Claim.—The herein-described composition of matter, to be used for the production of an artificial cement, consisting of molasses, granite fiber, oxid of iron, plumbago, rosin, and paraffin, in the proportions and for the purposes specified.

579,143. BEVEL-GAGE. DAVID W. FISH and FRANK BARRAGAN, Dolgeville, N. Y. Filed June 27, 1896. Serial No. 597,165. (No model.)

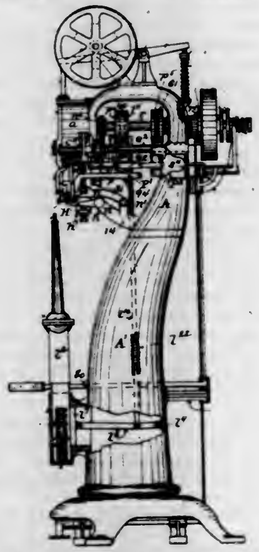


Claim.—1. The combination with a gage arm or bar and with a slide or clasp movable longitudinally thereon, of a bevel-adjusting device, comprising a pair of parallel slotted, sector-shaped wings which embrace said bar and slide, and a plate portion which connects the front edges of said wings and is cut away to receive the said slide, the lower edge of the cut-away portion having a pivotal bearing on the bottom of said slide, and an adjusting bolt or screw passing through the slots of said wings and also engaging said slide, said bolt or screw serving the threefold purpose of connecting the slide and bevel-adjusting device, of securing the adjustment of said slide upon the gage arm or bar, and of securing the angular adjustment of said device, substantially as specified.

2. The combination with the gage arm or bar, and with a slide movable longitudinally thereon, and having projecting parallel lugs upon one side of the bevel-adjusting device having the slotted parallel wings which embrace said bar and slide and whose end portion is cut away to receive the same and is provided with a pivoted bearing on the bottom of said slide, and the bolt extending through the slots of said wings and also through perforations of the said lugs, said bolt affording means for connecting the slide and bevel-adjusting device, and also for securing the adjustment of the slide upon the bar and the angular adjustment of said device, substantially as specified.

3. The combination with the gage arm or bar having a marker or scratch, of a clasp which engages said bar, and is designed to slide longitudinally thereon, said clasp having its bottom portion beveled and slotted, and the adjusting device having a pivotal bearing on the bottom of said clasp, and consisting of two parallel slotted sector-wings which embrace the said clasp, and are connected by a laterally-extended plate portion which is cut away to embrace the clasp, a bolt which loosely engages the slots of said wings, and which also engages the said clasp, and a thumb-nut on said bolt, substantially as specified.

579,144. SOLE-MACHINE. GEORGE H. GIFFORD, Brockton, Mass. Filed Dec. 13, 1895. Serial No. 571,975. (No model.)



Claim.—1. In a machine for operating upon the soles of boots and shoes the combination of a nailing device, a trimming device, connected mechanisms for actuating the nailing and trimming devices.

and means for independently actuating the trimming device, substantially as described.

2. In a machine for operating upon the soles of boots and shoes the combination of a nailing device, a trimming device, connected mechanisms for actuating the nailing and trimming devices, and a gage formed and held in position to bear upon the lasted upper against the counter and to guide the shoe to the nailing and trimming devices while being turned to pass the gage around the back of the last, substantially as described.

3. In a machine for operating upon the soles of boots and shoes the combination of a movable trimming-knife for operating upon the edge portion of the sole, a movable tool for operating upon the bottom of the sole, connected mechanisms for actuating the knife and tool, and means controlled by the operator for throwing the tool out of operation during the operation of the knife, substantially as described.

4. In a machine for operating upon the soles of boots and shoes the combination of a nailing device, a trimming device, a work-feeding device, connected mechanisms for operating the nailing, trimming and work-feeding devices, and means for operating the trimming and work-feeding devices independently of the nailing device, substantially as described.

5. In a machine for operating upon the soles of boots and shoes the combination of a nailing device, a trimming device, a work-feeding device, connected mechanisms for actuating the nailing, trimming, and work-feeding devices, and means controlled by the operator for stopping the operation of the nailing device during the operation of the trimming and work-feeding devices, substantially as described.

6. In a machine for operating upon the soles of boots and shoes the combination of a nailing device, a vibrating trimming device, mechanism for actuating said devices, and work-feeding mechanism timed and arranged to present the edge of the sole to the trimming device and to space the nails driven by the nailing device, substantially as described.

7. In a machine for operating upon the soles of boots and shoes the combination of a tool for operating upon the bottom of the sole, a trimming-knife for operating upon the edge portion of the sole, a shaft and suitable connections for actuating the tool, a shaft and suitable connections for actuating the knife, suitable clutches connecting said shafts with a common driving mechanism, said driving mechanism, and means for controlling the clutches, substantially as described.

8. In a machine for operating upon the soles of boots and shoes the combination of a tool for operating upon the bottom of the sole, a trimming-knife for operating upon the edge portion of the sole, independent operating mechanisms connected respectively with the tool and knife, actuating means common to both operating mechanisms, and means under the control of the operator for connecting one or both operating mechanisms with the common actuating means to secure a joint operation of the knife and tool, and a separate operation of the knife, substantially as described.

9. In a machine for operating upon the soles of boots and shoes, the combination with suitable wire cutting and driving mechanisms, of a pair of feed-rolls for feeding the wire to the wire-cutting mechanisms, and mechanism for actuating one of said rolls, comprising a shaft upon which the roll is mounted, a disk fixed upon said shaft, a casing movable independently of the disk and arranged to frictionally engage the same, a positively-actuated swinging lever, and a connecting-rod pivotally and adjustably connected with the swinging lever, substantially as described.

10. In a machine for operating upon the soles of boots and shoes the combination of a tool for working upon the bottom of the sole, a trimming-knife for working upon the edge portion of the sole, a shaft and tubular shaft inclosing the same, suitable connections between the shaft and tool, suitable connections between the tubular shaft and trimming-knife, means for rotating the tubular shaft independently of its inclosed shaft, and means for rotating both shafts together, substantially as described.

11. In a machine for operating upon the soles of boots and shoes the combination, with a suitable nailing mechanism, of a trimming-knife, a work-gage, and means for adjusting both the work-gage and knife transversely to the direction of the travel of the work, substantially as described.

12. In a machine for operating upon the soles of boots and shoes the combination, with a suitable nailing mechanism, of a work-gage and trimming-knife both adjustable transversely to the direction of the travel of the work, and means for vertically adjusting the work-gage, substantially as described.

13. In a machine for operating upon the soles of boots and shoes the combination, with a trimming-knife, of a cutter-plate movable vertically and transversely to the direction of the travel of the work, an adjustable stop for limiting the downward movement of the cutter-plate, and clamping means for holding the cutter-plate from motion transversely to the direction of the travel of the work, substantially as described.

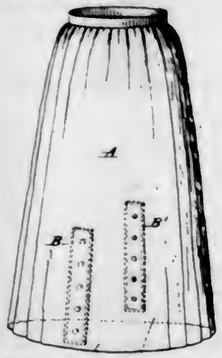
14. In a machine for operating upon the soles of boots and shoes, the combination, with a nailing device for operating upon the bottom of the sole, of a trimming-knife for operating upon the edge portion of the sole, an oscillating lever carrying the trimming-knife, and connected mechanisms for actuating the lever and nailing device, substantially as described.

15. In a machine for operating upon the soles of boots and shoes, the combination of a nailing device acting upon the bottom of the sole, a vibrating trimming-knife operating upon the edge of the sole, connected mechanisms for actuating the nailing device and knife, and means for interrupting the operation of the nailing device during the continued operation of the knife, substantially as described.

16. In a machine for operating upon the soles of boots and shoes the combination, with associated parts of a nailing device, of a reciprocating driver, a trimming device, a work-feeding device, a single actuating means and suitable connecting mechanisms for reciprocating the driver and actuating the work-feeding device, and means for interrupting the reciprocation of the driver during a continued operation of the work-feeding device by said actuating means, substantially as described.

17. In a machine for operating upon the soles of boots and shoes the combination, with a nailing device and a trimming device, of connected mechanisms for positively actuating said devices, and means for interrupting the action of the nailing device, permitting a continued operation of the trimming device by said connected mechanisms, substantially as described.

579,145. BICYCLE-SKIRT. ALEXANDER M. GERAN, New York, N. Y., assignor to Charles Cohn & Co., Baltimore, Md. Filed Dec. 19, 1896. Serial No. 616,258. (No model.)



Claim.—1. A bicycle-skirt provided with a series of separable fastening devices, arranged in a substantially vertical line, said fastening devices each comprising two coacting parts, one series of parts being secured to the inside of the middle of the front of the skirt, while the other series of corresponding parts is secured to the inside of the back of the skirt, whereby the middle of the front and back of the skirt may be detachably secured together.

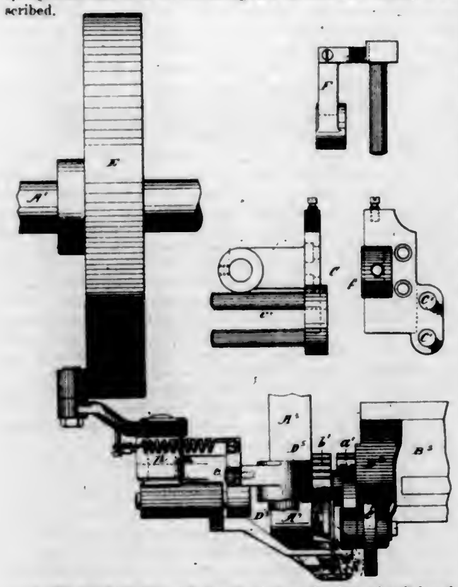
2. A bicycle-skirt provided with a series of separable fastening devices arranged in a substantially vertical line, said fastening devices each comprising two coacting parts, one series of parts being secured to the inside of the middle of the front of the skirt, while the other series of corresponding parts is secured to the inside of the back of the skirt, the front series of parts of said fastening devices being nearer the bottom of the skirt than the series at the back, whereby the sides and front of the skirt when in its fastened condition are drawn toward the back, substantially as described.

579,146. SHOE-SEWING AND WELT-BEVELING MECHANISM. JOHN B. HADAWAY, Brockton, Mass. Filed Aug. 5, 1896. Serial No. 601,772. (No model.)

Claim.—1. In a shoe-sewing machine, the combination with the stitch-forming and work-feeding mechanism, of welt-beveling mechanism actuated independently of the work-feeding mechanism, substantially as described.

2. The combination, with shoe-sewing mechanism, of welt-beveling mechanism comprising a carrier, a knife-carrying arm projecting therefrom, a suitable support and guide for said carrier and means to actuate the same, substantially as described.

3. The combination, with shoe-sewing mechanism, of welt-beveling mechanism comprising a knife-carrier and suitable guiding devices upon which it is mounted and adapted to slide, of a cam-actuated spring-controlled lever for actuating said carrier, substantially as described.



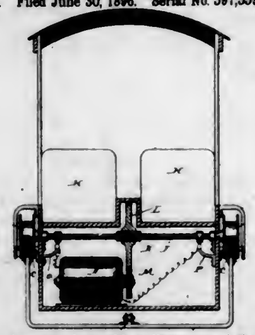
4. The combination, with shoe-sewing mechanism, of welt-beveling mechanism comprising a knife-carrier, provided with an outwardly-bent arm extending from the lower edge thereof, substantially as described.

5. The combination with shoe-sewing mechanism, of welt-beveling mechanism, comprising a suitable bracket provided with supporting and guiding devices, a knife-carrier mounted upon and guided thereby, a lever pivoted to said bracket and actuating said carrier, and means to actuate said lever, substantially as described.

6. The combination, with shoe-sewing mechanism, a presser-foot and means to actuate the same, of independently-actuated welt-beveling mechanism arranged to bevel a portion of the welt, while the work is clamped by the presser-foot, substantially as described.

7. The combination, with shoe-sewing mechanism, of welt-beveling mechanism comprising a bracket, an arm and guide-rods on said bracket, a knife-carrier adapted to be reciprocated on said guides, a lever pivoted to the arm, connections between the lever and knife-carrier, and means to oscillate the lever, substantially as described.

579,147. SUSPENSION-RAILWAY. DANIEL M. HARMAN, Philadelphia, Pa. Filed June 30, 1896. Serial No. 597,559. (No model.)



Claim.—1. A suspension cable-railway, consisting of a series of cables arranged parallel with each other and having rails superimposed thereon, and a series of spreader-yokes for holding said cables parallel with each other, as specified.

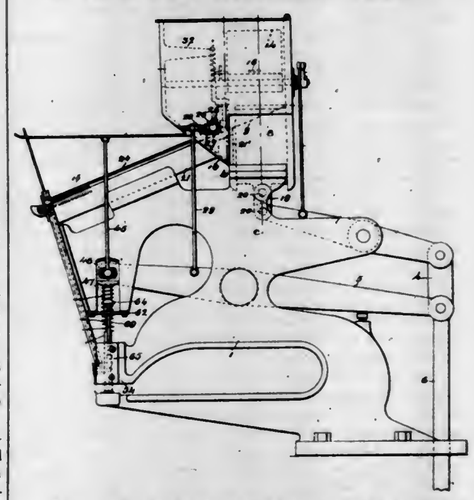
2. In a suspension cable-railway, a series of cables arranged side by side, a series of rails superimposed thereon, a series of loops for securing the ends of said rails and cables in position, and a series of spreader-yokes secured to said loops for maintaining each series of the cables parallel, as shown and described.

3. In a suspension cable-railway, two parallel tracks, consisting of two or more cables arranged side by side, rails superimposed upon said cables, said rails having their ends halved, loops adapted to fit within said halving and lie flush with the upper surface of the rails, spreader-yokes secured to said loops so as to maintain the tracks in parallelism in combination with cars adapted to travel upon said tracks, as shown and described.

4. In a suspension cable-railway, two tracks, each consisting of two rails composed of cables and superimposed strips, spreader-yokes for holding said rails in their proper relative position, stations from which said tracks are suspended, semicircular tracks arranged within each of the stations with which the ends of the suspended track connect, an electric car adapted to travel upon said tracks having double-flanged wheels to prevent their displacement, and an electric motor for propelling the same, substantially as shown and described.

5. A cable-track for a suspension-railway of the character described, consisting of two or more cables, yokes for holding said cables parallel, said yokes having bifurcated ends which partially embrace the cables and a track lying on the cables between the bifurcations, as specified.

579,148. STAPLE-SETTING MACHINE. GILBERT HAY, St. Louis, Mo. Filed Feb. 24, 1896. Serial No. 580,564. (No model.)



Claim.—1. In a staple-setting machine, a suitable hopper, an agitating or rocking box for depositing the staples into said hopper, means for successively conducting the staples from said hopper, a chute for the reception of the staples so conducted, and suitable staple-setting devices at the delivery end of the chute, substantially as set forth.

2. In a staple-setting machine, a suitable hopper, an agitating-box for depositing the staples into said hopper, a suitable guide plate or rail for conducting the staples from the hopper, an inclined chute for the reception of the staples, and suitable staple-setting devices at the delivery end of the chute, substantially as set forth.

3. In a staple-setting machine, a suitable hopper for depositing the staples thereinto, a suitable guide plate or rail for conducting the series of staples from the hopper, said rail having an expanded portion confined within the hopper, means for elevating and depositing the staples from the bottom of the hopper onto the expanded portion of the rail, said expanded portion and rail proper being inclined to permit the staples to slide down the expanded portion and then straddle the rail proper and ride down to the lowest point thereof, an inclined chute for the reception of the staples riding down the rail, and suitable staple-setting mechanism at the delivery end of the chute, substantially as set forth.

4. In a staple-setting machine, a suitable hopper for depositing the staples thereinto, a suitable guide plate or rail for conducting the series of staples from the hopper, said rail having an expanded portion or plate confined within the hopper, means for elevating and depositing the staples from the bottom of the hopper onto said plate, means for righting the position of each staple on the rail, means for preventing the interlocking or bunching of the staples before deposited on the rail, suitable staple-setting mechanism for the staples, and suitable means for conducting the staples from the rail to the said staple-setting mechanism, substantially as set forth.

5. In a staple-setting machine, a suitable hopper for the deposition of the staples, a rail for conducting the staples from the hopper, a chute at the lower end of the rail for the reception of the staples conducted by the rail, a controlling-plate at the meeting of the rail and chute, a releasing-plate actuated by the controlling-plate adapted to drop each staple into the chute, an intercepting plate or block at the delivery end of the chute, and suitable staple-setting mechanism also at the delivery end of the chute, substantially as set forth.

6. In a staple-setting machine, a suitable hopper, a chute, means for conducting the staples from the hopper to the chute, a suitable plunger, mechanism for actuating the plunger, a staple-releasing plate at the upper end of the chute, an intercepting-block at the delivery end of the chute, and means actuated by the plunger for controlling the intercepting-block, substantially as set forth.

7. In a staple-setting machine, a suitable hopper, a rock-shaft mounted therein, a box carried by said shaft, openings at the bottom of said box for shaking out the contents of the same, a second shaft mounted in the hopper transverse to the rock-shaft, means for intermittently rotating said second shaft, a rail leading from the hopper in proximity to the second shaft, means for elevating the staples onto said rail, suitable brushes and radiating arms carried by the second shaft for righting the position of the staples on the rail and preventing interlocking of the said staples, and additional means for sweeping or brushing off the staples carried up by the radiating arms, substantially as set forth.

8. In a staple-setting machine, a suitable hopper for the staples, a guide-rail having an outer narrow portion for leading or conducting the staples from said hopper and an inner or upper portion or end on which the staples are initially deposited, the inner or upper end of the said rail being located at a suitable distance above the bottom of the hopper, and suitable vertically-reciprocating elevating devices embracing the sides of and disposed adjacent to the inner end of the rail for depositing the staples from the bottom of the hopper onto the guide-rail, substantially as set forth.

9. In a staple-setting machine, a suitable hopper, a guide-rail leading therefrom and having a narrow and expanded portion, said expanded portion being confined within the hopper, plates embracing the said expanded portion of the rail, inwardly-inclined upper parallel edges for said embracing-plates, means for reciprocating said embracing-plates to and from the bottom of the hopper and to and from the upper expanded portion of the rail, whereby the staples at the bottom of the hopper are elevated and deposited on said rail, and suitable means for conducting the staples to a staple-setting mechanism, substantially as set forth.

10. In a staple-setting machine, a suitable hopper, a rail for conducting the staples from said hopper, a rotating shaft carrying radiating arms for preventing the interlocking of the staples, a spring-controlled trigger pivoted within the hopper and having a brush at its free end adapted to come in contact with the staples picked up by the radiating arms, a rock-shaft mounted transverse to the rotating shaft and carrying an arm, a pin projecting from the trigger with which said arm comes in contact with one oscillation of the rock-shaft whereby the trigger is normally forced against the resiliency of the spring controlling it, a spring-controlled finger having a projecting pin and adapted to engage with the trigger when in its normal position, said arm on the rock-shaft adapted to come in contact with the pin on said finger and trip the latter out of engagement with the trigger on the return oscillation of the rock-shaft, whereby the trigger is released and under the resiliency of the spring controlling it is adapted to brush against any staple carried up by the radiating arms, and sweep said staples back into the hopper, substantially as set forth.

11. In a staple-setting machine, a suitable hopper, a rail leading from said hopper and adapted to conduct the staples out of the same, an inclined chute at the lower end of the rail, a spring-arm extending from the hopper, a controlling-plate suspended or secured at one end from the free end of the spring-arm, the opposite end of the controlling-plate adapted to control the staples sliding down the rail, a spring-controlled releasing-plate normally closing the passage of the chute, a reciprocating cross-head, a connecting bar or rod between the cross-head and the spring-arm carrying the controlling-plate, whereby as the cross-head reciprocates in one direction the free end of the spring-arm is depressed and the controlling-plate actuates or trips the releasing-plate to permit the staple temporarily carried by it to drop through to the bottom of the chute, an intercepting-block at the delivery end of the chute, and means actuated by the cross-head for controlling the intercepting-block, substantially as set forth.

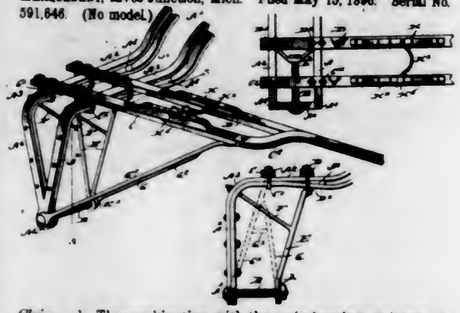
12. In a staple-setting machine, a suitable chute, means for delivering staples into said chute, a staple-releasing plate at the upper end of the chute, a suitable frame, a head forming a part of said frame, a slideway mounted in said head, the delivery end of the chute being in communication with the slideway a suitable distance above the lowest end or throat thereof, a spring-controlled intercepting-block carried by the head and normally adapted to close the opening at the base of the chute, a reciprocating plunger having an extension passing through and operating within the slideway, and means carried by the head and actuated by the reciprocation of the plunger for shoving aside the intercepting-block and allowing the staple to drop into the throat of the slideway, substantially as set forth.

13. In a staple-setting machine a suitable frame, a head forming part of the same, a plate embracing the head, a slideway interposed between the embracing-plate and the head and adapted to reciprocate within its confines, a spring-plate having secured at its free end a block and a finger on each side of said block, suitable openings for the free passage of the block and fingers, an inclined chute leading to the slideway and opening thereinto and passing through suitable openings in the embracing-plate and slideway cut away for its reception, the spring controlling the intercepting-block adapted to normally hold the latter under the open or delivery end of the chute, a reciprocating plunger mounted in the frame, a cross-head for said plunger, a guideway for the cross-head, a plate at the base of the guideway, rods passing through the plate and adapted to be struck by the cross-head, suitable passages formed in the embracing-plate at right angles to the passages made for the reception of the fingers and in communication with said passages, the bases of the rods struck by the cross-head passing through the last-named passages and adapted upon the reciprocation of the cross-head and plunger in one direction to force said fingers and block outwardly and thus open the delivery end of the chute and allow the staple to drop into the throat of the slideway, substantially as set forth.

14. In a staple-setting machine, a suitable head, a slideway movably mounted in the same, a reciprocating plunger, an extension for the same, and passing through said slideway, a slot in one of the faces of the slideway, a pin carried by the plunger extension and passing through the slot, a head on said pin, a groove formed in the head for the reception of the said pin-head, whereby the pin carries the slideway with the plunger on its upward stroke, a cross-head for the plunger, and a coiled spring encircling the plunger and extension and interposed between the cross-head and the adjacent end of the slideway, substantially as set forth.

15. In a staple-setting machine, a suitable hopper for the staples, a guide-rail having a narrow portion for leading or conducting the staples from said hopper, and an inner or upper wide portion or end on which the staples are initially deposited, the inner or upper end of the conducting-surface of said rail being located at a suitable distance above the bottom of the hopper, and suitable elevating devices for depositing the staples from the bottom of the hopper onto the guide-rail, substantially as set forth.

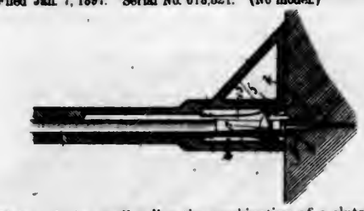
579,149. TROTTING-SULKY. JOHN J. HAYWOOD and HENRY MARQUEDANT, Rives Junction, Mich. Filed May 15, 1896. Serial No. 591,646. (No model.)



Claim.—1. The combination with the main bearings or beams A, arched at A', bent horizontally at A^2, turned at A^3, to provide the side members A^4, said beams converging and meeting at a point A^5, and provided with bearings for the axles B, of the thills C, secured to the horizontal portions A^3, the thill-braces D, attached to the thills from the inner side, the brace-rods E, converging as described, the truss-rods F, connecting the brace-rods with the side members, the forward brace-bar G, and the second brace-rod G', all arranged and adapted to operate, substantially as shown and described.

2. The combination with the thill C, of the thill-brace D, the perforated plate H, arranged upon the top of the brace D, and a similar plate H', arranged upon the top of the thill C, and a second foot-rest H^3, having a hook H^3, at the inner end adapted to engage the perforated plate H, the opposite end of said foot-rest being flattened and adapted to slide beneath the plate H', said flattened end having an aperture H^4, a thumb-screw H^5, adapted to pass through the perforated plate H', and engage the threaded aperture H^4, substantially as and for the purpose described.

579,150. NAIL-PULLER. FRANK B. JOHNSON, Addison, N. Y. Filed Jan. 7, 1897. Serial No. 618,321. (No model.)

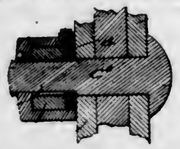


Claim.—1. In a nail-puller, the combination of a clutch consisting of jaws adapted to engage a nail or spike, means for elevating and depressing the clutch, contracting devices to force the jaws toward each other as they are depressed, an automatic locking device for connecting and securing the jaws in their contracted relative position, and a trip for disengaging the locking device and releasing the jaws when the latter are elevated, substantially as specified.

2. In a nail-puller, the combination of a clutch having jaws adapted to be contracted to engage a nail or spike, means for elevating and depressing the clutch, contracting devices for forcing the jaws toward each other as they are depressed, a latch mounted upon one of the jaws to engage a retaining pin or stud on the other jaw to hold the jaws in their contracted position, and a trip pin or stop arranged in the path of an extension of the latch to disengage the latch and release the jaws during the upward movement of the latter, substantially as specified.

3. In a nail-puller, the combination of a clutch having jaws adapted to engage a nail or spike, means for elevating and depressing the clutch, contracting devices adapted to force the jaws toward each other during their downward movement, a locking device consisting of a latch pivotally mounted upon one of the jaws and adapted to automatically engage a retaining pin or stud on the other jaw, and an adjustable trip pin or stop arranged in the path of a rearward extension of the latch and adapted to disengage the latch and release the jaws during the upward movement of the latter, substantially as specified.

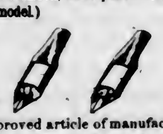
579,151. NUT-LOCK. JOHN B. KEARNEY, Canyon, Colo. Filed Nov. 16, 1896. Serial No. 612,238. (No model.)



Claim.—1. A nut and bolt lock comprising a bolt having longitudinal clutch-seats, a clutch-washer of corresponding cross-section, a nut, a clutch-cylinder having a cover end to fit the end of the bolt and a stud-bolt, to hold the said cylinder upon the washer substantially as described.

2. A nut and bolt lock comprising a bolt provided with longitudinal clutch-seats, a nut screw-threaded to fit thereon, a clutch-cap to fit over said nut and over the end of the bolt, and a stud-bolt fitted upon the clutch-cap substantially as described.

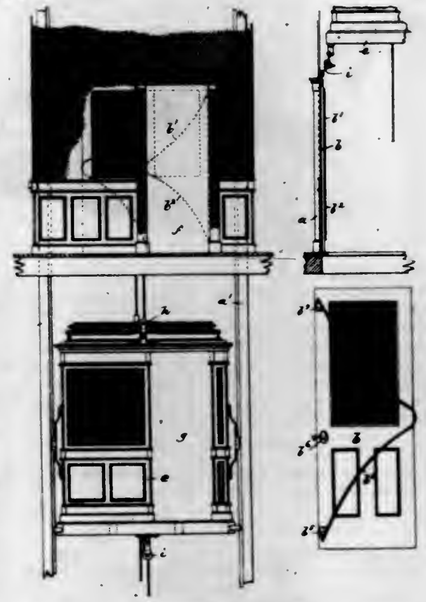
579,152. PEN. WILLIAM T. KEEFER, Bedford, Ind., assignor of one-half to Henry P. Pearson, same place. Filed Sept. 9, 1896. Serial No. 605,310. (No model.)



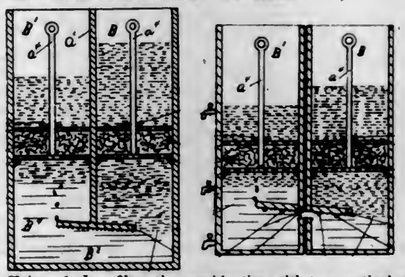
Claim.—As an improved article of manufacture, a pen-point, having the point and head portions, and a tongue punched from the intermediate portions and rolled downwardly toward the point on the upper face of the pen, and stopping short of the slit in the point, said tongue being rolled in the shape of a transverse cylinder, said cylinder being slitted or perforated adjacent to the slit in the point of the pen, substantially as shown and described.

579,153. ELEVATOR-DOOR-CLOSING MECHANISM. WALTER J. KNIGHT, Newark, N. J. Filed Dec. 3, 1896. Serial No. 614,280. (No model.)

Claim.—The combination with the sliding door of an elevator-shaft and with the elevator-car, of a flat strip secured to the door and forming inclined planes diverging from the center of the door, antifriction-rollers in alinement with the ends of said inclines when the door is fully open, spring-controlled pivoted arms supporting said antifriction-rollers, and a bracket for each of said pivoted arms and secured to the car, all said parts, substantially as and for the purposes described.



579,154. FILTER. ALVARO S. KROTZ, Springfield, Ohio. Filed June 3, 1896. Serial No. 594,097. (No model.)



Claim.—1. In a filter the combination with two vertical chambers a communication near the bottom and between said chambers and a filtering-partition placed within the chambers and above said openings, and a cross wall or plate located near to and above said communication and placed on an oblique angle, and an opening between the outer edge of said cross-wall and the wall of the apparatus.

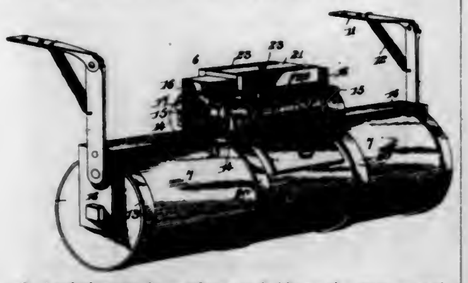
2. In a filter the combination with the wall or walls separating the tanks, of an inclined plate provided with downwardly-projecting ribs or strips between or around which the oil is forced to travel by said plate being subjected to a water-pressure from below.

579,155. PRINTING ATTACHMENT FOR PAPER-HOLDERS. JAMES E. MARSDEN, Fond du Lac, Wis. Filed Oct. 23, 1896. Serial No. 566,645. (No model.)

Claim.—1. A printing attachment for paper holders and cutters comprising a hanger designed to be hinged to the frame of a paper holder and cutter, a printing-roll journaled in the hanger, an inking-roll mounted in the hanger and yieldingly contacting with the printing-roll, and a brush engaging the inking-roll and provided with ink-passages, substantially as and for the purpose described.

2. A printing attachment for paper holders and cutters comprising a hanger provided with a rectangular bend, a printing-roll journaled in the hanger and located adjacent to the bend, a bearing-frame arranged within the hanger and slidingly connected with the same at the sides of the bend, inking-rolls journaled in the bearing-frame

and contacting with the printing-roll, a spring-engaging the bearing-frame, and holding the inking-rolls against the printing-roll, and a brush mounted on the hanger at the top thereof, and provided at opposite sides of the same with tufts, and having ink-passages communicating with the tufts, substantially as described.



3. A printing attachment for paper holders and cutters, comprising a hinged hanger provided with a rectangular portion, a printing-roll journaled in the hanger and located adjacent to the rectangular portion, a bearing-frame arranged within the rectangular portion of the hanger and slidingly connected with the sides of the same, a pair of inking-rolls journaled on and carried by the bearing-frame, and a single spring interposed between the bearing-frame and the top of the rectangular portion of the hanger and holding both inking-rolls in contact with the printing-roll, substantially as described.

579,156. LAMP. RIVERIUS MARSH, New Brunswick, N. J. Filed Dec. 18, 1896. Serial No. 572,558. (No model.)



Claim.—1. In a lamp-chimney, the combination with the cylindrical base and the vertical supports secured thereto, of the chimney having a peripheral bead intermediate its ends, and the ring encircling said chimney between which and the chimney the said supports pass, substantially as described.

2. In a lamp-chimney, the combination with the cylindrical base and the vertical supports secured thereto, of the cylindrical chimney having a peripheral bead intermediate its ends, the loops formed above and below said bead, the bent arms engaging therewith for supporting a shade and a globe and the ring encircling the upper ends of said supports, substantially as described.

3. In a lamp-chimney, the combination with the cylindrical base, and the vertical supports secured thereto, having transverse ribs or corrugations on their outer sides, of the chimney having a peripheral bead intermediate its ends, the loops above and below the same, the bent arms engaging therewith, and the ring encircling the upper ends of said supports, substantially as described.

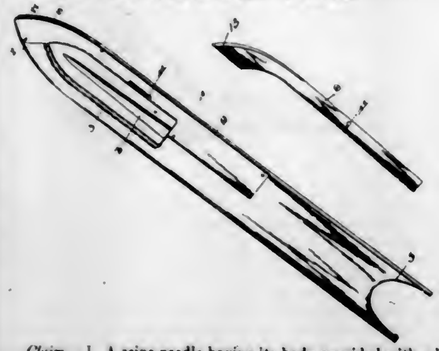
4. In a lamp-chimney, the combination with the cylindrical base, the vertical supports, having transverse ribs or corrugations on their outer sides, of the chimney having the lower end formed with vertical peripheral corrugations and the ring encircling the upper ends of said rods, and cooperating with said corrugations, substantially as described.

5. In a lamp-chimney, the combination with the cylindrical base and the vertical supports connected therewith, of the chimney having vertical peripheral corrugations at the lower end, and the ring encircling the upper end of said supports and cooperating with said corrugations, substantially as described.

6. In a lamp-chimney, the combination with the cylindrical base, and the vertical supports connected therewith having transverse ribs or corrugations on their outer sides, of the chimney, having a peripheral bead intermediate its ends, and formed with vertical peripheral corrugations below said bead, the loops, the bent arms and the ring encircling said supports at their upper ends, and cooperating with said corrugations, substantially as described.

7. In a lamp-chimney, the combination with the cylindrical base, and the vertical supports connected therewith having transverse ribs or corrugations on their outer sides, of the cylindrical metal chimney having peripheral corrugations at the lower end, a peripheral bead near the upper end and a mica cylinder secured to the upper end provided with a metal cap, substantially as described.

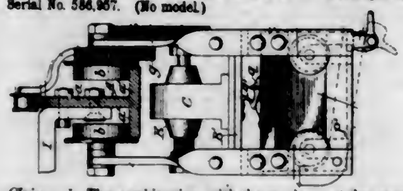
579,157. SEINE-NEEDLE. WILLIAM J. MAY, Homosassa, Fla. Filed Nov 5, 1896. Serial No. 568,017. (No model.)



Claim.—1. A seine-needle having its body provided with a longitudinal recess 6, a plate 9 having the flange 10 for covering said recess, and a knife-blade 8 having an expanded curved cutting end 13, substantially as described.

2. A seine-needle having its body, at one side of the eye therein, provided with a longitudinal recess 6, and a knife-blade 8, having an expanded curved cutting end 13, corresponding in shape and size approximately to one-half of the point of the needle, substantially as described.

579,158. MEANS FOR TRANSPORTING ARTICLES OF MERCHANDISE. MORRIS C. MENGIS, Brooklyn, N. Y. Filed Apr. 10, 1896. Serial No. 586,957. (No model.)



Claim.—1. The combination, with the carrier, and the receptacle for receiving and containing the articles to be transported provided with wheels, of the tracks upon which the wheels of the receptacle rest, of devices through which the receptacle is locked in the carrier, substantially as described.

2. The combination, with the carrier, and the receptacle for receiving and containing the articles to be transported, provided with wheels, of the tracks upon which the wheels of the receptacle rest, pivoted at one of their ends to said carrier, and a cam whereby the free ends of such tracks may be raised or allowed to fall, as and for the purposes set forth.

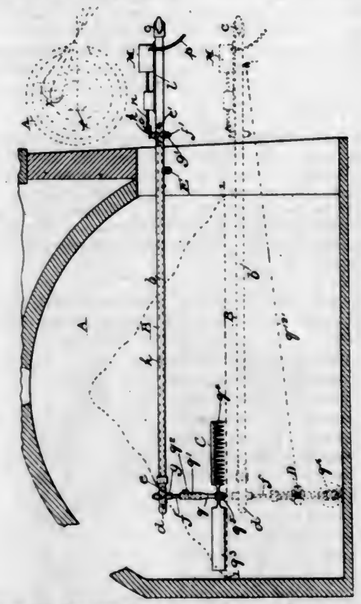
3. The combination, with a carrier, a receptacle for receiving and carrying the articles to be transported provided with wheels, a track upon which the wheels of the receptacle rest and devices through which the receptacle is locked in the carrier, of a rail from which the carrier is suspended, an electric motor for propelling the carrier along such rail, a conductor and trolley, for supplying an electric current to said motor, and a casing for surrounding and inclosing the said parts, whereby the removal and replacement of the receptacle for the article to be transported may be readily effected, and the carrier and such receptacle protected from the weather and the intermeddling of unauthorized persons when in transit, substantially as described.

579,159. TURN-SHOE. GEORGE R. MILLER, Chicago, Ill. Filed June 30, 1896. Serial No. 597,594. (No model.)



Claim.—A turned shoe comprising an upper and outsole united by a seam in the usual manner, and a relatively stiff insole having an extended edge, overlapping the seam and bearing against the upper, of sufficient thickness to deflect the strain upon the seam in a line substantially along the inner surface of the outsole, substantially as described.

579,160. COMBINED LEVELER AND SWEEPER FOR COKE-OVENS. JOHN A. MONTGOMERY, Birmingham, Ala. Filed Aug. 17, 1895. Serial No. 559,661. (No model.)



Claim.—1. In a portable leveler and sweeper for coke-ovens, the frame having a plain under surface, and provided on one end with suitable motive power, and on the opposite end with a depending shaft adapted to carry a leveler or sweeper thereon, and means for communicating motion from said motive power to said shaft, substantially as described.

2. In a portable leveler and sweeper for coke-ovens, the frame having a plain under surface and provided on one end with suitable motive power, and on the opposite end with a depending shaft adapted to receive a leveler to level the coal in the oven, and a sweeper to sweep out the oven after the coal has been converted into coke and removed therefrom, and means for communicating motion from said motive power to said shaft, substantially as described.

3. In a portable leveler and sweeper for coke-ovens, the frame having a plain under surface and composed of hollow tubes or pipes, provided on one end with suitable motive power, and on the opposite end with a depending shaft adapted to receive a leveler to level the coke in the oven, and a sweeper to sweep out the oven after the coal has been converted into coke and removed therefrom, and means for communicating motion from said motive power to said shaft, substantially as described.

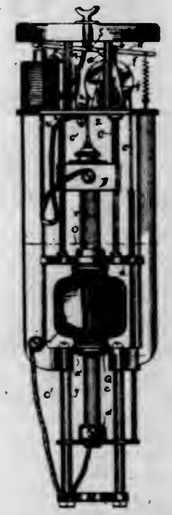
4. In a portable leveler and sweeper for coke-ovens, the frame having a plain under surface, and composed of hollow tubes or pipes provided with a series of antifriction-rollers, sprocket-wheels mounted on shafts at opposite ends thereof, and the sprocket-chain adapted to run inside of hollow tubes and over the sprocket-wheels and antifriction-rollers, one of said shafts connected to a suitable motive power by which it is driven, and the other shaft depending from said frame, and adapted to receive a leveler to level the coal in the oven, and a sweeper to sweep out the oven after the coal has been converted into coke and removed therefrom, substantially as described.

5. In a portable leveler and sweeper for coke-ovens, the frame having a plain under surface, and provided on one end with suitable motive power, and on the opposite end with a depending shaft, the leveler mounted thereon and means for communicating motion from said motive power to said depending shaft, substantially as described.

6. In a portable leveler and sweeper for coke-ovens, the frame having suitable motive power on one end thereof, and the opposite end provided with a depending shaft, the sweeper mounted thereon, means for communicating motion from said motive power to said shaft, and means for setting said sweeper at different angles substantially as described.

7. In a portable leveler and sweeper for coke-ovens, the frame having suitable motive power on one end thereof, and the opposite end provided with a depending shaft, the sweeper mounted thereon, means for communicating motion from said motive power to said depending shaft and thereby operating the sweeper, substantially as described.

579,161. ELECTRIC-ARC LAMP. JOHN A. MOSHER, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Oct. 22, 1896. Serial No. 609,756. (No model.)



Claim.—1. In an electric-arc lamp the combination with a frame having a pair of side posts, of a pair of vertically-alined apertured cross-bars uniting the posts, a diaphanous arc-inclosing envelop seated upon the lower cross-bar and having a pair of carbon-receiving apertures upon its vertical axis and in alinement with the apertures of the cross-bars, and a sleeve adapted to slide within the aperture of the upper cross-bar and to engage and hold the envelop.

2. In an electric-arc lamp the combination with a frame having a pair of side posts, of a pair of vertically-alined apertured cross-bars uniting the posts, a diaphanous arc-inclosing envelop seated upon the lower cross-bar and having a pair of carbon-receiving apertures upon its vertical axis and in alinement with the apertures of the cross-bars, a sleeve adapted to slide within the aperture of the upper cross-bar and to engage and hold the envelop, and a bushing of refractory non-electric-conducting material fitted within the sleeve and adapted to loosely receive a carbon pencil but to be filled thereby to the substantial exclusion of the air.

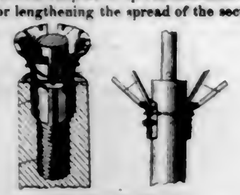
3. In an electric-arc lamp adapted to employ a pair of carbon-pencil electrodes, the combination with a frame having a pair of side posts, a pair of vertically-alined apertured cross-bars connecting the side posts, carbon-carrying mechanism adapted to provide for the simultaneous mutual approach of the carbon pencils, a diaphanous arc-inclosing envelop seated upon the lower cross-bar and having upper and lower carbon receiving apertures upon its vertical axis and in alinement with the apertures of the cross-bars, a sleeve fitting within the aperture of the upper cross-bar and capable of vertical reciprocation and normally engaging and holding the envelop, a bushing of non-electric-conducting refractory material within the sleeve, the apertures for admitting the carbon pencils to the envelop being so contracted that the circulation of air therethrough is substantially cut off by the pencils.

579,162. COMBINED CANE AND UMBRELLA. ALLEN G. MOYER, Philadelphia, Pa. Filed June 27, 1896. Serial No. 597,101. (No model.)

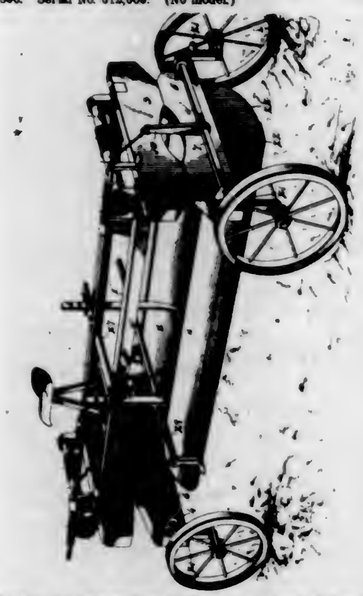
Claim.—1. In combination, a hollow staff having a solid end provided with a recess, said recess being smaller at the bottom where it is screw-threaded, a rod fitting in the screw-threaded portion, a runner secured on the rod consisting of semicircular sections flared at the top, stays pivoted at the top of the runner, the lower end of the runner lying in the annular recess and adapted to spread automatically when elevated, substantially as described.

2. In combination, a hollow staff having a solid end provided with a recess, said recess being smaller at the bottom where it is screw-

threaded, a rod fitting in the screw-threaded portion, a runner secured on the rod consisting of semicircular sections flared at the top, stays pivoted at the top of the runner, the lower end of the runner lying in the annular recess and adapted to spread automatically when elevated and means for lengthening the spread of the sections, substantially as described.



579,168. MACHINE FOR LOADING, CARRYING, AND DISTRIBUTING MANURE, &c. HENRY MULLER, Lawler, Iowa. Filed Nov. 18, 1896. Serial No. 612,609. (No model.)



Claim.—1. In a machine of the class described, the combination of a supporting-frame, front and rear crank-axles journaled at their tops on the supporting-frame and adapted to oscillate to raise and lower the same, transverse shafts journaled on the supporting-frame, connections between the shafts and the crank-axles, gear-wheels mounted on the transverse shafts, and a longitudinal shaft journaled on the supporting-frame and provided with worms meshing with the said gear-wheels, substantially as and for the purpose described.

2. In a machine of the class described, the combination of a supporting-frame, front and rear crank-axles, provided at their tops with arms and journaled on the supporting-frame, transverse shafts mounted on the supporting-frame, cables extending from the shafts and connected with the arms of the crank-axles, and gearing for rotating the transverse shafts, substantially as described.

3. In a machine of the class described, the combination of a supporting-frame, crank-axles provided at their tops with arms and journaled on the supporting-frame, transverse shafts mounted on the supporting-frame, cables connected with the arms of the crank-axles and with the said shafts and adapted to be wound around the same and unwound therefrom, gear-wheels carried by the transverse shafts, and a longitudinal shaft journaled on the supporting-frame and provided with worms meshing with the said gear-wheels, substantially as and for the purpose described.

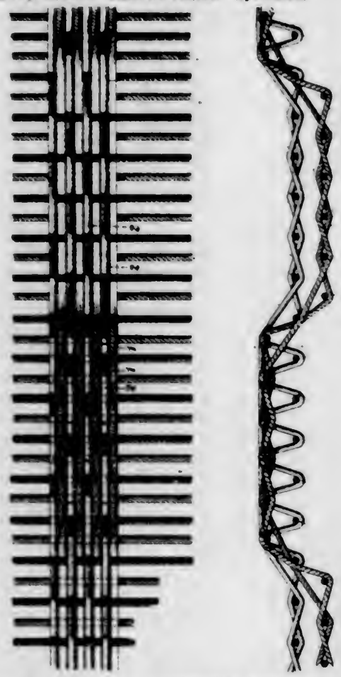
4. In a machine of the class described, the combination of a supporting-frame forming a running-gear, means for raising and lowering the same, and a pair of longitudinally-disposed shovels carried by the supporting-frame, forming a scoop and hinged at their rear ends, whereby they are adapted to spread apart, substantially as and for the purpose described.

5. In a machine of the class described, the combination of a supporting frame forming a running-gear, means for raising and lowering the same, a pair of longitudinally-disposed shovels carried by the supporting-frame, forming a scoop and hinged at their rear ends, and a transversely-disposed adjusting-screw connected with the shovels and provided with right and left hand threaded portions, whereby the shovels are moved simultaneously outward and inward, substantially as described.

6. In a machine of the class described, the combination of a supporting-frame forming a running-gear means for raising and lowering the same, a pair of longitudinally-disposed shovels forming a scoop and hinged at the back to the supporting-frame, vertically-disposed supporting-bars adjustably connected with the supporting-frame and hinged at their lower ends to the shovels, and an adjusting-screw mounted on the supporting-bar and adapted to open and close the shovels, substantially a described.

7. In a machine of the class described, the combination of a supporting-frame forming a running-gear, a pair of shovels disposed longitudinally thereof and hinged at their back, a transverse bar secured to the supporting-frame and provided at its ends with heads, supporting-bars hinged at their lower ends to the shovels and extending through the slots of the transverse bar, pins passing through the supporting-bars and adjustably securing the same to the transverse bar, and an adjusting-screw connecting the supporting-bars, substantially as described.

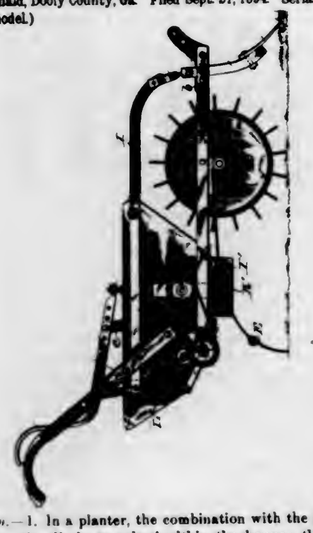
579,164. WOVEN FABRIC. THOMAS MCAULIFFE, Fall River, Mass., assignor to the Stevens Manufacturing Company, same place. Filed Aug. 11, 1896. Serial No. 602,398. (Specimens.)



Claim.—1. A pattern fabric consisting of ground and pattern portions, the said fabric comprising jacquard warp-threads, heald-shaft warp-threads, pattern weft-threads and ground weft-threads; the said fabric at the pattern portions thereof being formed of two fabrics the upper one constituted by the heald-shaft warp-threads and the pattern weft-threads, and the lower one constituted by the jacquard warp-threads and the ground weft-threads; the ground portions of the fabric being formed of the jacquard warp-threads and ground weft-threads interwoven on the face thereof, and the heald-shaft warp-threads and pattern weft-threads interwoven on the back thereof; the said heald-shaft warp-threads being also interwoven with and incorporated into the ground by running the said heald-shaft warp-threads across two shots of the ground-weft and one of the pattern-weft, substantially as described and for the purposes set forth.

2. A pattern woven fabric, having the face and back of the pattern portion thereof formed of separate fabrics, and the ground portion thereof formed of a single fabric; the jacquard-warp in the said ground portion being interwoven with the ground set of weft-threads on the face of said ground portion, each alternate jacquard warp-thread weaving over and under each alternate shot of ground-weft, while each alternate heald-shaft warp-thread in said ground portion of the fabric weaves alternately over two shots of the ground-weft and one shot of the pattern-weft and under the subsequent pick of the pattern-weft on the back of the said ground portion, and returns to the face to again weave on the face of the fabric, over the two next ground-shots of weft and one shot of the pattern-weft repeating until the ground portion thereof is finished, substantially as described.

579,165. SEED-PLANTING MACHINE. JAMES C. MCCORMICK, Findlay, Ga., assignor of two-thirds to John B. McDonald and P. G. McDonald, Dooly County, Ga. Filed Sept. 21, 1894. Serial No. 523,694. (No model.)



Claim.—1. In a planter, the combination with the plow, or furrow-opener, the discharge-wheel within the hopper, the discharge-valve, for the latter, and the grain-discharge disk, of mechanism for adjusting said furrow-opener, wheel, and valve, substantially as shown and described.

2. In a planter, the combination, with the hopper, and the valve hinged exteriorly to the bottom of the same, of the elbow-lever K', pivoted adjacent to said valve and adapted to swing horizontally so that its free end may slide on the valve, and supplemental lever mechanism, adapted to be operated manually, for actuating such valve-lever, as shown and described.

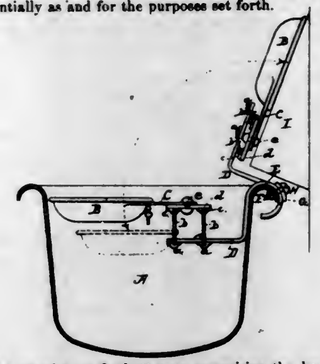
3. In a planter, the combination, with the hopper and frame, of the slidable furrow-opener standard, adapted to slide in said frame, the lever I, loosely connected with said standard and extending rearward, the stirrup L, adapted to slide vertically in the hopper, the discharge-wheel arranged in the latter for adjusting said wheel, a hand-lever connected with the stirrup and also with the aforesaid lever I, as shown and described, whereby the furrow-opener and discharge-wheel are adjusted simultaneously into or out of work, as specified.

4. In a planter, the combination with the spiked motor-wheel, the two hoppers, having a discharge wheel and valve, and grain-disk and brush-wheel, respectively, of the slidable elevating device, the elbow-lever for closing the valve, gearing for actuating the grain-disk and brush, for connecting chains and sprockets, as specified, with the motor-wheel, and mechanism for throwing such gearing into action, as shown and described.

5. In a planter, the combination with a hopper and spiked motor-wheel, a toothed discharge-wheel in the hopper, a chain-and-sprocket connection between such wheels, a slidable device for elevating the toothed wheel, a pivoted hand-lever connected with such device, a discharge-valve, a lever for closing it, and means for connecting such lever with said hand-lever, as shown and described.

579,166. BASIN OR BOWL ATTACHMENT FOR BATH-TUBS. ANTHONY MCOWEN, New York, N. Y. Filed Apr. 13, 1896. Serial No. 587,348. (No model.)

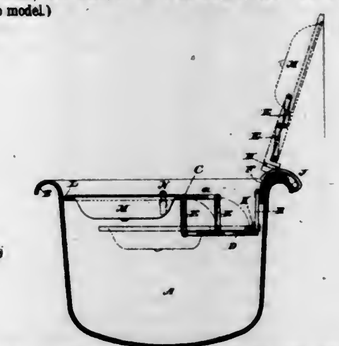
Claim.—1. The attachment for bath-tubs comprising the basin having the flange, combined with the bracket D which when in its lower position is horizontal over the bath-tub, means securing said bracket in a hinged manner permitting it to be turned upward, the plate *d* to which the flange of said basin is pivotally secured, and the links *b*, *b*, intermediate said plate *d* and bracket D and which are adapted to be turned into a vertical position to support the basin in its elevated horizontal position for use and folded downward to a position substantially horizontal with the bracket D to lower the said basin to its lower horizontal position and also to permit the basin and its attachments to be compactly folded upward with said bracket D; substantially as and for the purposes set forth.



2. The attachment for bath-tubs comprising the basement having the supporting-flange, combined with the bracket D which when in its lower position is horizontal over the bath-tub, means securing said bracket in a hinged manner permitting it to be turned upward, and the links *b*, *b*, intermediate the basin-flange and bracket D and which are adapted to be turned into a vertical position to support the basin in its elevated horizontal position for use and folded downward to a position substantially horizontal with the bracket D to lower said basin to its lower horizontal position and also to permit the basin and its attachments to be compactly folded upward with said bracket D; substantially as and for the purposes set forth.

3. In combination with the bath-tub, the basin, the bracket D having the curved upper end fitting over the edge of the bath-tub, the plate G retaining said bracket upon the edge of said tub, the flange on said basin, the plate *d* to which said flange is pivoted and the folding links intermediate said plate and said bracket; substantially as set forth.

579,167. BASIN ATTACHMENT FOR BATH-TUBS. ANTHONY MCOWEN, New York, N. Y. Filed Aug. 6, 1896. Serial No. 601,858. (No model.)



Claim.—1. The basin attachment for bath-tubs comprising the bracket D and bracket C, combined with the links E by which said brackets are connected, said bracket C being adapted to support the basin, combined with the support or back F, and the vertical links extending from said support to said bracket D and adapted to move at right angles to the line of movement of said links E; substantially as set forth.

2. In basin attachments for bath-tubs, the bracket D having a curved front edge, means supporting said bracket and permitting the same to have a movement in line with the length of the tub in order that the basin may reach the faucet, and means enabling said bracket to be folded upward when not in use, combined with the bracket C having the rim L to receive and support the basin, and the links E, E, intermediate said brackets C, D; substantially as set forth.

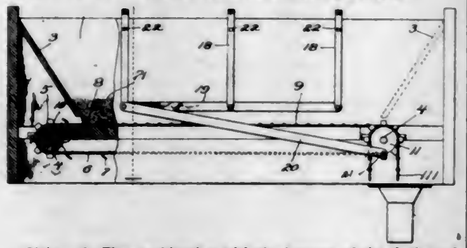
3. In basin attachments for bath-tubs, the bracket D, the back or support F, and the links H, H, connecting said bracket with said back or support and enabling the bracket to be moved in the direction of the faucet and also to be folded upward in line with said back

or support, combined with the bracket C having the rim L for supporting the basin, and the links E, E, intermediate and connecting said brackets C, D; substantially as set forth.

4. In basin attachments for bath-tubs, the bracket D, the back or support F having the trunnions I, the boxes J receiving and permitting the movement of said trunnions, and the links H, H, intermediate and connecting said bracket D and back or support F, combined with the bracket C having the rim to receive and support the basin, and the links E, E, connecting said brackets C, D; substantially as set forth.

5. In basin attachments for bath-tubs, the back or support F having a curved upper edge adapted to the contour of the rim of the tub, means for retaining said back or support upon the tub, the bracket D, and the links H, H, intermediate and connecting said back or support and said bracket, combined with the bracket C adapted to receive and support the basin, and the links E, E, intermediate and connecting said brackets C, D; substantially as set forth.

579,168. SAND-BOX FOR ELECTRIC CARS, &c. MORRIS M. NASH, Lowell, Mass., assignor of one-half to Daniel S. Ralph, same place. Filed Dec. 30, 1896. Serial No. 617,492. (No model.)



Claim.—1. The combination with the hopper, of the shafts and rollers at the opposite ends thereof, the endless band or belt passing over said rollers and provided with projections constituting buckets, the material placed in the said hopper resting on the upper length of the said band or belt, the sprocket-chains connected with the edges of the said band or belt, and the sprocket-gears fast with the said shafts and rollers, substantially as described.

2. The combination with the hopper, of the shafts and rollers at the opposite ends thereof, the endless band or belt passing over said rollers and provided with projections constituting buckets, the material placed in said hopper resting on the upper length of the said band or belt, the support 8 for the said upper length, the sprocket-chains connected with the edges of the said band or belt, and the sprocket-gears fast with the said shafts and rollers, substantially as described.

3. The combination with the hopper, of the shafts and rollers at the opposite ends thereof, the endless band or belt passing over said rollers and provided with projections constituting buckets, the material placed in the said hopper resting on the upper length of the said band or belt, the sprocket-chains connected with the edges of the said band or belt, the sprocket-gears fast with the said shafts and rollers, and a device to act upon the said material and prevent it from clogging in the hopper, substantially as described.

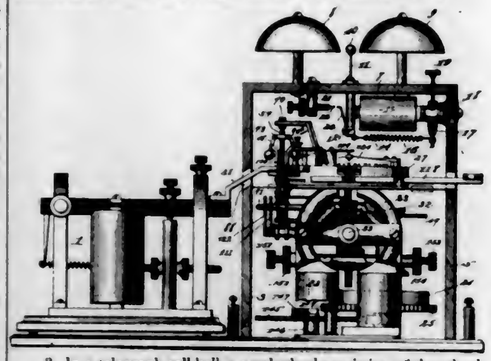
4. The combination with the hopper, the endless band or belt provided with projections constituting buckets and receiving on its upper surface the contents of the hopper, means to support and actuate the said band or belt, the plate 16, and the inclined projections 17, 17, on said plate, substantially as described.

5. The combination with the hopper, the endless band or belt provided with projections constituting buckets, and receiving on its upper surface the contents of the hopper, means to support and actuate the said band or belt, the plate 16 with its projections, the U-shaped bars fitted over the side of the hopper and pivoted thereto, and means to move said plate and bars, substantially as described.

579,169. TELEGRAPH CALL-BELL. JOSEPH N. NEWSOM, St. Louis, Mo., assignor of one-half to Michael Sutter, same place. Filed Apr. 27, 1896. Serial No. 589,237. (No model.)

Claim.—1. In a telegraph call-bell, a pawl consisting of the rectangular body 69, the imperforate disk 70 attached to one end of said body and the end 71 attached to the opposite end of said body 69, said end 71 being substantially square and having its faces set at an angle relative to the faces of said body 69.

2. In a telegraph call-bell, a pawl-wheel consisting of a wheel having an annular recess in one of its faces, said recess being semicircular in cross-section, a ring attached to the recessed face of said wheel, said ring having one of its outer corners cut away to form an annular recess, said recess being an arc of a circle in cross section, and said arc being less than a semicircle said recess being designed to match the first-mentioned recess, and radially-arranged teeth upon said recessed face of said wheel outside of said annular recess.



3. In a telegraph call-bell, a pawl-wheel consisting of the wheel 60, having the annular semicircular recess 62 in its face and also having the teeth 63 arranged radially upon its face outside of said annular recess, and the ring 64 attached to the recessed face of said wheel, said ring having the annular recess 66 to match the annular recess 62.

4. In a telegraph call-bell, a pawl-wheel consisting of a wheel having an annular recess in one of its faces, said recess being semicircular in cross-section, a ring attached to the recessed face of said wheel, said ring having one of its outer corners cut away to form an annular recess, said recess being an arc of a circle in cross-section, and said arc being less than a semicircle, said recess being designed to match the first-mentioned recess, radially-arranged teeth upon said recessed face of said wheel outside of said annular recess, and pawls positioned in the recesses between said teeth with their disk-shaped heads in said annular recesses.

5. In a telegraph call-bell, a pawl-wheel consisting of the wheel 60, having the annular semicircular recess 62 in its face and also having the teeth 63 arranged radially upon its face outside of said annular recess, the ring 64 attached to the recessed face of said wheel, said ring having the annular recess 66 to match the annular recess 62, the pawls 69 positioned between the teeth 63 with their heads 70 in said annular recesses.

6. In a telegraph call-bell, a wheel rotatably mounted in a horizontal position, pawls pivotally attached to and arranged radially around said wheel, a pawl-case rigidly held in a concentric position relative to said pawl-wheel, the inner face of said case being adjacent the outer ends of said pawls, a lug on said inner face and means of controlling the outer ends of said pawls to throw them above or below said lug as desired.

7. In a telegraph call-bell, a pawl-wheel rotatably mounted in a horizontal position, a pawl-case mounted concentrically to said pawl-wheel, a dog pivotally mounted upon the inner face of said pawl-case, said dog having a longitudinal recess upon its inner face, a vibrating arm by which said dog is operated and means of rotating said pawl-wheel.

8. In a telegraph call-bell, a pawl-wheel rotatably mounted in a horizontal position, a pawl-case mounted concentrically to said pawl-wheel, a lug upon the inner face of said pawl-case, a pointed dog pivotally mounted in front of said lug with its free end extending from said lug in a horizontal position, a vibrating arm by which said dog is operated and means of rotating said pawl-wheel.

9. In a telegraph call-bell, a pawl-wheel rotatably mounted in a horizontal position, a pawl-case mounted concentrically to said pawl-wheel, a lug upon the inner face of said pawl-case, a pointed dog pivotally mounted in front of said lug with its free end extending from said lug in a horizontal position, a longitudinally-recessed dog pivotally mounted upon the inner face of said pawl-case with its free end pointing toward and adjacent to said pointed dog, a vibrating arm by which said dogs are operated and means of rotating said pawl-wheel.

10. In a telegraph call-bell, a form mounted for vibration, pawls operated to pass under said form, lugs upon the lower face of said form, said lugs and the spaces between said lugs corresponding to telegraph-signals and the spaces between said lugs being designed to receive the ends of said pawls when said pawls are manipulated in a certain way by the operation of the telegraph instrument.

11. In a telegraph call-bell, a pawl-wheel rotatably mounted, means of controlling the pawls, electrical connections for operating the pawl-controlling mechanism, and a form riding on the upper face of the pawls, said form being designed to drop into the pawls and stop the pawl-wheel when the said pawls are operated in a certain way.

12. In a telegraph call-bell, a pawl-wheel, a spring and clock-work for operating said pawl-wheel, an electric motor for winding said spring, a form so positioned that the pawls pass under it and lugs upon the face of said form corresponding to telegraph signals or letters as they are indicated by the sender upon the pawl-wheel and designed to stop said pawl-wheel when the proper signal occurs.

13. In a telegraph call-bell, a pawl-wheel, a spring and clock-work for operating said pawl-wheel, an electric motor for winding said spring, means of controlling the pawls, electrical connections for operating the pawl-controlling mechanism, and a form riding on the upper face of the pawls, said form being designed to drop into the pawls and stop the pawl-wheel when the said pawls are operated in a certain way.

14. In a telegraph call-bell, a form mounted for vibration, pawls passing under said form, lugs upon the lower face of said form, said lugs and the spaces between said lugs corresponding to certain telegraph-signals and the spaces between said lugs being designed to receive the ends of said pawls when said pawls are manipulated in a certain way by the operation of the telegraph instrument, and a call-bell electrically connected to said form and operated by the vibration of said form.

15. In a telegraph call-bell, a pawl-wheel rotatably mounted, a means of controlling the pawls, electrical connections for operating the pawl-controlling mechanism, a form riding on the upper face of the pawls, said form being designed to drop into the pawls and stop the pawl-wheel when the said pawls are operated in a certain way, and a call-bell electrically connected to said form and so arranged that the circuit is closed and the bell rings when the form stops the pawl-wheel.

16. In a telegraph call-bell, a pawl-wheel, a spring and clock-work for operating said pawl-wheel, an electric motor for winding said spring, a form so positioned that the pawls pass under it, lugs upon the face of said form corresponding to telegraph signals or letters as they are indicated by the sender upon the pawl-wheel and designed to stop said pawl-wheel when the proper signal occurs, and a call-bell electrically connected to said form and so arranged that the circuit is closed and the bell rings when the form stops the pawl-wheel.

17. In a telegraph call-bell, a pawl-wheel, a spring and clock-work for operating said pawl-wheel, an electric motor for winding said spring, means of controlling the pawls, electrical connections for operating the pawl-controlling mechanism, a form riding on the upper face of the pawls, said form being designed to drop into the pawls and stop the pawl-wheel when the said pawls are operated in a certain way, and a call-bell electrically connected to said form and so arranged that the circuit is closed and the bell rings when the form stops the pawl-wheel.

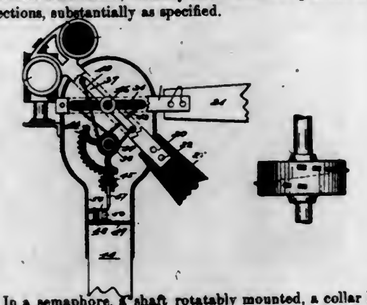
18. In a telegraph call-bell, a pawl-wheel, a spring and clock-work operating said pawl-wheel, a motor winding said spring, an electric current operating said motor, means of controlling said electric current, a form controlling said pawl-wheel, a call-bell electrically connected to said form and operated thereby, means of electrically operating the pawls of said pawl-wheel, means of stopping the pawl-wheel when the operating-circuit is closed and electrical connections by which the motor-circuit is opened when the bell-circuit is closed and the motor and bell circuits are both opened when the operating-circuit is closed.

19. In a telegraph call-bell, a rocking beam attached to and operated by the armature of the bell, pawls pivoted to each end of said beam, a toothed wheel mounted to be engaged by said pawls, and connections between said wheel and the conductor whereby the operation of the said wheel breaks the circuit and thus stops the ringing of the bell.

20. In a telegraph call-bell, a rocking beam attached to and operated by the armature of the bell, pawls pivoted to each end of said beam, a toothed wheel mounted to be engaged by said pawls, eccentrics carried by said toothed wheel, a leaf-spring fixed at one end, a block upon the free end of said spring, an arm upon the free end of said spring and designed to be engaged by said eccentrics, said block being designed to strike and operate the lever which opens the bell-circuit.

579,170. ELECTRICALLY-OPERATED SIGNAL OR SEMAPHORE. JOSEPH N. NEWSOM, St. Louis, Mo., assignor of one-half to Michael Sutter, same place. Filed Sept. 14, 1896. Serial No. 605,749. (No model.)

Claim.—1. In a semaphore, a shaft rotatably mounted in a horizontal position, a collar fixed upon said shaft, arms projecting from said collar in opposite directions, a collar loosely mounted upon said shaft, arms projecting from said loose collar in opposite directions, a lever mounted upon the outer end of said loose collar, signals upon the ends of said lever, a lever upon the outer end of said shaft, a signal attached to one end of said lever, and connections between said shaft and said loose collar, whereby said levers are operated in opposite directions, substantially as specified.



2. In a semaphore, a shaft rotatably mounted, a collar loosely mounted upon one end of said shaft, a lever fixed to said collar, a lever fixed to said shaft, signals upon corresponding ends of said levers, connections between said levers, and electrically-controlled mechanism whereby said levers are operated in opposite directions, substantially as specified.

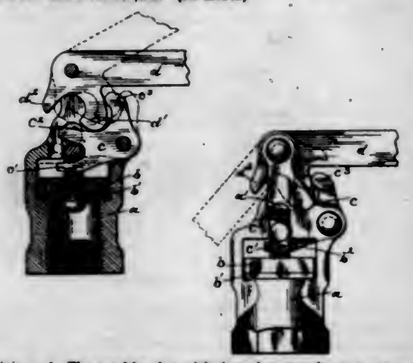
3. In a semaphore, a suitable casing, a shaft rotatably mounted in said casing, a lantern at one side of said casing, a collar loosely mounted upon said shaft, a lever fixed to said collar, a lever fixed to said shaft, frames fixed to one end of one of said levers and carrying glass disks in position to come upon opposite sides of said lantern, signals upon the opposite ends of said levers from said lantern, connections between said levers whereby they are operated in opposite directions and electrically-controlled mechanism for operating and holding said levers, substantially as specified.

4. In a semaphore, a suitable casing, a shaft rotatably mounted in a horizontal position in said casing, a collar fixed to said shaft, arms projecting in opposite directions from said collar, a collar loosely mounted upon said shaft, arms projecting in opposite directions from said loose collar, a second shaft mounted in a position parallel with said first-mentioned shaft, a sprocket-wheel upon said second shaft, a chain connecting the free ends of the arms upon said loose collar, and engaging said sprocket-wheel, a worm sprocket-wheel upon the second-mentioned shaft, a chain connecting the free ends of the first-mentioned arms and passing around said sprocket-wheel in such a way that said shaft and said loose collar will be operated in opposite directions by the operation of the second shaft, substantially as specified.

5. In a semaphore, a suitable casing, a shaft rotatably mounted in a horizontal position in said casing, a collar fixed to said shaft, arms projecting in opposite directions from said collar, a collar loosely mounted upon said shaft, arms projecting in opposite directions from said loose collar, a second shaft mounted in a position parallel with said first-mentioned shaft, a sprocket-wheel upon said second shaft, a chain connecting the free ends of the arms upon said loose collar, and engaging said sprocket-wheel, a worm sprocket-wheel upon the second-mentioned shaft, a chain connecting the free ends of the first-mentioned arms and passing around said sprocket-wheel in such a way that said shaft and said loose collar will be operated in opposite directions by the operation of the second shaft, a segmental gear upon said second shaft, a third shaft mounted in a position parallel with said second shaft, a pinion upon said third shaft meshing with said segmental gear, an arm upon said third shaft, and an electromagnet in position to have the free end of its armature engaged by said arm, substantially as specified.

6. In a semaphore, a suitable casing, a shaft rotatably mounted in a horizontal position in said casing, a collar fixed to said shaft, arms projecting in opposite directions from said collar, a collar loosely mounted upon said shaft, arms projecting in opposite directions from said loose collar, a second shaft mounted in a position parallel with said first-mentioned shaft, a sprocket-wheel upon said second shaft, a chain connecting the free ends of the arms upon said loose collar and engaging said sprocket-wheel, a worm sprocket-wheel upon the second-mentioned shaft, a chain connecting the free ends of the first-mentioned arms and passing around said sprocket-wheel in such a way that said shaft and said loose collar will be operated in opposite directions by the operation of the second shaft, a segmental gear upon said second shaft, a third shaft mounted in a position parallel with said second shaft, a pinion upon said third shaft meshing with said segmental gear, an arm upon said third shaft, an electromagnet in position to have the free end of its armature engaged by said arm, a lever attached to the outer end of said loose collar, a lever attached to the outer end of said shaft and beside the first-mentioned lever, and signals attached to the ends of said levers, substantially as specified.

579,171. VALVE. LA VERNE W. NOYES, Chicago, Ill. Filed May 1, 1896. Serial No. 589,843. (No model.)



Claim.—1. The combination with the valve carrying a transverse arm, of a valve-body provided with a port and constructed to guide the valve in a straight-line movement toward and from the port, a three-armed rocking lever between two of the arms of which the transverse arm on the valve rests, and a pivoted operating-lever carrying a short arm resting between two of the arms of said rocking lever, whereby the rocking movement of the pivoted operating-lever transmits a right-line movement to the valve through the agency of the three-armed rocking lever, substantially as described.

2. The combination with the valve-body carrying the valve-port, of a valve guided by said valve-body to move in a straight line toward and from said port and carrying a transverse arm, a three-armed rocking lever pivoted to said valve-body, the transverse arm on the valve resting between two of the arms thereof to cause movement of the valve in opposite directions as the lever is rocked, and a reversible operating-lever pivoted to rock about an axis in line with the path of travel of the valve, said operating-lever being provided with two arms one resting between the arms of said rocking lever and the other arm adapted to engage the end of one of the arms of the rocking lever to limit the movement of the rocking lever, substantially as described.

3. The combination with the valve-body, of the valve guided within an opening in said valve-body, the arm b^3 carried on said valve and moving within the slot a' provided in the valve-body, the operating-lever carrying the arm d', the rocking lever, the arms c' c^3 carried thereon between which the valve-arm b^3 rests, and the arm c^2 carried on the rocking lever between which and the arm c^3 the arm d' of the operating-lever rests, substantially as described.

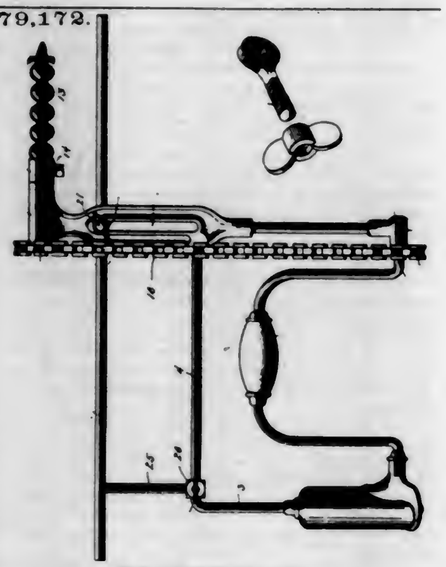
4. The combination with a valve, of a valve-body provided with a port adapted to be sealed by said valve and constructed to guide the valve in a straight-line movement toward and from the port, a bell-crank lever pivoted to said valve-body to one side of the line of movement of the valve and engaging said valve to raise and lower the same as the bell-crank is rocked, an operating-lever pivoted to the valve-body above the valve, and a short arm provided upon said operating-lever extending downward to engage the bell-crank to rock the same, whereby the rocking movement of the operating-lever imparts a right-line movement to the valve through the agency of the bell-crank, substantially as described.

579,172. BORING-MACHINE. BEN OAKES, Detroit, Mich. Filed July 30, 1896. Serial No. 601,114. (No model.)

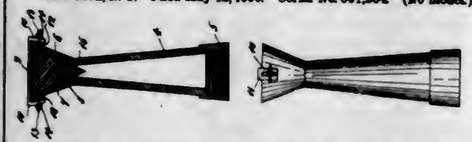
Claim.—1. In a portable boring-machine, a U-shaped frame having an arm extension at one corner, a rotating bit-holding spindle journaled in said arm extension, a brace journaled within the frame, a drive connection between the brace and the spindle, and a gage-rod arranged parallel with the spindle and having separate adjustable connections respectively with the frame and the arm extension thereof, substantially as set forth.

2. In a portable boring-machine, a U-shaped frame having an arm extension at one corner provided at its outer end with a bearing-sleeve and formed with longitudinally-disposed slots, a bit-holding spindle journaled in said bearing-sleeve, a brace journaled within the frame, a drive connection between the brace and the spindle, a gage-rod arranged parallel with the spindle and extending through one of the longitudinally-disposed slots of the arm extension, said gage-rod being provided near its inner end with a lateral extension, a clamp slidably engaging the lateral extension of the gage-rod and one side of the U-shaped frame, and a separate clamp slidably receiving the gage-rod and adjustably fitted in one of the slots of the arm extension, substantially as set forth.

579,172.



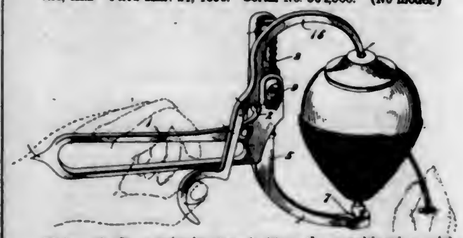
579,173. NOZZLE AND SPRAYER. WILLIAM C. OBERWALDER, New York, N. Y. Filed May 12, 1896. Serial No. 591,284. (No model.)



Claim.—1. A combined nozzle and sprayer, comprising a tubular attachment, having a conical head at one end thereof, in which is formed a conical cavity or recess, the apex of which is directed inwardly a conical sprayer which is placed in said conical cavity or recess, and an adjustable attachment which is connected with said conical head, and by which the longitudinal movement of said sprayer is regulated, said attachment consisting of a yoke, having backwardly-directed arms, in which slots are formed, through which pass screw-threaded bolts connected with said head, and on which are mounted set-nuts, and said tubular attachment being slightly conical in form and the base or larger end thereof, being screw-threaded, whereby it is adapted to be connected with a water-pipe, substantially as shown and described.

2. The herein-described nozzle and sprayer, consisting of a conical attachment or nozzle, one end of which is enlarged and provided with interior screw-threads for attachment to the source of supply, the outer end of said attachment being funnel-shaped, said attachment having a tubular opening extending therethrough, and a conical sprayer 8 secured in said funnel-shaped orifice, an adjustable yoke having backwardly-directed arms 10, having longitudinal slots 11, adapted to engage shoulders or projections 12, upon the exterior of the funnel-shaped portion, and attachments for securing said arms upon said projections as set forth.

579,174. SPINNING-TOP HOLDER. WILLIAM A. PALMER, Mobile, Ala. Filed Mar. 21, 1896. Serial No. 584,303. (No model.)



Claim.—1. In a spinning-top holder, the combination with a handle, and a supporting-arm thereon adapted to engage a top at one extremity of its axis, of a pivoted retaining-lever adapted at one end to engage and hold the top in engagement with said arm and having a stop to limit the movement of its engaging end toward said arm, the lever being yieldingly held in its normal or inoperative position and being adapted to be manually held in its operative position, substantially as specified.

2. In a spinning-top holder, the combination with a handle, and a supporting-arm thereon adapted to engage the plug of a top, of a pivoted retaining-lever adapted at one end to engage and hold the top upon said supporting-arm and provided at the other end with a finger-hold arranged contiguous to the handle, the arm of the lever which carries the finger-hold being of greater weight than the other to normally hold the engaging end of the lever out of operative position, substantially as specified.

3. The herein-described spinning-top holder having a handle provided with a pointed nib for indenting a top at the extremity of the latter opposite to its plug, a supporting-arm carried by the handle and provided with a socket to engage a top-plug, and a yielding retaining-lever having a reduced terminal adapted to fit in the indentation of a top formed by said nib, whereby a top of the ordinary construction may be adapted for engagement by the holder, substantially as specified.

4. In a spinning-top holder, the combination, with a handle, of a supporting-arm carried by such handle and adjustably secured thereto, said arm adapted to receive the plug of a top, and a retaining-lever also carried by the handle and adapted to hold the top upon the supporting-arm, substantially as set forth.

5. In a spinning-top holder, the combination, with a handle provided with a bifurcated end, of a supporting-arm carried by the handle and having a bearing in one of its ends for receiving the plug of a top, and a retaining-lever also carried by the handle and provided with a projection pivoted within the bifurcated end of the handle, such lever adapted to hold the top upon the supporting-arm, substantially as set forth.

6. In a spinning-top holder, the combination, with a handle, of a supporting-arm carried by the handle and having a bearing in one end and a slot in its other end, the bearing in such arm adapted to receive the plug of a top, a retaining-lever pivoted to the handle, and adapted to hold the top upon the supporting-arm, and a screw passing through the slot in the supporting-arm and securing the several parts together, substantially as set forth.

7. In a spinning-top holder, the combination, with a handle one side of which is provided with serrations, of a supporting-arm carried by the handle and having one of its faces serrated, the serrations of the supporting-arm being adapted to engage with the serrations of the handle, and a retaining-lever also carried by the handle and having its upper end pointed and its lower end forming a finger-hold, said retaining-lever being adapted to hold a top upon the supporting-arm, substantially as set forth.

8. In a spinning-top holder, the combination, with a handle having one end constructed to form a nib, of a supporting-arm having one of its ends curved and provided with a bearing adapted to receive the point of a top, a retaining-lever pivoted to the handle and adapted to hold the top upon the supporting-arm, such retaining-lever being offset at its lower end to occupy a position at one side of the handle, and a stop for limiting the movement thereof, and means for securing the several parts together, substantially as set forth.

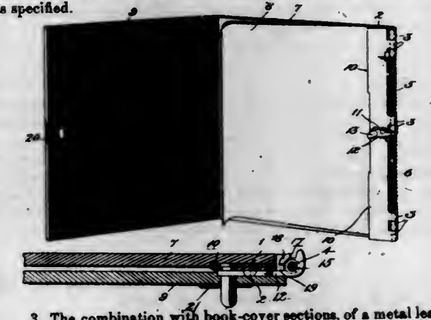
9. In a spinning-top holder, the combination, with a handle having a bifurcated end one side of which is provided with serrations and flanges, of a supporting-arm having one of its ends curved and its other end provided with serrations adapted to fit between the flanges and engage the serrations on the handle, a retaining-lever having its upper end curved and pointed and its lower end provided with a finger-hold, such retaining-lever also having a projection pivoted within the bifurcated end of the handle, and means for securing the several parts together, substantially as set forth.

579,175. TEMPORARY BINDER. CHARLES E. PARKER, Duluth, Minn., assignor of two-thirds to Buckley H. Holmes, same place. Filed Apr. 25, 1896. Serial No. 589,007. (No model.)

Claim.—1. The combination with a book-cover or other base, of a pair of metal leaves hinged together at their outer edges, and one of said leaves being secured to one edge of one of the cover-sections or base, of a spring for normally closing the remaining leaf, and a spring-operated latch for locking said remaining leaf in an open or separated position against the tension of the said spring, substantially as specified.

2. The combination with book-cover sections, of a pair of metal leaves, the inner one of which is secured to one of the sections of the cover, hinge-eyes arranged at the outer edges of the leaves, a pintle connecting the eyes, a coiled spring arranged upon the pintle and having its terminals embracing the outer sides of said leaves, a latch

pivoted on the outer or movable leaf and at its outer end having an eye loosely receiving the pintle and borne upon and influenced by the spring, said latch being provided at one side of its eye with a notch for engaging the opposite or fixed leaf whereby the leaves may be maintained separated against the tension of the spring, substantially as specified.



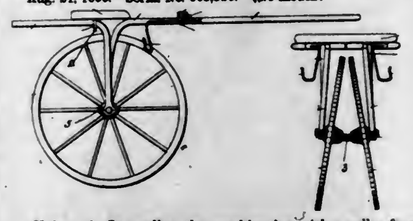
3. The combination with book-cover sections, of a metal leaf secured to one edge of one of the same, a clamping-leaf hinged thereto, a spring for normally closing the clamping-leaf upon the secured leaf, a latch pivoted on the clamping-leaf and provided with a shank or shoulder extended at an angle thereto, and an opening arranged in the opposite portion of the cover for the passage therethrough of said lug and designed at one edge to engage with the shoulder of the same, substantially as specified.

4. The combination with book-cover sections, of a fixed metal leaf applied to one edge of one of the same and provided with central and end hinge-eyes, a clamping-leaf having companion hinge-eyes, connecting-pintle, springs interposed between the hinge-eyes and arranged upon the pintle and having their terminals embracing the said leaves, the latch 12 pivoted on the clamping-leaf and at its rear end having the eye 15, notches 17 and 19 and intermediate inclined shoulder 18, all arranged as shown, said eye receiving the pintle and being borne upon by the end of the spring, the beveled shouldered lug 13 at the opposite end of the latch, and the opening 20 in the opposite side of the book-cover for receiving the lug, substantially as specified.

5. The combination with book-cover sections, of a pair of hinged leaves, the inner one of which is secured to one edge of one of said sections, a spring for normally closing said leaves so as to clamp a series of loose sheets or leaves of paper, and means actuated by said spring for locking the book-cover closed and for retaining said hinged leaves in an open or separated position against the tension of their spring, substantially as specified.

6. The combination with book-cover sections, of a pair of hinged clamping-leaves, the inner one of which is secured to the edge of one of said sections, a spring for normally closing the leaves, whereby the same are adapted to secure a series of loose sheets of paper, and a latch pivoted on the outer movable leaf and actuated by said spring to engage and lock with the stationary leaf when the same are opened and to engage and secure the book-cover when the same is closed, substantially as specified.

579,176. SULKY. CHARLES H. PEARSON, Palmyra, Wis. Filed Aug. 21, 1896. Serial No. 603,590. (No model.)



Claim.—1. In a sulky, the combination with a sulky-frame, of a V-shaped axle made in a single piece and having its point or apex pointing downwardly, said axle having its ends connected to the frame, and traction-wheels journaled on the inclined portions of the axle.

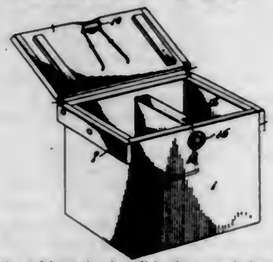
2. In a sulky, the combination with independent members having downwardly-extending portions and horizontally-extending upper portions, of a seat, eyes carried by said seat which receive and are slidable on the horizontally-extending portions of the members, clamping-screws for the eyes, thills connected to the members, and traction-wheels.

579,177. BOX FOR CONTAINING GUMMED PAPER, &c. HENRI A. PERAUT, Paris, France. Filed Oct. 29, 1896. Serial No. 610,492. (No model.) Patented in England May 14, 1896, No. 10,363; in France May 15, 1896, No. 256,378, and in Belgium May 15, 1896, No. 131,364.



Claim.—The combination of two trough-like receptacles, one of which is adapted to swing within the other, a locking device, consisting of a catch formed on one trough and adapted to enter an opening in the other trough to lock the troughs in predetermined position, a pivotal connection between the receptacles and extending into the inner receptacle, and a reel carrying a strip or band of paper on said pivotal connection and adapted to rotate within said inner receptacle, substantially as and for the purposes described.

579,178. BOX-HINGE. LEVI L. FLETCHER, Malta, Ohio. Filed July 28, 1896. Serial No. 600,533. (No model.)

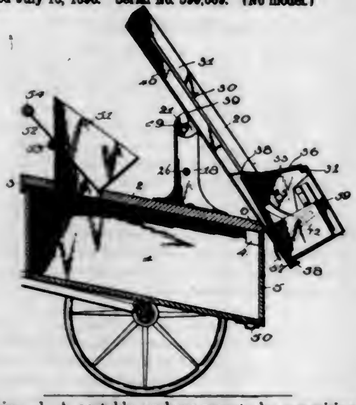


Claim.—1. A hinge for box-lids, &c., consisting of a metal rod or strip bent at an intermediate point and substantially at a right angle to form a journal portion for attachment to the lid and an arm portion by which the lid is adapted to swing bodily, the extremity of the arm being bent substantially at a right angle to form another journal portion the same being adapted to enter a socket or perforation in the box or crate, substantially as described.

2. The combination with a box or crate, and a lid therefor having a groove or recess in its corner, of a hinge comprising a journal portion arranged in said groove or recess and retained by suitable fasteners, a swinging arm formed integrally therewith, and another journal portion formed by the angular extremity of said arm, such extremity being received in a socket or perforation in the box or crate adjacent to the hinged edge of the lid, substantially as described.

3. A hinge for box-lids, &c., consisting of a metal rod or strip bent intermediate its ends and substantially at a right angle, one arm forming a journal portion for attachment to the lid, and the other portion forming an arm adapted to permit the lid to swing bodily, said arm having provision at its end whereby it may be pivotally connected to the box, substantially as described.

579,179. GARBAGE-CART. JESSE REIFSNIDER, Baltimore, Md. Filed July 18, 1896. Serial No. 599,669. (No model.)



Claim.—1. A portable garbage-receptacle, comprising the receiver 40, the ends of which are provided with studs 41, a rectangular bail 43 formed with slots 42 engaging said studs, in combination with a hinged cover 44, the end flanges of which are provided with slots 46 engaging the pins 47 on the ends of said receiver, substantially as and for the purpose set forth.

2. A portable garbage-receptacle, comprising the receiver 40, the ends of which are provided with studs 41 and pins 47, in combination with the bail 43 having slots 42, and the hinged cover 44, having slots 46, spring-clip 48, and flat hook 59, substantially as shown and described.

3. A garbage-cart, comprising the hopper 51 having gravity-valve 52, the standards 18 18, the oscillating chute 20 fulcrumed on the shaft 19, journaled in said standards and provided at one end with the arm 22, in combination with the lever 25 fulcrumed on the shaft 26, mounted in said standards, and having its slotted end 24 engaging the arm 22 on said chute, substantially as and for the purpose set forth.

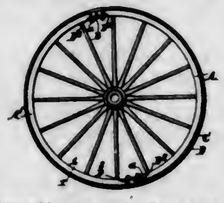
4. A garbage-cart, comprising the oscillating chute 20, the side rails of which are provided with longitudinal slots 30, in combination with the sliding carrier 28, having lateral studs 29 engaging the slots 30 in said chute, substantially as and for the purpose set forth.

5. A garbage-cart comprising the oscillating chute 20, the side rails of which are formed with longitudinal slots 30, in combination with the sliding carrier 28, having lateral studs 29, engaging said slots and provided with the hinged door 36, provided with the gravity-bolt 34, substantially as and for the purpose set forth.

6. A garbage-cart comprising the hopper 51 having gravity-valve 52, the standards 18 18, the oscillating chute 20, fulcrumed on the shaft 19 journaled in said standards and provided with the arm 22, engaging the slot 24 in the upper end of the lever 25, the carrier 28 provided with studs 29 29 engaging the slots 30 in said chute, and the hinged door 36, having gravity-bolt 34, in combination with the removable garbage-receiver 40, substantially as described.

7. A garbage-cart comprising the hopper 51, pivoted valve 52, and the standards 18 18, the oscillating chute 20 mounted in said standards, the lever 25, fulcrumed in the standards, its slotted upper end engaging an arm 22 on said chute, the carrier 28 provided with studs 29 29, engaging the slots 30 in said chute, and provided with the pivoted hooks 55 55, in combination with the detachable receiver 40 provided with studs 41 and pins 47, and having the pivoted bail 43 and the hinged cover provided with the spring-clip 48 and the bail flat hook 59, substantially as and for the purpose set forth.

579,180. WHEEL. BENJAMIN F. RITTENHOUSE, Norristown, Pa. Filed May 19, 1896. Serial No. 592,107. (No model.)



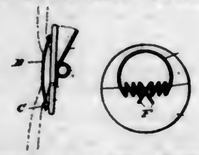
Claim.—1. In combination with a wheel-felly having a circumferential groove in its outer periphery, one or more metal rods shrunk into said groove and projecting beyond the face of the felly, so as to provide a means for anchoring an internally-grooved rim upon the felly.

2. In combination with a circumferentially-grooved wheel-felly having transverse sockets as A^3 extending in from the bottom of the groove, a metal rod or rods as D the length of which is not less than one-fifth of the circumference of the felly, said rod or rods being adapted to lie in the groove and to project beyond the face of the felly and having inwardly-projecting ends as D^2 adapted to enter sockets A^3 and thereby anchor the rod or rods in the groove all substantially as specified and so as to provide an anchorage for an internally-grooved tire or rim.

3. In combination with a wheel-felly having a circumferential groove in its periphery, one or more metal rods shrunk into said groove and projecting beyond the face of the felly, and an internally-grooved wheel-rim embracing the felly, the groove in which receives the rod or rods and locks the rim to the felly.

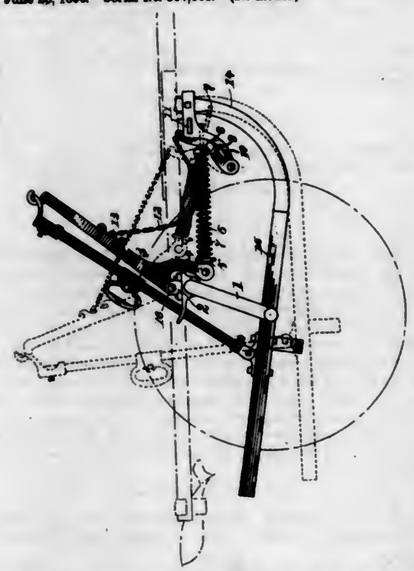
4. In combination with a circumferentially-grooved wheel-felly having transverse sockets as A^3 extending in from the bottom of the groove, a metal rod or rods as D the length of which is not less than one-fifth of the circumference of the felly adapted to lie in the groove as described and having inwardly-projecting ends D^2 adapted to enter sockets A^3 and thereby anchor the rod or rods in the grooves and an internally-grooved wheel-rim adapted to embrace the felly and interlock with the rod or rods as specified.

579,181. BOUQUET-HOLDER. EDWARD R. ROBERTS, Crafton, Pa. Filed Jan. 9, 1897. Serial No. 618,636. (No model.)



Claim.—A bouquet-holder consisting of a base-plate provided on one side with an attaching-pin, in combination with a spring-bow, the lower ends of which are formed with coils, and pins connected to the free ends of the coils and passing through holes in the plate and riveted thereto, substantially as and for the purpose set forth.

579,182. CULTIVATOR. MARSHALL SATTLEY, Springfield, Ill., assignor to the Sattley Manufacturing Company, same place. Filed June 26, 1896. Serial No. 597,068. (No model.)



Claim.—1. In a cultivator, of the class described, and in combination with the beam, the rock-lever and the lift-rod thereof, an arm of the lever extending below the fulcrum of the lever, and a compression-spring between the arm and a fixed bearing in front of the arm, substantially as set forth.

2. In a cultivator of the class described, an arm on the rock-lever extending below the fulcrum of the lever when the beam is raised and rising to the level of the fulcrum when the beam is depressed, a fixed bearing in the frame in front of the arm, and a compression-spring between the end of the arm and the fixed bearing, substantially as set forth.

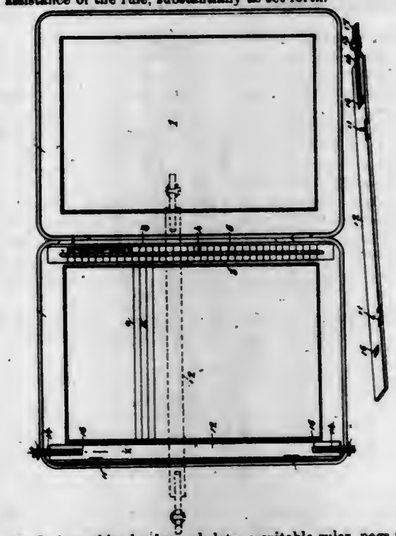
3. In a cultivator of the class described, an arm on the rock-lever extending beyond the fulcrum thereof, a fixed bearing in front of the arm, a compression-spring between the end of the arm and the fixed bearing, a follower between the spring and the fixed bearing, and a connection between the follower and the rock-lever or the lift-rod thereof.

4. In a cultivator of the class described, a compression-spring, an arm on the rock-lever having a push bearing against one end of the spring, a follower having a pull bearing against the opposite end of the spring and a connection between the follower and the rock-lever or its lift-rod.

579,188. SLATE-RULER. OTTO SCHALLER, Okawville, Ill. Filed Sept. 8, 1896. Serial No. 605,157. (No model.)

Claim.—1. In a combined ruler and slate, a suitable slate, a ruler having suitable pegs disposed along one of the longitudinal edges of the same, openings formed along one side of the slate-frame for receiving said pegs and partially securing the ruler to the frame and suitable devices for additionally securing the opposite ends of the ruler to the slate-frame, substantially as set forth.

2. In a combined ruler and slate, a suitable slate, a frame for the same, parallel guide-grooves formed along two opposite members of the frame, a series of depressions or openings formed at the base of each groove and correspondingly spaced on each side of the frame, transverse guide-lines drawn across the path of the openings, a ruler, and suitable pegs carried along one of the longitudinal edges of the same and separated by a distance equal to the distance from one depression on one side of the frame to its corresponding depression on the other side, whereby the pegs of the ruler may be simultaneously guided along the grooves and properly inserted into the series of depressions along the frame and series of parallel lines drawn with the assistance of the rule, substantially as set forth.



3. In a combined ruler and slate, a suitable ruler, pegs projecting from and disposed along one of the longitudinal edges of the same, suitable depressions formed in the frame for the reception of the pegs to temporarily and partially secure the ruler to the frame, buttons carried by the opposite edges of the frame in line with one of the lateral members of the frame, elastic bands carried by the ends of the ruler, and eyes secured to the ends of the bands and adapted to be passed over the buttons to additionally secure the ruler to the frame, substantially as set forth.

4. In a combined ruler and slate, a suitable slate, a frame for the same, plates embedded in two opposite members of the frame and flush with the surfaces of said members, parallel guide-grooves formed in said plates, openings formed at the bottom of the guide-grooves, depressions formed in the frame members communicating with the openings of the plates, guide-lines transversely disposed along each plate and passing through or in the path of the openings, the said openings and depressions adapted to receive the pegs of a suitable ruler, substantially as set forth.

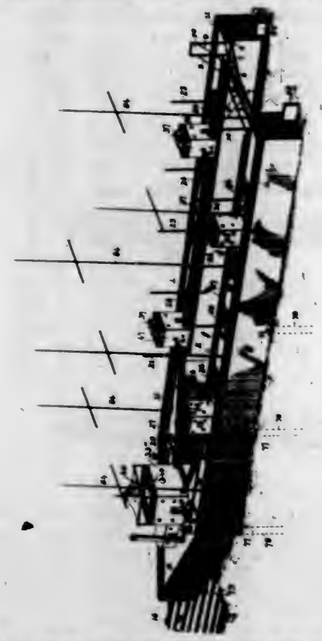
579,184. DEVICE FOR RAISING AND TRANSPORTING VESSELS. CHARLES J. SCHRAMM, Fayetteville, Tex. Filed June 16, 1896. Serial No. 595,816. (No model.)

Claim.—1. In a barge of the class described, a buoyant barge-body having opposite floats and a hollow prow portion connecting the front ends of said floats, said hollow prow portion of the barge-body being formed at the central under side thereof with a propeller-housing open at its lower side, suitable raising and supporting devices for a ship or vessel, and propelling mechanism mounted for rotation within the propeller-housing of the prow portion of the barge-body, substantially as set forth.

2. In a locomoto-barge, a buoyant barge-body comprising opposite parallel tubular side floats and a hollow pointed prow portion connecting the front ends of the tubular side floats, a cross-bridge connecting the rear ends of said side floats and comprising separate hinged sections, a suitable raising and supporting device for the ship or vessel, and propelling mechanism arranged at the prow end of the barge, substantially as set forth.

3. In a locomoto-barge, a buoyant barge-body having opposite floats and a hollow prow portion connecting the front ends of said floats, suitable raising and supporting devices for the ship or vessel, and vertically-adjustable propelling mechanism mounted within the front prow portion of the barge-body, substantially as set forth.

4. In a barge of the class described, the barge-body having opposite side floats unconnected at their rear ends, a raising-platform arranged to work below and between said floats, a series of transverse cross-beams secured to the platform, vertically-adjustable screw lifting-rods guided for movement in the opposite side floats and connected at their lower ends with said cross-beams, adjusting-nuts mounted on the floats and receiving the screw lifting-rods, said nuts having worm-pinions, continuous worm-shafts arranged longitudinally on the opposite floats and having at intervals worms engaging said worm-pinions, a common driving connection with the front ends of said worm-shafts to provide for the simultaneous rotation thereof, and propelling mechanism, substantially as set forth.



5. In a barge of the class described, the barge-body having opposite side floats unconnected at their rear ends, a suitable raising and supporting device for the ship or vessel, upright fastening-towers arranged at intervals on each of said side floats, a capstan mounted on top of each tower and carrying a fastening-cable, a horizontally-adjustable screw brace-rod working in each tower and carrying at its outer end outside of the tower a contact-roller, an adjusting-nut mounted on said screw brace-rod, worm-gearing for turning said nut to adjust the rod, said gearing having an upright adjusting-shaft projected through the top of the tower and carrying at its upper end a hand-wheel, and propelling mechanism, substantially as set forth.

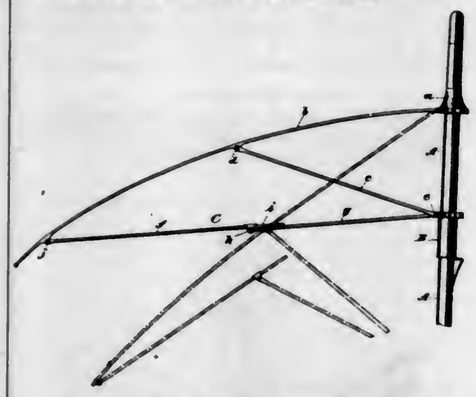
6. In a barge of the class described, the barge-body having opposite side floats unconnected at their rear ends, a suitable raising and supporting device for the ship or vessel, upright fastening-towers arranged on the opposite side floats, vessel fastening and bracing devices supported by said towers, and propelling mechanism arranged at the prow end of the barge-body, substantially as set forth.

7. In a barge of the class described, a buoyant barge-body having opposite side floats unconnected at their rear ends, a suitable vessel raising and supporting device, a wheel-casing adjustably mounted at the prow end of the barge-body, screw propeller-wheels mounted within said wheel-casing, means for vertically adjusting the wheel-casing and the screw propeller-wheels therein, and driving connections with said wheels for rotating the same, substantially as set forth.

8. In a barge of the class described, a buoyant barge-body having an open propeller-housing at its under side and in the front prow portion thereof, a suitable vessel raising and supporting device carried by the barge-body, a wheel-casing mounted within said housing a wheel-shaft journaled in said casing and carrying screw propeller-wheels, a series of guide-rods working in guide-openings at the top of the propeller-housing and connected at their lower ends with said wheel-casing, certain of said guide-rods having longitudinal racks, a suitably-operated adjusting-shaft carrying the pinions meshing with said racks, and a suitably-driven slidable rotating shaft geared with said wheel-shaft to provide for the rotation of the propeller-wheels irrespective of their vertical adjustment, substantially as set forth.

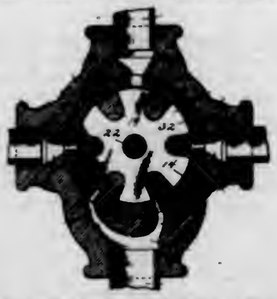
9. In a barge of the class described, a buoyant barge-body having opposite side floats unconnected at their rear ends and provided at its bottom with a series of traveler-wheels, a raising-platform arranged to work below and between the floats and carrying at its lower side a series of track-wheels, raising and lowering mechanism connected with said platform, and propelling mechanism arranged at the prow end of the barge-body, substantially as set forth.

579,185. UMBRELLA. BORIS M. SHAINE, New York, N. Y.
Filed May 22, 1896. Serial No. 592,563. (No model.)



Claim.—In an umbrella, the combination of the main ribs pivoted to a thimble at the outer end of the umbrella-stick, main stays each of which is pivoted at the outer end to a main rib and at the inner end to the runner, auxiliary stays each comprising two members which are united by a butt-hinge joint, the axis of which is parallel to the other pivots of said auxiliary stays, each of said auxiliary stays being pivoted at one end to the runner to which the main stays are pivoted and at the opposite end to a main rib and being disconnected one from the other, whereby a movement of the runner will cause a corresponding movement of the auxiliary stays as well as the main stays and the closing of the umbrella will effect the doubling of members of each auxiliary stay upon themselves, substantially as described.

579,186. VALVE. ALBERT SICKAFOOSE and WILLIAM R. WYATT, Lyons, Iowa. Filed Mar. 17, 1896. Serial No. 583,564. (No model.)



Claim.—1. A valve having a cylindrical casing provided in its seat with a lateral cylinder-port and a plurality each of steam and exhaust ports elongated parallel with the axis of the casing, the exhaust-port being branched with its arms deflected inwardly to tap the seat at intervals, and the steam and exhaust ports being of less width than the cylinder-port, and a rotary ping seated in the casing and provided with alternate elongated openings and gates arranged parallel with the axis of the plug, the division of the steam and exhaust ports providing for the reversal of the passage of fluid through the valve by the minimum movement of the plug, substantially as specified.

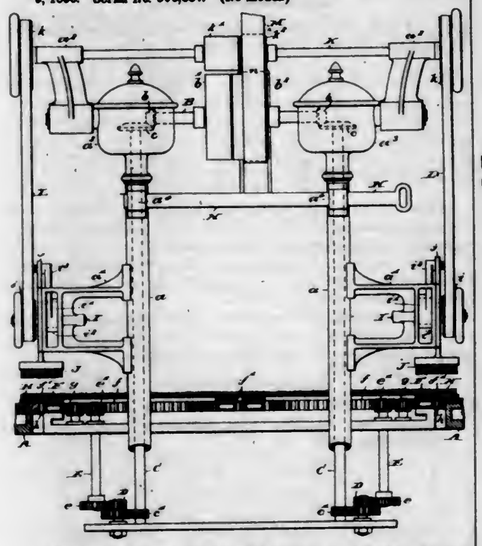
2. A valve having an open-ended cylindrical casing, an open-ended bushing removably fitted in the bore of the casing and having its bore tapered longitudinally to form a seat, said bushing and casing having registering steam, cylinder and exhaust ports of which those in the bushing are elongated parallel with the axis of the casing, a hollow plug fitted in said seat and provided with longitudinal slots or openings and intervening gates to cover said ports, said plug being longitudinally tapered, and means for holding the plug at the desired adjustment to compensate for wear, substantially as specified.

3. A valve having a casing provided with opposite steam-ports and opposite cylinder and exhaust ports, the exhaust-port being branched with its arms deflected inwardly to tap the bore of the casing at intervals, an open-ended slotted bushing fitted in the casing and having ports registering, respectively, with the steam and cylinder ports of the casing and with the branches of the exhaust-port therein, and a hollow rotary plug fitted in the bore of the bushing and provided with openings and intervening gates to close said ports, substantially as specified.

4. In a valve, the combination with a casing having a tapered open-ended seat and lateral ports, of a hollow rotary plug fitted in said seat and provided with corresponding lateral ports, a spindle fixed axially to the plug and extending beyond the extremities thereof, threaded guides supported by brackets secured to the extremities of the casing, and center-points having threaded shanks mounted in said guides and engaging center sockets or bearings in the extremities of the spindle, substantially as specified.

5. The combination with twin valves having rotary plugs, operating-levers secured to the plugs and provided with pairs of opposite center sockets or bearings located at different distances from the axes of the plugs, and a connecting-rod provided at its extremities with opposite adjustable center-points to engage said center bearings or sockets whereby the extent of relative movement of the connected valves may be varied to secure proper coöperation, substantially as specified.

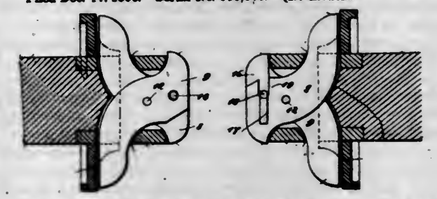
579,187. COMBING-MACHINE. SAMUEL SMITH, Lawrence, Mass., assignor of one-half to Walter A. Leigh, Chelmsford, Mass. Filed May 9, 1896. Serial No. 590,887. (No model.)



Claim.—1. The combination of the combs and dabbing-brushes of a combing-machine, a main shaft and intermediate mechanism for driving said combs, a counter-shaft and mechanism connecting the same and the main shaft for driving said brushes and comprising a fast pulley and a loose pulley on each of said shafts, the combined width of the fast pulley and loose pulley on each shaft being equal to that of the fast pulley and loose pulley on the other shaft and the fast pulley on the counter-shaft being wider than the fast pulley on the main shaft, a belt connecting the pulleys of said shafts, and a main driving-belt running on said first-named belt, as and for the purpose specified.

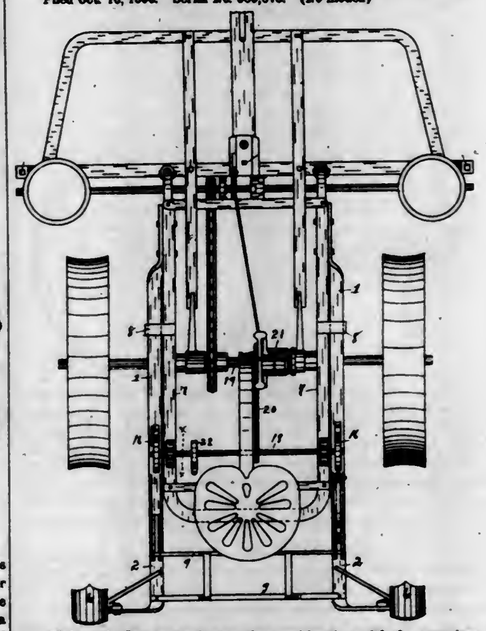
2. The combination of the combs and dabbing-brushes of a combing-machine, a main shaft and intermediate mechanism for driving said combs, a counter-shaft and mechanism connecting the same and the main shaft for driving said brushes and comprising a fast pulley and a loose pulley on each of said shafts, the combined width of the fast pulley and loose pulley on each shaft being equal to that of the fast pulley and loose pulley on the other shaft and the fast pulley on the counter-shaft being wider than the fast pulley on the main shaft, a belt connecting the pulleys of said shafts, a main driving-belt running on said first-named belt, and shifting mechanism for simultaneously shifting said belts, as and for the purpose specified.

579,188. HUB-ATTACHING DEVICE. JAMES F. SPENCER, Pomona, Cal., assignor of one-half to George Washington Ogle, same place. Filed Dec. 17, 1896. Serial No. 616,076. (No model.)



Claim.—The herein-described device for securing a wheel on the spindle of a vehicle, said device consisting of a tube or ferrule mounted on the end of the spindle, and provided with slots or openings in its opposite sides, and two similar curved jaws or levers which are pivotally connected, and the ends of which are adapted to be inserted into the outer end of the tube or ferrule, and to pass through said slots or openings, levers being provided with heads at their outer ends which are adapted to overlap the opposite sides of the end of the tube or ferrule, and a key-bolt which is passed through one of said heads and through an open slot formed in the other, and provided with an arm or extension at one end, the head of one of said jaws or levers being provided in its inner side with a transverse groove which is adapted to receive said arm or extension, substantially as shown and described.

579,189. CORN-PLANTER. CHARLES STADTFELD, Dayton, Ohio. Filed Oct. 16, 1896. Serial No. 609,073. (No model.)



Claim.—1. In a corn-planter, the combination with the carrying-frame, and the main axle, of hilling or scraper bars having their front ends rigidly attached to said frame, the rear portions of said scraper-bars having a break-joint connection, and dirt-scrapers or hoes attached thereto, cam-wheels mounted on a shaft in the rear of the main axle and adapted to depress said scraper-bars at predetermined times and means for driving said shaft from the main axle, substantially as and for the purposes specified.

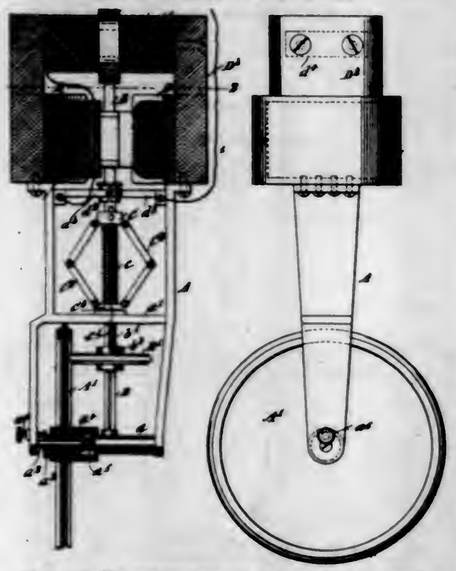
2. In a corn-planter, the combination with the carrying-frame, of scraper-bars each consisting of two hinged parts lying parallel with the frame and having a rigid attachment to the front end of said frame, transverse bars connecting the rear ends of said scraper-bars, a rotating shaft mounted in the rear of and driven from the main axle, cam-wheels mounted on said shaft above the scraper-bars, and cam-bars mounted on said scraper-bars in line with said cam-wheels, substantially as shown and described.

3. In a corn-planter, the combination with the carrying-frame, of scraper-bars rigidly attached to the front portion of said frame,

and each consisting of two parts 1 and 2, having their inner ends curved and overlapping, a hinge connecting said two parts, transverse bars connecting the rear parts 2, and hoes mounted thereon, a shaft mounted in the rear of and driven from the main axle, and cam-wheels mounted on said shaft above the scraper-bars and adapted to depress said bars, substantially as described.

4. In a corn-planter, the combination with the carrying-frame, of scraper-bars consisting of two parts 1 and 2, the former rigidly attached to the front end of the frame and both of said parts having a hinged connection inclosed by supporting-bars, a lever and connections with the parts 2 to elevate or lower said parts, a shaft mounted in the rear of and driven from the main axle, ratchet devices to actuate said shaft independently of the movement obtained from the main axle, and cams mounted on said shaft adapted to depress the scraper-bars substantially as described.

579,190. VEHICLE-LIGHT AND GOVERNOR FOR SAME. DAVID W. STIBBER, St. Louis, Mo., assignor to Gustavus Heidel, same place. Filed Nov. 23, 1895. Serial No. 569,953. (No model.)



Claim.—1. The combination with a frame, of an electrical generator, a revoluble shaft mounted in the frame, the shaft having a groove, a collar fixed to the shaft, a second collar movable on the shaft, toggle-links connecting the two collars, a spring embracing the shaft and pressing the collars, a rod connected to the movable collar and passed through the groove in the shaft, a friction-disk movable on the shaft and held from independent rotation by means of the rod, and a drive-wheel adapted to engage the friction-disk, substantially as described.

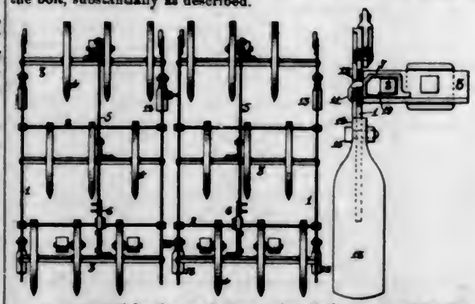
2. The combination of a revolubly-mounted shaft having a longitudinal groove, a collar fixed to the shaft, a second collar slidable on the shaft, a rod slidable in the groove of the shaft and connected to the slidable collar, a wheel slidable on the shaft, and connected to the rod, and means for connecting the fixed and sliding collar, such means being capable of moving the sliding collar under the influence of centrifugal force, substantially as described.

579,191. HARROW. WILLIAM STRAIT, Elmira, N. Y. Filed May 10, 1895. Serial No. 548,844. (No model.)

Claim.—1. A detachable coupling for harrows or the like consisting of a flat body part or block provided with a bolt-hole and means to engage the bolt-head to prevent turning and a pintle projecting from the body part in line therewith and at right angles to the plane of the end of the body part and having its end bent substantially parallel to the plane of said end.

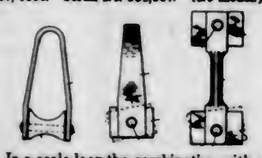
2. A detachable coupling for harrows consisting of a flat body part provided with a bolt-aperture, a depression in its face, and a pintle projecting from the end of the body part and having its extremity bent parallel to the plane of the end of the body part.

3. In a harrow, the combination with a side bar disposed upon its edge, of an angle-iron tooth-bar likewise disposed, and having its extremity adjacent to the side bar, a detachable coupling-block provided with a bolt-hole, and a pintle projecting from the body part through a transverse aperture in the side bar in line with the tooth-bar and bent at right angles, a bolt securing said block against the face of the angle-iron tooth-bar, and means to prevent the turning of the bolt, substantially as described.



4. As an article of manufacture, a shoe for harrows and the like, having a bolt-hole, an elongated horizontal U-shaped front portion with parallel sides, an intermediate downwardly-inclined part having outwardly-curved edges, and a rear horizontal portion; the upper edges of the front portion merging into the curved sides of the intermediate portion and into the parallel edges of the rear horizontal portion, and the bottom wall of the front portion merging into the face of the inclined part.

579,192. SCALE-LOOP. CHARLES G. STRUBLER, Tecumseh, Mich. Filed Feb. 27, 1896. Serial No. 581,067. (No model.)

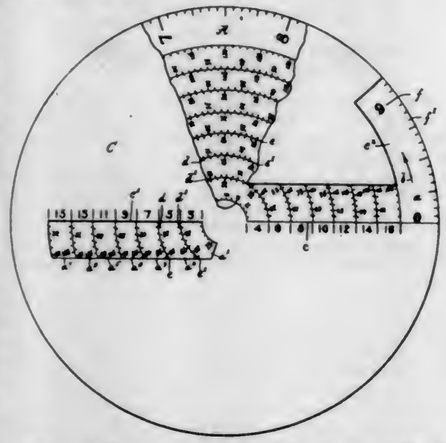


Claim.—1. In a scale-loop the combination with a suitable band of connecting bearing-blocks pivotally mounted having free bearing-surfaces on both sides, substantially as described.

2. In a scale-loop the combination with a suitable band of a connecting bearing-block pivotally mounted in the ends of said band, substantially as described.

3. In a scale-loop the combination with a suitable band of a connecting bearing-block pivotally mounted approximately midway its upper and lower surface, substantially as described.

579,193. DIAL FOR COMPUTING-SCALES. JOHN H. SWINART, Cleveland, Ohio. Filed Feb. 1, 1896. Renewed Oct. 1, 1896. Serial No. 607,615. (No model.)



Claim.—1. In a computing-scale, a dial having a plurality of annular columns each of which is subdivided by two series of value-graduations and is provided with two sets of associated value-figures, the figures in one set being inverted with respect to those in the other set, substantially as and for the purpose specified.

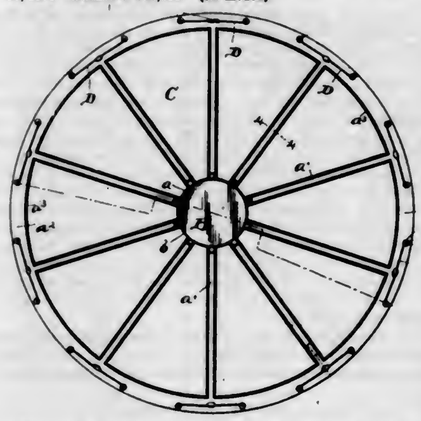
2. In a computing scale, the combination of a dial having a plurality of annular columns, each of which is subdivided at its edges respectively by two series of value-graduations which differ in number, and is provided with two sets of associated value-figures, the figures of one set being inverted with respect to those in the other set, with a face-plate with two sight-openings each having, on its reading edge in line with the several annular columns, rate-indicating figures, of which the figures on one reading edge differ from the figures which are correspondingly placed upon the other reading edge, substantially as and for the purpose specified.

3. In a computing-scale, a dial having a plurality of annular value-columns, each of which is divided by two series of graduating-marks and is provided with two series of associated value-figures, of which the figures in one set are inverted with respect to the figures in the other set, the value-figures in all of the columns, which are set in one direction having a common zero-line, while the inverted value-figures, in all of the columns, have a common zero-line on the opposite side of the dial, substantially as and for the purpose specified.

4. In a computing-scale, the combination of a dial having a plurality of annular value-columns, each of which is subdivided at its edges respectively by two series of value-graduations which differ in number and is provided with two sets of associated value-figures, the figures in one set being inverted with respect to those in the other set, and an annular column containing figures showing weight which may be read in conjunction with any set of value-figures, substantially as and for the purpose specified.

5. In a computing-scale, a dial having on its face two sets of concentric rows of figures, which rows respectively represent progressive values at different rates, the figures in one set of rows being inverted with respect to the other figures, and the rows of one set beginning in a common zero-line upon one side of the dial, while the rows of the other set begin in a common zero-line upon the opposite side of the dial, combined with a face-plate having two sight-openings on opposite sides of the center, the reading edge of one sight-opening having rate-indicating figures in line with the rows of value-indicating figures on the dial which appear right side up through said sight-opening, the other sight-opening having on its reading edge other rate-indicating figures in line with the rows of value-figures which appear right side up through said sight-opening, substantially as and for the purpose specified.

579,194. DIAL. JOHN H. SWINART, Cleveland, Ohio. Filed Oct. 30, 1896. Serial No. 610,535. (No model.)



Claim.—1. In a dial, the combination of a stiff frame and a flexible dial having a series of holes near its edge, with a series of springs engaging with the dial in said holes, and exerting their force to draw the edge of the dial away from the center, substantially as and for the purpose specified.

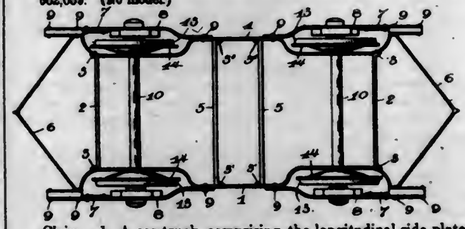
2. In a dial, the combination of a stiff frame having a series of holes, and a flexible dial having corresponding holes near its edge, with a series of springs secured to the frame extended through the holes therein and into the holes in the dial, and exerting their force to draw the edges of the dial away from the center, substantially as and for the purpose specified.

3. In a dial, the combination of a stiff frame having a series of holes, and a flexible dial having corresponding holes in which eyelets are secured, with a plurality of spring-wires having outwardly-turned ends which pass loosely through two holes in frame and into the said eyelets, the middle part of said wires being bent outwardly and soldered to said frame, substantially as and for the purpose specified.

4. In a dial, a frame consisting of the following integral parts, viz., a hub, a series of longitudinally-bent spokes, a rim, and a rearwardly-turned flange upon the inner edge of the rim, combined with a disk having a cylindrical flange, which disk is secured at the center of the frame with its flange in contact with the inner ends of the spokes substantially as and for the purpose specified.

5. In a dial, the combination of a stiff frame having a series of holes near its edge, and the rearwardly-extended integral tongues a^5, and a flexible dial having corresponding holes, with spring-wires having outwardly-turned ends which pass loosely through the holes in the frame and engage in the holes in the dial, the middle part of said spring-wires being in engagement with said tongues, and soldered to the frame, substantially as and for the purpose specified.

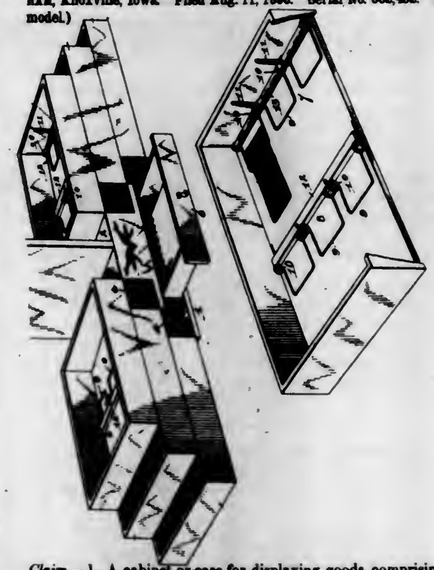
579,195. SECTION CAR-TRUCK FOR STREET-RAILWAYS. GEORGE E. TURNER, Marion, Ohio. Filed Aug. 7, 1896. Serial No. 602,039. (No model.)



Claim.—1. A car-truck comprising the longitudinal side plates 1 1, the rigid end braces 2 2, and the removable side plates 8 8, substantially as and for the purpose set forth.

2. A car-truck comprising the longitudinal side plates 1 1, the rigid end braces 2 2, the central parallel suspension-bars 5 5, and the removable side plates 8 8, substantially as and for the purpose set forth.

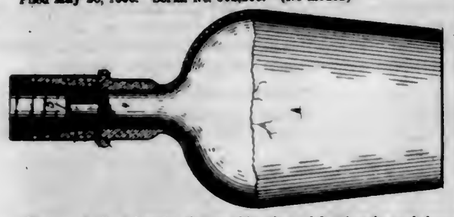
579,196. CABINET FOR HOSIERY. WILLIAM T. VALLANDINGHAM, Knoxville, Iowa. Filed Aug. 11, 1896. Serial No. 602,452. (No model.)



Claim.—1. A cabinet or case for displaying goods, comprising a base provided with a series of steps or ledges arranged at different elevations, and a series of open boxes or receptacles hinged at their lower ends to the outer edges of the horizontal portions of the steps or ledges, whereby, when the boxes or receptacles are swung downward in opening they will be arranged at different elevations and will be supported one upon another, said boxes or receptacles, when arranged vertically, having their openings at their inner sides, so that one box or receptacle will be covered or closed by another, substantially as described.

2. A case or cabinet for displaying goods, comprising a base provided with a vertically-disposed partition and having at opposite sides of the same a series of steps or ledges arranged at different elevations, and two sets of boxes or receptacles disposed at opposite sides of the partition, mounted on the steps or ledges and hinged to the same at the outer edges thereof, said boxes being open at their inner sides and being arranged one above another when swung downward in a horizontal position, substantially as and for the purpose described.

579,197. BOTTLE. RICHMOND G. VAN ORMAN, Lorain, Ohio. Filed May 30, 1896. Serial No. 592,293. (No model.)



Claim.—1. In a bottle, the combination with a bottle-neck having an inner groove, of a locking-stopper made from a single piece of metal having an imperforate top and slotted sides forming spring-arms which terminate in an outwardly-extending flange adapted for reception in the groove.

2. In a bottle, the combination with a bottle-neck having an inner groove, of a metallic cup-shaped inverted locking-stopper having an imperforate top and slotted sides thereby providing spring-arms which have outwardly-extending flanges adapted for reception in the groove.

3. In a bottle, the combination with a bottle-neck having inner and outer grooves located in alinement and separated by the frangible portion, and also being provided with a downwardly-converging inner portion leading to the inner groove, of a locking-stopper made of spring metal and being in the shape of an inverted cup, having an imperforate top and slotted walls or sides, thereby providing spring-arms, said arms terminating in outwardly-extending flanges which are adapted for reception in the inner groove.

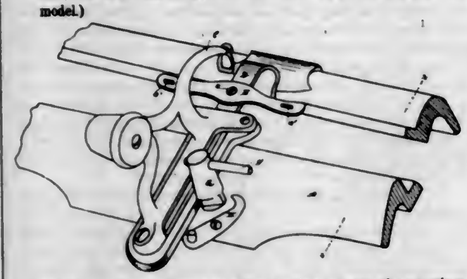
579,198. LAWN, FLOOR, OR TABLE GAME-BOARD. ALFRED VICK, Mount Carmel, Conn. Filed Jan. 13, 1896. Serial No. 575,240. (No model.)



Claim.—1. A game-board consisting of a plane field with border surrounding the same, and an extension on one side thereof, a centrally-apertured disk having an annular recess in its base for securing it to said field, and an inclined upper surface and an arch bent flat at said extension.

2. A game consisting of a plane field, having angular outlines and provided with the border C, a centrally-apertured disk secured to the center of said field, and having an inclined upper surface, and starting-indicator on said field, near an extension on one side thereof.

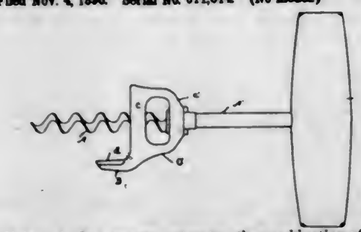
579,199. STRAIGHT-KNITTING MACHINE. CHARLES R. WAKEMAN, Pontiac, Mich. Filed Mar. 5, 1894. Serial No. 502,363. (No model.)



Claim.—1. In a knitting-machine having a traversing carriage, the combination of such carriage, the three fixed triangular cam-plates N N' N³, a needle-guard K, and the dogs J J', the wing-cams N' N³ having formed therein slots R R, substantially as and for the purpose described.

2. In a knitting-machine, having a traversing carriage, the combination of such carriage, a needle-bed upon which said carriage reciprocates, guide-bars rigidly attached to said needle-bed, triangular cam-plates N, N', N³, fixed to said carriage, the needle-guard K, the dogs J, J', the wing-cams N', N³, having slots R, R, formed therein, hangers attached to said carriage and adapted to engage the guide-bars, and adjustable friction-rollers located in said hangers, substantially as described.

579,200. STOPPER-EXTRACTOR. EDWIN WALKER, Erie, Pa. Filed Nov. 4, 1896. Serial No. 611,014. (No model.)



Claim.—1. In a stopper-extractor, the combination of the head; a shank and screw carried by said head; a cutting-blade carried by said head, said blade and shank being so arranged relatively to each other that the said shank forms a lever by means of which the blade is operated, and said blade having its edge facing said shank or screw.

2. In a stopper-extractor, the combination of the head arranged to operate on the top of the bottle and against the screw; a shank and screw carried by said head; and a cutting-blade carried by said head, said blade and shank being so arranged relativdly to each other that the said shank forms a lever by means of which the blade is operated, and said blade having its edge facing said shank or screw.

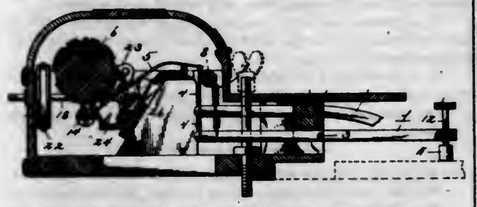
3. In a stopper-extractor, the combination of the head having the ring *c* and yoke *c'*; the screw; the screw-shank journaled in said head; and a cutting-blade carried by said head; said head, blade, yoke and shank being so arranged relatively to each other that the said shank forms a lever by means of which the blade is operated, the yoke *c'* a finger-grip for positioning the blade and the ring *c* an abutment for the fingers.

4. In a stopper-extractor, the combination of the head C having the ring *c* and yoke *c'*; the screw A and shank A'; and the blade D projecting from the head along the screw with the edge *d* facing the screw.

579,201. KEYBOARD-OPERATING APPARATUS FOR MUSICAL INSTRUMENTS. FRANCIS A. WALLACE, Waynesburg, Pa. Filed June 16, 1896. Serial No. 595,784. (No model.)

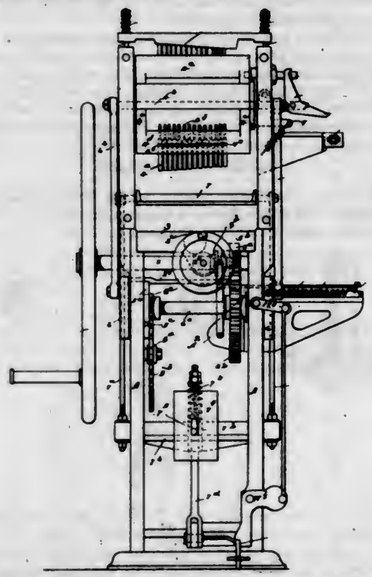
Claim.—1. In a device of the class described, the combination of key-levers adapted to bear upon instrument-keys and designed to be elevated to their normal positions by said keys, yielding means for depressing the key-levers to neutralize a portion of the resistance of the keys, yielding or resilient operating-levers connected respectively with the key-levers, and means for actuating the operating-levers to depress the free ends of the key-levers, substantially as specified.

2. In a device of the class described, the combination of key-levers adapted to bear upon instrument-keys and designed to be elevated to their normal positions by said keys, yielding means for depressing the key-levers to neutralize a portion of the resistance of the keys, yielding or resilient operating-levers connected respectively with the key-levers, and an actuating-cylinder having pins or projections to engage the extremities of the operating-levers, whereby the extremities of the key-levers are forcibly depressed to actuate the keys, substantially as specified.



3. In a device of the class described, the combination of key-levers adapted to bear upon instrument-keys and designed to be elevated to their normal positions by said keys, tension-springs for depressing the key-levers to neutralize a portion of the resistance of the keys, a drum to which the tension-springs are attached, means for securing the drum at the desired adjustment, whereby the tension of the springs may be made proportionate to the resistance of the keys, and means for communicating motion to the operating-levers to depress the keys against the unneutralized portion of their resistance, substantially as specified.

579,202. INDEXING-MACHINE. SMITH N. WEBB, Detroit, Mich. Filed Oct. 17, 1895. Serial No. 565,941. (No model.)



Claim.—1. In an indexing-machine, the combination of a cylinder provided with gouges and printing-type, and adapted to both rotate and reciprocate, an ink-pad adapted to contact the printing-type, a book-supporting table, and back-support adjustable on said book-supporting table, a presser-plate, means for reciprocating the cylinder, means adapted to rotate the cylinder during one part of its reciprocation, substantially as described.

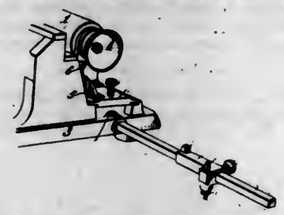
2. In an indexing-machine, the combination of a book-supporting table, a presser-plate, a cylinder provided with gouges and type-arms, means for reciprocating, and means for revolving the cylinder, a main driving-wheel, a clutch, connection between the main driving-wheel and the cylinder-actuating mechanism, and means for automatically disconnecting the clutch, substantially as described.

3. In an indexing-machine, the combination of a cylinder provided with gouges and printing-type, and adapted to both rotate and reciprocate, an ink-pad adapted to contact the printing-type, a book-supporting table, a presser-plate, means for reciprocating the cylinder, and means adapted to rotate the cylinder during one part of its reciprocation, and a locking-pin engaging the cylinder and preventing its rotation during another part of its reciprocation, substantially as described.

4. In an indexing-machine, the combination of a cylinder provided with gouges and printing-type, a main driving-wheel and shaft, a crank-wheel adapted to reciprocate the said cylinder, a clutch engagement, immediately connecting the main driving-wheel and the crank-wheel, means for actuating said clutch to bring it into engagement, means for holding the clutch in engagement, and means for automatically disengaging the clutch, substantially as described.

5. In an indexing-machine in combination with a book-supporting table, a rotating and reciprocating cylinder provided with gouges and printing-arms, means for adjusting the gouges, substantially as described.

579,203. TYPE-WRITING MACHINE. LORENZO D. WHITSON, Nashville, Tenn., assignor of one-half to the Marshall & Bruce Company, same place. Filed Apr. 9, 1896. Serial No. 586,842. (No model.)



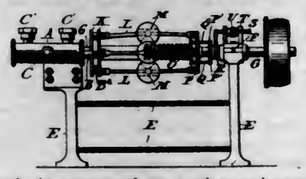
Claim.—1. The combination with a type-writing machine having a carriage carrying a platen, bell and vibratory bell-hammer trip, of a tabulating attachment consisting of a bar attached at one end to the type-writer frame and projecting to one side thereof, a sleeve fitted on said bar against rotation and longitudinally adjustable thereon, a fixed lug on one end of said sleeve adapted to engage a stop-pin on the carriage to arrest the movement of the latter, and a trip-pin mounted on the other end of said sleeve and operating to engage and vibrate the bell-hammer trip, substantially as described.

2. The combination with a type-writing machine having a carriage carrying a platen, bell, and vibratory bell-hammer trip, of a tabulating attachment consisting of a bar detachably secured to the type-writer frame and projecting to one side thereof, a sleeve fitted on said bar against rotation and longitudinally adjustable thereon, a fixed lug on one end of said sleeve adapted to engage a stop-pin on the carriage to arrest the movement of the latter, and a vertically-adjustable trip-pin mounted on the other end of said sleeve and operating to engage and vibrate the bell-hammer trip, substantially as described.

3. The combination with a type-writing machine having a carriage carrying a platen, bell, and vibratory bell-hammer trip, of a tabulating attachment consisting of a bar detachably secured to the type-writer frame and projecting to one side thereof, a longitudinally-adjustable sleeve fitted on said bar against rotation, a fixed lug on the end of the sleeve nearest the type-writer, a vertically-adjustable trip-pin mounted on the other end of said sleeve and operating to engage and vibrate the bell-hammer trip, and a vertically-adjustable stop-pin carried by the said carriage and adapted to be projected into and retracted out of position for engaging the said fixed lug, substantially as and for the purpose specified.

4. A tabulating attachment for type-writers, consisting of a bar angular in cross-section and provided at one end with means for attachment to one side of a type-writing machine, a sleeve shaped interiorly to correspond to the shape of said bar and longitudinally adjustable on the latter, a fixed lug on one end of said sleeve, and a vertically-adjustable trip-pin mounted on the other end of said sleeve, substantially as and for the purpose specified.

579,204. GOVERNOR FOR MARINE ENGINES. ALEXANDER WILSON, Hull, England. Filed Feb. 10, 1896. Serial No. 578,811. (No model.) Patented in England July 16, 1894, No. 13,662.



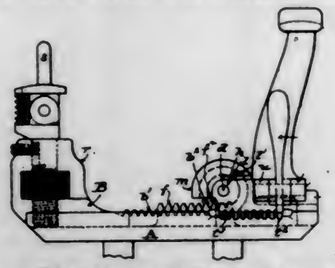
Claim.—1. An apparatus for governing marine engines to prevent them racing, consisting of a large cylinder A' and a small cylinder A with piston-valves B and D and inlet and outlet pipes C and C' respectively operated by means of arms L and balls M, shaft G hav-

ing disks J and K, the piston-valve of small cylinder A being operated by fork B^3 working in the groove K' of loose disk K, the whole being driven by means of pulley H connected by strap, rope or the like to pulley on driving-shaft of engine substantially as shown and described.

2. In apparatus for preventing marine engines racing the employment of a fork R having screwed end S adjusted by means of nut U or the like and bearing against connected disks P and P' for compressing the spring O so regulating the movements of the balls M, and in connection with cylinders A and A' with pistons and piston-valves and pipes C and C' operated by arms L and balls M and shaft G driven by pulley H connected to driving-shaft of engine substantially as shown and described.

3. The apparatus for governing marine engines and to prevent them racing, consisting of cylinders A' and A having pistons B and D, springs B', pipes C and C'; the pistons being operated by the fork B^3, disks K and J, rods L, balls M, shaft G, driving-pulley H, spring O, fork R, adjusting-nut U, disks P and P' all operating in the manner and for the purposes substantially as shown and described.

579,205. JACK FOR SHOE-MACHINES. ERASTUS B. WINKLEY, Lynn, Mass., assignor to the Goodyear Shoe Machinery Company, Portland, Me. Filed June 15, 1896. Serial No. 595,666. (No model.)



Claim.—1. The combination with the movable carriages, carrying the toe and heel supporting standards, of the movable and stationary racks, and gear connections between said racks and one of said carriages, substantially as described.

2. The combination with the movable carriages, carrying the toe and heel supporting standards, of a movable rack on one of said carriages and a fixed rack on the bed, and gear connections between said racks and the other carriage, whereby a movement of one carriage will produce a correlative movement of the other carriage, substantially as described.

3. The combination with the movable carriages, of a fixed and a movable rack, with the relatively large and small gears mounted on one carriage and meshing with said racks, substantially as described.

579,206. FORM FOR SOLE-LAYING MACHINES. ERASTUS B. WINKLEY, Lynn, Mass., assignor to the Goodyear Shoe Machinery Company, Portland, Me. Filed Aug. 6, 1896. Serial No. 601,933. (No model.)



Claim.—1. In a sole-pressing form for sole-laying machines, a pressing-pad provided with integral reinforcing shank-abutments having inclined faces, substantially as described.

2. In a sole-pressing form for sole-laying machines, a pressing-pad provided with integral reinforcing shank-abutments curved at their base edges, substantially as described.

3. In a sole-pressing form for sole-laying machines, a pressing-pad having a projected shank portion provided with a reinforcing marginal strip and integral reinforcing-abutments, in combination with means to adjust said projected shank, substantially as described.

4. A pressing-pad for sole-laying forms, having an integral marginal bead or rib upon its pressing-face extending entirely around the edge of the pad, substantially as described.

5. A pressing-pad for sole-laying forms provided with a marginal reinforcing pressing-strip upon its rear face, and an integral marginal bead or rib upon its pressing-face extending entirely around the edge of the pad, substantially as described.

6. A pressing-pad for sole-laying forms provided with a projected concave shank portion, and an integral reinforcing strip and abutments at said shank portion, substantially as described.

7. A pressing-pad for sole-laying machines provided with a projected concave shank portion, and an integral continuous marginal bead or rib upon its pressing-face, substantially as described.

8. A pressing-pad for sole-laying forms having integral reinforcing-abutments at the shank, said abutments having inwardly-inclined faces, substantially as described.

9. A pressing-pad for sole-laying machines provided with a marginal reinforcing-strip, a projected shank portion and integral reinforcing-abutments extending into such projection, substantially as described.

579,207. DIE OR FORMER FOR SOLE-MACHINES. ERASTUS B. WINKLEY, Lynn, Mass., assignor to the Goodyear Shoe Machinery Company, Portland, Me. Filed Sept. 18, 1896. Serial No. 606,277. (No model.)

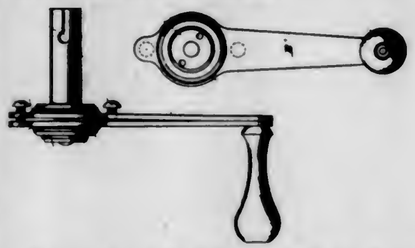


Claim.—1. A die or former for sole-machines, comprising a metallic pressing plate or face, and an elastic pad or cushion backing the same, substantially as described.

2. In a die or former for sole-machines the combination with a suitable supporting-plate, of an elastic cushion and a flexible metallic pressing-plate sustained thereby, substantially as described.

3. In a die or former for sole-machines, the combination with a suitable form-plate, of an elastic cushion and a metallic pressing-plate, and movable connections between said pressing-plate and form-plate, substantially as described.

579,208. WINDING-CRANK. ALFRED WOLFF, Bayonne, N. J., assignor to the Regina Music Box Company, Rahway, N. J. Filed Jan. 10, 1896. Serial No. 574,958. (No model.)



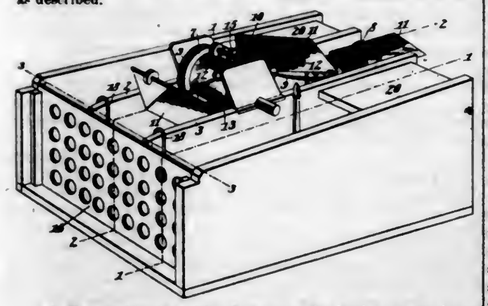
Claim.—1. In a winding-crank, the combination with a stem, of two friction-plates held on said stem to turn with the same, two crank-arms mounted loosely on said stem between the friction-plates, a handle secured to the united ends of said arms, and means for spreading said crank-arms and pressing them against the friction-plates, substantially as herein shown and described.

2. In a winding-crank the combination with a stem having two prismatic parts and a cylindrical part between the two prismatic parts, of a friction-plate mounted on each prismatic part, two crank-arms mounted to turn on the cylindrical part between the two friction-plates, which two crank-arms are connected by a handle at their united ends, and screws screwed through threaded apertures in one crank-arm and resting against the other crank-arm, substantially as herein shown and described.

579,209. MECHANISM FOR UTILIZING WATER-POWER. WILLIAM H. WOODWARD, Cedar Grove, Tenn. Filed Nov. 29, 1895. Serial No. 569,886. (No model.)

Claim.—1. The combination with a frame or casing having a central race and chambers disposed on each side of the race, of an endless belt carrying paddles arranged to travel through said race, a hinged gate arranged in the inlet end of the race, and floats disposed within said chambers and connected to the said gate, whereby, when the volume of the water is increased the gate will be automatically

raised to reduce the area of the inlet end of the race, substantially as described.



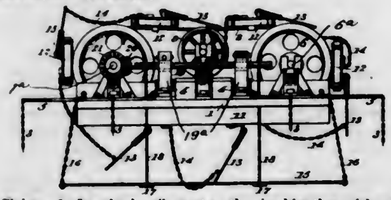
2. The combination with a frame or casing having a central race and an endless belt carrying paddles arranged to travel through said race, of chambers disposed on each side of the race and provided with inlets open to the current and having ports communicating with the race, and valves controlling said ports for regulating the passage of the water from said chambers to the race, substantially as described.

3. The combination with a frame or casing having a central race provided at its inlet end with a gate and an endless belt carrying paddles arranged to travel through said race, of chambers disposed on each side of the race and provided with inlets open to the current and having ports communicating with the race, valves for controlling said ports, and means operated by the rise and fall of water in the chambers on the sides of the race to open and close the gate controlling the inlet end of the race, substantially as described.

4. The combination with the frame or casing 1 divided by longitudinal partitions 2 and 3 into a central race and two side chambers, each of said partitions being provided with ports 4 4 for establishing communication between the said race and chambers, sliding gates 5, 5, operating to open and close said ports, levers 6 for actuating said gates, and an endless belt carrying paddles 11, arranged to travel through said race, substantially as described.

5. The combination with a frame or casing 1 divided by partitions 2 and 3 into a central race, and two side chambers, the race being open at its opposite ends and the side chambers being closed at their rear ends, a screen 16 arranged across the forward open ends of the race and the side chambers, valved ports establishing communication between the race, and said side chambers, and an endless belt carrying paddles arranged to travel through said race, substantially as described.

579,210. MECHANISM FOR UTILIZING WATER-POWER. WILLIAM H. WOODWARD, Cedar Grove, Tenn. Filed Dec. 18, 1895. Serial No. 572,613. (No model.)



Claim.—1. In a hydraulic motor, the combination with a floating platform having a central race, of pulleys arranged at the opposite ends of said platform endless chains arranged about said pulleys, folding paddles carried by said chains and arranged to travel through said race, a vertically-movable frame suspended beneath the paddles, mechanism actuated by the motor for hoisting said frame to fold up the paddles, and means for throwing said mechanism and motor out of engagement, substantially as described.

2. In a hydraulic motor, the combination with a floating platform having a central race, of pulleys 6 and 7 arranged at the opposite ends of the platform, endless chains 8 passing about said pulleys, folding paddles 13 carried by the endless chains and arranged to travel through said race, a vertically-movable frame 15, suspended beneath the paddles, windlasses 19 carried by the floating platform and connected to said frame by flexible connections 18, gearing driven by one of the said pulleys for operating the windlasses to raise the frame and fold up the paddles and means for throwing said gearing out of operation, substantially as described.

3. In a hydraulic motor, the combination with a floating platform having a central race, of pulleys 6 and 7 arranged at the opposite ends of the platform, endless chains 8 passing about said pulleys, folding paddles 13 carried by the endless chains and arranged to travel through said race, a vertically-movable frame 15 suspended beneath the paddles, yielding standards 19^a supported on the floating platform, windlasses 18 journaled in said standards and provided with spur-gears 20, spur-gears 21 fixed on the shaft 7^a of the pulleys 7 and adapted to gear with the spur-gears 20, means for moving the yielding standards toward and away from each other to throw said gears 20 and 21 into and out of engagement, and flexible connections between said platform and windlasses, substantially as described and for the purpose specified.

4. In a hydraulic motor, the combination with a floating platform having a central race, of pulleys 6 and 7 arranged at opposite ends of the platform, endless chains 8 passing about said pulleys, folding paddles 13 carried by the endless chains and arranged to travel through said race, parallel rods 17 suspended beneath the paddles by chains 16 attached to the floating platform, yielding standards 19^a supported on the floating platform, windlasses 18 journaled in said standards and provided with spur-gears 20, spur-gears 21 fixed on the shaft 7^a of the pulleys 7 and adapted to gear with the spur-gears 20, threaded rods 22 rotatably mounted in the yielding standards for moving the yielding standards toward and away from each other to throw the gears 20 and 21 into and out of engagement, and flexible connections between the windlasses and the rods 15, substantially as described and for the purpose specified.

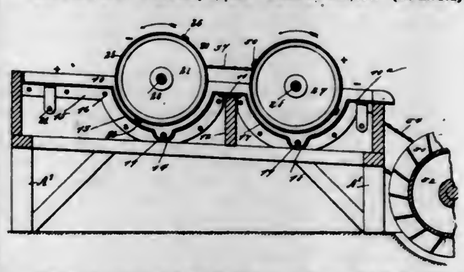
5. In a hydraulic motor, the combination of two buoyant supports 1 and 2 arranged parallel with each other and at a suitable distance apart, vertical partitions 10 and 11 attached to the inner adjacent edges of said supports and projecting above and below said supports, arched straps 4 extending transversely across said supports and over said partitions, yokes 5 projecting beyond the ends of the supports, said yokes and straps at their ends being secured together and to the supports, and endless belts carrying paddles arranged to travel between the said partitions, substantially as described.

6. In a hydraulic motor, the combination with a floating platform having a central race, of pulleys arranged at the opposite ends of the platform, endless chains passing about said pulleys, a plurality of floats attached to said chains, paddles hinged to said floats and arranged to travel through the said race, and means for limiting the vibratory movement of the paddles, substantially as described.

7. In a hydraulic motor, the combination with a floating platform having a central race, of pulleys arranged at the opposite ends of the platform, endless chains passing about said pulleys, a plurality of floats attached to said chains and arranged to travel through said race, antifriction-rollers carried by the floats and operating to contact with the walls of the race, paddles hinged to the floats, and means for limiting the vibratory movement of the paddles, substantially as described.

8. In a hydraulic motor, the combination with a floating platform having a central race, of pulleys arranged at the opposite ends of the platform, endless chains passing about said pulleys, a plurality of floats attached to said chains and arranged to travel through said race, paddles hinged to the floats, and chains each attached at one end to one of said paddles and at its other end attached to the next succeeding float, substantially as described.

579,211. ELECTRICAL AMALGAMATOR. WILLIAM WRIGHT, New York, N. Y. Filed July 8, 1895. Serial No. 555,267. (No model.)

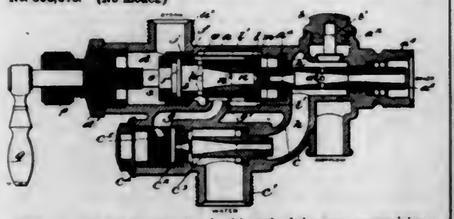


Claim.—1. In an amalgamator, electrodes arranged in pairs, one electrode of each pair being fixed, constituting a bed and provided with a cavity, the second electrode of each pair being mounted to revolve in the cavity of the fixed electrode, the fixed electrodes being insulated from one another, a generator, and a circuit connection between the fixed electrode of one set, the said connection being transmitted to the rotating electrode of the same set by the material adapted to intervene them, the circuit being continued to the rotary electrode of the second set and transmitted from thence to the fixed electrode through the material intervening the two, and thence back to the generator, as and for the purpose set forth.

2. In an amalgamator, electrodes arranged in pairs, one electrode of each pair being fixed, constituting a bed and provided with a cavity, the second electrode of each pair being mounted to revolve in the cavity of the fixed electrode, the fixed electrodes being insulated from one another, a generator, and a circuit connection between the fixed electrode of one set, the said connection being transmitted to the rotating electrode of the same set by the material adapted to intervene them, the circuit being continued to the rotating electrode of the second set and transmitted from thence to the fixed electrode through the material intervening the two, and thence back to the generator, and a switch contained in the said circuit, whereby the current may be reversed, as and for the purpose set forth.

3. In an amalgamator, the combination with the frame, of a bed of steel arranged at the upper part of the frame and provided with a pocket, a copper cylinder mounted in the said pocket, a second bed, of copper, in the lower part of the frame and insulated from the steel bed, said bed being provided with a pocket, a steel cylinder mounted in the pocket of the copper bed, the said cylinders being of opposite polarity, brushes engaging the shafts of the cylinders, a conductor connecting the brushes, and a generator connected with the said beds substantially as described.

579,212. INJECTOR. EDWIN J. YOUNG, Wadsworth, Ohio, assignor to the Ohio Injector Company, same place. Filed July 11, 1896. Serial No. 598,673. (No model.)



Claim.—1. A triple valve for double-tube injectors, comprising a main steam-valve for controlling the admission of steam to both tubes, and a separate steam-valve under the main valve and operating automatically and independently of the main valve under steam-pressure and also conjointly and positively with the main valve, for controlling the admission of steam to the forcer, substantially as described.

2. In a double-tube injector, the main steam-valve provided with a separate valve closed automatically by steam-pressure for coöperation with the steam-inlet to the injector-tube, substantially as described.

3. In a double-tube injector, a triple valve comprising a main steam-valve, a separate steam-valve working automatically and also conjointly with the main valve for controlling the steam to the forcer, and an ejector-valve, and an operating device common to all, substantially as described.

4. In a double-tube injector, an injector-tube provided with a steam-chamber between the steam-inlet and the steam-nozzle, a port connecting the said steam-chamber with the ejector-tube, a main valve interposed between the steam-inlet and the said steam-chamber, and a graduating-valve connected with the main valve, as set forth, so that the graduating-valve closes the port to the ejector upon movement of the main valve, and again opens said port by forward movement of the main valve and before the main valve cuts off steam, substantially as described.

5. In a double-tube injector, a chamber interposed between the ejector and the overflow, and an automatic valve interposed immediately between and controlling communication from the said ejector and chamber to the said overflow, substantially as described.

6. In a double-tube injector, a chamber interposed between the ejector and the overflow, an automatic valve interposed immediately between said chamber and the overflow and controlling communication from the ejector and chamber to the overflow, and a triple valve for controlling the admission of steam to the two tubes, substantially as described.

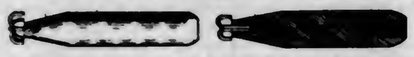
7. In a double-tube injector, a chamber arranged between the ejector and the overflow, an automatic valve interposed immediately between the said chamber and overflow and controlling communication from the said ejector and chamber to the overflow, a forcing-tube arranged in said chamber and containing spilling-ports, and a steam-controlling valve, substantially as described.

8. In an injector provided with a water-raising contrivance and a combining and forcing tube, a triple valve interposed between these devices and the steam-inlet, and controlling the admission of steam to both, and comprising a tubular portion having a valve seated immediately in the steam-inlet, and having a separate valve-face for independently controlling the admission of steam to the water-raising contrivance, and a third valve arranged within those first named, and at one time seated by steam-pressure independently of the movements of the other valves, and at another time unseated by the further movement of the said first-named valves, and a valve-moving device common to the said three valves, substantially as described

9. In an injector, the steam-inlet having a valve-seat, a steam-nozzle also having a valve-seat, a water-lifting tube having a valve-seat, and a triple valve having separate valve-faces for said several seats and operated successively by an operating device common to all, substantially as described.

10. In an injector having a steam-inlet and a valve-seat therein, a steam-nozzle and a valve-seat therein, and a lifting device in open communication with the injector between the inlet and the steam-nozzle, and a triple valve having a valve-face coöperating with the valve-seat in the inlet, a valve actuated successively by pressure of steam and by forcible contact with the valve of the steam-inlet, a valve-face for controlling the communication with the water-lifting device and independent steam-supplying passages arranged between the inlet steam-valve and the last-named valve, substantially as described.

579,213. DEVICE FOR HOUSE-WIRING. HERBERT R. YOUNG, Lakeport, N. H. Filed Jan. 31, 1896. Serial No. 577,612. (No model.)



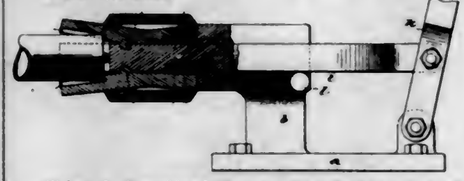
Claim.—1. A magnetized body having provision for attachment to a fishing-wire and magnetized and provided at one end with a plurality of hooks, substantially as described.

2. A magnetized body having provision for attachment to a fishing-wire and magnetized and provided at one end with a plurality of hooks, the body portion being tapered at such end, substantially as described.

3. An electrician's implement for running wires, comprising a magnetized body portion having a tapered end and a plurality of hooks at said end, substantially as described.

4. An electrician's implement for running wires, comprising a magnetized body portion having a tapered end and a plurality of hooks at said end, and a screw-threaded socket at the other end, substantially as described.

579,214. MACHINE FOR SWAGING OR TAPERING PIPES OR FLUES. SILAS ADAMS, Altoona, Pa. Filed July 16, 1896. Serial No. 599,372. (No model.)

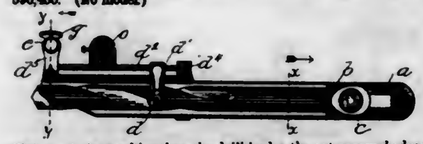


Claim.—1. A machine for tapering the ends of pipes and other tubular objects, comprising a series of jaws of the general outline of obtuse angles, and formed internally and externally as segments of a circle, having their outer ends recessed to form an internal tapering chamber, a spindle upon which said jaws are pivoted by knuckle-joints arranged at the apexes of the angles of the said jaws, and a sliding collar embracing the said jaws, and means to slide said collar longitudinally of the jaws to open and close them, substantially as described.

2. A machine for taper-swaging the ends of pipes and other tubular objects, comprising a series of jaws of the general outline of an obtuse angle, having their outer ends formed with an internally-tapered chamber, and having on their backs, opposite inclines, a spindle upon which the said jaws have a vibratory motion, and a sliding collar applied to the backs of the jaws and adapted to coöperate alternately with the opposite inclines of the said backs of the said jaws, respectively to open and close the said jaws, substantially as described.

3. A machine for taper-swaging the ends of pipes and other tubular objects, comprising a stand, a spindle mounted thereon, a series of jaws pivoted to said spindle and having a vibratory motion thereon, a sleeve encircling the said jaws, a yoke connected to the said sleeve, and a lever connected to the yoke and adapted to move the yoke longitudinally, thereby to impart to the sleeve a sliding motion relatively to the jaws, to open and close the jaws, the outer or active ends of the said jaws forming a cavity to receive the end of the tubular object to be tapered, and adapted to be closed on said object to effect the tapering thereof, substantially as described.

579,215. ATTACHMENT FOR DRILL-GRINDING MACHINES. JOHN H. AGNEW, Higganum, Conn. Filed May 6, 1896. Serial No. 590,455. (No model.)

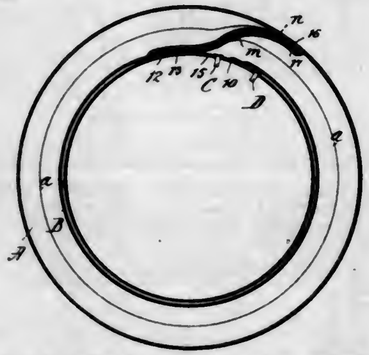


Claim.—1. In combination, the drill-bed *a*, the set-screw *d* adapted for adjustment longitudinally of the drill-bed, the movable spring gage-stop *e*, and the set-screw *g*, all substantially as described and for the purposes set forth.

2. In combination, the drill-bed *a*, the adjustable end-stop *b*, the set-screw *d* adapted for adjustment longitudinally of the drill-bed, the movable gage-stop *e*, and the set-screw *g*, all substantially as described and for the purposes set forth.

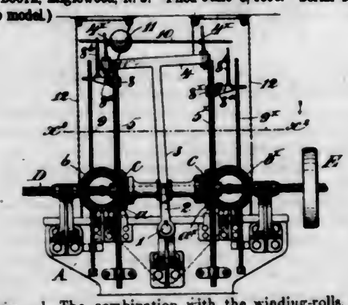
3. The drill-bed *a* having the surface *a'*, in combination with the adjustable gage-stop *e* adapted to move in a line at an angle to said surface *a'*, all substantially as described and for the purposes set forth.

579,216. TIRE FOR VEHICLE-WHEELS. SAMUEL R. BARBER, Williamsett, Mass. Filed June 5, 1896. Serial No. 594,382. (No model.)



Claim.—An air-tube for a pneumatic tire consisting of a tube, proper, A, having its base portion at one end omitted, as at 10, a diaphragm-strip B edgewise attached to opposite inner sides of the tube proper, having attachments with the end portion 13 of the tube, serving to close the base of the tube at the place where the tube-base is omitted and having an attachment at 14 to the inner portion of the tube-base near the margin of the recess 10, the diaphragm having its other end inclosed and secured between the upper and lower thicknesses of the tube at the other end of the latter, and being otherwise unsecured, the valved passage C entering through the closing part constituted by said base portion of the diaphragm, and the valved passage D entering through the base of the tube proper to the chamber below the diaphragm, substantially as described.

579,217. REVERSING APPARATUS FOR DYE-VATS. JOHN M. BOOTH, Englewood, N. J. Filed June 8, 1896. Serial No. 594,655. (No model.)



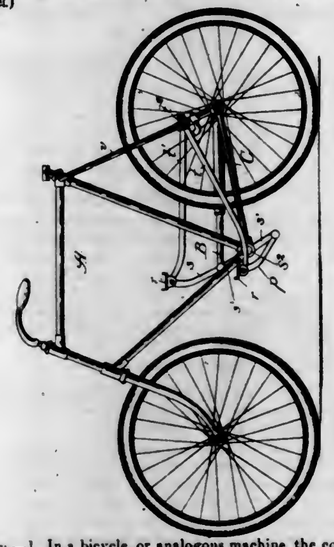
Claim.—1. The combination with the winding-rolls, the main driving-shaft, the gears intermediate said shaft and rolls, and the sliding clutch on said shaft adapted for gearing either roll with the shaft, of means for automatically shifting said clutch at predetermined intervals, said means comprising two screw-shafts, gearing intermediate said shafts and the journals of the respective winding-rolls, whereby each roll drives a shaft, traveling nuts, one on each shaft, means for preventing the rotation of said nuts with the respective screw-shafts, the clutch-shifting lever and fork and a cross-piece on the clutch-shifting lever, the ends of said cross-piece being in the path of some part of the respective nuts, whereby the nuts, in their travel, alternately act on the said cross-piece to actuate the said lever and thus shift the clutch.

2. The combination with the two winding-rolls, the shaft for driving said rolls, the sliding clutch on said shaft, and the gearing intermediate said shaft and the winding-rolls, of the means for automatically shifting the clutch at predetermined intervals, said device comprising the upright screw-shafts, 5 and 5×, the gearing intermediate these shafts and the journals of the respective winding-rolls, the traveling nuts 8 and 8× on the respective screw-shafts, the lifting-forks, 8^b, carried by said nuts, the lever and fork for shifting said clutch, the cross-piece 4 on the clutch-shifting lever, adapted to be acted on by said nuts, the rod 10, mounted in supports on the cross-piece 4, adapted to be lifted by the forks 8^b, and the sliding weight 11 on said rod 10, all arranged and adapted to operate substantially as set forth.

3. The combination with the two winding-rolls, the shaft for driving said rolls, the sliding clutch on said shaft, and the gearing intermediate said shaft and the winding-rolls, of the means for automatically shifting the clutch at predetermined intervals, said device comprising the upright screw-shafts 5 and 5×, the worm-wheels on said shafts, the screws or worms, 7 and 7×, on the journals of the winding-rolls, with which the said worm-wheels gear, respectively, the traveling nuts on the said screw-shafts, the lever and fork for shifting said clutch, and mechanism, intermediate said nuts and the clutch-shifting lever, whereby the said nuts, in their movements, in one direction, effect the shifting of the clutch through said lever, substantially as set forth.

4. The combination with the winding-rolls provided each with a sheave *d*, a tension cord or strap *e*, and a weight *f*, the driving-shaft, the clutch sliding thereon, the intermediate mechanism between the clutch and the respective winding-rolls, and the clutch-operating lever provided with a cross-piece 4, of the chains or cords 12, passing over guide-sheaves and connected at one end with the respective end of the cross-piece 4 and at the other ends to the cords *e* at the weights *f*, substantially as and for the purpose set forth.

579,218. BICYCLE-PROPELLING MECHANISM. DORR BREMER and CHARLES A. LUNDGREN, Chicago, Ill., assignors of one-half to John S. Hallstrom, same place. Filed Apr. 13, 1896. Serial No. 587,259. (No model.)



Claim.—1. In a bicycle, or analogous machine, the combination with the driving-wheel and operating-lever, or cranks, of a cylinder provided internally with a right and left spiral groove, and free to swing upon the axis of the drive-wheel, a plunger-rod connected to the operating-lever, or crank, and movable within said cylinder, a stationary clutch member on said plunger-rod, and movable clutch members provided respectively with right and left handed splines to move in said grooves, one operating in the movement in one direction of the plunger-rod to give to the cylinder a rotary motion and

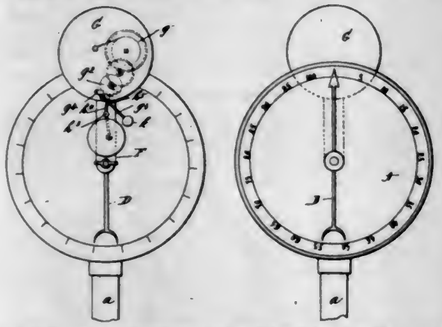
the other in the return movement to continue said rotary movement, and means for transmitting said rotary motion to the drive-wheel, substantially as and for the purpose set forth.

2. In a bicycle, or like machine, the combination with the hub of the driving-wheel, of a cylinder and plunger-rod geared thereto and free to swing upon said hub, one of said members being attached to the operating lever or crank of the bicycle to be thereby given a reciprocating motion, and means upon the cylinder and plunger-rod, whereby the reciprocating member shall impart to the other member a continuous rotary motion for rotating the drive-wheel, substantially as and for the purpose set forth.

3. In a driving mechanism for bicycles, &c., the combination with the rear drive-wheel and frame, of a cylinder having a gear connection with the drive-wheel, and a vertically-swinging motion with relation to the hub of the drive-wheel, a piston and rod having a spiral spline and groove connection with the cylinder, crank-arms rotating about a common axis, pedals connected with and driving said crank-arms, arms connecting the pedals with the frame, and a connection between a pedal-crank and the piston-rod, whereby the pedal movement communicates a reciprocating action to the piston-rod, thereby rotating the cylinder and driving the wheel, substantially as described.

4. In a bicycle, or similar vehicle, the combination with the pedal-crank and the driving-wheel hub, of a rotary cylinder geared to the driving-wheel hub and provided with right and left hand worms, a plunger connected with the crank and having means for engaging said worms, whereby the cylinder is rotated and oscillated in the movement of the crank, and a vertically-movable joint between the cylinder and hub, whereby the oscillation of the cylinder, while rotating under the pedal action, is permitted, without interfering with the gear connection of the cylinder with the hub, substantially as described.

579,219. ALARM ATTACHMENT FOR STEAM-GAGES. WILLIAM J. BROWNING and HARRY C. BROWNING, New York, N. Y. Filed Feb. 28, 1896. Renewed Feb. 16, 1897. Serial No. 623,717. (No model.)

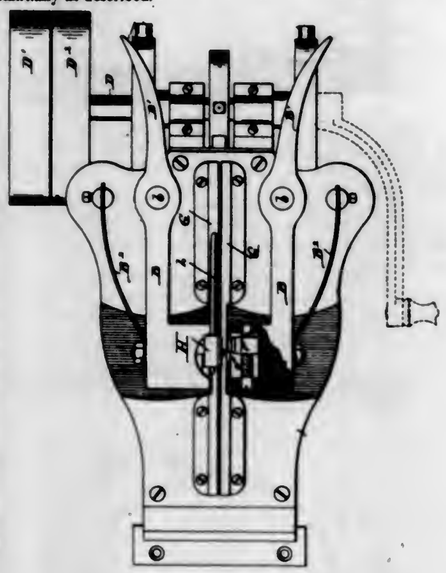


Claim.—The combination with a steam-gage, provided with a scale on its front and back, and with pointers or indicators which operate jointly, of an alarm which is connected with a shaft revolubly mounted in said gage, said alarm consisting of a casing provided with a spring-drum and gear-wheels in operative connection therewith, and a lever which is adapted to operate an alarm-gong, the support of the alarm-casing being also provided with a crank-lever, which is adapted to hold the lever by which the gong is sounded out of connection therewith, said crank-lever being adapted to be operated by one of the pointers or indicators, substantially as shown and described.

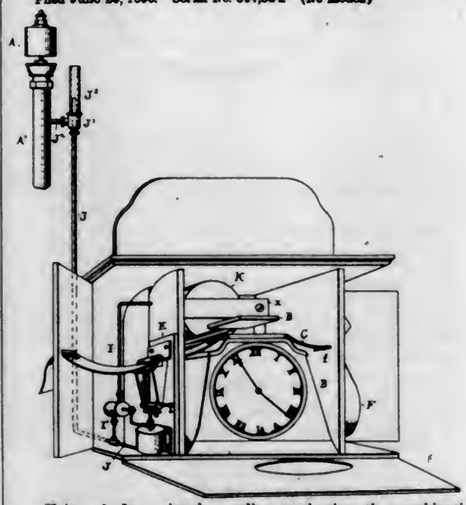
579,220. SAW-SET. WILLIAM H. CHELLIEU, Detroit, Mich., assignor of one-half to Frank H. Schuler, same place. Filed June 4, 1896. Serial No. 594,242. (No model.)

Claim.—1. In a saw-setting machine the combination of striking-jaws, adjustable hammers mounted thereon and arranged to set the successive teeth of a saw, means for operating said jaws, and means for limiting the set of the saw-teeth, said means consisting of two adjustable shafts mounted on the striking-jaws and arranged diametrically opposite each other whereby the ends of said adjustable shafts will abut and limit the set of the saw-teeth when the striking-jaws are operated, substantially as described.

2. In a saw-setting machine the combination of striking-jaws provided with adjustable hammers, cam mechanism for spreading said striking-jaws apart, suitable springs bearing on said striking-jaws whereby the striking-hammers are caused to set the teeth of a saw, and a weighted dog mounted in a suitable traveling carriage, below the bed-plate of the machine whereby one end of the weighted dog may enter the teeth of a saw when said saw-teeth are turned toward the bed-plate, and means for operating said carriage, said operating means made adjustable for different lengths of travel, substantially as described.



579,221. SIGNAL-RECORDING MECHANISM. ARTHUR E. COLGATE, New York, N. Y., assignor to George J. Schoeffel, Brooklyn, N. Y. Filed June 29, 1896. Serial No. 597,334. (No model.)



Claim.—1. In a signal-recording mechanism, the combination with the signaling device, of a time-stamp, mechanism for operating said time-stamp, and means for producing a vacuum upon the operation of the signaling device to permit the operation of said time-stamp mechanism, substantially as set forth.

2. In a signal-recording mechanism, the combination with the signaling device, of a time-stamp, a paper-feeding device, mechanism for operating said time-stamp and feeding device, and means for producing a vacuum upon the operation of the signaling device to permit the operation of said mechanism, substantially as set forth.

3. In a signal-recording mechanism, the combination with the signaling device, of a time-stamp, a piston operated by air-pressure for actuating said stamp, and means for producing a vacuum upon the operation of the signaling device to permit the operation of said piston, substantially as set forth.

4. The combination with a steam-whistle, of a time-stamp, mechanism for operating said time-stamp, and means for producing a vacuum through the escape of steam at the whistle to permit the operation of said time-stamp mechanism, substantially as set forth.

5. The combination with a steam-whistle, of a time-stamp, a paper-feeding device, mechanism for operating said time-stamp and feeding device, and means for producing a vacuum through the escape of steam at the whistle to permit the operation of said mechanism, substantially as set forth.

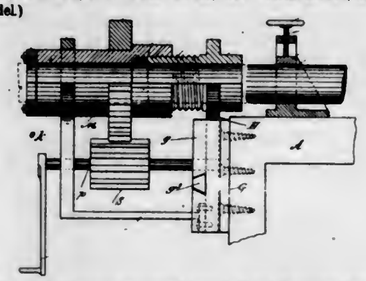
6. The combination with a steam-whistle, of a time-stamp, a piston operated by air-pressure for actuating said stamp, and means for producing a vacuum through the escape of steam at the whistle to permit the operation of said piston, substantially as set forth.

7. The combination with a steam-whistle, of a time-stamp, a paper-feeding mechanism, pistons working in cylinders for operating said time-stamp and feeding mechanism, and an exhaust-pipe extending from said cylinders to the steam-pipe of said whistle, through which the air is exhausted from one end of each cylinder to permit the air-pressure at the other end to actuate said pistons, substantially as set forth.

8. In a signal-recording mechanism, the combination with a time-stamp and a paper-feeding mechanism, of a piston operated by air-pressure for actuating said feeding mechanism, a piston operated by air-pressure for actuating the time-stamp, and a valve adapted to be opened by the movement of the first-named piston to permit the operation of the time-stamp piston, substantially as set forth.

9. The combination with a steam-whistle, of a time-stamp, a paper-feeding mechanism, a piston connected with the feeding mechanism, a piston for the time-stamp, an exhaust-pipe extending to the whistle, pipe connections from said exhaust-pipe to the chambers of said pistons, a valve for the pipe connection leading to the piston-chamber of the time-stamp controlled by the movement of feeding-mechanism piston, and means for exhausting the air from one end of each cylinder to permit the air-pressure at the other end to actuate the pistons, substantially as set forth.

579,222. DEVICE FOR THREADING PIPE. JOHN W. CRADDOCK, New York, N. Y. Filed Mar. 25, 1896. Serial No. 584,763. (No model.)

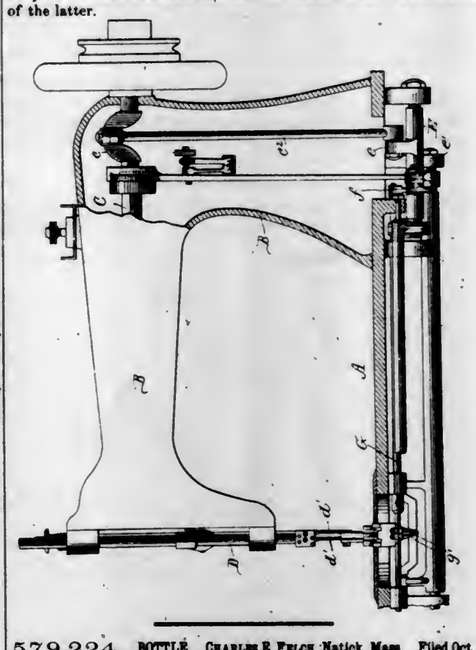


Claim.—In a screw-threading device of the character described, the combination of a supporting-frame, a vise connected therewith, a bracket secured to said frame, an arm mounted in said bracket having a screw-threaded tubular head, a horizontal arm connected with the lower end of the first arm, a vertical extension of said horizontal arm provided with a head or ring, a sleeve in said head or ring having an enlarged interiorly-screw-threaded part to receive the screw-threaded part of the tubular head, a gear-wheel on the tubular sleeve, a transverse shaft mounted in the first-named arm and in the vertical extension of the horizontal arm, a gear-wheel on said shaft, a crank to turn said shaft, and a die on the outer end of the tubular sleeve, all constructed arranged and adapted to operate in the manner set forth.

579,223. SEWING-MACHINE. PHILIP DIEHL and WILLIAM R. HOUGHTON, Elizabeth, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Filed June 26, 1895. Serial No. 554,114. (No model.)

Claim.—1. In a sewing-machine, the combination with the bracket-arm B, of the rotating driving-shaft C journaled in the upper part of said arm and having the crank c near its rear end, a needle-bar operatively connected with the forward end of said shaft, the looper-carrying rock-shaft G placed beneath the work-plate and having the arm *g*, the second rock-shaft E also beneath the work-plate and having the arms *e* and *e'* arranged relatively to each other as shown, the pitman c^2 connecting said crank with the said arm *e*, and the curved link or pitman *f* connecting the said arms *e'* and *g*, said pitman *f* being thus adapted to extend beneath the said rock-shaft E, between the ends of the latter.

2. In a sewing-machine, the combination with the bracket-arm B, of the rotating driving-shaft C journaled in the upper part of said arm and having the crank c near its rear end, a needle-bar operatively connected with the forward end of said shaft and carrying a plurality of needles, the rock-shaft G placed beneath the work-plate and having the arm *g*, a plurality of loopers carried by said rock-shaft, the second rock-shaft E also beneath the work-plate and having the arms *e* and *e'* arranged relatively to each other as shown, the pitman c^2 connecting said crank with the said arm *e*, and the curved link or pitman *f* connecting the said arms *e'* and *g*, said pitman *f* being thus adapted to extend beneath the said rock-shaft E, between the ends of the latter.

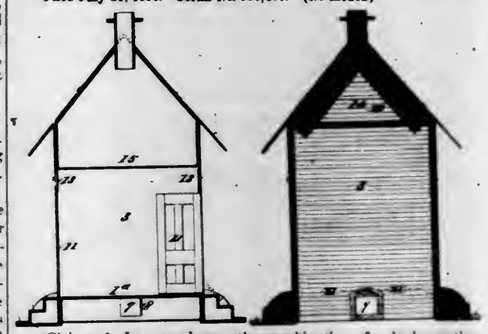


579,224. BOTTLE. CHARLES R. FELCH, Natick, Mass. Filed Oct. 20, 1896. Serial No. 609,391. (No model.)



Claim.—A bottle whose neck is provided with a series of parallel obliquely-arranged prismoidal projections upon the inner surface thereof, the said projections being triangular in cross-section and whose lower ends form sharp abutting shoulders which are located respectively one above the other.

579,225. TOY HOUSE. WILLIAM H. FERGUSON, St. Louis, Mo. Filed July 25, 1896. Serial No. 600,470. (No model.)



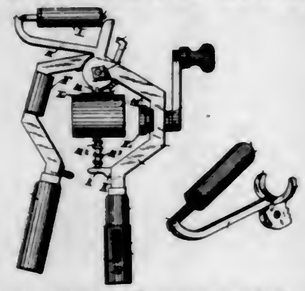
Claim.—1. In a toy house, the combination of a body portion forming the walls, a base arranged to be folded to partially enter within said body portion, and a roof portion arranged to be folded to partially enter within said body portion, the different parts being capable of separation and being collapsible, substantially as and for the purpose set forth.

2. In a toy house, the combination of a body portion forming the walls, a base arranged to be folded to partially enter within said body portion, two or more flaps carried by said body portion arranged to engage beneath said base, and a roof portion arranged to be folded to partially enter within said body portion, substantially as and for the purpose set forth.

3. In a toy house formed of pliable material, the combination of a body portion, a base arranged to be folded to partially enter within said body portion, and a roof portion composed of a sheet provided with slits and a second sheet arranged to have each of its ends enter said slits, the central portion of said first-mentioned sheet being arranged to enter within said body portion and be held therein, substantially as and for the purpose set forth.

4. In a toy house formed of pliable material, the combination of a body portion, a roof portion, and a base portion; said base portion being provided with flaps cut therefrom, and a strip located adjacent to said flaps and adapted to be folded into the form of steps, substantially as and for the purpose set forth.

579,226. CARTRIDGE-LOADING IMPLEMENT. JOHN W. FLOWER, Beipre, Ohio. Filed Mar. 25, 1896. Serial No. 584,860. (No model.)



Claim.—1. An implement for the purpose described, comprising a rest, a decapper mounted to swing in line therewith, a capper, a rammer constituting one of the handles, a charger constituting the other handle, a shaft mounted in one of the handles, and a crimper supported on said shaft, all substantially as herein described.

2. An implement for the purpose described, comprising the pivoted jaws, the handles thereon, one forming a rammer and the other carrying a charger mounted thereon and comprising an adjustable measuring device, and a crimper mounted on one of said jaws, substantially as described.

3. An implement for the purpose described, comprising the pivoted jaws, the handles thereon, one forming a rammer and the other carrying a charger, and a crimper mounted on one of said jaws, and a rotatably-mounted tubular part held between said jaws, substantially as described.

4. An implement for the purpose described, comprising the pivoted jaws, the handles thereon, one forming a rammer and the other carrying a charger, and a crimper mounted on one of said jaws, and a rotatably-mounted tubular part held between said jaws, and a pivotally-mounted decapper, substantially as described.

5. An implement for the purpose described, comprising the pivoted jaws, the handles thereon, one forming a rammer and the other carrying a charger, and a crimper mounted on one of said jaws, and a rotatably-mounted tubular part held between said jaws, and a pivotally-mounted decapper, and a rest for the cartridges mounted on one of said jaws, substantially as described.

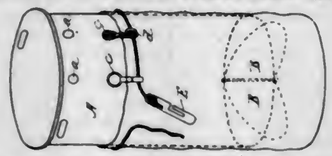
579,227. ELECTRIC INCANDESCENT LAMP. FRANK L. FOWLER, Philadelphia, Pa. Filed Nov. 5, 1896. Serial No. 611,119. (No model.)



Claim.—1. An incandescent lamp consisting of a globe having an enlargement or beaded portion B in its upper extremity, the neck C, the middle piece D, a filament E attached to the latter, a collar G having the inwardly-turned extremity adapted to engage said portion B, a filling or packing of suitable material between said collar and neck, and a threaded base attached to said collar.

2. An incandescent lamp consisting of a globe having a beaded portion at its upper extremity, a neck C, the middle piece D attached thereto, a filament E projecting from said middle piece, a base, a collar having its lower portion curved and adapted to engage said beaded portion, an annular neck extending upwardly from said collar and adapted to be engaged by said base, and means for holding the latter in position.

579,228. RECEPTACLE FOR ASHES, &c. ROBERT FRAME, Newport, R. I. Filed Mar. 11, 1895. Serial No. 541,272. (No model.)



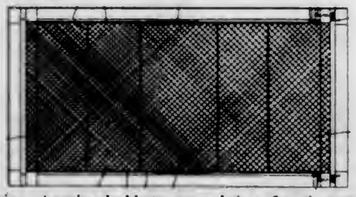
Claim.—1. An improved receptacle for ashes, garbage and the like, which consists of a stiff cylindrical vessel open at the top and a carrier of fixed shape connected therewith, said carrier forming the bottom and inclosing the sides thereof, made from flexible material rendered capable of retaining house refuse without injury or waste, and provided with means for closing its mouth, all substantially as described.

2. An improved receptacle for ashes, garbage and the like consisting of a stiff cylindrical vessel open at the top and surrounded by a separable flexible carrier of fixed shape which forms the bottom of said receptacle and is rendered capable of retaining house refuse without injury or waste, the mouths of said vessels being separably connected whereby the said carrier is caused to inclose said cylinder, all substantially as described.

3. An improved receptacle for removing house refuse consisting of a flexible carrier of the kind described of fixed shape and provided with means for retaining it in an elongated upright position, in combination with a stiff cylindrical collecting vessel located within said carrier and forming protecting sides thereto, and being separably connected therewith, all as and for the purposes set forth.

4. The refuse-collecting device above described, consisting of a vessel adapted to hold refuse and provided at its bottom with outwardly-opening flaps, in combination with a flexible holder of the kind described of substantially the same depth, as and adapted to contain said cylindrical vessel, all as and for the purposes set forth.

579,229. SPRING BED OR COT. HEZEKIAH GOULD and JOHN L. GOULD, Port Huron, Mich. Filed July 6, 1896. Serial No. 598,215. (No model.)



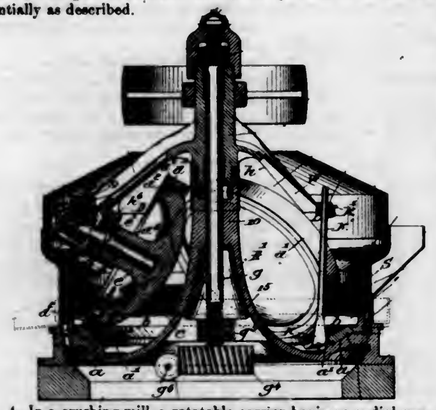
Claim.—A spring bed-bottom consisting of a wire-netting, said netting being secured at each end, metallic rods located at the edge of the said netting, said netting being secured to said rods, cross-rods connecting the first said rods, and spring-sections located at an intermediate point on the first said rods.

579,230. CRUSHING OR PULVERIZING MILL. EDWIN C. GRIFFIN, Newton, Mass., assignor to the Bradley Pulverizer Company, of Maine. Filed Sept. 25, 1895. Renewed Feb. 19, 1897. Serial No. 624,199. (No model.)

Claim.—1. In a crushing-mill, a rotatable carrier having a radial arm, a rocking head mounted therein, a spindle extended inwardly from the head, a curved shield extending around the sides of and beneath the head, a removable end cap mounted on the end of the shield, and inclosing the outer portion of the head, permitting the latter to rock, a roll on the spindle, and an annular die upon which the roll travels, substantially as described.

2. In a crushing-mill, a rotatable carrier, a rocking head mounted thereon, a spindle secured to the head and having a longitudinal bore to receive lubricant, means to force the lubricant toward the inner end of the spindle, and a roll mounted rotatably on the spindle, substantially as described.

3. In a crushing-mill, an annular die, one or more rolls adapted to rest and travel thereupon, and a rotatable carrier for the rolls having mounted fixedly thereupon a conical closed portion extending outside of the rolls and toward the ends of the axes thereof, to prevent scattering of the material during the operation of the mill, substantially as described.



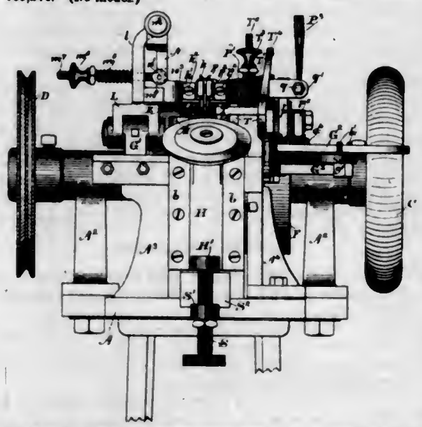
4. In a crushing-mill, a rotatable carrier having a radial arm, a spindle pivotally connected at its outer end with said arm, a roll rotatable on the spindle, an annular die upon which the roll travels, and a curved shield extending beneath the spindle between the roll and the arm and attached to the latter, the rotation of the carrier and the roll inducing a current of air through the shield, to keep the working parts free from dust, substantially as described.

5. In a crushing-mill, an annular die having an inwardly and downwardly inclined upper face, a roll inclined toward the center of the mill and adapted to rest and travel upon said face, and having its inner side convex to thereby bring the center of gravity of the roll low down and near the center of the mill, to relieve the strain upon the roll-support and increase the pressure upon the die, and means to support the roll and carry it around the die, substantially as described.

6. In a crushing or pulverizing mill, a rotatable carrier having a radial arm, a rocking head mounted in said arm, a spindle extended inward from the head, a protective shield for said head and spindle, and rigidly attached to the arm, the shield surrounding said head and spindle, a roll rotatable about the spindle, means to retain the roll thereon, and an annular die upon which the roll rests and is adapted to travel, substantially as described.

7. In a crushing-mill, an annular die having an inclined upper face, a roll adapted to rest and travel upon said face, the body portion of the roll being concavo-convex, the convex side being inward and inclined toward the center of the mill, to bring the center of gravity of the roll low down, and near the center of the mill, and means to support the roll and carry it aronnd the die, substantially as described.

579,231. STITCH SEPARATING AND INDENTING MACHINE. JOHN R. HADAWAY, Brockton, Mass. Filed Sept. 9, 1896. Serial No. 605,276. (No model.)



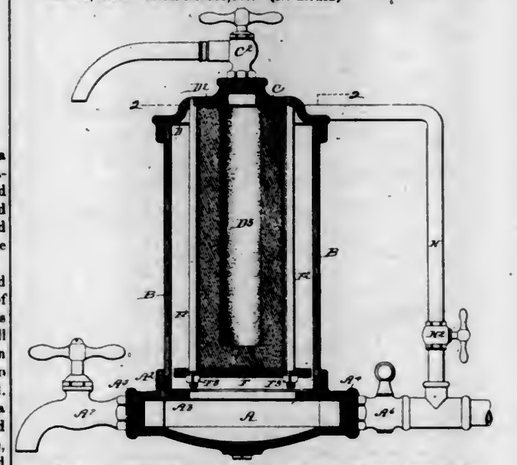
Claim.—1. In a stitch separating and indenting machine, the combination of an indenting-tool, a work-feeding tool arranged to engage the indented intervals between the stitches, and mechanism for actuating said tools, substantially as described.

2. In a stitch separating and indenting machine, the combination with an indenting-tool, of a work-feeding tool and connected mechanism operating automatically to impart to the indenting-tool stitch-indenting movements and to cause the feed-tool to engage the indented intervals between the stitches and to feed the work, substantially as described.

3. In a stitch separating and indenting machine the combination with an unyielding work-support of an indenting-tool, and means for locating said tool in the intervals between the stitches whether of uniform or varying lengths, substantially as described.

4. In a stitch separating and indenting machine, the combination with an indenting-tool, of a laterally-yielding feed, substantially as described.

579,232. FILTER. JAMES M. HARRIS, Des Moines, Iowa. Filed Oct. 12, 1896. Serial No. 608,679. (No model.)



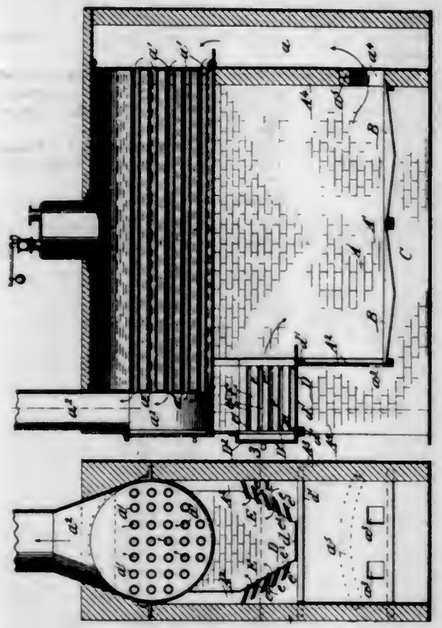
Claim.—1. A filtering apparatus, comprising a base, a supply-pipe leading into the base, a cylindrical inclosing frame secured to the base, a cap at its top having an outflow-pipe at its central portion, a packing-ring on the under side of the cap, a filter-stone having a central opening extending from its top to a point near its bottom, placed in position with said top resting on the packing-ring, a solid plate at the lower end of the stone with its edges projecting beyond the sides of the stone, and a number of rods secured to said cap and passed through the projecting edge of the plate, and nuts on the lower ends of the rods, substantially as and for the purposes stated.

2. A filtering apparatus comprising a cup-shaped base having an opening at its top, pipes of ingress and egress communicating with the base, a packing-ring to surround the opening at the top of the base, a pipe-section seated on said packing-ring, a cap having a central opening, a packing-ring thereon to engage the top of the pipe, a second packing-ring adjacent to the central opening, a cylindrical filtering-stone having an opening extending from one end to a point near the other end and placed on the packing-ring a plate at the lower end of the filter with its edges projecting beyond the sides of the filter to direct strong currents of water away from the filter, rods connecting the cap and plate, nuts on said rods and a cock in the cap to communicate with the opening in the filter, for the purposes stated.

3. A filtering apparatus, comprising a cup-shaped base having an opening at its top, pipes of ingress and egress communicating with the base, a packing-ring to surround the opening at the top of the base, a pipe-section seated on said packing-ring, a cap having a central opening, a packing-ring thereon to engage the top of the pipe, a second packing-ring adjacent to the central opening, a cylindrical filtering-stone having an opening extending from one end to a point near the other end and placed on the packing-ring, a plate at the lower end of the filter, rods connecting the cap and plate, nuts on said rods and a cock in the cap to communicate with the opening in the filter, a pipe leading from the supply-pipe to enter the filtering-chamber near its top and at a tangent and a valve in said pipe, for the purposes stated.

4. In a filter, the combination of a substantially cup-shaped base, an inwardly-projecting flange at its open end a cylinder secured to the base, a filtering-stone supported in the cylinder and a plate secured to the end of the filtering-stone adjacent to said flange with its edges projecting beyond the sides of the filter to coact with said inwardly-projecting flange in preventing the impact of direct currents of water against the stone substantially as set forth.

579,233. BOILER-FURNACE. THOMAS C. HARRIS, Pierre, S. D. Filed Feb. 23, 1893. Serial No. 463,354. (No model.)



Claim.—1. In a furnace, a main grate in combination with a supplemental hearth consisting of a base-plate and an inclined grate arranged on each side of the base-plate, substantially as set forth

2. In a supplemental hearth for furnaces, the combination, with a base-plate, of a terraced series of grate-bars, each of which is inclined toward the center of the hearth, substantially as set forth.

3. In a furnace, the combination with a main hearth of a supplemental hearth, overhanging the front wall of the furnace and consisting of a base-plate and a terraced series of grate-bars, arranged on each side of the base-plate, substantially as set forth.

579,234. FIRE-EXTINGUISHING COMPOUND. JOSEPH HERR, West Superior, Wis. Filed Nov. 13, 1896. Serial No. 612,025. (No specimens.)

Claim.—1. The art of rendering inflammable substances non-inflammable which consists in combining carbon tetrachlorid therewith in substantially equal parts.

2. The art of rendering substances non-inflammable which consists in combining carbon tetrachlorid in substantially equal parts with such inflammable substances whose boiling-point is near to or higher than the boiling-point of the carbon tetrachlorid, substantially as described.

579,235. TRUSS. NELSON Y. HULL, Plainfield, N. J. Filed May 22, 1896. Serial No. 592,557. (No model.)



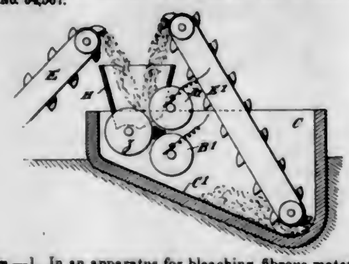
Claim.—1. The combination, in a truss, of the band having the parallel arms, the frame mounted upon and between said arms, the spring-barrel, spring and adjusting-nut mounted upon one of the arms between the ends of the frame, and a pad carried by the barrel substantially as set forth.

2. The combination of the band having the arms A' A', a detachable cross-piece connecting the ends, the frame mounted upon and between the two arms, the spring-barrel, spring and adjusting-nut mounted upon one of the arms between the ends of the frame, the spring detent or catch mounted upon the frame, and the adjustable pad carried by the spring-barrel, substantially as set forth.

3. The combination of a band, a frame mounted upon and between the two sides of the band, a spring-barrel and spring contained within the barrel mounted between the projecting ends of the frame, means for adjusting the tension of the spring, and a pad carried by the barrel, substantially as set forth.

4. The combination of the band, the frame mounted upon and between the two sides thereof, a spring-barrel mounted between the projecting ends of the frame, its contained spring, and means for adjusting it, the arms projecting from the barrel, a stop *g* formed thereon, and the pad carried by said arm, substantially as set forth.

579,236. APPARATUS FOR BLEACHING FIBROUS MATERIALS. CARL KELLNER, Vienna, Austria-Hungary. Filed Feb. 1, 1892. Serial No. 419,928. (No model.) Patented in England Apr. 1, 1890, No. 5,054; in France Apr. 1, 1890, No. 204,735; in Sweden June 23, 1890, No. 3,112; in Norway June 24, 1890, No. 2,003; in Germany July 12, 1890, No. 57,619, and in Austria-Hungary Dec. 10, 1890, No. 39,719 and No. 64,567.



Claim.—1. In an apparatus for bleaching fibrous materials, the combination with a vessel for containing a suitable electrolyte, of electrodes arranged relatively to one another to cause the electric current to follow a zigzag course, and means for bringing the material saturated with the electrolyte into contact with said electrodes, for the purpose set forth.

2. In an apparatus for bleaching fibrous materials, the combination with a vessel for containing a suitable electrolyte, of a positive and negative electrode, an intermediate electrode coöperating therewith, and means for passing the material to be bleached first into contact with the positive and intermediate electrode, then into contact with said intermediate electrode and the negative electrode, for the purpose set forth.

3. In an apparatus for bleaching fibrous materials, the combination with a vessel for containing a suitable electrolyte, of a positive and negative electrode, and an intermediate electrode coöperating therewith, said electrodes out of immediate contact with the electrolyte, said positive and negative electrodes being distant from each other whereby the material to be bleached may first be brought into contact with the positive and intervening coöperating electrode, then into contact with the electrolyte, and again into contact with said intervening electrode and the negative electrode, for the purpose set forth.

4. In apparatus for bleaching fibrous materials in the web, a series of coöperating cylindrical revoluble electrodes arranged relatively to one another so as to cause the electric current to follow a zigzag course through said electrodes, for the purpose set forth.

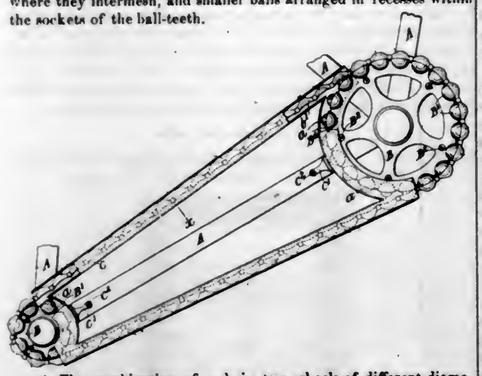
5. In apparatus for bleaching fibrous materials in the web, a vessel adapted to contain a suitable electrolyte, a series of cylindrical electrodes mounted and revolving in said vessel above the level of the electrolyte, said electrodes arranged relatively to one another to cause the electric current to take a zigzag course therethrough whereby the web of material is immersed in the electrolyte before it passes between the successive pairs of electrodes, and whereby both sides of the material are acted upon by the bleaching agent formed by the action of the electric current on the impregnating material.

579,237. GEAR-WHEEL AND DRIVING-CHAIN. ADOLPH KOTTE, London, England. Filed Apr. 10, 1896. Serial No. 586,983. (No model.)

Claim.—1. The combination of two gear-wheels and a chain, ball-teeth arranged in sockets formed in the wheels and chain, and bearing-surfaces formed on the wheels about the sockets which match corresponding portions of the chain.

2. The combination of a chain, two wheels of different diameters having sockets containing ball-teeth and having bearing portions for the chain each formed to match the bearing portions of the links of the chain, substantially as described.

3. The combination of two gear-wheels and a chain, and ball-teeth completely inclosed in sockets formed in the wheels and chain where they intermesh, and smaller balls arranged in recesses within the sockets of the ball-teeth.



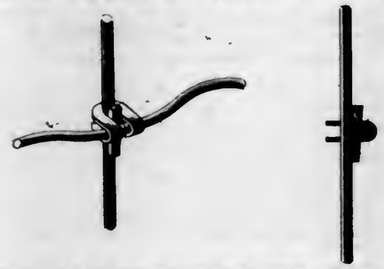
4. The combination of a chain, two wheels of different diameters having sockets containing ball-teeth, and having bearing portions for the chain struck from the same radius in both wheels to match corresponding bearing portions in the links of the chain.

5. A gear-wheel provided with ball-teeth and having sockets for the ball-teeth provided with recesses, in combination with antifriction-balls arranged in said recesses, substantially as described.

6. A gear-wheel having a circumferential groove and provided with spacing-blocks to form sockets in the groove, means for holding the spacing-blocks in place and ball-teeth arranged between the spacing-blocks.

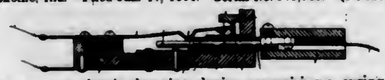
7. A gear-wheel having a circumferential groove, spacing-blocks arranged in the groove, means for holding the spacing-blocks in place, ball-teeth arranged in sockets between the spacing-blocks, antifriction-balls carried by the spacing-blocks and a chain having sockets gearing with the balls.

579,238. WIRE-FENCE LOCK. DANIEL R. LITTLEFIELD, Warsaw, Ind. Filed Aug. 29, 1895. Serial No. 560,911. (No model.)



Claim.—A fence having intersecting runners and stays, and a fastening device or lock arranged at each intersection of a runner with a stay, and comprising a looped eye having horizontally-alined loops engaging and seated upon the runner and spaced apart a distance equal to the stay, and vertically-alined loops engaging and seated solely upon the stay and spaced apart a distance equal to the thickness of the runner, to facilitate application to and detachment from the stay and runner, and a wedge arranged between the horizontally-alined loops and bearing at opposite sides respectively against the stay and runner whereby the wedge has a flat bearing at one side against the stay and a single-point bearing at the opposite side against the rounded surface of the runner, lateral displacement of the wedge being prevented by the parallel upper and lower sides of the vertically-alined loops, substantially as specified.

579,239. TELEPHONE SPRING-JACK. WILLIAM O. MEISSNER, Chicago, Ill., assignor to the American Electric Telephone Company, Kokomo, Ind. Filed Jan. 17, 1896. Serial No. 575,919. (No model.)



Claim.—1. A circuit-changing device comprising a spring-contact interposed between two stationary contacts and normally in contact with one of said contacts, a contact-pin composed in part of conducting material, said pin adapted when interposed between said spring-contact and one of said stationary contacts to separate said contacts and connect the spring-contact with the conducting part of the pin, said pin so constructed that when moved to a predetermined position said spring-contact is moved out of contact with the conducting part thereof and into contact with said second stationary contact.

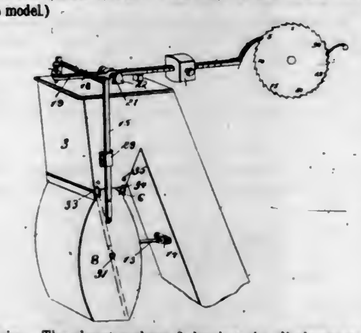
2. A circuit-changing device comprising a spring-contact interposed between two stationary contacts and normally in contact with one of said contacts, a contact-pin composed in part of conducting material, said pin adapted when interposed between said spring-contact and one of said stationary contacts to separate said contacts and connect the spring-contact with the conducting part of the pin, said pin so constructed that when moved to a predetermined position said spring-contact is moved out of contact with the conducting part thereof and into contact with said second stationary contact, the opposed contact-surfaces on said pin and spring-contact so shaped that said pin is automatically moved when released so as to be electrically connected with said spring-contact.

3. A circuit-changing device comprising a spring-contact interposed between two stationary contacts and normally in contact with one of said contacts, a pin of insulating material having a conductor projecting from the end thereof and adapted when inserted between said spring-contact and one of said stationary contacts to engage said spring-contact and move it out of contact with its opposed contact, said insulating-pin provided with an inclined surface adapted to be brought into engagement with an inclined surface on said spring-contact by a further movement of said pin so as to move said spring-contact and disconnect it from the conductor projecting from the pin, at the same time connecting it with said second stationary contact, and a device for limiting the further movement of said pin so that when released it is automatically moved so as to disconnect the spring-contact, and a second stationary contact, connecting said spring-contact with the conductor projecting from the end of the pin.

4. A circuit-changing device comprising a spring-contact interposed between two stationary contacts, an insulating-pin provided at one end with a device adapted to limit its inward movement, and at the other end with a conductor adapted to engage said spring-contact when the pin is in a predetermined position, said insulating-pin provided with an inclined surface opposed to a V-shaped projection on the spring-contact so as to engage the same when said pin is moved to the limit of its inward movement, substantially as described.

5. A circuit-changing device for telephone-exchanges comprising a series of stationary contacts connected with the signaling-generator, a second series of stationary contacts, each connected with one branch of the talking-circuit of a subscriber, a series of spring-contacts each connected with the other branch of said talking-circuits, one to each branch, and interposed between said talking-circuit contacts and said generator-circuit contact, said spring-contacts normally in contact with one set of the opposed stationary contacts, a series of insulating-pins provided at one end with projecting conductors electrically connected together in pairs and adapted when inserted between said spring-contacts and their opposed stationary contacts to disconnect the spring-contacts from the opposed stationary contacts and connect them with the conducting part of the pins whereby any two subscribers can be connected together, said pins and spring-contacts so constructed that when either of said pins is given a further movement, the signal of the associated subscriber is operated, said pin returning to its normal position when released.

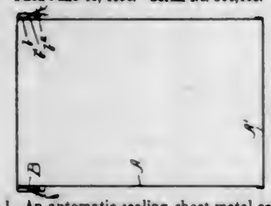
579,240. AUTOMATIC GRAIN-WEIGHING MACHINE. HARRY W. MOSHER, Geneva, Nebr. Filed May 18, 1896. Serial No. 592,006. (No model.)



Claim.—The elevator-chute 2, having the discharge-opening 3, the sides of which are provided with the guide-brackets 29, 29 and the recesses 33, 34, the scale-beam 20 fulcrumed in a stationary bracket 22 rigidly secured to the top of the chute, and provided with the adjustable weight 24 and having the central V-shaped bearing 18, in combination with the hopper 5, the oscillating valve 30, centrally

pivoted in said hopper, the side bars 15 15 rigidly secured at their lower ends to the sides of said hopper and extending upwardly through said guide-brackets 29, 29, and the cross-bar 16 connecting the upper ends of said side bars 15, 15 and provided with a central knife-edge bearing 17, resting upon the bearing 18 and the scale-beam 20, substantially as and for the purpose set forth.

579,241. AUTOMATIC-SEALING SHEET-METAL CAN. EDWIN NORTON, Maywood, Ill., assignor to himself and Oliver W. Norton, Chicago, Ill. Filed June 19, 1896. Serial No. 596,193. (No model.)



Claim.—1. An automatic-sealing sheet-metal can comprising in combination the following parts: a cylindrical sheet-metal can-body having an open mouth of the full diameter of the can, an exteriorly-fitting sealing-collar depending from the upper edge of the can-body and having a cylindrical portion at its upper edge soldered to the upper end of the can-body, an inclined or conical portion and a corrugation or bead to form a seat for the sealing-ring, a sealing-ring and a sheet-metal sealing-cover adapted to compress said sealing-ring between itself and said sealing-collar, substantially as specified.

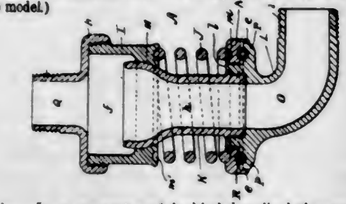
2. An automatic-sealing sheet-metal can comprising in combination the following parts: a cylindrical sheet-metal can-body having an open mouth of the full diameter of the can, an exteriorly-fitting sealing-collar depending from the upper edge of the can-body and having a cylindrical portion at its upper edge soldered to the upper end of the can-body, an inclined or conical portion and a corrugation or bead to form a seat for the sealing-ring, a sealing-ring and a sheet-metal sealing-cover adapted to compress said sealing-ring between itself and said sealing-collar, said sealing-collar bearing against the can-body at its bead or corrugation, substantially as specified.

3. An automatic-sealing sheet-metal can comprising in combination the following parts: a sheet-metal can-body, an exteriorly-fitting sealing-collar having a cylindrical portion at its upper edge soldered to the upper end of the can-body, an inclined or conical portion and a corrugation or bead to form a seat for the sealing-ring, a sealing-ring and a sheet-metal sealing-cover adapted to compress said sealing-ring between itself and said sealing-collar, said sealing-collar bearing against the can-body at its bead or corrugation and having an internally-projecting flange at its lower edge, substantially as specified.

4. An automatic-sealing sheet-metal can comprising in combination the following parts: a sheet-metal can-body, an exteriorly-fitting sealing-collar having a cylindrical portion at its upper edge soldered to the upper end of the can-body, an inclined or conical portion and a corrugation or bead to form a seat for the sealing-ring, a sealing-ring and a sheet-metal sealing-cover adapted to compress said sealing-ring between itself and said sealing-collar, said sealing-cover having a flange provided with a cylindrical portion at its upper part, and an inclined or conical portion between said cylindrical part, substantially as specified.

5. The improvement in the art of manufacturing automatically-sealing sheet-metal cans, consisting in forming one of the heads of the can and the sealing-collar from one and the same blank by first drawing the blank with a deep flange, then forming the sealing-collar from the lower part of said flange and dividing the sealing-collar from the flanged blank and thus leaving a flanged head, substantially as specified.

579,242. APPARATUS FOR WASHING VEHICLES. WILLIAM H. PHELPS, Indianapolis, Ind. Filed July 11, 1896. Serial No. 598,798. (No model.)



Claim.—In an apparatus of the kind described, the combination of the swivel pipe-joint, comprising the part H, the cup-shaped part I connected thereto by means of screw-threads, the swivel part K having a ball-and-socket joint with said cup-shaped part I, the elbow L having the flange P connected by screw-threads to the said swivel-piece, the collar N having an annular groove at upper and lower side, the spring J seated at each end in annular grooves in said piece I and in said collar N, and the ball-bearings R in grooves between said collar N and said flange P, substantially as shown and described.

579,243. PICTURE-FRAME. RICHARD O. SCHULER, Providence, R. I. Filed June 12, 1896. Serial No. 595,307. (No model.)



Claim.—The herein-described picture-frame consisting of the side pieces mitered at their ends, the right-angular corner-pieces in which the side pieces slide, the corner-pieces consisting of a front plate, the outer or side plate D and the inner plate E, said outer plate being provided with a longitudinal slot, and the inner plate having the face for the reception of the side pieces A, a set-screw passing through the slotted portion G, and into the said side pieces and securing means substantially as described for securing the picture and back and carried by the side pieces as set forth.

579,244. ROTARY MEASURE. CHARLES R. STEDMAN, Norwalk, Ohio. Filed July 14, 1896. Serial No. 599,151. (No model.)



Claim.—1. The combination with the units-wheel 10 having the radial pin 33, and the pin 17, the tens-wheel 13 provided with circumferential teeth 18, a pin 19, and a radial pin 33, and the hundreds-wheel 14 provided with a series of teeth and a radial pin 33, of means substantially as described for restoring said wheels to unison, substantially as and for the purpose set forth.

2. The combination with the units and tens wheels provided with the radial pins 33, of the unison-plate 22 provided with the cylindrical flanges 31 having inclined faces 32, substantially as and for the purpose set forth.

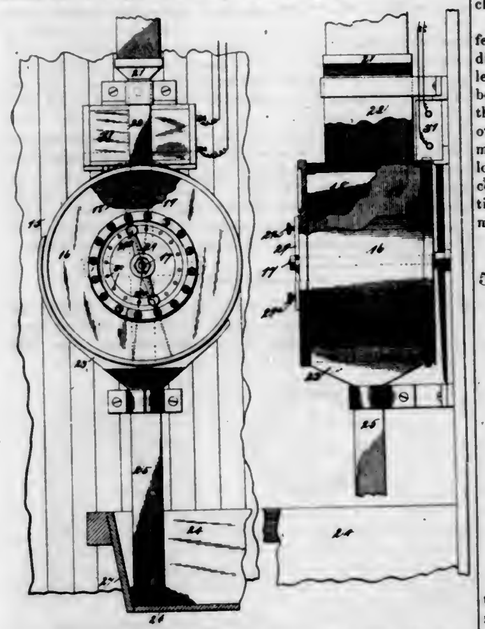
3. The case 1 and cover 2 in which is mounted a series of registering-wheels substantially as described, the shafts of which are provided with unison-pins 33, in combination with the unison-plate 22, its spring 25 and push-button 5, and provided with guide-orifices 28, 29 and 30, having cylindrical flanges 31, the inclined faces 32 of which are adapted to engage the unison-pins 33 when operated by the push-button 5, as and for the purpose set forth.

579,245. STOCK-FEEDER. CHARLES H. TERRY, Chicago, Ill. Filed June 3, 1896. Serial No. 551,445. (No model.)

Claim.—1. The combination in a feeding device of a plurality of feed receiving and delivering devices normally held in a receptive position and conditioned to move into a discharging position, a source of current-supply, a circuit emanating therefrom and connecting the receiving and delivering devices, an electromotive device for each receiving and delivering device normally engaged therewith to withhold the same from movement into a discharging position and included in the circuit, which electromotive device is energized by the current from the source of supply to release the receiving and delivering devices whereby the latter move into a discharging position together with mechanism for reëstablishing the engaging position of those devices withholding the receiving and discharging devices.

2. The combination in a feeding device of a plurality of rotatable feed receiving and delivering devices normally held in a receptive position and conditioned to move into a discharging position, a source of current-supply, a circuit emanating therefrom and connecting the receiving and delivering devices, an electromotive device for each

receiving and delivering device normally engaged therewith to withhold the same from movement into a discharging position and included in the circuit, which electromotive device is energized by the current from the source of supply to release the receiving and delivering devices whereby the latter move into a discharging position together with mechanism for reëstablishing the engaging position of those devices withholding the receiving and discharging devices.



3. The combination in a feeding device of a plurality of feed receiving and delivering devices normally held in a receptive position and conditioned to move into a discharging position, a source of current-supply, a circuit emanating therefrom and connecting the receiving and delivering devices, an electromotive device for each receiving and delivering device normally engaged therewith to withhold the same from movement into a discharging position and included in the circuit, which electromotive device is energized by the current from the source of supply to release the receiving and delivering devices whereby the latter move into a discharging position together with means for cutting out or shunting the current to discharge the electromotive devices one after the other and mechanism for reëstablishing the engaging position of those devices withholding the receiving and discharging devices.

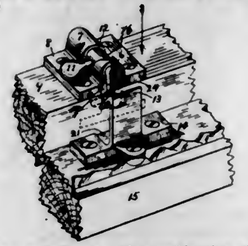
4. The combination in a feeding device of a plurality of rotatably-mounted members for receiving and discharging the feed which members are normally held in a receptive position and conditioned to move into a discharging position under the weight of the grain or feed, locking mechanism engaging said receiving and discharging members and withholding the same from movement, a source of current-supply, electromagnets included in circuit with said source and when energized thereby adapted to release the locking devices and permit the receiving and delivering member to move into a discharging position and means for again engaging the locking mechanism when the feed has been discharged.

5. The combination in a feeding device of a rotatable feed receiving and discharging member, which member is conditioned to rotate into a discharging position under the weight of the feed therein, a locking mechanism engaging the receiving and discharging member and normally withholding the same from movement, a source of current-supply, an electromagnet in circuit with said source of supply, an armature normally engaging the locking device and releasing the same when attracted by the electromagnet to permit a rotation of the receiving and discharging member into its discharging position and a mechanism operated by the receiving and discharging member in its movement of rotation whereby the locking mechanism is reëngaged.

6. The combination in a feeding device of a rotatably-mounted feed receiving and discharging member, conditioned to move into a discharging position under the weight of the feed, locking mechanism consisting of a pivoted locking-lever engaging and holding the receiving and discharging member in a receptive position, electro-magnets included in circuit with the source of current-supply, a pivoted armature engaging the pivoted locking-lever and holding the same in a locking position, said magnets when energized attracting the armature and releasing the locking mechanism from its locking position permits the receiving and discharging member to rotate into a discharging position together with mechanism for reëstablishing the engaging position of those devices withholding the receiving and discharging devices.

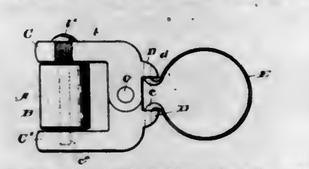
7. The combination in a feeding device of a rotatably-mounted feed receiving and discharging member, conditioned to move into a discharging position under the weight of the feed, a pivoted locking-lever engaging and holding the disk receiving and discharging member in a receptive position, electromagnets included in circuit with the source of current-supply, a pivoted armature engaging the pivoted locking-lever and holding the same in a locking position, said magnets when energized attracting the armature and releasing the locking mechanism from its locking position and permitting the receiving and discharging member to rotate into a discharging position and means for reëstablishing the engagement of the locking mechanism in said rotation of the receiving and discharging member.

579,246. AUTOMATIC SASH-FASTENER. JACOB WALLENSTEIN and HERBERT C. OETTINGER, Cincinnati, Ohio, assignors of one-third to Cora D. Oettinger, same place. Filed June 8, 1896. Serial No. 594,648. (No model.)



Claim.—In a sash-fastener, the combination of a spring-bolt contained in a suitable housing and capable of a longitudinal as well as rotary movement, a knob 11 on it, a slot 12 in the upper part of the housing through which said knob projects and thereby limits the movement of the bolt, the outer end of the latter having a lateral extension 17 eccentric to the axis of rotation of the bolt and with the beveled surfaces 22 and 24 at the extreme outer end, a hook-shaped keeper 13 inclined at its upper surface, notches 16 and 19 formed by lateral extensions of slot 12 one on each side thereof, knob 11 and projection 17 being arranged at an angle so that when the former is turned into notch 16, projection 17 is turned up and against the inclined under surface of catch 13 and when knob 11 is turned into notch 19 the beveled surface 22 is turned up to enable the bolt to yield when coming in contact with the catch on opening, notch 19 being of a length to permit such retractive movement, but leaving it still within the path of the catch so that when coming again in contact with the latter on closing, such contact is by eccentric extension 17 and its outer surface 24 whereby the bolt is partially rotated for the purpose of releasing it from notch 19 into slot 12 whereby the bolt becomes capable to lock automatically.

579,247. COMBINED REIN HOLDER AND GUIDE. DAVID G. WEBSTER, Capron, Ill. Filed May 27, 1896. Serial No. 593,312. (No model.)

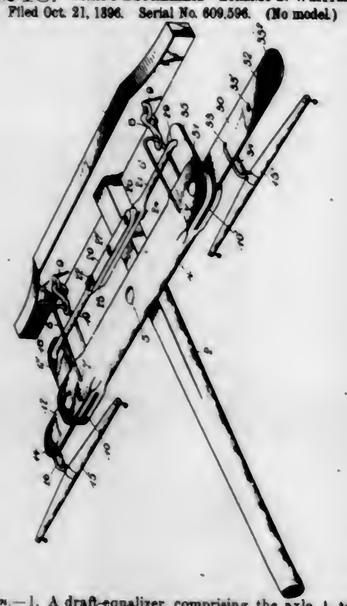


Claim.—1. A combined rein holder and guide, comprising the jaws C, C', the spring E connecting said jaws, the screw-shaft B, and the roller A mounted on said shaft, substantially as and for the purpose set forth.

2. A rein-holder comprising the spring-jaws, a shaft secured between said jaws, a cylindrical roller mounted on said shaft, and means substantially as described for securing the same to the harness, as and for the purpose set forth.

3. A rein-holder comprising a spring-frame, a shaft removably secured in said frame, a roller mounted on said shaft to form a guide for the rein, and means substantially as described for securing the same to the harness, as and for the purpose set forth.

579,248. DRAFT-EQUALIZER. LORENZO D. WHITTEN, Beverly, Ill. Filed Oct. 21, 1896. Serial No. 609,596. (No model.)

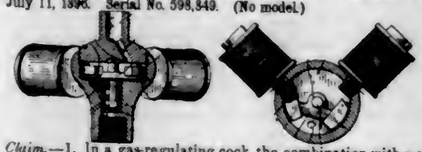


Claim.—1. A draft-equalizer, comprising the axle 1, tongue 2, and the doubletree 4 centrally secured to the tongue 2 by a bolt 5, and having its outer ends connected to the axle by stay-links 6 6', provided with snap-hooks 8 engaging the eyebolts 9 secured to said axle, in combination with the adjustable connecting-rod 20, the outer ends of which are secured to the angle-levers 12 30, fulcrumed in horizontal slots in the outer ends of the doubletree 3, substantially as shown and described.

2. A draft-equalizer, comprising the axle, the tongue and the doubletree 4, the outer ends of which are provided with horizontal slots 10 10', the angle-levers 12 30 fulcrumed therein, the lever 12 having arms of equal length and the lever 30 arms of unequal length, in combination with the adjustable connecting-rod 20 connecting the rear arms of said levers and comprising the member 19 having a plane portion provided with vertical holes 27 and a depending arm 26 provided with a nut 24, the corresponding member 21 having the plane portion provided with adjusting-holes 25, and a vertical arm 23 provided with a nut 22, substantially as shown and described.

3. A draft-equalizer, comprising the axle, the tongue, and the doubletree provided with a horizontal slot 10, in which is fulcrumed the angle-lever 12, having arms of equal length, and a horizontal slot 10' in which is fulcrumed the angle-lever 30 having a shorter arm 35, and a longer arm 32 provided with a series of adjusting-holes 33, 33', 33², in combination with the adjustable rod 20 connecting said angle-levers, and comprising the members 19 and 21, detachably and adjustably secured together, substantially as shown and described.

579,249. ELECTRICAL GAS-COCK. FRANK W. ACKERMAN, Corning, N. Y., assignor of one-half to Frank P. Foster, same place. Filed July 11, 1896. Serial No. 598,849. (No model.)



Claim.—1. In a gas-regulating cock the combination with a casing, of an oscillating valve mounted therein and adapted to control the gas-supply, an armature mounted upon said valve, and electromagnets applied in the casing so as to exert their force upon the armature at a tangent to its direction of rotation or oscillation, substantially as described.

2. In a gas-regulating cock the combination of a separable casing, an oscillating valve mounted therein and having a pendent cylindrical portion with a flattened side adapted to bring the valve-openings into communication with each other, and electromagnets for oscillating or partially rotating said valve either in one direction or the other, substantially as described.

3. In a gas-regulating cock the combination of a casing, a valve mounted therein and comprising a vertical cylinder having a flattened side adapted to bring the valve-openings into communication, and an armature on said cylinder, and electromagnets applied in the casing so as to exert their force upon the armature at a tangent to its direction of rotation or oscillation, substantially as described.

4. In a gas-regulating cock the combination of a casing having a hollow chamber, a vertical recess, an inlet-groove formed in said recess, and a passage from said recess to said chamber, a rotary or oscillating valve mounted in said recess and provided with a flattened side to bring the passage and inlet-groove into communication either more or less, an armature on said valve and electromagnets for operating said armature to turn the valve either one way or the other, substantially as described.

5. In a gas-regulating cock the combination of a casing comprising two separable parts, one of the parts being provided with a hollow chamber communicating with the gas-supply, a valve in said chamber for regulating the supply, and provided with an armature, electromagnets for actuating the valve, the other member of the casing being adapted to be removed from the lower member without breaking the connections or disturbing the magnets substantially as described.

579,250. DIAPHRAGM FOR MANUFACTURING CHLORIN AND CAUSTIC SODA BY MEANS OF ELECTROLYSIS. ELDRIDGE BAKER, Winchester, Mass., assignor to the Nashoba Company, Ayer, Mass. Filed Apr. 6, 1896. Serial No. 544,716. (No model.)

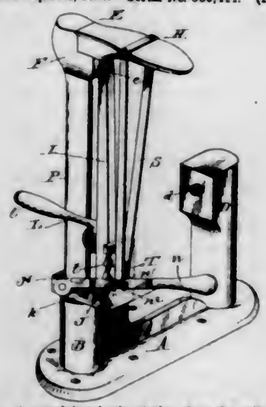


Claim.—1. A diaphragm for electrolytic cells composed of a body of sand having its grains or particles united by a binder at their contiguous points or surfaces of contact to form a firm structure having intergranular spaces throughout the same forming pores for the said diaphragm, said binder being less in amount than the body of sand, substantially as described.

2. A diaphragm for electrolytic cells composed of a body of sand having its grains or particles united by a binder of hydraulic cement less in amount than the body of sand and joining the grains or particles of the sand body at their contiguous edges to form a firm structure having intergranular spaces constituting pores for the diaphragm, substantially as described.

3. In an electrolytic cell, a casing or shell, a lining for the bottom and inner side of the said shell, consisting of material capable of resisting the action of the elements of decomposition, and a transverse diaphragm integrally united to the said lining and composed of a body or mass of sand, and a binder of hydraulic cement uniting the particles of the sand body at their contiguous edges to form a firm porous body with intergranular spaces constituting the pores of the diaphragm, substantially as described.

579,251. SHOE-REPAIRING JACK. WILLIAM BAYHOUR, Boise, Idaho. Filed Apr. 28, 1896. Serial No. 589,411. (No model.)

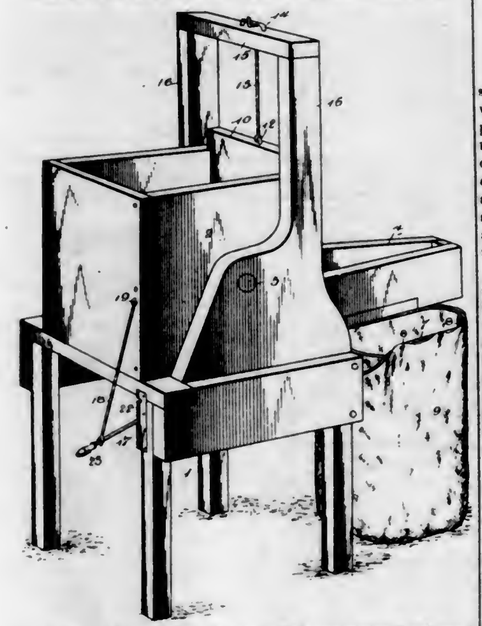


Claim.—1. A repairing-jack of the class described, consisting of the base A, having a rigid socket B and pivoted standard D, having a horizontal socket *d* and the jack E, having the shank C, and the heel F having the rectangular recess G and the upright lever I, in combination with the last H, integral tongue *h* and recess *i* and the lever L provided with a cam-face M and an operating-handle *l*, substantially as and for the purpose set forth.

2. A repairing-jack, consisting of the upright P, integral heel F having a rectangular recess G, the upright lever I, and the cam-faced lever L M, in combination with the removable last H, having an integral tongue *h* and recess *i*, and the spring R, substantially as and for the purpose set forth.

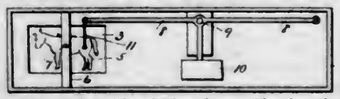
3. A repairing-jack, consisting of the base A, having rigid vertical socket B and pivoted standard D having horizontal socket *d*, in combination with the upright P, shank C, heel F, having a recess G, the last H, having tongue *h* and recess *i*, and the upright lever I, fulcrumed on the pivot J, and having a semicircular bearing end *c*, and the square upper end *e* and the cam-faced hand-lever L M and spring R, substantially as and for the purpose set forth.

579,252. MEASURING DEVICE. ANTHONY D. BENSON, Forest House, Pa., assignor of one-half to Joseph Gosslin and Rosa Gosslin, same place. Filed Sept. 2, 1896. Serial No. 604,646. (No model.)



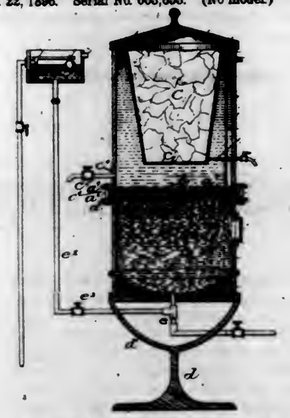
Claim.—A device of the class described, comprising the frame 1 provided with the guard 7, having integral securing-spurs 8 8, the notched plate 22, the standards 16 16, and the cross-brace 15, in combination with the measuring-box 2 mounted on trunnions 3 3 in said frame, and provided with the converging trough or chute 4, having the discharge-orifice 6 in its forward end, the lever 17 fulcrumed in the lower end of a rod 18, pivoted to a staple secured to said box, and the sliding door 10 mounted in the front end of said box, and connected by a rod 13 to the cross-brace 15, substantially as shown and described.

579,253. ADVERTISING MEDIUM. JOHN O. BLACKBURN, Pittsburg, Pa. Filed Mar. 23, 1896. Serial No. 584,437. (No model.)



Claim.—In an advertising device, the combination of a frame or casing, a cross-bar or support arranged crosswise of a viewing-opening in said frame or casing, the moving object pivoted at or about center of gravity to said cross-bar, the centrally-pivoted lever, with one end connected by a link to said moving object, near one end of the latter, and its opposite end adapted to be actuated, and a pendulum or weighted pendant fixed to said lever at its pivot, all substantially as set forth.

579,254. WATER-FILTER. JOSEPH H. BRADY, Kansas City, Mo. Filed Aug. 22, 1896. Serial No. 603,653. (No model.)



Claim.—1. A water-filter comprising an upright tank having separate upper and lower compartments for the filtered and unfiltered water respectively a water-filtering diaphragm between said compartments a water-supply pipe connected with the lower compartment and a refrigerant in the upper compartment, an air-escape pipe connected with the lower compartment and extending through said diaphragm and the side of said tank in the upper compartment, a supply-tank, a valve in the supply-tank, a pipe connected with the said supply-tank and said lower compartment of said filtering-tank and a float connected with the valve in the supply-tank as and for the purpose described.

2. A water-filter comprising an upright tank, having separable detachably-connected parts, and a chamber in each part of said tank, for the filtered and unfiltered water, a water-supply pipe connected with the lower chamber, and a refrigerant in the upper chamber, and a water-filtering diaphragm between said separable parts of said tank, an air-escape pipe connected with the lower chamber and extending through said diaphragm and the side of said tank in the upper chamber, a water-supply tank, a pipe connected with said supply-tank and said lower chamber of said filtering-tank, and means for regulating the supply of said unfiltered water to said filtering-tank, as and for the purpose described.

3. A water-filter comprising an upright tank having separable parts, and a chamber in each part for the filtered and unfiltered water, and annular flanges on the upper and lower edge portions of the respective lower and upper parts of the said tank, a water-filtering diaphragm having a gasket between the opposing edges of the separable parts of said tank, and suitable securing-bolts connected with said flanges, said upper chamber having a receptacle and a refrigerant in said receptacle, an air-escape pipe in the lower chamber extending through said diaphragm and also through the side of the tank in the upper chamber, and a water-supply pipe connected with the said lower compartment, as and for the purpose described.

579,255. SCHOOL-DESK. ALICE G. BROCK, Frankfort, N. Y. Filed July 29, 1896. Serial No. 600,927. (No model.)

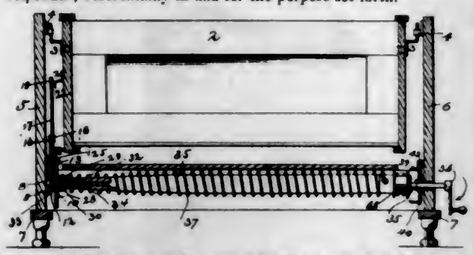


Claim.—A desk-top formed with the slot 2, the cover 3 pivoted in said slot, in combination with the semicircular receptacle 5, the curve of which corresponds to the radius of the sweep of the pivoted cover, substantially as and for the purpose set forth.

579,256. SELF-ROCKING CRADLE. JOHN J. BUKOLT, Stevens Point, Wis. Filed July 14, 1896. Serial No. 599,133. (No model.)

Claim.—1. A self-rocking cradle, comprising the standards 5 6, the cradle-body 2 suspended in the upper ends of said standards, the shaft 35 journaled in said standards, the spiral spring 37 mounted on said shaft and having one end secured thereto, the escape-wheel 28, to the hub of which the opposite end of said spring is secured, a pawl 23 pivoted on a stationary stud on the bed-plate 8, the oscillating shoe 13, pivoted to the bed-plate, the pawl 25 pivoted on said shoe, said pawls 23 and 25 alternately engaging the teeth on the escape-wheel, in combination with the oscillating arm 17 secured to said

shoe, and the flexible cord 22 connected to the free end of said arm, and the cradle-body at a point below that from which the body is suspended, substantially as and for the purpose set forth.

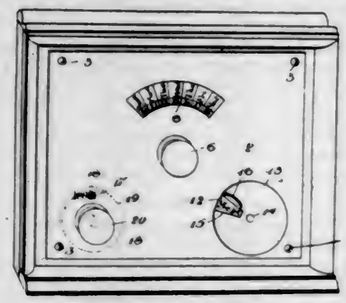


2. A self-rocking cradle, comprising the standards 5 6, the cradle-body 2 suspended in the upper ends thereof, the shaft 35 journaled in said standards, the spiral spring 37, mounted on said shaft and having one end secured thereto, the escape-wheel 28, to which is secured the opposite end of said spring, the oscillating shoe 13 mounted on the bed-plate 8, and provided with the projecting stud 65, the pawl 25 having shoulder 60, plate 57 having a radial arm 58, and an angular arm 59, and coiled springs 60 62, in combination with the projecting stud 64, the pawl 23, having shoulder 50, the plate 46 having a radial arm 47 and an angular arm 48, the coiled springs 52 and 54 mounted on said bed-plate 8, the oscillating arm 17 and the flexible cord 22 connecting the said arm and suspended cradle-body, substantially as and for the purpose set forth.

3. A self-rocking cradle, comprising the mainspring 37 and shaft 35, the collar 38 formed with the integral arms 39 40 and teeth 41, the standards 6, the gravity-pawl 43 formed with an integral detent 43 and pivoted to said standard, substantially as and for the purpose set forth.

4. A self-rocking cradle, comprising the standards, the cradle suspended therefrom, the shaft 35 and mainspring 37, and the escape-wheel mechanism substantially as described, in combination with the spring 66, secured to one of said standards, the foot 74, the flexible cord connecting said spring and foot-lever, the drum 72 loosely mounted on the shaft 35, the pawl 75 mounted on said drum, and the arms 39 and 40, provided with pins 79 79 and formed integral with the collar 38 located in the path of the pawl 75, substantially as and for the purpose set forth.

579,257. PERPETUAL CALENDAR. WILLIS H. COLBY, Littleton, N. H. Filed Oct. 12, 1896. Serial No. 608,612. (No model.)

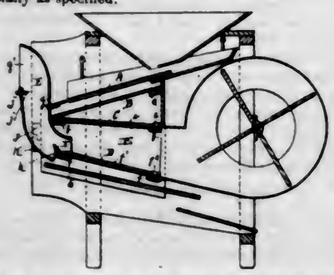


Claim.—A calendar comprising the frame, the face-plate 2 secured thereto and provided with the stud 19 and arc-shaped orifice 8, the days of the week arranged above said orifice and having oblong hole 5, in combination with the spindle 4 mounted in said hole, the spring 10, in contact with said spindle, the serrated disk 7 mounted on said spindle and having the days of the month arranged on its face, and the thumb-button 6 secured on the outer end of said spindle, substantially as and for the purpose set forth.

579,258. FANNING-MILL. JOHN S. CONSTANT, New Burlington, Ohio. Filed Jan. 20, 1894. Renewed Apr. 1, 1896. Serial No. 585,830. (No model.)

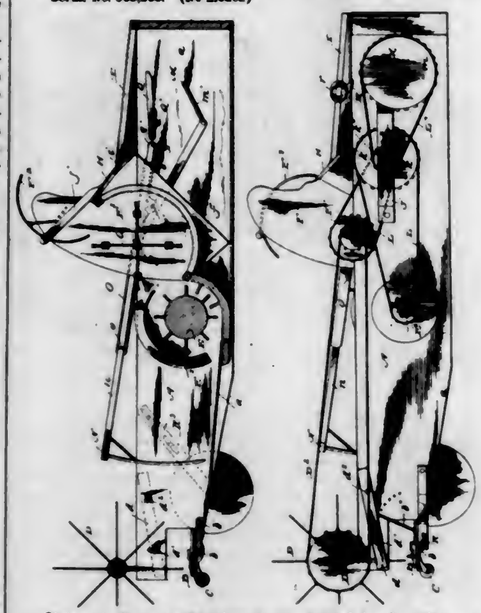
Claim.—1. In a grain-cleaner, the removable upper screen A, the removable grain-board B, its supporting-blocks, the removable flue boards C and D, their supporting-blocks, the longitudinal strips secured to the lateral portions of said boards C and D, and blocks on the mill engaged by the said strips to prevent the said boards from endwise movement, substantially as specified.

2. In a grain-cleaner, the lower flue-board D having a deflector at its outer end portion, the upwardly-carried and gradually-expanded grading-flue E, into which the blast is directed by said deflector, a grain-discharge at the lower portion of said flue, a grain-entrance opening above said deflector, and a transverse, adjustable guard-strip at the inner lower edge of the discharge at the upper end of said flue, substantially as specified.



3. In a grain-cleaner, a detachable grading-flue gradually expanded from its lower to its upper end, a lower flue-board having a deflector at its outer end portion arranged to direct the blast upwardly into said flue, and a guard-strip at the upper discharge of said chute arranged to check any grain carried upwardly by the upward blast, substantially as specified.

579,259. CLOVER-THRESHER ATTACHMENT. JESSE W. DAVIS, Emory Springs, Tenn., assignor of one-half to Daniel H. McDonald, same place, and Charley H. Joyner, Pocahontas, Tenn. Filed Mar. 14, 1896. Serial No. 583,203. (No model.)



Claim.—1. In a traveling clover harvester and thresher, the combination with a cutter apparatus, of a rotary comb-cylinder arranged to sweep close to the apparatus, and a deflecting-roller situated in advance of the cutter apparatus and out of the path of the comb-cylinder, substantially as and for the purposes described.

2. In a traveling clover harvester and thresher, the combination with a harvester mechanism, and a threshing mechanism, of a transverse rake-head provided with the slidable bars, a crank-shaft linked to said slidable bars to give endwise movement thereto and a reciprocating play to the transverse rake-head between the harvester mechanism and the threshing mechanism, the cams arranged in the path of projections on the slidable rake-bars, and the oscillating guides situated in advance of the cams and receiving the slidable bars of the rake to furnish supports for the rake when raised by the projections riding against the cams, as and for the purposes described.

3. In a traveling clover harvester and thresher, the combination with a harvesting mechanism and a threshing mechanism, of a reciprocating rake-head, oscillating guides, slidable bars fitted to play in said guides and fastened at their front ends to said rake-head and provided at their rear ends with suitable rollers, cam-tracks on which the rollers of the rake-bars are arranged to ride, and mechanism for reciprocating the rake-bars and head, substantially as and for the purposes described.

4. In a traveling clover harvester and thresher, the combination with a casing, a harvester mechanism, and a threshing mechanism, of the tiltable guides O pivotally supported within said casing, a transverse rake-head provided with slidable bars fitted to move freely in said tiltable guides, O, the yieldable cam-tracks Q supported in rear of the tiltable guides and arranged in the path of projections on said slidable rake-bars for the projections to ride against the upper and lower sides thereof, and means for imparting endwise movement to the slidable bars and reciprocating the rake-head between the harvester and thresher mechanisms, as and for the purposes described.

5. In a traveling clover harvester and thresher, the combination with a casing, a harvesting mechanism, and a threshing mechanism, of the tiltable guide-bars O pivotally supported within said casing, the rake-head, the slidable bars fitted in said tiltable guides, attached to the rake-head, and provided at their rear ends with suitable projections, as *q*, the spring-controlled cam-tracks supported in rear of said tiltable guides and lying in the path of the projections of said slidable bars, a crank-shaft, and pitmen connected to said crank-shaft and pivotally attached to said slidable bars at points in advance of the projections, *q*, as and for the purposes described.

6. In a traveling clover harvester and thresher, the combination with a low-down casing, a harvesting mechanism thereon, and a raking device, of the threshing and screening mechanisms comprising a short breast E″ extending upwardly from the floor of the casing, the front shield E^2, the cylinder, the inclined fixed uprights *f* in rear of the cylinder-breast, a concave screen F fastened to said uprights, the side fenders F^2, also fastened to the uprights, a rotary brush G operating close to the screen, and an adjustable top fender pivotally supported above the brush and hanging over and beyond said brush and screen to deflect the particles thrown up by the action of the brush, as and for the purposes described.

7. In a traveling clover harvester and thresher, the combination with an open casing, a harvesting mechanism and a threshing mechanism, of the screening mechanism situated within the casing, in rear of the threshing mechanism, and comprising a stationary concave screen, a horizontal screen arranged over the upper open side of the casing and with its front edge in position to receive the contents from the concave screen, a rotary brush arranged to sweep close to the concave screen and to carry the refuse from the concave screen to the horizontal screen, and an adjustable top fender F^6 pivotally supported above said brush and hanging beyond the concave screen and over the horizontal screen to deflect the particles thrown up by the brush onto said horizontal screen, substantially as and for the purposes described.

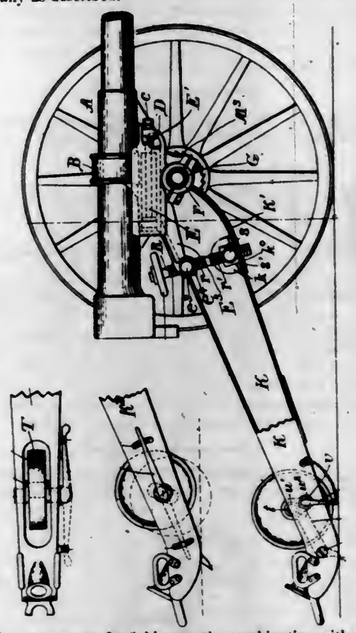
579,260. TIRE-TIGHTENER. WILLIAM DOBROWOLSKI and HARRY WISE, San Antonio, Tex. Filed Sept. 5, 1896. Serial No. 605,006. (No model.)



Claim.—In a device of the class described, the combination with a felly provided with a socket, and a spoke having a thimble extended beyond its outer end, a nut or block fitting against and conforming to the configuration of the felly and provided with a threaded opening registering with the socket thereof, and an adjusting-screw having a wrench-seat and composed of an outer threaded portion engaging the threaded opening of the nut or block, and an inner enlarged portion arranged within the extended portion of the thimble and bearing directly against the outer end of the spoke, substantially as and for the purpose described.

579,261. CARRIAGE FOR FIELD-ARTILLERY. WILLIAM H. DRIGGS and LOUIS L. DRIGGS, Washington, D. C., assignors, by mesne assignments, to the American Ordnance Company, same place. Filed May 20, 1895. Serial No. 549,964. (No model.)

Claim.—1. In a gun-mount for field-guns, the combination with a gun and a block rigidly attached thereto and carried beneath the gun, with cylindrical chambers in said block, of a rocking slide engaging the sides of the said block and guiding the same, pistons moving in said cylindrical chambers, piston-rods connecting said pistons to said rocking slide, means for controlling the motion of said pistons in said cylinders, an axle and wheels supporting the same, means for pivotally connecting said rocking slide to said axle, a trail, and an elevating-screw connecting said rocking slide with said trail, substantially as described.



2. In a gun-mount for field-guns, the combination with a gun and a block rigidly attached thereto and carried beneath the gun, with cylindrical chambers in said block, of a rocking slide engaging the sides of the said block and guiding the same, pistons moving in said cylindrical chambers, piston-rods connecting said pistons to said rocking slide, means for controlling the motion of said pistons in said cylinders, an axle and wheels supporting the same, means for pivotally connecting said rocking slide to said axle, a trail, and brackets mounted on said axle and rigidly attached to said trail, and supporting the ammunition-boxes, substantially as described.

3. In a gun-mount for field-guns, the combination with a gun and a block rigidly attached thereto and carried beneath the gun, with cylindrical chambers in said block, of a rocking slide engaging the sides of the said block and guiding the same, pistons moving in said cylindrical chambers, piston-rods connecting said pistons to said rocking slide, means for controlling the motion of said pistons in said cylinders, an axle and wheels supporting the same, means for pivotally connecting said rocking slide to said axle, a trail, and brackets mounted on said axle and rigidly attached to said trail, and supporting the ammunition-boxes, a pawl mounted in each of said brackets, and a ratchet-wheel connected to each of said wheels and normally engaged by said pawl when the gun-carriage is moved backward, substantially as described.

4. In a gun-mount for field-guns, the combination with brackets mounted on the axle, and spring-pawls mounted in said brackets, of ratchet-wheels moving with the wheels of the gun-carriage and normally engaged by said pawls, and means for throwing said pawls into and out of engagement, substantially as described.

5. In a gun-mount for field-guns provided with a trail, the combination with a trail-wheel mounted in said trail, of a crank-shaft journaled in said trail and forming an axle for said wheel, and means for turning said crank-shaft in either direction, for raising or lowering said trail-wheel, substantially as and for the purposes described.

6. In a gun-mount for field-guns provided with a trail, the combination with a trail-wheel mounted in said trail, of a crank-shaft journaled in said trail and forming an axle for said wheel, a lever-arm connected to said crank-shaft and adapted to turn the same in either direction so as to raise or lower said wheel, and catches on said trail for engaging said lever when said wheel is in the raised or lowered position, substantially as and for the purposes described.

7. In a gun-mount for field-guns provided with a trail, the combination with a trail-wheel mounted in said trail, of a crank-shaft journaled in said trail and forming an axle for said wheel, a resilient lever-arm connected to said crank-shaft and adapted to turn the same in either direction so as to raise or lower said wheel, and inclined lugs on said trail adapted to wedge up said resilient lever and to hold the same in the desired direction after it has been sprung between said lugs, substantially as and for the purposes described.

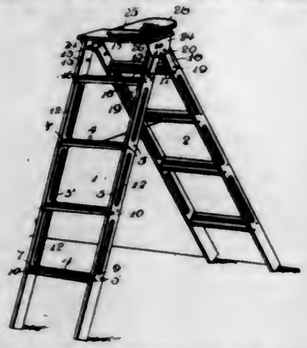
8. In a gun-carriage, the combination with the axle and trail, the latter comprising vertical plates supported on the axle, of a support for the ammunition-boxes at each side of the trail also embracing the axle, each of said supports comprising a sleeve, and guide-lugs, and a horizontal plate all formed in one piece and secured to the trail-plates, substantially as described.

579,262. BUTTONER. CHARLES E. ESTERLY, Lawrence, Kans. Filed Mar. 13, 1896. Serial No. 583,037. (No model.)



Claim.—The improved buttoner constructed of a single piece of wire, formed into a loop A, having the loop end turned upward in a direction at an angle to the plane of the loop, the strands at the other end of the loop turned upward parallel to each other, one strand being bent back upon itself and the other twisted or coiled about the vertical portions to form a roughened finger-grip with all the coils contacting, and secured at the base of the strands, the upper coil of the strand being upset or flattened and soldered or brazed to the adjacent coil, substantially as and for the purpose set forth.

579,263. EXTENSION STEP-LADDER. LYMAN FERGUSON, Ithaca, N. Y. Filed Sept. 19, 1896. Serial No. 606,351. (No model.)



Claim.—1. An extension step-ladder comprising two counterpart sections and intermeshing tooth-plates 17 18 having abutting bearings, substantially as and for the purpose set forth.

2. An extension step-ladder, comprising the sections 1 and 2, brackets 24, the platform 25 secured to the top of said brackets, the plates 17 18 secured to the upper ends of said sections and formed with intermeshing teeth and abutting bearings, as and for the purpose set forth.

3. In a ladder of the class described, the combination with the side rails, of the rectangular rungs, having cylindrical outer ends, the strap 7 having angular ears 9, and the screw 10 passing through said ears, side rail and rung, substantially as shown and described.

579,264. RAILWAY-RAIL. WILLIAM C. FERGUSON, Jacksonville, Fla. Filed June 27, 1896. Serial No. 597,099. (No model.)



Claim.—1. In a composite railway-rail, a main-line tread-bearing portion secured to an auxiliary flange-bearing portion and provided with a continuous upper surface employed in alternating sections of relatively variable lengths, substantially as specified.

2. In a composite railway-rail, a sectional flange-bearing portion secured to an auxiliary tread-bearing portion and provided with upper, depressed, beveled surfaces of relatively variable lengths, substantially as specified.

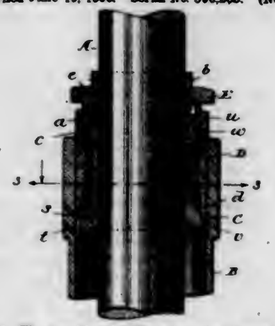
3. In a composite railway-rail, a main-line tread-bearing portion provided with a continuous upper surface employed in alternating sections of relatively variable lengths, in combination with an auxiliary flange-bearing portion provided with upper, depressed, beveled surfaces of relatively variable lengths, substantially as specified.

4. A composite railway-rail having a main-line tread-bearing portion provided with a continuous upper surface employed in alternating sections of relatively variable lengths and a sectional flange-bearing portion provided with upper, depressed, beveled surfaces of relatively variable lengths, substantially as specified.

5. In a composite railway-rail, a main-line tread-bearing portion, a sectional flange-bearing portion and means for combining said portions, substantially as specified.

6. In a composite railway-rail, a sectional flange-bearing portion, its upper depressed surfaces, and the downwardly-beveled inclined planes approaching each of said depressed surfaces, substantially as specified.

579,265. CLAMPING DEVICE. EDWARD J. GULICK, Jamestown, N. Y., assignor to the Fenton Metallic Manufacturing Company, same place. Filed June 19, 1896. Serial No. 596,203. (No model.)



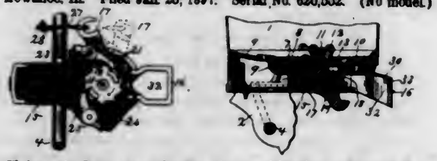
Claim.—1. The combination in a clamping device, of two sleeves having vertical slits extending from opposite ends and fitting one within the other, the inner sleeve having ribs with inclined exterior faces, a nut screwing onto the inner sleeve, and a flange below the nut bearing against the adjacent rib of the inner sleeve and extending into the upper end of the outer sleeve, all substantially as set forth.

2. The combination in a clamping device, of two sleeves one within the other, a nut screwing onto a portion of the inner sleeve, and having an inclined annular face bearing upon an inclined annular face of the inner sleeve, and also having its bearings within the upper portion of the outer sleeve, a rib with an inclined face upon the inner sleeve bearing upon a face near the bottom of the outer sleeve, both sleeves being slit vertically, substantially as set forth.

3. The combination in a clamping device, of a sleeve D slit from each end to near the opposite end, and threaded to receive a nut E, a rib c upon the sleeve D having a beveled face for engaging a beveled face of the nut, a surrounding sleeve C also slit from each end toward the opposite end, and having near the lower end an inclined or tapering face, and a rib d near the lower end of the sleeve D engaging the inner tapering face of the sleeve C, substantially as set forth.

4. The combination in a clamping device, of a sleeve D slit from opposite ends with inclined faces u v, and threaded at one end to receive a nut E having both internal and external threads, sleeve C also slit from each end and threaded interiorly near the top to receive the external threaded portion of the nut E, and with a beveled face to engage the face v of the inner sleeve, the said threads being set to impart a downward movement to the sleeve C when the nut E is turned upon the sleeve D to cause it to bear upon the face u of said sleeve, substantially as set forth.

579,266. CHECK-ROW CORN-PLANTER. FREDRICK GUNTHER, Kewanee, Ill. Filed Jan. 25, 1897. Serial No. 620,552. (No model.)



Claim.—1. In a corn-planter, the combination, substantially as described, with a seed-cup disk rotatably mounted on a stud-bolt, and a cap-plate, both the cap-plate and the seed-cup disk located above the bottom of the seedbox, of an actuating mechanism comprising a lever and a ratchet-wheel, both journaled on the same stud-bolt as the seed-cup disk, a spring-actuated pawl pivotally mounted on said lever, a bar located beneath the seedbox and carrying said stud-bolt, a spring-actuated detent pivotally mounted on said bar, all of said actuating mechanism located below the bottom of the seedbox, and a rock-shaft actuated by a tappeted check-row line, and connected by a link and radius-bar with said lever.

2. In a corn-planter, and in combination, a seedbox, a bar beneath the bottom of the seedbox, a stud-bolt projecting upwardly from said bar, a seed-cup disk above the bottom of the seedbox and rotatably mounted on said stud-bolt, a lever and a ratchet-wheel, both pivotally mounted on said stud-bolt, the ratchet-wheel provided with means for removably connecting the seed-cup disk therewith, the lever carrying a pawl, and a detent, substantially as described.

3. In a corn-planter, and in combination, an intermittently-rotating seed-cup disk, a lever located below said seed-cup disk and pivoted concentrically therewith, a ratchet-wheel also pivoted concentrically with the seed-cup disk, a spring-actuated pawl carried by said lever, and a detent adapted to engage the ratchet-wheel, substantially as described.

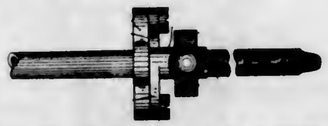
4. In a corn-planter, and in combination, an intermittently-rotating seed-cup disk, a lever located beneath said seed-cup disk and pivoted concentrically therewith, a ratchet-wheel located between said seed-cup disk and lever rotatably pivoted concentrically therewith and provided with means for removably connecting the seed-cup disk therewith, a spring-actuated pawl carried by said lever, and a detent adapted to engage the ratchet-wheel, substantially as described.

5. In a corn-planter, and in combination, a seedbox, a seed-cup disk, a bar beneath the seedbox-bottom, a lever below the seed-cup disk, a ratchet-wheel between said lever and the seed-cup disk, a stud-bolt projecting upwardly from said bar and serving as a journal for said lever, ratchet-wheel and seed-cup disk, a spring-actuated pawl carried by said lever, a spring-actuated detent mounted on said bar, a rock-shaft, a radius-arm projecting from the rock-shaft, and a link connecting said radius-arm and the lever, substantially as described.

6. In a corn-planter, and in combination, a seedbox, seed measuring and delivering mechanism in said seedbox, a seed-tube with its upper end part projecting in rear of the seedbox, a cap-plate or cover for said seed-tube, and a lug projecting from the lower rear side of the seedbox-bottom through a hole in said cap, which lug acts as a hinge or pivot for said cap, substantially as described,

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579,267. CARBON-HOLDER. CHARLES R. HARTHAN, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Oct. 14, 1896. Serial No. 608,795. (No model.)



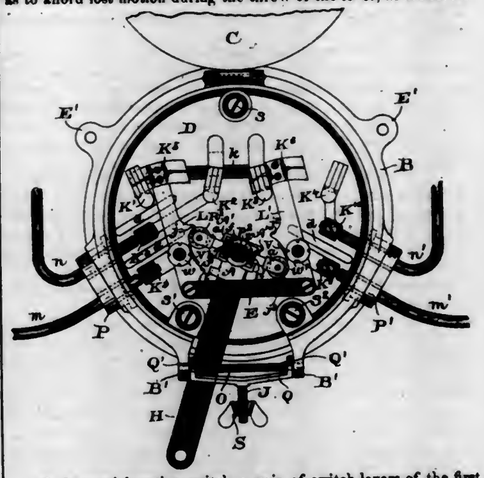
Claim.—1. The combination with the head of the carbon-holder of an arc-lamp, of a clamp consisting of arms pivoted to said head and having at their inner ends clamping-heads, a third member secured to one of said clamping-heads, and a set-screw mounted in said third member and adapted to hold one of said clamping-heads against a carbon inserted between said clamping-heads and to lock the heads and carbon together, as set forth.

2. The combination with the head of a carbon-support for arc-lamps, of a pair of swinging arms pivoted at one end to said head and having clamping jaws or heads at their inner ends between which the carbon is to be inserted and held, and movable therewith, a ring secured to one of said clamping-heads, and a set-screw mounted in said ring and impinging against the opposite clamping-head, as set forth.

579,268. ARC-LIGHT CUT-OUT. CHARLES R. HARTHAN, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Oct. 14, 1896. Serial No. 608,796. (No model.)

Claim.—1. In a quick-action switch, two levers of the first class, each having a rider at its pivotal point, with a roller-bearing edge not conforming to the edge of the adjacent lever, in combination with an actuating part comprising rollers bearing yieldingly against and movable along said levers and said riders to the opposite sides of their fulcrums, and a pivotal lever for operating said rollers, said lever and said rollers having a limited independent play from the lever, as herein set forth.

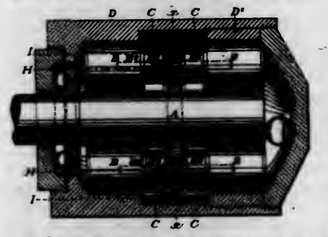
2. In a quick-action switch, a pair of levers of the first order, with curved roller-bearing edges extending on either side of their pivotal points, and movable riders mounted at said pivotal points and having roller-bearing edges not conforming to the edges of the levers, in combination with an actuating part comprising rollers yieldingly bearing against and movable along said levers and said riders, and a swinging lever for operating the rollers and connected therewith so as to afford lost motion during the throw of the lever, as set forth.



3. In a quick-action switch, a pair of switch-levers of the first order, connected together to move simultaneously and each having a curved roller-bearing edge, and a rider pivoted on the pivotal bearings of said levers and having a roller-bearing edge not conforming to the edge of the adjacent lever, in combination with an actuating part, comprising outwardly-spring-pressed rollers bearing against said levers and mounted in a swinging or pivoted head, said rollers being movable along said levers, and a lever for operating the rollers pivoted to said head and adapted to have lost motion in reference thereto, as set forth.

4. In a quick-action switch, a pair of switch-levers of the first order connected by a bar and each having a curved edge extending on either side of their pivotal points, a swinging piece or rider mounted on the pivot of each switch-lever and having a straight roller-bearing edge, in combination with a pair of yielding rollers, each bearing against one of the switch-levers, a pivoted head in which said rollers are mounted, and a spring holding said rollers outwardly, and an actuating-lever handle having its inner end pivoted in said head and movable in said head to have lost motion relatively thereto, as set forth.

579,269. ROLLER-BEARING. REUBEN W. HENT, San Francisco, Cal. Filed Jan. 21, 1896. Serial No. 576,295. (No model.)



Claim.—1. In a roller-bearing, the combination with the shaft and casing, of a series of bearing-rollers, revoluble journals therefor, a series of separating-rollers, journals therefor, and a ring bearing at its periphery on journals of the separating-rollers and at its inner side on the journals revoluble in the bearing-rollers, substantially as set forth.

2. In a roller-bearing the combination with the shaft and casing, of a series of bearing-rollers, revoluble journals therefor, a series of separating-rollers, revoluble journals therefor, and a ring bearing at its periphery on the journals revoluble in the separating-rollers and at its inner side on the journals revoluble in the bearing-rollers, substantially as set forth.

3. In a roller-bearing, the combination with the shaft and casing, of a series of bearing-rollers, a series of separating-rollers, a ring bearing at its periphery on journals of the separating-rollers and at its inner side on journals revoluble in the bearing-rollers, and a ring bearing at its inner side on said journals of the separating-rollers, substantially as set forth.

4. In a roller-bearing, the combination with the shaft and casing, of a series of bearing-rollers, a series of separating-rollers, a ring bearing at its periphery on journals revoluble in the separating-rollers and at its inner side on journals revoluble in the bearing-rollers, and a ring bearing at its inner side on said first-mentioned journals, substantially as set forth.

5. In a roller-bearing, the combination with the shaft and casing, of a series of bearing-rollers, each consisting of two bearing parts and of a journal revoluble therein, a series of separating-rollers bearing on said bearing parts, and a ring bearing at its periphery on journals of the separating-rollers, and at its inner side on the journals revoluble in the bearing-rollers, substantially as and for the purposes set forth.

6. In a roller-bearing, the combination with the shaft and casing, of a series of bearing-rollers, each consisting of two bearing parts and of a journal revoluble therein, a series of separating-rollers, each consisting of two parts bearing on said bearing parts and of a journal revoluble in said parts of the separating-rollers, and a ring bearing at its periphery on the journals revoluble in the separating-rollers and at its inner side on the journals revoluble in the bearing-rollers, substantially as and for the purposes set forth.

7. In a roller-bearing, the combination with the shaft and bearing-casing, of a series of bearing-rollers, each consisting of two parts bearing directly on both the shaft and casing and of a journal between and revoluble within said two parts, a series of separating-rollers, bearing on said two parts of the bearing-rollers, a ring bearing at its periphery on journals of the separating-rollers and at its inner side on the journals revoluble within said two parts of the bearing-rollers, and a ring bearing at its inner side on said journals of the separating-rollers, substantially as and for the purposes set forth.

8. In a roller-bearing, the combination with the shaft and bearing-casing, of a series of bearing-rollers, each consisting of two parts bearing directly on both the shaft and casing and of a journal between and revoluble within said two parts, a series of separating-rollers, each consisting of two parts bearing on said two parts of the bearing-rollers and of a journal between and revoluble in said two parts of the separating-rollers, a ring bearing at its periphery on the journals revoluble in said two parts of the separating-rollers and at its inner side on the journals revoluble within said two parts of the bearing-rollers, and a ring bearing at its inner side on the journals revoluble in said two parts of the separating-rollers, substantially as and for the purposes set forth.

9. In a roller-bearing, the combination with the shaft and bearing-casing, of a ring coaxial with the shaft, a series of bearing-rollers, each consisting of two bearing parts and of a journal between and revoluble within said two bearing parts and bearing on the inner side of said ring, the portions of said bearing parts next to their outer ends bearing directly on the shaft and casing and the portions next to said ring bearing neither on the shaft nor casing, a series of separating-rollers bearing only on said portions of the bearing-rollers next to said ring, and having journals bearing on the periphery of said ring, and a larger ring also coaxial with the shaft and bearing at its inner side on said journals of the separating-rollers, substantially as and for the purposes set forth.

10. In a roller-bearing, the combination with the shaft and bearing-casing, of a ring coaxial with the shaft, a series of bearing-rollers, each consisting of two bearing parts and of a journal between and revoluble within said two bearing parts and bearing on the inner side of said ring, the portions of said bearing parts next to their outer ends bearing directly on the shaft and casing and the portions next to said ring bearing neither on the shaft nor casing, a series of separating-rollers, each consisting of two parts bearing only on said portions of the bearing-rollers next to said ring and of a journal between and revoluble in said two parts of the separating-rollers and bearing on the periphery of said ring, and a larger ring also coaxial with the shaft and bearing at its inner side on the journals revoluble in said two parts of the separating-rollers, substantially as and for the purposes set forth.

11. In a roller-bearing, the combination with the shaft and bearing-casing, of a ring, H, coaxial with the shaft, a series of bearing-rollers, each consisting of two parts, B B, bearing directly on the shaft and casing and having journals, B^3 B^3, smaller in diameter than the parts, B B, and located next to the ring, and of a journal, B^2, between and revoluble within the parts, B B, and bearing on the inner side of the ring, a series of separating-rollers bearing only on the journals, B^3 B^3, and having journals, C^2, bearing on the periphery of the ring, and a ring, I, also coaxial with the shaft and bearing at its inner side on the journals, C^3, substantially as shown and described and for the purposes set forth.

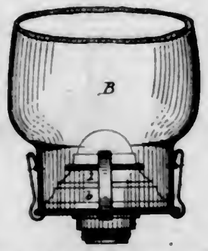
12. In a roller-bearing, the combination with the shaft and bearing-casing, of a ring, H, coaxial with the shaft, a series of bearing-rollers each consisting of two parts, B B, having journals, B^3 B^3, and of a journal, B^2, revoluble in sockets, b^2 b^2, having enlarged ends, b^2 b^2, within the parts, B B, and bearing on the inner side of the ring, a series of separating-rollers bearing only on the journals, B^3 B^3, and having journals, C^2, bearing on the periphery of the ring, and a ring, I, bearing at its inner side on the journals, C^3, substantially as shown and described and for the purposes set forth.

13. In a roller-bearing, the combination with the shaft and bearing-casing, of a ring, H, coaxial with the shaft, a series of bearing-rollers, each consisting of two parts, B B, with journals, B^3 B^3, and having sockets, b^2 b^2, with enlarged ends, b^2 b^2, and of a journal, B^2, revoluble in the sockets, b^2 b^2, and bearing on the inner side of the ring, a series of separating-rollers, each consisting of two parts, C C, bearing only on the journals, B^3 B^3, and having sockets, c^2 c^2, and of a journal, C^2, revoluble in the sockets, c^2 c^2, and bearing on the periphery of the ring, and a ring, I, bearing at its inner side, on the journals, C^3, substantially as shown and described and for the purposes set forth.

14. A roller-bearing comprising the shaft, A, the casing, D, the sleeve, D', forming with the casing, D, the bearing-casing, a series of bearing-rollers, each consisting of two parts, B B, having journals, B^3 B^3, next to their inner ends, and sockets, b^2 b^2, with enlarged ends, b^2 b^2, and of a journal, B^2, revoluble in the sockets, b^2 b^2, a series of separating-rollers bearing on the journals, B^3 B^3, and having journals, C^2, a ring bearing at its periphery on the journals, C^2, and at its inner side on the journals, B^3, and a ring, I, bearing at its inner side on the journals, C^3, all constructed, arranged, combined, and adapted to operate substantially as shown and described and for the purposes set forth.

15. A roller-bearing comprising the casing, D, and the sleeve, D', forming the bearing-casing, and leaving a groove therein, the shaft, A, a series of bearing-rollers, each consisting of two parts, B B, provided with journals, B^3 B^3, and sockets, b^2 b^2, with enlarged ends, b^2 b^2, and of a journal, B^2, revoluble in the sockets, b^2 b^2, a series of separating-rollers, each consisting of two parts, C C, bearing only on the journals, B^3 B^3, and provided with sockets, c^2 c^2, and of a journal, C^2, revoluble in the sockets, c^2 c^2, a ring bearing at its periphery on the journals, C^2, and at its inner side on the journals, B^3, and a ring, I, bearing at its inner side on the journals, C^3, all constructed, arranged, combined, and adapted to operate substantially as shown and described and for the purposes set forth.

579,270. LAMP-CHIMNEY AND HOLDER THEREFOR. CHARLES L. HOLLAND, Revere, Mass. Filed Nov. 15, 1894. Serial No. 528,880. (No model.)



Claim.—The combination with a lamp-burner provided with prongs the free end of each of which projects inward and downward, and a chimney the base of which is cylindrical and provided with a series of segmental projections in the same circumferential plane, the ends of the adjacent projections being at a slight distance apart from each other, and the ends of the prongs engaging the upper sides of the segmental projections of the chimney and being sufficiently unyielding so that their ends may only be disengaged from the projections by turning the chimney to bring the spaces between the ends of the projections to a position opposite the free ends of the prongs, substantially as set forth.

579,271. HOT-BLAST STOVE. JULIAN KENNEDY, Pittsburg, Pa. Filed July 25, 1896. Serial No. 557,069. (No model.)

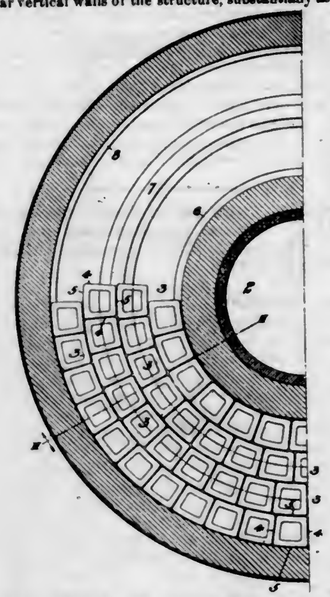
Claim.—1. A hot-blast stove having concentric vertical series of hollow bricks, said bricks having substantially radial sides, substantially as described.

2. A hot-blast stove having an annular vertical series of hollow bricks, said bricks having substantially radial sides and curved faces; substantially as described.

3. A hot-blast stove having concentric vertical series of hollow bricks, said bricks having radial sides and breaking joint horizontally; substantially as described.

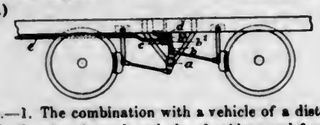
4. A hot-blast stove having concentric vertical series of hollow bricks, said bricks having radial sides and breaking joint vertically: substantially as described.

5. A hot-blast stove having concentric series of hollow bricks, the lowermost bricks of each series resting directly and entirely upon the annular vertical walls of the structure, substantially as described.



6. A hot-blast stove having concentric series of hollow bricks, the faces of one series abutting against the faces of the next series, the lowermost bricks of each series resting directly upon ledges formed in the inner and outer walls and upon the annular pier between said walls; substantially as described.

579,272. FLUID-PRESSURE BRAKE. JOHN G. A. KITCHEN, Manchester, England. Filed Dec. 4, 1895. Serial No. 571,029. (No model.)



Claim.—1. The combination with a vehicle of a distensible and contractible chamber formed entirely of rubber, and fixed to a carrier attached to the vehicle, a pump operated by the foot in one direction and by a spring in the other direction, a pipe connecting said chamber and pump and provided with a release-valve, a metal disk fixed to the free side of said chamber and bearing against the end of a lever and a brake operated by the movement of said lever.

2. The combination with a vehicle and a brake thereon of a distensible and contractible chamber formed entirely of rubber, and fixed to said vehicle and operating said brake by its distention and contraction, a pump operated by human power and having an angular piston-rod, a plate revolubly connected to the said pump and embracing said piston-rod, a pipe connecting said pump and chamber and a release-valve fitted to said pipe and operated by turning the piston-rod and plate.

579,273. ZINC FOR ELECTRIC BATTERIES. FREDERIC A. LANE, Torrington, Conn. Filed Oct. 22, 1895. Serial No. 566,451. (No model.)



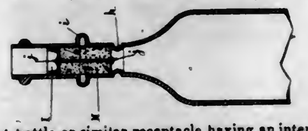
Claim.—1. A zinc for an electric battery having a protecting-coating encircling the major portion of its periphery and a limited exposed portion extending along its length in the longitudinal space left in said encircling coating, substantially as described and for the purpose specified.

2. A zinc for an electric battery having a transverse slot through its extreme upper end, and the screw-shank with a flattened portion thereof secured within said slot while its threaded portion projects therefrom, substantially as described and for the purpose specified.

3. A zinc for an electric battery having set into its upper end the screw-shank, said shank being provided with side supports 8, 8, on opposite sides of said zinc substantially as described.

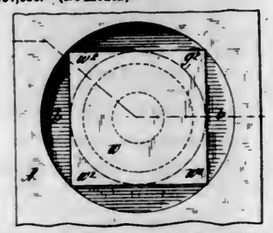
4. A zinc for an electric battery having a transverse slot at its upper end and the flat screw-shank, the projecting end thereof being of less width at the mouth of said slot than the diameter of said zinc, while the inner end of said shank is enlarged: the slot in the zinc being contracted above said enlarged end and at each side of the narrow portion of said shank, substantially as described and for the purpose specified.

579,274. BOTTLE. CLAUDE FRANÇOIS DIT EMILE LABOUE, Pontarlier, France. Filed Aug. 31, 1895. Serial No. 561,070. (No model.)



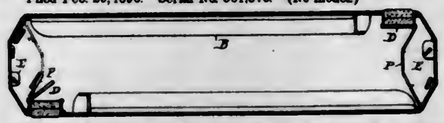
Claim.—A bottle or similar receptacle having an internally-projecting shoulder or enlargement *h* in its neck and the exterior shoulder *i* in combination with a stopper H adapted to seat against the shoulder *h*, a cap I seating upon the stopper and having a conical shape, and a rod *j* passing through the stopper and cap and securing the two together, as specified.

579,275. DIE FOR APPLYING PLASTIC COVERINGS ON EYELETS. ALBERT LATHAM, Springfield, Mass. Filed Apr. 15, 1896. Serial No. 587,639. (No model.)



Claim.—In a set of dies, for applying molded coverings on eyelets by the employment of square blanks of plastic material comprising, centrally, an area corresponding to that of the head of the completed eyelet, together with the outwardly-projecting corner portions, the combination with an eyelet-receiving die having a socket for the reception of the shank of the eyelet-shell, and having surrounding the mouth of said socket a circular recess equal in diameter to a diagonal of the said square blank, whereby in assemblage of the blank relative to the eyelet supported in the die the corners of the blank will, by the circular wall of the recess be centered as it assumes its position of rest on the eyelet, of a head-forming die having a head-forming depression surrounded by a circular cutting edge corresponding to the size of the completed eyelet-head, said die tapering downwardly from above said cutting edge to said edge, whereby as said edge bottoms on the base of the said recess in the receiving-die, there will be a clearance-space marginally in said recess, substantially as and for the purposes set forth.

579,276. STREET-CAR. ALBERT W. LILIENTHAL, Yonkers, N. Y. Filed Feb. 29, 1896. Serial No. 581,370. (No model.)



Claim.—1. A car provided with an entrance through the side at one end, an inwardly-swinging door at the entrance, a sectional partition separating the end from the body of the car, one section of the partition being behind the door so that when left in place it will act as a door-guard, substantially as described.

2. A car provided with an entrance through the side and near an end thereof, a bench along the side of the car, a hinged door, and a cross-seat between the door and the bench and turned toward the door, the door swinging away from the cross-seat in opening, substantially as described.

3. In combination with a car-door, a door-balancing device consisting of a weighted lever, a pulley attached to the door, a pulley

attached to the lever, and belt connections between the pulleys, substantially as described.

4. In combination with car-doors, a door-balancing device consisting of a weighted lever, pulleys mounted over the doors, a pulley attached to the lever and belt connections between the pulleys, and means for attaching the mechanism operatively to any one of the doors at will, substantially as described.

579,277. JOINT FOR ADJUSTABLE PARTS OF MACHINERY. WILLIAM R. LORD and CHARLES C. GRISWOLD, Chicago, Ill., assignors to Harrison J. Baker, same place. Filed Feb. 17, 1896. Serial No. 579,543. (No model.)

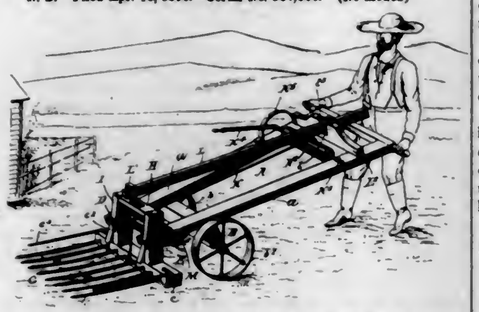


Claim.—1. In a joint for the parts of machinery, the combination of two parts having overlapping perforated ears, a pintle occupying the perforations of the ears, said parts being relatively adjustable about said pintle as an axis, a socket formed in said pintle, a movable detent having a portion occupying said socket, and a coiled spring arranged in said socket and surrounding the pintle and exerting its pressure in one direction against it and in the other direction against the socket, substantially as set forth.

2. In a joint for the parts of machinery, the combination of two parts having overlapping, perforated ears, a pintle occupying the perforations of the ears, said parts being relatively adjustable about said pintle as an axis, a socket formed in the pintle, a substantially U-shaped detent one arm of which passes through the socket and is provided with a shoulder, a coiled spring arranged in the socket and surrounding the arm of the detent which passes through the socket, said spring being arranged to exert its pressure in one direction against said shoulder and in the other direction against the socket, and perforations formed in the overlapping ears for receiving the other arm of the detent, the perforations in one of said ears being arranged in a circular series concentric with the pivotal axis, substantially as set forth

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579,278. TRUCK-FORK. ALBERT J. MEHLENBECK, Casselton, N. D. Filed Apr. 10, 1896. Serial No. 587,001. (No model.)

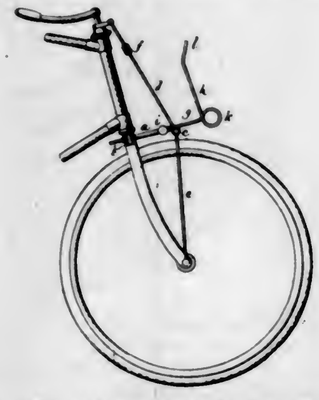


Claim.—1. The combination with the main frame and truck, of the fork-frame, consisting of the head-piece, prongs and the upwardly-extending standards, said standards having rack-teeth upon their rear faces, the pinions mounted upon the main frame and adapted to engage said rack-teeth, the operating-rod, connected with the upper ends of the standards, the rear end of said operating-rod having a series of notches and the locking-plate carried upon the main frame and adapted to engage one of the notches of the operating-rod substantially as shown and described.

2. The combination of the main frame and truck, of the fork comprising the head-piece, the prongs, an operating-standard, the forward ends of the main frame being bifurcated and in which the upright standards are arranged, the pinions mounted upon the main frame, the rack-teeth upon the rear face, of the upright standards, the spring-bars carried by the standards upon their forward faces and adapted to engage the cross-pins carried in the ends of the side members of the main frame whereby the rack-teeth of the standards are held in engagement with the pinion, the cable connected to the fork-frame at its forward end and connected at its rear end to a drum carried upon the main frame and the operating rod or lever connected with the fork-frame and extending rearwardly within reach of the operator whereby the inclination of the fork is adjusted as desired substantially as shown and described.

3. The combination with the main frame and truck, of the fork-frame comprising the head-piece, the prongs, the upright standards and connecting cross-pins, the standards being arranged in the bifurcated ends of the side members, of the main frame, said standards having rack-teeth upon their rear faces, spring-bars upon their forward faces, the cross-pins carried at the forward ends of the bifurcated members and against which spring-bars press, the pinions carried upon the main frame and adapted to engage the rack-teeth, the elevating-cable connected to the fork-frame, the operating-drum to which the said cable is connected, the operating rod or lever connected to the top of the fork-frame, the rear end of said operating rod or lever having a series of notches produced therein and the locking-plate carried upon the main frame and adapted to engage one of the series of notches substantially as shown and described.

579,279. COMBINED STAY AND LUGGAGE-CARRIER FOR BICYCLES. ALEXANDER MCCORMACK, Portarlington, Ireland. Filed Oct. 27, 1896. Serial No. 610,179. (No model.) Patented in England Oct. 23, 1894, No. 20,184.

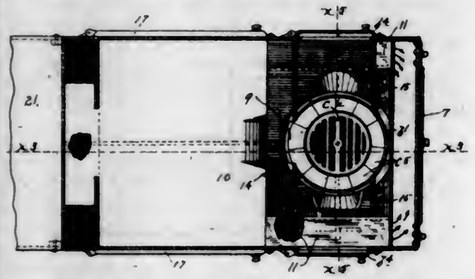


Claim.—1. For use in connection with cycles a front-fork stay comprising rigid parts *a*, *a*, cross-bar *c*, suspension-rods *d d*, and stay-rods *e e*, all adapted to serve substantially as herein specified.

2. An attachment for bicycles comprising parallel tubes *a*, *a*, cross-bar *c*, suspension-rods *d d*, stay-rods *e*, *e*, an elastic frame arranged to slide telescopically in the tubes *a*, *a*, and pinching-screws *i*, *i*, all combined and adapted to serve substantially as herein specified.

3. In combination with the front fork of a bicycle, the stay *a*, *d*, *e*, luggage-carrier *g*, *k*, *k*, *l*, adjusting and confining means *i*, and the clips *b*, the latter adapted to perform the double functions of foot-rests for coasting and means for holding the said stay and luggage-carrier upon the front fork, all arranged for joint operation substantially as herein specified.

579,280. STOVE OR RANGE. CARL A. PETTERSEN, Minneapolis, Minn., assignor of one-half to Christina Petersen, same place. Filed Aug. 6, 1896. Serial No. 601,899. (No model.)

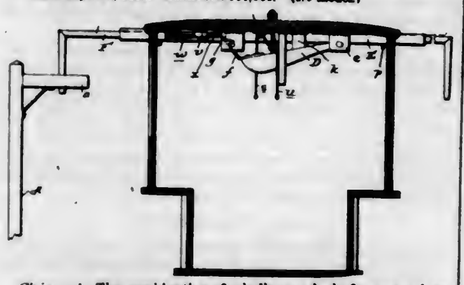


Claim.—1. A stove or range having a fire-pot provided with a coal-chamber opening at its upper end into an expanded wood-chamber, and provided with one or more removable wall-sections, securable within the wood-chamber, to complete and form an upper extension of said coal-chamber, substantially as described.

2. In a stove or range, the combination with the wood-chamber *b* having the curvilinear side-wall sections *b'*, of the coal-chamber *c* depending from the floor of said wood-chamber and having laterally-extended lug seat portions c^3, and the filling-pieces c' with lugs c^4, for use, substantially as described

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579,281. RAILWAY-SIGNAL OR WHISTLE-BLOWING ATTACHMENT FOR LOCOMOTIVES. JOSEPH PILAUD, Covington, La. Filed Sept. 24, 1896. Serial No. 606,909. (No model.)

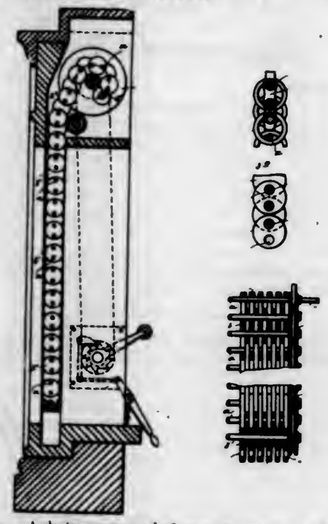


Claim.—1. The combination of a hollow rock-shaft arranged on a locomotive and having a longitudinal slot, an arm adjustable lengthwise in the rock-shaft and having a lug engaging the slot in said shaft, said arm being adapted to engage a stationary obstruction in its path, a bolt connected with the rock-shaft, and an alarm adapted to be actuated by the movement of the bolt, substantially as and for the purpose set forth.

2. The combination of a rock-shaft arranged on a locomotive and adapted to engage a stationary obstruction, a weight, a bolt arranged in bearings and connected with the rock-shaft and adapted to normally support the weight, a steam-whistle having a lever, and a connection between the weight and lever, substantially as and for the purpose set forth.

3. The combination of a hollow rock-shaft arranged on a locomotive and having a longitudinal slot, and also having an arm *j*, an arm adjustable lengthwise in the rock-shaft and having a lug arranged in the slot thereof, springs arranged on opposite sides of and engaging the arm *j*, of the rock-shaft, a weight pivoted at one end and having a resilient hook at its opposite end, a bolt connected with the rock-shaft and arranged in bearings and adapted to engage the hook of the weight and support said weight, a steam-whistle having a lever, and a connection between said lever and the pivoted weight.

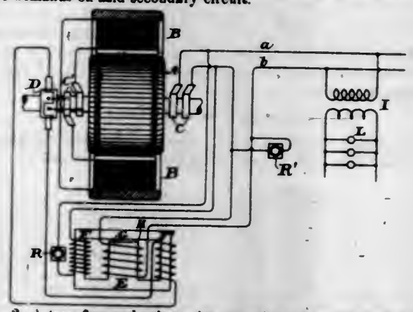
579,282. SAFETY SHUTTER AND SCREEN FOR SHOP-WINDOWS, &c. AUGUST E. SCHMIDT, Leipsic, Germany. Filed Aug. 15, 1896. Serial No. 602,833. (No model.)



Claim.—A shutter composed of rows of overlapping disks having an upper and lower perforation and of a series of parallel connecting-rods that engage alternately the upper and lower perforation of adjoining rows of disks, substantially as specified.

579,283. ALTERNATING-CURRENT DYNAMO-ELECTRIC MACHINE. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 20, 1896. Serial No. 584,041. (No model.)

Claim.—1. A transformer having primary and secondary circuits wound on its main core, a core forming a magnetic shunt to the part of the core on which the secondary is wound, a coil through which a variable current flows wound on said magnetic-shunt core, said current variably controlling the number of lines of force diverted from the secondary circuit through said magnetic shunt in inverse ratio to the demands on said secondary circuit.



2. A transformer having primary and secondary circuits wound on its main core which is of the closed-magnetic-circuit type, a core forming a magnetic shunt to the part of the core on which the secondary is wound, and a coil through which a variable current flows wound on said magnetic-shunt core, said current variably controlling the number of lines of force diverted from the secondary circuit through said magnetic shunt in inverse ratio to the demands on said secondary circuit.

3. A transformer having primary and secondary circuits wound on its main core which is of the closed-magnetic-circuit type, a core forming a magnetic shunt to the part of the core on which the secondary is wound, said magnetic-shunt core having an air-gap therein, and a coil through which a variable current flows wound on said magnetic-shunt core, said current variably controlling the number of lines of force diverted from the secondary circuit through said magnetic shunt in inverse ratio to the demands on said secondary circuit.

4. A transformer having primary and secondary circuits wound on its main core, a core forming a magnetic shunt to the part of the core on which the secondary is wound, and a coil in circuit with one of the primary mains wound on said magnetic-shunt core, the current in which coil variably controls the number of lines of force diverted from the secondary circuit through said magnetic shunt in inverse ratio to the demands on said secondary circuit.

5. In a system of electrical distribution, a transformer having its primary connected in parallel with the mains of the system, and secondary circuits wound on its main core, a core forming a magnetic shunt to the part of the core on which the secondary is wound, and a coil in series with one of the primary mains wound on said magnetic-shunt core, the current in which coil variably controls the number of lines of force diverted from the secondary circuit through said magnetic shunt in inverse ratio to the demands on said secondary circuit.

6. In combination, a source of alternating current, lines leading therefrom, and a transformer connected to the lines comprising primary and secondary coils, a magnetic shunt, a series coil upon the shunt opposing the passage of magnetic lines through the shunt, and a commutator in circuit with the secondary coil of the transformer.

7. In combination, an alternating-current dynamo-electric machine, and a transformer in the circuit thereof supplying its field-magnet excitation through a rectifying-commutator; the transformer comprising a core, a primary winding in shunt to the alternating-current mains, a magnetic shunt provided with a modifying series winding, the currents in which are of phase normally displaced relatively to those in the primary, and a secondary winding whose induction is compounded by the joint effects of the primary and modifying windings.

8. The combination of an alternating-current circuit, with a transformer comprising a core forming a closed magnetic circuit, and an intermediate magnetic shunt with a primary coil connected across the circuit-mains, a secondary coil, and a modifying-coil around the magnetic shunt in circuit with one of the circuit-mains and arranged so to neutralize the effect of the shunt and increase the induction in the secondary coil on increase of current in the main circuit.

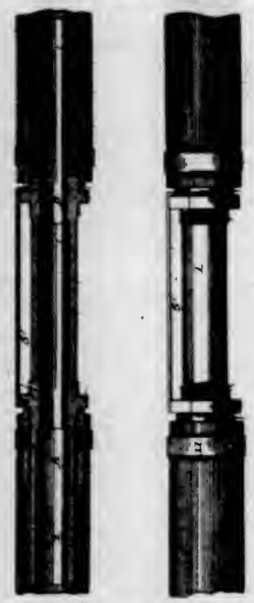
9. The combination of an alternating-current dynamo-electric machine, mains extending therefrom, and a transformer comprising a primary coil in shunt to the mains, a magnetic shunt carrying a modifying coil or coils in series with the mains, and a secondary coil supplying the field-magnet excitation of the main machine.

10. The combination of a dynamo-electric machine of the alternating-current type, mains leading therefrom, a transformer furnishing

the field-magnet excitation of the machine, the transformer comprising primary coils in shunt to the mains, secondary coils in inductive relation to the primary, a magnetic shunt in the transformer, and modifying-coils in series in the mains and determining the effect of the shunt, with means for varying the effect of the modifying-coils.

11. A dynamo-electric machine of the alternating-current type, mains extending therefrom, a transformer connected with the mains and furnishing field-magnet excitation for the machine, the transformer comprising primary coils in shunt to the mains, a secondary coil furnishing the field-magnet excitation, modifying-coils in series in the mains controlling a magnetic shunt in the transformer, and resistances for regulating the effect of the coils.

579,284. PIPE-COUPLING. GEORGE R. TRACKER, Phillipsburg, Kans. Filed June 10, 1896. Serial No. 594,992. (No model.)



Claim.—1. In a pipe-coupling, the combination of duplicate coupling members each provided with a socket and an expansion-tube adapted to fit the socket of the other coupling member, substantially as described.

2. In a pipe-coupling, the combination with respective screw-threaded sleeves, of duplicate coupling members each provided with a socket having external screw-threads adapted to engage with the sleeve, and an expansion-tube adapted to fit the socket of the other coupling member, substantially as described.

3. In a pipe-coupling, the combination with respective screw-threaded sleeves, of duplicate coupling members each having a socket provided with an integral nut and respective screw-threaded sections thereon on opposite sides of said nut, said screw-threaded sections being adapted to engage with the sleeve, and an expansion-tube adapted to fit the socket of the other coupling member, substantially as described.

579,285. FOUNTAIN-INKSTAND. LINCOLN N. THOMAS, Madisonville, Ohio, assignor to W. L. Mason & Co., Keene, N. H. Filed Sept. 16, 1896. Serial No. 606,023. (No model.)



Claim.—1. In combination with an inkstand having an integral body with a small chamber below and an enlarged chamber above, and a shoulder between said chambers, a dip-cup of diameter to easily fit the enlarged upper chamber of the inkstand and having a stem, an elastic diaphragm resting on the shoulder between the chambers, through which the stem of the dip-cup passes with a close fit, and a flange on the stem below the diaphragm serving as a guide in the lower chamber of the inkstand, all combined substantially as described.

2. The integral inkstand having an enlarged upper and a small lower chamber and a shoulder between these chambers, a dip-cup of wood surrounded with a ring of hard material which approximately fits said upper chamber, the hollow wooden stem extending from said cup into the lower chamber, and the elastic diaphragm through which the stem passes, said diaphragm having its outer edge on the shoulder between the chambers of the inkstand, the stem having a wooden float in the lower chamber to assist the diaphragm in supporting the ink-cup all combined substantially as described.

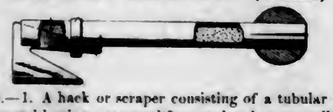
579,286. TRUCK FOR MOVING HEAVY BODIES. JOHN WILHELM, Portland, Oreg., assignor to Albert Maurer, Great Falls, Mont. Filed Aug. 28, 1896. Serial No. 604,219. (No model.)



Claim.—1. In a device for moving heavy bodies, the combination of two platforms, a socket in the under side of the upper platform, a corresponding socket in the upper surface of the lower platform, a ball fitting in said sockets, an opening through the lower platform from the socket therein, a brake to lock said ball from moving, and means to secure said platforms together, substantially as described and set forth.

2. The combination in a device for moving heavy bodies, of two platforms, a semispherical socket in the under side of the upper platform, a corresponding socket in the upper surface of the lower platform, a circular opening through the lower surface of the lower platform from the bottom of the socket therein, a cavity adjacent to said sockets, a brake in said cavity, a handle-bar extending from said brake to an edge of the device, a rack-bar on the outer end of said handle, and a pawl to engage said rack to lock the brake in position, and means to secure said platforms together, as and for the purposes set forth.

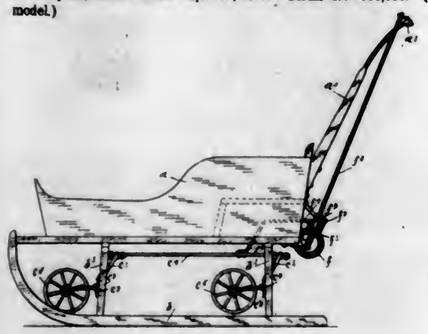
579,287. HACK OR SCRAPER. WILLIAM P. WYLLY, Patterson, Ga. Filed Apr. 18, 1896. Serial No. 588,130. (No model.)



Claim.—1. A hack or scraper consisting of a tubular handle of malleable metal having a recessed front end and, rearwardly thereof, a vertical slot or hole, a scraper-blade seated within said recess and having a pronged heel engaged with the slot in the handle a ring-clamp connecting said blade and handle, and means for securing said blade and handle together, consisting of a resinous filling contained within said handle, substantially as and for the purpose set forth.

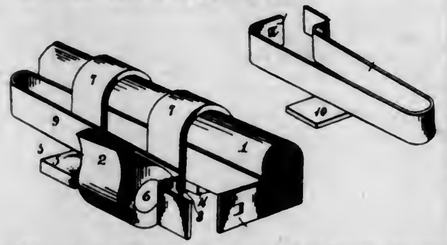
2. A hack consisting of a tubular metal handle, a blade seated within one end of said handle, and a resinous filling contained within said handle and connecting said handle and blade together, substantially as and for the purpose set forth.

579,288. CONVERTIBLE CARRIAGE OR SLED. EMIL A. BEYL, Minneapolis, Minn. Filed Apr. 24, 1896. Serial No. 588,939. (No model.)



Claim.—The combination with the carriage-body *a* provided with the rearwardly-projecting handle-bar and the runners *b b'*, rigidly secured thereto, of the wheels mounted for vertical movement with respect to said body and runners, by means of the double bell-crank shafts *c c' c²*, connected by the connecting-link *c⁴*, and the operating connections involving the bevel-wheel *f* having crank-arm *f³* connected to said bar *c²* by means of the link *f⁴*, and the bevel-pinion *f'* engaging said wheel *f* and movable by the shifting rod *f⁵* having at its upper end the lateral hand-lever *f⁷*, substantially as described.

579,289. THILL-COUPLING. DAVID BRADLEY, Cartwright, Canada, assignor of one-half to James S. Reekie, Boisseavain, Canada. Filed Dec. 11, 1896. Serial No. 615,298. (No model.)



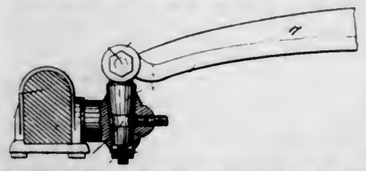
Claim.—1. In a thill-coupling, an axle member having a forward extension provided with a laterally-extending pintle, a spring-finger situated to engage the ends of said pintle, a spring-catch to engage said spring-finger when the latter is retracted, and a thill-coupling member.

2. In a thill-coupling, an axle-coupling member provided with a forward extension having a laterally-extending pintle, a spring-finger extending in the rear of said pintle and abutting against the end of the same, and a spring-catch to engage said spring-finger when the latter is retracted.

3. In a thill-coupling, the combination with an axle, of a coupling member consisting of a plate having a forward extension provided with a laterally-extending pintle, a tongue situated between said plate and said axle and provided with a spring-finger to engage the end of the pintle, and a spring-catch to engage the spring-finger when the latter is retracted, and clips extending around said axle and connected with said plate.

4. The combination with an axle, of an axle member of a thill-coupling adjustably secured thereto and provided with a laterally-extending pintle, a spring-finger situated to engage the end of said pintle, a spring-catch to engage said spring-finger when the latter is extended and a thill-coupling member.

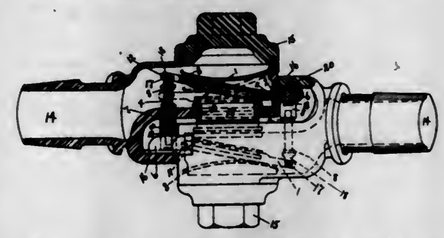
579,290. THILL-COUPLING. ROBERT BRUSH, Smithtown Branch, N. Y. Filed July 8, 1896. Serial No. 598,401. (No model.)



Claim.—1. The herein-described thill-coupling, which consists of a clip, which is adapted to be connected with the axle of the vehicle, said clip being provided with an outwardly-directed extension or shoulder which is formed integrally therewith, or rigidly secured thereto, and in which is formed a vertical bore or passage, said bore or passage being provided with a thill-plug which passes therethrough, and which is adapted to be held therein, and also to revolve therein, said thill-plug being provided at its upper end with a head having a central transverse bore or passage whereby a shaft may be connected therewith, substantially as shown and described.

2. The combination with an axle of a vehicle, of a clip adapted to be secured thereon, and provided with an extension 9, having a head in which is formed a vertical bore, of a conical plug adapted to be secured in said bore and having a screw-threaded extension, adapted to project below said head and to receive a bur to retain the same within the bore of the head, said plug being also provided with an annular groove adapted to receive a set-screw secured in said head, and said plug having a head or enlargement provided with an opening by means of which attachment is made with the shaft by a bolt or pin, substantially as shown.

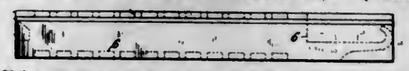
579,291. HOSE-COUPLING FOR AIR-BRAKES, &c. HENRY W. CADOTT and CHARLES C. CREWSON, Horton, Kans. Filed Sept. 21, 1896. Serial No. 606,528. (No model.)



Claim.—1. A hose-coupling provided with the valve 1 pivoted at one end to the ears 2 and engaged at its opposite end by the shank 18 of the stem 4 and bearing against the spring 3 and operated by the wedge-shaped block 5, substantially as and for the purpose set forth.

2. A hose-coupling provided with the valve 1 and the mechanism consisting of the spring 3, shank 18, stem 4, and wedge-shaped block 5, connected together by the pivot 17, substantially as and for the purpose set forth.

579,292. MATRIX BAR OR PLATE. ALEXANDER S. CAPEHART, Bismarck, N. D. Filed Jan. 16, 1897. Serial No. 619,439. (No model.)



Claim.—1. A matrix for a line-casting machine, consisting of a flat hard-metal plate containing a soft-metal stratum and cut away at the edge to form an open-sided recess and expose a part of the soft-metal stratum in which the intaglio character is formed, substantially as and for the purposes described.

2. A matrix bar or plate having means by which it may be mechanically handled in a line-casting machine, and composed of hard and soft metal strata laid and held together by heat and pressure, with the hard metal outermost at the edges of the bar or plate, and the hard-metal edge of the latter cut away to form an open-sided recess which exposes a part of the soft metal in which the intaglio character is formed, substantially as and for the purposes described.

3. A matrix bar or plate for a line-casting machine, consisting of strata of hard and soft metals united by heat and pressure, with the hard metal outermost, and cut away to form a recess, one or more, with open sides, exposing a part of the soft metal in which an intaglio character is formed, substantially as and for the purposes described.

4. A compound-metal body for the manufacture of matrix bars or plates for line-casting machines, consisting of hard-metal strata and an intervening soft-metal stratum, the strata being relatively disposed to present a continuous edge of hard metal constructed and adapted to be cut away or removed to provide an open-sided recess and expose a part of the soft-metal stratum in which an intaglio may be formed at the bottom of said recess, substantially as and for the purposes described.

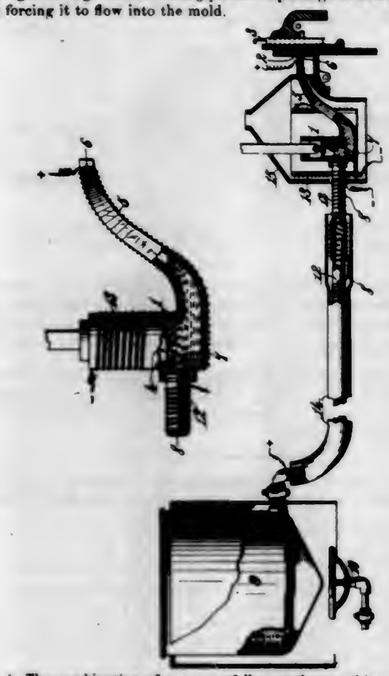
579,293. TYPE-LINE-CASTING MACHINE. ALEXANDER S. CAPEHART, Bismarck, N. D. Filed Jan. 18, 1897. Serial No. 619,514. (No model.)

Claim.—1. The combination with the mold of a type-line-casting machine, constructed to cast a printing-bar bearing a line of relief-characters, of an electrically-heated casting-pot coöperating with the mold, means for causing metal to flow from the casting-pot into the mold, a melting-pot arranged remote from said casting-pot and independent of, or separate from the line-casting machine, and an electrically-heated conduit leading from the melting-pot and communicating with the casting-pot.

2. The combination with the mold of a type-line-casting machine, constructed to cast a printing-bar bearing a line of relief-characters, of an electrically-heated casting-pot coöperating with the mold and having a lateral orifice in its side, a melting-pot arranged remote from the casting-pot, an electrically-heated conduit leading from the melting-pot and connected with the lateral orifice of the casting-pot, and a plunger which passes said orifice and thereby opens and closes communication between said conduit and the casting-pot through said lateral orifice, and serves to force the metal to the mold.

3. The combination of a mold, a casting-pot coöperating with the mold, a melting-pot arranged remote from the casting-pot and independent of, or separate from the line-casting machine, a conduit lead-

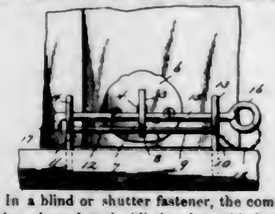
ing from the melting-pot and communicating with the casting-pot, and a plunger arranged in the casting-pot for displacing the metal therein and forcing it to flow into the mold.



4. The combination of a group of line-casting machines, having molds and electrically-heated casting-pots coöperating with the molds, with a melting-pot independent of, or separate from the line-casting machine and having a plurality of electrically-heated connections with the casting-pots of said line-casting machines.

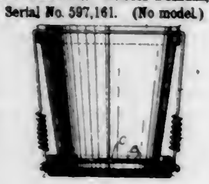
5. The combination with the mold of a type-line-casting machine, of a casting-pot having an electric heating device applied about its throat which delivers the molten metal into the said mold, a melting-pot arranged remote from said casting-pot and independent of, or separate from the line-casting machine, and a conduit leading from the melting-pot to the casting-pot, substantially as and for the purposes described.

579,294. SHUTTER-FASTENER. GEORGE W. DAVIES, Mobile, Ala. Filed Aug. 7, 1896. Serial No. 602,041. (No model.)



Claim.—In a blind or shutter fastener, the combination with a locking member pivoted to the blind and provided with a ring and a catch, of a keeper fastened to the window-sill and comprising uprights, eyes, and a cross-piece, a locking-pin having an eye at one end and a hook at the other end, and a flexible connection between the eye of the pin and one of the uprights.

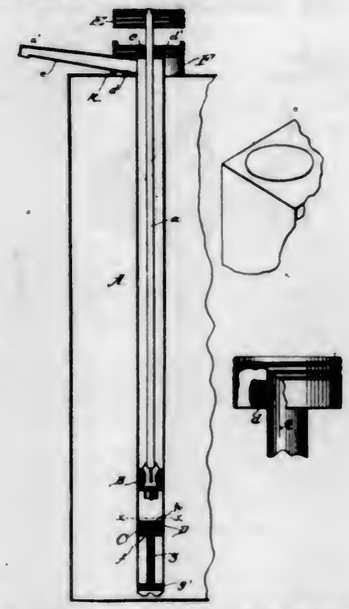
579,295. FLOWER-POT. HATTIE DELZELL, Jackson, Cal. Filed June 27, 1896. Serial No. 597,161. (No model.)



Claim.—1. A flower-pot formed in sections with a removable bottom; means for holding them in position including a cross-bar seated in notches at the upper ends of said sections and extending downward upon opposite sides and having spring portions, and a pan to which the same are connected, substantially as described.

2. A flower-pot formed in sections and provided with a removable bottom, a wire held in notches at the upper edge of the sections, a pan for holding the same and springs connecting said pan with the ends of said wire, all substantially as described.

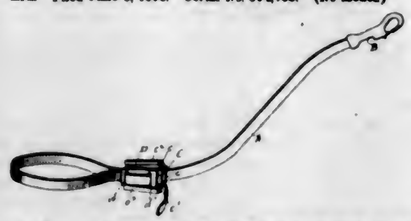
579,296. PUMP. BYRON J. DOUDS, Canton, Ohio. Filed Sept. 21, 1894. Serial No. 523,696. (No model.)



Claim.—1. The combination of a pump-barrel A, having located therein a piston-rod, provided with a valve, the valve-seat C provided with an opening *f*, the floating valve D secured to the rod *g* extended through the opening *f* and provided with a stop and the opening A formed in the valve D, substantially as and for the purpose specified.

2. The combination of a pump-barrel having located therein a piston-rod provided with a piston-valve, the nozzle *e* connected to the barrel and inclined upward toward its outer end, and the outer end thereof provided with the pendent portion *a'*, the flange F, provided with the opening *k*, the strip *k'* and the valve D, substantially as and for the purpose specified.

579,297. HITCHING DEVICE. SAMUEL F. STITSWORTH, Little Rock, Ark. Filed June 8, 1896. Serial No. 594,735. (No model.)



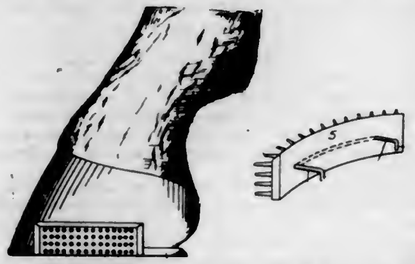
Claim.—1. The combination with a hitch or tie strap, of a pair of plates, one of which has an endwise-sliding movement with respect to the other, one of said plates having a guide or loop through which the strap is passed, and the other plate means whereby the strap is connected thereto, substantially as specified.

2. The combination with a hitch or tie strap, of the two plates C and D, the plate C having the longitudinal loop or guide c and the guide-flanges *c'*, and the plate D seated to slide between said flanges, said strap being passed through the loop or guide c and attached at one end portion to the plate D, substantially as specified.

3. The herein-described attachment for hitch or tie straps, comprising a tapered plate C having upon one side the central longitudinal offset guide or loop c and upon the opposite side the lateral guide-flanges *c'* and the plate D also tapered and adapted to slide between said flanges, and having the slotted offset central portion, substantially as specified.

4. The combination with a hitch or tie strap, of the herein-described attachment therefor, consisting of the tapered plate C, having upon one side the central offset guide or loop *c* and upon the opposite side lateral guide-flanges *c'*, said plate having also an opening *c⁴* and a projection on the said guide or loop opposite said opening, and a second plate, D, arranged to seat between the flanges *c'*, and having means for the attachment of one end of the hitch or tie strap thereto, substantially as specified.

579,298. ANTI-INTERFERING DEVICE. THOMAS HENNESSERRY, Denver, Colo. Filed July 6, 1896. Serial No. 598,270. (No model.)



Claim.—1. An anti-interfering device comprising a yielding and highly-resilient pad preferably composed of soft rubber and having soft elastic fingers formed on its outer surface; said fingers being preferably formed integral with the body of the pad, and suitable means for fastening the pad to the hoof of the horse, said means comprising a metal device attached to the pad and having one or more arms adapted to engage recesses formed in the shoe substantially as described.

2. An anti-interfering device comprising a soft-rubber pad having fingers formed on its outer surface and integral with the body of the pad, suitable means for attaching said pad to the hoof of the horse, said means comprising a device cast in the pad and having one or more horizontal projections provided with depending extremities adapted to engage recesses formed in the shoe as and for the purpose set forth.

579,299. TELEPHONE-EXCHANGE SYSTEM. JAMES E. KEELYN, Chicago, Ill., and KEMPSTER B. MILLER, Washington, D. C. Filed Apr. 27, 1896. Serial No. 589,231. (No model.)

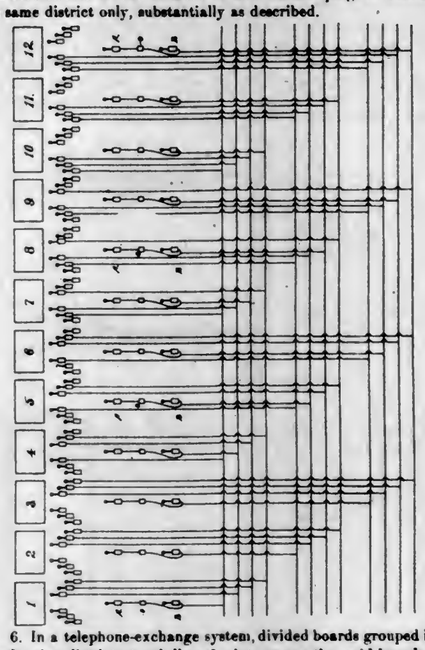
Claim.—1. In a telephone-exchange system divided boards, an answering and a calling plug connected by a cord-circuit at one of said boards, a trunk-line for interconnecting said boards, and transfer-plugs at one or more other boards, said cord-circuit and transfer-plugs being connected in multiple with said trunk-line, substantially as described.

2. In a telephone-exchange system divided boards, an answering and a calling plug connected by a cord-circuit at one of said boards, a switching device whereby an operator's telephone or a transfer-generator may be connected to said cord-circuit, transfer-plugs at one or more other boards, and a trunk-line for interconnecting said boards, said cord-circuit and calling-plugs being connected in multiple with said trunk-line, whereby a connection can be originated on said trunk-line at one board only, substantially as described.

3. In a telephone-exchange system, divided boards grouped into overlapping districts, a connecting-plug at each board, a trunk-line for each district for interconnecting said boards, the plugs of one district being connected to the trunk-line belonging to that district only, the arrangement being such that a connection on a particular trunk-line may be originated only on a board of the district to which that trunk-line belongs, while the connection may be completed on a board of any district, substantially as described.

4. In a telephone-exchange system, divided boards grouped into overlapping districts, an answering and a calling plug connected by a cord-circuit at each board, transfer-plugs at each board, and trunk-lines for each district connecting the cord-circuit at one board with one of said transfer-plugs at every other board of the same district only, substantially as described.

5. In a telephone-exchange system, divided boards grouped into separate overlapping districts, each district beginning on a certain board and including every third board therefrom throughout the system, a calling and an answering plug connected by a cord-circuit at each board, transfer-plugs also at each board, and trunk-lines for interconnecting said boards, each of said trunk-lines leading from the said cord-circuit to one or more of said transfer-plugs at boards of the same district only, substantially as described.



6. In a telephone-exchange system, divided boards grouped into overlapping districts, trunk-lines for interconnecting said boards, operators' telephones one at each board, each connected to a separate instruction-circuit, and means whereby any operator's telephone of a certain district may be looped into the instruction-circuit of any board belonging to that district only, so that an operator can communicate with the operators in her own district only, substantially as described.

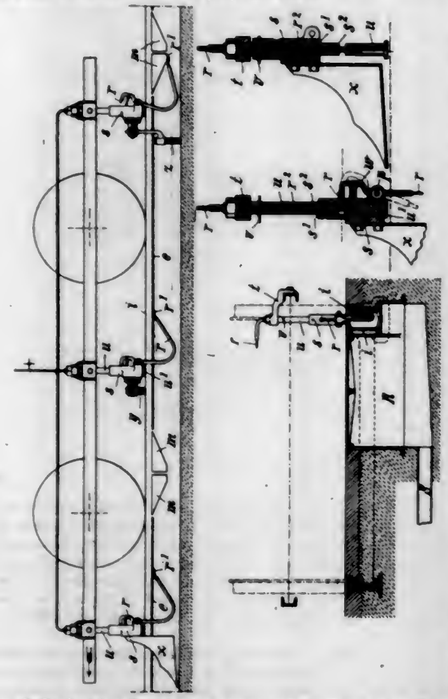
7. In a telephone-exchange system, divided boards grouped into overlapping districts, an answering and a calling plug connected by a cord-circuit at each board, transfer-plugs at each board, trunk-lines for each district connecting the cord-circuit at one board with one of said transfer-plugs at every other board of the same district only; an operator's telephone at each board each connected to a separate instruction-circuit, and means whereby any operator's telephone of a certain district may be looped into the instruction-circuit of any board belonging to that district only; whereby a connection originating on any board must be completed by an operator of the same district only, but may be so completed on a board of any district, substantially as described.

8. In a telephone-exchange system, divided boards and subscribers' line-terminals thereon, an answering and a calling plug connected by a cord-circuit at one of said boards, transfer-plugs at one or more other boards, circuits leading from said cord-circuit to each of said transfer-plugs, and means whereby any one of said circuits may be connected to said cord-circuit, substantially as described.

579,300. ELECTRIC RAILWAY. EDUARD LACHMANN, Hamburg, Germany. Filed June 12, 1895. Serial No. 552,554. (No model.) Patented in Germany Apr. 27, 1895, No. 89,511; in Belgium May 14, 1895, No. 115,609; in France May 14, 1895, No. 247,420; in England May 14, 1895, No. 9,546; in Switzerland May 14, 1895, No. 10,309; in Italy June 30, 1895, No. 38,890; in Austria Aug. 17, 1895, No. 2,894; in Hungary Aug. 30, 1895, No. 3,523, and in Denmark Mar. 20, 1896, No. 465.

Claim.—1. In electric railways, a main underground conduit, an auxiliary conduit open at its lower end, extending along one side of such main conduit and composed of interspaced sections, insulating-partitions closing each end of said sections, provided with an inclined face, the inclined faces of the partitions of contiguous sections converging downwardly, a bridge bridging the hiatus between the said sections, and an electric conductor embedded in the end partitions of such sections, in combination with a sectional main electric conductor extending along the roof of the auxiliary-conduit sections and connected with the conductors embedded in the partitions thereof, for the purpose set forth.

2. In electric railways, a main underground conduit, an auxiliary conduit open at its lower end extending along one side of such main conduit, insulating-partitions having downwardly-converging faces, and a space between their proximate vertical edges, said partitions dividing the auxiliary conduit into air-chambers, main-conductor sections strung along the roof of said air-chambers, and electric connections between said conductors consisting of two wires embedded in the insulating material of the partitions electrically connected in a block of insulating material in the space between the partition-sections and electrically connected with the main-conductor sections of adjacent air-chambers, for the purpose set forth.



3. In electric railways, a main underground conduit, an auxiliary conduit open at its lower end, extending along one side of said main conduit, insulated partitions having lower horizontal and upwardly-diverging channeled faces, said partitions dividing the auxiliary conduit into air-chambers, and a main conductor carried along the roof of the auxiliary conduit, the sections of said main conductor within the air-chamber being channeled to correspond with the channels in the faces of the partitions, for the purpose set forth.

4. In electric railways, an underground main conduit, an auxiliary conduit open at its lower end extending along one side of such main conduit and composed of interspaced sections, insulating-partitions closing the ends of each section and each having an inclined face, the inclined faces of the partitions of contiguous sections converging downwardly, a bridge bridging the hiatus between two of said sections, and an electric conductor extending along the roof of the said auxiliary conduit and through the partitions thereof, in combination with a motor-car, an electric motor thereon and a contact-carrier electrically connected with such motor and adapted to move along the irregular track formed by said main conductor and partitions, for the purpose set forth.

5. An underground slotted conduit constructed of continuous rail-sections of substantially the form of railway-rails, the webs and feet of said rail-sections constituting the side walls and bottom of the conduit respectively, the slot for such conduit being formed by and between the rail-heads, substantially as set forth.

6. In underground electric railways the combination with the underground conduit and the main conductor therein, of a traveling conductor and a contact-carrier traveling with said conductor and provided with contacts for both the aforesaid conductors, said carrier movable out of the conduit along the traveling conductor, for the purpose set forth.

7. In underground electric railways, the combination with the underground conduit and the main conductor therein, of a traveling conductor, a contact-carrier traveling with said conductor and provided with contacts for both of the aforesaid conductors, said carrier movable out of the conduit along the traveling conductor, and a locking device for locking the carrier against movement when out of such conduit, for the purpose set forth.

8. In underground electric railways, the combination with the underground conduit and the main conductor therein, of a traveling conductor and a contact-carrier provided with contacts for both of said conductors, said carrier movable out of the conduit along the traveling conductor, and means for interrupting the contact between said traveling conductor and one of the contacts of the carrier when so moved, for the purpose set forth.

9. In electric railways, the combination with a motor-car and an electric conductor depending therefrom connected with the motor on the car; of a contact-carrier arranged to revolve and slide along said conductor, and a spring-controlled contact-arm hinged to the carrier and adapted to contact with the conductor, for the purpose set forth.

10. In electric railways, the combination with a motor-car, an electric conductor connected with the motor on said car, a tubular holder for said conductor rigidly connected with the car, and a cylindrical bearing to which the lower end of the conductor is secured; of a contact-carrier loosely mounted on said bearing and holder, and provided with an orifice leading to the conductor between its holder and the aforesaid bearing when said carrier is in its lowermost position, a contact-arm hinged to said carrier and provided with a contact at each end, one of said contacts adapted to pass through the hole in the carrier into contact with the conductor, and a spring holding one of said contacts normally in contact with the conductor, for the purpose set forth.

11. In underground electric railways, the combination with the slotted underground conduit, of a traveling support and a cleaning device, as a plow, or the like, traveling with the support along the floor of the conduit, said cleaning device removable from such conduit by displacement along its support, for the purpose set forth.

12. In underground electric railways, the combination with the slotted underground conduit and the main conductor therein, of a traveling conductor, a contact-carrier traveling therewith and provided with contacts for both the aforementioned conductors, and a cleaning device, as a plow, scraper, or brush, connected with said carrier and traveling along the conduit-floor, said carrier movable out of said conduit by displacement on the traveling conductor, for the purpose set forth.

13. The combination with the motor-car, the tubular support s^3 rigidly connected therewith and the conductor r^3 extending through and projecting from the lower end of said support, and the flanged bearing u secured to the lower end of the conductor; of the carrier-sleeve s loosely mounted on said bearing and support and provided with a radial opening leading to the lower end of the conductor, and a spring-controlled contact-arm pivoted to said sleeve and provided with a contact projecting through the sleeve opening into contact with the conductor, for the purpose set forth.

14. In electric railways, the combination with the motor-car, the tubular support s^3 rigidly connected with said car, the conductor r^3 extending through said support, and the cylindrical flanged bearing u secured to the lower end of the conductor below the support; of the carrier-sleeve s, revoluble and movable vertically on said bearing u and support s^3, and provided with an opening leading to the lower end of said conductor r^3, a spring-controlled contact-arm pivotally connected with the carrier-sleeve and provided with a contact projecting through the sleeve opening into contact with the conductor r^3, and a cleaning device, as a brush, plow or scraper carried by said carrier-sleeve, for the purpose set forth.

15. In electric railways, the combination with the main line, the underground conduit, the main conductor therein and a guide-track as c^3, a branch line, its underground conduit and main conductor therein and a guide-track as c^3; of a switch-tongue provided with a guide-track c' adapted to register with the aforesaid guide-tracks c^3, for the purpose set forth.

16. In electric railways, the combination with the main line, the underground conduit, the main conductor therein, a branch line, its underground conduit and main conductor therein both conductors carried along the upper portion of the conduits, and guide-tracks converging downwardly from the respective conductors; of a switch-tongue interposed between the main and branch lines, provided with a guide-track adapted to register with the terminals of the conduit-tracks, and suitable electrical connections between the main and branch line conductors, for the purpose set forth.

17. In electric railways, a main underground conduit provided with the usual surface slot, and an auxiliary conduit open at its lower end insertible into the main conduit through the slot thereof, for the purpose set forth.

18. In electric railways, a main underground conduit provided with the usual surface slot and a sectional auxiliary conduit insertible into and removable from said main conduit through the slot thereof, and means for securing the auxiliary-conduit sections to one side of the main conduit, for the purpose set forth.

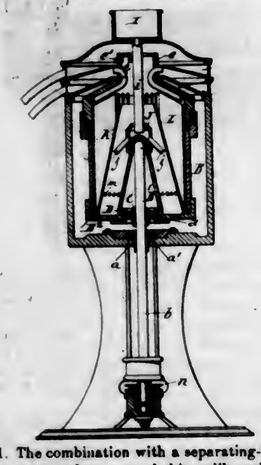
19. In electric railways, a main underground conduit provided with the usual surface slot and a sectional auxiliary conduit open at its lower end and partitioned off into air-chambers, said auxiliary conduit insertible into the main conduit through the slot thereof, for the purpose set forth.

20. The combination with the underground slotted conduit, of an auxiliary conduit composed of an inverted-U-shaped sheet-metal casing of a diameter less than that of the conduit-slot, and having one side longer than the other, and means for securing said casing to one of the side walls of the conduit through its slot, for the purpose set forth.

21. The combination with the slotted underground conduit, of an auxiliary conduit consisting of an inverted-U-shaped casing of a diameter less than that of the conduit-slot and having one side longer than the other, fastening-bolts passing through the longer side of said casing and through one of the side walls of the conduit, and a nut for and screwing onto the outer ends of said bolts whereby said auxiliary conduit can be introduced into the main conduit through the slot of the latter and secured in position from the outside of said main conduit, substantially as set forth.

22. The combination with the underground slotted conduit, of an auxiliary conduit consisting of an inverted-U-shaped casing of a diameter less than that of the conduit-slot, and having one of its sides longer than the other, a wedge-shaped filler m at each end of said casing whereby reverse inclines are formed by abutting casings, means for securing the filler within the casing, bolts passing through the longer side of said casing and through one of the walls of the main conduit, and a nut for screwing onto the outside of each bolt, for the purpose set forth.

579,301. CENTRIFUGAL LIQUID-SEPARATOR. CARL J. LUNDSTROM, Little Falls, N. Y., assignor to D. H. Burrell & Co., same place. Filed Aug. 24, 1893. Serial No. 483,936. (No model.) Patented in England Aug. 4, 1893, No. 15,843; in Germany Aug. 29, 1893, No. 80,877, and in Sweden Aug. 29, 1893, No. 5,304.

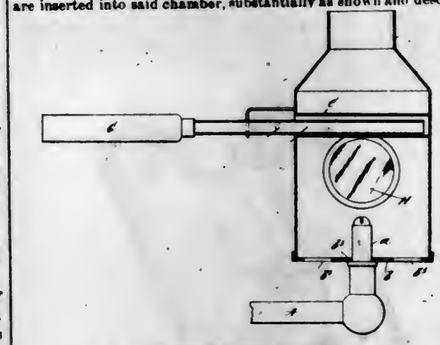


Claim.—1. The combination with a separating-bowl having discharges for the separated cream and skim-milk, and a supply device for the full milk, of a hollow separating-cone which extends diagonally through the liquid-space of the bowl and which is imperforate except that it is provided at its large end with a passage for the escape of the heavy separated liquid and adjacent to the large end with supplemental escape-passages for the same liquid, and which discharges the cream at its small end, substantially as set forth.

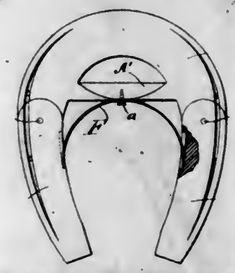
2. The combination with the spindle and the separating-bowl having a hub extending above its bottom and hung loosely upon the spindle, of a sleeve surrounding the spindle near the lower portion of the hub and provided with a notch, a projection secured to the spindle and entering said notch, and a yielding ring interposed between said sleeve and the lower portion of the bowl, substantially as set forth.

579,302. HEATING DEVICE FOR CURLING-IRONS. FRANK OARR, Gloversville, N. Y., assignor to William J. Dodge, same place. Filed Apr. 15, 1896. Serial No. 587,642. (No model.)

Claim.—A heater for curling-irons, comprising a casing having a bottom which is perforated, and adapted to be connected with a gas or other burner, said casing being also open at its upper end and provided with a transverse chamber which is open at one end and into which a pair of curling-irons are adapted to be inserted, said casing being also provided with a conical top and a tubular extension, and at one side with a yoke, the sides of which are secured thereto, and at each side of the open end of said transverse chamber, and which is adapted to support the outer portion of the curling-irons when they are inserted into said chamber, substantially as shown and described.

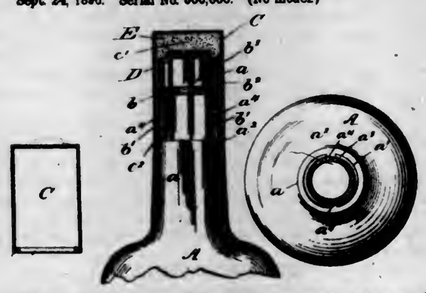


579,303. HOOF-SPREADING HORSESHOE. ALEXANDER PEARSALL, Locust Valley, N. Y. Filed July 31, 1896. Serial No. 601,141. (No model.)



Claim.—In a horseshoe, the combination of a front segmental portion having a brace forming part thereof, and two swinging side portions pivotally attached to the said front portion, the side portions having recesses therein for engagement with the ends of a semi-elliptical spring, which spring is attached to the brace of the said front portion of the shoe, substantially as shown and described.

579,304. BOTTLE. JOHAN A. PEARSON, Glen Cove, N. Y. Filed Sept. 24, 1896. Serial No. 606,860. (No model.)

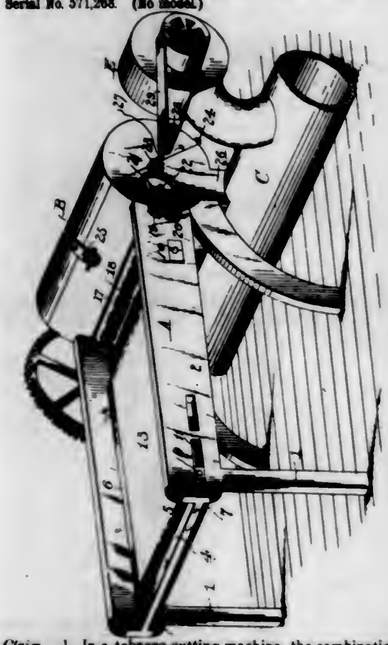


Claim.—1. An improved bottle having vertical grooves in its neck portion for the accommodation of projecting spring-arms; in combination with spring-arms arranged in relation to said grooves, means for securing said spring-arms upon the said neck portion, comprising the belt portion b tapered at one end b^2 and adapted to enter slot b^3 at the end where the band or belt encircles the groove a^2, a fragile capsule or cap-piece provided with an interior annular shoulder adapted to be engaged by said spring-arms, and a plastic filling, substantially as and for the purpose set forth.

2. An improved bottle, comprising a reduced neck portion forming an annular base-shoulder and provided above the latter with a circumferential groove intersected by vertical grooves extending to said base-shoulder, a spring device embodying a plate or main por-

tion secured in said circumferential groove and downwardly-extending projecting spring-arms arranged with relation to the vertical grooves, and an inclosing capsule or cap-piece adapted to surround and inclose the reduced neck portion and having an interior annular groove at the bottom adapted to be engaged by said spring-arms, substantially as and for the purpose set forth.

579,305. **TOBACCO-CUTTING MACHINE.** NICHOLAS P. PERKINS, Roanoke, Va., assignor of three-fourths to James O. B. Palmer, Joel A. Jamison, and Thomas E. Jamison, same place. Filed Dec. 6, 1895. Serial No. 571,268. (No model.)



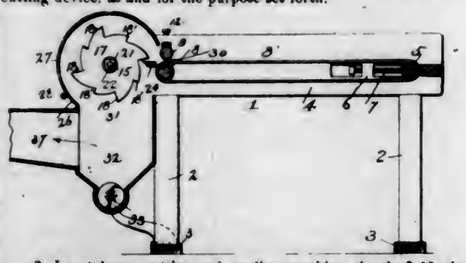
Claim.—1. In a tobacco-cutting machine, the combination with a suitable support and an inclosing cylinder, of a cutting means, comprising a rotating shaft, a series of circular knives secured on the shaft, a series of circular saws on the shaft, between the knives, of less diameter than the knives with their cutting-line adjacent to the cutting edge of the knives, and a slitted plate having an angular cutting edge contiguous to the saws, and arranged abreast the knives with the cutting edges thereof in the slits, substantially as set forth.

2. In a tobacco-cutting machine, a cutting mechanism, comprising a shaft, a multiple of circular knives on the shaft, a multiple of circular saws intermediate of the knives and of slightly less diameter than the knives, a plate provided with slits to take and fit between the knives and having a sharp cutting edge arranged contiguous to the saws, and means to feed a cake or block of tobacco to the knives and saws.

3. In a tobacco-cutting machine, a cutting mechanism, comprising a shaft, a plurality of circular knives arranged thereon, a plurality of circular saws on the shaft intermediate of the knives and of slightly less diameter than the knives and arranged with the teeth of the series to form a spirally-directed line, a slitted plate to take in the knives and arranged abreast of the saws and formed with a sharp cutting edge, and means to rotate the knives and saws and feed the tobacco thereto.

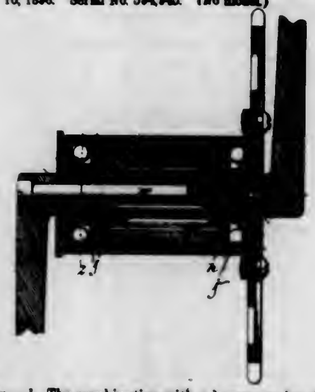
579,306. **TOBACCO-CUTTING MACHINE.** NICHOLAS P. PERKINS, Roanoke, Va., assignor, by direct and mesne assignments, of three-fourths to James O. B. Palmer, Thomas E. Jamison, and J. A. Jamison, same place. Filed May 18, 1896. Serial No. 592,083. (No model.)

Claim.—1. In a tobacco-cutting machine, a cutting device comprising the rotating shaft 15, upon which is mounted a series of disks 19 having radial cutting-teeth 20, and a series of disks 17, which are thinner in cross-section than the disks 19 and are mounted on said shaft alternately with the former, and are formed with elongated knife-edge cutting-teeth 18 and intermediate shorter teeth 18', in combination with the stationary throat-plate 24 having the rectangular slits 23, through which the elongated teeth 18 pass, and the straight edges 25, contiguous to the teeth 20 on the disks 19, and means substantially as described for continuously feeding the material to said cutting device, as and for the purpose set forth.



2. In a tobacco cutting and grading machine, the shaft 15, the cutting-disks 17 and 19 mounted alternately on said shaft, the throat-plate 24 having the slits 23 and the intermediate straight edges 25 contiguous to the disks 17 and 19 respectively, the roller 8 mounted in fixed bearings, the roller 5, and the endless apron 8' connecting said rollers, the roller 9 vertically adjustable in boxes 10 10 in the sides of the machine, in combination with the chambers 32 and 34', the air or blast pipe connecting them, the conveyer-shafts 41 44 located in chamber 34', the reticulated circular casings 42 and 43, encompassing said conveyer-shafts 41 44 respectively, and the inclined vibrating trough 46 mounted in chamber 34' between the said casings 42 43, substantially as and for the purpose set forth.

579,307. **VELOCIPEDE.** GUSTAF A. SCARIN, Buffalo, N. Y. Filed June 10, 1896. Serial No. 594,945. (No model.)



Claim.—1. The combination with a hanger or bracket, of a supporting-sleeve journaled in said hanger and having a split end portion provided with a tapering bore or seat, a bearing-cone mounted adjustably on said split portion, and a crank having a tapering shank fitted in the tapering seat of said supporting-sleeve, whereby the split portion of the sleeve is expanded into the adjustable cone and caused to clamp the same upon forcing said tapering shank into the sleeve, substantially as set forth.

2. The combination with a hanger or bracket, of a coupling-sleeve journaled in said hanger and provided with a split end portion having a conical bore, cranks having shanks seated in the ends of said sleeve, one of said shanks being conical and fitted in the conical bore of the sleeve, a collar mounted adjustably on the split portion of the coupling-sleeve and carrying a bearing-cone, and a tie-bolt whereby the shanks of the cranks are connected and drawn into the coupling-sleeve, substantially as set forth.

579,308. **CHIMNEY OR SMOKE-STACK TOP.** SAMUEL O. STREBY, Upper Sandusky, Ohio. Filed Mar. 17, 1896. Serial No. 583,622. (No model.)



Claim.—A device of the class described comprising a smoke-pipe, provided with an annular outwardly-extending flange, a foraminous wall extending upwardly from the outer edge of the flange and a cup supported above the smoke-pipe and adapted to direct the draft therefrom against said flange.

579,309. **VEHICLE-WHEEL.** CHARLES E. TOMLINSON, Syracuse, N. Y., assignor to Irving A. Weston, same place. Filed Apr. 16, 1895. Serial No. 545,859. (No model.)



Claim.—1. The combination of a wheel-rim having its outer face provided with a peripheral bearing-surface and an annular groove arranged at one side of said bearing-surface and extending inwardly therefrom, a tire provided with a bearing-face arranged at one side of the annular groove of the rim and engaged with said bearing-surface and a shoulder mounted in the groove, and a substantially non-extensible strip secured to the tire at one side of said groove and shoulder and encircling said bearing surface and face whereby the tire swings on said strip, substantially as and for the purpose described.

2. The combination of a wheel-rim having its outer face provided with a peripheral bearing-surface and a groove disposed at one side of said surface and formed with an engaging shoulder, a tire provided with a shoulder arranged in the groove and engaged with the former shoulder, and a substantially non-extensible band secured to the tire and encircling the peripheral bearing-surface, whereby the tire swings on said strip, substantially as and for the purpose specified.

3. The combination of a wheel-rim A having its outer face provided with a peripheral bearing-surface a^4 and an annular groove a' arranged at one side of said bearing-surface and extending inwardly therefrom, a tire B provided with a bearing-face b' arranged at one side of the annular groove a' and engaged with the bearing-surface a^4, a shoulder b mounted in the groove a', and an eye b^3 arranged at one side of said groove and shoulder and encircling said bearing surface and face, and a substantially non-extensible strip within the eye whereby the tire swings on said strip, substantially as and for the purpose specified.

4. The combination of a wheel-rim having its outer face provided with separated grooves formed with engaging shoulders, and peripheral bearing-surfaces disposed at opposite sides of the grooves and increasing in diameter from their outer side edges, a tire provided with shoulders arranged in the grooves, peripheral bearing-surfaces disposed at opposite sides of the shoulders and increasing in diameter from their outer side edges for engaging the former bearing-surfaces, and annular eyes disposed at the outer sides of the shoulders, and annular bands arranged in the eyes whereby the tire edges swing on said bands, substantially as and for the purpose set forth.

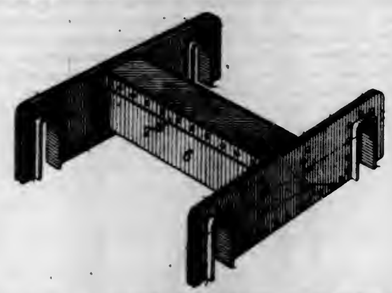
579,310. **CLEVIS.** ERNEST P. WIBER, Harbine, Nebr. Filed Mar. 25, 1896. Serial No. 584,772. (No model.)



Claim.—1. A clevis comprising two separable arms having loops upon the two ends which are attached to each other at their draft ends by means of a ring, and at their rearward or tree ends by means of a pin having a flattened part and a head formed on one end, and notches in the other end, which pin is pivotally attached to one of the arms in an elongated slot in the loop thereof, and engages with a locking device upon the other arm, substantially as shown and described.

2. The combination of the two arms having eyes upon their forward ends which are adapted to engage with a ring, and loops upon their rearward ends, and a connecting-pin which is pivotally attached to one of the loops, and has limited radial movement therein, and which passes through the other loop and is held therein by means of a spring-pressed finger engaging with notches in said pin, substantially as shown and described.

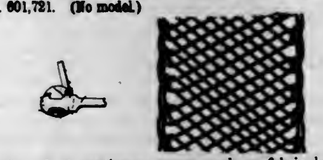
579,311. **CAR-TRUCK.** JOHN W. ANDERSON, Allegheny, Pa. Filed Dec. 4, 1896. Serial No. 614,391. (No model.)



Claim.—1. A car-truck having its side frames formed of two plain or unflanged metal plates, provided with slots for the reception of the axle-boxes in combination with a box-like transom secured to the side frames and U-shaped guides arranged in the slots and provided with ribs projecting between the plates forming the side frames, substantially as set forth.

2. A car-truck frame having its side frames formed of two plain or unflanged metal plates, provided with slots for the reception of the axle-boxes, in combination with a transom formed of two oblong plates having their ends turned out at right angles and secured to the side frames and a cap connecting said oblong plates, substantially as set forth.

579,312. **WOVEN FABRIC AND LOOM FOR WEAVING SAME.** BENJAMIN ARNOLD, East Greenwich, R. I. Filed Aug. 5, 1896. Serial No. 601,721. (No model.)



Claim.—1. A continuous woven web or fabric having a set of warp-threads always parallel to themselves and a set of weft-threads always parallel to themselves, each of which sets extend from side to side and back diagonally across the web substantially as and for the purpose described.

2. A continuous woven web or fabric having selvages on both edges thereof, and having a set of warp-threads and a set of weft-threads each of which sets extends from side to side and back diagonally across the web, crossing each other at or approximately at right angles substantially as and for the purpose described.

3. A continuous woven web or fabric having the warp and weft threads thereof in the form of loops extending in opposite directions diagonally across the same from edge to edge and crossing each other at or approximately at right angles, and having the ends of the loops of weft-thread enchained at one edge to form a selvage, substantially as described.

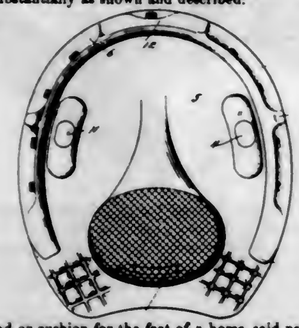
4. The combination with two traveling series of warp holders or supports adapted to have a warp-thread looped diagonally across from one series to the other, and means for causing the same to travel forward, of devices for forming sheds for the reception of weft in the loops extending across between the two series, substantially as described.

5. The combination with two traveling series of warp holders or supports adapted to have a warp-thread looped diagonally from one series to the other, means for causing the same to travel forward, and devices for forming sheds for the reception of weft in the loops extending across between the two series, of devices for inserting weft into the sheds as formed, a diagonally-placed reed, and means for actuating the same, substantially as described.

6. The combination with two traveling series of warp holders or supports adapted to have a warp-thread looped diagonally across from one series to the other, means for causing the same to travel forward, devices for looping a warp-thread thereon, and devices for forming sheds for the reception of weft in the loops of warp-thread extending across between the two series, of devices for inserting weft into the sheds as formed, a diagonally-placed reed, and devices for actuating the same, substantially as described.

579,313. **HORSESHOE-PAD.** LUTHER H. BELLAMY, New York, N. Y. Filed June 19, 1896. Serial No. 596,158. (No model.)

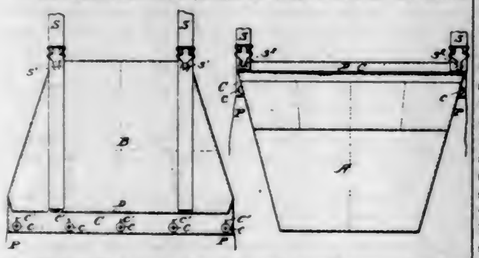
Claim.—1. A pad or cushion for the feet of a horse, said pad or cushion being composed of rubber and canvas or similar material, and being thicker at the heel than at the toe, and being provided centrally of the heel with a downwardly-curved spring-bearing, and at each side with downwardly-directed bearings, in combination with a shoe which is secured thereto, and which is also provided with downwardly-directed bearings about midway of its sides, and with the usual toe, substantially as shown and described.



2. A pad or cushion for the feet of a horse, said pad or cushion being composed of rubber and canvas or similar material, and being thicker at the heel than at the toe, and being provided centrally of the heel with a downwardly-curved spring-bearing, and at each side with downwardly-directed bearings, in combination with a shoe which is secured thereto, and which is also provided with downwardly-directed bearings about midway of its sides, and with the usual toe, the arrangement of the shoe and pad being such that the sides of the shoe do not extend entirely back to the heel of the pad, substantially as shown and described.

3. A pad or cushion for horses feet, composed of rubber and canvas or similar material, said pad or cushion being thicker at the heel than at the toe, and being conformed to the shape of the foot, and being also provided centrally of the heel with a downwardly-directed spring-bearing, and at each side with downwardly-directed bearings, in combination with a shoe which is secured thereto, said shoe being also provided with the usual toe, and with downwardly-directed bearings at the sides thereof, which are located outside of those formed on the sides of the pad or cushion, substantially as shown and described.

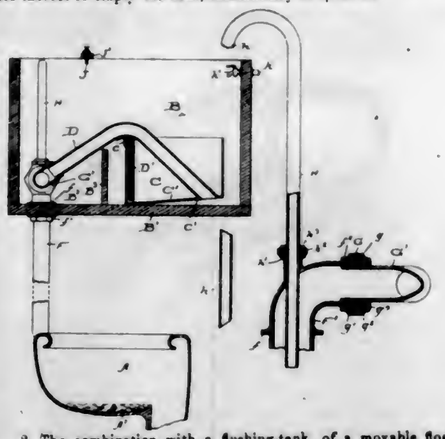
579,314. OVERALLS. SAMUEL W. BOOSE, Flint, Mich., assignor to David Traxler. Filed Apr. 17, 1896. Serial No. 587,914. (No model.)



Claim.—As articles of manufacture, overalls provided with a waistband carrying a series of fasteners at the front thereof, and a flap having a band carrying a series of complemental fasteners to detachably engage the fasteners on the said waistband, the flap having on its inner face a pocket and being flexibly secured to its band so as to be folded up to form a bib or down to form an apron, and suspenders secured to the rear of the overalls, and suitable means on the upper end of the flap and on the waistband of the overalls with which the suspenders are adapted to engage, substantially as set forth.

579,315. AUTOMATIC SIPHON FLUSHING-TANK FOR WATER-CLOSETS, &c. JOHN CLIFFORD, Chicago, Ill., assignor to the L. Wolff Manufacturing Company, same place. Filed May 8, 1895. Serial No. 548,482. (No model.)

Claim.—1. The combination with a flushing-tank and its discharge-pipe and a coupling connected to the discharge-pipe and extending into the tank, of a movable float adapted to fill with water, a pivoted or hinged and bent or two-legged siphon attached to the float and hinged at its discharge end or leg to said coupling, said siphon having its outer or shorter leg extending into the tank to the bottom thereof when the float is in its lowermost position to enable substantially all of the water to be siphoned out of the tank, and said siphon having also a branch extending into the float to the bottom thereof to empty the float, substantially as specified.



2 The combination with a flushing-tank, of a movable float adapted to fill with water, a pivoted or hinged siphon attached to the float at its discharge end or leg to the outlet or discharge part of the tank, said siphon having its outer or short leg extending into the tank to the bottom thereof when the float is in its lowermost position to enable substantially all of the water to be siphoned out of the tank, and said siphon having also a branch extending into the float to the bottom thereof to empty the float, said tank being provided with a separate afterwash-chamber, and a second siphon having its free or open leg extending into said separate afterwash-chamber to empty the same, substantially as specified.

3. The combination with a flushing-tank and its discharge-pipe and elbow-coupling connected with the discharge-pipe and extending into the tank, of a movable float adapted to fill with water, a pivoted or hinged and bent or two-legged siphon attached to the float and hinged at its discharge end or leg to said elbow-coupling, said siphon having its outer or shorter leg extending into the tank to the bottom thereof when the float is in its lowermost position to enable substantially all of the water to be siphoned out of the tank, and said siphon having also a branch extending into the float to the bottom thereof to empty the float, the free end of said siphon extending through the bottom of the float, and the branch being of smaller diameter than the siphon, substantially as specified.

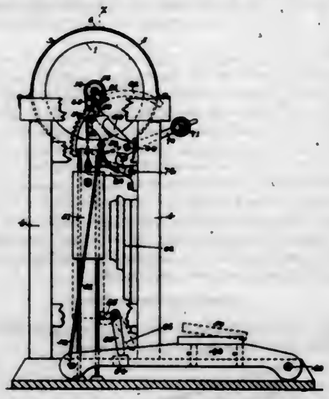
4. The combination with a flushing-tank of a movable float, a hinged flushing-siphon connected to the float and moved thereby, said siphon communicating with the discharge-outlet of the tank, the mouth or open end of said siphon extending to near the bottom of the tank when the float is in its lowermost position, said siphon having a branch extending into the float for emptying the float, a separate afterwash-chamber in the tank, and a second or afterwash siphon having its discharge-leg extending into the outlet of the tank so as to be set in operation by the discharge of water through said main or flushing siphon, the open leg of said second siphon extending into said afterwash-chamber to empty the same, substantially as specified.

5. The combination with a flushing-tank and its discharge-pipe and an elbow-coupling, of a movable float adapted to fill with water at or near its upper edge, a pivoted or hinged and bent or two-legged siphon attached to the float and hinged to and communicating with said discharge-pipe coupling, the open leg of said siphon having its mouth end projecting into the tank near the bottom thereof when the float is in its lowermost position and the bend or knee of the siphon extending above the float, said siphon having also a branch extending into the float to empty the same, substantially as specified.

6. The combination with tank B, of a discharge-pipe coupling F', a siphon-coupling G' furnished with a collar or shoulder g, packing-rings g' g^2, threaded flange-sleeve G connecting said couplings F' G', a siphon attached to said coupling G' and a float connected to said siphon, said discharge-pipe coupling F' having a nipple h', siphon H extending into said coupling F' through said nipple h', and a packing-ring h^2, flanged nut or sleeve h^3, substantially as specified.

7. The combination with a tank of a movable float in the tank, a movable siphon connected to the float and communicating with the discharge pipe or outlet of the tank, and an elbow-coupling F' furnished with a nipple h' and a second siphon H extending into said coupling through said nipple, substantially as specified.

579,316. VOTING-MACHINE. JOHN B. CLOY, San Francisco, Cal. Filed Jan. 10, 1896. Serial No. 575,008. (No model.)



Claim.—1. In a voting-machine, a revoluble drum, mounted on a horizontal axis, means for revolving said drum, series of depressible keys arranged in rows radially on the said drum, and a shield or cover inclosing the keys and revoluble drum, said shield being provided with an aperture through which the said keys can be seen and operated, substantially as shown and described.

2. In a voting-machine, a revoluble drum provided with rows of keys set radially and arranged in correspondence with the number of candidates to be voted, and depressible by the voter in one row at a time, and counting mechanism to register the number of times each key is depressed, together with an apertured cover through which the keys are shown, substantially as described.

3. In a voting-machine, a revoluble drum provided with rows of radial depressible keys in the manner described, counting mechanism to register the number of times each key is depressed, and a series of pivoted abutting wards and a pawl connected therewith, moved a like distance by each key that is depressed, substantially as described.

4. In a voting-machine, a revoluble drum having rows of radial voting-keys mounted thereon, a row of pivoted wards mounted on a stationary support, a pawl connected therewith, and a ratchet-wheel that will release the drum, permit it to revolve and present a new row of keys when a predetermined number of keys have been depressed and votes given, substantially as described.

5. In a voting-machine, a revoluble main drum having rows of depressible voting-keys thereon, a stationary axis on which the drum revolves and on which is mounted a series of pivoted wards, a pawl operated by the wards, and a detent or latch that engages the main drum, holding it in one position until a complement of votes is given for each row of keys and for each office to be voted for, substantially as described.

6. In a voting-machine, a revoluble drum having rows of voting-keys in the manner described, a counter for each key that registers each depression or inward movement by the same, a tier or row of hinged wards that abut against and move each other, and lock each key when it is depressed to spread and operate the wards, in the manner substantially as described.

7. In a voting-machine, a revoluble drum having rows of depressible voting-keys in the manner described, a series of abutting wards moved by the voting-keys and locking the same when depressed, a stationary helically-formed drum that will protrude the keys as the main drum revolves after the voting-keys have passed beyond the locking-wards, in the manner substantially as described.

8. In a voting-machine, rows of depressible keys mounted radially on a revoluble drum, counters for each key that register one each time the keys are depressed, a series of ratchet-wheels corresponding in number to the rows of keys, a series of hinged wards abutting one against the other, movable in one direction by action of the voting-keys, the final ward provided with or connected to a pawl to turn the ratchet-wheels one tooth each time a key is depressed, and an apertured cover for the keys, substantially as described.

9. In a voting-machine, a revoluble supporting-drum, rows of depressible voting-keys thereon, counters to register the inward movement or depression of each key, movable wards to lock the voting-keys when depressed, and at the same time turn a ratchet-wheel having a predetermined number of teeth exposed, and a predetermined amount of rotation to release the main drum and permit it to move and expose a new row of keys, substantially as described.

10. In a voting-machine, a revoluble drum, having rows of depressible voting-keys, in the manner described; and around its periphery equidistant teeth or notches that are engaged by a sliding latch, the latter being moved and the drum released by the depression of a predetermined number of the voting-keys, in the manner substantially as described.

11. In a voting-machine, a revoluble drum, provided with rows of depressible voting-keys that are successively presented to a voter as the drum revolves, a counter for each key that registers the number of depressions or votes, a removable guard-bar that covers and conceals the record of the counters, and a transparent cover above the guard-bar through which the votes can be counted when the guard-bar is removed, substantially as described.

12. In a voting-machine, a revoluble drum, having rows of depressible keys, in the manner described, and counters to register each depression of the keys, the latter having in their stems an indent or notch through which a guard-bar can be passed to lock each row of keys after the voting has closed, in the manner substantially as described.

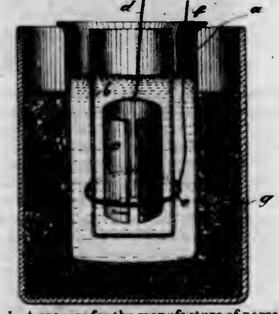
13. In a voting-machine, a revoluble drum, provided with voting-keys and counters, in the manner described, a removable end plate or ring, annular in form provided with inward-projecting lugs and locking devices that when released permit the removal of the ring or plate and access to the voting-lists and interior of the drum, in the manner and for the purposes substantially as described.

14. In a voting-machine, a revoluble drum, provided with voting-keys, counters and mechanism to register and limit the number of votes given, and in combination therewith a platform operating a winding-weight, so the weight of the voter will revolve the drum, in the manner substantially as described.

15. In a voting-machine, a revoluble drum, having voting-keys, counting and limiting mechanism to show and control the number of votes, in combination with a winding-weight and pawl that automatically engages and releases the drum by means of the voter's weight, sudstantially as described.

16. In a voting-machine, a revoluble drum, provided with voting-keys and mechanism, in the manner described, a winding-weight to revolve the drum, raised and acting by the voter's weight, a toothed sector and pinion to turn the drum, a separate interlocking sector, strap and platform and returning-weight, in the manner substantially as described.

579,317. PROCESS OF MANUFACTURING PERCARBONATES. EMIL J. CONSTAM and ARTHUR VON HANSEN, Zurich, Switzerland, assignors to the Aluminium-Industrie-Actien-Gesellschaft, Neuhausen, Switzerland. Filed Sept. 4, 1896. Serial No. 604,854. (No specimens.)



Claim.—1. A process for the manufacture of percarbonates, which consists in electrolyzing a saturated solution of a carbonate at a temperature below zero centigrade.

2. A process for the manufacture of percarbonates of the alkali metals and ammonium, which consists in electrolyzing a saturated solution of their carbonates at temperatures below zero centigrade.

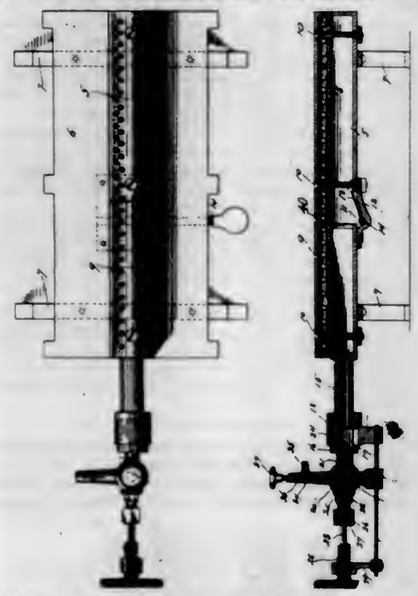
3. As new chemical compounds, percarbonates of the alkali metals and ammonium, which are bluish-white amorphous substances, readily soluble in water at ordinary temperatures, of the following constitutional formula,



and possess strong oxidizing properties, substantially as described.

579,318. GAS-BURNER AND MEANS FOR ADMITTING GAS AND AIR THERETO. JOHN E. DANE, Brooklyn, N. Y. Filed May 23, 1896. Serial No. 592,815. (No model.)

Claim.—1. The combination with a gas-burner, for stoves, furnaces and other heating apparatus, of a device for supplying gas and air thereto, consisting of a tube which communicates with one end thereof, on the outer end of which is mounted a short tube, having a slot or opening in one side thereof, a sleeve mounted on said short tube, and provided with a shoulder or projection at one side thereof, a coupling-head connected with the opposite end of said short tube, and provided with a port or passage which communicates therewith, a needle valve-rod, which passes through said coupling-head, and which is adapted at its inner end to close said port or passage, said valve-rod being provided centrally with a screw-thread, and at its outer end with an enlarged section on which is formed a screw-thread, of greater pitch than that at the central portion of the rod, and an arm mounted on said outer screw-thread, and connected by means of a rod, with said sliding sleeve or the shoulder or projection formed thereon, substantially as shown and described.



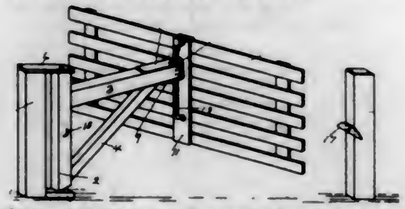
2. The combination with a gas-burner, for stoves, furnaces, and other heating apparatus, of a device for supplying gas and air thereto, consisting of a tube which communicates with one end thereof, on the outer end of which is mounted a short tube having a slot or opening in one side thereof, a sleeve mounted on said short tube, and provided with a shoulder or projection at one side thereof, a coupling-head connected with the opposite end of said short tube, and provided with a port or passage which communicates therewith, a corresponding valve-rod which passes through said coupling-head, and which is adapted at its inner end to close said port or passage, said rod being provided centrally with a screw-thread, and at its outer end with an enlarged section, on which is formed a screw-thread, of greater pitch than that at the central portion of the rod, and an arm mounted on said outer screw-thread, and connected by means of a rod with said sliding sleeve or the shoulder or projection formed thereon, said coupling head being also provided with means for admitting gas thereto, substantially as shown and described.

3. A burner head or tube for burning gas and air in furnaces, stoves and other heating apparatus, consisting of a tubular body portion, provided with a longitudinal perforated plate, over which is placed a longitudinal removable perforated cap or cover, which is circular or segmental in cross-section, said body portion and said perforated plate and cap or cover being bolted together, and the bottom of said body portion being provided with a hinged damper or cut-off which is adapted to close a portion thereof, and the space between the longitudinal perforated plate, and the cap or cover being also provided with a cut-off or partition, directly over said damper or cut-off in the body portion, substantially as shown and described.

4. The combination with a burner of a device for supplying gas and air thereto, said device, consisting of a suitable coupling-head through which passes a screw-threaded needle valve-rod, and which is provided with means for admitting gas thereto, a short tube connected with said coupling-head and communicating with the burner, and having a slot or opening in one side thereof, a sliding sleeve mounted thereon, and connected with said valve-rod, whereby when the valve-rod is turned in one direction, the port or passage for admitting gas will be closed as will also the slot or opening in said tube, and when the valve-rod is turned in the opposite direction, said port or passage, and said slot or opening will be opened, substantially as shown and described.

5. The combination with a burner, of a device for supplying gas and air thereto, said device consisting of a suitable coupling-head, through which passes a screw-threaded needle valve-rod, and which is provided with means for admitting gas thereto, a short tube connected with said coupling-head and communicating with the burner, and having a slot or opening in one side thereof, a sliding sleeve mounted thereon, and connected with said valve rod, whereby when the valve is turned in one direction, the port or passage for admitting gas will be closed as will also the slot or opening in said tube, and when the valve-rod is turned in the opposite direction, said port or passage, and said slot or opening will be opened, and said coupling-head being also provided with means for supplying gas to a pilot-burner, substantially as shown and described.

579,319. **FARM-GATE.** DAVID C. DENIS, Nine Mile, Ind. Filed Dec. 16, 1896. Serial No. 615,861. (No model.)



Claim.—1. In a farm-gate the combination of a post, a hanger-frame pivotally connected to said post and provided at its free end with a vertical flaring slot; a gate; a supporting-bracket having transverse perforations, passing through said slot and centrally secured to said gate; a pin or bolt adapted to be inserted in said perforations in the bracket for supporting the gate when elevated above its normal position, whereby said gate has a vertical and a horizontal swinging movement upon the hanger-frame, and is capable of vertical adjustment, all substantially as described.

2. The combination in a farm-gate of a post; a hanger-frame having a pivotal connection with said post, and having at its free ends metallic plates secured upon the upper and lower sides thereof, and provided with a vertical flaring slot in said free end and said plates, as shown; a gate; a supporting-bracket having transverse perforations, passing through said slot and centrally secured to said gate; a pin adapted to be inserted in said perforations in the bracket for supporting the gate when elevated above its normal position, whereby said gate has a vertical and a horizontal swinging movement upon the hanger-frame, and is capable of vertical adjustment.

3. In a farm-gate, the combination of a swinging hanger-frame provided at its free end with a vertical flaring slot for the purpose specified; a gate; a supporting-bracket rigidly fixed upon said gate midway the ends thereof, passing through said slot, and having a series of transverse perforations; a pin adapted to be removably mounted in said perforations, for the purpose of supporting said gate when elevated above its normal position, whereby the said gate has both a vertical and a horizontal swinging movement upon the hanger-frame, and is also adapted for a vertical adjustment on said frame, all substantially as described.

579,320. **CASE OR BOX FOR SILVERWARE, &c.** EDWIN J. FLETCHER, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed Dec. 30, 1896. Serial No. 617,459. (No model.)



Claim.—1. In a case or box, the top composed of corrugated paper having its margins crushed or flattened, and held in shape by a covering-sheet stretched tightly thereover and cemented, all substantially as and for the purposes herein specified.

2. In a case or box, the top composed of corrugated paper having its margins crushed or flattened, in combination with a reinforcing-tablet of strong material applied on its under face, and a covering-sheet stretched tightly on the upper face of said corrugated paper, extending over said margins and cemented to the under face of said reinforcing-tablet, all substantially as herein specified.

3. In a case or box, the piece M of corrugated paper consisting of the floor m', the corrugated sheet m cemented thereto and the deck m^3 cemented to the upper face of said corrugated sheet, the said floor being heavier than said deck to maintain its form when said deck and corrugated sheet are crushed along the margins, in combination with a covering-sheet stretched on said deck and extending over the edges to hold the top in shape, all substantially as herein specified.

4. In a top for a case or box, the reinforcing-tablet C, two or more pieces M, M' of corrugated paper superposed one upon the other with the corrugations at right angles, each shorter and narrower than the next below, and having the margins crushed or flattened, in combination with a covering-sheet stretched over and inclosing the whole and cemented to the under face of said tablet, all substantially as herein specified.

5. In a top for a case or box, the reinforcing-tablet C, two or more pieces M, M' of corrugated paper superposed one upon the other with the corrugations at right angles, each shorter and narrower than the next below, and having the margins crushed or flattened, in combination with the padding C^3 and a covering-sheet stretched over and inclosing the whole and cemented to the under face of said tablet, all substantially as herein specified.

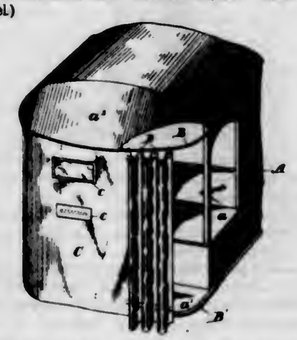
6. In a case or box, the bed D of corrugated paper having the opening d therein, in combination with the bed-frame D', padding D^4 and covering D^5, all substantially as herein specified.

7. In a case or box, the base A, bed D of corrugated paper having the opening d therein, the bed-frame D', padding D^4 and covering D^5, in combination with the body B hinged to the base and inclosing said bed-frame, the top C of corrugated paper m, m', m^3, padding C^3 and covering-sheet C^5, and the stops B^2 to limit the motion of said body and top relatively to said base, all substantially as herein specified.

8. The hinge described consisting of a flexible cord extending through the base into and through the rear portion of the body diagonally from the lower rear angle of the edge to a point on the inner face, thence downward again through the base and having the ends fastened, in combination with said body and base and forming a hinge and stop therefor, all substantially as and for the purposes herein set forth.

9. The base A having the holes a and a^2, the body B having the hole c reaching diagonally from the lower rear angle of the edge to the inner face, in combination with a flexible member extending through said holes as shown and having the ends fastened, the reinforce G securing said ends, the said cord being concealed in said base and body and by the covering material, all substantially as and for the purposes herein set forth.

579,321. **STORM-SHIELD FOR DELIVERY-WAGONS.** FRANK FRIEDRICH, Cincinnati, Ohio. Filed Jan. 25, 1897. Serial No. 620,544. (No model.)



Claim.—1. In a delivery-wagon the combination of the body having the yoke secured thereto and bent around in front of the driver's seat, and a flexible shield having fastenings to catch over said yoke and slide thereon to close or open the front of the wagon, substantially as shown and described.

2. The combination of the wagon-body, the bows secured to the sides thereof and bent around the front, the flexible shield having fastenings secured to its upper and lower edges to catch over said bows and slide thereon, substantially as shown and described.

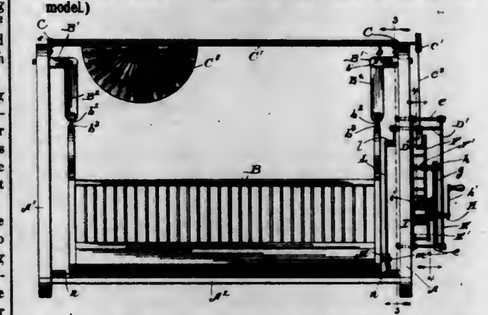
3. The combination, substantially as hereinbefore set forth, of the body, the yoke secured to the sides thereof, and curving around the front, the flexible shield, the fastenings secured thereto at its upper edge, and an auxiliary extension-strap for the purpose of lowering said shield when desired.

579,322. **HARVESTER-SWATHER.** LEMUEL FRITTS, Sunnyside, N. J. Filed Aug. 19, 1896. Serial No. 559,729. (No model.)



Claim.—In combination with the inclined delivery-board of a harvester, a moldboard 3 secured thereto, a supporting-bracket therefor, said bracket having slots 8 and 11 and bolts adapted to enter said slots and engage the delivery-board and the moldboard, in the manner and substantially as described.

579,323. **SELF ROCKING AND FANNING CRADLE.** PETER FROEHLICH, Chicago, Ill. Filed Mar. 30, 1896. Serial No. 585,403. (No model.)



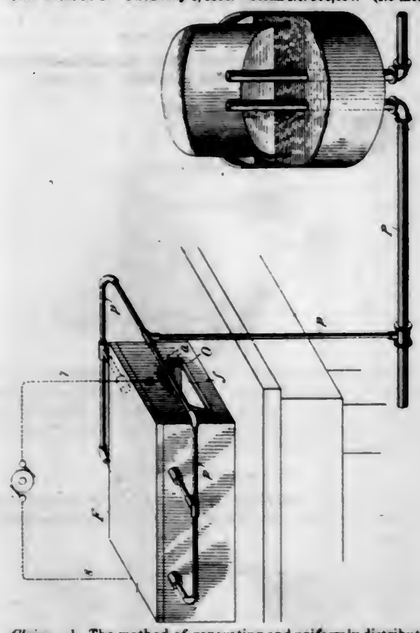
Claim.—1. The combination with the main frame, of a crib or body movably suspended thereon, a rocking shaft journaled in the frame, an escape-lever secured on said shaft and provided at its ends with spring-protected arms, an escapement-wheel journaled on the main frame, having pins to engage the arms of the escape-lever, a mechanism to revolve the escape-wheel located on the frame, and a connection secured at one of its ends to the rocking shaft and adapted to engage the crib or body at its other end, substantially as described.

2. The combination with the main frame, of a crib or body movably suspended thereon, a rocking shaft journaled in the frame, a shaft or rod carrying a fan located on the frame above the crib, an escape-lever secured on the rocking shaft and having at its ends spring-protected arms, an escape-wheel journaled on the main frame, and provided near its periphery with pins to engage the arms of the escape-lever, a mechanism on the main frame to turn the escape-wheel, a belt or its equivalent connecting the escape-lever, and the rod or shaft carrying the fan, and adapted to impart an oscillating motion thereto, and a connection secured at one of its ends to the rocking shaft, and adapted to engage the crib or body at its other end, substantially as described.

3. The combination of the escape-lever D, secured on a shaft, and having at its ends the arms d, and d^2, provided with the protecting-springs d' and d^3, respectively, with an escape-wheel provided near its periphery with pins or projections to engage the arms of the escape-lever, and a mechanism to turn the escape-wheel, substantially as described.

4. The combination with the main frame, of a flexible piece secured to the upper part of each end of said frame, and provided with cushions in its bearings, the crib or body secured to the lower ends of said pieces, the plate M, hinged on one end of the crib or body, and having the pins m, a rocking shaft journaled in the main frame, a mechanism on the frame to rock said shaft, and the rod L, secured at one of its ends to the rocking shaft and adapted to engage the pins on the hinged plate M, at its other end, and having between its ends a coil or spring l, substantially as described.

579,324. ELECTRIC FURNACE. WILLIAM S. HADAWAY, Jr., New York, N. Y. Filed May 8, 1896. Serial No. 590,857. (No model.)



Claim.—1. The method of generating and uniformly distributing heat over a given surface which consists in passing a current of electricity through a mass of conducting fragments placed in close contact, subjecting the glowing mass to the action of a hydrocarbon gas and coincidently combining the carbon element of said gas with the glowing mass and the hydrogen element thereof with a free gas containing oxygen, substantially as described.

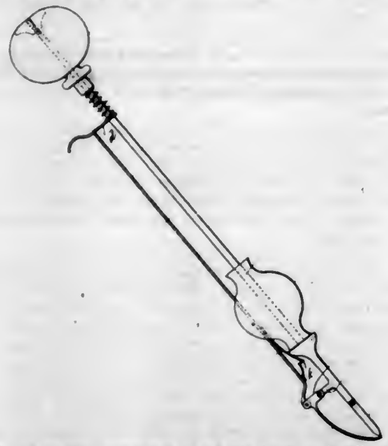
2. The combination of two concentric tube-sections of fire-clay separated by an air-space, a series of perforations in the upper wall of the exterior section, a mass of conducting fragments distributed uniformly upon said surface, two electrodes extending along said surface at opposite ends thereof forming the terminals of an electric circuit, respectively, a source or reservoir of hydrocarbon gas and openings in the exterior wall at the space between the tubular sections, substantially as described.

3. The combination in an electric furnace of two concentric semicircular sections of fire-clay united at their ends by a perforated wall and separated between said ends by an air-space, a series of perforations in the upper semicircular wall of the exterior section, a mass of carbon fragments located on said perforated wall, an inclosure for the upper surface of the exterior section two semicircular electrodes extending along the line of the ends of the exterior section each electrode forming the terminal of an electric circuit, a source of gas, and a pipe connection between said source and the space containing the fragments, substantially as described.

4. The combination in a furnace of two concentric tubular sections of fire-clay, an exterior case of fire-clay inclosing both said sections, a door or opening in the exterior case communicating with the interior tube-section, air-passages in the exterior case communicating with the space between the two tube-sections, a series of perforations in the upper wall of the outer tube-section, a mass of carbon fragments located on said upper wall, two electrodes, one extending across each end of said upper wall, an electric circuit including said electrodes and the interposed carbon fragments, a reservoir of hydrocarbon gas and a pipe connecting the space between the exterior case and the outer tube-section with said gas-reservoir, substantially as described.

579,325. ICE-PICK. HUGH J. KINGSLEY, Rutland, Vt. Filed Apr. 24, 1896. Serial No. 588,928. (No model.)

Claim.—1. An ice-pick, comprising a knob or handle, a shaft connected therewith, which is provided at its lower end with a jaw having teeth formed thereon, and above said jaw with a collar, a knocker mounted on said shaft, and adapted to rest on said collar, a spring-operated rod, the upper end of which is connected with said shaft, and adapted to slide thereon, and the lower end of which is pivotally connected with a lever which is pivotally connected with said shaft, and which is also provided with a jaw or clamp, which is adapted to operate in connection with the jaw formed at the lower end of the shaft, and said rod being also provided with a spring which operates in connection with the collar formed on said shaft, substantially as shown and described.



2. An ice-pick, comprising a suitable knob or handle, a shaft connected therewith, and provided with a jaw, having teeth or projections at its lower end, a sliding weight or knocker mounted on said shaft and adapted to be supported by a collar formed thereon, and a rod, the upper end of which is connected with said shaft by means of an arm which projects at right angles thereto, and on which rests a spiral spring which is mounted on said shaft, and the lower end of said rod being pivotally connected with a lever which is provided with a jaw which is adapted to operate in connection with the jaw formed on the shaft, and said rod being provided near its lower end with a spring which is secured to the inner side thereof, and provided with a projection which is adapted to operate in connection with said collar, substantially as shown and described.

579,326. OIL-CUP PLUG. JOHN M. W. LONG, Hamilton, Ohio, assignor to the Long & Allstatter Company, same place. Filed Jan. 9, 1897. Serial No. 618,523. (No model.)



Claim.—1. An oil-cup plug having a cylindrical hollow body formed of two halves united at their upper ends by a spring, substantially as and for the purpose set forth.

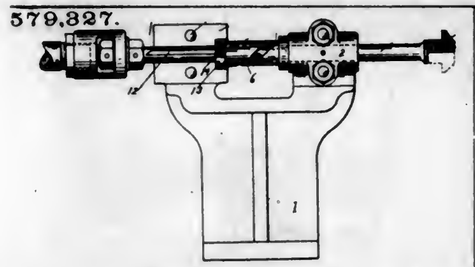
2. An oil-cup plug formed hollow with its body portion cylindrical and in two halves united by a flat folded handle, substantially as and for the purpose set forth.

3. An oil-cup plug formed hollow with its body portion cylindrical and in two halves united by a flat folded handle, the bases of the two halves of the hollow cylindrical body being scoop-shaped, substantially as and for the purpose set forth.

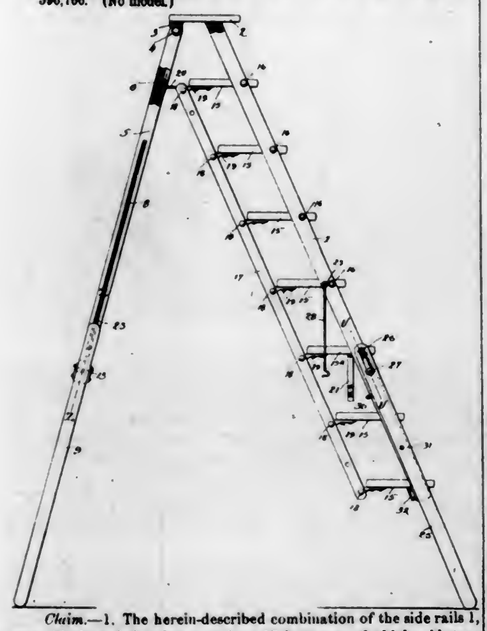
579,327. MECHANICAL MOVEMENT. CHAUNCEY F. LUFKIN, Lima, and ANTHONY W. GORDON, Toledo, Ohio. Filed Jan. 14, 1897. Serial No. 619,189. (No model.)

Claim.—Means for imparting to a reciprocating shaft or rod an intermittent, rotary motion, comprising a sleeve, loose upon the shaft, a spiral guide or way upon one of said members, means upon the other of said members for engaging said guide or way, means for holding said sleeve against longitudinal motion, a detent for the shaft and a detent for the sleeve, adapted to prevent reverse rotation of said shaft and sleeve, substantially as and for the purpose specified.

579,327.



579,328. COMBINED STEP-LADDER AND TABLE. ELMER C. MCCONNELL, Parkersburg, W. Va. Filed June 24, 1896. Serial No. 596,766. (No model.)

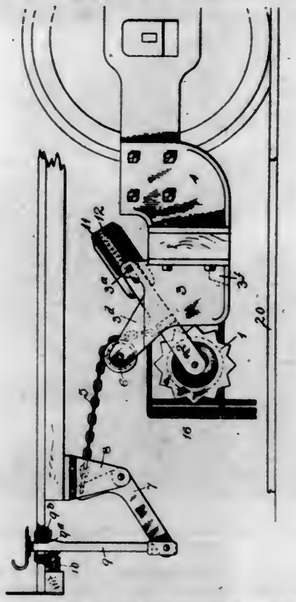


Claim.—1. The herein-described combination of the side rails 1, steps 15 pivoted therebetween, bars 17, by means of which said steps are pivoted together, a rock-bar 26 to which one of said steps is secured, swinging legs 25 pivoted to the side rails 1 by the rock-bar, means for locking said rock-bar to said legs, whereby the steps are caused to swing with said legs, a frame 5 having grooves formed in its side rails, extension-legs 9 connected to said frame by the engagement of the pins 10 with said grooves, means for locking the legs 9 in alinement with the frame 5, and means for securing the several parts in their proper relative position when serving as either a table or ladder, substantially as and for the purposes set forth.

2. In a device of the character described, the side rails 1, steps 15 and step 15ª pivoted therebetween, connecting-bars 17 pivoted to said steps to cause them to move in unison, a rock-bar 26 to which the step 15ª is secured, locking-pins passed through right-angled portions of said rock-bar, legs 25 pivoted to said rock-bar, lugs 32 for alining said legs with the rails 1, a platform 2 secured to the upper ends of the rails, lugs 3 depending from said platform, frame 5 pivoted to said lugs and having grooves 8 formed in the side rails thereof, extension-legs 9 connected to the frame 5 by the pins 10 projecting within the grooves 8, sockets 13 adapted to receive the lower ends of the frame 5, a bolt 14 for securing said frame and legs in alinement, a hook 20 adapted to engage a cross-bar of the frame 5 to hold said frame in its proper relative position to the side rails 1, hooks 28 adapted to engage with staples 30 to hold the legs 25 in position when serving to support the table, and catch 21 for securing the frame 5 parallel with the side rails 1, all arranged substantially as and for the purposes set forth.

579,329. SWITCH DEVICE. GEORGE A. OWEN, Springfield, Mass., and GEORGE A. BATES, Brooklyn, N. Y. Filed Mar. 13, 1896. Serial No. 583,067. (No model.)

Claim.—1. In a switching device, the combination of a deflecting-wheel, a carrier therefor, a spring-holder pivotally mounted upon a fixed portion of the car and oscillating in the plane of the direction of the car, the carrier being supported by and oscillating with the spring-holder, substantially as described.



2. In a switching device, the combination of a deflecting-wheel, a carrier therefor, a spring-holder pivotally mounted upon a fixed portion of the car and oscillating in the plane of the direction of the car, the carrier being supported by and oscillating with the spring-holder, and a spring between the spring-holder and the carrier for pressing the latter toward its operative position.

3. In a switching device, the combination of a deflecting-wheel a carrier therefor, a spring-holder pivotally mounted upon a fixed portion of the car and oscillating in the plane of the direction of the car, the carrier being supported by and oscillating with the spring-holder, a spring between the spring-holder and the carrier for pressing the latter toward its operative position, and a bracket on which the carrier and the spring-holder are pivotally mounted, provided with flanges extending on opposite sides of the carrier adjacent to the wheel for sustaining the latter against lateral movement, substantially as described.

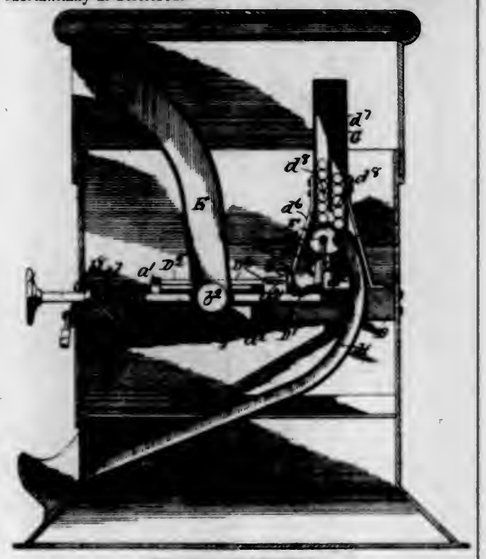
579,330. COIN-CONTROLLED VENDING-MACHINE. JOHN W. PETERSON, Chicago, Ill. Filed Aug. 20, 1896. Serial No. 603,322. (No model.)

Claim.—1. In a coin-controlled vending-machine, the combination with the inclosing casing, of a supporting-plate, secured therein, a push-bar, an ejector-bar, a connecting-rod, having one end rigidly secured to the push-bar and the other end loosely connected to and moving in a slot in the ejector-bar, an ejecting-drum, and means for forming an operative connection between said ejector-bar and drum, substantially as described.

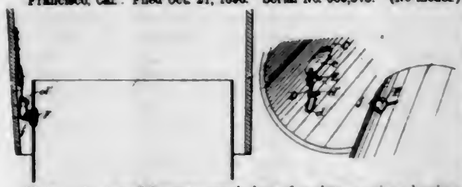
2. In a coin-controlled vending-machine, the combination with the inclosing casing, of a supporting-plate secured therein and provided with a coin-rest, a push-bar, a spring for returning said bar to its normal position, an ejector-bar, provided with an elongated slot, a connecting-rod, having one end rigidly secured to the push-bar, the opposite end loosely engaging said slot, a locking-latch, consisting of a vertical and a horizontal part, the vertical part being adapted to automatically engage with and momentarily retain the ejector-bar in its innermost position until the corresponding end of the connecting-rod has moved back in contact with and depressed the horizontal part of said latch and disengaged the locking end, substantially as described.

3. In a coin-controlled vending-machine, the combination with a push-bar, an ejector-bar, a rod, joining said bars in an operative connection, a post attached to the inner end of the ejector-bar, a drum, mounted on a shaft and provided with a groove or recess in the periphery thereof, the fingers, attached at their upper ends to the drum-shaft and extending down on each side of said post, whereby

a partial rotation is imparted to said drum first in one direction and then in the other by the movement of the ejector-bar, the merchandise-receptacle, arranged above said drum and adapted to deposit an article held therein in the groove in said drum, and the delivery-tube substantially as described.



579,331. CUFF-FASTENER. FREDERICK R. ROCKSTROH, San Francisco, Cal. Filed Oct. 21, 1896. Serial No. 609,575. (No model.)



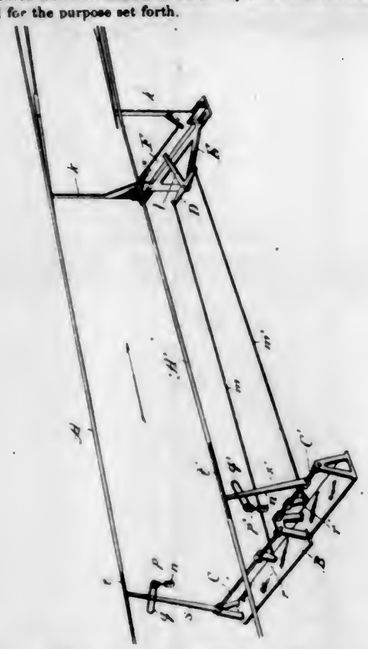
Claim.—1. A cuff-fastener consisting of a plate or piece having means whereby it may be secured to the part to which the cuff is to be attached, a freely-playing ring or link connected with one end of said plate or piece, a hook freely connected, at one end, with said ring, a double-headed shanked button fitted to the buttonholes of the cuff and having one of its heads provided with a loop or eye with which the hook detachably and slidably engages.

2. An improved cuff-fastener consisting of a plate or piece having means whereby it may be secured to the part to which the cuff is to be attached, a freely-playing ring or link connected with one end of said plate or piece, a hook freely connected with said ring or loop, a double-headed shanked button fitted to the buttonholes of the cuff and having one of its heads provided with a loop or eye with which the hook detachably and slidably engages, and a guard-loop on the hook for engaging its point to insure the engagement of the hook with the loop or eye of the button.

579,332. AUTOMATIC RAILWAY-SWITCH. CHARLES RUDOLF, Chicago, Ill. Filed Dec. 7, 1896. Serial No. 614,762. (No model.)

Claim.—1. In a railway-switch, the combination with the switch-rails, of a switch-slide engaging said rails, a centrally-pivoted lever provided with a branch arm engaging said slide, two rock-shafts extending transversely of the track, lever-arms upon the rock-shafts projecting into the path of an attachment upon the train, crank-arms upon said shafts, and connecting means between the crank-arms and said centrally-pivoted lever, whereby as the switch is thrown by actuating one of said lever-arms in one direction, the other lever-arm is turned in the opposite direction to be set for a succeeding train, substantially as set forth.

2. In a railway-switch, the combination with a switch-rail of a switch-slide engaging said rail, a rail provided in the tread portion with a longitudinal slot having its upper portion widened and provided at its exit end with a recessed sloping surface, and means extending into said slot to be engaged from a passing train and connected with the switch-slide to operate it by said engagement and be released from the train attachment by said surface, substantially as and for the purpose set forth.



3. In a railway-switch, the combination with a switch-rail, a switch-slide engaging therewith, a guide for the slide, a centrally-pivoted lever provided with a branch arm engaging the switch-slide, two rock-shafts extending transversely of the track, a support for the shafts, slotted rails above the shafts, lever-arms upon the shafts having their upper ends sheathed in said slots, crank-arms upon the shafts, and connecting-rods extending from said crank-arms to the opposite ends of said centrally-pivoted lever, whereby the lever-arm upon one rock-shaft is set for a succeeding train as the other is moved forward by the passing train to throw the switch, substantially as and for the purpose specified.

4. In a railway-switch, the combination of a movable switch-rail, a switch-slide engaging therewith, two rock-shafts extending transversely of the track, lever-arms upon the rock-shafts projecting into the path of an attachment upon the train, cross arms or tracks upon said lever-arms, movable carriages carrying weights upon the tracks, crank-arms upon the shafts, and connecting means between the crank-arms and switch-slide whereby as the switch is moved by the movement of one of the rock-shaft lever-arms in one direction the other other is moved in the opposite direction to be in position for engagement by a succeeding train, as and for the purpose set forth.

5. In a switch-operating mechanism, the combination of a slotted rail, operating means connected with the switch-rail projecting into said slot, and a train attachment comprising a vertically-movable slide, a movable operating-shoe, spring connection between said slide and shoe, and means for lowering the slide at will to compress the spring and force the shoe into said slot to throw the switch, substantially as and for the purpose set forth.

6. A switch-operating train attachment for actuating at will a switch-rail lever connection in the track, comprising a vertically-movable slide, a spring holding said slide normally in its raised position, a spring-held shoe moving in said slide, and means for depressing the slide, substantially as described.

7. In a switch-operating mechanism, a train attachment comprising, in combination, a centrally-supported lever H, having a tilting arm *f*, guides I, slides J, shoes g^3, a centrally-pivoted lever K engaging at one end the tilting arm *f*, a rock-shaft *d* provided with a crank-arm *e* engaging the free end of the lever K, and tilting arms *c* upon the shaft *d*, all arranged substantially as and to operate in the manner specified.

579,333. DEVICE FOR HANGING PICTURES. ORRIN L. SMITH, Chicago, Ill. Filed Apr. 13, 1896. Serial No. 587,363. (No model.)

Claim.—1. An improved device for hanging and removing pictures or other articles, comprising a bifurcated arm having a shoulder at the end of one member, a U-shaped fastening device pivoted at the end of the opposing member, said fastening device being adapted to contact with the said shoulder in both an open and closed position, substantially as shown and described.



2. An improved device for hanging and removing pictures or other articles, comprising a bifurcated arm having a shoulder at the end of one member, a U-shaped fastening member pivoted to the end of the opposite member, said fastening member having a lug upon the exterior, and a leaf-spring adapted to engage said lug and hold the fastener either open or closed, substantially as shown and described.

3. An improved device for hanging pictures or other articles, comprising the bifurcated arm having a shoulder at the end of one member, the U-shaped fastening device pivoted at the end of the opposite member, the upper leg of said fastening device having a shoulder, said fastening device having also a lug adjacent to the pivot, and the leaf-spring adapted to engage said lug and hold the fastening device either open or closed, substantially as shown and described.

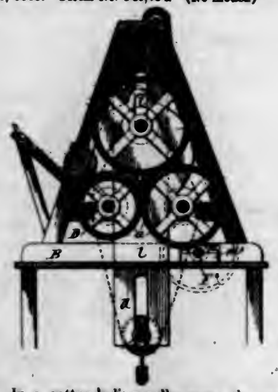
4. An improved device for hanging and removing pictures or other articles comprising the pole and thimble or ferrule, the arm projecting from said ferrule, and bifurcated at its upper end, the U-shaped fastening member pivoted near the upper end of one of the members, and having a lug intermediate its ends, and a lateral shoulder upon its upper end, the upper end of the other member of the bifurcated arm having a lateral shoulder adapted to engage the lower end of the U fastening member and limit its upward movement, and the leaf-spring attached to the arm, and adapted to engage the lug on the fastening member to hold the same open or closed, substantially as shown and described.

579,334. COVER FOR TURNBUCKLES. MOSES A. WILLIAMS, Terre Haute, Ind. Filed Nov. 6, 1894. Serial No. 528,005. (No model.)



Claim.—The combination with a turnbuckle connecting the ends of two screw-threaded rods, of a casing inclosing the same, which casing is composed of two parts of a size and shape adapted when put together to surround and inclose said turnbuckle, each of said parts being formed with a neck on each end of contracted size, to closely embrace the rods, and recesses in said necks containing packing, and a bolt passing through said two parts and an aperture in said turnbuckle for clamping them together, substantially as set forth.

579,335. COTTON-PRESS. CHARLES BANISTER, Waco, Tex. Filed Mar. 6, 1895. Serial No. 540,754. (No model.)

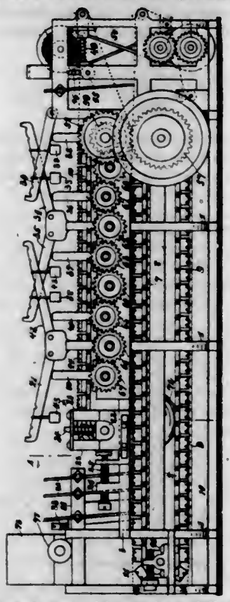


Claim.—1. In a cotton-baling roller-press, the combination of two lower rollers, the periphery of the second of said rollers projecting slightly above that of the first, and an upper movable roller, said upper roller being mounted in straight guides located in a plane substantially coinciding with that of the proximate surfaces of the lower rollers; whereby, when the upper roller is in its lowered position, it will leave a throat or way for the passage of the material between it and the first lower roller, and will rest in such proximity to the second of the lower rollers as to prevent the further passage of the material and be guided so as to maintain a constant lateral relation to the planes of the lower rollers throughout its vertical movement; substantially as described.

2. In a cotton-baling roller-press, the combination of two lower rollers, the second of said lower rollers being of greater diameter than the first, and an upper movable roller said upper roller being mounted in straight guides located in a vertical plane substantially coinciding with the proximate surface of the lower rollers whereby, when the upper roller is in its lowered position, it will leave a throat or way for the passage of the material between it and the first of the lower rollers, and will be in such proximity to the second of said lower rollers as to prevent the further passage of the material and be guided so as to maintain a constant lateral relation to the planes of the lower rollers throughout its vertical movement; substantially as described.

3. In a cotton-baling roller-press, the combination of two lower rollers, the second of said lower rollers being of greater diameter than the first, and an upper movable roller said upper roller being mounted in straight guides located in a vertical plane substantially coinciding with the proximate surface of the lower rollers and being of greater diameter than the second of said rollers; whereby, when the upper roller is in its lowered position, it will leave a throat or way for the passage of the material between it and the first lower roller, and will be in such proximity to the second of the lower rollers as to prevent the further passage of the material and be guided so as to maintain a constant lateral relation to the planes of the lower rollers throughout its vertical movement; substantially as described.

579,336. PRESS. GERHARD BAUMANN, Monmouth Junction, N. J. Filed May 15, 1896. Serial No. 591,632. (No model.)



Claim.—1. A press, comprising a substantially horizontally-movable endless carrier supported on two carrying-rollers on which the carrier is stretched and one of said rollers being vertically yielding and adjustable, vertically-movable rollers inclosed in the presser for bearing the same down upon the carrier, yokes having their two downwardly-extending arms engaging the bearings of the presser-rollers, and weighted levers bearing down upon the horizontal cross-bars of said yokes, all substantially as set forth.

2. A press having means for carrying the material operated on, a presser located above said means and consisting in a belt, one run of which bears on said means, a roller engaging said run of the presser, a yoke spanning the presser and connected to the trunnions of the roller, and means for moving the roller so as to force the presser into engagement with the means for supporting the material operated on, substantially as described.

3. A press having a frame, a carrier, a hopper located at one end of the frame and above the carrier, a cutter within the hopper, a

spreader located at the mouth of the hopper, two arms respectively connected to the side portions of the spreader and to the frame, and a screw connected with the spreader and with the frame whereby the spreader may be adjusted vertically, substantially as described.

579,337. CHILD'S TRAVELING TOILET. NOEMA F. BOSTWICK, Boston, Mass. Filed Feb. 10, 1896. Serial No. 578,814. (No model.)



Claim.—1. As an article of manufacture, a child's toilet consisting of a receptacle having a lid and handle, a removable pan, and a detachable seat supported by the pan having a hole therein, the receptacle being formed of open-work material to prevent the accumulation of odors, and the whole device being so constructed and arranged as to effect concealment of the object for which it is used, substantially as described.

2. As an article of manufacture, a child's toilet consisting of an open-work receptacle formed to resemble an ordinary basket, having a lid and a handle, a cleat secured to the lid to engage the handle when the article is in use, whereby the lid forms a back for the seat, a removable pan, and a detachable seat supported by the pan, the whole being so constructed and arranged as to effect concealment of the object for which it is used, substantially as described.

579,338. SAFETY-PIN. ANNIE H. CHILTON, Philadelphia, Pa. Filed Oct. 8, 1896. Serial No. 608,203. (No model.)

Claim.—1. A safety-pin having a projection on its back portion, a keeper with a socket for the pin-point arranged to slide upon the extreme end, and a pivoted latch on said keeper adapted to lock over the projection on said back portion substantially as and for the purpose described.

2. A safety-pin having a projection on its back portion and its end turned around into parallel position to the back portion, a sliding keeper guided upon the said parallel portions and provided with a pin-socket, and a pivoted latch on the keeper arranged to lock over the projection on the back portion substantially as and for the purpose described.

3. A safety-pin comprising a body portion made of a single piece of spring-wire with one end bent into a spring-coil, the other into a parallel return, and its middle portion into a locking coil or loop, a sliding keeper with pin-socket sliding on the parallel ends of the body portion and provided with a pivoted locking-latch substantially as shown and described.

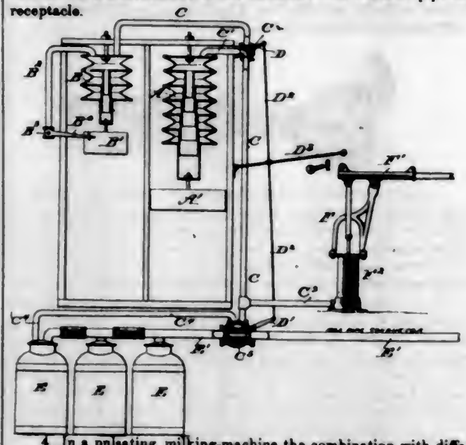
4. A safety-pin comprising a body portion having a locking projection, a keeper having a pin-socket and arranged to slide on the end of said body portion, and a locking-latch made of a folded piece of sheet metal embracing the keeper along its upper edge and pivoted at one end to the same, and having at the other end a locking-hole and an upturned end substantially as and for the purpose described.

579,339. COW-MILKING MACHINE. MODESTUS J. CUSHMAN, Waterloo, Iowa. Filed Dec. 24, 1895. Serial No. 573,219. (No model.)

Claim.—1. In a milking-machine, of the character specified, the combination of the differentiated air-chambers, air and milk pipes, and suitable valve mechanism, substantially as shown and described, whereby the said air-chambers are alternately put in connection with and cut off from communication with the milk-pipe and connections.

2. In a milking-machine of the character specified the combination with differentiated vacuum-chambers, a milk-receptacle and air and milk pipes, of a valve mechanism applied to said pipes and means for operating it substantially as shown and described, whereby the said chambers are alternately put in connection with and cut off from communication with the milk pipe and receptacle, as specified.

3. In a milking-machine of the character specified, the combination with the differentiated vacuum-chambers a milk pipe and receptacle, and air-exhaust pipes connecting them with said chambers, of valves located at the junction of the several pipes, and means for connecting and operating the valves, which are constructed and arranged substantially as described, and thereby adapted to establish and cut off communication of the chambers with the milk pipe and receptacle.

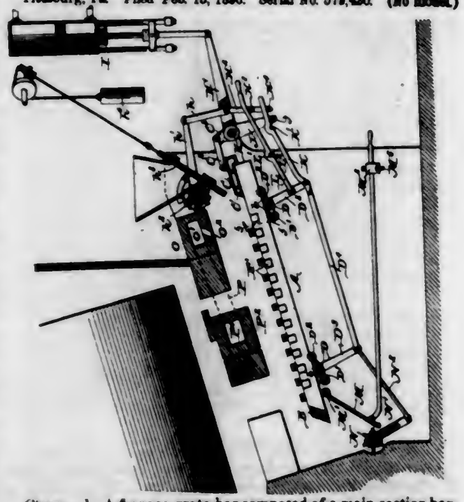


4. In a pulsating milking-machine the combination with differentiated expansible vacuum-chambers, a milk pipe and receptacle and air-pipes communicating with said chambers, milk pipe and receptacle, of a rotary valve, applied at the bifurcation of the air-pipe, which connects with the chambers, and a similar valve arranged at the junction of the air and milk pipe, a rod connecting the said valves, and a lever pivoted to the rod, substantially as shown and described, whereby said valves are simultaneously operated for alternately opening and closing communication between the vacuum-chambers, air-pipe, and milk pipe and receptacle, as specified.

5. In a pulsating milking-machine, the combination with weighted differentiated vacuum-chambers which are automatically expansible, a milk pipe and receptacle, and pump, of the air-exhaust pipes C, C', C³ and C⁴ which connect the chambers, pump and milk pipe and receptacle, as specified, rotary or oscillating valves arranged respectively at the junction of pipes C, C' and C, C⁴ and E' as specified; a rod connecting the valve-arms, a lever pivoted to the rod and having a detachable connection with the movable pump as shown and described.

6. The combination with the vacuum-chamber B, its weight and an air-exhaust pipe and connection of an air-inlet pipe, a valve located in the open end of the same, and a lever-arm attached to said valve and having a loose connection with the weight, whereby the valve is operated by the contraction and expansion of the chamber, as specified.

579,340. STEAM-BOILER FURNACE. WILLIAM C. DOUTHETT, Pittsburg, Pa. Filed Feb. 15, 1896. Serial No. 579,420. (No model.)



Claim.—1. A furnace-grate bar composed of a main section having in its top alternating heads and spaces and the agitating-sections

provided with blocks operating in the said spaces and having lateral shoulders by which to engage the main section and limit the downward movement of the said blocks substantially as set forth.

2. A furnace-grate bar composed of the main section having in its top spaces at intervals the agitating-blocks operating in said spaces and provided with inwardly-projecting shanks and the bar connected with said shanks and uniting the several blocks, substantially as shown and described.

3. A furnace-grate bar composed of the main section having heads, the agitating-sections having blocks alternating with the heads of the main sections and provided with undercut recesses opening in the line of the grate-bar and the connecting-bar fitting in said recesses, substantially as set forth.

4. The grate-bar herein described composed of the main section having side plates having at their upper edges upwardly-projecting lugs supporting cross-plates and forming heads, the agitating-section having blocks fitting between said lugs and provided with downwardly-facing stop-shoulders and with edge ribs and having the shanks projected into the main section and provided with undercut recesses and the connecting-bar engaging in said recesses substantially as set forth.

5. A furnace-grate composed of a series of longitudinally-movable bars, an air-inlet tube connecting said bars at one end, a series of grate-bars arranged alternately with said longitudinally-movable bars, and agitating-sections substantially as shown and described.

6. The combination with the longitudinally-movable grate-bars, the grate-bars held from such movement and the operating devices, of the rockers, means for operating the same and a detent connected with the rockers and adapted to hold the same in a given position, substantially as set forth.

7. The combination with the grate-bars having the vertically-moving portions and the rockers by which to lift said portions, of mechanism by which to move said grate-bars longitudinally, connections between said mechanism, and the rockers, devices for releasing said connections and a detent for holding the rockers when said connections are released substantially as set forth.

8. The combination with the grate-bars and the rockers, of the main shaft having a projecting arm, a pitman connected with the rocker and detachably engaged with the arm of the main shaft, a detent-pitman connected with the rocker and detachably engaged with the frame, a releasing device having portions moving into engagement with the rocking and detent pitmen and a swinging carrier for said releasing device, substantially as set forth.

9. A grate-bar composed of a main section and an agitating-section movable longitudinally with, and up and down independently of said main section, substantially as shown and described.

10. A grate-bar comprising a main section and an agitating-section movable longitudinally with and up and down independently of said main section, combined with means by which to reciprocate the grate-bar and devices independent of said reciprocating means for lifting the agitating-section, substantially as shown and described.

11. A grate-bar composed of a hollow longitudinally-extended main section having its interior chamber or space extended approximately from end to end of the said section and unbroken or unobstructed from end to end, and the agitating-section fitting and extending longitudinally within said main section substantially as shown and described.

12. A grate-bar composed of a hollow longitudinally-extended main section, an agitating-section composed of a connecting-bar extending longitudinally approximately from end to end of the main section, and agitating-blocks carried by said connecting-bar and operated thereby up and down within said main section substantially as shown and described.

13. The grate-bar herein described composed of the main section formed with side plates having at their upper edges upwardly-projecting lugs supporting cross-plates and forming heads, and the agitating-section having blocks fitting and operating between said lugs substantially as shown and described.

14. The improved grate-bar herein described consisting of the main section composed of side plates connected at their upper ends by cross-plates spaced apart, and an agitating-section extending longitudinally in said main section and provided with blocks fitting and operating between the said cross-plates substantially as shown and described.

579,341. BRIDLE. RICHARD W. EVANS, Baird, Miss. Filed June 5, 1896. Serial No. 594,392. (No model.)

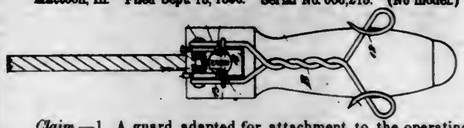
Claim.—1. The herein-described bridle, consisting of the side fittings each having two longitudinally-extended channels and one channel which opens at one end out of the top of the fitting and at its other end laterally out of one edge of said fitting, such fitting having at its edge opposite said lateral opening a staple or bearing for engagement by a hook, and the strand of rope passing through said three channels of the side fittings and disposed to form the three-part head-band and the two-part side portions and having its free ends carried out through the lateral openings of the side fittings and disposed to form the brow-band and the throat-latch, said band and latch having at their free ends hooks to engage the bearings of the fitting opposite that from which such latch and band extend, substantially as shown and described.



2. In a bridle substantially as described, a side fitting provided with two longitudinally-extended channels opening out of the opposite ends of the fitting and a third channel opening at one end of the fitting and at its other end laterally out of an edge of the fitting, and having at its edge opposite said lateral opening a keeper or bearing for engagement by a hook on a connecting-strap, substantially as shown and described.

3. A bridle comprising the side fittings having two downwardly-opening channels and a channel for the throat-latch and brow-band and the rope disposed in said fittings and having portions passing downward through one downwardly-opening channel and up through the other and looped between said channels for connection with the bit, substantially as shown and described.

579,342. GUARD FOR SIGNAL-HANDLES. GEORGE M. FRENCH, Mattoon, Ill. Filed Sept. 18, 1896. Serial No. 606,215. (No model.)



Claim.—1. A guard adapted for attachment to the operating-handle of a signal, the guard being provided with a portion which will form an obstruction serving as a reminder when the signal-handle is grasped, as and for the purpose specified.

2. A guard adapted for attachment to the operating-handle of a signal, the guard being provided with a portion which will form an obstruction serving as a reminder when the signal-handle is grasped, and means, substantially as described, for carrying the attachment from that portion of the handle that is to be grasped, and holding it in such position, as and for the purpose set forth.

3. The combination, with the handle of a signal, of a guard having pivotal connection with the handle and arranged to extend substantially parallel therewith, and a locking device for holding the attachment away from the handle, as and for the purpose set forth.

4. The combination, with the handle of a signal, of a guard having pivotal connection with the handle and arranged to extend substantially parallel therewith and a locking device for holding the guard away from the handle, the guard being provided with spurs forming a file for train-orders, or other written or printed information, as and for the purpose specified.

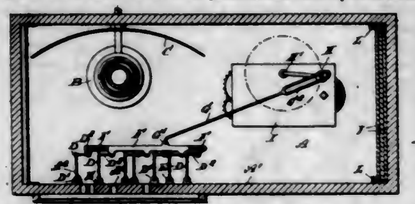
5. The combination, with a signal-handle, of a guard adapted to call the attention of the operator of the handle to the position of the signal, the guard comprising a body, a spring normally holding the body in engagement with the signal-handle, and the said body being provided with hooks adapted to serve as a file for train-orders and the like, substantially as described.

6. The combination, with a signal-handle, of a guard adapted to call the attention of the operator to the position of the signal, the said guard consisting of a body having pivotal connection with the handle, a spring serving normally to hold the body of the guard against the grip portion of the handle, a pawl carried by the aforesaid body, means for operating the said pawl, and a keeper carried by the signal-handle and arranged to receive the pawl when the guard is elevated or carried from the signal-handle, as specified.

579,343. ILLUMINATED SIGN. CHARLES P. GATES, Brooklyn, N. Y. Filed Dec. 10, 1896. Serial No. 615,102. (No model.)

Claim.—1. The combination with a casing, of a driving crank-shaft therein, a pitman connected to the crank-shaft, a series of shutters pivotally carried by the casing at the inner side thereof, and a bar pivotally connected to the shutters and to the pitman, the casing

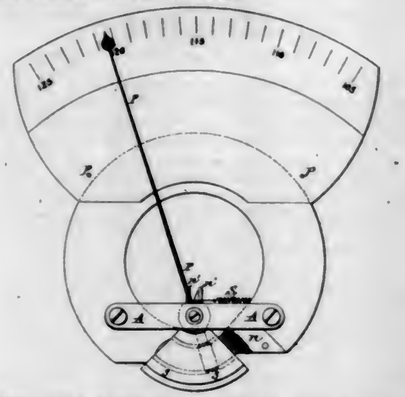
having orifices capable of being closed by the shutters when moved through the medium of the bar and pitman, substantially as described.



2. The combination with a casing having orifices therein, of a driving crank-shaft mounted within the casing, a plurality of horizontal lines of shutters pivotally mounted within the casing and capable of swinging to open and close the orifices within the casing, a bar pivotally connected with each horizontal line of shutters, a pitman connected to the crank-shaft and having a vertically-elongated pivot-pin, the pivot-pin having connection with the horizontal bars whereby the shutters are operated in unison with each other, substantially as described.

3. The combination with a casing having orifices therein, of a driving crank-shaft mounted within the casing, a pitman one end of which is formed with a longitudinally-elongated slot receiving the crank-shaft, a series of horizontal lines of pivotally-mounted shutters, the shutters being movable to open and close the orifices, and a bar pivotally connected with each horizontal line of shutters, the pivot having the end opposite the crank-shaft forked and having a pivot-pin running vertically across the arms of the fork, the pivot-pin having connection with all of the horizontal bars and serving to transmit simultaneously operative movement to the swinging plate, substantially as described.

579,344. ELECTRICAL MEASURING INSTRUMENT. EDWIN J. HOUSTON and ARTHUR E. KENNELLY, Philadelphia, Pa. Filed Oct. 27, 1896. Serial No. 610,203. (No model.)



Claim.—1. In an electrical measuring instrument, the combination of a permanent magnet provided with pole-pieces one of which incloses the other, so as to leave between them a polar channel, sectorial, in the direction of its length, about a fixed axis, so arranged that a coil capable of moving about the said fixed axis, for measuring current strength, may be introduced into or removed from the polar channel without disturbing the distribution of magnetic flux in the channel.

2. In an electrical measuring instrument, the combination of a permanent magnet provided with pole-pieces one of which incloses the other, so as to leave between them a polar channel, sectorial, in the direction of its length, about a fixed axis; a coil capable of moving in the polar channel about the said fixed axis into positions corresponding to definite and definitely-indicated current strengths under the action of electromagnetic forces and a definite opposing torque or couple.

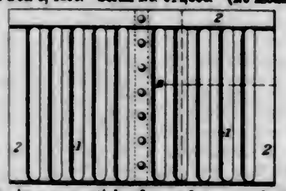
3. In an electrical measuring instrument, the combination of a permanent magnet provided with pole-pieces one of which incloses the other, so as to leave between them a polar channel sectorial, in the direction of its length, about a fixed axis; a coil capable of moving in the polar channel about a fixed axis into positions corresponding to definite current strengths under the action of electromagnetic forces opposed by a definite torque or couple, and a pointer rigidly attached to said coil and moving over an indicating-scale

4. In an electrical measuring instrument the combination of a permanent magnet provided with pole-pieces one of which incloses the other so as to leave between them a polar channel sectorial, in the direction of its length, about a fixed axis; a coil capable of motion in the polar channel about the said fixed axis, capable of insertion or removal without disturbing the distribution of magnetic flux in the polar channel, and moving into positions corresponding to definite and definitely-indicated current strengths under the action of electromagnetic forces opposed by a definite torque or couple, substantially as described.

579,345. ATTACHMENT FOR WATER-GAGES. CHARLES A. JEWETT and CLARK B. WOOD, Boston, Mass. Filed Aug. 12, 1895. Serial No. 559,082. (No model.)

Claim.—An attachment for glass tubes of water-gages, comprising in its construction, a strip of sheet metal curved in cross-section to adapt it to fit upon the back of the gage-tube, said strip being faced with a strip of luminous paper, and spring-fingers formed of a single wire bent into V shape and having its bent end secured to the back of the sheet metal, and its free ends bent to embrace the gage-tube, whereby the attachment may be readily attached to and detached from the gage-tube.

579,346. LOCOMOTIVE-PILOT. GEORGE R. JOCELYN, Bartley, Va. Filed Dec. 5, 1896. Serial No. 614,806. (No model.)



Claim.—1. As a new article of manufacture, a sheet-metal pilot, having the slats pressed or stamped therein, substantially as described.

2. A pressed-steel pilot having its slats stamped therein, and integral with the outside or frame, substantially as described.

3. A sheet-metal pilot, having its slats pressed or stamped therein, substantially as described.

4. A pressed-steel pilot having its slats stamped therein, and integrally connected together, substantially as described.

5. A sheet-metal pilot having its slats formed into a U-shaped section, substantially as described.

6. A sheet-metal pilot having its slats formed into a U-shaped section, and with adjacent slats integrally connected together, substantially as described.

7. The U-shaped metal slats for a pilot, connected to a frame at the top and bottom, substantially as described.

8. A sheet-metal pilot having U-shaped slats pressed or stamped therein and integrally connected to the outside or frame, substantially as described.

9. A sheet-metal pilot having slats of U-shaped section pressed or stamped therein, and integrally connected together, substantially as described.

10. A pilot having its slats formed into a U-shaped section, substantially as described.

579,347. CLOTHES-LIFTER. ADOLF KELLNER, Montreal, Canada, assignor of one-half to Mary Jacobs Schwersenski, same place. Filed Nov 19, 1896. Serial No. 569,465. (No model.)



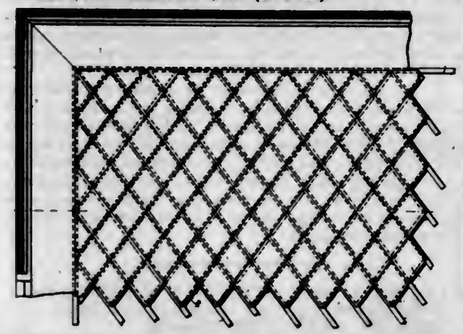
Claim.—1. A clothes-lifter constructed of a pair of integral wooden bars, one straight and the other curved, the straight bar being wider than the other and slotted about centrally of its length for the passage therethrough of the narrower curved bar, both pivotally connected together and at one end affording integral handle portions and at the other integral gripping-fingers, such latter being formed to interlock, for the purpose set forth.

2. A clothes-lifter constructed of a pair of bars one straight and the other curved, the straight bar being wider than the other and slotted about centrally of its length for the passage therethrough of

the narrower curved bar, both being pivotally connected together and at one end affording integral handle portions and at the other integral gripping-fingers, such latter being respectively narrow and slitted so that the narrow end of one can enter the slitted end of the other, for the purpose set forth.

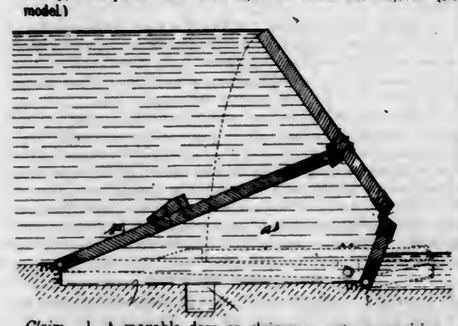
3. A clothes-lifter constructed of a pair of integral bars, one straight and the other curved, pivotally connected together and at one end affording handle portions and at the other gripping-fingers, such latter being respectively narrowed and slitted so that the narrowed end of one can enter the slitted end of the other, and both being hooked or barbed, for the purpose set forth.

579,348. FLOORING. WILLIAM MCPHERSON, Quincy, Cal. Filed June 4, 1896. Serial No. 594,318. (No model.)



Claim.—The improved flooring herein described, comprising the blocks placed in contact in predetermined design and provided with grooves on all of their edges, long tongue-strips 3 engaging the grooves in certain rows of blocks, short strips 4 extending transversely between pairs of the former strips and engaging the grooves of the blocks at angles to the grooves engaged by said former strips, and base-strips L-shaped in cross-section, arranged around the outside edge of the design formed by the blocks and having the horizontal portions formed with grooves for the reception of tongue-strips which are engaged by the grooves in the blocks, the vertical portions of said base-strips engaging with the wall of the room, as and for the purpose set forth.

579,349. AUTOMATIC MOVABLE DAM OR SLUICEWAY-GATE. WILLIAM L. MARSHALL, Chicago, Ill., assignor to himself and Henry Jervey, same place. Filed Dec. 12, 1895. Serial No. 571,899. (No model.)



Claim.—1. A movable dam or sluiceway-gate, comprising a hinged upstream-leaf, and a downstream-leaf consisting of two hinged sections, the upper section of which has a hinge connection with the upstream-leaf, and the hinge connection between the two sections of the downstream-leaf being projected beyond a vertical line of the hinge connection of the lower section with the bed of the sluiceway, substantially as specified.

2. A movable dam or gate, comprising an upstream-leaf and a downstream-leaf in two hinged sections of unequal width, the upper section being the wider, one of said leaves having a hinged connection with the other leaf along a line parallel to its top edge and about one-half its width below said edge, substantially as specified.

3. A movable dam or gate, comprising a downstream-leaf consisting of two hinged sections, and an upstream-leaf hinged to and below the top edge of the downstream-leaf, and having a width substantially equal to the width of the combined sections of the downstream-leaf, substantially as described.

4. A movable dam or gate, comprising an upstream and a downstream leaf in two hinged sections, the said upstream and downstream leaves being hinged together in such a manner that one leaf shall project above and beyond the line of junction of the two leaves, substantially as specified.

5. In a bear-trap or rising-and-falling dam, a hydraulic chamber in the form of a quadrangular prism with all angles always salient or projecting outward from the hydraulic chamber, the sides of the prism being practically equal, two and two, but the sets of two being unequal in width, set to set, substantially as specified.

6. A bear-trap or sluice gate, with a quadrangular prism-shaped hydraulic chamber having only salient angles, with its sides equal taken two and two, but with the components of one set of two sides greater in width than the components of the other set, equal sides of the hydraulic chamber being hinged together two and two, with the wider set of sides upstream, substantially as specified.

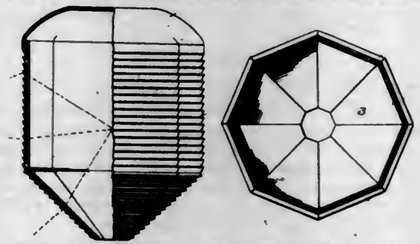
7. In a rising-and-falling hydraulic or bear-trap dam, a hydraulic chamber in the form of an oblique-angled, parallelepipedon with its wider sides substantially coincident with and parallel with the base of the dam, substantially as set forth.

8. In a rising-and-falling hydraulic or bear-trap dam, a hydraulic chamber in the form of an oblique-angled, parallelepipedon with its wider side substantially coincident with and parallel with the base of the dam, and with the hydraulic chamber on the downstream side of the effective leaf forming the dam, substantially as specified.

9. A dam comprising an upstream-leaf, a downstream-leaf hinged thereto below its top and consisting of two hinged sections, and an apron hinged to the top of the upstream-leaf and extended upon the upper section of the downstream-leaf substantially as specified.

10. A dam, comprising an upstream-leaf, a downstream-leaf hinged thereto and consisting of two sections, an apron hinged to the upper end of the upstream-leaf and extended over the downstream-leaf, and an apron hinged to the downstream-leaf at the junction of the two sections, in combination, substantially as specified.

579,350. SHADE OR GLOBE. JAMES G. PERRYGUICK, Toronto, Canada, assignor to the Prismatic Glass Company of Toronto, Limited, same place. Filed May 4, 1896. Serial No. 590,131. (No model.)



Claim.—1. A shade or globe for electric or other lamps, having a series of horizontal prismatic ribs molded thereon, the said ribs having their upper faces formed at an angle of one hundred and five degrees to the surface of the side of the shade, and the lower faces of said prismatic ribs formed at an angle of forty-five degrees, substantially as and for the purpose specified.

2. A shade or globe for electric or other lamps, made of polygonal form and having a series of horizontal prismatic ribs molded thereon, the said ribs having their upper faces formed at an angle of one hundred and five degrees to the surface of the side of the shade, and the lower faces of said prismatic ribs formed at an angle of forty-five degrees, substantially as and for the purpose specified.

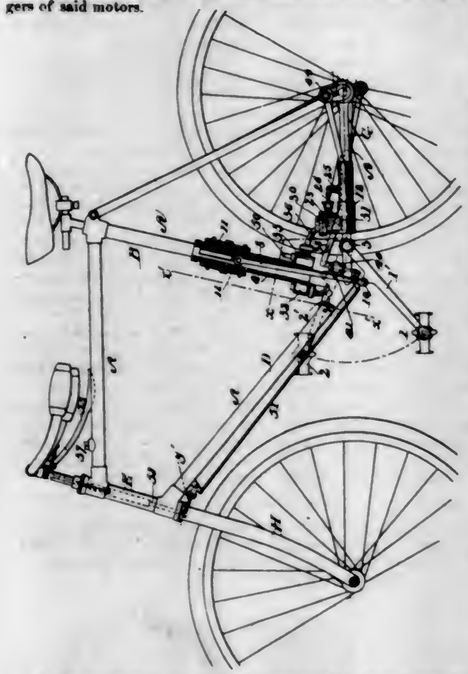
3. A shade or globe for electric and other lamps, of curved outline in vertical section and of polygonal form and having a series of horizontal prismatic ribs molded thereon, the said ribs having their upper faces formed at an angle of one hundred and five degrees to the surface of the side of the shade, and the lower faces of said prismatic ribs formed at an angle of forty-five degrees, substantially as and for the purpose specified.

4. A shade or globe for electric or other lamps molded in sections, the said sections having horizontal prismatic ribs formed thereon, the said ribs having their upper faces formed at an angle of one hundred and five degrees to the surface of the side of the shade, and the lower faces of said prismatic ribs formed at an angle of forty-five degrees, substantially as and for the purpose specified.

579,351. VELOCIPEDE. IRA W. RUBEL, New York, N. Y., and ERNEST W. NAYLOR, Round Brook, N. J. Filed Dec. 23, 1895. Serial No. 573,030. (No model.)

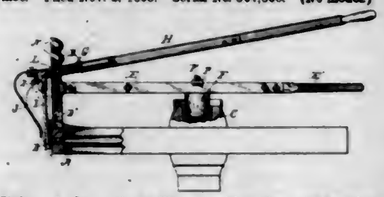
Claim.—1. In a rear-driven bicycle, the combination of two reciprocating pumps having their cylinders mounted upon opposite

sides of the center brace and substantially parallel therewith, vibrating foot-pedals pivoted to the frame and connected with the plungers of said pumps, a transverse vibrating arm centrally pivoted on said frame and connected with said plungers to reciprocate them alternately, two reciprocating motors having their cylinders mounted on the rear lower brace upon opposite sides of the traction-wheel, and cranks upon the shaft of the traction-wheel connected with the plungers of said motors.



2. In a velocipede or other vehicle adapted to carry a plurality of riders, the combination of a traction-wheel, a motor, and a plurality of pairs of reciprocating compression-pumps having plungers connected with vibrating pedals, the plungers of each said pair being connected together by vibrating arms giving alternate motion, said pairs of pumps being adapted to be operated independently by different riders, and each pump delivering to said motor.

579,352. MACHINE FOR REMOVING TIRES. HENRY H. SMITH, Kalamazoo, Mich., assignor of one-half to Charles M. Chamberlin, same place. Filed Nov. 2, 1895. Serial No. 567,860. (No model.)



Claim.—1. In a tire-pulling machine the combination of the lever E; the bracket D to one end of said lever; the handle E' at the other; plug F on the under side of said lever E adjustable by means of the clip P and the bolt P'; the block D' below the bracket D adapted to rest upon the felly of the wheel; the lever H with the pivot L therein adapted to engage in suitable notches N on the upper part of the bracket D'; the hook I extending downwardly from said lever H; links I' for attaching said hook I to the outer end of the lever H', and a spring J to the outer end of the lever and curved over and downwardly to press the hook I against the tire of the wheel when lever H is operated, all coacting together substantially as shown for the purpose specified.

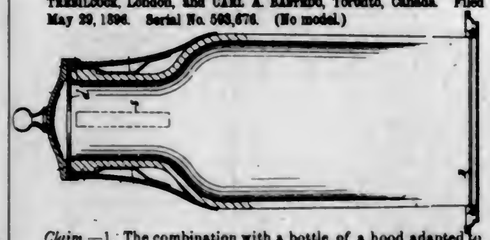
2. In a tire-removing machine the combination of the lever E, bracket D to one side of said lever; the plug F adjustable along the under side of said lever, the bracket D to one end of the lever; the block D' below the bracket D adapted to rest on the felly of the wheel; the lever H with the pivot L therein fulcrumed to the upper part of said bracket D; hook I extending downwardly from said lever H adapted to engage under the tire for raising the same off from the wheel, all coacting as specified.

3. In a tire-removing machine, the combination of the lever E, bracket D to one end of said lever, the plug F to the under side of said lever for insertion into the hub of the wheel, the lever H fulcrumed in said bracket, and the hook I suitably connected to the outer end of said lever H for engaging under the tire on the wheel for removing the same as specified.

4. In a tire-removing implement the combination of the cross-piece E, having a suitable handle; a suitable plug on the under side of the said cross-piece for insertion into the hub of a wheel; a block to the outer end of the same for resting on the felly of the wheel the said piece occupying a plane substantially parallel with that of the wheel; a lever pivoted above said block and extending in the general direction of the cross-piece E with a hook connected to the outer end of said lever to extend down and engage under the tire to remove the same, constructed so that the implement can be placed upon the wheel to act thereon all coacting together as specified

5. In a tire-removing implement the combination of the cross-piece E, having a suitable handle; a suitable plug on the under side of said cross-piece for insertion into the hub of a wheel the said piece occupying a plane substantially parallel with that of the wheel; a block at the outer end of the cross-piece to rest upon the felly of the wheel; a hook to engage the tire and suitable means of actuating the hook as the block is swung around over the felly to remove the tire, all adapted to rest upon the wheel and engage it at the hub and rim and operate as specified.

579,353. HOOD AND DRIP-TRAY FOR BOTTLES. FRED T. TREBILCOCK, London, and CARL A. BASTEDO, Toronto, Canada. Filed May 29, 1896. Serial No. 593,676. (No model.)



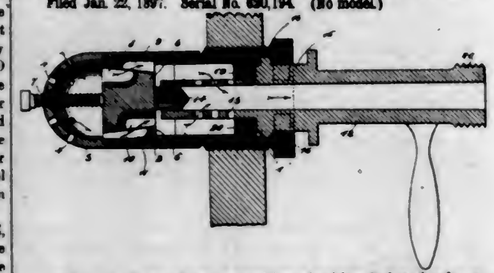
Claim.—1. The combination with a bottle, of a hood adapted to surround the neck thereof, and springs secured to the inside of said hood with their intermediate portions resting against the neck and their lower ends outturned and resting against the inner surface of the hood, whereby the latter is held in position, substantially as described.

2. The combination with a bottle, of a hood resting on the upper end thereof and having an opening adapted to register with the bottle-mouth, and springs secured to the inside of the hood with their intermediate portions resting against and adapted to grasp the neck of the bottle, as and for the purpose set forth.

3. The combination with a bottle, of a hood therefor having an opening adapted to register with the bottle-mouth, a cover for closing said opening, and springs secured to the inside of the hood with their intermediate portions grasping the neck of the bottle, so as to hold the hood removably thereon, as and for the purpose set forth.

4. A drip-tray for bottles consisting of a tray, posts rising therefrom, and a spring attached to said posts and adapted to encircle and hold a bottle when inserted therein, substantially as and for the purpose set forth.

579,354. BARREL-TAP. IGNATS WASSERSTROM, New York, N. Y. Filed Jan. 22, 1897. Serial No. 620,194. (No model.)

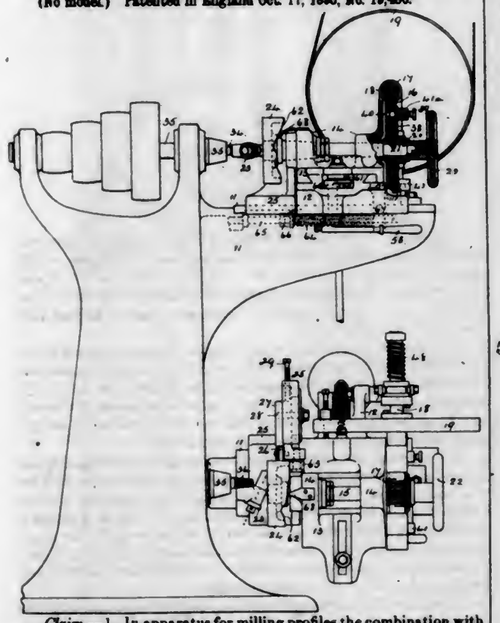


Claim.—1. A barrel-tap, comprising a bushing designed to be engaged in the bung-hole of a barrel, a tapered valve-seat in the inner

end of said bushing and having ports in its opposite sides extended respectively from opposite ends of said valve-seat to a point intermediate of its ends, a plug-valve mounted to rotate in said valve-seat and having ports in its opposite sides extended respectively from opposite ends to points intermediate of the ends, a perforated cap on the inner end of the bushing, and a key for turning the valve, substantially as specified.

2. A barrel-tap, comprising a bushing having a tapered valve-seat in its inner end provided with opposite ports, the said ports being extended respectively from opposite ends of the valve-seat and terminating at points intermediate of the ends, a tapered plug-valve mounted to rotate in the valve-seat and provided with opposite ports respectively extended from opposite ends of the plug-valve to points intermediate of its ends, the smaller end of said plug-valve being toward the outer end of the bushing, a perforated cap-piece having screw-thread engagement with the inner end of the bushing, a screw engaging in a tapped hole in said cap-piece and impinging upon the plug-valve, a lug extended from the smaller end of the plug-valve, the said lug being angular in cross-section, and a tubular turning-key for engaging with said lug, substantially as specified.

579,355. MILLING-MACHINE. THOMAS WEBSTER and JONATHAN HOWARTH, Coventry, England. Filed Oct. 10, 1896. Serial No. 608,501. (No model.) Patented in England Oct. 17, 1895, No. 19,436.



Claim.—1. In apparatus for milling profiles the combination with the frame or bed 11, head-stock spindle 35 carrying tool 34, of the transverse slide 13, carried upon the saddle 12, and having mounted thereon the spindle 15, with former 24, and wheel 16, worm 17, and driving-pulley 19, and bracket 25, carrying rollers 26 and 63, all arranged and operating substantially as set forth and shown upon the drawings.

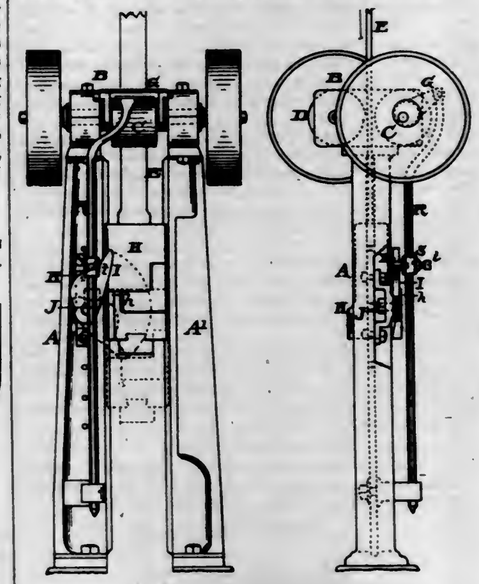
2. In an apparatus for milling profiles the combination with the saddle the movable slide 13, thereon, the spindle 15, the clutch 20, adjustably secured thereto, of the wheel 16, worm 17, and the plate 38 having the clutch-pin 39, taking into holes 40, and the stud-pins 41, with the bracket 42, all substantially as set forth and shown.

3. In an apparatus for milling profiles the combination with the saddle, the movable slide 13 thereon, clutch 46, of the lever 49, having the slot 51, adjustably-fixed pin 52, and stud 53, with clutch 47 and spring 48, all substantially as set forth and shown.

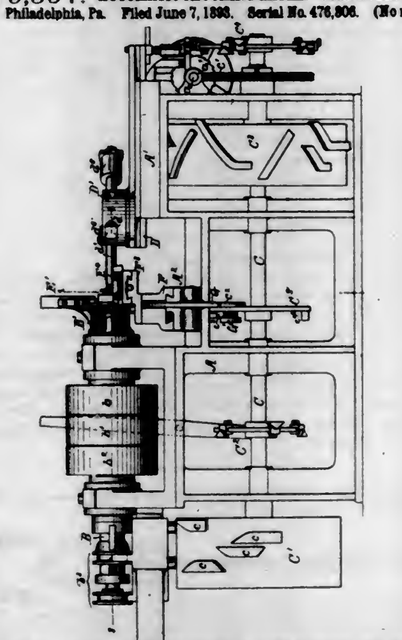
4. In an apparatus for milling profiles the combination with the saddle, the movable slide 13 thereon, the under plate 57, adjustably secured to the slide and the cam-like lever 60 pivoted to the saddle and engaging said under plate, substantially as set forth and shown.

579,356. DROP-HAMMER. ELLIOTT H. WHITLOCK, Cleveland, Ohio. Filed Dec. 4, 1896. Serial No. 614,435. (No model.)

Claim.—In a drop-hammer provided with lifting-rolls for raising the hammer, one of which is mounted on eccentric bearings and is shiftable toward and from the other, and an eccentric actuating-rod in operative connection with said shiftable roll; the combination of a cam-lever fulcrumed on a changeable bracket attached to the side frame, an adjustable sleeve on said eccentric actuating-rod having a pin or lug x adapted to ride on the cam-lever and be lifted thereby by means of a projection or abutment on the hammer contacting with and turning said lever upwardly, said cam being such that the lifting movement imparted to the rod will cause the rolls to have a gradually-increasing motion from beginning to finish of their separation.



579,357. AUTOMATIC CHUCKING-LATHE. JOHN W. BROWN, Jr., Philadelphia, Pa. Filed June 7, 1893. Serial No. 476,806. (No model.)



Claim.—1. In a lathe for turning eccentric pieces, the combination of the revolving chuck for positively grasping the piece to be turned, a feeding device for feeding the piece to the position in front of the chuck, a detent engaging with the piece and preventing it from turning when in frictional contact with the chuck, with mech-

anism for forcing the piece into the chuck so that it will be positively engaged thereby, substantially as described.

2. In a lathe for turning eccentric pieces, the combination of the revolving chuck by which the piece is positively held, a feeding device for feeding the piece to a position in front of the chuck, a detent adapted to engage with the piece and prevent it from turning with the chuck when in frictional contact therewith, with a plunger tending to force the piece into the chuck so that when the piece registers with the chuck it will be positively engaged thereby and will be freed from the detent, substantially as described.

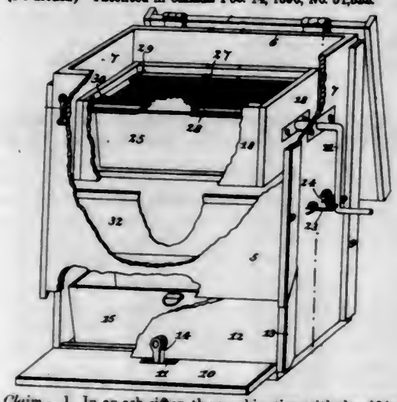
3. The combination in a lathe for turning eccentric pieces of the chuck by which the piece is held, the feeding device for feeding the piece to a position in front of the chuck, a spring-detent engaging with the piece whereby it is prevented from turning when in frictional contact with the chuck, and a plunger for forcing the piece from the control of the detent and into positive engagement with the chuck.

4. The combination in a lathe for turning eccentric pieces, of the revolving chuck, the hopper, the reciprocating carrier for conveying the piece from the hopper to a position in front of the chuck, a spring-detent engaging with the piece and preventing it from turning, with a plunger for forcing the piece into the chuck and from under the control of the detent, substantially as set forth.

5. The combination in a lathe for turning eccentric pieces, of the revolving chuck, the feeding mechanism for feeding the pieces in front of the chuck, a detent engaging with the pieces preventing them from turning, with a spring-seated plunger, for forcing the pieces into the chuck and from under the control of the detent, substantially as specified.

6. The combination of the revolving chuck, a reciprocating slide a piece-feeding device carried by said slide, a slide-rest also carried by the slide, a cam for controlling the transverse movement of the slide-rest and a turret-plunger controlling the longitudinal movement of the tool, substantially as set forth.

579,358. DEVICE FOR SIFTING COAL-ASHES. JOHNSON CLENCH, St. Catharines, Canada. Filed June 23, 1896. Serial No. 596,647. (No model.) Patented in Canada Feb. 14, 1896, No. 51,332.



Claim.—1. In an ash-sifter, the combination with the sifting box, the clamping-frame fitting within said box, said frame comprising adjustable side and end walls, whereby ash-pans of various sizes may be firmly held against displacement, substantially as described.

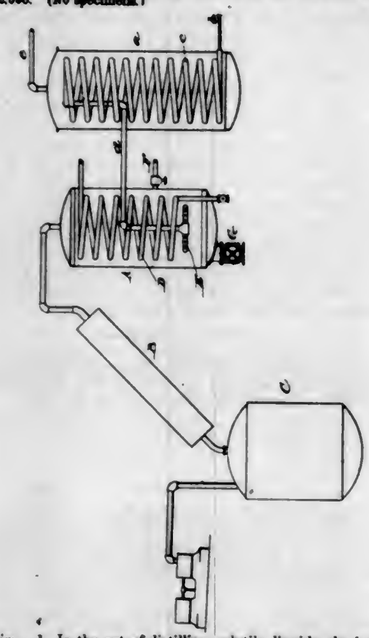
2. In an ash-sifter, the combination with the sifter-box, of the frame consisting of side and end bars having lengths corresponding to the clear length and breadth of the interior of said box and formed with tongues and slots, and means for relative adjustment whereby ash-pans of different sizes may be firmly held against displacement within the sifting-box.

579,359. LADDER-HOOK. ORIN O. DENMORE, Lewiston, Me. Filed Mar. 31, 1896. Serial No. 585,562. (No model.)



Claim.—In combination with a ladder, a hook composed of a member A, a clamp-hook B projecting therefrom, a shank C formed with the first-named member and having its lower portion threaded, a turnbuckle E, a nut F formed with said turnbuckle adapted to receive the threaded shank, and a twin hook D to which said buckle is swiveled, substantially as and for the purpose set forth.

579,360. PROCESS OF DISTILLING VOLATILE LIQUIDS. FRANK L. DYER, Washington, D. C., assignor to William F. Jobbins and Joseph Van Ruymbeke, Chicago, Ill. Filed Mar. 7, 1894. Serial No. 502,693. (No specimens.)



Claim.—1. In the art of distilling volatile liquids, the improvement which consists in maintaining the liquid to be distilled at a high vacuum, in injecting expanded and reheated steam into the liquid, whereby active distillation is effected and in maintaining the vacuum by the removal of the vaporized distillates as fast as formed, substantially as described.

2. In the art of distilling volatile liquids, the improvement which consists in maintaining the liquid to be distilled at a high vacuum and in a heated state, in injecting expanded and reheated steam into the independently-heated liquid, whereby active distillation is effected, and in maintaining the vacuum by the removal of the vaporized distillate as fast as formed, substantially as described.

3. In the art of distilling volatile and water-miscible liquids, the improvement which consists in maintaining the liquid to be distilled at a high vacuum in a heated state, in injecting expanded and reheated steam in the independently-heated liquid whereby distillation is effected, in maintaining the vacuum by the removal of the vaporized distillate, as fast as formed and subsequently subjecting the distillate obtained to distillation to obtain a concentrated or anhydrous distillate, as and for the purpose described.

4. In the art of distilling volatile liquids, the improvement which consists in injecting into the liquid to be distilled, expanded and reheated steam of a pressure less than that of atmospheric pressure and of a temperature sufficient to effect distillation, and in condensing the distillate.

5. In the art of distilling volatile liquids, the improvement which consists in maintaining the liquid to be distilled at a high vacuum and in a heated state, in generating steam in a boiler, allowing the steam to expand and reheating the expanded steam by live steam, in injecting the expanded and reheated steam thus prepared into the independently-heated liquid, whereby active distillation is effected, and in maintaining the vacuum by the removal of the vaporized distillate as fast as formed, substantially as described.

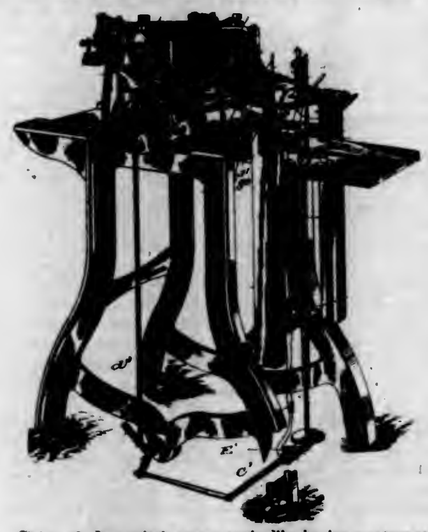
6. In the art of distilling volatile and water-miscible liquids, the improvement which consists in maintaining the liquid to be distilled at a high vacuum and in a heated state, in generating steam in a boiler, allowing the steam to expand and reheating the expanded steam by live steam, in injecting the expanded and reheated steam thus prepared into the independently-heated liquid whereby active distillation is effected, in maintaining the vacuum by the removal of the vaporized distillate as fast as formed, and in subsequently subjecting the distillate obtained in distillation to obtain a concentrated or anhydrous distillate, as and for the purposes described.

7. In the art of distilling volatile liquids, the improvement which consists in injecting into the liquid to be distilled, expanded and reheated steam of a substantially uniform temperature

579,361. METHOD OF MANUFACTURING ELECTRODES FOR SECONDARY BATTERIES. LUDWIG ELSTNER, London, England. Filed Sept. 5, 1893. Serial No. 605,094. (No specimens.)

Claim.—The herein-described method of manufacturing electrodes for secondary batteries, which consists in first rendering porous the surfaces of lead plates or bodies then treating them with a mixture of lead oxid and caustic alkali, then drying, and finally converting certain of said plates or bodies into negative electrodes and others into positive electrodes by immersing them in an electrolyte and connecting them, respectively, to the negative and positive poles of a source of electricity, as and in the manner set forth.

579,362. PAPER-FEEDING MACHINE. CHARLES G. HARRIS, Niles, Ohio. Filed Mar. 7, 1894. Serial No. 502,739. (No model.)



Claim.—1. In a printing-press or the like having a rotary cylinder, a vertically-movable table for holding a pile or stack of paper, a screw-rod connected to said table and engaging a stationary clasp, a ratchet-wheel on said screw-rod, a swinging arm carrying a pawl and a magnet in close juxtaposition to said pawl, connections between said arm and said cylinder, a vertically-movable holder for engaging the top of said pile or stack of paper, electrical connections between said holder and said magnet, and a circuit-closer carried by said holder controlled by the position of the top of said pile or stack, substantially as set forth.

2. In a printing-press or the like having a rotary cylinder, a vertically-movable table for holding a pile or stack of paper, a screw-rod connected to said table and engaging a stationary clasp, a ratchet-wheel fast on said screw-rod, a swinging arm pivoted on said screw-rod and carrying a pawl for periodically engaging said ratchet-wheel, a magnet, a pivoted arm for engaging said pawl designed to be operated by said magnet, a vertically-movable holder engaging the top of said pile or stack of paper and having a projecting portion, a support for said holder, an electric wire or wires connected to said magnet and also to said support and designed to be engaged by said projecting portion of said holder, substantially as and for the purpose set forth.

3. In a printing-press or the like having a rotary cylinder, a vertically-movable table for holding a pile or stack of paper, a screw-rod connected to said table and engaging a stationary clasp, a ratchet-wheel fast on said screw-rod, a swinging arm pivoted on said screw-rod, and carrying a pawl, a spring normally holding said pawl out of engagement with said ratchet-wheel, a pivoted arm for forcing said pawl into engagement with said ratchet-wheel, a magnet on said swinging arm for operating said pivoted arm, a vertically-movable holder designed to rest upon the top of such pile or stack and having an upper horizontal projection, a support therefor, and electrically-charged wires connected to said magnet and also to said support and extending above the top of the latter, substantially as set forth.

4. In a printing-press having a rotary cylinder and a feed-table designed to hold a pile or stack of paper, a rubber or puller designed to engage the top of such pile or stack, and comprising arms connected each at one end to said cylinder and guide-blocks with which the free ends of said arms engage, whereby the rubber or puller is caused to move in a horizontal plane when in contact with the top of such pile or stack and to be elevated therefrom in its return movement, said rubber or puller being carried by said arms, substantially as set forth.

5. In a printing-press having a rotary cylinder and a feed-table designed to hold a pile or stack of paper, a rubber or puller designed to engage the top of such pile or stack, and comprising arms connected each at one end to said cylinder, and guides having inclined portions with which the free ends of said arms engage, and shoulders at the ends of said inclined portions, said rubber or puller being connected to said arms and caused to move in a horizontal plane when engaging the top of such pile or stack and elevated therefrom in its return movement, substantially as set forth.

6. In a printing-press having a rotary cylinder, and a feed-table designed to hold a pile or stack of paper, a rubber or puller comprising a bar having teeth or projections for engaging the top of such pile or stack, a cross-bar to which said former bar is connected, two corresponding arms supporting said cross-bar, said arms being connected to said cylinder, and guide-plates having inclined portions with which the free ends of said arms are designed to engage, and shoulders at the lower ends of said inclined portions, substantially as set forth.

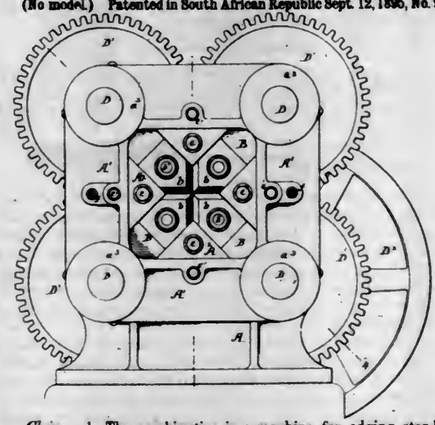
7. The herein-described improved job-printing press, comprising two rotary cylinders, a vertically-movable table for holding a pile or stack of paper, means operated by one of said cylinders for effecting the gradual or periodical elevation of said table, a rubber or puller extended transversely across said table and designed to engage the top of said pile or stack, arms eccentrically connected to one of said cylinders and to which said rubber or puller is attached, and means with which said arms engage for causing said rubber or puller to travel on an approximately horizontal plane parallel with the top of said table in its rearward movement, substantially as set forth.

8. The herein-described improved printing-press, comprising two rotary cylinders, a vertically-movable table for holding a pile or stack of paper, means operated by one of said cylinders for effecting the gradual elevation of said table, a rubber or puller operated by one of said cylinders and designed to remove the topmost paper of said pile or stack and comprising arms connected to the other one of said cylinders, and guide-blocks with which the free ends of said arms engage, said rubber or puller being carried by said arms, whereby said rubber or puller will be caused to travel on an approximately horizontal plane parallel with the top of said table in its rearward movement, substantially as set forth.

9. In a printing-press or the like, a holder designed to rest upon the top of a pile or stack of paper having a reduced or pointed end, and an inclosing ring surrounding the said pointed end of said holder, substantially as and for the purpose set forth.

10. In a printing-press or the like, a holder having a needle at its lower end designed to rest upon the top of a pile or stack of paper, and a ring inclosing said needle and having an opening or cut-away portion, substantially as and for the purpose set forth.

579,363. MACHINE FOR EDGING DRILL-BITS, &c. FREDERICK G. MYERS, Philadelphia, Pa. Filed Dec. 24, 1896. Serial No. 616,882. (No model.) Patented in South African Republic Sept. 12, 1895, No. 964.



Claim.—1. The combination in a machine for edging star-bits, the same consisting of a frame having slideways therein, four reciprocating slides, means for moving the slides toward and from a common center, and cutting-blades secured to each slide, each blade being V-shaped so that all the wings of the star-bit inserted in the machine will be simultaneously cut by the dies as the slides come together, substantially as described.

2. The combination of the frame, slideways therein, crank-shafts mounted in the frame, slides adapted to the slideways, said slides having one end in the form of a frame, sliding bearings adapted to said frame and adapted to the crank-shafts with cutting-blades on the inner end of each slide, the said crank-shafts being geared so that the slides will move toward a common center in unison, substantially as described.

3. The combination of the frame having four slideways therein, a series of slides adapted to the slideways, each slide having at one end an open frame and at the other end a cutting-blade, boxes adapted to the frame of each slide, a series of crank-shafts mounted in the frame and having their cranks adapted to the boxes, a quadrangular cover-plate having bearings for the shafts and acting to hold the outer ends of the slides in place, substantially as described.

4. The combination of the frame having four slideways therein, a series of slides adapted to the slideways, each slide having at one end an open frame and at the other end a cutting-blade, boxes adapted to the frame of each slide, a series of crank-shafts mounted in the frame and having their cranks adapted to the boxes, a quadrangular cover-plate having bearings for the shafts and acting to hold the outer ends of the slides in place, and triangular plates secured to the frame within the cover-plate and extending over the sides of the slides near the inner ends thereof, substantially as described.

5. The combination of the frame, four crank-shafts mounted therein, said frame having an open center, slideways in the frame radiating from the center to the crank-shafts, slides in the slideways, cutters or dies on the inner end of each slide, the slides being driven by the crank-shafts, a gear-wheel on each crank-shaft, the said wheels being geared together, one of said shafts acting as the driving-shaft so that there is a central opening for the passage of a blank to be cut, substantially as described.

579,364. **FENCE.** JOHN R. NEWLIN, Saxapahaw, N. C. Filed Nov. 5, 1896. Serial No. 611,172. (No model.)



Claim.—In the herein-described portable fence, composed of rails placed at a suitable distance apart, one on top of the other, and the ends thereof fitting in spaces formed by parallel uprights, the upper or top rails being notched, and fitting in the said spaces, and resting in crotches formed by the intersecting ends of the obliquely-inclined bars or cross-braces, a wire noose passing around the ends of the top rails, substantially as set forth and shown.

579,365. **COMBINED SCREEN AND DUST-GUARD FOR CAR-WINDOWS.** HENRY PARNELL, Petersburg, Va., assignor of one-half to Bernard Mann, same place. Filed July 20, 1896. Serial No. 599,859. (No model.)

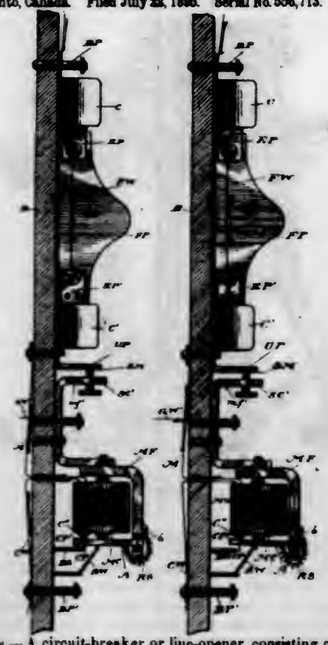


Claim.—1. The combination with a window-frame and a screen vertically movable therein and arranged to slide into a recess formed beneath said frame, of dust-guards hinged at their vertical edges to the edges of the screen and adapted to fold flat against the screen when the latter is lowered into said recess and be thrown outward at right angles thereto when the screen is raised in the window-frame, and springs operating to normally hold said guards folded against the screen, substantially as described.

2. The combination with a window-frame and a screen vertically movable therein and arranged to slide into a recess formed beneath said frame, of dust-guards hinged at their vertical edges to the edges of the screen and adapted to fold flat against the screen when the latter is lowered into said recess and be thrown outward at right angles thereto when the screen is raised in the window-frame, springs normally holding said dust-guards folded flat against the screen to permit the latter to be lowered into the recess, and means arranged for operation from the interior of the car for throwing the dust-guards outward when the screen is raised in the window-frame, substantially as described.

3. The combination with a window-frame and a screen vertically movable therein and arranged to slide into a recess formed beneath said frame; of dust-guards hinged at their vertical edges to the edges of the screen and adapted to fold flat against the screen when the latter is lowered into said recess and be thrown outward at right angles thereto when the screen is raised in the window-frame, springs normally holding said dust-guards folded flat against the screen to permit the latter to be lowered into the recess, flexible connections attached to the outer faces of the guards and passing through the screen-frame, and means for fastening the inner ends of the flexible connections, substantially as described and for the purpose specified.

579,366. **CIRCUIT-BREAKER.** FREDERICK C. ROBERTSON, Toronto, Canada. Filed July 22, 1895. Serial No. 556,713. (No model.)



Claim.—A circuit-breaker or line-opener consisting of a fusible wire, a subsidiary circuit to earth and a relay-magnet interposed in the circuit between the line-wire and the protected instruments, the relay-magnet consisting of a magnet-frame, a magnet-core attached to the magnet-frame, a magnet-winding on the core, in circuit with the line-wire and protected instruments, an armature pivotally connected to the magnet-frame, an insulated contact-point connected to the magnet-core tapping the magnet-winding, the armature so adjusted that under the normal condition of the current it will be unattracted, but on an abnormal current attempting to circuit through the relay-magnet, it will be attracted and will impinge on the insulated contact-point and close the subsidiary circuit to earth, a spring for normally keeping the armature from the magnet-core, a back-stop to limit the opening movement of the armature, a lightning-arrester interposed between the fusible wire and relay-magnet, consisting of a clip, and a sheet of mica supported by the clip, substantially as specified.

579,367. **WATER-COOLER AND REFRIGERATOR.** JOHN P. SCHIMMEL, Madisonville, Ky., assignor of one-half to John Frederic Heafer, same place. Filed Oct. 12, 1895. Serial No. 565,503. (No model.)



Claim.—In a refrigerating device, the combination with a water-receiver, of a cooling-chamber thereunder, a reservoir to receive the cooled water, pipes or tubes located around the cooling-chamber and connecting the receiving-chamber with the reservoir, and metallic plates surrounding the cooling-chamber and partly embracing the pipes to protect the same.

579,368. **MOLD FOR CURLING HAT-BRIMS.** THEODORE C. SEARCH, Philadelphia, Pa., assignor to the John B. Stetson Company, same place. Filed Sept. 22, 1894. Serial No. 523,832. (No model.)



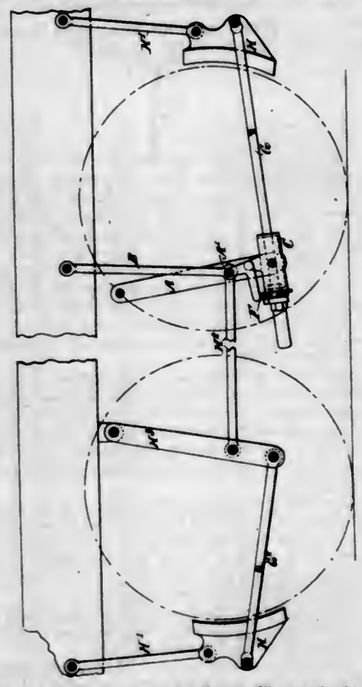
Claim.—1. The combination of the two parts of a brim-mold with a lock or locks pivoted at one end upon one part of the mold and having rigid heads on the other ends thereof, for entering openings in the other part of the mold, thereby securing the two parts together, said locks being flush with the surface of the mold, substantially as described.

2. The combination in a hat-mold, of the base, the two-part brim-mold mounted thereon and having inclined joints, with locks for locking the two parts together, substantially as described.

3. The combination of a hat-brim mold, of the base, the two-part brim-mold adapted thereto having inclined joints, a tongue on one part adapted to a groove in the other part, with locks for locking the two parts together, substantially as described.

4. The combination of the base, the two-part brim-mold having inclined joints, slots in the end of each part of the brim-mold, a locking-bar adapted to the slots, said locking-bar having a pin on one end, and a head on the opposite end so that when the parts are locked the bar will be flush with the periphery of the mold, substantially as described.

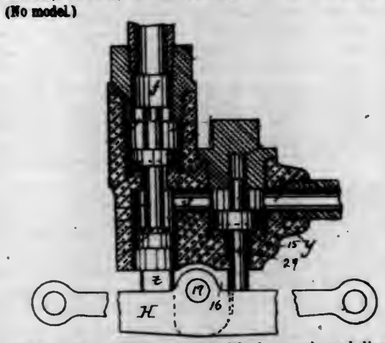
579,369. **SLACK-ADJUSTER FOR BRAKE-GEARS OF RAILWAY ROLLING-STOCK.** FREDERICK W. SELLEY, Hurstville, and WILLIAM H. NIBBS, Sydney, New South Wales. Filed Aug. 8, 1896. Serial No. 602,158. (No model.) Patented in New South Wales Feb. 5, 1896, No. 6,374; in Victoria Feb. 7, 1896, No. 12,867; in Queensland Feb. 7, 1896, No. 3,255, and in South Australia Feb. 10, 1896, No. 3,163.



Claim.—1. In brake-gears of railway rolling-stock, the combination with the brake-shoes, of a brake truss or beam connected to the brake-shoes and provided with a threaded pull-rod, an actuating brake-lever, a nut box or support articulated to the lower end of said lever, a nut carried by said box or support and engaging the threaded pull-rod, a ratchet for turning said nut, a rocking pawl-lever engaging said ratchet, a spring for rocking said pawl-lever in one direction to turn the nut, and means operated by the brake-lever for rocking said pawl-lever against the tension of said spring, substantially as described.

2. The combination with the brake-shoes, of a brake-truss connected to the brake-shoes and provided with a threaded pull-rod G, and actuating brake-lever A fulcrumed intermediate its ends to a support, a nut-box C articulated to the lower end of said brake-lever, a nut E carried by said box and engaging the threaded end of said pull-rod and provided with a ratchet E', a pawl-lever F journaled on the nut-box and engaging said ratchet, a spring F^2 operating to rock said pawl-lever to turn the nut in one direction, and a bell-crank lever D fulcrumed on the nut-box and at one end engaging the fulcrum-pin of the brake-lever and connected at its other end to one end of the said pawl-lever and operating to rock the latter against the tension of the spring F^2, substantially as described and for the purpose specified.

579,370. **VALVE FOR AIR-HOIST CYLINDERS.** RUSSELL R. TAYLOR, Norwood, Mass. Filed Sept. 17, 1896. Serial No. 606,068. (No model.)



Claim.—The casing provided with the supply and discharge arranged substantially as shown in combination with the lever, H; the valve, *i*, for closing the supply and provided with the stem, *m*, in engagement with one arm of said lever; the piston, *q*, carried by said stem; and the valve, *z*, having its stem engaging the opposite lever-arm substantially as and for the purpose specified.

579,371. **SPRAYING-NOZZLE.** JAMES A. WATSON, Washington, D. C., assignor of one-half to Ralph W. Lee, same place. Filed Nov. 6, 1896. Serial No. 611,289. (No model.)



Claim.—1. A sprayer comprising a core having a central chamber and a tapering or cone-shaped tip, a cylindrical casing surrounding the core and having a circular opening in its upper end, an annular chamber included between the tip and the casing, an annular outlet to said chamber formed by the tip centrally arranged in the opening of the casing, and tangential passages through which the water from the central chamber passes to the annular chamber, said passages imparting a rotary movement to the water in said latter chamber, substantially as described.

2. A sprayer comprising a core having a central chamber, a coupling portion and a cone-shaped or tapering tip at its upper end, a circular casing surrounding the core and connected to it by a suitable joint, a circular opening in the top of the casing, an annular rotation-chamber between the core and the casing, an annular outlet to said chamber formed by the tip centrally located in and nearly filling the opening in the casing, and tangential passages through which the water from the central chamber passes to the annular chamber, said passages imparting a rotary movement to the water in said latter chamber, substantially as described.

3. A sprayer comprising a core having a central chamber, a coupling portion and a cone-shaped or tapering tip at its upper end, a jet opening in the top of the tip leading from the central chamber, a circular casing surrounding the core and connected to it by a suitable joint, a circular opening in the top of the casing, an annular rotation-chamber between the core and the casing, an annular outlet to said chamber formed by the tip centrally located in and nearly filling the

opening in the casing, and tangential passages through which the water from the central chamber passes to the annular chamber, said passages imparting a rotary movement to the water in said latter chamber, substantially as described.

4. A sprayer comprising a core having a central chamber, a coupling portion and a cone-shaped or tapering tip at its upper end, a circular casing surrounding the core and connected to it by a suitable joint, a circular opening in the top of the casing, an annular rotation-chamber between the core and the casing, an annular outlet to said chamber formed by the tip centrally located in and nearly filling the opening in the casing, and tangential passages through which the water from the central chamber passes to the annular chamber, said passages imparting a rotary movement to the water in said latter chamber, and said casing being adjustable on said core to vary or close the annular outlet, substantially as described.

5. A two-part sprayer comprising a hollow core having a coupling 1, a tip 2, and a central chamber *a* above the coupling, in combination with a circular casing having its lower end attached to the outer side of the coupling and its upper end provided with a circular opening smaller than the base of the tip, said tip projecting through and nearly filling said opening, and tangential passages through which the water from the central chamber *a* passes to the annular chamber surrounding the tip, said passages imparting a rotary movement to the water in said latter chamber, substantially as described.

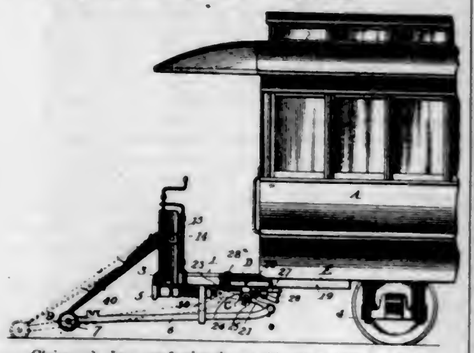
6. A sprayer comprising a core having a cone-shaped tip and a central chamber, a casing surrounding the core and having a central opening in its top into which the tip enters to form an annular outlet, a rotation-chamber between the casing and tip, an annular chamber 8 below the rotation-chamber, passages leading from the central chamber to the chamber 8, and tangential passages leading from the chamber 8 to the rotation-chamber, said passages imparting a rotary movement to the water in said latter chamber, substantially as described.

7. A sprayer comprising a core having a tapering or cone-shaped tip, a casing surrounding the core and having a circular opening in its upper end through which the tip of the core projects to form an annular outlet, and flanges 12 surrounding the core below the tip, said flanges fitting the casing and having overlapping ends, the passages between said ends being adapted to impart a rotary movement to the water as it passes upward to the annular outlet, substantially as described.

8. In a sprayer the core having the coupling 1, surrounding overlapping flanges 12, a cone-shaped tip 2, a central chamber *a* and an outlet-opening 6, in combination with a circular casing fitting said flanges 12 and provided with a circular opening in its top into which the tip projects to form an annular outlet, said casing being adjustably connected to said core by a screw-threaded joint, substantially as described.

9. In a sprayer, the combination of the core having overlapping flanges and a cone-shaped tip, with a cylindrical casing fitting the outer edge of said flanges and having a circular opening in its top through which the tip projects to form an annular outlet, said casing inclosing the chamber 8 below the flanges into which the water is first admitted, passages 10 between the overlapping ends of the flanges, an equalizing-chamber 11 into which the water is admitted through the passages 10, an annular throat 13 at the base of the tip and a rotation-chamber *b* above said throat, the water being ejected from the rotation-chamber through the annular outlet, substantially as described.

579,372. CAR-FENDER. WILLIAM WEAVER, Norwalk, Conn. Filed Aug. 9, 1895. Serial No. 558,763. (No model.)



Claim.—1. In a car-fender the combination with a car-body having guides thereon, of a supporting-frame adapted to travel in said guides, means for holding said frame in a fixed position at different points along said guides, a fender and its operating means supported upon the frame, said operating means being adapted to project or retract the fender independently of the supporting-frame, substantially as described.

2. In a car-fender, the combination with a car-body, of an oscillating shaft supported thereon, crank-arms on the shaft, a fender-frame pivotally connected to the crank-arms, said arms being normally held in a position rearwardly of the vertical plane of the axis of the oscillating shaft and below the horizontal plane thereof, electrically-operated means for effecting a part revolution of the shaft to carry the crank-arms to a position in advance of the vertical plane of the axis of the oscillating shaft and above the horizontal plane thereof, a stop for arresting the movement of the shaft when the crank-arms are in their forward position, means for locking the shaft when said arms are in their normally-retracted position, and means for releasing said locking devices, substantially as described.

3. In a car-fender, the combination with a car-body, of a fender-frame supported thereon and adapted to move in the direction of the line of movement of the car, means for normally locking the fender-frame in its retracted position, said means being adapted to be released by impact, and electrically-operated means for moving the fender to its forward position when it is released from its locking means, substantially as described.

4. In a car-fender, the combination with a car-body, of a fender-frame supported thereon, and adapted to move in the direction of the line of movement of the car, means for normally locking the fender-frame in its retracted position, electrically-operated means for moving the fender-frame to its forward position, and means actuated by the impact of a body with the fender-frame for releasing its locking devices and for directing an electric current to its moving means, substantially as described.

5. In a car-fender, the combination with a car-body, of an electric motor for propelling the same, a fender-frame supported on the car-body and adapted to move in the direction of the line of movement of the car, means for normally locking the fender-frame in its retracted position, devices for normally directing an electric current to the propelling-motor of the car, electrically-operated means for moving the fender-frame to its forward position, and means actuated by the impact of a body with the fender-frame for releasing its locking means and for breaking the circuit to the propelling-motor and opening that to the fender-frame-projecting means, substantially as described.

579,373. TENT. JOHN M. WOLBERCHT, Chula Vista, Cal. Filed Mar 16, 1896. Serial No. 583,456. (No model.)



Claim.—1. A portable tent having a substantially flat and sloping roof provided with the angular flange within the edge of the roof, the tent-walls united to said flange and lying in planes within the overhanging edges of the roof, and poles connected to the overhanging edges of said roof, as and for the purposes described.

2. A portable tent comprising a roof having the pendent flange within its overhanging edge, the floor provided with a flange within a projecting edge, the walls united to the flanges of the roof and floor and lying in planes within the edges of the roof, poles engaging with said edges of the roof and floor, and suitable guy-ropes, as and for the purposes described.

3. A portable tent comprising the walls and the substantially flat roof joined to said walls and provided at its several corners with holding devices, combined with uprights set opposite the corners of the tent and engaging with the lower part thereof, suitable stakes, and guy-ropes which are connected with said uprights and with the holding devices of the tent and fastened to the stakes, as and for the purposes described.

4. A portable tent comprising the sloping roof having loops or eyelets at its several corners and the walls joined to said roof within the loops or eyelets, combined with apertured or notched posts, guy-ropes connected to the posts and the tent and fastened to suitable stakes, and loop engaging with the lower part of the tent and posts, substantially as and for the purposes described.

5. In a portable tent, a floor provided with a flange, and the wall attached to said flange and forming a ledge or gutter to catch water, substantially as and for the purposes described.

6. A portable tent comprising a floor, a horizontally-inclined roof, and walls united to the floor and roof, the joints between the floor and walls having exit openings or vents arranged to discharge to the outside of the tent, as and for the purposes described.

7. A portable tent provided with a floor having an upturned flange which is united to the tent-wall and forms therewith a gutter, suitable exits or openings being provided in the tent-walls for the escape of water from said gutter, as set forth.

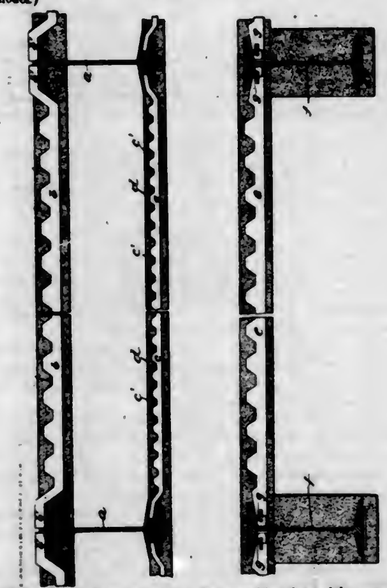
579,374. INSECT-EXTERMINATOR. JOY S. ALLEN, Gainesville, Ga. Filed Aug. 25, 1896. Serial No. 603,570. (No model.)



Claim.—1. The combination with a lamp-body provided with hooks B, of a heating-drum having an outer cylinder and an inner conical jacket converging to the bottom of the drum, whereby to form a seat to rest on the base of the lamp-burner and fitting within the hooks of the lamp and forming a tapering annular water-space clear to the burner of the lamp, a steam-escaping nozzle extending from the upper portion of the drum, and a filling-tube extending downward from the top of the drum a sufficient distance to submerge its lower end to prevent the escape of steam, substantially as described.

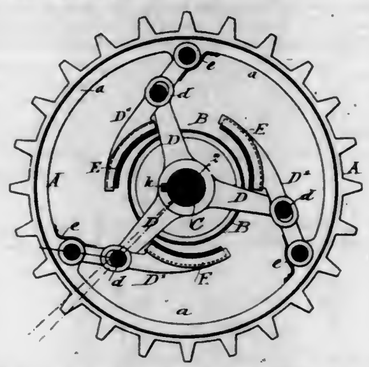
2. The combination with a lamp-body provided with hooks B, of a heating-drum fitting on the burner of the lamp within the hooks B, and provided with a steam-escape nozzle, a handle mounted on the drum, and a series of horizontally-disposed clamps mounted on the drum, having one end free and adapted to engage the hooks B under their curved ends, automatically, when the drum is partially rotated, whereby both the lamp and the device are adapted to be carried by the handle of the latter, substantially as described.

579,375. FIREPROOF FLOOR AND CEILING. CHARLES A. RALPH, Pittsburg, Pa. Filed Dec. 19, 1896. Serial No. 616,267. (No model.)



Claim.—In a floor or ceiling, the combination with supporting-beams, of metal bars extending transversely of and supported by said beams, said bars being supported on their edges and having indentations formed on their upper edges, and a filling of concrete embedding said bars and supported thereby, substantially as set forth.

579,376. BRAKE. WILLIAM L. BASS, Brooklyn, N. Y. Filed Oct. 23, 1896. Serial No. 609,812. (No model.)

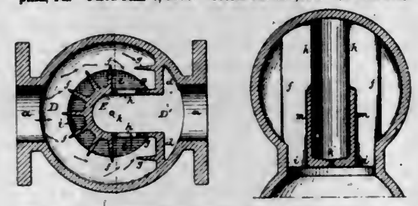


Claim.—1. A brake, consisting, in combination, of a wheel, a crank-axle, a fixed brake-disk, and toggle-levers, the inner members of which are fixed to the crank-axle, and the outer members of which are pivoted to the wheel, and are provided with brake-shoes, substantially as set forth.

2. A brake, consisting of a wheel, toggle-levers arranged at the side of the wheel, the inner members of the toggle-levers being fixed to the crank-axle, and the outer members of the same being pivoted to the wheel and extending beyond the connections between said members, brake-shoes applied to the inner ends of the outer members of the toggle-levers, and a brake-disk applied to the frame of the machine, substantially as set forth.

3. A brake for bicycles, consisting of a number of toggle-levers arranged within the driving sprocket-wheel of the bicycle, the inner members of the toggle-levers being fixed to the axle while the outer members are pivoted to the interior circumferential flange of the sprocket-wheel, springs acting on the outer members of the toggle-levers; brake-shoes applied to the inner extensions of the outer members, and, a friction-disk against which the brake-shoes are pressed whenever the motion of the sprocket-wheel is retarded, substantially as set forth.

579,377. STEAM-SEPARATOR. CLARENCE M. BAUM, Philadelphia, Pa. Filed Jan. 7, 1896. Serial No. 574,630. (No model.)

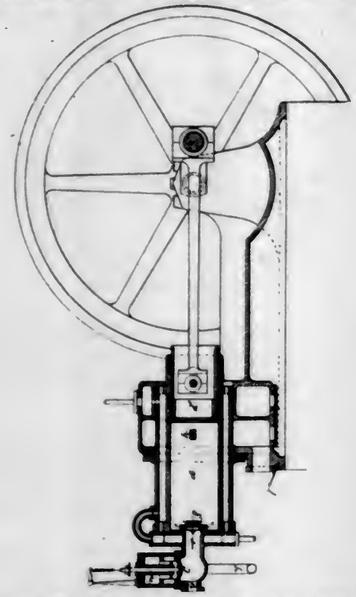


Claim.—1. A steam-separator having lateral inlet and outlet for the steam, and a deflector presenting a convex or diverging face located so as to divide the incoming flow of steam, said deflector being provided with projecting ribs or blades disposed as described in respect to the line of flow of the steam, whereby liquid particles contained in the latter will be caught by the ribs and directed to the outlet without crossing the flow of steam in its escape, substantially as specified.

2. A steam-separator having lateral inlet and outlet for the steam, and a deflector presenting a convex or diverging portion to the incoming steam and provided with projecting ribs or blades on its convex or diverging faces whereby the liquid particles are caught and directed to the outlet without crossing the flow of escaping steam, substantially as specified.

3. A steam-separator having lateral inlet and outlet for the steam, and a deflector presenting a convex or diverging face to the incoming flow of steam and having on each side of the center ribs or blades projecting therefrom at a right angle to the face from which they project, whereby they are adapted to catch the liquid particles projected by the steam, and to direct the same to the outlet without crossing the flow of escaping steam, substantially as specified.

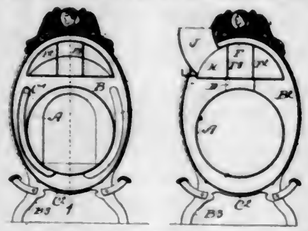
579,378. GAS-ENGINE. LÉON BÉNIER, Paris, France, assignor to the Compagnie Générale des Moteurs Gazogènes Système Bénier, same place. Filed Feb. 17, 1894. Serial No. 500,513. (No model.) Patented in France Dec. 29, 1893, No. 235,146; in Belgium Jan. 19, 1894, No. 108,139; in Switzerland Jan. 22, 1894, No 7,897; in England Jan. 24, 1894, No. 1,581; in Germany Jan. 28, 1894, No. 77,835; in Hungary Feb. 18, 1894, No. 42; in Spain Feb. 26, 1894, No. 15,400; in Austria Mar. 1, 1894, No. 221; in Italy Mar. 30, 1894, No. 35,623; in Portugal Nov. 28, 1894, No. 2,043; in Luxemburg May 18, 1895, No. 2,309; in Tunis May 26, 1895, No. 152, and in Turkey Sept. 27, 1895, No. 465.



Claim.—1. In a gas-motor, the combination of a motive-power cylinder, with a gas-pump provided with a gas-inlet valve and a return-pipe leading to the motive-power cylinder, and means whereby during the suction stroke of the gas-pump, gas is drawn into the pump and air into the said return-pipe, substantially as set forth.

2. In a gas-motor the combination of a motive-power cylinder, with a gas-pump provided with a gas-inlet valve and a return-pipe leading to the motive-power cylinder, the said pipe communicating with the atmosphere during the suction of the pump, and an adjustable automatic valve in the said pipe adapted to open freely during the return stroke of the pump, but to incompletely close during the suction, substantially as and for the purposes set forth.

579,379. SHEET-METAL HEATING-STOVE. FRED L. BEYMER, Indianola, Iowa. Filed Feb. 4, 1896. Serial No. 578,067. (No model.)

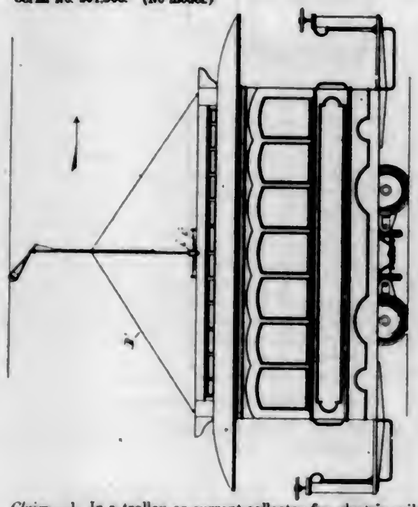


Claim.—1. In a sheet-metal stove having a suitable fire-box, and upright end pieces for supporting the same, the combination of an open-ended drum, designed to be supported in the said end pieces above the stove-body, and having an opening at its bottom near one end to admit a pipe from the fire-box and a discharge-opening at its top, two longitudinal partitions therein extending to points near the ends of the drum, a transverse partition extending from the end of one of said partitions to the opposite side of the drum and having a draft-passage therein to provide open draft-passages from the opening that leads to the fire-box direct to the discharge-opening and from the flue-opening through the middle passage and partly through the remaining outer passage to the discharge-opening and dampers to control the direct passage and to control the passage leading around the interior to the fine-opening, substantially as set forth

2. A sheet-metal stove comprising two oval cast-metal end pieces, an oval sheet-metal body fixed to said end pieces, a cylindrical sheet-metal fire-box located in the lower portion of said oval metal body and fixed to said end pieces, a radiator having a tortuous passage for the products of combustion inclosed within the oval metal body and above the fire-box and means for conducting and controlling the passage of the products of combustion from the fire-box through the radiator in the manner set forth, for the purposes stated.

3. The combination in a sheet-metal stove, of a cast-metal front having an inwardly-projecting flange, a sheet-metal stove-body with its end overlapping the flange, two flues cast integral with the stove-front and leading from a point near the top of the stove, downwardly on the rear surface of the stove-body in close proximity thereto but not in direct contact with the fire at any point, and discharging into the stove-body at its bottom, to produce a downdraft-flue that will superheat air and yet not burn out, substantially as set forth.

579,380. TROLLEY-SUPPORT FOR ELECTRIC-RAILWAY CARS. JOHAN F. S. BRAATH, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company, same place. Filed Nov. 20, 1888. Serial No. 291,368. (No model.)



Claim.—1. In a trolley or current-collector for electric railway cars, the combination of a support mounted upon the car-roof and adapted to have a transverse rocking motion thereon, and a trolley-arm pivoted upon said support on axes perpendicular to each other, one of which is horizontal and transverse to the car, substantially as set forth.

2. In a trolley or current-collector for electric railways, the combination of a rocking vertical support attached to the car-roof, and of a length sufficient to almost reach the overhead conductor, and a short arm pivoted upon said support and carrying a contact device, substantially as set forth.

3. In a trolley or current-collector for electric-railway cars, the combination of a rocking vertical support attached to the car-roof and of a length sufficient to almost reach the overhead conductor, and a short trolley-arm pivoted upon the top of said support by two axes perpendicular to each other, one of which is horizontal and transverse to the car, substantially as set forth.

4. The combination with a trolley-wheel, of side pieces between which the wheel is journaled, each side piece having a V shape, and the trolley-wheel being journaled centrally between the wide ends of the V, substantially as set forth.

5. The combination with a trolley-wheel, of V-shaped side pieces centrally between the wide ends of which the trolley-wheel is journaled, such side pieces having a width at their outer ends substantially equal to the diameter of the trolley-wheel and forming tangents to such trolley-wheel, substantially as set forth.

6. The combination with a trolley-wheel, of side pieces between which the wheel is journaled, diverging outwardly from said wheel and away from each other, substantially as set forth.

7. A trolley-arm comprising a frame with diverging V-shaped side pieces, such side pieces being nearest together at the wide ends of the V, and a trolley-wheel journaled centrally between such side pieces at their wide ends, substantially as set forth.

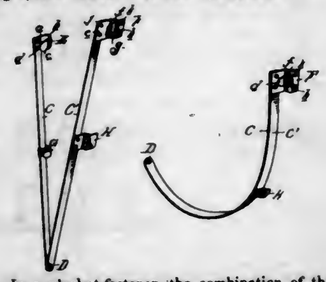
8. The combination with an electric-railway car, of a trolley supported thereby, and curved plate-springs upon which the support rocks, substantially as set forth.

9. The combination with an electric-railway car and an overhead line of a branching support, each leg of the support being flexibly supported, and a trolley carried upon said support making underneath contact with said line, substantially as set forth.

10. The combination with an electric-railway car and an overhead line of a branching support, a spring for each leg of said support, pins connecting the legs of the support and springs and a trolley carried upon said support making contact with said line, substantially as set forth.

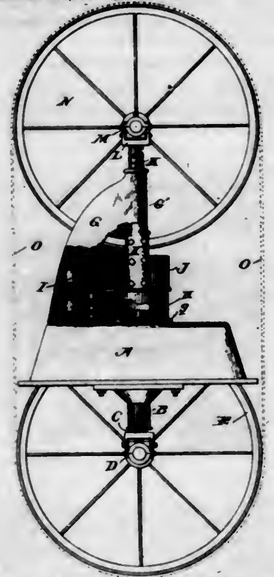
11. The combination with an electric-railway car and an overhead line of a flexibly-supported support, an inclined arm thereon carrying a trolley making underneath contact with said line and a weight connected with said inclined arm flexibly cushioned, substantially as set forth.

579,381. SKIRT-PLACKET FASTENER. CHARLES W. BURRIDGE, Lansing, Mich., assignor of one-half to Darius D. Throp, Detroit, Mich. Filed Aug. 5, 1896. Serial No. 601,755. (No model.)



Claim.—In a placket-fastener, the combination of the hinged flexible spring-jaws C C', the hook E secured to one jaw and projecting to one side thereof, comprising the shank *a*, the bend *b* and tongue *c*; and the eye F secured to the other jaw and projecting to one side thereof comprising the shank *e*, the inclined portion *f*, having the slot *g* of greater width than the tongue *c* and the end portion *h* substantially as and for the purpose described.

579,382. TENSION DEVICE FOR BAND-SAW MILLS. THOMAS A. COLEMAN and NATHAN COLEMAN, Texarkana, Tex. Filed July 17, 1896. Serial No. 599,462. (No model.)



Claim.—1. In a band-saw mill, the combination with the wheels for carrying the band-saw, connected supporting mechanism for the shaft-bearings, and a single fluid-actuated cylinder for supplying pressure to said supporting mechanism; substantially as described.

2. In a band-saw mill, the combination with the frame, of guides arranged on each side of said frame, standards slidingly mounted in said guides, a band-wheel mounted in the upper ends of said standards, and a cylinder common to both of said standards; substantially as described

3. In a band-saw mill, the combination with the band-wheels, of vertically-movable standards in which the upper wheel is mounted, and a single cylinder common to said standards, for moving them in unison; substantially as described.

4. In a band-saw mill, the combination with the band-wheels, of vertically-movable standards in which the upper wheel is mounted, a single cylinder common to said standards, for moving them in unison, and universal bearings for the lower wheel, said bearings comprising a box, a stem fitting in said box, bearing-carriers in said box, and a bolt for securing the box in position, said bolt also adjusting the stem vertically, said bolt being centrally disposed relative to the parts; substantially as described.

579,383. INSERTIBLE-TOOTH SAW. JOHN COYLE, Indianapolis, Ind. Filed Oct. 10, 1896. Serial No. 608,533. (No model.)



Claim.—1. In a saw, a projection from the blade thereof, an insertible tooth, and a sleeve that surrounds the projection and tooth to hold the latter in place.

2. In a saw, a projection from the blade thereof, an insertible tooth, a sleeve that surrounds the projection and tooth to hold the latter in place, and means for holding such sleeve on the projection.

3. In a saw, a projection from the blade whose front face is inclined forward to the free end thereof, an insertible tooth that fits snugly against the front face of such projection, and a sleeve that surrounds such projection and tooth to hold the latter in place.

4. In a saw, a projection from the blade thereof, a slight extension or lug from the blade forming a recess between such projection and lug, a tooth whose shank is formed to fit in such recess and against the projection, and a sleeve that surrounds the projection and tooth to hold the latter in place.

5. In a saw, a projection from the blade thereof provided with a lug on its rear face, a tooth that fits against the front face of such projection, and a sleeve which surrounds such projection and tooth and has a notch in its rear face to engage the lug on the projection to prevent the escape of the sleeve.

6. In a saw, a projection from the blade thereof provided with a flat shoulder near the base of its rear face and with a lug in its rear face, a slight extension or lug on the blade with straight upper and rear faces and forming a recess between it and the base of the projection, a tooth whose shank at its lower end is formed to fit snugly in such recess and having a shoulder in the upper portion of its front face, and a sleeve surrounding such projection and tooth provided with a notch in its rear portion to engage the lug on the rear of the projection to prevent the escape of the sleeve.

7. In a saw, a projection from the blade thereof, a tooth provided with a recess in its shank, a spring fitting in such recess and adapted to press against an adjacent surface, and a sleeve that surrounds such projection and tooth.

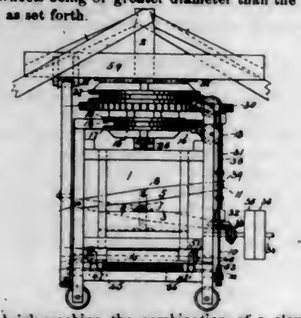
8. In a saw, a projection from the blade thereof, a tooth provided with a recess in its front face, an inverted-V-shaped spring with one arm fitting in such recess in the tooth and its free end extending downward, and a sleeve that surrounds such projection and tooth and has a slot or notch in its front face into which the free arm of such spring may extend when the tooth is in place.

579,384. BRICK-MACHINE. WILLIAM E. DAMON, Pomona, Cal. Filed Apr. 21, 1896. Serial No. 588,514. (No model.)

Claim.—1. In a brick-machine the combination, of a clay-receiver, a plunger, a lever for raising the plunger, a wheel, means for operating the wheel, trip mechanism in connection with the wheel, a flexible connection between the trip mechanism and plunger, for forcing the plunger downward, and a like wheel, trip mechanism and connection for raising and dropping the plunger, substantially as set forth.

2. In a brick-machine the combination, of a clay-receiver, a plunger, a lever for raising the plunger, upper and lower wheels supported on the machine, trip mechanism in connection with said wheels,

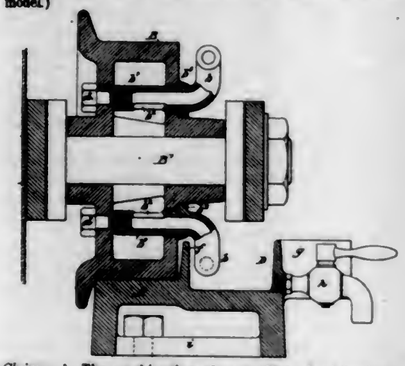
and a flexible connection between the trip mechanism and the lever, one of said wheels being of greater diameter than the other wheel, substantially as set forth.



3. In a brick-machine the combination, of a clay-receiver, a plunger, a lever for raising the plunger, upper and lower wheels supported on the machine, trip mechanism in connection with said wheels and a flexible connection between the trip mechanism and the lever, said trip mechanism being operated at different periods in the revolution of the wheels to which they are connected, substantially as set forth.

4. In a brick-machine the combination of a clay-receiver, a plunger, upper and lower trip-wheels, suitable trip mechanism, means for connecting the trip mechanism with the plunger, a master-wheel located on the same support as the trip-wheels, and suitable gearing in connection with the master-wheel for revolving the same, substantially as set forth.

579,385. LUBRICATING DEVICE FOR CONVEYERS. JAMES M. DODGE, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed July 31, 1896. Serial No. 601,201. (No model.)



Claim.—1. The combination of a traveling wheel, having a scoop communicating with its bearing, a rail over which the wheel travels, and a fixed trough for lubricating material so arranged in respect to the rail that as the wheel traverses the rail its scoop will enter the trough and will pick up lubricant therefrom, substantially as described.

2. The combination of a rail having a depression, a trough at the side of the rail, a wheel, an axle therefor and a scoop on the wheel whereby when the wheel runs upon the depressed rail the scoop will pick up lubricant from the trough, substantially as described.

3. The combination of the rail having a depression therein, the trough at one side of the rail, a chambered wheel, an axle therefor, and a scoop communicating with the chamber of the wheel and adapted to pick up lubricant from the trough as the wheel passes the same, substantially as described.

4. The combination of the rail-section having a depressed face over which the wheel travels, with a trough for lubricant formed integral with said rail-section and located at the side of the same, substantially as described.

5. The combination of a depressed rail, a trough adjacent thereto, a chambered wheel, an axle therefor, a scoop projecting from one side of the wheel and having a stem extending into the chamber of the wheel, and a bolt adapted to hold the scoop in position on the wheel, substantially as described.

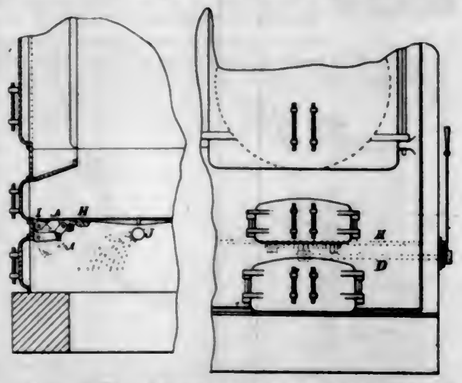
6. The combination of an endless-chain conveyer having axles, wheels on said axles, a scoop on each wheel, and a trough over which the conveyer passes and into which the scoop extends in passing so as to pick up lubricant therefrom, substantially as described.

579,386. DAMPING DEVICE FOR MUSIC-BOXES. PAUL REICHLICH, Gohlis, near Leipsic, Germany. Filed Sept. 18, 1896. Serial No. 562,843. (No model.)



Claim.—In music-boxes the combination with the star-wheel *b*, of a slotted bracket *a*, disposed on the spindle of the star-wheel, and having a tail end *c*, a yielding arm *a'*, and an extension *a*^{4}, to partly encircle the spindle, substantially as set forth.

579,387. BOILER FRONT AND FURNACE. DAVID W. EVANS, Pittston, Pa. Filed June 22, 1896. Serial No. 596,434. (No model.)

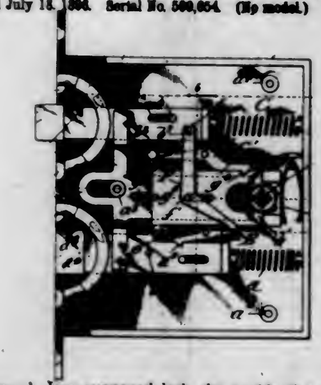


Claim.—1. The boiler-front with combined dead-plate and grate-bar bearing with opening and drop door A, in combination with rod D, to which is attached the arm C, and lever-handle E, to open and close the same, substantially as shown and described.

2. The door in the combined dead-plate and grate-bearing with the shaft D running to the side of the furnace with crank C, and hand-lever E, in combination with ratchet F, and pawl G, to hold the same in the position desired, substantially as shown and described.

3. The combined dead-plate and grate-bar bearing with door opening downward, with the shaft D, running to the side of the furnace with crank and lever in combination with a perforated water-pipe running across in the rear of the dead-plate under the grate-bars, substantially as described and shown.

579,388. LOCK. ARTHUR FLEISCHMANN, Chicago, Ill., assignor to Moritz Fisher, Augustus Binswanger, and Otto Dammer, same place. Filed July 18, 1896. Serial No. 599,654. (No model.)



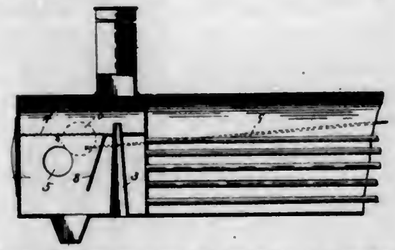
Claim.—1. In a compound lock, the combination of a primary locking-bolt, and a second locking-bolt arranged to be placed in a locking position by the movement of the primary locking-bolt, substantially as described.

2. In a compound lock, the combination of a primary locking-bolt, a second locking-bolt, spring mechanism adapted to normally hold both of the locking-bolts in their locking position, latch mechanism arranged to hold the second locking-bolt in its unlocked position, and means interposed between the primary locking-bolt and the second locking-bolt whereby the second locking-bolt is released by the movement of the primary locking-bolt, substantially as described.

3. In a compound lock, the combination of a primary locking-bolt, a second locking-bolt, spring mechanism for normally holding the locking-bolts in their locking position, a slide arranged to withdraw the bolts from their locking position, latch mechanism for holding the second locking-bolt in its unlocked position and a lever pivoted to the slide and engaged by the primary locking-bolt whereby the second bolt is released by the independent movement of the primary locking-bolt only and not disturbed when the primary locking-bolt is moved by the slide, substantially as described.

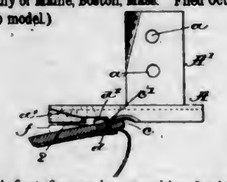
4. In a compound lock, the combination of a primary locking-bolt, a second locking-bolt, spring or similar mechanism for normally holding the locking-bolts in their locking position, latch mechanism for holding the second locking-bolt in its unlocked position, a compound slide arranged to withdraw the bolts from their locking position, a lever pivoted to the main portion of the slide and engaging with the latch mechanism and with the primary bolt whereby the latch mechanism of the second bolt is released by the independent movement only of the primary bolt, latch mechanism for preventing the movement of the second portion of the compound slide, a knob and turn-bolt arranged to operate the main slide from one side of the door and the supplemental or second slide from the opposite side of the door, and key mechanism for releasing the latch of the supplemental slide, substantially as described.

579,389. DRAFT-REGULATOR FOR LOCOMOTIVES. JAMES FREW, Chippewa Falls, Wis. Filed Mar. 18, 1896. Serial No. 583,759. (No model.)



Claim.—The combination of the smoke-box of a locomotive-boiler formed in one side intermediate its top and bottom with a valve-controlled air-inlet opening, and in its bottom portion with a cinder trap or receptacle, the steam-exhaust nozzle extending upwardly within the smoke-box and adjacent to the front flue-sheet of the boiler, a deflector 8 extended from said front flue-sheet of the boiler and arranged in advance of the nozzle and at an inclination, said deflector being set at a slight angle to a vertical plane so as to lie in a plane intersecting both the stack and the cinder trap or receptacle, whereby large cinders are deflected downwardly into the trap or receptacle, and whereby air entering the side inlet-opening is reflected upward into the stack, and a horizontal intercepting screen extending from the upper end of the inclined portion of the deflector to the front end of the smoke-box and disposed in a plane above the side air-inlet opening, substantially as set forth.

579,390. FOOT FOR NAILING-MACHINES. GEORGE N. GORDON, Malden, Mass., assignor, by mesne assignments, to the Wire Grip Fastening Company of Maine, Boston, Mass. Filed Oct. 7, 1896. Serial No. 608,074. (No model.)



Claim.—1. A foot for use in a machine for inserting fastenings into soles, it presenting at its under side a lip to enter a channel in the sole and at a short distance therefrom, a bearing extended downwardly for a distance below the bottom of the said lip, said bearing acting to keep the sole in an inclined position to insure the insertion of fastenings therein at an incline to the sole, substantially as described.

2. A foot for use in a machine for inserting fastenings into soles, it presenting at its under side a lip to enter a channel in the sole and at a short distance therefrom, a bearing extended downwardly for a distance below the bottom of the said lip, said bearing acting to keep the sole in an inclined position to insure the insertion of fastenings therein at an incline to the sole, and means to adjust the position of said bearing vertically, substantially as described.

3. The foot provided with a hole through which a fastening may be driven, and the bearing extended from its under side downwardly beyond the outer edge of said hole, combined with means to adjust the bearing vertically, substantially as described.

4. The foot, its lip *c*, and the bearing extended from its under side downwardly, combined with means to adjust said bearing longitudinally, substantially as described.

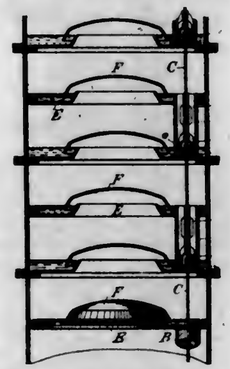
5. The foot, and its lip, combined with an adjustable downwardly-extended bearing having an inclined bottom, substantially as described.

6. The foot, and its lip, combined with a bearing, two stop-screws, and a screw 3 having a notched head and engaging said bearing, substantially as described.

7. The foot, and its lip, combined with a downwardly-projected bearing presenting a rounded edge toward the said lip, substantially as described.

8. A foot having a lip to enter a channel, and a downwardly-extended bearing to effect the tipping of the sole, the under side of said foot being beveled as at $a^{\times}$ at one side of said bearing, to operate, substantially as described.

579,391. APPARATUS FOR CLEANING OVERFLOW-PIPES IN COLUMN APPARATUS. HEINRICH HIESEL, Plagwitz, near Leipsic, Germany. Filed July 27, 1896. Serial No. 600,668. (No model.)



Claim.—1. The combination with a plurality of trays, and an overflow-pipe depending from one tray and ending above the tray beneath, of a scraper within said overflow-pipe and provided with laterally-extending wings arranged to project outward between the lower end of said overflow-pipe and the tray beneath, and means for operating said scraper, substantially as described.

2. The combination, with a plurality of trays and an overflow-pipe depending from one tray, of a sleeve projecting upward from the tray below, a rod passing through said sleeve and a scraper carried by said rod and located within the overflow-pipe, substantially as set forth.

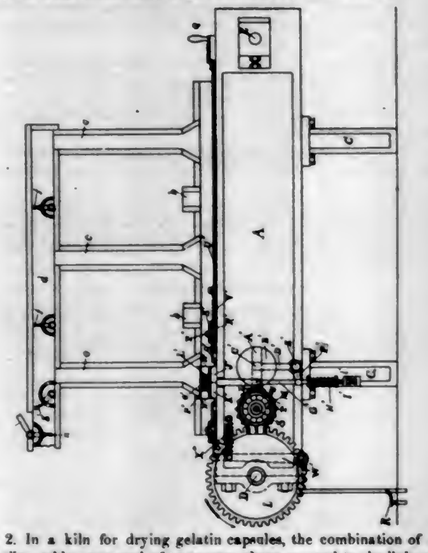
3. The combination with a plurality of trays arranged to contain liquid at a predetermined level in each tray, of an overflow-pipe connected to one tray, a sleeve projecting upward from the tray below to a point above the predetermined level of the liquid in said latter tray, a rod passing through said sleeve, and a scraper connected to said rod, substantially as set forth.

4. The combination, with a plurality of trays and an overflow-pipe depending from one tray and ending above the tray below, of a sleeve projecting upward from the latter tray, a rod passing through said sleeve, and a scraper connected to the rod and located within the overflow-pipe, said scraper having laterally-extending wings projecting between the end of the overflow-pipe and the tray beneath, substantially as set forth.

5. A series of trays and overflow-pipes connecting one set of such trays with another set below the first set, the trays of the lower set being provided with sleeves extending upward from the trays, in combination with a rod or shaft extending through the overflow-pipes and the sleeves and provided with scrapers and cups inverted over the sleeves, substantially as set forth.

579,392. KILN FOR DRYING GELATIN CAPSULES. FREDERICK A. HUBEL and JESSE M. SMITH, Detroit, Mich.; said Smith assignor to said Hubel. Filed Jan. 20, 1894. Renewed June 19, 1896. Serial No. 553,368. (No model.)

Claim.—1. In a kiln for drying gelatin capsules, the combination of a traveling table composed of transverse plates mounted on endless sprocket-chains and adapted to hold capsule-molds in position on said table, an air-chamber through which said table travels, and a plurality of inlet and outlet openings alternately disposed, whereby opposite moving and impinging currents of air within said chamber are produced, substantially as and for the purpose described.



2. In a kiln for drying gelatin capsules, the combination of a traveling table composed of transverse plates secured to the links of sprocket-chains and adapted to hold capsule-molds in position on said table while traveling therewith, an air-chamber through which said table passes, a plurality of air inlets and outlets alternately disposed, a main supply-pipe connecting with said inlets, and means for forcing a current of air through the inlets into said chamber, substantially as and for the purpose described.

3. In a kiln for drying gelatin capsules, the combination of a traveling table composed of transverse plates mounted on sprocket-chains, an air-chamber through which the table travels, a plurality of air-inlets connecting with said air-chamber, air-outlets from said air-chamber located between the connections of said inlet-pipes, and means for forcing air through the inlets into said air-chamber and out through said outlets, whereby reversed air-currents are produced within said air-chamber, substantially as and for the purpose described.

4. In a kiln for drying gelatin capsules, the combination of an air-chamber, a plurality of air-inlets and air-outlets alternately disposed, connecting with said air-chamber, outlets from said air-chamber located between the connections of said inlets, a main supply-pipe connecting with said inlets, means for heating the air, means for forcing the heated air into said air-chamber, a traveling table composed of transverse plates mounted on sprocket-chains and provided with ribs adapted to locate capsule-molds and keep them in position on the table while traveling through the air, substantially as described.

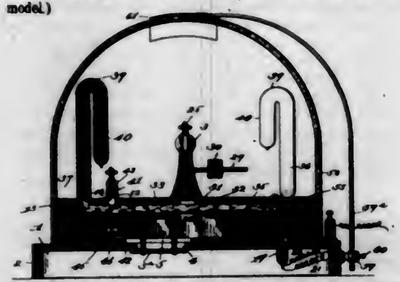
5. In a kiln for drying gelatin capsules, the combination of an air-chamber, a plurality of air inlets and outlets alternately disposed, a main supply-pipe connecting with said inlets, regulating-valves adapted to control the air passing through the main supply-pipe, means for forcing the air into said air-chamber, the said inlets and outlets being adapted to produce currents which strike against the capsules alternately on opposite sides, substantially as described.

6. In a kiln for drying gelatin capsules, the combination with an air-chamber, and a movable table adapted to travel through it, means for controlling the starting movement of said table, consisting of a loose driving-pulley, a wheel engaging with the table-actuator, clutching mechanism between the driving-pulley and said wheel, a lever adapted to actuate the clutch mechanism, a pair of stops adapted to oppose the movement of said lever, one of which is arranged to be actuated from the delivery end and the other from the receiving end of said table, and both of which must be actuated before the clutching-lever can operate, substantially as and for the purpose described.

7. In a kiln for drying gelatin capsules, the combination of an air-chamber, a movable table adapted to travel through it, a loose pulley, a clutch adapted to engage the pulley, means for shifting the clutch, an arm on the driving-wheel, a stop adapted to engage the arm and to be shifted out of its detaining engagement therewith by the means which shifts the clutch, and to be shifted back to its detaining position by the arm on the driving-wheel, substantially as described.

8. In a kiln for drying gelatin capsules, the combination of a traveling table composed of transverse plates mounted on sprocket-chains, an air-chamber through which the table travels, an air-inlet, and air-outlets on either side of said air-inlet, and means for forcing air through said inlet into said air-chamber and out through said outlets, whereby reversed impinging air-currents are produced within said air-chamber, substantially as and for the purpose described.

579,393. **ELECTRIC SUNSHINE-ANNUNCIATOR.** LEONARD HURT, St. Louis, Mo. Filed Oct. 17, 1896. Serial No. 609,188. (No model.)



Claim.—1. In an electric sunshine-annunciator, a supporting-frame adjustably attached to a base, said supporting-frame consisting of the base-plate 6 having the slot 5 through which slot the said plate is adjustably bolted to the base of the machine, the arms 7 and 8 projecting upwardly from opposite edges of said base-plate 6, the V-shaped bearings 9 and 10 formed in the upper ends of said arms and the disks 11 attached to the outer faces of said upper ends by means of the screws 12, substantially as specified.

2. In an electric sunshine-annunciator, the frame 3; consisting of the base-plate 6 having the slot 5 through which slot the said plate is adjustably bolted to the base of the machine, the arms 7 and 8 projecting upwardly from opposite edges of said base-plate 6, the V-shaped bearings 9 and 10 formed in the upper ends of said arms in the disks 11 attached to the outer faces of said upper ends by means of the screws 12; the bar 23 mounted in said bearings 9 and 10, the pair of rods 24 extending downwardly from said bar, the screw 25 inserted through the center of said bar and extending downwardly between the rods 24 with its head resting upon said bar, the sliding block 26 having the central aperture 27 in which said screw 25 operates and having the apertures 28 in which the rods 24 slidingly operate, the screw-threaded rod 29 extending from said block in a horizontal position, the screw-threaded weight 30 upon said screw-threaded rod, the horizontal bar 31 formed integral with the lower end of said block 26, and the clamps 32 and 33 carried by the ends of said bar 31, substantially as specified.

3. In an electric sunshine-annunciator, the rectangular metal base 1, the rim 2 projecting downwardly from the edges of said base, the frame 3 adjustably attached to said base by means of the screws 4 operating in the slots 5 and screw-seated in the base-block 5ª; said frame 3 consisting of the base-plate 6, the arms 7 and 8 projecting upwardly from opposite edges of said base-plate 6, the V-shaped bearings 9 and 10 formed in the upper ends of said arms and the disks 11 attached to the outer faces of said upper ends by means of the screws 12; the bar 23 mounted in said bearings 9 and 10, the pair of rods 24 extending downwardly from said bar, the screw 25 inserted through the center of said bar and extending downwardly between the rods 24 with its head resting upon said bar, the sliding block 26 having the central aperture 27 in which said screw 25 operates and having the apertures 28 in which the rods 24 slidingly operate, the screw-threaded rod 29 extending from said block in a horizontal position, the screw-threaded weight 30 upon said screw-threaded rod, the horizontal bar 31 formed integral with the lower end of said block 26, the clamps 32 and 33 carried by the ends of said bar 31, the pipe 35 slidingly mounted in said clamps 32 and 33 and having the upwardly-extending white end 36 and the upwardly-extending black end 37 and the horizontal portion of said pipe being filled with mercury, the clip 53 attached to said pipe, the arm 54 attached to said clip and the U-shaped bar 57 carried by said arm, the cups 19 and 20 mounted in said base-plate 1 and partly filled with mercury and in position to have said mercury engaged by the free ends of said bar 57, and suitable electrical connections with said cups, substantially as specified.

4. In an electric sunshine-annunciator, a pipe having the horizontal central portion 35 filled with mercury, the portion 36 extending upwardly from one end of said horizontal portion, the portion 39 bent inwardly from the upper end of the portion 36 and the portion 40 extending downwardly from said portion 39, said portions 36, 39 and 40 being clear, and having the portion 37 extending upwardly from the end opposite said portion 36, the portion 39 bent inwardly from the upper end of said portion 37 and the portion 40 extending downwardly from said portion 39, said portions 37, 39 and 40 being black, and the lower ends of said portions 40 being sealed, substantially as specified.

5. In an electric sunshine-annunciator, the post 41 attached to a suitable base by means of the machine-screws 42, said post having the slot 43 and the notch 44 and the horizontal walls 45 and 48, the block 46 slidingly mounted in the slot 43, the screw 47 vertically mounted in bearings in said horizontal walls 45 and 48 and passing through screw-threaded apertures in the arms 50 which project from the block 46, the collar 49 fixed to the lower end of said screw to prevent said screw from being withdrawn from its position, the milled head 51 upon the upper end of said screw for operating the same, and the arms 52 projecting from said block 46, substantially as specified.

6. In an electric sunshine-annunciator, the rectangular base-plate 1, the rim 2 projecting downwardly from the edges of said base-plate, the frame 3 adjustably mounted upon said base-plate, the horizontal bar 31 pivotally connected to said frame, the clips 32 and 33 carried by the ends of said bar, the pipe, having the horizontal portion 35, slidingly mounted in said clips and the clear end 36 extending upwardly from one end of said horizontal portion and the black end 37 extending upwardly from the other end of said horizontal portion, the cups 19 and 20 mounted in said base-plate 1 and partly filled with mercury, suitable electrical connections to said cups, the clip 53 carried by said pipe and the U-shaped bar 57 carried by said clip and in position to engage the mercury within said cups, substantially as specified.

7. In an electric sunshine-annunciator, the rectangular base-plate 1, the rim 2 projecting downwardly from the edges of said base-plate, the frame 3 adjustably mounted upon said base-plate, the horizontal bar 31 pivotally connected to said frame, the clips 32 and 33 carried by the ends of said bar, the pipe, having the horizontal portion 35, slidingly mounted in said clips and the clear end 36 extending upwardly from one end of said horizontal portion and the black end 37 extending upwardly from the other end of said horizontal portion, the cups 19 and 20 mounted in said base-plate 1 and partly filled with mercury, suitable electrical connections to said cups, the clip 53 carried by said pipe and the U-shaped bar 57 carried by said clip and in position to engage the mercury within said cups, the post 41 attached to said frame 3 by means of the screws 42, the block 46 arranged for vertical adjustment in said post, and the arms 52 extending from said block upon opposite sides of said pipe to limit the vibration of said pipe, substantially as specified.

8. In an electric sunshine-annunciator, the rectangular base-plate 1, the rim 2 extending downwardly from the edges of said base-plate, the wall 13 extending upwardly from said base-plate, the glass case 58 surrounding said wall and resting upon said base-plate, the post 59 extending horizontally from one end of said rim, the rod 59ª slidingly mounted in said post and adjustably held in position by means of the set screw 60, and the sheet-metal shoe 61 attached to the upper end of said rod 59ª and engaging the apex of said glass case to hold said case in position, substantially as specified.

9. In an electric sunshine-annunciator, a pipe pivotally mounted with a substantially horizontal central portion filled with suitable liquid and the ends of said pipe being turned upwardly into planes above said horizontal portion and filled with air and hermetically sealed, and said pipe being cylindrical throughout all its upper parts and said upwardly-turned ends being of a sufficient length to present large surfaces for the differential absorption and radiation of heat, substantially as specified.

579,394. **SWEAT-BAND FOR HATS.** URBAN G. ILES, Cuba, Mo. Filed Aug. 10, 1896. Serial No. 602,355. (No model.)

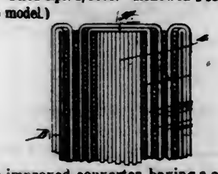


Claim.—1. As an article of manufacture, a sweat-band for headwear consisting of an inner band of suitable material and sections of non-absorbent waterproof material placed end to end against the outer surface of said inner band and having tongues projecting from their ends and overlapping each other and stitched to said inner band, substantially as specified.

2. As an article of manufacture, a sweat-band for headwear consisting of an inner band of suitable material, a second band composed of non-absorbent waterproof material placed against the outer surface of said inner band, the upper edge of said inner band being turned outwardly over the upper edge of said waterproof band and stitched in position, a third band of material similar to said inner band placed outside of said waterproof band and having its lower edge turned inwardly and upwardly and attached to the lower edge of said inner band and a fourth band of non-absorbent waterproof material outside of said third band and attached to said third band, substantially as specified.

3. As an article of manufacture, a sweat-band for headwear consisting of an inner band of suitable material, a second band composed of non-absorbent waterproof material placed against the outer surface of said inner band, the upper edge of said inner band being turned outwardly over the upper edge of said waterproof band and stitched in position, a third band of material similar to said inner band placed outside of said waterproof band and having its lower edge turned inwardly and upwardly and attached to the lower edge of said inner band and a fourth band of non-absorbent waterproof material outside of said third band and attached to said third band, the lower edge of said fourth band extending below the lower edges of the other bands, substantially as specified.

579,395. **ELECTRICAL TRANSFORMER.** FRANK H. JEANNIN, Arcadia, Fla. Filed Apr. 1, 1895. Renewed Feb. 15, 1897. Serial No. 623,580. (No model.)



Claim.—The improved converter, having a core made up of soft-iron wires 4 all of one length, a separate series of soft-iron wires of various lengths, and a magnetic circuit formed by the varied lengths of soft-iron wires placed between the layers of copper wire composing the primary and secondary coils, and the projecting ends A of the wires between the layers next adjacent the core being bent inward across the end of said core, and the others B being bent outward and lapped over each other, and an exterior casing for holding in position such lapped-over portions, substantially as herein specified.

579,396. **ANTIFRICTION ALLOY.** WILLIAM H. KEMLER, Pittsburg, Pa. Filed Dec. 4, 1896. Serial No. 614,457. (No specimens.)

Claim.—1. An alloy containing copper, aluminium, tin and zinc, the tin being present in greater proportion than the zinc and the zinc in greater proportion than the others.

2. An alloy containing copper, aluminium, tin and zinc in about the following proportions: copper three per cent., aluminium, five per cent., tin sixty-five per cent., zinc twenty-seven per cent.

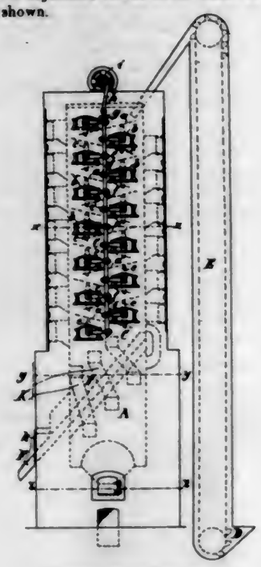
579,397. **RUBBER FOOTWEAR.** JOSEPH M. KING, Brooklyn, N. Y. Filed Oct. 4, 1895. Serial No. 564,600. (No model.)



Claim.—In a rubber overshoe or boot, the combination with the outsole, the insole, the upper and the upper-lining, of a reinforcing-strip which runs continuously along the sides of the shoe or boot and around the toe thereof from one side of the counter to the other between the outsole and the insole and between the upper and its lining, the said strip having a sinuous or irregular upper edge and being united from edge to edge by cementing and vulcanizing with the said parts between which it is interposed, substantially as herein described.

579,398. **DRYING-KILN.** LUDWIG KLIPPERT, Stettin, Germany. Filed Sept. 3, 1896. Serial No. 604,708. (No model.) Patented in Germany Apr. 2, 1895, No. 85,273; in England June 24, 1895, No. 12,243; in Belgium June 24, 1896, No. 116,255; in France June 24, 1895, No. 248,403; in Italy June 25, 1895, LXXVII, 98; in Hungary July 4, 1895, No. 3,154, and in Austria Sept. 13, 1895, No. 3,257.

Claim.—In a vertical kiln for drying granular materials on alternately-inclined shaking-plates the combination of spindles *b* with levers *c*, carrying the plates, and with levers *e* actuated by crank *i*, connecting-rod A adjustable on the crank and rod *f* essentially as described and shown.



579,399. BURNER FOR VAPOR-LAMPS. SIEGFRIED MARCUS, Vienna, Austria-Hungary. Filed Aug. 14, 1896. Serial No. 602,749. (No model.) Patented in Austria May 16, 1896. No. 46/1,969.



Claim.—A burner for gasifying liquid fuel comprising the burner-tube having irregular upper edge, the hollow ring surrounding the upper portion thereof, the pipe 6 connecting the fuel-supply pipe with said ring, the pipe 7 leading downward from said ring and terminating in a discharge-tip located centrally of the burner-tube, said burner-tube having elongated slots extending vertically thereof, and the outer casing having similar vertical slots located intermediate the slots of the burner-tube, substantially as described.

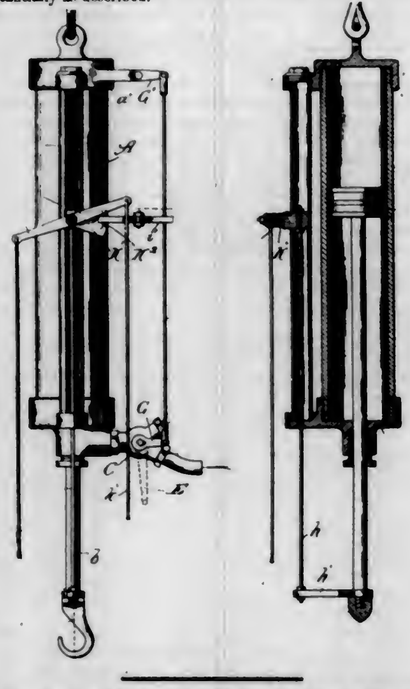
579,400. ELEVATOR OR HOIST. THOMAS MASON, Topeka, Kans. Filed May 25, 1896. Serial No. 592,933. (No model.)

Claim.—1. In mechanisms of the class described, the combination of a cylinder, provided with a reciprocating piston arranged to be actuated by fluid-pressure, a controlling-valve through which fluid-pressure is admitted and exhausted from the same, means for primarily operating such valve, and auxiliary mechanism for such valve arranged to be connected with or disconnected from a movable part of the mechanism to operate the valve and automatically sustain a load in a desired position, substantially as described.

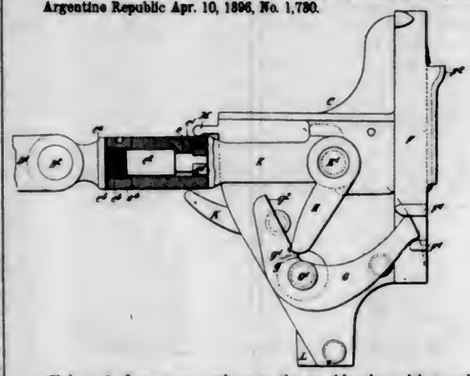
2. In mechanisms of the class described, the combination of a cylinder provided with a reciprocating piston arranged to be actuated by fluid-pressure, a controlling-valve through which fluid-pressure is admitted or exhausted from the cylinder, means for primarily operating such valve, and auxiliary mechanism composed of a sliding block connected with the piston, and gripping mechanism, arranged to connect the piston with the controlling-valve to operate the same by the movements of the piston and automatically sustain a load in a desired position, substantially as described.

3. In mechanisms of the class described, the combination of a cylinder, a piston movably mounted therein arranged to be operated by fluid-pressure, a rod on such piston extending out through one end of the cylinder, means for connecting the piston with a load to be operated, a controlling-valve for such cylinder through which the fluid-pressure is admitted to or exhausted from the cylinder, supplementary means for operating the controlling-valve and by the movements of the piston to automatically maintain a load in a desired position and which consists of a sliding block connected with the piston-rod, a wire rod, cable or similar mechanism, gripping mechanism arranged to grasp the wire, &c., and means for operating the gripping mechanism and for connecting it with the controlling-valve to operate the same, substantially as described.

4. In mechanism of the class described, the combination of a cylinder, a piston movably mounted therein arranged to be operated by fluid-pressure, a rod on such piston extending out through one end of the cylinder, means for connecting the piston to a load to be operated, a controlling-valve arranged at one end of the piston through which fluid under pressure is admitted or exhausted from the cylinder, means by which such valve is operated to admit or exhaust fluid-pressure from the cylinder, supplementary means for operating such controlling-valve by the movements of the piston to maintain the load in the desired position and which consists of a sliding block connected with the piston-rod, gripping mechanism therein, means for operating the same, and a rod or similar mechanism arranged to be grasped by the gripping mechauism and connected with the controlling-valve, substantially as described.



579,401. RECOIL-OPERATED GUN. HIRAM S. MAXIM, London, England. Filed Jan. 22, 1896. Serial No. 576,436. (No model.) Patented in France Dec. 17, 1895, No. 252,554; in Belgium Dec. 18, 1895, No. 118,922; in Switzerland Dec. 18, 1895, No. 11,655; in Italy Dec. 21, 1895, LXXIX, 176; in Brazil Feb. 4, 1896, No. 2,003; in Canada Feb. 18, 1896, No. 51,386; in Austria Mar. 26, 1896, No. 46/1,151, and in Argentine Republic Apr. 10, 1896, No. 1,780.



Claim.—1. In an automatic gun, the combination with a reciprocating breech mechanism, of a cartridge-carrier, and intermediate mechanical connections which raise the carrier to its highest position before the completion of the forward movement of the breech mechanism, as set forth.

2. In an automatic gun, the combination with a reciprocating lock and a crank-shaft and connecting-rod for imparting movement thereto, of a cartridge-carrier sliding transversely on the lock, connections between the said carrier and the mechanism for imparting movement to the lock adapted to move the carrier in correspondence with the movement of the lock and to raise the carrier to its highest position before the termination of the forward movement of the lock, as set forth.

3. In an automatic gun, the combination with a reciprocating lock, a crank-shaft, crank and connecting-rod imparting movement to the lock, of a cartridge-carrier sliding transversely on the lock, levers engaging with and controlling the transverse movement of the carrier, arms secured to the connecting-rod and engaging with said levers, the said levers and arms being so formed as to raise the carrier to its highest position before the lock has completed its forward movement, and to support the carrier in such position, as herein set forth.

4. In an automatic gun, the combination with the lock, and with the crank-shaft crank and connecting-rod for actuating the lock, of a cartridge-carrier arranged to slide transversely on the lock, levers for controlling the movements of the cartridge-carrier, arms secured to the connecting-rod for operating the said levers, and inclined faces *g'* formed on the levers G which faces bear against the ends of the arms that operate the levers and serve to support the cartridge-carrier in its raised position without moving said carrier during the final stage of the forward movement of the lock, substantially as described.

5. In an automatic gun, the combination with the lock, and the crank-shaft and crank, of a connecting-rod coupling the crank to the lock, the length of the said connecting-rod being adjustable, for the purpose specified.

6. In an automatic gun, the combination with the lock, the crank and the crank-shaft, of a connecting-rod coupling the crank to the lock, said connecting-rod being made in two parts one furnished with a stem c^3 and the other made tubular to embrace the said stem and be locked thereon by means of lugs *c*, *c'* formed on the tubular part and stem respectively, and a nut c^4 for adjusting the length of the connecting-rod, substantially as described.

7. In an automatic gun, the combination with the lock, the crank and the crank-shaft, of a connecting-rod coupling the crank to the lock, said connecting-rod being made in two parts one furnished with a stem c^3 and the other made tubular to embrace the said stem and be locked thereon by means of lugs *c*, *c'* formed on the tubular part and stem respectively, a nut c^4 for adjusting the length of the connecting-rod, and a washer c^5 between the nut and a shoulder c^6 on the connecting-rod to receive the thrust, substantially as described.

8. In an automatic gun, the combination with the lock, crank, and crank-shaft, of a connecting-rod coupling the crank to the lock the length of which rod is adjustable by means of a nut, a cartridge-carrier arranged to slide up and down on the lock and controllable by levers pivoted to the sides of the lock, arms secured to the connecting-rod for operating said levers, means for stopping the lifting movement of the carrier before the termination of the forward movement of the lock, and means for firmly supporting the carrier in its raised position, substantially as described.

9. In an automatic gun, the combination with the barrel of a chamber into which a portion of gases of discharge issue, said chamber having two parts movable with respect to each other by the force of such gases and operating when so moved to actuate the breech mechanism, a water-chamber and a passage of communication between the water-chamber and the gas-chamber, controlled by the movement of a part of said chamber, as set forth.

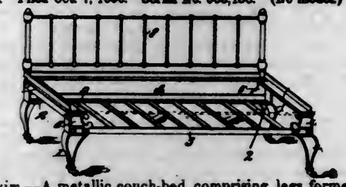
10. In an automatic gun the construction of the gun-barrel with an external groove or passage near the muzzle, the said groove or passage being so arranged that when the barrel is in its fired position the fore end of the groove or passage opens into the gas-chamber of the muzzle device, and when the barrel is in its recoiled position the rear end of the said groove or passage opens into the water-jacket substantially as described.

11. In an automatic gun, the combination with the pivoted catch on the side plate or frame of the gun and the projection on the crank-arm, of a finger against which the aforesaid projection strikes as the crank-arm performs its forward movement, and a device for temporarily restraining the catch from releasing the crank-arm, substantially as described.

12. In an automatic gun, the combination with a projection *o'* on the crank-arm, of a pivoted catch *n* on the gun-frame, and having a spring-controlled and weighted pendent arm, substantially as described.

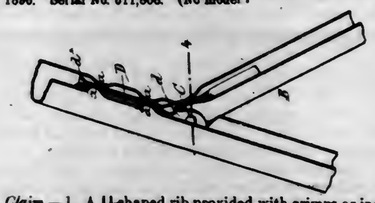
13. In an automatic gun the devices for controlling the speed of firing the gun, consisting of a pivoted catch carried by the side plate or frame of the gun, a projection on the crank-arm adapted to engage with the said catch at each forward stroke of the crank-arm, and means for temporarily restraining the catch from releasing the crank-arm, substantially as described.

579,402. METALLIC COUCH-BED. PETER H. MELLON, St. Louis, Mo. Filed Oct. 7, 1896. Serial No. 608,138. (No model.)



Claim.—A metallic couch-bed comprising legs formed integral with horizontal shoulders and elongations above the shoulders, the longitudinal angle-rails having their ends resting on the horizontal shoulders, the cross-slats connecting the longitudinal angle-rails, the cross-pieces secured to the tops of the elongations and the woven-wire spring fabric secured to the cross-pieces; substantially as described.

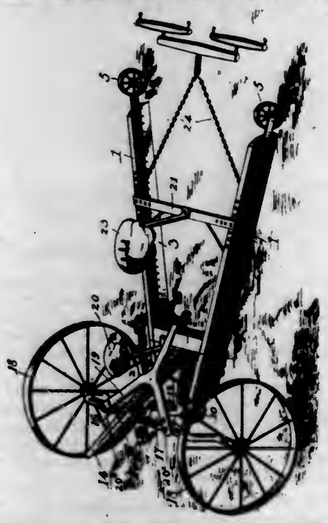
579,403. HINGE CONNECTION FOR RIBS AND STRETCHERS OF UMBRELLAS. ASHER T. MEYER, New York, N. Y. Filed Nov. 12, 1896. Serial No. 611,808. (No model.)



Claim.—1. A U-shaped rib provided with crimps or indentations at its edges, in combination with an anchor provided with ears at one end and being arranged in the groove of the rib, said crimps or indentations extending over the anchor and said ears lying beyond and entirely at one side of all of said crimps or indentations, and the stretcher pivoted to said anchor and being of less size than the rib, whereby when the umbrella is closed the stretcher is adapted to lie within that part of the groove of the rib which is at the other side of said ears, substantially as set forth.

2. A rib U-shaped in cross-section and provided with crimps or indentations at the edges, in combination with an anchor consisting of two plates provided at one end with outturned toes, said anchor being arranged within the groove of the rib and retained therein by cooperation of the crimps and toes, and a stretcher pivoted to said anchor, substantially as set forth.

579,404. ROAD SCRAPER AND LEVELER. JOHN N. MICHAELS, Union City, Ohio, and DANIEL H. GITTINGER and JONAS GITTINGER, Union City, Ind. Filed June 2, 1896. Serial No. 593,990. (No model.)



Claim.—1. In a road-scraper, the combination with the converging boards provided with scrapers, the block adjustably connected with the rear ends of said boards, provided with a scraper, the ad-

justable wheel at the rear thereof, the removable cross-bar provided with a driver's seat, and the adjustable front wheels, of the rearwardly and upwardly extending arm adapted to be secured to an axle and the bifurcated lever connected with the axle.

2. In a road-scraper, the combination with the converging boards, the scrapers secured thereto, the removable cross-piece provided with a driver's seat, the front wheels, the adjustable block secured to the rear ends of said board, the scraper secured thereto, the plate secured to said block, the bracket, the adjustable standard and the small wheel, of the seat secured to said plate, the upwardly and rearwardly extending arm secured to said plate, the axle adjustably connected therewith, the wheels, and the bifurcated lever connected with the axle.

579,405. MEMORANDUM-BOOK. THOMAS MCDOWELL, Niagara Falls, N. Y., assignor to the Carter-Crume Company, same place. Filed Nov. 6, 1896. Serial No. 611,253. (No model.)



Claim.—1. The combination of a flexible back, a pile of flat leaves each divided into three sections with a stub portion between two of the sections, fasteners securing the stubs together and to the said back, the opposite ends of said leaves being free, and a pair of carbon-leaves, secured to the pile of leaves by the said fasteners and lying upon the middle sections of the pile, as set forth

2. The combination of a flexible back, a pile of flat leaves of substantially the same size and shape as the back, each leaf being divided by perforated lines into three sections with a stub portion lying between two of said sections, staples passing through the stubs and the said back, the opposite ends of said leaves being free and a pair of carbon-leaves lying upon the stub portion and the middle section of the leaves, and also bound in place by the staples, substantially as described and shown.

3. The combination of a flexible back, a pile of leaves, each leaf being divided by perforated lines into three sections and a stub, the stub lying between two of said sections, and one of said sections being about half the length of the other two sections, two carbon-leaves lying upon each other upon the middle sections of the leaves, the upper carbon-leaf being shorter than the other, and fasteners, as staples, passing through the carbon-leaves, the stubs and the flexible back to secure the parts together, as set forth.

579,406. BOSH-PLATE FOR FURNACES. EDMUND M. PETERS, New Castle, Pa. Filed Feb. 18, 1896. Serial No. 579,747. (No model.)

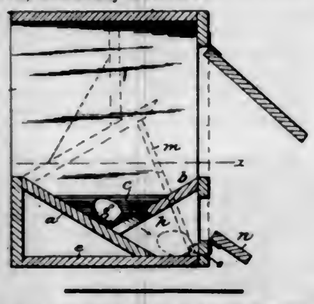


Claim.—1. A water-cooled bosh-plate for furnaces, provided on its front face with a water-opening at each end and a third water-opening intermediate between the two; a direct waterway connecting the two end openings around the periphery of the bosh-plate and a tortuous waterway between the end openings and the intermediate opening.

2. A water-cooled bosh-plate for furnaces curved at the front corners, provided on its front face with a water-opening at each end and a third water-opening intermediate between the two; a direct waterway connecting the two end openings around the periphery of the bosh-plate and a tortuous waterway between the end openings and the intermediate opening.

579,407. POULTRY-NEST. JAMES F. POOL, Rochester, N. Y. Filed June 13, 1896. Serial No. 595,492. (No model.)

Claim.—In a poultry-nest, the combination, with a box, the front of which is provided with two openings and the rear with one opening, a door for each of the openings in the front, a nest pivotally secured to the rear portion at the bottom of the opening and having the front engaging with the front wall of the box intermediate the two openings, the bottom of the nest being provided with an opening and one of the sides being extended from the opening to the bottom of the box, substantially as set forth.



579,408. GAS-MIXER. LEWIS J. RICE, Indianapolis, Ind. Filed Feb. 7, 1896. Serial No. 578,400. (No model.)



Claim.—1. The combination with a gas-supplying device having a duct therethrough for the passage of combustible fluid, of a drill-obstructer rotatably supported in line with such duct.

2. The combination with a gas-supplying device having a duct therethrough for the passage of combustible fluid that is enlarged at one point, of a drill-obstructer situated in such enlarged portion, and a perforated cap sprung into such enlarged portion to prevent the removal of the drill-obstructer.

3. The combination with a gas-supplying device having a duct therethrough for the passage of combustible fluid and a chamber whose middle portion is of greater diameter than its end portions situated in line with the duct, of a bell-shaped drill-obstructer within the chamber, and a cap, with a bore in it for the passage of gas, that is driven in over the tapering end of the drill-obstructer whereby its inner edge is flared to fit snugly in the enlarged portion of the chamber.

579,409. HOSE-NOZZLE. FREDERICK W. ROBERTSHAW, Pittsburg, Pa. Filed May 18, 1896. Serial No. 592,062. (No model.)

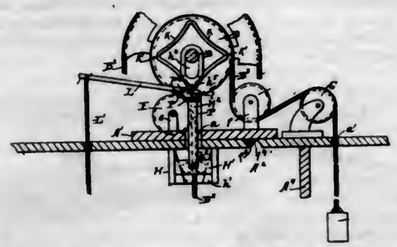


Claim.—1. In a hose-nozzle, the combination with a valve-case having a side feeding-pipe and valve-spaces above and below the same, of a valve having a spiral face and providing a spiral stream when above the port and seating itself below the port to form a straight stream, a cap screwed to the case at the discharge end, and having a central orifice and a washer fitting therein and forming a tight joint with the case, and extending inwardly so as to form a tight joint with the valve when forced against the same, substantially as set forth.

2. In a hose-nozzle, the combination with a valve-box having a feeding-pipe entering the side of the valve-case, of a valve within the valve-case and controlling the main discharge-orifice and an auxiliary nozzle-orifice on the side pipe provided with a solid cap for closing the same, substantially as set forth.

3. In a hose-nozzle, the combination with a valve-case having a threaded valve-chamber and a feeding-pipe communicating with the side thereof, the valve-chamber having valve-spaces above and below such inlet-port, and a threaded valve fitting the valve-chamber loosely, so providing for the feeding of the valve and the forming of a spiral stream, substantially as and for the purposes set forth.

579,410. ELEVATOR. MATHIAS C. SIGMUND, Reading, Pa., assignor of one-half to Joel P. Schelly, Philadelphia, Pa. Filed Mar. 24, 1896. Serial No. 584,588. (No model.)



Claim.—1. The combination, in an elevator, of a brake comprising converging walls, friction-rollers movable between said walls, a device adapted to control the positions of the friction-rollers with reference to the converging walls, and means for actuating said device, and a rope passing between the friction-rollers and having its movement controlled by said brake, for the purpose specified.

2. The combination, in an elevator, of a case having oppositely-located grooves therein, converging walls in the case, friction-rollers between the walls, an adjustable keeper-plate engaging said grooves, ribs on the keeper-plate and embracing the friction-rollers, and a rope controlled by said friction-rollers and passing between the same, substantially as and for the purpose specified.

3. The combination, in an elevator, of a case, converging walls in the case, friction-rollers between the walls, a keeper-plate adjustable longitudinally of the channel between the walls and adapted to control the positions of said rollers with reference to the converging walls, an arm on the keeper-plate, a pulley, a connection between said arm and the pulley, whereby the keeper-plate is actuated, and a rope controlled by said friction-rollers and passing between the same.

4. The combination, in an elevator, of a case having oppositely-located grooves therein, converging walls in the case, friction-rollers between the walls, an adjustable keeper-plate engaging said grooves, ribs on the keeper-plate and embracing the friction-rollers, a shaft, a pulley on the shaft having a cam thereon, an arm on the keeper-plate, a connection between the arm and the cam, whereby the keeper-plate is actuated, and a rope controlled by said friction-rollers and passing between the same.

5. The combination, in an elevator, of a case having oppositely-located grooves therein, converging walls back of the grooves, friction-rollers between the walls, an adjustable keeper-plate engaging said grooves, ribs on the keeper-plate and embracing said friction-rollers, an arm on the keeper-plate and having a slot in the upper end thereof, a shaft passing through said slot, a pulley on the shaft, a cam on the pulley and surrounding the shaft, a stud on said arm and adapted to engage said cam, and a rope controlled by said friction-rollers and passing between the same, substantially as and for the purpose specified.

6. The combination, in an elevator, with a brake comprising converging walls, and friction-rollers movable between said walls, substantially as described, of a keeper-plate for supporting said rollers, an arm secured to the keeper-plate and having a slot in the upper end thereof, a shaft passing through the slot, a pulley on the shaft, a cam on the pulley, a stud on said arm and engaging said cam, and means for disengaging the stud from the cam, for the purpose specified.

7. The combination, in an elevator, with a brake comprising converging walls, and friction-rollers movable between said walls, substantially as described, of a keeper-plate for supporting said rollers, an arm secured to the keeper-plate and having a slot in the upper end thereof, a shaft passing through the slot, a pulley on the shaft, a cam on the pulley, a stud on said arm and engaging said cam, a post, and a lever fulcrumed on said post and pivotally connected with said arm, whereby said arm is raised to disengage the stud from the cam, substantially as and for the purpose specified.

579,411. KNITTING-MACHINE. HEINRICH STOLL, Reutlingen, Germany. Filed Jan. 18, 1896. Serial No. 576,035. (No model.)



Claim.—1. In a knitting-machine, the combination, with two needle-beds, of cam mechanism for each bed, a retracting mechanism for one bed, and mechanism for throwing out said retracting mechanism at the end of one stroke and for throwing it into action at the end of the other stroke.

2. In a knitting-machine, the combination, with two needle-beds, jacks for each needle-bed, and needles operated by the jacks, of a jack-operating cam mechanism for each set of jacks, a jack-retracting mechanism for one set of jacks, and automatic mechanism for throwing said jack-retracting mechanism out of action at the end of one stroke and for throwing it into action at the end of the other stroke.

3. In a knitting-machine, the combination, with two needle-beds, of a cam mechanism for each bed, comprised of two parts, a retracting mechanism arranged laterally behind the two parts of one cam mechanism, and mechanism for raising said retracting mechanism at the end of one stroke of the machine and for lowering it at the end of the other stroke.

4. In a knitting-machine, the combination, with two needle-beds, jacks for each needle-bed and needles operated by the jacks, of a jack-operating cam composed of two parts, a jack-retracting cam arranged laterally behind said two parts and automatic mechanism for raising said jack-retracting cam at the end of one stroke of the machine and for lowering it at the end of the other stroke.

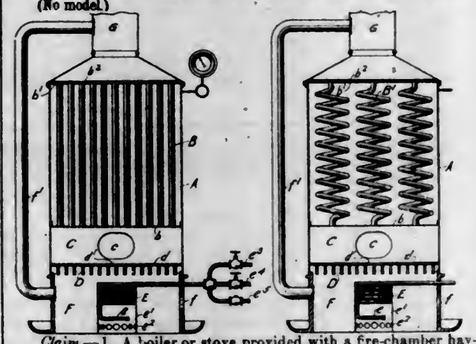
5. In a knitting-machine, the combination, with a vertically-movable cam, of a stem to which said cam is attached, a spring tending to hold the stem downward, a pin secured in said stem, a wedge arranged to enter beneath the pin, a pair of cranks connected to said wedge and fixed to each other, a stud, adjustable in and out on one of the cranks, and a stop device against which the stud contacts, whereby the cam is raised at one end of the stroke, substantially as set forth.

579,412. PYRAZOLON COMPOUND AND PROCESS OF MAKING SAME. FRIEDRICH STOLS, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Nov. 7, 1896. Serial No. 611,395. (Specimens.)

Claim.—1. The process herein described of manufacturing 1 phenyl 2.3 dimethyl 4 dimethylamido 5 pyrazolon, which consists in methylating 1 phenyl 2.3 dimethyl 4 amido 5 pyrazolon, substantially as set forth.

2. As a new product, the phenyl 2.3 dimethyl 4 dimethylamido 5 pyrazolon being a white crystallized compound, easily soluble in water, alcohol and benzene, less easily soluble in ligroin, having its melting-point at 107° to 108°, while the melting-point of its salicylate is at 69°, substantially as set forth.

579,413. MEANS FOR SUPPLYING HEAT TO BOILERS OR STOVES. SAMUEL TURNER, Long Branch, N. J., assignor of one-half to Cora L. Turner, same place. Filed July 30, 1895. Serial No. 557,615. (No model.)



Claim.—1. A boiler or stove provided with a fire-chamber having an opening in its bottom for the reception of a heating-flame, a subchamber below the fire-chamber and provided with an offtake or draft-flue, a burner situated within said subchamber and adapted to direct a flame into the fire-chamber and one or more tubes or flues leading from the fire-chamber, the said fire-chamber and the tubes or flues leading therefrom being permanently closed at the top to prevent a draft through them and the opening in the bottom of the fire-chamber being sufficiently larger than the jet of flame to permit the downflow of the carbonic-acid gas resulting from the combustion, substantially as set forth.

2. A boiler or stove, comprising a fire-chamber, a subchamber in communication with the fire-chamber, a hydrocarbon-burner located in the subchamber in position to direct a flame into the fire-chamber, the said fire-chamber being closed against a draft therethrough, and the said subchamber being provided with an air-inlet and a draft-flue, substantially as set forth.

579,414. GRINDING-WHEEL. GEORGE E. VANCE, Tiffin, Ohio. Filed Jan. 16, 1896. Serial No. 575,690. (No model.)



Claim.—The combination of a block of grinding material having integral lugs projecting outwardly from each of its sides, and arranged in a circle around the center of said block, and rings provided with hubs and spokes adapted to engage snugly around said lugs, substantially as shown and described.

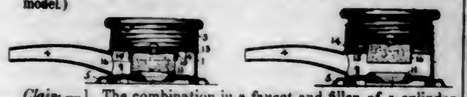
579,415. MANUFACTURE OF CARBURETED-AIR GAS. JACOB VAN NORMAN, Easton, Pa., assignor of four-fifths to Cyrus G. Guldin, Pottstown, Miller M. Deem and Morris C. J. Stupp, Reading, and Nicholas H. Larzelere, Norristown, Pa.; Amanda R. Van Norman administratrix of said Jacob Van Norman, deceased. Filed Feb. 10, 1896. Serial No. 578,684. (No specimens.)

Claim.—1. A new compound for the production of carbureted-air gas, consisting of the admixture, with the volatile oils of petroleum, of sulfuric ether, in or about the proportions stated; substantially as set forth.

2. The process or method in the manufacture of carbureted-air gas from volatile oils of petroleum, of absorbing or neutralizing the excess of etherized carbon, by the admixture with the naphtha, in the carbureting apparatus, of sulfuric ether, in or about the proportions set forth.

3. A combustible carbureted-air gas of the composition specified and obtained by passing a current of air in contact with a compound of naphtha and sulfuric ether in a suitable carbureting device, substantially as set forth.

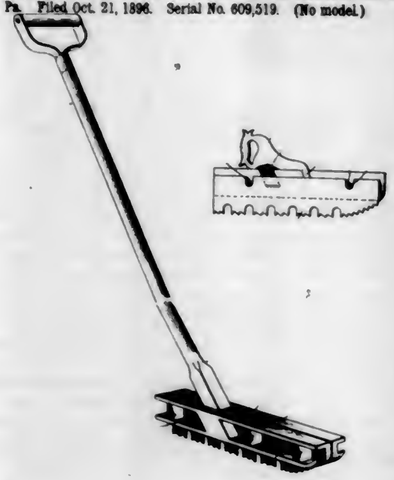
579,416. FAUCET AND FILLER FOR OIL-CANS. FRANK WAGNER, Cleveland, Ohio. Filed June 3, 1896. Serial No. 594,112. (No model.)



Claim.—1. The combination in a faucet and filler, of a cylinder having a spout and a flange at the base, a countersunk rim or can-top adapted to receive said base, a lip turned over said flange, a detachable disk and washer supported by said lip, a seat on said disk surrounding an opening therein, a cup-shaped cap threaded to said cylinder, and a plug depending from the floor of said cap, adapted to engage or disengage said seat when said cap is screwed up or down, substantially as and for the purpose set forth.

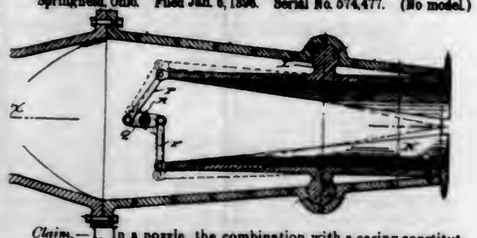
2. The combination in a faucet and filler, of a cylinder having a flange at the base, a countersunk rim or can-top adapted to receive said base, and a lip turned upward at an angle from said rim or can-top, over said flange, to form a seat and retain said cylinder in movable connection with the contiguous bottom members, substantially as and for the purpose set forth.

579,417. SURFACE-SAW. WILLIAM H. BENDERR, Philadelphia, Pa. Filed Oct. 21, 1896. Serial No. 609,519. (No model.)



Claim.—In a surface-saw, two sections similar in design and adapted to be clamped together by screws, said sections being curved upward at one end, a blade clamped between the sections, each of said sections having recesses formed on their inner faces, said recesses slanting downward toward the curved end and forming sockets, a handle having projections adapted to fit in said sockets, substantially as set forth.

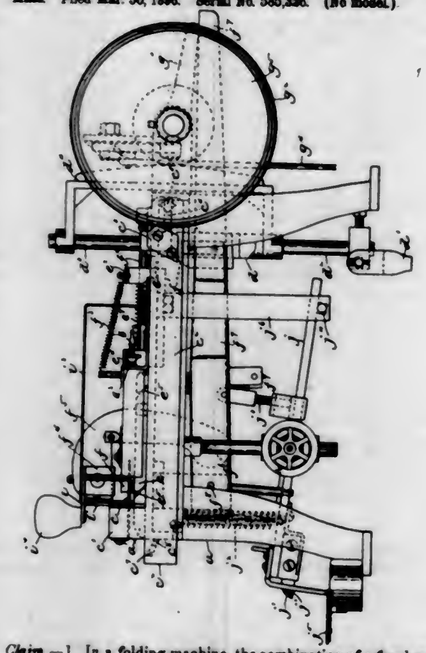
579,418. HYDRAULIC NOZZLE. FRANCIS M. BOOKWALTER, Springfield, Ohio. Filed Jan. 6, 1896. Serial No. 574,477. (No model.)



Claim.—1. In a nozzle, the combination with a casing constituting the nozzle proper, of reducing mechanism in the form of a tapering blade having a trunnion substantially midway its length, said trunnion being mounted in a recess in the side wall of the casing, said blade being fitted snugly to the upper and lower walls of said casing, and an operating rock-shaft mounted in the casing near the inner end of said blade, and connections between said rock-shaft and said inner end of the blade to control and adjust said blade by holding said inner end of said blade, and adjusting the same to and from the side walls of the casing.

2. In a nozzle, the combination with a rectangular casing constituting the nozzle proper two of whose walls have recesses, of reducing mechanism consisting of two wings or blades with curved interiors and end flanges, with trunnions and webs mounted in and snugly fitted to said casing constituting a substantially water-tight joint, and a shaft mounted in said casing, with a cross-head and links connected to the inner ends of said wings or plates.

579,419. FOLDING-MACHINE. ALBERT G. BREWER, Hopkinton, Mass. Filed Mar. 30, 1896. Serial No. 585,336. (No model.)



Claim.—1. In a folding-machine, the combination of a fixed supporting-bed, a former movable sidewise toward and from the bed, and edgewise over the same, a primary folder movable vertically at the inner edge of the bed to partially form the fold, a secondary holder movable horizontally over the primary folder to advance the fold, and mechanism for operating the former and folders successively, said mechanism having provision for elevating the folders, for projecting the secondary folder while it is elevated, whereby the edge projected by said secondary folder is left loose between the folder and former, and for withdrawing the former from under the folded edge while the said edge is loose.

2. In a folding-machine, the combination of a fixed supporting-bed, a former movable sidewise toward and from the bed, and edgewise over the same, a primary folder movable vertically at the inner edges of the bed, to partially form the fold, a secondary folder movable horizontally over the primary folder to advance the fold, mechanism for operating the former and folders successively, a presser arranged to act on the secondary folder, and mechanism for operating said presser.

3. In a folding-machine, the combination of a fixed supporting-bed, a former movable sidewise toward and from the bed, and edgewise over the same, a primary folder movable vertically at the inner edges of the bed, to partially form the fold, a secondary folder movable horizontally over the primary folder to advance the fold, mechanism for operating the former and folders successively, a presser arranged to act on the secondary folder, a lever connected with said presser, a shaft having a friction-clutch member, and an arm or cam bearing on said lever, a loose driving-pulley on said shaft having a clutch member, and means for engaging said clutch members to apply power to the presser.

4. A folding-machine, comprising a fixed bed or table, a primary folder adjacent to the bed, means for moving the primary folder forward toward the bed, means for raising the primary folder while it is moving forward, means for moving the secondary folder forward independently of the primary folder, means for pressing the secondary folder downwardly while projected, and a former cooperating with said folders and bed.

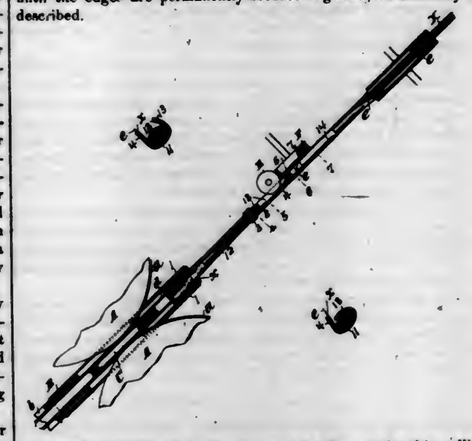
5. A folding-machine, comprising a fixed bed or table, a former movable sidewise toward and from the table, and edgewise over the same, a primary folder movable vertically at the inner edge of the bed, a secondary folder movable longitudinally over the primary folder, a head movable in guides on the frame of the machine, and provided with a series of inclines, devices for imparting motion from said inclines to the former and folders, and means for reciprocating said head.

6. A folding-machine, comprising a bed or table, a former cooperating therewith, folding devices cooperating with the bed and former, a presser, power-driven mechanism for operating the presser, said mechanism including an oscillating lever, a lever having a gang of slitting-knives, arranged to be actuated by said oscillating lever, a bed or table to support pieces for the action of said knives, and means for detachably engaging the knife-carrying lever with the oscillating lever.

7. In a folding-machine, a former having a lip at its forward or acting edge, whereby the former is given a limited bearing on the work.

8. In a folding-machine, the combination with the work-support, the former, and the primary and secondary folders, and mechanism for operating said former and folders, of an adjustable stop to limit the backward movement of the secondary folder.

Claim.—1. The herein-described improvement in the art of making elliptical cigarettes, the same consisting in reducing a mass of tobacco to the form of a continuous rod elliptical in cross-section, molding a wrapper-strip about the continuous rod to form a continuous elliptical tube inclosing the rod, and securing the edges of the wrapper, the tobacco being maintained under compression in its elliptical shape during the wrapping and molding of the paper strip and until the edges are permanently secured together, substantially as described.



2. The herein-described improvement in the art of making elliptical cigarettes, the same consisting in reducing a mass of tobacco directly to the form of a continuous rod elliptical in cross-section, in molding a wrapper-strip into a continuous elliptical tube, and inclosing the rod therein, the tobacco being maintained under compression in its elliptical shape during and after the wrapping, molding and pasting of the paper strip, substantially as described.

3. The combination with means for feeding a continuous row of tobacco, of devices for operating upon the tobacco to convert it into a continuous rod elliptical in cross-section, means for applying a strip of wrapper-paper to the rod and for forming the paper into a tube elliptical in cross-section, and securing the edges of the wrapper-strip, and means for maintaining the rod under compression in its elliptical shape during the folding and securing of the wrapper-strip, substantially as described.

4. The combination with means for feeding a continuous row of tobacco, of devices for operating upon the tobacco to convert it into a continuous rod elliptical in cross-section, means for applying a strip of wrapper-paper to the rod, and for forming the paper into a tube elliptical in cross-section, and means for maintaining the rod under unyielding compression in its elliptical shape during and after the folding and pasting of the strip, substantially as described.

5. The combination with devices for feeding a continuous row of tobacco and converting it into a continuous rod elliptical in cross-section, of a wrapping-chamber beyond the devices having a bottom with a flat curve and an overhanging flange with its under face similarly curved, and a feeding-belt traveling through said chamber, substantially as described.

6. A wrapping-tube for cigarette-machines in which the wrapping-chamber has a bottom formed with a flat curve and an overhanging flange with its under face similarly curved to form a tube of substantially elliptical cross-section, substantially as described.

7. The combination with means for feeding a continuous row of tobacco, of plates 11, 12 having their walls curved to convert the tobacco into a continuous rod elliptical in cross-section, and a wrapping-chamber having opposite sides formed with flat curves to form a continuous elliptical wrapper-tube inclosing the tobacco rod, and a feeding-belt traveling between said plates and through the chamber, substantially as described.

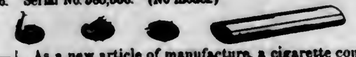
8. A wrapping-tube for cigarette-machines, having the plates 11, 12, the walls of which are curved to form tobacco into a continuous rod elliptical in cross-section and a wrapping-chamber having opposite sides formed with flat curves to form a continuous elliptical wrapper-tube inclosing the tobacco rod, substantially as described.

9. A wrapping-tube for cigarette-machines, having the plates 11, 12, the walls of which are curved to form tobacco into a continuous rod elliptical in cross-section and a wrapping-chamber having opposite sides formed with flat curves to form a continuous elliptical wrapper-tube inclosing the tobacco rod, said tube being extended in elliptical form beyond the point where the edges are pasted together to hold the cigarette-rod under compression, substantially as described.

579,420. COMPOSITION OF MATTER FOR BRICKS. JOHN BROCK, Philadelphia, Pa. Filed June 22, 1896. Serial No. 596,514. (No specimens.)

Claim.—The herein-described composition of matter for the production of bricks and the like consisting of the following parts by weight: slaked lime, one part; ground cinders, ten parts; disintegrated ashes, ten parts; coke-dust, ten parts; culm, ten parts; sulfur, one part.

579,421. CIGARETTE. DANIEL J. CAMPBELL, New York, N. Y., assignor to the American Tobacco Company, Newark, N. J. Filed Mar. 30, 1896. Serial No. 585,338. (No model.)



Claim.—1. As a new article of manufacture, a cigarette consisting of a mass of tobacco inherently densely compressed and solidified forming a filler substantially elliptical in cross-section, confined within and tightly fitting an elliptical paper tube, substantially as described.

2. As a new article of manufacture, a continuous cigarette-rod consisting of a solidified and condensed mass of tobacco forming a continuous molded filler substantially elliptical in cross-section confined within and tightly fitting a continuous elliptical paper tube, substantially as described.

579,422. METHOD OF AND APPARATUS FOR MAKING CIGARETTES. DANIEL J. CAMPBELL, New York, N. Y., assignor to the American Tobacco Company, Newark, N. J. Filed Mar. 30, 1896. Serial No. 585,339. (No model.)

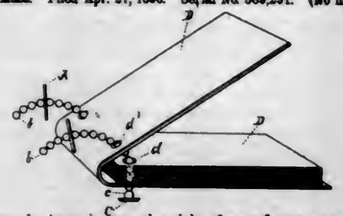
10. A wrapping-tube for cigarette-machines having the bottom or trough plate 11 formed with a flat curve, inclined plate 12 within the trough having its under face similarly curved to form the tobacco into a continuous rod substantially elliptical in cross-section, an overhanging flange 13 in advance of the plate 12 with its under face similarly curved to hold the tobacco rod in elliptical shape and turn one edge of the wrapper over it, and a flange on the opposite side of the tube from flange 13 constructed to fold the pasted edge of the wrapper down and forming with the bottom plate a substantially-closed tube of elliptical cross-section beyond the point where the tube is sealed, substantially as described.

11. A wrapping-tube for cigarette-machines having a wrapping-chamber formed by the bottom or trough plate 11 with a flat curve, and overhanging flange 13 with its under face similarly curved to hold the tobacco rod in elliptical shape and turn one edge of the wrapper over it, and a flange on the opposite side of the tube from flange 13 constructed to fold the pasted edge of the wrapper down, and a substantially-closed tube of elliptical cross-section beyond the point where the tube is sealed, substantially as described.

12. A wrapping-tube for cigarette-machines, having the converging plates 11, 12, said plates being formed with flat curves on their adjacent faces, and a wrapping-chamber having opposite sides formed with flat curves to form a continuous elliptical wrapper-tube inclosing the tobacco rod, substantially as described.

13. The combination with devices for feeding a continuous row of tobacco and converting it into a continuous rod elliptical in cross-section, of a wrapping-chamber having opposite sides formed with flat curves to form a continuous elliptical wrapper-tube inclosing the tobacco rod, substantially as described.

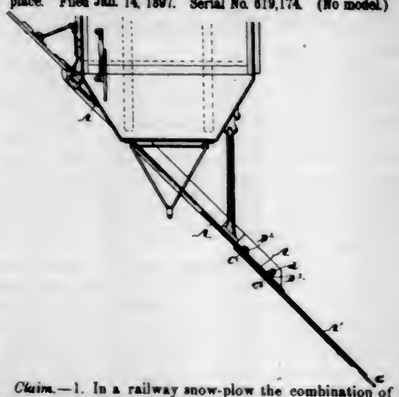
579,423. NOTE-BOOK BINDER. HENRY G. CLEAVELAND, Newton, Mass. Filed Apr. 27, 1896. Serial No. 589,291. (No model.)



Claim.—1. As an improved article of manufacture, a note-book binder comprising the chain B having the beads *b* and the adjustable perforated disk A, the perforation being of a size to enable the disk to be held in place by engagement with one of the beads *b*, but to allow the disk to be moved past the same on a slight pressure being exerted upon it, substantially as described.

2. The combination in a note-book binder of the chain B, the head C and the disk A having the thin section *a*, the central hole a^2, the radial slits *a'* and the rim a^3, as and for the purposes described.

579,424. SNOW-PLOW. EDWARD C. COLLIER, Taunton, Mass., assignor to the Taunton Locomotive Manufacturing Company, same place. Filed Jan. 14, 1897. Serial No. 619,174. (No model.)

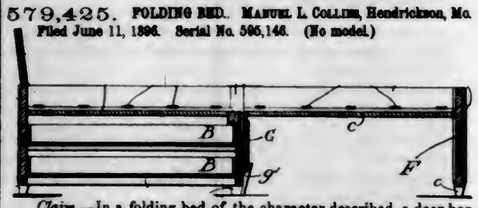


Claim.—1. In a railway snow-plow the combination of a main plowshare extending obliquely across the track-rail; an extension-plate mounted upon and adjustable endwise of said main plowshare and provided with longitudinal slots extending nearly the entire length thereof; a plurality of headed studs or bolts set in fixed positions in said main plowshare and engaging said slot to serve only as supports and guides for said plate; and a separate bolt and hand-nut for clamping said plate in the desired adjusted position.

2. In a railway snow-plow, the combination of a main plowshare extending obliquely across the track-rail; an extension-plate mounted upon and adjustable endwise of said main plowshare and having a slot or slots extending longitudinally nearly the entire length thereof; a plurality of studs or bolts set in said main plowshare and engaging said slot or slots with heads outside of said plate; means for clamping said plate in the desired adjusted position; and a chambered housing or guard covering each of said slots and the heads of said studs or bolts.

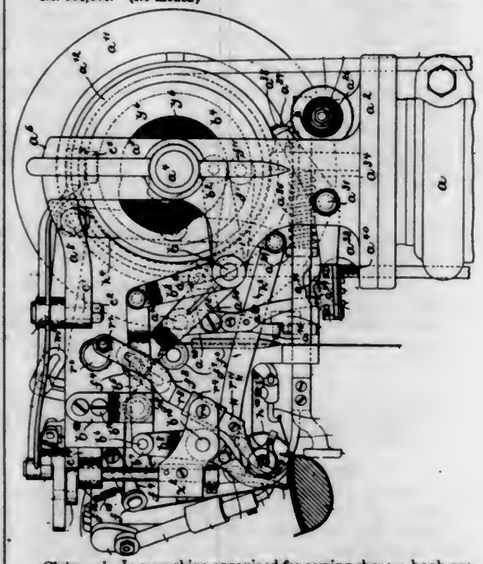
3. In a railway snow-plow the combination with a main plowshare extending obliquely across the track-rail; of an extension-plate mounted upon the front end of said main plowshare and adjustable endwise thereon; means for guiding said plate in its endwise adjustments; a clamping device for securing said plate in its adjusted position; and a movable hook-plate carried by said adjustable share-plate and arranged to engage the upper edge of said main plowshare.

579,425. FOLDING BED. MANUEL L. COLLINS, Hendrickson, Mo. Filed June 11, 1896. Serial No. 595,146. (No model.)



Claim.—In a folding bed of the character described, a deep box having bed-slats therein, a folding head-board upon the rear wall thereof, extended legs at the four corners thereof and sliding-drawers therein, the hinged shallow compartment containing a series of bed-slats having posts thereon and a hinged cover for the front of the bureau, said cover being adapted to engage with the front of said deep box to prevent access to said drawers when the bed is open, substantially as shown and described.

579,426. SEWING-MACHINE. PETER A. COUPAL, Boston, Mass., assignor to William Gordon, same place. Filed Sept. 9, 1895. Serial No. 561,876. (No model.)



Claim.—1. In a machine organized for sewing shoes, a hook-needle, a stitch-tightening finger located on the opposite side of the material to be sewed from the needle, and adapted to set the previous stitch while the needle is out of the work, and a thread-pulling hook located on the needle side, and adapted to remove the loops from the needle, and place them in position for the needle to pass the succeeding loop therethrough.

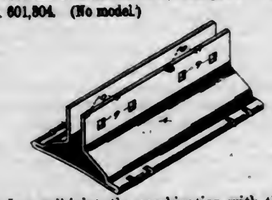
2. The combination in a shoe-sewing machine with a hook-needle, and means for actuating the same, a stitch-tightening device on the awl side of the work, means for operating said device to set the previous stitch, while the needle is out of the work, and a thread-hook on the needle side of the work, means for actuating the same, said hook being adapted to remove the loop from the needle as it is drawn through the work and the previous loop, and to hold the new loop while the thread-finger sets the previous stitch on the needle side of the work, when the needle is out of the stock, then to be moved to take up the slack, and to place the loop held by said hook in position for the next stitch.

3. In a machine organized for sewing shoes, in combination, a hook-needle and means for actuating the same, a thread-pulling hook located on the needle side of the work, a thread-finger located on the opposite side of the work, means for actuating said parts, said hook being adapted to remove the loop from the needle as it is drawn through the work and the previous loop, and to hold the new loop while the thread-finger sets the previous stitch on the needle side of the work, then to be moved to take up the slack, and to place the loop held by said hook in position for the next stitch.

4. In a machine of the class described, a needle, mechanism for operating said needle to pass a loop of thread through the material and the preceding loop, means for removing the last loop from the needle, and means for drawing the thread from the supply side to set the previous stitch on the needle side of the material while the needle is out of the material, said first-mentioned means being timed to move thereafter to take up the slack thread on the supply side.

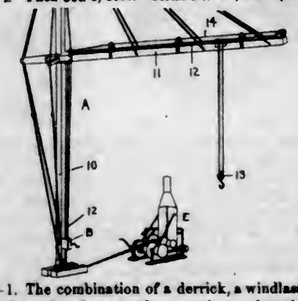
5. In a sewing-machine, the combination with a hook-needle on one side of the work, and a stitch-tightening device on the other side of the work operating to set the stitch while the needle is out of the work and operating means therefor, of means on the needle side of the work for taking from the needle the loop pulled through by the needle and holding the same during the tightening of the previous stitch.

579,427. RAIL-JOINT. JEREMIAH DOWNS, Argentine, Kans., assignor of one-half to Luke Babcock, same place. Filed Aug. 5, 1896. Serial No. 601,804. (No model.)



Claim.—In a rail-joint, the combination with the meeting ends of two rails, of a connecting-plate, consisting of a base portion concaved at its under side for its full length, side arms clasping the opposite sides of the rails below the heads thereof, and bent to produce flattened flanges at the junction of the base and said sides or arms, and provided with registering circular and rectangular openings, headed pins or bolts extending through said openings and also registering openings in the rails, and which are provided with rectangular necks fitting non-rotatably in said rectangular openings, and wedge-shaped keys extending downwardly through the openings of said pins or bolts, substantially as described.

579,428. DERRICK ATTACHMENT. JERRY N. DURKEE, Providence, R. I. Filed Oct. 5, 1896. Serial No. 607,865. (No model.)



Claim.—1. The combination of a derrick, a windlass for winding up the cable thereof, and means for engaging and acting upon said cable to unwind the same from its windlass, substantially as described.

2. In an attachment for derricks, the combination of a friction-roll arranged to engage a derrick-cable and means for turning said friction-roll to draw the cable back from its windlass, substantially as described.

3. In an attachment for derricks, the combination of a friction-roll, means for moving the friction-roll into engagement with a derrick-cable, and means for turning said friction-roll to draw the cable back from its windlass, substantially as described.

4. In a device of the class described, the combination of two grooved friction-rolls arranged to engage opposite sides of a derrick-cable and means for turning said rolls, substantially as described.

5. In an attachment for derricks, the combination of two grooved friction-rolls, a clamping-lever and links for holding the friction-rolls in engagement with a derrick-cable, and means for turning said friction-rolls to draw the cable back from its windlass, substantially as described.

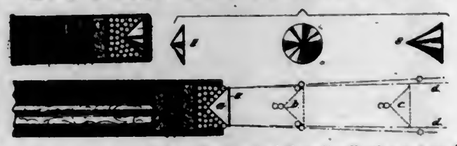
6. In an attachment for derricks, the combination of a casing, a driving-pinion journaled therein, a gear meshing with the driving-pinion and carrying a grooved friction-roll, an intermediate pinion meshing with and driven from the driving-pinions, links pivoted concentrically with the intermediate pinion, a movable gear journaled in said links and carrying a curved friction-roll, a clamping-lever connected to turn the movable gear to bring its grooved friction-roll into engagement with the derrick-cable, and means for driving said gearing to draw the cable back from its windlass, substantially as described.

7. In an attachment for derricks, the combination of a friction-roll arranged to engage a derrick-cable, and an electric motor connected to turn said friction-roll to draw the cable back from its windlass, substantially as described.

8. In an attachment for derricks, the combination of a casing, a driving-pinion journaled therein, a gear meshing with the driving-pinion and carrying a grooved friction-roll, an intermediate pinion meshing with and driven from the driving-pinion, links pivoted concentrically with the intermediate pinion, a movable gear journaled in said links and carrying a second grooved friction-roll, a clamping-lever and connecting-link, said clamping-lever and connecting-links being arranged to form a toggle-joint for turning the movable gear to bring its grooved friction-roll into engagement with a derrick-cable, and means for driving said gearing, substantially as described.

9. In an attachment for derricks, the combination of two grooved friction-wheels, a clamping-lever arranged to move said friction-wheels into engagement with opposite sides of a derrick-cable, a pawl or catch for holding the clamping-lever in its adjusted position, and means for driving said friction-wheels, substantially as described.

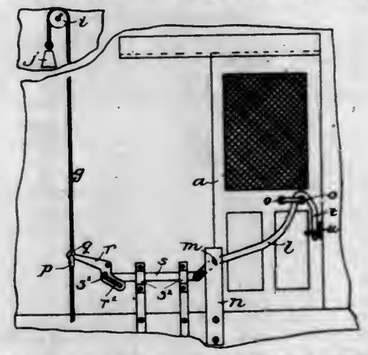
579,429. SHOT-DISTRIBUTING WAD. ROBERT S. ELLIOTT, Kansas City, Mo. Filed Dec. 26, 1896. Serial No. 616,986. (No model.)



Claim.—1. A cone-shaped or conical shot-distributing gun-wad.

2. In combination with a shell, loaded with shot in the customary manner, a conical wad which is secured in the shell in advance of the shot, and with its apex entering the shot charge, substantially as described.

579,430. ELEVATOR. EDWARD L. HALL and GEORGE HALL, Providence, R. I. Filed Nov. 27, 1896. Serial No. 613,536. (No model.)



Claim.—1. In an elevator, a corridor-door, a motor-controlling line, a motor-controlling device between the line and the motor, a lock for said device, means for opening the corridor-door, and connections between said door-opening means and said lock whereby, when the door is opened, the motor-controlling device is locked against movement.

2. In an elevator, a corridor-door, means for opening said door, a motor-controlling line, a motor-controlling device between the line and the motor, a lock for said device and a line connected with said lock and with said door-opening means whereby when the door is opened the motor-controlling device is locked.

3. In an elevator, a corridor-door, a lever for opening said door, a motor-controlling line, a motor-controlling device between the line and the motor, and a lock for said motor-controlling device coacting with the door-opening lever whereby when the door is opened the motor-controlling device is locked.

4. In an elevator, a corridor-door, a lever for opening said door, a motor-controlling line, a motor-controlling device between the line and the motor, a lock for said motor-controlling device, a line connected with said lock, and means extending from the door-opening lever and adapted to engage said line for causing the lock to engage the motor-controlling device when the door is opened.

5. In an elevator, a motor-controlling line, a motor-controlling device between the line and the motor, a lock for the same, a weighted line normally holding the lock out of engagement with said device, means for acting upon said weighted line to allow the lock to engage the motor-controlling device, and means for opening the corridor-door and connected with the last-said means whereby when the door is opened the motor-controlling device is locked.

6. In an elevator, the combination with a motor-controlling line, a motor-controlling device between the line and the motor, a weighted bolt adapted to normally engage the motor-controlling device, means for holding the bolt out of engagement with the motor-controlling device, and a lever connected with the last-said means in such way that when the door is opened the lock will be allowed to engage the motor-controlling device.

7. In an elevator, a movable door, a motor-controlling device, a lock for said device, a lever for opening said door and fulcrumed on a support relatively to which the door moves, and connections between said lever and said lock for locking said controlling device prior to any movement of the door toward open position.

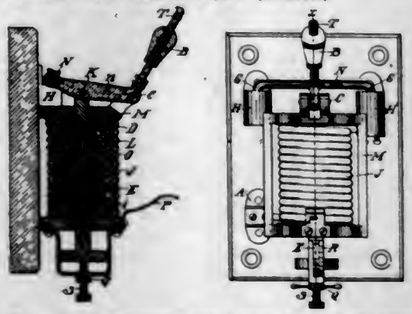
8 In an elevator, a movable door, a motor-controlling device, a lock for said device, a lever for opening said door and fulcrumed on a support relatively to which the door moves, said door-opening lever being connected to said door but having a limited movement relatively thereto, and connection between said lever and said lock, whereby the said lever may be actuated to lock the motor-controlling device prior to its opening the door.

9. In an elevator, a movable door, a motor-controlling device, a lock for said device, a lever for opening the door and having a pin and a bell-crank lever having a cam-slot to receive the pin on said lever, and connections between said bell-crank lever and the said lock.

10. In an elevator, a motor-controlling line, a motor-controlling device between the line and the motor, a lock for said device, a hand-operated lever, and connections between said lever and said lock whereby when the lever is actuated the motor-controlling device is locked.

11. In an elevator, a corridor-door, a movable latch thereon, in combination with a motor-controlling line, a motor-controlling device operated by said line, a lock for said motor-controlling device, a lever for opening said door, and connected to said lock for the motor-controlling device, said lever having means for yieldingly engaging the latch, whereby when said lever is operated, the latch is disengaged from its catch, the motor-controlling device is locked, and the door is opened.

579,431. AUTOMATIC ELECTROMAGNETIC CIRCUIT-BREAKER. WALTER R. HARRINGTON, Philadelphia, Pa., assignor to the Cutter Electrical & Manufacturing Company, of New Jersey Filed May 5, 1896. Serial No. 590,369. (No model.)



Claim.—1. In an electromagnetic circuit-breaker the combination with the switch of two cores and a solenoid-coil, the cores movable in the magnetic field of the coil and adapted to be actuated by the current passing through the coil to actuate the switch and the switch-bridge attached to one of the cores, which is arranged and adapted to be actuated by the force of a normal flow of electric current to hold the terminals of the switch-bridge in contact with the main contact-terminals with an efficiency in direct ratio to the volume of current flowing through the coil.

2. In an electromagnetic circuit-breaker the combination with the switch of two cores, a solenoid-coil and a counterbalance, the cores movable in the magnetic field of the coil and adapted to be actuated by the current passing through the coil, the switch-bridge attached to one of the cores and the counterbalance attached to the switch-bridge and adjusted and adapted to carry the switch-bridge with its terminals toward or away from the main contact-terminals upon the flow through the coil of a predetermined below-normal current.

3. In an electromagnetic circuit-breaker the combination with the switch of two cores, a solenoid-coil and carbon contacts, the cores movable in the magnetic field of the coil and adapted to be actuated by the current passing through the coil to actuate the switch, the carbon-points at the extremities of the switch-bridge adapted to bear upon the carbons yieldingly attached to the main contact-terminals for final arcing.

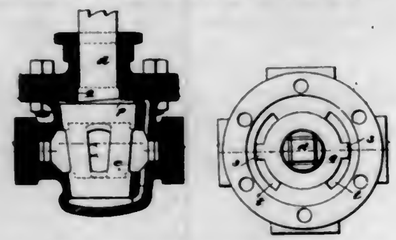
4. In an electromagnetic circuit-breaker the combination with the switch of two cores, a solenoid-coil and a ratchet device, the cores movable in the magnetic field of the coil and adapted to be actuated by the current passing through the coil to actuate the switch, the ratchet device adapted and adjusted to hold the switch out of contact after having been actuated.

5. In an electromagnetic circuit-breaker the combination with the switch of two cores and a solenoid-coil, the cores movable in the magnetic field of the coil and adapted to be actuated by the current passing through the coil to actuate the switch, with movable weights and set-screw as means of adjustment with respect to amount of excessive current or voltage necessary to actuate it.

6. In an electromagnetic circuit-breaker the combination with the switch of two cores and a solenoid-coil, the cores movable in the magnetic field of the coil and adapted to be actuated by the current passing through the coil to actuate the switch, with movable counterbalance as a means of adjustment with respect to minimum amount of current or voltage necessary for its actuation.

7. In an electromagnetic circuit-breaker the combination with the switch of two cores, a solenoid-coil and a movable arm independent of the switch-bridge, the cores vertically movable in the magnetic field of the coil and adapted to be actuated by the current passing through the coil to actuate the switch, the upper core pivoted to the arm having a movement independent of the switch-bridge.

579,432. VALVE. WILLIAM F. HARRISON, Pittsburg, Pa., assignor to the Homestead Manufacturing Company, Limited, Homestead, Pa. Filed June 8, 1896. Serial No. 594,757. (No model.)



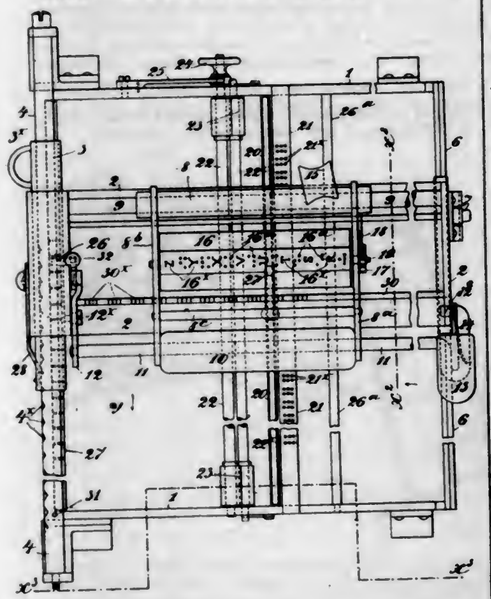
Claim.—1. A valve comprising a casing provided with four-way ports, a rotary plug seated therein and ported to register with the said ports of the casing, and a restraining device for controlling the opening and closing movements of the plug and for positively insuring the seating of the plug, and consisting of double inclines or cams on the head of the plug and a corresponding series of cams arranged above the plug and within the casing, substantially as described.

2. A valve comprising a casing ported for four-way service, a plug seated in said casing and provided with combined three-way and four-way channels or ports, and means, such as complemental double inclines or cams on the plug and a ring interposed between the plug and the casing, for seating the plug, substantially as described.

3. A valve comprising a casing ported for four-way service and provided with segmental recesses in the flange of its head, a plug seated in said casing and provided with ports to register with the ports of the casing, double inclines or cams on the head of said plug, and a ring interposed between the head of the plug and the casing and provided with double inclines or cams complemental to those on the plug, and having lateral lugs arranged in the segmental recesses of the casing, whereby the said ring is capable of a rotary motion until arrested by the engagement of its lugs with the ends of the recesses, substantially as described

4. In a valve, the combination with the casing, a plug seated therein, a restraining device for controlling the opening and closing movements of the plug and for positively insuring the seating of the plug, and consisting of double inclines or cams on the head of the plug and a corresponding series of cams arranged above the plug and within the casing, and a channel in the casing for introducing the fluid from the service-pipe above and below the plug, substantially as and for the purpose described.

579,433. TYPE-WRITING MACHINE. RAFAEL HERTZBERG, Helsingfors, Finland. Filed Mar. 20, 1895. Serial No. 542,456. (No model.) Patented in Finland Mar. 30, 1894, No. 503.



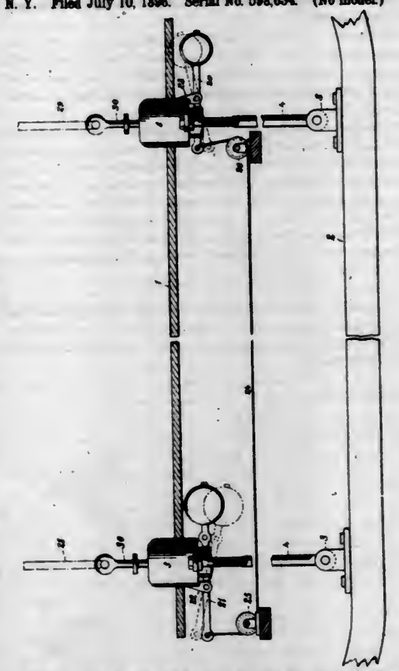
Claim.—1. A type-writing machine, having a recessed support 21 for the sheet, means for feeding the sheet, an index, and a vertically movable and shiftable type-carrier arranged over the sheet-support, said type-carrier being provided on its lower half with types adapted to enter the recesses in the support 21 and emboss characters on the sheet, and said carrier also provided on its upper half with characters corresponding to those for embossing, these characters on the upper half of the carrier serving as guides for adjusting the type-carrier in printing, substantially as set forth.

2. A type-writing machine, having a support for the sheet, means for feeding the sheet, an index, and a rotatable type-carrier mounted on end journals, said carrier being also vertically movable and provided on its lower half with types for forming letters or characters on the sheet by pressure, and on its upper half with characters which serve as guides for adjusting the type-carrier, substantially as set forth.

3. In a type-writing machine, the combination with the main frame, having the ratchet-teeth 27×, the sliding carriage mounted on said frame, and the slide-frame hinged on the bar 9 in the carriage, of the crank-bar 11, mounted in the carriage and engaging the free end of the slide-frame, the lever 12, fulcrumed on the carriage, and the spring, feed-pawl, 26, carried by said lever and engaging the teeth 27×, one end of the crank-rod 11 being fixed to said lever 12, substantially as and for the purposes set forth.

4. A type-writing machine, having a support 20 and recessed support 21, for the sheet, means for feeding the sheet, and a vertically movable and shiftable type-carrier arranged over said sheet-supports, said type-carrier being provided with types 16ª, and adjacent to these, types formed of pins arranged so as to form the corresponding characters of the alphabet for the blind, whereby the two characters may be printed simultaneously on the sheet, one in color, for those who see, and one embossed for the blind, as set forth.

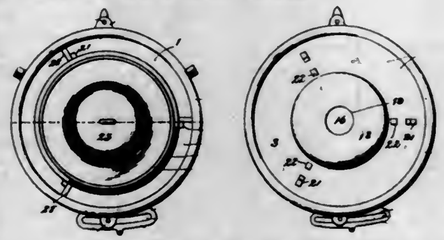
579,434. BOAT-DETACHER. BERTHOLD A. W. HOLTORF, Hamburg, Germany, assignor of one-half to Leopold Katzenstein, New York, N. Y. Filed July 10, 1896. Serial No. 598,634. (No model.)



Claim.—1. In a boat-detacher, the combination of a bolt, a vertically and laterally moving clutch mechanism, and a lever and incline for so moving the said clutch mechanism, substantially as described.

2. Automatic boat-detaching apparatus, comprising bolts 30, casings 5, movable jaws within the casings, inclines upon the jaws and upon the casings coöperating with each other to open and close the jaws, weighted levers attached to the jaws and adapted to fall automatically, whereby the jaws will be opened by the fall of the weighted levers and connections between the weighted levers as and for the purposes set forth.

579,435. OIL-BURNER. HARRY C. HORNISH, Peoria, Ill. Filed June 9, 1896. Serial No. 594,845. (No model.)



Claim.—1. The herein-described burner consisting of a retort, having a central walled opening forming a mixing-chamber, an independent convex cap resting on the retort and having an opening coincident with the mixing-chamber, and a flange depending into the walled opening of the chamber from said cap, and a burner-cap arranged thereover, substantially as specified.

2. The herein-described burner, the same consisting of a retort having a central walled opening, forming a mixing-chamber, a convex cap seated loosely and removably on the retort and having an opening coinciding with the mixing-chamber, and a concave burner-cap arranged thereover and combining with the same to form a vapor-passage, substantially as specified.

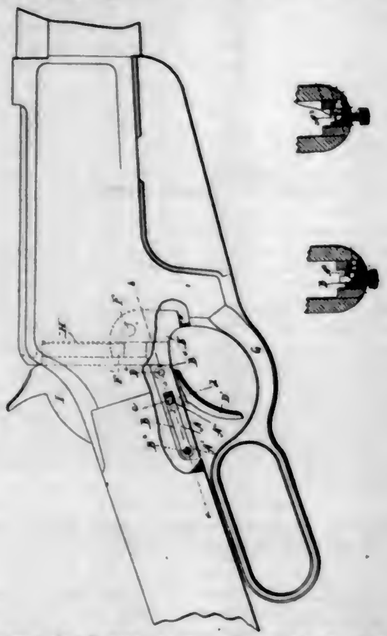
3. The herein-described burner, the same consisting of a retort having a central walled opening, the lower end of which is flared and at an intermediate point provided with an annular recess or seat, a convex cap removably seated on the retort and having an opening

coinciding with the mixing-chamber, an annular flange depending from the opening and taking within the seat, and a burner-cap arranged over the same and combining therewith to form an intermediate passage, substantially as specified.

4. The burner consisting of the retort having an outer peripheral flange, a cap arranged upon the retort within the flange and having discharge-openings at its lower edge and radial lugs 28 projecting from the edge of the cap and terminating against the flange, substantially as specified.

5. The burner consisting of the retort having a central mixing-chamber and an outer circular vertical peripheral flange, a removable cap of less diameter than the flange arranged over the mixing-chamber and having openings at its lower edge and inner and outer beveled lugs formed on the retort in annular series between the mixing-chamber and flange so as to embrace the opposite sides of the lower edge of the cap and thus center the same with relation to the mixing-chamber and peripheral flange, substantially as specified.

579,436. SAFETY LOCKING DEVICE FOR LEVER-GUNS. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Dec. 7, 1896. Serial No. 614,738. (No model.)



Claim.—1. In a firearm, the combination with the frame thereof, of an operating or finger lever, a link pivotally connecting the lever and frame, a trigger, and a yielding locking device normally out of action, but acted directly upon and thrown into its locking position by the exertion of rearward draft upon the trigger, whereby the finger-lever is always unlocked and free to be opened except when rearward draft is exerted upon the trigger.

2. In a firearm, the combination with the operating-lever thereof, of a link pivotally connecting the said lever with the frame of the arm, a trigger pivotally mounted in the said link, and a yielding locking device also mounted in the link, and adapted to be acted upon by the trigger which springs it into its active or locking position and engages it with a portion of the gun-frame.

3. In a firearm, the combination with the operating-lever thereof, of a link pivotally connecting the said lever with the gun-frame, a trigger mounted in the said link, and a locking device also mounted in the link and provided with an inwardly-projecting operating-tooth which is engaged by the trigger, whereby the device is sprung from its retired into its active or locking position, and the said device being also furnished with a locking-tooth which, when the device is so sprung, engages with a portion of the frame to lock the link and hence the lever in their closed positions.

4. In a firearm, the combination with the lever thereof, of a link pivotally connected with the lever and with the frame, of a trigger mounted in the link, and a locking device comprising a yielding or spring shank, a hub located at the rear end thereof, and two teeth located at its forward end, and comprising an inwardly-projecting operating-tooth, and an outwardly-projecting locking-tooth, the former being engaged by the trigger for springing the shank to force the locking-tooth into engagement with the gun-frame.

5. In a firearm, the combination with the operating or finger lever thereof, of a link pivotally connecting the lever with the frame of the gun, a trigger pivotally suspended in the link and provided with a beveled operating-face and a locking device located in a recess formed for its reception in the link, and formed with an operating-tooth acted upon by the said face when rearward draft is exerted upon the trigger, and also furnished with a locking-tooth, which, when the device is sprung by the trigger from its retired into its active position, engages with a portion of the frame.

6. In a firearm, the combination with the operating-lever thereof, of a link pivoted to the said lever and to the frame, a trigger suspended in the link and provided with a nose and with a beveled operating-face, a locking device located in a recess formed in the link and comprising a hub, a spring-shank, an operating-tooth coacting with the beveled face of the trigger, and an outwardly-projecting locking-tooth; and a bushing located in the frame of the gun in position to receive the locking-tooth of the device when the device is sprung outward by the exertion of rearward draft upon the trigger.

579,437. COMBINATION-LADDER. SAMUEL L. KNIBELL, Camden, N. J. Filed Sept. 12, 1896. Serial No. 605,569. (No model.)



Claim.—1. A ladder consisting of three sections, the two end sections being pivoted to an intermediate section, stay-rods pivoted on the side rails of the end sections adapted to engage pins on the intermediate section, upwardly-curved braces extending across the outer ends of the side rails of the end sections, braces extending between the first-named braces and the lowermost rounds, rods slidably secured in openings at the lower ends of the last-named braces and the side rails, said rods being adapted to slide laterally to come in contact with the ground, as and for the purpose described.

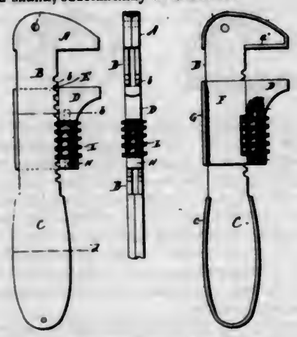
2. In a ladder, an upwardly-curved brace secured across the ends of the side rails, a brace extending from the center of the first-named brace to the lowermost round, rods slidably secured in openings at the lower end of the second brace and the side rails, said rods being adapted to slide laterally to come in contact with the ground, as and for the purpose described.

579,438. WRENCH. JOSEPH P. LAVIGNE, New Haven, Conn., assignor to the Lavigne & Scott Manufacturing Company, same place. Filed Jan. 7, 1897. Serial No. 618,242. (No model.)

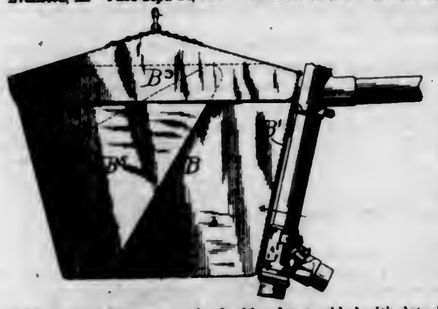
Claim.—1. A wrench having its fixed jaw, shank and handle formed from two pieces of sheet metal, said jaw and handle portions formed with inwardly-projecting flanges, a movable jaw having a web extending between said shanks, and carrying an adjusting-nut which engages with teeth in the forward edges of said shanks, substantially as described.

2. A wrench having its fixed jaw, shank and handle formed from two pieces of sheet metal, said jaw and handle portions formed with inwardly-projecting flanges, a movable jaw having a web extending between said shanks, and carrying an adjusting-nut which engages with teeth in the forward edges of said shanks, and a wearing-block located between the sides of the fixed jaw, substantially as described.

3. A wrench having its upper jaw, shank and handle formed from two pieces of metal, said jaw and handle portions each having inwardly-projecting abutting flanges, a movable jaw arranged between the sides of the shank, between which it is guided, and a nut mounted in the said jaw for engagement with teeth formed on the forward edges of said shank, substantially as described.



579,439. LUGGAGE-CARRIER FOR BICYCLES. JOHN T. LONG, Evanston, Ill. Filed Sept. 24, 1896. Serial No. 606,812. (No model.)



Claim.—1. A luggage-carrier for bicycles provided with detachable securing devices comprising rearwardly-projecting arms which are adapted to engage opposite sides of one of the frame-bars of the machine to hold the carrier from lateral oscillation.

2. A luggage-carrier provided with attaching devices which consist of vertically-separated parts for engagement with the steering-head and two rearwardly-projecting, parallel arms adapted to engage opposite sides of one of the frame-bars of the machine.

3. A luggage-carrier provided with attaching devices for securing it to the steering-head, said attaching devices comprising a clamping-ring which has pivotal connection with the wall of the carrier so that it may be folded flat against the same.

4. A luggage-carrier provided with means for securing it to the steering-head of a bicycle, said means embracing arms which extend rearwardly from the carrier and engage the front surface of the steering-head and other segmental arms pivoted to the rear end of the first arms and provided at their free ends with securing means.

5. A luggage-carrier provided with means for securing it to the steering-head of a bicycle, said means embracing arms which extend rearwardly from the carrier and engage the front surface of the steering-head and other segmental arms pivoted to the rear ends of the first arms and provided at their free ends with securing means consisting of a spring-catch on the free end of one of said arms adapted to engage a detent projection on the other of said arms.

6. A luggage-carrier embracing means for securing the same to the steering-head of a bicycle, the same embracing two plates hinged to the rear wall of the carrier and provided with rigid arms which engage one of the frame-bars of the bicycle and provided also with a detachable securing device adapted to extend around or embrace a part of the frame.

7. A luggage-carrier embracing means for securing the same to the steering-head of a bicycle, the same embracing two plates hinged to the rear wall of the carrier and provided with rigid arms which engage one of the front bars of the bicycle and provided also with attaching means extending around a part of the frame, consisting of straps attached to said plates.

8. A luggage-carrier embracing means for securing the same to the steering-head of a bicycle, the same embracing two plates hinged to the rear wall of the carrier and provided with rigid arms which engage one of the frame-bars of the bicycle and provided also with attaching means extending around one of the frame-bars of the machine and straps for limiting the outward movement of the said arms when in their extended position.

9. A luggage-carrier comprising means for detachably securing the same to the steering-head of a bicycle, said means embracing a clamping-ring which is hinged to the rear wall of the carrier so as to fold flat against the same and two hinged plates also hinged to the said rear wall so as to fold flat against the same, said plates being provided with rigid rearwardly-extending arms, and also with attaching means adapted to embrace one of the frame-bars of the bicycle.

10. A luggage-carrier comprising means for detachably securing the same to the steering-head of a bicycle, said means embracing a clamping-ring which is hinged to the rear wall of the carrier so as to fold flat against the same and two hinged plates also hinged to the said rear wall so as to fold flat against the same, said plates being provided with rigid rearwardly-extending arms, and also with securing means, and the plates being further provided with stops to limit their outward movement.

11. As a means of securing a luggage-carrier to the steering-head of a bicycle, a plate adapted for attachment to the luggage-carrier and provided at its upper end with a clamping-ring which is hinged to the plate and has at its lower end two hinged plates provided with rigid rearwardly-extending arms and with securing means.

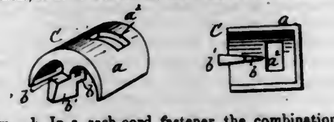
12. A luggage-carrier provided with attaching devices for securing it to the steering-head of a bicycle, said attaching devices being secured to the rear wall thereof and adapted to fold flat against the same, and provided also with a grip or handle at its top.

13. A luggage-carrier comprising permanently-connected bottom, end, rear and front walls, a tray hinged at the lower end to the front of the carrier and adapted to fold upwardly against the front wall thereof, and a lid or cover hinged to the rear wall and flanged at its front wall to engage said tray and hold the same closed.

14. A luggage-carrier comprising permanently-connected bottom, end, rear and front walls, a tray hinged at its lower edge to the bottom of the carrier and adapted to fold upwardly against the front wall thereof, and a lid or cover hinged to the rear wall and flanged at its front wall to engage said tray and hold closed the same, the side walls of said tray being extended to form projections which overlap the end walls of the carrier.

15. A luggage-carrier comprising permanently-connected bottom, end, rear and front walls, a tray hinged at its lower edge to the bottom of the carrier and adapted to fold upwardly against the front wall thereof, and a tray or trays hinged to the rear wall and resting at their front margins upon the stationary front wall of the carrier.

579,440. SASH-CORD FASTENER. CHARLES H. OCUMPAUGH, Rochester, N. Y. Filed Nov. 14, 1896. Serial No. 612,122. (No model.)



Claim.—1. In a sash-cord fastener, the combination, with the sash and chain, of the fastener consisting of the socket-piece provided with the opening a^3, and a lug b projecting from the wall of said piece and having a laterally-extended shoulder to support a link, or the like, in a vertical line, substantially as set forth.

2. In a sash-cord fastener, the combination with the sash and chain, of the fastener consisting of the socket-piece provided with the opening a^3, and a lug b projecting down from the wall of said piece and having a laterally-extended shoulder to support a link, or the like, in a vertical line, said shoulder being wedge-shaped and thickest at its free end substantially as set forth.

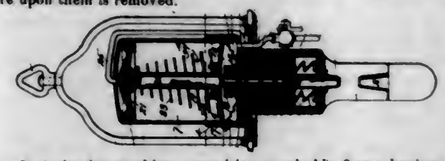
3. A sash-cord fastener consisting of the socket-piece provided with opening a^3 and a lug b extending from the wall of said piece at each end thereof in combination with a chain having a two-part terminal to engage with both lugs, as described.

579,441. RIVETING-MACHINE. ALFRED PARFITT, Topeka, Kans. Filed Apr. 17, 1896. Serial No. 588,015. (No model.)

Claim.—1. A riveting-machine, comprising a frame having an arm or anvil, a piston provided with an arm to engage a rivet, a liquid-chamber communicating with the piston-chamber above said piston, a movable partition to displace a quantity of the liquid in said chamber, and thereby applying pressure upon the piston force it downwardly to engage the rivet, and a second piston or intensifier to operate upon said fluid and thereby increase the pressure upon the first-named piston and consequently upon the rivet engaged by the same, substantially as described.

2. A riveting-machine, comprising a frame having an arm or anvil, a piston provided with an arm to engage a rivet, a liquid-chamber communicating with the piston-chamber above said piston, a movable partition to displace a quantity of the liquid in said chamber, and thereby applying pressure upon the piston force it down-

wardly to engage the rivet, a second piston or intensifier to operate upon said fluid and thereby increase the pressure upon the first-named piston and consequently upon the rivet engaged by the same, and means to return said pistons to their original positions after the pressure upon them is removed.



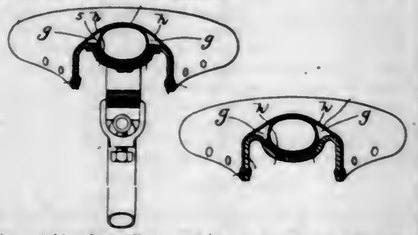
3. A riveting-machine, comprising a suitable frame having an anvil or arm, and provided with a piston-chamber, a piston therein provided with a stem to act in conjunction with said arm upon the rivet to be upset, a liquid-chamber in communication with the upper end of said piston-chamber, a movable partition therein, a pressure-supply pipe communicating with the liquid-chamber at the side of the movable partition containing no liquid, a second piston or pressure-intensifier, a pipe connecting the same with said supply-pipe, and a valve, which when operated permits the pressure agent to first act upon and operate the movable partition and consequently operate the first-named piston and then to cause such pressure agent to act upon the last-named piston and cause it to intensify the pressure of said first-named piston upon said rivet, substantially as described.

4. A riveting-machine, comprising a suitable frame having an anvil or arm, and provided with a piston-chamber, a piston therein provided with a stem to act in conjunction with said arm upon the rivet to be upset, a liquid-chamber in communication with the upper end of said piston-chamber, a movable partition therein, a pressure-supply pipe communicating with the liquid-chamber at the side of the movable partition containing no liquid, a second piston or pressure-intensifier, a pipe connecting the same with said supply-pipe, a valve which when operated permits the pressure agent to first act upon and operate the movable partition and consequently operate the first-named piston, and then to cause such pressure agent to act upon the last-named piston and cause it to intensify the pressure of said first-named piston upon said rivet, a discharge-pipe which may be put in communication by said valve with the pipes leading to said chambers after the riveting operation is completed, and means to return said pistons to their original position, simultaneously with the escape of the pressure agent through the discharge-pipe, substantially as described.

5. The combination with a riveting-machine, of a ring secured thereto, a grooved ring slidingly embracing the same, and a bail pivotally carrying said grooved ring, substantially as described.

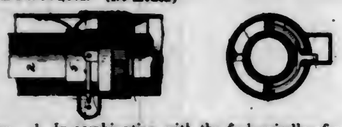
6. The combination with a riveting-machine, of a ring secured thereto, a grooved ring slidingly embracing the same and provided at diametrically opposite points with trunnions, a bail pivotally engaging said trunnions at its lower end, and a link swiveled to said bail substantially as described.

579,442. BICYCLE-SADDLE. JOHN H. POOLE, Randolph, Mass., assignor of one-half to Charles Prescott, same place. Filed July 11, 1896. Serial No. 598,797. (No model.)



Claim.—A bicycle-saddle comprising a relatively stiff body portion having a pocket or depression, a flexible diaphragm secured at its margin to the body portion along a line removed from the margin of said pocket or depression, the central unattached portion of said diaphragm being free to rise and fall independently of the body portion and provided with a series of orifices near the line of attachment to the body portion, and an inflatable cushion placed in said pocket and arranged to yieldingly support the central portion of the diaphragm, compressible air-chambers being formed between opposite sides of the air-cushion, the perforated portions of the diaphragm, and those portions of the body lying between the margin of the pocket therein and the line of attachment of the diaphragm, whereby a circulation of air may be induced around the cushion, substantially as described.

579,443. BICYCLE-LOCK. CHARLES E. RANDO, Berwyn, Pa., assignor of one-half to Joseph C. Potts, same place. Filed Jan. 2, 1896. Serial No. 574,072. (No model.)

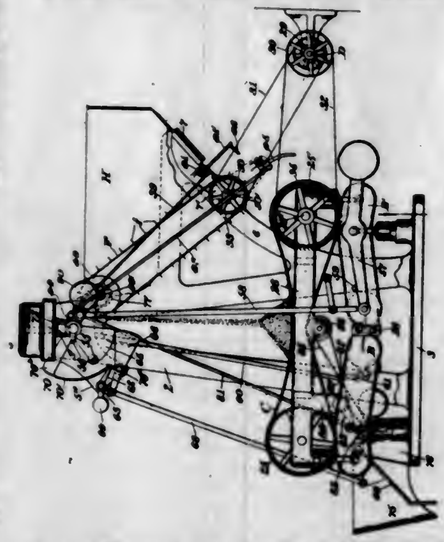


Claim.—1. In combination with the fork-spindle of a bicycle, a cone secured thereto, a clutch surrounding said spindle and slidingly secured to the front tube of the machine, a fork pivoted to said clutch and to the frame of the machine, an extension from said fork, a casing surrounding the end of said extension, having a keyhole formed therein, whereby a suitable key may be guided, in operating said extension, substantially as and for the purposes set forth.

2. In a bicycle-lock, a serrated cone secured to the spindle of the fork of a machine, a serrated ring secured to the tube and a serrated clutch adapted to be moved into engagement with the ring and cone, as and for the purpose described.

3. In combination with the fork-spindle of a bicycle, a cone secured thereto, a ring secured to the tubing, a clutch encircling said spindle and cone, a spring for determining the position of the clutch, a fork pivoted to said clutch and to the tubing, a casing surrounding the end of the fork having a keyhole formed therein, as and for the purpose described.

579,444. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Oct. 17, 1896. Serial No. 609,199. (No model.)



Claim.—1. The combination, with stream-supplying means, of supporting means; weighing mechanism carried by said supporting means and embodying a fixedly-supported force-feed material-conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer.

2. The combination, with stream-supplying means, of supporting means; weighing mechanism carried by said supporting means and embodying a fixedly-supported force-feed material-supporting conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer.

3. The combination, with stream-supplying means, of supporting means; weighing mechanism carried by said supporting means and embodying a fixedly-supporting traveling force-feed conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer.

4. The combination, with stream-supplying means, of supporting means; weighing mechanism carried by said supporting means and embodying a load-receiver consisting of a fixedly-supported conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer.

5. The combination, with stream-supplying means, of supporting means; weighing mechanism carried by said supporting means and embodying a load-receiver consisting of a fixedly-supported force-feed conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer.

6. The combination, with stream-supplying means, of supporting means; weighing mechanism carried by said supporting means and embodying a load-receiver consisting of a fixedly-supported endless conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer.

7. The combination, with stream-supplying means, of supporting means; weighing mechanism embodying fixedly-supported load-receiving force-feeding means operative alternately as a load-receiver and as a conveyer and having a material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer.

8. The combination, with stream-supplying means, of supporting means; weighing mechanism embodying a load-receiver, consisting of a fixedly-supported force-feed conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for intermittently actuating said conveyer.

9. The combination, with stream-supplying means, of supporting means; weighing mechanism carried by said supporting means and embodying a fixedly-supported load-receiving force-feeding conveyer having an independent material-conveying movement relatively to its support; and means controlled by the weighing mechanism for actuating said conveyer on the completion of a load.

10. The combination, with beam mechanism, of a force-feed material-conveyer fixedly supported thereon and having an independent material-conveying movement relatively to its support; and means controlled by the beam mechanism for actuating said conveyer.

11. The combination with beam mechanism, of a force-feed material-conveyer pivotally supported thereon and permanently carried thereby; and means controlled by a scale-beam for actuating said conveyer.

12. The combination with supporting means, of a pair of oppositely-disposed scale-beams pivotally mounted thereon; a force-feed material-conveyer pivotally supported by said beams; and means controlled by a scale-beam for actuating said conveyer.

13. The combination with supporting means, of a pair of oppositely-disposed scale-beams pivotally mounted thereon; a force-feed material-conveyer pivotally supported by said beams outside of the pivots of the beams; and means controlled by a scale-beam for actuating said conveyer.

14. The combination with supporting means, of a pair of oppositely-disposed scale-beams pivotally mounted thereon; a frame pivotally supported by said beams; parallel rotary carriers journaled in said frame; an endless material-carrying belt supported on said rotary carriers; and means controlled by a scale-beam for actuating said carrying-belt.

15. The combination with supporting means, of a pair of oppositely-disposed scale-beams pivotally mounted thereon; a frame pivotally supported by said beams; parallel rotary carriers journaled in said frame and disposed transversely to the scale-beams; an endless material-carrying belt supported on said rotary carriers; and means controlled by a scale-beam for actuating said carrying-belt.

16. In a weighing mechanism, the combination with a material-carrying force-feed weighing-conveyer permanently carried by the scale-beam; of a rotary carrier for actuating said conveyer; continuously-operative driving means; and means controlled by the weighing mechanism for coupling and uncoupling said rotary carrier and said driving means.

17. In a weighing mechanism, the combination with an endless load-receiving force-feed weighing-conveyer; of a rotary carrier for actuating said conveyer; continuously-operative driving means; and means for coupling and uncoupling said rotary carrier and said driving means.

18. In a weighing-machine, the combination with a material-feeding conveyer and with a load-receiving force-feed weighing-conveyer; of rotary carriers for actuating said conveyers; continuously-operative driving means; and means for coupling said respective carriers to, and uncoupling them from, said driving means.

19. In a weighing-machine, the combination with an endless material-feeding conveyer and with an endless load-receiving force-feed weighing-conveyer; of rotary carriers for actuating said conveyers; continuously-operative driving means; and means for coupling said respective carriers to, and uncoupling them from, said driving means.

20. In a weighing-machine, the combination of a pair of alternately-operative conveyers, one of which constitutes a material-feeding conveyer, and the other of which constitutes a material-receiving conveyer and is movable with the weighing mechanism of said machine.

21. In a weighing-machine, the combination of a pair of alternately-effective material-advancing conveyers, one of which constitutes a load-receiving conveyer and is movable with the weighing mechanism of said machine.

22. In a weighing-machine, the combination of a pair of reciprocally-effective material-advancing conveyers, one of which constitutes a feeding-conveyer, and the other of which constitutes a load-receiving weighing-conveyer and is movable with the weighing mechanism of said machine.

23. The combination with weighing mechanism embodying a rotary carrier permanently mounted thereon and movable therewith; of driving means independent of said weighing mechanism; and automatically-operative coupling and uncoupling means controlled by the weighing mechanism between said rotary carrier and said driving means.

24. The combination with weighing mechanism embodying a material-conveyer permanently supported thereon and movable therewith; and a rotary carrier mounted on said weighing mechanism, for actuating said conveyer; of driving means independent of said weighing mechanism; and automatically-operative coupling and uncoupling means controlled by the weighing mechanism between said rotary carrier and said driving means.

25. The combination with weighing mechanism embodying a fast pulley mounted thereon and movable therewith; of a loose pulley independent of said weighing mechanism; a driving-belt; and automatic belt-shipping means for shifting said belt from the loose pulley to the fast pulley, and vice versa.

26. The combination with weighing mechanism embodying a fast pulley mounted thereon and movable therewith; of a vertically-movable loose pulley independent of said weighing mechanism; a driving-belt; and automatic belt-shipping means for shifting said belt from the loose pulley to the fast pulley when the loose pulley is in its lowermost position, and from the fast pulley to the loose pulley when the latter is in its uppermost position.

27. The combination with weighing mechanism embodying a fast pulley mounted thereon and movable therewith; of a vertically-movable reactive loose pulley independent of said weighing mechanism; a driving-belt; and automatic belt-shipping means for shifting said belt from the loose pulley to the fast pulley when the loose pulley is in its lowermost position, and from the fast pulley to the loose pulley when the latter is in its uppermost position.

28. The combination with weighing mechanism embodying a fast pulley mounted thereon and movable therewith; of a vertically-movable spring-pressed loose pulley independent of said weighing mechanism; a driving-belt normally holding said loose pulley in its lowermost position against the force of the spring; and automatic belt-shipping means for shifting said belt from the loose pulley to the fast pulley when the loose pulley is in its lowermost position, and from the fast pulley to the loose pulley when the latter is in its uppermost position.

29. In a weighing mechanism, the combination with an endless material-carrying weighing-conveyer having alternate weighing and conveying movements; of a scraper; and automatically-operative scraper-shifting means for alternately throwing the scraper into and out of engagement with the conveyer.

30. The combination with an endless conveyer, of a cut-off valve embodying a plurality of transversely-separated fingers independently movable relatively to each other in the direction of its working-stroke.

31. The combination with a valve composed of a series of transversely-separated members, of a shaft on which said members are loosely mounted; means for closing the valve; and means, including a cross-bar, carried by the shaft for opening said valve.

32. The combination with a shaft, of a series of transversely-separated fingers, each comprising a rigid portion and a flexible portion mounted thereon; arms projecting from the shaft; a cross-bar carried by said arms; and means connected with said shaft for opening and closing the valve.

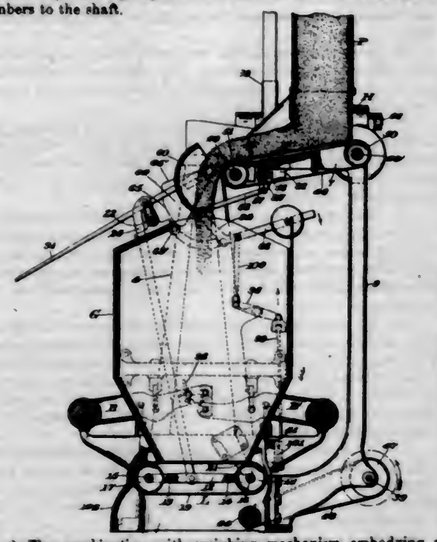
33. The combination with a valve and its supporting-shaft, of a conveyer; means for actuating the conveyer; and a brake operated by the valve-shaft, for stopping the motion of said conveyer.

34. The combination with stream-supplying means, of a valve embodying a plurality of transversely-separated fingers independently movable relatively to each other in the direction of its working stroke.

579,445. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 19, 1896. Serial No. 606,379. (No model.)

Claim.—1. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft carrying a pair of loose power-transmitting members; and means

controlled by the weighing mechanism, for successively coupling said members to the shaft.



2. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft carrying a pair of loose pulleys; and means controlled by the weighing mechanism, for successively coupling said pulleys to the shaft.

3. The combination with a bucket and with beam mechanism, of a feeder and its driving mechanism including a shaft carrying a pair of loose power-transmitting members; a valve and its actuating-lever; and means controlled by said lever, for successively coupling said power-transmitting members to the shaft.

4. The combination with weighing mechanism embodying a bucket; of a feeder and its driving mechanism including a shaft provided with a pair of loose pulleys, each having a projection; slidable members carried by said shaft; a pair of dogs adapted to successively engage the projections on said pulleys and operatively connected, respectively, with said slidable members; and a cam operative with the weighing mechanism, for alternately reciprocating said slidable members.

5. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft provided with a loose pulley having a projection; a slidable member carried by said shaft; a spring-pressed dog adapted to engage the projection on said pulley and operatively connected to said slidable member; and means operative with the weighing mechanism, for reciprocating said slidable member.

6. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft provided with a loose pulley having a projection; a sleeve keyed to said shaft and furnished with a projection having a socket; a sleeve slidable along the first-mentioned sleeve; a dog operatively connected to said slidable sleeve and adapted to engage the projection on said pulley; a spring seated in said socket and bearing against the dog; and means operative with the weighing mechanism, for reciprocating said slidable sleeve on its support.

7. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft provided with a loose pulley having a projection; a slidable member carried by said shaft; a dog adapted to engage the projection on said pulley and operatively connected with said slidable member; a lever for reciprocating the latter on its support; and means operative with the weighing mechanism, for operating said lever.

8. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft provided with a loose pulley having a projection; a slidable member carried by said shaft; a dog adapted to engage the projection on said pulley and operatively connected to said slidable member; a lever for reciprocating the latter on its support; and an actuating-cam for said lever controlled by the weighing mechanism.

9. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft carrying a loose pulley having a projection; a member supported by said shaft for sliding movement, said sliding member having a dog connected by a link thereto, said dog being adapted to engage the projection on the pulley; a lever for reciprocating said sliding member along its support; and means controlled by the weighing mechanism, for operating said lever.

10. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft provided with a loose pulley having a projection; a sleeve keyed to said shaft; a second and peripherally-grooved sleeve slidable on the first-mentioned sleeve, said slidable sleeve having a dog operatively connected thereto which is adapted to engage the projection on the pulley; a bifurcated lever, the branches of which are provided with pins located between the walls of the peripheral groove in said slidable sleeve; and means operative with the weighing mechanism, for reciprocating said sleeve on its support.

11. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft provided with a loose pulley having a projection; a sleeve on said shaft, carrying a second sleeve peripherally grooved and slidable therealong, said first-mentioned sleeve having also a dog pivotally mounted thereon; a balance-weight and a projection extending from the first-mentioned sleeve, said projection having a socket adapted to receive a spring which bears against the dog; a link connecting said dog and peripherally-grooved sleeve; a bifurcated lever actuated by a cam controlled by the weighing mechanism, the branches of said lever having pins located between the walls of the grooves of said sliding sleeve.

12. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft having a pair of loose pulleys, each of which has a projection; a pair of dogs adapted to engage, successively, said projections; levers operatively connected to said dogs; and a cam for actuating said levers, said cam being controlled by the weighing mechanism.

13. The combination with weighing mechanism embodying a bucket, of a feeder and its driving mechanism including a shaft carrying a pair of loose pulleys; a valve; an actuating-lever for said valve; and means controlled by the valve-actuating lever, for successively coupling said pulleys to the shaft.

14. The combination with a reciprocatory weighing-bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier.

15. The combination with a reciprocatory weighing-bucket having a discharge-outlet; of a closer for said outlet, hinged to the bucket and consisting of a frame and an endless carrier.

16. The combination, with a reciprocatory bucket, of a closer consisting of an endless carrier movably connected to said bucket to cover and uncover the discharge-outlet thereof; and mechanism for operating said carrier.

17. The combination with a reciprocatory weighing-bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless belt.

18. The combination with a reciprocatory weighing-bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier; stream-supply means embodying a valve; and reciprocally-effective stops operative, respectively, with said valve and closer.

19. The combination with a reciprocatory weighing-bucket, of a frame carrying a pair of rolls, the shaft of one of which is supported by brackets on the bucket; and an endless belt passed around said rolls.

20. The combination with a reciprocatory weighing-bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier; a lever mounted on the bucket and operatively connected to the closer; and a latch for engaging said lever.

21. The combination with a reciprocatory weighing-bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier; closer-holding means comprehending a latch; means for supplying the bucket with a stream of material; and a valve having a tripper for said latch.

22. The combination with a reciprocatory weighing-bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier; and a scraper for said carrier.

23. The combination with a bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier; driving mechanism for said carrier; and a rotary scraper for said carrier, operated by means connected to the carrier-driving mechanism.

24. The combination with a bucket having a discharge-outlet; of a closer for said outlet, hinged to the bucket and consisting of a frame and an endless carrier; driving mechanism for said carrier; a rotating brush contiguous to the lower run of the carrier on the opening of the closer; and means for rotating said brush.

25. The combination with a bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier; driving mechanism for said carrier, embodying a shaft having fast and loose pulleys; a belt shiftable from one of said pulleys to the other, and vice versa; and belt-shipping means.

26. The combination with weighing mechanism embodying a bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier and also including a shaft carrying fast and loose pulleys; a belt shiftable from one of said pulleys to the other, and vice versa; a power-shaft carrying a pulley around which said belt is passed; and belt-shipping means controlled by the weighing mechanism.

27. The combination with weighing mechanism embodying a bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier; a feeder and its driving mechanism including a shaft carrying a pair of loose power-transmitting members; and means for successively coupling said power-transmitting members to the shaft.

28. The combination with weighing mechanism embodying a bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier and also including a shaft carrying fast and loose pulleys; a belt shiftable from one of said pulleys to the other, and vice versa; a power-shaft provided with a pulley around which said belt is passed; a reciprocatory belt-shipping bar having belt-engaging means; and means controlled by the weighing mechanism, for reciprocating said bar.

29. The combination with a bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier and also including a shaft carrying fast and loose pulleys; a belt shiftable from one of said pulleys to the other, and vice versa; a power-shaft provided with a pulley around which said belt is passed; a belt-shipping bar having belt-engaging means; a reciprocatory thrust-rod operatively connected to said belt-shipping bar; and means for operating said thrust-rod.

30. The combination with a bucket having a discharge-outlet; of a closer for said outlet, connected to the bucket and consisting of a frame and an endless carrier and also including a shaft carrying fast and loose pulleys; a belt shiftable from one of said pulleys to the other, and vice versa; a power-shaft provided with a pulley around which said belt is passed; a belt-shipping bar having belt-engaging means; a reciprocatory thrust-rod operatively connected to said belt-shipping bar; and a lever operatively connected to and for operating said reciprocatory thrust-rod.

31. The combination with a bucket having a discharge-outlet; of a closer connected to the bucket, for opening and closing movements and consisting of a frame and an endless conveyer.

32. The combination with a bucket having a discharge-outlet; of a closer for the outlet, hinged to the bucket and consisting of a frame and an endless carrier; driving mechanism for said carrier; stream-supply means for the bucket; and instrumentalities for simultaneously stopping the supply to the bucket and starting the carrier in motion.

33. The combination with a load-receiver having a discharge-outlet, of a movable closer connected to said receiver and normally closing said outlet; means for opening and closing said closer; and means for imparting a traveling movement thereto when said closer is in its open position, whereby the material is delivered from the load-receiver.

579,446. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 2, 1896. Serial No. 610,824. (No model.)

Claims.—1. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream.

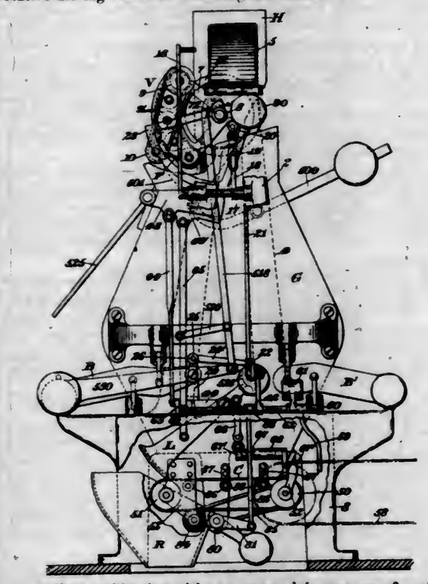
2. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a reciprocatory feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream.

3. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of an oscillatory feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream.

4. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and separate actuators for the carrier and feeder.

5. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and rotary driving means for actuating said feeder.

6. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and intermittently-rotative driving means for actuating said feeder.



7. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of an oscillatory feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and a feeder-driver having its axis of movement coincident with that of the carrier.

8. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of an oscillatory feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and a rotary feeder-driver having its axis of movement coincident with that of the carrier.

9. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of an oscillatory feeder carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and a rotary feeder-driver engaging one of the runs of the feeder and having its axis of movement coincident with that of the carrier.

10. The combination with stream-supplying means, of a stream-controller coöperative therewith and comprising an oscillatory feed-carrier, a plurality of rollers having their inner faces in an arc struck from the axis of oscillation of the carrier, an endless-band feeder movable across the path of the supply-stream to vary the size of said stream carried by said rollers; and a feeder-driver engaging the inner run of the feeder and having its axis of movement coincident with that of the carrier.

11. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; actuating means for imparting a closing movement to the stream-controller; and a feeder-driver operative during said closing movement of the stream-controller.

12. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; actuating means for imparting stream-reducing and cut-off movements to the stream-controller; and a feeder-driver operative during said stream-reducing movement of the stream-controller.

13. The combination with stream-supply means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and a scraper supported on said carrier and coöperative with said feeder.

14. The combination with stream-supplying means, of a stream-controller coöperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the path of the supply-stream to vary the size of said stream; and a rotary scraper supported on said carrier and coöperative with said feeder.

15. In an automatic weighing-machine, the combination with an endless feeding-conveyer and with an endless load-discharging conveyer supported on the weighing mechanism of said machine and movable therewith during the weighing of the load; of actuating means for said conveyers; and a conveyer-movement limiter operative with one of said conveyers, for limiting the movement of the other.

16. In an automatic weighing-machine, the combination with an endless feeding-conveyer and with an endless load-discharging conveyer supported on the weighing mechanism of said machine and movable therewith during the weighing of a load; of actuating means for said conveyers; and alternately-effective conveyer-movement limiters operative, respectively, with said conveyers.

17. In an automatic weighing-machine, the combination with an endless feeding-conveyer and with an endless load-discharging weighing-conveyer for supporting the load while the material is being weighed; of actuating means for said conveyers; and alternately-effective conveyer-movement limiters operative, respectively, with said conveyers.

18. In an automatic weighing-machine, the combination with an endless feeding-conveyer and with an endless load-discharging conveyer; of actuating means for said conveyers; automatic couplers between said actuating means and said respective conveyers; and alternately-effective stops operative, respectively, with said couplers for blocking the coupling-movements of each of said couplers, respectively, while the other is coupled.

19. In an automatic weighing-machine, the combination with an endless feeding-conveyer and with an endless load-discharging conveyer; of fast pulleys for driving said conveyers; loose pulleys for said conveyers; driving-belts, one for each conveyer; belt-shippers for shifting said belts from the loose pulleys to the fast pulleys, and vice versa; and alternately-effective stops operative, respectively, with said belt-shippers, for blocking the shifting of each of said belts, respectively, onto the other fast pulley while the other belt is on its fast pulley.

20. In an automatic weighing-machine, the combination with the framework; of an endless feeding-conveyer; an endless load-discharging conveyer supported on the weighing mechanism of the machine and movable therewith during the weighing of the load; and alternately-effective conveyer-movement limiters supported on the framework and operative, respectively, with said conveyers.

21. In an automatic weighing-machine, the combination, with stream-controlling means; of a closer and a force-feed load-discharger, both operative on the weighing of each load; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the closer and said load-discharger, and the latter with the stream-controlling means.

22. In an automatic weighing-machine, the combination, with stream-controlling means, of a closer and a force-feed load-discharger successively operative on the weighing of each load; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the closer and said load-discharger, and the latter with the stream-controlling means.

23. In an automatic weighing-machine, the combination with stream-controlling means and with a bucket having a discharge-opening at the delivery end of the load-discharging conveyer; of a closer for said opening; means for actuating the closer to uncover said opening; a load-discharging conveyer operative on the opening of the closer; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the closer and the conveyer and the latter with the stream-controlling means.

24. In an automatic weighing-machine, the combination with stream-controlling means and with a bucket having a discharge-opening at the delivery end of the load-discharging conveyer; of a closer for said opening; means for actuating the closer to uncover said opening; an endless load-discharging conveyer operative on the opening of the closer; and alternately-effective load-supply-movement and load-discharging-movement limiters, the former operative with the closer and the conveyer and the latter with the stream-controlling means.

25. In an automatic weighing-machine, the combination, with stream-controlling means; of a closer and a force-feed load-discharger, both operative on the weighing of each load; and two pairs of alternately-effective load-supplying-movement and load-discharging-movement limiters, one pair operative with the closer and with the stream-controlling means, and the other pair operative with said load-discharger and said stream-controlling means.

26. In an automatic weighing-machine, the combination, with stream-controlling means; of a closer and a force-feed load-discharger, both operative on the weighing of each load; and two simultaneously-operative pairs of alternately-effective load-supplying-movement and load-discharging-movement limiters, one pair operative with the closer and with the stream-controlling means, and the other pair operative with said load-discharger and said stream-controlling means.

27. In an automatic weighing-machine, the combination, with stream-controlling means; of a closer and a force-feed load-discharger, both operative on the weighing of each load; two pairs of alternately-effective load-supplying-movement and load-discharging-movement limiters, one pair operative with the closer and with the stream-controlling means, and the other pair operative with said load-discharger and said stream-controlling means; and connections between the load-discharging-movement limiters, for actuating them simultaneously.

28. In an automatic weighing-machine, the combination, with an endless feeder and with means for actuating the same; of a closer and a force-feed load-discharger, both operative on the weighing of each load; and two pairs of alternately-effective load-supplying-movement and load-discharging-movement limiters, one pair operative with the closer and with the feeder, and the other pair operative with said load-discharger and said feeder.

29. In an automatic weighing-machine, the combination with stream-supplying means; of a stream-controller cooperative therewith and consisting of a movable feeder-carrier and a feeder movable across the supply-stream; a load-discharger; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the load-discharger and the latter with the feeder-carrier and with the feeder.

30. In an automatic weighing-machine, the combination with stream-supplying means; of a stream-controller cooperative therewith and consisting of a movable feeder-carrier and an endless-band feeder movable across the supply-stream, to vary the size of said stream; a feeder-actuator; a load-discharger; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the load-discharger and the latter with the feeder-carrier and with the feeder-actuator.

31. In an automatic weighing-machine, the combination, with stream-supplying means, of a stream-controller cooperative therewith and comprising a movable feeder-carrier and a feeder movable across the supply-stream; a closer and a force-feed load-discharger, both operative on the weighing of each load; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the closer and said load-discharger, and the latter with the feeder-carrier and the feeder.

32. In an automatic weighing-machine, the combination, with stream-supplying means, of a stream-controller cooperative therewith and comprising a movable feeder-carrier and an endless feeder; a feeder-actuator; a closer and a force-feed load-discharger, both operative on the weighing of each load; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the closer and said load-discharger, and the latter with the feeder-carrier and the feeder-actuator.

33. In an automatic weighing-machine, the combination with stream-supplying means; of a stream-controller cooperative therewith and comprising a movable feeder-carrier and an endless feeder; a feeder-actuator; a load-discharger and an endless load-discharging conveyer, both operative on the weighing of each load; a conveyer-actuator for said load-discharging conveyer; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the load-discharger and with the conveyer-actuator and the latter with the feeder-carrier and the feeder-actuator.

34. In an automatic weighing-machine, the combination with stream-supplying means; of a stream-controller cooperative therewith and comprising a movable feeder-carrier and an endless feeder; a load-discharger and an endless load-discharging conveyer, both operative on the weighing of each load; driving means for the feeder and said conveyer; a feeder-coupler and a conveyer-coupler for alternately coupling the feeder and conveyer to, and uncoupling them from, the driving means; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the load-discharger and with the conveyer-coupler and the latter with the feeder-carrier and the feeder-coupler.

35. In an automatic weighing-machine, the combination with stream-supplying means; of a stream-controller cooperative therewith and comprising a movable feeder-carrier and an endless feeder; a load-discharger and an endless load-discharging conveyer, both operative on the weighing of each load; a driving-belt for the feeder; a driving-belt for said conveyer; a fast pulley and a loose pulley for each of said driving-belts; belt-shippers for said driving-belts; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the load-discharger and with the belt-shipper for the feeder-driving belt and the latter operative with the feeder-carrier and with the belt-shipper for the conveyer-driving belt.

36. In an automatic weighing-machine, the combination with a stream-controller; of a bucket having a closer and an endless load-discharging conveyer; means for actuating the stream-controller, the closer, and said conveyer; and alternately-effective load-supplying-movement and load-discharging-movement limiters, the former operative with the stream-controller and the latter supported on the bucket and operative, respectively, with the closer and the load-discharger.

37. The combination with a loose pulley, of a driving-belt normally carried thereon; belt-shipping means; a rotary carrier; a pulley loosely mounted on said carrier and slidable thereon; and a friction-coupling embodying a cam operative for sliding said second pulley along the rotary carrier and coupling it thereto, on the shifting of the driving-belt, onto said pulley.

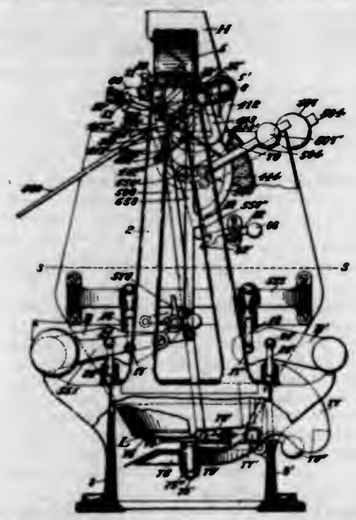
38. The combination with a loose pulley, of a driving-belt normally carried thereon; belt-shipping means; a rotary carrier; a pair of stops on said carrier, one having a cam-face oblique to the axis of the carrier; and a pulley loosely mounted on said carrier and slidable thereon between said stops and having a cam-face cooperative with that of the stop and in position and adapted for sliding said pulley along the rotary carrier and coupling it thereto, on the shifting of the driving-belt, onto said pulley.

39. In an automatic weighing-machine, the combination with a bucket having a closer and also having an endless load-discharging conveyer; of a rotary carrier for said conveyer; a loose pulley; a driving-belt normally carried on said pulley; belt-shipping means; a pulley loosely mounted on the rotary carrier and slidable thereon; a friction-coupling embodying a cam operative for sliding said pulley along the rotary carrier and coupling it thereto, on the shifting of the driving-belt, onto said pulley; and pulley-shifting means for returning said pulley to its normal position.

40 In an automatic weighing-machine, the combination with a bucket having a closer and also having an endless load-discharging conveyer; of a rotary carrier for said conveyer; a loose pulley; a driving-belt normally carried on said pulley; belt-shipping means; a pulley loosely mounted on the rotary carrier and slidable thereon; a friction-coupling embodying a cam operative for sliding said pulley along the rotary carrier and coupling it thereto, on the shifting of the driving-belt, onto said pulley; and closer-operated pulley-shifting means for returning said pulley to its normal position.

41. In a weighing-machine, the combination with a bucket having a closer and also having an endless load-discharging conveyer; of a rotary carrier for said conveyer; a loose pulley; a driving-belt normally carried on said pulley; belt-shipping means; a pulley loosely mounted on said carrier and slidable thereon and operative for actuating the closer to open the same on the coupling of said pulley to the rotary carrier; a friction-coupling embodying a cam operative for sliding said second pulley along the rotary carrier and coupling it thereto, on the shifting of the driving-belt, onto said pulley; and closer-operated pulley-shifting means for returning said pulley to its normal position.

579,447. **WEIGHING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 27, 1896. Serial No. 589,219. (No model.)



Claim.—1. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a rotatable closer for said bucket.

2. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a rotatable closer for said bucket; and means for rotating said closer.

3. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a closer for the bucket supported for opening and closing movements; and means for rotating said closer.

4. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a closer for the bucket supported for opening and closing movements; and means for rotating said closer on its opening movement.

5. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a closer for the bucket; a ratchet carried by said closer; and a pawl for said ratchet.

6. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a closer for the bucket; a ratchet carried by said closer; and a counterweighted pawl supported by a relatively-fixed part of the machine for engaging said ratchet.

7. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a closer for the bucket; a toggle connected with the closer; means for engaging one of the toggle members; and means for rotating said closer.

8. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a yoke having a bearing; a bucket-closer having a spindle journaled in said bearing; and means for rotating said bucket-closer.

9. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a suitably-supported bearing; and a bucket-closer journaled to rotate in said bearing.

10. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a yoke having a bearing; a bucket-closer provided with a spindle journaled in said bearing; a ratchet carried by said closer; and a pawl supported by a relatively-fixed part of the machine for engaging the teeth of said ratchet.

11. In a weighing-machine, the combination with a bucket, the discharge-orifice of which is circular; of a circular bucket-closer tightly fitting within the bucket when in its normal position; means for supporting said closer; and means for rotating said closer on its opening movement.

12. The combination with weighing mechanism and with a bucket supported thereby, of a closer for said bucket; and means for imparting to the closer a step-by-step movement, whereby the mass of material sustained by the closer will be positively dislodged or shaken therefrom.

13. The combination with weighing mechanism and with a bucket supported thereby, of a chute; and a valve for said chute having oppositely-directive stream-outlets, one of which is a conduit having guide-walls for the drip-stream.

14. In a weighing-machine, the combination with beam mechanism; and with a bucket supported thereby; of a chute; a valve for said chute having oppositely-directive stream-outlets; a coacting valve for controlling one of said streams of material; and valve-actuating mechanism.

15. In a weighing-machine, the combination with beam mechanism, and with a bucket supported thereby; of a chute; a valve therefor having oppositely-directive stream-outlets; a coacting valve supported by said first-mentioned valve; and valve-actuating mechanism.

16. In a weighing-machine, the combination with a chute; of a valve therefor having a discharge edge, the wall of which is intersected by a conduit, and which valve has also arms thereon; a valve supported between said arms; and valve-actuating mechanism.

17. In a weighing-machine, the combination with a bucket having a closer; of a chute; a valve therefor having oppositely-directive stream-outlets; a valve for controlling one of said streams; and reciprocally-effective stops operative, respectively, with said valves and closer.

18. In a weighing-machine, the combination with a chute, of a main valve; a rock-shaft supported between said main valve and the frame of the machine; a supplemental valve; a connection between said rock-shaft and supplemental valve; a bucket having a closer; and reciprocally-effective stops operative with said supplemental valve and closer.

19. In a weighing-machine, the combination with a chute, of a valve therefor; a rock-shaft supported in part by said valve; a supplemental valve; a connection between said supplemental valve and rock-shaft; a rod operatively connected with said shaft; and a lever for engaging said rod.

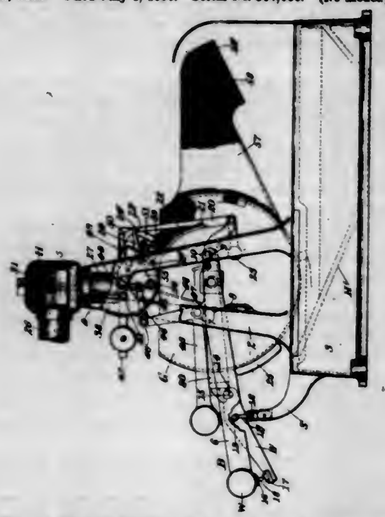
20. In a weighing-machine, the combination with a chute; of a main valve having a discharge edge and a drip-stream outlet; a shaft supported in part by said main valve and operatively connected with the supplemental valve; a bucket and its closer; and reciprocally-effective stops operative, respectively, with said valves and closer.

21. In a weighing-machine, the combination with a chute, of a main valve; a supplemental valve; a rock-shaft supported in part by said main valve and having a stop-rod; a connection between said

rock-shaft and supplemental valve and a suitable stop for engaging said rod at a predetermined point in the operation.

22. In a weighing-machine, the combination with a chute, of a main valve having a discharge edge and a stream-outlet; of a supplemental valve pivotally supported adjacent to said main valve; a drip-valve connected to said supplemental valve; a rock-shaft supported in part by said main valve and operatively connected with the supplemental and drip valves; and valve-actuating mechanism connected to said rock-shaft.

579,448. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed July 1, 1896. Serial No. 597,680. (No model.)



Claim.—1. The combination with a bucket and with means for supplying a stream of material thereto, of a main scale-beam having supports for said bucket; an auxiliary scale-beam also provided with a bucket-support; and a connection between the counterweight of said main scale-beam and the auxiliary scale-beam.

2. The combination with a bucket and a supporting-frame for said bucket to which it is pivoted, of means for supplying a stream of material to said bucket; a main scale-beam having a pair of arms connected to said bucket-frame; and an auxiliary scale-beam supported for movement between the arms of the main scale-beam and provided with a bucket-support.

3. The combination with weighing mechanism including an oscillatory bucket, of a frame for supporting said bucket; beam mechanism comprehending main and auxiliary scale-beams, for sustaining said bucket-frame, the auxiliary scale-beam being longitudinally yieldingly mounted; a hopper; a valve for said hopper; and means for actuating said valve to open and close the same alternately.

4. The combination with weighing mechanism including a bucket supported for oscillatory movement, of a frame for sustaining said bucket; main and auxiliary beams for supporting said bucket-frame, one of said beams being longitudinally yieldingly mounted; means comprehending a latch, for normally holding said bucket against discharge movement; a hopper, a valve for said hopper; means controlled by the weighing mechanism, for actuating said valve to open and close the same alternately; and a latch-tripping device operative with said valve.

5. The combination with a shiftable bucket provided with a detent, of an angle-lever having a detent for engaging said first-mentioned detent; and a latch for engaging said angle-lever.

6. The combination with a valve, of a shiftable bucket provided with a detent; an angle-lever provided with a detent for engaging said first-mentioned detent, said angle-lever also constituting a stop; and a coacting stop operative with the valve.

7. The combination with a valve, of a shiftable bucket provided with a detent; an angle-lever having a detent for engaging said first-mentioned detent, said angle-lever also constituting a stop; a coacting stop operative with said valve; and a latch for engaging said angle-lever.

8. The combination with a valve, of a shiftable bucket provided with a detent; an angle-lever having a detent for engaging said first-mentioned detent, said angle-lever also constituting a stop; a coacting stop connected to said valve; and a latch-tripping device also connected to said valve.

9. The combination with a valve, of a shiftable bucket having a segmental flange thereon; a counterweighted angle-lever provided with a detent for engaging said flange, said angle lever also having a shoulder; and a stop operative with said valve and furnished with a flange contiguous to said closer.

10. The combination with a valve, of bucket mechanism and its supporting scale-beam; and a counterweighted angle-lever supported by said scale-beam, one arm of which lever is operatively connected to the valve.

11. The combination with a valve, of bucket mechanism and its supporting scale-beam; and a counterweighted angle-lever supported by said scale-beam, one arm of which is slidingly connected to the valve.

12. The combination with a valve and a supporting-arm therefor provided with a projection, of a link pivoted to said projection and having a longitudinal slot in one end; a bucket and a scale-beam; and a counterweighted angle-lever supported by said scale-beam, one arm of which is provided with a pin passing through the slot in said link.

13. The combination with a bucket, of a tubular valve-casing having a valve-seat therein; a spring-actuated valve located within said casing; means for actuating said valve to close the same; and a second valve cooperative with the first-mentioned valve and operable for limiting the closure thereof and for also opening the same.

14. The combination with a bucket, of a fluid-casing having a valve-seat; a valve operable in said casing; a depending rod connected to said valve and bifurcated at its bottom; a stud located within the fluid-casing and extending between the branches of the bifurcation; means for closing said valve; and a second valve operable for limiting the closure of the first-mentioned valve and for also engaging said rod.

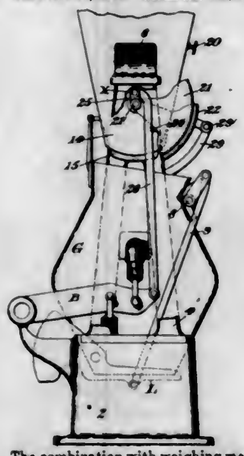
15. The combination with a bucket, of a fluid-casing having a valve-seat; a valve located within said casing and having oppositely-extending rods, one of which is embraced by a coiled spring constituting a valve-closing device, the other rod being bifurcated at its bottom; a stud seated within said casing and passing between the branches of said bifurcation; and a second valve operable for limiting the closure of the first-mentioned valve and for also opening the same.

16. The combination with a fluid-casing having a valve operative therein and movable toward its seat; a depending rod connected to said valve; and a cut-off valve provided with a cross-bar against which said depending rod is adapted to abut.

17. A valve provided with a main supply-chamber and a tubular portion communicating therewith, said tubular portion having a main spout and a drip-stream spout.

18. The combination with a bucket and with means for supplying a stream of material thereto, of a tubular valve provided with main and drip stream spouts; and valve-actuating mechanism.

579,449. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Oct. 29, 1896. Serial No. 610,419. (No model.)



Claim.—1. The combination with weighing mechanism, of a hopper having two spouts and also having a slot in a wall thereof; a swinging partition hinged to the dividing-wall of said spouts and provided with a screw passing through said slot; a nut on said screw; and stream-controlling means governed by the weighing mechanism.

2. The combination with weighing mechanism, of stream-supply means; a stream-controller; and stream-controller-actuating means controlled by the weighing mechanism and operable for blocking the descending movement of the weighing mechanism.

3. The combination with weighing mechanism, of stream-supply means; a valve; and valve-actuating means controlled by the weighing mechanism and operable for blocking the descending movement of the weighing mechanism.

4. The combination with weighing mechanism, of stream-supply means; a valve; and valve-opening means controlled by the weighing mechanism and operable for blocking the descending movement of the weighing mechanism.

5. The combination with weighing mechanism, of stream-supply means; a stream-controller; and stream-controller-actuating means controlled by the weighing mechanism and operable for blocking the descending movement of the weighing mechanism, said stream-controller being operable for releasing the weighing mechanism.

6. The combination with weighing mechanism consisting of a scale-beam and a bucket supported thereby for rising and falling movements; of a valve-actuator controlled by the scale-beam, for blocking the descent of the weighing mechanism on one of the strokes of said scale-beam.

7. The combination with weighing mechanism consisting of a scale-beam and a bucket supported thereby for rising and falling movements; of a valve-actuator controlled by the scale-beam, for blocking the action of the weighing mechanism on the ascending stroke of the scale-beam.

8. The combination with weighing mechanism, of a hopper; a valve supported for oscillatory movement; and valve-opening means controlled by the weighing mechanism for blocking the descent of the weighing mechanism.

9. The combination with weighing mechanism, of a hopper; a valve supported for oscillatory movement; and valve-opening means controlled by the weighing mechanism and operable for blocking the descent of the weighing mechanism, said valve being adapted on its closure to release the weighing mechanism.

10. The combination with weighing mechanism, of stream-supply means; a stream-controller; and stream-controller-actuating means controlled by the weighing mechanism and operable for blocking the action of the weighing mechanism, said means including a toggle.

11. The combination with weighing mechanism comprehending a bucket and a supporting scale-beam therefor, of stream-supply means; a stream-controller; and a toggle operatively connected with the stream-controller and the scale-beam and adapted to have its pivots thrown into line on one of the strokes of the scale-beam to thereby block the action of the weighing mechanism.

12. The combination with weighing mechanism including a bucket, of a hopper having main and drip chambers; valves adapted for controlling the supply of material from said chambers to the bucket, the valve for the main chamber being closed first, whereby when it is shut said main chamber may be filled with material; and means controlled by the weighing mechanism for opening said valves, whereby the stored mass in the main chamber will be released, said valve-opening means being also operable for blocking the action of the weighing mechanism.

13. The combination with weighing mechanism including a bucket, said bucket having a closer normally held against movement by means comprehending a latch; of a hopper having main and drip chambers; valves adapted for controlling the supply of material from said chambers to the bucket, the valve for the main chamber being first closed, whereby when it is shut said main chamber may be filled with material; means controlled by the weighing mechanism for opening the main valve to release the stored mass in the main chamber, said valve-opening means being also operable for blocking the action of the weighing mechanism; a latch-tripping device; and reciprocally-effective stops operative with the drip-valve and with the closer.

14. The combination with weighing mechanism including a bucket, said bucket having a closer normally held against movement by means comprehending a latch; of a hopper having main and drip chambers; valves adapted for controlling the supply of material from said chambers to the bucket, the valve for the main chamber being first closed, whereby when it is shut said chamber may be filled with material; means for opening the main valve to release the stored mass in the main chamber, said valve-opening means being also operable for blocking the action of the weighing mechanism; and a latch-tripper operative with the drip-valve.

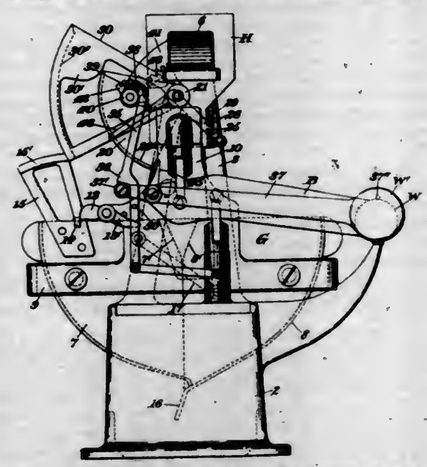
15. The combination with weighing mechanism including a bucket, said bucket having a closer normally held against movement by means comprehending a latch; of a hopper having main and drip chambers; valves adapted for controlling the supply of material from said chambers to the bucket, the valve for the main chamber being first closed, whereby when it is shut said main chamber may be filled with material; means for opening the main valve to release the stored mass in the main chamber, said means being also operable for blocking the action of the weighing mechanism, said main valve having a projecting stud thereon adapted to engage the drip-valve to open the same; and a latch-tripping device.

16. The combination with weighing mechanism including a bucket, said bucket having a closer normally held against movement by means comprehending a latch; of a hopper having main and drip chambers; valves adapted for controlling the supply of material from said chambers to the bucket, the valve for the main chamber being first closed, whereby when it is shut said main chamber may be filled with material; means for opening the main valve to release the stored mass in the main chamber, said valve-opening means being also operable for blocking the action of the weighing mechanism; a latch-tripper connected to said supplemental valve; reciprocally-effective stops operative, respectively, with the drip-valve and with the closer; and means for normally maintaining said drip-valve in its wide-open position.

17. The combination, with weighing mechanism including a load-receiver, of a hopper; a valve for said hopper; means controlled by the weighing mechanism, for actuating said valve; an inclined tubular chute leading into said hopper and having therein a series of oppositely-projecting plates alternately disposed on its front and rear walls, respectively; and positively-actuated means for vibrating said chute.

18. The combination, with weighing mechanism including a load-receiver, of a hopper; a valve for said hopper; means controlled by the weighing mechanism, for actuating said valve; an inclined, tubular, adjustably-supported chute leading into said hopper and having therein a series of oppositely-projecting plates alternately disposed on its front and rear walls, respectively; and an eccentric connecting-rod for vibrating said chute.

579,450. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 28, 1896. Serial No. 613,816. (No model.)



Claim.—1. The combination of weighing mechanism including a load-receiver; a stream-controller and its supporting-shaft carrying a gear; and a second gear meshing with said first-mentioned gear and having connected therewith an actuating member that bears against the weighing mechanism.

2. The combination of weighing mechanism including a load-receiver; a hopper situated to deliver a stream of material to the load-receiver; a reciprocatory valve and its supporting-shaft carrying a large gear; a second shaft carrying a small gear and provided with a crank-arm; and a rod connected with said crank-arm and bearing against the weighing mechanism.

3. The combination of a bucket consisting of two similar sections supported by a carrier; beam mechanism for sustaining said carrier; a segment on one of the bucket-sections, having a stud and constituting a stop; a latch operable to engage said stud, to hold the bucket-sections against movement; a valve and its supporting-shaft provided with a relatively large sector and having a weighted segment for closing the valve, said segment also constituting a stop and reciprocating with the first-mentioned stop; a shaft carrying a small sector meshing with the first-mentioned sector and having a crank-arm; and a rod pivoted to said crank-arm and bearing against the scale-beam, said rod being furnished with a tripper for said latch.

4. The combination, with weighing mechanism and with a stream-controller the action of which is governed thereby; of instrumentali-

ties including a series of gears located between the stream-controller and the weighing mechanism, for varying the force applied by the former to the latter.

5. The combination, with weighing mechanism and with a stream-controller, of interposed instrumentalities including a series of meshing gears for varying the force applied by the stream-controller to the weighing mechanism.

6. The combination, with weighing mechanism and with a stream-controller the action of which is governed thereby, of interposed instrumentalities including a series of differential meshing gears for varying the force applied by the stream-controller to the weighing mechanism.

7. The combination of weighing mechanism; a supply-hopper having guideways therein; a main valve supported for reciprocatory movement beneath the outlet of the hopper; an auxiliary valve vertically slidable toward the main valve during the weighing of a load; and means for simultaneously actuating said valves.

8. The combination, with weighing mechanism and with a stream-controller, of an intermediate actuating-connector cooperative with the stream-controller and located to receive the force thereof; and means located between the actuating-connector and the stream-controller, for varying the force applied by the latter to the former.

9. The combination, with weighing mechanism including a shiftable load-discharge member normally held against movement by means comprehending a latch, of a stream-controller; an actuating-connector cooperative with the stream-controller and having a latch-tripper; and means located between the actuating-connector and the stream-controller, for varying the force applied by one of them to the other.

10. The combination, with weighing mechanism and with a stream-controller, of an intermediate actuating-connector cooperative with the stream-controller and located to receive the force thereof; and means situated between said actuating-connector and the stream-controller, for first decreasing and subsequently increasing the force applied by the stream-controller to said actuating-connector.

11. The combination, with weighing mechanism and with a stream-controller, of an intermediate actuating-connector cooperative with the stream-controller and located to receive the force thereof; means situated between said actuating-connector and the stream-controller, for first decreasing and subsequently increasing the force applied by the stream-controller to said actuating-connector; and instrumentalities for intercepting the progress of the stream-controller.

12. The combination, with weighing mechanism and with a stream-controller, of an intermediate actuating-connector cooperative with the stream-controller and located to receive the force thereof; means situated between said actuating-connector and the stream-controller, for first decreasing and subsequently increasing the force applied by the stream-controller to said actuating-connector; and instrumentalities for intercepting the progress of the stream-controller when the force transmitted thereby to the actuating-connector is at its minimum.

13. The combination, with weighing mechanism including a shiftable load-discharge member held against movement by means comprehending a latch, of a stream-controller; an actuating-connector cooperative with the stream-controller and having a latch-tripper; and means located between the actuating-connector and the stream-controller, for varying the force applied by the stream-controller to said actuating-connector and for increasing such force at a predetermined point in the working stroke of said actuating-connector.

14. The combination, with weighing mechanism including a load-receiver and with means comprehending a latch for controlling the discharge of said load-receiver, of a series of gears; and a tripper for said latch, connected with one of the gears.

15. The combination, with weighing mechanism including a load-receiver, of a stream-controller; a series of meshing differential gears intermediate the stream-controller and the weighing mechanism; and a reciprocatory rod connected with one of said gears and provided with means for effecting the discharge of the load-receiver.

16. The combination, with weighing mechanism including a load-receiver, of a stream-controller; a series of meshing differential gears, the shaft of one of which is carried by the framework and is provided with a crank-arm; and a reciprocatory rod provided with a device for effecting the discharge of the load-receiver, said rod being jointed to said crank-arm.

17. The combination, with a bucket consisting of two substantially similar shiftably-supported sections, of a latch for holding said bucket-sections together or closed; a hopper; a stream-controller for said hopper; a reciprocatory actuating-connector provided with a latch-tripper and in operative relation with the stream-controller; and instrumentalities located between the actuating-connector and the stream-controller, for applying to the former a relatively-multiplied amount of force.

18. The combination, with a bucket including a shiftable load-discharge member normally held against movement by means including a latch, of supporting beam mechanism for the bucket; a stream-controller; an actuating-connector provided with a latch-tripper and in operative connection with the stream-controller and also adapted to bear against a scale-beam; and instrumentalities disposed between said actuating-connector and the stream-controller, for applying to the former a multiplied amount of force at a predetermined point.

19. The combination, with a bucket including a shiftable load-discharge member normally held against movement by means comprehending a latch, of a stream-controller; reciprocally-effective stops operative, respectively, with said stream-controller and with the shiftable load-discharge member; an actuating-connector in operative connection with a scale-beam and with the stream-controller and also having a tripper for the latch; and instrumentalities situated between said actuating-connector and the stream-controller, for applying a multiplied amount of force at a predetermined point.

20. The combination, with a bucket embodying a shiftable load-discharge member normally held against movement by means comprehending a latch, of beam mechanism comprehending a main beam and an auxiliary beam supported thereby for shifting movement; a stream-controller; reciprocally-effective stops operative, respectively, with the stream-controller and with the shiftable load-discharge member; an actuating-connector located to bear against the auxiliary scale-beam and in operative connection with the stream-controller and also having a latch-tripper; and instrumentalities situated between the stream-controller and the actuating-connector, for applying to the latter a multiplied amount of force at a predetermined point.

21. The combination, with weighing mechanism and with a stream-controller; of a series of intermediate gears, one of which is connected to a resistance member; and an actuating-connector cooperative with the weighing mechanism and with the stream-controller and having its joint eccentric to the gear that is carried by said resistance member.

22. The combination, with framework and with weighing mechanism, of a stream-controller; a series of gears intermediate the weighing mechanism and the stream-controller, one of which is mounted upon the framework; and an actuating-connector cooperative, respectively, with the stream-controller and with the weighing mechanism and having its joint eccentric to the gear which is carried by the framework.

23. The combination, with weighing mechanism and with a stream-controller having a shaft, of a gear carried by said shaft; a meshing gear the shaft of which is furnished with a crank-arm; and a rod jointed to said crank-arm and in operative connection with the weighing mechanism.

24. The combination, with a hopper; of main and auxiliary valves therefor, the main valve being reciprocatory beneath the outlet of the hopper, and the auxiliary valve being located above, and supported for movement toward and from, the main valve; and means for simultaneously actuating said valves.

25. The combination, with a hopper; of operatively-connected main and auxiliary valves, the main valve being reciprocatory beneath the outlet of the hopper and the auxiliary valve being located above and movable toward and from the main valve; and valve-actuating mechanism.

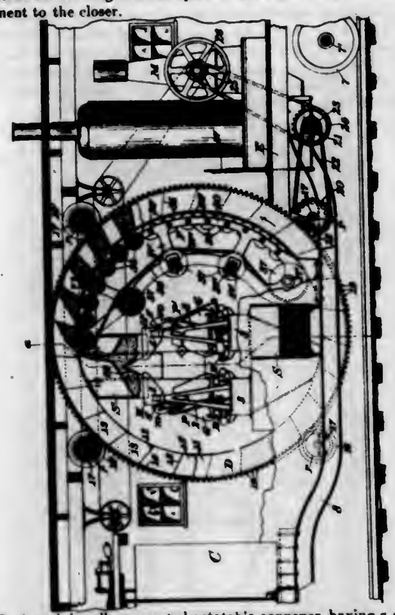
26. The combination, with a hopper having guideways; of main and auxiliary valves for said hopper, the main valve being reciprocatory below the outlet of the hopper, and the auxiliary valve being located above, and supported for movement toward and from, the main valve in said guideways; and means for simultaneously actuating said valves.

27. The combination, with a hopper having guideways; of main and auxiliary valves for said hopper, the main valve being reciprocatory beneath the outlet of the hopper and the auxiliary valve being movable toward and from the main valve in said guideways; a link or links operatively connecting the two valves; and valve-actuating mechanism.

579,451. TRANSFERRING APPARATUS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 2, 1896. Serial No. 614,183. (No model.)

Claim.—1. A traveling conveyer embodying a circuit of compartments open at their inner ends and closed at their sides and outer ends; a closer supported in juxtaposition to the open ends of a series of said compartments and extending around a portion only of the circuit; and means for imparting a traveling movement to the conveyer and closer simultaneously.

2. A rotatably-supported conveyer having a series of circumferentially-disposed compartments normally open at their inner ends and closed at their sides and outer ends, combined with a traveling closer in frictional engagement with the inner ends of a series of said compartments and adapted for successively closing successive compartments during a predetermined portion of the movements thereof; and means for rotating the conveyer, to thereby impart a traveling movement to the closer.



3. A peripherally-supported rotatable conveyer having a series of circumferentially-disposed compartments located within the periphery of said conveyer and open at their inner ends, combined with rotating means for said conveyer; and a compartment-closer located in juxtaposition to the inner faces of a predetermined number of said compartments and adapted for successively closing said compartments during a predetermined portion of their ascending movement.

4. The combination, of a peripherally-supported annular conveyer divided transversely into a series of independent compartments and having a peripherally-disposed toothed portion; a gear-wheel meshing with said toothed portion of the conveyer; means for driving said gear-wheel; a compartment-closer having its working face contiguous to the inner ends of a portion of the ascending series of compartments; and a supply-chute and a delivery-chute located, respectively, below and above the axis of rotation of the conveyer and adapted the former for supplying material to, and the latter for delivering material from, the lower and upper portions, respectively, of the conveyer.

5. A transferring apparatus comprising a load-receiver; a vertically-disposed annular conveyer located with the upper and lower portions thereof above and below the load-receiver and having a series of compartments each of which is open at one end; means for rotating said conveyer; an independent compartment-closer in moving engagement with a portion of the conveyer; a supply-chute having its discharge end in juxtaposition to the lower portion of said conveyer; and a delivery-chute between the load-receiver and the upper portion of said conveyer and adapted for conducting material from said conveyer to the load-receiver.

6. A transferring apparatus comprising a load-receiver; two annular conveyers supported at opposite sides, respectively, of said receiver and adapted, one for supplying material to and the other for conveying material from, said receiver, and each conveyer having a series of compartments open at their inner ends; means for simultaneously rotating the two conveyers; and a flexible closer in frictional engagement with the normally open ends of a portion of the compartments of each conveyer and adapted to move with said conveyer.

7. A transferring apparatus comprising a load-receiver; a vertically-disposed annular conveyer having a circuit of independent compartments each of which is open at the inner end and closed at the sides and outer ends; a supply-chute located with its discharge end below the axis of rotation of said conveyer and in position to convey material to the successive compartments; a delivery-chute located above said axis and in position to deliver material to the load-receiver; means located between the supply and delivery chutes and adapted for closing the open ends of the successive compartments during a portion of their traveling movements; and means for rotating said conveyer.

8. A transferring apparatus comprising a rotary conveyer having a series of compartments open at their inner ends and closed at their sides and outer ends; a supply-chute and a delivery-chute located, respectively, below and above the axis of rotation of the conveyer and adapted, respectively, for conveying material to and from said conveyer; a traveling closer located between said supply-chute and delivery-chute and adapted for retaining the material in the compartments until they arrive in juxtaposition to the delivery-chute; and means for moving the conveyer and closer simultaneously at corresponding velocities.

9. In combination, a peripherally-supported rotary conveyer having a series of annularly-disposed compartments or pockets open at their inner ends; a transversely-disposed supply-chute having its discharge end located above the lower compartments of the conveyer; a delivery-chute located above said supply-chute, with its receiving end below the upper compartments; a traveling closer in frictional engagement with that portion of the ascending compartments located between the supply and delivery chutes and adapted for retaining the ascending compartments closed during the traveling movement thereof from the supply-chute to the delivery-chute; and means for rotating the conveyer.

10. A transferring apparatus comprising a receptacle having a discharger; two annular conveyers located side by side with their axes coincident and each having a series of circumferentially-disposed compartments open at their inner ends and closed at their sides and outer ends; rolls peripherally supporting said conveyers; means for simultaneously rotating said conveyers; a supply-chute and a delivery-chute located, respectively, below and above the axis of each conveyer, the delivery-chute of the first conveyer being located between the upper ends of the receptacle and conveyer and adapted for supplying material to said receptacle, and the supply-chute of the second conveyer being located between the discharger of the receptacle and the lower portion of the second conveyer and being adapted for conveying material from the receptacle to said second conveyer; and a closer having its working face in moving engagement with the inner open ends of the successive ascending compartments of each conveyer and effective for closing said compartments during their traveling movements from the supply-chute to the delivery-chute.

11. A transferring apparatus of the class specified comprising a transportable carrier; two rotatable conveyers adapted for carrying material from the lower portion to the upper portion of said conveyer; supply and delivery chutes in operative relation with each conveyer; a load-receiving connector located between the delivery-chute of the first and the supply-chute of the second conveyer; and means for simultaneously rotating the two conveyers whereby material is transferred from the lower portion of the first conveyer to the upper portion of the receiving-connector and is subsequently transferred therefrom to the lower portion of the second conveyer and thence carried upward and discharged into the delivery-chute of said second conveyer.

12. A transferring apparatus of the class specified comprising a transportable carrier; two peripherally-supported rotatable conveyers each having a series of circumferentially-disposed compartments open, normally, at their inner ends and closed at their sides and outer ends; a load-receiver located between the two conveyers; means for supplying material to the lower portion of the first conveyer; a chute interposed between the load-receiver and the upper portion of the first conveyer and adapted for conducting material to the upper portion of said load-receiver; a supply-chute for conducting material from the lower portion of the load-receiver to the second conveyer; a delivery-chute in position for conducting material away from the upper portion of said second conveyer; a traveling closer in connection with each conveyer and effective for closing the successive ascending compartments; and means for rotating the two conveyers and for imparting, simultaneously, a traveling movement to the closer.

13. A conveyer or transferring apparatus comprising an axially-recessed peripherally-supported rotatable drum transversely divided into a series of successive material-receiving compartments; a closer having its working face located concentric to the axis of rotation of the drum and in juxtaposition to the inner face of one section of said drum and effective for successively closing the compartments during their ascending movements from the lower to their uppermost positions; and rotating mechanism in connection with said conveyer.

14. A transferring apparatus comprising a car-body; two vertically-disposed peripherally-supported annular conveyers located, respectively, at opposite sides and substantially midway between opposite ends of the car-body and embodying a circuit of compartments open at their inner ends; a receptacle supported on the car-body between the two conveyers and having receiving and discharging ends located, respectively, below and above the discharging and receiving portions of the two conveyers; a supply-chute in operative relation with the lower portion of the first conveyer; a delivery-chute in operative relation with the upper portion of said first conveyer and having its discharge end in position to discharge material into the

receptacle; a supply-chute in connection with the discharge end of the receptacle and in position to convey material from said receptacle to the second conveyer; a delivery-chute in operative relation with the upper portion of said second conveyer; traveling means for closing the inner ends of successive compartments of each conveyer during the ascending movements thereof; and means for rotating the two conveyers.

15. A transferring apparatus comprising a car-body; a circuit of connected compartments supported on the car-body for rotative movement and open at their inner ends; a traveling closer in operative relation with, and effective for successively closing, the open ends of successive ascending compartments; means for delivering material to the lowermost compartments; means for conveying material away from the uppermost compartments; and means for imparting a circuitous movement to said compartments.

16. A transferring apparatus comprehending an internally-channeled annulus or annular conveyer having a series of separate compartments open at their inner ends, combined with a closer embodying a belt carried over friction-rolls in contact with the inner edge of a portion of said annulus; means for rotating said conveyer; a transversely-disposed supply-chute in operative relation with the lower portion of said conveyer; and a transversely-disposed delivery-chute in operative relation with the upper portion of said conveyer.

17. A conveyer comprising a series of compartments open at the inner ends thereof; means for imparting movement to said compartments; and an endless belt supported with one run thereof in contact with the inner ends of a portion of the series of compartments.

18. A transferring apparatus comprising a transportable car-body; a vertically-disposed annular conveyer peripherally supported on the car-body, with the lower portion thereof below the floor-line of said car-body and with the upper portion thereof in close proximity to the roof of said car-body, and having a series of compartments that are relatively separated by transverse partitions and are normally open at their inner ends; means for rotating said conveyer; a traveling closer in operative relation with, and effective for closing, the ascending series of compartments; and a supply-chute and a delivery-chute in operative relation with the lower and upper portions, respectively, of said conveyer.

19. The combination, with a circuit of compartments supported for traveling movements and having normally open inner ends and closed sides and outer ends and with means for imparting a circuitous movement to said compartments, of a flexible traveling closer having its working face in contact with the open ends of, and adapted to move with, a portion of the ascending series of compartments.

20. The combination, with a circuit of compartments supported for traveling movements and having normally open inner ends and with means for imparting a circuitous movement to said compartments, of a flexible closer having its working face in contact with the open ends of a portion of the ascending series of compartments; and means for stretching the closer, to draw the working face taut.

21. An annular conveyer supported for rotative movement and having a series of circumferentially-disposed compartments that are open at the inner ends thereof; a series of belt-supporting rolls set with their outer faces in juxtaposition to the inner ends of the ascending compartments; an endless belt having the outer or working run thereof supported on said rolls and in bearing engagement with the inner ends of said ascending compartments; take-up rolls engaging the outer face of the inner run; and adjustable supports for said rolls.

579,452. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 4, 1896. Serial No. 611,085. (No model.)

Claim.—1. The combination, with weighing mechanism including a load-receiver having a closer, of a screen operable for separating the fine particles of the supply of material therefrom; means for conducting such fine particles to the load-receiver; a spout having its receiving end supported adjacent to the discharge-outlet of said screen and adapted to receive the coarse portion of the supply and to conduct it to the load-receiver, said spout consisting of two angularly-disposed inclined plates; a valve supported adjacent to the discharge edge of one of said plates for controlling the delivery of the coarse portion of the supply to the load-receiver; a shaft carrying said valve and having a crank-arm; a second valve for controlling the delivery of the fine portion of the supply to the load-receiver; a pair of stops, one of which is affixed to the last-mentioned valve and the other of which is movable about an axis in common therewith; a stop connected with the closer and cooperative with said pair of stops; a rod connected, respectively, with said movable stop and the crank-arm; a valve-actuating weight affixed to said shaft; and connections between the two valves and the weighing mechanism.

2. The combination, with weighing mechanism including a load-receiver, of a chute carried by the framework; a hopper located over said chute; a screen rotatably supported by said hopper, said screen being adapted to separate the fine particles of a supply of material therefrom, which drop into said hopper and from thence into the chute; a spout having its receiving end supported adjacent to the delivery end of said screen for conducting the coarse portion of the supply to the load-receiver, said spout consisting of two angularly-disposed plates one of which is sustained by a yoke on the framework; a valve supported adjacent to the discharge edge of one of said plates; a valve movable below said chute; and valve-actuating means controlled by the weighing mechanism.



3. The combination with a bucket having a shiftable load-discharge member, of means for supplying two independent streams of material to said bucket; a pair of independently-supported valves operable, respectively, for controlling said streams; stops movable about an axis in common, one of said stops being rigid with one of the valves, the other stop being operatively connected to the other valve; and a third stop coactive with said first-mentioned stops and operatively connected with the closer.

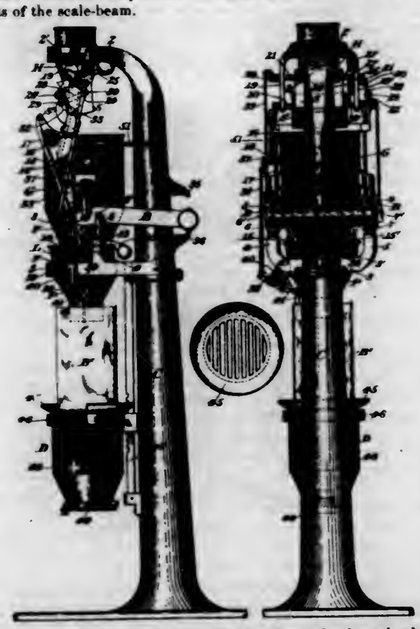
4. The combination with a bucket having a closer, and with means for supplying independent streams of material thereto; of a pair of valves, one of which is mounted on a shaft and the other of which carries a pair of stops one of which is loose relatively thereto; and an operative connection between said loose stop and said valve-shaft; and a stop operable with the closer and coactive with said first-mentioned stops.

5. The combination with a bucket having a closer, and with means for supplying independent streams of material thereto; of a pair of valves one of which is mounted on a supporting-shaft and the other of which carries a pair of stops one of said stops being loose on a shaft; and an operative connection between said loose stop and the supporting-shaft.

579,453. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 9, 1896. Serial No. 615,086. (No model.)

Claim.—1. In a weighing-machine, the combination, with a suitable frame and with a load-receiver and stream-supply means, of two oscillatory stream-controllers having outwardly-extending pivot-arms supported in the frame, one above the other and below the stream-supply means; a crank-arm carried on the upper pivot-arm, with its outer end below and in advance of said arm; a crank-arm carried on the lower pivot-arm, with its outer end in the rear of said lower arm; a link pivotally connecting the two crank-arms and having its longitudinal axis intersecting a line drawn through the upper and lower pivot-arms; and means for actuating one stream-controller whereby opposing movements of gradually-increasing and gradually-decreasing velocities, respectively, are simultaneously imparted to the two stream-controllers.

2. In a weighing-machine, the combination; of a frame comprising a tubular column having a suitable supporting-base and having two outwardly-extending parallel supporting-brackets, the outer ends of which are recessed to form hopper-encircling rings; a supply-hopper extending through the recess of the upper bracket and peripherally flanged for supporting said hopper on said bracket; a discharge-hopper having its discharge end projected through the recess of the lower bracket and having a peripheral flange for supporting said hopper on said bracket; weighing mechanism interposed between the two hoppers and including a reciprocatory bucket; a scale-beam supported on the framework; and stop-arms located on the column one above the other in position for engaging and limiting the movements of the scale-beam.



3. The combination, with a vertically-disposed column having a suitable base and having outwardly-extending horizontally-disposed brackets located one above the other, of a supply-hopper supported on the upper bracket; a discharge-hopper supported on the lower bracket; weighing mechanism embodying a reciprocatory bucket located between the two hoppers; a bag-supporting drip-box located below the discharge-hopper, with its axis in vertical alinement with the axes of the discharge-hopper, bucket, and supply-hopper, and in parallelism with the longitudinal axis of the vertical column.

4. In a weighing-machine, the combination, with a suitable frame and with weighing mechanism including a reciprocatory bucket; of a supply-hopper and a discharge-hopper located the former above, and the latter below, the bucket, with their axes in alinement with the axis of said bucket; a bag-supporting drip-box located below the discharge-hopper and having at the lower end thereof a closer and at the upper end thereof a removable bag-supporting grate; and adjusting and supporting means for said drip-box.

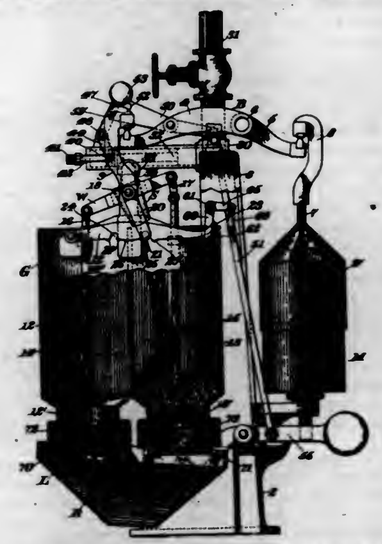
5. In a weighing-machine, a framework for supporting the operative mechanism, comprising a vertical column having two horizontally-disposed hopper-supporting brackets located one above the other; scale-beam-supporting bearings located on the lower bracket, one at each side thereof; and oppositely-disposed scale-beam stops located on the column.

579,454. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 12, 1896. Serial No. 615,447. (No model.)

Claim.—1. The combination, with a weighing device having a plurality of load-receiving chambers each of which has a closer, of a walking-beam connected with said closers and having a rock-arm provided with a stop-pin; a locking-lever on the weighing device, having a series of notches thereon adapted alternately to engage said stop-pin, said locking-lever having a curved overrun face between the locking-notches; and a trip device for said lever.

2. The combination, with a weighing device having a plurality of load-receiving chambers each of which has a closer, of a walking-beam connected with said closers and having a rock-arm provided with a stop-pin; and a locking-lever on the weighing device, having a series of notches thereon adapted alternately to engage said stop-pin and also having a curved overrun face between the locking-notches, said lever being provided with shoulders adjacent to the locking-notches against which the stop-pin is adapted to abut as the rock-arm alternately oscillates.

3. The combination, with a weighing device having a plurality of load-receiving chambers each of which has a closer, of a walking-beam connected with said closers and having a rock-arm provided with a stop-pin; a locking-lever on the weighing device, having a series of notches adapted alternately to engage said stop-pin; a regulator situated to receive a load from the weighing apparatus; and a tripper for said locking-lever, connected with the regulator.



4. The combination, with a weighing device having a plurality of load-receiving chambers each of which has a closer, of a walking-beam carrying a stream-diverting spout adapted alternately to direct a supply of material into said load-receiving chambers, said walking-beam being connected with said closers; a rock-arm fixed to said walking-beam and having a stop-pin; a locking-lever on the weighing device, having a series of notches adapted alternately to engage said stop-pin; and a tripping device for the locking-lever.

5. The combination, with a weighing device having a plurality of load-receiving chambers each of which has a closer, of a walking-beam connected with said closers and having a rock-arm provided with a stop-pin; a locking-lever having a series of notches adapted alternately to engage said stop-pin; a regulator situated to receive a load discharged from the weighing device; stream-supplying means; a valve, a scale-beam; a controlling device for the valve, connected with the regulator; and a tripper for the locking-lever, also connected with said regulator.

6. The combination, with a weighing device having a plurality of load-receiving chambers each of which has an annular opening constituting a valve-seat; of a series of piston-valves, one for each of said discharge-openings; rods fixed to said piston-valves; a walking-beam connected with said rods and having a rock-arm provided with a stop-pin; and a locking-lever on said weighing device, having a series of notches adapted to alternately engage said stop-pin, said locking-lever having a curved overrun face between the locking-notches.

7. The combination, with a weighing device having a plurality of load-receiving chambers each of which has an annular opening constituting a valve-seat; of a series of piston-valves, one for each of said discharge-openings; rods fixed to said piston-valves; a walking-beam having a rock-arm provided with a stop-pin; links attached, respectively, to said connecting-rods and to the opposite end of the walking-beam; and a locking-lever on the weighing device, having a series of notches adapted alternately to engage said stop-pin, said locking-lever having a curved overrun face between the locking-notches.

8. The combination, with a weighing device having a plurality of load-receiving chambers each of which has a closer, of a walking-beam connected with said closers and having a rock-arm provided with a stop-pin; a locking-lever on the weighing device, having a series of notches thereon adapted alternately to engage said stop-pin, said locking-lever having its free end curved; a tripping device for said lever; and means operated by the discharge of a load to throw said tripping device to a point opposite the curved portion of said lever, to thereby render the tripping device ineffective.

9. The combination, with a weighing device having a plurality of load-receiving chambers each of which has a valve-seat, of a series of piston-valves one for each of said load-receiving chambers; a stream-diverter connected with the piston-valves and supported to alternately deliver a stream of material to the respective load-receiving chambers, and having a stop; and a locking device provided with

a series of stop-notches cooperative with said first-mentioned stop and adapted to alternately lock said stream-diverter in its extreme shifted positions and to simultaneously lock said piston-valves in their wide-open and shut positions, respectively, said locking device having shoulders adjacent to its stop-notches against which the stop that is operative with the stream-diverter is adapted to abut as the latter is shifted back and forth, and being also provided with a curved overrun face between said stop-notches.

10. The combination, with a weighing device having a series of load-receiving chambers, of closers one for each of said chambers; a stream-diverter cooperative with said closers and supported for shifting movement to alternately direct a stream of material to the respective chambers of the weighing device, and provided with a stop; a locking device having a series of stops cooperative with said first-mentioned stop and adapted to alternately lock the stream-diverter in its extreme shifted positions; a trip device for said locking device; and means for throwing said trip device into an inoperative position.

11. The combination, with a weighing device having a series of load-receiving chambers, of closers one for each of said chambers; a stream-diverter cooperative with said closers and supported for shifting movement to alternately direct a stream of material to the respective chambers of the weighing device, and provided with a stop; a locking device having a series of stops cooperative with the first-mentioned stops and adapted to alternately lock the stream-diverter in its extreme shifted positions; a tripping member for said locking device; a reciprocatory regulator supported for movement beneath the bucket; and connections between said regulator and the tripping device.

12. The combination, with framework of a weighing device having a plurality of load-receiving chambers, of a stream-diverter cooperative with said closers and supported for shifting movement to alternately direct a stream of material to the respective chambers of the weighing device, and provided with a stop; a locking device having a series of stops cooperative with said first-mentioned stop and adapted to alternately lock the stream-diverter in its extreme shifted positions; a shaft carried by the framework and provided with a tripping device and also furnished with a crank-arm; a reciprocatory regulator supported for movement beneath the weighing device; and operative connections between said regulator and said crank-arm.

13. The combination, with a weighing device having a plurality of load-receiving chambers and with a supporting scale-beam therefor, of closers one for each of said chambers; a stream-diverter cooperative with said closers and supported for shifting movement to alternately direct a stream of material to the respective chambers of the weighing device, and provided with a stop; a locking device having a series of stops cooperative with said first-mentioned stop and adapted to alternately lock the stream-diverter in its extreme shifted positions; stream-supply means including a reciprocatory valve; a controlling device for said valve, mounted upon the scale-beam; a regulator suspended beneath the bucket, for reciprocatory movement; and a connector between said regulator and the valve-controller, the joint between said connector and valve-controller being normally in alinement with the axis of movement of said beam, whereby as the latter descends during the loading period the valve-controller constitutes a fixture on the beam.

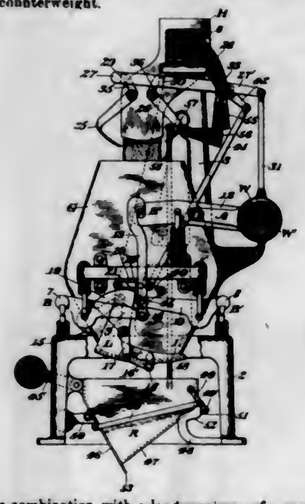
14. The combination, with a bucket and its supporting scale-beam, of a cylinder having an outlet; a reciprocatory bored valve supported within said cylinder and having a stem furnished with a cross-head; a counterweighted lever mounted on said cylinder and connected to said cross-head; a valve-controller mounted upon the scale-beam and having a cam-notch cooperative with a projection on said counterweighted lever; and a regulator supported for reciprocatory movement beneath the bucket and operatively connected to said valve-controller.

15. The combination, with a weighing device and a plurality of load-receiving chambers, of closers one for each of said chambers; a stream-diverter supported for shifting movement to alternately deliver a stream of material to the respective chambers of the weighing device; a scale-beam; a locking member adapted to alternately lock the stream-diverter in its extreme shifted positions; a tripping member for said locking device; a cylinder having a reciprocatory valve therein provided with a port; an actuating device connected to said valve; a valve-controller mounted upon the scale-beam and having a cam-notch cooperative with a projection on the valve-actuator; and a regulator supported for reciprocatory movement beneath the bucket and operatively connected, respectively, to said valve-controller and the tripping member.

579,455. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 19, 1896. Serial No. 616,296. (No model.)

Claim.—1. The combination, with a load-receiver, of a series of supporting scale-beams therefor, said beams having a rolling contact with each other.

2. The combination, with a load-receiver; of a series of supporting-beams therefor, each consisting of a shaft and a plurality of arms extending from said shaft in parallelism, the arms of said beams bearing against each other, and said arms having supports for the load-receiver, located between the shaft-supports; and an independently-mounted beam connected to one of said series and consisting of a pair of longitudinal arms joined at the rear by a combined connecting-shaft and counterweight.



3. The combination, with a load-receiver; of a series of supporting-beams therefor, each consisting of a shaft and a plurality of arms extending from said shaft in parallelism, the arms of one of said beams bearing against those of another, and said arms having supports for the load-receiver, located between the shaft-supports; an independently-mounted beam consisting of a pair of arms joined at the rear by a combined connecting-shaft and counterweight; and a link connection between one of the arms of said last-mentioned beam and one of said series of beams.

4. The combination, with a load-receiver, of a series of supporting-beams therefor, each consisting of a shaft and a plurality of arms extending from said shaft in parallelism, said arms bearing against each other, and said arms having supports for the load-receiver, located between the shaft-supports; an independently-mounted beam consisting of a pair of arms joined by a combined connecting-shaft and counterweight; a connection between said last-mentioned beam and one of the first-mentioned beams; stream-supplying means; a pair of valves; an oscillatory valve-actuator having projections thereon located at different points from its axis of movement; and an auxiliary beam shiftably mounted on the counterweighted beam and connected with said valve-actuator.

5. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a pair of valves; an oscillatory valve-actuator having projections located thereon at different points from the axis of movement thereof; a valved regulator-hopper situated to receive the contents discharged from the load-receiver; and reciprocally-effective stops operative, respectively, with said valves and with the regulator-hopper.

6. The combination, with a load-receiver and with load-discharging mechanism therefor, of a reciprocatory regulator situated below the load-receiver and having an outlet, said regulator being positioned to receive and to be depressed by a load from said load-receiver; a valve for said outlet; and locking means operable to hold said valve shut when the regulator is in its highest position.

7. The combination, with load-receiver and with a load-discharging mechanism therefor; of a regulator located to receive and to be depressed by a load from said load-receiver, and having an outlet; a valve for said outlet; and locking means operable to hold the valve shut when the regulator is in its highest position, and also to release said valve at a predetermined point in the movement of the regulator.

8. The combination, with a load-receiver, of load-discharging mechanism therefor; a reciprocatory regulator located to receive and to be depressed by a load from said load-receiver, and having an outlet; a valve for said outlet; and locking means operable to hold said valve shut when the regulator is in its highest position, said locking means being also operable to retard the return movement of the regulator.

9. The combination, with a load-receiver and with load-discharging mechanism, of a valved regulator located to receive and to be depressed by a load from said load-receiver; a cam; and an arm on the regulator, connected to the valve therefor and located to travel along the working face or faces of said cam on the movement of the regulator.

10. The combination, with a load-receiver and with load-discharging mechanism, of a valved regulator located to receive and to be depressed by a load on the load-receiver; a cam; and an arm on the regulator, connected to the valve therefor by a link and located to travel along the working face or faces of said cam on the movement of said regulator.

11. The combination, with a load-receiver and with load-discharging mechanism therefor, of a reciprocatory counterweighted regulator located to receive and to be depressed by a load discharged from said load-receiver; a valve for said regulator; and locking means operable to hold said valve shut when the regulator is in its highest position.

12. The combination, with a load-receiver and with load-discharging mechanism therefor, of a reciprocatory regulator located to receive and to be depressed by a load from the load-receiver, and having an outlet; a counterweighted valve for said outlet; and locking means operable to hold said valve shut when the regulator is in its highest position.

13. The combination, with a load-receiver and with load-discharging mechanism therefor, of a regulator-hopper located to receive and to be depressed by a load from the load-receiver, and having an inclined bottom leading toward an outlet; a valve for said outlet, extending below said inclined bottom; and locking means operable to hold said valve shut when the regulator is in its highest position.

14. The combination, with stream-supplying means, of a pair of valves therefor; and an oscillatory valve-actuator having projections thereon operative, respectively, with the valves and located at different points from the axis of the valve-actuator.

15. The combination, with a load-receiver and with a main beam therefor, of an auxiliary beam shiftably carried by the main beam and movable in one direction therewith; means for preventing the return movement of said auxiliary beam with the main beam; stream-supplying means; a pair of stream-controlling valves; and an oscillatory actuator having projections thereon located at different points from the axis thereof and cooperative with said valves, said actuator being connected to the auxiliary beam.

16. The combination, with a reciprocatory load-receiver having a discharge-outlet; of a closer for said outlet, connected to the load-receiver; stream-supplying means; a pair of valves; a shaft carrying an actuator for said valves, said actuator having projections located at different points from its axis of movement; a stop connected with said shaft; and a cooperating stop operative with the closer.

17. The combination, with a load-receiver and stream-supplying means therefor, of a pair of valves; an actuator for said valves, having projections located at different points from its axis of movement; a rock-shaft on which said actuator is mounted; and a main scale-beam shiftably supporting an auxiliary scale-beam, said auxiliary scale-beam being connected with the actuator rock-shaft.

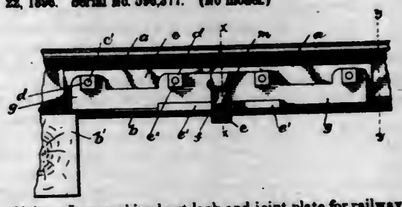
18. The combination, with a load-receiver and with a main scale-beam therefor, of an auxiliary scale-beam shiftably carried by the main scale-beam; a pair of valves; an oscillatory valve-actuator having projections located at different points from its axis of movement; a shaft for carrying said valve-actuator, said valve-actuator being connected by a link to the auxiliary scale-beam; a regulator-hopper situated to receive the contents discharged from the load-receiver; a stop connected with said rock-shaft and a cooperating stop connected with said regulator-hopper.

19. The combination, with a load-receiver having a discharge-outlet, of a closer for said outlet; a main scale-beam; an auxiliary scale-beam shiftably supported by said main scale-beam; stream-supplying means; a pair of valves; an oscillatory valve-actuator having projections located at different points from its axis of movement; a shaft for supporting said valve-actuator and having a crank-arm; a pair of stops mounted on the load-receiver, one of which is connected with the closer and the other with said crank-arm; a connection between said valve-actuator and the auxiliary scale-beam; a regulator-hopper situated to receive the contents discharged from the load-receiver; and a second pair of stops, one of which is mounted on said rock-shaft and the other of which is connected with said regulator-hopper.

20. The combination, with a bucket having a closer and with holding means therefor including a latch, of a stop connected to said closer; stream-supplying means; a valve; and a stop operative with said valve and located to coact with said first-mentioned stop, and constituting also a tripper for said latch.

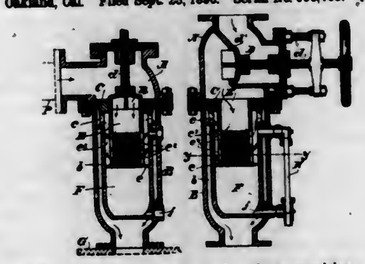
21. The combination, with a load-receiver, of a regulator located to receive and to be depressed by a load from the bucket; stream-supplying means; a pair of valves; a rock-shaft carrying a valve-actuator furnished with projections and operative with the valves, and located at different points from the axis of said valve-actuator; a stop on said rock-shaft; and a cooperating stop connected to the regulator.

579,456. COMBINED NUT-LOCK AND JOINT-PLATE FOR RAILWAY-TRACK RAILS. JOHN RUTHERFORD, Schooley, Ohio. Filed June 22, 1896. Serial No. 596,377. (No model.)



Claim.—In a combined nut-lock and joint-plate for railway-track rails, the combination with adjoining track-rails, and fish-plates on opposite sides thereof, having a bolt-and-nut connection with said rails, of a plate *b* upon which the track-rails bear, an upwardly-projecting flange *c'* on said plate *b* adapted to engage the outer portions of the track-rail flanges on one side and a spring-actuated plate *g* having notches in its upper side adapted to embrace said fish-plate nuts, substantially as and for the purpose specified.

579,457. SEPARATING THROTTLE-VALVE. JOHN C. H. STUT, Oakland, Cal. Filed Sept. 23, 1896. Serial No. 606,703. (No model.)



Claim.—1. A separating throttle-valve comprising a casing having a valve controlling the supply of steam to its place of use and having also a device for mechanically separating water from the steam, said device having a large number of small openings arranged in a plurality of separate sets occupying different vertical planes and separated by an intervening space or passage whereby the steam is caused, in passing through said openings and space or passage to bend upon itself a plurality of times in its flow to the exit.

2. A separating throttle-valve comprising a casing having a valve controlling the supply of steam to its place of use and having also a device for mechanically separating water from the steam, said device having a large number of small openings arranged in a plurality of separate sets occupying different vertical planes and separated by a space or passage whereby the steam is caused, in passing through said openings and space or passage to bend upon itself a plurality of times in its flow to the exit, said openings being made in parts adapted to be removed when worn, for the substitution of others.

3. A separating throttle-valve comprising a casing having a valve controlling the supply of steam to the place of use and having also a device for mechanically separating water from the steam, said device having in its upper portion suitably-arranged openings through which the steam is directed and its water separated from it, and in its lower portion a receptacle for the separated water, said receptacle being out of direct communication with the course of the steam in such manner that the water contained therein will not again be carried with the steam.

4. A separating throttle-valve comprising a casing having a valve controlling the supply of steam to the place of use, and having also a device for mechanically separating water from the steam, said device having in its upper portion suitably-arranged openings through which the steam is directed and its water separated from it and in its lower portion a receptacle for the separated water, and a series of openings separating the water-receptacle from the steam-channel above and through which the separated water falls into said receptacle.

5. A separating throttle-valve comprising a casing having a valve controlling the supply of steam to the place of use, and having also a device for mechanically separating water from the steam at the instant of its admission to its place of use, said device having a large number of small openings in its upper portion and arranged in a plurality of separate sets occupying different vertical planes whereby the steam is caused, in passing through said openings to bend upon itself

a plurality of times in its flow to the exit, and having also a water-receptacle in its lower portion and a steam-exit channel contiguous thereto but separated therefrom, said receptacle being separated from that portion of the casing having the steam-separating openings but communicating therewith by a series of openings through which the water falls into said receptacle.

6. In a steam-separator, a number of small openings in the passage of the entering steam, arranged in a plurality of separate sets occupying different vertical planes and separated by a space or passage whereby the steam is caused, in passing through said openings, to bend upon itself a plurality of times in its flow to the exit.

7. In a steam-separator, a number of small openings in the passage of the entering steam, arranged in a plurality of separate sets occupying different vertical planes and separated by a space or passage whereby the steam is caused, in passing through said openings and space or passage, to bend upon itself a plurality of times in its flow to the exit, and a water-receptacle below and separated from the steam-passage in which said openings are formed, but having a communication therewith through openings through which the water falls into said receptacle.

8. In a steam-separator, a number of small openings in the passage of the entering steam, arranged in a plurality of separate sets occupying different vertical planes and separated by a space or passage whereby the steam is caused, in passing through said openings and space or passage, to bend upon itself a plurality of times in its flow to the exit; and a water-receptacle below and separated from the steam-passage in which said openings are formed, but having a communication therewith through openings through which the water falls into said receptacle, said receptacle being separated from but contiguous to the steam-exit channel.

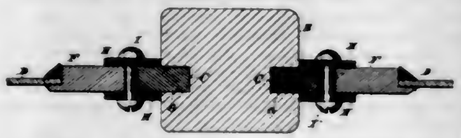
9. In a steam-separator, a number of small openings in the passage of the entering steam, arranged in a plurality of separate sets occupying different vertical planes whereby the steam is caused, in passing through said openings, to bend upon itself a plurality of times in its flow to the exit, said openings being made in parts adapted to be removed when worn, for the substitution of others.

10. A separating throttle-valve comprising a casing having fitted in one portion thereof a valve controlling the supply of steam in its course from the boilers to its place of use and having formed within another portion of it, a means for mechanically separating the water from the steam, said means comprising passages provided with openings arranged in separate sets occupying different vertical planes, adapted to cause the steam to bend in its flow, and a water-receptacle to catch the separated water.

11. The combination of a valve controlling the supply of steam to the place of use and a separating device in close proximity to said valve, both valve and separating device being in close juxtaposition to the place of use of the steam, and said device having water-separating openings arranged in separate planes and separated by a space or passage, and adapted to cause the steam to bend in its course or flow, said openings having a total area greater than that of the main steam-pipe controlled by the valve.

12. In a steam-separator, water-separating openings arranged in separate sets occupying different vertical planes and separated by a space or passage, and adapted to cause the steam to bend in its course or flow, said openings having a total area greater than that of the main steam-pipe which supplies the separator.

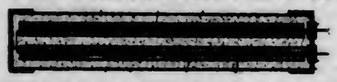
579,458. STREET-CAR. JAMES A. TRIMBLE, New York, N. Y. Filed Feb. 10, 1897. Serial No. 622,773. (No model.)



Claim.—1. The car having the posts or standards provided with vertical grooves, combined with the sashes or panels for the sides of the car of less width than the spaces between said posts or standards, vertical strips at the side edges of said windows or panels and adapted to enter said grooves, and means for securing said windows or panels to said strips; substantially as set forth.

2. For a car having the grooved posts or standards B, the sashes or panels less in width than the spaces between said posts or standards, vertical strips entering the grooves of said posts or standards and being in alinement with said windows or panels, the plates extending along the joint between said strips and said windows or panels, and means for clamping said plates against the adjoining edges of said strips and windows or panels; substantially as set forth.

579,459. ELECTRIC HEATER. GEORGE H. WHITTINGHAM, Baltimore, Md. Filed Jan. 30, 1896. Serial No. 577,359. (No model.)



Claim.—In an electric heater, the combination of a tubular casing; means for closing both ends thereof; a plurality of glass tubes shorter than the interior of the casing and situated therein; a resistance-wire entering one end of the casing, extending through one of the glass tubes and returning through another of the tubes and passing out of the casing at the same end at which it enters; and a suitable granulated filler placed in the spaces in and around the glass tubes.

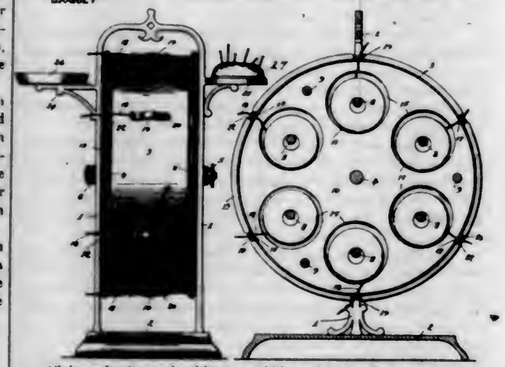
579,460. WINDOW. WILLIAM W. WILBUR, Troy, N. Y. Filed June 1, 1896. Serial No. 593,944. (No model.)



Claim.—1. The combination with a window-sash frame and a pane of glass tightly secured therein, of a separate pane of glass and glass-supporting frame, a strip of packing inserted partially within a groove in one of the frames, and means for compressing the packing between the frames, substantially as described.

2. The combination with a window-sash frame having an inwardly-projecting tongue, provided on one side with a packing-groove, of a strip of packing inserted partially within the groove, a pane of glass bearing along its edges upon the projecting strip of packing, means for holding the glass tightly against the packing, and a similar pane of glass bearing along its edges upon the opposite side of the tongue, and means for holding such glass in engagement with the tongue substantially as described.

579,461. SPOOL-CABINET. ABRAHAM M. YEAKEL, Portage, Pa. Filed Apr. 24, 1896. Renewed Feb. 18, 1897. Serial No. 624,060. (No model.)

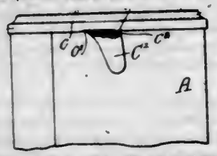


Claim.—1. A spool-cabinet consisting of a stand, a casing journaled thereon, disks secured within and adjacent to the ends of the casing, spindles projecting from one disk, springs around said spindles, the opposite disk having openings therein concentric with said spindles, covers for said openings pivoted to the casing and adapted to be swung to one side, the side of said casing having holes for the passage of the thread, springs secured on the casing adapted to retard the withdrawal of the thread, a bead formed on the edge of the casing having notches, a cutting-strip within said bead exposed by said notches, as and for the purpose described.

2. A spool-cabinet consisting of a stand, a casing journaled thereon, a spindle supporting said casing having a tension-nut threaded on one end of the spindle and a spring secured on the other to retard the movement of said casing, disks secured within and adjacent to the ends of the casing, spindles projecting from one of the disks, the opposite disk and the casing having openings therein, shutters for said openings pivoted to the casing adapted to be swung aside, springs around the spindles adapted to press the spools against the shutters, the sides of said casing having holes in a radial line with the spool, springs over said holes adapted to retard the passage of the thread, a bead formed around one edge of the casing having notches therein, a cutting-strip within said bead exposed by said notches as and for the purpose described.

3. A spool-holder consisting of a stand, a base for supporting the same, a cylindrical casing journaled within said stand, means for retarding the rotation of said cylinder, a frame consisting of disks 7 and 10, posts 9 and spindles 8 secured within the case, holes 17 through which the thread is to be drawn, springs 19 for imparting a tension to said threads, springs 21 for imparting a tension to the spools, shutters 15 for closing the openings through which the spools are inserted within the casing, a bead 13 formed upon the edge of the casing, and a cutting-strip placed within said bead and adapted to be exposed by notches cut in said bead, substantially as and for the purposes set forth.

579,462. SHEET-METAL TOP-OPENING CAN. JOHN ZIMMERMAN, Chicago, Ill., assignor to The National Key-Opening Can Company, same place. Filed Jan. 2, 1894. Renewed Mar. 11, 1896. Serial No. 541,361. (No model.)

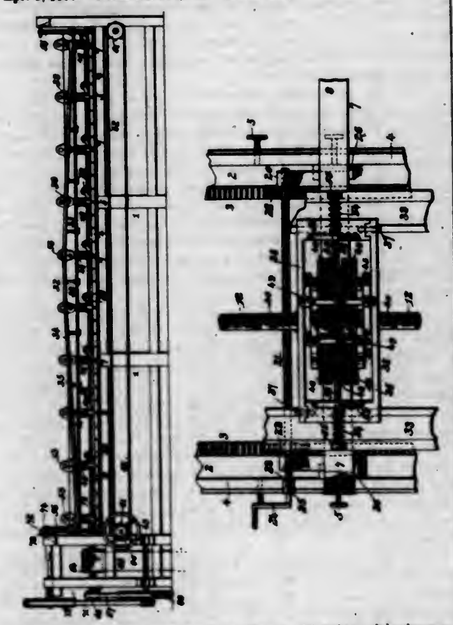


Claim.—1. A sheet-metal can having an external flanged cover provided with a free tongue projecting from the edge of its flange, said cover being also provided, adjacent to the flange, with a transversely-inclined, detachable strip, the outer weakened line bounding which strip is interrupted by a space opposite the tongue, substantially as described.

2. A sheet-metal can having an external flanged cover, provided with a free tongue projecting from the edge of its flange, said cover being also provided, adjacent to its flange, with an annular detachable strip, the outer weakened boundary-line of which strip is interrupted by a space opposite the tongue, and the metal of the flange and strip being without weakened lines leading from the edges of the tongue to the weakened lines bounding the strip.

3. The flanged can head or cover described having an annular detachable strip situated radially inside its marginal flange and having also a free tongue projecting from said flange, said tongue terminating at its base in sharp entering angles, and the metal between said angles and the weakened lines being of full strength.

579,463. MULTIPLE SAWING-MACHINE. WILLIAM M. BARRY, Memphis, Tenn., assignor to Beard, Wilson & Co., same place. Filed Apr. 3, 1896. Serial No. 586,075. (No model.)



Claim.—1. In a sawing-machine, the combination with the machine-frame, and the saw mounted thereon, of a superposed feed-bridge, the feed-rolls and their operating mechanism mounted thereon, the screws located at different points and interposed between the machine-frame and the feed-bridge, and means for simultaneously operating said screws for adjusting the height of the bridge, substantially as described.

2. In a sawing-machine, the combination with the machine-frame, the saw, and the feed-bridge, of a frame having a sliding engagement with the feed-bridge and having provision whereby it may be clamped at any point, a pair of spaced feed-rolls mounted in said frame and adapted to straddle the saw, and means for operating said feed-rolls and allowing the same to yield, substantially in the manner and for the purpose described.

3. In a sawing-machine, the combination with the machine-frame, the saw, and a frame superposed above the machine-frame, of the feed mechanism on said superposed frame, comprising two sets of feed-rolls arranged in opposing pairs which straddle the saw at front and rear, the pinions on the feed-roll shafts, the intermediate actuating-gear meshing with said pinions, the feed-shaft on which the intermediate gear is mounted, and provision for holding the feed-rolls in yielding engagement with the work, substantially as described.

4. In a sawing-machine, the combination with the saw-table and the shaft of the feed mechanism arranged above the same, of an actuating-gear mounted on said shaft, an elbow-link journaled on the shaft, a feed-roll journaled in one arm of said link and having a pinion intermeshing with the actuating-gear, and a tension device connected with the other arm of the link, and arranged wholly above the saw-table so as to leave an unobstructed way for the boards to be fed laterally to the saws, substantially as described.

5. In a sawing-machine, the combination with the saw-table and the shaft of the feed mechanism arranged over said table, of an actuating-gear on said shaft, an elbow-link journaled on said shaft, a feed-roll journaled on one arm of said link and operatively engaged by the actuating-gear, a substantially horizontal tension-rod connected to the other arm of said link and passing through the frame of the feed mechanism and arranged wholly above the saw-table so as to leave the latter unobstructed, and the tension-spring on said rod, all arranged for joint operation, substantially as described.

6. In a sawing-machine, the combination with the saw-table and the shaft of the feed mechanism arranged over said table, of an actuating-gear on said shaft, a pair of elbow-links journaled on the shaft at each side of said gear, a feed-roll mounted on an axle connecting said links, said feed-roll being operatively engaged with and rotated by the actuating-gear, the cross-head connecting the remaining arms of said links, and the tension-rod connected to said cross-head, the entire feed mechanism being located wholly above the saw-table so as to allow the lateral feeding of the boards through the saws, substantially as described.

7. In a sawing-machine, the combination with the shaft of the feed mechanism, of an actuating-gear mounted on a sleeve having a feather-and-spline connection with the shaft whereby the said gear may be adjusted lengthwise of the shaft, a link fulcrumed on said sleeve, the feed-roll journaled on said link and geared to the actuating-gear, and means for holding the feed-roll to its work, all of said mechanism being adjustable lengthwise of the shaft, substantially as and for the purpose described.

8. In a sawing-machine, the combination with the machine-frame, the saw-shaft, and the saws adjustable longitudinally thereof, of an independent feed mechanism for each saw, the feed mechanism being adjustable longitudinally of its shaft whereby the proper relation may be maintained between each saw and its feed mechanism, substantially as described.

9. In a sawing-machine, the combination with the machine-frame, the saw-shaft, and a series of saws mounted on said shaft and made independently adjustable, of the shaft of the feed mechanism, extending parallel to the saw-shaft, and a series of independent feed mechanisms mounted on said shaft and made independently adjustable thereon, whereby the saws and the several feeding mechanisms may be adjusted and the proper relation maintained between the saws and their respective feed mechanisms, substantially as described.

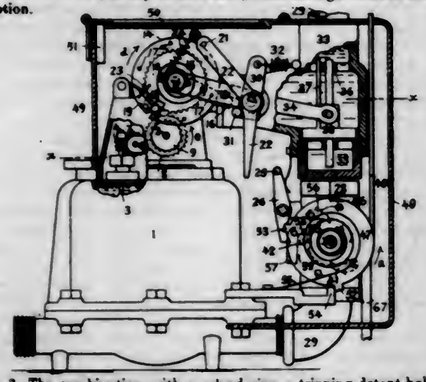
10. In a sawing-machine, the combination with the machine-frame, a sliding frame superposed above the machine-frame and having provision whereby it may be clamped at any point and the sliding saw arranged to move with the sliding frame, of spaced feed-rolls mounted in said sliding frame and adapted to straddle the saw, and means for operating said feed-rolls, substantially as described.

579,464. AUTOMATIC CUT-OFF. CHARLES E. BENTLEY, New York, N. Y. Filed Mar. 18, 1896. Serial No. 583,846. (No model.)

Claim.—1. The combination, with a valved pipe and means closing the valve, of automatic mechanism preventing closure of the valve until after a predetermined quantity of fluid passes uninterruptedly through the pipe, said mechanism being actuated by pressure of fluid in the pipe.

2. The combination, with a valved pipe and means closing the valve, of means operated by flow of fluid through the pipe and gag-

ing or measuring said flow and preventing closing of the valve until a predetermined quantity of fluid has passed through without interruption.



3. The combination, with a valved pipe, a tripping detent holding the valve open, and means closing the valve, of a gage device operated by flow of fluid through the pipe and measuring said flow, and automatic mechanism controlled by the gage device, and tripping the detent and permitting closing of the valve after a predetermined quantity of fluid has passed uninterruptedly through the pipe.

4. The combination, with a valved pipe and means closing the valve, of automatic mechanism preventing closure of the valve until after a predetermined quantity of fluid passes uninterruptedly through the pipe, said mechanism actuated by pressure of fluid in the pipe and thrown into action by the flowing fluid, and thrown out of action after cessation of said flow.

5. The combination, with the valved pipe, a tripping detent holding the valve open, and means closing the valve, of a gage device operated by flow of fluid through the pipe and measuring said flow, automatic mechanism controlled by the gage device and tripping the detent and permitting closing of the valve after a predetermined quantity of fluid has passed uninterruptedly through the pipe, and means readjusting to initial positions the gage device and the pressure-operated means which actuate it, after cessation of any flow through the pipe.

6. The combination, with a valved pipe and means closing the valve, of a meter measuring the fluid passing through the pipe, a gage device automatically thrown into connection with a driving mechanism of the meter by pressure of fluid flowing through the pipe, and connections between the gage device and the valve-closing means, substantially as described, whereby the pipe-valve will be closed by the uninterrupted passage of a predetermined quantity of fluid through the meter and pipe.

7. The combination, with a valved pipe and means closing the valve, of a meter measuring the fluid passing through the pipe, a gage device automatically thrown into connection with a driving mechanism of the meter by pressure of fluid flowing through the pipe, connections between the gage device and the valve-closing means, and retracting means for the gage device, substantially as described, whereby the pipe-valve will be closed by the uninterrupted passage of a predetermined quantity of fluid through the meter and pipe, and the retracting devices will disconnect the gage device from the meter mechanism after cessation of the flow and will readjust the pressure-operated means to original positions, ready for their next operation by fluid-pressure in the pipe.

8. The combination, with a valved pipe, a tripping detent holding the valve open, and a meter measuring the fluid passing through the pipe, of a gage or measuring device automatically thrown in connection with a driving mechanism of the meter by pressure of fluid flowing through the pipe, and means controlled by the gage device and tripping the valve-detent and preventing closing of the valve until a predetermined quantity of fluid has passed without interruption through the meter and pipe.

9. The combination, with a valved pipe, a tripping detent holding the valve open, and a meter measuring the fluid passing through the pipe, of a gage or measuring device automatically thrown into connection with a driving mechanism of the meter by pressure of fluid flowing through the pipe, means controlled by the gage device and tripping the detent and preventing closing of the valve until a predetermined quantity of fluid has passed without interruption through the meter and pipe, and retracting means disconnecting the gage device from the meter mechanism after cessation of the flow and readjusting the pressure-operated means to original positions ready for their next operation by fluid-pressure in the pipe.

10. The combination, with a valved pipe, a tripping detent holding the valve open, and means closing the valve, of a movable notched gage device operated by flow of fluid through the pipe and measuring said flow, and automatic mechanism controlled by the gage device and having a part entering its notch, thereby tripping the valve-detent and permitting closing of the valve.

11. The combination, with a valved pipe, a tripping detent holding the valve open, and means closing the valve, of a bodily-movable revoluble and notched gage device operated by flow of fluid through the pipe and measuring said flow, and automatic mechanism controlled by the gage device and having a part entering its notch, thereby tripping the valve-detent and permitting closing of the valve.

12. The combination, with a valved pipe, a tripping detent holding the valve open, and means closing the valve, of means operated by pressure of fluid in the pipe, a movable notched gage device sustained by said pressure-operated means, and a meter or fluid-motor discharging into the valved pipe and having a moving part actuating the gage device and causing tripping of the valve-detent and closing of the valve.

13. The combination, with a valved pipe, a detent holding the pipe-valve open, and means automatically closing the valve, of means operated by pressure of fluid in the pipe, a shaft rocked by said pressure-operated means, an arm fixed to said shaft, a lever hung on the shaft and movable by its arm, a notched gage-wheel on said lever, means rotating the gage-wheel, and a trip-lever on the shaft having a part bearing on the gage-wheel and adapted to enter its notch, said trip-lever then releasing the valve-detent and permitting closure of the valve.

14. The combination, with a valved pipe, a detent holding the pipe-valve open, and means automatically closing the valve, of means operated by pressure of fluid in the pipe, a shaft rocked by said pressure-operated means, an arm fixed to the shaft, a lever hung on the shaft and movable by its arm, a notched gage-wheel on said lever, a meter or fluid-motor discharging into the valved pipe and having a moving part actuating the gage-wheel, and a trip-lever on the shaft having a part bearing on the gage-wheel and adapted to enter its notch, said trip-lever then releasing the valve-detent and permitting closure of the valve.

15. The combination, with a valved pipe, a detent holding the pipe-valve open, and means automatically closing the valve, of means operated by pressure of fluid in the pipe, a shaft rocked by said pressure-operated means, an arm fixed to said shaft, a lever hung on the shaft and movable by its arm, a notched and shouldered gage-wheel on said lever having a yielding pawl providing an escape-passage along the shoulder, means rotating the gage-wheel, a stop for said gage-wheel, means retracting the gage-wheel to said stop, and a trip-lever on the shaft having a part bearing on the gage-wheel and adapted to enter its notch and escape between the pawl and shoulder as the wheel is retracted, said trip-lever releasing the valve-detent and permitting closure of the valve.

16. The combination, with a valved pipe, a detent holding the pipe-valve open, and means automatically closing the valve, of a piston 35, a rocking shaft 13, a lever 34, fixed to shaft 13, and coupled to piston 35, an arm 30 fixed to shaft 13, and having a pin 31, means retracting the parts 30, 34, 35, a lever 12, hung on shaft 13, a gage-wheel 14, journaled in lever 12, and having notch 20, shoulder 18 and pawl 19, means rotating and retracting the gage-wheel, a trip-lever 22, loose on shaft 13, and having a pin 21, bearing on the gage-wheel and adapted to enter its notch 20, and escape between shoulder 18 and pawl 19, and means such as a spring 24, throwing the trip-lever against the valve-detent and releasing it and permitting closure of the valve.

17. The combination, with a valved pipe, a detent holding the pipe-valve open, and means automatically closing the valve, of a piston 35, a rocking shaft 13, a lever 34, fixed to shaft 13, and coupled to the piston 35, an arm 30, fixed to shaft 13, and having a pin 31, means retracting the parts 30, 34, 35, a lever 12, hung on shaft 13, a gage-wheel 14, on lever 12, and having notch 20, shoulder 18, and pawl 19, means such as a spring 15, retracting the gage-wheel, a stop for said gage-wheel, a wheel 10, on the gage-wheel shaft, a meter or fluid-motor having a wheel 9, adapted to engage wheel 10, a trip-lever 22, on the shaft having a part 21, bearing on the gage-wheel and adapted to enter its notch 20 and to escape between shoulder 18, and pawl 19, and means such as a spring 24, throwing the trip-lever against the valve-detent and releasing it and permitting closure of the valve.

18. The combination, with a valved pipe, a detent holding the pipe-valve open, and means automatically closing the valve, of a piston 35, a coupled lever 34, a rocking shaft 13 having arm 30, a lever 12, a notched gage-wheel 14 on lever 12, and means rotating and retracting the gage-wheel, of an adjustable stop 16, hung on the shaft 11, of wheel 14, and adapted to engage the wheel at different points and stop at the lever 12, and a trip-lever 22, adapted to the gage-wheel and releasing the valve-detent and permitting closure of the valve.

19. The combination, with a valved pipe, a tripping detent holding the valve open, and means closing the valve, of a gage device operated by flow of fluid through the pipe and measuring said flow, and automatic mechanism controlled by the gage device and tripping the detent and permitting closing of the valve after a predetermined quantity of fluid has passed uninterruptedly through the pipe, said pipe-valve and its casing having main passages and drainage-passages, substantially as described, whereby as the main valve-passage is opened the drainage-passages will be closed, and as the main valve-passage is automatically closed the drainage-passages are automatically opened, as set forth.

20. The combination, with a pipe having a valve, a meter or fluid-motor actuated by fluid passing through the pipe, a gage device automatically connecting with the meter by means actuated by flow of fluid in the pipe and controlling a trip device releasing the valve-detent and permitting closure of the valve after passage of a predetermined quantity of fluid uninterruptedly through the meter, a ratchet fast on the valve-stem, a loose stop-wheel having a pawl engaging the ratchet, and a pin; a pulley loose on the valve-stem and having pawls engaging the ratchet and stop-wheel pin, said pulley revoluble backward and forward, thereby giving intermittent forward rotation to the ratchet-wheel and valve, substantially as described, whereby the valve may be opened and closed independently of the action of the automatic valve-closing mechanism.

21. In an automatic cut-off, the combination, with a service-pipe and its valve, of a ratchet fixed to the valve-stem, a stop-wheel and a pulley loose on said stem, a detent adapted to the stop-wheel and holding the valve open, means retracting the pulley and stop-wheel, and a system of pawls and pins on the stop-wheel and pulley turning forward the valve-stem ratchet and closing and opening the valve by partial revolutions of both stop-wheel and pulley, said pulley adapted to turn the retracted stop-wheel forward with it and also adapted for retraction without retracting the stop-wheel.

22. In an automatic cut-off, the combination, with a service-pipe and its valve, of a ratchet fixed to the valve-stem, a stop-wheel and pulley loose on said stem, a detent adapted to the stop-wheel and holding the valve open, and means retracting the pulley and stop-wheel, said stop-wheel having a pawl adapted to the valve-stem ratchet and a pin projecting toward the pulley; said pulley having two pawls and a pin, one spring-pressed pulley-pawl adapted to the valve-stem ratchet and the other gravitating pulley-pawl adapted to strike the pulley-pin and forwardly rotate the retracted stop-wheel by contact with its pin, said pulley also adapted for retraction without retracting the stop-wheel while its gravitated pawl escapes past the stop-wheel pin.

23. In an automatic cut-off, the combination, with a service-pipe and its valve, of a ratchet fixed to the valve-stem, a stop-wheel and a pulley loose on said stem, a detent adapted to the stop-wheel and holding the valve open, means retracting the pulley and stop-wheel, said stop-wheel having a pawl adapted to the valve-stem ratchet and a pin projecting toward the pulley, said pulley having two pawls and a pin, one spring-pressed pulley-pawl adapted to the valve-stem ratchet and the other gravitating pulley-pawl adapted to strike the pulley-pin and forwardly rotate the retracting stop-wheel by contact with its pin, said pulley also adapted for retraction without retracting the stop-wheel while its gravitated pawl escapes past the stop-wheel pin, stops limiting forward and backward movements of the pulley and backward retraction of the stop-wheel, a casing inclosing the cut-off mechanism, and a cord fixed to the pulley and extending through the casing for operating the pulley, stop-wheel and valve.

24. In an automatic cut-off, the combination, with a service-pipe and its valve, of a ratchet 39, having notches 40, and fixed to the valve-stem, a stop-wheel 27, and pulley 47, loose on the valve-stem, said stop-wheel having spring-pressed pawl 41, and pin 42, and said pulley having spring-pressed pawl 56, and gravitating pawl 57 with finger 58; a detent 26, engaging the stop-wheel, means tripping the detent, and means retracting the pulley and stop-wheel.

25. In an automatic cut-off, the combination, with a service-pipe and its valve, of a ratchet 39, having notches 40, and fixed to the valve-stem, a stop-wheel 27, and pulley 47, loose on the valve-stem, said stop-wheel having spring-pressed pawl 41, and pin 42, and said pulley having spring-pressed pawl 56, and gravitating pawl 57 with finger 58; a detent 26, engaging the stop-wheel, means tripping the detent and means retracting the pulley and stop-wheel, a stud 43, on stop-wheel 27, studs 52, 53, on pulley 47, and fixed stops 44, 54, for the stop-wheel and pulley respectively.

26. In an automatic cut-off, the combination, with a service-pipe and its valve, of a ratchet 39, having notches 40, and fixed to the valve-stem, a stop-wheel 27, and pulley 47, loose on the valve-stem, said stop-wheel having spring-pressed pawl 41, and pin 42, and said pulley having spring-pressed pawl 56, and gravitating pawl 57 with finger 58; a detent 26, engaging the stop-wheel, means tripping the detent and means retracting the pulley and stop-wheel, a stud 43, on stop-wheel 27, studs 52, 53, on pulley 47, fixed stops 44, 54, for the stop-wheel and pulley respectively, a casing inclosing the cut-off mechanism, and a cord connected to pulley 47, and extending through the casing for operating the pulley, stop-wheel and valve.

27. An automatic cut-off, comprising a meter or fluid-motor, a connected valved pipe, controlling mechanism automatically closing the pipe-valve and actuated by pressure of fluid passing the valve and by the meter mechanism, a ratchet fixed to the valve-stem, a stop-wheel and pulley loose on said stem, a detent engaging the stop-wheel and holding the valve open, means retracting the stop-wheel and pulley, and pawls and pins on the pulley and stop-wheel coöperating with them and the valve-stem ratchet and detent and opening and closing the valve, said pulley adapted to turn the retracted stop-wheel forward with it and also adapted for retraction without retracting the forwardly-turned stop-wheel.

28. In an automatic cut-off, the combination, with a valved pipe, a detent holding the pipe-valve open, means operated by pressure of fluid in the pipe, and a trip device actuated from said means which are operated by pressure of fluid in the pipe and tripping the valve detent, of a ratchet fixed to the valve-stem, a stop-wheel and pulley loose on said stem, said valve-detent engaging the stop-wheel, means retracting the stop-wheel and pulley, pawls and pins on the pulley and stop-wheel coöperating with them and the valve-stem ratchet and the detent and opening and closing the valve, said pulley adapted to turn the retracted stop-wheel forward with it and also adapted for retraction without retracting the forwardly-turned stop-wheel.

29. In an automatic cut-off, the combination, with a valved pipe, a detent holding the pipe-valve open, means operated by pressure of fluid in the pipe, a trip device actuated from said means which are operated by pressure of fluid in the pipe, and a gage device controlling the trip and at proper time tripping the same and releasing the valve-detent and permitting closure of the valve, of a ratchet fixed to the valve-stem, a stop-wheel and pulley loose on said stem, said valve-detent engaging the stop-wheel, means retracting the stop-wheel and pulley, pawls and pins on the pulley and stop-wheel coöperating with them and the valve-stem ratchet and the detent and opening and closing the valve, said pulley adapted to turn the retracted stop-wheel forward with it and also adapted for retraction without retracting the forwardly-turned stop-wheel.

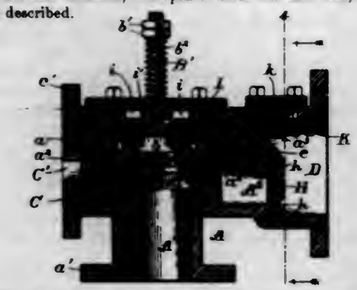
30. In an automatic cut-off, the combination, with a valved pipe and a detent holding the pipe-valve open, said valve having a passage opening and closing the pipe and passages open for drainage of the pipe when the valve is closed and closed when the valve is open, of means operated by pressure of fluid in the pipe, a trip device actuated from said means which are operated by pressure of fluid in the pipe and releasing the valve-detent, a gage device controlling the trip and detent and permitting closure of the valve, a ratchet fixed to the valve-stem, a stop-wheel and pulley loose on said stem, said valve-detent engaging the stop-wheel, means retracting the stop-wheel and pulley, and pawls and pins on the pulley and stop-wheel coöperating with them and the valve-stem ratchet and the detent and opening and closing the valve, said pulley adapted to turn the retracted stop-wheel forward with it and also adapted for retraction without retracting the forwardly-turned stop-wheel.

31. In an automatic cut-off, the combination, with a valved pipe, and a detent holding the pipe-valve open, said valve having a passage opening and closing the pipe and passages open for drainage of the pipe when the valve is closed and closed when the valve is open, of means operated by pressure of fluid in the pipe, a trip device actuated from said means which are operated by pressure of fluid in the pipe and releasing the valve-detent, a gage device controlling the trip and detent, a ratchet fixed to the valve-stem a stop-wheel and pulley loose on said stem, said valve-detent engaging the stop-wheel, means retracting the stop-wheel and pulley, pawls and pins on the pulley and stop-wheel coöperating with them and the valve-stem ratchet and the detent and opening and closing the valve, said pulley adapted to turn the retracted stop-wheel forward with it and also adapted for retraction without retracting the forwardly-turned stop-wheel, and a meter or fluid-motor discharging into the valved pipe and having a moving part actuating the gage device and causing release of the valve-detent and closure of the valve.

579,465. THREE-WAY VALVE. FREDRIC BILLINGS, Marinette, Wis., assignor of one-half to H. C. Higgins, same place. Filed Dec. 19, 1896. Serial No. 616,356. (No model.)

Claim.—1. In a three-way valve, the combination with a casing having a central passage, a valve-chamber opening into the said central passage, a steam-chamber surrounding the said valve-chamber, a vent opening from the surrounding chamber into the said valve-chamber, an opening to admit steam to the said steam-chamber, an opening from the steam-chamber to the outer or atmospheric air, and a check-valve controlling the said opening, of a valve arranged to

slide in the said chamber, and open or close the said vent, substantially as described.

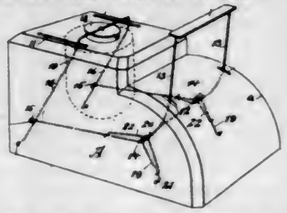


2. In a three-way valve, the combination with a casing having a central passage, a valve-chamber opening into the said central passage, a steam-chamber surrounding the said valve-chamber, a vent opening from the surrounding chamber into the said valve-chamber, an opening to admit steam to the said steam-chamber, an opening from the steam-chamber to the outer or atmospheric air, and a check-valve controlling the said opening, of a valve arranged to slide in the said valve-chamber and having ports adapted to register with the said vent and open or close the same, substantially as described.

3. In a three-way valve, the combination with a casing having a central passage, a valve-chamber opening into the said central passage, a steam-chamber surrounding the said valve-chamber, a vent opening from the surrounding chamber into the said valve-chamber, an opening to admit steam to the said steam-chamber, an opening from the steam-chamber to the outer or atmospheric air, and a check-valve controlling the said opening, of a valve arranged to slide in the said valve-chamber and having ports adapted to register with the said vent, a valve-rod on the said valve and a spring on the said valve-rod adapted to normally hold the valve in the closed position, substantially as described.

4. In a three-way valve, the combination with a casing having a central passage, a valve-chamber opening into the said central passage, a steam-chamber surrounding the said valve-chamber, a vent opening from the surrounding chamber into the said valve-chamber, an opening to admit steam to the said steam-chamber, an opening from the steam-chamber to the outer or atmospheric air, a rod journaled in the casing, a check-valve hung upon the said rod and adapted to cover the opening to the atmospheric air, and a handle on the end of the rod; of a valve arranged to slide in the said valve-chamber and having ports adapted to register with the said vent; a valve-rod on the said valve, and a spring on the said valve-rod adapted to hold the valve in its closed position, substantially as described.

579,466. INKSTAND. ALEXANDER J. BLUNTACH, Olivia, Minn.
Filed July 20, 1896. Serial No. 599,768. (No model.)



Claim.—1. The combination, with an inkstand, of a cover for the ink-well, a bail pivoted in the stand, and mounted to rock over the ink-well and connected with the cover lever-arms connected with the said bail, the said lever-arms extending outward and in front of the ink-well, pivoted supports for the said lever-arms, and springs having bearing on the lever-arms in such direction as to normally hold the bail in position to place the cover on the ink-well, substantially as described.

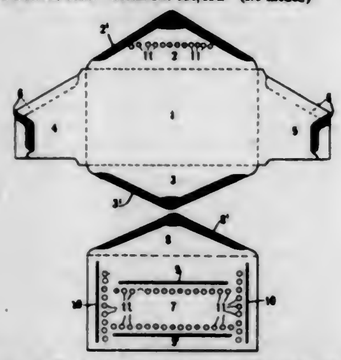
2. The combination, with an inkstand, of a cover for the ink-well, a bail pivoted in the stand, the bail crossing the ink-well, and being connected with the cover and having movement over the well, lever-arms having vertical and lateral movement, the said lever-arms being connected to each other at their outer ends and passed downward through the inkstand to a connection with the aforesaid bail, supporting-arms pivoted in the stand on which the lever-arms are fulcrumed, and springs located at the fulcrum of the lever-arms, the springs having bearing thereon at the rear of their point of fulcrum and upon the advanced portion of the supporting arms, substantially as shown and described.

3. An inkstand having a member pivoted thereon, a cover for the well of the stand, the cover being attached to said member and movable with the same on and off of the ink-well, a supporting-arm pivotally connected to the inkstand, and a lever fulcrumed on the supporting-arm and connected with the said pivoted member, one end of the lever projecting beyond the inkstand, substantially as described.

4. An inkstand having a member pivoted thereon, a cover for the ink-well of the inkstand, the cover being connected to the said member and movable with the same to open and close the ink-well, a supporting-arm pivoted on the inkstand, a lever fulcrumed to the supporting-arm and connected with the said pivoted member, one end of the lever being projected beyond the ink-well, and a spring bearing on the lever and on the supporting-arm, substantially as described.

5. An inkstand having a bail, the ends of which are pivoted to the inkstand, an intermediate portion of which normally passes across the ink-well of the inkstand, a cover carried by said intermediate portion and moving with the bail to open and close the ink-well, two levers each having one of its ends connected with the respective arms of the bail, two supporting-links pivoted to the inkstand and respectively forming the fulcra of the levers, a spring actuating the levers, and a cross-bar connecting the free ends of the levers, such cross-bar being located outward from the inkstand, substantially as described.

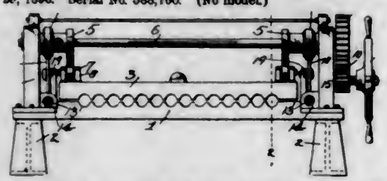
579,467. SAFETY-ENVELOP. WILLIAM M. BREVARD, Macon, Ga.
Filed Dec. 21, 1896. Serial No. 616,414. (No model.)



Claim.—1. In a safety-envelop, the combination of the body, having end flaps and side flies formed integral therewith, said flaps and flies having gummed edges, the complementary portion or body having a gummed fly and slot therein, and the parts adapted to be assembled, substantially as shown, for the purpose set forth.

2. In a safety-envelop, the combination of the body 1, having flies 2 and 3 formed integral therewith, said flies having gummed edges, the body portion 7 having a fly 8 formed integral therewith, said fly 8 having a gummed edge 8', the slots 9 and 10, the perforations 11 therein, the row of perforations 11 in fly 2, and the parts adapted to be associated and secured, substantially as set forth.

579,468. MACHINE FOR MANUFACTURING SEAMLESS LEATHER ARTICLES. FRIEND J. BRINGHAM, Chicago, Ill. Filed Apr. 23, 1896. Serial No. 588,760. (No model.)



Claim.—1. A machine for forming leather articles consisting of a pair of dies, a mandrel-pin independent of the machine and adapted to be inserted by hand, means for closing the dies and for seating and holding the mandrel-pin in proper position during the pressing action, substantially as described.

2. In combination, an upper and lower die, each having a semi-circular recess therein, said dies being hinged together to have pivotal movement toward and from each other, means for operating the dies, the mandrel-pin having its end adapted to form the end of the socket and means for holding the said pin in place when the dies are under pressure, the said recesses in the dies being curved at their

inner ends to form a closed inner end for the socket, substantially as described.

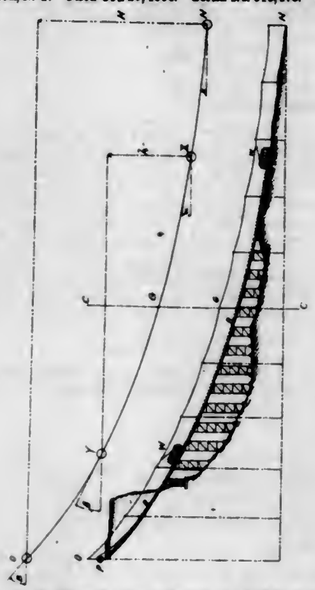
3. In combination, a pair of dies, each having a series of sockets, a series of mandrels adapted to fit in the sockets formed between the dies, and means for closing the dies and for holding the series of mandrel-pins, the said dies with the series of mandrel-pins being arranged to press the material into the form of a series of sockets with connecting webs or portions of the material between the sockets and holding them together, substantially as described.

4. In combination, a pair of dies having a series of sockets between them, a series of mandrel-pins, a presser-bar extending across the ends of said pins and means for operating the presser-bar toward the dies, substantially as described.

5. In combination, the dies having the sockets, the mandrel-pins, the presser-bar extending across the same, and having rods at its ends extending rearwardly and means for operating said rods, substantially as described.

6. In combination the die-sections, each having a series of sockets, a series of loose mandrel-pins independent of the machine and adapted to be inserted in the slit blank by hand and means for thrusting the mandrel-pins in place and holding them, substantially as described.

579,469. INCLINED CABLE-RAILWAY. THOMAS R. BROWN, New York, N. Y.
Filed Oct. 29, 1896. Serial No. 610,470. (No model.)



Claim.—1. In inclined cable-railways, an inclined rail-bearing structure shaped on such a curve that the sine of the angle of inclination of the said surface at a point a given distance from the upper end of the structure exceeds the sine of the angle of inclination of said structure at a point an equal distance from the lower end of the structure by the quotient obtained by dividing the weight of a length of cable equal to the vertical distance between said points by the weight of a car which is operated by the cable, substantially as and for the purpose described.

2. The combination with a cable led around a sheave or drum at the upper end of the incline, a car attached to each end of the cable, and a motor on one or both cars for operating the same, of an inclined structure having its rail-bearing surface shaped on such a curve that the sine of the angle of inclination of such surface at a point a given distance from the upper end of the structure exceeds the sine of the angle of inclination of said surface at a point an equal distance from the lower end of said structure by the quotient obtained by dividing the weight of a length of the cable equal to the perpendicular distance between said points, by the weight of a car, substantially as described.

3. The combination with a cable led around a sheave or drum at the upper end of the incline, a car attached to each end of the cable, and a motor for operating the said cable, of an inclined structure having its rail-bearing surface shaped on such a curve that the sine of the angle of inclination of such surface at a point a given distance from the upper end of the structure exceeds the sine of the angle of inclination of said surface at a point an equal distance from the lower end of said structure by the quotient obtained by dividing the weight of a length of the cable equal to the perpendicular distance between said points, by the weight of a car, substantially as described.

579,470. PORTFOLIO. BOSSIER CHEVALERIAS, Brussels, Belgium.
Filed June 11, 1895. Serial No. 552,458. (No model.) Patented in Belgium Oct. 6, 1894, No. 112,132; in Germany Oct. 8, 1894, No. 83,127; in France Mar. 27, 1895, No. 245,152, and in England Apr. 6, 1895, No. 7,115.



Claim.—1. A portfolio comprising the backing, the covers, the double hinges connecting the backing with the covers and each consisting of an inner and an outer section, the short tubes secured to the outer section of a hinge for supporting the sheets, and the short rods secured to the outer section of the other hinge and adapted to slide within the short tubes when the portfolio is closed and to be disconnected therefrom when the portfolio is open and the long tubes and rods connected when the portfolio is open and adapted to guide and keep the short tubes and rods in line with each other when the latter are disconnected; substantially as described.

2. A portfolio comprising the backing, the covers, the double hinges connecting the backing with the covers and each consisting of an inner and an outer section, the short tubes and rods secured to the outer sections of the hinges, and disconnected when the portfolio is open, the long tubes secured to the outer section of a hinge the long rods connected with the long tubes when the portfolio is open and each having a screw-thread by which it is secured to the outer section of the other hinge, and a knob by which it is removed and replaced, and retaining-nuts; substantially as described.

579,471. CYCLING-SKIRT. CARRIE G. CHILDE, New York, N. Y.
Filed Oct. 7, 1896. Serial No. 608,112. (No model.)

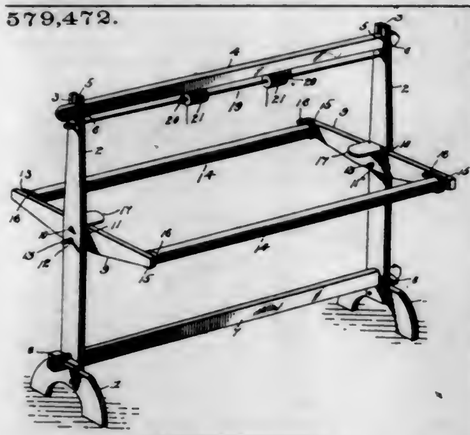


Claim.—As a new article of manufacture, the bicycle-skirt, herein described, comprising a skirt and a pair of bands, one thereof being attached, at one end, near each side of the front breadth, and at its other end near the middle of said breadth, the points of attachment being located about midway between the knees and bottom of the skirt, the bands, so attached, forming loops, normally loose, but tightening about the wearer's limbs in pedaling, whereby the skirt-front is brought taut and held down smoothly, and the back and sides are unrestricted, substantially as set forth.

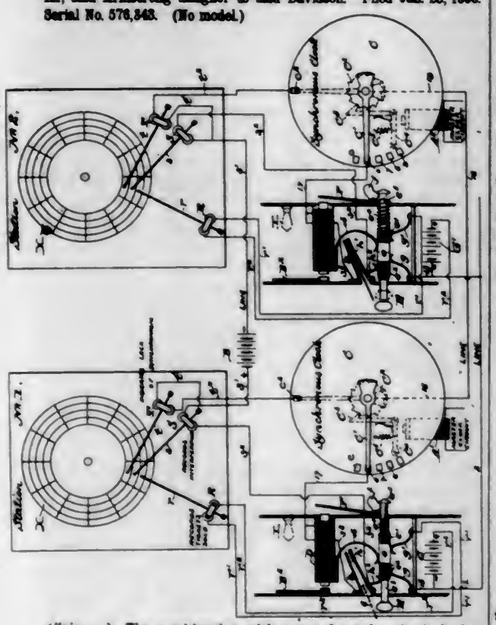
579,472. QUILTING-FRAME. WILLIAM H. CRAWFORD, Weatherford, Tex. Filed Mar. 18, 1896. Serial No. 583,766. (No model.)

Claim.—The herein shown and described device for the purposes set forth, comprising vertical standards attached at their lower ends to base-pieces and notched at their upper ends, a lower longitudinal beam having tenon ends passing through mortises near the lower ends of the standards, and having transverse openings in the projecting end portions of the tenons, keys thrust through the transverse openings in the said tenons, an upper longitudinal beam having notches in its sides to receive the notched ends of the standards, pins for connecting the standards and upper longitudinal beam, a wire or rod below the upper longitudinal beam and supported from the latter intermediate of its ends, and having its ends let into the standards, transverse beams having pivotal connection with the standards and provided with lamp-supporting brackets, means for securing the transverse beams in either a horizontal or an upright position, rollers journaled at their ends to the transverse beams, and means for securing the rollers against rotation in each direction, substantially as and for the purpose set forth.

579,472.



579,473. ELECTRIC TIME CHECK AND RECORDER. ALEXANDER DAVIDSON, New York, N. Y., and CHARLES G. ARMSTRONG, Chicago, Ill.; said Armstrong assignor to said Davidson. Filed Jan. 25, 1896. Serial No. 576,843. (No model.)



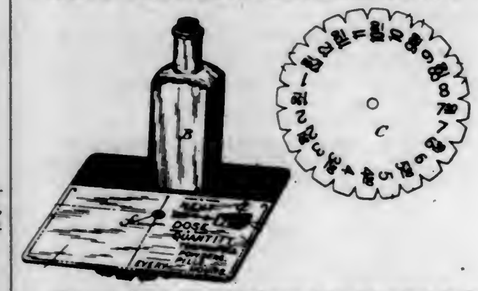
Claim.—1. The combination with a set of synchronized clocks: of a battery-circuit and electromagnet with pointed armature, a watchman's time-dial arranged beneath the armature to be acted upon thereby, a special commutator-plate arranged on each of the synchronous clocks and connected to said circuit, whereby the same is closed and a record made by the magnet-armature when the clocks are in synchronism, and the record is discontinued when the clocks are out of synchronism substantially as and for the purpose described.

2. A ticket-selling device, comprising a set of annunciators, ticket-holders controlling the same, synchronized clocks and commutators with batteries and circuit-wires arranged as described to indicate automatically to a remote station the sale of any ticket at the selling-station, in combination with a device for detecting a lack of synchronism in the clocks substantially as shown and described.

3. A ticket-selling device comprising a set of annunciators, synchronized clocks and commutators with batteries and circuit-wires arranged as described to indicate automatically to a remote station the sale of any ticket at the selling-station; in combination with a watchman's time-dial, and a magnet and armature operating upon the same and placed within a loop of the main operating-circuit for the purpose of recording the tickets sold and the times thereof substantially as and for the purpose described.

4. A ticket-selling device comprising a set of annunciators, synchronized clocks and commutators, with batteries and circuit-wires arranged as described to indicate automatically to a remote station the sale of any ticket at the selling-station; in combination with a watchman's time-dial, and a magnet and armature operating thereupon, and a separate battery and circuit the terminals of which latter are made through two insulated jaws of the ticket-holder whereby the simultaneous or successive withdrawal of a similarly-numbered ticket at two different points is made to close a circuit and record the time of such interference upon the watchman's time-dial substantially as and for the purpose described.

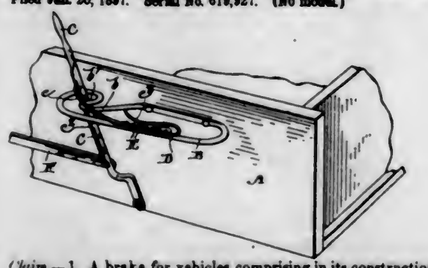
579,474. MEDICINE-INDICATOR. JOSEPH S. DE BARRY, Brooklyn, N. Y. Filed Sept. 2, 1896. Serial No. 604,612. (No model.)



Claim.—1. In a holder and indicator of the class named, the flat base or card supplied in one portion of its face with a layer of adhesive material for the purpose of affixing the receptacle, and in the other portion with the indicator, the card forming an enlarged base for the receptacle, in the manner and for the purposes set forth.

2. The herein-described holder and indicator comprising the base supplied with adhesive material upon its face and having an aperture and blank directions also on its face, and the disk pivoted under the base and supplied with marginal, locking-tabs, one for each set of figures on the disk, said tabs being arranged to be projected through the aperture, all combined and arranged substantially as and for the purposes set forth.

579,475. WAGON-BRAKE. ISAAC R. DOTSON, Dayton, Ohio. Filed Jan. 20, 1897. Serial No. 619,927. (No model.)

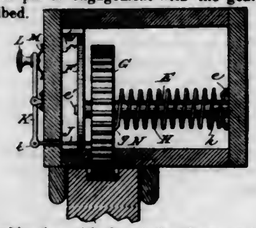


Claim.—1. A brake for vehicles comprising in its construction a frame portion provided with ratchet-teeth and an inwardly-extending shoulder near its rear end forming a recess or detent for the reception of the brake-lever when the latter is drawn backward, a pivoted brake-lever, a spring attached to the frame of the brake and extending back and around the brake-lever when the latter is drawn backward for holding the same in place, and means connecting the brake-lever with the brake-shoe, substantially as described.

2. A brake for vehicles comprising in its construction a frame portion provided with ratchet-teeth and an inwardly-extending shoulder near its rear end forming a recess or detent for the reception of the brake-lever when the latter is drawn backward, a pivoted brake-lever, a spring attached to the frame of the brake and extending back and around the brake-lever when the latter is drawn backward for holding the same in place, and also extending forwardly and backwardly in close proximity to the ratchet-teeth on the brake-frame for holding the lever in engagement with the said teeth, and means connecting the brake-lever with the brake-shoe, substantially as described.

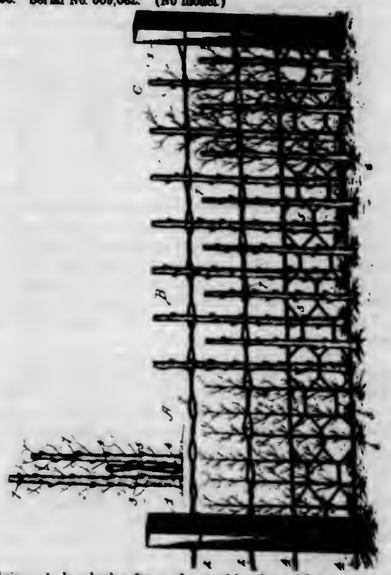
579,476. SASH-HOLDER. JOHN B. ENGLISH, Park Ridge, N. J. Filed July 28, 1896. Serial No. 600,833. (No model.)

Claim.—1. The combination with the window frame and sash, of a rack-bar secured to the side stile of the sash, an arbor having at one end a lug secured to the inside of the frame and at the other end having a polygonal portion engaging in a correspondingly-shaped hole in a bracket, a gear-wheel loose upon said arbor and having an opening in its face near the center and a plurality of openings near its outer edge, a locking-pin passed through a hole in said bracket designed to engage in the openings near the outer edge of the gear-wheel, a lever pivotally mounted and carrying said pin, and a spring bearing against the under side of the free end of the lever to normally force said pin in engagement with the gear-wheel, substantially as described.



2. The combination with the window frame and sash, of a rack-bar secured to the side stile of the sash, an arbor having at one end a lug secured to the inside of the frame and at the other end having a polygonal portion engaging in a correspondingly-shaped hole in a bracket, a gear-wheel loose upon said arbor and having an opening in its face near the center and a plurality of openings near its outer edge, a locking-pin passed through a hole in said bracket designed to engage in the openings near the outer edge of the gear-wheel, a lever pivotally mounted and carrying said pin, and a spring bearing against the under side of the free end of the lever to normally force said pin in engagement with the gear-wheel, and a spring sleeved upon said arbor with one end secured thereto and the other passed through the hole in the center of the gear-wheel, substantially as described.

579,477. FENCE. FRANK E. FOOR, Lebanon, Ind. Filed Oct. 16, 1896. Serial No. 609,062. (No model.)

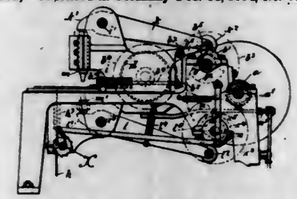


Claim.—1. In a hedge fence, the combination with canes arranged in parallel rows, of a fencing-ribbon arranged horizontally between said rows of canes and contiguous to the surface of the ground, and runners arranged respectively in the planes of said rows and provided with means for engaging the stems of the canes, substantially as specified.

2. A hedge fence having canes arranged in parallel rows, and runners arranged respectively in the planes of said rows and provided in the planes of the canes with loops to receive the latter, whereby the canes are supported in upright positions, substantially as specified.

3. A fence having spaced posts, a horizontal fencing-ribbon stretched between the bases of the posts, and runners arranged at different heights above the upper edge of the fencing-ribbon and in planes, respectively, upon opposite sides of the plane of the fencing-ribbon, and provided at intervals with loops for the reception of cane-stems which are arranged in rows, respectively, upon opposite sides of the plane of the fencing-ribbon, substantially as specified.

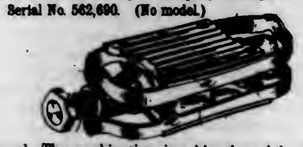
579,478. RIVETING-MACHINE. HUGO FUCHS, Bernburg, Germany. Filed Feb. 28, 1896. Renewed Feb. 17, 1897. Serial No. 623,901. (No model.) Patented in Germany Feb. 11, 1894, No. 78,091.



Claim.—1. In a riveting-machine for forming and setting rivets in metal or like strips the combination of the cutter for the wire, and plungers, rests for the strip to receive the rivets having a space between their opposing ends of greater width than the diameter of the rivet-shank, said parts operating to form the heads o, o' and the intermediate flange or rib o^3, substantially as described.

2. In combination, the cutter h' and holder h^3, the rests h^4, h^5 above the cutter and arranged to receive and hold the strip at a distance from the cutter and the plungers m, m' with operating means therefor to form the heads and the intermediate flange o^3, the said plungers operating on each side of the cutter and holder while the same are holding the wire stud o^2, substantially as described.

579,479. BICYCLE-PEDAL. JOHN A. GOEBLER, Indianapolis, Ind., assignor to the Indiana Bycle Company, same place. Filed Sept. 18, 1895. Serial No. 562,690. (No model.)

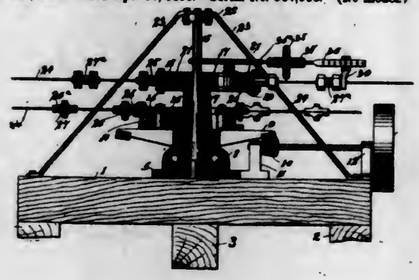


Claim.—1. The combination, in a bicycle-pedal, with the pedal-pin and pedal-center, of pedal sides formed of two parts of sheet metal struck up and bent to the required form and clamped to said pedal-center, the ends of said sides being bent up and in to meet and then united, whereby they are enabled to mutually support each other and form sides for the foot of the rider, substantially as shown and described.

2. In a bicycle-pedal, the combination, with the pedal pin and center, of pedal sides each of which is cut in skeleton form from a single piece of metal and consists of side pieces with extended ends, connected by cross-pieces, said cross-pieces being bent to embrace said pedal-center, and said side pieces being bent up to present their edges for foot-supports and having their ends bent in to meet and then united, substantially as set forth.

3. In a bicycle-pedal, the combination, of the pedal-pin and pedal-center, the side pieces of the foot-support, foot-plates formed to extend across the width of the pedal and provided with a groove near each edge on their under sides, which fit over the edges of said side pieces and connect them, rubber or surface plates secured on said foot-plates, and fastening devices for securing said plates in position, substantially as set forth.

579,480. WELL-PUMPING POWER. GEORGE W. GRIMM, Bluffton, Ind. Filed Apr. 17, 1896. Serial No. 587,988. (No model.)

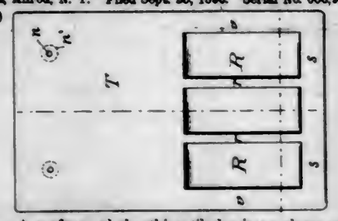


Claim.—1. A pumping power comprising a bed-plate, a post extending upward from the bed-plate, a sleeve mounted to rotate on said post, the said sleeve having an annular flange at its lower end provided with a groove registering with a groove in the bed-plate, antifriction-balls in said grooves, a drive or master wheel secured to the lower end of the sleeve, a ring-plate mounted on the master-wheel eccentrically to its axis, a pump-line plate on said ring, and antifriction-rollers carried by the pump-line plate and bearing against the periphery of said ring, substantially as specified.

2. A pumping power, comprising a base-plate, a post or shaft extended upward therefrom, a sleeve mounted to rotate on said post or shaft, a driving-wheel for said sleeve, a ring-plate mounted on said wheel eccentrically to its axis, a pump-line plate mounted on said ring-plate, and antifriction-rollers carried by the pump-line plate and engaging with the ring-plate, the said antifriction-rollers being mounted to rotate on a vertical axis, substantially as specified.

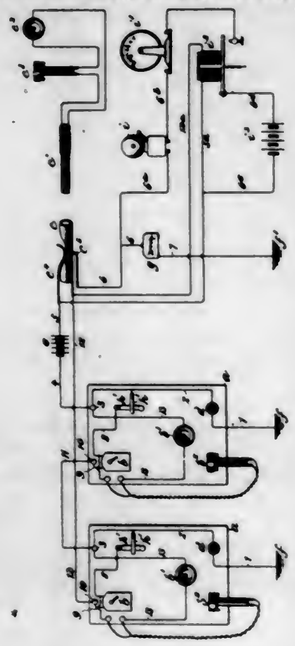
3. For use with a pumping power, tension devices for a pump-line, consisting of a rod made in two sections having their adjacent ends threaded, a threaded sleeve or nut engaging therewith, a hand-wheel on said sleeve or nut, a hook on the end of one of the rod-sections for engaging with a fixed portion of the pumping power, and a dog adjustably mounted on the other section of said rod, substantially as specified.

579,481. ROOFING AND SHEATHING TILE. CHARLES T. HARRIS, Alfred, N. Y. Filed Sept. 25, 1896. Serial No. 606,958. (No model.)



Claim.—A roofing and sheathing tile having a plane upper surface and a plane under surface inclined from its outer or exposed edge toward said upper surface and a chambered depression on its under surface within the surface contact or overlap of the adjacent tile, whereby moisture or water that is drawn between the contact-surfaces by capillary attraction is arrested, substantially as described.

579,482. TELEPHONIC MESSENGER SERVICE. JEFFERSON D. HOBBS, New York, N. Y. Filed Feb. 18, 1896. Serial No. 579,731. (No model.)



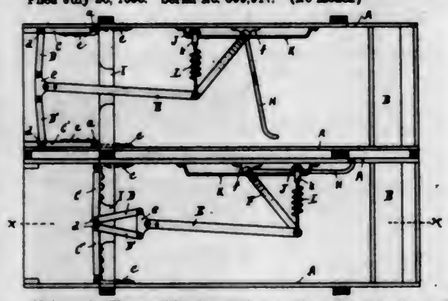
Claim.—In a telephonic messenger service, the combination of a circuit having two or more ground-wires, a battery, a drop or other indicator, and a device, as *d*, for adding or cutting out one of said ground-wires, located in said circuit between the latter, the said device normally cutting out said wire, a telephone-receiver and a transmitter placed in said circuit and normally cut out of the same by a short circuit, a contact-piece and key placed in said circuit in a position, whereby, upon depressing or moving said key from the contact-piece the telephone receiver and transmitter will be brought into said circuit, a second telephone receiver and transmitter, and means for placing the latter in said circuit to close the same metallically and cut out the said drop and second ground-wire, the said one battery being placed in said circuit for supplying the several parts of the system, substantially as described and for the purpose set forth.

579,483. DEVICE FOR CLEANING WASTE-PIPES. EUGENE HONEYWELL, Brooklyn, N. Y. Filed Dec. 12, 1896. Serial No. 571,963. (No model.)



Claim.—The herein-described cleaning device for waste-pipes, consisting of a flexible rod A, provided at one end with a ring or handle *a*, and at the other end with a soft-rubber head B, having formed thereon a spiral rib or flange C, constructed and adapted to operate as herein set forth and described.

579,484. CATTLE-STALL. FLOYD JARRETT, Richlands, W. Va. Filed July 30, 1896. Serial No. 600,917. (No model.)



Claim.—1. The combination with a cattle-stall having inwardly-closing doors, of door-operating mechanism consisting of a vertical rod and links connecting said rod to the doors, and a crank-lever connected to said rod and projecting across the stall opposite the breast of the animal entering, whereby the doors are automatically opened and closed by the entrance and exit of the animal from the stall, substantially as specified.

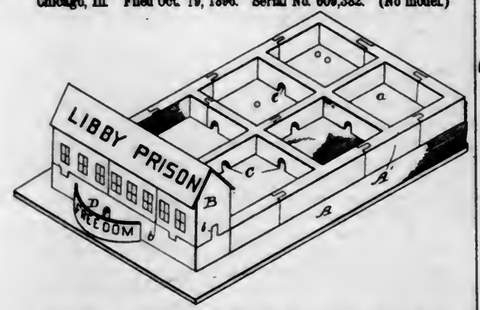
2. The combination with a cattle-stall having an inwardly-closing door, of door-operating mechanism comprising a lever projecting across the stall when the door is open, the position of said lever being such that it will be pushed to one side by an animal entering the stall, thereby closing the stall-door, and a traveling tension device connected with said door-operating mechanism to assist in opening and closing the door easily, substantially as described.

3. The combination with a cattle-stall having one or more inwardly-closing doors, of a vertical rod journaled in one side of the stall and provided with a rigidly-attached operating-lever and a rigidly-attached crank-arm, a connecting-rod attached to said crank-arm, and a link or links attached to said connecting-rod and to the door or doors, the said operating-lever being arranged to project across the stall when the doors are open and adapted to be pushed to one side by an animal entering the stall and thereby closing the doors, substantially as described.

4. The combination with a cattle-stall having one or more inwardly-closing doors, of door-operating mechanism comprising a lever projecting across the stall when the doors are open and adapted to be pushed to one side by an animal entering the stall, thereby closing the stall-door, stop mechanism to limit the inward movement of the doors, and a tension device connected with said door-operating mechanism to facilitate the opening and closing of the stall-doors, substantially as described.

5. The combination with a cattle-stall provided with the doors C C', of the vertically-journaled rod G provided with rigidly-attached crank-arm F and rigidly-attached lever H, the connecting-rod E attached to said crank-arm, the links D D' attached to said connecting-rod and to the doors, the spring L connected with the crank-arm, the pulley J attached to said spring, and the guideway K for said pulley, substantially as described.

579,485. COMBINED PUZZLE AND TOY. FREDERICK A. JENSEN, Chicago, Ill. Filed Oct. 19, 1896. Serial No. 609,382. (No model.)



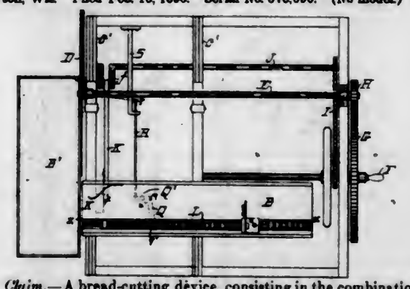
Claim.—1. The combination in a puzzle of a series of compartments having hollow walls, said compartments having outlets one from the other, said outlets communicating to the said hollow walls, a continuous passage through one or more of said walls to the outside of the structure, and balls adapted to pass through said outlets and through said hollow walls, substantially as and for the purpose described.

2. The combination in a puzzle of a miniature structure having a series of compartments and rooms and one or more balls, the walls of said compartments having passage-ways therethrough and openings therein whereby the said ball or balls could be rolled from one to the other of said compartments, and the said passage-ways in said walls being so arranged that only one continuous passage is made from the inside of said structure to the outside, substantially as described.

3. The combination of a toy structure having a series of rooms or compartments composed of sections adapted to be joined and built up progressively with a series of blind passage-ways in the walls or sides of said structure and a continuous and tortuous passage leading from the inside to the outside of said structure, said passages being invisible, and one or more balls, substantially as described.

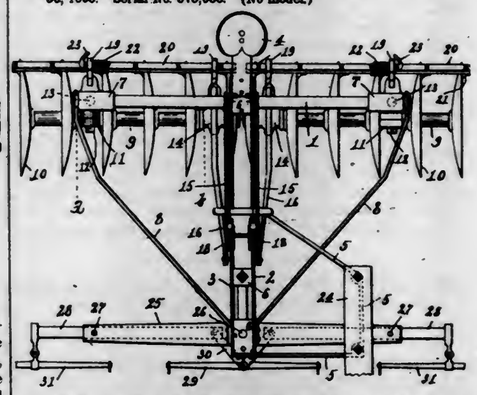
4. The combination in a toy structure of a series of rooms or compartments opening from one to each other, said rooms composed of sections adapted to be erected one upon the other to form the structure, said sections having passage-ways through them, said passage-ways having openings into said rooms or compartments and some of them blind, a continuous and tortuous passage being formed in said walls whereby, by a manipulation of the structure, a ball can be passed from one compartment to the other and through said continuous passage to the outside of the structure, substantially as described, said passages so arranged that the ball cannot be returned from the outside to the inside, substantially as described.

579,486. DEVICE FOR CUTTING BREAD. JOHN L. KOLBE, Chilton, Wis. Filed Feb. 10, 1896. Serial No. 578,690. (No model.)



Claim.—A bread-cutting device, consisting in the combination of the cabinet provided with a rotary cutter, a sliding loaf-supporting box arranged to carry the loaf into the path of said cutter, a longitudinally-movable feed-rack L located in the bottom of said box, an elbow-crank supported by said box and having one arm connected with the feed-rack, a sliding stay-rod R connected with the other arm of said elbow-crank and adapted to actuate the latter with the movement of the box, a spring for retracting said feed-rack after the same has been moved by said elbow-crank, a sliding block connected by a one-way catch with the feed-rack, and provided with a fork for engaging the loaf whereby the latter is automatically fed into the path of the cutter, substantially as described.

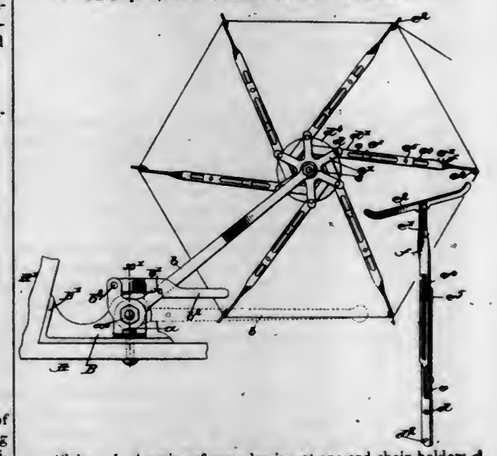
579,487. DISK HARROW. JOHN M. W. LONG, Hamilton, Ohio, assignor to the Long & Allstatter Company, same place. Filed Dec. 30, 1895. Serial No. 573,688. (No model.)



Claim.—1. In a disk harrow, the combination substantially as set forth, of a frame, arms projecting downwardly from the ends of the frame, elbows vertically journaled in said arms and having a vertical and horizontal longitudinal journal, gang-shaft bearings forward of the vertical journals of said elbows and supported on the horizontal journals thereof, hounds extending from the bases of said arms to the front of said frame, bearings near the inner ends of the gang-shafts, forwardly-extending links vertically journaled to said bearings, and adjusting-levers mounted on the frame parts and connected with the forward ends of said links.

2. In a disk harrow, the combination, substantially as set forth, of frame-bar 1, arms 7 depending from the ends thereof, bars 2 and 3 connected with bar 1, spacing-blocks 6 between bars 2 and 3, hounds 8 from the bases of arms 7 to the front of bars 2 and 3, levers mounted on bars 2 and 3, elbows journaled in arms 7, and having each a vertical and horizontal journal, bearings 11 journaled on said elbows, gang-shafts journaled in said bearings and having harrow-disks, bearings 14 on the gang-shafts, and links 16 connected to the last-mentioned bearings and to said levers.

579,488. REEL AND SUPPORT. CHARLES S. LORD, Winooski, Vt. Filed Apr. 1, 1896. Serial No. 585,703. (No model.)



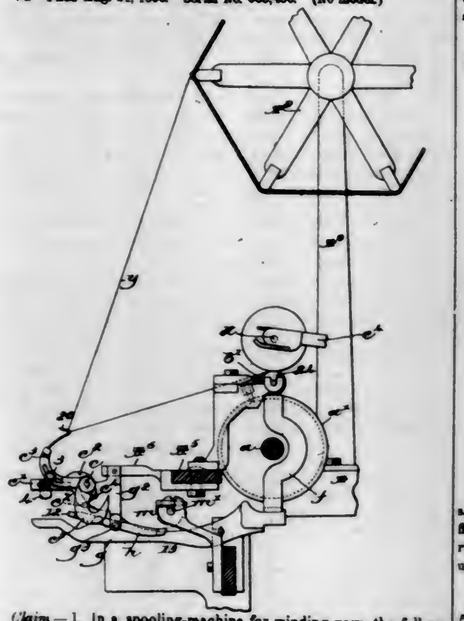
Claim.—1. A series of arms having at one end skein-holders d^2, and at their other ends pins d'^2, the disk or spider having an elongated hub on which said arms are pivoted at *d* between their ends, and the plate having a series of spiral slots to receive said end pins d'^2, said plate being mounted on the hub of said disk or spider, combined with a locking device on said hub to cooperate with said plate, the partial rotation of the plate when unlocked enabling all the arms to be ad-

justed simultaneously, the locking of the plate locking all the arms in position; a stud on which said disk is mounted, and an adjustable restraining device coöperating with said disk to restrain its rotation more or less as required, substantially as described.

2. The series of longitudinally-adjustable arms having at one end skein-holders c^3, and at their other ends pins d^3, the disk or spider having an elongated hub on which said arms are pivoted at d between their ends, and the plate having a series of spiral slots to receive said end pins d^3, said plate being mounted on the hub of said disk or spider, combined with a locking device on said hub to coöperate with said plate, the partial rotation of the plate when unlocked enabling all the arms to be adjusted simultaneously, the locking of the plate locking all the arms in position; a stud on which said disk is mounted, and an adjustable restraining device coöperating with said disk to restrain its rotation more or less as required, substantially as described.

3. The foot B, having an upright provided with a bolt, and a reel-carrying arm mounted on said bolt, a friction-washer arranged at one side of said arm, and an adjustable washer arranged at its other side to act as a clamp, combined with means to restrain the rotation of the said adjustable washer whereby said arm may be held in any position in which it may be left, substantially as described.

579,489. SPOOLING-MACHINE. CHARLES S. LORD, Winooski, Vt. Filed Aug. 21, 1896. Serial No. 603,466. (No model.)



Claim.—1. In a spooling-machine for winding yarn, the following instrumentalities, viz: a take-up lever having at one end a thread-eye to hang on the yarn being wound, and at its other end a toe, and a lever adapted to be raised by said take-up lever, and a snarling stop-lever adapted to be moved by said toe on the occurrence of a snarl, combined with mechanism actuated by said snarl-lever to stop the winding operation, substantially as described.

2. In a spooling-machine for winding yarn, the following instrumentalities, viz: a take-up lever provided with a weight and having at one end a thread-eye to hang on the yarn being wound, and at its other end a toe, and a lever adapted to be raised by said take-up lever, and a snarling stop-lever adapted to be moved by said toe on the occurrence of a snarl, combined with mechanism actuated by said snarling stop-lever to stop the winding operation, substantially as described.

3. In a spooling-machine for winding yarn, the following instrumentalities, viz: a take-up lever having at one end a thread-eye to hang on the yarn being wound, and at its other end a toe, and a lever having a weight and adapted to be raised by said take-up lever, and a snarling stop-lever adapted to be moved by said toe on the occurrence of a snarl, combined with mechanism actuated by said snarling stop-lever to stop the winding operation, substantially as described.

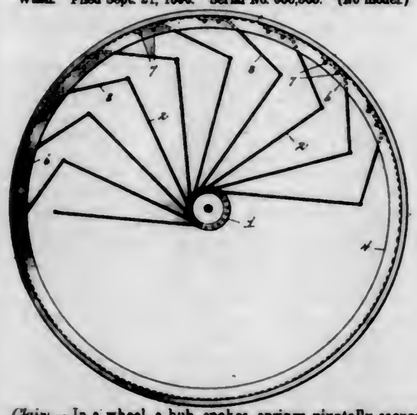
4. In a spooling-machine for winding yarn, the following instrumentalities, viz: a take-up lever heavier at its outer end and provided with an open yarn-receiving eye provided with a cast-off portion 20, combined with a reel, and a traversing yarn-guide, whereby when the said take-up lever is raised to a definite height it will discharge the yarn, substantially as described.

5. In a spooling-machine for winding yarn, the following instrumentalities, viz: a take-up lever heavier at its outer end and provided with an open thread-eye having a cast-off portion, and having at its opposite end a toe, combined with a snarling stop-lever adapted to be struck by the said take-up lever, and with stop-motion devices actuated by the said snarling stop-lever, to operate, substantially as described.

6. In a spooling-machine, a reel, a winding-roll, a rotating drum, a lever having attached devices to remove the winding-roll from contact with said drum, a traversing yarn-guide, means to actuate it, a leg, leg-lever, and a rotating stop-wheel, combined with a take-up lever having at one end an eye to hang on the yarn between the traversing yarn-guide and the said reel, and having at its opposite end a toe, a weighted lever to put an increased amount of strain on the yarn, and a snarling stop-lever acted upon by the said take-up lever after raising the said weighted lever, said snarling stop-lever actuating said leg-lever, as and for the purposes set forth.

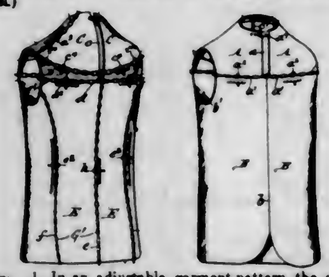
7. In a spooling-machine, a reel and a traversing yarn-guide, combined with a pivoted take-up lever having at one end an open eye to hang on the thread between the said reel and yarn-guide, and with an adjustable weight on said lever, whereby adjustment of the weight enables the tension on the yarn to be varied as required, substantially as described.

579,490. BICYCLE-WHEEL. JOHN A. MAGNUSSON, Tacoma, Wash. Filed Sept. 21, 1896. Serial No. 606,563. (No model.)



Claim.—In a wheel, a hub, spokes, springs pivotally secured to said spokes, an annular channel-rim, pins extending between the flanges of said rim, between which pins and the outer portion of the rim the outer end portions of the springs are located, and the tire upon said rim, substantially as described.

579,491. ADJUSTABLE GARMENT-PATTERN. AUGUSTUS MEAD, Niagara Falls, N. Y. Filed Feb. 20, 1896. Serial No. 579,966. (No model.)



Claim.—1. In an adjustable garment-pattern, the combination with the lower flexible pattern-sections, of two upper flexible pattern-sections separated from each other by a vertical division and from the lower sections by a horizontal division extending across the pattern from one armhole to the other, said upper sections being connected at their lower edges with the upper edges of said lower sections by horizontal slides, whereby each upper section can be bodily shifted horizontally on the adjacent lower section, substantially as set forth.

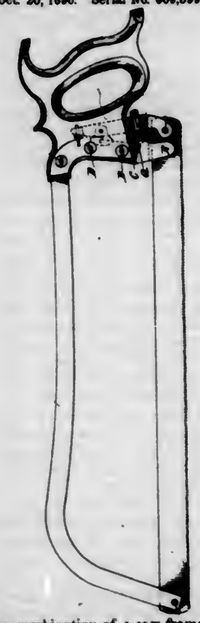
2. In an adjustable garment-pattern, the combination with two upper flexible sections separated from each other by a vertical division, of two lower flexible sections separated from said upper sections by a horizontal division extending across the pattern from one armhole to the other and from each other by a vertical division arranged in the vertical center line of the pattern, said lower sections being connected at their upper horizontal edges with said upper sections by horizontal slides, and with each other in the vertical center line of the pattern by vertical slides, whereby each lower section can be bodily shifted in a vertical direction and each upper section can be bodily shifted in a horizontal direction, substantially as set forth.

3. In an adjustable garment-pattern, the combination with the lower rear sections, of intermediate sections having horizontal lower edges which are connected by horizontal slides with the upper edges of said lower sections, and upper sections having their lower edges curved substantially concentric with the shoulder-points and connected by curved slides with the correspondingly-curved upper edges of said intermediate sections, substantially as set forth.

4. In an adjustable garment-pattern, the combination with the lower rear sections and the back-skirt sections, of two front-skirt sections arranged on opposite sides of the back-skirt sections, and horizontal adjusting-slides which connect the front-skirt sections with the lower sections and which permit the front-skirt sections to be adjusted horizontally toward and from the back-skirt sections, substantially as set forth.

5. In an adjustable garment-pattern, the combination with two sections separated by a seam or division, of a cord secured lengthwise to the edge of one of said sections and a clasp secured to the edge of the other section and provided with jaws which embrace said cord, substantially as set forth.

579,492. SAW-FRAME. HENRY L. MORRELL, Brooklyn, N. Y., assignor, by mesne assignments, to the Spiral Tool and Machine Company. Filed Oct. 20, 1896. Serial No. 609,399. (No model.)

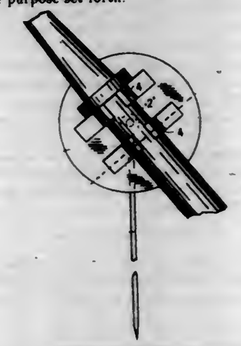


Claim.—The combination of a saw-frame, a portion of which is attached to the handle and is at substantially right angles to the back of the frame, a lever located within the handle and pivoted to the portion of the frame, which is attached to the handle, a thumb-nut and threaded spindle interposed between said portion of the frame, and the lever at or near its end, and a slit or opening in the lower end of the saw-frame through which the saw passes when attached to said lever, for the purposes set forth.

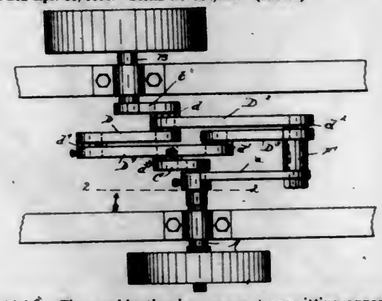
579,493. GARDEN-HOSE HOLDER. CARL NELSON, Marinette, Wis. Filed Aug. 17, 1896. Serial No. 602,902. (No model.)

Claim.—1. In a garden-hose holder, the combination of the disk, the clips struck therefrom, the spindle, and said disk pivoted to said spindle.

2. In a garden-hose holder, the combination of the disk, the spring-clips secured thereto, the ears formed integral with and standing at an angle to the rim of said disk, the aperture formed through the center of said disk, the spindle, the eye on the end of said spindle, the bolt adapted to be passed through said aperture and eye, the thumb-nut adapted to be screwed upon said bolt, and the end of the spindle opposite said eye being sharpened to a point, substantially as and for the purpose set forth.

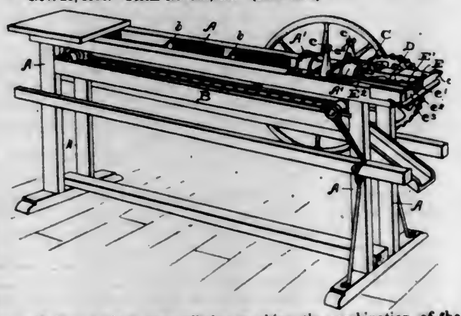


579,494. MECHANICAL MOVEMENT. WILLIAM PARFREY, New York, N. Y., assignor of one-third to Joseph H. Goldbacher, same place. Filed Apr. 10, 1896. Serial No. 586,975. (Model.)



Claim.—The combination in a power-transmitting apparatus of a driving-shaft, a power-transmitting shaft, a crank on each of said shafts, four separate links which are pivotally connected at their ends, and a supplemental link pivotally connected with one of the said four links centrally thereof, said four links being adapted to be connected with the power-shaft, substantially as shown and described.

579,495. CORN-SPLITTING MACHINE. ROBERT E. POINDEXTER, Indianapolis, Ind., assignor to Emmasetta Hicks, same place. Filed Nov. 25, 1896. Serial No. 613,458. (No model.)



Claim.—1. In a corn-splitting machine, the combination, of the mechanism for feeding the ears of corn along, the splitting-spear mounted to be adjusted transversely in relation to the said ears, and means for effecting said adjustment, substantially as set forth.

2. In a corn-splitting machine, the combination, of the feeding devices, the splitting-spear mounted to be adjusted transversely, and means for adjusting said spear automatically, substantially as set forth.

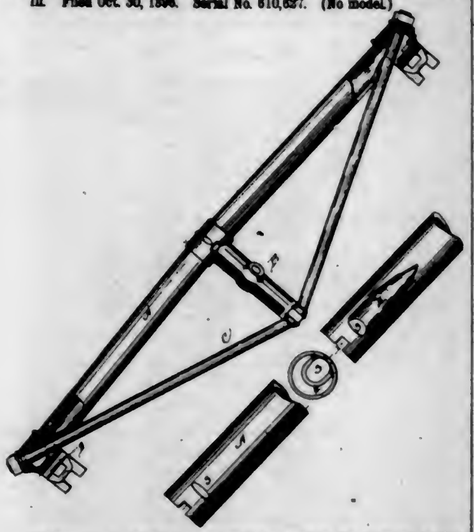
3. In a corn-splitting machine, the combination, of the mechanism for feeding the ears of corn forward, a spring-mounted top guide, a splitting-spear mounted on an adjustable base, and a connection between said base and said guide, whereby as said guide is raised or lowered said base and spear are also raised or lowered, substantially as set forth.

4. In a corn-splitting machine, the combination, of the feeding mechanism, the splitting-spear mounted on a base hinged at one side of said spear, and a lever connected to said base at its other side for operating it, substantially as set forth.

5. In a corn-splitting machine the combination, of the feeding-chain, the adjustable guide, the splitting-spear, the hinged base on which said spear is mounted, the operating-lever connected to said base at or near one end, and to the guide at its other, substantially as set forth.

6. The combination of the feeding mechanism, the spring-mounted guide, the hinged base carrying the splitting-spear, and the operating-lever connected to said base and held to said guide by a spring, substantially as set forth.

579,496. BRAKE-BEAM. HENRY B. ROSENCRANS, Kalamazoo, Mich., assignor to the Chicago Railway Equipment Company, Chicago, Ill. Filed Oct. 30, 1896. Serial No. 610,637. (No model.)



Claim.—1. A tubular compression member for trussed brake-beams, said member having slots adjacent to its ends for the passage of the ends of the tension member and the preservation of the end bearing of the compression member, and having the metal surrounding the inner edges of said slots turned from the periphery of the compression member to afford an increased bearing for said tension member; substantially as and for the purposes specified.

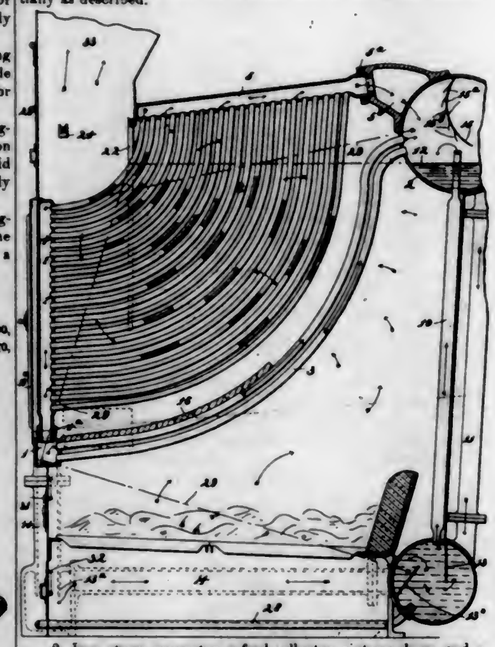
2. A tubular compression member for trussed brake-beams, said member having slots adjacent to its ends for the passage of the tension member, and extending from the inner margin of each of said slots a depression or tapering seat for the tension member, the vertex of said seat being toward the center of said compression member, substantially as and for the purposes specified.

3. A tubular brake-beam having an oval slot adjacent to its end the long diameter of the slot being transverse of the member, and an inclined depression to the inner side of said slot, substantially as and for the purposes specified.

4. In a brake-beam, the combination of a compression member, a strut or post, and a tension member, the compression member having slots adjacent to its ends for the passage of the tension member, and to the inner side of said slots provided with tapering depressions or seats for the tension member, the apices of said tapering seats being toward the strut or post; substantially as and for the purposes specified.

579,497. STEAM-GENERATOR. JOHN SAMPSON, London, England. Filed July 1, 1896. Serial No. 597,773. (No model.)

Claim.—1. In a steam-generator, a feed-collector, a steam-drum, a number of interchangeable sections or elements connecting said feed-collector and steam-drum and each comprising a vertical or inclined header connected to said feed-collector, a horizontal or inclined header connected to said steam-drum and curved heating-tubes connecting said headers, and an uptake having its lower inlet end for hot gases located between the adjacent ends of the header, substantially as described.



2. In a steam-generator, a feed-collector, a steam-drum, and a number of interchangeable sections or elements and furnace-crown tubes connecting said feed-collector and steam-drum, said sections or elements each comprising two headers connected by a series of curved heating-tubes, substantially as described.

3. A steam-generator comprising a feed-collector, a steam-drum, curved tubes connecting said feed-collector and steam-drum and arranged to form the crown and one side of the furnace, a number of interchangeable sections or elements each comprising a vertical or inclined header connected to said feed-collector, a horizontal or inclined header connected to said steam-drum and a number of curved tubes connecting the two headers, the vertical headers being arranged close together so as to form part of the front of the generator and the horizontal or inclined headers being also arranged close together so as to form the crown of the generator, and tubes located at the opposite side of said furnace and serving to connect said feed-collector and steam-drum substantially as described.

4. A steam generator comprising a feed-collector arranged at one side of the furnace, a steam-drum and sediment-chamber arranged one above the other at the opposite side of said furnace, interchangeable sections or elements connecting said feed-collector and steam-drum and each comprising two headers connected by curved heating-tubes, and tubes connecting said feed-collector and steam-drum with said sediment-chamber, substantially as described.

5. A steam-generator comprising a feed-collector arranged at one side of the furnace, a steam-drum and sediment-chamber arranged one above the other at the opposite side of said furnace, interchangeable sections or elements connecting said feed-collector and steam-drum and each comprising two headers connected by curved heating-tubes, furnace-crown tubes arranged to connect said feed-collector with said steam-drum, a wall of tubes arranged opposite to the furnace-crown tubes and said steam-drum and sediment-chamber, and tubes connecting said feed-collector and sediment-chamber, substantially as described.

6. In a steam-generator, the combination with a lower feed-collector, an upper steam-drum, and heating-tubes connecting them, of two connected sediment-chambers provided with baffles and arranged one below said feed-collector and the other below said steam-drum, and tubes connecting said sediment-chambers with said feed-collector and steam-drum, substantially as described.

7. In a steam-generator, the combination with heating-tubes arranged in parallel vertical rows, of baffles extending down between said vertical rows of tubes and located between the furnace and uptake, and means for adjusting the position of said baffles substantially as described for the purpose specified.

8. In a steam-generator, the combination with a feed-collector, a steam-drum, and a number of interchangeable sections or elements connecting said feed-collector and steam-drum and each comprising two headers arranged at an angle to each other and connected by curved heating-tubes, arranged in parallel vertical rows, of baffles in the form of bars suspended between said rows of tubes, a shaft whereon said bars are fixed, and means for partly rotating said shaft with baffles, substantially as described for the purpose specified.

9. In a steam-generator having headers connected by curved water-tubes arranged in parallel vertical rows, a smoke-box provided with bearings arranged eccentric to the curve of said tubes and adapted to receive a brush for cleaning the exteriors of said tubes, substantially as described.

10. In a steam-generator the combination with a feed-collector, a steam-drum, and a number of interchangeable sections or elements connecting said feed-collector and steam-drum and each comprising two headers arranged at an angle to each other and connected by curved heating-tubes, of a smoke-box provided at opposite sides with bearings arranged eccentric to the curve of said tubes, a compound brush comprising a shaft mounted in said bearings and carrying a number of bars provided with radiating wires or bristles and arranged to extend down between the rows of curved heating-tubes, and means for operating said brush, substantially as described for the purpose specified.

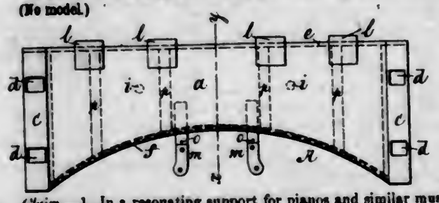
11. In a steam-generator having a number of rows of heating-tubes arranged at different levels and through which water flows, and a water vessel to which the lower inlet ends of said tubes are fixed, conical nozzles secured in the lower ends of some of the lower rows of tubes so as to be covered or inclosed by said water vessel and adapted to regulate the flow of water through the various tubes, substantially as described.

12. In a steam-generator having a number of rows of heating-tubes arranged at different levels and through which water flows, and a water vessel to which the lower inlet ends of said tubes are fixed, of conical nozzles secured in the lower ends of some of the lower rows of tubes so as to be covered or inclosed by said water vessel and each having a gap in its lower part whereby water can drain from the corresponding tube into said water vessel, substantially as described for the purpose specified.

13. In a steam-generator the combination with a steam-drum having a number of water-tubes delivering into its upper part of a baffle comprising a curved perforated plate 15 arranged opposite the inlets for jets of mixed water and steam from said tubes and extending from the top toward the bottom of said drum, and curved plates 15^b secured one above the other to said plate and overlapping the perforations therein, substantially as described and shown for the purpose specified.

14. A steam-generator comprising a feed-collector, a steam-drum, furnace-crown tubes connecting said feed-collector and steam-drum, a number of interchangeable sections or elements comprising upper and lower headers connected respectively with said feed-collector and steam-drum and curved heating-tubes connecting the headers, a sediment-chamber with baffles arranged below said steam-drum, a wall of tubes arranged at the side of the furnace opposite to the furnace-crown tubes and connecting the steam-drum with the sediment-chamber, the upper ends of these tubes extending above the water-level in said steam-drum, downcast tubes located outside the boiler-casing and connecting the lower portion of said steam-drum with the upper portion of said sediment-chamber, and pipes connecting said sediment-chamber with said feed-collector, substantially as described.

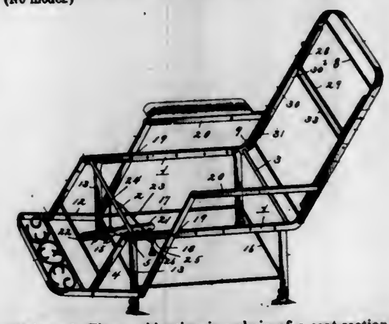
579,498. RESONATING SUPPORT FOR PIANOS. HERMANN R. SCHREIBER, London, England. Filed Dec. 11, 1896. Serial No. 615,358. (No model.)



Claim.—1. In a resonating support for pianos and similar musical instruments, the combination with the end beams $c\,c$ having recesses therein to receive the casters of the instrument, and of such size that the casters themselves will not touch said end beams when the instrument rests thereon; the back strip e having its ends secured to said end beams, and closing the back of the resonator-box; the front strip f also secured at its ends to said end beams, and curved inwardly in such a manner as to conform to the shape of the instrument, and to not interfere with the feet of the performer: the upper and lower sounding-boards a and g secured upon said strips and end beams, and both cut away at their forward edges to conform to the curve of said front strip f; a plurality of transverse stays secured across the under side of the upper sounding-board a; sound-posts mounted between said upper and lower sounding-board; and casters provided upon said end beams, substantially as described.

2. In a resonating support for pianos and similar musical instruments, the combination with the end beams $c\,c$ having recesses therein to receive the casters of the instrument, and of such size that the casters themselves will not touch said end beams when the instrument rests thereon: the back strip e having its ends secured to the said end beams, and closing the back of the resonator-box; the front strip f also secured at its ends to said end beams, and curved inwardly in such a manner as to conform to the shape of the instrument, and to not interfere with the feet of the performer: the upper and lower sounding-boards a and g secured upon said strips and end beams, and both cut away at their forward edges to conform to the curve of said front strip f; a plurality of transverse stays secured across the under side of the upper sounding-board a; sound-posts mounted between said upper and lower sounding-board: casters provided upon said end beams: and a pair of auxiliary pedals pivoted within the front of said resonator-box, and means for connecting said auxiliary pedals to the pedals on the instrument, substantially as described.

579,499. RECLINING-CHAIR. JACOB S. SHAPIRA and DAVID H. SHAPIRA, Montreal, Canada. Filed Jan. 30, 1896. Serial No. 577,399. (No model.)

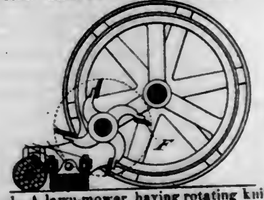


Claim.—1. The combination, in a chair, of a seat-section having side bars, pivotal back and foot sections, the former being of looped construction with its side arms pivotally connected to the rear extremities of the side bars of the seat-section and adapted to be arranged in a common plane therewith, connections between the back and foot sections whereby they are simultaneously movable, locking devices connected with one of said sections to secure both in the desired position, and a head-rest having side bars pivotally mounted upon the inner surfaces of the side arms of the back-section and adapted to fold downwardly between the planes of said side arms, and jointed side links connecting the outer ends of the side bars of the head-rest with the side arms of the back-section at intermediate points, said links being adapted to fold in the plane of the side arms of the back-section, substantially as specified.

2. The combination with a chair-arm having a cap or cover, of a folding table consisting of lazy-tongs adapted to be folded beneath and concealed by said cap or cover, substantially as specified.

3. The combination with a chair-arm, of a folding table consisting of lazy-tongs, and a cap or cover for the chair-arm carried by said lazy-tongs and adapted when the table is folded to cover and conceal the same, substantially as specified.

579,500. SHARPENER FOR LAWN-MOWERS. LEWIS H. SLAGHT, Waterford, Canada, assignor to ROXA Slaght, same place. Filed Sept. 28, 1896. Serial No. 607,142. (No model.)



Claim.—1. A lawn-mower, having rotating knives, and adapted to receive a stationary shear-plate or lower knife to coact with said

rotating knives, and means for adjusting the shear-plate, in combination with a bar carrying a suitable sharpening material, said bar being constructed and arranged to occupy the position usually held by said stationary shear-plate and be adjusted by the same means, substantially as and for the purpose specified.

2. A lawn-mower, having rotating knives, and adapted to receive a stationary shear-plate or lower knife to coact with said rotating knives, and pivots and adjusting-screws for said shear-plate, in combination with a wooden bar carrying a suitable sharpening material and arranged to occupy the position usually held by said shear-plate or lower knife, said bar having metal ends arranged to receive said pivots and coact with said adjusting-screws, substantially as and for the purpose specified.

579,501. SIPHON. JAMES B. SMITH and ADOLPHE L. JULIENNE, Jackson, Miss. Filed Feb. 17, 1896. Serial No. 579,576. (No model.)



Claim.—1. A siphon consisting of a frame provided with clamping-jaws adapted to receive the flexible ends of a siphon-tube, and lever mechanism for simultaneously operating said jaws, as set forth.

2. In a siphon, a frame provided with a tube guide or support, two tube clamps and compressors, and a lever mechanism mounted on said frame and adapted to simultaneously operate said clamps or compressors, as set forth.

3. In a siphon, a frame provided with two clamps or compressors adapted to receive a flexible siphon-tube and mechanism mounted on the frame and connecting said clamps or compressors for simultaneous operation, substantially as set forth.

4. A frame for siphons provided with handles one of which is movable, tube clamps or compressors, for the two legs of a flexible siphon-tube and connections between the movable handle and the said clamps or compressors, substantially as set forth.

5. The combination with a tube-carrying frame having depending arms terminating in jaws, and a handle thereabove, of a clamping-lever on each of said arms and provided with clamping-jaws to compress the tube against the jaws on said frame, and an operating-lever pivoted to the upper portion of the frame, linked to said clamping-levers and having a handle extending along the frame-handle substantially as set forth.

6. The combination with a tube-carrying frame having depending arms terminating in jaws, the clamping-levers terminating at their lower ends in jaws registering with those on the frame and a lever mechanism connecting the upper ends of said clamping-levers, substantially as set forth.

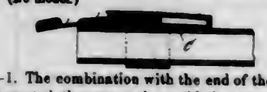
7. The combination with a ∩-shaped frame having a tube guide or support, and a fixed and a pivoted handle, of clamping-levers pivoted between their ends to the depending arms of the frame; and the lower ends of the levers and arms of the frame forming tube clamping or compressing jaws, and links connecting the upper ends of said clamping-levers to the operating handle or lever substantially as set forth.

8. The combination with a frame, a ∩-shaped flexible tube mounted thereon, a fixed and a movable spring-pressed handle or lever on said frame, of clamps or compressors engaging both legs of said tube and operatively connected to the said spring-pressed lever or handle substantially as set forth.

9. The combination with the frame, the ∩-shaped rubber siphon-tube mounted thereon, a fixed and a spring-pressed handle or lever on the frame, and a catch for securing said handles or levers together, of clamping or compressing devices of the two legs of the tube and operative connections between the spring-pressed handle or lever and the clamps or compressors, substantially as set forth.

10. The combination with the ∩-shaped tube-carrying frame having its ends terminating in laterally-projecting clamps, and a fixed and a movable T-shaped spring-pressed handle at the upper end of the frame, clamping-levers pivoted between their ends to the respective legs of the frame and terminating at their lower ends in laterally-projecting jaws registering with those on the frame, and links connecting the upper ends of the clamping-levers with the opposite ends of the head of the operating lever or handle substantially as set forth.

579,502. MUZZLE ATTACHMENT FOR SCATTERING SHOT. CHARLES J. STARERS, Brooklyn, N. Y. Filed Mar. 19, 1896. Serial No. 583,969. (No model.)

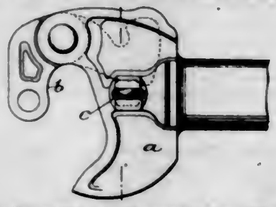


Claim.—1. The combination with the end of the barrel of a gun, of a sleeve mounted thereon, and provided at one side with an oblong casing, the outer end of which is open and a spring which is mounted in said casing, and adapted to be adjusted therein, and the end of which projects and is curved inwardly, so as to come in contact with the projectile, substantially as shown and described.

2. The combination with the end of the barrel of a gun, of a sleeve mounted thereon, and provided at one side with an oblong casing, the outer end of which is open and a spring which is mounted in said casing, and adapted to be adjusted therein, and the end of which projects and is curved inwardly, so as to come in contact with the projectile, a transverse spring mounted therein for retaining the first-mentioned spring in place, notches formed in the sides of the casing with which the retaining-spring engages, substantially as shown and described.

3. The combination with the end of the barrel of a gun, of a sleeve mounted thereon, and provided at one side with an oblong casing, the outer end of which is open and a spring which is mounted in said casing, and adapted to be adjusted therein, and the end of which projects and is curved inwardly, so as to come in contact with the projectile, a transverse spring mounted therein for retaining the first-mentioned spring in place, notches formed in the sides of the casing with which the retaining-spring engages, and said casing being provided with a bottom plate which conforms in cross-section to the shape of the barrel of the gun, and the adjustable projectile-spreading spring being mounted on said plate and adapted to slide thereon, and said plate being slightly convex longitudinally on its outer surface, substantially as shown and described.

579,503. CAR-COUPLING. CHARLES H. TAYLOR, South Orange, N. J. Filed Aug. 24, 1896. Serial No. 603,719. (No model.)



Claim.—1. In a car-coupler, the combination with the draw-head and the coupling device, of a locking device supported within an opening in the draw-head for engaging with said coupling device, and provided with a projection thereon for engaging with a part of the draw-head when the locking device is in a lowered position, the said opening in the draw-head being of sufficient width or size as to allow of a lateral movement of the locking device therein to release its projection from engagement with the draw-head, substantially as and for the purpose set forth.

2. In a car-coupler, the combination with the draw-head and the coupling device, of a vertically-movable locking-bolt supported within an opening in the draw-head for engaging with said coupling device, and provided with a projection thereon for engaging with a stop projection in the draw-head, the said opening in the draw-head being of sufficient width or size as to allow a lateral movement of the locking-bolt therein, whereby the projection thereon may be moved to and from a position for engaging with the stop projection on the draw-head, substantially as and for the purpose set forth.

3. In a car-coupler, the combination with the draw-head and a pivoted coupling hook or knuckle, of a vertically-movable locking-bolt supported within an opening in the draw-head and provided with a projection thereon for engaging with a stop projection within said opening in the draw-head, the engaging surfaces of said projections being formed at an incline, and the said opening in the draw-head being of sufficient width as to allow of a lateral movement of the locking-bolt therein, whereby the projection thereon may be moved to and from a position for engaging with the said stop projection, substantially as and for the purpose set forth.

579,504. CURTAIN-FIXTURE. THOMAS U. WALTER, Huntington, W. Va., assignor of one-half to F. M. Frazier and C. D. Eborsole, Birmingham, Ala. Filed Mar. 14, 1896. Serial No. 583,191. (No model.)



Claim.—1. In a curtain-fixture the combination with the spring-rolled curtain and the casing having guideways in front of the pull-line of the curtain, said guideways having the edge adjacent the curtain made straight and the opposite edge provided with rack-teeth, of the rock-bar F having lock-dogs G secured thereto, said dogs having each a tooth portion g^2 and a fulcrum or bearing portion g' all arranged substantially in the manner shown and for the purposes described.

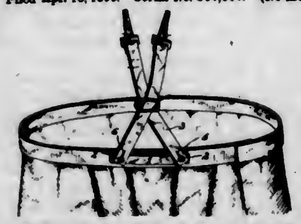
2. In a curtain or blind fixture, the combination with the window-casing having guideways and a spring-rolled curtain, of a rocking bar attached to the lower end of said curtain, the ends of said bar, traveling in the guideways and carrying dogs adapted to engage the side of the casing and a guide carried also at each end of the bar to engage the casing and hold the dogs free of engagement of the sides of the guideways when the bar and curtain are being moved up and down substantially as shown and described.

3. In a curtain or blind fixture, the combination with the casing having guideways provided with rack-faces, of a spring-rolled curtain, the bar at the end of said curtain, the dogs rigidly connected to the said bar at one side of the center of said bar, whereby the tension of the curtain will throw said dogs into engagement with the rack-faces, said dogs being disengaged by rocking the bar, said dogs carrying guide-shoulders at their opposite ends to hold the dogs out of engagement while the bar is held in its rocked position and moved up or down substantially as shown and described.

4. In a curtain or blind fixture, the combination with the casing having guideways provided with rack-faces, of the curtain and bar, the dogs mounted upon the ends of the bar, and provided with a guide-shoulder adapted to bear against the guideway to hold the nose of the dog out of engagement with the rack-face substantially as shown and described.

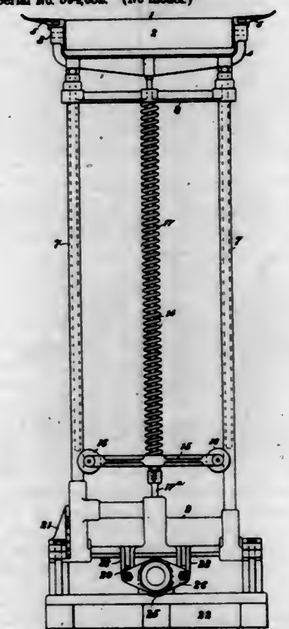
5. In a curtain or blind fixture, the combination with the casing having guideways at each side each guideway having a rack-faced member arranged therein, the spring-rolled curtain, carrying a rigid member at the bottom, the ends of said member traveling in the guideways and carrying locking-dogs, therein, said dogs being rigidly connected with the rigid member and arranged eccentrically or to one side of the center of said member, whereby the tension of the curtain will rock the member and project the dog into engagement with the rack-faced member, said dog carrying a guide-shoulder at the opposite end adapted to bear upon the casing when the member is rocked to disengage the dog from the rack member whereby the curtain can be moved up or down without the dogs contacting with the rack-faced member substantially as shown and described.

579,505. SKIRT-SUPPORTER. ALBERT A. WATTS, Oskaloosa, Iowa. Filed Apr. 10, 1896. Serial No. 587,007. (No model.)



Claim.—The herein-described means for preventing ladies' and misses' skirts from sagging in the rear, consisting of a short strap secured to the rear portion of the waistband of the skirt and having buttons at its ends, stay-straps crossing between their ends and having buttonholes at their lower terminals to receive the buttons of the waistband-strap, metal hooks at the upper ends of the stay-straps to engage with the corset or other convenient garment, and tapering throughout their length and having a transverse slot at one end, and a loop at the point of crossing of the stay-straps, substantially as described.

579,506. CURRENT-COLLECTING DEVICE FOR RAILWAY-VEHICLES. GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed June 8, 1896. Serial No. 594,652. (No model.)



Claim.—1. The combination with a contact-head of an extensible and normally vertical supporting-frame therefor, a base to which said frame is pivoted and means for locking said contact-head in its lowest position, said means being actuated by the movement of the supporting-frame upon its pivots.

2. The combination with a contact-head and a two-part supporting-frame therefor, one of said parts comprising a pair of rods and the other of said parts comprising a pair of tubes in which said rods are located, said rods being longitudinally movable with reference to and guided by said tubes, a spring connecting said parts, a base to which said supporting-frame is pivoted, and means for normally holding the frame in a vertical position.

3. The combination with a contact-head, of a telescoping supporting-frame therefor, one of the parts of which is rigidly connected to said contact-head, a base to which the other part of the frame is pivoted, a spring connecting said parts and guide-rollers on the contact-carrying part and engaging the other of said parts.

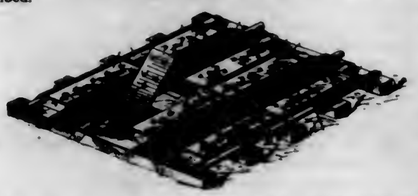
4. The combination with a contact-head and an extensible and normally vertical supporting-frame therefor, a base to which said frame is pivoted and a spring-actuated locking-bolt for locking the two parts of the supporting-frame together, said bolt being moved in opposition to its spring by a projection on the base when the frame is moved in either direction from its vertical position.

5. A current-collecting device for railway-vehicles comprising a contact-head, a longitudinally-extensible supporting-frame, a base to which said frame is hinged, means for locking the frame in vertical position when extended and means for locking the parts of the frame together when inclined in either direction.

579,507. RAILWAY STOCK-GUARD. ZEPH WIGGS, Denton, Tex. Filed Aug. 19, 1896. Serial No. 603,238. (No model.)

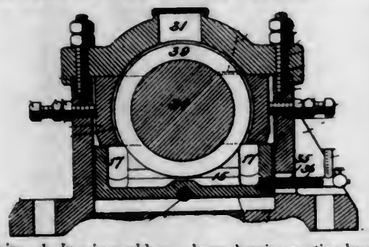
Claim.—1. A railway stock-guard comprising a series of plates or sections, arranged in pairs and provided with smooth outer portions and having projections at their inner portions forming rough surfaces to prevent stock from walking upon the inner portions of the plates, said plates or sections being pivoted between their ends and adapted to have their outer portions engaged and depressed by stock walking upon them, whereby the inner portions of the plates

or sections will be caused to rise, substantially as and for the purpose described.



2. A railway stock-guard comprising angle-bars arranged in pairs at the inner and outer sides of the rails of a track and designed to be secured to the upper faces of the cross-ties, inner and outer transverse rods supported by the angle-plates, and the plates or sections arranged in pairs, pivoted on the outer rods and loosely resting upon the inner ones, said plates or sections being provided with smooth outer portions and roughened inner portions, substantially as and for the purpose described.

579,508. JOURNAL-BOX. JOHN T. WILKIN, Connersville, Ind. Filed Aug. 13, 1896. Serial No. 602,686. (No model.)



Claim.—1. In a journal-box, a lower bearing portion having an intermediate transverse oil-reservoir groove depressed at its ends, opposite end grooves arranged above the reservoir-groove and depressed at their ends and inclined return-grooves leading from the depressed ends of the end grooves to the lower depressed ends of the oil-reservoir groove combined with a shaft or journal arranged in the bearings and an oil-distributing ring mounted for movement with the shaft and within the oil-reservoir groove, substantially as specified.

2. In a journal-box, the combination with a frame comprising bottom and opposite sides, of a bottom quarter-section, means for adjusting the same, opposite side sections resting on the bottom quarter-section, a superimposed cap-section resting on the side sections and binding-screws passing through the cap-section and into the sides of the frame, of a shaft or journal supported within said sections, substantially as specified.

3. In a journal-box, the combination with a frame comprising a bottom and opposite vertical sides, a bottom bearing-section arranged upon the bottom of the frame, opposite side sections arranged upon the bottom section, a cap-section arranged upon the side sections and having its opposite side edges provided with depending flanges engaging the side walls of the frame, binding-screws passing through the cap-section and into the side walls of the frame, and means for independently adjusting the side and bottom sections, of a shaft or journal supported by said sections, substantially as specified.

4. In a journal-box, the combination with a frame comprising a bottom and opposite sides, a lower bearing-section arranged on the bottom and having its under side provided with opposite inclined surfaces, a pair of wedge-shaped blocks arranged between the bottom of the frame and the inclined bearing-surfaces of the bearing-section and a bolt passing through and binding the wedge-blocks together and provided at one end with an adjusting-nut, of opposite side and an upper bearing section, means for adjusting the same independent of the lower section and a shaft or journal inclosed by said sections, substantially as specified.

5. In a journal-box, the combination with a rigid frame comprising a bottom and opposite sides, a pair of blocks arranged upon the bottom and having their upper surfaces reduced toward their inner ends, said blocks being bored in line with each other, a binding-bolt having a nut at one end arranged in the bore, of a superimposed bottom and bearing section, the under side of which is oppositely beveled or inclined to the upper sides of the blocks, opposite side bearing-sections arranged on and supported by the bottom section, means for adjusting the same laterally, a superimposed cap-section supported by the side sections and out of contact with the walls of the frame, and binding-bolts passed through the cap-section into said walls, and a shaft or journal supported by the sections, substantially as specified.

6. In a journal-box, the combination with a frame comprising a base and opposite side walls, a bottom bearing-section carried by the base and provided with an intermediate oil-reservoir groove, opposite end grooves and return-grooves leading from the end grooves to the intermediate groove, and means for adjusting vertically the bottom section, of opposite side bearing-sections and a superimposed cap-section having intermediate grooves forming a continuation of that of the bottom section, said side sections being supported by the bottom section, and said cap-section being supported by the side sections, means for laterally adjusting the side sections, screws for securing the side sections adjustably upon the side walls of the frame, an oil-opening arranged in the cap-section and communicating with the intermediate grooves, and a shaft or journal arranged in the sections and having a distributing-ring mounted for rotation thereon and within the intermediate grooves, substantially as specified.

7. In a journal-box, the combination with the rigid frame comprising the bottom and opposite side walls, the opposite wedge-blocks having registering bores and opposite ends recessed between their side edges, a binding-bolt having an adjustable nut at one end arranged in the bores and connecting the blocks, the nut and head of the bolt being located in said recesses and therefore back of the ends of the frame, a bottom bearing-section having its under surface inclined to conform with the blocks, opposite side sections and a superimposed cap-section, of means for adjustably securing the side and cap sections, and the journal or shaft provided with a distributing-ring adapted to move therewith and in an oil-groove formed in the bottom, side and cap sections, substantially as specified.

8. In a journal-box, the combination with the supporting-frame, the bottom, side and top sections, the same being provided with a continuous groove, and the bottom section with end grooves and return-grooves, of a shaft mounted for rotation in the sections and having an oil-ring fixed thereon to move therewith, and adapted to rotate in the continuous groove, and opposite distributing oil-plates mounted on one of the side sections with their ends in contact with the opposite sides of said ring, substantially as specified.

9. In a journal-box, the combination with adjustable sections arranged within a support and provided with a continuous annular groove and with a longitudinal groove, of a shaft supported by the sections and provided with an oil-ring adapted to move therewith within the groove, and oil-distributing blades supported by one of said sections and adapted to take oil from the ring and distribute the same over the surface of the shaft through the medium of said longitudinal groove, substantially as specified.

579,509. RAILWAY-TIE PLATE. BENJAMIN WOLHAUPTER, Chicago, Ill. Filed Oct. 19, 1896. Serial No. 609,378. (No model.)



Claim.—1. A railway-tie plate formed with a depression below the rail and one or more tie-engaging flanges or projections stamped out of and turned down from the thinner metal formed by reason of said depression, substantially as described.

2. A railway-tie plate formed with a depression below the rail, said plate having a rail-abutting flange on its upper side and one or more tie-engaging flanges on the under side turned down from the thinner metal formed by reason of the depression, substantially as described.

3. A railway-tie plate formed with a depression below the rail and one or more tie-engaging projections of triangular shape stamped from the thinner metal formed by reason of said depression, substantially as described.

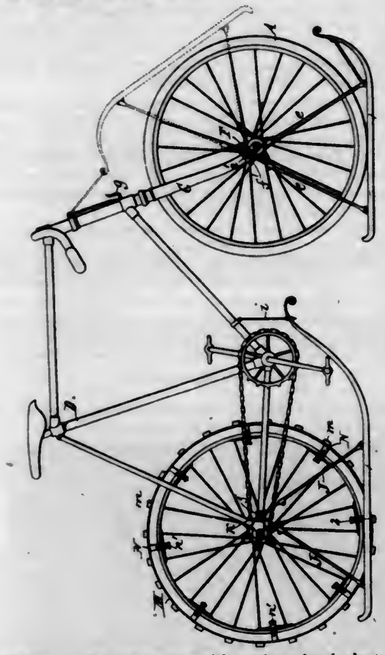
4. A railway-tie plate formed with a depression below the rail said plate having a rail-abutting flange and a series of triangular-shaped depending projections stamped from the thinner metal formed by reason of said depression, substantially as described.

5. A railway-tie plate provided with a depression below the rail said plate having a rail-abutting flange and a series of triangular-shaped depending projections stamped from the thinner metal formed by reason of said depression, one projection being out of transverse alinement with the adjacent one, substantially as described.

6. A railway-tie plate formed with a depression below the rail said depression formed with one or more inclined surfaces and depending tie-engaging projections stamped from the thinner metal formed by reason of said depression, substantially as described.

7. A railway-tie plate formed with a depression below the rail said depression formed with one or more inclined surfaces and triangular-shaped depending tie-engaging projections stamped from the thinner metal formed by reason of said depression, substantially as described.

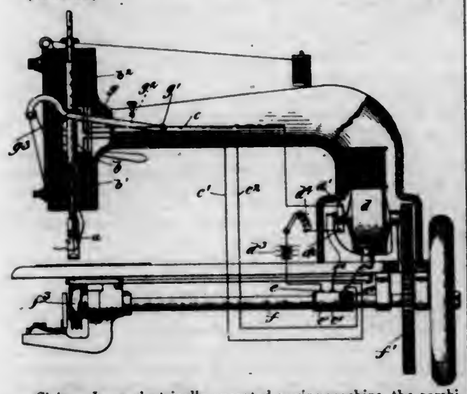
579,510. ICE-VELOCIPEDE. PAUL BIETH, Buffalo, N. Y. Filed Mar. 26, 1896. Serial No. 584,898. (No model.)



Claim.—1. The combination with a gripper-band adapted to be placed around a wheel-tire, of fastening-straps secured to the gripper-band, each of said straps being adapted to pass around the tire and rim of a wheel and provided in its end portions with slots and a clamping-bolt passing through the slots of the strap, substantially as set forth.

2. The combination with a gripper-band adapted to be placed around a wheel-tire, of fastening-straps secured to the gripper-band, each of said straps being adapted to pass around the tire and rim of a wheel and provided in its end portions with slots, a retaining-plate provided with notches in its ends which are adapted to receive the spokes of the wheel and with a slot in its central portion and a clamping-bolt passing through the slots of the strap and retaining-plate, substantially as set forth.

579,511. ELECTRICALLY-OPERATED SEWING-MACHINE. JOHN S. BIGGAR, Chicago, Ill. Filed Jan. 8, 1896. Serial No. 574,688. (No model.)



Claim.—In an electrically-operated sewing-machine, the combination of a needle-holder, a pair of solenoids adapted to reciprocate the same, a rotary shuttle with a shaft upon which said shuttle is mounted, a circuit-controlling switch adapted to control the circuits through said solenoids, and a motor contained within the frame or standard of the machine adapted to rotate said shaft and the shuttle and switch mounted thereon, substantially as described.

579,512. CHAMBER. VICTORIA R. BOELING, Brooklyn, N. Y. Filed July 7, 1894. Serial No. 516,636. (No model.)



Claim.—1. As a new article of manufacture, a chamber consisting of a receptacle having bottom and sides and open at the top, two opposite sides being laterally depressed at or near their middle points, the depressed portions being inclined upwardly and inwardly, as and for the purpose described.

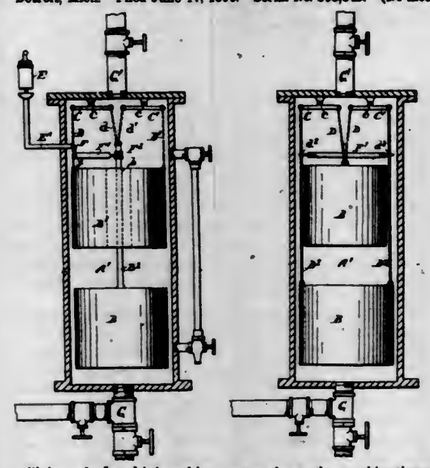
2. A chamber composed of a bottom, with continuous sides or walls at an angle thereto, said chamber having a length axially greater than its width, substantially as described.

3. A chamber axially longer than wide, with sides formed at an angle to the bottom, said sides being depressed at or near the center substantially as described.

4. As a new article of manufacture a chamber axially longer than wide with sides formed at an angle to the bottom, said sides being depressed inwardly at or near the center, said depressions conforming to the outlines of the human leg, said depressions also dividing the chamber into two unequal portions, the superior portion being larger in diameter than the inferior portion, substantially as described.

5. As a new article of manufacture a chamber axially longer than wide with sides formed at an angle to the bottom, said sides being depressed inwardly at or near the center, said depression conforming to the outlines of the human leg and dividing the chamber into two unequal portions, the superior portion being larger in diameter than the inferior portion, and a handle or handles, substantially as described.

579,513. HIGH OR LOW WATER ALARM. JOHN H. BROWNLEE, Detroit, Mich. Filed June 17, 1896. Serial No. 595,845. (No model.)



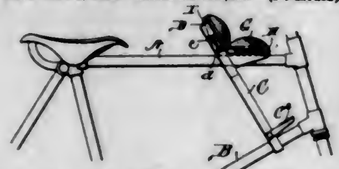
Claim.—1. In a high and low water alarm, the combination with a single water-column, of weights located directly one above the other therewithin and in the same vertical line, two independent eveners within the column fulcrumed intermediate their ends to the top of the column, the ends of each of said eveners connected the one with the lower weight and the other with the upper weight, a signaling device, and a valve actuated by the movement of the weights, substantially as set forth.

2. In a high and low water alarm, the combination with a single water-column, of weights of different gravity, movably supported therewithin one directly above the other and in the same vertical line, two independent eveners within the column fulcrumed to the top thereof, the ends of each of said eveners connected the one with the lower weight and the other with the upper weight, a signaling device, and a valve provided with a bell-crank arm actuated by the movement of the weights, the differences of gravity in the changed rela-

tions of the weights when the water rises or falls within the column causing the lower weight to descend and thereby to sound a signal, substantially as set forth.

3. In a high and low water alarm, the combination with a single water-column, of solid metal weights movably located one directly above the other therewithin and in the same vertical line, two independent eveners within the column fulcrumed to the top of the column, the ends of each of said eveners connected the one to the lower weight and the other with the upper weight, a signaling device, and a valve actuated by the movement of said weights substantially as set forth.

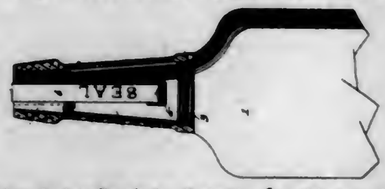
579,514. SEAT FOR BICYCLES. ELBERT A. COLLINS, Chillicothe, Ill. Filed June 3, 1896. Serial No. 594,684. (No model.)



Claim.—1. In a child's seat for a bicycle a bar or bars adapted to be secured to and upon the frame parts A and B of a bicycle, a seat adjustably connected with said bars and means for facilitating the ready attachment and detachment of the bar or bars, all substantially as shown and described.

2. In a child's seat for a bicycle, the bars C, C, provided with the clamping-blocks E, E, and the block D and the slots *c*, *c*, and the seat G mounted upon the spring H, and connected with the bar, all substantially as described and shown.

579,515. SEALING DEVICE FOR BOTTLES. HENRY L. FERRIS, Harvard, Ill. Filed Nov. 21, 1896. Serial No. 612,981. (No model.)



Claim.—1. A sealing device for bottles comprising a seal-strip engaging with opposite sides of the bottle-neck and having a fracturable section lying across the top of the cork, and a transparent protective sleeve incasing the bottle-neck and seal-strip and permanently fastened to the bottle-neck, substantially as set forth.

2. In a sealing device for bottles, the combination with the bottle-neck and the cork therein, of a continuous flexible seal-strip arranged exterior to the bottle-neck and secured at its extremities thereto, said seal-strip having a fracturable section lying across the top of the cork, and a glass sleeve permanently secured to the bottle-neck and incasing therein said neck and the opposite side portions of the seal-strip, substantially as set forth.

3. In a sealing device for bottles, the combination of a bottle-neck provided with an exteriorly-threaded portion adapted to be filled with cement material, and a pair of diametrically opposite notches, a continuous flexible seal-strip having hook extremities engaging with said notches and an intermediate fracturable section lying directly across the cork in the bottle-neck, and a glass sleeve having an interiorly-threaded portion engaging the exterior threads of the bottle-neck and permanently incasing therein said neck and the opposite side portions of the strip, substantially as set forth.

579,516. BOTTLE. ALBERT L. HOWELL, Baton Rouge, La., assignor of one-half to Alfred B. Singletary. Filed Sept. 26, 1896. Serial No. 607,123. (No model.)



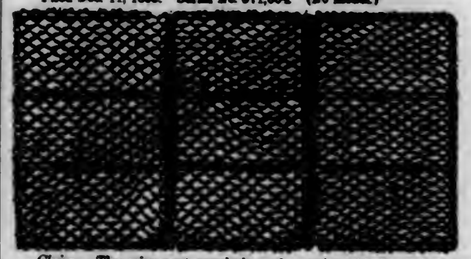
Claim.—1. A bottle comprising a hollow body portion which is provided with a neck having an open mouth, and a bottom or base portion provided with a filling-passage which communicates with the interior of the bottle, the mouth and filling-passage being connected by an air and liquid passage, substantially as described.

2. A bottle provided with a measuring-bulb at its bottom which communicates with the atmosphere on the outside of the bottle, and liquid and air escape passages which communicate with the bulb and mouth of the bottle, substantially as described.

3. A bottle comprising a hollow body portion which is provided with a neck having an open mouth, and a bottom or base portion provided with a measuring-bulb and a filling-passage which extends from the bulb to the outside of the bottle, the bulb and mouth of the bottle being connected by a passage, and the bulb also communicating with the interior chamber of the bottle, which chamber is closed at its upper end, substantially as described.

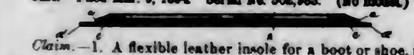
4. A bottle comprising a hollow body portion which is provided with a neck having an open mouth, and a bottom or base portion provided with a measuring-bulb and a filling-passage which extends from the bulb to the outside of the bottle, the bulb and mouth of the bottle being connected by a passage, and the bulb also communicating with the interior chamber of the bottle, which chamber is closed at its upper end, and a sealing-plug in the filling-passage which constitutes a part of the body of the bottle, substantially as described.

579,517. WIRE MAT. ANDREW W. KEITEL, New Castle, Pa. Filed Dec. 11, 1895. Serial No. 571,804. (No model.)



Claim.—The wire mat consisting of a series of independent sections, with the spiral wires forming the body portion thereof adapted to abut against each other and rigidly secured by stay-rods, the ends of said spiral wires being connected to said stay-rods, said sections being secured together by the spiral wire of one section being interwoven with the corresponding wire of the opposite section, and said sections also having interwoven spiral-wire ends, all as shown and described.

579,518. SHOE-SOLE. CHARLES H. KRIPPENDORF, Cincinnati, Ohio. Filed Mar. 9, 1894. Serial No. 502,963. (No model.)



Claim.—1. A flexible leather insole for a boot or shoe, provided with a channel, a channel-lip, and a reinforcing-sheet of textile material cemented over the entire surface surrounded by the channel, tucked into said channel and extending from the outer side of the channel-lip and secured to the sole at the base of said lip, substantially as described.

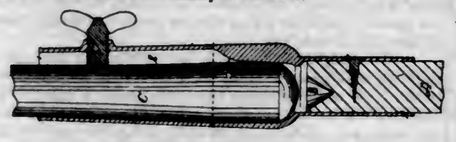
2. An insole consisting of a flexible leather A, provided with a channel, a channel-lip *a*, and a thin unchanneled marginal lip *a'*, and a reinforcing-sheet of textile material cemented over the entire surface bounded by the channel, tucked into said channel and from the outer side of the channel-lip and secured to the sole at the base of said lip, substantially as described.

3. An insole consisting of a flexible leather A, provided with a channel, and a channel-lip, and a reinforcing-sheet of textile material cemented over the entire surface bounded by the channel and formed with an angular tuck, said reinforcing material extending from the outer side of the channel-lip and secured to the sole at the base of said lip, substantially as described.

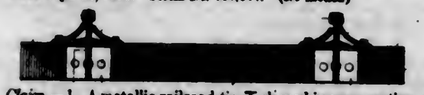
579,519. EXTENSION-HANDLE FOR BROOMS OR DUSTERS. EDGAR O. LOEBER and GEORGE F. HARVAT, Los Angeles, Cal. Filed June 12, 1896. Serial No. 595,230. (No model.)

Claim.—1. In an extension-handle for brooms and dusters a socket-piece adapted to be fastened to the end of a stick and provided in one end with a socket, and a clamping device extending into the socket through one side of the wall of the socket; the inner face of the wall of the socket at the bottom of the socket below the screw being sloped toward the axis of the socket, and the opposite inner wall being inwardly inclined toward the axis of the socket and from the bottom to the mouth of the socket.

2. The socket-piece provided with a socket for the end of the handle of a broom or duster, and a clamping device in one side of the socket, the wall of the socket near the bottom of the socket sloping downward and inward in reverse curves below the screw and partially around the socket, and above such curves tapering to the mouth of the socket substantially as set forth.



579,520. RAILROAD-TIE. ROBERT P. MCRAE, St. Albans, W. Va. Filed Sept. 26, 1896. Serial No. 607,077. (No model.)

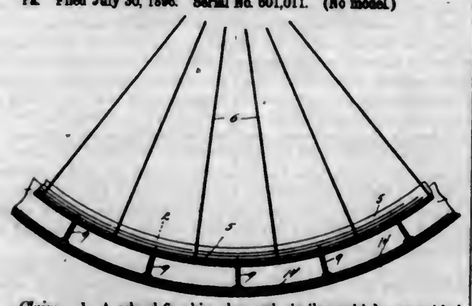


Claim.—1. A metallic railroad-tie, T-shaped in cross-section, and bracing or supporting plates secured to the upright portion thereof and to each other, whereby longitudinal displacement of the tie and bending of the upper flanges are prevented.

2. A metallic railroad-tie, T-shaped in cross-section, and bracing or supporting plates L-shaped in cross-section, bolted, riveted or otherwise secured to one another and to the upright portion of said tie, whereby longitudinal displacement of the tie and a bending of the upper flanges are prevented.

3. A metallic railroad-tie, T-shaped in cross-section, having rail-securing devices secured to the upper surface thereof adjacent to its outer ends, the said rail-securing devices consisting of blocks arranged in pairs having inwardly-projecting flanges thereon and cut-away portions at their lower ends between which the bases and webs of the rails are adapted to fit, and bracing or supporting plates secured to the upright portion of said tie and to each other just beneath the said rail-securing devices, for preventing longitudinal displacement of the tie and a bending of said flanges, substantially as and for the purpose described.

579,521. TIRE FOR BICYCLES. JONAS PARKER, Williamsport, Pa. Filed July 30, 1896. Serial No. 601,011. (No model.)



Claim.—1. A wheel for bicycles and similar vehicles, provided with a rim which is segmental in cross-section, on its outer surface, and a tire which is similarly formed, said tire being connected with said rim by means of bolts which pass through and are free to move in said rim, and said bolts being provided at their outer ends with cross-heads to which are secured a ring or band of spring metal, and a bearing of rubber or similar material, which is placed between said ring or band of spring metal and said tire substantially as shown and described.

2. A wheel for bicycles and similar vehicles, provided with a rim which is segmental in cross-section, on its outer surface, and a tire which is similarly formed, said tire being connected with said rim by means of bolts which pass through and are free to move in said rim, and said bolts being provided at their outer ends with cross-heads, to which are secured a ring or band of spring metal, and a bearing of rubber or similar material, which is placed between said ring or band of spring metal and said tire, said bolts being composed of two separate parts which are held together by a collar mounted thereon, and each of said parts being provided at their outer ends with an outwardly-directed arm, having an inwardly-directed projection by which said ring or band of spring metal is secured in place, substantially as shown and described.

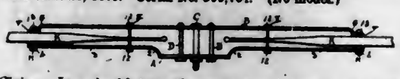
3. The combination with a wheel for bicycles and similar vehicles, provided with a rim which is concave on its inner surface, and convex on its outer surface, of a tire which is similarly formed and the sides of which directed inwardly, said tire being connected with said rim by means of bolts which are free to move in said rim, and which are provided at their outer ends, with cross-heads to which is secured a ring or band of spring metal, and a suitable bearing between said ring or band of spring metal, and said tire, substantially as shown and described.

4. The combination with a wheel for bicycles and similar vehicles, provided with a rim which is concave on its inner surface, and convex on its outer surface, of a tire which is similarly formed, and the sides of which are directed inwardly, said tire being connected with said rim by means of bolts which are free to move in said rim, and which are provided at their outer ends with cross-heads to which is secured a ring or band of spring metal, and a suitable bearing between said ring or band of spring metal, and said tire, said bearing being composed of rubber or similar material, and being secured in place and to said tire, substantially as shown and described.

5. A wheel for bicycles and similar vehicles, in which the spokes are connected with the rim, and provided with a tire which is connected with said rim by means of bolts, which pass through and are free to move in said rim, said tire being provided with inwardly-directed sides or flanges, in which said rim is free to move, said bolts being provided at their outer ends with cross-heads to which are secured a ring or band of spring metal, and a bearing of rubber or similar material which is placed between said ring or band of spring metal and said tire, substantially as shown and described.

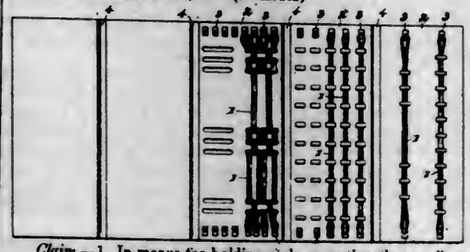
6. A wheel for bicycles and similar vehicles, in which the spokes are connected with the rim, and provided with a tire which is connected with said rim by means of bolts, which pass through and are free to move in said rim, said tire being provided with inwardly-directed sides or flanges, in which said rim is free to move, said bolts being provided at their outer ends with cross-heads to which are secured a ring or band of spring metal, and a bearing of rubber or similar material which is placed between said ring or band of spring metal and said tire, and said bolts being provided at their inner ends with nuts or burs which prevent the separation of said ring or band from said rim, substantially as shown and described.

579,522. DOUBLETREE. CHARLES L. PITTMAN, Union, Nebr. Filed Nov. 21, 1896. Serial No. 569,701. (No model.)



Claim.—In a doubletree, the strap-metal bar, A, provided with the upwardly-extending curved portions, 2, 2, and the outwardly-projecting straight portions, 3, 3, the upper strap-bar, B, provided with the downwardly-extending portions, 5, 5, terminating in the ears, F, F, the bolts, H, H, extending through said ears, F, F, and the lower bar, A, the central reinforcing-bolts, D, D, the terminal half-loops, F', and the loops, E, substantially as shown.

579,523. SUPPORT FOR SKEINS OF SILK. PHOEBE G. TURNER, (now by remarriage Phoebe G. Gardner,) Richmond, Va. Filed Oct. 7, 1895. Serial No. 564,945. (No model.)

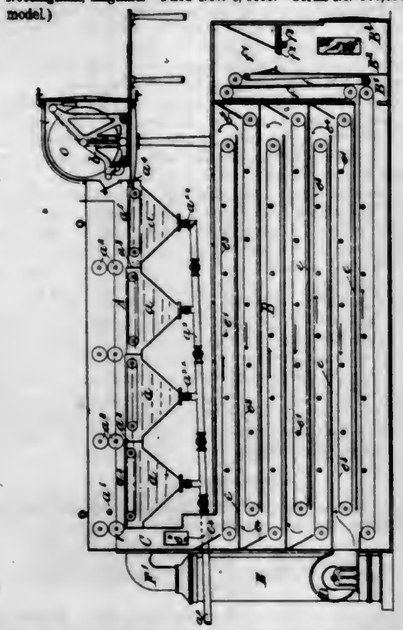


Claim.—1. In means for holding and preventing the tangling of skeins of silk and thread, the combination of a support formed with a series of openings in the same straight line and transversely elongated, and adapted to have the skein rove therethrough, and metal fastenings at the ends of the straight line of openings and attached to the support in line with the openings, and adapted to engage with and receive the end portions of the skein, substantially as specified.

2. Means for holding skeins of silk and thread and preventing them from tangling, and protecting them from the influences of light and air, consisting of a support having fastenings at its ends to receive the loop ends of the skeins, and a protector of transparent material inclosing the skeins and secured by a close joint to the said support so as to exclude dust and prevent soiling by handling, substantially as set forth.

3. In means for holding skeins of silk and thread and preventing them from tangling, the combination of a backing, hooked metal fastenings at the ends of the backing, and a strip or support formed at intervals in its length with openings through which the skein is adapted to be rove, the loop ends of the skein projecting beyond the ends of the said strip and adapted to be engaged with the hooked fastenings to retain the skein and strip in place, substantially as set forth.

579,524. DEGREASING AND CLEANSING WOOL, COTTON-WASTE, &c., AND APPARATUS THEREFOR. FREDERICK N. TURNEY, Nottingham, England. Filed Nov. 1, 1895. Serial No. 567,637. (No model.)



Claim.—1. In the process of degreasing and cleansing wool, the step which consists in immersing such wool in a volatile solvent and beating it therein whereby the grease and foreign substances are separated and the felting of the fibers prevented substantially as set forth.

2. In the degreasing and cleansing of wool, the process which consists in beating it in successive quantities of volatile solvent, each of which is cleaner than the preceding quantity, substantially as set forth.

3. In degreasing and cleansing wool, cotton-waste or other fibrous material, the process which consists in winding up said material in a roll or spiral, then unwinding it and passing it repeatedly through a volatile solvent, beating it during each immersion in the solvent, squeezing it after each immersion, and drying it by passing over it a current of warm air, substantially as described.

4. In apparatus for degreasing and cleansing wool, cotton-waste or other fibrous material, the combination of an entrance air-lock, a winder for winding up the material into a roll or spiral, a band on the winder for receiving said material, a pair of rollers to which said band is connected, a pinion on said winder for rotating the rollers, and a second pinion adapted to engage with the latter when the winder is in position, the axle of this latter pinion passing out through the wall of the air-lock to enable the roll to be unwound from outside said air-lock, substantially as described.

5. In apparatus for degreasing and cleansing wool, cotton-waste or other fibrous material, the combination of a drying-chamber, an exit air-lock for removing material dried in said chamber, a compartment between the drying-chamber and the air-lock, a pair of endless belts in said compartment for raising the dried material, a hopper to receive the material so raised, and an air-tight door for controlling the passage of the material into the air-lock, substantially as described.

6. In apparatus for degreasing and cleansing wool, cotton-waste or other fibrous material, the combination of a degreasing-chamber, an air-lock for permitting the supply of material to said chamber without loss of solvent vapor, solvent-tanks in said degreasing-chamber, beaters for beating the material, squeezing-rolls situated between the tanks, a drying-chamber divided into horizontal compartments, a trunk leading from the degreasing to the drying chamber, endless belts in said drying-chamber for carrying the degreased and cleansed material, means for causing a current of warm air to flow over the material on said belts, means for recovering the vapor of solvent carried off by said air, a second air-lock for removing the dried material, a vertical compartment between the drying-chamber and the air-lock, vertical endless bands in said compartment for raising the dried material, and a hopper above the air-lock to receive the material raised by the bands during the time the air-lock is being emptied, substantially as described.

7. In an apparatus for degreasing and cleansing wool and other fiber, the combination with the tanks containing the solvent, of an inclosure for retaining vapors from such solvent, a chamber at the receiving end and a movable door forming an air-lock, a carriage and rollers and a belt carried by such carriage for receiving and inclosing the fibrous material to be cleansed, means for unwinding such belt and delivering the fibrous material progressively into the solvent, belts for carrying such material along through the solvent and beaters acting upon such material to remove the grease or soluble substances, substantially as set forth.

8. The combination with the tanks for holding the solvent and an inclosure for retaining the vapors from such solvent, of a chamber and air-lock at the receiving end, a belt and roller upon which such belt is wound for holding the fibrous material between the convolutions of the belt, means for unwinding the belt and delivering the fibrous material progressively after the belt has been introduced into the air-lock, means for carrying the fibrous material along progressively through the tanks and for subjecting the same to beating and squeezing operations in the successive tanks, substantially as set forth.

9. The combination with the tanks for holding the solvent and an inclosure for retaining the vapors from such solvent, of a chamber and air-lock at the receiving end, a belt and roller upon which such belt is wound for holding the fibrous material between the convolutions of the belt, means for unwinding the belt and delivering the fibrous material progressively after the belt has been introduced into the air-lock, means for carrying the fibrous material along progressively through the tanks and for subjecting the same to beating and squeezing operations in the successive tanks, a drying-chamber substantially air-tight having belts within the same for receiving the fibrous materials and exposing them to the action of heated air, means for forcing into such chamber heated air, and a condenser through which the heated air is caused to pass for condensing the solvent, substantially as set forth.

10. The combination with the tanks for holding the solvent and an inclosure for retaining the vapors from such solvent, of a chamber and air-lock at the receiving end, a belt and roller upon which such belt is wound for holding the fibrous material between the convolutions of the belt, means for unwinding the belt and delivering the fibrous material progressively after the belt has been introduced into the air-lock, means for carrying the fibrous material along progressively through the tanks and for subjecting the same to beating and squeezing operations in the successive tanks, a drying-chamber substantially air-tight having belts within the same for receiving the fibrous materials and exposing them to the action of heated air, and a condenser through which the heated air is caused to pass for condensing the solvent, a chamber for receiving the fibrous material after it has been dried, and a removable door for the discharge of the material periodically, substantially as set forth.

11. In an apparatus for removing grease and other materials from wool and other fibrous substances, the combination of a range of tanks containing a solvent, a substantially air-tight case and a chamber and air-lock at the reception end, mechanism within that chamber for supplying the fibrous material progressively into the solvent, mechanism for conveying such fibrous material through the solvent, squeezing-rollers for acting upon the material before it passes from one tank to the next, beaters for acting upon the fibrous material while in the solvent, a substantially air-tight chamber and conveying-belts within that chamber for receiving the fiber and subjecting the same to the action of heated air, means for forcing heated air into such chamber, delivery belts and rollers and a receiving-chamber and air-lock at the delivery end, substantially as set forth.

12. In an aparatus for removing grease and other materials from wool and other fibrous substances, the combination of a range of tanks containing a solvent, perforated aprons for carrying along the material, supports below the aprons, a range of beaters and mechanism for actuating such beaters and subjecting the wool or similar material to a beating operation while in the solvent, substantially as set forth.

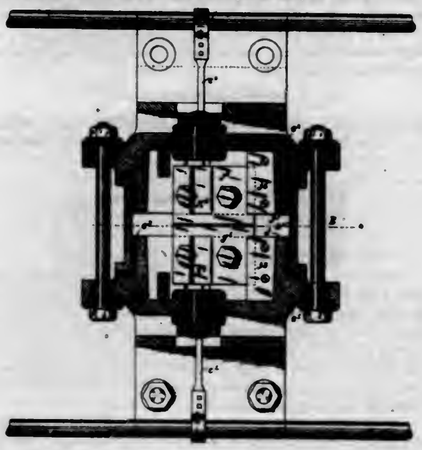
13. In apparatus for degreasing and cleansing wool and other fibrous material in a volatile solvent, the combination of a solvent-tank, a vapor-tight chamber containing said tank, an endless band for carrying the material, beaters for beating the material and means for operating said beaters from outside the vapor-tight chamber, substantially as described.

14. In apparatus for degreasing and cleansing wool and other fibrous material in a volatile solvent, the combination of a series of tanks containing successively cleaner and cleaner solvent, a vapor-tight chamber inclosing said tanks, beaters for beating the wool while immersed in the solvent and means for operating said beaters from outside the vapor-tight chamber, substantially as described.

15. In apparatus for removing grease and other materials from wool and other fibrous substances, the combination of a range of tanks containing a solvent, aprons, and means for moving the same and for carrying along the material progressively, supports below the aprons, a range of beaters and mechanism for actuating such beaters progressively above and directly upon the fibrous material, and subjecting the wool or similar material to a beating operation while in the solvent, substantially as set forth.

16. In an apparatus for removing grease and other materials from wool or other fibrous substances, the combination of a range of tanks containing a volatile solvent, a case and cover with the tanks forming a vapor-tight chamber, aprons, and means for moving the same and for carrying along the material progressively, supports below the aprons, a range of beaters and mechanism for actuating such beaters progressively above and directly upon the fibrous material and connections therefrom to a source of power outside the vapor-tight chamber for subjecting the wool or similar material to a beating operation while in the solvent, substantially as set forth.

579,525. SYSTEM OF CIRCUITS AND APPARATUS FOR ELECTRIC RAILWAYS. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Aug. 20, 1891. Serial No. 403,223. (No model.)



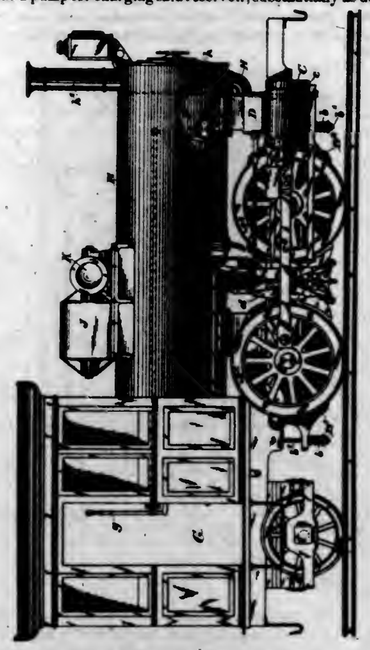
Claim.—1. The combination with two lines of insulated sectional conductors and two supply-conductors, of a series of iron circuit-closing boxes for said sectional conductors each comprising two portions insulated from each other, movable magnetic devices within said boxes for completing electrical connections between the supply-conductors and the sectional conductors, and a traveling electromagnet for actuating said movable magnetic devices.

2. The combination with an electrically-operated car, of an electromagnet moving with the car, consisting of magnetic wheels or contacts electrically insulated from each other, a magnetic core for the same, coils wound upon said core, insulated sectional magnetic contact-rails for said contacts, an insulated supply-conductor, and a magnetic circuit-closing device for completing the connections between the supply-conductor and the sectional conductors comprising an iron box made in two parts insulated from each other and a movable armature actuated by said electromagnet.

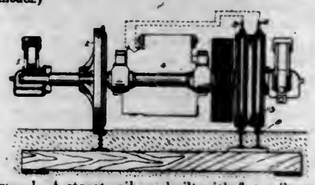
579,526. ELECTROPNEUMATIC LOCOMOTIVE. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Mar. 4, 1892. Serial No. 423,741. (No model.)

Claim.—1. The combination with an electric motor, of a vehicle driven thereby, an air-compressor, a supplemental electric motor for driving the air-compressor, a compressed-air reservoir and a fluid-motor for assisting in driving the vehicle operated by air under pressure from said reservoir.

2. The combination with an electric motor, of a vehicle driven thereby, an air-compressor, a supplemental electric motor for driving the air-compressor, a compressed-air reservoir, a fluid-motor for assisting in driving the vehicle normally operated by air under pressure from said reservoir, and means whereby said fluid-motor may be made to act as a pump for charging said reservoir, substantially as described.



579,527. ELECTRIC-RAILWAY SYSTEM. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Feb. 19, 1894. Serial No. 500,722. (No model.)



Claim.—1. A street-railway built with flat rails on one side constituting electric supply and return conductors, and grooved supporting and guiding rails on the other side, substantially as described.

2. An electric railway having two lines of flat conducting and supporting rails at one side constituting the supply and return conductors, and a single line of grooved supporting-rails at the other side, substantially as described.

3. An electric car provided with supporting and guiding wheels at one side, and with supporting and conducting wheels at the other side, in combination with flat supply and return conducting-rails for said conducting-wheels, and grooved rails for said guiding and supporting wheels, substantially as described.

4 An electric car provided with supporting and guiding wheels at one side and with supporting and conducting wheels at the other side, the former being nearer the center of gravity than the latter, substantially as described.

5. In an electric car, a supporting and conducting wheel, two conducting-tires thereon, and insulating material between said tires and said wheel, substantially as described.

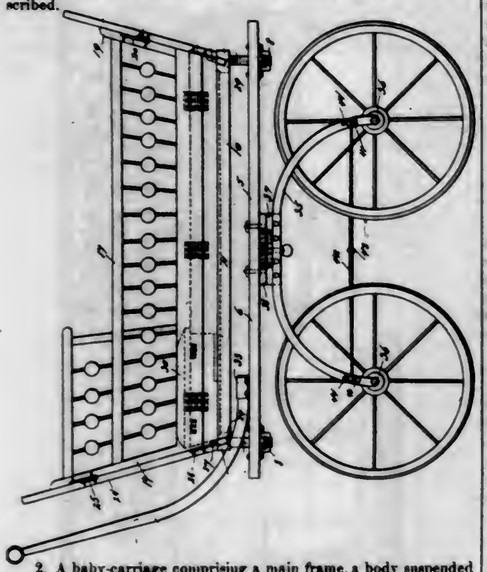
6. In an electric car, a supporting and conducting wheel, two conducting-tires thereon, and rubber tiring in which said conducting-tires are placed, substantially as described.

7. In an electric car, a supporting and conducting wheel, two rubber tires thereon and a conducting-tire on each of said rubber tires, substantially as described.

579,528. BABY-CARRIAGE. WILLIAM E. WILLIS, Brooklyn, N. Y. Filed July 16, 1896. Serial No. 599,437. (No model.)

Claim.—1. A baby-carriage consisting of a main frame, a body suspended thereover, by means of springs, said body consisting of detachable front and rear ends, and hinged sides which are adapted to be folded inwardly, and the main frame being also provided at

each side with hinged side frames in which the wheels are mounted, which are also adapted to be folded inwardly, said hinged side frames being also provided with a detachable center cross-brace, by which they are held in position for use, substantially as shown and described.



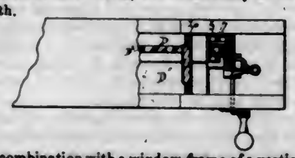
2. A baby-carriage comprising a main frame, a body suspended thereover, by means of springs, and composed of a bottom portion, sides hinged thereto, one of said sides being hinged at a point higher than the other, detachable end pieces which are adapted to be connected with said sides, and the bottom of the body, and said main frame being also provided at each side with blocks which are secured thereto, centrally thereof, and other blocks which are hinged thereto, one of which is hinged lower than the other, and said last-named blocks being provided with curved side arms or braces, between which the wheels are mounted, and a detachable center cross-brace which is adapted to be connected with the lower ends of the inner curved side arms or braces, substantially as shown and described.

3. A baby-carriage comprising a main frame, a body suspended thereover, by means of springs, and composed of a bottom portion, sides hinged thereto, one of said sides being hinged at a point higher than the other, detachable end pieces which are adapted to be connected with said sides, and the bottom of the body, and said main frame being also provided at each side with blocks which are secured thereto, centrally thereof, and other blocks which are hinged thereto, one of which is hinged lower than the other, and said last-named blocks being provided with curved side arms or braces, between which the wheels are mounted, and a detachable center cross-brace which is adapted to be connected with the lower ends of the inner curved side arms or braces, and said body being also provided with a detachable seat which is provided with legs or supports which are hinged thereto, substantially as shown and described.

4. A baby-carriage comprising a main frame, a body suspended thereover, by means of springs, and composed of a bottom portion, sides hinged thereto, one of said sides being hinged at a point higher than the other, detachable end pieces which are adapted to be connected with said sides, and the bottom of the body, and said main frame being also provided at each side with blocks which are secured thereto, centrally thereof, and other blocks which are hinged thereto, one of which is hinged lower than the other, and said last-named blocks being provided with curved side arms or braces, between which the wheels are mounted, and a detachable center cross-brace which is adapted to be connected with the lower ends of the inner curved side arms or braces, and said body being also provided with a detachable seat which is provided with legs or supports which are hinged thereto, and with a handle which consists of upwardly and outwardly curved side arms which are detachably connected with one end of the main frame, and the upper ends of which are connected by a cross-rod, substantially as shown and described.

579,529. SASH-FASTENER. CHARLES C. A. BAUERCANNER, Omaha, Nebr. Filed Apr. 13, 1896. Serial No. 587,302. (No model.)

Claim.—1. The combination with a window-frame of a two-part movable cleat, one part of said cleat being positioned adjacent to the upper window-sash, the lower cleat being positioned adjacent to the lower window-sash so as to compose two fixed and two movable cleats, a support secured to each of said fixed cleats, a horizontal shaft working within each of said supports provided with an impact-roll, a carrier secured to each of said movable cleats and movably secured to said shaft and impact-roll, an operating-arm extending from each of said shafts and a main operating-bar secured to said extending arms to operate said movable cleats, all substantially as and for the purpose set forth.



2. The combination with a window-frame of a vertical cleat, forming part of said frame, a stationary shaft positioned adjacent to said movable cleat, bearings extending from said shaft adapted to engage said movable cleat, an arm extending from said shaft, a connecting-bar secured to said arm, and a means for carrying said connecting-bar in a vertical plane to operate said cleat, substantially as and for the purpose set forth.

3. The combination with a window-frame of a movable cleat, a shaft positioned within the window-frame and adjacent to said cleat, arms extending from said shaft, a projecting shaft within said arms, the ends of said shaft projecting beyond said arms, an impact-roll upon said shaft, a carrier secured to said cleat and provided with extending lips, said lips being adapted to engage said projecting shaft, an arm extending from said shaft, a connecting-rod, a swivel-collar secured to said last-mentioned arm and connecting-rod and a crank-shaft secured to said connecting-rod to actuate said rod, substantially for the purpose set forth.

579,530. SLAT HOLDER AND ADJUSTER. JOHN C. BYERS, Pensacola, Fla. Filed June 22, 1896. Serial No. 596,473. (No model.)



Claim.—1. In combination, a U-shaped plate secured to the connecting-bar of a blind, sockets formed with said plate by overturning the outer edges, a yoke-wire secured in the sockets of the plate having its lower end bent inward, a plate secured to the rail of a blind, a spring secured to the plate, said spring being bent downward and then inward to form a hook, the point of said hook being bent upward said spring being lastly bent outward in a curve to form a handle, as and for the purpose described.

2. In combination, a yoke-wire attached to the connecting-rod of a blind, a spring secured to the lower rail of said blind, said spring being bent downward and then inward to form a hook, the point of said hook being turned up, the spring being then curved outward, as and for the purpose described.

579,531. ROTARY POLISHING-WHEEL BRUSH. BENJAMIN A. CARLESS, Philadelphia, Pa., assignor of one-half to John Bissemann, same place. Filed Apr. 8, 1896. Serial No. 586,676. (No model.)

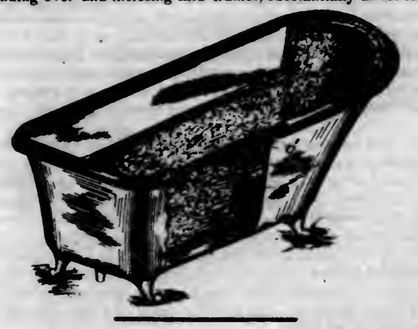


Claim.—A rotary polishing-brush, comprising a block, the annular periphery whereof is concavely grooved, and the faces or sides of which are flat, a series of three or more rings or rows of looped tufts arranged side by side within the grooved periphery of said block, a wire adapted to bind each row of tufts to the block, the looped end of the inner row or rows of tufts resting upon the lowest portion of the groove of said block while the outer rows are held above and at the sides of said groove, and flat side plates secured to either face of the block to clamp the outer rows of tufts down upon the inner row or rows, substantially as and for the purposes described.

579,532. BATH-TUB MAT. THOMAS R. COX, Warren, Ohio. Filed June 30, 1896. Serial No. 597,585. (No model.)

Claim.—1. As a new article of manufacture, a mat for bath-tubs consisting of a wire frame and sponge extending over both sides of said frame and entirely inclosing the latter, as set forth.

2. The herein-described mat for bath-tubs, comprising the bottom, side sections, and head-section, all disconnected, said bottom, side and head sections being composed of central frames and sponge extending over and inclosing said frames, substantially as set forth.



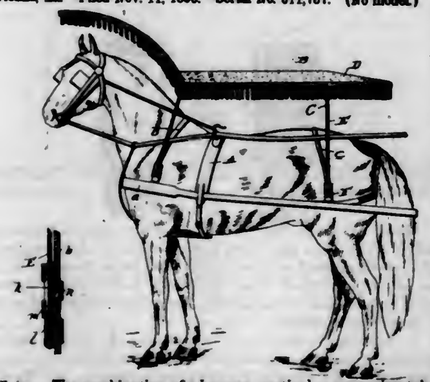
579,533. HITCHING DEVICE. JOHN E. DALBEY, Springfield, Ill. Filed May 25, 1896. Serial No. 592,916. (No model.)



Claim.—In a hitching device the combination of a hollow anchoring-weight adapted to receive extra weighting material; said anchoring-weight consisting of two members detachably connected by means of a bolt and nut centrally located; the lower member having downwardly-projecting lugs on its lower side and upwardly-projecting lugs on its upper periphery adapted to receive a bolt bent so as to keep the link of the suspending-chain central with regard to the anchoring-weight; means for fastening said bolt; the suspending-chain having at its upper end a ring of larger diameter than the chain and suited to receive the suspending-hook: the suspending-hook; the plate provided with a hole of sufficient diameter to admit the passage of the suspending-chain but not the ring, means for connecting said hook and plate to the body of the vehicle in their correct relative positions; a hitching-strap and means for connecting same to the bits and said anchoring-weight.

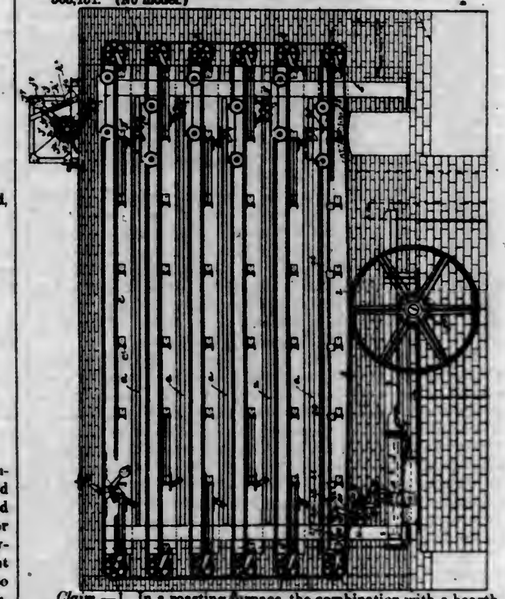
579,534. WITHDRAWN.

579,535. AWNING FOR HORSES. WILLIAM R. FRANKLIN, New Orleans, La. Filed Nov. 11, 1896. Serial No. 611,737. (No model.)



Claim.— The combination of a harness, vertical or approximately vertical holder-sockets connected to said harness so as to rest at opposite sides of a horse when the harness is in use; said holder-sockets being respectively formed of a single piece of sheet metal and having the body portion, the upwardly-bent portion at the lower end of the body portion, the branches *m*, extending in one direction and serving in conjunction with the body and upwardly-bent portion to form the socket, and the branches *n*, for clasping the socket on a harness-strap, extending in an opposite direction with respect to the branches *m*, and an awning adapted to cover the body and head of a horse and having depending rods removably placed in the sockets, substantially as specified.

579,536. ROASTING-FURNACE. JARED E. GAYLORD, WILLIAM G. COLE, and HERMANN A. KELLER, Butte, Mont.; said Cole assignor to Arthur Harvey Wethey, same place. Filed Mar. 10, 1894. Serial No. 503,151. (No model.)



Claim.—1. In a roasting-furnace, the combination with a hearth having a slot in one wall thereof, of a rake disposed over said hearth and having a shank projecting through said slot, said rake head and shank being hollow and having perforations therein extending throughout their length, substantially as set forth.

2. In a roasting-furnace, the combination with two parallel hearths spaced apart and each having a slot in its wall, of a hollow shaft projecting over said hearths and through the space between the same, said shaft being perforated throughout the length of its ends and its intermediate portion, and rake-teeth on the ends of said shaft, substantially as set forth.

3. In a roasting-furnace, the combination with two furnace structures spaced apart and each having a hearth and each hearth having a slotted inner wall, of a truck adapted to travel in the space between said furnace structures, a shaft mounted on said truck and projecting at its ends over the hearths, said shaft being hollow and having perforations at its ends and at its intermediate portion and rake-teeth on the ends of said shaft, substantially as set forth.

4. In a roasting-furnace, the combination with a series of communicating hearths and a rake adapted to move over each hearth, of a valve in the opening between two hearths, and means for automatically opening and closing said openings as the rakes approach and recede from the same, substantially as set forth.

5. In a roasting-furnace, the combination with a hearth, a truck located exteriorly of said hearth and a rake carried by said truck and projecting over said hearth, said hearth having an outlet-opening at one end thereof, of a valve located in said outlet-opening, and devices connected with said valve and adapted to be operated by said rake to automatically open and close the same, substantially as set forth.

6. In a roasting-furnace, the combination with a hearth having an outlet-opening at one end and a traveling rake, of a valve in said outlet-opening, a weight adapted to maintain said valve normally closed, and devices connected with said valve and adapted to be operated by said traveling rake, whereby to automatically open said valve, substantially as set forth.

7. In a roasting-furnace, the combination with a hearth having an outlet-opening at one end thereof, and a traveling rake, of a valve in said outlet-opening, a weight adapted to maintain said valve normally closed, a pivoted weighted lever adapted to be struck by said rake, and a plate connected to said lever and adapted to operate the weight on the valve to open the latter, substantially as set forth.

8. In a roasting-furnace, the combination with a hearth having an outlet-opening at one end thereof, and a traveling rake, of a valve adapted to close said outlet-opening, a plate or weight secured to said valve and adapted to maintain it normally closed, a lug projecting from said plate or weight, a pivoted lever having a weight at one end, said pivoted lever being adapted to be turned by said rake, a plate pivotally connected to said lever and having a slot therein and a tooth projecting into said slot and adapted to engage the lug on said plate or weight, substantially as set forth.

9. In a roasting-furnace, the combination with two series of hearths, a series of trucks adapted to run alongside said hearths and between the series and a laterally-projecting rake carried by each truck and adapted to project over the adjacent hearth, of a revoluble drum, ropes wound about said drum located in the space between the series of hearths and connected at their ends to the respective ends of the trucks, a motor located in said space adapted to positively propel said drum, and devices in said space constructed and adapted to be operated by one of the trucks to automatically reverse the rotation of said drum when the carriages reach the ends of their movements, substantially as set forth.

10. In a roasting-furnace, the combination with two parallel hearths spaced apart, of a truck adapted to travel between said hearths, a hollow revoluble shaft located on said truck and projecting over both hearths, rake teeth or blades on the ends of said shaft, said shafts having perforations at its ends and at its intermediate portion, a star-wheel secured to said shaft between its ends, and an arm carried by a fixed portion of the furnace and adapted to be engaged by said star-wheel at the ends of the strokes of the truck, whereby to turn said shaft, substantially as set forth.

11. In a roasting-furnace, the combination with a hearth having a slot or opening in its wall extending longitudinally thereof, a truck adapted to run alongside said hearth, and a rake carried by said truck and adapted to project laterally therefrom over said hearth, of a wheel or drum, a rope passing about said wheel or drum and connected at its ends to said truck, a pinion carried by the shaft of said wheel or drum, a movable rack-bar meshing with said pinion, and adapted to enter a cylinder, a piston on the rack-bar within the cylinder, a valve adapted to control the admission of pressure to the ends of said cylinder alternately, and devices controlled by the truck for automatically operating said valve, substantially as set forth.

12. In a roasting-furnace, the combination with a hearth having an opening in its wall extending longitudinally thereof, a truck adapted to travel alongside said hearth, and a rake carried by said truck and projecting laterally through the opening and over the hearth, of a drum or wheel, a rope on said drum or wheel connected at its ends to said truck, a fluid-pressure motor adapted to impart motion to said wheel or drum, a valve for controlling the admission of pressure to the respective ends of said motor and devices constructed and adapted to be operated by the truck whereby to automatically operate the valve to reverse the movement of the wheel or drum when the truck reaches the ends of its movements, substantially as set forth.

13. In a roasting-furnace, the combination with a hearth, a truck adapted to travel alongside said hearth and a rake carried by said truck and projecting over said hearth, of a motor connected with said truck, a valve for controlling the direction of movement of said motor, a shaft, a bell-crank lever carried by said shaft, links connecting said bell-crank lever with the stem of said valve, a movable rod, a link connecting said movable rod with the bell-crank lever, stops or buttons on said movable rod adapted to be engaged by the truck, a bracket carried by the above-mentioned shaft, and a ball adapted to roll from end to end of said bracket and positively operate the valve to reverse it, substantially as set forth.

14. In a roasting-furnace, the combination with a hearth, having an opening in its inner wall, of a truck adapted to travel alongside said hearth, a revoluble rake carried by said truck and projecting over the hearth, a star-wheel carried by the shank of said rake, an arm pivoted to a fixed portion of the apparatus and adapted to swing in one direction and remain rigid from swinging in the other direction, said arm being in the path of said star-wheel whereby to turn the same and the rake which carries it, when the latter moves in one direction, and a pivoted dog for preventing retrograde movement of said star-wheel and rake, substantially as set forth.

15. In a roasting-furnace, the combination with a hearth having an inlet-opening at one end, a truck adapted to travel alongside said hearth and a rake carried by said truck and projecting over the hearth, of a revoluble compartment-wheel over said inlet-opening of the hearth, a hopper above said compartment-wheel, an L-shaped lever carried by the side of said hopper and having a weight at the extremity of one arm, the other arm of said L-shaped lever projecting in the path of said rake and adapted to be operated by it, a ratchet-wheel carried by said compartment-wheel, and a dog carried by the L-shaped lever and adapted to engage said ratchet-wheel, substantially as and for the purpose set forth.

16. In a roasting-furnace the combination with a hearth having an inlet-opening, a truck adapted to travel alongside said hearth, and a rake carried by said truck and adapted to project over said hearth, of a compartment-wheel over said inlet-opening, an L-shaped lever carried by the shaft of said compartment-wheel, said L-shaped lever being adapted to operate the compartment-wheel and be operated by the movement of the truck, and an adjustable stop adapted to regulate the movement of said L-shaped lever, substantially as set forth.

17. In a roasting-furnace, the combination with a hearth having an elongated opening in its inner wall, a rake projecting over said hearth and having its shank extending through said elongated opening, of collapsible slides adapted to close said elongated opening and permit the passage of the shank of the rake through said opening from end to end of the hearth, substantially as set forth.

18. In a roasting-furnace, the combination with a hearth having an elongated opening in its inner wall for the passage of the shank of a rake, of collapsible slides in said opening adapted to close the same and yet permit the passage of the shank of a rake through it, substantially as set forth.

19. In a roasting-furnace, the combination with a hearth having an elongated slot in its wall for the passage of the shank of a rake, of a series of parallel tracks on the bottom wall of said opening, a series of slides adapted to close said opening and yet permit the passage of the shank of a rake through it, and wheels carried by said slides and adapted to run on said tracks, substantially as set forth.

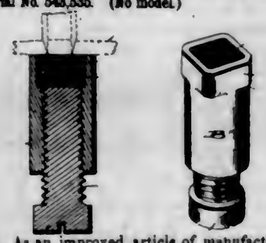
20. In a roasting-furnace, the combination with a hearth having an elongated opening in its wall for the passage of the shank of a rake, of a series of slides in said opening, said slides being adapted to close the opening and yet permit the passage through it of the shank of a rake, and shoulders at the respective ends of said slides, so constructed and arranged that when one slide is moved by the rake the other slides will be pulled along to close the opening behind the rake, substantially as set forth.

21. In a roasting-furnace, the combination with a hearth having an elongated opening in its wall for the passage of a rake-shank, of tracks in the bottom of said opening, slides adapted to run on said tracks so as to close the opening and yet permit the passage of the rake-shank through it, and guides for said slides, in the top of said opening, substantially as set forth.

22. In a roasting-furnace, the combination with a hearth having an elongated slot in its wall, for the passage of the shank of a rake, of slides adapted to move in said opening, each of said slides being composed of a sheet of perforated metal lined with non-conducting material, substantially as set forth.

23. In a roasting-furnace, the combination with a hearth having an elongated opening in its wall for the passage of the shank of a rake, of two series of slides located in and adapted to slide longitudinally in said elongated slot, parallel tracks for said slides, the respective ends of the slides of each series being adapted to engage each other, and a rake connected to the inner slides of the two series, substantially as set forth.

579,587. **DIE-BLOCK.** FRANK L. HARMON, Beverly, Mass., assignor of one-half to Rufus H. Woodbury, same place. Filed Mar. 28, 1895. Serial No. 543,535. (No model.)

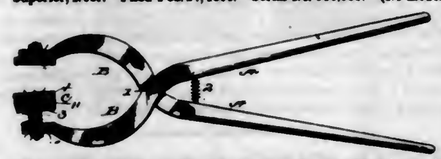


Claim.—1. As an improved article of manufacture for use in a machine employing a punch and a punch-block, the combination of a hollow post supported by a bed, an adjusting-screw threaded into the post, and a punch-block dropped into the hollow of the post and seated upon the end of the adjusting-screw; all substantially as and for the purpose specified.

2. As an improved article of manufacture for use in a machine employing a punch in a punch-block, the combination of a hollow post supported by a bed, an adjusting-screw threaded into the post, and a punch-block composed of a plurality of disks of rawhide arranged in the hollow of the post and seated upon the end of the adjusting-screw, whereby they are entirely encompassed by the metal of the post; substantially as and for the purpose specified.

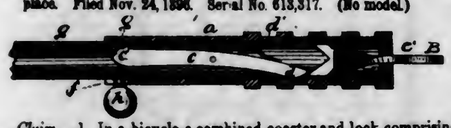
3. As an improved article of manufacture, the combination of a hollow post independent of its bed, an adjusting-screw threaded into the post, and a punch-block inserted into the hollow of the post and seated upon the end of said adjusting-screw; substantially as and for the purpose specified.

579,588. **STAPLE-SETTING IMPLEMENT.** JOSEPH P. HASTY, Superior, Nebr. Filed Feb. 27, 1896. Serial No. 580,955. (No model.)



Claim.—In a staple-setting implement, the combination, with two crossed levers pivoted together, the forward ends of which are curved to form jaws, of a staple-holder having a series of vertical angular recesses of a suitable depth adapted to receive staples of different sizes and a central hole, a plunger-cap within the holder and shaped to conform to the angular recesses therein, a plunger-stem one end of which is secured in one of the jaws, its other end being passed through the hole in the holder and secured to the plunger-cap, a coiled spring encircling the stem between the jaw and the holder, and a head-plate secured to the other jaw.

579,589. **BICYCLE LOCK AND COASTER.** CHARLES W. HUDSON, Woodsport, N. Y., assignor of one-half to Fred M. Harrington, same place. Filed Nov. 24, 1896. Serial No. 613,317. (No model.)

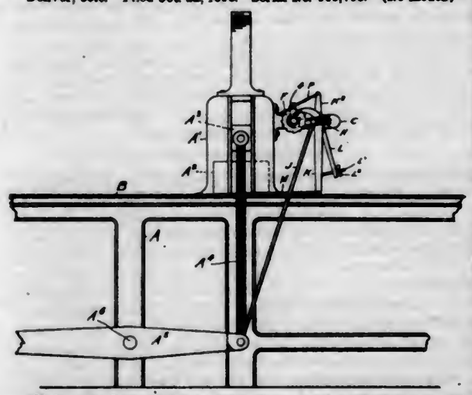


Claim.—1. In a bicycle a combined coaster and lock comprising two parts, each provided with means for securing it to the fork, a tube or rod yieldingly secured in one part and adapted to have its outer end secured in the opposite part for the purposes specified.

2. In a bicycle a combined coaster and lock comprising two parts *a* and *a'*, each provided with means for securing it to the fork, the part *a'* being provided with a spring-actuated tube and having a notch at its outer end; the part *a* being provided with a latch adapted to engage with said notch and means for disengaging them as set forth.

3. In a bicycle a combined coaster and lock comprising two parts *a* and *a'*, each part provided with means for securing it to the fork, the part *a'* being provided with a spring-actuated tube having a notch in its outer end and provided with a finger-piece; the part *a* being provided with a spring-actuated latch adapted to engage with said notch and a torsional key for operating said latch substantially as described for the purposes set forth.

579,540. **MACHINE FOR CUTTING CRACKERS.** JOHN J. ITEN, Denver, Colo. Filed Oct. 22, 1896. Serial No. 609,710. (No model.)



Claim.—1. In a machine of the character described, the combination with a fixed bed, and a knife moving toward and away from the same; of a flexible sheet over the bed, a plate beneath the sheet, and means for moving the plate beneath the knife at intervals, as and for the purpose set forth.

2. In a machine of the character described, the combination with a fixed bed, and a knife moving toward and away from the same; of an apron moving over the bed and beneath the knife when the latter is raised, a plate beneath the apron, and means for moving the plate beneath the knife at intervals, as and for the purpose set forth.

3. In a machine for treating cracker-blanks and the like, the combination with a table having upright guides, a cross-bar reciprocating vertically therein, and a gang of transverse and longitudinal knives carried by the bar; of an apron moving over the table, a plate beneath the apron, means for moving the plate beneath the knives at intervals, and an adjustment for regulating the distance beneath the gang of knives to which the plate shall be moved, as and for the purpose set forth.

4. In a cutting-machine, the combination with the bed, a knife reciprocating toward the same, and a plate adapted to slide upon the bed and beneath the knife; of a shaft having arms connected with the plate, a spring turning said shaft normally in one direction, a cam-lever connected with the shaft, a notched cam upon whose periphery the tip of said lever bears, and means for turning the cam, as and for the purpose set forth.

5. In a cutting-machine, the combination with the bed, a knife reciprocating toward the same, and a plate adapted to slide upon the bed and beneath the knife; of a shaft, arms fixed thereto and connected at their outer extremities with said plate, a cam-lever mounted on the shaft, means for moving this lever at intervals, a screw pivoted to one arm and passing through said lever, and a nut on the screw against the lever, as and for the purpose set forth.

6. In a cutting-machine, the combination with the reciprocating knife, a plate movable beneath the same, a spring-pressed rock-shaft having arms connected with said plate, and a cam-lever carried by said shaft; of a second shaft, pawl-and-ratchet mechanism for turning this shaft intermittently in one direction, a tension device thereon, and a notched cam also on this shaft and upon which said lever bears, as and for the purpose set forth.

7. In a cutting-machine, the combination with the reciprocating knife, a plate movable beneath the same, a rock-shaft connected with the plate for moving the latter, and a lever on said shaft; of a feed-shaft, a notched cam thereon beneath said lever, a ratchet fast on this shaft, a bell-crank lever journaled at its elbow on this shaft, a pawl pivoted to one arm thereof and engaging said ratchet, the other arm being slotted, an adjustable block within said slot, and a reciprocating link pivoted in such block, as and for the purpose set forth.

8. In a cutting-machine, the combination with the reciprocating knife, a plate movable beneath the same, a lever connected with the plate, and a notched cam with whose periphery said lever engages; of a feed-shaft on which the cam is mounted, a ratchet removably attached to the shaft, a bell-crank lever journaled on the shaft adjacent the ratchet and having a pawl at one extremity engaging the ratchet, its other arm being slotted longitudinally, a block guided in the slot, a screw attached to the block, a nut on the screw against a fixed part of the lever-arm, and a reciprocating link connected with said block, as and for the purpose set forth.

579,541. **TYPE-SETTING APPARATUS.** LOUIS K. JOHNSON and ABBOT A. LOW, Brooklyn, N. Y., assignors to The Alden Type Machine Company, New York, N. Y. Filed Dec. 26, 1895. Serial No. 573,280. (No model.)



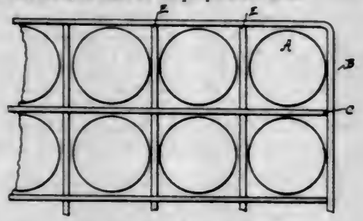
Claim.—1. In a type-setter case the combination of a word-channel in which the types forming the words or combinations are arranged upon their flat sides, one above the other, in vertical line in a single channel, and a supplementary space-channel, together with a type-forwarder arranged to forward a word and a space simultaneously from said two channels, and with means for converging the space onto the word, substantially in the manner and for the purpose described.

2. The combination of the type-platform formed with the channel-holder B, and vertical type-groove a^3, and elevated space-platform *d*, having the converging side wall *d'*, the word-channel C, and supplementary space-channel D, the type-forwarder G, *g*, formed with the auxiliary space-forwarding blade *g'*, the whole arranged and operating substantially in the manner and for the purpose described.

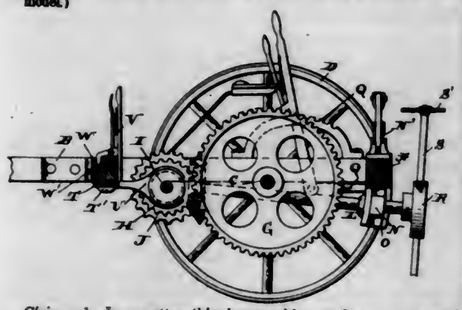
579,542. **CONFECTIONER'S MOLD.** CORNELIUS MORRISON, Brooklyn, N. Y. Filed Dec. 31, 1895. Serial No. 573,907. (No model.)

Claim.—The combination of the rim B, and the ribs C and D, together with the junction-strips E, all united to form the skeleton frame substantially as described, and the individual molds A, having rectangular rims cut to meet upon said ribs and junction-strips and

secured thereto and to the rim, thereby forming a level uninterrupted surface for the mold, as and for the purpose set forth.



579,543. **MACHINE FOR THINNING COTTON.** ROBERT F. MCPHETRIDGE, BARTHOLOMEW MCPHETRIDGE, and EDWARD C. MCPHETRIDGE, Liberty Hill, Tenn. Filed Aug. 7, 1896. Serial No. 602,100. (No model.)



Claim.—1. In a cotton-thinning machine, a frame, segmental guide O, head N and means for adjusting the head in said guide, shaft L pivotally supported at one end to swing vertically and journaled in head N to move therewith, a hoe carried by the shaft, and mechanism for rotating the shaft, substantially as shown and described.

2. In a cotton-chopper, the combination of the main frame, the drive-wheels, a drive-shaft operated by the said wheels, the forward end of the main frame having an inwardly-extending arm or continuation of the tongue, a hoe-shaft extending horizontally the main frame and having its front end supported upon a horizontal pivot mounted in the inner end of said inwardly-projecting arm, the rear end of the shaft carrying a hoe, the vertically-adjustable support at the rear end of the frame connected with the said hoe-shaft at that point, the forward end of the said shaft carrying a beveled gear, a transversely-extending shaft having its inner end supported also in the said inwardly-extending arm, and having a gear engaging with the hoe-shaft gear, and a gearing between the said transversely-extending shaft and the drive-shaft, substantially as described.

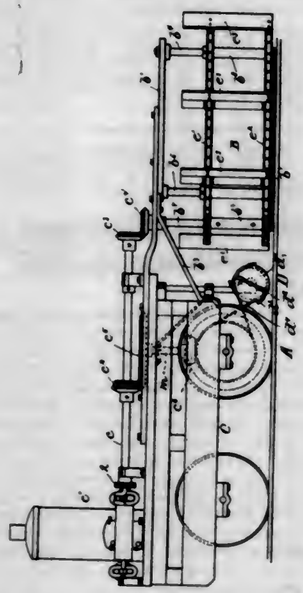
3. A cotton-chopper comprising the main frame, the drive-wheels, the drive-shaft actuated thereby, a gear G upon the drive-shaft, a transverse shaft as I carrying a longitudinally-movable wheel or gear as H adapted to engage the gear G, the hoe-shaft extending longitudinal the frame and carrying the hoe at its rear end, the adjacent ends of the hoe-shaft and the shaft I having intermeshing gears, a bar movable longitudinal the front end of the frame and transverse the frame proper, the said bar having a rearwardly-extending arm adapted to engage and move the wheel H and a vertically-extending rigid operating-arm, a catch carried by the said arm, and the front end of the main frame having openings with which the catch is adapted to engage when the bar is moved for the purpose of moving the wheel H in and out of gear with the wheel G, substantially as shown and described.

4. In a cotton-thinning machine, the horizontal frame consisting of longitudinal and transverse members, the drive wheels and shaft supporting the frame, shaft L arranged longitudinally of and beneath the frame and at its forward end pivotally supported by the frame to swing vertically, segmental guide O, head N in the guide and forming a journal for the shaft, link N' extended vertically from the head through the rear transverse member of the frame, lever P arranged longitudinally of and at one end fulcrumed to the said frame member and connected between its ends to link N', bell-crank lever Q fulcrumed to one of the longitudinal frame members with its horizontal limb connected to the free end of lever P, a ratchet mechanism for lever Q, the hoe for shaft L, and gearing intermediate the drive-shaft and shaft L for actuating the latter, substantially as shown and described.

5. The combination of the frame, actuating mechanism, chopping mechanism, a movable gear for connecting said mechanisms, elongated plate T slotted to move longitudinally on securing-pins in the frame, clutch-arm U rigid with the plate and engaging the movable gear for actuating it in unison with the movement of the plate, and mechanism for adjusting and holding in adjustment the plate, substantially as shown and described.

6. In a cotton-chopper the combination of the frame, the drive-shaft, a hoe-shaft extending longitudinally the frame and having its rear end vertically movable, a lever P having one end pivoted at one side of the rear end of the frame and extending transversely thereof, a bell-crank-operating lever pivoted to the opposite side of the machine-frame, a connection between the bell-crank lever and the free end of the lever P, and a hoe-shaft support connected with the lever P intermediate its ends, substantially as shown and described.

579,544. **SNOW-PLOW.** ABEL HUTTING, Quincy, Mass., assignor, by mesne assignments, of one-half to Carl A. Scott, Melrose, Mass. Filed Jan. 2, 1895. Renewed Jan. 2, 1897. Serial No. 617,831. (No model.)



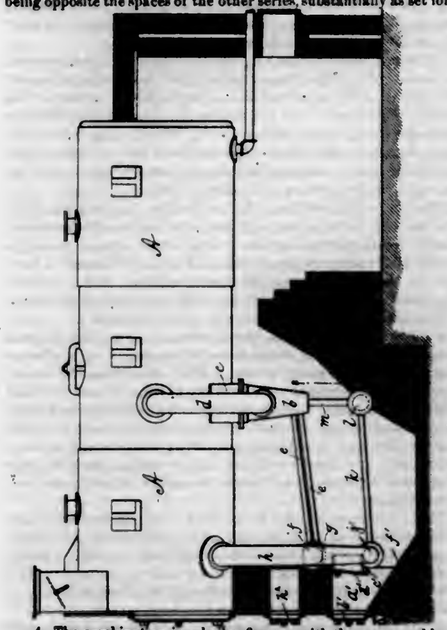
Claim.—In a snow-plow, a framework provided with vertical shafts, sprocket-wheels fast upon said shafts, sprocket-chains mounted upon said wheels, shovels mounted upon said chains and arranged to rotate in a horizontal direction, combined with a rail-cleaner comprising a horizontal shaft, disks mounted upon each end of said horizontal shaft provided with fan-shaped blades to clear the snow from the tops of the rails, and with spring-fingers extending beyond the peripheries of said disks arranged to clear the grooves in the rails and means connected to said vertical shaft and to said horizontal shaft for imparting motion to said shovels and to said blades and fingers, substantially as and for the purpose set forth.

579,545. **BOILER-FURNACE.** EDWARD B. PARKHURST, Woburn, Mass. Filed May 20, 1892. Serial No. 433,658. (No model.)

Claim.—1. A boiler-furnace having upper and lower water-grates, said upper and lower grates being connected with the same supply-pipes and the discharge connections of the lower grate being connected with those of the upper grate by a series of pipes located within the combustion-chamber, substantially as shown and described.

2. A boiler-furnace having upper and lower water-grates a water-box with which the forward ends of the upper grate-bars connect, and a water-leg with which the rear ends of said grate-bars connect, and suitable connections between said water-box and water-leg and the water-space of the boiler, front and rear lower water-boxes, with which the forward and rear ends respectively of the lower grate bars connect, the front lower water-box being connected with the water-box at the forward ends of the upper grate-bars and the rear water-box of the lower grate-bars being connected with the water-leg of the upper grate-bars, the latter connection consisting of a series of pipes extending across the rear end of the combustion-chamber in the path of the draft, substantially as shown and described.

3. A boiler-furnace having upper and lower water-grates and suitable connections therefor with the water-space of the boiler at the front and rear of the furnace, the rear connections including a series of pipes located in the combustion-chamber, the bars of the upper grate being in two series set alternately, the bars of one series being opposite the spaces of the other series, substantially as set forth.



4. The combination in a boiler-furnace with the upper and lower grates and suitable connections therefor with the water-space of the boiler, of a series of pipes *m* located in the draft-passage and serving to connect the lower grate-bars with the boiler connections of the upper grate, substantially as set forth.

579,546. **MACHINE FOR WEIGHING, PACKING, STAMPING, AND LABELING.** RUFUS L. PATTERSON, Durham, N. C., assignor to the Automatic Packing and Labeling Company, same place. Filed Mar. 21, 1896. Serial No. 584,271. (No model.)

Claim.—1. In combination with apparatus for measuring or weighing matters liable to bridge across the containing-receptacle, a flexible hopper, free at its delivery end and adapted to yield and destroy the arch or bridge formed by the material within it.

2. In combination with a feed-pipe B, a flexible hopper A above said pipe and disconnected therefrom, substantially as and for the purpose set forth.

3. In combination with a measure or receptacle, a rotatable disk carrying said receptacle and having an opening for the passage of material into the same, and a delivery-pipe having its delivery end in close proximity to the upper face of the disk and elongated or expanded in the direction of rotation thereof, whereby a longer time is given the material to pass through the disk into the measure.

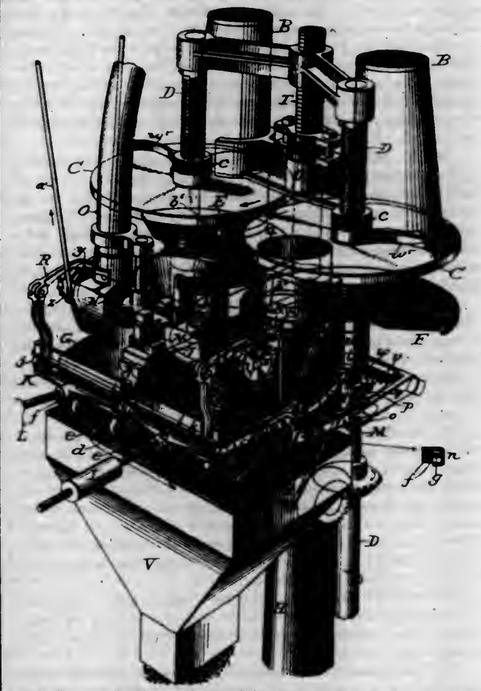
4. In combination with a delivery-pipe, a rotatable cut-off disk beneath the same provided with an opening for the passage of material from the outlet-opening of the pipe; one of said openings being expanded or enlarged in the direction of rotation.

5. In a measuring apparatus, the combination of a delivery-spout or conductor; a vertically-adjustable cut-off disk beneath the same, provided with an opening for passage of material; a measure detachably secured to the disk below its opening; and a fixed plate or false bottom beneath the measure; substantially as described and shown.

6. In a measuring apparatus, the combination of a delivery-spout or conductor; a vertically-adjustable cut-off disk beneath the same, provided with an opening for passage of material; a measure detachably secured to the under side of the disk; and a fixed plate or false bottom beneath the measure; the disk and plate being relatively adjustable to accommodate measures of different lengths.

7. In combination with a rotatable threaded shaft; a delivery-spout or conductor; a disk encircling said shaft and provided with an opening for passage of material; nuts screwed upon the shaft above and below the disk; a measure carried by said disk, beneath its opening; and a fixed plate or false bottom beneath the measure.

8. In combination with a shaft, a cut-off disk adjustably mounted thereon and provided with an opening for the passage of material; a telescopic pipe or conductor above the disk and adjustable therewith; a measure carried by the disk beneath its opening; and a fixed plate or false bottom beneath the measure.



9. In combination with a weighing apparatus; a pipe or conductor; a cut-off disk beneath said conductor, provided with an opening for the passage of material; a measure carried by the disk, beneath its opening; and a plate or false bottom below the measure; the plate or false bottom being fixed relatively to the weighing apparatus, and the cut-off disk being adjustable relatively to the plate; whereby measures of varying capacity may be introduced between them without varying the distance between the measure and the weighing apparatus.

10. In combination with rotatable disk C, provided with an opening and with a neck or collar *a* surrounding said opening, measure E encircling said collar; and clamping-band *b* encircling the measure and serving to bind it to the collar, substantially as set forth.

11. In combination with shaft D, disk C adjustable upon said shaft; measure E carried by the disk; and fixed plate F beneath the measure; threaded post or stem T; bar S; pipe or conductor B attached to and movable with bar S; and a nut U serving to raise and lower the bar S and the pipe B, substantially as described and shown.

12. In combination with spout or conductor B; and rotatable disk C beneath the same, provided with measure E; guard w^3, resting upon the disk and serving to remove adhering matter from its face, substantially as set forth.

13. In combination with a scale-pan and its counterbalanced scale-beam; a measure arranged to deliver its charge into the scale-pan; and a continuously-rotating cam arranged to lock the scale-beam during delivery of the charge thereto, and immediately thereafter to release the beam.

14. In combination with scale-beam K having arm or extension *s*, and provided with a pan; rotatable shaft D provided with collar *v*, having elevation *w* to ride beneath the extension *s* and to sustain the scale-beam while the same is receiving its main charge.

15. In combination with scale-beam K provided with a pan or receptacle and extension *s*; rotatable shaft D provided with collar *u*, and with collar *v* having elevation *w*; whereby the rise of the beam is limited, and its fall is at certain times prevented.

16. In combination with a scale-beam provided with a pan or receptacle; a rotatable shaft provided with a disk having an opening for passage of material through it; a spout or conductor above the disk; a measure carried by the disk, below its opening; a fixed plate or false bottom beneath the measure; and a collar carried by the rotatable shaft and provided with an elevation arranged to pass un-

der the scale-beam at the time that the measure rides off the fixed plate or false bottom and thereafter to pass beyond the beam; whereby the scale-beam is upheld against the momentum of the charge, but is freed after the charge is received from the measure.

17. In combination with a weighing apparatus; a measuring apparatus adapted to deliver thereto a charge slightly less than that for which the weighing apparatus is adjusted; an auxiliary charging apparatus adapted to add material to the charge in the weighing apparatus in minute quantities; a friction-drive for said auxiliary apparatus; and a lock or detent connected with the beam of the weighing apparatus and serving to hold the auxiliary apparatus out of action when the charge is brought to the weight for which the weighing apparatus is adjusted.

18. In combination with a weighing apparatus; a measuring apparatus adapted to deliver to the weighing apparatus a charge slightly less than that for which the weighing apparatus is set; an auxiliary feed-roll for adding material to the charge in the weighing apparatus, in small quantities; a friction-drive for said roll; and a detent connected with the weighing apparatus and serving to hold the auxiliary feed-roll out of action when the receptacle of the weighing apparatus descends under a full charge.

19. In combination with a scale-beam and its pan or receptacle; a feed-roll provided with a ratchet-wheel; a dog or detent adapted to engage said ratchet-wheel; and a connection between the scale-beam and the dog or detent; whereby said dog or detent is held out of engagement with the ratchet-wheel when the beam is elevated, and is permitted to go into engagement with the ratchet-wheel when the beam is lowered.

20. In combination with a scale-beam and its receptacle; a measuring apparatus arranged to deliver to said receptacle the bulk of its charge; mechanism adapted to sustain the beam during the introduction of said main charge but to release it after said charge is received; an auxiliary charging apparatus adapted to add to the main charge in small quantities; a detent connected with the scale-beam and serving to stop the auxiliary charging apparatus when the beam descends under full charge; and mechanism for discharging the contents of the weighing-receptacle when fully charged.

21. In combination with scale-beam K and its pan or receptacle G; self-closing gates d applied to said receptacle; levers f connected with said gates; actuating-lever M connected with levers f; and cam r for actuating the lever M.

22. In combination with measuring mechanism and with weighing mechanism adapted to receive its main charge therefrom and provided with discharge-gates; means for supporting the beam of the weighing apparatus during the introduction of the main charge; an auxiliary feeding device adapted to complete the charge in the weighing-receptacle gradually; a detent connected with the beam of the weighing apparatus and serving to hold the auxiliary feeding device out of action when the beam descends; and mechanism adapted to positively open the discharge-gates of the weighing-receptacle when the auxiliary feeding device is thus held out of action.

23. In combination with a main and an auxiliary feeding device; scale-beam K and its pan G provided with self-closing gates d; levers f connected with said gates; actuating-lever M connected with levers f; collar q provided with cam r for actuating the lever M; collar v serving to support the scale-beam during the opening of gates d; and a detent connected with the scale-beam and serving to hold the auxiliary feed device out of action while the pan is being emptied.

24. In combination with weighing apparatus; a measuring apparatus of variable capacity having its delivery-outlet at a point close to the pan or receptacle of the weighing apparatus and fixed relatively thereto; and a telescopic feed-pipe for the measuring apparatus, whereby measures of varying height may be interposed between the feed-pipe and the delivery-point of the measure without varying said point.

25. In combination with the feed chute or hopper of a packing mechanism; a plurality of weighing mechanisms, arranged to deliver thereto alternately; and a plurality of measuring mechanisms, arranged to charge the weighing mechanisms successively; whereby the packing mechanism is supplied with its successive charges with proper frequency, and the measuring and weighing devices are given adequate time to perform their several functions with nicety.

26. In a weighing apparatus, the combination of a scale-beam; stops for said beam to insure a limited range of oscillation; a scale-pan carried by said beam and provided with self-closing gates; an actuating-lever for opening said gates; and means other than the weight of the scale-pan or its contents for operating said lever.

27. In a weighing apparatus, the combination of a beam having a limited range of movement; a pan or receptacle carried by said beam; self-closing gates applied to said pan or receptacle; a feed mechanism adapted to complete the charge of the pan by small increments; a stop device connected with the scale-beam and serving to stop the feed device when the beam descends; arms f, f, connected with the gates of the pan or receptacle; a pin g extending from one arm f through a slot in the other; and actuating-lever M having recessed head or cap n overhanging said pin.

28. In combination with scale-beam K and its pan G; gate d applied to said pan; arm f connected with gate d and provided with pin g; and lever M having recessed head or cap n to receive said pin; whereby the pan is enabled to rise and fall independently of the lever M, but said lever is enabled to actuate the gate.

29. In a machine for packing tobacco and other substances, the combination of a delivery spout or hopper; a form-wheel having forms to receive the bags; and an intermediate head provided with bag-shapes; adapted to rise and present the upper ends of the bag-shapes successively to the delivery-spout; then to carry them to and insert their lower ends and the bags upon them into the forms of the form-wheel; then to withdraw the shapes from the bags within the forms; and finally to return to the first position.

30. In a packing-machine, the combination of a rotatable horizontal head or shape carrier provided with a series of bag-shapes; means for rotating the same with a step-by-step motion; means for lowering and raising the head after each step of rotation; a form to receive the bag-shapes and the bags upon them; and a reciprocating head or plunger adapted to enter each shape in succession while the shapes and the bags are held within the form.

31. In a packing-machine, the combination of a rotatable head or shape carrier provided with a series of bag-shapes; means for rotating the same with a step-by-step motion; mechanism for lowering and elevating the head after each step of rotation; a form-wheel provided with a series of forms to receive the bag-shapes and bags; a reciprocating plunger adapted to enter each bag-shape in succession while the shape and the bag are held in the form; and mechanism for rotating the form-wheel with a step-by-step motion, whereby its forms shall be successively brought to position to receive the successive bag-shapes.

32. In combination with form-wheel G′ provided with a series of forms a', and studs or pins q'; a lever I′ provided with a laterally-swinging nose or pawl p' beveled on its side face, and with a spring to hold said pawl in alinement with the body of the lever; and a cam r' adapted to lift said lever and through it to impart motion to the wheel.

33. In combination with head or shape carrier Y, foot-piece h' swiveled to its lower end; shoe c' secured to said foot-piece; and cam b' beneath said shoe for elevating the carrier.

34. In combination with head or shape carrier Y, its spindle X, and its elevating-cam b'; a ratchet wheel or disk A′ encircling the spindle X of said carrier, and splined or rotatively connected therewith; a pawl-carrier movable back and forth relatively to the ratchet-disk; and a pawl mounted upon said carrier and adapted to engage therewith on its forward throw, and to rotate the ratchet-wheel and carrier.

35. In combination with rotatable carrier Y and its ratchet-disk A′ provided with faces or shoulders e', g'; pawl-carrier B′ provided with pawl d'; and locking dog or detent f', provided with a curved free end substantially as shown and described, whereby it is adapted to be withdrawn from engagement with the disk by the pawl d' when the latter moves backward to its normal position.

36. In combination with a shape-carrier provided with a shape having one wall hinged and adapted to swing inward; a bunter m' adapted to press against said movable wall and to move it inward to prepare it to receive a bag.

37. In combination with shape-carrier Y and shape Z carried thereby; lever y^4 provided with bunter m' to act upon the shapes; and cam b' provided with stud z^5 to actuate said lever.

38. In combination with shape-carrier Y; ratchet-plate A′; pawl-carrier B′ provided with pawl d'; shaft D′; cam l' carried by said shaft; slotted bar C′ provided with rollers k' k'; lever E′; and connecting-rod F′, connecting lever E′ and pawl-carrier B′.

39. In combination with a form within which to hold a bag while its contents are subjected to compression; a spring-pressed stud extending through a wall of the form and serving to retain the package therein after compression.

40. In combination with a form-wheel G′ provided with forms a'; guide-rods i^3; cross-head k^3 arranged to slide thereon; ejector or follower g^3 carried by said cross-head; levers j^3 and k^2; link l^3 connecting said levers; rod m^3 connecting lever l^2 with the cross-head; cam n^3 acting upon lever j^3; and spring o^3 acting in opposition to cam n^3.

41. In combination with a form-wheel, and with an ejector to discharge the bags from the forms of said wheel; a stamp or label receptacle; a gripper adapted to withdraw a stamp or label therefrom and to suspend the same across the path of the bag; a track or way to receive and support the bag; and rollers to fold the stamp or label over the bag as the bag and stamp or label are forced between them.

42. In combination with a label or stamp receptacle adapted to hold a series of the labels or stamps in surface contact; lips or flanges projecting inward over the edges of the labels or stamps; and a detent consisting of a blade having a pointed end, a blunt face or edge rising from said point, and a cutting edge above, or back of the blunt face, said blade being secured with its pointed end projecting into the holder toward the face of the outermost label or stamp; substantially as set forth.

43. In combination with a holder or box having lips or flanges t^3; a follower s^3; and a spur or detent U′ inclined relatively to the face of stamps or labels within the box, and having its lower end beveled, its longitudinal face left blunt a short distance upward from the point and brought to a knife-edge above said blunt portion, substantially as described and shown.

44. In combination with a label or stamp holder having retaining lips or flanges, and a follower to press the labels or stamps against said lips or flanges; mechanism for starting a label or stamp from the holder, comprising a fixed guide, a block or carrier movable upon said guide, a rock-shaft journaled in the carrier and provided with a claw and with a radial arm, and an actuating-bar having a cavity or recess to receive the radial arm of the rock-shaft, and adapted to move a limited distance independently of the carrier and thereafter to move with the carrier; substantially as set forth.

45. In combination with a stamp or label holder, mechanism for starting and for withdrawing stamps or labels therefrom, comprising the following elements in combination; a guide V′; head or block A^2 movable thereon and carrying rock-shaft f^2, provided with arm g^2 and claw x^2; head or block W′ also movable upon guide V′ and provided with fixed jaw s^2, and with rock-shaft a^2 carrying movable jaw b^2 and arm c^2; slide lifting-bar X′ slotted to receive arm g^2 and notched to receive arm c^2; and means for moving bar X′ longitudinally.

46. In combination with a gripping device, and with a label or stamp starting device; an actuating-bar common to both, but cut away substantially as shown and described, whereby it is caused to act upon the starting device only when nearing the end of its movement in either direction.

47. In combination with a guide; a head or block movable thereon and provided with a fixed jaw; a rock-shaft journaled in said block and provided with a movable jaw and with an arm; a slide or actuating bar notched to receive said arm; and a pin passing through a slot in the block or head and serving to limit the movement of the slide or the block either in relation to the other.

48. In combination with a guide; a head or block movable thereon and provided with a fixed jaw; a rock-shaft mounted in said block and provided with a second jaw and with an arm; a slide or actuating bar having a limited movement relatively to said block; a lifting-lever for elevating said bar; and means for lifting the block a short distance independently of the bar; whereby the rock-shaft is turned to move the second jaw away from the fixed jaw.

49. In combination with head or block W′, its gripping devices, lifting or actuating bar, and inclined lug r^3; lever E^3 provided with roller s^3, and means substantially such as shown and described for moving said lever.

50. In combination with block A^3 provided with plate p^3; block W′ provided with a gripping device; a paste-roller located near the block A^3; an actuating-slide X′ serving to move the blocks A^3 and W′, substantially as described; and a rod or bar D^3 carried by block W′ and provided with lifting-pieces n^3 and o^3 to throw back the paste-roller at the termination of both movements of the slide X′.

51. In combination with a track or way having yielding portions to permit a package to be forced downward through the track; a stamp or label holder; a gripper for withdrawing a stamp or label from the holder; a reciprocating head to move a package against the suspended stamp or label and to deliver it to the yielding portion of the track or way; and a follower adapted to bear upon the package as the gripper descends and to force it through the track or way.

52. In combination with a track or way; a package-support adapted to rise to and fall away from said track or way, and recessed on its upper face; a magazine to contain cards, or books of papers; and a slide or ejector adapted to move across the bottom of the magazine and to deliver a card or book therefrom to the recessed face of the support, beneath the package thereon.

53. In combination with a track or way having yielding portions to support a bag or package; a head movable toward and from the way from above, to force a package through the same; a package-support movable to and from the way from below; and mechanism for causing said head and support to rise and fall at proper times, substantially as set forth.

54. In combination with a track or way having a yielding section; a rising-and-falling package-support beneath said section, having a depressed portion; rolls on opposite sides of said support; a stamp or label holder at one side of the package-support; a gripper normally located at the opposite side of the support, adapted to draw a stamp or label from the holder and to lay it across the rollers and over the depressed portion of the package-support; and a head or follower arranged to bear upon the package, to force it through the track, and to carry it with the stamp or label between the rollers.

55. In combination with a rising-and-falling package-support, and a head or follower to bear upon the package; rolls located on opposite sides of the package-support; means for laying a label or stamp across said rolls; and mechanism for causing the rolls to move inward over the package after the package descends between them, for the purpose of ironing down the ends of the stamp or label.

56. In a machine for applying labels or stamps to packages, the combination of a package-support, and an ironing or pressing roller having corrugations extending circumferentially around it; whereby it is adapted to press the label or stamp firmly to the package on said support without the formation of blisters.

57. In combination with rolls Y^3 Z^3; label-holder G^3; guide-bar H^3; carriers I^3 J^3; provided respectively with label starting and gripping devices; notched bar K^3; and mechanism, substantially such as described for imparting motion to the bar K^3.

58. In combination with a guide as E^3; slides or carriers F^3 G^3, movable therein and provided with studs t^4 u^4 and rollers Y^3 Z^3; springs s^4 tending to separate said slides or carriers; bar H^3 provided with slots to receive the studs t^4 u^4; a follower to force a package through the space between the rolls Y^3 Z^3; a support to sustain the package after passage between the rolls; and means substantially such as shown for reciprocating bar H^3 longitudinally.

59. In combination with platform A^3, provided with rib or guard k^4; lever O^3 adapted to engage a package lying upon said platform and to move it to a point where its forward end projects past the end of guard k^4; and means for vibrating said lever.

60. In combination with platform A^3 and its guard k^4; means for moving a package over said platform until its end projects beyond said guard; a bunter movable at right angles to the guard k^4 at a point beyond the end thereof; and means for reciprocating said bunter; whereby the package is turned at an angle to its first line of movement.

61. In combination with platform A^3 provided with guard k^4; lever O^3; mechanism for vibrating said lever; guide Y^3; slide Z^3 movable upon said guide; a bunter k^3 carried by slide Z^3; and means substantially such as described and shown for reciprocating said slide.

62. In combination with a label-holder; a slide and bunter adapted to move a package to a position thereunder; and a pendulous paste-receptacle located between the bunter and the label-holder; the bunter being provided with a projection at its forward end to swing the paste-receptacle upward clear of the forward end of the advancing package; but to permit it to fall and apply paste to the face of the package just after the front end has so passed.

63. In combination with a label-holder; a paste-receptacle adapted to swing upward toward said holder but incapable of swinging upward in the reverse direction; a follower adapted to carry a package beneath the paste-receptacle and to deliver it directly beneath the label-holder; an arm or bunter carried by the follower; and a spring-support for said bunter; whereby the bunter is caused to swing the paste-receptacle upward on its forward movement, but is enabled to fall and clear said receptacle on the return movement.

64. In combination with paste-receptacle H^4 having projection q^4; sliding block Z^3; lever A^4 pivoted to said block; bunter k^3 and arm l^3 projecting from said lever; and spring m^3 bearing against arm l^3, substantially as and for the purpose explained.

65. In combination with paste-receptacle H^4 and its roller r^5; label-holder R^3; lever I^4 provided with pad or plate H^3; a follower to move a package beneath the paste-receptacle and the label-holder successively; mechanism for depressing the label-holder upon the package; and means for thereafter pressing the pad or plate upon the package.

66. In combination with paste-receptacle H^4 and its delivery-roller; label-holder R^3; lever V^3, rod W^3, and cam X^3, for actuating said holder; lever I^3; pad H^3 carried by said lever; slide Z^3 provided with lever A^4 and bunter k^3; levers B^4 D^4, links C^4, E^4, cam F^4 and spring G^4 for moving slide Z^3; and band w^5 connecting the lever I^3 with the actuating mechanism of the slide Z^3.

67. A label-holder having side walls and inwardly-projecting lips at the lower edges thereof; an overhanging arm; a sleeve movable through said arm and provided with a cross-bar; a spring carried by said arm and tending to elevate the cross-bar; a stem passing through the sleeve and carrying a follower to bear upon the labels within the holder; a locking-dog carried by the cross-bar and adapted to engage the stem of the follower and to prevent its rise relatively to the cross-bar; and a lever extending over the cross-bar and beneath lugs of the holder; substantially as shown; whereby it is adapted to lift the holder bodily; to lower it; and to press down the follower independently of or relatively to the holder.

68. In combination with holder R^3 provided with lugs s^3 slots d^3, and lips or plates y^4; overhanging arm S^3; sleeve a^3 extending through said arm; cross-bar b^3 carried by said sleeve and provided with tenons c^3; a notched stem passing through the sleeve and pro-

vided with a follower T^3; a dog f^3 serving to prevent upward movement of the stem through the sleeve; a spring U^3 tending to lift the sleeve; and lever V^3 extending between the lugs s^3 and the cross-bar b^3, substantially as set forth.

69. In combination with a label-holder; a gripper for withdrawing labels therefrom; a paste-applying device located in position to apply paste to the label as it is withdrawn from the holder; and a bar provided with one or more projections to force back the paste-applying devices and thereby to prevent application of paste to a portion or portions of the label.

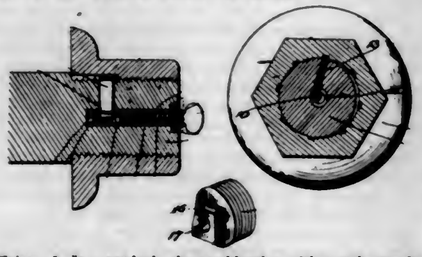
70. In combination with plate F; disk C; measure E carried by said disk; and band b^4 encircling the lower end of the measure and arranged to bear upon plate F.

71. In a bag-packing machine, the combination with form n', of hook or pin n^2, to receive the bag-string and hold it out of the way of other parts of the mechanism.

72. In an organized structure, the combination of mechanism for measuring and weighing a given charge; packing mechanism adapted to compress the charge and to give form to the package; means for applying to the package a stamp and label or labels; and intermediate connecting and actuating mechanism, whereby the several parts are caused to perform their respective operations in proper time and sequence.

73. In a machine for packing goods, the combination of automatic measuring and weighing mechanism; automatic packing or compressing mechanism; automatic stamp-applying mechanism; and intermediate connections, substantially such as described, whereby the several mechanisms are caused to perform their operations in proper time and sequence and without interference.

579,547. NUT-LOCK. GEORGE W. PERRY, Woodside, N. Y. Filed Nov. 25, 1896. Serial No. 613,440. (No model.)



Claim.—1. In a nut-lock, the combination with a male member having a spring-actuated catch normally standing beyond the face of the same and means for retracting said spring-actuated catch and bringing its outer point within the face of said male member, of a female member provided with interior grooves to receive the end of said catch.

2. In a nut-lock, the combination with a male member provided with a longitudinal opening, a lateral opening, a catch situated within said lateral opening, a rotatable pin situated within said longitudinal opening, connections between said catch and pin to move the former longitudinally by reason of the rotation of the latter and devices for rotating said pin in opposite directions, of a female member provided with interior grooves to receive said catch.

3. In a nut-lock, a male member provided with a longitudinal opening, a lateral opening extending from said longitudinal opening, a catch situated within said lateral opening, a rotatable pin situated within said longitudinal opening and pivoted to the inner end of said catch, and devices for turning said pin in opposite directions.

4. In a nut-lock, a male member having a longitudinal opening, a lateral opening extending through said longitudinal opening, a catch-pin on the inner end of said key-pin, a catch situated within said lateral opening and pivoted at its inner end to said catch-pin, and devices for turning said key-pin in opposite directions.

5. In a nut-lock, a male member provided with a longitudinal opening, a rotatable key-pin situated within said opening and provided at its inner end with a catch-pin, a collar upon said key-pin fitting within said opening, a cap-nut at the outer end of said opening, and through which said key-pin passes, a lateral opening extending from the inner end portion of said longitudinal opening, a catch situated within said lateral opening and pivoted to said catch-pin, and devices for rotating said key-pin in opposite directions.

6. In a nut-lock, a male member provided with a movable catch and a rotatable pin for moving the same, a spring for turning said pin in one direction, and stops situated between said pin and said male member to limit the movement of said pin.

7. In a nut-lock, a male member provided with a longitudinal opening, a lateral opening, a rotatable pin situated within said longitudinal opening, a catch situated within said longitudinal opening, connections between said pin and catch to move the latter by reason of the rotation of the former, a spring connected with said pin and with the male member to turn said pin in a direction to move the catch outwardly, a projection upon said male member, and a finger upon said pin to engage said projection.

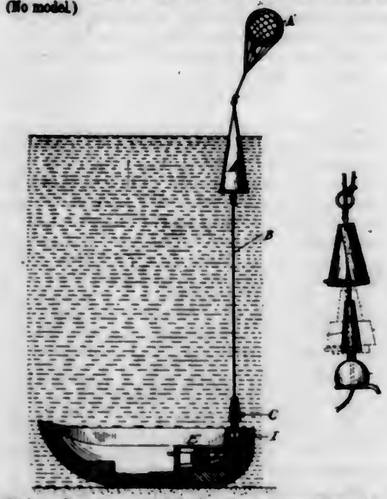
8. In a nut-lock, a male member provided with a movable catch and a rotatable pin for moving the same, a spring for turning said pin in a direction to move said catch outwardly, stops to limit the outward movement of said catch, a finger upon said pin, and a notch in said male member to receive said finger.

9. In a nut-lock, a male member provided with a longitudinal opening, a lateral opening extending therefrom, a rotatable key-pin situated within said longitudinal opening and having an eccentric catch-pin, a catch situated within said lateral opening and pivoted to said catch-pin, a spring for turning said key-pin in a direction to move said catch outwardly, and a stop situated to engage said key-pin and to hold it against the action of the spring, said parts being arranged to coact when the outer end of the catch stands a little beyond the outer face of the male member and is in a tangential position in relation to the key-pin.

10. In a nut-lock, a male member provided with a longitudinal opening having a countersunk outer end portion, a lateral opening extending from said longitudinal opening, a cap-nut situated within said countersunk portion within the longitudinal opening and provided with a projection 16 and notch 17, a rotatable key-pin passing through said cap-nut and provided with a finger 15, a spring for turning said key-pin in one direction and for drawing it into the longitudinal opening, and a catch situated within said lateral opening and pivoted to said key-pin.

11. In a nut-lock, the combination with a male member provided with a longitudinal opening, a lateral opening extending therefrom, a cap-nut situated within the outer countersunk portion of said longitudinal opening and provided with a central opening and a projection 16 and notch 17, a key-pin passing through said opening in the cap-nut and provided with a finger 15 situated outside of said cap-nut, a collar 11 upon said key-pin fitting within said longitudinal opening, an eccentric catch upon the inner end of said key-pin, and a catch situated within said lateral opening and pivoted to said catch-pin, of a female member provided interiorly with a plurality of longitudinal grooves.

579,548. DEVICE FOR LOCATING SUNKEN BOATS. ALBERT H. PIERCE, Hillsdale, Mich. Filed June 26, 1896. Serial No. 554,062. (No model.)



Claim.—In an apparatus for locating or recovering sunken boats, the combination of the shouldered cone-shaped eye C having an orifice through it, said cone-shaped eye being fastened to the boat, the rope B, passed up through said orifice, a signal attached to sai rope and adapted to rise to or above the surface of the water, a grappling-clamp F having two pivotally-connected jaws each having a heavy flange on the inside of its base, said clamp being adapted to be run down on the rope and engage the shoulder of the cone-shaped eye, the ring G also being adapted to be run down on the ropes B and H and onto the grappling-clamp to hold the jaws of the clamp firmly in place, and the cable H attached to the ring at the top of the grappling-clamp, substantially as described.

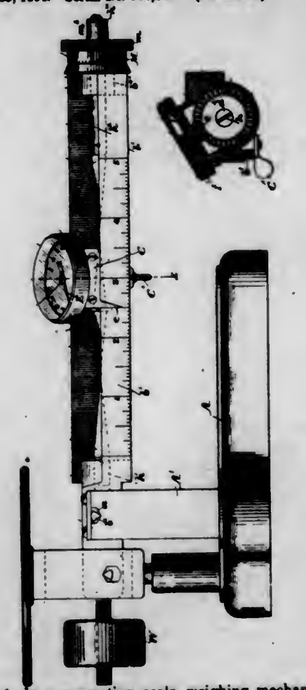
579,549. PRINTING ATTACHMENT FOR ROLL-PAPER HOLDERS. WILLIAM B. RUST, Portland, Oreg. Filed Dec. 29, 1896. Serial No. 617,387. (No model.)



Claim.—1. In a roll-paper-printing attachment in combination the frame 9 and connecting-rods 10, 12, mounted upon a suitable support adapted to be affixed to a table or other surface, and to admit of the frame being laterally shifted thereon to adjust the device to the face of the paper roll, the case 8 and the printing mechanism mounted therein and comprising the printing-roll 13 the inking-rolls 14 15, and the blotting-roll 16, the bearings for the rolls, 13, 16, being fixed and the rolls 14 and 15 being journaled in slotted bearings, and adapted to bear against the surface of said printing-roll, substantially as described.

2. In a roll-paper-printing attachment in combination the frame 9 and connecting-rods 10 12, mounted upon the slats 1, and 1^a, the case 8 containing the rolls 13 14 15 16, the slotted bearings 17, 18, for the rolls 14 15, and the springs 19 for the purpose specified, the inking-rolls, 14, 15, having longitudinal and peripheral slots 20, to 23, and 24, 25, the former containing some absorbent material, substantially as set forth.

579,550. COMPUTING-SCALE. HORACE R. SWIFT, Boston, Mass., assignor to the National Computing Scale Company, Portland, Me. Filed Jan. 25, 1896. Serial No. 576,847. (No model.)



Claim.—1. In a computing-scale, weighing mechanism, price-computing mechanism; and a separate controlling member to determine by its form the operation of the computing mechanism, substantially as described.

2. In a computing-scale, weighing mechanism, price-computing mechanism; a controlling member to determine by its form the operation of the computing mechanism, and a unit-price-selecting device to govern the form of the controlling member, substantially as described.

3. In a computing-scale, weighing mechanism; price-computing mechanism; a resilient controlling member adapted to determine by its change of form the operation of the price-computing mechanism, and means to retain said controlling member in a predetermined form, substantially as described

4. In a computing-scale, weighing mechanism; price-computing mechanism; and a flexible controlling member to determine the operation of said computing mechanism by flexure of the controlling member in accordance with the unit price, substantially as described.

5. In a computing-scale, weighing mechanism; price-computing mechanism actuated by operation of the weighing mechanism, a resilient metallic controlling member adapted to be varied in form to determine the operation of the computing mechanism, and a manually-operated price-selecting device to vary the form of said controlling member, substantially as described.

6. In a computing-scale, weighing mechanism including a member positioned according to the weight of the article; price-computing mechanism actuated by movement of said member, and a controlling member to determine by its change of form the operation of the price-computing mechanism, substantially as described.

7. In a computing-scale, weighing mechanism including a member positioned according to the weight of the article; price-computing mechanism carried thereby; a controlling member in continuous engagement with the computing mechanism, to determine by its form the operation of said mechanism, and means to change the form of said controlling member in accordance with the unit price, substantially as described.

8. In a computing-scale, weighing mechanism, including a member positioned according to the weight of the article; price-computing mechanism carried thereby; a resilient controlling member in engagement with said computing mechanism, and means to impart spiral twist to said controlling member varied in pitch in accordance with the unit price, to determine the operation of the computing mechanism, substantially as described.

9. In a computing-scale, weighing mechanism; price-computing mechanism, including a rotatable member; a resilient controlling member in engagement therewith, and means to impart spiral twist to said controlling member in accordance with the unit price, relative movement of said rotatable controlling members in the direction of the length of the latter determining the operation of the computing mechanism, substantially as described.

10. In a computing-scale, weighing mechanism, including a beam and a poise movable thereon; price-computing mechanism carried by said poise; a controlling member supported by the beam, and means to change the form of said member in accordance with the unit price, to determine the operation of the computing mechanism substantially as described.

11. In a computing beam-scale, a beam; a poise movable thereon; a resilient metallic controlling member supported by said beam and rigidly held at one end thereof; means to twist said controlling member in accordance with the unit price of the article weighed, and price-computing mechanism bodily movable in unison with the poise and in continuous engagement with and having its operation determined by the change in form of the controlling member, substantially as described.

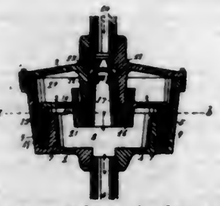
12. In a computing beam-scale, a beam; price-computing mechanism bodily movable thereon; a thin metallic strip supported by the beam and rigidly held at one end constituting a controlling member; manually-operated means to twist said strip in the direction of its length, and to retain it in twisted form, and a device to maintain the controlling member under tension, the pitch of the spiral of said member determining the operation of the computing mechanism when moved bodily on the beam, substantially as described.

13. In a computing-scale, weighing mechanism; computing mechanism bodily movable according to the weight of the article; a resilient, flexible controlling member in engagement with and adjacent the path of bodily movement of said computing mechanism, and means to twist said controlling member to thereby determine the operation of the computing mechanism, the pitch of the spiral varying according to the unit price, substantially as described.

14. In a computing-scale, a beam; price-computing mechanism thereon, a resilient, flexible controlling member also supported by the beam and in engagement with said mechanism, to determine by its form the operation of the latter, and means to change the form of said member in accordance with the unit price of the article, said computing mechanism and controlling member being relatively movable in the direction of the length of the latter, substantially as described.

579,551. FLUID-PRESSURE REGULATOR. CORNELIUS C. WRIGHT, Titusville, Pa. Filed Nov. 11, 1896. Serial No. 611,747. (No model.)

Claim.—1. In a gas-pressure regulator; the float or diaphragm, constructed as described and shown, with the outer depressed rim inserted in a mercurial seal in the core, and carrying the second mercurial seal between two raised rims near the center, and with an opening through the center of the diaphragm admitting a direct flow of gas from the inlet to the outlet pipe; substantially as shown and described.



2. In a gas-pressure regulator; the float or diaphragm, constructed as shown, with the outer depressed rim inserted in a mercurial seal in the case, and carrying the second mercurial seal between two raised rims near the center: the center rim being extended upward and forming a valve adapted to close the inlet from the inlet gas-pipe; and with opening through the shell of the inner rim below the valve-seat to admit gas to the interior of the cone; in combination with a depressed ring on the cover of the regulator the lower edge of which is inserted in the second mercurial seal; substantially as shown and described.

3. In a gas-pressure regulator; the float or diaphragm, constructed as shown, with the outer depressed rim inserted in a mercurial seal in the case, and having in the said diaphragm the central depressed cylindrical cup; in combination with the annular ring 12, attached to and forming a part of the cover, the lower edge of said ring 12 being in a mercurial seal in said cylindrical cup; the central wall of said cylindrical cup being extended up and forming a valve fitted to close the opening in the inlet-pipe 10, the wall of the same being perforated below the valve-seat to admit gas into the interior of the cone; and with an opening through the web of the diaphragm, thus allowing of a direct passage for the gas from the inlet to the outlet pipe; substantially as shown and described.

4. A gas-pressure regulator; consisting of the cup-shaped case 1, with an upward-projecting ring 7, near the outer side, and with an opening in or near the center for the outflowing-gas pipe; a cover 2, upon said case with a central opening to receive the inflowing gas, said opening being surrounded by the dependent ring 12; a float or diaphragm, consisting of a web the outer rim of which is dependent and passing loosely between the ring 7, and the wall of the case, the web having in center the partially-depressed cup 16, the outer wall of which loosely surrounds the dependent ring 12, and the inwardly upward-projecting cone or cylinder passes loosely inside the depressed ring 12, the upper end of the cone forming a valve for closing the port of the inflowing-gas pipe, the walls of the cone being perforated below the valve-seat, the bottom of the cup being removed inside the cone 17; and with mercurial seals in the depressed ring between the outer wall of the cup 16, and the cone 17, and between the ring 7, and the wall of the case; all the parts working in combination substantially as shown and for the purpose herein set forth.

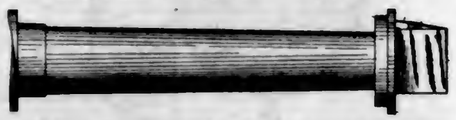
579,552. PICTURE-CORD FASTENING. EDWARD D. AUSTIN, Battle Creek, Mich. Filed Apr. 29, 1896. Serial No. 589,563. (No model.)



Claim.—1. In a combined hanger and fastener of the character described, the combination of a screw having a penetrating tapered end, and having an elongated cord-receiving slot *c* in its threaded blunt end, and a collar at the base of the slot to limit the penetration of the screw and afford a binding-surface for a cord or wire; with a thumb-nut E screwed on the slotted end of the screw adapted to serve as a means for screwing the hanger in place and also to clamp a cord or wire passed through the slot against the collar, substantially as and for the purpose described.

2. In a combined hanger and fastener the combination of the screw A having a tapered and penetrating end B, and a cylindrical threaded portion C of larger diameter than the tapered threaded penetrating portion and longitudinally slotted as at *c*, and an integral collar intermediate the penetrating and projecting portions, the parts B, C, D, being integral; with the thumb-nut E screwed on the projecting portion C, and adapted to serve as the means for forcing the screw into the wood and also to clamp a cord or wire against the collar, all substantially as and for the purpose described.

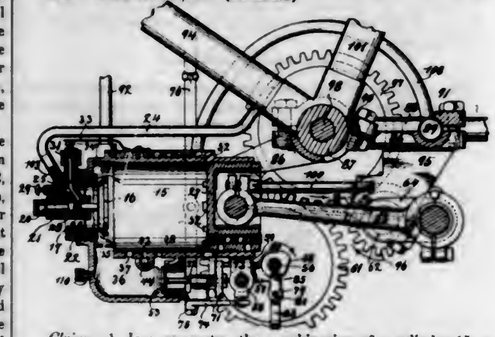
579,553. AXLE-NUT-LOCKING DEVICE. ISAAC F. BAMFORD, Milwaukee, Wis., assignor of one-half to John R. Zaun, same place. Filed Aug. 29, 1896. Serial No. 604,289. (No model.)



Claim.—1. The combination with a spindle provided with a screw-threaded extremity and a transverse socket therein, of a locking-pin movable endwise in the socket, a spring in the socket beneath the pin adapted to force the pin outwardly yieldingly, a retaining-pin inserted releasably in the spindle through a slot therefor in the locking-pin limiting endwise and preventing revoluble momement of the locking-pin, and a nut provided with an aperture adapted to receive the locking-pin, the nut being adapted to turn onto the spindle.

2. The combination with a spindle provided with a transversely-movable locking-pin, of a nut provided with a transverse aperture through one side thereof, and an elastic finger secured to the nut and provided with a plunger adapted to enter the aperture in the nut and to push the locking-pin therefrom.

579,554. GAS-MOTOR. EDWARD W. BLUM, Cincinnati, Ohio, assignor of one-half to John H. Strieker, Anderson, Ind. Filed Dec. 26, 1896. Serial No. 573,306. (No model.)



Claim.—1. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an air-inlet opening 17, an admission-valve 16 adapted to close and open it, an admission-port 19 in the valve-seat of the latter, a valve-stem on valve 16, a piston 26 permanently connected to said stem, a receiving-chamber 21 occupied by piston 26, an oil-supply pipe, a passage 25 connecting the latter with chamber 21, as well as port 19, thereby serving at once as an inlet as well as a discharge opening for chamber 21, means to ignite the charge in the cylinder and an exhaust-valve with means to operate it.

2. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an air-inlet opening 17, an admission-valve 16 adapted to close and open it, an admission-port 19 in the valve-seat of the latter, a valve-stem on valve 16, a piston 26 permanently connected to said stem, a receiving-chamber 21 occupied by piston 26, an oil-supply pipe, a passage 25 connecting the latter with chamber 21 as well as port 19, thereby serving at once as an inlet as well as a discharge opening for chamber 21, a spring-actuated valve 31 which controls communication between passage 25 and port 19 irrespective of the quantity ejected by the piston, means to ignite the charge in the cylinder and an exhaust-valve with means to operate it.

3. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an air-inlet opening 17 and an admission-port 19 in the cylinder, an admission-valve 16 adapted to close or open the two, a valve-stem on the latter, a piston 26 thereon, a receiving-chamber 21 occupied by piston 26, a passage 25 connecting chamber 21 with port 19, a supply-pipe connecting with passage 25, a return-pipe 103 connecting chamber 21 with supply-pipe 24, means to ignite the charge in the cylinder and an exhaust-valve with means to operate it.

4. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an open-

ing in the end of the cylinder adapted to receive and containing a casting 22 which forms at its inside a valve-seat and at its outside a nut 23, containing further a port 19 in the part forming the valve-seat, a central chamber 21, with an air-inlet opening 17 around it, a passage 25 connecting chamber 21 with port 19 and also extended outwardly for connection to a supply-pipe, an admission-valve 16, means to ignite the charge in the cylinder and an exhaust-valve with means to operate it.

5. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, air and gas inlets to the cylinder and an admission-valve controlling these inlets, a charge-receiving pocket 36 open to the cylinder and connected to it by ports, an ignition-chamber 44, also connecting with the cylinder by a port 43, an ignition-pocket 39 in the piston and ports 41 and 42 opening outwardly therefrom, all ports so located that the ports in the piston pass over the ports in the cylinder and permit temporary communication through them during the time the piston passes over them, a lighter-chamber 45 connecting with ignition-chamber 44, a lighter-valve 46 controlling this connection, an exhaust-valve and means to operate the lighter and exhaust valve.

6. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an air-inlet opening 17 and an admission-port 19 in the cylinder, an admission-valve 16 adapted to close or open the two, a valve-stem on the latter, a piston 26 thereon, a receiving-chamber 21 occupied by piston 26, a passage 25 connecting chamber 21 with port 19, a supply-pipe connecting with passage 25, a charge-receiving pocket 36 open to the cylinder and connected to it by ports, an ignition-chamber 44 also communicating with the cylinder by a port 43, an ignition-pocket 39 in the piston and ports 41 and 42 opening outwardly therefrom, all ports so located that the ports in the piston pass over the ports in the cylinder and permit temporary communication through them, a lighter-chamber 45 connecting with ignition-chamber 44, a lighter-valve 46 controlling this connection, an exhaust-valve and mechanism to operate the lighter and exhaust valves.

7. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, air and gas inlets to the cylinder, an admission-valve controlling these inlets, a charge-receiving pocket 36 open to the cylinder and connected to it by ports, an ignition-chamber 44, also connecting with the cylinder by a port 43, an ignition-pocket 39 in the piston and ports 41 and 42 opening outwardly therefrom, all ports so located that the ports in the piston pass over the ports in the cylinder and permit temporary communication through them during the time the piston passes over them, a lighter-chamber 45 connecting with ignition-chamber 44, a lighter-valve 46 controlling this connection, an angle-lever 65 connected to lighter-valve 46, a spring to hold it normally closed, a rotating cam 54 to operate lever 65 and an exhaust-valve and mechanism to operate it.

8. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an air-inlet opening 17 and an admission-port 19 in the cylinder, an admission-valve 16 adapted to close or open the two, a valve-stem on the latter, a piston 26 thereon, a receiving-chamber 21 occupied by piston 26, a passage 25 connecting chamber 21 with port 19, a supply-pipe connecting with passage 25, a charge-receiving pocket 36 open to the cylinder and connected to it by ports, an ignition-chamber 44, also connecting with the cylinder by a port 43, an ignition-pocket 39 in the piston and ports 41 and 42 opening outwardly therefrom, all ports so located that the ports in the piston pass over the ports in the cylinder and permit temporary communication through them during the time the piston passes over them, a lighter-chamber 45 connecting with ignition-chamber 44, a lighter-valve 46 controlling this connection, an angle-lever 65 connected to lighter-valve 46, a spring to hold it normally closed, a rotating cam 54 to operate lever 65 and an exhaust-valve and mechanism to operate it.

9. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, air and gas inlets to the cylinder, an admission-valve controlling these inlets, a charge-receiving pocket 36 open to the cylinder and connected to it by ports, an ignition-chamber 44, also communicating with the cylinder by a port 43, an ignition-pocket 39 in the piston and ports 41 and 42 opening outwardly therefrom, all ports so located that the ports in the piston pass over the ports in the cylinder and permit temporary communication through them during the time the piston passes over them, a lighter-chamber 45 connecting with ignition-chamber 44, a lighter-valve 46 controlling this connection, an exhaust-valve having an outwardly-extended stem, a spring to keep it normally closed and a rotary cam 55 to open it.

10. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an air-inlet opening 17 and an admission-port 19 in the cylinder, an admission-valve 16 adapted to close or open the two, a valve-stem on the latter, a piston 26 thereon, a receiving-chamber 21 occupied by piston 26, a passage 25 connecting chamber 21 with port 19, a supply-pipe connecting with passage 25, a charge-receiving pocket 36 open to the cylinder and connected to it by ports, an ignition-chamber 44 also communicating with the cylinder by a port 43, an ignition-pocket 39 in the piston and ports 41 and 42 opening outwardly therefrom, all ports so located that the ports in the piston pass over the ports in the cylinder and permit temporary communication through them during the time the piston passes over them, a lighter-chamber 45 connecting with ignition-chamber 44, a lighter-valve 46 controlling this connection, an exhaust-valve having an outwardly-extended stem, a spring to keep it normally closed and a rotary cam 55 to open it.

11. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, air and gas inlets to the cylinder, an admission-valve controlling these inlets, an opening to permit contact of the charge in the cylinder with a live flame, a lighter-valve 46 controlling this opening, an angle-lever 65 connected to valve 46, an exhaust-opening and exhaust-valve 53 therefor, a spring to keep it normally closed, an outwardly-extending stem 72 on valve 53, a heel 171 thereon, a rotary cam-shaft 56, a cam 54 thereon revolving in the path of one end of angle-lever 65 to operate the lighter-valve, a cam 55 thereon to operate the exhaust-valve, a cam 78 for purposes of controlling speed, also mounted on shaft 56, a rod 58, a shifter 73 mounted on it, a pin 69 carried in the latter and in contact with heel 71 and an operating-lever whereby the shifter may be adjusted to bring pin 69 within the path of either cam 55 or 78 or without reach of either.

12. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, an air-inlet opening 17, an admission-port 19 in the cylinder, an admission-valve 16 adapted to close or open the two, a valve-stem on the latter, a piston 26 thereon, a receiving-chamber 21, occupied by piston 26, a passage 25 connecting chamber 21 with port 19, a supply-pipe connecting with passage 25, an opening to permit contact of the charge in the cylinder with a live flame, a lighter-valve 46 controlling this opening, an angle-lever 65 connected to valve 46, an exhaust-opening and exhaust-valve 53 therefor, a spring to keep it normally closed, an outwardly-extending stem 72 on valve 53, a heel 71 on it, a rotary cam-shaft 56, a cam 54 thereon revolving in the path of one end of angle-lever 65 to operate the lighter-valve, a cam 55 thereon to operate the exhaust-valve, a cam 78 for purposes of controlling speed, also mounted on shaft 56, a rod 58, a shifter 73 mounted on it, a pin 69 carried in the latter and in contact with heel 71 and an operating-lever whereby the shifter may be adjusted to bring pin 69 within the path of either cam 55 or 78 or without reach of either.

13. In a gas-motor the combination of a cylinder 15, a piston, connecting-rod, crank and crank-shaft to transfer the power, air and gas inlets to the cylinder and an admission-valve controlling these inlets, a charge-receiving pocket 36 open to the cylinder and connected to it by ports, an ignition-chamber 44, also connecting with the cylinder by a port 43, an ignition-pocket 39 in the piston and ports 41 and 42 opening outwardly therefrom, all ports so located that the ports in the piston pass over the ports in the cylinder and permit temporary communication through them during the time the piston passes over them, a lighter-chamber 45 connecting with ignition-chamber 44, a lighter-valve 46 controlling this connection, an angle-lever 65 connected to valve 46, an exhaust-opening and exhaust-valve 53 therefor, a spring to keep it normally closed, an outwardly-extending stem 72 on valve 53, a heel 71 on it, a rotary cam-shaft 56, a cam 54 thereon revolving in the path of one end of angle-lever 65 to operate the lighter-valve, a cam 55 thereon to operate the exhaust-valve, a cam 78 for purposes of controlling speed also mounted on shaft 56, a rod 58, a shifter 73 mounted on it, a pin 69 carried in the latter and in contact with heel 71 and an operating-lever whereby the shifter may be adjusted to bring pin 69 within the path of either cam 55 or 78 or without reach of either.

14. In combination with the constituent parts of a gas-motor, having valve-controlled gas and air inlets, an ignition mechanism and an exhaust-valve, a cam 55 adapted to operate the latter, mounted on shaft 56 and receiving a positive rotatory motion from the motor, being also capable of an independent lateral motion of fixed limit on said shaft which brings it to a position in which it is incapable of acting on the exhaust-valve, a spring-controlled shifter 79 supported adjacent to cam 55 and connected therewith in a manner to enable it to determine the position of said cam on shaft 56 without interfering however with the rotation thereof, a cam 84 on shaft 56 receiving also a positive rotatory motion from the latter and having a lateral action upon shifter 79 in a manner to move by it cam 55 to a position in which the latter is incapable of acting upon the exhaust-valve, releasing also said shifter and with it cam 55 at the limit of their lateral motion and subjecting then these parts to the action of the spring which controls shifter 79 and whereby they are returned to a position in which cam 55 is again capable of acting upon the exhaust-valve, the number of such actions of shifter 79 being dependent on the speed of shaft 56 and the motor.

15. In combination with the constituent parts of a gas-motor, having a cylinder with a reciprocating piston and valve-controlled gas and air inlets and exhaust-outlet, an ignition mechanism, an ignition-pocket in the main piston, ports whereby the latter communicates in certain positions with the ignition mechanism and means to operate the latter and the valves.

16. In combination with the constituent parts of a gas-motor, having a cylinder with valve-controlled gas and air inlets and exhaust-outlet, a valve-controlled ignition mechanism, cams to operate the latter and the exhaust-valve, a rotating cam-shaft 56 on which the cams are mounted, a bracket 57 which supports shaft 56, a lug 59 depending from the cylinder, a rod 58 passing through it and the bracket for connecting the latter, the connection being such as to bring shaft 56 below the cylinder.

17. In combination with the constituent parts of a gas-motor, having a cylinder with valve-controlled gas and air inlets, an ignition mechanism, an exhaust-outlet, a valve controlling it, a laterally-movable, rotating cam 55 to operate it, a shifter 73 carrying a pin 69 through which cam 55 acts upon the exhaust-valve, a lever whereby shifter 73 may be adjusted to bring pin 69 either within or outside of operative connection with cam 55, a rod 58 upon which shifter 73 is mounted and a lug 59 to which rod 58 connects.

18. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, said bearing being supported on the frame between the two wheels of the bicycle, a gas-motor consisting of a cylinder piston, connecting-rod, crank and crank-shaft 62 and other necessary parts, of a frame connected to the cylinder and fitted from the under side against bearing 87 and rearwardly-extending parts 88 of the bicycle-frame, caps 90 and 91 fitted over these parts from above and adapted to be connected to the parts below to complete the attachment of the motor to the bicycle between the wheels thereof and a gear-train connecting shafts 62 and 98.

19. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, said bearing being located on the bicycle-frame between the wheels of the bicycle, a gas-motor consisting of a cylinder, piston, connecting-rod, crank and crank-shaft 62 and other necessary parts, of a frame connected to the cylinder and adapted for attachment to bearing 87, hangers 95 depending therefrom and forming supports for shaft 62 below shaft 98 and between the bicycle-wheels and a gear-train connecting shafts 62 and 98.

20. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, a gas-motor consisting of a cylinder, piston, connecting-rod, crank, crank-shaft 62 and other necessary parts, of a frame connected to the cylinder and adapted for attachment to bearing 87, hangers 95 depending therefrom and forming supports for shaft 62, brace-rods 100 connecting them with the cylinder and a gear-train connecting shafts 62 and 98.

21. In combination with the drive-shaft 98, its bearing 87 and supporting-frame 94, 101, 102, 106 of a bicycle, a gas-motor consisting of a cylinder, piston connecting-rod, crank and crank-shaft 62 and other necessary parts, of a frame connected to the cylinder and adapted for attachment to bearing 87, a tie-rod 92 connecting the front end of the cylinder to part 94 of the frame and a gear-train connecting shafts 62 and 98.

22. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, a gas-motor consisting of a cylinder, piston, connecting-rod, crank, crank-shaft 62 and other necessary parts, of a frame connected to the cylinder and adapted for attachment to bearing 87, hangers 95 depending therefrom and forming supports for shaft 62, such hangers depending to a depth which brings the center of the crank-shaft below the center of the cylinder for the purpose described and a gear-train connecting shafts 62 and 98.

23. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, a gas-motor consisting of a cylinder, piston, connecting-rod, crank, crank-shaft 62 and other necessary parts, of a frame connecting to the cylinder and adapted for attachment to the bicycle, receiving-sockets on frame part 94 thereof and pins 109 projecting on each side therefrom adapted to receive foot-supports.

24. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, a gas-motor consisting of a cylinder, piston connecting-rod, crank, crank-shaft 62, valves and other necessary parts, operating-cams and a shaft 56 on which they are mounted, a frame for connecting the motor to the cylinder, supports for shafts 56 and 62, a pinion 96 on the latter, a gear-wheel 97 on shaft 98 driven by pinion 96 and a gear-wheel 61 on shaft 56 receiving motion from gear-wheel 97 for the purpose of operating the cam-shaft 56.

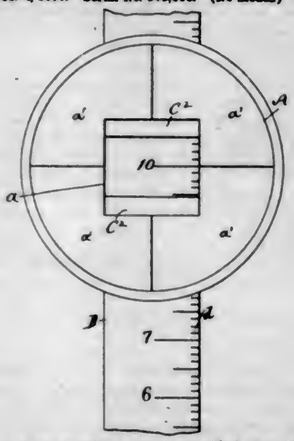
25. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, a gas-motor consisting of a cylinder, piston, connecting-rod, crank, crank-shaft 62 and other necessary parts, of a frame connecting to the cylinder and adapted for attachment to a bicycle, a gear-train for connecting shafts 62 and 98 and an operating-lever 76 for the purpose of controlling the operation of the motor, such lever being in two parts hinged together and whereof one part may be turned down and out to be used as a supporting-brace to sustain the bicycle in an upright position.

26. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, a gas-motor consisting of a cylinder, piston, connecting-rod, crank and crank-shaft 62 and other necessary parts, of a frame connecting to the cylinder and adapted for attachment to a bicycle, a gear-train for connecting shafts 62 and 98 and a nipple 110 open to the cylinder and intended for purposes described.

27. In combination with the drive-shaft 98, its bearing 87 and supporting-frame of a bicycle, a gas-motor consisting of a cylinder, piston, connecting-rod, crank, crank-shaft 62 and other necessary parts, of a frame connecting to the cylinder and adapted for attachment to a bicycle, a gear-train for connecting shafts 62 and 98, a cooling-jacket surrounding the cylinder and pipes 107 and 108 connecting it with parts 88 and 106 of the bicycle-frame, which latter parts are adapted to carry water and form with said pipe a circulating system.

28. In combination with the drive-shaft 98, its bearing 87 and supporting-frame 88, 94, 101, 102, 106 of a bicycle, a gas-motor adapted to use vaporized gas consisting of a cylinder, piston, connecting-rod, crank and crank-shaft 62, all carried by the bicycle-frame, of which latter parts are adapted to contain the gas-producing liquid or oil, an inlet-port for the latter to the cylinder, a supply-pipe 24 connecting this port with the oil-carrying parts of the bicycle-frame, a valve controlling the oil-admission to the cylinder and mechanism to operate this valve.

579,555. LEVELING-ROD. GILBERT H. COLLINS, Pittston, Pa. Filed Feb. 4, 1896. Serial No. 578,006. (No model.)



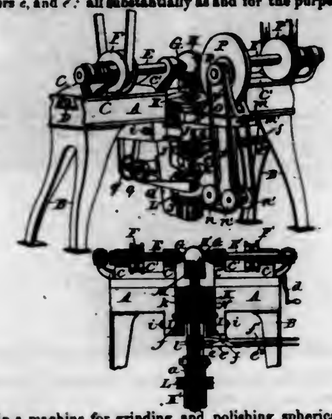
Claim.—A surveyor's target A, provided upon its rear surface with the two angular bearings c, c' of angular supports C, C', adapted to slide vertically within bearings B, B' and which are held together by cross-pieces C^2, connecting slides C, C', the whole adapted to slide upon rod D; lug c^2 upon the flange c' of slide C', which lug passes through and operates in a vertical slot b, of bearing B', said bearing having a rearwardly-projecting lug b' at its lower edge through which is threaded a vertically-adjustable screw F, journaled at its upper end with lug c^2, of slide C, substantially as shown and described.

REISSUES.

11,593. MACHINE FOR GRINDING SPHERICAL OR OTHER CURVED SURFACES. RUDOLPH CONRADER, Erie, Pa., assignor to the Brunswick-Balke-Collender Company, of Ohio. Filed Jan. 30, 1896. Serial No. 577,464. Original No. 513,632, dated Jan. 30, 1894.

Claim.—1. In a machine for grinding and polishing spherical surfaces, the combination, with the shafts E, and E', having ball-chucks thereon, of the vertically-adjustable, revoluble, shaft, having a cup-shaped polishing-tool M, mounted on its upper end and adapted to operate upon a ball held between said chucks; the whole constructed, arranged and operating together in the manner and for the purposes hereinbefore set forth.

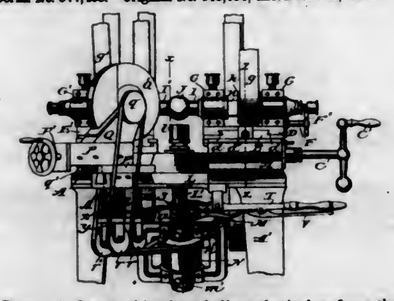
2. In a machine for grinding and polishing spherical surfaces, the combination, with a vertical shaft consisting of the sections K, and K', the upper end of the section K being provided with a cup-shaped tool M, and the lower section K' with a pulley secured thereto, by means of a spline, or groove, so that the shaft will move endwise therein, of friction-collars, or plates l, l, on the ends of said shaft; and levers e, and e'; all substantially as and for the purpose set forth.



3. In a machine for grinding and polishing spherical surfaces, the combination, of shafts E, E', provided with chucks G, G, and adapted to be moved longitudinally toward, and from a meeting point; an arm N, which vibrates about an axis, vertically in line with said meeting point of said shafts; a driving-pulley L the axis of motion of which coincides with that of said arm; a grinder-wheel P, provided with a suitable pulley; idler-pulleys n n'; and belts p p'; the whole constructed and operating substantially as and for the purpose set forth.

4. In a ball grinding and polishing machine, the combination with the shafts, or spindles E, E', and a grinding-wheel operating to cut in an arc the center of which lies in a line coincident with the axes of said shafts, of laterally-adjustable chucks G, G, on the adjacent ends of said shafts; the whole arranged to operate in the manner as and for the purpose set forth.

11,594. MACHINE FOR GRINDING SPHERICAL OR OTHER CURVED SURFACES. RUDOLPH CONRADER, Erie, Pa., assignor to the Brunswick-Balke-Collender Company, of Ohio. Filed Jan. 30, 1896. Serial No. 577,465. Original No. 513,631, dated Jan. 30, 1894.



Claim.—1. In a machine for grinding spherical surfaces, the combination of the two shafts provided with suitable ball-holding devices adapted to move back and forth toward and from a point of meeting, and one of them capable of adjustment to change the meeting-point; a grinding-wheel mounted on a carriage adapted to travel in the arc of a circle about an axis coincident with the meeting-point of said shafts; belt mechanism on said carriage for driving said grinding-wheel; and a driving-pulley, whose axis of motion is coincident with that of the swinging carriage, whereby the belt mechanism is maintained in the proper condition in all the positions, in which said carriage may be placed; all substantially as and for the purpose set forth.

2. The combination in a machine for grinding spherical and other curved surfaces, of a shaft operating in bearings on a laterally-adjustable support mounted on a longitudinally-movable carriage, with a shaft operating in bearings on a laterally and longitudinally adjustable support, mounted on a longitudinally-movable carriage, ball-chucks on the inner ends of said shafts, and means substantially as shown for simultaneously moving said carriages toward and away from each other, substantially as and for the purpose set forth.

3. The combination in a machine for grinding spherical surfaces, of two shafts having chucks thereon adapted to clamp and hold a ball between them; and a grinding-wheel traveling in the arc of a circle around a center coinciding with the center of the ball held between said chucks, with a vertical shaft having a rotating, ball-finishing, tool on the upper end thereof central with and adapted to be brought into contact with a ball held between said chucks; substantially as and for the purpose set forth.

4. The combination in a machine for grinding spherical and other curved surfaces, of a vertical shaft, consisting of sections L' and M', the upper section L' having a grinding or polishing tool on the upper end thereof, and the lower section having a driving-pulley connected therewith, so that it will move longitudinally therein, with levers connected with said shafts adapted to force the adjacent ends of the sections together, so that motion is communicated by the lower section M' to the upper section L' and also to raise said shafts up, so as to bring the tool, on the upper section thereof, into contact with the article to be ground; substantially as and for the purpose set forth.

5. The combination in one of the longitudinally-moving carriages of a machine for grinding spherical and other curved surfaces, of a lower section B operating longitudinally in gibs, or ways, on the machine-frame; a section as D operating transversely in gibs on the section B, with a section as E operating longitudinally on gibs on the section D; and a screw mechanism for adjusting said sections upon each other, substantially as and for the purpose set forth.

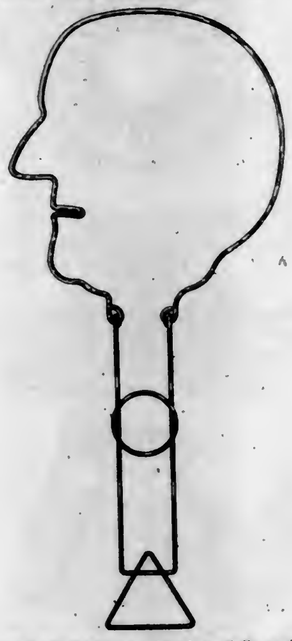
DESIGNS.

26,783. RAZOR-HANDLE. MARSHALL C. LEFFERTS, New York, N. Y., assignor to The Celluloid Company, a Corporation of New Jersey, same place. Filed Feb. 3, 1897. Serial No. 621,891. Term of patent 7 years.



Claim.—The design for razor-handles and the like, substantially as herein shown and described.

26,784. PUZZLE. GABRIEL L. HEUGEL, Los Angeles, Cal., assignor of one-half to Joseph Sunderland, same place. Filed Nov. 30, 1896. Serial No. 614,001. Term of patent 3½ years.



Claim.—The design for a puzzle substantially as shown and described.

26,785. ORNAMENTAL PRINT FOR CIGAR-BOXES. NICHOLAS WITSCH, Jersey City, N. J., assignor to the American Lithographic Company, New York, N. Y. Filed Feb. 4, 1897. Serial No. 622,048. Term of patent 7 years.



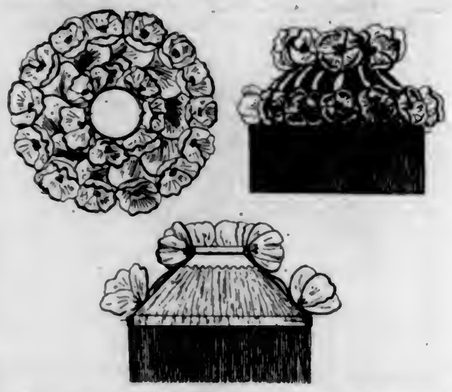
Claim.—The design for an ornamental print or pattern for cigar-boxes, substantially as shown and described.

26,786. CANDLE-SHADE. JEREMIAH VANDERBILT, Brooklyn, N. Y., assignor to Robert Lefferts, same place. Filed Feb. 4, 1897. Serial No. 622,050. Term of patent 7 years.



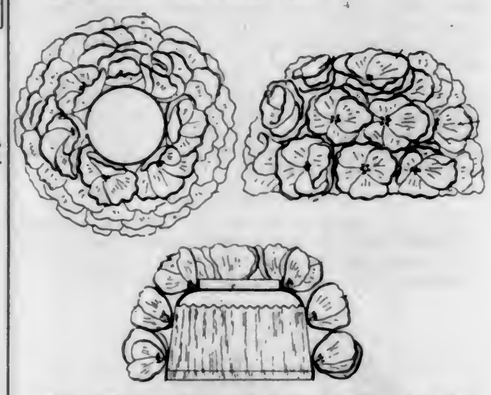
Claim.—The design for candle-shades, or the like, substantially as herein shown and described.

26,787. CANDLE-SHADE. JEREMIAH VANDERBILT, Brooklyn, N. Y., assignor to Robert Lefferts, same place. Filed Feb. 4, 1897. Serial No. 622,051. Term of patent 7 years.



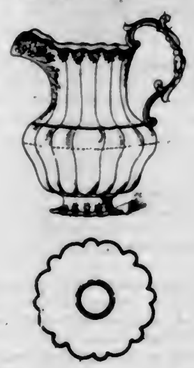
Claim.—The design for a candle-shade or the like, substantially as herein shown and described.

26,788. CANDLE-SHADE. JEREMIAH VANDERBILT, Brooklyn, N. Y., assignor to Robert Lefferts, same place. Filed Feb. 4, 1897. Serial No. 622,052. Term of patent 7 years.



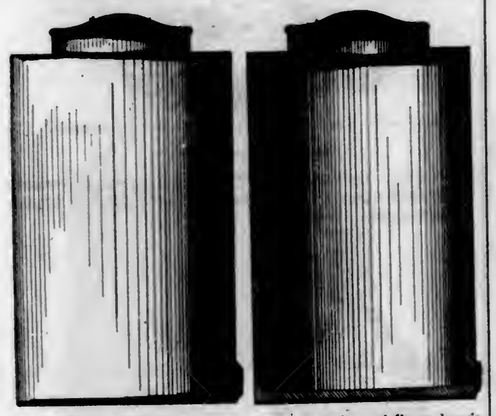
Claim.—The design for a candle-shade or the like, substantially as herein shown and described.

26,789. EWER. WILLIAM H. GRINDLEY, Congleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Dec. 15, 1896. Serial No. 615,819. Term of patent 3½ years.



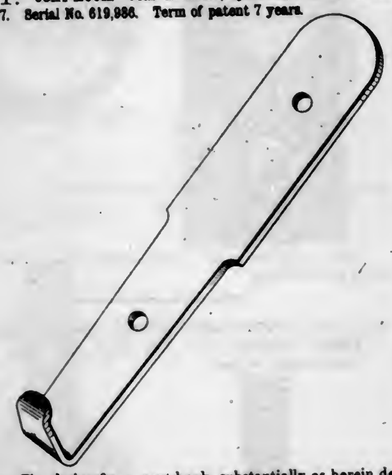
Claim.—The design for a ewer substantially as shown and described.

26,790. JAR OR BOTTLE. JACOB RUPPERT, New York, N. Y. Filed May 7, 1896. Serial No. 590,622. Term of patent 14 years.



Claim.—The design for a jar or bottle substantially as herein shown.

26,791. COAT-HOOK. JOHN R. HIRSH, Syracuse, N. Y. Filed Jan. 20, 1897. Serial No. 619,986. Term of patent 7 years.



Claim.—The design for a coat-hook, substantially as herein described and shown.

26,792. CARPET-HOOK. JOSEPH H. S. DAVIS and WILLIAM G. W. EVANS, Kokomo, Ind. Filed Feb. 3, 1897. Serial No. 621,883. Term of patent 7 years.



Claim.—The design for a carpet-hook, substantially as herein shown and described.

26,793. CHECKREIN GUIDE-LOOP. SCOTT H. HULL, Oskaloosa, Iowa. Filed Jan. 30, 1897. Serial No. 621,364. Term of patent 14 years.



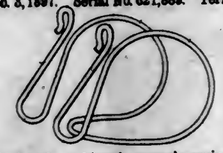
Claim.—The design for a harness-loop, substantially as herein shown and described.

26,794. BICYCLE-LAMP. WILLIAM S. HANN, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Feb. 5, 1897. Serial No. 622,230. Term of patent 14 years.



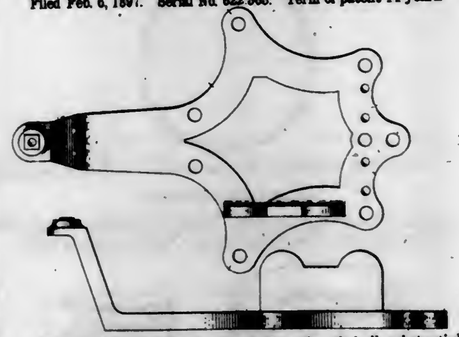
Claim.—The design for a bicycle-lamp, substantially as herein shown and described.

26,795. BICYCLE PARCEL-CARRIER. FREDERICK YUNCK, Bryan, Ohio. Filed Feb. 3, 1897. Serial No. 621,889. Term of patent 7 years.



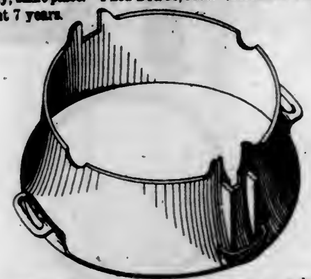
Claim.—The design for a bicycle parcel-carrier, subetantially as herein shown and described.

26,796. FRAME FOR ELECTRIC BELLS. NELSON H. RAYMOND, Buffalo, N. Y., assignor of one-half to Charles M. Proctor, same place. Filed Feb. 6, 1897. Serial No. 622,363. Term of patent 14 years.



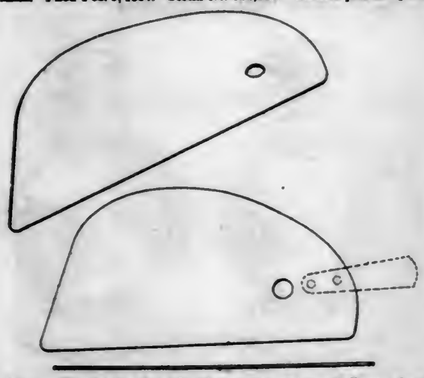
Claim.—The design for the frame of an electric bell, substantially as herein shown and described.

26,797. WAFFLE-IRON SUPPORT. MATTHEW GRISWOLD, Jr., and JOHN C. HOLLANDS, Erie, Pa., assignors to the Griswold Manufacturing Company, same place. Filed Dec. 10, 1896. Serial No. 615,218. Term of patent 7 years.



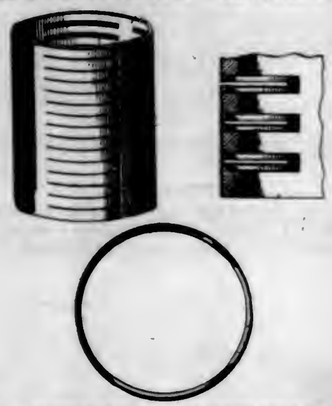
Claim.—The design for a waffle-iron support substantially as herein shown and described.

26,798. KETTLE-SCRAPER. MINNIE K. NORTON, Minneapolis, Minn. Filed Feb. 5, 1897. Serial No. 622,233. Term of patent 7 years.



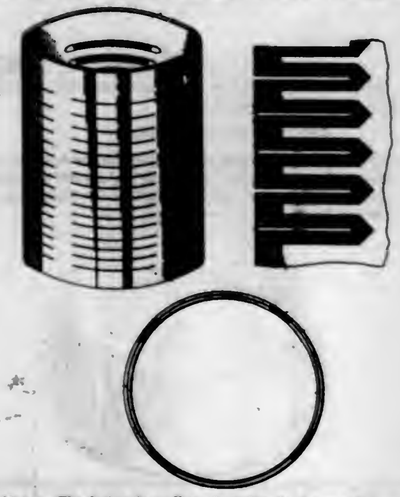
Claim.—The design for a kettle-scraper substantially as shown and described.

26,799. WELL-STRAINER. AUGUST D. COOK, Lawrenceburg, Ind. Filed Jan. 7, 1897. Serial No. 618,417. Term of patent 14 years.



Claim.—The design for well-strainers herein shown and described.

26,800. WELL-STRAINER. AUGUST D. COOK, Lawrenceburg, Ind. Filed Jan. 7, 1897. Serial No. 618,418. Term of patent 14 years.



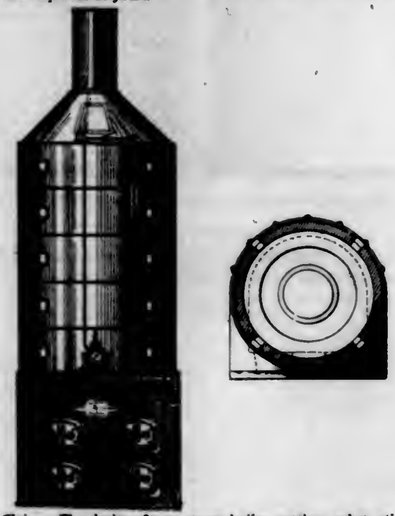
Claim.—The design for well-strainers herein shown and described.

26,801. NUT-LOCK. ABSALOM W. SPEAR, Wilkinsburg, Pa. Filed Dec. 7, 1896. Serial No. 614,851. Term of patent 7 years.



Claim.—The design for a nut-lock as shown and described.

26,802. STEAM-BOILER SETTING. EDWARD SELDEN TOWNSEND KENNEDY, Larchmont, N. Y. Filed Feb. 8, 1897. Serial No. 622,551. Term of patent 14 years.



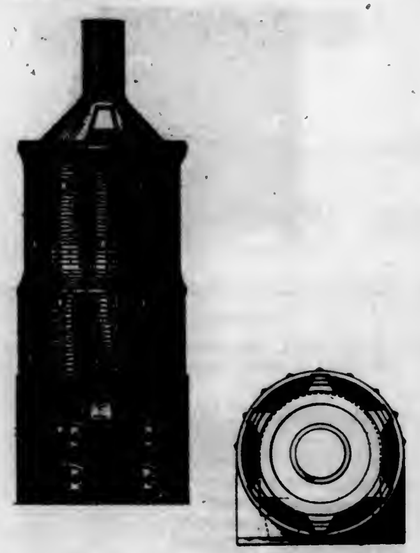
Claim.—The design for a steam-boiler setting, substantially as shown and described.

26,803. STEAM-BOILER SETTING. EDWARD SELDEN TOWNSEND KENNEDY, Larchmont, N. Y. Filed Feb. 8, 1897. Serial No. 622,552. Term of patent 14 years.



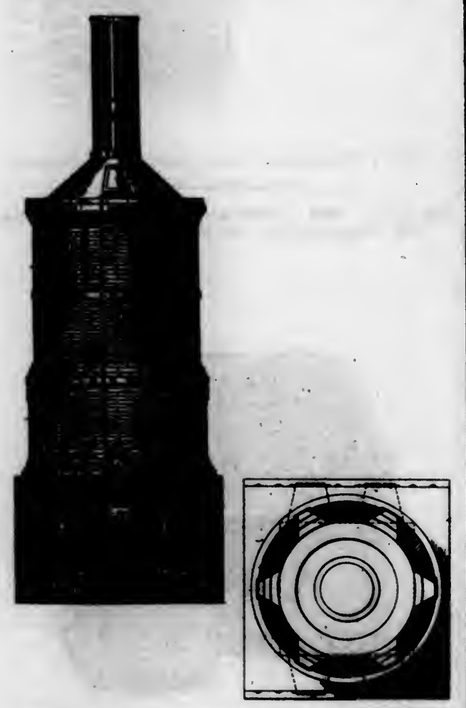
Claim.—The design for a steam-boiler setting, substantially as shown and described.

26,804. STEAM-BOILER SETTING. EDWARD SELDEN TOWNSEND KENNEDY, Larchmont, N. Y. Filed Feb. 8, 1897. Serial No. 622,553. Term of patent 14 years.



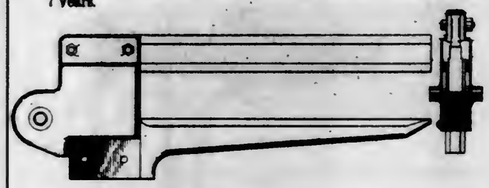
Claim.—The design for a steam-boiler setting, substantially as shown and described.

26,805. STEAM-BOILER SETTING. EDWARD SELDEN TOWNSEND KENNEDY, Larchmont, N. Y. Filed Feb. 8, 1897. Serial No. 622,554. Term of patent 14 years.



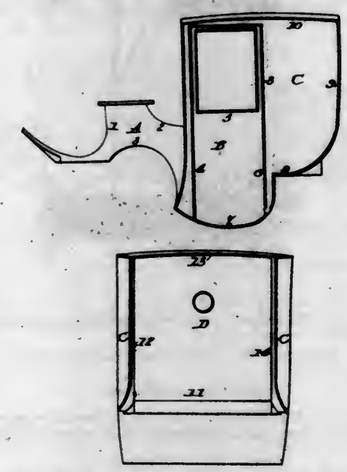
Claim.—The design for a steam-boiler setting, substantially as shown and described.

26,806. FRAME FOR GROOVING-MACHINES. HIAL S. GRANGER, Southington, Conn., assignor to The Peck, Stow & Wilcox Company, same place. Filed Feb. 4, 1897. Serial No. 622,049. Term of patent 7 years.



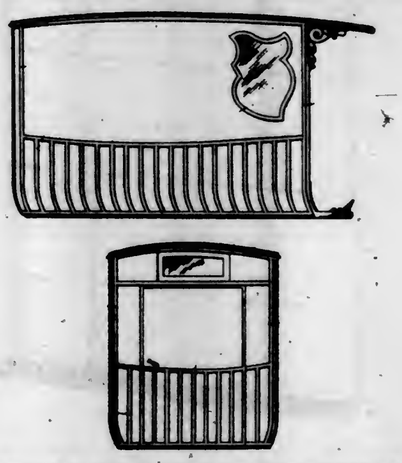
Claim.—The design for a grooving-machine frame substantially as herein shown and described.

26,807. CARRIAGE-BODY. WILLIAM R. CONNOR, Yonkers, N. Y. Filed June 20, 1896. Serial No. 597,471. Term of patent 7 years.



Claim.—The design for a carriage-body herein shown and described comprising the plain, smooth and undecorated surfaces B, C, and D.

26,808. DELIVERY-WAGON BODY. ZACHARY TAYLOR RICKARDS, Philadelphia, Pa., assignor to the Fulton & Walker Company, same place. Filed Jan. 14, 1897. Serial No. 619,253. Term of patent 7 years.



Claim.—The design for a delivery-wagon body substantially as herein shown and described.

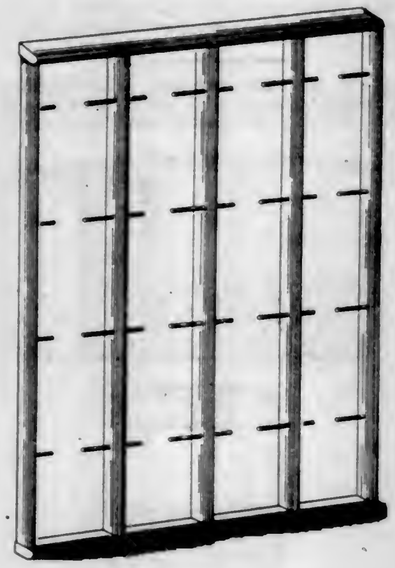
26,809. FENCE. EDWARD W. BUCH, Bridgeport, Conn. Filed Aug. 17, 1896. Serial No. 603,092. Term of patent 14 years.



Claim.—1. The design for a fence substantially as herein shown and described.

2. In a design for a fence the post, substantially as herein shown and described.

26,810. DISPLAY-RACK. FRED M. HARRINGTON, Woodsport, N. Y. Filed Jan. 27, 1897. Serial No. 616,426. Term of patent 7 years.



Claim.—The design for a rack for displaying axes substantially as herein described and shown.

26,811. DESK. JOHN GRANELSPACHER, Jasper, Ind. Filed Feb. 4, 1897. Serial No. 622,055. Term of patent 7 years.



Claim.—The design for a desk herein shown and described.

26,812. DESK. JOHN GRANELSPACHER, Jasper, Ind. Filed Feb. 4, 1897. Serial No. 622,056. Term of patent 7 years.





Claim.—The design for a desk herein shown and described.

26,813. DESK. JOHN GRANELSPACHER, Jasper, Ind. Filed Feb. 4, 1897. Serial No. 622,057. Term of patent 7 years.



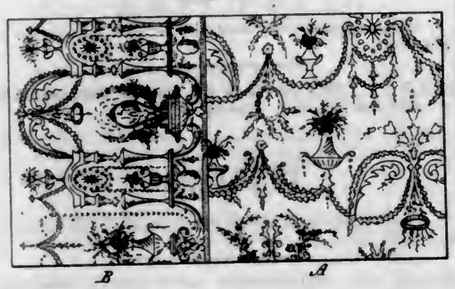
Claim.—The design for a desk herein shown and described.

26,814. BRAID. VALENTINE SCHUCK, New York, N. Y., assignor to the Sutro Brothers Braid Company, same place. Filed Feb. 6, 1897. Serial No. 622,361. Term of patent 14 years.



Claim.—The design for a braid as herein shown and described.

26,815. CARPET. ARTHUR M. ROSE, Yonkers, N. Y., assignor to the Lowell Manufacturing Company, of Massachusetts. Filed Feb. 4, 1897. Serial No. 622,054. Term of patent 3½ years.



Claim.—1. In the design for a carpet, the body A, substantially as shown.

2. In the design for a carpet, the border B, substantially as shown.

3. The design for a carpet consisisting of the body A, and the border B, substantially as shown.

26,816. CARPET. EMIL G. SAUER, Brooklyn, N. Y., assignor to the Lowell Manufacturing Company, of Massachusetts. Filed Feb. 2, 1897. Serial No. 621,702. Term of patent 3½ years.

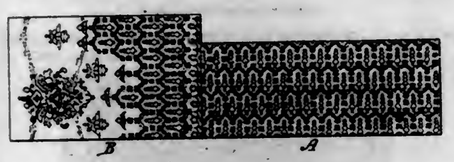


Claim.—1. In the design for a carpet, the body A, substantially as shown.

2. In the design for a carpet, the border B, substantially as shown.

3. The design for a carpet consisting of the body A, and the border B, substantially as shown.

26,817. CARPET. EMIL G. SAUER, Brooklyn, N. Y., assignor to the Lowell Manufacturing Company, of Massachusetts. Filed Feb. 2, 1897. Serial No. 621,703. Term of patent 3½ years.



Claim.—1. In the design for a carpet, the body A, substantially as shown.

2. In the design for a carpet, the border B, substantially as shown.

3. The design for a carpet consisting of the body A, and the border B, substantially as shown.

TRADE-MARKS

REGISTERED MARCH 23, 1897.

29,712. FASHION PERIODICALS. THE BUTTERICK PUBLISHING COMPANY, LIMITED, New York, N. Y. Filed Feb. 23, 1897.

THE GRAND ALBUM

Essential feature.—The words "THE GRAND ALBUM." Used since January 15, 1897.

29,713. GINGHAMS AND OTHER COLORED COTTON FABRICS. LANCASTER MILLS, Clinton and Boston, Mass. Filed Feb. 1, 1897.



Essential feature.—A representation of the mills of the registrant. Used since 1893.

29,714. COTTON GOODS, ESPECIALLY SHEETINGS AND DRILLINGS. TATA & Co., Bombay, India. Filed Nov. 30, 1896.



Essential feature.—A representation of two female figures in oriental costume, one being arranged in a crouching position and the other appearing in a domineering position. Used since August 1, 1896.

29,715. LAMP-WICKS. CHARLES A. SCHNEIDER, New York, N. Y. Filed Feb. 6, 1897.



Essential feature.—A representation of a star. Used since November 11, 1876.

29,716. SKIN GLOVES OR KID GLOVES. FOSTER, PAUL & COMPANY, New York, N. Y. Filed Feb. 3, 1897.

Fowler

Essential feature.—The word "FOWLER." Used since August, 1877.

29,717. SKIN GLOVES OR KID GLOVES. FOSTER, PAUL & COMPANY, New York, N. Y. Filed Feb. 3, 1897.

William

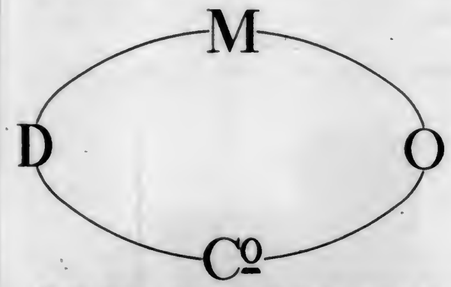
Essential feature.—The word "WILLIAM." Used since August, 1877.

29,718. BICYCLE-SHOES. RICE & HUTCHINS, INCORPORATED, Boston, Mass. Filed Jan. 27, 1897.

100 MILES Century-Run

Essential feature.—A representation of a mile-stone bearing the inscription "100 MILES" associated with the word "CENTURY-RUN." Used since November 15, 1896.

29,719. AGRICULTURAL MACHINES AND IMPLEMENTS AND THEIR PARTS. D. M. OSBORNE & COMPANY, Auburn, N. Y. Filed Jan. 30, 1897.



Essential feature.—An oval with its perimeter interrupted by the initials "D. M. O. Co." Used since February 1, 1896.

29,720. BUILDING-PAPER, METAL ROOFING, AND FABRIC ROOFING. THE KANSAS CITY METAL ROOFING AND CORRUGATING COMPANY, Kansas City, Mo. Filed Jan. 26, 1897.



Essential feature.—The words "ARK BRAND" and a representation of Noah's ark. Used since November 15, 1896.

29,721. STEAM AND HYDRAULIC PISTON PACKINGS. JOHN M. WATT'S SONS, Philadelphia, Pa. Filed Jan. 25, 1897.

WEDGE

Essential feature.—The word "WEDGE" inclosed by a diamond-shaped figure. Used since 1893.

29,722. NIPPLES FOR NURSING-BOTTLES. MEINECKE & COMPANY, New York, N. Y. Filed Feb. 10, 1897.

ANTI-COLIC

Essential feature.—The compound word "ANTI-COLIC." Used since August 28, 1896.

29,723. STETHOSCOPES OR INSTRUMENTS FOR RENDERING AUDIBLE SOUNDS IN THE HUMAN BODY. MARTIN WALLACH NACHTOLGER, Cassel, Germany. Filed Feb. 4, 1897.

PHONENDOSCOPE

Essential feature.—The word "PHONENDOSCOPE." Used since July, 1896.

29,724. SURGICAL INSTRUMENTS AND APPLIANCES. THE KNY-SCHEERER COMPANY, Brooklyn, N. Y. Filed Jan. 14, 1897.

HIGH C



Essential feature.—The verbal or pictorial symbol of the musical note known as the "high C." Used since December 18, 1896.

29,725. LAXATIVE MEDICINES. TARRANT & Co., New York, N. Y. Filed Feb. 15, 1897.

SELTZER APERIENT.

Essential feature.—The words "SELTZER APERIENT." Used since 1844.

29,726. CURE FOR CHAPPED HANDS, FACE, OR LIPS. THOMAS P. A. KELLY, New York, N. Y. Filed Feb. 17, 1897.



Essential feature.—The word "ALMONDINE," with an almond-spray showing behind it. Used since January, 1896.

29,727. ANTISEPTIC ARTICLES, COMPOUNDS, AND ABSORBENTS. KUTS FIBRE COMPANY, Brooklyn, N. Y. Filed Feb. 23, 1897.

KAY

Essential feature.—The word "KAY." Used since February 11, 1897.

29,728. CHEMICAL PREPARATIONS. CARL RASPE, Weissensee, Germany. Filed Jan. 4, 1897.

Bisol.

Essential feature.—The word "BISOL." Used since December 10, 1896.

29,729. CHEMICAL PREPARATIONS. MCKESSON & ROBBINS, New York, N. Y. Filed Jan. 28, 1897.

GUAIAQUIN.

Essential feature.—The word "GUAIAQUIN." Used since October 5, 1896.

29,730. WOOD PRESERVATIVES. THE AMERICAN WOOD PRESERVING COMPANY, Philadelphia, Pa., and Beverly, N. J. Filed Feb. 19, 1897.

WOODILINE

Essential feature.—The word "WOODILINE." Used since January, 1877.

29,731. PUMICE-STONES FOR GRINDING PURPOSES. HEINRICH BENDER & Co., Worms, Germany. Filed June 3, 1896.

Bender's Deutscher
Bimsstein
№ 3. II.

Essential feature.—The words "BENDER'S DEUTSCHER" printed in a horizontal line above the word "BIMSSTEIN," accompanied by two numbers, marking the grain and hardness. Used since May 1, 1896.

29,732. READY-MIXED PAINTS. HARRISON BROS. & Co., Philadelphia, Pa. Filed Jan. 8, 1897.



Essential feature.—The words "READY MIXED," arranged with the initial letters twice the height of the remaining letters and the second and fourth letters of each word on the upper line, while the third and fifth are on the lower line. Used since March, 1877.

29,733. CEMENT AND ASPHALT. SCHILLINGER BROS. COMPANY, Chicago, Ill., and SCHILLINGER BROS., Toledo and Cleveland, Ohio, and Detroit, Mich. Filed Feb. 15, 1897.

BRUNSWICK

(S)

Essential feature.—The word "BRUNSWICK" and the letter "S." Used since December 12, 1891.

29,734. FERTILIZERS. J. J. TURNER & Co., Baltimore, Md. Filed Feb. 27, 1897.

EXCELSIOR

Essential feature.—The word "EXCELSIOR." Used since 1859.

29,735. STOCK FOOD. CHARLES R. LOVE, Minneapolis, Minn. Filed Feb. 15, 1897.



Essential feature.—A pictorial representation of a belt inclosing a star, a pair of animal-heads, a pair of crossed flags, a flying eagle with a pail of goods in its talons, a scroll, and the words "AMERICAN STANDARD STOCK FOOD." Used since November 17, 1896.

29,736. LAGER-BEER, MALT EXTRACTS, AND SIMILAR MALT AND HOP LIQUID PRODUCTS. OTTO HUBER BREWERY, Brooklyn, N. Y. Filed Dec. 22, 1896.



O-H

Essential feature.—A representation of an uplifted arm and hand, the hand containing a bottle, the words "BOTTLED VIGOR" and the arbitrary hyphenated letters "O-H." Used since October 29, 1896.

29,737. LAGER-BEER. FRED FEIL, Philadelphia, Pa. Filed Dec. 10, 1896.



Essential feature.—The words "STUTTGARTER" and a representation of a file. Used since May 1, 1892.

29,738. WHISKY. WILLIAM M. FLEMM & Co., New York, N. Y. Filed Feb. 19, 1897.



Essential feature.—The words "GOLD SEAL," associated with the letter "F." Used since 1871.

29,739. NATURAL MINERAL WATERS. THE ESTATE OF BENJAMIN DOOLITTLE, by ROXY W. DOOLITTLE, executrix, Oswego, N. Y. Filed Feb. 17, 1897.

DEEP ROCK

Essential feature.—The words "DEEP ROCK." Used since 1874.

29,740. POWDERED COCOA FOR DRINKING OR COOKING. STEPHEN L. BARTLETT, Boston, Mass. Filed Jan. 26, 1897.



Essential feature.—A representation of several five-pointed stars, placed one upon the other so as to form a many-pointed disk, with or without the words "RALSTON HEALTH CLUB COCOA." Used since September 1, 1896.

PHOTO 11TH WASHINGTON D.C. THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF SECRETARY OF THE INTERIOR.

WARNER *v.* STIMSON.

Decided March 2, 1897.

1. JURISDICTION OF SECRETARY OVER JUDICIAL ACTS OF THE COMMISSIONER OF PATENTS.

The Secretary of the Interior has no jurisdiction over such acts of the head of the Patent Office as involve the exercise of judicial functions conferred upon him by law.

2. SAME—CONSTRUCTION OF RULE—JUDICIAL ACT.

To construe and apply a rule of the Patent Office is at least a quasi-judicial act, and hence an appeal from the decision of the Commissioner based upon an alleged disregard of a certain rule must be dismissed.

3. SAME—DISMISSING APPEAL—PUBLIC POLICY.

Another ground for dismissing the appeal is founded upon the grounds of policy, since to allow appeals to the Department from interlocutory orders of the Commissioner would unnecessarily delay the progress of the case.

ON motion to dismiss.

Messrs. Foster & Freeman for Warner.
Messrs. E. M. Marble & Sons for Stimson.
Mr. W. A. Megrath for Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., March 2, 1897.

SIR: The interference case of *Warner* v. *Stimson*, decided by your Office on December 11, 1896, was appealed to the Department. Upon its receipt it was referred to the Hon. Assistant Attorney-General for the Interior Department for an opinion upon the question involved. I transmit herewith, for your inspection, a copy of the opinion rendered by that officer, in whose conclusions I concur.

The appeal is accordingly dismissed.

The papers belonging to the files of your Office are herewith returned.

Very respectfully,

DAVID R. FRANCIS,
Secretary.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., February 24, 1897.

SIR: On January 23, 1897, Acting Secretary Sims referred to me for an opinion the questions involved in the appeal of Charles W. Stimson from the decision of the Commissioner of Patents, dated December 11, 1896, holding that De Ver H. Warner is the senior party to the interference numbered 17,933.

The parties, including the Commissioner of Patents by counsel, were heard orally on February 15, 1897.

It appears from the papers before me that on June 6, 1895, Charles W. Stimson filed an application for a patent containing a broad claim covering a device, illustrated by Figures 1 to 5 of his drawing. His claim was rejected. Thereupon he canceled the claim as to Fig. 5, and in that condition the application containing one claim for a specific device was allowed on December 2, 1895.

On November 16, 1895, De Ver H. Warner filed an application containing claims covering a specific construction different from that claimed by Stimson. Warner's claims, not interfering with the claim of Stimson, was allowed on December 2, 1895, and patented December 30, 1895.

On February 25, 1896, Stimson petitioned to be allowed to reinsert the matter canceled on rejection by the Examiner, for the purpose of interference with Warner's patent. This petition was granted, and the interference declared May 15, 1896, with Warner the junior party. Warner moved that the order of taking testimony be reversed and that he be made the senior party. His motion was denied by the Primary Examiner, but, on appeal to the Commissioner, the Primary Examiner's decision was reversed and Warner made the senior party. From this decision Stimson appealed to the Department. His assignment of errors is as follows:

First. The Commissioner of Patents erred in disregarding Rule 116 of the Rules of Practice of the United States Patent Office, which provides that "in original proceedings in cases of interference the several parties will be presumed to have made the invention in the chronological order in which they claimed the same; * * * and the burden of proof will rest upon the party who shall seek to establish a different state of facts."

Second. The Commissioner of Patents erred in holding, in violation of Rule 116 of the Rules of Practice of the United States Patent Office, that Warner, because he is a patentee, is the senior party to the interference, notwithstanding the record shows that he did not file his application for more than five months after Stimson filed his application, claiming the subject-matter of the interference.

Third. The Commissioner of Patents erred in holding that Warner is the senior party to the interference, numbered 17,933.

The Commissioner of Patents moved to dismiss Stimson's appeal on the following grounds:

First. The decision appealed from was a judicial or quasi-judicial decision, and under the statutes and authorities no appeal lies to the Secretary.

Second. Rule No. 39, promulgated February 9, 1897, provides that in an interference case a patentee, if any, will be the senior party, and should the Secretary, therefore, take jurisdiction of this appeal, and perchance the decision of the Commissioner be overruled, the decision of the Secretary would be futile.

In support of this, and as a part of this motion, reference is made to the decision of the Commissioner of Patents, dated December 11, 1896, to the Revised Statutes of the United States, to the Rules of Practice of the Patent Office and the authorities bearing upon this motion.

It is unnecessary to set forth the various statutes by which the supervisory control of the Secretary of the Interior over the affairs of the Patent Office is conferred. In an opinion dated May 21, 1890, my predecessor, George H. Shields, after reviewing

the acts and authorities bearing upon the question, held that—

over the acts of the head of that Office involving the exercise of judicial functions conferred upon him by law the Secretary has no jurisdiction. (Letter Press Book, 4 Opns. Asst. Atty. Gen., 481.)

His opinion was approved by the Department. A similar conclusion was reached by my predecessor, Mr. William A. Little, in the case of *Knight* v. *Hagner* v. *Curtis* v. *Morgan*. (Letter Press Book, 12 Opns. Asst. Atty. Gen., 184–200.)

I concur in these opinions. The only question which now needs to be disposed of is whether the decision of the Commissioner of Patents that the burden of proof rests upon Stimson in the present case is judicial or quasi-judicial in character.

I cannot believe that Congress has designed to confer exclusive authority upon the Commissioner to render a judgment in a patent cause and at the same time withhold from him control of the procedure by which such judgment shall be arrived at. This procedure is determined, so far as may be, by rules approved by him and the Secretary of the Interior; but in the nature of things every emergency that may arise cannot be provided for. It is therefore indispensable to justice as well as the proper conduct of business that a certain latitude of construction should be allowed the tribunal having jurisdiction of a cause. To construe and apply a rule necessarily involves an exercise of judicial discretion. Every judgment requires a finding with respect to the burden and sufficiency of the proof. I am therefore of opinion that the ruling complained of is, at least, quasi-judicial in character and within the exclusive jurisdiction of the Commissioner.

Apart from the foregoing considerations there are reasons why this Department should not interfere, under the circumstances disclosed by the appeal. To allow appeals to this Department from interlocutory orders of the Commissioner would tend to unnecessarily embarrass and delay the progress of the cause. The interference of this Department would tend to confuse and complicate the procedure, and therefore upon grounds of policy I should refuse to entertain jurisdiction unless the law plainly required this Department to undertake that responsibility. The law does not, in my opinion, contain this requirement.

Very respectfully,

(Signed) J. H. LIONBERGER,
Assistant Attorney-General.

The Honorable the Secretary of the Interior.

JENKINS *v.* JENKINS AND ARMAT.

Decided February 24, 1897.

1. JURISDICTION OF SECRETARY IN INTERFERENCE PROCEEDINGS.
The decision of the question as to whether an interference shall be allowed to proceed or not involves a judicial or quasi-judicial determination, and the Secretary has no appellate jurisdiction.

2. SAME.
The Secretary has no authority to interfere to determine whether or not any one may be a proper party to an interference.

ON motion to dismiss.

Messrs. Pollok & Mauro for Jenkins.

Messrs. Church & Church for Jenkins and Armat.

Mr. W. A. Megrath for Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., March 2, 1897.

SIR: The appeal in the case of *Jenkins* v. *Jenkins and Armat* from your Office decisions of January 19, 1897, and February 1, 1897, to this Department was referred to the Honorable Assistant Attorney-General for this Department for an opinion upon the questions involved in said appeal.

The Honorable Assistant Attorney-General has rendered an opinion, in which he holds that the head of this Department has no appellate jurisdiction over the action of the Commissioner of the Patent Office complained of in the appeal, and recommends that the appeal be dismissed for this reason. I have approved said opinion, and inclose a copy of it for your information.

The appeal in said case is accordingly dismissed.

The papers belonging to the files of your Office, transmitted with the appeal, are herewith returned.

Very respectfully,

D. R. FRANCIS,
Secretary.

The Commissioner of Patents.

OPINION OF THE ASSISTANT ATTORNEY-GENERAL.

[Jenkins v. Jenkins and Armat. Patent Office Interference No. 18,082.]

The Honorable the Secretary of the Interior:

SIR: By your reference of February 13, 1897, you requested an opinion upon the questions involved in the appeal in the above-entitled case from the Patent Office decisions of the 19th of January, 1897, and 1st day of February, 1897.

On February 18, 1897, the Commissioner of Patents, by counsel, moved to dismiss the appeal—

because the question involved is a judicial or quasi-judicial one, and no appeal on such matters lies to the Secretary of the Interior.

The parties were heard orally on the questions involved.

In order to properly understand the nature of the questions to be considered, a brief reference to the papers and record is necessary.

An interference was duly declared by the Patent Office in this proceeding, and while proceedings were therein pending Jenkins filed a sworn concession of priority in favor of Jenkins and Armat. At the same time—December 16, 1896—he formally abandoned his sole application, waived his right of appeal, and revoked his power of attorney to Pollok & Mauro. Priority was at once adjudicated by the Patent Office in favor of Jenkins and Armat.

On December 17, 1896, Pollok & Mauro filed in the Patent Office a petition requesting a suspension of action for ten days, alleging fraud, and referring to an exclusive license granted by Jenkins as sole inventor to the American Graphophone Company. They have filed a formal power of attorney from said company; they also filed the license referred

to in the Patent Office, and asked permission to prosecute the interference for said company.

By decision of January 19, 1897, the Assistant Commissioner of Patents held, in substance, that the adjudication in favor of Jenkins and Armat should be vacated, that the abandonment of his sole application by Jenkins be set aside, and the Graphophone Company should be permitted to prosecute the interference. He further held—

that the American Graphophone Company is the assignee of Jenkins (whether of his whole interest or half of it is immaterial), and that it therefore has the right to prosecute the interference.

The matter came before the Patent Office on review upon the petition of T. Cushing Daniel, trustee, for a hearing on his behalf under two assignments. The first by C. Francis Jenkins, dated December 7, 1896, to T. Cushing Daniel, trustee. The second is from C. Francis Jenkins to T. Cushing Daniel, trustee, and is dated January 23, 1897.

On February 1, 1897, the Assistant Commissioner of Patents rendered a decision on Daniel's petition, wherein the decision of January 19, 1897, was adhered to. In the course of his opinion, after discussing the several contentions of counsel for Armat and Daniel, the Assistant Commissioner of Patents says:

The sole question for decision was, and is, whether the interference shall be allowed to go on or not. It seems to me that it is within the jurisdiction of the Commissioner to settle this question.

Section 4904 of the Revised Statutes provides that—

wherever an application is made for a patent, which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the Primary Examiner to proceed to determine the question of priority of invention. * * *

The sole question being whether the interference shall be allowed to go on or not, it seems to me to be unnecessary to set out or discuss *seriatim* the alleged errors complained of in the appeal.

The decision of the question by the Patent Office clearly involved a judicial or quasi-judicial determination, and under such circumstances the Secretary has no appellate jurisdiction over the acts of the Commissioner of Patents. (*Petithome* v. *Bedbury*, opinion by Assistant Attorney-General Shields, 4th Ops. Asst. Atty. Genl. Int. Dept., 481; *Knight* v. *Baynall* v. *Curtis* v. *Morgan*, opinion of Assistant Attorney-General Little, 12 Ops. Asst. Atty. Genl. Int. Dept., 184–200, and authorities cited in said opinions.)

I am therefore of opinion that the motion to dismiss the appeal should be sustained and the appeal be dismissed.

All of which is respectfully submitted.

J. H. LIONBERGER,
Assistant Attorney-General.

Approved:

D. R. FRANCIS,
Secretary.

COMMISSIONER'S DECISIONS.

EX PARTE MESSINGER.

Decided March 13, 1897.

1. REISSUE APPLICATION—ABANDONMENT.
Reissue cases are abandoned after two years of inactivity, like other cases, by operation of section 4894. (*Ex parte Galusha*, C. D., 1873, 55, overruled.)

2. REHEARING—DELAY—LIMIT OF APPEAL.
Rehearings are not favored in any case, and only upon special circumstances. Motion for rehearing will not be entertained where there has been long delay in bringing it. Rehearings must be applied for within the limit of appeal.

MOTION for rehearing.

GRAIN HARVESTER AND BINDER.

Application of George F. Messinger filed November 6, 1888, No. 290,400. (Reissue.)

Messrs. Butterworth & Dowell for the applicant.

SEYMOUR, *Commissioner:*

This is a motion for a rehearing of a case decided on appeal by the Assistant Commissioner on February 28, 1891, wherein the action of the Examiner in refusing certain claims presented was affirmed. It is urged in argument that the case is not abandoned under section 4894 of the Revised Statutes, and in support of this the appellant has the advantage of citing the practice of the Office hitherto in treating reissue cases as not subject to the two years' statute concerning abandonment. This practice is based on *ex parte Galusha*, (C. D., 1873, 55,) decided by Mr. Commissioner Leggett, in which it was urged upon him in argument that the corresponding section (32) of the patent act of 1870 covered only original applications for patents. It was urged also that the object of that section was evidently to protect the public and to force the applicant to make useful what he had, whereas in a reissue case a patent has already issued, the inventor's rights are established, and the patent is notice to the public of his rights; that the law allows a man to reissue as many times as he pleases, and many patents are reissued over and over again with different claims, and it was urged that a decision that an applicant for a reissue had forfeited his application could apply only to the application and not to the invention, and would yet leave him free to make a new application. Otherwise it would appear that an appellant had a right to apply but once for a reissue, and in deciding the case Mr. Commissioner Leggett seems to have assented to these propositions. He says:

If the Office should hold the contrary, the only effect would be, not the abandonment of the invention as contemplated in said section, but simply the requirement of another fee, as the applicant could immediately make another application for a reissue. For this reason it is very evident that reissues were not intended to be covered by this section.

This was before the principal decisions of the Supreme Court of the United States on reissue cases, laying down a much stricter rule. I need not refer in detail to these cases, but it was held that the application for reissue must be made seasonably and as soon as the defect is discovered, and that there is no fixed right to wait two years before applying. No countenance is given to the claim that reissues may be applied for as often as desired. The ground for these decisions appears to be that where the patentee holds a grant which covers more than he has a right to claim he should be prompt to disaffirm that to which he has no right, and that the public should know from the patent precisely what they may do and what they may not do, and ought to be informed that there is something in the patent to which the public is en-

titled, and that this information should reach them at as early a day as practicable. The reason likewise holds with equal force in cases where the patentee has informed the public of his claim in the original issue of the patent, but intends further on to broaden his claim. On these grounds I am of the opinion that *ex parte Galusha* has come to be in conflict with the later Supreme Court decisions, that it is not the law, and that reissue cases are abandoned after two years of inactivity, like other cases, by operation of section 4894.

There is a further objection to rehearing this case. It was the deliberate judgment of one of my predecessors, and after long delays it is requested that I should reopen the case decided by him. No court would tolerate such a motion, and while this Office is not a court its functions are quasi-judicial and may properly be guided by the analogy of court practice. Such has been the tendency of the Office from the first. It has been held that rehearings are not favored in any case, and only upon special circumstances. (*Hien* v. *Pungs*, 77 O. G., 1600.)

It has also been held here that rehearings must be applied for, even when otherwise permissible, within the time during which an appeal may be taken. (*Scott* v. *Brooks*, 71 O. G., 1314.)

On this account also this motion must be denied, and it is so ordered.

BREUL v. SMITH.

Decided July 16, 1896.

1. INTERFERENCE—ISSUE—DEGREE.

In an issue in which the word "encircle" is used to define a construction which performs the functions of a hook the extent to which the encircling is carried is a question of degree merely and immaterial to the scope of the issue.

2. SAME—REDUCTION TO PRACTICE—PRESUMPTION OF.

When a senior party has shown that he was in possession of a machine which would make the article—a chain—of the issue, the actual production of such chain may be safely presumed.

3. ADVICE OF ATTORNEY—DILIGENCE.

Attorney's advice to an interferant to the effect that the invention of the issue is covered by his prior patent is an excuse but not a justification for delay in reducing to practice or applying for a patent.

APPEAL from the Examiners-in-Chief.

WIRE CHAIN.

Application of Richard A. Breul filed June 12, 1894, No. 514,308. Application of Friend W. Smith, Jr., filed May 17, 1894, No. 511,564.

Mr. J. F. Reily and *Messrs. Baldwin, Davidson & Wight* for Breul.

Mr. H. A. Seymour for Smith.

FISHER, *Acting Commissioner:*

This is an appeal by Smith from the decision of the Examiners-in-Chief adjudicating priority in favor of Breul on the following issue:

1. A chain the links of which are composed of wire bent to form a loop and eye and the extreme ends of the wire inserted in the loop and bent outwardly to encircle the side wires, the entire encircling portion of the two ends lying approximately in one and the same plane, substantially as set forth.

2. A chain the links of which are each composed of a single wire bent to form a loop and eye and the extreme ends inserted in the loop and then bent outwardly around the side wires to substantially encircle said side wires, substantially as set forth.

3. A chain the links of which are each composed of a piece of wire bent to form a loop and eye, the extreme ends of the wire terminating outside of the loop and pointing toward the eye, substantially as set forth.

These contestants reached the issue by different roads. Breul approached it from the direction of his former wire chain, disclosed in Patent No. 359,054. Smith reached it from the direction of the sheet-metal chain of Egge, disclosed in Patent No. 330,214. Breul's invention contemplated a change in the direction of a turn of the end of a piece of wire. Smith's was a substitution of wire for sheet metal. The necessity of extending the ends of the wire outwardly, so as to completely encircle the side wires, occurred to both, probably after the original conception of the direction of the turn at the end of the wire. The mental process of Breul was therefore, first, the change of direction of the turn in the links of his former chain, and, second, the extension of that turn. Smith's mental process was, first, the substitution of a wire link for Egge's sheet-metal link, and, second, the extension of the sides of the enlargement C of said link so as to encircle the side wires.

Breul contends that the history of Smith's inventive act, as detailed above, precludes the belief that he considered it necessary that the encircling features should be complete—that is, his idea was that an extension merely was necessary, and that the development of this extension into a complete circle did not occur to his mind until a comparatively late date. He also contends that the issue must receive a narrow construction in view of the state of the prior art, and that the words "encircle" and "substantially encircle" in the first and second counts of the issue must be construed to mean *completely encircle*, and that a chain in which the ends of the links are merely bent or hooked over the side wires is not within the terms of the issue. He bases his contention largely upon the words of the Primary Examiner in denying his motion to dissolve a former interference in which the same applications were involved, and these words are:

The chain constituting the subject-matter of the issue is similar in construction to the patented chain (Breul's patent) in many respects, but differs therefrom in having the ends of the wire which form the eyes bent outward and made to encircle the side bars, whereby a clear and unobstructed loop or bow is provided and the projections or obstructions are removed. This difference in construction, although small, is believed to be sufficient to sustain the plea of patentability.

Smith, on the other hand, contends that the essential feature of novelty is the direction of the bends of the ends of the wire, and in support thereof he quotes from the letter of the Primary Examiner in his case, dated September 1, 1894, as follows:

Claim 2, as presented in amendment filed Aug. 24, 1894, and renumbered by amendment of 29th ulto., as claim 1, does not appear to distinguish applicant's chain from that of the reference—Breul—except perhaps in the matter that the ends of the wire in the present case are said to "encircle the side wires." This, however, is a mere matter of degree and is not sufficient to base a claim upon. Said claim 1 in its present form is therefore rejected. A different view, however, would be taken of said claim were applicant to amend the same so as to read, after "wire," line 2, "inserted in the loop and bent outwardly to encircle," etc.

The Examiner seems to have regarded either of these two features as sufficient to constitute a patentable distinction. The outward bending is a feature of each count of the issue. The encircling

is directly a feature of the first and second counts only. The third count has as a second feature the pointing of the ends of the wire toward the eye of the link. This seems to be but another way of stating the same construction. The word "eye" is used by Breul to mean the encircling part 4 and by Smith to mean the part through which each succeeding link-blank is passed before it is bent to shape. This is referred to by the sign C by Smith and is called "loop" by Breul and is referred to by the sign 3. Smith uses the term "loop" to designate the main part of each link. Breul calls this part the "bow." The counts of the issue are in the terms of Smith's claims, and the words therein must be used in the sense in which he uses them, and by "eye" we understand, then, the part which he has lettered C. The expression "pointing toward the eye" is found in Smith's claim 3, into which it was introduced by amendment August 24, 1894. Its meaning has not been elucidated by anything in the previous record. It must therefore be taken to mean that the ends of the wire are turned inward toward the eye, and this means, of course, that a curve or circle is formed about the side wire. Hence each count of the issue has two distinguishing features, and it is not possible to ascertain from them which should be regarded as the more important. I shall consider, therefore, that of the encircling and outward-bending features. They are of equal importance in establishing a patentable distinction over the prior art.

It is necessary also to consider whether the expressions "to encircle the side wires," count 1, and "to substantially encircle said wires" in count 2 mean a complete surrounding or encircling, as Breul contends, or whether, as Smith contends, the completeness for which Breul contends is a matter of mere degree and that any surrounding or encircling is sufficient to meet the terms of the issue. Smith introduces into his argument statements, under oath, of Breul in the former interference which seem to show that Breul at one time held a view substantially the same as his own:

Deponent further avers that he understands and believes that a mere question of turning down the end of the wires more or less, or causing it to encircle the side of the bow more or less, would be a mere question of degree, and one not involving invention. And further avers that the mere increase of the degree to which the free ends of the wire encircle the side of the bow is one of degree merely and not a patentable modification.

This seems to be the correct view. The encircling portion performs the functions of a hook and nothing more. Of course the more complete the bend of the hook the greater its strength, and if the bent portions were made to encircle the side wire more than once the hook, and consequently the chain, when links of certain proportions were used, would be correspondingly stronger. A hook resists stress mainly in but one direction. The stress or tug or pull in this case is in but one direction. Hence the part bent over has to perform the function and use of a hook, although the hook portion is bent so far around as to make a nearly complete eye or ring. Patents are granted for constructions independent of particular shape, unless such shape is an essential feature. The particular shape of this bent portion has no particular or essential utility in this connection. It is obvious that if a large link is to be made of thin wire one or more turns of the bent portions around the side wire will give it greater strength, whereas if small links are to be made of thick wire it might be necessary to bend but a small portion over, and any more might make the chain clumsy. To interpret the issue to mean that a complete circle must necessarily be formed would be to give it a construction much too narrow for the true invention, and the successful party in this interference would acquire a patent for less than his real invention.

This construction of the meaning of the issue becomes important in connection particularly with one of Smith's exhibits, namely "Exhibit E." In this the ends of the wire are bent over the side wires so as to form U-shaped hooks, the curve or hollow part of which fits closely to the side wire. Each hook encircles and is in contact with about one hundred and eighty degrees of the cylindrical outer surface of the side wires. In his exhibits F and G possibly two hundred and forty degrees represent the arc of contact. A similar proportion is observable in Breul's exhibits. Consequently the U-shaped bend of Smith's "Exhibit E" has the same effect as the more completely-bent encircling portions of the other exhibits, though perhaps not quite to the same extent.

Having defined the issue, it becomes necessary to consider the efforts of the parties.

Breul's conception probably dated from December, 1886, and his disclosure from January, 1887. Models were made at both times. No drawings were made. He claims that his reduction to practice occurred when his piece of chain marked "Exhibit 3" was produced. The single links which he produced anterior to this do not constitute reduction to practice. This piece of chain he produced "during the last days of April or the first days of May, 1893." (Breul, Q. 33.) His daughter corroborates this statement. (Klofkorn, Q. 16–20.) His brother, Charles A. Breul, also corroborates it. (C. A. Breul, Q. 15–19.)

Smith's conception clearly goes back to the production of the link (Smith's "Exhibit C") made by him at some time antecedent to November 10, 1885. His first disclosure took place on that occasion, and he claims that his first reduction to practice occurred when Smith's "Exhibit E" was produced. In accordance with my views expressed above I shall consider the chain of that exhibit to be within the limits of the various counts of the issue.

The date of the production of the exhibit (E) in question is an important feature of the case. If it was produced before Breul produced his "Exhibit 3," the case probably is with Smith; if later, with Breul. Frederick Egge testified that the chain in question was made in 1891. (Egge, Q. 25–27.) Henry C. Fowler testified that the Smith & Egge Manufacturing Company had a machine which would make chains like "Exhibit E" three years prior to July 25, 1895. (Fowler, Q. 7–11.) On cross-examination, however, he stated that the first time

he saw such a chain as "Exhibit F" was in the winter of 1893–4. (Fowler, X-Q. 73.) He seems to have had no clear idea of the difference between exhibits E and F, and his testimony on cross-examination shows other discrepancies. (X-Q. 64, 78, 79.) F. W. Smith, Sr., testifies that a machine was completed in 1891 for making chain like "Exhibit E." (Smith, Sr., Q. 13–17.) Smith, Jr., testified in his own behalf that the machine in question, which was altered from an old one, was completed and made chain quite a number of times during the fall of 1891. (Smith, Jr., Q. 12.)

In rebuttal Breul called two witnesses, Clauder and Bruges. The former testified that he had entered the shops of the Smith & Egge Manufacturing Company in February, 1894; that he overhauled a machine for making chain in the spring of that year, and that the machine was not finished finally until the spring of the following year. The identity of that machine with the machine alluded to by Smith's witnesses has not been questioned.

Bruges testified that he worked on a wire-chain machine in the shops of the Smith & Egge Manufacturing Company some time in 1891, but was told to stop before the machine was completed sufficiently to make a chain, and that the machine was hauled out in September or October, 1893, for further work and was soon completed.

The evidence shows, therefore, that some time between 1891 and 1894 the Smith & Egge Manufacturing Company was in possession of a machine which would make the chain of the issue. If it could make such chain, the actual production of the chain may be safely presumed. Smith's witnesses state that this could have been done in 1891. It is true that Fowler became confused in his dates on cross-examination, and his testimony is otherwise contradictory. The testimony of Clauder and Bruges is not positive, and the two disagree very materially as to dates. The probability therefore, as stated, is that some time in 1891 this company had a machine which would, with more or less difficulty, make chain like "Exhibit E." It would not make this chain with sufficient rapidity and nicety to meet commercial necessities, but sufficient chain was probably produced to constitute a reduction to practice and to maintain Smith's position as senior applicant against the case made by Breul.

The question of diligence has not been discussed. As a matter of fact neither party appears to have been at all eager to secure a patent. It is true Breul offers as an excuse the advice given him by his attorney to the effect that the invention was covered by his prior patent; but this, while in the nature of an excuse, is by no means a justification. If Breul had shown any reasonable degree of diligence, he would probably have been entitled to prevail, inasmuch as Smith's case is particularly vulnerable in this respect. Neither was diligent to an extent worthy of consideration.

The decision of the Examiners-in-Chief adjudicating priority in favor of Breul is reversed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

BREUL *v.* SMITH.

Decided February 16, 1897.

1. CONSTRUCTION OF ISSUE.
When a view of the ground covered by the claims of an issue has been accepted by the parties and has prevailed in the Patent Office, it should not be departed from in the final decision if injustice might result from that departure.
2. OFFICE SHOULD BE CONSISTENT.
The Patent Office should not give so liberal a construction to the terms of an issue as to enable it to include a structure which had previously been held to be patentably distinct therefrom.
3. REDUCTION TO PRACTICE.
A device which differs from the terms of the issue in that particular feature which the Office once held in the same case was sufficient to constitute a patentable distinction is not a reduction to practice of the issue.

Messrs. Baldwin, Davidson & Wight for the appellant.

Mr. H. A. Seymour for the appellee.

SHEPARD, *J.*:

This is an interference proceeding between the rival inventors of a wire chain and comes to us on appeal taken by Richard A. Breul from a decision of the Acting Commissioner of Patents awarding priority to Friend W. Smith, Jr.

The following is the declared issue of the interference:

1. A chain the links of which are composed of wire bent to form a loop and eye and the extreme ends of the wire inserted in the loop and bent outwardly to encircle the side wires, the entire encircling portion of the two ends lying approximately in one and the same plane, substantially as set forth.
2. A chain the links of which are each composed of a single wire bent to form a loop and eye and the extreme ends inserted in the loop and then bent outwardly around the side wires to substantially encircle said side wires, substantially as set forth.
3. A chain the links of which are each composed of a piece of wire bent to form a loop and eye, the extreme ends of the wire terminating outside of the loop and pointing toward the eye, substantially as set forth.

The appellee claims conception of the invention on November 10, 1885.

On that date the beneficial owner of the present claim, the Smith & Egge Manufacturing Company, of Bridgeport, Conn., received a patent for a new chain which it proceeded to manufacture.

The links of this chain are composed of blanks cut from sheets of metal. The blank has an eye in one end and a shank at the other which runs through the eye of the next blank and is bent over and caught and held in place by a knob, at the extreme end of which fits a recess, into which it runs when doubled back on itself.

He says it then occurred to him that this blank could be split and the ends bent around in the eye, and hence that it could be made of wire instead of sheet metal, thereby adding tensile strength and saving expense. He made a rough sketch and with his hand bent a piece of wire into a link to illustrate his conception. This link roughly corresponds to that of the issue—the ends run through the loop and are bent outwardly around the side wires.

Breul claims conception of the same invention in December, 1886. He was then in the employ of the

Bridgeport Chain Company. After making some models of links bent after the fashion of those of the claim in interference Breul applied for a patent for a chain made of wire links on January 10, 1887, and received the same March 8, 1887, No. 359,054.

The links of the chain as patented are formed of a single wire, and when bent into a loop or eye its ends run outside the side wires and are bent inward over them, so as to form a hook without completely encircling them. This chain was called the "Triumph" and has been manufactured and put upon the market in great quantities.

In February, 1893, Breul began to renew experiments with links made by running the ends of the wire inside the loop and bending them outwardly and around the side wires, substantially as described in the issue. His application founded thereon was filed June 12, 1894. Smith's application was filed May 17, 1894, and contained the following claims:

1. A link for chains consisting of a wire bent to form a loop after which the two ends of the wire converge and are bent around to form an eye, the ends being passed back into the loop between the side wires at the point where the loop and eye merge into each other and thence outside of the loop around the side wires in the form of hooks which lie in the same plane with each other, substantially as set forth.
2. A chain composed of wire links each of which links consists of a single wire having a loop formed therein and an eye, the ends of the wire constituting the loop and eye inserted into the loop between the side wires at a point where the loop and eye merge into each other and thence outside the loop around the side wires and back to the portion of the wire passing into the loop, the two hooks lying in the same plane with each other, substantially as set forth.
3. The herein-described method of forming a wire chain-link consisting in bending the wire to form a loop and eye, and passing the ends of the wire into the loop between the side wires, and finally bending the extreme ends thereof around the side wires from the inside of the loop outward in the same plane with each other, substantially as set forth.

This application was denied by the Special Examiner June 5, 1894, because not patentable in view of Breul's patent No. 359,054—the "Triumph" chain. He then amended, setting out six claims, Nos. 1, 4, 5, and 6 of which were rejected on Crandall's patent of April 19, 1881, and No. 2 on Breul's patent aforesaid. Claim 3 of this amendment is the same as No. 2 of the issue. Still another amendment and rejection were made before the claims of the issue were set up, and the interference was declared.

Breul moved to dissolve the interference because of lack of patentability on the ground that the mere insertion of the ends of the wire into the bow or loop and passing them outwardly and the mere turning of the ends over to cause them to encircle the side wires of the said loop did not involve invention. The motion was overruled and the case proceded on the issues declared. The question of patentability, therefore, of Smith's claims is not before us, and it is conceded that we cannot consider the merits of that motion. (*Hisey* v. *Peters*, 6 App. D. C., 68, 70; *Cushman* v. *Lines*, present term.)

Breul accounts for the delay in applying for a patent on his alleged invention in December, 1886, on the ground that he considered it covered by the patent for the "Triumph" chain, which had been made and sold in quantities. Smith, Jr., does not account in a satisfactory manner for his long delay. Notwithstanding his discovery in November 10, 1885, no effort was made, according to his own evidence, to make a chain after his plan and model until the autumn of 1891. Then an old machine for making spring-wire garters was taken up and worked on to change and adapt it to making wire chains. In the meantime, on June 8, 1888, the Smith & Egge Company applied for and soon thereafter obtained another patent for sheet-metal chains.

In the view, however, that we have taken of the case it is not necessary to inquire into the question of diligence.

There is some conflict and considerable uncertainty in the testimony respecting the completion of this change in the old machine and its capacity to make the chain in controversy, or, in fact, any practical chain, before the date of Breul's reduction to practice. It seems reasonably clear to us that a chain in particular conformity with the specifications of the issue was not and could not have been made by that machine before said time; but assuming for the purposes of this case that the evidence is sufficient to establish the fact that the piece of small wire chain marked "Smith's Exhibit E" was made on that altered machine some time in the year 1892—about one year before Breul's reduction to practice—the question occurs, was the Acting Commissioner right in holding that this was a reduction to practice of the invention as defined in the issue?

The case turns upon the answer to this question.

Now the only difference of construction worthy of mention between the links of said "Exhibit E" and the link of the "Triumph" chain lies in the fact that the ends of the wire run inside the loop and then bend partially around the side wires instead of running outside and partially around. Compared with the claims in Smith's original application set forth above "Exhibit E" appears in substantial accord therewith. Yet, as we have seen, those claims were held by the Special Examiner to have been anticipated by Breul's 1887 patent for said "Triumph" chain. To avoid this and subsequent similar rulings of the Examiner, Smith amended from time to time until he formed the claims set out in the issue in controversy. His election to amend in obedience to the suggestions of the Examiner necessarily operated a complete abandonment of the original claims of the application to the extent that they are not embodied in the claims of the amendment. (*Durham* v. *Seymour*, 6 App. D. C., 78, 89, 90.)

If the Examiner was right in holding that the original claims had been anticipated by Breul's "Triumph" patent, as we have no doubt he was, his declaration of interference was necessarily founded on the conclusion that there is a substantial difference between the chain of the issue and that of the abandoned claims. This view of substantial—that is to say, of patentable—difference was emphasized by the decision overruling Breul's motion to dissolve the interference.

Whether this last decision was right or wrong,

it must be accepted, so far as the present proceeding is concerned, as final and conclusive.

The issue of patentability has been removed, and the sole question is as to priority merely. (*Cushman* v. *Lines*, *supra.*)

This probably too narrow view of the ground covered by the several claims of the issue and of the original application and of the Breul patent having prevailed in the Patent Office and been acquiesced in by the parties could not be departed from in the final decision without injustice to Breul, and yet the Commissioner, to reach his conclusion, was compelled to do so, for we think it follows of necessity that if the new claim differs from the old to such a material extent as to show patentable novelty then a completed chain made after the specifications of the old and rejected claims cannot be a reduction to practice under the new ones. Nothing short of a new chain following closely the specifications of the issue of the controversy would answer the purpose.

As before suggested, we must, for the purposes of this particular case, regard the preliminary rulings of the Patent Office tribunals, which have been accepted and acted on by the parties, as conclusive.

Those rulings were, first, that there was no patentable difference between the chain of Smith and the "Triumph" chain of Breul in respect of the manner in which the ends of the wire are made to pass through the loop, and, second, that there is a patentable difference between completely encircling the side wires of the loop with the ends of the wire forming the eye and merely hooking about them without completely or more than half encircling.

Observing then, as we must, this adjudged difference between encircling the side wires instead of merely hooking partly around them in aid of the same general object—namely, the increase of tensile strength—we are bound to hold that a chain which follows the latter plan only cannot be accepted as a reduction to practice of the first one.

Rejecting the said "Exhibit E,"—the chain claimed to have been made in 1891 or 1892, in respect of which claim we make no decision—as insufficient to show a reduction to practice of the claims of invention described in the issue, and there being no sufficient proof of any other reduction to practice before that shown by Breul, we are constrained to award priority to the latter.

It follows, therefore, that the decision appealed from must be reversed and the proceedings and decision of this court certified to the Commissioner of Patents, as directed by law, and it is so ordered.

Convention Between the United States of America and the Empire of Japan.

PATENTS, TRADE-MARKS, AND DESIGNS.

Concluded at Washington January 13, 1897.
Ratification advised by the Senate February 1, 1897.
Ratified by the President February 2, 1897.
Ratified by the Emperor.
Ratifications exchanged at Tokyo March 8, 1897.
Proclaimed March 9, 1897.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas a Convention between the United States of America and the Empire of Japan securing immediate reciprocal protection for patents, trade-marks and designs, was concluded and signed by their respective plenipotentiaries at the city of Washington on the thirteenth day of January, one thousand eight hundred and ninety-seven, the original of which Convention being in the English language is word for word as follows:

The President of the United States of America and His Majesty the Emperor of Japan, being desirous of securing immediate reciprocal pro tection for patents, trade-marks and designs, have resolved to conclude a Convention for that purpose, and have appointed as their plenipotentiaries:

The President of the United States, the Honorable Richard Olney, Secretary of State of the United States; and His Majesty the Emperor of Japan, Toru Hoshi, Jushii, His Majesty's Envoy Extraordinary and Minister Plenipotentiary near the Government of the United States;

Who, after having commu nicated to each other their respective full powers, found in good and due form, have agreed as follows:

Article XVI of the Treaty of Commerce and Navigation between the United States of America and Japan concluded at Washington on the twenty-second day, the eleventh month, the twenty-seventh year of Meiji, corresponding to the twenty-second day of November, ei ghteen hundred and ninety-four of the Christian era, shall have full force and effect from the date of the exchange of ratifications of this Convention.

The present Convention shall be duly ratified by the President of the United States of America, by and with the advice and consent of the Senate thereof, and by His Majesty the Emperor of Japan in the usual manner; and the ratifications shall be ex changed at Tokyo as soon as possible.

In witness whereof, the respective plenipotentiaries have signed this Convention, and have thereunto affixed their seals.

Done, in duplicate original, at Washington, this thirteenth day of January in the one thousand eight hundred and ninety-seventh year of the Christian era.

RICHARD OLNEY. [SEAL]
TORU HOSHI. [SEAL]

And whereas the said Convention has been duly ratified on both parts and the ratifications of the two Governments were exchanged at Tokyo on the eighth day of March, one thousand eight hundred and ninety-seven;

Now, therefore, be it known that I, William McKinley, President of the United States of America, have caused the said Convention to be made public, to the end that the same and every clause thereof may be observed and fulfilled with good faith by the United States and the citizens thereof.

In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this ninth day of March in the year of our Lord one thousand eight hundred and [SEAL] ninety-seven and of the Independence of the United States the one hundred and twenty-first.

WILLIAM McKINLEY.

By the President:
JOHN SHERMAN,
Secretary of State.

TREATY OF COMMERCE AND NAVIGATION BETWEEN THE UNITED STATES OF AMERICA AND THE EMPIRE OF JAPAN.

Concluded at Washington November 22, 1894.
Ratified by the President February 15, 1895.
Ratified by the Emperor February 27, 1895.
Ratifications exchanged at Washington March 21, 1895.

* * * * * * *

"ARTICLE XVI. The citizens or subjects of each of the high contracting parties shall enjoy in the territories of the other the same protection as native citizens or subjects in regard to patents, trade-marks, and designs upon fulfilment of the formalities prescribed by law."

* * * * * * *

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 78—No. 13. TUESDAY, MARCH 30, 1897. PRICE—$5 per year.

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DISCLAIMER.

380,006.—*Isaac H. Randall*, Boston, Mass. IMPROVEMENT IN ADVERTISING-RACKS. Patent dated April 10, 1888. Disclaimer filed March 25, 1897, by the present assignee, *The American Street Car Advertising Company*, of Boston, Mass.

Enters its disclaimer in the manner following, to wit:

"It disclaims an advertising-rack adapted for use in a street-car, consisting of a body or backing having a continuous flat face.

"Strike out the words 'or even flat,' line 47, page 1, of the specification."

Belgian Patents.

In reply to an inquiry from this Office notice has been received, through the Minister of the United States at Brussels, from the Belgian patent authorities, that it is not deemed advisable to publish their patents *in extenso*, and that no fuller description than that contained in the short abstract of the *Recueil Officiel* will be given. Complete copies may be obtained from the Belgian Patent Office on payment of the expense of reproduction.

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Price of Printed Copies of Specifications and Drawings.

(ORDER No. 1,094.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 25, 1896.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1896.

JOHN S. SEYMOUR,
Commissioner.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.	Netherlands.
Argentine Republic.	Norway.
Belgium.	Peru.
Brazil.	Portugal.
Costa Rica.	Russia.
Denmark.	San Salvador.
Haiti.	Servia.
Honduras.	Sweden.
Italy.	Switzerland.
Mexico.	

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Foreign Patents and Publications.

The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library:

Austria-Hungary.	Malta.
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Belgium.	Mexico.
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Ceylon.	New Zealand.
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Fiji.	Portugal.
Finland.	Queensland.
France.	Russia.
Germany.	South Australia.
Great Britain.	Spain.
Hawaii.	Straits Settlements.
India.	Sweden.
Italy.	Switzerland.
Jamaica.	Tasmania.
Japan.	Trinidad.
Leeward Islands.	Victoria.
Luxemburg.	West Australia.

Powers of Attorney.

Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

LABELS.

6,548.—Title: "DR. RAUB'S EGG WHITE SOAP." *Charles F. Miller*, Lancaster, Pa. Application filed February 23, 1897.

Issue of March 30, 1897.

Patents	388—	No. 579,556 to No. 579,943, inclusive.
Designs	44—	No. 26,818 to No. 26,861, inclusive.
Trade-Marks	34—	No. 29,741 to No. 29,774, inclusive.
Labels	1—	No. 6,548.
Prints	None.	
Reissues	None.	
Total issue	467	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	4		New Hampshire	3	
Arizona Territory			New Jersey	19	
Arkansas	2		New Mexico Territ'y		
California	8		New York	72	17
Colorado	2		North Carolina	6	
Connecticut	11	1	North Dakota	1	
Delaware			Ohio	33	3
District of Columbia	5	1	Oklahoma Territory		
Florida			Oregon	2	
Georgia	4	1	Pennsylvania	53	1
Idaho			Rhode Island	2	1
Illinois	27	1	South Carolina	1	
Indian Territory	1		South Dakota	1	
Indiana	16	1	Tennessee		
Iowa	5		Texas	4	
Kansas	3		Utah	1	
Kentucky	2		Vermont	3	
Louisiana	1		Virginia	5	1
Maine	1		Washington	2	
Maryland	2		West Virginia	1	1
Massachusetts	32		Wisconsin	6	
Michigan	24		Wyoming		
Minnesota	5		U. S. Army		
Mississippi	5		U. S. Navy		
Missouri	12	1			
Montana	1		Total to citizens of the United States	389	30
Nebraska	1				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary	1	1	Newfoundland		
Barbadoes			New South Wales		
Belgium			New Zealand		
Bermuda			Norway		
Brazil			Orange Free State		
Canada	2		Portugal		
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Cape Colony			Russia		
Ceylon			Scotland	1	
Chile, Republic of			South African Republic		
China			South Australia	1	
Cuba	1		Straits Settlements		
Denmark	2		Sweden		
England	15		Switzerland		
France	4		Victoria	1	
Germany	13	4	West Australia		
Guatemala					
India	2		Total to citizens of foreign countries	43	5
Ireland					
Italy					

APPLICATIONS UNDER EXAMINATION.

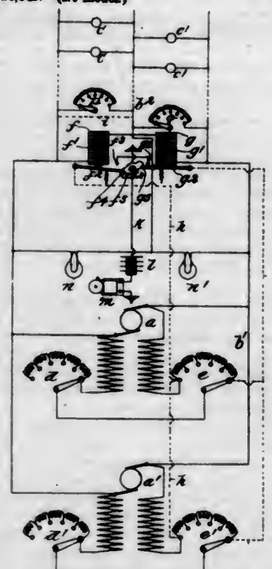
Condition at Close of Business March 23, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 23	Mar. 12	202
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153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Jan. 23	Jan. 23	331
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 26	Jan. 21	242
	Between two and three months.			
248	XVIII. Steam-Engineering, etc.	Jan. 19	Feb. 24	254
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105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 2	Jan. 15	627
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	Under one month in arrears.			
	Designs	Mar. 1	Mar. 10	234
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PATENTS

GRANTED MARCH 30, 1897.

579,556. MULTIPLE-SERIES SYSTEM OF ELECTRICAL DISTRIBUTION. FRANCIS B. BADT, Chicago, Ill. Filed Jan. 25, 1897. Serial No. 620,643. (No model.)



Claim.—1. In a system of multiple-series distribution, the combination with main and compensating conductors, of an undivided source of electricity from which the main conductors are led, and means adapted to respond automatically upon a variation in potential between a compensating and a main conductor to reduce the electromotive force of the generator, substantially as described.

2. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors only are led, and means adapted to respond automatically upon the establishment of a short circuit between a main and a compensating conductor to reduce the electromotive force of the generator, substantially as described.

3. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors only are led, and electromagnetic means adapted to respond upon a variation in potential between a compensating and a main conductor to reduce the electromotive force of the generator, substantially as described.

4. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors only are led, and electromagnetic means adapted to respond upon the establishment of a short circuit between a main and a compensating conductor to reduce the electromotive force of the generator.

5. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors only are led, a resistance for reducing the electromotive force of the generator, and means for including said resistance in circuit with the generator, said means being adapted to respond upon a variation in potential between a compensating and a main conductor to include said resistance in circuit with the generator, substantially as described.

6. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors only are led, a resistance for reducing the electromotive force of the generator, and means for including said resistance in circuit with the generator, said means being adapted to respond upon the establishment of a short circuit between a main and a compensating conductor to include said resistance in circuit with the generator, substantially as described.

7. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors only are led, a resistance for reducing the electromotive force of the generator, and relay mechanism for including said resistance in circuit with the generator, said relay mechanism being adapted to be actuated upon a variation in potential between a compensating and a main conductor to include said resistance in circuit with the generator, substantially as described.

8. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the distributing-conductors are led, a resistance for reducing the electromotive force of the generator, a shunt about said resistance to normally remove it from circuit with the generator, and means for breaking said shunt, said means being adapted to respond upon a variation in potential between the compensating and a distributing conductor to break the shunt, substantially as described.

9. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors are led, a resistance for reducing the electromotive force of the generator, a shunt about said resistance to normally remove it from circuit with the generator, and means for breaking said shunt, said means being adapted to respond to a short circuit between a main and a compensating conductor to break the shunt, substantially as described.

10. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors are led, a resistance for reducing the electromotive force of the generator, a shunt about said resistance to normally remove it from circuit with the generator, and electromagnetic means for breaking said shunt, said electromagnetic means being adapted to respond upon a variation in potential between the compensating and a main conductor to break the shunt, substantially as described.

11. In a system of multiple-series distribution, the combination with main and compensating conductors, of a generator from which the main conductors are led, a resistance for reducing the electromotive force of the generator, a shunt about said resistance, relay mechanism comprising electromagnets connected in series multiple with the main and compensating conductors adapted to break said shunt, said relay mechanism being adapted to respond to a short circuit between a main and the compensating conductor to break the shunt, substantially as described.

12. In a multiple-series system of electrical distribution, the combination with main and compensating conductors, of a generator from which the main conductors only are led, means for reducing the electromotive force of the generator, a shunt-circuit governing said means, and electromagnetic means for controlling said shunt-circuit adapted to respond upon the establishment of a short circuit between a main and compensating conductor to alter the condition of said shunt-circuit to reduce the electromotive force of the generator, substantially as described.

579,557. DRAWER-PULL. HENDERSON D. BELL, Sharon, Pa. Filed July 14, 1896. Serial No. 599,187. (No model.)



Claim.—1. The combination with a drawer-pull having a plurality of projections extending through the face of said drawer, grooves in said projections and a single wedge-plate engaging said grooves, substantially as described.

2. The combination with a drawer-pull having a projection from each end thereof extending through the face of said drawer and a plate adapted to hold said pull, said plate being wedged between said projections, substantially as described.

579,558. HAT-PIN PROTECTOR. JOHN J. BENNETT, Taylorstown, Pa. Filed Sept. 22, 1896. Serial No. 606,643. (No model.)



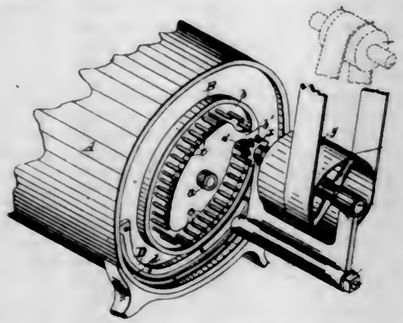
Claim.—1. A protector for the points of pins, consisting of a spring-strip bent into substantially circular form and having its ends overlapped and provided with openings for the passage of the pointed end of the pin, the ends normally tending to spring apart when the pin is in the openings and thereby clamp the protector on the pin, substantially as described.

2. A protector for pin-points, consisting of a spring-strip bent into substantially circular form and having its free ends overlapped and provided with openings, and a tube or sleeve attached to said strip and having its open end arranged in proximal relation to the free ends of the strip, substantially as described.

3. A protector for pins, consisting of a metal strip bent into substantially circular form and having its free ends overlapped and provided with openings, and a tube or sleeve secured rigidly to the central portion of said strip and having an open end adjacent to the free ends of the strip, the openings in the strip ends being normally out of alinement with each other and with the open end of the sleeve, substantially as described.

4. A hat-pin, provided near its point with a depression, in combination with a protector consisting of a tube or sleeve adapted to slip over the point of the pin, and a spring-strip attached to said tube or sleeve and provided at its free end with an opening for the passage of the pin, said strip being adapted to engage the depression in the pin and to interlock therewith, substantially as described.

579,559. REVERSIBLE DRIVING MECHANISM. ERNST BOSSERT, Cincinnati, Ohio. Filed Mar. 5, 1896. Serial No. 581,396. (No model.)



Claim.—1. In a self-reversing driving-gear, an interrupted crown-gear and a vibrating frame pivoted adjacent thereto in such relations that its arc of oscillation is bisected by a line connecting the axes of its pivot and the line-shaft, (source of power;) in combination with the counter-shaft carried by the frame perpendicular to the face of the crown-gear, the spur-pinion thereon engaging the crown gear-teeth, the belt-pulleys, the line-shaft driving-pulley and the driving-belt, substantially as set forth.

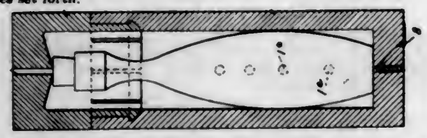
2. In reversible driving mechanism of the character indicated, the crown-gear having an interrupted series of teeth, the oscillating bearing, counter-shaft, and pinion, in combination with the adjustable stud, for support and adjustment of the oscillating arm, substantially as set forth.

3. In a reversible driving mechanism, in combination with the crown-gear, the curved base-plate having a slot concentric with the wheel, the sleeve adjustable thereon, the oscillating frame, belt-pulleys, and driving-pinion, substantially as set forth.

579,560. MEANS FOR JOINING SECTIONS OF BOXES. JUSTIN CAILLET, Chicago, Ill., assignor to Charles Bastian, same place. Filed Aug. 30, 1895. Serial No. 560,955. (No model.)

Claim.—1. A package consisting of a member composed of wood and having the grain running lengthwise thereof and being provided with a compressible neck having an abrupt barb whose upper face or side is formed at a sharp angle to the longitudinal axis of such neck, and a second member adapted to fit over said neck and having an interior groove or recess complementary in shape to said barb and adapted to receive the latter, whereby the two members will be inseparably secured together, substantially as set forth.

2. A package for the purpose described having in combination two members, one of which is provided with a channel or recess and the other with a barb adapted to engage in said channel or recess, the upper or outer edge of said barb and the upper or outer edge of said recess being formed at an abrupt angle and constituting a hook; one of said members at least being formed of wood with the grain running longitudinally thereof and said members being inserted one within the other and the interior one being provided with longitudinal slits forming flexible tongues, substantially as and for the purposes set forth.



3. A package having in combination a member or section composed of wood and the grain of the wood being arranged lengthwise of said member, said member being provided with an interior channel or recess, and a second member provided with an angular, abrupt barb or lug adapted to engage in said channel or recess for inseparably locking the members together, substantially as set forth.

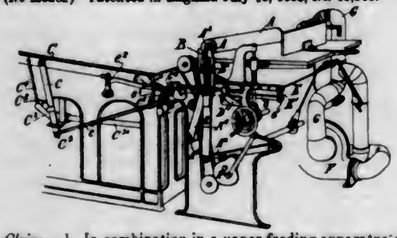
4. A package having in combination a member composed of wood having the grain thereof running longitudinally of said member, said member being provided in one end with a slit for assisting in splitting it open and in the other end of its interior with a channel or recess, and a second member having a barb or lug adapted to fit into said channel or recess for locking the members together, substantially as set forth.

5. A package having in combination a member composed of material capable of splitting from end to end and having a splitting-groove S and a number of perforations arranged in a line longitudinally thereof and in line with said groove, said member having a channel or recess near its mouth, and a second member having a barb or lug adapted to engage in said channel or recess for locking the members together, substantially as set forth.

6. A package having in combination a member composed of material capable of splitting from end to end and having a blade or key seated in its end for assisting in splitting said member open, said member being provided at its open end with a channel or recess, and a second member having a barb or lug adapted to engage in said channel or recess for locking the members together, substantially as set forth.

7. A package having in combination a member composed of wood having the grain arranged longitudinally thereof, a key seated in the bottom of said member and said member having a line of perforations on each side extending longitudinally thereof and in line with the ends of said key, said member being provided on its interior near its mouth with a channel or recess, and a second member adapted to be inserted into said first member and having a barb or lug adapted to engage in said channel or recess for locking the members together, substantially as set forth.

579,561. PAPER-FEED FOR PRINTING-MACHINES. DAVID CARLAW, Glasgow, Scotland. Filed June 2, 1896. Serial No. 594,035. (No model.) Patented in England July 13, 1896, No. 13,566.



Claim.—1. In combination in a paper-feeding apparatus, a movable trunk, air-exhausting means connected therewith, stop-motion connections, means carried by the said trunk and arranged to be moved by the vacuum-pressure therein, and connections between said means on the movable trunk and the stop-motion connections whereby the machine will be stopped when the vacuum-pressure is reduced, substantially as described.

2. In combination, the moving vacuum-trunk, the piston carried thereby and controlled in its movement by the vacuum-pressure, the stop-motion connections and means connecting the same with the piston on the movable trunk.

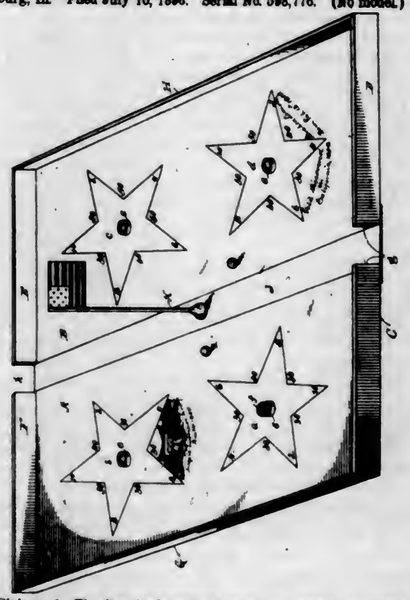
3. In combination in a paper-feeding apparatus, a movable trunk having a vacuum-chamber, a moving part also carried on the trunk and adapted to be acted on by the vacuum-pressure, and connections between said means on the movable trunk and stop-motion connections whereby the machine will be stopped when the vacuum is destroyed, substantially as described.

4. In a printing-machine in which sheets of paper are lifted and moved sheet by sheet pneumatically by a trunk above the pile fed to the printing-machine, the combination of the trunk A; vibrating arms A' carrying said trunk; the piston *a* therein; a spring normally moving the piston against the pressure of air acting upon it; a lever carried in the arm A' and operated by said piston; and a tappet device D^3 connected with the stopping and starting mechanism of the machine; said lever B being adapted to be out of contact and inoperative upon detent D^3 in its vibrations under normal working, and to engage with same in the absence of or by the derangement of sheets substantially as described.

5. In a printing-machine of the kind herein referred to, the combination of a pneumatic sheet-picking trunk A; piston *a* working therein; vibrating supporting-lever A'; a lever B carried on A' and connected with the piston *a* by rod *a'*; and bar D connected with the stopping and starting motion of the machine; tappet D^3 thereon; and pawl B^3 on the lever B, adapted to engage with and be disengaged from the tappet D^3; substantially as set forth.

6. In a printing-machine of the kind herein referred to, the combination with the air-trunk A; piston *a*; supporting-levers A' of the trunk; lever B carried on the lever A'; rod D with tappet D^3 adapted to be operated through the lever B; levers *c* connected with the stopping and starting motion, having a gab *c'* at one end; the levers c^3 c^4 one end of which is engaged by said gab; a rod *e*, and air-valve E operated by the rod *e*, and arm e^3 connecting the bar *e* with the bar *c*, adapted to disconnect said bar *c* from the automatic piston-controlling devices whereby the air-blast to the trunk is closed, and the printing-cylinder stopped simultaneously and whereby the machine will not be stopped when the air-vacuum valve is closed; substantially as described.

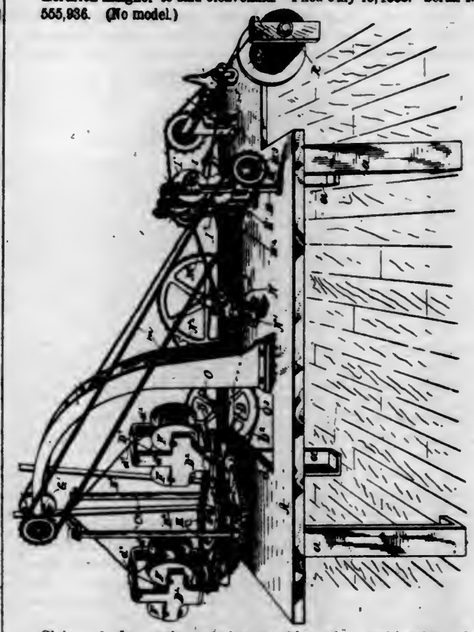
579,562. GAME APPARATUS. ALICE J. CHAMBERLAIN, Galesburg, Ill. Filed July 10, 1896. Serial No. 598,776. (No model.)



Claim.—1. The herein-described game apparatus, consisting of the folding board having side walls, openings *h*, *g*, in the end walls, star-figures inscribed on such board and carrying, on each point of the said stars, certain numerals, combined with numerals in the center of such stars to serve as points or counts in the game, rings surrounding such central numerals, said rings carrying marbles or balls, a removable flagstaff, for the purpose set forth.

2. The herein-described game apparatus, consisting of the folding board having side walls, openings *h g* in the end walls, star-figures inscribed on such board and carrying on each point of said stars, certain numerals, combined with numerals in the center of such stars to serve as points or counts in the game, rings carrying marbles or balls, a removable flagstaff, the angular space between the star-points containing historical events inscribed thereon with pictures illustrating such events, all combined for the purpose as described and set forth.

579,568. MACHINE FOR MAKING TWISTED-WIRE STRANDS. JOHN R. CLEAVELAND and CHARLES HERDRICH, Indianapolis, Ind.; said Herdrich assignor to said Cleaveland. Filed July 13, 1895. Serial No. 555,936. (No model.)



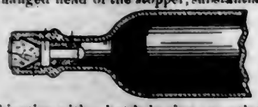
Claim.—1. In a wire-twisting machine, the combination, of a bed-plate, a fixed shaft secured to said bed-plate, a stationary sprocket-wheel mounted on said fixed shaft, a revoluble wheel mounted on said shaft between the fixed wheel and the bed-plate, a twisting-plate supported in an elevated position on standards projected up from the revoluble wheel and moving therewith, means for actuating said revoluble wheel, a pair of revoluble wire-carriers mounted on diametrically opposite sides of said revoluble wheel and having sprocket-wheels one-half the diameter of the stationary sprocket-wheel fixed to each of said carriers, a sprocket-chain connecting the stationary sprocket-wheel with the sprocket-wheels on the wire-carriers, a pair of revoluble bobbins mounted on each of said wire-carriers, having the wire to be twisted, wound thereon, a twisting-plate for each pair of bobbins mounted on upwardly-projected extensions of the carriers and revolving with their respective carriers, said plates being below the first-mentioned twisting-plate, and wires wound on the spools and threaded from each group of spools, through the nearest twisting-plate and from thence through the top twisting-plate, all substantially as described and for the purposes specified.

2. In a wire-twisting machine, the combination, of a bed-plate, a fixed shaft secured to said bed-plate, a stationary sprocket-wheel mounted on said fixed shaft, a revoluble wheel mounted on said shaft between the fixed wheel and the bed-plate, a twisting-plate supported from the revoluble wheel and moving therewith, means for actuating said revoluble wheel, a pair of revoluble wire-carriers mounted on diametrically opposite sides of said revoluble wheel and having sprocket-wheels one-half of the diameter of the stationary sprocket-wheel fixed to each of said carriers, a sprocket-chain connecting the stationary sprocket-wheel with the sprocket-wheels on the carriers, a pair of revoluble bobbins mounted on each of said wire-carriers, having the wire to be twisted, wound thereon, a twisting-plate for each pair of bobbins mounted on upwardly-projected extensions of the carriers and revolving with their respective carriers, said plates being below the first-mentioned twisting-plate, wires wound on the spools and threaded from each group of spools through the nearest twisting-plate and from thence through the top twisting-plate, means consisting of a grooved wheel with irregularities in the width and depth of the groove to fit the contour of the wire, belt connection from the grooved wheel to the driving-shaft of the machine to insure a determined ratio of speed between the wheel and the wire-twisting mechanism, and mechanism for reeling up the wire as it is made, all substantially as described and specified.

579,564. BOTTLE. WILLIAM S. DAWSON, Ghusury, Howrah, India. Filed Nov. 17, 1896. Serial No. 612,449. (No model.)

Claim.—1. A bottle, having immediately below its outlet-open-

ing, a recessed chamber of greater diameter than said opening, a seating-chamber of less diameter than the recessed chamber and arranged below the same providing a bearing-shoulder, a stopper having a flanged head and a shank portion said head resting on the shoulder, and a cement filling in the recessed chamber said filling resting on the flanged head of the stopper, substantially as described.



2. In combination with a bottle having an outlet-opening with a recessed chamber of larger diameter immediately below the same and a seating-chamber below the recessed chamber of smaller diameter than the same presenting a seating-shoulder, a stopper having a flanged head resting on said shoulder, a fastening device comprising the piece having the central disk portion resting on the head of the stopper and the arms extending upwardly and diverging therefrom to engage the upper shoulder of the recessed chamber and the cement filling in which the fastening-piece is embedded, substantially as described.

3. In combination the bottle having an outlet-opening with a recessed chamber of larger diameter below the same, and having the seating-chamber of smaller diameter presenting a seating-shoulder, the stopper having a flanged head resting on the shoulder, and the cement filling in the recessed chamber, the said bottle having a groove E immediately below the seating-shoulder and having an outer rim on the outer side of the bottle opposite the groove, substantially as described.

4. In combination with the bottle having immediately below its outlet-opening, a recessed chamber of greater diameter than the said opening, a seating-chamber of less diameter than the recessed chamber, and arranged below the same providing a bearing-shoulder, a stopper having a flanged head and a cork body fitted to said seating chamber and shoulder and a filling of cement in the recessed chamber resting on the flanged head of the stopper the said bottle having an annular depression with an outside rim so disposed that the greatest thickness of the bottle-neck is along a line drawn horizontally from the inner depression, and the least thickness is along a line at an angle of forty-five degrees downward from the same.

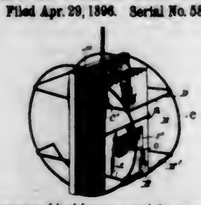
579,565. COVERING FOR JOURNAL-BEARINGS. SIDNEY G. DOWN, Detroit, Mich. Filed Jan. 9, 1897. Serial No. 618,552. (No model.)



Claim.—1. As a new article of manufacture, a covering for the journal-bearings of axles or shafts, the same consisting of a body of felt, or other absorbent material, having an outer jacket of canvas, and interior clamping-bands, substantially as and for the purpose set forth.

2. A covering for metallic surfaces, the same consisting of a body 1 composed of felt or other flexible, absorbent material, a jacket 2, curved longitudinal clamping-bands 3, transverse stays 4, and said body and jacket adapted to be saturated with oil, or other similar substance and the whole adapted to be applied to the surfaces of journals substantially as shown and described, for the purpose set forth.

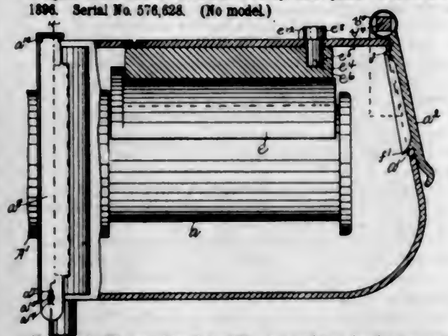
579,566. BAG OR PAPER HOLDER. EDWARD P. DRENNING, Wrightsville, Pa. Filed Apr. 29, 1896. Serial No. 589,572. (No model.)



Claim.—1. An improved holder, comprising a back board or base, the wire racks arranged upon each side or face of said back board or base, said racks comprising the side portions, the brace-bars, the top or front cross-bar, the bottom bars right-angled in shape and arranged as described, bails pivoted to the top of the back board or base, and arranged upon opposite sides thereof, each bail carrying a weight upon the forward member, substantially as shown and described.

2. An improved holder comprising the back board or base, the wire rack comprising the side and brace bars, the top or front cross-bar, and the bottom bars arranged as described, the pivoted bail and the weight carried by said bail, substantially as shown and described.

579,567. JOURNAL-BOX. JOHN H. EARL, Somerville, Mass., assignor of one-half to Frederick C. Godey, same place. Filed Jan. 24, 1896. Serial No. 576,628. (No model.)



Claim.—1. The combination with a journal-box having an opening in its rear end for the passage of the journal and of the axle, and provided in its top and side with dust-guard openings, of a dust-guard comprising an upper and a lower member, the upper member being inserted through the opening in the top of the journal-box and provided with a concavity to embrace and fit over the upper part or half of the journal, and the lower member being inserted through the opening in the side of the box and provided with a concavity to embrace the lower part or half of the journal, means to keep the lower member in contact with the journal, and removable covers for said dust-guard openings, substantially as described.

2. The combination with a journal-box having an opening in its rear end for the passage of the journal and of the car-axle, and provided in its top and side with dust-guard openings, of a dust-guard comprising an upper and a lower member, the upper member being inserted through the opening in the top of the journal-box and provided with a concavity to embrace and fit over the upper part or half of the journal, and the lower member being provided on its upper side with a concavity to fit the lower part of the journal and having one side curved to permit it to be inserted through the opening in the side of the box, and means to compensate for wear of the lower member and keep its concaved face in contact with the journal, and removable covers for the said dust-guard openings, for the purpose specified.

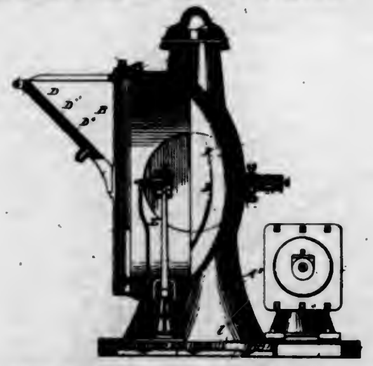
3. The combination with a journal-box for car-axles provided with an opening for the insertion of the journal-bearings, of a cover for said opening provided with a cylinder, a hinge for said cover comprising stationary members inserted into the opposite ends of said cylinder and provided with elevations and depressions forming cam-surfaces, movable members having elevations and depressions in their contacting faces and located in said cylinder near its opposite ends, means to connect the movable members of the hinge with the said cylinder so as to move therewith on the said stationary members, and a yielding medium interposed in said cylinder between the said movable members to keep the said movable member in engagement with the stationary member and yet permit them to move toward each other within the said cylinder, substantially as described.

4. The combination with a journal-box for car-axles, a journal inserted therein, a journal-bearing supported on said journal, a wedge inserted between the journal-bearing and the top of the journal-box and provided with a socket e^3, of a cylindrical locking-pin for said wedge inserted through a hole in the journal-box into said socket and projecting outside of the journal-box, an arm e^7 on said pin provided with an enlargement to cover the hole in the journal-box, an eye or opening e^8 in said arm, a stationary bracket provided with an arm adapted to extend through the eye in the arm e^7, and means to lock the arm e^7 to the stationary bracket, substantially as and for the purpose specified.

579,568. HEADLIGHT FOR LOCOMOTIVES. EDGAR A. EDWARDS, Cincinnati, Ohio. Filed Sept. 21, 1894. Serial No. 523,703. (No model.)

Claim.—1. In a headlight-casing, a circular shell portion provided with a recess for the gasket, in combination with a hinged goggle-frame, a goggle mounted in the frame, the frame having a flaring flange projecting over the gasket-recess, and a gasket in the recess between the shell and the flange, substantially as described.

2. In a headlight-casing, the combination with the swinging goggle-frame, of the auxiliary-plane-reflector plate secured to the goggle and projecting at an angle thereto, and the bar connecting the other portion of said plate with the goggle-frame and presenting a narrow edge to the line of reflection, substantially as described.



3. A headlight-casing provided with an inclined reflector adapted to project light-rays in a substantially vertical direction, in combination with an emergency-signal hinged to the inclined reflector, substantially as described.

4. A headlight-casing provided with an inclined auxiliary reflector, in combination with a frame hinged to the said reflector and containing a colored, transparent medium, substantially as described.

5. In a headlight-casing, the combination with the inclined auxiliary reflector, of a hinged frame connected thereto, means for securing the frame in position against the reflector, and means for supporting it in a position to intercept the rays of light from said auxiliary reflector, substantially as described.

6. The combination with the headlight-case having an extension, of a reflector having a bracket secured thereto, and adjusting devices between said bracket and extension whereby the reflector may be accurately adjusted in any direction, substantially as described.

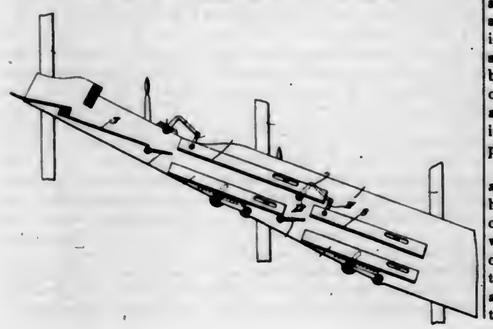
7. The combination with the headlight-case, provided with a rearward hollow extension, of a reflector provided with a bracket having a tubular extension, the adjusting-screws, and the adjusting-rod, substantially as described.

8. The combination with the headlight-case having a hollow rearwardly-projecting extension provided with a spherical socket, of a reflector having a bracket provided with a hollow tubular extension with squared outer surfaces, the adjusting set-screws, and the adjusting-rod having a spherical enlargement, substantially as described.

9. A headlight-casing provided with a goggle-frame, an emergency-signal, and an auxiliary reflector secured in front of the goggle-frame and arranged at an angle thereto whereby a portion of the light-rays issuing from the casing are directed vertically through the emergency-signal, substantially as described.

10. A headlight-casing, provided with a goggle-frame, an auxiliary reflector arranged in front of said frame in a substantially central position and a screen arranged at the bottom of the headlight-casing to be drawn upward whereby all or a portion of the light-rays issuing through the goggle-frame below the auxiliary reflector may be intercepted, substantially as described.

579,569. COAL-SEPARATOR. FREDERICK H. EMERY, Scranton, Pa. Filed June 1, 1896. Serial No. 593,847. (No model.)

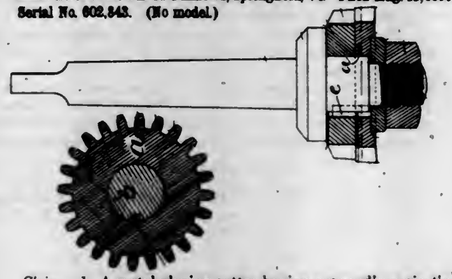


Claim.—1. In a separating apparatus, the combination with an inclined receiving-chute and deflecting-plate at the lower end thereof, of a succession of adjustable under and over chutes arranged in pairs and located in different planes, one chute in each pair being above that of the deflector and separated therefrom by open spaces, each underchute being provided at its lower end with an individual hinged deflecting-plate, whereby material from the receiving-chute striking its deflecting-plate falls to one or the other chute as determined by the relative specific gravity of the individual particles, substantially as specified.

2. In a separating apparatus, the combination with an inclined receiving-chute, deflecting-plate, and chute sides, of a plurality of chutes arranged in pairs one above, and substantially parallel to the other, between the chute sides, and for purpose of adjustment provided with bell-crank levers for each chute side, lever-handles for operating the bell-crank levers, and second chute, the arms of said levers being fixed relatively to each other, whereby the chute may be longitudinally and vertically adjusted, substantially as specified.

3. In a coal-separating apparatus, the combination with an inclined receiving-chute and deflecting-plate at the lower end thereof, of a plurality of longitudinally and vertically adjustable under and over chutes arranged in pairs, one chute in each pair being above that of the deflector and separated therefrom by open spaces, each underchute being provided at its lower end with an individual hinged deflecting-plate, whereby material from the receiving-chute striking its deflecting-plate falls to one or the other chute as determined by the relative specific gravity of the individual particles, and mechanism for adjusting the chutes substantially as specified.

579,570. CUTTER AND CUTTER-HEAD FOR GEAR-SHAPING MACHINES. EDWIN R. FELLOWS, Springfield, Vt. Filed Aug. 15, 1896. Serial No. 602,843. (No model.)



Claim.—1. A metal-planing cutter having outwardly-projecting or radiating metal-planing teeth, the backs of which are formed at a slight clearance-angle with the axis of the cutter, while their sides are formed to generate the curves of gear-teeth when the cutter and gear-blank are relatively moved as described, said cutter-teeth being of uniform size and shape and arranged in a continuous circular series, whereby the cutter is enabled to operate continuously in generating the curves of gear-teeth on blanks of different sizes, as set forth.

2. A metal-planing cutter having outwardly-projecting or radiating metal-planing teeth, the backs of which are formed at a slight clearance-angle with the axis of the cutter, said teeth being of uniform size and shape and arranged in a continuous circular series, combined with a shank adapted for engagement with a cutter-operating device or mechanism and having provisions for detachably holding or clamping the cutter, said shank having its axis coincident with the axis of the cutter.

3. A metal-planing cutter comprising a hub or body having a central orifice and a continuous circular series of outwardly-projecting metal-planing teeth, the backs of which have a slight clearance-angle; combined with a shank or spindle formed to removably enter said orifice and having a shoulder at the rear side of the cutter: an inner clamping member or plate perforated to receive the shank and supported by said shoulder at the rear side of the cutter, said member having projections coinciding with the teeth of the cutter; an outer clamping member adjustably connected with the shank and adapted to engage the outer side of the cutter; and means for locking the inner clamping member and cutter together to prevent independent rotary movement of either.

4. The combination of a gear-shaped metal-planing cutter, having a central orifice and a groove communicating therewith; a shank having a shoulder and a threaded portion; a detachable supporting or clamping member rigidly backed by said shoulder, and provided with projections coinciding with the cutter-teeth, and with a central orifice and groove coinciding with the orifice and groove of the cutter; a clamping-nut engaged with the threaded portion of the shank; and an annular plate or washer interposed between the nut and cutter and provided with a pin or spline.

579,571. PROCESS OF MAKING ARTIFICIAL WOOD FROM PEAT OR TURF. CARL GRIER, Broich, Germany. Filed June 20, 1894. Serial No. 515,139. (Specimens.) Patented in Germany Aug. 10, 1893, No. 77,173; in Belgium May 29, 1894, No. 110,191; in England May 31, 1894, No. 10,585; in Austria June 15, 1894, No. 44/2,445; in Sweden Oct. 5, 1894, No. 6,069, and in Norway Oct. 6, 1894, No. 4,117.

Claim.—1. A process for producing artificial wood, consisting in first lixiviating of its acidity raw turf, then reducing the same to fibers and dust, then shaking or agitating the mixture of the fibers and the dust until a moist felt-like mass is obtained having its interstices filled out with the dust, then intimately mixing the said mass with calcined gypsum and then subjecting the resultant mass to a high pressure, substantially as set forth.

2. A process for producing artificial wood, consisting in first lixiviating of its acidity, raw turf, then reducing the same to fibers and dust, then shaking or agitating the mixture of the fibers and the dust until a moist felt-like mass is obtained having its interstices filled out with the dust, then intimately mixing the said mass with a paste of calcined gypsum and water, after having allowed the said mass to partially dry and then subjecting the resultant mass to a high pressure, substantially as described.

3. A process for producing artificial wood consisting in first lixiviating raw turf, then reducing the same to fibers and dust, shaking or agitating the mixture of the fibers and the dust until a moist felt-like mass is obtained as specified, allowing the said mass to partially dry and then intimately mixing the same with a paste of calcined gypsum and water with an addition of glue in molds and subjecting the resultant mass to a high pressure and then drying it, substantially as described.

579,572. PROCESS OF MAKING CHEMICALLY-PREPARED PEAT FIBERS. CARL GRIER, Duesseldorf, Germany. Filed Mar. 28, 1896. Serial No. 585,230. (No specimens.)

Claim.—A process for the manufacture of chemically-prepared peat fibers consisting in lixiviating raw peat with alkalies, then drying and disintegrating the same, then placing the fibers into a warm bath containing acid and then into a bath containing ferments, and then after washing the fibers, treating the same with a fat-removing agent, and then again washing the fibers, then boiling them with dilute alkalies and again washing the same, substantially as described.

579,573. LENS-MEASURE. GEORGE GOFF, Iola, Kans., assignor of one-half to J. H. Johnson, Kansas City, Mo. Filed Jan. 21, 1896. Serial No. 576,322. (No model.)

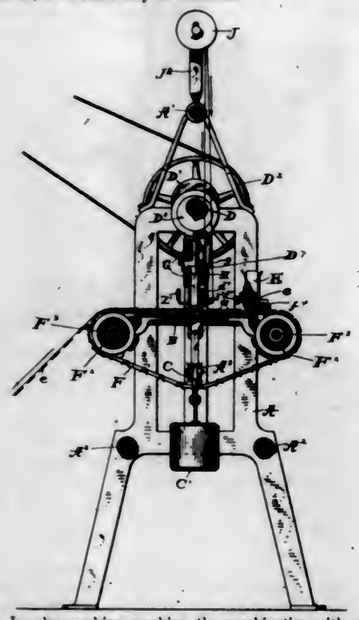


Claim.—1. A device for measuring the convexity and concavity of lenses having a base-plate provided with fixed seats or rests, an index pivotally mounted upon the base-plate and having a movable contact-point between said seats or rests, yielding means for holding the index normally at its point of rest, and a covering-plate attached to the base-plate to cover the body of the index and having an extension or tongue 8 to conceal and protect the indicating end of the index when at its point of rest, substantially as specified.

2. A device for measuring the convexity and concavity of lenses, having a sector-shaped base-plate provided near its upper edge with a segmental scale and terminating at its lower end in spaced fixed contact-points, and an index mounted for swinging movement parallel with the base-plate, the same being pivoted at one end contiguous to one side edge and projecting beyond the pivotal point between said fixed contact-points to form a movable contact-point, and the opposite end of the index being adapted to traverse said scale, said index being yieldingly held in its normal position, substantially as specified.

579,574. BOX-MAKING MACHINE. JASON H. GREENSTREET, Indianapolis, Ind. Filed July 6, 1896. Serial No. 598,134. (No model.)

Claim.—1. In a box-making machine, the combination with wiring and stapling mechanism, of a bed-plate on which the box material is placed, belts with spurs to engage the material and feed it across the bed-plate, said belts being actuated by the reciprocating movement of the bed-plate, revolving cams for lowering the bed-plate and springs or weights to impart a yielding force to the bed-plate whereby the same will be raised a variable distance according to the requirements as to thickness of the material into which the staples are driven, all substantially as described.



2. In a box-making machine, the combination with wiring and stapling mechanism, of the bed-plate B having vertical reciprocating movement controlled by suitable guides, weighted levers C to force the bed-plate up against the stapling-heads, cams D' to lower the bed-plate, link belts F with spurs to engage the slat material, said belt passing over sprocket-wheels in the manner as shown and described, and mechanism for actuating the sprocket-wheels so as to move the feed-belt, said mechanism consisting of a ratchet-wheel revolving with the sprocket-wheels and a pawl pivotally secured to the frame of the machine and engaging the ratchet-wheel so as to rotate same as it rises and falls with the bed-plate.

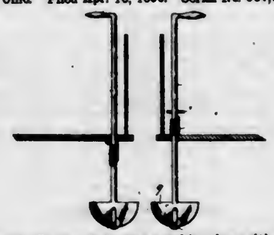
3. In a box-making machine, a bed-plate, revolving cams to force the bed-plate down and weighted levers to raise the bed-plate and means substantially as specified for feeding the material for the sides of the box across the bed-plate, in combination with binding-wires and wires to form the staples for fastening the binding-wires to the box sides, means substantially as described for delivering the binding-wire into proper position and means for making staples out of the wires provided for that purpose, said means consisting of a forming-hook over which the wire is fed, a forked bar to cut off the wire and bend it over the hook into a staple, and hold the staple against the strip and from spreading while it is driven and a bar to push the staple into the wooden strip, all substantially as set forth.

4. In a box-making machine, the combination with a reciprocating bed-plate to bring the material from which the box sides are made, into contact with the staple-driving mechanism, of a series of staple forming and driving heads and a pair of spools for each head each of which supplies a single wire to one of the heads and said heads each consisting of the following parts: an immovable body-plate l^3 having a pair of parallel flange-like extensions forming a slideway, and having a groove intermediate of the flange-like extensions, a lever pivoted at its upper end in said groove and having a hook on its lower end, a spring to press the lever so the hook will project beyond the bottom of the slideway, wire fed transversely across the slideway, above the hook, a forked bar working in the slideway to cut off the wire and bend it over the hook into a staple and hold the staple against the box-strip and from spreading while the staple is driven, a hammer-bar to drive the staple, having a flange to work in the slotted end of the forked bar and having a spring-pressed dog to engage the forked bar and force it down, a pin to throw the dog out and release the forked bar as described, a spring attached to the hammer-bar and bearing down on the forked bar, means for imparting a reciprocating movement to the hammer-bar, and means for feeding the wire into the slideway to be cut and formed into staples, said means consisting of a grooved disk having a ratchet-wheel actuated from the hammer-bar and a weighted clamp to hold the wire from back movement, all substantially as described and for the purposes specified.

5. In a box-making machine, the combination with a reciprocating bed-plate, link belts having spurs, said belts passing over the surface of the bed-plate and moved automatically by said reciprocating bed-plate to bring the material forming the sides of the box into contact with the stapling-heads of a stationary plate reaching from one side of the machine to the other and having a central longitudinal slot, staple forming and driving heads of the kind shown and described removably and adjustably secured to said stationary plate, a reciprocating plate parallel with the stationary plate, means substantially as described for transmitting a reciprocating motion to the said plate and means for connecting the plate with the hammer-bar of the staple forming and driving head, all substantially as described and for the purposes specified.

6. In a box-making machine of the kind specified, the standards A having the transverse bars A' and A^2, the platform B having vertical reciprocating movement controlled by ways formed in the frame of the machine, the revoluble shaft D having cams D' to force the bed-plate down, and weighted levers C to raise the bed-plate up, a link belt F having spurs *f*, said belt passing over the bed-plate, shafts F^6 mounted in bearings secured to the bed-plate and having sprocket-wheels over which the link belts are passed, a ratchet-wheel mounted on one of said shafts and a pawl pivoted to the frame of the machine so as to engage the ratchet-wheel and actuate the link belts by the reciprocation of the ratchet-wheel, a stationary plate G having the longitudinal central slot *g*, the plate H connected with eccentrics on the shaft D whereby the plate H will be reciprocated by the revolution of said shaft D, the said plate H having the longitudinal groove *h*, the standards J^2 mounted on the bar A', and the spools J and J' mounted on each of the standards, and wire staple forming and driving heads I constructed substantially as described and removably and adjustably bolted to the slotted plate G and connected with the grooved plate H whereby the proper motion, at any position or adjustment of the heads I will be transmitted to the said heads, all of said parts being combined and arranged substantially in the manner as described and for the purposes specified.

579,575. STREET RAILWAY SWITCH. CHARLES E. GROVER, Attica, Ohio. Filed Apr. 10, 1896. Serial No. 587,020. (No model.)

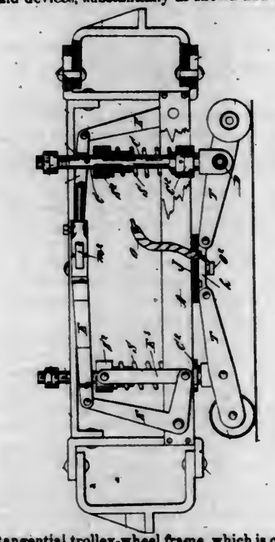


Claim.—1. In a switch, the combination with track mechanism including a laterally-movable pin operatively connected with the switch-rail, of car mechanism including an upwardly-yielding cam-plate having a vertical axis, and an actuating-spring to normally and yieldingly hold the cam-plate in its depressed position and in a plane parallel with the direction of movement of the car, whereby the plate may be deflected in either direction from said normal position to engage the pin of the track mechanism and move the same in either direction, substantially as specified.

2. In a switch, the combination with a laterally-movable pin operatively connected with a switch-rail, of car mechanism having a cam-plate provided with a vertical spindle, an actuating-spring for yieldingly holding the cam-plate in a depressed position and in a plane parallel with the direction of movement of the car, said plate being adapted for deflection in either direction from its normal position to engage said pin, and a bearing-roller carried by the cam-plate and projecting below the lower edge thereof to encounter and ride over obstructions on the road-bed, substantially as specified.

579,576. TROLLEY-WHEEL FRAME FOR TROLLEY-CARS. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor of one-half to Zalmon Goodsell, same place. Filed May 8, 1896. Serial No. 590,788. (No model.)

Claim.—1. A tangential trolley-wheel frame, which is connected with the trucks of a car as herein described, one end being pivotally connected therewith, and adapted to swing, and the other end being also pivotally connected therewith, and provided with means whereby a slight sliding motion may be secured, said frame being also provided with trolley arms or levers pivotally connected with the bottom thereof, each of which is provided with a trolley-wheel, and with a vertical rod which passes through said frame, on each of which are mounted spring-regulating nuts, each rod being also provided with a strong spiral spring, which bears upon said nuts, and with a vertically-movable sleeve, which rests upon said springs and means for operating said devices, substantially as shown and described.



2. A tangential trolley-wheel frame, which is connected with the trucks of a car as herein described, one end being pivotally connected therewith, and adapted to swing, and the other end being also pivotally connected therewith, and provided with means whereby a slight sliding motion may be secured, said frame being also provided with trolley arms or levers pivotally connected with the bottom thereof, each of which is provided with a trolley-wheel, and with a vertical rod which passes through said frame, on each of which are mounted spring-regulating nuts, each rod being also provided with a strong spiral spring, which bears upon said nuts, and with a vertically-movable sleeve, which rests upon said springs, and means for operating said devices, consisting of crank-levers pivotally connected with the frame and provided with rods which are connected with said sleeves, said crank-levers being also connected with a suitably-supported cross-lever, which is connected with an operating-lever, substantially as shown and described.

3. A tangential trolley-wheel frame, which is connected with the trucks of a car as herein described, one end being pivotally connected therewith, and adapted to swing, and the other end being also pivotally connected therewith, and provided with means whereby a slight sliding motion may be secured, said frame being also provided with trolley-arms or levers pivotally connected with the bottom thereof, each of which is provided with a trolley-wheel, and with a vertical rod which passes through said frame, on each of which are mounted spring-regulating nuts, each rod being also provided with a strong spiral spring, which bears upon said nuts, and with a vertically-movable sleeve, which rests upon said springs, and means for operating said devices, consisting of crank-levers pivotally connected with the frame, and provided with rods which are connected with said sleeves, said crank-levers being also connected with a suitably-supported cross-lever, which is connected with an operating-lever, said operating-lever being provided with a pawl which operates in connection with a curved rack-bar, and which is provided with a rod or lever by which it is operated, substantially as shown and described.

4. The combination with a car, provided with separate swinging trucks, of a tangential trolley-wheel frame, the ends of which are pivotally connected with said trucks, and one end of which is adapted to move laterally thereon, said frame being provided at its lower side with two pivoted arms or levers which project in opposite directions, each of which is provided with a trolley-wheel adapted to bear upon a depressible rail, and means connected with said arms or levers for raising or lowering the same, substantially as shown and described.

5. The combination with a car, provided with separate swinging trucks, of a tangential trolley-wheel frame, the ends of which are pivotally connected with said trucks, and one end of which is adapted to move laterally thereon, said frame being provided at its lower side with two pivoted arms or levers which project in opposite directions.

each of which is provided with a trolley-wheel adapted to bear on a depressible rail, and means connected with said arms or levers for raising or lowering the same, consisting of crank-levers connected with said frame, and connected by means of rods with sliding sleeves mounted on vertical rods which are supported by said arms or levers, said vertical rods being provided with springs which are mounted thereon, and which support said sleeves, and said crank-levers being also connected with a suitably-supported cross-lever, and said cross-lever being connected with an operating-lever, substantially as shown and described.

6. The combination with a car, provided with separate swinging trucks, of a tangential trolley-wheel frame, the ends of which are pivotally connected with said trucks, and one end of which is adapted to move laterally thereon, said frame being provided at its lower side with two pivoted arms or levers which project in opposite directions, each of which is provided with a trolley-wheel adapted to bear on a depressible rail, and means connected with said arms or levers for raising or lowering the same, consisting of crank-levers connected with said frame, and connected by means of rods with sliding sleeves mounted on vertical rods which are supported by said arms or levers, said vertical rods being provided with springs which are mounted thereon, and which support said sleeves, and said crank-lever being also connected with a suitably-supported cross-lever, said cross-lever being connected with an operating-lever, which is provided with a pawl which is adapted to operate in connection with a curved rack-bar, substantially as shown and described.

7. The combination with a car, provided with separate swinging trucks, of a tangential trolley-wheel frame, the ends of which are pivotally connected with said trucks, and one end of which is adapted to move laterally thereon, said frame being provided at its lower side with two pivoted arms or levers which project in opposite directions, each of which is provided with a trolley-wheel adapted to bear on a depressible rail, and means connected with said arms or levers for raising or lowering the same, consisting of crank-levers connected with said frame, and connected by means of rods with sliding sleeves mounted on vertical rods which are supported by said arms or levers, said vertical rods being provided with springs which are mounted thereon, and which support said sleeves, and said crank-levers being also connected with a suitably-supported cross-lever, said cross-lever being connected with an operating-lever, which is provided with a pawl which is adapted to operate in connection with a curved rack-bar, and said vertical rods which are connected with said trolley arms or levers being also provided with set-nuts by which the pressure of the springs is regulated, substantially as shown and described

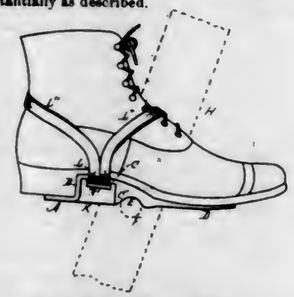
8. A tangential trolley-wheel frame, which is adapted to be connected with the trucks of a car as herein described, and which is provided with trolley arms or levers pivotally connected therewith, each of which is in operative connection with a transverse lever, and said transverse lever being in operative connection at one end thereof with a main operative lever, substantially as shown and described.

9 A tangential trolley-wheel frame, which is adapted to be connected with the trucks of a car as herein described, and which is provided with trolley arms or levers pivotally connected therewith, each of which is in operative connection with a transverse lever, and said transverse lever being in operative connection with a main operative lever, said trolley arms or levers being also provided each with a vertically-movable rod, on each of which is mounted a sliding sleeve which is spring-operated, and each of which is connected with a crank-lever, which is in operative connection with a suitably-supported cross-lever, and means for operating said cross-lever, substantially as shown and described.

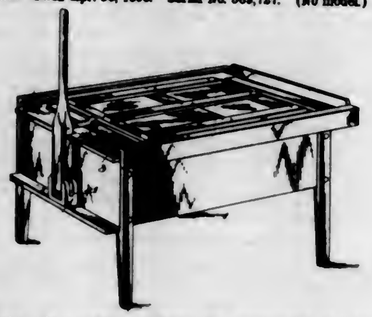
10. The combination with a tangential trolley-wheel frame of the character described, and which is provided with trolley arms or levers pivotally connected therewith, each of which is in operative connection with a transverse lever, said transverse lever being connected with an operative lever, said trolley arm or lever being also provided with a vertically-movable rod, on each of which is mounted a spring-actuating lever and each of which is connected with a crank-lever which is in operative connection with a suitably-supported cross-lever, and means for operating said levers, of the trolley-wheels carried by said trolley-arms and provided with shields or plates on the opposite sides thereof which are insulated from the wheel, said wheels being held in position by bolts passing through insulated bushings in the wheels, substantially as shown and described.

579,577. LADDER-GRIPPING ATTACHMENT FOR BOOTS OR SHOES. DARIUS B. HANSCOM, Salem, Mass. Filed June 4, 1896. Serial No. 594,259. (No model.)

Claim.—The herein-described ladder-gripping attachment for boots and shoes, consisting of the plate constructed with the flat horizontal portion A, vertical portion B, shank portion C and sole portion D, all made integral, said plate being formed between the sole portion D and shank portion C with the thickened transverse portion C', and immediately in front of said thickened portion with the transverse, horizontal groove E, and said integral plate being further provided on the under side of its shank portion with integral, parallel braces K extending from the heel portion to said thickened portion E', said braces being formed with horizontal, coincident slots K'; and a bifurcated strap extending through said slots and with one portion adapted to extend over the instep and the other around the heel of the shoe, substantially as described.



579,578. WASHING-MACHINE. JOHN R. HARTMAN, Davenport, Iowa. Filed Apr. 30, 1896. Serial No. 589,727. (No model.)



Claim.—In a washing-machine, the combination of a body provided at its upper edges with horizontal ways, a horizontally-reciprocating cover arranged in said ways and provided with perforations, a frame loosely resting upon the upper face of the cover, carried by the latter in its reciprocation and provided with depending vertically-disposed clothes-engaging pins passing through the perforations of the cover, said frame being capable of free vertical movement independent of the cover and being removable therefrom, and operating mechanism for reciprocating the cover, substantially as described.

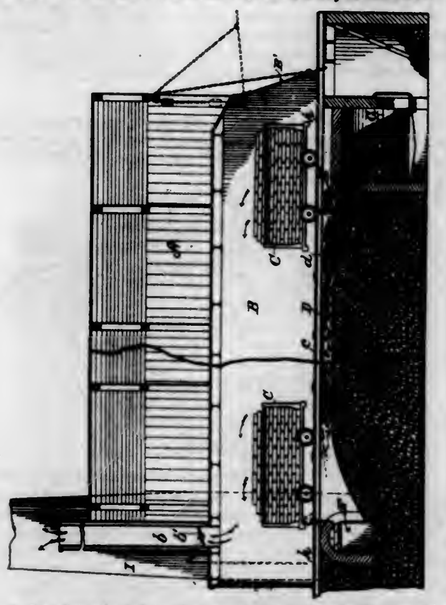
579,579. BRICK-DRIER. THEODORE L. HOLBROOK and CHARLES SCHU, Washington, D. C. Filed Apr. 11, 1896. Serial No. 587,196. (No model.)

Claim.—1. In a drier for bricks, the combination with a drying-chamber, of a series of furnaces, a horizontal distributing-flue extending along one side of said chamber and with which each of the furnaces communicates, a cross-flue parallel to the distributing-flue on the opposite side of said chamber and having at one end a chimney, and a series of heating-flues extending from the distributing-flue to the cross-flue, the tops of said flues being of heat-radiating material, and separating the flues from the drying-chamber, substantially as described.

2. In a drier for bricks, the combination with the drying-chamber, of a furnace, a horizontal distributing-flue extending along one side of said chamber, a cross-flue parallel to the distributing-flue on the opposite side of said chamber and having at one end a chimney, and a series of heating-flues extending from the distributing-flue to the cross-flue, the tops of said flues being formed of concavo convex removable metallic covers, whereby direct access can be had to the flues from the chamber, substantially as described.

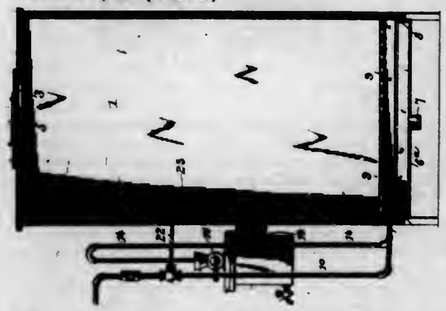
3. In a drier for bricks, the combination with a drying-chamber, of a furnace, a horizontal distributing-flue extending along one side of said chamber, a cross-flue parallel to the distributing-flue on the opposite side of said chamber and having at one end a chimney, and a series of heating-flues extending from the distributing-flue to the cross-flue, the discharge-openings of the heating-flues being of different dimensions, increasing in size from that nearest the chimney to

that farthest therefrom, whereby uniformity of draft and heating effect in the several flues is maintained, substantially as described.



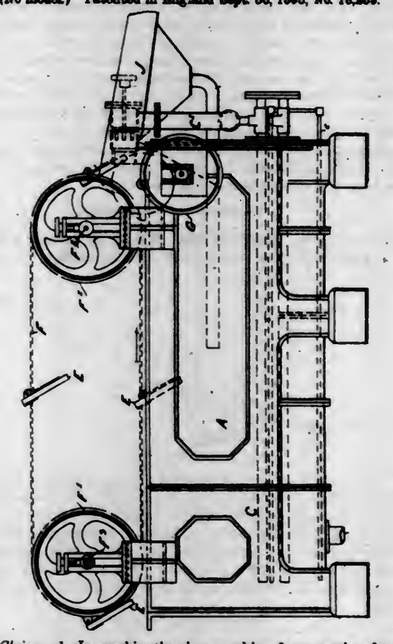
4. In a drier for bricks, the combination with a drying-chamber having a series of tracks for the cars containing bricks to be dried, of a furnace, a distributing-flue extending along one side of said chamber transverse to the tracks, a series of heating-flues each connected with said distributing-flue and extending beneath the chamber parallel with said tracks each flue being separated from said chamber by removable heat-radiating covers, the several covers occupying the space between the tracks, substantially as described.

579,580. APPARATUS FOR ADMINISTERING MEDICATED VAPOR-BATHS. PETER J. HOLM, Eau Claire, Wis. Filed Mar. 30, 1895. Serial No. 543,870. (No model.)



Claim.—A bath apparatus consisting of a compartment or casing provided with a false bottom or floor having perforations through only a portion of its area, and an imperforate section of sufficient size to prevent the vapor from coming into direct contact with the bather when in position upon the imperforate section, two medicine-receptacles supported at the side of the casing, a single vapor-supply pipe having three depending connected branches each provided with a valve having a horizontal stem extending inwardly through one side of the casing for separate or simultaneous use, the side branches of the supply-pipe being extended downwardly into the medicine-receptacle and the intermediate of said branches having at its lower end a horizontal portion extending through one side of the casing and having its discharge end located directly under the perforated portion of the false bottom or floor, and a pair of delivery-pipes respectively connected to the separate medicine-receptacles at one end and having their discharge-orifices located beneath the false bottom or floor at the opposite sides of the imperforate portion thereof, as and for the purposes set forth.

579,581. APPARATUS FOR REMOVING FAT FROM WOOL WASHINGS. JAMES HOLMES, HERBERT R. TANKARD, and WILLIAM SCAIFE, Bradford, England. Filed Apr. 7, 1896. Serial No. 586,552. (No model.) Patented in England Sept. 30, 1895, No. 18,239.

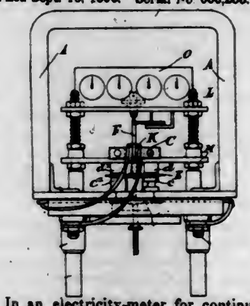


Claim.—1. In combination in a machine for removing fatty matters from effluent waters of wool-washing machines, a tank adapted to contain the effluent water, air-blast pipes in said tank to produce foam or froth on the surface of the water and scrapers extending from side to side of the tank and operating at the surface of the water to remove the said froth, substantially as described.

2. In combination in a machine for removing fatty matters from effluent waters of wool-washing machines, the tank, a pipe leading thereto for conveying the effluent water from a wool-washing machine, the air-blast pipe extending into the tank to produce froth and foam at the surface of the water, said tank having a discharge for the said froth and foam and scrapers extending from side to side of the tank and operating along the surface of the water to move the froth to the discharge-spout, substantially as described.

3. In combination in a machine for removing fatty matters from effluent waters of wool-washing machines, the tank, the air-pipe therein to produce froth at the surface of the water, the scrapers, and the discharge-spout for the froth having a return-pipe leading into the tank, substantially as described.

579,582. ELECTRIC METER. GEORGE HOOKHAM, Birmingham, England. Filed Sept. 18, 1896. Serial No. 606,255. (No model.)

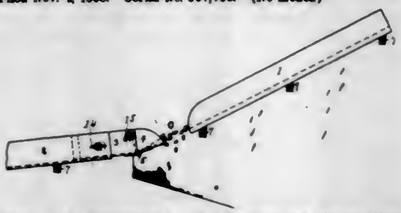


Claim.—1. In an electricity-meter for continuous currents, in which the motor-armature is immersed in mercury and rotates together with the brake in the field of a permanent magnet, in combination, the arrangement of the brake magnetic pole-pieces in parallel with the motor magnetic pole-pieces instead of in series so that the magnetic polarities at the opposite sides of the rotating armature

are opposite in kind; and the passage of the current across the armature from side to side instead of from side to center to increase the driving force substantially as hereinbefore described.

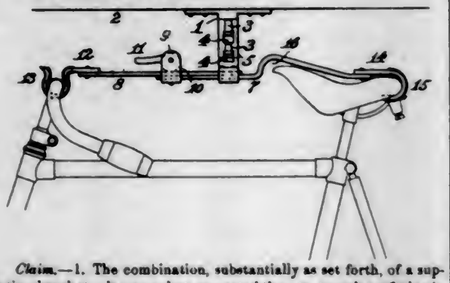
2. In an electricity-meter for continuous currents in which the motor-armature is immersed in mercury and rotates together with the brake in the field of a permanent magnet, and in combination, the brake magnetic pole-pieces arranged in parallel with the motor magnetic pole-pieces instead of in series so that the passage of the current is across the armature from side to side instead of from side to center to increase the driving force; and the armature provided with slits, the said armature being filled in at the slits, and coated on both sides with non-conducting composition, only the periphery being left conducting to limit the path of the current across the disk, all substantially as hereinbefore described.

579,583. SLATE-PICKER. WALTER M. JERMYN, Scranton, Pa. Filed Nov. 4, 1896. Serial No. 567,738. (No model.)



Claim.—In a coal-picker or cleaning apparatus, the combination with the chute having a series of angle-grate bars, the lower ends of which are slightly contracted, of a separate chute 2 having an extensible portion working therein, and means for adjusting the same, of the hinged end piece having sides, the adjusting-bolt carried by the said sides and working in apertures in the chute 2, of the angled incline 6, all arranged substantially as shown and for the purpose set forth.

579,584. BICYCLE-HANGER. STEPHEN C. JESSUP, Salem, Ohio. Filed Aug. 29, 1896. Serial No. 604,303. (No model.)



Claim.—1. The combination, substantially as set forth, of a supporting-bracket, a lower socket connected thereto, two plates fitting in said socket and projecting oppositely therefrom, and supporting-hooks fixed to the outer ends of said plates.

2. The combination, substantially as set forth, of a supporting-bracket, a lower socket connected thereto, plates fitting in said socket and projecting oppositely therefrom, a clamping device for connecting and disconnecting said plates, and supporting-hooks fixed to the outer ends of said plates.

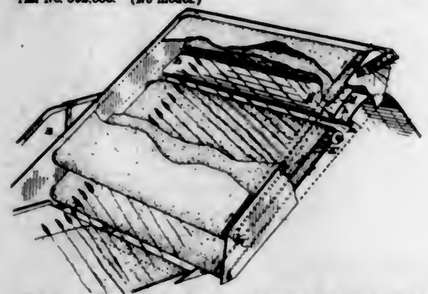
3. The combination, substantially as set forth, of a supporting-bracket, a lower socket connected thereto, a plate fitting in and projecting outwardly from said socket, a hook-plate secured to the outer end of said plate and carrying hooks to support a bicycle handle-bar, a plate fitting in and projecting outwardly from the socket in opposite direction from the plate first specified, and bent to form a recess to receive the inner portion of a bicycle saddle, and a hook-plate secured to the outer end of said last-specified plate and carrying a hook or hooks to support a bicycle-saddle.

4. The combination, substantially as set forth, of a supporting-bracket, a lower socket connected thereto, two plates fitting in and projecting oppositely from said socket, a cam journaled on one of said plates and adapted to bear against the other, and supporting-hooks fixed to the outer ends of said plates.

5. The combination, substantially as set forth, of a supporting-bracket, a socket-piece connected detachably thereto and having a socket in its lower end, two plates fitting in and projecting oppositely from said socket, and supporting-hooks fixed to the outer ends of said plates.

6. The combination, substantially as set forth, of a supporting-bracket composed of a fixed section and a movable section connected adjustably thereto, a socket-piece connected detachably to the movable section of the supporting-bracket and having a socket in its lower end, two plates fitting in and projecting oppositely from said socket, and supporting-hooks fixed to the outer ends of said plates.

579,585. HARVESTER-BINDER. LYMAN MELVIN-JONES, WILLIAM F. JOHNSTON, and WILLIAM J. CLOKEY, Toronto, Canada, assignors to the Massey-Harris Company, same place. Filed May 18, 1896. Serial No. 592,053. (No model.)



Claim.—1. The combination in a harvester-binder, having the obliquely-extending upper and lower carrying-aprons, the binder-decks and the bridge, of a narrowing device fixed to said bridge and extended in proximity to said upper apron, substantially as described.

2. In combination in a harvester, the upper and lower elevating-aprons having a discharge-opening between them, and a stationary finger extending into proximity to said aprons for reducing one end of the discharge-opening, substantially as described.

3. In combination in a harvester the upper and lower elevating-aprons, the binder-deck, the bridge extending from the lower apron over the binder-deck, and a spring-finger secured to said bridge at one end and having its opposite end projecting into proximity to the upper apron, substantially as described.

579,586. FILTER. KARL KIEFER, Cincinnati, Ohio. Filed May 22, 1896. Serial No. 592,675. (No model.)



Claim.—1. In a filter a combination of a bottom plate and a top plate, with an inlet and outlet constituting a frame, and one or more congruent and interchangeable circular filtering-plates with inlets and outlets centrally and symmetrically arranged, and containing the filtering medium in a ring-shaped flat layer, said filtering-plates having ring-shaped corrugations in their bottom part against which the filtering medium rests; substantially as set forth above.

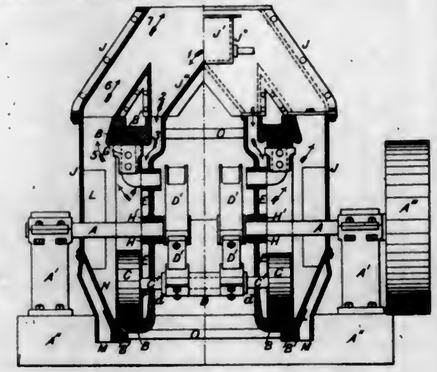
2. In a filter a combination of a bottom plate and a top plate, with an inlet and outlet constituting a frame, and one or more congruent and interchangeable circular filtering-plates with inlets and outlets centrally and symmetrically arranged, and containing the filtering medium in a ring-shaped flat layer, said plates having ring-shaped corrugations serving as outlet-channels for the clear liquid intersected by channels *f*, communicating with the central outlet-opening *n*, and having holes *k* for the cloudy liquid concentrical and symmetrical with the outlet-opening *n*; substantially as set forth above.

3. In a filter a combination of a bottom plate and a top plate with an inlet and outlet, constituting a frame and one or more similar circular filtering-plates, having two concentrical cylindrical borders and a corrugated bottom part, between which the ring-shaped filtering-layer is contained; substantially as set forth above.

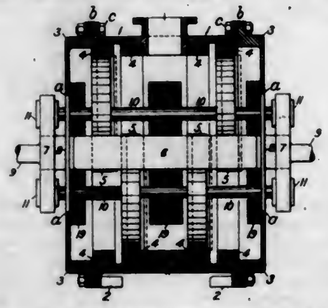
579,587. DUPLEX PULVERIZING-MILL. GEORGE R. KING, New York, N. Y., and ALBERT RAYMOND, Chicago, Ill. Filed Mar. 6, 1896. Serial No. 582,066. (No model.)

Claim.—1. In a centrifugal-roller pulverizing-mill the combination of two rollers on a single shaft having different diameters and two circulars dies having different diameters, as and for the purpose described.

2. In a centrifugal-roller pulverizing-mill the combination of the single horizontal motor-shaft A A, the two dies B B having different diameters, the roller-shafts C C C, the two sets of rollers C C C each of one set of the said rollers having less diameter than those of the other set, the tilting bearing-boxes D D and springs D' D' substantially in the manner and for the purpose set forth.



579,588. CENTRIFUGAL PULVERIZING-MILL. GEORGE R. KING, New York, N. Y., and ALBERT RAYMOND, Chicago, Ill. Filed July 17, 1896. Serial No. 599,521. (No model.)



Claim.—1. In a centrifugal-roller pulverizing-mill the quadrangular frame 6, having the slotted heads 7 7, slotted disks 8 8 and projecting shafts 9 9, in combination with the roller-shafts 10, rollers 5, dies 4, cylindrical shell 1 and annular heads 3, substantially in the manner and for the purpose described.

2. In a centrifugal-roller pulverizing-mill the quadrangular frame 6, having the slotted heads 7 7, slotted disks 8 8 and projecting shafts 9 9, in combination with the roller-shafts 10, having the radially-sliding bearing-boxes 11 and springs 12, the rollers 5, dies 4, cylindrical shell 1 having the annular heads 3 and pulley 16, substantially as and for the purpose described.

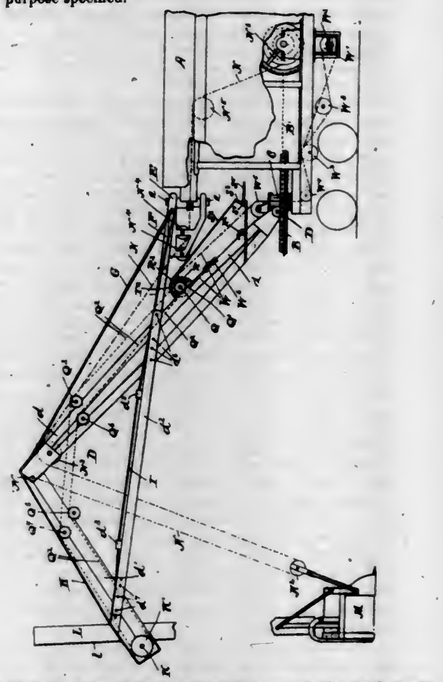
3. In a centrifugal-roller pulverizing-mill the quadrangular frame 6, having the slotted heads 7 7, projecting shafts 9 9, dies 4 and cylindrical shell 1 in combination with the lever 21, disk-crank 26 and sprocket-chain 27 substantially in the manner and for the purpose set forth.

4. In a centrifugal-roller pulverizing-mill a central quadrangular roller-shaft frame inclosed within a cylindrical shell and having a clear open interior space within which rollers may be mounted of such large diameters that they extend past the axis of the carrier and past each other's peripheries, and having chamber-closing disks and slotted shaft-carrying heads and protruding carrying-shafts, substantially as and for the purpose described.

579,589. STEAM SHOVEL OR EXCAVATOR. GEORGE W. KING, Marion, Ohio. Filed July 13, 1894. Serial No. 517,871. (No model.)

Claim.—1. A steam shovel or excavator comprising an A-shaped boom or crane, shovel or dipper arranged to dig or excavate toward the machine's body portion, means for hoisting and lowering the shovel proper or dipper, means for thrusting the same in and out, and the boom or crane comprising upwardly-converging beams or members and two cross bars or beams connecting said converging members with each other a suitable distance below the upper ends of said converging members and located such a distance apart as to accommodate the elevation of the shovel proper or dipper between them, substantially as set forth.

2. A steam shovel or excavator of the variety indicated, having an A-shaped boom or crane consisting of upwardly-converging pairs of beams or members *d d* and *d' d'*, with the members of each pair of said beams suitably tied together and braced apart, and two cross bars or beams d^3 d^3 located a suitable distance apart at opposite sides, respectively, of, and suitably secured to, the aforesaid pairs of converging members of the boom or crane, substantially as shown, for the purpose specified.



3. In a steam shovel or excavator, the combination of the body portion of the machine, turn-table carried by said body portion, boom or crane, shovel or dipper borne by the crane or boom and arranged to dig or excavate in the direction of the body portion, a chain or cable for hoisting and lowering the shovel or dipper, and an endless chain or cable operatively connected with the dipper or shovel for thrusting the latter in and out, mechanism for operating said last-mentioned cable independently of the hoisting chain or cable, substantially as set forth.

4. In a steam shovel or excavator, the combination of the body portion of the machine, shovel proper or dipper carrying boom or crane suitably connected with said body portion and consisting of an A-shaped structure, a reversible shaft supported from said structure, a pinion-bearing shaft borne by said structure, sprocket wheels and chains operatively connecting said shafts with each other, suitable means whereby the reversible shaft is capable of being rotated in opposite directions, the shovel or dipper arm being provided with a rack or racks engaging the pinion or pinions on the aforesaid pinion-bearing shaft, chain or cable for swinging the shovel proper or dipper in a vertical plane, and suitable means for actuating said chain or cable, substantially as set forth.

5. In a steam shovel or excavator, the combination of the body portion of the machine, shovel proper or dipper carrying boom or crane suitably connected with said body portion and consisting of an A-shaped structure composed of beams or timbers *d d d' d'* and d^3 d^3 suitably secured together and arranged substantially as indicated, a reversible shaft supported from beams or timbers *d d* and a pinion-bearing shaft supported from beams or members *d' d'*, sprocket wheels and chains operatively connecting said shafts with each other, suitable means whereby the reversible shaft is capable of being rotated in opposite directions, the shovel or dipper arm being provided with a rack or racks engaging the pinion or pinions on the aforesaid pinion-bearing shaft, chain or cable for swinging the shovel proper or dipper in a vertical plane, and suitable means for actuating said chain or cable, substantially as set forth.

6. In a steam shovel or excavator, the combination of the body portion of the machine, turn-table B and bracket E arranged sub-

stantially as indicated, of the shovel proper or dipper and boom or crane that carries said dipper or shovel proper, said boom or crane consisting of an A-shaped structure composed of beams or timbers d' d', d^2 d^2, d^3 d^3, suitably tied and connected together and arranged substantially as indicated, the boom or crane being rigid with the aforesaid turn-table and suitably connected with the aforesaid bracket, a pinion-bearing shaft K supported at or near the outer end of the crane or boom, a reversible shaft Q supported from and at or near the inner end of said crane or boom, sprocket-wheels and sprocket-chains operatively connecting said shafts with each other, suitable means whereby said reversible shaft is capable of being rotated in opposite directions, one or more racks on the shovel or dipper arm engaging the pinion or pinions on the aforesaid pinion-bearing shaft, and means for swinging the shovel proper or dipper in opposite directions, substantially as set forth.

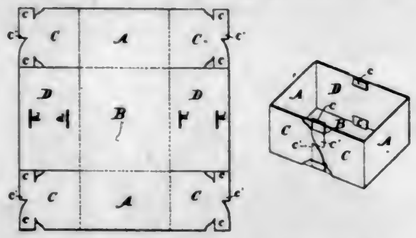
7. In a steam shovel or excavator, the combination of the body portion of the machine, shovel proper or dipper, A-shaped boom or crane carrying the dipper or shovel proper and suitably supported from the body portion of the machine, a pinion-bearing shaft supported from and at or near the outer extremity of said crane or boom, one or more racks on the shovel or dipper arm meshing with the pinion or pinions upon said shaft, suitable means for rotating said shaft in opposite directions, a winding-drum N^4 on the body portion of the machine, chain or cable N for swinging the shovel proper or dipper in a vertical plane, said chain or cable at one end being fastened to and at or near the apex of the A-shaped boom or crane, thence leading to and being operatively connected with the shovel proper or dipper, and thence leading to and engaging the aforesaid winding-drum, substantially as and for the purpose set forth.

8. In a steam shovel or excavator, the combination of a boom or crane, shovel proper or dipper, pinion-bearing shaft carried by the crane or boom, one or more racks on the shovel or dipper arm meshing with the pinion or pinions upon said shaft, chain or cable for swinging the bucket proper or dipper in a vertical plane, means for actuating said chain or cable, a reversible shaft borne by the crane or boom and operatively connected with the aforesaid pinion-bearing shaft, two pulleys loose upon the reversible shaft, a shaft W^3 adapted to rotate continuously in one direction, a pulley W' operatively mounted upon said shaft, an idler supported in suitable proximity to the aforesaid loose pulleys and an endless chain engaging said loose pulleys, idler and pulley W' in such a manner as to rotate the aforesaid loose pulleys in opposite directions, respectively, and a clutch for each of said loose pulleys for establishing operative connection between said pulley and its supporting-shaft, substantially as and for the purpose set forth.

9. In a steam shovel or excavator, the combination of a boom or crane, shovel proper or dipper, pinion-bearing shaft carried by the crane or boom, one or more racks on the shovel or dipper arm meshing with the pinion or pinions upon said shaft, chain or cable for swinging the bucket proper or dipper in a vertical plane, means for actuating said chain or cable, a reversible shaft borne by the crane or boom and operatively connected with the aforesaid pinion-bearing shaft, two pulleys loose upon the reversible shaft, a shaft W^3 adapted to rotate continuously in one direction, and a pulley W' operatively mounted upon said shaft, an idler supported in suitable proximity to the aforesaid loose pulleys and an endless chain engaging said loose pulleys, idler and pulley W' in such a manner as to rotate the aforesaid loose pulleys in opposite directions, respectively, a friction-clutch for each of said pulleys, both clutches being located between the pulleys, the male member of each clutch being rigid or operatively connected with the respective pulley and the female members being rigid or operatively connected with the shaft, and a brake-band adapted to brake the female members of both clutches, substantially as set forth.

10. In a steam shovel or excavator, the combination of a boom or crane, shovel proper or dipper, pinion-bearing shaft carried by the crane or boom, one or more racks on the shovel or dipper arm meshing with the pinion or pinions upon said shaft, chain or cable for swinging the bucket proper or dipper in a vertical plane, means for actuating said chain or cable, a reversible shaft borne by the crane or boom and operatively connected with the aforesaid pinion-bearing shaft, two pocket-pulleys loose upon the reversible shaft, a shaft W^3 adapted to rotate continuously in one direction, and a pulley W' operatively mounted upon said shaft, an idler supported in suitable proximity to the aforesaid loose pulleys and an endless chain engaging said loose pulleys, idler and pulley W' in such a manner as to rotate the aforesaid loose pulleys in opposite directions, respectively, and a clutch for each of said loose pulleys for establishing operative connection between said pulley and its supporting-shaft, drum or windlass, X', a chain or cable, X, connecting the block that carries the aforesaid idler with said drum or windlass, and suitable means for locking said drum or windlass as against rotation in the direction to unwind the chain or cable wound thereon, substantially as set forth.

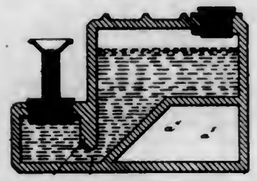
579,590. PAPER BOX. FRANK KNOBLOCH, Dayton, Ohio, assignor to the Carter-Crume Company, Niagara Falls, N. Y. Filed July 16, 1896. Serial No. 599,353. (No model.)



Claim.—1. A paper box formed of a single square or rectangular piece of cardboard or paper, its ends or sides or bottom reinforced and supported by flaps made integral therewith and having corner-pieces or tongues, these tongues overlapping the corresponding tongues on opposite flaps and passing together through the same slot to produce a double lock, substantially as and for the purpose described.

2. In a paper box constructed of a single square or rectangular piece of cardboard, the two interlocking tongues integral with the opposite flaps passing through a single slot producing a double lock, substantially as and for the purpose described.

579,591. INKSTAND. WILLIS G. LAMB, Park City, Utah. Filed Feb. 18, 1896. Serial No. 579,758. (No model.)

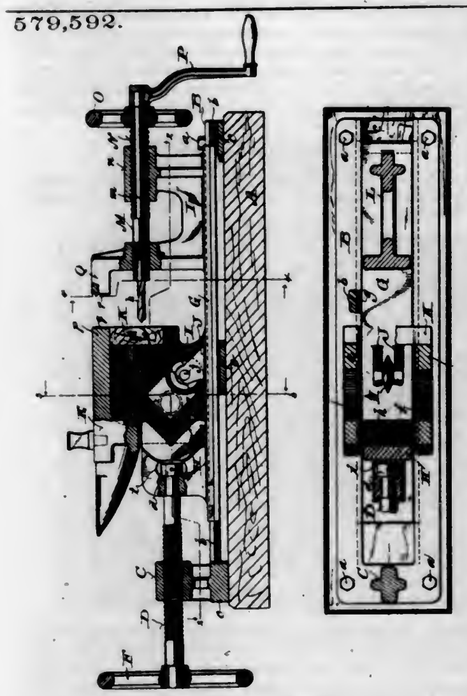


Claim.—As a new article of manufacture an inkstand, a rectangular body portion, an extension at the lower part of one side thereof, a depending partial partition forming a connecting passage between said body and said extension, a closed upwardly-inclined and horizontal partition opposite said extension and within said body, a top having an opening therein, a plug adapted to fit in said opening, transverse ribs on said top, a tubular centrally-screw-threaded plug secured to said extension, and a funnel having a screw-threaded shank thereon adapted to engage said screw-threaded plug, all of the said parts being combined substantially as described.

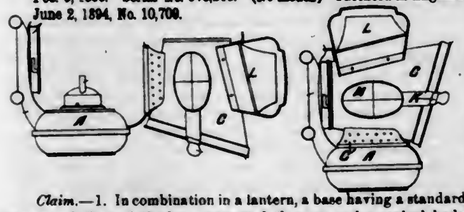
579,592. COMPOUND METAL-WORKING MACHINE. HENRY F. LAST, Emmett, Wis. Filed Sept. 26, 1896. Serial No. 607,042. (No model.)

Claim.—A compound metal-working machine comprising a base having parallel guiding-grooves therein, a standard rising from one end of said base and having a screw-threaded bore therethrough, a longitudinal slide moving in said guiding-grooves, a rotary cutting-disk mounted upon said slide, a screw-threaded spindle passing through the bore of the standard on the base and connected with said slide, a standard rising from the other end of said slide and having its inner end formed into a straight transverse vise-head, rigid with said slide and having a V-shaped, roughened, operative face on its inner end and provided with a transverse perforation communicating therewith through its outer end, through which the screw-spindle passes, the said screw-spindle being provided with a collar and hand-wheel, vertical side pieces rising from the base on each side of the slide having lozenge-shaped openings therethrough and united by an anvil-top whose rear end forms a roughened, straight transverse face in line with the straight transverse vise-head on said slide-standard, a double standard rising from the rear end of the slide, the forward part of said standard having a smooth longitudinal bore therethrough, and the rear part of said standard having a longitudinal nut rigid thereon, the sleeve having exterior screw-threads meshing with the threads in the bore of said nut, the shaft whose forward end passes through the smooth bore in the forward part of the standard, socketed for the reception of a drill, and having its rear end reduced in diameter and passing through the bore of said sleeve, and a crank secured to the projecting end of the shaft, all combined, arranged and operating as hereinbefore set forth.

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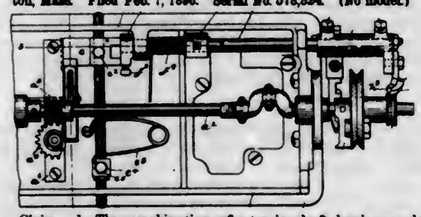
579,593. LAMP. HARRY LUCAS, Birmingham, England. Filed Feb. 6, 1896. Serial No. 578,210. (No model.) Patented in England June 2, 1894, No. 10,709.



Claim.—1. In combination in a lantern, a base having a standard at one end thereof, the lens supported thereon, and a conical body hinged at its front enlarged portion to the base extending entirely across the reservoir and having its smaller end open and abutting against the seat about the lens, the major axis of said conical body being horizontal, substantially as described.

2. In combination with the base a conical body above the same arranged with its axis horizontal, said body having an open rear end and extending entirely across the reservoir, a standard and a lens thereon for closing the small end of the conical body, the said base being tapering to correspond with the conical body and having its larger front portion hinged to the larger front part of conical body.

579,594. STOP MECHANISM. ROBERT L. LYONS, Waltham, Mass., assignor to the Union Button Sewing Machine Company, Boston, Mass. Filed Feb. 7, 1896. Serial No. 578,334. (No model.)



Claim.—1. The combination of a main shaft having a clutch member, a loose driven wheel longitudinally movable on said shaft into and out of position for rotative engagement with said clutch member, a shipper movable transversely of the shaft and having an obliquely-disposed end coöperating with a suitable surface on the wheel to withdraw the latter from position of engagement with the clutch member, and means for operating said shipper.

2. The combination of a main shaft having a clutch member, a loose driven wheel longitudinally movable on said shaft into and out of position for rotative engagement with said clutch member, a double-acting shipper movable transversely of the shaft and having an obliquely-disposed acting part coöperating with opposed surfaces on the wheel to move the latter back and forth, and means for operating said shipper.

3. The combination of a shaft having a clutch member, a driven wheel loose on said shaft and movable longitudinally thereon into and out of position for rotative engagement with the clutch member, said wheel having an encircling groove, an oscillatory shipper in a plane transverse to the shaft and having an oblique acting part engaging the groove of the wheel and coacting with the sides thereof to move the wheel back and forth, and means for oscillating the shipper.

4. The combination of a main shaft having a clutch member, a loose driven wheel longitudinally movable on said shaft into and out of position for rotative engagement with said clutch member, a shipper movable transversely of the shaft and having an obliquely-disposed end coöperating with a suitable surface on the wheel to withdraw the latter from position of engagement with the clutch member, means tending to move the shipper in a direction to withdraw the wheel, and trip mechanism restraining said means and arranged to release at a predetermined time, substantially as described.

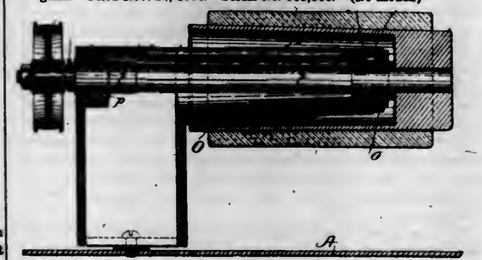
5. In a stop-motion, in combination, a shaft, a clutch part fast thereon, a driven wheel loosely mounted upon said shaft, a pivoted dog having an operating-face arranged in a plane at an angle to the axis of the shaft, complemental engaging parts upon said wheel and dog, a clutch part on said wheel, means for operating said dog to slide said wheel, and a combined brake and stop arranged to be engaged by said clutch part.

6. In a stop-motion, in combination, a shaft, a clutch part fast thereon, a wheel loosely mounted on said shaft, a clutch part on said wheel, a dog-operating member, means controlled by said shaft for operating said member at a predetermined time, a dog carried by said member, and having an operating-face arranged in a plane at an angle to the axis of the shaft, complemental engaging parts upon said dog and wheel, and a spring-pressed cam carried by said member, and arranged to be moved into engagement with said shaft clutch part when said wheel is unclutched.

7. In a stop-motion, in combination, a shaft, a clutch part fast thereon, a wheel loose on said shaft and provided with a complemental clutch part, a rock-shaft, a dog carried by said rock-shaft, and having an arc-shaped operating-face arranged in a plane at an angle to the axis of the shaft, complemental engaging parts on said dog and wheel, a spring-pressed cam carried by said rock-shaft, and arranged to be moved into and out of engagement with said shaft clutch part, and means for operating said rock-shaft at a predetermined time.

8. In a stop-motion, in combination, a shaft, a clutch part fast on said shaft, a wheel loose on said shaft provided with complemental clutch part, a spring-pressed rock-shaft, a dog carried by said rock-shaft having an arc-shaped operating-face arranged in a plane at an angle to the axis of said shaft, a combined spring-pressed brake and stop carried by said rock-shaft, and adapted to be moved into the path of said shaft clutch part when said wheel is unclutched, means for holding said rock-shaft in one direction against the tension of its spring, and means controlled by said shaft for operating said first-mentioned means to release said rock-shaft whereby said wheel may be slid upon the shaft, and said brake and stop thrown into or out of engagement with the said shaft clutch part.

579,595. GRAPHOPHONE. THOMAS H. MACDONALD, Bridgeport, Conn., assignor to the American Graphophone Company, of West Virginia. Filed Nov. 27, 1896. Serial No. 613,616. (No model.)



Claim.—1. In a graphophone, the combination with the mandrel and its shaft rigidly secured thereto, of a bearing in which the latter

rotates located within the mandrel, and means for driving the shaft to rotate the mandrel, substantially as described.

2. In a graphophone, the combination with a hollow mandrel and its shaft rigidly secured thereto and extending centrally therethrough, of a bearing for one end of said shaft located within the mandrel, a bearing for the other end of the shaft exterior to the mandrel, and means for rotating the mandrel, substantially as described.

3. In a graphophone, the combination with a hollow mandrel closed at one end and open at the other, of a shaft rigidly secured to and extending centrally through the interior of the mandrel, a projecting or overhanging arm on the machine extending into the hollow mandrel and on which the mandrel-shaft has its bearing, and means for rotating the mandrel, substantially as described.

4. In a graphophone, the combination with a hollow mandrel open at one end and closed at the other, of a shaft rigidly secured in the closed end of the mandrel and extending centrally through the interior of the latter, a hollow projecting or overhanging arm on the machine extending into the open end of the mandrel about the shaft, a bearing for the shaft located on the end of the arm within the mandrel, a cover for the arm having an oil-passage leading to said bearing, said passage having a feed-opening outside of the mandrel, another bearing for the shaft, exterior to the mandrel, and means for rotating the mandrel, substantially as described.

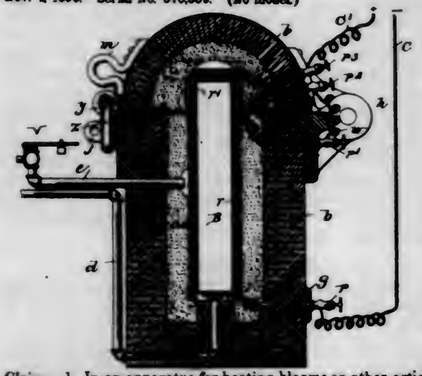
579,596. PENCIL-CASE. CARL H. MATHIESEN, Chicago, Ill. Filed Nov. 27, 1896. Serial No. 613,685. (No model.)



Claim.—1. In a pencil, the combination with a casing having a threaded bore, of a traveler moving therein and having a threaded periphery to engage the threads of the casing, a mounting for the lead of the pencil provided upon said traveler, a rotatable handle at one end of said casing, and a number of longitudinally-extending rods rotating with said rotatable handle and engaging said traveler to rotate the same, substantially as described.

2. In a pencil the combination with the casing *a* provided with the threaded bore, of the threaded traveler *b*, the mounting for the lead of the pencil provided thereon, the rotatable handle at one end of the casing, the rods *f f'* secured at one end thereto and the ring *f²* to which the opposite ends are secured, substantially as described.

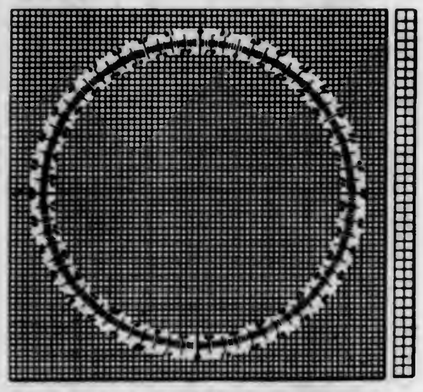
579,597. APPARATUS FOR HEATING BLOOMS OR OTHER ARTICLES OF METAL. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Nov. 4, 1890. Serial No. 370,359. (No model.)



Claim.—1. In an apparatus for heating blooms or other articles of metal, a furnace composed of a body and cover, the outer shell of said furnace being formed of fire-brick or similar material, a lining of non-conductive, infusible material, coils adapted to convey electricity in the body and cover, said coils arranged to directly surround the bloom or other article to be heated, said cover being removable and provided with a space adapted to receive a portion of said bloom so that said bloom can extend beyond the body into said cover, a source of current-supply, and connection between said source of current-supply and the coils.

2. In an apparatus for heating blooms or other articles of metal, a furnace composed of a body and cover, the outer shell of said furnace being formed of fire-brick or similar material, a lining of non-conductive, infusible material, coils adapted to convey electricity in the body and cover, said coils arranged to directly surround the bloom or other article to be heated, said cover being removable and provided with a space adapted to receive a portion of said bloom so that said bloom can extend beyond the body into said cover, a source of current-supply, and connection between said source of current-supply and the coils, and an infusible, non-conducting packing between said cover and the body of said furnace.

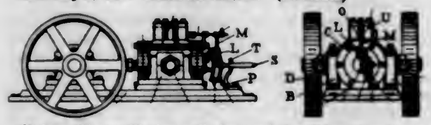
579,598. ABSTRACT-BOOK FOR COUNTY-RECORDS, &c. GEORGE G. MURRAY, Santa Rosa, Cal. Filed Aug. 20, 1896. Serial No. 603,406. (No model.)



Claim.—1. An abstract-book for records comprising a page cross-sectioned by means of vertical and horizontal lines, and having inscribed thereon within the cross-sectioned portion a double circular protractor having both the true and the magnetic meridians provided with degrees numbered from "0" to "90" each way from both the true and magnetic meridians, the center of the double protractor being at the intersection of the central vertical and horizontal cross-sectional lines, substantially as described.

2. An abstract-book for records comprising a page cross-sectioned by means of vertical and horizontal lines, and having inscribed thereon within the cross-sectioned portion a double circular protractor having both the true and magnetic meridians provided with degrees numbered from "0" to "90" each way from both the true and magnetic meridians, the center of the double protractor being at the intersection of the central vertical and horizontal cross-sectional lines; the degrees from the true meridian being marked on the outer circle of the protractor and the degrees from the magnetic meridian being marked on the inner circle of the protractor; substantially as described.

579,599. OSCILLATING ENGINE. JAMES MCCARTNEY, Bessemer, Ala., assignor of one-half to William Jacob Long, same place. Filed July 8, 1895. Serial No. 555,227. (No model.)



Claim.—The oscillating cylinder, and the slide-valve, having its stem projecting from the rear end of the cylinder, combined with a bracket secured to the end of the cylinder, a rock-lever pivoted in the upper end of the bracket, having its upper end forked to engage with the valve-stem and its lower end provided with a pin or roller; a stand P, valve-operating link pivoted on the stand, and provided with a curved groove, a handle secured directly to the link and extending in a line with the cylinder, and a segment to lock the handle in place, substantially as described.

579,600. TUMBLER-WASHER. JOSEPH B. NESBIT, Sunbury, Pa., assignor of one-half to Peter P. Smith, same place. Filed Mar. 25, 1896. Serial No. 584,804. (No model.)

Claim.—1. In a tumbler-washer the combination with a cylindrical casing, of a central spindle fixed to one end thereof, a central brush removably connected with said spindle, and side brushes removably connected to the inner wall of the casing, one end of each side brush being inserted in a loop and the other end in a suitable hook, substantially as described.

2. In a tumbler-washer, the combination with the cylindrical casing rotatably mounted upon a shaft, of the central spindle and the central brush detachably mounted on said spindle, inwardly-projecting brackets on the interior of the casing, side brushes, and means for attaching said side brushes to the walls of the casing and to said inwardly-projecting brackets, substantially as described.



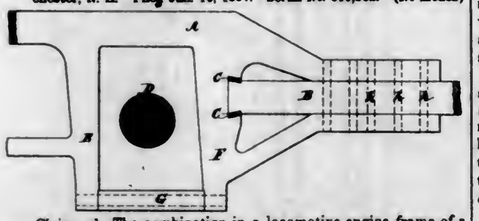
579,601. BUTTONHOLE GUIDE AND CLAMP. BERTHA J. NEUENSCHWANDER, Vera Cruz, Ind. Filed July 27, 1896. Serial No. 600,681. (No model.)



Claim.—1. A buttonhole-working guide and clamp, comprising a perforated U-shaped clamping-plate, pins fitted into and secured to said perforations and cover and handle plates fitted upon the U-shaped clamping-plate to open and close the same and hold the pins in place, substantially as described.

2. A buttonhole-working guide and clamp, comprising a spring-plate having clamping-jaws 2, 3, and spring-bow 4, and cover and handle plates fitted over the said jaws and provided with slots 8^x, 9^x, to receive the said spring-bow, substantially as described.

579,602. LOCOMOTIVE-FRAME. CORNELIUS J. O'REILLY, Manchester, N. H. Filed Jan. 16, 1897. Serial No. 619,502. (No model.)



Claim.—1. The combination in a locomotive-engine frame of a dovetailed slot in either or both top or bottom of plain end of frame-front B, by which it is keyed into pedestal F of main frame by key or keys C substantially as shown.

2. In a locomotive-engine frame the combination of frame-front B bound to main frame by key or keys C in conjunction with vertical bolts A, all substantially as set forth.

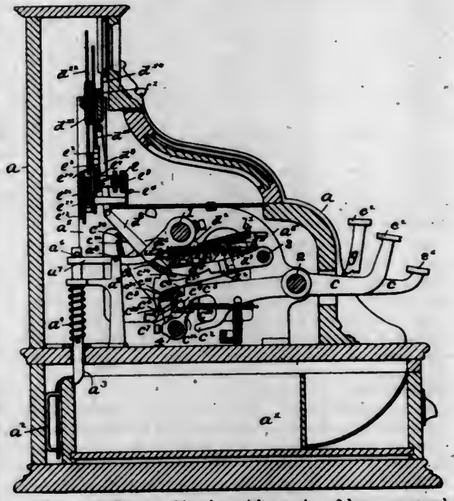
579,603. HAT. MARION C. PADGETT, Augusta, Ga. Filed Aug. 12, 1896. Serial No. 602,563. (No model.)



Claim.—1. In a hat, the combination of a crown, a separable rim composed of a plurality of segments having their meeting edges formed on radial lines for a short distance from their inner edges, thence deflected for the remainder of their length toward their outer edges, forming flaring spaces, and fastenings detachably connecting the segments and drawing their opposing or meeting ends together, substantially as and for the purpose set forth.

2. A hat comprising a crown composed of a plurality of sections detachably connected together, a rim composed of a corresponding number of segments arranged to break joint with the crown-sections, and fastenings detachably connecting the rim-segments together and to the crown-sections, substantially as shown and described.

579,604. CASH REGISTER AND RECORDER. JOHN PFEIFER, Springfield, Ohio, assignor of one-half to William F. Bauroth and Emil Bauroth, same place. Filed Feb. 21, 1896. Serial No. 580,231. (No model.)



Claim.—1. The combination with a series of keys arranged in banks, a series of indicators corresponding thereto, and a series of independent registering devices for each bank, locking devices by which said keys are normally locked, and an operating-lever adapted by its movement to unlock said keys and register the amounts indicated thereby, and a connection from the tens-bank to the registering devices of the units-bank whereby certain keys of the tens-bank when depressed will cause the registering devices of the units-bank as well as the tens-bank to be operated when said lever is operated, substantially as specified.

2. The combination with a series of keys, and locking-plates for said keys, normally-inoperative registering devices adapted to be set in operation by a movement of one of said keys, a lever on a movable shaft, and intermediate mechanism between said shaft and locking-plates adapted to normally hold said keys in a locked position until the lever has moved to the limit of its stroke in one direction, and an operative connection from said shaft to said registering devices, substantially as specified.

3. The combination with a series of keys and an operating-lever, a main shaft connected to said lever, and normally-inactive registering devices controlled by said keys and adapted when released to be operated by said shaft, locking devices which normally hold said keys in a locked position, and intermediate mechanism between said lever and locking devices whereby the keys are unlocked by a movement of said lever in one direction, substantially as specified.

4. The combination with a series of normally-locked keys arranged in banks, and graduated bars, one for each bank, adapted when released to contact with any key of said bank which has been operated, means connected with the keys of each bank to unlock said graduated bar relating thereto, an operating-lever and intermediate connecting devices therefrom to the key-locking mechanism and said graduated bars whereby the keys are unlocked by one movement of said lever and the released bars returned to their normal positions by the opposite movement of said lever, and an auxiliary connection from the keys in one bank adapted to operate the releasing mechanism of the graduated bar of another bank whenever certain special keys in said bank are operated, substantially as specified.

5. The combination with a series of keys pivoted on a common shaft, a main operating-shaft having journaled thereon normally-locked graduated bars adapted to be released and to contact with either of said keys when the same are operated, locking-plates for said keys, and means connected with said main shaft for holding said plates in a locked position until the shaft is operated, and intermediate connecting devices for locking said shaft against its return stroke by the partial depression of any key, substantially as specified.

6. The combination with a series of keys pivoted on a common shaft and of substantially the same length, a series of locking-plates to hold said keys normally locked, a main operating-shaft and registering devices connected therewith, graduated bars forming part of said registering devices pivoted on said main shaft, retaining devices for said graduated bars adapted to be operated by any of the keys in the series, and means for retaining said locking-plates in their normal positions until the main shaft has been operated, substantially as specified.

7. The combination with a series of keys, a graduated bar adjacent to said keys, a retaining device for said graduated bar adapted to be released by the operation of a key, a vertically-movable rack, and a connection from said graduated bar to said rack, a laterally-movable pinion to engage said rack, and means for throwing said pinion into and out of engagement with said rack to cause said pinion to mesh with said rack when moved in one direction and to be freed therefrom when moved in the other direction, substantially as specified.

8. The combination of a series of keys, a pivoted graduated bar, a longitudinally-movable rack connected to said graduated bar, an indicating-wheel having a pinion meshing with said rack, a laterally-movable pinion adapted to be moved into and out of engagement with said rack, and a counting or registering device having a gear connection with said movable pinion, substantially as specified.

9. The combination with the vertically-movable rack, an indicating-wheel having a pinion geared to said rack, a graduated bar pivoted on a main shaft so as to contact with any one of a series of keys which may be operated, a pivoted connection from said graduated bar to said rack, and a locking device operated by said shaft to normally lock said keys, a registering and counting device geared to a movable pinion adapted to engage and disengage said rack, and means for engaging and disengaging said pinion by a movement of said shaft, substantially as specified.

10. The combination with a series of keys, a main shaft, a graduated bar pivoted on said shaft, a retaining device for said graduated bar, and means connected with said main shaft for returning said graduated bar to its normal position, a locking device for said keys also adapted to be operated by a movement of said shaft, a rack pivoted to said graduated bar, an indicating-wheel geared to said rack, a registering device geared to a movable pinion, and means for causing said pinion to engage and disengage said rack by a movement of said shaft, substantially as specified.

11. The combination with a rack and indicating-wheel geared thereto, of a registering device geared to a movable pinion, a sliding plate connected to said pinion to cause the same to engage and disengage said rack when said plate is moved, a longitudinally-moving bar having engaging notches therein, a pawl to engage in said notches, and a lever supporting said pawl, said lever being connected to said movable plate whereby a movement of said bar will produce a movement of said sliding plate to cause the pinion to engage said rack, substantially as specified.

12. The combination with the movable rack, a pivoted lever having a pinion adjacent to said rack, a movable plate pivoted to said lever, a pivoted pawl-lever engaging said plate having a pawl at one end thereof, and a bar having notches to engage said pawl whereby said plate is caused to move in opposite directions by the first movement of said bar in opposite directions, substantially as specified.

13. The combination with a series of keys and their indicating and registering devices, locking-plates for said keys, special keys arranged in the same bank with said main keys and held by the same locking-plate, said special keys being adapted to release independent counting devices, and means for operating said counting devices and returning them to their normal positions by the same operation which produces the movement of the main indicating and registering devices, substantially as specified.

14. The combination with a series of keys, and locking-plates for said keys, a lever on a movable shaft, and an intermediate connection between said shaft and locking-plates adapted to release said locking-plates when the lever has reached the limit of its movement in one direction, and intermediate mechanism between said keys and lever to lock said lever against return movement whenever either of said keys is partially depressed, substantially as specified.

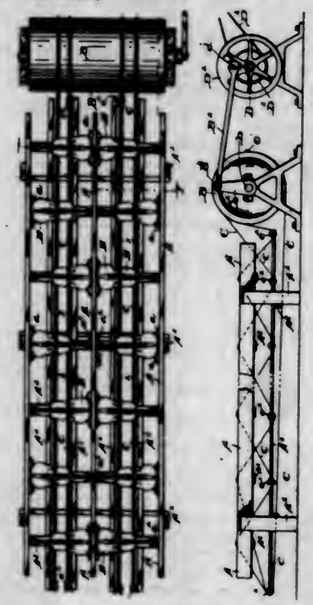
15. In a cash-register, the combination with a series of normally-locked keys and normally-inactive registering devices, a main operating-shaft adapted through intermediate connections to unlock said keys when moved in one direction and to operate the registering devices released by said keys when moved in the opposite direction, and locking devices operated by said keys to lock said shaft against its return movement by the partial depression of any key and to unlock said shaft when the key has been completely depressed, substantially as specified.

16. The combination with a series of keys, and locking-plates for said keys, a main operating-shaft having a limited movement in one direction, and a spring for returning the shaft to its normal position, and intermediate operating mechanism between said shaft and locking-plates to release said locking-plates when the shaft has reached the limit of its stroke in one direction, and locking devices connected with said keys to lock said shaft against its return stroke when one of said keys is partially depressed and to unlock said shaft by the complete depression of said key, substantially as specified.

17. The combination with a series of keys, graduated bars arranged adjacent to said keys and adapted when released to contact with said keys to determine the movement of said bars, a vertically movable rack pivotally connected to each of said bars so as to move therewith, an indicating-wheel having numbers corresponding to the steps on said graduated bar whereby the position of said graduated bar is indicated by said indicating-wheel, and a registering device adapted to be operated by said rack in one direction, substantially as specified.

18. The combination with a series of keys and a graduated bar adjacent to said keys, a retaining device for said graduated bar adapted to be released by the operation of either of said keys, a vertically-movable rack, and a connection from said graduated bar to said rack, an indicating-wheel having a pinion geared to said rack, and a registering device normally disconnected from said rack but adapted to be connected therewith and moved thereby when said rack is returned to its normal position, substantially as specified.

579,605. APPARATUS FOR PERFECTING TONES OF MUSICAL INSTRUMENTS. BURT N. PIERCE, Indianapolis, Ind., assignor of one-half to Joseph M. Panden, same place. Filed May 20, 1892. Serial No. 433,648. (No model.)



Claim.—1. An apparatus for perfecting the tones of musical instruments which consists of belts running over suitable spools or pulleys, and attached to a drum or cylinder on a rock-shaft, whereby a reciprocating motion is imparted to said belts.

2. In an apparatus for perfecting the tones of musical instruments, belts attached to a drum or pulley mounted on a rock-shaft and passing thence alternately under spools or pulleys and over the strings of musical instruments suitably mounted.

3. In an apparatus for perfecting the tones of musical instruments, belts driven by a drum or pulley and passing thence alternately under spools or pulleys and over the strings of musical instruments suitably mounted.

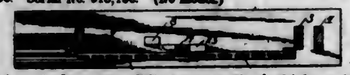
4. An apparatus for perfecting the tones of stringed musical instruments consisting of a support for the instrument to be operated upon, a drum or cylinder, and a suitable belt connected to said drum or cylinder and passing over the strings of said instrument, whereby the desired effect is produced by the action of the moving belt upon the strings thereof.

5. In an apparatus for perfecting the tones of stringed musical instruments, the combination of a framework, rests or seats for holding said instruments, belts mounted on suitable carrying mechanism, and mechanism for operating said belts, said rests or seats for the instruments and carrying mechanism for the belts being relatively positioned that said belts pass over the strings of said instruments and in constant contact therewith during the operation, substantially as set forth.

6. The combination, in a machine for perfecting the tones of musical instruments, of padded rests *a* against which one end of said musical instruments may rest, hinged supports *a'* to receive the other end of said musical instruments, and means for adjustably pressing said hinged supports against said ends whereby said musical instruments can be held firmly in place while being treated, substantially as shown and described.

7. The combination, in a machine for perfecting the tones of musical instruments, of seats or rests for said instruments, sheaves or pulleys behind or below said rests, a belt-driving drum, and belts running from said drum alternately under said sheaves or pulleys and over the strings of said musical instruments, substantially as shown and described.

579,606. GATE. JOHN W. REAMES, Paris, Ark. Filed Nov. 23, 1896. Serial No. 613,196. (No model.)



Claim.—1. In a gate, sliding gate-sections which are hinged together, means for sliding said sections as a whole to open the gate, and to close the same, means for automatically opening the hinged section when the gates are slid aside, and means for automatically closing said hinged section when the gate-sections are slid closed.

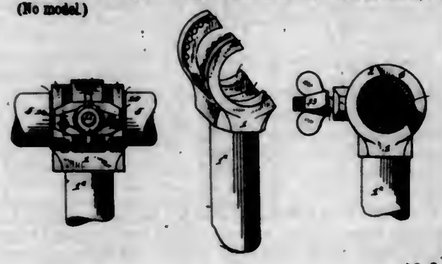
2. In a gate, the combination with gate-sections hinged together and adapted for sliding movement, of means for sliding said sections both open and closed, an arm connected to the hinged section, a cam adapted to engage said arm and open the hinged section when the gate-sections are slid aside, and a second cam adapted to engage with said arm and close the hinged gate-section when they are slid closed.

579,607. UMBRELLA OR PARASOL. JOHN ROSE, Philadelphia, Pa. Filed Jan. 21, 1897. Serial No. 620,038. (No model.)



Claim.—An umbrella or parasol provided with a runner, a hollow stick having a retainer pivoted thereto and extending through a slit of said stick, said retainer having at one end a lug normally engaging the interior surface of said stick and the other end of said retainer provided with a projecting arm, a slidable tube mounted in said stick and engaged by the arm of said retainer, a wire or rod connected with said slidable tube at one end and at the other end normally engaging a spring-cushion, said wire or rod formed into an extension within said stick and extending through another slit of said stick and provided at the end with a button, substantially as and for the purposes described.

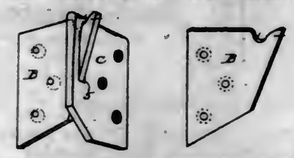
579,608. REVERSIBLE HANDLE-BAR FOR BICYCLES. JAMES W. ROXBURGH, Bridgeport, Conn. Filed Oct. 5, 1896. Serial No. 607,859. (No model.)



Claim.—1. The combination, in a reversible handle-bar for bicycles, of the open curved forked head, teeth on the periphery of said forks, semicircular bearings for the handle-bar to rest in, a collar on said bar a grooved recess to admit the collar, such collar being sufficiently large to bear against the inner faces of the forked head, combined with a threaded stud in such collar, and a clamping-plate carrying a single tooth to engage with the teeth of the forked head, and a tightening-nut, substantially as described.

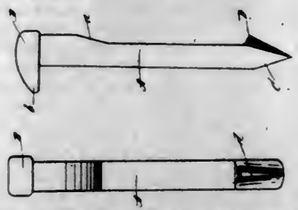
2. The combination, in a reversible handle-bar for bicycles, of the open curved forked head, having teeth formed on the periphery of such forks, semicircular bearings to support the handle-bar, said bar having a central collar rigidly attached thereto and adapted to be placed in a groove of the head, a threaded stud projecting from such collar, a tightening-nut and clamping-plate mounted thereon, said plate carrying a single tooth to engage the teeth of the head and a spring interposed between the nut and said plate to preserve frictional engagement between the teeth; the open curved forked head so formed that, by a partial rotation of the handle-bar such bar can be removed from the head and reversed so as to form an up or down curve, substantially as shown and described.

579,609. HINGE FOR AWNING-BLINDS. ANTON SCHROEDER, St. Paul, Minn. Filed Oct. 13, 1895. Serial No. 566,036. (No model.)



Claim.—As an improved article of manufacture, the hinge-hanger for window-sash, consisting of the plane-surfaced hook and eye members, the hook member being secured to the inside of the window-frame, and having a hook projecting in its plane, and serving as a gudgeon-bearing, the eye member being fitted to the outer face of the sash, and projecting beyond the side edges of the same, and having a slotted opening to receive the projecting edge of the hook member, the web at the upper end of the slot serving as a gudgeon and turning in the hook as a bearing.

579,610. SPIKE FOR RAILWAY OR OTHER PURPOSES. ALVEY M. SMITH, Jr., Cockeysville, Md. Filed Mar. 3, 1896. Serial No. 581,643. (No model.)



Claim.—The herein-described railway-spike consisting of a body portion A, provided with a head B, one side of said spike being cut away forming an inclining shoulder *a*, the end of said spike being beveled on two sides, one of the sides being provided with a flange or rib *d* forming a shoulder or projection, said flange or rib extending to the point of the spike, and the sides thereof being concave in cross-section, substantially as described.

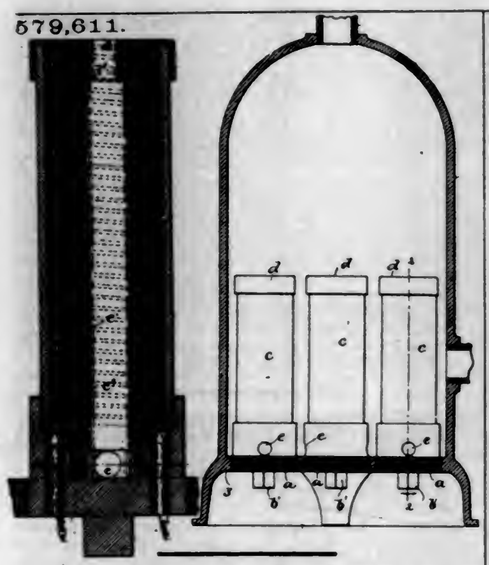
579,611. ELECTRIC HEATER. WILLIAM R. SMITH, Manchester, N. H. Filed June 11, 1896. Serial No. 595,178. (No model.)

Claim.—1. In an electrical heating apparatus, an electrical resistance composed of a single jointless piece disposed in two helices of opposite pitch, one within the other.

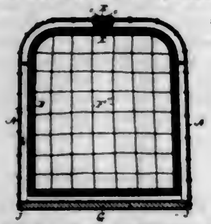
2. An electrical heating apparatus comprising in its construction a plug provided with inner and outer tubes forming an annular chamber, and a resistance composed of a single jointless piece disposed in two helices of opposite pitch, one helix being at the outer side and the other at the inner side of said chamber.

3. An electrical heating apparatus comprising in its construction a plug provided with inner and outer tubes forming an annular chamber the walls of which are provided with insulating material, one wall being provided with a helical groove and the other with a helical groove of opposite pitch, and a resistance in said grooves composed of a single piece formed into two helices of opposite pitch.

579,611.



579,612. STOCK-RACK. W. WIRT STEVENS, Niles, Mich. Filed Mar. 1, 1895. Serial No. 540,137. (No model.)



Claim.—1. In a stock-rack, the combination of a frame composed of the corner-pieces, A, curved toward each other at each end; a clip, E, and bolts, *t*, *t*, uniting the upper ends of said corner-pieces; angle-bars J at each side connecting the lower ends of the corner-pieces, A; and rods, C', C', toward the upper portion of each side connecting the corner-pieces, A, A, toward their upper ends; and rods or bars, D, D, across the lower end of said rack connecting the corner-pieces, A; a suitable meshing, F, over the halves of the frame separated from each other at the upper edges; a door-frame, B, formed to fit the ends of the rack; a wire meshing, F", over said door; suitable hinges supporting each door; a fastening, *r* for securing said door, all substantially as described for the purpose specified.

2. In a stock-rack, the combination of a frame composed of angle-iron corner-pieces, A, curved toward each other at each end; a clip, E, and bolts *t*, *t*, uniting the ends of said corner-pieces; bars J, at each side connecting the lower ends of the said corner-pieces, A; the rods, C', C', toward the upper portion at each side of said rack connecting the corner-pieces, A, A, toward their upper ends; rods or bars D, D, across the end of said rack connecting the lower ends of the corner-pieces, A; a suitable bottom G, supported in said rack; a door-frame, B, formed to fit the ends of the rack with suitable means of attaching the same; a wire meshing over each door and over each half of the frame so that the rack can be taken apart and packed in a small space, all substantially as described for the purpose specified.

3. In a stock-rack, the combination of a frame composed of angle-iron corner-pieces, A, curved over the ends; angled side bars J, at each side connecting the lower ends of said corner-pieces; and rods C', C', toward the upper part of each side of said frame connecting the corner-pieces at that point; rods or bars, D, D, across the ends of said rack connecting the lower ends of the corner-pieces, A; a suitable bottom, G, supported on the flanges formed by said angle-irons *a* meshing over said frame; and suitable doors at each end, for the purpose specified.

579,613. COMBINED SUPPORTING AND LOCKING ATTACHMENT FOR BICYCLES. JAMES F. STEVENSON, Allegheny, Pa. Filed May 29, 1896. Serial No. 593,564. (No model.)

Claim.—1. In a combined supporting and locking attachment for bicycles, the combination of a bar or rod attached to the frame of the bicycle; a gripping device slidably mounted on said bar or rod; a pair of supporting-legs connected to said gripping device, whereby the same is held suspended on said rod; a spreader-foot, and a spiral spring mounted on said rod between the gripping device and the upper end of the supporting-legs, substantially as herein described.

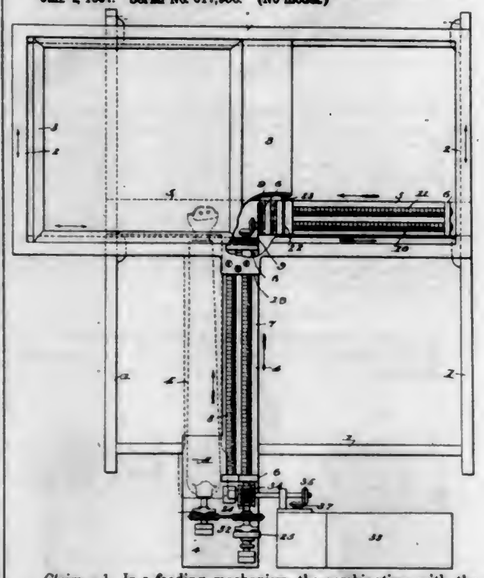


2. In a combined supporting and locking attachment for bicycles, the combination of a bar or rod secured to the center post of the bicycle and parallel therewith; a gripping device slidably mounted on said bar; a pair of supporting-legs connected to said gripping device; a spiral spring mounted on said bar or rod between the gripping device and the upper end of the supporting-legs, and a locking attachment adapted to prevent the release of said gripping attachment, substantially as herein described.

3. In a combined supporting and locking attachment for bicycles, the combination of a bar or rod secured to the center post of the bicycle and parallel therewith; a gripping device slidably mounted on said bar; a pair of supporting-legs connected to said gripping device; a spiral spring mounted on said bar or rod between the gripping device and the upper end of the supporting-legs; a locking attachment adapted to prevent the release of said gripping device, and a spreader-foot, substantially as and for the purpose herein set forth.

4. In a bicycle supporting and locking device, the combination of a rod mounted on the frame of a bicycle; a shell slidably mounted on said rod having gripping-levers mounted therein, and a spiral spring mounted on said rod between said levers; a pair of distensible legs connected to said shell; a spiral spring mounted on said rod between the lower end of said shell and the upper end of said legs, and means to prevent said levers being compressed when distended, substantially as herein described.

579,614. FEEDING MECHANISM FOR QUILTING-MACHINES. AURELIUS STEWARD and GEORGE H. DIMOND, Bridgeport, Conn. Filed Jan. 4, 1897. Serial No. 617,930. (No model.)



Claim.—1. In a feeding mechanism, the combination, with the movable frames and the constantly-rotative screws arranged adjacent to the frames, of the worm-gears carried by the frames and meshing with the screws aforesaid, and clutches and means for operating the same, whereby said worm-gears may be held as against rotation so as to engage said screws after the manner of half-nuts, substantially as described.

2. In a feeding mechanism, the combination, with the movable frames and the constantly-rotating screws arranged adjacent thereto, of worm-gears connected to the frames, and normally rotated by engagement with said screws, a ratchet moving with each of said worm-gears, and a clutch adapted to engage said ratchet and thereby lock it and its gear as against rotation, substantially as described.

3. In a feeding mechanism, the combination, with the movable frames and the constantly-rotating screws arranged adjacent thereto, of worm-gears connected to the frames and engaging and adapted to be normally rotated by said screws, clutches adapted to hold said worm-gears as against rotation, and electromagnets adjacent to and adapted to operate said clutches in both directions, substantially as and for the purpose set forth.

4. In a feeding mechanism, the combination, with the frames, and the screws arranged adjacent thereto, of the worm-gears connected to said frames and operated by said screws, clutches arranged adjacent to said worm-gears and adapted to lock said gears as against movement about their axes, electromagnets whereby said clutches are adapted to be operated into and out of engagement, and a traveling pattern adapted to make and break the magnet-circuits, whereby said magnets and therethrough the positions of the clutches are controlled, substantially as set forth.

5. In a feeding mechanism, the combination, with the work-holding frame and the constantly-revolving screws adjacent thereto, of brackets secured to the work-holding frame, the worm-wheels journaled on the brackets, electromagnets supported upon said brackets, and means interposed between the magnets and the worm-wheels, whereby said worm-wheels may revolve freely or may be detained as against rotation, substantially as described.

6. In a feeding mechanism, the combination, of the clamp or frame, of the depending bracket secured or connected thereto, the screws adjacent to said bracket, and means for rotating said screws, the worm-wheels journaled on the bracket and meshing with the screws, the ratchet-wheels carried by said worm-wheels, a gripping-pawl adapted to engage and hold each of the ratchet-wheels, and electromagnets adjacent to and adapted to control the position of said gripping-pawl, and suitable circuits in which said magnets lie.

7. In a machine of the character described, the combination, with the frames, means for moving said frames, and the pattern-belt, of an inclosing receptacle for said belt, rollers over which said belt is tensioned, and means as described for moving certain of said rollers whereby equal tension may be imparted to belts of different length.

8. The combination, with the perforated pattern-belt, of the driving-roller having sprocket-teeth engaging said belt and imparting power thereto, rollers 41 over which said belt travels, and means, such as the screw 44, for varying the position of certain of the rollers, substantially as described.

9. In a machine of the character described, the combination, with the work-holding frames, and the plurality of constantly-revolving screws adjacent to said frames, but normally disconnected therefrom, of clutches interposed between the frames and screws, and electromagnets adapted to effect the movements of the clutches, substantially as set forth.

10. In a machine of the character described, the combination, with the work-holding frames, and the constantly-revolving screws adjacent to, but normally disconnected from said frames, of clutches interposed between the frames and the screws, an electromagnet adapted to effect the engaging movement of the clutch, a similar magnet adapted to effect the disengaging movement of the clutch, and a pattern adapted to control the circuits in which the magnets lie, whereby the coupling and uncoupling may be automatically effected.

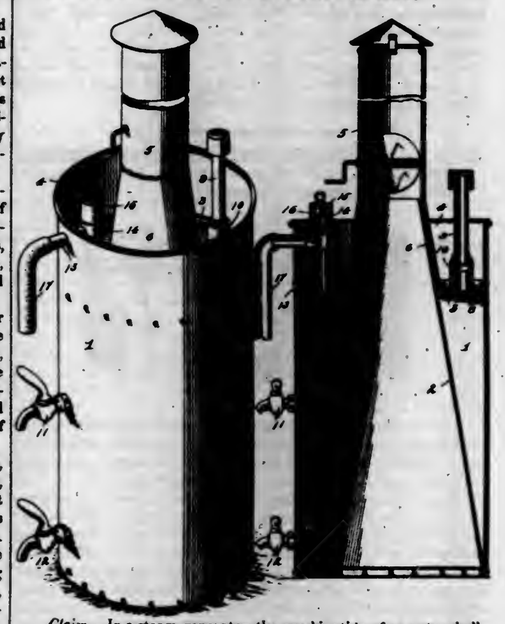
11. In a machine of the character described, the combination, with the work-holding frame, of a plurality of constantly-revolving feeding-screws adjacent to said frame, a clutch mechanism arranged between the frame and each of the screws, each clutch mechanism being in constant engagement with a screw, electromagnets whereby said clutch mechanisms are thrown into and out of operative connection, a controlling-pattern, and suitable circuits operated thereby, substantially as described.

12. In a machine of the character described, the combination, with a bed or frame 1, of two movable frames 2 and 3, mounted thereon, two pairs of parallel constantly-rotative screws secured upon said bed, means for driving all four of said screws at uniform speed, and clutches interposed between one pair of screws in the frame 2, like clutches interposed between the other pair of screws of the frame 3, and means for effecting the engagement between said frames and screws, substantially as described.

13. The combination, with the bed 1 carrying the two pairs of screws arranged each pair at right angles to the other pair, of the frame 2, a clutch interposed between said frame and each screw of one pair, the frame 3 and similar clutches adapted to connect it to the other pair, means for driving the screws at equal speeds, and a pattern and electrical circuits and magnets controlled thereby, whereby the coupling and uncoupling of the frames are effected, substantially as described.

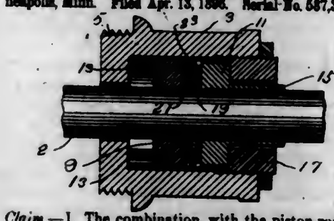
14. In a machine of the character described, the combination, with suitable work-holding frames, and a plurality of constantly-moving feeding devices arranged beneath and parallel to said frames, but normally disconnected therefrom, of clutches interposed between said frames and the feeding devices, and electromagnets adapted to effect the movements of the clutches, substantially as set forth.

579,615. STEAM-GENERATOR. GEORGE H. STOUT, Marceline, Mo. Filed Dec. 17, 1896. Serial No. 616,063. (No model.)



Claim.—In a steam-generator, the combination of an outer shell, an inner tapering lining extending upward from the bottom of the shell, a horizontal diaphragm connecting the shell and the lining between the ends thereof and dividing the space between the same into a lower boiler and an upper reservoir, said diaphragm being provided with a suitable inlet-opening and having a threaded flange extending upward around the opening, a stem provided at its lower end with a cap adapted to screw on the flange of the inlet-opening, an L-shaped discharge-pipe extending through the diaphragm and the upper portion of the shell and provided at its top with a threaded flange 14, a threaded cap arranged on the said flange 14 and provided at its top with a perforation and a valve arranged within the cap and provided with a stem extending through the perforation thereof, substantially as described.

579,616. ROD-PACKING FOR AIR-BRAKES. FERRIS D. TOUSEY, Duluth, Minn., assignor of three-fourths to Frederick C. Johnson, Minneapolis, Minn. Filed Apr. 13, 1896. Serial No. 587,391. (No model.)



Claim.—1. The combination, with the piston-rod and stuffing or packing box, of a follower packing-ring 9, arranged upon said rod, and having its outer end or face perpendicular to the axis of said rod, a spring or springs to force said ring outward, a packing ring 11 having its inner and outer ends or faces perpendicular to said rod

and having an extension 15 fitting upon said rod, a suitable metallic packing upon said rod between the perpendicular faces of said rings 9 and 11, a screw-ring 17 secured to said stuffing-box and provided with a central opening larger than the diameter of the sleeve 15 and having its inner end perpendicular to the axis of the piston-rod and adapted to engage the outer end or face of the ring 11, and a threaded locking-ring adapted to screw upon the outer end of the ring 17 and against the end of the stuffing-box, whereby the threads are made air or steam tight and the ring 17 locked, substantially as described.

2. The combination, with the piston-rod and the stuffing or packing box, of the follower packing-ring 9, fitting upon said rod, and having its outer end or face perpendicular to the axis of said rod, a spring or springs engaging said ring and forcing it outward, the packing-ring 11 having its inner and outer ends or faces perpendicular to said rod and having a sleeve or extension 15 fitting upon said rod, a suitable metallic packing fitting upon said rod between the perpendicular faces of said rings 9 and 11, and a threaded ring 17 screwed into the gland of said stuffing-box and having its inner end engaging the perpendicular face of said ring 11, said ring being provided with a central opening larger than the diameter of said sleeve 15, whereby said sleeve or extension is permitted lateral movement within said ring, substantially as described.

579,617. COMBINED COTTON-PLANTER AND FERTILIZER DISTRIBUTER. JOHN C. WADSWORTH, Concord, N. C. Filed Aug. 21 1896. Serial No. 603,533. (No model.)



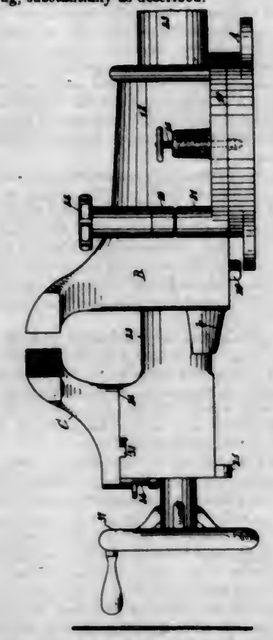
Claim.—A combined cotton-planter and fertilizer-distributer having a hopper provided in its bottom with a segmental discharge-opening, an agitator having its shaft mounted in the hopper concentric with said opening and provided with divergent fingers to traverse the floor of the hopper contiguous to the opening, means for communicating oscillatory movement to the agitator, a cut-off slide of segmental construction arranged to close the discharge-opening and extending through a slot in the side of the hopper, a vertical rack secured exteriorly to the hopper, and a crank-lever fulcrumed at an intermediate point upon the projecting extremity of the slide, having a terminal bearing portion journaled upon a fixed object, and also having a spring-arm arranged in operative relation with said rack and normally held by its resilience in engagement with a depression thereof, substantially as specified

579,618. VISE. WILLIAM J. WANLESS, Bay City, Mich., assignor to the Dry Dock Iron Company, same place. Filed July 23, 1895. Serial No. 556,894. (No model.)

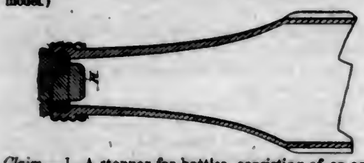
Claim.—1. A vise comprising the base, a horizontally-adjustable bed turning thereon and formed on its upper side with a sleeve having a semicircular grooved inner end, the inner jaw provided with a tubular extension on its lower end rotating vertically on the grooved end of said sleeve, a semicircular clamping-band pivoted at one end to the bed to swing around the upper part of the said tubular extension and having a clamping-screw at its opposite end entering a threaded aperture in said base, a block within said tubular extension and having a threaded aperture, an outer jaw provided with a longitudinally-slotted tube passing through said tubular extension and sleeve to slide in and turn with said extension, and a longitudinal screw passed through said tube into engagement with said block, substantially as described.

2. A vise comprising the base having a circular series of apertures in its upper face, the horizontally-turning bed mounted on said base and provided with a vertical bolt or catch projecting down into any one of said apertures, a horizontal sleeve on the upper side of the bed having a semicircular grooved inner end and a hinged semicircular clamping-band opposite to said semicircular end portion and provided with a clamping-screw, the inner jaw having a horizontal tubular grooved extension turning within the circular bearing formed by said band and semicircular sleeve end, the block within said tubular portion having a threaded aperture, the outer jaw having a longitudinally-slotted tube extending through said tubular extension and sleeve and the longitudinal screw extending through the slotted sleeve and block, substantially as described.

3. A vise comprising the inner jaw, and bed, the longitudinal tube and its adjusting-screw, the upper side of the outer end of said tube being provided with a flat face having a curved recess and an aperture concentric therewith, the outer jaw having a flat lower face provided with a pivot turning in said aperture and a lug entering said groove, and a vertical bolt projecting up through said flat portion of the tube and entering an aperture in the lower face of said jaw beyond said lug, substantially as described.



579,619. STOPPER FOR BOTTLES. CHARLES H. WATKINS, Jr., Wheeling, W. Va. Filed Nov. 12, 1896. Serial No. 611,847. (No model.)



Claim.—1. A stopper for bottles, consisting of an annular cork in the bottle-mouth, a plug removably engaging in said cork and having a flanged head, and a cap separate from the plug and cork, and engaging the bottle-mouth and forced down upon said head, substantially as set forth.

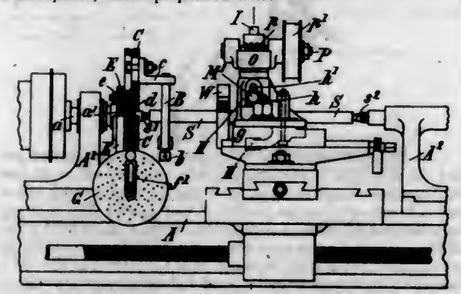
2. A stopper for bottles, consisting of a portion having an opening therein permanently secured within the neck of the bottle, a plug entering said opening, and a removable cap having an opening within its top, such cap being capable of being placed either above or below said plug, substantially as set forth.

3. A stopper for bottles, consisting of a portion having an opening permanently secured within the neck of the bottle, a plug entering said opening, and a cap screw-threaded onto the bottle-neck and having an opening therein within its top, such cap being capable of being placed either above or below said plug, substantially as set forth.

4. A stopper for bottles, consisting of a cork secured within a recess formed on the interior of the bottle, said cork having an opening therein, a plug entering said opening and formed with a flange, and a cap screw-threaded onto the bottle-neck and having an opening therein within its top, such cap being capable of being placed either above or below the flange of said plug, substantially as set forth.

579,620. LATHE. JOHANNES WEBER, Reutlingen, Germany. Filed Aug. 13, 1896. Serial No. 602,684. (No model.) Patented in Germany July 19, 1892, No. 67,783, and in England May 4, 1893, No. 8,943.

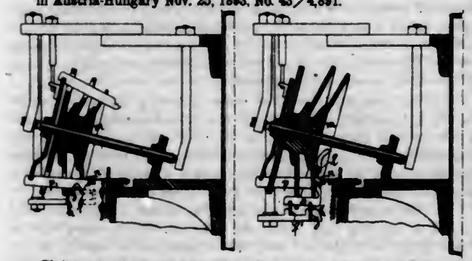
Claim.—1. In a lathe, the combination with the head-stock, and its spindle, and the work-support; of a worm-wheel loosely mounted on the head-stock spindle and adapted to engage the work-support, a spindle having bearings connected with the head-stock and carrying a worm in gear with said worm-wheel, a dividing-plate concentrically arranged relatively to the worm-spindle and the crank-arm *f* secured to said spindle, for the purpose set forth.



2. In a lathe, a dividing attachment comprising a worm-wheel adapted to be mounted so as to revolve freely on the head-stock spindle and provided with lugs *c c*, a supporting-frame adapted to be secured to the head-stock and provided with a bearing for said worm-wheel, a spindle having its bearings in said supporting-frame and carrying a worm in gear with the worm-wheel, a dividing-plate secured to said frame concentric with the worm-spindle and a crank-arm *f* secured to said spindle, substantially as and for the purpose set forth.

3. In a lathe, the combination with the head-stock and its spindle, of a worm-wheel loose on said spindle and adapted to engage the work-carrying mandrel, a worm in gear with said wheel, a stationary dividing-plate concentric with the worm-spindle, and means for setting the worm-wheel by said dividing-plate, of an endwise-adjustable cutter-spindle, a worm-gear for said spindle, said gear adjustable relatively thereto, and the slide-rest to which said parts are connected, substantially as and for the purpose set forth.

579,621. CIRCULAR-KNITTING FRAME. FRITZ WEVER, Chemnitz, Germany. Filed Mar. 28, 1895. Serial No. 543,494. (No model.) Patented in Germany July 6, 1893, Nos. 73,161, 77,975, and 79,328, and in Austria-Hungary Nov. 25, 1893, No. 43/4,891.



Claim.—1. A circular-knitting frame for producing designs in plush goods, comprising means for forming the loops and means for cutting certain back-loops leaving others uncut, substantially as described.

2. A circular-knitting frame with the needles and the loop-wheel, and means for cutting the plush loop during process of knitting and before the old loops are knocked over, said means comprising sinkers acting in conjunction with the needles, to sink the yarn between the needles in forming the ordinary loops of the fabric, substantially as described.

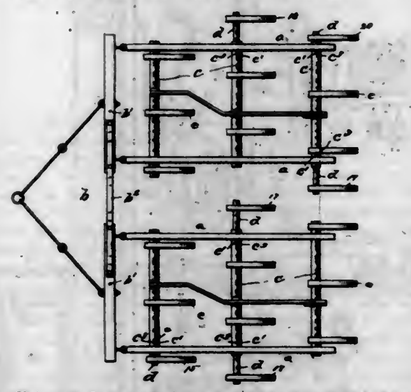
3. A circular-knitting frame with needles and loop-wheels, the sinkers acting in conjunction with the needles to sink the thread and means for crushing the plush loop comprising a hard-steel roller or disk with means for pressing the same against and moving it lengthwise of the sinkers, substantially as described.

4. In combination, the needles and the loop-wheel carrying movable sinkers, a portion of said sinkers having means acting in conjunction with their hooks for cutting the loops while the remainder of the sinkers leave the loops uncut, substantially as described.

5. In combination with a knitting-frame, a loop-wheel with its sinkers, a rotary brush operating in connection therewith, a casing-brush, and an exhaust-fan and exhaust-tube for drawing lint and dust from the sinkers of the loop-wheel, substantially as described.

6. In combination in a knitting-machine, the needles and the plurality of series of sinkers, said series having similar nibs *a*, for forming the ground of the fabric and having also nibs *b* for forming a plush pattern, the nibs *b* of the one series differing in height from those of the other series to draw different lengths of plush loops, substantially as described.

579,622. HARROW. EFFINGER R. WHIPPLE, St. John's, Mich. Filed July 23, 1895. Serial No. 556,858. (No model.)



Claim.—1. In combination, a two or more section float-harrow, each section comprising rigid frame-bars and a plurality of parallel tooth-bars carrying a plurality of teeth arranged to cover the ground, a plurality of tooth-bar extensions each carrying a tooth and arranged to be detachably secured to the ends of different tooth-bars beyond the frame with each extension-tooth properly spaced in relation to the fixed teeth and other extension-teeth to cover the ground, and at opposite sides of the sections to balance the harrow, and an evener-bar in front of and loosely coupled to all of the sections and to which the draft is attached, said evener-bar formed extensible to different lengths so as to increase or decrease the distance between the sections as the capacity of the harrow is increased or decreased by the addition or removal of extension-teeth, substantially as described.

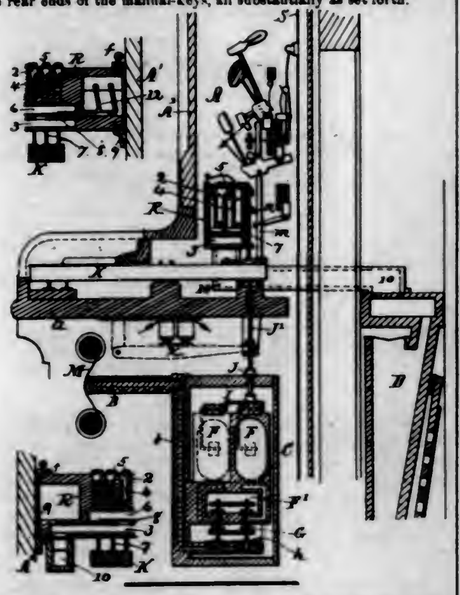
2. In a float-harrow, the combination of two or more harrow-sections each formed of frame-bars and a series of parallel tooth-bars carrying the equally-spaced teeth arranged to cover the ground, an evener-bar arranged in front of all the sections and to which the front ends of the sections are loosely connected, said bar formed of sections coupled together in longitudinal adjustment so that the bar can be increased or diminished in length to vary the distance between the frames of the harrow-sections, and a plurality of detachable similar tooth-bar extensions, each formed of a straight bar provided with a harrow-tooth near one end, and each arranged to overlap a tooth-bar any desired distance with its tooth outside of and any desired distance from the frame so that the various extension-teeth are arranged on both sides of each section at various distances from the frame and consequently spaced equally with the fixed teeth and balancing the harrow, and means for detachably securing each extension-bar in the desired longitudinal adjustment to any tooth-bar, substantially as described.

579,623. AUTOMATIC COMBINATION-PIANO. EDWARD H. WHITE and WILLIAM D. PARKER, Meriden, Conn.; said Parker assignor to said White. Filed Dec. 12, 1895. Serial No. 571,940. (No model.)

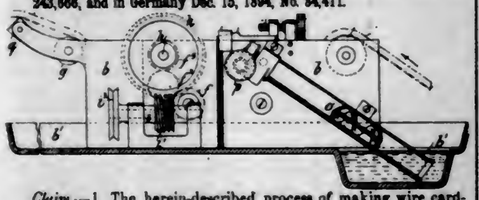
Claim.—1. In an automatic combination piano and organ having the usual upright-piano action, the key-table and manual-keys; the automatically-controlled actuating mechanism arranged beneath the key-table and having upright lifters that upwardly impinge against the rear ends of said manual-key, the reed-box R adapted to the space between the jack-lifters and upright front of the case, its ends extended to and removably supported in connection with the case or frame by ledges and detachable fastenings; said reed-box provided with reed-cells 2 containing reeds 4, and inclosing the longitudinal wind-chest chamber and intermediate cut-off-valve chamber 6 with the sliding cut-off valve therein, the exhaust-bellows having the forwardly-extending wind-trunk 10 onto the open end which said wind-chest matches, the playing-valves 5 overlying the reed-cells, and the upright pitman-pins arranged for moving said playing-valves in unison with the jack-lifters, said parts being constructed, combined and operating, all substantially as and for the purposes described.

2. In combination, with the piano case and action having the manual-keys and upright jack-lifter rods, the removable reed-box, as shown, adapted to stand above the manual between said jack-lifter rods and the upright front of the case, its ends retained by supports and detachable fasteners; said box provided with reed-cells, reeds

and valves, and carrying, confined in guides thereon, the series of upright valve-pins stopped upon the keys adjacent to and working in conjunction with the respective jack-lifters, the automatic operating mechanism, as described, disposed underneath the key-table, and the series of lift-rods actuated thereby, upwardly impinging against the rear ends of the manual-keys, all substantially as set forth.



579,624. MANUFACTURE OF WIRE CARD-CLOTHING. FREDERICK WILKINSON, Manchester, England, assignor of one-third to Thomas Strover Turnbull, same place. Filed Aug. 21, 1896. Serial No. 603,530. (No model.) Patented in England Feb. 23, 1894, No. 3,579; in Belgium Dec. 15, 1894, No. 113,210; in France Dec. 15, 1894, No. 243,666, and in Germany Dec. 15, 1894, No. 84,411.



Claim.—1. The herein-described process of making wire card-clothing, consisting in first embedding the teeth in the base or strip, then immersing the teeth and strip in a mercury-bath, leaving the points of the teeth exposed, and then heating and chilling the said exposed points, without treating the shanks, substantially as described.

2. The herein-described process of making card-clothing consisting in embedding the carding-teeth in the strip or base, then immersing the teeth and strip in a mercury-bath leaving the points of the teeth exposed, heating said points and then passing the strip into the bath to cause the heated points to be chilled thereby, substantially as described.

3. The combination in an apparatus for hardening wire card-clothing, of a bath for chilling the carding-teeth, heating means adapted to heat the exposed points of the teeth, and means for guiding the card-clothing past the heating means and through the bath, substantially as described.

4. In combination, the mercury-bath and guide-roller over which the card-clothing is passed, said roller being arranged to hold the points of the teeth slightly above the surface of the bath, and a burner or heating device arranged to heat the exposed points of the teeth without treating the shanks, substantially as described.

5. In combination, the bath, the overflow-tray about the bath, the guiding means for the flexible card-clothing, heating means for heating the exposed points of the teeth, and means for returning the material of the bath from the overflow-tray back into the bath, substantially as described.

579,625. SPECULUM. EMIL WILLBRANDT, Indianapolis, Ind. Filed Dec. 10, 1896. Serial No. 615,170. (No model.)

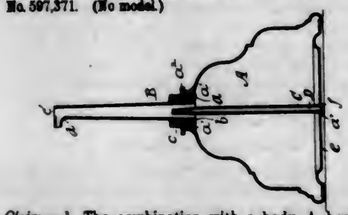
Claim.—1. The combination, in a rectal speculum, of two pivoted jaws and one sliding jaw, a ratchet on the stem of said sliding jaw, and a pawl adapted to engage with said ratchet and hold said jaw to its open or distended position.



2. The combination, in a rectal speculum, of two pivoted jaws and one sliding jaw, said sliding jaw being provided with a slot passing over an extension of the pivot uniting the two pivoted jaws near one end, and united to the handles of said pivoted jaws at or near the other end by means of toggle-links, a ratchet on the stem of said sliding jaw, and a spring-pawl also mounted on the pivot uniting the pivoted jaws and adapted to engage with the ratchet on the sliding jaw, said several parts being arranged and operating substantially as shown and described.

3. The combination, in a rectal speculum, of two pivoted jaws and one sliding jaw, the latter being provided with a ratchet, a spring-pawl adapted to engage with said ratchet, and a cam-lever united to said pawl whereby it may be raised out of engagement, substantially as shown and described.

579,626. OIL-CAN. WILLIAM C. WILSON, Brooklyn, N. Y., assignor to Francis Raymond, same place. Filed June 29, 1896. Serial No. 597,371. (No model.)



Claim.—1. The combination with a body, A, having a screw-threaded mouth, and a tapering tubular stem open externally at its lower end of a detachable and reversible nozzle having the nuts, *b*, and, *c*, and proportioned to fit over and upon said stem to close the body at the mouth thereof and also at the lower portion of said stem, substantially as and for the purpose herein set forth.

2. The combination with a body, A, having a screw-threaded mouth, a detachable and reversible nozzle having nuts, *b*, and, *c*, and a tubular stem open externally at its lower end of a longitudinally-movable stem for regulating the admission of air through the tube and for closing the same when the nozzle is inverted and inclosed in the body, substantially as and for the purpose herein set forth.

3. The combination with a body, A, having a screw-threaded mouth, a tapering tube within the body but open externally at its lower end, a stem placed in said tube to control the capacity of the passage therethrough, and a detachable and reversible nozzle having nuts, *b*, and, *c*, of a screw-threaded cap constructed to be screwed upon the nut, *b*, when the nut, *c*, is screwed into the mouth of the body with the nozzle reversed and surrounding the tube, substantially as and for the purpose herein set forth.

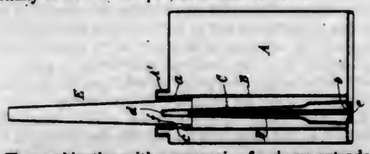
4. The combination with a body, A, of a nozzle attached to the mouth thereof and having the opening, *c'*, at its end and a lateral tubular beak, *d*, adjacent thereto, a tapering tube placed within the body but externally open at its lower end, and a longitudinally-movable stem for controlling the capacity of the passage through the tube, all substantially as and for the purpose herein set forth.

5. The combination with a body having a screw-threaded mouth, a detachable and reversible nozzle having nuts, *b*, and, *c*, a laterally-projected beak, *d*, and opening, *c'*, at its end, of a tapering tube placed within the body but externally open at its inner end and a longitudinally-movable stem placed in said tube to control the capacity of the passage therethrough, substantially as and for the purpose herein set forth.

579,627. OILER. WILLIAM C. WILSON, Brooklyn, N. Y., assignor to Francis Raymond, same place. Filed June 29, 1896. Serial No. 597,372. (No model.)

Claim.—1. The combination with a reservoir of a sleeve extended vertically through the reservoir, open at its top, and provided with an opening for communication with the interior of the reservoir, a tapering air-tube placed within the sleeve, open at top and at bottom open to the outside, a longitudinally-movable rod placed in said tube to control the passage of air therethrough, a longitudinally-movable tapering nozzle open at both ends, arranged to be moved within the sleeve and along the air-tube, and provided with an opening which, when the nozzle is extended, coördinates with that of the sleeve to provide communication with the interior of the reservoir, an annular nut at the top of the sleeve and a screw-cap for closing the sleeve and inclosing its contents, substantially as and for the purpose herein set forth.

open to the outside, a longitudinally-movable rod placed in said tube to control the passage of air therethrough, and a longitudinally-movable tapering nozzle open at both ends, arranged to be moved within the sleeve and along the air-tube, and provided with an opening which, when the nozzle is extended, coördinates with that of the sleeve to provide communication with the interior of the reservoir, substantially as and for the purpose herein set forth.



2. The combination with a reservoir of a sleeve extended vertically through the reservoir, open at its top, and provided with an opening for communication with the interior of the reservoir, a tapering air-tube placed within the sleeve, open at top and at bottom open to the outside, a longitudinally-movable rod placed in said tube to control the passage of air therethrough, a longitudinally-movable tapering nozzle open at both ends arranged to be moved within the sleeve and along the air-tube and provided with an opening which, when the nozzle is extended, coördinates with that of the sleeve to provide communication with the interior of the reservoir, and an annulus arranged coincident with the sleeve to surround the base of the nozzle when extended and provide a drip-cup to the outer surface of the latter, substantially as and for the purpose herein set forth.

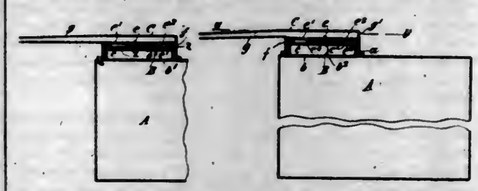
3. The combination with a reservoir of a sleeve extended vertically through the reservoir, open at its top and provided with an opening for communication with the interior of the reservoir, a tapering air-tube placed within the sleeve, open at top, and at the bottom open to the outside, a longitudinally-movable rod placed in said tube to control the passage of air therethrough, a longitudinally-movable tapering nozzle open at both ends, arranged to be moved within the sleeve and along the air-tube, and provided with an opening which, when the nozzle is extended coördinates with that of the sleeve to provide communication with the interior of the reservoir, an annular nut at the top of the sleeve and a screw-cap for closing the sleeve and inclosing its contents, substantially as and for the purpose herein set forth.

4. The combination with a reservoir of a sleeve extended vertically through the reservoir, open at its top and provided with an opening for communication with the interior of the reservoir, a tapering air-tube placed within the sleeve, open at top, and at the bottom open to the outside, a longitudinally-movable rod placed in said tube to control the passage of air therethrough, a longitudinally-movable tapering nozzle open at both ends, arranged to be moved within the sleeve and along the air-tube, and provided with an opening which, when the nozzle is extended coördinates with that of the sleeve to provide communication with the interior of the reservoir, an annular nut arranged coincident with the sleeve at the upper end thereof and constructed to provide a drip-cup to the nozzle when the latter is extended, and to receive a screw-cap for closing the sleeve when the nozzle is incased therein, substantially as and for the purpose herein set forth.

5. The combination with a reservoir of a sleeve extended vertically through the reservoir, open at its top and provided with an opening for communication with the interior of the reservoir, a tapering air-tube placed within the sleeve, open at top, and at the bottom open to the outside, a longitudinally-movable rod placed in said tube to control the passage of air therethrough, a longitudinally-movable tapering nozzle open at both ends, arranged to be moved within the sleeve and along the air-tube, and provided with an opening which, when the nozzle is extended coördinates with that of the sleeve to provide communication with the interior of the reservoir, an annular nut, a nut carried by said nozzle and a nut in the top of the reservoir to receive the nut on the nozzle when the latter is depressed, substantially as and for the purpose herein set forth.

579,628. OUTLET-VALVE FOR FLUID-CONTAINING VESSELS. WILLIAM C. WILSON, Brooklyn, N. Y., assignor to Francis Raymond, same place. Filed June 29, 1896. Serial No. 597,373. (No model.)

Claim.—1. The combination with a vessel for containing fluids, of a circumferentially-threaded fixed cap, B, having an outlet-opening for the contents of the vessel and an orifice for the inlet of air to the vessel, and an axially-movable hollow screw-threaded shell screwed upon the cap, having an outlet-opening and an inlet-orifice in its bottom to coördinate with those of the cap, and with an outlet from its interior, and an air-inlet thereto, the whole arranged to permit the outflow of the contents of the vessel when the fluid-outlet opening and air-inlet orifice of the shell are brought coincident with those of the cap, and to close the vessel against such outflow when said openings and orifices are brought away from each other by the axial movement of the shell, substantially as and for the purpose herein set forth.



2. The combination with a vessel for containing fluids, of a circumferentially-threaded fixed cap, B, having an outlet-opening for the contents of the vessel and an orifice for the inlet of air to the vessel, an axially-movable hollow screw-threaded shell screwed upon the cap, having an outlet-opening and an inlet-orifice in its bottom to coördinate with those of the cap, and with an outlet from its interior, and an air-inlet thereto, the parts arranged to permit the outflow of the contents of the vessel when the fluid-outlet opening and air-inlet orifice of the shell are brought coincident with those of the cap, and to close the vessel against such outflow when said openings and orifices are brought away from each other by the axial movement of the shell, substantially as and for the purpose herein set forth.

3. The combination with a vessel for containing fluids, of a circumferentially-threaded fixed cap, B, having an outlet-opening for the contents of the vessel and an orifice for the inlet of air to the vessel, an axially-movable hollow screw-threaded shell screwed upon the cap, having an outlet-opening and an inlet-orifice in its bottom to coördinate with those of the cap, an outlet-spout *g*, extended from said chamber and axially movable with the shell, and an air-inlet thereto, the whole arranged to permit the outflow of the contents of the vessel when the fluid-outlet opening and air-inlet orifice of the shell are brought coincident with those of the cap, and to close the vessel against such outflow when said openings and orifices are brought away from each other by the axial movement of the shell, substantially as and for the purpose herein set forth.

4. The combination with a vessel for containing fluids, of a circumferentially-threaded fixed cap, B, having an outlet-opening for the contents of the vessel and an orifice for the inlet of air to the vessel, an axially-movable hollow screw-threaded shell screwed upon the cap, having an outlet-opening and an inlet-orifice in its bottom to coördinate with those of the cap, an outlet-spout, *g*, extended from said chamber and axially movable with the shell, and an air-inlet thereto, the parts arranged to permit the outflow of the contents of the vessel when the fluid-outlet opening and air-inlet orifice of the shell are brought coincident with those of the cap, and to close the vessel against such outflow when said openings and orifices are brought away from each other by the axial movement of the shell, an elastic washer interposed between the shell and the cap to compensate for variations in the distance between them by reason of the pitch of their screw-threads and provided with openings or orifices to permit the passage of fluid from and air to the vessel when those of the shell and cap are brought coincident, all substantially as and for the purpose herein set forth.

5. The combination with a vessel for containing fluids, of a circumferentially-threaded fixed cap, B, having an outlet-opening for the contents of the vessel and an orifice for the inlet of air to the vessel, and an axially-movable hollow screw-threaded shell screwed upon the cap, having an outlet-opening and an inlet-orifice in its bottom to coördinate with those of the cap, and with an outlet from its said chamber, and an air-inlet thereto, the parts arranged to permit the outflow of the contents of the vessel when the fluid-outlet opening and air-inlet orifice of the shell are brought coincident with those of the cap, and to close the vessel against such outflow when said openings and orifices are brought away from each other by the axial movement of the shell, and a disk, *z*, placed between the shell and the cap to close the outlet-opening and air-inlet orifice of the cap by pressure of the shell screwed down upon the same, substantially as and for the purpose herein set forth.

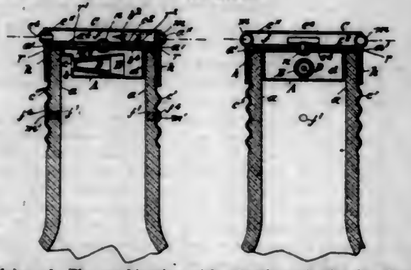
6. The combination with a vessel for containing fluids, of a circumferentially-threaded fixed cap, B, having an outlet-opening for the contents of the vessel and an orifice for the inlet of air to the vessel, and an axially-movable hollow screw-threaded shell screwed upon the cap, having an outlet-opening and an inlet-orifice in its bottom to coördinate with those of the cap, and with an outlet from its said chamber, and an air-inlet thereto, the parts arranged to permit the outflow of the contents of the vessel when the fluid-outlet opening

and air-inlet orifice of the shell are brought coincident with those of the cap, and to close the vessel against such outflow when said openings and orifices are brought away from each other by the axial movement of the shell, a disk, *s*, placed between the shell and the cap to close the outlet-opening and air-inlet orifice of the cap by pressure of the shell screwed down upon the same, and an elastic washer placed upon said disk to pack the joint between the shell and the cap, substantially as and for the purpose herein set forth.

7. The combination with a vessel for containing fluids and a fixed circumferentially-screw-threaded cap having an outlet-opening for the exit of the contents of the vessel, and an inlet-orifice for admitting air to said vessel, of a shell composed of a cup-shaped internally-screw-threaded part, *r*, a hollow ring, *s*, fixed upon said part and having an outlet for the contents of the vessel and an air-inlet, and a top piece, *u*, fixed to said ring the said parts being arranged to provide a chamber through which the contents of the vessel pass in the outflow of said contents and through which air passes inward to the vessel to replace the contents withdrawn therefrom, substantially as and for the purpose herein set forth.

8. The combination with a vessel for containing fluids and a fixed circumferentially-screw-threaded cap having an outlet-opening for the exit of the contents of the vessel, and an inlet-orifice for admitting air to said vessel, of a shell composed of a cup-shaped internally-screw-threaded part, *r*, a hollow ring, *s*, fixed upon said part and having an outlet for the contents of the vessel and a circuitous air-inlet passage provided by an external air-inlet at one part of the circumference of the ring, and an internal air-inlet provided at another part of said circumference and a top piece, *u*, fixed to said ring, the said parts being arranged to provide a chamber through which the contents of the vessel pass in the outflow of said contents and through which air passes inward to the vessel to replace the contents withdrawn therefrom, substantially as and for the purpose herein set forth.

579,629. **NON-REFILLABLE BOTTLE.** WILLIAM C. WILSON, Brooklyn, N. Y., assignor to Francis Raymond, same place. Filed June 29, 1896. Serial No. 597,374. (No model.)



Claim.—1. The combination with a bottle-neck of a chambered part or device having an outlet for liquid contents of the bottle, a tapering or conical tube placed transverse to the axis of the bottle the smaller end of which opens to the interior of the bottle, and the larger end of which opens into the chamber of said part and a tapering or conical cup proportioned in shape and size to the smaller portion of the tube and longitudinally movable in the latter, substantially as and for the purpose herein set forth.

2. The combination of a part, A, comprising a chamber, which has an outlet-opening and an air-inlet orifice in its top, a tapering or conical tube the smaller end of which opens external to the said chamber while the larger opens into the same, a correspondingly-shaped cup placed in said tube and longitudinally movable therein, a part, C, constructed with a chamber which has a pouring-outlet an outlet-opening an air-inlet orifice, means for attaching said parts, A, and, C, one to the other and means for affording an axial movement of the part, C, with reference to the part, A, substantially as and for the purpose herein set forth.

3. The combination with a bottle-neck of a chambered part, A, which has a flange and sleeve for attaching the same to the neck, a top provided with an outlet-opening and an air-inlet orifice, a tapering or conical tube placed within said part with its smaller end opening external to its chamber and with its larger end opening into said chamber and a correspondingly tapering or conical cup placed in the said tube, of a chambered part, C, which has a collar constructed and arranged to pass over and around the sleeve of the part, A, an outlet-opening and an air-inlet orifice in the bottom of its chamber, a pouring-outlet at another part thereof, and an air-inlet to said chamber, the whole arranged for coördinate use and operation, substantially as and for the purpose herein set forth.

4. The combination with a part, A, which has the chamber, *d*, an air-inlet orifice and an outlet-opening a tapering or conical tube opening at its smaller end external to said chamber and with its larger end opening into said chamber, and a correspondingly-tapered cup placed in said tube and longitudinally movable therein, of a part, C, composed of a plate, c^3, having in it an outlet-opening and an air-inlet orifice, a hollow ring, *m*, having an outlet, c^4, and a disk, c^5, upon said ring to provide the chamber, *f*, all substantially as and for the purpose herein set forth.

5. The combination with a chambered part, A, having a tapering tube opening at its smaller end to the interior of the bottle and at its larger end into the chamber of said part and a tapering cup placed within said tube, of a chambered part, C, having a pouring-outlet, and a rivet placed axially in said two parts holding the same together, substantially as and for the purpose herein set forth.

6. The combination with a chambered part, A, which has a flat top in which is an outlet-opening and an air-inlet opening, a tapering or conical tube the smaller end of which opens external to the chamber of said part and the larger end of which opens into said chamber, a tapering or conical cup placed in said tube and longitudinally movable therein of a chambered part, C, which has a flat bottom placed opposite to and parallel with the top of the part, A, and is provided with an outlet-opening and an air-inlet orifice of an axial rivet connecting the bottom of the part, C, with the top of the part, A, and with its ends within and protected against access by the respective chambers of the said parts, substantially as and for the purpose herein set forth.

7. The combination of the chambered part, A, which has an outlet-opening and an air-inlet opening and an externally-threaded sleeve, C, for attaching it to the bottle-neck, a tapering or conical tube, the smaller end of which opens external to the chamber of said part and the larger end of which opens into said chamber, a tapering or conical cup placed in said tube and movable therein, of a chambered part which has a pouring-outlet, an outlet-opening, a^4, an air-inlet, b^4, and an internally-threaded collar for connecting it with the externally-threaded sleeve of the part, A, all substantially as and for the purpose herein set forth.

8. The combination of the chambered part, A, which has an outlet-opening and an air-inlet opening and an externally-threaded sleeve, C, for attaching it to the bottle-neck, a tapering or conical tube the smaller end of which opens external to the chamber of said part and the larger end of which opens into said chamber, a tapering or conical cup placed in said tube and movable therein, of a chambered part which has a pouring-outlet, an outlet-opening, a^4, an air-inlet, b^4, an internally-threaded collar for connecting it with the externally-threaded sleeve of the part, A, and an axial rivet which holds the said two parts together and the opposite ends of which are within respective chambers thereof, all substantially as and for the purpose herein set forth.

9. The combination of the following elements, to wit, a bottle-neck which has one or more holes, f^5, a chambered part, A, which has a tapering tube, the smaller end of which opens external to the chamber of said part and the larger end of which opens into said chamber, a tapering cup placed in said tube and movable therein, a sleeve extended from said part downward around the bottle-neck and provided with one or more holes, f^6, a pin or pins, *m'*, passed into said holes, f^5, f^6, and soldered to the sleeve, and a part, C, attached to the part, A, and adapted to receive the liquid contents from the bottle and to discharge the same through a suitable pouring-outlet, all substantially as and for the purpose herein set forth.

579,630. **TOY.** EDWARD ZIMMERMAN and JAMES A. REED, Buffalo, N. Y. Filed Nov. 9, 1896. Serial No. 611,473. (No model.)



Claim.—1. In a toy, the combination with a suitable device representing an animal, of pivotal arms secured to the interior thereof, said arms having their exposed portions formed in the shape of the ears and tail of the said animal, a deflecting device, and suitable openings at the top and bottom of the body portion of said animal,

whereby when a coin or other suitable article is dropped into the top opening its strikes against the deflecting device and is deflected thereby into contact with one of the said pivotal arms and thereby vibrates either the ears or the tail of the said animal.

2. A toy bank, consisting of a representation of an animal, two swinging arms pivoted thereto, and having their exposed portions formed in the shape of the ears and tail of the said animal, an opening to receive the coins, means for deflecting the coins so that either the tail or the ears may be vibrated, and a suitable receptacle and stand for holding the coins and supporting the animal, as set forth.

3. A toy, consisting of an animal having swinging or vibrating ears and tail and a deflecting device whereby either the ears or the tail may be vibrated upon the introduction of a coin or other suitable article, as set forth.

4. In a toy bank the combination with a suitable money-receptacle, of an animal mounted thereon provided with movable ears and tail and means whereby either the said ears or the tail is vibrated by the passage of a coin through the said animal and into the money-receptacle, as set forth.

5. A toy animal, consisting of a hollow shell body portion, a tail pivoted to the rear of the said body, and provided with an interior-extending portion, ears pivoted to the top of the head of the said body and also terminating in an interior-extending portion, openings at the top and bottom of the said body portion, and a deflecting device fastened to the interior of the body portion, whereby when a suitable article is introduced in the top opening in the body portion, it strikes against the deflecting device and is deflected into contact with either the interior-extending portion of the ears or the interior-extending portion of the tail, as set forth.

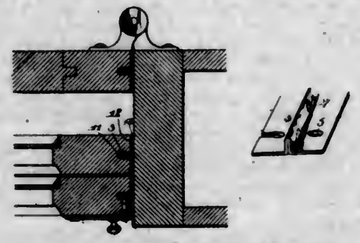
6. A toy animal, provided with movable ears and tail, and mechanism whereby either the ears are vibrated while the tail remains stationary or the tail is vibrated while the ears are stationary according to the direction taken by a coin or other object dropped in an opening in the animal's back.

7. A toy animal, provided with movable ear and tail portions, and an opening for the insertion of a coin or other object, the dropping of the coin or other object therein giving a vibratory motion to one of said portions only.

8. A toy animal, provided with movable ears and tail, adapted to vibrate independently of each other and by dropping of a coin or other object, the said coin vibrating but one of said movable portions.

9. A toy bank, consisting of a money receptacle and support, an animal-figure mounted thereon and provided with movable ears and tail adapted to vibrate independently of each other and to be actuated by the dropping of a coin through the said animal, a slot in said animal for the insertion of the coin, a slot for directing the coin therefrom and to the receiving-cup of the money-receptacle, and a deflecting device for deflecting the coin either in one direction into vibratory contact with the movable ear portion or in another direction into vibratory contact with the movable tail portion.

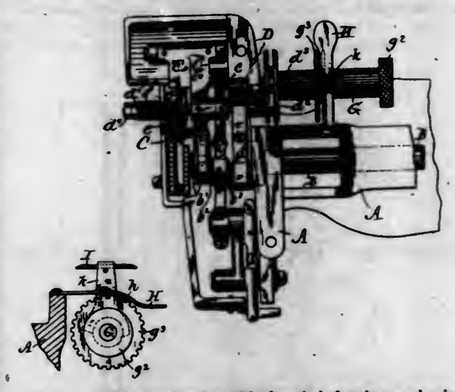
579,631. **METALLIC WINDOW-SLIDE.** WILLIAM ZUPPANN, Warsaw, Ill. Filed Jan. 20, 1896. Serial No. 576,183. (No model.)



Claim.—1. A slide for window-sashes, &c., consisting of a metal strip creased lengthwise and folded upon itself to form a longitudinal and laterally-expansive rib, one of the edge portions of the strip being extended substantially at a right angle to such rib and provided at intervals with slots running at right angles to the rib and opening out at the edge of the strip, whereby the slide is made removable and the rib allowed to expand and contract, substantially as described.

2. The herein-described slide, consisting of a strip of sheet metal creased lengthwise at different intervals between its side edges to form a series of longitudinal ribs for engaging the window-sashes and also a screen-frame or blind, the edge portions of the strip being located in the same plane and one of said portions having inclosed perforations while the remaining portion is provided with open slots extending at right angles to said ribs, substantially as and for the purpose described.

579,632. **SEWING-MACHINE TRIMMER.** EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Dec. 16, 1896. Serial No. 615,838. (No model.)



Claim.—1. The combination with the stitch-forming mechanism of a sewing-machine, of a shear trimming device, comprising upper and lower knives or blades, loosely mounted for lateral adjustment, an adjusting device connected with said blades and by means of which adjusting device the lateral position of the said blades may be varied either when the machine is in operation or at rest, and means for holding the said adjusting device stationary in any position to which it may have been moved.

2. The combination with the stitch-forming mechanism of a sewing-machine, of a shear trimming device, comprising upper and lower knives or blades, loosely mounted for lateral adjustment, an adjusting device connected with said blades and by means of which adjusting device the lateral position of the said blades may be varied either when the machine is in operation or at rest, means for holding the said adjusting device stationary in any position to which it may have been moved, a laterally-movable lint-guard extending closely adjacent to said shear-blades, and means whereby said lint-guard may be moved laterally with said blades when the lateral positions of the latter are changed by said adjusting device.

3. The combination with the stitch-forming mechanism of a sewing-machine, of a feed-bar, a laterally-adjustable shear-trimmer mounted on said feed-bar and an adjusting device whereby the said trimmer may be moved laterally relative to said stitch-forming mechanism.

4. The combination with the stitch-forming mechanism of a sewing-machine, of a feed-bar, a laterally-adjustable shear-trimmer mounted on said feed-bar and a laterally-adjustable lint-guard coincidently movable with said shear-trimmer.

5. The combination with the stitch-forming mechanism of a sewing-machine, of a feed-bar, a rock-shaft mounted in said feed-bar and laterally adjustable relative thereto, an upper shear-blade vibrated by said rock-shaft, a lower shear-blade movable with but stationary relative to said feed-bar, and a spring for holding said blades in cutting contact with each other.

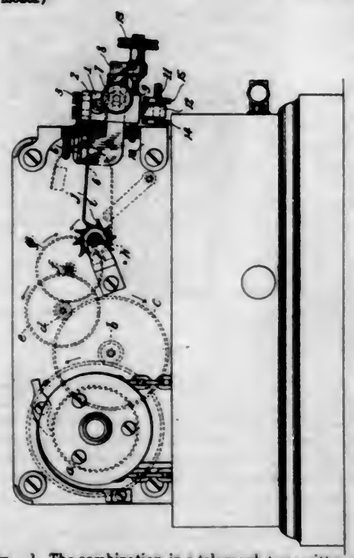
6. The combination with the stitch-forming mechanism of a sewing-machine, of a feed-bar, a rock-shaft mounted in said feed-bar and laterally adjustable relative thereto, an upper shear-blade vibrated by said rock-shaft, a lower shear-blade movable with but stationary relative to said feed-bar, a spring for holding said blades in cutting contact with each other, and a laterally-adjustable lint-guard.

7. The combination with the stitch-forming mechanism of a sewing-machine, of a shear-trimmer comprising upper and lower blades both of which are laterally adjustable relative to the needle of the machine, and an adjusting-screw connected with said blades and by turning which their lateral adjustment may be effected.

8. The combination with the stitch-forming mechanism of a sewing-machine, of a shear-trimmer comprising upper and lower blades both of which are laterally adjustable relative to the needle of the machine, an adjusting-screw connected with said blades and by turning which their lateral adjustment may be effected, and means for retaining said screw in any desired position of adjustment.

9. The combination with the stitch-forming mechanism of a sewing-machine, of a shear-trimmer comprising upper and lower blades both of which are laterally adjustable relative to the needle of the machine, an adjusting-screw connected with said blades and by turning which their lateral adjustment may be effected, means for retaining said screw in any desired position of adjustment, and a laterally-adjustable lint-guard connected with said screw to be adjusted by the latter coincidently with said shear-blades.

579,683. TELEGRAPH-TRANSMITTER. CHARLES L. BUCKINGHAM, New York, and JOSEPH GARDAM, Brooklyn, N. Y.; said Gardam assignor to said Buckingham. Filed Sept. 2, 1896. Serial No. 604,614. (No model.)



Claim.—1. The combination, in a telegraph-transmitter, of a motor, a train of gear, circuit-controlling apparatus for directing suitable signals to line, a phonic governor consisting of a toothed wheel, *i*, connected to and driven by said train of gear, and a tuning-fork spring, *j*, whose vibration is maintained by the teeth of said wheel, as and for the purpose set forth.

2. The combination, in a telegraph-transmitter, of a motor, a train of gear, circuit-controlling apparatus for directing signaling-currents to line, a phonic governor consisting of a regulating-wheel, *i*, connected with said train, a tuning-fork spring, *j*, whose vibration is maintained by and which in turn controls the rotation of said wheel, and an adjusting apparatus for varying the vibrating length of said spring.

3. In a telegraph-transmitter, the combination of a motor, a train of gear, circuit-controlling apparatus for directing signaling-currents to line, a harmonic regulator consisting of a toothed wheel connected with said train of gear, spring *j*, means for limiting the vibrating length of said spring, and means of adjustment for setting the point of said spring with relation to the teeth of said regulating-spring.

4. In a telegraph-transmitter, the combination of a motor, a train of gear, circuit-controlling apparatus for directing signaling-currents to line, a toothed regulating-wheel *i* connected with said train, a vibrating spring *j*, a heel-support, 1, for said spring, and a clamping-arm for the purpose of limiting the vibrating length of said spring.

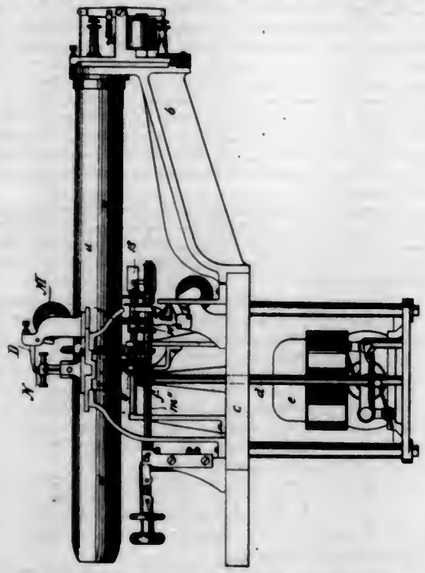
5. In a telegraph-transmitter, the combination of a motor, a train of gear, circuit-controlling devices for directing signaling-currents to line, a toothed regulating-wheel *i* connected with said train, a vibrating spring *j*, a heel-piece, 1, a clamping-arm, 4, for limiting the vibrating length of said spring, a clamping-screw, 5, a shoe, 6, and a set-screw, 13, for moving or adjusting said clamping-arm.

6. In a telegraph-transmitter, the combination of a motor, a train of gear, circuit-controlling devices for directing signaling-currents to line, a toothed regulating-wheel *i* connected with said gear, a spring *j*, a heel-piece, 1, pivoted at 2, a bracket, 10, a set-screw 11, as and for the purpose set forth.

7. In a telegraph-transmitter, the combination of a motor, a train of gear, circuit-controlling apparatus for directing signaling-currents to line, a toothed regulating-wheel connected with said gear, a spring *j*, a heel-piece, 1, pivoted at 2, a clamping-arm 4, clamping devices 5 and 6, a clamping-screw 7, an adjusting-screw 13, a bracket 10, and a screw 11, as and for the purpose set forth.

579,684. PRINTING-TELEGRAPH. CHARLES L. BUCKINGHAM, New York, and EMIL GERMANN, Brooklyn, N. Y.; said Germann assignor to said Buckingham. Filed Aug. 28, 1896. Serial No. 604,206. (No model.)

Claim.—1. In a printing-telegraph apparatus, a stationary tubular support, a sheet of paper formed into a tube having a row of holes perforated in the lap of said tube, an escapement-wheel, a spur-wheel meshing with said row of holes and a train of gearing for positively connecting the escapement and spur wheels together, as and for the purpose set forth.



2. In a printing-telegraph, a stationary support, a paper tube having a row or series of perforations, a step-by-step wheel, a train of gearing positively connected with said step-by-step wheel and a spur wheel gearing with the holes in said sheet of paper which is positively driven with said step-by-step wheel and train of gearing, as and for the purpose set forth.

3. In a printing-telegraph, a stationary tubular support, a sheet of paper formed into a tube movable thereon, a feed-wheel positively engaging with said sheet of paper, a step-by-step actuating mechanism and a train of gearing for positively connecting said actuating mechanism with said wheel in engagement with said paper tube.

4. In a printing-telegraph, a tubular support for a sheet of paper, a paper tube upon which a message is to be printed, a wheel whose teeth engage with said paper tube, means for rotating said wheel circumferentially around said tubular support with the paper blank, means for rotating said wheel about its own axis for feeding said paper tube axially from one line position to the next, a step-by-step actuating mechanism and a train of gearing positively connecting said actuating mechanism with said feed-wheel, as and for the purpose set forth.

5. In a printing-machine, a stationary support, a tubular blank adapted to be rotated thereon, having a row of holes along its seam, a feed-wheel whose teeth mesh with said holes, a wheel carrying said feed-wheel circumferentially around said tubular support and paper blank, a train of gearing connected therewith, an escapement for controlling the step-by-step action of said train of gearing and circumferential and inclined grooves cut in the periphery of said stationary support, as and for the purpose set forth.

6. In a printing-telegraph, the combination of a stationary support *a* having circumferential grooves *r' d' l'* inclined grooves *v' w' x'*, gear-wheel *l*, feed-wheel *f'*, an escapement-wheel *j* and a train of gearing for positively connecting wheels *l* and *f'* together, as and for the purpose set forth.

7. In a printing-telegraph, a stationary support *a*, a tubular blank upon which messages are printed in page form, a row of holes perforated in said blank parallel with its axis, a feed-wheel for engaging with said row of holes, and an auxiliary wheel for carrying said feed-wheel circumferentially around said stationary support, means for holding said feed-wheel against rotation upon its own axis during the printing of lines, and cams for causing rotation of said feed-wheel upon its axis between the end of one line and the beginning of the next, as and for the purpose set forth.

8. In a printing-telegraph, the combination of a fixed support, a paper tube upon which messages are printed, a row of holes perforated in said tube parallel with its axis, a spur-wheel meshing with said row of holes, and an auxiliary wheel within which said spur-wheel is journaled, as and for the purpose set forth.

9. In a printing-machine, a stationary support for a paper tube, a tube upon which messages are printed in page form having a series of holes in said tube, a feeding device meshing with said row of holes, means for moving said feeding device around said tube, and means for connecting said feeding device positively with a step-by-step escapement or motor.

10. In a printing-telegraph, a support for carrying a paper tube, a sheet of paper in tubular form having a row of holes perforated parallel with its length, a feed-wheel meshing with said row of holes, a ring-wheel moving outside of said tubular support carrying said feed-wheel and circumferential grooves formed within the exterior of such support, as and for the purpose set forth.

11. In a printing-telegraph, the combination of a paper tube upon which messages are printed, a spur-wheel for feeding the same circumferentially and axially, a ring-wheel for carrying said feed-wheel, a dogging-disk, *q'*, and a pallet or dog *p'* for holding the teeth of said feed-wheel in their desired position.

12. In a printing-telegraph, a fixed tubular support, a feed-wheel *f'*, a bracket within which said feed-wheel is journaled, said bracket being connected to and forming a part of a ring-wheel *l* for carrying wheel *q'*, as and for the purpose set forth.

13. The combination of feed-wheel *f'*, a ring-carrying wheel *l* having spur-teeth upon its periphery, guiding-surfaces *s* and a bracket formed of parts *a' c' b'*, as and for the purpose set forth.

14. In a printing-machine, a stationary tubular support, a paper tube upon which messages are to be printed, a row of holes perforated therein parallel with its axis, a feed-wheel *f*, a ring-wheel *l* for carrying said feed-wheel, circumferential and inclined grooves cut in the periphery of said tubular support and a slot *u'* cut in said support parallel with its axis, as and for the purpose set forth.

15. In a printing-machine, the combination of a stationary support, a paper tube upon which messages are to be printed, a feed-wheel for moving said tube, means for carrying said feed-wheel around the tube, circumferential grooves cut in said stationary support and a groove *u'* within which said feed-wheel is adapted to rotate, as and for the purpose set forth.

16. In a printing-machine, a stationary support, a paper tube upon which messages are to be printed, a feed-wheel connecting with said paper tube, a wheel *l* carrying said feed-wheel around the tube, having flanges *s*, and grooved rollers for supporting said wheel, as and for the purpose set forth.

17. A tubular type-writer or telegraph blank, upon which messages or other matter is to be printed, with a lapped edge having a row of equidistant holes in the lap.

18. A tubular type-writer or telegraph blank, upon which messages or other matter is to be printed, with a lapped edge parallel to the axis of the tube having a row of equidistant holes in the lap.

19. In a printing-machine, an escapement-wheel, two escapement-pallets, one movable and the other fixed, and means for manually disengaging said escapement-wheel from its fixed pallet whereby the escapement-wheel is withdrawn from the fixed rather than the movable pallet, as and for the purpose set forth.

20. In a printing-machine, a stationary paper-support, a tube upon which messages are to be printed, a feed-wheel meshing with said tube, a ring-wheel carrying said feed-wheel, a manual disengaging device, and a unison-stop, as and for the purpose set forth.

21. A stationary support, a paper tube upon which messages are to be printed, a feed-wheel gearing with said paper tube, an auxiliary wheel carrying said feed-wheel, a train of gearing connected therewith, an escapement for controlling the step-by-step action of said feed-wheel, a manual disengaging device for releasing said feed-wheel from its pallets, a unison-stop for arresting said feed-wheel and its train in unison position and a fly-train which is automatically put in connection with said feeding apparatus to modify or slow its movement upon disengagement of the escapement-wheel from its pallets.

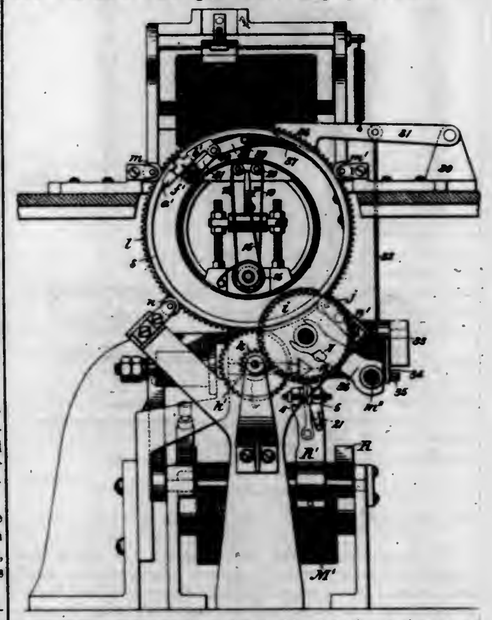
22. In a printing-machine, a stationary, tubular support *a* for carrying a paper tube, said support being formed in three parts, *w*, *x*, *y*, in the part *x* of which are cut circumferential and inclined grooves, as and for the purpose set forth.

23. In a printing-telegraph system, a tubular support having an opening, 21, a press-pad within said tubular support, and a type-wheel on the exterior thereof, a rubber band or belt, 19, mounted within said tube, a ratchet-wheel, 16, and a pawl, 15, for actuating said belt, as and for the purpose set forth.

579,685. PRINTING-TELEGRAPH. CHARLES L. BUCKINGHAM, New York, and EMIL GERMANN, Brooklyn, N. Y.; said Germann assignor to said Buckingham. Filed Sept. 3, 1896. Serial No. 604,713. (No model.)

Claim.—1 In a printing-machine, the combination of a stationary support, a paper tube, a step-by-step or escapement wheel *j*, a train of gear, feed-wheel *f'*, a manual disconnecting apparatus, cam 36, means for lowering said cam through said manual disconnecting apparatus, and means, substantially as described, whereby said wheel *f'* may be raised and lowered; as and for the purpose set forth.

2. In a printing-machine, the combination of a stationary support, a tube of paper thereon having a row of holes, circumferential and diagonal slots in said fixed support, feed-wheel *f'*, a step-by-step or escapement wheel, a train of gearing joining said step-by-step and feed wheels, and means for raising the feed-wheel from the paper tube at the end of a message, as and for the purpose set forth.



3. In a printing-machine, the combination of a stationary support, a paper tube mounted thereon having a row of holes at its lap, a step-by-step or escapement wheel, a feed-wheel gearing with said row of holes, a train of gearing joining the escapement and feed wheels, a cam with which the bearings of the feed-wheel engage, and a manual device for disconnecting the escapement-wheel from its pallets at the end of a message.

4. In a printing-machine, the combination of a stationary, tubular support, a paper tube, a feed-wheel engaging therewith, an escapement or step-by-step wheel, a train of gearing connecting said escapement and feed wheels, and means for raising and lowering said feed-wheel, for the purpose set forth.

5. In a printing-machine, the combination of a stationary support, a tube of paper, a feed-wheel, an escapement-wheel, a train of gearing joining said wheels, a cam for raising said feed-wheel from the paper tube at the end of a message and a manual device for operating said cam, for the purpose set forth.

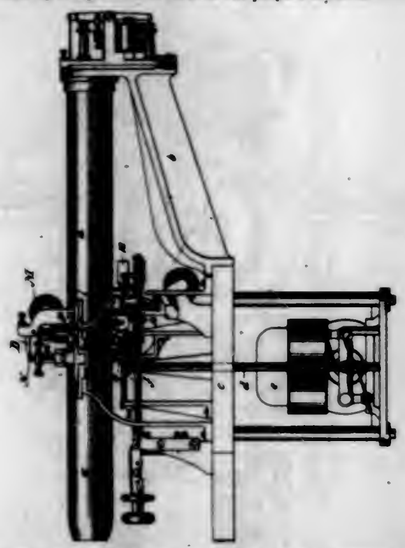
6. In a printing-machine, the combination, substantially as described, of a stationary, tubular support, a paper tube, feed-wheel *f'*, ring-wheel *l*, a pivoted support 40, carrying arms, 41, 38, cam 36, spring 37, circumferential grooves in said tubular support, escapement-wheel *i*, unison-stops 7 and 18, manual disconnecting-rod *m''*, and means whereby the movement of said rod is communicated both to lower cam 36 and disconnect escapement-wheel *j* from its pallets, as and for the purpose set forth.

579,686. PRINTING-TELEGRAPH. CHARLES L. BUCKINGHAM, New York, and EMIL GERMANN, Brooklyn, N. Y. Filed Jan. 5, 1897. Serial No. 618,000. (No model.)

Claim.—1. In a printing-telegraph, the combination of a message-blank formed into a paper tube having a row of equidistant holes parallel with its axis, a tubular support having circumferential and diagonal grooves, a slot *u'* across said grooves lengthwise of the tube, a gear-train for rotating the paper tube, a motor for driving said train, an escapement therefor, means for disconnecting the escapement-wheel from its pallets, and a setting-arm which is moved within the teeth of wheel *f'* while the latter is in line with slot *u'* and which is moved away from the teeth of said wheel when it is desired to insert a new message-blank.

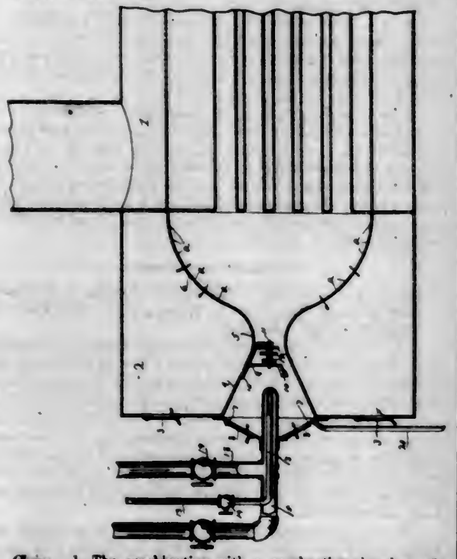
2. In a printing-machine, the combination of a message-blank formed into a paper tube having a row of equidistant holes parallel with its axis, a tubular support having circumferential and diagonal grooves, a slot *u'* across said grooves lengthwise of the tube, a gear-

train for rotating the paper tube, a wheel f' whose teeth project through the holes in said paper tube into the circumferential and diagonal grooves of said support, and a removable directing-arm for adjusting the teeth of wheel f', which, during normal operation, serves to guide the teeth of said wheel into the circumferential grooves in passing slot u', as and for the purpose set forth.



3. In a printing-machine, the combination of a message-blank formed into a paper tube having a row of equidistant holes parallel with its axis, a tubular support having circumferential and diagonal grooves, a slot u' across said grooves lengthwise of said tube, a gear-train for rotating the paper tube, a wheel f', a removable directing-arm for adjusting the teeth of said wheel to enter said circumferential grooves after leaving slot u', and a hand device for controlling said directing device for removing the same from the teeth of said wheel during the insertion of a message-blank and for replacing said guide during the printing of a message, as and for the purpose set forth.

579,637. APPARATUS FOR BURNING FLUID FUEL. LEROY S. BUFFINGTON, Minneapolis, Minn. Filed Nov. 18, 1896. Serial No. 569,256. (No model.)



Claim.—1. The combination with a combustion-chamber, of a funnel-shaped neck portion leading thereto with its large or flaring end positioned outward and open to the atmosphere, one or more spraying-wheels mounted in the contracted section of said neck portion, and means for supplying liquid fuel to said wheel or wheels; whereby the intensity of the draft is increased as it approaches said spraying wheel or wheels, substantially as described.

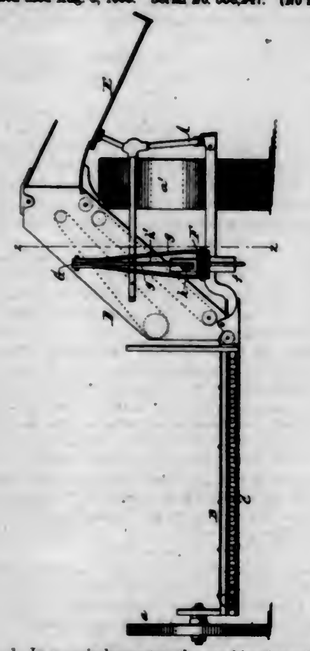
2. The combination with a combustion-chamber formed with inwardly-diverging walls, of a converging or funnel-shaped neck portion uniting at its contracted portion with the contracted portion of said combustion-chamber, and having its large or flaring end turned outward and open to the atmosphere, one or more spraying-wheels mounted in said converging neck portion, and means for delivering liquid fuel onto said spraying wheel or wheels, substantially as described.

3. The combination with a combustion-chamber, of a series of spraying-wheels of increasing size mounted in the draft-passage to said combustion-chamber, on a pivot that is disposed longitudinally of said draft-passage, and means for supplying liquid fuel to said spraying-wheels, substantially as described.

4. The combination with the combustion-chamber, of a series of spraying-wheels of increasing size mounted in the draft-passage to said combustion-chamber the alternate wheels being arranged to run in different directions, and means for supplying liquid fuel to said spraying-wheels, substantially as described.

5. The combination with a combustion-chamber, formed with inwardly-diverging walls provided with air-passages leading from the atmosphere, of a converging or funnel-shaped neck portion uniting at its contracted portion with the contracted portion of said combustion-chamber and having its large or flaring end turned outward and open to the atmosphere, one or more spraying-wheels mounted in said converging neck portion, and means for delivering liquid fuel onto said spraying wheel or wheels, substantially as described.

579,688. GRAIN-HARVESTER. HENRY J. CASE, Owasco, N. Y., assignor to the Johnston Harvester Company, Batavia, N. Y. Original application filed Mar. 18, 1895, Serial No. 542,082. Divided and this application filed Aug. 5, 1896. Serial No. 552,247. (No model.)

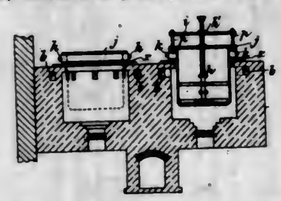


Claim.—1. In a grain-harvester, the combination with the main frame, the cutter mechanism, and the draft-pole pivoted to the lower front portion of the main frame, of an upright link pivoted to the draft-pole in front of its pivot, a rock-arm pivotally connected with the upper portion of said link and with the main frame, a segment connected rigidly with said rock-arm and arranged below the same near the pivot of the draft-pole, and a catch mounted on the lower front portion of the main frame and adapted to hold the movable segment in its adjusted position, substantially as set forth.

2. In a grain-elevator, the combination with the main frame, the cutter mechanism, the elevating mechanism, and the draft-pole pivoted to the lower front portion of the main frame, of an upright link pivoted to the draft-pole in front of its pivot, a rock-arm pivotally connected with the upper portion of said link and with the main frame, a segment rigidly connected with said rock-arm and arranged below the same and below the elevating mechanism, a catch mounted on the lower front portion of the main frame and adapted to hold the movable segment in its adjusted position, an adjusting-lever arranged on the lower rear portion of the draft-frame, and a connection extending from said lever underneath the elevating mechanism to the movable segment, substantially as set forth.

3. In a grain-harvester, the combination with the main frame, the cutter mechanism, and the draft-pole pivoted to the front portion of the main frame, of an upright link pivoted to the pole in front of its pivot, a rock-arm pivotally connecting the upper end of said link with the front portion of the main frame, a segment arranged below said rock-arm and connected therewith, a hand-lever arranged on the rear portion of the main frame and provided with a front and rear arm, a rod connecting the front arm of said lever with said segment, a catch adapted to engage with the segment, a releasing-lever having one of its arms engaging with said catch, an intermediate lever pivoted to the front arm of the hand-lever, a rod connecting the intermediate lever with the releasing-lever, a releasing-handle pivoted on the rear arm of the hand-lever, and a rod connecting the intermediate lever with said releasing-handle, substantially as set forth.

579,639. PROCESS OF AND APPARATUS FOR MAKING CYANIDS. HORACE W. CROWTHER, West Bromwich, EDMUND C. ROSTER, Smethwick, GEORGE S. ALBRIGHT, Birmingham, and JOHN J. HOOD, London, England. Filed Feb. 17, 1896. Serial No. 579,644. (No model.) Patented in England Apr. 26, 1894, No. 8,305.

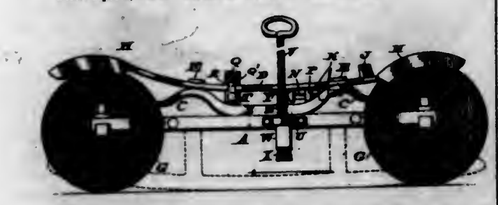


Claim.—1. The herein-described method of preparing the iron used in the manufacture of ferrocyanid of potassium or sodium from their sulfocyanids, which consists in treating it with an alkaline sulfid or sulfid of an alkaline earth.

2. The herein-described method which consists in treating iron with an alkaline sulfid or sulfid of an alkaline earth, mixing it with a sulfocyanid, and then drying the mixture in the presence of an inert gas.

3. The herein-described apparatus comprising a furnace, a pot arranged over the furnace and removable therefrom, an agitator, a power-driven shaft f, a detachable coupling g between the shaft and the agitator, the pillars p connected with a flange on the pot, cross-pieces connecting the pillars and supporting the agitator-shaft, and a cover made in sections having an air-tight connection with the pot.

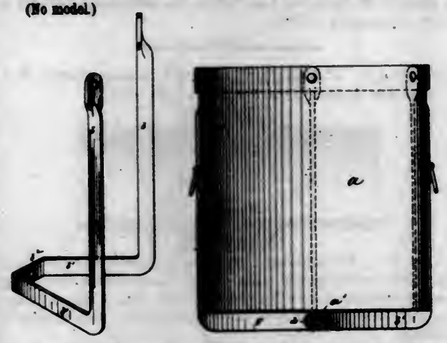
579,640. ROLLER-SKATE. ROBERT I. EDMAN, Philadelphia, Pa. Filed Apr. 2, 1896. Serial No. 585,873. (No model.)



Claim.—1. A skate having a frame, springs of the form of inverted arches having their crowns secured to the sides of said frame, the ends of said springs being also arch-shaped, a foot-rest secured to the crown of said ends, a roller at each end of said frame, and means connected with said foot-rest for clamping the foot in place thereon, said parts being combined substantially as described.

2. A skate having a frame formed of side members with rollers journaled in the ends thereof, arch-shaped springs having their crowns secured to said side members, a foot-rest having slots therein, bolts securing the crowns of the arch-shaped ends of said springs to said rest, guards for said rollers secured to said foot-rest, and means connected with said foot-rest, for clamping the foot in place thereon, said parts being combined substantially as described.

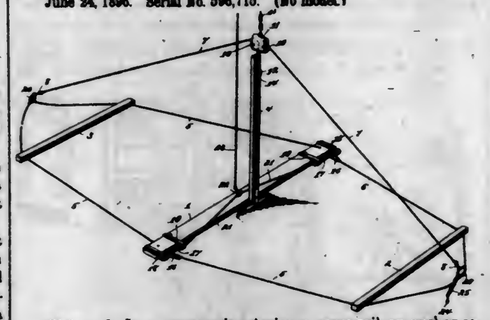
579,641. GARBAGE-RECEPTACLE. HERMAN ENGEL and SAMUEL HERRMAN, Brooklyn, N. Y. Filed Dec. 3, 1896. Serial No. 614,271. (No model.)



Claim.—1. The combination in a garbage-receptacle, of a can-body with double ribs or fenders, each fender being composed of a pair of upright arms that extend along the sides of the can-body and of a pair of horizontal arms that diverge from the center toward the periphery of the can-bottom and are made integral with said arms, substantially as specified.

2. The combination in a garbage-receptacle, of a can-body with a number of double ribs or fenders, each fender being composed of a pair of upright arms and a pair of horizontal arms that diverge from the center toward the periphery of the can-bottom and are made integral with said arms, and with a rivet or rivets for connecting the horizontal arms of two or more of the fenders, substantially as specified.

579,642. HAY-SLING. HENRY L. FELL, Belleville, Mich. Filed June 24, 1896. Serial No. 596,715. (No model.)



Claim.—1. In a compressing device, a cross-rail, an anchor secured to said cross-rail, end rails, sling-ropes attached to the cross-rail and passing through the end rails, compressing-ropes attached to the sling-ropes, a sheave-block through which said compressing-ropes pass, and means for attaching the last-named ropes to the anchor, as specified.

2. In a compressing device, a cross-rail, an anchor extending vertically therefrom, sling-ropes attached to the cross-rail, compressing-ropes adapted to be attached to said sling-ropes, a sheave-block having journaled therein two pulleys in the same plane, said block adapted for attachment to or detachment from the anchor, means for elevating said block, and a chain terminating in a hook attached to one end of the sling-ropes and adapted for attachment to or detachment from the other end of the sling-ropes, substantially as and for the purpose set forth.

3. The herein-described combination of a cross-rail, sling-ropes attached thereto, end rails through which said ropes pass, rings to which the ends of said ropes are attached, compressing-ropes attached to said rings, an anchor projecting upward from the cross-rail, a ring carried by the compressing-ropes for engagement with a hook upon said anchor, a sheave-block through which the compressing-ropes pass, and an elevating-chain, substantially as shown and described.

4. The herein-described combination of a cross-rail 1, an anchor projecting upward therefrom, pins 17 pivoted to the cross-rail, latches 19 adapted to engage said pins, eyes 16 for engagement with said pins, sling-ropes 6 attached to said eyes, sling-ropes 5 attached to the cross-rail, end rails 2 and 3 through which the sling-ropes pass, rings 20 attached to the ends of the sling-ropes, compressing-ropes 7 for drawing the sling-ropes toward each other, a ring 12 attached to said ropes, means for connecting said ring to the anchor, a sheave-

block through which the compressing-ropes pass, an elevating-chain 15, ropes 21 attached to the latches, and a rope 23 for drawing upon the ropes 21 to release the pins 17 from the latches, substantially as and for the purpose set forth.

579,643. PIPE-COUPLING. DUANE N. GLEASON, Brooklyn, N. Y. Filed Feb. 24, 1896. Serial No. 580,334. (No model.)

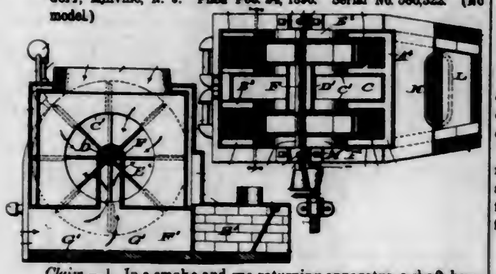


Claim.—1. The combination, between the members of a coupling, of a packing provided with radial angular indentations, alternating upon the opposite sides of the packing, and forming a series of angular-edged radial teeth on each side of said packing, substantially as described.

2. The combination of the pipes to be coupled, each provided upon its end with radial angular indentations forming between them angular-edged teeth, the teeth on one pipe corresponding to the indentations on the other pipe, a packing provided with radial indentations of the same form as the teeth of the pipe ends, said indentations alternating upon opposite sides of said packing, and a coupling to join the ends of the pipes, substantially as described.

3. The combination with the pipes to be coupled of a collar, threaded upon the end of one of said pipes, and provided with a toothed edge, a collar threaded upon the end of the other pipe and provided with a toothed edge, a polygonal rabbet within such edge and an exterior thread, a packing provided with indentations corresponding with the teeth upon the aforesaid collar, and inserted between them, and a coupler-sleeve provided with a flange to embrace the first-mentioned collar and an interior thread to engage the exterior thread upon the other collar, substantially as and for the purposes set forth.

579,644. SMOKE AND GAS RETURNING APPARATUS. DANIEL GORR, Millville, N. J. Filed Feb. 24, 1896. Serial No. 580,322. (No model.)



Claim.—1. In a smoke and gas returning apparatus, a shaft having a plurality of fans mounted thereupon, a separate inlet-passage for smoke and pure air intermediate said fans, a substantially central discharge-passage for commingled air and smoke, and conduits for the discharge of purer air adjacent said passage, in combination with a boiler-furnace having passages leading from the stack and ash-pit to said fans.

2. In a smoke and gas returning apparatus, an inclosing casing, a shaft having a plurality of fans mounted thereupon, a separate inlet-passage for smoke and purer air intermediate said fans, a substantially central discharge-passage for commingled air and smoke, conduits for the discharge of purer air adjacent said passage, openings in the sides of said casing for the admission of pure air, and means for conducting the latter to said conduits.

3. In a smoke and gas returning apparatus, a main shaft, a plurality of fans mounted thereon, a friction-cone mounted on said shaft, a second shaft adjacent thereto, a friction-cone adapted to be in contact with said former cone, a collar mounted on the latter shaft, a spring interposed between said collar and the latter cone, a plurality of collars mounted adjacent said spring-pressed cone, and having their abutting edges at an angle to the axis of their shaft, an arm attached to one of said collars, an abutment for the latter, and a connection from said arm adapted to be actuated by the rise and fall of pressure in a steam-main.

4. In a smoke and gas returning apparatus, a main shaft, a plurality of fans mounted near opposite ends thereof, a hood surrounding the central portion of said shaft, a substantially central opening for the ingress of the products of combustion, a substantially central opening in the lower portion for the ingress of the atmosphere, other openings for the ingress of the atmosphere, and a substantially central discharge for the commingled smoke and gases, in combination with a passage at either side thereof for the discharge of purer air, and a damper located in said central passage.

5. In a smoke and gas returning apparatus, a shaft, a plurality of fans mounted thereupon, a casing for said fans, a central opening in said casing, a hood for protecting said shaft from the products of combustion, a jacket surrounding said fans, means for introducing a cooling fluid thereinto, and a discharge from the upper portion of said jackets leading to said fan-chambers.

6. In a smoke and gas returning apparatus, a shaft, a plurality of fans mounted on opposite ends thereof, a casing therefor, central openings for the ingress of smoke and air, an outlet-passage therefor, a plurality of exits adjacent to said passage, and dampers controlling the same.

7. In a smoke and gas returning apparatus, a boiler-furnace having a stack provided with a damper leading therefrom, a blowing apparatus located adjacent thereto having a casing, openings in the side thereof for the admission of pure air, a shaft supported within said casing and having a plurality of fans mounted thereon, means for keeping said shaft and fans cool, central openings for the ingress of smoke and air, an outlet-passage therefor, an exit leading from said passage to the ash-pit of said furnace, a second exit having a conduit leading to a point above the damper of said stack, and a conduit leading from the latter at a point below said damper to the interior of said casing.

579,645. FENCE-POST. ROBERT E. JENNINGS and JACKSON WEBB, Hallsville, Mo. Filed Oct. 13, 1896. Serial No. 608,710. (No model.)



Claim.—1. A fence of terra-cotta or earthenware, the front face of which is grooved horizontally, the said horizontal grooves being crossed by an oblique groove, substantially as and for the purpose described.

2. A fence composed of terra-cotta or earthenware, having horizontal grooves in its front face adapted to receive the strand-wires, and an oblique groove surrounding the post adapted to receive the fastening-wire, said groove crossing the horizontal grooves upon the front face, substantially as shown and for the purpose described.

579,646. EGG-SEPARATOR. LEWIS JOHNSON and LEWIS FRIDLUND, Willmar, Minn. Filed May 27, 1896. Serial No. 593,259. (No model.)

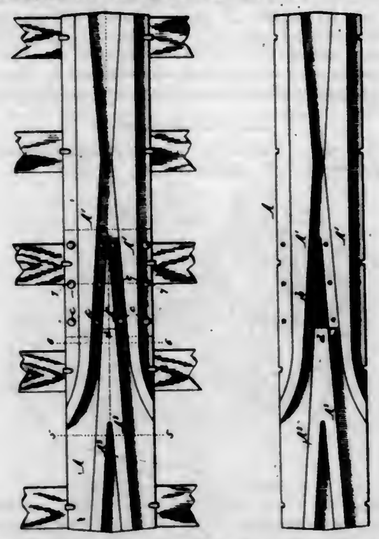


Claim.—1. In a device for separating eggs from loose filling material in which they are generally packed, the combination of a case having the upper portion of a side cut away, a separating-screen hinged to the cut-away side, tapering strips secured to the end bars of the screen-frame and coming within the end pieces of the case, and a longitudinal strip secured to the screen-frame and to the wider ends of the tapering strips and extending beyond them to engage with the extremities of the end pieces of the case above the said cut-away side and of a height to come flush with the top of the case, substantially as set forth.

2. In a device for separating eggs from loose filling material in which they are generally packed, the combination with a case and a separating-screen hinged to the case so as to be turned over the box or package containing the eggs to be separated, of a cord or similar device attached to the separator and adapted to support the box or package while inverting it over the case, substantially in the manner set forth.

3. The means for separating eggs from the loose filling material in which they are generally packed substantially as herein specified, the same consisting of a case having the upper portion of a side cut away and having a door-controlled opening in one side at a lower corner, a separating-screen hinged to the cut-away side of the case and having a longitudinal strip at the hinged side to close the space formed by the removed portion of the cut-away side, and a cord or like device secured to the said longitudinal strip to support the box or package while inverting it over the case, substantially as described.

579,647. RAILWAY-FROG. PATRICK H. KANE, Buffalo, N. Y. Filed May 21, 1896. Serial No. 592,423. (No model.)



Claim.—1. A railway-frog having its base and its several rails except the toe formed in one piece, and provided with a separate toe arranged on a base-plate which is secured to the base of the frog, the frog-base having an opening for the passage of said separate toe, substantially as set forth.

2. A railway-frog having its base and its several rails, except the toe, formed from a single plate of sheet metal and provided with a separate toe of solid metal arranged on a base-plate, which is secured to the sheet-metal base of the frog, said sheet-metal base being formed with an opening through which the solid metal toe projects, substantially as set forth.

3. In a railway-frog the combination with a sheet-metal base having the several rails of the frog, except the toe, formed integrally therewith, of a separate solid metal base-plate secured to the under side of said sheet-metal base and provided with the toe of the frog, said toe passing through an opening formed in the sheet-metal base and being provided at its wide end with a recess which receives the adjoining sheet-metal portion of the frog, substantially as set forth.

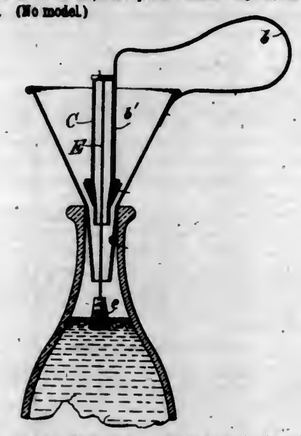
579,648. NUT-LOCK. DOMINICK S. LEGER, Waltham, Mass., assignor of one-half to Isaac White and Frederic White, same place. Filed Dec. 17, 1896. Serial No. 616,058. (No model.)



Claim.—1. In a device of the character described, the combination with a longitudinally and laterally curved resilient nut-lock plate provided with bolt-apertures, of an apertured nut-lock and means for adjustably securing the nut-lock to the nut-lock plate, substantially as specified.

2. In a device of the character described, the combination with a resilient nut-lock plate provided with bolt-apertures and longitudinally and laterally curved, of a nut-lock provided with nut-apertures and with a loop-aperture, a loop projecting from the nut-lock plate and passing through said aperture, and a wedge-shaped pin passing through said loop and designed to adjustably secure the nut-lock plate and the nut-lock, substantially as specified.

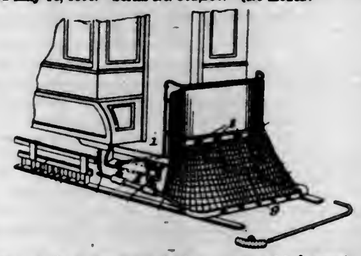
579,649. FUNNEL. ROYER LUCKENBACH, Philadelphia, Pa., assignor to J. W. Mohn, same place. Filed July 24, 1896. Serial No. 600,354. (No model.)



Claim.—1. In a funnel, the combination of a funnel-body having a stem depending therefrom and a tube leading centrally therethrough, said tube connected to a spring-bow which acts as a handle for the funnel, and a valve secured to the said tube and a rod extending through said tube having a float-valve upon the lower end thereof, said float-valve adapted to close the outlet of the funnel-stem, substantially as shown and described.

2. The combination of a funnel comprising a body and a conical stem, and a valve adapted to close the outlet of the funnel-body and a tube extending through the said valve and a spring-bow connected to the said tube for maintaining it in a normally upward position, and a rod depending normally from the upper edge of the said tube, said rod having a float-valve upon the lower end thereof for engagement with the outlet of the funnel-stem, substantially as shown and described.

579,650. CAR-FENDER. CLAUDE P. MAINS, Cleveland, Ohio. Filed May 15, 1896. Serial No. 592,987. (No model.)



Claim.—1. In a street-car fender, outer and inner rods secured to the fender-rail, in combination with sectional rubber cylinders sleeved thereon, and provided with metallic linings, substantially as and for the purpose set forth.

2. In a street-car fender pivotally secured, the combination therewith of a clutch adapted to suspend the fender above the track, and means for automatically releasing the fender, consisting in a depending net in front of the platform and a rod and cone engaging said clutch, substantially as set forth.

3. In combination with a street-car platform, a fender pivotally secured underneath the same, upon adjustable bearings, clutch mechanism adapted to detachably support the fender above the rail, and automatically-operated mechanism for detaching the fender from the clutch, substantially as set forth.

4. In combination with a fender pivotally suspended underneath the car-platform, of a clutch adapted to detachably secure said fender above the rail, a net and frame depending from the front of the platform, and means for releasing the fender when the net or frame is struck by a body on the track, substantially as described.

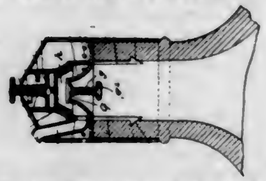
5. In combination with a fender, pivotally suspended from a car-platform and underneath the same, a clutch adapted to detachably support said fender, a net and frame depending from the front of the platform, and a rod secured to said frame, and provided with a conical extremity adapted to engage said clutch, and release the fender therefrom when the said frame or net is struck by a body on the track, substantially as described.

6. In a street-car fender, front and side rods provided with a life-net in combination with cylinders into which said side rods extend, pivotal supports for the cylinders, a detachable clutch engaging the side bars and means for releasing the clutch, a locking-bar for the fender, springs within the cylinders, whereby the fender is thrown forward from the cylinders as soon as the clutch and locking-bar are disengaged, substantially as set forth.

7. In a car-fender, the combination with the front and side rods, of cylinders provided with springs into which the side rods are inserted, a clutch detachably supporting the fender, means for releasing the said clutch and means for locking the fender in the cylinders until the clutch is released, and for locking the same when thrown out, substantially as described.

8. In a street-car-wheel fender, a boat-shaped block, provided with a vertical stem, in combination with means for flexibly supporting the block, consisting of a cross-rod mounted in eyes upon a stationary slotted bar through which the stem projects, springs upon said rod on either side of said stem, and a cross-bar secured to the top of said stem, provided with springs secured to the car-body, substantially as described.

579,651. **BOTTLE.** ADOLPH W. MORITZ, Southfield, N. Y. Filed Apr. 25, 1896. Serial No. 589,134. (No model.)



Claim.—1. The combination with a bottle or other vessel provided with a neck, of a cap or cover comprising a tubular body portion, and a top, said body portion being provided with a partition-plate at or near the middle thereof, the central portion of which is directed upwardly to form a conical extension which is open at the top, a valve adapted to be seated on said conical extension and having a depending rod secured thereto, a weight mounted on the lower end of said rod, and said valve adapted to close the port or opening through said extension, said cover being provided with side ports or openings above said partition-plate, and means for holding the valve in place, substantially as shown and described.

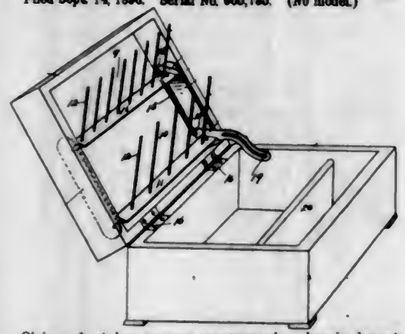
2. The combination with a bottle or other vessel provided with a neck, of a cap or cover comprising a tubular body portion, and a top, said body portion being provided with a partition-plate at or near the middle thereof, the central portion of which is directed upwardly to form a conical extension which is open at the top, a valve adapted to be seated on said conical extension, and to close the port or opening therethrough, said cover being provided with side ports or openings above said partition-plate, and means for holding the valve in place, consisting of a vertically-movable cap which is mounted in the lower end of a central tube which is secured within the cap or cover, and the lower end of which rests upon said partition-plate, and means for operating said vertically-movable cap, substantially as shown and described.

3. The combination with a bottle or other vessel provided with a neck, of a cap or cover comprising a tubular body portion, and a top, said body portion being provided with a partition-plate at or near the middle thereof, the central portion of which is directed upwardly to form a conical extension which is open at the top, a valve adapted to be seated on said conical extension, and to close the port or opening therethrough, said cover being provided with side ports or openings above said partition-plate, and means for holding the valve in place, consisting of a vertically-movable cap which is mounted in the lower end of a central tube which is secured within the cap or cover, and the lower end of which rests upon said partition-plate, and means for operating said vertically-movable cap, consisting of a rod which passes through the top of the cap or cover, and which is connected therewith, substantially as shown and described.

4. The combination with a bottle or other vessel provided with a neck, of a cap or cover comprising a tubular body portion, and a top, said body portion being provided with a partition-plate at or near the middle thereof, the central portion of which is directed upwardly to form a conical extension which is open at the top, a valve adapted to be seated on said conical extension, and to close the port or opening therethrough, said cover being provided with side ports or openings above said partition-plate, and means for holding the valve in place, consisting of a vertically-movable cap which is mounted in the lower end of a central tube which is secured within said cap or cover, and the lower end of which rests upon said partition-plate, and means for operating said vertically-movable cap, consisting of a rod which passes through the top of the cap or cover, and which is connected therewith, and a tube which communicates with the lower end of the central tube, and the end of which extends upwardly and outwardly through the top of the cap or cover, substantially as shown and described.

5. An attachment for the neck of the bottle or other vessel, consisting of a cap or cover, the body portion of which is tubular in form, and provided with a top, said body portion being provided with a partition-plate at or near the middle thereof, the central portion of which is upwardly curved to form a conical extension the upper end of which is open, a valve adapted to close the passage through said conical extension, and provided with a depending weighted rod, a central tube placed within the cap or cover, and secured to the upper side of said partition-plate, a vertically-movable cap placed therein over the valve, and means for operating the same, said central tube being larger at the base than at the upper end, and provided with a tube, which communicates with the lower end thereof, and which passes outwardly through the cap or cover, and said central tube and the body portion of the cap or cover being also perforated, substantially as shown and described.

579,652. **WORK-BOX.** ANTHONY PHERSON, Rochester, N. Y. Filed Sept. 14, 1896. Serial No. 605,735. (No model.)

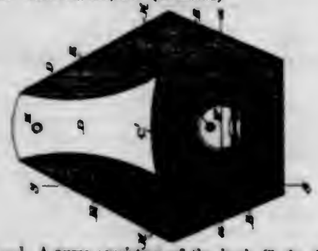


Claim.—1. A box or case constructed as herein described, and provided with a hinged box-shaped cover in which are pivoted spool-racks, said spool-racks being pivotally connected by means of a rod, and one of said racks being provided at the end thereof, with an arm in which is formed a slot, through which projects a pin secured to the end of the box, as and for the purpose set forth.

2. A box or case constructed as herein described, and provided with a hinged box-shaped cover in which are pivoted spool-racks, said spool-racks being pivotally connected by means of a rod, and one of said racks being provided at the end thereof, with an arm in which is formed a slot, through which projects a pin secured to the end of the box, said racks consisting of longitudinal plates provided with pins which project upwardly when the cover is turned back, and which are folded within said cover, when the latter is closed, as and for the purpose set forth.

3. The herein-described work-box comprising a body portion which is rectangular in form, and provided with a hinged cover which is similar in form, said cover being provided with pivoted spool-racks arranged longitudinally thereof, and pivotally connected by means of a rod at one end thereof, and one of said racks being provided with a curved arm in which is formed a curved longitudinal slot, through which projects a pin secured to the adjacent end of the box, substantially as shown and described.

579,653. **PURSE.** HENRY W. PITT, Philadelphia, Pa. Filed Oct. 29, 1896. Serial No. 610,450. (No model.)



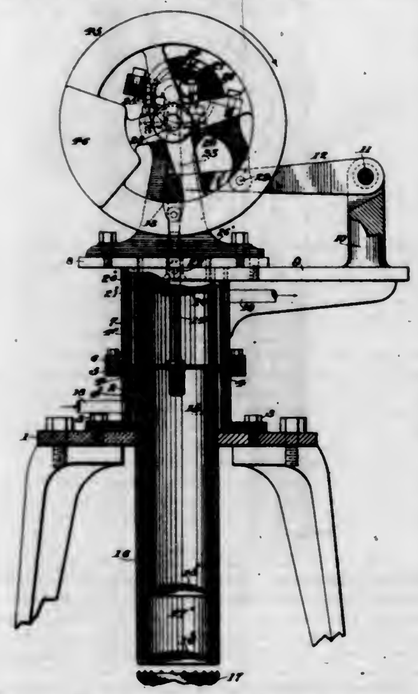
Claim.—1. A purse consisting of the back C, the sides B, the cover D and flaps E on said cover, said flaps E being folded with the tops of the sides B partly over the adjacent portions of the sides B as at K and said cover with said flaps E being adapted to fold on said back C, and side flaps B which are secured together.

2. A purse having a back, sides, cover, and fastening for said cover, said fastening having spurs which are passed through said sides and back and secured thereto.

3. A purse having a back, sides and cover, the same being formed from the blank L, composed of the body M, the wing N, with the score-lines P, Q, R, S, T, and the parts P', Q' and S'.

4. A purse formed of a blank of the shape set forth having the score-lines T, P, R, R, and S, S, as shown forming wing N, the parts P', P', Q', Q', S', S', and L', said part N being adapted to be formed on the part L' forming the back C, the parts P', Q' being folded on the parts L', S', the parts P' forming the side flaps B, and the parts S', Q' being folded on the part L' forming the flaps E, said flaps E' with the upper part of the part L' forming the cover D.

579,654. **HOT-AIR ENGINE.** PAUL ROEDIGER, Philadelphia, Pa. Filed Nov. 27, 1896. Serial No. 613,662. (No model.)

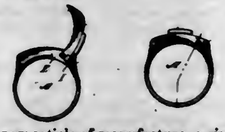


Claim.—1. In a hot-air engine, a crank-shaft suitably supported, an eccentric mounted on the crank thereof, a lever, a fulcrum therefor, an eccentric-strap engaging said eccentric, connections intermediate said strap and lever, a cylinder, a plunger fitting loosely therein, connections intermediate said plunger and lever, a piston movable in said cylinder, and connections from said piston to said crank.

2. In a hot-air engine, a crank-shaft, an eccentric mounted on the crank thereof, a lever suitably fulcrumed, an eccentric-strap mounted on said eccentric, an arm extending from said eccentric-strap, and pivotally attached to said lever, a cylinder having one end open and the other end closed and adapted to be heated, a plunger loosely mounted in said cylinder, a rod attached to said plunger, a link common to the latter and to said lever, a piston mounted in said cylinder above said plunger and connecting-rods having their lower ends attached to said piston and their upper ends engaging said crank adjacent said eccentric, said plunger in its initial movement being impelled downwardly, thus imparting a pull on the lever, and thereby throwing the eccentric over its center.

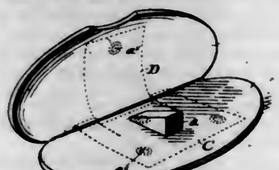
3. In a hot-air engine, a cylinder suitably supported, means for heating the lower portion thereof, a cooling device surrounding the upper portion thereof, a plunger fitting loosely in said cylinder, a piston fitting tightly therein, a crank-shaft suitably supported and having an eccentric mounted on the crank thereof, an eccentric-strap, an arm projecting from the latter, a lever suitably fulcrumed, a pivotal connection common to said arm and lever, a link having one end attached to said lever and its other end to a rod, said rod passing through said piston and being secured to said plunger, and connecting-rods pivotally attached to said piston at one end and having their other ends mounted on said crank.

579,655. **COMBINATION RING AND KNIFE.** WILLIAM H. SALADEE and JAMES CATHER, Bedford, Ind. Filed Oct. 13, 1896. Serial No. 608,713. (No model.)



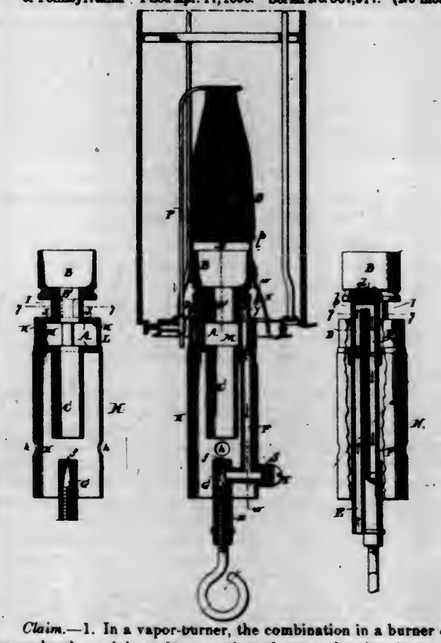
Claim.—As a new article of manufacture, a ring having a groove in the front face thereof, said groove being open at one end and closed at the other by a shoulder, the ring having an opening therein, adjacent to the shoulder and communicating with the groove, a cutting-blade pivoted within the groove adjacent to the shoulder, said cutting-blade having a knob or projection upon the back thereof, and a spring secured to the ring and adapted to pass through the opening and bear upon the end of the cutting-blade, substantially as shown and described.

579,656. **EYEGLASS-CASE.** HARRY F. SANGER, Lima, N. Y., assignor to H. R. Kirstein & Co., Rochester, N. Y. Filed Aug. 3, 1896. Serial No. 601,413. (No model.)



Claim.—An eye glass case composed of two members hinged together by a spring hinge formed with a basal leaf embodying spring-wings and cylindric knuckles, and a cover leaf embodying laterally-projecting flat pins and a straining flange,—substantially as set forth.

579,657. **HYDROCARBON-BURNER.** VICTOR H. SLIBACK, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, of Pennsylvania. Filed Apr. 17, 1896. Serial No. 587,917. (No model.)



Claim.—1. In a vapor-burner, the combination in a burner of a burner-head, a mixing-tube, an enlarged vapor-chamber interposed

between the burner-head and the mixing-tube in direct alinement therewith, a vapor-nozzle below the mixing-tube, a generator connecting with the nozzle and extending up close to the burner-head and above the vapor-chamber, and one or more auxiliary burners opening out of the vapor-chamber upward and toward the burner-head.

2. In a vapor-burner, the combination of a burner comprising a vapor-chamber interposed between a burner-head and a mixing-tube, a vapor-nozzle below the mixing-tube, a generator connecting with the nozzle and extending up close to the burner-head, one or more auxiliary burners opening out of the vapor-chamber below the burner-head and close to the generator, and a removable case or band for the vapor-chamber.

3. In a vapor-burner, the combination of a burner comprising an enlarged vapor-chamber interposed between and in straight alinement with a burner-head and a mixing-tube, a vapor-nozzle below the mixing-tube, a generator connecting with the nozzle and extending up close to the burner-head and to one side of the vapor-chamber, one or more auxiliary burners opening out of the vapor-chamber below the burner-head to heat the air passing outside the same, and a burner-cap surmounting the burner-head.

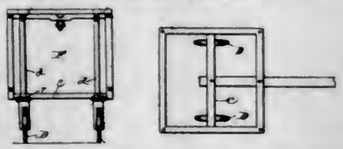
4. In a vapor-burner, the combination of the generator-head consisting of a casting having two disks A connected by a vapor-generator part having flues D *d* D', a case L to surround the generator-head and form the gas-chamber M, a burner-head B opening into the gas-chamber M and connecting therewith by a contracted tubular neck B', one or more auxiliary burners K opening from the chamber M below the head B, a vapor-nozzle arranged below the generator-head A and connecting with the vapor-generator, and a mixing-tube C extending down from the generator-head toward the vapor-nozzle.

5. In a vapor-burner, the combination of a generator-head having at the top an annular upright main-burner rim and at the bottom two disks or flanges forming between them a vapor-chamber, a removable case surrounding and inclosing the two disks or flanges of the generator-head to make a tight vapor-chamber, two auxiliary burners opening from the upper disk at a point below the main burner, a central tube of smaller diameter than the gas-chamber for connecting it with the main-burner head, and means to supply vapor and air to the vapor-chamber.

6. In a vapor-burner, the combination of a main burner, a mixing-tube below the burner, a vapor-chamber of larger diameter than the mixing-tube interposed between it and the main burner and provided on its upper part with one or more auxiliary burners for supplying a flame upward toward the main burner, the said vapor-chamber being in direct alinement with the burner and mixing-tube, a generator extending upward intermediate of the gas-chamber and main burner and adapted to be heated by the auxiliary burner, and a vapor-nozzle connecting with the generator and directed upward from below the mixing-tube.

7. The herein-described means for producing light which consists of a generator for vaporizing a fluid hydrocarbon by heat, means for mixing the vapor while heated with air, flues for dividing the mixed air and vapor unequally whereby the larger portion of the vapor may be burned at the main burner in direct contact with a refractory incandescing substance and the smaller portion of the vapor burned to heat and vaporize the fluid hydrocarbon and also heat the air surrounding the burner, and means for supplying the heated air to the outside of the main burner and refractory incandescing substance simultaneously with the excess of vapor upon the inside thereof.

579,658. BIER. SAMUEL M. TOTTEN, Vermillion, S. D. Filed Sept. 14, 1896. Serial No. 605,807. (No model.)

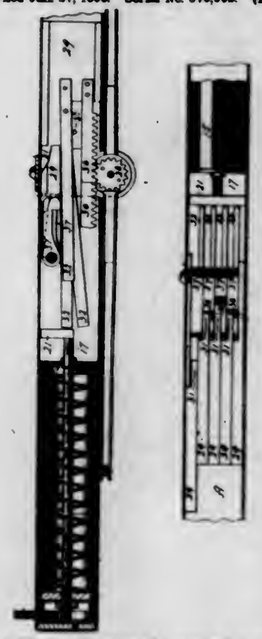


Claim.—1. In an extensible bier the combination of two skeleton wheeled standards that are detachably connected by a single rod, adjustable along its length, each of said standards consisting of a rectangular frame forming a platform and an upright frame centrally secured and suspended at right angles thereto by means of double truss-bars, said upright frame being provided with spaced vertical tie-rods which are extended to form supporting-legs, said legs being rotatably mounted on wheel-forks carrying rollers, the crowns of which are provided with ball-bearing joints, substantially as described.

2. In an extensible bier the combination of two skeleton wheeled standards that are detachably connected by a single rod, adjustable along its length, each of said standards consisting of a rectangular frame forming a platform and an upright frame centrally secured and suspended at right angles thereto by means of double truss-rods, said upright frame being provided with spaced vertical tie-rods which are extended to form supporting-legs, said legs being rotatably mounted on wheel-forks carrying rollers, the crowns of which are provided with ball-bearing joints; and an extensible handle-bar attachment that is slidingly mounted and adjustable longitudinally in one of said standards, substantially as described.

3. In an extensible bier a frame having a rectangular top, a rectangular supporting-frame and a pair of double brace-trusses arranged and rigidly secured in parallelism to form side brackets, and struts forming stationary uprights that are pivotally mounted upon universally-movable wheels or rollers, substantially as described.

579,659. MUSIC-LEAF TURNER. JAMES B. TRACY, Meriden, Conn. Filed Jan. 27, 1896. Serial No. 576,992. (No model.)



Claim.—1. The combination of a series of swinging leaf-turning arms, the slides having cams and push-bars, means for operatively connecting said slides and leaf-turning arms, the swinging blocks each interposed between the cam of one slide and the push-bar of the slide immediately below said cam, and the reciprocating plunger for acting on the push-bars to move said slides, substantially as described and for the purpose specified.

2. The combination of a case, the series of separate swinging leaf-turning arms, a series of separate slides each slide operatively connected with a separate one of the said series of leaf-turning arms, a reciprocating plunger arranged to move always in a given longitudinal line for operating said slides and a pneumatic cylinder for operating said plunger arranged in longitudinal alinement with said series of slides within one end of said case, whereby the acting face of the plunger always moves in the same line and always moves a slide the same distance for a given movement of said plunger whether it acts upon one of the upper or lower slides in the said series substantially as described.

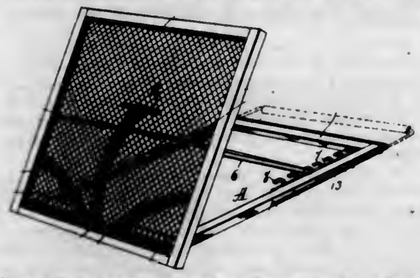
3. The combination of the series of swinging leaf-turning arms, the pinions secured thereto, the slides having cams, racks, and push-bars, the swinging blocks each interposed between the cam of one slide and the push-bar of the slide immediately below said cam, and the reciprocating plunger for acting on the push-bars to move said slides, substantially as described and for the purpose specified.

4. In a music-leaf turner, a series of operating slides having push-bars, a reciprocating plunger for acting on said push-bars to move said slides, and means operated by said slides for forcing all but the upper one of said push-bars out from the path of said plunger, substantially as described and for the purpose specified.

5. In a music-leaf turner, the combination of slides, racks, push-bars and cams, with the reciprocating plunger and swinging blocks for acting in connection with said cams and push-bars, and pins connecting said swinging blocks to necessitate the simultaneous movement with each block of all the blocks below it whenever any block is forced against the push-bar by the individual cam for said block, substantially as described and for the purpose specified.

6. A music-leaf turner consisting of a case, a series of swinging arms, a series of slides within said case, a series of push-bars also within said case, the arms in said series being of such length as to bring their operative ends all in one and the same vertical plane, the cylinder within said case at one end and in longitudinal alinement with said series of slides and in longitudinal alinement with the acting position of said push-bars, the piston, the piston-rod, a plunger carried by said piston-rod and moving in a given vertical plane for acting directly upon the ends of the push-bars of said series and an air-pump for operating said plunger substantially as described.

579,660. BACK AND HEAD REST. JOHN B. WILLIAMSON and ROBERT M. KILLGORE, Louisville, Ky.; said Killgore assignor to said Williamson. Filed Jan. 30, 1896. Serial No. 577,426. (No model.)



Claim.—1. In a back and head rest, the combination with two frames hinged together, of a stop 13 having sliding connection with the sides of one frame, the ends of said stop constructed to spring into holes or notches in the frame with which it has sliding connection whereby the stop may be held at different adjustments relative to the frame, substantially as set forth.

2. In a back and head rest, the combination with a base-frame and a pillow-supporting frame hinged thereto, of a rod or stop covered with soft material at the rear end of the base-frame, arms extending rearwardly from said stop and passing through guides on the base-frame and lugs on the free ends of said arms, adapted to enter sockets in the side bars of the base-frame, substantially as set forth.

3. In a back and head rest, the combination with a pillow-supporting frame, of tapes extending across the lower corners, a tape secured to the end of said frame, centrally between its sides, and a fastening device at the free end of said last-mentioned tape, substantially as set forth.

579,661. ELEVATOR. CHARLES L. WRIGHT, Moline, Ill., assignor of one-half to W. P. Daebelliehn, same place. Filed May 18, 1896. Serial No. 591,961. (No model.)

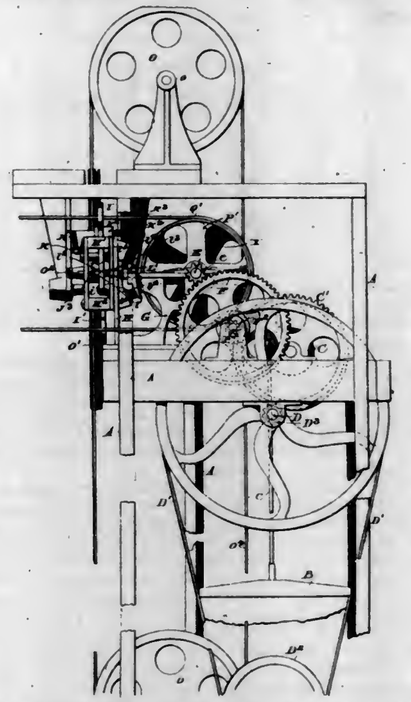
Claim.—1. The combination with the hoisting-drum having a single gear-wheel C, of a pulley-shaft and means for operating the same, a sliding pinion D^3 upon said pulley-shaft to be moved into and out of mesh with said gear-wheel C, devices for locking said pinion D^3 upon said pulley-shaft, an engine-shaft, a transmitting-shaft F' geared to said engine-shaft, a sliding pinion F^2 upon said transmitting-shaft F' to be moved into and out of mesh with said gear-wheel C, and devices for locking said pinion F^2 upon said transmitting-shaft F', substantially as set forth.

2. The combination with the engine-shaft having fast and loose pulleys, of a vertically-disposed flanged plate or casing parallel with said shaft, bowed belt-shifting levers pivoted at their inner ends to said plate and extending at their free ends through slots in the upper and lower flanges respectively to rock toward and from the fixed pulley, studs or pins projecting outwardly from said levers, a reciprocating slide having longitudinal slots provided with oppositely-inclined ends or branches and receiving said studs or pins, said slide having guide-slots for and pins secured to said plate-flanges and situated within said slots for holding the said slide to the plate-flanges, and means for operating the said slide, substantially as set forth.

3. The combination with the engine-shaft having fast and loose pulleys, a spring-retracted brake for said fast pulley, belt-shifting levers, and a reciprocating slide for operating said brake and said belt-shifting levers, substantially as set forth.

4. The combination with the engine-shaft having fast and loose pulleys, a spring-retracted brake for said fast pulley having a stem, belt-shifting levers, and a reciprocating slide for operating said belt-shifting levers having a cam adapted to engage the stem of said brake, substantially as set forth.

5. The combination with the engine-shaft having fast and loose pulleys, of a vertically-disposed plate or casing parallel with said shaft, a spring-retracted brake for the fixed pulley, provided with a transverse stem passing through an aperture in said plate or casing, the oppositely-operating belt-shifting levers mounted on said plate or casing and a slotted slide also mounted on said plate or casing and having a cam on its inner face between its ends to force the brake against the fixed pulley when the slide throws either shifting-lever away from the fixed pulley and to release the brake when either lever is moved toward the fixed pulley and means for operating said slide, substantially as set forth.

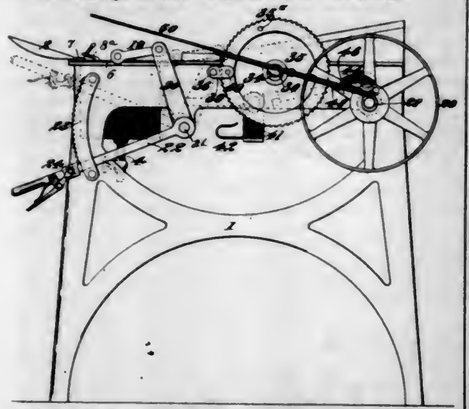


6. The combination with the engine-shaft having fixed and loose pulleys, of a flanged plate or casing parallel with said shaft and having a central transversely-sliding spring-retracted brake movable toward and from the fixed pulley, a slide mounted on said plate or casing, and having a central cam on its inner face to engage the brake-stem and force it toward the fixed pulley, said slide having parallel slots at opposite sides of its center and provided with oppositely-inclined outer ends, belt-shifting levers pivoted at their inner ends adjacent to the center of the plate, curved in opposite directions and projecting through slots in the upper and lower flanges, respectively, of the plate or casing, operating pins or studs on the said levers and projecting into the slide-slots for operation by the inclined ends thereof, substantially as and for the purposes set forth.

7. The combination with the longitudinally-flanged plate or casing having slots in its upper and lower flanges, belt-shifting levers pivoted at their inner ends to said plate bowed outwardly toward the ends of the plate and having extensions projecting through said slots and provided with belt loops or yokes, a reciprocating slide guided on the said flanges and having longitudinal slots receiving pins or studs projecting from said levers; the outer ends of said slots being inclined in opposite directions to effect the rocking of said levers, a central cam on the inner face of the slide, a transversely-sliding brake mounted on the plate or casing in the path of said cam, a notched rib on the slide, a spring-pressed locking-arm mounted in a bearing on said plate and having a depending member to snap into any one of said notches, substantially as and for the purpose set forth.

8. The combination with the engine-shaft having fast and loose pulleys, of the belt-shifting levers, a brake to engage the fixed pulley, an operating-slide connected with said levers at opposite sides of its center and having a central cam to operate the brake, a series of notches on the slide, and a spring-pressed latch or locking-arm to snap into the said notches and hold the slide frictionally at its extremes of movement and at its intermediate position, substantially as set forth.

579,662. STARCHING-MACHINE. JOSEPH E. BRIGHT, St. Louis, Mo. Filed Sept. 14, 1896. Serial No. 605,765. (No model.)



Claim.—1. A starching-machine comprising a starch-box having a suitable cover, and stuffing-boxes, plungers working in the latter, a perforated dasher secured to the plungers, a swinging rack pivoted to the front upper corners of the starch-box, the links having inturned lips connected with the rack and sliding in the dasher; and means for operating the plungers; substantially as described.

2. In a starching-machine, the combination of a starch-box, a rack pivotally supported in said box, a dasher arranged in said box, plungers by which said dasher is carried, a cross-head by which said plungers are carried, means for operating said cross-head, and automatic mechanism arranged to stop said cross-head-operating means on the completion of a predetermined number of strokes of said dasher, substantially as described.

3. In a starching-machine, the combination of a starch-box, a dasher arranged in said box, plungers by which said dasher is carried, a cross-head by which said plungers are carried, means for operating said cross-head, and antomatic mechanism arranged to stop said cross-head-operating means on the completion of a predetermined number of strokes of said dasher, said stop mechanism consisting of a ratchet-wheel provided with a hole, an arm carried by said cross-head arranged to engage the teeth of said ratchet-wheel, a pair of spring-controlled rods, one of said rods carrying an arm having a pin adapted to rest against the side of said ratchet-wheel, and to enter the hole in said ratchet-wheel on the completion of the revolution of said wheel, and a clutch mechanism arranged to be disengaged from the driving mechanism of the machine on said pin entering the hole in said ratchet-wheel, substantially as described.

579,663. VARIABLE-SPEED FRICTIONAL GEAR. NICOLAUS LEIDGEN, Milwaukee, Wis. Filed July 10, 1896. Serial No. 598,719. (No model.)



Claim.—1. In a variable-speed gear, the combination of a drive-shaft provided with frictional wheels, a driven shaft provided with corresponding frictional wheels opposite to the wheels on the drive-shaft, a third shaft on the opposite side of the drive-shaft and provided with a corresponding number of frictional wheels opposite to the wheels on said shaft, and means for moving the wheels on the two outside shafts into and out of contact with the wheels on the drive-shaft, each set independently of the others, substantially as and for the purposes described.

2. In a variable-speed gear, the combination of a drive-shaft provided with frictional wheels, a driven shaft provided with corresponding frictional wheels opposite to the wheels on the drive-shaft, an idler-shaft on the opposite side of the drive-shaft and provided with a corresponding number of frictional wheels opposite to the wheels on said shaft, means for moving the wheels on the driven shaft and the idler-shaft to and from the wheels on the drive-shaft, and a power-transmitting belt connecting the idler-shaft to the driven shaft, substantially as and for the purposes described.

3. In a variable-speed gear, the combination of a drive-shaft provided with frictional wheels, a driven shaft provided with corresponding frictional wheels opposite to the wheels on the drive-shaft, a third shaft on the opposite side of the drive-shaft and provided with a corresponding number of frictional wheels opposite to the wheels on said shaft, bearings for each of said shafts corresponding in number to the number of wheels on the shaft, and adjusting means connecting the bearings of the outside shafts with the corresponding bearings of the drive-shaft for adjusting to and from the wheels on the drive-shaft their corresponding wheels on the other shafts, each set independently of the others, substantially as and for the purposes described.

4. In a variable-speed gear, the combination of a drive-shaft provided with frictional wheels, a driven shaft provided with corresponding frictional wheels opposite to the wheels on the drive-shaft, a third shaft on the opposite side of the drive-shaft and provided with a corresponding number of frictional wheels opposite to the wheels on said shaft, bearings for each of said shafts corresponding in number to the number of wheels on the shaft, screw-shafts having right and left threads and connecting the bearings of the outside shafts with the corresponding bearings of the drive-shaft, and means for turning said screw-shafts to adjust to and from the wheels on the drive-shaft their corresponding wheels on the other shafts, each set independently of the others, substantially as and for the purposes described.

5. In a frictional speed-gear, the combination of a drive-shaft provided with a frictional wheel, a driven shaft provided with a corresponding frictional wheel, a third shaft on the opposite side of the drive-shaft and provided with a corresponding frictional wheel, means for moving the wheels on the outside shafts to and from contact with the wheel on the drive-shaft, and a reversing device consisting of an oscillating arm carrying frictional wheels to contact with the friction-wheel on the drive-shaft and adapted to be thrown into contact with the frictional wheels on the outside shafts when the drive-shaft wheel is out of contact with the wheels on said shafts for the purpose of reversing the speed-gear, substantially as and for the purposes described.

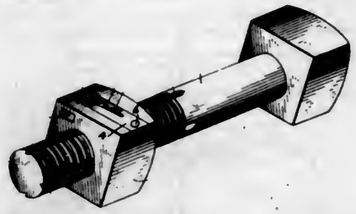
579,664. STEERING ATTACHMENT FOR BICYCLES. ROBERT R. MCCONLEY, Whitcomb, Wis. Filed Mar. 20, 1896. Serial No. 584,136. (No model.)



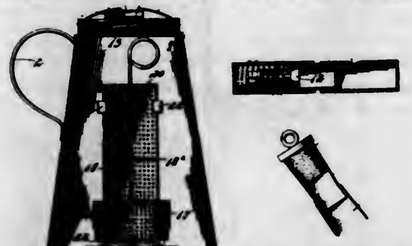
Claim.—In a bicycle, a plate secured fast to the head-tube of the machine, in combination with an opposing plate slidingly mounted on the stem of the steering apparatus, a clip fast on said stem and provided with lateral perforated ears, rods or stems connected to the sliding plate and passing through said ears, springs interposed between said ears and the headed ends of said rods or stems and serving to normally uphold the sliding plate, and a lever fulcrumed on said stem and adapted to operate against the sliding plate for forcing the same against the stationary plate, on the machine-frame, substantially as described.

579,665. NUT-LOCK. JOHN D. SOWERS and JOHN W. GENTRY, Pocahontas, Va. Filed Sept. 17, 1896. Serial No. 606,163. (No model.)

Claim.—In a nut-lock, the combination of a bolt provided with longitudinal grooves, a nut provided at one of its faces with a recess and having a keyhole extending inward from its outer face and communicating with the said recess, said nut being provided at a point intermediate of the ends of the recess with an opening communicating with its bolt-opening, a flat spring secured at one end to the nut in the recess thereof and having its free end arranged adjacent to said keyhole and adapted to be engaged by a removable key, said spring being provided with an integral tongue formed by splitting it longitudinally and arranged to engage the grooves of the bolt, substantially as described.



579,666. COFFEE OR TEA POT. NEWTON J. WIGGINTON, Winchester, Va. Filed Sept. 21, 1896. Serial No. 606,557. (No model.)



Claim.—1. The combination of a coffee-pot provided in its cover with an opening, a substantially horizontally-disposed whistle mounted on the inner face of the cover and having an opening located at the opening of the cover, an outwardly-acting spring-controlled valve mounted on the whistle and arranged within the coffee-pot, and a tubular filter detachably mounted at the valve of the whistle to prevent the same or its spring from becoming clogged with coffee-grounds, substantially as described.

2. The combination of a coffee-pot provided on the inner face of its cover with opposite flanges, a substantially horizontally-disposed whistle mounted on the inner face of the cover of the pot, provided with an exteriorly-arranged opening and having a valve-seat, an outwardly-acting valve arranged on the valve-seat and provided with a threaded stem, a spring arrahged on the threaded stem and controlling the valve, a nut engaging the threaded stem to regulate the tension of the spring, and a tubular filter covering the spring of the valve and provided with laterally-extending lugs interlocked with the flanges of the cover, substantially as described.

3. The combination of a coffee-pot provided in its cover with an opening, and a substantially horizontally-disposed whistle located entirely within the coffee-pot, mounted on the inner face of the cover and having an opening located at the opening of the cover, said whistle being provided with an outwardly-acting spring-controlled valve, substantially as and for the purpose described.

579,667. CAR-CHOCK. CHRIS WILHELMSEN, Jackson, Miss. Filed Dec. 31, 1896. Serial No. 617,628. (No model.)



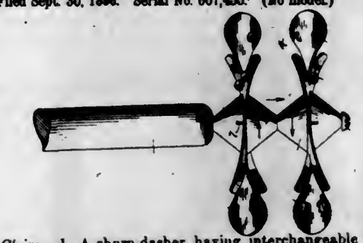
Claim.—1. A car-checking device of the character specified consisting of the supporting-frame; an inclined extension secured to said frame and designed to receive the tread of the wheel; two pairs of jaws, so mounted upon said frame that they will utilize the tread of the wheel to simultaneously grip the wheel and the track-rail, substantially as described and for the purpose set forth.

2. In a car-chock the combination with the track-rail of jaws mounted on said rail so that the upper end of one pair will grip the wheel while the lower end of the other pair will grip the track-rail as the wheel is entered between them, as and for the purpose set forth.

3. As an improvement in car-chocks, the combination with the track-rail of a framework designed to rest thereon: two pairs of jaws pivotally mounted upon said framework and designed to simultaneously grip the wheel and the rail, substantially as described and for the purpose set forth.

4. A car-chock of the character specified having two pairs of pivoted jaws, one pair being provided with an inwardly-extending lip designed to receive the tread of the wheel, while the other pair is provided with beveled faces adapted to utilize the movement of the wheel and grip by their lower ends the track-rail and means for holding said first pair of jaws in an open position for the reception of the wheel, substantially as described and for the purpose set forth.

579,668. CHURN-DASHER. CHARLES WILSON, Campbell, Mo. Filed Sept. 30, 1896. Serial No. 607,455. (No model.)



Claim.—1. A churn-dasher having interchangeable contiguous coaxial rotary blades provided with radial wings deflected respectively in opposite directions to cause rotation in opposite directions, each wing being provided with openings and with contiguous ears arranged approximately perpendicular to the plane of the wing, the ears of the upper blade extending upwardly and of the lower blade downwardly, substantially as specified.

2. A churn-dasher having a staff provided with a reduced extension or spindle forming a journal, rotary blades mounted coaxially upon said journal and having contiguous hubs and radial wings, the wings of the blades being deflected respectively in opposite directions, to rotate the blades in opposite directions, and each having a plurality of upstruck approximately perpendicular ears arranged respectively contiguous to the openings from which they are upstruck and in front of said openings upon the downstroke, to form a partial vacuum contiguous to each opening, substantially as specified.

3. A churn-dasher having a staff provided with a reduced terminal spindle, rotary blades mounted coaxially upon said spindle and each provided with double conical hubs extending upon opposite sides of the planes of the wings, the hub of each blade being tapered from the plane of its wings toward its outer extremities, and the contiguous reduced extremities of the coaxial blades being in contact, whereby liquid is deflected outwardly into the paths of the blades, substantially as specified.

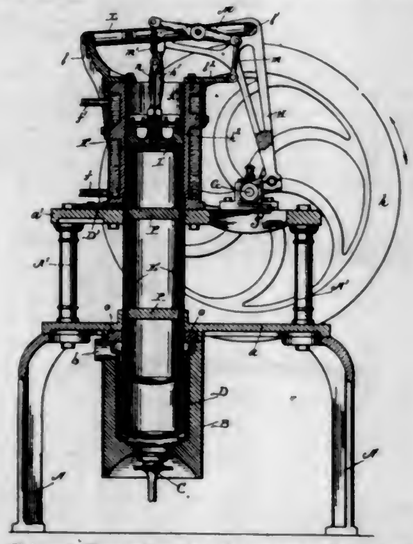
579,669. SPRING BED-BOTTOM. DANIEL D. WYMAN, Chicago, Ill. Filed Jan. 22, 1897. Serial No. 620,245. (No model.)



Claim.—1. A bed-bottom consisting of longitudinal and transverse bars and springs of varying or graduated tension supported on the transverse bars, the springs of greatest tension being in approximately the longitudinal center of the bottom and the side longitudinal bars severed at opposite angles between two rows of springs, said rows of springs being connected by ties or fastenings forming a hinge, whereby the bottom may be folded and the side bars secured against lateral displacement when extended, as described.

2. A bed-bottom consisting of longitudinal and transverse bars and springs supported thereon, and provided with a head-rest pivotally secured to the side bars of the bottom, the intermediate longitudinal bars extending under the head-rest and intermediate bars of the head-rest having transverse pins at their lower end resting upon said bars of the bottom, in combination with the hooks E constructed as described, ratchet-plates and a tripping-cord substantially as set forth.

579,670. HOT-AIR ENGINE. CHARLES A. ANDERSON and ERICK A. ERICKSON, Chicago, Ill. Filed May 11, 1896. Serial No. 591,018. (No model.)

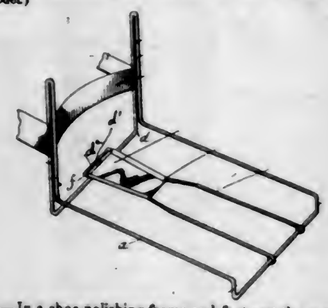


Claim.—1. The combination with a supporting-frame, of an air-cylinder mounted thereon, an apparatus to heat the cylinder at its lower part, and a device to cool its upper portion, a plunger located in the cylinder, a piston-head located in the air-cylinder above the plunger, a main shaft journaled on the supporting-frame, a bell-crank connected to said shaft and to the piston-head, a lever pivoted at one of its ends to the bell-crank and at its other end to a fixed support, a walking-beam fulcrumed on said lever and pivotally connected at one of its ends to the plunger and at its other end to a fixed support, substantially as described.

2. A compound mechanical movement comprising a bell-crank lever, a main shaft, a crank uniting the shaft and one end of said lever, a pivoted connection at its other end, the lever L, fulcrumed at one of its ends to the bell-crank lever and pivoted at its other end to a fixed support, a walking-beam fulcrumed on the lever L, and having one of its ends pivotally connected to a fixed support and its other end connected to a movable object, substantially as described.

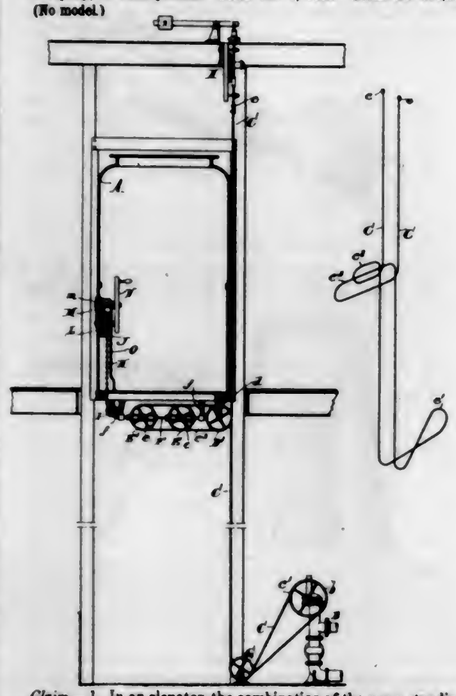
3. In a hot-air engine, the combination of an air-cylinder, with a plunger and a piston-head located in said cylinder, a main shaft journaled on the supporting-frame, a bell-crank connected to said shaft and to the piston-head, a lever pivoted at one of its ends to the bell-crank, and at its other end to a fixed support, a walking-beam fulcrumed on said lever and pivotally connected at one of its ends to the plunger and at its other end to a fixed support, substantially as described.

579,671. SHOE-POLISHING FRAME AND FOOT-REST. CHAS. W. BALDWIN, Columbus, Ohio. Filed June 22, 1896. Serial No. 596,378. (No model.)



Claim.—In a shoe-polishing frame and foot-rest the combination with the oblong frame a having vertical guides at each of its rear corners as described and a central longitudinally-arranged frame portion bridging the ends of said oblong frame substantially as and for the purpose specified.

579,672. ELEVATOR. FRANCIS A. BATES and WILLIAM J. GREENHOUGH, Philadelphia, Pa., assignors to the Morse Williams & Company, of Pennsylvania. Filed Oct. 8, 1896. Serial No. 608,236. (No model.)



Claim.—1. In an elevator, the combination of the car, a standing control-cable, fixed pulleys on the car about which the cable passes, pulleys about which the control-cable passes in loops located on the car on horizontally-movable bearings, a hand-operated device on the car, and power-transmitting connections between the hand-operated device and the movable bearings, whereby the said bearings may be moved horizontally to move the pulleys carried by them and operate the control-cable.

2. In an elevator, the combination of the car, the control-cable, devices located on a horizontal portion of the framework outside of the car for moving the control-cable, a hand-operated device within the car, power-transmitting connections between the hand-operated device and the devices located outside of the car for moving the control-cable, located within the car, and an inclosing case O covering said power-transmitting connections.

3. In an elevator the combination of the car, the control-cable, devices located on a horizontal portion of the framework outside of the car for moving the control-cable, a hollow casing O located within the car, a hand-operated device carried by the casing O, and power-transmitting connections between the hand-operated device and the devices located outside of the car, contained within the casing O and extending through the framework of the car.

4. In an elevator, the combination of the car, the control-cable, devices located on a horizontal portion of the framework outside of the car for moving the control-cable, a hollow casing O located within the car, a gear-wheel journaled within the casing O, a chain-wheel carried by the gear-wheel, a chain contained within the casing, passing about the chain-wheel extending through a horizontal portion of the framework of the car and connected directly with the devices on the outside thereof for moving the control-cable, a hand-operated device journaled in the casing O and a pinion within the casing carried by the hand-operating device and engaging the gear-wheel.

5. In an elevator, the combination of the car, the control-cable, pulleys D, D', carried by the car in stationary bearings about which the control-cable passes, horizontal guides F, F, on the car, slide-frames *e*, *e*, carried by the guides F, F, pulleys E, E', carried by the slide-frames *e*, *e*, about which the cable passes in loops, a hand-operated device within the car and power-transmitting connections between the hand operated device and the slides *e*, *e*, whereby the slides *e*, *e*, and their pulleys E, E', may be moved to effect the movement of the control-cable.

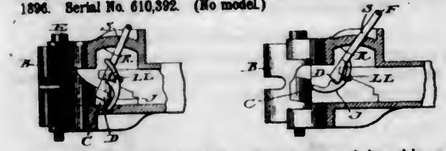
6. In an elevator, the combination of the car, the control-cable, pulleys D, D', carried by the car in stationary bearings about which the control-cable passes, horizontal guides F, F, on the car, slide-frames *e*, *e*, carried by the guides F, F, pulleys E, E', carried by the slide-frames *e*, *e*, about which the cable passes in loops, guides I, I, on the car, the chain-wheel J carried by the car, the chain K passing about the chain-wheel J and guides I, I, and connected directly with the slide-frames *e*, *e*, and means on the car for turning the chain-wheel J.

579,673. RIM-JOINT FOR VEHICLE-WHEELS. EDWARD B. DAKE, Muskegon, Mich., assignor to Horace Alvord, Painesville, Ohio. Filed Aug. 3, 1895. Serial No. 558,104. (No model.)



Claim.—A wheel felly having interlocking ends, each end being provided with a series of parallel projections separated by interspaces, the extremity of the projections of each end being beveled alternately in opposite directions and the rear walls of the interspaces of each end being beveled alternately in opposite directions to correspond with these engaging projections.

579,674. CAR-COUPLING. HENRY GALLAGER, Savannah, Ga., assignor of one-half to John J. McDonough, same place. Filed Oct. 28, 1896. Serial No. 610,392. (No model.)



Claim.—The combination of a draw-head and knuckle, said knuckle having a tongue, and a locking-block with a twin lever pivotally controlled by means of trunnions on its sides, the said trunnions rotating in perforations on the inner side wall of draw-head A, the upper faces of the lever J being in engagement with the rear shoulders of the locking-block, the inner foot of the twin lever adapted to bear against the rear end of the tongue of the knuckle and cause the knuckle to rotate outward whenever the locking-block is raised and pressed against the upper arms of the twin lever, the opposite foot of said twin lever being provided on its face with a projection, adapted to support the locking-block, when said locking-block is in a raised position, substantially as set forth.

579,675. DEVICE FOR PLACING OR REMOVING PICTURE OR SIMILAR HOOKS, &c. MARY W. GLOVER, Newton, Mass. Filed Dec. 23, 1896. Serial No. 616,789. (No model.)

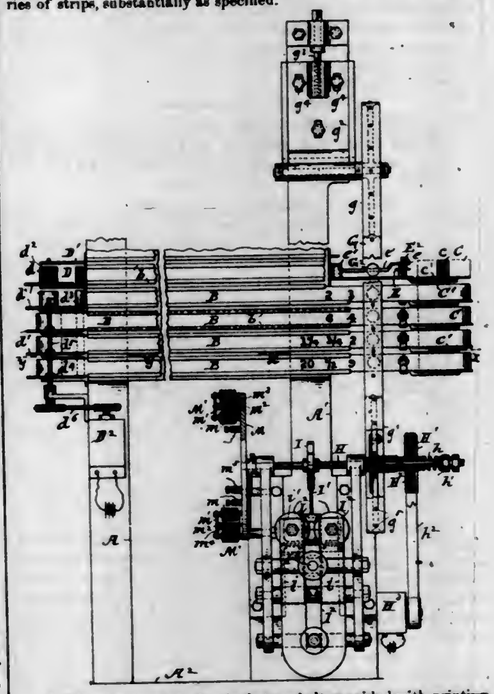


Claim.—1. A device for placing and removing picture and similar hooks, having the base *a*, the front section a^3, the relatively wide inclined back a^4 and the wings a^6 a^7 and means for attaching it to the end of a pole.

2. A device comprising the long base-section *a* and back a^4, the curved front a^3, the inclined back a^5 and wings a^6, a^7, the curved arms C, C' extending from the ends of the base-section and back as specified and integral therewith, and recesses D in their outer ends and means for securing the device to a pole or other support.

579,676. STOCK-PRINTER. FRANK A. GRAHAM, New York, N. Y., assignor to James D. Stevens, same place. Filed Mar. 11, 1896. Serial No. 582,722. (No model.)

Claim.—1. The combination of a single belt provided with printing-characters, of a series of paper strips, and electromagnetic mechanism for causing an impression to be made upon any one of the series of strips, substantially as specified.



2. The combination of a single type-belt provided with printing-characters, a series of paper strips, and electromagnetic mechanism for controlling the movement of the type-belt, whereby the different characters may be brought in juxtaposition to any one of the series of strips, substantially as described.

3. The combination of a single type-belt provided with printing-characters, a series of paper strips, electromagnetic mechanism for controlling the movement of the type-belt, whereby the different characters may be brought in juxtaposition to any of the series of strips, and means for moving the strips, substantially as described.

4. The combination of a single type-belt provided with printing-characters, a series of paper strips movable transversely to the direction of movement of the type-belt, and means for causing impressions to be made upon the strips, substantially as described.

5. The combination of a single type-belt provided with printing-characters, a series of paper strips, means for bringing the belt to a zero position with relation to each strip, and mechanism for bringing any character upon the belt in juxtaposition to said strips, and means for transferring an impression thereto, substantially as described.

6. The combination of an adjustable type-belt provided with printing-characters, supports for a number of paper strips, means for bringing the belt at will to a zero position relatively to any one of said strips, and mechanism for bringing any characters upon the belt in juxtaposition to the aforementioned strip and for transferring an impression thereto, substantially as specified.

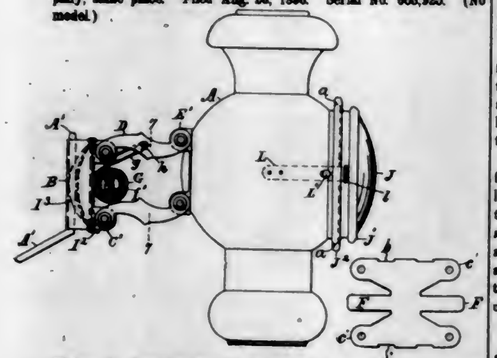
7. The combination of an adjustable type-carrier, a series of paper strips, an electromagnetic mechanism comprising a locking-pin for determining the zero or initial position of the carrier, and means for adjusting the carrier with relation to any desired strip, substantially as described.

8. The combination of an adjustable type-carrier, a series of paper strips, an electromagnetic mechanism comprising a locking-pin for determining the zero or initial position of the carrier, an escapement for allowing the type-carrier to move to a desired position with relation to any strip, and a series of keys controlling the movement of the escapement, substantially as described.

9. The combination of supports for a number of paper strips or ribbons, a type-belt movable across said strips or ribbons, electromagnetic mechanisms for causing the printing of the characters on said belt upon said strips, electromagnetic mechanisms for determining the initial positions of the belt relatively to said strips or ribbons, and mechanism for moving the belt to any desired position, substantially as specified.

10. The combination of a type-belt, supports for a number of paper strips or ribbons, a circuit-changing device, a number of electric circuits extending therefrom, mechanism for determining the initial or zero positions of said belt relatively to any of said strips or ribbons, and which is controlled by said circuit-changing device, mechanism also operated from said circuit-changing device for causing the types upon the belt to print upon the strips or ribbons, and an escapement for permitting the type-belt to move to a desired position, substantially as specified.

579,677. SPRING-BRACKET FOR BICYCLE-LAMPS. GEORGE HAVELL, Newark, N. J., assignor to the Havell Manufacturing Company, same place. Filed Aug. 26, 1896. Serial No. 603,925. (No model.)



Claim.—1. A spring-bracket for bicycle-lamps, having a socket adapted for connection with the bicycle, such bracket comprising the said socket and the tie-plate E provided each with lugs and having the links D jointed thereto, and the socket being provided with one or more arms *f* having each a pocket at the end, and one or more clock-springs having each its inner end secured in said pocket and its outer end applied to raise the tie-plate, substantially as herein set forth.

2. The spring-bracket for bicycle-lamps, comprising the socket B and tie-plate E provided each with lugs and having the links D jointed thereto, the tie-bar *h* connecting one pair of links, the arms *f* attached to the socket between its edges and bent to form pockets *f'* upon their outer sides, as set forth, and the clock-springs G having their outer ends applied to the tie-bar *h*, and their inner ends secured in the pockets *f'* with the coils of the springs at the side of the arms *f*, as and for the purpose set forth.

3. The spring-bracket for bicycle-lamps, comprising a tubular sheet-metal socket B having the lugs B' upon its upper and lower edges, a foot-plate fitted to the inner side of the socket and secured thereon by bending the said lugs over upon its inner face, links suitably jointed to such foot-plate and a clock-spring mounted thereon with its outer end applied to the links to press the same normally upward, substantially as herein set forth.

4. The spring-bracket for bicycle-lamps, comprising the socket B formed with lugs B', the foot-plate C formed with notches *b'* and secured to the socket by the lugs B', as set forth, the hinge-lugs C' and arms *f* projected from the foot-plate, and the arms *f* bent to form pockets, as set forth, links jointed to the lugs C', a tie-bar between two of the links, and clock-springs having their inner ends secured to the pockets and their outer ends applied to the tie-bar, as and for the purpose set forth.

5. The spring-bracket for bicycle-lamps, comprising the socket B and tie-plate E provided each with lugs and having the links D jointed thereto, the tie-bar *h* connecting one pair of links, the arm *f* projected inward from the socket and bent to form pocket *f'*, and the clock-spring G having its inner end secured in such pocket and its outer end looped over such tie-bar to form a slotted connection therewith, and embrace the tie-bar in different positions of the links, substantially as herein set forth.

6. A blank for a foot-plate for a spring-bracket for bicycle-lamps, shaped substantially as shown in Fig. 8, with ears *c'* upon the corners adapted when bent to form hinge-lugs C', and having notches *b'* in the upper and lower edges adapted to receive lugs upon the bracket-socket, and an indentation formed in the middle of each side, with lugs F extended therefrom and adapted, when bent to form supports for clock-springs, substantially as herein set forth.

7. A foot-plate for attachment to the socket of a spring-bracket for bicycle-lamps, and provided at the corners with the bent hinge-lugs C' and having indentations in the middle of each side with the arms *f* projected upwardly therefrom, and reversely bent in opposite directions to produce pockets *f'* open toward the edges of the foot-plate, the lugs C' being adapted to receive the links of the bracket, and the pockets *f'* being adapted to receive the coil of a clock-spring to operate upon said links, as and for the purpose set forth.

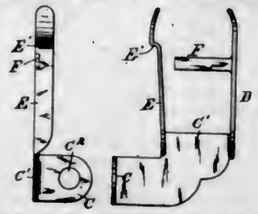
8. In a spring-bracket for bicycle-lamps, the combination, with the flat tubular socket B, of an elliptic spring secured within the socket by projections at its opposite ends adapted to engage the ends of the socket upon one side and to retain it automatically within the socket, and to permit its removal therefrom and reinsertion therein, as and for the purpose set forth.

9. In a spring-bracket for bicycle-lamps, the combination, with the flat tubular socket B, of the detachable elliptic spring I provided at one end with the vertical hook I' adapted to embrace one edge of the socket and at the other end with the transverse ear I^3 adapted normally to engage the opposite end of the socket, and to be crowded through the socket, when required, to remove the spring for recurving, substantially as herein set forth.

10. The combination, with a bicycle-lamp body having upon the front the annular bead *a*, of the lens-ring formed with socket to fit the bead, with tongue K adapted to engage the body behind the bead, and with the slot *l*, as set forth, and the spring L attached to the lamp-body and provided with an end to engage the slot *l*, as and for the purpose set forth.

11. The combination, with a bicycle-lamp body having upon the front the annular bead *a*, with slot K' formed behind the bead, the lens-ring formed with socket to fit the bead, and provided with the tongue K to fit the slot K', and upon the opposite side with the slot *l*, as set forth, and the leaf-spring L secured at one end within the body and provided at the outer end with the hook L^3 to engage the slot *l*, and the tubular stud L' provided with tongues *l'* for attachment to the spring, and formed with a head upon its outer end to limit the flexure of the spring, substantially as herein set forth.

579,678. BRACKET WITH SPRING-JAW FOR SUPPORTING BICYCLE-LAMPS. GEORGE HAVELL and ALFRED G. WILLIAMS, Newark, N. J. Filed Oct. 24, 1896. Serial No. 609,978. (No model.)



Claim.—1. A bicycle-lamp bracket having a foot-piece C' with two flat jaws D and E adapted to pass through the lamp-socket at opposite edges, the flat bodies of such jaws being bent at right angles to the plane of the foot-piece, so as to spring to and from one another elastically in the direction of their thickness and one of the jaws being bent in the direction of its thickness to provide an offset E', to engage the edge of the socket after passing through the same, substantially as herein set forth.

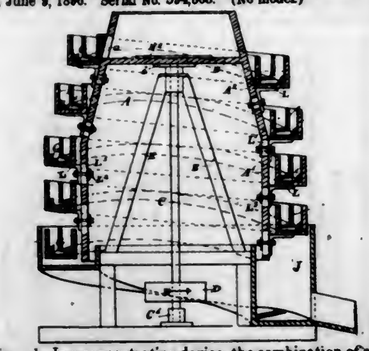
2. A bicycle-lamp bracket having a foot-piece C' with two flat jaws D and E adapted to pass through the lamp-socket at opposite edges, the flat bodies of such jaws being bent at right angles to the plane of the foot-piece, so as to spring to and from one another elastically in the direction of their thickness and one of the jaws being bent in the direction of its thickness to form an offset E' to engage the edge of the socket after passing through the same, and one of the jaws having the stud F projected toward the other jaw to limit the inward movement of the jaws, substantially as herein set forth.

3. A bicycle-lamp bracket made of sheet metal in one piece, and having a foot-piece C' with two flat jaws D and E adapted to pass through the lamp-socket at opposite edges, such jaws being bent at right angles to the plane of the foot-piece, so as to spring to and from one another elastically in the direction of their thickness, one of the jaws being bent in the direction of its thickness to form an offset E' to engage the edge of the socket after passing through the same, and one of the jaws having the integral stud F projected toward the other jaw to limit the inward movement of the jaws, substantially as herein set forth.

4. A bicycle-lamp bracket formed in one piece of sheet metal with foot-piece C' having foot C bent at one edge, and provided with the hole C^2, and having the jaws D and E bent at right angles to the foot-piece and curved or bent inwardly at their free ends, as and for the purpose set forth.

5. A bicycle-lamp bracket formed in one piece of sheet metal with foot-piece C' having foot C bent at one edge and provided with the hole C^2, and having the jaws D and E bent at right angles to the foot-piece with their outer ends bent or curved inwardly and the jaw E provided with the offset E', as and for the purpose set forth.

579,679. CONCENTRATOR. CLARENCE A. HOLMES, Seattle, Wash. Filed June 9, 1896. Serial No. 594,865. (No model.)



Claim.—1. In a concentrating device, the combination of a spiral flume having a downward incline from end to end, and means for rotating it about its central axis in a direction opposite the flow of water therein, and means in said flume for arresting and holding the metallic particles, substantially as shown and described.

2. In a concentrating device, the combination of a spiral flume having a downward incline from end to end, and means for rotating it about its central axis opposite the flow of water therein, and riffles upon the bottom and sides of said flume, substantially as shown and described.

3. In a concentrating device, the combination of a vertical cylinder arranged to revolve about its axis, with a spiral flume attached to the outside of said cylinder and having a downward incline from end to end, means for revolving the same in a direction opposite the flow of water in the flume and riffles and amalgamating-plates on the sides and bottom of said flume, substantially as shown and described.

4. In a concentrating device the combination of a vertical cylinder having a hopper or box formed in its upper end, and a side discharge-opening therefrom, with a flume connected with said discharge-opening and extending spirally about said cylinder, riffles and amalgamating-plates on the sides and bottom of said flume, and means for rotating said cylinder opposite the flow of water in the flume, substantially as shown and described.

5. In a concentrating device, the combination of a spiral flume having an incline from one end to the other, means for adjusting the amount of this incline, and means for rotating said flume in a direction opposite the flow of water therein, and means for arresting and holding the metal particles therein, substantially as shown and described.

6. In a concentrating device the combination with a vertical cylinder having a head or partition near the upper end and a side discharge-opening just above the partition, a vertical shaft fixed centrally to the under side of the partition and means for supporting and revolving the same, of a flume surrounding the cylinder or cone, on a descending spiral and having its upper end connected to the side discharge-opening in the upper end of the cylinder, substantially as shown and described.

579,680. LITHOGRAPHIC STONE. FERDINAND J. KALLENBACH, Brooklyn, N. Y. Filed Feb. 11, 1897. Serial No. 622,979. (No model.)



Claim.—1. A composite lithographic stone, consisting of two or more lithographic stones so fitted together at their meeting edges that the joint will not show up in printing and suitable means for holding the said stones with their edges in such contact, whereby an increased and a substantially continuous printing-surface is secured.

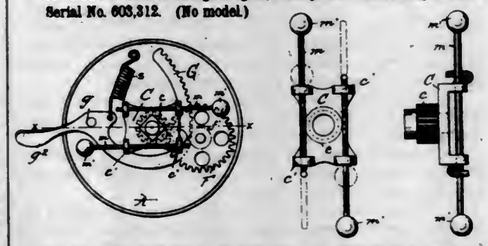
2. A composite lithographic stone, consisting of two or more lithographic stones so fitted together at their meeting edges that the joint will not show up in printing, and a slate backing on which said stones are secured, said backing serving to hold the stones with their edges in such contact, whereby an increased and a substantially continuous printing-surface is secured.

3. A composite lithographic stone, consisting of two or more lithographic stones so fitted and cemented together at their meeting edges that the joint will not show up in printing, and suitable means for holding the said stones with their edges in such contact, whereby an increased and a substantially continuous printing-surface is secured.

4. A composite lithographic stone consisting of a plurality of minor composite lithographic stones, each with a backing-slab, the said minor composite stones being so fitted and cemented together at their meeting edges that the joints will not show up in printing, and an auxiliary backing on which said minor composite stones are mounted and cemented.

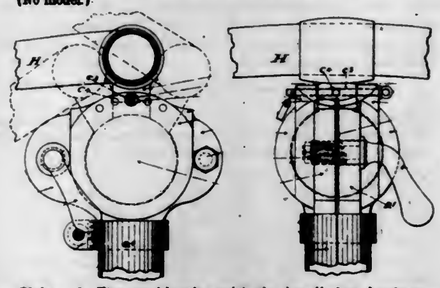
5. A composite lithographic stone, consisting of two or more lithographic stones so fitted together at their meeting edges that the joint will not show up in printing, and a backing on which said stones are secured, the stones being cemented together at said meeting edges by a cement which will resist the etching acid to substantially the same extent as the lithographic stone.

579,681. BELL. JOSEPH F. MCCONNELL, Reading, Pa., assignor of one-half to John George Ziegler, same place. Filed Aug. 20, 1896. Serial No. 603,312. (No model.)



Claim.—In a bell mechanism the combination of the gong with the train of gears G, *f'*, F, the striker-carriage C formed with a pinion c on its under side and with lugs *c'* at each of its four corners, a pair of strikers *m* with balls *m'* on their outer ends, loosely mounted in said lugs and adapted to move outwardly, in opposite directions, by the centrifugal force imparted thereto by the rotation of said carriage, on a line at right angles to the axis of the pin on which said carriage revolves, and adapted to strike a lip A' in the gong at each revolution of the carriage, substantially as set forth.

579,682. MEANS FOR ADJUSTING HANDLE-BARS OF BICYCLES. WILLIAM PENBERTHY, Denver, Colo., assignor of one-half to Thomas C. Johns, same place. Filed May 25, 1896. Serial No. 592,973. (No model.)



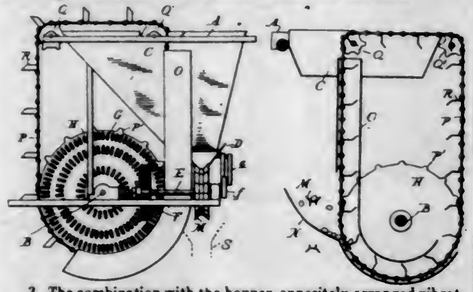
Claim.—1. The combination with the handle-bar having a depending apertured neck terminating in a ball, the twin socket parts inclosing the ball and terminating in a stem adapted to be connected with the post of the front fork, suitable bolts connecting the socket parts, each of said parts being provided with a number of apertures adapted to register with the aperture in the neck and a locking-pin adapted to be inserted in the aperture of the neck and socket parts substantially as described.

2. The combination with the handle-bar having a depending apertured neck terminating in a ball, the twin socket parts inclosing the ball and terminating in a stem adapted to be connected with the post of the front fork, suitable bolts connecting the socket parts, one of said bolts being provided with a crank, the socket parts being each provided with a number of apertures adapted to register with the aperture in the neck, a locking-pin adapted to pass through the registering apertures in the neck and socket parts, and a suitable lock applied to one extremity of the pin substantially as described.

579,683. PLANTER. JOHN W. ROGNER, Waltz, Mich. Filed Apr. 23, 1896. Serial No. 588,785. (No model.)

Claim.—1. The combination with a hopper, of plates on opposite sides of its discharge end, and a feed-chain between said plates formed of trough-shaped links which form an uninterrupted trough-shaped bottom for the hopper.

2. The combination with the hopper, the oppositely-arranged vibrating throat-plates, and a feed-chain between the plates.



3. The combination with the hopper, oppositely-arranged vibrating throat-plates, extended toform a trough, and a feed-chain having trough-shaped links, running between the throat-plates.

4. The combination with the hopper, of the oppositely-arranged throat-plates D at the discharge, the supporting-links c and the connecting actuating-cranks *a* for actuating said plates.

5. The combination with a hopper, a feed therefrom, devices for selecting a desired quantity of the seed, and devices for conveying the surplus back to the seed-hopper.

6. The combination with a hopper, an endless seed-feed at the discharge thereof, a second hopper beside said feed, into which any surplus feed falls, and means for delivering seed therefrom into the main hopper.

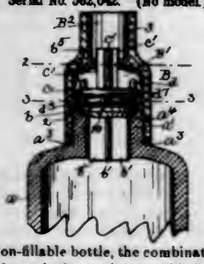
7. The combination of an elevator-chain, means for driving the same, and buckets carried by and located at the side of the chain ont of the plane of movement of the latter.

8. The combination with the sprocket-wheels, of a chain thereon, buckets secured to and located on one side of the chain, out of the plane of movement of the latter and a hopper across which the horizontal portion of the chain passes.

9. The combination with the hopper, the horizontal seed-chain leading therefrom, a second hopper beside the seed-chain into which the surplus seed falls, and an elevator for returning such surplus to the main hopper.

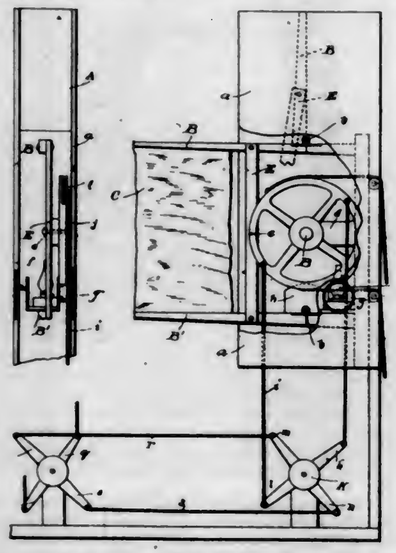
10. The combination of the main drive-shaft B, the wheel H having a concentric series of gears G thereon, peripheral teeth on said wheel H, the counter-shaft E, the adjustable gear F on said counter-shaft adapted to engage with the gears G, a horizontal feed-chain driven from the shaft E, and the vertical elevator engaging the peripheral teeth on the wheel H.

579,684. BOTTLE. SAMUEL C. ROWELL, Boston, Mass., assignor of one-fourth to Edward Ellis and Henry D. Dupee, same place. Filed Sept. 10, 1895. Serial No. 562,042. (No model.)



Claim.—In a non-fillable bottle, the combination of the following instrumentalities, viz: a body portion provided with a substantially small neck portion *a'*, an extended neck portion normally separate from the body portion but firmly secured thereto over the substantially short neck portion *a'* and provided with an inwardly-extended flange forming a discharge-opening for the bottle and cooperating with the substantially short neck portion to form a valve-chamber, a substantially flat valve provided on one face with a winged or ribbed stem extended into the short neck portion and having on its opposite face a nub or projection d^3, an imperforate substantially flat disk or guard c located in the valve-chamber and provided on one face with a stem extended up into the discharge-opening formed by the said inwardly-extended flange, and having on the same face a nub or projection to engage the said inwardly-extended flange and limit the movement of the guard toward the discharge-opening of the bottle, the opposite face of the imperforate guard normally engaging the nub d^3 to maintain a space between the valve and guard, substantially as and for the purpose specified.

579,685. RAILROAD FLAG-SIGNAL. PARKER W. SAWYER and CYRUS J. PERLEY, Gray, Me. Filed Oct. 1, 1896. Serial No. 607,546. (No model.)



Claim.—1. The herein-described railroad flag-signal consisting of a pair of normally horizontal arms pivoted, one over the other, a flag secured by one end to each of said arms and means for raising said arms to a vertical position.

2. The herein-described railroad flag-signal consisting of a pair of normally horizontal arms pivoted, one over the other, a flag secured by one end to each of said arms, a link pivoted by one end to each of said arms and a lever pivoted to said link for raising and lowering the same.

3. The herein-described railroad flag-signal consisting of a pair of normally horizontal arms pivoted, one over the other, a flag secured by one end to each of said arms, a link pivoted by one end to each of said arms, a wheel-lever pivoted to said link for raising and lowering the same and operating-lines attached to said wheel-lever for rotating it to raise and lower said signal.

4. The herein-described railroad flag-signal consisting of a pair of normally horizontal arms pivoted, one over the other, a flag secured by one end to each of said arms, means for raising and lowering said arms, a signal-light located over one of said arms and in rear of its pivoting-point and shutters secured to said arm in such a position that when the arm is raised the shutter will intercept said light.

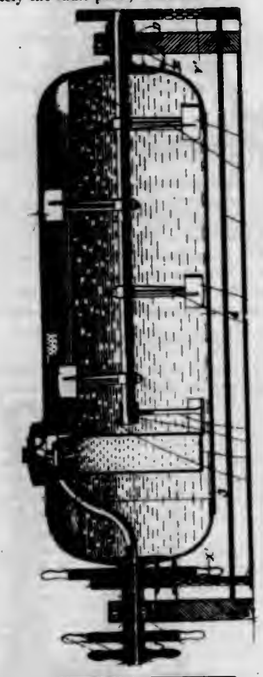
5. The herein-described railroad flag-signal consisting of a pair of normally horizontal arms pivoted one over the other a flag secured by one end to each of said arms, a pivoted operating-lever for raising and lowering said arms, a pivoted lever having four radiating arms two of which are connected by lines with said operating-lever, the other two arms being connected by lines to two arms of a similar lever, thereby the signal can be operated from a distance.

579,686. FIRE-EXTINGUISHER. ERNST F. STECK, Chicago, Ill., assignor to the Fire Extinguisher Manufacturing Company, same place and New York, N. Y. Filed June 5, 1896. Serial No. 594,420. (No model.)

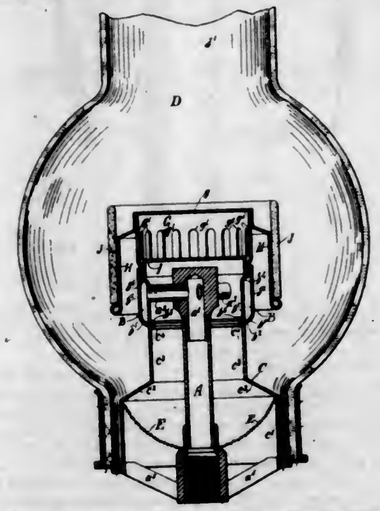
Claim.—1. In a chemical fire-extinguishing engine, the combination of an alkaline-water-containing cylinder mounted on hollow trunnions as shown and having affixed within it a sealed acid-containing receptacle, a discharge-pipe extending through one of the hollow trunnions, a shaft extending through the other hollow trunnion and provided with blades or flukes adapted to operate as a supplementary mixer, as set forth.

2. In a chemical fire-extinguishing engine, the combination of an alkaline-water-containing cylinder mounted on hollow trunnions as shown, an acid-containing receptacle affixed within said cylinder and near one end thereof, a discharge-pipe extending through one of said hollow trunnions, a shaft provided with blades or flukes extending through the other hollow trunnion and up to a point in close proximity to said acid-receptacle, all arranged substantially as and for the purposes set forth.

3. In a chemical fire-extinguishing engine, the combination of an alkaline-water-containing cylinder, an acid-containing receptacle affixed within said cylinder and near one end thereof, hollow trunnions upon which the cylinder is mounted, a shaft extending through one of said hollow trunnions into the said cylinder and up to a point approximately near the acid-receptacle and provided with blades or flukes as shown, a discharge-pipe extending through the other hollow trunnion with means substantially as shown and described for rotating the cylinder and operating the mixer-shaft from the same or approximately the same point, as set forth.

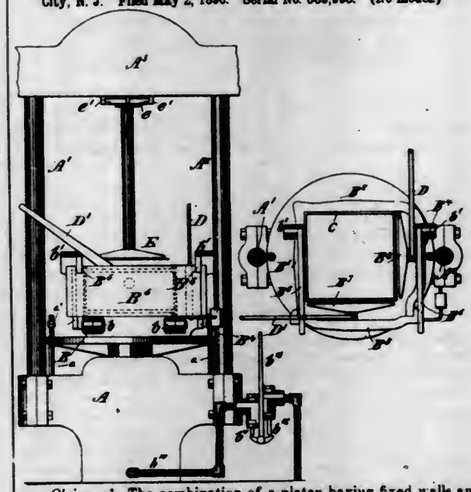


579,687. REGENERATIVE BURNER. WILLIAM R. SWIFT and THOMAS GORDON, New York, N. Y., assignors to the Gordon-Mitchell Gas Lamp Company, same place. Filed Apr. 13, 1893. Serial No. 470,201. (No model.)



Claim.—In a regenerative burner, the combination of a nipple for connecting with a gas-fixture, a gas-supply pipe extending upwardly therefrom, an annular upwardly-extended gas-burner chamber, concentric with the gas-supply pipe and provided with a circular row of gas-outlets opening downwardly at its base, an air-deflector extending downwardly and surrounding the gas-burner chamber and separated a distance therefrom for the passage of air, a diaphragm separating the space between the outer surface of the gas-burner chamber and the deflector from the space through the annular gas-burner chamber, a globe-support below the burner and concentric with and sustained by the gas-supply pipe, a globe supported by the globe-support, and a shell surrounding the gas-supply pipe and extending from the globe-support to the base portion of the annular burner-chamber, inward of its row of gas-outlets so as to form with the inner wall of the gas-burner chamber part of a conduit to the annular space between the deflector and the burner-chamber, said shell having perforations for supplying air to the base of the burner, substantially as specified.

579,688. PACKING OR BOXING MACHINE. EDWARD G. TREMAINE, Brooklyn, N. Y., assignor to the P. Lorillard Company, Jersey City, N. J. Filed May 2, 1896. Serial No. 589,995. (No model.)



Claim.—1. The combination of a platen having fixed walls and movable side pieces, and a movable wall to which one of said movable side pieces is connected, substantially as specified.

2. The combination of a platen having fixed walls and movable side pieces, and a movable wall B^3, and hooked arms for securing said movable wall in position, one of said movable side pieces being attached to said movable wall B^3, substantially as specified.

3. The combination with a platen having three fixed walls and one movable wall, of two movable side pieces, one connected to one of said fixed walls, and the other to said movable wall, and means for moving said side pieces, substantially as specified.

4. The combination with a platen having three fixed walls and one movable wall, of two movable side pieces, one connected to one of said fixed walls, and the other to said movable wall, and cam-levers interposed between said walls and side pieces for moving the latter, substantially as specified.

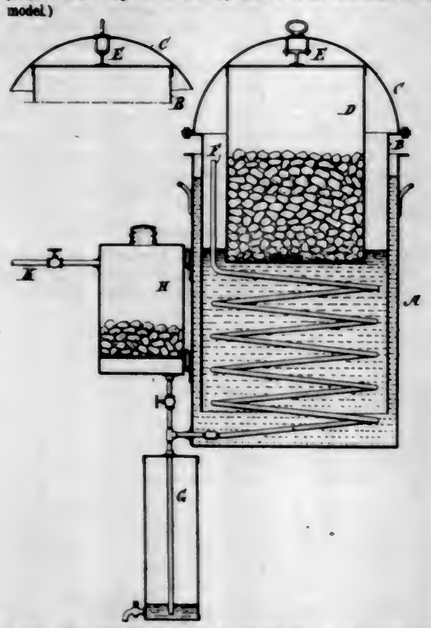
5. The combination with a platen having three fixed walls and a movable wall hinged to the platen, and hooks for securing said movable wall, of two movable side pieces, one connected to one of said fixed walls, and the other to said movable wall, and vertically-moving cam-levers interposed between the walls and side pieces for moving the latter, substantially as specified.

6. The combination with a platen having fixed walls, a movable wall, and movable side pieces, of a second platen capable of movement to and from position opposite the first-mentioned platen, and means for moving one of said platens toward and away from the other, substantially as specified.

7. The combination with a platen having fixed walls, a movable wall, and movable side pieces, and means for moving said side pieces, of a second platen arranged above the first-mentioned platen, and capable of lateral adjustment, and a hydraulic ram for moving the first-mentioned platen vertically, substantially as specified.

8. The combination of a platen having fixed walls and movable side pieces, of stops for limiting the movement of said platen, of a second platen arranged above the first-mentioned platen and capable of being adjusted forwardly and backwardly, and a hydraulic ram for moving the first-mentioned platen upwardly and downwardly, substantially as specified.

579,689. ACETYLENE-GAS-GENERATING APPARATUS. JOSEPH A. VINCENT, Philadelphia, Pa., assignor to the Electro Gas Company, of West Virginia. Filed May 7, 1896. Serial No. 590,530. (No model.)



Claim.—The combination of the water-tank A, the vertically-moving bell or holder B, floated by the water in the tank, and carrying carbid-receptacle D, the condenser F, placed in the water-tank A, extending upward into the interspace between the carrier and the bell and downward in a coil in the water beneath the bell and then through the wall of the tank A, whereby the same water supports the bell and serves as a condensing medium for the gas, and the external drip-tank G, separately connected therewith, and the drier H connected with an upward extension of the pipe leading to the drip, thereby drying the air entering said pipe in part by the separation of the moisture in the drip and in part by its passage through the drying-chamber, substantially as described.

579,690. FASTENING DEVICE. ARNOLD F. WAINEWRIGHT, New York, N. Y. Filed Aug. 20, 1895. Serial No. 559,903. (No model.)

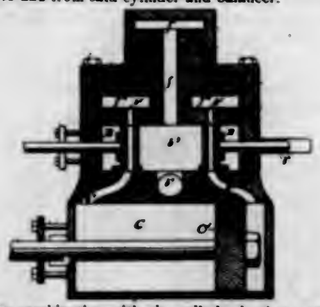


Claim.—In fastening devices, the combination of the hook consisting of two parts a body and a hook portion, the said body having two or more projections made integral therewith and turned at right angles thereto, having a hole or perforation in the center thereof, the hook portion having two points or projections turned upward and at right angles with the hook portion and body whereby the said projections force the material of the garment into the said hole or perforation, the eye of the fastening device consisting of a body with a central opening therein and two or more points or projections made integral therewith and turned at right angles thereto whereby the said projections force the material of the garment into the central opening and having an eye proper in which the said hook proper is adapted to enter, substantially as herein shown and described.

579,691. BALANCED SLIDE-VALVE. ISAAC YOUNGER, Louisville, Ky. Filed Aug. 23, 1895. Serial No. 560,220. (No model.)

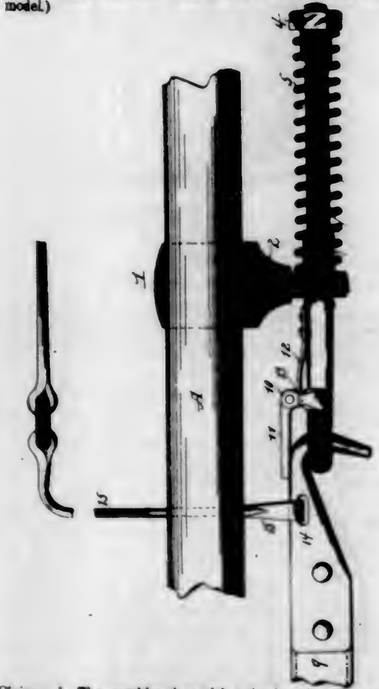
Claim.—1. The combination of a steam-chest, having a steam-inlet, a balancer in said chest, of such size relative thereto as to provide a steam-space above it, said balancer having a longitudinal passage open at one end to said steam-space and being also formed with a chamber having steam inlet and outlet, the cylinder having ports at its opposite ends, the piston in said cylinder, and the slide-valve, having a chamber into which the steam-inlet opens directly and also having steam-passages at opposite sides of said chamber, substantially as described.

2. The combination of a steam-chest, having a steam-inlet, a balancer in said chest of such size relative thereto as to provide a steam-space above it, said balancer having a steam-passage opening at one end into said steam-space and also being formed with a chamber having steam inlet and outlet, the cylinder having ports at its opposite ends, and the slide-valve for controlling entrance and exit of steam to and from said cylinder and balancer.



3. The combination with the cylinder having ports at its opposite ends, and the slide-valve, having passages near its opposite ends, of a balancer for said valve, having a chamber in its interior and being formed with passages, substantially as described, whereby a continuous passage from the space in the cylinder at one side of the piston to the space therein at the other side therein is formed at predetermined points in the movements of said slide-valve and piston, as specified.

579,692. DRAFT ATTACHMENT FOR VEHICLES. THOMAS S. BAILEY, Sandy Lake, Pa. Filed July 23, 1896. Serial No. 600,782. (No model.)



Claim.—1. The combination with a draft-rod, and a tug detachably connected thereto, of a cord or strap for effecting a release of the tug from the draft-rod, substantially as set forth.

2. The combination with a draft-rod having an eye, of a tug-hook adapted to engage said eye, and a spring-actuated tongue or latch constructed and adapted to bear on said hook and prevent its accidental escape from the eye, substantially as set forth.

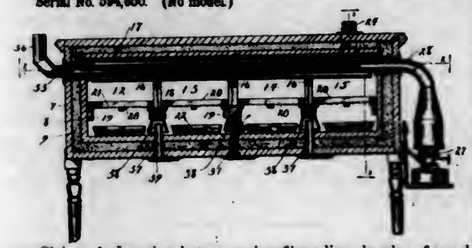
3. The combination with a draft-rod having an eye, of a tug-hook adapted to engage said eye, ears on the draft-rod, a tongue or latch pivoted between said ears and adapted to bear on said hook to prevent its escape from the eye, and a spring secured to the draft-rod and adapted to bear against said tongue or latch whereby to press the latter on the hook, substantially as set forth.

4. The combination with a draft-rod having an eye, of a tug-hook adapted to engage said eye, and a strap or cord attached to said tug-hook and adapted to be operated by a driver, whereby to release the tug-hook from the draft-rod, substantially as set forth.

5. The combination with a draft-rod having an eye, of a tug-hook adapted to engage said eye, a yielding tongue or latch bearing on said hook, and flexible devices connected with the tug-hook and adapted to be operated by a driver whereby to detach the tug-hook from the draft-rod and release the horse, substantially as set forth.

579,693. WITHDRAWN.

579,694. INCUBATOR. ALMOND L. BROOKS, CLARENCE M. BROOKS, and WALTER G. BROOKS, Columbus, Ind. Filed June 8, 1896. Serial No. 594,650. (No model.)



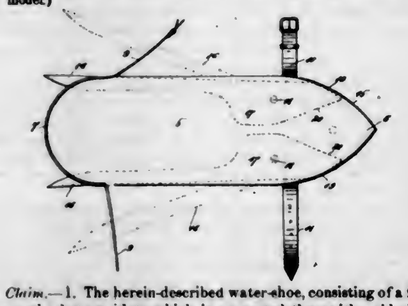
Claim.—1. In an incubator, a series of brooding-chambers formed therein, said chambers being separated by a series of partitions, each of said partitions being formed in part of a portion allowing a circulation of air therethrough, an egg-tray mounted in each of said chambers, an air-chamber mounted beneath said partitions, the upper end of said chamber being closed and the walls of said chamber extending down near to the bottom of the brooding-chambers, an air-inlet leading into each of said air-chambers and projecting upward into said chambers, an air-outlet leading from said brooding-chambers, a perforated cylinder mounted so as to slide in said outlet, and means for heating the brooding-chambers, substantially as and for the purpose set forth.

2. In an incubator, an attachment for the egg-trays thereof, said attachment consisting of a guard adapted to be secured to the tray and projecting upward therefrom so as to form a wall over which the chicks cannot jump, substantially as described.

3. In an incubator, an attachment for the egg-trays thereof, said attachment consisting of a single piece of material bent in the form shown and adapted to be placed in the end of said tray so as to form a rear wall therefor over which the chicks cannot jump, substantially as described.

4. In an incubator, an attachment for the egg-trays thereof, said attachment consisting of a piece of metal bent so as to form the end 45 and arms 46, said arms being adapted to be inserted between the sides of the tray and to hold the attachment in position by friction against said sides, as and for the purpose set forth.

579,695. WATER SKATE OR SHOE. BENJAMIN CARMINA-MORREALE, New York, N. Y. Filed Oct. 16, 1896. Serial No. 609,141. (No model.)



Claim.—1. The herein-described water-shoe, consisting of a foot-plate, and a bottom plate which is connected therewith, said plates being pointed at their forward ends, and provided with a shield, and wing or fin plates pivotally mounted between said foot and bottom plates near the forward ends thereof, said wing or fin plates being adapted to fold between said plates when the foot is moved forwardly, and to swing outwardly when the foot is moved backwardly, substantially as shown and described.

2. The herein-described water-shoe, comprising a foot-plate, which is provided with means for securing it to the foot, a bottom plate which is secured to said foot-plate, the forward ends of said plates being pointed, and provided with a shield, and wing or fin plates, which are pivotally mounted between said foot and bottom plates, and which are adapted to fold between said plates when the foot is moved forwardly, and to swing outwardly when the foot is moved backwardly, substantially as shown and described.

3. The herein-described water-shoe, comprising a foot-plate, which is provided with means for securing it to the foot, a bottom plate which is secured to said foot-plate, the forward ends of said plates being pointed, and provided with a shield, and wing or fin plates which are pivotally mounted between said foot and bottom plates, and which are adapted to fold between said plates when the foot is moved backwardly, said wing or fin plates being provided at their pivoted ends, with beveled heads by which both their inner and outer movement are limited, substantially as shown and described.

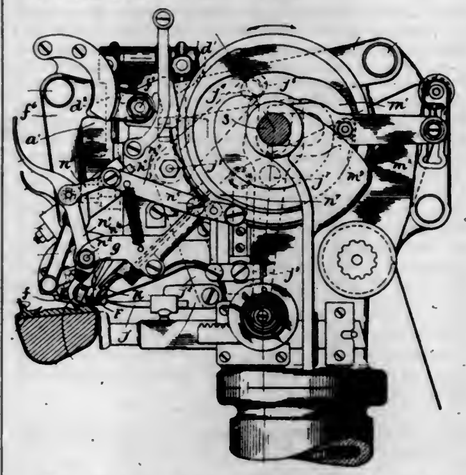
579,696. DOOR. JOHN S. CARTER, Buffalo, N. Y. Filed Oct. 22, 1896. Serial No. 609,670. (No model.)



Claim.—1. In a door the combination with the side frames provided with panel-openings and the filling-strip, of panel-casings provided with integral moldings, adapted to project through said panel-openings in the side frames, and panels in said panel-casings, substantially as described.

2. In a door the combination with the side frames provided with panel-openings and the filling-strip, of panel-casings each consisting of two rectangular frames, each frame having integral moldings adapted to extend through said panel-openings, and a rabbeted portion adapted to form with the rabbeted portion of the other frame, a recess to receive the panel, the filling-strip and panels for said panel-casings, substantially as described.

579,697. SHOE-SEWING MACHINE. PETER A. COUPAL, Boston, Mass., assignor of one-half to William Gordon, same place. Filed Oct. 23, 1896. Serial No. 609,851. (No model.)



Claim.—1. A sewing-machine of the character specified, comprising a fixed back-rest; a reciprocating sliding head or carrier; a curved needle, and a presser-foot, both supported by said head; and an auxiliary work-holder which releases the work while it is being fed by the needle and presser-foot, and holds the work during the return lateral movement of the needle and presser-foot.

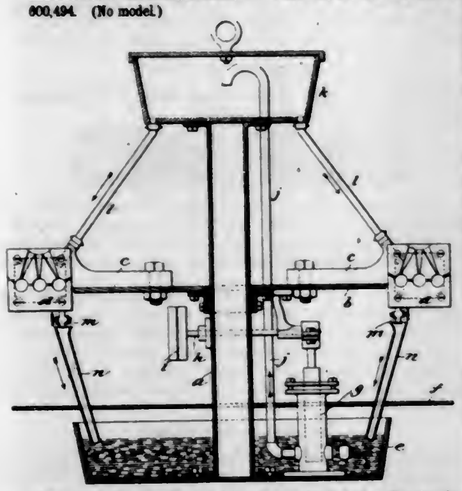
2. A sewing-machine of the character specified, comprising a fixed back-rest, a reciprocating sliding feeding-head, a curved needle and a presser-foot; an auxiliary work-holder which releases the work while it is being fed and holds the work during the return lateral movement of the feed device, and a tack-puller adapted to draw the tacks while the work is held by the fixed rest and the presser-foot and the auxiliary work-holder.

3. The combination of a stitch-forming mechanism, including a curved needle and an oscillating carrier therefor; a fixed rest formed to extend into the angle of an inner sole and its lip; a fixed trimming-blade secured to and supported by said rest; and a movable

trimming-blade secured to the needle-carrier and arranged to coöperate with the fixed blade in trimming the work.

4. The combination of a stitch-forming mechanism, a work rest or guide formed to support an inner sole and its lip, a fixed trimming-blade adjacent to said rest, a presser-foot arranged to coöperate with said rest in clamping the work, a tack-puller arranged to draw tacks from the work at a point beside the work-rest and presser-foot, and a movable trimming-blade adapted to coöperate with the fixed trimming-blade in removing the surplus material from the work.

579,698. **BALL-CASTING MACHINE.** HARTWELL A. DALRYMPLE and PATRICK C. MCGRATH, Rutland, Vt. Filed July 25, 1896. Serial No. 600,494. (No model.)



Claim.—1. In a casting-machine, means for insuring the circulation of a medium for preserving an equable temperature in the molds, the same comprising the combination of a fluid-distributing and a fluid-receiving vessel, constructed as a standard divided into independent sections, arranged one above the other, a fluid connection between the fluid-distributing and fluid-receiving vessels, molds having hollow backs, fluid connections between the distributing vessel and the hollow backs of the molds and between the receiving vessel and the hollow backs of the molds, and a fluid-forcing medium for circulating the fluid through these connections, vessels and molds, and for returning it to the distributing vessel, substantially as described.

2. In a casting-machine, means for insuring the circulation of a medium for preserving an equable temperature in the molds, the same comprising the combination of a fluid-distributing and a fluid-receiving vessel, constructed as a standard of three sections, divided from one another, the two lower sections having pipe connections with the hollow backs of the molds, and the uppermost section communicating with the section next below it and independently connecting with the lowermost section, a pump arranged in the uppermost section and communicating independently with the section next below and the lowermost section and to circulate the fluid through the molds, combined with the molds and their hollow backs, substantially as described.

579,699. **MICROPHONE.** ARTHUR W. S. DAVIS, Lowell, Mass. Filed Apr. 30, 1896. Serial No. 589,772. (No model.)



Claim.—1. In a microphone, the combination with a casing having a central aperture and a transverse groove, and a diaphragm, of a button, an adjusting-screw for the button, and a curved flat spring lying in the groove, for supporting the button.

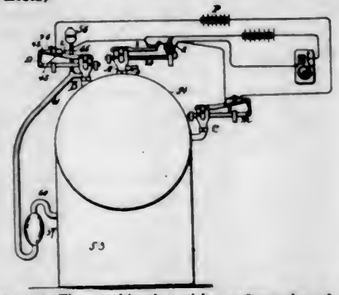
2. In a microphone, the combination with a casing having a central aperature and a transverse groove, and a diaphragm, of a curved flat spring lying in the groove, an adjusting-screw, and a button held against the spring by an adjusting-screw, said button comprising a support, a cushioning insulating-ring thereon, granular carbon in the chamber in the ring, and a carbon plug resting against the diaphragm and extending into the ring.

3. In a microphone, the combination with a casing, and a diaphragm, of an adjustable metallic support in the casing, a cushioning-ring having its interior chamber filled with granular carbon and being secured to the support, a carbon plug in contact with the granular carbon and the diaphragm, means for adjusting the metallic support toward and from the diaphragm, and a spring inserted between the said support and the casing.

4. In a microphone, the combination with a metallic diaphragm, and a metallic support in rear of the diaphragm, of a cushioning insulating-ring on the front face of the support, loose granular carbon in the chamber in the ring, and a solid carbon plug bearing against the ring and having a boss extending into the chamber in the ring and engaging the loose granular carbon, said carbon plug having a convex outer face bearing loosely against the diaphragm.

5. In a microphone, the combination with a metallic diaphragm, a metallic support in rear of the diaphragm, a cushioning insulating-ring secured to said support, and a mass of loose granular carbon in the chamber in the ring, of a series of removable and interchangeable solid carbon plugs, each having a plug of a thickness different from the others, said plugs extending for different distances into the chamber, whereby the amount of loose carbon is varied, and each plug having a shoulder bearing against the cushioning-ring, and a convex face bearing loosely against the diaphragm.

579,700. **DEVICE FOR RELIEVING PRESSURE IN BOILERS.** JOHN G. J. DAVIS, Augusta, Ga. Filed June 9, 1896. Serial No. 594,881. (No model.)



Claim.—1. The combination with a safety-valve of an electric bell, and electric contacts connected with the scale-beam, of the safety-valve and an arm connected therewith for automatically closing the circuit, when the valve opens to exhaust steam, and thereby cause the bell to operate, substantially as set forth.

2. The combination with a steam-boiler, of a safety-valve and one or more auxiliary valves, signaling devices adapted to be operated by the opening of the safety-valve and auxiliary valves and an electric circuit and electrically-operated devices, for automatically ringing a bell, and unlocking the auxiliary valves, substantially as set forth.

3. The combination with a steam-boiler and a receptacle for containing a chemical, a furnace, of valve mechanism adapted to permit the exhaust of steam when the pressure becomes excessive and connections between the chemical-receptacle and the valve mechanism and furnace, whereby the exhaust-steam will be utilized to inject a chemical into the fire in the furnace, substantially as set forth

4. The combination with a steam-boiler, of a main safety-valve mechanism adapted to permit the escape of steam when the pressure in the boiler becomes excessive, and an auxiliary-valve mechanism connected with the boiler in proximity to the water-line and adapted to be released by the operation of the main safety-valve mechanism, substantially as set forth.

5. The combination with a steam-boiler, of a main safety-valve mechanism communicating therewith, auxiliary-valve mechanisms communicating with said boiler, electromagnet trip devices adapted to normally lock said auxiliary-valve mechanisms, a circuit-closer connected with and operated by the main safety-valve mechanism and an electric circuit including the electromagnets of the trip devices of the auxiliary-valve mechanisms, and said circuit-closer, substantially as set forth.

6. The combination with a safety-valve casing, a scale-beam pivoted thereto, a valve, a stirrup resting upon the valve and retaining it against its seat, and serving as a pivotal support for the scale-beam, substantially as set forth.

7. The combination with a valve-casing and a scale-beam connected thereto, of a piston-valve in said casing, and an adjustable connection between said valve and scale-beam at one side of the pivotal connection of the latter with the valve-casing, substantially as set forth.

8. The combination with a valve-casing and a scale-beam pivotally connected therewith, of a piston-valve in said casing, a stirrup connected with the scale-beam to one side of the connection of the latter with the valve-casing, and a screw passing through said stirrup and adapted to normally bear on said piston-valve, substantially as set forth.

9. The combination with a valve-casing and a scale-beam pivotally connected therewith, of a piston-valve in said casing, a block having tapering opening in said casing above the valve, and a stirrup connected to the scale-beam and having a tapering lower end to project through the tapering opening in said block and normally engage the piston-valve, substantially as set forth.

10. The combination with a valve-casing, of a piston-valve therein, a scale-beam, a cylindrical pin passing through the scale-beam and carrying knife-edges having a bearing in the valve-casing, a stirrup adapted to bear on the piston-valve, a cylindrical pin passing through the scale-beam and carrying knife-edges having bearings in the stirrup, and a screw in the scale-beam adapted to engage said knife-edges for adjusting them, substantially as set forth.

11. The combination with a valve-casing having two pairs of arms and a piston-valve in said casing, of a scale-beam pivotally connected to one pair of arms, a stirrup located between the pairs of arms and adapted to bear against the piston-valve, said stirrup being pivotally connected to the scale-beam, a rigid arm secured to said pairs of arms, insulated contact-plates secured to said rigid arm, insulated contact-plates secured to the scale-beam, and electric circuits including said contact-plates and signal and releasing devices, substantially as set forth.

12. The combination with a casing and a piston-valve therein of a scale-beam pivotally connected with the casing, a stirrup connected with the scale-beam and bearing on said piston-valve, a weight on each arm of said scale-beam, and screws passing through said weights and engaging the scale-beam, substantially as set forth.

13. The combination with a steam-boiler and its furnace, of a safety-valve and an auxiliary valve, a receptacle for chemicals, and a pipe, leading from the chemical-receptacle to the furnace, whereby on the opening of the auxiliary valve, steam will be forced through the chemical-receptacle and force the chemicals into the furnace, substantially as set forth.

14. The combination with a steam-boiler of a safety-valve, an auxiliary valve, and a steam-whistle connected with the auxiliary valve, of electric circuits and electrically-actuated mechanism included therein, whereby on the opening of the safety-valve, the auxiliary valve will be released with the result that the whistle will be operated, substantially as set forth.

15. The combination with a steam-boiler and its furnace, a safety-valve, and auxiliary valves, of a steam-whistle, an electrically-actuated bell, a chemical-receptacle, and electric circuits and electrically-actuated devices included therein, substantially as set forth.

16. The combination with a steam-boiler, of a sensitive valve blown by excessive steam-pressure and adapted to complete an electrical circuit when blown, an electromagnet included in said electrical circuit, and trip mechanism released by the action of the magnet and adapted to open the second valve, substantially as described.

17. The combination with a steam-boiler, of a valve blown by excessive steam-pressure and comprising a pivoted scale-beam, a piston directly operated on by the steam, and a stirrup straddling the scale-beam and pivoted thereto and provided with a pointed shank bearing on the piston, substantially as described.

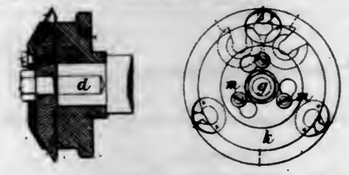
18. The combination with a steam-boiler, of a valve blown by excessive steam-pressure, and comprising a pivoted scale-beam, a piston directly acted on by the steam-pressure and governing an exhaust-port, a stirrup straddling the scale-beam, being pivoted thereto and provided with a shank, and an adjusting-screw in said shank and having its end bearing on the piston, substantially as described.

19. The combination with a steam-boiler, of a valve blown by excessive steam-pressure and comprising a valve-casing, a scale-beam hung on an adjustable knife-edge, a stirrup straddling the scale-beam and hung on an adjustable knife-edge, said stirrup being provided with a pointed shank, and a piston on which the pointed shank rests, substantially as described.

20. The combination with a steam-boiler, of a scale-beam having an adjustable weight and carrying an electrical contact device, a contact-arm carrying an electrical contact device, and a valve for raising the scale-beam to bring said contact devices into connection, substantially as described.

579,701. **ROTARY CUTTER.** MARK T. DENNE, Birmingham, England, assignor to John Cave & Sons, Rushden, England. Filed July 25, 1896. Serial No. 600,507. (No model.)

Claim.—1. The combination with the main cutter-block provided with annular recesses and annular slotted cutters in said recesses, of a supplementary cutter-block engaging the cutters of the main cutter-block and clamping them in position, and cutters secured to said supplementary cutter-block, substantially as described.

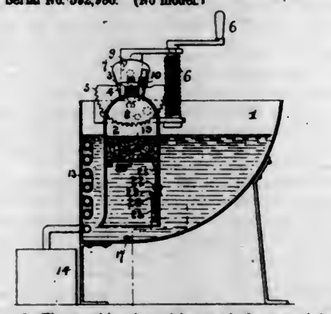


2. The combination with a main cutter-block having a series of radially-slotted cutters carried in annular recesses, of a supplementary block also carrying a series of annular slotted cutters which coöperate with the cutters in the main block, the said supplementary cutters being held in position by a clamping-plate, substantially as described.

3. The combination with the main cutter-block having a series of annular recesses, and cutters carried in said recesses, of a supplementary cutter-block, directly engaging said cutters, and clamping them between it and the main cutter-block, said supplementary block being also provided with annular recesses, and circular cutters in said recesses, and a clamping-plate engaging the cutters of the supplemental block and clamping them between it and said supplemental block and means for securing said parts together, substantially as described.

4. The combination with the main cutter-block having annular recesses therein and circular cutters in said recesses, of a supplemental cutter-block having portions engaging said cutters, means for securing said supplemental block to the main cutter-block to clamp the cutters in position, said supplemental block being also provided with annular recesses and supplemental circular cutters in said recesses, a clamping-plate having portions to engage said supplemental cutters and independent securing devices for securing said clamping-plate to the supplemental cutter-block for clamping said supplemental cutters in position, substantially as described.

579,702. **ACETYLENE-GAS-PRODUCING APPARATUS.** EDWARD N. DICKERSON, New York, N. Y. Original application filed Jan. 3, 1896, Serial No. 574,205. Divided and this application filed May 25, 1896. Serial No. 592,980. (No model.)



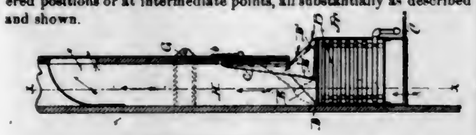
Claim.—1. The combination with a tank for containing a liquid, of a receptacle for generating gas by the union of a liquid and a solid, a condenser connected with said gas-generating receptacle and located in the liquid in the same tank in which the generator is located, an extension of said condenser passing through the walls of the liquid-chamber, and provided with an outlet for withdrawing the condensed moisture, and an outlet for carrying off the dried gas, whereby the liquid in the tank produces the gas and cools the gas so produced, substantially as described.

2. The combination in an apparatus for generating gas from a solid material, of a vessel containing the water which generates the gas, the generator 2, the condenser 13, and connections between the generator and condenser, the generator and condenser being located in the vessel containing the water which generates the gas, substantially as described.

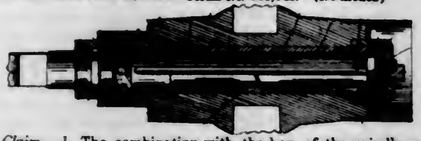
579,703. **SYSTEM FOR HEATING AND VENTILATING.** WILLIAM D. DICKSON, Peoria, Ill. Filed Apr. 21, 1894. Serial No. 508,493. (No model.)

Claim.—In a system for heating and ventilating, the combination with the base of a heat-flue provided with a cold-air-inlet opening of the coil-box A, containing steam-coils and provided with an opening

in the bottom thereof, having the slide C for opening and closing the same, the hinged doors D, D' adapted for closing the top of the coil-box, and the door D' also adapted for closing the cold-air-inlet opening into the flue and provided with means for raising and lowering said doors and for maintaining them in their maximum raised or lowered positions or at intermediate points, all substantially as described and shown.



579,704. **LUBRICATING-AXLE.** JOHN L. DOLSON, Charlotte, Mich. Filed Nov. 10, 1896. Serial No. 611,643. (No model.)



Claim.—1. The combination with the box, of the spindle provided with a longitudinal main oil-groove on its upper side and a spiral feed-groove extending from a point in the main groove back from the end of the spindle, to the end face of the spindle at a point below the main oil-groove, and a recessed oil-holding cap engaging the box and having the main portions of its oil-recess below the plane of the main oil-groove, whereby the oil is carried from said oil-recess upward through the spiral groove to the main oil-groove by the revolution of the box, substantially as described.

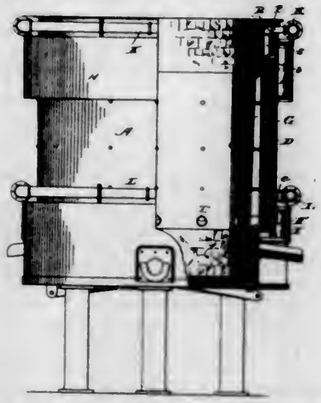
2. The combination with the box, of the spindle provided with a longitudinal main oil-groove on its upper side, a spiral feed-groove extending from a point in the main groove back from the end of the spindle to a point on the end of the spindle below said main groove and an overflow from the oil-groove at the extreme end of the spindle, and a recessed oil-holding cap engaging said box and having the main portions of its oil-recess below the plane of the main oil-groove whereby the oil will be carried from the oil-recess upward through the feed-groove to the main oil-groove by the rotation of the box, substantially as described.

3. The combination with the box provided adjacent to its inner end with a shoulder, of the spindle provided with a longitudinal main groove and a spiral feed-groove adjacent to the point of the spindle, a detachable collar secured to said spindle and provided on its periphery with a spiral groove extending from a point near the inner face of the collar forwardly around the collar to the outer face to conduct lubricant outwardly toward the main oil-groove, a retaining-collar on the spindle engaging the box and having a shoulder on the inner side of the said spindle-collar, and an oil-holding cap engaging the outer end of the box and communicating with the spiral feed-groove, substantially as described.

4. The combination with the spindle provided with an annular sand-groove, a longitudinal main oil-groove and a spiral feed-groove adjacent to the spindle-point, communicating with the main groove, of a collar detachably engaging the spindle between the main oil-groove and the sand-groove and provided with a spiral groove extending around its periphery from the inner face to the outer face, the box engaging the spindle and provided with a shoulder adjacent to the outer face of the said spindle-collar, a retaining-collar having a portion engaging the spindle and covering said sand-groove, a shoulder adjacent to the inner face of the spindle-collar and a portion for engaging the box, a washer of less diameter than the box interposed between the shoulder of the box and the spindle-collar, and an oil-holding cap secured to the outer end of the box and communicating with said feed-groove, substantially as described.

5. The combination with the spindle provided with an annular sand-groove, a longitudinal main oil-groove, and a spiral feed-groove adjacent to the spindle-point communicating with the main oil-groove, and a shoulder adjacent to the sand-groove, of a collar detachably secured to the spindle and engaging said shoulder and provided with a spiral groove extending around its periphery from its inner face to its outer face, the box surrounding the spindle and provided with a shoulder adjacent to said collar, the retaining-collar having a portion surrounding the spindle and covering said sand-groove, a shoulder adjacent to said spindle-collar and a portion detachably engaging the box, a washer interposed between the retaining-collar and the spindle-collar, fitting tightly in said retaining-collar, a washer of less diameter than the box interposed between the shoulder of the box and the spindle-collar, and an oil-holding cap detachably secured to the box communicating with said spiral feed-groove and provided with a removable plug, substantially as described.

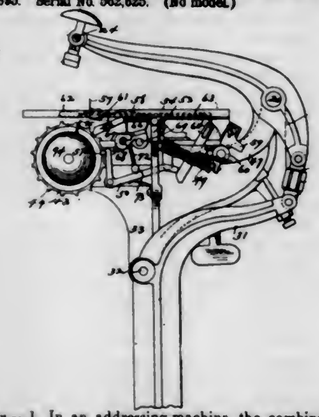
579,705. **SMELTING-FURNACE.** JAMES DOUGLAS, New York, N. Y. Filed Jan. 29, 1896. Serial No. 577,265. (No model.)



Claim.—1. A smelting-furnace comprising the inner and outer shells C D forming a vertical water-jacket B, the upper wind-box H, surrounding the upper part of the water-jacket, a series of vertical wind-pipes G G extending entirely through said water-jacket, a series of elbows *b b* connecting the upper ends of said vertical wind-pipes with the upper wind-box, in combination with the lower wind-box I, surrounding the lower end of said water-jacket, and in communication with the lower ends of said vertical wind-pipes, and a series of twyers T T, extending through the lower end of said water-jacket and having one end opening into said lower wind-box, and the other end into the furnace, substantially as shown and described.

2. A smelting-furnace, comprising the inner and outer shells C D, forming a water-jacket B, a series of vertical wind-pipes G G passing entirely through said water-jacket, a water-inlet pipe K, surrounding the upper ends of said water-jacket, a series of branch pipes P, elbows R and vertical pipes S, connecting said inlet-pipe K, with the upper end of said water-jacket, in combination with the outlet-pipe L surrounding the lower portion of said water-jacket and a series of branch pipes *c* connecting said water-jacket with said outlet-pipe, substantially as shown and described.

579,706. **ADDRESSING-MACHINE.** JOSEPH S. DUNCAN, Chicago, Ill., assignor to the Addressograph Company, same place. Filed Sept. 16, 1895. Serial No. 562,625. (No model.)



Claim.—1. In an addressing-machine, the combination with a revoluble drum adapted to support an endless type-belt, a pivoted arm carrying a platen, a pivoted operating-lever having its upper end extended rearwardly from its pivot and a link connecting said rearward extension and the platen-carrying arm, said link being composed of three members, one of which is a threaded sleeve having threaded engagement with the others of said members, substantially as described.

2. In an addressing-machine, the combination with a revoluble drum, of an endless type-belt mounted thereon, a stationary ink-supply pad and a transferring-pad carried by a pivoted frame, a rock-shaft having a crank thereon and a stud on which the said frame is pivoted and means for rocking said shaft upon its pivot whereby to move said transfer-pad out of contact with the supply-pad and into contact with the printing-face on the type-belt, substantially as described.

3. In an addressing machine, the combination with a revoluble drum, of an endless type-belt suspended thereon, a pivoted arm having a platen, said arm having a rigid extension, a driving-pawl pivoted to said extension, an ink-transferring-pad mounted in a rocking frame, a rock-shaft having a crank and a stud on which said rocking frame is mounted and a link connecting the pivoted arm and the crank of the rock-shaft whereby the depression of the platen effects the application of ink to the type-belt and the rotation of the drum one step, substantially as described.

4. In an addressing-machine, the combination with a revoluble drum carrying an endless type-belt, of a driving-pawl for advancing said drum step by step, said pawl having a lateral projection or dog and ratchet-disks rotatably mounted adjacent to said pawl and having dissimilar teeth, said ratchet-disks being movable so as to bring the one or the other into operative position with reference to the pawl, substantially as and for the purpose described.

5. In an addressing-machine, the combination with a revoluble drum, of an endless type-belt having printing-forms thereon, a pivoted plate forming the support for the material to be printed and having an aperture above the drum, and a sliding pad moving in ways in said plate, and means for rocking said plate upon its pivot and for sliding the pad in the intervals between the impressions, substantially as described.

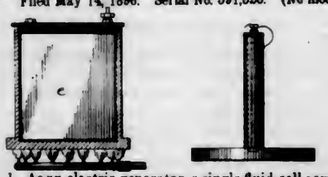
6. In an addressing-machine, the combination with a drum for supporting an endless type-belt having printing-forms thereon, a pivoted plate adapted to support the material to be printed and having an aperture above the drum, a pivoted arm carrying the platen, a rigid projection upon said arm provided with a second projection and a cam carried by the pivoted plate and adapted to be engaged by said second projection, a sliding pad and means for moving said pad, the several parts being timed to operate in due order and relation, substantially as and for the purpose described.

7. A type-belt for addressing-machines, composed of a series of detachable link-plates, each of said plates having upturned margins converged toward each other and constituting spring-clamps for retaining type or type-holders and one of said margins being recessed or notched and the other having T-headed links adapted to enter the notches of an adjoining plate, whereby the several link-plates may be articulated to form the endless belt, substantially as described.

8. An endless belt for addressing-machines, composed of a series of hinged links, duplicates of each other, and each having one of its margins upturned and curved in cross-section and notched transversely, and the other margin whereof is provided with integral T-headed links, the shanks whereof are adapted to enter the transverse notches of an adjoining link and the heads whereof are adapted to seat themselves in the seat formed by the curved flange and type-characters or printing-forms mounted in said plates and between the flanges thereof, and adapted to confine the heads of the links in their seats, substantially as described.

9. In an addressing-machine, the combination with a revoluble drum, of an endless type-belt mounted thereon and having type-forms from which addresses are printed and a holder mounted at the end of the drum and adapted to be rocked or revolved about a fixed axis and having two or more of its surfaces adapted to hold type-forms for imprinting dates or other matter adjacent to each address, substantially as described.

579,707. **ELECTRICAL GENERATOR.** SAMUEL V. ESSICK, Yonkers, N. Y. Filed May 14, 1896. Serial No. 591,520. (No model.)

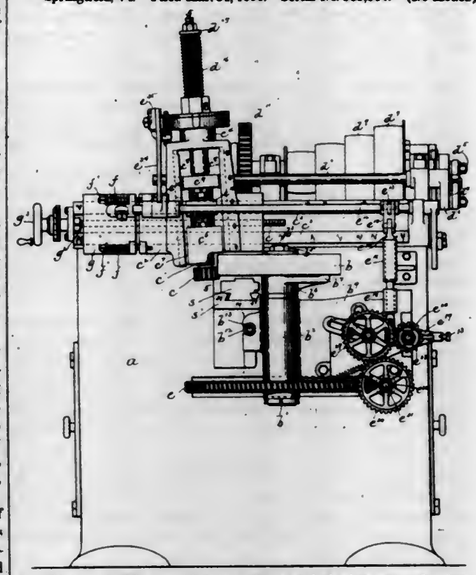


Claim.—1. As an electric generator, a single fluid-cell comprising an external conducting vessel, an element of a more positive metal inserted therein, an electrolyte containing a salt of copper, a holder containing a supply of said salt of copper, means for feeding said salt to said electrolyte as required, and means for externally heating the cell, substantially as described.

2. As an electric generator, a conducting cup or vessel having flat parallel sides, an element of more positive metal inserted therein, an electrolyte containing a salt of copper, a holder containing a supply of said salt of copper, means for feeding said salt to said electrolyte as required, and means for externally heating the cell, substantially as described.

3. The combination with a frame, of an incombustible and non-conducting supporting-plate provided with orifices for receiving and holding battery cells and provided with gutters, and an external source of heat, substantially as described.

579,708. **GEAR-SHAPING MACHINE.** EDWIN R. FELLOWS, Springfield, Vt. Filed Mar. 31, 1896. Serial No. 585,587. (No model.)



Claim.—1. The combination of a metal-planing cutter having a circular series of radiating or outwardly-projecting gear-shaped metal-planing teeth, a blank holder or support, means for reciprocating one of said parts to cause the cutter to plane the blank, and means for changing the relative positions of said parts to cause the said teeth to act successively at different points on the blank and generate the curves of gear-teeth thereon.

2. The combination of a gear-shaped metal-planing cutter, a blank holder or support and means for rotating it, means for reciprocating one of said parts, means for holding the cutter at an inclination relatively to the gear-receiving face of the blank to give the operating-teeth of said cutter the clearance of metal-planing tools, and means for rotating the cutter.

3. The combination of a gear-shaped metal-planing cutter having external gear-shaped teeth arranged in a circular series, a blank-holder, cutter-operating mechanism having provisions for progressively rotating said cutter to make its teeth successively operative and for reciprocating the cutter to give the operative teeth their cutting and return movements, and mechanism for feeding the blank.

4. The combination of a blank-holder, a gear-shaped metal-planing cutter, a spindle supporting said cutter, bearings supporting said spindle, means for rotating the spindle in said bearings to feed the cutter, means for reciprocating the spindle and its bearings to give the cutter its operative movements across the blank, and mechanism for feeding the blank.

5. The combination of a blank-holder, a gear-shaped metal-planing cutter, a spindle supporting said cutter, bearings supporting said spindle at an inclination relatively to the gear-receiving face of the blank to give clearance to the teeth of the cutter, means for reciprocating the spindle and its bearings, and means for giving said bearings a lateral movement during the forward movement of the cutter to compensate for the inclination of the spindle and cutter.

6. The combination of a blank-holder, a gear-shaped metal-planing cutter, a spindle supporting said cutter, bearings supporting said spindle, means for reciprocating the spindle and its bearings to carry the cutter forward and back across the blank, means for changing the path of the spindle relatively to the blank-holder after each stroke of the cutter to alternately project and retract the cutter, and means for rotating the cutter.

7. The combination of a blank-holder, a gear-shaped metal-planing cutter, a spindle supporting said cutter, bearings supporting said spindle, means for reciprocating the spindle and its bearings to carry the cutter forward and back across the blank, means for changing the path of the spindle relatively to the blank-holder after each stroke

of the cutter to alternately project and retract the cutter, means for imparting a progressive lateral movement to the spindle and its bearings, to advance it into the blank, and means for rotating the cutter, the said last-named means having provision for being made temporarily inoperative.

8. The combination of a gear-shaped metal-planing cutter, a spindle supporting the same, a blank-holder, a driving-shaft, mechanism for imparting a rotary motion from the said shaft to the cutter-spindle, and mechanism for imparting a reciprocating motion to the spindle, the last-mentioned mechanism having provision for varying the speed of the reciprocating movement after each stroke.

9. The combination of a gear-shaped metal-planing cutter, a spindle supporting the same, a blank-holding spindle, a driving-shaft, connections intermediate the said shaft and spindles for positively rotating the spindles in unison, and connections intermediate the driving-shaft and cutter-spindle for imparting a reciprocating motion to the latter.

10. The combination of a gear-shaped metal-planing cutter, a spindle supporting the same, a blank-holding spindle, a rock-shaft e^{12} intermediate the driving-shaft and spindles, connections between the rock-shaft and driving-shaft whereby the rock-shaft is positively oscillated, and connections between the rock-shaft and spindles for imparting positive rotary movements to the spindles in unison, and connections between the driving-shaft and cutter-spindle for reciprocating the latter.

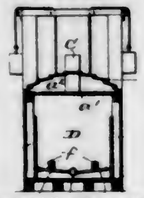
11. The combination of a blank-holder, a gear-shaped metal-planing cutter, a spindle supporting the cutter, a primary slide supporting the spindle, and movable to reciprocate the spindle longitudinally, a secondary slide supporting the primary slide, and movable toward and from the blank-holder, mechanism for reciprocating the primary slide and spindle, an adjustable connection between the said slides and mechanism for adjusting said connection to vary the position of the primary slide.

12. The combination of a blank-holder, a metal-planing cutter, a spindle supporting the cutter, a slide having bearings for the spindle, means for reciprocating the slide and spindle, a sleeve e^{5} which rotates with the cutter but does not reciprocate with it, and a counterbalancing-spring seated on said sleeve and exerting an upward pressure on the slide and spindle.

13. The combination of a gear-shaped metal-planing cutter, a rotary spindle supporting the cutter, a rotary blank-holding spindle, gearing adapted to impart rotary motion to said spindles, pawls and ratchets adapted to operate said gearing, and means for simultaneously oscillating said pawls.

14. The combination of a gear-shaped metal-planing cutter, a rotary spindle supporting the cutter, a rotary blank-holding spindle, and a swinging bearing for the last-named spindle, adapted to displace the spindle from its operative position.

579,709. DRYING-KILN. DAVID HILL and JAMES S. HILL, Washington, N. C. Filed Sept. 23, 1896. Serial No. 606,701. (No model.)



Claim.—1. In a drying-kiln, the combination with a drying-chamber, sealed at its bottom and sides and having a discharge-passage communicating with the top of said chamber, of means for admitting currents of air through said drying-chamber adjacent to its top, and a heating device in said drying-chamber adjacent to its bottom, substantially as described.

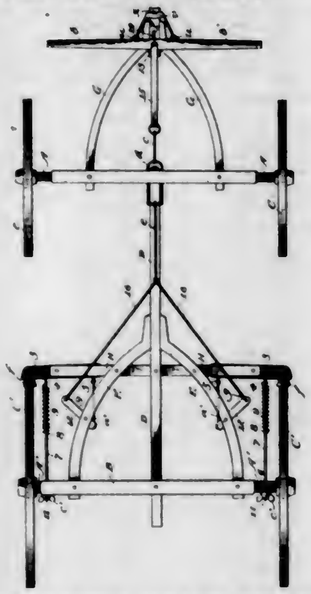
2. In a drying-chamber, the combination with an inclosing casing provided adjacent to its top with a discharge-passage, a drying-chamber within said casing sealed at its bottom and sides but communicating at its upper end with said discharge-passage, vertical air-passages at each side of said drying-chamber communicating with the outer air at their lower ends, and at their upper ends discharging into said casing above the top of the drying-chamber and a heater in said drying-chamber adjacent to its bottom, substantially as described.

3. In a drying-kiln, the combination with a drying-chamber sealed at its bottom and sides and having a discharge-passage communicating with the top of said chamber, of means for admitting air to said chamber adjacent to its top, a heating device for said air, and a heating device located in the bottom of said drying-chamber, substantially as described.

4. In a drying-kiln, the combination with a drying-chamber sealed at its bottom and sides and having a discharge-passage communicating with its upper end and a heater in the bottom of said chamber, of an auxiliary heating-chamber, passages extending from said chamber to the top of said drying-chamber, a heater in said heating-chamber and means for admitting air to said heating-chamber, substantially as described.

5. In a drying-kiln, the combination with the drying-chamber of a heating device therefor consisting of a central supply-pipe, inclined to discharge the water of condensation and a plurality of lateral branch pipes connected directly with said central pipe, extending therefrom on opposite sides and inclined upwardly from said central pipe, the only openings in said pipes being at their points of communication with said central pipe, substantially as described.

579,710. WAGON-BRAKE. JAMES W. HUTCHINSON and CHARLES B. RITCHIE, Moab, Va.; said Ritchie assignor to said Hutchinson. Filed June 18, 1896. Serial No. 596,044. (No model.)



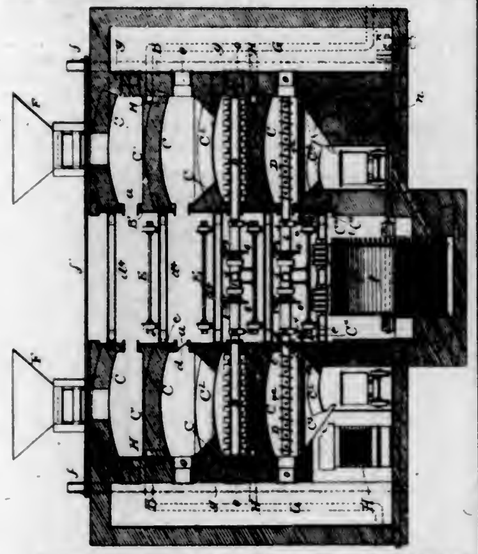
Claim.—In an automatic wagon-brake, the combination with the tongue having a slot therein, a doubletree, a pin passing through the said doubletree and working in said slot, the said pole being connected to the front axle by means of hounds G, the said pin being secured to a clevis-shaped link, a clevis-shaped link, a Y-shaped rod the ends of which are attached to lever-arms and to the clevis-shaped link, lever-arms, pivoted to the braces E, a cross-bar H, slots in the ends of the said cross-bar, lever-arms 3, pivoted in the said slots, brake-shoes secured to the ends of the lever-arms 3, links a', for connecting the levers 12 and the lever-arms 3, and a tension mechanism, substantially as set forth and described.

579,711. ROASTING-FURNACE. HERMANN A. KELLER, WILLIAM G. COLE, and JARED E. GAYLORD, Butte, Mont.; said Cole assignor to Arthur Harvey Wethey, same place. Filed Apr. 9, 1894. Serial No. 506,936. (No model.)

Claim.—1. The combination with a pair of roasting-furnaces each having an opening in one wall of stirring apparatus extending into each furnace, a truck located between the furnaces for carrying said stirring apparatus, a drum and ropes or chains connected with said truck and connected with said drum, substantially as set forth.

2. The combination with a pair of roasting-furnaces each having an opening in one wall and stirring apparatus extending into each furnace, of a drum, and ropes or chains connected with said stirring apparatus and coiled about said drum, whereby to cause said stirring apparatus to travel from end to end of said furnaces and means located between the furnaces for carrying said stirring apparatus, substantially as set forth.

3. The combination with a pair of furnaces arranged a suitable distance apart and having a space between them, said furnaces having openings in the inner wall, and hinged drop-curtains for closing said openings, of a movable device located in the space between the furnaces and rakes extending outward from the movable devices into the openings in the inner walls of the furnace, said rakes adapted to open the curtains as they move to and fro, substantially as set forth.



4. The combination with a pair of furnaces located some distance apart so that a space is formed between them, downtakes outside of the furnaces, said furnaces provided with openings in their inside walls, and drop-curtains for closing these openings, of a movable device located in the space between the inner walls and rakes projecting from the movable devices into the openings in the inside walls of the furnace, substantially as set forth.

5. In a roasting-furnace, the combination with a hearth having an opening in one wall thereof, of a curtain hinged to the wall of said opening and adapted to normally close the same, a rake adapted to project through said opening, an arm carried by said rake and adapted to raise said curtain to permit the passage of the rake, a flange projecting from said arm and a trough adapted to contain sand or water, into which said flange projects, substantially as set forth.

6. In a roasting-furnace, the combination with a hearth and a rake having a perforated hollow head, of means for carrying said rake and an extensible telescoping pipe for conveying fluid to said rake-head, substantially as set forth.

7. In a roasting-furnace the combination with two parallel structures having an open space between them, and openings in their inner walls each having a hearth, of a rake over each hearth and means located in the space between the hearths for carrying both of said rakes, substantially as set forth.

8. In a roasting-furnace, the combination with two parallel structures having openings in their inner walls hearths, and a rake adapted to operate over each hearth, of operating devices, located between said structures and connected with both of said rakes, substantially as set forth.

9. In a roasting-furnace the combination with two parallel structures, having openings in their inner walls and each structure having a hearth and a rake adapted to operate over each hearth, of a truck adapted to travel between said structures and to carry both of said rakes, substantially as set forth.

10. In a roasting-furnace, the combination with two parallel structures, having openings in their inner walls and each structure having a hearth, of a truck adapted to travel between said structures and carry both of said rakes and means for causing said rakes to make a partial revolution at each end of its stroke, substantially as and for the purpose set forth.

11. A roasting-furnace comprising two parallel structures, beams supporting the inner sides thereof, braces extending from one beam to the other, beams or girders outside of said structures, and tie-rods extending from one girder to the other for holding them together and giving lateral support thereto, substantially as set forth.

12. In a roasting-furnace, the combination with two parallel structures, having openings in their inner walls and each structure having a series of hearths, the alternate ends of said hearths being adapted to communicate, of trucks located between said structures, rakes adapted to operate over said hearths and carried by said trucks, and devices for automatically causing said rakes to assume an operative position during their forward movement and an inoperative position during their return stroke, substantially as set forth.

13. The combination with a roasting-furnace having an opening in one side wall, and a hearth, of a truck, a rake carried by said truck and adapted to operate over said hearth, a drum, a rope or chain coiled about said drum and connected with said truck, a series of gear-teeth projecting from said drum, a shaft and a pinion carried by said shaft, said pinion being adapted to mesh alternately with opposite sides of said gear-teeth, whereby to cause said drum to oscillate and cause the truck to travel back and forth, substantially as set forth.

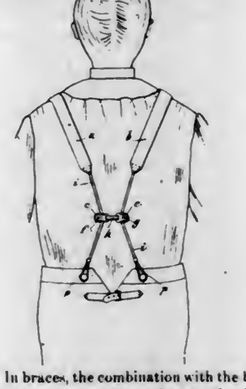
14. The combination with parallel furnaces having longitudinal slots in their adjacent sides with movable doors, of plows or stirrers extending into the furnaces through said slots, and having an operating mechanism intermediate of the furnaces for operating them simultaneously, the said doors being constructed to move and allow the passage of the plows and then return to place after they have passed.

15. In a roasting-furnace, the combination with two parallel structures having an open space between them, and longitudinal slots in the inside walls of the structures, each structure having a hearth, of a rake over each hearth, and means located in the space between the hearths for carrying both of said rakes, substantially as set forth.

16. In a roasting-furnace, the combination with two parallel structures having hearths, and a rake adapted to operate over each hearth, of carrying devices located in the space between said structures and connected with both of said rakes, substantially as set forth.

17. In a roasting-furnace, the combination with two parallel structures, each having a hearth and the inner wall of each structure having a longitudinal slot, and a rake adapted to operate over each hearth, of a truck adapted to travel between said structures and to carry both of said rakes, substantially as set forth.

579,712. BRACES. MAX KRONHEIM, Berlin, Germany. Filed Jan. 14, 1895. Serial No. 534,882. (No model.) Patented in England Dec. 21, 1894, No. 24,923.



Claim.—1. In braces, the combination with the back parts, cords or connections, of a transverse connecting part having means for engaging said back parts free to adjust itself at its ends vertically on said cords and having interposed in it a loose link h, substantially as set forth.

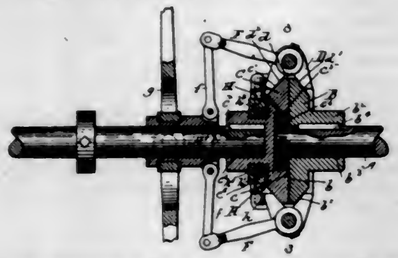
2. In braces, the combination with the back parts, cords or connections, of a transverse connecting part free to adjust itself at its ends vertically on said cords and having rollers g and a loose link h, substantially as set forth.

3. In braces the combination with the back parts, cords or connections, of rollers engaging the same, separate frames each carrying pivotally one of said rollers and having an opening, and a loose link h engaging said openings, substantially as set forth.

579,713. CLUTCH. DANIEL G. LANGLANDS, Winthrop, Mass. Mar. 2, 1896. Serial No. 581,474. (No model.)

Claim.—1. The combination in a clutch for connecting and disconnecting power-shafts of a driving member B attached to the end of one shaft and having a flat face b and an inclined surface b' at its outer edge, a driven member C fast to the end of another shaft in line with the first-named shaft and having the flat face c and the inclined surface c' at its outer edge, clutch-engaging shoes upon the exterior of said members B, C, having the inclined inner surfaces d', d^3, means for moving said shoes slightly from the inclined surfaces

of the clutch members and for holding them so removed carried by one of the shafts, and devices for closing said shoes against the clutch members and for holding them closed and for opening said shoes also carried by one of the shafts and means for operating said opening and closing devices from a stationary point while one or both shafts are revolving, as and for the purposes set forth.



2. The combination of the clutch members B, C, having the inclined surfaces as specified, the shoes having the inclines d', d^3 and the collar A^3 to which the shoes are yieldingly secured, as and for the purposes described.

3. The combination of the clutch members B, C, having the inclined surfaces b', c', the shoes having the inclined surfaces d', d^3 and the ears A extending laterally from the sides of the shoes, the pins H carried by the said ears and extending inwardly into the holes h' in the collar, and a spring in each of said holes to act against said pins.

4. The combination of the clutch members B, C, having the inclined or tapering surfaces, the shoes having inclined or tapering surfaces to close upon the inclined or tapering surfaces of the clutch members, the collar A^3 which is free to turn upon its support, and yielding connections between it and the shoes, substantially as and for the purposes described.

5. The combination in a clutch of the members B, C, having the inclined surfaces b', c', shoes surrounding said clutch members, having the inclined surfaces d', d^3, means for sustaining the shoes in their open position free to turn with the shoes, upon its support, and shoe-actuating devices also free to turn upon their support, as and for the purposes described.

6. The combination of the clutch members B, C, having inclined surfaces, the shoes arranged to surround the clutch member, and having the inclined surfaces d', d^3, to engage the inclined surfaces of the clutch members, the shoe operating right and left screws connected with the shoes as specified, their turning arms F, the links f, the sliding sleeve G, and a device not turning with the shaft for moving said sleeve, as and for the purposes described.

7. In combination with the clutch members shaped as specified, the surrounding shoes, each of which has ears d^4 provided with holes d^5 and adjustable nuts e^3 stationarily held, the screws connecting the shoes as specified, with means for turning the screws, substantially as and for the purposes set forth.

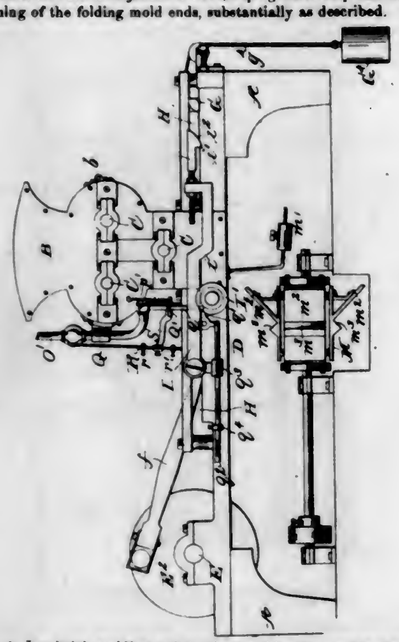
8. The combination of the clutch member C, fixed to the shaft A', carrying a collar A^3 free to turn thereon, said collar, and a number of shoes yieldingly supported thereby, a bearing in the face of said clutch member for the shaft A, the said shaft and the clutch member thereon, the clutch members engaging each other and having inclined surfaces as specified, and the shoes having inclined surfaces to engage the inclined surfaces of the clutch members, all as and for the purposes set forth.

579,714. BRICK-MAKING MACHINE. JOHN J. LEVI, New Richmond, Ohio, assignor of three-fourths to Alfred A. Levi and John James Levi, Jr., same place, and H. M. Dalton, Cincinnati, Ohio. Filed Apr. 19, 1894. Serial No. 508,122. (No model.)

Claim.—1. A grinder for a brick-machine including among its members, a plurality of parallel shafts each provided with a series of parallel circular toothed disks, disposed angularly to the shaft, the disks of each shaft being disposed at a different opposite angle to that of the disks of an adjacent shaft, the disks of one shaft registering with the space between the disks of an adjacent shaft substantially as described.

2. A brick molding and shaping machine having among its members a pair of molding-slides, a stationary table forming a part of the mold, an automatically-acting dumping-table, and means for moving the pressed brick from the stationary table onto the dumping-table, substantially as described.

3. A brick molding and shaping machine having a pair of molding-slides forming opposite sides of the molds, folding mold ends, a stationary table forming a part of the mold, an automatically-acting dumping-table, means for moving the pressed brick onto the dumping-table and means adjacent to the dumping-table for permitting the opening of the folding mold ends, substantially as described.



4. In a brick molding and shaping machine the combination with the front and rear molding-slides, of a stationary table forming a part of the mold, and a self-acting dumping-table, means for moving the slides together to bring the pressed brick onto the dumping-table, means for separating the said slides to leave the brick on the dumping-table and to move the rear slides into position on the stationary table to effect the formation of another brick, substantially as described.

5. The combination with the guideways having recesses in the side walls of the same, of the front molding-slide having folding mold ends fitting within said recesses, substantially as described.

6. The combination with the main frame having the supporting-flange, of the stationary and dumping tables, and the front and rear molding-slides, substantially as described.

7. The combination with the front and rear molding-slides, the stationary table, the dumping-table, means for holding the rear slides upon the stationary table, a single drag-bar at each side of said molding-slides to couple the same for joint movement to bring the pressed brick upon the dumping-table, substantially as described.

8. The combination with the front molding-slides of the cut-off plate and connections between them having provision for lost motion to open and close the cut-off plate by a less movement than is given the slides themselves, substantially as described.

9. The combination with the brick forming and shaping machine having a pivoted dumping-table, of an endless discharge-carrier having receiving-plates inclining toward said tables, substantially as described.

10. The endless discharge-carrier having the receiving-inclines and the arresting-abutments, substantially as described.

11. The combination with a brick-mold, of pipes for conveying air under pressure, steam, sand and oil, and discharge-nozzles for said materials movable toward and from the said mold, substantially as described.

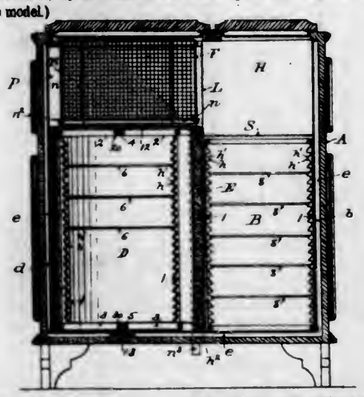
12. The combination with a brick-mold, of pipes for conveying air under pressure, steam, sand, and oil, valves for controlling the said pipes, a box provided with discharge-nozzles connected with said pipes, said box being movable toward and from the said mold and means for controlling said valves operatively connected with said box, whereby the moving of the box into and out of operative position effects the opening and closing of said valves, substantially as described.

13. The combination with a brick-mold, of oil and sand supply pipes, of discharge-nozzles movably connected therewith, means for moving said nozzles to and from the brick-mold, substantially as described.

14. The combination with a brick-mold, of pipes for supplying air under pressure, steam, oil and sand, of a divided discharge-box, one division connected with said pipes to receive air and sand the other connected to receive oil and steam, said box being movably connected with said pipes, valves for controlling the supply of materials to each division of said box and connections between said box and valves, whereby the movement toward the said brick-mold opens said valves and the reverse movement closes them, substantially as described.

15. The combination with the divided discharge-box, of the oiler and sander and pipes for supplying sand and oil to different compartments, substantially as described.

579,715. REFRIGERATOR. FRANCIS H. LINDSEY and CLARENCE L. SIMONDS, Lynn, Mass. Filed June 27, 1895. Serial No. 554,284. (No model.)



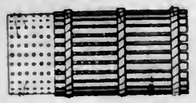
Claim.—1. A refrigerator consisting of an outer rectangular casing as A, and the inner metallic casing as b, with air-space between, and the circular or cylindrical casing within said casing b, forming a storage-closet as D, and the dead-air space between it and the inner metallic casing, at the corners 14, 14, 14, 14, and the revoluble frame and shelves within said cylindrical closet, and the ice-receptacle above said cylindrical closet with air-passages communicating with the same, together with suitable opening and doors to said closet and receptacle, substantially as shown and described.

2. A refrigerator consisting of a rectangular compartment and a cylindrical casing forming a storage-closet within, with dead-air space formed in the corners between the said compartment and closet as 14, 14, 14, 14, and the ice-receptacle above said closet with air-passages between and suitable openings and doors to give access to the receptacle and closet, substantially as shown and described.

3. The refrigerator consisting of the said rectangular compartment and cylindrical closet with dead-air spaces formed in the corners 14, 14, 14, 14, and ice-receptacle and the storage-closets H and B with air-passages leading from said ice-receptacle to and through said closets H and B and air-passage A^3 leading from closet B to the cylindrical closet, revoluble frame and shelves whereby a free circulation of refrigeration is effected through all the closets to and from the ice-receptacle, substantially as shown and described.

4. A refrigerator composed of the outer rectangular casing A, and the inner metallic casing d the sides of the former having tangential relations with the latter, there being air-spaces between the two casings at the corners, and the circular casing within forming a storage-closet D having the revoluble frame carrying adjustable shelves and provided above with the ice-receptacle F, the bottom of which is perforated to give free air communication between the two, the said closet and receptacle being also provided with suitable openings and doors.

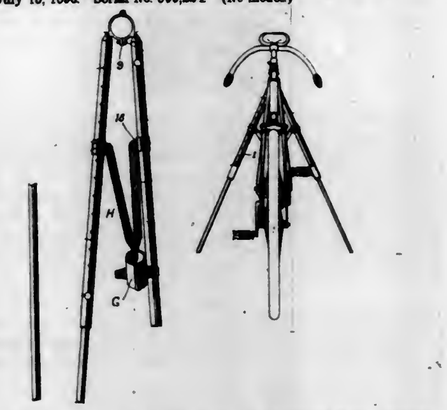
579,716. BARREL. JOHN LOPP, Monett, Mo. Filed June 20, 1896. Serial No. 596,264. (No model.)



Claim.—1. A collapsible barrel or similar vessel of cylindrical shape, comprised of a number of staves, flexible strips connecting said staves in a separated condition, and a perforated lining for the barrel the perforations being exposed between the staves.

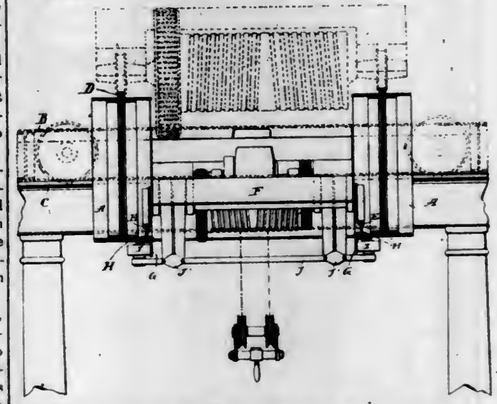
2. A collapsible barrel or similar vessel made up of separated staves connected together by flexible metallic strips and pointed staples driven diagonally through the strips and staves and having their ends upset, means for connecting the ends of the strips, and a lining having perforations coincident with the spaces between the staves.

579,717. BICYCLE-SUPPORT. MARION S. MICHENER, Kansas City, Kans., assignor of one-half to Angus McMillan, same place. Filed July 15, 1896. Serial No. 599,224. (No model.)



Claim.—In a bicycle-support, the combination with a bicycle-frame, of a supporting-leg pivoted thereto, said leg being provided with a longitudinal slot, a foot telescoping in the leg, a clamping-screw carried by the foot and working in the slot, a runner movable on the leg and which also has a slot from end to end thereof, and a brace pivotally connected to the runner and the bicycle-frame.

579,718. OVERHEAD TRAVELING CRANE. WILLIAM H. MORGAN, Alliance, Ohio. Filed June 18, 1896. Serial No. 596,092. (No model.)



Claim.—1. In an overhead traveling crane, the combination with a traveling bridge, of a traveling trolley thereon and rollers mounted on vertical bearings carried by said trolley and bearing against the outer faces of rails secured to the under side of the bridge, substantially as set forth.

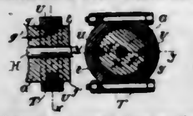
2. In an overhead traveling crane the combination with a traveling bridge, of a traveling trolley thereon and rollers mounted on vertical bearings carried by said trolley and bearing against the outer faces of angle-irons secured to the under side of the bridge-girders, substantially as set forth.

3. In an overhead traveling crane, the combination with a traveling bridge, having a trackway formed on the lower inner flanges thereof and angle-irons secured to under face of each bridge-girder, of a traveling trolley adapted to travel on said trackway, and rollers mounted on vertical bearings carried by the trolley and adapted to bear against the outer faces of the angle-irons.

4. In an overhead traveling crane the combination with a traveling bridge comprising girders and end carriages, a trackway formed by rails secured to the lower inner flanges of the girders, and angle-irons secured to the lower faces of the girders of a trolley mounted

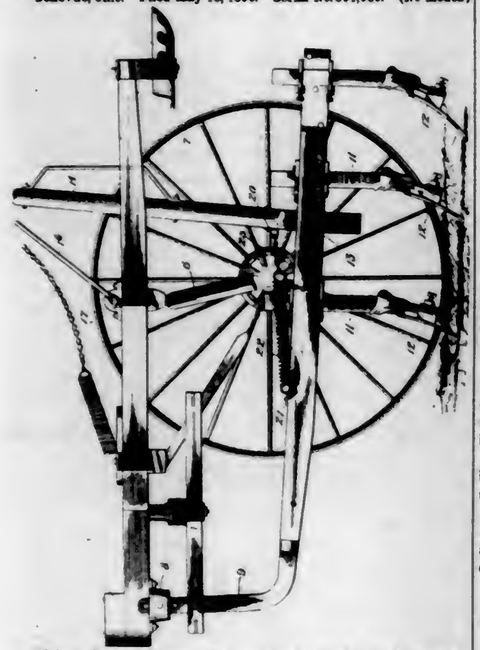
on the rails, a bar secured to brackets depending from the trolley and horizontally-disposed wheels mounted on bearings carried by the bar and bearing against the outer faces of the angle-irons, substantially as set forth.

579,719. HOISTING APPARATUS. WILLIAM F. MURRAY, San Francisco, Cal. Filed Nov. 4, 1896. Serial No. 611,067. (No model.)



Claim.—In a hoisting apparatus, the combination, of a winding-drum, a driving-gear with which it is forced into engagement, a shaft upon which the gear is fixed and the drum is slidable, and means for resisting the thrust of the engagement of the drum with the gear, consisting of a collar composed of two sections bolted together and each having an integral internal tongue adapted to fit an annular groove in the shaft, and concealed pins seated in the tongues and projecting inwardly, and adapted to enter sockets in the shaft whereby the collar is prevented from rotating on the shaft.

579,720. LIFTING-SPRING FOR CULTIVATORS. SILAS P. OLDFIELD, Mitchellville, Iowa, assignor to the Ohio Cultivator Company, Bellevue, Ohio. Filed May 18, 1896. Serial No. 591,989. (No model.)

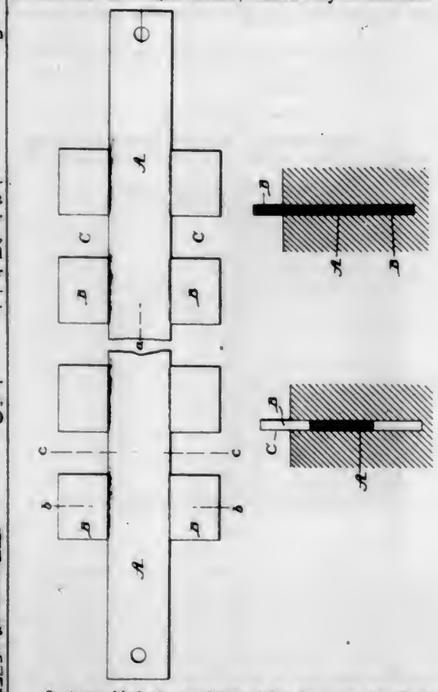


Claim.—In a cultivator, the combination with the framework and supporting-axle and wheels, of cultivator-beams located below the framework, hand-levers pivoted to the beams, standards fulcrumed on the framework in advance of the point of pivot between the beams and hand-levers and loosely connected at their upper ends to the hand-levers, and springs for drawing the levers to the front and raising the beams, said springs being connected to the hand-levers and beams and arranged with relation to the standards to exert an increasing power upon the hand-levers after the initial push imparted to the same, substantially as specified.

579,721. SAW-BLADE FOR STONE-SAWING MACHINES. JAMES PECKOVER, Philadelphia, Pa., assignor to the Rapid Stone Saw Company, of New Jersey. Filed Feb. 10, 1897. Serial No. 622,751. (No model.)

Claim.—1. A saw-blade for machines of the character described consisting of a thin central body portion, and relatively thicker cutting-blades on opposite sides thereof, each of the latter being slotted or notched to form serrated or toothed edges; substantially as described.

2. A saw-blade for machines of the character described consisting of a thin central body portion and relatively thicker cutting-blades on opposite sides thereof, each of the latter being slotted or notched the entire depth thereof; substantially as described.



3. A saw-blade for machines of the character described consisting of a central body or blade portion and relatively thicker edge portions on either side thereof, said edge portions being of uniform thickness and one of the same being slotted or notched to form cutting-teeth; substantially as described.

4. A saw-blade for machines of the character described consisting of a central body or blade, a relatively thicker serrated cutting edge integral therewith, on one side of the central body, with means, such as teeth B B, on the opposite side, operating to steady the saw in the kerf; substantially as described.

5. A saw-blade for machines of the character described consisting of a blade or body A, a series of teeth B B of greater relative thickness than the body or blade, and arranged on one side thereof, with means such as other teeth B B and of uniform thickness therewith, arranged on the opposite side of the body or blade A adapted and operating to fill the kerf-space in the stone above the cutting edge; substantially as described.

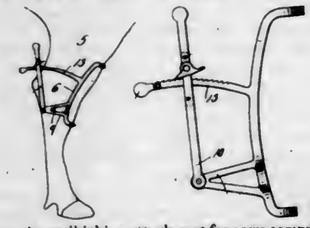
579,722. FRAME-LOCK. CHARLES PETERSEN, Auburn, N. Y. Filed July 31, 1896. Serial No. 601,257. (No model.)



Claim.—1. The combination with a frame, of a plate secured to the corner thereof and having slots obliquely arranged with relation to each other and with relation to the opposite sides of the plate through which the securing-screws pass, and screws passed through said slots, substantially as specified.

2. The combination with a frame, of a plate secured to the face thereof at the corner and provided with obliquely-arranged slots extending at a distance from and arranged obliquely to the joint between the two adjacent portions of the frame and having holes for the reception of screws at its inner ends and screws passed through said slots, substantially as shown and described.

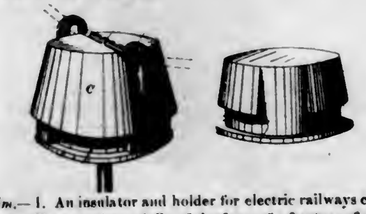
579,723. HOPPLE. MILES ROBINSON, Peotone, Kans. Filed Oct. 28, 1896. Serial No. 610,346. (No model.)



Claim.—An antikicking attachment for cows comprising a clamp having a curved plate, a yoke-shaped backwardly-directed hook at both its upper and lower ends, two backwardly-directed arms or braces near the lower end of the plate, a lever pivoted thereto, a keeper on said lever, a segmental rack-bar passing through said lever and engaging said curved plate, a head on the outer end of said rack-bar, a dog on said lever engaging said rack-bar and a hook on said keeper, all of said parts being combined substantially as described.

579,724. WITHDRAWN.

579,725. INSULATOR AND HOLDER FOR ELECTRIC RAILWAYS. WILLIE C. KEITHLY, San Francisco, Cal. Filed Nov. 27, 1896. Serial No. 613,495. (No model.)



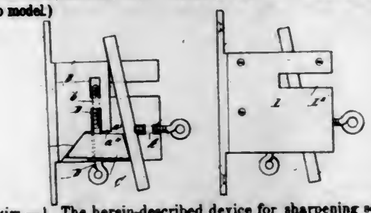
Claim.—1. An insulator and holder for electric railways consisting of a metallic cap substantially of the form of a frustum of a cone, having lugs formed upon the interior, a correspondingly-shaped insulator with lugs formed upon the exterior, adapted to be engaged with those of the cap when the insulator is inserted and turned, whereby it is removably secured therein, means for suspending the cap from supporting-posts, and means for suspending the trolley-wire from the interior of the insulator

2. In an insulator and holder for electric railways, a cap substantially of the form of a frustum of a cone, having interior lugs upon opposite sides, a correspondingly-shaped hollow insulator with exterior lugs adapted to engage those of the cap and lock the insulator therein when turned, interior lugs within the insulator, a suspending-shank to which the trolley-wire is connected, said shank having a winged disk adapted to engage and lock with the lugs within the insulator.

3. An insulator and holder for electric railways, consisting of a cap substantially of the form of a frustum of a cone, having interior oppositely-placed projecting lugs, a correspondingly-shaped insulator having oppositely-placed lugs upon the exterior, adapted to engage and lock with those in the interior of the cap when the insulator is turned, lugs in the interior of the insulator, a shank or stem adapted to connect with and suspend the trolley-wire, said shank having a winged disk adapted to lock with the lugs in the interior of the insulator, and a protecting-disk secured thereto below the mouth of the insulator.

4. An insulator and holder for electric railways consisting of a metallic cap of the form of a frustum of a cone, an interiorly-secured correspondingly-shaped insulator, a shank having wings for securing the same to the insulator whereby the trolley-wire is suspended therefrom, oppositely-disposed hooks upon the top of the cap adapted to receive the transverse supporting-wire having a groove or channel in the top of the cap, in which said wire lies between the hooks.

579,726. DEVICE FOR SHARPENING SCISSORS. NAPOLEON J. ST. HILAIRE, Gardner, Mass. Filed Apr. 25, 1896. Serial No. 589,016. (No model.)

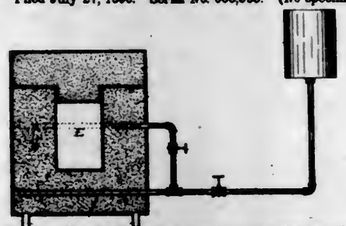


Claim.—1. The herein-described device for sharpening scissors, shears and similar articles, which consists of a block or casing in which is formed a vertical slot or passage, in which is mounted a bar, said bar being adapted to serve as a sharpener, and said block or casing being provided with a transverse slot or slots through which the blade to be sharpened is passed, and means for holding said bar in position, consisting of a movable block which is mounted in a suitable opening in the bottom of the main block or casing, and through which passes a bolt or screw, the outer end of said block being projected into said vertical slot or opening, substantially as shown and described.

2. The herein-described device for sharpening scissors, shears, and similar articles, which consists of a block or casing in which is formed a vertical slot or passage, in which is mounted a bar, said bar being adapted to serve as a sharpener, and said block or casing being provided with a transverse slot or slots through which the blade to be sharpened is passed, and means for holding said bar in position, consisting of a movable block which is mounted in a suitable opening in the bottom of the main block or casing, and through which passes a bolt or screw, the outer end of said block being projected into said vertical slot or opening, and said movable block being provided with inclined ends, one of which is adapted to operate in connection with a similar surface or wall, formed in the main block or casing, and the other being adapted to serve as a support for the bar, substantially as shown and described.

3. The herein-described device for sharpening scissors, shears and similar articles, which consists of a block or casing in which is formed a vertical slot or passage, in which is mounted a bar, said bar being adapted to serve as a sharpener, and said block or casing being provided with a transverse slot or slots through which the blade to be sharpened is passed, and means for holding said bar in position, consisting of a movable block which is mounted in a suitable opening in the bottom of the main block or casing, and through which passes a bolt or screw, the outer end of said block being projected into said vertical slot or opening, and said movable block being provided with inclined ends, one of which is adapted to operate in connection with a similar surface or wall, formed in the main block or casing, and the other being adapted to serve as a support for the bar, and said main block or casing being also provided with a set-screw or bolt which passes therethrough, and which is provided with a notch or recess in its inner end, which is also adapted to hold said bar in position, substantially as shown and described.

579,727. HEAT-PRODUCING COMPOSITION AND METHOD OF PRODUCING HEAT FOR INCUBATORS, &c. EMIL TURCK, Anaheim, Cal. Filed July 27, 1896. Serial No. 600,583. (No specimens.)

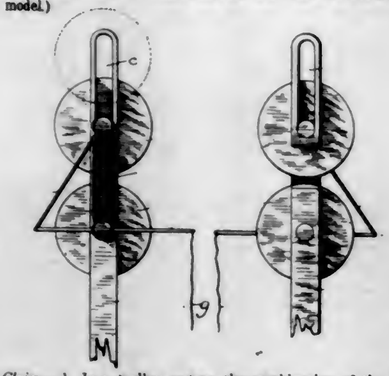


Claim.—1. The method of maintaining a constant and uniform heat suitable for hotbeds, incubators, &c., which consists in supplying to a bed of absorbent organic material a solution of sugar or molasses or other vegetable extract containing carbohydrates.

2. The composition for producing and maintaining heat for incubators and for horticultural and other purposes, which is composed of absorbent organic material and a solution containing carbohydrates.

3. The composition for producing and maintaining heat for incubators and for horticultural purposes, which is composed principally of absorbent organic material and refuse from sugar or glucose factories.

579,728. TROLLEY SYSTEM. WILLIAM H. WALKER, Pittsburg, Pa., assignor of two-thirds to James M. Scott, same place, and Stephen D. White, Haysville, Pa. Filed June 26, 1896. Serial No. 597,062. (No model.)

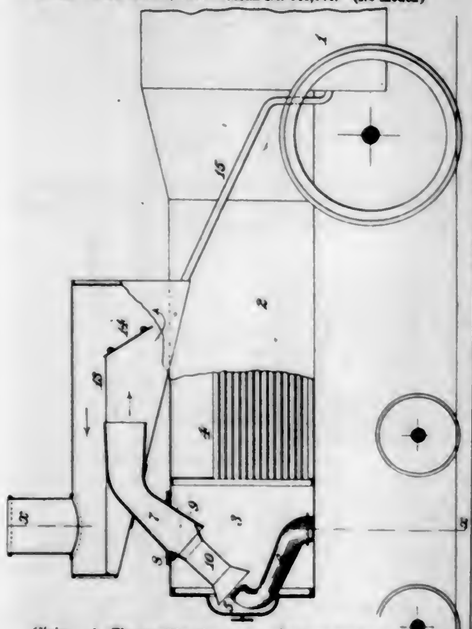


Claim.—1. In a trolley system, the combination of the trolley-head consisting of the bracket, wheels mounted therein and adapted to contact with opposite sides of an overhead conductor, one of said wheels being mounted on a fixed axle and another being mounted on an axle movable in a slot in said bracket, a lever connected with said fixed and movable wheel-axles and adapted to press the movably-mounted wheel away from the conductor, and means connecting the axles of the wheels for forcing the wheels into contact with the conductor.

2. In a trolley system, the combination of the trolley-wheel pivotally secured to the supporting-bracket, the lower wheels connected by means of levers and rods to the upper wheel, said upper wheel being adapted to be adjusted vertically in the slot in the bracket by means of said levers and rods, substantially as shown and described.

3. In a trolley system, the combination of the trolley-wheels pivotally supported in the brace, the axle of the upper trolley-wheel operating in the slot in said bracket, and an operating lever and rod whereby said upper wheel is adjusted vertically in combination with the trolley-wire provided with hoods to permit the free travel of the trolley, substantially as shown and described.

579,729. SPARK-ARRESTER. HENRY H. WARNER, Tacoma, Wash. Filed Dec. 17, 1896. Serial No. 615,979. (No model.)



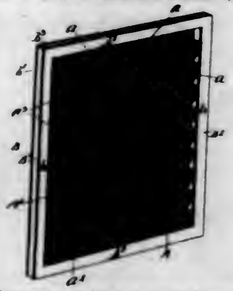
Claim.—1. The combination, substantially as set forth, of a steam-boiler uptake or discharge flue, a smoke-chamber connected therewith, a deflecting-partition extending longitudinally in said chamber, and turned downwardly at its rear end, the edge of which is located above the bottom of the chamber and forward of its rear end wall, a spark-conduit leading out of the lower rear portion of the smoke-chamber, and an exit flue or stack adjacent to the opposite end of the smoke-chamber.

2. The combination, substantially as set forth, of a steam-boiler uptake or discharge flue, a smoke-chamber connected therewith, a deflecting-partition by which a reversed traverse of products of combustion is effected in the smoke-chamber, a spark-conduit leading from the smoke-chamber, in the direction of the initial traverse of products of combustion therein, to a fire-box connection, and an exit flue or stack adjacent to the opposite end of the smoke-chamber.

3. The combination, substantially as set forth, of a steam-boiler, a smoke-chamber supported above said boiler, a rearwardly-inclined uptake or discharge flue leading from the smoke-box of the boiler into the smoke-chamber, an exhaust-pipe having its discharge end substantially in axial line with said flue, an interposed lift-pipe, a longitudinal deflecting-partition in the smoke-chamber above said flue, a spark-conduit leading from the rear of the smoke-chamber to a fire-box connection, and an exit flue or stack leading from the forward portion of the smoke-chamber.

4. The combination, substantially as set forth, of a smoke-chamber, having a rearwardly and downwardly inclined bottom, a deflecting-partition extending longitudinally in said chamber, and having an inclined rear section, the lower edge of which is located above the bottom of the chamber and forward of its rear end wall, an uptake or discharge flue opening into the smoke-chamber below the deflecting-partition, a spark-conduit leading from the lower rear portion of the smoke-chamber to a fire-box connection, and an exit flue or stack leading from the forward portion of the smoke-chamber.

579,730. FLY-SCREEN FOR WINDOWS. JEDUTHUN N. WIGLE, Ruthven, Canada, assignor of one-half to William Drake Wigle, same place. Filed May 2, 1896. Serial No. 589,971. (No model.)



Claim.—1. In a screen, a fabric formed of netting, having a series of vertical rigid stiffening wires or rods integrally interwoven therewith, said netting and stiffening wires transversely crimped or corrugated, the netting being slitted at the outer edges of the corrugations thereof from side to side of the fabric to form continuous openings extending across the fabric, and severing the wire-netting into a series of independent transverse portions, said crimped stiffening wires or rods connecting and supporting the severed portions of the fabric on both sides of each of said slits or openings, and holding said severed portions rigidly together, substantially as set forth.

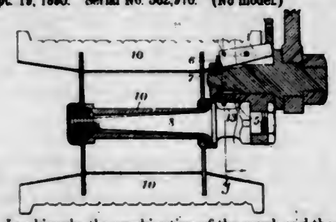
2. In a screen, a fabric constructed of wire-netting having a series of vertical stiffening wires or rods integrally interwoven therewith, said netting and stiffening-wires transversely crimped or corrugated, the wire-netting at both sides of said vertical stiffening-rods being slitted at the outer edges of the corrugations from side to side of the fabric to form continuous transverse openings, and multiple independent transverse vertically-inclined portions A' and adjacent outwardly-projecting portions a', said stiffening-rods holding the seval independent transverse portions of the wire-netting together, for the purpose set forth.

3. In a screen, a fabric constructed of wire-netting, provided with vertical rigid stiffening wires or rods, said netting together with said stiffening-wires being both crimped or corrugated, forming a series of transverse vertically-inclined portions A', and integral horizontal portions a', said wire-netting being slitted laterally at the outer edges of the horizontal portions from side to side of the fabric, to form continuous transverse openings, and severing the wire-netting into a series of independent parts, said stiffening-rods connecting the adjacent portions of the screen on opposite sides of said openings, and a frame constructed of upright and horizontal portions, having moldings secured thereto on opposite sides thereof, said moldings forming channels on the upright portions of the frame intermediate said moldings to receive the lateral edges of the fabric, said moldings contacting with the horizontal portions a' of the fabric to bind the fabric in place, for the purpose set forth.

4. In a screen, the combination of a fabric constructed of wire-netting having a series of vertical stiffening wires or rods integrally interwoven therewith, said netting and said stiffening-wires transversely corrugated to form vertically and forwardly inclined portions and substantially horizontal portions both of the wire-netting and of the stiffening-wires, the wire-netting being slitted at the outer edges of the horizontal portions from side to side of the netting to form continuous transverse openings and severing the wire-netting into a series of independent transverse strips, said strips held together in position by said stiffening-wires, the horizontal portions of the wire-netting supported upon the horizontal portions of the stiffening-wires, substantially as set forth.

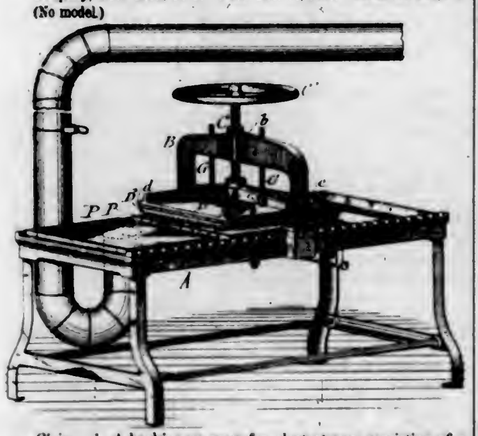
579,731. WITHDRAWN.

579,732. BICYCLE. ABRAHAM L. ADAMS, Bridgeport, Conn. Filed Sept. 19, 1895. Serial No. 562,970. (No model.)



Claim.—In a bicycle, the combination of the crank and the crank-pin, the auxiliary crank carried by said pin and capable of being swung around its axis, the pedal-spindle secured to said auxiliary crank eccentric to the axis of said pin, the pedal suitably journaled around said spindle, the notches in the circumference of said pin, the latch pivoted to said auxiliary crank and capable of engaging with said notches, the spring whereby said latch is normally engaged with said notches, and the lever resting upon said latch and carried by the auxiliary crank, substantially as set forth.

579,733. BACKING-UP PRESS FOR ELECTROTYPES. FRANK W. BAUM, Springfield, Mass., assignor to the F. Wesel Manufacturing Company, New York, N. Y. Filed Dec. 21, 1896. Serial No. 616,471. (No model.)

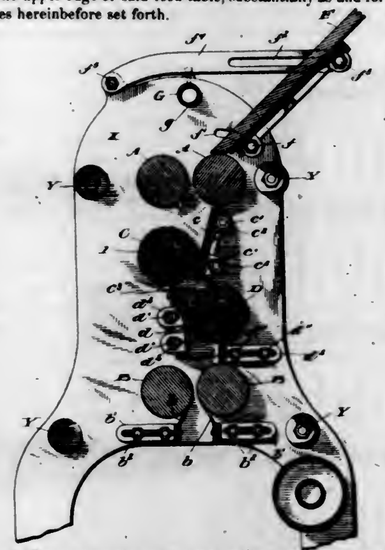


Claim.—1. A backing-up press for electrotypes, consisting of a bed-frame, a backing-pan, and a press, the platen of which is provided with a hurdy-gurdy press-plate, and a yielding layer interposed between said plate and the platen, substantially as set forth.

2. In a backing-up press for electrotypes, the combination of a platen, with the hurdy-gurdy press-plate, an intermediate layer of yielding material, and fastening-bolts by which the press-plate and the intermediate layer are attached to the under side of the platen, substantially as set forth.

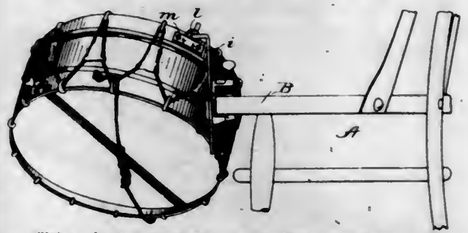
579,734. DECORTICATING-MACHINE. ADOLPHE BONNET, Havana, Cuba, assignor to Herman G. Hinse, Jersey City, N. J. Filed Oct. 1, 1896. Serial No. 607,601. (No model.)

Claim.—1. In combination with the upper or initial set of crushing or flattening rolls, the feed-table having a bolt and curved-slot connection at its lower edge with the machine-frame, and arms hinged or pivoted to said frame and attached by a bolt-and-slot connection to the upper edge of said feed-table, substantially as and for the purposes hereinbefore set forth.



2. The combination of the top and bottom sets of crushing-rolls A and B; the brush C placed under one of the rolls A of the top pair, and on one side of the path of travel of the stock; the guide-plate c extending from a point under the other roll A down opposite to and facing the brush and thence down nearly to the brush D next below, and adjustably mounted in the frame of the machine so that it may be bodily adjusted to and from the brush C to vary the size of the throat or passage between them; the brush D located on the same side of the path of travel with the guide-plate c and below said guide-plate; the guide-plate d extending from a point under brush C down opposite to and facing brush D, and thence down nearly to one of the crushing-rolls B of the bottom pair, and adjustably mounted in the frame of the machine so that it may be bodily adjusted to and from its brush D to vary the size of the throat or passage between them; and means for holding said guide-plates in their adjusted position, all substantially as hereinbefore shown and set forth.

579,735. SUPPORT FOR DRUMS. HARRY A. BOWER, Chelsea, Mass. Filed Oct. 22, 1896. Serial No. 609,674. (No model.)



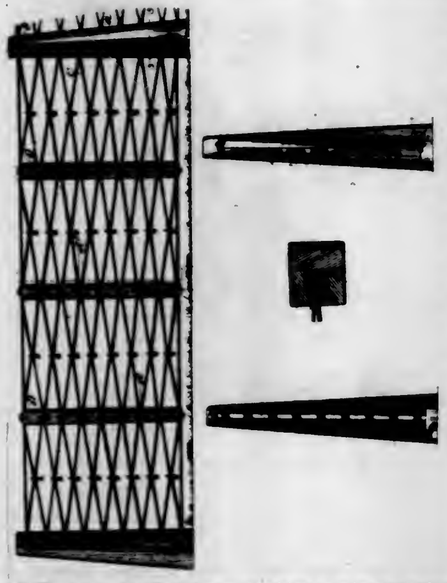
Claim.—1. A support for a snare-drum comprising a clamp adapted to be secured to a chair-seat, a rod having a hook on one end and passing through an aperture in the clamp, and a set-screw bearing against the rod to secure it after adjustment.

2. A support for a snare-drum, comprising a rod having a hook at one end, a bar having means for guiding and securing said rod, arms projecting laterally from said bar, a screw passed through one of said arms, and a bearing-plate swiveled to the end of said screw.

3. A support for a snare-drum, comprising a rod having a hook at one end, a bar *a* having a lug *g* to receive and guide the rod, a screw *n* threaded into the lug and adapted to engage the rod, and clamping means for securing the bar *a* to a chair or other stationary support.

579,736. FENCE. CLIFFORD L. CHAPMAN, Eldred, Mich. Filed July 25, 1896. Serial No. 600,497. (No model.)

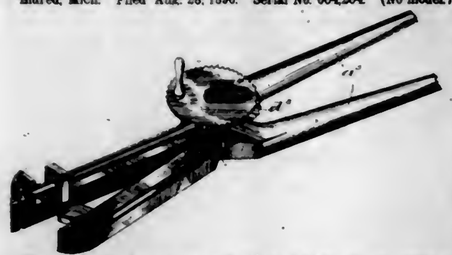
Claim.—1. The herein-described fence, comprising a series of vertical posts formed of two separable parts or members one of said parts being provided with an interior chamber, fence-wires having their ends projected into said chambers, rods located in said chambers and around which said wires are secured, and means for uniting the parts or members of said posts, whereby said rods are inclosed therein, as set forth.



2. The herein-described fence, comprising a series of vertical posts formed of two separable parts or members and having interior chambers, fence-wires having their ends projected into said chambers, rods located in said chambers and around which said wires are secured, short posts having grooves in their ends adapted to receive the topmost and lowermost wires, which are alternately passed over the ends thereof in a straight line and then united to the next adjacent wire, and means for securing all of said wires to said latter posts, as set forth.

3. The herein-described improved fence, comprising a series of supporting-posts, fence-wires connecting said posts, wire loops uniting said fence-wires in alternate pairs, and short posts to which said wires are connected, the topmost and lowermost wires being each alternately passed over the ends of two of said short posts in a straight line and then bent toward and united to the next adjacent wire, as and for the purpose set forth.

579,737. **WIRE-TWISTING DEVICE.** CLIFFORD L. CHAPMAN, Eldred, Mich. Filed Aug. 28, 1896. Serial No. 604,204. (No model.)



Claim.—1. The herein-described wire-twisting device, comprising two pivoted arms or members having jaws at their forward ends, and a twister having its head extended between said jaws, as set forth.

2. The herein-described wire-twisting device, comprising two members pivotally connected together and having jaws at their forward ends provided with transverse grooves, and a twister having its head extended between said jaws, as set forth.

3. The herein-described wire-twisting device, comprising two members pivotally connected together and having jaws at their forward ends provided with grooves or cut-outs, and a twister having its head adapted to rest in said grooves or cut-outs, as set forth.

4. The herein-described wire-twisting device, comprising two members pivotally connected together and having jaws at their forward ends, said jaws having transverse grooves therein and also grooves or cut-outs at right angles to said former grooves, and a twister adapted to work in said grooves or cut-outs, as set forth.

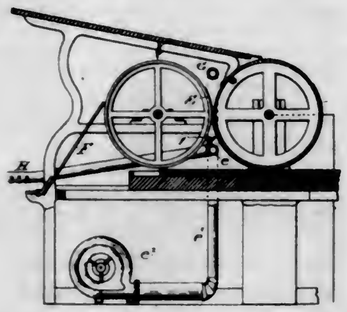
5. The herein-described wire-twisting device, comprising two members pivotally connected together and having jaws at their forward ends, said jaws having grooves or cut-outs formed in their ends and also in their inner faces, and a twister adapted to work in said latter grooves or cut-outs, as set forth.

6. The herein-described wire-twisting device, comprising two members pivotally connected together and having jaws at their forward ends, said jaws having grooves or cut-outs in their inner faces, and a rotatable shaft carried by said members and having a bifurcated end adapted to work in said grooves or cut-outs, as set forth.

7. The herein-described wire-twisting device, comprising two members pivotally connected together and having jaws at their forward ends, a twisting-shaft adapted to extend between said jaws and designed to move with one of said members, and means for rotating said shaft, as set forth.

8. The herein-described wire-twisting device, comprising two members pivotally connected together and having jaws at their forward ends, said jaws being provided with transverse grooves in their inner faces and grooves or cut-outs at right angles thereto, and also having grooves or cut-outs in their ends, a rotatable shaft carried by one of said members and having a bifurcated end adapted to be received by said former grooves or cut-outs, and means for rotating said shaft, substantially as set forth.

579,738. **METHOD OF OVERCOMING ELECTRIC PHENOMENA IN GOODS, &c.** BRAINERD W. CHILD, Boston, Mass., and MARK A. REPLOGLE, Cedar Falls, Iowa. Filed July 26, 1893. Serial No. 481,545. (No model.)



Claim.—1. The method herein specified of equalizing or rendering normal the electric condition of paper or other material, consisting in directing upon the same a current of atmospheric air and bringing into close proximity with the surface of such material, electric conductors, substantially as specified.

2. The method herein specified of restoring paper or other material to a normal electric condition while in motion, consisting in directing on the surface of such material a current of air and applying in close proximity to such material electric conductors included in an electric circuit containing a battery or other source of electric energy, substantially as specified.

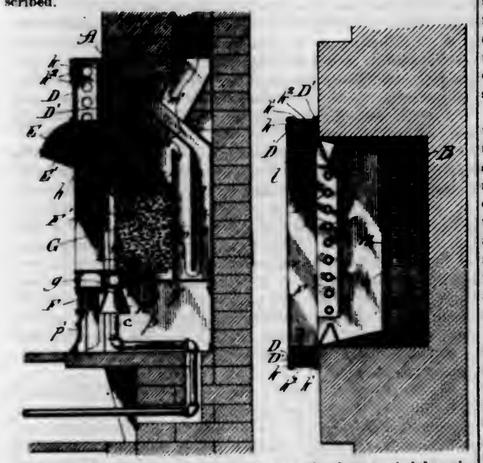
579,739. **MALTED BREAD AND METHOD OF PREPARING SAME.** GEORGE A. CLOWES, Needham Market, England, assignor of two-thirds to Moritz Paul Hatschek and Lawrence Briant, London, England. Filed May 27, 1896. Serial No. 593,318. (No specimens.) Patented in England Sept. 20, 1895, No. 17,590.

Claim.—1. The herein-described improvement in the method for preparing malted bread, &c., consisting in mixing with ordinary flour, or dough, a malt-flour of high diastasic value and containing cytase.

2. A malted bread, &c., having no distinctive flavor of malt, and composed of ordinary flour and a malt-flour of high diastasic value and containing cytase, substantially as described.

579,740. **FIREPLACE GAS-HEATER.** MORRIS I. COHEN, Chicago, Ill. Filed Jan. 18, 1896. Serial No. 575,963. (No model.)

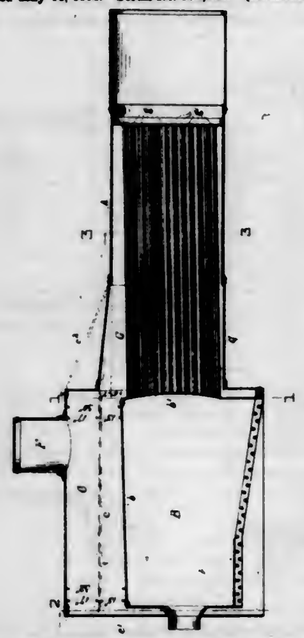
Claim.—1. In combination with a fireplace-heater, a deflector extending outwardly from the upper portion of the same and having an upward inclination, a hood extending from the mantel-front to the outer edge of said deflector, and a rear plate extending upwardly from the inner edge of the deflector and forming with it and the hood a chamber for holding a non-conductor of heat, substantially as described.



2. In a fireplace gas-heater, a fire-box having an air-inlet *o* in its base and an outlet *m'* for the products of combustion, a diaphragm *n'* extending upward from the base behind said opening and a diaphragm *n* extending downward short of said base between the back of the box and said diaphragm *n'* and forming therewith a circuitous flue leading from said inlet to said outlet, substantially as described.

3. A burner for fireplace-heaters, comprised of a series of tubes having apertures discharging into a combustion-chamber adapted to receive imitation fuel, said apertures being situated as described to discharge and cause gas to burn against the portions of such imitation fuel which are adjacent to the tubes, for the purpose set forth.

579,741. **LOCOMOTIVE-BOILER.** JAMES T. CONNELLY, Milton, Pa. Filed May 18, 1896. Serial No. 592,065. (No model.)

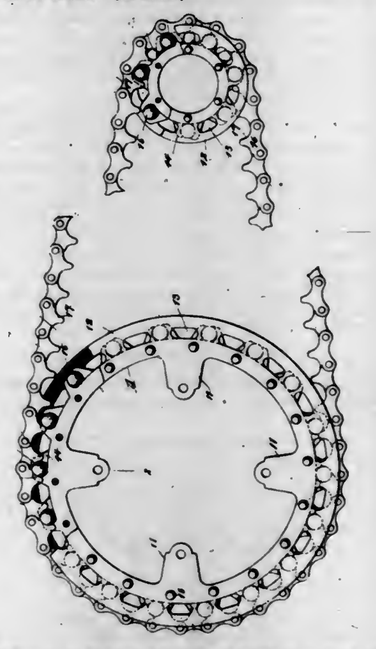


Claim.—1. An improved locomotive-boiler, comprising, in combination with the shell embodying the enlargement or wagon-top C of elliptical contour in cross-section, the fire-box B of circular contour in cross-section having its crown-sheet extending longitudinally with relation to the enlargement or wagon-top and inclined upwardly toward the front end, the relative size and arrangement of said circular fire-box and the elliptical wagon-top shell being such that the comparatively deep or large space, *c*, is formed longitudinally between the segmentally-curved and inclined top or crown-sheet of the fire-box and the elliptical top of the shell and gradually increases in depth toward the rear end of the fire-box and the wide or broad downwardly-converging space *c c* is formed at the sides of the inclined top portion of the fire-box, substantially as and for the purpose set forth.

2. An improved locomotive-boiler, comprising, in combination with the shell or barrel embodying the enlargement or wagon-top C, the fire-box B having the segmentally-curved top portion or crown-sheet extending longitudinally under and with relation to the enlargement or wagon-top and having the convex tube-head the apex of said curved top portion being on a longitudinal plane under the wagon-top and below the top plane of the front shell or barrel, the relative arrangement of said curved or circular fire-box and the wagon-top shell being such that the comparatively deep space c is formed above the segmentally-curved top portion or crown-sheet of the fire-box and the wide or broad space is formed at the sides of said curved crown-sheet, substantially as and for the purpose set forth.

3. An improved locomotive-boiler, comprising the shell or barrel embodying the enlargement or wagon-top C, the fire-box of circular contour in cross-section arranged within the shell, the relative size and arrangement of the fire-box and the wagon-top shell being such that the relatively deep or large space *c* is formed between the segmentally-curved top or crown-sheet of the fire-box and the top of the shell, substantially as described, the fire-box having the convex tube-head *b'* from which extends the series of tubes divided into an upper and lower set, the tubes of the upper set being of less diameter than the tubes of the lower set and the distances between the tubes being greater in the upper set than in the lower set, substantially as and for the purpose set forth.

579,742. **SPROCKET WHEEL AND CHAIN.** JOHN C. COTTIE, New York, and CHARLES J. MARIS, Brooklyn, N. Y. Filed July 30, 1896. Serial No. 601,018. (No model.)



Claim.—1. A sprocket-wheel constructed of a series of rings secured together, a flange formed at each side of the peripheral portion of the wheel, bearings located in the space between the flanges of the wheel, and rolling surfaces mounted to turn in the said bearings, substantially as shown and described.

2. A sprocket-wheel constructed of a series of rings secured together, the center ring being provided with inwardly-extended lugs, a flange formed at each side of the peripheral portion of the wheel, the said flanges being continuations of the outer rings and provided with openings, and rolling surfaces located between the said flanges, as and for the purpose specified.

3. A sprocket-wheel provided with peripheral flanges, cleats arranged in groups upon the periphery of the wheel between the flanges, and a ball held to revolve within each group of cleats, as and for the purpose set forth.

4. A sprocket-chain the links whereof are provided with teeth, the said teeth having their centers at one side of the center of the links of which they form a part, as and for the purpose specified.

5. A sprocket-chain consisting of a series of links, each alternate link being double and the connecting-links single, each of said links being provided with a tooth formed upon its inner face and having its side edges concaved the said teeth having their centers at one side of the center of the link to which they respectively belong, as and for the purpose specified.

6. The combination with a sprocket-wheel having balls mounted to revolve on its periphery, and flanges extending beyond the periphery of the wheel at its sides, the said balls being located between said flanges, of a chain, the links whereof are provided with teeth at their inner edges, the said teeth having their side edges concaved, and the center of said teeth being at one side of the center of the links to which the teeth belong, as and for the purpose set forth.

7. The combination, with a sprocket-wheel having spherical surfaces mounted to revolve on its periphery, of a chain the links whereof are provided with teeth at their inner edges, the center of the said teeth being at one side of the center of the links to which the teeth belong, whereby alternating pockets of different dimensions are formed, the said pockets being adapted for the reception of the spherical rotating surfaces of the wheel, as and for the purpose set forth.

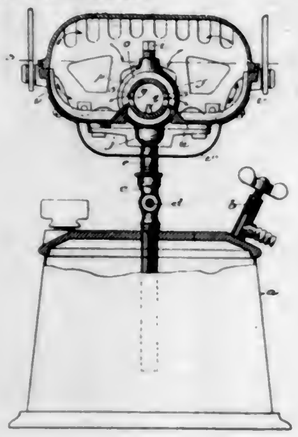
8. The combination, with a sprocket-wheel having spherical objects mounted to turn upon its periphery, and flanges extending beyond the periphery of the wheel at its sides, between which flanges the said spherical objects are located, the said flanges being provided with openings, of a chain the links whereof are provided with teeth at their inner edges, the center of the said teeth being at one side of the center of the links to which the teeth belong, whereby alternating pockets of different dimensions are formed, the said pockets being adapted for the reception of the spherical rotating surfaces of the wheel, as and for the purpose specified.

9. A sprocket-wheel having bearings formed upon the periphery, and balls mounted to revolve freely in the bearings, the said bearings permitting of the exposure of a major portion of the balls for engagement with the teeth of a sprocket-chain, whereby the balls are freely revolved, as and for the purpose specified.

10. The combination with a sprocket-wheel having bearings formed upon its periphery, and balls mounted to revolve freely in the bearings, of a sprocket-chain consisting of a series of links each provided with a tooth upon its inner face, the said teeth having their centers at one side of the center of the link to which they respectively belong, the major portion of the said balls being exposed for engagement with the teeth of said chain, whereby the said balls revolve freely when the chain is moved, as and for the purpose set forth.

11. A sprocket-wheel provided with cleats arranged in groups upon the periphery of the wheel, and a ball held to revolve within each group of cleats, the said cleats being arranged to permit of the exposure of the major portion of the said balls for engagement with a sprocket-chain, as and for the purpose set forth.

579,743. TINNER'S FURNACE. JOHN C. DUPER, Chicago, Ill., assignor of one-half to R. J. White, same place. Filed Nov. 14, 1896. Serial No. 612,084. (No model.)



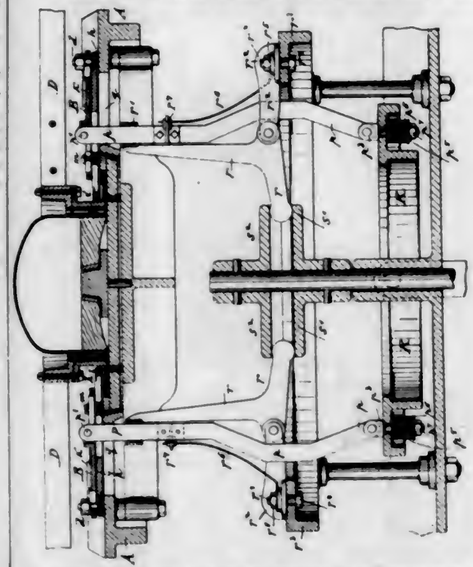
Claim.—1. A tinner's furnace in which are combined a source of oil-supply, a retort for heating and partially vaporizing the oil, a combined mixing and primary combustion chamber closed at its forward end and provided with an opening at its rear for the admission of air and openings at its sides for directing the flames into the heating-chamber, and a heating-chamber wholly or partially surrounding said mixing-chamber, the walls of said heating-chamber being so shaped as to direct the laterally-issuing flames and cause them to meet and impinge upon the mixing-chamber, substantially as described.

2. The combination in a furnace of the class described, of a source of oil-supply, a nipple in operative communication therewith, a retort interposed between said nipple and source of oil-supply, and between said nipple and the mixing-chamber, a combined mixing and combustion chamber closed at its forward end, open at its rear end and having a series of openings at its sides, means for dividing the flame or jet from the nipple when introduced thereto and directing it forwardly and laterally from the side openings, and an outer heating-chamber extending over the top and having its side walls curved so as to cause the laterally-projected flames to meet and impinge upon the mixing-chamber, whereby complete combustion may be produced without causing the oil to carbonize in the retort, substantially as described.

3. The combination with a source of oil-supply of the retort *f* having a central opening and the circular chamber *h*, of the nipple *l*, in communication therewith and arranged in the rear thereof concentric with said opening, cylindrical mixing-chamber *p* closed at its forward end and provided with openings *s* at the sides, and a heating-chamber composed of the plates *v w*, having their side walls curved, substantially as described.

4. The combination in a furnace of the class described of a retort for heating the supplied oil to partial vaporization by means of a jet of flame directed through an opening in said retort, of a mixing-chamber arranged in operative proximity to said retort, means for introducing air thereto, means for causing the flame to issue laterally therefrom and an outer heating-chamber for directing the flame back upon said mixing-chamber and openings in the rear of said heating-chamber for permitting air to be brought into contact with said retort and preventing the same from becoming overheated, substantially as described.

579,744. HAT-BRIM-CURLING MACHINE. CARL EICKENMEYER, Yonkers, N. Y. Filed July 21, 1896. Serial No. 600,058. (No model.)



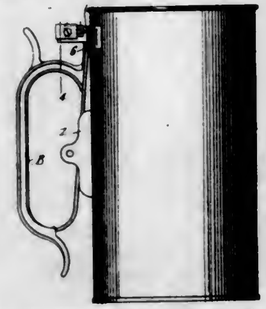
Claim.—1. In a hat-brim-curling machine, the combination of an expanding and contracting brim-folding ring, composed of a series of constantly-overlapping forms, forming a continuously-closed surface on their upper and lower sides and a closed curved or oval surface on their inner face, means for adjusting the individual forms of said ring into any required position, and means for moving the ring into expanded or contracted position, substantially as set forth.

2. In a hat-brim-curling machine, the combination with an expanding and contracting brim-folding ring, composed of a series of

overlapping forms, of means for moving the individual forms of the ring into contracted or expanded position and springs connected with said actuating mechanism so as to take up the lost motion in said mechanism and make all the parts of the brim-folding ring move in unison, substantially as set forth.

3. In a hat-brim-curling machine, the combination with an expanding and contracting brim-folding ring, composed of radially-sliding carriers, levers pivoted thereto, wedge-shaped overlapping forms at the inner ends of said levers, springs interposed between the carriers and levers for holding the adjacent forms in contact with each other, an actuating mechanism for moving the individual forms of same into contracted or expanded position, substantially as set forth.

579,745. LIQUID-SCALE. GEORGE EISERER, Chicago, Ill. Filed Aug. 14, 1896. Serial No. 602,796. (No model.)



Claim.—1. In a device of the kind specified, a vessel provided with parallel ears at about its middle portion and with a projection near its upper end provided with indicators, a handle pivoted between said ears and provided at its upper end with an indicator adapted to register with said indicators on said vessel, and a spring interposed between said handle and said vessel and adapted to bear against said handle below said pivot to hold the indicator thereon normally at the inner limit of its movement with relation to said vessel.

2. In a device of the kind specified, a vessel provided at about its middle portion with outwardly-extending ears, an outwardly-extending loop at the upper end of said vessel, adjustable indicators on said loop, a handle pivoted between said ears and provided at its upper end with an indicator adapted to enter said loop and register with the adjustable indicators thereon, and a flat spring secured between said ears and adapted to bear against said handle below the pivot thereof to hold the indicator thereon normally at the inner limit of its movement with relation to said vessel.

3. In a device of the kind specified, a vessel provided with parallel ears at about its middle portion and with a projection at its upper end provided with indicators, a handle pivoted between said ears and provided at its upper end with an indicator adapted to register with said indicators on said vessel, a spring interposed between said handle and said vessel and adapted to bear against said handle below said pivot to hold the indicator thereon normally at the inner limit of its movement with relation to said vessel, and a level mounted upon said projection on said vessel and adapted to indicate when the same is in a vertical position.

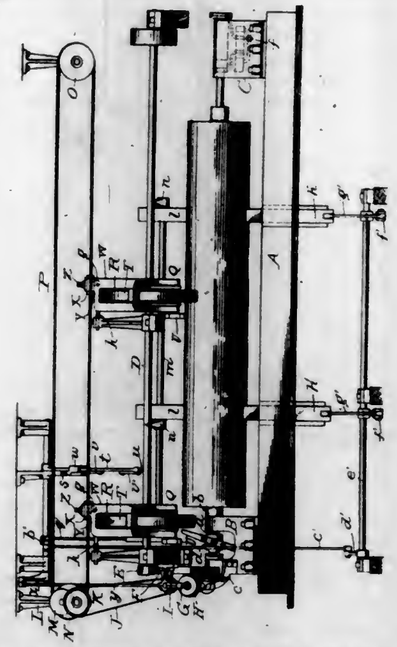
579,746. WOODWORKING-MACHINE. PHILIP STOBER, Tupper Lake, N. Y. Filed Nov. 13, 1896. Serial No. 611,963. (No model.)

Claim.—1. In a woodworking-machine, the combination of a way for feeding the logs into the machine; means for measuring the size of the log as it passes down the way; and means operatively connected with said measuring device for holding the log in a position to be engaged by clamping mechanism.

2. In a woodworking-machine, the combination of log-measuring mechanism; centering devices connected therewith; means for rotating the log; and adjusting mechanism for controlling the speed of the rotating mechanism, said adjusting mechanism being operatively connected to the log-measuring device.

3. In a woodworking-machine, the combination of log-measuring mechanism; centering devices operatively connected therewith; means for rotating the log; traveling cutters; and adjusting mechanism for controlling the speed of the rotating mechanism, and the feed of the traveling cutters, said adjusting mechanism being operatively connected to the log-measuring device.

4. In combination with the skidway of a rossing-machine: a lever pivoted above said way; means connected to said lever for causing it to rise as the log passes thereunder; means for holding said lever in its adjusted position; and gage-blocks designed to receive and support the log, said blocks being operatively connected to the lever.



5. In combination with the skidway of a rossing-machine; a lever secured to a shaft above said way in line with the path of travel of the logs; locking devices substantially as described for said lever; gage-blocks located at the end of the skidway; and connections between the shaft and the gage-blocks.

6. In combination with the skidway of a rossing-machine; a counter-shaft mounted thereon and provided with spuds; a latch for holding said spuds in operative position; a lever secured to a shaft above said way in line with the path of travel of the logs; locking devices substantially as described for said lever; gage-blocks located at the bottom of the skidway; connections between the shaft and gage-blocks; and a depending arm *q* for operating the latch.

7. In combination with the skidway and the gage-blocks; links connected to said gage-blocks and the skidway and designed to form a continuation thereof, substantially as and for the purpose described.

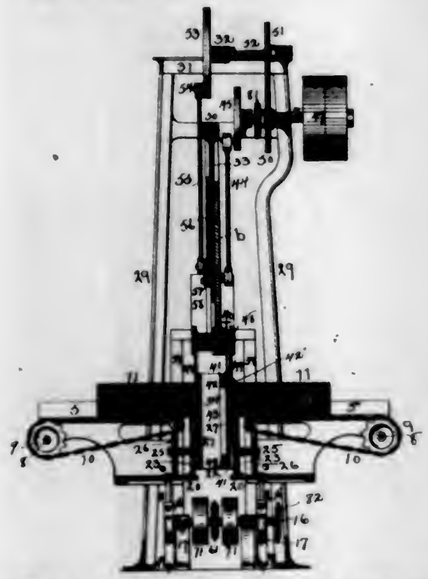
8. In a woodworking-machine, the combination of work-holding mechanism; means for causing the rotation thereof; cutters holding frames mounted above and designed to traverse the length of the machine; means for causing such traverse; and means for regulating the speed of the rotating mechanism and the travel of the cutter-frame one in relation to the other.

9. In a woodworking-machine, the combination of work holding and rotating means; a power-shaft; a cutter-frame mounted upon said shaft; an endless traveling belt; an arm extending from the frame to the belt; clamping mechanism carried by said arm comprising separable shoes designed to engage the belt, and an eccentric located beneath one of said shoes; and a lever or arm connected to said eccentric and extending down to operative position on the cutter-frame.

10. In a woodworking-machine, the combination of work holding and rotating means; a power-shaft D; cutter-frames mounted upon and designed to be traversed thereon; friction-disk F; pinion or pulley E; shaft G; friction-wheel H keyed to and slidable upon said shaft; means for causing the travel of the cutter-frames operatively connected with shaft G; and connections between shaft G and the work holding and rotating mechanism.

11. In a woodworking-machine, the combination of work holding and rotating means; a power-shaft D; cutter-frames mounted upon and designed to be traversed thereon; friction-disk F; pinion or pulley E; shaft G; friction-wheel H keyed to and slidable upon said shaft; means for causing the travel of the cutter-frames operatively connected with shaft G; connections between shaft G and the work holding and rotating mechanism; and means for varying the relation of wheel H to the center of disk F.

579,747. BOX-ASSEMBLING MACHINE. BYRON M. GUNSTON, Oswego, N. Y., assignor to Thomson Kingsford, same place. Filed June 4, 1896. Serial No. 594,228. (No model.)



Claim.—1. In a box-assembling machine the combination with the feed-racks for sides and ends converging at the four sides of a rectangular chamber to receive the sides and ends preparatory to their being connected or secured together, yielding outer walls surrounding said chamber, and means to first feed the sides and then the ends down into said chamber.

2. In a box-assembling machine the combination with racks to hold and feed the sides and ends, of a chamber below the plane of said racks, a pair of side-feeding plungers, and a pair of end-feeding plungers operating sequentially to said side-feeding plungers.

3. In a box-assembling machine the combination with racks to hold and feed the sides and ends previously prepared to interlock at their meeting edges, of vertical walls, creating an annular chamber between them provided with a false bottom, normally supporting the box sides in said chamber in position to interlock with the meeting edges of the box ends when they are forced down.

4. In a box-assembling machine the combination with racks to hold and feed the sides and ends previously prepared to interlock at their meeting edges, of yielding or adjustable parallel walls, creating a chamber between them and a bottom normally supporting the box sides while the ends are being forced down to interlock their meeting edges, and means thereafter to retract said bottom, and permit the interlocked sides and ends to be forced down from said chamber.

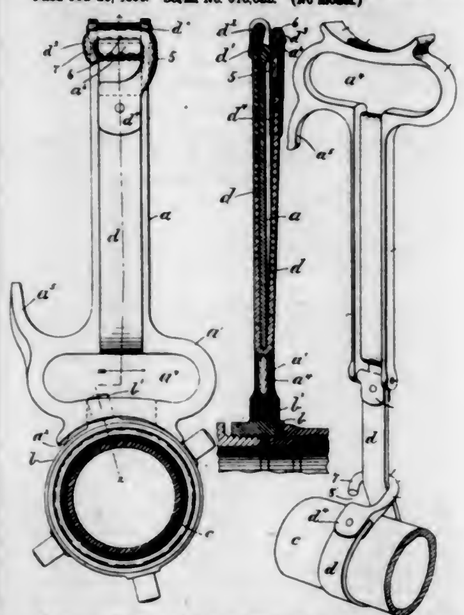
5. In a box-assembling machine the combination with parallel yielding or adjustable walls creating an annular chamber into which the previously-prepared box sides and ends are successively fed, to interlock their meeting edges, of a bottom, normally supporting the box sides while the ends are being interlocked with them, to create a box-body, and means to retract said bottom to permit said body to be forced down from said chamber.

6. In a box-assembling machine parallel yielding or adjustable walls, creating an annular chamber into which the previously-prepared box sides and ends are successively fed to interlock their meeting edges, of a bottom normally supporting the sides while the ends are being interlocked with them, and means to force a cover, into the box-body thus created.

7. In a box-assembling machine, parallel yielding or adjustable walls, creating an annular chamber into which the previously-prepared box sides and ends are successively fed to interlock their meeting edges, of a bottom normally supporting the sides while the ends are being interlocked with them, and means to force a cover into the box-body thus created, and to thereafter retract said bottom, to permit the box to be forced down from said chamber.

8. In a box-assembling machine, the combination of a frame, racks thereon to hold the box sides and ends, spring actuated feed-boards in said racks engaging with such sides or ends, and vertically-reciprocating plungers engaging with pairs of sides and ends to feed them sequentially into an assembling-chamber, of parallel vertical walls creating a chamber into which said sides are first fed and by which they are held in position to interlock with the edges of the descending ends.

579,748. HOSE-STRAP AND SPANNER. THOMAS HALEY, Cambridge, Mass., assignor of one-half to Milton H. Hart, Boston, Mass. Filed Oct. 26, 1896. Serial No. 610,022. (No model.)



Claim.—1. A tool of the character specified, comprising a shank having at one end a spanner-head formed also as a handle, and a hook adapted to engage a support, and at the other end an ear or detent; and a flexible strap secured to the shank near said detent, and provided at its free end with a bight-forming hook or eye adapted also to engage the detent.

2. A tool of the character specified, comprising a shank having at one end a spanner-head formed also as a handle, and a hook adapted to engage a support, and at the other end an ear or detent; and a flexible strap secured to the shank near said detent and provided at its free end with a bight-forming hook or eye adapted also to engage the detent, the sides of the shank being recessed to receive the strap when the latter is folded and engaged with the detent.

579,749. POCKET PROTECTOR OR GUARD. JOHN N. HANNER, South Chicago, Ill. Filed Aug. 14, 1896. Serial No. 602,745. (No model.)



Claim.—1. A pocket protector or guard of rubber or other suitable flexible material of concavo-convex form in cross-section and provided with a plurality of strengthening-ribs extending across the concave side of the protector, and an attaching-strip of metal or other suitable stiff material extending along the front of the protector near its upper edge, substantially as set forth.

2. A protector or guard adapted to be secured within a pocket, the said protector being made of rubber or other suitable flexible material, the edges of the said guard being adapted to engage the walls of the pocket to normally close its mouth at all times, substantially as set forth.

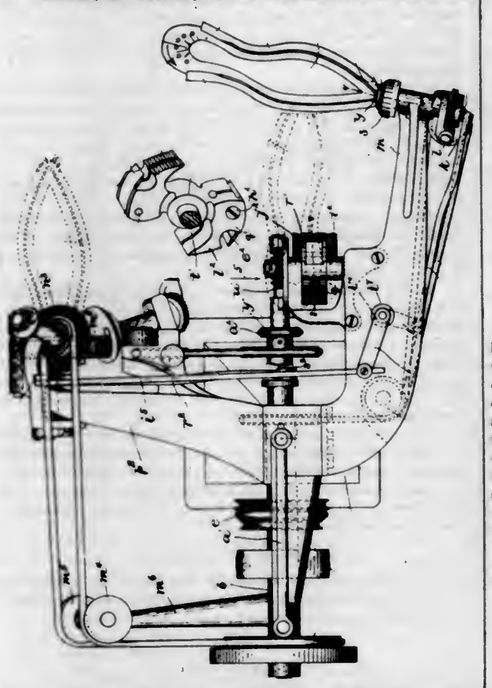
3. A pocket protector or guard of rubber or other suitable flexible material of concavo-convex form in cross-section, the said protector being secured within the pocket with its convex wall toward the interior of the same and having its edge normally engaging the walls of the pocket to close its mouth, substantially as set forth.

4. In combination with the inner and outer walls of a pocket, of a protector or guard of concavo-convex form in cross-section secured at its upper edge to the interior wall of the pocket and having its lower edge normally at all times in engagement with the outer wall of the pocket to close the mouth of the same, substantially as set forth.

579,750. MANUFACTURE OF ZINC OXID. WILHELM HAMPE and CARL SCHNABEL, Hanover, Germany. Filed Aug. 1, 1896. Serial No. 601,378. (No specimens.)

Claim.—The process for preparing zinc oxid consisting in subjecting an intimate mixture of finely-divided and dried zinc sulfate and finely-divided carbon to an even and correctly-gaged temperature, substantially as described.

579,751. INSEAM-TRIMMING MACHINE. ELMER S. HARRIS, Haverhill, Mass., assignor to the Goodyear Shoe Machinery Company, Portland, Me. Filed May 22, 1896. Serial No. 592,527. (No model.)



Claim.—1. In an inseam-trimming machine, the combination of a feed-wheel, an oscillating trimming-knife, means for adjustably securing said knife to the holder, an oscillating grinding device arranged over the trimming-knife, and adapted to engage the trimming-knife, and means for imparting an oscillating and rotary motion to the grinding mechanism.

2. In an inseam-trimming machine, the combination of a cutter having radial knives adapted to form incisions or slits in the toe portion of the welt of a boot or shoe, mechanism for operating said cutter, and a rest or support for the welt, the face of said support being at an acute angle to the line of the cutting edges of said knives.

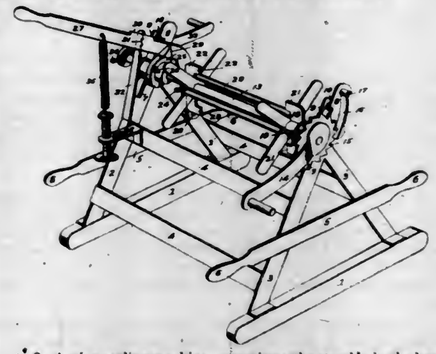
3. In an inseam-trimming machine, the combination of a rotary trimmer having projecting segmental portions, cutting-knives adjustably secured to said segmental portions, guides and guards in connection with a bed-plate whereby the projecting end of a welt is introduced to the path of the cutter, and mechanism substantially as described for operating said rotary trimmer.

4. The combination of a trimming-knife, a recessed ring to which the trimming-knife is secured, a spider having radial arms engaging a part of the depressions, means for securing the spider to the holder whereby the knife-holding ring may be rigidly secured to the holder, and means for releasing the spider to adjust the knife-holding ring upon the holder.

579,752. BARB-WIRE-REELING MACHINE. JACOB HAUSERMAN, Bustis, Nebr. Filed Nov. 28, 1896. Serial No. 613,805. (No model.)

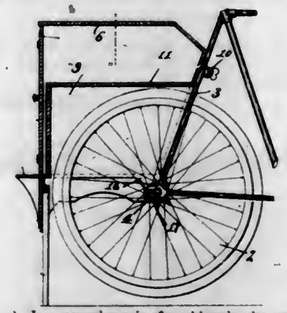
Claim.—1. A wire-reeling machine, comprising the converging standards, the bearing-boxes 7 7 fixed in the upper ends of said standards and provided with the hinged caps 8 8 and the cap-locking levers 10 10, in combination with the horizontal shaft 13 journaled in said boxes, and provided with the fixed crank-handle 14, the fixed carrier 18, and the removable carrier 22, substantially as shown and described.

2. A wire-reeling machine, comprising the converging standards, the bearing-boxes 7 7 secured in the upper ends thereof, and provided with hinged caps 8 8, the cap-locking levers 10 10, and the pivoted gravity-pawl 16, in combination with the removable horizontal shaft 13 journaled in said bearing-boxes, and provided with the fixed crank 14, the hub of which is formed with an integral ratchet-wheel 15, the carrier 18 rigidly fixed on said shaft, the carrier 22 removably secured on said shaft by a set-screw 24, the removable brake-wheel 25, and the pivoted brake-lever 27 fulcrumed on the bolt 28, secured to the standard 2', substantially as shown and described.



3. A wire-reeling machine, comprising the standards, the bearing-boxes fixed in the upper ends thereof and provided with hinged caps, the free ends of which are secured in place by the angular arms 9 of the levers 10, the gravity-pawl pivoted on the upper end of one of said standards, and the brake-lever pivoted on another of said standards, in combination with the removable shaft provided with the fixed crank, the hub of which forms an integral ratchet-wheel, a carrier 18 rigidly fixed on said shaft, and formed with integral angular figures 21 21, an adjustable carrier 22 removably secured on said shaft by a set-screw 24, and a removable brake-wheel 25, the hub of which is provided with a set-screw 26, substantially as shown and described.

579,753. PARCEL-CARRIER FOR BICYCLES. GEORGE H. HENKEL, Middletown, Ohio. Filed Oct. 14, 1896. Serial No. 608,797. (No model.)



Claim.—1. In a parcel-carrier for a bicycle, the combination, substantially as set forth, of a box-like structure comprising a pair of compartments separated by a recess adapted to straddle the rear wheel of a bicycle and united by ties at the top and rear of said recess, and attaching devices carried by said structure and adapted to engage the frame and steps of the bicycle.

2. In a parcel-carrier for a bicycle, the combination, substantially as set forth, of a box-like structure comprising two compartments separated by a recess adapted to straddle the rear wheel of a bicycle and united at their tops by a compartment extending across over the top of said recess, a door in the rear wall of said box structure, and attaching devices carried by said structure and adapted to engage the frame and steps of a bicycle.

3. In a parcel-carrier for a bicycle, the combination, substantially as set forth, of a box-like structure comprising two compartments separated by a recess adapted to straddle the rear wheel of a bicycle, recessed ears carried by the front lower portion of said structure and adapted to engage the steps of the bicycle, and a clamp carried by the front upper portion of said box structure and adapted to engage the rear diagonals of the bicycle-frame.

4. In a parcel-carrier for a bicycle, the combination, substantially as set forth, of a box-like structure having a recess open at its front

and base and adapted to straddle the rear wheel of a bicycle, attaching devices carried by said structure and adapted to engage the steps and frame of a bicycle, a pair of united legs hinged to the rear base of said structure and adapted to fold up thereunder and straddle said wheel and having a length adapted when the legs are vertical to sustain the rear wheel of the bicycle free of the ground, and a handle-bar connected with said pair of legs and having detents to hold the legs in vertical and folded position alternatively.

579,754. PROCESS OF TREATING SUGAR OR OTHER SOLUTIONS. WILLIAM D. HORNE, Yonkers, N. Y. Filed Mar. 14, 1896. Serial No. 583,243. (No specimens.)

Claim.—1. The herein-described process of defecating and purifying sugar and other solutions, which consists in subjecting said solutions to the action of an acid phosphate of a base; subsequently to the action of an alkaline-earth base having a greater atomic weight than that of the base of the acid phosphate, whereby there is formed an insoluble precipitate, and finally removing the mechanically-suspended particles from said solution.

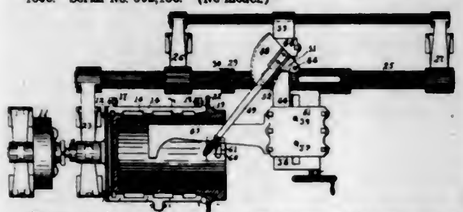
2. The herein-described process of defecating and purifying sugar and other solutions, which consists in subjecting said solutions to the action of an acid phosphate of a base of less atomic weight than barium or strontium: subsequently to the action of barium or strontium, oxid, or hydroxid, whereby there is formed an insoluble precipitate; and finally removing the mechanically-suspended particles from said solution.

3. The herein-described process of defecating and purifying sugar and other solutions, which consists in subjecting said solutions to the action of an acid phosphate of a base, then to the action of an alkaline-earth base, having a greater atomic weight than the base of the acid phosphate, and, finally, after filtration, &c., to the action of a phosphate of a non-volatile alkali.

4. The herein-described process of defecating and purifying sugar and other solutions, which consists in subjecting said solutions to the action of an acid phosphate of a base of less atomic weight than barium or strontium; subsequently to the action of barium or strontium, oxid or hydroxid, whereby there is formed an insoluble precipitate; and, finally, after filtration, &c., to the action of hydrogen-disodium phosphate.

5. The process of sugar-refining, which consists in subjecting the solution or solutions to defecation, filtration, purification, and the usual treatment subsequent thereto in the art, and then for the purpose of separating the mineral bases from said solutions, to the action of a phosphate of a non-volatile alkali.

579,755. CROCK-MOLDING MACHINE. FRANK J. KNAPP, Akron, Ohio, assignor to Mandus M. Hunsicker, same place. Filed May 19, 1896. Serial No. 592,138. (No model.)



Claim.—1. In a machine of the class designated the combination with a horizontal revoluble shaft suitably mounted, a face-plate on one of the ends of said shaft, a divided chuck, with the halves thereof hinged together, one half thereof being fastened to said plate, a series of padded ridges on the interior of said chuck, a mold held within said chuck and on said ridges, of a former mounted on independent mechanism adapted to approach and enter said mold substantially as shown and described.

2. In a machine of the class designated the combination with a horizontal revoluble shaft suitably mounted, a face-plate, on said shaft, a chuck divided in halves, one half thereof being fastened to said plate, the two halves of said chuck being hinged together, a mold having a shoulder held within said chuck, an annular ring with a perforated flange placed within the mouth of said chuck and encircling said mold below its shoulder, and an independently-mounted former adapted to approach and enter said mold, substantially as shown and described.

3. In a machine of the class designated the combination with a horizontal revoluble mold-holding chuck, of a pair of horizontal non-rotating shafts parallel with the axis of said chuck, one of said shafts provided with rack gear-teeth cut within its periphery, a frame adapted to slide on said shafts, a short shaft mounted transversely to said rack-shaft in said frame, a pinion and a hand-wheel mounted thereon, said pinion meshing in said rack and arranged through the hand-wheel to actuate said frame, a carriage movably mounted on said frame, a former on said carriage to enter said mold, and capable of motion transversely of said carriage and means for moving said carriage across said frame substantially as shown and described.

4. In a machine of the class designated the combination with a horizontal revoluble mold-holding chuck, of a pair of horizontal non-rotating shafts parallel to the axis of said chuck, a frame sliding on said shafts, a carriage mounted on said frame and adapted to be moved across said frame, a vertical pin on said frame, a crank provided with a hand-lever pivoted on said pin, an adjustable horizontal pin on said crank, an upright pin on said carriage, adapted to be encountered by said horizontal pin and through said crank and hand-lever to actuate said carriage transversely across said frame, substantially as shown and described.

5. In a machine of the class designated the combination with a horizontal revoluble mold-holding chuck, of a pair of horizontal non-rotating shafts parallel to the axis of said chuck, a frame sliding on said shafts, a carriage carrying a projecting former adapted to enter said mold, and adapted to be moved across said frame, a crank and hand-lever adapted to actuate said carriage transversely across said frame, said crank having on its under side a groove concentric with its center, a collar having an upright pin tight on one of said shafts, adapted to enter said groove and prevent backward motion of the frame while said crank and hand-lever are operated substantially as shown and described.

6. In a device for the manufacture of molds for machines of the class designated, the combination of a hollow tapering core, closed at its smaller upper end, plaster lagging in horizontal strips placed around said core, a number of hand-screws fastening into the lagging from within the case, with an outer inclosing shell, a plaster lining divided into halves and an annular space between said lagging and lining into which the plastic substance for the mold is poured, substantially as shown and described.

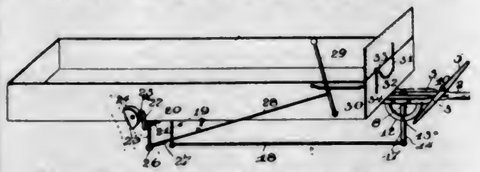
7. In a mold for machines of the class designated, the combination with a mold having a number of dovetailed pockets cut into the internal circumference thereof, of an equal number of loose pieces of like configuration with said pockets and adapted to fit therein, and each having on its concave surface a preferred form of groove substantially as shown and described.

579,756. ADJUSTABLE STOCK FOR SPLIT DIES. FREDERICK H. LIVINGSTON, Ithaca, N. Y. Filed Apr. 28, 1896. Serial No. 589,405. (No model.)



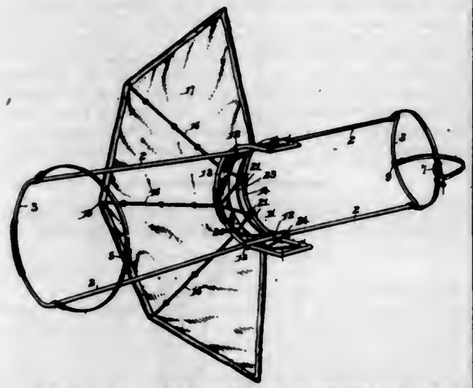
Claim.—A combined split die and stock, comprising the lower handles 2 and 3, having integral jaws 4 and 5 pivoted together, and having in their meeting faces semicircular recesses and smooth holes leading radially from said recess, said jaws being formed at points opposite their pivotal connection with lugs, and one of said lugs being provided with a transverse screw-hole, a set-screw working through said screw-hole to serve as a stop, split dies arranged in the jaw-recesses and provided with radial screw-holes in alinement with the plain radial holes, screws passed loosely through the latter-mentioned holes and screwed into the screw-holes of the split dies, a link pivoted to one of the said lugs and adapted to embrace the other lug, and a cam-face lever pivoted to the free end of the link for the purpose specified.

579,757. WAGON-BRAKE. WILLIAM H. LLOYD, Houtzdale, Pa. Filed July 14, 1896. Serial No. 599,162. (No model.)



Claim.—The tongue 2 formed with an oblong hole 6, circular hole 36 and the vertical slot 16, the hounds 3 3, the transverse bolt 8 passing through the hounds and through the oblong hole 6 in the tongue, the semicircular bracket 12 fixed to the under side of the hounds, the vertical lever 14 fulcrumed on the bolt 13 in said bracket, and having its upper end 15 pivoted by a bolt 11 in the vertical slot 16, in combination with the connecting-rod 18 pivoted at its forward end to the lower end 17 of the lever 15, the crank-shaft 20 carrying the brake-shoes 24, and provided with the crank-arm 19, the lower end of which is pivoted to the rear end of said connecting-rod 18, and the detachable pin 32, substantially as shown and described.

579,758. SWIMMING APPLIANCE. WILLIAM LUCE, Nehalem, Oreg. Filed Sept. 25, 1896. Serial No. 606,962. (No model.)



Claim.—1. In a swimming appliance, the combination of an elongated leg-frame having attached means, an arched paddle-supporting wire frame arranged transversely of the leg-frame intermediate of its ends and having separate parallel arched bars, the rear of which bars forms a pivot-bar and is provided at intervals with annular pivot-grooves, and a segmental flexible folding paddle comprising a series of outwardly-diverging rigid ribs and a flexible imperforate web secured to said ribs, said ribs consisting of twisted wire bodies provided at their inner ends with a pair of diverging right-angularly-disposed attaching-feet having terminal pivot-eyes loosely engaging in the pivot-grooves of said pivot-bar, said right-angularly-disposed attaching-feet being adapted to engage against the stop-bar of the paddle-supporting frame to limit the opening or expansion of the flexible paddle, substantially as set forth.

2. In a swimming appliance, a wire leg-frame having attaching means, an arched paddle-support arranged transversely of the leg-frame between its ends and secured thereto, a flexible folding paddle having a series of outwardly-diverging rigid ribs pivoted or hinged at their inner ends to said paddle-support, and a spring arranged in a fixed position at one side of the paddle-support and adapted to be compressed by the ribs of the paddle when the latter is folded during the forward movement of the appliance, substantially as set forth.

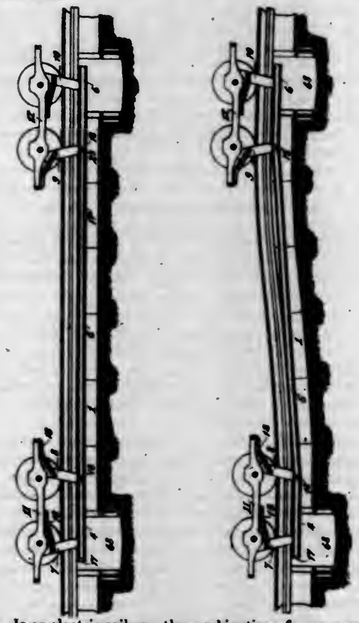
3. In a swimming appliance, an oblong wire leg-frame having attaching means, an arched paddle-support arranged transversely of the leg-frame and secured thereto intermediate of its ends, a flexible folding paddle having rigid ribs pivoted or hinged at their inner ends to said arched paddle-support, and an arched spring-wire secured at its terminals to the side portions of the leg-frame and arranged at one side of the paddle-support and projecting beyond the latter so as to be engaged by the central ribs of the paddle when the latter is folded rearwardly by the forward movement of the appliance, substantially as set forth.

579,759. ELECTRIC RAILWAY. FRANK MANSFIELD, New York, N. Y. Filed Aug. 4, 1893. Serial No. 482,242. (No model.)

Claim.—1. The combination of a car having double trucks, a contact device suspended therefrom and consisting of a short conducting-bar supported horizontally beneath and between the axles of each truck, and an intermediate conducting-bar hinged between said short bars, substantially as and for the purpose set forth.

2. In an electric railway, the combination of a conduit provided with a manhole having a removable cover formed with an opening therein, and a detachable hood 77 fitting in said opening in the cover and formed with a downwardly-opening recess adapted to contain a set of fuses or the like, substantially as and for the purpose set forth.

3. In an electric railway, the combination of a car having double trucks, a contact device suspended from said trucks and consisting of a conducting-bar formed of laterally-flexible and vertically-inflexible sections hinged together on horizontal axes, supports depending from said trucks and said sections being fixedly attached to some of said supports and pivoted to others on a common axis with the hinge-joints of said sections.



4. In an electric railway, the combination of a car provided with trucks, a slotted conduit, a contact device depending from the car and traveling in the conduit, said contact device comprising a set of vertically-rigid and laterally-flexible sections 4, 5 and 6, hinged together at 18 18 on horizontal axes, said device being supported from the car by members 7, 8, 9 and 10 depending from the trucks and connected with said contact device at points in the same vertical planes as the axles of the trucks and being hinged to the said members 8 and 9, respectively, at said points 18 18, substantially as and for the purpose set forth.

5. In an electric railway, the combination of a car, a contact device comprising a bar formed of horizontally-arranged sections hinged together and supported from the car rigidly at one point, pivotally at a second point, pivotally to a horizontally-sliding support at a third point and rigidly to a horizontally-sliding connection at a fourth point.

6. In an electric railway, the combination of a pair of four-wheeled trucks, a contact device mounted beneath said trucks and comprising a bar composed of horizontally-arranged sections hinged together, a support depending from or near each axle of said trucks, the support at one end being rigidly connected with said bar, the next said support being pivoted to said bar on an axis in alinement with the axis of one of said hinge-joints of said bar, the next said support being pivoted to a horizontally-sliding connection on an axis in alinement with the axis of a hinge-joint of said bar, and the next said support being connected to said bar by a horizontally-sliding connection.

7. In an electric railway, the combination of a car and a contact device suspended therefrom and comprising a bar formed in three sections hinged together on horizontal axes, one of said end sections being supported by horizontally-fixed joints, a sustaining-rod supported in fixed position parallel with the other end section, said latter section being connected with said sustaining-rod by horizontally-sliding joints.

8. In an electric railway, the combination of a slotted conduit having manholes at frequent intervals, a main conductor provided with branch conductors extending into said conduit and provided with suitable contact-points arranged one in each manhole, a car having a contact device extending through said slot into the conduit and comprising a bar formed in electrical sections of less length than the manholes, each of said sections being provided with an automatic switch for completing the circuit upon engagement of a contact-point by a section of the contact-bar and cutting it out when such connection is broken, whereby only that section of the bar in the manhole is electrically energized.

9. An electric switch comprising a rocking frame or plate provided with terminals, an oscillating contact-lever pivoted between its ends to a point on said frame or plate, and adapted to bridge said terminals when moved to one limit of its oscillation, means for hold-

ing said lever at its other limit of movement against gravity but not with sufficient force to resist a sudden impact of the frame or plate against a fixed object when said frame or plate is rocked.

10. An electric switch comprising a rocking frame or plate provided with terminals, a spring for snapping said body or plate on its axis after the same is given an initial movement, an oscillating contact-lever pivoted between its ends and adapted to bridge the terminals when moved to one extreme limit of its oscillation, means for holding said contact-lever at its other limit of oscillation against gravity but not with sufficient force to resist the impact of said frame or plate against a fixed object when rocked.

11. A switch comprising a rocking frame or plate provided with terminals, an oscillating contact-lever pivoted between its ends and adapted to bridge the terminals when moved to one limit of its oscillation, said lever provided with weights to increase its momentum, means for holding said contact-lever at its other limit of movement against gravity but not with sufficient force to resist the impact of said body or plate against a fixed object when the same is rocked.

12. A switch comprising a rocking frame or plate provided with terminals, an oscillating contact-lever pivoted between its ends and adapted to bridge the terminals when moved to one limit of its oscillation, a friction device for holding said contact-lever at its other limit of movement against gravity, whereby the impact of said frame or plate upon the termination of its rocking movement may serve to release the contact-lever from said frictional device and throw it into connection with the terminals.

13. In an electric railway, the combination of a car provided with a contact device, a main conductor provided at intervals with branch conductors having suitable points of contact, a spring-actuated carrier for said contact-points normally holding the same in the path of said contact device and adapted to be pressed aside thereby against the action of its spring, a normally open switch located in each said branch conductor and comprising a rocking frame or plate provided with terminals, an oscillating contact-lever adapted to bridge said terminals when moved to one limit of its movement, means for holding said contact-lever at its other limit of movement against gravity but not with sufficient force to resist the impact of said frame or plate against a fixed object when the same is rocked, said carrier connected with said frame or plate of the switch and adapted to rock the switch when the carrier is pressed aside by the contact device and to return it to normal position when said contact device has passed off of the contact-point of said carrier.

14. In an electric railway, the combination of a car provided with a contact device, a main conductor having branch conductors at intervals each provided with a suitable contact-point, a carrier for each of said contact-points consisting in a leaf-spring coiled at one end and secured by such end to a fixed point.

15. In an electric railway, the combination of a car provided with a contact device, a main conductor having branch conductors at intervals each provided with a suitable contact-point, a normally open switch located in each said branch conductor, a carrier for each of said contact-points consisting in a leaf-spring coiled at one end and secured by such end to a fixed point, the other end of said carrier being connected with and actuating the switch of its branch conductor.

16. In an electric railway, the combination of a car, a slotted conduit having contact-points located therein at intervals, a contact device traveling within said conduit and comprising a bar composed of sections 4, 5 and 6, hinged together at 18, 18, on horizontal axes, a set of supports 7, 8, 9 and 10, depending from the car through the slot into the conduit, said support 10, being connected rigidly to the section 6, a hinge connecting the lower end of said support 9, with the abutting ends of the sections 5 and 6, a hinge connecting the lower end of said support 8, with the abutting ends of said sections 4 and 5, the lower end of said support 7, being connected with said section 4, by a horizontally-sliding joint, substantially as set forth.

17. In an electric railway, the combination of a car, a slotted conduit having contact-points arranged therein at intervals, a contact device comprising a bar traveling within said conduit, supports 7 and 8, depending from the car into the conduit, a horizontal sustaining-bar 30, mounted upon said supports within the conduit and provided with slides moving lengthwise thereof, said slides connected with and sustaining said contact-bar, substantially as set forth.

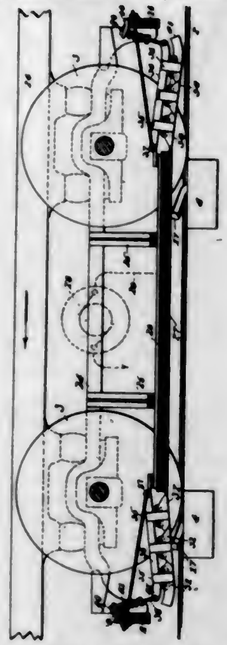
18. In an electric railway, the combination of a car, a slotted conduit having contact-points arranged therein at intervals, a contact device comprising a bar made up of hinged sections traveling within said conduit, supports 7 and 8, depending from the car into the conduit, a horizontal sustaining-bar 30, secured to the said supports within the conduit and provided with slides moving lengthwise thereof, one of said slides connected rigidly to one of said sections of the contact-bar and another of said slides hinged to the abutting ends of said sections, the axis of said hinge being in alinement with the axis of the hinge between said sections.

19. In an electric railway, the combination of a main conductor provided at intervals with normally-disconnected branch conductors, each of which is provided with a contact-point adapted to be engaged by a contact device carried by a car, each contact-point being provided with a spring-carrier 48, having one end made fast and the other end free, and a normally open switch located in each said branch conductors and actuated by the free end of its spring-carrier, substantially as set forth.

20. An electric switch comprising a rocking frame or plate having a prescribed range of movement and provided with terminals, an oscillating contact-lever, such as 58, for bridging said terminals, and springs 60 for holding said lever away from the terminals, substantially as set forth.

21. An electric switch comprising a rocking frame or plate having a prescribed range of movement and provided with terminals, an oscillating contact-lever, such as 58, for bridging said terminals, means for holding said lever away from the terminals against the action of gravity, but not with sufficient force to hold it against the forcible movement of the frame or box, and a spring secured by one end to the frame or box out of alinement with the axis of the center of motion thereof and having the other end secured to a fixed point for snapping said box or frame through its prescribed range of movement after it has been given an initial movement, substantially as set forth.

579,760. ELECTRIC RAILWAY. FRANK MANSFIELD, Philadelphia, Pa. Filed Aug. 13, 1895. Serial No. 559,117. (No model.)



Claim.—1. A car provided with a magnetic contact device carried a considerable distance above the ground for attracting and holding the circuit-completers in magnetic and electric contact therewith, and a set of magnets arranged at the end of said contact device for gradually raising the circuit-completers into contact with said contact device.

2. A car provided with a magnetic contact device carried a considerable distance above the ground for attracting and holding the circuit-completers in magnetic and electric contact therewith, and a set of magnets extending from the end of said contact device downwardly toward the ground for gradually raising the circuit-completers into contact with said contact device.

3. A car provided with a magnetic contact device carried a considerable distance above the ground for attracting and holding the circuit-completers in magnetic and electric contact therewith, a set of insulated magnets arranged at the end of said contact device and disconnected therefrom for gradually raising the circuit-completers into contact with said contact device.

4. A car provided with a series of magnets, the middle one of which constitutes a long contact device, the magnets at each end of the series being insulated from each other and arranged with their pole-faces in a line with each other and inclined downwardly toward the ground, a main conductor provided at intervals with branch conductors each having a circuit-completer adapted to be magnetically picked up by the end magnets and gradually raised thereby into electrical contact with the middle magnet.

5. A car provided with a long magnetic contact device or bar carried a slight distance above the surface of the ground and longitudinally of the car, a movable set of small magnets arranged at one or both ends of said contact device or bar and in a line therewith and inclining downwardly from the end thereof, and a set of circuit-completers for connecting the main conductor with said contact device or bar, said circuit-completers being adapted to be magnetically attracted by the magnets at the forward end of said contact device and placed in contact with said bar.

6. A car provided with a long magnetic contact device or bar carried a slight distance above the surface of the ground and longitudinally of the car, a movable set of spring-mounted magnets arranged at one or both ends of said contact device or bar in a line therewith and inclined downwardly from the end thereof, and a set of circuit-completers for connecting the main conductor with said contact device or bar, said circuit-completers being adapted to be magnetically attracted by the magnets at the forward end of said contact device and placed in contact with said bar.

7. A car provided with a long magnetic contact device or bar placed longitudinally of the car, a pivoted spring-mounted frame or bracket mounted at the end of said device or bar and extending beyond the same in line therewith, and a set of pick-up magnets mounted upon said frame.

8. A car provided with a long magnetic contact device or bar carried longitudinally beneath the same, and a circuit-completer for connecting the main conductor with said contact device or bar, said circuit-completer comprising an L-shaped metallic lever 17 pivoted in the horizontal at the end of one of its members on an axis parallel with the axis of the other member, said lever being adapted to be raised above the ground by the magnetic attraction of said contact device or bar into contact therewith and held with the said other member in lengthwise contact with it.

9. A car provided with a contact device, a main conductor having at intervals normally open branch conductors each provided with a circuit-completer 17 adapted to be moved into contact with said contact device of the car, each of said branch conductors being provided with a normally open switch having a water-tight box or casing inclosing the same, a threaded rock-shaft 16 extending through a correspondingly-threaded opening in the side of said box or casing and controlling the operation of the switch located therein, said circuit-completer 17 being mounted upon the outer end of the shaft and serving to actuate the same when moved into contact with said device on the car.

10. A circuit-completer comprising a pivoted metallic lever lying normally in the surface of the roadway and adapted to be raised into contact with a device on a car, the lower side of said lever being formed with a wedge-shaped edge or rib, and a socket shaped to receive said wedge-shaped edge or rib, whereby the movement of said lever in and out of the socket will serve to clear the same of foreign matter or dirt.

11. An electric switch incased in a water-tight shell or casing, a rock-shaft extending through the casing for operating the switch, said shaft having a threaded bearing for rendering the joint water-tight.

12. A main conductor provided at intervals with branch conductors each having a normally open switch located therein, a water-tight housing or casing inclosing said switch, a circuit-completer having a rock-shaft extending through a wall of said housing or casing and serving to open and close the switch, the said shaft having a number of separate thread-like projections encircling its shaft.

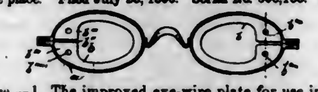
13. A car provided with a magnetic contact device or bar 23, a main conductor provided at intervals with branch conductors, a circuit-completer for each branch conductor adapted to engage said magnetic contact device and be held in magnetic contact therewith, and a movable set of pick-up magnets, 32, 32, extending in line from the end of said contact-bar 223 for magnetically attracting said circuit-completers and raising them into contact with said bar.

579,761. PACKAGE-HOLDING DEVICE FOR BICYCLES, &c. ROBERT A. MAYO, Philadelphia, Pa. Filed Oct. 7, 1896. Serial No. 608,086. (No model.)

Claim.—A device of the character described, comprising a bar provided at one end with an oblong loop having a cross-shaft journaled thereto and carrying a ratchet and a button for rotating said shaft and at the other end with a loop having a wing-shaped pinch-clamp for engaging a strap adapted to be coiled around said shaft, said bar provided with two depending fingers *b* and *b'*, one of which is slightly curved and the other substantially straight, perforated transversely and threaded for the insertion of a bolt provided with a nut at one end and at the other with a shoe, lugs formed on one side of said bar and mounted in the same is a pawl-rod having a spring coiled around the same and the pawl of said rod normally engaging said ratchet and said rod at the other end provided with a bell-crank lever, substantially as and for the purposes described.



579,762. EYE-WIRE-SUPPORTING PLATE. GEORGE W. MEIGS, Newark, N. J., assignor to the Spencer Optical Manufacturing Company, same place. Filed July 23, 1896. Serial No. 600,185. (No model.)



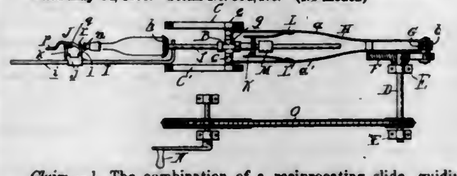
Claim.—1. The improved eye-wire plate for use in manufacturing spectacles, eyeglasses, &c., which comprises a resilient flat sheet-metal piece of a thickness equal to or less than the width of the eye-wire and having jaws *b'''*, normally separate and independent from one another at their free ends, the center of the said plate being cut away to admit of said jaws being sprung together, substantially as and for the purposes set forth.

2. The improved eye-wire plate for use in manufacturing spectacles, eyeglasses, &c., which comprises a resilient and flat sheet-metal piece having perforated jaws *b'''*, normally separate and free from one another at their ends, the center of the said plate being cut away to admit of said perforated jaws being sprung together, substantially as and for the purposes set forth.

3. The improved eye-wire plate, which comprises a flat and resilient sheet-metal piece having normally open and free jaws provided with bearings to receive pliers by which said jaws may be pressed together or closed, substantially as and for the purposes set forth.

4. As an article of manufacture, an eye-wire plate or form comprising a flat sheet-metal piece having normally open and free jaws, and centrally open to admit of said jaws being drawn toward one another by pliers, the peripheral edges of said plate being convex or shaped to enter and be held in the interior eye-wire groove, substantially as set forth.

579,763. BOTTLE-WASHER. HENRY H. MILLER, Lakeside, Ohio. Filed May 14, 1896. Serial No. 591,476. (No model.)



Claim.—1. The combination of a reciprocating slide, guiding means therefor, a pitman for actuating the slide, a bottle-carrier secured to said slide and free to rotate, and means for rotating said carrier comprising two members one on the carrier and one carried by and movable with the pitman.

2. The combination with a reciprocating slide, guiding means for the slide, a pitman for actuating the same, and a bottle-carrier secured to said slide free to rotate, of means for rotating said carrier comprising a ratchet-wheel thereon, and a pawl on the pitman adapted to turn said wheel in the lateral oscillation of the pitman.

3. The combination with a reciprocating slide, guiding means therefor, of a split pitman for actuating said slide, a bottle-carrier having a shank journaled in said slide and extending between the opposite sides of the pitman, a ratchet-wheel on said shank and pawls secured to the opposite sides of the pitman engaging with said ratchet-wheel and adapted to turn the same in the lateral oscillation of the pitman.

4. The combination of the parallel guides C C, the cross-head B slidingly secured thereto, a bottle-carrier having a shank *f* journaled in said head, the pitman H, comprising the separated bars *a a'*, the bearing *b* at one end, the bearings *c* at the other end engaging with pins *d* on the opposite sides of the cross-head, the ratchet-wheel K secured to the shank, the pawls L L', on the opposite bars of the pitman, the bearing M with which the rear end of the shank engages, the crank F and the adjustable crank-pin G engaging with the bearing *b*.

5. In a bottle-holder, the combination with a base-plate for the bottle, an outwardly-extending arm, and supporting means for the

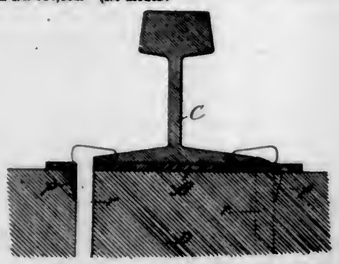
same, of a combined clamp and stopper comprising a head having a sliding engagement with said arm, a clamping-arm carried by said head, a stopper, means for connecting the stopper to the head, a lever, means for connecting the same to said clamping-arm, and a connection between the stopper and lever, the latter adapted to move the clamping-arm and stopper oppositely to clamp the head on the arm and press the stopper into the bottle.

6. In a bottle-holder, the combination with a base-plate for the bottle, an outwardly-extending arm, and supporting means for the same, of a combined clamp and stopper comprising a head having a sliding engagement with said arm, a clamping-arm carried by said head, a stopper, means for connecting the stopper to the head, a lever, means for connecting the same to said clamping-arm, a connection between the stopper and lever, the latter adapted to move the clamping-arm and stopper oppositely to clamp the head on the arm and press the stopper into the bottle, and a spring for holding the stopper from movement until the head is clamped.

7. In a bottle-holder, the combination with a base-plate and an outwardly-extending arm, of the combined clamp and stopper J comprising the head *j*, the arms *k* and *l* pivoted thereto, the former provided with the eccentric clamping-face *m*, the stopper *n* carried by the arm *l*, the toggle-lever connection between said arms *k* and *l* and the spring *s*, substantially as and for the purpose described.

8. In a bottle-washing machine, the combination of a reciprocating head, guiding means therefor, a bottle-carrier carried by said head comprising a base-plate, an arm lying parallel with the axis of the bottle, means for supporting said plate and arm, a slide working on said arm, a stopper, and a single means for locking said slide on the arm and forcing the stopper against the mouth of the bottle.

579,764. TIE-PLATE. MOSES M. MOORE, Chicago, Ill., assignor of one-half to Nathan W. Williams, same place. Filed Jan. 2, 1897. Serial No. 617,802. (No model.)



Claim.—1. In a tie-plate, a spike-hole having a drive-point projecting from a surface of the plate at the side of said hole at which it affords to a spike driven through it a backing opposing the outward strain against the rail, substantially as described.

2. In a tie-plate, a spike-hole formed in the body of the plate wholly within the edges thereof and having a drive-point projecting from a surface of the plate at the side of said hole at which it affords to a spike driven through it a backing opposing the outward strain against the rail, substantially as described.

3. In a tie-plate, a spike-hole having a drive-point projecting at a side thereof from a surface of said plate and sharpened and widened toward its extremity, said point affording a bearing for a spike driven through the hole, substantially as and for the purpose set forth.

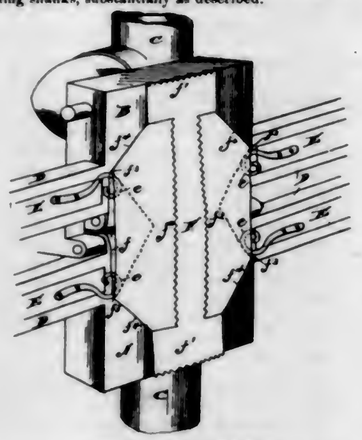
4. In a tie-plate A, the holes B, B having the material cut from the plate in forming each unsevered at one side thereof and projected from the surface of said plate to form a drive-point *p*, said points being sharpened and widened toward their extremities and affording bearings for spikes driven through said holes, substantially as and for the purpose set forth.

579,765. PAPER-BAG MACHINE. SYLVANUS T. MURCHIE, Batavia, Ill., assignor to the Western Paper Bag Company, same place. Filed July 13, 1896. Serial No. 555,838. (No model.)

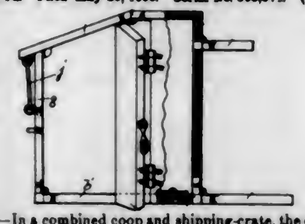
Claim.—1. In a paper-bag machine of the class described, in combination with a suction-former for opening the leading end of a bellows-sided tube, of mechanical stretchers having rounded ends and adapted to be thrust into the bellows folds and to serve as points over which the paper is stretched during the formation of the bag-bottom, substantially as described.

2. In a machine of the class described, the combination with hinged suction-formers, of mechanical stretchers mounted upon and adapted to reciprocate parallel to the faces of said formers, said stretchers having rounded ends and adapted to enter the bellows fold and to set and define the corners of the bag by the stretching of the paper thereover, substantially as described.

3. In a paper-bag machine, the combination with hinged suction-formers, of stretchers consisting of wires having curved ends and sliding shanks, substantially as described.

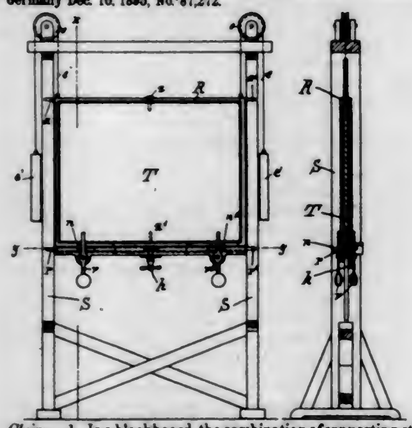


579,766. COMBINED COOP AND SHIPPING-CRATE. JOSEPH R. MURRAY, Oakmont, Pa., assignor of one-half to Jesse W. Zacharias, Verona, Pa. Filed May 29, 1896. Serial No. 593,571. (No model.)



Claim.—In a combined coop and shipping-crate, the combination of the end foldable upon the bottom and inwardly upon the inner face of the front, the sides, one of which is formed in two sections, and the other in three sections and adapted to fold against said bottom, and the top foldable upon said sides, substantially as set forth.

579,767. BLACKBOARD. WILHELM MUENOFF, Buer, Germany. Filed Sept. 28, 1896. Serial No. 607,254. (No model.) Patented in Germany Dec. 10, 1895, No. 87,272.

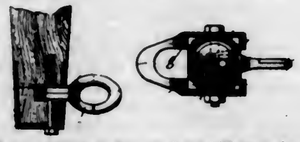


Claim.—1. In a blackboard, the combination of supporting-standards, a frame vertically movable upon said standards, a blackboard supported by said frame, counterweights carried by said standards and connected to said frame, retaining-bolts horizontally located at opposite sides of said frame and provided with rack-teeth at their inner ends, and a pinion provided with an operating-handle and engaging the teeth on both of said bolts to simultaneously move said bolts in opposite directions to engage said standards and support the frame in its adjusted position, substantially as described.

2. In a blackboard, the combination of supporting-standards, a vertically-sliding frame carried by said standards and having pivoted therein a blackboard, means to prevent the rotation of said blackboard upon its pivots, retaining means to hold the frame at its vertical adjustment, and projections from said retaining means adapted when retracted to engage and release the means which prevent the rotation of the blackboard, substantially as described.

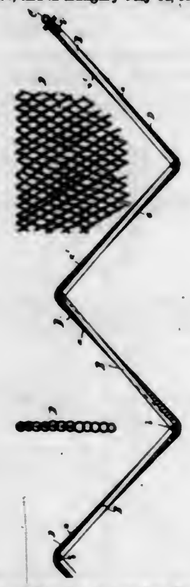
3. In a blackboard, the combination of supporting-standards, a vertically-sliding frame carried by said standards and having pivoted therein a blackboard, counterweighted pivoted catches attached to said frame to prevent rotation of the blackboard, sliding bolts carried by said frame to retain the same at its vertical adjustment by engagement with said standards, and projections extending from said bolts and adapted to engage and release said pivoted catches when the bolts are moved to retract the same, substantially as described.

579,768. WHIFFLETREE-HOOK. ELIJAH W. MCLENDON, Plantersville, Ala., assignor of one-half to William H. Lawrence, Montevallo Ala. Filed Dec. 31, 1896. Serial No. 617,662. (No model.)



Claim.—The combination of a wooden whiffletree, formed with a cavity at each of its ends on its forward side, a metal ferrule or cap over each end of the whiffletree, each of said ferrules being formed with an opening which registers with the adjacent cavity in the whiffletree, a rigid horizontal screw-bolt passing longitudinally into the whiffletree at each end thereof, said bolts extending through the cavities and entering the wood on each side thereof, their heads fitting against the outer faces of the whiffletree ends, and a trace-hook extending through the opening in each ferrule and being pivotally mounted on the rigid screw-bolt, substantially as described.

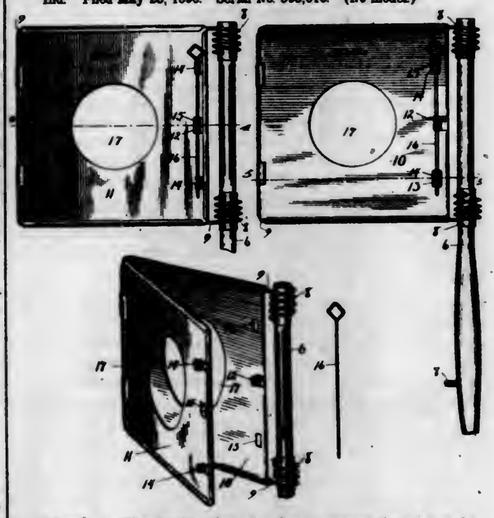
579,769. FOLDING SURFACE FILTER. FRIEDRICH PICH, Berlin, Germany. Filed July 2, 1896. Serial No. 597,870. (No model.) Patented in Germany Mar. 20, 1895, No. 84,705; in Belgium July 3, 1895, No. 116,386; in France July 3, 1895, No. 248,630; in Austria July 4, 1895, No 46 3,857, and in Hungary July 11, 1895, No. 4,499.



Claim.—1. The combination in a surface filter, of a folding frame having cross-rods and a filter-bag folded zigzag around said rods, substantially as described.

2. The combination in a surface filter of a folding frame having cross-rods, a filter-bag folded zigzag around said rods, and a mesh in the interior of said bag, substantially as described.

579,770. CAR SIGNAL-FLAG. ADOLPH F. PRAHM, Indianapolis, Ind. Filed May 25, 1896. Serial No. 593,016. (No model.)



Claim.—1. The combination of a flag, a support therefor, and a helical spring mounted upon and surrounding said support, one end of said spring secured to and supporting the flag and the other end secured to the support, substantially as described.

2. In a signal-flag, the combination with a support, of a substantially U-shaped frame upon each end of which is formed a spring the end of which is secured to said support, and a covering for said frame, said covering forming the signaling-surface, substantially as described.

3. In a signal-flag, the combination with the main leaf thereof, of a second leaf pivoted thereto and adapted to be folded upon either side of the main leaf, a support for the main leaf, and a yielding connection between said main leaf and the support whereby the flag is yieldingly held in its normal position, substantially as described.

4. In a signal-flag, the combination with the main leaf thereof, of a second leaf pivoted thereto and adapted to be folded upon either side of the main leaf, means for securing said second leaf in either of its positions, a support for the main leaf, and a yielding connection between said main leaf and the support whereby the flag is yieldingly held in its normal position, substantially as set forth.

5. In a signal-flag, the combination with a support, of a pair of helical springs mounted upon said support, said springs formed upon the ends of a U-shaped frame and the ends of said springs secured to said support, a covering for said frame, said covering constituting the main leaf of the flag, a second leaf pivoted to said main leaf and adapted to be folded upon either side thereof, and means for securing said second leaf in either of its positions, substantially as described.

6. In a signal-flag, the combination with the main leaf thereof, of a second leaf pivoted thereto and adapted to be folded upon either side of the main leaf, and means for securing said second leaf in either of its positions, said means consisting of the eyes 12 and 14, slots 13 and 15, and pin 16, substantially as described.

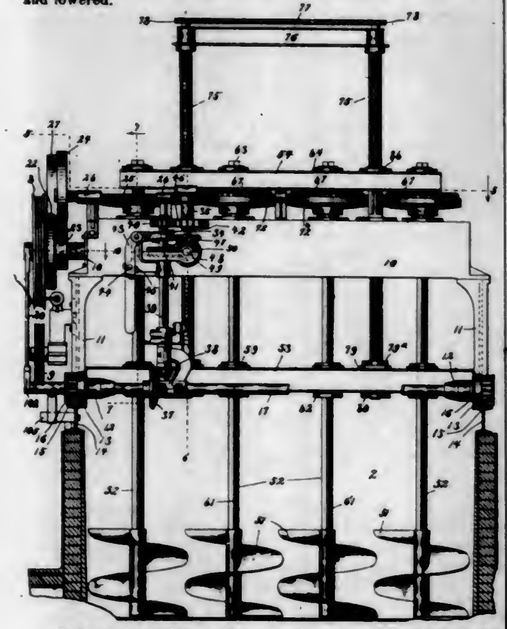
7. In a signal-flag, the combination with the main leaf thereof, of a second leaf pivoted thereto and adapted to be folded upon either side of the main leaf, means for securing said second leaf in either of its positions, said means consisting of eyes 12 and 14, slots 13 and 15, and pin 16, a support, and a spring secured at one end to the main leaf and at the other end to the support, substantially as described.

8. In a signal-flag, the combination with a support, of a pair of helical springs mounted upon said support, said springs formed upon the ends of a U-shaped frame and the ends of said springs secured to the support, a covering for said frame, said covering constituting the main leaf of the flag, a second leaf pivoted to said main leaf and adapted to be folded upon either side thereof, and means for securing said second leaf in either of its positions, said means consisting of the eyes 12 and 14, slots 13 and 15, and pin 16, substantially as described.

579,771. MALT-TURNING MACHINE. WILLIAM H. PRIEST, Chicago, Ill. Filed Aug. 19, 1895. Serial No. 559,866. (No model.)

Claim.—1. In a malt-turning machine, a carriage provided with suitable running-gear, gearing between said running-gear and a source of power mounted upon the said carriage for moving said carriage back and forth and for imparting a variable speed thereto, a plurality of malt-turning screws mounted upon said carriage, and gearing be-

tween said malt-turning screws for raising and lowering the same and for turning the same in opposite directions as they are being raised and lowered.



2. In a malt-turning machine, a carriage provided with a suitable running-gear, a source of power or driven part carried by said carriage, gears 22 and 23 carried by said source of power or driven part, intermeshing gears 24 and 30 carried by said carriage, one of which intermeshes with one of said gears 22 and 23, a gear 27 rigid with the other of said gears 24 and 30 and adapted to intermesh with the other of said gears 22 and 23, devices for throwing the gears 22 and 23 alternately in contact with gears 27 and 24 or out of contact with the same, and gearing between said gear 24 and the running-gear of the carriage.

3. In a malt-turning machine, the combination with intermeshing gears 24 and 30, said gear 30 carrying a gear rigid therewith, of a source of power or driven part carrying rigid therewith gears 22 and 23 which are adapted to intermesh with gears 27 and 24, and devices for moving said gears 22 and 23 into or out of contact with said gears 27 and 24.

4. In a malt-turning machine, the combination with the frame of the carriage, of a shaft 19 secured thereto, a sleeve 18 mounted eccentrically thereon, a sheave or pulley revoluble upon said sleeve 18 and carrying gears 22 and 23 rigid therewith, an arm or lever 20 rigid with said sleeve 18 for turning the same, and intermeshing gears 24 and 30, said gear 30 carrying a gear 27, and said gears 27 and 24 being adapted to intermesh with said gears 22 and 23.

5. In a malt-turning machine, the combination with the gears 22 and 23 for operating said machine, said gears being movable and adapted to come in contact with other gears carried by the carriage, of an arm or lever 20 connected with said gears 22 and 23 for moving the same, a latch 102 mounted upon said carriage and adapted to engage and hold said arm or lever 20, and a stop 105 mounted upon the malt-turning compartment to engage said latch 102.

6. The combination with the movable arm or lever 20, of a malt-turning machine, and the latch 102 mounted upon the said machine adapted to engage said arm or lever 20, of a stop 105 mounted upon the walls of a malting-compartment and adapted to engage said lever, said stop being pivoted.

7. The combination with a malting-compartment and a movable truck adapted to be moved opposite the end thereof, said truck being provided with a stop 108, of a malt-turning machine provided with a movable arm or lever 20 adapted to be engaged by a latch 102 upon the carriage of said malt-turning machine, said stop 108 being situated in the path of said latch 102.

8. In a malt-turning machine, the combination with a shaft 39 for driving the running-gear of the carriage of said malt-turning machine, said shaft being provided with loose gears 40 and 41 each of which is provided with clutch-faces, a clutch 42 mounted upon said shaft, devices for moving and securing said clutch 42 in contact with either of said clutch-faces or out of contact with the same, and gears 46 and 50 intermeshing with said gears 40 and 41, and gearing between said gears 46 and 50, and a suitable source of power.

9. In a malt-turning machine, the combination with the carriage, its running-gear, and devices for moving said carriage back and forth, of a plurality of malt-turning screws carried by spindles mounted upon said carriage, and devices for raising and lowering said spindles and for turning them in opposite directions as they are raised or lowered.

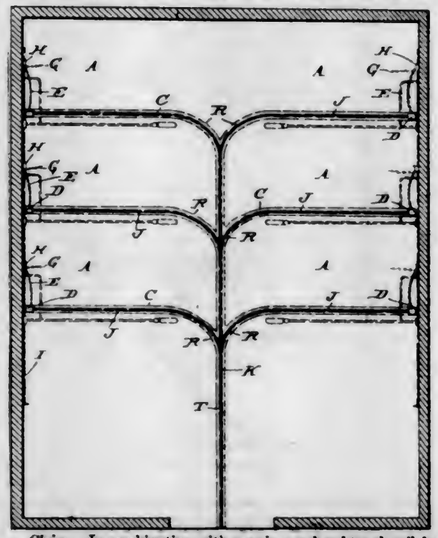
10. In a malt-turning machine, the combination with the carriage having a plurality of upright and longitudinally-movable spindles carrying malt-turning screws, and devices for rotating the same, of a frame 54 connected with the upper ends of said spindles, screw-shafts 75 connected together at their upper ends by a frame 76 and at their lower ends by a frame 53 and having a screw-threaded connection with said screw-shaft 75, and nuts 83 mounted upon the frame of said carriage and through which said screw-shafts pass, and gearing between said nuts 83 and the source of power for turning said nuts in opposite directions.

11. In a malt-turning machine, the combination with the carriage provided with a plurality of upright and longitudinally-movable spindles carrying malt-turning screws, and devices for rotating said spindles, of a frame 54 connected with the upper ends of said spindles, screw-shafts 75 connected at their upper and lower ends with frames 76 and 53, nuts 85 carried by said frame and through which said screw-shafts pass, stops 86 carried by said nuts 85 adapted to come in contact with said frame 76, collars 88 rigid with said screw-shafts and situated below said nuts 85, nuts 83 carried by the frame of the carriage and through which said screw-shafts pass, cushions or stops between said frame of the carriage and said nuts 85, and gearing between said nuts 85 and the source of power or driven part for turning said nuts in opposite directions.

12. In a malt-turning machine, a carriage provided with running-gear, gearing between said running-gear and a shaft 39 carrying differential gears loosely mounted thereon, a shaft 34 carrying a worm-wheel driven from the drive-shaft of said machine geared to one of said differential gears, a shaft 49 adjacent the other of said differential gears and carrying a worm adapted to engage said last-named differential gear, gearing between said shaft 49 and said shaft 34, and a clutch member rigidly mounted upon said shaft 39 adapted to engage either of said differential gears.

13. In a malt-turning machine, a plurality of vertically-movable spindles, mounted in bearings in vertically-movable beams, means for imparting vertical movement to the uppermost of said beams and to said spindles, and connection between said spindles and said lowermost beam to impart vertical movement thereto during part of the movement of said spindles.

579,772. LIFE-SAVING APPARATUS. JOSEPH REED, New York, N. Y. Filed July 24, 1896. Serial No. 600,371. (No model.)



Claim.—In combination with a main overhead trunk rail, branch rails extending therefrom in substantially the same horizontal plane and from both sides and entering said trunk rail in such a manner that the rails of oppositely-arranged stalls will enter the trunk rail, the one slightly in advance of the other, trolleys arranged to run on or in same, a main trunk rope with branching ropes of different lengths as described and connected to said trolleys and means secured to said trolleys for attachment to the animals in the stalls.

579,773. RED-BLUE DIAZO DYE. CHRISTIAN RUDOLPH, Offenbach-on-the-Main, Germany, assignor to The Firm of K. Oehler, same place. Filed Dec. 2, 1893. Serial No. 492,599. (Specimens.) Patented in England Nov. 20, 1893, No. 22,204.

Claim.—1. The method of producing red-blue diazo dyestuffs by the combination of tetrazo-ditolyl—or tetrazo-diphenyl with one molecule of alpha$_1$ alpha$_4$ amidoöxynaphthalene beta$_2$ beta$_3$ disulfo-acid in an alkaline solution and then combining the intermediate compound thus obtained with one molecule of 2.3 dioxynaphthalene.

2. As a new article of manufacture, the dyestuffs derived from tetrazo-diphenyl with one molecule of alpha$_1$, alpha$_4$ amidoöxynaphthalene beta$_2$, beta$_3$ disulfo-acid in an alkaline solution, combined with one molecule of 2.3 dioxynaphthalene, which dyestuff is a dark, blackish-brown powder with a feeble metallic luster, soluble in water with a violet and in concentrated sulfuric acid with a blue color and which dyes unmordanted cotton pure red-blue.

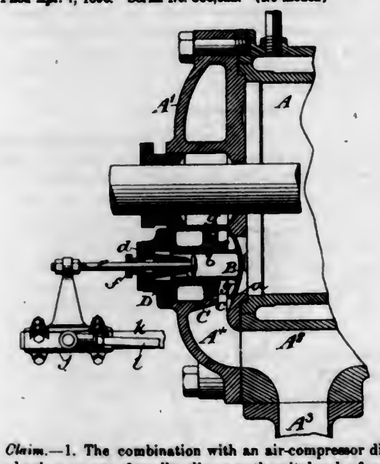
579,774. BICYCLE-HANDLE. GEORGE W. RUGE, Newark, Ohio. Filed July 14, 1896. Serial No. 599,113. (No model.)



Claim.—1. A handle or grip, comprising an inner tubular former, a cushion or packing surrounding the same, an outer covering of flexible material surrounding and inclosing said cushion and having its ends tucked in the open ends of the former, and end plugs removably inserted in the ends of the former, substantially as described.

2. A handle or grip, comprising an inner tubular former, a cushion or packing surrounding the same, an outer covering extending around and inclosing said cushion and having its ends tucked into the open ends of the former, and the end plugs or ferrules inserted in the open ends of the former and provided with the conoidal heads, substantially as described.

579,775. AIR-COMPRESSOR. HENRY C. SERGEANT, Westfield, N. J., assignor to The Ingersoll-Sergeant Drill Company, New York, N. Y. Filed Apr. 7, 1896. Serial No. 586,632. (No model.)



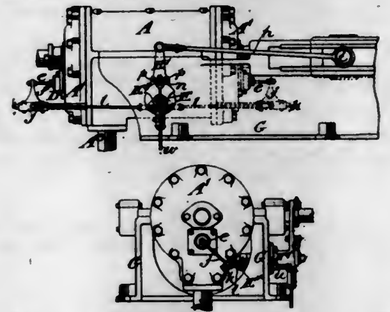
Claim.—1. The combination with an air-compressor discharge-valve having a stem of smaller diameter than its head, of an annular dash-pot in which the portion of the head projecting around the stem of the valve is sheathed when the valve is open, substantially as and for the purpose herein described.

2. The combination with an air-compressor cylinder having a hollow head constituting an air-discharge chest, of a dash-pot within the said head opening into the said discharge-chest and a discharge-valve which when open has its head sheathed within said dash-pot, substantially as herein described.

3. The combination in an air-compressor of a valve-box, a valve having a hollow stem, a guide in said box for said stem, a valve-operating tappet entering the said stem, and a guide for said tappet provided in the valve-box and projecting into the hollow valve-stem, substantially as herein described.

4. In an air-compressor, the combination with a discharge-valve having a hollow stem and a head projecting around said stem, of a valve-box composed in part of a cylinder and in part of a cap which is fitted to said cylinder and which contains a guide for said stem the said box and stem having formed between them an annular dash-pot for the projecting head of the valve, a valve-tappet entering said hollow stem, a guide for said tappet provided in said cap and projecting within said hollow stem, and a stuffing-box for said tappet provided in said guide, substantially as herein described.

579,776. DISCHARGE-VALVE-OPERATING MECHANISM FOR AIR-COMPRESSORS. HENRY C. SERGEANT, Westfield, N. J., assignor to The Ingersoll-Sergeant Drill Company, New York, N. Y. Filed Apr. 7, 1896. Serial No. 586,633. (No model.)



Claim.—1. In an air-compressor, the combination with a discharge-valve which opens by the pressure of air in the compressor-cylinder and positively-operating mechanism for closing said valve including a tripable engaging device, of a tripping device under the control of the air delivered by the compressor for tripping said engaging device to prevent the operation of said closing mechanism and leave the said valve open whenever the pressure of the said delivered air reaches a determined maximum and so long as said pressure remains at or above said maximum, substantially as set forth.

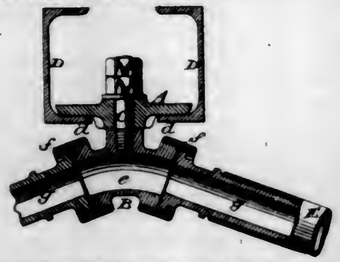
2. In an air-compressor, the combination with the discharge-valves, of tappets for closing said valves, a rock-shaft having arms connected with said tappets, a driving rocker-arm loose around said rock-shaft and connected with the compressor-piston, a tripable engaging device for engaging said rocker-arm with the rock-shaft and a tripping device under the control of the air delivered by the compressor for tripping said engaging device when the pressure of the delivered air reaches a determined maximum, substantially as herein described.

3. In a discharge-valve-closing mechanism for air-compressors, the combination of a rock-shaft having affixed thereon arms connected with the discharge-valves and having also affixed thereon a plate from the edge of which projects a tooth, a rocker-arm loose around said rock-shaft and connected with the piston of the air-compressor, pawls on said rocker-arm for engaging with said tooth, and a lifter under the control of the air delivered by the compressor fitted to slide within said plate for disengaging said pawls from said tooth, substantially as herein described.

4. The combination of the valve-closing rock-shaft E having affixed thereon the two-armed swing-plate connected with the valves and the toothed sector-plate E^3, the bearing F for said rock-shaft having a journal *m* on its exterior, the driving rocker-arm E^2 fitted loosely to said journal and connected with the piston of the compressor, the spring-actuated pawls *p* on said rocker-arm for engaging with said toothed sector-plate, the lifter *r* on the said rocker-arm for disengaging said pawls, the air-cylinder *s* containing the piston *t* for operating said lifter, all substantially as herein described.

5. The combination with the valve-operating rock-shaft, of the toothed sector-plate affixed to said shaft, the driving rocker-arm loose around said rock-shaft and carrying pawls for engaging with said toothed plate, and the lifter on said rocker-arm for disengaging said pawls from said plate, the said sector-plate and rocker-arm being furnished respectively with projections 8, 8*, 9, 9* for bringing the rock-shaft to a central position when the said pawls are disengaged, substantially as herein described.

579,777. COMBINED COUPLING AND RUNNING SUPPORT FOR HOSE. HENRY C. SERGEANT, Westfield, N. J., assignor to The Ingersoll-Sergeant Drill Company, New York, N. Y. Filed July 9, 1896. Serial No. 598,506. (No model.)



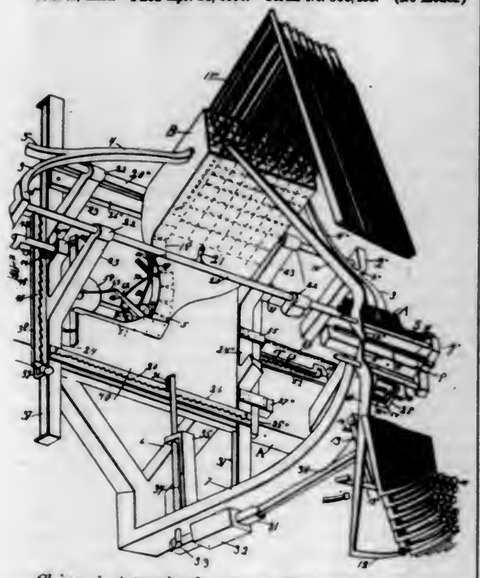
Claim.—1. A combined coupling and support for hose consisting of a runner and a hose-coupling dependent therefrom substantially as herein described.

2. A combined coupling and support for hose consisting of a runner and a duplex hose-coupling dependent therefrom substantially as herein described.

3. A combined coupling and support for hose consisting of a runner, a duplex hose-coupling and a swivel connection by which the said coupling is dependent from said runner, substantially as herein described.

4. The combination with the beam of a traveling crane, of a runner adapted to slide on said beam, a duplex hose-coupling, and a swivel connection by which the said coupling is dependent from said runner below the said beam, substantially as herein described.

579,778. TYPE-WRITING MACHINE. MARK W. SPENCER, Graves, Miss. Filed Apr. 21, 1896. Serial No. 588,483. (No model.)

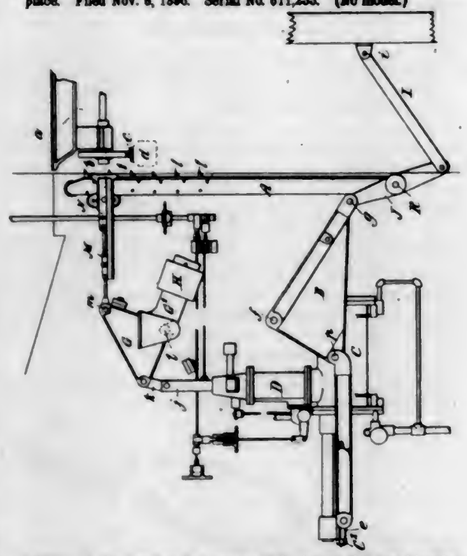


Claim.—1. A type-bar for a type-writing machine, comprising a plurality of sections rectangular in cross-section, and having rounded end faces, said sections being yieldingly secured together, substantially as specified.

2. In a type-writing machine, the combination of the key-levers, the spacing-lever operated by the key-levers, a vertically-arranged plunger operated by the spacing-lever, a carriage-operating bar formed with a cam-lug in the path of the plunger and a pawl on the inner end, a movable carriage, and a rack-bar on the carriage, engaged by the said pawl.

3. In a type-writing machine, the combination of the movable carriage, means to move the carriage intermittently, a rack-bar formed with a flange-bar higher than the rack-bar, a pawl to engage the rack-bar, and a bridge-piece at the inner end of the rack-bar to carry the pawl up on the flange-bar, and a spring to pull the carriage back.

579,779. STEAM LOG-TURNER AND NIGGER. EDWIN E. THOMAS, Bay City, Mich., assignor to the M. Gariand Company, same place. Filed Nov. 6, 1896. Serial No. 611,233. (No model.)

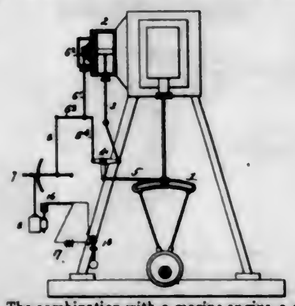


Claim.—1. In a steam log-turner and nigger, the combination, with the usual toothed bar, for turning the log; and means for moving said bar laterally at its upper end, of a steam-cylinder placed in a horizontal position, to effectnate the lifting of said bar and a system of levers connecting the piston of said cylinder with the lower end of said bar, and operating to translate the horizontal stroke of the piston into a vertical movement of said bar; all substantially as hereinbefore set forth.

2. In a log-turner and nigger, the combination, with the usual toothed bar, adapted to both turn the log and push it onto the carriage, of a steam-cylinder the piston of which is connected, to the upper portion of said bar through the medium of pitman and bell-crank; and an adjustable weight arranged on one arm of said bell-crank and adapted to act as a motor to push and hold the toothed bar against a log, during the log-turning operation; as hereinbefore set forth.

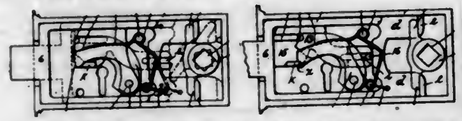
3. In a log-turner and steam-nigger, the combination with the toothed bar; a horizontally-placed steam-cylinder; and a system of levers for effectuating the lifting of said bar; of a steam-cylinder arranged vertically and mounted on said horizontally-placed cylinder: and suitable connections between said vertically-placed cylinder and the upper part of said bar for causing the proper lateral movements of the bar in performing the nigger operation; all substantially as hereinbefore set forth.

579,780. ELECTRICAL GOVERNOR FOR MARINE ENGINES. GEORGE A. TOWER, Richmond, Va., assignor of one-half to George R. Jarman, same place. Filed Mar. 18, 1896. Serial No. 583,700. (No model.)



Claim.—The combination with a marine engine, a reversing-link connected to the slide-valve thereof, an auxiliary cylinder and piston and means connecting the piston to the reversing-link, an auxiliary valve controlling the admission of the steam to said auxiliary cylinder, an operating-lever and means, substantially as shown and described, for connecting it to the auxiliary valve and to the devices for shifting the link, of a supplemental cylinder 8 and its piston, this piston being detachably connected to said operating-lever, a balanced valve controlling the admission of fluid to this cylinder, a solenoid or magnet controlling this valve, and a circuit-closer, substantially as specified.

579,781. LOCK. CHARLES C. TWEE, Charleroi, Pa. Filed Jan. 20, 1896. Serial No. 576,942. (No model.)



Claim.—1. In combination with a sliding bolt and a lock-bar adapted to engage the same, a tumbler adapted to engage and lock the said lock-bar and a spring arranged to act by one end or limb on the said bolt and by the other end or limb the said tumbler, the tumbler and lock-bar being also arranged to be actuated by the key substantially as set forth.

2. A fixed guide-plate arranged to be straddled by the key as the latter turns, in combination with a sliding bolt having a large central opening, a lock-bar arranged in said opening, and movable longitudinally of the said bolt to lock the latter, a tumbler arranged to engage a shoulder of said bolt, both the bolt and tumbler being held normally in their forward position by spring-pressure and the tumbler lock bar and bolt being arranged to withdraw from their locking positions by the backward turning of the key substantially as set forth.

579,782. HORSESHOE. DANIEL B. VAN HORN, Etna, N. J. Filed Dec. 4, 1896. Serial No. 614,405. (No model.)

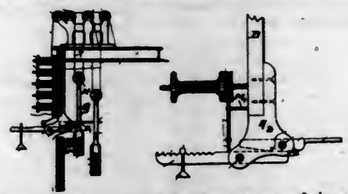


Claim.—1. A horseshoe consisting of a metallic body, a curved calk projecting from the lower face of the toe of said body, and an independent L-shaped calk projecting from the lower face of each of the heels and having their longer extremities approximately parallel with the outer edges of the said heels whereby the lines of resistance of the several calks merge nearby the center of the shoe, substantially as and for the purposes described.

2. A horseshoe consisting of a metallic body, a curved calk, triangular in cross-section, projecting from the lower face of the toe of said body and subetantially parallel with the outer edge thereof, and an independent L-shaped calk, also triangular in cross-section, projecting from the lower face of each of the heels and having their longer extremities approximately parallel with the outer edges of the said heels, and their shorter extremities at right angles thereto whereby the lines of resistance of the several calks merge nearby the center of the shoe, substantially as shown and described.

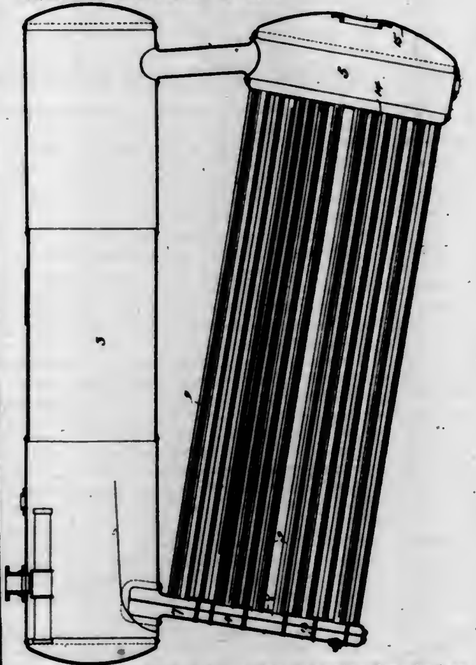
579,783. AUTOMATIC LET-OFF. ADOLPH WIDMER and SAMUEL WIDMER, Paterson, N. J. Filed June 24, 1896. Serial No. 596,708. (No model.)

Claim.—1. In a loom, the warp-roll rack having rows of pins supporting the warp-rolls, a row of warp-rolls each having a friction-pulley attached, the top castle with pulleys adapted to support the warp, the pulleys and thereunto-attached weights, a fork attached between said pulleys and their respective weights in combination with a lever-balance appertaining to each warp, comprising two levers having their approximate ends in contact creating a fulcrum, a laterally-adjustable weight attached to the rear lever of said lever-balance, a cord attached to said rear lever passing over the friction-pulley attached to the warp-roll, and attached at its other end to warp-roll rack, all for the purposes as set forth as illustrated and described.



2. In a loom, the warp-roll rack having rows of pins supporting the warp-rolls, each warp-roll having a friction-pulley attached, the top castle with pulleys adapted to support the warp, the pulleys and thereunto-attached weights, a fork attached between said pulleys and their respective weights in combination with a row of lever-balances, each lever-balance comprising two levers having their approximate ends in contact thereby creating a fulcrum, two side frames suitably secured to the warp-roll rack having an adequate number of the said lever-balances pivoted between them, laterally-adjustable weights attached to the rear levers, cords attached to the rear levers passing over the friction-pulleys attached to the warp-rolls and secured to the warp-roll rack, all operating for the purposes as set forth substantially as illustrated and described.

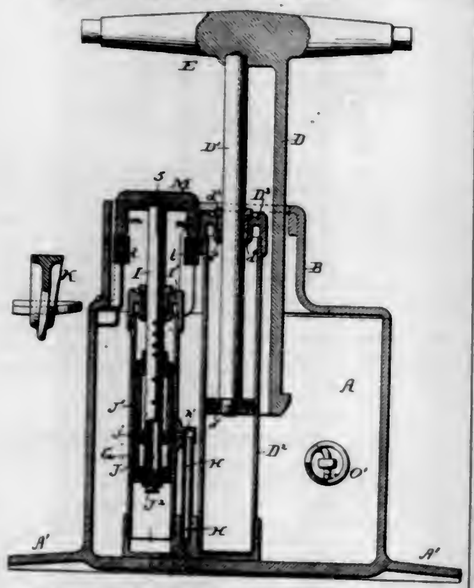
579,784. STATIONARY BOILER. LUDWIG BAKER, East Saginaw, Mich., assignor to the Wickes Brothers, same place. Filed Apr. 20, 1896. Serial No. 588,223. (No model.)



Claim.—1. A steam-boiler comprising in combination a horizontally-arranged cylindrical drum, headers having contracted necks connecting with the drum by a single inlet, the transverse diameters of said headers being short as compared with their width and the front header being of less transverse diameter or depth than the rear header and containing in operation a thin body of water and tubes connecting said headers substantially as and for the purpose described.

2. A steam-boiler comprising in combination a horizontally-arranged drum, a front header connecting therewith, a back header also connecting therewith, said headers being of circular outline and having contracted necks forming their connection with the drum, inclined water-tubes connecting the water-space of said headers, and said front header being of less transverse diameter or depth than the rear header, and the front plate of said header being provided with hand-holes opposite the open ends of the water-tubes substantially as described.

579,785. MEANS FOR RAISING OR LOWERING DENTAL CHAIRS. SAMUEL H. BARTON, Prince's Bay, N. Y., assignor to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed July 20, 1896. Serial No. 599,876. (No model.)



Claim.—1. The combination of the liquid-containing plunger-cylinder, means for supporting it, the plunger having the imperforate or valveless piston working fluid-tight in the cylinder, the liquid-containing pump-cylinder mounted by the side of the plunger-cylinder, the pump-piston valved to allow liquid in the pump-cylinder above the piston to pass down through the piston, means for actuating the pump-piston, a constantly-open communicating way between the cylinders above their pistons, a communicating way between the lower ends of the cylinders provided with a valve-opening to allow of the flow of liquid from the pump-cylinder to the plunger-cylinder and closing against return thereof, and means by which liquid beneath the plunger may be allowed to pass from the plunger-cylinder to the pump-cylinder above the valve of the pump-piston, substantially as and for the purpose set forth.

2. The combination of the liquid-containing plunger-cylinder, means for supporting it, the plunger having the imperforate or valveless piston working liquid-tight in the cylinder, the liquid-containing pump-cylinder mounted by the side of the plunger-cylinder, the pump-piston valved to allow liquid in the pump-cylinder above the piston to pass down through the piston, the lever for actuating the pump-piston, a constantly-open communicating way between the cylinders above their pistons, a communicating way between the lower ends of the cylinders provided with a valve-opening to allow of the flow of liquid from the pump-cylinder to the plunger-cylinder and closing against return thereof, and means brought into operation by abnormal elevation of the actuating-lever by which liquid may be allowed to pass from the plunger-cylinder beneath the plunger to the pump-cylinder above the valve of its piston, substantially as and for the purpose set forth.

3. The combination of the liquid-containing plunger-cylinder, the plunger having the imperforate or valveless piston working liquid-tight in the cylinder, the liquid-containing pump-cylinder at the side of the plunger-cylinder, the perforated tubular pump-piston rod, the recessed, perforated, tubular pump-piston valved to allow liquid in the pump-cylinder above the piston to pass down through the piston, the lever for actuating the pump-piston, a constantly open communicating way between the cylinders above their pistons, a communicating way between the lower ends of the cylinders provided with a valve which opens to allow of the flow of liquid from the pump-cylinder to the plunger-cylinder and closes against return thereof, the rock-shaft of the actuating-lever, the rock-shaft lever having connection with the pump-piston rod, the arm loosely mounted on the rock-shaft, the spring acting on this arm, the arm fast on the rock-shaft and operated upon by the spring-actuated loosely-mounted arm to raise the actuating-lever to its normal position of elevation and then leave it free to be abnormally elevated, and a liquid-passage by which, upon abnormal elevation of the actuating-lever, communication is opened for the flow of liquid from beneath the plunger-piston to the pump-cylinder, substantially as and for the purpose set forth.

4. The combination of the pedestal or base, the liquid-containing plunger-cylinder, the plunger having the piston working liquid-tight in the cylinder, the liquid-containing pump-cylinder, its valved piston, means for actuating the piston, the liquid-containing auxiliary cylinder, means by which the plunger-cylinder and the pump-cylinder have a constantly open communication above their pistons by way of the auxiliary cylinder, a communicating way between the lower ends of the plunger-cylinder and pump-cylinder provided with a valve-opening to allow of the flow of liquid from the pump-cylinder to the plunger-cylinder and closing against return thereof, and means by which liquid may be allowed to pass from the plunger-cylinder beneath the plunger to the pump-cylinder above the valve of its piston, substantially as and for the purpose set forth.

579,786. BLASTING-FUSE. MAX BIELEFELDT, Wittenberg, Germany. Filed Apr. 29, 1896. Serial No. 589,566. (No model.)

Claim.—1. An improved manufacture of fuses and match-cords which consists in impregnating a fiber with a drying-oil and a salt having high percentage of water of crystallization with diazo compounds and with albuminous bodies.

2. An improved manufacture of fuses and match-cords which consists in impregnating a fiber such as guncotton, with a drying-oil and a salt having high percentage of water of crystallization with diazo compounds and with albuminous bodies.

3. An improved manufacture of fuses and match-cords which consists in impregnating a fiber, consisting of granulated guncotton, with a drying-oil and a salt having high percentage of water of crystallization with diazo compounds and with albuminous bodies.

4. An improved manufacture of fuses and match-cords which consists in impregnating a fiber, consisting of granulated guncotton, with a drying-oil and a salt having high percentage of water of crystallization, with diazo compounds of the benzol series and with albuminous bodies.

5. An improved manufacture of fuses and match-cords, which consists in impregnating a fiber, consisting of granulated guncotton, with a drying-oil and a salt having a high percentage of water of crystallization, with diazo compounds of the benzol and naphthalene series and with albuminous bodies.

6. A fuse composed of readily-burning material impregnated with a drying-oil, such as linseed-oil, and treated with a substance operating to suppress flame, such as sulfate of magnesia, substantially as set forth.

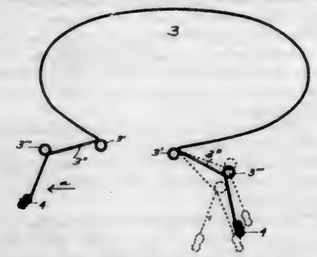
579,787. ARTIFICIAL LIMB. ROSS BOWMAN, Stoyestown, Pa., assignor of one-half to J. H. Gartner, same place. Filed May 11, 1896. Serial No. 591,091. (No model.)



Claim.—1. The combination with the foot and toe sections of an artificial limb, of the leather sac, the pneumatic sac inclosed therein, the skeleton sole or frame extending entirely around the sole of the foot-section, and the stirrup having its upturned ends riveted to the metallic shell of the foot-section, and its transverse portion, and right-angularly-located spring secured to the leather casing, substantially as and for the purpose specified.

2. In an artificial limb the combination of the foot-section, consisting of a rigid shell, having the configuration of the upper part of the foot, a toe-section secured thereto and having its lower portion turned inwardly and backwardly, an inside leather sac fitting up into the foot-section and secured to the same at points above the instep and heel, and an inclosed pneumatic sac filling the casing or leather sac, the toe of the sac and inclosing casing extending into and being seated in the toe-section of the limb substantially as described.

579,788. SHIRT-COLLAR HOLDER. EMERI BRODEUR, Southbridge, Mass. Filed Nov. 7, 1896. Serial No. 611,314. (No model.)

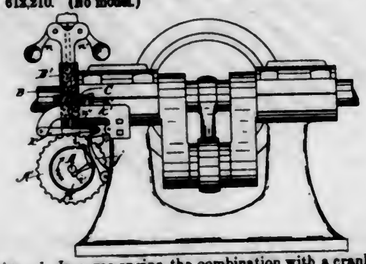


Claim.—1. A shirt-collar holder, made out of one piece or length of wire, and having the main portion of circular shape to fit under the collar, and the ends bent back to form a V-shaped loop, and then bent downwardly or outwardly, and the extreme ends bent to form loop-fasteners, to clamp and hold the lower edge of the collar, substantially as set forth.

2. A shirt-collar holder, made out of one piece or length of wire, and having the main portion of circular shape to fit under the collar, and the ends bent back to form a V-shaped loop, an eye or coil being formed in the wire at each end of the circular portion, and the ends then bent downwardly or outwardly, and the extreme ends bent to form double-loop fasteners, the upper loops to clamp and hold the lower edge of the collar, substantially as set forth.

3. A shirt-collar holder, made out of one piece or length of wire, and having the main portion of circular shape to fit under the collar, and the ends bent back to form a V-shaped loop, an eye or coil being formed in the wire at each end of the circular portion, and the ends then bent downwardly or outwardly, an eye or coil being formed in the ends at the point where they extend downwardly or outwardly, and the extreme ends bent to form double-loop fasteners, the upper loops to clamp and hold the lower edge of the collar, substantially as set forth.

579,789. GAS-ENGINE. PETER T. COWFIELD, Dayton, Ohio, assignor to W. P. Callahan & Co., same place. Filed Nov. 16, 1896. Serial No. 612,210. (No model.)



Claim.—1. In a gas-engine, the combination with a crank-shaft, and a centrifugal governor geared thereto; of a side shaft; a loose-running gear mounted thereon, and driven continuously from the crank-shaft; a disk driven with said gear; a pivotal dog carried on said disk, and mechanism actuated by the variable speed of the centrifugal governor to effect an engagement of said dog with the side shaft, or to permit of the disengagement of said parts, substantially as and for the purposes specified.

2. In a gas-engine, the combination with the power-cylinder provided with a valve-chamber in its side; a gas-admission valve opening into said chamber, and a mixture-admission valve, and an exhaust-valve opening into the power-cylinder; of a side shaft; cams mounted on said shaft; tappets interposed between said cams and the stems of the respective valves; a loose-running gear on said shaft continuously driven from the crank-shaft; a pivotal dog carried around by said gear and adapted to interlock said gear with the side shaft; a centrifugal governor, and mechanism controlled by the variable speed of said governor, substantially as and for the purposes specified.

3. In a gas-engine, the combination with a power-cylinder, a mixture-admission valve; and an exhaust-valve controlling ports in the side of said cylinder; and a gas-admission valve adjacent to said mixture-valve; of a cam-shaft; a loose-running gear on said shaft, continuously driven by the crank-shaft; a pivotal dog carried by said gear; a centrifugal governor geared to the crank-shaft; and mechanism controlled by said governor adapted to effect an engagement of said dog with the cam-shaft to rotate the latter and thereby cause an alternate opening of the valves as described, or to enable a disengagement of said dog with the cam-shaft and thereby cause said shaft to stop, at which time the exhaust-valve is held open, substantially as and for the purposes specified.

4. In a gas-engine, the combination with a crank-shaft; a centrifugal governor geared thereto; a gas-admission valve opening into a mixing-chamber; a mixture-admission valve, and an exhaust-valve controlling ports in the side of the cylinder, of a side shaft provided with cams to operate said valves; a gear loosely mounted on said shaft, and continuously driven by the crank-shaft; a dog adapted to interlock said gear with the side shaft; a centrifugal governor geared to the crank-shaft, and mechanism actuated by the speed of said governor, whereby said engagement of the dog with the side shaft is effected or prevented, according to the variable speed of the governor, substantially as and for the purposes specified.

5. In a gas-engine, the combination with a crank-shaft, a centrifugal governor geared thereto, and a side shaft having a gear loosely mounted thereon and driven from said crank-shaft, of a lever actuated by the increasing speed of said governor, a spring controlling said lever when the latter is free from the control of the governor, a disk movable with the gear on the side shaft, a dog carried on said disk, and mechanism interposed between said dog and lever for effecting a disengagement of said dog with the side shaft, and for permitting such engagement, substantially as and for the purposes specified.

6. In a gas engine, the combination with a crank-shaft, a centrifugal governor geared thereto, and a side shaft having a gear loosely mounted thereon and driven by said crank-shaft, of a lever movable by said governor as the speed of the engine increases, a spring controlling said lever when the latter is free from the control of the governor, a pivotal piece inclosing the end of said lever, and movable in either direction by said lever, a dog adapted to interlock the side shaft with the gear thereon, and a pawl movable by said pivotal piece to a position to release said dog from engagement with said shaft, and to permit said dog to become reengaged with said shaft, substantially as and for the purposes specified.

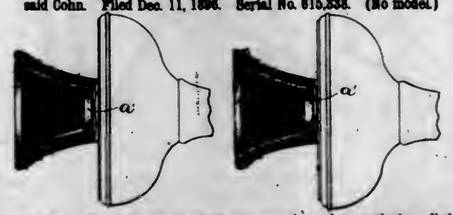
7. In a gas-engine, the combination with a gas-admission valve controlling the inlet of gas to a mixing-chamber, and a mixture-admission valve controlling the admission of the explosive mixture to the power-cylinder, a bell-crank lever to simultaneously open said valves, a side shaft, and a cam thereon to actuate said lever, a gear loosely mounted on said side shaft, and driven by the crank-shaft, a dog pivoted to said gear, and adapted to interlock said gear with the shaft, and mechanism interposed between said dog and the governor, whereby the said gear is enabled to run loose on the shaft, and the shaft permitted to stop, substantially as and for the purposes specified.

8. In a gas-engine, the combination with a crank-shaft, a governor geared thereto, and a side shaft, of a loose-running gear on said shaft driven from the crank-shaft, a dog carried on said gear and adapted to interlock said gear with the shaft and cause them to rotate together, mechanism interposed between said dog and the governor, and adapted to unlock said gear and shaft, an igniter-rod; and a cam on said shaft adapted to actuate said igniter-rod, the said cam being susceptible of an adjustment to lessen or increase the contact of the electrodes, as herein shown and described.

9. In a gas-engine, a movable electrode, in combination with an igniter-rod consisting of two members having their adjacent ends inclosed between resilient plates s^{n} and s^{2}, and a similar plate s^{4} attached to the outer end of said rod, substantially as herein shown and described.

10. In a gas-engine, an igniter-rod consisting of two members having their adjacent ends inclosed between resilient plates, and a similar plate attached to its outer end, in combination with a reversible cam adapted to vary the movement of said igniter-rod, a side shaft upon which the said cam is carried, and mechanism affected by the governor for controlling the movement of said shaft, substantially as described.

579,790. MOUTHPIECE FOR TELEPHONES. CASPER L. COHN, Boston, and MORRIS MARTIN, Malden, Mass.; said Martin assignor to said Cohn. Filed Dec. 11, 1896. Serial No. 615,338. (No model.)

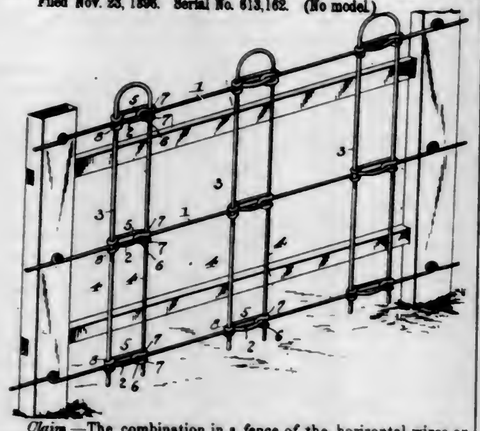


Claim.—1. A frusto-conical or cup-shaped mouthpiece-lining comprising a liquid-proof external section, and an absorbent inner

section secured to the interior of the outer section, and fastening devices for attachment to a correspondingly-shaped mouthpiece.

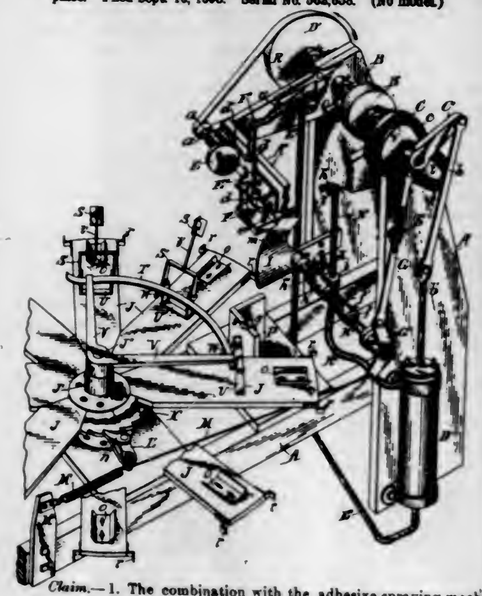
2. A frusto-conical or cup-shaped mouthpiece-lining comprising a liquid-proof external section provided with end flanges, and an absorbent inner section covering the interior of the outer section and engaged at its ends with said flanges, the inner surface of said absorbent section being exposed between said flanges and forming an evaporating-wall for the sound-passage of the mouthpiece, and means for detachably connecting the said lining with a permanent frusto-conical or cup-shaped mouthpiece.

579,791. **WIRE FENCE.** WILLIAM A. CORLE, Wauseon, Ohio. Filed Nov. 23, 1896. Serial No. 613,162. (No model.)



Claim.—The combination in a fence of the horizontal wires or strands formed with bends at suitable points, and the stays comprising the vertical parallel arms located at the ends of said bends, with the fasteners consisting of a piece of wire bent over at the center forming a loop engaging with said bends and then bent over one of said arms and extended backward behind said loop past the other arm of the stay and then bent around the said arm, substantially as described.

579,792. **MACHINE FOR LABELING BOTTLES.** EVAN W. CORNELL, Adrian, Mich., assignor of one-half to Cornell & Knapp Co., same place. Filed Sept. 16, 1895. Serial No. 562,658. (No model.)



Claim.—1. The combination with the adhesive-spraying mechanism, of the movable arm adapted to grasp and retain the label, and mechanism for actuating said arm to carry the label into position to receive the adhesive spray and to deposit the label upon the bottle, and the bottle-retaining agent for presenting the bottles in the path of the movable arm.

2. In a bottle-labeling machine, the combination with the bottle-holding device and label-receptacle, of the movable arm provided with means for picking up and retaining the label, the adhesive-spraying device, means for actuating said arm to carry the label into position to receive the adhesive spray thereon, means for vibrating said sprayer, and means for actuating the label-carrying arm to deposit the sprayed label upon the bottle.

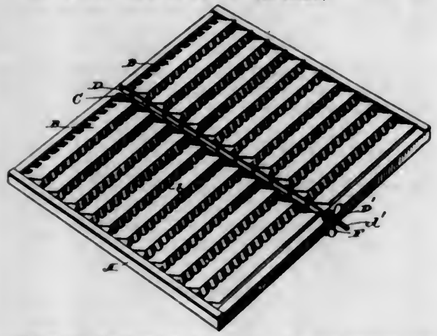
3. In a bottle-labeling machine, the combination with the bottle-receptacle, the label-receptacle, the movable label-carrying arm having the suction-nozzle thereon, the adhesive-spraying mechanism, the air-cylinder, and means connecting said suction-nozzle, and the spraying device, with said cylinder.

4. In a bottle-labeling machine, the combination with the bottle-holder and label-receptacle, of the movable label-carrying device having means for grasping the uppermost label and carrying it into position to receive the adhesive, the adhesive-spraying mechanism, the air-compressor, and means for passing an intermittent air-blast through the spraying-nozzle.

5. In a bottle-labeling machine, the combination with the intermittently-movable bottle-carrier, of the label-receptacle, the adhesive-applying mechanism, the movable label-carrying arm provided with means for grasping the label, means for actuating said arm to carry the label into position to receive the adhesive, and means for actuating said arm to deposit the label upon the bottle.

6. In a bottle-labeling machine, the combination of the label pasting and applying mechanism, of the movable bottle-carrier having bottle-receptacles thereon, the series of arms journaled on supports fixed to said carrier, said arms having a rear extension, the pads mounted on the free ends of said arms, the fixed rail mounted over said carrier which is engaged by the extension of the arm of said pads whereby said pads are actuated.

579,793. **SEPARATOR.** ELMER E. DITCH, Ashland, Ohio. Filed Oct. 12, 1896. Serial No. 608,610. (No model.)



Claim.—1. In a separator or screen, the combination with the oscillating slats mounted in a frame, said slats having their lower ends serrated and upturned, the upturned edges being adapted to form, in connection with the slats, the mesh of the separator, of inverted-U-shaped cranks secured to said slats and forming the inner journals thereof, said cranks being operated by means of a bar to which they are secured, substantially as and for the purpose shown and described.

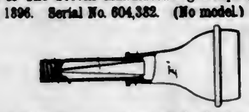
2. In a separator or screen, the combination with the frame A provided with oscillating slats B, said slats having upturned serrated lower edges, and U-shaped cranks, of a central adjustable bar engaging said U-shaped cranks, and means for adjusting said bar, whereby the slats are oscillated and the mesh of the separator altered.

579,794. **OIL-HOLE COVER FOR BICYCLE-HUBS.** RINNON C. FAY, Ilion, N. Y., assignor to the Remington Arms Company, New York, N. Y. Filed Dec 28, 1895. Serial No. 573,611. (No model.)



Claim.—An internal oil-hole cover for tubular vehicle-bearings, consisting of a plate formed of resilient material extending lengthwise of the bearing, and bent to conform approximately to the contour of the bearing, and held in place by spring-arms integral therewith; substantially as described.

579,795. **POCKET-OILER.** JOHN H. GOSS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Aug. 31, 1896. Serial No. 604,382. (No model.)

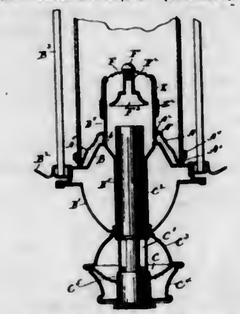


Claim.—1. The combination with the body, spout and cap of an oiler, of a spring-actuated follower located in the outer end of the cap which is rotatable independently of it, and containing a stopper or packing adapted to engage with the end of the spout for closing the same whereby the cap may be rotated for screwing it into and unscrewing it from the oiler without rotating the follower and causing the stopper or packing with which it is provided to be cut out upon the end of the spout.

2. In an oiler, the combination with the body and spout thereof, of a cylindrical cap adapted to inclose the spout, a button-like follower located within the outer end of the cap which is rotatable independently of it, a stopper or packing located within the follower, and a spring interposed between the end of the cap and the flange of the follower whereby the cap may be rotated for screwing it into and unscrewing it from the oiler without rotating the follower and causing the stopper or packing with which it is provided to be cut out upon the end of the spout.

3. In an oiler, the combination with the body and spout thereof, of a cylindrical cap for inclosing the spout, a button-like follower located within the outer end of the cap which is rotatable independently of it, and having a contracted neck and an annular flange; a stopper or packing located within the follower in which it is retained by the contracted neck thereof, a spiral spring interposed between the outer end of the cap and the flange of the follower for moving the same outward, and means, such as a bead, formed in the cap for limiting the outward movement of the follower whereby the cap may be rotated for screwing it into and unscrewing it from the oiler without rotating the follower and causing the stopper or packing with which it is provided to be cut out upon the end of the spout.

579,796. **LAMP-BURNER.** JOHN H. GOSS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Aug. 31, 1896. Serial No. 604,383. (No model.)



Claim.—1. In a Welsbach burner, the combination with a burner-skirt, a chimney-gallery and a burner-cone, of a chimney-holder having a central aperture for the burner-cone, from which it is suspended, and constructed to accommodate chimneys varying in size.

2. In a Welsbach barner, the combination with a burner body or skirt, a chimney-gallery and a burner-cone, of a chimney-holder suspended from the burner-cone and having its body portion made of wire-gauze or equivalent material.

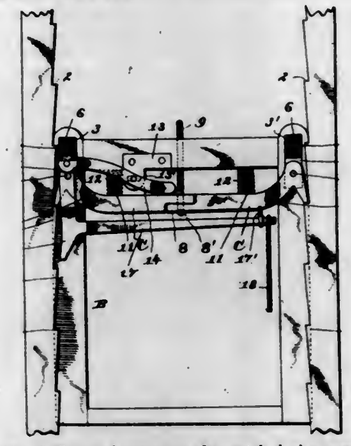
3. In a Welsbach burner, the combination with a burner body or skirt, a chimney-gallery and a burner-cone, of a chimney-holder suspended by its inner edge from the burner-cone and having its body portion made of wire-gauze, formed with a central aperture for the burner-cone, and having its inner edge bound with a sheet-metal band and its outer edge turned upward to form a retaining-flange, and also bound with a sheet-metal band.

4. A chimney-holder having its body portion made of gauze the inner edge of which is secured to a sheet-metal ring, and the outer edge of which is turned upward to form a flange, and bound by a sheet-metal band, the gauze being struck up to form a shoulder standing opposite to and within the said flange and its band.

5. In a Welsbach gas-burner, the combination with the burner-cone thereof, of a cylindrical burner-cap comprising a sheet-metal band, the lower portion of which is struck outwardly to form a circle of vertical corrugations, the lower edges of which are struck inward and beveled and include the extreme lower edge of the band which is cut at a right angle to the plane of the metal forming it, so as to produce an inclined gripping edge which takes hold of the burner-cone and prevents the cap from displacement thereupon.

6. In a Welsbach burner, the combination with a burner-skirt, a chimney-gallery and a burner-cone, of a chimney-holder having a central aperture for the burner-cone, suspended therefrom and made yielding to accommodate chimneys varying in size.

579,797. **ELEVATOR.** ISAAC C. GRAY, Tippecanoe, Ind., assignor of one-fourth to Lorenzo D. Ely, same place. Filed Jan. 4, 1897. Serial No. 617,874. (No model.)

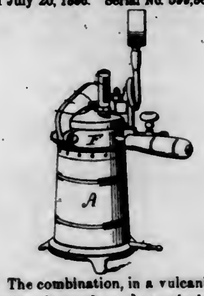


Claim.—1. In an elevator, a safety-catch device, comprising a carriage-frame, oppositely-disposed guides for the carriage formed with racks, buffer-blocks housed in the frame of the carriage, springs over the buffer-blocks, safety-catches pivotally mounted on the buffer-blocks, and adapted to engage the racks and having their inner ends lapped, springs to throw the catches into engagement and a cable-link arranged over the lapped ends of the catches.

2. In an elevator, a safety-catch device comprising a carriage-frame, oppositely-disposed guides for the carriage formed with racks, buffer-blocks housed in the frame of the carriage, springs over the buffer-blocks, safety-catches pivotally mounted on the buffer-blocks, and adapted to engage the racks and having their inner ends lapped, springs to throw the catches into engagement and a cable-link arranged over the lapped ends of the catches, an auxiliary lever fulcrumed to bear with one end on the safety-catches, and its outer end connected to one of the buffer-blocks, and a catch, having an actuating-handle, pivotally suspended from the outer end of the auxiliary lever.

3. In an elevator, the combination with the guides having racks, main safety catches or levers, of an auxiliary safety device, comprising a lever fulcrumed to the carriage-frame with one end arranged to bear on the arms of the main safety-catches, and a catch-arm pivotally suspended from the onter end of the said lever and having a catch portion adapted to engage one of the said racks, and a handle on the catch-arm, substantially as set forth.

579,798. **VULCANIZER.** HARRY E. HAWKSWORTH, Philadelphia, Pa., assignor to The S. S. White Dental Manufacturing Company, same place. Filed July 20, 1896. Serial No. 599,853. (No model.)



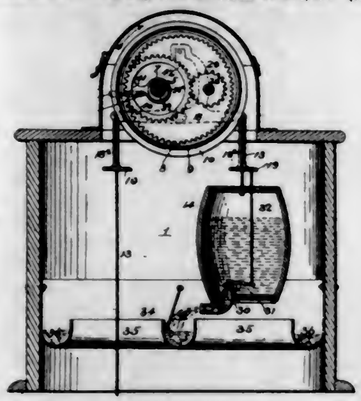
Claim.—1. The combination, in a vulcanizer, of the shell or casing, the base having the perforated top, the burner supported by the base and projecting above its perforated top, the supply-pipe beneath

the perforated top of the base and having communication with the burner, and the turning perforated draft-regulator beneath the perforated top of the base for controlling the amount of air admitted to the shell or casing through the base-perforations to vary the heat emitted by the burner-flame, substantially as set forth.

2. The combination of the vulcanizer-boiler, its cover, the yoke having jointed connection with the boiler, means for clamping the yoke down upon the cover, the adjustable bearing midway the length of the yoke by which it presses upon the cover, and means for adjusting and locking said bearing in position, substantially as set forth.

3. The combination of the vulcanizer-boiler, its cover, the yoke having jointed connection at one end with the boiler, means acting upon the opposite end of the yoke for clamping the yoke down upon the cover, the cam-faced disks constituting an adjustable bearing midway the length of the yoke by which it presses upon the cover, and the screw or bolt by which said disks are secured to the yoke and locked in their position of adjustment, substantially as set forth.

579,799. WINDLASS WATER-ELEVATOR. JOHN H. KESTER, Winston, N. C. Filed Aug. 3, 1896. Serial No. 601,527. (No model.)

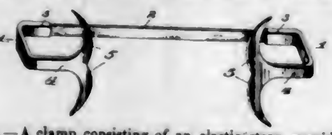


Claim.—1. In a water-elevating apparatus, the combination with the intermeshing cog-wheel and pinion, of the rotatable cogged drum, the pivoted bifurcated arm to which said drum is journaled, the pivoted lever having a curved and slotted arm, the pivoted weighted lever having a pin engaging with said slotted arm and a pin adapted to engage with said bifurcated arm, and means substantially as described for operating said levers for throwing the cogged drum alternately into and out of engagement with said cog-wheel and pinion.

2. In a water-elevating apparatus the combination with the intermeshing cog-wheel and pinion, of the rotatable cogged drum, the pivoted bifurcated arm to which said drum is journaled, the pivoted lever having a curved and slotted arm, the downwardly-depending arms having apertured disks, the pivoted weighted lever provided with oppositely-extending pins, the elevating-rope passing around said drum and having a bucket at each end, the valve at the bottom of said buckets, the valve-rod and the vertical rod connected therewith, substantially as described.

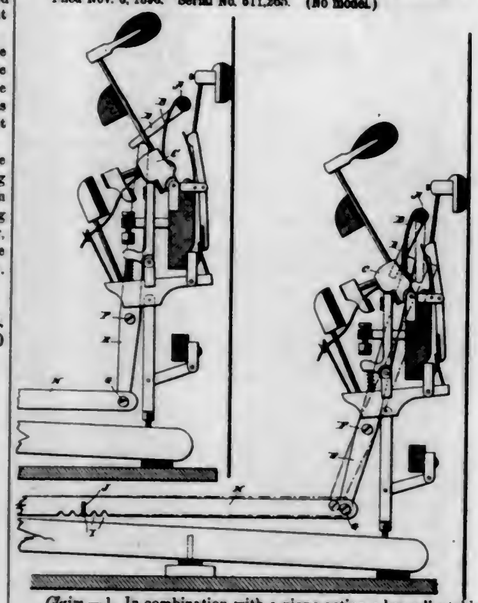
3. In a water-elevating apparatus of the character described, the combination with the casing having a curved opening or slot therein, the cog-wheel having an annular recess in one face, the intermeshing pinion, the eccentric-hub on the casing and the brake-shoe mounted on said casing, and the pivoted lever having a pin projecting through the slot in the casing and located under said brake-shoe, of the shiftable cogged drum, the elevating rope and buckets and means for shifting said drum, substantially as described.

579,800. CLOTH-BOLT CLAMP. NICHOLAS T. LEVERITT, Emberson, Tex. Filed Dec. 14, 1896. Serial No. 615,637. (No model.)



Claim.—A clamp consisting of an elastic strap provided at its ends with hooks, each of said hooks consisting of the shanks and bent portion 4, and lateral extensions 5 upon said bent end portion.

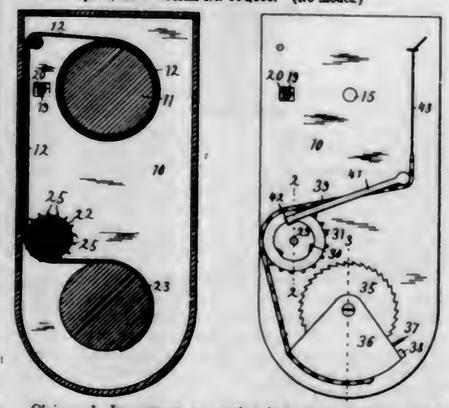
579,801. MECHANISM FOR VARYING THE TOUCH OF PIANO-ACTIONS. FRANK LINDHOLM and CHARLES PICARD, Woodbury, N. J. Filed Nov. 6, 1896. Serial No. 611,265. (No model.)



Claim.—1. In combination with a piano-action, a bar adjustable forward and backward, a lever pivoted at one end to the bar, a rail journaled in the piano-frame, an arm on the rail terminating in contact with the lever and springs carried by the rail bearing against the hammers, as and for the purpose described.

2. In combination with a piano-action, a rail adapted to turn upon its axis, a series of springs carried by said rail and bearing against the blocks of the hammers, an arm projecting from the rail, a lever arranged to operate the arm in one direction against the action of the springs, a bar pivoted to the lower end of the lever having a series of notches formed therein, and a pin with which said notches are adapted to engage for holding the lever in any adjustment, as specified.

579,802. STATION-INDICATOR. JOHN H. MORSE, St. Louis, Mo. Filed Sept. 3, 1896. Serial No. 604,693. (No model.)



Claim.—1. In a street or station indicating device, a strip of flexible material having the names of the streets or stations thereon, rollers upon which said flexible material is carried, a ratchet-wheel rotating with one of said rollers, a pivotally-mounted movable member actuating said ratchet-wheel, a sprocket-chain attached to said movable member, a sprocket-wheel over which said sprocket-chain travels, a locking device for locking said sprocket-wheel against rotation, and a rotary member independent of the rollers by which said strip is carried actuated by the movement of said strip of flexible material and controlling said locking device.

2. In a street or station indicating device, a strip of flexible material having the names of the streets or stations thereon, rollers upon which said strip is carried, a roller independent of the said rollers upon which the said strip is carried and actuated by the movement of said strip, a rotary member rigidly carried by said latter-named roller, a locking device controlled by said rotary member, a second rotary member loosely carried by said latter-named roller and controlled by said locking device, and means for simultaneously actuating said latter-named rotary member and one of the rollers upon which said strip of flexible material is carried.

3. In a street or station indicating device, a strip of flexible material having the names of the streets or stations thereon, rollers upon which said strip is carried, a roller independent of the rollers upon which said strip is carried and actuated by the movement of said strip, a rotary member rigidly carried by said latter-named roller, a locking device governed by said rotary member, a sprocket-wheel loosely carried by said latter-named roller and governed by said locking device, and a sprocket-chain engaging with said sprocket-wheel and actuating one of the rollers upon which said strip of flexible material is carried.

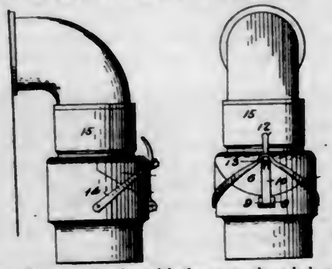
579,803. PISTON-ROD EXTRACTOR. CHARLES E. NICHOLS, Mandan, N. D. Filed Apr. 20, 1896. Serial No. 588,296. (No model.)



Claim.—1. In a device for the purpose described, the combination of two cylinders of the same cubical capacity of contents but of different diameters, connected by a small inclined passage, the spring-actuated washer in the larger cylinder, the piston in the smaller cylinder, the piston in the other, and the nut, substantially as specified.

2. In a device for the purpose described the combination of the two cylinders of the same cubical capacity of contents but of different diameters connected by a small inclined passage, the spring-actuated washer and the piston in the cylinder of greater diameter, the piston in the other cylinder, the oil in the space between the two cylinders, and the nut on the end of the cylinder of smaller diameter and provided with a socket to receive the end of its piston, substantially as described.

579,804. HOSE-COUPLING. GEORGE W. OWINGS, Ritter, Oreg. Filed Nov. 19, 1896. Serial No. 612,713. (No model.)

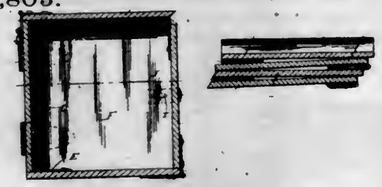


Claim.—The combination with the screw-threaded coupling cut away on a bevel at one end, and formed with an inwardly-extending flange, of the segmental clamp having a corresponding flange, the lever pivoted to the coupling, the catch pivoted to said lever, the pivoted yoke or bail engaging therewith and the nipple formed with an annular peripheral flange; substantially as described.

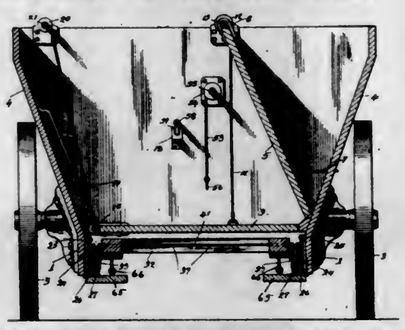
579,805. COLLAPSIBLE CRATE. WILLIAM H. PLATT, Jr., Brooklyn, N. Y. Filed May 29, 1896. Serial No. 593,659. (No model.)

Claim.—The collapsible crate consisting of the bottom, the sides and the top all hinged together and the transverse partition with its ends set into said sides the hinges connecting said top and one side and the hinges connecting said bottom and the opposite side being on the inside and arranged at diagonally opposite points and the hinges connecting the aforesaid side and bottom being on the outside and diagonally opposite the hasp or entrance to the crate, substantially as shown and described.

579,805.



579,806. BURIAL DEVICE. ROMULUS R. RICHMOND, Charlton, Iowa. Filed Sept. 1, 1896. Serial No. 604,519. (No model.)



Claim.—1. In a device of the character described, a hopper, a folding track adjustably secured beneath it, and a frame adapted to roll on said track, as and for the purpose described.

2. The herein-described combination of a truck-frame, wheels upon which said frame is mounted, a hopper supported by said frame, a partition 5 for dividing said hopper into two compartments, cables for operating the partition, a hinged bottom for closing the principal compartment, cables for holding said bottom in closed position, drums upon which said cables are wound for opening said bottom, cables 19 attached to the hinged side of the bottom, drums upon which said cables may be wound, a shaft upon which said drums are located, a crank for operating said shaft, cables 53 adapted to be passed through staples in the top of the cover for the casket-box, eyes attached to the ends of said cables, hooks 57 with which said eyes are engaged, a rod 58 carrying said hooks, push-offs 18 for disengaging the eyes from the hooks, drums 54 upon which the cables 53 are wound, a shaft upon which said drums are mounted, and a crank for operating said shaft, substantially as and for the purpose set forth.

3. In combination with a hopper of the character described, a sectional track attached thereto by means or levers so as to be swung downward against the ground over which said track is supported, means for swinging said track downward, a trundle-frame mounted upon the track, cables arranged upon said frame, means for winding and unwinding said cables, and means for attaching and detaching the ends of said cables to and from each other, substantially as and for the purpose set forth.

4. In combination with a hopper of the character described and the parts carried thereby, a sectional track, levers for connecting said track to the hopper so that said track may be swung downward into contact with the ground, means for controlling the movement of said track, a trundle-frame, rolls upon which said frame is mounted, said rolls adapted to run upon the track, cables arranged upon the frame, a drum 35 upon which said cables are wound, a brake for controlling the movement of said drum in one direction, a crank for turning the drum in the opposite direction, and automatic hooks attached to the ends of the cables whereby the latter may be disengaged when the cables are slackened, substantially as and for the purpose set forth.

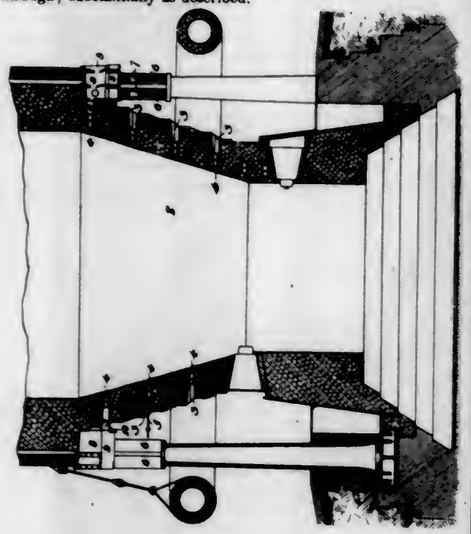
579,807. METALLURGICAL FURNACE. WILLIAM ROTTHOFF, Duquesne, Pa. Filed Feb. 3, 1896. Serial No. 577,825. (No model.)

Claim.—1. A blast-furnace provided with cooling-plates in its sides and having its mantel-plates provided with transverse openings adjacent to and of sufficient size to permit withdrawal of said cooling-plates.

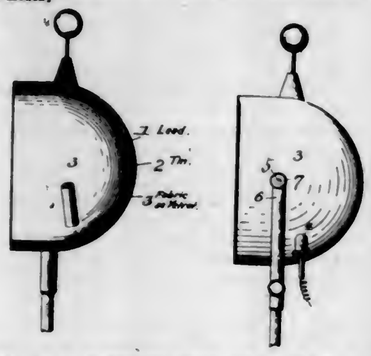
2. A blast-furnace, provided with mantel-plates supporting its mantel and having the supporting-girders for the mantel-plates provided with openings through which cooling-plates may be inserted, substantially as described.

3. A blast-furnace, having mantel-plates supported upon girders, cooling-plates in its bosh in front of said girders and mantel-plates,

and apertures extending through the girders and mantel-plates in line with the cooling-plates, so that they may be removed therethrough; substantially as described.



579,808. REFLECTOR FOR FOCUSING CATHODE-RAYS. RALPH M. RUSSELL, Birmingham, Ala. Filed Sept. 15, 1896. Serial No. 605,927. (No model.)



Claim.—1. As an improved article a focuser for X or cathode rays, consisting of the outer concavo-convex shell of lead or other inelastic metal, and an inner shell or lining of tin or other elastic metal, substantially as described.

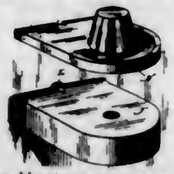
2. The combination with the focuser consisting of the concavo-convex leaden shell, the inner shell of tin, and the velvet lining, of the Crookes tube located in the concavity of the focuser or reflector; substantially as described.

579,809. PREPARING YEAST FOR BREAD-MAKING. LAURITS A. SCHIÖTT-CHRISTENSEN, Copenhagen, Denmark. Filed Jan. 6, 1893. Renewed Dec. 9, 1896. Serial No. 615,073. (No specimens.) Patented in Sweden Dec. 14, 1891, No. 4,013, and in Denmark Dec. 17, 1891, No. 3,225.

Claim.— 1. In the art of producing yeast the improvement which consists in making a mixture of malt, water and cereal flour maintaining this mixture at a temperature of about 72° centigrade in a closed vessel for a sufficient length of time to effect sterilization without coagulating the albuminoids, then adding pure-culture yeast and allowing the mixture to ferment as and for the purpose described.

2. In the art of producing yeast the improvement which consists in making a mixture of malt, water and cereal flour maintaining this mixture at about 72° centigrade in a closed vessel for a sufficient length of time to effect sterilization without coagulating the albuminoids and then adding pure-culture yeast fermenting the mixture and then separating a large part of the liquid constituents, as and for the purpose described.

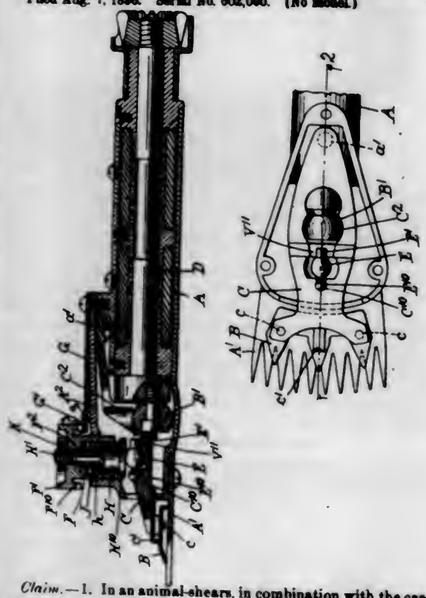
579,810. STOVE-DOOR AND HINGE THEREFOR. JAMES H. SPOHN, Philadelphia, Pa. Filed Aug. 22, 1896. Serial No. 603,655. (No model.)



Claim.—1. In combination a stove-door as described, a hinged device at the top of the door, a lug having a recess at the bottom of the door a shoe depending from the lower lug, a pintle having a flange and an inclined surface formed on the flange on which the shoe rides, substantially as described.

2. In combination, a stove-door having an upper hinged device, a lower lug having a recess, a shoe formed on the lower lug, a pintle having a flange and incline, a lug for supporting the pintle, and means for holding the pintle rigid, substantially as described.

579,811. ANIMAL-SHEARS. JOHN K. STEWART, Chicago, Ill. Filed Aug. 7, 1896. Serial No. 602,095. (No model.)



Claim.—1. In an animal-shears, in combination with the case and the cutter lever-arm, a roller having an axle journaled at one end and rolling at the other end on a track provided on the lever-arm; and an upper bearing or path for the roller mounted on the case.

2. In an animal-shears, in combination with the case and the cutter lever-arm pivoted thereto and vibrating therein, an antifriction-roller journaled on the upper side of the cutter-arm at a point remote from and forward of the pivot, and a spring-actuated upper bearing for the roller mounted on the case.

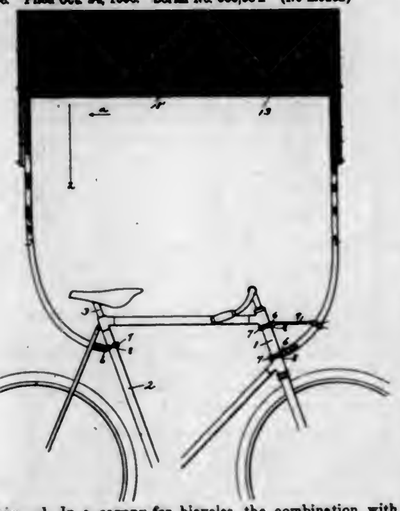
3. In an animal-shears, in combination with the case and the cutter lever-arm, an antifriction-roller journaled on the upper side of the cutter-arm at a point remote from and forward of the pivot, and an upper bearing for the roller comprising a plunger and a spring which tends to force the plunger against the roller, and a housing for the plunger and spring serving as the upper stop for the latter and adapted to be screwed through the case to advance the plunger yieldingly against the roller.

4. In an animal-shears, in combination with the case and the vibrating cutter lever-arm pivoted therein, an antifriction-roller journaled on the upper side of the arm at a point remote from and forward of the pivot, and an upper bearing for the roller comprising the sleeve screwed into the case, the plunger having a broad head which forms a track for the roller and a stem which is guided in the sleeve, and a spring coiled around the stem within the sleeve and reacting between stops on the sleeve and plunger to force the latter downward: substantially as set forth.

5. In combination with the case and the vibrating cutter-arm and the antifriction-roller on the upper side of the latter at a point remote from and forward of the pivot, the sleeve H and the spring-actuated plunger therein, said sleeve having a notched curtain depending from its head, and the double-toothed spring G adapted to engage the notches of said curtain and to be depressed out of engagement at will.

6. In combination with the case, the vibrating cutter-arm therein and the antifriction-roller journaled upon the upper side of the arm; the sleeve H, the plunger J having a head at its lower end which affords the track for the rollers, and its stem extending through the sleeve; a spring coiled about said stem and reacting between the stops on the plunger and sleeve respectively with a tendency to force the plunger downward relatively to the sleeve, said stem extending upward beyond the stop on the sleeve, and an adjusting-nut whereon to vary the initial pressure exerted by the spring upon contact of the plunger head with the roller.

579,812. CANOPY FOR BICYCLES. SCOTT F. WHITAKER, Worcester, Mass., assignor of one-half to Charles A. Homer, same place. Filed Oct. 24, 1896. Serial No. 609,934. (No model.)



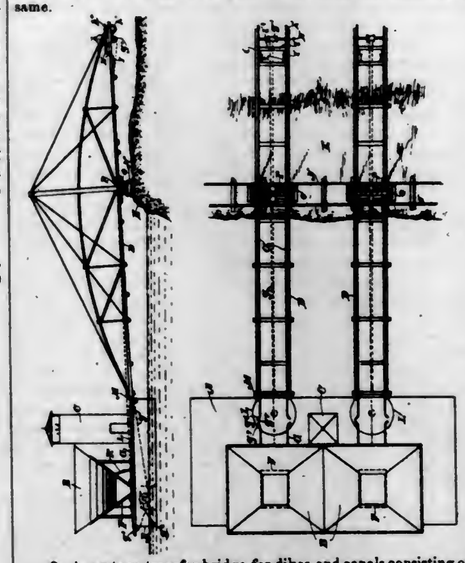
Claim.—1. In a canopy for bicycles, the combination, with a front and a rear standard, the lower end of each of which is provided with means for detachably securing it to the frame of a bicycle, a pair of arms pivotally secured near the upper end of each standard, bars for connecting the respectively opposite ends of the standards and the arms, a flexible cover upon the bars, and two notched strips secured to each pair of arms, the inner ends of which are pivotally secured together and provided with interlocking notches, substantially as set forth.

2. In a canopy for bicycles, the combination, with a front and a rear standard, the lower end of each of which is provided with means for detachably securing it to the frame of a bicycle, a pair of arms pivotally secured near the upper end of each of the standards, bars for connecting the respectively opposite ends of the standards and arms, a flexible canopy upon the bars, and two strips secured to each pair of arms, the inner ends of which are pivotally secured together, the inner end of one of the strips being provided with an offset or projection, and the other strip is also provided with an offset and a notch, substantially as set forth.

579,813. PONTOON TRANSFER-BRIDGE FOR DIKES OR CANALS. ALEXANDER M. WYLIE, Stockton, Cal. Filed Oct. 21, 1896. Serial No. 609,536. (No model.)

Claim.—1. A pontoon transfer-bridge for dikes and canals consisting of a pontoon or float having a hopper to receive the spoils, track-rails thereon and extending beneath the hopper, a bridge connected with the pontoon or float and having track-rails in line with the rails thereon, a wheeled vehicle to travel on said rails and to receive the spoils directly from the hopper and means for effecting the travel of said vehicle from the pontoon or float, over the bridge and back again.

2. A pontoon transfer-bridge for dikes and canals consisting of a suitable pontoon or float, a bridge connected therewith and extending to and over the bank, a car adapted to receive the material to be transferred, from the dredger, means for effecting the travel of said car from the pontoon or float, over the bridge and back again, and means for automatically dumping said car at the inner end of the bridge, consisting of a swinging gate on the car, having a latch, and a trip on the bridge in the path of said latch and actuating the same.



3. A pontoon transfer-bridge for dikes and canals consisting of a suitable float or pontoon, a hopper thereon adapted to receive the material from the dredging-machine, a bridge connected with said float or pontoon and extending to and over the bank, a car adapted to receive the material from the hopper on the float or pontoon, means for effecting the travel of said car from said float or pontoon over the bridge and back again, and means at the end of the bridge for automatically effecting the discharge of the contents of said car, consisting of an incline down which the car runs, a swinging gate on the car, a latch on said gate and a trip in the path of the latch and actuating the same.

4. In a pontoon transfer-bridge for dikes and canals in which is employed a car adapted to receive the material from the dredger, and to travel from the pontoon, over a bridge extending from said pontoon to and over the bank, the means for dumping said car consisting of the spaced vertically-disposed guide-rails at the land end of the bridge and between which the wheels of the car travel, said guide-rails having downwardly-curved extensions projecting beyond the bridge and adapted to turn the car from the horizontal.

5. In a pontoon transfer-bridge for dikes and canals in which is employed a car adapted to receive the material from the dredger, and to travel from the pontoon, over a bridge extending from said pontoon to and over the bank, the means for dumping said car, consisting of the spaced vertically-disposed guide-rails at the land end of the bridge and between which the wheels of the car travel, said guide-rails having downwardly-curved extensions projecting beyond the bridge and adapted to turn the car downwardly, and a means for controlling the descent of the car over said curved portion consisting of the pneumatic cylinders with their pistons and sliding cross-head, said cross-head having a contact-arm, and a bail on the car for engaging the said contact-arm.

6. A pontoon transfer-bridge for dikes and canals, consisting of a suitable float or pontoon having a hopper for receiving the material from the dredger, a bridge connected with said float or pontoon and thence extending to and over the bank, a car adapted to receive the material from the hopper, and means for effecting the travel of said car from the pontoon or float, and thence over the bridge and back again, and the means for automatically dumping said car at the inner end of the bridge consisting of the spaced vertically-disposed guide-rails between which the wheels of the car travel, said guide-rails having downwardly-curved extensions projecting beyond the bridge.

7. A pontoon transfer-bridge for dikes and canals, consisting of a suitable float or pontoon, having a hopper for receiving the material from the dredger, a bridge connected with said float or pontoon and thence extending to and over the bank, a car adapted to receive the material from the hopper, and means for effecting the travel of said car from the pontoon or float, and thence over the bridge and back again, and the means for automatically dumping said car at the inner end of the bridge consisting of the spaced vertically-disposed guide-rails between which the wheels of the car travel, said guide-

rails having downwardly-curved extensions projecting beyond the bridge, and the means for controlling the descent of said car at the curved portion of the guide-rails, consisting of the pneumatic cylinders with their pistons and sliding cross-head having a contact-arm, and the bail on the car adapted to engage with said arm.

8. In a pontoon transfer-bridge for dikes and canals, and in combination with the pontoon or float, the bridge connected therewith and thence extending to and over the bank, a car for transferring the material from the pontoon over the bridge, said car having a discharge-gate at its end, and the means for automatically controlling said gate, consisting of the hinge connections by which the gate is adapted to close by gravity, the pivoted latches carried by the gate and adapted to engage with catches on the car end, the downwardly-curved guide-rails at the end of the bridge and in which the wheels of the car travel whereby said car is turned downwardly, and the straight bars with which the ends of the latches automatically engage as said car is turning downwardly whereby they are relieved of their catches and the gate freed.

9. A pontoon transfer-bridge for dikes and canals consisting of a suitable float or pontoon having a hopper to receive the material from the dredger, a bridge connected with said float or pontoon, and thence extending to and over the bank, a car adapted to receive the material from the hopper and means for effecting the travel of said car from the float or pontoon, over the bridge, the fixed guide-rails with downwardly-curved extensions at the inner or land end of the bridge and by which the car is turned downwardly, and a means for automatically closing and opening the car when turned downwardly, consisting of the swinging gate closing by gravity, the latches and the catches with which they engage and the fixed straight bars engaging the latches to automatically open them.

10. A pontoon transfer-bridge for dikes and canals consisting of a suitable float or pontoon having a hopper to receive the material from the dredger, a bridge connected with said float or pontoon, and thence extending to and over the bank, a car adapted to receive the material from the hopper and means for effecting the travel of said car from the float or pontoon over the bridge, the fixed guide-rails with downwardly-curved extensions at the inner or land end of the bridge and by which the car is turned downwardly, the means for automatically closing and opening the car when turned downwardly, consisting of the swinging gate closing by gravity, the latches, and the catches with which they engage, and the fixed straight bars engaging the latches to automatically open them, and the means for controlling the descent of the car consisting of the pneumatic cylinders with their piston-rods and sliding cross-head having a contact-arm, and the bail on the rear axle of the car engaging with said contact-arm.

11. In a pontoon transfer-bridge for dikes and canals, the combination, of a float or pontoon, a bridge extending therefrom and capable of movement in a vertical plane, a turn-table, track-rails on the pontoon or float and bridge, the rails on the former overlapping and independent of the turn-table, a hopper on the float, a vehicle to travel on said rails and to pass under the hopper, and means for operating the vehicle back and forth on the rails.

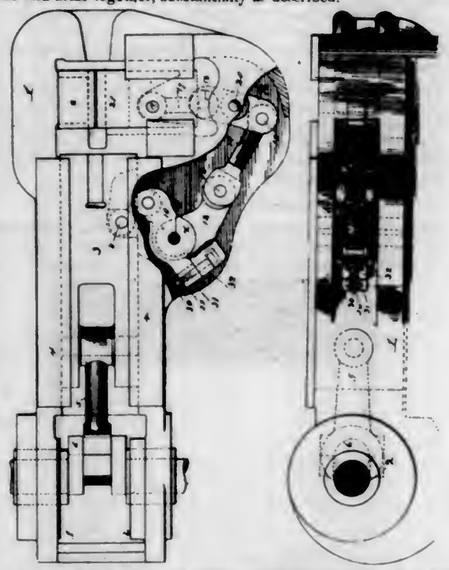
12. In a pontoon transfer-bridge for dikes and canals, the combination of a suitable pontoon or float, a bridge from the pontoon or float extending to and over the bank, a turn-table on the pontoon or float and to which the bridge is connected, rails upon said pontoon or float and bridge, the rails on the former overlapping and independent of the turn-table and outwardly flaring, and rails upon said turn-table in line with the rails on the bridge and having their ends adjacent to the rails on the pontoon outwardly curved or flared, and cars adapted to travel over said rails.

13. In a pontoon transfer-bridge for dikes and canals, the combination of a suitable pontoon or float, a bridge hinged thereto and thence extending to and over the bank, a turn-table on the pontoon or float and to which the bridge is connected, rails upon said pontoon or float and bridge, the rails on the former overlapping and independent of the turn-table and outwardly flaring, rails upon said turn-table in line with the rails on the bridge and having their ends adjacent to the rails on the pontoon outwardly curved or flared, and cars adapted to travel over said rails, said cars having adjustable forward axles with controlling-springs.

579,814. FORGING-MACHINE. JOHN R. BLAKESLEE, Cleveland, Ohio. Filed Jan. 2, 1896. Serial No. 574,181. (No model.)

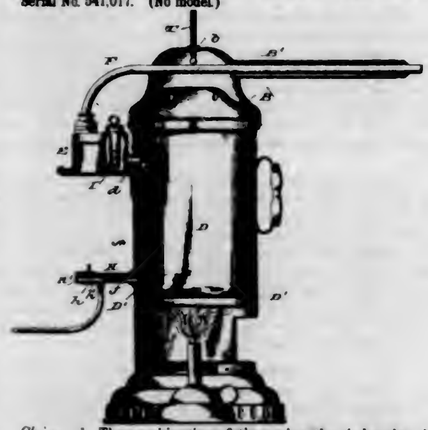
Claim.—1. In a forging-machine, the combination with a reciprocating heading-die, of a transversely-moving gripping-die, an opposite stationary gripping-die, and mechanism connecting the heading-die and movable gripping-die, consisting of a bell-crank and rock-bar pivoted upon the machine bed, and intermediate links connecting the said parts together, substantially as described.

2. In a forging-machine, the combination with a header and gripping die actuated thereby of intermediate toggle mechanism connecting the header and gripping die, the said intermediate mechanism being provided with a separable joint consisting of a bell-crank, provided with two arms, mounted separately upon a pivot, and a bolt of less tensile strength than said toggle mechanism, adapted to clamp the said arms together, substantially as described.



3. In toggle mechanism connecting a reciprocating header with a transversely-moving gripping-die, the combination with a bell-crank and intermediate links connecting with the header, of duplicate rock-bars and duplicate links connecting said bars with the respective ends of the gripping-die, whereby regularity of movement in the die is obtained, substantially as described.

579,815. INHALER. VIRGIL W. BLANCHARD, New York, N. Y., assignor to G. R. Underwood & Co., same place. Filed Mar. 8, 1895 Serial No. 541,017. (No model.)



Claim.—1. The combination of the casing, the air-heating drum therein, and the vaporizing-chamber connected with the air-heating drum; with the detachable heating-cap fitted on the casing and deriving its heat therefrom, and the tube extending from the vaporizing-chamber through said cap, substantially as described.

2. The combination of the casing, a heating-drum therein, gas and air inlets into said drum and means for regulating the admission of air and gas; with an auxiliary heating-chamber deriving its heat from the casing, and means for conducting the gases from said heating-drum through the auxiliary chamber without mixing with the hot air therein, substantially as described.

3. The combination of the casing a heating-drum therein, gas and air inlets in said drum, and means for regulating the admission of gas and air with vaporizing-chamber communicating with said drum, an auxiliary heating-chamber deriving its heat from the casing and a tube for conducting the gases from said vaporizing-chamber through the auxiliary heater, substantially as described.

4. The combination with the casing and heating-drum, of the tube H having perforations *h* and perforated collar-valve *h'*, substantially as described.

5. The combination with the casing and heating-drum, of the tube H having perforations *h* and perforated collar-valve *h'* and the gas-tube J leading through said tube, substantially as described.

6. The combination of the casing, the drum D therein, and the tube H communicating with said drum having a collar-valve *h'*, near its outer end and a perforated plate H' at its inner end; with the tube J secured in tube H and passing through plate H' and through the side of the tube, and the joint J' attached to the tube and connecting with pipe J, substantially as described.

7. The combination of the casing, the drum D therein, and the vaporizing-chamber E, with the removable cap B fitted on the casing, its pipe B', and the tube F connected to chamber E and passing through said cap and pipe, all substantially as described.

8. The combination of the casing, and the drum D therein having a false bottom D', with the vaporizing-chamber E communicating with said drum, substantially as and for the purpose described.

9. The combination of the casing A, the drum D therein having a false bottom D', and the detachable cap B, and a tube for conducting the gases from drum D through cap B, substantially as described.

10. The combination of the casing A, the drum D having false bottom D', and the vaporizing-chamber E communicating with said drum, with the removable cap B, its pipe B', and the tube F conducting gases from chamber E through said cap and pipe, and the inhaler-tube connected to said tube F, substantially as described.

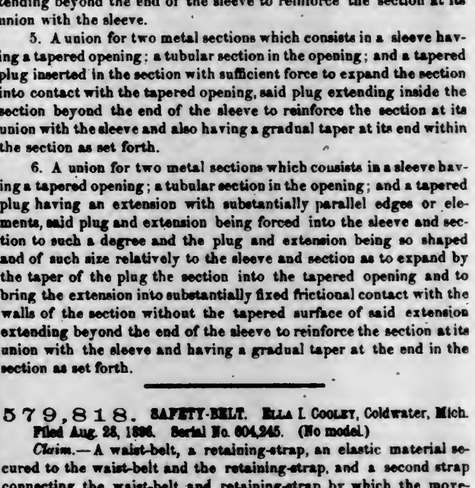
579,816. VEGETABLE-CUTTER. HENRY X. BUCHMANN, St. Louis, Mo. Filed Nov. 2, 1896. Serial No. 610,872. (No model.)

Claim.—1. In a vegetable-cutter, a suitable base, posts projecting upwardly from said base, a cross-bar connecting the upper ends of said posts, a vertical shaft rotatably and slidingly mounted in a centrally-located bearing in said cross-bar, a head upon the lower end of said shaft, knives upon the lower face of said head, a sliding cross-bar carried by said shaft and operating between said posts, plates attached to said sliding bar and operating in an annular recess in said shaft to prevent said shaft from sliding through said sliding cross-bar, a center point projecting upwardly from said base, a plate attached to the lower face of said base, a plate, having cutting edges, upon the upper side of said base and in vertical alinement with the first-mentioned plate, a hinge connection between said plates and through said base, a set-screw screw-seated in the first-mentioned plate and passing through said base and engaging the under surface of the last-mentioned plate, and a retractile coil-spring connecting said plates, substantially as specified.

2. In a vegetable-cutter, a suitable base, a plate attached to the lower face of said base, a plate, having cutting edges, upon the upper side of said base and in vertical alinement with the first-mentioned plate, a hinge connection between said plates and through said base, a set-screw screw-seated in the first-mentioned plate and passing through said base and engaging the under surface of the last-mentioned plate, and a retractile coil-spring connecting said plates, substantially as specified.

579,817. COUPLING FOR TUBULAR SECTIONS. WILLIAM CONNELLY, Toledo, Ohio. Filed Oct. 15, 1896. Serial No. 609,009. (No model.)

Claim.—1. A union for two metal sections which consists in a sleeve having a tapered opening; a tubular section in the opening; and a tapered plug having an extension with substantially parallel edges or elements, said plug and extension being forced into the sleeve and section to such a degree and the plug and extension being so shaped and of such size relatively to the sleeve and section as to expand by the taper of the plug the section into the tapered opening and to bring the extension into substantially fixed frictional contact with the walls of the sleeve or section without the tapered surface.



2. A union for two metal sections which consists in a sleeve having a tapered opening; a tubular section in the opening; and a tapered plug having an extension with substantially parallel edges or elements, said plug and extension being forced into the sleeve and section to such a degree and the plug and extension being so shaped and of such size relatively to the sleeve and section as to expand by the taper of the plug the section into the tapered opening and to bring the extension into substantially fixed frictional contact with the walls of the section without the tapered surface.

3. A union for two metal sections which consists in a sleeve having a tapered opening; a tubular section in the opening; and a tapered plug inserted in the section with sufficient force to expand the section into contact with the tapered opening, said plug extending inside the section beyond the end of the sleeve to reinforce the section at its union with the sleeve.

4. A union for two metal sections which consists in a sleeve having a tapered opening; a tubular section in the opening and a tapered plug having an extension with substantially parallel edges or elements, said plug and extension being forced into the sleeve and section to such a degree and the plug and extension being so shaped and of such size relatively to the sleeve and section as to expand by the taper of the plug the section into the tapered opening and to bring the extension into substantially fixed frictional contact with the walls of the section without the tapered surface said extension extending beyond the end of the sleeve to reinforce the section at its union with the sleeve.

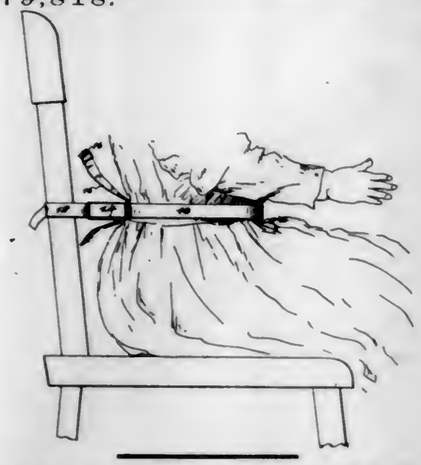
5. A union for two metal sections which consists in a sleeve having a tapered opening; a tubular section in the opening; and a tapered plug inserted in the section with sufficient force to expand the section into contact with the tapered opening, said plug extending inside the section beyond the end of the sleeve to reinforce the section at its union with the sleeve and also having a gradual taper at its end within the section as set forth.

6. A union for two metal sections which consists in a sleeve having a tapered opening; a tubular section in the opening; and a tapered plug having an extension with substantially parallel edges or elements, said plug and extension being forced into the sleeve and section to such a degree and the plug and extension being so shaped and of such size relatively to the sleeve and section as to expand by the taper of the plug the section into the tapered opening and to bring the extension into substantially fixed frictional contact with the walls of the section without the tapered surface of said extension extending beyond the end of the sleeve to reinforce the section at its union with the sleeve and having a gradual taper at the end in the section as set forth.

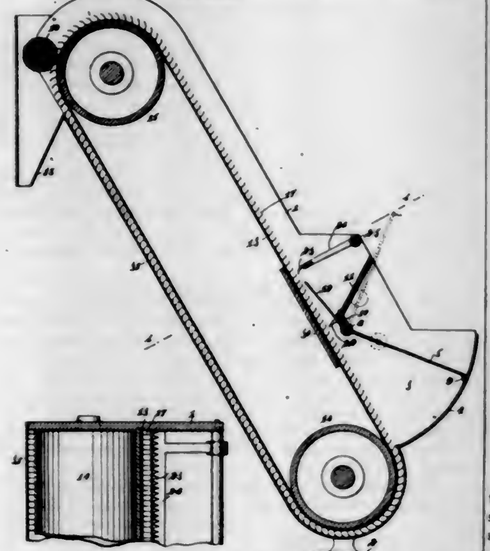
579,818. SAFETY-BELT. ELLA I. COOLEY, Coldwater, Mich. Filed Aug. 28, 1896. Serial No. 604,245. (No model.)

Claim.—A waist-belt, a retaining-strap, an elastic material secured to the waist-belt and the retaining-strap, and a second strap connecting the waist-belt and retaining-strap by which the movement of the said elastic material may be restricted, as and for the purpose set forth.

579,818.



579,819. AUTOMATIC FEEDING DEVICE FOR CIGARETTE-MACHINES. JOHN O. EATON, Fall River, Mass. Filed Apr. 8, 1896. Serial No. 586,636. (No model.)



Claim.—1. A tobacco-feeding device for cigarette-machines, comprising a casing having a hopper in its lower portion, the front wall of said hopper being formed in the arc of a circle, a weighted cover mounted to swing vertically in said hopper, a scraper on the free ends of said cover and adapted to engage with the curved wall of the hopper, an endless carrier-belt movable within the casing and through the hopper, curved carding-teeth on said belt, a series of fixed teeth for removing the surplus of tobacco from the carding-teeth as they leave the hopper, a series of vertically-reciprocating teeth above the fixed teeth, and a hopper independent of the first-named hopper for receiving the material scraped off by said reciprocating teeth, substantially as specified.

2. A feeding device for cigarette-machines, comprising a vertically-disposed inclined casing having a hopper at its lower portion, the front wall of said hopper being formed in the arc of a circle, a weighted swinging cover in said hopper, a scraper on the free end of said cover adapted to move upon the inner side of the curved front wall of the hopper, an endless carrier-belt mounted to move through said hopper, carding-teeth extending outward from said belt, and a rotary brush at the outlet of the casing adapted to brush material from the belt, substantially as specified.

3. A feeding device for cigarette-machines, comprising a casing having a hopper at its lower portion, a cross-piece in the frame, a cover having swinging connection with said cross-piece, a board extended outward and upward from said cross-piece, a plate extended upward from the inner edge of the said board, the said board and plate forming the opposite walls of a hopper above the first-named hopper, inwardly-projecting teeth on said cross-piece, a carrier-belt having teeth movable through the first-named hopper, and means for removing surplus tobacco therefrom at a point above the last-named hopper, substantially as specified.

4. A tobacco-feeding device comprising a vertically-disposed casing having a hopper at its lower portion, the side pieces of the casing being extended outward to provide side walls for the hopper, the fixed front wall of said hopper being curved vertically, a weighted cover swinging vertically in the hopper, a scraper on the free edge of said cover for engaging with the curved wall, a cross-piece in the casing having a transversely-curved groove in which the hinged edge of the cover closely engages, a board extended outward and upward from the cross-piece and forming one wall of a hopper, a plate on the board forming the other wall of said hopper, a scraper arranged above said last-named hopper, and an endless carrier-band movable through the first-named hopper and movable along the inner side of the last-named hopper, substantially as specified.

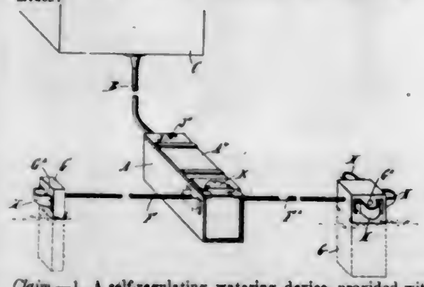
579,820. PROCESS OF TREATING BLAST-FURNACE SLAG. ALEXANDER D. ELBERS, Hoboken, N. J. Filed Nov. 25, 1896. Serial No. 613,397. (No specimens.)

Claim.—1. The herein-described process of treating sulfurous blast-furnace slag in its ground or pulverized state, which consists in superficially desulfurizing the slag and impregnating it with nitrosyl, substantially in the manner set forth.

2. The herein-described process of treating sulfurous blast-furnace slag in its ground or pulverized state, which consists in superficially desulfurizing the slag and impregnating it with nitrosyl by the application of a weak solution of nitric acid, substantially as described.

3. An improved product consisting of superficially desulfurized and nitrosylized slag, substantially as herein set forth.

579,821. SELF-REGULATING WATER-TROUGH. JAMES F. ELLIOTT, Manson, Iowa. Filed June 2, 1896. Serial No. 593,969. (No model.)



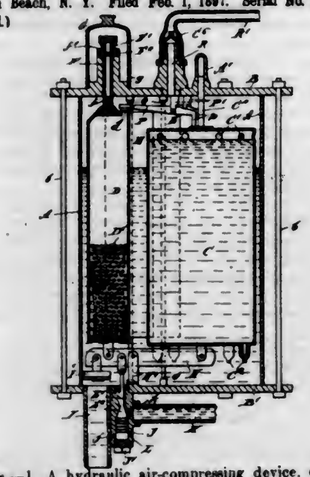
Claim.—1. A self-regulating watering device, provided with a tank, a pipe leading from the said tank and connected with a water-supply, a self-regulating valve provided with a casing having a valve-seat connected with the said pipe, a valve-disk adapted to be seated on the said valve-seat and held on a plate fulcrumed on the said casing, an arm extending from the said plate, a lever attached to the said arm, a strap connected with the said lever, and a float connected with the said strap, and comprising a board and empty closed vessels attached to the said board at the under side thereof, substantially as shown and described.

2. A self-regulating watering device, provided with a tank, a pipe leading from the said tank and connected with a water-supply, a self-regulating valve provided with a casing having a valve-seat connected with the said pipe a valve-disk adapted to be seated on the said valve-seat and held on a plate fulcrumed on the said casing, an arm extending from the said plate, a lever attached to the said arm, a strap connected with the said lever, a float connected with the said strap, and comprising a board and empty closed vessels attached to the said board at the under side thereof, and means for adjusting the said lever on the said arm, substantially as shown and described.

3. The combination with a tank having an orifice, of a valve-seat adjacent to the orifice, a valve pivotally mounted adjacent to the valve-seat, an arm rigid with the valve and having a series of notches in its outer end, a lever fulcrumed to the valve, a pin carried by the lever and capable of connection with the notches in the arm whereby the lever may be adjusted on the arm, and a float connected to the arm, substantially as described.

4. The combination with a tank having an orifice, of a valve-seat adjacent to the orifice, a valve pivotally mounted adjacent to the valve-seat, an arm fixed to the valve, a lever pivoted to the arm and capable of adjustable connection therewith, and a float carried by the lever, substantially as described.

579,822. HYDRAULIC AIR-COMPRESSOR. FREDERICK A. ERBE, North Beach, N. Y. Filed Feb. 1, 1897. Serial No. 621,499. (No model.)



Claim.—1. A hydraulic air-compressing device, comprising a tank having air and water inlets and exits and valves controlling the same, a weight tending to set said valves in position to fill the tank with water and discharge the air through the air-exits, a hollow float connected to move opposite the weight and having check exit-valves in its bottom and inlet-openings in its top, detached floats within the tank, and connections by which when immersed by the rising water they are adapted to lift the weight and depress the first float, substantially as described.

2. A hydraulic air-compressing device, comprising a tank having air and water inlets and exits and controlling means therefor, comprising a hollow float adapted to be filled by overflow at its upper end so as to act as an overbalance-weight, and to be discharged by check-valves at its lower end, a weight moving oppositely thereto and disconnected floats acting to lift said weight when they are immersed by the rising water, substantially as described.

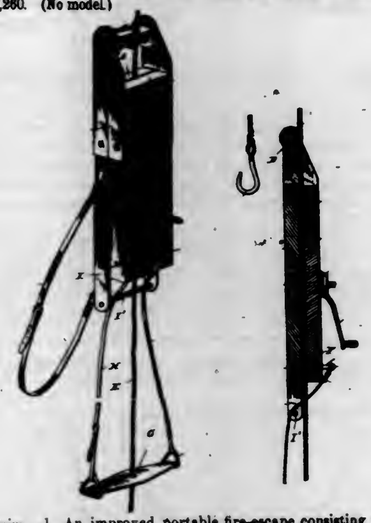
3. A hydraulic air-compressing device, comprising a tank having air and water inlets and exits and valves controlling the same, a weight tending to set said valves in position to fill the tank with water and discharge the air through the air-exits, a hollow float connected to move in opposition to the weight and having check exit-valves in its bottom and inlet-openings in its top, detached floats alongside the main float, vertical guides for said floats, and levers pivoted to the tank and adapted to engage at opposite ends the hollow float and the detached floats, substantially as described.

4. A hydraulic air-compressing device, comprising a tank having air and water inlets and exits and valves controlling the same, the air-inlet valve consisting of a tube fitting and moving vertically in an opening in the upper end of the tank, said tube having holes at its upper and lower ends and a conical head above the upper opening, a valve-seat surrounding said tube, a weight connected to said air-inlet tube and acting to set all the valves in position to fill the tank with water and discharge air through the air-exits, a hollow float connected to move in opposition to the weight and having check exit-valves in its bottom and inlet-openings in its top, detached floats within the tank, and connections by which when immersed by the rising water they are adapted to lift the weight and depress the main hollow float, substantially as described.

5. A water-inlet valve consisting of a tube having a bore of two diameters, the smaller bore being the inner one, and a conical surface connecting the two bores and forming a seat, a piston fitting the larger end of the tube and having a conical surface adapted to engage the valve-seat and close the same, a rod for said piston, occupying the smaller bore and permitting the water to flow around the same, an inlet-port opening into the tube where it is closed by the piston when the same is upon the seat, and a waste-water passage connected to the outer larger end of the tube, substantially as described.

6. A hydraulic air-compressing device, comprising a tank having air and water inlets and exits and valves controlling the same, a weight tending to set these valves in position to fill the tank with water and discharge the air through the air-exits, a hollow float connected to move in opposition to the weight and having inlet-openings in its top and check-valves in its bottom, the latter valves consisting of tubes having a rubber nipple thereon, the outer end of which has a slot adapted to be closed by outside pressure, detached floats within the tank, and connections which when immersed by the rising water are adapted to lift the weight and depress the hollow float, substantially as described.

579,823. PORTABLE FIRE-ESCAPE. HILIARD T. FORBES and JAMES F. WELDON, Hallsville, Mo. Filed Aug. 19, 1896. Serial No. 603,260. (No model.)



Claim.—1. An improved portable fire-escape consisting of two friction-blocks hinged together, a pulley at their upper ends, a seat suspended from the lower end of one of the blocks, and a body-strap attached to the other block, the escape-rope passing between the blocks and means for increasing or decreasing the friction upon the said rope, substantially as shown and described.

2. In a fire-escape, the combination with the friction-blocks hinged together at their upper ends and a pulley at said hinged joint, of the seat suspended from the lower end of one of the blocks, the body-strap attached to the opposing block, the screw-bolt and tension-nut, said tension-nut having a crank-handle and the escape-rope all arranged and adapted to operate substantially as shown and described.

3. In a portable fire-escape, the combination with the friction-blocks grooved longitudinally upon their inner faces and hinged together at their upper ends, of the pulley arranged at said hinged joint, the escape-rope passing between the said blocks and resting in the longitudinal grooves, the guide-staples fixed upon the inner face of one of the blocks, the seat and straps for supporting the same, and the body-strap, the threaded bolt passing through the friction-blocks, the tension-nut arranged upon the end of said bolt and having a crank-handle adapted to operate substantially as shown and described.

4. In a portable fire-escape, the combination with the friction-blocks hinged together and a pulley at their upper ends, of the escape-rope passing between the said friction-blocks and means for holding the said blocks together and increasing or decreasing the friction thereof upon the escape-rope, the pendent bail attached to one block the straps attached to the other block and passing through the said pendent bail, the seat carried at the end of said straps and the body-strap attached to one of the blocks, substantially as and for the purpose described.

5. In a portable fire-escape, the combination of the friction-blocks arranged together, a pulley at their upper ends, the inner faces of said blocks being grooved longitudinally, one of said blocks carrying guide-staples upon its inner face, the opposite block having recesses in its inner face to receive the said guide-staples, the escape-rope having a hook at its upper end, said escape-rope passing around the pulley and between the friction-blocks and resting in the longitudinal grooves, the threaded bolt passing through the blocks, the tension-nut arranged upon the end of said bolt and having a crank-handle, the pendent bail attached to the lower end of one of the blocks, the seat-straps attached to the lower end of the other block, and passing over the lower bar of the said pendent bail, and the seat carried at

the lower ends of the seat-straps, said seat having a central opening through which the escape-rope passes, substantially as shown and described.

579,824. BOSOM-PAD. DORA HARRISON, Lansing, Mich. Filed Oct. 14, 1896. Serial No. 608,800. (No model.)



Claim.—1. A bosom-pad, comprising a shell open at the ends and provided with draw-strings at the said ends, and an inflatable pad held within the said shell and provided with loops adapted to be engaged by the said draw-strings, substantially as shown and described.

2. A bosom-pad, comprising a shell made of a fabric and formed at or near its middle with an opening, and an inflatable pad held loosely and removably within the said shell, and provided with a filling-tube extending through the said opening, substantially as shown and described.

3. A bosom-pad, comprising a cylindrical shell having draw-strings in its open ends, an inflatable pad having compartments connected with each other by a tubular contracted part, and a filling-tube extending from the said tubular part and passing through an opening in the side of the said shell, substantially as shown and described.

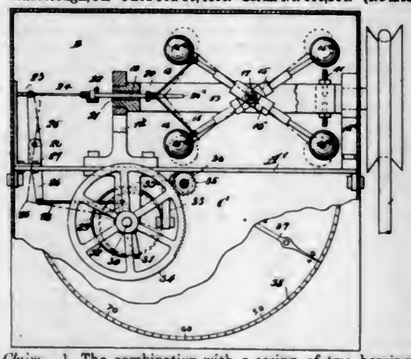
579,825. DRESS-SHIELD. DORA HARRISON, Lansing, Mich. Filed Oct. 27, 1896. Serial No. 610,221. (No model.)



Claim.—1. A dress-shield composed of an inflatable central or saddle portion and inflatable side portions arranged side by side and provided at the ends of the saddle portion with means whereby it may be secured to the garment, substantially as set forth.

2. A dress-shield composed of inflated side portions or cushions arranged side by side and an intermediate inflated saddle portion in communication with the inflated side portions and provided at the ends of the saddle portion with means whereby it may be secured to a garment, substantially as shown and described.

579,826. CENTRIFUGAL SPEED-INDICATOR. HENRY HERDER, Wellsborough, Pa. Filed Oct. 30, 1896. Serial No. 610,561. (No model.)



Claim.—1. The combination with a casing, of two bearings, a slotted shaft turning in the bearings, two levers extending through the slot of the shaft and pivoted therein on a fulcrum common to each lever, a cross-head sliding longitudinally within the slotted shaft, a link connected to each lever and to the cross-head, a rod passing axially through one end of the shaft and connected to the cross-head, two parallel guide-bars held by the casing, a cross-head running in the said guide-bars and pivotally connected to the rod of the first-named cross-head, a lever fulcrumed within the casing, a link connecting the lever with the second-named cross-head, and an indicator actuated by the lever, substantially as described.

2. The combination with a frame, of a shaft revolubly mounted therein and having a slot running through it, a lever fulcrumed within the slot, a cross-head running longitudinally within the slot of the shaft, a connection between the lever and the cross-head, a rod fixed to the cross-head and passing axially through one end of the shaft, a second cross-head movably held by the frame and to which second cross-head the rod is pivotally connected, and an indicator actuated by movement derived from said second-cross-head, substantially as described.

3. In a speed-indicator the combination of a casing, of a shaft revolubly mounted therein and having a slot running longitudinally therewith, a lever extending through the slot and fulcrumed within the shaft, a cross-head mounted to slide in the slot of the shaft and longitudinally with the shaft, a connection between the lever and the cross-head, a rod running axially through one end of the shaft and connected with the cross-head, and an indicator deriving movement from the rod, substantially as described.

4. In a speed-indicator, the combination of a casing, of a shaft revolubly mounted therein and having a slot running longitudinally through it, a lever extending through the slot and fulcrumed therein, a cross-head sliding within the slot and longitudinally with the shaft, a link connecting the cross-head with the lever, an indicator, and a connection between the indicator and the cross-head, a portion of said connection running axially through one end of the shaft, substantially as described.

5. In a speed-indicator, the combination with a casing, of a shaft revolubly mounted therein and having a slot running longitudinally with the shaft, a lever extending through the slot and fulcrumed therein, a cross-head sliding in the slot and longitudinally with the shaft, the cross-head being connected with the lever, a rod connected with the cross-head and passing axially through one end of the shaft, a cross-head slidably held by the casing and pivotally connected to the rod, and an indicator in connection with the second cross-head, substantially as described.

579,827. ADHESIVE. CHARLES M. HIGGINS, Brooklyn, N. Y. Filed Mar. 30, 1896. Serial No. 585,475. (No specimens.)

Claim.—1. The improved process of making a flour paste, consisting in digesting the flour in hot water impregnated with a digesting substance until the gluten is dissolved and the starch rendered soluble, or partly so, and the mass thereby liquefied, then arresting the digesting action before it becomes converted into dextrine and cooling the liquefied mass and allowing it to rest until it sets into a semifluid or pasty form, substantially as herein set forth.

2. The improved process of making a starch paste herein described, consisting in digesting raw starch in a hot digesting liquid till it becomes fluent and in that glutinous or soluble state before it becomes converted into dextrine, arresting the digestion at this point, and finally running the fluent mass into jars or receptacles and allowing the same to cool and rest until set into a semifluid or pasty form, substantially as herein set forth.

3. The improved process described of making a starch or flour paste, consisting in heating a mixture of starch or flour with water impregnated with a digesting-acid rapidly to or about to 190°, arresting the heat and digesting action when the mixture becomes liquefied and while in that white or opalescent glutinous or soluble state before it becomes converted into dextrine, adding a neutralizing substance to the solution and allowing the same to cool and rest until set into a semiliquid or pasty form, substantially as herein set forth.

4. The process of making an improved starch or flour paste in the manner and proportions described, viz., adding to a given mass of digesting fluid a mass of starch or flour equal to half or more of the weight of the fluid, keeping the mixture agitated and applying heat to the whole mass uniformly at once until it reaches 190° or thereabout and becomes an opalescent liquid, arresting the action before it becomes converted into dextrine, and finally cooling the said liquid until set into a pasty form, substantially as herein set forth.

5. The improved process of making a starch or flour paste, herein described, consisting in digesting raw starch in a hot digesting liquid till it becomes fluent and in that glutinous or soluble state before it becomes converted into dextrine, arresting the digestion at this point and finally running the fluent mass into jars or receptacles and applying continual cold or refrigeration thereto until the liquid contents are set into a pasty form, substantially as herein set forth.

6. The improved process of making a starch or flour paste, consisting in digesting the starch or flour in hot acidulated water till it becomes fluent and in that glutinous or soluble stage before it becomes converted into dextrine, then adding to the acid solution an alkaline sodium compound in excess to neutralize the acid and give the solution a decided alkaline reaction and then cooling the solution until set into a semifluid or pasty form, substantially as herein set forth.

7. An improved adhesive compound consisting essentially of starch digested in water till it becomes fluent and in that glutinous or soluble stage before it becomes converted into dextrine, and then arrested and cooled in this state, forming a homogeneous tenacious paste, substantially as herein specified.

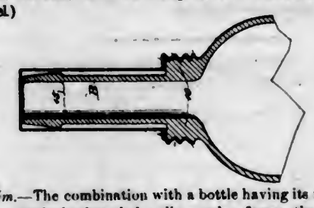
8. An improved adhesive compound consisting of starch digested in water till it becomes wholly or partly fluent or soluble but before it becomes converted into dextrine, and then combined with a boron compound, forming a homogeneous tenacious paste, substantially as herein set forth.

9. An improved adhesive compound, consisting of starch digested in water into a fluent or soluble form in that state preceding the conversion into dextrine and then combined with a boron compound with a caustic alkali afterward added thereto, substantially as and for the purpose herein set forth.

10. An improved adhesive paste or compound formed by heating a mixture of starch and water with a converting-acid in the presence of dissolved boracic acid until liquefied, and then adding caustic soda to neutralize both acids and form borax in said solution, substantially as set forth.

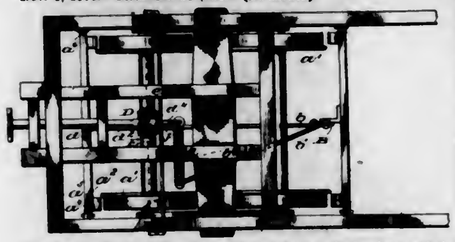
11. The specific process herein described for making an improved paste directly from starch or flour, viz., mixing the dry starch or flour with acidulated water at a temperature below or about the paste formation, and keeping the mixture constantly agitated while the heat is applied, continuing the heat and agitation till the pasty mixture becomes liquid and attains a temperature of 190° Fahrenheit, or thereabout, adding a neutralizing substance to the solution, discontinuing the heat and running the hot neutralized solution into jars or packages and causing the same to cool and rest until the liquid assumes a semiliquid or pasty form, substantially as herein set forth.

579,828. BOTTLE AND STOPPER THEREFOR. WILBUR F. HYER, Meridian, Miss. Filed Aug. 28, 1896. Serial No. 604,197. (No model.)



Claim.—The combination with a bottle having its neck provided with an exteriorly-threaded collar and a flange therebelow, of a thimble covering said neck and closing the mouth of the bottle and having at its lower edge a flange, whereby it rests on said collar, a nut screwing on the thread of the collar and having its lower edge bearing against the flange of the collar and its upper face engaging over the flange of the thimble, and a locking-pin forced down through the nut and to an engagement with the opposing threaded surfaces of the collar and nut and lying within the margin of the flange formed on said collar, as and for the purpose set forth.

579,829. CAR-BRAKE. JOSEPH KELLER, Laury's, Pa. Filed Nov. 5, 1896. Serial No. 611,136. (No model.)



Claim.—1. The combination with the frame, the brakes, and the truck, one of the axles of which is provided with cogs, of a longitudinally-movable rod, a lever connected to said brakes and to which said rod is attached, tongues depending from said rod designed to engage said cogs, and the spring-pressed casing inclosing said rod, substantially as set forth.

2. The combination with the frame, the brakes, and the truck, one of the axles of which is provided with cogs, of a longitudinally-movable rod, a lever connected to said brakes and to which said rod is attached, a series of tongues depending from said rod adjacent to the connection with said hook, said tongues being designed to engage said cogs, and a spring-pressed casing inclosing said rod, substantially as set forth.

3. The combination with the frame, the brakes, and the truck, one of the axles of which is provided with cogs, of a longitudinally-movable rod, a lever connected to said brakes, a hook pivoted to said rod and engaging said lever, a spring-pressed casing inclosing said rod, tongues depending from said rod designed to engage said cogs, and the crank-rod connected to said hook, substantially as set forth.

4. The combination with the frame, the brakes, and the truck, one of the axles of which is provided with cogs, of a longitudinally-movable device, a member pivotally connected to the rear end thereof, and limited in its downward movement, a pivoted tongue depending from said pivoted member designed to be engaged by said cogs, a lever adjacent to said member and pivotally connected thereto, and connections between said lever and said brakes, substantially as set forth.

579,830. ATTACHMENT FOR SKATES. LUKE W. KENNEY, New York, N. Y. Filed Jan. 28, 1896. Serial No. 577,184. (No model.)



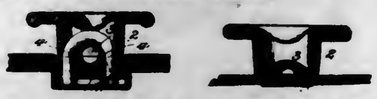
Claim.—1. A device adapted to connect an ankle-support to a skate or like article, consisting of a plate adapted as an auxiliary to the heel-plate and arranged for adjustment therewith, the auxiliary plate having a flange portion arranged for locking engagement with the ankle-support, and a slot for receiving the runner of the skate to prevent lateral movement of the said auxiliary plate, as and for the purpose specified.

2. A device adapted to secure an ankle-support to a skate or like article, comprising an auxiliary heel-plate formed in two sections, one of which is provided with a flange and formed with an opening to receive the front clamping-flange of the main heel-plate of said skate, and a clamping-section having a portion of its surface recessed to receive the bottom portion of the main heel-plate of the skate and other portions arranged for locking engagement with the other section of said auxiliary heel-plate, the said auxiliary heel-plate being likewise provided with means for engaging the runner of the skate, as and for the purpose specified.

3. A device adapted to secure an ankle-support to a skate or like article, the same consisting of a plate provided with a flange, and having a bifurcated tongue adapted to receive the runner of the skate, whereby lateral movement of the said plate is prevented, the said plate being also provided with a stop, and a clamp secured to the said plate and arranged for attachment to the adjustable member of the heel portion of the plate, the movement of the said clamp being limited by the said stop, as and for the purpose specified.

4. The combination with the main heel-plate of a skate, of an auxiliary heel-plate formed in two sections, the upper section having locking engagement with the upper portion of the main heel-plate and provided with a forward flange having recesses therein, and a lower or clamping section having a depressed body portion and side wings extending above the upper face of the depressed body portion, the said depressed portion being adapted to receive the forward end portion of the main heel-plate, and fastening devices for securing said clamping-section to the upper section, as and for the purpose specified.

579,831. BUTTON. OLIVER W. KETCHUM, Baltimore, Md. Filed Oct. 22, 1896. Serial No. 609,677. (No model.)



Claim.—1. As an improved article of manufacture, a button having a hollow oblong shank and a cross-bar at the bottom thereof free from sharp edges, substantially as described.

2. As an improved article of manufacture, a button having an oblong hollow shank and a cross-bar at the bottom thereof, provided with inclined upper edges to avoid cutting the thread, substantially as described.

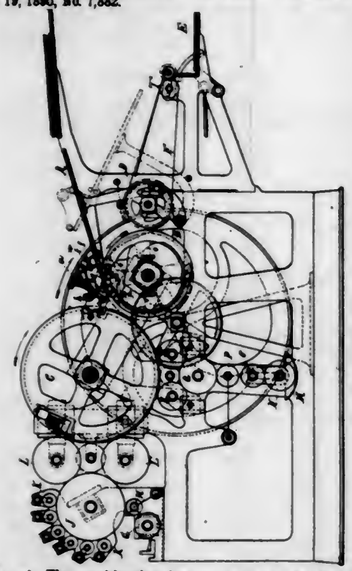
3. The combination with a two-pronged fastener, of a button having an oblong hollow shank and a bridge at its bottom and adapted to guide the prongs of the fastener parallel with each other as they are turned down, substantially as described.

4. As an improved article of manufacture, a button having a substantially flat face, a hollow shank round at the top and oblong

below, and a bridge connecting the bottom of the sides of the shank, substantially as described.

5. The combination with a button having a hollow oblong shank 2 and bridge 3, of a fastener comprising the cap 5, disk 6, and wire prongs 8 connected by a flattened bar 9, substantially as described.

579,832. ROTARY PRINTING-PRESS FOR PLANOGRAPHIC PRINTING-PLATES. JOSEPH KRATER, Johannisberg, Germany. Filed Apr. 4, 1896. Serial No. 544,435. (No model.) Patented in England Apr. 19, 1895, No. 7,882.



Claim.—1. The combination in a rotary press for lithographic printing, of a plate-cylinder and a press-roller of dimensions in proportions of three to two, the said cylinder and roller adapted to have an equal circumferential velocity and having respectively one-third, and one-half of their circumferential surfaces arranged to coöperate, and the remainder of the said surfaces set back, substantially as and for the purpose set forth.

2. In combination with the press-roller B provided with grippers *i* gripper-bar *l*, and pinion *k*; the toothed sector *o* having an arm *r* and a roller *r'* at the end thereof the gripper-bar lever *m*, having a roller *m'* at its free end, as described, with the cam *s* and cam-surface *n*, in which the rollers *r'* and *m'* are respectively, adapted to operate, substantially as and for the purpose set forth.

579,833. SPINDLE. JAMES W. LOVATT, Bethlehem, Pa., assignor to the H. A. Mack Wood-Working Company, Weatherly, Pa. Filed Dec. 2, 1896. Serial No. 614,180. (No model.)

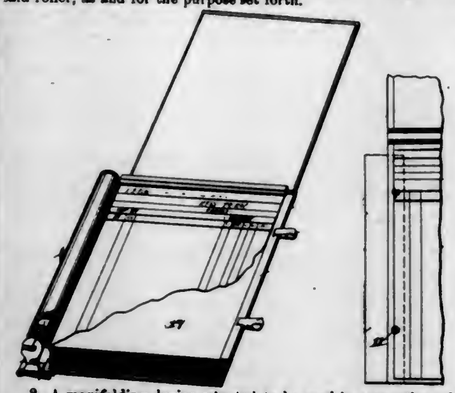


Claim.—1. A spindle having a drive-pulley, and a clamp device secured to the top of such pulley, consisting of a spring-wire, bent to form side members, and seated on the pulley and extended loop members to engage the rim or head as specified.

2. The combination with the bobbin, of a spindle having a drive-pulley, provided with grooves in its top, and a clamp device connected to such pulley, consisting of a single spring-wire bent to form parallel members seated in the grooves in the pulley, and extended upwardly and inwardly bent spring-loop clamps adapted to engage the bobbin-heads as specified.

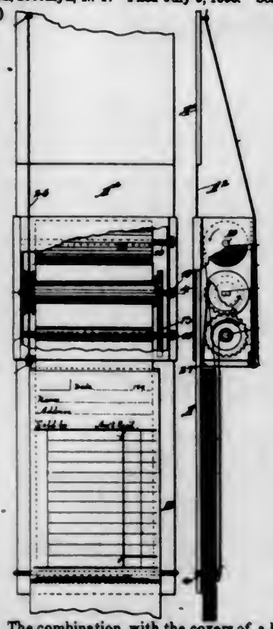
579,834. MANIFOLDING ATTACHMENT FOR BOOKS OR PADS. EDWARD D. MCKENNA, Brooklyn, N. Y. Filed June 10, 1896. Serial No. 594,961. (No model.)

Claim.—1. The combination, with a book or pad having one of its edges extended beyond its leaves or pages, of a bar provided with a clamp and detachably engaged with the extension of the book or pad, brackets secured upon the said bar, a spring-controlled roller journaled in the said brackets, a carbon or similar paper attached to the roller, being adapted to be rolled thereon or unrolled therefrom, and a spring attached to the said bar and pressing the paper on the said roller, as and for the purpose set forth.



2. A manifolding device adapted to be used in connection with books and pads, the manifolding device having a strip, a clamp running longitudinally with the strip and receiving a portion of the book or pad, brackets rising from each end of the strip, a roller mounted in the brackets, a duplicating-sheet wound on the roller, and a spring carried by the strip and pressing the paper which is on the roller, substantially as described.

579,835. MANIFOLDING ATTACHMENT FOR BOOKS. EDWARD D. MCKENNA, Brooklyn, N. Y. Filed July 9, 1896. Serial No. 598,548. (No model.)



Claim.—1. The combination, with the covers of a book, a casing located upon one of the covers, a fixed and a revoluble spindle located in the said casing, the fixed spindle being adapted to receive a roll of copying material and the revoluble spindle being arranged for attachment to one end of the said roll, of a spring-controlled roller connected with the said revoluble spindle, and a cable connected with a portion of the spring-controlled roller and with the cover of the book that is adapted to be opened, the connection between the said cover and the said roller being such as to operate the roller in a manner to operate the rotating spindle when the cover is opened, as and for the purpose specified.

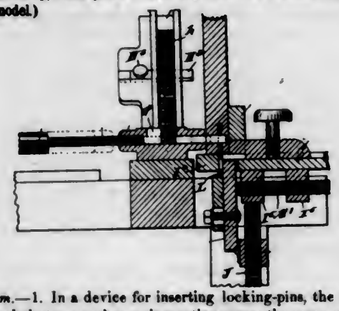
2. In a book, the combination with the covers of the same, a casing attached to one of the covers provided with spindles removable therefrom, and a roll of copying material mounted to turn on one spindle and connected with the other, of a fixed shaft located between the said spindles, the shaft being held stationary in the casing, a drum mounted to turn around the said shaft, a spring coiled around the shaft and connected at one end therewith and at its opposite end with the said drum, a gear-wheel secured to the spindle on which the roll is to be wound, a second gear meshing with the spindle-gear and loosely mounted on the spring-controlled shaft, a ratchet-and-pawl connection between the gear of the spring-controlled shaft and the said drum, and a cable connection between the drum and the opening cover of the book, the said cable being wound upon the said drum, as and for the purpose specified.

3. In a book, the combination with the covers of the same, a casing attached to one of the covers and provided with spindles removable therefrom, and a roll of copying material mounted to turn on one spindle and connected with the other, of a fixed shaft located between the said spindles, the shaft being held stationary in the casing, a drum mounted to turn around the said shaft, a spring coiled around the shaft, connected at one end therewith and at its opposite end with the said drum, a gear-wheel secured to the spindle on which the roll is to be wound, a second gear meshing with the spindle-gear and loosely mounted on the spring-controlled shaft, a ratchet-and-pawl connection between the gear of the spring-controlled shaft and the said drum, a cable connection between the drum and the opening cover of the book, the said cable being wound upon said drum and the cable being also adjustably connected with the aforesaid opening cover, and a pad over which a loop of the copying material passes, as and for the purpose set forth.

4. In a book, the combination, with the covers of the same, a casing attached to one of the covers and provided with spindles removable therefrom, and a roll of copying material mounted to turn on one spindle and connected with the other, of a fixed shaft located between the said spindles, the shaft being held stationary in the casing, a drum mounted to turn around the said shaft, a spring coiled around the shaft, connected at one end therewith and at its opposite end with the said drum, a gear-wheel secured to the spindle on which the roll is to be wound, a second gear meshing with the spindle-gear and loosely mounted on the spring-controlled shaft, a ratchet-and-pawl connection between the gear of the spring-controlled shaft and the said drum, a cable connection between the drum and the opening cover of the book, the said cable being wound upon said drum and the cable being also adjustably connected with the aforesaid opening cover, and a pad over which a loop of the copying material passes, and a guide for the lower end of the aforesaid loop, connected with the cover to which the said pad is secured, substantially as shown and for the purposes specified.

5. A book having two cover-sections adapted to carry a number of leaves, a casing on one section, two rollers within the casing, the rollers being adapted to have a copying-sheet wound thereon, a shaft having connection with one of the rollers, a spring actuating the shaft and a flexible connection wound around the shaft and attached to the cover-section not having the casing, substantially as described.

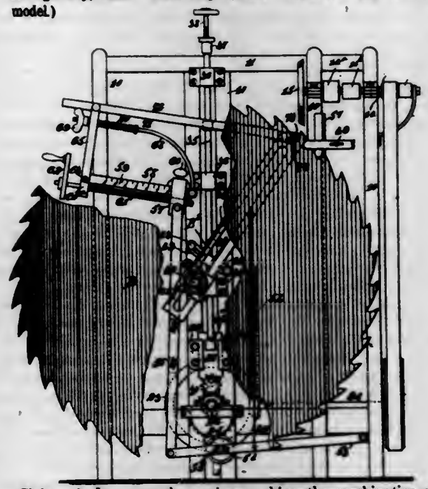
579,836. MACHINE FOR SECURING LOCKING PLATES AND PINS IN BED RAILS AND POSTS. AUGUSTUS D. NEWBERRY and WILLIAM J. MELVIN, Fayetteville, N. C., assignors to themselves and Allie L. Newberry, same place. Filed Sept. 30, 1896. Serial No. 607,449. (No model.)



Claim.—1. In a device for inserting locking-pins, the combination of feed-chutes, punches reciprocating across the same, and means for locking the punches intermediate the limits of their stroke and before they have been withdrawn sufficiently to clear the pins, substantially as described.

2. In a device for securing rail-fastening devices in bedsteads, the combination of suitable holding devices for the rail and fastening-plate, chutes for delivering the securing-pins, punches and means for reciprocating them, comprising a lever, guides for said punches connected to the chutes, and a locking device adapted to hold said lever at a point intermediate the limits of its reciprocation which will withdraw the punches from the bed-rail but will not clear the feed-chutes, substantially as described.

579,837. SAW-SHARPENING MACHINE. FRANK PARSONS, Montgomery, Miss. Filed July 3, 1896. Serial No. 597,958. (No model.)



Claim.—1. In a saw-sharpening machine, the combination of a table, a chuck located upon the table, a drive-shaft, an eccentric mounted upon the said shaft, a second and smaller eccentric driven from the larger one, and a slide connected with the driven eccentric and controlling the movement of the said table, as and for the purpose specified.

2. In a saw-sharpening machine, the combination of a carrying-shaft having end movement, a table adjustably attached to the carrying-shaft, a chuck adjustable upon the said table and adapted for the support of the saw, a driving-shaft, an eccentric driven by the said driving-shaft, a slide arranged to support the carrying-shaft, and a smaller eccentric located on the slide and engaging with the eccentric driven from the driving-shaft, substantially as and for the purpose set forth.

3. In a saw-sharpening machine, the combination of a carrying-shaft having end movement, and comprising a hollow shaft and a shaft adjustable within the hollow shaft, a slide supporting the two shafts, a saw-carrying table adjustably attached to the hollow shaft, a driving-shaft, and an adjustable connection between the said shaft and the slide, the said connection being arranged to impart reciprocating movement to the carrying-shaft, substantially as described.

4. In a saw-sharpening machine, the combination of a carrying-shaft having end movement, and comprising a hollow shaft and a shaft adjustable within the hollow shaft, a slide supporting the carrying-shaft, a saw-carrying table adjustably attached to the hollow shaft, a driving-shaft, and an adjustable eccentric-gear connection between the driving-shaft and the said slide, as and for the purpose set forth.

5. In a saw-sharpening machine, the combination, of a carrying-shaft, comprising a hollow shaft and a shaft movable in the hollow shaft and extending beyond the ends of the same, a slide supporting the carrying-shaft, an adjustable saw-carrying table attached to the said carrying-shaft, a drive-shaft, eccentric-gears arranged to raise and lower the carrying-shaft, the said gears being of different diameters, and one of them being actuated from the driving-shaft and the other being connected with the slide, as and for the purpose specified.

6. In a saw-sharpening machine, the combination, of a carrying-shaft, comprising a hollow shaft having end movement and a shaft movable within the hollow shaft and extending beyond the ends of the same, a slide supporting the carrying-shaft, an adjustable saw-carrying table attached to the said carrying-shaft, a driving-shaft, an eccentric-gear driven from the said driving-shaft, an eccentric-pinion carried by the slide and meshing with the said eccentric-gear, and an adjustable clamp adapted for attachment to the periphery of the saw and attached to the carrying-shaft, as and for the purpose specified.

7. In a saw-sharpening machine, the combination, of a carrying-shaft comprising a hollow shaft and a shaft extending through the hollow shaft and projecting beyond the tubular section, a table provided with a scale and adjustably attached to the carrying-shaft, a

chuck adapted to receive a saw and adjustable upon the said table, a slide supporting the carrying-shaft, a driving-shaft, an eccentric-gear attached to the said driving-shaft, an eccentric-pinion connected with the slide and meshing with the eccentric-gear, a clamp attached to the carrying-shaft, being arranged for engagement with the periphery of the saw, and a feed device actuated by the aforesaid eccentric-gearing, as and for the purpose specified.

8. In a saw-sharpening machine, the combination, of a shaft adapted to carry a saw, the said shaft being capable of end movement, a sliding support for the carrying-shaft, a driving-shaft, an eccentric connection between the driving-shaft and the said sliding support, a feed-bar, a lever provided with a scale, a second lever connected with the scale-lever and connected with the feed-bar, an adjustable slide having movement upon the scale-lever, an actuating-lever receiving movement from the eccentric-driving connection of the carrying-shaft, and a connecting-rod uniting the slide of the scale-lever with the said actuating-lever, as and for the purpose specified.

9. The combination, of a carrying-shaft for a saw and eccentrics arranged to impart end movement to the said carrying-shaft, an actuating-lever provided with a roller having a sliding bearing and normally held in engagement with the eccentric-actuating mechanism, a feed-bar for the saw, levers connected with the said feed-bar, a slide adjustable upon one of the said levers, a screw device for operating the slide, and a connection between the said slide and the actuating mechanism, as and for the purpose specified.

10. The combination, of the carrying-shaft for a saw, eccentrics arranged to impart end movement to the said carrying-shaft, an actuating-lever provided with a roller having a sliding bearing and normally held in engagement with the eccentric-actuating mechanism, a feed-bar adapted to actuate the saw, a scale-lever provided with a screw-actuated slide, a second lever having its fulcrum independent of the scale-lever and connected with the feed-bar, a tension device connecting the scale-lever and the lever attached to the feed-bar, and a link connection between the slide of the scale-lever and the said actuating-lever, as and for the purpose specified.

11. In a saw-sharpening machine, the combination with a frame having means for supporting the saw, of a feed-bar, a scale-lever, a second lever fulcrumed adjacent to the scale-lever and connected to the feed-bar, a yielding connection between the two levers whereby they move together, a slide adjustable on the scale-lever, a link connected to the slide, a lever fulcrumed to the frame and connected to the link, and means for swinging the last named lever, substantially as described.

12. In a saw-sharpening machine, the combination with a frame, of a vertically-movable saw-support, a shaft, an eccentric on said shaft, a slide movable to reciprocate the support, an eccentric carried by the slide and engaging the eccentric on the shaft, a feed-bar, and means for transmitting movement from the eccentric on the shaft to the feed-bar, substantially as described.

13. In a machine for sharpening saws, the combination with a frame, of a slidable saw-support, a shaft, an eccentric on the shaft, the eccentric transmitting sliding movement to the support, a feed-bar, a lever connected with the feed-bar, a link transmitting movement to the lever, and a second lever connected to the link and operated by the eccentric, substantially as described.

14. In a saw-sharpening machine, the combination with a frame having means for carrying the saw, of a feed-bar, a lever connected to the feed-bar, a second lever fulcrumed adjacent to the first lever, a rod connected to each lever, a spring fixed to the rod and to one lever, and means for imparting movement to one lever, substantially as described.

15. In a saw-sharpening machine, the combination with a frame having means for carrying the saw, of a feed-bar, two levers one of which is connected to the feed-bar, a yielding connection between the two levers, and means for rocking one of the levers, substantially as described.

16. In a saw-sharpening machine, the combination with a frame having means for carrying the saw, of a feed-bar, two levers, one of which is connected to the feed-bar, a yielding connection between the two levers, a slide movable on the lever which is out of direct connection with the feed-bar, a link connected to the slide, and means for transmitting movement to the link, substantially as described.

17. In a saw-sharpening machine, the combination with a frame having means for carrying the saw, of a feed-bar, two levers, one of which is connected to the feed-bar, a slide movable on the remaining lever, a screw for moving the slide, a yielding connection between the two levers, and means for transmitting movement to the levers through the medium of the slide, substantially as described.

18. In a saw-sharpening machine, the combination with a frame having a sliding saw-carrier, of a slide reciprocating said carrier, a rotary shaft, an eccentric on said shaft, and a second eccentric carried by the slide, the two eccentrics engaging each other and each being adjustable to change the position of their axes, substantially as described.

19. In a saw-sharpening machine, the combination with a frame having a sliding saw-carrier, of a shaft, a disk provided with a radial slot through which the shaft passes, means for adjustably connecting the disk to the shaft at points throughout the slot, a slide reciprocating the saw-carrier, a disk mounted on the slide and having a radial slot, and means for securing the second disk to the slide at points throughout the slot, substantially as described.

20. In a saw-sharpening machine, the combination with a frame, of a slidable carrying-shaft, a table carried by the shaft, a saw-holding chuck held by the table, an arm rigidly fixed to the carrying-shaft and connected to the table, a plate pivoted to the arm and capable of engaging the saw to hold the same, and means for pressing the plate against the saw, substantially as described.

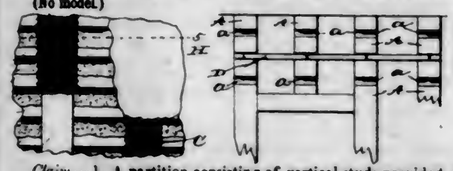
21. In a saw-sharpening machine, the combination with a frame, of a sliding carrying-shaft, a plate held by the shaft, a table adjustably connected to the plate, and a saw-carrying chuck adjustable on the table, substantially as described.

22. In a saw-sharpening machine, the combination with a frame, of a slidably-mounted hollow shaft, a shaft adjustable within the hollow shaft, a saw-carrier supported by the hollow shaft, a slide engaged by the shaft which is within the hollow shaft, and means for reciprocating the slide to impart a similar movement to the shafts, substantially as described.

23. In a saw-sharpening machine, the combination with a frame, of a hollow shaft, a saw-carrier held by the hollow shaft, a shaft having screw-threaded connection with the hollow shaft and extending through the hollow shaft, a slide engaged by the second shaft, a rotary shaft, and two eccentrics respectively connected to the rotary shaft and to the slide and imparting reciprocal movement to the slide, substantially as described.

24. In a saw-sharpening machine, the combination with a frame, of a slidable hollow shaft, a shaft passing through the hollow shaft and adjustable with relation thereto, a saw-carrier held by the hollow shaft, a slide engaging the shaft which is within the hollow shaft, an eccentric adjustable on the slide, a rotary shaft, and an eccentric adjustable on the rotary shaft and engaging the eccentric on the slide, substantially as described.

579,838. FIREPROOF PARTITION FOR BUILDINGS. SAMUEL R. RABBITT, Washington, D. C. Filed Sept. 24, 1896. Serial No. 606,825. (No model.)



Claim.—1. A partition consisting of vertical studs provided on one side with vertical strips of metal or wire cloth and horizontal laths or strips secured to the opposite side of the studs, in combination with plastic material filling the spaces between the studs and between the laths and embedding the studs, metal and the laths.

2. A partition consisting of vertical studs provided on one side with vertical strips of metal or wire cloth extending beyond the edges of the studs and horizontal laths or strips on the opposite sides, in combination with plastic material embedding the studs, coverings and the laths.

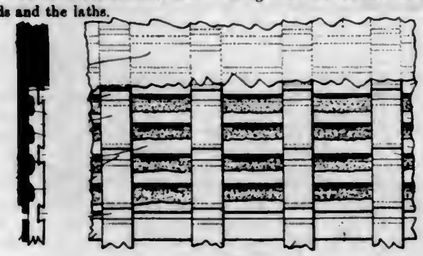
3. A partition consisting of vertical studs provided with means on one side for securing plastic material thereto, laths or strips secured to the opposite sides of the studs and suitable metallic supports between studs, in combination with plastic material filling the spaces between the studs and between the laths and embedding the studs, braces and laths.

4. A partition consisting of vertical studs, a transverse girder supported on the upper ends of the vertical studs, metallic braces secured to the transverse girder and metallic supports between vertical studs, means on one side of the vertical studs for securing plastic material thereto and laths or strips on the opposite sides of the studs, in combination with plastic material filling the spaces between the studs and between the laths and embedding the studs, girder, laths braces and supports.

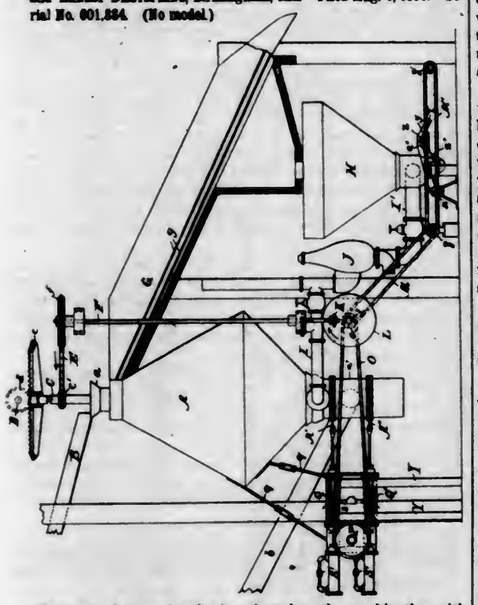
579,839. FIREPROOF PARTITION FOR BUILDINGS. SAMUEL R. RABBITT, Washington, D. C. Filed Apr. 22, 1896. Renewed Jan. 30, 1897. Serial No. 619,974. (No model.)

Claim.—1. A body for a partition composed of studs having transverse grooves on one side and laths secured to the opposite sides of the studs, in combination with plastic material filling the spaces between the studs and between the laths, embedding and covering said body.

2. A partition composed of a body consisting of vertical studs having transverse grooves on one side and a strip of wire-cloth covering said side, and laths secured to the opposite sides of the studs, in combination with plastic material filling the spaces between the studs and between the laths and covering the outer surfaces of the studs and the laths.



579,840. COAL AND MINERAL WASHER. ERSKINE RAMSAY and ERNEST DREYSPRING, Birmingham, Ala. Filed Aug. 6, 1896. Serial No. 601,884. (No model.)



Claim.—1. In a coal and mineral washer, the combination with the washer-chamber and the gate-valves therein, the sludge-tank and discharge-valve therefor, of mechanism controlled by a driven part of the apparatus for automatically and alternately operating the gate-valves of the washer-chamber, and mechanism controlled by the driven part of the apparatus, before mentioned, for automatically opening and closing the said sludge-tank valve, substantially as described.

2. In a coal and mineral washer, the combination with the washer-chamber, the stirrer-shaft, and the gate-valves in said chamber, of a counter-shaft driven from the stirrer-shaft of the washer, motive-power cylinders having pistons therein connected to said gate-valves, controlling-valves for said cylinders, and connections between said counter-shaft and the controlling-valves of the cylinders for causing the pistons therein to automatically and alternately operate the gate-valves of the washer, substantially as described.

3. In a coal and mineral washer, the combination with the washer-chamber and the gate-valves therefor, of motive-power cylinders, pistons therein connected with said valves, and valves for controlling the motive fluid to and from said cylinders, and mechanism for alternately and automatically operating the said cylinder-valves, whereby the said gate-valves may be automatically opened and closed by the movements of the pistons in said cylinders, substantially as described.

4. In a coal and mineral washer, the combination with the washer-chamber and gate-valves therein, of the motive-power cylinders and pistons therein connected to said valves, the controlling-valves for said cylinders, and mechanism controlled by a moving part of the washer for operating said valves automatically to cause the pistons to automatically open and close the gate-valves, substantially as described.

5. In a coal and mineral washer, the combination with the washer-chamber and gate-valves therein, of the motive-power cylinders and pistons therein connected to the valves, controlling-valves for said motive-power cylinders, and mechanism controlled by a moving part of the washer, for automatically operating said valves to cause the pistons to open and close the gate-valves alternately, substantially as described.

6. In a coal and mineral washer, the combination with the washer-chamber, and the gate-valve thereof, of a vertical rotating shaft having a friction-wheel thereon and operated by a driving part of the washer, a horizontal shaft having a friction-disk mounted thereon in contact with the face of said wheel, a second shaft in alinement with the horizontal shaft and a clutch mechanism for locking the two together, a tappet-chain driven by the second shaft, motive-power cylinders having pistons connected directly to the valves of the washer-chamber, and controlling-valves for said cylinders operated by the tappet-chain to cause the washer-valves to be automatically operated, substantially as described.

7. In a coal and mineral washer, the combination with the washer-chamber, the driving-shaft therefor, and the valves therefor, of motive-power cylinders having pistons therein connected to said valves, controlling-valves for said cylinders, and connections between the driving-shaft of the washer and said controlling-valves for automatically operating said valves to cause the gate-valves to be opened and closed, substantially as described.

8. In a coal and mineral washer, the combination with the washer-chamber, stirrer-shaft, and gate-valves therein, of a shaft having a friction-wheel mounted thereon, means for driving the shaft directly from the stirrer-shaft, a counter-shaft having a friction-disk thereon in engagement with the friction-wheel of the driving shaft, power-operating mechanism connected to the valve for moving the same, and connections between the disk and power-operating mechanism for automatically controlling the movements of the same to operate the valves, whereby the gate-valves are automatically and alternately opened and closed to periodically discharge the impurities from the washer, without interrupting the operation of said washer, substantially as described.

9. In a coal and mineral washer, the combination with the washer-chamber, and gate-valves therein, of motive-power cylinders provided with controlling-valves, pistons in said cylinders connected to the gate-valves, a shaft driven by an operating part of the apparatus, a counter-shaft, operating connections intermediate the two shafts, and a tappet-chain operated from the counter-shaft, and adapted to operate the controlling-valves to admit motive fluid to and exhaust it from the cylinders, substantially as described.

10. In a coal and mineral washer, the combination with the washer, the gate-valves therein, of motive-power cylinders having pistons therein connected with the gate-valves, a rotating shaft and a counter-shaft driven thereby, controlling-valves for the cylinders, and a tappet-chain adapted to operate said valves automatically and connections between said tappet-chain and counter-shaft, substantially as described.

11. In a coal and mineral washer, the combination with the washer-chamber, the gate-valves therein, of motive-power cylinders having pistons therein connected with said valves, rotary controlling-valves for said cylinders having star-wheels mounted on the stems thereof, a tappet-chain with tappets thereon so spaced as to actuate said star-wheels intermittently and mechanism for driving said chain, substantially as described.

12. In a coal and mineral washer, the combination with the washer, the gate-valves therein, of the motive-power cylinders having operating connections with the gate-valves, controlling-valves for said cylinder provided with star-wheels on the stems thereof, a chain having tappets extending from the sides thereof and arranged to actuate the star-wheels as the chain moves, a shaft for driving said chain, a counter-shaft having a friction-disk thereon, and clutch mechanism for connecting the two shafts together, a driving-shaft having a friction-wheel thereon in engagement with said friction-disk, and means for driving said shaft, substantially as described.

13. In a mechanism for operating the gate valve or valves of a washing apparatus, the combination of the gate valve or valves, and the motive-power cylinder or cylinders for operating the same, of a tappet-chain for operating the controlling valve or valves of the cylinder or cylinders, and grooved guideways arranged near the cylinders through which the chain is confined to travel, substantially as and for the purpose described.

14. In a coal and mineral washer, the combination with the washer-chamber, the gate-valves therein, and the main driving-shaft, of the power-cylinders having pistons therein connected to the gate-valves, the vertical driving-shaft driven from the main shaft, counter-shaft and connections between said shaft and the controlling-valves of the cylinders, with adjustable connections between the driving-

shaft and the counter-shaft for driving the latter at different speeds, substantially as described.

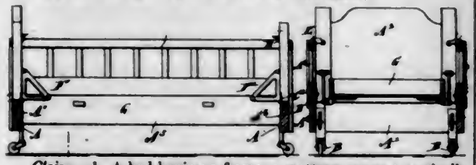
15. The combination with a gate-valve of a mineral-washing apparatus, of a motive-power cylinder, having a piston therein for operating said valve, a fluid-cushioning cylinder having a piston therein connected by a piston-rod to the motive-power piston, a U-shaped casting forming a receptacle for water and oil connecting said cylinders, and a pipe connected to the bottom of said receptacle and extending above the piston-rod, whereby the said rod is kept oiled by the oil on top of the water in the receptacle, substantially as described.

16. The combination with the sludge-tank and the discharge-valve therein, of a lever for operating said valve, a driven shaft and means for driving the same, a tappet-chain having a tappet thereon and operated by said shaft, a second lever fulcrumed near the tank and having its free end engaging the valve-operating lever, and a cam-lever fulcrumed near the tank and engaging said second lever and located in the path of the tappet on the chain, substantially as described.

17. The combination with the sludge-tank and the discharge-valve therein, of a lever for operating the valve, a driven shaft, and means for driving the same, a chain carrying a tappet extending from one side thereof, a lever fulcrumed near the tank and having an inclined flange extending from the side near its free end in the path of said tappet, and connections between said lever and valve-operating lever, substantially as described.

18. The combination with the coal and mineral washer and driving-shaft therefor, of a sludge-tank having a discharge-valve thereon, a driving-shaft with connections between the same and the driving-shaft of the washer, a tappet-chain operated by said driven shaft and having a tappet extending from the side thereof, a lever fulcrumed near the tank and provided with a cam-flange near its free end located in the path of said tappet, and connections between said lever and the discharge-valve for operating the latter, substantially as described.

579,841. FOLDING BED. OSCAR D. REICHARD, Philadelphia, Pa. Filed July 14, 1896. Serial No. 599,116. (No model.)



Claim.—1. A bed having a frame, a mattress-support vertically movable within the frame, a head and foot board pivoted to the frame, links respectively connecting the mattress-support with the head and foot boards, and a couch-cover comprising a head and foot section, such section being respectively slidably and pivotally connected with the ends of the bed and having means by which they may be connected to each other when in operative position, substantially as described.

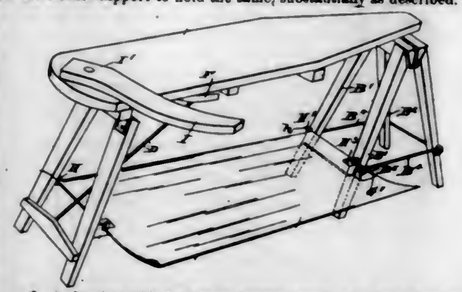
2. A bed having a frame, a vertically-movable mattress-support within the frame, head and foot boards respectively hinged to the ends of the frame, links respectively connecting the head and foot boards with the mattress-support, a cover comprising a foot and head section and respectively having sliding and pivotal connection with the ends of the frame, and a locking device for the couch-sections by which they may be held over the frame when the head and foot boards have been folded downward, substantially as described.

3. A bed having a frame, a mattress-support held by the frame, two couch-sections, a slotted plate on each couch-section, pins projecting from the frame and respectively passing through the slots of the plates, whereby the couch-sections may have sliding and swinging movement, one of said plates having two notches at its inner end and two additional pins respectively carried by the frame and by one couch-section, the notches of the said notched plate respectively receiving said additional pins, substantially as described.

4. A bedstead having a frame, two members hinged to said frame, a vertically-movable mattress-support within the frame and two triangular links each having one angle pivoted to the respective hinged members and a second angle pivoted to the mattress-support, the third angle of each link engaging the respective hinged members, as said members swing to lift the mattress-support whereby the weight of the mattress is borne between the links and the hinged members and whereby the mattress-support is prevented from binding against the hinged members when the mattress-support is raised, substantially as described.

579,842. IRONING-TABLE. HOWARD RUPERT, Penn, Pa. Filed Sept. 10, 1896. Serial No. 605,380. (No model.)

Claim.—1. An ironing-table having a board, legs supporting the board, the legs being respectively arranged at each end of the board, a staple carried by each leg, a hook carried by each leg and a rectangular support having a wire frame over which a canvas sheet is stretched, the support having at each end a projection respectively fitted within the staples and the hooks respectively engaging the ends of the clothes-support to hold the same, substantially as described.

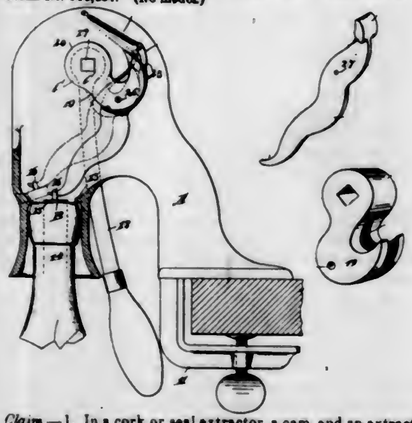


2. An ironing-table having an ironing-board, a leg hinged to one end of the ironing-board, a rod pivoted to the leg and having a hook at its free end, a perforated plate fixed to the under side of the board and holding the hooked end of the rod, a trestle having two sections, each with a pair of legs and pivotally connected at their upper ends the trestle supporting the second end of the board, a rod pivoted to one section of the trestle and having removable connection with the second section, two hooks supported one on one leg of one section of the trestle and the other on the leg of the ironing-table, two staples also respectively supported one on one leg of one section of the trestle and the other on the leg of the ironing-table, and a clothes-support formed of a wire frame over which a canvas sheet is stretched, the support having two projections respectively fitting in the staples and the ends of the wire frame being rested on the hooks, substantially as described.

3. The combination with a support, of two staples held thereon, two hooks also held on the support and a clothes-support formed of a rectangular wire frame with a canvas sheet stretched thereover, the wire frame having at each end a projection respectively removably held in the staples and the ends of the frame being respectively rested on the hooks, substantially as described.

4. An ironing-table having an ironing-board with two slots running inward from one edge, a U-shaped clamping-arm, the ends of which are respectively passed through the slots and bent to engage the under side of the ironing-board, a sleeve-board embraced by the U-shaped clamping-arm and held on the upper side of the ironing-boards and extending across the slot to hold the clamping-arm in position, substantially as described.

579,843. DEVICE FOR EXTRACTING LOOP-SEALS FROM BOTTLES. CHARLES F. SCHIELD, Cambridge, Ohio. Filed July 6, 1896. Serial No. 598,151. (No model.)



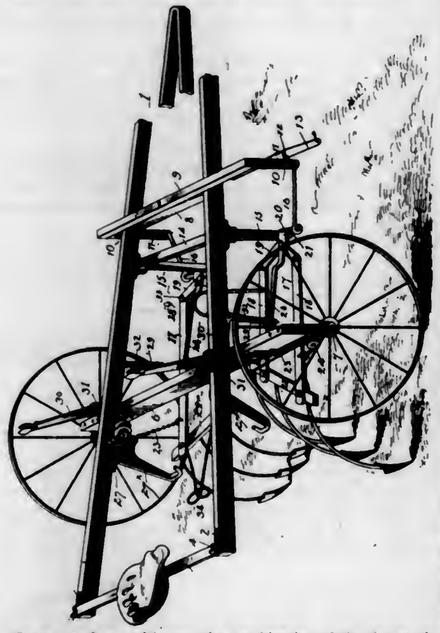
Claim.—1. In a cork or seal extractor, a cam, and an extracting-lever fulcrumed between its ends upon the said cam and having one end adapted for engagement with a seal or stopper, the said cam when operated engaging with the said lever to move the same in a direction to effect the extraction of a cork or seal, as and for the purpose specified.

2. In a cork or seal extractor, a cam, a device for operating the cam, and an extracting-lever fulcrumed upon the cam and provided at one end with contacting surfaces for the cam, whereby as the cam is brought to an engagement with the contacting surfaces of the lever the opposite end of the lever will be elevated, as and for the purpose specified.

3. In an extractor for seals and stoppers, a cam, a spindle upon which the said cam is mounted, a device for operating the spindle, a lever fulcrumed upon the said cam and provided with an offset at one end for engagement with the cam, and a foot at the opposite end for engagement with the seal or stopper, and a tension device connected with the offset end of the lever and acting to normally hold the foot of the lever out of position for engagement with the stopper or seal, as and for the purpose set forth.

4. In an extractor for seals and stoppers, the combination, with a standard having a mouth to receive the neck of a bottle, a spindle journaled in the said standard, and means for operating the spindle, of a cam secured on the said spindle, having a portion of its body bifurcated, a lever fulcrumed in the space between the members of the cam and provided near one end with offsets at its sides for engagement with the outer edges of the cam members, the opposite end of the said lever being formed to enter the staple or loop of a seal, and a spring attached to the offset end of the said lever and to a fixed support, having a tendency to carry the extracting end of the lever to one side of the center of the aforesaid mouth, as and for the purpose specified.

579,844. CORN-CULTIVATOR. HENRIE R. SKIDMORE, Union City, Ohio. Filed June 2, 1896. Serial No. 593,971. (No model.)



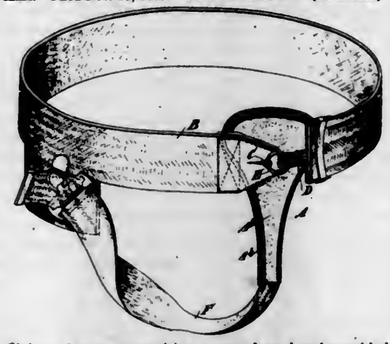
Claim.—1. In a cultivator, the combination of the frame, the supplemental frame supported thereby, the plow-frames flexibly connected together and also connected with the supplemental frame and carrying the plows, the chains connected to said plow-frames, the foot-levers having each a rack at their upper ends and the pinions engaging the rack of the foot-levers, said pinions being connected with the chains, whereby the plow-frames are shifted laterally by moving the foot-levers.

2. In a cultivator, the combination of the frame, the plow-frames supported therefrom, the rods or links having one end connected to said plow-frames, the rods connected to the other end of said rods or links, the springs coiled around the latter rods, the hand-levers connected to said rods for lifting the plow-frames vertically and lowering the same, and foot mechanism for shifting the plow-frames laterally, consisting of the foot-levers having a rack at their upper ends, pinions operated by said rack and connections between the pinions and plow-frames for shifting said frames.

3. In a cultivator, the combination of the main frame, the supplemental frame supported thereby, the draft devices connected with the supplemental frame, the plow-frames each consisting of two parallel bars joined at the rear by a transverse bar and at the front by two angular bars pivoted to the supplemental frame at the apex of said angular bars, hand-operating mechanism for raising and lowering said plow-frames, and foot mechanism for shifting the plow-frames laterally, consisting of the foot-levers having a rack at their upper ends, pinions operated by said rack and connections between the pinions and plow-frames for shifting said frames.

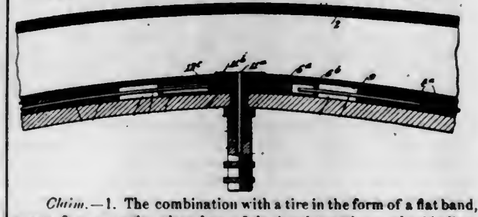
4. In a cultivator, the combination of a main frame, the plow-frames carrying the plows and loosely supported at their upper ends from the main frame, the hand-levers connected with said plow-frames for raising and lowering the frames, the chains connected to the plow-frames at one end, the pinions connected with the other ends of the chains, and the foot-levers formed with a rack for engaging the pinion to shift the frames laterally.

579,845. HERNIAL TRUSS. WILLIAM R. STARBUCK, Nantucket, Mass. Filed Nov. 25, 1895. Serial No. 570,064. (No model.)



Claim.—A truss, comprising a pear-shaped pad provided with a ring secured thereto by an eye or staple, a belt having an opening in one end through which the ring is passed to secure the strap to the pad, the other end of the strap being provided with a hook which after the belt is passed around the body of the wearer engages the said ring, and a leg-strap secured to the smaller end of the pad and adapted to be connected to the belt at one side, substantially as described.

579,846. PNEUMATIC TIRE. WILLIAM L. STEWART, Wilmerding, Pa. Filed Oct. 29, 1895. Serial No. 567,300. (No model.)



Claim.—1. The combination with a tire in the form of a flat band, means for connecting the edges of the band together, and a binding-wire in one edge of the said band, of a plate mounted to turn, bent links pivoted to opposite sides of the plate, turnbuckles secured to the ends of the binding-wire, and chains secured to the turnbuckles and links, substantially as described.

2. The combination with a wheel-rim, a tire in the form of a flat band, and a binding-wire for said band, of a valve provided with an inner and outer tube movable longitudinally and axially one upon the other, and means for connecting the binding-wire with one of the said tubes, whereby the binding-wire will be drawn endwise when the tube is turned, substantially as described.

3. The combination with a wheel-rim, a tire in the form of a flat band, a binding-wire, and an inner inflatable tube, of a valve provided with an inner and outer tube movable longitudinally and axially one upon the other and provided with heads on opposite sides of the inner tube, and to one of which the binding-wire is secured, whereby provision is made for clamping the inner tube between the said heads and drawing the binding-wire endwise to clamp the tire to the rim substantially as described.

4. The combination with a wheel-rim, a tire in the form of a flat band, a binding-wire for said band, and an inner inflatable tube, of a valve provided with an inner and outer tube provided with heads, the binding-wire being secured to the head of the outer tube and said tube

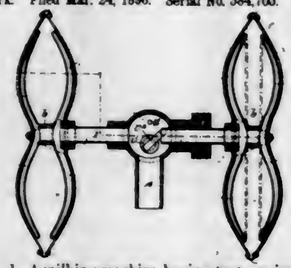
being adapted to be turned to draw the binding-wire endwise to clamp the tire to the rim, and means for moving the said tubes one upon the other to clamp the inner inflatable tube between the heads of said valve-tubes, substantially as described

5. The combination with a wheel-rim, a tire in the form of a flat band, an inner inflatable tube, and a binding-wire, of a valve provided with an inner and outer tube, the inner tube being provided with a clamping-plate and its end screw-threaded, and the outer tube screw-threaded and provided with a head having a seat to receive the edges of the tire and to which the ends of the binding-wire are connected, a nut on the outer tube, and a valve-casing screwing on the said tubes, substantially as described.

6. The combination with a rim having an annular central groove, a tire in the form of a flat band, a binding-wire for said band, means for connecting the edges of the band together, and an inner inflatable tube, of a valve provided with an inner and outer tube, the inner tube being provided with a head at its inner end and having its outer end screw-threaded, and the outer tnbe screw-threaded and provided with a head, to the opposite sides of which the ends of the clamping-wire are secured, said head being provided with a seat to receive the edges of the said band, a nut on the outer tube and securing the parts to the rim, and a valve-casing secured to the said outer tube, substantially as herein shown and described.

7. The combination with a wheel-rim, a tire in the form of a flat band, a binding-wire for the tire, and an inner inflatable tube, of a valve provided with an inner and outer tube, each having one end screw-threaded and provided with a head at the other end, bent links pivoted to opposite sides of the head of the onter tube and connected with the binding-wire, a nut on the outer tube, and a valve-casing screwing on the said tubes, substantially as herein shown and described.

579,847. MILKING-MACHINE. CARL B. STRÖYBERG, Roskilde, Denmark. Filed Mar. 24, 1896. Serial No. 584,705. (No model.)



Claim.—1. A milking-machine having teat-receivers comprising upper and lower inflatable sections, and means for inflating said sections alternately, substantially as described.

2. A milking-machine having upper and lower inflatable sections adapted to be inflated independent of each other, and means for inflating the sections, the upper sections being adapted to be first inflated whereby the said upper sections will initially exert their pressure, substantially as described.

3. A milking-machine having inflatable receivers for the teats of the cow, said receivers comprising upper and lower sections separately inflatable and serving to exert pressure on the teats of the cow, means for inflating the sections and casings for said inflatable receivers, substantially as described.

4. In a milking-machine, the combination of receivers comprising upper and lower inflatable sections, a casing having an inlet for compressed air, and separate connections between the said casing and the interior of the upper and lower inflatable sections, substantially as described.

5. In a milking-machine, the combination of the teat-receivers comprising upper and lower inflatable sections, a chambered casing for receiving compressed air, the chambers being in communication through valved orifices, and separate connections respectively between said chambers and the upper and lower inflatable sections, substantially as described.

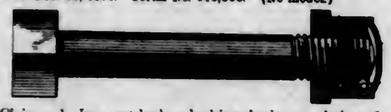
6. In a milking-machine, the combination of the teat-receivers comprising inflatable sections, a casing adapted to receive a supply of compressed air, and connections between the interior of the casing and the inflatable sections, the said connections permitting the adjustment of the receivers relatively to the casing that supplies the air, substantially as described.

7. A milking-machine having teat-receivers comprising casings each having one of its sides hinged and interior flexible sections movable to contract the space within the casings, substantially as described.

8. A milking-machine having teat-receivers comprising lenticular casings having hinged sides, fastening devices for securing the hinged sides to the stationary parts of the casings, inflatable sections held within the casings, and means for inflating the sections, substantially as described.

9. A milking-machine having teat-receivers, comprising casings having hinged parts, fastening devices for said hinged parts and inflatable sections located within the casings and forming spaced sides, the said sides being separated from each other at their outer ends forming openings leading to the space between the sides, substantially as described.

579,848. NUT-LOCK. FRANKLIN THOMPSON, Brooklyn, N. Y. Filed Dec. 22, 1896. Serial No. 616,598. (No model.)



Claim.—1. In a nut-lock, a locking device consisting of a sleeve adapted to fit between a nut and the object to which the nut is applied, said sleeve being provided with a resilient tongue formed by a substantially U-shaped incision extending through the side of the sleeve, substantially as described.

2. In a nut-lock, a locking device consisting of a sleeve adapted to fit between the nut and the object to which the nut is applied, said sleeve having a resilient tongue thicker than the body of the sleeve said tongue being inclined within the plane of and surrounded by the body of the sleeve, substantially as described.

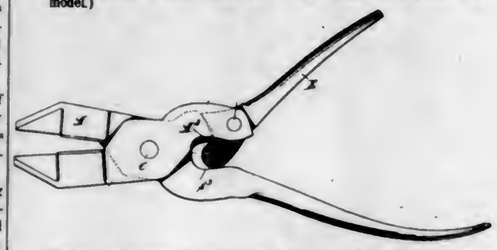
3. In a nut-lock, a locking device consisting of a sleeve adapted to fit between a nut and the object to which the nut is applied, said sleeve having a resilient tongue increasing in thickness toward its free end and terminating short of the end of the sleeve, substantially as described.

4. In a nut-lock, a locking device in the form of an internally and externally threaded sleeve provided with one or more resilient tongues, each formed by incisions extending through the side of the sleeve and spaced apart and connected at their extremities by a cross-incision, substantially as described.

5. In a nut-lock, a locking device in the form of a sleeve provided at one end with a circumferential wrench-engaging flange and having a tapering outer surface which is threaded, said sleeve also having a resilient tongue which is entirely inclosed, substantially as described.

6. In a nut-lock, a locking device in the form of a sleeve, internally and externally threaded and provided with an inclosed tongue the free end of which is thicker than the body of the sleeve, substantially as described.

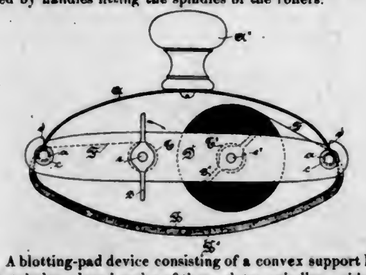
579,849. COMPOUND CUTTER AND PLIERS. LUCIEN H. TISSOT, Montecheroux, France. Filed Dec. 17, 1896. Serial No. 616,010. (No model.)



Claim.—A compound cutter and pliers, comprising the pivotally-connected jaws, one of which is provided with an extension and the other with a rigid handle and a projection at an angle to said handle and lying in direction of said extension, and a movable handle pivotally connected to said extension and having its end forward of the pivot arranged to bear against said projection and said rigid handle, the projection and rigid handle alternately serving as fulcrums for the movable handle to close and open the jaws, as and for the purpose set forth.

579,850. INK-DRIER. ANTON UHLMANN, Olbernhau, Germany. Filed Nov. 17, 1896. Serial No. 612,469. (No model.) Patented in Belgium Nov. 30, 1896, No. 124,535.

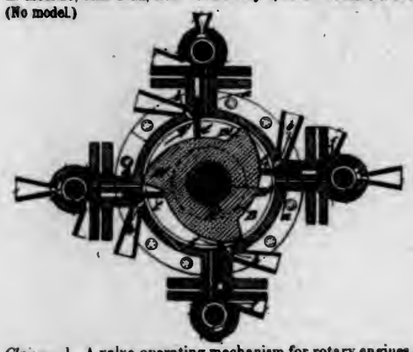
Claim.—1. A blotting-pad device consisting of a convex under support for the blotting-paper, and an upper plate, connected together by spindles passed through their tubular edges, elastic side plates also secured on said spindles and provided with hooks or notches at their ends which serve as abutments for the upper pressure-plate, said side plates supporting and acting as a brake upon two rollers for the blotting-paper, which is passed from one roller around the outer side of the under plate and thence to the other roller, said rollers being operated by handles fitting the spindles of the rollers.



2. A blotting-pad device consisting of a convex support B, upper plate A, tubular edges *b* and *a* of these plates, spindles *c*, side spring-plates D, rollers E E', spindles *e e'*, and handles *g g'* substantially as described.

3. In a blotting-pad the combination with the upper and lower plates, the pins for connecting said parts together and the side plates carried by said pins provided with notches or hooks at their ends against which the edge of the upper plate bears when pressure is applied thereto, as and for the purpose set forth.

579,851. ROTARY ENGINE. NICHOLAS J. VERRET and THOMAS H. MOONEY, Pine Bluff, Ark. Filed May 4, 1896. Serial No. 590,178. (No model.)



Claim.—1. A valve-operating mechanism for rotary engines consisting of a rocking or oscillating valve, a link connected thereto to oscillate the same and provided with teeth upon opposite sides of the outer or free end, with a revolving toothed wheel adapted to engage one of these teeth and reciprocate said link, a catch adapted to engage the other tooth and hold the link, and means for releasing said catch, substantially as described.

2. A valve-operating mechanism for rotary engines consisting of a rocking or oscillating valve, a link connected thereto to oscillate the same and provided with teeth upon opposite sides of the outer or free end, with a revolving toothed wheel adapted to engage one of these teeth and reciprocate said link, and a cam-wheel revolving with the toothed wheel and adapted to release said catch, substantially as described.

3. A valve-operating mechanism for rotary engines consisting of a rocking or oscillating valve, a link connected thereto to oscillate the same and provided with teeth upon opposite sides of the outer or free end, with a revolving toothed wheel adapted to engage one of these teeth and reciprocate said link, and a cam-wheel revolving with the toothed wheel and adapted to release said catch, and means for adjusting the angular position of said wheels whereby the release is made earlier or later, substantially as described.

4. A valve-operating mechanism for rotary engines consisting of a rocking or oscillating valve, a link connected thereto to oscillate the same and provided with teeth upon opposite sides of the outer or free end, with a revolving toothed wheel adapted to engage one of these teeth and reciprocate said link, and a cam-wheel revolving with the toothed wheel and adapted to release said catch, and means for adjusting the angular position of said wheels consisting of a sliding collar upon the piston-hub and within the releasing wheel-hub, one of these having a spiral cam-slot and a pin upon the other engaging the slot, substantially as described.

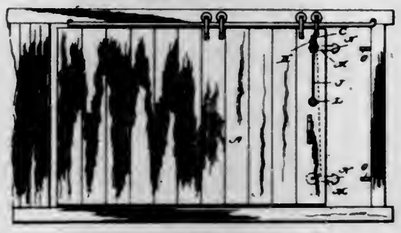
5. In a rotary engine, the combination of a revolving piston having a plurality of cam or piston heads, and a set of steam-ports one in excess of the number of piston-heads, a sliding steam-operated abutment and a rocking valve for each set of ports, and means for operating said valves comprising a link pivotally connected to the valve and having a tooth upon each side of the outer end thereof, a revolving toothed wheel adapted to engage one of the teeth on the bar or link to reciprocate the same, a spring attached thereto for securing its return, a slide engaging the opposite tooth on the bar or link to retain the valve in its open position and a revolving cam-wheel engaging said slide to release the valve-link, substantially as described.

6. In a rotary engine, the combination of a revolving piston having a plurality of cam or piston heads, and a set of steam-ports one in excess of the number of piston-heads, a sliding steam-operated abutment and a rocking valve for each set of ports, and means for operating said valves comprising a link pivotally connected to the valve and having a tooth upon each side of the outer end thereof, a revolving toothed wheel adapted to engage one of the teeth on the bar or link to reciprocate the same, a spring attached thereto for securing its return, a slide engaging the opposite tooth on the bar or link to retain the valve in its open position and a revolving cam-wheel engaging said slide to release the valve-link, and means whereby the said releasing cam-wheel may be shifted on its shaft so as to release said link earlier or later, substantially as described.

7. A rotary engine, provided with a cut-off mechanism for rocking valves, said cut-off mechanism comprising a rocking valve provided with a spring-pressed crank-arm on its stem, a bar pivotally connected with said crank-arm and having inwardly and outwardly projecting hooks, a continuously-revolving toothed wheel adapted to engage the inwardly-projecting hook, and a toothed wheel having a continuous rotary motion and adapted to trip said bar and release the outwardly-extending hook, substantially as shown and described.

8. A rotary engine, provided with a cut-off mechanism for rocking valves, said cut-off mechanism comprising a rocking valve provided with a spring-pressed crank-arm on its stem, a bar pivotally connected with said crank-arm and having inwardly and outwardly projecting hooks, a continuously-revolving toothed wheel adapted to engage the inwardly-projecting hook, a toothed wheel having a continuous rotary motion and adapted to trip said bar and release the outwardly-extending hooks, and means, substantially as described, for turning the last-named toothed wheel in addition to its regular turning movement, to change the position of its teeth relatively to the bars, as set forth.

579,852. LATCH. JOHN H. WAHL, Union City, Ohio, assignor of one-half to Solomon S. Riffle, Ansonia, Ohio. Filed July 14, 1896. Serial No. 599,146. (No model.)



Claim.—1. The combination with the door having the open casings at the top and bottom thereof, the latches pivoted or mounted in said casings and connected together on the inside, a lever or arm on the upper latch projecting on the outside of the door, a hand connection secured to said arm for moving the latches simultaneously, and keepers adapted to be engaged by said latches.

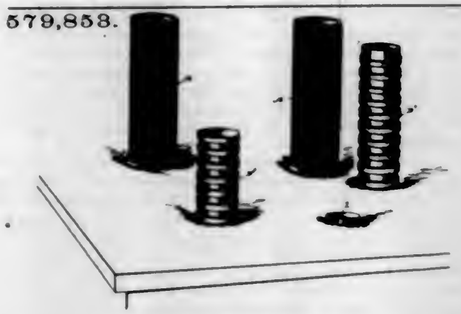
2. The combination of the upper and lower connected latches, one having a lever or arm, a hand connection for moving the latches, an auxiliary or supplemental latch carried by said latches and arranged at a right angle thereto, and keepers to engage either of said latches whereby the latches may be used upon a sliding or swinging door.

579,853. SHOT-CARRYING SHELL. BENJAMIN F. WILLIAMS, Quanah, Tex. Filed June 27, 1896. Serial No. 597,164. (No model.)

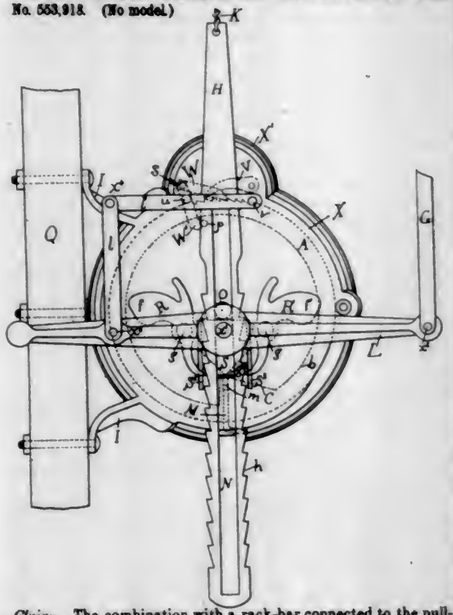
Claim.—1. A cartridge-shell comprising a main shell A, a shot-carrier D', arranged within the said shell and formed with a chamber E, the lower end to receive the explosive of the cartridge and provided also with a chamber G, at the upper end adapted to receive shot, and a wad for retaining said shot within the chamber, said shot-carrier having a series of bands, said bands being covered with felt or similar material, substantially as and for the purpose described.

2. A cartridge-shell comprising a main shell and a shot-carrier, having a powder-chamber and the bands, said powder-chamber having a series of gas-escape openings, substantially as shown and described.

579,853.



579,854. AUTOMATIC STOPPING DEVICE FOR WINDMILLS. WILLIAM D. WILLIAMSON, Madison, Wis. Filed June 24, 1896. Serial No. 553,918. (No model.)



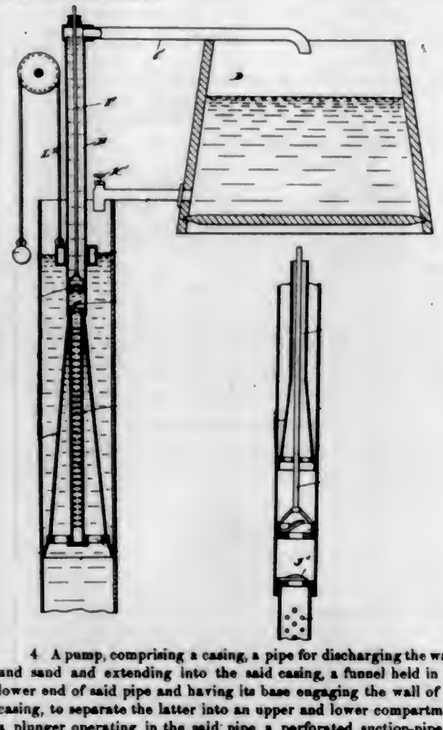
Claim.—The combination with a rack-bar connected to the pull-cord of a windmill, of a lever actuated by the pump-rod and carrying pawls for working the rack-bar, a pair of ratchet-wheels, actuating-pawls therefor and links connecting said pawls to the pump-rod-actuated lever, and a stop controlling the ratchet-pawls and itself controlled by the ratchet-wheels substantially as and for the purpose set forth.

579,855. PUMP. JAMES P. WINTS, Sour Lake, Tex. Filed Oct. 3, 1896. Serial No. 607,739. (No model.)

Claim.—1. A pump provided with a casing, a discharge-pipe extending into the said casing, and a valved separating device for dividing the said casing into an upper and a lower compartment, the said device being arranged to direct the rising liquid to the said pipe and to permit of filling the lower compartment from the upper one, substantially as shown and described.

2. A pump provided with a casihg, a discharge-pipe extending into the said casing, a funnel held in the lower end of the said pipe and provided at its base with an annular flexible valve adapted to engage the inner surface of the said casing to form an upper and a lower compartment in the said casing, the said funnel and its valve being arranged to direct the liquid rising in the lower compartment to the said pipe and to permit of filling the lower compartment from the upper one, substantially as shown and described.

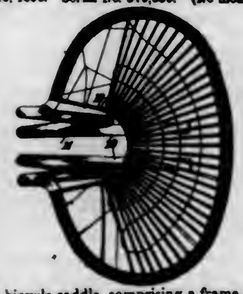
3. A pump comprising a casing having an upper and a lower compartment, a discharge-pipe for the pumped matter, and extending into the said casing, a funnel held on the said pipe and provided at its base with a valve arranged to permit water to flow from the upper compartment to the lower compartment, a plunger for pumping the liquid from the lower compartment up through the said pipe, and a separating-tank into which discharges the said discharge-pipe and which has connection with the said upper compartment, substantially as shown and described.



4. A pump, comprising a casing, a pipe for discharging the water and sand and extending into the said casing, a funnel held in the lower end of said pipe and having its base engaging the wall of the casing, to separate the latter into an upper and lower compartment, a plunger operating in the said pipe, a perforated suction-pipe extending in the said funnel and opening into the pipe, the lower end of the said suction-pipe being closed, and a valve of flexible material forming the connection between the said casing and the base of the said funnel, substantially as shown and described.

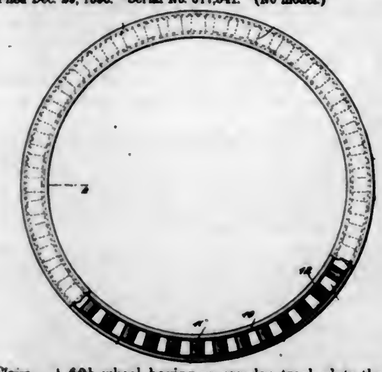
5. A pump, comprising a casing, a pipe for discharging the water and sand and extending into the said casing, a funnel held on the lower end of the said pipe, a valve forming a flexible connection between the base of the said funnel and the inner surface of the casing, to separate the latter into an upper and lower compartment, a water-supply pipe for the upper compartment of the said casing, and an indicator having a float operating in the said compartment, for indicating the height of the water in the latter, substantially as shown and described.

579,856. BICYCLE-SADDLE. WILLIAM BOULTON, Alpena, Mich. Filed Feb. 19, 1896. Serial No. 579,939. (No model.)



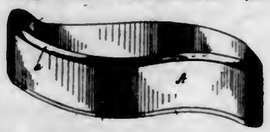
Claim.—A bicycle-saddle, comprising a frame formed of a single rod bent in a horizontal plane to have an uninterrupted curved front portion and sides, each end of said rod being turned below the plane of the horizontal front and side portions and forming coils, said ends being finally carried horizontally forward, whereby arms for attachment to the saddle-post are formed, and a net-like covering woven around the front and sides of the frame and upon which the person of the rider is to rest, said covering being woven to expose said coils, as and for the purpose set forth.

579,857. FIFTH-WHEEL. WILLIAM H. BRADSHAW, Orange, N. J. Filed Dec. 29, 1896. Serial No. 617,341. (No model.)



Claim.—A fifth-wheel having an annular track-plate the upper side edges of which are respectively provided with concentric grooves running around the track-plate at uniform distances from each other, a cover having an inverted-U-shaped form, the lower edges of the sides of the cover respectively running in the grooves of the track-plate and the outer faces of the sides of the cover being in approximate alinement with the side edges of the track-plate, and an annular traveling section running circularly within the cover and upon the track-plate, the traveling section consisting in two annular and concentric bands respectively adjacent to the inner faces of the sides of the cover, and the traveling section also consisting in a series of rollers the trunnions of which are respectively journaled in the bands of the traveling section, the upper faces of the track-plate and the inner faces of the upper portion of the cover respectively bearing on the lower and upper sides of the rollers so as to support the cover movably on the track-plate, substantially as described.

579,858. CIGAR-WRAPPER CUTTER. JOHN BUNN, Binghamton, N. Y. Filed Sept. 1, 1896. Serial No. 604,559. (No model.)



Claim.—The combination with a cigar-wrapper cutter having a cutting edge entirely around it to cut the wrapper to the desired form or outline, of a supplemental cutter secured to the inner portion of the wrapper-cutter, having a straight cutting edge extending from and at an angle to the cutting edge of the wrapper-cutter to make a straight transverse slit in the wrapper from one edge to a point about half-way across it, substantially as and for the purpose set forth.

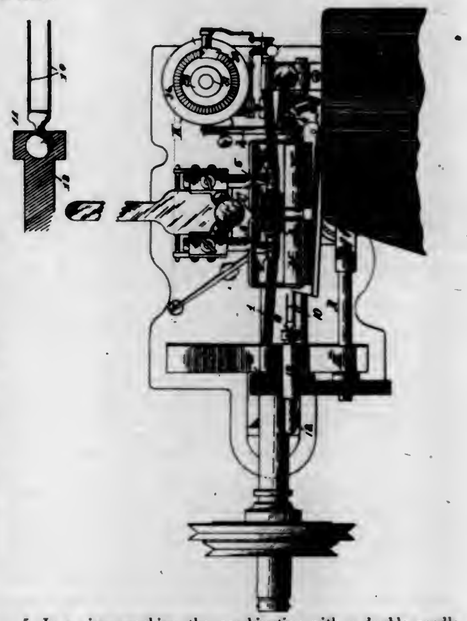
579,859. CIGAR-ROLLING MACHINE. JOHN BUNN, Binghamton, N. Y. Filed Sept. 1, 1896. Serial No. 604,560. (No model.)

Claim.—1. In a cigar-machine the combination with cigar-bunch supporting and rotating rollers, of a series of adjustable forming and presser rollers supported end to end, and a friction-roller carried by a positively-driven flexible shaft and engaging the forming and presser rollers, substantially as and for the purpose set forth.

2. The combination with cigar-bunch supporting and rotating rollers, and a series of presser and forming rollers supported end to end and separately adjustable to conform to the shape of the cigar-bunch, of a flexible shaft supported in bearings and positively driven, a friction-roller carried by said shaft, additional bearings for the flexible shaft near the ends of the rollers and means substantially as described to adjust the latter bearings vertically and laterally to keep the friction-roller in engagement with the presser and forming roller in their several adjustments substantially as and for the purpose set forth.

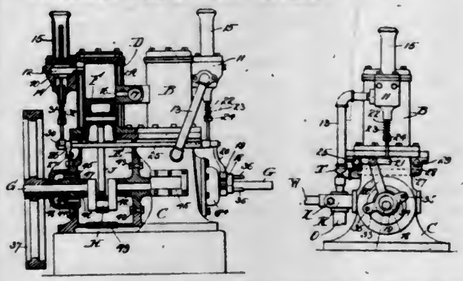
3. In a cigar-machine, the combination with the bunch supporting and rotating rollers, and the pivoted wrapper-supporting table, of a double needle, a sliding rod in which the double needle is rotatably supported and mechanism to reciprocate the sliding arm to and fro as the wrapper-supporting table to swing back and forth, substantially as and for the purpose set forth.

4. In a cigar-machine, the combination with the bunch supporting and rotating rollers, the wrapper-supporting table, the shaft supporting the table, the sleeve keyed on the shaft and the mechanism to turn the sleeve and shaft alternately in opposite directions, of a shaft loosely journaled in the frame of the machine, an arm extending from the shaft, a bent arm extending from the sleeve, a link connecting said arms, a sliding rod carrying a double needle, a pivoted lever connecting at its upper end to the sliding rod, a bell-crank pivoted to a fixed support on the machine, an arm on the shaft, a link connecting said arm to one arm of the bell-crank and a rod leading from the other arm of the bell-crank and having a slotted connection with the lower end of said lever, substantially as and for the purpose set forth.



5. In a cigar-machine, the combination with a double needle adapted to hold the butt-end of the wrapper against the cigar-bunch, of a sliding rod in which the needle is rotatably supported, a lever pivoted to a fixed support on the machine and connected at its upper end to the sliding rod, a rod having a slotted connection at the lower end of the lever, and mechanism, substantially as described to reciprocate the last-named rod, as and for the purpose set forth.

579,860. GAS-ENGINE. OLIVER COLBORNE, Chicago, Ill. Filed Dec. 23, 1895. Serial No. 573,040. (No model.)



Claim.—1. In a gas-engine, a base comprising an inclosed chamber in which the explosive charge is compressed before being introduced to the explosion-chamber, a driving-shaft arranged to pass through said chamber, a cap-piece for the journal of said shaft provided with a perforation through which the shaft passes, a seat formed around said aperture and a plug mounted on the shaft and adapted to be received in said seat and held therein by the pressure in said chamber; as and for the purpose set forth.

2. In a gas-engine a base comprising a closed chamber in which the explosive charge is received and compressed before being admitted to the explosion-chamber, a shaft arranged to pass through said chamber, a cap-piece for the journal of said shaft provided with a perforation through which said shaft passes, an inwardly-presented conical seat formed around said aperture and a correspondingly-

shaped plug loosely mounted on said shaft and adapted to be received in said seat and held therein by the pressure in said chamber.

3. In a gas-engine, a base comprising a closed chamber, in which the explosive charge is received and compressed before being admitted to the explosion-chamber, a shaft arranged to pass through said chamber, a bearing for said shaft and means for admitting pressure to both sides of said bearing, whereby the lubricant supplied to said bearing is prevented from being forced out; as and for the purpose set forth.

4. In a gas-engine, a base comprising a closed chamber in which the explosive charge is received and compressed before being admitted to the explosive-chamber, a shaft arranged to pass through said chamber, a bearing for said shaft, including a perforated sleeve, and means for inclosing said sleeve, whereby the pressure on opposite sides of said bearing is equalized: as and for the purpose set forth.

5. In a gas-engine, a base, comprising a closed chamber in which the explosive charge is compressed before it is admitted to the explosion-chamber, a shaft arranged to pass through said chamber, a bearing for said shaft, comprising a cap-piece and a sleeve provided with apertures or passages opening communication between the interior of said chamber and the space formed by said cap-piece, as and for the purpose set forth.

6. In a gas-engine, a base, comprising a closed chamber, in which the explosive charge is compressed before it is admitted to the explosion-chamber, a shaft arranged to pass through said chamber, a bearing for said shaft, comprising a cap-piece, a perforated sleeve arranged in said cap-piece and opening communication between the interior of said chamber and the space formed by said cap-piece, and a second sleeve of soft metal arranged in said perforated sleeve and adapted to be in contact with said shaft; as and for the purpose set forth.

7. In a double-cylinder gas-engine, a base, a shaft arranged to pass through said base, a removable bearing for said shaft, comprising a plug through which the shaft is arranged to pass and provided with peripheral seats, corresponding seats arranged in said base and bolts adapted to be partly received in both seats; as and for the purpose set forth.

8. In a gas-engine, a base comprising a closed chamber, a partition-wall arranged to divide said chamber into two compartments, each compartment arranged in communication with a source of explosive-supply, a cylinder arranged to communicate with each compartment, the piston of each cylinder forming a part of the inclosing wall of its corresponding compartment, a passage arranged to open communication between each compartment and the explosion-chamber of its corresponding cylinder, valves arranged to control said passages, a crank-shaft arranged to pass through both of said compartments, and means operated by said shaft for operating said valves; as and for the purpose set forth.

9. In a gas-engine, a base comprising a closed chamber, a partition-wall arranged to divide said chamber into two compartments, a cylinder mounted on said base and arranged to communicate with each compartment, the piston of each cylinder forming part of the inclosing wall of its corresponding compartment, each compartment communicating with a source of explosive-supply and also with the explosion-chamber of its corresponding cylinder, valves arranged in said communications, a common shaft for both of said compartments, and means for actuating alternately from said shaft the valves controlling the communications between said compartments and the explosion-chambers of said cylinders; as and for the purpose set forth.

10. In a gas-engine, a base comprising an inclosed chamber, cylinders mounted thereon and in communication with said chamber, a piston arranged in each cylinder, division-walls arranged to divide said chamber into as many compartments as there are cylinders, the piston in each cylinder forming a part of the inclosing wall of a compartment, each compartment in communication with a source of explosive-supply, and also with the explosion-chamber of its corresponding cylinder, a single crank-shaft arranged to pass through all of said compartments and means actuated thereby for controlling said communications; as and for the purpose set forth.

11. In a gas-engine, a base comprising a closed chamber, a pair of cylinders mounted thereon, in communication with said chamber, a partition-wall arranged to divide said chamber into compartments, the piston in each cylinder forming a part of the inclosing wall of a compartment, each compartment in communication with a source of gas-supply and with the outer air, and also in communication with the explosion-chamber of its corresponding cylinder, valves arranged in said communications for controlling the same, a crank-shaft common to both compartments, means actuated thereby for operating said valves in opposite directions, and a governor for controlling said valve-operating means; as and for the purpose set forth.

12. In a gas-engine, a base comprising a closed chamber, a partition-wall arranged to divide said chamber into two compartments, each compartment in communication with a source of explosive-supply, a cylinder and piston for each compartment, the pistons forming part of the inclosing wall of their corresponding compartments, a passage arranged to open communication between each compartment and the explosion-chamber of its corresponding cylinder, a valve arranged in each passage, a crank-shaft journaled in said base and arranged to pass through said compartments, a movable eccentric mounted on said shaft, means operated by said eccentric for controlling said valves, and means actuated by the speed of said shaft for moving said eccentric to vary the eccentricity thereof; as and for the purpose set forth.

13. In a gas-engine, a base forming a closed chamber, a partition-wall arranged therein to divide the same into two compartments, a cylinder mounted on said base, arranged to communicate with each chamber, the pistons of said cylinders forming a part of the inclosing wall of its corresponding chamber, a shaft arranged to pass through both chambers, a passage from each of said chambers to the explosion-chamber of its respective cylinder, valves arranged to control said passages, an eccentric mounted on said shaft, and means actuated by said eccentric for simultaneously and positively operating said valves; as and for the purpose set forth.

14. In a gas-engine, a base forming a closed chamber, a partition-wall arranged to divide said chamber into compartments, cylinders mounted on said base and each in communication with a compartment, the pistons of each cylinder forming a part of the inclosing wall of its respective compartment, each compartment in communication with a source of explosive-supply, a passage arranged to open communication between said compartments and the explosion-chamber of their respective cylinders, valves arranged in said passages, a crank-shaft common to all of said compartments, a movable eccentric mounted thereon, means actuated by said eccentric for simultaneously actuating said valves, and means actuated by the speed of rotation of said shaft for moving said eccentric automatically, thereby varying the eccentricity of the eccentric; as and for the purpose set forth.

15. In a double-cylinder engine, a valve arranged to control the admission of the explosive charge to each cylinder, and a pair of rock-shafts mounted on opposite sides of said engine and connected together to rock in opposite directions, an arm mounted on each shaft, said arms arranged to engage and actuate said valves to unseat the same, and means for rocking one of said shafts; as and for the purpose set forth.

16. In a double-cylinder gas-engine, a valve arranged to control the admission of the explosive charge to each cylinder, a rock-shaft mounted on opposite sides of the engine and connected together to rock in opposite directions, an arm mounted on each shaft, said arms arranged to engage said valves and unseat the same, a main driving-shaft, an eccentric mounted thereon, and communications between the eccentric and one of said shafts for actuating the same; as and for the purpose set forth.

17. In a double-cylinder gas-engine, a valve arranged to control the admission of the explosive charge to each cylinder, a pair of shafts mounted on opposite sides of said engine and connected together to rock in opposite directions, an arm mounted on each shaft and adapted to engage said valve and unseat the same, a main shaft, an eccentric actuated thereby, communications between said eccentrics and one of said shafts for rocking the same, a governor mounted on said main shaft, connections between said governor and said eccentric for varying the eccentricity of the latter; as and for the purpose set forth.

18. In a double-cylinder gas-engine, a valve arranged to control the admission of the explosive charge to each cylinder of said engine, means for simultaneously seating one and unseating the other of said valves, comprising a crank-shaft, a governor-wheel mounted thereon, a sleeve pivotally mounted on said governor-wheel, said sleeve being normally held eccentric to said shaft, connections between said governor and wheel, whereby the eccentricity of said sleeve is varied with the speed of said shaft, and connections between said sleeve and said valves, whereby the movements of said valves are simultaneously regulated; as and for the purpose set forth.

19. In a double-cylinder gas-engine, a valve arranged to control the admission of the explosive charge to the cylinders of said engine, and means for simultaneously seating one of said valves and unseating the other of said valves, comprising a crank-shaft, a governor-wheel mounted thereon, a sleeve having oppositely-extending arms, one of said arms being pivotally mounted on said governor-wheel, a weighted lever carried by said governor-wheel, a link connection between said lever and the other arm of said sleeve, a spring arranged to normally counterbalance said lever and to hold said sleeve in eccentric relation to said shaft, and connections actuated by said sleeve for operating said valves, whereby the amount of opening of both of said valves is simultaneously regulated; as and for the purpose set forth.

20. In a double-cylinder gas-engine, a base divided into air-tight compartments, the piston of each cylinder forming part of the inclosing wall of its corresponding compartment, each compartment in communication with the explosion-chamber of its respective cylinder, in combination with a casting having mixing-chambers, each in communication with a piston-chamber, means for delivering air to said mixing-chambers, a gas-supply connection common to both of said mixing-chambers, and means for independently regulating the amount of gas admitted to each of said mixing-chambers; as and for the purpose set forth.

579,861. COMPOUND FOR PAINT MIXTURES. LITTLETON L. COLEMAN, Lahore, Va. Filed May 26, 1896. Serial No. 593,142. (No specimens.)

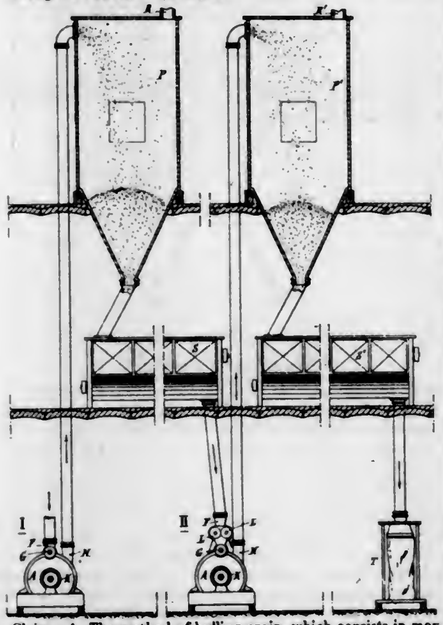
Claim.—1. The herein-described composition of matter to be used in the manufacture of paints or as a wood-filler, consisting of linseed-oil, pine-tar and alum, combined in about the proportions specified.

2. As a base for a paint mixture, the composition of matter substantially as hereinbefore described, consisting of linseed-oil and pine-tar boiled together with the addition of alum to the boiled mixture, all combined in about the proportions specified.

3. The process of combining linseed-oil and pine-tar so as to cause a perfect amalgamation thereof, which consists in boiling the oil and tar together until they are thoroughly combined or mixed, and in adding to the boiling mixture a small quantity of alum, for the purpose of clarifying the mixture and holding the tar in perfect solution in the oil, substantially as described.

4. A roofing-paint consisting of linseed-oil, pine-tar and alum, as a base, combined with Venetian red, red lead, and Japan varnish, in about the proportions specified.

579,862. METHOD OF AND APPARATUS FOR HULLING GRAIN. ROGER DANVIN and RAYMOND GIBORY, Paris, France. Filed Mar. 12, 1896. Serial No. 541,479. (No model.) Patented in France Nov. 6, 1894, No. 242,650; in Germany Jan. 23, 1895, No. 84,699; in Austria Jan. 25, 1895, No. 45/2,320; in Hungary Feb. 3, 1895, No. 2,170; in Spain Feb. 20, 1895, No. 17,035; in Switzerland Feb. 20, 1895, No. 9,988, and in England Feb. 23, 1895, No 3,953.



Claim.—1. The method of hulling grain, which consists in moving the grain along, and forcing it against a curved abrading-surface by centrifugal blasts of air directed to such surface, at points successively farther and farther along the same, substantially as and for the purpose set forth.

2. The method of hulling grain, which consists in passing the grain over an extended surface by a current of air that moves toward and over the same, the movement toward such surface being in a direction at an angle to its movement over the surface, whereby the grain is kept in contact with said surface, substantially as and for the purpose shown.

3. The method of hulling grain, which consists in introducing the same into a chamber having a circular interior abrading-surface and subjecting the grain to the action of a current of air that has a centrifugal movement toward and a circular movement past such surface, whereby the grain tends to keep in contact therewith, substantially as and for the purpose described.

4. The method employed, which consists in introducing grain into a chamber having a suitable abrading-surface, and subjecting it to the action of a current of air to carry it against and over such surface, next, subjecting it to the action of rolls, and then introducing it to a second chamber having a suitable abrading-surface, and subjecting it to the action of a current of air, to carry it against and over such surface, substantially as and for the purpose specified.

5. In combination with a chamber having a curved abrading-surface, a rotary device within the chamber, with blades of such length as to leave a well-defined space between them and the abrading-surface, so as to prevent any grinding of the material between the blades and surface, means for introducing the material to be treated into the zone between the abrading-surface and the blades, and means for admitting air to the chamber at a point separate from that where the material is introduced, substantially as and for the purpose shown and described.

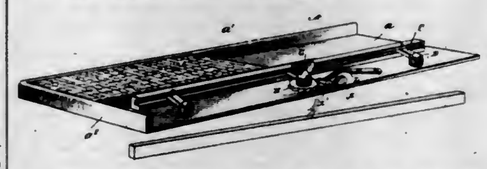
6. The combination of a suitable chamber, a rotary fan therein, an annular air-space being left between the interior of the chamber and the periphery of the fan, and means for introducing grain to such space on a line tangential to the fan periphery, whereby the grain is delivered wholly outside the path of the fan, substantially as and for the purpose shown.

7. The combination of a suitable chamber, a rotary fan therein, an annular air-space being left between the interior of the chamber and the periphery of the fan, means for introducing grain to such space on a line tangential to the fan periphery, whereby the grain is delivered wholly outside of the path of the fan, and means for introducing air to such annular space from a point within the periphery of the fan, whereby it is caused to move outward against the inner wall of the chamber, substantially as and for the purpose specified.

8. The combination of a suitable chamber, a rotary fan therein composed of radially-arranged plates and side or cheek pieces, means for introducing air at or near the center of said fan, and means for introducing grain to an annular space between the fan periphery and the interior of the chamber, the direction of such introduction being on a line tangential to the fan periphery, and wholly outside of the path of the fan, substantially as and for the purpose set forth.

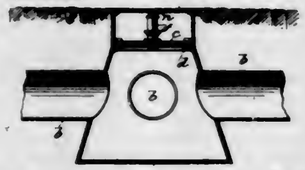
9. In an apparatus for grinding grain, the combination of the horizontal drum A, having at its top the inlet F and a discharge-passage H that is tangential to the space within the drum, the fan C inclosed in said drum, and comprising a series of vanes having secured thereto cheek-pieces C' C', arranged at right angles to the fan-vanes to direct the entire body of air and grain into an annular space D intermediate the fan and drum, the said cheek-pieces C' C' being provided with central openings E for passage of the fan-shaft and admission of air to the interior of the fan, the drum-head J provided with central openings K, coincident with the said openings E and for the same purpose, the plate B on the inner periphery of the fan-inclosing drum, the partition I extended between the grain-inlet F and discharge-outlet H, and having a surface curved concentrically with the fan and in close relation thereto, and the rotary distributer G, mounted in the inlet adjacent to the fan and adapted to pass the grain or like material tangentially into the annular space surrounding the fan, substantially as shown and described.

579,863. TYPE-GALLEY. BENJAMIN K. DAVIS, Hendersonville, N. C., assignor of one-half to George H. P. Cole, same place. Filed Mar. 14, 1896. Serial No. 583,184. (No model.)



Claim.—The combination with the galley A, having the fixed side, end and bottom, of the rotatable side B, arranged upon the bottom, the levers C provided upon the bottom and pivotally connected to the side B near its ends, the central lever C' pivoted to the side B near the center, the rotatable post D' to which the opposite end of the lever C' is attached, said post D' having a handle G at the opposite end and a ratchet-disk H near the lower end, the pawl K pivoted upon the bottom and adapted to engage the ratchet-disk and the spring L attached also to the bottom and adapted to engage the pawl K, all arranged and adapted to operate substantially as shown and described.

579,864. SUBWAY JUNCTION-BOX. GEORGE C. DRAKE and GEORGE N. MOORE, New York, N. Y. Filed June 30, 1896. Serial No. 597,657. (No model.)



Claim.—1. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, said valve adapted to first open the vent into the valve-chamber, and later open the vent from said chamber substantially as described.

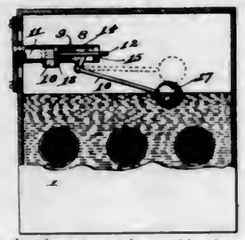
2. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, one of the valve-disks being connected to the valve-stem by a sliding joint to delay its opening relatively to the opening of the other disk substantially as described.

3. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, the lower disk of said valve being permanently fixed to the stem, and the upper valve-disk connected to said stem by a sliding joint to delay its action relatively to the action of the lower disk substantially as described.

4. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, the upper disk of the valve being seated at the top of the valve-case for discharge of the water thereon by the escaping gas substantially as described.

5. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover and the duplex gas-relief valve in the lower cover, the upper disk of the valve being seated at the top of the valve-case for discharge of the water thereon by the escaping gas, and connected to the valve-stem by a sliding joint for opening later than the opening of the lower valve substantially as described.

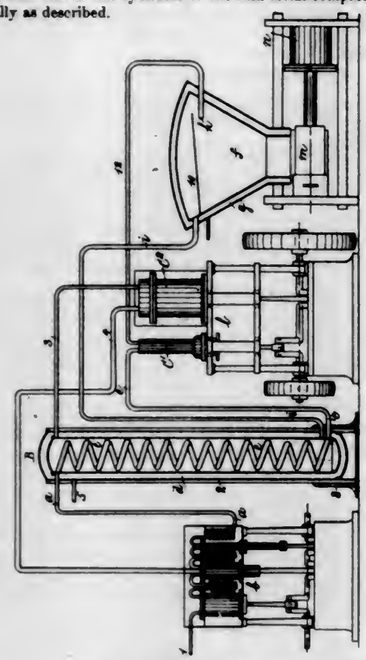
579,865. PIPE-HEADER AND AUTOMATIC AIR-VALVE. ANDREW ELDER, Irvington, N. Y., assignor to the Lord & Burnham Company, same place. Filed Oct. 31, 1896. Serial No. 610,684. (No model.)



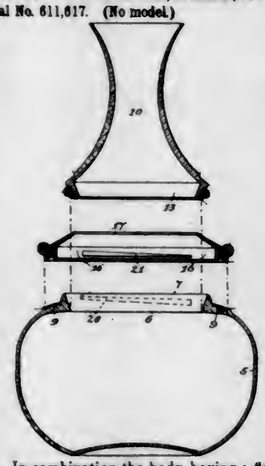
Claim.—In a heating system the combination of the pipes of the system and a header in substantially the same plane as the pipes, said header being formed with a body portion having suitable openings in which the pipes of the coil fit and an opening located normally above the water-line in the header, a valve for controlling said opening located within said body portion and a float having a power-multiplying connection with the valve, substantially as shown and for the purpose set forth.

579,866. APPARATUS FOR SOLIDIFYING CARBON DIOXID. HERBERT 3. ELWORTHY, Bandra, India. Filed Sept. 20, 1895. Serial No. 563,120. (No model.)

Claim.—The apparatus for solidifying carbon dioxid which consists of a compressor having a series of cylinders arranged for serial compression, a regenerative refrigerator with a pipe connecting the same with the last of the series of compression-cylinders, an expansion-engine operating a compression-cylinder and having its expansion-cylinder connected by a pipe with said regenerative refrigerator, an enlarged funnel-shaped vacuum-jacketed chamber connected with the exhaust from the expansion-cylinder of said engine, a baffle-plate extending across the upper portion of said chamber, an opening for the solidified gas in the bottom of said chamber, a compressor communicating with the opening in the bottom of said chamber for pressing the said solid carbon dioxid, a pipe connecting the top of said chamber above said baffle-plate with the said regenerative refrigerator, said refrigerator connected to the compression-cylinder of said expansion-engine, and the exhaust from said cylinder connected with one of the cylinders of the said serial compressor, substantially as described.



579,867. WATER-BOTTLE. WILLIAM B. PENN, Dorranceton, Pa., assignor of one-half to Duane Howard, Cortlandt, N. Y. Filed Nov. 10, 1896. Serial No. 611,617. (No model.)

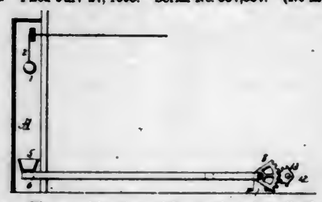


Claim.—1. In combination the body, having a flange or rim and a packing-seat and packing, said flange having a beveled inner face, the neck having a correspondingly-beveled flange at its lower end, a packing-ring seated in a groove in said flange, a ring resting against the packing on the body portion and having an inwardly-projecting flange engaging the lower portion of the neck, and means for connecting the ring to the body portion comprising inclined lugs or projections upon one part engaging similar lugs or projections upon the other part, substantially as described.

2. In combination the body portion having a flange or rim, the flaring neck abutting against said flange, and the rotatable ring having an annular flange overlapping the flaring lower portion of the neck and having a detachable connection with the body portion, substantially as described

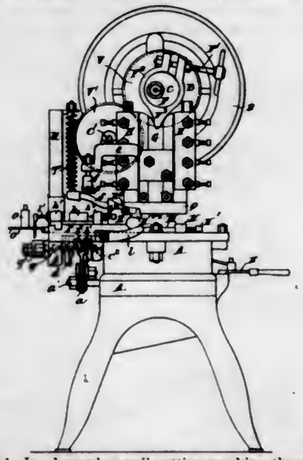
3. In combination the body portion having a flange or rim with a beveled inner face, the neck having a flaring lower end provided with a beveled flange abutting against the flange of the body portion, the rotatable ring having an annular flange overlapping the lower edge of the neck, and inclines detachably connecting the ring with the body portion, substantially as described.

579,868. FIRE-EXTINGUISHER. WILLIE GRAHAM, Meridian, Miss. Filed July 27, 1895. Serial No. 557,357. (No model.)



Claim.—The combination with a series of easily-fusible connections extending throughout a building, and a weight suspended from each one of said connections, of a trough located beneath and adapted to receive any one or all of the separate weights, a lever upon one end of which such trough is supported, pipes for conveying steam or water to extinguish a fire, a valve for governing the flow of water or steam in said pipes, and means connecting said lever with said valve whereby on the falling of any one of the weights, the trough will be depressed and the valve opened, substantially as set forth.

579,869. HORSESHOE-NAIL-BLANK MACHINE. OSCAR R. HAMSON, Pegau, Austria-Hungary. Filed Oct. 12, 1896. Serial No. 608,629. (No model.) Patented in Austria-Hungary Dec. 6, 1892, No. 34,533.

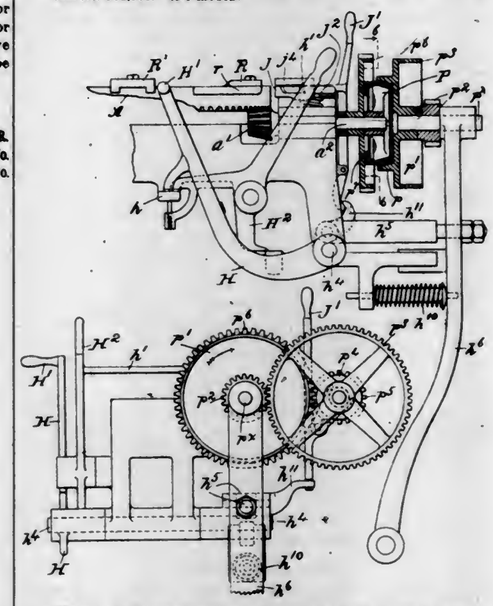


Claim.—1. In a horseshoe-nail cutting machine, the combination with a supporting-table and supporting-framework attached thereto, of guides attached to said frame, a slide G adapted to reciprocate between said guides, means for imparting said motion to said slide, tool-holder Q mounted on said slide, cutters L and L' carried by said holder, blocks shaped to conform to the contour of said cutters carried by said holder for securing the said tools in position, a punch carried between the said cutters, a die carried by the said table below the said cutting-tools, a movable carriage on said table, a pivoted jaw carried by said carriage for holding the material to be cut, adjusting-screws for limiting the travel of said carriage, adjustable guide-bars for holding said material in position, a spring attached to the side of said carriage, a guide-rod abutting against the side of said material under the pressure of said spring for holding in position the said material, a curved arm attached to the said jaw, springs attached to the free end of said arm, a roller adapted to engage the said arm to open the said jaw, an arm attached to the said slide for supporting said roller independent of said carriage, and means for forcing the said carriage forward to feed the material to be cut, substantially as described.

2. In a horseshoe-nail-cutting machine, the combination with a movable carriage P, a lug c^3 attached to said carriage, the table A and a fixed lug *d* carried thereby, springs attached to the table and to the lug of the carriage, an arm *b* and rollers carried at one end of the same, a pivoted lever *a* attached at one end to said arm, a vertical rod Y bifurcated at one end and attached to said pivoted lever *a* at the other end, a roller carried in said bifurcation, a spring attached at one end to the said table and at the other to the said rod Y near the upper portion thereof, a counter-shaft, an eccentric mounted thereon and adapted to engage the roller carried by the vertical arm Y, a gear-wheel mounted on said counter-shaft, a second gear engaging the first, a shaft carrying said second gear and a pulley mounted on the said shaft, substantially as described.

3. In a horseshoe-blank-cutting machine, the combination with a tool-holder Q consisting of two jaws carrying between the same end holding-blocks *p* and Q', a tightening-screw passing through the block Q', cutters L and L' carried by said holder, the cutter L' having the recess *u* in one end thereof, blocks shaped to conform to the contour of said cutters carried between the aforesaid end blocks and holding the said cutters in position, a punch carried by said holder between the said cutters and having a recess *u'* in the end thereof, a set-screw passing through one of the jaws of said holder and engaging the said punch and a die situated below the said tool-holder, substantially as and for the purposes described.

579,870. AUTOMATIC VARIABLE-SPEED AND STOP MECHANISM. DAVID F. HARTFORD, Boston, Mass. Filed Mar. 2, 1896. Serial No. 581,599. (No model.)

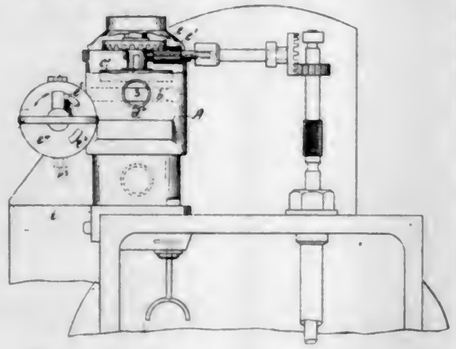


Claim.—1. In combination, a driving-gear; a driven gear; a clutch one member of which is fast to the shaft of the driving-gear and its other member on an axis in line with the axis of the driving-gear; a gear fast to the outer member of that clutch; a second gear meshing with that gear; a third gear on an axis in line with the second gear; a clutch between the second and third gears; a fourth gear on the axis of the driving-gear; and in mesh with the third gear; automatic mechanism substantially such as described for throwing one clutch out of gear while throwing the other clutch into gear, to vary the speed; and automatic stop mechanism to throw both clutches out of gear; all organized substantially as described.

2. In combination a driving-gear: a driven gear; a clutch one member of which is fast to the shaft of the driving-gear, and its other member on an axis in line with the axis of the driving-gear; a gear fast to the outer member of that clutch; a second gear meshing with the first; a third gear on an axis in line with the second gear; a clutch between the second and third gears; a fourth gear loose on the axis of the driving-shaft; a pawl-and-ratchet connection between the fourth gear and that member of the clutch fast to the driving-shaft; and mechanism for actuatiog the clutches, substantially as described.

3. In combination driving-shaft a^3; gear p^4 loose on that shaft; clutch member P fast to that shaft; ratchet p^7 fast to gear p^4; the other clutch member *p*; and pawls p^8 fast to clutch member P; the pawls being held away by centrifugal force from the ratchet when *p* engages P, but engaging the ratchet when power is applied through gear p^4, and when *p* and P are out of engagement; all substantially as described.

579,871. **PREPAYMENT GAS-METER.** JOHN HAWKYARD, Saddleworth, England, assignor to Joseph Braddock, Oldham, England. Filed May 19, 1896. Serial No. 592,143. (No model.)



Claim.—1. In a gas-meter, the combination of the gas-valve and a primary spindle capable of reversed rotary motion, and adapted to directly and positively open and close the said gas-valve, with a pinion carried by the spindle, a coin or hand setting wheel and a meter-driven wheel rotating loosely on the said spindle and gearing with the said pinion, substantially as and for the purpose set forth.

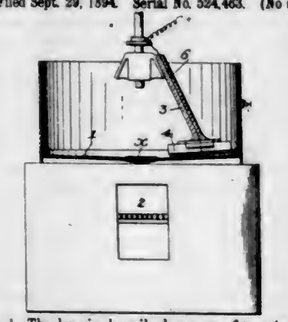
2. In a gas-meter, the combination of a spindle capable of reversed rotary motion, and a valve carried by the said spindle, with a pinion also carried by the said spindle, and two wheels loosely mounted thereon, the said wheels adapted to engage the pinion to positively move the spindle in opposite directions, substantially as set forth.

3. The improved coin-receiving device consisting of a fixed cylinder, an inner cylinder for opening the valve and a weighted annular catch engaging the said inner cylinder, in combination with a coin-carrier provided with a handle and also with means for raising the said catch, the said carrier and inner cylinder adapted to be locked together by the proper coin, substantially as described.

4. An improved coin-receiving device consisting of a fixed cylinder, an inner cylinder adapted to open the valve, in combination with a coin-carrier, adapted to be locked to the inner cylinder by the proper coin, and a weighted catch engaging the inner cylinder until the coin-carrier is moved, and ratchet-teeth on the inner cylinder engaging with the said catch to prevent the backward motion of the inner cylinder, substantially as set forth.

5. The combination with the outer fixed cylinder or casing, and the inner cylinder and the coin-carrier for operating the gas-valve, of a lever adapted to normally close the coin-slot, but when raised to uncover the said slot and to lock the outer cylinder or casing and the inner cylinder and coin-carrier together, substantially as and for the purpose hereinbefore described.

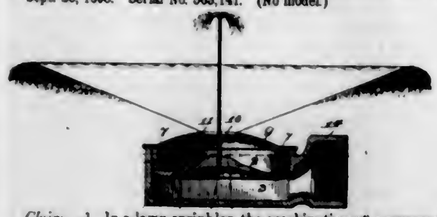
579,872. **PROCESS OF TREATING AURIFEROUS AND ARGENTIFEROUS ORES.** JOSEPH H. HAYCRAFT, Adelaide, South Australia, assignor to the Haycraft's Gold Extraction Company, Limited, same place. Filed Sept. 29, 1894. Serial No. 524,463. (No specimens.)



Claim.—1. The herein-described process of treating ores consisting in introducing the ore into a pan adding thereto mercury and soluble salts capable of yielding chlorin by electrolysis raising the ore contents of the pan to about the boiling-point of water and passing a current of electricity through the heated mass while stirring the same to secure a simultaneous electrolytic chlorination and electro-amalgamation, and maintaining the anode out of vertical alinement with the mercury cathode substantially as described.

2. In combination, the pan having a concave bottom with a central well, the furnace under the pan, the stirrer-shoes arranged to revolve about the central well leaving the same free means for revolving the shoes about the well and electrical connections to the shoes and pans, said shoes forming the anodes being out of vertical alinement with the mercury in the central well forming the cathode, substantially as described.

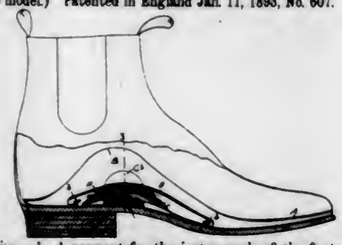
579,873. **LAWN-SPRINKLER.** CHARLES F. HITCHCOCK and FRANK H. EDWARDS, Los Angeles, Cal., assignors, by mesne assignments, to the Hitchcock Metal Company, San Francisco, Cal. Filed Sept. 20, 1895. Serial No. 563,141. (No model.)



Claim.—1. In a lawn-sprinkler, the combination of a square supply-chamber, a discharge-chamber located in said supply-chamber and formed of a circular wall, an arched bottom and a dome top formed with a square outlet, suitable openings located in the circular wall forming a communication between the corners of the supply-chamber and circular discharge-chamber, and a suitable opening formed in the apex of the arch of the bottom of the discharge-chamber, substantially as shown and described.

2. In a lawn-sprinkler the combination of a square supply-chamber, a circular discharge-chamber a discharge-opening, openings in the corners of the supply-chamber extending to the top of the sprinkler and orifices connecting said openings with the discharge-chamber, whereby the water is discharged against the sides of the circular chamber and is given a continuous circular movement, substantially as set forth.

579,874. **INSTEP-ARCH SUPPORT FOR FEET.** THOMAS HOLLAND, London, England. Filed Sept. 11, 1894. Serial No. 522,744. (No model.) Patented in England Jan. 11, 1893, No. 607.



Claim.—1. A support for the instep-arch of the foot comprising the sole-shaped piece, A, provided with the upwardly-extended portion, B, shaped to engage the waist of the foot; and the longitudinally-arranged supporting-plate, D, secured to and engaging the under side of said molded portion substantially as described.

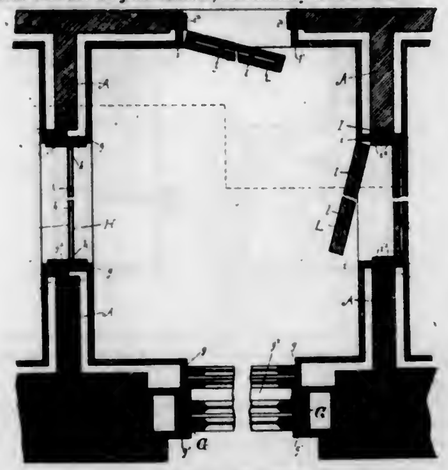
2. The herein-described support for the instep-arch of the foot comprising in combination, the sole-shaped piece, A, molded at B, to engage the inside portion of the waist of the foot; the longitudinally-arranged supporting-plate D, secured on a face of said molded portion; and the transverse plate C, secured at one end to the piece A, with its free end resting on the plate D, substantially as and for the purpose specified.

579,875. **BUILDING.** HENRY K. HOLSMAN, Chicago, Ill., assignor of one-half to Isaac R. Mudge and Jessie R. Mudge, same place. Filed Apr. 24, 1896. Serial No. 588,906. (No model.)

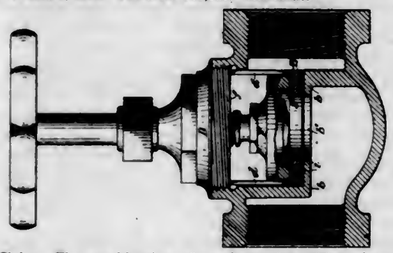
Claim.—1. A building of the class described having main walls, floor and ceiling, an auxiliary framework forming the floor side walls and ceiling of the apartment proper and supported on the main floor, and a non-vibratory support for the auxiliary framework interposed between it and the main floor, substantially as described.

2. A building of the class described having main dividing-walls, ceilings and floor, and auxiliary framework forming the apartments proper consisting of a floor portion, sleepers supporting the same, layers of non-vibratory substance interposed between the sleeper and main floor, and side walls and ceiling supported on the auxiliary floor portion, substantially as described.

3. A building of the class described having main dividing-walls, floor and ceiling portions, an auxiliary framework forming the apartment proper supported on the main floor portion, a non-vibratory support for the auxiliary framework, window or door jambs formed in two or more sections, one of such sections secured to the auxiliary framework and an interposed piece of non-vibratory substance interposed between the jamb-sections, substantially as described.

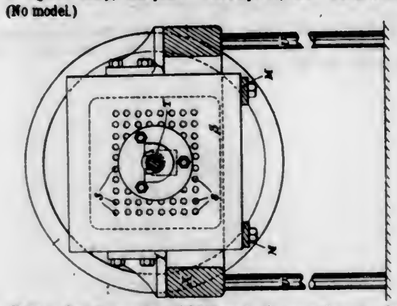


579,876. **STOP-VALVE.** JAMES HULME, Philadelphia, Pa., assignor of fifty-one one-hundredths to Frederick Chase, same place. Filed Dec 3, 1895. Serial No. 570,919. (No model.)



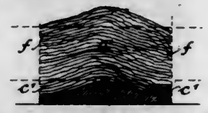
Claim.—The combination of a valve-casing with a detachable valve-seat having arms or fingers projecting into contact with the inner face of the detachable cap or bonnet of the valve, said seat having in the upper face a groove containing a packing-ring constituting the bearing for the valve and in the under face a groove containing a compressible ring which projects slightly below the under face of the seat and rests upon a support provided therefor in the valve-casing, substantially as specified.

579,877. **MOLD FOR MANUFACTURING SECONDARY-BATTERY PLATES.** FRANK KING, London, England, assignor to John Irving Courtenay, same place. Filed Apr. 10, 1896. Serial No. 587,027. (No model.)



Claim.—In a two-part mold for use in the manufacture of secondary-battery plates, or supports, a stationary part having perforations or holes therethrough, and a part provided with means for moving the movable part having openings in its face corresponding to the perforations in the stationary part, a plate mounted on suitable slideways to the rear of the stationary part and carrying a series of pins or rods passing through the perforations in the stationary part and into the openings in the movable part, so that when the molten metal is poured into the mold it surrounds the pins or rods, and means for moving the plate to withdraw the pins from the casting, and by an advance movement of the plate to release the casting from the stationary part after the movable part has been separated therefrom, substantially as described.

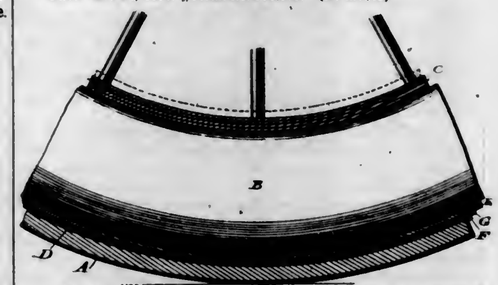
579,878. **PROCESS OF MANUFACTURING VENEERS.** CARL KÖSTER, Cologne, Germany. Filed Dec 3, 1896. Serial No. 614,316. (No specimens.)



Claim.—1. The herein-described process of forming artificial veneers without waste, consisting in successively applying various colored layers to the arched portion of a segment-shaped base, smoothing the edges to form upright longitudinal side faces, and finally cutting the mass longitudinally and horizontally to form veneers, substantially in the manner specified.

2. The herein-described process of forming artificial veneers in imitation of marble, which consists in assembling irregular pieces of the material upon a flat surface, successively applying various-colored layers over the assembled pieces previously assembled, and finally cutting longitudinal veneers from the mass parallel with the flat base, substantially as described.

579,879. **BICYCLE-TIRE.** RESTORE B. LAMB, Camden, N. J. Filed June 24, 1896. Serial No. 596,673. (No model.)



Claim.—1. A non-puncturing guard for a bicycle-tire consisting of the strips E and F of tough material and the piece G of fabric, said strips being on opposite sides of said piece, the latter having its sides extended beyond the edges of said strips forming the attaching ends H, the joints of said strips being broken on opposite sides, and the adjacent edges of the strips abutting forming a continuity of the strips on both faces and a uniform thickness of the guard throughout the length of the same.

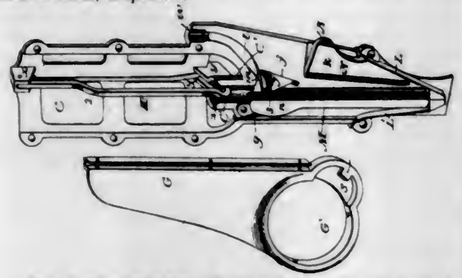
2. A bicycle-tire consisting of outer and inner tubes, the piece G of fabric with its sides secured to said tubes, and strips E and F of tough material secured to said strip on opposite sides thereof, the joints of said strips being broken on opposite faces the edges of adjacent strips abutting forming a continuity of the strips on both faces and a uniform thickness of the guard throughout the length of the same.

579,880. **NAIL OR TACK DRIVING IMPLEMENT.** THOMAS J. LANGSTON, Johnston, S. C. Filed July 3, 1895. Serial No. 554,815. (No model.)

Claim.—1. In a nail or tack driving implement, the combination, with a hollow handle, a plunger arranged therein, an exterior chute or slideway for the nails or tacks, a driving-head fixed on one end of said handle and having guide-wings forming a slideway which constitutes a continuation of said chute, and the safety-tongue M, pivoted at the upper end of the slideway, and lying normally parallel thereto, whereby it forms practically one side of the slideway, and a spring for pressing the tongue inward, whereby the latter is adapted to operate as specified, and prevent wedging of nails or tacks, substantially as shown and described.

2. In a nail or tack driving implement, the combination, with the hollow handle, a slotted driving-head secured on the lower end of said handle, a plunger sliding in both said handle and driving-head, a nail-arrester which works in a slot transversely of the nail-pathway, a bar

carrying said nail-arrester and arranged in the pathway of the plunger, and a pivoted, spring-pressed, and grooved tongue M, arranged parallel to and forming part of the nail-pathway, and having a back swell or recess, as specified.



3. In a nail or tack driving implement, the combination, with the hollow barrel and slotted driving-head attached thereto, a plunger sliding therein, and a nail arrester or cut-off which traverses the nail-pathway transversely, the same having a beveled or inclined side, and the pivoted bar K, carrying said cut-off, said bar being arranged in the nail-pathway and having two bevels 1 and 2, as shown and described, to operate as specified.

4. In a nail or tack driving implement, the combination, with the hollow handle, a plunger sliding therein, a chute, for the nails or tacks, having a slotted or enlarged portion, and a spring arranged to cover such portion, to permit withdrawal of a defective nail or tack, substantially as shown and described.

5. In a nail or tack driving implement, the combination, with the hollow handle, and plunger sliding therein, of rings embracing said handle and having laterally-projecting portions provided with recesses, and a detachable chute formed of sections whose ends fit and are held in such recesses, as shown and described.

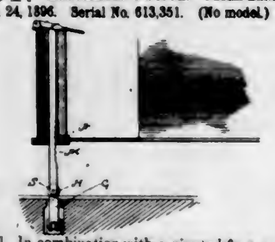
6. In a nail or tack driving implement, the combination, with the hollow handle, the plunger sliding therein, rings applied to the handle and having laterally-projecting portions provided with recesses and inwardly-projecting lugs, and the chute-sections, having notched and tongued ends which fit in said recesses and engage the lugs, substantially as shown and described.

7. In a nail or tack driving implement, the combination, with the hollow handle, a chute extending along the same and having a lateral opening, a sliding plunger, and the laterally-projecting hopper composed of a plate D, and the two side guide-wings G and H, having interior grooves to receive said plate, and rings forming part of said wings and secured on said handle, as shown and described.

8. In a nail or tack driving implement, the combination, with the handle, having a central bore and a lengthwise slot at the lower end, of the driving-head C, formed of two longitudinal parts, having socket portions to receive the handle, and chambered and slotted extending portions forming a nail-guide, and the nail arrester or cut-off, and its carrying-bar K, pivoted to part C, and working in the slot of the handle, as shown and described

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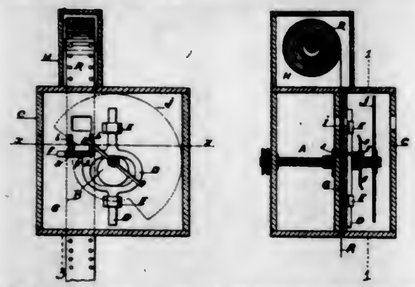
579,881. **AUTOMATIC SWITCH.** PETER LENTZ, Steelton, Pa. Filed Nov. 24, 1896. Serial No. 613,351. (No model.)



Claim.—1. In combination with a pivoted frog, a rock-lever pivoted below the road-bed, blocks carried on each end of the lever, an arm operated by the lever, a connection between the arm and frog, bars having ratchet-teeth depending from the car-platform, pawls for engaging the teeth, and a lever for operating the bars, substantially as described.

2. In combination with a frog, a rock-lever pivoted below the road-bed, blocks carried by the lever and adapted to protrude through the road-bed, bars depending from the car-platform in position to pass over the blocks, said bars having ratchet-teeth formed thereon, pawls for engaging the teeth, levers pivoted to the dashboard and operating the bars, said pawls protruding to be engaged by the foot, substantially as described.

579,882. **KINETOGRAPHIC CAMERA.** AUGUSTE LUMIÈRE and LOUIS LUMIÈRE, Lyons, France. Filed Sept. 6, 1895. Serial No. 561,716. (No model.) Patented in France Feb. 13, 1895, No. 245,032; in Belgium Apr. 4, 1895, No. 114,911; in Austria Apr. 13, 1895, No. 2,806; in Spain Apr. 15, 1895, No. 17,295; in Italy Apr. 15, 1895, LXXV, 460; in England Dec. 10, 1895, No. 7,187; in Germany Jan. 3, 1896, No. 84,722; in Luxemburg Mar. 2, 1896, No. 2,461; in Norway Mar. 7, 1896, No. 5,003; in Hungary Mar. 9, 1896, No. 5,855, and in Switzerland June 4, 1896, No. 10,034.



Claim.—1. In combination, the reciprocating slide, the rotary shaft, the points operated by the slide for engaging a ribbon, the disk on the main shaft arranged to expose the ribbon, at intervals, substantially as described.

2. In combination with the casing having an aperture and adapted to receive a ribbon, the main shaft, the disk thereon, the slide operated from the main shaft, the points carried by the slide and movable in relation thereto and the arms on the main shaft to control the advanced and retracted position of the points relative to the slide and ribbon and their engagement with the ribbon

3. In combination, the casing having an aperture and adapted to receive a ribbon, the main shaft, the eccentric thereon, the slide operated by the eccentric, the points carried by the slide, means controlling the engagement of the points with the ribbon, and the disk on the shaft of the eccentric, substantially as described.

4. In combination with the ribbon guide and holder, the fork having points for engaging the ribbon and means for reciprocating the fork, substantially as described.

5. In combination with the ribbon guide and support, the fork having the points for engaging the ribbon and means for giving the fork both a reciprocatory movement lengthwise of the ribbon and a reciprocation toward and from the same, substantially as described.

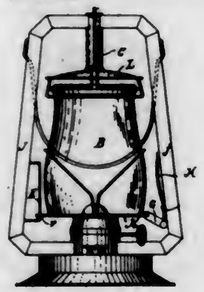
6. In combination with the ribbon-guide, the disk with means for rotating the same, said disk having an indent to expose the ribbons at intervals, and means for moving the ribbon, the two ribbon-supports whereby a pair of ribbons may be superposed in order to take a positive impression, substantially as described.

7. In combination, the ribbon-guides, the disk, the casing, the slide moving parallel to the course of the ribbon, the points movable through the slide substantially at right angles to the ribbon and means for operating the slide and points, substantially as described.

8. In combination a casing, a main shaft, a ribbon-moving slide having means to engage the ribbon, a disk on the main shaft and the connection from the shaft to the slide.

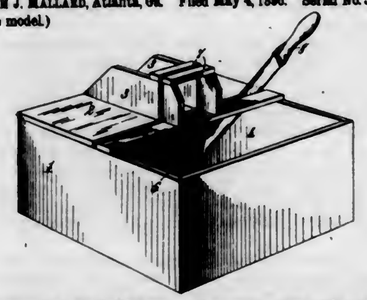
9. In combination, the casing with the ribbon-guide, the rotary disk, the shaft carrying the same, the slide, the points carried thereby and movable independently thereof and means carried by the disk-shaft for reciprocating the slides and for moving the points.

579,888. **LANTERN.** GEORGE W. LYNCH, Detroit, Mich., assignor to the Buhl Stamping Company, same place. Filed June 15, 1896. Serial No. 596,668. (No model.)



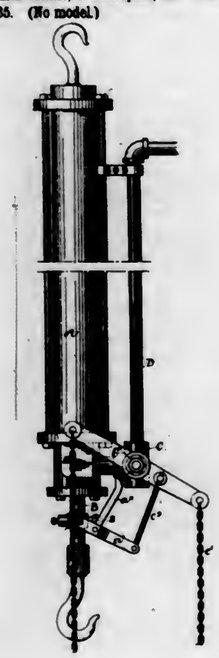
Claim.—In a tubular lantern, the combination with the base-plate K, and means for guiding it in its vertical movement, of the lever H pivoted near one end to the tube J, and the link G pivoted at one end to the said base-plate and pivoted at its other end to the short arm of the lever H, the long arm of said lever being curved as shown to permit its end to be sprung behind the air-tube and thus lock the base-plate in its lowered position, substantially as described.

579,884. **MANUALLY-OPERATED STOCK-FEED CUTTER.** WILLIAM J. MALLARD, Atlanta, Ga. Filed May 4, 1896. Serial No. 590,198. (No model.)



Claim.—In a stock-feed cutter, the combination with a box having a platform partly closing its top, of a feed-box mounted centrally and transversely on said platform and consisting of two vertical walls and an upper wall of less extent arranged close to the exit end of the feed-box and near the edge of the platform overhanging the interior of the box, a bracket consisting of two independent slightly-separated parts hanging vertically from the lower face of the platform near its edge, and a straight two-edged blade having its end pivoted between the lower ends of the parts of the bracket and extending upward through a slot running from end to end of the platform and coinciding with a slot passing entirely through the three walls of the feed-box, whereby said knife has a range of effective movement equal to the length of the platform and has support on both sides throughout said movement, those portions of its edges which act on material passed through the feed-box being supported on both sides immediately above and below the material operated upon the box being open to its full capacity, substantially as described.

579,885. **AUTOMATIC CLUTCH FOR FLUID-OPERATED HOISTS.** FRANK MARIS, Philadelphia, Pa. Filed May 23, 1896. Serial No. 592,735. (No model.)



Claim.—1. The combination in a fluid-actuated hoist, of the hoisting-cylinder, its piston-rod, a valve controlling the flow of motive fluid into the cylinder, a friction-clutch constantly in operative engagement with a movable portion of the hoist, and a connection between said clutch and the valve, whereby the latter will be automatically opened by accidental or unintentional movement of the hoist, substantially as specified.

2. The combination in a fluid-actuated hoist, of the hoisting-cylinder, its piston-rod, a valve controlling the flow of motive fluid into and from the cylinder, a friction-clutch constantly in operative engagement with a movable portion of the hoist, and a connection between said clutch and the valve, whereby the latter will be automatically operated by accidental or unintentional movement of the hoist in either direction, substantially as specified.

3. The combination in a fluid-actuated hoist, of the hoisting-cylinder, its piston-rod, a valve controlling the flow of motive fluid into the cylinder, a friction-clutch in engagement with the piston-rod, and a connection between said clutch and the valve, whereby the latter will be automatically opened by accidental or unintentional movement of the hoist, substantially as specified.

4. The combination in a fluid-actuated hoist, of the hoisting-cylinder, its piston-rod, a valve controlling the admission of motive fluid to the cylinder, a friction clutch or collar encircling the piston-rod, a lever carrying said clutch, a two-armed lever for operating the fluid-supply valve, and a link connecting the friction-clutch lever with the lever controlling the valve, substantially as described.

5. The combination in a fluid-operated hoist, of the hoisting-cylinder, its piston-rod, a valve controlling the flow of motive fluid to the cylinder, a collar encircling the piston-rod and in frictional contact with the same, said collar having a contact-piece held against the piston-rod by a spring and a suitable adjusting-screw, and a connection between the friction-collar and the fluid-supply valve, whereby said valve will be opened when the piston-rod is accidentally moved, substantially as described.

579,886. **WHEEL FOR VELOCIPEDES.** EDWARD C. MARTIN, Caulfield, Victoria. Filed Aug. 12, 1896. Serial No. 602,512. (No model.)



Claim.—1. In a wheel, the combination of two concentric rims, tangent springs arranged between said rims and rigidly attached at their opposite ends respectively to said rims, and tension-adjusting devices attached to the outer of said rims and engaging each of said springs intermediate its ends, substantially as described.

2. In a wheel for velocipedes and other light vehicles having two concentric rims (such as A B) the combination therewith of a number of flat steel tangent springs (such as C C) inserted between said rims, one end of each of said springs being secured to the inner and the other to the outer rim while the ends of the spokes are passed through said inner rim and attached each to one of said springs substantially as and for the purposes specified and as illustrated in the accompanying drawing.

3. In a wheel, the combination of two concentric rims, tangent springs arranged between said rims and attached thereto at their opposite ends, spokes each attached at its outer end to one of said

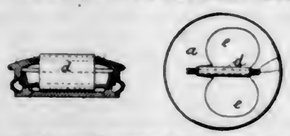
springs intermediate the ends of the latter, and means for adjusting the tension of said springs, substantially as described.

4. In a wheel, the combination of two concentric rims, tangent springs arranged between said rims and rigidly attached thereto at their opposite ends, and means for turning said rims in opposite directions and holding them in their adjusted positions, substantially as described and for the purpose specified.

5. In a wheel, the combination of two concentric rims, tangent springs arranged between said rims and attached thereto at their opposite ends, spokes passed through said inner rim and each attached to one of said springs, and means for adjusting the tension of said spokes, substantially as described.

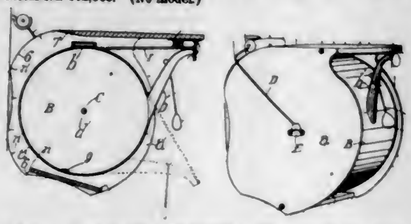
6. In a wheel, the combination of two concentric rims A, B, tangent springs C arranged between said rims and attached thereto at their opposite ends, adjusting-bolts E passed through the outer rim and engaging the springs C, and blocks F of compressible material inserted between the ends of said springs and the outer rim, substantially as described.

579,887. STOPPER FOR JARS, BOTTLES, CANS, &c. EDWARD A. MATTHIAS, Liverpool, and WILLIAM H. HARRISON, Manchester, England. Filed Jan. 12, 1897. Serial No. 619,012. (No model.)



Claim.—An improved stopper for jars, bottles, cans or other vessels consisting of two cylindrical or slightly conical parts horizontally divided and capable of sliding telescopically one within the other, and formed with circumferential neck or groove at the point of junction around which is placed india-rubber or other elastic ring; the two parts being normally held together by means of a spring or springs which when in action automatically draw the two parts together so as to cause the india-rubber ring to bulge all around; and being so arranged that they can be pushed or drawn asunder by the simple action of the finger or hand in pushing in or pulling out the stopper substantially as hereinbefore described and illustrated by the drawings annexed.

579,888. OIL-CAN AND LIQUID STORAGE AND DELIVERY DEVICE. SAMUEL I. MERRILL, Los Angeles, Cal. Filed Aug. 7, 1896. Serial No. 602,083. (No model.)



Claim.—1. An oil-can comprising a case open at the front and having two bases arranged, one at the bottom and the other at the back of the case, in planes which are at an obtuse angle to each other, with a rounded portion between the two bases; a vessel provided with a filling-opening in the top and a spout in the side projecting above the top of the can; an axle having sockets in the ends, and extending through the vessel and fastened to the opposite ends thereof; and the bail extending over the top of the case and having its ends bent inward and passed through the walls of the case and inserted into the sockets in the ends of the axle.

2. The case for holding pivoted vessels which comprises a top board and a bottom board arranged oblique to each other; two side boards fastened to the ends of the top and bottom boards and provided with feet arranged to form two support-bases, one at the bottom and the other at the back of the case; and a sheet-metal back fastened to the rear edges of the side boards and projecting under the rear edge of the top board.

3. The combination of the case open at the front and provided in its sides with holes for receiving the ends of a bail; a vessel provided with an axle the ends of which are socketed to receive the ends of the bail; and the bail extending over the top of the vessel and case and having its ends bent inward and inserted through the holes in the side of the case and into the sockets of the said axle.

4. The combination of the case open at the front and provided in its sides with holes for receiving the ends of a bail; a vessel provided with an axle the ends of which project beyond the side walls of the vessel and are socketed to receive the ends of the bail; and the bail extending over the top of the vessel and case and having its ends bent inward and inserted through the holes in the side of the case and into the sockets of the said axle.

5. The combination of the case open at the front and having its side pieces provided with feet arranged in two planes, viz: at the bottom and back of the case; a vessel provided with spout and filling-opening and pivoted between the side pieces of the case; and the bail extending over the vessel and case and having its ends inserted into the opposite sides of the case and vessel to pivot the vessel and case together.

6. The case having the vessel pivoted between the side pieces of the case and having said side pieces arranged to form two bases adapted for supporting the case and arranged in two planes which are at an angle to each other, and said side pieces being rounded at the angle between the planes of the bases.

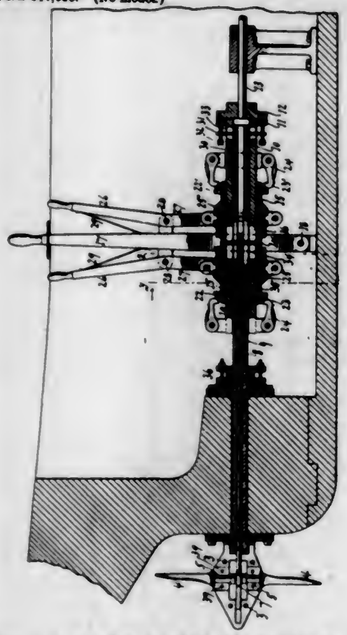
7. The counterbalanced vessel pivoted at its ends to a support, and provided at the side with a spout projecting tangentially and upward; and a handle pivoted to the spout to hang below the level of the spout-outlet and in position to be grasped by the hand which holds the lamp while it is being filled from the spout so that a person filling the lamp is enabled to hold the lamp and to rotate the can with one hand.

8. The case provided with two bases and open at the front; a hook at the bottom of the case; a vessel pivoted at its ends in the case and provided with a filling-opening and also provided at the side with a spout projecting tangentially and upward toward the plane of the filling-opening; and a handle pivoted to the spout and provided with a loop to catch upon the hook at the bottom of the case.

9. The lock and stopper comprising a plate provided with a buffer and adapted to be fastened to the case; and a spring-pressed stopper and latch pivoted to the plate for locking and stopping the spout.

10. The combination of the case open at the front and provided in its sides with holes for receiving the ends of a bail; a vessel provided with an axle, the ends of which are socketed to receive the ends of the bail; a bail extending over the top of the vessel and case and having its ends bent inward and inserted through the holes in the side of the case and into the sockets of the said axle; and plates fastened to the case and arranged to project over the ends of the bail substantially as set forth.

579,889. PROPELLER. HENRY MILLER, New York, N. Y., assignor of one-half to Carl Goerg, same place. Filed Dec. 31, 1896. Serial No. 617,635. (No model.)



Claim.—1. A propeller provided with shiftable or reversible blades, a shifter or rod for said blades, a shaft for the propeller and

a lock or catch for locking the shifter to the shaft substantially as described.

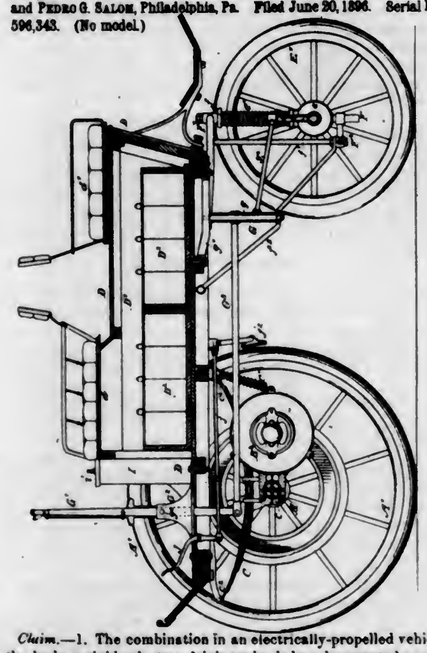
2. A propeller provided with shiftable or reversible blades, a shifter or rod for said blades, a tubular shaft through which the rod extends, a lever or handle for the shifter, and a lock or catch for locking the shifter to the shaft.

3. A propeller provided with shiftable blades, a shifter or rod for said blades, and a lever or actuating-handle for the shifter, combined with a shouldered sleeve moved by said lever, a catch or lock for the sleeve, a releasing collar or wedge on the sleeve for disengaging the catch, and a lever or handle for said releasing-collar substantially as described.

4. A propeller provided with shiftable blades, a shifter or rod for said blades, and a primary lever or actuating-handle for the shifter, combined with a shouldered sleeve moved by said lever, a catch or lock for the sleeve, a releasing collar or wedge on the sleeve for disengaging the catch, and a secondary lever or handle for said releasing-collar, said secondary lever being fulcrumed to the primary lever substantially as described.

5. A propeller-hub comprising longitudinally-separable sections and a shaft about which the hub-sections are clasped, said shaft being provided with a rim or lugs and said hub-sections being correspondingly recessed to fix themselves to the shaft when clasped about the latter substantially as described.

579,890. MOTOR-PROPELLED VEHICLE. HENRY G. MORRIS and PEDRO G. SALOM, Philadelphia, Pa. Filed June 20, 1896. Serial No. 596,343. (No model.)



Claim.—1. The combination in an electrically-propelled vehicle, of the body, a rigid axle, two driving-wheels loosely mounted on said axle, two electric motors mounted on the axle side by side so as to aline at all times with the axle, each motor having a short shaft, one shaft gearing with one driving-wheel and the other shaft gearing with the other driving-wheel so that the two driving-wheels are independently driven, substantially as described.

2. The combination in an electrically-propelled vehicle, of the body, the forward driving-wheels, a forward axle on which the driving-wheels are independently mounted, rear steering-wheels, steering mechanism therefor, two electric motors mounted side by side on the front axle so that they will at all times aline therewith, gearing between one electric motor and one forward driving-wheel and gearing between the other electric motor and the other forward driving-wheel so that the two driving-wheels will be independently driven, substantially as described.

3. The combination in an electrically-propelled vehicle, of the driving-wheels, the wheels E', short axles for each wheel, vertical rods passing through the axles, springs mounted on the rods and carried by the axles, with a carriage-body the rear of which is supported by the springs and steering mechanism connected to the short axles, substantially as described.

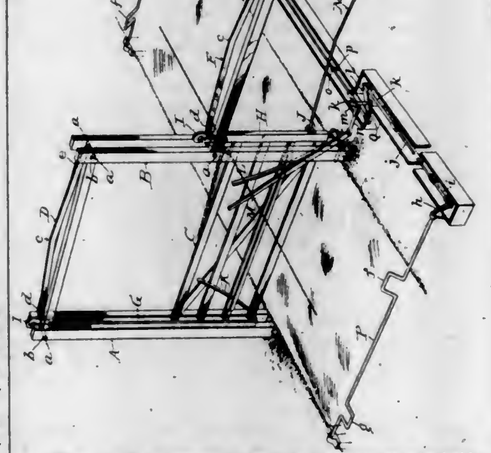
4. The combination in an electrically-propelled vehicle, of the body, driving mechanism therefor, wheels E', short axles for each wheel, vertical rods on which the axles turn, springs mounted between the axles and the body of the vehicle, brackets on each axle, a two-armed lever connected to the brackets and a steering-lever connected to the two-armed lever, substantially as described.

5. The combination in an electrically-propelled vehicle, of the driving-wheels, the axle, the vehicle-body, the rear wheels E', short axles for each wheel, brackets F', F², one above and the other below each axle, a rod extending from one bracket to the other and through the axle and on which the axle swings and a spring mounted between the axle and the upper bracket, with steering mechanism connected to the axle, substantially as described.

6. The combination in an electrically-propelled vehicle, of the carriage-body, the driving-wheels and their axle, the rear wheels, short axles for each rear wheel, brackets secured to the body, a vertical rod adapted to each bracket and passing through the axle, springs on each rod, stays, a vertical shaft *g* supported by the stays, a two-armed lever mounted on the shaft, connecting-rods extending from the lever to the axle and a steering-lever G' connected to one arm of the lever G, substantially as described.

7. The combination in an electrically-propelled vehicle, the vehicle-body D having compartments for the storage of batteries, a front axle, driving-wheels thereon, two motors hung to the axle and also hung to the vehicle-body through the medium of springs, gear-wheels on each driving-wheel, a shaft for each motor, each shaft having a pinion meshing with the gear-wheel on the driving-wheel, rear steering-wheels, short axles on which the steering-wheels are mounted, brackets, and a vertical rod on which the axles are mounted, a steering-lever at the front of the vehicle connected to the axles at the rear through the medium of a two-armed lever so that the steering-wheels will turn in unison, the gearing of the front driving-wheels being such as to allow for the independent rotation of the wheels, substantially as described.

579,891. GATE. ARTHUR W. MCCURDY, Washington, D. C. Filed Feb. 15, 1897. Serial No. 623,487. (No model.)



Claim.—1. In an automatic gate, the combination of suitable posts or uprights; tracks or rails extending between said posts or uprights and inclining downward from a medial point to a point some distance from each end, and thence inclining downward more sharply to the end of the track; and a gate provided with rollers to traverse said tracks.

2. In combination with supporting tracks or rails D, F, each inclining downward gradually from a point *c* to points *d* and *e* on opposite sides of point *c*, and from said points *d* and *e* inclining downward more sharply; a gate provided with rollers to traverse said rails; mechanism for moving said gate along its track or rails; and means substantially such as described for actuating said mechanism from a point distant from the gate.

3. In combination with tracks or rails D, F, having gradual inclines from their mid-length to points some distance from their ends, and sharper inclines from said points to the ends of the tracks: a gate arranged to traverse said tracks; curved bearing-bars carried by said gate; and a throwing-lever arranged to bear against one or another of said bearing-bars and thus to move the gate.

4. In combination with tracks or rails, a gate arranged to traverse said tracks and provided with curved bearing-bars; and a throwing-lever located between said bearing-bars and arranged to bear upon one or the other when the gate is at either extreme of its travel, at a point near the fulcrum of the lever; and to bear upon said bars at progressively higher points as the gate moves from its extreme position in opening or closing, finally parting contact with the bearing-bar.

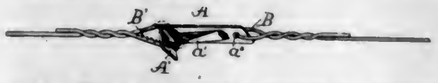
5. In combination with a longitudinally-movable gate provided with fixed bearing-bars K and L, approaching each other more nearly at their upper than at their lower ends, an intermediate throwing-lever M, arranged substantially as described and shown to bear upon said bars alternately.

6. In combination with a longitudinally-movable gate: fixed, upwardly-converging bars K and L secured to said gate and separated from each other a considerable distance; and a throwing-lever M located between and arranged to act upon said bars alternately, the gate moving a limited distance after the lever has come to rest.

7. In combination with gate C having rollers I I, tracks or rails D and F; guide-rail N; and a guide block or bar perforated or slotted to permit the passage through it of the guide-rail N; whereby the rollers I I are kept upon the track-rails and play of the gate is prevented.

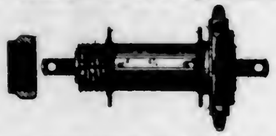
8. A gate rail or track highest at its mid-length inclining gradually downward from said highest point to points at some distance from its ends, and thence inclining downward more sharply toward its extremities.

579,892. BALE TIE AND HOOK. WILLIAM MCGREGOR, Newburg, N. Y., assignor to Albert H. F. Seeger, same place. Filed Apr. 24, 1896. Serial No. 588,964. (No model.)



Claim.—The bale-tie fastening A, composed of a non-resilient metallic plate having an opening near one end for the attachment of a band or tie, and having its opposite end bent to form a short flat rigid hook A' having a slight backward inclination, and having a flat rigid tongue *a'* stamped from the body of said plate and bent away therefrom in the direction of said hook, and having its point opposite the inner face of said hook a short distance therefrom, substantially as described.

579,893. HUB AND BOTTOM BRACKET FOR BICYCLES. FREDERICK J. OSMOND, Moseley, England. Filed Dec. 1, 1896. Serial No. 614,090. (No model.) Patented in England Mar. 11, 1895, No. 5,115.

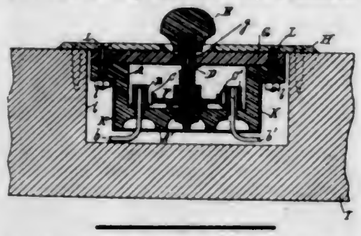


Claim.—1. The combination with a tube having a longitudinally-split and externally-threaded end, the said threads being inclined on one side only, the opposite side being perpendicular to the axis of the tube, of a nut or ring correspondingly threaded internally and adapted to engage and contract the split end of the tube, substantially as described.

2. The combination with a hub having longitudinally-split and internally and externally threaded ends, of externally-threaded ball-bearing cups screwed in the ends of said hub and internally-threaded rings or nuts screwed over the ends of the hub and operating to contract said ends about said cups, substantially as described and for the purpose specified.

579,894. SWITCH-BOX FOR FLUSH SWITCHES. JAMES W. POOLE, Chelsea, Mass. Filed Dec. 23, 1895. Serial No. 573,591. (No model.)

Claim.—A flush switch, consisting of a switch-box formed integral with a bottom wall A' having binding-posts B B' provided with yielding electrodes C C', a switch-stem D having a switch-bar F, a cover-plate G secured to the switch-box and formed at its center with a concaved projecting cup *g* through which the switch-stem extends, a face-plate H applied over the cover-plate and provided with a central orifice into which the concaved cup of the cover-plate extends, and a handle E secured to the switch-stem and projecting into the concavity of said projecting cup, substantially as described.



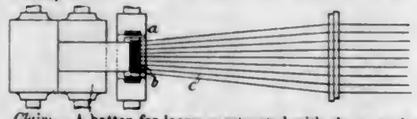
579,895. COMBINED DIPPER AND FUNNEL. SETH E. POWELL, Jr., Newburg, N. Y. Filed Nov. 6, 1896. Serial No. 611,268. (No model.)



Claim.—1. In a device of the character described, the combination with a perforated dipper or basin, a pivoted valve normally closing the same and provided with an arm projecting beyond the pivot, a handle projecting upward from said basin, and a bent rod made of resilient material running alongside the handle and normally just out of engagement with the short arm of said valve, substantially as described.

2. In a device of the character described, the combination with a perforated dipper or basin, with an opening in the bottom thereof and having a funnel beneath said opening, a pivoted valve normally closing the same and provided with an arm projecting beyond the pivot, a handle projecting upward from said basin, and a bent rod made of resilient material running alongside the handle and normally just out of engagement with the short arm of said valve, substantially as described.

579,896. BATTEN FOR WEAVING-LOOMS. JOHN FOYSER, Wirksworth, England. Filed Dec. 1, 1896. Serial No. 614,074. (No model.)



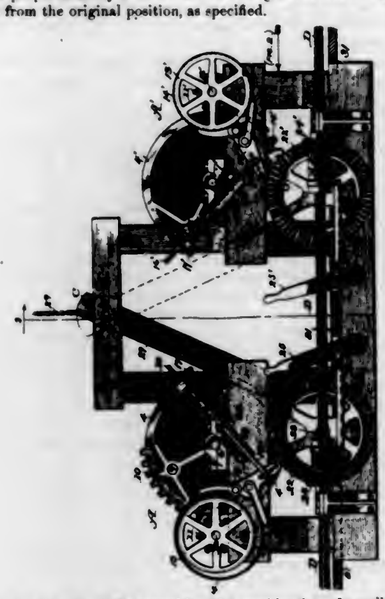
Claim.—A batten for looms constructed with the several plates forming the reeds or dents arranged radially so that the spaces between the said reeds and through which the warp-threads pass are in alinement with the radiating warp-threads, said plates extending transversely in a straight line parallel to the take-up rolls, substantially as described.

579,897. BALING-PRESS. WILLIAM A. ROSS, Hico, Tex. Filed Mar. 20, 1896. Serial No. 584,179. (No model.)

Claim.—1. In a bale-winding machine, the combination, substantially as specified, of an endless traveling winding-apron, and three pulleys or drums over which such apron passes, two of said pulleys being movable about a common center relative to the third pulley which is fixed in the frame, whereby due expansion of the forming blade is allowed.

2. In a bale-winding machine, the combination of an endless apron, three rotatable pulleys or drums, around which said apron passes, the same being provided with radial flanges at their ends, and one of such pulleys being driven to cause the apron to travel, and the other two being movable relative to such driven one, whereby the apron is slackened as the bale increases in diameter, substantially as shown and described.

3. In a bale-winding machine, the combination, of an endless winding-apron, a flanged driven pulley or drum, which is journaled in the frame, two oscillating heads or disks, and two flanged pulleys or drums which are journaled in said heads, one of them being farther from the axis of the heads than the other, and the apron running on the three pulleys, and having normally sufficient slack to double between the fixed driven pulley and the adjacent movable one, substantially as shown and described, whereby, as the heads are caused to oscillate by the expansion of the forming bale in the loop between the driven pulley and the nearest movable one, the apron will be slackened proportionately to the rotative shifting of the two movable pulleys from the original position, as specified.



4. In a bale-winding machine, the combination of parallel oscillating heads, a fixed pulley, and two or more pulleys which are journaled in said heads and revolve therein, an endless apron that runs on the pulleys, and a tongue which is fixed to the heads opposite one of the movable pulleys and thus moved with it, the same projecting into the space between such movable pulley and the fixed pulley, when the parts are in position to begin forming the bale, and thus doubling the apron in such space and preventing contact of the cotton bat or film with the upper side of the loop, substantially as specified.

5. In a bale-winding machine, the combination, with three flanged pulleys or drums, one of which is fixed and the other two movable around a common center, and an endless apron that runs on such pulleys, of a pressure-roller that acts against one of such pulleys, to hold the apron in firm engagement with it as shown and described.

6. In a bale-winding machine, the combination substantially as described with a fixed pulley and endless traveling apron, of an adjunctive bale-forming mechanism which is adapted to oscillate and is counterbalanced as specified, the same being composed of parallel heads or disks and pulleys journaled in and between said heads, the said apron running on all three pulleys, substantially as shown and described.

7. In a bale-winding machine, the combination, with a fixed pulley, a carrier, and two pulleys mounted therein and movable as to the first pulley about a common center, of an endless apron running on the pulleys, and means for automatically resisting the oscillation of the movable pulley-carrier, substantially as shown and described.

8. In a bale-winding machine, the combination, with the bale-forming mechanism proper, composed of three pulleys, two of which are movable as to the other, oscillating parallel heads in which the movable pulleys are mounted, and an endless apron that runs on the pulleys, of a means for automatically applying an increased resistance to the expansion of the bale, which consists of pinions, a shaft and segment-racks, and a friction and spring tension apparatus connected with the axis of the part in which the movable pulleys are mounted to revolve, substantially as shown and described.

9. In a bale-winding machine, the combination, with the bale-forming mechanism proper, a portion of which is oscillatory on and about an axle or shaft, of an adjusting mechanism for automatically resisting the expansion of the bale, the same being arranged in the frame of the machine in contiguity to one end of said shaft, and composed of a lever, a rod, a sleeve, spring, and friction band and wheel, and means arranged intermediately of the adjusting mechanism and bale-forming mechanism, for communicating motion from one to the other, substantially as shown and described.

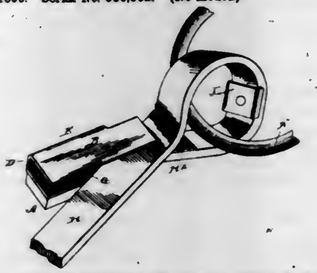
10. The combination, with the rotary bale-forming apparatus or mechanisms, of a delivery-guide, or chute, which is pivoted between them, and has its opposite sides open, being thus in the form of a double trough having a central portion that serves as a bottom for each side of the chute, as shown and described.

579,898. MEDICAL COMPOUND. GEORGE L. SCHAEFER, Brooklyn, N. Y., assignor to McKesson & Robbins, New York, N. Y. Filed Jan. 5, 1897. Serial No. 618,008. (Specimens.)

Claim.—1. A chemical compound being a salt, comprising an alkaloid base such as quinin and guaiacol sulfonic acid.

2. A chemical compound being a salt, comprising quinin and guaiacol sulfonic acid.

579,899. FASTENER. JAMES M. SCURR, Creston, Iowa. Filed Apr. 6, 1896. Serial No. 586,302. (No model.)



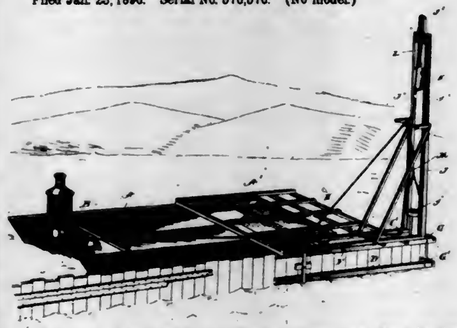
Claim.—1. In combination with a strap, a base-plate secured to the end thereof, a parallel top plate supported from the base-plate at one side and providing a channel or recess to admit of the turned-back or looped portion of the strap being inserted laterally into said channel and then moved longitudinally to contact the loop and means for retaining the turned-back portion against lateral displacement in said channel until it has first been moved longitudinally to enlarge the loop, substantially as described.

2. In combination with a strap, a base-plate secured to the end thereof and having an angular extension forming a strain member, a parallel top plate carried by said base-plate at one side and forming a lateral channel or chamber to admit of the turned-back or looped portion of the strap being inserted laterally therein and then moved longitudinally to contract the loop, and means for preventing the lateral displacement of the strap until it has first been moved longitudinally to enlarge the loop, substantially as described.

3. In combination with a strap, a base-plate secured to the end thereof, a parallel top plate carried by said base-plate at one side and providing a channel to admit of the turned-back or looped portion of the strap, being inserted laterally therein and then moved longitudinally to contract the loop, and means carried by said strap for engaging one of the plates on such longitudinal movement whereby the strap is retained against lateral movement in the channel while the loop is contracted, substantially as described.

4. In combination with a strap, a base-plate secured thereto, a parallel top plate carried by said base-plate at one side and providing a channel to admit of the looped portion of the strap being inserted laterally therein and then moved longitudinally to contract the loop, and a retaining device carried by said strap and operating on the longitudinal movement of the strap in said channel to engage a notch in one of said plates and retain the strap against lateral displacement, substantially as described.

579,900. PILE-DRIVING MECHANISM. ROBERT H. F. SEWALL, New Orleans, La., assignor of one-third to Gordon S. Orme, same place. Filed Jan. 23, 1896. Serial No. 576,576. (No model.)



Claim.—1. A pile-driving mechanism comprising a float, having water-line stringers and deck-line stringers held in line to form guides to hold the work perpendicular and arranged to embrace the work and a driver held over the said stringers as set forth.

2. The combination in a pile-driving mechanism as described, with the float, adapted to carry the hoist mechanism for the driver, of stringers secured to the float, at the water-line and the deck, each comprising parallel members adapted to embrace the work and having blocks G and G', adapted to press against the pile; and the driver to work over the stringers as set forth.

3. In a pile-driving mechanism, a main driver guide-frame, and a supplemental driver-frame vertically movable in the main frame and adapted to be normally supported on the pile, said supplemental frame having driver-supporting sheaves as the top and guides for the driver as set forth.

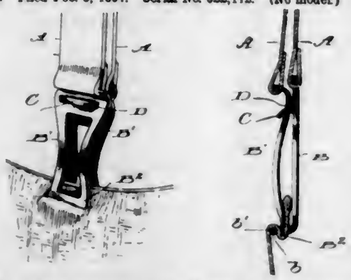
4. In a pile-driving mechanism as described, a driver having a detachable root-cutting member having a diagonal or cutting edge as set forth.

5. A pile-driving mechanism comprising a boat, guides held at one side thereof formed of stringers to embrace the piling and thereby guide the boat, and having block or impact portions adapted to press against the pile when the boat is pulled back as set forth.

6. In a pile-driving mechanism as described, a root-cutter comprising a hollow body having a flap-valve at the bottom, and a drive-tube connected therewith having a water-inlet substantially as shown and for the purposes described.

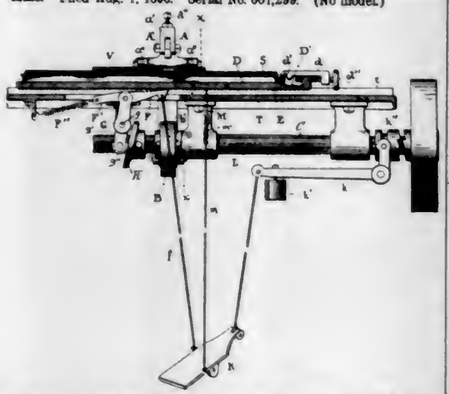
7. In a pile-driving mechanism as described, in combination with the driver-frame, horizontally-disposed stringers, or guide members held to embrace and guide the sheathing at a point above the water-line and a similar set of floating guide members or stringers connected with the upper guides, substantially as shown and described.

579,901. HOSE-SUPPORTER. AMELIA S. SMITH, Central Falls, R. I. Filed Feb. 5, 1897. Serial No. 622,172. (No model.)



Claim.—As an improved article of manufacture, the hose-supporting fasteners, consisting of the separate plates B and B', the plate B having its free end bent at right angles to its length and provided with the transverse aperture *b'* therein, an integral upset hook C adapted to engage in a transverse aperture D in plate B', the free end of the plate B' being adapted to be inserted through the aperture *b'* and hold the edge of a stocking in said aperture *b'*, the two plates being held together by the pressure of the stocking against the free end of the plate B' which holds the plates hooked together, all combined substantially as shown and described.

579,902. MAILING-MACHINE. GEORGE A. SPOONER, Boston, Mass. Filed Aug. 1, 1896. Serial No. 601,299. (No model.)



Claim.—1. In a mailing-machine, the combination of the carriage having a short terminal portion of its bed depressed, an adjusting member located near said depressed bed, and a type-carrying chase or galley adapted to be engaged by said adjusting member when its end sinks into said depressed portion of the bed, for the purpose set forth.

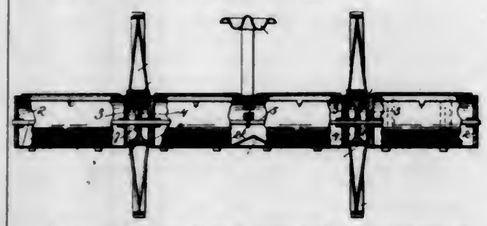
2. The combination with the carriage, D, having depression, D', of the adjusting member consisting of the hand *d*, having notch, *d'*, and the type-carrying galley having a rim adapted to enter said notch, substantially as and for the purpose set forth.

3. The combination with the carriage, D, having depression, D', of the hand, *d*, movably held over said depression and having the notch, *d'*, and the adjusting-screw, *d''*, substantially as and for the purpose set forth.

4. In a mailing-machine, the combination with the carriage, D, the operative mechanism of the machine, the clutch member and the clutch-actuating treadle, of the stop adapted to enter the path of said carriage and so connected with said treadle that the clutch-actuating motion of said treadle shall remove said stop from the path of the carriage, for the purpose specified.

5. In a mailing-machine, the table-top, T, having the ways, *t*, near the center thereof and a limited slot extending longitudinally between said ways, the plunger-arm, *a*, pivoted to the rear edge of the table-top, the actuating-shaft, C, extending parallel with and close beneath said rear edge and adapted to oscillate said plunger-arm, in combination with the side cam, H, the rocker-arm, *g'*, contacting with said cam, the extended rock-shaft, *g*, and the pawl, F, adapted to reach through the slot hereinbefore described and engage the notched under side of said carriage, whereby the entire table-top and almost the entire ends thereof are made free from interfering mechanism and the operator's movements thereby unimpeded.

579,903. BROADCAST SEEDER. ALONZO STANSEL, Yorkville, Ill. Filed Sept. 4, 1896. Serial No. 604,880. (No model.)



Claim.—1. An improved seeder comprising a seed-containing casing, a tube discharging therefrom, a seed-lift movable in the casing adjacent the tube, and a spout adjustable across the discharge of said lift for deflecting the seed into the tube, substantially as shown and described.

2. An improved seeder comprising a seed-containing casing, a tube discharging therefrom, said tube being provided with an opening, a spout adapted when turned inward to close said tube-opening, a seed-lift arranged adjacent the tube, said spout being adapted to turn outward in line with the lift-discharge and deflect the seed into the tube, and an operating means, substantially as shown and described.

3. An improved seeder comprising a seed-containing casing, a tube discharging therefrom, a curved passage-way within the casing and having its open ends adjacent the bottom and top respectively of the casing-interior, a rotary carrier, lifts thereon adapted to traverse the curved passage-way from end to end and carry seed therethrough, a device adjacent the discharge end of the passage-way for deflecting the seed into the tube, and an operating means, substantially as shown and described.

4. An improved seeder comprising a seed-containing casing, a tube discharging therefrom, a curved passage-way open at its ends to the interior of the casing, said passage-way being formed with one open side, a disk rotatable in the casing and adapted to close said open side, lifts arranged on one side of the disk, and adapted to traverse the passage-way and carry seed therethrough, a device at the discharge end of the passage-way for deflecting the seed into the tube, and an operating means, substantially as shown and described.

5. An improved seeder comprising a seed-containing casing, said casing having open-bottom spaces formed therein, a shaft journaled in the casing, seed-dropping mechanisms adapted to be operated by the shaft, friction-rollers arranged on the shaft in said casing-spaces, and drive-wheels having enlarged hubs which are adapted to be confined in said open-bottom spaces and have frictional contact with said friction-rollers, whereby when the drive-wheels are rotated, the friction-rollers and the shaft will also be rotated, substantially as shown and described.

6. An improved seeder comprising an elongated cylindrical casing, said casing being formed with open-bottom spaces between its ends, a shaft extended through the casing, seed-dropping mechanism operated by the shaft, friction-rollers arranged on the shaft in the said casing-spaces, and drive-wheels having enlarged hubs which are adapted to slip over the casing ends and be confined in the open-bottom spaces and have frictional contact with the pulleys in said spaces, whereby when the drive-wheels are rotated the friction-rollers and shaft will also be revolved, substantially as shown and described.

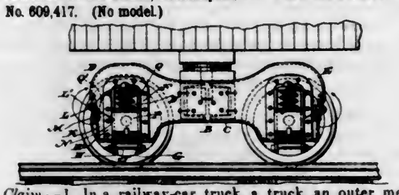
7. An improved seeder comprising a seed-containing casing, a shaft extending therethrough, a seed-operating mechanism adapted to be actuated by the shaft, friction-rollers mounted loosely on the shaft, ratchets connecting the friction-rollers with the shaft so as to cause the same to move together when turning in one direction but which permit the friction-rollers to move freely on the shaft when moving in the opposite direction, and drive-wheels having enlarged hubs which encircle the said friction-rollers with which they have frictional contact, whereby when the drive-wheels are revolved the friction-rollers will also revolve and cause the shaft to revolve or else revolve freely on the shaft according to the direction of rotation, substantially as shown and described.

8. An improved seeder comprising an elongated casing of cylindrical form, heads closing the respective ends of the casing, heads arranged intermediate the casing ends and in pairs, the heads of each pair being slightly separated to form spaces, said spaces being open at their bottom, a shaft journaled centrally in the casing and extending from end to end, seed-dropping mechanisms operated by the shaft, the friction-rollers on the shaft in said open-bottom spaces, and the drive-wheels having enlarged hubs which encircle the open-bottom spaces and have frictional contact with the pulleys, substantially as shown and described.

9. An improved seeder comprising a seed-casing, a delivery-spout within the casing, a carrier within the casing for carrying the seed to the spout, deflectors for receiving the seed, and a shaft connected to the deflectors, said shaft having a crank, and an operating means connected to the crank, substantially as described.

10. An improved seeder comprising a seed-casing, a series of delivery-spouts, deflectors arranged in the receiving ends of the spouts, and an operating-bar connected to and operating all of the deflectors simultaneously, substantially as described.

579,904. RAILWAY-CAR TRUCK. OSCAR L. STERNER and RICHARD W. O'DONNELL, Philadelphia, Pa. Filed Oct. 20, 1896. Serial No. 609,417. (No model.)



Claim.—1. In a railway-car truck, a truck, an outer member pivotally attached thereto, whereby the same may be swung upwardly without being detached from said frame, an integral portion of said truck-frame on either side being adapted to always bear against a car-axle box when the parts are assembled, and means for holding said member in operative position.

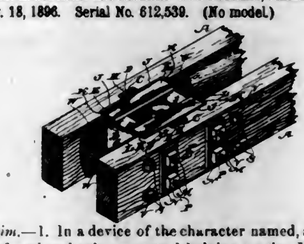
2. In a railway-car truck, a truck-frame composed of pressed steel or iron, and having substantially U-shaped openings in its end portions, a reinforcing-flange secured around said U-shaped openings, a lug depending from said flange, a jaw pivotally attached to the outer portion of said frame and having an inclined joint, a reinforcing-flange attached to said jaw and forming a continuation of said first-mentioned flange, a lug projecting from said jaw, and a bolt adapted to pass through said lugs.

3. The combination of a car-axle box with a truck-frame, the latter having a U-shaped opening in an end thereof, a portion of the outer leg of said member being removed, and its end inclined downwardly and inwardly, a jaw pivotally attached to said frame and provided with a tongue, a U-shaped reinforcing-flange surrounding said opening, a reinforce for said jaw, lugs depending from said jaw and frame, and a fastening device common to said lugs, said axle-box having an integral portion of the frame always bearing thereon in front and rear when said parts are assembled.

4. A truck-frame consisting of pressed metal plates having reinforcing-flanges and provided with an outer pivoted member adapted to swing upwardly and outwardly, said frame having an integral portion thereof adapted to always bear against a car-axle box when the parts are assembled.

5. A truck-frame having a metal plate with an opening therein, an axle-box in said opening, having a spring between it and the top of the opening, a reinforcing-flange for said plate having a cut-away portion, a pivotal jaw member attached to said cut-away portion, the joint between said member and frame being inclined and an arm attached to the said jaw member and having a bearing within the plate.

579,905. YOKE-COUPLING AND DRAFT-TIMBER PROTECTOR. OSCAR L. STERNER and RICHARD W. O'DONNELL, Philadelphia, Pa. Filed Nov. 18, 1896. Serial No. 612,539. (No model.)



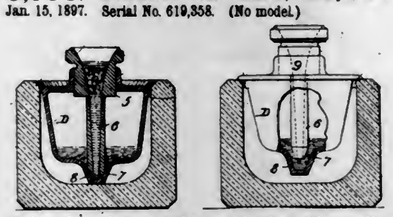
Claim.—1. In a device of the character named, a protector consisting of a plate having a central bulging portion H, with adjacent side shoulders, the laterally-projecting portions J with offsets K, and the free ends L, said portions J and ends L having the openings R and T therein respectively.

2. A pair of sills, a pair of sill-protectors, having central bulging portions, laterally-projecting portions, offsets and lateral free ends, a block with tongues on its opposite sides fitting into said bulging portions, bolts passing through said sills, block and laterally-projecting portions and bolts common to said free sides and to said sills.

3. In a device of the character named, a pair of sills, each having the recesses D therein, the faces J', L' extending therefrom in either direction, thereby forming the shoulders D' and F, and a timber-protector having the bulged portion H therein, the extensions J on either side thereof, the deflected portion K, and the end portions L substantially parallel to said portions J, said protector being interposed between the sides of said block and the adjacent portions of said sills, and means for holding said protectors, blocks, and sills in assembled position.

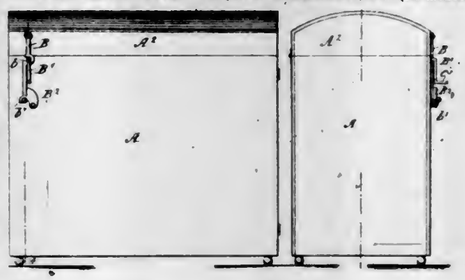
4. In a device of the character named, a protector having a bulging center portion with adjacent shoulders, and laterally-projecting portions with offsets and free ends, said protector having upper and lower horizontally-projecting flanges adapted to embrace the sills to which the protectors are secured.

579,906. INKSTAND. JOHN THOMSON, Brooklyn, N. Y. Filed Jan. 15, 1897. Serial No. 619,358. (No model.)



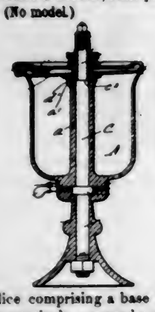
Claim.—In an inkstand, the combination with a well provided with an inclosing head, of a dip-funnel having a closely-fitted, but not air-tight, piston-bearing in the head and a valve-seat for the lower end of the funnel at the bottom of the well, the arrangement and construction being such that when the dip-funnel is depressed the air in the well is compressed causing, first, the ink in the well to flow directly from the well into the fountain and then, second, sealing the bottom of said fountain to retain the ink so elevated.

579,907. SANITARY GARBAGE-RECEIVER. DAVID D. TOAL, New York, N. Y. Filed June 16, 1896. Serial No. 595,727. (No model.)



Claim.—The combination with a garbage-receiver having a hinged-top cover, a sleeve-operating shaft having bearings in the front and rear walls of the receiver, a bar pivoted to the cover and adapted to engage with the shaft, for securing the cover, and a cam-latch on the body of the receiver for locking said bar, substantially as specified.

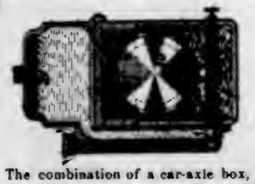
579,908. COMMUNION-CUP. JULIUS WAGNER, Reading, Pa., assignor of one-half to Jacob B. Fricker, same place. Filed Apr. 15, 1896. Serial No. 587,568. (No model.)



Claim.—1. A chalice comprising a base having a central stem rising therefrom, a cup rotatively mounted upon said stem, and having a central apertured boss inclosing said stem within the cup, and a cover-ring mounted upon the top of said boss, substantially as set forth.

2. A chalice comprising a base having a central stem rising therefrom, a cup rotatively mounted upon said stem and having a central apertured boss inclosing said stem within the boss, a collared sleeve on the upper end of said stem, and a cover-ring and cleaning device on said sleeve, substantially as set forth.

579,909. SELF-LUBRICATING CAR-AXLE BOX. CHARLES H. WARTH, Muscogee, Ind. Ter. Filed Sept. 11, 1896. Serial No. 605,534. (No model.)



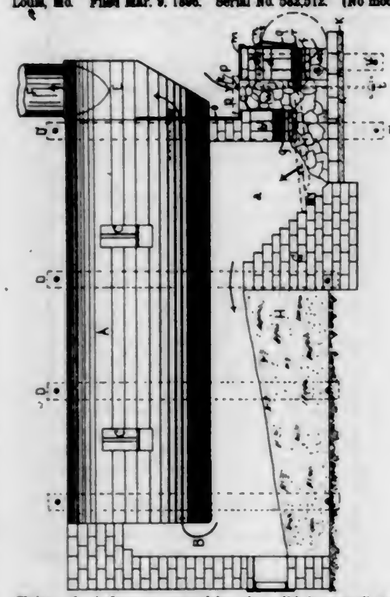
Claim.—1. The combination of a car-axle box, an oil-reservoir for holding a body of oil above the normal level of the oil in said axle-box, said oil-reservoir being connected with said axle-box at a point below said normal level of oil in the axle-box, and a vent-tube open at its upper end to the outer atmosphere and terminating at its lower end in said reservoir in substantially the same horizontal plane as said normal level, and serving to discharge at its lower end the air passed in downward direction therethrough, whereby said air is permitted to rise through the mass of oil in said reservoir and the oil is permitted to flow therefrom and supply the deficiency in the axle-box.

2. The combination of a car-axle box, an oil-reservoir for holding a body of oil above the normal level of the oil in said axle-box, said oil-reservoir being connected with said axle-box at a point below said normal level of oil in the axle-box, and a vent-tube open at its upper end to the atmosphere and terminating at its lower end in said reservoir in substantially the same horizontal plane as said normal level, and serving to discharge at its lower end the air passed in downward direction therethrough, whereby said air is permitted to rise through the mass of oil in said reservoir and the oil is permitted to flow therefrom and supply the deficiency in the axle-box, and a closing device on said tube outside said reservoir.

3. The combination of a car-axle box, an oil-reservoir, a vent-tube having its upper end exposed to the outer air, said tube extending into said reservoir and terminating in a plane substantially on a level with the normal level of the liquid in said box, a valve between said reservoir and axle-box, and means for closing said vent-tube.

4. The combination of an axle-box, an oil-reservoir surmounting the top of said box and provided with a dependent extension along one side thereof, a valve between said axle-box and reservoir extension below the normal level of oil in said axle-box, a vent-tube open at its upper end to the atmosphere and depending into said extension and terminating at its lower end in substantially the same horizontal plane as said normal level, serving to discharge air in downward direction into said reservoir.

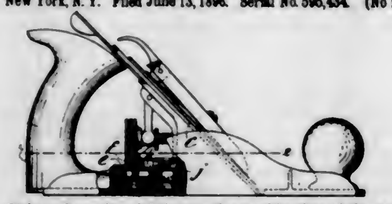
579,910. SMOKELESS FURNACE. HERBERT A. WHEELER, St. Louis, Mo. Filed Mar. 9, 1896. Serial No. 582,512. (No model.)



Claim.—1. A furnace comprising the solid front wall *d*, the ash-pit arch *f* located in the front wall, the solid curtain-wall *b*, the arch *g* located in the curtain-wall, the downdraft firing-hole *c*, and fore chamber *w*, located between the front wall and the curtain-wall, the corbelled walls *A*, the fire-bridge *G*, the combustion-chamber located between the curtain-wall and the fire-bridge, and the fuel-bottom *l* extending beneath the curtain-wall, the firing-hole and the combustion-chamber, substantially as described.

2. A furnace comprising the solid front wall *d*, the ash-pit arch *f*, located in the front wall, the solid curtain-wall *b*, the arch *g* located in the curtain-wall, the downdraft firing-hole *c*, and fore chamber *w* located between the front wall and the curtain-wall, the corbelled walls *A*, the fire-bridge *G*, the combustion-chamber located between the curtain-wall and the fire-bridge, and the fuel-bottom *l* extending beneath the front wall, the curtain-wall, the firing-hole and the combustion-chamber, substantially as described.

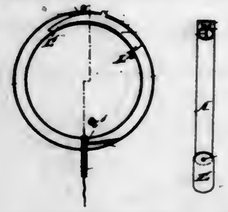
579,911. PLANE-LUBRICATING APPARATUS. JOHAN WITTELL, New York, N. Y. Filed June 13, 1896. Serial No. 595,434. (No model.)



Claim.—In a plane-lubricator, the combination of the reservoir located between the seat of the plane-bit and the rear handle of the stock, and having a passage communicating with the working face of the plane, the valve seated in said passage and having a stem extending upward through the cover of the reservoir, spring arranged between the cover and the head of the valve for closing said valve, the inclined way on the cover of the reservoir, and the arm of the valve-stem ranging over said inclined way in the relation to the handle for opening the valve by a finger of the hand gripping said handle substantially as described.

579,912. RING FOR HOLDING OR CARRYING CURTAINS. WILLIAM WOOLF, London, England. Filed June 15, 1895. Serial No. 552,938. (No model.) Patented in England Jan. 30, 1896, No. 2,147.

Claim.—In a ring for holding or carrying curtains and other objects, made in two parts hinged or otherwise flexibly connected together, the locking device which consists of a curved sliding bolt or keeper L adapted to be passed in substantially the arc of curvature of the ring across the said hinge or flexible connection of the two parts when they are to be held in the closed position, and to be withdrawn into one of the parts when it is desired to open the ring, substantially as described.



579,913. MATCH-STRIKING COMPOSITION. HARRY ALLDAY, Birmingham, England. Filed Aug. 8, 1896. Serial No. 602,179. (No specimens.) Patented in England May 12, 1896, No. 10,041.

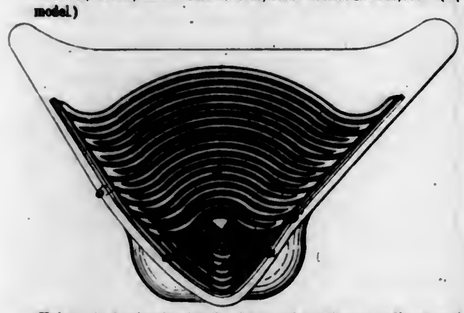
Claim.—A match-striking composition consisting of phosphorus and gritty matter bound together by gum-thus, substantially as described and for the purpose specified.

579,914. FENCE. CHARLES J. ASHUR, Adrian, Mich. Filed Nov. 5, 1896. Serial No. 611,133. (No model.)



Claim.—A fence comprising line-wires and stay-wires, in combination with a locking-wire secured to the upper line-wire, thence passed downward and around the next lower line-wire close up against the stay-wire, thence around the stay-wire to its rear and then over the junctures of the locking-wire with relation to the line and stay wires, whereby two loops are formed inclosing both the line and the stay wires, substantially as described.

579,915. CRIMPING LEATHER FOR BOOTS OR SHOES. JAMES D. BACON, Boston, Mass. Filed Oct. 30, 1896. Serial No. 610,600. (No model.)



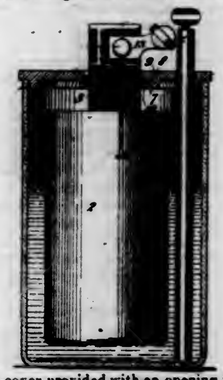
Claim.—1. A crimping-jaw having a series of downwardly-curved approximately V-shaped corrugations or ridges extending part way up the face of the jaw from the point thereof, and a series of upwardly-curved corrugations or ridges extending across the face of the jaw above said downwardly-curved corrugations, substantially as described.

2. A crimping-jaw having a series of corrugations extending across the face thereof, said corrugations being curved upwardly in the middle and downwardly and again upwardly at their ends along the edges of the jaw, substantially as described.

3. A crimping-jaw having a series of downwardly-curved approximately V-shaped corrugations extending part way up the face of the jaw from the point thereof, and a second series of corrugations or ridges extending across the face of the jaw above the first series, the corrugations or ridges of said second series being bent upwardly at the middle and downwardly and again upwardly at their ends along the edges of the jaw, substantially as described.

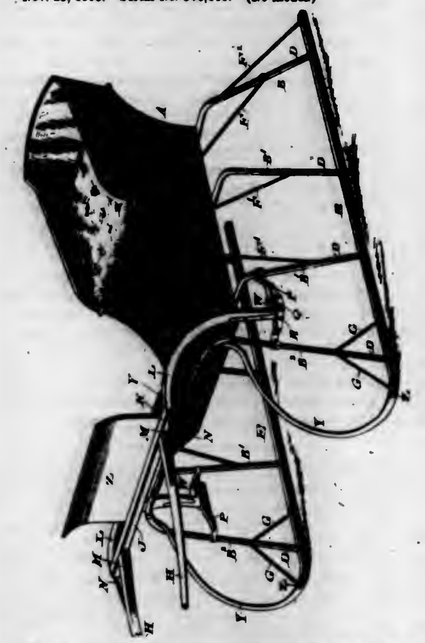
579,916. BATTERY-COVER. HORATIO J. BREWER, New York, N. Y. Filed Oct. 2, 1896. Serial No. 607,718. (No model.)

Claim.—1. A battery-cover provided with an opening through which the upper portion of one element of the battery is adapted to pass, and a discontinuous closure fitting the said opening and the portion of the battery element passed through, the said closure being so constructed that it may be placed in position to close the opening around the battery element and support the same without passing the battery element through said closure, substantially as specified.



2. A battery-cover provided with an opening through which the upper portion of one element of the battery is adapted to pass, and a piece adapted to fit said opening in the cover and provided with a slot at one end adapted to fit a battery element, whereby the battery-jar is closed and the element supported in position, substantially as specified.

579,917. SLEIGH. JAMES H. CAFFREY, Philadelphia, Pa. Filed Nov. 25, 1895. Serial No. 570,009. (No model.)



Claim.—1. A sleigh having arch-shaped benches which are connected with the body of the sleigh, diverging branches which are attached to said benches, and a step connecting adjacent benches and provided with a seat for coupling the shaft or tongue of the sleigh to said benches.

2. In a sleigh, a step connected with the benches thereof and a rocking seat mounted on said step and provided with means for coupling a shaft thereto, substantially as described.

3. A sleigh provided with a step which is connected with the benches thereof and forms bearings for the shaft of the sleigh, substantially as described.

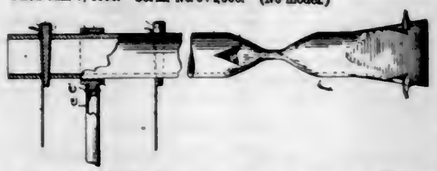
4. A sleigh having a step, a rocking seat mounted on said step and having openings therein, and the shaft provided with studs, which enter said openings and are secured thereto, substantially as described.

5. A sleigh having an arch-like bench connected with the front of the body thereof, runners having their front ends of wood and secured to the crown of said bench, diverging braces connected with the legs of said bench and said runner, and an adjacent bench having its legs connected with said first bench by a step, one of said diverging braces having its lower end adjacent to the connection of the front end and the shoe of the runner.

6. In a sleigh, the shafts having their rear cross-bars extending laterally beyond the forward portion of said shafts and outside of the runners as at K, and continued rearwardly and curving downwardly as at L with the coupling devices on the latter, in combination with braces which are connected with the front end of said portions L and the sides of the portions H of said shafts and extending obliquely, the front part of the runners being within the space between said portions H and L and guarded by said braces N.

7. A sleigh provided with a plurality of separate screens, one rising from the front of the body of the sleigh, and the other rising from the cross-bar at the rear of the shafts, and forming a closed angle one with the other, the screen on the body being stationary and the screen on the shafts oscillating with the same in front of said stationary screen.

579,918. WIRE FENCE. SIMEON C. DAVIS, Cleveland, Ohio. Filed Jan. 9, 1896. Serial No. 574,866. (No model.)



Claim.—1. In a wire fence, a tubular post provided, at its lower portion, with spread chisel-shaped end having at the sides thereof outwardly-extending wings formed integral with the post, substantially as shown and described.

2. In a wire fence, a tubular post provided, at and near its lower end, with flattened portions, both of which are provided, at their sides, with outwardly-extending wings formed integral with said post.

3. In a wire fence, the combination with the end panel composed of two posts, a cross-brace extending between the said posts, a diagonal guy-wire extending from the upper part of one post to the lower portion of the opposite post, and engaging both posts, of an anchor formed of tubing, which has its lower end spread or flattened into chisel shape, and provided with outwardly-extending wings, said guy-wire being directly secured around the anchor, substantially as and for the purpose shown and described.

4. In a wire fence, the combination with the main posts, of stay-posts located between the main posts, said stay-posts being formed of tubing having compressed portions and holes at the parts where the line-wires pass through, substantially as shown and described.

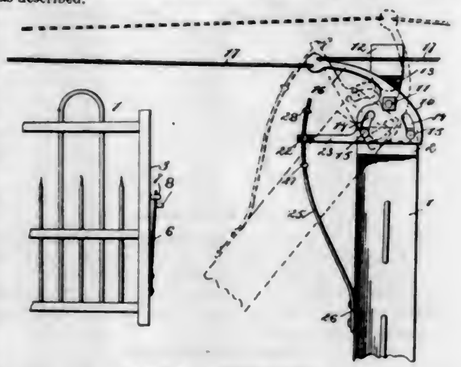
5. In a wire fence, the combination with the line-wires, of a locking-plug having grooves therein of different sizes, and a bushing or segment, said bushing or segment provided with a groove coöperating with either groove of the plug to hold or lock the line-wire, substantially as shown and described.

579,919. SWINGING GATE. WILLIAM H. JONES, JOHN L. RITER, and JOHN T. CHENOWETH, Brownsville, Ind. Filed Dec. 15, 1896. Serial No. 615,787. (No model.)

Claim.—1. The combination of the gate hinged at its lower end and provided with pins at its upper end situated at opposite sides thereof, a lever pivoted between its ends and supported independently of the gate and provided with slots receiving said pins, the inner end of the lever having the laterally-extending arm, and a connection from the gate adapted to be engaged by the laterally-extending arm, for the purpose described.

2. The combination of a gate hinged at its lower end and provided with pins at its upper end situated at opposite sides thereof, a lever pivoted between its ends and supported independently of the gate and having slots receiving the pins, and a rod 25 extending from the gate, the inner end of the lever having a laterally-extending arm through which the rod freely passes, said rod having stops situated a distance from said lever and at opposite sides thereof when the gate is closed, substantially as described.

3. The combination of the gate hinged at its lower end and provided with pins at opposite sides of its upper end, a plate pivoted between its ends upon a post and provided with slots at its inner end to receive the pins, the plate having a laterally-projecting arm at its inner end, a rod 25 extending from the gate and passing freely through the laterally-extending arm, and adjustable stops upon the rod at opposite sides of the said laterally-extending arm, substantially as described.

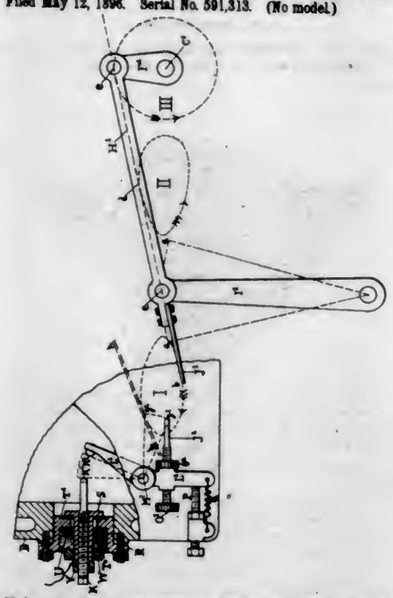


579,920. DEVICE FOR CUTTING THREAD. FRANCIS N. LAWTON, Summit, N. J. Filed Nov. 16, 1896. Serial No. 612,391. (No model.)



Claim.—A thread-cutting device for spools consisting of a hollow conical shank tapering throughout its entire length and having its large end curled sharply over and downward at an acute angle with its shank and terminating in a continuous cutting edge, substantially as specified.

579,921. IGNITING APPARATUS FOR INTERNAL-COMBUSTION ENGINES. GEORGE L. WOODWORTH, Stanford University, Cal. Filed May 12, 1896. Serial No. 591,313. (No model.)



Claim.—1. In igniting apparatus for internal-combustion engines, a motion-rod driven by the engine from a crank or eccentric and connected at a second point to a vibrating support, and in combination therewith a flexible tripping or engaging bar which engages, actuates a second trip-bar, and disengages suddenly by reason of its flexure, in the manner substantially and for the purposes as hereinbefore set forth.

2. In igniting apparatus for internal-combustion engines, an engaging part driven by the engine in a curved path, and in combination therewith an adjustable engaging part operating the sparking electrodes, and so placed in relation to said part moving in a curved path, that its line of adjustment lies along or parallel to the tangent to said path at or near the point of release, substantially as set forth.

3. In igniting apparatus for internal-combustion engines, an actuating part driven by the engine, the engaging portion of which has a periodic motion of oscillation with respect to any line lying in the plane of motion, said actuating part during a certain portion of its travel engages, gives motion to, and disengages with an external adjustable electrode lever or stem, which is so placed relatively to the path or locus of the actuating part, that the line of adjustment lies along or parallel to the tangent to said path or locus, at or near the point of release or disengagement.

4. In igniting apparatus for internal-combustion engines, a flexible engaging part driven by the engine in a curved path, and in combination therewith an adjustable engaging part operating the sparking electrodes, and so placed in relation to said part moving in a curved path, that its line of adjustment lies along or parallel to the tangent to said path at or near the point of release, substantially as set forth.

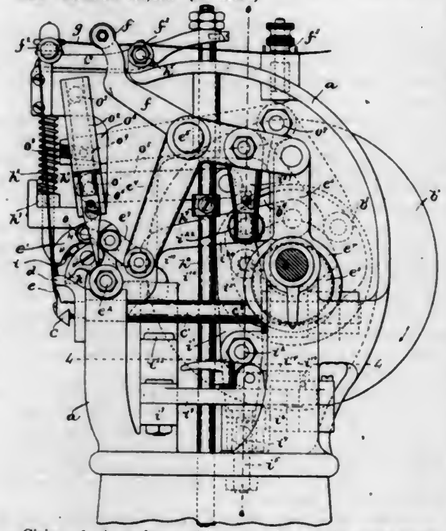
5. In igniting apparatus for internal-combustion engines, an engaging part driven by the engine in a curved path, and in combination therewith an adjustable flexible engaging part operating the sparking electrodes, and so placed in relation to said part moving in a curved path, that its line of adjustment lies along or parallel to the tangent to said path at or near the point of release, substantially as set forth.

6. In igniting apparatus for internal-combustion engines, the stationary electrode K′ insulated electrically by the inner ring T′ and the outer ring T², secured by the nut W or its equivalent, and in combination therewith the asbestos-packing cushion U, interposed in the manner substantially as described.

7. In igniting apparatus for internal-combustion engines, the fulcrum-stem of the movable electrode made with an external adjustable trip-lever J³ which engages periodically with a part driven by the engine in a curved path, said adjustable trip-lever J³ when varied in length changes the point of disengagement, in the manner and for the purposes as hereinbefore described.

8. In igniting apparatus for internal-combustion engines, an engaging part driven by the engine in a curved path, an external adjustable engaging part mounted on an oscillating fulcrum-shaft with an internal sparking electrode thereon, a stationary insulated sparking electrode, means for separating the electrodes, and a suitable source of electrical energy connected to the electrodes, combined in the manner substantially as described.

579,922. SEWING-MACHINE. PETER A. COUPAL, Boston, Mass., assignor of one-half to William Gordon, same place. Filed May 21, 1896. Serial No. 592,432. (No model.)



Claim.—1. A sewing-machine comprising in its construction a curved needle and an oscillating arm therefor, a rotary hook or looper, a work-support, and a cutter carried by the oscillating needle-arm.

2. A sewing-machine comprising in its construction a curved needle and an oscillating arm therefor, a rotary hook or looper, a work-support, a cutter carried by the oscillating needle-arm, and a tack-puller arranged to draw tacks from the work at a point beside the work-rest.

3. In a sewing-machine, the combination with the curved needle and the oscillating arm therefor, of the lever c^4 and link c^5 and means for oscillating the lever, a feed-dog, an arm for raising the latter, and connections between the said lever and arm for operating the latter by the former.

4. In a sewing-machine, the combination with the curved needle and the oscillating arm therefor, of the lever c^4 and link c^5 and means for oscillating the lever, a feed-dog, the arm i^{20} for raising the latter and provided with a lug i^{23}, and the plunger i^{30} carried by the lever and adapted to act on the lug i^{23} to raise the feed-dog.

5. In a sewing-machine, the combination with stitch-forming mechanism, of a presser-foot and a lever for raising the latter, a rod provided with the block k^7 and adapted to operate the lever, a feed-dog, and connections adapted to be operated by the movement of the rod and its block in one direction to raise the feed-dog simultaneously with the presser-foot.

6. In a sewing-machine, the combination with stitch-forming mechanism, of a presser-foot and a lever for raising the latter, a rod adapted to operate the lever and provided with a block k^7, the feed-dog and mechanism including the arm i^{20} for raising the latter, and springs adapted to depress the presser-foot and raise the arm i^{20}, the said block k^7 being arranged to engage the arm i^{20} to depress it.

7. In a sewing-machine, the combination with stitch-forming mechanism, of the lever i^7 having the pin i^8, the lever i^6 carrying the plug i^7 which receives the pin i^8, and a feed-dog connected with the said lever i^6.

8. In a sewing-machine, the combination with stitch-forming mechanism, of the lever i^7 having the pin i^8, the lever i^6 carrying the plug i^7 which receives the pin i^8, and the oscillating standard i^{16} carrying the feed-dog and having an arm i^9 adjustably connected with the lever i^6 by means of the link i^9.

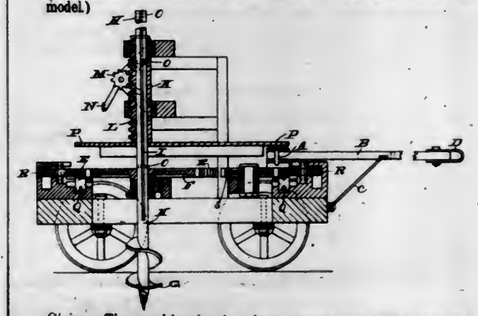
9. In a sewing-machine, the combination with stitch-forming mechanism, of the lever i^7 having the pin i^8, the lever i^6 carrying the plug i^7 which receives the pin i^8, and the oscillating standard i^{16} carrying the feed-dog and having an arm i^9 adjustably connected with the lever i^6 by means of the link i^9, one end of the lever i^6 having the plate i^{16} provided with a series of holes and the link i^9 having a movable pin adapted to engage either of said holes.

10. In a sewing-machine, the combination with stitch-forming mechanism, of the oscillating standard i^{16} having the spring-supported plunger i^{17} and means for oscillating the standard, the lever i^{15} carrying the feed-dog and pivoted to an arm of the standard and having its rear end acted upon by the said plunger, and the arm i^{20} adapted to move the lever i^{15} in opposition to the pressure of the plunger-spring.

11. In a sewing-machine, the combination with the work-support d having a shoulder, of the oscillating needle-arm or lever c' having the cutter k rigidly secured thereto and adapted to coöperate with the work-support shoulder in trimming the work.

12. In a sewing-machine, the combination with stitch-forming mechanism, of the guide o^3 having ways and means for oscillating it, the plunger o' carrying the tack-puller o and adapted to slide in said ways, and the lever o^4 adapted to reciprocate said plunger.

579,923. HORSE-POWER POST-HOLE BORER. CHARLES DOUGHMAN, Pleasant Plain, Ohio. Filed Dec. 7, 1896. Serial No. 614,842. (No model.)



Claim.—The combination in a horse-power post-hole borer, of a tongue, B, attached to the frame of the machine by the stay-rods, C, the tongue, B, also attached to the gear, E, by means of the pin, A, for revolving the same, the gear, E, revolving on cone-shaped wheels, Q, and held in position by straight-faced wheels, R, the gear, E, also meshing with gears F and S, the gear F, having shank, H, passing up and down through gear, F, and compelled to revolve with

the gear, F, through the agency of the key, J, the shank, H, imparting a rotary motion to the auger, G, the sleeve, K, around the shank, H, the rack, L, on the outer surface of the sleeve, K, the gear, M, meshing with the rack, L, for the purpose of raising and lowering the sleeve, K, the gear, M, being turned by the crank, N, the shank, H, having holes, O, at regular intervals for receiving a pin to support the shank in any desired position, all substantially as set forth.

579,924. PANTS-LEG GUARD. HENRY J. GLASER, Minneapolis, Minn. Filed May 4, 1896. Serial No. 590,211. (No model.)



Claim.—1. In a pants-leg guard made from sheet metal a band in the form of an open ring having a tongue struck out of the body of the band, said tongue attached at one end to said body and said parts being adapted to receive and hold the fold of the pants between said body and tongue, substantially as shown and described.

2. In a pants-leg guard a spring-band in the form of an open ring, a tongue on the outer circumference of the band and attached at one end to the body of said band, the free end of said tongue projecting toward one end of the band and adapted to receive and hold the fold of the pants between said body and tongue, substantially as specified.

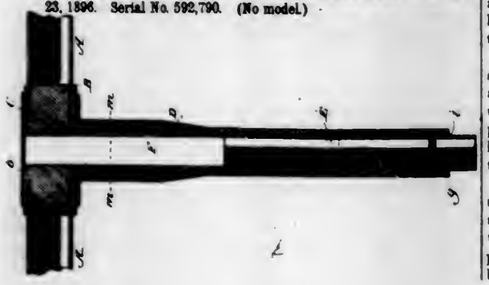
3. In a pants-leg guard a band in the form of an open ring, a tongue struck out of the body of the guard leaving a longitudinal slot in said body beneath said tongue, said parts being adapted to receive and hold the fold of the pants between said body and said tongue, substantially as herein shown and described.

4. In a pants-leg guard a spring-band in the form of an open ring, adapted to encircle the ankle, a spring-tongue attached at one end to the body of the guard with its other end projecting toward one end of the guard, a longitudinal slot in the body of the guard beneath the tongue, said tongue normally projecting slightly outward from said body near its said attached end, projecting through said slot slightly inward from the body near its free end when not in use, and again projecting slightly outward from the body at the free end, substantially as shown and described.

5. In a pants-leg guard a band in the form of an open ring adapted to encircle the leg, a tongue attached at one end to the body of the guard while its free end projects toward one end of said body, said tongue having a projection or knob near its free end, and said parts being so adapted that when the fold of the pants is received between said tongue and body the said knob and tongue are held by spring action against said fold, substantially as herein shown and described.

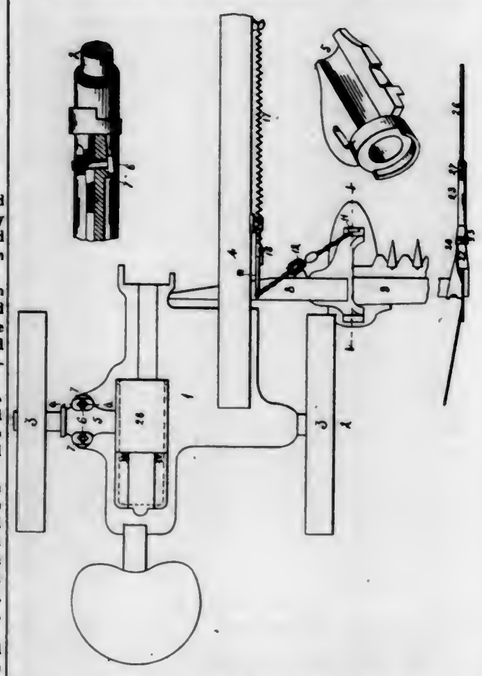
6. In a pants-leg guard a spring-band in the form of an open ring adapted to encircle the ankle, a spring-tongue attached at one end to the body of the guard, a longitudinal slot in the body of the guard beneath the tongue, said tongue normally projecting slightly outward from said body near its said attached end, projecting slightly inward from the body near its free end when not in use and provided with an inward-projecting knob at said inward projection, and said tongue again projecting slightly outward from the body at said free end, substantially as specified.

579,925. BICYCLE-HANDLE. HERMAN W. HOEFT, La Crosse, Wis., assignor of one-half to Walter J. Boycott, same place. Filed May 23, 1896. Serial No. 592,790. (No model.)



Claim.—In a bicycle the combination of the handle-bars joined together by a center piece, said center piece having a square hole situated therein, a sleeve C surrounding said center piece, a handle-bar stem formed integral with said sleeve C, a socket-piece secured to the handle-bar stem, a leaf-spring F situated at the upper end of the said handle-bar stem, and fitting into the said square hole *b*, substantially as set forth and described.

579,926. MOWING-MACHINE. JAMES H. JOSEH, Rockford, Ill., assignor to The Emerson, Talcott & Company, same place. Filed Oct. 30, 1891. Serial No. 410,369. (No model.)



Claim.—1. In a harvesting-machine, a gear-casing composed of a lower section and a cover, the cover provided on its under face with bevel-faced lugs which enter the upper face of the lower section, thereby forming a frictional connection between the cover and the section.

2. In a harvesting-machine a journal-cap secured to the main frame by bolts passing through the cap and the frame, said cap having its end of circular form, through which end the drive-shaft passes the upper face of the cap and the lower face of the bed being provided with incline surfaces, for the purpose of holding the cap in its outward position.

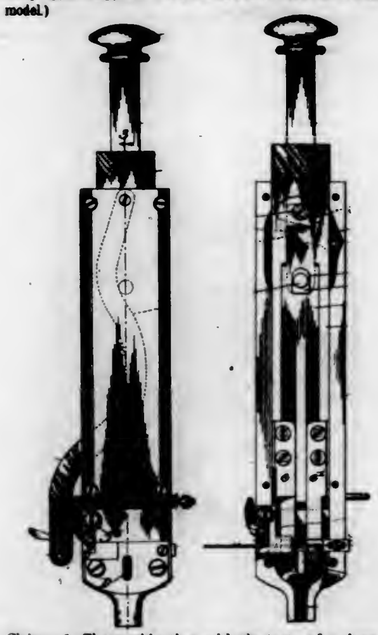
3. In a harvesting-machine, a compensating lever having a pivotal connection with the main frame at one end, its other end having a connection with the cutting apparatus, a spring having a connection with the lever made adjustable in the lengthwise direction of the lever.

4. In a harvesting-machine a compensating lever provided with an elongated opening, a hook engaging one face of the lever and held in position by a bolt passing through the opening and the hook, the free end of the hook provided with an eye.

5. In a harvesting-machine, a supplemental shoe for the under side of the inner shoe, having a projection at its rear end fitting within a recess in the inner shoe, a central projection lying against the under face of the shoe, and a hole in the last-named projection, a bolt passing through the hole and inner shoe the supplemental shoe having vertical sides, and a portion of their length lying in contact with the under face of the inner shoe.

6. In a harvesting-machine the outer divider provided with a supplemental divider, said supplemental divider having its ends in socket form, one socket to fit the outer divider and the outer socket to receive a wire or rod for separating the grain, the latter socket provided with an opening which permits the rod to be held in place by compressing the sides of the opening.

579,927. MACHINE FOR MAKING AND DRIVING STAPLES. THOMAS K. KEITH, Boston, Mass., assignor to the Keith Lasting Machine Company, Kittery, Me. Filed Mar. 20, 1896. Serial No. 584,100. (No model.)



Claim.—1. The combination, with the body, of a plunger reciprocable therein, a staple-former, a cam-plate pivoted to said body and having two camways, a pin projecting from the plunger and a stud from the former, and occupying respectively the said camways, whereby the former is directly actuated by the plunger, and a staple-driver, also directly operated by the plunger to drive the staple; substantially as described.

2. A body, having a plunger reciprocable therein, said plunger having an outturned portion, combined with a staple-former, means for intermittingly engaging said former by said plunger for moving the same through a part of the stroke of the latter, and a driver mounted on said outturned portion and to move with said plunger for driving the staples, substantially as described.

3. A body, having a plunger reciprocable therein, said plunger having an outturned portion, combined with a staple-former, means for intermittingly engaging said former by said plunger for moving the same through a part of the stroke of the latter, and a driver mounted on said outturned portion and to move with said plunger for driving the staples, feeding mechanism, and a cam-lever pivoted to said body and engaged by said outturned portion for operating the feeding mechanism, substantially as described.

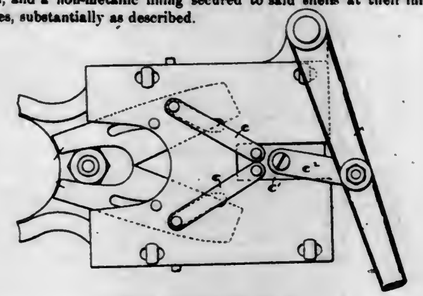
4. In a machine of the class described, a body, a tongue, a staple-former having two arms, said arms being separable for forming different widths of staples, and means for feeding wire over said tongue, substantially as described.

5. In a machine of the class described, a body, a tongue, a staple-former, means for feeding wire over said tongue, an adjustable stop secured on the body at one side of the tongue for limiting the forward movement of the free end of the wire, and an adjustable block at the opposite side of the tongue, said staple-former being arranged to coact with the adjustable block, substantially as described.

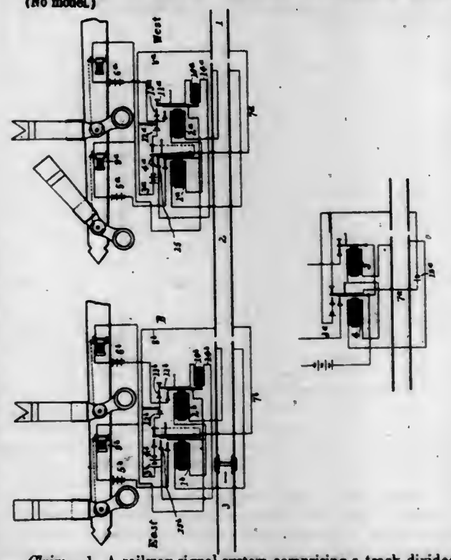
579,928. LASTING-MACHINE. THOMAS K. KEITH, Boston, and HIRAM G. FARR, Winchester, Mass., assignors to the Keith Lasting Machine Company, Kittery, Me. Filed July 27, 1896. Serial No. 600,632. (No model.)

Claim.—1. In a lasting-machine, a clamp to embrace the heel end of the shoe and its contained counter, said clamp being composed of two rigid metallic shells pivoted together at their inner ends and having concaved inner sides, combined with pivoted links to support the outer ends of said rigid shells, a guide-rod to which the inner ends of the said shells are pivoted, and means to guide the said guide-rod, to operate substantially as described.

2. In a lasting-machine, a clamp to embrace the heel end of the shoe and its contained counter, said clamp being composed of two rigid metallic shells pivoted together at their inner ends and having concaved inner sides, combined with pivoted links to support the outer ends of said rigid shells, a guide-rod to which the inner ends of the said shells are pivoted, means to guide the said guide-rod, and a non-metallic lining secured to said shells at their inner sides, substantially as described.



579,929. ELECTRICALLY-CONTROLLED RAILWAY-SIGNAL. FRANK MCBRIEN, Newark, N. J. Filed Sept. 3, 1896. Serial No. 604,691. (No model.)



Claim.—1. A railway signal system comprising a track divided into a plurality of insulated sections, independent magnetically-controlled signals at the same station operated by currents of different strengths in a controlling track-circuit common to both signals, circuit-controlling devices adapted to be actuated by a train for simultaneously actuating both signals when a train reaches the station if the track ahead be clear, and means for restoring them one at a time when the train reaches different determinate positions beyond the station by varying the current strength in the track-circuit.

2. A railway signal system comprising a plurality of insulated track-sections, signal-stations corresponding thereto, each provided with two independently-operated signal devices, controlling-relays for said devices responsive to currents of different strength, a track-circuit common to both relays, and means for varying current strength to actuate one relay when the train leaves the section, and to further change the circuit to actuate the other relay when the train reaches a determinate distance beyond the section.

3. A railway signal system comprising a plurality of insulated track-sections, signal-stations corresponding thereto each provided with two independently-operated signal devices, controlling-relays for said devices responsive to currents of different strength, a normally-charged track-circuit controlling the relays, and a generator of current located at the advance station and controlled by a relay in the track-circuit of the advance section for altering the current strength in the rear section.

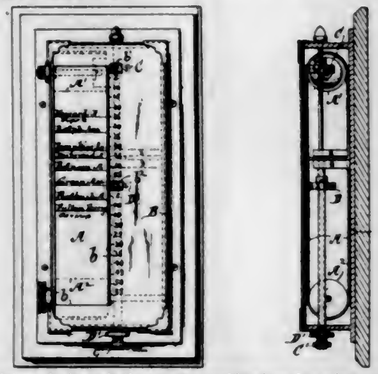
4. A railway signal system comprising a plurality of insulated track-sections, signal-stations corresponding thereto each provided with two independently-operated signal devices responsive to currents

of different strength, a normally-charged track-circuit controlling the relays, a generator of current located at the advance station, and means for reducing current strength in the track-circuit to permit a weaker than normal current to flow in the track-circuit when a train reaches a determinate position.

5. A railway signal system comprising, a plurality of insulated track-sections each normally charged with current, a plurality of signal-stations each containing two independently-operated signal devices controlled respectively by two relays in series relation to one another and charged by the track-circuit, one relay having a greater number of ampere-turns than the other, and means for varying the strength of current in the track-circuit when a train passes determinate points of the track.

6. A railway signal system comprising a plurality of insulated track-sections each normally charged with current, a plurality of signal-stations each containing two independently-operated signal devices controlled respectively by two relays in series relation to one another and charged by the track-circuit, one relay having a greater number of ampere-turns than the other, means for changing current strength when a train reaches a determinate position, an auxiliary coil for increasing the pull of the low-resistance relay, the circuit of said coil being controlled by the initial movement of the armature of the low-resistance relay.

579,930. SCHEDULE-INDICATOR. IRA A. MCCORMACK and ALBERT H. WALKER, Brooklyn, N. Y. Filed May 27, 1896. Serial No. 593,236. (No model.)



Claim.—1. In an indicator, the combination of a casing provided with an opening having at its edge marked graduations indicative of minutes, a movable indicator-surface adjacent the end of the minute-graduations and bearing marks indicative of hours and a surface movable in the opening of the casing and having the names of stations marked thereon, substantially as described.

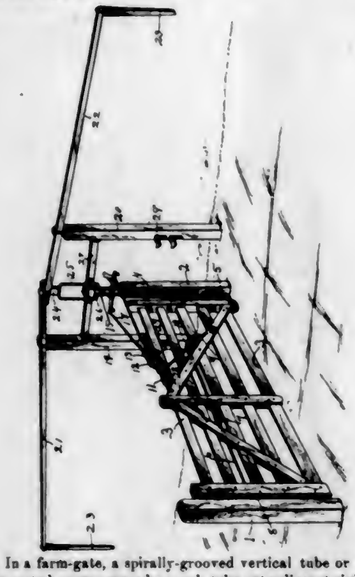
2. In an indicator, the combination of a casing provided with an opening having at its edge marked graduations indicative of time, an endless belt adapted to move longitudinally in the opening of the casing having the names of stations marked thereon, and means for moving the belt longitudinally within the opening to bring the names of the stations to register with the graduations at the edge of the opening, substantially as described.

3. In an indicator, the combination of a casing provided with an opening having at its edge marked graduations indicative of time, an endless belt movable longitudinally within the opening, and having two series of names thereon representing stations, the names of one series being duplicates of those of the other but being arranged in reverse relation, and means for moving the belt to bring one or the other of the series of names to register with the graduations at the edge of the opening, substantially as described.

4. In an indicator, the combination of a casing provided with an opening having marked graduations at its edge indicative of minutes, and with a slot adjacent the initial graduation, an indicator-wheel registering with the slot having marks thereon indicative of hours, means for rotating the wheel, and a surface movable within the opening of the casing containing the names of stations which register with the graduations of the casing, substantially as described.

579,931. FARM-GATE. CHARLES E. MCDANIEL, Frankfort, Ind., assignor of one-half to Nathan Fletcher, same place. Filed Nov. 23, 1896. Serial No. 613,061. (No model.)

Claim.—1. In a farm-gate a spirally-grooved vertical tube or rod rotatably mounted, arms secured to such tube extending at right angles to the gate, links extending from the ends of the arms diagonally to the gate, a vertically-movable piece with a finger extending into the spiral groove, and levers extending out from the gate to operate the fingered piece.



2. In a farm-gate, a spirally-grooved vertical tube or rod rotatably mounted, arms secured to such tube extending at right angles to the gate in opposite directions, links extending from the ends of the arms diagonally to the gate, a post placed on each side of the rear gate-post, levers pivoted thereon and extending away from the gate, and a vertically-movable piece connected with the levers and provided with fingers extending into the spiral grooves.

3. In a farm-gate, a rod extending vertically from the top of the rear gate-post, a spirally-grooved tube rotatably mounted on such rod, a pair of arms secured to such tube, links extending diagonally from the ends of such arms to the gate, a post on each side of the rear gate-post, levers pivotally mounted thereon extending away from the gate, a brace-bar between such posts that braces the upper end of the slotted tube and has in it a pair of guide-holes, and two arms that vertically reciprocate in the guide-holes of the brace-bar having at their lower ends fingers extending into the spiral grooves and at their upper end connected with such levers, substantially as set forth.

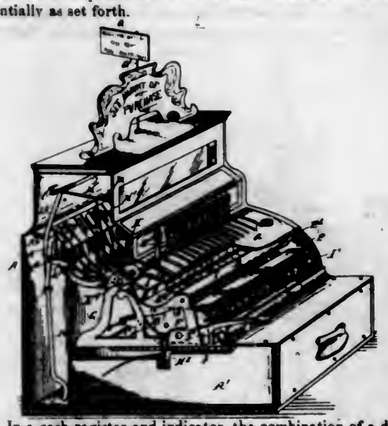
4. In a farm-gate, a spring-actuated latching device, a plate connected therewith provided with a pair of slots substantially parallel with the gate, a pair of oppositely-extended arms mounted in the rear of the gate at right angles thereto, means for rotating such arms, and links connected to the outer ends of such arms and having at their inner ends hooks that work loosely in said slots to withdraw said plate.

5. In a farm-gate, a horizontal latch-rod having a slot in its rear end, a spring to push the same forward, a rod pivoted at its lower end and extending upward through the slot in the latch-rod, a plate connected to the upper end of such rod provided with a pair of slots substantially parallel with the gate, a pair of arms oppositely extended mounted behind the gate at right angles thereto, means for rotating such arms, and links connected to the outer ends of such arms and having at their inner ends hooks that work loosely in the slots in said plate.

6. In a farm-gate, a horizontal latch-rod having a slot in its rear end, a spring to push the same forward, a rod pivoted at its lower end and extending upward through the slot in the latch-rod, a plate connected to the upper end of such rod provided with a pair of slots substantially parallel with the gate, a pair of oppositely-extending arms mounted in the rear of the gate at right angles thereto, means for rotating such arms, links connected to the outer ends of such arms and having at their inner ends hooks that work loosely in the slot in the said plate, a post beside the rear gate-post, and suitable catches on the front gate-post and side post to be engaged by the latch-rod, substantially as set forth.

579,932. CASH REGISTER AND INDICATOR. WILLIAM T. MCGRAW, Detroit, Mich. Filed Dec. 21, 1895. Serial No. 572,854. (No model.)

Claim.—1. In a cash register and indicator, the combination of a detective device, a series of register-actuating keys, a drawer, and means actuated by the drawer and by the register-actuating keys to throw the detective device into and out of action, so combined and actuated that either a given register-actuating key may be manipulated or the drawer may be closed, the one independently of the other without throwing the detective device out of action, so that the combined operation of a registering actuating-key and the closing of the drawer is required to throw the detective device out of action, substantially as set forth.



2. In a cash register and indicator, the combination of a detective device, a series of register-actuating keys provided with tablets to be displayed when the corresponding key is actuated and to be thrown out of displayed position when the key is unactuated, a drawer, and means to throw the detective device into action when the drawer is open or a tablet is not displayed, and to throw said detective device out of action when both the drawer is closed and a tablet is displayed, and so combined and actuated that either a given register-actuating key may be manipulated or the drawer may be closed, the one independently of the other and still leave the detective device in action, substantially as set forth.

3. In a cash register and indicator, the combination of a detective device, a series of register-actuating keys, a drawer, a device to control the opening of the drawer, and means to throw said detective device into displayed position when either the drawer is open or all said keys are in normal position, and to remove the detective device from displayed position when both the drawer is closed and any one of said series of register-actuating keys is manipulated, so combined and actuated that either a given register-actuating key may be manipulated or the drawer may be closed, the one independently of the other and still leave the detective device in action, substantially as set forth.

4. In a cash register and indicator, the combination of a detective device, a series of register-actuating keys, a drawer, means to actuate the detective device, an obstacle to prevent the actuation of said detective device, and means to remove said obstacle when both the drawer is closed and any one of said keys is in operated position, and so combined and actuated that either a given register-actuating key may be manipulated or the drawer may be closed, the one independently of the other and still leave the detective device in action, so that the combined operation of a register-actuating key and the closing of the drawer is required to throw the detective device out of action, substantially as described.

5. In a cash register and indicator the combination of a detective device, a series of register-actuating keys, a drawer, a spring-actuated bail K contacting with the drawer when in closed position, a spring-actuated bail L to operate the detective device, an obstruction in the path of the bail L, and a bail J actuated by any one of said keys to remove said obstruction, substantially as set forth.

6. In a cash-register the combination of a drawer, a series of register-actuating keys, a spring-actuated bail K to lock all the unoperated register-actuating keys when the drawer is closed, means to lock and to release the drawer, said drawer forced open by said bail when free to move, substantially as set forth.

7. In a cash register and indicator the combination of a detective device, a series of register-actuating keys, a drawer, a swinging bail K, a swinging bail L to actuate the detective device, a bar M in the path of the bail L, a swinging bail J to remove the bar M from the path of the bail L, and a spring connecting the bails K and L, all arranged substantially as and for the purpose described.

8. In a cash register and indicator, the combination of a series of rotatable registering-wheels B, a series of registering-wheels C, and transverse bars I and I′ in normal contact with all the said series of wheels respectively, and simultaneously disengageable therefrom, substantially as and for the purposes described.

9. In a cash register and indicator the combination of a series of toothed registering-wheels arranged to have an oscillatory movement, a series of register-actuating keys provided with arms engageable with a given tooth of a corresponding registering-wheel to move said wheel one step upon the depression of the key and a swinging bail J beneath said arms, the tooth of the wheel following said arm preventing the inadvertent release of the arm from the registering-wheel, said wheel releasable from said arm upon the oscillation thereof, the movement of said bail insuring the return of said keys to normal position when released from the wheel, substantially as set forth.

10. In a cash register and indicator the combination of a series of toothed registering-wheels arranged to have an oscillatory movement, a series of register-actuating keys provided with arms to engage the teeth of the corresponding registering-wheels, a swinging bail underneath said arms, a drawer, and a lever to lock and to release said drawer, said lever also arranged to oscillate said wheels, and to actuate said bail, substantially as set forth.

11. In a cash register and indicator, the combination of the shafts B′ and C′, a series of toothed registering-wheels loosely mounted thereupon, a series of register-actuating keys provided with radial projecting arms engageable with a given tooth of the corresponding registering-wheel upon the operation of the key to turn said registering-key one step, rocking supports for said shafts, locking-bars I and I′ carried by said supports and arranged to simultaneously lock all the said registering-keys from a backward movement, and means to release said locking-bars from said registering-wheels, substantially as set forth.

12. In a cash register and indicator, the combination of a drawer, means to lock and release the drawer, a series of register-actuating keys, a detective device, a spring-actuated bail K to actuate said detective device and bearing against the drawer when in closed position, said drawer forced open by said spring-actuated bail when the drawer is unlocked, the combined action of a register-actuating key and the closing of the drawer being required to throw the detective device out of action, substantially as set forth.

13. In a cash register and indicator, the combination of a drawer, means to lock and to release the drawer, a detective device, spring-actuated bails K′ and L′, to actuate the detective device, one of said bails provided with an arm bearing against the drawer when in a closed position, said drawer forced open by said arm when unlocked, substantially as set forth.

14. In a cash register and indicator, the combination of a shaft B′, rotatable registering-wheels B mounted upon said shaft, keys to actuate said wheels, rotatable registering-wheels C actuated by the corresponding wheels B, locking-devices to lock said registering-wheels, and means to rotate the shaft B′ when the locking devices are released and thereby set all of said registering-wheels in primary position, substantially as set forth.

15. In a cash register and indicator, the combination of a series of rotatable registering-wheels B, a series of registering-wheels C, end plates F and transverse bars I I′ in normal contact with all of the said series of wheels respectively, and normally carried by said end plates, and means to release said bars from said wheels, substantially as set forth.

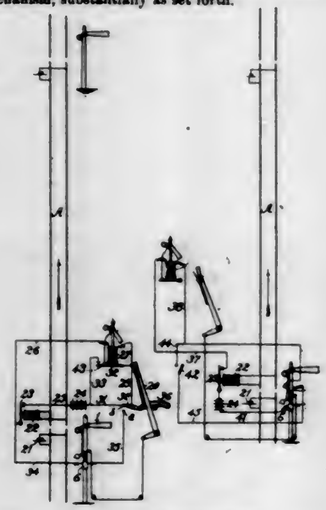
16. In a cash register and indicator the combination of a series of register-actuating keys, a drawer, and a detective device actuated by the combined operation of the drawer and one of said keys, to throw the detective device out of action, the drawer being arranged to close independent of the actuation of one of said keys without actuating the detective device, for the purpose set forth.

579,933. SIGNALING. JENS G. SCHEUDER, Edgewood Park, and JOHN P. COLEMAN, Swissvale, Pa., assignors to the Union Switch and Signal Company, Swissvale, Pa. Filed Aug. 26, 1896. Serial No. 603,985. (No model.)

Claim.—1. The combination of a signal, a signal-lever, an electrically-controlled connection between the signal and its lever, a circuit for said mechanism, an electrically-controlled indicator, the operating-magnet of said indicator being included in said circuit, a branch circuit including the armature of the indicator-magnet, a make-and-break mechanism controlled by train movements arranged in the main circuit, and a second make-and-break mechanism in the main circuit and controlled by the signal-lever, substantially as set forth.

2. The combination of a signal, a signal-lever, an electrically-controlled connection between the signal and its lever, a circuit for said mechanism, a make-and-break mechanism controlled by train movements arranged in said circuit, a second make-and-break mechanism in said circuit and controlled by the signal-lever, and a shunt-circuit

having a manually-operated switch around the second make-and-break mechanism, substantially as set forth.

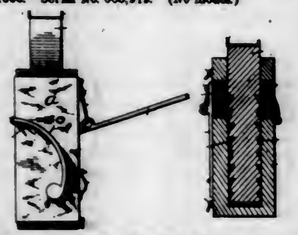


579,934. INFLATION-VALVE AND COUPLING FOR PNEUMATIC TIRES. JOSEF SCHWARTZ, Bay City, Mich. Filed Jan. 2, 1897. Serial No. 617,805. (No model.)



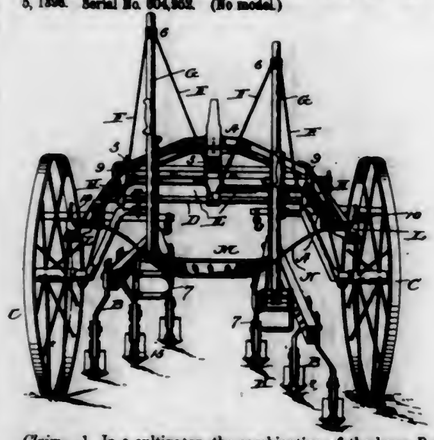
Claim.—The combination of an inflatable device having a flexible inflation-tube connected thereto, the tubular valve-body having a tapered portion *d*, arranged in said tube and a flange bearing against the outer end of the tube and also having the valve-seat and an interiorly-threaded portion below said seat, a tubular screw accompanying the inner end of said valve-body and engaging the interior threads thereof and having the portion reduced in diameter and provided with openings *h*, and a ball-valve arranged in the valve-body in the space between the valve-seat and the contiguous end of the tubular screw, a threaded band arranged upon the inflation-tube and an annular nut bearing upon the flange of the valve-body and having threads engaging those of the band, substantially as and for the purpose set forth.

579,935. JACK. WILLIAM L. WALKER, Allegheny, Pa. Filed Sept. 15, 1896. Serial No. 605,919. (No model.)



Claim.—In a jack, the combination of the casing, a lifting-bar in said casing, said bar carrying notches on two of its faces, a pawl pivoted to the rear of the casing to engage the notches, said pawl carrying an operating-arm, a lever fulcrumed to a yoke attached to the front of the casing, said lever adapted to engage the notches and lift the bar, a plate on top of said bar, a foot-piece operating through a slot in the casing, a hook on the front of the casing to hold the lever, a hook on the side of the casing to engage an eyelet in the foot-piece and lock the bar, said casing carrying rings to suspend the jack, substantially as shown and described.

579,936. CULTIVATOR. LEWIS R. WATERMAN, Moline, Ill., assignor to the Rock Island Plow Company, Rock Island, Ill. Filed Sept. 5, 1896. Serial No. 604,952. (No model.)



Claim.—1. In a cultivator, the combination of the beam B, pivoted at its front end to the frame of the cultivator, the mast G seated rigidly on said beam, the swing-bar E, suitably pivoted at each end on said frame, and provided with forwardly-projecting lugs 5 support F pivotally attached at its lower ends in said lugs 5, and at its upper end pivotally attached to the mast G, the spring H attached at its rear end to the frame of the machine and at its front end to the arm J, the latter being pivotally connected to the bar E intermediate the pivotal seat of said bar and the attachment thereto of the support F, substantially as shown and for the purpose described.

2. In a cultivator, the combination of a shovel-beam B pivotally connected at its forward end to the frame of the machine and provided with a rigid, vertical mast, the swinging bar E pivotally seated on the frame of the machine and provided with forwardly-projecting lugs 5, a bifurcated support F, pivotally seated at its lower end in said lugs respectively, and pivotally attached at its upper end to said mast, a horizontal coiled spring attached to the frame of the machine in the rear of the bar E and connected to the latter through the medium of an intermediate horizontal arm J attached at its rear end to said spring and pivoted at its forward end to said bar E, intermediate the pivotal seat of the latter and the point of attachment thereto of the support F, said attachments to and of said bar E being so relatively arranged as that when the shovels are at work, said attachments shall be nearly or quite in a horizontal line, and said arm J will rest on the pivotal seat of said bar E also in a substantially horizontal position as and for the purpose described.

3. In a cultivator, the combination of a pivoted beam B a rocking bar E supporting said beam and a spring H so arranged in reference to said beam and bar that when the beam is in its normal working position, the contraction of said spring is substantially against the pivotal seat of said bar E, while as said beam is raised, the action of said spring is over said pivotal seat of said bar, substantially as shown and for the purpose described.

4. The combination of the beam B provided with the shanks 15 and shovel K and pivoted at its forward end, the mast G rigidly seated on said beam and supported and supporting said beam adjustably from the frame of the machine, the top of said mast traveling in the arc of a circle, the center of which is the forward pivot of said beam, and means substantially as shown for raising and lowering said mast.

5. The combination, with a frame, of shovel-beams pivotally secured thereto at their forward ends, a mast secured to each of said beams, a vertically-movable support for the mast, a spring for normally holding said support and mast in an elevated position, and means for varying the tension of the spring as the beam is depressed, substantially as set forth.

6. The combination, with a frame, of shovel-beams pivotally secured thereto at their forward ends, a mast secured to each of said beams, a vertically-movable support for the mast, an arm pivotally secured to the frame at the rear end and to the lower end of the

support at the forward end, a spring connected with the arm intermediate its ends at its forward end and having its rear end connected with the frame at a point higher than the rear end of the arm, substantially as set forth.

7. In a cultivator, the combination of a frame A, sleeves L movable longitudinally thereon, and provided with a post 10 and recess 11, seat-supports N provided with openings 12 adapted to be optionally seated on post 10, while the edges of said supports are engaged and held in the recess 11 aforesaid, and a suitable seat M imposed on said supports, substantially as shown and for the purpose described.

579,937. TRIP-RECORDING CYCLOMETER OR MEASURING DEVICE. GEORGE K. BURLEIGH, Northfield, N. H., assignor to the Tally Dial Cyclometer Company, Newport, R. I. Filed Mar. 23, 1896. Serial No. 584,360. (No model.)



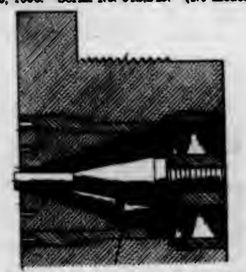
Claim.—1. In a measuring device or cyclometer having a dial, independent long and short distance measuring mechanisms, the latter including a spindle having a hand or pointer to coöperate with the dial, an intermittingly-rotated disk loosely mounted on the spindle between said mechanisms, a lug or projection on each side of said disk to engage and actuate said mechanisms respectively, and manually-operated means to rotate the spindle and thereby set the hand or pointer to the zero on the dial, substantially as described.

2. In a measuring device, a casing, a spindle rotatable therein and provided with a hand, a sleeve rotated on the spindle and also provided with a hand, an actuating-disk secured to the sleeve and having a lug on each of its sides, gearing connected with and to rotate the spindle, and actuated by one of said lugs, independent measuring mechanism actuated by the other lug, and means to manually rotate the spindle to set its hand to zero, substantially as described.

3. In a cyclometer, a casing, an apertured plate thereon having a dial on its outer face, a long-distance-measuring mechanism mounted on the under side of the plate, a spindle within the casing, and a hand or pointer on the spindle to coöperate with the dial, combined with an actuating-disk rotatable on the spindle and having a lug on each of its sides, connections between the spindle and one of the lugs, to rotate the spindle, and constituting with the latter an independent short-distance-measuring mechanism, means to rotate said disk intermittingly, and means to rotate the spindle manually to set the hand at zero, the other lug on the disk operating the long-distance-measuring mechanism, substantially as described.

4. In a cyclometer, a casing having an apertured dial, a toothed disk within said casing having a lug or projection on each of its sides, means to rotate the disk intermittingly, and long-distance-measuring mechanisms actuated by one of said lugs, combined with a spindle upon which the disk rotates, means to rotate the spindle manually, a hand and gear fast on said spindle, the former coöperating with the dial, and intermediate gearing between the disk and the spindle-gear, said intermediate gearing being actuated by the other lug on the said disk, substantially as described.

579,938. RUBBER-TUBING MACHINE. HENRY A. CORNMAN, Chicago, Ill., assignor to the Mechanical Rubber Company, Passaic, N. J. Filed Nov. 16, 1896. Serial No. 612,243. (No model.)



Claim.—1. In a machine of the class described, a head portion provided with a die in which there are combined a central pin for forming the bore of a rubber tube and an outer encircling wall for regulating the diameter of the tube, and means for adjusting the parts with relation to each other, substantially as described.

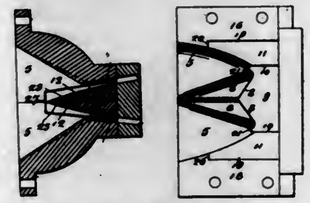
2. In a machine of the class described, a head portion provided with a die in which there are combined a spider carrying a central pin which forms the bore of the tube, and a die proper eccentrically and adjustably mounted in the head portion and surrounding the pin so that its adjustment changes the relation of the parts, substantially as described.

3. In a machine of the class described, a head portion carrying a die in which there are combined a spider having threaded engagement with the head portion, a central pin on such spider, a die proper screw-threaded in the head portion and encircling the pin, and means for changing the relation of the pin to the die proper, substantially as described.

4. In a machine of the class described, a head portion carrying a die in which there are combined a spider having threaded engagement with one end of the head and carrying a central pin that forms the bore of the tube, an eccentrically-adjustable ring screw-threaded in the opposite end of the head and surrounding the pin, and a die proper having threaded engagement with the adjustable ring with its bore arranged in eccentric relation to its circumference so that the parts may be adjusted with relation to each other, substantially as described.

5. In a machine of the class described, a head portion carrying a die in which there are combined a spider secured in the head portion, a central pin on such spider, an adjustable ring eccentrically mounted in the head portion, and a die proper eccentrically mounted in the adjustable ring surrounding the central pin and provided with an inner substantial knife-edge, substantially as described.

579,939. SHINGLE-MOLD. HENRY R. DAWSON and WILLIAM H. NOYE, St. Louis, Mo. Filed Aug. 3, 1896. Serial No. 601,518. (No model.)



Claim.—1. In a shingle die or mold, a suitable block having a rear curved edge, a flange located adjacent thereto for securing the block to a suitable clay-feeding machine, interior concave forwardly-converging walls or surfaces, a pyramidal ridge having plane faces separating the concave surfaces, the apex of the pyramid being located adjacent to the rear edge of the block, and a suitable plane retarding-surface having forwardly-inclined rear sides, said sides forming the bases of the plane faces of the pyramidal ridge, substantially as set forth.

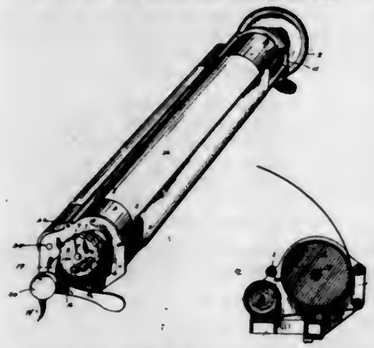
2. In a shingle die or mold, a suitable block having a rear curved edge, a flange located adjacent thereto, interior concave forwardly-converging walls or surfaces, a pyramidal ridge having plane faces separating the concave surfaces, the apex of the pyramid being located adjacent to the rear edge of the block, suitable ledges formed on each side of the forward end of the converging concave surfaces, a suitable plane retarding-surface located between said ledges and depressed a suitable distance below the same, the bases of the plane faces of the pyramidal ridge forming the rear forwardly-inclined sides of the retarding-surface, said ledges adapted to receive a suitable division-plate, the adjacent surfaces of the plate and retarding-surface adapted to form the discharge-opening for the mold, substantially as set forth.

3. In a shingle die or mold, suitable blocks having lateral flanges having plane uniting or coupling surfaces, a rear circular edge adapted to form a circular opening for the feeding of clay or similar material, a circular flange surrounding said opening and located adjacent thereto for securing the mold to a clay-feeding machine, each half of the mold having inner concave forwardly-converging walls or surfaces, a pyramidal ridge having plane faces separating the concave surfaces, a forward plane retarding-surface having rear forwardly-inclined sides formed by the bases of the plane faces of the pyramid, a ledge on each side of the retarding-surface raised a suitable distance above the same, the supporting-surface of the ledge being inclined to the general axis of the mold and parallel to the plane of the retarding-surface, suitable division-plates having each a plane and curved face, said division-plates being assembled along their plane faces, the curved faces being gradually curved from the front of the wedge and tapering gradually toward the rear edge of the wedge, each curved face having a supporting-leg conforming in shape to the ledge adapted to support the same, the rear edges of the plates being in line with the rear terminal wall of the ledge, the parts operating as and for the purpose set forth.

4. In a shingle die or mold, a suitable block, means for securing the same to the hopper of a clay-feeding machine, an inner concave forwardly-converging surface on each side of the center of the block, a pyramidal ridge having plane faces separating the concave surfaces from each other, the apex of the pyramid being located adjacent to the middle of the rear edge of the block, and a plane retarding-surface extending forwardly from the base of the pyramid, the bases of the faces of the pyramid forming the rear forwardly-inclined sides of the retarding-surface, substantially as set forth.

579,940. CARRIAGE FOR TYPE-WRITERS. WILLIAM FREDRICK, Clyde, Ohio, assignor to R. C. Faulconer, trustee, Detroit, Mich.

Filed July 23, 1894. Serial No. 518,293. (No model.)



Claim.—1. In a carriage for type-writers, the combination of a paper-storing roll, a spring-actuated, ribbon-storing drum, a ribbon adapted to wind alternately on the paper-storing roll and the ribbon-storing drum, an escapement mechanism adapted to control the retrieving action of the ribbon-storing drum, and a pivoted eccentric-stop, adapted to be varied in position and thereby to change the relative rotary motion of the parts of the escapement mechanism, substantially as described.

2. An escapement mechanism for regulating the rotary movement of a roll, consisting of two escapement-wheels, a single pawl adapted to engage alternately with each of the said escapement-wheels, means adapted to produce a forward movement of each of said wheels, when not engaged by said pawl, a pivoted eccentric-stop adapted to be disposed in different positions and thereby to regulate the relative rotary motion of said escapement-wheels, substantially as described.

3. In a carriage for type-writers, the combination of a paper-storing roll, a ribbon-storing drum, provided with an interior actuating-spring, a ribbon adapted to wind alternately on said roll and on said drum, and escapement mechanism adapted to control the retrieving action of the spring-actuated ribbon-storing drum, substantially as set forth.

4. In a carriage for type-writers, the combination of a paper-storing roll, a hollow ribbon-storing drum provided with a shaft, a ribbon adapted to wind alternately on the paper-storing roll and on the ribbon-storing drum, a coiled spring within the drum, secured at one end to said shaft, and at the other end to the walls of the drum, to actuate the drum and unwind the ribbon from the paper-storing roll, and means adapted to give to the unwinding movement a step-by-step action, and to change the step length of the movement, substantially as set forth.

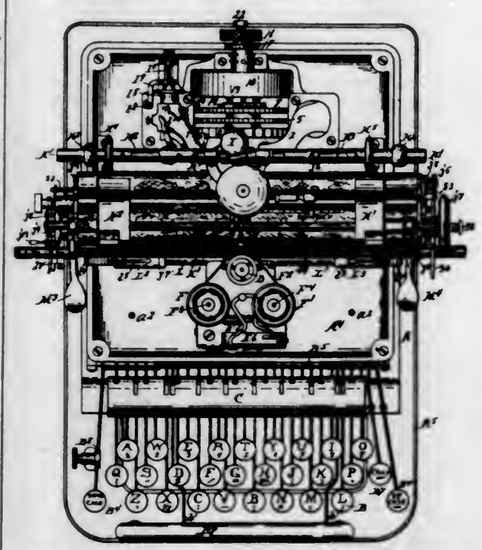
5. In a type-writer, a carriage provided with end pieces *a*, *b*, a main roll A, a drum 23 having a tension-spring therewithin, said roll and drum both carried by said carriage, rods connecting said end pieces located in front of the main roll, and an apron 26, all arranged substantially as and in the manner described.

6. In a type-writer, a main roll A, provided with a ratchet-wheel 10 loosely-mounted on the shaft thereof, constructed with an orifice 13, a spring exerting its tension upon said ratchet-wheel, a ratchet-wheel 9 rigidly mounted upon said shaft, provided with an eccentric 14, which may be turned in different positions in said orifice, and a movable pawl 19 engageable with either of said ratchet-wheels, substantially as set forth.

7. In a type-writer, a feed-roller provided with ratchet-wheels 9 and 10, a reciprocatory pin or spindle 20, a movable pawl 19 upon said spindle engageable with either of said ratchet-wheels, said ratchet-wheels having a limited movement relatively the one to the other upon the shifting of said pawl, and means whereby the pawl may be thrown out of engagement with both of said ratchet-wheels, substantially as set forth.

579,941. TYPE-WRITER. WILLIAM FREDRICK, Clyde, Ohio, and CHARLES H. NORTON and ROBERT J. SIMPSON, Detroit, Mich., assignors to the Leland & Faulconer Manufacturing Company, Detroit, Mich.

Filed Aug. 19, 1895. Serial No. 559,735. (No model.)



Claim.—1. In a type-writer, the combination with a frame, of oscillatory levers B′ having a fulcrumed connection at their rear ends therewith, and keys B fulcrumed intermediate their ends, the rear ends of said keys connected with the forward ends of said levers whereby when a given key is depressed the front end of the corresponding lever will be lifted, substantially as set forth.

2. In a type-writer, the combination with a frame, of a stepped plate C, keys B fulcrumed intermediate their ends upon said plate, and levers B′ having a fulcrumed connection at their rear ends with the frame, the rear ends of said keys connected with the front ends of said levers, whereby the front ends of said levers will be lifted by depressing the corresponding key, substantially as set forth.

3. In a type-writer, the combination with a frame, of oscillatory levers B′ having a fulcrumed connection at their rear ends with said frame, keys B fulcrumed intermediate their ends, and links B^2 connecting the rear ends of the keys with the forward ends of the corresponding levers, whereby the front ends of said levers will be lifted when a corresponding key is depressed, substantially as set forth.

4. In a type-writer, the combination of a frame, a rotatable type-wheel, oscillatory levers B′ having a fulcrumed connection at their rear ends with said frame, keys B fulcrumed intermediate their ends, and links connecting the rear ends of the keys with the forward ends of said levers, whereby when a given key is depressed the corresponding lever will be lifted and the type-wheel actuated, substantially as set forth.

5. In a type-writer, the combination of a frame, an oscillatory trip-hammer, oscillatory levers having a fulcrumed connection at their rear ends with said frame, and keys fulcrumed intermediate their ends, connected with the forward ends of said levers, whereby when a given key is depressed the corresponding lever will be lifted and the trip-hammer actuated, substantially as set forth.

6. In a type-writer, plural rocking frames E, E′ mounted upon separate and independent shafts E^3, E^3, located end to end and extended in a straight line the one with the other transversely of the machine, each frame constructed with side bars *e*, *e′* on opposite sides of their respective shafts equidistant at all points from the shaft and oppositely inclined longitudinally from the horizontal plane of the shaft, and underlying key-actuated levers to operate the frames, said frames and shafts separated one from the other at their adjacent ends, whereby each of said frames and shafts may be actuated independently the one of the other and secure greater difference of action between the various keys, substantially as set forth.

7. In a type-writer, the combination of a type-wheel, and two key-actuated rocking frames mounted upon separate and independent shafts located end to end and extending transversely of the machine, said frames and shafts separated one from the other at their adjacent ends and each having side bars on opposite sides of the corresponding shaft, the side bars on one side of each of said frames inclined longitudinally from the horizontal plane of the shafts from the outer extremity of the frames inwardly, and the side bars of said frames inclined from the horizontal plane of the shaft, on the other side, from the inner extremities of the frames outwardly, whereby greater difference of action is secured between the various keys, substantially as set forth.

8. In a type-writer, the combination with a frame, of a type-wheel provided with a rack upon the shaft thereof, oscillatory levers having a fulcrumed connection at their rear ends with said frame, keys fulcrumed intermediate their ends connected with the forward ends of said levers to lift said levers, and two rocking frames located above said levers and actuated thereby, said frames separated the one from the other at their adjacent ends and mounted upon separate and independent shafts located end to end transversely of the machine, whereby greater difference of action is secured between the various keys, each of said frames provided with an independent rack-bar engaging the rack on the type-wheel shaft, substantially as set forth.

9. In a type-writer, the combination of a type-wheel, rocking frames separated one from the other at their adjacent ends and mounted on independent shafts to actuate the type-wheel, oscillatory levers located below the rocking frames to actuate said frames the one independently of the other, and keys arranged to lift said levers into engagement with the corresponding frame when the keys are depressed, substantially as set forth.

10. In a type-writer, an oscillatory frame E^3, rocking frames separated the one from the other at their adjacent ends mounted upon independent shafts located end to end within said oscillatory frame, and key-actuated oscillatory levers located below said frames to actuate said frames, the one independently of the other, said rocking frames each constructed with side bars *e*, *e′* on opposite sides of their respective shafts equidistant from the shafts and oppositely inclined longitudinally from the horizontal plane of the shafts, substantially as set forth.

11. In a type-writer, rocking frames separated one from the other at their adjacent ends mounted upon independent shafts located end to end, an oscillatory frame located upon the shafts of the rocking frames, and key-actuated levers each arranged to first operate one of the rocking frames independently of the other and then to operate said oscillatory frame in one movement of a given lever, said rocking frames each constructed with side bars *e*, *e′* on opposite sides of their respective shafts equidistant from the shafts and oppositely inclined longitudinally from the horizontal plane of the shafts, substantially as set forth.

12. In a type-writer, a vertically-movable rotatable type-wheel provided with a pinion upon the shaft thereof, rocking frames separated one from the other at their adjacent ends mounted upon independent shafts located end to end, key-actuated oscillatory levers to operate said frames, the one independently of the other, and mechanism to lock the type-wheel in a given position, each of said rocking frames arranged independently of the other to rotate the type-wheel and pinion, said frames each constructed with side bars *e*, *e′* on opposite sides of their respective shafts equidistant from the shafts and oppositely inclined longitudinally from the horizontal plane of the shafts, substantially as set forth.

13. In a type-writer, the combination of a frame, a rotatable type-wheel, rocking frames separated one from the other at their adjacent ends mounted on independent shafts located end to end, each arranged to rotate the type-wheel independently of the other, and key-actuated oscillatory levers arranged to bear against the under edge of the corresponding frame when the keys are depressed to operate the frames, the one independently of the other, said frames each constructed with side bars *e*, *e′* on opposite sides of their respective shafts equidistant from the shafts and oppositely inclined longitudinally from the horizontal plane of the shafts, substantially as set forth.

14. In a type-writer, the combination of a type-wheel, an oscillatory bar to lift the type-wheel, a collar located upon said bar, a sleeve located upon said bar to engage said collar, and a key engaged with said sleeve, substantially as set forth.

15. In a type-writer, the combination of a type-wheel, an oscillatory bar provided with an arm upon which the type-wheel rests, a collar b^4 upon said bar, sleeves b^5 and b^7 upon said bar to engage said collar, and keys engaged with said sleeves, substantially as set forth.

16. In a type-writer, the combination of a type-wheel, an oscillatory yoke, and a reciprocatory hammer carried by said yoke, substantially as set forth.

17. In a type-writer, the combination of a type-wheel, an oscillatory yoke, a reciprocatory self-retracting hammer carried by said yoke, and means at each side of the machine for operating said yoke to turn the hammer into and out of operative position, substantially as set forth.

18. In a type-writer, the combination of a reciprocatory hammer, an oscillatory spring-actuated trip-hammer to strike the reciprocating hammer, a rod I^3 connected with said hammer, a laterally-movable rocking pawl I^4 engaged with said rod, and means to lock and to release said pawl to lock and release the trip-hammer, the tension of the spring-actuated hammer being increased when in locked position, substantially as set forth.

19. In a type-writer, the combination of an oscillatory trip-hammer, a locking-pawl connected therewith, means to lock said pawl, and a reciprocatory spindle I^5 to release said pawl, substantially as set forth.

20. In a type-writer, the combination of an oscillatory trip-hammer, a locking-pawl connected therewith, means to lock said pawl, a reciprocatory spindle to release said pawl and means to actuate said spindle, substantially as set forth.

21. In a type-writer, the combination of an oscillatory trip-hammer, a locking-pawl connected therewith, means to lock said pawl, a reciprocatory spindle to release the pawl, and a bell-crank I^6 to actuate said spindle, and a key-actuated oscillatory frame E^3 to operate said bell-crank, substantially as set forth.

22. In a type-writer, the combination of an oscillatory trip-hammer, a locking-pawl connected therewith, a rotatable toothed wheel 3 to rock said pawl to put the hammer under tension, and means to lock and to release said pawl, substantially as set forth.

23. In a type-writer, the combination of an oscillatory trip-hammer, an oscillatory locking-pawl connected therewith, a stop to lock said pawl, a rotatable toothed wheel 3 to rock said pawl downward to put said hammer under tension, a reciprocatory spindle carrying said pawl under and out of engagement with said stop, and means to reciprocate said spindle, substantially as set forth.

24. In a type-writer, the combination of an oscillatory trip-hammer, a spindle upon which the hammer is fulcrumed, a spring engaged upon said spindle exerting its tension upon said hammer, a locking-pawl connected with said hammer, means to actuate said pawl to put a tension upon said spring, mechanism to lock and to release said pawl, a ratchet-wheel engaged with said spindle, and an additional pawl engaged with said ratchet-wheel, substantially as set forth.

25. In a type-writer, the combination of a trip-hammer, a spindle upon which said hammer is fulcrumed, a ratchet-wheel upon said spindle, a pawl engaging said wheel provided with an operating-lever, and a segmental bar located adjacent to said lever arranged to hold said lever in a given position and whereby the tension of the spring may be regulated by the movement of the lever, said spindle provided with a milled head, substantially as set forth.

26. In a type-writer, the combination of an oscillatory trip-hammer, a locking-pawl connected therewith, means to lock said pawl, a reciprocatory spindle to release the pawl, a bell-crank I^6 to actuate the spindle, and a key-actuated oscillatory frame to operate the bell-crank, and means to limit the movement of the bell-crank, substantially as set forth.

27. In a type-writer, the combination of an oscillatory spring-actuated trip-hammer, a pawl connected therewith, a toothed wheel to actuate said pawl to put the hammer under tension, means to lock and to release the pawl, and key-actuated mechanism to rotate said wheel one notch upon the operation of each key, substantially as set forth.

28. In a type-writer, the combination of a rotatable type-wheel provided with a pinion upon the shaft thereof, a pawl D^8 engageable with said pinion, a connecting-rod D^8 connected with said pawl, an operating-bar D^7 connected with said rod, a movable pawl I^6 to actuate said operating-bar and means to actuate said pawl, substantially as set forth.

29. In a type-writer, a tension-roller provided with a spring therewithin upon the shaft thereof, a hub 46 located within the roller, with which said shaft is engaged, a spindle 45 engaged with said hub and extending to the exterior of the roller, and pawl-and-ratchet mechanism engaging the outer end of said spindle whereby the tension of the spring may be governed, substantially as set forth.

30. In a type-writer, a feed-roller having its shaft provided with a hand-knob j^7, a disk 36 fixedly engaged upon said shaft, a stop 37 upon said disk engageable with said knob whereby the hand-knob may have a limited movement about the disk independently thereof upon the disengagement of said stop to give a limited movement to said roller, substantially as set forth.

31. In a type-writer, a feed-roller having its shaft provided with a hand-knob j^7, a disk 36 fixedly engaged upon the shaft of said roller provided with a stop 37, a latch to operate the stop, said knob provided with lugs 39 and 40, and with an orifice 41 to receive said stop whereby the hand-knob may have a limited movement about the disk independently thereof upon the disengagement of said stop from said knob to give a limited movement to the feed-roller, substantially as set forth.

32. In a type-writer, the combination of a carriage having a toothed rack-bar, stops j^{16} upon the extremities of said rack-bar, marginal stop-rods, sleeves adjustable upon said stop-rods, bifurcated

arms connected with said sleeves normally in the path of said stops in the travel of the carriage and out of engagement with the teeth of the rack-bar, and means to hold said arms in normal position and to permit their movement out of normal position, substantially as set forth.

33. In a type-writer, the combination of a carriage provided with a toothed rack-bar having stops j^{16} at the extremities thereof, marginal stop-rods, adjustable sleeves upon said rods carrying bifurcated arms *l* normally in the path of said stops in the travel of the carriage and out of engagement with the teeth of the rack-bar, and crank-arms M M' to hold said arms in normal position and to permit their movement away from normal position, substantially as set forth.

34. In a type-writer, the combination of a carriage provided with a rack-bar having marginal stops at the extremities thereof, marginal stop-rods, adjustable sleeves upon said rods, arms *l* carried by said sleeves, a transverse shaft M^3 provided with crank-arms M M', and with operating-levers M^3 M^4 to hold the arms *l* normally in the path of the marginal stops in the travel of the carriage, substantially as set forth.

35. In a type-writer, the combination of a carriage provided with a rack-bar having marginal stops at the extremities thereof, marginal stop-rods, adjustable sleeves upon said rods, arms *l* carried by said sleeves, a transverse shaft M^3 provided with crank-arms M M', and with operating-levers M^3 M^4 to hold the arms *l* normally in the path of the marginal stops in the travel of the carriage, a key-actuated rock-shaft G, and an arm M^3 engaging said rock-shaft with the shaft M^3, substantially as and for the purpose described.

36. In a type-writer, the combination of a carriage provided with a rack-bar having marginal stops at the extremities thereof, marginal stop-rods, adjustable sleeves upon said rods, arms *l* carried by said sleeves, a transverse shaft M^3 provided with crank-arms M M', and with operating-levers M^3 M^4 to hold the arms *l* normally in the path of the marginal stops in the travel of the carriage, and means to lock the arms M M' in retracted position, substantially as and for the purpose set forth.

37. In a type-writer, the combination of a shaft 4 having toothed wheels 5 and 7 mounted thereupon, a rock-shaft G provided with a pawl G^3 alternately engageable with said wheels, a carriage provided with a rack-bar having marginal stops, marginal stop-rods, adjustable sleeves upon said rods, arms *l* carried by said sleeves, a transverse shaft M^3 provided with crank-arms M M' and with operating-levers M^3 M^4 on opposite sides of the machine to hold the arms *l* normally in the path of the marginal stops in the travel of the carriage, and an arm M^3 engaging said rock-shaft with the shaft M^3 whereby in depressing either of the levers M^3 M^4 the pawl G^3 will be disengaged from both the wheels 5 and 7 allowing the carriage to be reciprocated freely in either direction, substantially as set forth.

38. In a type-writer, the combination of an oscillatory yoke, a reciprocatory hammer carried thereby, a shaft N provided with paper-guides and connected with said yoke whereby said shaft and the yoke may be simultaneously oscillated, substantially as set forth.

39. In a type-writer, the combination of the reciprocatory and rotatable spindle I^3, the wheel 3, a crank-pawl I^6 upon said spindle engageable by said wheel, a traveling carriage, and mechanism to hold the said pawl out of the path of said wheel to permit the carriage to move freely upon its track when said pawl is so held out of the path of said wheel, substantially as set forth.

579,942. FOLDING UMBRELLA. FRANÇOIS H. GÉNÉREUX, Salem, Mass., assignor of two-thirds to Armand Mignault and Louis Joncas, same place. Filed Sept. 19, 1896. Serial No. 606,352. (No model.)

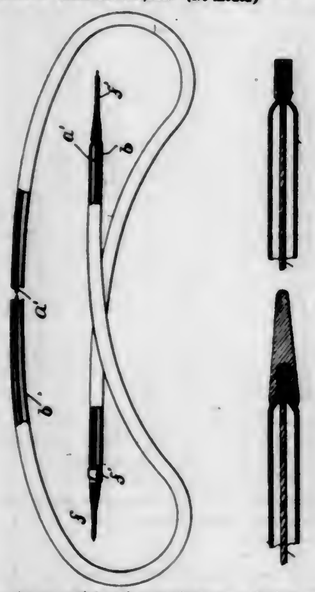
Claim.—1. In a folding umbrella a rib made in two sections, the upper section of which is pivoted at its movable end to the lower rib-section at a point removed from its inner end; a block mounted upon and movable endwise of said lower rib-section, between its inner end and its pivotal connection to the upper rib-section; a spring mounted on said lower rib-section between said movable block and the pivotal connection of said rib-sections; a locking-catch carried by said upper rib-section above its pivotal connection to the lower rib-section; a locking-pin carried by said movable block, and adapted to engage said locking-catch when said rib-sections are in extended positions; and a stretcher pivoted at one end to said movable block and adapted to be operated in the usual manner.

2. In a folding umbrella, the combination with a jointed stick, a top notch mounted thereon, and a runner movable endwise thereof, of the rib-section *d* provided with the locking-latch *j* and the lug or enlargement *j''*; the rib-section *d'*; the block *l* secured in a fixed position on said rib-section at a short distance from its inner or upper end and pivoted to the lug or enlargement *j*; the block *k* movably mounted on said rib-section *d'* at its inner end; the spring *m*; the pin *o* set in the block *k*; and the stretcher *p* pivoted at one end to the block *k* and at its other end to the runner on the stick.



3. The combination in a folding umbrella of a stick jointed at or near the middle of its length; a handle provided with a cylindrical chamber extending nearly through its length and with a slot cut through its side; a tubular bushing set in a fixed position in the open end of said chamber fitted to and movable endwise of the stick and provided with an opening in its side registering with the slot in the side of said handle; a locking-lever pivoted in the slot of said handle and provided with a lug or pin to engage an opening in the stick-section; the lower stick-section provided with a radial opening or recess to receive said lug or pin; and a spring to force said lug or pin into engagement with said opening or recess.

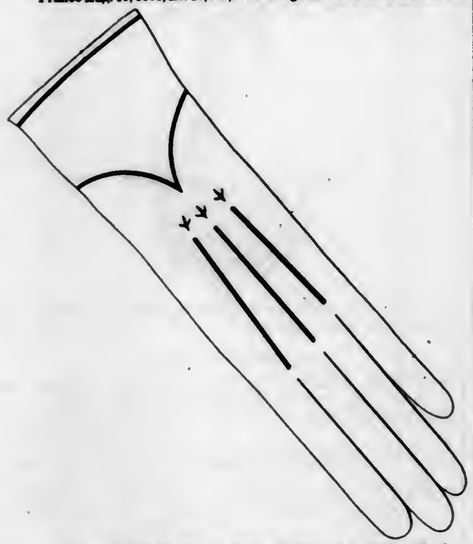
579,943. LACING. ELEAZER KEMPSHALL, Newton, Mass. Filed Jan. 22, 1897. Serial No. 620,230. (No model.)



Claim.—As an article of manufacture, a lacing comprising a tubular woven body or sheath, a non-metallic, flexible core within said sheath and of less diameter than the hole in the sheath, and tips arranged about the ends of the lacing, and anchored to the ends of the core and sheath.

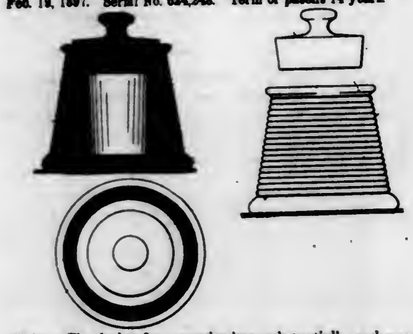
DESIGNS.

26,818. GLOVE. ETIENNE BUSCARLET, Paris, France. Filed Feb. 2, 1897. Serial No. 621,696. Term of patent 3½ years. Patented in France Aug. 19, 1896, No. 17,982, and in England Oct. 3, 1896, No. 285,495.



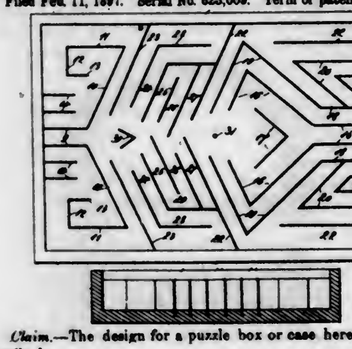
Claim.—The design for a glove, as illustrated and described.

26,819. WOODEN BOX. WEBSTER C. HOTH, Brooklyn, N. Y. Filed Feb. 19, 1897. Serial No. 624,245. Term of patent 14 years.



Claim.—The design for a wooden box, substantially as shown and described.

26,820. PUZZLE-BOX. JAMES EDWARD LENHART, Ware, Mass. Filed Feb. 11, 1897. Serial No. 623,009. Term of patent 3½ years.



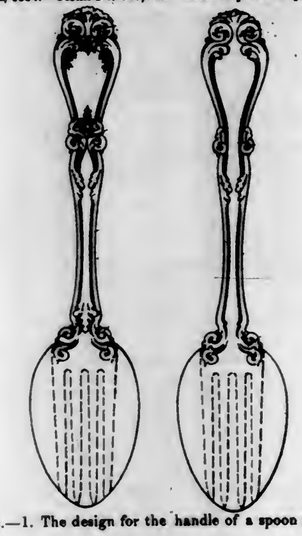
Claim.—The design for a puzzle box or case herein shown and described.

26,821. HANDLE FOR BUTTON-HOOKS, &c. WILLIAM A. SKIDLER, Newark, N. J. Filed Feb. 19, 1897. Serial No. 624,253. Term of patent 3½ years.



Claim.—The design for a handle for a button-hook or similar articles, as herein described and illustrated.

26,822. SPOON, &c. DANIEL A. LOMER, Sag Harbor, N. Y., assignor to the Alvin Manufacturing Company, New York, N. Y. Filed Feb. 11, 1897. Serial No. 623,011. Term of patent 7 years.



Claim.—1. The design for the handle of a spoon or fork as set forth.

2. In the design for the handle of a spoon or fork, the design of the obverse side of the handle, as set forth.

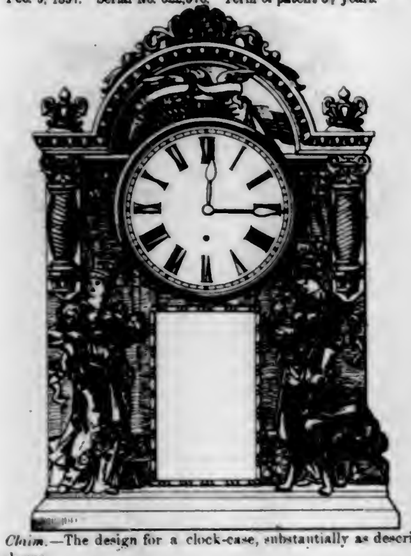
3. In the design of the handle of a spoon or fork, the design of the reverse side of the handle, as set forth.

26,823. BORDER FOR SILVERWARE. ALBERT A. SOUTHWICK, Providence, R. I., assignor to the Howard Sterling Company, same place. Filed Feb. 9, 1897. Serial No. 622,671. Term of patent 7 years.



Claim.—The design for a border for silverware herein shown and described.

26,824. CLOCK-CASE. CHARLES D. GOLDEN, Chicago, Ill. Filed Feb. 9, 1897. Serial No. 622,870. Term of patent 3½ years.



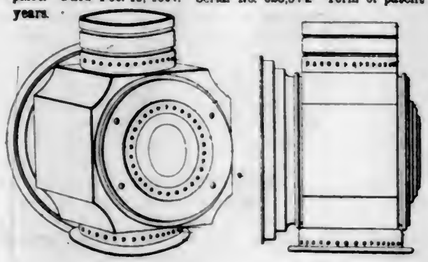
Claim.—The design for a clock-case, substantially as described and shown.

26,825. LAMP. GEORGE R. STEINHAUSER, St. Louis, Mo. Filed Feb. 1, 1897. Serial No. 621,567. Term of patent 3½ years.



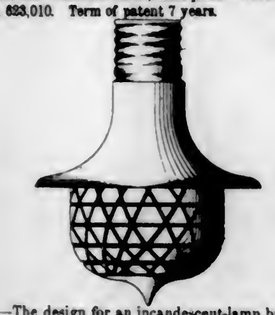
Claim.—The design for a lamp, as herein shown and described.

26,826. BICYCLE-LAMP. JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed Feb. 15, 1897. Serial No. 623,574. Term of patent 14 years.



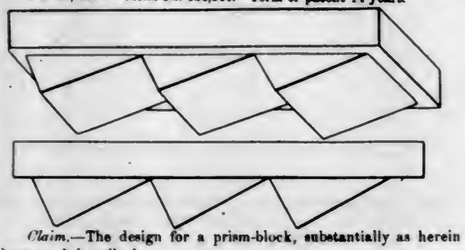
Claim.—The design for a bicycle-lamp body, as herein shown and described.

26,827. INCANDESCENT-LAMP BULB. LAWRENCE H. DOLAN, Alexandria, Ind., assignor of three-fourths to Thomas A. Mflan, Louis Kanfield, and Valentine Libler, same place. Filed Feb. 11, 1897. Serial No. 623,010. Term of patent 7 years.



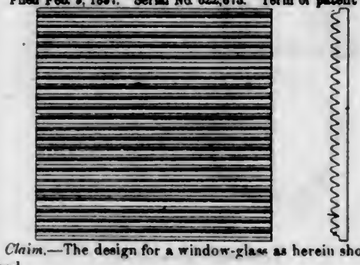
Claim.—The design for an incandescent-lamp bulb, substantially as herein shown and described.

26,828. PRISM-BLOCK. JOHN R. RUSSEL, Detroit, Mich. Filed Jan. 30, 1897. Serial No. 621,360. Term of patent 14 years.



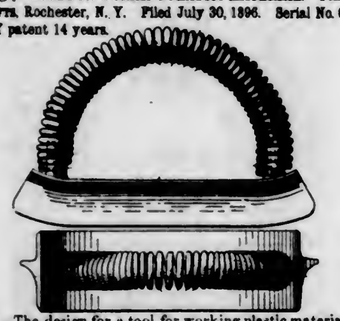
Claim.—The design for a prism-block, substantially as herein shown and described.

26,829. PRISMATIC WINDOW-LIGHT. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, of West Virginia. Filed Feb. 9, 1897. Serial No. 622,673. Term of patent 14 years.



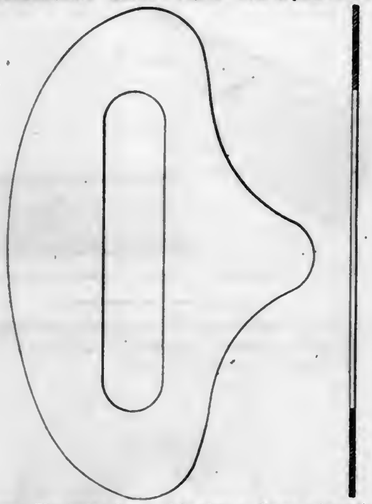
Claim.—The design for a window-glass as herein shown and described.

26,830. TOOL FOR WORKING PLASTIC MATERIAL. FREDERICK H. CRAFTS, Rochester, N. Y. Filed July 30, 1896. Serial No. 601,123. Term of patent 14 years.



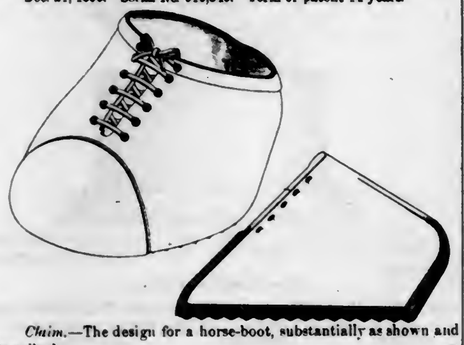
Claim.—The design for a tool for working plastic materials, substantially as shown and described.

26,831. SADDLE-PLATE. JAMES A. MALONEY, Washington, D. C. Filed Jan. 28, 1897. Serial No. 621,106. Term of patent 7 years.



Claim.—The design for a saddle plate or frame substantially as herein shown and described.

26,832. HORSE-BOOT. JOSEPH HIRSCH, Kansas City, Mo. Filed Dec. 21, 1896. Serial No. 616,549. Term of patent 14 years.



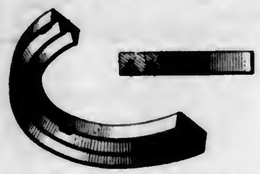
Claim.—The design for a horse-boot, substantially as shown and described.

26,833. HORSESHOE. GEORGE A. SINGERLY, Philadelphia, Pa. Filed Feb. 10, 1897. Serial No. 622,865. Term of patent 14 years.



Claim.—The design for a horseshoe, substantially as described and shown.

26,834. HORSESHOE. GEORGE A. SINGERLY, Philadelphia, Pa. Filed Feb. 10, 1897. Serial No. 622,866. Term of patent 14 years.



Claim.—The design for a horseshoe, substantially as described and shown.

26,835. PAD-HOOK. FLORENCE F. CONNER, Cleveland, Ohio. Filed Feb. 16, 1897. Serial No. 623,743. Term of patent 14 years.



Claim.—The design for pad-hooks, substantially as herein shown and described.

26,836. PAD-HOOK. FLORENCE F. CONNER, Cleveland, Ohio. Filed Feb. 16, 1897. Serial No. 623,744. Term of patent 14 years.



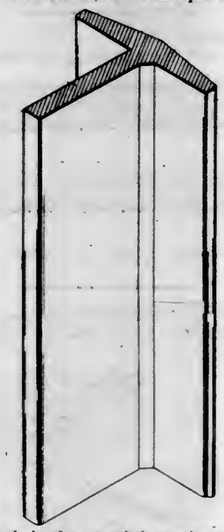
Claim.—The design for pad-hooks, substantially as herein shown and described.

26,837. PICTURE-HOOK. GEORGE W. WILLARD, Detroit, Mich. Filed Jan. 11, 1897. Serial No. 618,583. Term of patent 14 years.



Claim.—The design for a picture and picture-hook hanger, substantially as herein shown and described.

26,838. ANGLE-IRON. ALBERT L. SLAGER, Springfield, Ohio. Filed Feb. 5, 1897. Serial No. 622,068. Term of patent 14 years.



Claim.—The design for an angle-iron, substantially as shown and described.

26,839. CYLINDER FOR BICYCLE-PUMPS. JOHN LINES, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Mar. 30, 1896. Serial No. 585,495. Term of patent 7 years.



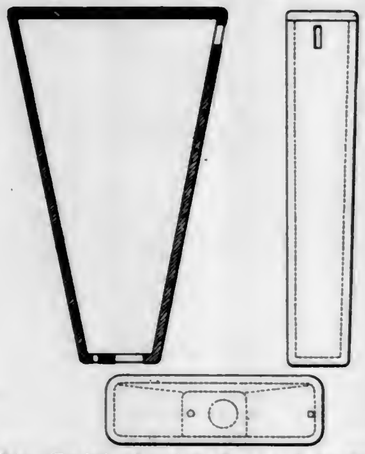
Claim.—The design herein shown and described, for the cylinder of a portable bicycle-pump.

26,840. BATTERY-CELL. ALBERT HÖCHSTER, New York, N. Y. Filed Nov. 12, 1896. Serial No. 611,889. Term of patent 14 years.



Claim.—The design for a battery-cell comprising the design substantially as shown.

26,841. CISTERN FOR WATER-CLOSETS. EDWARD HANMANN, Brooklyn, N. Y., assignor to The J. L. Mott Iron Works, New York, N. Y. Filed Feb. 15, 1897. Serial No. 623,577. Term of patent 7 years.



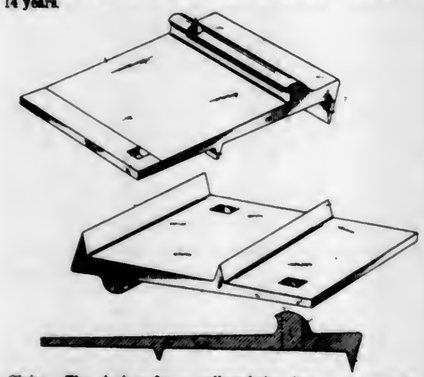
Claim.—The design for a cistern for water-closets, substantially as described and shown.

26,842. FENCE-POST BASE. WILLIAM T. HAWLEY, Paris, Ohio. Filed Feb. 12, 1897. Serial No. 623,191. Term of patent 14 years.



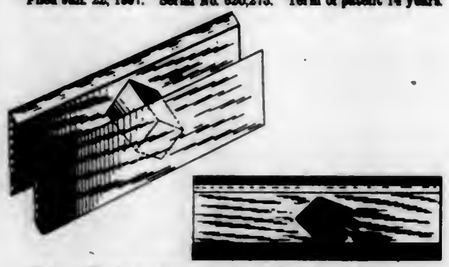
Claim.—The design for a fence-post base herein shown and described.

26,843. RAILROAD-TIE PLATE. RICHARD CAFFREY, South Bethlehem, Pa. Filed Feb. 18, 1897. Serial No. 624,062. Term of patent 14 years.



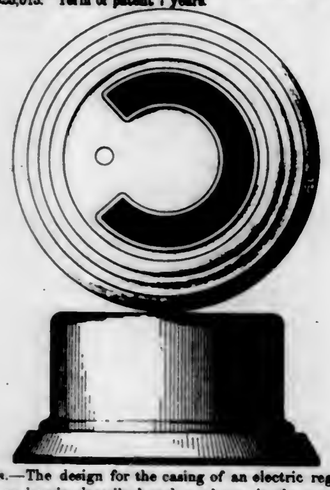
Claim.—The design for a railroad-tie plate, substantially as shown and described.

26,844. RAIL-SPLICE. WILLIAM H. ZIEGLER, Pittsburg, Pa. Filed Jan. 22, 1897. Serial No. 620,273. Term of patent 14 years.



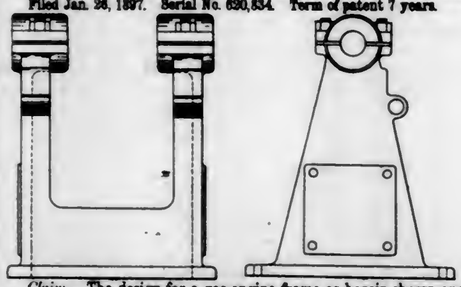
Claim.—The design for a rail-splice as herein shown and described.

26,845. CASING FOR ELECTRIC REGULATING INSTRUMENTS. ERNEST EMIL WIENER, Philadelphia, Pa. Filed Feb. 11, 1897. Serial No. 623,013. Term of patent 7 years.



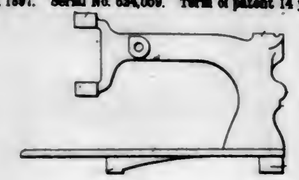
Claim.—The design for the casing of an electric regulating instrument as herein described and as shown in the accompanying drawings.

26,846. GAS-ENGINE FRAME. ROBERT TEMPLE, Denver, Colo. Filed Jan. 26, 1897. Serial No. 620,834. Term of patent 7 years.

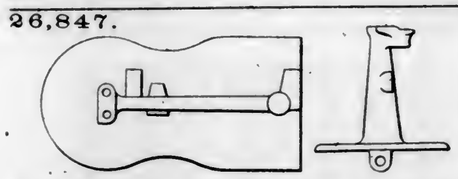


Claim.—The design for a gas-engine frame as herein shown and described.

26,847. SEWING-MACHINE FRAME. DEXTER W. GOODELL, Greenfield, Mass., assignor to J. Willis Downs, New Haven, Conn. Filed Feb. 18, 1897. Serial No. 624,069. Term of patent 14 years.

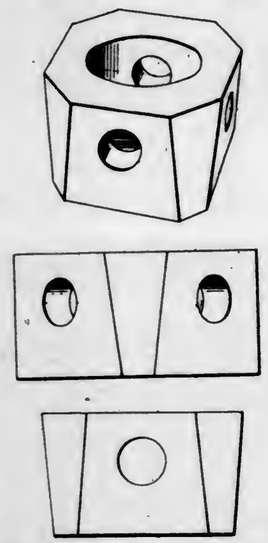


26,847.



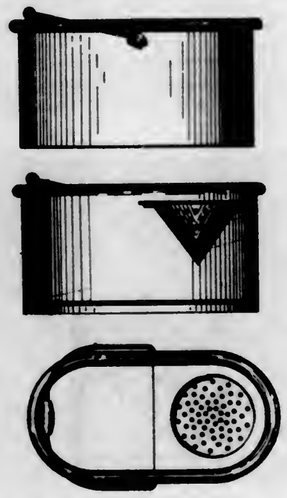
Claim.—The design for a sewing-machine frame as herein shown and described.

26,848. BRICK. MORGAN L. WILLIAMS, Johnstown, Pa. Filed Feb. 9, 1897. Serial No. 622,669. Term of patent 7 years.



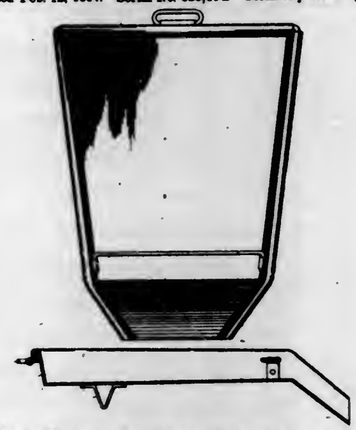
Claim.—The design for a runner-brick substantially as herein shown and described.

26,849. MOP-BUCKET. WILLARD J. BELL, Weedsport, N. Y. Filed Jan. 12, 1897. Serial No. 619,003. Term of patent 14 years.



Claim.—The design for a mop-bucket, substantially as herein described and shown.

26,850. DISH-DRAINER. WILLIAM O. CAMPBELL, New York, N. Y. Filed Feb. 12, 1897. Serial No. 623,194. Term of patent 7 years.



Claim.—The design for a dish-drainer herein shown and described.

26,851. GAS-STOVE. STANHOPE BOAL, Piqua, Ohio. Filed Feb. 11, 1897. Serial No. 623,016. Term of patent 7 years.



Claim.—1. The design for a gas stove or range, substantially as herein shown and described.

2. In a gas stove or range the design for the base-frame and legs; substantially as herein shown.

3. In a gas stove or range the design for the oven-door, substantially as herein shown.

4. In a gas stove or range the design for the side plates, substantially as herein shown.

5. In a gas stove or range the design for the front plate above the oven-door and side plates, substantially as herein shown.

6. In a gas stove or range the design for the broiler-door, substantially as herein shown.

26,852. STOVE OR RANGE. STANHOPE BOAL, Piqua, Ohio. Filed Feb. 11, 1897. Serial No. 623,017. Term of patent 7 years.



Claim.—1. The design for a stove or range substantially as herein shown and described.

2. In the design for a stove or range, the base-plate and legs, substantially as herein shown.

3. In a stove or range, the design for the ash-pit plate, substantially as herein shown.

4. In a stove or range the design for the oven-door substantially as herein shown.

5. In a stove or range the design for the reservoir-plate, substantially as herein shown.

6. In a stove or range the design for the side door substantially as herein shown.

7. In a stove or range the design for the side plate, substantially as herein shown.

8. In a stove or range the design for the front of the stove, substantially as herein shown.

9. In a stove or range the design for the bracket, substantially as herein shown.

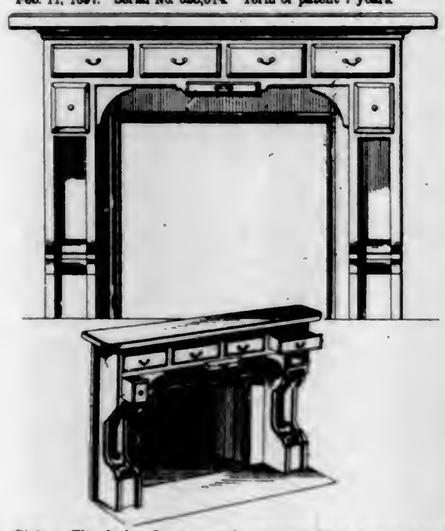
10. In a stove or range the design for the closet-doors, substantially as herein shown.

11. In a stove or range the design for the closet-railing, substantially as herein shown.

12. In a stove or range the design for the bracket-shelf, substantially as herein shown.

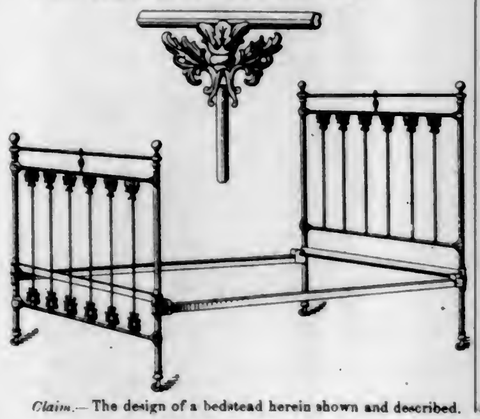
13. In a stove or range the design for the shelf-back, substantially as herein shown.

26,853. MANTEL. ANDREW J. FAIR, Walnut Cove, N. C. Filed Feb. 11, 1897. Serial No. 623,014. Term of patent 7 years.



Claim.—The design for a mantel, substantially as herein shown and described.

26,854. BEDSTEAD. WILLIAM S. FOSTER, Utica, N. Y. Filed Feb. 8, 1897. Serial No. 622,549. Term of patent 7 years.



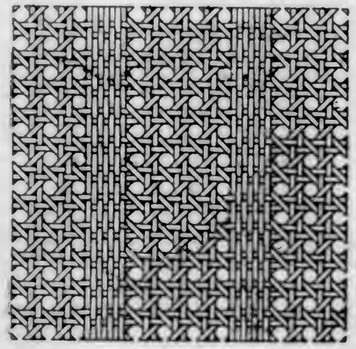
Claim.—The design of a bedstead herein shown and described.

26,855. BEDSTEAD. WILLIAM S. FOSTER, Utica, N. Y. Filed Feb. 8, 1897. Serial No. 622,550. Term of patent 7 years.



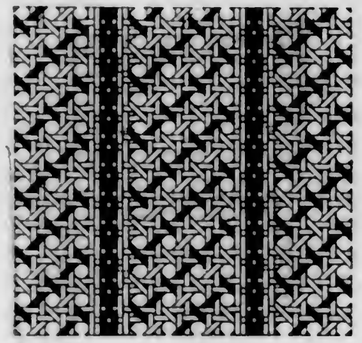
Claim.—The design of a bedstead substantially as herein shown and described.

26,856. CANE FABRIC. EDMUND MORRIS, Michigan City, Ind. Filed Feb. 18, 1897. Serial No. 624,049. Term of patent 3½ years.



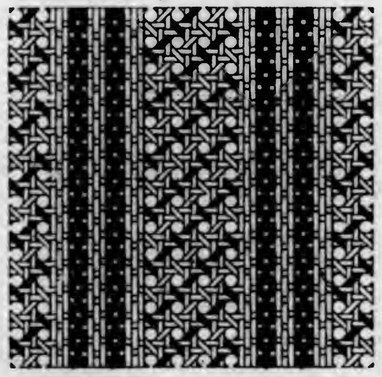
Claim.—The design for cane fabric, substantially as herein shown and described.

26,857. CANE FABRIC. EDMUND MORRIS, Michigan City, Ind. Filed Feb. 18, 1897. Serial No. 624,050. Term of patent 3½ years.



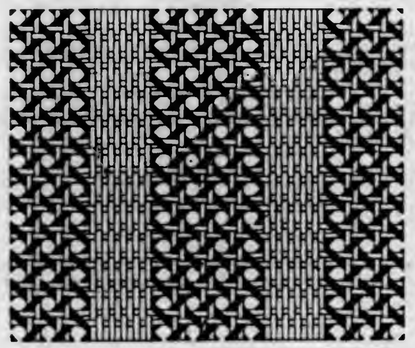
Claim.—The design for cane fabric substantially as herein shown and described.

26,858. CANE FABRIC. EDMUND MORRIS, Michigan City, Ind. Filed Feb. 18, 1897. Serial No. 624,051. Term of patent 3½ years.



Claim.—The design for cane fabric substantially as herein shown and described.

26,859. CANE FABRIC. EDMUND MORRIS, Michigan City, Ind. Filed Feb. 18, 1897. Serial No. 624,052. Term of patent 3½ years.



Claim.—The design for cane fabric, substantially as herein shown and described.

26,860. CARPET. WILLIAM M. DAINTREY, New York, N. Y. Filed Feb. 15, 1897. Serial No. 623,575. Term of patent 3½ years.

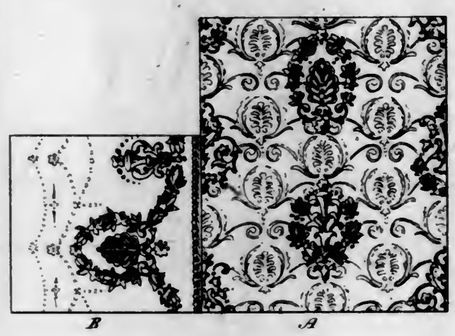


Claim.—1. In the design for a carpet, the body A, substantially as shown.

2. In the design for a carpet, the border B, substantially as shown.

3. The design for a carpet, consisting of the body A and the border B, substantially as shown.

26,861. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y., assignor to the Lowell Manufacturing Company, of Massachusetts. Filed Feb. 18, 1897. Serial No. 624,060. Term of patent 3½ years.



Claim.—1. In the design for a carpet, the body A, substantially as shown.

2. In the design for a carpet, the border B, substantially as shown.

3. The design for a carpet consisting of the body A, and the border B, substantially as shown.

TRADE-MARKS

REGISTERED MARCH 30, 1897.

29,741. SKIN GLOVES OR KID GLOVES. FOSTER, PAUL & COMPANY, New York, N. Y. Filed Feb. 3, 1897.

Fosterina

Essential feature.—The word "FOSTERINA." Used since July, 1887.

29,742. SKIN GLOVES OR KID GLOVES. FOSTER, PAUL & COMPANY, New York, N. Y. Filed Feb. 3, 1897.

Foster

Essential feature.—The word "FOSTER." Used since February, 1877.

29,743. GLOVE-FASTENERS. FOSTER, PAUL & COMPANY, New York, N. Y. Filed Feb. 3, 1897.



Essential feature.—The letter "F." Used since November, 1883.

29,744. GLOVE-FASTENERS. FOSTER, PAUL & COMPANY, New York, N. Y. Filed Feb. 3, 1897.



Essential feature.—The letter "X." Used since November, 1896.

29,745. GLOVE-FASTENERS. FOSTER, PAUL & COMPANY, New York, N. Y. Filed Feb. 3, 1897.



Essential feature.—The letters "O X." Used since December, 1896.

29,746. CLASPS, BUTTONS, AND GLOVES. HENRY M. PEYSER & COMPANY, New York, N. Y. Filed Feb. 19, 1897.



Essential feature.—The symbol "SWASTIKA." Used since February 10, 1897.

29,747. SHOES. A. PINKER & SON, Brooklyn, N. Y. Filed Feb. 13, 1897.



Essential feature.—A diamond-shaped shield upon which is displayed the capital letter "P," and at the lower meeting-point of the shield on one side a letter "N" and on the opposite side a letter "Y," said two letters being of smaller size than the letter "P" on the face of the shield. Used since July, 1885.

29,748. SHOES. J. & M. STRASBURGER, Washington, D. C. Filed Feb. 13, 1897.

DR. JANON'S

Essential feature.—The abbreviation and word "DR. JANON'S." Used since June, 1896.

29,749. SKIRT-PROTECTORS. HARRY FEDER, New York, N. Y. Filed Sept. 4 1896.

FEDER'S BRUSH

Essential feature.—The words "FEDER'S BRUSH." Used since April 15, 1896.

29,750. MACKINTOSHES AND OTHER RUBBER CLOTHING. McCORD RUBBER COMPANY, St. Joseph, Mo., and Chicago, Ill. Filed Feb. 25, 1897.

The Golden Rule

Essential feature.—The words "GOLDEN RULE." Used since January 1, 1893.

29,751. MINERAL WATER. COLONIAL WATER COMPANY, Richmond, Va. Filed Aug. 12, 1896.

COLONIAL

Essential feature.—The word "COLONIAL." Used since December 1, 1895.

29,752. HUNGARIA NATURAL BITTER WATER. MORIZ S. BLAU SOHNE, Buda-Pesth, Austria-Hungary. Filed Jan. 11, 1897.

HUNGARIA



Essential feature.—A representation of a woman seated, with a sheaf of grain and a circle at each side and the word "HUNGARIA" in proximity thereto. Used since September 1, 1892.

29,753. BEER. ACME BREWING COMPANY, Macon, Ga. Filed Jan. 20, 1897.



Essential feature.—A label having a blue-and-white tinted band arranged diagonally between upper and lower red corners. Used since December, 1896.

29,754. ALE, PORTER, AND LAGER-BEER. THE CONNECTICUT BREWERIES COMPANY, Bridgeport and Meriden, Conn. Filed Feb. 19, 1897.



Essential feature.—A representation of a nutmeg and the word "NUTMEG." Used since August 15, 1895.

29,755. LAGER-BEER. GABRIEL SEDLMAYR, BRAUEREI ZUM SPATEN, Munich, Germany. Filed Dec. 26, 1896.



Essential feature.—A representation of a spade-blade. Used since January, 1884.

29,756. LAGER-BEER. GABRIEL SEDLMAYR, BRAUEREI ZUM SPATEN, Munich, Germany. Filed Dec. 26, 1896.

SPATENBRÄU

Essential feature.—The word "SPATENBRÄU." Used since 1876.

29,757. LAGER-BEER. GABRIEL SEDLMAYR, BRAUEREI ZUM SPATEN, Munich, Germany. Filed Dec. 26, 1896.



Essential feature.—The words "VERSANDT BIER VON GABRIEL SEDLMAYR BRAUEREI ZUM SPATEN MÜNCHEN," a representation of a spade-blade, and a surrounding margin. Used since 1884.

29,758. LAGER-BEER. GABRIEL SEDLMAYR, BRAUEREI ZUM SPATEN, Munich, Germany. Filed Dec. 26, 1896.

SPATEN

Essential feature.—The word "SPATEN." Used since 1840.

29,759. LAGER-BEER. THE REYMANN BREWING COMPANY, Wheeling, W. Va. Filed Feb. 20, 1897.

PARLOR

Essential feature.—The word "PARLOR." Used since January 15, 1897.

29,760. CERTAIN NAMED BEVERAGES, FOODS, AND RELISHES, AND CIGARS. GEORGE C. BOLDT, New York, N. Y. Filed Oct. 26, 1896.

The Waldorf.

Essential feature.—The words "THE WALDORF" in the above peculiar style of lettering. Used since 1892.

29,761. CIGARS. José M. DIAZ, New York, N. Y. Filed Jan. 18, 1897.

FLOR DEL MUNDO

Essential feature.—The words "FLOR DEL MUNDO." Used since September 15, 1896.

29,762. PREPARATION OF FIGS WITH SUGAR AND OTHER INGREDIENTS. ERVIN A. RICE COMPANY, Chicago, Ill. Filed Feb. 23, 1897.

FIG FAG

Essential feature.—The word "FIGFAG." Used since February 1, 1897.

29,763. MEDICINE FOR THE PURIFICATION OF THE BLOOD. CHARLES BARSOTTI, New York, N. Y. Filed July 12, 1895.



Essential feature.—A representation of the head of a Capuchinian monk. Used since September 15, 1887.

29,764. BLEACHING COMPOUNDS, INCLUDING BLEACHING-POWDERS. READ HOLLIDAY & SONS, LIMITED, New York, N. Y. Filed Feb. 15, 1897.

VAC

Essential feature.—The word "VAC." Used since January 30, 1897.

29,765. CERTAIN ODORLESS LAWN-DRESSING. R. RAUH & SONS, Indianapolis, Ind. Filed Dec. 9, 1896.

LAWNMERE

Essential feature.—The word "LAWNMERE." Used since September 1, 1896.

29,766. SOLDERING-FLUX. THE GRASSELLI CHEMICAL COMPANY, Cleveland, Ohio. Filed Feb. 19, 1897.

SNOWFLAKE SOLDERING SALT

Essential feature.—The words "SNOWFLAKE SOLDERING SALT." Used since February 9, 1897.

29,767. ROOFING MATERIAL. JOHN F. CHEVALIER, Providence, R. I. Filed Feb. 5, 1897.

STRAIGHT RUN

Essential feature.—The words "STRAIGHT RUN." Used since June 18, 1894.

29,768. GAS-LAMPS, GAS-BURNERS, GAS-LAMP CHIMNEYS, AND INCANDESCENT MEDIUMS FOR GAS-LAMPS. APOLLO INCANDESCENT GAS LIGHT COMPANY, New York, N. Y. Filed Feb. 19, 1897.

APOLLO

Essential feature.—The word "APOLLO." Used since January 2, 1897.

29,769. RAILROAD LAMPS AND LANTERNS. THE RAILROAD SIGNAL LAMP AND LANTERN COMPANY, New York, N. Y. Filed Feb. 23, 1897.



Essential feature.—An arm and hand holding a raised spear and the word "ARMSPEAR." Used since December 1, 1896.

29,770. RAILROAD LAMPS AND LANTERNS. THE RAILROAD SIGNAL LAMP AND LANTERN COMPANY, New York, N. Y. Filed Feb. 23, 1897.



Essential feature.—An arm holding aloft a spear. Used since December 1, 1896.

29,771. RAILROAD LAMPS AND LANTERNS. THE RAILROAD SIGNAL LAMP AND LANTERN COMPANY, New York, N. Y. Filed Feb. 23, 1897.

ARMSPEAR

Essential feature.—The word "ARMSPEAR." Used since December 1, 1896.

29,772. BICYCLES. SCHOVERING, DALY & GALES, New York, N. Y. Filed Feb. 2, 1897.

GALES

Essential feature.—The word "GALES." Used since February 1, 1890.

29,773. STEEL CASTINGS OF ALL DESCRIPTIONS. THE AULMAN & TAYLOR MACHINERY COMPANY, Mansfield, Ohio. Filed Feb. 5, 1897.

FLOWED STEEL

Essential feature.—The words "FLOWED STEEL." Used since July 1, 1896.

29,774. FEED CARRIERS AND CUTTERS AND ALL AGRICULTURAL IMPLEMENTS AND MACHINERY. W. R. HARRISON & CO., Massillon, Ohio. Filed Feb. 24, 1897.

TORNADO

Essential feature.—The word "TORNADO." Used since 1885.

THE NORRIS PETERS CO. PHOTO-LITHO WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

FOWLER *v.* DODGE.

Decided March 16, 1897.

1. INTERFERENCE—PRIORITY.
   Held that Fowler was the first to conceive of the invention and under all of the circumstances proceeded with reasonable diligence to the construction of his machine.
2. SAME—SUFFICIENCY OF DISCLOSURE.
   The specification and drawings of Dodge, while showing an adequate and full conception of the invention, *Held* insufficient to enable one skilled in the art, without other aids, to construct the machine.
3. SAME—SAME—CONSTRUCTIVE REDUCTION TO PRACTICE.
   On the question of the sufficiency of a party's application to enable him to avail himself of his specification and drawings as constructive reduction to practice on the date of their filing it is necessary to distinguish between those which are sufficient to show an intellectual conception of an improvement and those which are sufficient in a patent to enable others skilled in the art to build the machine without extraneous aid.

APPEAL from the Examiners-in-Chief.

LINOTYPE-MACHINE.

Application of Joseph C. Fowler filed October 1, 1893, No. 488,800. Application of Philip T. Dodge filed June 29, 1893, No. 479,153.

Mr. Jas. L. Norris and *Mr. A. H. Norris* for Fowler.

Mr. Robert F. Rogers for Dodge.

SEYMOUR, *Commissioner:*

This is an appeal taken by Dodge from the decision of the Examiners-in-Chief awarding priority of invention to Fowler on the following issue:

The combination, in an organized machine for producing type-bars from impressed lines of matrices, of a magazine having separate cells for circulating type-plates, a carrier or holder having a line-assembling channel or space, key mechanism for individually releasing the circulating type-plates from the magazine-cells, a carrier or holder for matrix material, means for causing the line of type-plates to indent the matrix material to form a line of matrices, casting mechanism for casting a type-bar from the said matrices, and mechanism in operative connection with the line-assembling channel or space for removing the type-plates therefrom and returning them to their proper cells in the magazine.

What confers novelty in this issue is the circulating system and securing the casting in the same machine. The means for effecting the circulation of the dies is the same as in the then-existing Mergenthaler machine. Dodge inserted indenting features in the Mergenthaler machine and a different mechanism from the Rogers machine and from the Lee and Le Brun machine. The Lee and Le Brun machine has everything in this issue except the circulating mechanism. The circulation of the matrices or dies effected by the circulating mechanism is necessary in a machine of this class to obtain the speed essential to commercial success.

It appears with sufficient certainty that Fowler showed "Exhibit 3" to Hine in the latter part of 1888 and explained to him the structure of his proposed machine and the connection in which the parts were to be used with such fullness as to convey an idea of the operative device of which the assembling-wheel illustrated in this exhibit forms a part. This "Exhibit 3," although it is a defective illustration, is sufficient, in connection with the oral testimony, to prove the conception of the entire machine.

Fowler was a comparatively poor man and was dependent upon others for the money necessary to carry forward inventions in this line involving the outlay of so much money, and therefore upon disclosing the invention to Hine he endeavored to get him sufficiently interested in the matter to furnish the capital necessary to perfect the invention. Hine refused to assist him with the indenting-machine, but agreed to assist him with the direct line-casting machine, and therefore Fowler proceeded to work on that line. Between the latter part of 1888 and December, 1892, he did nothing in the way of actually reducing his invention to practice; but in spite of Hine's discouragement he had not given up the idea, since he talked about the matter with others, experimented by indenting lead plates, and did not cease in his efforts to arouse Hine's interest in the invention. In the latter part of 1892 he tried to obtain Hine's consent to apply the indenting feature to a direct line-casting machine which he had just completed; but Hine refused to let this be done. Hine, under a contract with Fowler, furnished the money necessary in the construction of all machines built by Fowler at that time, and therefore his consent was necessary in order to apply the indenting feature.

In December, 1892, Fowler made the drawing "Exhibit 12" and showed it to Hine and gave him a full oral description of the invention and again tried to interest him in the matter, but again met with failure. He then, at Hine's request, proceeded to the completion of a folder for the American Printing Press Company, which was finished in July, 1893. During this time he talked about the invention with others, and in July, 1893, he again went to Hine and insisted that if Hine would not take up the matter he would seek elsewhere for aid. One of the main objections made by Hine to the indenting-machine was the cost of the type, and when in July, 1893, Fowler explained to him that they could be produced very cheaply he was favorably impressed and on August 6, 1893, authorized

Fowler to proceed to the construction of a machine embodying the invention. This Fowler immediately proceeded to do, working drawings being begun by Knaak and a full-sized working machine being begun this same month by Berger under Fowler's directions. This machine, which was made in substantial accordance with the specification and drawings of Fowler's application, was finished as early as November or December, 1893. It was not provided with a full set of type and was defective as to timing and as to the strength of some of the parts, but was a practically operative device and actually produced indented bars, some of which are introduced in evidence. This machine was taken to pieces and another machine was built, using parts of the first one in construction. The second machine, which was completed by June, 1894, was built for the purpose of making it stronger in parts, more perfect in workmanship and finish, and somewhat larger than the first machine. This machine differs in several details from the first one and from the disclosure in Fowler's application. Seperate matrix-blanks were not used for each indentation, but two bars of lead were substituted, and a knife was provided for shaving off the indented part after the operation of casting, so that a smooth surface would be presented for another indentation.

This difference is merely an improvement or step forward in the art and is no departure from the invention set forth in the issue. The lead plates could be removed after each indentation in this machine, and it is only for convenience that the knife is provided.

In conclusion, it is considered that Fowler had a competent conception of the thing to be accomplished and of the means for accomplishing it before the first of May, 1893, the date of conception proved by Dodge; that he had a competent conception of the means for carrying the matrix material, and that this means consisted of a drum provided with several matrix-holding chambers in its periphery; that Fowler had before this determined to cast in the same machine with the indenting apparatus, and that his inactivities, at least between December, 1892, and the date of completion of his machine, under all the circumstances and considering the cost of the machine, are not fatal to his claim to priority.

On the question of the sufficiency of Dodge's application to enable him to avail himself of his specification and drawings as constructive reduction to practice on the date of their filing it is necessary to distinguish between drawings and descriptions which are sufficient to show an intellectual conception of an improvement and those which are sufficient in a patent to enable others skilled in the art to build the machine without extraneous aid.

In the case of *Plimpton* v. *Malcolmson*, (L. R. 3 Ch. Div., 531,) Jessel, Master of the Rolls, held this language:

> It is plain that the specification of a patent is not addressed to people who are ignorant of the subject-matter. If it is a mechanical invention you have first of all scientific mechanicians of the first class, eminent engineers; then you have scientific mechanicians of the second class, managers of great manufactories, great employers of labor, persons who have studied mechanics, * * * and in this class I should include foremen, being men of superior intelligence who, like their masters, would be capable of invention, and like the scientific engineers would be able to find out what was meant even from slight hints and still more imperfect descriptions and would be able to supplement, so as to succeed even from a defective description, and even more than that, would be able to correct an erroneous description. That is what I would say of the two first classes, which I will call the "scientific" classes. The other class consists of the ordinary workman, using that amount of skill and intelligence which is fairly to be expected from him—not a careless man, but a careful man, though not possessing that great scientific knowledge or power of invention which would enable him by himself unaided, to supplement a defective description or correct an erroneous description. * * * It will be a bad specification if the first two classes only understand it, and if the third class do not.

Upon the authority of this and other cases to the same effect it is thought that the specification and drawings in the application of Dodge, while showing to my entire satisfaction the adequate and fullest conception of the invention by Dodge himself, are yet insufficient to enable one skilled in the art, without other aids, to construct an operative line-casting machine of the indenting type called for by this issue.

Upon the whole case my conclusion is that Fowler is the first to conceive this improvement; that he proceeded with reasonable diligence to the construction of his machine and a test of it from August to December, 1893, and thereafter to the construction of a second machine not materially departing from the first; that he is the first inventor of the improvement set forth in the issue, and that the decision of the Examiners-in-Chief in awarding priority to him ought to be affirmed, and it is so ordered.

EX PARTE MUSGRAVE AND NYE.

Decided August 24, 1896.

1. MUSGRAVE AND NYE—FUEL—NON-PATENTABILITY.

   Application of N. W. Musgrave and H. P. Nye, for fuel and process of manufacture, examined and *Held* not patentable in view of the prior art.

2. PROCESS—NON-PATENTABLE.

   A process which employs low heat for a long time is not patentable over another which uses a high heat for a short time when the result—namely, the partial distillation of coal—is the same in both cases.

APPEAL from the Examiners-in-Chief.

FUEL AND PROCESS OF MANUFACTURE.

Application of Nathan W. Musgrave and Harold P. Nye filed May 11, 1895, No. 549,006.

Messrs. Briesen & Knauth for the applicants.

FISHER, *Acting Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief affirming the rejection by the Primary Examiner of the following claims:

1. As a new article of manufacture, the herein-described smokeless fuel consisting of a bituminous fuel, the product of a partial distillation of bituminous coal at a low heat, devoid of smoke-producing constituents and retaining a large percentage of volatile combustible constituents.

2. The herein-described process of preparing a smokeless fuel which consists in subjecting bituminous coal to partial distillation at a low heat and maintaining the heat for a sufficient length of time to drive off only the lighter luminous and volatile hydrocarbons without removing the heat-yielding hydrocarbon constituents, substantially as described.

The references are Lynd, January 4, 1870, No. 98,606, and British patents No. 558 of 1856, Morgan, and No. 6,819 of 1892, Scott-Moncrieff.

Applicants process differs from the ordinary coking process in that a low heat is used; otherwise the processes are substantially identical. Applicants get a substance which may perhaps be described as partially-charred coal. The affidavits on file are to the effect that this substance has a higher heating power and is in every way valuable as a fuel.

The British patent to Morgan *et al.* describes a similar process as applied to anthracite coal. The British patent to Scott-Moncrieff, which is thought to be the closest reference, has the same object in view that applicants have. They claim, however, that the processes are essentially different. Scott-Moncrieff stops the distillation of bituminous coal before it is complete. Applicants claim that their process and product are both different from those of Scott-Moncrieff, because they use a low heat for a long time and Scott-Moncrieff uses a high heat for a short time.

It seems to me, however, that they are both substantially identical in that the coal is only partially distilled.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MUSGRAVE AND NYE *v.* COMMISSIONER OF PATENTS.

Decided February 10, 1897.

1. MUSGRAVE AND NYE—FUEL—NON-PATENTABILITY.

   Application of Nathan W. Musgrave and Harold P. Nye, for smokeless fuel and process of preparing it, *Held* not patentable in view of the prior art.

2. HEAT—PROCESS—PATENTABILITY—DEGREE OF HEAT.

   The discovery of a new process in any art by the addition of heat as a material factor, where heat had never before been applied or suggested, would constitute invention; but the adoption of a discretionary temperature in treating coal, subject to increase or diminution, as experience, as well as the varying character of the material treated, may suggest, does not amount to invention.

3. VARIATION OF TEMPERATURE—NON-INVENTION.

   It involves only the exercise of ordinary faculties to vary the temperature required in a certain process in which heat is essential, even when this variation is great.

Messrs. Briesen & Knauth and *Messrs. Church & Church* for the appellants.

Mr. W. A. Megrath for the Commissioner of Patents.

SHEPARD, *J.:*

This is an appeal from the decision of the Acting Commissioner of Patents refusing an application for a patent embracing the following claims:

1. As a new article of manufacture, the herein-described smokeless fuel, consisting of a bituminous fuel, the product of a partial distillation of bituminous coal at a low heat, devoid of smoke-producing constituents and retaining a large percentage of volatile combustible constituents.

2. The herein-described process of preparing a smokeless fuel which consists in subjecting bituminous coal to partial distillation at a low heat and maintaining the heat for a sufficient length of time to drive off only the lighter luminous and volatile hydrocarbons without removing the heat-yielding hydrocarbon constituents, substantially as described.

In their specification appellants say:

> Inasmuch as bituminous coal is by far the most commonly-used fuel, especially for domestic consumption, it is the chief aim of our invention to so prepare ordinary bituminous coal that the same shall be deprived of substantially all of its smoke-producing constituents while at the same time retaining substantially all of its heating constituents, and is rendered suitable for burning without the production of smoke, not only in closed stoves, furnaces, and under boilers, etc., but also in open grates, in which heretofore it has not been possible to avoid the production of smoke in burning bituminous coal. This we accomplish by subjecting the coal to a partial distillation at low temperature in such manner as to drive off only those constituents which are distilled from coal at such low temperatures as not to be oxidized in the presence of a free supply of air or oxygen, and which consequently pass off in ordinary combustion as smoke, while at the same time we avoid the combustion of the coal and retain in it substantially all those constituents whose combustion affords heat.
>
> In practicing our invention we take bituminous coal, preferably in the lump, but other forms may be used, if desired, and charge the same into suitable distilling apparatus which may be either an ordinary coke-oven, gas-retort, or other receptacle in which the coal can be subjected to heat with the practical exclusion of atmospheric air, or the process may be carried on in open heaps covered with earth or other suitable material. Heat is applied gradually to the mass in the receptacle, and its effect is to drive off the most volatile constituents of the mass, such as upon perfect combustion are chiefly luminous and on incomplete combustion form smoke, together with the moisture and other light gaseous compounds, which volatilize profusely when bituminous coal is first subjected to heat, as in ordinary firing of furnaces, stoves, and grates. The light gases and hydrocarbons thus thrown off may be, and in practice are, collected and utilized for industrial purposes.
>
> The heat is preferably increased only to the point necessary for the removal of the smoke-making constituents. This temperature is below that necessary for the fusion of the fixed carbon and for driving off the heat-producing volatile compounds. This temperature will vary with the varying conditions of practice, but for the purposes of this specification it may be stated as about 550° Fahrenheit. When the smoke is no longer given off, the charge is drawn and quenched. The resulting product is not a coke, but retains approximately the composition of bituminous coal, and is in fact a bituminous coal containing a smaller percentage of volatile hydrocarbons than the ordinary or natural coal from which the product was made. This material burns freely, without smoke, holds fire well, and is in every way well adapted for use wherever bituminous coal is used; being in fact a smokeless bituminous coal.

The utility of the fuel thus manufactured is conceded and it seems to have given satisfaction in the market for smokeless coal.

The claims were rejected for want of patentable novelty by the Special Examiner, and his decision has in turn been affirmed by the Examiners-in-Chief and the Acting Commissioner.

The references in their opinions to anticipations are the British patents to Morgan and Scott-Moncrieff and the American patent, No. 98,606, issued to William John Lynd January 4, 1870.

In the specification of the patent of Scott-Moncrieff his purposes and process are thus described:

> According to my improvements ordinary bituminous coal can be converted into an improved and novel kind of fuel of great commercial value, and during the treatment thereof the gases and by-products of distillation are preserved and utilized, and the product has the advantage of giving out greater heat than ordinary coal and of being comparatively smokeless, and it may be turned out in any convenient commercial form. In carrying out my invention I employ only apparatus now in common use, but the mode of application thereof is novel and advantageous.
>
> The required apparatus as is hereinafter shown are so well understood that illustrations are not necessary to a full description of my invention.
>
> In the treatment of the raw fuel material to produce the novel kind of fuel which is the subject of my invention, I subject ordinary coal to the usual process of distillation as carried out in the production of coal-gas on a commercial scale, but instead of allowing the coal to remain in the retorts during the full period usually given for the production of gas and coke, I stop the distillation at a convenient period, that is, when the coal is in a condition most suitable for compression into a solid and cohesive mass. This may be, for example, in from one-third to one-half of the time usually allowed for complete distillation, the time varying with the nature of the coal under treatment. I stop the distilling process either by withdrawing or by thrusting out the charge from the retort by means of openings and doors provided at one or both ends of the retort, and in such manner as to fill strong close vessels, or chambers, or molds of suitable size and shape, made preferably of cast-iron or other suitable material. I then subject the partially-distilled coal thus loosely contained in these vessels or molds to a high pressure and thoroughly compress it into a solid and cohesive mass.

Lynd described his invention as a process for treating the coals of Colorado and elsewhere—

> called by some dry bituminous, and by others glance and commonly called lignite—

so that they could be used in place of coke, charcoal, and anthracite coal for smelting, blacksmithing, and other uses.

The coal is placed in a retort or other receptacle, large or small, (of any suitable material,) put over, or in, or attached to a furnace or other structure, so as to receive the heat necessary to expel the bitumen, sulfur, and other extraneous or volatile matter. Heat is applied, and when the foreign or volatile matters are driven out a light charred substance, easily lighted, and giving out intense heat, remains.

He adds:

In this preparation of the coal, the retort will require usually to be heated to a cherry-red heat, and maintained for some time at that heat.

It is understood that the "cherry-red" heat of the retort indicates a temperature of from 1,500° to 1,600° Fahrenheit.

The descriptions of their respective processes show that each inventor, being thoroughly familiar with the old art of producing coke through the distillation of coal, aimed at the production of a new and different fuel in which, as far as practicable, the heat-producing constituents of bituminous coal might be retained, while the smoke-producing ones should be expelled. The product sought was something between the crude coal and coke, and was to be obtained by stopping the process of distillation before reaching the coking stage.

Conceding that the finished products of the several processes are not identical and that a quantitative analysis would show discrepancies materially affecting their comparative utility and excellence, still they are of the same chemical species.

The final step in the process of Scott-Moncrieff, by which the smokeless fuel is pressed into blocks, must be ignored in considering the differences, in respect of invention or patentable novelty, between his product and process and those of the appellants, because it is a mere mechanical operation, resorted to for convenience in handling, that may be carried on or omitted without relation to or influence upon the process of manufacture of the article itself. His specification distinctly called for the reduction of "ordinary bituminous coal," and there is nothing in it to support the contention that he contemplated the utilization of small fragments or slack only, that could not otherwise be easily handled and applied as fuel, by fusion at a high heat and compression into blocks that could be handled with the same facility as lump coal. It is true that he proposes to stop the distillation before reaching the coking stage, "at a convenient period," that is indicated by a condition of the fused mass most suitable for compression into a solid mass; but this appears to indicate merely a time when, the new product being regarded as finished, the destructive distillation should cease, rather than a special condition of the fused mass most suitable for compression into blocks, as the prime object for the attainment of which the process had been invented.

The partial distillation of bituminous coal of every quality into a smokeless fuel other than coke was plainly the prime object of the inventor, and compression into blocks for handling and for use was merely incidental.

Lynd is not perfectly clear in the details of his specification, though he certainly contemplates the production of a smokeless fuel distinct from coke from certain low grades of coal under process of distillation at a high temperature.

The invention of Scott-Moncrieff is confessedly nearest to that claimed by appellants, and to it special attention is directed.

With much earnestness the appellants contend that there is an essential difference between their product and that of Scott-Moncrieff and others; that the other processes necessarily expel the heat-producing constituents that enter into the bituminous elements of the coal—namely, dead-oil and pitch—and that as a necessary result their own product, which retains these and expels only the smoke-producing constituents, volatile at a comparatively low temperature, is not only different, but far superior also in all respects. If this were conceded as to the product, it would not be a necessary conclusion that the improvements made by appellants in the process of making smokeless fuel from bituminous coals was an original conception and a patentable invention or discovery. To be patentable the process must appear to contain a new idea distinct from any conception that has preceded it, as well as productive of something new and useful. (*Tilghman* v. *Proctor*, 19 O. G., 859; 102 U. S., 707, 733; *Pearce* v. *Mulford*, 18 O. G., 1223; 102 U. S., 112, 118; *Hill* v. *Wooster*, 50 O. G., 560; 132 U. S., 693, 701; *Burt* v. *Evory*, 50 O. G., 1294; 133 U. S., 349, 358; *Durham* v. *Seymour*, 71 O. G., 601; 6 App. D. C., 78, 102.)

In *Tilghman* v. *Proctor*, *supra*, it was said:

The mixing of certain substances together, or the heating of the substances to a certain temperature, is a process. If the mode of doing it, or the apparatus in or by which it may be done, is sufficiently obvious to suggest itself to a person skilled in the particular art it is enough, in the patent, to point out the process to be performed, without giving supererogatory directions as to the apparatus or method to be employed. If the mode of applying the process is not obvious, then a description of a particular mode by which it may be applied is sufficient. There is, then, a description of the process and of one practical mode in which it may be applied. Perhaps the process is susceptible of being applied in many modes and by the use of many forms of apparatus. The inventor is not bound to describe them all in order to secure to himself the exclusive right to the process, if he is really its inventor or discoverer.

Appellants' claim to the discovery of a distinctively new idea, and through it of a new and patentable process, is founded in the comparatively low degree of temperature—about 550° Fahrenheit—to be maintained in the distillation, to which alone they attribute the exceptional character and excellence of their fuel; and they assert that the other processes all contemplate and require the same high degree of temperature—about 1,600° Fahrenheit—usual and necessary in the production of coke or illuminating-gas, and hence necessarily expel many of the heat-producing constituents of the coal along with those that produce the objectionable smoke. They claim to have been the first and only persons to discover that a result, as well as the best of results, could be obtained at the lower degree of temperature, and that this discovery constitutes invention.

It may be regarded as settled that the discovery of a new process in any art by the addition of heat as a material factor, where heat had never before been applied or suggested, would constitute invention and entitle the discoverer to a patent. (*Harford* v. *Neilson*, Webs. P. C., 275, 371; *Id.*, 712; *Tilghman* v. *Proctor*, 19 O. G., 859; 102 U. S., 707, 728.) And the case last cited is relied on by the appellants

in support of their contention. But, applying the doctrine hereinabove quoted from that case to the facts presented by this record, we think it clear that their claim is not maintainable. Admitting that the introduction of heat as a distinct feature of a process producing a new and useful result would make that process patentable does not cover their case. We do not find it necessary to determine the question whether in a manufacture where heat is a well-known and necessary element of the process the adoption of an arbitrary degree of temperature under all circumstances, differing in the extreme from that required or permitted in all others, would create a new and patentable process, for the facts do not present it. It is true that in *Mitchell* v. *Tilghman* (19 Wall., 287) the majority of the Court did attach much importance to a difference in temperature of about 200° Fahrenheit between rival processes for the manufacture of fat-acids; but the case chiefly turned upon the difference in the apparatus used by the respective parties. That case, however, was overruled in the later case of *Tilghman* v. *Proctor*, *supra*, wherein the patent of Tilghman for the process was finally upheld without regard to differences between their apparatus or degrees of temperature. In explaining the conclusion reached in the latter case, (p. 709,) Mr. Justice Bradley said:

In the case of Mitchell, the majority of the Court was of opinion that in the application of the process thus claimed the patentee was confined to the use of the process particularly pointed out in the specification; and as, by that, it was proposed to produce a very rapid separation of the fatty elements by the use of a high degree of heat, the operation being effected in the space of ten minutes by forcing the fat, mixed with water, through a long coil of strong iron tube passing through an oven or furnace where it was subjected to a temperature of melting lead, or 612° Fahrenheit; it was concluded by the Court that the producing of the same result in a boiler subjected to only 400° Fahrenheit, and requiring a period of several hours to effect the desired separation, was not an infringement of the patent, although the process by which the effect was produced—namely, the action of water, in intimate mixture with the fat, at a high temperature and under a sufficient pressure to prevent the formation of steam—was undoubtedly the same. On further reflection, we are of the opinion that, in the case referred to, sufficient consideration was not given to the fact that the patent is for a process, and not for any specific mechanism for carrying such process into effect.

In this case, as in that, we think it quite plain that the precise degree of heat is not of the essence of the process, either of appellants or of the patents in reference. In their specification appellants say:

This temperature will vary with the varying conditions of practice, but for the purposes of this specification it may be stated as about 550° Fahrenheit. When the smoke is no longer given off the charge is drawn and quenched.

Scott-Moncrieff, on the other hand, says:

I subject ordinary coal to the usual process of distillation as carried out in the production of coal-gas on a commercial scale, but instead of allowing the coal to remain in the retorts during the full period usually given for the production of gas and coke, I stop the distillation at a convenient period, that is, when the coal is in a condition most suitable for compression into a solid mass. This may be, for example, in from one-third to one-half of the time usually allowed for complete distillation, the time varying with the nature of the coal under treatment.

As we have heretofore said, the prime object of Scott-Moncrieff, as of appellants, was to produce a smokeless fuel retaining all the heat-producing constituents of the coals so far as possible in so doing; and, as was said in *Tilghman* v. *Proctor*, *supra*, if the mode of producing the desired result were obvious the discoverer would not be required to point it out. If not obvious, but susceptible of being attained in several different modes or by different apparatus, the discoverer is not bound to describe them all in order to secure to himself the exclusive right to the process.

Scott-Moncrieff certainly does not bind himself to the use of a very high degree of temperature as essential to his process. He seems, like Tilghman in his process of producing fat-acids, to have regarded it as an important consideration, and therefore proposed the high temperature for the purpose of expedition. On the other hand, the appellants, while proposing a lower temperature, do not limit themselves thereto.

Evidently each party in the practical use of his process proposes to be controlled by the main object, and the degree of temperature to be applied is a matter of discretion, subject to increase or diminution, as experience, as well as the varying character of the coals, may suggest the expediency.

Assuming then, what is not perfectly clear, that the high temperature of the Scott-Moncrieff process would, along with the smoke-producing constituents of ordinary coals, and notwithstanding the shorter period of distillation, expel some of the heat-producing constituents also, and thus produce a fuel inferior to that of appellants, we still cannot find that their discovery of the effectiveness of the lower temperature amounted to invention.

It seems to us reasonably clear that this variation in the degrees of temperature, though great, ought readily to have occurred to one skilled in the art of putting into practical operation the process of Scott-Moncrieff or even that of Lynd. The improvement in the art involved, in our judgment—

only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the facility of manipulation which results from its habitual and intelligent practice; and is in no sense the creative work of that inventive faculty which it is the purpose of the Constitution and the patent laws to encourage and reward. (*Hollister* v. *Benedict Mfg. Co.*, 113 U. S., 59, 73; *Thompson* v. *Boisselier*, 31 O. G., 377; 114 U. S., 1, 13; *Burt* v. *Evory*, 50 O. G., 1274; 133 U. S., 349, 358.)

Finding no error in the record, we must affirm the decision appealed from and order the proceedings and decision here to be certified to the Commissioner of Patents in accordance with the law in such cases provided.

It is so ordered.

Supreme Court of the United States.

IN RE C. & A. POTTS & CO.

Decided March 15, 1897.

1. MANDAMUS—DECISIONS OF SUPREME COURT—LOWER COURT BOUND THEREBY.

The general rule is that when a case has been once decided by the Supreme Court of the United States whatever was before that Court and disposed of by its decree is finally settled. The circuit court is bound by the decree, and must carry it into execution without variation or intermeddling, except as to matters left open by the decree.

2. SAME—NOVELTY—INFRINGEMENT.

When questions of novelty and infringement are before the Supreme Court and are disposed of by it, they must be deemed to have been finally settled and cannot afterward be reconsidered by a lower court either by granting a new trial, or a rehearing, or to permit new defenses on the merits by amendment or answer.

3. CIRCUIT COURT JURISDICTION—IRREGULAR PROCEDURE—MANDAMUS.

An order by a circuit court to entertain and grant a petition for a rehearing upon a case decided by the Supreme Court without previous leave obtained therefrom is irregular and unauthorized, and such action affords good ground for a mandamus setting aside such order.

PETITION for mandamus.

STATEMENT OF THE CASE.

This was a petition, presented to this Court on January 4, 1897, for a writ of mandamus to the Hon. George R. Sage, United States district judge, sitting as a judge of the Circuit Court of the United States for the Southern District of Ohio, to command him to execute a mandate of this Court, and to set aside orders made by him after receiving the mandate and inconsistent therewith. The case was as follows:

Upon a bill in equity for the infringement of Letters Patent, an answer denying patentable novelty and infringement, a general replication, and proofs taken and completed, the circuit court sustained the defense of want of novelty, and thereupon, on January 3, 1891, entered a final decree dismissing the bill, for want of equity, with costs. (*Potts* v. *Creager*, 44 Fed. Rep., 680.)

The plaintiff appealed to this Court, which on January 7, 1895, held that the Letters Patent were valid, and had been infringed, and therefore, as appeared by its opinion and mandate, reversed the decree of the circuit court, and remanded the cause to that court for further proceedings in conformity with that opinion. (70 O. G., 494; 155 U. S., 597, 610.)

On February 26, 1895, the circuit court entered a decree, "in conformity with the said mandate," setting aside its former decree, and adjudging that the Letters Patent were valid and had been infringed, referring the cause to a master to take an account of profits, and awarding a perpetual injunction against the defendants. On July 16, 1895, the master filed his report and account of profits.

Before any action of the circuit court upon the master's report, the defendants, on November 29, 1895, filed a petition for a rehearing, for newly-discovered evidence affecting the novelty of the invention; and that court ordered notice to plaintiff to show cause on January 4, 1896, why that petition should not be granted. On that day, the plaintiff objected in writing to the consideration of the petition—

on the grounds that this court is without jurisdiction or authority in the premises; that the issues sought to be made by said evidence are not properly before it; and that the proceedings are and have been irregular, and not according to law.

But the circuit court, on January 15, 1896, granted the petition for a rehearing, for reasons stated in its opinion reported in 71 Fed. Rep., 574; and, after a hearing upon the new evidence, entered an order on December 21, 1896, by which, the court being of opinion that the Letters Patent were—

void for want of invention, in view of said new evidence, and that therefore the equities are with the defendants, it is ordered that said petition stand as a supplemental answer, and that the replication as filed be considered as a replication thereto.

Its opinion upon entering that order is reported in 77 Fed. Rep., 454.

All the decrees and orders of the circuit court, above mentioned, were made by Judge Sage.

Mr. Chester Bradford and *Mr. Ernest W. Bradford* for the petitioner.

Mr. E. E. Wood and *Mr. Edward Boyd* for the respondent.

Mr. Justice GRAY, after stating the case, delivered the opinion of the Court.

The general rules which govern cases of this kind are stated, and the decisions by which those rules have been established are collected, in the recent case of *Sanford Fork and Tool Co., petitioner*, (160 U. S., 247,) in which this Court said:

When a case has been once decided by this Court on appeal, and remanded to the circuit court, whatever was before this Court, and disposed of by its decree, is considered as finally settled. The circuit court is bound by the decree as the law of the case; and must carry it into execution, according to the mandate. That court cannot vary it, or examine it for any other purpose than execution; or give any other or further relief; or review it, even for apparent error, upon any matter decided on appeal; or intermeddle with it further than to settle so much as has been remanded. If the circuit court mistakes or misconstrues the decree of this Court, and does not give full effect to the mandate, its action may be controlled, either upon a new appeal (if involving a sufficient amount) or by a writ of mandamus to execute the mandate of this Court. But the circuit court may consider and decide any matters left open by the mandate of this Court; and its decision of such matters can be reviewed by a new appeal only. The opinion delivered by this Court, at the time of rendering its decree, may be consulted to ascertain what was intended by its mandate; and, either upon an application for a writ of mandamus, or upon a new appeal, it is for this Court to construe its own mandate, and to act accordingly. (160 U. S., 255, 256.)

In that case the circuit court, at a hearing upon exceptions to an answer in equity, had sustained the exceptions, and, the defendant electing to stand by his answer, had entered a final decree for the plaintiff; and this Court, upon appeal, ordered that decree to be reversed, and the cause remanded for further proceedings not inconsistent with its opinion. As the record stood, the only matter which was or could be decided by the circuit court, or by this Court on the appeal, was the sufficiency of the answer; and neither the circuit court nor this Court, upon adjudging the answer to be sufficient, could deprive the plaintiffs of the right to file a replication, putting the cause at issue. It was for that reason, and because no issue of fact had been joined or tried in either court, that this Court held that the cause had been left open for a trial of the facts in controversy between the parties, and that the circuit court, for the purpose of more fully or clearly presenting those facts, was authorized to allow an amendment of the bill. This Court therefore declined to grant a writ of mandamus, but took the precaution of adding:

The case is quite different, in this respect, from those in which the whole case, or all but a subsidiary question of accounting, had been brought to and decided by this Court upon the appeal. (160 U. S., 259.)

The case now in question comes exactly within the class of cases so referred to and distinguished. It was originally heard in the circuit court, not merely upon a question of sufficiency of pleading, but upon the whole merits. That court, at a hearing upon pleadings and proofs, involving the questions of the novelty of the alleged invention, and of its infringement by the defendants, entered a final decree dismissing the bill. Upon the appeal from that decree, both those questions were presented to and considered by this Court, and were by it decided in the plaintiffs' favor. Its decision of those questions in that way was the ground of its opinion, decree and mandate, reversing the decree of the circuit court dismissing the bill, and remanding the cause to that court for further proceedings in conformity with the opinion of this Court. The decision and decree of this Court did not amount, indeed, technically speaking, to a final judgment, because the matter of accounting still remained to be disposed of. (*Humiston* v. *Stainthorp*, 2 Wall., 106; *Smith* v. *Vulcan Iron Works*, 165 U. S., 518.)

But they constituted an adjudication by this Court of all questions, whether of law or of fact, involved in the conclusion that the Letters Patent of the plaintiff were valid and had been infringed. Applying the rules stated at the beginning of this opinion, the questions of novelty and infringement were before this Court, and disposed of by its decree, and must therefore be deemed to have been finally settled, and could not afterward be reconsidered by the circuit court.

When the merits of a case have been once decided by this Court on appeal, the circuit court has no authority, without express leave of this Court, to grant a new trial, a rehearing or a review, or to permit new defenses on the merits to be introduced by amendment of the answer. (*Ex parte Story*, 12 Pet., 339; *Southard* v. *Russell*, 16 How., 547; *Ex parte Dubuque & Pacific Railroad*, 1 Wall., 69; *Stewart* v. *Salamon*, 97 U. S., 361; *Gaines* v. *Rugg*, 148 U. S., 228.) In this respect, a motion for a new trial or a petition for a rehearing stands upon the same ground as a bill of review, as to which Mr. Justice Nelson, speaking for this Court, in *Southard* v. *Russell*, above cited, said:

Nor will a bill of review lie in the case of newly-discovered evidence after the publication, or decree below, where a decision has taken place on an appeal, unless the right is reserved in the decree of the appellate court, or permission be given on an application to that court directly for the purpose. This appears to be the practice of the Court of Chancery and House of Lords, in England; and we think it founded in principles essential to the proper administration of the law, and to a reasonable termination of litigation between the parties in chancery suits. (16 How., 570, 571.)

So, in *United States* v. *Knight*, (1 Black, 488, 489,) Chief Justice Taney said that, in a case brought before this Court exercising general jurisdiction in chancery—

the defeated party, upon the discovery of new evidence, may, after a final decree in this Court, obtain leave here to file a bill of review in the court below to review the judgment which this Court had rendered.

The decree entered by the circuit court, presently after receiving the mandate, setting aside its former decree, and adjudging that the Letters Patent were valid and had been infringed, referring the case to a master for an account of profits, and awarding a perpetual injunction, was, as it purported to be, in conformity with the mandate of this Court. But the subsequent orders of the circuit court, entertaining and granting the petition for a rehearing, without previous leave obtained from this Court for the filing of such a petition, were irregular and unauthorized, based upon a misunderstanding of the mandate, and in practical, though unintentional, disobedience of the command thereof that further proceedings be had in conformity with the opinion of this Court. Upon the record as it stands a clear case is shown for issuing a writ of mandamus to set aside those orders, and to execute the mandate according to what appears to this Court to be its manifest meaning and effect.

Upon the question whether an application for leave to file a petition for a rehearing in the circuit court could and should be entertained by this Court, at the present stage of the case, no opinion is expressed, because no such application has been made.

Unless such an application shall be made to this Court within twenty days, and shall upon consideration be granted by this Court, an order will be entered that the writ of mandamus issue as prayed for.

Court of Appeals of the District of Columbia.

CUSHMAN v. LINES.

Decided February 10, 1897.

1. DESIGN—OIL-CUP—NON-INTERFERENCE.

Interference cannot properly be declared except when two applications or a patent and an application conflict with each other. If the alleged inventions are substantially different from each other, so as to be each of them patentable, there is no ground for interference. In this case no question of priority can arise.

2. INTERFERENCE—PRIORITY ONLY QUESTION BEFORE THE COURT.

When lower tribunals of the Office conclude that the inventions of two applications are the same and the Commissioner concludes that they are different, since in interference cases the question of priority only is before the court, the court will not decide which is the proper theory, but will accept the theory of the Commissioner. Each contestant is accordingly entitled to a patent for his particular invention.

Messrs. Baldwin, Davidson & Wight for the appellant.

Messrs. Earle & Seymour and *Mr. Chas. E. Mitchell* for the appellee.

MORRIS, *J.*:

This is an appeal from the decision of the Commissioner of Patents in a case of interference upon an application for a patent for a design for an oil-cup or "oiler," as it is called.

The supposed invention in controversy is of a design for the form and shape of an oil-cup generally used, it seems, in connection with bicycles, and inasmuch as it is merely a design for form and shape it is difficult to give an adequate description of it in words that would convey an adequate idea of the design. The Commissioner's opinion does not attempt to give any specification and merely refers to the pictures of the designs, which it copies and which are annexed to the opinion. In the opinion rendered by the Board of Examiners-in-Chief we find the following descriptions, which seem to be in accordance with the specifications of the respective parties:

In Cushman's application the design is described as follows:

My design consists of an oil-cup or oiler in which the body portion is oblong in cross-section and at the top has tapering walls converging toward the extreme upper portion of the body. Around the top edge of the tapered portion is an ornamental milled flange or ring B, and above this flange is a cylindrical top or cap D. In the central portion of the body portion is a circular figure C. The essential feature of my design is an oil-cup or oiler oblong in cross-section, having tapering walls at the top around which is an ornamental flange or ring, and above which is a cylindrical cap.

The design is described in Lines's patent as follows:

The base of the oil-can is oval, from which the body A rises, the body being also oval in transverse section. Near the top the sides of the body A are contracted, forming a rounded concave surface which merges into the neck B. The neck B receives the funnel-shaped spout C, shown in broken lines, the spout being inclosed by a cap F.

But even these descriptions are not entirely intelligible without reference to the designs themselves or to the pictures of them, and for these we must refer to the diagrams in the record.

Lines applied for a patent for his design on December 21, 1893, and received his patent on February 6, 1894. Cushman filed his application on

March 5, 1894, and on May 5, 1894, an interference was declared between him and the patentee Lines. Thereupon both parties proceeded to file their preliminary statements in interference. In that of Lines he says that he conceived the invention not earlier than April 1, 1893; disclosed it about the same time; had a sketch made about November 10, 1893; produced full-sized oil-cans containing his design not earlier than November 15, 1893, but had made no model further than as the first oil-can produced can be regarded as a model. In the preliminary statement of Cushman he said that he conceived the invention some time in the latter part of October, 1891; that he first described the invention to others during the fall of 1892; that he first made a sketch of it in April, 1893; that on September 18, 1893, he contracted with a manufacturer for the manufacture for him of a large number of such oil-cans, and that in about a month afterward his order was performed and the oil-cans were put upon the market and sold in large quantities.

As usual in such cases, the parties were not entirely unacquainted with each other. Cushman was engaged in the manufacture of oil-cans and attachments for bicycles, and Lines was a foreman in the works of a manufacturing company with which Cushman transacted business. Yet the testimony does not show, nor is it charged, that there was any appropriation by one of the idea of the other. It is stated by the Commissioner in his opinion, (77 O. G., 153,) and it seems to be true, that there is practically no dispute about the facts and that the plain question in the case is whether two specified figures, designated as "Fig. 2" and "Fig. 3," are the same design, so that when Cushman originated Fig. 2, which he is admitted to have originated, he originated also Fig. 3, which is the design for which the patent was issued to Lines, and which it seems to be conceded was original with Lines, unless it be held to be substantially the same as the other.

The Commissioner has held that the two designs are substantially different, and as substantially different from each other as either from another patented design of a similar character attached to his opinion and designated as "Fig. 1," and he has accorded priority of invention to Lines, the patentee and designer of Fig. 3, thereby reversing the decision of the Board of Examiners-in-Chief, who, as well as the Examiner of Interferences, had awarded priority to Cushman, the designer of Fig. 2. The Examiner of Interferences and the Board of Examiners based their conclusion on the assumed identity or similarity of the two designs. The Commissioner regarded them as substantially different.

Whether the Commissioner's theory of substantial difference of the designs, by which we presume we must understand a patentable difference, be the correct one or whether the other tribunals of the Patent Office were correct in holding the two designs to be substantially the same it does not seem to be for us here to decide in a case of interference. As we understand it interference cannot properly be declared except when two applications or a patent and a pending application conflict with each other and disclose two or more claimants of the same invention. If their alleged inventions are substantially different from each other, so as to be each of them patentable, there is no conflict between them, and there can be no ground for a declaration of interference. Upon the theory of a substantial difference of invention no question of priority of invention can arise. If each is an invention, each is patentable, and each party is entitled to a patent for his own invention.

The conclusion seems to us to be unavoidable that if the Commissioner's theory of substantial difference of the designs in controversy be correct there should have been no declaration of interference in this case, and a patent might well have been issued to each party, but that, on the other hand, if the theory of the subordinate tribunals of the Patent Office be correct that the two designs are substantially the same then undoubtedly the appellant Cushman, being confessedly the first inventor of the first form of the design, is entitled to a judgment of priority in his favor. As we have intimated, it does not seem to be proper for us, in a case of interference, where the only question presented to us is that of priority of invention as between two rival claimants to one and the same invention, to determine which is the correct theory. It seems to us that in the present condition of the record before us we must accept the theory held by the Commissioner that the two inventions are substantially and therefore patentably different. But it does not follow from this that Lines is entitled to judgment of priority to the extent that the claim of Cushman to a patent should be refused, which is the practical effect of the Commissioner's decision. On the contrary, while upon that theory Lines is undoubtedly the first inventor of the design designated in Fig. 3 and entitled to hold the patent which has been issued to him for that design, Cushman is entitled to judgment of priority for the design designated in Fig. 2 and to a patent therefor in due course.

We are of opinion, therefore, that the decision of the Commissioner of Patents should be modified in accordance with these views, and the cause will be remanded to him for that purpose.

The clerk of the court will certify this opinion and the proceedings in the cause, according to law, to the Commissioner of Patents, to be entered of record in his Office.

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IN THE MATTER OF

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ABANDONED EXPERIMENTS.

(See Priority of Invention, 4.)

ABANDONMENT.

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ADJUDICATED PATENTS.

(See Injunction, 1.)

AGREEMENT OF PARTIES IN INTERFERENCE.

(See Interference, 3.)

ANALOGOUS USE.

(See Construction of Specifications and Patents, 1, 4.)

ANTICIPATION.

(See Construction of Specifications and Patents, 3.)

APPEAL.

FAILURE TO FILE APPEAL—APPEAL DISMISSED—COSTS.

When it appears that an appellant has failed to have his cause filed and docketed, his appeal may, on motion, be docketed and dismissed, with costs.

[*Rosebrugh *v.* Holman, 1238.

APPEAL FROM THE COMMISSIONER OF PATENTS.

(See Circuit Courts of the United States; Court of Appeals of the District of Columbia.)

APPEAL TO THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

(See Interference, 3, 4, 8, 9; Reissues, 1.)

1. BRIGGS—ICE-PLANING MACHINE—No. 367,267—FORMER DECISION AFFIRMED.

Upon a consideration of the merits of the case, *Held* that there was no error in the decision of the Commissioner of Patents appealed from and that such decision should accordingly be affirmed.

[*Briggs *v.* Seymour, Commissioner of Patents, 169.

2. INTERFERENCE—APPEAL TO COURT—FORMER DECISION AFFIRMED.

On appeal to the Court of Appeals of the District of Columbia it was *Held* that the Commissioner was right in his decision that Parmelee was the inventor of the device in controversy, and that decision is therefore affirmed.

[*Hill *et al. v.* Parmelee, 170.

APPEAL TO THE SECRETARY OF THE INTERIOR.

(See Secretary of the Interior.)

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(See Supreme Court of the United States, 2.)

APPLICATIONS.

(See Particular Patents, 8, 9, 12.)

ASSIGNEES.

(See Contracts, 5.)

ASSIGNEES BARRED FROM SUIT.

(See Parties to Suit.)

ASSIGNMENT OF FUTURE INVENTIONS.

TITLE—RIGHT TO IMPROVEMENTS UNDER ASSIGNMENT.

An assignment of part of right, title, and interest in a patented invention and in and to any further improvements that the inventor might make or acquire does not give assignees title to an invention which is radically different in several respects, though belonging to the same art. To do so would be in effect to hold that the assignment in question constitutes a mortgage on the inventor's brain. Only improvements on the particular machine patented would pass by the assignment referred to.

[*Independent Electric Company *v.* Jeffrey Manufacturing Company *et al.*, 797.

ATTORNEY'S ADVICE.

(See Reduction to Practice, 1.)

BILL IN EQUITY.

(See Court of Appeals of the District of Columbia; Jurisdiction.)

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BURDEN OF PROOF.

SUIT UNDER REVISED STATUTES 4915—BURDEN OF PROOF SHIFTED UPON SENIOR APPLICANT WHEN JUNIOR HAS OBTAINED A PATENT.

When the decision of the Office is in favor of a junior applicant and a patent issues to him, in a subsequent suit under Revised Statutes 4915 the burden of proof is shifted, and it then devolves upon the senior applicant to show either that his invention antedates that of the patentee or that the latter never made the invention

[*Standard Cartridge Company *et al. v.* Peters Cartridge Company, 621.

CHANGE OF STRUCTURE.

(See Construction of Specifications and Patents, 3, 6.)

CIRCUIT COURT OF APPEALS.

(See Circuit Courts of the United States, 1; Mandamus; Supreme Court of the United States, 1.)

CIRCUIT COURTS OF THE UNITED STATES.

(See Court of Appeals of the District of Columbia.)

1. INTERFERENCE—BILL IN EQUITY—JURISDICTION—RES ADJUDICATA—CITIZENS OF SAME STATE.

A demurrer setting forth no jurisdiction in a circuit court of an interference case decided by the Court of Appeals of the District of Columbia; that the matter is *res adjudicata;* that the circuit court has no jurisdiction to determine the jurisdiction of the Circuit Court of Appeals to entertain an appeal from the Commissioner of Patents, and that plaintiff and defendant are citizens of the same State overruled.

[*Bernardin *v.* Northall and Seymour, Commissioner of Patents, 1740.

2. SAME—SAME—JURISDICTION OF CIRCUIT COURT AND COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.
The decision of the Court of Appeals of the District of Columbia is not conclusive upon a circuit court in patent matters, since the question of jurisdiction in such matters is not settled by a comparison of their relative dignity and importance. The appellate court merely affirms or reverses the Commissioner in accordance with the general office of an appelate tribunal. The trial in a circuit court is a judicial hearing by original bill. [*Id.

CITIZENS OF SAME STATE.

(See Circuit Courts of the United States, 1.)

CITIZENSHIP—SAME STATE.
The fact that plaintiff and defendant are citizens of the same State will not sustain a demurrer to a bill brought under Revised Statutes 4915.
[*Bernardin *v.* Northall and Seymour, Commissioner of Patents, 1740.

COMMISSIONER OF PATENTS.

(See Appeal to the Court of Appeals of the District of Columbia; Reissues, 1; Secretary of the Interior, 1, 2, 3.)

CONCEPTION OF INVENTION.

(See Drawings; Priority of Invention, 4, 5.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Appeal to the Court of Appeals of the District of Columbia, 2; Infringement, 4; Interference, 1; Invention; Invention Described but Not Claimed; Patentability; Particular Patents; Priority of Invention, 1; Public Appreciation as Evidence of Invention; Reissues, 1; Validity of Patents.)

1. INVENTION—ANALOGOUS USE—POTTS V. CREAGER.
The decision in *Potts* v. *Creager* does not apply to the circumstances of this case, in which an old construction of cutter-head used in a wood-planing machine is applied to an ice-planing machine, since the uses are analogous.
[*Briggs *v.* Seymour, Commissioner of Patents, 169.

2. EFFECT OF STATEMENT IN SPECIFICATION.
The statement of the specification that the patented pulleys are to be made of wood governs the construction of the patent, subject only to the expressed exceptions stated in a subsequent part of the specification.
[*Dodge *et al. v.* Post & Co. *et al.*, 339.

3. GRISWOLD—IMPROVEMENTS IN BALE-TIES—PATENT REFUSED.
Claims for improvements in what the applicant designates as an "adjustable single-loop wire bale-tie," consisting, substantially, in forming the eye or loop out of the tie, or, as expressed in the specification, "integral" therewith, and of peculiar shape, whereby the free end of the tie is gripped and wedged in the eye upon the expansion of the bale, *Held* anticipated by the prior art.
[*Griswold *v.* Seymour, Commissioner of Patents, 482.

4. ANALOGOUS USE.
Under the decision in *Potts* v. *Creager* (70 O. G., 494; 155 U. S., 597) power picks and plows are not anticipations for a mining-machince, since they do not belong to related arts.
[*Independent Electric Company *v.* Jeffrey Manufacturing Company *et al.*, 797.

5. CLAIM—CONSTRUCTION OF.
The words "substantially as described" may be part of a claim and control its construction. They may not be omitted from the claim in order to give it a broader construction.
[*Campbell *et al. v.* Richardson *et al.*, 1103.

6. MERE IMPROVED RESULT NOT PATENTABLE.
Though the patentees may have produced a more perfect counter-die than their predecessors, if they have added no novel mechanism and no new principle of operation they have produced no new product of a creative mental conception.
[*National Folding Box and Paper Company *v.* Stecher Lithographic Company *et al.*, 1253.

CONSTRUCTION OF STATUTES.

(See Court of Appeals of the District of Columbia; Injunction, 2.)

CONTRACTS.

(See Licenses 4, 6; Patents.)

1. CONSTRUCTION OF.
A court is always bound in construing a contract to look at the entire instrument, even though a conclusion derived therefrom may seem to antagonize the meaning of a particular paragraph of the instrument.
[*Fox Solid Pressed Steel Company *v.* Schoen *et al.*, 343.

2. SECONDARY CLAUSE.
A clause in an agreement regulating the manufacture of center plates in general which prohibits the manufacture of sheet-metal frames during the life of the agreement is secondary and incidental to the main agreement. [*Id.

3. CONSTRUCTION OF.
The fact that complainants are engaged in making frames of one species and defendants in making frames of another and that those of the species made by the defendants are those sought to be restrained, as well as the fact that complainants knew of such manufacture long before they objected, should be taken into consideration in interpreting the contract.
[*Id.

4. RESTRAINT OF TRADE.
A clause which finally interdicts the manufacture of a portion of a patented article which may be needed in the repair of such article is in undue restraint of trade and will not be enforced. [*Id.

5. SPECIFIC PERFORMANCE—MERGER OF INTEREST—TITLE.
When there is a decree for specific performance of two contracts, one for a transfer of part interest of all inventions relating to a particular subject and the other for a transfer of part interest of certain specified patents relating to that subject, the assignee's rights are merged in the decree and he has no title or claim under his contracts to any other patents of the assignor or to any improvements thereon.
[*Independent Electric Company *v.* Jeffrey Manufacturing Company *et al.*, 797.

COSTS.

(See Appeal.)

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

(See Circuit Courts of the United States.)

APPEALS INTERFERENCE CASES—REMEDY BY BILL IN EQUITY IN CIRCUIT COURT NOT REPEALED.
The bill establishing the Court of Appeals of the District of Columbia and permitting appeals thereto from the decision of the Commissioner of Patents in interference cases did not by implication repeal the statute providing remedy by bill in equity in a circuit court.
[*Bernardin *v.* Northall and Seymour, Commissioner of Patents, 1740.

DECISIONS OF THE COMMISSIONER OF PATENTS.

(See Interference, 3, 4, 8, 9.)

DECISIONS OF THE PATENT OFFICE IN INTERFERENCE CASES.

(See Burden of Proof; Priority of Invention, 2, 3.)

DECISIONS OF THE SUPREME COURT OF THE UNITED STATES.

(See Mandamus; Supreme Court of the United States.)

DECREE.

(See Former Decisions Reversed; Suits for Infringement; Supreme Court of the United States, 1.)

DECREE FOR SPECIFIC PERFORMANCE.

(See Contracts, 5.)

DEDICATION TO THE PUBLIC.

(See Invention Described but Not Claimed.)

DEFENSE.

INOPERATIVENESS.
A contention that a patent built on the lines of the patent in suit was a failure will not avail defendants where it appears that there was no defect of principle.
[*Independent Electric Company *v.* Jeffrey Manufacturing Company *et al.*, 797.

DELAY IN BRINGING SUIT.

(See Infringement, 3.)

DELAY IN MOTION FOR REHEARING.

(See Rehearing, 4.)

DELAY IN REDUCTION TO PRACTICE.

(See Reduction to Practice, 1.)

DEMURRER.

(See Circuit Court of the United States, 1; Citizens of Same State; Former Decisions Reversed.)

DESCRIPTION.

(See Construction of Specifications and Patents, 2; Interference, 6.)

DESIGNS.

(See Interference, 8.)

DILIGENCE.

(See Interference, 5.)

DRAWINGS.

(See Evidence, 2; Interference, 6, 7; Priority of Invention, 5.)

SKETCHES—DATE OF CONCEPTION.
The doctrine announced in *Webster Loom Co.* v. *Higgins*, (C. D., 1892, 285; 21 O. G., 231; 105 U. S., 586,) to the effect that that which is common and well known in the art may be understood as if written out in the specification of a patent, applies with even greater force to the adequacy of sketch drawings when the question is one of carrying back the date of an invention to the time of a first conception.
[*Standard Cartridge Company *et al. v.* Peters Cartridge Company, 621.

ENLARGEMENT OF CLAIMS.

(See Reissues, 1.)

EQUIVALENTS.

(See Infringement, 4.)

ESTOPPEL.

(See Parties to Suit.)

EVIDENCE.

(See Priority of Invention, 3; Validity of Patents.)

1. SUIT UNDER REVISED STATUTES 4915—EVIDENCE THEN FIRST INTRODUCED—EFFECT WEAKENED.
Evidential weight of alleged declarations of one contestant in favor of his opponent, in a suit under Revised Statutes 4915, is much impaired by the fact that, though accessible, they were not introduced during the interference proceedings.
[*Standard Cartridge Company *et al. v.* Peters Cartridge Company, 621.

2. SIGNATURE TO DRAWING WITNESSED BY CONTESTANT.
The fact that one contestant witnessed the signature of a second contestant, as inventor, to a drawing made by the latter and disclosing the invention in controversy may be overcome by testimony in behalf of the first contestant that said drawing was intended to disclose as the invention of the second contestant an improvement merely and by additional facts tending to show conception by the first contestant and then disclosure by him to the second. [*Id.

FORMER DECISIONS AFFIRMED.

(See Appeal to the Court of Appeals of the District of Columbia; Particular Patents, 6.)

FORMER DECISIONS CONSTRUED.

(See Construction of Specifications and Patents, 1, 4; Injunction, 1.)

FORMER DECISIONS REVERSED.

EGGLESTON—BUTTON-SETTING INSTRUMENT—No. 208,234—DECREE OVERRULING DEMURRER REVERSED.
Decree sustaining demurrer against bill in equity brought for infringement of Letters Patent No. 208,234, granted February 12, 1884, to Charles H. Eggleston, for a button-setting instrument, reversed.
[*Heaton-Peninsular Button Fastener Company *v.* Eureka Specialty Company *et al.*, 171.

FUNCTIONS.

(See Invention, 1.)

IMPORTATION OF INFRINGING ARTICLE.

(See Injunction, 3.)

IMPROVEMENTS.

(See Assignments of Future Inventions; Construction of Specifications and Patents, 3.)

INFRINGEMENT.

(See Contracts, 3; Former Decisions Reversed; Jurisdiction; Laches; Particular Patents, 1, 2, 3, 5, 10, 11; Rehearing, 2, 3; Supreme Court of the United States, 2; Trade-Marks, 3.)

1. CONTRIBUTORY INFRINGEMENT—MALICIOUS PERSUASION TO EXCEED LICENSE.
Defendants who aid and abet infringement by intentionally and maliciously persuading and inducing the licensees of machines to exceed their licenses, and who furnish them with the means for such infringement, are themselves infringers and liable as tort-feasors. The knowledge that the articles made and sold by defendants are to be used for infringing, coupled with an active intent that they shall be so used, constitutes contributory infringement.
[*Heaton-Peninsular Button Fastener Company *v.* Eureka Specialty Company *et al.*, 171.

2. SAME—AIDING VIOLATION OF LICENSE.
The principle governing infringement of combination patents, by furnishing a necessary element in the combination with the intent that it be used to effect infringement, is applicable to a case where one sells an unpatented article with the knowledge and intent that it will be used to effect infringement by enabling a licensee to violate the conditions of his license. [*Id.

3. PROTEST—LACHES.
The mere fact of even long-continued infringement without protest on the part of complainant does not of itself constitute such laches as should defeat a recovery.
[*Imperial Chemical Manufacturing Company *v.* Stein *et al.*, 635.

4. PROCESS—EQUIVALENT.
So long as the purifying agent is introduced simultaneously with the passage of the water to the filter and produces the same result in the filter-bed infringement may occur whether or not it is introduced directly into the filter.
[*New York Filter Manufacturing Company *v.* Niagara Falls Water Works Company, 1255.

INJUNCTION.

1. PRELIMINARY INJUNCTION—ADJUDICATIONS IN OTHER CIRCUITS.
An adjudication sustaining a patent is not conclusive in favor of granting a preliminary injunction in a suit in another circuit where a decisive question raised in the latter suit was not contested in the former and it appears that in the former a motion for reargument for the purpose of raising this point has been entertained but not yet decided.
[*American Graphophone Company *v.* Leeds *et al.*, 802.

2. District Judge Holding Circuit Court.
The authority of a district judge when holding a circuit court under Revised Statutes, section 609, is coextensive with that of any judge sitting in the same court, and the restrictions of Revised Statutes, section 719, relative to the granting of injunctions by district judges do not apply.
[*McDowell *et al.* v. Kurtz, 1104.

3. Importation of Infringing Article.
Injunction will be granted against the attorneys-at-law of an absent defendant to prevent importation of an infringing article when such attorneys are acting as attorneys-in-fact for such absent defendant.
[*Société Fabriques de Produits Chimiques de Thann et de Mulhouse v. Sander *et al.*, 1432.

INOPERATIVENESS.

(See Defense.)

INTERFERENCE.

(See Circuit Courts of the United States, 1; Particular Patents, 6; Priority of Invention, 1, 2, 3; Reduction to Practice; Secretary of the Interior, 4, 5.)

1. Issue—Degree.
In an issue in which the word "encircle" is used to define a construction which performs the functions of a hook the extent to which the encircling is carried is a question of degree merely and immaterial to the scope of the issue.
[Breul v. Smith, 1904.

2. Reduction to Practice—Presumption of.
When a senior party has shown that he was in possession of a machine which would make the article—a chain—of the issue, the actual production of such chain may be safely presumed. [Id.

3. Construction of Issue.
When a view of the ground covered by the claims of an issue has been accepted by the parties and has prevailed in the Patent Office, it should not be departed from in the final decision if injustice might result from that departure.
[*Breul v. Smith, 1906.

4. Office Should Be Consistent.
The Patent Office should not give so liberal a construction to the terms of an issue as to enable it to include a structure which had previously been held to be patentably distinct therefrom. [*Id.

5. Priority—Diligence.
Held that Fowler was the first to conceive of the invention and under all of the circumstances proceeded with reasonable diligence to the construction of his machine.
[Fowler v. Dodge, 2045.

6. Insufficient Disclosure.
The specification and drawings of Dodge, while showing an adequate and full conception of the invention, *Held* insufficient to enable one skilled in the art, without other aids, to construct the machine. [Id.

7. Same—Constructive Reduction to Practice.
On the question of the sufficiency of a party's application to enable him to avail himself of his specification and drawings as constructive reduction to practice on the date of their filing it is necessary to distinguish between those which are sufficient to show an intellectual conception of an improvement and those which are sufficient in a patent to enable others skilled in the art to build the machine without extraneous aid.
[Id.

8. Design—Oil-Cup—Non-Interference.
Interference cannot properly be declared except when two applications or a patent and an application conflict with each other. If the alleged inventions are substantially different from each other, so as to be each of them patentable, there is no ground for interference. In this case no question of priority can arise.
[*Cushman v. Lines, 2051.

9. Priority Only Question Before the Court—Determination of the Commissioner of Patents Accepted.
When lower tribunals of the Office conclude that the inventions of two applications are the same, and the Commissioner concludes that they are different, since in interference cases the question of priority only is before the court, the court will not decide which is the proper theory, but will accept the theory of the Commissioner. Each contestant is accordingly entitled to a patent for his particular invention. [*Id.

INTERFERENCE PROCEEDINGS IN THE PATENT OFFICE.

(See Evidence, 1.)

INVENTION.

(See Construction of Specifications and Patents, 1, 3, 6; Particular Patents, 8, 9, 12; Patentability; Public Appreciation as Evidence of Invention.)

1. Aggregation—Functions.
The use in the same wire band of two features separately old in wire bands to effect the identical functions performed separately by each of them in the prior devices *Held* not to constitute patentable novelty.
[*Griswold v. Seymour, Commissioner of Patents, 482.

2. Original Thought—Extent of Mental Process.
Invention must extend beyond the merely novel and useful and into the domain of original thought, though the extent of the mental process is immaterial.
[*Snyder v. Fisher, Acting Commissioner of Patents, 485.

3. Result—References.
Result considered in connection with references may indicate that degree of thought that rises to the dignity of invention. [*Id.

4. Non-Invention—Mechanical Skill.
The particular way of hanging a door does not involve invention and is not sufficient to sustain the validity of a patent.
[*Green *et al.* v. American Soda Fountain Company, 1105.

5. Same—Same.
It does not involve invention to provide channels or grooves in the counter-die of a press to cooperate with the embossing-rules of the die for creasing the fold-line of a paper-box blank.
[*National Folding Box and Paper Company v. Stecher Lithographic Company *et al.*, 1253.

6. Process—Varying Degree of Heat not Patentable.
The discovery of a new process in any art by the addition of heat as a material factor, where heat had never before been applied or suggested, would constitute invention; but the adoption of a discretionary temperature in treating coal, subject to increase or diminution, as experience, as well as the varying character of the material treated, may suggest, does not amount to invention.
[*Musgrave and Nye v. Commissioner of Patents, 2047.

7. Same—Same.
It involves only the exercise of ordinary faculties to vary the temperature required in a certain process in which heat is essential, even when this variation is great. [*Id.

INVENTION DESCRIBED BUT NOT CLAIMED.

Dedication to Public—Copending Applications.
If at the date of the issue of a patent the patentee has another application pending which describes and claims what he describes but does not claim in the patent issued, the presumption of dedication to the public does not arise.
[*Independent Electric Company v. Jeffrey Manufacturing Company *et al.*, 797.

ISSUE IN INTERFERENCE CASES.

(See Interference, 3, 4; Reduction to Practice, 2.)

JURISDICTION.

(See Circuit Courts of the United States; Court of Appeals of the District of Columbia; Injunction, 2; Mandamus; Secretary of the Interior; Supreme Court of the United States.)

Equity Jurisdiction—Multiplicity of Suits—Inadequacy of Remedy at Law.
When a bill in equity discloses that more than forty-nine thousand machines are in use and charges a long-continued infringement and a purpose to continue therein, both upon the ground of avoiding a multiplicity of law-suits and upon the general and apparent inadequacy of a suit at law for damages, a court of equity has jurisdiction.
[*Heaton-Peninsular Button Fastener Company v. Eureka Specialty Company *et al.*, 171.

LACHES.

(See Infringement, 3; Parties to Suit.)

Circumstances.
The fact that the composition of the infringing article could not readily be determined, that its trade-name gave no indication of its composition, and that there were many other articles of the same class upon the market are to be considered in determining laches.
[*Imperial Chemical Manufacturing Company v. Stein *et al.*, 635.

LIABILITY.

(See Infringement, 1.)

LICENSES.

(See Infringement, 12; Use and Sale of Patented Articles, 1.)

1. Restricted License—Conditional Sale.
Each machine sold has a metal label affixed thereon to the effect that with such machines fasteners made by a certain company only are to be used. This is equivalent to notice of a restricted license only, and the purchaser of the machine obtains title subject to a reverter in case of violation.
[*Heaton-Peninsular Button Fastener Company v. Eureka Specialty Company *et al.*, 171.

2. Same—Same.
Purchaser of a machine upon the condition that such machine is to be used only upon or in connection with articles from a particular source is a mere licensee. All alienations of a mere right to use the machine operate only as licenses.
[*Id.

3. Waiver of Monopoly.
A license operates only as a waiver of the monopoly as to the licensee and estops the licensor from exercising its prohibitory powers in derogation of the privileges conferred by it upon the licensee. [*Id.

4. Conditional Sale—Licensee's Remedy at Law.
When a buyer enters into an implied agreement that he will not use the machine contrary to his license and when the agreement contains a provision for a reverter of the structure itself in case of breach, the licensor may have a remedy at law either for liability upon the broken contract or for the tortious use of the invention. [*Id.

5. Monopoly.
A patentee may lawfully prevent his machine from passing beyond the monopoly of the patent by a license which defines the boundaries of lawful use. [*Id.

6. Conditional License, Right to.
A court will not sustain the objection that a patentee has no right to license upon condition that the licensees use the invention only in conjunction with a non-patentable article made by himself when the ground of objection is that an illegal monopoly will thereby be created. Courts will not lightly interfere with the freedom to contract, and especially will not sit in judgment upon the limitations which a patentee may put upon the use of his invention. [*Id.

MACHINE AND PRODUCT.

(See Interference, 2.)

MANDAMUS.

(See Supreme Court of the United States, 1.)

Circuit Court Jurisdiction—Irregular Procedure.
An order by a circuit court to entertain and grant a petition for a rehearing upon a case decided by the Supreme Court without previous leave obtained therefrom is irregular and unauthorized, and such action affords good ground for a mandamus setting aside such order.
[*In re* C. & A. Potts & Co., 2049.

MARKING ARTICLES "PATENTED."

Public Acquiescence.
Where plaintiffs have manufactured and sold their device without opposition for upward of five years, there is sufficient proof of public acquiescence, and it is immaterial that a large number of their devices were not marked "Patented" when it appears that enough were so marked to give general notice of the patent.
[*McDowell *et al.* v. Kurtz, 1104.

MASTER'S REPORT.

(See Rehearing, 3.)

MECHANICAL SKILL.

(See Invention, 5.)

MONOPOLY.

(See Licenses, 5.)

Non-Obnoxious.
A monopoly depending upon the merits of an invention to which it is a mere incident is neither obnoxious to public policy nor an illegal restraint of trade.
[*Heaton-Peninsular Button Fastener Company v. Eureka Specialty Company *et al.*, 171.

NEW EVIDENCE.

(See Rehearing, 2, 3.)

NEW TRIAL.

(See Supreme Court of the United States.)

OLD DEVICES.

(See Invention, 1.)

PARTICULAR PATENTS.

(See Former Decisions Reversed; Patentability, 1, 3.)

1. De Long — Garment-Hook — No. 462,473 — Valid — Not Infringed.
Letters Patent No. 462,473, granted November 3, 1891, to Frank E. De Long, for a garment-hook, construed and *Held* valid and not infringed.
[*Campbell *et al.* v. Richardson *et al.*, 1103.

2. Dodge and Philion—Separable Pulley—No. 260,462—Valid and Infringed.
Letters Patent No. 260,462, granted July 4, 1882, to Wallace H. Dodge and George Philion, for a separable pulley, examined in view of the prior art and *Held* valid and infringed.
[*Dodge *et al.* v. Post & Co. *et al.*, 339.

3. Hyatt—Purifying Water—No. 293,740—Valid and Infringed.
Letters Patent No. 293,740, granted February 19, 1884, to Isaiah S. Hyatt, for a method of purifying water, examined and *Held* presumably valid and infringed.
[*New York Filter Manufacturing Company v. Niagara Falls Water Works Company, 1255.

4. Kurtz—Pipe-Thread Protector—No. 440,168—Valid.
Letters Patent No. 440,168, granted November 11, 1890, to John A. Kurtz, for a band for protecting screw-threads of pipes, *Held* valid.
[*McDowell *et al.* v. Kurtz, 1104.

5. Lechner—Mining-Machine—No. 432,754—Valid—Infringed.
Letters Patent No. 432,754, granted July 22, 1890, to F. M. Lechner, examined and in view of the state of the art *Held* valid and infringed.
[*Independent Electric Company v. Jeffrey Manufacturing Company *et al.*, 797.

6. Ligowsky—Cartridge-Loading Machine—No. 464,883—Priority Affirmed.
The action of the Patent Office and of the circuit court in adjudging priority in favor of George Ligowsky in the interference *Ligowsky* v. *Peters* v. *Hisey*, Cartridge-Loading Machine, *Held* correct.
[*Standard Cartridge Company *et al.* v. Peters Cartridge Company, 621.

7. Munson—Paper-Box Manufacture—No. 259,416—Void.
Letters Patent No. 259,416, granted June 13, 1882, to Edward B. and Harvey S. Munson, for the manufacture of boxes from paper, cardboard, etc., examined and *Held* void for want of invention and of novelty.
[*National Folding Box and Paper Company v. Stecher Lithographic Company *et al.*, 1253.

8. Musgrave and Nye—Fuel—Non-Patentability.
Application of N. W. Musgrave and H. P. Nye, for fuel and process of manufacture, examined and *Held* not patentable in view of the prior art.
[*Ex parte* Musgrave and Nye, 2046.

9. Musgrave and Nye—Fuel—Non-Patentability.
Application of Nathan W. Musgrave and Harold P. Nye, for smokeless fuel and process of preparing it, *Held* not patentable in view of the prior art.
[*Musgrave and Nye v. Commissioner of Patents, 2047.

10. Rose — Tubular Umbrella-Stick — No. 504,944 — Valid — Infringed.
Letters Patent No. 504,944, issued September 12, 1893, to John Rose, for improvements in tubular umbrella-sticks, *Held* to be valid and infringed.
[*Rose v. Hirsh *et al.*, 481.

11. SAME—UMBRELLA-CASE—No. 504,945—NOT INFRINGED.
Letters Patent No. 504,945, issued September 12, 1893, to John Rose, for improvements in umbrella-cases, construed and *Held* not infringed. [*Id.

SAME—DISSENTING OPINION.
Acheson, J., dissented from the conclusion which the majority of the court reached with respect to Patent No. 504,945. [*Id.

12. SNYDER—TEACHING-CHART—ALLOWABLE.
Application of Louise Snyder examined in view of references cited thereto and *Held* allowable.
[*Snyder v. Fisher, Acting Commissioner of Patents, 485.

13. WITTING—DISPENSING APPARATUS FOR SODA-WATER—No. 414,272—VOID.
Letters Patent No. 414,272, granted November 5, 1889, to Theodore I. Witting, for improvements in dispensing apparatus for soda-water, examined in view of the prior art and *Held* void for want of invention. [*Tarrant & Co. v. Hoff, 1107.

PARTIES TO INTERFERENCE.

(See Secretary of the Interior, 5.)

PARTIES TO SUIT.

ESTOPPEL BY FORMER SILENCE.
Under the rule that if one was silent when it was his duty to speak he shall not be permitted to speak when he should be silent. Since defendants when threatened with a former suit upon the patent now sued upon failed to claim any interest in said patent, they should not be permitted to assert it now.
[*Independent Electric Company v. Jeffrey Manufacturing Company *et al.*, 797.

PATENTABILITY.

(See Invention.)

PROCESS—NON-PATENTABLE.
A process which employs low heat for a long time is not patentable over another which uses a high heat for a short time when the result—namely, the partial distillation of coal—is the same in both cases.
[*Ex parte* Musgrave and Nye, 206.

PATENTS.

(See Monopoly; Use and Sale of Patented Articles, 2.)

RIGHTS UNDER PATENT SUBJECT TO GENERAL LAW.
The property right of a patentee is but a property right and is subject to the general law of the land. He may not, by virtue of his patent, make illegal contracts or do any other illegal acts. A prohibited business is not protected by the patent laws because it is conducted through instrumentalities which are the subject of patent-rights.
[*Heaton-Peninsular Button Fastener Company v. Eureka Specialty Company *et al.*, 171.

PRACTICE IN THE COURTS.

(See Appeal; Burden of Proof; Circuit Courts of the United States, 2; Citizens of Same State; Contracts, 1, 2, 3, 4; Defense; Evidence, 1; Injunction; Interference, 3, 4, 9; Laches; Mandamus; Parties to Suit; Priority of Invention, 2, 3; Rehearing, 1, 2, 3; Secretary of the Interior, 3, 4; Supreme Court of the United States; Trade-Marks, 3.)

PRACTICE IN THE PATENT OFFICE.

(See Interference, 4, 8; Rehearing, 1.)

PRIOR DECISIONS.

(See Priority of Invention, 2.)

PRIORITY OF INVENTION.

(See Appeal to the Court of Appeals of the District of Columbia, 2; Burden of Proof; Drawings; Evidence; Interference, 2, 3, 5, 9; Particular Patents, 6, 8, 9.)

1. CONDUCT OF APPELLANT—PRESUMPTION AS TO INVENTORSHIP.
The conduct of the appellant Hill and of his assignee, the Sheldon Axle Company, toward the appellee for four months after their alleged discovery of the issue of a patent to the latter is wholly irreconcilable with any other theory than that they recognized the appellee as the true inventor of the device in controversy.
[*Hill *et al. v.* Parmelee, 170.

2. DECISION OF THE PATENT OFFICE PRIMA FACIE CONTROLLING IN SUIT, UNDER REVISED STATUTES 4915.
A decision of the Patent Office as to priority of invention must be accepted as controlling upon that question of fact in any subsequent suit between the parties, unless the contrary is established by testimony which carries thorough conviction. (Citing *Morgan v. Daniels*, C. D., 1894, 285; 67 O. G., 811; 153 U. S., 124, 125.)
[*Standard Cartridge Company *et al. v.* Peters Cartridge Company, 621.

3. EVIDENCE—QUANTUM NECESSARY IN A SUIT UNDER REVISED STATUTES 4915.
It is not enough to justify a court in saying that the Patent Office was in error in a decision upon a question of priority that the declarations and admissions of the successful contestant cast discredit upon him as a witness. The evidence in the nature of admissions must make it clear that the evidence supporting the action of the Office cannot be true. [*Id.

4. CONCEPTION—REDUCTION TO PRACTICE.
If ineffectual efforts were made to give an idea form, but were abandoned before reaching such a stage of completion as to require only ordinary mechanical skill to carry the conception to success, the claim of priority of conception cannot be sustained against a later independent conception carried into practical form at an earlier date. [*Id.

5. SAME—IMPERFECTION OF SKETCHES NOT A VITAL DEFECT.
The fact that sketches relied upon to establish conception are rude and imperfect and do not show a working machine is not a vital defect if skilled operators could from such sketches construct a machine embodying the improvement in dispute. [*Id.

PROCESS.

(See Infringement, 4; Invention, 6, 7; Particular Patents, 3; Patentability, 2.)

PUBLIC ACQUIESCENCE.

(See Marking Articles "Patented.")

PUBLIC APPRECIATION AS EVIDENCE OF INVENTION.

INVENTION—INDUSTRIAL AND COMMERCIAL SUCCESS AS EVIDENCE OF.
That an invention has readily overcome initial distrust and disfavor, has had a phenomenal growth, and has acquired widely-extended mechanical and commercial success are facts which testify powerfully to the novelty of the invention.
[*Dodge *et al* v. Post & Co. *et al.*, 339.

REDUCTION TO PRACTICE.

(See Interference, 2, 5, 7; Priority of Invention, 4.)

1. ADVICE OF ATTORNEY—DILIGENCE.
Attorney's advice to an interferant to the effect that the invention of the issue is covered by his prior patent is an excuse but not a justification for delay in reducing to practice or applying for a patent.
[Breul v. Smith, 1904.

2. DIFFERENT DEVICE.
A device which differs from the terms of the issue in that particular feature wh ch the Office once held in the same case was sufficient to constitute a patentable distinction is not a reduction to practice of the issue.
[*Breul v. Smith, 1906.

REHEARING.

1. MOTIONS FOR REHEARING CONDEMNED.
Though there may be cases in which rehearing may well be had, the endeavor of the court is always to bring to a case in the first instance the best judgment which it possesses in the interests of justice, that the determination, when made, should have the element of stability. It is not just to the court or to parties that argument should be held back by counsel until after decision upon the chance that the judgment may be favorable nevertheless.
[*Hien v. Pungs, 484.

2. NEW TESTIMONY FROM WITNESS PREVIOUSLY SILENT.
On a rehearing new testimony for the losing party not in harmony with previous silence of the same witness for the same party, when such testimony relates to an important feature of the case, is not adequate to satisfy a court that justice toward a losing party requires a rehearing.
[*Tuttle v. Claflin *et al.*, 1739.

3. NEW TESTIMONY BEFORE A MASTER—PROFITS.
When a master's report was based upon facts relating to an industry which has long ceased to be active and when the time in which facts based upon the experience of actual manufacture can be ascertained has passed, it does not appear that anything will be gained by new testimony before a master upon the question of profits. [*Id.

4. DELAY—LIMIT OF APPEAL.
Rehearings are not favored in any case, and only upon special circumstances. Motion for rehearing will not be entertained where there has been long delay in bringing it. Rehearings must be applied for within the limit of appeal.
[*Ex parte* Messinger, 1903.

REISSUES.

1. ADDITION OF AN ELEMENT TO A CLAIM—CONSTRUCTION BY COURT.
The conclusion of the Commissioner of Patents that the addition to the original claim of a feature shown and described in the original patent does not confer patentability on the reissue claim was right, since the whole combination was substantially passed upon by the Circuit Court of Appeals.
[*Briggs v. Seymour, Commissioner of Patents, 169.

2. ABANDONMENT.
Reissue cases are abandoned after two years of inactivity, like other cases, by operation of section 4894. (*Ex parte Galusha*, C. D., 1873, 55, overruled.)
[*Ex parte* Messinger, 1903.

REMEDY AT LAW.

(See Licenses, 4.)

RES ADJUDICATA.

(See Circuit Courts of the United States, 1; Supreme Court of the United States, 2.)

RESTRAINT OF TRADE.

(See Contracts, 4.)

RESULTS.

(See Infringement, 4; Invention, 3; Interference, 2; Patentability, 2.)

RULES OF PRACTICE OF THE PATENT OFFICE.

(See Secretary of the Interior, 2.)

SECRETARY OF THE INTERIOR.

1. JURISDICTION OF SECRETARY OVER JUDICIAL ACTS OF THE COMMISSIONER OF PATENTS.
The Secretary of the Interior has no jurisdiction over such acts of the head of the Patent Office as involve the exercise of judicial functions conferred upon him by law.
[†Warner v. Stimson, 1901.

2. SAME—CONSTRUCTION OF RULE—JUDICIAL ACT.
To construe and apply a rule of the Patent Office is at least a quasi-judicial act, and hence an appeal from the decision of the Commissioner based upon an alleged disregard of a certain rule must be dismissed. [†Id.

3. SAME—DISMISSING APPEAL—PUBLIC POLICY.
Another ground for dismissing the appeal is founded upon the grounds of policy, since to allow appeals to the Department from interlocutory orders of the Commissioner would unnecessarily delay the progress of the case. [†Id.

4. JURISDICTION OF SECRETARY IN INTERFERENCE PROCEEDINGS.
The decision of the question as to whether an interference shall be allowed to proceed or not involves a judicial or quasi-judicial determination, and the Secretary has no appellate jurisdiction.
[†Jenkins v. Jenkins and Armat, 1902.

5. SAME—PARTIES TO.
The Secretary has no authority to interfere to determine whether or not any one may be a proper party to an interference. [†Id.

SKETCHES.

(See Drawings; Priority of Invention, 5.)

SPECIFICATIONS.

(See Construction of Specifications and Patents, 2; Drawings; Interference, 6, 7.)

STATE OF THE ART.

(See Construction of Specification and Patents, 3; Particular Patents, 2, 11; Patentability, 1, 3.)

SUBSTITUTION OF MATERIAL.

(See Construction of Specifications and Patents, 3.)

SUBSTITUTION OF PARTS.

(See Invention, 1.)

SUITS FOR INFRINGEMENT.

(See Defense; Injunction; Jurisdiction; Laches; Parties to Suit.)

PRESUMPTION AFTER LITIGATION.
When after arduous litigation the equities and presumptions are all with the complainant, if either party should suffer during final decree it should be the defendant.
[*New York Filter Manufacturing Company v. Niagara Falls Water Works Company, 1255.

SUITS UNDER SECTION 4915, REVISED STATUTES.

(See Burden of Proof; Circuit Courts of the United States; Citizens of Same State; Court of Appeals of the District of Columbia; Evidence, 1; Priority of Invention, 2.)

SUPREME COURT OF THE UNITED STATES.

(See Mandamus.)

1. MANDAMUS—DECISIONS OF SUPREME COURT—LOWER COURT BOUND THEREBY.
The general rule is that when a case has been once decided by the Supreme Court of the United States whatever was before that Court and disposed of by its decree is finally settled. The circuit court is bound by the decree, and must carry it into execution without variation or intermeddling, except as to matters left open by the decree.
[**In re* C. & A. Potts & Co., 2049.

2. SAME—NOVELTY—INFRINGEMENT.
When questions of novelty and infringement are before the Supreme Court and are disposed of by it, they must be deemed to have been finally settled and cannot afterward be reconsidered by a lower court either by granting a new trial, or a rehearing, or to permit new defenses on the merits by amendment or answer. [*Id.

TECHNICAL TERMS.

(See Construction of Specifications and Patents, 5; Interference, 1.)

TESTIMONY.

IMPROBABLE STORY.
The inherent improbability of the story is sufficient to negative the testimony of witnesses.
[*Dodge *et al.* v. Post & Co. *et al.*, 339.

TITLE TO PATENT.

(See Assignments of Future Inventions; Contracts, 5.)

TRADE-MARKS.

1. "HOFF'S MALT EXTRACT"—INFRINGEMENT—UNFAIR COMPETITION.
When a trade has been built up for "Johann Hoff's Malt Extract" or "Hoff's Malt Extract," a branch house conducted by Leopold Hoff, manufacturing such extract in competition with another branch or with the original business, may not use the name "Hoff" without indicating which of the Hoff family is the maker. [*Tarrant & Co. v. Hoff, 1107.

2. SAME—SAME.
It is unfair to conspicuously use the name "Hoff" upon the face of the bottle containing malt extract made by Leopold Hoff and to use a small side label containing the statement that Leopold Hoff is the manufacturer, when another man by the name of Hoff was in the same business under his own name before Leopold Hoff. [*Id.

3. IMMATERIAL MISREPRESENTATION—EQUITABLE RELIEF.
Equitable relief for infringement of a trade-mark will not be denied by reason of inaccurate statements in the complainant's labels when such statements are immaterial. [*Id.

4. "GERMAN SWEET CHOCOLATE"—VALID—INFRINGED.
The words "German Sweet Chocolate" (German being the name of the individual who registered the trade-mark) are proper in a trade-mark, since "German" is not used in a geographical sense, and is infringed by the words "Germania Sweet Chocolate." [*Walter Baker & Co., Limited, v. Baker, 1427.

5. USE OF ONE'S NAME—CONTROLLING BY INJUNCTION.
A man has the right to the use of his own name so long as he uses it honestly and so as not to injure another having the same name, and to prevent such injury he may be required to use his name in a specific manner, pointed out in an injunction. [*Id.

6. IDENTITY OF NAMES—UNFAIR COMPETITION.
One who enters into competition with another person of the same name who has an old and well-established business must differentiate his goods more carefully than is necessary in the case of a competitor of a different name. [*Id.

7. UNFAIR COMPETITION—DATE OF ESTABLISHING BUSINESS.
It is unfair competition for the defendant to advertise that his chocolate business was established in 1785, though his ancestors of the same name had been engaged in a wholesale grocery business since about that date, when it appears that the complainant advertises truthfully of his chocolate business that it was established in 1780. [*Id.

USE AND SALE OF PATENTED ARTICLES.

(See Infringement, 1; Licenses; Marking Articles "Patented;" Monopoly; Patents.)

1. RIGHTS TO MAKE, USE, AND SELL, SEVERABLE.
The rights to make, use, or sell are completely severable rights and involve the right to confer on others such qualified privilege as the owner of the patent sees fit, whether within specified limits or under limitations of quantity, or numbers, or restricted use.
[*Heaton-Peninsular Button Fastener Company v. Eureka Specialty Company *et al.*, 171.

2. CONDITIONS OF GRANTS OF PATENTS—PATENTEE'S INTEREST.
Grants of patents are made upon the reasonable expectation that patentees will use their inventions or permit them to be used; but the public has no security to enforce such expectation beyond the interest of the patentee. [*Id.

VALIDITY OF PATENTS.

(See Invention, 4; Priority of Invention, 2.)

INVALIDATING—QUANTUM OF PROOF.
To invalidate a patent by prior invention or use, the proof must establish the fact beyond a reasonable doubt. This means that the defense must be established by proof as explicit and convincing as that required to convict a person charged with crime. [*Dodge *et al. v.* Post & Co. *et al.*, 330.

VALID PATENTS.

(See Particular Patents, 1, 2, 3, 4, 5, 6, 10, 11, 12.)

VOID PATENTS.

(See Particular Patents, 7, 8, 9, 13.)

WAIVER.

(See Licenses, 3.)

WITNESSES.

(See Evidence; Testimony.)

WITNESSES TO SIGNATURE.

(See Evidence, 2.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING MARCH 31, 1897.

[Claims and drawings of Designs do not appear in the Monthly Volumes or the Gazette. Separate indexes for Designs, Trade-Marks, Labels, Prints, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. A. Griffing Iron Company. (See Waggoner, Edward P., assignor.)						
A. B. Dick Company. (See Dick, Albert B., assignor.)						
A. Piamondon Manufacturing Company. (See Harris, William C., assignor.)						
Abbot Leaf Cutter Company. (See Abbot, Wyllys S., assignor.)						
Abbot, Wyllys S., Chicago, Ill., assignor to Abbot Leaf Cutter Company, Los Angeles, Cal. Means for severing uncut edges of leaves in magazines, books, &c.	578,687	Mar. 9	1479	339 340	78	1561
Abbott, Frank B., Chicago, Ill. Fireproof flooring and ceiling	576,770	Feb. 9	1180	281	78	876
Abbott, Henry, New York, N. Y., assignor, by mesne assignments, to L. F. Abbott, East Orange, N. J. Eyeglasses or spectacles	579,121	Mar. 23	2241	528	78	1747
Abbott, Laura F. (See Abbott, Henry, assignor.)						
Abbott, Samuel. (See Williams and Abbott.)						
Abell, William P., Hinckley, England. Furnace for burning bagasse, sawdust, &c	578,531	Mar. 9	1217	275	78	1510
Abelmann, George W. A., Chicago, Ill. Anchor or device for securing copper plates to wood blocks	576,711	Feb. 9	1091	257	78	858
Abraham, William, Fairchild, and W. Schroeder, Augusta, Wis. Support for sliding doors, curtains, &c	575,513	Jan. 19	1991	476	78	413
Abrahams, John W., Allegheny, Pa. Tank	576,998	Feb. 16	1569	373	78	961
Abrahams, John W., Allegheny, Pa. Tank	577,097	Feb. 16	1740	411 412	78	998
Accles, James G., and P. L. Renouf, Birmingham, England. Front steering-fork for bicycles	576,831	Feb. 9	1279	306	78	895
Ackerman, Frank W., assignor of one-half to F. P. Foster, Corning, N. Y. Electrical gas-cock	579,249	Mar. 23	2448	578	78	1786
Adam, Carl F., Trenton, N. J. Cleat	575,090	Jan. 12	1257	303	78	254
Adam, Gustav F. C., Hanover, Germany. Apparatus for regulating and modifying electric circuits	578,182	Mar. 2	629	144	78	1381
Adams, Abraham L., Bridgeport, Conn. Bicycle	578,130	Mar. 2	514	116	78	1360
Adams, Abraham L., Bridgeport, Conn. Bicycle	579,732	Mar. 30	3311	791	78	1907
Adams, Don B., Chicago, Ill., assignor of one-half to R. N. Graham, Fort Worth, Tex. Nozzle	578,706	Mar. 16	1521	351	78	1597
Adams, Ernest K., New York, N. Y. Music-recording apparatus	576,245	Feb. 2	297	71	78	694
Adams, Fred L. (See Smith, Walton D., assignor.)						
Adams, James, London, England. Door check and closer	577,124	Feb. 16	1802	424 425	78	1005
Adams, James F., Hubert, Ga. Automatic brake	574,844	Jan. 5	800	198	78	151
Adams, John M., Fort Ann, N. Y. Combination book, paper-cutter, blotter, envelop-opener, &c	576,771	Feb. 9	1182	281	78	876
Adams, Maurice H., assignor to C. B. Wiser, Chicago, Ill. Ice-cream mold	575,290	Jan. 12	1588	378	78	318
Adams, Samuel J., Detroit, Mich. Shoe-lace fastener	575,682	Jan. 26	2307	544	78	489
Adams, Silas, Altoona, Pa. Machine for swaging or tapering pipes or flues	579,214	Mar. 23	2395	565	78	1776
Adams, Stephen J., Pittsburg, Pa. Apparatus for making sand molds	574,650	Jan. 5	474	109	78	89
Adams, Stephen J., Pittsburg, Pa. Method of and apparatus for forming sand molds	576,246	Feb. 2	298	71	78	694
Adams, Thomas E., Cleveland, Ohio. Electric-arc lamp	579,092	Mar. 16	2092	490 491	78	1708
Adams & Westlake Company. (See Emery, Plato G., assignor.)						
Adams & Westlake Company. (See Hamm, William S., assignor.)						
Adams & Westlake Company. (See Mosher, John A., assignor.)						
Addicks, Walter R., Brookline, Mass. Carbureted-water-gas apparatus	575,560	Jan. 19	2070	495	78	428
Addicks, Walter R., Brookline, Mass. Apparatus for manufacturing gas	576,529	Feb. 9	803	188	78	805
Addicks, Walter R., Boston, Mass. Method of and apparatus for producing water-gas	575,625	Jan. 19	2195	520 521	78	452
Addressograph Company. (See Duncan, Joseph S., assignor.)						
Adgate, Joseph J., Liberty, N. Y. Wagon-jack	578,033	Mar. 2	334	79	78	1325
Adkerson, Lizzie L. (See Watts, Henry P., assignor.)						
Adrian Box Company of New Jersey. (See Gilliland, James F., assignor.)						
Aeffcke, Albert, Stettin, Germany. Weighing-machine	578,582	Mar. 9	1218	275	78	1510
Ageron, Jules A., Paris, France. Electric lighting for vehicles	576,933	Feb. 9	1449	345	78	927
Agesen, John H., Higganum, Conn. Attachment for drill-grinding machines	579,215	Mar. 23	2396	565	78	1777
Agnew, Thomas, Evanston, Ill. Horse-hitching device	577,675	Feb. 23	2750	649	78	1199
Ahlrichs, Harm, Petersburg, Ind. Bottle	577,939	Mar. 2	191	46	78	1208
Ahrenbeck, William C., Brenham, Tex. Apparatus for barreling soap-stock	576,934	Feb. 9	1453	346	78	927
Aikman, Clinton C., Dana, Ind. Hay-loader	578,583	Mar. 9	1219	276	78	1511
Ajax Metal Company. (See Clamer, Guilliam H., assignor.)						
Akers, Alven S., *et al.* (See Akers, Maurice L., assignor.)						
Akers, Maurice L., Gooseberry, assignor of two-thirds to R. Montgomery, Hardman, and A. S. Akers, Heppner, Oreg. Harrow	577,476	Feb. 23	2393	563	78	1133

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr'g.	Vol.	Page.
Alan Wood Company. (See Wood, Howard, assignor.)						
Albers, Rudolf, assignor to J. Alexander & Co., Chicago, Ill. Embroidering-machine	577,398	Feb. 16	2255	530	78	1090
Alberti, Rudolf, Magdeburg, Germany. Pigment	578,383	Mar. 9	954	.....	78	1460
Albinson, Thomas, Paterson, N. J. False reed for looms	577,125	Feb. 16	1808	425	78	1005
Albrecht, Friedrich, Melbourne, Victoria. Connecting device for securing tubes or rods to mains, plates, &c	576,530	Feb. 9	806	188	78	805
Albrecht, John and L., Lincoln, Wis. Fanning-mill	575,452	Jan. 19	1882	453, 454	78	390
Albrecht, Louis. (See Albrecht, John and L.)						
Albright, George S. (See Crowther, Rossiter, Albright, and Hood.)						
Alden, Rinaldo, Waukegan, Ill. Music-book holder	574,869	Jan. 12	855	208	78	181
Alden Type Machine Company. (See Johnson and Low, assignors.)						
Alexander & Co., Jos. (See Albers, Rudolf, assignor.)						
Alexander, Henry C., assignor of one-half to R. B. Alexander, Erastus, Ga. Plow attachment	578,849	Mar. 16	1771	408	78	1644
Alexander, John P., assignor to H. W. McCorry, Jackson, Tenn. Automatic switch	576,082	Feb. 2	1	1, 2	78	639
Alexander, Robert, G. F. Payne, and C. H. Mann, assignors to L. H. Hall, Philadelphia, Pa. Making gas-incandescent mantles	575,194	Jan. 12	1436	345	78	288
Alexander, Robert B. (See Alexander, Henry C., assignor.)						
Alexander, Theophilus W., Burlington, Iowa. Dispensing-can	576,018	Jan. 26	2866	679	78	593
Alexander, Theophilus W., Burlington, Iowa. Dispensing-can	577,477	Feb. 23	2394	563	78	1133
Alexander, Walter S., New York, N. Y., assignor to R. B. Strong, Plainfield, N. J. Electrically-operated ship's log	577,501	Feb. 23	2441	575, 576	78	1142
Alexander, William W., and M. C. Gillham, Kansas City, Mo. Electric signal for highway-crossings	577,635	Feb. 23	2686	634	78	1187
Algren, Carl S., assignor of one-half to W. Lickstrom, New York, N. Y. Stave-planing machine	576,985	Feb. 9	1454	346	78	927
Allaire, George Y., Cresskill, assignor of two-thirds to J. P., Jr., and R. Stockton, Jersey City, N. J. Smoke-consuming furnace	574,651	Jan. 5	477	109	78	89
Allday, Harry, Birmingham, England. Match-striking composition	579,913	Mar. 30	3608	.....	78	2023
Allen, Albert G., Pittsburg, Pa. Lubricating device	575,141	Jan. 12	1351	325	78	272
Allen, Charles J. (See Tibbitts and Allen.)						
Allen, Charles J., assignor to Playford Stoker Company, Cleveland, Ohio. Link grate-bar	575,091	Jan. 12	1258	303	78	254
Allen, Charles J., and F. R. Tibbitts, assignors to Playford Stoker Company, Cleveland, Ohio. Furnace-grate bar	575,092	Jan. 12	1259	304	78	254
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine	575,315	Jan. 19	1641	392	78	847
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Vibrating-shuttle sewing-machine	577,406	Feb. 23	2277	535	78	1111
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine trimmer	579,632	Mar. 30	3150	746	78	1935
Allen, George B., assignor of one-half to E. R. Bullock, Pawtucket, R. I. Spinning-top	575,278	Jan. 12	1572	374	78	315
Allen, John, Boulder, Colo. Sliding gate	577,908	Mar. 2	130	32	78	1285
Allen, Jot S., Gainesville, Ga. Insect-exterminator	579,374	Mar. 23	2650	626	78	1823
Allen, William E., Salem, Mass. Spinning-machine	578,051	Mar. 2	356	85	78	1330
Allen, William G., Hartford, Conn. Machine for making rivets, thumb-tacks, or like articles	578,850	Mar. 16	1772	408, 409	78	1644
Allen, William G., assignor to American Specialty Company, Hartford, Conn. Punch or heading device	578,437	Mar. 9	1044	238	78	1477
Allen, William J., Brithdir, D. Williams, and V. Lecoq, New Tredegar, England. Lowering-crane	577,815	Feb. 23	2970	701, 702	78	1241
Allfree, James B., Indianapolis, Ind. Separator	576,646	Feb. 9	994	233	78	840
Allfree, James B., Indianapolis, Ind. Grain-reducing machinery	578,534	Mar. 9	1222	276, 277	78	1511
Allison, Caroline. (See Allison, Oscar W. and C.)						
Allison, J. Wesley. (See Washington, George, assignor.)						
Allison, Oscar W. and C., Rochester, N. Y. Method of and apparatus for disentangling cut tobacco	575,774	Jan. 26	2450	577	78	516
Alteneder, Ferdinand A., Philadelphia, Pa. Drawing-pen	575,408	Jan. 19	1807	434	78	377
Althaus, Heinrich, and W. Gerken, Dyersville, Iowa. Ditching-machine	577,277	Feb. 16	2041	482, 483	78	1051
Althen, William C., Columbus, Ohio. Nut-lock	578,501	Mar. 9	1318	298	78	1530
Aluminium-Industrie-Actien-Gesellschaft. (See Constam and Hansen, assignors.)						
Alvarez, Lopez y Cia. (See Perez y Buñol, Domingo, assignor.)						
Alvord, Horace. (See Dake, Edward B., assignor.)						
Amanns, Abraham, assignor of one-half to J. V. Wright and J. Childers, Grammer, Ind. Bale-tier	574,699	Jan. 5	504	182	78	104
Amborn, George, Jr. (See Grinden and Amborn.)						
American Bell Telephone Company. (See Field, Stephen D., assignor.)						
American Bell Telephone Company. (See Lee, Westcott, and Robes, assignors.)						
American Bell Telephone Company. (See Robes, Ernest C., assignor.)						
American Bell Telephone Company. (See Stone, John S., assignor.)						
American Brass Novelty Company. (See Hallas, James G., assignor.)						
American Buncher Manufacturing Company. (See Nicholas, Abraham R., assignor.)						
American Carving and Manufacturing Company. (See Morgeneier, Robert, assignor.)						
American Electric Cold Supply Company. (See Singer, William F., assignor.)						
American Electric Telephone Company. (See Meissner, William O., assignor.)						
American Electric Vehicle Company. (See Woods, Clinton E., assignor.)						
American Graphophone Company. (See Macdonald, Thomas H., assignor.)						
American Line Grip Company. (See Fegan, James P., assignor.)						
American Ordnance Company. (See Driggs, William H. and L. L., assignors.)						
American Ordnance Company. (See Very, Edward W., assignor.)						
American Postal Machines Company. (See Hansen, John S., assignor.)						
American Pulley Company. (See Corscaden, Thomas, assignor.)						
American Railway Equipment Company. (See Marshall, Edward S., assignor.)						
American Soda Fountain Company. (See Lippincott, Fisher H., assignor.)						
American Soda Fountain Company. (See Ormerod, John, assignor.)						
American Soda Fountain Company. (See Puffer, Luther W., assignor.)						
American Specialty Company. (See Allen, William G., assignor.)						
American Tire Company. (See Moore, George C., assignor.)						
American Tobacco Company. (See Campbell, Daniel J., assignor.)						
American Washboard Company. (See Reimers, John H., assignor.)						
American Washboard Company. (See Sargent, James T., assignor.)						
Ames, Andrew A., Dover, N. H. Bicycle-support	578,307	Mar. 9	887	190	78	1439
Amos, Thomas J. (See Getz and Amos.)						
Amstutz, John and John, Jr., Leo, Ind. Coupling for pump-rods	577,830	Mar. 2	1	1	78	1261

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr'g.	Vol.	Page.
Amstutz, Noah S., Cleveland, Ohio. Reproducing photographs	577,373	Feb. 16	2207	521	78	1082
Amundson, Henry O., Clear Lake, S. D. Clothes-line reel	574,870	Jan. 12	855	208	78	181
Amwake, Jacob B. (See Troast and Amwake.)						
Andersen, Anders P., Milwaukee, Wis. Soot-door for chimneys	574,871	Jan. 12	856	208	78	181
Andersen, Julius, Kimballton, Iowa. Milk-heater	575,499	Jan. 19	1967	471	78	408
Anderson, Alva E., Clarksville, Tex. Baling-press	574,771	Jan. 5	679	162	78	127
Anderson, Charles A., and E. A. Ericksson, Chicago, Ill. Hot-air engine	579,670	Mar. 30	3212	763	78	1948
Anderson, Charles H. (See McCabe and Anderson.)						
Anderson, George T., Boston, Mass. Nail-forming die	575,316	Jan. 19	1643	392	78	847
Anderson, Gustaf A., assignor to Geiser Manufacturing Company, Waynesborough, Pa. Exhaust mechanism	574,369	Jan. 5	1	1	78	3
Anderson, Gustaf A., assignor to Geiser Manufacturing Company, Waynesborough, Pa. Steam-engine	576,751	Feb. 9	1155	275	78	871
Anderson, Gustaf A., assignor to Geiser Manufacturing Company, Waynesborough, Pa. Boiler attachment	576,752	Feb. 9	1157	275, 276	78	871
Anderson, Henry A. C., New York, N. Y. Combination battery-cell	578,131	Mar. 2	515	117	78	1360
Anderson, Henry L., Chicago, Ill. Egg-case	577,502	Feb. 23	2444	576	78	1143
Anderson, Isaac, Dayton, Ohio, assignor to R. W. Hutchinson, Marcellus, Mich. Lock	576,531	Feb. 9	808	188	78	805
Anderson, James C., Highland Park, Ill. Crank and pedal mechanism for bicycles	578,183	Mar. 2	631	144	78	1381
Anderson, John M., Boston, Mass. Baker's dipper	576,019	Jan. 26	2868	679	78	593
Anderson, John O., Lead, S. D. Ore separator and concentrator	577,705	Feb. 23	2788	659	78	1206
Anderson, John W., Allegheny, Pa. Car-truck	579,311	Mar. 23	2545	601	78	1803
Anderson, Joseph F., Washington, D. C. Brace for bedsteads	578,804	Mar. 16	1689	390	78	1629
Anderson, Josiah B., Boston, Mass. Marine safe-float	578,308	Mar. 9	888	190	78	1439
Anderson, L. C., *et al.* (See Anderson, William L., assignor.)						
Anderson, Neal L., Montgomery, Ala. Type-writing machine	575,195	Jan. 12	1439	345, 346	78	288
Anderson, Oscar, Newark, N. J. Centrifugal creamer	576,357	Feb. 2	502	118	78	731
Anderson, Oscar, Newark, N. J. Centrifugal creamer	576,994	Feb. 16	1570	373, 374	78	961
Anderson, William B. (See Schmackers, Anton, assignor.)						
Anderson, William L., assignor to L. C. Anderson and C. Schaal, Philadelphia, Pa. Vapor-bath cabinet	577,407	Feb. 23	2278	535	78	1111
Anderson, William S. (See Mell, Luther J., assignor.)						
Andersson, Gustaf J., and J. C. Dittrich, Brooklyn, assignors to Ozone Company, Brooklyn and New York, N. Y. Manufacturing ozone and by-products	577,523	Feb. 23	2488	586	78	1151
Andersson, Pelle, Philadelphia, Pa., and A. C. Seymour, Warren, R. I. Conveyer	574,652	Jan. 5	479	109, 110	78	89
André, George G., Glenlean Sandbank by Greenock, Scotland, assignor to C. H. Curtis, London, England. Manufacture of gunpowder	575,765	Jan. 26	2435	.....	78	513
André, George G., Glenlean Sandbank, near Greenock, Scotland, assignor to C. H. Curtis, London, England. Manufacture of gunpowder	576,582	Feb. 9	810	.....	78	806
Andreason, William N. (See Björkman, Anders G., assignor.)						
Andreoli, Emile, London, England. Apparatus for producing ozone	577,636	Feb. 23	2688	634	78	1187
Andresen, Hans P., Seattle, Wash. Heel-plate	575,662	Jan. 19	2268	535	78	467
Andrews, Marion A., Syracuse, N. Y. Vehicle-tire protector	574,772	Jan. 5	681	162	78	128
Andrews, William P., Brierfield, Va. Fly-fan	576,083	Feb. 2	7	2	78	639
Angle, William, Tiffin, Ohio. Permutation-lock	577,341	Feb. 16	2148	509	78	1070
Annable, Thomas H., assignor of one-half to E. E. Hale, Attleborough, Mass. Drill-bit or similar tool	578,805	Mar. 16	1691	391	78	1629
Ansell, Minnie, Chattanooga, Tenn. Door-adjuster	575,683	Jan. 26	2307	544	78	489
Antes, William H., assignor of one-fourth to A. W. Dibble, Evansville, Wis. Detachable carrier for burial-cases	576,358	Feb. 2	504	118	78	731
Anthony, Joseph A., Paris, Tenn. Gate	577,940	Mar. 2	192	46	78	1298
Anthony Wayne Manufacturing Company. (See Herron, Al H., assignor.)						
Antrobus, John H., Ottumwa, Iowa. Poultry-crate	575,752	Jan. 26	2417	569	78	509
Appley, Harrison V., Grand Rapids, Mich. Truss	578,184	Mar. 2	633	145	78	1382
Appleyard, Thomas W., Brooklyn, assignor to L. T. Duryea, Glen Cove, N. Y. Bicycle-lock	578,585	Mar. 9	1223	277	78	1511
Archer, Frank M., assignor to S. Silberberg, New York, N. Y. Advertising and vending machine	578,438	Mar. 9	1045	239	78	1477
Archer, Guy S., and C. F. Burrington, Cherokee, Iowa. Acetylene-gas generator	577,706	Feb. 23	2790	659	78	1207
Arleth, Stephen, Holland, Mich. Sad-iron heater	575,196	Jan. 12	1443	347	78	289
Arlington Manufacturing Company. (See France, Joseph R., assignor.)						
Armat, Thomas, Washington, D. C. Vitascope	578,185	Mar. 2	634	145, 146	78	1382
Armen, Arakelyan H., Philadelphia, Pa. Electric quick-break switch	575,047	Jan. 12	1183	288	78	289
Armstrong, Charles G. (See Davidson and Armstrong.)						
Armstrong, Edwin J., assignor to Oswego Machine Works, Oswego, N. Y. Paper-cutting machine	575,291	Jan. 12	1589	378, 379	78	319
Armstrong, James T., and A. Orling, London, England. Electric gas-lighter	577,279	Feb. 16	2045	484	78	1051
Armstrong, John S., Burleson, Tex. Thread-cabinet	575,197	Jan. 12	1444	347	78	289
Armstrong, Meylert M., Philadelphia, Pa. Furnace for smokeless combustion	577,637	Feb. 23	2690	634	78	1187
Armstrong, Robert M., *et al.* (See Parker, William S., assignor.)						
Arney, Albert L., Albion, Iowa. Car-coupling	576,533	Feb. 9	811	189	78	806
Arnold, Benjamin, East Greenwich, R. I. Bicycle guiding-stem	578,186	Mar. 2	641	146	78	1383
Arnold, Benjamin, East Greenwich, R. I. Woven fabric and loom for weaving same	579,312	Mar. 23	2546	601, 602	78	1803
Arnold, Clarence R., and A. M. Lichtenberger, Wellsville, Ohio. Window-frame	578,187	Mar. 2	643	146	78	1383
Arnold, Harry V., assignor to S. and M. May, New York, N. Y. Device for controlling light effects	577,816	Feb. 23	2972	702, 703	78	1241
Arnold, Henry H., Rockland, assignor, by mesne assignments, to Eppler Welt Machine Company, Boston, Mass. Sole channeling and trimming machine	575,867	Jan. 26	2611	617, 618	78	546
Arnold, Philip C., assignor to Bevin Brothers Manufacturing Company, East Hampton, Conn. Bicycle-bell	577,408	Feb. 23	2279	535	78	1111
Arp, August H., Moline, Ill. Checkrein-hook	578,806	Mar. 16	1693	391	78	1629
Asche, Otto, Paris, France. Machine for soldering tin cans	575,582	Jan. 19	2112	504	78	436
Ash, William M., Washington, D. C. Cycle-chain cleaner	577,503	Feb. 23	2445	576	78	1143
Ashbaugh, John I., Richmond, Ky. Corn-harvester	576,647	Feb. 9	996	233, 234	78	841
Ashworth, Elijah, Manchester, England. Card-clothing	578,592	Mar. 9	1318	298	78	1530
Ashworth, Ellen. (See Ashworth, John, assignor.)						
Ashworth, John, assignor, by mesne assignments, to E. Ashworth, Somerville, Mass. Crochet-machine	579,102	Mar. 16	2205	518	78	1726
Asmus, Charles J., Adrian, Mich. Fence	579,914	Mar. 30	3609	803	78	2023

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Association American Inventors. (See Buford, Mark, assignor.)						
Atherton, Fisher C. (See Kester and Atherton.)						
Atkins, Edgar H., Richmond, Va. Ratchet-drill	576,753	Feb. 9	1159	276	78	872
Atkins, George J., London, England. Chlorocyanid salts and making same	578,908	Mar. 16	1881	.....	78	1662
Atkinson, Frederick G., Washington, D. C. Wheel for vehicles	578,618	Mar. 9	1360	310	78	1538
Atkinson, Jefferson L., and L. Branchaud, Potsdam, N. Y. Removable ice-tire for bicycles	576,420	Feb. 2	604	143	78	750
Atkinson, John, and C. F. Plunkett, New York, N. Y. Pipe-coupling for water-closet bowls, &c	575,583	Jan. 19	2114	504	78	436
Atkinson, John D., *et al.* (See Gay, Charles A., assignor.)						
Atkinson, Joseph S. (See Craford and Atkinson.)						
Atteberry, Henry E., assignor of one-half to G. M. Bennett, Springfield, Ill. Convertible measure	575,020	Jan. 12	1133	274	78	230
Attenhofer, John S., New Orleans, La. Rotary pump	578,132	Mar. 2	515	117	78	1361
Atterbury, Thomas B., Pittsburg, Pa. Manufacture of incandescent electric lamps	574,370	Jan. 5	2	1	78	3
Atwater, Harry R., and C. P. Eichler, Cleveland, Ohio. Sink-cleaner	574,872	Jan. 12	857	208	78	181
Atwater, Henry W., East Orange, N. J. Ice-cream freezer	576,084	Feb. 2	8	2,3	78	640
Atwell, Euell C., Alexandria, Va. Dish-cleaner	575,808	Jan. 26	2614	618	78	547
Atwood, Benjamin S. (See Judkins, Alfonso E., assignor.)						
Atwood, Benjamin S., Whitman, Mass. Nail-feeding chuck	575,198	Jan. 12	1445	347	78	290
Auberlin, William, assignor of one-half to F. W. and F. C. Weyher, Detroit, Mich. Ball-bearing	574,700	Jan. 5	567	132	78	105
Auble, John, New York, N. Y., and A. D. Weiss, Wilkes-Barré, Pa., assignors to R. W. Lee and J. A. Watson, Washington, D. C. Lawn-sprayer. (Reissue)	11,583	Jan. 5	852	207	78	161
Audsley, William S., De Witt, Mo. Means for controlling supply of water to tanks, cisterns, &c	576,421	Feb. 2	605	143	78	750
Auit, Thomas B., Knoxville, Tenn. Lifting-jack	574,371	Jan. 5	3	1	78	3
Auriol, Paul, Paris, France. Mechanism for transmitting power at variable speeds	578,536	Mar. 9	1225	277	78	1512
Austen, Peter T., Brooklyn, and H. C. Tuttle, New York, N. Y. Making acetanilid, &c	578,384	Mar. 9	955	.....	78	1460
Austin, Edward D., Battle Creek, Mich. Picture-cord fastening	579,552	Mar. 23	3002	711	78	1888
Austin, Frederick C. (See Bunnell and Chapman, assignors.)						
Austin, Frederick C. (See Tilton and Bunnell, assignors.)						
Austin, James, *et al.* (See Barnes, Thomas, assignor.)						
Austin, John, San Francisco, Cal. Steam-scraper	576,422	Feb. 2	606	143	78	750
Austin, Walter S., Standish, Mich. Velocipede	576,183	Feb. 2	204	50,51	78	675
Autenrieth, Ernst F., deceased, New York, N. Y.; M. Autenrieth, administratrix. Rotary cutting and comminuting machine	577,278	Feb. 16	2043	483, 484	78	1051
Autenrieth, Marie, administratrix. (See Autenrieth, Ernst F.)						
Autenrieth, William, Cincinnati, Ohio. Orthopedical appliance	575,199	Jan. 12	1446	348	78	290
Autenrieth, William, Cincinnati, Ohio. Surgeon's knife	576,048	Feb. 9	1000	234	78	841
Automatic Company. (See Seymour, Francis, assignor.)						
Automatic Packing and Labeling Company. (See Patterson, Rufus L., assignor.)						
Automatic Photograph Machine Company. (See Cole, Arthur W., assignor.)						
Automatic Photograph Machine Company. (See Lo Forte, Remigio, assignor.)						
Averell, Ellicott D., Brooklyn, N. Y., assignor, by mesne assignments, to Sanitas Dried Fruit Company of New York, of New York. Raisin-puncturing machine	574,470	Jan. 5	153	36	78	30
Avery, Henry W., Cleveland, Ohio. Railway-tie plate	574,773	Jan. 5	683	163	78	128
Avery, Leonard, Montour, Iowa. Hay rake and loader	575,021	Jan. 12	1134	275	78	230
Ayer, Waldo E., Delaware, Ohio. Bottle or stand for mucilage or ink	576,085	Feb. 2	10	3	78	640
Ayres, Conway W., and J. G. Dunton, assignors to B. G. and A. J. Rhodes, Kansas City, Mo. Lens-grinding apparatus	575,584	Jan. 19	2115	504	78	436
Ayres, Seymour A., Lansing, Mich. Automatic corn-dropper	578,619	Mar. 9	1361	310	78	1538
Babcock, Dwight F., St. Louis, Mo., and J. Kelley, East St. Louis, Ill. Lubricator	577,374	Feb. 16	2210	521	78	1082
Babcock, James F., assignor of one-half to F. O. Beal, Bangor, Me. Automatic electric marine sounding apparatus	575,098	Jan. 12	1260	304	78	254
Babcock, Luke. (See Downs, Jeremiah, assignor.)						
Bacon, Frank R., Milwaukee, Wis. Controlling mechanism for electric motors	578,707	Mar. 16	1522	351	78	1597
Bacon, James D., Boston, Mass. Crimping leather for boots or shoes	579,915	Mar. 30	3610	803	78	2023
Badt, Francis B., Chicago, Ill. Battery	576,596	Feb. 9	1455	346	78	927
Badt, Francis B., Chicago, Ill. Multiple-series system of electrical distribution	579,556	Mar. 30	3019	714	78	1911
Baer, Joseph, assignor to Baker, Jones & Company, Buffalo, N. Y. Temporary binder or holder for papers	579,033	Mar. 16	2097	491	78	1704
Bagley, Orin, Sutton, N. H. Hose-support	578,851	Mar. 16	1775	409	78	1645
Bahrenburg, John H., and F. M. Drake, Trenton N. J. Bottle, demijohn, &c	575,317	Jan. 19	1645	393	78	347
Bailey, Alice C. (See Ball and Bailey.)						
Bailey, Charles J., Newton, Mass. Overshoe	574,372	Jan. 5	4	1	78	3
Bailey, Charles J., Newton, Mass. Foothold	574,373	Jan. 5	5	2	78	4
Bailey, Eli, assignor, by mesne assignments, of two-thirds to S. Bailey, Keokuk, Iowa. Shears or scissors	576,937	Feb. 9	1456	346	78	928
Bailey, Eli, assignor, by mesne assignments, of two-thirds to S. Bailey, Keokuk, Iowa. Shears or scissors	576,938	Feb. 9	1457	347	78	928
Bailey-Farrell Manufacturing Company. (See Grace, Thomas, assignor.)						
Bailey, Fortune L., Northampton, assignor, by mesne assignments, to R. F. Herrick, trustee, Boston, Mass. Cash indicator and register	577,395	Feb. 16	2247	528, 529	78	1089
Bailey, Francis P., Indianapolis, Ind. Bed-couch	576,020	Jan. 26	2869	679, 680	78	594
Bailey, Frank J., assignor to L. K. Fuller, deceased; E. L. Waterman, administrator, Brattleborough, Vt. Clothes-drier	576,335	Feb. 2	468	109, 110	78	725
Bailey, James H., Leading Creek, W. Va. Combined planter and fertilizer-distributer	578,188	Mar. 2	644	146	78	1384
Bailey, Lessie. (See Hancock and Bailey.)						
Bailey, Sarah. (See Bailey, Eli, assignor.)						
Bailey, Thomas, New York, N. Y. Fireproof-building construction	576,712	Feb. 9	1093	257	78	858
Bailey, Thomas, New York, N. Y. Fireproof-building construction	576,713	Feb. 9	1095	257, 258	78	858
Bailey, Thomas S., Sandy Lake, Pa. Draft attachment for vehicles	579,692	Mar. 30	3246	771	78	1954
Bailey, William H. (See Tangye and Bailey.)						
Bain, Alexander, Newark, N. J. Hydraulic motor or reversing-gear	577,342	Feb. 16	2151	509	78	1071
Baines Car Truck Company. (See Baines, Hugh, assignor.)						
Baines, Hugh, Brooklyn, assignor to Baines Car Truck Company, New York, N. Y. Car-truck	578,305	Mar. 2	824	186, 187	78	1417
Baines, John, assignor to J. J. Kirk and T. Royer, Piqua, Ohio. Adjustable shelf-bracket	576,939	Feb. 9	1458	347	78	928
Baker, David, Sparrow's Point, Md. Casting apparatus or plant	576,995	Feb. 16	1573	374, 375	78	992
Baker, Elbridge, Winchester, assignor to Nashoba Company, Ayer, Mass. Diaphragm for manufacturing chlorin and caustic soda by means of electrolysis	579,250	Mar. 23	2449	578	78	1786

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Baker, George B. (See Campbell, Ezra, assignor.)						
Baker, George W., Wilmington, Del. Hide and leather working machine	578,309	Mar. 9	840	190, 191	78	1439
Baker, Harrison J. (See Lord and Griswold, assignors.)						
Baker, Jones & Company. (See Baer, Joseph, assignor.)						
Baker, Jones & Company *et al.* (See Myers, Joseph, assignor.)						
Baker, Joseph B., Naples, Tex. Ball-bearing	575,798	Jan. 26	2485	586	78	523
Baker, Ludwig, assignor to Wickes Brothers, East Saginaw, Mich. Stationary boiler	579,784	Mar. 30	3400	814	78	1968
Baker, R. P. (See Nevill, William B., assignor.)						
Baker, Sanford J., Oakland, Me. Punitive chair	575,941	Jan. 26	2738	647	78	570
Baker, William M., Cincinnati, Ohio. Station-indicator	575,585	Jan. 19	2116	504, 505	78	436
Balding, Edgar W., Newark, N. J. Pneumatic tire	579,122	Mar. 23	2242	528	78	1747
Baldridge, Taylor R., *et al.* (See Mussey, Nathan D., assignor.)						
Baldwin, Charles W., Columbus, Ohio. Shoe-polishing frame and foot-rest	579,671	Mar. 30	3214	763	78	1948
Baldwin, Judson A., assignor to G. W. Hale, Chicago, Ill. Downdraft-furnace	575,200	Jan. 12	1449	348	78	291
Baldwin, Stephen G., Marion, Ind. Ink-well	578,189	Mar. 2	645	147	78	1384
Baldwin, William C., Wyoming, Pa. Strainer	576,798	Feb. 9	1225	292	78	885
Baldwin, William J., Brooklyn, N. Y. Grease-separator	578,708	Mar. 16	1524	351	78	1597
Ball, Frederic J. (See Ball, George M. and F. J.)						
Ball, George M. and F. J., Brooklyn, N. Y. Kneading-machine	576,296	Feb. 2	395	92	78	712
Ball, James, Hyde, England. Machine for manufacturing envelops	577,098	Feb. 16	1743	412	78	994
Ball, Reuben K., Claypool, Ind. Gate	578,709	Mar. 16	1525	352	78	1598
Ball, William E., and A. C. Bailey, Zanesville, Ohio. Harvester cutter-bar	576,584	Feb. 9	813	189	78	806
Ballantine, Alexander T., assignor to Domestifroid Company, Cleveland, Ohio. Oiling device	578,961	Mar. 16	1976	460, 461	78	1678
Ballard, Addison. (See Lomb, George W. C., assignor.)						
Ballew, John C., Evansville, Ind. Saw-filing machine	579,103	Mar. 16	2209	519, 520	78	1726
Ballou, George F., New York, N. Y. Chain	576,799	Feb. 9	1226	293	78	885
Balph, Charles A., Pittsburg, Pa. Fireproof floor and ceiling	579,375	Mar. 23	2651	626	78	1823
Balsley, James R., Connellsville, Pa. Pencil-sharpener	574,374	Jan. 5	6	2	78	4
Bammann, Johann. (See Ulrich and Bammann.)						
Bancroft, Clinton L., Brown's, Nev. Car and air-pipe coupling	574,597	Jan. 5	375	85	78	71
Banister, Charles, Waco, Tex. Cotton-press	579,335	Mar. 23	2587	611	78	1811
Banker, George W., Keene, N. Y. Tilting case or crate	577,409	Feb. 23	2281	535	78	1112
Banker, George W., Au Sable Forks, N. Y. Venting device	577,410	Feb. 23	2282	536	78	1112
Bannerman, Joseph D., Muscogee, Fla. Saw-set	576,940	Feb. 9	1459	347	78	928
Banser, John H., Greenville, Pa. Nut-lock	578,194	Mar. 2	651	148	78	1385
Barber, Amzi L., Washington, D. C., assignor to Barber Asphalt Paving Company, New York, N. Y. Apparatus for repairing asphalt pavements	574,653	Jan. 5	482	110	78	90
Barber Asphalt Paving Company. (See Barber, Amzi L., assignor.)						
Barber Asphalt Paving Company. (See Henry, Philip W., assignor.)						
Barber, Charles E., *et al.* (See Campbell, Joseph E., assignor.)						
Barber, William A., assignor of one-half to W. S. Miller, Reading, Pa. Pedal attachment for bicycles	578,439	Mar. 9	1050	240	78	1478
Barber, William M., Somerville, Mass. Hot-water heater	576,297	Feb. 2	396	93	78	711
Barbour, Wilber L., New York, N. Y. Clasp	578,537	Mar. 9	1226	277	78	1512
Barcus, Albert M., assignor of one-half to L. L. Love, Milton, W. Va. Cattle-gate	577,831	Mar. 2	9	1	78	1261
Bard, Jonathan S., New York, N. Y. Pen	576,800	Feb. 9	1227	293	78	885
Bardons, George C., J. G. Oliver, and G. W. Drake, Cleveland, Ohio. Turret-lathe	575,094	Jan. 12	1261	304	78	255
Barke, Samuel F., Philadelphia, Pa. Hand-shield	578,852	Mar. 16	1775	409	78	1645
Barker, Edward W., Philadelphia, Pa. Lens	578,620	Mar. 9	1362	310	78	1538
Barker, James, Philadelphia, Pa. Gear-cutting machine	577,707	Feb. 23	2791	659, 660, 661	78	1207
Barker, Joel T., *et al.* (See Collins, Samuel W., assignor.)						
Barker, John A., La Canada, Cal. Wrench	574,513	Jan. 5	220	52	78	43
Barker, John F., Springfield, Mass., assignor to Gilbert & Barker Manufacturing Company, of Massachusetts. Gas-burner	575,318	Jan. 19	1647	393	78	347
Barker, John T., Wallingford, Conn. Furnace for dental use	577,638	Feb. 23	2691	635	78	1187
Barker, Vernon T., trustee. (See Cooney, Luke, Jr., assignor.)						
Barling, Albert, Milwaukee, Wis. Pruning-shears	576,989	Feb. 9	1562	371	78	948
Barlow, John, Nottingham, England. Fixing working points or ends of picks, &c	576,535	Feb. 9	813	189	78	807
Barlow, John, assignor of one-fourth to H. E. Hubbart and A. Durose, Nottingham, England. Needle-threader	574,514	Jan. 5	221	52	78	44
Barnes, Alexander O., assignor to J. G. Jordan, Des Moines, Iowa. Post-hole auger	577,411	Feb. 23	2284	536	78	1112
Barnes, Amos, Detroit, Mich. Can-opener	575,201	Jan. 12	1451	348	78	291
Barnes, Charles O. (See Barnes, Lucien, Sr., and C. O.)						
Barnes, David. (See Barnes, Samuel, assignor.)						
Barnes, Henry B. (See Coulter, Horn, Reiter, Lyda, Freidhoff, Davis, and Barnes.)						
Barnes, John A., Wadsworth, Ohio. Clutch	575,626	Jan. 19	2302	521	78	454
Barnes, Lucien, Sr., and C. O., Buffalo, N. Y. Air-valve	574,701	Jan. 5	568	133	78	105
Barnes, Samuel, assignor of one-half to D. Barnes, Loveland, Colo. Grain separator and grader	576,990	Feb. 9	1563	371, 372	78	949
Barnes, Samuel E., Williamsett, Mass. Tire for vehicle-wheels	579,216	Mar. 23	2397	565	78	1777
Barnes, Thomas, assignor to himself, H. O'Hara, H. Lomas, R. Smith, E. Clayton, T. Turner, D. Snell, J. Austin, W. Campbell, J. Howe, G. Hunt, L. Hullglen, R. McMurry, J. A. Tomlinson, A. Studden, R. Innes, W. Barnes, and F. H. Sankey, Vancouver, Canada. Boiler	578,538	Mar. 9	1227	278	78	1512
Barnes, Walter, *et al.* (See Barnes, Thomas, assignor.)						
Barnes, William A., Lampasas, Tex. Book-support	575,627	Jan. 19	2304	521	78	454
Barnett, William O., Americus, Ga. Hame-tug	575,628	Jan. 19	2305	522	78	454
Barnhart, Frederick K., Oswego, N. Y. Heater for curling tongs or irons	576,423	Feb. 2	607	144	78	751
Barnum, Russell S., Chicago, Ill. Telephone-receiver	574,654	Jan. 5	483	111	78	90
Barnum, Russell S., Chicago, Ill. Telephone-transmitter	575,809	Jan. 26	2615	618	78	547
Baron, Aimé F. V. M., Paris, France, assignor to Baron Manufacturing Company, of New York. Manufacture of alloys of copper and iron	577,182	Feb. 16	1886	.....	78	1022
Baron Manufacturing Company. (See Baron, Aimé F. V. M., assignor.)						
Barr, George, Chicago, Ill. Spike-machine	576,536	Feb. 9	815	189, 190	78	807
Barr, Henry G., Worcester, Mass. Cutter and reamer grinder	575,319	Jan. 19	1648	393, 394	78	348
Barr, John H., and J. F. Johnson, Kansas City, assignors of one-third to W. E. Harvey, Rosedale, Kans. Hydraulic gold-separator	578,807	Mar. 16	1693	391	78	1630
Barr, William A., Paeonian Springs, Va. Eraser	578,190	Mar. 2	646	147	78	1384

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Barragan, Frank. (See Fish and Barragan.)						
Barratt, William T., assignor to C. Cooper, Bennington, Vt. Stitch-former for knitting-machines	577,610	Feb. 23	2651	626	78	1180
Barrett, Cornelius T., Brooklyn, N. Y. Storage battery	578,710	Mar. 16	1526	352, 353	78	1508
Barrett, Samuel H., W. Groves, and J. C. Brown, Woodhull, N. Y. Removable back for razors	575,514	Jan. 19	1992	476	78	413
Barrett, Thomas. (See Furbee and Barrett.)						
Barrie, John D., assignor of one-fourth to J. J. McInerney, Los Angeles, Cal. Parallel-ruler	577,708	Feb. 23	2703	661	78	1207
Barron, Charles A., assignor to Current Motor Company, Seattle, Wash. Current-motor	578,001	Mar. 2	284	66, 67	78	1315
Barron, Ernest R., *et al.*, executors. (See Briggs, William H., assignor.)						
Barron, George B., Easton, Pa. Railway and railway-switch	576,424	Feb. 2	609	144	78	751
Barron, Walter J., Brooklyn, N. Y., assignor to Franklin Typewriter Manufacturing Company, of Maine. Type-writing machine	576,247	Feb. 2	301	72, 73, 74	78	604
Barrows, George S., Philadelphia, Pa., assignor to Welsbach Light Company, Gloucester City, N. J. By-pass valve for Welsbach or other incandescent gas-burners	578,711	Mar. 16	1528	353	78	1508
Barrows, Harry P., *et al.* (See Griffin, Thomas B., assignor.)						
Barry, John, New York, N. Y. Liquid temperature and density tester	576,537	Feb. 9	817	190	78	807
Barry, John, and M. L. Shaughnessy, Lenox, Iowa. Shaft-tug	576,714	Feb. 9	1097	259	78	859
Barry, Nicholas, Jr., Muscatine, Iowa. Trap-screw	577,343	Feb. 16	2151	509	78	1071
Barry, William M., assignor to Beard, Wilson & Co., Memphis, Tenn. Multiple sawing-machine	579,463	Mar. 23	2844	670	78	1857
Barteau, Edward M., Brook Haven, N. Y. Railway-lantern	578,909	Mar. 16	1883	435	78	1662
Bartelt, William, Fairfield, Wash. Sieve for threshing-machines	575,095	Jan. 12	1262	304, 305	78	255
Bartlett, Edward C., and W. A. Murbach, Lorain, Ohio. Pneumatic tire	578,191	Mar. 2	647	147	78	1384
Bartlett, George D., Plymouth, Mass. Machine for manufacturing nails	578,385	Mar. 9	956	217	78	1460
Bartlett, Leander L., Montague, Mass. Planing-machine	578,712	Mar. 16	1530	353	78	1509
Barton, Gustavus, Memphis, Mich. Gate	577,223	Feb. 16	1956	463	78	1035
Barton, Samuel H., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Means for raising or lowering dental chairs	579,785	Mar. 30	3401	814, 815, 816	78	1984
Barton, William. (See Jenison, William H. S., assignor.)						
Bartoszewicz, John A. and P. P., Chicago, Ill. Passe-partout	577,670	Feb. 23	2751	649	78	1199
Bartoszewicz, Paul P. (See Bartoszewicz, John A. and P. P.)						
Bartram, Edgar B. (See Bartram, Walker B., assignor.)						
Bartram, Ferdinand S., New York, N. Y. Brush	574,873	Jan. 12	858	209	78	181
Bartram, Walker B., Redding, assignor of one-half to E. B. Bartram, Bridgeport, Conn. Monkey-wrench	576,996	Feb. 16	1577	375	78	962
Barus, Carl, Washington, D. C. Apparatus for aerating and cooling liquids	574,373	Jan. 5	7	2	78	4
Basle Chemical Works Bindschedler. (See Müller, Carl O., assignor.)						
Bason, Frederick, Chicago, Ill. Radiator	575,515	Jan. 19	1998	477	78	414
Bass, William L., Brooklyn, N. Y. Brake	579,376	Mar. 23	2652	627	78	1823
Bassett, Carroll P. (See Hinsdale, William R., assignor.)						
Bassett, Fred H., Waterbury, Conn. Curtain-fixture	575,409	Jan. 19	1809	435	78	377
Bassett, Fred H., Waterbury, Conn. Curtain-fixture for car-windows	575,410	Jan. 19	1811	435	78	378
Bassett, Fred H., Saranac Lake, N. Y. Curtain-fixture	575,411	Jan. 19	1813	436	78	378
Bassett, George B., Buffalo, N. Y. Water-meter	576,248	Feb. 2	313	74	78	606
Bassett, George B., Buffalo, N. Y. Water-meter	576,249	Feb. 2	314	74	78	606
Bassford, Isaac F., assignor of one-half to J. B. Zaun, Milwaukee, Wis. Axle-nut-locking device	579,553	Mar. 23	3003	711	78	1888
Bastedo, Carl A. (See Trebilcock and Bastedo.)						
Bastian, Charles. (See Caillet, Justin, assignor.)						
Bastin, William H., and L. M. Shaner, Murphysborough, Ill. Store-cabinet	577,941	Mar. 2	192	47	78	1298
Batcheider, James H., Tama, Iowa. Egg-case machine	575,096	Jan. 12	1264	305, 306	78	255
Bate, William S., Brooklyn, N. Y. Driving mechanism for velocipedes	576,997	Feb. 16	1578	376	78	963
Bates, Albert J., Joliet, assignor to Consolidated Steel and Wire Company, Chicago, Ill., Wire-fence machine	577,639	Feb. 23	2692	635, 636	78	1188
Bates, Francis A., and W. J. Greenhough, Philadelphia, Pa., assignors to Morse Williams & Company, of Pennsylvania. Elevator	579,672	Mar. 30	3215	763, 764	78	1948
Bates, Francis G., Philadelphia, Pa. Process of and apparatus for manufacturing gas	576,801	Feb. 9	1228	293, 294	78	885
Bates, George A. (See Owen and Bates.)						
Bates, Henri L., Providence, R. I. Paint	577,882	Mar. 2	4	.....	78	1261
Bates, Henry H., Washington, D. C. Steam-separator	578,192	Mar. 2	648	147	78	1384
Bates, Lindon W., Chicago, Ill. Hydraulic dredger	576,250	Feb. 2	315	75	78	607
Bates, Thomas J., Jr., *et al.* (See Hoermann, Theodor, assignor.)						
Batt, Charles F., Brooklyn, N. Y. Cycle-saddle	579,034	Mar. 16	2098	491	78	1704
Baty, George. (See Stalker, Baty, and Johnston.)						
Bauer, John C., Remsen, Iowa. Lubricator	578,193	Mar. 2	650	148	78	1384
Bauer, Louis P., Chicago, Ill. Manufacture of glucose or sugar	576,908	Feb. 16	1579	376	78	963
Bauercamper, Charles C. A., Omaha, Nebr. Sash-fastener	579,529	Mar. 23	2949	696	78	1878
Baugen, Simeon O., *et al.* (See Stromsmo, Hans, assignor.)						
Baum, Clarence M., Philadelphia, Pa. Steam-separator	579,377	Mar. 23	2654	627	78	1823
Baum, Frank W., Springfield, Mass., assignor to F. Wesel Manufacturing Company, New York, N. Y. Backing-up press for electrotypes	579,738	Mar. 30	3313	792	78	1967
Baum, Heinrich, Manchester, England, assignor to Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung, Frankfort-on-the-Main, Germany. Paraphenetidin compound	574,874	Jan. 12	859	.....	78	181
Baumann, Gerhard, Monmouth Junction, N. J. Press	579,396	Mar. 23	2590	612	78	1811
Baumer, Anton F., Syracuse, N. Y. Night-light	574,370	Jan. 5	9	3	78	4
Baumgartner, Joseph P., Philadelphia, Pa. Shade-supporter	574,515	Jan. 5	222	52	78	44
Bäurlin, Hermann, Aarburg, Switzerland. Electric-arc lamp	576,892	Feb. 9	1236	294, 295	78	886
Bauroth, Emil, *et al.* (See Pfeifer, John, assignor.)						
Bauroth, William F., *et al.* (See Pfeifer, John, assignor.)						
Bausch, Edward, assignor to Bausch & Lomb Optical Company, Rochester, N. Y. Microscope	577,344	Feb. 16	2153	509	78	1071
Bausch, George, Syracuse, N. Y. Spectacles	576,251	Feb. 2	318	75	78	607
Bausch & Lomb Optical Company. (See Bausch, Edward, assignor.)						
Baxter, James, Fort Wayne, Ind. Dental chair	575,684	Jan. 26	2308	544, 545	78	489
Bayer, Christian, New York, N. Y. Door spring and check	578,962	Mar. 16	1977	461	78	1679

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bayhouse, William, Boise, Idaho. Shoe-repairing jack	579,251	Mar. 23	2453	579	78	1786
Bayley, Charles H., *et al.* (See Davenport, Eugene F., assignor.)						
Bayliss, Arthur C. (See Fisher and Bayliss.)						
Bayreuther, Adolphus E., *et al.* (See Harrison, John H., assignor.)						
Bazzi, Eugenio, and A. Bianchi, Florence, Italy, assignors to M. Wallach Nachfolger, Cassel, Germany. Apparatus for rendering small sounds audible	575,320	Jan. 19	1650	394	78	348
Beach, Clarence E., Binghamton, N. Y., assignor to Star Electric Company, of New York. Telegraphic register	578,386	Mar. 9	959	217, 218	78	1461
Beach, Edward S., trustee. (See Lancaster, George A., assignor.)						
Beal, Flavius O. (See Babcock, James F., assignor.)						
Beaman, Samuel J., and J. Deas, Warrington, England. Destructor-furnace	574,774	Jan. 5	685	163, 164	78	128
Beard, Wilson & Co. (See Barry, William M., assignor.)						
Beardsley, Edwin R., Chicago, Ill. Sheet-pile	577,942	Mar. 2	194	47	78	1299
Beaton, Mary W., Bellows Falls, Vt. Lamp attachment	577,943	Mar. 2	195	47	78	1299
Beatty, Charles M., Tarentum, Pa. Disher and mold	578,195	Mar. 2	653	148	78	1385
Beaudin, Elie, Rhinelander, Wis. Knife-sharpener	578,440	Mar. 9	1051	240	78	1478
Beauregard, Victor. (See Gooding and Beauregard.)						
Beck, Harry J. (See Beck, Israel, assignor.)						
Beck, Israel, assignor of one-half to H. J. Beck, Philipsburg, Pa. Center punch	578,196	Mar. 2	653	149	78	1385
Becker, Frederick P. (See McCain, Joseph, assignor.)						
Becker, John H., Courtland, Minn. Corn-harvester	574,471	Jan. 5	155	36, 37	78	31
Beckwith, Horatio S., *et al.* (See Mussey, Nathan D., assignor.)						
Beddow, Matthew H., Minersville, Pa. Combined pocket-rule, spirit-level, and inclinometer	577,709	Feb. 23	2796	661	78	1208
Bedell, Charles H., Swarthmore, Pa. Steam-engine indicator	575,202	Jan. 12	1452	349	78	291
Beebe, Gaylord W., Minneapolis, Minn. Check-protector	576,999	Feb. 16	1582	376, 377	78	963
Beeg, Hans, Durlach, Germany. Molding-machine	575,022	Jan. 12	1135	275	78	231
Beeghley, David E., *et al.* (See Combs and Wetz, assignor.)						
Beekman, Gerard, New York, N. Y. Propelling mechanism for cycles	578,387	Mar. 9	961	218	78	1461
Beeman, Edson W., Albany, Oreg. Check holding and distributing device	574,655	Jan. 5	485	111	78	90
Beeman, Joseph S., Camberwell, Victoria. Device for removing paraffin from articles	574,516	Jan. 5	223	53	78	44
Beers, Alfred, Denver, Colo. Dish-cleaner	576,021	Jan. 26	2871	680	78	594
Beers, Louis G., and H. Eberhardt, Chicago, Ill., assignors to Gilbert & Bennett Manufacturing Company, Georgetown, Conn. Collapsible flower-stand	574,859	Jan. 5	829	201, 202	78	157
Beers, Philo M., Bridgeport, Conn. Machine for pointing needles	575,870	Jan. 26	2617	618, 619	78	547
Bell, Frederick D. (See Stickler and Bell.)						
Bell, Frederick D., Hornellsville, N. Y. Potato planter and digger	577,710	Feb. 23	2797	661	78	1208
Bell, Henderson D., Sharon, Pa. Drawer-pull	579,557	Mar. 30	3021	714	78	1911
Bell, Jerome B., Wilmington, Del. Type-setting machine	578,718	Mar. 16	1531	354, 355	78	1509
Bell, John C. (See Newton and Bell.)						
Bell, Joseph, New York, N. Y. Refrigerator	575,516	Jan. 19	1994	477	78	414
Bell Telephone Company of Missouri. (See Dean, William W., assignor.)						
Bell Telephone Company of Missouri. (See Johnston, Willbur H., assignor.)						
Bell, Thomas R., and D. A. Carson, Brooklyn, N. Y.; said Carson assignor to said Bell. Life-preserver	576,649	Feb. 9	1001	235	78	841
Bell, William H., U. S. Army. Projectile	579,035	Mar. 16	2099	492	78	1705
Bellamy, Charles H., South Hadley Falls, Mass. Bicycle	576,538	Feb. 9	818	190, 191	78	807
Bellamy, Luther H., New York, N. Y. Horseshoe-pad	579,313	Mar. 23	2551	603	78	1803
Bellman, Samuel L. (See Lewis and Bellman.)						
Belt, Charles E., Baltimore, Md. Gas-pressure regulator	578,621	Mar. 9	1364	311	78	1539
Beman, Roy D., Meadville, Pa. Game-board	575,097	Jan. 12	1269	307	78	256
Bemis, George W., Worcester, Mass. Drum	575,098	Jan. 12	1270	307	78	256
Bender, Conrad, and C. G. S. Mueller, Indianapolis, Ind. Antifriction-bearing	574,472	Jan. 5	159	37	78	31
Bender, Frederick G., New York, and R. E. McConnell, Brooklyn, N. Y. Tool-bag for bicycles	576,832	Feb. 9	1280	306	78	895
Bendere, William H., Philadelphia, Pa. Surface-saw	579,417	Mar. 23	2713	644	78	1834
Benedict & Burnham Manufacturing Company. (See Kenworthy, Abel, assignor.)						
Benedict, Charles L., Amherst, Canada. Bicycle-support	575,453	Jan. 19	1884	454	78	391
Benedict, Charles L., Amherst, Canada. Hand-stamp holder	576,336	Feb. 2	471	110	78	726
Benedict, Edward, Brooklyn, N. Y., assignor to Thatcher Furnace Company, New York, N. Y., and Newark, N. J. Furnace	576,650	Feb. 9	1003	235	78	841
Benedict, Gilbert H., Ellenville, N. Y. Electrotype-plate and making same	575,321	Jan. 19	1651	394	78	348
Benham, Harvey, Plummer, Ind. Letter-box	575,048	Jan. 12	1185	288, 289	78	240
Bénier, Léon, assignor to Compagnie Générale des Moteurs Gazogènes Système Bénier, Paris, France. Gas-engine	579,378	Mar. 23	2655	627, 628	78	1824
Benjamin, Bert R. (See Johnston and Benjamin.)						
Benjamin, George P., New York, N. Y. Playing-card	577,345	Feb. 16	2154	510	78	1072
Benjamin, Reuben B., Chicago, Ill. Incandescent-lamp socket	575,322	Jan. 19	1652	394, 395	78	348
Bennett, Charles D., and W. M. Daly, Kirkwood, Mo. Pump	574,702	Jan. 5	569	133	78	105
Bennett, Edwin H., Jr. (See Diehl and Bennett.)						
Bennett, George M. (See Atteberry, Henry E., assignor.)						
Bennett, Henry H., Freehold, N. J. Syringe-nozzle	577,524	Feb. 23	2490	586	78	1151
Bennett, John J., Taylorstown, Pa. Hat-pin protector	579,558	Mar. 30	3022	714	78	1912
Bennett, Mary E. J. (See Fowlkes and Bennett.)						
Bennett, Solomon, London, England. Waterproof article and preparing it	578,714	Mar. 16	1537	.....	78	1600
Bennett, Thomas G., assignor to Winchester Repeating Arms Company, New Haven, Conn. Percussion-cap card	576,391	Feb. 2	563	132	78	741
Bennett, William B., assignor of three-fifths to J. V. Emmitt and C. H. Richardson, Sterling, Ill. Nail-machine	577,909	Mar. 2	133	32	78	1285
Bennett, William L., *et al.* (See Hoover, Frank, assignor.)						
Bensene, Charles. (See Heaton, William, assignor.)						
Benson, Harrison T., Denver, Colo. Ore-concentrator	577,711	Feb. 23	2799	662	78	1208
Bentley, Charles E., New York, N. Y. Automatic cut-off	579,464	Mar. 23	2847	671	78	1857
Bentley, David, Philadelphia, Pa. Automatic air-brake-operating device	574,656	Jan. 5	485	111	78	90
Bentley, Edward M., New York, N. Y. Electric-railway trolley	574,877	Jan. 5	11	3	78	5
Bentley, Edward M., Lawrence, N. Y., assignor to General Electric Company, of New York. Series-multiple controller for electric motors	575,454	Jan. 19	1886	454	78	391
Benton, John L., assignor of one-half to C. R. Bishop, New Haven, Conn. Bicycle-supporting stand	577,592	Feb. 23	2625	619	78	1176

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Berg, Per Torsten, and A. C. Dinkey, Munhall, Pa. Apparatus for charging and drawing furnaces	577,712	Feb. 23	2801	662, 663	78	1209
Berg, Walter G., New York, N. Y. Transfer-boat	576,941	Feb. 9	1460	347, 348	78	928
Berger, Christian L., Boston, Mass. Deep-sea electric-current meter	575,455	Jan. 19	1888	454, 455	78	391
Berger, Christian L., Boston, Mass. Engineer's or surveyor's instrument	578,052	Mar. 2	358	85, 86	78	1330
Berger, Richard A. (See Nielson and Berger.)						
Berghe, Peter V., Philadelphia, Pa. Combined soldering-iron, brazier, &c.	577,971	Mar. 2	241	57	78	1307
Bergstrom Bros. & Co. (See Bergstrom, George O., assignor.)						
Bergstrom, George O., assignor to Bergstrom Bros. & Co., Neenah, Wis. Hot-air furnace	575,766	Jan. 26	2436	575	78	513
Bergstrom, Otto, *et al.* (See Parker, William S., assignor.)						
Bergter, Otto. (See Vettermann, Paul O., assignor.)						
Berlin Machine Works. (See Lane and Mitchell, assignors.)						
Bermingham, John F., Marceline, Mo. Steam-engine	578,478	Mar. 9	1109	258	78	1400
Bernard, Arthur M., and D. C. Knight, New Iberia, La. Combination-cultivator	577,224	Feb. 16	1958	463	78	1035
Bernard, Frank J. (See Cuendet and Bernard.)						
Bernards, Henry H., assignor of one-half to F. Schroff, Milwaukee, Wis. Horse-detacher	578,508	Mar. 9	1330	309	78	1530
Bernd, Charles, Jr., Riverside, N. J. Apparatus for promoting combustion	575,049	Jan. 12	1190	289	78	241
Berner-Mayer Company. (See Noack, Adolph G., assignor.)						
Bernheim, Samuel, New York, N. Y. Gas-burner	578,071	Mar. 2	391	91	78	1336
Bernstein, Saul, Baltimore, Md. Artist's sketching outfit	576,803	Feb. 9	1237	295	78	886
Berntsen, Hans, Cambridge, Mass. Can-opener	579,086	Mar. 16	2182	512	78	1722
Berres, Peter, Pittsburg, Pa. Scrap chute and bundler	577,611	Feb. 23	2052	626	78	1181
Berry, Frank, Swampscott, Mass. Safety-fender for street-cars	574,657	Jan. 5	487	111	78	91
Berry, Frank S. (See Pratt, Albert K., assignor.)						
Berry, John S., assignor of two-thirds to W. Quinn and M. Dowler, Tyler, Tex. Gate-latch	574,517	Jan. 5	224	53	78	44
Berry, John S., assignor of two-thirds to W. Quinn and M. Dowler, Tyler, Tex. Gate-latch	574,518	Jan. 5	224	53	78	44
Berry, Joseph H. (See Frost and Middleditch, assignors.)						
Besson, Anthony D., assignor of one-half to J. and R. Gosslin, Forest House, Pa. Measuring device	579,252	Mar. 23	2454	579	78	1787
Best, John A. (See Le Chard and Best.)						
Bettendorf, William P., Davenport, Iowa. Brake-beam for cars	576,589	Feb. 9	820	191	78	808
Betts, James E., Wilmington, Ohio. Car-coupling	577,060	Feb. 16	1586	377	78	964
Bevin Brothers Manufacturing Company. (See Arnold, Philip C., assignor.)						
Bevin Brothers Manufacturing Company. (See Scranton, Frederick A., assignor.)						
Bevington, James H., Columbus, Ohio. Cupping device	576,337	Feb. 2	472	110, 111	78	726
Bewsher, James. (See Caldwell and Bewsher.)						
Beyl, Emil A., Minneapolis, Minn. Convertible carriage or sled	579,288	Mar. 23	2509	598	78	1796
Beymer, Fred L., Indianola, Iowa. Sheet-metal heating-stove	579,379	Mar. 23	2657	628	78	1824
Bianchi, Aurelio. (See Bazzi and Bianchi.)						
Bibb, William, Westminster, S. C. Cotton-cultivator	575,323	Jan. 19	1655	395	78	349
Bibb, William L. (See Davis, Arthur W., assignor.)						
Bickley, Eli N., Harrisburg, Ark. Combined cultivator and cotton-chopper	577,713	Feb. 23	2803	664	78	1209
Bickman, Charles J., *et al.* (See Doty and MacKnight, assignors.)						
Bidle, Benjamin A., Abbeyville, Ohio. Pneumatic bicycle-tire	576,772	Feb. 9	1183	282	78	877
Biedenfeld, Curt B. von, assignor to Imperial Ball Bearing Axle Company, Chicago, Ill. Journal-bearing	576,252	Feb. 2	319	76	78	697
Bielefeldt, Max, Wittenberg, Germany. Blasting-fuse	579,786	Mar. 30	3405	.....	78	1984
Bier, Sylvan E. (See Block, Berthold, assignor.)						
Bierbach, George E., Milwaukee, Wis. Bicycle rest and repair stand	577,910	Mar. 2	135	33	78	1286
Bierley, Henry A., Portsmouth, Ohio. Shaft-loop	577,833	Mar. 2	4	2	78	1261
Biermann, Hermann, Breslau, Germany. Arrangement for closing or opening bars at railway-crossings	578,853	Mar. 16	1777	410	78	1645
Biermann, Hermann, Breslau, Germany. Safety-rail for preventing derailments	578,854	Mar. 16	1777	410	78	1645
Bieth, Paul, Buffalo, N. Y. Ice-velocipede	579,510	Mar. 23	2021	607	78	1873
Bigby, Colquitt H., assignor of one-half to W. T. Hudgens, Boyd, Ark. Time-lamplighter	578,282	Mar. 2	785	178	78	1409
Bigelow, Melvin F., Alden, Iowa. Bridle-bit	577,001	Feb. 16	1587	377	78	964
Biggar, John S., Chicago, Ill. Electrically-operated sewing-machine	579,511	Mar. 23	2023	608	78	1873
Biggar, John S., assignor to M. E. H. Rutter, Chicago, Ill. Electrical circuit for operating automatic railway-gates	576,493	Feb. 2	719	171, 172	78	773
Biggs, Henry L. (See McHugh, Peter, assignor.)						
Bigley, Robert L. (See Chilcote and Bigley.)						
Billings, Fredric, assignor of one-half to H. C. Higgins, Marinette, Wis. Three-way valve	579,405	Mar. 23	2855	671	78	1859
Billings, Harry E., assignor to Billings & Spencer Company, Hartford, Conn. Insulator	576,392	Feb. 2	564	133	78	741
Billings & Spencer Company. (See Billings, Harry E., assignor.)						
Billings, William R., and E. C. Collins, assignors to Taunton Locomotive Manufacturing Company, Taunton, Mass. Snow-plow for street-railways	574,875	Jan. 12	861	200	78	181
Billion, Marius, *et al.* (See Carmien, Pierre J., assignor.)						
Billman, Jacob H., *et al.* (See Combs and Wetz, assignors.)						
Bilton, Henry J. I., and T. Timmins, Malvern, Victoria. Appliance for scraping interiors of water mains or pipes	576,425	Feb. 2	611	144	78	751
Bingham, Charles F., Buffalo, N. Y. Manhole-cover	576,253	Feb. 2	320	76	78	697
Bingham, Henry, Melbourne, Victoria. Bicycle-tire	575,586	Jan. 19	2119	505	78	437
Bingham, Robert, Philadelphia, Pa. Steam-exhaust head	575,561	Jan. 19	2076	496	78	428
Bingner, Samuel J. (See Webber and Bingner.)						
Binkley, George K., *et al.* (See Mengel, Joseph A., assignor.)						
Binswanger, Augustus, *et al.* (See Fleischmann, Arthur, assignor.)						
Birdsell, Rudolph W. (See Wightman, Birdsell, and Nostrand.)						
Birnbaum, Theodore, London, England. Means or apparatus for burning illuminating-gas	577,677	Feb. 23	2752	650	78	1199
Birrell, James, Gaylord, Mich. Portable drag-saw	578,072	Mar. 2	393	92	78	1336
Bischof, George W., Mallala, assignor of one-half to J. F. Martin, Gawler, South Australia. Feeder for hay-cutters	576,426	Feb. 2	612	145, 146	78	751
Bischoff, Henry, Cleveland, Ohio. Bag	579,123	Mar. 23	2243	528	78	1747
Bishop, Charles, Tacoma, Wash. Smelting-furnace	578,963	Mar. 16	1978	461	78	1679
Bishop, Charles R. (See Benton, John L., assignor.)						
Bishop, John C., McComb, Miss. Car-door fastener and protector	574,775	Jan. 5	687	164	78	129
Bishop, John E., Indianapolis, assignor of two-thirds to W. A. Y. Bishop and W. H. Smith, Muncie, Ind. Trolley-stand	575,099	Jan. 12	1271	307	78	256
Bishop, Robert H., and W. Down, London, England. Runner or support for curtains	575,456	Jan. 19	1892	455	78	392
Bishop, Will A. Y., *et al.* (See Bishop, John E., assignor.)						
Bissell Carpet Sweeper Company. (See Drew, Walter J., assignor.)						
Bissell, Simeon, Pittsburg, Pa., assignor to H. H. Bliss, Washington, D. C. Glass-furnace	578,441	Mar. 9	1052	240	78	1479

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Björkman, Anders G., assignor to himself and W. N. Andreason, Brooklyn, N. Y. Spice-cabinet	577,846	Feb. 16	2155	510	78	1072
Black, David W. (See Masseth and Black.)						
Black, David W., assignor to B. Masseth, Butler, Pa. Packer	578,388	Mar. 9	963	218, 219	78	1461
Black, Joseph H. (See Welsh, Hamilton E., assignor.)						
Black & Sons, Joseph H. (See Kuhn, Frank P. and C. M., assignors.)						
Black, Stephen S., Pasadena, Cal. Fruit-jar	577,225	Feb. 16	1959	464	78	1085
Blackburn, John O., Pittsburg, Pa. Advertising medium	579,253	Mar. 23	2455	580	78	1787
Blackburn, Richard, Nottingham, England. Bobbin	576,022	Jan. 26	2873	680	78	594
Blackford, Atwell J., assignor of one-half to Durand Manufacturing Company, Medina, Ohio. Hydrocarbon-burner. (Reissue)	11,592	Mar. 2	832	189	78	1418
Blagden, John D., Wood's Holl, Mass. Rotary gas-engine	575,517	Jan. 19	1995	477	78	414
Blair, John C., Louisville, Ky. Fountain-spittoon	575,629	Jan. 19	2206	522	78	454
Blaisdell, James M., Winthrop, Mass. Device for feeding fiber to fiber-treating machines	576,298	Feb. 2	397	93, 94	78	712
Blake, Harold F., Haverhill, Mass. Pinking-machine	575,821	Jan. 26	2524	596	78	580
Blake, James W. (See Lawlor, Charles B., assignor.)						
Blake, Robie, Cornish, Me. Combination rack and stand	576,651	Feb. 9	1004	235	78	842
Blakeslee, John R., Cleveland, Ohio. Forging-machine	579,814	Mar. 30	3445	826	78	1992
Blamey, Edward, Jersey City, N. J., assignor of one-half to E. Whitmore, Brooklyn, N. Y. Trolley-support	578,539	Mar. 9	1229	278	78	1512
Blanchard, Virgil W., assignor to G. B. Underwood & Co., New York, N. Y. Inhaler	579,815	Mar. 30	3447	827	78	1992
Blanchet, William F., assignor of one-half to T. C. Creighton, Haywards, H. F. Marsh, Jr., Alameda, and A. Kidd, San Francisco, Cal. Key-fastener	577,504	Feb. 23	2446	576	78	1143
Blanck, August H., *et al.* (See Koester, Julius E., assignor.)						
Blandy, William H. (See Hermansader and Blandy.)						
Blasauf, John F., San Francisco, Cal. Music-turning device	576,086	Feb. 2	11	3	78	640
Blasius, John, Union, N. J. Sash-fastener	574,876	Jan. 12	863	209	78	182
Blears, John. (See Mills, Johnson, assignor.)						
Blessing, Charles A., Philadelphia, Pa. Flush-tank	578,506	Mar. 9	1176	266	78	1503
Blessing, James H., Albany, N. Y. Automatic steam-trap	578,310	Mar. 9	843	191, 192	78	1440
Blessing, James H., Albany, N. Y. Automatic steam-trap	578,311	Mar. 9	847	192	78	1440
Blevens, Samuel M., Ellettsville, assignor of one-half to T. H. O'Donnell, Jeffersonville, Ind. Slide-box	577,412	Feb. 23	2287	536	78	1113
Blevins, Sigle S., Ottawa, Kans. Rotary engine	578,197	Mar. 2	654	149	78	1385
Bliss, Chester W. (See Ezekiel and Stone, assignors.)						
Bliss, Henry H. (See Bissell, Simeon, assignor.)						
Bliss, Jerome D., Providence, R. I. Hat-pin	576,715	Feb. 9	1098	259	78	859
Bliven, John R., Daytona, Fla. Balance attachment for pedals	574,658	Jan. 5	488	112	78	91
Blizzard, Frank W. (See Fay, Reuben G., assignor.)						
Bloch, Isidore, Paris, France, assignor to E. Mamelsdorf, New York, N. Y. Machine for attaching gaskets to can-heads	579,104	Mar. 16	2213	520	78	1727
Bloch, Jacob, Portland, Oreg. Chronological skeleton chart	574,703	Jan. 5	571	133	78	106
Blocher, John, assignor to A. Grim and E. E. Miller, Franklin Grove, Ill. Voting-machine	575,292	Jan. 12	1592	379, 380	78	319
Block, Berthold, New Rochelle, assignor to S. E. Bier, New York, N. Y. Cutlery-grinding machine	575,562	Jan. 19	2077	496, 497	78	420
Blodgett, Archie D., Berlin, N. H. Vehicle running-gear	574,704	Jan. 5	572	133, 134	78	106
Blodgett, George H., Springfield, Mass. Wall tie or binder	577,002	Feb. 16	1588	377	78	964
Blomiley, Fred W., Sioux Falls, S. D. Adjustable dental mouth-mirror	574,877	Jan. 12	864	209	78	182
Blondel, Charles, *et al.* (See Harrison, John H., assignor.)						
Bloom, John M., Butte, Mont. Shoestring-fastener	575,412	Jan. 19	1816	436	78	378
Bloomer, Samuel, Stillwater, Minn. Folding table	574,473	Jan. 5	160	38	78	31
Blossom, Charles C., Brooklyn, N. Y. Garment-hook	575,822	Jan. 26	2526	596	78	531
Blubaugh, Leegora A., and W. C. Simpson, Redlands, Cal. Steam-engine exhaust and draft device	578 688	Mar. 9	1481	340	78	1561
Blum, Charles. (See Smith, Thomas, assignor.)						
Blum, Edward W., Cincinnati, Ohio, assignor of one-half to J. H. Strieker, Anderson, Ind. Gas-motor	579,554	Mar. 23	3005	711, 712	78	1888
Blumenberg, Henry, Jr., Wakefield, N. Y. Porous diaphragm	578,073	Mar. 2	394	.....	78	1336
Blumenthal, Max, and H. Kintz, Sharpsburg, Pa. Oil-well tool	574,705	Jan. 5	574	134	78	106
Blumstein, Louis, Brighton, Ill. Pneumatic straw-stacker	574,776	Jan. 5	688	164, 165	78	129
Blun, Ferdinand S. M. (See Galsman, Henry J., assignor.)						
Bluntach, Alexander J., Olivia, Minn. Inkstand	579,466	Mar. 23	2857	672	78	1860
Bly, Albert B., Ottumwa, Iowa. Jack for removing journal bearings or brasses from axle-boxes	577,226	Feb. 16	1961	464	78	1036
Bly, Peter W. (See Hill and Bly.)						
Boddie, John R. (See Gibson, Henry C., assignor.)						
Bodine, Peter. (See Shea, Christopher A., assignor.)						
Bodine, Sadi W., New York, N. Y. Attachment for skirts	578,312	Mar. 9	849	192	78	1440
Body, Adam S. (See Body, William J. and A. S.)						
Body, William J. and A. S., Shillington, Pa. Car-fender	576,652	Feb. 9	1005	236	78	842
Boehringer, Charles, *et al.* (See Konrad, Louis, assignor.)						
Boesch, Emile, San Francisco, Cal. Lamp	576,716	Feb. 9	1099	259	78	859
Boese, Henry, assignor to T. Boese, Crozier, Iowa. Corn-harvester	575,871	Jan. 26	2622	619, 620	78	548
Boese, Theresa. (See Boese, Henry, assignor.)						
Boetcher, August, Philadelphia, Pa., assignor of one-half to F. Duane, New Brunswick, N. J. Magnetic apparatus	578,673	Mar. 9	1448	331	78	1554
Boettcher, Friedrich W. G., Duluth, Minn. Combined heating and cooking stove, &c.	578,622	Mar. 9	1367	311, 312	78	1589
Boettcher, William H., Milwaukee, Wis. Wagon-body	577,834	Mar. 2	5	2	78	1261
Bogart, Samuel S., Schraalenburg, N. J., assignor to Electric Selector and Signal Company, of West Virginia. Device for operating signals	578,442	Mar. 9	1056	241	78	1479
Bogert, Charles J., Brooklyn, assignor to J. L. Mott Iron Works, New York, N. Y. Cornice-tile	576,942	Feb. 9	1462	348	78	929
Bogert, John L., Flushing, N. Y. Turret-machine	576,717	Feb. 9	1101	260	78	860
Boggs, Joseph J. (See Boggs, Richard N. and J. J.)						
Boggs, Richard N. and J. J., Mossy Creek, assignors of one-half to W. I. Hobbs and J. E. Redwine, Jr., Gainesville, Ga. Blacksmith's combination-tool	575,298	Jan. 12	1596	380	78	319
Böhm, Joseph, assignor to L. Sutro and T. Böhm, New York, N. Y. Machine for turning buttons	574,860	Jan. 5	890	202, 203	78	157

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Böhm, Tillie. (See Tyberg, Oluf, assignor.)						
Böhm, Tillie, *et al.* (See Böhm, Joseph, assignor.)						
Bokelmann, Herman, assignor of one-half to M. Schmitt, Newark, N. J. Seal attachment for bottles	577,640	Feb. 23	2700	637	78	1189
Bokern, William von, assignor of one-half to H. Heatley, Denver, Colo. Bottle	575,675	Jan. 19	2292	541	78	472
Boland, Edward P., New York, N. Y. Automatic telephone-call device	577,911	Mar. 2	136	33	78	1286
Boland, Frank P., Providence, R. I. Lamp-burner	577,612	Feb. 23	2654	627	78	1181
Bolig, Thomas, Bellevue, Ohio. Miter-box	577,227	Feb. 16	1962	464	78	1036
Boll, Theodor. (See Hess, John H., assignor.)						
Bolles, John H. (See Turner, Charles P., assignor.)						
Bollinger, James F., Hickory, N. C. Cultivator	575,872	Jan. 26	2626	620	78	548
Bolton, Reginald P., Pelhamville, N. Y. Power, heating, and ventilating apparatus for buildings	576,718	Feb. 9	1103	260	78	860
Bomborn, Osvald, Magdeburg-Buckau, Germany. Vaporizer for petroleum-engines	578,084	Mar. 2	336	80	78	1325
Bond, George A. (See Bond, James, assignor.)						
Bond, James, Hannibal, assignor of one-half to G. A. Bond, Kansas City, Mo. Fence-brace	578,594	Mar. 9	1321	299	78	1531
Bonham, Edmund J., Wichita, Kans. Railway passenger-ticket and baggage-check combined	575,413	Jan. 19	1817	437	78	379
Boniface, Nonna F., Boston, Mass. Child's traveling toilet	579,337	Mar. 23	2592	612	78	1812
Bonnell, Robert L., assignor to Combination Bicycle Lock and Gear Company, Anderson, Ind. Bicycle-gearing	576,719	Feb. 9	1104	260	78	860
Bonner, John, Tiburon, Cal. Ventilator	576,427	Feb. 2	615	146	78	732
Bonner, Julius, New York, N. Y. Velocipede	574,706	Jan. 5	575	134	78	107
Bonnet, Adolphe, Havana, Cuba, assignor to H. G. Hinse, Jersey City, N. J. Decorticating-machine	579,734	Mar. 30	3314	792	78	1967
Bonsack, James A., Philadelphia, Pa., assignor to Bonsack Machine Company, Salem, Va. Cigarette-tube machine	577,347	Feb. 16	2156	510 511	78	1072
Bonsack, James A., Philadelphia, Pa., assignor to Bonsack Machine Company, Salem, Va. Machine or apparatus for making cigarette-tubes	577,348	Feb. 16	2159	511	78	1072
Bonsack Machine Company. (See Bonsack, James A., assignor.)						
Bonzano, Adolphus, Philadelphia, Pa. Rail-joint	576,943	Feb. 9	1463	348	78	929
Bookwalter, Francis M., Springfield, Ohio. Hydraulic nozzle	579,418	Mar. 23	2714	644	78	1834
Boone, Samuel W., Flint, Mich., assignor to D. Traxler. Overalls	579,314	Mar. 23	2552	603	78	1804
Booth, Chris S., Camp Point, Ill. Type-writing machine	576,359	Feb. 2	505	118	78	731
Booth, James R., Barrie, Canada. Animal-trap gun	575,204	Jan. 12	1455	350	78	292
Booth, John, Central Falls, assignor of one-half to C. D. Wood, Lincoln, R. I. Ring-traveler	577,228	Feb. 16	1963	465	78	1036
Booth, John M., Englewood, N. J. Reversing apparatus for dye-vats	579,217	Mar. 23	2399	566	78	1777
Booth, Ralph W., New Brunswick, N. J. Treating inferior grades of spelter or zinc	575,630	Jan. 19	2207	.....	78	453
Borchardt, Hugo, Berlin, Germany. Projectile	577,183	Feb. 16	1887	446	78	1022
Borchers, Warnerus, Munich, Germany. Coffee-machine	578,910	Mar. 16	1884	435	78	1662
Borden, James Y., Philadelphia, Pa. Hair structure	576,428	Feb. 2	616	146	78	732
Borden, James Y., Philadelphia, Pa. Hair switch	578,623	Mar. 9	1370	312	78	1539
Borden, Sidney G. (See Flye, Murat K., assignor.)						
Borden, William A., assignor to E. A. Burgess, New Haven, Conn. Combined book-support and label-holder	575,294	Jan. 12	1598	381	78	320
Borland, Anson F., Winnipeg, Canada. Funnel	578,540	Mar. 9	1231	278	78	1513
Borling, Victoria B., Brooklyn, N. Y. Chamber	579,512	Mar. 23	2924	688	78	1873
Bornet, Camille, Paris, France. Bit or drill for borers, &c., and manufacture of same	574,980	Jan. 12	1070	260	78	219
Bornstein, Jennie L., Dayton, Ohio. Catamenial sack	574,378	Jan. 5	12	3	78	5
Bortlik, Frank, New York, N. Y. Whip-rack	576,254	Feb. 2	321	76	78	697
Borton, Stockton, Providence, R. I., assignor to Willcox & Gibbs Sewing Machine Company, New York, N. Y. Automatic bobbin-winder for sewing-machines	575,587	Jan. 19	2121	505 506	78	437
Bortree, Mary H., Grand Rapids, Mich. Lacing-strip for shoes, &c.	575,387	Jan. 19	1773	425	78	371
Bös, Karl, Milwaukee, Wis. Culinary utensil	576,303	Feb. 2	566	133	78	742
Bosch, William, Williamsport, Pa. Fastening for table-legs	577,229	Feb. 16	1963	465	78	1036
Bosley, Daniel W. (See Fairchild, Charles B., assignor.)						
Bosmann, Nicolas, Jr., Chicago, Ill. Cue-tip	575,295	Jan. 12	1599	381	78	320
Bossard, John, Dubuque, Iowa. Electroplating-hook	579,124	Mar. 23	2245	528 529	78	1747
Bossert, Ernst, Cincinnati, Ohio. Reversible driving mechanism	579,359	Mar. 30	3023	714	78	1912
Bossong, Frank, Ellensburg, Wash. Twine-holder	577,340	Feb. 16	2161	512	78	1073
Bossong, Frank E., Watseka, Ill. Telephone-switchboard plug	579,036	Mar. 16	2101	492	78	1705
Bostedo Package and Cash Carrier Company. (See Fordyce, Edmond A., assignor.)						
Boston Automatic Fire Alarm Company. (See Burgher, Charles, assignor.)						
Boston Electric Insulated Pole Company. (See Buckner, James, assignor.)						
Boston Fast Color Eyelet Company. (See Kempshall, Eleazer, assignor.)						
Boston Forge Company. (See Chattaway, William, assignor.)						
Bostwick, Charles E., West Stockbridge, Mass. Wagon-gear	574,878	Jan. 12	865	210	78	182
Bostwick, L. M. (See Patten, Dana A., assignor.)						
Boswell, Daniel E. (See Briggs and Boswell.)						
Bosworth, George P., Pawtucket, R. I. Stop-motion for spooling-machines	575,603	Jan. 19	2269	535 536	78	467
Bosworth, Wendell P., Brockton, Mass. Heel-lift-cutting apparatus	576,023	Jan. 26	2874	680	78	594
Bothwell, Henry R. (See Newman and Bothwell.)						
Bottenberg, Elmer H., Auburn, Ind. Extensible shade-hanger	576,540	Feb. 9	822	191	78	806
Boudreaux, Ernest, Albemarle, La. Bagasse-furnace	575,324	Jan. 19	1656	395 396	78	349
Boughton, George E., Alma, Mich. Breast-strap roll	574,777	Jan. 5	690	165	78	129
Boughton, John W., Philadelphia, Pa. Folding summer-house	574,519	Jan. 5	225	53, 54	78	44
Boulanger, Emile, St. Louis, Mo. Drum	578,196	Mar. 2	656	149 150	78	1385
Boulton, William, Alpena, Mich. Bicycle-saddle	579,856	Mar. 30	3521	842	78	2006
Bouneu, Louis, Brussels, Belgium. Means or apparatus for hermetically closing bottles	574,379	Jan. 5	13	3	78	5
Bourke, William, assignor to J. F. McGuire, Brooklyn, N. Y. Lamp-burner	578,090	Mar. 2	425	99	78	1342
Bourne, Edmond F. B., Vancouver, Canada. Sorting-table	578,199	Mar. 2	658	150	78	1386
Bouton, Baldwin S., and S. E. Germain, Ripon, Wis. Combined welt-guide and gage	575,100	Jan. 12	1272	307	78	257
Boutwell, George S., Waterbury, Conn. Duplicate-whist table	575,457	Jan. 19	1898	455	78	302
Bovee, David W., Waterloo, Iowa. Feed-grinder	575,588	Jan. 19	2123	506	78	438
Bovier, Oscar F., assignor of one-half to J. A. Elston, Ithaca, N. Y. Carriage-protector	576,991	Feb. 9	1565	372	78	949
Bowden, William, Manchester, England. Tuck-sewing machine	578,911	Mar. 16	1886	435 436	78	1662
Bowen, Frank E. W. (See Douglas-Willan and Bowen.)						
Bowen, Menard K., Chicago, Ill. Rail bond and connection	575,388	Jan. 19	1774	426	78	371

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Bower, Alvaro L. (See Justus, Charles W., assignor.)						
Bower, Harry A., Chelsea, Mass. Support for drums	579,735	Mar. 30	3316	792	78	1967
Bower, John A., Pittsburg, Pa. Picture-frame	578,200	Mar. 2	659	150	78	1386
Bower, Sigmund, New York, N. Y. Watchman's time-register	575,799	Jan. 26	2486	587	78	523
Bower, William C., Birmingham, Ala. Match-receptacle	577,350	Feb. 16	2162	512	78	1073
Bowers, William F., San Francisco, Cal. Concentrator-belt	575,142	Jan. 12	1352	325	78	272
Bowers, William M., *et al.* (See Hoermann, Theodor, assignor.)						
Bowlby, Frank S., Wellington, Ohio. Combined match, cigarette, and cigar holder	576,653	Feb. 9	1006	236	78	842
Bowman, George L. and R., Stoyestown, Pa. Thill-support	578,201	Mar. 2	660	151	78	1386
Bowman, Henry. (See Kelly and Bowman.)						
Bowman, John F., Lakeville, Mass. Window-pane clasp	576,360	Feb. 2	507	119	78	732
Bowman, Lawrence G., New York, N. Y Automatic telephone-exchange system	574,707	Jan. 5	576	134 135	78	107
Bowman, Ross. (See Bowman, George L. and R.)						
Bowman, Ross, assignor of one-half to J. H. Gardner, Stoyestown, Pa. Artificial limb	579,787	Mar. 30	3406	816	78	1964
Bowser, George M., Brisbane, Queensland. Machine for molding and dressing stone for buildings, &c	577,003	Feb. 16	1589	378	78	964
Boycott, Walter J. (See Hoeft, Herman W., assignor.)						
Boyd, Calvin C., Harlansburg, assignor of one-half to J. H. Pizor, Jacksville, Pa. Fountain flower-stand	577,230	Feb. 16	1965	465	78	1036
Boyd, George H. (See West and Boyd.)						
Boyd, Harold, Birmingham, England. Explosive	577,351	Feb. 16	2163	.....	78	1073
Boyd, John G. (See Butler, William A., assignor.)						
Boyd, Lester H. (See Hatter, John A., assignor.)						
Boyd, Peter, assignor to Riverside Iron Works, Wheeling, W. Va. Draw-bench for manufacturing pipe	575,389	Jan. 19	1775	426 427	78	371
Boyer, Joseph, St. Louis, Mo. Pneumatic hammer	575,589	Jan. 19	2124	506	78	438
Bozard, Ashbel L., Humphrey, N. Y. Phosphate-dropper	577,613	Feb. 23	2656	627	78	1181
Brabaw, Michael, Detroit, Mich. Course-indicating apparatus	574,474	Jan. 5	161	38	78	32
Brace, William H. (See Breen and Brace.)						
Bracher, Thomas W., New York, N. Y. Hat and edge binding therefor	576,978	Feb. 9	1526	361	78	941
Brachhausen, Gustav A., assignor to Regina Music Box Company, Rahway, N. J. Star-wheel standard for music-boxes	577,835	Mar. 2	6	2	78	1202
Brackenridge, John C. (See Carver and Brackenridge.)						
Braddock, Joseph. (See Hawkyard, John, assignor.)						
Bradley, Benjamin, Sr., Bellefonte, Pa. Railway-tie	577,714	Feb. 23	2806	664	78	1210
Bradley, Benjamin C., Alliance, Ohio. Revolving show-case	574,380	Jan. 5	14	4	78	5
Bradley, Christopher C., Jr. (See Raymond, Frank, assignor.)						
Bradley, David, Cartwright, assignor of one-half to J. S. Reekie, Boissevain, Canada. Thill-coupling	579,289	Mar. 23	2511	593	78	1797
Bradley, Edward E., Stonington, Conn. Flier for spinning-machines	578,856	Mar. 16	1779	410	78	1646
Bradley, Franklin B., Bridgeport, Conn. Making squares	574,708	Jan. 5	580	135	78	108
Bradley, Harry M., Canon, Colo. Load-binder	578,855	Mar. 16	1778	410	78	1645
Bradley & Hubbard Mfg. Co. (See Coggins, Emory S., assignor.)						
Bradley & Hubbard Mfg. Co. (See Penfield, William A., assignor.)						
Bradley & Hubbard Mfg. Co. (See Upson, Waldo L., assignor.)						
Bradley Pulverizer Company. (See Griffin, Edwin C., assignor.)						
Bradshaw, Walter L., Cincinnati, Ohio. Telephony	577,231	Feb. 16	1966	465	78	1037
Bradshaw, William H., Orange, N. J. Fifth-wheel	579,857	Mar. 30	3522	842	78	2007
Bradstreet, William D., assignor to A. D. Hankerson, Waltham, Mass. Envelop	577,571	Feb. 23	2579	608	78	1167
Bradt, Charles E., *et al.* (See Pringle, Eugene, assignor.)						
Bradt, George M. (See Painter, Carl T., assignor.)						
Bradt, Samuel E., *et al.* (See Pringle, Eugene, assignor.)						
Brady, Ben F., *et al.* (See Eyster, William S., assignor.)						
Brady, Joseph H., Kansas City, Mo. Water-filter	579,254	Mar. 23	2456	580	78	1787
Brady, Patrick, Emporia, Kans. Corn-shock tightener	574,778	Jan. 5	692	165	78	180
Bragger, John W., assignor to Hitchcock Lamp Company, Watertown, N. Y. Bicycle-lamp	577,155	Feb. 16	1844	436	78	1014
Bragger, John W., assignor to Hitchcock Lamp Company, Watertown, N. Y. Holder for bicycle-lamps	577,156	Feb. 16	1846	436	78	1014
Bramer, Albert and D., Boston, Mass. Disk harrow or cultivator	578,292	Mar. 2	661	151	78	1386
Bramer, David. (See Bramer, Albert and D.)						
Brammer, Henry F., and W. H. Voss, Davenport, Iowa. Washing-machine	575,540	Jan. 19	2042	488	78	422
Branch, Samuel. (See Thomas and Branch.)						
Branchaud, Leonard. (See Atkinson and Branchaud.)						
Brandeis, Fanita M. (See Brandeis, Louis, assignor.)						
Brandeis, Louis, assignor to F. M. Brandeis, Brooklyn, and C. T. Strauss, New York, N. Y. Filter	574,779	Jan. 5	693	165 166	78	130
Brandes, Herman H., and F. W. Hironimus, assignors of one-half to T. J. O'Nan and C. Schnabel, Corydon, Ky. Fence	575,541	Jan. 19	2043	489	78	423
Brandis, Ludwig, Essen-on-the-Ruhr, Germany. Water-closet	576,184	Feb. 2	206	51	78	675
Brandon, William, assignor to E. Rippingille, Aston, England. Extinguisher for lamp or oil-stove burners	576,944	Feb. 9	1464	348	78	929
Brands, Gerhard J. (See Wiens and Brands.)						
Brandt, Ernst, Berlin, Germany. Bell mechanism for bicycles	577,352	Feb. 16	2164	512	78	1073
Brandt, Paul, assignor to A. Heusch, Berlin, Germany. Voltmeter	577,678	Feb. 23	2753	650	78	1200
Brandt, Simon L., assignor of one-half to H. C. Grady, Marietta, Pa. Broom-head	576,513	Feb. 2	702	179	78	781
Branth, Johan F. S., assignor to Sprague Electric Railway and Motor Company, New York, N. Y. Trolley-support for electric-railway cars	579,880	Mar. 23	2658	628 629 630	78	1824
Brashear, Edon A., assignor of one-half to C. B. Karn, Western Port, Md. Filter	579,089	Mar. 16	2110	495 496	78	1707
Brauch, Adolf, Paterson, N. J. Comber-board for Jacquard mechanism	574,382	Jan. 5	16	4	78	6
Braun, Edwin L., *et al.* (See Braun, Henry A., assignor.)						
Braun, Henry A., assignor of two-thirds to J. R. McFetridge, Jr., and E. L. Braun, Philadelphia, Pa. Pressure device for beer, &c	576,087	Feb. 2	12	3	78	640
Braveman, Isidor. (See Hayton, George W., assignor.)						
Bray, Louis M., Pittston, Va. Twine-cutter	574,520	Jan. 5	226	54	78	45
Bray, Nicholas S., Laurium, Mich. Hose-coupling	577,413	Feb. 23	2288	537	78	1118
Brazelton, Bird H. (See Powley, Allan R., assignor.)						
Bredow, John F., Davenport, Iowa. Coin-tray	578,541	Mar. 9	1232	278	78	1513
Breen, Michael D., and W. H. Brace, Avon, N. Y.; said Brace assignor to said Breen. Planter	575,101	Jan. 12	1274	308 309	78	257
Breisch, Michel. (See Harris and Breisch.)						
Breitstein, Francis. (See Breitstein, George F. and F.)						
Breitstein, George F. and F., New York, N. Y. Swivel leader-holder	575,205	Jan. 12	1456	350	78	292

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Brélaz, Louis, and B. B. Naudé, Morges, Switzerland. Skirt-holder	575,279	Jan. 12	1573	374	78	316
Bremer, Donn, and C. A. Lundgren, assignors of one-half to J. S. Hallstrom, Chicago, Ill. Bicycle-propelling mechanism	579,218	Mar. 23	2401	566	78	1777
Brenizer, Orson W., Allegheny county, Pa. Car-fender	575,023	Jan. 12	1136	276	78	231
Brennan, James J., Pittsburg, Pa. Flue-cleaner	575,290	Jan. 12	1574	375	78	316
Brenneman, Clarence B., Marion, Iowa. Pipe attachment	576,945	Feb. 9	1465	349	78	929
Brent, George L., and E. S. Wheeler, Doddsville, Ill.; said Wheeler assignor to said Brent. Stanchion	576,541	Feb. 9	823	192	78	808
Breul, Richard A., assignor to Bridgeport Chain Company, Bridgeport, Conn. Chain	575,102	Jan. 12	1278	309	78	258
Breul, Richard A., assignor to Bridgeport Chain Company, Bridgeport, Conn. Chain-machine	578,689	Mar. 9	1484	340, 341, 342, 343	78	1561
Brevard, William M., Macon, Ga. Safety-envelop	579,467	Mar. 23	2859	672	78	1860
Brewer, Albert G., Hopkinton, Mass. Folding-machine	579,419	Mar. 23	2715	645	78	1834
Brewer, Horatio J., New York, N. Y. Galvanic battery	576,720	Feb. 9	1106	261	78	861
Brewer, Horatio J., New York, N. Y. Battery-cover	579,916	Mar. 30	3611	863	78	2023
Brewer, William S., New York, N. Y. Bicycle	579,125	Mar. 23	2247	529	78	1748
Brewster, William F., New York, N. Y. Apparatus for operating submarine torpedoes	576,088	Feb. 2	13	4	78	641
Briant, Lawrence, *et al.* (See Clowes, George A., assignor.)						
Brickell, Harry S., Pittsburg, Pa. Car-fender	576,946	Feb. 9	1466	349	78	930
Bridenbecker, Frank W., Frankfort, N. Y. Car-coupling	574,388	Jan. 5	17	5	78	6
Bridgeport Brass Company. (See Rhind, Frank, assignor.)						
Bridgeport Chain Company. (See Breul, Richard A., assignor.)						
Bridges, William J., Indianapolis, Ind. Nut-lock	578,208	Mar. 2	663	151	78	1387
Bridgman, Henry L., Chicago, Ill. Reducing ores	578,912	Mar. 16	1887	436	78	1663
Briggs, Henry, Hasbrouck Heights, N. J. Saddle	578,204	Mar. 2	664	151	78	1387
Briggs, Henry, Hasbrouck Heights, N. J. Antifriction-bearing	578,694	Mar. 9	1371	312	78	1540
Briggs, Lewis W., and D. E. Boswell, Chicago, Ill.; said Briggs assignor to said Boswell. Phonograph	576,081	Jan. 26	2983	703, 704	78	613
Briggs, William H., assignor to C. W. Seamans, E. R. Barron, Brooklyn, N. Y., and D. C. Roundy, Chicago, Ill., executors of J. Densmore, deceased. Type-writing machine	578,507	Mar. 9	1177	266	78	1508
Brigham, Martin E., Philadelphia, Pa. Wrapping and labeling machine	575,325	Jan. 19	1658	396, 397, 398	78	349
Bright, Henry, Costello, Pa. Leather-scrubbing machine	577,402	Feb. 16	2263	531, 532	78	1091
Bright, Joseph E., St. Louis, Mo. Starching-machine	579,602	Mar. 30	3300	760	78	1946
Brightman, William M., Corry, Pa. Paper-rack	575,590	Jan. 19	2137	506	78	441
Brigleb, John C. (See Jackson and Brigleb.)						
Brimfield, William, Blue Anchor, N. J. Woven pile fabric	577,836	Mar. 2	7	3, 4	78	1262
Brine, Richard A., Revere, Mass. Metal-punching machine	576,338	Feb. 2	474	111	78	726
Bringham, Friend J., Chicago, Ill. Machine for manufacturing seamless leather articles	579,468	Mar. 23	2859	672	78	1860
Brinkman, Louies H., assignor to New York Pipe Bending and Machine Company, Brooklyn, N. Y. Valve	578,443	Mar. 9	1067	241	78	1479
Brisbin, George L., McKeesport, Pa. Lubricator	577,004	Feb. 16	1590	378	78	965
Bristol Brass and Clock Company. (See Brown and Fowler, assignors.)						
Bristol, Harvey S., Chicago, Ill. Gas-engine	575,326	Jan. 19	1667	398	78	351
Bristol, Jacob, Detroit, Mich. Cigar-bunching machine	576,429	Feb. 2	617	146	78	752
British Tube Company. (See Wootton, Robert, assignor.)						
British Tube Company. (See Wootton and Hewitt, assignors.)						
Brittain, Arlington D. (See Calhoon and Brittain.)						
Brittingham, John W., and L. A. Sterling, assignors of one-half to J. R. Heryford, Hale, Mo. Buggy-top support	575,500	Jan. 19	1908	471	78	408
Britton, Albert Q. (See Peck, Selah N., assignor.)						
Britton, Louis H., assignor of two-thirds to J. B. Morgan and W. H. Pritchard, Lisbon, Ohio. Druggist's label-case	574,780	Jan. 5	694	166	78	130
Britton, Louis H., assignor of two-thirds to J. B. Morgan and W. H. Pritchard, Lisbon, Ohio. Artificial straw for imbibing beverages	575,206	Jan. 12	1458	350	78	208
Broadbent, Charles F., assignor to Plush Renovating Company, Baltimore, Md. Renovating fabrics	575,591	Jan. 19	2138	.....	78	442
Brobst, William L., assignor of one-half to J. and D. Impson, Oleona, Pa. Cutting apparatus for mowing and reaping machines	577,614	Feb. 23	2657	627	78	1181
Brochet, André V., Paris, France. Apparatus for disinfecting	577,525	Feb. 23	2491	587	78	1151
Brock, Alice G., Frankfort, N. Y. School-desk	579,455	Mar. 23	2458	580	78	1787
Brock, John, Philadelphia, Pa. Composition of matter for bricks	579,420	Mar. 23	2718	.....	78	1835
Brockest, John, *et al.* (See Wildern, Adna, assignor.)						
Brockett, Atwater E., Everett, assignor of one-half to W. G. Nixon, Braintree, Mass. Combination pipe-tool	575,685	Jan. 26	2313	545	78	490
Brockett, Atwater E., Everett, assignor of one-half to W. G. Nixon, Braintree, Mass. Portable vise	575,686	Jan. 26	2314	545, 546	78	490
Brockett, Atwater E., Everett, assignor of one-half to W. G. Nixon, Braintree, Mass. Portable vise	575,687	Jan. 26	2316	546	78	490
Brockett, Atwater E., Everett, assignor of one-half to W. G. Nixon, Braintree, Mass. Pipe-cutter	575,688	Jan. 26	2317	546	78	490
Brockett, Frank E., Rome, N. Y. Ear-trumpet	574,384	Jan. 5	18	5	78	6
Brockman, William D. (See Ratledge, James, assignor.)						
Brockmeyer, Joseph A. (See Brockmeyer, Richard J. and J. A.)						
Brockmeyer, Richard J. and J. A., Baltimore, Md. Cooking range or stove	578,690	Mar. 9	1488	343	78	1502
Brockway Corn Harvester Company. (See Brockway, Tiffany J., assignor.)						
Brockway, Tiffany J., Eagle Chief, Okla. Ter., assignor to Brockway Corn Harvester Company, Omaha, Nebr. Corn-harvester	577,414	Feb. 23	2289	537, 538	78	1113
Broderick, Daniel, Laurel Hill, N. Y. Apparatus for producing feather or shot metal	576,773	Feb. 9	1184	282	78	877
Broderick, Daniel, Laurel Hill, N. Y. Device for lifting, moving, and carrying heavy bodies	578,479	Mar. 9	1110	253	78	1490
Brodeur, Emeri, Southbridge, Mass. Shirt-collar holder	579,788	Mar. 30	3407	816	78	1985
Bronson, George S. and H. D., assignors to Homer D. Bronson Company, Beacon Falls, Conn. Spring-hinge	577,598	Feb. 23	2626	619	78	1176
Bronson, Homer D. (See Bronson, George S. and H. D.)						
Bronson, Otto A., Minneapolis, Minn. Music-stand	578,809	Mar. 16	1699	392	78	1630
Brooke, Isaac, Pottstown, Pa. Attachment for heaters	578,808	Mar. 16	1697	392	78	1630
Brooker, Frank N., East Haven, assignor of one-half to F. R. Perry, New Haven, Conn. Mucilage-bottle	574,385	Jan. 5	18	5	78	6
Brooks, Almond L., C. M., and W. G., Columbus, Ind. Incubator	579,694	Mar. 30	3247	771	78	1955
Brooks, Clarence M. (See Brooks, Almond L., C. M., and W. G.)						
Brooks, Heman M., New Haven, Conn. Trolley-rope protector	578,542	Mar. 9	1233	279	78	1513

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Brooks, J. F., *et al.* (See Kirby, Thomas W., assignor.)						
Brooks, James W., trustee. (See Goddu, Louis, assignor.)						
Brooks, James W., *et al.*, trustees. (See Casgrain, Louis A., assignor.)						
Brooks, James W., *et al.*, trustees. (See Elliott and Glidden, assignors.)						
Brooks, James W., *et al.*, trustees. (See Mayo, Benjamin F., assignor.)						
Brooks, James W., *et al.*, trustees. (See Raymond, Freeborn F., 2d, assignor.)						
Brooks, James W., *et al.*, trustees. (See Raymond and Fogg, assignors.)						
Brooks, James W., *et al.*, trustees. (See Small, Chester C., assignor.)						
Brooks, John, *et al.*, trustees. (See Elliott and Glidden, assignors.)						
Brooks, John, *et al.*, trustees. (See Mayo, Benjamin F., assignor.)						
Brooks, John, *et al.*, trustees. (See Raymond, Freeborn F., 2d, assignor.)						
Brooks, John, *et al.*, trustees. (See Raymond and Fogg, assignors.)						
Brooks, John, *et al.*, trustees. (See Small, Chester C., assignor.)						
Brooks, John B., assignor to J. B. Brooks & Company, Limited, Birmingham, England. Cycle-saddle attachment-boss	575,542	Jan. 19	2044	489	78	423
Brooks, John B., assignor to J. B. Brooks & Company, Limited, Birmingham, England. Cycle-saddle attachment-boss	575,631	Jan. 19	2208	522	78	455
Brooks, John E., Calumet, Pa. Sliding fish-plate	576,024	Jan. 26	2875	681	78	595
Brooks, Walter G. (See Brooks, Almond L., C. M., and W. G.)						
Brooks, William D., Baltimore, Md. Can-machine	577,715	Feb. 23	2807	664, 665	78	1210
Brosius, Samuel G., Baltimore, Md., W. B. Upton, and J. Colvin, Washington, D. C. Electric railway	577,912	Mar. 2	138	33, 34	78	1296
Brott, George F., Washington, D. C. Roadway	574,521	Jan. 5	227	54	78	45
Brough, Benjamin F., Indianapolis, Ind. Computing-scale	575,143	Jan. 12	1354	326	78	272
Brougher, John F., New York, N. Y. Shoe-polisher	577,005	Feb. 16	1591	379	78	965
Brown, Arthur F., and C. W. Michael, assignors to Stoddard Manufacturing Company, Dayton, Ohio. Corn-planter	578,074	Mar. 2	395	92	78	1337
Brown, Arthur F., and C. W. Michael, assignors to Stoddard Manufacturing Company, Dayton, Ohio. Corn-planter	578,075	Mar. 2	397	92, 93	78	1337
Brown, Arthur H. (See Gaskins and Brown.)						
Brown Bag Filling Machine Company. (See Brown, Benjamin F., assignor.)						
Brown & Bailey Company. (See Brown, Robert P., assignor.)						
Brown, Barton L. (See Kitsee, Isidor, assignor.)						
Brown, Benjamin F., assignor to Brown Bag Filling Machine Company, Fitchburg, Mass. Folding mechanism for bags, &c	578,133	Mar. 2	517	117	78	1361
Brown Brothers Manufacturing Company. (See Gadey, Charles H., assignor.)						
Brown, Byron D. (See Jerome and Brown.)						
Brown, Charles J., London, England. Apparatus for heating feed-water	575,207	Jan. 12	1459	350	78	298
Brown, Daniel P. (See Norton, Edward Q., assignor.)						
Brown, Edward J., assignor of one-half to W. McLeod, Hemlock, N. Y. Folding crate	577,280	Feb. 16	2047	484	78	1052
Brown, Edwin, Worcester, Mass. Machine for grinding flats of carding-engines	575,689	Jan. 26	2318	546, 547	78	490
Brown, Elijah E., assignor of one-half to J. Crawshaw, Cripple Creek, Colo. Bottle	577,415	Feb. 23	2295	539	78	1114
Brown, George F., Jr., Chicago, Ill., assignor to Wickes Refrigerator Car Company, Rochester, N. Y. Ventilator-screen for refrigerator-cars	579,087	Mar. 16	2183	512	78	1722
Brown, George H., Dubuque, Iowa, assignor to Chicago Pneumatic Tool Company, Chicago, Ill. Dust-extractor	577,006	Feb. 16	1592	379	78	965
Brown, George S., New Britain, and E. C. Fowler, Bristol, Conn., assignors to Bristol Brass and Clock Company, New York, N. Y. Lantern	578,859	Mar. 16	1784	411	78	1646
Brown, George S. W., Athens, Pa. Ice-cream freezer	579,040	Mar. 16	2113	496	78	1707
Brown, George T., assignor of one-half to McCormick & Company, Baltimore, Md. Lamp-burner	576,025	Jan. 26	2876	681	78	595
Brown, George W., Colorado Springs, Colo. Picture-exhibitor	576,542	Feb. 9	825	192	78	809
Brown, George W., *et al.* (See Davenport, Eugene F., assignor.)						
Brown, Gilbert H., Dayton, Ohio. Stay for wire fences	578,076	Mar. 2	399	93	78	1338
Brown, Gilman W., West Newbury, Mass., assignor, by mesne assignments, to Electro Steam Appliance Company, of New Jersey. Apparatus for stopping engines	575,144	Jan. 12	1355	326	78	273
Brown, Gilman W., West Newbury, Mass., assignor, by mesne assignments, to Electro Steam Appliance Company, of New Jersey. Apparatus for stopping engines	576,514	Feb. 2	763	179	78	781
Brown, Harrison B., Chevy Chase, Md. Bicycle-brake	577,396	Feb. 16	2252	529	78	1069
Brown, Henry H., A. S. Glascock, R. S. Quinn, and J. W. Brown, assignors to Wonder Manufacturing Company, Washington Court-House, Ohio. Heating-stove	576,209	Feb. 2	400	94	78	713
Brown, Hugh H., Orange Bluff, Fla. Match-safe	575,690	Jan. 26	2320	547	78	491
Brown, Israel F., New London, Conn. Wringer	574,386	Jan. 5	19	5	78	6
Brown, James F., Needham, Mass. Belting	577,375	Feb. 16	2212	521	78	1068
Brown, James F., Needham, Mass. Belting	577,376	Feb. 16	2213	521	78	1068
Brown, James F., Needham, Mass. Belting	577,377	Feb. 16	2214	522	78	1068
Brown, James F., Needham, Mass. Belting	577,378	Feb. 16	2215	522	78	1068
Brown, James P., Pawtucket, R. I. Nut-locking device	575,414	Jan. 19	1819	437	78	379
Brown, James W. (See Brown, Glascock, Quinn, and Brown.)						
Brown, Jent C. (See Barrett, Groves, and Brown.)						
Brown, John R., Harrison Hot Springs, Canada. Gold-amalgamating machine	577,505	Feb. 23	2447	577, 578	78	1143
Brown, John W., Jr., Philadelphia, Pa. Automatic chucking-lathe	579,357	Mar. 23	2620	619	78	1817
Brown, Joseph B., Liverpool, England. Collapsible box	577,416	Feb. 23	2296	539	78	1114
Brown, Lewis, Sawkill, N. Y. Motor-vehicle	577,716	Feb. 23	2812	665, 666	78	1211
Brown, Melvin E., Newman, Ill. Baling-press	578,857	Mar. 16	1780	411	78	1646
Brown, Paul J., Boston, Mass. Percolator-stand	577,829	Feb. 23	2092	708	78	1246
Brown, Peter, Greeley, Colo. Potato-digger	575,691	Jan. 26	2321	547	78	491
Brown, Robert K., Whitinsville, Mass. Automatically-locking sash-holder	577,157	Feb. 16	1848	436, 437	78	1014
Brown, Robert P., assignor to Brown & Bailey Company, Philadelphia, Pa. Paper box	579,105	Mar. 16	2214	520	78	1727
Brown, Sidney G., Milwaukee, Wis. Clip for holding sheets or blanks or the like	578,858	Mar. 16	1782	411	78	1646
Brown, Thomas E., New York, N. Y. Inclined cable-railway	579,469	Mar. 23	2861	673	78	1861
Brown, Thomas P. (See Walters, James H., assignor.)						
Brown, Tristram D., assignor to Lisk Manufacturing Company, Limited, Canandaigua, N. Y. Bottom for metallic vessels	577,944	Mar. 2	196	47	78	1299
Brown, Uri H., Zanesville, Ohio, assignor to Mansur & Tebbetts Implement Company, St. Louis, Mo. Side harrow	575,632	Jan. 19	2209	523	78	455
Brown, William H., and W. H. De Long, Worcester, Mass.; said Long assignor to said Brown. Tape-measure	578,205	Mar. 2	665	152	78	1387
Brown, Willis, Portland, Oreg. Fruit-grader	577,353	Feb. 16	2165	512, 513	78	1074

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Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Photographic camera	575,208	Jan. 12	1460	351	78	203
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Photographic camera	579,126	Mar. 23	2248	529, 530	78	1748
Brownell, Grove L. (See Veley, Willis L., assignor.)						
Browning, Harry C. (See Browning, William J. and H. C.)						
Browning, John M., Ogden, Utah, assignor to Winchester Repeating Arms Company, New Haven, Conn. Magazine-firearm	577,281	Feb. 16	2048	485, 486	78	1052
Browning, William J. and H. C., New York, N. Y. Alarm attachment for steam-gages	579,219	Mar. 23	2403	567	78	1778
Brownlee, John N., Detroit, Mich. High or low water alarm	579,513	Mar. 23	2925	688	78	1873
Bruckner, Alfred, Aix-la-Chapelle, Germany. Hollow-plate wall	575,209	Jan. 12	1463	351, 352	78	204
Bruckner, Charles C., Chicago, Ill. Smoke-consumer	575,873	Jan. 26	2627	621	78	549
Bruder, Gustav, Annapolis, Md. Crossbow	577,641	Feb. 23	2702	637	78	1190
Brundage, Marshall J., assignor of one-fourth to C. S. Paine, North San Juan, Cal. Brake-shoe	577,506	Feb. 23	2452	578	78	1144
Brunell, Arthur B. (See Garde and Brunell.)						
Brunnemer, William T. M., Kankakee, assignor to David Bradley Manufacturing Company, Chicago, Ill. Corn-planter	579,106	Mar. 16	2215	521	78	1727
Brunswick-Balke-Collender Company. (See Conrader, Rudolph, assignor.) (Reissue.)						
Brunswick-Balke-Collender Company. (See McIntire, Jacob N., assignor.)						
Brunswick-Balke-Collender Company. (See Wood, Frank B., assignor.)						
Brush, Egbert, Smithtown Branch, N. Y. Thill-coupling	579,200	Mar. 23	2512	508	78	1797
Brush, George E. (See Stephens and Brush.)						
Bubb, William H., Brazil, Ind. Building-brick	576,185	Feb. 2	207	51	78	675
Buchanan, John W., Smithville, Ohio. Thill-coupling	577,417	Feb. 23	2297	539	78	1114
Buchholtz, Ernst. (See Skvara, Franz, assignor.)						
Buchmann, Henry X., St. Louis, Mo. Vegetable-cutter	579,816	Mar. 30	3448	827	78	1998
Buchnau, William M., Columbia, Tenn. Antirattling thill-coupling	577,232	Feb. 16	1967	466	78	1087
Buchtel, Joseph, Portland, Oreg. Telegraph fire-hose	578,716	Mar. 16	1543	358	78	1601
Buck, A. B. (See Reiyea, Charles H. W., assignor.)						
Buck, Carl F. (See Coffeen and Buck.)						
Buckeye Pearl Button Company. (See Lippitt, Elihu, assignor.)						
Buckingham, Charles L., New York, and J. Gardam, Brooklyn, N. Y.; said Gardam assignor to said Buckingham. Telegraph-transmitter	579,633	Mar. 30	3152	747	78	1936
Buckingham, Charles L., New York, and E. Germann, Brooklyn, N. Y.; said Germann assignor to said Buckingham. Printing-telegraph	579,634	Mar. 30	3153	748, 749	78	1936
Buckingham, Charles L., New York, and E. Germann, Brooklyn, N. Y.; said Germann assignor to said Buckingham. Printing-telegraph	579,635	Mar. 30	3158	749, 750	78	1937
Buckingham, Charles L., New York, and E. Germann, Brooklyn, N. Y. Printing-telegraph	579,636	Mar. 30	3160	750, 751	78	1937
Buckler, James, Philadelphia, Pa., assignor, by mesne assignments, to J. M. Russell, Worcester, Mass. Woven multiple-ply fabric	574,387	Jan. 5	20	6	78	7
Buckler, James, Philadelphia, Pa., assignor, by mesne assignments, to J. M. Russell, Worcester, Mass. Loom for cross-weaving	576,300	Feb. 2	401	94, 95	78	713
Bucklin, John E., and J. F. Hartigan, assignors to L. D. Lorentz, trustee, Washington, D. C. Cigarette-machine	578,715	Mar. 16	1538	356, 357, 358	78	1600
Buckner, James, assignor to Boston Electric Insulated Pole Company, Boston, Mass. Electric-lamp post	578,595	Mar. 9	1323	299	78	1531
Buck's Stove and Range Company. (See Thompson, William, assignor.)						
Budke, John F., assignor to Canonsburg Iron and Steel Company, Cannonsburg, Pa. Manufacture of sheet metal	574,781	Jan. 5	608	.....	78	131
Budlong, Percy E., Washington, D. C. Nut-lock	578,717	Mar. 16	1545	358	78	1601
Buell, Charles E., North Plainfield, N. J. Telephone apparatus	576,804	Feb. 9	1239	296	78	887
Buell, Colin S., New Loudon, Conn. Bicycle	575,692	Jan. 26	2324	548	78	491
Buffington, Leroy S., Minneapolis, Minn. Apparatus for generating acetylene gas	575,281	Jan. 12	1575	375	78	316
Buffington, Leroy S., Minneapolis, Minn. Apparatus for burning fluid fuel	579,637	Mar. 30	3164	751	78	1938
Bufkin, Sam. (See Haughn and Bufkin.)						
Buford, John W., Jr., Jackson, Tenn. Car-brake	578,964	Mar. 16	1980	461, 462	78	1679
Buford, Mark, assignor to Association American Inventors, Philadelphia, Pa. Automatic measuring, registering, and recording faucet	578,718	Mar. 16	1546	358	78	1601
Buhl Stamping Company. (See Lynch, George W., assignor.)						
Buhoup, Harry C., Chicago, Ill. Car-coupling	578,813	Mar. 9	850	192, 193	78	1441
Buhoup, Harry C., Chicago, Ill. Car-coupling	578,814	Mar. 9	854	193	78	1441
Bukies, Eugene, Kansas City, Mo., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine binder	576,947	Feb. 9	1468	349	78	990
Bukolt, John J., Stevens Point, Wis. Self-rocking cradle	579,256	Mar. 23	2459	580, 581	78	1787
Bulkley, Charles E., Summit, N. J. Vehicle-wheel	578,085	Mar. 2	337	80	78	1325
Bull, Melville, *et al.* (See Gohm, James, assignor.)						
Bullock, Arthur R. (See Leece and Bullock.)						
Bullock, Edwin R. (See Allen, George B., assignor.)						
Bullock, William H., assignor to T. Kingsford, Oswego, N. Y. Machine for manufacturing tanks	574,508	Jan. 5	379	85, 86	78	71
Bulock, Charles O., and A. E. McLauchlin, York Haven, assignors of one-third to M. R. Warner, Manchester, Pa. Centering-machine	579,087	Mar. 16	2103	492	78	1705
Bump, Charles M., Bay City, Mich. Bicycle headlight-lantern	575,327	Jan. 19	1670	399	78	352
Bunau-Varilla, Philippe, Paris, France. Apparatus for washing and separating minerals, metals, &c	578,206	Mar. 2	667	152	78	1387
Bunce, William C., Oberlin, Ohio. Syringe	576,654	Feb. 9	1008	236	78	843
Bundy, Willard L., Binghamton, N. Y. Recording apparatus	578,288	Mar. 2	787	178, 179	78	1410
Bunker, Ira S., and A. W. Kenney, Nevada, Mo. Fire alarm and extinguisher	576,026	Jan. 26	2877	681	78	595
Bunker, Leroy S., Webster City, Iowa. Pipe-fitting for hot-water radiators	574,782	Jan. 5	609	166, 167	78	131
Bunn, John, Binghamton, N. Y. Cigar-wrapper cutter	579,858	Mar. 30	3523	842	78	2007
Bunn, John, Binghamton, N. Y. Cigar-rolling machine	579,859	Mar. 30	3523	842, 843	78	2007
Bunnell, Leslie, Red Lodge, Mont. Floor-clamp	577,975	Mar. 2	247	58	78	1308
Bunnell, Morton G. (See Tilton and Bunnell.)						
Bunnell, Morton G., and T. G. Chapman, assignors to F. C. Austin, Chicago, Ill. Well-drilling machine	575,693	Jan. 26	2325	548	78	491

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Bunting, John R. (See Cross, Milton L., assignor.)						
Burcham, Andrew J., Woodland, Wash. Timber-raft	576,515	Feb. 2	765	179	78	782
Burckhardt, William, *et al.* (See Schaefer, John C., assignor.)						
Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Explosive-engine	576,480	Feb. 2	618	147	78	753
Burger, Newton H., assignor of one-half to L. Crane, Benzonia, Mich. Electrical attachment for barbers' chairs	577,233	Feb. 16	1968	466	78	1087
Burgess, Charles M., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Door-check	576,431	Feb. 2	620	147, 148	78	753
Burgess, Edward A. (See Borden, William A., assignor.)						
Burgher, Charles, Newton, Mass., assignor to Boston Automatic Fire Alarm Company, Portland, Me. Testing apparatus for electric automatic systems	578,077	Mar. 2	400	93, 94	78	1338
Burke, Walter A. (See Rodgers, Charles S., assignor.)						
Burket, Cloid W. (See Burket, George and C. W.)						
Burket, George and C. W., assignors of one-third to W. H. Fensler, Missouri Valley, Iowa. Teakettle	574,788	Jan. 5	699	167	78	131
Burleigh, George K., Northfield, N. H., assignor to Tally Dial Cyclometer Company, Newport, R. I. Trip-recording cyclometer or measuring device	579,937	Mar. 30	3646	872	78	2031
Burnes, Oliver A., Minneapolis, Minn. Holder for jars, cans, &c	575,694	Jan. 26	2327	548	78	492
Burnet, Edward, Wigan, England. Electrical battery	577,262	Feb. 16	2056	486	78	1053
Burnett, Charles E., Fairville, N. Y. Stove-truck	575,300	Jan. 19	1779	427	78	372
Burnham, George L., Providence, R. I. Paint for ships' bottoms	575,800	Jan. 26	2488	.....	78	523
Burnham, Joseph W. (See Green, John H., assignor.)						
Burns, James, Verona, Pa. Welding copper upon steel or welding copper upon iron	577,817	Feb. 23	2974	.....	78	1242
Burns, Philip, Norwich, Conn. Nut-lock	575,695	Jan. 26	2328	549	78	492
Burns, Philip, Norwich, Conn. Drive-chain	575,696	Jan. 26	2328	549	78	492
Burns, William C. (See McConnell and Burns.)						
Burr, Nelson, Batavia, Ill. Windmill attachment	576,543	Feb. 9	826	192	78	809
Burr, Oliver C., Westvale, Mass., assignor of one-half to W. L. Curtiss, Winsted, Conn. Thread-holder for spindles	578,810	Mar. 16	1701	393	78	1631
Burr, Oliver C., assignor of one-half to W. L. Curtiss, Winsted, Conn. Combined bobbin-holder and thread-catcher	578,811	Mar. 16	1702	393	78	1631
Burrell & Co., D. H. (See Hoyt, Matthew L., assignor.)						
Burrell & Co., D. H. (See Lundstrom, Carl J., assignor.)						
Burridge, Charles W., Lansing, Mich., assignor of one-half to D. D. Throp, Detroit, Mich. Skirt-placket fastener	579,381	Mar. 23	2660	630	78	1825
Burridge, Lee S., and N. R. Marshman, assignors to J. T. Underwood, New York, N. Y. Substitute for inking-ribbons in type-writer machines	575,145	Jan. 12	1358	326	78	273
Burridge, Lee S., and N. R. Marshman, assignors to J. T. Underwood, New York, N. Y. Type-writing machine	575,146	Jan. 12	1358	327	78	273
Burridge, Lee S., and N. R. Marshman, New York, assignors to J. T. Underwood, Brooklyn, N. Y. Type-writing machine	575,147	Jan. 12	1360	327, 328	78	274
Burrington, Charles F. (See Archer and Burrington.)						
Burrows, Amos E., and W. E. Clark, Picture Rocks, assignors of one-third to E. Keeler Company, Williamsport, Pa. Automatic feed-water regulator	574,861	Jan. 5	835	204	78	157
Burrows, Francis A., assignor of one-half to J. P. Rawls and R. N. Richbourg, Columbia, S. C. Spring-motor	575,050	Jan. 12	1192	289	78	241
Burson, George C. (See Burson, John F. and G. C.)						
Burson, John F. and G. C., Rogers, Ohio. Pottery-machine	578,207	Mar. 2	669	152	78	1388
Burson, William W., Chicago, Ill. Stop-motion for knitting-machines	576,544	Feb. 9	828	193	78	809
Burton, Charles S., trustee. (See Crook, Charles M., assignor.)						
Burton, Edwin L., McKinney, Tex. Compress	575,103	Jan. 12	1279	309	78	258
Burton, George B., Boston, Mass. Apparatus for electrically heating metal	576,545	Feb. 9	831	193	78	810
Burton, John A., Skaneateles, N. Y. Bicycle-tire	578,184	Mar. 2	519	117	78	1361
Busam, Alphonsus D., Tiffin, Ohio. Glass-polishing machine	579,127	Mar. 23	2252	530	78	1749
Büsche, William, Brussels, Belgium. Espalier-wall	575,024	Jan. 12	1137	276	78	231
Busell Lasting Machine Company. (See Preston, Albert F., assignor.)						
Bush, Cory I., Kansas City, Mo. Means for overcoming smoke nuisances	576,432	Feb. 2	622	148	78	753
Bush, Edwin A. (See McCormick, Merton H., assignor.)						
Bush, James A. (See Keyser and Bush.)						
Busha, Joseph, Pittsburg, Pa. Fireman's hose-nozzle	577,717	Feb. 23	2815	666	78	1211
Butler, James H., Somerville, Mass. Adjustable support for school furniture	577,594	Feb. 23	2927	690	78	1176
Butler, Walter P., Minneapolis, Minn. Type-writer attachment	576,948	Feb. 9	1469	350	78	990
Butler, William A., assignor to J. G. Boyd, New York, N. Y. Electric propulsion of vehicles	574,388	Jan. 5	22	6	78	7
Butterfield, Amenzo H., Stamford, N. Y. Dental engine	576,089	Feb. 2	16	4, 5	78	641
Butterfield, George E. (See Collins, John O., assignor.)						
Butterfield, Mary. (See Jenson, Mary.)						
Butterfield, William, assignor to Deering Harvester Company, Chicago, Ill. Reel-rake for reapers	578,719	Mar. 16	1548	359	78	1601
Butterworth, James, Philadelphia, Pa., assignor to H. W. Butterworth & Sons Company, of Pennsylvania. Calendering-roll	578,543	Mar. 9	1235	279	78	1514
Buxton, Henry L., Milwaukee, Wis. Match case and lighter	574,981	Jan. 12	1071	260	78	219
Buzzacott, Francis H., Chicago, Ill. Cooking outfit	577,642	Feb. 23	2702	637	78	1190
Buzzard, John W., assignor to E. B. Perkins, Chicago, Ill. Process of and device for repairing asphalt pavements	575,697	Jan. 26	2330	549	78	492
Byor, Gustav A., and W. B. Mahan, Palmyra, Ill. Weather-strip	574,522	Jan. 5	228	54	78	45
Byrne, Luke G. (See Millar, George G. J., assignor.)						
Byrnes, Edward, New York, N. Y. Splinter-bar for vehicles	576,361	Feb. 2	508	119	78	732
Byron, Edward S., *et al.* (See Smith, Benjamin F., assignor.)						
Byrne, John C., Pensacola, Fla. Slat holder and adjuster	579,530	Mar. 23	2351	697	78	1878
C. F. Zimmerman Company. (See Dolge, Rudolf, assignor.)						
Cabot, John A., assignor of one-half to J. E. Devere, Cincinnati, Ohio. Polishing-brush for shoes	577,379	Feb. 16	2216	522	78	1088
Cadman, Isaac P., Beloit, Wis. Corn-sheller	576,754	Feb. 9	1160	276	78	872
Cadott, Henry W., and C. C. Crewson, Horton, Kans. Hose-coupling for air-brakes, &c	579,291	Mar. 23	2513	594	78	1797
Cadwallader, George B. (See Sterner, John O., assignor.)						
Caffall, Edward M., New York, N. Y. Treating waterproofed surfaces	577,288	Feb. 16	2058	.....	78	1054
Caffrey, James H., Philadelphia, Pa. Sleigh	579,917	Mar. 30	3612	864	78	2023
Caffrey, Willis G., Reno, Nev. Trolley system	576,721	Feb. 9	1107	261	78	861
Cahill, Mortimer, Lawrence, Kans. Wire-fence machine	578,284	Mar. 2	789	179	78	1410
Caillé, William, Jr., New York, N. Y. Tool-moistening device for dental handpieces	576,722	Feb. 9	1108	261	78	862
Caillet, Justin, assignor to C. Bastian, Chicago, Ill. Means for joining sections of boxes	579,560	Mar. 30	3024	715	78	1912
Cain, Cassie J., Stockbridge, Mich. Bag-holder	578,091	Mar. 2	427	99	78	1343
Cain, Frank W., Elkhorn, Wis. Rein-holder	578,206	Mar. 2	671	153	78	1388

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Calahan, Edward L., Brooklyn, N. Y. Fastener for envelops, &c	575,775	Jan. 26	2451	578	78	517
Caldwell, Herbert F., assignor of one-half to H. W. Need, Irvine, Pa. Mechanism for ventilating railway passenger-cars	575,823	Jan. 26	2528	596	78	531
Caldwell, Wellon M., and J. Bewsher, Seattle, Wash. Railway traction system	574,599	Jan. 5	381	86	78	72
Calhoon, Joseph H., and A. D. Brittain, Beaver Falls, Pa. Leer-pan	574,389	Jan. 5	23	7	78	7
Calhoun, Alfred, Millersburg, Ohio. Grain-shocker	575,328	Jan. 19	1671	399	78	352
Calhoun, Daniel I., assignor to Calhoun Excavating Company, Chicago, Ill. Excavating-scoop	575,874	Jan. 26	2629	621	78	549
Calhoun Excavating Company. (See Calhoun, Daniel I., assignor.)						
Calkins, Albert C., assignor to W. S. Day, Santa Barbara, Cal. Sawing-machine	578,625	Mar. 9	1373	313	78	1540
Calkins, Henry L. (See Jones, Horace D., assignor.)						
Calkins, James H., Wakefield, Mass. Means for repairing pneumatic tires	574,709	Jan. 5	582	135	78	108
Callahan & Co., W. P. (See Coffield, Peter T., assignor.)						
Callahan, Simeon O., Jacksborough, Tex. Flour or meal bin	577,354	Feb. 16	2166	513	78	1074
Cameron, William. (See Cochrane and Cameron.)						
Camp, Horace B., Akron, Ohio. Conduit-sheathing	577,284	Feb. 16	2059	486	78	1054
Campbell, Alexander. (See Lounsberry and Campbell.)						
Campbell, Andrew C., assignor to E. J. Manville Machine Company, Waterbury, Conn. Mechanism for feeding blanks to dies, &c	577,643	Feb. 23	2704	637 638	78	1190
Campbell, Cora E., Schenectady, N. Y. Ash-pan	576,546	Feb. 9	834	194	78	810
Campbell, Daniel J., New York, N. Y., assignor to American Tobacco Company, Newark, N. J. Cigarette	579,421	Mar. 23	2718	646	78	1835
Campbell, Daniel J., New York, N. Y., assignor to American Tobacco Company, Newark, N. J. Method of and apparatus for making cigarettes	579,422	Mar. 23	2720	646	78	1835
Campbell, Ezra, assignor of one-fourth to G. B. Baker, Dayton, Wash. Bottle	576,805	Feb. 9	1243	296	78	898
Campbell, George L., Kinsman, Ohio. Dynamo-electric machine	575,210	Jan. 12	1465	352	78	294
Campbell, George L., assignor of one-half to A. B. Kilmer, Shunk, and B. E. Gamble, Forksville, Pa. Trolley for electric cars	576,394	Feb. 2	566	133	78	742
Campbell, George W., Kenton, Ohio. Drawer-pull and sample-holder	578,913	Mar. 16	1889	436	78	1663
Campbell, John L. (See McDermott, Martin P., assignor.)						
Campbell, John W., *et al.* (See Fairgrieve, Archibald, assignor.)						
Campbell, Joseph E., Fairfax Station, assignor of two-thirds to F. G. Mayhugh, Clifton Station, Va., and C. E. Barber, Washington, D. C. Can-opener and burring device	576,547	Feb. 9	835	194	78	810
Campbell, Leon W., Woonsocket, R. I., assignor of one-half to M. Campbell, Boston, Mass. Top roll	578,705	Mar. 9	1519	350	78	1568
Campbell Machine Company. (See McNiven, Douglas, assignor.)						
Campbell, Malcolm. (See Campbell, Leon W., assignor.)						
Campbell, Oscar A., Jr. (See Nichols, Samuel H., assignor.)						
Campbell Printing Press and Manufacturing Company. (See Huson, Winfield S., assignor.)						
Campbell, Thaddeus. (See Garrison, Charles M., assignor.)						
Campbell, Valentine E., Saratoga Springs, N. Y. Fire-extinguisher	578,965	Mar. 16	1982	462	78	1680
Campbell, William, *et al.* (See Barnes, Thomas, assignor.)						
Campbell, Windsor O., Kansas City, Mo. Leaf-turning device	574,659	Jan. 5	489	112	78	91
Campbell, Windsor O., Kansas City, Mo. Leaf-turning device	576,656	Feb. 9	1008	236 237	78	843
Cane, Alfred, Golden Gate, Cal. Dental plugger	577,507	Feb. 23	2453	578	78	1145
Canfield, Francis D., Jr., Yonkers, N. Y. Char-drier	575,801	Jan. 26	2489	587	78	523
Canfield, Frederick C., Fall River, Mass. Pen-rest	575,458	Jan. 19	1895	456	78	398
Canfield, Henry O., Bridgeport, Conn. Facing for writing-machine platens	579,128	Mar. 23	2255	531	78	1750
Canfield, Philip B., Cortland, N. Y. Wrench	575,592	Jan. 19	2139	507	78	442
Cann, George, Los An[illegible], Cal. Shirt-shield	578,480	Mar. 9	1111	253	78	1491
Canonsburg Iron and [illegible]el Company. (See Budke, John F., assignor.)						
Capehart, Alexander S., Bismarck, N. D. Matrix bar or plate	579,202	Mar. 23	2513	594	78	1797
Capehart, Alexander S., Bismarck, N. D. Type-line-casting machine	579,203	Mar. 23	2516	594	78	1797
Capewell, George J., Hartford, Conn. Apparatus for perforating billets or ingots	575,104	Jan. 12	1281	310	78	259
Capitain, William F., L. W. Klute, and G. F. Wells, St. Louis, Mo. Type-mold	578,544	Mar. 9	1236	279	78	1514
Cardozo, Daniel P. F., New York, N. Y. Steam-boiler	575,881	Jan. 26	2644	624	78	552
Carey, Robert, London, England. Hydraulic lifting machinery	575,608	Jan. 26	2532	549 550	78	492
Carey, William P. (See Payssé and Carey.)						
Carlaw, David, Glasgow, Scotland. Paper-feed for printing-machines	579,561	Mar. 30	3026	715 716	78	1912
Carless, Benjamin A., assignor of one-half to J. Eisenmann, Philadelphia, Pa. Rotary polishing-wheel brush	579,531	Mar. 23	2952	697	78	1878
Carleton, Edwin G. (See Leavitt, John E., assignor.)						
Carlie, George F., New York, N. Y. Bicycle-bell	577,718	Feb. 23	2817	667	78	1212
Carlin, Thomas E., Bangor, Me. Teakettle	576,806	Feb. 9	1244	296	78	898
Carlinet, John G., Philadelphia, Pa. Pneumatic tool	574,784	Jan. 5	700	167	78	131
Carlson, Andrew. (See Christensen, Christoffer A., assignor.)						
Carlson, Edwin, Minneapolis, Minn. Gate-controller for elevators	575,753	Jan. 26	2418	570	78	510
Carlson, Hanning A., St. Louis, Mo. Hollow auger	578,309	Mar. 2	672	153	78	1388
Carlson, John, Chicago, Ill. Bag-holder	576,974	Feb. 9	1527	361	78	942
Carlton, Charles, administrator. (See Eddy and Carlton.)						
Carlton, Charles A., deceased. (See Eddy and Carlton.)						
Carman, George R., Brooklyn, N. Y. Clothes-line support	576,807	Feb. 9	1244	297	78	898
Carmichael, Warren R., Le Roy, W. Va. Steam-governor	574,710	Jan. 5	583	135	78	108
Carmien, Pierre J., Montbéliard, assignor of two-thirds to A. Yvonnet, Roanne, and M. Billion, Paris, France. Lighting device	578,914	Mar. 16	1890	436	78	1663
Carmina-Morreale, Benjamin, New York, N. Y. Water skate or shoe	579,695	Mar. 30	3249	772	78	1955
Carnegie Steel Company. (See Corey and Slocum, assignors.)						
Carnegie Steel Company. (See Kindl, Frederick H., assignor.)						
Carnegie Steel Company. (See Slocum and Corey, assignors.)						
Carpenter, Delos, Orion, Mich. Folding umbrella	577,234	Feb. 16	1909	466	78	1067
Carpenter, Frederick M. (See Montrois, Peter B., assignor.)						
Carpenter, J. Ross, Little York, Ill. Hay-rack	574,600	Jan. 5	382	86, 87	78	72
Carpenter, James C., Council Grove, Kans. Wire-stretcher	574,982	Jan. 12	1073	260	78	219
Carpenter, Lewis A. (See Porter and Carpenter.)						
Carpenter, Myron L., Horseheads, N. Y. Fly-trap	574,785	Jan. 5	708	168	78	132
Carpenter, Rolla C., Ithaca, assignor to Schaffer & Budenberg, New York, N. Y. Separating-calorimeter	575,391	Jan. 19	1781	428	78	372
Carpet Loom Company. (See Martin, James E., assignor.)						
Carrara Electro-Marbleizing Company. (See Garde and Brunell, assignors.)						
Carrier, Arthur, assignor of one-half to S. A. Parke, Bay City, Mich. Saw-swage	579,129	Mar. 23	2256	531	78	1750
Carrier, Milo, St. Paul, Minn. Street-sweeper	574,850	Jan. 5	811	197	78	153
Carroll, Dennis J., Rockford, Ill. Carpet-stretcher	579,130	Mar. 23	2258	531	78	1750

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Carroll, John M., Grand Forks, N. D. Vertical excavator	574,660	Jan. 5	491	112 113	78	91
Carroll, John M., Grand Forks, N. D. Horizontal excavator	574,661	Jan. 5	494	113 114	78	92
Carroll, John T., *et al.* (See Fader, Silas, assignor.)						
Carson, David A. (See Bell and Carson.)						
Carson, Frank, and J. B. Paterson; said Carson assignor of one-half to G. Lathrop, San Francisco, Cal. Sash lock and lift	576,526	Feb. 2	787	184	78	785
Carson, John, Brooklyn, N. Y., and A. Shedlock, Jersey City, N. J.; said Shedlock assignor to said Carson. Die stamping and embossing machine	575,683	Jan. 19	2210	523 524	78	455
Carstens, Hans G. W., and H. F. Peters, Moline, Ill. Egg-tester	576,808	Feb. 9	1245	297	78	888
Carter, Charles B., Bordentown, N. J. Lemon-juice extractor	577,976	Mar. 2	249	59	78	1308
Carter-Crume Company. (See Graham, John A., assignor.)						
Carter-Crume Company. (See Knobeloch, Frank, assignor.)						
Carter-Crume Company. (See McDowell, Thomas, assignor.)						
Carter-Crume Company. (See Moore, Isaac, assignor.)						
Carter, Elijah. (See Owings and Carter.)						
Carter, Frank W., *et al.* (See Lobee, Bart, assignor.)						
Carter, John A. (See Taft, Walter E., assignor.)						
Carter, John S., Buffalo, N. Y. Door	579,696	Mar. 30	3250	772	78	1955
Carter, Robert A., assignor of two-thirds to W. J. Davis and H. J. Harding, New York, N. Y. Machine for wrapping, folding, and sealing circulars	577,418	Feb. 23	2298	540	78	1115
Caruss, James H., Stamford, Conn. Spectacle-case	574,523	Jan. 5	230	55	78	45
Carver, David F., Brooklyn, N. Y. Railway-switch	578,966	Mar. 16	1983	462	78	1680
Carver, David F., Brooklyn, and J. C. Brackenridge, Richmond Hill, N. Y. Terminal for railways	578,026	Mar. 9	1374	313	78	1540
Carver, Herman C., Red Oak, Iowa. Sign-writer's apparatus	576,949	Feb. 9	1470	350	78	980
Carver, Mary J. and R. E., Nashville, Tenn. Cot or bed	577,419	Feb. 23	2304	541	78	1116
Carver, Rhoda E. (See Carver, Mary J. and R. E.)						
Cary, Erwin D. (See Hagaman and Cary.)						
Cary, George W., assignor of one-half to W. H. Wilson, New Bedford, Mass. Machine for making spool-heads	577,355	Feb. 16	2168	513 514	78	1074
Cary, Sheldon, Brooklyn, N. Y. Button	576,186	Feb. 2	208	52	78	676
Case, Frank E., Schenectady, N. Y., assignor to General Electric Company, of New York. Brake-shoe	575,789	Jan. 26	2470	582	78	520
Case, Henry J., Owasco, assignor to Johnston Harvester Company, Batavia, N. Y. Grain-harvester	579,638	Mar. 30	3166	751 752	78	1938
Case, John M., Cincinnati, Ohio. Dust arrester and collector	575,824	Jan. 26	2529	596 597	78	581
Case, Rollin S., Pasadena, Cal. Rotary engine	576,090	Feb. 2	17	5, 6	78	641
Casey, John P., assignor to Morse, Williams & Company, Philadelphia, Pa. Electric elevator	577,644	Feb. 23	2706	638	78	1190
Casgrain, Henri E., Quebec, Canada. Acetylene-gas-generating lamp	574,601	Jan. 5	385	87	78	72
Casgrain, Louis A., Winchester, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Swampscott, Mass., trustees. Quilting-machine	577,235	Feb. 16	1971	466 467	78	1067
Cassel, Henry R., New York, N. Y. Extracting gold from ores	578,720	Mar. 16	1552	359	78	1602
Cassel, Henry R., New York, N. Y. Extracting gold from ores	578,721	Mar. 16	1554	360	78	1603
Cassidy, James M., Albany, N. Y. Bicycle-pedal	576,548	Feb. 9	896	194	78	811
Castner, Hamilton Y., London, England. Making cyanids	577,837	Mar. 2	10	4	78	1262
Cather, James. (See Saladee and Cather.)						
Catucci, Pliny. (See Manuell and Catucci.)						
Caugherty, George H., Blairsville, Pa. Draft-bolt	577,285	Feb. 16	2060	487	78	1054
Cave & Sons, John. (See Denne, Mark T., assignor.)						
Cazin, Francis M. F., Hoboken, N. J. Percussion water-wheel	578,812	Mar. 16	1704	393 394	78	1632
Cazin, Francis M. F., Hoboken, N. J. Percussion-wheel	578,813	Mar. 16	1713	394	78	1633
Centlivre, Louis A. (See Van Ame, Wales E., assignor.)						
Chadwick, John F. (See Davis, Francis V., assignor.)						
Chafer, John E., Cleveland, Ohio. Expansion steam-trap	575,920	Jan. 26	2708	640	78	564
Challis, Charles E., London, England. Cooking utensil	578,389	Mar. 9	964	219	78	1462
Chamberlain, Alice J., Galesburg, Ill. Game apparatus	579,562	Mar. 30	3028	716	78	1913
Chamberlain, Horace P., Buffalo, N. Y. Filter-press plate	575,875	Jan. 26	2631	621	78	549
Chamberlin, Charles M. (See Smith, Henry H., assignor.)						
Chambers, James A. (See Gobbe, Emile, assignor.)						
Chandler Adjustable Chair and Desk Company. (See Cobb, Leander B., assignor.)						
Chandler, Arthur, Kokomo, Ind. Governor for steam-engines	578,315	Mar. 9	855	194	78	1442
Chapel, Adoniram J., Arkansas City, Kans Car-replacing device	574,662	Jan. 5	497	114	78	92
Chapelle, Ernest de la, and J. Pearce, Ottawa, Ill. Garbage-furnace	577,184	Feb. 16	1889	446 447	78	1022
Chaplin Company. (See Chaplin and Halloran, assignors.)						
Chaplin, Edwin D., Cambridge, and H. G. Halloran, Boston, Mass., assignors to Chaplin Company, Kittery, Me. Electromechanical movement	575,699	Jan. 26	2333	550 551	78	498
Chapman, Bessie A., Brooklyn, N. Y. Medicine-time indicator for bottles	576,833	Feb. 9	1281	306	78	895
Chapman, Bessie A., Brooklyn, N. Y. Medicine-time indicator for glasses	576,834	Feb. 9	1282	306 307	78	895
Chapman, Clifford L., Eldred, Mich. Fence	579,736	Mar. 30	3317	793	78	1907
Chapman, Clifford L., Eldred, Mich. Wire-twisting device	579,737	Mar. 30	3318	793	78	1908
Chapman, Joseph L., Hartford, Conn. Chaser-die	575,148	Jan. 12	1362	328	78	274
Chapman, Joseph L., Haddonfield, N. J., assignor of two-thirds to J. H. Christ, Philadelphia, and J. Rowland, Ashbourne, Pa. Folding stool	576,657	Feb. 9	1011	237	78	843
Chapman, Thomas G. (See Bunnell and Chapman.)						
Chapman, Winthrop M., Needham, Mass. Repeater	575,025	Jan. 12	1139	277	78	231
Chapsal, François, Paris, France. Electropneumatic brake	577,526	Feb. 23	2492	587	78	1151
Charbonneau, Joseph O., Cranston, R. I. Fire-hose support	575,700	Jan. 26	2338	551	78	494
Charles Parker Company. (See Griswold, Lewis F., assignor.)						
Charles Smith Manufacturing Company. (See Smith, Charles, assignor.)						
Charlton, Milton J., *et al.* (See Smith, Benjamin F., assignor.)						
Charlton, Newton E., Trinidad, Colo. Pessary	578,210	Mar. 2	673	153	78	1389
Chase, Charles, Wichita, Iowa. Spring-bed	576,549	Feb. 9	837	194	78	811
Chase, Edward R., Findlay, Ohio. Gate or door	577,126	Feb. 16	1804	425	78	1006
Chase, Frank H., Chicago, Ill. Box	578,967	Mar. 16	1986	462	78	1681
Chase, Frederick. (See Hulme, James, assignor.)						
Chase, George N., U. S. Army. Vehicle-tire	574,390	Jan. 5	25	7	78	7
Chase, James, deceased; N. M. Redman, Philadelphia, Pa., administratrix, assignor to M. A. Chase, Rochester, N. Y. Filtering-faucet	578,263	Mar. 2	751	170	78	1404

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Chase, Minerva A. (See Chase, James, assignor.)						
Chase, Willard C., assignor of one-half to C. H. Hastings, Lynn, Mass. Machine for removing fin from type	576,027	Jan 26	2878	681, 682	78	595
Chatfield, Eben S., Addison, N. Y. Automatic wagon-brake	578,078	Mar. 2	407	94	78	1339
Chattaway, William, West Bromwich, England, assignor to Boston Forge Company, Boston, Mass. Drill-chuck	575,876	Jan. 26	2632	621	78	550
Chellieu, William H., assignor of one-half to F. H. Schuler, Detroit, Mich. Saw-set	579,220	Mar. 23	2404	567	78	1778
Chemische Fabrik von Heyden Gesellschaft mit Beschränkter Haftung. (See Fränkel, Sigmund, assignor.)						
Chemische Fabrik von Heyden Gesellschaft mit Beschränkter Haftung. (See Seifert, Bruno R., assignor.)						
Chenery, Henry L., Deering, Me. Photographic-plate dipper	574,879	Jan. 12	866	210	78	182
Cheney, Thomas J., Chicago, Ill. Display device	578,285	Mar. 2	792	179	78	1410
Chenoweth, John T. (See Jones, Riter, and Chenoweth.)						
Cherry, David B., Knoxville, Iowa. Manure-carrier	578,722	Mar. 16	1555	360	78	1608
Chesney, Cummings C. (See Kelly, John F., assignor.)						
Chevalérias, Eugène, Brussels, Belgium. Portfolio	579,470	Mar. 23	2864	673	78	1861
Chicago Pneumatic Tool Company. (See Brown, George H., assignor.)						
Chicago Railway Equipment Company. (See Farley, James, assignor.)						
Chicago Railway Equipment Company. (See Robischung, Henry B., assignor.)						
Chichester, Franklin, Poughkeepsie, N. Y. Type-writer's chair	574,602	Jan. 5	386	87	78	73
Chilcote, John C., and R. J. Bigley, Shy Beaver, Pa. Vehicle-hub	577,508	Feb. 23	2455	578	78	1145
Chilcott, Amon W. Stewartsville, Mo. Gate	575,942	Jan. 26	2789	647	78	570
Child, Brainerd W., Boston, Mass., and M. A. Replogle, Cedar Falls, Iowa. Overcoming electric phenomena in goods, &c	579,738	Mar. 30	3319	793	78	1968
Childe, Carrie G., New York, N. Y. Cycling-skirt	579,471	Mar. 23	2866	674	78	1861
Childers, James, *et al.* (See Amanns, Abraham, assignor.)						
Childs, Sumner W. (See McTighe and Childs.)						
Chilson, Adelbert P., Butler, Ind. Weather-strip	577,719	Feb. 23	2818	667	78	1212
Chilton, Annie H., Philadelphia, Pa. Safety-pin	579,338	Mar. 23	2593	612	78	1812
Choate, William C. (See Myers and Choate.)						
Chollar, Byron E., St. Louis, Mo. Planimeter	575,105	Jan. 12	1284	310	78	259
Chouteau Manufacturing Company. (See Hill, Thomas R., assignor.)						
Chrissinger, Irwin B., assignor to C. S. Weeks and M. F. Chrissinger, Chicago, Ill. Dumping-wagon	577,918	Mar. 2	146	34	78	1290
Chrissinger, M. F., *et al.* (See Chrissinger, Irwin B., assignor.)						
Christ, John H., *et al.* (See Chapman, Joseph L., assignor.)						
Christensen, Christoffer A., Oretown, assignor to A. Carlson, Astoria, Oreg. Sluice-box	577,356	Feb. 16	2172	514	78	1075
Christoph, Charles, assignor of three-fifths to J. Dieterich, Jr., and C. E. Uxa, St. Louis, Mo. Street-sweeper	576,091	Feb. 2	20	6, 7	78	642
Christopher, James B., Mahanoy City, Pa. Journal-bearing	579,041	Mar. 16	2114	496	78	1708
Chritton, Robert B., North Enid, Okla. Ter. Car-coupling	576,550	Feb. 9	858	195	78	811
Chritton, Robert B., North Enid, Okla. Ter. Car-coupling	577,547	Feb. 23	2538	598	78	1160
Chubb, Harry R., London, England. Apparatus for purifying smoke or gases	575,877	Jan. 26	2635	622	78	550
Chumard, Edmund M., Brooklyn, Pa. Tree-trimmer	578,316	Mar. 9	857	194	78	1442
Churchill, Leroy S. (See Packard, Otis F., assignor.)						
Churchill, Robert W., Peabody, Mass. Vehicle-tire	576,809	Feb. 9	1247	297	78	889
Churchill, Thomas, Hallsborough, Va. Lock	576,028	Jan. 26	2880	682	78	595
Cirkel, Frederick. (See Jaeger, Paul, assignor.)						
Clagett, Sarah C., Prince George county, Md. Bicycle-skirt fastener	578,444	Mar. 9	1060	241	78	1480
Clamer, Guilliam H., assignor to Ajax Metal Company, Philadelphia, Pa. Making bichromates	574,391	Jan. 5	26	.....	78	8
Clapp, Frederick O., Cuba, N. Y. Potato-digger	579,131	Mar. 23	2259	531	78	1750
Clapp, Henry W., Springfield, Mass. Road-vehicle	577,185	Feb. 16	1892	447, 448	78	1023
Clapp, Wilson A., assignor to E. L. Pollock, Pittsfield, Mass. Switch-operating device	578,908	Mar. 16	1988	463	78	1681
Clark, Alvin B., Richmond, Ind. Bicycle	579,042	Mar. 16	2115	497	78	1708
Clark, Benjamin C. (See Dehlin and Clark.)						
Clark, Byron O., Pasadena, Cal. Safety-clevis	578,211	Mar. 2	674	153	78	1389
Clark, Charles E., Belmont, N. Y. Log-turner	578,723	Mar. 16	1556	360	78	1603
Clark, Charles H., Rochester, N. Y. Valve	574,392	Jan. 5	27	7	78	8
Clark & Co., Theodore. (See Ferry, Frank P., assignor.)						
Clark, Earl C. (See Clark, Marion E. and E. C.)						
Clark, Ezra E., Northampton, assignor to Deane Steam Pump Company, Holyoke, Mass. Balancing apparatus for pumps	578,002	Mar. 2	289	68	78	1316
Clark, Francis L., Stewart Station, Pa. Hydraulic brake	574,603	Jan. 5	498	115, 116	78	92
Clark, Francis L., Stewart Station, Pa. Pump	574,604	Jan. 5	504	116, 117	78	93
Clark, Francis L., Stewart Station, Pa. Brake-cylinder	574,605	Jan. 5	507	117	78	94
Clark, Frank M., Tilton, N. H. Optical instrument	579,132	Mar. 23	2260	532	78	1750
Clark, Henry A. (See Lombard, Nathaniel, assignor.)						
Clark, L. C., *et al.* (See Gorman, John H., assignor.)						
Clark, Leander, Greenville, Ohio. Wire-fence fastener	577,357	Feb. 16	2173	514	78	1075
Clark, Marion E. and E. C., Minneapolis, Minn., assignors to Clark Telephone and Construction Company, of Minnesota. Telephone-transmitter	576,551	Feb. 9	839	195	78	812
Clark, Melville, Chicago, Ill. Pneumatic organ	576,029	Jan. 26	2881	682, 683	78	596
Clark, Melville, Chicago, Ill. Pneumatically-operated musical instrument	576,030	Jan. 26	2885	683, 684	78	596
Clark, Melville, Chicago, Ill. Reed-organ	576,031	Jan. 26	2891	684	78	597
Clark, Melville, Chicago, Ill. Pneumatic musical instrument	576,032	Jan. 26	2895	684, 685	78	597
Clark, Melville, Chicago, Ill. Organ-fan and case	578,860	Mar. 16	1785	412	78	1646
Clark, Merrill E., assignor of one-half to W. P. Searls, Worcester, Mass. Motor system	575,681	Jan. 19	2901	542, 543	78	473
Clark, Percy L. (See Morgan, Clark, and Parker.)						
Clark Telephone and Construction Company. (See Clark, Marion E. and E. C., assignors.)						
Clark, Walter E. (See Burrows and Clark.)						
Clark, William, London, England. Apparatus for driving cutters for clipping horses, &c.	578,915	Mar. 16	1892	437, 438	78	1664
Clarke, Henry, assignor to H. L. Clarke and E. H. Garnett, Chicago, Ill. Combination-lock	577,358	Feb. 16	2174	515	78	1076
Clarke, Henry, assignor to H. L. Clarke and E. H. Garnett, Chicago, Ill. Permutation-lock	577,380	Feb. 16	2218	522	78	1084

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Clarke, Henry L., *et al.* (See Clarke, Henry, assignor.)						
Clarke, Thomas A., Portland, Oreg. Folding trestle	575,543	Jan. 19	2046	490	78	428
Claughton, Rodolphe, Washington, D. C. Trunk fastening or lock	575,825	Jan. 26	2582	597	78	532
Claus, Adolf, Freiburg, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Metalodinorthoöxyquinolinana-sulfonic acid	576,494	Feb. 2	723	.....	78	774
Claus, Robert C., *et al.* (See Erickson, John A., assignor.)						
Claussen, Edward E., Hartford, Conn. Paper-bag machine	574,666	Jan. 5	510	118, 119	78	94
Clay, John H. (See Lally, John T., assignor.)						
Clay, William A., Cadillac, Mich. Lubricating device	577,679	Feb. 23	2753	650, 651	78	1200
Clayton, Edward, *et al.* (See Barnes, Thomas, assignor.)						
Clayton, John W., Chattanooga, Tenn. Trace-hook	576,339	Feb. 2	476	111	78	727
Cleaveland, Elias A., Belvidere, Ill. Folding cot	575,211	Jan. 12	1466	352	78	294
Cleaveland, Henry G., Newton, Mass. Note-book binder	579,423	Mar. 23	2723	646	78	1836
Cleaveland, John B., and C. Herdrich, Indianapolis, Ind.; said Herdrich assignor to said Cleaveland. Machine for making twisted-wire strands	579,563	Mar. 30	3030	716, 717	78	1918
Cleland, James, Ballinahinch, Ireland. Fastening device for cuffs, &c	575,802	Jan. 26	2493	587	78	524
Clem, Albert D. (See Stoy, Edward G., assignor.)						
Clemo, Arthur W., Ishpeming, Mich. Joint or coupling for railway-rails	575,149	Jan. 12	1365	328	78	274
Clench, Johnson, St. Catharines, Canada. Device for sifting coal-ashes	579,358	Mar. 23	2622	620	78	1818
Cleveland, Arthur, Newark, assignor of seven-tenths to J. P. Northrop, North Plainfield, N. J. Burglar-alarm	574,524	Jan. 5	230	55	78	46
Cleveland School Furniture Company. (See Hiteshew, Harvey B., assignor.)						
Cleveland School Furniture Company. (See Spieth, William F., assignor.)						
Cliff, Edward. (See Tucker, Benjamin W., assignor.)						
Cliff, Edward, Newark, N. J. Car-truck frame	574,983	Jan. 12	1074	260, 261	78	219
Cliff, Edward, Newark, N. J. Center bearing for car-trucks	576,255	Feb. 2	322	76, 77	78	698
Cliff, Edward, Newark, N. J. Center-bearing-bolster attachment for car-trucks	577,237	Feb. 16	1976	467	78	1039
Cliff, Edward, Newark, N. J. Center-bearing-bolster attachment for car-trucks	578,135	Mar. 2	520	118	78	1361
Cliff, Edward, Newark, N. J. Car-truck	578,814	Mar. 16	1718	395	78	1634
Cliff, Edward, Newark, N. J., assignor to Vose & Cliff Manufacturing Company, New York, N. Y. Side bearing for car-trucks	577,007	Feb. 16	1594	379	78	965
Cliff, Edward, Newark, N. J., assignor of one-half to G. R. Joughins, Berkley, Va. Car-truck frame	577,236	Feb. 16	1973	467	78	1038
Clifford, George. (See Lockwood and Clifford.)						
Clifford, John, assignor to L. Wolff Manufacturing Company, Chicago, Ill. Automatic siphon flushing-tank for water-closets, &c	579,315	Mar. 23	2552	608	78	1804
Clifford, William, Duluth, Minn. Dredge-crane	578,092	Mar. 2	429	100	78	1343
Cline, Oren R., El Dorado, Kans. Gas-regulator for Welsbach burners	578,212	Mar. 2	676	154	78	1389
Cline, William, Lancaster, Pa. Stock-car	575,459	Jan. 19	1895	456, 457	78	393
Clinton, Charles M., Ithaca, N. Y. Chalk-sharpener	577,548	Feb. 23	2539	598	78	1160
Clokey, William J. (See Melvin-Jones, Johnston, and Clokey.)						
Close, Gideon A., Bridgeport, Conn. Sewing-machine	577,595	Feb. 23	2628	620	78	1176
Clot, John B., San Francisco, Cal. Voting-machine	579,316	Mar. 23	2554	603, 604	78	1805
Cloud, John W., Chicago, Ill. Car-truck	578,627	Mar. 9	1375	313	78	1540
Cloudman, Frank H., Cumberland Mills, Me. Device for applying coating mixtures	579,043	Mar. 16	2116	497	78	1708
Clough, Charles L. (See Stephens, Ira O., assignor.)						
Clough, F. M. (See Wussow, William H., Sr., assignor.)						
Clouser, William, Greenfield, Ohio. Casket-truck	576,256	Feb. 2	324	77	78	698
Clowes, George A., Needham Market, assignor of two-thirds to M. P. Hatschek and L. Briant, London, England. Malted bread and preparing same	579,739	Mar. 30	3321	.....	78	1968
Clymans, Ezra G., assignor to Geiser Manufacturing Company, Waynesborough, Pa. Threshing-machine	576,755	Feb. 9	1162	277	78	872
Coates, George H., Worcester, Mass. Hair-clipper	576,901	Feb. 2	404	95	78	713
Coates, George H., Worcester, Mass. Flexible shaft	578,724	Mar. 16	1557	360	78	1604
Coates, Ray G., Pasadena, Cal. Box-couch	574,398	Jan. 5	28	8	78	8
Coates, Scott D., Ellwood City, assignor of one-half to W. B. Sterrit, Pittsburg, Pa. Grinding and scouring apparatus	578,969	Mar. 16	1990	463	78	1682
Coats, Charles M., *et al.* (See Nosker, Orren G., assignor.)						
Coats, Charles M., and C. E. Corlett, Aurora, Ill. Sad-iron	577,099	Feb. 16	1744	412, 413	78	994
Cobb, G. W. (See McCawley, Joel A., assignor.)						
Cobb, Leander B., Everett, assignor to Chandler Adjustable Chair and Desk Company, Boston, Mass. Adjustable support for school furniture	577,720	Feb. 23	2819	667	78	1212
Cobenzl, Albert, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Blue dye	578,098	Mar. 2	480	.....	78	1343
Cobleigh, Herbert A., Woodhaven, N. Y. Collapsible box	578,445	Mar. 9	1061	241	78	1480
Coblenzer, Jean B. (See Schmitt, Johann, assignor.)						
Coburn, Lemuel, and W. J. Sumner, Holyoke, Mass. Machine for bending and forming sheet metal	575,701	Jan. 26	2389	551	78	494
Coburn Trolley Track Manufacturing Company. (See Sumner, William J., assignor.)						
Cochrane, Jasper D. (See Mitchell, William A., assignor.)						
Cochrane, John, Barrhead, Scotland, and W. Cameron, Maryport, England. Valve-gear	578,213	Mar. 2	677	154	78	1389
Cocke, George M., assignor to Fuller-Warren Company, Milwaukee, Wis. Damper for stoves	574,525	Jan. 5	232	55	78	46
Coe, John S., Paterson, N. J. Self-reversing check-valve	578,481	Mar. 9	1112	253	78	1491
Coe, Thomas R., Warren, Ohio. Bath-tub mat	579,532	Mar. 23	2953	697	78	1878
Coen, Frederick W., Chicago, Ill. Gas-engine	575,878	Jan. 26	2637	623	78	550
Coffeen, Charles B., and C. F. Buck, Chicago, Ill. Bicycle	577,509	Feb. 23	2456	579	78	1145
Cofield, Peter T., assignor to W. P. Callahan & Co., Dayton, Ohio. Gas-engine	579,789	Mar. 30	3408	817	78	1985
Coffin, Philip M., Detroit, Mich. Bottle-indicator	576,658	Feb. 9	1012	237	78	844
Coggins, Emory S., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Folding shade-holder	577,286	Feb. 16	2061	487	78	1054
Cohen, Morris I., Chicago, Ill. Fireplace gas-heater	576,774	Feb. 9	1185	282, 283	78	877
Cohen, Morris I., Chicago, Ill. Fireplace	576,775	Feb. 9	1187	283	78	877
Cohen, Morris I., Chicago, Ill. Fireplace gas-heater	579,740	Mar. 30	3322	793, 794	78	1968
Cohen, Stanley A., New York, N. Y. Step-ladder	577,645	Feb. 23	2707	638, 639	78	1191
Cohn, Casper L., Boston, and M. Martin, Malden, Mass.; said Martin assignor to said Cohn. Mouthpiece for telephones	579,790	Mar. 30	3412	817	78	1985

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Cohn, Charles, Baltimore, Md. Skirt	575,501	Jan. 19	1909	471	78	409
Cohn & Co., Charles. (See Grean, Alexander M., assignor.)						
Cohn, Felix, Namslau, Germany. Child's carriage	577,646	Feb. 23	2709	639	78	1191
Colbath, Hiram I. (See Colbath, William E., assignor.)						
Colbath, William E., Weston, assignor of one-half to H. I. Colbath, Walworth, Mich. Safety-pin	578,390	Mar. 9	965	219	78	1462
Colborne, Oliver, Chicago, Ill. Gas-engine	579,860	Mar. 30	3525	843	78	2007
Colburn, Adoniram J., assignor to Gordon Hollow Blast Grate Company, Greenville, Mich. Potato-planter	578,508	Mar. 9	1178	266, 267	78	1503
Colburn, Henry J. (See Owens and Colburn.)						
Colby, Benjamin F. (See Weigel, John, assignor.)						
Colby, Willis H., Littleton, N. H. Perpetual calendar	579,257	Mar. 23	2461	581	78	1788
Cole, Arthur W., Brooklyn, N. Y., assignor, by mesne assignments, to Automatic Photograph Machine Company, of West Virginia. Automatic fluid-pressure machine	575,702	Jan. 26	2341	552	78	494
Cole, Edward M., assignor of four-fifths to G. E. Milner, Chicago, Ill. Insole	575,400	Jan. 19	1900	457	78	394
Cole, Fred, Kankakee, Ill. Animal-trap	578,391	Mar. 9	966	219	78	1462
Cole, George H P. (See Davis, Benjamin K., assignor.)						
Cole, James T., Chicago, Ill. Safety-step for vehicles	579,133	Mar. 23	2261	532	78	1750
Cole, James W., Northampton, Mass. Shutter-worker	575,329	Jan. 19	1672	399	78	352
Cole, James W., Northampton, Mass. Sash-fastener	575,415	Jan. 19	1820	438	78	379
Cole, Joseph K. and R. St. Paul, Minn. Bicycle-bell	576,257	Feb. 2	326	77	78	606
Cole, Robert. (See Cole, Joseph K. and R.)						
Cole, Samuel M., assignor of one-half to O. W. Price, Manchester, N. H. Combination-tool	576,756	Feb. 9	1163	277	78	873
Cole, William G. (See Gaylord, Cole, and Keller.)						
Cole, William G. (See Keller, Cole, and Gaylord.)						
Cole, William M., Concord, Mass. Railway-car	577,596	Feb. 23	2630	620, 621	78	1177
Coleman, John P. (See Schreuder and Coleman.)						
Coleman, Littleton L., Lahore, Va. Compound for paint mixtures	579,861	Mar. 30	3531	.....	78	2009
Coleman, Nathan. (See Coleman, Thomas A. and N.)						
Coleman, Thomas A. and N., Texarkana, Tex. Tension device for band-saw mills	579,382	Mar. 23	2661	630, 631	78	1825
Coles, George, *et al.* (See Scouler, James D., assignor.)						
Colgate, Arthur E., New York, assignor to G. J. Schoeffel, Brooklyn, N. Y. Signal-recording mechanism	579,221	Mar. 23	2406	567, 568	78	1778
Colling, Charles J., assignor to J. M. Robinson & Co., Cincinnati, Ohio. Pressure-dies for corrugating sheet metal	577,597	Feb. 23	2632	621	78	1177
Collinge, James, Preston, England. Lamp-burner	578,036	Mar. 2	339	81	78	1320
Collins, Caleb G., Woodsburg, assignor to C. A. Stevens, New York, N. Y. Electrode-positing aluminium	577,186	Feb. 16	1896	448	78	1023
Collins, Edward C. (See Billings and Collins.)						
Collins, Edward C., assignor to Taunton Locomotive Manufacturing Company, Taunton, Mass. Snow-plow	579,424	Mar. 23	2724	646	78	1836
Collins, Elbert A., Chillicothe, Ill. Seat for bicycles	579,514	Mar. 23	2926	688	78	1874
Collins, G. B., *et al.* (See Haley, Fred H., assignor.)						
Collins, Gilbert H., Pittston, Pa. Leveling-rod	579,555	Mar. 23	3013	712	78	1890
Collins, Harry R., South Bethlehem, Pa. Pneumatic hub	575,634	Jan. 19	2218	524	78	457
Collins, Herbert G., assignor to Sargent & Company, New Haven, Conn. Liquid door-check	577,721	Feb. 23	2820	668	78	1213
Collins, John O., assignor of one-third to G. E. Butterfield, Marblehead, Mass. Rotary cutter	577,420	Feb. 23	2305	541	78	1116
Collins, Manuel L., Hendrickson, Mo. Folding bed	579,425	Mar. 23	2725	647	78	1836
Collins, Samuel W., assignor of seven-twelfths to R. Laymon, Kokomo, W. J. Wingate, and J. T. Barker, Danville, Ind. Combination bicycle-lock	576,835	Feb. 9	1285	307	78	896
Collis, Michael F., Marfa, Tex. Puzzle	574,394	Jan. 5	29	8	78	8
Collison, John S., assignor of one-half to L. W. Peterson, Stromsburg, Nebr. Car-coupling	574,880	Jan. 12	867	210	78	183
Coloney, Myron H., Denver, Colo. Violin chin-rest	576,950	Feb. 9	1473	350	78	931
Colorado Iron Works Company. (See Nesmith, John W., assignor.)						
Colvin, Joseph. (See Brosius, Upton, and Colvin.)						
Combination Bicycle Lock and Gear Company. (See Bonnell, Robert L., assignor.)						
Combination Stand Company. (See Haley, Fred H., assignor.)						
Combs, Gary P., and E. L. Wetz, assignors to D. E. Beeghley and J. H. Billman, Dayton, Ohio. Key	579,134	Mar. 23	2262	532	78	1751
Compagnie Générale des Moteurs Gazogènes Système Bénier. (See Bénier, Léon, assignor.)						
Comparative Synoptical Chart Company. (See Sinton, Walter L., assignor.)						
Compton, Charles H., New Albany, Ind. Cattle-guard	575,921	Jan. 26	2709	640	78	564
Compton, Harmon, Dunmore, Pa. Reciprocating propeller for vessels	577,421	Feb. 23	2306	541	78	1117
Computing Scale Company. (See Mellinger, Frank E., assignor.)						
Comstock, Charles, Ozone Park, N. Y. Device for cleaning flues and flue-pipes	577,647	Feb. 23	2710	639	78	1191
Comstock, Clark S., Bloomfield, N. J. Buckle	577,008	Feb. 16	1505	379	78	966
Conant, Herbert I., assignor to Conant Rubber Company, Boston, Mass. Combined poncho, blanket, knapsack, and shelter-tent	578,691	Mar. 9	1489	343	78	1562
Conant Rubber Company. (See Conant, Herbert I., assignor.)						
Conley, George, Caseville, Mich. Plow-colter	570,092	Feb. 2	22	7	78	642
Connell, Harry W. and H. F., Syracuse, N. Y. Thill-coupling	575,212	Jan. 12	1466	353	78	295
Connell, Harvey F. (See Connell, Harry W. and H. F.)						
Connell, John, Rochester, N. Y. Saw-guide	575,416	Jan. 19	1822	438	78	379
Connelly, James T., Milton, Pa. Locomotive-boiler	579,741	Mar. 30	3324	794	78	1909
Connelly, William, Toledo, Ohio. Coupling for tubular sections	579,817	Mar. 30	3451	827	78	1993
Conner, Charles E., assignor of one-half to A. Cushman, Jr., Auburn, Me. Cartridge-belt	576,516	Feb. 2	766	180	78	782
Conner, George A. (See Ehrhardt, William, assignor.)						
Connett, Matthew F., Jr., St. Paul, Minn. Hand fence-machine	576,033	Jan. 26	2902	685	78	598
Conover, James F., Chicago, Ill. Piano	574,711	Jan. 5	584	136	78	108
Conrad, Martin, Chicago, Ill. Wagon-axle	576,802	Feb. 2	405	95	78	714
Conrad, William H. (See Maize, Conrad, and Wampler.)						
Conrader, Rudolph, Erie, Pa., assignor to Brunswick-Balke-Collender Company, of Ohio. Machine for grinding spherical or other curved surfaces. (Reissue)	11,593	Mar. 23	3014	712	78	1890
Conrader, Rudolph, Erie, Pa., assignor to Brunswick Balke-Collender Company, of Ohio. Machine for grinding spherical or other curved surfaces. (Reissue)	11,594	Mar. 23	3016	712, 713	78	1891
Consolidated Car Fender Company. (See Thornley, Albert J., assignor.)						
Consolidated Car-Heating Company. (See McElroy, James F., assignor.)						
Consolidated Fastener Company. (See Holmes, George A., assignor.)						
Consolidated Steel and Wire Company. (See Bates, Albert J., assignor.)						
Constam, Emil J., and A. von Hansen, Zurich, assignors to Aluminium Industrie Actien-Gesellschaft, Neuhausen, Switzerland. Manufacturing percarbonates	579,317	Mar. 23	2559	604	78	1805

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Constant, John S., New Burlington, Ohio. Fanning-mill	579,258	Mar. 23	2462	581	78	1788
Cook, August D., Lawrenceburg, Ind. Well-tube valve	575,213	Jan. 12	1470	353	78	295
Cook, Edward A. (See Storr, David C., assignor.)						
Cook, Elsworth, Kempton, Ill. Fire-kindler	577,722	Feb. 23	2823	668	78	1213
Cook, Henry F., assignor to Fahys Watch Case Company, Sag Harbor, N. Y. Watch-bow fastener	577,422	Feb. 23	2307	541	78	1117
Cook, Herman C., Rosston, Pa. Book-support	575,803	Jan. 26	2494	587	78	524
Cook, James L., Springfield, Ill. Valve	574,881	Jan. 12	868	210	78	183
Cook, James M., and J. E. Mateer, Mount Gilead, Ohio. Carrier for feed-cutters	575,593	Jan. 19	2140	507	78	442
Cook, John A., Buffalo, N. Y. Folding postal card	576,552	Feb. 9	840	195	78	812
Cook, John H. (See Newhall and Cook.)						
Cook, John H., West Springfield, Mass., assignor to H. B. Newhall, Plainfield, N. J. Anchor-bolt bushing	575,282	Jan. 12	1578	376	78	317
Cook, Lewis, Ravenna, Ohio. Bicycle-chain	576,258	Feb. 2	327	77	78	699
Cook, Thomas R., Marion, Ind. Self opening and closing gate	574,667	Jan. 5	512	119	78	94
Cook, William F., Oswego, N. Y. Barrel truck and rack	575,330	Jan. 19	1673	399, 400	78	352
Cooke, William A., Jr., Brooklyn, N. Y., Paper box	575,461	Jan. 19	1901	457, 458	78	394
Coolbaugh, Frank W. (See Pomeroy, Lewis R., assignor.)						
Cooley, Ella I., Coldwater, Mich. Safety-belt	579,818	Mar. 30	3452	828	78	1993
Cooley, George, Guthrie, Okla. Ter. Calf-weaner	577,914	Mar. 2	148	34	78	1200
Cooley, George W., and H. F. Logee, Minneapolis, Minn. Water-indicator and alarm	578,725	Mar. 16	1558	361	78	1604
Cooley, Joseph H., and H. A. Goebel, San Antonio, Tex. Refrigerating apparatus	575,594	Jan. 19	2142	508	78	442
Coombs, Frank J., Columbia Falls, Mont. Bicycle-brake	578,280	Mar. 2	793	179	78	1411
Cooney, Luke, Jr., assignor, by mesne assignments, to V. T. Barker, trustee, Kalamazoo, Mich. Cash-register	575,331	Jan. 19	1674	400, 401, 402	78	352
Cooper, Augustus S., Santa Barbara, Cal. Mixing and heating apparatus	578,628	Mar. 9	1376	314	78	1541
Cooper, Basil H., assignor of one-half to A. P. Gladden, Bluefield, W. Va. Combination chair and ironing-board stand	578,446	Mar. 9	1062	242	78	1480
Cooper Box & Company. (See Wildman, George, assignor.)						
Cooper, Charles. (See Barratt, William T., assignor.)						
Cooper, Charles. (See Hurley, Daniel, assignor.)						
Cooper, Charles S., *et al.* (See Lorash and Hilgemeier, assignors.)						
Cooper, Elison M. (See Trull, William E., assignor.)						
Cooper, Frank E., Owego, N. Y. Hot-air register-box	574,475	Jan. 5	163	38	78	32
Cooper, Frank J., assignor of one-half to C. Storz, Toledo, Ohio. Metal wheel	577,423	Feb. 23	2308	542	78	1117
Cooper, Harry, San Antonio, Tex. Easel	575,026	Jan. 12	1147	278	78	233
Cooper, Hurvey, Westfield, Mass. Fountain-brush	579,135	Mar. 23	2263	532	78	1751
Cooper, James W., Mayesville, S. C. Cotton-seed crusher and distributer	574,882	Jan. 12	870	211	78	183
Cope, George W., assignor to R. M. Dyar, Detroit, Mich. Heating-stove	576,034	Jan. 26	2903	685	78	598
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Wheel for vehicles	574,712	Jan. 5	586	136	78	109
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Wheel for vehicles	574,713	Jan. 5	587	137	78	109
Copeland, Willis M., *et al.* (See Slaughter, Joel C., assignor.)						
Copithorn, John T., Melrose, Mass. Life-preserver support for vessels	576,303	Feb. 2	407	96	78	714
Corbin, George C. (See Flippin, John J., assignor.)						
Corbion, George, Jr., Philadelphia, Pa. Siphon-bottle	578,094	Mar. 2	431	100	78	1343
Corey, William E. (See Slocum and Corey.)						
Corey, William E., Munhall, and F. L. Slocum, assignors to Carnegie Steel Company, Limited, Pittsburg, Pa. Making carbonized steel for armor-plates	574,668	Jan. 5	514	119	78	95
Corey, William W., Jr., St. Louis Mo. Steam-pump	578,317	Mar. 9	860	194, 195	78	1442
Corkle, William A., Wauseon, Ohio. Wire fence	579,791	Mar. 30	3413	818	78	1986
Corlett, Charles E. (See Coats and Corlett.)						
Corlett, Charles E., *et al.* (See Nosker, Orren G., assignor.)						
Corlett, Robert S., Cleveland, Ohio. Frame for drying lace curtains	578,970	Mar. 16	1991	464	78	1682
Corneaby, Maximillion F. (See McCulloch and Corneaby.)						
Cornelison, Robert W., Bloomfield, N. J., and W. H. Warren, Brooklyn, N. Y. Obtaining aceto derivatives of aromatic amins	574,395	Jan. 5	'80	.....	78	8
Cornelison, Robert W., Bloomfield, N. J., and W. H. Warren, Brooklyn, N. Y. Obtaining aceto derivatives of aromatic amins	574,396	Jan. 5	82	.....	78	8
Cornell, Evan W., assignor of one-half to Cornell & Knapp Co., Adrian, Mich. Machine for labeling bottles	579,792	Mar. 30	3414	818	78	1986
Cornell, George V., Bound Brook, N. J. Fastening device for horse-blankets, &c	576,553	Feb. 9	841	195	78	812
Cornell & Knapp Co. (See Cornell, Evan W., assignor.)						
Cornell, William H., Brookings, S. D. Hose and garment supporter	576,659	Feb. 9	1013	237	78	844
Cornell, Wilson G., Chicago, Ill. Self-closing basin-faucet	576,035	Jan. 26	2904	686	78	599
Cornely, Emile and R., Paris, France. Embroidering-machine	575,027	Jan. 12	1148	278, 279	78	233
Cornely, Robert. (See Cornely, Emile and R.)						
Cornish, Harry B., Hampton, assignor of two-thirds to J. F. Taake and A. C. Hine, Waverly, Iowa. Carbureter	575,595	Jan. 19	2144	508, 509	78	443
Corscaden, Thomas, New Britain, Conn., assignor to American Pulley Company, Philadelphia, Pa. Pulley	575,106	Jan. 12	1285	310, 311	78	259
Corscaden, Thomas, New Britain, Conn., assignor to American Pulley Company, Philadelphia, Pa. Sheet-metal pulley	575,107	Jan. 12	1287	311	78	260
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Shelf-bracket	577,723	Feb. 23	2823	668, 669	78	1213
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Sheet-metal shelf-bracket	577,977	Mar. 2	250	59	78	1309
Coryell, Frank T. (See Stahl and Coryell.)						
Costello, Joseph A., Cleveland, Ohio. Metal planing or cutting machine	575,703	Jan. 26	2343	552	78	495
Cotham, Edward A., and G. Wells, Monticello, Ark. Trace-carrier	578,971	Mar. 16	1992	464	78	1682
Cottie, John C., New York, and C. J. Marks, Brooklyn, N. Y. Sprocket wheel and chain	579,742	Mar. 30	3326	794	78	1909
Cotton States Machinery Company. (See Young, Cornelius, assignor.)						
Coulbourn, William R. (See Ingram and Coulbourn.)						
Coulson, William H. (See Parker and Coulson.)						
Coulter, William, Lorain, Ohio. Grapple	578,215	Mar. 2	681	155	78	1390
Coulter, William P., J. N. Horn, F. C. Reiter, A. W. Lyda, J. Freidhoff, Jr., H. Davis, and H. B. Barnes, Johnstown, Pa. Combined step-ladder, washbench, &c	574,397	Jan. 5	84	8	78	9
Coupal, Peter A., Boston, Mass., assignor to Gordon Staple Lasting and Tacking Company, Portland, Me. Machine for making and driving staples	575,296	Jan. 12	1600	381, 382, 383	78	320

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Coupal, Peter A., assignor to W. Gordon, Boston, Mass. Sewing-machine	579,426	Mar. 23	2726	647, 648	78	1886
Coupal, Peter A., assignor of one-half to W. Gordon, Boston, Mass. Shoe-sewing machine	579,697	Mar. 30	3252	773, 774	78	1955
Coupal, Peter A., assignor of one-half to W. Gordon, Boston, Mass. Sewing-machine	579,922	Mar. 30	3619	866, 867	78	2025
Couper, James H., assignor of one-half to J. M. Sitton and T. V. Hubbard, Atlanta, Ga. Acetylene-gas generator	578,972	Mar. 16	1993	464	78	1688
Cour, Joseph, Chicago, Ill. Means for securing and protecting stay-bolts	576,096	Jan. 26	2005	686	78	509
Courant, Emil. (See Gallinek and Courant.)						
Coursen, William F., Purdy's Station, N. Y. Rope-drum apparatus	576,554	Feb. 9	842	196	78	812
Courtenay, John I. (See King, Frank, assignor.)						
Courtney, John P., Minneapolis, Minn. Automatic water-closet	576,340	Feb. 2	477	112	78	727
Cousins, John C., Arlington, Mass., assignor to New England Turbine and Fuel Company, of Maine. Apparatus for heating and drying	577,359	Feb. 16	2178	515	78	1076
Couzineau, Henri E. (See Quennoy, Etienne, assignor.)						
Cowan, David R., Moline, Ill. Vehicle-boot	577,838	Mar. 2	10	4	78	1202
Cowger, Henry J., Pacific Grove, Cal. Fountain-pen	576,555	Feb. 9	843	196	78	812
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Conveying apparatus	574,714	Jan. 5	588	137, 138, 139, 140	78	109
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Conveying apparatus	574,715	Jan. 5	597	140, 141, 142	78	110
Cox, Mary H. P., Kirkham, Md. Knife-sharpener	577,127	Feb. 16	1806	425	78	1006
Cox, Paul F., assignor to Cox Type Setting Machine Company, Chicago, Ill. Type-distributing machine	578,216	Mar. 2	682	155, 156	78	1390
Cox Type Setting Machine Company. (See Cox, Paul F., assignor.)						
Coy, William C. S., Dubuque, Iowa. Fruit-holder	574,476	Jan. 5	163	38	78	32
Coyle, John, Indianapolis, Ind. Insertible-tooth saw	579,383	Mar. 23	2662	631	78	1825
Cozatt, John J. (See Newcomb, William W., assignor.)						
Crabtree, James G., Texarkana, Tex. Chopping-ax	574,716	Jan. 5	599	142	78	111
Craddock, John W., New York, N. Y. Device for threading pipe	579,222	Mar. 23	2408	568	78	1779
Crafford, Welcome, and J. S. Atkinson, Bayfield, Wis. Neck-yoke iron	577,360	Feb. 16	2179	515	78	1077
Craig, George, Glasgow, Scotland. Chemical apparatus	578,008	Mar. 2	291	68	78	1316
Craig, Robert G., St. Louis, Mo. Combined bill and record book	578,973	Mar. 16	1995	465	78	1683
Cralle, Alfred L., Pittsburg, Pa. Ice-cream mold and disher	576,395	Feb. 2	568	133	78	742
Cramer, Frederick and W. F., Denver, Colo. Rock-drill	576,660	Feb. 9	1014	238	78	844
Cramer, William F. (See Cramer, Frederick and W. F.)						
Cramp-Hoadley Company. (See Hoadley, Joseph H., assignor.)						
Crandall, Henry F. (See Livesay and Crandall.)						
Crane, Herbert P., Chicago, Ill. Floor-drain	579,136	Mar. 23	2264	533	78	1751
Crane, Leslie. (See Burger, Newton H., assignor.)						
Crane, William F. D. (See Luscomb and Crane.)						
Crannell, Charles W., Holton, Kans. Nailless horseshoe	577,009	Feb. 16	1596	380	78	966
Crawford, Miley P., assignor to Roanoke Car Fender Company, Roanoke, Va. Car-fender	575,676	Jan. 19	2294	541	78	472
Crawford, Orlin W., San Francisco, Cal. Composite barrel	578,974	Mar. 16	1997	465	78	1683
Crawford, Robert, New York, N. Y. Air-heater	578,095	Mar. 2	433	100, 101	78	1344
Crawford, William H., Weatherford, Tex. Quilting-frame	579,472	Mar. 23	2807	674	78	1861
Crawshaw, John. (See Brown, Elijah E., assignor.)						
Creecy, Edward W., Washington, D. C. Hair-pin	577,724	Feb. 23	2824	609	78	1213
Creed, Patrick T. (See Robertson, Artemas, assignor.)						
Creighton, Thomas C., *et al.* (See Blanchet, William F., assignor.)						
Cressman, George W., Barren Hill, Pa. Car-fender	576,341	Feb. 2	479	112	78	727
Crewson, Charles C. (See Cadott and Crewson.)						
Crigler, Julius W., Bloomington, Ill. Hanger for shade-rollers	576,951	Feb. 9	1474	351	78	931
Crimmans, Dinnis, Fort Wayne, Ind. Garbage-box	576,952	Feb. 9	1475	351	78	931
Crippen, George F., Ypsilanti, Mich. Bean-picker	578,861	Mar. 16	1787	412	78	1647
Crispell, Edward. (See Dewald and Crispell.)						
Crissey, Leroy M., near Marietta, assignor of two-thirds to W. E. Gilbert and R. N. Holland, Marietta, Ga. Fertilizer-distributer and seed-planter	576,076	Jan. 26	2972	701	78	610
Crittenden, Augustus W. (See Mosher, John J., assignor.)						
Crocker-Wheeler Electric Company. (See Wheeler, Schuyler S., assignor.)						
Croll, Ernst, Langensalza, Germany. Sowing-machine	574,883	Jan. 12	871	211	78	183
Crombie, Herbert S., Waltham, Mass. Rivet-setting machine	577,615	Feb. 23	2658	627, 628	78	1181
Cromwell, John C., and O. Sundt, Joliet, Ill.; said Sundt assignor to said Cromwell. Machine for making spikes	577,680	Feb. 23	2755	651, 652	78	1200
Cronan, James W., Point Pleasant, Mo. Back-band buckle	578,975	Mar. 16	1998	465	78	1683
Cronin, Morris, London, England. Electrically-illuminated jugglery apparatus	575,332	Jan. 19	1683	402	78	355
Cronk, William, Havana, N. Y. Latch	577,818	Feb. 23	2975	703	78	1242
Crook, Charles M., assignor to C. S. Burton, trustee, Chicago, Ill. Electric clock	574,669	Jan. 5	516	120	78	95
Crook, Charles M., Elgin, assignor to C. S. Burton, trustee, Chicago, Ill. Electric clock-setting mechanism	578,976	Mar. 16	1999	466	78	1684
Crook, William W. (See Getchell, John M., assignor.)						
Croskey, John H., and J. Locke, assignors of one-half to J. H. Phillips and G. W. Morse, Pittsburg, Pa. Pneumatic apparatus for lifting and discharging molten material	575,214	Jan. 12	1471	353	78	295
Cross, Eben D., assignor of one-fourth to W. P. Tuttle, Chicago, Ill. Motor-vehicle	577,572	Feb. 23	2580	608, 609	78	1167
Cross, Milton L., assignor to J. R. Bunting, Philadelphia, Pa. Bedstead-securing device	574,717	Jan. 5	601	143	78	111
Crouch, George, New York, N. Y. Trunk-handle	575,922	Jan. 26	2711	641	78	564
Crouch, George, New York, N. Y. Trunk or valise	578,545	Mar. 9	1237	280	78	1514
Crouch, Walker L., assignor to Pierce-Crouch Engine Company, New Brighton, Pa. Gas-engine	574,670	Jan. 5	590	120, 121	78	95
Crouch, Walker L., assignor to Pierce-Crouch Engine Company, New Brighton, Pa. Gas-engine	575,502	Jan. 19	1971	472	78	409
Crowder, John B., Tulucah, Ala. Rope-reel	574,718	Jan. 5	602	143	78	111
Crowder, Samuel (See Robson, George, assignor.)						
Crowther, Horace W., West Bromwich, E. C. Rossiter, Smethwick, G. S. Albright, Birmingham, and J. J. Hood, London, England. Process of and apparatus for making cyanids	579,630	Mar. 30	3167	752	78	1989
Crumm, Joseph M., Jr., Topeka, Kans. Grinding-machine	578,596	Mar. 9	1324	299	78	1531

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Crump, Samuel. (See Sandham, Harry, assignor.)						
Cuendet, Emile L., New York, N. Y., and F. J. Bernard, Hoboken, N. J. Note-plate for mechanical musical instruments	577,839	Mar. 2	11	5	78	1263
Culhan, Edward, assignor of one-half to M. L. Hannum, Cambridge, Mass. Bedstead-fitting	576,396	Feb. 2	569	134	78	743
Cullen, Richard, New York, N. Y. Window	575,563	Jan. 19	2080	497	78	429
Culley, Alfred H., London, England. Means for securing tires to rims	576,836	Feb. 9	1287	307, 308	78	896
Culver, Ira, Cleveland, Ohio. Gasolene-burner	575,503	Jan. 19	1975	472	78	410
Culver, Josiah, Delta, Pa. Timepiece-dial	577,573	Feb. 23	2582	609	78	1168
Cummings, Henry H., Malden, assignor to New Multiple Press Company, Boston, Mass. Printing-press	577,100	Feb. 16	1747	413, 414, 415	78	995
Cummings, Hugh, assignor of one-half to J. B. Cummings, Kinston, N. C. Self-supporting stage	578,217	Mar. 2	685	156	78	1391
Cummings, J. B. (See Cummings, Hugh, assignor.)						
Cummings, Summer F., Del Rio, Tex. Locomotive ash-pan	578,546	Mar. 9	1238	280	78	1514
Cundey, Elijah, Philadelphia, Pa. Combined rack and mirror	577,010	Feb. 16	1597	380	78	966
Curnutt, Elmer, Colony, Kans. Printing-press	577,011	Feb. 16	1599	380, 381	78	966
Current Motor Company. (See Barron, Charles A., assignor.)						
Currier, Cyrus C. (See Holthaus, Emil, assignor.)						
Curtice, William H., Louisville, Ky. Dish-cleaner	577,725	Feb. 23	2825	669	78	1213
Curtis, Benjamin F., Brooklyn, N. Y., and D. E. Titsworth, assignors to Potter Printing Press Company, Plainfield, N. J. Machine for making stereotypes	579,044	Mar. 16	2116	497	78	1708
Curtis, Charles H. (See André, George G., assignor.)						
Curtis, Frank J., Ben Avon, assignor to McConway & Torley Company, Pittsburg, Pa. Tender-coupling	574,603	Jan. 5	386	87	78	73
Curtis, George L., and O. E. Peterson, Cache county, Utah. Windmill	578,287	Mar. 2	795	180	78	1411
Curtis, Judson J. (See Sherwood, Earl, assignor.)						
Curtis, Lucius H., *et al.* (See Luther, Justus P. and S. L., assignors.)						
Curtis, Theodore H., Cleveland, Ohio. Blast-controlling valve for track-sanding apparatus	578,318	Mar. 9	802	195	78	1443
Curtis, William H. (See Meyrose and Curtis.)						
Curtiss, Waldo L. (See Burr, Oliver C., assignor.)						
Cushing, Albert H., *et al.* (See Miranda, Abraham R., assignor.)						
Cushman, Ara, Jr. (See Conner, Charles E., assignor.)						
Cushman, Henry A., Chicago, Ill., assignor to Mechanical Rubber Company, Passaic, N. J. Rubber-tubing machine	579,988	Mar. 30	3647	873	78	2081
Cushman, Modestus J., Waterloo, Iowa. Cow-milking machine	579,339	Mar. 23	2594	613	78	1812
Cutter, Charles W., assignor of one-half to C. A. Freeman, Denver, Colo. Nut-wrench	576,093	Feb. 2	23	7	78	642
Cutter Electrical and Manufacturing Company. (See Harrington, Walter E., assignor.)						
Cutting, Henry C. (See Parsons, George M., assignor.)						
Cuyler, Clifford C., Arago, Oreg. Nut-lock	576,087	Jan. 26	2906	686	78	599
Cyrenius, Frederick H., Oswego, N. Y. Automatic sprinkler	575,417	Jan. 19	1823	439	78	379
Czarnikow, Alfred, Berlin, Germany. Igniting device	578,004	Mar. 2	292	68	78	1316
Daase, Frederick, *et al.* (See Wensing, John P., assignor.)						
Dade, Harry E., New York, and G. F. Hill, Brooklyn, N. Y.; said Hill assignor to said Dade. Binder	574,477	Jan. 5	164	39	78	32
Dade, Joseph T. (See Demuth, Perkins, and Dade.)						
Daebelliehn, W. P. (See Wright, Charles L., assignor.)						
Daggett, Albert, Strong, Me. Drag-rake for road-beds	575,635	Jan. 19	2219	525	78	457
Daggs, Azro J. (See Daggs, Robert E. L. and A. J.)						
Daggs, Robert E. L. and A. J., Phœnix, Ariz. Ter. Log-carrier	578,218	Mar. 2	687	156	78	1391
Dake, Edward B., Muskegon, Mich., assignor to H. Alvord, Painesville, Ohio. Rim-joint for vehicle-wheels	579,673	Mar. 30	3217	764	78	1949
Dalbey, John E., Springfield, Ill. Hitching device	579,533	Mar. 23	2953	697	78	1879
Dalrymple, Hartwell A., and P. C. McGrath, Rutland, Vt. Ball-casting machine	579,698	Mar. 30	3254	774, 775	78	1956
Dalton, Daniel F., Waterbury, Conn. Corset-eye	576,976	Feb. 9	1530	361	78	942
Dalton, H. M., *et al.* (See Levi, John J., assignor.)						
Daly, John M., Chicago, Ill. Car-ventilator	575,704	Jan. 26	2347	553	78	496
Daly, William M. (See Bennett and Daly.)						
Dam, Henry J. W., London, England. High-explosive projectile	576,088	Jan. 26	2907	686	78	599
Dame, John E., Brooklyn, N. Y. Gas-burner and means for admitting gas and air thereto	579,318	Mar. 23	2560	604	78	1805
Damon, George L., Boston, Mass. Closure for safes or vaults	575,705	Jan. 26	2351	553, 554	78	497
Damon, William E., Pomona, Cal. Brick-machine	579,384	Mar. 23	2664	632	78	1825
Dampf-Kornbrennerei und Presshefen-Fabriken Actien-Gesellschaft, vormals Heinrich Helbing. (See Sauer, Friedrich, assignor.)	579,045	Mar. 16	2118	498	78	1709
Dando, Joseph C., Jr., Philadelphia, Pa. Puzzle	578,862	Mar. 16	1789	------	78	1647
Danforth, Andrew H., Leominster, Mass., assignor to Danforth Chemical Company, Saco, Me. Insecticide	575,706	Jan. 26	2353	554	78	497
Danforth Chemical Company. (See Danforth, Andrew H., assignor.)						
Danforth, Delos A., Elkhart, Ind. Grinding-machine	579,137	Mar. 23	2265	533, 534	78	1751
Daniels, William H. (See Foster and Daniels.)						
Danielson, Bernhard J., Milwaukee, Wis. Stairway	579,138	Mar. 23	2267	534	78	1752
Danielson, Bernhard J., Milwaukee, Wis. Storm and screen frame	579,802	Mar. 30	3532	843, 844	78	2009
Dannheim, William, *et al.* (See Koester, Julius E., assignor.)						
Danvin, Roger, and R. Gibory, Paris, France. Method of and apparatus for hulling grain	574,984	Jan. 12	1077	261, 262	78	220
Dardenne, Auguste, assignor to La Société Anonyme pour l'Exploitation des Brevets Dardenne, Brussels, Belgium. Pendulum-escapement	575,462	Jan. 19	1902	458	78	394
Darling, Oscar. (See Worthen and Darling.)	579,046	Mar. 16	2119	498	78	1709
Daudelin, Jean B., Fall River, Mass. Lamp-burner	575,207	Jan. 12	1607	383	78	321
Daudelin, Jean B., Fall River, Mass. Self-threading shuttle	578,547	Mar. 9	1239	280, 281	78	1515
Davenport, Edward W., Hopedale, Mass., assignor to Northrop Loom Company, Saco, Me. Take-up mechanism for looms	579,473	Mar. 23	2868	674	78	1862
Davenport, Eugene F., assignor to G. W. Brown and C. H. Bayley, Boston, Mass. Skiving-machine						
Davenport, John L., Jr. (See Dryden, William A., Sr., assignor.)						
David Bradley Manufacturing Company. (See Brunnemer, William T. M., assignor.)						
Davidson, Alexander, New York, N. Y., and C. G. Armstrong, Chicago, Ill.; said Armstrong assignor to said Davidson. Electric time check and recorder						

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Davidson, David E., Harrisburg, Pa. Attachment for lanterns	575,333	Jan. 19	1684	402	78	355
Davidson, George R., Port Huron, Mich. Tobacco-pipe	575,334	Jan. 19	1685	402	78	355
Davidson, George R., Port Huron, Mich. Lawn-mower sharpener	575,335	Jan. 19	1687	403	78	355
Davies, George W., Mobile, Ala. Shutter-fastener	579,294	Mar. 23	2518	595	78	1708
Davies, Rees. (See Ludford and Davies.)						
Davies, Samuel R. (See Ludford and Davies.)						
Davies, William H., *et al.* (See Smith, Fred W., assignor.)						
Davin, Walter W., New Orleans, La. Boiler-furnace	574,786	Jan. 5	704	168	78	132
Davis, Albert T. L., assignor to Pepper Manufacturing Company, Laconia, N. H. Pattern-producing mechanism for knitting-machines	575,336	Jan. 19	1689	403	78	355
Davis, Arthur W., assignor of one-half to W. L. Bibb, Meridian, Miss. Egg-beater	577,945	Mar. 2	197	48	78	1299
Davis, Arthur W. S., Lowell, Mass. Microphone	579,699	Mar. 30	3255	775	78	1956
Davis, Benjamin K., assignor of one-half to G. H. P. Cole, Hendersonville, N. C. Type-galley	579,863	Mar. 30	3534	844	78	2009
Davis, Byron C., *et al.* (See Wattles, Luther H., assignor.)						
Davis, Charles W. and M. R., near Peotone, Kans. Cultivator	576,089	Jan. 26	2910	687	78	600
Davis, Daniel J., Chicago, Ill. Centrifugal cream-separator	574,884	Jan. 12	873	212	78	184
Davis, Edward E., *et al.* (See Slaughter, Joel C., assignor.)						
Davis, Francis V., assignor of one-third to J. F. Chadwick, Worcester, Mass. Lamp-burner	577,840	Mar. 2	12	5	78	1263
Davis, Frank E., La Crosse, Wis. Cultivator	575,754	Jan. 26	2420	570	78	510
Davis Gasoline Engine Company. (See Davis, William F., assignor.)						
Davis, George H., New York, N. Y. Electrically-operated musical instrument	576,342	Feb. 2	480	112	78	727
Davis, George H., Portland, Me. Curtain-holding device	577,841	Mar. 2	13	5	78	1263
Davis, George H., Portland, Me. Curtain-holding device	577,842	Mar. 2	14	5	78	1263
Davis, Harry P., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Controller for electric motors	574,885	Jan. 12	873	212 / 213	78	184
Davis, Henry D., Eau Claire, Wis. Binding or wrapper hook	574,526	Jan. 5	234	56	78	46
Davis, Howard. (See Coulter, Horn, Reiter, Lyda, Freidhoff, Davis, and Barnes.)						
Davis, Jesse W., assignor of one-half to D. H. McDonald, Essary Springs, and C. H. Joyner, Pocahontas, Tenn. Clover-thresher attachment	579,259	Mar. 23	2464	582	78	1788
Davis, John, Allegheny, Pa. Filter	577,238	Feb. 16	1977	467	78	1039
Davis, John B., Cleveland, Ohio. Solar and transit instrument	575,215	Jan. 12	1473	353 / 354	78	296
Davis, John G. J., Augusta, Ga. Device for relieving pressure in boilers	579,700	Mar. 30	3257	775	78	1956
Davis, Jonathan B., *et al.* (See Davis, Orson W., assignor.)						
Davis, Mary A., Spokane, Wash. Feathering paddle-wheel	574,308	Jan. 5	36	9	78	9
Davis, Morton R. (See Davis, Charles W. and M. R.)						
Davis, Nathan H., Philadelphia, Pa. Method of and apparatus for forming trusses	574,886	Jan. 12	877	213	78	185
Davis, Nathan H., Philadelphia, Pa. Truss	574,887	Jan. 12	878	213	78	185
Davis, Nelson W., Port Jefferson, N. Y. Pipe-well and device for driving same	576,953	Feb. 9	1476	351	78	931
Davis, Orson W., assignor of one-half to T. Gimbert and J. B. Davis, Adrian, Mich. Riveting-machine	576,556	Feb. 9	846	196	78	813
Davis, Philip Z., Lometa, Tex. Vehicle-wheel	578,597	Mar. 9	1325	300	78	1532
Davis, Philip Z., Lometa, Tex. Locomotive drive-wheel	578,598	Mar. 9	1327	300	78	1532
Davis, Philip Z., Lometa, Tex. Locomotive driving-wheel	578,599	Mar. 9	1328	301	78	1532
Davis, Simeon C., Cleveland, Ohio. Wire fence	579,918	Mar. 30	3614	864	78	2024
Davis, William F., assignor to Davis Gasoline Engine Company, Waterloo, Iowa. Electric igniter for explosive-engines	577,158	Feb. 16	1850	437	78	1015
Davis, William J., *et al.* (See Carter, Robert A., assignor.)						
Davis, William J., Chicago, Ill. Centrifugal cream-separator	574,888	Jan. 12	879	213	78	185
Davison, Charles W., Minneapolis, Minn. Bottle and seal therefor	574,671	Jan. 5	523	121	78	96
Davison, Charles W., Minneapolis, Minn. Seal for bottles	574,672	Jan. 5	525	122	78	96
Davison, George B., Utica, N. Y. Harrow-spring-tooth fastening	576,362	Feb. 2	509	119	78	732
Dawes, John L., Pittsburg, Pa. Drawer-pull	574,309	Jan. 5	37	9	78	9
Dawson, Clarence L., Tacoma, Wash. Savings-bank	576,954	Feb. 9	1478	351	78	932
Dawson, Henry E., and W. H. Noye, St. Louis, Mo. Shingle-mold	579,699	Mar. 30	3649	873	78	2031
Dawson, John and R. S., Bradford, England. Spinning and twisting machinery	575,463	Jan. 19	1908	458	78	395
Dawson, John W., Louisville, Ky. Electric cigar-lighter	574,889	Jan. 12	880	214	78	185
Dawson, Robert S. (See Dawson, John and R. S.)						
Dawson, William S., Ghusury, Howrah, India. Bottle	579,564	Mar. 30	3032	717	78	1913
Day, Elisha L., Brenham, Tex. Hose-nozzle	577,616	Feb. 23	2660	628	78	1182
Day, William S. (See Calkins, Albert C., assignor.)						
Dayton, Alva M. (See Marble, Albert, assignor.)						
Dayton Malleable Iron Company. (See Morrill, Horace E., assignor.)						
Dayton, William L., Austin, Tex. Cultivator attachment	577,726	Feb. 23	2827	670	78	1214
De Barry, Joseph S., Brooklyn, N. Y. Medicine-indicator	579,474	Mar. 23	2871	675	78	1862
De Frehn, Charles H., Mount Union, Pa. Clothes-drier	574,890	Jan. 12	882	214	78	186
De Graffenried, William C., and J. P. Redding, Jr., Jasper, Fla. Scraper for plowmen's shoes	577,727	Feb. 23	2828	670	78	1214
De Haas, Edward, St. Paul, Minn. Automatic car-signal	575,710	Jan. 26	2358	555	78	498
De La Matyr, Elias B., San Francisco, Cal. Gas-meter	578,863	Mar. 16	1790	413	78	1647
De La Matyr, Elias B., San Francisco, Cal. Gas-meter	578,864	Mar. 16	1794	413	78	1647
De La Matyr, Elias B., San Francisco, Cal. Gas-meter	578,865	Mar. 16	1800	414	78	1648
De Lany, William, Cobourg, Canada. Vehicle-wheel rim	578,302	Mar. 9	968	220	78	1462
De Long, William H. (See Brown and De Long.)						
De Rycke, Jules J. J., New York, N. Y. Outlet-box	576,810	Feb. 9	1248	297	78	889
Deacon, George B., *et al.* (See Wildern, Adna, assignor.)						
Deake, George C., and G. N. Moore, New York, N. Y., Subway junction-box	579,864	Mar. 30	3535	844	78	2010
Deal, David C. (See Deal, Edward B., assignor.)						
Deal, Edward B., Rome, Iowa, assignor of one-half to D. C. Deal, Belleville, Kans. Culinary utensil	575,418	Jan. 19	1825	439	78	380
Dean, James L., Winsted, Conn. Convertible bicycle	576,557	Feb. 9	847	197	78	813
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Fuse-holder	576,040	Jan. 26	2914	687	78	601
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Telephone system	577,101	Feb. 16	1760	416	78	997
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Party-line telephone system	577,102	Feb. 16	1762	416	78	997
Deane Steam Pump Company. (See Clark, Ezra E., assignor.)						
Deardorff, George B., Canal Dover, Ohio. Toothpick	579,139	Mar. 23	2270	534	78	1752
Deas, James. (See Beaman and Deas.)						
Death, Elmer T., Greenville, Ohio. Corn-harvester	575,504	Jan. 19	1976	473	78	410
Decker, Alexander C., Keokuk, Iowa. Currycomb	575,544	Jan. 19	2047	490	78	423
Dederick, Peter K., Loudonville, N. Y. Baling-press	575,216	Jan. 12	1475	354 / 355	78	296

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Deem, Miller M., *et al.* (See Van Norman, Jacob, assignor.)						
Deering Harvester Company. (See Butterfield, William, assignor.)						
Deering Harvester Company. (See Ellis and Steward, assignors.)						
Dehlin, August G., and B. C. Clark, Seattle, Wash. Track attachment for bicycles	575,337	Jan. 19	1663	403	78	356
Deissler, Robert, Treptow, Germany. Smoke-consuming furnace	577,424	Feb. 23	2309	542	78	1117
Deitz, Henry, Chicago, Ill. Car-coupling	576,094	Feb. 2	24	8	78	643
Deitzler, Martin L., Harrisburg, Pa. Bicycle-saddle	576,070	Jan. 26	2960	698	78	608
Delany, Patrick B., South Orange, N. J. Telegraphy	575,419	Jan. 19	1826	439	78	380
Dell, John E., Paulding, Ohio. Ice-elevator	578,600	Mar. 9	1329	301	78	1532
Delsman, Joseph, *et al.* (See Martin, Edson T., assignor.)						
Delville, Trophime, Brussels, Belgium. Valve-gear	574,400	Jan. 5	38	9	78	9
Delzell, Hattie, Jackson, Cal. Fruit-slicer	574,891	Jan. 12	883	214	78	186
Delzell, Hattie, Jackson, Cal. Flower-pot	579,295	Mar. 23	2519	595	78	1708
Demers, Eusebe, San Francisco, Cal. Device for drawing steam-beer	577,728	Feb. 23	2829	670	78	1214
Demmon, Charles F., Sacramento, Cal. Trace-buckle	575,217	Jan. 12	1478	355	78	297
Dempster, John. (See Wentworth and Dempster.)						
Demuth, Herman J., E. N. Perkins, and J. T. Dade, Hutchinson, Kans. Apparatus for manufacturing salt	575,338	Jan. 19	1695	404	78	357
Denis, David C., Nine Mile, Ind. Farm-gate	579,319	Mar. 23	2562	605	78	1806
Denison, Charles, Denver, Colo. Inhaler	576,041	Jan. 26	2915	687	78	601
Denison, James R., assignor of one-half to J. M. Jamison, Grand Rapids, Mich. Ball-bearing	577,108	Feb. 16	1765	416	78	998
Denne, Mark T., Birmingham, assignor to J. Cave & Sons, Rushden, England. Rotary cutter	579,701	Mar. 30	3260	776	78	1957
Densmore, E. & H. (See Yost, George W. N., assignor.)						
Dent, Samuel, Jansville, Idaho. Barbed-wire fence	578,447	Mar. 9	1062	242	78	1480
Depew, Mark, Edmonton, Ky. Gate-hinge	577,012	Feb. 16	1602	381	78	967
Depoully, Charles and P., Paris, assignors to Society Gillet et Fils and Society C. Garnier & Cie., Lyons, France. Crinkling silk	574,401	Jan. 5	40	.....	78	9
Depoully, Paul. (See Depoully, Charles and P.)						
Deruelle, Louis, assignor to Laclede Fire Brick Manufacturing Company, St. Louis, Mo. Apparatus for making sulfuric acid	578,548	Mar. 9	1241	281	78	1515
Desmond, John, assignor to Nathan Manufacturing Company, New York, N. Y. Injector	574,985	Jan. 12	1079	262	78	220
Dessauer, Otto, *et al.* (See Fleischmann, Arthur, assignor.)						
Deswarte, Honoré. (See Loppens and Deswarte.)						
Detwiler, Alfred E., assignor to Milwaukee Gas Stove Company, Milwaukee, Wis. Gas-stove burner	575,051	Jan. 12	1193	289	78	241
Detwiler, Alfred E., Chicago, Ill., assignor to Milwaukee Gas Stove Company, Milwaukee, Wis. Gas-stove burner	575,052	Jan. 12	1194	290	78	242
Deuther, James A. (See Joyce and Deuther.)						
Deuther, James A., Boston, Mass. Electric furnace	575,826	Jan. 26	2533	597 / 598	78	532
Deuther, James A., Boston, Mass. Method of and apparatus for generating gas	576,955	Feb. 9	1481	352	78	932
Deutsche Metallpatronen Fabrik. (See Platz and Hülzer, assignors.)						
Deutsche Metallpatronen Fabrik. (See Scheff, Ludwig, assignor.)						
Devere, John E. (See Cabot, John A., assignor.)						
Devers, William J., Scranton, Pa. Weather-strip	577,239	Feb. 16	1978	468	78	1039
Devlin, James C., Hernando, Miss. Car-brake	574,787	Jan. 5	705	168 / 169	78	132
Devol-Livengood Manufacturing Company. (See Livengood, Winfield S., assignor.)						
Dewald, Fredrick A. H., and E. Crispell, Catskill, N. Y. Machine for brushing and rolling fabrics	577,478	Feb. 23	2397	563	78	1134
Dewey, Charles A., *et al.* (See Green, Sanford, assignor.)						
Dewey, Mark W. (See Yakeley, William P., assignor.)						
Dexter, Elwell V., Worcester, Mass. Autoharp	575,707	Jan. 26	2354	554	78	497
Dexter Folder Company. (See Dexter, Talbot C., assignor.)						
Dexter, Talbot C., Pearl River, assignor to Dexter Folder Company, New York, N. Y. Paper-registering mechanism	575,150	Jan. 12	1366	329	78	275
Dexter, Talbot C., Pearl River, assignor to Dexter Folder Company, New York, N. Y. Paper-registering machine	578,549	Mar. 9	1242	281 / 282	78	1515
Dexter, Thomas F., Boston, Mass., assignor to Warren Webster & Company, Camden, N. J. Steam-radiator	577,287	Feb. 16	2062	487	78	1054
Dial, Wilbur F., and G. H. Dimond, assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	578,136	Mar. 2	522	118	78	1362
Dial, Wilbur F., and G. H. Dimond, assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	578,137	Mar. 2	525	119	78	1362
Dial, Wilbur F., and G. H. Dimond, assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Loop-taker for sewing-machines	578,138	Mar. 2	527	119	78	1362
Diamond Drill and Machine Company. (See Ternstedt, Klas H., assignor.)						
Diamond Drill and Machine Company. (See Ternstedt and Templin, assignors.)						
Diamond, James H., assignor to M. B. McClelland, Allegheny, Pa. Gas tip or nozzle	576,259	Feb. 2	329	78	78	699
Diamond Match Company. (See Donnelly, Charles J., assignor.) (Reissue.)						
Diamond Truck and Car Gear Company. (See Gee, Horace L., assignor.)						
Dibble, Allen W. (See Antes, William H., assignor.)						
Dick, Albert B., assignor to A. B. Dick Company, Chicago, Ill. Stencil-printing machine	578,726	Mar. 16	1560	361	78	1604
Dickerson, Edward N. (See Pike, Frederick N., assignor.)						
Dickerson, Edward N., New York, N. Y. Acetylene-gas-producing apparatus	579,702	Mar. 30	3261	776	78	1957
Dickey, George W. (See Donnel and Dickey.)						
Dickhaus, Otto, Jersey City, N. J. Braiding-machine	578,916	Mar. 16	1894	438	78	1664
Dickinson, Joseph H., Brooklyn, N. Y. Logging apparatus	579,140	Mar. 23	2270	535	78	1752
Dickson, Henry L., Greenville, Tex. Steam-engine	576,433	Feb. 2	625	148 / 149	78	754
Dickson, Kerr & Co. (See Wright, William J., assignor.)						
Dickson, William D., Peoria, Ill. System for heating and ventilating	579,703	Mar. 30	3263	776	78	1957
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Feeding mechanism for sewing-machines	575,339	Jan. 19	1697	404	78	357
Diehl, Philip, Elizabeth, and E. H. Bennett, Jr., Bayonne, N. J., assignors to Singer Manufacturing Company, of New Jersey. Apparatus for sewing carpets	575,392	Jan. 19	1783	428	78	373
Diehl, Philip, and W. R. Houghton, Elizabeth, N. J., assignors to Singer Manufacturing Company, of New Jersey. Sewing-machine	579,223	Mar. 23	2409	568 / 569	78	1779
Diehm, Ernest F. (See Roseman, John G., assignor.)						
Dierdorff, Henry B., assignor to J. A. Jeffrey, Columbus, Ohio. Mining-machine	574,402	Jan. 5	41	9, 10	78	9
Dierdorff, Henry B., assignor to J. A. Jeffrey, Columbus, Ohio. Box-car loader	575,028	Jan. 12	1149	279 / 280	78	283
Dieterich, John, Jr., *et al.* (See Christoph, Charles, assignor.)						
Dietz, Frederick, assignor to R. E. Dietz Company, New York, N. Y. Lamp-burner	575,776	Jan. 26	2452	578	78	517

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Dillenburg, Michel, San Francisco, Cal. Ore-feeding machine	574,788	Jan. 5	707	169	78	133
Dilley, Zena J. (See Hayes and Dilley.)						
Dillingham, William C., Los Angeles, Cal. Punching attachment for printing-presses	578,219	Mar. 2	689	156	78	1392
Dillon, Peter, assignor of one-half to H. C King, Lawrence, Mass. Drying-machine	576,757	Feb. 9	1164	277 278	78	873
Dimond, George H. (See Dial and Dimond.)						
Dimond, George H. (See Steward and Dimond.)						
Dingman, James E., and S Klingin, Little Falls, N. Y. Jack-spool	578,977	Mar. 16	2003	466	78	1685
Dinkey, Alva C. (See Berg and Dinkey.)						
Dinsmore, Orin O., Lewiston, Me Ladder-hook	579,359	Mar. 23	2023	620	78	1818
Dinsmore, Samuel. (See Kane and Dinsmore.)						
Dinsmore, Samuel, assignor of three-fourths to J. Dolan, Vanderbilt, and J. P. Kane, Dawson, Pa. Sash-fastener	576,558	Feb. 9	850	197	78	814
Dion, Léon, Natick, assignor to Massachusetts Electric Company. Boston, Mass. Electric railway	575,053	Jan. 12	1195	290	78	242
Dion, Léon, Natick, assignor to Massachusetts Electric Company, Boston, Mass. Electrical propulsion for railway-cars	575,054	Jan. 12	1197	290	78	242
Ditch, Elmer E., Ashland, Ohio. Separator	579,708	Mar. 30	3416	818	78	1986
Ditchfield, John P. (See Shaw and Ditchfield.)						
Dittrich, Julius C. (See Andersson and Dittrich.)						
Dix, Charles H., Akron, Ohio. Hoof-pad	576,559	Feb. 9	851	197	78	814
Dixon, Ezra, Bristol, R. I. Top-roll saddle and weight-stirrup	575,464	Jan. 19	1904	458	78	395
Dixon, Josiah C., Fort Ritner, Ind. Scale	578,220	Mar. 2	691	157	78	1392
Dixon, Robert M., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, New York, N. Y. Lamp	575,055	Jan. 12	1199	290 291	78	243
Dixon, Robert M., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, New York, N. Y. Lamp	575,056	Jan. 12	1200	291	78	243
Dobbins, William E. (See Stow and Dobbins.)						
Doble, Thomas, assignor of one-half to J. M. Lyons, Binghamton, N. Y. Rope halter. (Reissue)	11,586	Jan. 26	2986	704	78	613
Dobrowolski, William, and H. Wise, San Antonio, Tex. Tire-tightener	579,260	Mar. 23	2468	582	78	1789
Dobson, Frederick. (See Hope and Dobson.)						
Dobson, Frederick, assignor of one-half to T. Howe, Sanford, Me. Pen-ejector	574,863	Jan. 5	839	204	78	158
Dobyne, James B , assignor to Landis Wax Thread Sewing Machine Company, St. Louis, Mo. Loop-former for sewing-machines	576,723	Feb. 9	1110	262	78	862
Dodge, Byron G. (See Woodward, Ambrose W., assignor.)						
Dodge, Clarence M., Manchester, N. H. Automatic clutch	577,574	Feb. 23	2584	609	78	1168
Dodge, James M , Philadelphia, Pa. Apparatus for storing coal	576,977	Feb. 9	1531	362	78	943
Dodge, James M., assignor to Link-Belt Engineering Company, Philadelphia, Pa. Elevating mechanism	575,696	Jan. 19	2220	525	78	458
Dodge, James M., assignor to Link-Belt Engineering Company, Philadelphia, Pa. Bucket elevator	578,221	Mar. 2	693	157	78	1393
Dodge, James M , assignor to Link-Belt Engineering Company, Philadelphia, Pa. Lubricating device for conveyers	579,385	Mar. 23	2666	632	78	1826
Dodge, Philip T., New York, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	576,397	Feb. 2	571	134	78	743
Dodge, William J. (See Oare, Frank, assignor.)						
Dodge, William W., Burlington, Iowa. Label-holder	574,789	Jan. 5	708	169	78	133
Dodsworth, Robert R., administrator. (See Holdsworth, John W.)						
Doe, Walter S., assignor of one-half to H. Thompson, Brooklyn, N. Y. Battery	576,095	Feb. 2	25	8	78	643
Doenitz, Reinhold C., and J Flereckel, Iron River, Mich. Shield and brace for tool-handles	578,319	Mar. 9	864	196	78	1443
Doherty, Thomas, Sarnia, Canada. Producing malleable cast-iron	575,518	Jan. 19	1998	477	78	414
Dolan, James, *et al.* (See Dinsmore, Samuel, assignor.)						
Dolan, James, *et al.* (See Kane and Dinsmore, assignors.)						
Dolber, John E., Manchester, N. H. Loom-shuttle threader	576,343	Feb. 2	483	112	78	728
Dold, Carl, Brooklyn, N. Y. Fan for baby-carriages	575,637	Jan. 19	2221	525 526	78	458
Dolge, Rudolf, New York, assignor to C. F. Zimmerman Company, Dolgeville, N. Y. Harp	575,638	Jan. 19	2223	526	78	458
Dolle, Louis J. (See Shipley, Thomas, assignor.)						
Dolles, Joseph F., Chester, Ill. Bicycle-tire	575,218	Jan. 12	1479	355	78	297
Dolley, Charles S , R. Hawkins, and T. M. Lightfoot, Philadelphia, Pa. Incandescent electric lamp	577,159	Feb. 16	1852	437	78	1015
Dolphin, Matthew J. (See Jahn, Frederick G., assignor.)						
Dolson, John L., Charlotte, Mich. Lubricating-axle	579,704	Mar. 30	3264	776	78	1958
Domestifroid Company. (See Ballantine, Alexander T., assignor.)						
Donaldson, Fred H (See Owen, Williams, and Donaldson.)						
Donaldson, Martin B., and W. Kespohl, Duluth, Minn. Artificial limb	578,222	Mar. 2	694	157	78	1393
Donaldson, William, London, England. Gas-motor	577,160	Feb. 16	1853	438	78	1015
Done, John. (See Sheard and Done.)						
Donnel, Cassius C., Otley, and G. W. Dickey, Des Moines, Iowa. Adjustable gate for stock-yards	575,505	Jan. 19	1979	473	78	410
Donnelly, Charles J., Philadelphia, Pa., assignor to Diamond Match Company, of Illinois. Match-making machine. (Reissue)	11,589	Feb. 2	796	187	78	787
Donnelly, Joseph C., Philadelphia, Pa. Match-making machine	578,727	Mar. 16	1502	361 362	78	1604
Donovan, James, assignor to Roberts, Throp & Company, Three Rivers, Mich. Railway velocipede	575,465	Jan. 19	1905	459	78	395
Doolittle, Perry E., Toronto, Canada. Brake mechanism for bicycles	576,560	Feb. 9	852	197 198	78	814
Doolittle, Perry E., Toronto, Canada. Brake mechanism for bicycles	576,561	Feb. 9	854	198	78	814
Doolittle, Perry E , Toronto, Canada. Brake mechanism for bicycles	576,562	Feb. 9	856	199	78	815
Doris, Hugh F., and J. J McCloskey, Pittsburg, Pa. Mining-machine	574,790	Jan. 5	709	169 170	78	133
Dorman, John H., assignor to Hammond Type Writer Company, New York, N. Y. Card or envelop holder for type-writers	577,104	Feb. 16	1706	417	78	998
Dornfeld, John F., Chicago, Ill. Malt turning and stirring machine	578,053	Mar. 2	861	86	78	1331
Dorrance, Ralph G., Chicago, Ill. Dust-proof ink-well	575,708	Jan. 26	2356	535	78	498
Dorschel, Lucas D., *et al.* (See Ransom, George F., assignor.)						
Dort, Josiah D., Flint, Mich. Fifth-wheel	577,978	Mar. 2	251	59	78	1309
Doten, Charles C , Plymouth, Mass. Means for securing partitions of cabinets	578,728	Mar. 16	1566	362	78	1605
Dotson, Isaac R., Dayton, Ohio. Wagon brake	579,475	Mar. 23	2872	675	78	1862
Doty, Duane, *et al.* (See Luther, Justus P, and S. L., assignors.)						
Doty, William W., New York, and J. A. MacKnight, Mount Vernon, assignors of three-fifths to C. J. Bickman, J. C. and C. C. Granten, New York, N. Y. Electric switch	578,139	Mar 2	528	120	78	1363
Doub, John H., assignor of one-half to T. F. Jones, Walnut, Kans. Washing-machine	577,729	Feb. 23	2831	670 671	78	1214
Douds, Byron J., Canton, Ohio. Pump	579,296	Mar 23	2519	595	78	1798

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Doughman, Charles, Pleasant Plain, Ohio. Horse-power post-hole borer	579,923	Mar. 30	3622	867	78	2025
Doughty, Henry J., Providence, R. I. Flexible support for shoes or boots	577,843	Feb. 9	1250	298	78	889
Doughty, Henry J., Providence, R. I., assignor to F. N. White, East Orange, N. J. Manufacture of boots or shoes	576,811	Mar. 2	15	6	78	1264
Douglas, A. J. (See Swarts, Henry J., assignor.)	576,661	Feb. 9	1017	238	78	845
Douglas, Frank, Chicago, Ill. Ball bearing for bicycles	579,705	Mar. 30	3266	777	78	1958
Douglas, James, New York, N. Y. Smelting-furnace						
Douglas-Willan, John H., and F. E. W. Bowen, London, England. Filament for electric lamps	577,499	Feb. 23	2489	.....	78	1142
Douglass, Charles C., assignor of one-half to C. E. Hayes, Philadelphia, Pa. Belt-fastener	577,361 579,340	Feb. 16 Mar. 23	2180 2596	516 613	78 78	1077 1812
Douthett, William C., Pittsburg, Pa. Steam-boiler furnace						
Dovener, John H. (See Gates, Alfred, assignor)	578,629	Mar. 9	1377	314	78	1541
Dowd, Edward P., East St. Louis, Ill. Attachment for locking bicycles						
Dowler, Morris, *et al.* (See Berry, John S., assignor.)	579,565	Mar. 30	3034	717	78	1914
Down, Sidney G., Detroit, Mich. Covering for journal-bearings						
Down, William. (See Bishop and Down.)						
Downing, Harry E. (See Downing, James B. and H. E.)						
Downing, James B. and H. E., Arkansas City, Kans. Automatic slack-adjuster for car-brakes	578,978 577,288	Mar. 16 Feb. 16	2004 2063	466 487	78 78	1685 1055
Downing, John H., Portsmouth, Va. Card-holder						
Downs, J. Willis. (See Pierpont, Robert, assignor.)	579,427	Mar. 23	2730	648	78	1837
Downs, Jeremiah, assignor of one-half to L. Babcock, Argentine, Kans. Rail-joint	577,289	Feb. 16	2064	488	78	1055
Downward, William C., Wilmington, Del. Fluid-pressure regulator	576,956	Feb. 9	1484	352	78	933
Doyle, John, New York, N. Y. Locking device for gas-cocks	575,923	Jan. 26	2712	641	78	564
Doyle, Patrick W., Denver, Colo. Repair-coupling for water-closet bowls	575,506	Jan. 19	2146	509	78	443
Doyle, Phillip J., Memphis, Tenn. Spray-nozzle	575,924	Jan. 26	2713	641	78	565
Doyle, Thomas E., Chicago, Ill. Washbowl-fixture						
Drake, Charles W., assignor of one-half to National Manufacturing Company, Huntsville, Ala. Baling-press	576,096	Feb. 2	27	8,9	78	643
Drake, Frank M. (See Bahrenburg and Drake.)						
Drake, George W. (See Bardons, Oliver, and Drake.)	574,791	Jan. 5	710	170	78	134
Drake, John A., Brooklyn, Iowa. Antifreezing stock-waterer						
Draper, Catherine W., executrix. (See Draper, James L.)	578,393	Mar. 9	968	220	78	1463
Draper, Charles W., Herington, Kans. Combined vapor-bath and inhaling apparatus						
Draper, George O. (See Railton and Draper.)	574,673	Jan. 5	526	122	78	97
Draper, George O., Hopedale, Mass. Transverse seat for foot-power vehicles	576,504	Feb. 2	739	175 176	78	777
Draper, George O., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Warp stop-motion for looms	576,505	Feb. 2	741	176	78	778
Draper, George O., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Warp stop-motion for looms	576,506	Feb. 2	744	176 177	78	778
Draper, George O., and J. H. Northrop, Hopedale, Mass., assignors to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Shedding mechanism for looms	576,495	Feb. 2	725	172	78	774
Draper, James L., deceased; C. W. Draper, Canton, Mass., executrix. Ticket-holder						
Draper & Sons, George. (See Draper, William F., assignor.)						
Draper & Sons, George. (See Lawrence and Rhoades, assignors.)						
Draper & Sons, George. (See Northrop, James H., assignor.)						
Draper & Sons, George. (See Railton and Draper, assignors.)						
Draper & Sons, George. (See Rhoades, Alonzo E., assignor.)						
Draper & Sons, George. (See Shuttleworth, Alpheus C., assignor.)						
Draper, William B., Malden, assignor to W. B. Page, Newton, Mass. Clasp or fastening device	576,097 574,864	Feb. 2 Jan. 5	28 839	9 204	78 78	644 158
Draper, William F., assignor to G. Draper & Sons, Hopedale, Mass. Loom-shuttle						
Draper, William F., and A. E. Rhoades, assignors to Hopedale Machine Company, Hopedale, Mass. Spooling-machine	578,140 578,509	Mar. 2 Mar. 9	531 1180	120 267	78 78	1363 1504
Drayton, William H., Washington, D. C. Fan attachment for sewing-machines	574,986	Jan. 12	1082	202	78	221
Dreisbach, Stephen S., Catawissa, Pa. Dust-beater	579,566	Mar. 30	3035	717	78	1914
Drenning, Edward P., Wrightsville, Pa. Bag or paper holder	578,079	Mar. 2	409	95	78	1339
Dressel, Charles H., New York, N. Y. Convertible signal-lamp	579,088	Mar. 16	2185	512	78	1722
Drew, Anna E., New York, N. Y. Orange-knife						
Drew, George H., trustee. (See Watkins, Louis E., assignor)	575,709	Jan. 26	2357	555	78	498
Drew, George W., San Francisco, Cal. Saw-gage						
Drew, Walter J., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich. Carpet-sweeper	575,219	Jan. 12	1480	356	78	297
Drew, Walter J., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich. Carpet-sweeper	576,837	Feb. 9	1288	308	78	896
Dreyspring, Ernest. (See Ramsay and Dreyspring.)						
Driggs, Louis L. (See Driggs, William H. and L. L.)	575,506	Jan. 19	1980	474	78	411
Driggs, Louis L., Washington, D. C. Mount for field-artillery						
Driggs, William H. and L. L., assignors, by mesne assignments, to American Ordnance Company, Washington, D. C. Carriage for field-artillery	579,261 577,013	Mar. 23 Feb. 16	2469 1608	583 381	78 78	1789 967
Drinker, Robert W., Kilbourn, Wis. Automatic fireproof flue-stopper	576,042	Jan. 26	2916	688	78	601
Driscoll, Cornelius T., Mission San José, Cal. Non-refillable bottle	575,564	Jan. 19	2081	497	78	429
Driver, Charles H., Valdosta, Ga. Combined pipe and nut wrench	578,017	Mar. 16	1896	438	78	1664
Drolet, Marguerite, Montreal, Canada. Pile fabric	574,719	Jan. 5	604	143	78	112
Drumm, Friedrich, New York, N. Y. Thermocauter						
Dry Dock Iron Company. (See Wanless, William J., assignor.)						
Dryden, William A., Sr., assignor of one-half to J. L. Davenport, Jr., Chicago, Ill. Velocipede	574,674 574,403	Jan. 5 Jan. 5	527 43	122 10	78 78	97 10
Du Brul, Napoleon, Cincinnati, Ohio. Cigar-bunching machine	574,404	Jan. 5	45	11	78	11
Du Brul, Napoleon, Cincinnati, Ohio. Cigar-packer's press						
Du Pont, T. C., *et al.* (See Jens, William, assignor.)						
Duane, Franklin. (See Boetcher, August, assignor.)						
Duchscherer, George, *et al.* (See Lobee, Bart, assignor.)						
Duckworth, Ormerod, Norristown, Pa., assignor to Lawrence Manufacturing Company, Lowell, Mass. Apparatus for oxidizing stockings	578,866	Mar. 16	1807	414	78	1649
Duddy, William H., Boston, Mass., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental napkin-clamp	575,108	Jan. 12	1289	311	78	260
Dudley, George W., assignor to Numerograph Manufacturing Company, Charleston, W. Va. Type writing attachment for adding-machines	579,047	Mar. 16	2121	498	78	1709
Dudley, George W., assignor to Numerograph Manufacturing Company, Charleston, W. Va. Type-writing attachment for adding-machines	579,048 578,288	Mar. 16 Mar. 2	2122 796	499 180	78 78	1710 1411
Dudley, William W., assignor to Trenton Watch Company, Trenton, N. J. Cyclometer						
Duerr, Eugene. (See Reger and Duerr.)						
Dulier, Edward E., Mildenhall, England. Apparatus for removing impurities from smoke	576,838	Feb. 9	1290	308	78	897

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Dulin, Charles E., Philadelphia, Pa., assignor to Union Bag and Paper Company, Chicago, Ill. Paper-bag machine	578,550	Mar. 9	1246	282, 283, 284	78	1516
Dummer, Edward, Newton, Mass. Winding-machine	574,478	Jan. 5	167	39	78	33
Dummer, Edward, Auburndale, Mass. Heater and illuminator	576,434	Feb. 2	627	149	78	754
Dummer, Edward, Newton, Mass., assignor to Dummer Paper Feeder Company, Portland, Me. Paper-feeding machine	576,776	Feb. 9	1188	283	78	877
Dummer Paper Feeder Company. (See Dummer, Edward, assignor.)						
Dunbar, Alexander, Liverpool, England. Apparatus for gathering or setting up staves for casks	578,601	Mar. 9	1330	301	78	1532
Dunbar Brothers. (See Sanford, Leverett A., assignor.)						
Dunbar, Charles M., and J. Roecker, Jr., Guthrie, Okla. Ter. Penholder	574,405	Jan. 5	48	12	78	11
Dunbar, Daniel G., *et al.* (See Langley, Thomas F., assignor.)						
Dunbar, Miles E., Stockbridge, Mass. Folding bicycle-crate	576,098	Feb. 2	29	9	78	644
Duncan, Joseph S., assignor to Addressograph Company, Chicago, Ill. Addressing-machine	579,706	Mar. 30	3267	777, 778	78	1958
Duncan's Sons & Co., George. (See Miller, John E., assignor.)						
Dundon, Edward, Fort Leavenworth, Kans. Office-indicator	575,597	Jan. 19	2147	509	78	444
Dunlap, Harley M., Battle Creek, Mich. Inhaler	577,681	Feb. 23	2758	652	78	1200
Dunn, Dennis, Mahanoy City, assignor of forty-nine one-hundredths to J. E. Reyburn, Philadelphia, Pa. Air-brake	577,425	Feb. 23	2312	542	78	1118
Dunn, Frank K., Chicago, Ill. Adjustable handle-bar	575,879	Jan. 26	2640	623	78	551
Dunn, J. Austin, Chicago, Ill. Dental clamp	578,729	Mar. 16	1567	362	78	1606
Dunn, Joseph J., and J. W. Regan, Boston, Mass. Manipulating device for incandescent lamps	578,394	Mar. 9	970	220	78	1463
Dunn, Peter E., and W. H. Partridge, Holyoke, Mass. Air and beer connection for beer-casks	575,545	Jan. 19	2048	490	78	423
Dunn, Robert N., Philadelphia, Pa. Machine for treating skins	579,141	Mar. 23	2272	535	78	1753
Dunnington, James H., Washington, Pa. Horse-detacher	578,979	Mar. 16	2005	466	78	1685
Dunton, John G. (See Ayres and Dunton.)						
Dunwody, Richard G., Atlanta, Ga. Hose-bridge	575,220	Jan. 12	1482	356	78	297
Dupee, Henry D., *et al.* (See Rowell, Samuel C., assignor.)						
Dupee, John C., assignor of one-half to R. J. White, Chicago, Ill. Tinner's furnace	579,743	Mar. 30	3328	795	78	1970
Durand Manufacturing Company. (See Blackford, Atwell J., assignor.) (Reissue.)						
Durant, Edward G., Pasadena, Cal. Hollow building-block and machine for making same	576,260	Feb. 2	329	78, 79	78	699
Durfee, Benjamin T., Wichita, Kans. Dress-stay	575,398	Jan. 19	2149	509	78	444
Durgin, Henry J., Rochester, N. Y. Folding extension-table	577,014	Feb. 16	1604	381	78	967
Durkee, Jerry N., Providence, R. I. Derrick attachment	579,428	Mar. 23	2731	649	78	1837
Durose, Arthur, *et al.* (See Barlow, John, assignor.)						
Duryea, Charles E., Peoria, Ill., assignor to Indiana Rubber and Insulated Wire Company, Marion, Ind. Vehicle-tire	578,551	Mar. 9	1251	284	78	1517
Duryea, George W., and T. W. Thompson, Brooklyn, N. Y. Self-adjusting trolley-wheel	574,527	Jan. 5	235	56	78	46
Duryea, Louis T. (See Appleyard, Thomas W., assignor.)						
Dushane, John A. (See Parker, Charles C., assignor.)						
Dussau, Gilbert, Toulouse, France Bottle-stopper	577,844	Mar. 2	16	6	78	1264
Dwight, S. L., *et al.* (See Miller, August J. F., assignor.)						
Dwyer, William J. (See Routh, Dwyer, and Routh.)						
Dyar, Ralph M. (See Cope, George W., assignor.)						
Dycus, George W., assignor of one-half to J. B. Prewite, Liberty Hill, Tex. Agricultural implement	577,946	Mar. 2	198	48	78	1300
Dyer, Frank L., Washington, D. C., assignor to W. F. Jobbins and J. Van Ruymbeke, Chicago, Ill. Distilling volatile liquids	579,360	Mar. 23	2624	620	78	1818
E. & H. T. Anthony & Company. (See Harrison, Frederick J., assignor.)						
E. J. Manville Machine Company. (See Campbell, Andrew C., assignor.)						
E. Keller Company. (See Burrows and Clark, assignors.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
Eade, Joseph C. (See Seifert, George W. T., assignor.)						
Earl, John H., assignor of one-half to F. C. Godey, Somerville, Mass. Journal-box	579,567	Mar. 30	3036	718	78	1914
Easley, William, assignor of one-half to V. T. Stateler, Calhoun, Ky. Plow	578,730	Mar. 16	1568	363	78	1606
Eastern Paper Bag Company. (See Purvis, William B., assignor.)						
Eastman Kodak Company. (See Browneil, Frank A., assignor.)						
Eastman Kodak Company. (See Kroedel, Robert, assignor.)						
Eastwood Wire Manufacturing Company *et al.* (See Schaefer, John C., assignor.)						
Eaton, Emma C., *et al.* (See Storer, Jacob J., assignor.)						
Eaton, Helen M., Omaha, Nebr. Mucilage-bottle	576,187	Feb. 2	209	52	78	676
Eaton, John O., Fall River, Mass. Automatic feeding device for cigarette-machines	579,819	Mar. 30	3453	828	78	1994
Eavenson, Francis V., Philadelphia, Pa. Metal sign-board	576,662	Feb. 9	1018	238	78	845
Eberhardt, Fred L. (See Eberhardt, Ulrich and F. L.)						
Eberhardt, Fred L. (See Eberhardt, Ulrich, H. E., and F. L.)						
Eberhardt, Henry. (See Beers and Eberhardt.)						
Eberhardt, Henry E. (See Eberhardt, Ulrich, H. E., and F. L.)						
Eberhardt, Louis A., New York, N. Y. Toy	577,730	Feb. 23	2833	671	78	1215
Eberhardt, Theophilus C., Anniston, Ala. Door-fastening for baling-presses	575,340	Jan. 19	1698	404	78	358
Eberhardt, Ulrich and F. L., Newark, N. J. Automatic cutter-grinding machine	575,057	Jan. 12	1201	291, 292	78	243
Eberhardt, Ulrich and F. L., Newark, N. J. Wrought-metal gear-wheel and mechanism for making same	578,731	Mar 16	1570	363	78	1606
Eberhardt, Ulrich, H. E., and F. L., Newark, N. J. Gear-cutting machine with safety-stop	575,398	Jan. 19	1785	429	78	373
Ebersold, Caleb, Ravenna, Ohio. Match-safe	578,552	Mar. 9	1253	284	78	1518
Ebersole, C. D., *et al.* (See Walter, Thomas U., assignor.)						
Eccleston, S. Spencer, Syracuse, N. Y. Rocking-chair	576,344	Feb. 2	483	113	78	728
Eck, James L., Reading, Pa. Knitting-machine	578,005	Mar. 2	203	69	78	1316
Ecker, Samuel J., South Bethlehem, Pa. Animal-releasing device	577,479	Feb. 23	2308	564	78	1134
Eckerson, David L., Worcester, N. Y. Printing-press	578,553	Mar. 9	1253	285	78	1518
Eckert, Alexander, Nyack, N. Y. Vise	577,845	Mar. 2	17	6	78	1264
Eckfeld, Charles E., Unrichsville, Ohio. Shoe-blacking case	578,732	Mar. 16	1572	363	78	1607
Eddy, Asahel W., Coleridge, Nebr. Device for moistening and sealing envelops, &c.	574,802	Jan. 12	884	214	78	186
Eddy, Asahel W., and H. P. Jones, Coleridge, Nebr; said Jones assignor to said Eddy Band-cutter and distributing feeder for threshing-machines	577,731	Feb. 23	2833	671	78	1215
Eddy, Bristol, and D. Phillips, Verndale, Minn. Stump-extractor	574,406	Jan. 5	49	12	78	11
Eddy, Darwin W., and C. A. Carlton, deceased, Woodland, Me.; C. Carlton, administrator. Seed-potato cutter	577,846	Mar. 2	18	7	78	1264
Eddy, William A., Bayonne, N. J. Negative-slide and film-illuminator and camera obscura	576,435	Feb. 2	629	150	78	755
Eddy, William A., Bayonne, N. J. Aerial photographic apparatus	578,980	Mar. 16	2006	467	78	1686

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Eddy, William H., Worcester, Mass. Clutch mechanism	578,733	Mar. 16	1573	364	78	1607
Edgar, Charles E., St. Joseph, Mo. Stop for engines	575,827	Jan. 26	2536	598	78	582
Edgar, Ellis F., Woodbridge, N. J. Boiler	577,240	Feb. 16	1979	468, 469	78	1039
Edison, Thomas A., Llewellyn Park, N. J. Phonograph	575,151	Jan. 12	1369	330	78	275
Edman, Robert L., Philadelphia, Pa. Roller-skate	579,640	Mar. 30	3170	752	78	1939
Edson, Eugene R. (See Glaflin, Edson, and Jessop.)						
Edward Miller & Company. (See Homan, William C., assignor.)						
Edward Miller & Company. (See Maschmeyer, Charles, assignor.)						
Edward Miller & Company. (See Williams, Frank T., assignor.)						
Edwards, Arthur, and J. C. Garten, assignors of three-fifths to S. A. Jones, Willow Springs, Mo. Cloth measuring machine	577,161	Feb. 16	1855	438	78	1016
Edwards, Edgar A., Cincinnati, Ohio. Headlight for locomotives	579,568	Mar. 30	3039	718	78	1914
Edwards, Edmund K., Jennings, La. Shirt	577,648	Feb. 23	2711	640	78	1192
Edwards, Frank H. (See Hitchcock and Edwards.)						
Edwards, George H., Johnston, R. I. Paper-cutter	575,466	Jan. 19	1907	459	78	395
Edwards, Joshua H. and W. W., Stephenville, Tex. Attachment for vehicle-brakes	576,436	Feb. 2	630	150	78	755
Edwards, Willie W. (See Edwards, Joshua H. and W. W.)						
Egestorff, Johann O., London, England. Bluing-package	577,732	Feb. 23	2835	672	78	1215
Egle, William, Detroit, Mich. Furnace or kiln	574,479	Jan. 5	169	39	78	33
Egry Autographic Register Company. (See Egry and Schirmer, assignors.)						
Egry Autographic Register Company. (See Schirmer, Theodore F., assignor.)						
Egry, William L., and T. Schirmer, assignors to Egry Autographic Register Company, Dayton, Ohio. Autographic register	577,162	Feb. 16	1858	439	78	1016
Ehrhardt, William, Union, N. J., assignor of one-half to G. A. Conner, New York, N. Y. Safety device for elevators	577,649	Feb. 23	2712	640	78	1192
Ehrlich, Paul, Göhlis, near Leipsic, Germany. Damping device for music-boxes	579,386	Mar. 23	2667	632	78	1826
Eichler, Carl P. (See Atwater and Eichler.)						
Eickemeyer, Carl, Yonkers, N. Y. Hat-stretching machine	576,099	Feb. 2	31	9, 10	78	644
Eickemeyer, Carl, Yonkers, N. Y. Machine for heating hat-brims	577,650	Feb. 23	2714	641	78	1192
Eickemeyer, Carl, Yonkers, N. Y. Hat-brim-curling machine	579,744	Mar. 30	3330	795, 796	78	1970
Eickemeyer, Rudolf, deceased, Yonkers, N.Y.; R. Eickemeyer, Jr., executor. Differential gear	575,880	Jan. 26	2642	624	78	551
Eickemeyer, Rudolf, deceased; R. Eickemeyer, Jr., executor, Yonkers, N. Y. Hat-stretching machine	576,100	Feb. 2	38	10, 11	78	645
Els, G. E., *et al.* (See Miller, August J. F., assignor.)						
Eisenbeis, Friedrich, Wellesweiler, Germany. Blower	578,096	Mar. 2	434	101	78	1344
Eisenbeis, Louis P., and G. B. Simmons, assignors to Hardsocg Manufacturing Company, Ottumwa, Iowa. Lamp-carrier for miners' caps	575,221	Jan. 12	1483	356	78	297
Eisenhardt, William J., Baltimore, Md. Bottle-stopper fastening	576,101	Feb. 2	43	12	78	645
Eisenhardt, William J., Baltimore, Md. Bottle-stopper	576,102	Feb. 2	44	12	78	646
Eisenhower, William R. (See Shaw, Frederic, assignor.)						
Eisenmann, John. (See Carless, Benjamin A., assignor.)						
Eiserer, George, Chicago, Ill. Liquid-scale	579,745	Mar. 30	3332	796	78	1971
Eissner, Frederick, New York, N. Y. Syringe	577,682	Feb. 23	2759	652	78	1201
Eitemiller, John S., Beatrice, Nebr. Stock-watering tank	576,777	Feb. 9	1191	284	78	878
Ekengren, John, Lowell, Mass. Safety-holder for pocket-books	574,720	Jan. 5	606	144	78	112
Ekholm, Augustus C., Rockford, Ill. Eraser	578,289	Mar. 2	797	180	78	1411
Ekman, Carl F., Marshalltown, Iowa. Extension-ladder and hose-tower	575,222	Jan. 12	1484	356, 357	78	298
Elbers, Alexander D., Hoboken, N. J. Treating blast-furnace slag	579,820	Mar. 30	3455	.....	78	1994
Elbers, William E., Hagen, Germany. Smoke-consumer	577,915	Mar. 2	150	34, 35	78	1290
Elder, Andrew, assignor to Lord & Burnham Company, Irvington, N. Y. Pipe-header and automatic air-valve	579,865	Mar. 30	3536	844	78	2010
Elder, Walter. (See Elder, Walter H. and W.)						
Elder, Walter H. and W., Clarion, Iowa. Coin separator and distributer	574,528	Jan. 5	235	56	78	46
Electric Hardware Manufacturing Company. (See Hussey, Charles A., assignor.)						
Electric Selector and Signal Company. (See Bogart, Samuel S., assignor.)						
Electric Wheel Company. (See Smith, Ceylon, assignor.)						
Electro Gas Company. (See Vincent, Joseph A., assignor.)						
Electro Gas Company. (See Wilson, Thomas L., assignor.)						
Electro Steam Appliance Company. (See Brown, Gilman W., assignor.)						
Elison, Casper. (See Grosz and Elison.)						
Ellenbecker, Henry, and C. Thomas, Wausau, Wis. Spittoon-cleaner	574,407	Jan. 5	50	12	78	12
Ellershausen, Francis, London, England. Treating complex sulfid ores	575,467	Jan. 19	1908	.....	78	395
Elliott, Alexander D., Viola, assignor of one-half to S. E. Parkman, Aledo, Ill. Sliding curtain	577,575	Feb. 23	2585	609	78	1168
Elliott, Alvin D., Lawrence, and C. W. Glidden, deceased, (J. E. Glidden, administrator,) assignors to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass, trustees. Nail assorting and distributing apparatus	577,241	Feb. 16	1982	469, 470	78	1040
Elliott, Francis M., Aurora, Ill. Insufflator	576,437	Feb. 2	631	150	78	756
Elliott, Frank, assignor of one-half to J. G. Schierling, Jr., North Vernon, Ind. Combination-tool	576,563	Feb. 9	858	199	78	815
Elliott, James F., Manson, Iowa. Self-regulating water-trough	579,821	Mar. 30	3456	828, 829	78	1994
Elliott, Joseph S., Eddy, Tex. Automatic wagon-brake	576,438	Feb. 2	632	151	78	756
Elliott, Richard P., Nashua, N. H. Adjustable school desk and chair support	577,824	Feb. 23	2683	705	78	1244
Elliott, Robert S., Kansas City, Mo. Shot-distributing wad	579,429	Mar. 23	2733	649	78	1837
Elliott, Walter S., Sag Harbor, N. Y., assignor to J. W. Ivory, Philadelphia, Pa. Soldering-pliers	574,529	Jan. 5	237	57	78	47
Ellis, Edward, *et al.* (See Rowell, Samuel C., assignor.)						
Ellis, George H., and J. F. Steward, assignors to Deering Harvester Company, Chicago, Ill Motor for harvesting machinery	577,105	Feb. 16	1768	417	78	999
Elston, Judson A. (See Bovier, Oscar F., assignor.)						
Elston, Robert W., Charlevoix, Mich. Self-propelling vehicle	576,517	Feb. 2	767	180	78	782
Elterich, Charles, New York, N. Y. Thread-cutting implement	574,721	Jan. 5	607	144	78	112
Eltzroth, George W., Matthews, assignor of one-third to O. P. Nottingham, Trask, Ind. Broadcast seeder	579,049	Mar. 16	2124	499	78	1710
Elving, Lars E., Otho, Iowa. Currycomb	578,223	Mar. 2	695	157	78	1393
Elwald, John H., Peoria, Ill. Cultivator	574,530	Jan. 5	238	57	78	47
Elworthy, Herbert S., Bandra, India. Apparatus for solidifying carbon dioxid	579,866	Mar. 30	3537	845	78	2010
Ely, Lorenzo D. (See Gray, Isaac C., assignor.)						
Emerson, Ralph, *et al.* (See Nelson, John, assignor.)						
Emerson, Talcott & Company (See Jones, James H., assignor.)						
Emerson, Victor L. (See Ulman and Emerson.)						
Emery, Frederick H., Scranton, Pa. Coal-separator	579,569	Mar. 30	3042	719	78	1915

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Emery, Plato G., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Brake-handle	576,043	Jan. 26	2917	688	78	601
Emery, William P., Topeka, Kans. Artificial cement	579,142	Mar. 23	2273	.....	78	1753
Emmes, William T (See Huewe and Emmes.)						
Emmitt, John V., *et al.* (See Bennett, William B., assignor.)						
Emond, Vital A., Quebec, Canada. Lubricator	576,778	Feb. 9	1192	284	78	878
Empire Type Setting Machine Company. (See Moxley, Richard J., assignor.)						
Engel, Godfrey, South Baltimore, Md. Steam-boiler	577,916	Mar. 2	151	35,36	78	1291
Engel, Herman, and S. Herrman, Brooklyn, N. Y. Garbage-receptacle	579,641	Mar. 30	3171	752	78	1989
England, Alexander W. and F. D., Poseyville, Ind. Harrow	578,224	Mar. 2	696	158	78	1398
England, Ephraim J. (See Flanagan, Huey M., assignor.)						
England, Frank D. (See England, Alexander W. and F. D.)						
English, John B., Park Ridge, N. J. Sash-holder	579,476	Mar. 23	2873	675	78	1802
Enns, Abraham B., assignor of one-half to G. and A. McGowan, Dallas, Oreg. Prune-harvester	578,200	Mar. 2	798	180	78	1412
Ensign, William W. (See Johnson and Ensign.)						
Enslee, David S. (See Gallaway, Albert I., assignor.)						
Entwisle, Edward B., Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Railway switch-mate	576,564	Feb. 9	860	199	78	815
Eppler Welt Machine Company. (See Arnold, Henry H., assignor.)						
Epstein, Ludwig, London, England. Manufacturing electrodes for secondary batteries	579,361	Mar. 23	2696	.....	78	1819
Erbe, Frederick A., North Beach, N. Y. Hydraulic air-compressor	579,822	Mar. 30	3458	829	78	1995
Erickson, John A., Malden, assignor of two-thirds to R. C. Claus, Belmont, and R. C. H. Voigt, Boston, Mass. Mechanical stoking apparatus	578,690	Mar. 9	1378	314	78	1541
Ericksson, Erick A. (See Anderson and Ericksson.)						
Ericsson, Lars M., Stockholm, Sweden. Table-telephone apparatus	578,006	Mar. 2	294	69	78	1317
Erkson, John A., Prattsville, N. Y. Car-fender	575,068	Jan. 12	1206	292	78	244
Ernsberger, Harvey K., Norwalk, Ohio. Heating system	578,482	Mar. 9	1113	254	78	1491
Ernst, Adalbert, Cleveland, Ohio. Paint-removing compound	576,957	Feb. 9	1485	.....	78	983
Errington, Franklin A., Edgewater, N. Y. Automatic friction tapping attachment	578,483	Mar. 9	1115	254, 255	78	1491
Errington, Franklin A., Edgewater, N. Y. Concentric drilling and tapping machinery	578,484	Mar. 9	1118	255	78	1492
Errington, Franklin A., Edgewater, N. Y. Drilling and tapping attachment	578,485	Mar. 9	1125	255, 256	78	1493
Errington, Franklin A., Edgewater, N. Y. Drilling and tapping attachment	578,486	Mar. 9	1132	256	78	1494
Errington, Franklin A., Edgewater, N. Y. Tapping attachment	578,487	Mar. 9	1137	256, 257	78	1495
Erwin, Joseph M., Denver, Colo. Adjustable handle-bar for bicycles	577,805	Feb. 23	2954	698	78	1238
Eschner, Louis, Philadelphia, Pa. Water-filter	574,702	Jan. 5	711	170	78	134
Eshman, Peter, assignor of one-half to C. W. McCue, Huntington, W. Va. Machine for inserting couplings in hose	577,015	Feb. 16	1606	382	78	968
Essick, Samuel V., Yonkers, N. Y. Electrical generator	579,707	Mar. 30	3272	778	78	1959
Estabrook, Alanson C., Northampton, Mass. Device for making covered eyelets	576,044	Jan. 26	2919	688	78	601
Estabrook, Alanson C., Northampton, Mass. Device for covering lacing-hooks with plastic material	576,045	Jan. 26	2921	689	78	602
Estabrook, Alanson C., Northampton, Mass. Device for covering lacing-hooks with plastic material	576,046	Jan. 26	2924	689	78	602
Estabrook, Alanson C., assignor to Florence Manufacturing Company, Northampton, Mass. Brush	576,978	Feb. 9	1583	368	78	943
Estabrook, Alanson C., assignor to Florence Manufacturing Company, Northampton, Mass. Brush	579,107	Mar. 16	2218	522	78	1728
Esterly, Charles E., Lawrence, Kans. Buttoner	579,262	Mar. 23	2472	583	78	1790
Estes, Hubert R., assignor, by mesne assignments, of one-half to J. W. Estes, St. Louis, Mo. Unicycle	578,395	Mar. 9	972	221	78	1463
Estes, John W. (See Estes, Hubert R., assignor.)						
Esty, William, Laconia, N. H. Machine for knitting hydraulic hose, &c	576,304	Feb. 2	408	96	78	714
Etches, Philip, Tupper Lake, N. Y. Woodworking-machine	579,746	Mar. 30	3333	796, 797	78	1971
Etly, David J., Louisville, Ky. Device for printing on sidewalks	575,599	Jan. 19	2150	510	78	444
Ettenger, Robert L., and G. Rupley, Duluth, Minn., assignors to Pettibone, Mulliken & Company, Chicago, Ill. Hoisting device	576,779	Feb. 9	1193	284, 285	78	879
Ettinger, Samuel F., Little Rock, Ark. Hitching device	579,297	Mar. 23	2521	595	78	1798
Ettlinger, Sebastian, assignor of one-half to M. Samstag, Baltimore, Md. Hose-nozzle	577,362	Feb. 16	2182	516	78	1077
Eureka Lock and Improvement Company (See McMahon, Josiah C., assignor.)						
Evans, David W., Pittston, Pa. Boiler front and furnace	579,387	Mar. 23	2668	633	78	1826
Evans, George H., Oroville, assignor, by mesne assignments, of one-half to Risdon Iron and Locomotive Works, San Francisco, Cal. Base chamber or seat for hydraulic elevators. (Reissue)	11,582	Jan. 5	850	206	78	160
Evans, Louis C., Springfield, Ohio. Corn-planter	577,290	Feb. 16	2065	488	78	1055
Evans, Richard W., Baird, Miss. Bridle	579,341	Mar. 23	2598	613	78	1813
Evans, Thomas A., Jersey City, N. J. Baby-carriage	575,804	Jan. 26	2495	588	78	525
Evans, William F., Bristol, R. I. Portable fire-escape	576,780	Feb. 9	1194	285	78	879
Evered, John E., and D. G. Pappa, London, England. Velocipede or motor-cycle	576,439	Feb. 2	638	151	78	756
Evered, Joshua, Duluth, Minn., assignor of two-thirds to L. G. and A. C. Lange, Muskegon, Mich. Steam log-turner	576,565	Feb. 9	861	200	78	815
Evered, Joshua, assignor of two-thirds to L. G. Lange, Duluth, Minn., and A. C. Lange, Muskegon, Mich. Steam log-turner	576,663	Feb. 9	1019	239	78	845
Everhard, Joseph, Round Rock, Tex. Churn	576,440	Feb. 2	636	152	78	757
Everhart, George P. (See Sleeper, Charles T., assignor.)						
Everts, Charles, Omaha, Nebr. Ice-cream freezer	577,733	Feb. 23	2836	672	78	1215
Evetts, James, Chicago, Ill. Disinfecting apparatus	576,064	Jan. 26	2952	696	78	607
Evilsizor, Charles W., St. Paris, Ohio. Hand-loom for carpet-weaving	578,225	Mar. 2	698	158	78	1393
Evridge, George W., Fort Worth, Tex. Stalk-cutter	577,734	Feb. 23	2837	672	78	1215
Ewbank, Herbert B., Jr., assignor of one-half to H. B. Ewbank, Sr., Baltimore, Md. Bicycle electric bell	575,059	Jan. 12	1208	293	78	245
Ewing, Benjamin F., Detroit, Mich. Drying apparatus	575,468	Jan. 19	1908	459, 560	78	396
Ewing, George A., *et al.* (See Grogan, Charles, assignor.)						
Eyster, William S., assignor of one-fourth to J. F. Richardson, Jr., and B. F. Brady, Ottawa, Ill. Corn-planter	576,065	Jan. 26	2953	696	78	607
Ezekiel, George, Palmer, and E. E. Stone; said Stone assignor of one-half to C. W. Bliss, Springfield, Mass. Window-cleaning device	579,108	Mar. 16	2219	522	78	1728
F. F. Ide Manufacturing Company *et al.* (See Ide, Ferdinand F., assignor.)						
F. Wesel Manufacturing Company. (See Baum, Frank W., assignor.)						
Fader, Silas, assignor of three-fourths to A. Williams, J. T. Carroll, Vancouver, and Massey-Harris Company, Toronto, Canada. Stop-motion brake and foot-rest for bicycles	578,631	Mar. 9	1379	315	78	1541

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			Spec.	Dr'g.	Vol.	Page.
Fahrmeier, Henry. (See Raasch and Fahrmeier.)						
Fahys Watch Case Company. (See Cook, Henry F., assignor.)						
Fairchild, Benjamin T., New York, N. Y., assignor to Fairchild Bros. & Foster, of New Jersey. Thermometer-guard	577,016	Feb. 16	1608	382	78	968
Fairchild Bros. & Foster. (See Fairchild, Benjamin T., assignor.)						
Fairchild, Charles B., New York, N. Y., assignor of one-eighth to D. W. Bosley Chicago, Ill. Vehicle-brake	574,868	Jan. 5	847	206	78	160
Fairchild, Harry C., Sandy Hook, Conn. Producing photographs in relief	576,047	Jan 26	2926	690	78	602
Fairgrieve, Archibald, assignor of two-thirds to J. W. Campbell and W. K. McNaught, Toronto, Canada. Toaster	579,050	Mar. 16	2125	499	78	1710
Fales, Annie J., Morehead City, N. C. Lemon-squeezer	577,291	Feb. 16	2067	489	78	1055
Fales, Edward, Winthrop, Mass. Furnace and heater	574,845	Jan. 5	801	193	78	151
Fancher, Edgar F., East Norwalk, Conn. Center-templet	575,469	Jan. 19	1909	460	78	396
Fanning, Eugene, Newton, Mass. Box	576,664	Feb. 9	1022	239	78	845
Fanning, Fred B., Newburyport, Mass. Handle for bicycles	578,734	Mar. 16	1575	364	78	1607
Farbenfabriken, vormals Fr. Bayer & Co. (See Ulrich and Bammann, assignors.)						
Farber, George O., Oconto, Wis. File for holding papers	578,918	Mar. 16	1897	439	78	1665
Farbwerke, vormals Meister, Lucius & Brüning. (See Claus, Adolf, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Cobenzl, Albert, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Gallinek and Courant, assignors.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Gallois, Moritz von, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Homolka, Benno, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Röhmann and Liebrecht, assignors.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Roos, Israel, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Schuftan, Adolf, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Stolz, Friedrich, assignor.)						
Faries Manufacturing Company. (See Faries, Robert, assignor.)						
Faries, Robert, assignor to Faries Manufacturing Company, Decatur, Ill. Machine for making check-row wire	575,546	Jan. 19	2050	490, 491	78	424
Farini, Guillermo A., London, England, and F. X. Gaudrie, Port Hope, Canada. Burnishing-machine	574,722	Jan. 5	608	144, 145	78	113
Farley, Howard N., Warwick, N. Y. Electric battery	578,867	Mar. 16	1808	415	78	1650
Farley, James, Waukesha, Wis., assignor to Chicago Railway Equipment Company, Chicago, Ill. Brake-beam	575,420	Jan. 19	1829	440	78	381
Farmer, George B., Perth, Canada. Nasal expander	576,441	Feb. 2	637	152	78	757
Farmer, George P., Montclair, N. J. Belt and skirt fastener	576,261	Feb. 2	332	79	78	699
Farnsworth, Thomas R., *et al.* (See Harper, Daniel W., assignor.)						
Farnsworth, William R., and P. Farwell, Turner's Falls, Mass. Wood-pulp-grinding mechanism	575,600	Jan. 19	2151	510	78	444
Farnum, William C., Arlington, Vt. Type-writing machine	574,893	Jan. 12	886	215	78	186
Farr, Hiram G. (See Keith and Farr.)						
Farraday, Simeon E., assignor to Welsbach Light Company, Gloucester City, N. J. Incandescent-light fixture for railway-cars, &c	578,735	Mar. 16	1576	364	78	1607
Farrar, Sidney H., Johannesburg, South African Republic. Means for attaching wheels, &c., to shafts	576,665	Feb. 9	1023	239	78	846
Farrell, Daniel, Jr., Omaha, Nebr. Jacket-can	574,987	Jan. 12	1083	263	78	221
Farwell, Charles G. (See Willard, John W., assignor.)						
Farwell, Porter. (See Farnsworth and Farwell.)						
Faulconer, R. C., trustee. (See Fredrick, William, assignor.)						
Fauquet, Georges, Rouen, France. Card with revolving flats	575,565	Jan. 19	2082	497	78	430
Faure, Elie F. G. H. (See MacHaffie and Faure.)						
Fawcett, John, Boston, Mass. Device for detecting fraudulent refilling of bottles	578,320	Mar. 9	865	196	78	1443
Faxlanger, Joseph W., Buffalo, N. Y. Printer's rule-case	578,321	Mar. 9	866	196	78	1443
Fay, Charles N. (See Hochklassen, Henry, assignor.)						
Fay, Charles N. (See Sholes, Zalmon G., assignor.)						
Fay, Charles N., Chicago, Ill. Type-writing machine	578,692	Mar. 9	1490	343, 344	78	1563
Fay, Charles N., Chicago, Ill. Type-writing machine	578,693	Mar. 9	1493	344, 345	78	1563
Fay, Reuben G., assignor to himself and F. W. Blizzard, Harlan, Iowa. Device for watering stock	578,141	Mar. 2	532	121	78	1363
Fay, Rimmon C., Ilion, assignor to Remington Arms Company, New York, N. Y. Oil-hole cover for bicycle-hubs	579,794	Mar. 30	3417	819	78	1986
Fearl, Thomas J. (See Lane, Edwin, assignor.)						
Fegan, James P., Cambridge, Mass., assignor, by mesne assignments, to American Line Grip Company, of Maine. Line-grip	577,735	Feb. 23	2839	672	78	1216
Felch, Charles E., Natick, Mass. Bottle	579,224	Mar. 23	2410	569	78	1779
Feldman, Louis. (See Josephs and Feldman.)						
Feldman, William N., Detroit, Mich. Cap	575,925	Jan. 26	2714	641	78	565
Feldmann, Harmann H., St. Clement, Mo. Fence-machine	576,048	Jan. 26	2928	690	78	602
Felix, Numa J., Brooklyn, N. Y. Attachment for window-shades	576,839	Feb. 9	1290	308	78	897
Felix, Numa J., Brooklyn, N. Y. Attachment for window-shades	576,840	Feb. 9	1291	309	78	897
Fell, Henry L., Belleville, Mich. Hay-sling	579,642	Mar. 30	3172	753	78	1939
Fellows, Edwin R., Springfield, Vt. Cutter and cutter-head for gear-shaping machines	579,570	Mar. 30	3043	719	78	1915
Fellows, Edwin R., Springfield, Vt. Gear-shaping machine	579,708	Mar. 30	3274	778, 779, 780	78	1959
Fellows, Olin S., Middletown, N. Y. Sealed package	575,060	Jan. 12	1209	293	78	245
Fellows, Olin S., Middletown, N. Y. Soldering-machine	575,061	Jan. 12	1211	293, 294	78	245
Felt, Dorr E., Chicago, Ill. Ink-ribbon mechanism	578,919	Mar. 16	1898	439	78	1665
Feltch, Elbridge S., and C. E. Stone, Amesbury, Mass. Machine for drilling tires and fellies of wheels	576,305	Feb. 2	411	96, 97	78	715
Feltner, John F. E., Leadville, Colo. Railway-switch	577,242	Feb. 16	1967	470, 471	78	1041
Fenn, William B., Dorranceton, Pa., assignor of one-half to D. Howard, Cortland, N. Y. Water-bottle	579,867	Mar. 30	3540	845	78	2010
Fenner, George P., New London, Conn. Operating mechanism for printing-presses	576,442	Feb. 2	637	152	78	757
Fennessey, John, and J. M. Pilling, Coboes, N. Y. Mechanism for vibrating doffer-rolls	576,262	Feb. 2	332	79	78	699
Fensler, William H. (See Burket, George and C. W., assignors.)						
Fenton Metallic Manufacturing Company. (See Gulick, Edward J., assignor.)						
Fenton Metallic Manufacturing Company. (See Peate, Richard, assignor.)						
Ferguson, Arthur D., *et al.* (See Ferguson, James and G., assignors.)						
Ferguson, George. (See Ferguson, James and G.)						
Ferguson, James, deceased, (H. Kingman, administrator,) and G. Ferguson; said Kingman assignor to G., A. D., and M. E. Ferguson, Bridgewater, Mass. Lasting-machine	575,029	Jan. 12	1152	280, 281	78	234

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ferguson, Lewis R., Harvey, Ill. Cartridge-carrier	574,531	Jan. 5	239	57	78	47
Ferguson, Lindsey O., and S. J. Miller, Glendora, Cal. Car-coupling	575,223	Jan. 12	1486	357	78	298
Ferguson, Lyman, Ithaca, N. Y. Extension step-ladder	579,363	Mar. 23	2473	584	78	1796
Ferguson, Mary E., *et al.* (See Ferguson, James and G., assignors.)						
Ferguson, William C., Jacksonville, Fla. Railway-rail	579,204	Mar. 23	2474	584	78	1790
Ferguson, William H., St. Louis, Mo. Toy house	579,225	Mar. 23	2411	569	78	1779
Fernholtz Brick-Press Company. (See Myers, Thomas L., assignor.)						
Fernhough, Vincent A., assignor to E. H. Pyle, Philadelphia, Pa. Glass sign	577,017	Feb. 16	1609	382	78	968
Ferrall, Thomas R., Somerville, Mass. Roller-bearing	574,988	Jan. 12	1084	263	78	221
Ferrell, Leonidas C., New Orleans, La. Ink-well holder	578,322	Mar. 9	867	196	78	1444
Ferris, Henry L., Harvard, Ill. Sealing device for bottles	579,515	Mar. 23	2927	689	78	1874
Ferris, John C., Millville, N. Y. Extension-ladder	578,323	Mar. 9	868	197	78	1444
Ferris, William I., Stamford, Conn. Fountain-pen	578,054	Mar. 2	363	86	78	1331
Ferry, Frank P., assignor of one-half to T. Clark & Co., Danbury, Conn. Hat-packing ring	574,894	Jan. 12	880	215	78	187
Fessard, Eugène, Poissy, France. Gas or oil engine	574,723	Jan. 5	609	145	78	113
Feuerstein, Paul G., Milwaukee, Wis. Signal	577,128	Feb. 16	1807	426	78	1006
Fickett, Walter, *et al.* (See Smart, Fred A. J., assignor.)						
Field, George W., North Branch, N. J. Spring-tension ratchet for wire fences	576,958	Feb. 9	1486	352	78	933
Field, Robert S. (See Hart and Field.)						
Field, Stephen D., Stockbridge, assignor to American Bell Telephone Company, Boston, Mass. Magneto-telephone	575,394	Jan. 19	1789	430	78	374
Field, Walter D., assignor to Tannette Manufacturing Company, Bloomfield, N. J. Manufacture of oils	574,408	Jan. 5	51	.....	78	12
Fielden, Albert E. (See Wright and Fielden.)						
Fielding, Charles S., and J. R. Grogan, Quitman, Tex. Bed-slat fastener	575,882	Jan. 26	2645	624	78	552
Fielding, Philip H., New York, N. Y. Electric-arc lamp	576,103	Feb. 2	46	12	78	646
Fields, George C. (See Kelly and Vore, assignors.)						
Fiereckel, Joseph. (See Doenitz and Fiereckel.)						
Fierz, Jacob, New York, N. Y. Device for cleaning pipes	578,142	Mar. 2	533	121	78	1363
Filley, Giles F., St. Louis, Mo. Stove-oven door	574,895	Jan. 12	890	215	78	187
Filson, Albert S., assignor of one-half to S. A. White, Winston, Mont. Violin attachment	578,396	Mar. 9	973	221	78	1464
Filstrup, L. Larsen. (See Schofield, Henry P., assignor.)						
Finkbeiner, Eugene, Brooklyn, assignor of one-half to E. Unger, New York, N. Y. Clutch for arc-lamps	575,341	Jan. 19	1700	405	78	358
Finkler-Reynolds Company. (See Reynolds, Delbert J., assignor.)						
Finley, Jeff. L., *et al.* (See McCallum, Daniel W., assignor.)						
Finnell, John C., Monticello, Ark. Lap-link for singletrees or doubletrees	578,226	Mar. 2	699	158	78	1394
Fire Extinguisher Manufacturing Company. (See Steck, Ernst F., assignor.)						
Fischer, Frank, Paterson, N. J. Envelop	577,129	Feb. 16	1808	426	78	1006
Fischer, Torquato T., New York, N. Y. Piano-action	575,470	Jan. 19	1910	460	78	896
Fish, David W., and F. Barragan, Dolgeville, N. Y. Bevel-gage	579,143	Mar. 23	2274	535	78	1753
Fish, Walter C., Lynn, Mass., assignor to General Electric Company, of New York. Electric meter	575,777	Jan. 26	2454	578	78	517
Fisher, Harvey L., and J. McKercher, Des Moines, Iowa. Fire-extinguisher	578,324	Mar. 9	869	197	78	1444
Fisher, James C., Lawrence, Mass. Bobbin	577,736	Feb. 23	2340	673	78	1216
Fisher, Lewis C., and A. C. Bayliss, near West Mansfield, Ohio. Tilting gate	576,104	Feb. 2	47	12, 13	78	646
Fisher, Moritz, *et al.* (See Fleischmann, Arthur, assignor.)						
Fisher, Robert J., Athens, Tenn. Type-writing machine	578,554	Mar. 9	1258	286	78	1518
Fiske, Jonathan P. B., Alliance, Ohio. Means for protecting electric machines from heat	579,051	Mar. 16	2126	500	78	1710
Fiske, Jonathan P. B., and C. P. Smith, Alliance, Ohio. Combined rheostat and reversing-switch	574,896	Jan. 12	891	215, 216, 217	78	187
Fitch, John H., Wesley, Mich. Basket or crate	576,188	Feb. 2	210	52	78	676
Fitch, Lauren M., Rome, N. Y. Wagon-spring	577,163	Feb. 16	1861	439	78	1016
Fitch, Walter H., Indianapolis, Ind. Rail-joint	577,018	Feb. 16	1610	382	78	968
Fitchie, John, Brooklyn, N. Y. Stopper for bottles	578,555	Mar. 9	1261	286	78	1519
Fittz, John L., Providence, R. I. Chain-swivel	577,243	Feb. 16	1989	471	78	1041
Fitz, Amos G., Auburn, Me. Machine for shaping heels of lasts	574,604	Jan. 5	387	88	78	73
Fitzgerald, J. H. (See Ross, Andrew J., assignor.)						
Fitzsimmons, Joseph V., Allegheny, Pa. Combined folding bed and cradle	575,547	Jan. 19	2054	491, 492	78	425
Fizer, James H., Lexington, Ky. Cooking-stove	578,143	Mar. 2	535	121	78	1364
Flagler, Charles N. (See Snow, Charles A., assignor.)						
Flaherty, Frederick J. (See Hastings and Flaherty.)						
Flaherty, Robert, New York, N. Y. Bolt or rivet	577,737	Feb. 23	2841	673	78	1216
Flaig, Charles H., Philadelphia, Pa. Eyeglass-frame	576,812	Feb. 9	1252	298	78	889
Flanagan, Frank, assignor of one-third to T. J. O'Donnell, Chicago, Ill. Railway-switch	574,897	Jan. 12	895	217	78	188
Flanagan, Huey M., assignor of one-half to E. J. England, Water Valley, Miss. Automatic wagon-brake	579,109	Mar. 16	2220	522, 523	78	1728
Flanders, Frederick. (See Persons, Marshall A., assignor.)						
Flanders, Herbert, assignor of one-half to C. E. Stearns, Manchester, N. H. Door-knob fastener	575,471	Jan. 19	1912	460	78	896
Flanders, Josiah B. (See Weatherhead, Douglas C., assignor.)						
Fleischmann, Arthur, assignor to M. Fisher, A. Binswanger, and O. Dessauer, Chicago, Ill. Lock	579,388	Mar. 23	2669	633	78	1826
Fleming, Andrew, Ashland, Ky. Adjustable desk-top	578,325	Mar. 9	871	197	78	1444
Fleming, James, Shakopee, Minn. Double-drum sectional heating-stove	576,049	Jan 26	2030	690, 691	78	603
Fleming, Micheal J., Portland, Oreg. Hair-tonic	578,632	Mar. 9	1381	.....	78	1542
Fletcher, Charles T., assignor to J. C. Speirs, Worcester, Mass. Drop-hammer	575,472	Jan. 19	1913	461	78	396
Fletcher, Clarence E., Waltham, Mass. Car-fender	576,496	Feb. 2	726	172, 173	78	774
Fletcher, Edwin J., assignor to Whiting Manufacturing Company, New York, N. Y. Case or box for silverware, &c.	579,320	Mar. 23	2563	605	78	1806
Fletcher, George W., Mendon, Ill. Tongue-support	577,847	Mar. 2	20	7	78	1264
Fletcher, Mordecai H., Cincinnati, Ohio. Core and making same	578,060	Mar. 2	410	95	78	1340
Fletcher, Nathan. (See McDaniel, Charles E., assignor.)						
Flindall, John, Chicago, Ill. Means for transmitting power	576,105	Feb. 2	48	13	78	646
Flindall, John, Chicago, Ill. Means for transmitting power	578,556	Mar. 9	1262	286, 287	78	1519
Flippin, John J., assignor of one-sixth to G. C. Corbin, Neapolis, Va. Railway-gate	576,959	Feb. 9	1487	352, 353	78	933
Flora, Charles L., Burgoon, Ohio. Ditching-plow	577,947	Mar. 2	200	48	78	1300
Florence Manufacturing Company. (See Estabrook, Alanson C., assignor.)						
Flower, John W., Belpre, Ohio. Cartridge-loading implement	579,226	Mar. 23	2412	570	78	1780
Flye, Murat K., assignor of one-half to S. G. Borden, Sharpsburg, Tex. Wrench	574,724	Jan. 5	611	145	78	113
Foehl, Charles, Philadelphia, Pa. Strengthening attachment for bicycles	576,566	Feb. 9	863	201	78	816

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fogarty, William P., and A. C. Krueger, Chicago, Ill. Bicycle-tire	578,227	Mar. 2	699	159	78	1394
Fogg, Berton H., Somerville, Mass. Bicycle	575,152	Jan. 12	1370	330	78	276
Fogg, Charles H. (See Raymond and Fogg.)						
Foley, Dennis E., Newark, N. J. Machine for blocking and pressing hats	576,567	Feb. 9	864	201	78	816
Foley, Frank S., Norwich, England. Stand and mud-guard for bicycles	577,979	Mar. 2	253	60	78	1309
Foor, Frank E., Lebanon, Ind. Fence	579,477	Mar. 23	2874	675	78	1863
Foos Manufacturing Company. (See Winchell, James F., assignor.)						
Foote, Henry M., New York, N. Y., assignor, by mesne assignments, to Stadler & Falk, of New York. Dress-skirt	577,819	Feb. 23	2976	703	78	1242
Forbes, Hiliard T., and J. F. Weldon, Hallsville, Mo. Portable fire-escape	579,823	Mar. 30	3461	829	78	1995
Ford, Alfred N., assignor to C. J. Grist, London, England. Making oil fabrics	574,703	Jan. 5	712	.....	78	134
Ford, Benjamin F., New Castle, Me. Scissors or shears	576,050	Jan. 26	2032	691	78	603
Ford, Bruce, *et al.* (See Jens, William, assignor.)						
Ford, Campbell, and F. Mahler, San Francisco, Cal. Tool	577,948	Mar. 2	201	49	78	1300
Fordyce, Alexander R., Newark, N. J. Fireproof construction	577,598	Feb. 23	2633	621	78	1177
Fordyce, Edmond A., assignor to Bostedo Package and Cash Carrier Company, Chicago, Ill. Electric controlling apparatus for pneumatic-despatch tubes	575,883	Jan. 26	2646	625, 626	78	552
Forest, William A. (See Pierce, David, assignor.)						
Forney, Franklin D., assignor of one-half to J. A. Shue, Glenville, Pa. Lubricator	575,080	Jan. 12	1156	282	78	234
Forsyth, Henry H., Chicago, Ill. Shade-holding mechanism	577,244	Feb. 16	1989	471	78	1041
Fort, James L., and G. E. Hoey, Barnsley, England. Piping or tubing for drawing off beer	578,144	Mar. 2	536	121	78	1364
Forter, Samuel, New Castle, Pa. Reverse-valve	577,019	Feb. 16	1611	383	78	969
Fortune, Thomas L., Clinton, Canada. Portable commode and bed-pan	576,398	Feb. 2	572	134	78	743
Forwood, Reginald, New Orleans, La. Puzzle	577,292	Feb. 16	2068	489	78	1055
Fosburgh, Calvin E., Brooklyn, N. Y., assignor of one-half to E. C. Fosburgh, Norfolk, Va. Lacing for articles of wearing-apparel	577,599	Feb. 23	2636	622	78	1178
Fosburgh, Edgar C. (See Fosburgh, Calvin E., assignor.)						
Foss, August, Buffalo Center, Iowa. Blinker-brace for bridles	576,443	Feb. 2	638	153	78	757
Foster, Bertha M., *et al.*, executors. (See Foster, William F.)						
Foster Brothers Manufacturing Company. (See Foster, Oscar S., assignor.)						
Foster, Charles H., Omaha, Nebr. Wall-register	574,675	Jan. 5	529	122	78	97
Foster, Charles H., New York, N. Y., assignor to Singer Manufacturing Company, of New Jersey. Tuck or plait forming attachment for sewing-machines	575,342	Jan. 19	1702	405	78	358
Foster, Frank P. (See Ackerman, Frank W., assignor.)						
Foster, George A., Meriden, Conn. Ice-saw	576,724	Feb. 9	1110	262	78	862
Foster, George D., Preston, Iowa. Apparatus for hoisting and conveying bundles	578,397	Mar. 9	974	221	78	1464
Foster, George T., Rochester, N. Y. Safety-guard for street-cars	574,898	Jan. 12	897	217, 218	78	188
Foster, J. W., *et al.* (See Martin, Edson T., assignor.)						
Foster, James T. (See Harrison, James, assignor.)						
Foster, Oscar S., assignor to Foster Brothers Manufacturing Company, Utica, N. Y. Bedstead	578,007	Mar. 2	295	69	78	1317
Foster, Paul & Company. (See Foster, William F., assignor.)						
Foster, Samuel L. (See Lynch and Foster.)						
Foster, T. N., *et al.*, executors. (See Foster, William F.)						
Foster, William A., and W. H. Daniels, New York, N. Y. Scenoscope	575,153	Jan. 12	1371	330	78	276
Foster, William F., deceased, New York, N. Y.; L. Gifford, B. M. and T. N. Foster, executors, assignors to Foster, Paul & Company, of New Jersey. String-ball for lacings of gloves	578,228	Mar. 2	701	159	78	1394
Fourchotte, Maurice C. A., Paris, France. Apparatus for producing acetylene gas	575,884	Jan. 26	2049	626	78	553
Fourchotte, Maurice C. A., Paris, France. Apparatus for producing acetylene gas	575,885	Jan. 26	2050	626	78	553
Fournier, Frederick, Chicago, Ill. Weather-strip for doors or windows	575,224	Jan. 12	1489	357	78	209
Fournier, Louis E., Evansville, Ind. Checking or unchecking device	576,306	Feb. 2	414	97	78	715
Fouts, George S., San José, Cal. Elevator drive-wheel	576,960	Feb. 9	1489	353	78	934
Fowler, Albert P. (See Wheatley, Thomas, assignor.)						
Fowler, Edward C. (See Brown and Fowler.)						
Fowler, Frank L., Philadelphia, Pa. Electric incandescent lamp	579,227	Mar. 23	2413	570	78	1780
Fowlkes, Mary R. K., and M. E. J. Bennett, Selma, Ala. Sewing-machine hemmer	579,052	Mar. 16	2127	500	78	1710
Fox, Charles E., Minneapolis, Minn. Bicycle	578,326	Mar. 9	873	197	78	1445
Fox, Edward P., Paterson, N. J. Transplanter	578,398	Mar. 9	976	221	78	1464
Foye, George W., Philadelphia, Pa. Vehicle-motor	575,639	Jan. 19	2224	526, 527	78	458
Frame, Gibbons, Philadelphia, Pa. Thread-feeding device for sewing-machines	578,097	Mar. 2	435	101, 102	78	1344
Frame, Robert, Newport, R. I. Receptacle for ashes, &c.	579,228	Mar. 23	2414	570	78	1780
France, Flavius J., Elkton, Ky. Hand fertilizer-dropper	576,497	Feb. 2	728	173	78	775
France, Joseph R., assignor to Arlington Manufacturing Company, New York, N. Y. Purifying camphor	574,725	Jan. 5	612	146	78	114
Frank, Christian A., Braddock, Pa. Curtain-pole	574,726	Jan. 5	614	146	78	114
Fränkel, Sigmund, Vienna, Austria-Hungary, assignor to Chemische Fabrik von Heyden Gesellschaft mit Beschränkter Haftung, Radebeul, Germany. Extract of suprarenal gland	576,781	Feb. 9	1196	.....	78	879
Franken, Garritt J., Schenectady, N. Y. Antirefillable bottle	577,426	Feb. 23	2313	543	78	1118
Frankenberg, Frederick, and F. Ostendorff, Philadelphia, Pa. Skate	576,106	Feb. 2	50	13	78	647
Franklin, Axel W. (See Swanson, James A., assignor.)						
Franklin Needle Company. (See Sturtevant, Edward H., assignor.)						
Franklin Typewriter Manufacturing Company. (See Barron, Walter J., assignor.)						
Franklin, William R., New Orleans, La. Awning for horses	579,535	Mar. 23	2055	608	78	1879
Frantz, George K., Denver, Colo. Decoy	575,283	Jan. 12	1579	376	78	317
Frantz, Hiram A., Tamaqua, Pa. Can-opener	579,089	Mar. 16	2186	513	78	1722
Frasier, Albert M., Penn Station, Pa. Sash-fastener	574,727	Jan. 5	615	146	78	114
Frazier, F. M., *et al.* (See Walter, Thomas U., assignor.)						
Fredrick, William, Clyde, Ohio, assignor to R. C. Faulconer, trustee, Detroit, Mich. Carriage for type-writers	579,940	Mar. 30	3651	874	78	2082
Fredrick, William, Clyde, Ohio, C. H. Norton, and R. J. Simpson, assignors to Leland & Faulconer Manufacturing Company, Detroit, Mich. Type-writer	579,941	Mar. 30	3654	874, 875, 876, 877	78	2082
Fredrickson, August, Meridian, Miss. Box and plate for oil-presses	578,229	Mar. 2	701	159	78	1394
Freeman, Albert A., assignor to Specialty Novelty Company, Philadelphia, Pa. Lamp attachment	577,600	Feb. 23	2636	622	78	1178
Freeman, Asa J., Springfield, Mass. Track-sanding device	577,245	Feb. 16	1992	472	78	1042
Freeman, Carl A. (See Cutter, Charles W., assignor.)						
Freeman, Edgar H., assignor of three-fourths to M. Mosely, Rochester, N. Y. Fluid-pressure regulator	574,846	Jan. 5	804	193, 194	78	151
Freeman, King H., Whitesborough, and J. Knott, Utica, N. Y. Blind-slat-adjusting device	574,899	Jan. 12	898	218	78	189

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Freeman, Paul, New York, and R. E. Slater, Montrose, N. Y. Electrical signal system	575,805	Jan. 26	2496	588	78	525
Freeman, Walter K., Fort Wayne, Ind. Lightning-arrester	578,981	Mar. 16	2008	467	78	1686
Freer, Harry H., and C. MacCallum, Pontiac, Mich. Sales-indicating tablet	578,557	Mar. 9	1263	287	78	1520
Freese, Francis J., Lowell, Mass. Sole-trimming machine	577,738	Feb. 23	2842	673	78	1216
Freidhoff, John, Jr. (See Coulter, Horn, Reiter, Lyda, Freidhoff, Davis, and Barnes.)						
French, George M., Mattoon, Ill. Guard for signal-handles	579,342	Mar. 23	2600	614	78	1813
French, George R., deceased, Boston, Mass.; S. A. French, administratrix. Coin-controlled mechanism for gas-meters	576,961	Feb. 9	1490	354	78	934
French, Sarah A., administratrix. (See French, George R.)						
French, William F., Omaha, Nebr. Railway-signal	575,601	Jan. 19	2152	510	78	445
Freschl, Alfred. (See Pitner, Henry B., assignor.)						
Fretwell, John A., Buford, Ga. Furniture-brace	574,794	Jan. 5	713	171	78	134
Frew, James, Chippewa Falls, Wis. Draft-regulator for locomotives	579,389	Mar. 23	2671	633, 634	78	1827
Frick, William C., and T. J. Price, Danville, Pa. Machine for making tubing	575,295	Jan. 12	1490	358	78	299
Fricker, Jacob B. (See Wagner, Julius, assignor.)						
Fridlund, Lewis. (See Johnson and Fridlund.)						
Friedlaender, Carl G., Hamburg, Germany. Device for supporting bathers in bath-tubs	578,327	Mar. 9	874	198	78	1445
Frierdich, Frank, Cincinnati, Ohio. Storm-shield for delivery-wagons	579,321	Mar. 23	2596	605	78	1807
Frink, Lucius H., Rock Island, Ill. Refrigerator	577,293	Feb. 16	2069	489	78	1056
Frisbie, William M., New Haven, Conn. Elevator	576,568	Feb. 9	896	201	78	816
Fritts, Lemuel, Sunnyside, N. J. Harvester-swather	579,322	Mar. 23	2567	605, 606	78	1807
Fritzsche, Paul, Essen, Germany. Obtaining ether	575,640	Jan. 19	2226	527	78	458
Froehlich, Michael, Pittsburg, Pa. Nut-lock	576,399	Feb. 2	573	134	78	743
Froehlich, Peter, Chicago, Ill. Self rocking and fanning cradle	579,323	Mar. 23	2568	606	78	1807
Frölich, Oscar, Charlottenburg, assignor to Siemens & Halske, Berlin, Germany. Apparatus for determining electrical resistances containing electromotive forces	575,767	Jan. 26	2438	575	78	513
Fromm, Gustav P., *et al.* (See Konrad, Louis, assignor.)						
Fromme, Firm of Otto. (See Herrmann, Moritz, assignor.)						
Frost, Edward J., Philadelphia, Pa., and B. Middleditch, assignors to J. H. Berry, Detroit, Mich. Device for regulating quality of gas	577,739	Feb. 23	2844	673	78	1216
Frubinsholz, Adolphe, Nancy, France. Barrel-making	578,448	Mar. 9	1063	242, 243	78	1481
Fryer, Caroline S., administratrix. (See Fryer, Richard.)						
Fryer, Richard, deceased; C. S. Fryer, administratrix, assignor of one-half to J. E. Gibbs, New York, N. Y. Propelling means for boats	578,815	Mar. 16	1721	395	78	1635
Fuchs, Hugo, Bernburg, Germany. Riveting-machine	579,478	Mar. 23	2675	676	78	1803
Fuller, Henry F., assignor to Walmsley, Fuller & Company, Chicago, Ill. Reflector	575,473	Jan. 19	1915	461	78	397
Fuller, Henry F., assignor to Walmsley, Fuller & Company, Chicago, Ill. Gas-generator for acetylene	575,474	Jan. 19	1917	461	78	397
Fuller, Henry F., assignor to Walmsley, Fuller & Company, Chicago, Ill. Manhole-cover seating	575,475	Jan. 19	1919	462	78	397
Fuller, Henry F., assignor to Walmsley, Fuller & Company, Chicago, Ill. Method of and apparatus for generating acetylene gas	575,677	Jan. 19	2295	541	78	472
Fuller, Henry F., assignor to Walmsley, Fuller & Company, Chicago, Ill. Acetylene-gas generator	578,055	Mar. 2	305	86	78	1331
Fuller, Thomas B Durham, N. C. Bag-stitching machine	577,740	Feb. 23	2845	674, 675, 676, 677, 678	78	1217
Fuller-Warren Company. (See Cocke, George M., assignor.)						
Fuller, Wellington G., and G. Winner, Whitehall, Wis. Scraper	578,558	Mar. 9	1295	287	78	1520
Fulmer, Herbert S. (See Wells, James E., assignor.)						
Fulton, Samuel, assignor of one-half to W. C. Murray, Alma, Nebr. Cultivator	576,400	Feb. 2	574	135	78	743
Furbee, William H., and T. Barrett, Mannington, W. Va. Pipe-wrench	579,053	Mar. 16	2128	500	78	1711
Furlong, Philip J., Lake Mont, Fla. Spike or bolt puller	575,226	Jan. 12	1491	358	78	299
Furness, Henry B., assignor to F. C. Weir, Cincinnati, Ohio. Purifying water	577,806	Feb. 23	2956	698	78	1238
Fyrberg, Andrew, Worcester, Mass. Breakdown firearm	574,409	Jan. 5	54	12, 13	78	12
Gadd, Charles J., Philadelphia, Pa., assignor to H. W. Butterworth & Sons Company, of Pennsylvania. Apparatus for steaming fabrics	578,008	Mar. 2	296	70	78	1317
Gaddie, Thomas D., assignor of three-fourths to J. H. Shelton, J. C. Speight, and J. M. Porter, Clinton, Ky. Shoe-fastening	577,020	Feb. 16	1612	383	78	909
Gadey, Charles H., assignor of one-half to Brown Brothers Manufacturing Company, Chicago, Ill. Grate	576,303	Feb. 2	510	120	78	732
Gaetano, Stephen de, Brooklyn, N. Y. Billiard-cushion	578,009	Mar. 2	301	71	78	1319
Gaines, Almanzer, assignor of three-fourths to O. W. and C. W. Seeb, Mendon, Mich. Printing-press	577,848	Mar. 2	21	7, 8	78	1265
Galsman, Henry J., assignor of one-half to F. S. M. Blun, New York, N. Y. Waist-belt	575,208	Jan. 12	1608	383	78	321
Gale, Herbert N., Bristol, Conn. Trolley for electric railways	577,741	Feb. 23	2843	679	78	1219
Gallager, Henry, assignor of one-half to J. J. McDonough, Savannah, Ga. Car-coupling	579,674	Mar. 30	3218	764	78	1949
Gallaway, Albert I., assignor of one-half to D. S. Enslee, Morristown, N. J. Bicycle-support	578,694	Mar. 9	1497	345	78	1564
Gallinek, Alfred, and E. Courant, Berlin, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Manufacturing esters of dihodosalicylic acid	575,227	Jan. 12	1493	.....	78	300
Gallois, Moritz von, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Stable diazo compound	575,228	Jan. 12	1493	.....	78	300
Galpin, Phillip G. (See Kennedy, Leonard W., assignor.)						
Galvin, Carroll D., Chicago, Ill. Apparatus for placer-mining, &c	578,816	Mar. 16	1723	395, 396, 397	78	1635
Gamble, Blake E., *et al.* (See Campbell, George L., assignor.)						
Gano, Manning F., Annandale, N. J. Shutter-fastener	574,705	Jan. 5	715	171	78	135
Gardam, Joseph. (See Buckingham and Gardam.)						
Garde, Joseph A., Waterbury, Conn., and A. B. Brunell, Worcester, Mass., assignors to Carrara Electro-Marbleizing Company, of New Jersey. Metal-coloring	575,678	Jan. 19	2297	.....	78	473
Gardiner, William, Elizabeth, N. J. Window-fastener	575,519	Jan. 19	1999	478	78	415
Gardner, Edward F., Scranton, Pa. Stair-carpet-securing device	574,796	Jan. 5	716	171	78	135
Gardner Elevator Company. (See Hultgren, William H., assignor.)						
Gardner, Frank L. (See Thwaite, Benjamin H., assignor.)						
Gardner, J. H. (See Bowman, Ross, assignor.)						
Gardner, Phoebe G. (See Turner, Phoebe G.)						
Garford, Arthur L., Elyria, Ohio. Seat-post for bicycles	578,309	Mar. 9	977	222	78	1464

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Garland Chain Co. (See Garland, John W., assignor.)						
Garland, Charles W., McDowell, assignor of one-half to C. W. Shafer, Keystone, W. Va. Door for coke-ovens	578,510	Mar. 9	1180	267	78	1504
Garland, John W., assignor to Garland Chain Co., Pittsburg, Pa. Chain-link	576,107	Feb. 2	51	13	78	647
Garnett, Eugene H., *et al.* (See Clarke, Henry, assignor.)	577,576	Feb. 23	2586	610	78	1168
Garnhart, Lawrence D., Fairmont, Minn. Fish-holder						
Garnier, Jules, Paris, France. Apparatus for simultaneously concentrating, classifying, and amalgamating gold ores	575,755	Jan. 26	2421	571	78	510
Garrard, Robert, Bedford, Iowa. Gate	575,229	Jan. 12	1495	358	78	300
Garrett, Robert N., Troy, Tex. Tire-tightener	575,230	Jan. 12	1496	359	78	300
Garrison, Charles M., assignor of one-half to T. Campbell, Wichita, Kans. Holder for sealing-wax	576,725	Feb. 9	1111	262	78	862
Garsed, Joshua, Philadelphia, Pa. Rope-coiling machine	579,054	Mar. 16	2129	501	78	1711
Garson, James K., Pittsburg, Pa. Trousers-hanger	578,328	Mar. 9	875	198	78	1445
Garten, Joseph C. (See Edwards and Garten.)						
Gartner, Alfred, Newark, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	574,900	Jan. 12	899	218	78	189
Gartrell, Charles B., Chicago, assignor of one-half to J. J. Luck, Aurora, Ill. Alarm-clock	576,528	Feb. 2	790	185	78	786
Garvey, Edward A., Credit River, Minn. Furniture attachment	575,806	Jan. 26	2501	589	78	526
Gaskins, Benjamin A., and A. H. Brown, Sunbury, Pa. Lubricating-oil can	576,841	Feb. 9	1292	309	78	897
Gassett, Thomas B., Taylor, Tex. Windmill	574,411	Jan. 5	57	13	78	13
Gaston, George P., Silver Creek, N. Y. Combined cash receiver and recorder and type-writing machine	575,828	Jan. 26	2537	598, 599	78	533
Gates, Alfred, assignor to himself and J. H. Dovener, Liverpool, England. Apparatus for mixing liquids	579,055	Mar. 16	2131	501, 502	78	1711
Gates, Charles P., Brooklyn, N. Y. Illuminated sign	579,343	Mar. 23	2601	614	78	1813
Gaudrie, Francis X. (See Farini and Gaudrie.)						
Gautrau, Alfred J., Stamford, Conn. Extensible and adjustable music-stool	578,056	Mar. 2	366	87	78	1332
Gawne, Augustus J., Sandusky, Ohio. Static generator	575,231	Jan. 12	1497	359	78	300
Gay, Charles A., assignor of one-half to J. D. Atkinson and C. E. Remsberg, Seattle, Wash. Bicycle-lock	574,410	Jan. 5	56	13	78	12
Gaylord, Jared E. (See Keller, Cole, and Gaylord.)						
Gaylord, Jared E., W. G. Cole, and H. A. Keller; said Cole assignor to A. H. Wethey, Butte, Mont. Roasting-furnace	579,536	Mar. 23	2955	698, 699	78	1879
Gaylord, Justus J., Sayre, Pa. Car-coupling	577,849	Mar. 2	23	8	78	1265
Gaynor, John J. (See Hall and Gaynor.)						
Geb Attachment Company. (See Geb, Jacob F., assignor.)						
Geb, Jacob F., assignor to Geb Attachment Company, Franklin, Mass. Feeder for carding-engines	577,247	Feb. 16	1995	472	78	1042
Geddes, Warren W. (See Schneider and Geddes.)						
Gee, Horace L., Kingston, assignor to Diamond Truck and Car Gear Company, New York, N. Y. Truck for motor or cable cars	574,532	Jan. 5	241	57, 58	78	47
Gefrorer, Henry, Philadelphia, Pa. Vapor-burner	577,980	Mar. 2	254	60	78	1309
Geige, Carl, Broich, Germany. Making artificial wood from peat or turf	579,571	Mar. 30	3045	.....	78	1916
Geige, Carl, Dusseldorf, Germany. Making chemically-prepared peat fibers	579,572	Mar. 30	3046	.....	78	1916
Geigy & Co., John R. (See Ris, Christopher, assignor.)						
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Space-block for armatures	577,130	Feb. 16	1809	426	78	1007
Geiser Manufacturing Company. (See Anderson, Gustaf A., assignor.)						
Geiser Manufacturing Company. (See Clymans, Ezra G., assignor.)						
Geiser Manufacturing Company. (See Price, Abraham E., assignor.)						
Gelston, Samuel, New York, N. Y. Process of and apparatus for purifying and filtering liquids	575,778	Jan. 26	2455	578, 579	78	517
Gemmer, George A., Williamsport, Ind. Board roofing and siding	576,509	Feb. 9	870	202	78	817
General Compressed Air Company (See Hardie, Robert, assignor.)						
General Compressed Air Company. (See Haupt, Herman, assignor.)						
General Electric Company. (See Bentley, Edward M., assignor.)						
General Electric Company. (See Case, Frank E., assignor.)						
General Electric Company. (See Fish, Walter C., assignor.)						
General Electric Company. (See Geisenhöner, Henry, assignor.)						
General Electric Company. (See Harthan, Charles E., assignor.)						
General Electric Company. (See Hunter, Rudolph M., assignor.)						
General Electric Company. (See MacHaffie and Faure, assignors.)						
General Electric Company. (See Mackintosh, Frederick, assignor.)						
General Electric Company. (See Potter, William B., assignor.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Rice, Edwin W., Jr., assignor.)						
General Electric Company. (See Sperry, Elmer A., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Wirt, Herbert C., assignor.)						
Généreux, François H., assignor of two-thirds to A. Mignault and L. Joncas, Salem, Mass. Folding umbrella	579,942	Mar. 30	3064	877	78	2034
Gentry, John W. (See Sowers and Gentry.)						
George T. Smith Mill Building Company. (See Smith, George T., assignor.)						
Gerard, Walter, St. Bernard, and J. H. Lawrence, Bond Hill, Ohio. Wire-coupling	575,641	Jan. 19	2229	527	78	459
Gerber, George H., *et al.* (See Mengel, Joseph A., assignor.)						
Gerken, William. (See Althaus and Gerken.)						
Germain, Silas E. (See Bouton and Germain.)						
Germann, Emil. (See Buckingham and Germann.)						
Gerstenberger, Edward C., Brooklyn, N. Y. Composition material for shields	574,728	Jan. 5	616	146	78	114
Gerstenberger, Edward C., Brooklyn, N. Y. Bobbin thread-twister	576,444	Feb. 2	639	153	78	757
Gesler, Warner E., Macomb, Ill. Reel-carrier	578,449	Mar. 9	1065	243	78	1481
Gessler, Maximilian, Milwaukee, Wis. Bicycle-lock	577,248	Feb. 16	1996	472	78	1043
Gessner, David, Worcester, Mass. Cloth-pressing machine	576,666	Feb. 9	1024	240, 241	78	846
Getchell, John M., assignor of one-half to W. W. Crook, Haverhill, N. H. Bicycle-support	574,676	Jan. 5	531	123	78	97
Getchell, Otis W., Minneapolis, Minn. Water-tight hinged joint for bear-trap dams or other uses	578,982	Mar. 16	2010	467, 468	78	1690
Getten, Albert C., Sandy Hill, N. Y., assignor to Union Bag and Paper Company, Chicago, Ill. Paper-bag machine	575,062	Jan. 12	1212	294, 295	78	246
Getz, August F., and W. C. Westall, San Francisco, Cal. Bicycle-seat spring	576,726	Feb. 9	1112	263	78	863
Getz, Phares E., and T. J. Amos, Bentonville, Ark. Steam-cooker	574,533	Jan. 5	245	58	78	48
Gibbons, Jonathan W., and J. L. McDonald, Jacksonville, Ill. Reel for fence-wire	579,656	Mar. 16	2132	502	78	1712

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Gibbs Electric Manufacturing Company. (See Gibbs, Jacob S., assignor.)						
Gibbs, Frank I., and W. Wright, Birmingham, England. Roller-skate	578,081	Mar. 2	412	95, 96	78	1340
Gibbs, Frank I., and W. Wright, Birmingham, England. Roller-skate	578,082	Mar. 2	414	96	78	1340
Gibbs, Jacob S., assignor to Gibbs Electric Manufacturing Company, Hartford, Conn. Turn-button for electrical switches	578,695	Mar. 9	1409	345	78	1564
Gibbs, Joseph E. (See Fryer, Richard, assignor.)						
Gibbs, Milton T., Mayville, N. D. Washing, scouring, and drying grain	576,401	Feb. 2	576	135	78	744
Gibory, Raymond. (See Danvin and Gibory.)						
Gibson, Henry C., Dardanelle, assignor of one-half to J. R. Boddie, Arkadelphia, Ark. Turkey caller and gobbler	574,534	Jan. 5	247	58	78	49
Gibson, Joseph H. (See Lynn, William M., assignor.)						
Gibson, Ralph R., Boston, Mass. Gymnastic club	578,230	Mar. 2	703	160	78	1304
Gibson, Thomas N., Argentine, Kans. Carbureter	576,108	Feb. 2	51	14	78	647
Giddings, Thomas, Williamsport, Pa. Toy piano	574,677	Jan. 5	532	123	78	97
Giffin, Leroy H., Mount Ida, Wis. Harrow	575,642	Jan. 19	2231	528	78	459
Gifford, George H., Brockton, Mass. Shoe-turning machine	578,231	Mar. 2	704	160	78	1304
Gifford, George H., Brockton, Mass. Sole-machine	579,144	Mar. 23	2275	586 587	78	1758
Gifford, Livingston, *et al*, executors. (See Foster, William F.)						
Gignilliat, Leigh R. (See Thomas and Gignilliat.)						
Gilbert & Barker Manufacturing Company. (See Barker, John F., assignor.)						
Gilbert & Bennett Manufacturing Company. (See Beers and Eberhardt, assignors.)						
Gilbert, Cephas, Branford, Fla. Antirefilling bottle	576,263	Feb. 2	334	80	78	700
Gilbert, Charles S., and J. F. Thompson, Millersburg, Pa. Lubricant	576,307	Feb. 2	415	.....	78	715
Gilbert, Don A. (See Prince, Czar, assignor.)						
Gilbert, George, and E. Mushing, Coventry, England. Reversible saddle-post for bicycles	577,651	Feb. 23	2715	641	78	1192
Gilbert, William E., *et al.* (See Crissey, Leroy M., assignor.)						
Gildemeyer, Charles A., Haddonfield, N. J. Bung	578,232	Mar. 2	705	160	78	1305
Gilfillan, James A., assignor to Peerless Plush Manufacturing Company, Paterson, N. J. Let-off mechanism for looms	577,981	Mar. 2	254	60, 61	78	1310
Gilfillan, William, New York, N. Y. Liquid door-check	577,917	Mar. 2	154	36	78	1291
Gill, Oscar W., Chicago, Ill. Memorandum sales-book	577,249	Feb. 16	1999	473	78	1043
Gillam, Alice M., Flushing, N. Y. Protective bottle, &c	578,010	Mar. 2	301	71	78	1319
Gillespie, Alfred J., Atlantic, Iowa. Voting-machine	576,570	Feb. 9	871	202 208	78	817
Gillespie, Richard S., New York, N. Y. Construction of supports for building-walls, &c.	574,729	Jan. 5	617	147	78	114
Gillespie, Richard S., New York, N. Y. Air-lock for caissons, &c	576,445	Feb. 2	641	153	78	758
Gillespie, Richard S., New York, N. Y. Air-lock for caissons, &c	576,446	Feb. 2	644	154	78	758
Gillespie, Richard S., New York, N. Y. Means for constructing supports for building-walls, &c	576,842	Feb. 9	1208	309 310	78	868
Gillespie, Richard S., New York, N. Y. Construction of supports for building-walls, &c.	576,843	Feb. 9	1208	310	78	868
Gillespie, Robert W., St. Louis, Mo. Spouted can	576,051	Jan. 26	2033	691	78	608
Gillham, Mancellia C. (See Alexander and Gillham.)						
Gilliland, James F., Adrian, Mich. Telephone-transmitter	576,813	Feb. 9	1253	299	78	890
Gilliland, James F., Adrian, Mich., assignor to Adrian Box Company of New Jersey, Jersey City, N. J. Hinge	577,652	Feb. 23	2716	641	78	1193
Gilliland, James F., Adrian, Mich., assignor to Adrian Box Company of New Jersey, Jersey City, N. J. Box-fastener	579,057	Mar. 16	2133	502	78	1712
Gilliland, Laura V., Davenport, Nebr. Carpet-rag looper	575,081	Jan. 12	1158	282	78	234
Gillis, Ranald, Sydney, Canada. Sailing vessel	575,232	Jan. 12	1499	360	78	301
Gilman, Charles S., Minneapolis, Minn. Arm-rest	574,797	Jan. 5	717	171	78	135
Gilmartin, Michael W., U. S. Navy. Weighing-scale attachment	576,902	Feb. 9	1492	354 355	78	984
Gilmore, Charles P., Chillicothe, Ohio. Spraying-nozzle	578,400	Mar. 9	978	222	78	1465
Gilmore, John F., assignor of one-half to R. C. Savoye, Philadelphia, Pa. Laundry polish	578,057	Mar. 2	368	.....	78	1332
Gilmour, James D., Glasgow, Scotland. Making cyanids	576,264	Feb. 2	335	80	78	700
Gilmour, Joseph, Brooklyn, N. Y. Planer for dressing stone	575,154	Jan. 12	1372	330	78	276
Gilmour, Robert B. (See Ide, Gilmour, and Richard.)						
Gilmour, William C., assignor of one-half to J. C. Hunt, Oakland, Oreg. Wrench	576,109	Feb. 2	53	14	78	647
Gimbert, Thomas, *et al.* (See Davis, Orson W., assignor.)						
Ginter, Charles G. (See Swisher and Ginter.)						
Gipson, William A., and C. B. White, Cripple Creek, Colo. Skip for mine-shafts	576,667	Feb. 9	1027	241	78	846
Girardet, Pierre L., Fils, Paris, France. Bicycle	578,011	Mar. 2	302	71	78	1319
Girtanner, Fred G., St. Louis, assignor to Kochersperger-Hallam Heating Co., Kansas City, Mo. Furnace	575,421	Jan. 19	1832	440	78	381
Girtler, John F., assignor of two-thirds to C. C. Williges and F. J. Werner, Brooklyn, N. Y. Safety device for window-cleaners	578,145	Mar. 2	537	122	78	1364
Gittinger, Daniel H. (See Michaels and Gittinger.)						
Gittinger, Jonas. (See Michaels and Gittinger.)						
Gladden, Andrew P. (See Cooper, Basil H., assignor.)						
Gladin, Daniel L., E. R. Edson, and J. B. Jessop, Cleveland, Ohio. Fish-trap net	576,844	Feb. 9	1300	310	78	899
Glascock, Albert S. (See Brown, Glascock, Quinn, and Brown.)						
Glaser, A. G. (See Thomas, David K., assignor.)						
Glasser, Charles T., *et al.* (See Turner, Samuel J., assignor.)						
Glasser, Henry J., *et al.* (See Turner, Samuel J., assignor.)						
Glasser, Henry J., Minneapolis, Minn. Pants-leg guard	579,924	Mar. 30	3623	867	78	2026
Glavin, Maurice J., Boston, Mass. Smoothing and finishing die	577,577	Feb. 23	2587	610	78	1169
Glazier, Frank P., Chelsea, Mich. Wick-tube	576,447	Feb. 2	648	155	78	759
Glazier, Frank P., Chelsea, Mich. Wick-raising device	576,448	Feb. 2	648	155	78	759
Gleason, Duane N., Brooklyn, N. Y. Pipe-coupling	579,643	Mar. 30	3173	753	78	1940
Gleason, Elliott P., New York, N. Y. Globe or shade holder	575,063	Jan. 12	1215	295	78	246
Glidden, Charles W. (See Elliott and Glidden.)						
Glidden, John E., administrator. (See Elliott and Glidden.)						
Globe Buffer Company. (See Webster, Harold A., assignor.)						
Gloninger, A. B. (See Rhoads, George E., assignor.)						
Gloo, Isidor, Plymouth, Pa. Gas-burner tip	576,668	Feb. 9	1028	241	78	847
Glore, George W. (See Pratt, Eber W., assignor.)						
Glover, Charles G., Cambridge, Mass. Toy savings-bank	579,058	Mar. 16	2133	502	78	1712
Glover, Mary W., Newton, Mass. Device for placing or removing picture or similar hooks, &c	579,675	Mar. 30	3219	764	78	1949
Gobbe, Emile, Jumet, Belgium, assignor of one-half to J. A. Chambers, Pittsburg, Pa. Glass tank and blowing furnace	578,058	Mar. 2	368	87	78	1332
Goddu, Louis, Winchester, assignor to J. W. Brooks, trustee, Petersham, Mass. Shoe-sewing machine	578,559	Mar. 9	1265	287 288	78	1520

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Godey, Frederick C. (See Earl, John H., assignor.)						
Godfrey, Charles H. R., South Norwalk, Conn. Label-lock	576,571	Feb. 9	878	208	78	819
Goebel, Herman A. (See Cooley and Goebel.)						
Goebler, John A., assignor to Indiana Bicycle Company, Indianapolis, Ind. Bicycle-pedal	579,479	Mar. 23	2876	676	78	1863
Goerg, Carl. (See Miller, Henry, assignor.)						
Goetz, Adolph S., Detroit, Mich. Car-brake	577,294	Feb. 16	2070	489	78	1056
Goff, Daniel, Millville, N. J. Smoke and gas returning apparatus	579,644	Mar. 30	3174	753 754	78	1940
Goff, Daniel, and J. T. Higbee; said Goff assignor to J. L. Smith, Millville, N. J. Sprinkler	577,131	Feb. 16	1810	426	78	1007
Goff, George, Iola, Kans., assignor of one-half to J. H. Johnson, Kansas City, Mo. Lens-measure	579,573	Mar. 30	3047	719	78	1916
Gohlke, Louis, Grand Rapids, Mich., assignor of one-half to F. H. Marx, Chicago, Ill. Joint-fastener	576,572	Feb. 9	879	208	78	819
Gohm, James, assignor of two-thirds to M. Bull and W. Shepley, Newport, R. I. Insecticide-distributer	574,798	Jan. 5	717	172	78	135
Goldbacker, Joseph N. (See Parfrey, William, assignor.)						
Goldberger, Ignatz, Cleveland, Ohio. Undergarment	575,422	Jan. 19	1833	440	78	381
Goldschmidt, Hans, Essen-on-the-Ruhr, Germany. Producing metals and alloys	578,868	Mar. 16	1810	.....	78	1650
Goldschmidt, Karl, Brünn, Austria-Hungary. Apparatus for attaching fillets to flats of card-clothing	577,918	Mar. 2	157	37	78	1292
Goldsmith, David, *et al.* (See Osterweil, David, assignor.)						
Goldsmith, Joseph, Providence, R. I. Collar-button	574,678	Jan. 5	534	123	78	98
Goldsmith, Levi, *et al.* (See Osterweil, David, assignor.)						
Goldsmith, Marcus T., New York, N. Y. Belt-buckle	577,850	Mar. 2	24	8	78	1265
Goldsmith, Paul, Troy, N. Y. Curtain-hanging apparatus	575,423	Jan. 19	1834	441	78	382
Gonorovsky, Joseph, New York, N. Y. Sand-box	575,834	Jan. 26	2557	603	78	536
Gonorovsky, Joseph, New York, N. Y. Bicycle-bell	576,814	Feb. 9	1254	299	78	890
Gooch, Daniel J., Oxford, N. C. Basket	578,037	Mar. 2	340	81	78	1326
Gooch, Frank A., New Haven, Conn. Reducing aluminium	578,633	Mar. 9	1381	315	78	1542
Gooding, Charles S., Brookline, and V. Beauregard, Boston, Mass. Door-check	578,634	Mar. 9	1384	315	78	1542
Goodman, Frederick T. (See Lamplough, Frederick, assignor.)						
Goodrich, Elizabeth R., Brooklyn, N. Y. Removable support for ash-receptacles	576,782	Feb. 9	1196	285	78	879
Goodridge, James F., Boston, assignor to C. J. Rolfe, Concord, Mass. Pocket cash-register	575,476	Jan. 19	1920	462	78	398
Goodsell, Zalmon. (See Grunow, William, Jr., assignor.)						
Goodwin, Adam M., Pittsburg, Pa. Vacuum-brake	578,602	Mar. 9	1331	301 302 303	78	1533
Goodyear Shoe Machinery Company. (See Harris, Elmer S., assignor.)						
Goodyear Shoe Machinery Company. (See Winkley, Erastus E., assignor.)						
Gordon, Anthony W. (See Lufkin and Gordon.)						
Gordon, Charles V., East Los Angeles, Cal. Stool and cane	576,345	Feb. 2	485	113	78	728
Gordon, Daniel A., and B. B. Weir, Cassopolis, Mich. Danger-signal	577,949	Mar. 2	208	49	78	1301
Gordon, George N., Malden, Mass., assignor to Wire Grip Fastening Company, Chicago, Ill. Machine for inserting fastenings in boots, shoes, &c	578,696	Mar. 9	1500	346	78	1565
Gordon, George N., Malden, assignor, by mesne assignments, to Wire Grip Fastening Company of Maine, Boston, Mass. Foot for nailing-machines	579,390	Mar. 23	2672	634	78	1827
Gordon Hollow Blast Grate Company. (See Colburn, Adoniram J., assignor.)						
Gordon-Mitchell Gas Lamp Company. (See Swift and Gordon, assignors.)						
Gordon Staple Lasting and Tacking Company. (See Coupal, Peter A., assignor.)						
Gordon, Thomas. (See Swift and Gordon.)						
Gordon, William. (See Coupal, Peter A., assignor.)						
Gorman, John H., assignor to L. C. Clark, T. F. Rison, and W. W. Williamson, Danville, Va. Fly-fan	577,132	Feb. 16	1811	427	78	1007
Gorman, Thomas J., New York, N. Y. Clasp-envelop	576,783	Feb. 9	1197	286	78	879
Gorn, Hermann A., assignor to Otis Brothers & Company, New York, N. Y. Double-pole reversing snap-switch	577,950	Mar. 2	205	50	78	1301
Goss, John H., assignor to Scovill Manufacturing Company, Waterbury, Conn. Pocket-oiler	579,795	Mar. 30	3418	819	78	1987
Goss, John H., assignor to Scovill Manufacturing Company, Waterbury, Conn. Lamp-burner	579,796	Mar. 30	3419	819	78	1987
Gosslin, Joseph, *et al.* (See Besson, Anthony D., assignor.)						
Gosslin, Rosa, *et al.* (See Besson, Anthony D., assignor.)						
Gould, Claude C., Philadelphia, Pa., assignor to Make and Break Telephone Company, of New Jersey. Telephone	574,901	Jan. 12	900	218 219	78	189
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould, Hezekiah and J. L., Port Huron, Mich. Spring bed or cot	579,229	Mar. 23	2416	571	78	1780
Gould, James, Jr., Berkeley, Cal. Can	574,730	Jan. 5	619	147	78	115
Gould, John L. (See Gould, Hezekiah and J. L.)						
Gould, John R., Richmond, Va. Adjustable handle-bar	576,573	Feb. 9	880	209	78	819
Grabowski, Theodor, Buffalo, and K. Jurkowski, Niagara Falls, N. Y. Padlock	577,246	Feb. 16	1963	472	78	1042
Grace, Thomas, assignor to Bailey-Farrell Manufacturing Company, Pittsburg, Pa. Water-closet	574,679	Jan. 5	535	124	78	98
Grady, Henry C. (See Brandt, Simon L., assignor.)						
Grady, Michael J., and R. McMillan, Kingston, Canada. Car-coupling	575,343	Jan. 19	1703	405	78	359
Grafstrom, Edward, Columbus, Ohio. Draft-rigging for connecting couplings to cars	575,566	Jan. 19	2084	498	78	430
Graham, Frank A., assignor to J. D. Stevens, New York, N. Y. Stock-printer	579,676	Mar. 30	3220	765	78	1949
Graham, George W. (See Van Alstine, Cornelius C. E., assignor.)						
Graham, James A. (See Latimer and Graham.)						
Graham, John A., Chicago, Ill., assignor to Carter-Crume Company, Niagara Falls, N. Y. Copying book	576,265	Feb. 2	337	80	78	700
Graham, John C., Jr., New York, N. Y. Musical instrument	576,402	Feb. 2	578	135	78	744
Graham, Joseph A., Meriden, Conn. Non-refillable bottle	574,680	Jan. 5	536	124	78	98
Graham, Patrick E., Millwood, Minn. Plow attachment	575,223	Jan. 12	1500	360	78	301
Graham, Romulus N. (See Adams, Don B., assignor.)						
Graham, Willie, Meridian, Miss. Fire-extinguisher	579,868	Mar. 30	3541	846	78	2011
Graichen, Hermann. (See Rothlisberger and Graichen.)						
Grameispacher, John, Jasper, Ind. Type-writer attachment for desks	575,602	Jan. 19	2154	510 511	78	445
Grand Rapids Brass Company. (See Tower, Daniel W., assignor.)						
Grand Rapids School Furniture Company. (See Irwin and Stiles, assignors.)						
Grand Rapids School Furniture Company. (See Linn, Allen D., assignor.)						
Grand Rapids School Furniture Company. (See Linn and Irwin, asignors.)						
Grandpre, Grant J., Chamberlain, S. D. Tire-tightener	574,412	Jan. 5	58	13	78	13

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Grant, Arthur L., assignor to W. J. Urquhart, Toronto, Canada. Reducing copper ore and mattes	578,817	Mar. 16	1727	.....	78	1636
Grant, Charles, Jr., Revere, Mass. Clothes-drier	576,815	Feb. 9	1255	209	78	890
Grant, John R., New York, N. Y. Raising sunken vessels	576,052	Jan. 26	2084	602	78	604
Grant, Mitchell W., Osage City, Mo., assignor of two-thirds to C. Milligan and W. H. Rahner, New Albany, Ind. Boiler-cleaner	574,989	Jan. 12	1084	203	78	221
Grant, Robert A., Cambridge, assignor of one-half to E. A. Shaw, Lexington, Mass. Sash balance	575,926	Jan. 26	2715	642	78	565
Gränz, Friedrich H., assignor to F. Rabe, Chemnitz, Germany. Narrowing apparatus for knitting-machines	575,395	Jan. 19	1792	430	78	374
Graton & Knight Manufacturing Company. (See Murdock, Tracy, assignor.)						
Grauten, Charles C., *et al.* (See Doty and MacKnight, assignors.)						
Grauten, Joseph C., *et al.* (See Doty and MacKnight, assignors.)						
Graves, Frank W., Behler, W. Va. Lemon slicer and squeezer	574,413	Jan. 5	60	14	78	13
Graves, John, Brooklyn, N. Y. Bracket	576,110	Feb. 2	54	14	78	648
Graves, John J., assignor to S. S. Jewett & Co., Buffalo, N. Y. Cooking-stove	574,799	Jan. 5	720	172	78	136
Grawitz, William J. S., Nogent-sur-Marne, France. Dyeing	577,295	Feb. 16	2071	.....	78	1056
Gray, Christian H., Silvertown, England. Machine for manufacturing machine-belting	575,424	Jan. 19	1837	441	78	382
Gray, Isaac C., assignor of one-fourth to L. D. Ely, Tippecanoe, Ind. Elevator	579,797	Mar. 30	3421	819	78	1987
Gray, Lowry A., Arlington, assignor of one-half to E. Lipps, Baltimore, Md. Electric appliance for horses	576,053	Jan. 26	2085	692	78	604
Gray, William F., Millersburg, Ohio. Display-rack	577,951	Mar. 2	208	50	78	1301
Grean, Alexander M., New York, N. Y., assignor to C. Cohn & Co., Baltimore, Md. Bicycle-skirt	579,145	Mar. 23	2283	537	78	1754
Green, Charles E., Chicago, Ill., assignor, by mesne assignments, to New York Bicycle Equipment Company, of New York. Patching pneumatic tires and implement therefor	577,601	Feb. 23	2037	622	78	1178
Green, Henry, Hartford, Conn. Apparatus for canceling postal marks	574,414	Jan. 5	62	14	78	13
Green, Henry, Hartford, Conn. Advertising device	576,266	Feb. 2	338	80, 81	78	701
Green, Henry, Hartford, Conn. Advertising device	576,267	Feb. 2	340	81	78	701
Green, John H., assignor of one-half to J. W. Burnham, Laurium, Mich. Torch	576,111	Feb. 2	55	14	78	648
Green, Joseph B., Janesville, Wis. Device for connecting flexible tubing	578,988	Mar. 16	2012	468	78	1687
Green, Robert M. and Robert M., Jr., Philadelphia, Pa. Soda-water fountain	578,098	Mar. 2	437	102	78	1344
Green, Sanford, Brighton, Iowa, assignor to C. A. Dewey, Canton, and B. W. Thompson, Peoria, Ill. Match-cabinet	578,818	Mar. 16	1728	397	78	1636
Green, Sidney, New York, N. Y. Temperature-controlling apparatus	578,984	Mar. 16	2012	468 / 469	78	1687
Greene, James G, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine extension-table	575,344	Jan. 19	1704	406	78	359
Greenhough, William J. (See Bates and Greenhough.)						
Greenstreet, Jason H., Indianapolis, Ind. Box-making machine	579,574	Mar. 30	3049	719 / 720	78	1916
Greenwell, Stephen E. (See Rogers, George O., assignor.)						
Gregg, Thomas E., Marlborough, N. Y. Car-fender	575,396	Jan. 19	1793	431	78	374
Gregory, Arthur W. Morristown, N. Y. Bicycle-chain	575,477	Jan. 19	1922	462	78	398
Gregory, James, Bridgeport, Conn. Automatic milling-machine	576,979	Feb. 9	1534	363 / 364 / 365 / 366	78	943
Gregory, John, Newark, N. J. Gage for sewing belts	575,943	Jan. 26	2741	647	78	570
Greuninger, Carl, *et al.* (See Williams, Hubbard D. B., assignor.)						
Griffin, Edwin C., Newton, Mass., assignor to Bradley Pulverizer Company, of Maine. Crushing or pulverizing mill	579,230	Mar. 23	2417	571	78	1780
Griffin, James H., New York, N. Y. Plumber's clamp	576,758	Feb. 9	1167	278	78	873
Griffin, Thomas B., assignor of one-fourth to F. B. Watson, L. D. Knowles, and H. P. Barrows, Three Rivers, Mich. Automatic switch	577,952	Mar. 2	210	50, 51	78	1302
Griffin, Thomas J., assignor of four-fifths to H. Riedel, E. McCarthy, and N. Weeks, Galveston, Tex. Cotton elevator and distributer	574,990	Jan. 12	1086	263	78	222
Griffiths, James A., Philadelphia, Pa. Gravity and cable pleasure-railway	577,549	Feb. 23	2540	598	78	1160
Griffiths, James A., Philadelphia, Pa. Electric and gravity pleasure-railway	577,550	Feb. 23	2541	599	78	1160
Griffiths, William U., and H. Niedermayer, Philadelphia, Pa. Air-compressing device	576,364	Feb. 2	513	120	78	733
Grim, Adam, *et al.* (See Blocher, John, assignor.)						
Grimes, Charles A. and C. J., Pittsburg, Pa. Hose-bridge for railways	579,090	Mar. 16	2187	513	78	1722
Grimes, Charles J. (See Grimes, Charles A. and C. J.)						
Grimes, George W., Bluffton, Ind. Well-pumping power	579,480	Mar. 23	2377	676	78	1863
Grimm, Gerhardt E., Camden, N. J. Paper-box machine	576,960	Feb. 9	1544	367	78	945
Grinden, William J., and G. Amborn, Jr., assignors to J. H. Williams & Company, Brooklyn, N. Y. Chain wrench	577,653	Feb. 23	2716	642	78	1193
Grinden, William J., and G. Amborn, Jr., assignors to J. H. Williams & Company, Brooklyn, N. Y. Chain wrench	577,654	Feb. 23	2719	642	78	1193
Grist, Charles J. (See Ford, Alfred N., assignor.)						
Griswold, Charles C. (See Lord and Griswold.)						
Griswold, John W., Troy, N. Y. Wire fence	575,345	Jan. 19	1705	406	78	359
Griswold, Lewis F., assignor to Charles Parker Company, Meriden, Conn. Portable coffee-mill	578,560	Mar. 9	1270	288	78	1521
Grogan, Charles, assignor of nineteen twenty-fourths to H. P. Grogan, G. A. Ewing, and R. F. McConnell, Gate City, Va. Pipe-wrench	577,250	Feb. 16	2000	473	78	1043
Grogan, Harry P., *et al.* (See Grogan, Charles, assignor.)						
Grogan, John R. (See Fielding and Grogan.)						
Grogg, J. H. (See Wilt, Samuel W., assignor.)						
Grohmann, Carl L., Hartford, Conn. Gas-engine	574,535	Jan. 5	248	58, 59	78	49
Groll, Charles, Roubaix, France. Self-feeding smoke-consuming furnace	578,146	Mar. 2	537	122 / 123	78	1364
Grosselin, Nicolas H., Sedan, France, assignor to C. Heap, Rochdale, England. Means for napping fabrics	577,002	Feb. 23	2039	623	78	1178
Grosz, Martin J., and C. Elison, Emporia, Kans. Automatic mail-catcher	576,112	Feb. 2	56	15	78	648
Groszmann, William, New York, N. Y. Flushing-tank	577,021	Feb. 16	1613	383	78	969
Grove, Charles, Jr. (See Paul, Andrew G., assignor.)						
Grove, Frank B., assignor to S. Grove and G. Mitchell, Mansfield, Ohio. Capsule-filling machine	578,985	Mar. 16	2013	469	78	1687
Grove, Sarah, *et al.* (See Grove, Frank B., assignor.)						
Groves, Charles E., Attica, Ohio. Street-railway switch	579,575	Mar. 30	3052	720	78	1917
Groves, Wallace. (See Barrett, Groves, and Brown.)						
Grüber, Carl, Schwerte, Germany. Apparatus for manufacturing chain-links and rings	578,401	Mar. 9	979	222	78	1465
Gruber, Frank, Newark, N. J. Propelling device for vehicles	578,329	Mar. 9	876	198	78	1445
Gruenberg, Aaron, assignor to G. J. Gruenberg, Minneapolis, Minn. Runaway-horse check	575,064	Jan. 19	2270	536	78	467

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gruenberg, George J. (See Gruenberg, Aaron, assignor.)						
Grundy, Frank A., Pittsburg, Pa. Pipe-coupling	577,251	Feb. 16	2001	473	78	1043
Gruner, Henry, Paterson, N. J. Wheel-hub-drilling device	575,895	Jan. 26	2557	608	78	596
Grunow, William, Jr., assignor of one-half to Z. Goodsell, Bridgeport, Conn. Electric railway	575,346	Jan. 19	1706	406	78	359
Grunow, William, Jr., assignor of one-half to Z. Goodsell, Bridgeport, Conn. Contact-box for depressible conductor-rails	576,268	Feb. 2	342	81	78	701
Grunow, William, Jr., assignor of one-half to Z. Goodsell, Bridgeport, Conn. Trolley-wheel frame for trolley-cars	579,576	Mar. 30	3053	720 / 721	78	1917
Grupelli, Eney, assignor of one-half to P. Nardi, New York, N. Y. Bicycle-chain cleaner	575,520	Jan. 19	2001	478	78	415
Gubba, Antonio, Buenos Ayres, Argentina. Ant-destroyer	578,450	Mar. 9	1066	243	78	1481
Guendel, Anton, New York, N. Y. Electric-arc lamp	578,233	Mar. 2	707	160	78	1395
Guenther, Max B., New York, N. Y. Safety-guard for spring-locks	576,449	Feb. 2	649	155	78	759
Guinn, John A., Perry, assignor of one-half to F. Hooker, Des Moines, Iowa. Swivel for chains or pulleys	576,574	Feb. 9	882	204	78	819
Guisinger, Cyrus C. (See Nicodemus and Guisinger.)						
Gulden, Charles, Jr., New York, N. Y. Package for mustard, &c.	578,920	Mar. 16	1900	439	78	1665
Guldin, Cyrus Q., *et al.* (See Van Norman, Jacob, assignor.)						
Gulick, Edward J., assignor to Fenton Metallic Manufacturing Company, Jamestown, N. Y. Handle-bar fastening for velocipedes	575,109	Jan. 12	1289	312	78	260
Gulick, Edward J., assignor to Fenton Metallic Manufacturing Company, Jamestown, N. Y. Clamping device	579,265	Mar. 23	2475	584 / 585	78	1790
Gunckel, Winfield O., Terre Haute, Ind. Direct-acting engine	574,415	Jan. 5	64	14	78	14
Gundlach Optical Company. (See Turner, Henry H., assignor.)						
Gunn, George C., Burlington, N. J. Book-rest	576,113	Feb. 2	59	15	78	648
Gunn, William, Indianapolis, Ind. Water-heater for bath-tubs	575,944	Jan. 26	2742	648	78	571
Gunston, Byron M., assignor to T. Kingsford, Oswego, N. Y. Box-assembling machine	579,747	Mar. 30	3336	797 / 798	78	1972
Gunther, Fredrick, Kewanee, Ill. Check-row corn-planter	579,266	Mar. 23	2476	585	78	1790
Gustafson, Charles J., Chattanooga, Tenn. Steam or water throttle-valve	578,736	Mar. 16	1577	364	78	1607
Gutenkunst, William, Milwaukee, Wis. Fodder-shredder	578,234	Mar. 2	708	161	78	1395
Gütling, Urban, Würzburg, Germany. Binding attachment for sewing-machines	578,561	Mar. 9	1272	288	78	1521
Gutmann, Ludwig, Pittsburg, Pa. Alternating-current motor	577,427	Feb. 23	2314	543 / 544	78	1118
Gutmann, Ludwig, Peoria, Ill. Electric transformer	577,480	Feb. 23	2399	564	78	1134
Gutmann, Ludwig, Peoria, Ill. Electric transformer	577,742	Feb. 23	2864	679	78	1220
Gutteridge, Frank, Seaforth, Canada. Brick-making machine	575,603	Jan. 19	2156	511	78	445
Guy, Fred E., New York, N. Y. Bicycle	578,921	Mar. 16	1900	439	78	1665
Guy, Mark, assignor to J. McClave & Sons, New York, N. Y. Dress-guard holder for bicycles	577,551	Feb. 23	2542	599	78	1160
Gwin, Andrew J., assignor of one-half to S. G. Webb, Minden, La. Brick-machine	574,800	Jan. 5	721	172 / 173	78	136
Gwin, David L. (See Krebs and Gwin.)						
H. A. Mack Wood-Working Company. (See Lovatt, James W., assignor.)						
H. T. Paiste Company. (See Paiste, Harry T., assignor.)						
H. W. Butterworth & Sons Company. (See Butterworth, James, assignor.)						
H. W. Butterworth & Sons Company. (See Gadd, Charles J., assignor.)						
H. W. Johns Manufacturing Company. (See Meek, John E., assignor.)						
Haas, Christian C. (See Haas, Philip J., assignor.)						
Haas, Philip J., assignor of one-half to C. C. Haas, Marengo, Iowa. Stovepipe-thimble	578,737	Mar. 16	1578	365	78	1608
Haberl, Paul A., Denver, Colo. Artificial foot	577,133	Feb. 16	1813	427	78	1007
Habrie, Jules, San Francisco, Cal. Bread-cutter	576,308	Feb. 2	416	97	78	715
Hadaway, John B., Brockton, Mass. Stitch separating and indenting machine. (Reissue)	11,587	Feb. 2	791	185 / 186	78	786
Hadaway, John B., Brockton, Mass. Channel-flap-laying machine	576,114	Feb. 2	60	16	78	649
Hadaway, John B., Brockton, Mass. Shoe-sewing and welt-beveling mechanism	579,146	Mar. 23	2284	537 / 538	78	1754
Hadaway, John B., Brockton, Mass. Stitch separating and indenting machine	579,231	Mar. 23	2420	571 / 572	78	1781
Hadaway, William S., Jr., New York, N. Y. Electrically-heated sad-iron	574,536	Jan. 5	255	60	78	50
Hadaway, William S., Jr., New York, N. Y. Automatically-controlled electric oven	574,537	Jan. 5	257	60, 61	78	51
Hadaway, William S., Jr., New York, N. Y. Electric furnace	579,324	Mar. 23	2570	606 / 607	78	1808
Hadesty, James M. (See Springer and Hadesty.)						
Hadfield, Robert A., Sheffield, England. Alloy of iron	577,851	Mar. 2	25	.....	78	1265
Haefner, Carl, assignor to National Filter and Carbonating Company, Chicago, Ill. Filter	575,478	Jan. 19	1923	462	78	398
Haenig, Emil, San Antonio, Tex. Beer-tapping apparatus	576,189	Feb. 2	210	52	78	676
Hagaman, Walter, and E. D. Cary, Frontier, Mich. Wire fence	575,234	Jan. 12	1501	360	78	302
Hagan, Louis T., assignor to National Manufacturing Company, Winchester, Ky. Advertising arm-chair	576,054	Jan. 26	2037	692	78	604
Hahn, John P. (See Lane and Hahn.)						
Hail, Edward L. and G., Providence, R. I. Elevator	579,480	Mar. 23	2735	649 / 650	78	1837
Hail, George. (See Hail, Edward L. and G.)						
Hailes, Theodore C., Albany, N. Y. Drawing apparatus	574,605	Jan. 5	389	88	78	74
Hain, Ralph B., Grand Rapids, Mich. Exhaust-muffler	577,852	Mar. 2	27	8	78	1265
Haines, David S., Sandy Hill, N. Y. Stamp-rack	576,450	Feb. 2	650	155	78	759
Haire, William H., Bristol, Tenn. Kitchen-cabinet	577,919	Mar. 2	160	37	78	1202
Halcyon Cycle Company. (See Weston, Milton T., assignor.)						
Hale, Edwin C. (See Annable, Thomas H., assignor.)						
Hale, George W. (See Baldwin, Judson A., assignor.)						
Hale, Thomas J., Claiborne, Ohio. Box for vehicle-axles	578,235	Mar. 2	708	161	78	1395
Haley, Charles H., *et al.* (See Haley, Fred H., assignor.)						
Haley, Fred H., assignor, by mesne assignments, to Combination Stand Company, Batavia, Ill. Combination-stand	575,711	Jan. 26	2359	555 / 556	78	498
Haley, Fred H., assignor to C. H. and I. M. Haley, Batavia, Ill., and G. B. Collins, Denton, Tex. Seal-lock	576,309	Feb. 2	418	98	78	716
Haley, Ida M., *et al.* (See Haley, Fred H., assignor.)						
Haley, Patrick, Chicago, Ill. Jack for seating tie-plates	578,809	Mar. 16	1811	415	78	1650
Haley, Thomas, Cambridge, assignor of one-half to M. H. Hart, Boston, Mass. Hose-strap and spanner	579,748	Mar. 30	3339	799	78	1972
Hall, Charles H (See Wood, Thomas F., assignor.)						
Hall, Charles M., Niagara Falls, N. Y. Manufacture of steel	575,110	Jan. 12	1291	.....	78	260
Hall, Harris F., Jersey City, N. J., assignor of one-half to N. B. Trist, Pittsburg, Pa. Tube-cleaner	578,922	Mar. 16	1901	440	78	1665
Hall, James T., Monticello, Ark. Invalid-bed	577,743	Feb. 23	2864	679	78	1220

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Hall, John W. (See Stover, Mark E., assignor.)						
Hall, Joseph R., and J. J. Gaynor, Indianapolis, Ind.; said Gaynor assignor to said Hall. Band-cutter and feeder for threshers	575,507	Jan. 19	2086	498	78	430
Hall, Louis H. (See Alexander, Payne, and Mann, assignors.)						
Hall, Louis H. (See Moscheles, Robert, assignor.)						
Hall, Louis H. (See Violet, Richard, assignor.)						
Hall, Robert F., F. Warwick, and T. Smith, Birmingham, England. Means for removing seamless tubes from mandrels	577,206	Feb. 16	2073	490	78	1056
Hall Signal Company. (See Hall, William P., assignor.)						
Hall, William, New Haven, Conn. Right and left hand stop and waste cock	577,510	Feb. 23	2457	579	78	1145
Hall, William P., Greenwich, Conn., assignor to Hall Signal Company, of Maine. Railway-signal	578,236	Mar. 2	709	161	78	1396
Hallas, James G., Waterbury, Conn., assignor to American Brass Novelty Company, Grand Haven, Mich. Time-alarm	578,059	Mar. 2	370	88	78	1382
Halley, Hillary H., and R. I. McCulley, Stiles, Tex. Valve	574,540	Jan. 5	265	62, 63	78	52
Halloran, Henry G. (See Chaplin and Halloran.)						
Hallstrom, John S. (See Bremer and Lundgren, assignors.)						
Halsey, Frederic A., Sherbrooke, Canada. Pneumatic pump	578,330	Mar. 9	879	199	78	1446
Halsey, Louis M., Brooklyn, N. Y. Slide-carrier	577,022	Feb. 16	1615	384	78	969
Halsey, Louis M., Brooklyn, N. Y. Trolley-pole controller	577,853	Mar. 2	28	9	78	1266
Halton, Thomas, Philadelphia, Pa. Jacquard mechanism for looms	577,744	Feb. 23	2866	680	78	1220
Hamer, Frank G., Cincinnati, Ohio. Adjustable self-draining cock	577,608	Feb. 23	2641	623	78	1178
Hamilton, Andrew J. (See Hamilton, William, assignor.)						
Hamilton, John A., New York, N. Y. Fastening for gas-cocks, &c	576,609	Feb. 9	1029	242	78	847
Hamilton, Oswald, Northfleet, England. Production of basic carbonate of lead	576,670	Feb. 9	1032	556	78	847
Hamilton, Richard F., and J. Wodiska, New York, N. Y. Bicycle-pedal	575,712	Jan. 26	2362	555	78	499
Hamilton, Wallis H., Palmyra, N. J. Animal-trap	577,745	Feb. 23	2867	680	78	1220
Hamilton, William, Allegheny, Pa. Burial-casket	579,091	Mar. 16	2188	513	78	1728
Hamilton, William, South Bend, Ind., assignor of one-third to A. J. Hamilton, Globe, Ariz. Ter. Wheel for bicycles	575,847	Jan. 19	1709	407	78	360
Hamlin, Charles S., assignor to J. E. Koeberle, Los Angeles, Cal. Sheet-metal pipe	576,671	Feb. 9	1033	242	78	847
Hamlin, Henry A., and D. Hunter, Minneapolis, Minn. Pneumatic-despatch system	578,237	Mar. 2	711	161, 162	78	1396
Hamm, William S., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Tubular lamp	577,746	Feb. 23	2869	680	78	1221
Hammacher, Siegfried, Berlin, Germany. Active mass for electric accumulators	578,870	Mar. 16	1813		78	1650
Hammer, John N., South Chicago, Ill. Pocket protector or guard	579,749	Mar. 30	3340	799	78	1972
Hammett, Philip M., *et al.* (See McLaughlin, Milton P., assignor.)						
Hammon, Clarence D., Minneapolis, Minn. Washing-machine	576,190	Feb. 2	211	53	78	676
Hammon, Hiram F., Palm Beach, Fla. Wheel for vehicles	574,588	Jan. 5	259	61	78	51
Hammond, Mary M. (See Hammond, William F., assignor.)						
Hammond, Ormund, Jr., Baltimore, Md. Can for ice-making machines	576,672	Feb. 9	1034	242	78	847
Hammond, Philip, Attleborough, England. Meat-safe for butchers, &c	578,923	Mar. 16	1908	440, 441	78	1666
Hammond Type Writer Company. (See Dorman, John H., assignor.)						
Hammond, William F., assignor to M. M. Hammond, Kansas City, Mo. Sample-display case	575,348	Jan. 19	1710	407	78	360
Hampe, Wilhelm, and C. Schnabel, Hanover, Germany. Manufacture of zinc oxid	579,750	Mar. 30	3341		78	1973
Hancock, Eddie W., and L. Bailey, Epping, Ga. Lamp-bracket	577,023	Feb. 16	1618	384	78	970
Hand, David B. (See Thomas, Frank, assignor.)						
Haney, Allen O., Milford, Ind. Governor	578,238	Mar. 2	714	162	78	1397
Hankerson, Abbie D. (See Bradstreet, William D., assignor.)						
Hanks, Thomas E., and F. C. Purdy, assignors to Spring Pumping Machine Company, Sterling, Kans. Spring pumping-machine	576,963	Feb. 9	1495	355	78	985
Hanley, Patrick J., Amesbury, Mass. Damper and heat-deflector	574,480	Jan. 5	171	40	78	34
Hanna, Isaac B., Kankakee, Ill. Device for removing cranks from bicycle-shafts	577,953	Mar. 2	212	51	78	1302
Hannum, M. L. (See Culhan, Edward, assignor.)						
Hanscom, Darius B., Salem, Mass. Ladder-gripping attachment for boots or shoes	579,577	Mar. 30	3056	721	78	1918
Hansen, Arthur von. (See Constam and Hansen.)						
Hansen, Hans C., Ithaca, N. Y. Cover for pails	577,747	Feb. 23	2870	680	78	1221
Hansen, James. (See Jensen and Hansen.)						
Hansen, John A. (See Schmitt and Hansen.)						
Hansen, John S., Medford, Mass., assignor to American Postal Machines Company, Portland, Me. Letter-feeding attachment for mail-marking machines	576,116	Feb. 2	68	16	78	649
Hansman, Albert A., Quigley, Iowa. Gate	574,991	Jan. 12	1087	264	78	222
Hanson, Charles, Hillsborough, N. D. Twine tension device	578,099	Mar. 2	440	102	78	1345
Hanson, Miles A., Port Washington, Wis. Chair iron and leg	575,713	Jan. 26	2363	556	78	499
Hanson, Oscar R., Pegau, Austria-Hungary. Horseshoe-nail-blank machine	579,869	Mar. 30	3542	846	78	2011
Hanson, Torvald, Eau Claire, Wis. Drawer-guide	575,945	Jan. 26	2743	648	78	571
Hardegen, Paul, Berlin, Germany. Microphone	575,887	Jan. 26	2656	627	78	555
Hardgrave, Cager, assignor of two-thirds to E. T. McConnell and A. M. McLane, Clarksville, Ark. Seed-potato cutter	574,416	Jan. 5	65	15	78	14
Hardie, Robert, Rome, assignor to General Compressed Air Company, New York, N. Y. Charging device for air-storage motor-cars	577,024	Feb. 16	1619	384, 385	78	970
Hardin, E. W. (See Nevill, William B., assignor.)						
Harding, Eliza J., Denver, Colo. Depurator	577,297	Feb. 16	2074	490	78	1056
Harding, Fred D. (See Hawkes and Harding.)						
Harding, Henry J., *et al.* (See Carter, Robert A., assignor.)						
Hardsocg Manufacturing Company. (See Eisenbeis and Simmons, assignors.)						
Hardy, Charles S., San Diego, Cal. Refrigerator-car	577,748	Feb. 23	2871	681	78	1221
Hare, John R., Baltimore, Md. Car-coupling	577,208	Feb. 16	2075	491	78	1057
Harman, Daniel M., Philadelphia, Pa. Suspension-railway	579,147	Mar. 23	2286	538	78	1755
Harmon, Frank L., assignor of one-half to R. H. Woodbury, Beverly, Mass. Die-block	579,537	Mar. 23	2961	700	78	1880
Harmon, Frank M. (See Harmon, James A. and F. M.)						
Harmon, James A. and F. M., Albany, Tenn. Seed-planter and fertilizer-distributer	576,575	Feb. 9	883	204	78	819
Harms, George. (See Meyer and Harms.)						
Harness, Henri N. (See Ottaway, James P., assignor.)						
Harper, Daniel W., Birmingham, Ala., assignor of one-half to T. R. Farnsworth and R. L. Matthews, Memphis, Tenn. Cash-register	577,164	Feb. 16	1862	439, 440	78	1017
Harpole, Lafe, *et al.* (See Robinson, Rochfort W., assignor.)						
Harrington, Fred M. (See Hudson, Charles W., assignor.)						
Harrington, Walter E., Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Automatic electromagnetic circuit-breaker	579,431	Mar. 23	2738	650	78	1898
Harris Automatic Press Company. (See Harris, Charles G., assignor.)						
Harris, Charles G., Niles, Ohio. Apparatus for feeding paper to printing-presses	577,299	Feb. 16	2076	491	78	1057
Harris, Charles G., Niles, Ohio. Printing-press	577,300	Feb. 16	2079	492	78	1058

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Harris, Charles G., Niles, Ohio. Printing-press	578,739	Mar. 16	1580	365	78	1608
Harris, Charles G., Niles, Ohio. Paper-feeding machine	579,362	Mar. 23	2627	621	78	1819
Harris, Charles G., assignor to Harris Automatic Press Company, Niles, Ohio. Printing-press	577,381	Feb. 16	2221	523, 532	78	1085
Harris, Charles G., Niles, and J. F. McNutt, Warren, Ohio; said McNutt assignor to said Harris. Printing-machine	577,405	Feb. 16	2267	533, 534	78	1092
Harris, Charles R. (See Labofish, Charles S., assignor.)						
Harris, Charles T., Alfred, N. Y. Roofing and sheathing tile	579,481	Mar. 23	2879	677	78	1864
Harris, Elmer S., Haverhill, Mass., assignor to Goodyear Shoe Machinery Company, Portland, Me. Inseam-trimming machine	579,751	Mar. 30	3342	799, 800	78	1973
Harris, George H., assignor to Scioto Furniture Company, Kenton, Ohio. Rocking-chair	574,801	Jan. 5	723	173	78	136
Harris, George W., and R. J. Holland, New York, N. Y. Secondary battery and forming same	574,417	Jan. 5	66	15	78	14
Harris, James M., Des Moines, Iowa. Filter	579,232	Mar. 23	2422	573	78	1781
Harris, Jesse, Lynn, Mass. Electric meter. (Reissue)	11,588	Feb. 2	794	186	78	787
Harris, John L., Webster, S. D. Cuspidor	578,012	Mar. 2	304	72	78	1319
Harris, Rush R., Bloomingville, Ohio. Air-pump	575,946	Jan. 26	2744	648	78	571
Harris, Solomon M., and M. Breisch, New York, N. Y. Railway-switch	576,845	Feb. 9	1301	310, 311	78	899
Harris, Thomas C., Pierre, S. D. Boiler-furnace	579,233	Mar. 23	2424	573, 574	78	1782
Harris, William C., assignor to A. Plamondon Manufacturing Company, Chicago Ill. Friction-clutch	577,252	Feb. 16	2002	473	78	1043
Harris, William H., assignor to W. A. Milliken, Washington, D. C. Apparatus for manufacturing gas	579,110	Mar. 16	2221	523, 524	78	1728
Harrison, Dora, Lansing, Mich. Bosom-pad	579,824	Mar. 30	3462	829	78	1996
Harrison, Dora, Lansing, Mich. Dress-shield	579,825	Mar. 30	3463	830	78	1996
Harrison, Frederick J., Orange, N. J., assignor to E. & H. T. Anthony & Company, of New York. Screen-shutter for color photography	578,147	Mar. 2	540	123	78	1365
Harrison, James, Vacaville, assignor of one-third to J. T. Foster, Berkeley, Cal. Fruit pitting and spreading machine	575,886	Jan. 26	2653	627	78	554
Harrison, John, Stamford, England. Bicycle	578,013	Mar. 2	305	72, 73	78	1319
Harrison, John H., assignor to C. Blondel and A. E. Bayreuther, New York, N. Y. Water-purifier	577,134	Feb. 16	1813	427	78	1008
Harrison, William F., Pittsburg, assignor to Homestead Manufacturing Company, Limited, Homestead, Pa. Valve	579,492	Mar. 23	2741	650	78	1898
Harrison, William H. (See Matthias and Harrison.)						
Harrison, William H. (See Matthias and Harrison.)	576,451	Feb. 2	652	156	78	760
Harrison, William W., and J. Keers, Philadelphia, Pa. Wharf structure	577,363	Feb. 16	2183	516	78	1077
Harrison, Williamson R., Massillon, Ohio. Feed-cutter	577,655	Feb. 23	2721	642	78	1194
Harryman, Charles L., assignor of one-half to W. T. Pyne, Louisville, Ky. Railway-brake	578,148	Mar. 2	543	123	78	1365
Hart, Edwin, assignor to Waterbury Watch Company, Waterbury, Conn. Cyclometer tappet or actuating device	578,486	Mar. 16	2015	469	78	1687
Hart, Eli S., Clinton, Iowa, assignor to Rodger Ballast Car Company, Chicago, Ill. Dumping-car	575,947	Jan. 26	2746	648	78	571
Hart, George D., Lynn, Mass. Pencil-sharpener	575,521	Jan. 19	2002	478	78	415
Hart, John B., Clarksburg, W. Va. Set-gear for sawmills	576,452	Feb. 2	653	156	78	760
Hart, John W., assignor to J. McBrine and F. W. Hewit, Guthrie, Okla. Ter. Water-filter	578,511	Mar. 9	1182	268	78	1504
Hart, Louis H., Melbourne, Victoria. Self-acting stereopticon						
Hart, Milton H. (See Haley, Thomas, assignor.)						
Hart, Robert C., New Haven, Conn., and R. S. Field, Brooklyn, N. Y. Railway-switch	578,924	Mar. 16	1904	441	78	1666
Hart, William H., Brooklyn, N. Y. Marine drag	578,562	Mar. 9	1273	289	78	1521
Hartford, David F., Boston, Mass. Automatic variable-speed and stop mechanism	579,870	Mar. 30	3544	847	78	2011
Hartford Machine Screw Company. (See Witherell, George E., assignor.)						
Harthan, Charles E., Lynn, Mass., assignor to General Electric Company, of New York. Carbon-holder	579,267	Mar. 23	2478	585	78	1791
Harthan, Charles E., Lynn, Mass., assignor to General Electric Company, of New York. Arc-light cut-out	579,268	Mar. 23	2479	585	78	1791
Hartigan, Joseph F. (See Bucklin and Hartigan.)						
Hartigan, Joseph F., Washington, D. C. Tobacco feeding and dressing mechanism	578,740	Mar. 16	1582	365, 366	78	1608
Hartigan, Joseph F., Washington, D. C. Feeding device for cigarette-machines	578,741	Mar. 16	1583	366	78	1608
Hartman, Benjamin F., Pickering, Pa. Axle-spindle	574,418	Jan. 5	69	15	78	15
Hartman, John R., Davenport, Iowa. Washing-machine	579,578	Mar. 30	3057	721	78	1918
Hartman, Leopold, New York, N. Y. Manufacture of mantles for incandescent gas-burners	577,187	Feb. 16	1898	448	78	1024
Hartshorn, Willis N. (See Stout and Hartshorn.)						
Hartwell, Harry, Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Railway-switch	574,481	Jan. 5	172	40	78	34
Hartzell, Frank E., Alliance, Ohio. Hose-reel	574,419	Jan. 5	72	15	78	15
Harvat, George F. (See Loeber and Harvat.)						
Harvey, James J., Kidderminster, England. Dust-remover	577,854	Mar. 2	30	9	78	1266
Harvey, Patrick, Chicago, Ill. Closet-operating tank and valve	575,111	Jan. 12	1292	312	78	260
Harvey, William E. (See Barr and Johnson, assignors.)						
Harwood, George W., Brooklyn, N. Y. Device for cleaning buttons	577,025	Feb. 16	1622	385	78	970
Hastie, William G., *et al.* (See Mummery, Edwin G., assignor.)						
Hastings, Charles H. (See Chase, Willard C., assignor.)						
Hastings, Charles H., Chicago, Ill. Magazine-case	574,482	Jan. 5	173	40	78	34
Hastings, Francis H., and F. J. Flaherty, assignors to Hook & Hastings Company, Weston, Mass. Electropneumatic organ-action	578,925	Mar. 16	1905	441	78	1666
Hastings, Gardner P., Springfield, Mo. Magazine-firearm	576,964	Feb. 9	1497	355, 356	78	935
Hasty, Joseph P., Superior, Nebr. Staple-setting implement	579,538	Mar. 23	2962	700	78	1881
Hatch, Charles A., Hartford, Conn. Car-fender	577,954	Mar. 2	213	51	78	1302
Hatch, Charles B. (See Thompson, Thomas, assignor.)						
Hatch, Francis M., South Bend, Ind. Bicycle newspaper-rack	578,871	Mar. 16	1813	416	78	1650
Hatch, Herbert O., assignor of one-half to G. F. Tibbetts, Cliftondale, Mass. Frying-pan cover	575,349	Jan. 19	1712	407	78	360
Hatch, Kate, Brooklyn, N. Y. Safety baby-holder	574,731	Jan. 5	620	147	78	115
Hatmaker, James R. (See White, George, assignor.)						
Hatschek, Moritz P., *et al.* (See Clowes, George A., assignor.)						
Hatter, John A., assignor of one-half to L. H. Boyd, Vicksburg, Miss. Combination steam-cooker	577,604	Feb. 23	2642	623, 624	78	1179
Haubtman, Leon F., New Orleans, La. Apparatus for clarifying saccharine solutions	574,732	Jan. 5	621	148	78	115
Hauger, Joseph C., Shepherdstown, W. Va. Sprocket-chain	576,115	Feb. 2	61	16	78	649
Haughn, Wesley A., and S. Bufkin, Columbus, Ohio. Steam-engine	576,576	Feb. 9	885	204	78	820

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Haupt, Herman, Washington, D. C., assignor to General Compressed Air Company, New York, N. Y. Pneumatic railway	576,975	Feb. 9	1528	361	78	942
Haupt, Herman, Washington, D. C., assignor to General Compressed Air Company, New York, N. Y. Pneumatic motor-car	578,738	Mar. 16	1579	365	78	1008
Haupt, Paul, Baltimore, Md. Book	577,253	Feb. 16	2008	474	78	1044
Hauserman, Jacob, Eustis, Nebr. Barb-wire-reeling machine	579,752	Mar. 30	3345	800	78	1973
Havell, George, assignor to Havell Manufacturing Company, Newark, N. J. Spring-bracket for bicycle-lamps	579,677	Mar. 30	3223	765 / 766	78	1950
Havell, George, and A. G. Williams, Newark, N. J. Bracket with spring-jaw for supporting bicycle-lamps	579,678	Mar. 30	3226	766	78	1950
Havell, George, and A. H. Meyer, Newark, N. J., assignors to Havell Manufacturing Company, of New Jersey. Bicycle-lamp	578,451	Mar. 9	1067	243 / 244	78	1481
Havell Manufacturing Company. (See Havell, George, assignor.)						
Havell Manufacturing Company. (See Havell and Meyer, assignors.)						
Haviland, Harry F., Philadelphia, Pa. Paper-holder	575,508	Jan. 19	2087	498	78	431
Hawes, George H., Racine, Wis. Vehicle-spring head	577,428	Feb. 23	2318	544	78	1119
Hawes, William L., Cincinnati, Ohio. Fifth-wheel	575,112	Jan. 12	1294	312	78	261
Hawker, William, Windsor Mills, Canada. Electric-current regulator	575,235	Jan. 12	1502	360	78	302
Hawkes, Daniel W., Deering, and F. D. Harding, Baldwin, Me.; said Harding assignor to said Hawkes. Dish-cleaner	576,117	Feb. 2	65	17	78	650
Hawkins, Harry C., Blind River, Canada. Saw-vise	575,509	Jan. 19	2089	499	78	431
Hawkins, Millard J., Farnham, N. Y. Fluxing-machine	578,452	Mar. 9	1070	244	78	1482
Hawkins, Russell. (See Dolley, Hawkins, and Lightfoot.)						
Hawksworth, Harry E., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Means for raising or lowering dental chairs	577,254	Feb. 16	2004	474 / 475	78	1044
Hawksworth, Harry E., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Vulcanizer	579,798	Mar. 30	3423	820	78	1987
Hawkyard, John, Saddleworth, assignor to J. Braddock, Oldham, England. Prepayment gas-meter	579,871	Mar. 30	3546	847 / 848	78	2012
Hawley, Robert E. (See Worthen and Darling, assignors.)						
Hay, Gilbert, St. Louis, Mo. Staple-setting machine	579,148	Mar. 23	2288	538 / 539	78	1735
Hay, William G., Jacksonville, Mo. Wire-fastener	578,100	Mar. 2	440	103	78	1345
Hayball, William, Portland, Oreg. Reservoir blacking-brush	576,902	Feb. 9	1567	372	78	949
Haycraft, Joseph H., assignor to Haycraft's Gold Extraction Company, Limited, Adelaide, South Australia. Treating auriferous and argentiferous ores	579,872	Mar. 30	3549	848	78	2012
Haycraft's Gold Extraction Company. (See Haycraft, Joseph H., assignor.)						
Hayes, Charles E. (See Douglass, Charles C., assignor.)						
Hayes, Hector J., and Z. J. Dilley, Muir, Mich. Bicycle-leader	577,749	Feb. 23	2872	681	78	1221
Hayes, Will L., and L. W. Jernberg, Cleveland, Ohio; said Jernberg assignor to said Hayes. Apparatus for treating wire, &c	578,819	Mar. 16	1730	397 / 398	78	1637
Hayne, William P., Campti, La. Bale-tie	577,511	Feb. 23	2459	579	78	1145
Hays, Datus L., assignor of one-half to S. P. Morgan, Mooers Forks, N. Y. Fly-trap	577,855	Mar. 2	31	9, 10	78	1266
Hays, Jasper, Nashville, Tenn. Mechanism for propelling vessels	578,987	Mar. 16	2017	469	78	1688
Hayslip, De Witt C., Circleville, Tex. Cultivator-plow	575,507	Jan. 19	1983	474	78	412
Hayton, George W., Brooklyn, assignor of one-half to I. Braveman, New York, N. Y. Bridge-wall for boilers	575,948	Jan. 26	2746	649	78	572
Haywood, John J., and H. Marquedant, Rives Junction, Mich. Trotting-sulky	579,149	Mar. 23	2293	539	78	1756
Hazzard, Marvin M., Nile, N. Y. Mowing-machine	577,512	Feb. 23	2460	580 / 581	78	1145
Heacock, Foster J., Salem, Ind. Permutation-lock	577,301	Feb. 16	2080	492	78	1058
Headford, Edward H., assignor to Schreiber & Couchar Manufacturing Company, Dubuque, Iowa. Adjustable fireback	578,331	Mar. 9	881	199	78	1446
Heafer, John F. (See Schimmel, John P., assignor.)						
Heald, Alfred, Philadelphia, Pa. Woven fabric	578,742	Mar. 16	1585	366	78	1609
Healy, John, New York, N. Y. Garbage-cart	576,727	Feb. 9	1113	263	78	863
Heap, Charles. (See Grosselin, Nicolas H., assignor.)						
Hearttagen, John, Allentown, Pa. Folding seat	577,955	Mar. 2	216	51, 52	78	1303
Heaston, Adren L., Bingham Cañon, Utah. Device for operating jig-plungers	578,988	Mar. 16	2017	470	78	1688
Heath, Walter A., A. L. Jacobs, and A. M. King, Wilmington, Del.; said Heath assignor to said Jacobs and King. Sliding-door-operating mechanism	575,644	Jan. 19	2227	529	78	461
Heathman, William F., assignor of forty-nine one-hundredths to Z. B. West, Santa Ana, Cal. Means for extracting gold and silver from sea-water	576,118	Feb. 2	66	17	78	650
Heatley, Herbert. (See Bokern, William von, assignor.)						
Heaton, William, New Berlin, assignor of one-half to C. Bensene, Tess Corners, Wis. End-gate step for wagons	578,332	Mar. 9	882	200	78	1446
Heckard, William A., and D. Ogden, Columbus, Ind. Telephone-call register	577,920	Mar. 2	161	38	78	1292
Heckard, William A., and D. Ogden, Columbus, Ind. Car-announcer	578,402	Mar. 9	981	223	78	1465
Heckel, John, Rochester, N. Y. Heel-cutting die	574,902	Jan. 12	902	219	78	189
Hedberg, Alexander S., Chicago, Ill. Convertible attachment for chairs	576,077	Jan. 26	2972	701	78	610
Hegel, William, Newark, assignor of one-half to P. Kroell, Elizabeth, N. J. Rope-clamp	575,064	Jan. 12	1215	295	78	246
Heidel, Gustavos. (See Stinson, David W., assignor.)						
Heideman, George B., Bellevue, Ky. Dish-cleaner	574,606	Jan. 5	391	89	78	74
Heim, Josef, Offenbach-on-the-Main, Germany. Machine for spreading liquids over sheets of paper, &c	577,683	Feb. 23	2760	652	78	1201
Heindel, Charles H., Glen Rock, Pa. Shuttle-motion for looms	575,927	Jan. 26	2716	642	78	565
Heine & Co. (See Hesse, Albert, assignor.)						
Heineke, Martin. (See Sattley and Heineke.)						
Heinrich, Friedrich E., Stuttgart, Germany. Shooting-rest for firearms	577,020	Feb. 16	1623	385	78	970
Heinze, Hermann, Chicago, Ill. Skate	577,027	Feb. 16	1624	385	78	971
Heinzerling, Christian, Frankfort-on-the-Main, Germany. Recovering volatile substances from air or other gases	575,714	Jan. 26	2365	557	78	499
Heiser, William, Buffalo, N. Y. Manhole-fitting for brewers' vats, &c	574,420	Jan. 5	73	16	78	15
Held, Leonard, Cleveland, Ohio. Valve for pneumatic tires	574,902	Jan. 12	1088	264	78	222
Helder, Jan, Dokkum, Netherlands. Cheese-making apparatus	577,028	Feb. 16	1626	386	78	971
Hellyar, William H. (See Sword, Robert, assignor.)						
Helmers, Ludwig O., assignor to Ichthyol Gesellschaft, Cordes, Hermanni & Co., Hamburg, Germany. Obtaining aqueous solutions of phenols	574,421	Jan. 5	75	------	78	15
Helmolt, John L., New York, N. Y. Propulsion of vessels	577,750	Feb. 23	2873	681	78	1222
Henderson, Alexander, Kansas City, Mo. Inhaler	577,966	Mar. 2	217	52	78	1305
Henderson, Daniel, Kingsley, Iowa. Display-stand	576,453	Feb. 2	654	156	78	760
Henderson, Mary F., Washington, D. C. Bicycle-saddle	576,310	Feb. 2	421	98	78	716
Hendricks, Edward A. (See Sawyer and Hendricks.)						
Hendricks, William W., Bolivar, Mo. Wire-stretcher	577,617	Feb. 23	2661	628	78	1182
Hendrickson, Edward P., New York, N. Y. Finger-ring	575,604	Jan. 19	2159	512	78	446
Hendrickson, John F., Boston, Mass. Drill-chuck	577,656	Feb. 23	2723	643	78	1194

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Hengst, Edgar S., Hellam, Pa. Shading-pen	577,188	Feb. 16	1808	449	78	1024
Henkel, George H., Middletown, Ohio. Parcel-carrier for bicycles	579,753	Mar. 30	3346	801	78	1973
Henlein, Charles, Cincinnati, Ohio. Stringed musical instrument	578,872	Mar. 16	1814	416	78	1651
Henneberry, Thomas, Denver, Colo. Anti-interfering device	579,208	Mar. 23	2522	596	78	1799
Hennessey, Michael W., Brooklyn, N. Y. Fire-escape and water-tower	578,989	Mar. 16	2019	470	78	1688
Hennessey, Thomas J., Jackson, assignor of one-half to W. W. Smith, Detroit, Mich. Track-sanding apparatus for locomotives	576,055	Jan. 26	2941	693	78	605
Hennessy, W. J. (See Trumbull, Frank H., assignor.)						
Henquin, Nestor, Schenectady, N. Y. Railway signaling system	575,065	Jan. 12	1216	296	78	246
Henri, Polidore, Hartford, Ind. Tank for manufacturing window-glass	578,563	Mar. 9	1274	289	78	1522
Henrici, William A. E., Chelsea, Mass. Dampening-machine	575,836	Jan. 26	2559	604	78	536
Henry, Philip W., assignor to Barber Asphalt Paving Company, New York, N. Y. Apparatus for repairing asphalt pavements	574,681	Jan. 5	537	124 / 125	78	98
Henry, William K., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Door-check	576,965	Feb. 9	1504	356 / 357	78	937
Hent, Reuben W., San Francisco, Cal. Roller-bearing	579,269	Mar. 23	2482	596	78	1791
Henzie, Jacob J., Deep River, Iowa. Undertaker's folding truck	577,364	Feb. 16	2185	517	78	1078
Heppner, Frederick, New York, N. Y. Roughing attachment for horseshoes	576,816	Feb. 9	1256	299	78	890
Herb, Joseph, West Superior, Wis. Fire-extinguishing compound	579,234	Mar. 23	2425	------	78	1782
Herbert, Albert, *et al.* (See Small, Andrew Y., assignor.)						
Herden, Henry, Wellsborough, Pa. Centrifugal speed-indicator	579,826	Mar. 30	3464	880	78	1996
Herdrich, Charles. (See Cleaveland and Herdrich.)						
Herman, John M., Newark, N. J. Velocipede-lamp	578,564	Mar. 9	1275	290	78	1522
Hermance, Albert D. (See Marsh, Calvin D., assignor.)						
Hermann, Isaac A., Cleveland, Ohio. Time-detector	574,802	Jan. 5	725	173 / 174	78	137
Hermansader, Edward Z., and W. H. Blandy, Columbus, Ohio. Steam-trap	578,873	Mar. 16	1815	417	78	1651
Hermany, Horace D., Philadelphia, assignor of one-half to J. I. Mathias, Mahanoy City, Pa. Desk	578,743	Mar. 16	1586	367	78	1609
Hermes, John G., Mount Vernon, N. Y. Apparatus for supplying and heating water	576,846	Feb. 9	1302	311	78	899
Hermite, Eugène, Paris, France. Apparatus for purifying or disinfecting	575,645	Jan. 19	2238	529 / 530	78	461
Hernandez, Juan, San Luis Potosi, Mexico. Cutting attachment for muzzles of revolvers	575,940	Jan. 26	2747	649	78	572
Heron, Fred, Chicago, Ill. Metallic railway-car	578,990	Mar. 16	2020	470	78	1688
Herr, Harry M. (See Koennemann, Gustav, assignor.)						
Herreshoff Manufacturing Company. (See Herreshoff, Nathaniel G., assignor.)						
Herreshoff, Nathaniel G., assignor to Herreshoff Manufacturing Company, Bristol, R. I. Steam-engine	578,697	Mar. 9	1501	346	78	1565
Herrick, Robert F., trustee. (See Bailey, Fortune L., assignor.)						
Herrick, Robert F., trustee. (See Little, Charles H., assignor.)						
Herricks, George R., San Francisco, Cal. Balanced slide-valve	575,155	Jan. 12	1374	331	78	276
Herrington, William K., Rockford, Ill. Burnishing-machine	575,350	Jan. 19	1712	407 / 408	78	361
Herrman, Samuel. (See Engel and Herrman.)						
Herrmann, Leo F., Vienna, Austria-Hungary. Door	577,657	Feb. 23	2723	643	78	1194
Herrmann, Moritz, assignor to Firm of O. Fromme, Frankfort-on-the-Main, Germany. Mechanism for actuating pumps	575,299	Jan. 12	1610	384	78	322
Herrou, Al H., St. Louis, Mo., assignor to Anthony Wayne Manufacturing Company, St. Louis, Mo., and Fort Wayne, Ind. Oil-measuring pump	577,957	Mar. 2	219	52	78	1304
Hersey Manufacturing Company. (See Tilden, James A., assignor.)						
Hershey, Charles D., Hall's Corners, N. Y. Potato-digger	578,635	Mar. 9	1388	316	78	1543
Herstein, Bernard, Elizabeth, N. J. Wrench	577,255	Feb. 16	2006	475	78	1044
Hertzberg, Rafaël, Helsingfors, Russia. Cash apparatus	575,715	Jan. 26	2367	557	78	500
Hertzberg, Rafaël, Helsingfors, Finland. Type-writing machine	579,433	Mar. 23	2743	651	78	1889
Hertzler, John F., and F. Rogers, Lawrence, Kans.; said Rogers assignor to said Hertzler. Device for removing tire-bolts	578,636	Mar. 9	1389	316	78	1543
Heryford, J. R. (See Brittingham and Sterling, assignors.)						
Hess, Albert, Malden, Mass. Game apparatus	575,950	Jan. 26	2748	649	78	572
Hess, Edwin C., Camden, N. J. Speaking-tube attachment	578,101	Mar. 2	442	103	78	1346
Hess, George W., Haskins, assignor of one-half to H. J. Leary, Toledo, Ohio. Automatic cut-off for oil-tanks	578,744	Mar. 16	1588	367	78	1610
Hess, John H., assignor of one-half to T. Boll, Milwaukee, Wis. Hose-coupling	576,119	Feb. 2	67	17	78	650
Hess, John M., Ivester, Iowa. Motor	577,029	Feb. 16	1627	386	78	971
Hessberger, Johannes, Niedersedlitz, Germany. Electric meter	574,903	Jan. 12	903	219	78	190
Hesse, Albert, assignor to Heine & Co, Leipsic, Germany. Terpene alcohol	577,302	Feb. 16	2082	------	78	1058
Hesterhagen, August H., Jersey City, N. J. Cutting attachment for pliers	578,038	Mar. 2	341	81	78	1326
Hetzel, George T., Allegheny, Pa. Sharpening device	575,851	Jan. 19	1714	408	78	361
Heusch, Anton. (See Brandt, Paul, assignor.)						
Hewit, Frank W., *et al.* (See Hart, John W., assignor.)						
Hewitt, Benjamin, deceased. (See Wootton and Hewitt.)	578,874	Mar. 16	1817	417	78	1651
Hewitt, Columbus W., Darlington, S. C. Buggy-spring	576,365	Feb. 2	514	120	78	733
Hewitt, Peter C., New York, N. Y. Spring-tire	576,981	Feb. 9	1546	367	78	945
Hey, Hannah, Kansas City, Mo. Folding curtain-drying frame and pedestal	574,539	Jan. 5	261	61, 62	78	51
Heylman, Edward M., assignor to Parlin & Orendorff Company, Canton, Ill. Corn-planter	576,311	Feb. 2	422	99	78	717
Heymann, Edward and F. W., Boston, Mass. Gas-burner						
Heymann, Frank W. (See Heymann, Edward and F. W.)						
Heys, William G. (See Rowe and Heys.)						
Hibbard, Angus S., Chicago, Ill. Telephone system	576,577	Feb. 9	886	205	78	820
Hibbard, Henry D., assignor to Taylor Iron and Steel Company, High Bridge, N. J. Stamp shoe and die and making same	575,548	Jan. 19	2055	492	78	425
Hibbard, Henry D., assignor to Taylor Iron and Steel Company, High Bridge, N. J. Crusher-head	575,549	Jan. 19	2056	492	78	425
Hibbard, Henry D., assignor to Taylor Iron and Steel Company, High Bridge, N. J. Wheel	578,637	Mar. 9	1391	316	78	1543
Hickling, James, and T. Slater, London, England. Mold for bottle-stoppers	576,966	Feb. 9	1506	357	78	937
Hickman, James H. (See Kollenberg, Frederick G., assignor.)						
Hickman, V. Q. (See Melhorn, William E., assignor.)						
Hickok, Franklin K., New Haven, Conn. Corset	578,926	Mar. 16	1907	441	78	1667
Hicks, Elmer. (See Schneider, Joseph M., assignor.)						
Hicks, Emmazetta. (See Poindexter, Robert E., assignor.)						
Hicks, Thomas H., Detroit, Mich. Construction and regulation of electric machines	579,059	Mar. 16	2134	503	78	1712
Hien, Phillip, Chicago, Ill. Locking device for unlocking-levers of car-couplings	576,673	Feb. 9	1035	242	78	848
Hiering, Christian, Clinton, assignor to J. E. Mergott Company, Irvington, N. J. Bag or purse frame and catch	575,887	Jan. 26	2561	604	78	537
Higbee, Jessee T. (See Goff and Higbee.)						
Higginbotham, Charles T., Thomaston, Conn., assignor to Seth Thomas Clock Company, of Connecticut. Cyclometer	576,967	Feb. 9	1506	357 / 358	78	937

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Higgins, Albert L., Bar Harbor, Me. Painter's pot-hook and putty-knife	577,856	Mar. 2	33	10	78	1267
Higgins, Charles M., Brooklyn, N. Y. Adhesive	576,403	Feb. 2	579	.....	78	744
Higgins, Charles M., Brooklyn, N. Y. Adhesive	579,827	Mar. 30	3466	.....	78	1996
Higgins, H. C. (See Billings Fredric, assignor.)						
Higgins, John A., Manistee, Mich. Mop-wringer	577,080	Feb. 16	1628	387	78	971
Higgins, Josiah H., Ellsworth, Me. Fire-escape	579,060	Mar. 16	2136	508	78	1712
Highsmith, John H., Cornelia, Ga. Overshot or undershot wheel for propelling machinery	578,745	Mar. 16	1590	368	78	1610
Hildreth, Henry L., Saginaw, Mich. Boiler-flue cleaner	574,422	Jan. 5	76	16	78	15
Hilgeman, Henry B., St. Louis, Mo. Pipe	578,333	Mar. 9	883	200	78	1447
Hilgemeier, Christian. (See Lorash and Hilgemeier.)						
Hill, Benjamin F. (See Hooton, Amzi O., assignor.)						
Hill, Christian C. (See Peterson and Hill.)						
Hill, Clarence O., and P. W. Bly, Lee, Ill. Thill-coupling	575,352	Jan. 19	1715	409	78	361
Hill, David and J. S., Washington, N. C. Drying-kiln	579,709	Mar. 30	3279	781	78	1960
Hill, George F. (See Dade and Hill.)						
Hill, James S. (See Hill, David and J. S.)						
Hill, Jonathan, Jersey City, N. J. Belt-fastener	578,991	Mar. 16	2021	471	78	1689
Hill, Joseph W., and R. P. McKay, Portland, Oreg. Sheet-metal can	577,552	Feb. 23	2543	599	78	1161
Hill, Spencer R., *et al.* (See Miranda, Abraham R., assignor.)						
Hill, Thomas R., Philadelphia, Pa., assignor to Chouteau Manufacturing Company, of Missouri. Engine	576,191	Feb. 2	213	53	78	676
Hill, Thomas R., Philadelphia, Pa., assignor to Chouteau Manufacturing Company, of Missouri. Handle for direct-acting engines	578,603	Mar. 9	1334	303	78	1533
Hillard, Frederic W., Newark, N. J. Type-writing machine	575,898	Jan. 26	2657	627	78	555
Hilliker, Ryerson W., Kansas City, Kans. Foldable ladder	577,992	Mar. 2	257	61	78	1310
Hillsdale Manufacturing Company. (See Smith, Seth H. and A. S., assignors.)	575,397	Jan. 19	1795	431	78	374
Hillstrom, Alexander, *et al.* (See Larson, Emanuel, assignor.)						
Hilton, John W. (See Mullen, Charles R., assignor.)						
Hinchliffe, William, Huntsville, Ala., assignor to Sawyer Spindle Company, Boston, Mass. Spindle bearing or support	577,553	Feb. 23	2545	599	78	1161
Hinckley, Charles C. (See Tucker and Hinckley.)						
Hinckley, Livingston S., Newark, N. J. Phantom float	574,998	Jan. 12	1089	264	78	223
Hine, A. C., *et al.* (See Cornish, Harry B., assignor.)						
Hines, Calvert C., and J. A. Willard, Baltimore, Md., assignors to New York Bicycle Equipment Company, New York, N. Y. Apparatus for repairing pneumatic tires	575,889	Jan. 26	2650	628	78	555
Hines, James E., near Hinesville, Ga. Nut-lock	577,751	Feb. 23	2875	682	78	1222
Hinkley, Elisha D., Denver, Colo. Dental rubber-dam holder	576,518	Feb. 2	768	180	78	782
Hinman, Bertrand C., New York, N. Y. Process of and apparatus for extracting gold from ores	578,746	Mar. 16	1590	368	78	1610
Hinsdale, William R., Orange, assignor to C. P. Bassett, Summit, N. J. Submarine wrecking-boat	575,890	Jan. 26	2661	628	78	555
Hinse, Herman G. (See Bonnet, Adolphe, assignor.)						
Hinson Manufacturing Company. (See Reagan, Paul M., assignor.)						
Hintz, Charles, Macomb, Mich. Fanning-mill sieve	575,716	Jan. 26	2308	557	78	500
Hironimus, Fred W. (See Brandes and Hironimus.)						
Hirsch, Henry T., New York, N. Y. Pyrotechnic balloon	574,865	Jan. 5	840	205	78	158
Hirsch, Max, Radeberg, Germany. Means for decoloring glass	576,312	Feb. 2	424	.....	78	717
Hirsh, David F. (See Hirsh, Lena L., assignor.)						
Hirsh, Lena L., assignor to D. F. Hirsh, York, Pa. Cycling-skirt	579,061	Mar. 16	2138	508	78	1713
Hirzel, Heinrich, Plagwitz, near Leipsic, Germany. Apparatus for cleaning overflow-pipes in column apparatus	579,391	Mar. 23	2674	634	78	1827
Hitchcock, Charles F., and F. H. Edwards, Los Angeles, assignors, by mesne assignments, to Hitchcock Metal Company, San Francisco, Cal. Lawn-sprinkler	579,873	Mar. 30	3551	848	78	2012
Hitchcock Lamp Company. (See Bragger, John W., assignor.)						
Hitchcock Metal Company. (See Hitchcock and Edwards, assignors.)						
Hitchcock, Stephen K., Fair Haven, N. Y. Car-fender	574,733	Jan. 5	623	148	78	116
Hiteshew, Harvey B., assignor to Cleveland School Furniture Company, Cleveland, Ohio. Adjustable seat	578,291	Mar. 2	800	181	78	1412
Hoadley, Joseph H., San Francisco, Cal., assignor to Cramp-Hoadley Company, New York, N. Y. Rope-driving apparatus	576,674	Feb. 9	1036	243	78	848
Hobbs, James C., Louisville, Nebr. Whiffletree	577,031	Feb. 16	1630	387	78	972
Hobbs, Jefferson D., New York, N. Y. Telephonic messenger service	579,482	Mar. 23	2880	677	78	1864
Hobbs, John, Toronto, Canada. Fastening attachment	576,066	Jan. 26	2964	697	78	607
Hobbs, William I., *et al.* (See Boggs, Richard N. and J. J., assignors.)						
Hoberg, Frank H., Green Bay, Wis. Toilet-paper fixture	577,256	Feb. 16	2007	475	78	1044
Hochklassen, Henry, assignor, by mesne assignments, to C. N. Fay, Chicago, Ill. Type-writing machine	578,698	Mar. 9	1503	347	78	1565
Hocke, Julius G. (See Mockridge and Hocke.)						
Hodge, Charles J., Houghton, Mich. Jig for mineral or ore washing	575,236	Jan. 12	1503	361	78	302
Hodge, Charles J., Houghton, Mich. Jig for mineral or ore washing	575,646	Jan. 19	2242	530	78	462
Hodge, Thomas L., *et al.*, administrators. (See Janeway, John L.)						
Hodgkinson, James, Manchester, England. Mechanical stoker	574,423	Jan. 5	78	16	78	16
Hoefer, Charles. (See Raasch and Fahrmeier, assignors.)						
Hoefer, Daniel. (See Layne, Joseph W., assignor.)						
Hoeft, Herman W., assignor of one-half to W. J. Boycott, La Crosse, Wis. Bicycle-handle	579,925	Mar. 30	3624	868	78	2026
Hoermann, Theodor, assignor to W. M. Bowers and T. J. Bates, Jr., Berlin Village, N. Y. Bicycle-bell	577,618	Feb. 23	2663	629	78	1182
Hoerr, Franz, Toronto, Canada. Pianoforte	577,752	Feb. 23	2876	682	78	1222
Hoey, George E. (See Fort and Hoey.)						
Hoff, John P., Comanche, Tex. Combined barrel truck and support	576,578	Feb. 9	888	205	78	821
Hoffman, Adolph, Columbus, Ohio. Hammock-support	575,838	Jan. 26	2563	604	78	537
Hoffman, Michael, Dubuque, Iowa. Washtub-stand	574,424	Jan. 5	80	17	78	16
Hoffmann, Bernhard, Paris, France. Printing-telegraph	574,994	Jan. 12	1090	264, 265, 266	78	223
Hoffmann, Edward L., Buffalo, N. Y. Carriage-door hinge	577,983	Mar. 2	261	62	78	1310
Hofmeister, Flora, Racine, Wis. Starching-machine	577,632	Feb. 16	1631	387, 388	78	972
Hofmeyer, George A., assignor to R. Hofmeyer, New York, N. Y. Lubricator	577,658	Feb. 23	2725	644	78	1195
Hofmeyer, Rosalie. (See Hofmeyer, George A., assignor.)						
Hogan, John J., Middletown, N. Y. Steam-boiler	578,747	Mar. 16	1593	368	78	1611
Hogan, Thomas J., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Air-brake	574,866	Jan. 5	841	205	78	158
Hogel, Hascal A., Port Chester, N. Y., assignor of one-fourth to R. S. Penniman and J. C. Schrader, Dover, N. J. Process of and apparatus for making fertilizers	578,512	Mar. 9	1183	268	78	1504

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Holaday, Albert E., assignor of one-half to H. B. Ives, New Haven, Conn. Bicycle-support	576,071	Jan. 26	2961	698	78	608
Holahan, Thomas, Rochester, N. Y. Trolley-catcher	577,921	Mar. 2	165	39	78	1293
Holbrook, Theodore L., and C. Schu, Washington, D. C. Brick-drier	579,579	Mar. 30	3658	721, 722	78	1918
Holcomb, Presston L., Vandiver, Ala. Fire-shield	575,951	Jan. 26	2740	649	78	572
Holden, Charles L., Indianapolis, Ind. Heating apparatus for hot-water boilers	576,313	Feb. 2	425	99	78	717
Holden, William H., Chicago, Ill. Elastic tire for vehicle-wheels	574,682	Jan. 5	538	125	78	99
Holdsworth, John W., deceased, (R. R. Dodsworth, administrator,) assignor of one-half to R. R. Dodsworth, St. Louis, Mo. Electric bell	575,156	Jan. 12	1375	331	78	277
Holes, Charles, Ridgway, Pa. Clock-escapement	577,753	Feb. 23	2877	682	78	1222
Holland, Charles L., Revere, Mass. Lamp-chimney and holder therefor	579,270	Mar. 23	2485	586	78	1792
Holland, Curtis, Millis, assignor of one-half to D. Hunt, Boston, Mass. Illuminated sign	577,033	Feb. 16	1635	388	78	972
Holland, Elias C., Austin, assignor to Union Special Sewing Machine Company, Chicago, Ill. Machine for sewing looped fabrics	577,365	Feb. 16	2186	517	78	1078
Holland-Letz, Louis, Crown Point, Ind. Fodder-shredder	578,250	Mar. 2	732	166	78	1400
Holland, Richard J. (See Harris and Holland.)						
Holland, Robert N., *et al.* (See Crissey, Leroy M., assignor.)						
Holland, Thomas, Spokane, Wash. Stovepipe-coupling	578,638	Mar. 9	1393	316	78	1544
Holland, Thomas, London, England. Instep-arch support for feet	579,874	Mar. 30	3552	849	78	2012
Holleran, John, Notre Dame, Ind., assignor to L. Wolff Manufacturing Company, Chicago, Ill. Automatic flushing-tank for water-closets, urinals, &c	578,927	Mar. 16	1908	442	78	1667
Hollingsworth, Daniel H., Brooklyn, N. Y. Shears	578,453	Mar. 9	1073	245	78	1483
Holloway, William H., Brazil, Ind. Station-indicator	578,454	Mar. 9	1074	245	78	1483
Holm, Peter J., Eau Claire, Wis. Apparatus for administering medicated vapor-baths	579,580	Mar. 30	3061	722	78	1919
Holman, Silas W., Boston, Mass. Multiplex telephony	578,992	Mar. 16	2022	471	78	1689
Holmes, Allan, Dunedin, New Zealand. Landing-net	577,684	Feb. 23	2762	653	78	1201
Holmes, Buckley H. (See Parker, Charles E., assignor.)						
Holmes, Clarence A., Seattle, Wash. Concentrator	579,679	Mar. 30	3228	766	78	1951
Holmes, George A., Cambridge, Mass., assignor to Consolidated Fastener Company, Portland, Me. Fastening	574,904	Jan. 12	904	219	78	190
Holmes, James, H. E. Tankard, and W. Scaife, Bradford, England. Apparatus for removing fat from wool-washings	579,581	Mar. 30	3062	723	78	1919
Holmes, Percy F., Huddersfield, England. Apparatus for washing gas	574,689	Jan. 5	540	125	78	99
Holmes, Philip H., Gardiner, Me. Manufacturing articles from fibrous materials	577,135	Feb. 16	1815	.....	78	1008
Holmes, Thomas, Chelsea, Mich. Invalid-bed	577,303	Feb. 16	2083	492	78	1058
Holmes, William W., assignor to C. F. Quincy, Chicago, Ill. Slack-adjuster for brakes	577,659	Feb. 23	2726	644	78	1195
Holsman, Henry K., assignor of one-half to I. R. and J. R. Mudge, Chicago, Ill. Building	579,875	Mar. 30	3552	849	78	2012
Holst, Lodewyk J. R., Amsterdam, Netherlands. Magazine-camera	578,639	Mar. 9	1394	317	78	1544
Holt, Albert T. (See Toy and Holt.)						
Holthaus, Emil, Canarsie, N. Y., assignor to C. C. Currier, Newark, N. J. Apparatus for rendering and pressing	576,314	Feb. 2	426	99, 100	78	717
Holtorp, Berthold A. W., Hamburg, Germany, assignor of one-half to L. Katzenstein, New York, N. Y. Boat-detacher	579,434	Mar. 23	2746	651, 652	78	1839
Holyoke Envelope Company. (See Vines, John, assignor.)						
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Lamp-bracket	575,717	Jan. 26	2369	558	78	500
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Lamp-bracket	575,779	Jan. 26	2456	579	78	517
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Lamp-bracket	577,429	Feb. 23	2319	544	78	1119
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Lamp-bracket	578,014	Mar. 2	307	73	78	1320
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Bicycle-bell	578,513	Mar. 9	1187	268	78	1505
Homer, Charles A. (See Whitaker, Scott F., assignor.)						
Homer D. Bronson Company. (See Bronson, George S. and H. D., assignors.)						
Homer, Ellis. (See Homer, Whitney, assignor.)	575,300	Jan. 12	1612	384	78	322
Homer, Whitney, assignor to E. Homer, Warren, Pa. Chair-seat						
Homestead Manufacturing Company. (See Harrison, William F., assignor.)						
Homolka, Benno, Frankfort-on-the-Main, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Manufacturing aromatic aldehydes	575,237	Jan. 12	1505	.....	78	302
Honeywell, Eugene, Brooklyn, N. Y. Device for cleaning waste-pipes	579,483	Mar. 23	2881	677	78	1864
Honeywell, John, Greenville, Mich. Portable commode and chair	577,130	Feb. 16	1816	427, 428	78	1008
Hönig, Max, Brünn, Austria-Hungary. Making tannin extract	578,334	Mar. 9	884	.....	78	1447
Hood, John J. (See Crowther, Rossiter, Albright, and Hood.)						
Hood, Ralph O., Danvers, Mass. Electric-arc lamp	574,905	Jan. 12	905	220	78	190
Hood, William C., assignor to Racine Hardware Company, Racine, Wis. School-seat	574,425	Jan. 5	81	17	78	16
Hook & Hastings Company. (See Hastings and Flaherty, assignors.)						
Hooker, Fred. (See Guinn, John A., assignor.)						
Hooker, William C., Abingdon, Ill. Animal-trap	575,113	Jan. 12	1295	313	78	261
Hookham, George, Birmingham, England. Electric meter	579,582	Mar. 30	3064	724	78	1919
Hoole, Robert H. (See Sharp and Hoole.)						
Hooman, Thomas C., Ditton, England. Cask	577,857	Mar. 2	34	10	78	1267
Hooper, Frederick, London, England. Bicycle-garment	575,647	Jan. 19	2243	530	78	462
Hooper, William H., Hopedale, Mass. Portable molding apparatus	575,891	Jan. 26	2665	628	78	556
Hoot, Emanuel N. (See Phillips, Theadore F., assignor.)						
Hooton, Amzi O., assignor of one-half to B. F. Hill, Bridge, Oreg. Shading-pen	576,315	Feb. 2	430	100	78	718
Hoover, Frank, assignor of two-thirds to W. L. Bennett and D. G. Murrell, Paducah, Ky. Insulator	575,952	Jan. 26	2750	650	78	573
Hoover, Jay H., assignor of one-third to J. H. Kaiser, Pottsville, Pa. Radiating attachment for stovepipes	578,102	Mar. 2	443	103	78	1346
Hoover, Sidney A., and A. Lougheed, Port Arthur, Canada. Lamp-burner	578,875	Mar. 16	1818	417	78	1651
Hope, Herbert J., and F. Dobson, Sanford, Me. Pen-reservoir	577,137	Feb. 16	1817	428	78	1008
Hopedale Machine Company. (See Draper and Rhoades, assignors.)						
Hopedale Machine Company. (See Lawrence, Henry, assignor.)						
Hopedale Machine Screw Company. (See Roper and Nutting, assignors.)						
Hopkins, Benjamin F., Huntsville, Tex. Cotton-chopper	578,455	Mar. 9	1076	245	78	1483
Horn, John N. (See Coulter, Horn, Reiter, Lyda, Freidhoff, Davis, and Barnes.)						
Horne, William D., Yonkers, N. Y. Treating sugar or other solutions	579,754	Mar. 30	3348	.....	78	1974
Hornhauer, Theodor, assignor of one-fourth to F. A. Huller, Dresden, Germany. Magazine air-gun	578,820	Mar. 16	1731	398	78	1637
Hornish, Harry C., Peoria, Ill. Oil-burner	579,435	Mar. 23	2747	652	78	1839
Horovitz, Frank, New York, N. Y. Combined table and checker-board	577,984	Mar. 2	262	62	78	1311
Horras, Casper L., Manhattan, Iowa. Picket-fence-making machine	574,995	Jan. 12	1095	266	78	223

Alphabetical list of patentees, January to March, inclusive—Continued.

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Horry, William S., Gloucester City, N. J., assignor to R. M. Hunter, Philadelphia, Pa. Electric motor and dynamo	579,062	Mar. 16	2139	508	78	1713
Horspool, Francis L., Ogden, Utah. Locomotive trap-door	576,269	Feb. 2	344	81	78	702
Horster, Henry, assignor of one-half to S. B. Sansom, Evansville, Ind. Machine for quilling feathers	577,807	Feb. 23	2957	699	78	1288
Horton Basket Machine Company. (See Horton, Emmet, assignor.)						
Horton, Emmet, Dundee, N. Y., assignor to Horton Basket Machine Company, Washington, D. C. Basket-making machine	578,876	Mar. 16	1819	418, 419	78	1652
Hoskins, William, La Grange, and W. A. Spinks, Chicago, Ill. Substitute for billiard-chalk	578,514	Mar. 9	1189	.....	78	1505
Hoster, Theodore G., Rutherford, N. J. Self-playing stringed musical instrument	574,420	Jan. 5	82	17	78	17
Hotchkiss, Homer J., Ithaca, N. Y. Temporary binder	575,288	Jan. 12	1506	361	78	302
Houck, Josiah C., South Bend, Ind. Latch-operating device for steam shovels or dredges	574,803	Jan. 5	727	174	78	137
Hough, James. (See Laughlin and Hough.)						
Houghton, William. (See Reinhart, John J., assignor.)						
Houghton, William R. (See Diehl and Houghton.)						
Hourant, Felix E. (See Sérullas and Hourant.)						
House, Charles E., Yates, Mich. Oil-dressing for harness	578,060	Mar. 2	372	.....	78	1332
House, Henry A., Bridgeport, Conn. Boat	578,239	Mar. 2	715	162	78	1397
Houston, Edwin J., and A. E. Kennelly, Philadelphia, Pa. Electrical measuring instrument	579,344	Mar. 23	2602	614	78	1814
Houston, Mattie S. (See Peace, Philip P., assignor.)						
Howard, Anson M., New Haven, Conn. Wheel-tire	577,257	Feb. 16	2009	476	78	1045
Howard, Duane. (See Fenn, William B., assignor.)						
Howard, George B., *et al.* (See Mallett, Francis W., assignor.)						
Howard, Lyman D., Philadelphia, Pa., assignor to J. A. Jeffrey, Columbus, Ohio. Chain	574,900	Jan. 12	907	220	78	190
Howard, William G., and A. Roland, Champaign, Ill. Wagon-hub	578,083	Mar. 2	414	97	78	1349
Howarth, Jonathan. (See Webster and Howarth.)						
Howe, Charles S., and J. W. Langley, Cleveland, Ohio. Composition for repairing leaks in pneumatic tires	575,648	Jan. 19	2244	531	78	462
Howe, John, *et al.* (See Barnes, Thomas, assignor.)						
Howe, Martin V. B., Gardner, Mass. Breakable bottle	575,605	Jan. 19	2159	512	78	446
Howe, Martin V. B., Gardner, Mass. Vehicle-hub attachment	575,649	Jan. 19	2245	531	78	463
Howe, Thomas. (See Dobson, Frederick, assignor.)						
Howell, Albert L., Baton Rouge, La., assignor of one-half to A. B. Singletary. Bottle	579,516	Mar. 23	2929	689	78	1874
Howell, George H., Sioux City, Iowa. Upholstering-pin	575,157	Jan. 12	1376	331	78	277
Hoxie, Elias, Red Creek, N. Y. Wagon-pole attachment	577,578	Feb. 23	2588	610	78	1169
Hoyt, Frank M., *et al.* (See Sherman, Willis M., assignor.)						
Hoyt, Frank M., Milwaukee, Wis. Bicycle-saddle	576,192	Feb. 2	215	53	78	677
Hoyt, James T., New York, N. Y. Paper-holder	579,092	Mar. 16	2189	513	78	1723
Hoyt, Matthew L., Brighton, assignor to D. H. Burrell & Co., Little Falls, N. Y. Centrifugal liquid-separator	574,607	Jan. 5	392	89	78	74
Hubbard, Arthur G., Sterling, Ill. Combined table and foot-rest	577,138	Feb. 16	1818	428	78	1008
Hubbard, James F., Bradford, Pa. Milk-cooler	577,579	Feb. 23	2589	610, 611	78	1169
Hubbard, Moses G., Jr. (See McGuire and Hubbard.)						
Hubbard, Moses G., Jr., assignor to McGuire Manufacturing Company Chicago, Ill. Car-truck	577,481	Feb. 23	2401	564	78	1135
Hubbard, Thomas V., *et al.* (See Couper, James H., assignor.)						
Hubbart, Henry E., *et al.* (See Barlow, John, assignor.)						
Hubbell, Harvey, Bridgeport, Conn. Automatic tapping-machine	576,404	Feb. 2	580	136	78	745
Hubbell, Joseph H., Dayton, Ohio. Machine for cutting or slicing tobacco	575,963	Jan. 26	2751	650	78	573
Hubel, Frederick A., and J. M. Smith, Detroit, Mich.; said Smith assignor to said Hubel. Kiln for drying gelatin capsules	579,392	Mar. 23	2675	634, 635	78	1827
Huber, Edward, Marton, Ohio. Threshing-machine	576,270	Feb. 2	345	82	78	702
Hudgens, W. T. (See Bigby, Colquitt H., assignor.)						
Hudson, Charles W., Weedsport, N. Y. Cycle-brake	577,858	Mar. 2	35	10	78	1267
Hudson, Charles W., assignor of one-half to F. M. Harrington, Weedsport, N. Y. Bicycle lock and coaster	579,589	Mar. 23	2964	700	78	1881
Huebner, Julius, Milwaukee, Wis. Screw-propeller for life-boats	575,158	Jan. 12	1377	331, 332	78	277
Huenefeld, Ernst H., Cincinnati, Ohio. Flue-cover	578,748	Mar. 16	1595	369	78	1611
Huestis, Frederick W., Boston, Mass. Apparatus for winding tires	575,398	Jan. 19	1797	431	78	375
Huewe, George A., assignor to Keys-Lee & Huewe Company, Cincinnati, Ohio. Autographic register	576,847	Feb. 9	1303	311, 312	78	899
Huewe, George A., and W. T. Emmes, assignors to Keys, Lee & Huewe Company, Cincinnati, Ohio. Combined paper-box and printing machine	575,239	Jan. 12	1508	361, 362	78	308
Huff, Peter, Floyd, Va. Fertilizer	576,848	Feb. 9	1306	.....	78	900
Huffman, Oliver P. M., Portland, N. D. Bottle	575,954	Jan. 26	2754	650	78	573
Hug, Daniel, Denver, Colo. Water-wheel	576,728	Feb. 9	1117	263	78	864
Hug, Daniel, Denver, Colo. Water-wheel	576,849	Feb. 9	1306	312	78	900
Hughes, John M., Brooklyn, N. Y. Bicycle-step	578,335	Mar. 9	885	200	78	1447
Hughes, William. (See Reed, Josiah M., assignor.)						
Hughs, Hardin M., Three Mile Bay, N. Y. Heater	574,684	Jan. 5	541	126	78	99
Huizer, Samuel L. (See Platz and Huizer.)						
Hulbert, Seymour C., assignor to Phillips & Clark Stove Company, Geneva, N. Y. Damper for stove-doors	577,527	Feb. 23	2406	588	78	1152
Hull, Nelson Y., Plainfield, N. J. Truss	579,235	Mar. 23	2426	574	78	1782
Huller, Frederick A. (See Hornhauer, Theodor, assignor.)						
Hulsiglen, Ludwig, *et al.* (See Barnes, Thomas, assignor.)						
Hulme, James, assignor of fifty-one one-hundredths to F. Chase, Philadelphia, Pa. Stop-valve	579,876	Mar. 30	3554	849	78	2013
Hultgren, William H., assignor of one-half to Gardner Elevator Company, Detroit, Mich. Valve for hydraulic elevators	577,958	Mar. 2	221	53	78	1304
Hulwick, Perry A., Goshen, Ind. Sad-iron	574,685	Jan. 5	543	126	78	100
Humbrecht, Erasmus, Cincinnati, Ohio. Vehicle-wheel tire	576,072	Jan. 26	2964	699	78	609
Hume, Newton T., *et al.* (See Smith, Fred W., assignor.)						
Hume, Robert D., Gold Beach, Oreg. Can-making machinery	576,120	Feb. 2	69	17, 18, 19, 20, 21	78	650
Hume, Robert D., Gold Beach, Oreg. Can-making machine	576,121	Feb. 2	80	21, 22, 23	78	652
Hume, Robert D., Gold Beach, Oreg. Can heading and soldering machine	576,122	Feb. 2	85	23, 24	78	653

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hume, Robert D., Gold Beach, Oreg. Can-heading machine	576,123	Feb. 2	90	24	78	654
Hume, Robert D., Gold Beach, Oreg. Machine for cutting and delivering sheet-metal blanks	576,124	Feb. 2	93	25	78	655
Hume, Robert D., Gold Beach, Oreg. Can-heading machine	576,125	Feb. 2	95	25	78	655
Hume, Sumner W., *et al.* (See Smith, Fred W., assignor.)						
Hummel, Salomon, Vienna, Austria-Hungary. Frame for eyeglasses	578,821	Mar. 16	1733	398	78	1637
Humphrey, Hiram C., Antigo, Wis. Accountant's cabinet	574,427	Jan. 5	83	17, 18	78	17
Humphreys, Franklin E., Mason City, Iowa. Fireplace	578,240	Mar. 2	717	162	78	1397
Humphreys, John, Henderson, Ky., assignor of one-half to S. M. Stevens, Lake, Ind. Bolt or spike extractor	577,959	Mar. 2	223	53	78	1304
Hunn, Albert B., assignor to New Departure Bell Company, Bristol, Conn. Bicycle-bell	575,114	Jan. 12	1296	313	78	261
Hunsicker, Mandus M. (See Knapp, Frank J., assignor.)						
Hunt, Alfred E., Pittsburg, Pa. Manufacture of castings	575,115	Jan. 12	1299	313	78	261
Hunt, Charles W., Calhoun, Ga. Coin-controlled vending-machine	575,284	Jan. 12	1580	376	78	317
Hunt, Charles W., West New Brighton, N. Y. Hoisting machinery	576,316	Feb. 2	431	100	78	718
Hunt, David. (See Holland, Curtis, assignor.)						
Hunt, David, Boston, Mass. Wheel	576,579	Feb. 9	889	205	78	821
Hunt, David C., Cincinnati, Ohio. Oil-filter	575,508	Jan. 19	1984	475	78	412
Hunt, George, *et al.* (See Barnes, Thomas, assignor.)						
Hunt, J. C. (See Gilmour, William C., assignor.)						
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	576,968	Feb. 9	1509	358	78	938
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	576,969	Feb. 9	1510	358	78	938
Hunt, Leonard, St. Louis, Mo. Electric sunshine-annunciator	579,393	Mar. 23	2679	635	78	1828
Hunt, Oliver D., Detroit, Mich. Camp or army stove	577,619	Feb. 23	2664	629	78	1183
Hunter, David. (See Hamlin and Hunter.)						
Hunter, Lytle J., Covington, Ky., assignor of one-fortieth to O. C. Phillips, Columbus, Ohio. Fender for street-cars	574,541	Jan. 5	266	63	78	52
Hunter, Rudolph M. (See Horry, William S., assignor.)						
Hunter, Rudolph M., Philadelphia, Pa. Electric elevator or hoisting-machine	575,479	Jan. 19	1925	463	78	398
Hunter, Rudolph M., Philadelphia, Pa., assignor to General Electric Company, of New York. Regulator for electric motors	579,063	Mar. 16	2145	504	78	1714
Hunter, William F (See Storm and Hunter.)						
Hunting, Alfred A., Salem, assignor of one-half to Smith & Anthony Company, Boston, Mass. Paper-drier	577,034	Feb. 16	1636	389	78	973
Huntington, Alfred K., London, England. Making hydrocyanic acid	575,240	Jan. 12	1510	362, 363	78	308
Hurd, Norman B., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Shelf-bracket	577,430	Feb. 23	2320	544	78	1119
Hurnle, Arabella J. M., Southampton, England. Child's carriage	578,640	Mar. 9	1396	318	78	1544
Hurley, Daniel, assignor to C. Cooper, Bennington, Vt. Presser-stand for knitting-machines	577,620	Feb. 23	2666	629	78	1183
Hurley, Martin T., Peoria, Ill. Portable drill for railway-rails	577,605	Feb. 23	2644	624	78	1179
Huson, Winfield S., Taunton, Mass., assignor to Campbell Printing Press and Manufacturing Company, of New York. Registering mechanism for printing-presses	577,554	Feb. 23	2546	600	78	1161
Huson, Winfield S., Taunton, Mass., assignor to Campbell Printing Press and Manufacturing Company, of New York. Registering mechanism for printing-presses	577,555	Feb. 23	2548	600	78	1162
Hussey, Charles A., assignor to Electric Hardware Manufacturing Company, New York, N. Y. Magnetizing-box	575,679	Jan. 19	2300	541	78	472
Hussey, John W., assignor of one-half to C. W. Seamans, Brooklyn, N. Y. Apparatus for making half-rounds	578,877	Mar. 16	1825	419, 420	78	1652
Hutchins, Charles W., Springfield, Mass. Tailpiece and guard for stringed musical instruments	575,425	Jan. 19	1838	442	78	382
Hutchins, George F., Worcester, Mass., and J. Nightingale, Summit, N. J. Loose-reed motion for looms	576,366	Feb. 2	516	121	78	733
Hutchinson, Charles H., Manchester, N. H. Feed-water heater	574,483	Jan. 5	175	41	78	34
Hutchinson, James W., and C. B. Ritchie, Moab, Va.; said Ritchie assignor to said Hutchinson. Wagon-brake	579,710	Mar. 30	3281	781	78	1900
Hutchinson, Robert W. (See Anderson, Isaac, assignor.)						
Hutchison, Robert G., Sittingbourne, England. Pulp-strainer	578,515	Mar. 9	1190	269	78	1505
Hutin, Maurice, and M. Leblanc, assignors to Société Anonyme pour la Transmission de la Force par l'Électricité, Paris, France. Direct-current dynamo-electric machine	575,116	Jan. 12	1299	313, 314	78	262
Hutton, John, *et al.* (See Mummery, Edwin G., assignor.)						
Hyatt, William H., London, England. Apparatus for extracting gold	576,580	Feb. 9	890	206	78	821
Hybinette, Noak V., Brooklyn, assignor of one-half to A. R. Ledoux, New York, N. Y. Separating nickel from copper in ore or matte	579,111	Mar. 16	2225	.....	78	1729
Hyde, John E. H., New York, N. Y. Toy	578,749	Mar. 16	1596	369	78	1611
Hyde, Theophilus R., Jr., assignor to Scovill Manufacturing Company, Waterbury, Conn. Tack-fastened button	576,759	Feb. 9	1168	278	78	874
Hyer, Wilbur F., Meridian, Miss. Bottle and stopper therefor	579,828	Mar. 30	3471	830	78	1997
Hygienic Wheel Company. (See Travis, Charles L., assignor.)						
Ibert, Anthony, Jr., Brooklyn, N. Y. Bottle-stopper	577,139	Feb. 16	1819	428	78	1008
Ichishima, Joseph, New York, N. Y. Link-cuff holder	578,456	Mar. 9	1077	245	78	1484
Ichthyol Gesellschaft, Cordes, Hermanni & Co. (See Helmers, Ludwig O., assignor.)						
Ide, Ferdinand F., assignor to F. F. Ide Manufacturing Company, Peoria, Ill., and F. D. Owen, Washington, D. C. Bicycle construction	574,734	Jan. 5	625	148	78	116
Ide, Ira J., R. B. Gilmour, and E. Richard, Duluth, Minn. Knife or shears sharpener	577,922	Mar. 2	166	39	78	1208
Ides, Joseph, Elizabeth, N. J. Detachable handle for smelting-ladles	576,367	Feb. 2	517	121	78	734
Iken, Heinrich, Gerresheim, Germany. Flower-pot	576,850	Feb. 9	1308	312	78	901
Iles, Urban G., Cuba, Mo. Sweat-band for hats	579,394	Mar. 23	2682	636	78	1829
Ilgen, Christopher, Jr., Willow Dell, Ohio. Gate	576,581	Feb. 9	891	206	78	821
Ill, Henry, Newark, N. J. Caster	576,675	Feb. 9	1038	243	78	848
Imperial Ball Bearing Axle Company. (See Biedenfeld, Curt B. von, assignor.)						
Impson, Dell, *et al.* (See Brobst, William L., assignor.)						
Impson, James, *et al.* (See Brobst, William L., assignor.)						
Indiana Bicycle Company. (See Goebler, John A., assignor.)						
Indiana Manufacturing Company. (See Seburn, William, assignor.)						
Indiana Novelty Company. (See Wheeler, Orrin A., assignor.)						
Indiana Road Machine Company. (See Poulson, Britton, assignor.)						
Indiana Rubber and Insulated Wire Company. (See Duryea, Charles E., assignor.)						
Indianapolis Brush Company. (See Miller, Edward I., assignor.)						
Ingersoll-Sergeant Drill Company. (See Sergeant, Henry C., assignor.)	578,674	Mar. 9	1449	331	78	1554
Ingraham, Edmund, Philadelphia, Pa. Locomotive or other boiler	575,426	Jan. 19	1840	442	78	383
Ingram, Richard, and W. R. Coulbourn, assignors of one-sixth to J. D. Price, Roanoke, Va. Antifriction journal-bearing	578,928	Mar. 16	1909	442	78	1667
Inman, Robert D., Portland, Oreg. Combined set-works and index mechanism for sawmills						

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Innes, Robert, *et al.* (See Barnes, Thomas, assignor.)						
Innes, William E. A., Pueblo, Colo. Spool-holder	577,258	Feb. 16	2009	476	78	1045
Ireland, David M., Detroit, Mich. Mechanism for forming stove-bands	576,126	Feb. 2	98	26	78	656
Ireland, Elias, Winters, Cal. Adjustable truck	576,729	Feb. 9	1119	264	78	864
Ireland, Levi. (See Struble and Ireland.)						
Irion, Allen T., Morrisonville, Ill. Whip-socket	578,929	Mar. 16	1912	442	78	1667
Irons, James D., *et al.* (See Rively, John D., assignor.)						
Irr, Joseph. (See Meyers, Frank B., assignor.)						
Irwin, Clarence E., St. Louis, Mo. Track-gage	577,580	Feb. 23	2591	611	78	1169
Irwin, Robert W. (See Linn and Irwin.)						
Irwin, Robert W., and J. Stiles, assignors to Grand Rapids School Furniture Company, Grand Rapids, Mich. Pew	576,193	Feb. 2	215	54	78	677
Isaacs, Moses, New York, N. Y. Ruler and time-computing device	578,149	Mar. 2	544	123	78	1365
Isbell, Harry J., St. Louis, Mo. Banjo	577,086	Feb. 16	1639	389	78	973
Isgrig, Jacob M. (See Smith and Isgrig.)						
Iten, John J., Denver, Colo. Machine for cutting crackers	579,540	Mar. 23	2965	700, 701	78	1881
Ives, Hobart B. (See Holaday, Albert E., assignor.)						
Ives, Walter T., Brooklyn, N. Y. Note-book holder	575,928	Jan. 26	2718	642	78	566
Ivory, James W. (See Elliott, Walter S., assignor.)						
J. B. Brooks & Company. (See Brooks, John B., assignor.)						
J. E. Mergott Company. (See Hlering, Christian, assignor.)						
J. H. Williams & Company. (See Grinden and Amborn, assignors.)						
J. I. Case Plow Works. (See Sobey, William, assignor.)						
J. L. Mott Iron Works. (See Bogert, Charles J., assignor.)						
Jaberg, Frank A., New Philadelphia, Ohio. Placket-fastener	575,839	Jan. 26	2564	605	78	537
Jackson, Andrew, and J. C. Brigleb, assignors of one-half to F. C. McMillin and J. W. Roof, Cleveland, Ohio. Safety appliance for prisons, &c.	576,127	Feb. 2	99	26	78	656
Jackson, Charles W., Chicago, Ill. Ornamental hanging	578,878	Mar. 16	1829	420	78	1653
Jackson, George K., Reece, Kans. Wire stretching and splicing device	577,754	Feb. 23	2878	682	78	1223
Jackson, Samuel, Pawtucket, R. I. Spinning-mule	576,730	Feb. 9	1120	264	78	864
Jackson, Samuel, Pawtucket, R. I. Spinning-mule	578,061	Mar. 2	372	88	78	1333
Jackson, William H., Indianapolis, Ind. Railway-switch	578,641	Mar. 9	1398	318	78	1544
Jacobs, Abraham L. (See Heath, Jacobs, and King.)						
Jacobs, Leo, Kansas City, Mo. Car-door	577,900	Mar. 2	224	53	78	1304
Jacoby, Harry, Oroville, Cal. Chain-protector and dust-guard for bicycles	577,581	Feb. 23	2593	611	78	1170
Jacques, Joseph A. (See Jacques, Joseph R. and J. A.)						
Jacques, Joseph R. and J. A., St. Paul, Minn. Car-fender	574,735	Jan. 5	026	149	78	116
Jaeger, Paul, Esslingen, Germany, assignor of one-half to F. Cirkel, Ottawa, Canada. Method of and apparatus for impregnating and dyeing wood	578,516	Mar. 9	1192	269	78	1505
Jagger, William K., Chester, Pa. Tool-post	576,128	Feb. 2	102	26	78	656
Jahn, Frederick G., assignor to M. J. Dolphin, Brooklyn, N. Y. Inker	575,301	Jan. 12	1613	384, 385	78	322
James, Christopher W., and G. Watson, Leeds, England. Apparatus for exhausting, propelling, or inducing currents in air or other fluids	575,241	Jan. 12	1511	363	78	304
Jamieson, Robert W., Rochester, N. Y. Sheet-delivery mechanism for printing-presses	575,643	Jan. 19	2232	528, 529	78	460
Jamison, J. A., *et al.* (See Perkins, Nicholas P., assignor.)						
Jamison, Julius M. (See Denison, James R., assignor.)						
Jamison, Thomas E., *et al.* (See Perkins, Nicholas P., assignor.)						
Janeway, John L., deceased, Oaks; P. W. Janeway and T. L. Hodge, administrators, assignors to Phœnix Gas and Improvement Company, Philadelphia, Pa. Apparatus for manufacturing gas	575,955	Jan. 26	2735	650, 651	78	573
Janeway, Price W., *et al.*, administrators. (See Janeway, John L.)						
Jaque, Joseph, St. Louis, Mo. Churn	578,488	Mar. 9	1141	257	78	1496
Jarman, George R. (See Tower, George A., assignor.)						
Jarrett, Floyd, Richlands, W. Va. Cattle-stall	579,484	Mar. 23	2882	677	78	1864
Jarvis, Herbert E., Huntington, N. Y. Penholder	578,565	Mar. 9	1277	290	78	1522
Jarvis, Moses, Leota, Miss. Cutter-bar for reapers and mowers	574,736	Jan. 5	026	149	78	116
Jay, Aaron, Chicago, Ill. Grate for furnaces	576,368	Feb. 2	518	121	78	734
Jeannin, Frank H., Arcadia, Fla. Electrical transformer	579,395	Mar. 23	2683	636	78	1829
Jefferson, Thomas, Spearfish, S. D. Bicycle-support	578,241	Mar. 2	718	163	78	1397
Jeffery, Louis, London, England. Stereoscope	578,337	Mar. 9	886	201	78	1447
Jeffery, Thomas B., Chicago, Ill. Bicycle-fork-head joint and bearing	574,996	Jan. 12	1096	266	78	223
Jeffery, Thomas B., Chicago, Ill. Tubular-frame joint	575,358	Jan. 19	1716	409	78	361
Jeffery, Thomas B., Chicago, Ill. Tubular frame-joint	578,408	Mar. 9	983	223, 224	78	1466
Jeffrey, J. A. (See Osyor, David N., assignor.)						
Jeffrey, Joseph A. (See Dierdorff, Henry B., assignor.)						
Jeffrey, Joseph A. (See Howard, Lyman D., assignor.)						
Jelly, Arthur H., Cambridge, Mass. Fender for cars	577,859	Mar. 2	36	11, 12	78	1267
Jencks, Frank B., Syracuse, N. Y. Device for mending tires	574,608	Jan. 5	394	90	78	73
Jenison, William H. S., Apponaug, assignor to W. Barton, Providence, R. I. Safety-bottle	578,338	Mar. 9	887	201	78	1447
Jenkins, Joel, Montclair, N. J. Tire for bicycles	576,194	Feb. 2	216	54	78	677
Jenkins, William R., Bellefonte, Pa. Making picks or other tools	578,242	Mar. 2	720	163	78	1398
Jenner, John H., Leavenworth, Ind. Wrench	576,454	Feb. 2	656	157	78	761
Jenney, Charles D., Indianapolis, Ind. Electric switch	577,037	Feb. 16	1640	390	78	973
Jennings, Robert E., and J. Winn, Hallsville, Mo. Fence-post	579,645	Mar. 30	3177	754	78	1940
Jens, William, Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Railway-track	574,737	Jan. 5	028	149	78	117
Jens, William, assignor of two-thirds to T. C. Du Pont and B. Ford, Johnstown, Pa. Electric rail-bond	575,354	Jan. 19	1719	409	78	362
Jensen, Andreas. (See Weller and Jensen.)						
Jensen, Charles E., and J. Hansen, Randolph, Utah. Brake for sleighs	575,956	Jan. 26	2759	651	78	574
Jensen, Christian, St. Paul, assignor of one-half to T. Wiltbank, Minneapolis, Minn. Mangle	575,665	Jan. 19	2272	536, 537, 538	78	468
Jensen, Frederick A., Chicago, Ill. Combined puzzle and toy	579,485	Mar. 23	2883	678	78	1865
Jensen, Ole E., Clark's Grove, Minn. Hay-sling	574,997	Jan. 12	1097	266	78	224
Jenson, Mary, (now by marriage Mary Butterfield,) Ogden, Utah. Quilting-frame	577,366	Feb. 16	2190	517, 518	78	1079
Jermyn, Walter M., Scranton, Pa. Slate-picker	579,583	Mar. 30	3066	724	78	1920
Jernberg, Laurence W. (See Hayes and Jernberg.)						
Jerome, William C., and B. D. Brown, Mayfield, N. Y. Bicycle-support	576,346	Feb. 2	486	113	78	729
Jervey, Henry. (See Marshall, William L., assignor.)						
Jeschke, Wladyslaus, Brooklyn, N. Y. Box	575,399	Jan. 19	1799	432	78	375

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Jessop, James B. (See Glaflin, Edson, and Jessop.)						
Jessup, Robert W., Los Angeles, assignor of one-half to F. H. Wheelan, San Francisco, Cal. Separator	576,195	Feb. 2	218	54	78	677
Jessup, Stephen C., Salem, Ohio. Bicycle-hanger	579,584	Mar. 30	3067	724	78	1920
Jewell, Omar H. (See Jewell, William M., assignor.)						
Jewell, Omar H. and W. M., assignors to O. H. Jewell Filter Company, Chicago, Ill. Controlling device	577,685	Feb. 23	2763	653	78	1201
Jewell, William M. (See Jewell, Omar H. and W. M.)						
Jewell, William M., assignor to O. H. Jeweli Filter Company, Chicago, Ill. Filter	577,686	Feb. 23	2765	654	78	1202
Jewell, William M., assignor to O. H. Jewell Filter Company, Chicago, Ill. Controlling device	577,687	Feb. 23	2766	654	78	1202
Jewell, William M., assignor of one-half to O. H. Jewell, Chicago, Ill. Apparatus for cleansing filters	577,755	Feb. 23	2879	683	78	1223
Jewett, Charles A., and C. B. Wood, Boston, Mass. Attachment for water-gages	579,345	Mar. 23	2604	614	78	1814
Jewett & Co., Sherman S. (See Graves, John J., assignor.)						
Jobbins, William F., *et al.* (See Dyer, Frank L., assignor.)						
Johannes, Ira H., Washington, D. C. Scarf-pin securer	578,822	Mar. 16	1734	399	78	1637
Johannsen, Joachim, Lübeck, Germany. Steering apparatus	578,879	Mar. 16	1830	420	78	1653
John B. Stetson Company. (See Search, Theodore C., assignor.)						
Johns-Pratt Company. (See Luscomb and Crane, assignors.)						
Johns, Thomas C. (See Penberthy, William, assignor.)						
Johnson, A. Walter. (See Johnson, William A., assignor.)						
Johnson, Albert E., Southbridge, Mass. Machine for turning spectacle-temples	576,067	Jan. 26	2955	697	78	607
Johnson, Alfred W., New Brunswick, N. J. Fifth-wheel	575,242	Jan. 12	1513	364	78	304
Johnson, Axel, Oakland, assignor of two-thirds to C. Josselyn, Woodside, Cal. Can-soldering machine	575,807	Jan. 26	2502	589, 590	78	526
Johnson, Charles A., New Britain, Conn. Bag latch and lock	578,880	Mar. 16	1831	420	78	1653
Johnson, Charles H., Buffalo, N. Y. Asphalt-pavement-heating apparatus	578,930	Mar. 16	1913	442, 443	78	1668
Johnson Company. (See Entwisle, Edward B., assignor.)						
Johnson Company. (See Hartwell, Harry, assignor.)						
Johnson Company. (See Jens, William, assignor.)						
Johnson, Ferdinand, New London, Pa. Fence	574,428	Jan. 5	85	18	78	18
Johnson, Frank B., Addison, N. Y. Nail-puller	579,150	Mar. 23	2294	539	78	1757
Johnson, Frank E., Greensburg, Pa., assignor to J. T. Kelly, Brooklyn, N. Y., and G. M. Jones, Pittsburg, Pa. Hose-nozzle	578,517	Mar. 9	1194	269	78	1506
Johnson, Frederic A., Binghamton, N. Y. Electric heater	576,347	Feb. 2	487	114	78	729
Johnson, Frederick, Washington, D. C. Fence-staple	576,455	Feb. 2	657	157	78	761
Johnson, Frederick C. (See Toucey, Ferris D., assignor.)						
Johnson, George B., Wellsborough, Pa. Mop-wringer	574,804	Jan. 5	729	174, 175	78	138
Johnson, George W., assignor of one-third to P. D. Raine, San Francisco, Cal. Soap-holder and brush	575,159	Jan. 12	1378	332	78	277
Johnson, Henry, New York, N. Y. Ink-fountain and ink distribution	575,892	Jan. 26	2668	629	78	556
Johnson, J. H. (See Goff, George, assignor.)						
Johnson, James F. (See Barr and Johnson.)						
Johnson, James P., assignor of one-half to B. F. Whittington, Valdosta, Ga. Car-coupling	576,851	Feb. 9	1309	313	78	901
Johnson, Johannes H., North Cape, Wis. Sash-fastener	576,582	Feb. 9	892	206	78	821
Johnson, John A. (See Newman, Johnson, Swedlund, and Williams.)						
Johnson, John T. (See Ross and Johnson.)						
Johnson, Joseph W., Hartwell, and W. W. Ensign, Cincinnati, Ohio, assignors to Peck-Williamson Heating and Ventilating Company, of Ohio. Heater and ventilator	578,993	Mar. 16	2025	472	78	1689
Johnson, Lewis, and L. Fridlund, Willmar, Minn. Egg-separator	579,646	Mar. 30	3178	754	78	1940
Johnson, Louis K., and A. A. Low, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-setting appliance	576,731	Feb. 9	1122	264, 265	78	865
Johnson, Louis K., and A. A. Low, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-setting apparatus	579,541	Mar. 23	2967	701	78	1881
Johnson, Mary E., Greenwich, N. Y. Shoe-lace fastener	574,484	Jan. 5	175	41	78	35
Johnson, Richard, Freeport, Ill. Band-cutter and feeder for threshing-machines	574,485	Jan. 5	176	41	78	35
Johnson, Robert W., New Brunswick, N. J. Safety-holder for burning sulfur	576,190	Feb. 2	219	54	78	678
Johnson, Seymour, assignor of one-half to A. M. Smith, Austin, Minn. Harrow	577,038	Feb. 16	1641	390	78	973
Johnson, Thomas C. (See Perkins and Johnson.)						
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Temporary cartridge-holder	575,650	Jan. 19	2246	531	78	463
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Temporary cartridge-holder	578,931	Mar. 16	1916	443	78	1668
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Safety locking device for lever-guns	579,436	Mar. 23	2749	652	78	1840
Johnson, William A., Aurora, Ill., assignor of one-half to A. W. Johnson, Council Bluffs, Iowa. Wheel-rim	578,292	Mar. 2	801	181	78	1412
Johnson, William B. (See Metterhausen and Johnson.)						
Johnson, William H., Veedersburg, Ind. Shovel-handle	575,243	Jan. 12	1515	364	78	304
Johnston, Edgar D. (See Roots and Johnston.)						
Johnston, Edward A., and B. R. Benjamin, Chicago, Ill., assignors to McCormick Harvesting Machine Company. Mower	578,404	Mar. 9	985	224, 225	78	1466
Johnston, Effie E., Angel's Camp, Cal. Case or receptacle for use by tourists or others	575,893	Jan. 26	2669	629	78	557
Johnston Harvester Company. (See Case, Henry J., assignor.)						
Johnston, James. (See Stalker, Baty, and Johnston.)						
Johnston, John. (See Seymour, Dudley S., assignor.)						
Johnston, John D., Newport, R. I. Calipers	574,429	Jan. 5	86	18	78	18
Johnston, Stewart, and B. H. Rinehart, Alliance, Ohio. Car-coupling	575,244	Jan. 12	1516	364	78	304
Johnston, Willbur H., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Subway conduit	574,430	Jan. 5	87	18	78	18
Johnston, William F. (See Melvin-Jones, Johnston, and Clokey.)						
Joly, Marie J. H., Paris, France. Kinetographic camera	574,851	Jan. 5	812	197, 198	78	153
Joncas, Louis, *et al.* (See Généreux, François H., assignor.)						
Jones, Augustus H., assignor to Meriden Bronze Company, Meriden, Conn. Lamp-burner	575,606	Jan. 19	2161	512	78	446
Jones, Budd J., Chicago, Ill. Electric rail-bond	578,304	Mar. 2	823	186	78	1417
Jones, Budd J., assignor of one-third to C. T. Powell, Chicago, Ill. Street-car brake	578,673	Mar. 9	1451	332	78	1555
Jones, Charles A., Hartford, Conn. Trestle	574,486	Jan. 5	178	41	78	35
Jones, Edwin R., Kinsman, Ohio. Weighing-machine	576,583	Feb. 9	893	206, 207	78	821
Jones, Frank, Chicago, Ill. Washbowl	578,103	Mar. 2	444	103	78	1346

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Jones, George M., *et al.* (See Johnson, Frank E., assignor.)						
Jones, Harvey P. (See Eddy and Jones.)						
Jones, Horace D., Portsmouth, Ohio, assignor of one-half to H. L. Calkins, Covington, Ky. Fan	578,518	Mar. 9	1195	270	78	1506
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Machine for heading screw-blanks	574,609	Jan. 5	395	90, 91, 92	78	75
Jones, James H., assignor to Emerson, Talcott & Company, Rockford, Ill. Mowing-machine	579,926	Mar. 30	3625	868	78	2026
Jones, Joseph R. (See Jones, Joshua W. and J. R.)						
Jones, Joshua W., Harrisburg, and J. R. Jones, Philadelphia, Pa. Spring-actuated lever mechanism for compensating devices for railway-signals, &c	574,431	Jan. 5	88	19	78	18
Jones, Joshua W., Harrisburg, and J. R. Jones, assignors of one-third to T. A. Jones, Philadelphia, Pa. Compensating device for railway signals, switches, &c	578,293	Mar. 2	802	181	78	1413
Jones, Paul, Cincinnati, Ohio. Car-fender	578,104	Mar. 2	445	104	78	1346
Jones, Paul, Cincinnati, Ohio. Car-fender	578,105	Mar. 2	448	104	78	1347
Jones, Paul, Cincinnati, Ohio. Car-fender	578,106	Mar. 2	450	104, 105	78	1347
Jones, Robert H., *et al.* (See Stallings, George V., assignor.)						
Jones, Robert P. (See Jones, William M. and R. P.)						
Jones, Samuel B., Butler, Ind. Combined clod-crusher, leveler, and harrow	576,852	Feb. 9	1310	313	78	901
Jones, Sebern A. (See Edwards and Garten, assignors.)						
Jones, Thomas A. (See Jones, Joshua W. and J. R., assignors.)						
Jones, Thomas F. (See Doub, John H., assignor.)						
Jones, William H., J. L. Riter, and J. T. Chenoweth, Brownsville, Ind. Swinging gate	579,919	Mar. 30	3615	865	78	2024
Jones, William M. and R. P., Vaughnsville, Ohio. Fence-wire clamp	576,348	Feb. 2	489	114	78	729
Joranson, Gustaf, Berwyn, Ill. Gas-engine	574,610	Jan. 5	400	92	78	75
Jordan, J. G. (See Barnes, Alexander O., assignor.)						
Josephs, Adolph, and L. Feldman, Scranton, Pa. Clothes-drying apparatus	575,480	Jan. 19	1981	463	78	400
Joslyn, Daniel R., Gurdon, Ark. Weighing-scoop	578,642	Mar. 9	1399	318	78	1544
Josselyn, Charles. (See Johnson, Axel, assignor.)						
Joughins, George R. (See Cliff, Edward, assignor.)						
Joughins, George R., Berkley, Va. Locomotive-pilot	579,346	Mar. 23	2605	615	78	1814
Joy, Robert, assignor to T. Kingsford, Oswego, N. Y. Steam-boiler	574,738	Jan. 5	629	149, 150	78	117
Joy, Robert, assignor to T. Kingsford, Oswego, N. Y. Steam-boiler	576,197	Feb. 2	220	55	78	678
Joy, Sam S., New Market, N. H. Wagon-jack	578,519	Mar. 9	1195	270	78	1506
Joyce, John, Andover, and J. A. Deuther, Boston, Mass. Electric furnace	575,829	Jan. 26	2540	599	78	534
Joyner, Charley H., *et al.* (See Davis, Jesse W., assignor.)						
Juckett, Henry, assignor of one-half to D. H. Lewis, Snow Hill, Md. Non-refillable bottle	578,015	Mar. 2	308	73	78	1320
Judkins, Alfonso E., Brockton, assignor of two-thirds to B. S. Atwood, Whitman, Mass. Caster	575,245	Jan. 12	1517	364	78	305
Judson, David W. (See Smith, Willard N., assignor.)						
Jukes, Elias A., St. Catharines, Canada. Non-refillable bottle	574,432	Jan. 5	89	19	78	18
Julienne, Adolphe L. (See Smith and Julienne.)						
Julig, Leopold, San Francisco, Cal. Electrical advertising device	576,129	Feb. 2	103	26, 27	78	657
Jumper, Thomas P., *et al.* (See Turner, Samuel J., assignor.)						
June, Henry R., Elmira, N. Y. Rotary engine	577,304	Feb. 16	2084	492	78	1058
Jurkowski, Kazimierz. (See Grabowski and Jurkowski.)						
Jussem, Abram, Berlin, assignor to J. O. Tonkin, West End, near Berlin, Germany. Coin-controlled vending-machine	578,994	Mar. 16	2027	472	78	1690
Justice, James A., Macey, Ark. Traction-wheel	578,932	Mar. 16	1918	443	78	1668
Justus, Charles W., assignor of one-half to A. L. Bower, Lima, Ohio. Tool-holder	579,064	Mar. 16	2148	504	78	1715
Kachler, William, Louisville, Ky. Device for supporting washbasins	577,528	Feb. 23	2497	588	78	1152
Kadow, E. C., *et al.* (See McKaig, Eddy T., assignor.)						
Kahn & Bros., F. & L. (See Kahn, Lazard, assignor.)						
Kahn & Bros., F. & L. (See Moore, Harry V., assignor.)						
Kahn, Lazard, assignor to F. & L. Kahn & Bros., Hamilton, Ohio. Gas-stove	577,513	Feb. 23	2465	581	78	1146
Kain, Edwin, Camden, N. J. Washing-machine	576,198	Feb. 2	221	56	78	678
Kaiser, John H. (See Hoover, Jay H., assignor.)						
Kaiser, Richard, Hoboken, Pa. Folding table	575,957	Jan. 26	2760	651	78	574
Kalamazoo Sled Company. (See Kidder, William E., assignor.)						
Kaldenberg, Frederick J., assignor to M. S. Kaldenberg, Tarrytown, N. Y. Draft appliance for tobacco-pipes	578,881	Mar. 16	1832	421	78	1654
Kaldenberg, M. S. (See Kaldenberg, Frederick J., assignor.)						
Kallenbach, Ferdinand J., Brooklyn, N. Y. Lithographic stone	579,680	Mar. 30	3230	766	78	1951
Kallmerten, Arnold, *et al.* (See Williams, Hubbard D. B., assignor.)						
Kamerman, David, New York, N. Y. Watch-plate	576,456	Feb. 2	658	157	78	761
Kammerer, George W., Norwich, Conn. Screw-lock	575,718	Jan. 26	2370	558	78	500
Kane, John P., *et al.* (See Dinsmore, Samuel, assignor.)						
Kane, John P., Dawson, Pa. Car-fender	576,853	Feb. 9	1311	313	78	901
Kane, John P., Dawson, and S. Dinsmore, assignors of seven-twelfths to S. Dinsmore and J. Dolan, Vanderbilt, Pa. Spittoon	576,589	Feb. 9	905	209	78	823
Kane, Patrick H., Buffalo, N. Y. Railway-frog	579,647	Mar. 30	3179	754, 755	78	1941
Kantorowicz, Julius, Breslau, Germany. Treating starch	578,566	Mar. 9	1278	.....	78	1522
Kapka, Henry J., Charles City, Iowa. Wrench	574,487	Jan. 5	181	42	78	85
Karn, Charles B. (See Brashear, Edon A., assignor.)						
Karnicki, Michael, Warsaw, Russia. Coffin	576,676	Feb. 9	1089	243, 244	78	848
Karns, William E., Parker's Landing, Pa. Air force-pump	575,117	Jan. 12	1303	314, 315	78	262
Karr, Francis. (See Petersen, Niels, assignor.)						
Kastor, Adolph, New York, N. Y. Combined corkscrew and pocket-knife	577,259	Feb. 16	2011	476	78	1045
Katzenstein, Leopold. (See Holtorp, Berthold A. W., assignor.)						
Kauer, Hans, *et al.* (See Konrad, Louis, assignor.)						
Kauffman, Arthur M., Four Corners, Iowa. Support for well-walls	576,784	Feb. 9	1199	286	78	880
Kauffmann, Eugene J., Cincinnati, Ohio. Cover for books, pads, &c	576,785	Feb. 9	1200	286	78	880
Kaufman, Frank, Rosedale, Ohio. Burial-vault	577,260	Feb. 16	2012	476, 477	78	1045
Kaufman, Herman, St. Louis, Mo. Pocket	575,427	Jan. 19	1841	442	78	383
Kaysel, Edward A. C., assignor to Mitchell-Vance Company, New York, N. Y. Gas-fixture	574,907	Jan. 12	909	220	78	191
Kearney, John B., Canyon, Colo. Nut-lock	579,151	Mar. 23	2296	539	78	1757
Keavy, Thomas E., Philadelphia, Pa. Sandpapering and buffing machine	578,214	Mar. 2	679	154	78	1360

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Keck, Edgar A., Cotulla, Tex. Combined hatchet and wire-tightener	574,611	Jan. 5	403	92	78	76
Keefe, James E., Chicago, Ill. Dental clamp	575,894	Jan. 26	2670	629	78	557
Keefer, William T., assignor of one-half to H. P. Pearson, Bedford, Ind. Pen	579,152	Mar. 23	2297	540	78	1757
Keel, James L. (See Ray, Robert A., assignor.)						
Keel, James L., assignor of one-half to R. A. Ray, Talking Rock, Ga. Harrow	577,431	Feb. 23	2321	545	78	1119
Keelyn, James E., Chicago, Ill., and K. B. Miller, Washington, D. C. Telephone-exchange system	579,299	Mar. 23	2523	596	78	1799
Keen, Jefferson D., and J. J. Roberts, Louisville, Ky. Station-indicator	576,854	Feb. 9	1313	313, 314	78	901
Keene, Frederick L. (See Tily, Stephen B., assignor.)						
Keeney, Charles H., Milwaukee, Wis. Ice-cream freezer	577,514	Feb. 23	2467	581	78	1147
Keers, John. (See Harrison and Keers.)						
Keffer, Joseph W. (See McKenna, William S., assignor.)						
Kehle, Emil. (See Schoenfelder and Kehle.)						
Kehler, C. Robert, *et al.* (See Romberger, James M., assignor.)						
Kehler, Frank, *et al.* (See Romberger, James M., assignor.)						
Keighley, William B., Vineland, N. J. Buffer	577,860	Mar. 2	89	12	78	1208
Keiper, Henry B., Lancaster, Pa. Drill	577,556	Feb. 23	2550	600, 601	78	1162
Keith, Boyd, Kansas City, Mo. Coin-purse	578,243	Mar. 2	721	163	78	1398
Keith Lasting Machine Company. (See Keith, Thomas K., assignor.)						
Keith Lasting Machine Company. (See Keith and Farr, assignors.)						
Keith, Thomas K., Boston, Mass. Lasting device	574,612	Jan. 5	404	93	78	76
Keith, Thomas K., Boston, Mass., assignor to Keith Lasting Machine Company, Kittery, Me. Machine for making and driving staples	579,927	Mar. 30	3626	868, 869	78	2027
Keith, Thomas K., Boston, and H. G. Farr, Winchester, Mass., assignors to Keith Lasting Machine Company, Kittery, Me. Lasting-machine	579,928	Mar. 30	3628	869	78	2027
Keithley, Herbert R., New York, N. Y. Building construction	574,433	Jan. 5	91	19	78	19
Keithley, Herbert R., New York, N. Y. Building construction	574,434	Jan. 5	92	20	78	19
Keithley, Theodore W., Montevideo, Minn. Flexible ladder	575,246	Jan. 12	1518	365	78	305
Keithly, Willie C., San Francisco, Cal. Insulator and holder for electric railways	579,725	Mar. 30	3303	789	78	1965
Keller, Hermann A. (See Gaylord, Cole, and Keller.)						
Keller, Hermann A., W. G. Cole, and J. E. Gaylord; said Cole assignor to A. H. Wethey, Butte, Mont. Roasting-furnace	570,711	Mar. 30	3281	781, 782, 783	78	1960
Keller, Joseph, Laury's, Pa. Car-brake	579,829	Mar. 30	3472	830	78	1997
Keller, Joseph S. (See Seymour, William S., assignor.)						
Keller, Thomas H., assignor to Mergenthaler Linotype Company, New York, N. Y. Trimmer for linotypes	576,584	Feb. 9	895	207	78	822
Kelley, Frank A., Susanville, Cal. Guard-finger for mowing-machines	577,482	Feb. 23	2402	564	78	1135
Kelley, John. (See Babcock and Kelley.)						
Kellner, Carl, Vienna, Austria-Hungary. Process of and apparatus for simultaneously producing ammonia, sodium hydroxid, and chlorin	578,457	Mar. 9	1077	246	78	1484
Kellner, Carl, Vienna, Austria-Hungary. Apparatus for bleaching fibrous materials	579,236	Mar. 23	2427	574	78	1782
Kellnor, Adolf, assignor of one-half to M. J. Schwersenski, Montreal, Canada. Clothes-lifter	579,347	Mar. 23	2606	615	78	1814
Kellogg, Chauncey S., assignor of one-half to O. B. Quin, McComb, Miss. Mucilage-bottle	578,039	Mar. 2	342	81	78	1326
Kellogg, Chauncey W., St. Louis, Mo. Paddle-wheel	574,848	Jan. 5	808	196	78	152
Kellogg, James M., Bozeman, Mont. Animal-trap	578,244	Mar. 2	722	163, 164	78	1398
Kelly, Charles W., and G. H. Vore, assignors of one-fourth to G. C. Fields, Oregon City, Oreg. Faucet-register	577,756	Feb. 23	2885	683	78	1224
Kelly, Herbert P., Philadelphia, Pa. Circuit-breaker	578,750	Mar. 16	1598	369	78	1611
Kelly, John F., assignor of one-half to C. C. Chesney, Pittsfield, Mass. Electrical measuring and indicating apparatus	574,739	Jan. 5	631	150, 151	78	117
Kelly, John F., assignor to Stanley Laboratory Company, Pittsfield, Mass. Electrical regulating device	576,732	Feb. 9	1124	265	78	865
Kelly, John T., *et al.* (See Johnson, Frank E., assignor.)						
Kelly, O. S. (See Neer, Harry M., assignor.)						
Kelly, Vanrenselaer W., Fremont, Ohio. Grape-shears	579,093	Mar. 16	2190	514	78	1723
Kelly, William B., and H. Bowman, Barboursville, Ky. Monkey-wrench	576,855	Feb. 9	1316	314	78	902
Kelly, William H., New York, N. Y. Autographic register	575,958	Jan. 26	2761	652	78	574
Kelso, Robert, assignor of one-half to M. Rosenbaum, Philadelphia, Pa. Pillow	574,867	Jan. 5	846	205	78	159
Kemler, William H., Pittsburg, Pa. Antifriction alloy	579,396	Mar. 23	2684	.....	78	1829
Kemp, Edward M., Rhinelander, Wis. Extension-frame for window-screens, &c	576,760	Feb. 9	1169	278	78	874
Kempshall, Eleazer, Newton, Mass. Lacing	576,056	Jan. 26	2942	693	78	605
Kempshall, Eleazer, Newton, Mass. Lacing	579,943	Mar. 30	3667	877	78	2034
Kempshall, Eleazer, Newton, assignor to Boston Fast Color Eyelet Company, Boston, Mass. Lacing-hook	579,112	Mar. 16	2227	524	78	1729
Kendrick & Davis. (See Robbins, Albert F., assignor.)						
Kendrick, Hiland H., Fulton, N. Y. Sanitary closet	577,305	Feb. 16	2085	493, 494	78	1059
Kendrick, James R. (See Raven, Freeman, assignor.)						
Kenly, George T., Baltimore, Md. Faucet	575,840	Jan. 26	2565	605	78	537
Kenna, Michael P., Dubuque, Iowa. Planer for woodcuts and electroplates	574,908	Jan. 12	910	220	78	191
Kennedy, Julian, Pittsburg, Pa. Hoisting and charging apparatus for blast-furnaces	578,405	Mar. 9	989	225, 226	78	1467
Kennedy, Julian, Pittsburg, Pa. Hot-blast stove	579,271	Mar. 23	2485	586	78	1792
Kennedy, Leonard W., Oakland, assignor of one-half to P. G. Galpin, Berkeley, Cal. Railway-rail joint	578,882	Mar. 16	1834	421	78	1654
Kennelly, Arthur E. (See Houston and Kennelly.)						
Kennelly, John J., New York, N. Y. Fare-register	576,786	Feb. 9	1201	286, 287	78	880
Kenney, Abraham W. (See Bunker and Kenney.)						
Kenny, Luke W., New York, N. Y. Attachment for skates	579,890	Mar. 30	3473	831	78	1997
Kent, Alfred A., and R. J. Miller, Lenoir, N. C. Fruit-tree protector	574,998	Jan. 12	1098	267	78	224
Kenworthy, Abel, assignor to Benedict & Burnham Manufacturing Company, Waterbury, Conn. Expansible drum for coiling sheet metal	576,677	Feb. 9	1041	244	78	849
Kenworthy, Abel, assignor to Benedict & Burnham Manufacturing Company, Waterbury, Conn. Clamp for molds	576,678	Feb. 9	1042	244	78	849
Kepp, Ferdinand, assignor to Kepp Gear Wheel and Foundry Company, Allegheny, Pa. Molding-machine	576,679	Feb. 9	1044	245	78	849
Kepp Gear Wheel and Foundry Company. (See Kepp, Ferdinand, assignor.)						
Kern, Alfred, Magdeburg, Germany. Adjustable sowing-wheel for drilling-machines	576,856	Feb. 9	1317	314, 315	78	902

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Kern, Frank, Mattoon, Ill. Garment-supporter	577,757	Feb. 23	2887	684	78	1225
Kern, Ottmar, Paris, France. Incandescent burner	574,805	Jan. 5	730	175	78	138
Kerns, John, New York, N. Y. Hose-coupling	578,150	Mar. 2	545	124	78	1365
Kerr, Robert F. (See Nelson and Kerr.)						
Kershner, Marion E., Wabash, Ind. Wire fence	575,959	Jan. 26	2763	652	78	574
Kespohl, William. (See Donaldson and Kespohl.)						
Kessler, Charles, Troy, Ohio. Reel for sprinkling-hose	578,489	Mar. 9	1143	257	78	1496
Kester, Jesse F., and F. C. Atherton, Buffalo, N. Y. Commutator-brush	578,016	Mar. 2	309	73	78	1320
Kester, John H., Winston, N. C. Windlass water-elevator	579,709	Mar. 30	3424	820	78	1988
Ketchum, Oliver W., Baltimore, Md. Button	579,831	Mar. 30	3475	831	78	1997
Keyes, Harry E., Homestead, Pa. Valve	576,130	Feb. 2	104	27	78	657
Keyes, Henry F., assignor of one-half to M. Smith, New Haven, Conn. Mouthpiece for wind instruments	578,567	Mar. 9	1279	290	78	1523
Keys, Lee & Huewe Company. (See Huewe, George A., assignor.)						
Keys, Lee & Huewe Company. (See Huewe and Emmes, assignors.)						
Keyser Manufacturing Company. (See Keyser and Bush, assignors.)						
Keyser, William B., and J. A. Bush, assignors to Keyser Manufacturing Company, Chattanooga, Tenn. Shelf for refrigerators	577,758	Feb. 23	2888	684	78	1225
Keystone Heater Company. (See Rice and Langworthy, assignors.)						
Kiah, Jerome G., Sand Beach, Mich. Game apparatus	575,247	Jan. 12	1519	365	78	305
Kidd, Arthur, *et al.* (See Blanchet, William F., assignor.)						
Kidder, Moses W., Lincoln, assignor to P. Noyes, Lowell, Mass. Apparatus for generating acetylene gas	576,585	Feb. 9	896	207	78	822
Kidder, William E., assignor to Kalamazoo Sled Company, Kalamazoo, Mich. Folding chair or settee	577,106	Feb. 16	1770	418	78	999
Kiddie, William M., Clifton, Ariz. Ter. Automatic liquid-elevating apparatus	575,355	Jan. 19	1720	410	78	362
Kidwell, Edgar, Houghton, Mich. Compression-micrometer for testing-machines	575,651	Jan. 19	2247	531	78	463
Kiefer, Karl, Cincinnati, Ohio. Filter	579,586	Mar. 30	3070	725	78	1920
Killgore, Robert M. (See Williamson and Killgore.)						
Kilmer, Anthony B., *et al.* (See Campbell, George L., assignor.)						
Kimball, Charles M., Toledo, Ohio. Ball-bearing mechanism for converting reciprocatory into rotary motion	576,199	Feb. 2	223	56	78	679
Kimball, Lucian A., Providence, R. I. Self-reefing sprit-sail rig	577,923	Mar. 2	167	39, 40	78	1293
Kimball, Perley L., assignor to Vermont Farm Machine Company, Bellows Falls, Vt. Rotary-shaft bearing	575,481	Jan. 19	1933	463	78	401
Kimbark, Eugene U., Evanston, Ill. Wrapper	578,883	Mar. 16	1835	421	78	1654
Kimbrell, William P., Beaver City, Nebr. Clevis-pin	575,082	Jan. 12	1159	282	78	235
Kimburg, Peter A., Chicago, Ill. Boiler-cleaner	577,165	Feb. 16	1865	440	78	1017
Kimmick, William F. (See Starrett and Welsh, assignors.)						
Kincaid, William H., Santa Barbara, Cal. Lamp	578,995	Mar. 16	2028	472, 473	78	1690
Kinch, David B., Pittsburg, Pa. Electric cut-out	578,643	Mar. 9	1400	318	78	1545
Kinder, Arthur H., Boston, Mass. Thread-cutting mechanism for sewing-machines	575,841	Jan. 26	2567	605	78	538
Kindermann, Franz J. A., Melbourne, Victoria. Driving mechanism for velocipedes	577,621	Feb. 23	2667	630	78	1183
Kindl, Frederick H., assignor to Carnegie Steel Company, Limited, Pittsburg, Pa. Structural column	577,820	Feb. 23	2977	704	78	1242
King, Albert M. (See Heath, Jacobs, and King.)						
King, Charles, Grand Rapids, Mich. Carpet-sweeper	575,960	Jan. 26	2764	652, 653	78	574
King, Charles S., Crossfork, Pa. Inkstand	577,759	Feb. 23	2889	684	78	1225
King Drop Forge Company. (See King, Lincoln, assignor.)						
King, Frank, assignor to J. I. Courtenay, London, England. Mold for manufacturing secondary-battery plates	579,877	Mar. 30	3555	850	78	2013
King, George R., New York, N. Y., and A. Raymond, Chicago, Ill. Duplex pulverizing-mill	579,587	Mar. 30	3071	725, 726	78	1920
King, George R., New York, N. Y., and A. Raymond, Chicago, Ill. Centrifugal pulverizing-mill	579,588	Mar. 30	3072	726	78	1921
King, George W., Marion, Ohio. Excavating mineral-bearing earths	576,857	Feb. 9	1319	315, 316	78	903
King, George W., Marion, Ohio. Excavator	578,751	Mar. 16	1599	369, 370	78	1612
King, George W., Marion, Ohio. Steam shovel or excavator	579,589	Mar. 30	3074	727	78	1921
King, Henry C. (See Dillon, Peter, assignor.)						
King, Joseph M., Brooklyn, N. Y. Rubber footwear	579,397	Mar. 23	2685	636	78	1829
King, Keiso. (See Merton, William, assignor.)						
King, Leicester P., assignor to I. Sturm, Cincinnati, Ohio. Excelsior-machine	574,613	Jan. 5	405	96, 94	78	76
King, Lincoln, assignor to King Drop Forge Company, Port Richmond, N. Y. Lock-pin shackle	577,039	Feb. 16	1642	391	78	974
King, Lincoln, assignor to King Drop Forge Company, Port Richmond, N. Y. Safety-hook	577,040	Feb. 16	1644	391	78	974
King, Othelo W., Franklin, Pa. Pump-rod elevator	578,339	Mar. 9	888	201	78	1448
King, Sidney L., Dunmore, Pa. Buffer	578,752	Mar. 16	1605	370	78	1613
Kingman, Hosea, administrator. (See Ferguson, James and G.)						
Kingsford, Thomson. (See Bullock, William H., assignor.)						
Kingsford, Thomson. (See Gunston, Byron M., assignor.)						
Kingsford, Thomson. (See Joy, Robert, assignor.)						
Kingsland, Oliver H., Brooklyn, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Thermostatic fire-door apparatus	576,733	Feb. 9	1126	265	78	865
Kingsley, Hugh J., Rutland, Vt. Ice-pick	579,325	Mar. 23	2571	607	78	1808
Kinkead, John P., Upper Sandusky, Ohio. Brick-machine	576,271	Feb. 2	346	82	78	702
Kinnaird, Adoniram J., Standish, Mo. Gate	578,245	Mar. 2	724	164	78	1309
Kinnear, William R., Columbus, Ohio. Rolling blind	575,607	Jan. 19	2162	512, 513	78	447
Kinnear, William R., Columbus, Ohio. Fireproof blind	576,586	Feb. 9	897	208	78	822
Kinney, Alice B. (See Kinney, Robert D., assignor.)						
Kinney, Robert D., assignor to A. B. Kinney, Philadelphia, Pa. Steam-boiler	575,118	Jan. 12	1307	315	78	263
Kinsey, George, Cincinnati, Ohio. Jail-bar	574,488	Jan. 5	182	42	78	36
Kinsey, Leonidas C., Montgomery, Pa. Lubricator	574,542	Jan. 5	270	64	78	53
Kintz, Herbert. (See Blumenthal and Kintz.)						
Kipp, Burton E., Philadelphia, Pa. Desk-lid support	575,961	Jan. 26	2765	653	78	575
Kirby, Thomas W., assignor of two-thirds to S. G. Stalnecker, and J. F. Brooks, Chico, Tex. Wire stretching and tying device	577,861	Mar. 2	40	12	78	1268
Kirk, John A., Washington, D. C. Window	577,382	Feb. 16	2222	523	78	1085
Kirk, John J., *et al* (See Baines, John, assignor.)						
Kirk, Joseph L., Allegheny, Pa. Roll-ticket holder	577,802	Mar. 2	41	12	78	1268

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Kirker, Ben M. (See Reynolds and Kirker.)						
Kirschner, David B., New York, N. Y. Rack for garment-pockets	577,483	Feb. 23	2408	565	78	1135
Kirshner, Michael, Salem, Va. Button-making machine	576,317	Feb. 2	433	101	78	719
Kirstein & Co., H. E. (See Sanger, Harry F., assignor.)						
Kistler, William P., Reading, Pa. Musical instrument	578,040	Mar. 2	342	82	78	1326
Kitchen, John G. A., Manchester, England. Fluid-pressure brake	579,272	Mar. 23	2486	587	78	1793
Kitsee, Isidor, Philadelphia, Pa. Charging secondary batteries	578,823	Mar. 16	1735	399	78	1637
Kitsee, Isidor, assignor of one-fourth to B. L. Brown, Philadelphia, Pa. Game apparatus	574,909	Jan. 12	911	221	78	191
Kittle, David M., Syracuse, N. Y. Fishing apparatus	576,680	Feb. 9	1045	245	78	849
Klaas, Max. (See Voos, Franz, assignor.)						
Klahn, Emil. (See Strauss and Klahn.)						
Klauberg, Charles, New Haven, Conn. Tumbler-washer. (Reissue)	11,581	Jan. 5	849	206	78	160
Kleber, Oscar L., Pittsburg, Pa. Printing-telegraph	575,830	Jan. 26	2542	600, 601	78	534
Klein, Henry, New Lexington, Ohio. Show-stand	576,457	Feb. 2	659	157	78	761
Kleiner, John. (See Perry, Charles E., assignor.)						
Kliemetschek, Adolph. (See Sobotka and Kliemetschek.)						
Kline, Charles L., New York, N. Y. Barrel-washer	575,482	Jan. 19	1933	463, 464	78	401
Kline, George B., assignor of one-half to V. S. Lumley, Woodstock, Ill. Type-writing cabinet	574,543	Jan. 5	271	64	78	54
Kling, Olof, Chicago, Ill. Marine steam-boiler	578,753	Mar. 16	1606	370	78	1613
Klingin, Sherman. (See Dingman and Klingin.)						
Klingiesmith, John F., St. Louis, Mo. Farm-gate	578,604	Mar. 9	1336	305	78	1534
Klippert, Ludwig, Stettin, Germany. Drying-kiln	579,398	Mar. 23	2686	636, 637	78	1829
Klose, Alois. (See Klose, Charles and A.)						
Klose, Charles, Doniphan, Nebr., and A. Klose, Robesonia, Pa. Brick-kiln	576,318	Feb. 2	437	101, 102	78	719
Kloss, John, Allegheny, Pa. Blackhead-tweezers	575,356	Jan. 19	1722	410	78	362
Klute, Louis W. (See Capitain, Klute, and Wells.)						
Knapp, Alfred R., Crewkerne, England. Brush	576,200	Feb. 2	224	56	78	679
Knapp, Edward A. (See Moffatt and Knapp.)						
Knapp, Frank J., assignor to M. M. Hunsicker, Akron, Ohio. Crock-molding machine	579,735	Mar. 30	3349	801	78	1974
Knapp, Robert P., Brooklyn, N. Y. Umbrella	577,529	Feb. 23	2498	588	78	1152
Knauer, Adolf J., Philadelphia, Pa. Car-fender	578,406	Mar. 9	991	226	78	1467
Kneift, Michael P., New Castle, Nebr. Grain-dislodging attachment	578,754	Mar. 16	1606	371	78	1613
Knickerbocker Fire Extinguisher Company. (See White, David, assignor.)						
Knieriemen, George, Camden, N. J. Fish-hook book	578,458	Mar. 9	1080	246	78	1484
Knight, David C. (See Bernard and Knight.)						
Knight, James W., Anderson, Ind. Pail for oysters	577,863	Mar. 2	42	13	78	1268
Knight, Walter H., New Brighton, N. Y. Controller for air-motors	575,652	Jan. 19	2250	532	78	463
Knight, Walter J., Newark, N. J. Elevator-door-closing mechanism	579,153	Mar. 23	2297	540	78	1757
Knisell, Samuel L., Camden, N. J. Combination-ladder	579,437	Mar. 23	2751	652	78	1840
Knittel, Andrew W., New Castle, Pa. Wire mat	579,517	Mar. 23	2980	689	78	1874
Knobeloch, Frank, Dayton, Ohio, assignor to Carter-Crume Company, Niagara Falls, N. Y. Paper box	579,590	Mar. 30	3079	727, 728	78	1922
Knoll, Edwin J. (See McCollum and Knoll.)						
Knopfe, Franz G., and H. A. Röder, Chemnitz, Germany. Iron scaffolding	576,858	Feb. 9	1322	316	78	904
Knott, John. (See Freeman and Knott.)						
Knowles, Daniel, Norfolk, Va. Bicycle-support	578,490	Mar. 9	1145	257, 258	78	1497
Knowles, Daniel, Norfolk, Va. Toy	578,491	Mar. 9	1148	258	78	1497
Knowles, Daniel, Norfolk, Va. Oil-distributer for calming waves	578,508	Mar. 9	1280	290	78	1523
Knowles, Edward R., Brooklyn, N. Y. Alternating-current arc-lamp	577,864	Mar. 2	43	13	78	1269
Knowles, Laurence D., *et al.* (See Griffin, Thomas B., assignor.)						
Knowles Loom Works. (See Patten, Alonzo R., assignor.)						
Knowles Loom Works. (See Wattle, William, assignor.)						
Knox, George F. (See Sharpneck and Knox.)						
Knox, Samuel L. G., New York, N. Y. Differentially-actuated tripping mechanism	578,569	Mar. 9	1281	291	78	1523
Knudsen, Hans, Boston, Mass. Lunch-counter	577,688	Feb. 23	2768	654	78	1202
Knudsen, Jens K., Engadine, Mich. Railway-spike	578,151	Mar. 2	346	124	78	1366
Koch, Eli, Harrisburg, Pa. Weather-strip	576,458	Feb. 2	660	158	78	761
Koch, Henry, Chicago, Ill. Curtain-fixture	574,910	Jan. 12	912	221	78	191
Koch, Henry, Chicago, Ill. Egg-preserving compound	574,911	Jan. 12	912	------	78	191
Koch, Max M., Cleveland, Ohio. Stove or range	577,557	Feb. 23	2551	601	78	1162
Kochersperger-Hallam Heating Co. (See Girtanner, Fred G., assignor.)						
Koebel, Camillus, Chicago, Ill. Attachment for bicycle-lamps	575,119	Jan. 12	1309	315	78	263
Koeberle, John E. (See Hamlin, Charles S., assignor.)						
Koegel, Charls, Holyoke, Mass. Winding and slitting machine	577,865	Mar. 2	45	14	78	1269
Koegel, Herman I., Holyoke, Mass. Paper-cutting machine	577,985	Mar. 2	263	62	78	1311
Koehler, Fred W., Chicago, Ill. Bottle-lock	575,248	Jan. 12	1521	365	78	305
Koenen, John G., Mount Vernon, N. Y. Eyeglass-case	575,357	Jan. 19	1722	410	78	362
Koenen, William, Cleveland, assignor to H. C. Rice, C. F. Lay, and N. C. Sherwood, Fremont, Ohio. Meat-cutter	575,895	Jan. 26	2672	630	78	557
Koenig, George, Pittsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Interlocking mechanism for switch and signal apparatus	575,120	Jan. 12	1310	315, 316	78	264
Koennemann, Gustav, assignor of one-half to H. M. Herr, Argentine, Kans. Spring-hinge	576,131	Feb. 2	106	27	78	657
Koester, Julius E., assignor of one-half to A. H. Blanck and W. Dannheim, New York, N. Y. Heating and cooling coil	576,859	Feb. 9	1323	316	78	904
Köhler, Georg, and K. Seifuchardt, Weimar, Germany. Table	578,407	Mar. 9	994	227	78	1468
Kohlsaat, Peter N. (See Lehmann, Friedrich D. T., assignor.)						
Kohn, Milton M., Chicago, Ill. Electric lamp	578,107	Mar. 2	452	105	78	1348
Kolb, Charles. (See Parsons, Charles H., assignor.)						
Kolbe, John L., Chilton, Wis. Device for cutting bread	579,486	Mar. 23	2884	678	78	1865
Kolbenson, Mathias, Marysville, Mont. Ice-velocipede	577,300	Feb. 16	2087	494	78	1059
Koll, Benjamin S., St. Louis, Mo. Vapor-burner	578,346	Mar. 2	726	165	78	1309
Koll, Benjamin S., St. Louis, Mo. Vapor-burning stove	578,605	Mar. 9	1337	304	78	1534
Kollenberg, Frederick G., assignor of one-half to J. H. Hickman, Owensborough, Ky. Nut-lock	575,358	Jan. 19	1723	410	78	363
Koneman, William A., Chicago, Ill. Extracting precious metals from their ores	578,340	Mar. 9	889	------	78	1448
Koneman, William A., Chicago, Ill. Recovering precious metals from cyanid solutions containing them	578,341	Mar. 9	891	202	78	1448
Konrad, Louis, assignor of three-fourths to C. Boehringer, G. P. Fromm, Brooklyn, and H. Kauer, New York, N. Y. Safety attachment for bicycles	577,201	Feb. 16	2013	477	78	1045

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Köster, Carl, Cologne, Germany. Manufacturing veneers	579,878	Mar. 30	3556	850	78	2013
				851		
Kotin, Adolph, London, England. Gear-wheel and driving-chain	579,237	Mar. 23	2429	574	78	1782
				575		
Kotyra, Maxymilian, London, England. Telephonic transmitter	575,896	Jan. 26	2673	630	78	558
Koven, Theodore J., Jersey City, N. J. Clutch	575,249	Jan. 12	1522	365	78	305
				366		
Krantz, Edward, Detroit, Mich. Horseshoe	577,866	Mar. 2	50	15	78	1270
Kratzet, Frederick S., Detroit, Mich. Combined traveling-case and baby-carriage	577,432	Feb. 23	2323	545	78	1119
Krayer, Joseph, Johannisberg, Germany. Rotary printing-press for planographic printing-plates	579,832	Mar. 30	3476	831	78	1998
				832		
Krebs, George L. (See Solter, John, assignor.)						
Krebs, George W., and D. L. Gwin, Conway Springs, Kans. Weather-strip for door-sills	574,912	Jan. 12	913	221	78	191
Kremper, August, Breslau, Germany. Apparatus for drawing off liquids containing carbonic acid	578,884	Mar. 16	1836	422	78	1654
Kress, Hulda L., Holyoke, Mass. Combination rack and support attachment for stoves	574,806	Jan. 5	735	175	78	138
Krick, William C., Brooklyn, N. Y. Handle for flower-pots or dishes	578,152	Mar. 2	547	124	78	1366
Kries, John F., Charleston, W. Va. Dish-lifter	575,902	Jan. 26	2767	653	78	575
Krippendorf, Charles H., Cincinnati, Ohio. Shoe-sole	579,518	Mar. 23	2931	689	78	1874
Kritzer, Charles C., assignor, by mesne assignments, to N. Runnels, Newaygo, Mich. Automatic electric cut-out	576,369	Feb. 2	519	122	78	734
Krocker, Hugo, Berlin, Germany. Funnel for filtering liquids	575,608	Jan. 19	2163	513	78	447
Kroeber, Florence, New York, N. Y. Pendulum-clamp for clocks	576,587	Feb. 9	898	208	78	822
Kroedel, Robert, assignor to Eastman Kodak Company, Rochester, N. Y. Photographic shutter	574,435	Jan. 5	94	20	78	19
Kroell, Philip. (See Hegel, William, assignor.)						
Kronheim, Max, Berlin, Germany. Braces	579,712	Mar. 30	3285	788	78	1961
Krotz, Alvaro S., Springfield, Ohio. Filter	579,154	Mar. 23	2298	540	78	1757
Krueger, August C. (See Fogarty and Krueger.)						
Kruse, Adolph, San Francisco, Cal. Current water-wheel	576,132	Feb. 2	108	28	78	657
Kuhlhoff, William E., *et al.* (See McCallum, Daniel W., assignor.)						
Kuhn, Charles M. (See Kuhn, Frank P. and C. M.)						
Kuhn, Charlie E. (See Rodgers and Kuhn.)						
Kuhn, Frank P. and C. M., assignors of one-half to J. H. Black & Sons, Kearney, Nebr. Grinding-lathe	575,250	Jan. 12	1525	366	78	306
				367		
Kull, Samuel B. (See O'Leary and Kull.)						
Kullberg, Charley A., Hawick, Minn. Motor-driven harvester	576,588	Feb. 9	900	208	78	823
				209		
Kydd, James, El Reno, Okla. Ter. Button-tube loader	577,821	Feb. 23	2978	704	78	1243
				705		
Kyle, Minerva P., Birmingham, Ala. Skirt-support	575,483	Jan. 19	1936	464	78	401
L. Wolff Manufacturing Company. (See Clifford, John, assignor.)						
L. Wolff Manufacturing Company. (See Holleran, John, assignor.)						
La Dow, Charles, Albany, N. Y. Plow-point	575,666	Jan. 19	2275	538	78	468
La Dow, Charles, Albany, N. Y. Plow share and point	575,667	Jan. 19	2277	538	78	468
La Riviere, Charles C., Newport, R. I. Bicycle-support	578,041	Mar. 2	343	82	78	1327
La Société Anonyme pour l'Exploitation des Brevets Dardenne. (See Dardenne, Auguste, assignor.)						
Labofish, Charles S., assignor to C. R. Harris, Williamsport, Pa. Indicating device for bicycles	576,525	Feb. 2	785	184	78	785
Lachmann, Eduard, Hamburg, Germany. Electric railway	579,300	Mar. 23	2526	596	78	1799
				597		
Laclede Fire Brick Manufacturing Company. (See Deruelle, Louis, assignor.)						
Lacy, George W., Kingston, N. Y. Car-brake	574,913	Jan. 12	914	221	78	192
				222		
Ladd, James B., Rowland Park, Md. Game apparatus	578,492	Mar. 9	1149	258	78	1498
				259		
Laing, Alexander, Essex, Canada. Planetarium	578,108	Mar. 2	453	105	78	1348
Lakin, James A., Westfield, Mass. Vocalizing-audiphone	574,544	Jan. 5	273	64	78	54
Lally, John T., Wilmington, Del., assignor to J. H. Clay, Philadelphia, Pa. Animal-releasing device	579,113	Mar. 16	2228	525	78	1720
Lamarre, Charles B. de, Biloxi, Miss., assignor of one-half to O. M. Tennison, New Orleans, La. Door-alarm	577,433	Feb. 23	2324	545	78	1120
Lamb Glove and Mitten Company. (See Lamb, Isaac W., assignor.)						
Lamb, Isaac W., assignor to Lamb Glove and Mitten Company, Perry, Mich. Mitten or like fabric	578,153	Mar. 2	548	124	78	1366
Lamb, Restore B., Camden, N. J. Bicycle-tire	579,879	Mar. 30	3557	851	78	2013
Lamb, Willis G., Park City, Utah. Inkstand	579,591	Mar. 30	3060	728	78	1922
Lamkin, Charles, and J. T. Shipley, Detroit, Mich.; said Lamkin assignor to said Shipley. Operating-table	574,999	Jan. 12	1099	267	78	224
Lamme, Benjamin G., Pittsburg, Pa. Means for adjusting compound-wound dynamos	574,914	Jan. 12	915	222	78	192
Lamos, George W., Fort Madison, Iowa Gas-engine attachment	574,614	Jan. 5	408	94	78	77
Lamplough, Frederick, Glen Ridge, N. J., assignor to F. T. Goodman, London, England. Combined working piston and valve-gear	574,915	Jan. 12	917	222	78	193
				223		
				224		
Lamson Consolidated Store Service Company. (See Cowley, James T., assignor.)						
Lamson, John D. R., Toledo, Ohio. Hydrostatic measuring vessel	577,434	Feb. 23	2326	545	78	1120
Lanaux, George A., New Orleans, La. Bleaching rice	576,860	Feb. 9	1324		78	904
Lancaster, George A., assignor to E. S. Beach, trustee, Boston, Mass. Elevated railway	574,807	Jan. 5	736	176	78	139
				177		
Lancaster, John, and C. Witteck, New York, N. Y. Ornamental fabric	578,570	Mar. 9	1284	291	78	1523
Landis, Abraham A. (See Vogt, Wilhelm, assignor.)						
Landis Wax Thread Sewing Machine Company. (See Dobyne, James B., assignor.)						
Landman, J. H. (See Shannon, Neely, assignor.)						
Lane, David J., and J. P. Hahn, assignors of one-third to J. J. O'Brien, St. Louis, Mo. Ventilator	577,367	Feb. 16	2191	518	78	1079
Lane, Edwin, assignor of one-half to T. J. Fearl, Johnstown Pa. Egg-tester	579,065	Mar. 16	2149	504	78	1715
Lane, Franklin L., and H. J. Mitchell, assignors to Berlin Machine Works, Beloit, Wis. Abrading-cylinder	577,582	Feb. 23	2594	612	78	1170
Lane, Frederic A., Torrington, Conn. Zinc for electric batteries	579,273	Mar. 23	2488	587	78	1703
Lane, George M., Asbury Park, N. J. Electric-arc lamp	577,700	Feb. 23	2891	684	78	1225
				685		
Lane, S. M., *et al.* (See McKaig, Eddy T., assignor.)						
Lange, Albert C., *et al.* (See Evered, Joshua, assignor.)						
Lange, Carl, Marshall, Minn. Ship's buoy	578,342	Mar. 9	893	202	78	1448
Lange, Henry G., Chicago, Ill. Coffee-roaster	577,761	Feb. 23	2892	685	78	1226

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Lange, Louis G., *et al.* (See Evered, Joshua, assignor.)						
Langelier, Antoine J., Providence, R. I. Feeding mechanism for swaging-machines	576,057	Jan. 26	2943	698	78	605
Langen, Eugen, Cologne, Germany. Refining sugar	576,861	Feb. 9	1325		78	904
Langfeld, Jonas, New York, N. Y. Porte-monnaie	575,522	Jan. 19	2008	478	78	416
Langford, Charles A., assignor of three-fourths to H. and J. Langford and H. F. Neslage, St. Louis, Mo. Spiral trolley-wheel	576,405	Feb. 2	582	136	78	745
Langford, Henry, *et al.* (See Langford, Charles A., assignor.)						
Langford, James, *et al.* (See Langford, Charles A., assignor.)						
Langkans, Gustav, Utica, N. Y. Extension car-step	574,916	Jan. 12	919	224	78	193
Langlands, Daniel G., Winthrop, Mass. Clutch	579,713	Mar. 30	3286	788	78	1961
Langley, John W. (See Howe and Langley.)						
Langley, Thomas F., assignor of two-thirds to D. G. Dunbar and E. M. Putnam. Haverhill, Mass. Bottle-stopper	578,906	Mar. 16	2030	478	78	1690
Langlois, Joseph. (See Luchia, Henry M., assignor.)						
Langston, Thomas J., Johnston, N. C. Nail or tack driving implement	579,880	Mar. 30	3558	851	78	2013
Langworthy, Albert D. (See Rice and Langworthy.)						
Lanius, Henry, Galion, Ohio. Corn harvester and shocker	577,041	Feb. 16	1645	391	78	974
Lansing, Mulford W., Lisha's Kill, N. Y. Penholder	574,545	Jan. 5	274	64	78	54
Lapham, Valentine, Chicago, Ill. Sprinkler-head for automatic fire-extinguishers	575,121	Jan. 12	1312	316	78	264
Laraway, William P., Hartford, Conn., assignor to Lee Arms Company, of Connecticut. Combined bolt-stop and cartridge-ejector for bolt-guns	579,096	Mar. 16	2196	516	78	1724
Lardusky, Albert H. (See Richardson, Samuel T., assignor.)						
Laroue, Claude F. dit E., Pontarlier, France. Bottle	579,274	Mar. 23	2489	587	78	1793
Larrabee, Franklin H., Hutchinson, Kans. Bicycle-lock	575,719	Jan. 26	2371	558	78	501
Larson, Emanuel, Traver, assignor of two-thirds to A. Hillstrom, Tulare county, and G. X. Wendling, Hanford, Cal. Window-screen	578,571	Mar. 9	1285	291	78	1524
Larson, John E., Los Angeles, Cal. Hydrocarbon-burner	576,272	Feb. 2	348	82	78	702
Larson, Lars G., and C. Lundquist, assignors to F. T. Vanstrum, Minneapolis, Minn. Non-refillable bottle	574,852	Jan. 5	814	198	78	154
Larzelere, Linford J., Williamsport, Pa. Valve for steam-engines	574,808	Jan. 5	738	177	78	139
Larzelere, Nicholas H., *et al.* (See Van Norman, Jacob, assignor.)						
Lash, John F., Toronto, Canada. Door-check	578,064	Mar. 2	416	97	78	1340
Lashells, Frank E., Sacramento, Cal. Sunshade	578,572	Mar. 9	1286	292	78	1524
Last, Henry F., Emmett, Wis. Compound metal-working machine	579,592	Mar. 30	3061	728	78	1922
Latham, Albert, Springfield, Mass. Die for applying plastic coverings on eyelets	579,275	Mar. 23	2490	588	78	1793
Latham, Albert, assignor of one-half to J. W. Nourbourn, Springfield, Mass. Eyelet	577,435	Feb. 23	2327	546	78	1120
Lathrop, A. B. (See Munson, Sylvester S., assignor.)						
Lathrop, Guy. (See Carson and Paterson, assignors.)						
Latimer, John W., and J. A. Graham, Milwaukee, Wis., assignors to Milwaukee Harvester Company, of Wisconsin. Pole connection for harvesters	576,406	Feb. 2	583	136	78	745
Latta, Emmit G., Friendship, N. Y., assignor to Pope Manufacturing Company, Portland, Me. Velocipede	578,644	Mar. 9	1401	319	78	1545
	578,408	Mar. 9	994	227	78	1468
				228		
Lattner, Jacob V., Chatham, Ill. Hedge-laying machine						
Latulip, Fredrick, assignor of one-half to W. C. Smith, Syracuse, N. Y. Velocipede seat or saddle	577,042	Feb. 16	1647	392	78	974
Laub, Henry C. (See Pettingell, George D., assignor.)						
Laube, Godfried, assignor of one-half to A. Vandenburg, Huron, S. D. Trace-holder	575,359	Jan. 19	1734	411	78	393
Laube, Godfried, assignor of one-half to A. Vandenburg, Huron, S. D. Rein-holder	576,681	Feb. 9	1046	245	78	850
Lauber, Carl F., Philadelphia, Pa. Fumigator	577,867	Mar. 2	52	15	78	1270
Laue, Paul F. (See Laue, Vernon A. and P. F.)						
Laue, Vernon A. and P. F., Cross Fork, Pa. Nut-lock	575,251	Jan. 12	1528	307	78	307
Laughlin, Samuel J., and J. Hough, Guelph, Canada. Drawing-table	575,842	Jan. 26	2567	606	78	538
	576,590	Feb. 9	906	209	78	823
				210		
Laurin, Isaac, Rhinelander, Wis. Bed	574,740	Jan. 5	632	151	78	118
Laval, Carl G. P. de, Stockholm, Sweden. Manufacturing pipes without welded joints	577,262	Feb. 16	2015	477	78	1046
Laval, Carl G. P. de, Stockholm, Sweden. Damper-regulator	579,438	Mar. 23	2752	653	78	1840
Lavigne, Joseph P., assignor to Lavigne & Scott Manufacturing Company, New Haven, Conn. Wrench	574,615	Jan. 5	410	94	78	77
Lavigne & Scott Manufacturing Company. (See Lavigne, Joseph P., assignor.)						
Law, Victor M., East Oakland, Cal. Chalice	574,546	Jan. 5	275	65	78	54
Lawlor, Charles B., assignor of one-half to J. W. Blake, New York, N. Y. Money wrapper and counter	574,436	Jan. 5	99	21	78	21
Lawrence, Eugene T., Poughkeepsie, N. Y. Umbrella-case	577,043	Feb. 16	1648	392	78	975
Lawrence, Harry W., assignor to S. M. Morrison, Denver, Colo. Multiple card-cutting die	578,247	Mar. 2	727	165	78	1399
Lawrence, Henry, Milford, assignor to Hopedale Machine Company, Hopedale, Mass. Spooler-guide	575,929	Jan. 26	2719	642	78	566
Lawrence, Henry, Milford, and A. E. Rhoades, assignors to G. Draper & Sons, Hopedale, Mass. Bobbin-holder	575,252	Jan. 12	1529	367	78	307
Lawrence, John A., Columbus, Ohio. Automatic dust valve or shield for couplings of air-brakes						
Lawrence, John H. (See Gerard and Lawrence.)						
Lawrence Manufacturing Company. (See Duckworth, Ormerod, assignor.)						
Lawrence, Robert S., Chicago, Ill. Apparatus for increasing candle-power of gas	577,702	Feb. 23	2893	685	78	1226
Lawrence, William H. (See McLendon, Elijah W., assignor.)						
Lawton, Francis N., Summit, N. J. Device for cutting thread	579,920	Mar. 30	3617	865	78	2024
Lay, Charles F., *et al.* (See Koenen, William, assignor.)						
Laymon, Rufus, *et al.* (See Collins, Samuel W., assignor.)						
Layne, Joseph W., assignor of one-half to D. Hoefer, Higginsville, Mo. Fishing apparatus	578,248	Mar. 2	728	165	78	1399
	574,809	Jan. 5	740	177	78	139
				178		
Layton, Rawson H., South Bend, Ind. Wagon-brake						
Le Chard, William H., and J. A. Best, Atlantic City, N. J. Long-screw pipe coupling and fitting	578,933	Mar. 16	1920	443	78	1669
Le Fevre, Nevin B., Littlestown, assignor to Z. K. Loucks, Philadelphia, Pa. Bicycle-stand	578,886	Mar. 16	1838	422	78	1655
Le Seur, William W., Boston, Mass. Apparatus for making indexes	578,935	Mar. 16	1922	444	78	1669
Leahy, Timothy J., Cleveland, Ohio. Stop and waste cock	578,895	Mar. 16	1837	422	78	1654
Learmouth, George, Boston, Mass. Car-fender	578,645	Mar. 9	1404	319	78	1545
Leary, H. J. (See Hess, George W., assignor.)						
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Power-shears	577,107	Feb. 16	1771	418	78	999
				419		
Leavitt, John E., Boston, assignor of one-half to E. G. Carleton, Malden, Mass. Detachable waistband	578,294	Mar. 2	805	182	78	1413
Leaycraft, Edwin S., Jersey City, N. J. Link belting	576,591	Feb. 9	908	210	78	824
Leaycraft, Edwin S., Jersey City, N. J. Combined car fender and brake	577,044	Feb. 16	1651	392	78	975

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Leblanc, Maurice. (See Hutin and Leblanc.)						
Lebold, Jesse P., Philadelphia, Pa. Razor	576,862	Feb. 9	1826	317	78	905
Leckebusch, Wilhelm, Dusseldorf, Germany. Corset	575,400	Jan. 19	1800	432	78	375
Lecoq, Victor. (See Allen, Williams, and Lecoq.)						
Ledent, Joseph, Baltimore, Md. Gas-engine	575,720	Jan 26	2373	558 559	78	501
Ledoux, Albert R. (See Hybinette, Noak V., assignor.)						
Lee Arms Company. (See Laraway, William P., assignor.)						
Lee Arms Company. (See Parkhurst, Edward G., assignor.)						
Lee, Caroline I. C., Holland Patent, N. Y. Picture-frame	577,530	Feb. 23	2499	580	78	1152
Lee, Charles D., Salmon City, Idaho. Portable windlass	574,917	Jan. 12	920	224 225	78	193
Lee, Frank S., *et al.* (See Skilton, John W., assignor.)						
Lee, J. D. (See Whitehead, Thomas P., assignor.)						
Lee, John C., Brookline, W. R. Westcott, Cambridge, and E. C. Robes, Medford, assignors to American Bell Telephone Company, Boston, Mass. Electrical condenser	575,653	Jan. 19	2252	582	78	464
Lee, Ralph W., *et al.* (See Auble and Weiss, assignors.) (Reissue.)						
Lee, Ralph W. (See Watson, James A., assignor.)						
Lee, William J., Brooklyn, and L. Rouault, New York, N. Y. Means for supplying water to polishing-wheels	577,045	Feb. 16	1652	392	78	975
Leece, Major B., and A. R. Bullock, Cleveland, Ohio. Automatic street or station indicator and advertising medium	576,201	Feb. 2	225	56, 57	78	679
Lefferts, John A., Ellwood City, Pa. Sieving apparatus	575,302	Jan. 12	1617	385	78	323
Leffler, Charles, Brooklyn, N. Y. Box-binding machine	576,863	Feb. 9	1827	317	78	905
Leger, Dominick S., assignor of one-half to I. and F. White, Waltham, Mass. Nut-lock	579,648	Mar. 30	3180	755	78	1941
Legg, Albert. (See Weston and Legg.)						
Legg, Alfred W., Balclutha, New Zealand. Furrow-splitter	576,864	Feb. 9	1830	317	78	905
Leggo, William A., Jr., Hartsdale, N. Y., assignor of one-fourth to Long Island Rubber and Cycle Company, of New York. Vehicle-brake	577,388	Feb. 16	2224	524	78	1085
Lehmann, Friedrich D. T., assignor of one-half to P. N. Kohlsaat, Chicago, Ill. Continuous kiln	577,046	Feb. 16	1654	393	78	976
Lehmann, James F., New York, N. Y. Self-leveling graduating measuring-glass and holder	575,033	Jan. 12	1160	282	78	235
Leidgen, Nicolaus, Milwaukee, Wis. Variable-speed frictional gear	579,663	Mar. 30	3202	761	78	1946
Leigh, Walter A. (See Smith, Samuel, assignor.)						
Leipziger, Louis. (See Preuss and Leipziger.)						
Leiser, Charles W., Carlinville, Ill. Repeater	578,997	Mar. 16	2081	473	78	1699
Leitch, Meredith, Richmond, Va., assignor to Warren Webster & Company, of New Jersey. Regulator for suction creating or exhausting devices	577,263	Feb. 16	2016	478	78	1046
Leland & Faulconer Manufacturing Company. (See Fredrick, Norton, and Simpson, assignors.)						
Lemering, Henry W., and H. Pickard, Philadelphia, Pa. Adjustable car-step	576,133	Feb. 2	109	28	78	658
Lenhart, Charles N. (See Lenhart, Harry P. and C. N.)						
Lenhart, Harry P., Terre Haute, Ind., and C. N. Lenhart, Mattoon, Ill. Combined shovel and tongs	577,108	Feb. 16	1777	420	78	1000
Lentz, Peter, Steelton, Pa. Automatic switch	579,881	Mar. 30	3260	852	78	2014
Lentzkow, Robert, Bornstedt, Germany. Mangle	578,017	Mar. 2	310	74	78	1321
Lenz, Carl, Zurich, Switzerland. Curtain-holder	577,436	Feb. 23	2329	546	78	1120
Leonard, Arthur G., New York, N. Y. Device for uniting cars	578,498	Mar. 9	1151	259	78	1498
Leonard, Harry W., East Orange, N. J. Rheostat	576,202	Feb. 2	226	57	78	679
Leonhardt, Katharine, assignor of one-half to S. Rasch, Philadelphia, Pa. Hook attachment	576,865	Feb. 9	1831	318	78	905
Leonhardt Wagon Manufacturing Company. (See Leonhardt, William, assignor.)						
Leonhardt, William, assignor to Leonhardt Wagon Manufacturing Company, Baltimore, Md. Casket-clamp for hearses	578,699	Mar. 9	1506	347 348	78	1565
Leroy, Charles N., Paris, France. Metallic casing for shipment of petroleum	575,034	Jan. 12	1161	283	78	235
Léry, Joseph B. de, New York, N. Y. Gas-lighting	578,984	Mar. 16	1921	444	78	1669
Leschinski, Fritz, Philadelphia, Pa. Can-opener	575,654	Jan. 19	2254	532	78	464
Lessard, Jeremie, Cohoes, N. Y. Brake for street-railway cars	578,646	Mar. 9	1405	320	78	1546
Lester, Howard W., East Hartford, assignor of one-half to F. C. Rockwell, Hartford, Conn. Saddle	578,409	Mar 9	996	228	78	1468
Letteer, Melvin D., Delavan, Wis. Combination-tool	578,249	Mar. 2	780	165	78	1400
Letzig, William. (See Pearson and Letzig.)						
Leuner, Oskar, Dresden, Germany. Instrument for measuring temporary and permanent stresses in iron bridges	578,459	Mar. 9	1081	246	78	1485
Leventritt, Marion, San Francisco, Cal. Safety-check book	576,592	Feb. 9	909	210	78	824
Leveritt, Nicholas T., Emberson, Tex. Cloth-bolt clamp	579,800	Mar. 30	3426	821	78	1988
Levi, Alfred A., *et al.* (See Levi, John J., assignor.)						
Levi, John J., assignor of three-fourths to A. A. and J. J. Levi, Jr., New Richmond, and H. M. Dalton, Cincinnati, Ohio. Brick-making machine	579,714	Mar. 30	3288	784 785	78	1962
Levy, Max, Philadelphia, Pa. Gas-burner for acetylene	576,682	Feb. 9	1047	246	78	850
Lewis, D. H. (See Juckett, Henry, assignor.)						
Lewis, Everett B., Dwight, Ill. Thill-coupling	574,547	Jan. 5	277	65	78	55
Lewis, Frank P., E. N. and A. Stapp, South Greenfield, Mo. Nut-lock	574,548	Jan. 5	278	65	78	55
Lewis, George G., Athens, Ohio Automatic railway-gate	576,450	Feb. 2	602	158	78	762
Lewis, George G., Athens, Ohio. Gate	576,460	Feb. 2	603	158	78	762
Lewis, George W., Chicago, Ill. Vapor-engine	577,189	Feb. 16	1899	449	78	1024
Lewis, Harry J., and S. L. Bellman, Pittsburg, Pa. Writing fluid and making same	574,437	Jan. 5	100	------	78	21
Lewis, John L., Pittsburg, Pa. Mold for casting rolls, &c	574,616	Jan. 5	412	95	78	77
Lewis, Mary L. (See Lewis, William H., assignor.)						
Lewis, Sylvester G., St. Louis, Mo. Embroidery-needle	577,763	Feb. 23	2896	686	78	1227
Lewis, Theodore H., Canton, Mass. Machine for cutting mortises for hinges in doors and door-jambs	577,868	Mar. 2	53	15, 16	78	1270
Lewis, Thomas E., Vicksburg, Miss. Sample-exhibiting attachment for boxes	575,897	Jan. 26	2674	630	78	558
Lewis, William G., Hope, Ark. Chalk-line holder	574,617	Jan. 5	414	95	78	78
Lewis, William H., assignor to M. L. Lewis, Huntington, N. Y. Photographic-printing frame	576,203	Feb. 2	231	57	78	680
Libbey, Henry N., Boston, Mass. Gate-valve	577,924	Mar. 2	171	40	78	1294
Libbey, Henry N., Boston, assignor of one-half to C. P. Perkins, Danvers, Mass. Gate-valve	579,114	Mar. 16	2229	525	78	1730
Libbey, Hosea W., Boston, Mass. Vestibule-car	575,484	Jan. 19	1987	464	78	402
Libbey, Hosea W., Boston, Mass. Street-car	575,485	Jan. 19	1988	465	78	402
Libbey, Hosea W., Boston, Mass. Cash-register	578,295	Mar. 2	807	182	78	1414
Lichtenberger, Albert M. (See Arnold and Lichtenberger.)						
Lickstrom, William. (See Algren, Carl S., assignor.)						
Liebmann, Rudolph, New York, N. Y. Picture-frame	577,660	Feb. 23	2728	644	78	1195

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Liebmann, Rudolph, New York, N. Y. Metallic picture-frame	578,936	Mar. 16	1924	444	78	1669
Liebrecht, Arthur. (See Röhmann and Liebrecht.)						
Lightfoot, Thomas M. (See Dolley, Hawkins, and Lightfoot.)						
Lightner, Henry L., San Francisco, Cal. Rotating gravity-engine	578,062	Mar. 2	376	88	78	1333
Lilienthal, Albert W., Yonkers, N. Y. Street-car	579,276	Mar. 23	2491	588	78	1798
Lilly, George W. and J. E., Sedalia, Mo. Farm-gate	579,066	Mar. 16	2150	504	78	1715
Lilly, John E. (See Lilly, George W. and J. E.)	578,937	Mar. 16	1925	445	78	1669
Lincoln, Isaac N., Providence, R. I. Bicycle-support for learners	575,721	Jan. 26	2375	559	78	501
Lincoln Sewing Machine Company. (See Webster, Edwin A., assignor.)						
Lind, Aaron A., Canton, Ohio. Counter-stool	575,486	Jan. 19	1940	465	78	402
Linde, George, Newark, N. J. Stamp and envelop moistener	578,887	Mar. 16	1840	------	78	1655
Linde, Richard, Berlin, Germany. Paste for electric accumulators	578,343	Mar. 9	894	202	78	1448
Lindemann, August. (See Lindemann, Charles and A.)						
Lindemann, Charles and A., Milwaukee, Wis. Sheet-metal elbow	576,407	Feb. 2	584	137	78	745
Lindgren, August, Moline, Ill., assignor to Moline Plow Company, of Illinois. Disk harrow	576,408	Feb. 2	586	138	78	746
Lindgren, August, Moline, Ill., assignor to Moline Plow Company, of Illinois. Check-wire reel for seeding-machines	577,047	Feb. 16	1657	393	78	976
Lindgren, August, Moline, Ill., assignor to Moline Plow Company, of Illinois. Seed-dropping mechanism	577,437	Feb. 23	2330	546 547	78	1120
Lindgren, August, Moline, Ill., assignor to Moline Plow Company, of Illinois. Seeding-machine	579,801	Mar. 30	3427	821	78	1988
Lindholm, Frank, and C. Picard, Woodbury, N. J. Mechanism for varying the touch of piano-actions	575,360	Jan. 19	1725	411	78	363
Lindquist, John S. (See Olson and Lindquist.)	577,961	Mar. 2	226	54	78	1304
Lindsay, Thomas, Capitola, Cal. Fishing-net-controlling device	579,715	Mar. 30	3202	785 786	78	1963
Lindsay, William H., Bristol, England. Coil clutch and brake	574,918	Jan. 12	921	225	78	194
Lindsey, Francis H., and C. L. Simonds, Lynn, Mass. Refrigerator	574,549	Jan. 5	279	65, 66	78	55
Lindström, Carl A., Rockaway, N. J. Bicycle	578,573	Mar. 9	1288	292	78	1524
Lindström, Charles, Altoona, Pa. Brake-actuating mechanism	577,764	Feb. 23	2897	686	78	1227
Lindström, Charles, Altoona, Pa. Brake-actuating mechanism	577,962	Mar. 2	228	54, 55	78	1305
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Collapsible cup	576,204	Feb. 2	232	57	78	681
Link-Belt Engineering Company. (See Dodge, James M., assignor.)	578,755	Mar. 16	1607	371	78	1614
Link, John J., St. Louis, Mo. Lock	576,205	Feb. 2	233	58	78	681
Linn, Allen D., assignor to Grand Rapids School Furniture Company, Grand Rapids, Mich. Seat-hinge	576,206	Feb. 2	234	58	78	681
Linn, Allen D., assignor to Grand Rapids School Furniture Company, Grand Rapids, Mich. Book-rack	575,066	Jan. 12	1219	296	78	246
Linn, Allen D., and R. W. Irwin, assignors to Grand Rapids School Furniture Company, Grand Rapids, Mich. Foot-board for chairs	574,919	Jan. 12	924	225	78	194
Linn, Allen D., and R. W. Irwin, assignors to Grand Rapids School Furniture Company, Grand Rapids, Mich. Back-lock fastening for chairs	578,647	Mar. 9	1407	320	78	1546
Lippincott, Fisher H., Philadelphia, Pa., assignor to American Soda Fountain Company,	574,741	Jan. 5	634	151	78	118
Trenton, N. J. Tumbler-washer						
Lippitt, Charles N., Beloit, Wis. Water tank and heater						
Lippitt, Elihu, assignor, by mesne assignments, to Buckeye Pearl Button Company, Cleveland, Ohio. Button-making machine						
Lipps, David M., Harrodsburg, Ky. Car-coupling						
Lipps, Edward. (See Gray, Lowry A., assignor.)						
Lipschutz, Arthur, Chicago, Ill. Draft-gear for freight-cars						
Lipska, Edward, Dubuque, Iowa. Bottle						
Lisk Manufacturing Company. (See Brown, Tristram D., assignor.)						
Litchfield Shuttle Company. (See Truesdell, Oscar B., assignor.)						
Little, Charles H., Melrose, assignor, by mesne assignments, to R. F. Herrick, trustee, Boston, Mass. Cash indicator and register						
Little, Charles H., Melrose, assignor to R. F. Herrick, trustee, Milton, Mass. Adding and registering mechanism						
Little, James O., Quincy, Ill. Gate for casting						
Littlefield, Daniel R., Warsaw, Ind. Wire-fence lock						
Livengood, Winfield S., assignor to Devol-Livengood Manufacturing Company, Kansas City, Mo. Baling-press						
Livengood, Winfield S., and A. J. Mason, Kansas City, Mo. Baling-press						
Livesay, Robert C., and H. F. Crandall, assignors to Milwaukee Harvester Company, Milwaukee, Wis. Grain-shield for harvesters						
Livingston, Edward, New Orleans, La. Automatic fire-extinguisher						
Livingston, Frederick H., Ithaca, N. Y. Adjustable stock for split dies						
Livingston, James C., Little Falls, N. Y. Sounding-board						
Livingston, John M., Lorton, Nebr. Pocket-knife						
Lloyd, Marshall B., Minneapolis, Minn. Bicycle-pump						
Lloyd, Nathan, Greenbrier, Mo. Broom						
Lloyd, William, Boston, Mass. Shirt-protector						
Lloyd, William H., Houtzdale, Pa. Wagon-brake						
Lloyd, William H., assignor to Smith & Anthony Company, Boston, Mass. Bath-tub supply-pipe						
Lo Forte, Remigio, New York, N. Y., assignor to Automatic Photograph Machine Company, of West Virginia. Automatic fluid-pressure machine						
Lobee, Bart, assignor of two-thirds to G. Duchscherer and F. W. Carter, Buffalo, N. Y. Hanger for shafting						
Locke, Joseph. (See Croskey and Locke.)						
Lockwood, James, and G. Clifford, St. Louis, Mo. Boiler-tube cleaner						
Loder, Frank W., Poughkeepsie, N. Y. Shoe-lace fastener						
Lodge, William S., Albany, N. Y. Ticket-holder						
Lodyguine, Alexander de, Pittsburg, Pa. Illuminant for incandescent lamps						
Lodyguine, Alexander de, Pittsburg, Pa. Illuminant for incandescent lamps						
Loebenberg, Leo, and D. H. Morris, New York, N. Y. Trousers-creaser						
Loeber, Edgar O., and G. F. Harvat, Los Angeles, Cal. Extension-handle for brooms or dusters						
Loebs, Albert H., Rochester, N. Y. Tripod						
Loeffler, Herman G., Bay City, Mich Potato-peeling knife						
Loeser, Leo, Buffalo, N. Y. Check, bond, note, &c						
Loetzer, Christian E., Towanda, Pa. Fire-hydrant						
Loew, Charles H., Cleveland, Ohio. Filter						
Logan, Oscar A., Chicago, Ill. Envelop-fastener (Reissue)						

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Logee, Henry F. (See Cooley and Logee.)						
Lomas, Edward N., Mount Vernon, N. Y. Bicycle lunch-box	575,655	Jan. 19	2255	533	78	465
Lomas, Henry, *et al.* (See Barnes, Thomas, assignor.)						
Lomb, George W. C., Birmingham, Ala., assignor of one-fourth to A. Ballard, Hallettsville, Tex. Electric railway	575,308	Jan. 12	1618	385, 386	78	323
Lombard, Frank, Hartford, Conn. Drop-hammer	576,273	Feb. 2	351	83	78	708
Lombard, Frank, Hartford, Conn. Drop-hammer	577,531	Feb. 23	2500	580, 590	78	1158
Lombard, Nathaniel, Boston, assignor of one-half to H. A. Clark, Brookline, Mass. Telephone-transmitter	578,590	Mar. 9	1197	270	78	1506
Long & Allstatter Company. (See Long, John M. W., assignor.)						
Long, Calvin C., Washington, Iowa. Wagon-brake	576,207	Feb. 2	295	58	78	681
Long, Charles W., Miamisburg, Ohio. Top	576,982	Feb. 9	1548	368	78	945
Long Island Rubber and Cycle Company. (See Leggo, William A., Jr., assignor.)						
Long, John M. W., assignor to Long & Allstatter Company, Hamilton, Ohio. Oil-cup plug	579,326	Mar. 23	2572	607	78	1808
Long, John M. W., assignor to Long & Allstatter Company, Hamilton, Ohio. Disk harrow	579,487	Mar 23	2885	678	78	1865
Long, John T., Evanston, Ill. Luggage-carrier for bicycles	579,430	Mar. 23	2753	653	78	1841
Long, Richard W., Milwaukee, Wis. Trousers-holder	575,067	Jan. 12	1221	297	78	247
Long, William J. (See McCartney, James, assignor.)						
Longwell, Henry E., Chicago, Ill., assignor to Westinghouse, Church, Kerr & Company, Orange, N. J. Furnace-grate	577,190	Feb. 16	1901	449, 450	78	1024
Look, Frank N., Northampton, Mass. Device for making covered eyelets	575,963	Jan. 26	2769	654	78	576
Look, Frank N., Northampton, Mass. Brush	576,866	Feb. 9	1332	318	78	906
Loomis, Burdett, Jr. (See Pettibone and Loomis.)						
Loomis, William S., and S. O. Pike, Sycamore, Ill. Hay rake and loader combined	577,166	Feb. 16	1866	441	78	1018
Looser, Wilhelm G., Essen, Germany. Thermoscope	577,499	Feb. 23	2334	547	78	1121
Lopp, John, Monett, Mo. Barrel	579,716	Mar. 30	3294	786	78	1962
Loppens, Georges, and H. Deswarte, Nieuport, Belgium. Retting or steeping flax or hemp	576,867	Feb. 9	1333	318	78	906
Lorash, Henry D., and C. Hilgemeier, assignors of one-half to C. S. Cooper and A. A. Russell, Indianapolis, Ind. Dump-bed for wagons	579,116	Mar. 16	2232	525, 526	78	1730
Lorch, Ernest P., New York, N. Y. Polishing and abrading material	576,370	Feb. 2	523	.....	78	735
Lord & Burnham Company. (See Elder, Andrew, assignor.)						
Lord, Charles A., San Francisco, Cal. Non-refillable bottle	577,903	Mar. 2	232	55	78	1305
Lord, Charles S., Winooski, Vt. Reel and Support	579,488	Mar. 23	2887	679	78	1865
Lord, Charles S., Winooski, Vt. Spooling-machine	579,489	Mar. 23	2888	679	78	1866
Lord, Ernest, Schaghticoke, N. Y. Air-exhaust device	578,410	Mar. 9	997	228	78	1468
Lord, Percy L., Riverside, Cal. Combined pencil-sharpener and eraser-cleaner	575,951	Jan. 26	2770	654	78	576
Lord, Walter and W., Todmorden, England. Evening mechanism for openers and scutchers	575,780	Jan. 26	2458	579, 580	78	518
Lord, Will. (See Lord, Walter and W.)						
Lord, William B., and C. C. Griswold, assignors to H. J. Baker, Chicago, Ill. Joint for adjustable parts of machinery	579,277	Mar. 23	2494	588	78	1794
Lorentz, Lorenzo D., trustee. (See Bucklin and Hartigan, assignors.)						
Lorey, William, Philadelphia, Pa. Car-fender	574,551	Jan. 5	283	66	78	56
Lotherington, Thomas, assignor of one-half to A. E. Nelson, Ardmore, Ind. Ter. Sail attachment for bicycles	578,411	Mar. 9	998	228	78	1469
Lothes, John, Cincinnati, Ohio. Feed-water heater for boilers	577,925	Mar. 2	172	40	78	1294
Loucks, Zachariah K. (See Le Fevre, Nevin B., assignor.)						
Louden, William, Fairfield, Iowa. Ice-tongs	576,461	Feb. 2	664	158	78	762
Lougheed, Aaron. (See Hoover and Lougheed.)						
Loughridge, Jacob E., deceased, Philadelphia, Pa.; M. R. Loughridge, executrix. Compensating device for railway-car brakes	575,255	Jan. 12	1536	308	78	308
Loughridge, Mary R., executrix. (See Loughridge, Jacob E.)						
Lounsberry, Lawrence C., and A. Campbell, Albion, Fla. Spike and drift-bolt puller	576,402	Feb. 2	665	159	78	763
Louttit, George T. (See Mann, William, assignor.)						
Lovatt, James W., Bethlehem, assignor to H. A. Mack Wood-Working Company, Weatherly, Pa. Spindle	579,833	Mar. 30	3180	832	78	1998
Love, Leonidas L. (See Barcus, Albert M., assignor.)						
Lovelace, Robert S., Henstridge, England. Toughening or strengthening metal	577,899	Mar. 2	55	.....	78	1271
Lovett, John. (See Wells and Lovett.)						
Low, Abbot A. (See Johnson and Low.)						
Lowell, Tone J., Cedar Rapids, Iowa. Grass-catcher for lawn-mowers	576,787	Feb. 9	1206	287	78	881
Lowry, Albert H., Pittsburg, Pa. Car-brake	575,160	Jan. 12	1380	332	78	278
Lowry, George, Tiffin, Ohio. Crusher for stone, ore, &c	576,519	Feb. 2	769	181, 182	78	782
Lowry, Howard S., Kansas City, Mo. Dental appliance	576,593	Feb. 9	911	210	78	824
Lowry, Mark A., assignor to A. W. Wilkinson, Chelsea, Mich. Rein or strap guide	577,191	Feb. 16	1905	450	78	1025
Lozier, Arthur M., New York, N. Y. Sounding apparatus	576,208	Feb. 2	296	59	78	681
Lucas, Edward J., Johnstown, N. Y. Punch for cutting out glove-fourchettes	577,766	Feb. 23	2899	686	78	1227
Lucas, Harry, Birmingham, England. Lamp	579,593	Mar. 30	3082	729	78	1923
Luce, William, Nehalem, Oreg. Swimming apparatus	579,758	Mar. 30	3323	802	78	1975
Luchia, Henry M., assignor to himself and J. Langlois, Lynn, Mass. Car-coupling	575,656	Jan. 19	2256	533	78	465
Luck, John J. (See Gartrell, Charles B., assignor.)						
Luckenbach, Royer, assignor to J. W. Mohn, Philadelphia, Pa. Funnel	579,649	Mar. 30	3181	755	78	1941
Ludford, Thomas R., S. R. and R. Davies, Llanelly, England. Furnace for heating metal sheets	576,734	Feb. 9	1126	266	78	865
Ludlam, John O., and J. L. McKittrick, Canton, Ohio. Brick or tile cutting machine	577,870	Mar 2	56	16, 17	78	1271
Lueteke, Charles, Greencastle, Ind. Machine for molding bread, cakes, &c	575,609	Jan. 19	2164	513	78	447
Lufkin, Chauncey F., Lima, and A. W. Gordon, Toledo, Ohio. Mechanical movement	579,327	Mar. 23	2573	607	78	1808
Lufkin, Harvey L., deceased, New York, N. Y.; M. D. Lufkin, administratrix. Fire-extinguishing apparatus	578,006	Mar. 9	1338	304	78	1534
Lufkin, Mary D., administratrix. (See Lufkin, Harvey L.)						
Lumière, Auguste and L., Lyons, France. Kinetographic camera	579,882	Mar. 30	3561	852	78	2014
Lumière, Louis. (See Lumière, Auguste and L.)						
Lumley, V. S. (See Kline, George B., assignor.)						
Lundgren, Charles A. (See Bremer and Lundgren.)						
Lundquist, Claus. (See Larson and Lundquist.)						
Lundstrom, Carl J., assignor to D. H. Burrell & Co., Little Falls, N. Y. Centrifugal liquid-separator	579,301	Mar. 23	2531	597	78	1801
Lundy, Everett B. (See Riegel and Lundy.)						
Lunsford, Robert L., Savannah, Ga. Lock-nut	578,412	Mar. 9	1000	229	78	1469
Luscomb, Andrew, Fall River, Mass. Shuttle-box mechanism	578,007	Mar. 9	1340	304, 305, 306	78	1534

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Luscomb, Henry H., Hartford, Conn., and W. F. D. Crane, Orange, N. J., assignors to Johns-Pratt Company, Hartford, Conn. Insulator	578,825	Mar. 16	1789	399, 400	78	1038
Lusted, Charles, Sr., Lafayette, La. Sleigh attachment for vehicles	575,657	Jan. 19	2257	533, 534	78	465
Luther, Andrew J., Burns, Tenn. Tobacco-elevator	576,735	Feb. 9	1128	266	78	866
Luther, Benjamin G., Worcester, Mass. Sawing-machine	578,826	Mar. 16	1741	400	78	1039
Luther, Justus P. and S. L., assignors, by mesne assignments, of one-half to H. D. Slayton, D. Doty, and L. H. Curtis, Berlin, Wis. Glove-fastener	575,862	Jan. 19	1728	411	78	863
Luther, Sarah L. (See Luther, Justus P. and S. L.)						
Lutton, Henry P., St. Charles, Ill. Grinding-machine	577,440	Feb. 23	2335	547, 548	78	1122
Lyall, James, New York, N. Y. Tubular wheel-tire	576,371	Feb. 2	524	122	78	735
Lyda, Arthur W. (See Coulter, Horn, Reiter, Lyda, Freidhoff, Davis, and Barnes.)						
Lynch, Edward W. (See Veon, Andrew E., assignor.)						
Lynch, Edward W., Brainerd, Minn. Nut-lock	578,063	Mar. 2	377	88	78	1333
Lynch, George W., assignor to Buhl Stamping Company, Detroit, Mich. Lantern	579,883	Mar. 30	3563	852	78	2014
Lynch, Henry H., and S. L. Foster, assignors to Market Street Railway Company, San Francisco, Cal. Operating cars on grades	576,868	Feb. 9	1335	318, 319	78	906
Lynn, Edwin S. (See Rust and Lynn.)						
Lynn, Elmore P., assignor to Lynn Filter Manufacturing Company, Cincinnati, Ohio. Filter	576,209	Feb. 2	237	59	78	682
Lynn Filter Manufacturing Company. (See Lynn, Elmore P., assignor.)						
Lynn, John. (See Payne and Lynn.)						
Lynn, William M., assignor of one-half to J. H. Gibson, Boston, Mass. Radiator	576,869	Feb. 9	1337	319	78	906
Lyon, Edward, New Rochelle, N. Y. Pneumatic tire	574,438	Jan. 5	101	21	78	21
Lyon, Edward H., Englewood, N. J. Powder-box	577,767	Feb. 23	2900	687	78	1227
Lyons, J. Monroe. (See Doble, Thomas, assignor.) (Reissue.)						
Lyons, Robert L., Waltham, assignor to Union Button Sewing Machine Company, Boston, Mass. Stop mechanism	579,594	Mar. 30	3083	729	78	1923
Lytle, George D. (See Merry, Edward, assignor.)	574,552	Jan. 5	284	67	78	56
Lytton, Edward, London, England. Tableau-curtain						
M. Garland Company. (See Thomas, Edwin E., assignor.)						
Maag, Arthur J., *et al.* (See Wenning, John P., assignor.)						
MacCallum, Colin. (See Freeman & MacCallum.)						
MacDougall, John, Wyoming, Pa. Horseshoe	574,553	Jan. 5	286	67	78	56
MacHaffie, John, and E. F. G. H. Faure, Schenectady, N. Y., assignors to General Electric Company, of New York. Controlling mechanism for projectors	576,683	Feb. 9	1049	246	78	850
MacHaffie, John, and E. F. G. H. Faure, Schenectady, N. Y., assignors to General Electric Company, of New York. Projector	576,684	Feb. 9	1051	246, 247	78	851
MacKenzie, George W., Beaver, Pa. Electric calendar-clock	574,922	Jan. 12	926	226, 227	78	194
MacKirdy, James, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	576,409	Feb. 2	587	138	78	746
MacKnight, James A. (See Doty and MacKnight.)	575,844	Jan. 26	2572	.....	78	539
Macdonald, Alice, London, England. Producing white-lead pigment, &c	576,274	Feb. 2	352	83, 84	78	703
Macdonald, James, Edinburgh, Scotland. Oil-lamp for removing paint, &c						
Macdonald, Thomas H., Bridgeport, Conn., assignor to American Graphophone Company, of West Virginia. Graphophone	579,595	Mar. 30	3086	730	78	1923
Macferron, Norman T., Allegheny, Pa. Car-fender	577,140	Feb. 16	1820	429	78	1009
Mack, William A., assignor to Standard Sewing Machine Company, Cleveland, Ohio. Brake or stop mechanism	575,965	Jan. 26	2772	654	78	576
Mack, William B., Boston, Mass. Injector	575,363	Jan. 19	1730	412	78	363
Mackintosh, Frederick, Schenectady, N. Y., assignor to General Electric Company, of New York. Means for preventing destructive field-magnet discharges	577,141	Feb. 16	1821	429	78	1009
Macphail, James, assignor to Piano Manufacturing Company, Chicago, Ill. Head-board for harvesters	574,812	Jan. 5	743	178	78	140
Madden, Edward, Amsterdam, N. Y. Bottle	574,923	Jan. 12	930	227	78	195
Maechling, Phillip, New Orleans, La. Beamless brake	577,768	Feb. 23	2903	687	78	1228
Mafera, Guy, Boston, Mass. Spring-bed frame	574,742	Jan. 5	636	151	78	118
Maginot, Albert, Vesoul, France. Single or connected helico-centrifugal pump	576,870	Feb. 9	1338	319, 320, 321	78	907
Magnusson, John A., Tacoma, Wash. Bicycle-wheel	579,490	Mar. 23	2890	679	78	1866
Maguire, Michael T., Philadelphia, Pa. Leather-dressing	578,418	Mar. 9	1001	.....	78	1469
Mahan, William B. (See Byor and Mahan.)						
Maher, John N., Franklin, Pa. Oil-well-pumping rigging	575,122	Jan. 12	1314	316, 317	78	264
Mahler, Frank. (See Ford and Mahler.)						
Mahoney, John B., Afton, Minn. Clamp for violin-strings	577,964	Mar. 2	233	55	78	1305
Mailloux, Cyprien O., New York, N. Y. Push-button	575,523	Jan. 19	2004	479	78	416
Main, Jacob F., Boston, Mass. Lawn-sprinkler	575,966	Jan. 26	2774	655	78	576
Mains, Claude P., Cleveland, Ohio. Car-fender	579,650	Mar. 30	3182	755, 756	78	1941
Maize, Frank P., W. H. Conrad, and F. H. Wampler, Philadelphia, Pa. Car-fender	576,210	Feb. 2	239	59	78	682
Major, Alphonse, New York, N. Y. Water filter and cooler	577,965	Mar. 2	234	55	78	1306
Make and Break Telephone Company. (See Gould, Claude C., assignor.)						
Makibbin, William J. A., Harrisburg, Pa. Device for adjusting counterbalance-springs of locomotives	575,123	Jan. 12	1315	317	78	265
Malcolm, Philip S., Portland, Oreg. Tooth-powder receptacle	575,610	Jan. 19	2166	514	78	447
Malken, John, Babylon, N. Y. Horseshoe attachment	577,661	Feb. 23	2728	645	78	1195
Mallard, William J., Atlanta, Ga. Manually-operated stock-feed cutter	579,884	Mar. 30	3564	853	78	2015
Mallard, William S., Darien, Ga. Curve-scriber	576,349	Feb. 2	489	114	78	729
Mallen, Edward J., New York, N. Y. Air-duct clench-coupling	574,743	Jan. 5	637	152	78	118
Mallett, Francis W., assignor to G. B. Howard, New York, N. Y., and A. S. Nichols, Chicago, Ill. Steam feed-pipe for platen lumber-driers	578,110	Mar. 2	457	106	78	1349
Malliary, Léonce A. G., Essonnes, France. Centripetal turbine	575,256	Jan. 12	1538	309	78	308
Malmqvist, Neil, Brooklyn, N. Y. Hydrant	574,744	Jan. 5	638	152	78	119
Malmström, Axel E. (See Östlund and Malmström.)						
Maloney, James H., New York, N. Y. Device for replacing tram-cars	576,463	Feb. 2	666	159	78	763
Mamelsdorf, Edward. (See Bloch, Isidore, assignor.)						
Mandel, Nathan, assignor to himself and K. Roth, Chicago, Ill. Hog-shackle	577,048	Feb. 16	1658	394	78	977
Mangum, William W., Jr., Nixon, Tenn. Bottle	578,648	Mar. 9	1411	321	78	1547
Mann, Bernard (See Pannill, Henry, assignor.)						
Mann, Charles H. (See Alexander, Payne, and Mann.)						
Mann, William, assignor of one-half to G. T. Louttit, Galveston, Tex. Molding sash-weights	576,871	Feb. 9	1340	321	78	907

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Mannewitz, Maximilian, Abilene, Tex. Seed-planter	574,554	Jan. 5	287	67	78	57
Manning, James, Omaha, Nebr. Pneumatic hammer	574,924	Jan. 12	932	227	78	195
Manning, Stephen H., *et al.* (See Reynolds, Frank A., assignor.)						
Mansfield, Frank, New York, N. Y. Electric railway	579,759	Mar. 30	3355	802 808	78	1975
Mansfield, Frank, Philadelphia, Pa. Electric railway	579,760	Mar. 30	3361	803 804	78	1976
Mansur & Tebbetts Implement Company. (See Brown, Uri H., assignor.)						
Manuell, Lawrence, Newport, R. I., and P. Catucci, New York, N. Y. Apparatus for making fertilizers from garbage	577,769	Feb. 23	2904	687	78	1228
Marble, Albert, assignor of one-half to A. M. Dayton, Lansing, Mich. Post for fences	575,095	Jan. 12	1162	283	78	236
Marburg, Franz, Jr., New York, N. Y. Rotary pump	578,938	Mar. 16	1926	445	78	1670
Marcus, Siegfried, Vienna, Austria-Hungary. Burner for vapor-lamps	579,309	Mar. 23	2687	637	78	1830
Marden, Ella A., Watertown, Mass. Car-brake	577,515	Feb. 23	2470	582	78	1147
Marichal, Arthur, assignor to Southwark Foundry and Machine Company, Philadelphia, Pa. Apparatus for conveying heat to engine-cylinders	577,966	Mar. 2	264	62	78	1311
Maris, Frank, Philadelphia, Pa. Automatic clutch for fluid-operated hoists	579,885	Mar. 30	3505	853	78	2015
Market Street Railway Company. (See Lynch and Foster, assignors.)						
Markley, Albert W., *et al.* (See Smith, Albert D., assignor.)						
Markley, P. H., *et al.* (See Smith, Albert D., assignor.)						
Marks, Charles J. (See Cottie and Marks.)						
Marks, Emanuel, Chicago, Ill. Portable folding rack	577,899	Feb. 16	2258	530 531	78	1090
Markwiese, John G., Milwaukee, Wis. Clothes-pounder	575,161	Jan. 12	1381	332	78	278
Marloid Manufacturing (Parent) Company. (See Marter, César, assignor.)						
Marquardt, Jacob, Mummendorf, Femern, Germany. Device for releasing draft-horses	576,594	Feb. 9	912	211	78	824
Marquedant, Henry. (See Haywood and Marquedant.)						
Mars, Charles P., Rockford, Ill. Pocket type-writer	577,049	Feb. 16	1660	394	78	977
Marsden, James E., Fond du Lac, Wis. Printing attachment for paper-holders	579,155	Mar. 23	2299	540 541	78	1757
Marsee, Jonah, and T. Morford, Bourne, Ky. Cultivator	576,595	Feb. 9	914	211	78	825
Marsh, Calvin D., assignor to A. D. Hermance, Williamsport, Pa. Fountain marking-pen	576,596	Feb. 9	914	211	78	825
Marsh, Edgar J., Coldstream, Canada. Windmill-regulator	574,[illegible]	Jan. 5	744	179	78	140
Marsh, George H., Paterson, N. J. Spinning-jenny	578,[illegible]	Mar. 9	1152	259	78	1498
Marsh, Henry F., Jr., *et al.* (See Blanchet, William F., assignor.)						
Marsh, Riverius, New Brunswick, N. J. Lamp	579,[illegible]56	Mar. 23	2300	541	78	1758
Marshall & Bruce Company. (See Whitson, Lorenzo D., assignor.)						
Marshall, Edward S., St. Louis, Mo., assignor to American Railway Equipment Company, East St. Louis, Ill. Car-door	575,257	Jan. 12	1539	369	78	309
Marshall, Holmes, Cleveland, Ohio. Combined type-writing and computing machine	575,570	Jan. 19	2090	499	78	431
Marshall, William L., assignor to himself and H. Jervey, Chicago, Ill. Automatic movable dam or sluiceway-gate	579,349	Mar. 23	2607	615 616	78	1815
Marshman, Newman R. (See Burridge and Marshman.)						
Marter, César, assignor to Marloid Manufacturing (Parent) Company, Limited, London, England. Conversion of skins into horny material	579,000	Mar. 16	2034		78	1691
Martin, Andrew J., Buffalo, N. Y. Traction-engine	578,888	Mar. 16	1841	423 424	78	1655
Martin, Edson T., assignor of two-thirds to J. W. Foster and J. Delsman, Portland, Oreg. Thill-coupling	578,306	Mar. 2	827	188	78	1417
Martin, Edward C., Caulfield, Victoria. Wheel for velocipedes	579,886	Mar. 30	3567	853	78	2015
Martin, Frank, *et al.* (See Storer, Jacob J., assignor.)						
Martin, George C., Omaha, Nebr. Griddle-greaser	576,211	Feb. 2	240	60	78	682
Martin, George W., assignor to H. M. Stanley, Henderson, Ky. Wrench	577,770	Feb. 23	2906	687	78	1228
Martin, James E., assignor to Carpet Loom Company, Worcester, Mass. Weft-controlling mechanism for looms	577,441	Feb. 23	2336	548	78	1122
Martin, John E., Haida, Austria-Hungary. Skate	578,064	Mar. 2	379	89	78	1333
Martin, John F. (See Bischof, George W., assignor.)						
Martin, John P. (See Schnick, Henry J., assignor.)						
Martin, Morris. (See Cohn and Martin.)						
Martin, Stephen J., Detroit, Mich. Battery	579,001	Mar. 16	2035	474	78	1691
Martin, William H., National Military Home, Los Angeles county, Cal. Cribb-counter	575,402	Jan. 19	1802	433	78	376
Martin, William H., Mobile, Ala. Elevated-track cycle	575,611	Jan. 19	2166	514	78	447
Marx, Frederick H. (See Gohlke, Louis, assignor.)						
Maschmeyer, Charles, assignor to Edward Miller & Company, Meriden, Conn. Wick-lifting device	578,251	Mar. 2	733	166	78	1400
Mase, August F. (See Mase, Frederick W., assignor.)						
Mase, Frederick W., Oshkosh, assignor of one-half to A. F. Mase, Milwaukee, Wis. Gate	577,484	Feb. 23	2403	565	78	1135
Mason, Arthur J. (See Livengood and Mason.)						
Mason & Co., W. L. (See Thomas, Lincoln N., assignor.)						
Mason, Emily O., Brooklyn, N. Y. Dust-pan	576,073	Jan. 26	2964	699	78	609
Mason Machine Works. (See Meats, John T., assignor.)						
Mason, Thomas, Topeka, Kans. Elevator or hoist	579,400	Mar. 23	2688	637 638	78	1830
Mason, Thomas F., and G. W. Shearer, Lamb, Ill. Fire-escape ladder	578,460	Mar. 9	1083	247	78	1485
Mass, Adolph, Carbondale, Pa. Bicycle-canopy	578,649	Mar. 9	1412	321	78	1547
Massachusetts Electric Company. (See Dion, Léon, assignor.)						
Masseth, Benjamin. (See Black, David W., assignor.)						
Masseth, Benjamin, and D. W. Black, Butler, Pa. Sucker-rod socket	578,344	Mar. 9	895	202	78	1449
Massey-Harris Company. (See Melvin-Jones, Johnston, and Clokey, assignors.)						
Massey-Harris Company *et al.* (See Fader, Silas, assignor.)						
Mast, Phineas P., Springfield, Ohio. Street-car motor	577,050	Feb. 16	1661	395	78	978
Mateer, James E. (See Cook and Mateer.)						
Mather, Alonzo C., Chicago, Ill. Railway-truck	575,723	Jan. 26	2378	560	78	502
Mather, Alonzo C., Chicago, Ill. Gearing for electric-car motors	575,724	Jan. 26	2379	560	78	502
Mather, Alonzo C., Chicago, Ill. Stock-car ventilator	577,871	Mar. 2	60	17	78	1272
Matheson, A. S., *et al.*, receivers. (See Wood, John, assignor.)						
Mathews, Elisha C., Jacksonville, Ill. Fence-machine	578,252	Mar. 2	734	166 167	78	1400
Mathews, William L., Mariette, Mich. Wheat-steamer	575,550	Jan. 19	2057	492	78	425
Mathias, John I. (See Hermany, Horace D., assignor.)						
Mathiesen, Carl E., Chicago, Ill. Pencil-case	579,596	Mar. 30	3087	730	78	1924
Mathis, William, New York, N. Y. Saddle-pad for harness	578,575	Mar. 9	1292	292 293	78	1525
Mathisen, William M., Chicago, Ill. Metallic arch for furnace-fronts	576,872	Feb. 9	1341	321	78	907
Matson, Matt, Sedro, Wash. Rotary engine	575,124	Jan. 12	1317	317 318	78	265

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Mattes, John R., *et al.* (See Norton, James A., assignor.)						
Matthews, Charles, Jr., Chicago, Ill. Acetylene-gas generator	577,051	Feb. 16	1664	395	78	978
Matthews, Robert L., *et al.* (See Harper, Daniel W., assignor.)						
Matthews & Willard Manufacturing Company. (See Miller, John C., assignor.)						
Matthews, William F., New York, N. Y. Puzzle	576,212	Feb. 2	241	60	78	682
Matthias, Edward A., Liverpool, and W. H. Harrison, Manchester, England. Stopper for jars, bottles, cans, &c	579,887	Mar. 30	3568	853 854	78	2016
Maurer, Albert. (See Wilhelm, John, assignor.)						
Maxim, Hiram S., London, England. Recoil-operated gun	579,401	Mar. 23	2690	638 639 640	78	1880
Maxim, Hiram S., assignor to Maxim-Nordenfelt Guns and Ammunition Company, Limited, London, England. Automatic gas-operated gun	577,485	Feb. 23	2405	565 566 567	78	1136
Maxim, Hosea F., Norfolk, Va. Fire-extinguishing apparatus	577,307	Feb. 16	2089	494	78	1059
Maxim, Hosea F., Norfolk, Va. Thermal circuit-closer	578,345	Mar. 9	895	203	78	1449
Maxim-Nordenfelt Guns and Ammunition Company. (See Maxim, Hiram S., assignor.)						
May, Moses, *et al.* (See Arnold, Harry V., assignor.)						
May, Rudolph A., Akron, Ohio. Grate	575,487	Jan. 19	1941	465 466	78	402
May, Solomon, *et al.* (See Arnold, Harry V., assignor.)						
May, William J., Homosassa, Fla. Seine-needle	579,157	Mar. 23	2302	541	78	1758
Maybach, Wilhelm, Cannstadt, Germany. Portable hydrocarbon-engine	577,167	Feb. 16	1807	441	78	1018
Mayer, Abraham, New York, N. Y. Galvanic attachment for eyeglasses	575,658	Jan. 19	2259	534	78	465
Mayer, Herman, New York, N. Y. Disinfecting apparatus	575,364	Jan. 19	1731	412	78	364
Mayer, Herman, and C. G. F. Wahle, New York, N. Y. Disinfecting apparatus	575,365	Jan. 19	1732	412	78	364
Mayhugh, F. G., *et al.* (See Campbell, Joseph E., assignor.)						
Mayland, Rowland H., Freeport, N. Y. Bell	578,253	Mar. 2	736	167	78	1401
Mayo, Benjamin F., Salem, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Heel-trimming machine	574,618	Jan. 5	415	95, 96	78	78
Mayo, Robert A., Philadelphia, Pa. Package-holding device for bicycles, &c	579,761	Mar. 30	3365	804	78	1977
Mayo, Robert D., Frankfort, Mich. Comb-cleaner	577,052	Feb. 16	1666	396	78	979
Mays, Jonathan A., London, England. Apparatus for reducing, separating, and refining metals	574,439	Jan. 5	102	21, 22	78	21
Mays, Livingston M., Round Rock, Tex. Holdback for vehicle-thills	578,018	Mar. 2	311	74	78	1321
Mays, William H., Los Angeles, Cal. Extension-table	575,285	Jan. 12	1582	376	78	317
McAlister, James P., Columbus, Ohio. Curtain-stretcher pin	577,607	Feb. 23	2647	625	78	1180
McAulay, Peter, Boston, Mass. Hames	578,653	Mar. 9	1417	322 323	78	1548
McAuliffe, Thomas, assignor to Stevens Manufacturing Company, Fall River, Mass. Woven fabric	579,164	Mar. 23	2313	544	78	1760
McBerty, Frank R. (See Scribner and McBerty.)						
McBride, Levi L. (See Triem, Wilson D., assignor.)						
McBrien, Frank, Newark, N. J. Electrically-controlled railway-signal	579,929	Mar. 30	3629	869	78	2027
McBrine, John, *et al.* (See Hart, John W., assignor.)						
McCabe, William L., and C. H. Anderson, Tacoma, Wash. Portable conveyer	575,264	Jan. 12	1549	370 371	78	310
McCain, Joseph, assignor to F. P. Becker, Chicago, Ill. Bicycle-hub	578,350	Mar. 9	903	204	78	1450
McCallum, Daniel W., St. Louis, Mo., assignor of two-thirds to W. E. Kuhlhoff, Fort Worth, and J. L. Finley, Denison, Tex. Locomotive	575,969	Jan. 26	2785	656 657	78	579
McCarroll, David C., and R. M. Seibel, Kansas City, Mo. Letter-box	577,368	Feb. 16	2192	518	78	1079
McCarthy, Ed, *et al.* (See Griffin, Thomas J., assignor.)						
McCartney, James, assignor of one-half to W. J. Long, Bessemer, Ala. Oscillating engine	579,599	Mar. 30	3091	731	78	1924
McCawley, Joel A., assignor of one-half to G. W. Cobb, Canton, Ky. Wrench	576,602	Feb. 9	924	213	78	826
McClave & Sons, John. (See Guy, Mark, assignor.)						
McClean, Samuel N., Washington, Iowa. Magazine-firearm	575,265	Jan. 12	1551	371	78	311
McCleary, George M., McKeesport, Pa. Breast-form	577,311	Feb. 16	2097	496	78	1061
McClelland, Mary A., Albany, N. Y. Educational apparatus	574,815	Jan. 5	750	180	78	141
McClelland, Mary B. (See Diamond, James H., assignor.)						
McClelland, William A., Kansas City, Mo. Waste-pipe-cleaning apparatus	576,507	Feb. 2	746	177	78	779
McCloskey, John J. (See Doris an I McCloskey.)						
McClure, Elias L., San Francisco, Cal. Accounting device	574,490	Jan. 5	185	42	78	36
McClure, George W., Pittsburg, Pa. Ingot-manipulator	578,415	Mar. 9	1004	230	78	1470
McCollum, David S., Keno, Oreg. Animal-trap	577,312	Feb. 16	2098	496	78	1061
McCollum, John A., and E. J. Knoll, Riverside, Cal. Handle-bar for bicycles	575,266	Jan. 12	1556	371	78	312
McConley, Robert E., Whitcomb, Wis. Steering attachment for bicycles	579,664	Mar. 30	3205	761	78	1946
McConnell, Edward T., *et al.* (See Hardgrave, Cager, assignor.)						
McConnell, Elmer C., Parkersburg, W. Va. Combined step-ladder and table	579,828	Mar. 23	2574	608	78	1809
McConnell, John, Cleveland, Ohio. Newspaper-wrapper	574,931	Jan. 12	947	220	78	198
McConnell, Joseph F., assignor of one-half to J. G. Ziegler, Reading, Pa. Bell	579,681	Mar. 30	3252	767	78	1951
McConnell, Niven, Munhall, Pa. Chrome brick	578,351	Mar. 9	904	.....	78	1451
McConnell, Niven, Munhall, and W. C. Burns, Homestead, Pa. Furnace-charging apparatus	577,776	Feb. 23	2913	689	78	1230
McConnell, R. F., *et al.* (See Grogan, Charles, assignor.)						
McConnell, Robert E. (See Bender and McConnell.)						
McConway & Torley Company. (See Curtis, Frank J., assignor.)						
McCord, Alvin C., Chicago, Ill. Car-axle box and lid	578,521	Mar. 9	1199	270 271	78	1507
McCorkindale, Edward, Holyoke, Mass. Lubricator	578,758	Mar. 16	1610	372	78	1614
McCormack, Alexander, Portarlington, Ireland. Combined stay and luggage-carrier for bicycles	579,279	Mar. 23	2496	589	78	1794
McCormack, Ira A., and A. H. Walker, Brooklyn, N. Y. Schedule-indicator	579,930	Mar. 30	3631	870	78	2028
McCormick & Company. (See Brown, George T., assignor.)						
McCormick Harvesting Machine Company. (See Johnston and Benjamin, assignors.)						
McCormick, James C., Findlay, assignor of two-thirds to J. B. and P. G. McDonald, Dooley county, Ga. Seed-planting machine	579,165	Mar. 23	2314	544	78	1761
McCormick, Merton H., assignor of one-half to E. A. Bush, Lake Odessa, Mich. Broom-head	575,571	Jan. 19	2095	500	78	432
McCorry, Henry W. (See Alexander, John P., assignor.)						
McCown, Joseph M. (See Phillips and McCown.)						
McCoy, John H., Ouray, Colo. Apparatus for treating ores	577,825	Feb. 23	2684	706	78	1244
McCue, C. W. (See Eshman, Peter, assignor.)						
McCue, Charles T., Hartford, Conn. Ball-bearing axle	578,892	Mar. 16	1851	425	78	1657
McCulley, Robert I. (See Halley and McCulley.)						
McCulloch, Charles A., and M. F. Corneaby, Minneapolis, Minn. Chain-brush for bicycles	574,621	Jan. 5	423	97	78	80

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McCulloch, James, Wolverhampton, England. Rock-drill	575,970	Jan. 26	2789	657, 658	78	579
McCullough, William, Pittsburg, Pa. Switch	574,749	Jan. 5	646	153	78	121
McCully, William F., *et al.* (See Smith, Harper F., assignor.)						
McCurdy, Arthur W., Washington, D. C. Gate	579,891	Mar. 30	3576	856	78	2017
McCutcheon, Anna C., Sparta, Mich. Fruit-canner	574,750	Jan. 5	647	154	78	121
McDaniel, Charles B., Germantown, Ohio. Automatic tension device for wire fences	578,096	Mar. 2	418	97	78	1341
McDaniel, Charles E., assignor of one-half to N. Fletcher, Frankfort, Ind. Farm-gate	579,931	Mar. 30	3633	870	78	2028
McDermott, Martin P., assignor of one-half to J. L. Campbell, Auckland, New Zealand. Burglar-alarm	578,808	Mar. 16	1852	425	78	1657
McDonald, Daniel H., *et al.* (See Davis, Jesse W., assignor.)						
McDonald, Donald, Louisville, Ky. Fireplace-furnace	575,847	Jan. 26	2576	608	78	540
McDonald, Edward P., Ashaway, R. I. Ore-separator	577,874	Mar. 2	65	18	78	1273
McDonald, James L. (See Gibbons and McDonald.)						
McDonald, James S., Jr., Chicago, Ill. Temporary binder	574,932	Jan. 12	948	229, 230	78	196
McDonald, John. (See Oag and McDonald.)						
McDonald, John B., *et al.* (See McCormick, James C., assignor.)						
McDonald, P. G., *et al.* (See McCormick, James C., assignor.)						
McDonald, William. (See Tinney, Thomas B., assignor.)						
McDonough, John J. (See Gallager, Henry, assignor.)						
McDougall, Hugh, Brooklyn, N. Y. Type-bar for type-writing machines	578,894	Mar. 16	1853	426	78	1657
McDowell, Thomas, assignor to Carter-Crume Company, Niagara Falls, N. Y. Memorandum-book	579,405	Mar. 23	2988	641	78	1892
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. Electric cut-out	577,822	Feb. 23	2981	705	78	1243
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. Rotary engine	578,759	Mar. 16	1611	372	78	1614
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. System of motor-trucks	578,760	Mar. 16	1613	372, 373	78	1615
McFadden, William H. (See Smyser, Louis B., assignor.)						
McFadyen, James, Paterson, N. J. Folding lunch-box	577,198	Feb. 16	1918	453	78	1028
McFarlane, James, London, Canada. Automatic locking-hook	577,144	Feb. 16	1824	430	78	1010
McFetridge, John R., Jr., *et al.* (See Braun, Henry A., assignor.)						
McGarvin, Smith, San José, Cal. Fruit-grader	578,067	Mar. 2	384	90	78	1334
McGinnis, Francis A., Detroit, Mich. Pants-guard for bicycles	576,411	Feb. 2	590	139	78	747
McGinniss, Philip, Brooklyn, N. Y. Starting-gate for race-tracks	575,361	Jan. 26	2721	643	78	566
McGinniss, William J., Washington, D C. Bicycle-support	578,761	Mar. 16	1617	373	78	1615
McGowan, Archie, *et al.* (See Enns, Abraham B., assignor.)						
McGowan, George, *et al.* (See Enns, Abraham B., assignor.)						
McGowan, George, *et al.* (See Smith, Harper F., assignor.)						
McGowan, Thomson, Cleveland, Ohio. Lamp burner and wick	575,900	Jan. 26	2078	631	78	559
McGrath, Patrick C. (See Dalrymple and McGrath.)						
McGraw, William T., Detroit, Mich. Cash register and indicator	579,982	Mar. 30	3634	870, 871	78	2028
McGraw, Wyatt J., Walla Walla, Wash. Spraying apparatus	576,818	Feb. 9	1258	300	78	891
McGregor, William, assignor to A. H. F. Seeger, Newburg, N. Y. Bale tie and hook	579,892	Mar. 30	3579	856	78	2018
McGuire, James F. (See Bourke, William, assignor.)						
McGuire Manufacturing Company. (See Hubbard, Moses G., Jr., assignor.)						
McGuire Manufacturing Company. (See McGuire and Hubbard, assignors.)						
McGuire, William A., and M. G. Hubbard, Jr., assignors to McGuire Manufacturing Company, Chicago, Ill. Ratchet brake-handle	577,490	Feb. 23	2418	569	78	1138
McHugh, Peter, assignor of one-half to H. L. Biggs, Dyer, Tenn. Nut-lock	576,466	Feb. 2	670	160	78	764
McInerney, James J. (See Barrie, John D., assignor.)						
McIntire, Arthur F., assignor to D. C. McIntire, St. Louis, Mo. Stenographer's cabinet	577,369	Feb. 16	2197	519	78	1080
McIntire, Desmonde C. (See McIntire, Arthur F., assignor.)						
McIntire, Jacob N., assignor to Brunswick-Balke-Collender Company, New York, N. Y. Cue-tip clamp	576,374	Feb. 2	531	124	78	736
McIntyre, John, Jersey City, N. J. Fluid-pressure motor and brake	575,525	Jan. 19	2015	481	78	417
McIntyre, John, Jersey City, N. J. Safety-guard for hollow bodies	575,526	Jan. 19	2017	481	78	417
McIntyre, John, Jersey City, N. J. Fluid-pressure compound motor and brake	575,527	Jan. 19	2018	481, 482	78	417
McIntyre, Thomas A. (See Stewart, John L., assignor.)						
McKaig, Eddy T., assignor of two-thirds to E. C. Kadow and S. M. Lane, Chicago, Ill. Metal bedstead	574,560	Jan. 5	299	69	78	58
McKay, Richard P. (See Hill and McKay.)						
McKeag, Charles E., Los Angeles, Cal. Bedstead attachment	577,145	Feb. 16	1825	430	78	1010
McKeen, Thomas L., New York, assignor to Trojan Car Coupler Company, Troy, N. Y. Buffer-platform for cars	575,971	Jan. 26	2702	658	78	580
McKelvy, William J., South Pittsburg, Tenn. Car-coupling	575,972	Jan. 26	2703	658	78	580
McKenna, Edward D., Brooklyn, N. Y. Manifolding attachment for books or pads	579,834	Mar. 30	3481	833	78	1998
McKenna, Edward D., Brooklyn, N. Y. Manifolding attachment for books	579,835	Mar. 30	3483	833	78	1998
McKenna, William S., assignor of one-half to J. W. Keffer, Pittsburg, Pa. Metallurgical furnace	576,323	Feb. 2	448	105	78	721
McKenzie, James, and C. O. Shaw, Cheboygan, Mich. Leather-washing machine	578,257	Mar. 2	744	168, 169	78	1402
McKercher, Jess. (See Fisher and McKercher.)						
McKesson & Robbins. (See Schaefer, George L., assignor.)						
McKinnon, James W., New York, N. Y. Davit	579,119	Mar. 16	2237	527	78	1731
McKinstry, Thomas J. (See Yeager, Bertus J., assignor.)						
McKittrick, John L. (See Ludlam and McKittrick.)						
McKnight, David A. (See Young, Tapley W., assignor.)						
McKnight, William, Dayton, Ohio. Gasolene-gas machine	575,901	Jan. 26	2679	632	78	559
McLachlan, John, assignor to J. McLachlan and F. P. Stone, Chicago, Ill. Solidifying wood	575,978	Jan. 26	2704	.....	78	580
McLane, Albert M., *et al.* (See Hardgrave, Cager, assignor.)						
McLauchlin, Alexander E. (See Bulock and McLauchlin.)						
McLaughlin, James F., Philadelphia, Pa. Means for operating electric motors	575,490	Jan. 19	1947	467	78	403
McLaughlin, Joseph H. (See Reaser and McLaughlin.)						
McLaughlin, Milton P., Somerville, assignor of one-half to S. Simonds, Boston, Mass. Flexible steam-conduit	575,831	Jan. 26	2548	601	78	535
McLaughlin, Milton P., Somerville, assignor of two-thirds to P. M. Hammett, Melrose, and S. W. Simonds, Boston, Mass. Metallic packing for piston-rods	575,491	Jan. 19	1950	467	78	403
McLean, John, Miller's Ferry, Ala. Coffee-roaster	577,313	Feb. 16	2099	496	78	1061
McLean, Ward, Brooklyn, N. Y. Combined stamp-canceling, postmarking, and recording mail-box	575,004	Jan. 12	1110	269, 270	78	226

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McLean, William. (See Stewart, James T., assignor.)						
McLean, William, *et al.* (See Scouler, James D., assignor.)						
McLendon, Elijah W., Plantersville, assignor of one-half to W. H. Lawrence, Montevallo, Ala. Whiffletree-hook	579,768	Mar. 30	3373	806	78	1979
McLeod, William. (See Brown, Edward J., assignor.)						
McMahon, Josiah C., Allegheny, assignor to Eureka Lock and Improvement Company, Pittsburg, Pa. Device for automatically locking elevators	576,144	Feb. 2	128	32	78	661
McMahon, Leonard H., Salem, Oreg. Fishing-line attachment	578,762	Mar. 16	1618	374	78	1615
McMenamin, Francis J., Philadelphia, Pa. Hinge	576,737	Feb. 9	1130	267	78	866
McMillan, Angus. (See Michener, Marion S., assignor.)						
McMillan, John L., Ilion, N. Y. Holder for type	578,828	Mar. 16	1745	401	78	1639
McMillan, Richard. (See Grady and McMillan.)						
McMillen, James J., Van Wert, Ohio. Insect-destroyer	578,352	Mar. 9	904	204	78	1451
McMillian, Edward D., assignor of two-thirds to F. G. Williams and E. A. White, Wade, Ind. Ter. Combined cultivator and cotton-chopper	575,757	Jan. 26	2424	571	78	511
McMillin, Francis C., *et al.* (See Jackson and Brigleb, assignors.)						
McMordie, William E., Gatesville, Tex. Combined cradle, swing, and clothes-drier	576,603	Feb. 9	925	213	78	827
McMullin, James B., Shakopee, Minn. Fishing apparatus	574,561	Jan. 5	303	70	78	59
McMurrin, Joseph, Shoshone, Idaho. Water-elevator	577,314	Feb. 16	2100	497	78	1002
McMurry, Robert, *et al.* (See Barnes, Thomas, assignor.)						
McMurtry, George G., Allegheny, Pa. Pickling apparatus	575,404	Jan. 19	1804	433	78	376
McNaught, William K., *et al.* (See Fairgrieve, Archibald, assignor.)						
McNeal, Thomas, Gypsum City, Kans. Calcining apparatus	577,059	Feb. 16	1674	397, 398	78	980
McNichols, Henry. (See Webster, John B., assignor.)						
McNiven, Douglas, assignor to Campbell Machine Company, Pawtucket, R. I. Buffing or polishing wheel	577,111	Feb. 16	1783	421	78	1001
McNutt, Emma Q. A., Amherst, Canada. Retainer or guide for hat-pins	577,491	Feb. 23	2420	569	78	1138
McNutt, Franklin, High Hill, Ohio. Chest-protector	576,880	Feb. 9	1361	325	78	911
McNutt, John F. (See Harris and McNutt.)						
McOwen, Anthony, New York, N. Y. Basin or bowl attachment for bath-tubs	579,166	Mar. 23	2316	545	78	1761
McOwen, Anthony, New York, N. Y. Basin attachment for bath-tubs	579,167	Mar. 23	2317	545	78	1761
McPherson, William, Quincy, Cal. Flooring	579,348	Mar. 23	2907	615	78	1815
McPhetridge, Bartholomew. (See McPhetridge, Robert F., B., and E. C.)						
McPhetridge, Edward C. (See McPhetridge, Robert F., B., and E. C.)						
McPhetridge, Robert F., B., and E. C., Liberty Hill, Tenn. Machine for thinning cotton	579,543	Mar. 23	2909	702	78	1882
McRae, Robert P., St. Albans, W. Va. Railway-tie	579,520	Mar. 23	2902	690	78	1875
McTighe, Thomas J., Brooklyn, N. Y., and S. W. Childs, Natick, Mass. Rail-bond for electric railways	578,829	Mar. 16	1747	402	78	1640
McWilliams, John, Providence, R. I. Lifting-wheel for drop-presses	576,324	Feb. 2	450	106	78	721
Meadly, J. Huston. (See Weedin, Clifton E., assignor.)						
Mealey, Johnston, Howard Lake, Minn. Harness-saddle	576,213	Feb. 2	242	60	78	683
Meas, Augustus, Niagara Falls, N. Y. Adjustable garment-pattern	579,491	Mar. 23	2890	679, 680	78	1866
Meats, John T., assignor to Mason Machine Works, Taunton, Mass. Brake mechanism for looms	578,155	Mar. 2	550	125	78	1367
Meats, John T., assignor to Mason Machine Works, Taunton, Mass. Carding-machine	579,117	Mar. 16	2235	526	78	1730
Mechanical Rubber Company. (See Cushman, Henry A., assignor.)						
Meech, Laura W., Buffalo, N. Y. Hair-curler	577,168	Feb. 16	1868	441	78	1018
Meehan, John J., New Castle, Pa. Boiler	574,925	Jan. 12	935	227, 228	78	196
Meek, John E., assignor to H. W. Johns Manufacturing Company, New York, N. Y. Electric heater	574,745	Jan. 5	639	152	78	119
Meeker, William, Washington Court-House, Ohio. Ball-bearing	576,134	Feb. 2	110	28, 29	78	658
Mehlenbeck, Albert J., Casselton, N. D. Truck-fork	579,278	Mar. 23	2495	589	78	1794
Mehling, John A., Cleveland, Ohio, assignor, by mesne assignments, to Mehling Manufacturing Company. Combined coin or check collecting box and register	576,214	Feb. 2	243	61	78	683
Mehling Manufacturing Company. (See Mehling, John A., assignor.)						
Meigs, George W., assignor to Spencer Optical Manufacturing Company, Newark, N. J. Eye-wire-supporting plate	579,762	Mar. 30	3366	804	78	1977
Meincke, Carsten, Elizabeth, N. J. Ice-cream mold	578,889	Mar. 16	1845	424	78	1656
Meisselbach, August F. and W., Newark, N. J. Ball-bearing fishing-reel	578,608	Mar. 9	1344	306	78	1595
Meisselbach, William. (See Meisselbach, August F. and W.)						
Meissner, William O., Chicago, Ill., assignor to American Electric Telephone Company, Kokomo, Ind. Telephone spring-jack	579,239	Mar. 23	2432	575	78	1783
Meister, Christian A., Allentown, Pa. Changeable gear for bicycles	575,725	Jan. 26	2380	560	78	502
Meistrell, Henry F., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Trimming attachment for linotype-machines	578,065	Mar. 2	381	89	78	1334
Melhorn, William E., Knoxville, assignor of one-half to V. Q. Hickman, Pittsburg, Pa. Combination vise and screw-cutter	576,873	Feb. 9	1341	321, 322	78	907
Mell, Luther J., New York, assignor of one-half to W. S. Anderson, Mount Vernon, N. Y. Fishing apparatus	578,085	Mar. 2	417	97	78	1341
Mellinger, Frank E., assignor to Computing Scale Company, Dayton, Ohio. Weighing-scale	577,516	Feb. 23	2472	582	78	1147
Mellon, Peter H., St. Louis Mo. Metallic couch-bed	579,402	Mar. 23	2895	641	78	1831
Meltsner, Joseph, New York, N. Y. Water-cooler	575,898	Jan. 26	2674	630	78	558
Melvin-Jones, Lyman, W. F. Johnston, and W. J. Clokey, assignors to Massey-Harris Company, Toronto, Canada. Harvester-binder	579,585	Mar. 30	3068	725	78	1920
Melvin, William J. (See Newberry and Melvin.)						
Menchen, Joseph, Kansas City, Mo. Overhead electrical knife-switch	574,926	Jan. 12	937	228	78	196
Mendelson, Louis, San Diego, Cal. Car-coupling	575,612	Jan. 19	2169	515	78	448
Mengel, Joseph A., McKeansburg, assignor of two-thirds to G. H. Gerber, Pottsville, and G. K. Binkley, Orwigsburg, Pa. Seed-planter	577,486	Feb. 23	2413	568	78	1137
Mengis, Morris C., Brooklyn, N. Y. Means for transporting articles of merchandise	579,158	Mar. 23	2903	541, 542	78	1758
Menzenhauer, Frederick, Jersey City, N. J. Harp-cithern	574,746	Jan. 5	641	152	78	119
Menzie, Robert E., Toronto, Canada. Machine for painting cloth	579,067	Mar. 16	2151	505	78	1715
Menzies, Robert C., Glens Falls, N. Y. Machine for defiberizing compacted jute	578,890	Mar. 16	1846	424	78	1656
Mercer. Frederic W. (See Palmer and Mercer.)						
Mereness, Alfred L., Geneva, Wis. Potato-planter	575,258	Jan. 12	1542	369, 370	78	309
Mergenthaler Linotype Company. (See Dodge, Philip T., assignor.)						
Mergenthaler Linotype Company. (See Keller, Thomas H., assignor.)						
Mergenthaler Linotype Company. (See MacKirdy, James, assignor.)						
Mergenthaler Linotype Company. (See Meistrell, Henry F., assignor.)						
Mergenthaler Linotype Company. (See Place, John, assignor.)						
Meriden Bronze Company. (See Jones, Augustus H., assignor.)						
Merker, Mont C., Philadelphia, Pa. Dental chair	579,094	Mar. 16	2191	514, 515	78	1723

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Mermod Frères. (See Vernaz, Alexis, assignor.)						
Merrick, Frank W., Boston, Mass. Thread-gripping device for wax-thread sewing-machines	575,530	Jan. 19	2024	483	78	419
Merrill, Carlton H., Troy, N. Y. Corset-fastener	578,254	Mar. 2	739	167	78	1401
Merrill, Nelson, Altamont, N. Y. Tricycle or bicycle	579,002	Mar. 16	2696	474	78	1691
Merrill, Samuel I., Los Angeles, Cal. Oil-can and liquid storage and delivery device	579,888	Mar. 30	3570	854	78	2016
Merritt, Douglas D. (See Smith, Frederick H., assignor.)						
Merritt, James M., Homer, Mich. Can or jar filler	574,849	Jan. 5	810	197	78	153
Merry, Edward, assignor of one-half to G. D. Lytle, Springfield, Mass. Hydrocarbon-engine	579,008	Mar. 16	2154	505, 506	78	1716
Merton, William, Marrickville, assignor to K. King, Sydney, New South Wales. Pneumatic-tired wheel	575,613	Jan. 19	2170	515	78	448
Mertz, Emile, Basle, Switzerland. Apparatus for moistening air	578,461	Mar. 9	1084	247	78	1485
Mets, John D., Dubuque, Iowa. Revoluble desk for hotel-registers	577,487	Feb. 23	2414	568	78	1137
Mette, Charles A., and E. S. Rayburn, San José, Cal. Bicycle driving-gear	578,701	Mar. 9	1509	348	78	1596
Metterhausen, Carl, and W. B. Johnson, Wilmington, Del. Operating mechanism for double sliding doors	574,747	Jan. 5	642	153	78	120
Metzler, Albert, Etna, Pa. Non-refillable bottle	576,410	Feb. 2	588	138, 139	78	746
Meves, Hugo, Davenport, Iowa. Shoe-heel	576,530	Feb. 2	777	182	78	783
Mewer Tool Company. (See Mewer, William J., assignor.)						
Mewer, William J., Old Orchard, assignor to Mewer Tool Company, Portland, Me. Feed device for rotary drills	577,662	Feb. 23	2729	645	78	1195
Mewes, Richard W., Blackhill, England. Steam-generator	576,874	Feb. 9	1344	322	78	908
Meyer, Albert W., Terre Haute, Ind. Compartment-urn	574,927	Jan. 12	940	228	78	197
Meyer, Asher T., New York, N. Y. Hinge connection for ribs and stretchers of umbrellas	579,403	Mar. 23	2696	641	78	1831
Meyer, August H. (See Havell and Meyer.)						
Meyer, Firm of H. C., Jr. (See Suhl, Johann G. A., assignor.)						
Meyer, Frank, and G. Harms, Peoria, Ill. Furnace	576,135	Feb. 2	113	29	78	658
Meyer, Frank, and G. Harms, Peoria, Ill. Furnace or stove door	576,597	Feb. 9	916	212	78	825
Meyers, Frank B., assignor of one-half to J. Irr, Buffalo, N. Y. Waste-trap	576,319	Feb. 2	440	102	78	720
Meyrose, Ferdinand, and W. H. Curtis, St. Louis, Mo. Bicycle-bell	577,488	Feb. 23	2416	569	78	1137
Michael, Clement W. (See Brown and Michael.)						
Michael, John W., Rockville, Ind. Roller	576,136	Feb. 2	115	29	78	659
Michaels, John N., Union City, Ohio, D. H. and J. Gittinger, Union City, Ind. Road scraper and leveler	579,404	Mar. 23	2697	641	78	1831
Michener, Marion S., assignor of one-half to A. McMillan, Kansas City, Kans. Bicycle-support	579,717	Mar. 30	3294	787	78	1963
Middleditch, Benjamin. (See Frost and Middleditch.)						
Middleton, Frank L., administrator. (See Wootton and Hewitt.)						
Mignault, Armand, *et al.* (See Généreux, François H., assignor.)						
Millar, George G. J., Groveport, assignor of one-half to L. G. Byrne, Columbus, Ohio. Foot-propelled vehicle	577,826	Feb. 23	2987	707	78	1245
Millard, Edward F., Jackson, Mich. Wood-grinding apparatus. (Reissue)	11,590	Mar. 2	828	188	78	1418
Millea, Thomas D., Springfield, Mass. Stop device for engines	578,650	Mar. 9	1413	321	78	1547
Millen, George, San Antonio, Tex. Hub	578,255	Mar. 2	740	168	78	1402
Millen, Thomas C., New York, N. Y. Headlight	576,875	Feb. 9	1347	322	78	908
Miller, August J. F., assignor of one-half to G. E. Eis, S. L. Dwight, A. H. Rainey, and O. V. Parkinson, Centralia, Ill. Ventilator	574,619	Jan. 5	420	96	78	79
Miller, Augusta, Syracuse, N. Y. Fireman's mask	577,926	Mar. 2	173	40	78	1295
Miller, C. B. (See O'Brien, Arthur, assignor.)						
Miller, Charles J., Plymouth, Mich. Fence-post	577,193	Feb. 16	1907	451	78	1020
Miller, Charles L., New York, N. Y. Venetian blind	578,346	Mar. 9	897	203	78	1449
Miller, Edward I., assignor to Indianapolis Brush Company, Indianapolis, Ind. Brush	578,999	Mar. 16	2084	474	78	1691
Miller, Elmer E., *et al.* (See Blocher, John, assignor.)						
Miller, Henry, assignor of one-half to C. Goerg, New York, N. Y. Propeller	579,889	Mar. 30	3572	854	78	2016
Miller, Henry D., Greenville, Ohio. Wire fence	576,215	Feb. 2	246	61	78	683
Miller, Henry H., Lakeside, Ohio. Bottle-washer	579,703	Mar. 30	3367	805	78	1977
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Wick-adjuster for central-draft lamps	576,870	Feb. 9	1348	323	78	908
Miller, John E., assignor to G. Duncan's Sons & Co., Washington, Pa. Tool for shaping glassware	575,125	Jan. 12	1319	318	78	266
Miller, John R., Bend, Tex. Cotton-chopper	576,877	Feb. 9	1349	323	78	909
Miller, John Z., Baltimore, Md. Automatic electric cut-out for magneto-bells	576,372	Feb. 2	525	123	78	735
Miller, Kempster B. (See Keelyn and Miller.)						
Miller, Lewis C., assignor to Miller Lock Company, St. Louis, Mo. Sash-fastener	577,385	Feb. 16	2227	524	78	1086
Miller, Lewis J., assignor to O. J. Miller and G. D. Wiedrich, Bergen, N. Y. Pneumatic tire	574,440	Jan. 5	104	22	78	22
Miller, Lloyd T., Caseyville, Ill. Combined agricultural implement	577,194	Feb. 16	1908	451, 452	78	1026
Miller Lock Company. (See Miller, Louis C., assignor.)						
Miller, Orville J., *et al.* (See Miller, Lewis J., assignor.)						
Miller, Peter I., Cleveland, Ohio. Gas-grate for parlors, &c	576,216	Feb. 2	247	61	78	684
Miller, Robert J. (See Kent and Miller.)						
Miller, Samuel J. (See Ferguson and Miller.)						
Miller, Thomas S., South Orange, N. J. Conveying apparatus	577,192	Feb. 16	1905	450, 451	78	1025
Miller, William, and E. O. Thompson, Thomasville, Ga. Air-lift pump	579,009	Mar. 16	2157	506	78	1716
Miller, William S. (See Barber, William A., assignor.)						
Milligan, Charles, *et al.* (See Grant, Mitchell W., assignor.)						
Milligan, Thomas P., Cambridge, Md. Floating traction device	575,488	Jan. 19	1943	466	78	403
Milliken, Edward L., *et al.* (See Smart, Fred A. J., assignor.)						
Milliken, William A. (See Harris, William H., assignor.)						
Mills, Americus C., Jr., Rochester, N. Y. File-box	576,217	Feb. 2	248	62	78	684
Mills, Charles. (See Threlfall and Mills.)						
Mills, John H., Boston, Mass. Piping for heat distribution in buildings	579,070	Mar. 16	2158	506	78	1717
Mills, Johnson, Manchester, assignor of one-half to J. Blears, Swinton, England. Warper's beam and weaver's beam	577,558	Feb. 23	2554	601	78	1163
Mills, Mortimer B., assignor to Mills Pneumatic Gate Company, Chicago, Ill. Railway-gate	577,489	Feb. 23	2417	569	78	1137
Mills, Norman T., Everett, Mass. Bicycle-bell	576,137	Feb. 2	116	30	78	659
Mills Pneumatic Gate Company. (See Mills, Mortimer B., assignor.)						
Milne, John, Brooklyn, N. Y. Steam boiler or generator	577,142	Feb. 16	1822	429	78	1009
Milner, George E. (See Cole, Edward M., assignor.)						
Milner, George E., Chicago, Ill. Turn-shoe	579,159	Mar. 23	2305	542	78	1758
Milo, John, New York, N. Y. Automatic distributing apparatus	575,846	Jan. 26	2574	607	78	539

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Milwaukee Gas Stove Company. (See Detwiler, Alfred E., assignor.)						
Milwaukee Harvester Company. (See Latimer and Graham, assignors.)						
Milwaukee Harvester Company. (See Livesay and Crandall, assignors.)						
Miner, Frederick R., Los Angeles, Cal. Lemon-squeezer	576,138	Feb. 2	118	30	78	659
Miners Relief Association. (See Rouse, Albion M., assignor.)						
Minnich, Mary C. (See Minnich, Simon B., assignor.)						
Minnich, Simon B., assignor to M. C. Minnich, Landisville, Pa. Baling-press	578,702	Mar. 9	1511	348, 349	78	1566
Minor, N. H. (See Robinson, William M., assignor.)						
Minton, Edward M., Union Grove, Wis. Hand-cultivator	574,555	Jan. 5	291	68	78	557
Minzey, William L., assignor of one-half to Ohio Cultivator Company, Bellevue, Ohio. Marker for seeders and planters	576,139	Feb. 2	119	30	78	659
Miracle, J. C. (See Miracle, John, assignor.)						
Miracle, John, Woodview, assignor of one-half to J. C. Miracle, De Graff, Ohio. Fruit-jar and fastening therefor	575,967	Jan. 26	2776	655	78	577
Miranda, Abraham R., Boston, Mass. Annunciator	577,532	Feb. 23	2504	590, 591	78	1153
Miranda, Abraham R., Boston, Mass. Combined check-receptacle and cash-drawer	577,533	Feb. 23	2505	591	78	1153
Miranda, Abraham R., Boston, assignor to S. R. Hill and A. H. Cushing, Brookline, Mass. Vaporizer	577,442	Feb. 23	2338	548	78	1122
Mistrot, Felix E., Bryan, Tex. Knockdown show-case	578,019	Mar. 2	312	74	78	1321
Mitchell, Francis L., Dallas, Tex. Gas-generating machine	578,347	Mar. 9	900	203	78	1450
Mitchell, George, *et al.* (See Grove, Frank B., assignor.)						
Mitchell, George, London, England. Refining vegetable oils	575,756	Jan. 26	2422	571	78	511
Mitchell, George P., Ovid, Mich. Curtain for carriage-tops	576,598	Feb. 9	918	212	78	825
Mitchell, George P., Ovid, Mich. Buggy-top	576,599	Feb. 9	919	212	78	826
Mitchell, Harrison J. (See Lane and Mitchell.)						
Mitchell, Howard E. (See Smith and Mitchell.)						
Mitchell, James, assignor of one-third to R. J. Willis, Detroit, Mich. Trace-fastener	576,600	Feb. 9	920	212	78	826
Mitchell, James H., Philadelphia, Pa. Machine for sheeting dough	576,373	Feb. 2	526	123	78	736
Mitchell, John E., Jackson, Mich. Dust-collector	576,878	Feb. 9	1351	323, 324	78	909
Mitchell, John R. (See Solter, John, assignor.)						
Mitchell, Randall, Detroit, Mich. Paddle-wheel	575,845	Jan. 26	2573	607	78	539
Mitchell-Vance Company. (See Kaysel, Edward A. C., assignor.)						
Mitchell, William A., assignor of one-half to J. D. Cochrane, Saco, Me. Car-brake	574,556	Jan. 5	292	68	78	557
Moberly, Charles R., and S. S. Welty, Frederick, Md. Dumping-cart	577,169	Feb. 16	1869	441	78	1018
Mockridge, Joseph B., New York, N. Y., and J. G. Hocke, Bayonne, N. J. Printing apparatus	575,968	Jan. 26	2777	655, 656	78	577
Moeller, Julius, London, England, assignor to Welsbach Light Company, Gloucester City, N. J. Incandescent gas-lamp	577,828	Feb. 23	2991	708	78	1245
Moersch, Ernst G., Newark, N. J. Mechanical toy	574,557	Jan. 5	294	68	78	55
Moffatt, Walter J., and E. A. Knapp, Nelson, New Zealand. Apparatus for turning over leaves of music, &c	577,143	Feb. 16	1823	430	78	1009
Mohn, J. W. (See Luckenbach, Royer, assignor.)						
Mohn, James W., Philadelphia, Pa. Bottle	577,053	Feb. 16	1667	396	78	979
Mohrenweiser, August F., H. C., and G., Henderson, Minn. Automatic brake for vehicles	575,003	Jan. 12	1108	269	78	226
Mohrenweiser, Gustav. (See Mohrenweiser, August F., H. C., and G.)						
Mohrenweiser, Henry C. (See Mohrenweiser, August F., H. C., and G.)						
Moline Plow Company. (See Lindgren, August, assignor.)						
Monaghan, William, Cheboygan, Mich. Attachment for artificial legs	577,054	Feb. 16	1668	396	78	979
Mond, Ludwig, Northwich, England. Production of steam for use in gas-producers	577,606	Feb. 23	2646	624, 625	78	1179
Monroe, Edwin P., *et al.* (See Wright, Herbert B., assignor.)						
Monroe, Elmer E., assignor of one-half to C. Ratliff, Richmond, Ind. Window-screen	577,690	Feb. 23	2772	655	78	1208
Montague, George E., Granby, Mass. Combination tank, vented float, outlet-valve, and pipe system	576,601	Feb. 9	922	213	78	826
Montgomery, James, Chicago, Ill. Knockdown bedstead	574,489	Jan. 5	184	42	78	86
Montgomery, John A., Birmingham, Ala. Combined leveler and sweeper for coke-ovens	579,160	Mar. 23	2306	542	78	1759
Montgomery, Roger, *et al.* (See Akers, Maurice L., assignor.)						
Montrois, Peter B., assignor of one-half to F. M. Carpenter, Watertown, N. Y. Hose-nozzle	575,036	Jan. 12	1163	283	78	236
Mooers, Will H., Rochester, N. Y. Display-box	577,055	Feb. 16	1669	396	78	979
Moon, Frederick H., assignor to Summit Knitting Co., Hyde Park, Mass. Knitted garment	575,726	Jan. 26	2381	560, 561	78	508
Moon, Robert G., Village Mills, Tex. Log-cart	576,464	Feb. 2	668	159	78	763
Moon, Robert G., Bedford, Iowa. Means for constructing storm-cellars, &c., of concrete	578,891	Mar. 16	1848	425	78	1656
Mooney, Nicholas G., Sing Sing, N. Y. Hoof-pad	576,320	Feb. 2	442	103	78	720
Mooney, Thomas H. (See Verret and Mooney.)						
Moore, Alfred A., High Point, N. C. Buggy-top rail	574,853	Jan. 5	815	198	78	154
Moore, Alfred G., Malden, Mass. Bicycle-rim	577,308	Feb. 16	2092	495	78	1060
Moore, Charles C., New York, N. Y. Car-truck	578,042	Mar. 2	345	82, 83	78	1327
Moore, George C., Worcester, Mass., assignor to American Tire Company, Limited, Toronto, Canada. Pneumatic tire	575,551	Jan. 19	2059	493	78	426
Moore, George N. (See Deake and Moore.)						
Moore, Harry V., assignor to F. & L. Kahn & Bros., Hamilton, Ohio. Combined pattern and core box	574,748	Jan. 5	644	153	78	120
Moore, Harry V., assignor to F. & L. Kahn & Bros., Hamilton, Ohio. Molder's apparatus	575,304	Jan. 12	1621	387	78	323
Moore, Isaac, Toronto, Canada, assignor to Carter-Crume Company, Niagara Falls, N. Y. Memorandum-book	576,218	Feb. 2	249	62	78	684
Moore, Isaac, Toronto, Canada, assignor to Carter-Crume Company, Niagara Falls, N. Y. Copying-book	576,219	Feb. 2	251	62	78	684
Moore, Isaac, Toronto, Canada, assignor to Carter-Crume Company, Niagara Falls, N. Y. Copying-book	576,220	Feb. 2	252	63	78	685
Moore, James M., Waldron, Ind. Fence-post	576,465	Feb. 2	669	160	78	764
Moore, John M., Rushville, Ill. Fence-stay	575,259	Jan. 12	1543	370	78	310
Moore, Moses M., assignor of one-half to N. W. Williams, Chicago, Ill. Tie-plate	579,764	Mar. 30	3369	805	78	1978
Moore, Nathaniel V., Yates Centre, Kans. Corn-planter	578,256	Mar. 2	741	168	78	1402
Moore, Nelson, Butte, Mont. Non-friction joint	576,221	Feb. 2	253	63	78	685
Moore, Orland E., Westfield, Mass. Braiding-machine racer	575,428	Jan. 19	1842	443	78	383
Moore, Thomas M., and A. Rawley, Somerville, N. J. Blank for plowshares	576,817	Feb. 9	1257	300	78	890
Moore, William J., Elmer, Mich. Telephone-transmitter	579,003	Mar. 16	2036	475	78	1692
Moore, William M., Lufkin, Tex. Expansion-cultivator	578,348	Mar. 9	901	204	78	1450
Moran, Daniel E., New York, N. Y. Derrick	578,495	Mar. 9	1155	260	78	1499
Moran, Myles F., Lynn, Mass. Sanitary trap	578,827	Mar. 16	1743	401	78	1639

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Morell, Miguel, Santa Barbara, Cal. Water-closet	575,980	Jan. 26	2720	643	78	566
Moremen, Charles G., Brandenburg, Ky. Egg-tester	574,854	Jan. 5	816	198	78	154
Morford, Thomas. (See Marsee and Morford.)						
Morgan Construction Company. (See Morgan, Ralph L., assignor.)						
Morgan, Fred W., P. L. Clark, and J. E. Parker, assignors to said Morgan and R. Wright, Chicago, Ill. Vulcanizer	577,300	Feb. 16	2003	495	78	1060
Morgan-Gardner Electric Company. (See Rauscher, Edward P., assignor.)						
Morgan, Henry W., Carbondale, Pa. Silk spinning and twisting machine	577,195	Feb. 16	1910	452	78	1026
Morgan, James B., Davenport, Iowa. Sash-lock	574,620	Jan. 5	422	97	78	79
Morgan, Josiah B., *et al.* (See Britton, Louis H., assignor.)						
Morgan, Louis J., Indianapolis, Ind. Puddling-tool	577,109	Feb. 16	1779	420	78	1001
Morgan, Ralph L., assignor to Morgan Construction Company, Worcester, Mass. Gas-producer	575,305	Jan. 12	1622	387	78	324
Morgan, Robert W., New York, N. Y. Check-book	575,781	Jan. 26	2459	580	78	518
Morgan, Schuyler W., Concord, N. H. Lock sealing-cap for bottles	578,756	Mar. 16	1608	371	78	1614
Morgan, Signor P. (See Hays, Datus L., assignor.)						
Morgan, William H., Alliance, Ohio. Electrical controller	575,366	Jan. 19	1734	413, 414	78	364
Morgan, William H., Alliance, Ohio. Overhead traveling crane	579,718	Mar. 30	3296	787	78	1903
Morgan, William H., Peabody, Kans. Bicycle prop or support	577,403	Feb. 16	2265	532	78	1092
Morgan, William H., Peabody, Kans. Bicycle-brake	577,404	Feb. 16	2266	532	78	1092
Morgeneier, Robert, assignor to American Carving and Manufacturing Company, Winona, Minn. Statuary-duplicating machine	576,321	Feb. 2	443	103, 104	78	720
Moritz, Adolph W., Southfield, N. Y. Bottle	579,651	Mar. 30	3184	756	78	1942
Morley, Fernando. (See Morrill and Morley.)						
Morrell, Henry L., Brooklyn, N. Y., assignor, by mesne assignments, to Spiral Tool and Machine Company. Saw-frame	579,492	Mar. 23	2894	680	78	1867
Morrill, Alvin T., Boston, Mass. Bicycle-bell	576,788	Feb. 9	1207	288	78	881
Morrill, Charles, New York, N. Y. Anvil for saw-sets	577,559	Feb. 23	2555	602	78	1163
Morrill, Horace E., assignor to Dayton Malleable Iron Company, Dayton, Ohio. Fifth-wheel	578,576	Mar. 9	1293	293	78	1525
Morrill, Roland, and F. Morley, Benton Harbor, Mich. Insect-destroyer	575,260	Jan. 12	1544	370	78	310
Morris, Daniel H. (See Loebenberg and Morris.)						
Morris, Henry G., Philadelphia, Pa. Secondary battery	577,771	Feb. 23	2907	688	78	1229
Morris, Henry G., and P. G. Salom, Philadelphia, Pa. Motor-propelled vehicle	578,651	Mar. 9	1415	321, 322	78	1548
Morris, Henry G., and P. G. Salom, Philadelphia, Pa. Motor-propelled vehicle	579,890	Mar. 30	3574	855	78	2017
Morris, Lemuel I. (See Wolford, Edward, assignor.)						
Morris, Nathan E., Jr., Grassland, Tenn. Picket-fence machine	574,814	Jan. 5	746	179	78	140
Morris, Thomas R., Billington, Tex. Bevel	578,462	Mar. 9	1086	247	78	1486
Morrison, Arthur C., Uniontown, Ky. Cigar or cigarette holder	578,652	Mar. 9	1416	322	78	1548
Morrison, Cornelius, Brooklyn, N. Y. Confectioner's mold	579,542	Mar. 23	2968	701	78	1881
Morrison, Singleton M. (See Lawrence, Harry W., assignor.)						
Morrison, Walter G., Willimantic, Conn. Spinning-spindle	577,056	Feb. 16	1671	397	78	980
Morrow, Zachariah D., deceased, Franklin, Ill.; J. C. Widenham, administrator. Match-box	575,489	Jan. 19	1946	467	78	403
Morse, Charles M., and F. M. Sylvester, Buffalo, N. Y. Cantaliver drawbridge	577,443	Feb. 23	2339	548, 549	78	1122
Morse, George W., *et al.* (See Croskey and Locke, assignors.)						
Morse, John H., St. Louis, Mo. Station-indicator	579,802	Mar. 30	3428	821	78	1988
Morse, Robert A., Portland, Oreg. Egg-turner for incubators	578,609	Mar. 9	1346	306	78	1536
Morse, William M., Chicago, Ill. Handle for pneumatic tools	578,020	Mar. 2	314	75	78	1321
Morse, William M., Chicago, Ill. Hand-grip	578,021	Mar. 2	316	75	78	1322
Morse, Williams & Company. (See Bates and Greenhough, assignors.)						
Morse, Williams & Company. (See Casey, John P., assignor.)						
Morton, Albert H., Lowell, Mass. Automatic feed-stopping mechanism for drilling-machines	577,110	Feb. 16	1781	420	78	1001
Morton, Martin W., Kalamazoo, Mich. Bag-holder	575,403	Jan. 19	1803	433	78	376
Morton, William M., New Haven, Conn. Spirit-inclinometer	577,772	Feb. 23	2908	688	78	1229
Moscheles, Robert, Berlin, Germany, assignor to L. H. Hall, Philadelphia, Pa. Gas-incandescent	575,261	Jan. 12	1546	.....	78	310
Moscheles, Robert, Berlin, Germany, assignor to L. H. Hall, Philadelphia, Pa. Gas-incandescent	575,262	Jan. 12	1547	.....	78	310
Moscheles, Robert, Berlin, Germany, assignor to L. H. Hall, Philadelphia, Pa. Gas-incandescent	575,263	Jan. 12	1548	.....	78	310
Moschell, William F. (See Robinson, Chester H., assignor.)						
Moseley, William M., Elgin, Ill. Pencil-sharpener	574,558	Jan. 5	295	68	78	58
Moseley, William M., Elgin, Ill. Lead-pencil sharpener	578,577	Mar. 9	1295	294	78	1526
Mosely, Moss. (See Freeman, Edgar H., assignor.)						
Moser, Ira D., Philadelphia, Pa. Car-fender	574,928	Jan. 12	942	228	78	197
Moses, Horace A., Mittineague, Mass. Paper-making machine	574,559	Jan. 5	298	69	78	58
Moses, Lionel, New York, N. Y. Testing plumbing, &c	577,500	Feb. 23	2556	602	78	1163
Mosher, Harry W., Geneva, Nebr. Automatic grain-weighing machine	579,240	Mar. 23	2434	575	78	1783
Mosher, John A., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Electric-arc lamp	579,161	Mar. 23	2308	543	78	1759
Mosher, John J., Rochester, N. Y., assignor of one-half to A. W. Crittenden, Washington, D. C. Printer's leader	577,773	Feb. 23	2909	688	78	1229
Mosier, Wallace, Mosiertown, Pa. Sliding-door fastener	577,444	Feb. 23	2341	549	78	1123
Moskowitz, Morris, Newark, N. J., assignor to National Electric Car Lighting Company, of West Virginia. Electrical car-lighting	577,872	Mar. 2	61	17	78	1272
Mosler, Moses, Cincinnati, Ohio, assignor to Mosler Safe Company, New York, N. Y. Safe	575,306	Jan. 12	1634	387, 388	78	324
Mosler Safe Company. (See Mosler, Moses, assignor.)						
Motie, Frank P., *et al.* (See Norton, James A., assignor.)						
Motor Cycle Company. (See Pennington, Edward J., assignor.)						
Moulthrop, Samuel P., Rochester, N. Y. Educational apparatus	577,196	Feb. 16	1914	453	78	1027
Moxham, Arthur J., Johnstown, Pa. Apparatus for heating blooms or other articles of metal	579,597	Mar. 30	3088	731	78	1924
Moxley, Richard J., Brooklyn, assignor to Empire Type Setting Machine Company, New York, N. Y. Type-setting machine	578,414	Mar. 9	1001	229, 230	78	1469
Moyer, Allen G, Philadelphia, Pa. Combined cane and umbrella	579,162	Mar. 23	2309	543	78	1759
Moyer, Lafayette, Felicity, Ohio. Sewing-machine attachment	574,929	Jan. 12	944	229	78	198
Mucklé & Co., M. R., Jr. (See Mucklé, John S., assignor.)						
Mucklé, John S., assignor to M. R. Mucklé, Jr., & Co., Philadelphia, Pa. Elevator	579,071	Mar. 16	2160	507	78	1717
Mucklé, John S., assignor to M. R. Mucklé, Jr., & Co., Philadelphia, Pa. Elevator mechanism	579,072	Mar. 16	2162	507	78	1717

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mudge, Isaac R., *et al.* (See Holsman, Henry K., assignor.)						
Mudge, Jessie R., *et al.* (See Holsman, Henry K., assignor.)						
Mueller, Charles G. S. (See Bender and Mueller.)						
Mueller, Otto C., Henderson, and I. V. Whiteman, Lamberton, Minn. Automatic brake for vehicles	576,140	Feb. 2	121	30, 31	78	660
	576,141	Feb. 2	123	31	78	660
Muenchinger, Gustave A., Newport, R. I. Refrigerator	577,534	Feb. 23	2507	591, 592	78	1154
Muirhead, Alexander, London, England. Submarine telegraphy	577,561	Feb. 23	2557	602	78	1164
Mullen, Charles R., assignor of one-half to J. W. Hilton, Cincinnati, Ohio. Sash-weight						
Mullen, Henry, Lawler, Iowa. Machine for loading, carrying, and distributing manure, &c	579,163	Mar. 23	2311	543	78	1760
Müller, Carl O., assignor to Basle Chemical Works Bindschedler, Basle, Switzerland. Rhodamin dye	576,222	Feb. 2	255	.....	78	685
Müller, Carl O., assignor to Basle Chemical Works Bindschedler, Basle, Switzerland. Rhodamin dye	576,223	Feb. 2	256	.....	78	685
Müller, Carl O., assignor to Basle Chemical Works Bindschedler, Basle, Switzerland. Rhodamin dye	578,578	Mar. 9	1300	.....	78	1527
Muller, Ernst J., Butte, Mont. Controlling mechanism for cable conveyers	575,367	Jan. 19	1736	414, 415	78	365
Mummery, Edwin G., assignor of one-fourth to J. Hutton, W. G. Hastie, and N. S. Wright, Detroit, Mich. Hydrocarbon-burner	575,659	Jan. 19	2260	534	78	466
Munderloh, John H., assignor to L. Weber, Philadelphia, Pa. Sliding door	575,102	Jan. 12	1381	333	78	278
Munger, Verrenice, Ansonia, Conn. Paper-file clasp	578,349	Mar. 9	902	204	78	1450
Munk, Hiram M., Columbus, Ohio. Gas-stove	576,350	Feb. 2	492	115	78	729
Munsell, William W., Evanston, Ill. Shoe lacer and lacing	578,006	Mar. 2	382	89	78	1334
Munson, Frank, Ithaca, Mich. Hose-coupling	577,774	Feb. 23	2911	688	78	1229
Munson, Sweney, Sayre, Pa. Tubular boiler	577,310	Feb. 16	2095	495, 496	78	1060
Munson, Sylvester S., assignor of one-half to A. B. Lathrop, Swanton, Ohio. Plumb-level	577,386	Feb. 16	2232	525	78	1086
Murbach, William A. (See Bartlett and Murbach.)						
Murchie, Sylvanus T., assignor to Western Paper Bag Company, Batavia, Ill. Paper-bag machine	579,765	Mar. 30	3370	805	78	1978
Murdock, Tracy, assignor to Graton & Knight Manufacturing Company, Worcester, Mass. Belt-stretching machine	577,873	Mar. 2	63	18	78	1273
Murliess, Daniel, Holyoke, Mass. Rubber-dam clamp	576,142	Feb. 2	124	31	78	660
Murphy, Edward E., Boston, Mass. Apparatus for concentrating vinegar	574,930	Jan. 12	946	229	78	198
Murphy, Elmer A., Painesville, Ohio. Fish-cleaning machine	576,879	Feb. 9	1355	324, 325	78	910
Murphy, George S., Sulphur Springs, Tex. Faucet	575,552	Jan. 19	2060	493	78	426
Murphy, James D., New York, N. Y. Floor-arch	575,037	Jan. 12	1165	283	78	236
Murphy, Jeremiah J., New York, N. Y. Key	577,927	Mar. 2	174	41	78	1295
Murphy, John, Pittsburg, Pa. Mechanism for grinding car-wheels	578,676	Mar. 9	1453	332, 333	78	1535
Murphy, John N., assignor to Packless Valve Company, Springfield, Ill. Valve	575,768	Jan. 26	2440	575	78	514
Murphy, Maurice D., Johnstown, Pa. Car-brake	576,143	Feb. 2	126	32	78	660
Murray, George G., Santa Rosa, Cal. Abstract-book for county records, &c	579,598	Mar. 30	3089	731	78	1924
Murray, Joseph E., Oakmont, assignor of one-half to J. W. Zacharias, Verona, Pa. Combined coop and shipping-crate	579,766	Mar. 30	3371	806	78	1978
Murray, Leander J., Milford, assignor to Sawyer Spindle Company, Boston, Mass. Spindle and bearing	579,118	Mar. 16	2236	526	78	1731
Murray, Walter C. (See Fulton, Samuel, assignor.)						
Murray, William F., San Francisco, Cal. Hoisting apparatus	579,719	Mar. 30	3296	787	78	1904
Murrell, David G., *et al.* (See Hoover, Frank, assignor.)						
Mushing, Edward. (See Gilbert and Mushing.)						
Mushoff, Wilhelm, Buer, Germany. Blackboard	579,767	Mar. 30	3372	806	78	1978
Mussen, Harry P., Grand Rapids, Mich. Divisible passenger-receipt and auditor-coupon railway-ticket	577,622	Feb. 23	2669	630	78	1184
Mussey, Nathan D., assignor of one-half to T. R. Baldridge and H. S. Beckwith, Los Angeles, Cal. Dilator	577,775	Feb. 23	2912	689	78	1229
Muther, Lorenz, Oak Park, assignor to Union Special Sewing Machine Company, Chicago, Ill. Machine for sewing looped fabrics	577,197	Feb. 16	1916	453	78	1027
Myers, Anna L., *et al.* (See Myers, Joseph, assignor.)						
Myers, Francis E. (See Myers, Philip A., assignor.)						
Myers, Frederick G., Philadelphia, Pa. Machine for edging drill-bits, &c	579,363	Mar. 23	2630	621	78	1819
Myers, Howard W., St. Paul, Minn. Bicycle-locker	577,808	Feb. 23	2959	699	78	1239
Myers, John W., Waterville, Ohio. Purse	577,057	Feb. 16	1672	397	78	980
Myers, Joseph, assignor to Baker, Jones & Company and A. L. Myers, Buffalo, N. Y. Temporary binder or holder for papers	579,073	Mar. 16	2163	508	78	1718
Myers, Luther, Maumee, Ohio. Force-pump for wells or cisterns	577,058	Feb. 16	1673	397	78	980
Myers, Millard F., Greenville, and W. C. Choate, Columbus, Ohio. Corn-harvester	575,524	Jan. 19	2006	479, 480	78	416
Myers, Philip A., assignor of one-half to F. E. Myers, Ashland, Ohio. Pump	574,441	Jan. 5	107	23	78	22
Myers, Squire W., Sugar Grove, Ill. Planter attachment	578,757	Mar. 16	1609	371	78	1614
Myers, Thomas L., assignor to Fernholtz Brick-Press Company, St. Louis, Mo. Brick-kiln	577,928	Mar. 2	176	41, 42	78	1295
Myers, Walker B., assignor of five-eighths to E. Stauffacher, Catherin, and L. S. Strepey, Basalt, Colo. Potato-digger	576,322	Feb. 2	446	104, 105	78	721
Myers, William H., Brooklyn, assignor to G. B. Schley, New York, N. Y. Shingle-sawing machine	575,899	Jan. 26	2676	631	78	558
N. O. Nelson Manufacturing Company. (See Reid, William A., assignor.)						
Nageidinger, John, New York, N. Y. Siphon-receptacle	575,982	Jan. 26	2723	644	78	567
Nagle, John T., Butte, Mont. Door or window fastener	576,467	Feb. 2	671	160	78	764
Nardi, Pasquale. (See Grupelli, Eney, assignor.)						
Naregang, John J., Leesport, Pa. Ball-bearing	578,496	Mar. 9	1156	260	78	1499
Nash, John H., Stockton, Cal. Wire-cutter	578,463	Mar. 9	1087	247	78	1486
Nash, John M., Milwaukee, Wis. Woodworking-machine	577,492	Feb. 23	2421	570, 571	78	1138
Nash, Lewis H., South Norwalk, Conn. Meter-register	577,387	Feb. 16	2233	525	78	1086
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Water-meter	574,562	Jan. 5	304	70	78	59
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Method of and apparatus for electric propulsion	576,145	Feb. 2	130	33	78	661
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Gas-engine	576,604	Feb. 9	926	214	78	827
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Centrifugal speed-regulator	578,111	Mar. 2	459	106	78	1349

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Gas-engine	578,112	Mar. 2	460	106, 107	78	1349
Nash, Morris M., assignor of one-half to D. S. Ralph, Lowell, Mass. Sand-box for electric cars, &c.	579,168	Mar. 23	2319	545	78	1702
Nash, Walter S., Knoxville, Tenn. Lock	578,763	Mar. 16	1619	374	78	1615
Nashoba Company. (See Baker, Elbridge, assignor.)						
Nathan Manufacturing Company. (See Desmond, John, assignor.)						
National Computing Scale Company. (See Swift, Horace E., assignor.)						
National Computing Scale Company. (See Swihart, John H., assignor.)						
National Electric Car Lighting Company. (See Moskowitz, Morris, assignor.)						
National Filter and Carbonating Company. (See Haefner, Carl, assignor.)						
National Harrow Company. (See Todd, Marquis J., assignor.)						
National Key-Opening Can Company. (See Zimmerman, John, assignor.)						
National Manufacturing Company. (See Drake, Charles W., assignor.)						
National Manufacturing Company. (See Hagan, Louis T., assignor.)						
National Metal Edge Box Company. (See Temler, Josef, assignor.)						
National Meter Company. (See Nash, Lewis H., assignor.)						
Naudain, John E., Baltimore, Md. Mute for violins	578,895	Mar. 16	1854	426	78	1657
Naudé, Berthe B. (See Brélaz and Naudé.)						
Naylor, Ernest W. (See Rubel and Naylor.)						
Neal, R. C., *et al.*, receivers. (See Wood, John, assignor.)						
Need, Hyatt W. (See Caldwell, Herbert F., assignor.)						
Neeland, Marvin A. (See Rotthoff and Neeland.)						
Neeland, Marvin A., Duquesne, Pa. Blast-furnace-charging apparatus	577,112	Feb. 16	1783	421	78	1002
Neer, Harry M., assignor to O. S. Kelly, Springfield, Ohio. Electric carrier apparatus	578,989	Mar. 16	1927	445, 446	78	1670
Neidlinger, George H., Brooklyn, N. Y. Nipple	577,199	Feb. 16	1919	454	78	1028
Nelles, Martin J., Chicago, Ill. Catch-basin	575,553	Jan. 19	2062	493	78	426
Nelson, Albert E. (See Lotherington, Thomas, assignor.)						
Nelson, Alfred, *et al.*, administrators. (See Nelson, John.)						
Nelson, Alonzo D., Costello, Pa. Window-sash	575,808	Jan. 26	2507	590	78	527
Nelson, Carl, Marinette, Wis. Garden-hose holder	579,493	Mar. 23	2896	680	78	1867
Nelson, Edward, Providence, R. I. Tire for bicycles	578,258	Mar. 2	746	169	78	1403
Nelson, Eva C., *et al.* (See Nelson, John, assignor.)						
Nelson, Frithiof, *et al.* (See Nelson, John, assignor.)						
Nelson, John, deceased; A. Nelson, Rockford, and W. Nelson, administrators; said A. Nelson assignor of one-third to R. Emerson and W. A. Talcott; said W. Nelson assignor, by mesne assignments, of two-thirds to E. C., W., O., F., and J. F. Nelson, Rockford, and A. N. Reck, Chicago, Ill. Straight-knitting machine	576,881	Feb. 9	1362	325, 326, 327, 328	78	911
Nelson, John F., *et al.* (See Nelson, John, assignor.)						
Nelson, John T., and R. F. Kerr, Brookings, S. D. Envelop-opener	574,563	Jan. 5	305	70	78	60
Nelson, Nels, assignor of one-half to O. Pharson, Attleborough, Mass. Device for tightening gage-bars	578,764	Mar. 16	1620	374	78	1616
Nelson, Oscar, *et al.* (See Nelson, John, assignor.)						
Nelson, William, *et al.*, administrators. (See Nelson, John.)						
Nelson, William H., Kingsville, Mo. Egg-crate	578,353	Mar. 9	905	205	78	1451
Nesbit, Joseph B., assignor of one-half to P. P. Smith, Sunbury, Pa. Tumbler-washer	579,600	Mar. 30	3092	732	78	1924
Neslage, Herman F., *et al.* (See Langford, Charles A., assignor.)						
Nesmith, John W., assignor to Colorado Iron Works Company, Denver, Colo. Blast apparatus for furnaces	575,974	Jan. 26	2796	650	78	580
Nettell, Richard, Calumet, Mich. Drill-releasing tool	575,207	Jan. 12	1558	371	78	312
Neubert, Armin L. (See Wiedenbeck, Neubert, and Sietz.)						
Neubert, Crisdof F., Chicago, Ill. Slot-machine	577,691	Feb. 23	2772	655	78	1203
Neuenschwander, Bertha J., Vera Cruz, Ind. Buttonhole guide and clamp	579,601	Mar. 30	3093	732	78	1925
Neumann, Paul, Berbisdorf, Germany. Penholder for writing roundhand	577,875	Mar. 2	66	18	78	1274
Nevill, William B., assignor of one-half to E. W. Hardin, Rockwall, Tex. Antirefilling bottle.	574,442	Jan. 5	108	23	78	22
Nevill, William B., assignor of one-half to R. P. Baker, Rockwall, Tex. Cattle-guard	574,443	Jan. 5	109	23	78	22
New Departure Bell Company. (See Hunn, Albert B., assignor.)						
New Departure Bell Company. (See Rockwell, Albert F., assignor.)						
New England Turbine and Fuel Company. (See Cousins, John C., assignor.)						
New England Weighing Machine Company. (See Nickerson, William E., assignor.)						
New Haven Clock Company. (See Porter, Wilson E., assignor.)						
New Multiple Press Company. (See Cummings, Henry H., assignor.)						
New York Bicycle Equipment Company. (See Green, Charles E., assignor.)						
New York Bicycle Equipment Company. (See Hines and Willard, assignors.)						
New York Bicycle Equipment Company. (See Oettinger and Schutt, assignors.)						
New York Pipe Bending and Machine Company. (See Brinkman, Louies H., assignor.)						
Newberry, Allie L. (See Newberry and Melvin, assignors.)						
Newberry, Augustus D., and W. J. Melvin, assignors to themselves and A. L. Newberry, Fayetteville, N. C. Machine for securing locking plates and pins in bed rails and posts.	579,836	Mar. 30	3485	833	78	1999
Newburg, John I., Vicksburg, Miss. Railway	578,896	Mar. 16	1855	426	78	1657
Newburg, John I., Vicksburg, Miss. Sleeping-car	578,897	Mar. 16	1856	426, 427	78	1658
Newcomb, Clay M., Rochester, N. Y. Edge-setter	575,531	Jan. 19	2026	484	78	419
Newcomb, William W., assignor of one-half to J. J. Cozatt, Bradfordsville, Ky. Measuring-faucet	576,685	Feb. 9	1055	247	78	851
Newell, Frank, New York, N. Y. Means for operating railway-gates	576,789	Feb. 9	1208	288	78	882
Newell, Otis K., Boston, Mass. Bicycle-seat	575,509	Jan. 19	1985	475	78	412
Newhall, Henry B. (See Cook, John H., assignor.)						
Newhall, Henry B. (See Kingsland, Oliver H., assignor.)						
Newhall, Henry B., Plainfield, N. J., and J. H. Cook, Brooklyn, N. Y.; said Cook assignor to said Newhall. Door-binder	579,074	Mar. 16	2164	508	78	1718
Newkirk, Jane B., La Porte, Ind. Milk-skimming device	578,259	Mar. 2	747	169	78	1403
Newlin, John R., Saxapahaw, N. C. Fence	579,364	Mar. 23	2631	622	78	1820
Newlon, John M., Falls Church, Va. Carpet-stretcher	574,816	Jan. 5	752	180	78	141
Newman, Albert G., J. A. Johnson, J. H. Swedlund, and C. Williams, Stratford, Iowa. Power-converter	577,445	Feb. 23	2342	550	78	1123
Newman, Eugene, Bridgeport, assignor to Vanderman Plumbing and Heating Company, Willimantic, Conn. Pipe-jointing holder	575,286	Jan. 12	1583	377	78	317
Newman, Isaac A., Greenville, Miss. Handle-bar grip for bicycles	574,751	Jan. 5	648	154	78	121
Newman, Samuel, and H. R. Bothwell, Cincinnati, Ohio; said Bothwell assignor to said Newman. Rail-joint for metal bedsteads	576,224	Feb. 2	257	63	78	685
Newsom, Joseph N., assignor of one-half to M. Sutter, St. Louis, Mo. Telegraph call-bell.	579,169	Mar. 23	2320	545, 546	78	1762
Newsom, Joseph N., assignor of one-half to M. Sutter, St. Louis, Mo. Electrically-operated signal or semaphore	579,170	Mar. 23	2327	547	78	1763

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Newton, Arthur R., and J. C. Bell, Kansas City, Mo. Marine merry-go-round	578,354	Mar. 9	907	205	78	1451
Newton, William A., Camden, Ohio. Automatic switch for railways	576,605	Feb. 9	980	214	78	828
Ney, Henry J., Pottsville, Pa. Vehicle-wheel	574,752	Jan. 5	649	154	78	121
Nicholas, Abraham R., assignor to American Buncher Manufacturing Company, Indianapolis, Ind. Sack-support	575,902	Jan. 26	2681	632	78	559
Nicholls, Mark M., New York, N. Y. Plant for coating and drying tubing	577,876	Mar. 2	66	19	78	1274
Nichols, Aaron S., *et al.* (See Mallett, Francis W., assignor.)						
Nichols, Charles E., Mandan, N. D. Piston-rod extractor	579,803	Mar. 30	3430	822	78	1989
Nichols, Fred H., Lynn, Mass. Roadway-gate	576,738	Feb. 9	1131	267	78	867
Nichols, Henry O., Norwich, Conn. Tailpiece for banjos or violins	576,606	Feb. 9	981	214	78	828
Nichols, Herbert M., Boston, Mass. Lacing-fastener for boots or shoes	574,686	Jan. 5	545	127	78	100
Nichols, John H., Duck River, Tenn. Horse-detacher	577,315	Feb. 16	2102	497	78	1062
Nichols, Samuel H., assignor of one-half to O. A. Campbell, Jr., Brockton, Mass. Burnishing-machine	577,823	Feb. 23	2982	705	78	1244
Nickerson, Charles S., Racine, Wis. Type-writing machine	576,146	Feb. 2	131	33, 34	78	662
Nickerson, William E., Cambridge, assignor to New England Weighing Machine Company, Boston, Mass. Can-filling machine	574,444	Jan. 5	110	23, 24, 25, 25	78	22
Nickerson, William E., Cambridge, assignor to New England Weighing Machine Company, Boston, Mass. Automatic weighing apparatus	574,445	Jan. 5	115	26, 27	78	23
Nicodemus, Ellsworth G., and C. C. Guisinger, Canal Winchester, Ohio. Nut-lock	575,268	Jan. 12	1558	372	78	313
Niedermayer, Henry. (See Griffiths and Niedermayer.)						
Nielson, Christen, Brooklyn, N. Y. Fifth-wheel	578,022	Mar. 2	318	75	78	1322
Nielson, Christen, and R. A. Berger, Brooklyn, N. Y. Bending-machine	578,416	Mar. 9	1005	231	78	1470
Nieprashk, John F. A., Chicago, Ill. Ornamenting metal surfaces	578,417	Mar. 9	1007	------	78	1471
Nightingale, James. (See Hutchins and Nightingale.)						
Nilson, Axel L., Ottumwa, Iowa. Shackle	574,564	Jan. 5	306	70	78	60
Nilson Manufacturing Company. (See Nilson, Nils, assignor.)						
Nilson, Nils, Minneapolis, assignor to Nilson Manufacturing Company, St. Paul, Minn. Steam-trap	577,623	Feb. 23	2670	630	78	1184
Nisbet, William H. (See Selley and Nisbet.)						
Nitschke, Daniel, Toledo, Ohio. Book-finishing machine	575,532	Jan. 19	2027	484, 485	78	419
Nittle, Michal, Pittsburg, Pa. Nut-lock	577,517	Feb. 23	2475	582	78	1148
Nixon, Moses C., Omaha, Nebr. Baling-press	575,660	Jan. 19	2263	534, 535	78	466
Nixon, William G. (See Brockett, Atwater E., assignor.)						
Noack, Adolph G., Brooklyn, N. Y., assignor to Berner-Mayer Company, of Ohio. Hydraulic air-pump	575,614	Jan. 19	2172	515, 516	78	448
Nobel, Alfred, Paris, France. Shell-fuse	575,163	Jan. 12	1382	333	78	278
Nolen, Carrie L. (See Nolen, John H., Jr., assignor.)						
Nolen, John H., Jr., assignor to C. L. Nolen, Columbus, Ohio. Dish-cleaner	575,368	Jan. 19	1738	415	78	366
Nordwall, John, Seattle, Wash. Rowing mechanism	577,200	Feb. 16	1920	454	78	1028
North British Rubber Company. (See Quimby, Edward E., assignor.)						
Northrop, James H. (See Draper and Northrop.)						
Northrop, James H., Hopedale, Mass. Wheel-tire	574,446	Jan. 5	119	27	78	24
Northrop, James H., assignor to G. Draper & Sons, Hopedale, Mass. Stop-motion for looms	575,307	Jan. 12	1626	388	78	324
Northrop, James H., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Shuttle-check for looms	575,308	Jan. 12	1627	389	78	325
Northrop, James H., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Loom	576,508	Feb. 2	747	177, 178	78	779
Northrop, James H., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Warp stop-motion for looms	576,882	Feb. 9	1374	328	78	913
Northrop, James P. (See Cleveland, Arthur, assignor.)						
Northrop Loom Company. (See Davenport, Edward W., assignor.)						
Northrop Loom Company. (See Draper, George O., assignor.)						
Northrop Loom Company. (See Draper and Northrop, assignors.)						
Northrop Loom Company. (See Northrop, James H., assignor.)						
Northrop Loom Company. (See Roper, Charles F., assigner.)						
Norton, Charles H. (See Fredrick, Norton, and Simpson.)						
Norton, Edward Q., Daphne, assignor of one-half to D. P. Brown, Mobile, Ala. Railway-switch	574,753	Jan. 5	650	155	78	121
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Automatic-sealing sheet-metal can	579,241	Mar. 23	2435	576	78	1784
Norton, James A., assignor of two-thirds to J. R. Mattes and F. P. Motie, Odebolt, Iowa. Table attachment for beds	576,988	Feb. 9	1549	368	78	946
Norton, Oliver W. (See Norton, Edwin, assignor.)						
Nosker, Orren G., Sheldon, assignor to C. M. Coats and C. E. Corlett, Aurora, Ill. Bag-holder	575,975	Jan. 26	2797	659	78	580
Nostrand, Theodore D. (See Wightman, Birdsell, and Nostrand.)						
Nottingham, Owen P. (See Eltzroth, George W., assignor.)						
Nourbourn, James W. (See Latham, Albert, assignor.)						
Novesky, Peter, Adrian, Mich. Wire fence	578,654	Mar. 9	1419	323	78	1549
Noye, William H. (See Dawson and Noye.)						
Noyes, Bernice J., Boston, Mass. Message-recording instrument	578,113	Mar. 2	462	107	78	1350
Noyes, Bernice J., Boston, Mass. Electric signaling apparatus	578,114	Mar. 2	465	108	78	1350
Noyes, Bernice J., Boston, Mass. Electric signaling apparatus	578,115	Mar. 2	469	108, 109	78	1351
Noyes, La Verne W., Chicago, Ill. Sheet-metal tank	575,369	Jan. 19	1740	416	78	396
Noyes, La Verne W., Chicago, Ill. Valve	579,171	Mar. 23	2330	547	78	1764
Noyes, Person. (See Kidder, Moses W., assignor.)	577,987	Mar. 2	266	63	78	1311
Nuckols, Virgil B., and P. L. Ramsey, Elkton, Ky. Cut-off						
Numerograph Manufacturing Company. (See Dudley, George W., assignor.)						
Nunamaker, James R., and M. J. Williams, Ione, Oreg. Combined spreader and regulator for threshing-machines	578,898	Mar. 16	1858	427	78	1658
Nunamaker, John W., Chicago, Ill. Time-indicator	576,275	Feb. 2	354	84	78	704
Nutting, Abel, Quincy, assignor, by mesne assignments, of one-half to C. A. Scott, Melrose, Mass. Snow-plow	579,544	Mar. 23	2971	702	78	1882
Nutting, Charles E. (See Roper and Nutting.)						
Nye, William P., Tazewell, Va. Folding car-step	577,446	Feb. 23	2343	550	78	1123
O. H. Jewell Filter Company. (See Jewell, Omar H. and W. M., assignors.)						
O. H. Jewell Filter Company. (See Jewell, William M., assignor.)						
O'Brien, Arthur, assignor of one-half to C. B. Miller, Helena, Mont. Sanitary appliance	576,790	Feb. 9	1211	289	78	882

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
O'Brien, Frederick W., Detroit, Mich. Straightway valve	575,848	Jan. 26	2579	608	78	540
O'Brien, John J. (See Lane and Hahn, assignors.)						
O'Brien, William C., Chicago, Ill. Boot-lacing	577,205	Feb. 16	2019	478	78	1047
O'Callaghan, Mary F., Watervliet, N. Y. Cooking utensil	578,765	Mar. 16	1621	374	78	1616
O'Donnell, Richard W. (See Sterner and O'Donnell.)						
O'Donnell, Thomas H. (See Blevens, Samuel M., assignor.)						
O'Donnell, Thomas J. (See Flanagan, Frank, assignor.)						
O'Dowd, Michael, Chillicothe, assignor of one-half to C. F. Resseguie, Chicago, Ill. Car-unloader	575,492	Jan. 19	1951	468	78	404
O'Gara, James F., Charleston, S. C. Ventilator	576,791	Feb. 9	1212	289	78	882
O'Hara, Henry, *et al.* (See Barnes, Thomas, assignor.)						
O'Lally, Patrick K., Boston, Mass. Faucet	576,068	Jan. 26	2958	608	78	608
O'Leary, Daniel P., and S. B. Kull, New York, N. Y. Photographic shutter	574,756	Jan. 5	654	155	78	122
O'Nan, Thomas J., *et al.* (See Brandes and Hironimus, assignors.)						
O'Reilly, Cornelius J., Manchester, N. H. Locomotive-frame	579,602	Mar. 30	3094	732	78	1925
O'Riva, John B., New York, N. Y. Combined book and purse	575,809	Jan. 26	2508	560	78	527
Oag, James, and J. McDonald, Toronto, Canada. Driving-gear for bicycles	578,260	Mar. 2	748	169	78	1403
Oakes, Ben, Detroit, Mich. Boring-machine	579,172	Mar. 23	2332	547, 548	78	1764
Oare, Frank, assignor to W. J. Dodge, Gloversville, N. Y. Heating device for curling-irons	579,302	Mar. 23	2533	568	78	1801
Ober, Martin, and P. Schottmüller, New York, N. Y. Bicycle-support	576,883	Feb. 9	1377	328	78	913
Oberholser, Milton H., Kingsley, Iowa. Lock for vehicle-seats	575,038	Jan. 12	1166	284	78	236
Oberjohann, Henry, Toledo, Ohio. Carpet-fastener	577,201	Feb. 16	1921	454	78	1028
Oberwalder, William C., New York, N. Y. Nozzle and sprayer	579,173	Mar. 23	2333	548	78	1764
Oca y Melian, Ignacio M. de, New York, N. Y. Crushing apparatus	574,754	Jan. 5	652	155	78	122
Ocumpaugh, Charles H., Rochester, N. Y. Sash-cord fastener	579,440	Mar. 23	2756	653	78	1841
Oehler, Firm of K. (See Rudolph, Christian, assignor.)						
Oehler, Otto C., Cramer Hill, N. J. Attachable brake-handle	574,755	Jan. 5	653	155	78	122
Oettinger, Cora D. (See Wallenstein and Oettinger, assignors.)						
Oettinger, Herbert C. (See Wallenstein and Oettinger.)						
Oettinger, Joseph, and M. A. Schutt, Michigan City, Ind., assignors, by mesne assignments, to New York Bicycle Equipment Company, of New York. Tool for mending punctures in bicycle-tires	576,607	Feb. 9	982	215	78	828
Offutt, William N., Keyser, W. Va. Watch-pocket guard	575,126	Jan. 12	1320	318	78	266
Ogden, Dora. (See Heckard and Ogden.)						
Ogle, George W. (See Spencer, James F., assignor.)						
Oglesby, George W. (See Taylor and Oglesby.)						
Ohio Cultivator Company. (See Minzey, William L., assignor.)						
Ohio Cultivator Company. (See Oldfield, Silas P., assignor.)						
Ohio Injector Company. (See Young, Edwin J., assignor.)						
Ohlson, Olof, Waltham, Mass. Winding-bar for stem-winding watches	575,728	Jan. 26	2384	561	78	503
Ohlsson, Olof, Newark, N. J. Centrifugal separating-machine	575,727	Jan. 26	2383	561	78	503
Olden, Robert F., Lordsburg, N. Mex. Ter. Nut-wrench	574,622	Jan. 5	425	97	78	80
Oldfield, Silas P., Mitchellville, Iowa, assignor to Ohio Cultivator Company, Bellevue, Ohio. Lifting-spring for cultivators	579,720	Mar. 30	3208	787, 788	78	1904
Olin, Franklin W., East Alton, Ill. Can-stopper	579,004	Mar. 16	2037	475	78	1692
Oliver, Frederick W., London, England. Apparatus for making paper or other tubes	578,355	Mar. 9	909	305, 306	78	1451
Oliver, John G. (See Bardons, Oliver, and Drake.)						
Oliver, Joseph W., Grand Rapids, Mich. Miter-cutting machine	577,777	Feb. 23	2915	690	78	1230
Oliver, Thomas T., Chicago, Ill. Centrifugal machine	576,412	Feb. 2	591	139, 140	78	747
Olson, Andrew G., and J. S. Lindquist, Swedeburg, Nebr. Windmill	576,325	Feb. 2	451	106	78	722
Olson, George A. (See Smith, William H., assignor.)						
Olson, Henry E., Chicago, Ill. Mowing and reaping machine	578,766	Mar. 16	1622	375	78	1616
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Feeding mechanism for sewing-machines	577,877	Mar. 2	67	19	78	1274
Onderdonk, Lansing, Boston, Bass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Sewing-machine	577,878	Mar. 2	69	20, 21	78	1274
Orelup, Amasa, Chicago, Ill. Furnace	577,113	Feb. 16	1785	421	78	1002
Orgill, Thomas. (See Stancliff, Edwin, assignor.)						
Orling, Axel. (See Armstrong and Orling.)						
Orme, Gordon S. (See Sewall, Robert H. F., assignor.)						
Ormerod, John, Brooklyn, assignor to American Soda Fountain Company, New York, N. Y. Valve-operating mechanism for syrup-jars	578,707	Mar. 16	1623	375	78	1616
Ort, Jacob, Wahoo, Nebr. Window	578,940	Mar. 16	1632	447	78	1671
Orwig, John H., Alliance, Ohio. Annealing-box	575,976	Jan. 26	2798	659	78	581
Osborne, John W., Washington, D. C. Multicolor-printing machine	576,276	Feb. 2	356	84	78	704
Osgood, James M., Boston, Mass. Convertible chair or seat	575,977	Jan. 26	2799	659, 660	78	581
Osgood, James M., Boston, Mass. Parlor and sleeping car	579,005	Mar. 16	2039	475, 476	78	1692
Osmond, Frederick J., Moseley, England. Hub and bottom bracket for bicycles	579,893	Mar. 30	3579	857	78	2018
Osswald, Herman, Brooklyn, and C. F. Vieillard, Woodhaven, N. Y. Clutch	578,023	Mar. 2	319	76	78	1322
Ostendorff, Frederick. (See Frankenberg and Ostendorff.)						
Ostermann, Elias H. L., Hamburg, Germany. Preserving foods	575,978	Jan. 26	2801	.....	78	581
Osterweil, David, Newark, N. J., assignor of two-thirds to L. and D. Goldsmith, New York, N. Y. Trunk-trimming	576,608	Feb. 9	983	215	78	828
Östlund, Carl, and A. E. Malmström, Stockholm, Sweden. Petroleum-stove	575,979	Jan. 26	2802	660, 661	78	581
Oswego Machine Works. (See Armstrong, Edwin J., assignor.)						
Osyor, David N., Newark, assignor to J. A. Jeffrey, Columbus, Ohio. Electric motor and device for conducting currents thereto	575,615	Jan. 19	2174	516	78	449
Otis Brothers & Company. (See Gorn, Hermann A., assignor.)						
Ottaway, James P., Bournemouth, assignor to H. N. Harness, London, England. Handle-bar joint for cycles	575,583	Jan. 19	2080	485	78	420
Owen, Edmund B., Jersey City, N. J. Apparatus for repairing wheels of bicycles	575,534	Jan. 19	2063	494	78	426
Owen, Edward H., C. N. Williams, and F. H. Donaldson, Garvanza, Cal. Electrical call and call-answering apparatus	579,075	Mar. 16	2165	508	78	1718
Owen, Frederick D., *et al.* (See Ide, Ferdinand F., assignor.)						
Owen, Frederick D., Washington, D. C. Tube-joint for cycle-frames	575,089	Jan. 12	1167	284	78	237
Owen, Frederick S., Waltham, Mass. Steel railway-freight-car truck	578,579	Mar. 9	1302	294	78	1527
Owen, George A., Springfield, Mass., and G. A. Bates, Brooklyn, N. Y. Switch device	579,329	Mar. 23	2576	608, 609	78	1809
Owen, William, London, England. Manufacture of artificial stone	577,060	Feb. 16	1676	398	78	981

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Owens, Michael J., and H. J. Colburn, assignors to Toledo Glass Company, Toledo, Ohio. Glass-blowing machine	576,074	Jan. 26	2965	699, 700	78	609
Owings, George W., Ritter, Oreg. Hose-coupling	579,804	Mar. 30	3431	822	78	1989
Owings, William C., and E. Carter, Jonesborough, Ind. Lock	576,609	Feb. 9	984	215, 216	78	828
Owsley, William, Twin Bridges, Mont. Scraper	574,757	Jan. 5	657	156	78	123
Ozias, Orange O., Dayton, Ohio. Computing-scale	576,468	Feb. 2	672	160	78	764
Ozone Company. (See Andersson and Dittrich, assignors.)						
P. & F. Corbin. (See Rockwell, Edward D., assignor.)						
P. & F. Corbin. (See Tredwell, Charles A., assignor.)						
P. H. & F. M. Roots Company. (See Roots and Johnston, assignors.)						
P. Lorillard Company. (See Tremaine, Edward G., assignor.)						
Paca, William S., Baltimore, Md. Spring-jack	576,375	Feb. 2	533	124	78	736
Paca, William S., Baltimore, Md. Switch-plug	576,469	Feb. 2	674	161	78	764
Pace, Charles S., Dorranceton, Pa. Portable fracture apparatus	577,778	Feb. 23	2917	690	78	1230
Packard, Granville F., Fort Wayne, Ind. Electric meter for alternating currents	574,565	Jan. 5	307	71	78	60
Packard, Granville F., Fort Wayne, Ind. Automatic circuit-breaker	577,447	Feb. 23	2945	550	78	1124
Packard, Otis F., assignor of one-half to L. S. Churchill, Toledo, Ohio. Combined cane and torch	577,879	Mar. 2	79	21	78	1276
Packer, Alonzo C., Pittsburg, Pa. Metallic packing	576,527	Feb. 2	788	184	78	785
Packham, Frank R., assignor to Superior Drill Company, Springfield, Ohio. Disk furrow-opener	578,941	Mar. 16	1934	447	78	1671
Packless Valve Company. (See Murphy, John N., assignor.)						
Paddack, Lewis E., Duluth, Minn. Ticket-stamp	574,623	Jan. 5	425	97, 98	78	80
Padgett, Marion C., Augusta, Ga. Hat	579,603	Mar. 30	3095	732	78	1925
Page, Albert A., East Haven, assignor to Sargent & Company, New Haven, Conn. Pneumatic door-check	577,266	Feb. 16	2020	478	78	1047
Page, Eben B., *et al.* (See Small, Andrew Y., assignor.)						
Page, Justin E., Independence, and M. A. Stafford, Springfield, Mo. Suspension-desk	575,269	Jan. 12	1559	372	78	313
Page, Warren B. (See Draper, William B., assignor.)						
Paine, Charles S. (See Brundage, Marshall J., assignor.)						
Paine, Richard G., Washington, D. C. Calk attachment for horseshoes	577,585	Feb. 23	2513	593	78	1155
Paine, William H., Providence, R. I. Gas-burner	576,819	Feb. 9	1260	300	78	891
Painter, Carl T., assignor to G. M. Bradt, Chattanooga, Tenn. Self-registering check-punch	575,616	Jan 19	2179	517	78	450
Painter, Louise L., Sag Harbor, N. Y. Combined teakettle and still	577,267	Feb. 16	2023	479	78	1047
Paiste, Harry T., assignor to H. T. Paiste Company, Philadelphia, Pa. Ceiling cut-out	578,655	Mar. 9	1420	323	78	1549
Palethorpe, James A. (See Wade, Joseph A., assignor.)						
Palmbla, Edward S., Chicago, Ill. Syrup-drawing device	579,006	Mar. 16	2043	476, 477	78	1693
Palmer, Caroline F., *et al* (See Palmer, James M., assignor.)						
Palmer, Isaac E., Middletown, Conn. Seat attachment for hammocks	577,203	Feb. 16	1923	455	78	1029
Palmer, James M., assignor to C. F. and W. L. Palmer, Boston, Mass. Ventilating railway-cars	578,356	Mar. 9	911	207	78	1452
Palmer, James O. B., *et al.* (See Perkins, Nicholas P., assignor.)						
Palmer, John M., Marysville, Mont. Wrench	574,624	Jan. 5	427	98	78	80
Palmer, Leeman C., Lowman, N. Y. Bag-holder	578,261	Mar. 2	749	170	78	1403
Palmer, Reuben T., Jr., and F. W. Mercer, New London, Conn. Hook and eye	577,316	Feb. 16	2103	497	78	1092
Palmer, Stephen, Lansingburg, N. Y. Nozzle-valve	576,762	Feb. 9	1171	279	78	874
Palmer, Theodore J., Hackensack, N. J. Extension-desk	575,729	Jan. 26	2385	561	78	503
Palmer, Theodore J., Hackensack, N. J. Combined table and music-pulpit	577,202	Feb. 16	1922	454	78	1028
Palmer, W. H., *et al.* (See Saunders, David R., assignor.)						
Palmer, William A., Mobile, Ala. Spinning-top holder	579,174	Mar. 23	2334	548	78	1764
Palmer, William L., *et al.* (See Palmer, James M., assignor.)						
Palmer, Winfield S., Glenburn, Pa. Life-raft	577,061	Feb. 16	1678	398	78	981
Palmetto Fiber Company. (See Young, McClintock, assignor.)						
Panden, Joseph M. (See Pierce, Burt N., assignor.)						
Pannill, Henry, assignor of one-half to H. Mann, Petersburg, Va. Combined screen and dust-guard for car-windows	579,365	Mar. 23	2632	622	78	1809
Paoli, John, Rahway, N. J., assignor to Regina Music Box Company, of New Jersey. Music-box	574,758	Jan. 5	659	156	78	123
Pappa, Demosthenes G. (See Evered and Pappa.)						
Parfitt, Alfred, Topeka, Kans. Riveting-machine	579,441	Mar. 23	2757	654	78	1841
Parfrey, William, assignor of one-third to J. N. Goldbacker, New York, N. Y. Mechanical movement	579,494	Mar. 23	2897	680	78	1867
Parham, Charles, Philadelphia, Pa. Centrifugal machine	574,633	Jan. 12	951	230	78	199
Parham, Eugene C., assignor to Steel Motor Company, Johnstown, Pa. Contact-finger for electric controllers	578,464	Mar. 9	1087	248	78	1486
Paris, Hugh, Rat Portage, Canada. Harmonica	574,625	Jan. 5	430	98	78	81
Park, James, Newark, N. J. Machine for cutting dough	574,934	Jan. 12	954	231, 232	78	199
Parke, Sarah A. (See Carrier, Arthur, assignor.)						
Parker, Charles C., assignor of three-fourths to J. A. Dushane, Baltimore, Md. Apparatus for controlling admission of air to furnaces	575,849	Jan. 26	2581	609, 610	78	541
Parker, Charles E., assignor of two-thirds to B. H. Holmes, Duluth, Minn. Temporary binder	579,175	Mar. 23	2336	548	78	1765
Parker, Charles F., New York, N. Y. Railway-turnout	577,268	Feb. 16	2024	479	78	1048
Parker, Edward M., and W. H. Coulson, Jersey City, N. J. Fire-extinguisher	578,703	Mar. 9	1515	349	78	1567
Parker, Elizabeth B., Fort Collins, Colo. Puzzle or game	577,146	Feb. 16	1826	431	78	1010
Parker, Ernest L., Los Angeles, Cal. Elevator	575,758	Jan. 26	2425	572	78	511
Parker, Harry. (See Parker, John, assignor.)						
Parker, Herschel C., *et al.* (See Reynolds, Frank A., assignor.)						
Parker, James S. (See Taylor and Parker.)						
Parker, James W., West Pullman, Ill. Check-row chain or wire	578,880	Mar. 16	1748	402	78	1040
Parker, John, Bradford, England, assignor of two-thirds to H. Parker, Tullahoma, Tenn. Indicator for steam-boilers	575,933	Jan. 26	2725	644	78	567
Parker, John E. (See Morgan, Clark, and Parker.)						
Parker, Jonas, Williamsport, Pa. Tire for bicycles	579,521	Mar. 23	2933	690	78	1875
Parker, Tom H., Newark, N. J. Horseshoe	575,980	Jan. 26	2803	661	78	582
Parker, William D. (See White and Parker.)						
Parker, William S., assignor of two-thirds to O. Bergstrom and R. M. Armstrong, Austin, Tex. Mold	576,277	Feb. 2	361	85	78	705
Parkhurst, Edward B., Woburn, Mass. Boiler-furnace	576,686	Feb. 9	1057	247, 248, 249	78	852
Parkhurst, Edward B., Woburn, Mass. Boiler-furnace	579,545	Mar. 23	2972	709	78	1882

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Parkhurst, Edward G., Hartford, Conn., assignor to Lee Arms Company, of Connecticut. Magazine for firearms	579,097	Mar. 16	2198	516	78	1725
Parkinson, O. V., *et al.* (See Miller, August J. F., assignor.)						
Parkman, Silas E. (See Elliott, Alexander D., assignor.)						
Parks, Charles E., deceased; L. L. Parks, executrix, Watertown, Wis. Purifying smoke	575,370	Jan. 19	1741	416	78	366
Parks, Lilla L., executrix. (See Parks, Charles E.)						
Parks, Martin H., Winchendon, Mass. Barrel-cover	578,768	Mar. 16	1625	375	78	1616
Parlin & Orendorff Company. (See Heylman, Edward M., assignor.)						
Parmenter, George A., Cambridge, Mass. Life-guard for street-cars. (Reissue)	11,584	Jan. 12	1638	391	78	327
Parmenter, George A., Cambridge, Mass. Life-guard for street-cars	578,497	Mar. 9	1157	261	78	1499
Parnacott, Charles, Putney, England. Manufacturing metallic alloys	578,465	Mar. 9	1089		78	1480
Parr, William G., assignor to J. A. Patton. Chicago, Ill. Garbage-burner	575,981	Jan. 26	2805	661, 662	78	582
Parsons, Charles H., assignor of one-third to C. Kolb, Goshen, Ind. Bottle	577,996	Mar. 2	235	56	78	1306
Parsons, Frank, Montgomery, Miss. Saw-sharpening machine	579,837	Mar. 30	3487	884	78	1999
Parsons, George M., assignor to H. C. Cutting, Carson, Nev. Window-shade roller and bracket therefor	575,572	Jan. 19	2096	500	78	433
Parsons, George M., assignor to H. C. Cutting, Carson, Nev. Transom lifter and lock	577,062	Feb. 16	1679	399	78	981
Partridge, William H. (See Dunn and Partridge.)						
Pascoe, Alfred H., Pass Christian, Miss. Fish scaler and cleaner	578,043	Mar. 2	347	83	78	1328
Paterson, John B. (See Carson and Paterson.)						
Pathie, William, Worcester, Mass. Sheet-metal sign	578,044	Mar. 2	348	83	78	1328
Patten, Alonzo R., Providence, R. I., assignor to Knowles Loom Works, Worcester, Mass. Jacquard mechanism for looms	578,068	Mar. 2	386	90	78	1335
Patten, Dana A., assignor to L. M. Bostwick, New York, N. Y. Wall-cabinet	577,204	Feb. 16	1923	455	78	1029
Patten, Francis J., New York, N. Y. Electric furnace	577,317	Feb. 16	2104	498	78	1062
Patten, Francis J., New York, N. Y. Electric furnace	577,370	Feb. 16	2200	519	78	1081
Patten, Francis J., New York, N. Y. Electromagnetic arc-controlling device	577,371	Feb. 16	2202	520	78	1081
Patten, Francis J., New York, N. Y. Electric furnace	577,498	Feb. 23	2425	571	78	1139
Patterson, C. Godfrey, *et al.*, executors. (See Yost, George W. N.)						
Patterson, F. W., *et al.* (See Patterson, Joseph E., assignor.)						
Patterson, Henry E., Hudson, Iowa. Check-hook	577,114	Feb. 16	1786	422	78	1002
Patterson, James W., New York, N. Y. Handle for opera-glasses	576,687	Feb. 9	1061	249	78	852
Patterson, Joseph E., Marshfield, assignor of two-thirds to F. W. Patterson and J. A. Pettet, Unity, Wis. Whiffletree-hook	576,884	Feb. 9	1378	329	78	914
Patterson, Manasseh, Almonte, Canada. Bicycle ball-bearing	576,147	Feb. 2	134	34	78	662
Patterson, Rufus L., assignor to Automatic Packing and Labeling Company, Durham, N. C. Machine for weighing, packing, stamping, and labeling	579,546	Mar. 23	2974	703, 704, 705, 706, 707, 708, 709	78	1883
Patterson, William, Scranton, Pa. Miner's safety-lamp	575,903	Jan. 26	2682	633,	78	559
Pattison, Henry, Windsor, Canada. Water-distilling apparatus	574,626	Jan. 5	431	99	78	81
Patton, Jacob A. (See Parr, William G., assignor.)						
Patullo, George H., Bay City, Mich. Sawmill-carriage	576,820	Feb. 9	1260	300, 301	78	891
Paul, Andrew G., Boston, Mass., assignor, by mesne assignments, to C. Grove, Jr., New York, N. Y. Indicating-valve	577,147	Feb. 16	1828	431	78	1010
Payne, Charles, and J. Lynn, New York, N. Y. Car-coupling	577,205	Feb. 16	1924	455	78	1029
Payne, George F. (See Alexander, Payne, and Mann.)						
Payne, Walter S., Fostoria, Ohio. Tapping-machine	578,418	Mar. 9	1008	231	78	1471
Payssé, Louis, and W. P. Carey, New Orleans, La. Mosquito-bar attachment for bedsteads	577,318	Feb. 16	2105	498	78	1062
Peace, James B., Manchester, England. Sliding partition	574,566	Jan. 5	309	71, 72	78	60
Peace, Philip P., Pewee Valley, Ky., assignor, by mesne assignments, of one-half to M. S. Houston. Bicycle-support	577,663	Feb. 23	2734	645	78	1196
Pearce, John. (See Chapelle and Pearce.)						
Pearce, William H., Chicago, Ill. Boiler-furnace	576,470	Feb. 2	675	161	78	765
Pearce, William J., Pilot Point, assignor to W. J. Pearce Hay Press Company, Dallas, Tex. Baling-press	574,817	Jan. 5	754	180, 181	78	142
Peardon, Charles H., Palmyra, Wis. Sulky	579,176	Mar. 23	3338	549	78	1765
Pearsall, Alexander, Locust Valley, N. Y. Hoof-spreading horseshoe	579,308	Mar. 23	2534	598	78	1801
Pearson, Henry P. (See Keefer, William T., assignor.)						
Pearson, Johan A., Glen Cove, N. Y. Bottle	579,304	Mar. 23	2535	598	78	1801
Pearson, John, Chicago, Ill. Nut-lock	576,148	Feb. 2	135	34	78	662
Pearson, Raleigh M., and W. Letzig, Little Rock, Ark. Sign-letter	576,885	Feb. 9	1379	329	78	914
Peate, Richard, assignor to Fenton Metallic Manufacturing Company, Jamestown, N. Y. Book-support	575,832	Jan. 26	2549	601	78	535
Peck, Clarence W., Athens, Pa. Tuning-pin socket	575,850	Jan. 26	2584	610	78	541
Peck, Selah N., assignor of one-half to A. Q. Britton, Toledo, Ohio. Transom-lifter	575,982	Jan. 26	2807	662	78	582
Peck-Williamson Heating and Ventilating Company. (See Johnson and Ensign, assignors.)						
Peckover, James, Philadelphia, Pa., assignor, by mesne assignments, to Rapid Stone Saw Company, of New Jersey. Stone-sawing machine	578,116	Mar. 2	474	109, 110	78	1352
Peckover, James, Philadelphia, Pa., assignor to Rapid Stone Saw Company, of New Jersey. Saw-blade for stone-sawing machines	579,721	Mar. 30	3299	788	78	1964
Pedersen, Johannes T., Woodside, N. Y. Dental handpiece	577,063	Feb. 16	1680	399	78	981
Pedersen, Johannes T., Woodside, N. Y. Slip-joint for dental handpieces	577,064	Feb. 16	1683	399	78	982
Pedersen, Mikael, Dursley, England. Cycle-frame	577,170	Feb. 16	1870	442	78	1018
Pedrick & Ayer Company. (See Pedrick, Howard A., assignor.)						
Pedrick, Howard A., assignor to Pedrick & Ayer Company, Philadelphia, Pa. Hoisting apparatus	577,779	Feb. 23	2918	690	78	1290
Peerless Plush Manufacturing Company. (See Gilfillan, James A., assignor.)						
Pelham, Alphonzo E., New York, N. Y. Elevator-platform	578,156	Mar. 2	552	125, 126	78	1367
Pelton, John O., Croydon, England. Water-tight bulkhead-door	575,005	Jan. 12	1113	270	78	227
Penberthy, William, assignor of one-half to T. C. Johns, Denver, Colo. Adjustable handle-bar for bicycles	575,006	Jan. 12	1114	270, 271	78	227
Penberthy, William, assignor of one-half to T. C. Johns, Denver, Colo. Means for adjusting handle-bars of bicycles	579,682	Mar. 30	3233	767	78	1951
Pendleton, William C., Warren, assignor to Youngstown Iron and Steel Roofing Company, Youngstown, Ohio. Machine for forming corner-strips	578,610	Mar. 9	1347	306, 307	78	1536
Penfield, Charles R., Minneapolis, Minn. Bicycle stand	576,351	Feb. 2	498	115	78	730
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Lid for alcohol-lamps	576,413	Feb. 2	503	140	78	747

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Penniman, Russell S., *et al.* (See Hogel, Hascal A., assignor.)						
Pennington, Edward J., Chicago Heights, assignor to Motor Cycle Company, Chicago, Ill. Wheeled vehicle	574,818	Jan. 5	757	181	78	143
Pennsylvania Globe Gas Light Company. (See Slinack, Victor H., assignor.)						
Pennsylvania Salt Manufacturing Company. (See Reese, William S., assignor.)						
Pennycuick, James G., assignor to Prismatic Glass Company of Toronto, Limited, Toronto, Canada. Shade or globe	579,350	Mar. 23	2609	616	78	1815
Pepin, Joseph, Springfield, Mass. Ice-planer	574,567	Jan. 5	311	72	78	61
Pepper Manufacturing Company. (See Davis, Albert T. L., assignor.)						
Pepper, Wilbur L., Philadelphia, Pa. Trolley	574,819	Jan. 5	759	181	78	143
Péraut, Henri A., Paris, France. Reeling and severing device	575,730	Jan. 26	2386	562	78	504
Péraut, Henri A., Paris, France. Box for containing gummed paper, &c.	579,177	Mar. 23	2339	549	78	1766
Perez y Buñol, Domingo, assignor to Alvarez, Lopez y Cia., Havana, Cuba. Machine for making cigarette-boxes and packing cigarettes	579,038	Mar. 16	2104	492, 493, 494, 495	78	1706
Perk, Hermann, St. Louis, Mo. Combined slicer and grater	576,886	Feb. 9	1380	320	78	914
Perkes, Charles, Philadelphia, Pa. Liquid-seal trap	578,024	Mar. 2	321	76	78	1322
Perkins, Arthur G., Coventry, England. Ladder	575,759	Jan. 26	2427	572	78	511
Perkins, Charles P. (See Libbey, Henry N., assignor.)						
Perkins, Edward N. (Demuth, Perkins, and Dade.)						
Perkins, Emory B. (See Buzzard, John W., assignor.)						
Perkins, Nicholas P., assignor of three-fourths to J. O. B. Palmer, J. A. and T. E. Jamison, Roanoke, Va. Tobacco-cutting machine	579,305	Mar. 23	2536	598, 599	78	1802
Perkins, Nicholas P., assignor of three-fourths to J. O. B. Palmer, T. E. and J. A. Jamison, Roanoke, Va. Tobacco-cutting machine	579,306	Mar. 23	2538	599, 600	78	1802
Perkins, William C., and T. C. Johnson, assignors to Winchester Repeating Arms Company, New Haven, Conn. Slide and hook for sling-straps of firearms	575,164	Jan. 12	1384	333	78	278
Perky, Henry D., Worcester, Mass. Coffee-roaster	575,983	Jan. 26	2808	662, 663	78	583
Perley, Cyrus J. (See Sawyer and Perley.)						
Perry, Charles E., San Francisco, assignor to J. Kleiner, Oakland, Cal. Pruning-shears	576,688	Feb. 9	1062	249	78	852
Perry, Frank R. (See Brooker, Frank N., assignor.)						
Perry, George W., Woodside, N. Y. Nut-lock	579,547	Mar. 23	2994	709	78	1886
Perry, Harriet E. (See Perry, Harvey, assignor.)						
Perry, Harvey, assignor of two-fifths to H. E. Perry, Rochester, N. Y. Apparatus for rendering sewer-gas innocuous	577,206	Feb. 16	1926	456	78	1029
Perry, John C., Joliet, Ill. Wire fence	576,069	Jan. 26	2959	698	78	608
Persons, Marshall A., assignor of one-half to F. Flanders, Franklin, N. H. Coin-controlled vending apparatus	577,207	Feb. 16	1928	456	78	1030
Peters, Edmund M., New Castle, Pa. Bosh-plate for furnaces	579,406	Mar. 23	2699	642	78	1832
Peters, Hans F. (See Carstens and Peters.)						
Peters, Thomas J., Miami, Fla. Pump	576,689	Feb. 9	1063	249	78	853
Petersen, Charles, Auburn, N. Y. Frame-lock	579,722	Mar. 30	3301	788	78	1964
Petersen, Christian L., Revere, Mass. Apparatus for expressing, straining, and purifying liquids	577,448	Feb. 23	2348	551	78	1124
Petersen, Christina. (See Pettersen, Carl A., assignor.)						
Petersen & Co., Ferd. (See Petersen, Ferdinand, assignor.)						
Petersen, Ferdinand, Basle, assignor to F. Petersen & Co., Schweizerhalle, near Basle, Switzerland. Substantive cotton dye	578,580	Mar. 9	1305		78	1528
Petersen, Louis, Sheldon, Iowa. Spring-tread horseshoe	574,820	Jan. 5	760	181	78	143
Petersen, Niels, assignor of one-half to F. Karr, Chicago, Ill. Bed-bottom	577,780	Feb. 23	2020	691	78	1231
Peterson, Frank B., Woodstown, N. J. Water-heater	576,763	Feb. 9	1173	279	78	875
Peterson, John W., Chicago, Ill. Coin-controlled vending-machine	579,330	Mar. 23	2579	609, 610	78	1809
Peterson, Louis W. (See Collison, John S., assignor.)						
Peterson, Ole M., Chicago, Ill. Machine for setting and distributing type and producing impressions therefrom	574,935	Jan. 12	959	232, 233, 234	78	200
Peterson, Ole M., and C. C. Hill, Chicago, Ill. Machine for setting and distributing type and producing impressions therefrom	574,936	Jan. 12	971	235, 236, 237	78	201
Peterson, Olef E. (See Curtis and Peterson.)						
Pettee Machine Works. (See Threlfall and Mills, assignors.)						
Pettersen, Carl A., assignor of one-half to C. Petersen, Minneapolis, Minn. Stove or range	579,280	Mar. 23	2497	589, 590	78	1704
Pettet, J. A., *et al.* (See Patterson, Joseph E., assignor.)						
Pettibone, Hawley, and B. Loomis, Jr., Hartford, Conn. Gas-fired domestic heater for water and air	574,447	Jan. 5	120	27, 28	78	24
Pettibone, Mulliken & Company. (See Ettenger and Rupley, assignors.)						
Pettingell, George D., Jefferson, Iowa. Automatic car and air-brake coupling	575,167	Jan. 12	1388	334	78	279
Pettingell, George D., Jefferson, assignor of one-half to H. C. Laub, Denison, Iowa. Vehicle running-gear	575,165	Jan. 12	1386	333	78	279
Pettingell, George D., Jefferson, assignor of one-half to H. C. Laub, Denison, Iowa. Car-coupling	575,166	Jan. 12	1387	334	78	279
Pettit, Albert. (See Pritschau, Arthur F., assignor.)						
Peugeot, Armand, Valentigney, France. Oil-engine	577,536	Feb. 23	2514	593	78	1155
Pfeifer, John, assignor of one-half to W. F. and E. Bauroth, Springfield, Ohio. Cash register and recorder	579,604	Mar. 30	3096	733, 734	78	1925
Pfeiff, Alexander T., Copenhagen, Denmark. Apparatus for sterilizing milk, cream, &c.	578,899	Mar. 16	1859	427	78	1658
Pfeiffer, Jacob, Kaiserslautern, Germany. Grinding-mill	577,319	Feb. 16	2107	498, 499	78	1063
Pflasterer, George S., Danville, Ill. Combined switch and distant-signal stand	577,171	Feb. 16	1871	442	78	1019
Pflieger, James M., Philadelphia, Pa. Key-locking wrench	577,880	Mar. 2	80	21	78	1276
Pfouts, Leroy S., Canton, Ohio. Crushing-machine	578,357	Mar. 9	912	207, 208	78	1452
Pharson, Olof. (See Nelson, Nels, assignor.)						
Pheils, Isaac F., Woodville, Ohio. Flash-light attachment for photographic cameras	576,821	Feb. 9	1265	302	78	892
Phelps, Thomas C., Newton, Mass. Camping-bag	578,358	Mar. 9	914	208	78	1453
Phelps, William E., Elmwood, Ill. Substructure for bridges	579,007	Mar. 16	2045	477	78	1638
Phelps, William H., Indianapolis, Ind. Apparatus for washing vehicles	579,242	Mar. 23	2437	570	78	1784
Pherson, Anthony, Rochester, N. Y. Work-box	579,652	Mar. 30	3186	756	78	1942
Philbrick, Orson S. (See Philbrick, Orvis P., assignor.)						
Philbrick, Orvis P., assignor of three-fourths to O. S. Philbrick, Somerville, Mass. Mast-arm and attachment thereto	576,058	Jan. 26	2946	694	78	605
Phillips, Ferdinand, Philadelphia, Pa. Rivet-heading machine	578,359	Mar. 9	915	208	78	1453

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Phillips & Clark Stove Company. (See Hulbert, Seymour C., assignor.)						
Phillips, Daniel. (See Eddy and Phillips.)						
Phillips, David C., and J. M. McCown, Paris, Ill. Stovepipe-lock	574,027	Jan. 5	432	99	78	81
Phillips, Frank A. (See Thompson and Phillips.)						
Phillips, Harry C., assignor to Rochester Bicycle Combination Holder Company, Rochester, N. Y. Bicycle stand or holder	574,628	Jan. 5	433	99	78	81
Phillips, Harry C., assignor to Rochester Bicycle Combination Holder Company, Rochester, N. Y. Bicycle stand or holder	574,629	Jan. 5	435	99	78	82
Phillips, James J., and C. E. Thomas, New Orleans, La. Fan	578,360	Mar. 9	917	209	78	1453
Phillips, John H., *et al.* (See Croskey and Locke, assignors.)						
Phillips, Mitchell, *et al.* (See Thorp, James M., assignor.)						
Phillips, O. C. (See Hunter, Lytle J., assignor.)						
Phillips, Ralph M., Jamestown, N. Y. Seed-planter	574,987	Jan. 12	986	237, 238	78	204
Phillips, Theadore F., assignor of one-half to E. N. Hoot, Wabash, Ind. Shaft-holder	577,320	Feb. 16	2108	499	78	1063
Phillips, Walter P. (See Weiny, Roderick H., assignor.)						
Phillips, Winfield S., *et al.* (See Shutts, Hugh B., assignor.)						
Phœnix Gas and Improvement Company. (See Janeway, John L., assignor.)						
Picard, Charles. (See Lindholm and Picard.)						
Pich, Friedrich, Berlin, Germany. Folding surface filter	579,709	Mar. 30	3374	807	78	1979
Pichler, Heinrich, Frankfort-on-the-Main, Germany. Valve for hydrants	577,519	Feb. 23	2479	583	78	1149
Pickard, Henry. (See Lemering and Pickard.)						
Pickel, Jacob, and W. Schmale, Baltimore, Md. Hand-drill	575,371	Jan. 19	1742	416	78	367
Pickett, William H., assignor of one-half to C. W. Stone, Warren, Pa. Combined side-board and extension-table	574,750	Jan. 5	660	156, 157	78	124
Pieper, Alphonse F. (See Pieper, Oscar H. and A. F.)						
Pieper, Oscar H. and A. F., San José, Cal. Electrical controlling apparatus	575,573	Jan. 19	2098	500	78	433
Pierce, Albert F., *et al.* (See Wenzel, Frederick A. E., assignor.)						
Pierce, Albert H., Hillsdale, Mich. Device for locating sunken vessels	579,548	Mar. 23	2996	710	78	1886
Pierce, Burt N., assignor of one-half to J. M. Panden, Indianapolis, Ind. Apparatus for perfecting tones of musical instruments	579,605	Mar. 30	3103	734	78	1926
Pierce, Charles S., Brockton, Mass. Box-toe stiffener	574,448	Jan. 5	124	28	78	25
Pierce-Crouch Engine Company. (See Crouch, Walker L., assignor.)						
Pierce, David, assignor of one-half to W. A. Forest, West Bend, Ind. Harness-tool	578,419	Mar. 9	1010	232	78	1471
Pierce, George M., Cleveland, Ohio. Catch-basin for streets	574,700	Jan. 5	663	158	78	124
Pierce, John F., Elizabethton, Tenn. Drip-coffee pot	578,769	Mar. 16	1626	376	78	1617
Pierce, Rebecca N., *et al.* (See Wenzel, Frederick A. E., assignor.)						
Pierpont, Frank H., Hartford, Conn. Rotary meat-cutter	578,942	Mar. 16	1936	448	78	1672
Pierpont, Robert, assignor to J. W. Downs, New Haven, Conn. Feeding device for sewing-machines	575,984	Jan. 26	2810	663	78	583
Piers, Charles, Jr., New York, N. Y. Pocket-book	578,498	Mar. 9	1159	261	78	1500
Pierson, Frederick O., Oshkosh, Wis. Compressor for refrigerating-machines	578,499	Mar. 9	1160	261, 262	78	1500
Pike, Charles F., Philadelphia, Pa. Pneumatic-despatch tube and carrier therefor	574,998	Jan. 12	989	238	78	204
Pike, Charles F., Philadelphia, Pa. Switch-rail for pneumatic-despatch-tube systems	578,943	Mar. 16	1938	448, 449	78	1672
Pike, Frederick N., assignor of one-third to E. N. Dickerson, New York, N. Y. Electric gas-lighter	578,420	Mar. 9	1011	232	78	1472
Pike, Henry A., Chicago, Ill., assignor to United States Metallic Packing Company, Philadelphia, Pa. Mold	577,781	Feb. 23	2921	601	78	1231
Pike, Silas O. (See Loomis and Pike.)						
Pilaud, Joseph, Covington, La. Railway-signal or whistle-blowing attachment for locomotives	579,281	Mar. 23	2499	590	78	1705
Pile, George A., Jennerstown, Pa. Mail-bag	575,429	Jan. 19	1843	443	78	388
Pilkington, Arthur, Birmingham, England. Machinery for manufacturing metal tubes	576,739	Feb. 9	1132	268	78	867
Pilkington, Arthur, Birmingham, England. Metal-tube-rolling machine	576,822	Feb. 9	1206	302	78	892
Pilkington, Franklin, Anniston, Ala. Valve-gear	578,656	Mar. 9	1421	323, 324	78	1549
Pilling, John M. (See Fennessey and Pilling.)						
Pitner, Henry B., Aurora, Ill., assignor to A. Freschl, Milwaukee, Wis. Means for making plaited work in upholstering	577,809	Feb. 23	2960	699, 700	78	1239
Pitrat, Julius E., Gallipolis, Ohio. Movable keyboard	575,985	Jan. 26	2811	663	78	583
Pittman, Charles L., Union, Nebr. Doubletree	579,522	Mar. 23	2935	691	78	1875
Pitz, Henry W., Philadelphia, Pa. Purse	579,653	Mar. 30	3187	756	78	1942
Pizor, J. H. (See Boyd, Calvin C., assignor.)						
Place, James F., Glen Ridge, N. J. Bicycle or vehicle lamp bracket	574,508	Jan. 5	312	72	78	61
Place, John, London, England, assignor to Mergenthaler Linotype Company, New York, N. Y. Molding mechanism for linotype-machines	576,414	Feb. 2	594	140, 141	78	748
Placier, Harry W. (See Placier, William A. and H. W.)						
Placier, William A. and H. W., London, Ohio. Elevator	579,076	Mar. 16	2160	508	78	1719
Plack, Andrew. (See Ricker and Plack.)						
Piano Manufacturing Company. (See Macphail, James, assignor.)						
Plant, James, Syracuse, N. Y. Combined cover and stand for books, papers, &c	575,270	Jan. 12	1502	372	78	313
Platt, Charles S., New York, N. Y. Instrument for removing meat from hard-shell crabs	577,172	Feb. 16	1874	443	78	1019
Platt, James F. (See Tracy and Platt.)						
Platt, John, Westfield, N. J. Valve	578,831	Mar. 16	1749	402	78	1640
Platt, William H., Jr., Brooklyn, N. Y. Collapsible crate	579,805	Mar. 30	3431	822	78	1980
Platz, Hermann, Carlsruhe, Germany, and S. L. Huizer, Gravenhage, Netherlands, assignors to Deutsche Metallpatronenfabrik, Carlsruhe, Germany. Apparatus for filling tubes with viscid or semifluid material	578,944	Mar. 16	1940	449, 450, 451, 452, 453	78	1672
Platz, Hermann, Carlsruhe, Germany, and S. L. Huizer, Gravenhage, Netherlands, assignors to Deutsche Metallpatronenfabrik, Carlsruhe, Germany. Apparatus or machinery for closing and securing metal tubes	578,945	Mar. 16	1950	453, 454, 455	78	1674
Player, John, Topeka, Kans. Brake-beam	574,491	Jan. 5	187	43	78	87
Playford Stoker Company. (See Allen, Charles J., assignor.)						
Playford Stoker Company. (See Allen and Tibbitts, assignors.)						
Playford Stoker Company. (See Tibbitts and Allen, assignors.)						
Pletcher, Levi L., Malta, Ohio. Box-hinge	579,178	Mar. 23	2940	549	78	1766
Plew, James E., Chicago, Ill. Bicycle-saddle	578,900	Mar. 16	1861	427	78	1659
Plunkett, Christopher F. (See Atkinson and Plunkett.)						
Plush Renovating Company. (See Broadbent, Charles F., assignor.)						
Pneumatic Tyre Company. (See Welch, Charles K., assignor.)						
Pohlsen, John, Providence, R. I. Cloth-cutting machine	576,610	Feb. 9	937	216	78	829

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Poindexter, Robert E., assignor to E. Hicks, Indianapolis, Ind. Saw-jointer	577,388	Feb. 16	2284	525	78	1096
Poindexter, Robert E., assignor to E. Hicks, Indianapolis, Ind. Corn-splitting machine	579,495	Mar. 23	2897	681	78	1867
Pole, Benjamin C., Camden, N. J. Differential fly-wheel	577,065	Feb. 16	1686	399	78	983
Polhemus, Garrett N., Franklin Park, N. J. Thill-coupling bolt	574,509	Jan. 5	314	72	78	61
Politsky, Simon A., Boston, Mass. Car-coupling	577,562	Feb. 23	2558	602	78	1164
Pollock, Charles V., Des Moines, Iowa. Nozzle	574,570	Jan. 5	315	73	78	61
Pollock, Charles V., Greenwich, Conn. Cock or valve	574,571	Jan. 5	318	73	78	61
Pollock, Edward L. (See Clapp, Wilson A., assignor.)						
Pomeroy, Lewis R., assignor to F. W. Coolbaugh, East Orange, N. J. Brake-beam	577,929	Mar. 2	178	43	78	1296
Pond, Linnaeus C., Belmond, Iowa. Lubricator	579,008	Mar. 16	2047	477, 478	78	1694
Pool, James F., Rochester, N. Y. Poultry-nest	579,407	Mar. 23	2700	642	78	1832
Pool, John, Milparinka, New South Wales. Pocket ink-bottle with pen, pencil, and pouch for stamps	575,271	Jan. 12	1563	373	78	314
Poole, Frederick F., Newark, N. J. Fur-feeding attachment for hat-forming machines	576,984	Feb. 9	1550	368, 369	78	946
Poole, James W., Chelsea, Mass. Switch-box for flush switches	579,894	Mar. 30	3581	857	78	2018
Poole, John H., assignor of one-half to C. Prescott, Randolph, Mass. Bicycle-saddle	579,442	Mar. 23	2762	654	78	1842
Pope, Curran. (See Trabue, William, assignor.)						
Pope, Jerome B., Minco, Ind. Ter. Device for handling lumber	578,832	Mar. 16	1750	402	78	1640
Pope, John F., Ottumwa, Iowa. Bottle	578,770	Mar. 16	1626	376	78	1617
Pope Manufacturing Company. (See Copeland, James S., assignor.)						
Pope Manufacturing Company. (See Latta, Emmit G., assignor.)						
Porteous, James, Fresno, Cal. Draft connection for vehicles	578,581	Mar. 9	1306	294	78	1528
Porteous, John, Cincinnati, Ohio. Compression-cock	574,572	Jan. 5	320	73	78	62
Porter, Benjamin, assignor of one-half to F. L. Walker, Ellendale, N. D. Hanging lamp	575,769	Jan. 26	2442	576	78	514
Porter, Jerry M., *et al.* (See Gaddie, Thomas D., assignor.)						
Porter, Stephen, Boston, and L. A. Carpenter, Revere, Mass. Repair-tool for bicycle-tires	576,690	Feb. 9	1063	250	78	853
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Stem winding and setting watch	575,168	Jan. 12	1390	334	78	280
Post, Charles W., Battle Creek, Mich. Cooking utensil	574,492	Jan. 5	187	43	78	37
Post, Edward C., Monroe, Mich. Tap or bung-hole bushing	576,611	Feb. 9	938	216	78	829
Potter, Charles, assignor to Potter Printing Press Company, Plainfield, N. J. Multiple web-printing machine	574,493	Jan. 5	189	43	78	37
Potter, Horace S., Jersey City, N. J. Pick attachment for dredgers	575,272	Jan. 12	1565	373	78	314
Potter, James C., Pawtucket, R. I. Fastening card-clothing to top-flats	575,986	Jan. 26	2812	663, 664	78	583
Potter, Joseph H., Batavia, N. Y. Spraying-machine	576,225	Feb. 2	258	64	78	686
Potter, Lloyd B., Emporia, Kans. Pantaloons-protector	577,066	Feb. 16	1687	400	78	983
Potter Printing Press Company. (See Curtis and Titsworth, assignors.)						
Potter Printing Press Company. (See Potter, Charles, assignor.)						
Potter Printing Press Company. (See Titsworth, George B., assignor.)						
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Rail-support	575,782	Jan. 26	2462	580	78	518
Pottin, Henry, Paris, France. Cash register and recorder	575,372	Jan. 19	1744	416, 417, 418, 419, 420	78	367
Potts, Joseph C. (See Rambo, Charles E., assignor.)						
Poulson, Britton, assignor, by mesne assignments, to Indiana Road Machine Company, Fort Wayne, Ind. Means for raising or lowering forward ends of draw-bars in road-machines	576,498	Feb. 2	729	173, 174	78	775
Pound, Orange, Bartow, Fla. Journal-box for engine-trucks	575,273	Jan. 12	1566	373	78	314
Powell, Chris T. (See Jones, Budd J., assignor.)						
Powell, Jonathan D., Deanville, Mich. Band-cutting and feeding machine	577,782	Feb. 23	2922	691	78	1231
Powell, Lawrence C., California, Pa. Spike-puller	577,783	Feb. 23	2923	691	78	1232
Powell, Seth E., Jr., Newburg, N. Y. Combined dipper and funnel	579,895	Mar. 30	3582	857	78	2016
Power, Michael, Toronto, Canada. Railway-track cleaner	576,612	Feb. 9	939	217	78	829
Powers, Charles N., and M. E. Watson, Bennington, Vt. Insurable-property chart	575,731	Jan. 26	2387	502	78	504
Powers, Robert E. (See Stowell, Charles E., assignor.)						
Powley, Allan R., Kingston, N. Y., assignor of one-half to B. H. Brazelton, Chicago, Ill. Bicycle-boat	577,269	Feb. 16	2026	479	78	1048
Poyser, John, Wirksworth, England. Batten for weaving-looms	579,896	Mar. 30	3583	857	78	2018
Prahm, Adolph F., Indianapolis, Ind. Car signal-flag	579,770	Mar. 30	3375	807	78	1979
Pratt, Albert K., assignor of one-half to F. S. Berry, Northbridge, Mass. Loom	577,692	Feb. 23	2773	655	78	1204
Pratt, Charles T., Clayville, N. Y. Ferrule-slotting machine	575,732	Jan. 26	2389	502, 503	78	504
Pratt, Eber W., assignor of one-half to G. W. Glore, Ipava, Ill. Hinge for cooking utensils, &c	576,887	Feb. 9	1381	330	78	914
Prentice, Chalmer M. C., Chicago, Ill. Engine	577,518	Feb. 23	2475	582, 583	78	1148
Prescott, Charles. (See Poole, John H., assignor.)						
Preston, Albert F., Boston, Mass., assignor to Busell Lasting Machine Company, Nashua, N. H. Hand tacking-tool	576,823	Feb. 9	1268	302, 303	78	892
Preston, Elliott, Sturgeon, Mo. Reversible sad-iron	576,888	Feb. 9	1383	330	78	915
Preuss, Richard, and L. Leipziger, Breslau, Germany. Device for fastening curtain-rosettes, &c., to walls	577,449	Feb. 23	2349	551	78	1124
Preusser, Richard F., Washington, D. C. Safety-guard for street-cars	578,522	Mar. 9	1202	271	78	1508
Prewite, J. B. (See Dycus, George W., assignor.)						
Price, Abraham E., assignor to Geiser Manufacturing Company, Waynesborough, Pa. Pneumatic straw-stacker	576,740	Feb. 9	1133	268	78	867
Price, Abraham E., assignor to Geiser Manufacturing Company, Waynesborough, Pa. Traction-engine	576,764	Feb. 9	1173	279	78	875
Price, James D. (See Ingram and Coulbourn, assignors.)						
Price, John, Trenton, N. J. Steam-boiler furnace	577,173	Feb. 16	1874	443	78	1019
Price, John, Dover, N. J. Envelop	579,077	Mar. 16	2170	509	78	1719
Price, Osborne W. (See Cole, Samuel M., assignor.)						
Price, Thomas J. (See Frick and Price.)						
Pridmore, Henry E., Chicago, Ill. Mowing-machine	578,704	Mar. 9	1516	350	78	1567
Pries, Herman. (See Williamson and Pries.)						
Prince, Czar, assignor of one-half to D. A. Gilbert, Bainbridge, N. Y. Guitar, &c	577,930	Mar. 2	180	43	78	1296
Pringle, Eugene, Gloversville, N. Y., assignor to M. D. Shipman, C. E. and S. E. Bradt, De Kalb, Ill. Separable button	577,208	Feb. 16	1929	456	78	1030
Prinz, William H., Chicago, Ill. Malt-turning machine	579,771	Mar. 30	3376	807, 808	78	1979

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Prismatic Glass Company of Toronto. (See Pennycuick, James G., assignor.)						
Pritchard, William H., *et al.* (See Britton, Louis H., assignor.)						
Pritschau, Arthur F., assignor of one-half to A. Pettit, Pittsburg, Pa. Polishing and abrasive material	574,449	Jan. 5	125	28	78	25
Proctor, Charles W. and R. E., Chicago, Ill. Oil or gasolene can	577,784	Feb. 23	2024	692	78	1232
Proctor, Richard E. (See Proctor, Charles W. and R. E.)						
Proft, Josef, New York, N. Y. Apparatus for closing breaks in hulls of ships	577,067	Feb. 16	1688	400, 401, 402	78	983
Prokupek, Franz, Milan, Italy. Funnel for dust-collectors	575,934	Jan. 26	2726	644	78	568
Prouty, Charles N., Spencer, Mass. Boot	576,765	Feb. 9	1175	280	78	875
Providence Optical Company. (See Stevens, Frederick A., assignor.)						
Puffer, Luther W., Lakeville Plantation, Me., assignor to American Soda Fountain Company, Trenton, N. J. Soda-water apparatus	577,881	Mar. 2	81	21	78	1276
Pugh, John M., Reno, Nev. Extension-ladder and window-jack	575,574	Jan. 19	2100	500, 501	78	433
Pullman, Herbert S., Meriden, Conn. Bicycle-bell	578,302	Mar. 2	750	170	78	1404
Pullman's Palace Car Company. (See Rapp, August, assignor.)						
Punchard, John H., London, England. Antislipping pad for horseshoes	577,321	Feb. 16	2109	499	78	1063
Punches, Bert W., Toledo, Ohio. Spring fish-hook	575,405	Jan. 19	1805	434	78	377
Purdy, Frank C. (See Hanks and Purdy.)						
Purvis, William B., Philadelphia, Pa., assignor to Eastern Paper Bag Company, of Connecticut. Paper-bag machine	578,361	Mar. 9	918	209	78	1453
Putnam, Ed. M., *et al.* (See Langley, Thomas F., assignor.)						
Pyle, Edward H. (See Fernhough, Vincent A., assignor.)						
Pyne, William T. (See Harryman, Charles L., assignor.)						
Pyott, Louis T., Philadelphia, Pa. Companion sectional truck for railway-cars	575,008	Jan. 12	1222	297	78	247
Quay, Carpenter J., Meadville, Pa. Train-order-holding device	576,691	Feb. 9	1065	250	78	853
Quennoy, Etienne, assignor to H. E. Couzineau, Lille, France. Cliché for printing patterns	576,889	Feb. 9	1384	330	78	915
Quigley, William C., Marion, Ohio. Ball-bearing	575,987	Jan. 26	2814	664	78	584
Quimby, Edward E., Orange, N. J., assignor to North British Rubber Company, Limited, Edinburgh, Scotland. Wheel-tire	575,783	Jan. 26	2462	580	78	519
Quin, Oliver B. (See Kellogg, Chauncey S., assignor.)						
Quincy, Charles F. (See Holmes, William W., assignor.)						
Quinn, Bartholomew B., Cleveland, Ohio. Apparatus for making brine	577,008	Feb. 16	1668	402	78	984
Quinn, Richard S. (See Brown, Glasscock, Quinn, and Brown.)						
Quinn, Thomas J. (See Walker, Mark A., assignor.)						
Quinn, William, *et al.* (See Berry, John S., assignor.)						
Quitzo, Frederick F., Minoa, N. Y. Wheat-steamer	578,323	Mar. 9	1204	271	78	1508
R. E. Dietz Company. (See Dietz, Frederick, assignor.)						
Raasch, Gustavus A., and H. Fahrmeier; said Raasch assignor to C. Hoefer, Higginsville, Mo. Pneumatic stacker	576,149	Feb. 2	136	34	78	602
Rabbitt, Samuel E., Washington, D. C. Fireproof partition for buildings	579,838	Mar. 30	3492	834, 835	78	2000
Rabbitt, Samuel E., Washington, D. C. Fireproof partition for buildings	579,839	Mar. 30	3493	835	78	2000
Rabe, Friedrich. (See Gränz, Friedrich H., assignor.)						
Race, George, Norwich, N. Y. Line-feeding device	577,664	Feb. 23	2784	646	78	1196
Racine Hardware Company. (See Hood, William C., assignor.)						
Rafferty, William C., Governor's Island, N. Y. Device for determining locations of distant objects	578,117	Mar. 2	479	110	78	1353
Rahner, William H., *et al.* (See Grant, Mitchell W., assignor.)						
Railton, James, New Bedford, and G. O. Draper, assignors to G. Draper & Sons, Hopedale, Mass. Shed-forming mechanism for looms	575,309	Jan. 12	1628	389	78	325
Raine, Philip D. (See Johnson, George W., assignor.)						
Rainey, A. H., *et al.* (See Miller, August J. F., assignor.)						
Raker, Moses, Olyphant, Pa. Miner's lamp	574,821	Jan. 5	761	182	78	143
Ralph, Daniel S. (See Nash, Morris M., assignor.)						
Rambo, Charles E., assignor of one-half to J. C. Potts, Berwyn, Pa. Bicycle-lock	579,443	Mar. 23	2763	655	78	1842
Ramey, William R., Waverly, Kans. Mop or clothes wringer	575,510	Jan. 19	1988	475	78	412
Ramsay, Erskine, and E. Dreyspring, Birmingham, Ala. Coal and mineral washer	579,840	Mar. 30	3494	835, 836	78	2001
Ramsey, Philip L. (See Nuckols and Ramsey.)						
Ramsey, William M., assignor to J. E. Williamson, Allegheny, Pa. System for electric signaling	575,733	Jan. 26	2391	563	78	504
Randall, Joseph S., Grand Rapids, Mich. Knob-spindle fastener	579,078	Mar. 16	2171	509	78	1719
Raney, Thomas H., Rialto, N. C. Steamer for canning fruits or vegetables	576,226	Feb. 2	261	64	78	686
Ransom, George F., assignor of three-fourths to G. F. Ransom, Jr., Milwaukee, and L. D. Dorschel, Chilton, Wis. Gas apparatus	576,499	Feb. 2	730	174	78	775
Rapid Stone Saw Company. (See Peckover, James, assignor.)						
Rapp, August, assignor to Pullman's Palace Car Company, Chicago, Ill. Folding washstand	578,582	Mar. 9	1307	294, 295	78	1528
Rapp, John W., New York, N. Y. Fireproof-building construction	576,692	Feb. 9	1066	250	78	853
Rapp, William, *et al.* (See Small, Andrew Y., assignor.)						
Rappaport, Sigmund D., Philadelphia, Pa. Support for chatelaines	575,007	Jan. 12	1116	271	78	227
Raps, August, assignor to Siemens & Halske, Berlin, Germany. Electricity-meter	579,079	Mar. 16	2172	509, 510	78	1720
Rasch, Peter, Cleveland, Ohio. Hoisting and conveying apparatus	575,373	Jan. 19	1750	420	78	367
Rasch, Samuel. (See Leonhardt, Katharine, assignor.)						
Rathbun, Chauncey M., Fredonia, N. Y. Mucilage-bottle	576,150	Feb. 2	138	35	78	663
Ratledge, James, assignor of one-half to W. D. Brockman, Fairmont, Minn. Suspension-trestle	576,698	Feb. 9	1068	250, 251	78	853
Ratliff, Cornelius. (See Monroe, Elmer E., assignor.)						
Rau, William G., Louisville, Ky. Flue-stopper	577,882	Mar. 2	82	22	78	1277
Rauber, Adolph, Munich, Germany. Bake-oven	578,833	Mar. 16	1751	403	78	1640
Rauhoff, John M., Chicago, Ill. Drilling or similar tool	575,734	Jan. 26	2392	563	78	505
Rauhoff, John M., Chicago, Ill., assignor of one-half to J. Saunders, Marietta, Ga. Clutch	575,988	Jan. 26	2816	664	78	584
Rauscher, Edward P., assignor to Morgan-Gardner Electric Company, Chicago, Ill. Coal-mining machine	574,822	Jan. 5	761	182	78	143
Raven, Freeman, assignor to J. R. Kendrick, Philadelphia, Pa. Straight-knitting machine	576,376	Feb. 2	534	124, 125, 126	78	736
Rawley, Archable. (See Moore and Rawley.)						
Rawls, James P., *et al.* (See Burrows, Francis A., assignor.)						
Rawson Electric Company. (See Rawson, Samuel B., assignor.)						
Rawson, Samuel B., Elyria, Ohio. Agitator for telephone-transmitters	574,761	Jan. 5	664	158	78	124

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rawson, Samuel B., assignor to Rawson Electric Company, Elyria, Ohio. Cut-out and agitator for dust-transmitters for telephones	578,771	Mar. 16	1627	376	78	1617
Ray, Robert A. (See Keel, James L., assignor.)						
Ray, Robert A., assignor of one-half to J. L. Keel, Talking Rock, Ga. Plow or cultivator	575,169	Jan. 12	1392	335	78	290
Rayburn, Eddy S. (See Mette and Rayburn.)						
Raydt, Wilhelm, Stuttgart, Germany. Impregnating and filtering apparatus	576,732	Feb. 9	1214	289	78	883
Raymond, Albert. (See King and Raymond.)						
Raymond, Francis. (See Wilson, William C., assignor.)						
Raymond, Frank, assignor to C. C. Bradley, Jr., Syracuse, N. Y. Power-hammer	575,784	Jan. 26	2463	581	78	519
Raymond, Freeborn F., 2d, Newton, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Spring-heel boot or shoe and metal plate or lift therefor	575,534	Jan. 19	2081	485	78	420
Raymond, Freeborn F., 2d, Newton, and C. H. Fogg, Hyde Park, assignors to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Press	575,040	Jan. 12	1169	284, 285	78	237
Raymond, John C., New York, N. Y. Draft-producing device for stacks	577,322	Feb. 16	2110	500	78	1064
Raymond, William H., Marshall, Mich. Neck-yoke retainer	576,377	Feb. 2	539	126	78	737
Raynor, Frank, Stryker, Ohio. Breast-collar and trace	578,772	Mar. 16	1628	376	78	1617
Reagan, Harry C., Jr., Philadelphia, Pa. Apparatus for generating and applying heat to thermocouples	577,270	Feb. 16	2027	480	78	1048
Reagan, Paul M., assignor to Hinson Manufacturing Company, Chicago, Ill. Car-coupling	577,389	Feb. 16	2235	526	78	1087
	579,606	Mar. 30	3105	734, 735	78	1927
Reames, John W., Paris, Ark. Gate	576,151	Feb. 2	138	35	78	663
Reaser, Arthur A., and J. H. McLaughlin, Lincoln, Nebr. Coin-controlled receptacle	575,374	Jan. 19	1752	421	78	368
Reck, Anna N., *et al.* (See Nelson, John, assignor.)						
Reck, William L., Gettysburg, Ohio. Fence-post	575,287	Jan. 12	1584	377	78	318
Redding, Charles H., Atlanta, Ga. Adding-machine	576,694	Feb. 9	1070	251	78	854
Redding, James P., Jr. (See De Graffenried and Redding.)						
Redgate, Ezra, Brooklyn, N. Y. Furniture						
Redman, Nellie M., administratrix. (See Chase, James.)						
Redmon, Frederick A., San Francisco, Cal. Mold for forming articles from bituminous compositions	574,450	Jan. 5	126	29	78	25
Redmond, Daniel H., Philadelphia, Pa. Furnace for heating metal rods	576,152	Feb. 2	140	35	78	663
Redon, Constant F. de, New York, N. Y. Electric-railway system	577,450	Feb. 23	2350	551, 552	78	1125
Redwine, John E., Jr., *et al.* (See Boggs, Richard N. and J. J., assignors.)						
Reeb, Joseph, New York, N. Y. Life-saving apparatus	579,772	Mar. 30	3382	809	78	1980
Reed, Daniel M., Brockport, N. Y. Cabbage-harvester	576,326	Feb. 2	452	106	78	722
Reed, Edwin H., Omaha, Nebr. Wrench	578,421	Mar. 9	1013	232	78	1472
Reed, James A. (See Zimmerman and Reed.)						
Reed, Joseph O., assignor of forty-nine one-hundredths to A. A. Smith, Washington, D. C. Washboard	575,274	Jan. 12	1568	373	78	315
Reed, Josiah M., Park Ridge, assignor to W. Hughes, Cranford, N. J. Machine for marbling paper	578,677	Mar. 9	1455	333, 334	78	1555
Reed, Lucius N., Fulton, Ill. Operating mechanism for elevator-shaft doors and safety devices	575,935	Jan. 26	2727	645	78	568
	577,537	Feb. 23	2515	598	78	1155
Reed, Matthias H., near Kennard, Nebr. Farm-gate						
Reekie, James S. (See Bradley, David, assignor.)	575,735	Jan. 26	2394	563	78	505
Reese, Lewis, Chicago, Ill. Planetarium						
Reese, William S., Natrona, assignor to Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. Apparatus for casting metals	577,209	Feb. 16	1930	456, 457	78	1080
Reeves, Fountain O., Dallas, Tex. Whip-holder	576,695	Feb. 9	1070	251	78	854
Regan, John W. (See Dunn and Regan.)						
Regan, Thomas, Crawford, Nebr. Pitman	575,008	Jan. 12	1116	271	78	227
Reger, Carl, and E. Duerr, Buffalo, N. Y. Automatic switch	576,890	Feb. 9	1385	331	78	915
Regina Music Box Company. (See Brachhausen, Gustav A., assignor.)						
Regina Music Box Company. (See Paoli, John, assignor.)						
Regina Music Box Company. (See Wolff, Alfred, assignor.)						
Reichard, Oscar D., Philadelphia, Pa. Folding bed	579,841	Mar. 30	3499	836	78	2002
Reid, David M., Ashtabula, Ohio. Curtain-pole and bracket	576,153	Feb. 2	141	35	78	663
Reid, Dent, *et al.* (See Shutts, Hugh B., assignor.)						
Reid, James C., and A. E. Warren, Cleveland, Ohio. Roller appliance for rocking-chairs	574,630	Jan. 5	437	100	78	82
Reid, William A., St. Louis, Mo., assignor to N. O. Nelson Manufacturing Company, of Missouri. Flag-staff or mast	578,524	Mar. 9	1206	272	78	1508
	576,891	Feb. 9	1386	331	78	915
Reiff, William H., Philadelphia, Pa. Toy	579,080	Mar. 16	2176	510	78	1720
Reiff, William H., Philadelphia, Pa. Game apparatus	579,179	Mar. 23	2342	549, 550	78	1766
Reifsnider, Jesse, Baltimore, Md. Garbage-cart	577,174	Feb. 16	1875	443	78	1020
Reilly, George, Marfa, Tex. Nut-lock	575,375	Jan. 19	1753	421	78	368
Reilly, Rosella R., Newhouse, Minn. Watering-cart	576,613	Feb. 9	940	217	78	829
Reimann, August, Friedrichsberg, Germany. Lubricating device						
Reimers, John H. (See Sargent and Reimers.)						
Reimers, John H., assignor to American Washboard Company, Cleveland, Ohio. Washboard	578,157	Mar. 2	554	126	78	1367
Reinhardt, Edward M., San Diego, Cal. Bath-tub	578,264	Mar. 2	753	170	78	1404
Reinhardt, Ernest A., Montreal, Canada. Hand-mirror or brush	578,362	Mar. 9	921	209	78	1454
Reinhart, John J., assignor of one-half to W. Houghton, Loogootee, Ind. Wrench	575,989	Jan. 26	2817	664	78	584
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Binding-band for armatures	577,148	Feb. 16	1829	431	78	1011
Reiter, Francis C. (See Coulter, Horn, Reiter, Lyda, Freidhoff, Davis, and Barnes.)						
Relyea, Charles H. W., North Adams, Mich. Car-coupling	577,988	Mar. 2	267	63	78	1312
Relyea, Charles H. W., assignor of one-half to A. B. Buck, North Adams, Mich. Hub-attaching device	576,892	Feb. 9	1387	331	78	916
Rembert, Henry, Galveston, Tex. Tire-tightener	578,525	Mar. 9	1210	273	78	1509
Rembert, Samuel, Memphis, Tenn. Exhaust-fan	579,081	Mar. 16	2177	510	78	1720
Remington Arms Company. (See Fay, Rimmon C., assignor.)						
Remsberg, Charles E., *et al.* (See Gay, Charles A., assignor.)						
Renouf, Philip L. (See Accles and Renouf.)						
Replogle, Mark A. (See Child and Replogle.)						
Ress, Charles, Brooklyn, N. Y. Tailor's chalk and holder	575,275	Jan. 12	1569	374	78	315
Resseguie, Charles F. (See O'Dowd, Michael, assignor.)						
Reutermann, Heinrich T., San Antonio, Tex. Eyelet-hole attachment for sewing-machines	574,451	Jan. 5	127	29	78	25
Reyburn, John F. (See Dunn, Dennis, assignor.)						
Reynolds, David R., Philadelpia, Pa. Bicycle-lamp	577,967	Mar. 2	235	56	78	1306

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Reynolds, Delbert J., Winnebago City, Minn., assignor to Finkler-Reynolds Company, Chicago, Ill. Acetylene-gas generator	576,893	Feb. 9	1388	331, 332	78	916
Reynolds, Edmund D. and O. B., Brockton, Mass. Hay-tedder	578,500	Mar. 9	1163	202	78	1500
Reynolds, Edwin, Milwaukee, Wis. Valve	574,939	Jan. 12	990	238, 239	78	204
Reynolds, Frank A., assignor of one-half to S. H. Manning, Lewiston, Me., and H. C. Parker, Brooklyn, N. Y. Folding frame for bicycles, &c	576,696	Feb. 9	1071	251	78	854
Reynolds, Oliver B. (See Reynolds, Edmund D. and O. B.)						
Reynolds, Robert R., and B. M. Kirker, Cincinnati, Ohio. Apparatus for thawing blocks of manufactured ice from molds	577,175	Feb. 16	1877	443, 444	78	1020
Reynolds, William S., Greenwich, Conn. Book-clamp	576,824	Feb. 9	1271	303	78	893
Rhind, Frank, assignor to Bridgeport Brass Company, Bridgeport, Conn. Chimney-lift for central-draft lamps	577,583	Feb. 23	2506	612	78	1171
Rhine, Minnie, Wilmington, Del., assignor to E. M. Tomson, Philadelphia, Pa. Toilet appliance	579,120	Mar. 16	2239	527	78	1731
Rhoades, Alonzo E. (See Draper and Rhoades.)						
Rhoades, Alonzo E. (See Lawrence and Rhoades.)						
Rhoades, Alonzo E., assignor to G. Draper & Sons, Hopedale, Mass. Roving-clamp	575,310	Jan. 12	1630	389	78	325
Rhoads, George E., assignor of one-half to A. B. Gloninger, Lebanon, Pa. Mill for rolling fantail axles	576,741	Feb. 9	1135	268, 269	78	868
Rhodes, A. J., *et al.* (See Ayres and Dunton, assignors.)						
Rhodes, B. G., *et al.* (See Ayres and Dunton, assignors.)						
Rhone, Samuel M., Montgomery, Pa. Penholder	578,773	Mar. 16	1629	377	78	1617
Rice, Charles D., Hartford, Conn. Forging-machine	575,790	Jan. 26	2471	582, 583, 584	78	520
Rice, Charles D., Hartford, Conn. Starting or stopping mechanism	575,810	Jan. 26	2509	590, 591	78	527
Rice, Daniel, Canton, Ohio. Car-fender	574,494	Jan. 5	191	44	78	38
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. Closed-conduit electric railway	575,785	Jan. 26	2465	581	78	519
Rice, Frank L., and A. D. Langworthy, assignors to Keystone Heater Company, Chicago, Ill. Combined pressure reservoir and heater	577,390	Feb. 16	2237	526	78	1087
Rice, Franklin, Dayton, Ohio. Automatic car-switch	577,563	Feb. 23	2559	608	78	1164
Rice, Henry C., *et al.* (See Koenen, William, assignor.)						
Rice, James M., New Rochelle, N. Y. Vehicle-wheel	574,940	Jan. 12	991	239	78	205
Rice, John D. (See Rice, Merton L. and J. D.)						
Rice, Lewis F., Brookline, Mass. Means for operating shutters, &c	575,736	Jan. 26	2395	564	78	505
Rice, Lewis J., Indianapolis, Ind. Gas-mixer	579,408	Mar. 23	2701	642	78	1832
Rice, Merton L. and J. D., Utica, Mich. Thill-support	578,774	Mar. 16	1630	377	78	1617
Rice, Robert E. L., assignor of one-half to F. W. Young, New Orleans, La. Tank	578,265	Mar. 2	754	171	78	1404
Rich, Ethan A., Scituate, Mass. Tire-bolt wrench	577,451	Feb. 23	2352	552	78	1125
Richard, Emanuel. (See Ide, Gilmour, and Richard.)						
Richards, Francis H., Hartford, Conn. Sewing-machine	574,573	Jan. 5	321	74, 75, 76	78	62
Richards, Francis H., Hartford, Conn. Sewing-machine	574,574	Jan. 5	337	76, 77	78	64
Richards, Francis H., Hartford, Conn. Hydraulic apparatus	576,154	Feb. 2	142	36	78	663
Richards, Francis H., Hartford, Conn. Latch	576,155	Feb. 2	146	36	78	664
Richards, Francis H., Hartford, Conn. Weighing-machine	578,158	Mar. 2	555	126, 127	78	1368
Richards, Francis H., Hartford, Conn. Weighing-machine	578,159	Mar. 2	560	127, 128	78	1368
Richards, Francis H., Hartford, Conn. Weighing-machine	578,160	Mar. 2	568	128, 129, 130	78	1370
Richards, Francis H., Hartford, Conn. Weighing-machine	578,161	Mar. 2	573	130, 131	78	1371
Richards, Francis H., Hartford, Conn. Weighing-machine	578,162	Mar. 2	579	131	78	1372
Richards, Francis H., Hartford, Conn. Weighing-machine	578,163	Mar. 2	585	132, 133	78	1373
Richards, Francis H., Hartford, Conn. Weighing-machine	578,164	Mar. 2	592	134, 135	78	1374
Richards, Francis H., Hartford, Conn. Weighing-machine	578,165	Mar. 2	598	135, 136	78	1375
Richards, Francis H., Hartford, Conn. Weighing-machine	578,166	Mar. 2	603	136, 137	78	1376
Richards, Francis H., Hartford, Conn. Weighing-machine	579,444	Mar. 23	2764	655, 656	78	1842
Richards, Francis H., Hartford, Conn. Weighing-machine	579,445	Mar. 23	2770	656, 657	78	1843
Richards, Francis H., Hartford, Conn. Weighing-machine	579,446	Mar. 23	2778	657, 658	78	1845
Richards, Francis H., Hartford, Conn. Weighing-machine	579,447	Mar. 23	2786	659, 660	78	1847
Richards, Francis H., Hartford, Conn. Weighing-machine	579,448	Mar. 23	2792	660, 661	78	1848
Richards, Francis H., Hartford, Conn. Weighing-machine	579,449	Mar. 23	2797	662	78	1848
Richards, Francis H., Hartford, Conn. Weighing-machine	579,450	Mar. 23	2802	663	78	1849
Richards, Francis H., Hartford, Conn. Transferring apparatus	579,451	Mar. 23	2808	664	78	1850
Richards, Francis H., Hartford, Conn. Weighing-machine	579,452	Mar. 23	2814	664, 665	78	1852
Richards, Francis H., Hartford, Conn. Weighing-machine	579,453	Mar. 23	2819	666	78	1852
Richards, Francis H., Hartford, Conn. Weighing-machine	579,454	Mar. 23	2823	666, 667	78	1853
Richards, Francis H., Hartford, Conn. Weighing-machine	579,455	Mar. 23	2828	667, 668	78	1854
Richards, George M., Erie, Pa. Automatic fluid-pressure friction-clutch	574,823	Jan. 5	763	183	78	143
Richards, Herbert T., Brooklyn, N. Y. Electric conductor	575,170	Jan. 12	1393	335	78	281
Richards, John T., Gardiner, Me. Lubricating axle-journal	575,171	Jan. 12	1394	335	78	281
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-coupling	574,575	Jan. 5	342	77	78	65
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-buffer	574,576	Jan. 5	344	77	78	65
Richardson, Charles H., *et al.* (See Bennett, William B., assignor.)						
Richardson, Charles H., Lowell, Mass. Doubling and twisting frame	574,941	Jan. 12	993	239	78	205

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Richardson, Charles H., Gloucester, Mass. Ship's steering apparatus	577,981	Mar. 2	181	43	78	1296
Richardson, Everett P., assignor to J. H. Richardson, trustee, Lawrence, Mass. Shoe-sewing machine	577,397	Feb. 16	2253	529	78	1089
Richardson, George, Bridgeport, Conn. Pipe-jointer	578,422	Mar. 9	1013	232	78	1472
Richardson, Henry S., Terre Haute, Ind. Portable dust-box	577,452	Feb. 23	2353	552, 553	78	1126
Richardson, Jason F., Jr., *et al.* (See Eyster, William S., assignor.)						
Richardson, John H., trustee. (See Richardson, Everett P., assignor.)						
Richardson, Lewis H., Boston, Mass. Hand-stamp	578,423	Mar. 9	1015	233	78	1472
Richardson, Samuel T., assignor of one-half to A. H. Larduskey, Baltimore, Md. Oyster-tongs	579,082	Mar. 16	2178	510	78	1721
Richbourg, Rufus N., *et al.* (See Burrows, Francis A., assignor.)						
Richen, William L., Cincinnati, Ohio. Artificial foot	579,009	Mar. 16	2050	478	78	1694
Richmond, Charles C., Boston, Mass. Hasp-fastener	575,498	Jan. 19	1952	468	78	404
Richmond, Romulus R., Chariton, Iowa. Burial device	579,806	Mar. 30	3432	822, 823	78	1989
Rickard, James R., London, England. Machine for cutting dovetails, &c	576,614	Feb. 9	941	217, 218	78	880
Ricker, Peter F., and A. Plack, Galion, Ohio. Corn-harvester	578,657	Mar. 9	1422	324	78	1549
Ricketts, Thomas B., Liberty, Mo. Gate	576,156	Feb 2	150	37	78	665
Rickly, George C., Ottawa, Ill. Tobacco-pipe	574,495	Jan. 5	192	44	78	38
Riedel, H., *et al.* (See Griffin, Thomas J., assignor.)						
Riefe, Henry C., Mason City, Iowa. Mattress-making machine	578,466	Mar. 9	1090	248	78	1487
Riegel, James J., and E. B. Lundy, Boston, Mass. Automatic liquid-distributing machine	578,025	Mar. 2	322	76	78	1322
Rife, George W., Boston, Ind. Cultivator	578,658	Mar. 9	1424	325	78	1549
Riffle, Solomon S. (See Wahl, John H., assignor.)						
Riley, Robert L., Newburg, N. Y. Ash-sifter	575,494	Jan. 19	1953	468	78	404
Rinehart, Beecher H. (See Johnston and Rinehart.)						
Ringness, Henry, Peoria, Ill. Meter-seal	578,775	Mar. 16	1631	377	78	1617
Rings, Julius A., New York, N. Y. Curtain-pole ring	578,424	Mar. 9	1016	233	78	1473
Rippingille, Eliza. (See Brandon, William, assignor.)						
Ris, Christopher, assignor to J. R. Geigy & Co., Basle, Switzerland. Black azo dye	575,904	Jan. 26	2083	.....	78	559
Risdon Iron and Locomotive Works. (See Evans, George H., assignor.) (Reissue.)						
Rison, John F., *et al.* (See Gorman, John H., assignor.)						
Ritchie, Charles B. (See Hutchinson and Ritchie.)						
Ritchie, James P., Ritchie, Tenn. Mowing-machine	578,087	Mar. 2	419	98	78	1341
Riter, John L. (See Jones, Riter, and Chenoweth.)						
Rittenhouse, Benjamin F., Norristown, Pa. Wheel	579,180	Mar. 23	2344	550	78	1766
Ritter, Frank, Rochester, N. Y. Dental chair	576,471	Feb. 2	679	161, 162	78	765
Ritter, Jacob, New York, N. Y. Purse	576,894	Feb. 9	1392	332	78	917
Ritter, Wilhelm, Cologne, Germany. Lighting apparatus for gas-lamps	576,227	Feb. 2	262	65	78	686
Rively, John D., assignor of two-thirds to L. F. Wentz and J. D. Irons, Pittsburg, Pa. Electrotherapeutic syringe	578,611	Mar. 9	1349	307	78	1536
Riverside Iron Works. (See Boyd, Peter, assignor.)						
Roanoke Car Fender Company. (See Crawford, Miley P., assignor.)						
Robbins, Albert F., Orange, Mass., assignor of one-half to Kendrick & Davis, Lebanon, N. H. Watchmaker's tool	575,535	Jan. 19	2033	486	78	420
Robbins, Edgar C. (See Robbins, Vincent and E. C.)						
Robbins, John A. (See Salzman, Christian A., assignor.)						
Robbins, Vincent and E. C., London, England. Coin-operated machine	577,149	Feb. 16	1831	432, 433	78	1011
Roberts, Clarence V., assignor to Thomas, Roberts, Stevenson Company, Philadelphia, Pa. Wood-burning stove	575,617	Jan. 19	2182	517	78	450
Roberts, Edward R., Crafton, Pa. Bouquet-holder	579,181	Mar. 23	2345	550	78	1767
Roberts, John J. (See Keen and Roberts.)						
Roberts, Throp & Company. (See Donovan, James, assignor.)						
Robertshaw, Frederick W., Pittsburg, Pa. Hose-nozzle	579,409	Mar. 23	2702	642	78	1832
Robertson, Artemas, assignor to P. T. Creed, Taunton, Mass. Electric heating apparatus	576,766	Feb. 9	1176	280	78	875
Robertson, Frederick C., Toronto, Canada. Circuit-breaker	579,366	Mar. 23	2634	622	78	1820
Robes, Ernest C. (See Lee, Westcott, and Robes.)						
Robes, Ernest C., Medford, assignor to American Bell Telephone Company, Boston, Mass. Telephone signal-transmitter	576,472	Feb. 2	681	162	78	766
Robinson, Albert S., Albany, N. Y. Machine for grinding knives of cutter-bars	575,737	Jan. 26	2397	564, 565	78	506
Robinson, Chester H., assignor of one-half to W. F. Moschell, Lafayette, Ind. Puzzle	575,276	Jan. 12	1570	374	78	315
Robinson & Co., J. M. (See Colling, Charles J., assignor.)						
Robinson, Hugh M., London, England. System and apparatus for heating water by waste sources of heat	578,467	Mar. 9	1092	249	78	1487
Robinson, Miles, Peotone, Kans. Hopple	579,723	Mar. 30	3302	788	78	1965
Robinson, Robert P., assignor to Scovill Manufacturing Company, Waterbury, Conn. Insect-guard for lamp-burners	576,895	Feb. 9	1393	332	78	917
Robinson, Rochfort W., assignor of one-third to L. Harpole and J. Tharp, San Antonio, Tex. Pen	578,834	Mar. 16	1753	403	78	1641
Robinson, William, Boston, Mass. Rail-joint	574,942	Jan. 12	994	239, 240	78	205
Robinson, William, Boston, Mass. Rail-joint	576,798	Feb. 9	1215	290	78	888
Robinson, William D., Philadelphia, Pa. Filter and filter-valve	576,378	Feb. 2	539	126, 127	78	737
Robinson, William J., Philadelphia, Pa. Heat-regulator	578,026	Mar. 2	324	77	78	1323
Robinson, William J., Etna, Pa. Crutch attachment	578,583	Mar. 9	1308	295	78	1528
Robinson, William M., assignor of one-half to N. H. Minor, Dilliner, Pa. Rail-joint	576,228	Feb. 2	263	65	78	687
Robischung, Henry B., Kalamazoo, Mich., assignor to Chicago Railway Equipment Company, Chicago, Ill. Brake-beam	575,127	Jan. 12	1320	319	78	266
Robischung, Henry B., Kalamazoo, Mich., assignor to Chicago Railway Equipment Company, Chicago, Ill. Strut for brake-beams	577,888	Mar. 2	83	22	78	1277
Robischung, Henry B., Kalamazoo, Mich., assignor to Chicago Railway Equipment Company, Chicago, Ill. Brake-beam	579,496	Mar. 23	2899	681	78	1868
Robson, George, Dolgelly, assignor to himself, and S. Crowder, London, England. Separation of metals and metallic compounds from ores or other substances	575,669	Jan. 19	2280	539	78	469
Roche, John, assignor of two-thirds to J. Trumpfheller and J. Schneider, Buffalo, N. Y. Asphalt-pavement-heating machine	574,496	Jan. 5	198	44	78	38
Rochester Bicycle Combination Holder Company. (See Phillips, Harry C., assignor.)						
Rocholl, Oskar, Schöneberg, Germany. Device for protecting burning ends of cigars	577,624	Feb. 23	2672	630	78	1184

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rock Island Plow Company. (See Waterman, Lewis E., assignor.)						
Rockstroh, Frederick E. (See West, Edmund, assignor.)						
Rockstroh, Frederick E., San Francisco, Cal. Cuff-fastener	579,331	Mar. 23	2581	610	78	1810
Rockstroh, Wilhelm M., Plauen, Germany. Printing-machine	577,584	Feb. 23	2508	613, 614	78	1171
Rockwell, Albert F., assignor to New Departure Bell Company, Bristol, Conn. Bicycle-bell	575,069	Jan. 12	1224	297	78	247
Rockwell, Edward D., Bristol, assignor to P. & F. Corbin, New Britain, Conn. Bicycle-bell	574,631	Jan. 5	438	100	78	83
Rockwell, Frederick C. (See Lester, Howard W., assignor.)						
Rockwell, Frederick C., Hartford, Conn. Tenpin-ball	575,128	Jan. 12	1322	319	78	266
Rockwell, Herbert O., St. Louis, Mo. Device for picking up live wires	575,311	Jan. 12	1631	389, 390	78	326
Rockwell, Joseph, Stoughton, Mass. Folding music-rack	576,327	Feb. 2	453	107	78	722
Röder, Heinrich A. (See Knopfe and Röder.)						
Rodger Ballast Car Company. (See Hart, Eli S., assignor.)						
Rodgers, Charles S., Far Rockaway, assignor of one-half to W. A. Burke, New York, N. Y. Tobacco-pipe	576,157	Feb. 2	151	37	78	665
Rodgers, William G., and C. E. Kuhn, Johnstown, Pa. Combined ironing-board, bench, and ladder	577,606	Feb. 23	2774	656	78	1204
Roecker, John, Jr. (See Dunbar and Roecker.)						
Roediger, Paul, Philadelphia, Pa. Hot-air engine	579,654	Mar. 30	3188	757	78	1943
Roehrer, John. (See Schmahl and Westphal, assignors.)						
Roemheld, Jules E., Chicago, Ill. Means for raising swing-bridges	576,825	Feb. 9	1272	308	78	898
Roesch, Adolph, Winnebago City, Minn. Weed-cutter and cultivator	576,615	Feb. 9	942	218	78	830
Rogers, Frank. (See Hertzler and Rogers.)						
Rogers, Frank, Boston, Mass. Weather-check for doors	574,824	Jan. 5	707	188	78	145
Rogers, George O., assignor of one-half to S. E. Greenwell, St. Louis, Mo. Shoulder-rest for bicycles	578,027	Mar. 2	325	77	78	1323
Rogers, Henry B., Sanger, Cal. Car-coupling	574,825	Jan. 5	769	184	78	145
Rogers, Percy S., Boston, Mass. Automatic switch	577,590	Feb. 23	2480	584	78	1149
Rogers, Samuel R., Bijou Hills, S. D. Grain thresher and separator	577,608	Feb. 23	2647	625, 626	78	1180
Rogers, Stephen, Waldo, Ark. Car-brake	578,776	Mar. 16	1632	377	78	1618
Rogers, William W. (See Woodward, Benjamin S., assignor.)						
Röhmann, Franz, and A. Liebrecht, Breslau, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Disinfectant and making same	575,277	Jan. 12	1571	.....	78	315
Roland, Anton. (See Howard and Roland.)						
Rolfe, Charles J. (See Goodridge, James F., assignor.)						
Rolin, Peter F. (See Wheeler, James M., assignor.)						
Romberger, James M., Leib, assignor of one-half to F. and C. R. Kehler, Kehler, Pa. Railway-tie	577,176	Feb. 16	1878	444	78	1020
Romine, John W., Waitz, Mich. Planter	579,683	Mar. 30	3234	767	78	1951
Roof, Joseph W., *et al.* (See Jackson and Brigleb, assignors.)						
Rooney, John J., Brooklyn, N. Y. Secondery-battery support or grid	574,826	Jan. 5	770	184	78	145
Roos, Israel, Frankfort-on-the-Main, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Salicyl paraphenetidin	576,379	Feb. 2	543	.....	78	738
Root, A. P., *et al.* (See Saunders, David R., assignor.)						
Roots, Daniel T., and E. D. Johnston, assignors to P. H. & F. M. Roots Company, Connersville, Ind. Journal-bearing	575,312	Jan. 12	1633	390	78	326
Roper, Charles F., and C. E. Nutting, assignors to Hopedale Machine Screw Company, Hopedale, Mass. Grinding apparatus	575,313	Jan. 12	1634	390	78	327
Roper, Charles F., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Warp stop-motion for looms	576,509	Feb. 2	751	178	78	780
Ropp, Alexander von der, Berlin, Germany. Apparatus for automatically closing bulk-head-doors	578,028	Mar. 2	327	77	78	1324
Rose, John, Philadelphia, Pa. Umbrella or parasol	579,607	Mar. 30	3105	735	78	1927
Roseman, John G., assignor of one-half to E. F. Diehm, Massillon, Ohio. Power-hammer	576,616	Feb. 9	943	218, 219	78	830
Rosenbaum, Morris. (See Kelso, Robert, assignor.)						
Rosencrantz, William D., Hohokus, N. J. Take-up roller for condensers of carding-machines	575,851	Jan. 26	2585	610	78	541
Rosencrantz, William D., Hohokus, N. J. Carding-machine	575,852	Jan. 26	2586	610	78	541
Rosenthal, August, Milwaukee, Wis. Corn-husker and fodder-shredder	575,376	Jan. 19	1754	421, 422	78	368
Roso, Manuel A., New York, N. Y. Combined adjustable handle-bar and brake for bicycles	575,936	Jan. 26	2730	645	78	508
Ross, Andrew J., Breckenridge, assignor of three-eighths to J. H. Fitzgerald, Campbell, Minn. Bale-tying mechanism	576,473	Feb. 2	684	163, 164	78	766
Ross, Byers G., and J. T. Johnson, Washington, Pa. Furnace-door frame	578,863	Mar. 9	922	210	78	1454
Ross, David E., Brookston, Ind. Expansible wheel	577,323	Feb. 16	2111	500	78	1064
Ross, Noble G., and J. J. Wolf, assignors to Wolf Safety Box Strap Company, Kansas City, Mo. Metallic strap	574,452	Jan. 5	127	29	78	25
Ross, William, Montreal, Canada. Forge	576,704	Feb. 9	1218	290	78	883
Ross, William A., Hico, Tex. Baling-press	579,807	Mar. 30	3583	858	78	2018
Rossbach-Rousset, Fritz, Tempelhof, Germany. Filling device	575,172	Jan. 12	1395	335	78	281
Rossiter, Edmund C. (See Crowther, Rossiter, Albright, and Hood.)						
Roth, Kate. (See Mandel, Nathan, assignor.)						
Rotharmel, George L., Northumberland, Pa. Guiding attachment for baby-carriages	576,617	Feb. 9	945	219	78	830
Rothlisberger, James, and H. Graichen, Niagara Falls, N. Y. Stove	575,041	Jan. 12	1171	285	78	237
Rotthoff, William, Duquesne, Pa. Metallurgical furnace	579,807	Mar. 30	3435	823, 824	78	1989
Rotthoff, William, and M. A. Neeland, Duquesne, Pa. Blast-furnace hoisting and charging apparatus	579,011	Mar. 16	2051	478, 479	78	1694
Rouault, Louis. (See Lee and Rouault.)						
Roundy, Daniel C., *et al.*, executors. (See Briggs, William H., assignor.)						
Rouse, Albion M., assignor to Miners Relief Association, Denver, Colo. Gold-separator	575,377	Jan. 19	1760	422	78	369
Rouse, Albion M., assignor to Miners Relief Association, Denver, Colo. Gyral pulverizer	575,495	Jan. 19	1954	469	78	404
Rouse, Albion M., assignor to Miners Relief Association, Denver, Colo. Ore-concentrator	576,618	Feb. 9	946	219, 220	78	831
Rouse, Albion M., assignor to Miners Relief Association, Denver, Colo. Ore-stamp	576,619	Feb. 9	948	220	78	831
Rouse, Seymour A., Chicago, Ill. Windmill-regulator	576,078	Jan. 26	2075	702	78	611
Routh, Oswald R. (See Routh, Dwyer, and Routh.)						
Routh, Richard, W. J. Dwyer, and O. R. Routh, Jersey City, N. J. Elastic tire for vehicles	576,697	Feb. 9	1073	252	78	855
Rowan, Thomas, London, England. Gas-lighting apparatus	577,884	Mar. 2	85	22	78	1277

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rowan, William A., West Hoboken, N. J. Nursery-bottle support	577,391	Feb. 16	2238	526	78	1087
Rowbotham, Walter, Birmingham, England. Oil, gas, or like engine	574,762	Jan. 5	665	158, 159	78	124
Rowbotham, Walter, Birmingham, England. Oil, gas, or like engine	578,206	Mar. 2	755	171	78	1405
Rowe, George W., and W. G. Heys, Manchester, England. Pneumatic tire	577,400	Feb. 16	2260	531	78	1091
Rowe, Henry, Lewiston, Me. Apparatus for bleaching, &c	576,620	Feb. 9	950	221	78	832
Rowe, Levi L., Boston, Mass. Automatic regulator for liquid-heaters	575,042	Jan. 12	1172	285, 286	78	237
Rowell, Samuel C., assignor of one-fourth to E. Ellis and H. D. Dupee, Boston, Mass. Bottle	579,684	Mar. 30	3235	768	78	1952
Rowland, James, *et al.* (See Chapman, Joseph L., assignor.)						
Rowley, Joseph, Dukinfield, England. Cricket-stump	578,835	Mar. 16	1754	404	78	1641
Roxburgh, James W., Bridgeport, Conn. Reversible handle-bar for bicycles	579,608	Mar. 30	3107	735	78	1927
Royal, Belford G., Camden, N. J. Grain cleaning and scalping	577,538	Feb. 23	2517	593, 594	78	1156
Royal Electric Company. (See Scheeffer, Gustave A., assignor.)						
Royer, Lemon S., Henrietta, Tex. Coffee-pot	577,625	Feb. 23	2672	631	78	1184
Royer, Theodore, *et al.* (See Baines, John, assignor.)						
Royle, Vernon, Paterson, N. J. Machine for manufacturing tubing	574,577	Jan. 5	344	77	78	65
Royle, Vernon, Paterson, N. J. Piano-machine for punching jacquard-cards	577,585	Feb. 23	2601	615	78	1171
Rüb, Ludwig, Augsburg, Germany. Motor-driven velocipede	576,158	Feb. 2	152	37, 38	78	666
Rubarth, Lee, Gatesville, Tex. Combination wire-fence tool	577,785	Feb. 23	2925	692	78	1232
Rubel, Ira W., New York, N. Y., and E. W. Naylor, Bound Brook, N. J. Velocipede	579,351	Mar. 23	2611	616, 617	78	1815
Ruby, Emerson J., *et al.* (See Ruby, Harry K., assignor.)						
Ruby, Harry K., Columbia, assignor of two-thirds to W. B. Ruby, York, Pa., and E. J. Ruby, Chicago, Ill. Signal-lantern	578,267	Mar. 2	757	171, 172	78	1405
Ruby, Walter B., *et al.* (See Ruby, Harry K., assignor.)						
Rudolf, Charles, Chicago, Ill. Automatic railway-switch	579,332	Mar. 23	2582	610	78	1810
Rudolph, Christian, assignor to Firm of K. Oehler, Offenbach-on-the-Main, Germany. Red-blue disazo dye	579,773	Mar. 30	3383	.....	78	1981
Rudolph, Flavel A., Carmi, Ill. Dental tool	574,763	Jan. 5	667	159	78	125
Rudolph, Karl, Poessneck, Germany. Coin-freed apparatus for administering electricity	578,526	Mar. 9	1211	273	78	1509
Rudolph, Paul, assignor to Firm of C. Zeiss, Jena, Germany. Object-glass	576,896	Feb. 9	1394	332	78	917
Rue, Archibald B., Harrodsburg, Ky. Rein-guard attachment for shafts	578,901	Mar. 16	1862	428	78	1659
Rueckert, John R., Baltimore, Md. Placket-fastener	578,946	Mar. 16	1954	455	78	1675
Ruffin, Marie C. A., Paris, France. Refining cocoanut-oil	576,278	Feb. 2	363	.....	78	705
Ruffner, Edwin H., assignor of one-half to T. E. Stewart, New York, N. Y. Perforating-machine	575,853	Jan. 26	2588	611	78	542
Rugg, George W., Newark, Ohio. Bicycle-handle	579,774	Mar. 30	3384	809	78	1981
Ruggles, Arthur H., Los Angeles, Cal. Spraying-machine and plunger therefor	578,902	Mar. 16	1863	428	78	1659
Ruhe, Charles. (See Walker, Robert R., assignor.)						
Runkle, Howard A., Reading, Pa. Bung	575,009	Jan. 12	1118	271	78	227
Runnels, Nancy. (See Kritzer, Charles C., assignor.)						
Rupert, Howard, Penn, Pa. Ironing-table	579,842	Mar. 30	3501	837	78	2002
Rupley, George. (See Ettenger and Rupley.)						
Ruppel, Henry, Cleveland, Ohio. Hydrocarbon-burner	576,229	Feb. 2	264	65	78	687
Rusk, William T., Nacogdoches, Tex. Cotton-chopper	578,468	Mar. 9	1094	249	78	1488
Russell, Allen A., *et al.* (See Lorash and Hilgemeier, assignors.)						
Russell & Erwin Manufacturing Company. (See Burgess, Charles M., assignor.)						
Russell & Erwin Manufacturing Company. (See Henry, William K., assignor.)						
Russell & Erwin Manufacturing Company. (See Hurd, Norman B., assignor.)						
Russell & Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell & Erwin Manufacturing Company. (See Voight, Henry G., assignor.)						
Russell, John M. (See Buckler, James, assignor.)						
Russell, Nora M., Hempstead, N. Y. Toy card	578,029	Mar. 2	328	78	78	1324
Russell, Ralph M., Birmingham, Ala. Reflector for focusing cathode-rays	579,808	Mar. 30	3436	824	78	1990
Russell, William H., New City, and W. B. Wigg, West New Brighton, N. Y. Car-fender	575,010	Jan. 12	1120	272	78	228
Rust, Henry G., and E. S. Lynn, Topeka, Kans. Attachment for signal-lanterns	577,786	Feb. 23	2926	692	78	1232
Rust, William B., Portland, Oreg. Printing attachment for roll-paper holders	579,549	Mar. 23	2997	710	78	1887
Rutherford, John, Schooley, Ohio. Combined nut-lock and joint-plate for railway-track rails	579,456	Mar. 23	2833	668	78	1855
Rutherford, John A., Hyattville, Ohio. Tree extractor and carrier	578,836	Mar. 16	1754	404	78	1641
Rutschman, Francis S., Philadelphia, Pa. Apparatus for treating and drying soap	576,159	Feb. 2	155	38	78	666
Ruttan, Henry N., Winnipeg, Canada. Ventilation of sewers or drain-pipes	576,220	Feb. 2	266	66	78	687
Rutter, Mary E. H. (See Biggar, John S., assignor.)						
Ryman, Annie. (See Ryman, Herman M., assignor.)						
Ryman, Herman M., assignor to A. Ryman, Brooklyn, N. Y. Pessary	574,943	Jan. 12	997	240	78	200
S. S. White Dental Manufacturing Company. (See Barton, Samuel H., assignor.)						
S. S. White Dental Manufacturing Company. (See Duddy, William H., assignor.)						
S. S. White Dental Manufacturing Company. (See Hawksworth, Harry E., assignor.)						
Sackett, Charles E., Danbury, Conn. Carroting-machine	577,626	Feb. 23	2673	631	78	1185
Safety Car Heating and Lighting Company. (See Dixon, Robert M., assignor.)						
Safety Car Heating and Lighting Company. (See Stevens, Merton P., assignor.)						
Safety Corn Husker and Shredder Company. (See Teeguarden, Freeman M., assignor.)						
Salberlich, Edward W., Appleton, Wis. Knife-cylinder	577,069	Feb. 16	1695	402	78	985
Sailer, John M., Janesville, Wis. Feeder and band-cutter for threshing-machines	575,129	Jan. 12	1324	319	78	266
Saladee, William H., and J. Cather, Bedford, Ind. Combination ring and knife	579,655	Mar. 30	3190	757	78	1943
Salmond, Colin, San Francisco, Cal. Billiard-cue chalker	576,897	Feb. 9	1398	333	78	917
Salom, Pedro G. (See Morris and Salom.)						
Salzman, Christian A., assignor of one-half to J. A. Robbins, Hamilton, Ohio. Combination-tool	574,764	Jan. 5	668	159	78	125
Sammons, Hugh G., Canton, Ohio. Coffee-mill	576,160	Feb. 2	156	38	78	666
Sampson, John, London, England. Steam-generator	579,497	Mar. 23	2901	682, 683	78	1868
Sampson, Sidney W., Hudson, Mass. Valve	576,474	Feb. 2	690	164	78	768
Samstag, Moses. (See Ettlinger, Sebastian, assignor.)						
Sancho, Margaret A., assignor of one-third to G. H. K. White, Brooklyn, N. Y. Bicycle-tire	577,694	Feb. 23	2775	656	78	1204
Sanders, Edward A., Saginaw, Mich. Shears	578,118	Mar. 2	480	110	78	1354
Sanderson, Mark M., Ellsworth, Wis. Whiffletree-hook	577,453	Feb. 23	2355	553	78	1126
Sandham, Harry, assignor to S. Crump, Spokane, Wash. Producing molds for paper-making machines	577,070	Feb. 16	1696	403	78	985
Sanford, Leverett A., assignor of one-half to Dunbar Brothers, Bristol, Conn. Bicycle-bell	578,268	Mar. 2	759	172	78	1405
Sanger, Harry F., Lima, assignor to H. E. Kirstein & Co., Rochester, N. Y. Eyeglass-case	579,656	Mar. 30	3191	758	78	1943

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Sanitas Dried Fruit Company of New York. (See Averell, Ellicott D., assignor.)						
Sankey, Francis H., *et al.* (See Barnes, Thomas, assignor.)						
Sansom, Saunders B. (See Horster, Henry, assignor.)						
Santee, Elmer V., Watertown, N. Y. Fountain shaving-brush	576,808	Feb 9	1399	333	78	917
Sargent & Company. (See Collins, Herbert G., assignor.)						
Sargent & Company. (See Page, Albert A., assignor.)						
Sargent, James T., assignor to American Washboard Company, Cleveland, Ohio. Washboard	578,167	Mar. 2	608	137	78	1377
Sargent, James T., and J. H. Reimers, Cleveland, Ohio. Washboard	578,200	Mar. 2	608	182, 183	78	1414
Sargent, John W., Buffalo, N. Y. Curtain-fixture	576,161	Feb. 2	157	30	78	666
Sasseman, David C., Chicago, Ill. Tailpiece for string instruments	577,177	Feb. 16	1890	444	78	1021
Sattley, Archibald. (See Sattley and Heineke.)						
Sattley Manufacturing Company. (See Sattley, Marshall, assignor.)						
Sattley Manufacturing Company. (See Sattley and Heineke, assignors.)						
Sattley, Marshall, assignor to Sattley Manufacturing Company, Springfield, Ill. Cultivator	579,182	Mar. 23	2345	551	78	1797
Sattley, Marshall and A., and M. Heineke, assignors to Sattley Manufacturing Company, Springfield, Ill. Corn-planter	574,578	Jan. 5	346	78	78	65
Sauer, Friedrich, Schöneberg, assignor of one-half to Dampf-Kornbrennerei und Presshefen-Fabriken Actien-Gesellschaft, vormals Heinrich Helbing, Wandsbeck-Hamburg, Germany. Manufacturing malt wine	576,510	Feb. 2	754	.....	78	780
Saunders, David R., assignor, by mesne assignments, of one-half to A. P. Root and W. H. Palmer, Houston, Tex. Non-refillable bottle	576,380	Feb. 2	543	127	78	738
Saunders, James. (See Rauhoff, John M., assignor.)						
Savoie, Joseph, Central Falls, R. I. Patching device for pneumatic tires	574,453	Jan. 5	129	29	78	26
Savoie, Joseph, Central Falls, R. I. Pneumatic-tire inflater	575,430	Jan. 19	1845	443	78	384
Savorgnan, Cora A. S. di B. (See Savorgnan, Detalmo di B., assignor.)						
Savorgnan, Detalmo di B., Rome, Italy, assignor to C. A. S. di B. Savorgnan, Moruzzo, Italy, and New York, N. Y. Bicycle	578,269	Mar. 2	760	172, 173	78	1405
Savoye, Ralph C. (See Gilmore, John F., assignor.)						
Sawyer, Henry G., and E. A. Hendricks, assignors to Star Manufacturing Company, Carpentersville, Ill. Die for cutting out plowshare-blanks	578,119	Mar. 2	482	111	78	1354
Sawyer, Parker W., and C. J. Perley, Gray, Me. Railway flag-signal	579,685	Mar. 30	3237	768	78	1952
Sawyer Spindle Company. (See Gartner, Alfred, assignor.)						
Sawyer Spindle Company. (See Hinchliffe, William, assignor.)						
Sawyer Spindle Company. (See Murray, Leander J., assignor.)						
Sawyer Spindle Company. (See Scheid, Adam, assignor.)						
Sawyer, Theodore, Towanda, Ill. Gate	578,947	Mar. 16	1955	455	78	1675
Saxer, Jacob P. J., Cleveland, Ohio. Paint-mixer	575,905	Jan. 26	2084	688	78	550
Sayre, Robert H., South Bethlehem, Pa. Armor-plate	576,742	Feb. 9	1196	209	78	898
Scaife, William. (See Holmes, Tankard, and Scaife.)						
Schaal, Charles, *et al.* (See Anderson, William L., assignor.)						
Schacht, Minnie, New York, N. Y. Corset	578,045	Mar. 2	349	88	78	1328
Schalewald, Henry M. (See Wright and Fielden, assignors.)						
Schaefer, Edward, St. Louis, Mo. Fire-extinguisher	576,415	Feb. 2	596	141	78	748
Schaefer, George L., Brooklyn, assignor to McKesson & Robbins, New York, N. Y. Medical compound	579,898	Mar. 30	3587	.....	78	2019
Schaefer, John C., assignor to W. Burckhardt, New York, N. Y., and Eastwood Wire Manufacturing Company, Belleville, N. J. Safety-valve for beer-casks	576,102	Feb. 2	158	39	78	667
Schaeffer, Henri N. F., Lowell, Mass. Cloth-washing machine	574,944	Jan 12	998	240, 241	78	206
Schäfer, Gottfried, Pittsburg, Pa. Cuspidor	575,906	Jan. 26	2085	633	78	560
Schaffer & Budenberg. (See Carpenter, Rolla C., assignor.)						
Schaffstaett, Heinrich, Giessen, Germany. Sprinkling-rose	578,948	Mar. 16	1956	456	78	1675
Schafor, Mary S., Chicago, Ill. Darning implement	575,378	Jan. 19	1761	423	78	369
Schaller, Otto, Okawville, Ill. Slate-ruler	579,183	Mar. 23	2347	551	78	1767
Schalscha, Maximilian, Hoboken, N. J. Electric switch	576,621	Feb. 9	951	221	78	832
Schalscha, Maximilian, Hoboken, N. J. Electric locomotive and railway system therefor	576,622	Feb. 9	953	221, 222, 223	78	832
Scheeffer, Gustave A., assignor to Royal Electric Company, Peoria, Ill. Dynamo-electric machine	579,012	Mar. 16	2054	480	78	1695
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	574,945	Jan. 12	1001	241	78	206
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	574,946	Jan. 12	1002	241	78	207
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	574,947	Jan. 12	1003	241	78	207
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	574,948	Jan. 12	1004	242	78	207
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	574,949	Jan. 12	1005	242	78	207
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	574,950	Jan. 12	1005	242	78	208
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	576,059	Jan. 26	2048	694	78	606
Scheid, Adam, Harrison, N. J., assignor to Sawyer Spindle Company, Portland, Me. Spindle	576,060	Jan. 26	2048	694	78	606
Schenck, A. V. (See Zeilstra, Gerhard, assignor.)						
Schenker, Francis, Vincennes, Ind. Bottle-stopper	579,013	Mar. 16	2056	480	78	1696
Scheubeck, John, Chicago, Ill. Submarine vessel	575,907	Jan. 26	2086	633, 634	78	560
Schield, Charles F., Cambridge, Ohio. Device for extracting loop-seals from bottles	579,843	Mar. 30	3502	837	78	2002
Schierling, John G., Jr. (See Elliott, Frank, assignor.)						
Schiff, Ludwig, assignor to Deutsche Metallpatronenfabrik, Carlsruhe, Germany. Slide device for measuring quantities of solid material	575,174	Jan. 12	1398	336	78	281
Schild, Charles C. and P. J., Ionia, Mich. Insect-destroyer	574,454	Jan. 5	130	30	78	26
Schild, Peter J. (See Schild, Charles C. and P. J.)						
Schimmel, John P., assignor of one-half to J. F. Heafer, Madisonville, Ky. Water-cooler and refrigerator	579,367	Mar. 23	2636	622, 623	78	1829
Schiöttz-Christensen, Lauritz A., Copenhagen, Denmark. Preparing yeast for bread-making	579,809	Mar. 30	3437	.....	78	1990
Schirmer, Theodor. (See Egry and Schirmer.)						
Schirmer, Theodore F., assignor to Egry Autographic Register Company, Dayton, Ohio. Autographic register	577,178	Feb. 16	1881	444, 445	78	1021

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Schleese, Reinhold, Wennebostel, Germany. Extension clothes-line post	576,279	Feb. 2	365	85	78	705
Schlegel, Robert A., St. Louis, Mo. Machine for beveling plate-glass	575,575	Jan. 19	2101	501	78	433
Schlesinger, William M., assignor, by mesne assignments, to A. H. Williams, Philadelphia, Pa. Electric railway	574,632	Jan. 5	439	100, 101	78	83
Schley, Grant B. (See Myers, William H., assignor.)						
Schmackers, Anton, assignor of one-half to W. B. Anderson, Dayton, Ohio. Street-railway switch	577,454	Feb. 23	2356	553, 554	78	1126
Schmahl, John H., and O. E. Westphal, assignors of one-third to J. Roehrer, Buffalo, N. Y. Smoke-consumer	575,990	Jan. 26	2818	665	78	585
Schmale, William. (See Pickel and Schmale.)						
Schmelzinger, William A. J., Springfield, Mass. Carpet-cleaner	577,115	Feb. 16	1787	422	78	1002
Schmick, Henry J., Hamburg, assignor of one-sixteenth to J. P. Martin, Pine Grove, Pa. Car-door	575,178	Jan. 12	1396	336	78	281
Schmid, Albert, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Electric railway-motor	577,071	Feb. 16	1699	408	78	985
Schmidt, August E., Leipsic, Germany. Safety shutter and screen for shop-windows, &c.	579,282	Mar. 23	2500	591	78	1795
Schmidt, Friedrich. (See Steinike and Schmidt.)						
Schmidt, John, New York, assignor of one-half to J. S. Schmitt, Brooklyn, N. Y. Starter's gate for race-tracks	575,130	Jan. 12	1327	320	78	267
Schmidt, Joseph. (See Sherrer and Schmidt.)						
Schmidt, Wilhelm, Ballenstädt, Germany. Superheater	576,098	Feb. 9	1074	252	78	855
Schmidt, William, Brooklyn, N. Y. Brake for bicycles, &c.	577,665	Feb. 23	2736	646	78	1197
Schmitt, Charles J., and J. A. Hansen, Anaconda, Mont. Gold-washer	574,951	Jan. 12	1006	242, 243	78	208
Schmitt, Johann, Cologne, assignor of two-thirds to J. B. Coblenzer, Coblenz, Germany. Knitting-machine	575,760	Jan. 26	2428	572	78	512
Schmitt, Joseph S. (See Schmidt, John, assignor.)						
Schmitt, Margaretha. (See Bokelmann, Herman, assignor.)						
Schmitz, John P., San Francisco, Cal. Means for abstracting precious metals from ores	577,787	Feb. 23	2928	692	78	1232
Schnabel, Carl. (See Hampe and Schnabel.)						
Schnabel, Christian, *et al.* (See Brandes and Hironimus, assignors.)						
Schneider, Christian, Davenport, Iowa. Top-prop for carriages	577,324	Feb. 16	2113	500	78	1064
Schneider, Friedrich W., Triberg, Germany. Paste-carrying machine for electric accumulators	576,163	Feb. 2	160	39	78	667
Schneider, Friedrich W., Triberg, Germany. Construction of cells for electric accumulators	576,164	Feb. 2	161	40	78	667
Schneider, Gottlieb, and W. W. Geddes, Kendallville, Ind. Box-lid and display-card holder	576,743	Feb. 9	1139	269	78	868
Schneider, Herman, Brooklyn, N. Y. Railway-switch	577,150	Feb. 16	1837	433	78	1012
Schneider, Jacob, *et al.* (See Roche, John, assignor.)						
Schneider, John J., Buffalo, N. Y. Refrigerator	578,469	Mar. 9	1095	249	78	1488
Schneider, Joseph M., assignor of one-half to E. Hicks, Canton, Ohio. Gate-latch	576,280	Feb. 2	366	85	78	705
Schnorenberg, Simeon J., and G. Simpson, Oshkosh, Wis. Sewing-machine attachment for making dress-facing	579,014	Mar. 16	2057	480	78	1696
Schoeffel, George J. (See Colgate, Arthur E., assignor.)						
Schoenfelder, Emil P., and E. Kehle, Newark, N. J. Panoramic camera	575,431	Jan. 19	1846	443	78	384
Schoenland, Charles H., Lawrence, Mass. Sausage-stuffing machine	577,494	Feb. 23	2427	571	78	1140
Schofield, Albert B., Brooklyn, N. Y. Meat-pounder	576,281	Feb. 2	367	86	78	706
Schofield, Frederick F., Everett, Wash. Steam steering-gear	576,251	Feb. 2	267	66	78	687
Schofield, Henry P., assignor of one-half to L. L. Flistrup, Chicago, Ill. Saw-sharpening machine	574,855	Jan. 5	817	199	78	154
Schon, Hubert, Allegheny, Pa. Roller-bearing	575,618	Jan. 19	2183	517	78	450
Schönheyder, William A. G., London, England. Fluid-meter	575,991	Jan. 26	2821	695, 696	78	585
Schönland, William F., Manchester, N. H. Sausage-filling apparatus	577,586	Feb. 23	2604	615	78	1172
Schopf, Gottlob, Stuttgart, Germany. Building material and making same	575,379	Jan. 19	1763	.....	78	369
Schott, Sebastian, Kansas City, Mo., assignor of one-half to G. Sugg, Chicago, Ill. Musical instrument	578,501	Mar. 9	1166	263	78	1501
Schottmüller, Paul. (See Ober and Schottmüller.)						
Schrader, John C., *et al.* (See Hogel, Hascal A., assignor.)						
Schram, Adolph W. (See White, Arthur, assignor.)						
Schramek, Alois, New York, N. Y. Clasp for trousers	577,072	Feb. 16	1700	403	78	985
Schramm, Charles J., Fayetteville, Tex. Device for raising and transporting vessels	579,184	Mar. 23	2348	552, 553	78	1767
Schrantz, Ashley B., Fairbury, Nebr. Switch-lock	574,455	Jan. 5	131	30	78	26
Schreiber & Couchar Manufacturing Company. (See Headford, Edward H., assignor.)						
Schreiber, Hermann R., London, England. Resonating support for pianos	579,498	Mar. 23	2904	683	78	1809
Schreuder, Jens G., Edgewood Park, assignor to Union Switch and Signal Company, Swissvale, Pa. Switch and signal apparatus	575,908	Jan. 26	2688	634, 635, 636	78	560
Schreuder, Jens G., Edgewood Park, and J. P. Coleman, assignors to Union Switch and Signal Company, Swissvale, Pa. Signaling	579,993	Mar. 30	3639	871	78	2029
Schreurs, François, Brussels, Belgium. Printing and dyeing fabrics	576,623	Feb. 9	957	223	78	833
Schroeder, Anton, St. Paul, Minn. Hinge for awning-blinds	579,609	Mar. 30	3108	735	78	1927
Schroeder, William. (See Abraham and Schroeder.)						
Schroff, Frank. (See Bernards, Henry H., assignor.)						
Schu, Charles. (See Holbrook and Schu.)						
Schubert, August, Oneida, N. Y. Vehicle	578,270	Mar. 2	764	173, 174	78	1406
Schuchardt, Karl. (See Köhler and Schuchardt.)						
Schuett, Fred J. J., Saginaw, Mich. Divider for mowing-machines	577,116	Feb. 16	1788	422	78	1002
Schuftan, Adolf, Zurich, Switzerland, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Iodoform substitute	575,175	Jan. 12	1399	.....	78	282
Schüler, Edward, assignor of one-half to F. Wendler, Brooklyn, N. Y. Railway-switch	579,015	Mar. 16	2058	481	78	1696
Schuler, Frank H. (See Chellieu, William H., assignor.)						
Schuler, Johann, and M. Wuzel, Schwabach, Germany. Arrangement for gluing ledges or moldings to cupboards or wardrobes	575,909	Jan. 26	2093	636	78	561
Schuler, Louis, Göppingen, Germany. Dynamometer	575,176	Jan. 12	1400	337	78	282
Schülke, August H. J., Berlin, Germany. Lamp	577,980	Mar. 2	269	63	78	1312
Schultze, Emil A. F., Baltimore, Md. Furnace for reducing ores	578,271	Mar. 2	766	174	78	1406
Schulze, Frederick, Cleveland, Ohio. Screw-machine	578,777	Mar. 16	1633	378, 379	78	1618
Schulze, Reinhard, Baltimore, Md. Pedal-board for pianos	577,271	Feb. 16	2030	480, 481	78	1049
Schulze, Richard O., Providence, R. I. Picture-frame	579,248	Mar. 23	2438	576	78	1784
Schurter, Henry R., North Decatur, Ga. Nut-lock	577,210	Feb. 16	1932	458	78	1030

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Schuster, Raimund, Markneukirchen, Germany. String-adjuster for guitars	577,627	Feb. 23	2675	631	78	1185
Schutt, Minard A. (See Oettinger and Schutt.)						
Schwartz, Josef, Bay City, Mich. Inflation-valve and coupling for pneumatic tires	579,934	Mar. 30	3641	871	78	2030
Schwartzenhauer, Hermann, Berlin, Germany. Stone-borer	575,738	Jan. 26	2399	565	78	506
Schwersenski, Mary J. (See Kellnor, Adolf, assignor.)						
Scioto Furniture Company. (See Harris, George H., assignor.)						
Scotford, Louis K., assignor to Superior Rubber Type Company, Chicago, Ill. Blank for making sponge-rubber type-bases	578,527	Mar. 9	1212	273	78	1509
Scott Automatic Boiler Feeder Company. (See Scott, Orla J., assignor.)						
Scott, Carl A. (See Nutting, Abel, assignor.)						
Scott, Ernest G. (See Scott, Frank W., Frank W., Jr., and E. G.)						
Scott, Frank W., Frank W., Jr., London, and E. G., Liverpool, England. Brine-evaporator	575,854	Jan. 26	2389	611	78	542
Scott, Hercules, Princeton, W. Va. Measuring instrument	576,900	Feb. 9	1401	333, 334	78	918
Scott, Jacob R., New York, N. Y. Shaping-machine	575,619	Jan. 19	2184	518	78	450
Scott, James M., *et al.* (See Walker, William H., assignor.)						
Scott, Jesse Y. (See Wallace, Thomas D., assignor.)						
Scott, John, Jarrow, England. Multitubular boiler	576,901	Feb. 9	1402	334	78	918
Scott, Orla J., assignor to Scott Automatic Boiler Feeder Company, Louisville, Ky. Boiler-feeder	577,325	Feb. 16	2114	501	78	1064
Scott, Orla J., Fairmount, Ind., assignor to Scott Automatic Boiler Feeder Company, Louisville, Ky. Automatic boiler-feeder	577,392	Feb. 16	2239	526	78	1087
Scott, Robert, Glenside, Pa. Fireproof pipe-sleeve	576,890	Feb. 9	1400	333	78	918
Scott, Robert W. (See Williams, Louis N. D., assignor.)						
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Rib-knitting machine	577,788	Feb. 23	2929	668	78	1233
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Rib-knitting machine	577,789	Feb. 23	2931	668, 694	78	1231
Scott, Walter, Plainfield, N. J. Means for delivering and packing folded sheets	575,555	Jan. 19	2064	494	78	427
Scott, Walter, Plainfield, N. J. Printing-machine	578,778	Mar. 16	1639	379	78	1619
Scott, William G., Rock Dell, Minn. Cultivator	578,581	Mar. 9	1309	295, 296	78	1529
Scott, William G., Rock Dell, Minn. Cultivator	578,585	Mar. 9	1310	296	78	1529
Scouler, James D., assignor to G. Coles, St. James, and W. McLean, Melbourne, Victoria. Sheep-shearing machine	576,902	Feb. 9	1404	334	78	918
Scovill Manufacturing Company. (See Goss, John H., assignor.)						
Scovill Manufacturing Company. (See Hyde, Theophilus R., Jr., assignor.)						
Scovill Manufacturing Company. (See Lines, John, assignor.)						
Scovill Manufacturing Company. (See Robinson, Robert P., assignor.)						
Scovill Manufacturing Company. (See Shipley, Alfred J., assignor.)						
Scranton, Frederick A., assignor to Bevin Brothers Manufacturing Company, East Hampton, Conn. Bicycle-bell	576,985	Feb. 9	1556	369	78	947
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Signaling appliance for telephone-switchboards	575,131	Jan. 12	1331	320	78	268
Scribner, Charles E., Chicago, and F. R. McBerty, Downer's Grove, assignors to Western Electric Company, Chicago, Ill. Circuit for annunciators of telephone-lines	574,579	Jan. 5	349	78	78	66
Scully, Lizzie G., Rome, N. Y. Diaper fastener and supporter	578,272	Mar. 2	768	174	78	1407
Scurr, James M., Creston, Iowa. Fastener	579,899	Mar. 30	3588	858, 859	78	2019
Seager, Laurance, Sittingbourne, England. Wrench	576,381	Feb. 2	545	128	78	738
Seaman, Benjamin S., Canton, Ohio. Means for attaching bicycle-saddles	577,073	Feb. 16	1701	403	78	986
Seaman, Benjamin S., Canton, Ohio. Bicycle-saddle	578,120	Mar. 2	484	111	78	1354
Seaman, Benjamin S., Canton, Ohio. Bicycle-saddle	578,837	Mar. 16	1750	404	78	1641
Seaman, Charles H., St. Joseph, Mo. Irrigating-pump	576,699	Feb. 9	1075	252	78	855
Seamans, Clarence W. (See Hussey, John W., assignor.)						
Seamans, Clarence W., *et al.*, executors. (See Briggs, William H., assignor.)						
Search, Theodore C., assignor to John B. Stetson Company, Philadelphia, Pa. Mold for curling hat-brims	579,368	Mar. 23	2638	623	78	1821
Searles, David C., Livermore Falls, Me. Reversible pruning-tool	579,088	Mar. 16	2179	511	78	1721
Searls, William P. (See Clark, Merrill E., assignor.)						
Seavolt, John W., Lock 53, Md. Device for deadening noise of trains	578,364	Mar. 9	923	210	78	1454
Sebald, Hugo, Philadelphia, Pa. Bicycle-support	578,838	Mar. 16	1757	405	78	1641
Seburn, William, assignor to Indiana Manufacturing Company, Indianapolis, Ind. Pneumatic straw-stacker	577,117	Feb. 16	1789	422, 423	78	1003
Seck, Heinrich, Dresden, Germany. Bolting-machine	575,992	Jan. 26	2823	666, 667	78	585
See, Dewitt C., Mechanicsville, N. Y. Display-form	577,455	Feb. 23	2358	554	78	1126
Seeb, Charles W., *et al.* (See Gaines, Almanzer, assignor.)						
Seeb, Otto W., *et al.* (See Gaines, Almanzer, assignor.)						
Seed, Joseph H., Brooklyn, N. Y. Water-strainer	575,177	Jan. 12	1402	337	78	282
Seeger, Albert H. F. (See McGregor, William, assignor.)						
Segerberg, Johan A., Denver, Colo. Roller-skate	577,628	Feb. 23	2677	632	78	1185
Seibel, Richard M. (See McCarroll and Seibel.)						
Seidel, Hugo I., Eureka Springs, Ark. Campaign-button	574,497	Jan. 5	194	45	78	38
Seifert, Bruno R., assignor to Chemische Fabrik von Heyden, Gesellschaft mit Beschränkter Haftung, Radebeul, Germany. Isohomovanillin	575,070	Jan. 12	1226	.....	78	248
Seifert, Bruno R., assignor to Chemische Fabrik von Heyden Gesellschaft mit Beschränkter Haftung, Radebeul, Germany. Making aromatic nitrosulfo chlorids	578,890	Mar. 16	1758	.....	78	1642
Seifert, George W. T., assignor of one-half to J. C. Eade, Duquoin, Ill. Purifier, grader, and dust-collector for flour-mills	575,998	Jan. 26	2825	667, 668	78	586
Seitz, Charles H., Detroit, Mich. Device for forming butter-balls	577,074	Feb. 16	1702	404	78	986
Seitz, Samuel, Philadelphia, Pa. Adjustable handle for bags	574,456	Jan. 5	132	30	78	26
Selby, James, Peoria, Ill. Corn-planter	576,624	Feb. 9	959	223, 224	78	833
Selden, Arthur R., Rochester, N. Y. Ironing-machine	577,401	Feb. 16	2262	531	78	1091
Selden, Charles, Baltimore, Md. Railway-crossing signal	578,840	Mar. 16	1759	405	78	1642
Self-Threading Sewing-Machine Company. (See Weston and Legg, assignors.)						
Selleck, Oakley, New York, N. Y. Display-figure	578,659	Mar. 9	1426	325	78	1550
Selley, Frederick W., Hurstville, and W. H. Nisbet, Sydney, New South Wales. Slack-adjuster for-brake-gears of railway rolling-stock	579,309	Mar. 23	2639	623, 624	78	1821
Semans, William A., Noblesville, Ind. Boiler oil or compound feeder	574,763	Jan. 5	669	159	78	125
Semmer, Phillip, Irwin, Pa. Machine for grinding and polishing glass	578,779	Mar. 16	1641	380	78	1619
Senderling, Martin L., Jersey City, N. J. Vehicle-spring	578,425	Mar. 9	1016	233	78	1473
Senior, Joseph, Wakefield, England. Apparatus for washing and stoning grain	574,633	Jan. 5	443	101	78	83
Sergeant, Henry C., Westfield, N. J. Generator for making acetylene gas	576,826	Feb. 9	1273	304	78	893

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Sergeant, Henry C., Westfield, N. J. Acetylene-gas holder	576,827	Feb. 9	1275	304	78	893
Sergeant, Henry C., Westfield, N. J., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Air-compressor	579,775	Mar. 30	3385	810	78	1981
Sergeant, Henry C., Westfield, N. J., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Discharge-valve-operating mechanism for air-compressors	579,776	Mar. 30	3386	810, 811	78	1981
Sergeant, Henry C., Westfield, N. J., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Combined coupling and running support for hose	579,777	Mar. 30	3389	811	78	1982
Sérullas, Hippolyte E., and F. E. Hourant, Suresnes, France. Extracting and purifying gutta-percha	575,739	Jan. 26	2400	.....	78	507
Serve, Jean P., Lyons, France. Grooved pulley	574,580	Jan. 5	351	79	78	66
Sessions, Henry H., Chicago, Ill., assignor to Standard Coupler Company, New York, N. Y. Metallic platform and buffer for railway-cars	575,994	Jan. 26	2828	668, 669	78	586
Seth Thomas Clock Company. (See Higginbotham, Charles T., assignor.)						
Sewall, Robert H. F., assignor of one-third to G. S. Orme, New Orleans, La. Pile-driving mechanism	579,900	Mar. 30	3589	859	78	2019
Seyk, James W., *et al.* (See Wright, Herbert B., assignor.)						
Seymour, Alvin C. (See Andersson and Seymour.)						
Seymour, Dudley S., assignor of one-half to J. Johnston, Hartford, Conn. Magazine-fire-arm	576,744	Feb. 9	1140	270, 271, 272	78	868
Seymour, Francis, Paterson, N. J., assignor to Automatic Company, New York, N. Y. Spinning, doubling, and twisting machine	578,678	Mar. 9	1458	334, 335	78	1556
Seymour, James M., Newark, N. J. Rotary fan	575,620	Jan. 19	2186	518, 519	78	451
Seymour, William S., assignor of one-half to J. S. Keller, Philadelphia, Pa. Hook and eye	574,634	Jan. 5	445	101	78	84
Shackleton, Alfred, Merlin, Oreg. Mucilage-bottle	575,380	Jan. 19	1764	423	78	369
Shadbolt, William O., Brooklyn, N. Y. Loading and screening apparatus	577,179	Feb. 16	1888	445	78	1021
Shafer, C. W. (See Garland, Charles W., assignor.)						
Shaine, Boris M., New York, N. Y. Umbrella	579,185	Mar. 23	2353	553	78	1768
Shaner, Lawrence M. (See Bastin and Shaner.)						
Shannon, Neely, assignor of forty-nine one-hundredths to J. H. Landman, Huntsville, Ala. Engine	574,457	Jan. 5	133	30, 31	78	27
Shapira, David H. (See Shapira, Jacob S. and D. H.)						
Shapira, Jacob S. and D. H., Montreal, Canada. Reclining-chair	579,499	Mar. 23	2905	683, 684	78	1869
Sharp & Dohme. (See Wilcox, Theodore B., assignor.)						
Sharp, Eli, Congerville, Ill. Pencil-holder	576,908	Feb. 9	1405	334	78	918
Sharp, George A., and R. H. Hoole, St. Louis, Mo. Advertising-wagon	574,766	Jan. 5	671	160	78	126
Sharp, John C., Delavan, Wis. Stump-extractor	575,132	Jan. 12	1332	321, 322	78	268
Sharp, L. C. (See Taylor, Christopher C., assignor.)						
Sharp, Samuel H., Leeds, England. Fabric-printing machine	579,016	Mar. 16	2059	481	78	1697
Sharp, Solomon P., St. Louis, Mo. Cable-puller	578,365	Mar. 9	924	210	78	1454
Sharpneck, Eliel L., and G. F. Knox, Chicago, Ill. Expansion-regulator for refrigerating-machines	578,297	Mar. 2	810	183	78	1414
Shaughnessy, Micheal L. (See Barry and Shaughnessy.)						
Shaw, Alton J., deceased; M. H. Shaw, administratrix, assignor to Shaw Electric Crane Company, Muskegon, Mich. Crane	574,581	Jan. 5	352	79, 80	78	66
Shaw, Charles D., Elmira, N. Y. Clothes-wringer	576,700	Feb. 9	1077	253	78	855
Shaw, Charles H. (See Violet and Shaw.)						
Shaw, Charles O. (See McKenzie and Shaw.)						
Shaw Electric Crane Company. (See Shaw, Alton J., assignor.)						
Shaw, Elijah A. (See Grant, Robert A., assignor.)						
Shaw, Frederic, assignor to W. R. Eisenhower, Philadelphia, Pa. Display-tray	577,827	Feb. 23	2990	707	78	1245
Shaw, George and T., and J. P. Ditchfield, Ashton-under-Lyne, England. Machinery for drilling holes in stocks, &c., of brushes or brooms	577,587	Feb. 23	2905	615, 616, 617, 618	78	1172
Shaw, Mary H., administratrix (See Shaw, Alton J.)						
Shaw, Thomas. (See Shaw and Ditchfield.)						
Shaw, William P., Boston, assignor of one-half to J. Shearman, Brookline, Mass. Projectile for carrying life-lines	576,625	Feb. 9	961	224	78	834
Shea, Christopher A., Milton, Mass., assignor to himself, and P. Bodine, New York, N. Y. Train-controlling device	578,208	Mar. 2	812	183	78	1415
Sheard, John W., and J. Done, Blackpool, England. Bearing	575,855	Jan. 26	2590	611	78	542
Shearer, George W. (See Mason and Shearer.)						
Shearman, John. (See Shaw, William P., assignor.)						
Shearwood, Charles E., St. Paul, Minn. Air-brake-piston remover	574,498	Jan. 5	195	45	78	38
Shedlock, Alfred. (See Carson and Shedlock.)						
Sheffield Car Company. (See Welch, Thomas, assignor.)						
Sheldrake, Charles M., Philadelphia, Pa. Safety-valve	578,046	Mar. 2	350	84	78	1328
Shelley, Russell T., New Haven, Conn. Trunk-lock	576,745	Feb. 9	1146	272	78	869
Shelly, Emanuel S., assignor of one-half to S. Shelly, La Grange, Ind. Stock-watering apparatus	574,952	Jan. 12	1007	243	78	208
Shelly, Joel P. (See Sigmund, Mathias C., assignor.)						
Shelly, Samuel. (See Shelly, Emanuel S., assignor.)						
Shelton, J. H., *et al.* (See Gaddie, Thomas D., assignor.)						
Shelverton, Alfred, Paducah, Ky. Sewing-machine reflector	576,165	Feb. 2	162	40	78	667
Shepard, Wilbur L., Elmwood, Conn. Feed-water purifier	578,903	Mar. 16	1865	428	78	1660
Shepard, Wilbur L., Elmwood, Conn. Feed-water heater	578,904	Mar. 16	1867	429	78	1660
Shepard, William A., Philadelphia, Pa. Portable heater	578,470	Mar. 9	1097	250	78	1488
Shepley, William, *et al.* (See Gohm, James, assignor.)						
Sherman, Martin W., *et al.* (See Sherman, Willis M., assignor.)						
Sherman, Walter N., Merced, Cal. Electrical cane	578,471	Mar. 9	1098	250	78	1488
Sherman, William B., *et al.* (See Wattles, Luther H., assignor.)						
Sherman, Willis M., Chicago, Ill., assignor of two-thirds to M. W. Sherman and F. M. Hoyt, Milwaukee, Wis. Bicycle	575,910	Jan. 26	2604	636	78	561
Sherman, Willis S., Milwaukee, Wis. Tool-holder	577,075	Feb. 16	1702	404	78	986
Sherman, Willis S., Milwaukee, Wis. Tongue-and-groove machine	577,076	Feb. 16	1704	404	78	986
Sherrer, Philip, and J. Schmidt, Cleveland, Ohio. Cask-pitching apparatus	574,827	Jan. 5	772	184	78	145
Sherwood, Earl, assignor of one-half to J. J. Curtis, Honesdale, Pa. Car-fender	577,326	Feb. 16	2118	501	78	1065
Sherwood, N. C., *et al.* (See Koenen, William, assignor.)						
Shesler, Daniel A., Toledo, Ohio. Electric-arc lamp	576,475	Feb. 2	690	164	78	768
Shimer, Elmer S., Milton, Pa. Type-writing machine	576,904	Feb. 9	1406	335	78	919
Shipley, Alfred J., assignor to Scovill Manufacturing Company, Waterbury, Conn. Tack-fastened button	576,905	Feb. 9	1407	335	78	919

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Shipley, Alfred J., assignor to Scovill Manufacturing Company, Waterbury, Conn Button-setting machine	579,017	Mar. 16	2060	482	78	1697
Shipley, James T. (See Lamkin and Shipley.)						
Shipley, Thomas, Pittsburg, Pa., assignor of one-half to L. J. Dolle, Cincinnati, Ohio. Water-purifier for ice-machines	576,416	Feb. 2	598	141	78	749
Shipman, Madison D., *et al.* (See Pringle, Eugene, assignor.)						
Shirey, Cyrus, assignor of one-half to J. K. Sterrett, Pittsburg, Pa. Car-fender	578,528	Mar. 9	1214	274	78	1309
Shoecraft, Judson, Harveyville, assignor to Western Railway Signal Company, Topeka, Kans. Automatic block system	576,166	Feb. 2	163	40	78	668
Shoemaker, Harman. (See Van Gilder, Ottawa H., assignor.)						
Sholes, Zalmon G., Evanston, assignor, by mesne assignments, to C. N. Fay, Chicago, Ill. Type-writing machine	578,679	Mar. 9	1460	335	78	1557
Sholes, Zalmon G., Evanston, assignor, by mesne assignments, to C. N. Fay, Chicago, Ill Type-writing machine	578,680	Mar. 9	1462	336	78	1557
Shoots, James D., Horseheads, N. Y. Non-refilling bottle	577,790	Feb. 23	2934	694	78	1234
Short, Henry W., London, England. Means for exhibiting consecutive pictures	575,761	Jan. 26	2429	573	78	512
Shortridge, Ernest W., Kenova, W. Va. Air-brake hose-coupling	578,168	Mar. 2	609	137	78	1377
Shower, Elias S., Lawn, Pa. Hat-clip	576,701	Feb. 9	1078	253	78	855
Shue, J. A. (See Forney, Franklin D., assignor.)						
Shuman, Frank, assignor to Wire Glass Company, Philadelphia, Pa. Machine for embedding wire in glass	574,458	Jan. 5	136	31	78	27
Shuttleworth, Alpheus C., Philadelphia, Pa., assignor to G. Draper & Sons, Hopedale, Mass. Electrical warp stop-motion for looms	577,077	Feb. 16	1706	405	78	987
Shutts, Hugh B., Shawneetown, assignor of one-third to W. S. Phillips and D. Reid, Ridgway, Ill. Dust-screen for windows	575,937	Jan. 26	2732	645	78	569
Sickafoose, Albert, and W. E. Wyatt, Lyons, Iowa. Valve	579,186	Mar. 23	2354	554	78	1708
Siemens & Halske. (See Frölich, Oscar, assignor.)						
Siemens & Halske. (See Raps, August, assignor.)						
Sietz, Micheal J. (See Wiedenbeck, Neubert, and Sietz.)						
Siggers, Edward G. (See Wolhaupter, David P., assignor.)						
Sigmund, Mathias C., Reading, assignor of one-half to J. P. Shelly, Philadelphia, Pa. Elevator	579,410	Mar. 23	2704	643	78	1833
Silberberg, Siegfried. (See Archer, Frank M., assignor.)						
Silberstein, Albert L., New York, N. Y. Safety-razor	576,476	Feb. 2	691	165	78	768
Silton, John M., *et al.* (See Couper, James H., assignor.)						
Silverman, Simon M., Chicago, Ill. Trousers	575,406	Jan. 19	1956	469	78	405
Silvermann, Antonie, New York, N. Y. Umbrella-support	578,477	Feb. 2	692	165	78	768
Silvey, William L., Dayton, Ohio. Electric locomotive	575,314	Jan. 12	1636	390 391	78	327
Simmons, George B. (See Eisenbeis and Simmons.)						
Simmons, Jörgen, Appleton, Minn. Food product	577,629	Feb. 23	2679	.....	78	1185
Simon, Ernst, Markneukirchen, Germany. Mandolin, guitar, or banjo	575,071	Jan. 12	1227	297	78	248
Simonds, Clarence L. (See Lindsey and Simonds.)						
Simonds, Sam. (See McLaughlin, Milton P., assignor.)						
Simonds, Sam W., *et al.* (See McLaughlin, Milton P., assignor.)						
Simonds, William E., Canton, Conn. Salt-box	577,588	Feb. 23	2619	618	78	1175
Simpkins, Ernest J., Toledo, Ohio. Electrically-operated piano attachment	575,072	Jan. 12	1228	298	78	248
Simpson, George. (See Schnorenberg and Simpson.)						
Simpson, Robert J. (See Fredrick, Norton, and Simpson.)						
Simpson, Thomas M. (See White and Simpson.)						
Simpson, William C. (See Blubaugh and Simpson.)						
Singer, Joseph, Los Angeles, Cal. Gun-barrel with blued or browned bore	578,080	Mar. 2	330	78	78	1324
Singer Manufacturing Company. (See Allen, Edward B., assignor.)						
Singer Manufacturing Company. (See Bukies, Eugene, assignor.)						
Singer Manufacturing Company. (See Diehl, Philip, assignor.)						
Singer Manufacturing Company. (See Diehl and Bennett, assignors.)						
Singer Manufacturing Company. (See Diehl and Houghton, assignors.)						
Singer Manufacturing Company. (See Foster, Charles H., assignor.)						
Singer Manufacturing Company. (See Greene, James G., assignor.)						
Singer, William F., New York, N. Y. Car-refrigerating apparatus	577,327	Feb. 16	2121	502	78	1005
Singer, William F., New York, N. Y., assignor to American Electric Cold Supply Company, of Maine. Refrigerating apparatus	577,328	Feb. 16	2122	502	78	1006
Singletary, Alfred B. (See Howell, Albert L., assignor.)						
Sinton, Walter L., assignor to Comparative Synoptical Chart Company, Limited, Toronto, Canada. Portable blackboard	574,635	Jan. 5	446	102	78	84
Sjoberg, Axel L., Union Hill, N. J. Device for imparting motion to movable bodies	578,906	Feb. 9	1409	335	78	919
Skarin, Gustaf A., Buffalo, N. Y. Velocipede	579,307	Mar. 23	2540	600	78	1802
Skeen Electric Switch and Signal Company. (See Skeen, Robert, assignor.)						
Skeen, Robert, Madison, Ill., assignor, by mesne assignments, to Skeen Electric Switch and Signal Company, St. Louis, Mo. Electrical signal system	574,953	Jan. 12	1008	243 244	78	208
Skeen, Robert, Madison, Ill., assignor, by mesne assignments, to Skeen Electric Switch and Signal Company, St. Louis, Mo. Electric signal	574,954	Jan. 12	1011	244 245	78	209
Skelton, David P., assignor of one-half to R. S. Skelton, Scottsborough, Ala. Buckle	577,211	Feb. 16	1993	458	78	1081
Skelton, R. S. (See Skelton, David P., assignor.)						
Skidmore, Henzie B., Union City, Ohio. Corn-cultivator	579,844	Mar. 30	3504	837	78	2008
Skilling, Chauncey F., Los Angeles, Cal. Sliding-door mechanism	578,681	Mar. 9	1465	337	78	1558
Skilton, Emily D., *et al.* (See Skilton, John W., assignor.)						
Skilton, John W., assignor to E. D. Skilton, Miami, and F. S. Lee, Linton, Fla. Axle-box	578,949	Mar. 16	1956	456	78	1675
Skinner, Courtland, Chicago, Ill. Electric railway	577,885	Mar. 2	87	21	78	1277
Skov, Soren R., Cleveland, Ohio. Car-coupling	575,856	Jan. 26	2591	612	78	543
Skriwan, Emil, Vienna, Austria-Hungary. Process of and apparatus for hemming ends of incandescent mantles	578,841	Mar. 16	1702	405	78	1642
Skvara, Franz, assignor to E. Buchholtz, Warsaw, Russia. Boiler and condenser plant for heating feed-water	578,081	Mar. 2	331	78, 79	78	1324
Slack, Albert, Cicero, Ind. Transom-hinge	574,696	Jan. 5	448	102	78	84
Slaght, Lewis H., assignor to R. Slaght, Waterford, Canada. Sharpener for lawn-mowers	579,500	Mar. 23	2907	684	78	1869
Slaght, Roxa. (See Slaght, Lewis H., assignor.)						
Slanker, Frank O., Pomona, Cal. Propulsion of vessels	575,178	Jan. 12	1402	387 388	78	282
Slater, Richard E. (See Freeman and Slater.)						
Slater, Thomas. (See Hickling and Slater.)						
Slaughter, Joel C., assignor of one-fifth to E. E. Davis, Dallas, Tex., and W. M. Copeland, Evansville, Ind. Steam-engine	575,576	Jan. 19	2108	501	78	434
Slawianoff, Nicholas, St. Petersburg, Russia. Electrical casting of metals	577,329	Feb. 16	2125	502 503	78	1006

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Slaymaker-Barry Company. (See Troast, William F., assignor.)						
Slaymaker-Barry Company. (See Troast and Amwake, assignors.)						
Slayton, Henry D., *et al.* (See Luther, Justus P. and S. L., assignors.)						
Sleeper, Charles T., assignor of one-half to G. P. Everhart, Chicago, Ill. Sales-recorder	576,079	Jan. 26	2977	702 703	78	611
Slinack, Victor H., Philadelphia, Pa., assignor to Pennsylvania Globe Gas Light Company, of Pennsylvania. Hydrocarbon-burner	579,657	Mar. 30	3192	758	78	1948
Slocum, Frank L. (See Corey and Slocum.)						
Slocum, Frank L., Pittsburg, Pa. Coke-oven tile	575,183	Jan. 12	1339	322	78	270
Slocum, Frank L., Pittsburg, and W. E. Corey, Munhall, assignors to Carnegie Steel Company, Limited, Pittsburg, Pa. Making carbonized steel for armor-plates	574,637	Jan. 5	449	102 103	78	84
Slomka, Adolf, New York, N. Y. Removable insole	576,232	Feb. 2	269	66	78	688
Slomka, Adolf, New York, N. Y. Catcher's mitten	578,842	Mar. 16	1762	406	78	1642
Sly, Sidney L., Jordan, Minn. Lantern-bracket	575,857	Jan. 26	2592	612	78	543
Smale, John V., Chicago, Ill. Apparatus for separating liquid from crystalline sugar	579,098	Mar. 16	2200	517	78	1725
Small, Andrew Y., assignor of fifty-one one-hundredths to W. Rapp, Brockton, E. B. Page, Boston, and A. Herbert, Newton, Mass. Antifriction-bearing	575,858	Jan. 26	2593	612	78	543
Small, Chester C., Newton, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Nail selecting and distributing machine	577,212	Feb. 16	1934	458 459	78	1031
Small, Chester C., Newton, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Nail selecting and distributing machine	577,213	Feb. 16	1939	459 460	78	1032
Smalley, Joseph. (See Tweedale and Smalley.)						
Smallwood, Prier C., Louella, Mo. Trollocipede	575,528	Jan. 19	2020	482	78	418
Smart, Fred A. J., Portland, assignor of one-fourth to W. Fickett and E. L. Milliken, Stroudwater, Me. Sawmill-dog	575,432	Jan. 19	1848	444	78	384
Smith, Abel S. (See Smith, Seth H. and A. S.)						
Smith, Adolphus M., Myersville, Md. Combined harvester and thresher	575,134	Jan. 12	1339	322 323	78	270
Smith, Albert D., Philadelphia, assignor of one-half to P. H. Markley, Hatborough, Pa., and A. W. Markley, New York, N. Y. Nut-lock	574,582	Jan. 5	354	80	78	67
Smith, Albert M. (See Johnson, Seymour, assignor.)						
Smith, Alfred A. (See Reed, Joseph O., assignor.)						
Smith, Alvey M., Jr., Cockeysville, Md. Spike for railway or other purposes	579,610	Mar. 30	3109	736	78	1927
Smith, Amelia S., Central Falls, R. I. Hose-supporter	579,901	Mar. 30	3592	859	78	2020
Smith, Angus W., Union Church, Miss. Fifth-wheel for vehicles	576,167	Feb. 2	165	41	78	668
Smith & Anthony Company. (See Hunting, Alfred A., assignor.)						
Smith & Anthony Company. (See Lloyd, William H., assignor.)						
Smith, Austin W., Natchez, Miss. Fence-post	575,073	Jan. 12	1230	298	78	248
Smith, Ballard R., Rush Run, W. Va. Car-coupling	576,233	Feb. 2	270	67	78	688
Smith, Benjamin F., assignor of two-thirds to E. S. Byron and M. J. Charlton, Stewart, Ohio. Key-fastener	575,433	Jan. 19	1849	444	78	384
Smith, Ceylon, assignor to Electric Wheel Company, Quincy, Ill. Mold for casting metal hubs	575,995	Jan. 26	2830	669	78	587
Smith, Charles, assignor to Charles Smith Manufacturing Company, Chicago, Ill. Hot-water heating attachment for furnaces	577,695	Feb. 23	2776	656	78	1204
Smith, Charles H., Birmingham, Ala. Car-coupling	579,020	Mar. 16	2068	484	78	1698
Smith, Charles P. (See Fiske and Smith.)						
Smith, Charles T. R., Lansingburg, N. Y. Book case and holder	574,955	Jan. 12	1016	245	78	210
Smith, Datus C., Yonkers, N. Y. Fence-wire	578,032	Mar. 2	332	79	78	1325
Smith, De Wane B., Deerfield, N. Y. Cultivator	575,434	Jan. 19	1850	444 445	78	385
Smith, Edward S., Waterbury, Conn. Garment-supporter loop	574,459	Jan. 5	137	31	78	27
Smith, Edward W., and H. E. Mitchell, Winnipeg, Canada. Bucket or basket	577,118	Feb. 16	1790	423	78	1003
Smith, Ephraim, West New Brighton, N. Y. Apparatus for handling coal	577,078	Feb. 16	1709	405	78	988
Smith, Ernst G., Columbia, Pa. Ironing-machine	575,859	Jan. 26	2595	613	78	543
Smith, Fred W., assignor of three-fourths to N. T. Hume, W. H. Davies, Minneapolis, Minn., and S. W. Hume, Chicago, Ill. Smoke-consumer	577,372	Feb. 16	2204	520	78	1082
Smith, Frederick H., assignor of one-half to D. D. Merritt, Denver, Colo. Egg-separator	575,811	Jan. 26	2512	592	78	528
Smith, George F., Baltimore, Md. Baker's oven	575,911	Jan. 26	2695	636 637	78	561
Smith, George T., Chicago, Ill., assignor to George T. Smith Mill Building Company, Cleveland, Ohio. Milling	577,456	Feb. 23	2960	554 555	78	1127
Smith, Harper F., assignor of two-thirds to W. F. McCully and G. McGowan, Philadelphia, Pa. Self-generating burner	576,478	Feb. 2	693	165	78	768
Smith, Henry H., assignor of one-half to C. M. Chamberlin, Kalamazoo, Mich. Machine for removing tires	579,852	Mar. 23	2613	617	78	1816
Smith, James B. (See Watts and Smith.)						
Smith, James B., Kansas City, Mo. Car-coupling	578,366	Mar. 9	925	211	78	1454
Smith, James B., and A. L. Julienne, Jackson, Miss. Siphon	579,501	Mar. 23	2008	684	78	1870
Smith, James L. (See Goff and Higbee, assignors.)						
Smith, James L., Princeton, Ind. Weather-strip	578,273	Mar. 2	769	174	78	1407
Smith, Jesse M. (See Hubel and Smith.)						
Smith, John, Veroua, Pa. Molder's core	575,074	Jan. 12	1231	.....	78	249
Smith, John C., Hartford, Conn. Saddle	578,426	Mar. 9	1017	238	78	1478
Smith, John W., Sandy Hill, N. Y. Paper-pulp strainer	574,638	Jan. 5	451	103 104	78	85
Smith, Joseph F., Anacostia, D. C. Mucilage-brush	578,780	Mar. 16	1642	380	78	1620
Smith, Louis H., El Cajon, Cal. Cultivator	578,660	Mar. 9	1427	325 326	78	1550
Smith, Marvin. (See Keyes, Henry F., assignor.)						
Smith, Nathaniel E., Jersey City, N. J. Compound metal-working tool	575,381	Jan. 19	1706	423	78	370
Smith, Newell J., Meriden, Conn. Railway-alarm-bell	575,996	Jan. 26	2831	669	78	587
Smith, Oberlin, Bridgeton, N. J. Press	579,019	Mar. 16	2064	483 484	78	1697
Smith, Orrin L., Chicago, Ill. Device for hanging pictures	579,333	Mar. 23	2584	611	78	1810
Smith, Peter P. (See Nesbit, Joseph B., assignor.)						
Smith, Robert, *et al.* (See Barnes, Thomas, assignor.)						
Smith, Samuel, Lawrence, assignor of one-half to W. A. Leigh, Chelmsford, Mass. Combing-machine	579,187	Mar. 23	2356	554	78	1769
Smith, Samuel E., Babylon, N. Y. Centerboard vessel	577,079	Feb. 16	1711	405	78	988
Smith, Scott A. (See Tyrrell, Earl P., assignor.)						
Smith, Seth H. and A. S., assignors to Hillsdale Manufacturing Company, Hillsdale, Mich. Corn-popper	575,621	Jan. 19	2189	519	78	451
Smith, Sommers N., Newport News, Va. Balanced expansion-joint for pressure-pipes	575,577	Jan. 19	2104	502	78	434
Smith, Thomas. (See Hall, Warwick, and Smith.)						
Smith, Thomas, assignor of one-half to C. Blum, Jacksonville, Fla. Bicycle-tire	576,168	Feb. 2	165	41	78	668

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Smith, W. C. (See Latulip, Fredrick, assignor.)						
Smith, Walter W. (See Hennessey, Thomas J., assignor.)						
Smith, Walton D., assignor of one-half to F. L. Adams, Prophetstown, Ill. Marking-tag for rolled goods	576,234	Feb. 2	271	67	78	688
Smith, Walton D., assignor of one-half to F. L. Adams, Prophetstown, Ill. Sample-holder	578,843	Mar. 16	1703	406	78	1642
Smith, Will H., *et al.* (See Bishop, John E., assignor.)						
Smith, Willard A., Providence, R. I. Oil-gas generator	576,282	Feb. 2	368	86	78	706
Smith, Willard N., assignor of one-half to D. W. Judson, New Bedford, Mass. Truss	576,907	Feb. 9	1409	335	78	919
Smith, William E., Birmingham, Ala. Bicycle-skirt	575,912	Jan. 26	2096	637	78	561
Smith, William H., assignor of one-half to G. A. Olson, Whiting, Iowa. Corn harvester and husker	575,960	Jan. 26	2508	613, 614	78	544
Smith, William R., London, England. Ball-bearing	575,382	Jan. 19	1768	424	78	870
Smith, William R., Manchester, N. H. Electric heater	579,611	Mar. 30	3109	736	78	1927
Smith, William W., and J. M. Isgrig, Traverse City, Mich. Sash-fastener	575,791	Jan. 26	2477	585	78	521
Smith, William W., and J. M. Isgrig, Traverse City, Mich. Lamp-burner	579,018	Mar. 16	2062	482	78	1097
Smock, Benjamin D. B., Wickatunk, N. J. Insulator	574,828	Jan. 5	773	184	78	145
Smyser, Louis B., assignor of one-half to W. H. McFadden, Philadelphia, Pa. Wheel for bicycles or other vehicles	574,499	Jan. 5	196	45	78	39
Smyth, Samuel, Pittston, Pa. Grate for stoves or furnaces	577,666	Feb. 23	2737	646	78	1197
Smythe, Edward D., New York, N. Y. Apparatus for reclaiming crystallized syrup	579,021	Mar. 16	2069	484, 485	78	1099
Snader, Edward L., New York, N. Y. Coffin	578,781	Mar. 16	1644	381	78	1020
Snediker, William E., Jersey City, N. J. Vise	579,022	Mar. 16	2070	485	78	1099
Snee, John A. (See Snee, William and J. A.)						
Snee, William and J. A., West Elizabeth, Pa. Mineral-separator	577,630	Feb. 23	2680	632	78	1186
Snell, Daniel, *et al.* (See Barnes, Thomas, assignor.)						
Snow, Charles A., assignor to C. N. Flagler, Lime Springs, Iowa. Envelop	578,209	Mar. 2	813	183	78	1415
Snowgoose, Daniel V. (See Snowgoose, John and D. V.)						
Snowgoose, John and D. V., Ashland, Oreg. Gold-saving device	574,689	Jan. 5	458	104	78	85
Snyder, George W., Philadelphia, Pa. Seal for bottles or flasks	575,011	Jan. 12	1121	272	78	228
Snyder, John J., Chicago, Ill. Pipe-cleaner	574,956	Jan. 12	1017	246	78	210
Snyder, Louise, Minneapolis, Minn. Teaching-chart	577,886	Mar. 2	91	23	78	1278
Sobey, William, assignor to J. I. Case Plow Works, Racine, Wis. Disk cultivator	574,957	Jan. 12	1018	246, 247	78	210
Sobey, William, assignor to J. I. Case Plow Works, Racine, Wis. Wheel-cultivator	578,502	Mar. 9	1168	263, 264	78	1501
Sobotka, Gustave, New York, N. Y., and A. Kliemetschek, Baltimore, Md. Manufacturing yeast from molasses	578,367	Mar. 9	927	.....	78	1455
Société Anonyme pour la Transmission de la Force par l'Électricité. (See Hutin and Leblanc, assignors.)						
Society C. Garnier & Cie. *et al.* (See Depoully, Charles and P., assignors.)						
Society Gillet et Fils *et al.* (See Depoully, Charles and P., assignors.)						
Solt, James E., Bellefonte, Pa. Suspender-buckle	577,080	Feb. 16	1713	406	78	988
Solter, John, assignor of one-half to G. L. Krebs, Baltimore, Md. Can-making machine	577,457	Feb. 23	2363	555, 556	78	1127
Solter, John, assignor of one-half to G. L. Krebs, Baltimore, Md. Can-making machine	577,459	Feb. 23	2369	557	78	1128
Solter, John, assignor to J. R. Mitchell, Baltimore, Md. Can-making machine	577,458	Feb. 23	2366	556, 557	78	1128
Southwark Foundry and Machine Company. (See Marichal, Arthur, assignor.)						
Southwell, Frederick C., Grantham, England. Explosive-engine	575,812	Jan. 26	2512	567, 568	78	528
Southworth, Horatio W., New York, N. Y. Wheel	578,472	Mar. 9	1099	250	78	1489
Sowers, John D., and J. W. Gentry, Pocahontas, Va. Nut-lock	579,665	Mar. 30	3300	761	78	1946
Spain, Henry P., Buchanan, Ga. Railway-switch	575,740	Jan. 26	2401	565	78	507
Spangler, David F., Santa Ana, Cal. Wave-motor	578,612	Mar. 9	1350	307	78	1536
Spangler, James M., Canton, Ohio. Velocipede-wagon	576,746	Feb. 9	1147	272	78	899
Spangler, Leonard, Lafayette, Ind. Rotary harrow	576,061	Jan. 26	2049	695	78	606
Sparre, Pierre A. de, Paris, France. Elastic tire for wheels	576,352	Feb. 2	494	115	78	730
Spaulding, Eugene F., Rose Lawn, Wis. Pneumatic spring-seat	576,328	Feb. 2	454	107	78	722
Specialty Novelty Company. (See Freeman, Albert A., assignor.)						
Speckbötel, Friedrich T., Hamburg, Germany. Box-stapling machine	576,382	Feb. 2	516	128	78	738
Speidel, August, Lincoln, Nebr. Transplanter	577,539	Feb. 23	2519	594, 595	78	1156
Speidel, John G., Reading, Pa. Hoisting apparatus	577,330	Feb. 16	2128	503, 504	78	1066
Speight, J. C., *et al.* (See Gaddie, Thomas D., assignor.)						
Speirs, John C. (See Fletcher, Charles T., assignor.)						
Spencer, Charles L., Providence, R. I. Raisin-seeding machine	575,762	Jan. 26	2429	573	78	512
Spencer, Erwin H., West Bay City, Mich. Journal-box	574,958	Jan. 12	1023	248	78	211
Spencer, Harry R., Hennessey, Okla. Ter. Breast-strap iron	576,908	Feb. 9	1410	336	78	919
Spencer, James F., assignor of one-half to G. W. Ogle, Pomona, Cal. Hub-attaching device	579,188	Mar. 23	2358	555	78	1769
Spencer, John, Keighley, England. Stone-dressing machine	575,435	Jan. 19	1851	445, 446	78	385
Spencer, John S., New York, N. Y. Eyeglasses	575,997	Jan. 26	2882	669	78	587
Spencer, Mark W., Graves, Miss. Type-writing machine	579,778	Mar. 30	3390	811, 812	78	1982
Spencer Optical Manufacturing Company. (See Meigs, George W., assignor.)						
Sperry, Elmer A., Cleveland, Ohio, assignor to General Electric Company, of New York. Electric controller	577,081	Feb. 16	1714	406	78	989
Sperry, Elmer A., Cleveland, Ohio, assignor to General Electric Company, of New York. Electric brake	577,119	Feb. 16	1791	423	78	1003
Spies, Gustav A., Irwin, Pa. Fountain-pen	577,932	Mar. 2	181	43	78	1296
Spieth, William F., assignor to Cleveland School Furniture Company, Cleveland, Ohio. Adjustable school furniture	574,829	Jan. 5	774	185	78	145
Spinks, William A. (See Hoskins and Spinks.)						
Spiral Tool and Machine Company. (See Morrell, Henry L., assignor.)						
Spiro, Charles, New York, N. Y. Type-writing machine	578,121	Mar. 2	485	111, 112, 113	78	1354
Spjelkavik, Thomas, *et al.* (See Stromsmo, Hans, assignor.)						
Spohn, James H., Philadelphia, Pa. Stove-door and hinge therefor	579,810	Mar. 30	3497	824	78	1998
Spooner, George A., Boston, Mass. Mailing-machine	579,902	Mar. 30	3593	860	78	2020
Spooner, John A., Omaha, Nebr. Pedal-bar	577,791	Feb. 23	2934	694	78	1234
Spotswood, Thomas E., Fairford, assignor of one-half to Union Iron Works Company, Selma, Ala. Log-hoist for log-carts	575,383	Jan. 19	1769	424	78	870

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Sprague, Daniel A., Poland, N. Y. Cheese-press	577,933	Mar. 2	183	44	78	1297
Sprague Electric Railway and Motor Company. (See Branth, Johan F. S., assignor.)						
Spring Pumping Machine Company. (See Hanks and Purdy, assignors.)						
Springer, Daniel E., and J. M. Hadesty, Tamaqua, Pa. Beer-tap	574,583	Jan. 5	355	80	78	67
Sprow, Jacob M., Jr. (See White and Sprow.)						
St. Hilaire, Napoléon J., Gardner, Mass. Device for sharpening scissors	579,726	Mar. 30	3304	789	78	1965
Staberg, Charles J., Brooklyn, N. Y. Muzzle attachment for scattering shot	579,502	Mar. 23	2009	684	78	1870
Stacy, Abiram, Montrose, Colo. Feed-trough	577,631	Feb. 23	2681	633	78	1186
Stademann, Gustav, Philadelphia, Pa. Street-car fender	577,564	Feb. 23	2561	603	78	1164
Stadig, Olof L., Connors Station, Canada. Shears or scissors sharpener	576,479	Feb. 2	694	166	78	769
Stadler & Falk. (See Foote, Henry M., assignor.)						
Stadtfeld, Charles, Dayton, Ohio. Corn-planter	579,189	Mar. 23	2359	555	78	1769
Stafford, Miles A. (See Page and Stafford.)						
Stahl, Harry E., and F. T. Coryell, Trenton, N. J.; said Coryell assignor to said Stahl. Sprocket-chain	578,661	Mar. 9	1439	326	78	1551
Stalker, Robert, G. Baty, and J. Johnston, Stockport, assignors to said Baty, A. and A. Turner, Denton, England. Manufacture of felt hats	578,503	Mar. 9	1171	264, 265	78	1502
Stallings, George V., Strawn, Tex., assignor of one-half to S. E. and W. E. Stallings and R. H. Jones. Derrick	578,368	Mar. 9	929	211	78	1455
Stallings, Samuel E., *et al.* (See Stallings, George V., assignor.)						
Stallings, William E., *et al.* (See Stallings, George V., assignor.)						
Stalnecker, S. G., *et al.* (See Kirby, Thomas W., assignor.)						
Stamm, Frederick, Lancaster, and H. C. Stamm, Mechanicsburg, Pa. Lash-rounding machine	578,047	Mar. 2	351	84	78	1328
Stamm, Henry C. (See Stamm, Frederick and H. C.)						
Stancliff, Edwin, assignor of one-half to T. Orgill, New York, N. Y. Nut-locking bolt	577,521	Feb. 23	2482	585	78	1150
Standard Coupler Company. (See Sessions, Henry H., assignor.)						
Standard Coupler Company. (See Turnbull, Robert C., assignor.)						
Standard Sewing Machine Company. (See Mack, William A., assignor.)						
Standard Sewing Machine Company. (See Vannette, Jasper, assignor.)						
Stanley, Frank F., *et al.*, trustees. (See Casgrain, Louis A., assignor.)						
Stanley, Harry M. (See Martin, George W., assignor.)						
Stanley Laboratory Company. (See Kelly, John F., assignor.)						
Stanley, Reginald, Nuneaton, England. Mining-machine	577,331	Feb. 16	2131	505	78	1067
Stanley Works. (See Corscaden, Thomas, assignor.)						
Stansel, Alonzo, Yorkville, Ill. Broadcast seeder	579,903	Mar. 30	3505	860	78	2020
Stanton, Jere E., Boston, Mass. Dental mallet	577,887	Mar. 2	93	24	78	1278
Staple, Edward G., Oshkosh, Wis. Pump	576,521	Feb. 2	778	182	78	783
Stapp, Achilis. (See Lewis and Stapp.)						
Stapp, Elbridge N. (See Lewis and Stapp.)						
Star Electric Company. (See Beach, Clarence E., assignor.)						
Star Manufacturing Company. (See Sawyer and Hendricks, assignors.)						
Starbuck, William B., Nantucket, Mass. Hernial truss	579,845	Mar. 30	3505	838	78	2003
Starks, Nils O., Madison, Wis. Window-cleaner	575,043	Jan. 12	1175	286	78	238
Starr, William H., Liberty, Nebr. Nut-lock	578,369	Mar. 9	930	211	78	1456
Starrett, Jacob A., and E. F. Welsh, assignors of one-eighth to W. F. Kimmick, Wilmerding, Pa. Valve	576,909	Feb. 9	1412	336	78	920
Starrett, Jacob A., and E. F. Welsh, assignors of one-eighth to W. F. Kimmick, Wilmerding, Pa. Valve	578,274	Mar. 2	770	175	78	1407
Starrett, Laroy S., Athol, Mass. Hack-saw	576,626	Feb. 9	962	224	78	894
Starritt, Joseph W., Richmond, Va. Bicycle-bell	576,986	Feb. 9	1357	309	78	947
Stateler, V. T. (See Easley, William, assignor.)						
Staten, George H., Portsmouth, Ohio. Sign	574,584	Jan. 5	356	80	78	67
Stauffacher, Edward, *et al.* (See Myers, Walker B., assignor.)						
Stead, Philip D., Pelhamville, N. Y. Screw-propeller	576,169	Feb. 2	166	41	78	668
Stearns, Charles E. (See Flanders, Herbert, assignor.)						
Stebbins, William F., Springfield, Mass. Billiard-table	576,767	Feb. 9	1176	280	78	875
Steber, Henry A., Utica, N. Y. Distilling apparatus	576,910	Feb. 9	1413	336	78	920
Steck, Ernst F., Chicago, Ill., assignor to Fire Extinguisher Manufacturing Company, Chicago, Ill., and New York, N. Y. Fire-extinguisher	579,696	Mar. 30	3239	768, 769	78	1952
Stedman, Charles R., Norwalk, Ohio. Rotary measure	579,244	Mar. 23	2439	576	78	1784
Steel Motor Company. (See Parham, Eugene C., assignor.)						
Steel Motor Company. (See Valley, Gustaf, assignor.)						
Steffee, Manson, Iron Mountain, Mont. Portable fence	577,460	Feb. 23	2371	558	78	1129
Steffens, Frank N., Brooklyn, N. Y. Apparatus for teaching melodies	577,667	Feb. 23	2738	646, 647	78	1197
Stegmann, Georg R. F. von, New York, N. Y. Bicycle	577,990	Mar. 2	270	64	78	1312
Stehle, Martin and W. N., Perry, Mo. Stove	575,179	Jan. 12	1405	338	78	283
Stehle, William N. (See Stehle, Martin and W. N.)						
Steiner, Joseph, Piqua, Ohio. Grate	575,436	Jan. 19	1855	446, 447	78	385
Steinike, Georg, and F. Schmidt, Höchst-on-the-Main, Germany. Blue trisazo dye	576,511	Feb. 2	756	.....	78	781
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Alternating-current dynamo-electric machine	579,283	Mar. 23	2501	591	78	1705
Stellner, William F., Danville, Ill. Cane or umbrella holder	577,668	Feb. 23	2741	647	78	1198
Stephens, Ira O., Oakland, assignor of one-half to C. L. Clough, San Francisco, Cal. Car-fender	576,283	Feb. 2	368	86	78	706
Stephens, John C., New York, N. Y. Bicycle	575,529	Jan. 19	2023	482, 483	78	419
Stephens, John S., and G. E. Brush, Pittsburg, Pa. Core-box machine	577,792	Feb. 23	2685	695	78	1234
Sterling, Charles B., New York, N. Y. Alarm for electric circuits	576,383	Feb. 2	548	129	78	738
Sterling, Lawrence A. (See Brittingham and Sterling.)						
Stern, Aaron D., Chicago, Ill. Paper box	575,913	Jan. 26	2697	637, 638	78	561
Stern, Harris W., Vincennes, Ind. Chair	576,480	Feb. 2	695	166	78	769
Sterner, John O., assignor of one-half to G. B. Cadwallader, Sunbury, Pa. Hydrant	577,461	Feb. 23	2372	558	78	1129
Sterner, Oscar L., and R. W. O'Donnell, Philadelphia, Pa. Railway-car truck	579,904	Mar. 30	3597	860	78	2021
Sterner, Oscar L., and R. W. O'Donnell, Philadelphia, Pa. Yoke-coupling and draft-timber protector	579,905	Mar. 30	3598	861	78	2021
Sterrett, John K. (See Shirey, Cyrus, assignor.)						
Sterrit, William B. (See Coates, Scott D., assignor.)						
Sterrit, William B., Pittsburg, Pa. Adjustable bath-tub support	576,911	Feb. 9	1416	336	78	921
Steuerwald, Philip, Chicago, Ill. Friction-clutch	575,622	Jan. 19	2190	519	78	452
Stevens, Calvin A. (See Collins, Caleb G., assignor.)						
Stevens, Frank W., Lake View, Iowa. Hose-nozzle	574,585	Jan. 5	357	81	78	67
Stevens, Fred T., Bryant's Pond, Me. Boiler	578,300	Mar. 2	814	184	78	1415

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stevens, Frederick A., assignor to Providence Optical Company, Providence, R. I. Spectacle-frame	579,090	Mar. 16	2203	517	78	1726
Stevens, James D. (See Graham, Frank A., assignor.)						
Stevens Manufacturing Company. (See McAuliffe, Thomas, assignor.)						
Stevens, Merton P., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, New York, N. Y. Lamp	575,813	Jan. 26	2515	593	78	528
Stevens, Philip H., Bristol, Conn. Watchmaker's loupe	575,075	Jan. 12	1231	208	78	249
Stevens, Solomon M. (See Humphreys, John, assignor.)						
Stevens, William W., Niles, Mich. Stock-rack	579,612	Mar. 30	3111	736, 737	78	1928
Stevenson, James F., Allegheny, Pa. Combined supporting and locking attachment for bicycles	579,613	Mar. 30	3113	737	78	1928
Stevenson, John G., and R. R. Stevenson, deceased; M. J. Stevenson, Summerfield, La., natural tutrix of the heirs of R. R. Stevenson. Washing-machine	574,460	Jan. 5	138	32	78	28
Stevenson, Mollie J., tutrix. (See Stevenson, John G. and R. R.)						
Stevenson, Randle R. (See Stevenson, John G. and R. R.)						
Steward, Aurelius, and G. H. Dimond, Bridgeport, Conn. Feeding mechanism for quilting-machines	579,614	Mar. 30	3115	737, 738, 739, 740	78	1928
Steward, John F. (See Ellis and Steward.)						
Stewart, Alexander C., Los Angeles, Cal. Metallic drainage-fitting	577,708	Feb. 23	2387	695	78	1234
Stewart, Alexander M., Winnipeg, Canada. Antirattler and thill-support	575,044	Jan. 12	1176	286	78	288
Stewart, Charles T., Bloomfield, N. J. Brake-shoe for railway-cars	578,427	Mar. 9	1018	234	78	1473
Stewart Hartshorn Company. (See Temple, Ansel F., assignor.)						
Stewart, James T., assignor of one-half to W. McLean, Los Angeles, Cal. Device for opening or closing vessels containing liquids	577,462	Feb. 23	2373	558	78	1129
Stewart, John K., Chicago, Ill. Animal-shears	579,811	Mar. 30	3458	825	78	1990
Stewart, John L., San Francisco, Cal., assignor to T. A. McIntyre, New York, N. Y. Apparatus for manufacturing gas	576,170	Feb. 2	167	41, 42	78	668
Stewart, Roscoe B., Osterdock, Iowa. Can-opener	579,084	Mar. 16	2180	511	78	1721
Stewart, Sylvester N., Brooklyn, N. Y. Fly-wheel	575,741	Jan. 26	2402	566	78	507
Stewart, Thomas E. (See Ruffner, Edwin H., assignor.)						
Stewart, William J., Minneapolis, Minn. Brush-motion for gyratory sieves	577,463	Feb. 23	2375	558, 559	78	1129
Stewart, William L., Wilmerding, Pa. Bicycle-brake	575,988	Jan. 26	2733	646	78	569
Stewart, William L., Wilmerding, Pa. Bicycle-brake	576,912	Feb. 9	1417	337	78	921
Stewart, William L., Wilmerding, Pa. Pneumatic tire	579,846	Mar. 30	3506	838	78	2003
Stewart, William W., Columbus, Ga. Cut-off for nozzles	577,120	Feb. 16	1796	423	78	1004
Stickler, Bower F., and F. D. Bell, Hornellsville, N. Y., assignors to said Bell. Potato-planter	577,810	Feb. 23	2962	700	78	1239
Stickney, Burnham C., Elizabeth, N. J. Type-writing machine	576,284	Feb. 2	370	86, 87	78	706
Stickney, Burnham C., Elizabeth, N. J. Type-writing machine	576,285	Feb. 2	375	88	78	708
Stickney, Burnham C., Elizabeth, N. J. Type-writing machine	576,286	Feb. 2	377	88, 89	78	708
Stickney, Burnham C., Elizabeth, N. J. Type-writing machine	576,287	Feb. 2	380	89	78	709
Stickney, Burnham C., Elizabeth, N. J. Type-writing machine	576,288	Feb. 2	382	89, 90	78	710
Stickney, Burnham C., Brooklyn, N. Y. Type-writing machine	576,329	Feb. 2	455	107	78	723
Stickney, William A., St. Louis, Mo. Cigar-box	577,794	Feb. 23	2963	695	78	1235
Stiles, Henry, Cleveland, Ohio. Jug	578,370	Mar. 9	931	211	78	1456
Stiles, James. (See Irwin and Stiles.)						
Still, Charles I., Sing Sing, N. Y. Window-screen	574,959	Jan. 12	1024	248	78	211
Still, Henry, Baltimore, Md. Bottle-closure	576,417	Feb. 2	509	141	78	749
Stine, James R., Ogden, Utah. Lubricator	577,180	Feb. 16	1884	445	78	1021
Stinson, David W., assignor to G. Heidel, St. Louis, Mo. Vehicle-light and governor for same	579,190	Mar. 23	2360	555, 556	78	1770
Stivers, Jerome, New Rochelle, N. Y. Vehicle-body	578,504	Mar. 9	1173	265	78	1502
Stock, Harry A., Millersburg, Pa. Electric motor	578,069	Mar. 2	389	91	78	1335
Stock, William C., and H. W. Tufts, North Attleborough, Mass. Chemically-charged nozzle for fire-extinguishers	577,121	Feb. 16	1798	424	78	1004
Stockstrom, Charles A. (See Stockstrom, Louis, assignor.)						
Stockstrom, Louis, assignor of one-half to C. A. Stockstrom, St. Louis, Mo. Gas-burner attachment for ranges	576,705	Feb. 9	1219	291	78	884
Stockton, John P., Jr., *et al.* (See Allaire, George Y., assignor.)						
Stockton, Richard, *et al.* (See Allaire, George Y., assignor.)						
Stoddard, Hiram H., Kearney, Nebr. Poultry-brooder	574,767	Jan. 5	673	160, 161	78	126
Stoddard Manufacturing Company. (See Brown and Michael, assignors.)						
Stoffel, William, Elgin, Ill. Spring bed-bottom	575,861	Jan. 26	2603	614	78	544
Stokes, Arthur H., Brown, Colo. Water-gate for flumes, cisterns, or the like	575,908	Jan. 26	2634	670	78	587
Stoll, Charles, Chicago, Ill. Ruling-machine	578,169	Mar. 2	611	138	78	1378
Stoll, Heinrich, Reutlingen, Germany. Knitting-machine	579,411	Mar. 23	2706	643	78	1823
Stolz, Friedrich, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Pyrazolon compound and making same	579,412	Mar. 23	2708	.....	78	1823
Stone, Charles E. (See Feltch and Stone.)						
Stone, Charles W. (See Pickett, William H., assignor.)						
Stone, Everett E. (See Ezekiel and Stone.)						
Stone, Frank P., *et al.* (See McLachlan, John, assignor.)						
Stone, James, Aurora, Ill. Corset	576,289	Feb. 2	385	90	78	710
Stone, John C., Dayton, Ky. Reversible receiver and deliverer for mail-cars	574,087	Jan. 5	546	127	78	100
Stone, John S., assignor to American Bell Telephone Company, Boston, Mass. Resonant electric circuit	577,214	Feb. 16	1943	460	78	1032
Stone, John S., assignor to American Bell Telephone Company, Boston, Mass. Electric circuit	578,275	Mar. 2	773	175	78	1408
Stone, Marvin C. (See Thomas, William, assignor.)						
Stone, Samuel N., Attleborough, Mass. Spectacle-frame	576,330	Feb. 2	460	108	78	724
Storer, Jacob J., assignor of two-thirds to E. C. Eaton, New York, N. Y., and F. Martin, Townsend, Mont. Boiler-furnace	575,999	Jan. 26	2635	670	78	587
Storie, Ole O., Burlington, Wis. Vehicle-runner	575,742	Jan. 26	2403	566	78	507
Storm, Charles W., and W. F. Hunter, Elgin, Ill. Bell	574,890	Jan. 5	776	185	78	146
Storm, Edwin R., New York, N. Y. Perforator	575,497	Jan. 19	1957	469, 470	78	405
Stormer, Peter G., Johnstown, Pa. Bicycle-tire	576,171	Feb. 2	173	42	78	669
Storr, David C., New York, N. Y., assignor of one-half to E. A. Cook, Boston, Mass. Folding couch-bed	578,844	Mar. 16	1764	406	78	1643
Storrs, Aaron P., Owego, N. Y. Boulevard-lamp	574,640	Jan. 5	455	104	78	85
Storrs, Aaron P., Owego, N. Y. Gas-lamp	575,914	Jan. 26	2698	638	78	502

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Storz, Christian. (See Cooper, Frank J., assignor.)						
Stout, George H., Marceline, Mo. Steam-generator	579,615	Mar. 30	3121	740	78	1929
Stout, John R., and W. N. Hartshorn, Brooklyn, N. Y. Device for dipping chocolates	574,900	Jan. 12	1026	248, 249	78	211
Stout, John R., and W. N. Hartshorn, Brooklyn, N. Y. Method of and machine for coating chocolates	576,235	Feb. 2	272	67, 68	78	688
Stout, John V., Easton, Pa. Electric valve apparatus	575,045	Jan. 12	1178	287	78	238
Stover Bicycle Manufacturing Company. (See Stover, Daniel C., assignor.)						
Stover, Daniel C., assignor to Stover Bicycle Manufacturing Company, Freeport, Ill. Making sheet-metal tubing	575,862	Jan. 26	2604	614	78	545
Stover, Mark E. (See Stover, Peter N. and M. E.)						
Stover, Mark E., assignor of one-half to J. W. Hall, Saginaw, Mich. Lubricator	574,688	Jan. 5	549	127, 128	78	101
Stover, Peter N. and M. E., Saginaw, Mich. Bicycle-rack	574,689	Jan. 5	552	128	78	102
Stow, Nelson, and W. E. Dobbins, Binghamton, N. Y. Device for charging liquids with gas	574,500	Jan. 5	197	46	78	39
Stowell, Charles E., assignor of one-half to R. E. Powers, Locke's Mills, Me. Harness attachment	574,586	Jan. 5	358	87	78	68
Stoy, Edward G., assignor of one-half to A. A. Clem, Philadelphia, Pa. Folding square	579,023	Mar. 16	2072	485	78	1699
Stracener, William H. (See Wright and Stracener.)						
Strait, William, Elmira, N. Y. Harrow	578,371	Mar. 9	932	212	78	1456
Strait, William, Elmira, N. Y. Harrow	579,191	Mar. 23	2361	556	78	1770
Strait, William, Elmira, N. Y. Harrow	577,669	Feb. 23	2742	647	78	1198
Strang, John, Quebec, Canada. Clamp	576,481	Feb. 2	697	167	78	769
Stratman, John H., Cape Girardeau, Mo. Display device for boxes	576,500	Feb. 2	733	174	78	776
Strauss, Charles T., *et al.* (See Brandeis, Louis, assignor.)						
Strauss, Gustavus E., New York, N. Y. Ball-bearing	576,060	Jan. 26	2837	670	78	588
Strauss, Gustavus E., New York, N. Y., and E. Klahn, West Hoboken, N. J. Wheel-hub	578,276	Mar. 2	777	175	78	1408
Strauss, Gustavus E., New York, N. Y., and E. Klahn, West Hoboken, N. J. Nut-lock	574,641	Jan. 5	457	104	78	85
Streator, Henry D., Kalamazoo, Mich. Post	579,308	Mar. 23	2541	600	78	1802
Streby, Samuel O., Upper Sandusky, Ohio. Chimney or smoke-stack top	576,482	Feb. 2	699	167	78	769
Streetman, Willard, Cleburne, Tex. Gas-vent for molds						
Strepey, Lindsay S., *et al.* (See Myers, Walker B., assignor.)						
Stretch, Drew, Litherland, England. Tension-buffer	577,272	Feb. 16	2031	481	78	1049
Stretch, Joseph, East Orange, N. J. Non-refillable bottle	576,913	Feb. 9	1418	337	78	921
Strickland, John J. (See Turbeville, John D., assignor.)						
Strieker, John H. (See Blum, Edward W., assignor.)						
Strobel, Victor O., Philadelphia, Pa. Steam-boiler	576,828	Feb. 9	1276	305	78	894
Strohm Elevator Safety Device Company. (See Strohm, Samuel D., assignor.)						
Strohm, Samuel D., assignor to Strohm Elevator Safety Device Company, Philadelphia, Pa. Electric elevator	579,024	Mar. 16	2073	485, 486	78	1699
Stromsmo, Hans, Holt, Minn., assignor of one-half to S. O. Baugen, Bella Coola, Canada, and T. Spjelkavik, Crooktown, Minn. Mowing-machine	576,914	Feb. 9	1419	337, 338	78	921
Strong, Edward A., Indianapolis, Ind. Water-cock	578,372	Mar. 9	933	212	78	1456
Strong, James R., assignor to Tucker Electrical Construction Company, New York, N. Y. Combined telephone and annunciator system	578,122	Mar. 2	497	113	78	1357
Strong, Joseph, Lismore, New South Wales. Pianoforte or pianette	578,782	Mar. 16	1644	381	78	1620
Strong, Louis C., Seneca Falls, N. Y. Barrel-stirrer	579,025	Mar. 16	2077	486	78	1700
Strong, Preston W., Brooklyn, N. Y. Sharpening-tool	577,991	Mar. 2	271	64	78	1312
Strong, Robert B. (See Alexander, Walter S., assignor.)						
Stroomann, Carl, Cologne, Germany. Locomotive-boiler	578,682	Mar. 9	1467	337	78	1558
Stróyberg, Carl B., Roskilde, Denmark. Milking-machine	579,847	Mar. 30	3508	838	78	2004
Struben, Jacob, Kalamazoo, Mich. Sash-fastener	574,831	Jan. 5	777	186	78	146
Strubie, William E., and L. Ireland, Fredericktown, Ohio. Mop-wringer	577,968	Mar. 2	237	56	78	1306
Strubier, Charles G., Tecumseh, Mich. Scale-loop	579,192	Mar. 23	2362	556	78	1770
Stuart, Abbie H. (See Stuart, Albert H., assignor.)						
Stuart, Albert H., assignor to A. H. Stuart, Boston, Mass. Mandolin attachment for pianos	578,048	Mar. 2	852	84	78	1329
Studden, Alfred, *et al.* (See Barnes, Thomas, assignor.)						
Studebaker, Isaac F., Tippecanoe City, Ohio. Seeder	575,863	Jan. 26	2605	615	78	545
Stuller, Alcinous. (See Therien, Nelson, assignor.)						
Stumpf, John, Chicago, Ill. Pump	578,950	Mar. 16	1958	456, 457	78	1676
Stuparich, Paul J., San Francisco, Cal. Die for manufacturing cards for photographic mounts	575,814	Jan. 26	2516	593	78	529
Stupp, Morris C. J., *et al.* (See Van Norman, Jacob, assignor.)						
Sturdevant, Lafe, trustee. (See Waldran, John D., assignor.)						
Sturgess, George F., Leicester, England. Web-needle for knitting-machines	575,012	Jan. 12	1122	272	78	228
Sturgess, George F., Leicester, England. Right-and-left knitting-machine needle	578,428	Mar. 9	1020	234	78	1473
Sturgis, Herbert M., St. Louis, Mo. Window-shade adjuster	576,001	Jan. 26	2838	671	78	588
Sturgis, Herbert M., St. Louis, Mo. Window-shade roller	576,080	Jan. 26	2682	703	78	612
Sturli, Charles, Bridgeport, Conn. Bicycle-canopy	578,783	Mar. 16	1647	382	78	1620
Sturm, Isaac. (See King, Leicester P., assignor.)						
Sturtevant, Edward H., assignor to Franklin Needle Company, Franklin, N. H. Knitting-machine needle	576,172	Feb. 2	174	43	78	669
Stut, John C. H., Oakland, Cal. Separating throttle-valve	579,457	Mar. 23	2834	668	78	1855
Stutz-Müller, Jakob, Kempten, Switzerland. Skate	576,747	Feb. 9	1148	273	78	809
Suchotz, Rudolph E., Detroit, Mich. Plow	577,082	Feb. 16	1716	406	78	999
Sues, George W., Omaha, Nebr. Book-cover	576,236	Feb. 2	277	68	78	689
Sugg, George. (See Schott, Sebastian, assignor.)						
Suhl, Johann G. A., assignor to Firm of H. C. Meyer, Jr., Harburg-on-the-Elbe, Germany. Apparatus for treating ratan	576,237	Feb. 2	279	68	78	689
Sullivan, Alonzo T., Malcolm, Nebr. Animal-trap	575,792	Jan. 26	2479	585	78	522
Sullivan, Daniel F., and A. White, Lowell, Mass.; said Sullivan assignor to said White. Stop-motion for circular-knitting machines	576,987	Feb. 9	1558	370	78	948
Sullivan, John, Fall River, Mass. Compression-roll for slashers	578,951	Mar. 16	1963	457	78	1676
Sulman, Henry L., London, England. Precipitating precious metals from their solutions	576,173	Feb. 2	175	43	78	669
Sulzman, Charles A., Waterford, N. Y. Marine velocipede	575,180	Jan. 12	1407	339	78	283
Summit Knitting Co. (See Moon, Frederick H., assignor.)						
Sumner, William J. (See Coburn and Sumner.)						
Sumner, William J., assignor to Coburn Trolley Track Manufacturing Company, Holyoke, Mass. Trolley-track frog	575,770	Jan. 26	2443	576	78	515
Sumner, William J., assignor to Coburn Trolley Track Manufacturing Company, Holyoke, Mass. Door-hanger	575,771	Jan. 26	2444	576	78	515
Sundberg, Andrew P. and C. F., Long Island City, assignors to Sundberg & Co., New York, N. Y. Mortise-and-tenon machine	576,062	Jan. 26	2950	695	78	606

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sundberg, Charles F. (See Sundberg, Andrew P. and C. F.)						
Sundberg & Co. (See Sundberg, Andrew P. and C. F., assignors.)						
Sundt, Oscar. (See Cromwell and Sundt.)						
Superior Drill Company. (See Packham, Frank R., assignor.)						
Superior Rubber Type Company. (See Scotford, Louis K., assignor.)						
Suppes, Maximilian M., Lorain, Ohio. Weighing device for rolling-mills	576,627	Feb. 9	903	224, 225	78	834
Sutherland, Eugene, Jersey City, N. J. Machine for seeding raisins	575,181	Jan. 12	1410	339	78	284
Sutro, Lionel, *et al.* (See Böhm, Joseph, assignor.)						
Sutter, Michael. (See Newsom, Joseph N., assignor.)						
Svane, Theodor V., Fastningen, Christiania, Norway. Mattress of steel wire	578,473	Mar. 9	1101	250, 251	78	1489
Svoboda, John W., Howell, Nebr. Corn-planter	576,483	Feb. 2	701	167, 168	78	770
Swain, David M., Stillwater, Minn. Valve-gear and adjustable cut-off	574,847	Jan. 5	805	194, 195, 196	78	152
Swain, Stephen W. (See Watson, George, assignor.)						
Swan, Henry C., Oshkosh, Wis. Fifth-wheel	575,437	Jan. 19	1857	447	78	386
Swan, Henry C., Oshkosh, Wis. Toe-rail for vehicles	575,438	Jan. 19	1858	447	78	386
Swan, Henry C., Oshkosh, Wis. King-bolt socket	575,439	Jan. 19	1858	447, 448	78	386
Swan, Henry C., Oshkosh, Wis. King-bolt socket	578,588	Mar. 9	1311	206	78	1529
Swanson, James A., Everett, assignor of one-half to A. W. Franklin, Malden, Mass. Tourist's bicycle-bag	575,586	Jan. 19	2035	486	78	421
Swanson, John N., Chicago, Ill. Windmill-regulator	577,495	Feb. 23	2429	572	78	1140
Swanström, John E., Worcester, Mass. Rotary spade-plow	577,273	Feb. 16	2092	481	78	1049
Swarts, Henry J., assignor of one-half to A. J. Douglas, Knoxville, Tenn. Telephone-switchboard	574,642	Jan. 5	458	105	78	86
Swedlund, Joseph H. (See Newman, Johnson, Swedlund, and Williams.)						
Sweet, James B., Malden, Mass. Furnace	576,970	Feb. 9	1511	359	78	998
Sweetser, Alfred, London, England. Apparatus for making oxygen	576,915	Feb. 9	1424	338, 339	78	922
Swift, Horace E., Boston, Mass., assignor to National Computing Scale Company, Portland, Me. Computing-scale	579,350	Mar. 23	2098	710	78	1887
Swift, William R., and T. Gordon, assignors to Gordon-Mitchell Gas Lamp Company, New York, N. Y. Regenerative burner	579,687	Mar. 30	3241	709	78	1953
Swiger, George W., Brown, W. Va. Post-setter	575,793	Jan. 26	2489	585	78	522
Swihart, John H., Cleveland, Ohio. Computing-scale	578,784	Mar. 16	1649	382	78	1621
Swihart, John H., Cleveland, Ohio. Dial for computing-scales	579,193	Mar. 23	2363	556	78	1770
Swihart, John H., Cleveland, Ohio. Dial	579,194	Mar. 23	2365	557	78	1771
Swihart, John H., Dayton, assignor to National Computing Scale Company, Cleveland, Ohio. Computing-scale	575,076	Jan. 12	1233	208, 209	78	249
Swihart, John H., Dayton, assignor to National Computing Scale Company, Cleveland, Ohio. Price and weighing scale	575,077	Jan. 12	1237	209	78	250
Swihart, John H., Dayton, assignor to National Computing Scale Company, Cleveland, Ohio. Computing-scale	575,078	Jan. 12	1240	209	78	250
Swindell, James D., Allegheny, Pa. Draw-die	578,785	Mar. 16	1651	383	78	1621
Swindler, Albert, Brown's Valley, Ind. Type-writing machine for the blind	577,464	Feb. 23	2377	559	78	1130
Swint, Jackson F., Stroud, Ala. Car-coupling	576,853	Feb. 2	495	116	78	730
Swisher, Edward W., and C. G. Ginter, Columbus, Ohio. Combined file-case and cigar-receptacle	577,992	Mar. 2	274	64	78	1313
Switzer, Charles A., Los Angeles, Cal. Gas-governor	576,484	Feb. 2	705	168	78	770
Sword, Robert, assignor of one-third to W. H. Hellyar, Brandon, Canada. Stovepipe-joint						
Sylvester, Frank M. (See Morse and Sylvester.)						
Taake, John F., *et al.* (See Cornish, Harry B., assignor.)						
Tabor, Jesse U., Los Angeles, Cal. Thill-coupling	577,274	Feb. 16	2034	481	78	1050
Tadder, George P., Millerstown, Pa. Removable plug for oil-wells	577,811	Feb. 23	2064	700	78	1240
Tadder, George P., Millerstown, Pa. Appliance for unscrewing casings down in oil-wells	577,812	Feb. 23	2065	700	78	1240
Taft, Daniel J., Leon, Ky. Feeding attachment for sawing-machines	575,939	Jan. 26	2735	646	78	569
Taft, Walter E., assignor to J. A. Carter, Providence, R. I. Pneumatic billiard-cushion	576,238	Feb. 2	282	69	78	690
Tahl, Isidor, New York, N. Y. Folding paper box	575,384	Jan. 19	1770	425	78	370
Talcott, William A., *et al.* (See Nelson, John, assignor.)						
Talley, Henry I., Philadelphia, Pa. Combined pencil-sharpener, ink-eraser, and burnisher	576,501	Feb. 2	734	175	78	776
Tallmage, Horace K., Buffalo, N. Y. Portable machine for forming elbows	577,088	Feb. 16	1717	407	78	989
Tallman, George W., New York, N. Y. Bicycle	576,331	Feb. 2	462	108	78	724
Tally Dial Cyclometer Company. (See Burleigh, George K., assignor.)						
Taney, Clifford A., St. Joseph, Mo. Bluing and starching compound for laundry use	577,969	Mar. 2	298	.....	78	1306
Tangye, John, Handsworth, and W. H. Bailey, Smethwick, assignors of one-third to Tangyes, Limited, Birmingham, England. Machine for finishing peripheries of pulleys or fly-wheels	577,392	Feb. 16	2134	506	78	1068
Tangyes, Limited. (See Tangye and Bailey, assignors.)						
Tankard, Herbert E. (See Holmes, Tankard, and Scaife.)						
Tanner, Charles, Cheneyville, La. Cultivator	576,748	Feb. 9	1149	273, 274	78	869
Tannette Manufacturing Company. (See Field, Walter D., assignor.)						
Tascher, William V., Mishawaka, Ind. Horse-collar pad	577,465	Feb. 23	2378	559	78	1130
Tassinari, Eugene V. C., Paris, France. Billiard-chalk holder	574,501	Jan. 5	198	46	78	39
Tatro, Joseph A., Beaver Falls, Pa. Lamp-burner	574,690	Jan. 5	553	128	78	102
Taunton Locomotive Manufacturing Company. (See Billings and Collins, assignors.)						
Taunton Locomotive Manufacturing Company. (See Collins, Edward C., assignor.)						
Taylor, Barden W., Denver, Colo. Water and air heater	576,628	Feb. 9	904	225, 226	78	894
Taylor, Charles H., South Orange, N. J. Car-coupling	579,593	Mar. 23	2910	685	78	1870
Taylor, Charles P., and G. W. Oglesby, Elberton, Ga. Planter	577,705	Feb. 23	2940	695	78	1235
Taylor, Christopher C., assignor of one-half to L. C. Sharp, Rockingham, N. C. Churn	574,832	Jan. 5	778	186	78	146
Taylor, Eugene H., Lynn, Mass. Heel-making machine	575,440	Jan. 19	1859	448, 449	78	386
Taylor, Eugene H., Lynn, Mass. Crayon-holder	576,629	Feb. 9	908	226	78	835
Taylor, Frank, Plymouth, England. Belt-shifter	579,100	Mar. 16	2204	517	78	1726
Taylor, George W., Orange, Tex. Mucilage-bottle	575,013	Jan. 12	1124	272	78	228
Taylor, Herbert A., London, England. Telegraph-transmitter	577,540	Feb. 23	2323	505	78	1157
Taylor Iron and Steel Company (See Hibbard, Henry D., assignor.)						
Taylor Iron and Steel Company. (See Taylor, William J., assignor.)						
Taylor, Jackson A., and J. S. Parker, Woodville, Ala. Sap-bucket	578,373	Mar. 9	994	212	78	1456
Taylor, John W., Buda, Tex. Basket	577,151	Feb. 16	1898	433	78	1013

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Taylor, Russell E., Norwood, Mass. Valve for air-hoist cylinders	579,370	Mar. 23	2041	624	78	1821
Taylor, William E., Omaha, Nebr. Matrix-cleaning machine	576,971	Feb. 9	1513	359, 360	78	939
Taylor, William J., Bound Brook, assignor to Taylor Iron and Steel Company, High Bridge, N. J. Car-wheel, &c	578,662	Mar. 9	1430	326	78	1551
Teal, Henry W., Girard, Ill. Lock	575,556	Jan. 19	2065	494	78	427
Tee, Harry, Liverpool, England. Incandescent gas lamp or burner	575,441	Jan. 19	1867	449	78	388
Teeguarden, Freeman M., Colfax, assignor to Safety Corn Husker and Shredder Company, Indianapolis, Ind. Corn-husker and fodder-shredder	577,466	Feb. 23	2378	560	78	1130
Teichmann, Louis, Berlin, Germany. Mantle-protector for incandescent gas-burners	577,696	Feb. 23	2777	656	78	1204
Tellefsen, Tellef, Seabold, Wash. Salt-box	578,952	Mar. 16	1964	457	78	1676
Temler, Josef, Warsaw, Russia, assignor, by mesne assignments, to National Metal Edge Box Company, of New Jersey. Self-feeding arrangement for riveting-machines	575,135	Jan. 12	1841	323	78	270
Temler, Josef, Warsaw, Russia, assignor, by mesne assignments, to National Metal Edge Box Company, of New Jersey. Rivet-feeding mechanism	575,136	Jan. 12	1842	323	78	270
Tempest, John, Courtney, Pa. Brick-machine	576,239	Feb. 2	282	69	78	690
Temple, Ansel F., Muskegon, Mich., assignor to Stewart Hartshorn Company, Newark, N. J. Curtain-slat	578,663	Mar. 9	1431	326	78	1551
Templin, Joseph H. (See Ternstedt and Templin.)						
Tennison, Otto M. (See Lamarre, Charles B. de, assignor.)						
Ternstedt, Klas H., assignor to Diamond Drill and Machine Company, Birdsborough, Pa. Gyratory crusher	575,014	Jan. 12	1125	273	78	229
Ternstedt, Klas H., and J. H. Templin, assignors to Diamond Drill and Machine Company, Birdsborough, Pa. Gyratory crusher	575,015	Jan. 12	1126	273	78	229
Terpening, Alvin W., Utah, Ill. Farm-gate	575,442	Jan. 19	1868	449, 450	78	388
Terrell, Theodore, Yonkers, N. Y. Bicycle-supporting stand	576,002	Jan. 26	2840	671	78	588
Terry, Charles H., Chicago, Ill. Stock-feeder	579,245	Mar. 23	2441	577	78	1784
Tesla, Nikola, New York, N. Y. Apparatus for producing electric currents of high frequency	577,670	Feb. 23	2743	648	78	1198
Tesla, Nikola, New York, N. Y. Manufacture of electrical condensers, coils, &c	577,671	Feb. 23	2745	648	78	1198
Teubert, Ernest L., New Castle, Pa. Valve for explosive-engines	577,589	Feb. 23	2619	618	78	1175
Thacher, William A., New York, N. Y. Dumping-car	577,365	Feb. 23	2562	603, 604, 605	78	1164
Thacker, George R., Phillipsburg, Kans. Pipe-coupling	579,284	Mar. 23	2505	592	78	1796
Tharp, James, *et al.* (See Robinson, Rochfort W., assignor.)						
Thatcher Furnace Company. (See Benedict, Edward, assignor.)						
Thayer, Austin E., Philadelphia, Pa. Chiffonnier	575,578	Jan. 19	2106	502	78	434
Theil, Charles W., Chicago, Ill. Stone-cutting machine	578,429	Mar. 9	1022	234, 235	78	1474
Therien, Nelson, assignor of one-half to A. Stuller, Plymouth, Ind. Boat-propelling apparatus	576,768	Feb. 9	1178	280	78	876
Thierkoff, Anthony W., Redding, Cal. Pump	576,916	Feb. 9	1427	339	78	922
Thomas, Charles. (See Ellenbecker and Thomas.)						
Thomas, Charles A., Philadelphia, Pa. High-explosive-throwing ordnance	576,917	Feb. 9	1428	339	78	922
Thomas, Charles E. (See Phillips and Thomas.)						
Thomas, David K., assignor of one-half to A. G. Glaser, Brunswick, Mo. Educational cabinet	577,888	Mar. 2	95	24	78	1279
Thomas, Edwin E., assignor to M. Garland Company, Bay City, Mich. Steam log-turner and nigger	579,779	Mar. 30	3393	812	78	1982
Thomas, Frank, assignor of one-half to D. B. Hand, Scranton, Pa. Pad for horses' feet	576,522	Feb. 2	779	182	78	783
Thomas, George, Effingham, Ill. Tongue-support	574,587	Jan. 5	360	81	78	68
Thomas, George W., and S. Branch, Lexington, Ark. Hoe	578,664	Mar. 9	1432	327	78	1551
Thomas, Hannah, administratrix. (See Thomas, William J.)						
Thomas, Homer J., New Milford, Conn. Gage-roll for sawmills	577,889	Mar. 2	96	24	78	1279
Thomas, John F., Rushville, Ohio. Gate	576,290	Feb. 2	386	90	78	710
Thomas, Lincoln N., Madisonville, Ohio, assignor to W. L. Mason & Co., Keene, N. H. Fountain-inkstand	579,285	Mar. 23	2506	592	78	1796
Thomas, Roberts, Stevenson Company. (See Roberts, Clarence V., assignor.)						
Thomas, Walter D., and L. R. Gignilliat, Savannah, Ga. Brake mechanism and controller for electric cars	576,384	Feb. 2	550	129, 130	78	739
Thomas, William, assignor to M. C. Stone, Washington, D. C. Penholder	575,385	Jan. 19	1771	425	78	371
Thomas, William J., deceased, Canal Dover, Ohio; H. Thomas, administratrix. Metallurgical furnace	578,665	Mar. 9	1433	327, 328	78	1551
Thompson, Abisha L., Rock Creek, Ohio. Composition for preventing squeak in shoes	576,918	Feb. 9	1429	.....	78	923
Thompson, Basil W., *et al.* (See Green, Sanford, assignor.)						
Thompson, Benjamin F., Fritts, Va. Fruit-picker	576,630	Feb. 9	970	226	78	835
Thompson, Charles E., Leesburg, Va. Monkey-wrench	577,632	Feb. 23	2682	633	78	1186
Thompson, Edward O. (See Miller and Thompson.)						
Thompson, Frank, assignor to Wells & French Company, Chicago, Ill. Car-step	574,461	Jan. 5	140	32	78	28
Thompson, Frank E., Wassaic, N. Y. File	575,079	Jan. 12	1241	300	78	251
Thompson, Franklin, Brooklyn, N. Y. Nut-lock	579,848	Mar. 30	3510	839	78	2004
Thompson, George M., Schochoh, Ky. Self-measuring lace-cabinet	576,796	Feb. 9	1221	291	78	884
Thompson, Helen M. A., Gloversville, N. Y. Corset	574,691	Jan. 5	554	129	78	102
Thompson, Henry. (See Doe, Walter S., assignor.)						
Thompson, James F. (See Gilbert and Thompson.)						
Thompson, John, and F. A. Phillips, New York, N. Y. Pipe-coupling	578,474	Mar. 9	1102	251	78	1489
Thompson, John D. (See Thompson, Joseph B. and J. D.)						
Thompson, John D., Atoka, Tenn. Gate	578,277	Mar. 2	778	176	78	1408
Thompson, Joseph B. and J. D., Philadelphia, Pa. Car-fender	574,462	Jan. 5	141	33	78	28
Thompson, Joseph T., Hatton, N. D. Spark-arrester	577,796	Feb. 23	2941	696	78	1235
Thompson, Thomas, Danbury, assignor of one-half to C. B. Hatch, New Fairfield, Conn. Canopy for bicycles	575,182	Jan. 12	1411	339, 340	78	284
Thompson, Thomas W. (See Duryea and Thompson.)						
Thompson, William, assignor to Buck's Stove and Range Company, St. Louis, Mo. Stove-grate	577,467	Feb. 23	2380	560	78	1131
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Roentgen-ray tube	575,772	Jan. 26	2445	576	78	515
Thomson, Elihu, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric meter	578,430	Mar. 9	1026	235	78	1474
Thomson-Houston Electric Company. (See Thomson, Elihu, assignor.)						
Thomson, James, Jr., Pawtucket, R. I. Clearer for drawing-rolls	579,095	Mar. 16	2195	515, 516	78	1724
Thomson, John, Brooklyn, N. Y. Inkstand	579,906	Mar. 30	3600	861	78	2021
Thornburg, John W., Guyandotte, W. Va. Lawn-mower	578,666	Mar. 9	1434	328	78	1551

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Thornley, Albert J., Pawtucket, assignor to Consolidated Car Fender Company, Providence, R. I. Life-guard for street-cars	574,883	Jan. 5	779	186, 187	78	146
Thorp, James M., College Park, assignor of two-thirds to F. D. Wolfe and M. Phillips, San José, Cal. Mining-caisson	576,008	Jan. 26	2841	671	78	588
Thorp, Thomas, Whitefield, England. Optical instrument for testing diamonds	574,588	Jan 5	361	82	78	68
Threlfall, William V., and C. Mills, assignors to Pettee Machine Works, Newton, Mass. Drawing-frame	576,736	Feb. 9	1128	267	78	866
Throckmorton, William L., Bardolph, Ill. Gate	576,004	Jan. 26	2843	672	78	589
Throp, Darius D. (See Burridge, Charles W., assignor.)						
Thum, Frederic A., Newark, N. J. Tank for treating alloys, &c	578,953	Mar. 16	1965	457, 458	78	1677
Thurston, Charles H., Worcester, Mass. Bicycle-support	577,998	Mar. 2	275	64	78	1313
Thwaite, Benjamin H., assignor of one-half to F. L. Gardner, London, England. Apparatus for treating blast-furnace gases	576,005	Jan. 26	2845	672, 673	78	589
Tibbetts, George F. (See Hatch, Herbert O., assignor.)						
Tibbitts, Frank R. (See Allen and Tibbitts.)						
Tibbitts, Frank R., and C. J. Allen, assignors to Playford Stoker Company, Cleveland, Ohio. Furnace-front	576,919	Feb. 9	1429	339, 340	78	923
Tidd, William W., Jacksonville, Fla. Automatic window	578,475	Mar. 9	1103	251, 252	78	1489
Tiffany, George S. (See Wheelwright and Tiffany.)						
Tiffany, George S., Chicago, assignor of one-half to T. S. Wheelwright, Highland Park, Ill. Seal-bolt	578,780	Mar. 16	1657	388	78	1622
Tilden, George T., Milton, Mass. Siphon-tank	576,006	Jan. 26	2848	674	78	590
Tilden, James A., Hyde Park, Mass., assignor to Hersey Manufacturing Company, Portland, Me., and Boston, Mass. Water-meter	575,743	Jan. 26	2404	566	78	507
Tilden, James A., Hyde Park, assignor to Hersey Manufacturing Company, Boston, Mass. Malting-machine	576,631	Feb. 9	971	227	78	836
Tilden, James A., Hyde Park, assignor to Hersey Manufacturing Company, Boston, Mass. Rotating cylinder for germinating and drying grain	578,845	Mar. 16	1766	406	78	1643
Tilton, Chloe F., San Francisco, Cal. Corset-steel reinforce	575,443	Jan. 19	1869	450	78	388
Tilton, James B., Fresno, Cal., and M. G. Bunnell, assignors to F. C. Austin, Chicago, Ill. Street-cleaner	577,970	Mar. 2	238	56, 57	78	1306
Tily, Stephen B., assignor of one-half to F. L. Keene, Philadelphia, Pa. Paper-file	578,787	Mar. 16	1659	384	78	1623
Timmins, Thomas. (See Bilton and Timmins.)						
Timmons, Robert F., Coshocton, Ohio. Sign	578,613	Mar. 9	1352	308	78	1537
Timroth, Louis C., Brooklyn, N. Y. Matrix	578,278	Mar. 2	779	176	78	1408
Tinkcom, Martin L., Eau Claire, Wis. Trunk	575,444	Jan. 19	1870	450, 451	78	388
Tinker, James J., Portland, Oreg. Amalgamator	575,864	Jan. 26	2606	615, 616	78	545
Tinker, Jennie M., Ellwood City, Pa. Bread-raiser	576,632	Feb. 9	974	228	78	836
Tinney, Thomas B., assignor of one-half to W. McDonald, Philadelphia, Pa. Gas-retort lid	577,697	Feb. 23	2778	657	78	1205
Tisch, Antony, New York, N. Y. Hinge	574,463	Jan. 5	143	33	78	28
Tissington, Henry T., Aspen, Colo. Toothpick	577,468	Feb. 23	2681	561	78	1131
Tissot, Lucien H., Montecheroux, France. Compound cutter and pliers	579,849	Mar. 30	3511	839	78	2004
Titsworth, David E. (See Curtis and Titsworth.)						
Titsworth, George B., assignor to Potter Printing Press Company, Plainfield, N. J. Web-associating and folding apparatus	576,007	Jan. 26	2849	674, 675	78	590
Toal, David D., New York, N. Y. Sanitary garbage-receiver	579,907	Mar. 30	3601	861	78	2021
Tobin, Patrick M., Elmira, N. Y. Air-box	574,834	Jan. 5	782	187	78	147
Todd, Marquis J., Corning, assignor to National Harrow Company, Utica, N. Y. Harrow	575,579	Jan. 19	2107	503	78	435
Todd, Walter, Paterson, N. J. Bicycle	575,815	Jan. 26	2517	594	78	529
Todd, Walter, Paterson, N. J. Loom-shuttle	577,934	Mar. 2	185	44	78	1297
Toennes, Richard, Boonville, Mo. Air-compressor	576,920	Feb. 9	1431	340	78	923
Toledo Glass Company. (See Owens and Colburn, assignors.)						
Tolman, Scott H., Boston, Mass. Garment-hanger	576,829	Feb. 9	1277	305	78	894
Tomlinson, Charles E., assignor to I. A. Weston, Syracuse, N. Y. Vehicle-wheel	579,309	Mar. 23	2542	601	78	1803
Tomlinson, J. A., *et al.* (See Barnes, Thomas, assignor.)						
Tomlinson, Walter H., Chicago, Ill. Vehicle-body	574,502	Jan. 5	199	46	78	39
Tomson, Emma M. (See Rhine, Minnie, assignor.)						
Tonkin, John O. (See Jussem, Abram, assignor.)						
Toomey, Calvin, assignor to C. Toomey & Co., Kansas City, Mo. Vehicle-wheel	576,633	Feb. 9	975	228	78	836
Toomey & Co., C. (See Toomey, Calvin, assignor.)						
Totdahl, Bernhardus M., St. Olaf, Minn. Windmill	574,835	Jan. 5	782	187, 188	78	148
Totten, Samuel M., Vermillion, S. D. Bier	579,658	Mar. 30	3194	758	78	1944
Toucey, Ferris D., Duluth, assignor of three-fourths to F. C. Johnson, Minneapolis, Minn. Rod-packing for air-brakes	579,616	Mar. 30	3122	741	78	1929
Tower, Daniel W., assignor to Grand Rapids Brass Company, Grand Rapids, Mich. Desk-lid support	576,972	Feb. 9	1525	360	78	941
Tower, George A., assignor of one-half to G. R. Jarman, Richmond, Va. Electrical governor for marine engines	579,780	Mar. 30	3395	813	78	1982
Towne, Henry R., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Frictional controlling device for screw-hoists	575,016	Jan. 12	1129	273	78	230
Townsend, James, National Soldiers Home, Va. Tobacco-pipe	578,788	Mar. 16	1660	384	78	1623
Toy, Elias L., and A. T. Holt, Akron, Ohio. Rubber tire	575,445	Jan. 19	1871	451	78	388
Trabue, William, assignor to C. Pope, Louisville, Ky. Pocket lamp or lighter	577,609	Feb. 23	2650	626	78	1180
Tracy, James B., Meriden, Conn. Music-leaf turner	579,659	Mar. 30	3195	758, 759	78	1944
Tracy, John D., and J. F. Platt, Sterling, Ill. Stalk or fodder cutting machine	576,485	Feb. 2	706	168	78	771
Trammell, Jefferson D., Palestine, Tex. Railway-rail joint	578,789	Mar. 16	1661	384	78	1623
Trask, Prentice M., Columbia, Cal. Fruit-pitter	578,790	Mar. 16	1663	385	78	1624
Travis, Charles L., Minneapolis, Minn., assignor to Hygienic Wheel Company, Philadelphia, Pa. Bicycle or like vehicle	578,614	Mar. 9	1352	308	78	1537
Travis, Charles L., Minneapolis, Minn., assignor to Hygienic Wheel Company, Philadelphia, Pa. Bicycle	578,615	Mar. 9	1354	308, 309	78	1537
Traxler, David. (See Boone, Samuel W., assignor.)						
Treat, James E., Boston, Mass. Car-fender	578,279	Mar. 2	780	176	78	1408
Trebilcock, Fred T., London, and C. A. Bastedo, Toronto, Canada. Hood and drip-tray for bottles	579,358	Mar. 23	2614	617, 618	78	1816
Tredwell, Charles A., Bristol, assignor to P. & F. Corbin, New Britain, Conn. Bell	574,643	Jan. 5	461	105	78	86
Tregurtha, George E., Malden, Mass. Vaporizer	578,693	Mar. 9	1467	337	78	1558
Tremain, Charles W., Portland, Oreg. Steam ore-stamp	574,589	Jan. 5	362	82	78	68

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tremaine, Edward G., Brooklyn, N. Y., assignor to P. Lorillard Company, Jersey City, N. J. Packing or boxing machine	579,688	Mar. 30	3242	769, 770	78	1958
Trenton Watch Company. (See Dudley, William W., assignor.)						
Trevette, Wentworth G., assignor of one-half to L. W. Winchester, Chicago, Ill. Paper-feeding machine	575,744	Jan. 26	2405	566	78	507
Triem, Wilson D., assignor to L. L. McBride, St. Joseph, Mo. Fly-brush	574,836	Jan. 5	786	188	78	148
Trimble, James A., New York, N. Y. Street-car	579,458	Mar. 23	2837	668, 669	78	1856
Trimble, Joseph F., Hammond, Ga. Adjustable chair-desk	575,288	Jan. 12	1586	377	78	318
Tripp, William J., New York, N. Y. Journal-bearing	575,386	Jan. 19	1772	425	78	371
Trist, Nicholas B. (See Hall, Harris F., assignor.)						
Tritt, Theodore G., Carlisle, Pa. Ink-well for desks	574,837	Jan. 5	787	188	78	149
Troast, William F., assignor to Slaymaker-Barry Company, Lancaster, Pa. Padlock	574,961	Jan. 12	1028	249	78	211
Troast, William F., and J. B. Amwake, assignors to Slaymaker-Barry Company, Lancaster, Pa. Padlock	578,791	Mar. 16	1664	385	78	1624
Trojan Car Coupler Company. (See McKeen, Thomas L., assignor.)						
Trott, George V., Chicago, Ill. Electric alarm device	574,856	Jan. 5	819	200	78	154
Trotter, David W., Butte, Mont. Window frame and sash	576,486	Feb. 2	708	169	78	771
Trotter, Walter F., Marshalltown, Iowa. Gas or oil engine	575,661	Jan. 19	2266	535	78	467
Troutwine, William S., Indianapolis, Ind. Trolley-head for electric cars	575,080	Jan. 12	1242	300	78	251
True, David, Amesbury, Mass. Nozzle for oil-cans	576,702	Feb. 9	1079	253	78	856
Truesdell, Oscar B., Sturbridge, assignor to Litchfield Shuttle Company, Southbridge, Mass. Loom-shuttle	576,921	Feb. 9	1432	340	78	923
Trull, John M., Trull, Colo. Combined power sleigh and carriage	578,667	Mar. 9	1436	328, 329	78	1552
Trull, William E., assignor of one-half to E. M. Cooper, Philadelphia, Pa. Washbasin	578,374	Mar. 9	984	212	78	1456
Trumble, Chauncey B., Groton, N. Y. Animal-trap	579,026	Mar. 16	2078	487	78	1700
Trumbull, Frank H., assignor of one-half to W. J. Hennessy, Palmyra, N. Y. Liquid-dispensing apparatus	575,446	Jan. 19	1872	451	78	388
Trumbull, Robert J., San Rafael, Cal. Foot-scraper or boot-cleaner	574,590	Jan. 5	364	82	78	69
Trumpfheller, John, *et al.* (See Roche, John, assignor.)						
Tucker, Benjamin W., assignor to E. Cliff, Newark, N. J. Car-truck	578,587	Mar. 9	1311	297	78	1529
Tucker, Charles H., Portland, Me. Case for books, &c	577,800	Mar. 2	97	25	78	1279
Tucker Electrical Construction Company. (See Strong, James R., assignor.)						
Tucker, John R., and C. C. Hinckley, Aurora, Ill. Electric meter	576,240	Feb. 2	284	69, 70	78	690
Tucker, Perry F., Geneva, N. Y. Sleigh attachment for bicycles	576,512	Feb. 2	760	178	78	781
Tucker, William W., Hartford, Conn. Turning and drilling machine	578,431	Mar. 9	1029	236, 237	78	1474
Tufts, Harry W. (See Stock and Tufts.)						
Tunelius, Charles E., Chicago, Ill. Bottle-washer	575,046	Jan. 12	1180	287, 288	78	239
Turbeville, John D., Fulton, Ky., assignor of one-half to J. J. Strickland, St. Louis, Mo. Coffin	578,802	Mar. 2	817	185	78	1416
Turck, Emil, Anaheim, Cal. Heat-producing composition and producing heat for incubators, &c	579,727	Mar. 30	3306	789	78	1965
Turnbull, Robert C., Bridgeport, Conn., assignor to Standard Coupler Company, New York, N. Y. Car-coupling	576,008	Jan. 26	2852	675, 676	78	590
Turnbull, Thomas S. (See Wilkinson, Frederick, assignor.)						
Turner, Albert, *et al.* (See Stalker, Baty, and Johnston, assignors.)						
Turner, Alfred, Horton's, Pa. Bottle	577,590	Feb. 23	2621	619	78	1175
Turner, Arnold, *et al.* (See Stalker, Baty, and Johnston, assignors.)						
Turner, Charles P., New York, N. Y. Electrolytical apparatus	578,171	Mar. 2	613	139	78	1378
Turner, Charles P., New York, N. Y. Dynamo-electric machine and electric motor	578,280	Mar. 2	781	176	78	1409
Turner, Charles P., New York, N. Y., assignor to himself, and J. H. Bolles, Colorado Springs, Colo. Annealing apparatus	578,170	Mar. 2	612	138	78	1378
Turner, Cora L. (See Turner, Samuel, assignor.)						
Turner, George E., Marion, Ohio. Section car-truck for street-railways	579,195	Mar. 23	2366	557	78	1771
Turner, Henry H., assignor to Gundlach Optical Company, Rochester, N. Y. Photographic lens	577,891	Mar. 2	98	25	78	1279
Turner, John F., Bertram, Tex. Horse-detacher	577,935	Mar. 2	186	45	78	1297
Turner, Phoebe G., (now by remarriage Phoebe G. Gardner,) Richmond, Va. Support for skeins of silk	579,523	Mar. 23	2386	601	78	1875
Turner, Samuel, assignor of one-half to C. L. Turner, New York, N. Y. Steam-boiler	575,081	Jan. 12	1243	300	78	251
Turner, Samuel, assignor of one-half to C. L. Turner, Long Branch, N. J. Means for supplying heat to boilers or stoves	579,413	Mar. 23	2708	643	78	1833
Turner, Samuel J., assignor of three-fourths to H. J. and C. T. Glasser and T. P. Jumper, Minneapolis, Minn. Cigar-lighter	575,670	Jan. 19	2283	539	78	470
Turner, Thomas, *et al.* (See Barnes, Thomas, assignor.)						
Turney, Frederick N., Nottingham, England. Degreasing and cleansing wool, cotton-waste, &c., and apparatus therefor	579,524	Mar. 23	2038	691, 692, 693	78	1876
Tushaus, Clement G., Marion, Ind. Car-coupling	575,623	Jan. 19	2191	519	78	452
Tuttle, Herbert C. (See Austen and Tuttle.)						
Tuttle, William, Natchez, Miss. Steering-gear	577,797	Feb. 23	2642	696	78	1295
Tuttle, William P. (See Cross, Eben D., assignor.)						
Tweedale, Edmund, Manchester, England. Mounting top rollers	575,557	Jan. 19	2067	494, 495	78	427
Tweedale, Edmund and S., and J. Smalley, Manchester, England. Drawing-frame	575,558	Jan. 19	2068	495	78	427
Tweedale, Samuel. (See Tweedale and Smalley.)						
Twiss, Charles C., Charlerol, Pa. Lock	579,781	Mar. 30	3397	813	78	1983
Tyberg, Oluf, Brooklyn, assignor, by mesne assignments, to T. Böhm, New York, N. Y. Button-making machine	574,857	Jan. 5	821	200, 201	78	155
Tygert, Laura E., Albany, N. Y. Cooking-stand for preserving-cans	578,375	Mar. 9	985	213	78	1457
Tyler, William H., New York, N. Y. Glove	576,922	Feb. 9	1434	341	78	924
Tyrrell, Earl P., Severance, assignor of one-half to S. A. Smith, Schroon Lake, N. Y. Can-opener	576,063	Jan. 26	2951	696	78	606
Tyson, George E., Reading, Pa. Door-bell	574,464	Jan. 5	144	33	78	29
Tyson, William W., Erie, Pa. Transplanter and weeder	576,708	Feb. 9	1080	253	78	856
Tytler, Maynard F., Seattle, Wash. Paper-cutter	575,447	Jan. 19	1873	451	78	389
Tyzack, George, South Shields, England. Anchor	575,082	Jan. 12	1244	300, 301	78	251
Uebelacker, Charles F., Newark, N. J. Apparatus for dressing tubular bores	576,291	Feb. 2	388	91	78	711
Uhlmann, Anton, Olbernhau, Germany. Ink-drier	579,850	Mar. 30	3512	839	78	2004
Uhr, John K., Eagle Grove, Iowa. Screen and storm door combined	576,634	Feb. 9	976	228	78	836
Uhry, Heyman. (See Wutke and Uhry.)						
Ulli, Albrecht, Biel, Switzerland. Thermal winding mechanism for clocks	576,890	Feb. 9	1278	305	78	894

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ulman, Jacob A., and V. L. Emerson, Baltimore, Md. Lumber-truck	577,708	Feb. 23	2943	696	78	1236
Ulrich, John D., Haldon, N. J. Harness shifter and adjuster for looms	577,904	Mar. 2	277	65	78	1313
Ulrich, Moritz, and J. Bammann, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Dark-blue azo dye	578,432	Mar. 9	1037	.....	78	1476
Underwood & Co., G. B. (See Blanchard, Virgil W., assignor.)						
Underwood, John T. (See Burridge and Marshman, assignors.)						
Underwood, Robert L., Fostoria, Ohio. Combined ventilator and thimble	576,635	Feb. 9	977	228	78	887
Unger, Ernest. (See Finkbeiner, Eugene, assignor.)						
Unger, Gustav, Magdeburg, Germany. Furnace for burning coal-dust	577,995	Mar. 2	278	65	78	1314
Union Bag and Paper Company. (See Dulin, Charles E., assignor.)						
Union Bag and Paper Company. (See Getten, Albert C., assignor.)						
Union Button Sewing Machine Company. (See Lyons, Robert L., assignor.						
Union Iron Works Company. (See Spotswood, Thomas E., assignor.)						
Union Special Sewing Machine Company. (See Holland, Elias C., assignor.)						
Union Special Sewing Machine Company. (See Muther, Lorenz, assignor.)						
Union Special Sewing Machine Company. (See Onderdonk, Lansing, assignor.)						
Union Switch and Signal Company. (See Koenig, George, assignor.)						
Union Switch and Signal Company. (See Schreuder, Jens G., assignor.)						
Union Switch and Signal Company. (See Schreuder and Coleman, assignors.)						
Union Toe Calk Company. (See Varney, Joseph T., assignor.)						
United States Glass Company. (See Vogeley, Samuel G., assignor.)						
United States Metallic Packing Company. (See Pike, Henry A., assignor.)						
Universal Winding Company. (See Wardwell, Simon W., Jr., assignor.)						
Upson, Waldo L., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Filling device for lamps	577,813	Feb. 23	2967	701	78	1240
Upton, William B. (See Brosius, Upton, and Colvin.)						
Urbanus, William A., Chicago, Ill. Camp-stool	576,636	Feb. 9	978	229	78	837
Urch, David, Portsmouth, N. H. Pleasure-railway	576,704	Feb. 9	1081	254	78	856
Urquhart, William J. (See Grant, Arthur L., assignor.)						
Uxa, Charles E., *et al.* (See Christoph, Charles, assignor.)						
Vail, Charles E., Salt Lake City, Utah. Carriage for bicycle-saddles	577,084	Feb. 16	1719	407	78	990
Vail, Charles E., Salt Lake City, Utah. Bicycle-saddle carriage	577,085	Feb. 16	1720	407, 408	78	990
Vail, Charles E., Salt Lake City, Utah. Carriage for bicycle-saddles	577,086	Feb. 16	1723	408	78	990
Vale, Alfred G., New York, N. Y., assignor to Vale Machine Company, of New York. Cigarette-machine	574,465	Jan. 5	145	34	78	29
Vale Machine Company. (See Vale, Alfred G., assignor.)						
Valentine, David H., Brooklyn, N. Y. Balancing-frame for bicycles	576,385	Feb. 2	554	130	78	740
Vallandingham, William T., Knoxville, Iowa. Cabinet for hosiery	579,199	Mar. 23	2367	557	78	1771
Valleen, Rose L., Seattle, Wash. Wood-preserving compound	579,101	Mar. 16	2205	.....	78	1726
Valley, Gustaf, assignor to Steel Motor Company, Johnstown, Pa. Locking device for electric controllers	576,332	Feb. 2	463	108	78	724
Valley, Gustaf, assignor to Steel Motor Company, Johnstown, Pa. Electric controller	576,333	Feb. 2	465	109	78	724
Van Alstine, Cornelius C. E., assignor of one-half to G. W. Graham, Paterson, N. J. Thread-twister	578,792	Mar. 16	1667	385	78	1625
Van Ame, Wales E., assignor of one-half to L. A. Centlivre, Fort Wayne, Ind. Sanitary receptacle and distributer	576,241	Feb. 2	291	70	78	668
Van Auken, Clarence E., Chicago, Ill. Automatic air-valve	574,992	Jan. 12	1092	250	78	212
Van Beek, Albertus J., Buda-Pesth, Austria-Hungary. Apparatus for calming seas by distributing oil thereon	575,208	Jan. 12	1453	349	78	292
Van Derveer, John R., New York, N. Y. Machine for coating confectionery	575,915	Jan. 26	2699	638, 639	78	502
Van Deth, Gerrit, New York, N. Y. Mantle or hood for incandescent gas-lamps	574,802	Jan. 5	837	.....	78	158
Van Deth, Gerrit, New York, N. Y. Process of and burner for producing incandescence	575,137	Jan. 12	1343	323, 324	78	271
Van Emon, Burton C., San Francisco, Cal. Electrical controlling apparatus	578,954	Mar. 16	1966	458	78	1677
Van Gerpen, Frederic, New York, N. Y. Fountain shading-pen	578,955	Mar. 16	1970	459	78	1677
Van Gerpen, Frederick, New York, N. Y. Mucilage-bottle	578,123	Mar. 2	501	114	78	1358
Van Gilder, Ottawa H., assignor of one-half to H. Shoemaker, Borden, Ind. Stove	575,816	Jan. 26	2518	594	78	529
Van Horn, Daniel B., Etna, N. J. Horseshoe	579,782	Mar. 30	3398	813	78	1983
Van Meter, Seymour D., Denver, Colo. Bicycle-saddle	574,508	Jan. 5	200	46	78	40
Van Norman, Amanda R., administratrix. (See Van Norman, Jacob.)						
Van Norman, Charles E., Springfield, Mass. Milling-machine	578,588	Mar. 9	1313	297	78	1590
Van Norman, Jacob, deceased, Easton, (A. R. Van Norman, administratrix,) assignor of four-fifths to C. Q. Guldin, Pottstown, M. M. Deem and M. C. J. Stupp, Reading, and N. H. Larzelere, Norristown, Pa. Manufacture of carbureted-air gas	579,415	Mar. 23	2710	.....	78	1834
Van Note, Charles H., Boston, Mass. Combined curtain-pole and bracket	576,637	Feb. 9	980	229	78	837
Van Orman, Richmond G., Lorain, Ohio. Bottle	579,197	Mar. 23	2368	558	78	1772
Van Ruymbeke, Joseph, *et al.* (See Dyer, Frank L., assignor.)						
Vance, George E., Tiffin, Ohio. Grinding-wheel	579,414	Mar. 23	2710	643	78	1834
Vance, James R., Geneva, N. Y. Steam-boiler	575,786	Jan. 26	2466	581	78	519
Vance, William H., assignor of two-thirds to F. W. and E. D. Wolfe, San Francisco, Cal. Faucet-filter	574,644	Jan. 5	462	106	78	87
Vandenburg, A. (See Laube, Godfried, assignor.)						
Vander Linda, Peter J., Grand Rapids, Mich. Chocolate-coating machine	574,963	Jan. 12	1033	250	78	212
Vander Linda, Peter J., Grand Rapids, Mich. Chocolate-coating machine	577,566	Feb. 23	2567	605	78	1165
Vanderburgh, Edward L., Bayonne, N. J. Baby-carrier	576,262	Feb. 2	399	91	78	711
Vanderman Plumbing and Heating Company. (See Newman, Eugene, assignor.)						
Vann, George G., Galveston, Tex. Stirrup	578,956	Mar. 16	1971	459	78	1677
Vannette, Jasper, Tiffin, assignor to Standard Sewing Machine Company, Cleveland, Ohio. Sewing-machine	575,580	Jan. 19	2108	503	78	435
Vanstrum, Frederick T. (See Larson and Lundquist, assignors.)						
Varney, Joseph T., Cambridge, Mass., assignor to Union Toe Calk Company, Portland, Me. Machine for forging toe-calks	574,504	Jan. 5	202	47, 48	78	40
Vaughan, James, Danbury, Conn. Running-gear for wagons	577,892	Mar. 2	99	25	78	1280
Veith, Friedrich, Offenbach-on-the-Main, Germany. Valve for tires of velocipedes	575,817	Jan. 26	2519	594	78	529
Veley, Willis L., assignor of one-half to G. L. Brownell, Chicago, Ill. Automatic stereopticon	577,460	Feb. 23	2382	561	78	1131
Vellenoweth, Harry, Philadelphia, Pa. Rail-joint	574,466	Jan. 5	147	35	78	29
Veon, Andrew E., assignor of one-half to E. W. Lynch, Brainerd, Minn. Curling-iron	577,087	Feb. 16	1724	408	78	990
Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung. (See Baum, Heinrich, assignor.)						
Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung. (See Weller and Jensen, assignors.)						
Vermont Farm Machine Company. (See Kimball, Perley L., assignor.)						
Vernaz, Alexis, assignor to Mermod Frères, Ste. Croix, Switzerland. Musical instrument	576,208	Feb. 2	301	91	78	711

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Vernon, Richard R., Summit, N. J. Desk implement	578,589	Mar. 9	1314	297	78	1590
Verret, Nicholas J., and T. H. Mooney, Pine Bluff, Ark. Rotary engine	579,851	Mar. 30	3513	839, 840	78	2005
Verrue, Ernest J., San Francisco, Cal. Rotary pump	577,936	Mar. 2	187	45	78	1297
Very, Edward W., assignor to American Ordnance Company, Washington, D. C. Gun-carriage	575,773	Jan. 26	2447	577	78	516
Vessey, William, Sandusky, Ohio. Wrench	576,487	Feb. 2	709	169	78	771
Vettermann, Paul O., assignor of one-half to O. Bergter, New Haven, Conn. Tobacco-pipe	576,923	Feb. 9	1435	341	78	924
Vialon, Julius, Cassel, Germany. Needlework fabric	578,793	Mar. 16	1669	386	78	1625
Vick, Alfred, Mount Carmel, Conn. Lawn, floor, or table game-board	579,198	Mar. 23	2369	558	78	1772
Vickers, Douglas, Sheffield, England. Breech-loading ordnance	578,172	Mar. 2	614	139	78	1378
Vieillard, Celestin F. (See Osswald and Vieillard.)						
Vietheer, Joachim, Kollmar, Germany. Apparatus for unchaining cattle	577,333	Feb. 16	2136	506	78	1068
Vincent, Joseph A., Philadelphia, Pa., assignor to Electro Gas Company, of West Virginia. Acetylene-gas-generating apparatus	579,689	Mar. 30	3243	770	78	1954
Vines, John, assignor to Holyoke Envelope Company, Holyoke, Mass. Envelop making and printing machine	578,684	Mar. 9	1469	338	78	1559
Violet, Francis N., Milwaukee, and C. H. Shaw, Wauwatosa, Wis. Mowing-machine	574,505	Jan. 5	200	49	78	41
Violet, Richard, Berlin, Germany, assignor to L. H. Hall, Philadelphia, Pa. Burner for incandescent gas-lights	575,188	Jan. 12	1414	340	78	284
Voelker, George, Somerville, Mass. Combined stool and bicycle-saddle	575,184	Jan. 12	1415	340	78	284
Voelker, Richard, St. Louis, Mo. Hose-reel	576,009	Jan. 26	2854	676	78	591
Vogeley, Samuel G., assignor to United States Glass Company, Pittsburg, Pa. Pitcher	578,529	Mar. 9	1215	274	78	1510
Vogler, William, Somerville, Mass. Saddle-pad	578,124	Mar. 2	502	114	78	1358
Vogt, Wilhelm, Philadelphia, assignor to A. A. Landis, Collegeville, Pa. Truck and gripping mechanism for railway-cars	577,152	Feb. 16	1830	434	78	1013
Vogtsberger, Emil, Austin, Tex. Harness and saddle	578,173	Mar. 2	616	140	78	1379
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Lock	574,506	Jan. 5	209	49	78	41
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Latch	574,645	Jan. 5	465	106	78	87
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Latch	576,242	Feb. 2	293	70	78	668
Voigt, Richard C. H., *et al.* (See Erickson, John A., assignor.)						
Voisard, Emile P., Chicago, Ill. Acetylene-gas generator	576,386	Feb. 2	556	130	78	740
Voltek, John S., New York, N. Y. Attachment for bicycles	575,787	Jan. 26	2467	582	78	520
Volkenrath, Mary A., Huntington, W. Va. Lamp-burner attachment	577,898	Mar. 2	101	26	78	1280
Voos, Franz, Solingen, Germany, assignor to M. Klaas, New York, N. Y. Safety-razor	575,511	Jan. 19	1989	476	78	413
Vore, Gabriel H. (See Kelly and Vore.)						
Vorn Brock, O. H. (See Williams, Leonard A., assignor.)						
Vose, Charles E., Pittsfield, Vt. Ice-velocipede	576,354	Feb. 2	496	116	78	730
Vose & Cliff Manufacturing Company. (See Cliff, Edward, assignor.)						
Voss, William H. (See Brammer and Voss.)						
Vreede, Cornelis, Rotterdam, Netherlands. Contact apparatus for telegraphing	576,243	Feb. 2	294	70, 71	78	668
W. J. Pearce Hay Press Company. (See Pearce, William J., assignor.)						
Wade, Joseph A., assignor to J. A. Palethorpe, Liverpool, England. Combined air-heater and surface condenser	577,894	Mar. 2	102	26	78	1280
Wadsworth, John C., Concord, N. C. Combined cotton-planter and fertilizer-distributer	579,617	Mar. 30	3123	741	78	1930
Wagemann, Paul, Moringen, Germany. Stirrup-detaching device	577,541	Feb. 23	2528	596	78	1157
Waggoner, Edward P., Syracuse, N. Y., assignor to A. A. Griffing Iron Company, Jersey City, N. J. Return steam-trap	576,488	Feb. 2	710	169, 170	78	772
Waggoner, William R., Art, Ind. Anchor for check-row wires	576,010	Jan. 26	2856	676	78	591
Wagner, Charles, New York, N. Y. Reversing-gear for screw-cutting or other machines	577,334	Feb. 16	2137	507	78	1068
Wagner, Frank, Cleveland, Ohio. Faucet and filler for oil-cans	579,416	Mar. 23	2712	644	78	1894
Wagner, Fred, Carnegie, Pa. Car-brake	576,925	Feb. 9	1438	342	78	924
Wagner, Gustav, Reutlingen, Germany. Die-stock	576,924	Feb. 9	1437	341, 342	78	924
Wagner, Julius, Reading, Pa. Vegetable cutter and grater	576,705	Feb. 9	1083	254	78	856
Wagner, Julius, assignor of one-half to J. B. Fricker, Reading, Pa. Communion-cup	579,908	Mar. 30	3002	861	78	2022
Wagor, Philo R., Springfield, Mass. Wire guard for lamps	575,704	Jan. 26	2481	585	78	522
Wahl, John H., Union City, assignor of one-half to S. S. Riffle, Ansonia, Ohio. Latch	579,852	Mar. 30	3515	840	78	2005
Wahle, Charles G. F. (See Mayer and Wahle.)						
Wainewright, Arnold F., New York, N. Y. Fastening device	579,690	Mar. 30	3244	770	78	1954
Wainwright, Henry H., Washington, D. C. Means for securing protecting-plates to concrete	578,668	Mar. 9	1439	329	78	1553
Wakeman, Charles E., Pontiac, Mich. Straight-knitting machine	579,199	Mar. 23	2370	558, 559	78	1772
Waldemann, Carl, Cöslin, Germany. Process of and apparatus for smoking fish	577,672	Feb. 23	2746	648	78	1198
Waldner, John J., Freeman, S. D., assignor of one-eighth to J. Wiens, Gretna, Canada. Indicator for engines	574,964	Jan. 12	1037	251	78	213
Waldran, John D., assignor to L. Sturdevant, trustee, St. Louis, Mo. Brake-handle	577,470	Feb. 23	2384	561	78	1131
Waldron, William H., New Brunswick, N. J. Lathe-feeder for paper-driers	574,692	Jan. 5	555	129	78	102
Wales, Irving F., Woonsocket, R. I. Bicycle	577,805	Mar. 2	103	26	78	1280
Walker, Albert H. (See McCormack and Walker.)						
Walker, Alexander A., Casselton, N. D. Veterinary mouth-speculum	574,591	Jan. 5	365	82	78	69
Walker, Dallas E., Indianapolis, Ind. Valve for pneumatic tires	577,698	Feb. 23	2780	657	78	1205
Walker, Edwin, Erie, Pa. Lemon-squeezer	576,706	Feb. 9	1084	255	78	857
Walker, Edwin, Erie, Pa. Stopper-extractor	579,900	Mar. 23	2372	559	78	1772
Walker, Fred L. (See Porter, Benjamin, assignor.)						
Walker, George W., Malden, Mass. Garbage-can	578,957	Mar. 16	1972	459	78	1678
Walker, James H., Hartlepool, England. Marine signaling apparatus	577,088	Feb. 16	1726	408, 409	78	991
Walker, John H., Buffalo, N. Y. Heating utensil	577,896	Mar. 2	105	27	78	1281
Walker, Mark A., assignor to T. J. Quinn, Detroit, Mich. Fire-ladder	577,897	Mar. 2	106	27, 28	78	1281
Walker, Peter, Friar's Point, Miss. Machine for cleaning seed-cotton	577,153	Feb. 16	1841	434, 435	78	1013
Walker, Robert R., assignor to C. Ruhe, Beaver Falls, Pa. Brush	576,075	Jan. 26	2971	700	78	610
Walker, William H., Dover, Del. Penholder	577,335	Feb. 16	2139	507	78	1069
Walker, William H., assignor of two-thirds to J. M. Scott, Pittsburg, and S. D. White, Haysville, Pa. Trolley system	579,728	Mar. 30	3307	790	78	1966
Walker, William L., Allegheny, Pa. Jack	579,935	Mar. 30	3642	872	78	2030
Walkins, Louis E., assignor to G. H. Drew, trustee, Boston, Mass. Gearing for car-trucks	574,646	Jan. 5	466	106, 107	78	87
Wallace, David S., assignor to Wallace Plumbing Improvement Company, Denver, Colo. Flushing-tank	577,899	Mar. 2	114	29	78	1282

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Wallace, David S., assignor to Wallace Plumbing Improvement Company, Denver, Colo. Water-closet	577,900	Mar. 2	116	29	78	1283
Wallace, Francis A., Waynesburg, Pa. Keyboard-operating apparatus for musical instruments	579,201	Mar. 23	2373	560	78	1772
Wallace, John W., Brooklyn, N. Y. Sterilizer	578,376	Mar. 9	998	213	78	1457
Wallace Plumbing Improvement Company. (See Wallace, David S., assignor.)						
Wallace, Thomas D., Allegheny, Pa. Hose-bridge	577,906	Feb. 16	2241	527	78	1088
Wallace, Thomas D., Allegheny, assignor of one-half to J. Y. Scott, Washington, Pa. Lock	575,138	Jan. 12	1345	324	78	271
Wallach, Martin, Nachfolger. (See Bazzi and Bianchi, assignors.)						
Wallenstein, Jacob, and H. C. Oettinger, assignors of one-third to C. D. Oettinger, Cincinnati, Ohio. Automatic sash-fastener	579,246	Mar. 23	2444	577	78	1785
Wallner, Henry and J., New York, N. Y. Military cap	576,294	Feb. 2	392	92	78	711
Wallner, Joseph. (See Wallner, Henry and J.)						
Wallner, Joseph S., Brockport, N. Y. Shoe	575,550	Jan. 19	2009	495	78	427
Wallwork, Roughsedge, and A. C. Wells, Manchester, England. Pneumatic painting apparatus	577,496	Feb. 23	2432	572	78	1140
Wallwork, Roughsedge, and A. C. Wells, Manchester, England. Pneumatic painting apparatus	577,497	Feb. 23	2433	573	78	1141
Wallwork, Roughsedge, and A. C. Wells, Manchester, England. Pneumatic painting apparatus	577,522	Feb. 23	2488	585	78	1150
Walmsley, Fuller & Company. (See Fuller, Henry F., assignor.)						
Walrath, Jesse, Racine, Wis. Explosive-engine	577,898	Mar. 2	110	28	78	1282
Walrath, Jesse, Racine, Wis. Explosive-engine	578,377	Mar. 9	989	213, 214	78	1457
Walsh, Edward, Jr., St. Louis, Mo. Glass-annealing kiln	577,542	Feb. 23	2529	596	78	1158
Walsh, Edward, Jr., St. Louis, Mo. Annealing-kiln	578,378	Mar. 9	944	214, 215	78	1458
Walsh, James, Jr., Philadelphia, Pa. Stop-valve	574,768	Jan. 5	673	161	78	127
Walsh, James, Jr., Philadelphia, Pa. Stop-valve	574,838	Jan. 5	788	188	78	149
Walsh, Patrick H., Saugus, Mass. Stop-motion and alarm for woolen finisher-cards	576,749	Feb. 9	1152	274	78	870
Walter, Jacob G., Altoona, Pa. Tool for cutting irregular grooves in rolls of rolling-mills	578,088	Mar. 2	421	98, 99	78	1342
Walter, Thomas U., Huntington, W. Va., assignor of one-half to F. M. Frazier and C. D. Ebersole, Birmingham, Ala. Curtain-fixture	579,504	Mar. 23	2912	685	78	1871
Walters, James H., assignor of one-half to T. P. Brown, Harlansburg, Pa. Burglar-alarm	577,154	Feb. 16	1843	435	78	1013
Walton, Henry F., Flandreau, S. D. Egg-tester	577,683	Feb. 23	2693	633	78	1186
Wampler, Frank H. (See Maize, Conrad, and Wampler)						
Wanless, William J, assignor to Dry Dock Iron Company, Bay City, Mich. Vise	579,618	Mar. 30	3125	741, 742	78	1930
Wanzer, Henry, Dry Grove, Miss. Corn or cotton turn-plow	578,174	Mar. 2	617	140	78	1379
Wappalhorst, Hanry, St. Charles, Mo. Band-cutter and feeder for threshing-machines	576,011	Jan. 26	2857	677	78	592
Ward, Edward F., Northport, N. Y. Account-keeping book	574,507	Jan. 5	210	50	78	41
Ward, George C., Fort Worth, Tex. Penholder	576,012	Jan. 26	2860	677	78	592
Ward, James C., Little Rock, Ark. Device for adjusting type in hand-stamps	577,336	Feb. 16	2140	507	78	1069
Ward, William H., Mound City, Kans. Truck	577,471	Feb. 23	2385	502	78	1131
Wardwell, Simon W., Jr., Boston, Mass. Cop and cop-winding apparatus	576,356	Feb. [illegible]	500	117	78	731
Wardwell, Simon W., Jr., Boston, Mass. Tension device	577,337	Feb. 16	2142	507	78	1069
Wardwell, Simon W., Jr., Boston, Mass., assignor to Universal Winding Company, Portland, Me. Cop-winding machine	576,355	Feb. 2	498	116, 117	78	731
Ware, Edwin O., and J. B. Willaman, Salem, Ohio. Truss	574,467	Jan. 5	148	35	78	30
Warfel, John D., Buford, Ga. Bridle-bit	576,502	Feb. 2	735	175	78	776
Waring, Louise, New York, N. Y Receptacle for street-sweepings	577,089	Feb. 16	1728	409	78	991
Warman, Cy, Washington, D. C. Bicycle-lock	578,125	Mar. 2	503	114	78	1358
Warner, Henry H., Tacoma, Wash. Spark-arrester	579,729	Mar. 30	3308	790	78	1966
Warner, John F., Boston, Mass. Boot or shoe	578,794	Mar. 16	1670	386	78	1625
Warner, Milton R. (See Bulock and McLauchlin, assignors.)						
Warren, Albert E. (See Reid and Warren.)	577,799	Feb. 23	2945	697	78	1236
Warren, Charles A., Columbus, Ohio. Vehicle-door construction						
Warren Webster & Company. (See Dexter, Thomas F., assignor.)						
Warren Webster & Company. (See Leitch, Meredith, assignor.)						
Warren, William H. (See Cornelison and Warren.)	579,909	Mar. 30	3303	802	78	2022
Warth, Charles H., Muscogee, Ind. Ter. Self-lubricating car-axle box						
Warwick, Frederick. (See Hall, Warwick, and Smith.)	578,049	Mar. 2	358	85	78	1329
Warwick, George T., Newark, N. J. Ball-bearing	577,122	Feb. 16	1799	424	78	1005
Washburn, George W., West New Brighton, N. Y. Air-valve	576,524	Feb. 2	733	183	78	784
Washington, George, Brussels, Belgium. Petroleum incandescent lighting						
Washington, George, Brussels, Belgium, assignor to J. W. Allison, New York, N. Y. Petroleum incandescent burner	576,523	Feb. 2	730	183	78	783
Wasserbach, Theodore, Washington, D. C. Eraser	576,698	Feb. 9	981	229	78	887
Wasserstrom, Ignatz, New York, N. Y. Barrel-tap	579,354	Mar. 23	2616	618	78	1816
Waterbury Watch Company. (See Hart, Edwin, assignor.)						
Waterer, Hosea. Philadelphia, Pa. Flower-pot holder	577,800	Feb. 23	2946	697	78	1236
Waterman, E. L., administrator. (See Bailey, Frank J., assignor.)						
Waterman, Lewis E., Moline, assignor to Rock Island Plow Company, Rock Island, Ill. Cultivator	579,996	Mar. 30	3643	872	78	2080
Watkins, Charles H., Jr., Wheeling, W. Va. Stopper for bottles	579,619	Mar. 30	3126	742	78	1930
Watkins, Howard, South Orange, N. J. Cigarette-box	578,669	Mar. 9	1440	330	78	1553
Watson, Frank B., *et al.* (See Griffin, Thomas B., assignor.)						
Watson, George. (See James and Watson.)						
Watson, George, assignor of one-half to S. W. Swain, Peak Hill, New South Wales. Beer-engine	575,083	Jan. 12	1245	301	78	252
Watson, James A., *et al.* (See Auble and Weiss, assignors.) (Reissue.)	574,965	Jan. 12	1039	251, 252	78	214
Watson, James A., Washington, D. C. Vacuum despatch system	579,371	Mar. 23	2642	625	78	1821
Watson, James A., assignor of one-half to R. W. Lee, Washington, D.C. Spraying-nozzle	576,387	Feb. 2	557	131	78	740
Watson, Madison E. (See Powers and Watson.)						
Watson, William C., Paterson, N. J. Car-coupling	575,833	Jan. 26	2552	602, 603	78	536
Wattie, William, assignor to Knowles Loom Works, Worcester, Mass. Multiplier mechanism for looms	577,567	Feb. 23	2570	606	78	1166
Wattles, Luther H., assignor of three-fourths to W. B. Sherman, Providence, R. I., and B. C. Davis, Brooklyn, N. Y. Gas-engine	579,505	Mar. 23	2914	685	78	1871
Watts, Albert A., Oskaloosa, Iowa. Skirt-supporter	576,295	Feb. 2	393	92	78	711
Watts, Charles J., and F. J. Wragg, Springfield, Ohio. Index	576,926	Feb. 9	1439	342	78	934
Watts, Elias, Keyport, N. J. Asparagus-buncher	575,671	Jan. 19	2285	539	78	470
Watts, George W., and J. B. Smith, Brooklyn, N. Y. Telescopic measuring-rule						

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Watts, Henry P., assignor to L. L. Adkerson, Lynchburg, Va. Fan attachment for sewing-machines	577,388	Feb. 16	2143	506	78	1070
Watts, William H., Keyport, N. J. Oyster or clam rake	578,175	Mar. 2	618	140	78	1379
Way, William A., Iowa Falls, Iowa. Attachment for vapor-burning stoves	575,017	Jan. 12	1180	274	78	280
Weatherhead, Douglas C., Sabin, Minn., assignor of one-third to J. B. Flanders. Potato sorter and sacker	574,592	Jan. 5	366	88	78	69
Weatherly, Wilson E., Allegheny, Pa. Process of and apparatus for treating peanuts	574,647	Jan. 5	467	107, 108	78	87
Weatherson, Christopher, Chicago, Ill. Air-hoist	577,901	Mar. 2	119	29, 30	78	1283
Weaver, John S. and J. B., New Oxford, Pa. Trough	577,099	Feb. 23	2781	657	78	1205
Weaver, Joseph B. (See Weaver, John S. and J. B.)						
Weaver, William, Norwalk, Conn. Loom	576,174	Feb. 2	176	43, 44, 45, 46	78	670
Weaver, William, Norwalk, Conn. Loom	576,175	Feb. 2	187	47, 48	78	672
Weaver, William, Norwalk, Conn. Car-fender	579,372	Mar. 23	2645	625, 626	78	1822
Webb, Albert, Worcester, England. Pile-fabric loom	575,818	Jan. 26	2519	594, 595	78	530
Webb, George B., New York, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Typewriting machine	575,916	Jan. 26	2701	639	78	562
Webb, George B., New York, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Typewriting machine	575,917	Jan. 26	2708	639	78	563
Webb, Isaac H., Sandy Lake, Pa. Attachment for extension of pew-backs	579,027	Mar. 16	2080	487	78	1701
Webb, Jean F., St. Louis, Mo. Extracting gold and silver from ores	578,089	Mar. 2	423	99	78	1342
Webb, S. G. (See Gwin, Andrew J., assignor.)						
Webb, Smith N., Detroit, Mich. Indexing-machine	579,202	Mar. 23	2374	560, 561	78	1773
Webber, Hamilton H., and S. J. Bingner, Mansfield, Ohio. Sales book or pad	575,865	Jan. 26	2608	616	78	546
Webber, Wesley, New York, N. Y. Coin-controlled gas or liquid vending machine	577,215	Feb. 16	1946	461	78	1033
Webber, Wesley, New York, N. Y. Coin-controlled gas-vending machine	577,216	Feb. 16	1948	461	78	1033
Weber, Bernard F., Chicago, Ill. Brick-drier	576,639	Feb. 9	982	230	78	838
Weber, Henry, St. Louis, Mo. Oven attachment for stoves, ranges, &c	575,185	Jan. 12	1416	340	78	285
Weber, Johannes, Reutlingen, Germany. Lathe	579,620	Mar. 30	3128	742	78	1930
Weber, Louis. (See Munderloh, John H., assignor.)						
Webster, Charles B., Amenia, N. D. Lamp attachment	575,795	Jan. 26	2482	586	78	522
Webster, David G., Capron, Ill. Combined rein holder and guide	579,247	Mar. 23	2446	577	78	1785
Webster, Edwin A., Haverhill, Mass., assignor, by mesne assignments, to Lincoln Sewing Machine Company, Pawtucket, R. I. Sewing-machine	577,217	Feb. 16	1950	461	78	1033
Webster, Harold A., Haverhill, Mass. Buffing or polishing machine	576,418	Feb. 2	601	142	78	749
Webster, Harold A., Haverhill, assignor to Globe Buffer Company, Boston, Mass. Buffing or polishing device	578,958	Mar. 16	1973	459	78	1678
Webster, John B., assignor of one-half to H. McNichols, St. Louis, Mo. Billiard or pool cue	574,693	Jan. 5	556	129	78	108
Webster, Thomas, and J. Howarth, Coventry, England. Milling-machine	579,355	Mar. 23	2617	618, 619	78	1817
Weckel, John H., Breakabeen, N. Y. Telephone system	575,186	Jan. 12	1417	341	78	285
Wedekindt, Henry, Jr., Buffalo, N. Y. Box	577,972	Mar. 2	243	57	78	1307
Weed, Alfred, Anderson, Ind. Machine for cutting files or rasps	578,379	Mar. 9	946	215	78	1458
Weedin, Clifton E., Burns, assignor of one-half to J. H. Meadly, Lebanon, Mo. Wagon-seat	576,013	Jan. 26	2861	677	78	592
Weeks, Alfred H., Rockville Centre, N. Y. Hinge for window-shutters	574,508	Jan. 5	211	50	78	41
Weeks, Arthur J., Akron, Ohio. Jug	578,176	Mar. 2	619	140	78	1379
Weeks, Clinton S., *et al.* (See Chrissinger, Irwin B., assignor.)						
Weeks, N., *et al.* (See Griffin, Thomas J., assignor.)						
Wegner, Oscar, Brooklyn, N. Y. Compressor or pump	575,139	Jan. 12	1346	324	78	271
Wegner, Oscar, Brooklyn, N. Y. Compressor or pump	575,140	Jan. 12	1349	324, 325	78	272
Wehl, Richard, Defiance, Ohio. Pneumatic-tire repairer	578,433	Mar. 9	1039	237	78	1476
Weigel, John, assignor of one-half to B. F. Colby, Boston, Mass. Telephone	578,670	Mar. 9	1442	330	78	1553
Weimann, Gustav R. A., Brooklyn, N. Y. Embossing photographs	576,640	Feb. 9	983	230	78	838
Weimer, Asa A., Lebanon, Pa. Compressing or blowing engine	577,568	Feb. 23	2574	607	78	1166
Weinland, Henry F., Springfield, Ohio. Furnace-grate	576,927	Feb. 9	1440	342, 343	78	925
Weiny, Roderick H., Arlington, N. J., assignor of one-half to W. P. Phillips, New York, N. Y. Telegraphy	578,126	Mar. 2	505	114, 115	78	1359
Weir, Benjamin B. (See Gordon and Weir.)						
Weir, Fred C. (See Furness, Henry B., assignor.)						
Weis, Andrew L., Toledo, Ohio. Temporary binder	577,218	Feb. 16	1952	462	78	1034
Weis, Gerhard, Copenhagen, Denmark. Device for regulating position of arms of violin-players	575,796	Jan. 26	2483	586	78	522
Weiss, Arkless D. (See Auble and Weiss.) (Reissue.)						
Weiss, Christian, Jr., Trossingen, Germany. Harmonica	577,219	Feb. 16	1953	462	78	1034
Weiss, Franz J., Basle, Switzerland. Condenser. (Reissue)	11,591	Mar. 2	830	188	78	1418
Weiss, Franz J., Basle, Switzerland. Condenser	577,996	Mar. 2	280	65	78	1314
Weiss, George F., Springfield, Ill. Band-cutter and feeder for threshing-machines	578,795	Mar. 16	1671	386, 387	78	1625
Weisz, Albert R., Brooklyn, N. Y. Safety-razor	576,489	Feb. 2	712	170	78	772
Welch, Charles K., Coventry, England, assignor to Pneumatic Tyre Company, Limited, Dublin, Ireland. Elastic tire	575,797	Jan. 26	2483	586	78	522
Welch, Thomas, Paw Paw, Mich. Car-coupling	577,801	Feb. 23	2947	697	78	1236
Welch, Thomas, Paw Paw, assignor of one-half to Sheffield Car Company, Three Rivers, Mich. Car-coupling	577,700	Feb. 23	2782	657	78	1205
Weldon, James F. (See Forbes and Weldon.)						
Welivar, Davis B., Muncy, Pa. Machine for boring wheel-rims	575,745	Jan. 26	2408	567	78	508
Welker, Louis, Williamsport, Pa. Sanding-machine	575,187	Jan. 12	1420	341	78	285
Weller, Albert, and A. Jensen, assignors to Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung, Frankfort-on-the Main, Germany. Menthol compound	574,966	Jan. 12	1042	.....	78	215
Wells, Arthur C. (See Wallwork and Wells.)						
Wells, Arthur J., Syracuse, N. Y. Cabinet-file	578,796	Mar. 16	1674	387	78	1626
Wells, David G., Chicago, Ill. Door check and closer	577,591	Feb. 23	2622	619	78	1175
Wells, Edward J., Morristown, Tenn. Surgical chair	576,490	Feb. 2	713	170, 171	78	772

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Wells & French Company. (See Thompson, Frank, assignor.)						
Wells, George. (See Cotham and Wells.)						
Wells, George F. (See Capitain, Klute, and Wells.)						
Wells, George L., Indianapolis, Ind. Sulky	577,339	Feb. 16	2145	508	78	1070
Wells, James E., assignor of three-eighths to H. S. Fulmer, Syracuse, N. Y. Lock and latch	575,448	Jan. 19	1874	452	78	389
Wells, Mahlon, and J. Lovett, Haughville, Ind. Car-coupling	577,902	Mar. 2	121	30	78	1284
Welsbach Light Company. (See Barrows, George S., assignor.)						
Welsbach Light Company. (See Farraday, Simleon E., assignor.)						
Welsbach Light Company. (See Moeller, Julius, assignor.)						
Welsh, Edwin F. (See Starrett and Welsh.)						
Welsh, Hamilton E., assignor of one-half to J. H. Black, Columbia, Pa. Car-coupling	576,707	Feb. 9	1086	255	78	857
Welsh, Marion, Los Angeles, Cal. Fruit-slicer	577,275	Feb. 16	2036	482	78	1050
Welshans, Joseph L., Omaha, Nebr. Water-filter	574,858	Jan. 5	827	201	78	156
Welte, Emil, New York, N. Y. Mechanical musical instrument	578,127	Mar. 2	508	115, 116	78	1359
Welter, Isaac C., Kingston, Pa. Clothes and hat rack	574,509	Jan. 5	212	50	78	42
Welty, Scott S. (See Moberly and Welty.)						
Wendler, Frederick. (See Schüler, Edward, assignor.)						
Wendling, George X., *et al.* (See Larson, Emanuel, assignor.)						
Wensing, John P., assignor of two-thirds to F. Daase and A. J. Maag, Milwaukee, Wis. Hot-water heater	574,568	Jan. 5	367	88	78	69
Wentworth, Fred W., Paterson, N. J. Parcel-carrier for bicycles	575,018	Jan. 12	1131	274	78	230
Wentworth, Fred W., Paterson, N. J. Parcel-carrier for bicycles	578,128	Mar. 2	512	116	78	1360
Wentworth, John L., and J. Dempster, Little Falls, N. Y. Quarter-saver mechanism for knitting-machines	577,276	Feb. 16	2038	482	78	1050
Wentz, George F., Colorado Springs, Colo. Air-pump governor	574,648	Jan. 5	470	108	78	88
Wentz, Louis F., *et al.* (See Rively, John D., assignor.)						
Wenzel, Frederick A. E., assignor to A. F. and R. N. Pierce, Danbury, Conn. Safety-lamp	577,090	Feb. 16	1729	409	78	991
Werner, Andrew L., Delano, Pa. Telegraph-battery jar	575,449	Jan. 19	1877	452	78	389
Werner, Frank J., *et al.* (See Girtler, John F., assignor.)						
Werner, John A., Chicago, Ill. Conveyer	578,177	Mar. 2	620	141, 142	78	1380
Werner, Louis C., East Windsor, Conn. Buffer device for looms	574,510	Jan. 5	213	51	78	42
Wesselmann, Bruno, Göttingen, Germany. Scissors or shears	579,085	Mar. 16	2182	511	78	1721
West, Edmund, assignor of one-third to F. E. Rockstroh, San Francisco, Cal. Car-fender	576,491	Feb. 2	716	171	78	772
West, Mary, Birmingham, Ala. Window	575,188	Jan. 12	1422	342	78	286
West, Thomas D., and G. H. Boyd, Sharpsville, Pa. Metallic sleeper for railway-tracks	578,476	Mar. 9	1106	252	78	1490
West, Zephaniah B. (See Heathman, William F., assignor.)						
Westall, William C. (See Getz and Westall.)						
Westcott, William R. (See Lee, Westcott, and Robes.)						
Wester, August S., Chicago, Ill. Burglar-alarm	577,908	Mar. 2	122	30	78	1284
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Scribner and McBerty, assignors.)						
Western Paper Bag Company. (See Murchie, Sylvanus T., assignor.)						
Western Railway Signal Company. (See Shoecraft, Judson, assignor.)						
Westinghouse Air Brake Company. (See Hogan, Thomas J., assignor.)						
Westinghouse, Church, Kerr & Company. (See Longwell, Henry E., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Davis, Harry P., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Schmid, Albert, assignor.)						
Westinghouse Electric and Manufacturing Company. (See Wurts, Alexander, assignor.)						
Westinghouse Electric and Manufacturing Company. (See Wurts, Alexander J., assignor.)						
Westinghouse, George, Pittsburg, Pa. Current-collecting device for railway-vehicles	579,506	Mar. 23	2914	685, 686	78	1871
Westinghouse, George, Jr., Pittsburg, Pa. Truck	576,492	Feb. 2	718	171	78	773
Westinghouse, George, Jr., Pittsburg, Pa. System of circuits and apparatus for electric railways	579,525	Mar. 23	2942	693, 694	78	1877
Westinghouse, George, Jr., Pittsburg, Pa. Electropneumatic locomotive	579,526	Mar. 23	2944	694, 695	78	1877
Westinghouse, George, Jr., Pittsburg, Pa. Electric-railway system	579,527	Mar. 23	2946	695	78	1877
Westman, Gustaf M., New York, N. Y. Process of and apparatus for treating arsenic ores	577,802	Feb. 23	2950	698	78	1237
Weston, Charles W., New York, N. Y., and A. Legg, Allendale, N. J., assignors to Self-Threading Sewing-Machine Company, of New York. Sewing-machine	576,708	Feb. 9	1086	255, 256	78	857
Weston, Clinton H., La Crosse, Wis. Band-saw	578,050	Mar. 2	355	85	78	1320
Weston, Emile R., Bangor, Me. Oil-burner	576,641	Feb. 9	984	231	78	898
Weston, Irving A. (See Tomlinson, Charles E., assignor.)						
Weston, Milton T., assignor to Halcyon Cycle Company, Kenton, Ohio. Carousel	575,624	Jan. 19	2192	520	78	452
Westphal, Otto E. (See Schmahl and Westphal.)						
Wethey, Arthur H. (See Gaylord, Cole, and Keller, assignors.)						
Wethey, Arthur H. (See Keller, Cole, and Gaylord, assignors.)						
Wetmore, William C., Buffalo, N. Y. Smoke-consuming furnace	575,537	Jan. 19	2035	486, 487	78	421
Wetz, Edward L. (See Combs and Wetz.)						
Wetzel, Nathan, Omaha, Nebr. Mower	577,091	Feb. 16	1730	410	78	992
Wever, Fritz, Chemnitz, Germany. Circular-knitting frame	579,621	Mar. 30	3129	743	78	1931
Weygang, Charles, Romsey, England. Manufacture of saponaceous products from petroleum	575,189	Jan. 12	1423	.....	78	286
Weyher, Frank W., *et al.* (See Auberlin, William, assignor.)						
Weyher, Frederick C., *et al.* (See Auberlin, William, assignor.)						
Wharton, Samuel E., West Superior, Wis. Fountain for ink or other fluids	576,014	Jan. 26	2862	678	78	592
Wheatley, Thomas, assignor to A. P. Fowler, Syracuse, N. Y. Heater	574,967	Jan. 12	1043	252, 253	78	215
Wheaton, Elmer, Chicago, Ill. Musical instrument	578,797	Mar. 16	1676	388	78	1626
Wheelan, Fairfax H. (See Jessup, Robert W., assignor.)						
Wheeland, Charles E., Seattle, Wash. Bicycle-seat	575,406	Jan. 19	1805	434	78	377
Wheeler, Elmer S. (See Brent and Wheeler.)						
Wheeler, Franklin S., Bridgeport, Conn. Envelop	576,388	Feb. 2	558	131	78	740
Wheeler, Herbert A., St. Louis, Mo. Smokeless furnace	579,910	Mar. 30	3605	802	78	2022
Wheeler, James M., assignor of one-third to P. F. Rolin, Fish's Eddy, N. Y. Window	574,908	Jan. 12	1046	253	78	215
Wheeler, Laurens S., Tyro, Kans. Wagon-brake	574,694	Jan. 5	557	129	78	103
Wheeler, Orrin A., Chicago, Ill., assignor to Indiana Novelty Manufacturing Company, Plymouth, Ind. Adjustable handle-bar	575,746	Jan. 26	2409	567	78	508
Wheeler, Schuyler S., New York, N. Y., assignor to Crocker-Wheeler Electric Company, of New Jersey. Brush-carrier for dynamo-electric machines	575,918	Jan. 26	2706	639	78	563

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Wheeler & Wilson Manufacturing Company. (See Dial and Dimond, assignors.)						
Wheelhouse, George E., Utica, N. Y. Bicycle name-plate	576,642	Feb. 9	986	231	78	838
Wheelwright, Thomas S. (See Tiffany, George S., assignor.)						
Wheelwright, Thomas S., and G. S. Tiffany, Highland Park, Ill. Seal-lock	578,798	Mar. 16	1677	388	78	1626
Whipple, Effinger E., St. John's, Mich. Harrow	579,622	Mar. 30	3131	743, 744	78	1931
Whitaker, Scott F., assignor of one-half to C. A. Homer, Worcester, Mass. Canopy for bicycles	579,812	Mar. 30	3440	825	78	1991
Whitaker, William D., Philadelphia, Pa. Cop-doffer	575,084	Jan. 12	1246	301	78	252
White, Albert. (See Sullivan and White.)						
White, Arthur, assignor of one-half to A. W. Schram, Plymouth, Wis. Spring-rocker	574,594	Jan. 5	370	84	78	70
White, Casabianca B. (See Gipson and White.)						
White, Clarence B. (See White and Sprow, assignors.)						
White, Daniel L., Cincinnati, Ohio. Extension-step for cars	574,969	Jan. 12	1047	253, 254	78	215
White, David, assignor, by mesne assignments, to Knickerbocker Fire Extinguisher Company, New York, N. Y. Fire-extinguisher	578,434	Mar. 9	1040	237	78	1476
White, David, and T. M. Simpson, Stawell, Victoria. Process of and apparatus for extracting precious metals from slimes, &c	578,178	Mar. 2	623	143	78	1380
White, Edith. (See White, Nathan, assignor.)						
White, Edward H., and W. D. Parker, Meriden, Conn.; said Parker assignor to said White. Automatic combination-piano	579,623	Mar. 30	3132	744	78	1931
White, Enoch A., *et al.* (See McMillian, Edward D., assignor.)						
White, Ernest M., Philadelphia, Pa. Shoe channeling and grooving machine	577,498	Feb. 23	2438	573, 574	78	1142
White, Ernest M., Philadelphia, Pa. Shoe-channeling machine	577,543	Feb. 23	2531	596, 597	78	1158
White, Ernest M., Philadelphia, Pa. Shoe channeling and grooving machine	577,544	Feb. 23	2532	597	78	1158
White, Ernest M., Philadelphia, Pa. Shoe-channeling machine	577,569	Feb. 23	2576	607, 608	78	1166
White, Ernest M., Philadelphia, Pa., and J. M. Sprow, Jr., Camden, N. J.; said Sprow assignor to C. B. White, Philadelphia, Pa. Shoe-channeling machine	577,814	Feb. 23	2068	701	78	1241
White, Frank N. (See Doughty, Henry J., assignor.)						
White, Frederic, *et al.* (See Leger, Dominick S., assignor.)						
White, George, Jersey City, N. J., assignor to J. R. Hatmaker, New York, N. Y. Power and heat generator	575,819	Jan. 26	2522	595	78	530
White, George, Jersey City, N. J., assignor to J. R. Hatmaker, New York, N. Y. Furnace for generation of heat or power	576,176	Feb. 2	192	48	78	673
White, George H. K. (See Sancho, Margaret A., assignor.)						
White, George M., Jefferson, Iowa. Weather-strip	578,616	Mar. 9	1356	309	78	1538
White, Isaac, *et al.* (See Leger, Dominick S., assignor.)						
White, Joseph A., Boston, Mass. Type-writing machine	574,970	Jan. 12	1049	254, 255, 256	78	216
White, Joseph H., New York, N. Y. Apparatus for drawing curves	577,472	Feb. 23	2387	592	78	1132
White, Nathan, assignor to E. White, Pasadena, Cal. Air and gas mixer	574,595	Jan. 5	371	84	78	70
White, R. J. (See Dupee, John C., assignor.)						
White, Samuel A. (See Filson, Albert S., assignor.)						
White, Stephen D., *et al.* (See Walker, William H., assignor.)						
White, Stillman, Providence, R. I. Fire protection for cities	576,797	Feb. 9	1222	292	78	884
White, William F., Chicago, Ill. Train-pipe coupling	574,695	Jan. 5	558	130	78	103
White, William R., Bloomington, Ill. Gate	574,649	Jan. 5	472	108	78	88
White, William R., Bloomington, Ill. Gate	577,092	Feb. 16	1731	410	78	992
White, William R., Bloomington, Ill. Fence	577,093	Feb. 16	1733	410	78	992
Whitehead, Thomas P., assignor of one-half to J. D. Lee, Shreveport, La. Extensible broom-handle	577,220	Feb. 16	1953	462	78	1034
Whiteman, David F., Oregon City, Oreg. Washing-machine	576,015	Jan. 26	2863	678	78	592
Whiteman, Ira V. (See Mueller and Whiteman.)						
Whitesel, Samuel. (See Whitesel, William A. and S.)						
Whitesel, William A. and S., Sumner, Nebr. Cultivator	577,937	Mar. 2	188	45, 46	78	1298
Whitford, Charles, Milwaukee, Wis. Combined pulverizer and land-marker	574,468	Jan. 5	150	35, 36	78	30
Whiting Manufacturing Company. (See Fletcher, Edwin J., assignor.)						
Whiting, William H., Philadelphia, Pa. Sifter for ashes, &c	574,696	Jan. 5	560	130	78	103
Whitlock, Elliott H., Cleveland, Ohio. Drop-hammer	579,356	Mar. 23	2619	619	78	1817
Whitmore, Edgar. (See Blamey, Edward, assignor.)						
Whitney, Baxter D., Winchendon, Mass. Expansible reamer	577,904	Mar. 2	124	31	78	1284
Whitney, Edmund B., Gloversville, N. Y. Glove	577,988	Mar. 2	190	46	78	1298
Whitney, Edwin R., Manchester, N. H. Process of and apparatus for producing calcium carbid	578,685	Mar. 9	1475	339	78	1560
Whitney, Frank H., Springfield, Vt. Tool-handle	574,839	Jan. 5	790	189	78	149
Whitney, Wake, Paterson, N. J. Newspaper-file	576,928	Feb. 9	1441	343	78	925
Whitney, William O., Glens Falls, N. Y. Adjustable shelving	575,747	Jan. 26	2410	568	78	508
Whitson, Lorenzo D., assignor of one-half to Marshall & Bruce Company, Nashville, Tenn. Type-writing machine	579,203	Mar. 23	2377	561	78	1773
Whittemore, William H., Rockaway, N. J. Apparatus for truing and burnishing metallic bearing-surfaces	577,973	Mar. 2	244	58	78	1308
Whitten, Lorenzo D., Beverly, Ill. Draft-equalizer	579,248	Mar. 23	2447	578	78	1786
Whittingham, George H., Baltimore, Md. Electric heater	579,459	Mar. 23	2889	669	78	1856
Whittington, B. F. (See Johnson, James P., assignor.)						
Whitton, Helen S., Fruitvale, Cal. Contagious-germ incinerator	575,940	Jan. 26	2736	646	78	570
Whyte, William T., Lima, Ohio. Vegetable-slicer	574,971	Jan. 12	1057	257	78	216
Wickes Brothers. (See Baker, Ludwig, assignor.)						
Wickes Refrigerator Car Company. (See Brown, George F., Jr., assignor.)						
Wickliffe, Charles E., Washington, D. C. Bicycle-lock	577,673	Feb. 23	2747	649	78	1199
Wickstrom, John, Chicago, Ill. Self-heating soldering-iron	574,596	Jan. 5	373	84	78	70
Widenham, J. C., administrator. (See Morrow, Zachariah D.)						
Widmer, Adolph and S., Paterson, N. J. Automatic let-off	579,783	Mar. 30	3399	813	78	1983
Widmer, Samuel. (See Widmer, Adolph and S.)						
Wiebe, Paul M., St. Louis, Mo. Screw-thread-cutting device	575,085	Jan. 12	1247	301	78	252
Wiedemann, Paul O., New York, N. Y. Fan attachment for sewing-machines	578,846	Mar. 16	1767	407	78	1643
Wiedenbeck, Siegmund T., A. L. Neubert, and M. J. Sietz, Minneapolis, Minn. Machine for washing filter material	576,389	Feb. 2	560	132	78	741
Wiediger, Conrad, Milwaukee, Wis. Combined picture-frame and album	574,973	Jan. 12	1058	257	78	217
Wiedrich, George D., *et al.* (See Miller, Lewis J., assignor.)						
Wiens, Adolph R., and G. J. Brands, Milwaukee, Wis. Hand-grip	578,959	Mar. 16	1974	460	78	1678

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wiens, Jakob. (See Waldner, John J., assignor.)						
Wiens, John P., Milwaukee, Wis. Metal-cleaning brush	574,972	Jan. 12	1058	257	78	216
Wiese, Ernest P., Harbine, Nebr. Clevis	579,310	Mar. 23	2543	601	78	1808
Wigg, William B. (See Russell and Wigg.)						
Wigginton, Newton J., Winchester, Va. Coffee or tea pot	579,666	Mar. 30	3207	761	78	1947
Wiggs, Zeph, Denton, Tex. Railway stock-guard	579,507	Mar. 23	2916	686	78	1871
Wightman, Frank V., R. W. Birdsell, and T. D. Nostrand, Philadelphia, Pa. Sticky fly-paper	575,019	Jan. 12	1132	274	78	230
Wigle, Jeduthun N., assignor of one-half to W. D. Wigle, Ruthven, Canada. Fly-screen for windows	579,730	Mar. 30	3310	791	78	1966
Wigle, William D. (See Wigle, Jeduthun N., assignor.)						
Wilbur, William W., Troy, N. Y. Window	579,460	Mar. 23	2840	669	78	1856
Wilcox, Clementina H., Minneapolis, Minn. Acetylene-gas generator	578,847	Mar. 16	1768	407	78	1643
Wilcox, John D., Gilman, Ill. Pump	576,929	Feb. 9	1442	343	78	925
Wilcox, Theodore B., Newark, N. J., assignor to Sharp & Dohme, New York, N. Y. Inhaler	577,674	Feb. 23	2749	649	78	1199
Wilder, Frank H., *et al.* (See Wilder, John W., assignor.)						
Wilder, George B., Cambridge, Mass. Scraper	578,960	Mar. 16	1975	460	78	1678
Wilder, Holly W., *et al.* (See Wilder, John W., assignor.)						
Wilder, John W., assignor to F. H. and H. W. Wilder, Pulaski, N. Y. Vehicle-top	577,473	Feb. 23	2388	562	78	1132
Wildern, Adna, assignor to J. Wildern, J. Brockest, G. B. Deacon, and D. C. Wilson, London, Canada. Mortise-lock	575,763	Jan. 26	2431	573, 574	78	512
Wildern, John, *et al.* (See Wildern, Adna, assignor.)						
Wildman, George, assignor of one-half to Cooper Box & Company, Limited, London, England. Hat	574,697	Jan. 5	561	130, 131	78	104
Wildprett, William, Providence, R. I. Ladder	575,866	Jan. 26	2610	616	78	546
Wiley, Clarence H., Hartford, Conn. Letter-file	574,974	Jan. 12	1061	257	78	217
Wilhelm, John, Portland, Oreg., assignor to A. Maurer, Great Falls, Mont. Truck for moving heavy bodies	579,286	Mar. 23	2507	592	78	1796
Wilhelmsen, Chris, Jackson, Miss. Car-chock	579,667	Mar. 30	3208	762	78	1947
Wilkening, Friderich, Elkhart, Ind. Rolling gage for paper-cutting machines	576,643	Feb. 9	986	231, 232	78	839
Wilkerson, John, Kansas City, Mo. Non-conducting hood	575,680	Jan. 19	2301	542	78	478
Wilkes, Joseph C., Athens, Ohio. Fence-making appliance	578,617	Mar. 9	1358	309	78	1588
Wilkes, Lincoln E., Hillsborough, Oreg. Type-writing machine	575,190	Jan. 12	1424	342, 343	78	286
Wilkin, John T., Connersville, Ind. Journal-box	579,508	Mar. 23	2917	686, 687	78	1872
Wilkinson, Archie W. (See Lowry, Mark A., assignor.)						
Wilkinson, Frederick, assignor of one-third to T. S. Turnbull, Manchester, England. Manufacture of wire card-clothing	579,024	Mar. 30	3134	744	78	1932
Wilkinson, George, Charleston, Pa. Refrigerator	574,975	Jan. 12	1062	258	78	217
Willaman, Joseph B. (See Ware and Willaman.)						
Willard, James A. (See Hines and Willard.)						
Willard, John W., Pittsford, Vt., assignor to C. G. Farwell, Quincy, Mass. Antirattler for thill-couplings	574,769	Jan. 5	676	161	78	127
Willard, John W., Pittsford, Vt., assignor to C. G. Farwell, Quincy, Mass. Antirattler for thill-couplings	574,840	Jan. 5	791	189	78	149
Willard, Theadore A., Norwalk, Ohio. Electrode for storage or other batteries	576,177	Feb. 2	194	49	78	673
Willard, Theadore A., Cleveland, Ohio. Battery-plate	576,178	Feb. 2	196	49	78	673
Willbrandt, Emil, Indianapolis, Ind. Speculum	579,625	Mar. 30	3136	744	78	1932
Willbur, James M., New York, N. Y. Machine for canceling checks	576,750	Feb. 9	1154	275	78	871
Willcox & Gibbs Sewing Machine Company. (See Borton, Stockton, assignor.)						
Williams, A. H. (See Schlesinger, William M., assignor.)						
Williams, Adolphus, *et al.* (See Fader, Silas, assignor.)						
Williams, Alfred G. (See Havell and Williams.)						
Williams, Benjamin F., Quanah, Tex. Shot-carrying shell	579,853	Mar. 30	3516	840	78	2005
Williams, Charles N. (See Owen, Williams, and Donaldson.)						
Williams, Chris. (See Newman, Johnson, Swedlund, and Williams.)						
Williams, David. (See Allen, Williams, and Lecoq.)						
Williams, Felix G., *et al.* See McMillian, Edward D., assignor.)						
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lamp-bracket	576,769	Feb. 9	1179	281	78	876
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lantern-holder	577,974	Mar. 2	246	58	78	1308
Williams, Fred D., Cooperstown, N. D. Curling-iron	576,244	Feb. 2	206	71	78	694
Williams, Henry A., Wollaston, Mass. Nut-lock	577,123	Feb. 16	1801	424	78	1005
Williams, Henry M. (See Burger, Franz, assignor.)						
Williams, Hubbard D. B., assignor of three-fourths to A. Kallmerten and C. Greuninger, Mansfield, Ohio. Submerged double-acting force-pump	577,545	Feb. 23	2534	597	78	1159
Williams, Hugh W., San Leandro, Cal. Prepayment attachment for meters	575,672	Jan. 19	2285	540	78	470
Williams, John S., Jerseyville, Ill. Wire crimping and fastening pliers	576,503	Feb. 2	737	175	78	777
Williams, Joseph A., and S. Abbott, Cleveland, Ohio. Call-ringer for telephones	578,380	Mar. 9	947	215	78	1459
Williams, Leonard A., assignor of one-half to O. H. Vorn Brock, St. Louis, Mo. Furniture	578,530	Mar. 9	1216	274	78	1510
Williams, Lloyd F., Clarksville, Tex. Trap	575,450	Jan. 19	1877	453	78	389
Williams, Louis N. D. (See Scott, Robert W., assignor.)						
Williams, Louis N. D., Ashbourne, assignor of one-half to R. W. Scott, Philadelphia, Pa. Picker-operating mechanism for knitting-machines	575,191	Jan. 12	1427	343, 344	78	287
Williams, Marcellus J. (See Nunamaker and Williams.)						
Williams, Moses A., Terre Haute, Ind. Cover for turnbuckles	579,334	Mar. 23	2586	611	78	1811
Williams, Nathan W. (See Moore, Moses M., assignor.)						
Williams, Otis, St. Johnsville, N. Y. Machine for crushing ore, &c	574,841	Jan. 5	702	189	78	149
Williams, Robert, Havre de Grace, Md. Fire-escape	576,300	Feb. 2	502	131	78	741
Williams, Samuel D., Newport, England. Magazine-camera	578,905	Mar. 16	1870	429, 430, 431	78	1660
Williams, Solomon S., Altoona, Kans. Ventilator	577,221	Feb. 16	1954	402	78	1034
Williams, William E., Chicago, Ill. Machine for making match-boxes	574,842	Jan. 5	704	189, 190, 191, 192	78	150
Williams, William E., Chicago, Ill. Machine for dipping matches	574,976	Jan. 12	1063	258, 259	78	217
Williamson, Henry C., and H. Pries, Michigan City, Ind. Draw-bar attachment for car-couplings	578,590	Mar. 9	1315	298	78	1580

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Williamson, James E. (See Ramsey, William M., assignor.)						
Williamson, John B., and R. M. Killgore, Louisville, Ky.; said Killgore assignor to said Williamson. Back and head rest	579,660	Mar. 30	3197	759	78	1945
Williamson, Martin A., Murray, Utah. Car-coupling	575,748	Jan. 26	2412	568	78	508
Williamson, W. W., *et al.* (See Gorman, John H., assignor.)						
Williamson, William, Saginaw, Mich. Drill and tap machine	575,538	Jan. 19	2088	487	78	421
Williamson, William D., Madison, Wis. Automatic stopping device for windmills	579,854	Mar. 30	3517	841	78	2006
Williges, Charles C., *et al.* (See Girtler, John F., assignor.)						
Willis, Robert J. (See Mitchell, James, assignor.)						
Willis, William E., Brooklyn, N. Y. Baby-carriage	579,528	Mar. 23	2947	696	78	1877
Williston, Benjamin F., Jackson, Mich. Packing for pump-plungers	577,570	Feb. 23	2578	608	78	1167
Willson, Thomas L., New York, N. Y. Electric smelting	575,788	Jan. 26	2468	.....	78	520
Willson, Thomas L., New York, N. Y., assignor to Electro Gas Company, of West Virginia. Producing and consuming hydrocarbon gas	577,803	Feb. 23	2951	.....	78	1237
Wilmer, Margarette E., Brooklyn, N. Y. Doll	575,749	Jan. 26	2414	568	78	509
Wilmerling, Henry G., Brooklyn, N. Y. Window-cleaning platform	574,698	Jan. 5	562	131	78	104
Wilmot, Frank A., Bridgeport, Conn. Sheet-metal tube	578,799	Mar. 16	1679	388	78	1627
Wilmot, Frank A., Bridgeport, Conn. Sheet-metal tube	578,800	Mar. 16	1680	389	78	1627
Wilmot, Frank A., Bridgeport, Conn. Sheet-metal tube	578,801	Mar. 16	1681	389	78	1627
Wilson, Alexander, Hull, England. Governor for marine engines	576,419	Feb. 2	602	142	78	749
Wilson, Charles, Campbell, Mo. Churn-dasher	579,204	Mar. 23	2378	561	78	1773
Wilson, Charles F., Brooklyn, N. Y. Fishing-reel	579,668	Mar. 30	3210	762	78	1947
Wilson, Charles F., Ottawa, Ill. Leveling-rod	575,820	Jan. 26	2524	595	78	530
Wilson, David C., *et al.* (See Wildern, Adna, assignor.)	577,905	Mar. 2	125	31	78	1284
Wilson, Eliza, Willow Springs, Mo. Quilting attachment for sewing-machines	575,764	Jan. 26	2433	574	78	512
Wilson, George, Madelia, Minn. Connection for cranks	577,701	Feb. 23	2783	658	78	1205
Wilson, James, London, England. Automatic filter	574,511	Jan. 5	216	51	78	42
Wilson, John C., Boston, Mass. Automatic time-stamp	576,644	Feb. 9	989	232	78	839
Wilson, Milford J., Painesville, Ohio. Saw-filing device	575,192	Jan. 12	1432	344	78	288
Wilson, William, Fremont, Nebr. Road-gate	576,709	Feb. 9	1088	256	78	857
Wilson, William C., assignor to F. Raymond, Brooklyn, N. Y. Oil-can	579,626	Mar. 30	3136	745	78	1932
Wilson, William C., assignor to F. Raymond, Brooklyn, N. Y. Oiler	579,627	Mar. 30	3138	745	78	1932
Wilson, William C., assignor to F. Raymond, Brooklyn, N. Y. Outlet-valve for fluid-containing vessels	579,628	Mar. 30	3140	745	78	1933
Wilson, William C., assignor to F. Raymond, Brooklyn, N. Y. Non-refillable bottle	579,629	Mar. 30	3144	745	78	1934
Wilson, William H. (See Cary, George W., assignor.)						
Wilson, William R., Carnegie, Pa. Car-unloading apparatus	577,500	Feb. 23	2439	574, 575	78	1142
Wilt, Samuel W., Toll Gate, assignor to J. H. Grogg, West Union, W. Va. Carpet or door strip	578,129	Mar. 2	513	116	78	1360
Wiltbank, Thomas. (See Jensen, Christian, assignor.)						
Winchell, James F., assignor to Foos Manufacturing Company, Springfield, Ohio. Check-row attachment for seed-planters	575,289	Jan. 12	1587	378	78	318
Winchester, Edward S., Boston, Mass. Knob attachment	578,381	Mar. 9	948	215, 216	78	1459
Winchester, Lucius W. (See Trevette, Wentworth G., assignor.)						
Winchester Repeating Arms Company. (See Bennett, Thomas G., assignor.)						
Winchester Repeating Arms Company. (See Browning, John M., assignor.)						
Winchester Repeating Arms Company. (See Johnson, Thomas C., assignor.)						
Winchester Repeating Arms Company. (See Perkins and Johnson, assignors.)						
Windahl, Karl A., Long Island City, N. Y. Apparatus for cleaning knives	577,181	Feb. 16	1885	446	78	1022
Wingate, William J., *et al.* (See Collins, Samuel W., assignor.)	575,750	Jan. 26	2415	569	78	509
Winkler, George H., New York, N. Y. Dental tool	579,205	Mar. 23	2380	592	78	1774
Winkley, Erastus E., Lynn, Mass., assignor to Goodyear Shoe Machinery Company, Portland, Me. Jack for shoe-machines	579,206	Mar. 23	2381	592	78	1774
Winkley, Erastus E., Lynn, Mass., assignor to Goodyear Shoe Machinery Company, Portland, Me. Form for sole-laying machines	579,207	Mar. 23	2383	592	78	1774
Winkley, Erastus E., Lynn, Mass., assignor to Goodyear Shoe Machinery Company, Portland, Me. Die or former for sole-machines						
Winn, Jackson. (See Jennings and Winn.)						
Winner, Grant. (See Fuller and Winner.)						
Winslow, William H., Chicago, Ill. Framing window-glass or tile	574,770	Jan. 5	677	161	78	127
Winslow, William H., Chicago, Ill. Electrolytically uniting glass tiles into a body	574,843	Jan. 5	797	192	78	150
Winston, Warwick, Shanghai, China. Bottle	577,634	Feb. 23	2685	633	78	1186
Winters, Jacob R., Clinton, Mo. Recoil-pad	575,673	Jan. 19	2290	540	78	471
Wintersteen, Norman D., Deadwood, S. D. Tool for erecting wire fences	576,980	Feb. 9	1443	343, 344	78	925
Wintz, James P., Sour Lake, Tex. Pump	579,855	Mar. 30	3519	841	78	2006
Wire Glass Company. (See Shuman, Frank, assignor.)						
Wire Grip Fastening Company. (See Gordon, George N., assignor.)						
Wire Grip Fastening Company of Maine. (See Gordon, George N., assignor.)						
Wirsching, Louis, New York, N. Y. Veterinary dental file-carrier	575,407	Jan. 19	1806	434	78	377
Wirt, Herbert C., Schenectady, N. Y., assignor to General Electric Company, of New York. Ventilated fuse-plug for electric circuits	576,710	Feb. 9	1090	256	78	858
Wisdom, Samuel J., Montgomery, Ala. Liquid-measure drain	578,671	Mar. 9	1444	330	78	1554
Wise, Harry. (See Dobrowolski and Wise.)						
Wise, Melvin J., Roberts, Ill. Feeder for corn-shellers	578,435	Mar. 9	1041	238	78	1476
Wiser, Clinton B. (See Adams, Maurice H., assignor.)						
Wissner, Harry, assignor to Wissner Non-Refillable Bottle Company, Pittsburg, Pa. Non-refillable bottle	577,094	Feb. 16	1786	411	78	992
Wissner Non-Refillable Bottle Company. (See Wissner, Harry, assignor.)						
Witherell, George E., assignor to Hartford Machine Screw Company, Hartford, Conn. Thread-cutter	578,802	Mar. 16	1683	389	78	1627
Witteck, Charles. (See Lancaster and Witteck.)						
Wittekind, Julius H., Roslindale, Mass. Bottle-stopper	577,546	Feb. 23	2585	597	78	1159
Wittemann, Rudolph A., New York, N. Y. Coupon-label-defacing device	577,804	Feb. 23	2653	608	78	1237
Witzell, Johan, New York, N. Y. Plane-lubricating apparatus	579,911	Mar. 30	3607	862	78	2022
Wodiska, Julius. (See Hamilton and Wodiska.)						
Wohlgemuth, Emil, Thum, Germany. Wire-knitting machine	577,906	Mar. 2	127	31	78	1284
Wolbrecht, John M., Chula Vista, Cal. Tent	579,373	Mar. 23	2648	626	78	1822
Wolf, Anna, Chicago, Ill. Bedclothes-fastener	574,977	Jan. 12	1064	259	78	218
Wolf Electrical Promoting Company. (See Wolf, John, Jr., assignor.)						
Wolf, John, Jr., assignor to Wolf Electrical Promoting Company, Cincinnati, Ohio. Cloth-cutting machine	578,382	Mar. 9	950	216	78	1459
Wolf, Julius J. (See Ross and Wolf.)						
Wolf, Louis J., Buffalo, N. Y. Flue-cleaner	576,931	Feb. 9	1446	344	78	926

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Wolf Safety Box Strap Company. (See Ross and Wolf, assignors.)						
Wolfe, Edwin D., *et al.* (See Vance, William H., assignor.)						
Wolfe, Frank D., *et al.* (See Thorp, James M., assignor.)						
Wolfe, Frank W., *et al.* (See Vance, William H., assignor.)						
Wolfe, Jacob C., New York, N. Y. Type-writing and adding machine	578,808	Mar. 2	818	185, 186	78	1416
Wolff, Alexander J., New York, N. Y. Lock	575,589	Jan. 19	2040	488	78	422
Wolff, Alfred, Bayonne, assignor to Regina Music Box Company, Rahway, N. J. Winding-crank	579,208	Mar. 23	2384	563	78	1774
Wolford, Edward, assignor of one-half to L. I. Morris, Ellwood City, Pa. Filter	578,179	Mar. 2	626	143	78	1381
Wolhaupter, Benjamin, Chicago, Ill. Railway-tie plate	579,509	Mar. 23	2020	687	78	1872
Wolhaupter, David P., assignor of one-half to E. G. Siggers, Washington, D. C. Speed-indicating bell for bicycles, &c.	575,086	Jan. 12	1249	302	78	253
Wolsieffer, Philip M., Chicago, Ill. Stock-book	577,998	Mar. 2	281	66	78	1314
Wonder Manufacturing Company. (See Brown, Glascock, Quinn, and Brown, assignors.)						
Wood, Charles D. (See Booth, John, assignor.)						
Wood, Clark B. (See Jewett and Wood.)						
Wood, Elsina P., Glen Haven, Wis. Window-dressing device	576,016	Jan. 26	2864	678	78	593
Wood, Frank B., New York, N. Y., assignor to Brunswick-Balke-Collender Company, Cincinnati, Ohio. Pool-game counter	578,006	Mar. 16	1874	431	78	1661
Wood, Frank W., New York, N. Y. Seal	575,512	Jan. 19	1990	476	78	413
Wood, Henry A., Meriden, Conn. Handle-bar for cycles	578,180	Mar. 2	627	143	78	1381
Wood, Howard, Conshohocken, Pa., assignor to Alan Wood Company, of Pennsylvania. Method of annealing and apparatus therefor	578,281	Mar. 2	782	177	78	1409
Wood, Hubert K., Hartford, Conn. Float-valve	578,672	Mar. 9	1445	330	78	1554
Wood, Hubert K., Hartford, Conn. Valve mechanism	578,803	Mar. 16	1685	390	78	1628
Wood, John, Middletown, Pa., assignor to A. S. Matheson and R. C. Neal, receivers. Pipe-drawing tongs	576,179	Feb. 2	198	49	78	673
Wood, Thomas F., New Bedford, assignor to C. H. Hall, Boston, Mass. Water-supply apparatus for drinking-fountains	576,932	Feb. 9	1448	344	78	926
Woodbury, Rufus H. (See Harmon, Frank L., assignor.)						
Woodcock, Thomas J., Philadelphia, Pa. Knit fabric	577,702	Feb. 23	2785	658	78	1206
Woodham, Elizabeth G., Goble, Oreg. Mucilage-bottle	577,474	Feb. 23	2390	562	78	1133
Woodruff, Thomas, Withington, England. Atomizer	578,436	Mar. 9	1043	238	78	1477
Woods, Clinton E., assignor to American Electric Vehicle Company, Chicago, Ill. Controller for dynamo-electric machines	579,028	Mar. 16	2082	487, 488	78	1701
Woods, William B., Wheeling, W. Va. Trolley repair-wagon	578,848	Mar. 16	1769	407	78	1644
Woodward, Ambrose W., assignor of one-half to B. G. Dodge, Lancaster, Pa. Line-fastening sinker	575,674	Jan. 19	2291	540	78	471
Woodward, Benjamin S., Hartford, assignor of one-half to W. W. Rogers, West Hartford, Conn. Multiple-spindled driving device	576,988	Feb. 9	1559	370, 371	78	948
Woodward, William H., Cedar Grove, Tenn. Mechanism for utilizing water-power	579,209	Mar. 23	2385	563	78	1774
Woodward, William H., Cedar Grove, Tenn. Mechanism for utilizing water-power	579,210	Mar. 23	2388	564	78	1775
Woodworth, George L., Stanford University, Cal. Igniting apparatus for internal-combustion engines	579,921	Mar. 30	3017	865, 866	78	2024
Woodworth, Orson H., Indianapolis, Ind. Chronosphygmometer	576,180	Feb. 2	199	49	78	673
Woolf, Albert E., assignor to R. Woolf, New York, N. Y. Electrode	578,070	Mar. 2	390	91	78	1335
Woolf, Rosamond. (See Woolf, Albert E., assignor.)						
Woolf, William, London, England. Ring for holding or carrying curtains	579,912	Mar. 30	3007	863	78	2022
Wootton, Robert, Birmingham, assignor to British Tube Company, Limited, Smethwick, England. Machinery for manufacturing seamless steel tubes	577,907	Mar. 2	129	32	78	1285
Wootton, Robert, Birmingham, England, and B. Hewitt, deceased, (F. L. Middleton, Washington, D. C., administrator,) assignors to British Tube Company, Limited, Birmingham, England. Dog or gripper for use on draw-benches	577,095	Feb. 16	1738	411	78	998
Worrall, Clarence A., Philadelphia, Pa. Broom or brush	575,087	Jan. 12	1253	302	78	253
Worthen, William E., New York, and O. Darling, Babylon; said Worthen assignor to R. E. Hawley, Brooklyn, N. Y. Apparatus for water-supply systems	578,505	Mar. 9	1175	266	78	1502
Wragg, Frank J. (See Watts and Wragg.)						
Wray, Samuel F., Elwood, Ind. Corner scaffold-bracket	577,222	Feb. 16	1956	463	78	1034
Wright, Charles L., assignor of one-half to W. P. Daebelliehn, Moline, Ill. Elevator	579,661	Mar. 30	3198	759, 760	78	1945
Wright, Cornelius C., Titusville, Pa. Fluid-pressure regulator	579,551	Mar. 23	3001	710	78	1887
Wright, Fred W., Baton Rouge, La. Lemon-juice extractor	578,477	Mar. 9	1108	262	78	1490
Wright, George W., and A. E. Fielden, assignors of one-third to H. M. Schadewald, Philadelphia, Pa. Guard for revolving set-screws	576,334	Feb. 2	467	109	78	725
Wright, Herbert B., assignor of two-thirds to E. P. Monroe and J. W. Seyk, Chicago, Ill. Mechanical purifier	578,688	Mar. 9	1477	339	78	1560
Wright, James V., *et al.* (See Amanns, Abraham, assignor.)						
Wright, N. S., *et al.* (See Mummery, Edwin G., assignor.)						
Wright, Rufus. (See Morgan, Clark, and Parker, assignors.)						
Wright, Thomas C., Chicago, Ill. Device for displaying wall-paper	576,645	Feb. 9	992	292, 293	78	840
Wright, Walter B., Philadelphia, Pa. Incinerating-furnace	575,088	Jan. 12	1254	302, 303	78	253
Wright, William. (See Gibbs and Wright.)						
Wright, William, Elmira, N. Y. Ladder-truck	575,198	Jan. 12	1434	344	78	288
Wright, William. New York, N. Y. Electrical amalgamator	579,211	Mar. 23	2390	564	78	1775
Wright, William J., assignor of one-half to Dickson, Kerr & Co., Pittsburg, Pa. Pump	575,496	Jan. 19	1966	471	78	408
Wright, William L., and W. H. Stracener, Betties, Tex. Churn	575,581	Jan. 19	2111	503	78	435
Wroten, Mabray M., Mer Rouge, La. Plow	578,181	Mar. 2	628	143	78	1381
Wurts, Alexander, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. System of lightning protection for electric circuits	574,978	Jan. 12	1066	259	78	218
Wurts, Alexander J., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Device for protecting electric circuits	574,979	Jan. 12	1068	259	78	218
Wussow, William H., Sr., Oshkosh, Wis., assignor of one-half to F. M. Clough, Lebanon, Pa. Machine for making shucks for paper boxes	579,029	Mar. 16	2086	488	78	1702
Wustum, Minnie G., Racine, Wis. Glove-stretcher	576,181	Feb. 2	202	50	78	674
Wutke, Alois G., and H. Uhry, Plaquemine, La. Attachment for pasteboard boxes, cartons, &c.	577,340	Feb. 16	2146	508	78	1070
Wuzel, Michael. (See Schuler and Wuzel.)						
Wyatt, William E. (See Sickafoose and Wyatt.)						
Wyckoff, Seamans & Benedict. (See Webb, George B., assignor.)						
Wylie, Alexander M., Stockton, Cal. Pontoon transfer-bridge for dikes or canals	579,813	Mar. 30	3442	825, 826	78	1991
Wylly, William P., Patterson, Ga. Hack or scraper	579,287	Mar. 23	2508	592	78	1706

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wyman, Daniel D., Chicago, Ill. Spring bed-bottom	579,669	Mar. 30	3211	762	78	1947
Yaeger, William, Buffalo, N. Y. Tap-hole bushing	575,089	Jan. 12	1256	303	78	254
Yakeley, William P., assignor to M. W. Dewey, Syracuse, N. Y. Type-writer cabinet	577,703	Feb. 23	2786	658	78	1206
Yale & Towne Manufacturing Company. (See Towne, Henry R., assignor.)						
Yeager, Bertus J., assignor of one-half to T. J. McKinstry, Montague, Mich. Thill-coupling	576,182	Feb. 2	203	50	78	675
Yeakel, Abraham M., Perkasie, Pa. Spool-cabinet	579,461	Mar. 23	2840	669	78	1856
Yerby, William R., Athens, Ga. Basket	579,030	Mar. 16	2088	489	78	1703
York, James W., Hillsdale, Ky. Singletree	574,469	Jan. 5	152	36	78	30
Yost, Charles W., *et al.*, executors. (See Yost, George W. N.)						
Yost, George W. N., deceased; C. G. Patterson, C. W. and S. C. Yost, executors; said Patterson and C. W. Yost assignors to E. & H. Densmore, New York, N. Y. Spring	575,451	Jan. 19	1879	453	78	390
Yost, Sophia C., *et al.*, executors. (See Yost, George W. N.)						
Young, Cornelius, assignor to Cotton States Machinery Company, Selma, Ala. Cotton-seed huller and separator	577,394	Feb. 16	2244	527, 528	78	1088
Young, Edwin J., assignor to Ohio Injector Company, Wadsworth, Ohio. Injector	579,212	Mar. 23	2392	564	78	1776
Young, Frederick W. (See Rice, Robert E. L., assignor.)						
Young, Herbert R., Lakeport, N. H. Device for house-wiring	579,213	Mar. 23	2394	565	78	1776
Young, McClintock, Frederick, Md., assignor to Palmetto Fiber Company, of Illinois. Brush-machine	578,907	Mar. 16	1877	431, 432, 433, 434	78	1661
Young, Tapley W., assignor to D. A. McKnight, Washington, D. C. Electrical insulator	577,704	Feb. 23	2787	658	78	1206
Younger, Isaac, Louisville, Ky. Balanced slide-valve	579,691	Mar. 30	3245	770	78	1954
Youngstown Iron and Steel Roofing Company. (See Pendleton, William C., assignor.)						
Yvonnet, Antoine, *et al.* (See Carmien, Pierre J., assignor.)						
Zacharias, Jesse W. (See Murray, Joseph E., assignor.)						
Zahniser, Michael R., Washington, Pa. Belt-replacer	577,096	Feb. 16	1739	411	78	998
Zandalazini, Joseph, Scranton, Pa. Antislipping attachment for boots or shoes	577,475	Feb. 23	2391	563	78	1133
Zaun, Anna C., New York, N. Y. Belt-pin	575,919	Jan. 26	2707	640	78	563
Zaun, John B. (See Bassford, Isaac F., assignor.)						
Zeglen, Casimir, Chicago, Ill. Bullet-proof fabric	577,999	Mar. 2	282	66	78	1314
Zeglen, Casimir, Chicago, Ill. Bullet-proof fabric	578,000	Mar. 2	283	66	78	1315
Zeilstra, Gerhard, assignor of one-half to A. V. Schenck, Grand Rapids, Mich. Wagon-nut	575,751	Jan. 26	2416	569	78	509
Zeiss, Firm of Carl. (See Rudolph, Paul, assignor.)	574,512	Jan. 5	218	52	78	43
Zempliner, Alfred, Vienna, Austria-Hungary. Suspended lamp	576,017	Jan. 26	2865	678	78	593
Ziegler, John G. (See McConnell, Joseph F., assignor.)	579,630	Mar. 30	3147	746	78	1934
Zierfuss, Richard G., Milwaukee, Wis. Game-counter						
Zimmerman, Edward, and J. A. Reed, Buffalo, N. Y. Toy						
Zimmerman, John, assignor to National Key-Opening Can Company, Chicago, Ill. Sheet-metal top-opening can	579,462	Mar. 23	2842	670	78	1857
Zintzsch, Paul, New York, N. Y. Musical instrument	579,031	Mar. 16	2090	489	78	1703
Zuppann, William, Warsaw, Ill. Metallic window-slide	579,631	Mar. 30	3148	746	78	1935

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Page.
Aberer, Oscar, St. Louis, Mo. Compound tool	26,679	Feb. 23	78	1247
Adams & Westlake Company. (See Hamm, William S., assignor.)				
Adams & Westlake Company. (See Mosher, John A., assignor.)	26,708	Mar. 2	78	1420
Altmyer, Nicholas, Coggon, Iowa. Match-safe				
Alvin Manufacturing Company. (See Loeser, Daniel A., assignor.)				
American Lithograph Company. (See Witsch, Nicholas, assignor.)				
American Type Founders Company. (See Cumming, John F., assignor.)				
American Type Founders Company. (See Ihlenburg, Herman, assignor.)	26,522	Jan. 12	78	330
Andersen, Johan M., Boston, Mass. Bicycle-frame				
Andress, Edward B. (See Webb and Andress.)				
Ansonia O. & C. Company. (See Osborne, Wilbur F., assignor.)	26,755	Mar. 16	78	1732
Ashby, William G., Franklin, Va. Campaign-button				
Austin, Frederick C. (See Eichhorn, Melker J., assignor.)	26,497	Jan. 5	78	163
Back, George R., Gothenburg, Nebr. Fly brush or bat	26,582	Jan. 12	78	333
Bailey, Charles J., Newton, Mass. Foothold				
Basquin, Olin H., Chicago, Ill., assignor to Luxfer Prism Patents Company, of West Virginia. Prismatic window-light	26,829	Mar. 30	78	2036
	26,596	Feb. 2	78	791
Baynes, Edward C., Buffalo, N. Y. Head or foot board for metallic bedsteads	26,488	Jan. 5	78	162
Beardsley, William N., Bridgeport, Conn. Bicycle toe-clip	26,849	Mar. 30	78	2039
Bell, Willard J., Weedsport, N. Y. Mop-bucket	26,613	Feb. 9	78	949
Berg, Joseph F., Jr., Plainfield, N. J. Necktie-holder	26,700	Mar. 2	78	1419
Bersbach, Emil, Brooklyn, N. Y. Bracket	26,489	Jan. 5	78	162
Bettendorf, William P., Davenport, Iowa. Brake-beam for cars	26,701	Mar. 2	78	1419
Bettini, Gianni, New York, N. Y. Phonograph-frame				
Bigelow Carpet Company. (See Jacobs, Winthrop L., assignor.)	26,851	Mar. 30	78	2039
Boal, Stanhope, Piqua, Ohio. Gas-stove	26,852	Mar. 30	78	2039
Boal, Stanhope, Piqua, Ohio. Stove or range	26,715	Mar. 2	78	1421
Bobrick, Gabriel A., Boston, Mass. Pedestal for furniture	26,774	Mar. 16	78	1735
Bookwalter, Francis M., Springfield, Ohio. Hurdy-gurdy water-wheel	26,702	Mar. 2	78	1420
Bosworth, Charles, Brooklyn, N. Y. Picture-frame molding, &c	26,485	Jan. 5	78	161
Brachhausen, Gustav A., Rahway, N. J. Music-box cover	26,682	Feb. 23	78	1248
Bradshaw, Silas S., Brooklyn, N. Y. Car-window sash	26,778	Mar. 16	78	1735
Brinkerhoff, Warren M., Auburn, N. Y. Section-knife for mowing-machines	26,779	Mar. 16	78	1735
Brinkerhoff, Warren M., Auburn, N. Y. Section-knife for mowing-machines	26,555	Jan. 26	78	614
Bristow, Henry, Brooklyn, N. Y. Book				
Bromley, Edward, *et al.* (See Petzold, Adolph, assignor.)				
Bromley, John H., *et al.* (See Petzold, Adolph, assignor.)				
Bromley, Joseph, *et al.* (See Petzold, Adolph, assignor.)	26,692	Feb. 23	78	1249
Brooke, Frederick R., Brooklyn, N. Y. Card				
Brown-Westhead, Moore & Co., T. C. (See Legér, Armand, assignor.)	26,809	Mar. 23	78	1896
Buch, Edward W., Bridgeport, Conn. Fence	26,758	Mar. 16	78	1732
Burchell, Thomas H., New York, N. Y. Writing-shield	26,588	Feb. 2	78	790
Burnham, Franklin P., Middletown, Ohio. Bicycle-frame	26,619	Feb. 9	78	950
Burnip, John T., Melbourne, Victoria. Cycle-brush	26,818	Mar. 30	78	2035
Buscarlet, Etienne, Paris, France. Glove	26,521	Jan. 12	78	330
Butler, Maguler, Rochester, N. Y. Bicycle-tire cleaner	26,843	Mar. 30	78	2038
Caffrey, Richard, South Bethlehem, Pa. Railway-tie plate				
Caldwell & Co., J. E. (See Slocomb, Abby D., assignor.)				
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,640	Feb. 16	78	1096
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,641	Feb. 16	78	1096
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,642	Feb. 16	78	1097
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,643	Feb. 16	78	1097
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,644	Feb. 16	78	1097
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,645	Feb. 16	78	1097
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,646	Feb. 16	78	1098
Caldwell, Edward F., New York, N. Y., assignor to Phœnix Glass Company, Pittsburg, Pa. Globe or shade	26,647	Feb. 16	78	1098
Caldwell, Edward P., Chicago, Ill. Rail-joint chair	26,742	Mar. 9	78	1570
Campbell, Richard. (See Railton and Campbell.)	26,850	Mar. 30	78	2039
Campbell, William O., New York, N. Y. Dish-drainer	26,491	Jan. 5	78	162
Capps, Frank L., Newark, N. J. Frame for phonograph-motors	26,648	Feb. 16	78	1098
Cargo, Lawrence M., assignor to G. Westinghouse, Pittsburg, Pa. Lamp-globe				
Castle, Arthur. (See Castle, Wilmot and A.)	26,593	Feb. 2	78	790
Castle, Wilmot and A., Rochester, N. Y. Radiator				
Celluloid Company. (See Lefferts, Marshall C., assignor.)	26,738	Mar. 9	78	1570
Chalfant, Edward P., Kenosha, Wis. Jaw for seat-clamps for bicycles	26,697	Mar. 2	78	1419
Claflin, Price C., Washington, D. C. Lens for eyeglasses	26,615	Feb. 9	78	950
Clinton, Charles M., Ithaca, N. Y. Coat-hanger				
Clulee, John, assignor to Simpson Nickel Silver Company, Wallingford, Conn. Handle for spoons, &c	26,627	Feb. 16	78	1095
	26,592	Feb. 2	78	790
Colestock, Daniel, assignor to Titusville Iron Company, Titusville, Pa. Radiator	26,548	Jan. 19	78	476
Collester, Henry M., Gardner, Mass. Cane fabric	26,549	Jan. 19	78	476
Collester, Henry M., Gardner, Mass. Cane fabric	26,550	Jan. 19	78	476
Collester, Henry M., Gardner, Mass. Cane fabric	26,551	Jan. 19	78	477
Collester, Henry M., Gardner, Mass. Cane fabric				

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No	Date.	Official Gazette. Vol	Page.
Collester, Henry M., Gardner, Mass. Cane fabric	26,552	Jan. 19	78	477
Collester, Henry M., Gardner, Mass. Cane fabric	26,553	Jan. 19	78	477
Comstock, Francis M., assignor to Comstock Motor Company, Topeka, Kans. Casing for fluid-pressure engines	26,021	Feb. 9	78	951
Comstock Motor Company. (See Comstock, Francis M., assignor.)				
Conner, Florence F., Cleveland, Ohio. Pad-hook	26,835	Mar. 30	78	2037
Conner, Florence F., Cleveland, Ohio. Pad-hook	26,836	Mar. 30	78	2037
Conner, Mary V., Tuskegee, Ala. Ash-pan	26,686	Feb. 23	78	1248
Connor, William R., Yonkers, N. Y. Carriage-body	26,807	Mar. 23	78	1895
Cook, August D., Lawrenceburg, Ind. Well-strainer	26,775	Mar. 16	78	1735
Cook, August D., Lawrenceburg, Ind. Well-strainer	26,776	Mar. 16	78	1735
Cook, August D., Lawrenceburg, Ind. Well-strainer	26,799	Mar. 23	78	1894
Cook, August D., Lawrenceburg, Ind. Well-strainer	26,800	Mar. 23	78	1894
Cornibert, Charles A., Woodside, N. Y. Clock-face	26,486	Jan. 5	78	162
Covert, James C., Watervliet, N. Y. Hook-casting	26,540	Jan. 19	78	475
Covert, James C., Watervliet, N. Y. Keeper-spring	26,541	Jan. 19	78	475
Covert, James C., Watervliet, N. Y. Snap-hook	26,782	Mar. 9	78	1569
Crafts, Frederick H., Rochester, N. Y. Tool for working plastic material	26,830	Mar. 30	78	2036
Cross, Sidney A., New York, N. Y. Puzzle-box	26,661	Feb. 16	78	1100
Cumming, John F., Worcester, Mass., assignor to American Type Founders Company, Newark, N. J. Font of printing-type	26,501	Jan. 5	78	164
Cycle Danger Signal Company. (See Kitchell, Edwin L., assignor.)				
Daintrey, William M., New York, N. Y. Carpet	26,860	Mar. 30	78	2041
Dalgleish, William D., Stamford, Conn. Mustache-guard clip	26,508	Jan. 12	78	328
Danby, Arthur, assignor to Ivins, Dietz & Metzger Company, Philadelphia, Pa. Carpet	26,781	Mar. 16	78	1736
Danby, Arthur, assignor to Ivins, Dietz & Metzger Company, Philadelphia, Pa. Carpet	26,782	Mar. 16	78	1736
Daniell, Charles A., Chicago, Ill. Match-safe	26,576	Feb. 2	78	788
Daniell, Charles A., Chicago, Ill. Match-safe	26,577	Feb. 2	78	788
Davis, Ambler, Phœnixville, Pa. Knitted undershirt	26,752	Mar. 9	78	1572
Davis, Joseph H. S., and W. G. W. Evans, Kokomo, Ind. Carpet-hook	26,792	Mar. 23	78	1893
Davis, L. Tyler. (See Jett, Thomas J., assignor.)				
Dennis, Samuel K., West Pullman, assignor to Plano Manufacturing Company, Chicago, Ill. Main frame for headers	26,745	Mar. 9	78	1571
Des Moines Incubator Company. (See Foy, Frank, assignor.)				
Dolan, Lawrence H., assignor of three-fourths to T. A. Nilan, L. Kauffeld, and V. Libler, Alexandria, Ind. Bulb for incandescent lamps	26,616	Feb. 9	78	950
Dolan, Lawrence H., assignor of three-fourths to T. A. Nilan, L. Kauffield, and V. Libler, Alexandria, Ind. Incandescent-lamp bulb	26,827	Mar. 30	78	2036
Dolge, Henry A., Dolgeville, N. Y. Bicycle-rack	26,765	Mar. 16	78	1733
Donaly, James L., assignor of one-half to S. M. Mills, Newark, N. J. Puzzle-box	26,530	Jan. 12	78	332
Donnelly, Mary M., Pittsburg, Pa. Corn-fork	26,777	Mar. 16	78	1735
Downs, J. Willis. (See Goodell, Dexter W., assignor.)				
Dowse, William B. H., Newton, Mass. Button-setting tool	26,767	Mar. 16	78	1734
Dreyfus, Isidor, New York, N. Y. Rope for portières, &c	26,664	Feb. 16	78	1101
Duerr, Philip J., Buffalo, N. Y. Chain	26,667	Feb. 23	78	1246
Eagle, Christiana, Weston, Canada. Frying-pan cover	26,706	Mar. 2	78	1420
Eden, John, Attleborough, Mass. Standard for clothes-driers	26,496	Jan. 5	78	163
Eichhorn, Melker J., assignor to F. C. Austin, Chicago, Ill. Crusher-bed	26,545	Jan. 19	78	475
Estes, Webster C., Brooklyn, N. Y. Wooden vial-box	26,674	Feb. 23	78	1247
Estes, Webster C., Brooklyn, N. Y. Wooden box	26,810	Mar. 30	78	2035
Eubank, Thomas, Little Rock, Ark., assignor to Missouri Railway Equipment Company, St. Louis, Mo. Journal-box	26,514	Jan. 12	78	329
Evans, William G. W. (See Davis and Evans.)				
Faatz, Frank L., Lestershire, N. Y. Metallic spring-hook	26,680	Feb. 23	78	1247
Fair, Andrew J., Walnut Cove, N. C. Mantel	26,853	Mar. 30	78	2040
Fauser, Gustave M., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,608	Feb. 2	78	793
Folger, Robert C., Albany, N. Y. Collar	26,534	Jan. 12	78	333
Foote, Albert W., Jr., assignor to J. Helder, A. W. Foote, and J. Scherer, Buffalo, N. Y. Radiator	26,509	Jan. 26	78	616
Foster, William S., Utica, N. Y. Bedstead	26,854	Mar. 30	78	2040
Foster, William S., Utica, N. Y. Bedstead	26,855	Mar. 30	78	2040
Foy, Frank, assignor to Des Moines Incubator Company, Des Moines, Iowa. Lamp attachment	26,558	Jan. 26	78	614
Frank, David, Brooklyn, assignor of one-half to J. Trounstine, New York, N. Y. End frame for metal bedsteads	26,595	Feb. 2	78	791
Frank, David, Brooklyn, assignor of one-half to J. Trounstine, New York, N. Y. End frame for metal bedsteads	26,688	Feb. 23	78	1248
Frank, David, Brooklyn, assignor of one-half to J. Trounstine, New York, N. Y. End frame for metal bedsteads	26,689	Feb. 23	78	1249
Frank, Jacob, assignor of one-half to J. Frank, Philadelphia, Pa. Cap	26,533	Jan. 12	78	333
Frank, John. (See Frank, Jacob, assignor.)				
Freed, Isaac, Harrisburg, Pa. Sleeping-car safe	26,714	Mar. 2	78	1421
Frick Company. (See Shipley, Thomas, assignor.)				
Fulton & Walker Company. (See Rickards, Zachary T., assignor.)				
Gaines, Harlow D., New York, N. Y. Advertising fly-net	26,693	Feb. 23	78	1249
Gallagher, Thomas M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-bolster	26,516	Jan. 12	78	329
Gallagher, Thomas M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-bolster	26,517	Jan. 12	78	330
Gallagher, Thomas M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-bolster	26,518	Jan. 12	78	330
Gardner, John, assignor to Winchester Repeating Arms Company, New Haven, Conn. Cartridge-shell	26,676	Feb. 23	78	1247
Gardner, John, assignor to Winchester Repeating Arms Company, New Haven, Conn. Solid-head cartridge-shell	26,677	Feb. 23	78	1247
Gill, William A. (See Morningstar, Charles A., assignor.)				
Goertz, August, Newark, N. J. Purse-frame	26,506	Jan. 12	78	328
Goldberger, Ignatz, Cleveland, Ohio. Undergarment	26,546	Jan. 19	78	476
Goldberger, Ignatz, Cleveland, Ohio. Undergarment	26,547	Jan. 19	78	476
Golden, Charles D., Chicago, Ill. Clock-case	26,556	Jan. 26	78	614
Golden, Charles D., Chicago, Ill. Clock-case	26,557	Jan. 26	78	614
Golden, Charles D., Chicago, Ill. Hall-rack	26,572	Jan. 26	78	616
Golden, Charles D., Chicago, Ill. Towel-rack	26,573	Jan. 26	78	616
Golden, Charles D., Chicago, Ill. Cigar-lighter, &c	26,634	Feb. 16	78	1095
Golden, Charles D., Chicago, Ill. Clock-case	26,669	Feb. 23	78	1246
Golden, Charles D., Chicago, Ill. Clock-case	26,670	Feb. 23	78	1246
Golden, Charles D., Chicago, Ill. Clock-case	26,671	Feb. 23	78	1247

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol	Page.
Golden, Charles D., Chicago, Ill. Clock-case	26,672	Feb. 23	78	1247
Golden, Charles D., Chicago, Ill. Cigar-lighter	26,824	Mar. 30	78	2036
Goltra, Edward F., St. Louis, Mo. Car-truck bolster	26,713	Mar. 2	78	1421
Goodell, Dexter W., Greenfield, Mass., assignor to J. W. Downs, New Haven, Conn. Sewing-machine frame	26,847	Mar. 30	78	2038
Goodsell, Nelson, Philadelphia, Pa. Spoon	26,724	Mar. 9	78	1568
Gould Coupler Company. (See Richards, Willard F., assignor.)				
Gramelspacher, John, Jasper, Ind. Desk	26,811	Mar. 23	78	1896
Gramelspacher, John, Jasper, Ind. Desk	26,812	Mar. 23	78	1896
Gramelspacher, John, Jasper, Ind. Desk	26,813	Mar. 23	78	1896
Grannis, Hial S., assignor to Peck, Stow & Wilcox Company, Southington, Conn. Frame for grooving-machines	26,806	Mar. 23	78	1895
Grant, Frederick D. (See Robbins, Howard S., assignor.)				
Green, Charles F., Syracuse, and G. V. Green, Fulton, N. Y. Impaling-pin	26,507	Jan. 12	78	328
Green, George V. (See Green, Charles F. and G. V.)				
Grindley, William H., Congleton, England, assignor to W. S. Pitcairn, New York, N. Y. Plate	26,582	Feb. 2	78	789
Grindley, William H., Congleton, England, assignor to W. S. Pitcairn, New York, N. Y. Ewer	26,630	Feb. 16	78	1095
Grindley, William H., Congleton, England, assignor to W. S. Pitcairn, New York, N. Y. Ewer	26,789	Mar. 23	78	1892
Griswold Manufacturing Company. (See Griswold and Hollands, assignors.)				
Griswold, Matthew, Jr., and J. C. Hollands, assignors to Griswold Manufacturing Company, Erie, Pa. Waffle-iron support	26,797	Mar. 23	78	1895
Griswold, Stephen M., Brooklyn, N. Y. Flower-holder	26,631	Feb. 16	78	1095
Guett, Monroe, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Switch contact member	26,564	Jan. 26	78	615
Gumbinner, Emil, New York, N. Y. Belt and garment hook	26,505	Jan. 12	78	328
Hacherelle, Louis E., Peoria, Ill. Dress-form	26,690	Feb. 23	78	1249
Hamm, William S., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Bicycle-lamp	26,794	Mar. 23	78	1893
Hamman, Henry, Burlington, Kans. Tug-holder	26,681	Feb. 23	78	1248
Hammann, Edward, Brooklyn, assignor to J. L. Mott Iron Works, New York, N. Y. Cistern for water-closets	26,841	Mar. 30	78	2038
Hannold, Isaac N., and J. W. Sinnickson, Philadelphia, Pa. Target	26,600	Feb. 2	78	792
Hanson, Julius L., New York, N. Y. Puzzle-box	26,705	Mar. 2	78	1420
Harder, Ulrich, St. Louis, Mo. Tampon-carrier, &c	26,707	Mar. 2	78	1420
Hare, Hannah J., Pittsburg, Pa. Ironing-board	26,599	Feb. 2	78	791
Harrington, Fred M., Weedsport, N. Y. Display-rack	26,810	Mar. 23	78	1896
Harris, Charles R., Williamsport, Pa. Bicycle-frame	26,589	Feb. 2	78	790
Harris, Charles R., Williamsport, Pa. Bicycle-frame	26,590	Feb. 2	78	790
Harrison, John M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-bolster	26,543	Jan. 19	78	475
Harrison, John M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-bolster	26,544	Jan. 19	78	475
Hart, Gerald W., West Hartford, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Switch-handle	26,565	Jan. 26	78	615
Hart, Gerald W., West Hartford, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Electric-switch base	26,650	Feb. 16	78	1098
Hart, Gerald W., West Hartford, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Electric-switch base	26,651	Feb. 16	78	1099
Hart & Hegeman Manufacturing Company. (See Guett, Monroe, assignor.)				
Hart & Hegeman Manufacturing Company. (See Hart, Gerald W., assignor.)				
Hartley, Charles J., Decatur, Ill. Puzzle-box	26,662	Feb. 16	78	1101
Havell, George, and A. G. Williams, Newark, N. J. Bicycle-lamp	26,762	Mar. 16	78	1733
Havell, George, and A. G. Williams, Newark, N. J. Bicycle-lamp	26,763	Mar. 16	78	1733
Hawkes, Thomas G., Corning, N. Y. Glass vessel or dish	26,780	Mar. 9	78	1569
Hawkes, Thomas G., Corning, N. Y. Glass vessel or dish	26,781	Mar. 9	78	1569
Hawley, William T., Paris, Ohio. Fence-post base	26,842	Mar. 30	78	2038
Helder, John, *et al.* (See Foote, Albert W., Jr., assignor.)				
Heiser, William, Buffalo, N. Y. Bolt-washer	26,563	Jan. 26	78	615
Held, August S., Freeport, Ill. Shelf-key	26,771	Mar. 16	78	1734
Henderson, Ulysses F., New Lebanon, Pa. Bicycle-handle	26,542	Jan. 19	78	475
Heron, William E., Great Falls, Mont. Ornamental card	26,538	Jan. 19	78	474
Hess, William, Buffalo, N. Y. Solid spindle for bedsteads	26,716	Mar. 2	78	1422
Heugel, Gabriel L., assignor of one-half to J. Sunderland, Los Angeles, Cal. Puzzle	26,784	Mar. 23	78	1891
Heverly, David F., Centre Point, Iowa. Game-board	26,500	Jan. 5	78	164
Hill, John W., New York, assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,610	Feb. 2	78	793
Hill, John W., New York, assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,611	Feb. 2	78	793
Hirsch, John C., assignor of two-thirds to F. Huckestein, Allegheny, and T. Hirsch, Avalon, Pa. Casing for indicators	26,772	Mar. 16	78	1734
Hirsch, Joseph, Kansas City, Mo. Horse-boot	26,832	Mar. 30	78	2037
Hirsch, Theodore, *et al.* (See Hirsch, John C., assignor.)				
Hirsh, John R., Syracuse, N. Y. Coat-hook	26,791	Mar. 23	78	1893
Hohster, Albert, New York, N. Y. Battery-cell	26,840	Mar. 30	78	2038
Hoefer, Emil A., assignor to G. W. Warner, Freeport, Ill. Hand-truck	26,570	Jan. 26	78	616
Hollands, John C. (See Griswold and Hollands.)				
Howard, Charles, New York, N. Y. Grate	26,495	Jan. 5	78	163
Howard Sterling Company. (See Southwick, Albert A., assignor.)				
Howe, Edwin C., Bridgeport, Conn. Bracket for incandescent lights	26,492	Jan. 5	78	163
Huckestein, Frank, *et al.* (See Hirsch, John C., assignor.)				
Hudson, James B., Toledo, Ohio. Hand-stamp	26,484	Jan. 5	78	161
Hull, Scott H., Oskaloosa, Iowa. Checkrein guide-loop	26,703	Mar. 23	78	1893
Hunter, John S., *et al.* (See Hunter, Samuel J., assignor.)				
Hunter, Samuel J., assignor of three-fourths to W. S., J. S., and U. G. Hunter, Savannah, Mo. Churn-dasher	26,598	Feb. 2	78	791
Hunter, Ulysses G., *et al.* (See Hunter, Samuel J., assignor.)				
Hunter, William S., *et al.* (See Hunter, Samuel J., assignor.)				
I. B. Kleinert Rubber Company. (See Kleinert, Isaac B., assignor.)				
Ihlenburg, Herman, Philadelphia, Pa., assignor to American Type Founders Company, Newark, N. J. Font of type	26,751	Mar. 9	78	1572
International Committee of Young Men's Christian Associations. (See Murray and Schenck, assignors.)				
Ivins, Dietz & Metzger Company. (See Danby, Arthur, assignor.)				
Ivins, Eugene. (See Miller, William W., assignor.)				
Ivory, James W., Philadelphia, Pa. Dental tool for carrying amalgam	26,678	Feb. 23	78	1247
J. L. Mott Iron Works. (See Hammann, Edward, assignor.)				
Jacobs, Winthrop L., East Orange, N. J., assignor to Bigelow Carpet Company, of Massachusetts. Carpet	26,721	Mar. 2	78	1422

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Jacques, Eugene L., Waterbury, Conn. Holder for bottles	26,729	Mar. 9	78	1569
Jenkins, Charles E., Chicago, Ill. Bicycle-fork	26,520	Jan. 12	78	330
Jett, Thomas J., assignor of one-half to L. T. Davis, Harriman, Tenn. Railway-spike	26,743	Mar. 9	78	1570
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Temporary cartridge-clip	26,675	Feb. 23	78	1247
Johnston, Harriet M., Muncie, Ind. Holder for fountain-pens and fillers	26,580	Feb. 2	78	789
Johnston, William A., Homer, La. Clasp	26,708	Mar. 2	78	1429
Jones, Edwards P., Alameda, assignor to Risdon Iron and Locomotive Works, San Francisco, Cal. Water-wheel bucket	26,568	Jan. 26	78	615
Jones, William S., assignor to L. E. Woodward, Owosso, Mich. Burial-casket	26,754	Mar. 9	78	1572
Kahn & Bros., F. & L. (See Kahn, Lazard, assignor.)				
Kahn, Lazard, assignor to F. & L. Kahn & Bros., Hamilton, Ohio. Stove door or panel	26,594	Feb. 2	78	791
Kaiser, Frank E., Cincinnati, Ohio. Cigar, &c	26,749	Mar. 9	78	1571
Kauffield, Louis, *et al.* (See Dolan, Lawrence H., assignor.)				
Keating, Robert M., Springfield, Mass. Bicycle-frame	26,687	Feb. 23	78	1248
Keiser, Clinton, Zanesville, Ohio. Roof-tile	26,717	Mar. 2	78	1422
Kelly, James P., Alexandria, Ind. Ax	26,513	Jan. 12	78	329
Kennedy, Edward S. T., Larchmont, N. Y. Steam-boiler setting	26,802	Mar. 23	78	1894
Kennedy, Edward S. T., Larchmont, N. Y. Steam-boiler setting	26,803	Mar. 23	78	1894
Kennedy, Edward S. T., Larchmont, N. Y. Steam-boiler setting	26,804	Mar. 23	78	1895
Kennedy, Edward S. T., Larchmont, N. Y. Steam-boiler setting	26,805	Mar. 23	78	1895
Kern, Frank, Mattoon, Ill. Underwaist	26,574	Jan. 26	78	616
Kern, Frank, Mattoon, Ill. Stocking-supporter	26,614	Feb. 9	78	950
Kerr, Hugh S., Philadelphia, Pa. Toy-slipper blank	26,612	Feb. 9	78	949
Kershaw, Francies A. (See Norton and Kershaw.)				
Kilner, Albert E., Baltimore, Md. Display-holder	26,498	Jan. 5	78	163
Kitchell, Edwin L., assignor to Cycle Danger Signal Company, Newark, N. J. Lamp	26,509	Jan. 12	78	328
Klaine, Frank A., Newport, Ky. Cooking-range	26,526	Jan. 12	78	332
Kleinert, Isaac B., assignor to I. B. Kleinert Rubber Company, New York, N. Y. Dress-shield	26,737	Mar. 16	78	1732
Kline, Samuel, Trenton, N. J. Chair	26,623	Feb. 9	78	951
Kohler, Frederick E., Canton, Ohio. Antirattler	26,652	Feb. 16	78	1099
Kohn, Alfred A., Montgomery, Ala. Shoe	26,663	Feb. 16	78	1101
Leding, Robert. (See Pohl, George R., assignor.)				
Lee, Fred E., Dowagiac, Mich. Cooking-stove	26,656	Feb. 16	78	1099
Lee, Fred E., Dowagiac, Mich. Stove or range	26,657	Feb. 16	78	1100
Lee, Fred E., Dowagiac, Mich. Stove or range	26,658	Feb. 16	78	1100
Lefferts, Marshall C., assignor to Celluloid Company, New York, N. Y. Razor-handle	26,783	Mar. 23	78	1891
Lefferts, Robert. (See Vanderbilt, Jeremiah, assignor.)				
Legér, Armand, Fenton, assignor to T. C. Brown-Westhead, Moore & Co., Stoke-upon-Trent, England. Plate or similar article	26,761	Mar. 16	78	1733
Lehman, Christian S., Lawn, Pa. Cigar-holder	26,570	Feb 2	78	789
Lemmermann, Henry, Hasbrouck Heights, N. J. Bottle	26,482	Jan. 5	78	161
Lender, William, Allegheny, Pa. Plate-glass	26,718	Mar. 2	78	1422
Lenhart, James E., Ware, Mass. Puzzle-box	26,820	Mar. 30	78	2035
Lewis, Robert, Bridesburg, Pa. Woven fabric	26,502	Jan. 5	78	164
Libler, Valentine, *et al.* (See Dolan, Lawrence H., assignor.)				
Lindner, Ernst, New York, N. Y. Gas-fixture	26,559	Jan. 26	78	614
Lindner, Ernst, New York, N. Y. Gas-fixture	26,560	Jan. 26	78	614
Lindner, Ernst, New York, N. Y. Burner-fixture	26,617	Feb. 9	78	950
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Cylinder for bicycle-pumps	26,839	Mar. 30	78	2037
Lino, Frank D., assignor of two-thirds to P. B. Lino and T. S. Quincy, Chicago, Ill. Game-board	26,531	Jan. 12	78	332
Lino, Paul B., *et al.* (See Lino, Frank D., assignor.)				
Littell, Matilda R., New York, N. Y. Shade for lamps, &c	26,673	Feb. 23	78	1247
Loeb, Lipper & Co. (See Loyd, Mary, assignor.)				
Loeser, Daniel A., Sag Harbor, assignor to Alvin Manufacturing Company, New York, N. Y. Spoon, &c	26,822	Mar. 30	78	2035
Longyear, J. M. (See McKenney, Franklin S., assignor.)				
Lowell Manufacturing Company. (See Rose, Arthur M., assignor.)				
Lowell Manufacturing Company. (See Sauer, Emil G., assignor.)				
Loyd, Mary, assignor to Loeb, Lipper & Co., Philadelphia, Pa. Trimming	26,601	Feb. 2	78	792
Loyd, Mary, assignor to Loeb, Lipper & Co., Philadelphia, Pa. Trimming	26,602	Feb. 2	78	792
Lustig, Samuel, Paterson, N. J. Court-plaster box	26,578	Feb. 2	78	788
Luxfer Prism Patents Company. (See Basquin, Olin H., assignor.)				
Magnusen, James, Chicago, Ill. Lens for sidewalks	26,735	Mar. 9	78	1570
Maloney, James A., Washington, D. C. Saddle-plate	26,831	Mar. 30	78	2037
Matthews & Willard Manufacturing Company. (See Miller, John C., assignor.)				
Maurer, Henry A., New York, N. Y. Hollow tile	26,759	Mar. 16	78	1732
May, Anna K., assignor to McCallum & McCallum, Philadelphia, Pa. Carpet	26,536	Jan. 12	78	333
McCabe, James W., New York, N. Y. Photographic mount	26,760	Mar. 16	78	1732
McCallum & McCallum. (See May, Anna K., assignor.)				
McDonald, Oscar, Jersey City, N. J. Toy	26,528	Jan. 12	78	332
McDonald, William B., assignor to J. G. Wickser, Buffalo, N. Y. Rubber quarter-boot	26,691	Feb. 23	78	1249
McKenney, Franklin S., Detroit, assignor of one-half to J. M. Longyear, Marquette, Mich. Fastening	26,593	Feb. 2	78	789
McMechan, William A., St. Clairsville, Ohio. Tubular ladder-rung	26,744	Mar. 9	78	1571
Meier, John B., Port Huron, Mich. Tapping-hammer	26,638	Feb. 16	78	1096
Metz, Charles H., assignor to Waltham Manufacturing Company, Waltham, Mass. Crown for bicycle-forks	26,764	Mar. 16	78	1733
Miller, August, assignor to Reed & Barton Corporation, Taunton, Mass. Handle for spoons, &c.	26,696	Mar. 2	78	1419
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Bicycle-lamp	26,826	Mar. 30	78	2036
Miller, William W., assignor to E. Ivins, Philadelphia, Pa. Cake or cracker	26,575	Feb. 2	78	788
Mills, Shepard M. (See Donaly, James L., assignor.)				
Mills, William, Elizabeth, N. J. Battery element	26,567	Jan. 26	78	615
Missouri Railway Equipment Company. (See Eubank, Thomas, assignor.)				
Moore, Elliott D., Moorefield, Ohio. Vehicle-wrench	26,618	Feb. 9	78	950
Moore, Mary E. (See Schram, Alexander H., assignor.)				
Morningstar, Charles A., assignor to W. A. Gill, Columbus, Ohio. Box	26,704	Mar. 2	78	1420
Morris, Edmund, Michigan City, Ind. Cane fabric	26,856	Mar. 30	78	2040
Morris, Edmund, Michigan City, Ind. Cane fabric	26,857	Mar. 30	78	2040
Morris, Edmund, Michigan City, Ind. Cane fabric	26,858	Mar. 30	78	2041
Morris, Edmund, Michigan City, Ind. Cane fabric	26,859	Mar. 30	78	2041
Morris, Henry G., and P. G. Salom, Philadelphia, Pa. Vehicle-body	26,523	Jan. 12	78	331
Morris, Henry G., and P. G. Salom, Philadelphia, Pa. Vehicle-body	26,524	Jan. 12	78	331
Mosher, Herbert L., Dowagiac, Mich. Heating-stove	26,654	Feb 16	78	1099

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Mosher, Herbert L., Dowagiac, Mich. Heating-stove	26,655	Feb. 16	78	1099
Mosher, John A., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Arc-lamp frame	26,649	Feb. 16	78	1098
Murphy, Thomas L., New York, N. Y. Pump-frame	26,591	Feb. 2	78	790
Murray, William D., Plainfield, N. J., and F. B. Schenck, Brooklyn, assignors to International Committee of Young Men's Christian Associations, New York, N. Y. Badge	26,625	Feb. 16	78	1094
Nason, Carleton W., New York, N. Y. Grate-bar	26,525	Jan. 12	78	331
Nelson, Horatio O., Long Island City, N. Y. Bicycle-cover	26,487	Jan. 5	78	162
Newby, Albert S., Kansas City, Mo. Grate	26,493	Jan. 5	78	163
Newby, Albert S., Kansas City, Mo. Grate	26,494	Jan. 5	78	163
Newby, Albert S., Kansas City, Mo. Grate	26,653	Feb. 16	78	1099
Nickel, David, Morris, Ill. Caster-pin	26,733	Mar. 9	78	1570
Nilan, Thomas A., *et al.* (See Dolan, Lawrence H., assignor.)				
Norton, Minnie K., Minneapolis, Minn. Kettle-scraper	26,798	Mar. 23	78	1894
Norton, Robert M., and F. A. Kershaw, Kenosha, Wis., assignors to Sterling Cycle Works, Chicago, Ill. Bicycle-fork	26,519	Jan. 12	78	330
Ogg, Samuel R., assignor to B. Ulman & Co., New York, N. Y. Fabric	26,694	Feb. 23	78	1249
Ogg, Samuel R., assignor to B. Ulman & Co., New York, N. Y. Fabric	26,695	Feb. 23	78	1249
Osborne, Wilbur F., assignor of one-half to Ansonia O. & C. Company, Ansonia, Conn. Suspender-end	26,728	Mar. 9	78	1569
Palmer, George, Washington, Ga. Watchcase	26,508	Jan. 12	78	327
Peacock, Jacob S., Lancaster, Pa. Padlock-case	26,734	Mar. 9	78	1570
Pease, Franklin B., Rochester, N. Y. Scoop	26,746	Mar. 9	78	1571
Peck, Stow & Wilcox Company. (See Grannis, Hial S., assignor.)				
Petzold, Adolph, assignor to J. H., J., and E. Bromley, Philadelphia, Pa. Rug	26,719	Mar. 2	78	1422
Petzold, Adolph, assignor to J. H., J., and E. Bromley, Philadelphia, Pa. Rug	26,720	Mar. 2	78	1422
Phœnix Glass Company. (See Caldwell, Edward F., assignor.)				
Pia, Peter F., New York, N. Y. Toy chair	26,571	Jan. 26	78	616
Piffard, Henry G., New York, N. Y. Tandem-bicycle frame	26,739	Mar. 9	78	1570
Pike, Charles F., Philadelphia, Pa. Tube	26,562	Jan. 26	78	615
Pitcairn, William S. (See Grindley, William H., assignor.)				
Pitz, Henry W., Philadelphia, Pa. Calendar	26,537	Jan. 19	78	474
Plano Manufacturing Company. (See Dennis, Samuel K., assignor.)				
Pohl, George R., assignor to R. Leding, Washington, D. C. Spoon	26,668	Feb. 23	78	1246
Postert, Alwina D., Pleasanton, Tex. Bouquet-holder	26,504	Jan. 12	78	328
Powell, Charles S., Ardmore, Pa. Badge	26,624	Feb. 16	78	1094
Proctor, Charles M. (See Raymond, Nelson H., assignor.)				
Quincy, Thomas S., *et al.* (See Lino, Frank D., assignor.)				
Railton, William, and R. Campbell, Liverpool, England. Valve-casing	26,683	Feb. 23	78	1248
Ralston, William G., Evansville, Ind. Bed-warmer	26,527	Jan. 12	78	332
Ramey, Alfred H., F. D. Rollins, and L. H. Rice, Aurora, Ill. Inhaler, &c	26,636	Feb. 16	78	1096
Raymond, John W., Racine, Wis. Casing for engines	26,566	Jan. 26	78	615
Raymond, Nelson H., assignor of one-half to C. M. Proctor, Buffalo, N. Y. Frame for electric bells	26,796	Mar. 23	78	1893
Rector, James M., Elk Park, Mont. Fan	26,626	Feb. 16	78	1094
Reddall & Co., John W. (See Seidler, William A., assignor.)				
Redfield, Charles T., Glen Haven, N. Y. Thill-coupling plate	26,584	Feb. 2	78	789
Reed & Barton Corporation. (See Miller, August, assignor.)				
Rice, Lewis H. (See Ramey, Rollins, and Rice.)				
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Base-plate for locomotive-buffers	26,515	Jan. 12	78	329
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Side frame for car-trucks	26,585	Feb. 2	78	789
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Side frame for car-trucks	26,622	Feb. 9	78	951
Rickards, Zachary T., assignor to Fulton & Walker Company, Philadelphia, Pa. Delivery-wagon body	26,808	Mar. 23	78	1895
Risdon Iron and Locomotive Works. (See Jones, Edwards P., assignor.)				
Robarts, Grace, New York, N. Y. Bonbon-lifter	26,726	Mar. 9	78	1569
Robbins, Howard S., New York, N. Y., assignor to F. D. Grant, trustee. Badge	26,722	Mar. 9	78	1568
Rollins, Frank D. (See Ramey, Rollins, and Rice.)				
Rose, Arthur M., Yonkers, assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,609	Feb. 2	78	793
Rose, Arthur M., Yonkers, N. Y., assignor to Lowell Manufacturing Company, of Massachusetts. Carpet	26,815	Mar. 23	78	1897
Rose, Arthur M., Yonkers, N. Y., assignor to Lowell Manufacturing Company, of Massachusetts. Carpet	26,861	Mar. 30	78	2041
Rosenheimer, Julius T., New York, N. Y. Folding card	26,581	Feb. 2	78	789
Rowe, Allen H., Hartford, Conn. Horseshoe-calk	26,587	Feb. 2	78	790
Ruppert, Jacob, New York, N. Y. Jar or bottle	26,790	Mar. 23	78	1893
Russel, John R., Detroit, Mich. Prism-block	26,828	Mar. 30	78	2036
Salom, Pedro G. (See Morris and Salom.)				
Sampson, Frederick L., St. Paul, Minn. Overcoat	26,753	Mar. 9	78	1572
Sanders, Louis, Brooklyn, N. Y. Belt	26,756	Mar. 16	78	1732
Sanford & Sons, Stephen. (See Fauser, Gustave M., assignor.)				
Sanford & Sons, Stephen. (See Hill, John W., assignor.)				
Sanford & Sons, Stephen. (See Rose, Arthur M., assignor.)				
Sanford & Sons, Stephen. (See Stewart, Nelson S., assignor.)				
Sauer, Emil G., Brooklyn, N. Y., assignor to Lowell Manufacturing Company, of Massachusetts. Carpet	26,816	Mar. 23	78	1897
Sauer, Emil G., Brooklyn, N. Y., assignor to Lowell Manufacturing Company, of Massachusetts. Carpet	26,817	Mar. 23	78	1897
Schenck, Frederick B. (See Murray and Schenck.)				
Scherer, Joseph, *et al.* (See Foote, Albert W., Jr., assignor.)				
Schmachtenberg, William, New York, N. Y. Handle for knives	26,723	Mar. 9	78	1568
Schram, Alexander H., assignor of one-half to M. E. Moore, Oregon City, Oreg. Beer-keg guard	26,539	Jan. 19	78	475
Schuck, Valentine, assignor to Sutro Brothers Braid Company, New York, N. Y. Braid	26,814	Mar. 23	78	1897
Scott, John, Nicholasville, Ky. Bedstead	26,597	Feb. 2	78	791
Scovill Manufacturing Company. (See Lines, John, assignor.)				
Seidler, William A., Newark, N. J. Handle for button-hooks, &c	26,821	Mar. 30	78	2035
Seidler, William A., assignor to J. W. Reddall & Co., Newark, N. J. Handle for button-hooks, &c.	26,628	Feb. 16	78	1095
Shafer, Robert D., Fayette, Ohio. Wrench	26,766	Mar. 16	78	1734
Sharp, Charles H., Lockport, N. Y. Cuspidor attachment	26,511	Jan. 12	78	328
Shaw, William B., Brooklyn, N. Y. Tip for shade-rollers	26,561	Jan. 26	78	614
Shickle, Harrison & Howard Iron Company. (See Gallagher, Thomas M., assignor.)				
Shickle, Harrison & Howard Iron Company. (See Harrison, John M., assignor.)				
Shipley, Thomas, assignor to Frick Company, Waynesborough, Pa. Frame for ice-machines	26,490	Jan. 5	78	162

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Simcoe, Thomas M., Allentown, Pa. Game-board	26,747	Mar 9	78	1571
Simpson Nickel Silver Company. (See Clulee, John, assignor.)				
Singerly, George A., Philadelphia, Pa. Horseshoe	26,833	Mar. 30	78	2037
Singerly, George A., Philadelphia, Pa. Horseshoe	26,834	Mar. 30	78	2037
Sinnickson, John W. (See Hannold and Sinnickson.)				
Slager, Albert L., Springfield, Ohio. Angle-iron	26,838	Mar. 30	78	2037
Slocomb, Abby D., Groton, Conn., assignor to J. E. Caldwell & Co., Philadelphia, Pa. Table-bell	26,629	Feb. 16	78	1094
Smith, Daniel E., Goldsborough, N. C. Tray for berry-crates	26,685	Feb. 23	78	1248
Smith, Harry W., Worcester, Mass. Woven fabric	26,780	Mar. 16	78	1735
Smith, William F., San Francisco, Cal. Necktie-retainer	26,727	Mar. 9	78	1569
Southwick, Albert A., assignor to Howard Sterling Company, Providence, R. I. Border for silverware	26,823	Mar. 30	78	2035
Sparks, William A., and L. Stein, Hoboken, N. J. Base for caskets	26,660	Feb. 16	78	1100
Spear, Absalom W., Wilkinsburg, Pa. Nut-lock	26,801	Mar. 23	78	1894
Stanley Rule and Level Company. (See Traut, Justus A., assignor.)				
Stein, Leo. (See Sparks and Stein.)				
Steinbrenner, Andrew G., St. Louis, Mo., assignor to Western Railway Equipment Company, of Illinois. Draft-lug and draw-bar follower	26,586	Feb. 2	78	789
Steinhauser, George R., St. Louis, Mo. Lamp	26,825	Mar. 30	78	2036
Sterling Cycle Works. (See Norton and Kershaw, assignors.)				
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,603	Feb. 2	78	792
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,604	Feb. 2	78	792
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,605	Feb. 2	78	792
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,606	Feb. 2	78	792
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	26,607	Feb. 2	78	792
Stivers, Jerome, New Rochelle, N. Y. Clip	26,639	Feb. 16	78	1096
Strebeck, Elizabeth, St. Louis, Mo. Fruit-holder	26,633	Feb. 16	78	1095
Sunderland, Joseph. (See Heugel, Gabriel L., assignor.)				
Sutro Brothers Braid Company. (See Schuck, Valentine, assignor.)				
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Lock-case	26,709	Mar. 2	78	1421
Temple, Robert, Denver, Colo. Gas-engine frame	26,846	Mar. 30	78	2038
Titusville Iron Company. (See Colestock, Daniel, assignor.)				
Toof, Edwin J., New Haven, Conn. Clamp-head for bicycle-saddles	26,630	Feb. 9	78	950
Traut, Justus A., assignor to Stanley Rule and Level Company, New Britain, Conn. Tool-handle	26,768	Mar. 16	78	1734
Traut, Justus A., assignor to Stanley Rule and Level Company, New Britain, Conn. Tool-handle	26,769	Mar. 16	78	1734
Trounstine, John. (See Frank, David, assignor.)				
Ulman & Co., Bernhard. (See Ogg, Samuel R., assignor.)				
Vanderbilt, Jeremiah, assignor to R. Lefferts, Brooklyn, N. Y. Candle-shade	26,786	Mar. 23	78	1892
Vanderbilt, Jeremiah, assignor to R. Lefferts, Brooklyn, N. Y. Candle-shade	26,787	Mar. 23	78	1892
Vanderbilt, Jeremiah, assignor to R. Lefferts, Brooklyn, N. Y. Candle-shade	26,788	Mar. 23	78	1892
Wagner, Frank B., Cleveland, Ohio. Coin-holder case	26,637	Feb. 16	78	1096
Wagner, Frank K., Philipsburg, Pa. Washer for bolts	26,712	Mar. 2	78	1421
Walker, David, Newark, N. J. Stair-carpet button	26,710	Mar. 2	78	1421
Waltham Manufacturing Company. (See Metz, Charles H., assignor.)				
Warner, George W. (See Hoefer, Emil A., assignor.)				
Warren, Robert H., Newark, N. J. Stair-carpet button	26,711	Mar. 2	78	1421
Watkins, Edward G., Gardner, Mass. Cane fabric	26,554	Jan. 19	78	477
Way, Charles A., Charlestown, N. H. Puzzle-card	26,529	Jan. 12	78	332
Weale, Henry P., Boston, Mass. Packing for pipes	26,512	Jan. 12	78	329
Webb, William K., and E. B. Andress, Wilkinsburg, Pa. Shoestring-fastener	26,635	Feb. 16	78	1095
Webber, George S., Chicago, Ill. Pole-holder	26,770	Mar. 16	78	1734
Weller, Charles, Newark, N. J. Mustache-guard	26,483	Jan. 5	78	161
Werner, Ernest E., Philadelphia, Pa. Casing for electric regulating instruments	26,845	Mar. 30	78	2038
Wertheimer, Benny J., San Francisco, Cal. Case for coin-controlled machines	26,684	Feb. 23	78	1248
Western Railway Equipment Company. (See Steinbrenner, Andrew G., assignor.)				
Westinghouse, George. (See Cargo, Lawrence M., assignor.)				
White, William, Passaic, N. J., assignor to C. Whitman & Co., New York, N. Y. Bedspread	26,535	Jan. 12	78	333
Whiteman, Louis P., New York, N. Y. Bicycle-lamp	26,736	Mar. 9	78	1570
Whitman & Co., Clarence. (See White, William, assignor.)				
Wickser, John G. (See McDonald, William B., assignor.)				
Wielar, Julius, New York, N. Y. Game-counter	26,499	Jan. 5	78	163
Wiggin, Joseph N., Orange, N. J. Fabric	26,665	Feb. 16	78	1101
Wiggin, Joseph N., Orange, N. J. Fabric	26,666	Feb. 16	78	1101
Wilcox, Robert M., Meriden, Conn. Flask	26,510	Jan. 12	78	328
Wilkin, John T., Connersville, Ind. Head-plate for rotary blowers	26,740	Mar. 9	78	1570
Wilkins, Charles L., Columbus, Ohio. Holder for soap or similar articles	26,632	Feb. 16	78	1095
Willard, George W., Detroit, Mich. Picture-hook	26,837	Mar. 30	78	2037
Williams, Alfred G. (See Havell and Williams.)				
Williams, Morgan L., Johnstown, Pa. Brick	26,848	Mar. 30	78	2039
Wilson, James B., Philadelphia, Pa. Medicine-spoon	26,725	Mar. 9	78	1568
Winchester Repeating Arms Company. (See Gardner, John, assignor.)				
Winchester Repeating Arms Company. (See Johnson, Thomas C., assignor.)				
Witsch, Nicholas, Jersey City, N. J., assignor to American Lithograph Company, New York, N. Y. Ornamental pattern or print for cigar-boxes	26,750	Mar. 9	78	1571
Witsch, Nicholas, Jersey City, N. J., assignor to American Lithograph Company, New York, N. Y. Ornamental print for cigar-boxes	26,785	Mar. 23	78	1892
Wolzeski, August W. H., Bloomington, Ill. Rake	26,659	Feb. 16	78	1100
Wojidkow, Louis, Brooklyn, N. Y. Crumb-tray	26,698	Mar. 2	78	1419
Wojidkow, Louis, Brooklyn, N. Y. Crumb-scraper	26,699	Mar. 2	78	1419
Woodward, L. E. (See Jones, William S., assignor.)				
Wright, Granville W., New Haven, Conn. Toy	26,748	Mar. 9	78	1571
Yale & Towne Manufacturing Company. (See Taylor, Warren H., assignor.)				
Yunck, Frederick, Bryan, Ohio. Bicycle parcel-carrier	26,795	Mar. 23	78	1893
Ziegler, Oscar J., Freeport, Ill. Anchor for windmill-towers	26,773	Mar. 16	78	1734
Ziegler, William H., Pittsburg, Pa. Rail-splice	26,844	Mar. 30	78	2038

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Abe Stein Company, New York, N. Y. Sheeting, drilling, calico, and muslin	29,477	Jan. 19	78	478
Acme Brewing Company, Macon, Ga. Beer	29,599	Feb. 23	78	1251
Acme Brewing Company, Macon, Ga. Beer	29,636	Mar. 2	78	1426
Acme Brewing Company, Macon, Ga. Beer	29,753	Mar. 30	78	2043
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,458	Jan. 12	78	336
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,459	Jan. 12	78	336
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,460	Jan. 12	78	336
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,461	Jan. 12	78	337
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,462	Jan. 12	78	337
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,463	Jan. 12	78	337
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,464	Jan. 12	78	337
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,465	Jan. 12	78	337
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,466	Jan. 12	78	337
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,467	Jan. 12	78	338
Alden & Co., George A., Boston, Mass. India-rubber, gutta-percha, and other vulcanizable gums.	29,468	Jan. 12	78	338
American Cereal Company, Akron, Ohio, Chicago, Ill., and Cedar Rapids, Iowa. Rolled oats	29,632	Mar. 2	78	1425
American Molasses Candy Co., Philadelphia, Pa. Chewing-candy	29,596	Feb. 23	78	1251
American Roll Paper Company, St. Louis, Mo. Roll-paper cutters	29,606	Feb. 23	78	1252
American Screw Company, Providence, R. I. Wood-screws	29,694	Mar. 9	78	1576
American Stamping Company, New York and Brooklyn, N. Y. Stamped and pieced sheet-metal ware enameled	29,428	Jan. 5	78	167
American Waltham Watch Company, Boston and Waltham, Mass. Watch-movements and parts thereof	29,484	Jan. 12	78	334
American Waltham Watch Company, Boston and Waltham, Mass. Watches, watch-movements, and parts of watches	29,647	Mar. 9	78	1573
American Waltham Watch Company, Boston and Waltham, Mass. Watches, movements, and parts of watches	29,648	Mar. 9	78	1573
American Waltham Watch Company, Boston and Waltham, Mass. Watches, watch-movements, and parts of watches	29,649	Mar. 9	78	1573
American Waltham Watch Company, Waltham, Mass. Watches and watch-movements	29,473	Jan. 19	78	478
American Weldless Steel Tube Company, Toledo, Ohio. Weldless steel tubing	29,492	Jan. 19	78	480
American Wood Preserving Company, Philadelphia, Pa., and Beverly, N. J. Wood preservatives.	29,730	Mar. 23	78	1899
Animarium Company. (See Sanche, Hercules, assignor.)				
Annin & Co., New York, N. Y. Flags, bunting, and decorations	29,674	Mar. 9	78	1575
Apollo Incandescent Gas Light Company, New York, N. Y. Gas-lamps, gas-burners, gas-lamp chimneys, and incandescent mediums for gas-lamps	29,768	Mar. 30	78	2044
Aultman & Taylor Machinery Company, Mansfield, Ohio. Steel castings of all descriptions	29,773	Mar. 30	78	2044
Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Dyestuff	29,687	Mar. 9	78	1576
Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Dyestuff	29,688	Mar. 9	78	1576
Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Dyestuff	29,689	Mar. 9	78	1576
Baridon, Louis R., Montreal, Canada. Cough remedy	29,660	Mar. 9	78	1574
Barrett Manufacturing Company, Philadelphia, Pa. Coal-tar products, excepting dyes	29,556	Feb. 2	78	796
Barsotti, Charles, New York, N. Y. Medicine for the purification of the blood	29,703	Mar. 30	78	2043
Bartlett, Stephen L., Boston, Mass. Powdered cocoa for drinking or cooking	29,740	Mar. 23	78	1900
Battles, Joseph, Lawrence, Mass. Hair-crimping pins	29,584	Feb. 23	78	1250
Bender & Co., Heinrich, Worms, Germany. Pumice-stones for grinding purposes	29,731	Mar. 23	78	1899
Bernheim Brothers, Louisville, Ky. Malt extract	29,567	Feb. 9	78	952
Bierce, William W., New Orleans, La. Cotton-bale ties	29,433	Jan. 5	78	168
Billings, Luther G., New York, N. Y. Bicycles, tricycles, and motor-carriages	29,695	Mar. 9	78	1576
Binney & Smith, New York, N. Y. Marking and stenciling inks	29,410	Jan. 5	78	166
Blank & Co., John, New Orleans, La. Whisky	29,699	Mar. 16	78	1737
Blau Soehne, Moriz S., Buda-Pesth, Austria-Hungary. Hungaria natural bitter water	29,752	Mar. 30	78	2042
Boldt, George C., New York, N. Y. Certain named beverages, foods, and relishes, and cigars	29,760	Mar. 30	78	2043
Born & Co., Columbus, Ohio. Lager-beer	29,547	Feb. 2	78	795
Bowdlear, William H., Boston, Mass. Beeswax	29,519	Jan. 26	78	619
Bowker Fertilizer Company, Boston, Mass. Potash fertilizers	29,691	Mar. 9	78	1576
Bowman, Charles A., Peoria, Ill. Cure for pain and for general purposes of a liniment	29,657	Mar. 9	78	1573
Brandreth Company, Sing Sing, N. Y. Liniment	29,507	Jan. 26	78	618
Brown Manufacturing Company, Greeneville, Tenn. Pills and pellets	29,512	Jan. 26	78	618
Brown Manufacturing Company, Greeneville, Tenn. Tonics	29,701	Mar. 16	78	1737
Brownell, Charles E., Modus, Conn. Seine-twine	29,481	Jan. 19	78	479
Burns, Arthur E., Tacoma, Wash. Certain named medicines and surgical instruments	29,587	Feb. 23	78	1250
Burton Bros. & Co., New York, N. Y. Cotton goods	29,651	Mar. 9	78	1573
Burton Bros. & Co., New York, N. Y. Cotton goods	29,652	Mar. 9	78	1573
Butterick Publishing Company, Limited, New York, N. Y. Fashion periodicals	29,712	Mar. 23	78	1898
Byrnes, Thomas F., Emporia, Kans., and Chicago, Ill. Shoes, boots, hats, coats, caps, pants, vests, gloves, and similar articles of apparel	29,497	Jan. 26	78	617
Calley & Currier, Bristol, N. H. Crutches and parts thereof	29,505	Jan. 26	78	618
Chadbourne & Moore, Boston, Mass. Goring	29,621	Mar. 2	78	1424
Chadbourne & Moore, Boston, Mass. Goring	29,622	Mar. 2	78	1424
Chadsey, Benjamin F. (See Weed, Wilson, and Chadsey.)				
Chevalier, John F., Providence, R. I. Roofing material	29,767	Mar. 30	78	2044
Choate, Charles N., Bridgeport, Conn. Metal alloys and ordnance metals	29,570	Feb. 9	78	952
Church & Dwight Company, New York, N. Y. Saleratus, soda, and sal-soda	29,518	Jan. 26	78	619
Cleveland Linseed Oil Company, Cleveland, Ohio. Linseed-meal	29,698	Mar. 16	78	1737
Collins Company, Canton, Conn. Certain named edge-tools	29,532	Jan. 26	78	620
Collins Company, Canton, Conn. Certain named edge-tools	29,533	Jan. 26	78	620
Collins Company, Canton, Conn. Certain named earthworking-tools	29,534	Jan. 26	78	620
Collins Company, Canton, Conn. Certain named earthworking-tools	29,535	Jan. 26	78	620
Collins Company, Canton, Conn. Certain named earthworking-tools	29,536	Jan. 26	78	620
Collins Company, Canton, Conn. Sledges, hammers, wrenches, shoes, dies, and saws	29,537	Jan. 26	78	620
Collins Company, Canton, Conn. Sledges, hammers, wrenches, shoes, dies, and saws	29,538	Jan. 26	78	620

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Collins Company, Canton, Conn. Sledges, hammers, wrenches, shoes, dies, and saws	29,539	Jan. 26	78	620
Colonial Water Company, Richmond, Va. Mineral water	29,751	Mar. 30	78	2042
Connecticut Breweries Company, Bridgeport and Meriden, Conn. Ale, porter, and lager-beer	29,754	Mar. 30	78	2043
Coombs, Harry L., Kansas City, Mo. Stomach bitters	29,548	Feb. 2	78	795
Corliss, Coon & Co., Troy, N. Y. Shirts	29,496	Jan. 26	78	617
Covert, James C., West Troy, N. Y. Harness-snaps	29,494	Jan. 19	78	480
Crescent Steel Company, Pittsburg, Pa. Steel bar, steel plate, and articles made therefrom	29,426	Jan. 5	78	167
Crescent Steel Company, Pittsburg, Pa. Steel bar, steel plate, and articles made therefrom	29,427	Jan. 5	78	167
Crum, John V., Des Moines, Iowa. Liniments or ointments	29,705	Mar. 16	78	1738
Cycle Danger Signal Company, Newark, N. J. Bicycle-lamps	29,558	Feb. 2	78	796
D. M. Osborne & Company, Auburn, N. Y. Agricultural machines and implements and their several parts	29,429	Jan. 5	78	167
D. M. Osborne & Company, Auburn, N. Y. Agricultural machines and implements and their parts	29,719	Mar. 23	78	1898
Davis & Co., Curtis, Cambridge, Mass. Soap	29,453	Jan. 12	78	335
Davis, Emry, New York, N. Y. Writing fluids and bottles, wells, and stands for same	29,474	Jan. 19	78	478
Detroit Stove Works, Detroit, Mich. Stove-castings	29,707	Mar. 16	78	1738
Detroit Stove Works, Detroit, Mich. Heating and cooking stoves	29,708	Mar. 16	78	1738
Diamond Rubber Company, Akron, Ohio. Rubber specialties for use by physicians and invalids	29,557	Feb. 2	78	796
Diaz, José M., New York, N. Y. Cigars	29,761	Mar. 30	78	2043
Doolittle, Estate of Benjamin; R. W. Doolittle, executrix, Oswego, N. Y. Natural mineral waters	29,739	Mar. 23	78	1900
Doolittle, Roxy W., executrix. (See Doolittle, Benjamin.)				
Dougherty, Andrew, New York, N. Y. Playing-cards	29,574	Feb. 16	78	1102
Duff & Sons, P., Pittsburg, Pa. Molasses	29,485	Jan. 19	78	479
Duluth Brewing and Malting Co., Duluth, Minn. Porter and lager-beer	29,421	Jan. 5	78	167
Duluth Imperial Mill Company, Duluth, Minn. Wheat-flour	29,509	Feb. 9	78	952
Dumoulin, Ariste M., Asnières, France. Polish for ironware	29,571	Feb. 9	78	952
Dupalet et D'Arnoult, Paris, France. Fire-extinguishing apparatus	29,710	Mar. 16	78	1738
Ehrhart, Conrad & Co., Hanover, Pa. Syrup	29,484	Jan. 19	78	479
Eldridge, Emma B., Bedford Park, N. Y. Complexion-cream	29,404	Jan. 5	78	166
Elliott, Laura P., Newton, Mass. Hair and scalp remedies	29,627	Mar. 2	78	1424
Ervin A. Rice Company, Chicago, Ill. Preparation of figs with sugar and other ingredients	29,702	Mar. 30	78	2043
Eureka Fire Hose Company, New York, N. Y. Hydraulic or fire hose	29,579	Feb. 23	78	1250
Excelsior Needle Company, Torrington, Conn. Needles	29,585	Feb. 23	78	1250
Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Extract of thyroid glands for use in obesity and cutaneous affections	29,406	Jan. 5	78	166
Fast Color Nail and Tack Company, Boston, Mass. Nails and tacks	29,665	Mar. 9	78	1574
Feder, Harry, New York, N. Y. Skirt-protectors	29,749	Mar. 30	78	2042
Feil, Fred, Philadelphia, Pa. Lager-beer	29,443	Jan. 12	78	334
Feil, Fred, Philadelphia, Pa. Lager-beer	29,737	Mar. 23	78	1900
Fischer & Co., C. H., New York, N. Y. Washing-blue	29,684	Mar. 9	78	1576
Fleischer & Co., Robert E., New York, N. Y. Remedy for diseases of the throat and lungs	29,659	Mar. 9	78	1574
Fleming, David S., Cape Town, Cape Colony. Pills	29,469	Jan. 12	78	338
Fliess & Co., William M., New York, N. Y. Whisky	29,738	Mar. 23	78	1900
Flock, Estate of Jacob, Williamsport, Pa. Lager-beer	29,681	Mar. 9	78	1575
Flock, Estate of Jacob, Williamsport, Pa. Lager-beer	29,682	Mar. 9	78	1575
Foster, Paul & Company, New York, N. Y. Skin gloves or kid gloves	29,716	Mar. 23	78	1898
Foster, Paul & Company, New York, N. Y. Skin gloves or kid gloves	29,717	Mar. 23	78	1898
Foster, Paul & Company, New York, N. Y. Skin gloves or kid gloves	29,741	Mar. 30	78	2042
Foster, Paul & Company, New York, N. Y. Skin gloves or kid gloves	29,742	Mar. 30	78	2042
Foster, Paul & Company, New York, N. Y. Glove-fasteners	29,743	Mar. 30	78	2042
Foster, Paul & Company, New York, N. Y. Glove-fasteners	29,744	Mar. 30	78	2042
Foster, Paul & Company, New York, N. Y. Glove-fasteners	29,745	Mar. 30	78	2042
Fowler, Annie A., East Orange, N. J. Polishes for metals	29,513	Jan. 26	78	618
Fraser & Chalmers, Chicago, Ill. Cams	29,666	Mar. 9	78	1574
Freeman Milling Company, West Superior, Wis. Wheat-flour	29,591	Feb. 23	78	1251
Freeman Milling Company, West Superior, Wis. Animal feed	29,598	Feb. 23	78	1251
Gautier, Paul, Paris, France. Articles, other than siderostats, relating to photographic business	29,488	Jan. 12	78	334
Géraudel, Auguste A., Ste. Menehould, France. Pastils	29,656	Mar. 9	78	1573
Goebel Brewing Company, Detroit, Mich. Beer and porter	29,566	Feb. 9	78	952
Gooderham & Worts, Limited, Toronto, Canada. Whisky	29,680	Mar. 9	78	1575
Goodrich Polish Manufacturing Co., Campello, Mass. Leather dressing and polish	29,514	Jan. 26	78	619
Goodrich Polish Manufacturing Co., Campello, Mass. Leather dressing and polish	29,515	Jan. 26	78	619
Grasselli Chemical Company, Cleveland, Ohio. Soldering-flux	29,766	Mar. 30	78	2044
H. H. Mayhew Company, Shelburne Falls, Mass. Wood and steel boring tools	29,643	Mar. 2	78	1426
Hammacher, Dellius & Co., New York, N. Y. Hardware, tools, agricultural implements, scythe-stones, and slates	29,493	Jan. 19	78	480
Hance Bros. & White, Philadelphia, Pa. Disinfectants	29,610	Feb. 23	78	1252
Harper, Thomas, Redditch, England. Needles	29,615	Mar. 2	78	1428
Harrison Bros. & Co., Philadelphia, Pa. Paints	29,602	Feb. 23	78	1252
Harrison Bros. & Co., Philadelphia, Pa. Ready-mixed paints	29,732	Mar. 23	78	1899
Harrison Brothers & Co., Philadelphia, Pa. Article for removing paint, oil, varnishes, stains, and finishes	29,411	Jan. 5	78	166
Harrison Brothers & Co., Philadelphia, Pa. Article for removing paint, oil, varnishes, stains, and finishes	29,412	Jan. 5	78	166
Harrison Brothers & Co., Philadelphia, Pa. Article for removing paint, oil, varnishes, wood-stains, and finishes, and for cleaning surfaces	29,455	Jan. 12	78	336
Harrison & Co., W. R., Massillon, Ohio. Feed carriers and cutters and all agricultural implements and machinery	29,774	Mar. 30	78	2044
Hartmiller Brothers, Lebanon, Mo. Remedies for neuralgia, rheumatism, and similar maladies	29,550	Feb. 2	78	795
Hedworth Barium Company, Limited, Newcastle-upon-Tyne, England. Binoxid of barium, oxid of barium, chlorid of barium, nitrate of baryta, hydrate of baryta, peroxid of hydrogen, sulfid of barium, and sulfid of copper	29,554	Feb. 2	78	795
Henry M. Peyser & Company, New York, N. Y. Clasps, buttons, and gloves	29,746	Mar. 30	78	2042
Hibbard, Spencer, Bartlett & Company, Chicago, Ill. Certain named sporting goods	29,655	Mar. 9	78	1573
Hilding, Charles, Kansas City, Mo. Liniments	29,508	Jan. 26	78	618
Hind, Thomas J., Boston, Mass. Asphalt-felt	29,654	Mar. 9	78	1573
Hiram Walker & Sons, Limited, Walkerville, Canada. Distilled liquors	29,664	Mar. 9	78	1574
Hjorth & Co., B. A., Stockholm, Sweden. Petroleum-stoves and soldering apparatus	29,527	Jan. 26	78	620
Home Laboratory Association, Newark, N. J. Patent medicines in liquids, pills, powders, elixirs, salves, cordials, and medicinal plasters	29,661	Mar. 9	78	1574
Hoppe, Firm of Pieter, Schiedam, Netherlands. Gin	29,641	Mar. 2	78	1426
I. B. Kleinert Rubber Company, New York, N. Y. Seamless stockinet dress-shields	29,440	Jan. 12	78	334
Ievers, Henry, Quebec, Canada. Mouth-wash and tooth-powder	29,628	Mar. 2	78	1424
Imperial Remedy Co., Tiffin, Ohio. Poultry, pigeon, pet stock, and veterinary remedies	29,708	Mar. 16	78	1737

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
J. F. Humphreys & Company, Bloomington, Ill. Certain named foods, beverages, and condiments	29,592	Feb. 23	78	1251
James E. Patton Company, Milwaukee, Wis. Paints	29,611	Feb. 23	78	1252
John Eichler Brewing Company, New York, N. Y. Lager-beer	29,482	Jan. 19	78	479
John Osborn's Sons & Company, New York, N. Y., and Philadelphia, Pa. Whisky	29,638	Mar. 2	78	1426
Johnson, Iver, deceased; M. E. Johnson, Fitchburg, Mass., executrix. Guns and pistols	29,530	Jan. 26	78	620
Johnson, Iver, deceased; M. E. Johnson, Fitchburg, Mass., executrix. Guns and pistols	29,531	Jan. 26	78	620
Johnson, Mary E., executrix. (See Johnson, Iver.)				
Jordan, Marsh & Co., Boston, Mass. Kid and suede gloves	29,439	Jan. 12	78	334
Joseph Campbell Preserve Company, Camden, N. J. Tomatoes	29,447	Jan. 12	78	335
Joseph Campbell Preserve Company, Camden, N. J. Fruits, vegetables, and sauces	29,448	Jan. 12	78	335
Joseph Crosfield & Sons, Limited, Warrington, England. Caustic soda and silicate of soda not used in connection with compounds for scalding raw wool	29,630	Mar. 2	78	1424
Kahn, Manuel, Louisville, Ky. Baking-powder	29,697	Mar. 16	78	1737
Kallman, Charles, Pittsburg, Pa. Shoes	29,617	Mar. 2	78	1423
Kansas City Metal Roofing and Corrugating Company, Kansas City, Mo. Building-paper, metal roofing, and fabric roofing	29,720	Mar. 23	78	1898
Kelly, Thomas P. A., New York, N. Y. Cure for chapped hands, face, or lips	29,726	Mar. 23	78	1899
Kempner, Joseph, Görlitz, Germany. Composition for manufacturing glass batch	29,552	Feb. 2	78	795
Kempshall, Eleazer, Boston, Mass. Pens	29,614	Mar. 2	78	1423
King, Julius, New York, N. Y. Eyeglasses and eyeglass-guards	29,401	Jan. 5	78	165
Kingsford & Son, T., Oswego, N. Y. Laundry starch	29,595	Feb. 23	78	1251
Knudson, Charles M., Andover, S. D. Meal-tickets	29,650	Mar. 9	78	1573
Kny-Scheerer Company, Brooklyn, N. Y. Surgical instruments and appliances	29,586	Feb. 23	78	1250
Kny-Scheerer Company, Brooklyn, N. Y. Surgical instruments and appliances	29,724	Mar. 23	78	1899
Kops Bros., New York, N. Y. Corsets and parts thereof	29,561	Feb. 9	78	952
Kratochwil Milling Company, Dayton, Ohio. Wheat-flour	29,444	Jan. 12	78	335
Kuh, Nathan & Fischer Company, Chicago, Ill. Men's sack suits	29,475	Jan. 19	78	478
Kutz Fibre Company, Brooklyn, N. Y. Antiseptic articles, compounds, and absorbents	29,727	Mar. 23	78	1899
L. L. Brown Paper Company, Adams, Mass. Paper	29,486	Jan. 12	78	334
Laflin & Rand Powder Company, New York, N. Y. Gunpowder, shells loaded therewith, blasting-powder, gun-cotton, high explosives, fuses, and electric batteries	29,555	Feb. 2	78	795
Lamar & Rankin Drug Company, Atlanta, Ga. Diuretic medicine	29,491	Jan. 19	78	480
Lancaster Mills, Clinton and Boston, Mass. Ginghams and other colored cotton fabrics	29,713	Mar. 23	78	1898
Lanyon, Charles H., Chicago, Ill. Veterinary remedies	29,704	Mar. 16	78	1737
Lauer, Benjamin J., Chicago, Ill. Certain named medicines	29,510	Jan. 26	78	618
Lauer & Suter, Baltimore, Md. Chewing-gum	29,415	Jan. 5	78	166
Laville, Marie G., St. Louis, Mo. Bath-powders	29,454	Jan. 12	78	336
Lawton, Walter V., Providence, R. I. Tooth-powders and liquid dentifrice	29,403	Jan. 5	78	165
Lazell, Dalley & Company, New York, N. Y. Toilet articles and preparations	29,629	Mar. 2	78	1424
Lester H. Greene Co., Montpelier, Vt. Remedies for pulmonary diseases, including pills	29,588	Feb. 23	78	1251
Lévy, Arthur, Paris, France. Optic glasses and instruments	29,616	Mar. 2	78	1423
Liebig's Extract of Meat Company, Limited, London, England, and Antwerp, Belgium. Peptone of meat	29,522	Jan. 26	78	619
Liepe, Arthur C., Milwaukee, Wis. Antiseptic tablets	29,565	Feb. 9	78	952
Liggett & Myers Tobacco Company, St. Louis, Mo. Cigarettes	29,676	Mar. 9	78	1575
Lindeman, Harry F., Baltimore, Md. Remedies for diseases of the throat and lungs	29,692	Mar. 9	78	1576
Linley, Ezra H., St. Louis, Mo. Shovels and scoops	29,431	Jan. 5	78	168
Love, Charles R., Minneapolis, Minn. Stock-food	29,735	Mar. 23	78	1906
Lyon & Healy, Chicago, Ill. Mandolins	29,670	Mar. 9	78	1574
Lyon, Henry W., Bridgeport, Conn. Corsets	29,575	Feb. 23	78	1250
M. Straus & Sons, Newark, N. J. Leather	29,675	Mar. 9	78	1575
M. Werk Company, Cincinnati, Ohio. Soap	29,516	Jan. 26	78	619
MacRae, Julian, Los Angeles, Cal. Salve	29,706	Mar. 16	78	1738
Maillard, Henry, New York, N. Y. Confectionery and chocolates	29,419	Jan. 5	78	167
Majestic Manufacturing Company, St. Louis, Mo. Heaters, ranges, and stoves	29,528	Jan. 26	78	620
Malone, Daniel, Baltimore, Md. Rye whisky	29,420	Jan. 5	78	167
Maltby, Henley & Co., New York, N. Y. Nail-pullers	29,605	Feb. 23	78	1252
Mann, James H., Lewistown, Pa. Axes	29,573	Feb. 9	78	952
Mason-Heublein Co., Hartford, Conn. Solidified beef	29,450	Jan. 12	78	335
Maypole Soap Syndicate, Limited, London, England. Soap for cleansing and dyeing purposes	29,517	Jan. 26	78	619
McClurg & Sons, James A., New York, N. Y. Candy	29,695	Mar. 2	78	1425
McCord Rubber Company, St. Joseph, Mo., and Chicago, Ill. Mackintoshes and other rubber clothing	29,750	Mar. 30	78	2042
McDonald, Dominick A., Boston, Mass. Rubber or elastic heels for boots and shoes	29,618	Mar. 2	78	1423
McIlwaine, Linn & Hughes, New York, N. Y. Pocket cutlery, razors, and scissors	29,572	Feb. 9	78	952
McKesson & Robbins, New York, N. Y. Chemical preparations	29,729	Mar. 23	78	1899
Megler, Joseph G., Brookfield, Wash. Packed salmon and canned fruits and vegetables	29,449	Jan. 12	78	335
Meinecke & Company, New York, N. Y. Nipples for nursing-bottles	29,722	Mar. 23	78	1899
Merck, Firm of E., Darmstadt, Germany. Chemicals having a narcotic influence	29,658	Mar. 9	78	1573
Mermod Frères, Ste. Croix, Switzerland. Musical boxes and disks	29,435	Jan. 12	78	334
Middlesex Company, Boston, Mass. Woolen cloth	29,577	Feb. 23	78	1250
Middlesex Company, Boston, Mass. Cassimeres	29,578	Feb. 23	78	1250
Millard & Co., N. L., North Adams, Mass. Boots and shoes	29,542	Feb. 2	78	794
Miller Brewing Company, Rochester, N. Y. Porter	29,663	Mar. 9	78	1574
Miller, Charles F., Lancaster, Pa. Soap for the complexion, toilet, bath, nursery, and all cutaneous affections	29,486	Jan. 19	78	479
Mills, Edmund J., Glasgow, Scotland. Liquid glue	29,601	Feb. 23	78	1252
Mishawaka Woolen Manufacturing Company, Mishawaka, Ind. Wool boots and lumbermen's socks	29,476	Jan. 19	78	478
Mittineague Paper Company, West Springfield, Mass. Writing-papers	29,613	Mar. 2	78	1423
Montague City Rod Company, Montague, Mass. Fishing-rods	29,504	Jan. 26	78	618
Mosbacher & Co., New York, N. Y. Watches	29,540	Feb. 2	78	794
Moseley-Horne Company, Keokuk, Iowa. Laundry starch	29,452	Jan. 12	78	335
Mottet & Cie., P., Grasse, France. Fixateur for giving permanency to the bouquet of perfumes	29,456	Jan. 12	78	336
Muscatine Oat Meal Company, Muscatine, Iowa. Rolled oats and oatmeal	29,418	Jan. 5	78	167
National Distilling Company, Milwaukee, Wis. Gin and other spirituous liquors	29,640	Mar. 2	78	1426
Naumkeag Steam Cotton Company, Salem, Mass. Cotton piece goods	29,399	Jan. 5	78	165
Naumkeag Steam Cotton Company, Salem, Mass. Cotton sheetings	29,442	Jan. 12	78	334
Naumkeag Steam Cotton Company, Salem, Mass. Cotton shirtings	29,478	Jan. 19	78	478
Naumkeag Steam Cotton Company, Salem, Mass. Cotton sheetings	29,479	Jan. 19	78	478
Naumkeag Steam Cotton Company, Salem, Mass. Cotton fabrics	29,480	Jan. 19	78	479
Naumkeag Steam Cotton Company, Salem, Mass. Cotton fabrics	29,564	Feb. 9	78	952
Neverbreak Shoe String Company, Boston, Mass. Lacings	29,563	Feb. 9	78	952
Northwestern Horse Nail Manufacturing Company, Chicago, Ill. Horse-nails	29,422	Jan. 5	78	167
Novelty Manufacturing Company, Jackson, Mich. Fluid or oil stoves	29,709	Mar. 16	78	1738

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Otis Company, Palmer, Mass. Twilled cotton and mixed fabrics	29,623	Mar. 2	78	1424
Otto Huber Brewery, Brooklyn, N. Y. Lager-beer, malt extracts, and similar malt and hop liquid products	29,736	Mar. 23	78	1900
Oxine Limited, London, England. Soups, essences of meat, and extracts of meat and vegetables	29,451	Jan. 12	78	335
Papola Company, Portland, Oreg. Condiments	29,633	Mar. 2	78	1425
Parker Bros., Salem, Mass. Parlor game apparatus	29,612	Mar. 2	78	1423
Parker Bros., Salem, Mass. Parlor game apparatus	29,671	Mar. 9	78	1574
Pastime Lawn Mower Company, Detroit, Mich. Lawn-mowers and lawn-trimmers	29,645	Mar. 2	78	1426
Pector & Ducout, Jeune, Paris, France. Brandy	29,525	Jan. 26	78	619
Peek Brothers & Winch, Limited, London, England. Cocoa and spices	29,488	Jan. 19	78	479
Peerless Rubber Manufacturing Company, New York, N. Y. Rubber belting, hose, packing, and utensils made of rubber	29,502	Jan. 26	78	618
Peerless Rubber Manufacturing Company, New York, N. Y. Packing, gaskets, and rubber compound	29,620	Mar. 2	78	1423
Petrolia Manufacturing Company, New York, N. Y. Soap	29,581	Feb. 23	78	1250
Petrolia Manufacturing Company, New York, N. Y. Soap	29,582	Feb. 23	78	1250
Petrolia Manufacturing Company, New York, N. Y. Soap	29,583	Feb. 23	78	1250
Phillips, Nimick & Co., Pittsburg, Pa. Wrought-iron	29,423	Jan. 5	78	167
Phillips, Nimick & Co., Pittsburg, Pa. Wrought-iron	29,424	Jan. 5	78	167
Phillips, Nimick & Co., Pittsburg, Pa. Wrought-iron	29,425	Jan. 5	78	167
Pierce, Frederick O., New York, N. Y. Non-hardening elastic luting, cement, or putty	29,608	Feb. 23	78	1252
Pillsbury-Washburn Flour Mills Company, (Limited,) Minneapolis, Minn. Wheat-flour	29,445	Jan. 12	78	335
Pillsbury-Washburn Flour Mills Company, (Limited,) Minneapolis, Minn. Wheat-flour	29,446	Jan. 12	78	335
Pillsbury-Washburn Flour Mills Company, Minneapolis, Minn. Flour and cereal foods	29,688	Mar. 9	78	1576
Pinsker & Son, A., Brooklyn, N. Y. Shoes	29,747	Mar. 30	78	2042
Piver & Cie., L. T., Paris, France. Toilet-waters	29,580	Feb. 23	78	1250
Powning, George G., New Haven, Conn. Remedy for women's diseases	29,509	Jan. 26	78	618
Priesmeyer, William H., St. Louis, Mo. Lye	29,487	Jan. 19	78	479
Priesmeyer, William H., St. Louis, Mo. Lye	29,631	Mar. 2	78	1425
Protopazzi Brothers, London, England. Dried fruit	29,544	Feb. 2	78	794
Putney & Co., Stephen, Richmond, Va. Boots and shoes	29,543	Feb. 2	78	794
Railroad Signal Lamp and Lantern Company, New York, N. Y. Railway lamps and lanterns	29,769	Mar. 30	78	2044
Railroad Signal Lamp and Lantern Company, New York, N. Y. Railway lamps and lanterns	29,770	Mar. 30	78	2044
Railroad Signal Lamp and Lantern Company, New York, N. Y. Railway lamps and lanterns	29,771	Mar. 30	78	2044
Raspe, Carl, Weissensee, Germany. Chemical preparations	29,728	Mar. 23	78	1899
Rauh & Sons, E., Indianapolis, Ind. Certain odorless lawn-dressing	29,765	Mar. 30	78	2044
Raymond Medicine Company, Kennebunk, Me., and New Market, N. H. Salves, cordials, pills, syrups, and other medicines, essences, and perfumes	29,405	Jan. 5	78	165
Read Holliday & Sons, Limited, New York, N. Y. Bleaching compounds, including bleaching-powders	29,764	Mar. 30	78	2043
Reed, Adam, St. Joseph, Mo. Boots and shoes having cushions upon their insoles	29,498	Jan. 26	78	617
Reinach-Ullman & Company, Chicago, Ill. Trousers, coats, and vests	29,672	Mar. 9	78	1575
Restorff & Bettmann, New York, N. Y. Leather-dressing	29,413	Jan. 5	78	166
Reymann Brewing Company, Wheeling, W. Va. Lager-beer	29,759	Mar. 30	78	2043
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes	29,673	Mar. 9	78	1573
Rice & Hutchins, Incorporated, Boston, Mass. Bicycle-shoes	29,718	Mar. 23	78	1898
Richter, George J., New York, N. Y. Tobacco, cigars, snuff, distilled and fermented liquors, and beverages	29,549	Feb. 2	78	795
Rock Plaster Company of New York and New Jersey, Hoboken, N. J., and New York, N. Y. Cement, lime, and plaster	29,551	Feb. 2	78	795
Rover Cycle Company, Limited, Coventry, England. Cycles	29,668	Mar. 9	78	1574
Roxbury Carpet Company, Boston, Mass. Tapestry brussels and tapestry velvet carpets	29,501	Jan. 26	78	617
Ruddock, Charles A., London, England. Tea, coffee, cocoa, chocolate, and chicory	29,546	Feb. 2	78	794
Sanche, Hercules, Detroit, Mich., assignor to Animarium Company, New York, N. Y. Clinical instruments and appliances	29,693	Mar. 9	78	1576
Santos, Rodrigo M. dos, New York, N. Y. Wheat-flour	29,416	Jan. 5	78	166
Santos, Rodrigo M. dos, New York, N. Y. Wheat-flour	29,417	Jan. 5	78	166
Saxlehner, Emily, Buda-Pesth, Austria-Hungary. Natural aperient waters, their salts, and medicinal preparations containing such salts	29,597	Feb. 23	78	1251
Saxlehner, Emily, Buda-Pesth, Austria-Hungary. Salts of natural aperient waters and medicinal preparations containing such salts	29,700	Mar. 16	78	1737
Schillinger Bros. Company, Chicago, Ill., and Schillinger Bros., Toledo and Cleveland, Ohio, and Detroit, Mich. Cement and asphalt	29,733	Mar. 23	78	1899
Schmetz, Firm of Ferd., Aix-la-Chapelle and Herzogenrath, Germany. Porcelain buttons and oriental pearls	29,472	Jan. 12	78	338
Schneider, Charles A., New York, N. Y. Lamp-wicks	29,715	Mar. 23	78	1898
Schovering, Daly & Gales, New York, N. Y. Bicycles	29,644	Mar. 2	78	1426
Schovering, Daly & Gales, New York, N. Y. Bicycles	29,772	Mar. 30	78	2044
Scour Bright Co., Bloomington, Ill. Scouring material	29,553	Feb. 2	78	795
Scovil, D. & H., Higganum, Conn. Hoes	29,529	Jan. 26	78	620
Sedlmayr, Brauerei zum Spaten, Gabriel, Munich, Germany. Lager-beer	29,755	Mar. 30	78	2043
Sedlmayr, Brauerei zum Spaten, Gabriel, Munich, Germany. Lager-beer	29,756	Mar. 30	78	2043
Sedlmayr, Brauerei zum Spaten, Gabriel, Munich, Germany. Lager-beer	29,757	Mar. 30	78	2043
Sedlmayr, Brauerei zum Spaten, Gabriel, Munich, Germany. Lager-beer	29,758	Mar. 30	78	2043
Seufert Brothers Company, The Dalles, Oreg. Canned salmon	29,520	Jan. 26	78	619
Seufert Brothers Company, The Dalles, Oreg. Canned salmon	29,521	Jan. 26	78	619
Seufert Brothers Company, The Dalles, Oreg. Canned salmon	29,545	Feb. 2	78	794
Seymour, Robert H., Holyoke, Mass. Shears and scissors	29,432	Jan. 5	78	168
Short, Nerney & Co., Attleborough, Mass. Eyeglasses and spectacles and parts thereof	29,506	Jan. 26	78	618
Sibley & Ware, South Bend, Ind. Drills or drill-presses	29,559	Feb. 2	78	796
Siegbert & Bro., Louis, New York, N. Y. Cotton goods and fabrics known as bindings or fabrics used for binding or covering books	29,441	Jan. 12	78	334
Simpson, Charles, Northampton and Liverpool, England. Candles, matches, disinfectants, and certain named laundry articles	29,685	Mar. 9	78	1576
Smith, Edward A., Philadelphia, Pa. Aged glutinous flour	29,594	Feb. 23	78	1251
Smith, Freeborn G., New York, Brooklyn, Saratoga Springs, N. Y., Jersey City, N. J., Washington, D. C., Chicago, Ill., and Kansas City, Mo. Pianos	29,669	Mar. 9	78	1574
Smith, Kline & French Company, Philadelphia, Pa. Food preparation in dry form for infants and invalids	29,408	Jan. 5	78	166
Spencerian Pen Company, Newark, N. J., and New York, N. Y. Pens for vertical writing	29,696	Mar. 16	78	1737
Standard Oil Company of New York, New York, N. Y. Illuminating-oils refined from petroleum	29,488	Jan. 19	78	479
Stark Mills, Manchester, N. H. Sheetings, drills, and ducks	29,624	Mar. 2	78	1424
Stoffregen, Charles F., Baltimore, Md. Remedies for headache, neuralgia, rheumatism, and dyspepsia, and essences and extracts for cooking purposes	29,490	Jan. 19	78	480
Strasburger, J. & M., Washington, D. C. Shoes	29,748	Mar. 30	78	2042
Strauss, Charles T., New York, N. Y. Filters	29,667	Mar. 9	78	1574

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Strauss, Sachs & Co., New York, N. Y. Mouth-harmonicas	29,402	Jan. 5	78	165
Streit & Co., Samuel, New York, N. Y. Port wine	29,637	Mar. 2	78	1426
Tarrant & Co., New York, N. Y. Laxative medicines	29,725	Mar. 23	78	1899
Tata & Co., Bombay, India. Cotton goods, especially sheetings and drillings	29,625	Mar. 2	78	1424
Tata & Co., Bombay, India. Cotton goods, especially sheetings and drillings	29,714	Mar. 23	78	1898
Thomas, Roberts, Stevenson Company, Philadelphia, Pa. Ranges, stoves, and heaters	29,604	Feb. 23	78	1252
Thompson & Norris Company, Brooklyn, N. Y. Envelops	29,495	Jan. 26	78	617
Thorp, Samuel B., New York, N. Y. Soap	29,414	Jan. 5	78	166
Tide Water Oil Company, New York, N. Y. Refined petroleum-oil	29,690	Mar. 9	78	1576
Tillmann & Bendel, San Francisco, Cal. Spices	29,589	Feb. 23	78	1251
Tillmann & Bendel, San Francisco, Cal. Baking-powder	29,590	Feb. 23	78	1251
Tobacco Warehousing and Trading Company, Danville, Va. Smoking and chewing tobacco and tobacco products for use in veterinary remedies, insecticides, and sheep-dip	29,677	Mar. 9	78	1575
Tobacco Warehousing and Trading Company, Danville, Va. Smoking and chewing tobacco and tobacco products for use in veterinary remedies, insecticides, and sheep-dip	29,678	Mar. 9	78	1575
Tobacco Warehousing and Trading Company, Danville, Va. Smoking and chewing tobacco and tobacco products for use in veterinary remedies, insecticides, and sheep-dip	29,679	Mar. 9	78	1575
Tootle, Wheeler & Motter, St. Joseph, Mo. Men's and boys' shoes	29,499	Jan. 26	78	617
Tootle, Wheeler & Motter, St. Joseph, Mo. Women's, misses', and children's shoes	29,500	Jan. 26	78	617
Tourist Cycle Company, Syracuse, N. Y. Bicycles, velocipedes, their parts and attachments	29,607	Feb. 23	78	1252
Tourist Cycle Company, Syracuse, N. Y. Bicycles, velocipedes, their parts and attachments	29,608	Feb. 23	78	1252
Towle Syrup Company, St. Paul, Minn. Preparations of cereals, preserves, and jellies	29,409	Jan. 5	78	166
Turner & Co., J. J., Baltimore, Md. Fertilizers	29,734	Mar. 23	78	1900
Union Corn Planter Co., Peoria, Ill. Corn-planters	29,471	Jan. 12	78	338
Union Hardware Company, Torrington, Conn. Soldering-copper	29,560	Feb. 2	78	796
Union Hardware Company, Torrington, Conn. Ice-skates	29,711	Mar. 16	78	1738
Vacuum Soap Company, Philadelphia, Pa., and Chicago, Ill. Toilet, bath, and laundry soap	29,686	Mar. 9	78	1576
Val. Blatz Brewing Company, Milwaukee, Wis. Malt extract	29,568	Feb. 9	78	952
Varesio, Luigi, Monongahela City, Pa. Medicine for the eye	29,626	Mar. 2	78	1424
Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung, Frankfort-on-the-Main, Germany. Medicament comprising menthol dissolved in menthol ether of valeric acid	29,457	Jan. 12	78	336
Vergnole, John M., New Orleans, La. Claret wine	29,598	Feb. 23	78	1251
Vischer & Co., Basle, Switzerland. Velvet and satin ribbons	29,576	Feb. 23	78	1250
Wall, William B., Tustin, Cal. Citrus fruits, such as oranges, lemons, and grape fruit	29,634	Mar. 2	78	1425
Wallach, Martin, Nachfolger, Cassel, Germany. Stethoscopes or instruments for rendering audible sounds in the human body	29,723	Mar. 23	78	1899
Walters, Edwin, Baltimore, Md. Whisky	29,639	Mar. 2	78	1426
Warner Brothers Company, Bridgeport, Conn. Corsets	29,562	Feb. 9	78	952
Warren Featherbone Company, Three Oaks, Mich. Stiffening-tapes	29,400	Jan. 5	78	165
Watt's Sons, John M., Philadelphia, Pa. Steam and hydraulic piston packings	29,721	Mar. 23	78	1899
Weber Wagon Company, Chicago, Ill. Wagons	29,480	Jan. 5	78	168
Weed, George L., W. W. Wilson, and B. F. Chadsey, Brooklyn, N. Y. Tonics and remedies for alcoholism and other nervous diseases	29,646	Mar. 2	78	1426
Welde & Thomas Brewing Company, Philadelphia, Pa. Malt extract	29,523	Jan. 26	78	619
Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machines	29,526	Jan. 26	78	619
Whiting Paper Company, Holyoke, Mass., and New York, N. Y. Writing, note, and other paper	29,541	Feb. 2	78	794
Willard, John W., Boston, Mass. Brooms	29,503	Jan. 26	78	618
Williams, Joseph, Osceola, Iowa. Remedies for piles	29,407	Jan. 5	78	166
Williston, Asahel L., Northampton, Mass. Indelible inks	29,437	Jan. 12	78	334
Wilson, Robert B., New York, N. Y. Antifriction metal	29,619	Mar. 2	78	1423
Wilson, Wayne W. (See Weed, Wilson, and Chadsey.)				
Winkelmann, John H., Baltimore, Md. Medicinal tonic	29,662	Mar. 9	78	1574
Wolf & Sons, B. J., New Orleans, La. Trousers	29,673	Mar. 9	78	1575
Yale & Towne Manufacturing Company, Stamford, Conn. Locks and latches and keys	29,642	Mar. 2	78	1426
Yale & Towne Manufacturing Company, Stamford, Conn., New York and Buffalo, N. Y., Chicago, Ill., Philadelphia, Pa., Boston, Mass., and San Francisco, Cal. Locks and builders' hardware	29,470	Jan. 12	78	338
Young Co., Limited, Alexr., Philadelphia, Pa. Whisky	29,524	Jan. 26	78	619
Young, Homer J., Toledo, Ohio. Bicycles and similar vehicles	29,609	Feb. 23	78	1252
Yvon, Paul, Paris, France. Serums	29,489	Jan. 19	78	480
Ziegler, August H., New York, N. Y. Lager-beer	29,600	Feb. 23	78	1252
Zomêla Co., Handsworth, England. Preparations for skin diseases, including ointments, creams, powders, and soaps	29,511	Jan. 26	78	618

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Miller, Charles F., Lancaster, Pa. "Dr. Raub's Egg White Soap"	6,548	Mar. 30	78	1910
Smith, Kline & French Company, Philadelphia, Pa. "Albuminized Food"	6,547	Mar. 9	78	1438

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Drucke & Co., N., Cincinnati, Ohio. "Beauty and Strength." (For Trunks and the Like)	43	Jan. 12	78	179
Hildreth, Herbert L., Boston, Mass. "Don't Monkey." (For Molasses Candy)	42	Jan. 5	78	2
Palmer, Isaac E., Middletown, Conn. "Cut No. 5670 B. V."	44	Jan. 12	78	179
Palmer, Isaac E., Middletown, Conn. "Cut No. 567, G. V."	45	Feb. 23	78	1110

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Volume.	Page.
George, James H., New York, N. Y.; disclaimer filed by assignee. System for electroplating vessels	565,975	Mar. 10, 1897	78	1595
Randall, Isaac H., Boston, Mass.; disclaimer filed by assignee. Advertising rack	380,696	Mar. 25, 1897	78	1909
Smith, William P., Albany, N. Y.; disclaimer filed by patentee. Process of producing and coating patents	567,694	Feb. 26, 1897	78	1438

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abrading-cylinder	F. L. Lane and H. J. Mitchell	577,582	Feb. 23	2594	612	78	1170
Accounting device	E. L. McClure	574,490	Jan. 5	185	42	78	36
Acetanilid, &c. Making	P. T. Austen and H. C. Tuttle	578,384	Mar. 9	955	.....	78	1460
Aceto derivatives of aromatic amins. Obtaining	R. W. Cornelison and W. H. Warren.	574,395	Jan. 5	30	.....	78	8
Aceto derivatives of aromatic amins. Obtaining	R. W. Cornelison and W. H. Warren.	574,396	Jan. 5	32	.....	78	8
Acid. Apparatus for making sulfuric	L. Deruelle	578,548	Mar. 9	1241	281	78	1515
Acid. Making hydrocyanic	A. K. Huntington	575,240	Jan. 12	1510	362, 363	78	303
Acid. Manufacturing esters of difodosalicylic	A. Gallinek and E. Courant	575,227	Jan. 12	1493	.....	78	300
Acid. Metaiodinorthoöxyquinolinana-sulfonic	A. Claus	576,494	Feb. 2	723	.....	78	774
Adding and registering mechanism	C. H. Little	579,115	Mar. 16	2230	525	78	1780
Adding-machine	C. H. Redding	575,287	Jan. 12	1584	377	78	318
Adding-machine type-writing attachment	G. W. Dudley	579,047	Mar. 16	2121	498	78	1709
Adding-machine type-writing attachment	G. W. Dudley	579,048	Mar. 16	2122	499	78	1710
Addressing-machine	J. S. Duncan	579,706	Mar. 30	3267	777, 778	78	1958
Adhesive	C. M. Higgins	576,403	Feb. 2	579	.....	78	744
Adhesive	C. M. Higgins	579,827	Mar. 30	3466	.....	78	1996
Adjustable gate for stock-yards	C. C. Donnel and G. W. Dickey	575,505	Jan. 19	1979	473	78	410
Adjustable seat	H. B. Hiteshew	578,291	Mar. 2	800	181	78	1412
Advertising and vending machine	F. M. Archer	578,438	Mar. 9	1045	239	78	1477
Advertising arm-chair	L. T. Hagan	576,054	Jan. 26	2937	602	78	604
Advertising device	H. Green	576,266	Feb. 2	338	80, 81	78	701
Advertising device	H. Green	576,267	Feb. 2	340	81	78	701
Advertising device. Electrical	L. Julig	576,129	Feb. 2	103	26, 27	78	657
Advertising medium	J. O. Blackburn	579,253	Mar. 23	2455	580	78	1787
Advertising-wagon	G. A. Sharp and R. H. Hoole	574,766	Jan. 5	671	160	78	126
Aerating and cooling liquids. Apparatus for	C. Barus	574,375	Jan. 5	7	2	78	4
Agricultural implement	G. W. Dycus	577,946	Mar. 2	198	48	78	1300
Agricultural implement. Combined	L. T. Miller	577,194	Feb. 16	1908	451, 452	78	1026
Air and gas mixer	N. White	574,595	Jan. 5	871	84	78	70
Air, &c. Apparatus for exhausting, propelling, or inducing currents in	C. W. James and G. Watson	575,241	Jan. 12	1511	363	78	304
Air-box	P. M. Tobin	574,834	Jan. 5	782	187	78	147
Air-brake	D. Dunn	577,425	Feb. 23	2312	542	78	1118
Air-brake	T. J. Hogan	574,806	Jan. 5	841	205	78	158
Air-brake hose-coupling	E. W. Shortridge	578,168	Mar. 2	609	137	78	1377
Air-brake-operating device. Automatic	D. Bentley	574,656	Jan. 5	485	111	78	90
Air-brake-piston remover	C. E. Shearwood	574,498	Jan. 5	195	45	78	38
Air-compressing device	W. U. Griffiths and H. Niedermayer	576,364	Feb. 2	513	120	78	738
Air-compressor	H. C. Sergeant	579,775	Mar. 30	3385	810	78	1961
Air-compressor	R. Toennes	576,920	Feb. 9	1431	340	78	923
Air-compressor. Hydraulic	F. A. Erbe	579,822	Mar. 30	3458	829	78	1995
Air-compressors. Discharge-valve-operating mechanism for	H. C. Sergeant	579,776	Mar. 30	3386	810, 811	78	1961
Air-duct clench-coupling	E. J. Mallen	574,743	Jan. 5	637	152	78	118
Air-exhaust device	E. Lord	578,410	Mar. 9	997	228	78	1468
Air-heater	R. Crawford	578,095	Mar. 2	433	100, 101	78	1344
Air-heater and surface condenser. Combined	J. A. Wade	577,894	Mar. 2	102	26	78	1280
Air-lock for caissons, &c	R. S. Gillespie	576,445	Feb. 2	641	153	78	758
Air-lock for caissons, &c	R. S. Gillespie	576,446	Feb. 2	644	154	78	758
Air-moistening apparatus	E. Mertz	578,461	Mar. 9	1084	247	78	1485
Air-motor controller	W. H. Knight	575,652	Jan. 19	2250	532	78	463
Air or other gases. Recovering volatile substances from	C. Heinzerling	576,714	Jan. 26	2365	557	78	499
Alarm: *See* Burglar-alarm. Door-alarm. Electric-circuit alarm. Fire-alarm. High or low water alarm. Time-alarm.							
Alarm device. Electric	G. V. Trott	574,856	Jan. 5	819	200	78	154
Aldehydes. Manufacturing aromatic	B. Homolka	575,237	Jan. 12	1505	.....	78	302
Alloy. Antifriction	W. H. Kemler	579,396	Mar. 23	2684	.....	78	1829
Alloy of iron	R. A. Hadfield	577,851	Mar. 2	25	.....	78	1265
Alloys. Manufacturing metallic	C. Parnacott	578,465	Mar. 9	1089	.....	78	1486
Alloys of copper and iron. Manufacture of	A. F. V. M. Baron	577,182	Feb. 16	1886	.....	78	1022
Alloys, &c. Tank for treating	F. A. Thum	578,953	Mar. 16	1965	457, 458	78	1677
Aluminium. Electrodepositing	C. G. Collins	577,186	Feb. 16	1896	448	78	1023
Aluminium. Reducing	F. A. Gooch	578,633	Mar. 9	1381	315	78	1542
Amalgamating machine. Gold	J. R. Brown	577,505	Feb. 23	2447	577, 578	78	1143
Amalgamator	J. J. Tinker	575,864	Jan. 26	2606	615, 616	78	545
Amalgamator. Electrical	W. Wright	579,211	Mar. 23	2390	564	78	1775
Ammonia, sodium hydroxid, and chlorin. Process of and apparatus for simultaneously producing	C. Kellner	578,457	Mar. 9	1077	246	78	1484
Anchor	G. Tyzack	575,082	Jan. 12	1244	300, 301	78	251

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Anchor-bolt bushing	J. H. Cook	575,282	Jan. 12	1578	376	78	317
Animal-shears	J. K. Stewart	579,811	Mar. 30	3488	825	78	1990
Animal-trap	F. Cole	578,391	Mar. 9	966	219	78	1462
Animal-trap	W. H. Hamilton	577,745	Feb. 23	2867	680	78	1220
Animal-trap	W. C. Hooker	576,113	Jan. 12	1295	313	78	261
Animal-trap	J. M. Kellogg	578,244	Mar. 2	732	163, 164	78	1398
Animal-trap	D. S. McCollum	577,312	Feb. 16	2098	496	78	1061
Animal-trap	A. T. Sullivan	575,792	Jan. 26	2479	585	78	522
Animal-trap	C. B. Trumble	579,026	Mar. 16	2078	487	78	1700
Annealing and apparatus therefor. Method of	H. Wood	578,281	Mar. 2	782	177	78	1409
Annealing apparatus	C. P. Turner	578,170	Mar. 2	612	138	78	1378
Annealing-box	J. H. Orwig	575,976	Jan. 26	2798	659	78	581
Annealing-kiln	E. Walsh, Jr	578,378	Mar. 9	944	214, 215	78	1458
Annunciator	A. R. Miranda	577,532	Feb. 23	2504	590, 591	78	1153
Annunciator. Electric sunshine	L. Hunt	579,398	Mar. 23	2679	635	78	1828
Ant-destroyer	A. Gubba	578,450	Mar. 9	1066	243	78	1481
Anti-interfering device	T. Henneberry	579,296	Mar. 23	2522	596	78	1709
Antirattler and thill-support	A. M. Stewart	575,044	Jan. 12	1176	286	78	288
Arc-controlling device. Electromagnetic	F. J. Patten	577,371	Feb. 16	2202	520	78	1081
Arch. Floor	J. D. Murphy	575,037	Jan. 12	1165	283	78	236
Arm-rest	C. S. Gilman	574,797	Jan. 5	717	171	78	135
Armature binding-band	H. G. Reist	577,148	Feb. 16	1829	431	78	1011
Armature space-block	H. Geisenhöner	577,130	Feb. 16	1809	426	78	1007
Armor-plate	R. H. Sayre	576,742	Feb. 9	1136	269	78	868
Aromatic nitrosulfo chlorids. Making	B. R. Seifert	578,859	Mar. 16	1758	------	78	1642
Arsenic ores. Process of and apparatus for treating	G. M. Westman	577,802	Feb. 23	2050	698	78	1237
Artillery carriage. Field	W. H. and L. L. Driggs	579,261	Mar. 23	2469	583	78	1789
Artillery mount. Field	L. L. Driggs	575,506	Jan. 19	1980	474	78	411
Artist's sketching outfit	S. Bernstein	576,803	Feb. 9	1237	295	78	886
Ash-pan	C. E. Campbell	576,546	Feb. 9	834	194	78	810
Ash-receptacles. Removable support for	E. R. Goodrich	576,792	Feb. 9	1196	285	78	879
Asparagus-buncher	R. Frame	579,228	Mar. 23	2414	570	78	1780
	E. Watts	576,926	Feb. 9	1439	342	78	924
Asphalt-pavement-heating apparatus	C. H. Johnson	578,980	Mar. 16	1913	442, 443	78	1668
Asphalt-pavement-heating machine	J. Roche	574,496	Jan. 5	198	44	78	38
Asphalt pavements. Apparatus for repairing	A. L. Barber	574,653	Jan. 5	482	110	78	90
Asphalt pavements. Apparatus for repairing	P. W. Henry	574,681	Jan. 5	537	124, 125	78	98
Asphalt pavements. Process of and device for repairing	J. W. Buzzard	575,697	Jan. 26	2330	549	78	492
Atomizer	T. Woodruff	578,436	Mar. 9	1043	238	78	1477
Audiphone. Vocalizing	J. A. Lakin	574,544	Jan. 5	273	64	78	54
Auger. Hollow	H. A. Carlson	578,209	Mar. 2	672	153	78	1388
Auger. Post-hole	A. O. Barnes	577,411	Feb. 23	2284	536	78	1112
Autographic register	W. L. Egry and T. Schirmer	577,162	Feb. 16	1858	439	78	1016
Autographic register	G. A. Huewe	576,847	Feb. 9	1303	311, 312	78	899
Autographic register	W. H. Kelly	575,958	Jan. 26	2761	652	78	574
Autographic register	T. F. Schirmer	577,178	Feb. 16	1881	444, 445	78	1021
Autoharp	E. V. Dexter	575,707	Jan. 26	2354	554	78	497
Automatic brake	J. F. Adams	574,844	Jan. 5	800	198	78	151
Automatic sprinkler	F. H. Cyrenius	575,417	Jan. 19	1823	439	78	379
Automatic switch	J. P. Alexander	576,082	Feb. 2	1	1, 2	78	639
Automatic switch	T. B. Griffin	577,952	Mar. 2	210	50, 51	78	1302
Automatic switch	P. Lentz	579,881	Mar. 30	3560	852	78	2013
Automatic switch	C. Reger and E. Duerr	576,890	Feb. 9	1385	331	78	915
Automatic switch	P. S. Rogers	577,520	Feb. 23	2480	584	78	1149
Ax. Chopping	J. G. Crabtree	574,716	Jan. 5	599	142	78	111
Axle. Ball-bearing	C. T. McCue	578,892	Mar. 16	1851	425	78	1657
Axle-box	J. W. Skilton	578,949	Mar. 16	1956	456	78	1675
Axle box and lid. Car	A. C. McCord	578,521	Mar. 9	1199	270, 271	78	1507
Axle box. Self-lubricating car	C. H. Warth	579,909	Mar. 30	3603	862	78	2022
Axle box. Vehicle	T. J. Hale	578,235	Mar. 2	708	161	78	1395
Axle. Lubricating	J. L. Dolson	579,704	Mar. 30	3264	776	78	1958
Axle-spindle	B. F. Hartman	574,418	Jan. 5	69	15	78	15
Axle. Wagon	M. Conrad	576,302	Feb. 2	405	95	78	714
Baby-carrier	E. L. Vanderburgh	576,292	Feb. 2	390	91	78	711
Baby-holder. Safety	K. Hatch	574,731	Jan. 5	620	147	78	115
Back and head rest	J. B. Williamson and R. M. Killgore.	579,660	Mar. 30	3197	759	78	1945
Bag: *See* Bicycle-bag. Bicycle tool-bag. Camping-bag. Mail-bag.							
Bag	H. Bischoff	579,123	Mar. 23	2243	528	78	1747
Bag-handle. Adjustable	S. Seltz	574,456	Jan. 5	132	30	78	26
Bag-holder	C. J. Cain	578,091	Mar. 2	427	99	78	1343
Bag-holder	J. Carlson	576,974	Feb 9	1527	361	78	942
Bag-holder	M. W. Morton	575,408	Jan. 19	1808	433	78	376
Bag-holder	O. G. Nosker	575,975	Jan. 26	2797	659	78	580
Bag-holder	L. C. Palmer	578,261	Mar. 2	749	170	78	1403
Bag or paper holder	E. P. Drenning	579,566	Mar. 30	3095	717	78	1914
Bag or purse frame and catch	C. Hiering	575,837	Jan. 26	2561	604	78	537
Bags, &c. Folding mechanism for	B. F. Brown	578,133	Mar. 2	517	117	78	1361
Bagasse-furnace	E. Boudreaux	575,324	Jan. 19	1656	395, 396	78	349
Baker's dipper	J. M. Anderson	576,019	Jan. 26	2868	679	78	508
Bale-tie	W. P. Hayne	577,511	Feb. 23	2459	579	78	1145
Bale tie and hook	W. McGregor	579,892	Mar. 30	3579	856	78	2018
Bale-tier	A. Amanns	574,099	Jan. 5	564	132	78	104

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bale-tying mechanism	A. J. Ross	576,473	Feb. 2	684	163, 164	78	766
Baling-press	A. E. Anderson	574,771	Jan. 5	679	162	78	127
Baling-press	M. E. Brown	578,857	Mar. 16	1780	411	78	1646
Baling-press	P. K. Dederick	575,216	Jan. 12	1475	354, 355	78	296
Baling-press	C. W. Drake	576,096	Feb. 2	27	8, 9	78	643
Baling-press	W. S. Livengood	575,843	Jan. 26	2569	606, 607	78	538
Baling-press	W. S. Livengood and A. J. Mason	575,001	Jan. 12	1103	268	78	225
Baling-press	S. B. Minnich	578,702	Mar. 9	1510	348, 349	78	1566
Baling-press	M. C. Nixon	575,660	Jan. 19	2263	534, 535	78	466
Baling-press	W. J. Pearce	574,817	Jan. 5	754	180, 181	78	142
Baling-press	W. A. Ross	579,807	Mar. 30	3583	858	78	2018
Baling-press door-fastening	T. C. Eberhardt	575,340	Jan. 19	1698	404	78	358
Ball: *See* Tenpin-ball.							
Balloon. Pyrotechnic	H. T. Hirsch	574,865	Jan. 5	840	205	78	158
Band-cutting and feeding machine	J. D. Powell	577,782	Feb. 23	2022	691	78	1231
Banjo	H. J. Isbell	577,090	Feb. 16	1639	389	78	973
Banjo or violin tailpiece	H. O. Nichols	576,606	Feb. 9	961	214	78	828
Bank. Savings	C. L. Dawson	576,954	Feb. 9	1478	351	78	932
Barbers' chairs. Electrical attachment for	N. H. Burger	577,233	Feb. 16	1968	466	78	1087
Barrel	J. Lopp	579,716	Mar. 30	3294	786	78	1963
Barrel. Composite	O. W. Crawford	578,974	Mar. 16	1997	465	78	1693
Barrel-cover	M. H. Parks	578,768	Mar. 16	1625	375	78	1616
Barrel-making	A. Fruhinsholz	578,448	Mar. 9	1063	242, 243	78	1481
Barrel-washer	C. L. Kline	575,482	Jan. 19	1983	463, 464	78	401
Basin. Catch	M. J. Nelles	575,553	Jan. 19	2062	493	78	426
Basin for streets. Catch	G. M. Pierce	574,700	Jan. 5	663	158	78	124
Basket	D. J. Gooch	578,037	Mar. 2	340	81	78	1326
Basket	J. W. Taylor	577,151	Feb. 16	1838	433	78	1013
Basket	W. R. Yerby	579,030	Mar. 16	2088	489	78	1703
Basket-making machine	E. Horton	578,876	Mar. 16	1819	418, 419	78	1652
Basket or crate	J. H. Fitch	576,188	Feb. 2	210	52	78	676
Bath: *See* Vapor-bath.							
Bath cabinet. Vapor	W. L. Anderson	577,407	Feb. 23	2278	535	78	1111
Bath-tub	E. M. Reinhardt	578,264	Mar. 2	753	170	78	1404
Bath-tub basin attachment	A. McOwen	579,167	Mar. 23	2317	545	78	1761
Bath-tub basin or bowl attachment	A. McOwen	579,166	Mar. 23	2316	545	78	1761
Bath-tub mat	T. R. Coe	579,532	Mar. 23	2953	697	78	1878
Bath-tub supply-pipe	W. H. Lloyd	577,264	Feb. 16	2018	478	78	1046
Bath-tub support. Adjustable	W. B. Sterrit	576,911	Feb. 9	1416	336	78	921
Bath-tubs. Device for supporting bathers in	C. G. Friedlaender	578,327	Mar. 9	874	198	78	1445
Batteries. Charging secondary	I. Kitsee	578,823	Mar. 16	1735	399	78	1637
Battery: *See* Electric battery. Secondary battery. Electrical battery. Storage battery. Galvanic battery.							
Battery	F. B. Badt	576,986	Feb. 9	1455	346	78	927
Battery	W. S. Doe	576,095	Feb. 2	25	8	78	643
Battery	S. J. Martin	579,001	Mar. 16	2085	474	78	1691
Battery-cell. Combination	H. A. C. Anderson	578,131	Mar. 2	515	117	78	1360
Battery-cover	H. J. Brewer	579,916	Mar. 30	3611	863	78	2023
Battery-plate	T. A. Willard	576,178	Feb. 2	196	49	78	673
Battery plates. Mold for manufacturing secondary	F. King	579,877	Mar. 30	3555	850	78	2013
Battery support or grid. Secondary	J. J. Rooney	574,826	Jan. 5	770	184	78	145
Battery zinc. Electric	F. A. Lane	579,273	Mar. 23	2488	587	78	1793
Beamless brake	P. Maechling	577,766	Feb. 23	2003	687	78	1228
Bean-picker	G. F. Crippen	578,861	Mar. 16	1787	412	78	1647
Bearing	J. W. Sheard and J. Done	575,855	Jan. 26	2590	611	78	542
Bearing. Antifriction	C. Bender and C. G. S. Mueller	574,472	Jan. 5	159	37	78	31
Bearing. Antifriction	H. Briggs	578,624	Mar. 9	1371	312	78	1540
Bearing. Antifriction	A. Y. Small	575,858	Jan. 26	2593	612	78	543
Bearing. Ball	W. Auberlin	574,700	Jan. 5	567	132	78	105
Bearing. Ball	J. B. Baker	575,798	Jan. 26	2485	586	78	523
Bearing. Ball	J. R. Denison	577,103	Feb. 16	1765	416	78	998
Bearing. Ball	W. Meeker	576,134	Feb. 2	110	28, 29	78	658
Bearing. Ball	J. J. Naregang	578,496	Mar. 9	1156	260	78	1499
Bearing. Ball	W. C. Quigley	575,987	Jan. 26	2814	664	78	584
Bearing. Ball	W. R. Smith	575,382	Jan. 19	1768	424	78	370
Bearing. Ball	G. E. Strauss	576,500	Feb. 2	783	174	78	776
Bearing. Ball	G. T. Warwick	578,049	Mar. 2	353	85	78	1329
Bearing. Bicycle ball	F. Douglas	576,661	Feb. 9	1017	238	78	845
Bearing. Bicycle ball	M. Patterson	576,147	Feb. 2	134	34	78	662
Bearing mechanism for converting reciprocatory into rotary motion. Ball	C. M. Kimball	576,199	Feb. 2	223	56	78	679
Bearing or support. Spindle	W. Hinchliffe	577,553	Feb. 23	2545	599	78	1161
Bearing. Roller	T. R. Ferrall	574,988	Jan. 12	1084	263	78	221
Bearing. Roller	R. W. Hent	579,269	Mar. 23	2482	586	78	1791
Bearing. Roller	H. Schon	575,618	Jan. 19	2183	517	78	450
Bearing. Rotary-shaft	P. L. Kimball	575,481	Jan. 19	1933	463	78	401
Bearing-surfaces. Apparatus for truing and burnishing metallic	W. H. Whittemore	577,973	Mar 2	244	58	78	1308
Bed	I. Laurin	576,590	Feb. 9	906	209, 210	78	823
Bed and cradle. Combined folding	J. V. Fitzsimmons	575,547	Jan. 19	2054	491, 492	78	425

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bed-bottom	N. Petersen	577,780	Feb. 23	2020	691	78	1231
Bed-bottom. Spring	W. Stoffel	575,861	Jan. 26	2608	614	78	544
Bed-bottom. Spring	D. D. Wyman	579,669	Mar. 30	3211	762	78	1941
Bedclothes-fastener	A. Wolf	574,977	Jan. 12	1064	259	78	218
Bed-couch	F. P. Bailey	576,020	Jan. 26	2869	679 680	78	594
Bed. Folding	M. L. Collins	579,425	Mar. 23	2725	647	78	1886
Bed. Folding	O. D. Reichard	579,841	Mar. 30	3499	836	78	2002
Bed. Folding couch	D. C. Storr	578,844	Mar. 16	1764	406	78	1643
Bed frame. Spring	G. Mafera	574,742	Jan. 5	636	151	78	118
Bed. Invalid	J. T. Hall	577,743	Feb. 23	2864	679	78	1220
Bed. Invalid	T. Holmes	577,303	Feb. 16	2063	492	78	1058
Bed Metallic couch	P. H. Mellon	579,402	Mar. 23	2695	641	78	1881
Bed or cot. Spring	H. and J. L. Gould	579,229	Mar. 23	2416	571	78	1780
Bed rails and posts. Machine for securing locking plates and pins in	A. D. Newberry and W. J. Melvin	579,896	Mar. 30	3485	833	78	1999
Bed-slat fastener	C. S. Fielding and J. R. Grogan	575,882	Jan. 26	2645	624	78	552
Bed. Spring	C. Chase	576,549	Feb. 9	837	194	78	811
Bed table attachment	J. A. Norton	576,983	Feb. 9	1549	368	78	946
Bedstead	O. S. Foster	578,007	Mar. 2	295	69	78	1317
Bedstead attachment	C. E. McKeag	577,145	Feb. 16	1825	430	78	1010
Bedstead-brace	J. F. Anderson	578,804	Mar. 16	1689	390	78	1629
Bedstead-fitting	E. Culhan	576,896	Feb. 2	569	134	78	743
Bedstead. Knockdown	J. Montgomery	574,489	Jan. 5	184	42	78	36
Bedstead. Metal	E. T. McKaig	574,560	Jan. 5	299	69	78	58
Bedstead mosquito-bar attachment	L. Payssé and W. P. Carey	577,318	Feb. 16	2105	498	78	1002
Bedstead rail-joint. Metal	S. Newman and H. R. Bothwell	576,224	Feb. 2	257	63	78	685
Bedstead-securing device	M. L. Cross	574,717	Jan. 5	601	143	78	111
Beer-casks. Air and beer connection for	P. E. Dunn and W. H. Partridge	575,545	Jan. 19	2048	490	78	423
Beer. Device for drawing steam	E. Demers	577,728	Feb. 23	2829	670	78	1214
Beer-engine	G. Watson	575,083	Jan. 12	1245	301	78	252
Beer, &c. Pressure device for	H. A. Braun	576,087	Feb. 2	12	3	78	640
Bell	R. H. Mayland	578,258	Mar. 2	736	167	78	1401
Bell	J. F. McConnell	579,681	Mar. 30	3232	767	78	1951
Bell	C. W. Storm and W. F. Hunter	574,880	Jan. 5	776	185	78	146
Bell	C. A. Tredwell	574,643	Jan. 5	461	105	78	86
Bell. Bicycle	P. C. Arnold	577,408	Feb. 23	2279	535	78	1111
Bell. Bicycle	G. F. Carlie	577,718	Feb. 23	2817	667	78	1212
Bell. Bicycle	J. K. and R. Cole	576,257	Feb. 2	326	77	78	698
Bell. Bicycle	J. Gonorovsky	576,814	Feb. 9	1254	299	78	890
Bell. Bicycle	T. Hoermann	577,618	Feb. 23	2663	629	78	1182
Bell. Bicycle	W. C. Homan	578,513	Mar. 9	1187	268	78	1505
Bell. Bicycle	A. B. Hunn	575,114	Jan. 12	1206	313	78	261
Bell. Bicycle	F. Meyrose and W. H. Curtis	577,488	Feb. 23	2416	569	78	1137
Bell. Bicycle	N. T. Mills	576,137	Feb. 2	116	30	78	659
Bell. Bicycle	A. T. Morrill	576,788	Feb. 9	1207	288	78	881
Bell. Bicycle	H. S. Pullman	578,262	Mar. 2	750	170	78	1404
Bell. Bicycle	A. F. Rockwell	575,069	Jan. 12	1224	297	78	247
Bell. Bicycle	E. D. Rockwell	574,631	Jan. 5	438	100	78	83
Bell. Bicycle	L. A. Sanford	578,268	Mar. 2	759	172	78	1405
Bell. Bicycle	F. A. Scranton	576,985	Feb. 9	1556	369	78	947
Bell. Bicycle	J. W. Starritt	576,986	Feb. 9	1557	369	78	947
Bell. Bicycle electric	H. B. Ewbank, Jr.	575,059	Jan. 12	1206	298	78	245
Bell. Door	G. E. Tyson	574,464	Jan. 5	144	33	78	29
Bell. Electric	J. W. Holdsworth	575,156	Jan. 12	1375	331	78	277
Bell for bicycles, &c. Speed-indicating	D. P. Wolhaupter	575,046	Jan. 12	1249	302	78	253
Bell mechanism. Bicycle	E. Brandt	577,352	Feb. 16	2164	512	78	1073
Bell. Railway alarm	N. J. Smith	575,996	Jan. 26	2831	669	78	587
Belt and skirt fastener	G. P. Farmer	576,261	Feb. 2	332	79	78	699
Belt. Concentrator	W. F. Bowers	575,142	Jan. 12	1352	325	78	272
Belt-fastener	C. C. Douglass	577,861	Feb. 16	2180	516	78	1077
Belt-fastener	J. Hill	578,991	Mar. 16	2021	471	78	1689
Belt-pin	A. C. Zaun	575,919	Jan. 26	2707	640	78	563
Belt-replacer	M. R. Zahniser	577,096	Feb. 16	1739	411	78	993
Belt. Safety	E. I. Cooley	579,818	Mar. 30	3452	828	78	1993
Belt-shifter	F. Taylor	579,100	Mar. 16	2204	517	78	1726
Belt-stretching machine	T. Murdock	577,873	Mar. 2	63	18	78	1273
Belt. Waist	H. J. Galsman	575,268	Jan. 12	1008	383	78	321
Belting	J. F. Brown	577,375	Feb. 16	2212	521	78	1083
Belting	J. F. Brown	577,376	Feb. 16	2213	521	78	1083
Belting	J. F. Brown	577,377	Feb. 16	2214	522	78	1083
Belting	J. F. Brown	577,378	Feb. 16	2215	522	78	1083
Belting. Link	E. S. Leaycraft	576,591	Feb. 9	908	210	78	824
Belting. Machine for manufacturing machine	C. H. Gray	575,424	Jan. 19	1837	441	78	382
Bending-machine	C. Nielson and R. A. Berger	578,416	Mar. 9	1005	231	78	1470
Bevel	T. R. Morris	578,462	Mar. 9	1086	247	78	1486
Bevel-gage	D. W. Fish and F. Barragan	579,143	Mar. 23	2274	535	78	1753
Beverages. Artificial straw for imbibing	L. H. Britton	575,206	Jan. 12	1458	350	78	293
Bichromates. Making	G. H. Clamer	574,391	Jan. 5	26	------	78	8
Bicycle	A. L. Adams	578,130	Mar. 2	514	116	78	1360
Bicycle	A. L. Adams	579,732	Mar. 30	3311	701	78	1967
Bicycle	C. H. Bellamy	576,538	Feb. 9	818	190 191	78	807
Bicycle	W. S. Brewer	579,125	Mar. 23	2247	529	78	1748
Bicycle	C. S. Buell	575,692	Jan. 26	2324	548	78	491
Bicycle	A. B. Clark	579,042	Mar. 16	2115	497	78	1708
Bicycle	C. B. Coffeen and C. F. Buck	577,509	Feb. 23	2457	579	78	1145
Bicycle	B. H. Fogg	575,152	Jan. 12	1370	330	78	276
Bicycle	C. E. Fox	578,326	Mar. 9	873	197	78	1445
Bicycle	P. L. Girardet, Fils	578,011	Mar. 2	302	71	78	1319
Bicycle	F. E. Guy	578,921	Mar. 16	1900	439	78	1665
Bicycle	J. Harrison	578,013	Mar. 2	305	72, 73	78	1319
Bicycle	C. A. Lindström	574,918	Jan. 12	921	225	78	194
Bicycle	D. di B. Savorgnan	578,209	Mar. 2	760	172 173	78	1405
Bicycle	W. M. Sherman	575,910	Jan. 26	2694	636	78	561

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle	G. R. F. von Stegmann	577,990	Mar. 2	270	64	78	1312
Bicycle	J. C. Stephens	575,529	Jan. 19	2023	482 483	78	419
Bicycle	G. W. Tallman	576,331	Feb. 2	462	108	78	724
Bicycle	W. Todd	575,815	Jan. 26	2517	594	78	529
Bicycle	C. L. Travis	578,615	Mar. 9	1354	308 309	78	1537
Bicycle	I. F. Wales	577,895	Mar. 2	108	26	78	1280
Bicycle attachment	J. S. Voitek	575,787	Jan. 26	2467	582	78	520
Bicycle-bag. Tourist's	J. A. Swanson	575,536	Jan. 19	2035	486	78	421
Bicycle balancing-frame	D. H. Valentine	576,385	Feb. 2	554	130	78	740
Bicycle-brake	H. B. Brown	577,396	Feb. 16	2252	529	78	1089
Bicycle-brake	F. J. Coombs	578,286	Mar. 2	793	179	78	1411
Bicycle-brake	W. H. Morgan	577,404	Feb. 16	2266	532	78	1092
Bicycle-brake	W. L. Stewart	575,988	Jan. 26	2733	646	78	569
Bicycle-brake	W. L. Stewart	576,912	Feb. 9	1417	337	78	921
Bicycle brake mechanism	P. E. Doolittle	576,560	Feb. 9	852	197 198	78	814
Bicycle brake mechanism	P. E. Doolittle	576,561	Feb. 9	854	198	78	814
Bicycle brake mechanism	P. E. Doolittle	576,562	Feb. 9	856	199	78	815
Bicycle-canopy	A. Mass	578,649	Mar. 9	1412	321	78	1547
Bicycle-canopy	C. Sturll	578,783	Mar. 16	1647	382	78	1620
Bicycle-canopy	T. Thompson	575,182	Jan. 12	1411	339 340	78	284
Bicycle-canopy	S. F. Whitaker	579,812	Mar. 30	3440	825	78	1991
Bicycle chain-brush	C. A. McCulloch and M. F. Corneaby	574,621	Jan. 5	423	97	78	80
Bicycle-chain cleaner	E. Grupelli	575,530	Jan. 19	2001	478	78	415
Bicycle chain-protector and dust-guard	H. Jacoby	577,581	Feb. 23	2598	611	78	1170
Bicycle construction	F. F. Ide	574,734	Jan. 5	625	148	78	116
Bicycle. Convertible	J. L. Dean	576,557	Feb. 9	847	197	78	813
Bicycle crank and pedal mechanism	J. C. Anderson	578,183	Mar. 2	631	144	78	1381
Bicycle dress-guard holder	M. Guy	577,551	Feb. 23	2542	599	78	1160
Bicycle driving-gear	C. A. Mette and E. S. Rayburn	578,701	Mar. 9	1509	348	78	1566
Bicycle driving-gear	J. Oag and J. McDonald	578,260	Mar. 2	748	169	78	1408
Bicycle-fork-head joint and bearing	T. B. Jeffery	574,996	Jan. 12	1096	266	78	228
Bicycle front steering-fork	J. G. Accles and P. L. Renouf	576,831	Feb. 9	1279	306	78	895
Bicycle-gear. Changeable	C. A. Meister	575,725	Jan. 26	2380	560	78	502
Bicycle-gearing	R. L. Bonnell	576,719	Feb. 9	1104	260	78	860
Bicycle guiding-stem	B. Arnold	578,186	Mar. 2	641	146	78	1383
Bicycle-handle	F. B. Fanning	578,734	Mar. 16	1575	364	78	1607
Bicycle-handle	H. W. Hoeft	579,925	Mar. 30	3624	868	78	2026
Bicycle-handle	G. W. Rugg	579,774	Mar. 30	3384	809	78	1981
Bicycle handle-bar	J. A. McCollum and E. J. Knoll	575,266	Jan. 12	1356	371	78	312
Bicycle handle-bar. Adjustable	W. Penberthy	575,006	Jan. 12	1114	270 271	78	227
Bicycle handle-bar and brake. Combined adjustable	M. A. Roso	575,936	Jan. 26	2730	645	78	568
Bicycle handle-bar grip	I. A. Newman	574,751	Jan. 5	648	154	78	121
Bicycle handle-bar. Reversible	J. W. Roxburgh	579,608	Mar. 30	3107	735	78	1927
Bicycle handle-bars. Means for adjusting	W. Penberthy	579,682	Mar. 30	3233	767	78	1951
Bicycle-hanger	S. C. Jessup	579,584	Mar. 30	3067	724	78	1920
Bicycle-hub	J. McCain	578,350	Mar. 9	903	204	78	1451
Bicycle hub and bottom bracket	F. J. Osmond	579,893	Mar. 30	3579	857	78	2018
Bicycle-hubs. Oil-hole cover for	R. C. Fay	579,794	Mar. 30	3417	819	78	1986
Bicycle indicating device	C. S. Labofish	576,525	Feb. 2	785	184	78	785
Bicycle-lamp holder	J. W. Bragger	577,156	Feb. 16	1846	436	78	1014
Bicycle-leader	H. J. Hayes and Z. J. Dilley	577,749	Feb. 23	2872	681	78	1221
Bicycle-lock	T. W. Appleyard	578,535	Mar. 9	1223	277	78	1511
Bicycle-lock	C. A. Gay	574,410	Jan. 5	56	13	78	12
Bicycle-lock	M. Gessler	577,248	Feb. 16	1966	472	78	1043
Bicycle-lock	F. H. Larrabee	575,719	Jan. 26	2371	558	78	501
Bicycle-lock	C. E. Rambo	579,443	Mar. 23	2763	655	78	1842
Bicycle-lock	C. Warman	578,125	Mar. 2	503	114	78	1358
Bicycle-lock	C. E. Wickliffe	577,673	Feb. 23	2747	649	78	1199
Bicycle-lock	C. W. Hudson	579,539	Mar. 23	2964	700	78	1881
Bicycle lock and coaster	S. W. Collins	576,835	Feb. 9	1285	307	78	896
Bicycle-lock. Combination	H. W. Myers	577,808	Feb. 23	2959	699	78	1239
Bicycle-locker	E. P. Dowd	578,629	Mar. 9	1377	314	78	1541
Bicycle-locking attachment	J. T. Long	579,439	Mar. 23	2753	653	78	1841
Bicycle luggage-carrier	F. M. Hatch	578,871	Mar. 16	1813	416	78	1650
Bicycle newspaper-rack	C. L. Travis	578,614	Mar. 9	1352	308	78	1537
Bicycle or like vehicle	J. F. Place	574,568	Jan. 5	312	72	78	61
Bicycle or vehicle lamp bracket	G. H. Henkel	579,753	Mar. 30	3346	801	78	1973
Bicycle parcel-carrier	F. W. Wentworth	575,018	Jan. 12	1131	274	78	230
Bicycle parcel-carrier	F. W. Wentworth	578,128	Mar. 2	512	116	78	1360
Bicycle parcel-carrier	J. M. Cassidy	576,548	Feb. 9	836	194	78	811
Bicycle-pedal	J. A. Goebler	579,479	Mar. 23	2876	676	78	1863
Bicycle-pedal	R. F. Hamilton and J. Wodiska	575,712	Jan. 26	2362	556	78	499
Bicycle-pedal	W. A. Barber	578,489	Mar. 9	1050	240	78	1478
Bicycle pedal attachment	W. H. Morgan	577,403	Feb. 16	2265	532	78	1092
Bicycle prop or support	D. Bremer and C. A. Lundgren	579,218	Mar. 23	2401	566	78	1777
Bicycle-propelling mechanism	M. B. Lloyd	577,488	Feb. 23	2333	547	78	1121
Bicycle-pump	P. N. and M. E. Stover	574,689	Jan. 5	552	128	78	102
Bicycle-rack	G. E. Bierbach	577,910	Mar. 2	135	33	78	1286
Bicycle rest and repair stand	G. Gilbert and E. Mushing	577,651	Feb. 23	2715	641	78	1192
Bicycle reversible saddle-post	A. G. Moore	577,308	Feb. 16	2092	495	78	1060
Bicycle-rim	W. Boulton	579,856	Mar. 30	3521	842	78	2006
Bicycle-saddle	M. L. Deitzler	576,070	Jan. 26	2660	698	78	608
Bicycle-saddle	M. F. Henderson	576,310	Feb. 2	421	98	78	716
Bicycle-saddle	F. M. Hoyt	576,192	Feb. 2	215	53	78	677
Bicycle-saddle	J. A. Hunt	576,968	Feb. 9	1509	358	78	938
Bicycle-saddle	J. A. Hunt	576,969	Feb. 9	1510	358	78	938
Bicycle-saddle	J. E. Plew	578,900	Mar. 16	1861	427	78	1659
Bicycle-saddle	J. H. Poole	579,442	Mar. 23	2762	654	78	1842
Bicycle-saddle	B. S. Seaman	578,120	Mar. 2	484	111	78	1354
Bicycle-saddle	B. S. Seaman	578,837	Mar. 16	1756	404	78	1641
Bicycle-saddle	S. D. Van Meter	574,503	Jan. 5	200	46	78	40

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle-saddle carriage	C. E. Vail	577,084	Feb. 16	1719	407	78	990
Bicycle-saddle carriage	C. E. Vail	577,085	Feb. 16	1720	407 408	78	990
Bicycle-saddle carriage	C. E. Vail	577,086	Feb. 16	1723	408	78	990
Bicycle-saddles. Means for attaching	B. S. Seaman	577,073	Feb. 16	1701	403	78	986
Bicycle safety attachment	L. Konrad	577,261	Feb. 16	2013	477	78	1045
Bicycle sail attachment	T. Lotherington	578,411	Mar. 9	998	228	78	1469
Bicycle-seat	E. A. Collins	579,514	Mar. 23	2926	688	78	1874
Bicycle-seat	O. K. Newell	575,509	Jan. 19	1965	475	78	412
Bicycle-seat	C. E. Wheeland	575,406	Jan. 19	1805	434	78	377
Bicycle seat-post	A. L. Garford	578,399	Mar. 9	977	222	78	1464
Bicycle-seat spring	A. F. Getz and W. C. Westall	576,726	Feb. 9	1112	263	78	863
Bicycle-shafts. Device for removing cranks from	I. B. Hanna	577,953	Mar. 2	212	51	78	1302
Bicycle shoulder-rest	G. O. Rogers	578,027	Mar. 2	325	77	78	1323
Bicycle-stand	N. B. Le Fevre	578,886	Mar. 16	1838	422	78	1655
Bicycle-stand	C. R. Penfield	576,351	Feb. 2	493	115	78	730
Bicycle stand and mud-guard	F. S. Foley	577,970	Mar. 2	253	60	78	1300
Bicycle stand or holder	H. C. Phillips	574,628	Jan. 5	433	99	78	81
Bicycle stand or holder	H. C. Phillips	574,629	Jan. 5	435	99	78	82
Bicycle steering attachment	R. E. McConley	579,664	Mar. 30	3205	761	78	1946
Bicycle-step	J. M. Hughes	578,335	Mar. 9	885	200	78	1447
Bicycle stop-motion brake and foot-rest	S. Fader	578,631	Mar. 9	1379	315	78	1541
Bicycle-strengthening attachment	C. Foehl	576,566	Feb. 9	863	201	78	816
Bicycle-support	A. A. Ames	578,307	Mar. 9	837	190	78	1439
Bicycle-support	C. L. Benedict	575,453	Jan. 19	1884	454	78	391
Bicycle-support	A. I. Gallaway	578,694	Mar. 9	1497	345	78	1564
Bicycle-support	J. M. Getchell	574,676	Jan. 5	531	123	78	97
Bicycle-support	A. E. Holaday	576,071	Jan. 26	2961	698	78	608
Bicycle-support	T. Jefferson	578,241	Mar. 2	718	163	78	1397
Bicycle-support	W. C. Jerome and B. D. Brown	576,346	Feb. 2	486	113	78	729
Bicycle-support	D. Knowles	578,490	Mar. 9	1145	257 258	78	1497
Bicycle-support	C. C. La Riviere	578,041	Mar. 2	343	82	78	1327
Bicycle-support	W. J. McGinniss	578,761	Mar. 16	1617	373	78	1615
Bicycle-support	M. S. Michener	579,717	Mar. 30	3294	787	78	1963
Bicycle-support	M. Ober and P. Schottmüller	576,883	Feb. 9	1377	328	78	913
Bicycle-support	P. P. Peace	577,693	Feb. 23	2734	645	78	1196
Bicycle-support	H. Sebald	578,838	Mar. 16	1757	405	78	1641
Bicycle-support	C. H. Thurston	577,998	Mar. 2	275	64	78	1313
Bicycle-support	I. N. Lincoln	578,937	Mar. 16	1925	445	78	1669
Bicycle-supporting stand	J. L. Benton	577,592	Feb. 23	2625	619	78	1176
Bicycle-supporting stand	T. Terrell	576,002	Jan. 26	2840	671	78	588
Bicycle tool-bag	F. G. Bender and R. E. McConnell	576,832	Feb. 9	1280	300	78	895
Bicycle track attachment	A. G. Dehlin and B. C. Clark	575,337	Jan. 19	1698	403	78	356
Bicycle-wheel	W. Hamilton	575,347	Jan. 19	1709	407	78	360
Bicycle-wheel	J. A. Magnusson	579,490	Mar. 23	2890	679	78	1866
Bicycle-wheel-repairing apparatus	E. B. Owen	575,554	Jan. 19	2003	494	78	426
Bicycles. Adjustable handle-bar for	J. M. Erwin	577,805	Feb. 23	2954	698	78	1238
Bicycles, &c. Brake for	W. Schmidt	577,665	Feb. 23	2736	646	78	1197
Bicycles. Combined stay and luggage-carrier for	A. McCormack	579,279	Mar. 23	2406	589	78	1794
Bicycles. Combined supporting and locking attachment for	J. F. Stevenson	579,613	Mar. 30	3113	737	78	1928
Bicycles, &c. Folding frame for	F. A. Reynolds	576,606	Feb. 9	1071	251	78	854
Bier	S. M. Totten	579,058	Mar. 30	3194	758	78	1944
Billets or ingots. Apparatus for perforating	G. J. Capewell	575,104	Jan. 12	1281	310	78	259
Billiard-chalk holder	E. V. C. Tassinari	574,501	Jan. 5	198	46	78	39
Billiard-chalk. Substitute for	W. Hoskins and W. A. Spinks	578,514	Mar. 9	1189	.....	78	1505
Billiard-cue chalker	C. Salmond	576,897	Feb. 9	1398	333	78	917
Billiard-cushion	S. de Gaetano	578,009	Mar. 2	301	71	78	1319
Billiard-cushion. Pneumatic	W. E. Taft	576,238	Feb. 2	282	69	78	690
Billiard or pool cue	J. B. Webster	574,698	Jan. 5	556	129	78	103
Billiard-table	W. F. Stebbins	576,767	Feb. 9	1176	280	78	875
Bin: *See* Flour or meal bin.							
Binder	H. E. Dade and G. F. Hill	574,477	Jan. 5	164	39	78	32
Binder or holder for papers. Temporary	J. Baer	579,033	Mar. 16	2097	491	78	1704
Binder or holder for papers. Temporary	J. Myers	579,073	Mar. 16	2163	508	78	1718
Binder. Temporary	H. J. Hotchkiss	575,238	Jan. 12	1506	361	78	302
Binder. Temporary	J. S. McDonald, Jr	574,382	Jan. 12	948	229 230	78	198
Binder. Temporary	C. E. Parker	579,175	Mar. 23	2336	548	78	1765
Binder. Temporary	A. L. Wels	577,218	Feb. 16	1952	462	78	1034
Binding or wrapper hook	H. D. Davis	574,596	Jan. 5	234	56	78	46
Bit: *See* Bridle-bit. Drill-bit.							
Bit or drill for borers, &c., and manufacture of same	C. Bornet	574,990	Jan. 12	1070	260	78	219
Blackboard	W. Mushoff	579,707	Mar. 30	3372	800	78	1978
Blackboard. Portable	W. L. Sinton	574,635	Jan. 5	446	102	78	84
Blacking case. Shoe-	C. E. Eckfeld	578,732	Mar. 16	1572	393	78	1607
Blacksmith's combination-tool	R. N. and J. J. Boggs	575,298	Jan. 12	1596	380	78	319
Bleaching, &c. Apparatus for	H. Rowe	576,620	Feb. 9	950	221	78	832
Bleaching fibrous materials. Apparatus for	C. Kellner	579,236	Mar. 23	2427	574	78	1782
Blind. Rolling	W. R. Kinnear	575,607	Jan. 19	2162	512 513	78	447
Blind-slat-adjusting device	K. H. Freeman and J. Knott	574,899	Jan. 12	898	218	78	189
Blind. Venetian	C. L. Miller	578,846	Mar. 9	897	208	78	1449
Block: *See* Building-block. Die-block.							
Block system. Automatic	J. Shoecraft	576,166	Feb. 2	163	40	78	668
Blower	F. Eisenbeis	578,096	Mar. 2	434	101	78	1344
Bluing and starching compound for laundry use	C. A. Taney	577,909	Mar. 2	238	.....	78	1306
Bluing-package	J. O. Egestorff	577,732	Feb. 23	2885	672	78	1215
Boat	H. A. House	578,239	Mar. 2	715	162	78	1397
Boat. Bicycle-	A. R. Powley	577,269	Feb. 16	2026	479	78	1048
Boat-detacher	B. A. W. Holtorp	579,434	Mar. 23	2746	651 652	78	1839
Boat. Submarine wrecking-	W. R. Hinsdale	575,890	Jan. 26	2661	628	78	555

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boat. Transfer-	W. G. Berg	576,941	Feb. 9	1460	347 348	78	928
Boats. Device for locating sunken	A. H. Pierce	579,548	Mar. 23	2906	710	78	1886
Bobbin	R. Blackburn	576,022	Jan. 26	2873	680	78	594
Bobbin	J. C. Fisher	577,736	Feb. 23	2840	673	78	1216
Bobbin-holder	H. Lawrence and A. E. Rhoades	575,929	Jan. 26	2719	642	78	566
Bobbin-holder and thread-catcher	O. C. Burr	578,811	Mar. 16	1702	393	78	1631
Boiler: *See* Locomotive-boiler. Stationary boiler. Locomotive or other boiler. Steam-boiler. Multitubular boiler. Tubular boiler.							
Boiler	T. Barnes	578,538	Mar. 9	1227	278	78	1512
Boiler	E. F. Edgar	577,240	Feb. 16	1979	468 469	78	1039
Boiler	J. J. Meehan	574,925	Jan. 12	985	227 228	78	196
Boiler	F. T. Stevens	578,300	Mar. 2	814	184	78	1415
Boiler and condenser plant for heating feed-water	F. Skvara	578,031	Mar. 2	331	78, 79	78	1324
Boiler attachment	G. A. Anderson	576,752	Feb. 9	1157	275 276	78	871
Boiler bridge-wall	G. W. Hayton	575,948	Jan. 26	2746	649	78	572
Boiler-cleaner	M. W. Grant	574,989	Jan. 12	1084	263	78	221
Boiler-cleaner	P. A. Kimburg	577,165	Feb. 16	1865	440	78	1017
Boiler-flue cleaner	H. L. Hildreth	574,422	Jan. 5	76	16	78	15
Boiler front and furnace	D. W. Evans	579,387	Mar. 23	2068	633	78	1826
Boiler-furnace	W. W. Davin	574,786	Jan. 5	704	168	78	132
Boiler-furnace	T. C. Harris	579,233	Mar. 23	2424	573 574 247	78	1782
Boiler-furnace	E. B. Parkhurst	576,686	Feb. 9	1057	248 249	78	852
Boiler-furnace	E. B. Parkhurst	579,545	Mar. 23	2972	708	78	1882
Boiler-furnace	W. H. Pearce	576,470	Feb. 2	675	161	78	765
Boiler-furnace	J. J. Storer	575,999	Jan. 26	2835	670	78	587
Boiler furnace. Steam-	W. C. Douthett	579,340	Mar. 23	2596	613	78	1812
Boiler furnace. Steam-	J. Price	577,173	Feb. 16	1874	443	78	1019
Boiler indicator. Steam-	J. Parker	575,933	Jan. 26	2725	644	78	567
Boiler oil or compound feeder	W. A. Semans	574,765	Jan. 5	669	159	78	125
Boiler-tube cleaner	J. Lockwood and G. Clifford	577,765	Feb. 23	2898	686	78	1227
Boilers. Device for relieving pressure in	J. G. J. Davis	579,700	Mar. 30	3257	775	78	1956
Boilers. Heating apparatus for hot-water	C. L. Holden	576,313	Feb. 2	425	99	78	717
Boilers or stoves. Means for supplying	S. Turner	579,418	Mar. 23	2708	643	78	1833
Bolt: *See* Draft-bolt. Seal-bolt. Nut-locking bolt. Thill-coupling bolt.							
Bolt or rivet	R. Flaherty	577,737	Feb. 23	2841	673	78	1216
Bolt or spike extractor	J. Humphreys	577,959	Mar. 2	223	53	78	1304
Bolt socket. King-	H. C. Swan	575,439	Jan. 19	1858	447 448	78	386
Bolt socket. King-	H. C. Swan	578,586	Mar. 9	1311	296	78	1529
Bolts. Means for securing and protecting stay-	J. Cour	576,036	Jan. 26	2905	686	78	599
Bolting-machine	H. Seck	575,902	Jan. 26	2823	666 667	78	585
Book	P. Haupt	577,258	Feb. 16	2008	474	78	1044
Book. Account-keeping	E. F. Ward	574,507	Jan. 5	210	50	78	41
Book and purse. Combined	J. B. O'Riva	575,809	Jan. 26	2508	590	78	527
Book binder. Note-	H. G. Cleaveland	579,423	Mar. 23	2723	640	78	1836
Book case and holder	C. T. R. Smith	574,955	Jan. 12	1016	245	78	210
Book. Check-	R. W. Morgan	575,781	Jan. 26	2459	580	78	518
Book-clamp	W. S. Reynolds	576,824	Feb. 9	1271	303	78	893
Book. Combined bill and record	R. G. Craig	578,973	Mar. 16	1995	465	78	1683
Book-cover	G. W. Sues	576,236	Feb. 2	277	68	78	689
Book-finishing machine	D. Nitschke	575,532	Jan. 19	2027	484 485	78	419
Book for county records, &c. Abstract-	G. G. Murray	579,598	Mar. 30	3089	731	78	1924
Book holder. Note-	W. T. Ives	575,928	Jan. 26	2718	642	78	566
Book. Memorandum-	T. McDowell	579,405	Mar. 23	2098	641	78	1832
Book. Memorandum-	I. Moore	576,218	Feb. 2	249	62	78	684
Book. Memorandum sales-	O. W. Gill	577,249	Feb. 16	1909	473	78	1043
Book or pad. Sales	H. H. Webber and S. J. Bingner	575,865	Jan. 26	2608	616	78	546
Book, paper-cutter, blotter, envelop-opener, &c. Combination	J. M. Adams	576,771	Feb. 9	1182	281	78	876
Book-rack	A. D. Linn	578,755	Mar. 16	1607	371	78	1614
Book-rest	G. C. Gunn	576,113	Feb. 2	59	15	78	648
Book. Safety-check	M. Leventritt	576,592	Feb. 9	909	210	78	824
Book. Stock-	P. M. Wolsieffer	577,998	Mar. 2	281	66	78	1314
Book-support	W. A. Barnes	575,627	Jan. 19	2204	521	78	454
Book-support	H. C. Cook	575,803	Jan. 26	2494	587	78	524
Book-support	R. Peate	575,832	Jan. 26	2549	601	78	535
Book-support and label-holder. Combined	W. A. Borden	575,294	Jan. 12	1598	381	78	320
Books, pads, &c. Cover for	E. J. Kauffmann	576,785	Feb. 9	1209	286	78	880
Books, papers, &c. Combined cover and stand for	J. Plant	575,270	Jan. 12	1562	372	78	313
Boot	C. N. Prouty	576,765	Feb. 9	1175	280	78	875
Boot or shoe	J. F. Warner	578,704	Mar. 16	1670	386	78	1625
Boot or shoe and metal plate or lift therefor. Spring-heel	F. F. Raymond, 2d	575,534	Jan. 19	2031	485	78	420
Boots or shoes. Antislipping attachment for	J. Zandalazini	577,475	Feb. 23	2891	563	78	1133
Boots or shoes. Ladder-gripping attachment for	D. B. Hanscom	579,577	Mar. 30	3056	721	78	1918
Boots or shoes. Manufacture of	H. J. Doughty	576,811	Feb. 9	1250	298	78	889
Boots, shoes, &c. Machine for inserting fastenings in	G. N. Gordon	578,696	Mar. 9	1500	346	78	1565
Boring-machine	B. Oakes	579,172	Mar. 23	2332	547 548	78	1764
Bosom-pad	D. Harrison	579,824	Mar. 30	3402	829	78	1996
Bottle	H. Ahlrichs	577,939	Mar. 2	191	46	78	1298

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bottle	W. von Bokern	575,675	Jan. 19	2292	541	78	472
Bottle	E. E. Brown	577,415	Feb. 23	2295	539	78	1114
Bottle	E. Campbell	576,805	Feb. 9	1943	296	78	888
Bottle	W. S. Dawson	579,564	Mar. 30	3032	717	78	1813
Bottle	C. E. Feich	579,224	Mar. 23	2410	569	78	1779
Bottle	A. L. Howell	579,516	Mar. 23	2929	699	78	1874
Bottle	O. P. M. Huffman	575,954	Jan. 26	2754	650	78	573
Bottle	C. F. dit E. Laroue	579,274	Mar. 23	2489	587	78	1793
Bottle	E. Lipska	574,920	Jan. 12	925	226	78	194
Bottle	E. Madden	574,923	Jan. 12	930	227	78	195
Bottle	W. W. Mangum, Jr	578,648	Mar. 9	1411	321	78	1547
Bottle	J. W. Mohn	577,053	Feb. 16	1667	396	78	979
Bottle	A. W. Moritz	579,651	Mar. 30	3184	756	78	1942
Bottle	C. H. Parsons	577,906	Mar. 2	235	56	78	1306
Bottle	J. A. Pearson	579,304	Mar. 23	2535	598	78	1801
Bottle	J. F. Pope	578,770	Mar. 16	1626	376	78	1617
Bottle	S. C. Rowell	579,684	Mar. 30	3235	766	78	1952
Bottle	A. Turner	577,590	Feb. 23	2021	619	78	1175
Bottle	R. G. Van Orman	579,197	Mar. 23	2368	558	78	1772
Bottle	W. Winston	577,634	Feb. 23	2665	633	78	1186
Bottle and seal therefor	C. W. Davison	574,671	Jan. 5	523	121	78	96
Bottle and stopper therefor	W. F. Hyer	579,828	Mar. 30	3471	890	78	1997
Bottle. Antirefillable	G. J. Franken	577,428	Feb. 23	2313	543	78	1118
Bottle. Antirefilling	C. Gilbert	576,263	Feb. 2	334	80	78	700
Bottle. Antirefilling	W. B. Nevill	574,442	Jan. 5	108	23	78	22
Bottle. Breakable	M. V. Howe	575,005	Jan. 19	2159	512	78	446
Bottle-closure	H. Still	576,417	Feb. 2	599	141	78	749
Bottle, demijohn, &c	J. H. Bahrenburg and F. M. Drake	575,317	Jan. 19	1645	393	78	347
Bottle hood and drip-tray	F. T. Trebilcock and C. A. Bastedo	579,353	Mar. 23	2614	617 618	78	1816
Bottle-indicator	P. M. Coffin	576,658	Feb. 9	1012	237	78	844
Bottle-labeling machine	E. W. Cornell	579,702	Mar. 30	3414	818	78	1986
Bottle-lock	F. W. Koehler	575,248	Jan. 12	1521	365	78	305
Bottle. Mucilage	F. N. Brooker	574,385	Jan. 5	18	5	78	6
Bottle. Mucilage	H. M. Eaton	576,187	Feb. 2	209	52	78	676
Bottle. Mucilage	C. S. Kellogg	578,039	Mar. 2	342	81	78	1326
Bottle. Mucilage	C. M. Rathbun	576,150	Feb. 2	188	35	78	663
Bottle. Mucilage	A. Shackleton	575,380	Jan. 19	1764	423	78	369
Bottle. Mucilage	G. W. Taylor	575,013	Jan. 12	1124	272	78	228
Bottle. Mucilage	F. van Gerpen	578,129	Mar. 2	501	114	78	1358
Bottle. Mucilage	E. G. Woodham	577,474	Feb. 23	2390	562	78	1133
Bottle. Non-refillable	C. T. Driscoll	576,042	Jan. 26	2016	488	78	601
Bottle. Non-refillable	J. A. Graham	574,680	Jan. 5	536	124	78	98
Bottle. Non-refillable	H. Juckett	578,015	Mar. 2	306	73	78	1320
Bottle. Non-refillable	E. A. Jukes	574,432	Jan. 5	89	19	78	18
Bottle. Non-refillable	L. G. Larson and C. Lundquist	574,852	Jan. 5	814	198	78	154
Bottle. Non-refillable	C. A. Lord	577,903	Mar. 2	232	55	78	1305
Bottle. Non-refillable	A. Metzler	576,410	Feb. 2	588	139	78	746
Bottle. Non-refillable	D. R. Saunders	576,380	Feb. 2	543	127	78	738
Bottle. Non-refillable	J. Stretch	576,913	Feb. 9	1418	337	78	921
Bottle. Non-refillable	W. C. Wilson	579,629	Mar. 30	3144	745	78	1934
Bottle. Non-refillable	H. Wissner	577,094	Feb. 16	1736	411	78	992
Bottle. Non-refilling	J. D. Shoots	577,790	Feb. 23	2034	694	78	1234
Bottle or stand for mucilage or ink	W. E. Ayer	576,085	Feb. 2	10	3	78	640
Bottle, &c. Protective	A. M. Gillam	578,010	Mar. 2	301	71	78	1319
Bottle. Safety	W. H. S. Jenison	578,338	Mar. 9	887	201	78	1447
Bottle. Siphon	G. Corbion, Jr	578,094	Mar. 2	431	100	78	1343
Bottle-stopper	G. Dussau	577,844	Mar. 2	16	6	78	1264
Bottle-stopper	W. J. Elsenhardt	576,102	Feb. 2	44	12	78	646
Bottle-stopper	J. Fitchie	578,535	Mar. 9	1261	296	78	1519
Bottle-stopper	A. Ibert, Jr	577,139	Feb. 16	1819	428	78	1008
Bottle-stopper	T. F. Langley	578,906	Mar. 16	3080	473	78	1690
Bottle-stopper	F. Schenker	579,013	Mar. 16	3056	480	78	1696
Bottle-stopper	C. H. Watkins, Jr	579,619	Mar. 30	3126	742	78	1930
Bottle-stopper	J. H. Wittekind	577,546	Feb. 23	2535	597	78	1159
Bottle-stopper fastening	W. J. Elsenhardt	576,101	Feb. 2	43	12	78	645
Bottle-stopper mold	J. Hickling and T. Slater	576,906	Feb. 9	1506	357	78	987
Bottle support. Nursery	W. A. Rowan	577,391	Feb. 16	2238	526	78	1067
Bottle-washer	H. H. Miller	579,763	Mar. 30	3307	805	78	1977
Bottle-washer	C. E. Tunellus	575,046	Jan. 12	1180	287 288	78	239
Bottle. Water	W. B. Fenn	579,807	Mar. 30	3540	845	78	2010
Bottle with pen, pencil, and pouch for stamps. Pocket ink	J. Pool	575,271	Jan. 12	1563	373	78	314
Bottles. Device for detecting fraudulent refilling of	J. Fawcett	578,320	Mar. 9	865	196	78	1443
Bottles. Device for extracting loop-seals from	C. F. Schield	579,843	Mar. 30	3502	837	78	2002
Bottles. Lock sealing-cap for	S. W. Morgan	578,756	Mar. 16	1608	371	78	1614
Bottles. Means or apparatus for hermetically closing	L. Bouneu	574,379	Jan. 5	13	3	78	5
Bouquet-holder	E. R. Roberts	579,181	Mar. 23	2345	550	78	1767
Box: *See* Annealing-box. Axle-box. Cigar-box. Cigarette-box. Collapsible box. Display-box. Dust-box. File-box. Garbage-box. Junction-box. Letter-box. Lunch-box. Magnetizing-box. Mail-box. Match-box. Miter-box. Outlet-box. Paper box. Powder-box. Salt-box. Sand-box. Slide-box. Sluice-box. Switch-box. Work-box.							
Box	F. H. Chase	578,967	Mar. 16	1986	462	78	1661
Box	E. Fanning	576,604	Feb. 9	1022	239	78	845

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Box	W. Jeschke	575,399	Jan. 19	1799	432	78	375
Box	H. Wedekindt, Jr	577,972	Mar. 2	243	57	78	1307
Box-assembling machine	B. M. Gunston	579,747	Mar. 30	3336	797 798	78	1972
Box-binding machine	C. Leffler	576,863	Feb. 9	1327	317	78	905
Box-fastener	J. F. Gilliland	579,057	Mar. 16	2133	502	78	1712
Box for containing gummed paper, &c	H. A. Péraut	579,177	Mar. 23	2339	549	78	1766
Box-lid and display-card holder	G. Schneider and W. W. Geddes	576,743	Feb. 9	1139	269	78	868
Box-making machine	J. H. Greenstreet	579,574	Mar. 30	3049	719 720	78	1916
Box-sections. Means for joining	J. Caillet	579,560	Mar. 30	3024	715	78	1912
Box-stapling machine	F. T. Speckbötel	576,382	Feb. 2	546	128	78	738
Boxes, cartons, &c. Attachment for pasteboard	A. G. Wutke and H. Uhry	577,340	Feb. 16	2146	508	78	1070
Boxes. Machine for making match	W. E. Williams	574,842	Jan. 5	794	189 190 191 192	78	150
Brace: *See* Bedstead-brace. Fence-brace.							
Braces	M. Kronheim	579,712	Mar. 30	3285	783	78	1961
Bracket: *See* Lamp-bracket. Scaffold-bracket. Lantern-bracket. Shelf-bracket.							
Bracket	J. Graves	576,110	Feb. 2	54	14	78	648
Braiding-machine	O. Dickhaus	578,916	Mar. 16	1894	438	78	1664
Braiding-machine racer	O. E. Moore	575,428	Jan. 19	1842	443	78	388
Brake: *See* Air-brake. Automatic brake. Beamless brake. Bicycle-brake. Car-brake. Cycle-brake. Electric brake. Electropneumatic brake. Fluid-pressure brake. Hydraulic brake. Railway-brake. Sleigh-brake. Vacuum-brake. Vehicle-brake. Wagon-brake.							
Brake	W. L. Bass	579,376	Mar. 23	2052	627	78	1823
Brake-actuating mechanism	C. Lindström	574,549	Jan. 5	279	65, 66	78	55
Brake-actuating mechanism	C. Lindström	578,573	Mar. 9	1288	292	78	1524
Brake-beam	J. Farley	575,420	Jan. 19	1829	440	78	381
Brake-beam	J. Player	574,491	Jan. 5	187	43	78	37
Brake-beam	L. R. Pomeroy	577,920	Mar. 2	178	43	78	1296
Brake-beam	H. B. Robischung	575,127	Jan. 12	1320	319	78	266
Brake-beam	H. B. Robischung	579,496	Mar. 23	2899	681	78	1868
Brake-beam strut	H. B. Robischung	577,883	Mar. 2	88	22	78	1277
Brake-cylinder	F. L. Clark	574,665	Jan. 5	507	117	78	94
Brake-gear of railway rolling-stock. Slack-adjuster for	F. W. Selley and W. H. Nisbet	579,369	Mar. 23	2639	623 624	78	1821
Brake-handle	P. G. Emery	576,043	Jan. 26	2017	688	78	601
Brake-handle	J. D. Waldran	577,470	Feb. 23	2384	561	78	1131
Brake-handle. Attachable	O. C. Oehler	574,755	Jan. 5	653	155	78	122
Brake-handle. Ratchet	W. A. McGuire and M. G. Hubbard, Jr.	577,490	Feb. 23	2418	569	78	1138
Brake or stop mechanism	W. A. Mack	575,965	Jan. 26	2772	654	78	576
Brake-shoe	M. J. Brundage	577,506	Feb. 23	2452	578	78	1144
Brake-shoe	F. E. Case	575,789	Jan. 26	2470	582	78	520
Brake slack-adjuster	W. W. Holmes	577,650	Feb. 23	2726	644	78	1195
Bread and preparing same. Malted	G. A. Clowes	579,739	Mar. 30	3321	.....	78	1908
Bread, cakes, &c. Machine for molding	C. Lueteke	575,609	Jan. 19	2164	513	78	447
Bread-cutter	J. Habrie	576,308	Feb. 2	416	97	78	715
Bread-cutting device	J. L. Kolbe	579,486	Mar. 23	2884	678	78	1865
Bread-raiser	J. M. Tinker	576,632	Feb. 9	974	228	78	836
Breast-strap iron	H. R. Spencer	576,908	Feb. 9	1410	336	78	919
Breast-strap roll	G. E. Boughton	574,777	Jan. 5	690	165	78	129
Brewers' vats, &c. Manhole-fitting for	W. Heiser	574,420	Jan. 5	73	16	78	15
Brick. Building	W. H. Bubb	576,185	Feb. 2	207	51	78	675
Brick. Chrome	N. McConnell	578,351	Mar. 9	904	.....	78	1451
Brick-drier	T. L. Holbrook and C. Schu	579,579	Mar. 30	3058	721 722	78	1918
Brick-drier	B. F. Weber	576,639	Feb. 9	982	230	78	838
Brick-kiln	C. and A. Klose	576,318	Feb. 2	437	101 102	78	719
Brick-kiln	T. L. Myers	577,928	Mar. 2	176	41, 42	78	1295
Brick-machine	W. E. Damon	579,384	Mar. 23	2664	632	78	1825
Brick-machine	A. J. Gwin	574,800	Jan. 5	721	172 173	78	136
Brick-machine	J. P. Kinkead	576,271	Feb. 2	346	82	78	702
Brick-machine	J. Tempest	576,289	Feb. 2	282	69	78	690
Brick-making machine	F. Gutteridge	575,603	Jan. 19	2156	511	78	445
Brick-making machine	J. J. Levi	579,714	Mar. 30	3288	784 785	78	1902
Brick or tile cutting machine	J. O. Ludlam and J. L. McKittrick	577,870	Mar. 2	56	16, 17	78	1271
Bricks. Composition of matter for	J. Brock	579,420	Mar. 23	2718	.....	78	1885
Bridge. Cantaliver draw	C. M. Morse and F. M. Sylvester	577,443	Feb. 23	2339	548 549	78	1122
Bridge for dikes or canals. Pontoon transfer	A. M. Wylie	579,813	Mar. 30	3442	825 826	78	1991
Bridge substructure	W. E. Phelps	579,007	Mar. 16	2045	477	78	1093
Bridges. Instrument for measuring temporary and permanent stresses in iron	O. Leuner	578,459	Mar. 9	1061	246	78	1485
Bridges. Means for raising swing	J. E. Roemheld	576,825	Feb. 9	1272	303	78	893
Bridle	R. W. Evans	579,341	Mar. 23	2598	613	78	1813
Bridle-bit	M. F. Bigelow	577,001	Feb. 16	1587	377	78	964
Bridle-bit	J. D. Warfel	576,502	Feb. 2	735	175	78	776
Bridle blinker-brace	A. Foss	576,443	Feb. 2	638	153	78	757
Brine-making apparatus	B. B. Quinn	577,068	Feb. 16	1693	402	78	984

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brooder. Poultry-	H. H. Stoddard	574,767	Jan. 5	673	160, 161	78	126
Broom	N. Lloyd	574,811	Jan. 5	743	178	78	140
Broom-handle. Extensible	T. P. Whitehead	577,220	Feb. 16	1953	462	78	1084
Broom-head	S. L. Brandt	576,513	Feb. 2	762	179	78	781
Broom-head	M. H. McCormick	575,571	Jan. 19	2095	500	78	432
Broom or brush	C. A. Worrall	575,087	Jan. 12	1253	302	78	253
Brooms or dusters. Extension-handle for	E. O. Loeber and G. F. Harvat	579,519	Mar. 23	2931	690	78	1874
Brush	F. S. Bartram	574,873	Jan. 12	858	209	78	181
Brush	A. C. Estabrook	576,978	Feb. 9	1583	363	78	943
Brush	A. C. Estabrook	579,107	Mar. 16	2218	522	78	1728
Brush	A. R. Knapp	576,200	Feb. 2	224	56	78	679
Brush	F. N. Look	576,866	Feb. 9	1332	318	78	906
Brush	E. I. Miller	578,099	Mar. 16	2034	474	78	1691
Brush	R. R. Walker	576,075	Jan. 26	2971	700	78	610
Brush. Fly-	W. D. Triem	574,886	Jan. 5	786	188	78	148
Brush. Fountain-	H. Cooper	579,135	Mar. 23	2283	532	78	1751
Brush. Fountain shaving-	E. V. Santee	576,868	Feb. 9	1309	333	78	917
Brush-machine	M. Young	578,907	Mar. 16	1877	431, 432, 433, 434	78	1661
Brush. Metal-cleaning	J. P. Wiens	574,972	Jan. 12	1068	257	78	216
Brush. Mucilage-	J. F. Smith	578,780	Mar. 16	1642	380	78	1620
Brush. Reservoir blacking-	W. Hayball	576,992	Feb. 9	1567	372	78	949
Brush. Rotary polishing-wheel	B. A. Carless	579,531	Mar. 23	2952	697	78	1878
Brush. Shoe-polishing	J. A. Cabot	577,379	Feb. 16	2216	522	78	1083
Brushes or brooms. Machinery for drilling holes in stocks, &c., of	G. and T. Shaw and J. P. Ditchfield	577,587	Feb. 23	2605	615, 616, 617, 618	78	1172
Brushing and rolling fabrics. Machine for	F. A. H. Dewald and E. Crispell	577,478	Feb. 23	2397	563	78	1134
Bucket elevator	J. M. Dodge	578,221	Mar. 2	693	157	78	1303
Bucket or basket	E. W. Smith and H. E. Mitchell	577,118	Feb. 16	1790	423	78	1003
Bucket. Sap-	J. A. Taylor and J. S. Parker	578,373	Mar. 9	934	212	78	1456
Buckle	C. S. Comstock	577,008	Feb. 16	1595	379	78	966
Buckle	D. P. Skelton	577,211	Feb. 16	1933	458	78	1081
Buckle. Back-band	J. W. Cronan	578,975	Mar. 16	1998	465	78	1688
Buckle. Belt-	M. T. Goldsmith	577,850	Mar. 2	24	8	78	1205
Buckle. Suspender-	J. E. Solt	577,040	Feb. 16	1713	406	78	988
Buckle. Trace-	C. F. Demmon	575,217	Jan. 12	1478	355	78	297
Buffer	W. B. Keighley	577,860	Mar. 2	39	12	78	1208
Buffer	S. D. King	578,752	Mar. 16	1605	370	78	1613
Buffing or polishing device	H. A. Webster	578,958	Mar. 16	1973	459	78	1678
Buffing or polishing machine	H. A. Webster	576,418	Feb. 2	601	142	78	749
Buffing or polishing wheel	D. McNiven	577,111	Feb. 16	1783	421	78	1001
Buggy-spring	C. W. Hewitt	578,874	Mar. 16	1817	417	78	1651
Buggy-top	G. P. Mitchell	576,599	Feb. 9	919	212	78	826
Buggy-top rail	A. A. Moore	574,853	Jan. 5	815	198	78	154
Buggy-top support	J. M. Brittingham and L. A. Sterling.	575,500	Jan. 19	1908	471	78	408
Building	H. K. Holsman	579,875	Mar. 30	3552	849	78	2012
Building-block and machine for making same. Hollow	E. G. Durant	576,260	Feb. 2	329	78, 79	78	699
Building construction	H. R. Keithley	574,433	Jan. 5	91	19	78	19
Building construction	H. R. Keithley	574,434	Jan. 5	92	20	78	19
Building material and making same	G. Schopf	575,370	Jan. 19	1763	.....	78	309
Bulkhead-door. Water-tight	J. O. Pelton	575,005	Jan. 12	1113	270	78	227
Bulkhead-doors. Apparatus for automatically closing	A. von der Ropp	578,028	Mar. 2	327	77	78	1324
Bullet-proof fabric	C. Zeglen	577,999	Mar. 2	282	66	78	1314
Bullet-proof fabric	C. Zeglen	578,000	Mar. 2	283	66	78	1315
Bung	C. A. Gildemeyer	578,232	Mar. 2	705	160	78	1305
Bung	H. A. Runkle	575,009	Jan. 12	1118	271	78	227
Buoy. Ship's	C. Lange	578,342	Mar. 9	893	202	78	1448
Burglar-alarm	A. Cleveland	574,524	Jan. 5	230	55	78	46
Burglar-alarm	M. P. McDermott	578,803	Mar. 16	1852	425	78	1657
Burglar-alarm	J. H. Walters	577,154	Feb. 16	1843	435	78	1013
Burglar-alarm	A. S. Wester	577,903	Mar. 2	122	30	78	1284
Burial-cases. Detachable carrier for	W. H. Antes	576,358	Feb. 2	504	118	78	731
Burial-casket	W. Hamilton	579,091	Mar. 16	2188	518	78	1723
Burial device	R. R. Richmond	579,806	Mar. 30	3432	822, 823	78	1989
Burial-vault	F. Kaufman	577,260	Feb. 16	2012	476, 477	78	1045
Burner: *See* Garbage-burner. Gas-burner. Gas-light burner. Gasolene-burner. Hydrocarbon-burner. Incandescent burner. Lamp-burner. Oil-burner. Regenerative burner. Self-generating burner. Vapor-burner.							
Burning fluid fuel. Apparatus for	L. S. Buffington	579,637	Mar. 30	3164	751	78	1988
Burning sulfur. Safety-holder for	R. W. Johnson	576,196	Feb. 2	219	54	78	678
Burnishing-machine	G. A. Farini and F. X. Gaudrie	574,722	Jan. 5	608	144, 145	78	113
Burnishing-machine	W. K. Herrington	575,350	Jan. 19	1712	407, 408	78	361
Burnishing-machine	S. H. Nichols	577,823	Feb. 23	2982	705	78	1244
Bushing. Tap-hole	W. Yaeger	575,089	Jan. 12	1256	303	78	254
Bushing. Tap or bung-hole	E. C. Post	576,611	Feb. 9	938	216	78	820
Butter-balls. Device for forming	C. H. Seitz	577,074	Feb. 16	1702	404	78	986
Button	S. Cary	576,186	Feb. 2	208	52	78	676
Button	O. W. Ketchum	579,851	Mar. 30	3475	831	78	1997
Button. Campaign-	H. I. Seidel	574,497	Jan. 5	194	45	78	38
Button-cleaning device	G. W. Harwood	577,025	Feb. 16	1622	385	78	970

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Button. Collar-	J. Goldsmith	574,678	Jan. 5	534	123	78	98
Buttonhole guide and clamp	B. J. Neuenschwander	579,601	Mar. 30	3093	732	78	1925
Button-making machine	M. Kirshner	576,317	Feb. 2	433	101	78	719
Button-making machine	E. Lippitt	578,647	Mar. 9	1407	320	78	1546
Button-making machine	O. Tyberg	574,857	Jan. 5	821	200, 201	78	155
Button. Separable	E. Pringle	577,208	Feb. 16	1929	456	78	1080
Button-setting machine	A. J. Shipley	579,017	Mar. 16	2060	482	78	1697
Button. Tack-fastened	T. R. Hyde, Jr	576,759	Feb. 9	1168	278	78	874
Button. Tack-fastened	A. J. Shipley	576,905	Feb. 9	1407	335	78	919
Button-tube loader	J. Kydd	577,821	Feb. 23	2978	704, 705	78	1243
Button-turning machine	J. Böhm	574,860	Jan. 5	830	202, 203	78	157
Buttoner	C. E. Esterly	579,262	Mar. 23	2472	583	78	1790
Cabinet. Accountant's	H. C. Humphrey	574,427	Jan. 5	83	17, 18	78	17
Cabinet. Hosiery-	W. T. Vallandingham	579,196	Mar. 23	2367	557	78	1771
Cabinet. Self-measuring lace-	G. M. Thompson	576,796	Feb. 9	1221	291	78	884
Cabinet. Spice-	A. G. Björkman	577,346	Feb. 16	2155	510	78	1072
Cabinet. Spool-	A. M. Yeakel	579,461	Mar. 23	2840	669	78	1856
Cabinet. Stenographer's	A. F. McIntire	577,369	Feb. 16	2197	519	78	1080
Cabinet. Store-	W. H. Bastin and L. M. Shaner	577,941	Mar. 2	192	47	78	1298
Cabinet. Thread-	J. S. Armstrong	575,197	Jan. 12	1444	347	78	289
Cabinet. Wall-	D. A. Patten	577,204	Feb. 16	1923	455	78	1029
Cabinets. Means for securing partitions of	C. C. Doten	578,728	Mar. 16	1566	362	78	1605
Cable-conveyer controlling mechanism	E. J. Muller	575,367	Jan. 19	1736	414, 415	78	365
Cable-puller	S. P. Sharp	578,365	Mar. 9	924	210	78	1454
Calcining apparatus	T. McNeal	577,059	Feb. 16	1674	397, 398	78	980
Calcium carbid. Process of and apparatus for producing	E. R. Whitney	578,685	Mar. 9	1475	339	78	1560
Calendar. Perpetual	W. H. Colby	579,257	Mar. 23	2461	581	78	1788
Calendering-roll	J. Butterworth	578,543	Mar. 9	1235	279	78	1514
Calipers	J. D. Johnston	574,429	Jan. 5	86	18	78	18
Call and call-answering apparatus. Electrical	E. H. Owen, C. N. Williams, and F. H. Donaldson.	579,075	Mar. 16	2165	508	78	1718
Calorimeter. Separating-	R. C. Carpenter	575,391	Jan. 19	1781	428	78	372
Camera. Flash-light attachment for photographic	I. F. Phelps	576,821	Feb. 9	1265	302	78	892
Camera. Kinetographic	M. J. H. Joly	574,851	Jan. 5	812	197, 198	78	153
Camera. Kinetographic	A. and L. Lumière	579,882	Mar. 30	3561	852	78	2014
Camera. Magazine-	L. J. R. Holst	578,639	Mar. 9	1394	317	78	1544
Camera. Magazine-	S. D. Williams	578,905	Mar. 16	1870	429, 430, 431	78	1660
Camera. Panoramic	E. P. Schoenfelder and E. Kehle	575,431	Jan. 19	1846	443	78	384
Camera. Photographic	F. A. Brownell	575,208	Jan. 12	1460	351	78	293
Camera. Photographic	F. A. Brownell	579,126	Mar. 23	2248	529, 530	78	1748
Camphor. Purifying	J. R. France	574,725	Jan. 5	612	146	78	114
Camping-bag	T. C. Phelps	578,358	Mar. 9	914	208	78	1453
Can: *See* Dispensing-can. Garbage-can. Ice-making-machine can. Jacket-can. Oil-can. Oil or gasolene can. Sheet-metal can. Spouted can.							
Can	J. Gould, Jr	574,780	Jan. 5	619	147	78	115
Can-filling machine	W. E. Nickerson	574,444	Jan. 5	110	23, 24, 25	78	22
Can heading and soldering machine	R. D. Hume	576,122	Feb. 2	85	23, 24	78	653
Can-heading machine	R. D. Hume	576,123	Feb. 2	90	24	78	654
Can-heading machine	R. D. Hume	576,125	Feb. 2	95	25	78	655
Can-heads. Machine for attaching gaskets to	I. Bloch	579,104	Mar. 16	2213	520	78	1727
Can-machine	W. D. Brooks	577,715	Feb. 23	2807	664, 665	78	1210
Can-making machine	R. D. Hume	576,121	Feb. 2	80	21, 22, 23	78	652
Can-making machine	J. Solter	577,457	Feb. 23	2303	555, 556	78	1127
Can-making machine	J. Solter	577,458	Feb. 23	2306	556, 557	78	1128
Can-making machine	J. Solter	577,459	Feb. 23	2309	557	78	1128
Can-making machinery	R. D. Hume	576,120	Feb. 2	69	17, 18, 19, 20, 21	78	650
Can-opener	A. Barnes	575,201	Jan. 12	1451	348	78	291
Can-opener	H. Berntsen	579,086	Mar. 16	2182	512	78	1722
Can-opener	H. A. Frantz	579,089	Mar. 16	2186	513	78	1722
Can-opener	F. Leschinski	575,654	Jan. 19	2254	532	78	464
Can-opener	R. B. Stewart	579,084	Mar. 16	2180	511	78	1721
Can-opener	E. P. Tyrrell	576,063	Jan. 26	2951	696	78	606
Can-opener and burring device	J. E. Campbell	576,547	Feb. 9	835	194	78	810
Can or jar filler	J. M. Merritt	574,849	Jan. 5	810	197	78	153
Can-stopper	F. W. Olin	579,004	Mar. 16	2037	475	78	1692
Canner. Fruit-	A. C. McCutcheon	574,750	Jan. 5	647	154	78	121
Canceling machine. Check-	J. M. Willbur	576,750	Feb. 9	1154	275	78	871
Canceling postal marks. Apparatus for	H. Green	574,414	Jan. 5	62	14	78	13
Cane and torch. Combined	O. F. Packard	577,879	Mar. 2	79	21	78	1276
Cane and umbrella. Combined	A. G. Moyer	579,162	Mar. 23	2309	543	78	1759
Cane. Electrical	W. N. Sherman	578,471	Mar. 9	1098	250	78	1488

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cane or umbrella holder	W. F. Stellner	577,668	Feb. 23	2741	647	78	1198
Cap	W. N. Feldman	575,925	Jan. 26	2714	641	78	565
Cap card. Percussion-	T. G. Bennett	576,391	Feb. 2	563	132	78	741
Cap. Military	H. and J. Wallner	576,294	Feb. 2	392	92	78	711
Capsule-drying kiln. Gelatin-	F. A. Hubel and J. M. Smith	579,392	Mar. 23	2675	634, 635	78	1827
Capsule-filling machine	F. B. Grove	578,985	Mar. 16	2013	469	78	1687
Car and air-brake coupling. Automatic	G. D. Pettingell	575,167	Jan. 12	1388	334	78	279
Car and air-pipe coupling	C. L. Bancroft	574,597	Jan. 5	375	85	78	71
Car-announcer	W. A. Heckard and D. Ogden	578,402	Mar. 9	981	223	78	1465
Car-brake	J. W. Buford, Jr	578,964	Mar. 16	1980	461, 462	78	1679
Car-brake	J. C. Devlin	574,787	Jan. 5	705	168, 169	78	182
Car-brake	A. S. Goetz	577,394	Feb. 16	2070	499	78	1056
Car-brake	J. Keller	579,829	Mar. 30	3472	830	78	1997
Car-brake	G. W. Lacy	574,913	Jan. 12	914	221, 222	78	192
Car-brake	A. H. Lowry	575,160	Jan. 12	1380	332	78	278
Car-brake	E. A. Marden	577,515	Feb. 23	2470	592	78	1147
Car-brake	W. A. Mitchell	574,556	Jan. 5	292	68	78	57
Car-brake	M. D. Murphy	576,143	Feb. 2	126	32	78	660
Car-brake	S. Rogers	578,776	Mar. 16	1632	377	78	1618
Car-brake	F. Wagner	576,925	Feb. 9	1438	342	78	924
Car brake-beam	W. P. Bettendorf	576,539	Feb. 9	820	191	78	808
Car brake compensating device. Railway-	J. E. Loughridge	575,255	Jan. 12	1536	368	78	308
Car brake mechanism and controller. Electric-	W. D. Thomas and L. R. Gignilliat	576,384	Feb. 2	550	129, 130	78	739
Car brake-shoe. Railway-	C. T. Stewart	578,427	Mar. 9	1018	234	78	1473
Car brake. Street-	B. J. Jones	578,675	Mar. 9	1451	332	78	1555
Car brake. Street-railway-	J. Lessard	578,646	Mar. 9	1405	330	78	1546
Car-brakes. Automatic slack-adjuster for	J. B. and H. E. Downing	578,978	Mar. 16	2004	466	78	1685
Car-buffer	W. F. Richards	574,576	Jan. 5	344	77	78	65
Car buffer-platform	T. L. McKeen	575,971	Jan. 26	2792	658	78	580
Car-chock	C. Wilhelmsen	579,667	Mar. 30	3208	762	78	1947
Car-coupling	A. L. Arney	576,588	Feb. 9	811	189	78	806
Car-coupling	J. E. Betts	577,000	Feb. 16	1586	377	78	964
Car-coupling	F. W. Bridenbecker	574,388	Jan. 5	17	5	78	6
Car-coupling	H. C. Buhoup	578,313	Mar. 9	850	192, 193	78	1441
Car-coupling	H. C. Buhoup	578,314	Mar. 9	854	193	78	1441
Car-coupling	R. B. Chritton	576,550	Feb. 9	898	195	78	811
Car-coupling	R. B. Chritton	577,547	Feb. 23	2588	598	78	1160
Car-coupling	J. S. Collison	574,880	Jan. 12	867	210	78	183
Car-coupling	H. Deitz	576,094	Feb. 2	94	8	78	643
Car-coupling	L. O. Ferguson and S. J. Miller	575,228	Jan. 12	1486	357	78	298
Car-coupling	H. Gallager	579,674	Mar. 30	3218	764	78	1940
Car-coupling	J. J. Gaylord	577,849	Mar. 2	28	8	78	1265
Car-coupling	M. J. Grady and R. McMillan	575,343	Jan. 19	1708	405	78	359
Car-coupling	J. R. Hare	577,398	Feb. 16	2075	491	78	1057
Car-coupling	J. P. Johnson	576,851	Feb. 9	1369	313	78	901
Car-coupling	S. Johnston and B. H. Rinehart	575,344	Jan. 12	1516	364	78	304
Car-coupling	D. M. Lipps	574,741	Jan. 5	634	151	78	118
Car-coupling	H. M. Luchia	575,656	Jan. 19	2236	533	78	465
Car-coupling	W. J. McKelvy	575,972	Jan. 26	2793	658	78	580
Car-coupling	L. Mendelson	575,612	Jan. 19	2169	515	78	448
Car-coupling	C. Payne and J. Lynn	577,206	Feb. 16	1924	455	78	1029
Car-coupling	G. D. Pettingell	575,166	Jan. 12	1387	334	78	279
Car-coupling	S. A. Politsky	577,502	Feb. 23	2558	602	78	1164
Car-coupling	P. M. Reagan	577,380	Feb. 16	2225	526	78	1067
Car-coupling	C. H. W. Relyea	577,998	Mar. 2	267	63	78	1312
Car-coupling	W. F. Richards	574,575	Jan. 5	342	77	78	65
Car-coupling	H. B. Rogers	574,825	Jan. 5	760	184	78	145
Car-coupling	S. R. Skov	575,856	Jan. 26	2591	612	78	543
Car-coupling	B. R. Smith	576,233	Feb. 2	270	67	78	698
Car-coupling	C. H. Smith	579,020	Mar. 16	2068	484	78	1698
Car-coupling	J. B. Smith	578,366	Mar. 9	925	211	78	1454
Car-coupling	J. F. Swint	577,464	Feb. 23	2377	559	78	1130
Car-coupling	C. H. Taylor	579,503	Mar. 23	2910	685	78	1870
Car-coupling	R. C. Turnbull	576,008	Jan. 26	2852	675, 676	78	590
Car-coupling	C. G. Tushaus	575,623	Jan. 19	2191	519	78	452
Car-coupling	W. C. Watson	576,397	Feb. 2	557	131	78	740
Car-coupling	T. Welch	577,700	Feb. 23	2782	657	78	1205
Car-coupling	T. Welch	577,801	Feb. 23	2947	697	78	1236
Car-coupling	M. Wells and J. Lovett	577,902	Mar. 2	121	30	78	1284
Car-coupling	H. E. Welsh	576,707	Feb. 9	1086	255	78	857
Car-coupling	M. A. Williamson	575,748	Jan. 26	2412	568	78	508
Car-coupling draw-bar attachment	H. C. Williamson and H. Pries	578,590	Mar. 9	1315	298	78	1590
Car-coupling unlocking-levers. Locking device for	P. Hien	576,673	Feb. 9	1035	242	78	848
Car-couplings. Draft-rigging for connecting	E. Grafstrom	575,566	Jan. 19	2084	498	78	430
Car-door	L. Jacobs	577,990	Mar. 2	224	53	78	1304
Car-door	E. S. Marshall	575,257	Jan. 12	1539	369	78	309
Car-door	H. J. Schmick	575,173	Jan. 12	1396	336	78	281
Car-door fastener and protector	J. C. Bishop	574,775	Jan. 5	687	164	78	120
Car draft-gear. Freight-	A. Lipschutz	578,109	Mar. 2	456	106	78	1349
Car. Dumping-	E. S. Hart	578,986	Mar. 16	2015	469	78	1687
Car. Dumping-	W. A. Thacher	577,566	Feb. 23	2562	603, 604, 605	78	1164
Car-fender	W. J. and A. S. Body	576,652	Feb. 9	1005	236	78	842
Car-fender	O. W. Brenizer	575,023	Jan. 12	1138	276	78	231
Car-fender	H. S. Brickell	576,946	Feb. 9	1466	349	78	990
Car-fender	M. P. Crawford	575,676	Jan. 19	2294	541	78	472
Car-fender	G. W. Cressman	576,341	Feb. 2	479	112	78	727
Car-fender	J. A. Erkson	575,058	Jan. 12	1206	292	78	244

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Car-fender	C. E. Fletcher	576,496	Feb. 2	726	172, 173	78	774
Car-fender	T. E. Gregg	575,396	Jan. 19	1793	481	78	874
Car-fender	C. A. Hatch	577,954	Mar. 2	213	51	78	1302
Car-fender	S. K. Hitchcock	574,733	Jan. 5	623	148	78	116
Car-fender	J. R. and J. A. Jacques	574,735	Jan. 5	626	149	78	116
Car-fender	A. H. Jelly	577,859	Mar. 2	86	11, 12	78	1267
Car-fender	P. Jones	578,104	Mar. 2	445	104	78	1346
Car-fender	P. Jones	578,105	Mar. 2	448	104	78	1347
Car-fender	P. Jones	578,106	Mar. 2	450	104, 105	78	1347
Car-fender	J. P. Kane	576,858	Feb. 9	1311	313	78	901
Car-fender	A. J. Knauer	578,406	Mar. 9	991	226	78	1467
Car-fender	G. Learmouth	578,645	Mar. 9	1404	319	78	1545
Car-fender	W. Lorey	574,551	Jan. 5	283	66	78	56
Car-fender	N. T. Macferron	577,140	Feb. 16	1820	429	78	1009
Car-fender	C. P. Mains	579,650	Mar. 30	3182	755, 756	78	1941
Car-fender	F. P. Maize, W. H. Conrad, and F. H. Wampler.	576,210	Feb. 2	239	59	78	682
Car-fender	I. D. Moser	574,928	Jan. 12	942	228	78	197
Car-fender	D. Rice	574,494	Jan. 5	191	44	78	38
Car-fender	W. H. Russell and W. B. Wigg	575,010	Jan. 12	1120	272	78	228
Car-fender	E. Sherwood	577,326	Feb. 16	2118	501	78	1065
Car-fender	C. Shirey	578,528	Mar. 9	1214	274	78	1509
Car-fender	I. O. Stephens	576,283	Feb. 2	368	86	78	706
Car-fender	J. B. and J. D. Thompson	574,462	Jan. 5	141	33	78	28
Car-fender	J. E. Treat	578,279	Mar. 2	780	176	78	1408
Car-fender	W. Weaver	579,372	Mar. 23	2645	625, 626	78	1822
Car-fender	E. West	576,491	Feb. 2	716	171	78	772
Car fender and brake. Combined	E. S. Leaycraft	577,044	Feb. 16	1651	392	78	975
Car fender. Street-	L. J. Hunter	574,541	Jan. 5	266	63	78	52
Car fender. Street-	G. Stademann	577,564	Feb. 23	2561	603	78	1164
Car life-guard. Street-	G. A. Parmenter. (Reissue)	11,584	Jan. 12	1638	391	78	327
Car life-guard. Street-	G. A. Parmenter	578,497	Mar. 9	1157	261	78	1499
Car life-guard. Street-	A. J. Thornley	574,883	Jan. 5	779	186, 187	78	146
Car-lighting. Electrical	M. Moskowitz	577,872	Mar. 2	61	17	78	1272
Car. Metallic railway-	F. Heron	578,990	Mar. 16	2020	470	78	1688
Car-motor gearing. Electric-	A. C. Mather	575,724	Jan. 26	2379	560	78	502
Car motor. Street-	P. P. Mast	577,050	Feb. 16	1661	395	78	978
Car. Parlor and sleeping	J. M. Osgood	579,005	Mar. 16	2039	475, 476	78	1692
Car. Pneumatic motor-	H. Haupt	578,738	Mar. 16	1579	365	78	1608
Car. Railway-	W. M. Cole	577,596	Feb. 23	2630	620, 621	78	1177
Car-replacing device	A. J. Chapel	574,662	Jan. 5	497	114	78	92
Car safety-fender. Street-	F. Berry	574,657	Jan. 5	487	111	78	91
Car safety-guard. Street-	G. T. Foster	574,898	Jan. 12	897	217, 218	78	188
Car safety-guard. Street-	R. F. Preusser	578,522	Mar. 9	1202	271	78	1508
Car-signal. Automatic	E. de Haas	575,710	Jan. 26	2358	555	78	498
Car signal-flag	A. F. Prahm	579,770	Mar. 30	3375	807	78	1979
Car. Sleeping-	J. I. Newburg	578,897	Mar. 16	1856	426, 427	78	1658
Car-step	F. Thompson	574,461	Jan. 5	140	32	78	26
Car-step. Adjustable	H. W. Lemering and H. Pickard	576,133	Feb. 2	109	28	78	658
Car-step. Extension	G. Langkans	574,916	Jan. 12	919	224	78	193
Car-step. Extension	D. L. White	574,969	Jan. 12	1047	253, 254	78	215
Car-step. Folding	W. P. Nye	577,446	Feb. 23	2343	550	78	1123
Car. Stock-	W. Cline	575,459	Jan. 19	1895	456, 457	78	393
Car. Street-	H. W. Libbey	575,485	Jan. 19	1988	465	78	402
Car. Street-	A. W. Lilienthal	579,276	Mar. 23	2491	588	78	1798
Car. Street-	J. A. Trimble	579,458	Mar. 23	2837	668, 669	78	1856
Car-switch. Automatic	F. Rice	577,563	Feb. 23	2559	603	78	1164
Car-unloader	M. O'Dowd	576,492	Jan. 19	1951	468	78	404
Car-unloading apparatus	W. R. Wilson	577,500	Feb. 23	2439	574, 575	78	1142
Car-ventilator	J. M. Daly	575,704	Jan. 26	2347	558	78	496
Car ventilator. Stock-	A. C. Mather	577,871	Mar. 2	60	17	78	1272
Car. Vestibule-	H. W. Libbey	575,484	Jan. 19	1937	464	78	402
Car-wheel, &c	W. J. Taylor	578,662	Mar. 9	1490	326	78	1551
Car-wheel-grinding mechanism	J. Murphy	578,676	Mar. 9	1458	332, 333	78	1555
Car-windows. Combined screen and dust-guard for	H. Pannill	579,365	Mar. 23	2632	622	78	1820
Car-windows. Curtain-fixture for	F. H. Bassett	575,410	Jan. 19	1811	435	78	378
Cars. Charging device for air-storage motor-	R. Hardie	577,024	Feb. 16	1619	384, 385	78	970
Cars. Device for replacing tram-	J. H. Maloney	576,468	Feb. 2	666	159	78	763
Cars. Device for uniting	A. G. Leonard	578,498	Mar. 9	1151	259	78	1498
Cars. Electric propulsion for railway-	L. Dion	575,054	Jan. 12	1197	290	78	242
Cars. Mechanism for ventilating railway passenger-	H. F. Caldwell	575,823	Jan. 26	2528	596	78	531
Cars. Metallic platform and buffer for railway-	H. H. Sessions	575,994	Jan. 26	2828	668, 669	78	586
Cars on grades. Operating	H. H. Lynch and S. L. Foster	576,868	Feb. 9	1335	318, 319	78	906
Cars, &c. Sand-box for electric	M. M. Nash	579,168	Mar. 23	2819	545	78	1762
Cars. Ventilating railway-	J. M. Palmer	578,356	Mar. 9	911	207	78	1452
Carbon dioxid. Apparatus for solidifying	H. S. Elworthy	579,866	Mar. 30	3537	845	78	2010
Carbon-holder	C. E. Harthan	579,267	Mar. 23	2478	585	78	1791
Carbureter	H. B. Cornish	575,595	Jan. 19	2144	508, 509	78	443

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Carbureter	T. N. Gibson	576,108	Feb. 2	51	14	78	647
Card-clothing	E. Ashworth	578,592	Mar. 9	1318	298	78	1530
Card-clothing. Apparatus for attaching fillets to flats of	K. Goldschmidt	577,918	Mar. 2	157	37	78	1292
Card-clothing. Manufacture of wire	F. Wilkinson	579,624	Mar. 30	3134	744	78	1932
Card-clothing to top-flats. Fastening	J. C. Potter	575,986	Jan. 26	2812	663, 664	78	583
Card-cutting die. Multiple	H. W. Lawrence	577,043	Feb. 16	1648	392	78	975
Card-holder	J. H. Downing	577,298	Feb. 16	2063	487	78	1055
Card. Playing	G. P. Benjamin	577,345	Feb. 16	2154	510	78	1072
Card with revolving flats	G. Fauquet	575,565	Jan. 19	2082	497	78	430
Cards. Piano-machine for punching jacquard	V. Royle	577,585	Feb. 23	2601	615	78	1171
Cards. Stop-motion and alarm for woolen finisher	P. H. Walsh	576,749	Feb. 9	1152	274	78	870
Carding-engine feeder	J. F. Geb	577,247	Feb. 16	1995	472	78	1042
Carding-engine flats. Machine for grinding	E. Brown	575,689	Jan. 26	2318	546, 547	78	490
Carding-machine	J. T. Meats	579,117	Mar. 16	2235	526	78	1730
Carding-machine	W. D. Rosencrantz	575,852	Jan. 26	2586	610	78	541
Carding-machine-condenser take-up roller	W. D. Rosencrantz	575,851	Jan. 26	2585	610	78	541
Carousel	M. T. Weston	575,624	Jan. 19	2192	520	78	452
Carpet-cleaner	W. A. J. Schmelzinger	577,115	Feb. 16	1787	422	78	1002
Carpet-fastener	H. Oberjohann	577,201	Feb. 16	1921	454	78	1028
Carpet or door strip	S. W. Wilt	578,129	Mar. 2	513	116	78	1300
Carpet-rag looper	L. V. Gilliland	575,031	Jan. 12	1158	282	78	234
Carpet-securing device. Stair	E. F. Gardner	574,796	Jan. 5	716	171	78	135
Carpet-stretcher	D. J. Carroll	579,130	Mar. 23	2258	531	78	1750
Carpet-stretcher	J. M. Newlon	574,816	Jan. 5	752	180	78	141
Carpet-sweeper	W. J. Drew	575,219	Jan. 12	1480	356	78	297
Carpet-sweeper	W. J. Drew	576,837	Feb. 9	1288	308	78	806
Carpet-sweeper	C. King	575,960	Jan. 26	2764	652, 653	78	574
Carriage. Baby	T. A. Evans	575,804	Jan. 26	2496	588	78	525
Carriage. Baby	W. E. Willis	579,528	Mar. 23	2947	696	78	1877
Carriage. Child's	F. Cohn	577,646	Feb. 23	2709	639	78	1191
Carriage. Child's	A. J. M. Hurdle	578,640	Mar. 9	1396	318	78	1544
Carriage guiding attachment. Baby	G. L. Rothermel	576,617	Feb. 9	945	219	78	830
Carriage or sled. Convertible	E. A. Beyl	579,288	Mar. 23	2509	593	78	1706
Carriage-protector	O. F. Bovier	576,991	Feb. 9	1565	372	78	949
Carriage-top curtain	G. P. Mitchell	576,508	Feb. 9	918	212	78	825
Carriage top-prop	C. Schneider	577,324	Feb. 16	2113	500	78	1064
Carrier: *See* Slide-carrier.							
Carroting-machine	C. E. Sackett	577,626	Feb. 23	2673	631	78	1185
Cart. Dumping	C. R. Moberly and S. S. Welty	577,169	Feb. 16	1869	441	78	1018
Cart. Garbage	J. Healy	576,727	Feb. 9	1113	263	78	803
Cart. Garbage	J. Reifsnider	579,179	Mar. 23	2342	549, 550	78	1766
Cartridge-belt	C. E. Conner	576,516	Feb. 2	766	180	78	782
Cartridge-carrier	L. R. Ferguson	574,531	Jan. 5	239	57	78	47
Cartridge-holder. Temporary	T. C. Johnson	575,650	Jan. 19	2246	531	78	463
Cartridge-holder. Temporary	T. C. Johnson	578,981	Mar. 16	1916	443	78	1668
Cartridge-loading implement	J. W. Flower	579,226	Mar. 23	2412	570	78	1780
Case: *See* Blacking-case, Bookcase, Display-case, Druggist's label-case, Egg-case, Eyeglass-case, File-case, Magazine-case, Match-case, Pencil-case, Show-case, Spectacle-case, Tilting case, Traveling-case, Umbrella-case.							
Case for books, &c	C. A. Tucker	577,800	Mar. 2	97	25	78	1279
Case or box for silverware, &c	E. J. Fletcher	579,320	Mar. 23	2563	605	78	1806
Case or receptacle for use by tourists or others	E. E. Johnston	575,868	Jan. 26	2669	629	78	557
Cash apparatus	R. Hertzberg	575,715	Jan. 26	2307	557	78	500
Cash indicator and register	F. L. Bailey	577,305	Feb. 16	2247	528, 529	78	1089
Cash indicator and register	C. H. Little	575,000	Jan. 12	1100	267, 268	78	224
Cash receiver and recorder and type-writing machine. Combined	G. P. Gaston	575,828	Jan. 26	2537	598, 599	78	583
Cash-register	L. Cooney, Jr.	575,331	Jan. 19	1674	400, 401, 402	78	352
Cash-register	D. W. Harper	577,164	Feb. 16	1862	439, 440	78	1017
Cash-register	H. W. Libbey	578,205	Mar. 2	807	182	78	1414
Cash register and indicator	W. T. McGraw	579,932	Mar. 30	3634	870, 871	78	2028
Cash register and recorder	J. Pfeifer	579,604	Mar. 30	3096	733, 734	78	1925
Cash register and recorder	H. Pottin	575,372	Jan. 19	1744	416, 417, 418, 419, 420	78	367
Cash-register. Pocket	J. F. Goodridge	575,476	Jan. 19	1920	462	78	398
Cask	T. C. Hooman	577,857	Mar. 2	34	10	78	1297
Cask-pitching apparatus	P. Sherrer and J. Schmidt	574,827	Jan. 5	772	184	78	145
Casket-clamp. Hearse	W. Leonhardt	578,099	Mar. 9	1506	347, 348	78	1565
Caster	H. Ill	576,675	Feb. 9	1088	243	78	848
Caster	A. E. Judkins	575,245	Jan. 12	1517	364	78	305
Casting apparatus. Metal	W. S. Reese	577,200	Feb. 16	1980	456, 457	78	1030

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Casting apparatus or plant	D. Baker	576,905	Feb. 16	1573	374, 375	78	982
Casting-gate	J. O. Little	574,810	Jan. 5	742	178	78	140
Casting machine. Ball	H. A. Dalrymple and P. C. McGrath	579,696	Mar. 30	3254	774, 775	78	1956
Casting metal hubs. Mold for	C. Smith	575,995	Jan. 26	2830	669	78	587
Casting of metals. Electrical	N. Slawianoff	577,329	Feb. 16	2125	502, 503	78	1066
Casting rolls, &c. Mold for	J. L. Lewis	574,616	Jan. 5	412	95	78	77
Castings. Manufacture of	A. E. Hunt	575,115	Jan. 12	1299	313	78	961
Catamenial sack	J. L. Bornstein	574,378	Jan. 5	12	3	78	5
Cattle-gate	A. M. Barcus	577,831	Mar. 2	3	1	78	1261
Cattle-guard	C. H. Compton	575,921	Jan. 26	2709	640	78	564
Cattle-guard	W. B. Nevill	574,443	Jan. 5	109	23	78	22
Cattle-unchaining apparatus	J. Vietheer	577,333	Feb. 16	2186	506	78	1068
Cellars, &c., of concrete. Means for constructing storm-	R. G. Moon	578,891	Mar. 16	1848	425	78	1656
Cement. Artificial	W. P. Emery	579,142	Mar. 23	2273	.....	78	1753
Center-templet	E. F. Fancher	575,469	Jan. 19	1909	460	78	396
Centering-machine	C. O. Bulock and A. E. McLauchlin	579,037	Mar. 16	2103	492	78	1705
Centrifugal machine	T. T. Oliver	576,412	Feb. 2	591	139, 140	78	747
Centrifugal machine	C. Parham	574,933	Jan. 12	951	230	78	199
Chain	G. F. Ballou	576,799	Feb. 9	1226	293	78	885
Chain	R. A. Breul	575,102	Jan. 12	1278	309	78	258
Chain	L. D. Howard	574,906	Jan. 12	907	220	78	190
Chain. Bicycle	L. Cook	576,258	Feb. 2	327	77	78	699
Chain. Bicycle	A. W. Gregory	575,477	Jan. 19	1922	462	78	398
Chain. Drive	P. Burns	575,696	Jan. 26	2328	549	78	492
Chain-link	J. W. Garland	576,107	Feb. 2	51	13	78	647
Chain-links and rings. Apparatus for manufacturing	C. Grüber	578,401	Mar. 9	979	222	78	1465
Chain-machine	R. A. Breul	578,689	Mar. 9	1484	340, 341, 342, 343	78	1561
Chain. Sprocket	J. C. Hauger	576,115	Feb. 2	61	16	78	649
Chain. Sprocket	H. E. Stahl and F. T. Coryell	578,661	Mar. 9	1429	326	78	1551
Chain wrench	W. J. Grinden and G. Amborn, Jr.	577,653	Feb. 23	2716	642	78	1198
Chain wrench	W. J. Grinden and G. Amborn, Jr.	577,654	Feb. 23	2719	642	78	1198
Chair: *See* Advertising arm-chair, Dental chair, Folding chair, Punitive chair, Reclining-chair, Rocking-chair, Surgical chair, Type-writer's chair.							
Chair	H. W. Stern	576,480	Feb. 2	695	166	78	769
Chair and ironing-board stand. Combination	B. H. Cooper	578,446	Mar. 9	1062	242	78	1480
Chair back-lock fastening	A. D. Linn and R. W. Irwin	576,206	Feb. 2	234	58	78	681
Chair convertible attachment	A. S. Hedberg	576,077	Jan. 26	2972	701	78	610
Chair foot-board	A. D. Linn and R. W. Irwin	576,205	Feb. 2	233	58	78	681
Chair iron and leg	M. A. Hanson	575,713	Jan. 26	2303	556	78	499
Chair or seat. Convertible	J. M. Osgood	575,977	Jan. 26	2799	659, 660	78	581
Chair roller appliance. Rocking	J. C. Reid and A. E. Warren	574,630	Jan. 5	437	100	78	82
Chair-seat	W. Homer	575,300	Jan. 12	1612	384	78	322
Chalice	V. M. Law	574,615	Jan. 5	410	94	78	77
Chalk-line holder	W. G. Lewis	574,617	Jan. 5	414	95	78	78
Chalk-sharpener	C. M. Clinton	577,548	Feb. 23	2539	598	78	1160
Chamber	V. R. Borling	579,512	Mar. 23	2024	688	78	1873
Channel-flap-laying machine	J. B. Hadaway	576,114	Feb. 2	60	16	78	649
Char-drier	F. D. Canfield, Jr.	575,801	Jan. 26	2489	587	78	523
Chart. Chronological skeleton	J. Bloch	574,703	Jan. 5	571	133	78	106
Chart. Insurable-property	C. N. Powers and M. E. Watson	575,731	Jan. 26	2387	562	78	504
Chart. Teaching	L. Snyder	577,886	Mar. 2	91	23	78	1278
Chaser-die	J. L. Chapman	575,148	Jan. 12	1362	328	78	274
Chatelaine-support	S. D. Rappaport	575,007	Jan. 12	1116	271	78	227
Check, bond, note, &c	L. Loeser	578,824	Mar. 16	1738	399	78	1638
Check holding and distributing device	E. W. Beeman	574,655	Jan. 5	485	111	78	90
Check-hook	H. E. Patterson	577,114	Feb. 16	1786	422	78	1002
Check-protector	G. W. Beebe	576,999	Feb. 16	1582	376, 377	78	963
Check-receptacle and cash-drawer. Combined	A. R. Miranda	577,533	Feb. 23	2505	591	78	1158
Checkrein-hook	A. H. Arp	578,806	Mar. 16	1693	391	78	1629
Check-row chain or wire	J. W. Parker	578,830	Mar. 16	1748	402	78	1640
Check-row-wire anchor	W. R. Waggoner	576,010	Jan. 26	2856	676	78	591
Checking or unchecking device	L. E. Fournier	576,306	Feb. 2	414	97	78	715
Cheese-making apparatus	J. Helder	577,028	Feb. 16	1626	386	78	971
Cheese-press	D. A. Sprague	577,933	Mar. 2	183	44	78	1297
Chemical apparatus	G. Craig	578,003	Mar. 2	291	68	78	1316
Chest-protector	F. McNutt	576,880	Feb. 9	1361	325	78	911
Chiffonnier	A. E. Thayer	575,578	Jan. 19	2106	502	78	434
Chimney or smoke-stack top	S. O. Streby	579,308	Mar. 23	2541	600	78	1802
Chimney soot-door	A. P. Andersen	574,871	Jan. 12	856	208	78	181
Chlorocyanid salts and making same	G. J. Atkins	578,908	Mar. 16	1881	.....	78	1662
Chocolate-coating machine	P. J. Vander Linda	574,963	Jan. 12	1033	250	78	212
Chocolate-coating machine	P. J. Vander Linda	577,566	Feb. 23	2567	605	78	1165
Chocolate-dipping device	J. R. Stout and W. N. Hartshorn	574,960	Jan. 12	1026	248, 249	78	211
Chocolates. Method of and machine for coating	J. R. Stout and W. N. Hartshorn	576,235	Feb. 2	272	67, 68	78	688
Chopper: *See* Cotton-chopper.							
Chronosphygmometer	O. H. Woodworth	576,180	Feb. 2	199	49	78	673
Chuck. Drill	W. Chattaway	575,876	Jan. 26	2632	621	78	550
Chuck. Drill	J. F. Hendrickson	577,656	Feb. 23	2723	643	78	1194
Churn	J. Everhard	576,440	Feb. 2	636	152	78	757

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Churn	J. Jaque	578,498	Mar. 9	1141	257	78	1496
Churn	C. C. Taylor	574,832	Jan. 5	778	186	78	146
Churn	W. L. Wright and W. H. Stracener	575,581	Jan. 19	2111	508	78	435
Churn-dasher	C. Wilson	579,608	Mar. 30	3210	762	78	1947
Cigar-box	W. A. Stickney	577,794	Feb. 23	2388	695	78	1235
Cigar-bunching machine	J. Bristol	576,429	Feb. 2	617	146	78	752
Cigar-bunching machine	N. Du Brul	574,403	Jan. 5	43	10	78	10
Cigar ends. Device for protecting burning	O. Rocholl	577,024	Feb. 23	2672	630	78	1184
Cigar-lighter	S. J. Turner	575,670	Jan. 19	2283	539	78	470
Cigar-lighter. Electric	J. W. Dawson	574,889	Jan. 12	880	214	78	185
Cigar or cigarette holder	A. C. Morrison	578,652	Mar. 9	1416	322	78	1548
Cigar-packer's press	N. Du Brul	574,404	Jan. 5	45	11	78	11
Cigar-rolling machine	J. Bunn	579,859	Mar. 30	3523	842 843	78	2007
Cigar-wrapper cutter	J. Bunn	579,858	Mar. 30	3523	842	78	2007
Cigarette	D. J. Campbell	579,421	Mar. 23	2718	646	78	1835
Cigarette-box	H. Watkins	578,669	Mar. 9	1440	330	78	1553
Cigarette-boxes and packing cigarettes. Machine for making	D. Perez y Bufiol	579,088	Mar. 16	2104	492 493 494 495	78	1706
Cigarette-machine	J. E. Bucklin and J. F. Hartigan	578,715	Mar. 16	1538	356 357 358	78	1600
Cigarette-machine	A. G. Vale	574,465	Jan. 5	145	34	78	29
Cigarette-machine feeding device	J. F. Hartigan	578,741	Mar. 16	1583	366	78	1608
Cigarette-machines. Automatic feeding device for	J. O. Eaton	579,819	Mar. 30	3453	828	78	1994
Cigarette-tube machine	J. A. Bonsack	577,347	Feb. 16	2156	510 511	78	1072
Cigarette-tubes. Machine or apparatus for making	J. A. Bonsack	577,348	Feb. 16	2159	511	78	1072
Cigarettes. Method of and apparatus for making	D. J. Campbell	579,422	Mar. 23	2720	646	78	1835
Circuit-breaker	H. P. Kelly	578,750	Mar. 16	1598	369	78	1611
Circuit-breaker	F. C. Robertson	579,366	Mar. 23	2634	622	78	1820
Circuit-breaker. Automatic	G. F. Packard	577,447	Feb. 23	2345	550	78	1124
Circuit-breaker. Automatic electromagnetic	W. E. Harrington	579,431	Mar. 23	2738	650	78	1838
Circuit-closer. Thermal	H. F. Maxim	578,345	Mar. 9	895	208	78	1449
Clamp: *See* Book-clamp. Casket-clamp. Cloth-bolt clamp. Cue-tip clamp. Dental clamp. Dental napkin-clamp. Fence-wire clamp. Floor-clamp. Mold-clamp. Plumber's clamp. Rope-clamp. Rubber-dam clamp. Violin-string clamp.							
Clamp	J. Strang	577,669	Feb. 23	2742	647	78	1198
Clamping device	E. J. Gulick	579,265	Mar. 23	2475	584 585	78	1790
Clasp: *See* File-clasp. Trousers-clasp. Window-pane clasp.							
Clasp	W. L. Barbour	578,587	Mar. 9	1226	277	78	1512
Clasp or fastening device	W. B. Draper	576,097	Feb. 2	28	9	78	644
Cleaner: *See* Bicycle-chain cleaner. Boiler-cleaner. Boiler-flue cleaner. Boiler-tube cleaner. Carpet-cleaner. Comb-cleaner. Dish-cleaner. Flue-cleaner. Pipe-cleaner. Roving-cleaner. Sink-cleaner. Spittoon-cleaner. Tube-cleaner. Window-cleaner.							
Cleat	C. F. Adam	575,090	Jan. 12	1257	303	78	254
Clevis	E. P. Wiese	579,310	Mar. 23	2543	601	78	1803
Clevis-pin	W. P. Kimbrell	575,032	Jan. 12	1159	282	78	235
Clevis. Safety-	B. O. Clark	578,211	Mar. 2	674	153	78	1389
Clip: *See* Hat-clip.							
Clip for holding sheets, blanks, &c	S. G. Brown	578,858	Mar. 16	1782	411	78	1646
Clipper. Hair-	G. H. Coates	576,801	Feb. 2	404	95	78	718
Clipping horses, &c. Apparatus for driving cutters for	W. Clark	578,915	Mar. 16	1892	437 438	78	1664
Clock. Alarm-	C. B. Gartrell	576,528	Feb. 2	790	185	78	786
Clock. Electric	C. M. Crook	574,669	Jan. 5	516	120	78	95
Clock. Electric calendar-	G. W. MacKenzie	574,922	Jan. 12	926	226 227	78	194
Clock-escapement	C. Holes	577,753	Feb. 23	2677	632	78	1222
Clock pendulum-clamp	F. Kroeber	576,587	Feb. 9	898	208	78	822
Clock-setting mechanism. Electric	C. M. Crook	578,976	Mar. 16	1999	466	78	1684
Clocks. Thermal winding mechanism for	A. Ulli	576,830	Feb. 9	1278	305	78	894
Clod-crusher, leveler, and harrow. Combined	S. B. Jones	576,852	Feb. 9	1310	313	78	901
Closet: *See* Sanitary closet.							
Closet-operating tank and valve	P. Harvey	575,111	Jan. 12	1292	312	78	260
Cloth-bolt clamp	N. T. Leveritt	579,800	Mar. 30	3426	821	78	1988
Cloth-cutting machine	J. Pohlsen	576,610	Feb. 9	937	216	78	829
Cloth-cutting machine	J. Wolf, Jr	578,382	Mar. 9	950	216	78	1459
Cloth-pressing machine	D. Gessner	576,666	Feb. 9	1024	240 241	78	846
Clothes and hat rack	I. C. Welter	574,509	Jan. 5	212	50	78	42
Clothes-drier	F. J. Bailey	576,335	Feb. 2	468	109 110	78	725
Clothes-drier	C. H. De Frehn	574,890	Jan. 12	882	214	78	186
Clothes-drier	C. Grant, Jr	576,815	Feb. 9	1255	299	78	890
Clothes-drying apparatus	A. Josephs and L. Feldman	575,480	Jan. 19	1931	463	78	400
Clothes-lifter	A. Kellnor	579,347	Mar. 23	2606	615	78	1814
Clothes-line post. Extension	R. Schleese	576,279	Feb. 2	365	85	78	705

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clothes-line reel	H. O. Amundson	574,870	Jan. 12	855	208	78	181
Clothes-line support	G. R. Carman	576,807	Feb. 9	1244	297	78	668
Clothes-pounder	J. G. Markwiese	575,161	Jan. 12	1381	332	78	278
Clothes-wringer	C. D. Shaw	576,700	Feb. 9	1077	253	78	855
Club. Gymnastic	R. R. Gibson	578,290	Mar. 2	708	160	78	1394
Clutch	J. A. Barnes	575,626	Jan. 19	2202	521	78	454
Clutch	T. J. Koven	575,249	Jan. 12	1522	365 366	78	305
Clutch	D. G. Langlands	579,713	Mar. 30	3286	783	78	1961
Clutch	H. Osswald and C. F. Vieillard	578,023	Mar. 2	819	76	78	1322
Clutch	J. M. Rauhoff	575,988	Jan. 26	2816	664	78	584
Clutch and brake. Coil	W. H. Lindsay	577,961	Mar. 2	226	54	78	1304
Clutch. Automatic	C. M. Dodge	577,574	Feb. 23	2584	609	78	1168
Clutch. Automatic fluid-pressure friction-	G. M. Richards	574,823	Jan. 5	763	183	78	143
Clutch for fluid-operated hoists. Automatic	F. Maris	579,885	Mar. 30	3505	853	78	2015
Clutch. Friction-	W. C. Harris	577,252	Feb. 16	2002	473	78	1043
Clutch. Friction-	P. Steuerwald	575,622	Jan. 19	2190	519	78	452
Clutch mechanism	W. H. Eddy	578,733	Mar. 16	1573	364	78	1607
Coal and mineral washer	E. Ramsay and E. Dreyspring	579,840	Mar. 30	3494	835 836	78	2001
Coal-handling apparatus	E. Smith	577,078	Feb. 16	1709	405	78	988
Coal-separator	F. H. Emery	579,569	Mar. 30	3042	719	78	1915
Coal-storing apparatus	J. M. Dodge	576,977	Feb. 9	1531	362	78	943
Coating mixtures. Device for applying	F. H. Cloudman	579,043	Mar. 16	2116	497	78	1708
Cock. Adjustable self-draining	F. G. Hamer	577,603	Feb. 23	2641	623	78	1178
Cock. Compression-	J. Porteous	574,572	Jan. 5	320	73	78	62
Cock. Electrical gas-	F. W. Ackerman	579,249	Mar. 23	2448	578	78	1786
Cock locking device. Gas-	J. Doyle	576,956	Feb. 9	1484	352	78	933
Cock or valve	C. V. Pollock	574,571	Jan. 5	318	73	78	61
Cock. Right and left hand stop and waste	W. Hall	577,510	Feb. 23	2457	579	78	1145
Cock. Stop and waste	T. J. Leahy	578,885	Mar. 16	1887	422	78	1654
Cock. Water-	E. A. Strong	578,372	Mar. 9	983	212	78	1456
Cocks, &c. Fastening for gas-	J. A. Hamilton	576,669	Feb. 9	1029	242	78	847
Coffee-machine	W. Borchers	578,910	Mar. 16	1884	435	78	1662
Coffee-mill	H. G. Sammons	576,160	Feb. 2	156	38	78	666
Coffee-mill. Portable	L. F. Griswold	578,560	Mar. 9	1270	288	78	1421
Coffee or tea pot	N. J. Wigginton	579,666	Mar. 30	3207	761	78	1947
Coffee-pot	L. S. Royer	577,625	Feb. 23	2672	631	78	1184
Coffee pot. Drip-	J. F. Pierce	578,769	Mar. 16	1626	376	78	1617
Coffee-roaster	H. G. Lange	577,761	Feb. 23	2802	685	78	1226
Coffee-roaster	J. McLean	577,313	Feb. 16	2099	496	78	1061
Coffee-roaster	H. D. Perky	575,983	Jan. 26	2808	602 663	78	583
Coffin	M. Karnicki	576,676	Feb. 9	1039	243 244	78	848
Coffin	E. L. Snader	578,781	Mar. 16	1644	381	78	1620
Coffin	J. D. Turbeville	578,302	Mar. 2	817	185	78	1416
Coin-controlled receptacle	A. A. Reaser and J. H. McLaughlin	576,151	Feb. 2	138	35	78	663
Coin-operated machine	V. and E. C. Robbins	577,149	Feb. 16	1831	432 433	78	1011
Coin or check collecting box and register. Combined	J. A. Mehling	576,214	Feb. 2	243	61	78	683
Coin separator and distributer	W. H. and W. Elder	574,528	Jan. 5	235	56	78	46
Coin-tray	J. F. Bredow	578,541	Mar. 9	1232	278	78	1513
Coke-oven door	C. W. Garland	578,510	Mar. 9	1180	267	78	1504
Coke-oven tile	F. L. Slocum	575,133	Jan. 12	1339	322	78	270
Coke-ovens. Combined leveler and sweeper for	J. A. Montgomery	579,160	Mar. 23	2306	542	78	1759
Collapsible box	J. B. Brown	577,416	Feb. 23	2296	539	78	1114
Collapsible box	H. A. Cobleigh	578,445	Mar. 9	1061	241	78	1490
Collapsible cup	J. Lines	577,764	Feb. 23	2897	696	78	1227
Collar and trace. Breast-	F. Raynor	578,772	Mar. 16	1628	376	78	1617
Collar holder. Shirt-	E. Brodeur	579,788	Mar. 30	3407	816	78	1985
Collar pad. Horse-	W. V. Tascher	577,465	Feb. 23	2378	559	78	1130
Colter. Plow-	G. Conley	576,092	Feb. 2	22	7	78	642
Column. Structural	F. H. Kindl	577,820	Feb. 23	2977	704	78	1242
Comb-cleaner	R. D. Mayo	577,052	Feb. 16	1666	396	78	979
Combing-machine	S. Smith	579,187	Mar. 23	2356	554	78	1769
Combination-lock	H. Clarke	577,358	Feb. 16	2174	515	78	1076
Combination-stand	F. H. Haley	575,711	Jan. 26	2359	555 556	78	498
Combustion. Apparatus for promoting	C. Bernd, Jr	575,049	Jan. 12	1190	280	78	241
Commode and bed-pan. Portable	T. L. Fortune	576,308	Feb. 2	572	134	78	743
Commode and chair. Portable	J. Honeywell	577,136	Feb. 16	1816	427 428	78	1008
Communion-cup	J. Wagner	579,908	Mar. 30	3302	861	78	2022
Commutator-brush	J. F. Kester and F. C. Atherton	578,016	Mar. 2	309	73	78	1320
Compress	E. L. Burton	575,103	Jan. 12	1279	309	78	258
Compressing or blowing engine	A. A. Weimer	577,568	Feb. 23	2574	607	78	1166
Compression-roll for slashers	J. Sullivan	578,951	Mar. 16	1903	457	78	1676
Compressor or pump	O. Wegner	575,139	Jan. 12	1346	324	78	271
Compressor or pump	O. Wegner	575,140	Jan. 12	1349	324 325	78	272
Concentrator	C. A. Holmes	579,679	Mar. 30	3228	766	78	1951
Concrete. Means for securing protecting-plates to	H. H. Wainwright	578,668	Mar. 9	1439	329	78	1553
Condenser	F. J. Weiss. (Reissue)	11,591	Mar. 2	830	188	78	1418
Condenser	F. J. Weiss	577,996	Mar. 2	280	65	78	1314
Conduit-sheathing	H. B. Camp	577,284	Feb. 16	2059	486	78	1054
Conduit. Subway-	W. H. Johnston	574,490	Jan. 5	87	18	78	18
Confectioner's mold	C. Morrison	579,542	Mar. 23	2968	701	78	1881
Confectionery-coating machine	J. R. Van Derveer	575,915	Jan. 26	2699	638 639	78	502
Continuous kiln	F. D. T. Lehmann	577,046	Feb. 16	1654	393	78	976
Controlling device	O. H. and W. M. Jewell	577,685	Feb. 23	2763	653	78	1201
Controlling device	W. M. Jewell	577,687	Feb. 23	2766	654	78	1202
Conveyer	P. Andersson and A. C. Seymour	574,652	Jan. 5	479	109 110	78	89

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Conveyer	J. A. Werner	578,177	Mar. 2	630	141, 142	78	1380
Conveyer lubricating device	J. M. Dodge	579,385	Mar. 23	2666	632	78	1896
Conveyer. Portable	W. L. McCabe and C. H. Anderson	575,264	Jan. 12	1549	370, 371	78	810
Conveying apparatus	J. T. Cowley	574,714	Jan. 5	588	137, 138, 139, 140	78	109
Conveying apparatus	J. T. Cowley	574,715	Jan. 5	597	140, 141, 142	78	110
Conveying apparatus	T. S. Miller	577,192	Feb. 16	1905	450, 451	78	1025
Cooker. Combination steam-	J. A. Hatter	577,604	Feb. 23	2642	623, 624	78	1179
Cooker. Steam-	P. E. Getz and T. J. Amos	574,533	Jan. 5	245	58	78	48
Cooking outfit	F. H. Buzzacott	577,642	Feb. 23	2702	637	78	1190
Cooking-stand for preserving-cans	L. E. Tygert	578,375	Mar. 9	935	213	78	1457
Cooking utensil	C. E. Challis	578,389	Mar. 9	964	219	78	1462
Cooking utensil	M. F. O'Callaghan	578,765	Mar. 16	1621	374	78	1616
Cooking utensil	C. W. Post	574,492	Jan. 5	187	43	78	37
Cooler: *See* Milk-cooler. Water-cooler.							
Coop and shipping-crate. Combined	J. E. Murray	579,766	Mar. 30	3371	806	78	1978
Cop and cop-winding apparatus	S. W. Wardwell, Jr	576,356	Feb. 2	500	117	78	731
Cop-doffer	W. D. Whitaker	575,084	Jan. 12	1246	301	78	252
Copper ore and mattes. Reducing	A. L. Grant	578,817	Mar. 16	1727	------	78	1696
Copper plates to wood blocks. Anchor or device for securing	G. W. A. Abelmann	576,711	Feb. 9	1091	257	78	858
Copying-book	J. A. Graham	576,265	Feb. 2	337	80	78	700
Copying-book	I. Moore	576,219	Feb. 2	251	62	78	684
Copying-book	I. Moore	576,220	Feb. 2	252	63	78	685
Core and making same	M. H. Fletcher	578,080	Mar. 2	410	95	78	1340
Core-box machine	J. S. Stephens and G. E. Brush	577,792	Feb. 23	2935	695	78	1284
Core. Molder's	J. Smith	575,074	Jan. 12	1237	------	78	249
Corkscrew and pocket-knife. Combined	A. Kastor	577,259	Feb. 16	2011	476	78	1045
Corn-dropper. Automatic	S. A. Ayres	578,619	Mar. 9	1361	310	78	1538
Corn-husker and fodder-shredder	A. Rosenthal	575,376	Jan. 19	1754	421, 422	78	368
Corn-husker and fodder-shredder	F. M. Teeguarden	577,466	Feb. 23	2378	560	78	1130
Corn-popper	S. H. and A. S. Smith	575,621	Jan. 19	2189	519	78	451
Corn-sheller	I. P. Cadman	576,754	Feb. 9	1160	276	78	872
Corn-sheller feeder	M. J. Wise	578,435	Mar. 9	1041	238	78	1476
Corn-shock tightener	P. Brady	574,778	Jan. 5	602	165	78	130
Corn-splitting machine	R. E. Poindexter	579,495	Mar. 23	2897	681	78	1867
Corner-strips. Machine for forming	W. C. Pendleton	578,610	Mar. 9	1347	306, 307	78	1536
Corset	F. K. Hickok	578,926	Mar. 16	1907	441	78	1667
Corset	W. Leckebusch	575,400	Jan. 19	1800	432	78	375
Corset	M. Schacht	578,045	Mar. 2	349	83	78	1328
Corset	J. Stone	576,289	Feb. 2	385	90	78	710
Corset	H. M. A. Thompson	574,691	Jan. 5	554	129	78	102
Corset-eye	D. F. Dalton	576,976	Feb. 9	1530	361	78	942
Corset-fastener	C. H. Merrill	578,254	Mar. 2	739	167	78	1401
Corset-steel reinforce	C. F. Tilton	575,443	Jan. 19	1869	450	78	388
Cot. Folding	E. A. Cleaveland	575,211	Jan. 12	1466	352	78	294
Cot or bed	M. J. and R. E. Carver	577,419	Feb. 23	2304	541	78	1116
Cotton-chopper	B. F. Hopkins	578,455	Mar. 9	1076	245	78	1483
Cotton-chopper	J. R. Miller	576,877	Feb. 9	1349	323	78	909
Cotton-chopper	W. T. Rusk	578,468	Mar. 9	1094	249	78	1488
Cotton-cleaning machine. Seed-	P. Walker	577,153	Feb. 16	1841	434, 435	78	1013
Cotton elevator and distributer	T. J. Griffin	574,900	Jan. 12	1066	263	78	222
Cotton-press	C. Banister	579,335	Mar. 23	2587	611	78	1811
Cotton-thinning machine	R. F., B., and E. C. McPhetridge	579,543	Mar. 23	2969	702	78	1882
Couch. Box-	R. G. Coates	574,398	Jan. 5	28	8	78	8
Coupling: *See* Air-brake hose-coupling. Air-duct clench-coupling. Car-coupling. Car and air-brake coupling. Car and air-pipe coupling. Fender-coupling. Hose-coupling. Pipe-coupling. Pump-rod coupling. Stovepipe-coupling. Thill-coupling. Train-pipe coupling. Tubular-section coupling. Water-closet-bowl repair-coupling. Wire-coupling. Yoke-coupling.							
Course-indicating apparatus	M. Brabaw	574,474	Jan. 5	161	38	78	32
Cover. Pail-	H. C. Hansen	577,747	Feb. 23	2870	680	78	1221
Crabs. Instrument for removing meat from hard-shell	C. S. Platt	577,172	Feb. 16	1874	443	78	1019
Cracker-cutting machine	J. J. Iten	579,540	Mar. 23	2965	700, 701	78	1881
Cradle. Self-rocking	J. J. Bukolt	579,256	Mar. 23	2459	580, 581	78	1787
Cradle. Self rocking and fanning	P. Froehlich	579,323	Mar. 23	2568	606	78	1807
Cradle, swing, and clothes-drier. Combined	W. E. McMordie	576,603	Feb. 9	925	213	78	827
Crane	A. J. Shaw	574,581	Jan. 5	352	79, 80	78	66
Crane. Lowering-	W. J. Allen, D. Williams, and V. Lecoq	577,815	Feb. 23	2970	701, 702	78	1241
Crane. Overhead traveling	W. H. Morgan	579,718	Mar. 30	3296	787	78	1963
Crank connection	G. Wilson	577,701	Feb. 23	2783	658	78	1205
Crank. Winding-	A. Wolff	579,208	Mar. 23	2384	563	78	1774
Crate. Collapsible	W. H. Platt, Jr	579,805	Mar. 30	3431	822	78	1980

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Crate. Egg-	W. H. Nelson	578,353	Mar. 9	905	205	78	1451
Crate. Folding	E. J. Brown	577,280	Feb. 16	2047	484	78	1052
Crate. Folding bicycle-	M. E. Dunbar	576,098	Feb. 2	29	9	78	644
Crate. Poultry-	J. H. Antrobus	575,752	Jan. 26	2417	569	78	509
Crayon-holder	E. H. Taylor	576,629	Feb. 9	968	226	78	835
Cream-separator. Centrifugal	D. J. Davis	574,864	Jan. 12	873	212	78	164
Cream-separator. Centrifugal	W. J. Davis	574,868	Jan. 12	879	213	78	165
Creamer. Centrifugal	O. Anderson	576,357	Feb. 2	502	118	78	731
Creamer. Centrifugal	O. Anderson	576,994	Feb. 16	1570	373, 374	78	961
Cribb-counter	W H. Martin	575,402	Jan. 19	1802	433	78	376
Cricket-stump	J. Rowley	578,835	Mar. 16	1754	404	78	1641
Crochet-machine	J. Ashworth	579,102	Mar. 16	2205	518	78	1726
Crock-molding machine	F. J. Knapp	579,755	Mar. 30	3349	801	78	1974
Crossbow	G. Bruder	577,641	Feb. 23	2702	637	78	1190
Crusher: *See* Clod-crusher. Seed-crusher. Gyrating crusher.							
Crusher for stone, ore, &c.	G. Lowry	576,519	Feb. 2	769	181, 182	78	782
Crusher-head	H. D. Hibbard	575,549	Jan. 19	2056	492	78	425
Crushing apparatus	I. M. de Oca y Melian	574,754	Jan. 5	652	155	78	122
Crushing-machine	L. S. Pfouts	578,357	Mar. 9	912	207, 208	78	1452
Crushing or pulverizing mill	E. C. Griffin	579,230	Mar. 23	2417	571	78	1780
Crushing ore, &c. Machine for	O. Williams	574,841	Jan. 5	792	189	78	149
Crutch attachment	W. J. Robinson	578,583	Mar. 9	1308	295	78	1528
Cue-tip	N. Bosmann, Jr.	575,295	Jan. 12	1509	381	78	320
Cue-tip clamp	J. N. McIntire	576,374	Feb. 2	531	124	78	736
Cuff-fastener	F. E. Rockstroh	579,331	Mar. 23	2581	610	78	1810
Cuff holder. Link-	J. Ichishima	578,456	Mar. 9	1077	245	78	1484
Cuffs, &c. Fastening device for	J. Cleland	575,802	Jan. 26	2493	587	78	524
Culinary utensil	K. Bös	576,398	Feb. 2	566	133	78	742
Culinary utensil	E. B. Deal	575,418	Jan. 19	1825	439	78	380
Cultivator	J. F. Bollinger	575,872	Jan. 26	2626	620	78	548
Cultivator	F. E. Davis	575,754	Jan. 26	2420	570	78	510
Cultivator	C. W. and M. R. Davis	576,089	Jan. 26	2910	687	78	600
Cultivator	J. H. Elward	574,530	Jan. 5	238	57	78	47
Cultivator	S. Fulton	576,400	Feb. 2	574	135	78	743
Cultivator	J. Marsee and T. Morford	576,595	Feb. 9	914	211	78	825
Cultivator	G. W. Rife	578,658	Mar. 9	1424	325	78	1549
Cultivator	M. Sattley	579,182	Mar. 23	2345	551	78	1767
Cultivator	W. G. Scott	578,584	Mar. 9	1309	295, 296	78	1529
Cultivator	W. G. Scott	578,585	Mar. 9	1310	296	78	1529
Cultivator	D. B. Smith	575,434	Jan. 19	1850	444, 445	78	385
Cultivator	L. H. Smith	578,660	Mar. 9	1427	325, 326	78	1550
Cultivator	C. Tanner	576,748	Feb. 9	1149	273, 274	78	869
Cultivator	L. E. Waterman	579,936	Mar. 30	3043	872	78	2030
Cultivator	W. A. and S. Whitesel	577,937	Mar. 2	188	45, 46	78	1298
Cultivator and cotton-chopper. Combined	E. N. Bickley	577,713	Feb. 23	2803	664	78	1209
Cultivator and cotton-chopper. Combined	E. D. McMillian	575,757	Jan. 26	2424	571	78	511
Cultivator attachment	W. L. Dayton	577,726	Feb. 23	2827	670	78	1214
Cultivator. Combination-	A. M. Bernard and D. C. Knight	577,224	Feb. 16	1958	463	78	1035
Cultivator. Corn-	H. B. Skidmore	579,844	Mar. 30	3504	837	78	2008
Cultivator. Cotton-	W. Bibb	575,328	Jan. 19	1655	395	78	349
Cultivator-disk	W. Sobey	574,957	Jan. 12	1018	246, 247	78	210
Cultivator. Expansion-	W. M. Moore	578,348	Mar. 9	901	204	78	1450
Cultivator. Hand-	E. M. Minton	574,555	Jan. 5	291	68	78	57
Cultivator lifting-spring	S. P. Oldfield	579,720	Mar. 30	3298	787, 788	78	1964
Cultivator. Wheel-	W. Sobey	578,502	Mar. 9	1168	263, 264	78	1501
Cup: *See* Collapsible cup. Communion-cup.							
Cupping device	J. H. Bevington	576,337	Feb. 2	472	110, 111	78	726
Curler. Hair-	L. W. Meech	577,168	Feb. 16	1868	441	78	1018
Curling-iron	A. E. Veon	577,087	Feb. 16	1724	408	78	990
Curling-iron	F. D. Williams	576,244	Feb. 2	296	71	78	694
Curling-iron heating device	F. Oare	579,302	Mar. 23	2533	598	78	1801
Curling tongs or irons. Heater for	F. K. Barnhart	576,423	Feb. 2	607	144	78	751
Current-motor	C. A. Barron	578,001	Mar. 2	284	66, 67	78	1315
Current motor. Alternating-	L. Gutmann	577,427	Feb. 23	2314	543, 544	78	1118
Currycomb	A. C. Decker	575,544	Jan. 19	2047	490	78	423
Currycomb	L. E. Elving	578,223	Mar. 2	695	157	78	1308
Curtain-drying frame and pedestal. Folding	H. Hey	576,981	Feb. 9	1546	367	78	945
Curtain-drying frame. Lace-	R. S. Corlett	578,970	Mar. 16	1991	464	78	1682
Curtain-fixture	F. H. Bassett	575,409	Jan. 19	1809	435	78	377
Curtain-fixture	F. H. Bassett	575,411	Jan. 19	1813	436	78	378
Curtain-fixture	H. Koch	574,910	Jan. 12	912	221	78	191
Curtain-fixture	J. W. Sargent	576,161	Feb. 2	157	39	78	666
Curtain-fixture	T. U. Walter	579,504	Mar. 23	2912	685	78	1871
Curtain-hanging apparatus	P. Goldsmith	575,423	Jan. 19	1834	441	78	382
Curtain-holder	C. Lenz	577,496	Feb. 23	2329	546	78	1120
Curtain-holding device	G. H. Davis	577,841	Mar. 2	13	5	78	1263
Curtain-holding device	G. H. Davis	577,842	Mar. 2	14	5	78	1263
Curtain holding or carrying ring	W. Woolf	579,912	Mar. 30	3607	863	78	2022
Curtain-pole	C. A. Frank	574,726	Jan. 5	514	146	78	114
Curtain-pole and bracket	D. M. Reid	576,153	Feb. 2	141	35	78	663
Curtain-pole and bracket. Combined	C. H. Van Note	576,637	Feb. 9	980	229	78	887

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Curtain-pole ring	J. A. Rings	578,424	Mar. 9	1016	233	78	1473
Curtain-rosettes, &c., to walls. Device for fastening	R. Preuss and L. Leipziger	577,449	Feb. 23	2349	551	78	1124
Curtain runner or support	R. H. Bishop and W. Down	575,456	Jan. 19	1892	455	78	302
Curtain-slat	A. F. Temple	578,663	Mar. 9	1431	326	78	1551
Curtain. Sliding	A. D. Elliott	577,575	Feb. 23	2585	609	78	1168
Curtain-stretcher pin	J. P. McAlister	577,607	Feb. 23	2647	625	78	1180
Cuspidor	J. L. Harris	578,012	Mar. 2	304	72	78	1319
Cuspidor	G. Schäfer	575,906	Jan. 26	2685	633	78	560
Cut-off	V. B. Nuckols and P. L. Ramsey	577,067	Mar. 2	206	63	78	1311
Cut-off. Automatic	C. E. Bentley	579,464	Mar. 23	2847	671	78	1857
Cut-out. Arc-light	C. E. Harthan	579,208	Mar. 23	2479	585	78	1791
Cut-out. Ceiling	H. T. Paiste	578,655	Mar. 9	1420	323	78	1549
Cutter: *See* Bread-cutter. Cigar-wrapper cutter. Feed-cutter. Meat-cutter. Paper-cutter. Pipe-cutter. Potato-cutter. Rotary cutter. Stalk-cutter. Thread-cutter. Thresher band-cutter. Threshing-machine cutter. Threshing-machine band-cutter. Twine-cutter. Vegetable-cutter. Weed-cutter. Wire-cutter.							
Cutter and pliers. Compound	L. H. Tissot	579,849	Mar. 30	3511	839	78	2004
Cutting and comminuting machine. Rotary	E. F. Autenrieth	577,278	Feb. 16	2043	483 / 484	78	1051
Cyanids. Making	H. Y. Castner	577,897	Mar. 2	10	4	78	1262
Cyanids. Making	J. D. Gilmour	576,264	Feb. 2	335	80	78	700
Cyanids. Process of and apparatus for making	H. W. Crowther, E. C. Rossiter, G. S. Albright, and J. J. Hood.	579,639	Mar. 30	3167	752	78	1989
Cycle-brake	C. W. Hudson	577,858	Mar. 2	35	10	78	1267
Cycle-chain cleaner	W. M. Ash	577,508	Feb. 23	2445	576	78	1143
Cycle. Elevated-track	W. H. Martin	575,611	Jan. 19	2166	514	78	447
Cycle-frame	M. Petersen	577,170	Feb. 16	1870	442	78	1018
Cycle-frame tube-joint	F. D. Owen	575,089	Jan. 12	1167	284	78	237
Cycle handle-bar	H. A. Wood	578,180	Mar. 2	627	143	78	1381
Cycle handle-bar joint	J. P. Ottaway	575,533	Jan. 19	2030	485	78	420
Cycle-propelling mechanism	G. Beekman	578,387	Mar. 9	961	218	78	1461
Cycle-saddle	C. F. Batt	579,084	Mar. 16	2098	491	78	1704
Cycle-saddle attachment-boss	J. B. Brooks	575,542	Jan. 19	2044	489	78	423
Cycle-saddle attachment-boss	J. B. Brooks	575,631	Jan. 19	2208	522	78	455
Cyclometer	W. W. Dudley	578,288	Mar. 2	706	180	78	1411
Cyclometer	C. T. Higginbotham	576,967	Feb. 9	1506	357 / 358	78	937
Cyclometer or measuring device. Trip-recording	G. K. Burleigh	579,037	Mar. 30	3046	872	78	2031
Cyclometer tappet or actuating device	E. Hart	578,148	Mar. 2	543	128	78	1365
Dam or sluiceway-gate. Automatic movable	W. L. Marshall	579,349	Mar. 23	2607	615 / 616	78	1815
Dampening-machine	W. A. E. Henrici	575,896	Jan. 26	2559	604	78	536
Damper and heat-deflector	P. J. Hanley	574,480	Jan. 5	171	40	78	34
Damper-regulator	C. G. P. de Laval	577,302	Feb. 16	2015	477	78	1046
Damper. Stove	G. M. Cocke	574,525	Jan. 5	232	55	78	46
Damper. Stove-door	S. C. Hulbert	577,527	Feb. 23	2496	588	78	1152
Danger-signal	D. A. Gordon and B. B. Weir	577,949	Mar. 2	203	49	78	1301
Darning implement	M. S. Schafor	575,378	Jan. 19	1761	423	78	369
Davit	J. W. McKinnon	579,119	Mar. 16	2237	527	78	1731
Decorticating-machine	A. Bonnet	579,794	Mar. 30	3314	792	78	1967
Decoy	G. K. Frantz	575,288	Jan. 12	1579	376	78	317
Dental appliance	H. S. Lowry	576,598	Feb. 9	911	210	78	824
Dental chair	J. Baxter	575,684	Jan. 26	2208	544 / 545	78	489
Dental chair	M. C. Merker	579,094	Mar. 16	2191	514 / 515	78	1723
Dental chair	F. Ritter	576,471	Feb. 2	679	161 / 162	78	765
Dental chairs. Means for raising or lowering	S. H. Barton	579,785	Mar. 30	3401	814 / 815 / 816	78	1984
Dental chairs. Means for raising or lowering	H. E. Hawksworth	577,294	Feb. 16	2004	474	78	1044
Dental clamp	J. A. Dunn	578,729	Mar. 16	1567	362	78	1606
Dental clamp	J. E. Keefe	575,894	Jan. 26	2670	629	78	557
Dental engine	A. H. Butterfield	576,089	Feb. 2	16	4, 5	78	641
Dental furnace	J. T. Barker	577,638	Feb. 23	2691	635	78	1187
Dental handpiece	J. T. Pedersën	577,063	Feb. 16	1680	399	78	981
Dental handpieces. Slip-joint for	J. T. Pedersën	577,064	Feb. 16	1683	396	78	982
Dental handpieces. Tool-moistening device for	W. Caillé, Jr.	576,722	Feb. 9	1108	261	78	862
Dental mallet	J. E. Stanton	577,887	Mar. 2	93	24	78	1278
Dental mouth-mirror. Adjustable	F. W. Blomley	574,877	Jan. 12	864	209	78	192
Dental napkin-clamp	W. H. Duddy	575,108	Jan. 12	1289	311	78	260
Dental plugger	A. Cane	577,507	Feb. 23	2453	578	78	1145
Dental rubber-dam holder	E. D. Hinkley	576,518	Feb. 2	768	180	78	782
Dental tool	F. A. Rudolph	574,763	Jan. 5	667	159	78	125
Dental tool	G. H. Winkler	575,750	Jan. 26	2415	569	78	509
Depurator	E. J. Harding	577,297	Feb. 16	2074	490	78	1056
Derrick	D. E. Moran	578,495	Mar. 9	1155	269	78	1499
Derrick	G. V. Stallings	578,368	Mar. 9	929	211	78	1455
Derrick attachment	J. N. Durkee	579,428	Mar. 23	2731	649	78	1837
Desk	H. D. Hermany	578,743	Mar. 16	1588	367	78	1609
Desk. Adjustable chair	J. F. Trimble	575,286	Jan. 12	1586	377	78	318
Desk and chair support. Adjustable school	R. P. Elliott	577,824	Feb. 23	2983	705	78	1244
Desk. Extension	T. J. Palmer	575,720	Jan. 26	2385	561	78	508
Desk for hotel-registers. Revoluble	J. D. Mets	577,487	Feb. 23	2414	568	78	1137
Desk implement	R. R. Vernon	578,589	Mar. 9	1314	297	78	1530
Desk-lid support	B. E. Kipp	575,961	Jan. 26	2765	653	78	575
Desk-lid support	D. W. Tower	576,972	Feb. 9	1525	360	78	941
Desk. School	A. G. Brock	579,255	Mar. 23	2458	580	78	1787

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Desk. Suspension	J. E. Page and M. A. Stafford	575,269	Jan. 12	1559	372	78	313
Desk-top. Adjustable	A. Fleming	578,325	Mar. 9	871	197	78	1444
Despatch system. Vacuum	J. A. Watson	574,965	Jan. 12	1039	251 / 252	78	214
Destructor-furnace	S. J. Beaman and J. Deas	574,774	Jan. 5	685	163 / 164	78	128
Detector: *See* Time-detector.							
Dial	J. H. Swihart	579,194	Mar. 23	2365	557	78	1771
Dial. Timepiece	J. Culver	577,573	Feb. 23	2582	609	78	1168
Diaper fastener and supporter	L. G. Scully	578,272	Mar. 2	768	174	78	1407
Diaphragm for manufacturing chlorin and caustic soda by means of electrolysis	E. Baker	579,250	Mar. 23	2449	578	78	1786
Diaphragm. Porous	H. Blumenberg, Jr	578,073	Mar. 2	394	------	78	1336
Diazo compound. Stable	M. von Gallois	575,228	Jan. 12	1493	------	78	300
Die: *See* Card-cutting die. Chaser-die. Draw-die. Heel-cutting die. Nail-forming die. Smoothing and finishing die. Sole-machine die.							
Die-block	F. L. Harmon	579,537	Mar. 23	2961	700	78	1880
Die-stock	G. Wagner	576,924	Feb. 9	1437	341 / 342	78	924
Dies. Adjustable stock for split	F. H. Livingston	579,756	Mar. 30	3351	801	78	1974
Dies, &c. Mechanism for feeding blanks to	A. C. Campbell	577,643	Feb. 23	2704	637 / 638	78	1190
Digger: *See* Potato-digger.							
Dilator	N. D. Mussey	577,775	Feb. 23	2912	689	78	1229
Dipper and funnel. Combined	S. E. Powell, Jr.	579,895	Mar. 30	3382	857	78	2018
Direct-acting engine	W. O. Gunckel	574,415	Jan. 5	64	14	78	14
Dish-cleaner	E. C. Atwell	575,868	Jan. 26	2614	618	78	547
Dish-cleaner	A. Beers	576,021	Jan. 26	2877	680	78	594
Dish-cleaner	W. H. Curtice	577,725	Feb. 23	2825	669	78	1213
Dish-cleaner	D. W. Hawkes and F. D. Harding	576,117	Feb. 2	65	17	78	650
Dish-cleaner	G. B. Heideman	574,606	Jan. 5	391	89	78	74
Dish-cleaner	J. H. Nolen, Jr.	575,868	Jan. 19	1738	415	78	366
Dish-cleaner	J. F. Kries	575,902	Jan. 26	2767	653	78	575
Dish-lifter	C. M. Beatty	578,195	Mar. 2	653	148	78	1385
Disher and mold	F. Röhmann and A. Liebrecht	575,277	Jan. 12	1571	------	78	315
Disinfectant and making same	A. V. Brochet	577,525	Feb. 23	2491	587	78	1151
Disinfecting apparatus	J. Evetts	576,064	Jan. 26	2952	696	78	607
Disinfecting apparatus	H. Mayer	575,364	Jan. 19	1731	412	78	364
Disinfecting apparatus	H. Mayer and C. G. F. Wahle	575,365	Jan. 19	1732	412	78	364
Disinfecting apparatus	T. W. Alexander	576,018	Jan. 26	2866	679	78	593
Dispensing-can	T. W. Alexander	577,477	Feb. 23	2394	563	78	1133
Dispensing-can	W. H. Mooers	577,055	Feb. 16	1669	396	78	979
Display-box	W. F. Hammond	575,348	Jan. 19	1710	407	78	360
Display case. Sample	T. J. Cheney	578,285	Mar. 2	792	179	78	1410
Display device	J. H. Stratman	576,481	Feb. 2	697	167	78	769
Display device for boxes	O. Selleck	578,659	Mar. 9	1426	325	78	1550
Display-figure	D. C. See	577,455	Feb. 23	2358	554	78	1126
Display-form	W. F. Gray	577,951	Mar. 2	208	50	78	1301
Display-rack	D. Henderson	576,453	Feb. 2	654	156	78	760
Display-stand	F. Shaw	577,827	Feb. 23	2990	707	78	1245
Display-tray	H. A. Steber	576,910	Feb. 9	1413	336	78	920
Distilling apparatus	H. Pattison	574,026	Jan. 5	431	99	78	81
Distilling apparatus. Water	F. L. Dyer	579,360	Mar. 23	2624	620	78	1818
Distilling volatile liquids	J. Milo	575,846	Jan. 26	2574	607	78	589
Distributing apparatus. Automatic	H. Althaus and W. Gerken	577,277	Feb. 16	2041	482 / 483	78	1051
Ditching-machine	J. Fennessey and J. M. Pilling	576,262	Feb. 2	382	79	78	699
Doffer-rolls. Mechanism for vibrating	M. E. Wilmer	575,749	Jan. 26	2414	568	78	509
Doll	J. S. Carter	579,696	Mar. 30	3250	772	78	1955
Door	L. F. Herrmann	577,657	Feb. 23	2723	643	78	1194
Door	M. Ansell	575,683	Jan. 26	2307	544	78	489
Door-adjuster	C. B. de Lamarre	577,433	Feb. 23	2324	545	78	1120
Door-alarm	H. B. Newhall and J. H. Cook	579,074	Mar. 16	2164	508	78	1718
Door-binder	C. M. Burgess	576,481	Feb. 2	620	147 / 148	78	753
Door-check	C. S. Gooding and V. Beauregard	578,634	Mar. 9	1384	315	78	1542
Door-check	W. K. Henry	576,965	Feb. 9	1504	356 / 357	78	937
Door-check	J. F. Lash	578 084	Mar. 2	416	97	78	1340
Door check and closer	J. Adams	577,124	Feb. 16	1802	424 / 425	78	1005
Door check and closer	D. G. Wells	577,591	Feb. 23	2932	619	78	1175
Door-check. Liquid	H. G. Collins	577,721	Feb. 23	2820	668	78	1213
Door-check. Liquid	W. Gilfillan	577,917	Mar. 2	154	36	78	1291
Door-check. Pneumatic	A. A. Page	577,266	Feb. 16	2030	478	78	1047
Door. Combined screen and storm	J. K. Uhr	576,634	Feb. 9	976	228	78	836
Door fastener. Sliding	W. Mosier	577,444	Feb. 23	2341	540	78	1123
Door-hanger	W. J. Sumner	575,771	Jan. 26	2444	576	78	515
Door mechanism. Sliding	C. F. Skilling	578,681	Mar. 9	1465	337	78	1558
Door-operating mechanism. Sliding	W. A. Heath, A. L. Jacobs, and A. M. King.	575,644	Jan. 19	2237	529	78	461
Door or window fastener	J. T. Nagle	576,467	Feb. 2	671	160	78	764
Door. Sliding	J. H. Munderloh	575,162	Jan. 12	1381	333	78	278
Door spring and check	C. Bayer	578,902	Mar. 16	1977	461	78	1679
Doors, curtains, &c. Support for sliding	W. Abraham and W. Schroeder	575,513	Jan. 19	1991	476	78	413
Doors. Operating mechanism for double sliding	C. Metterhausen and W. B. Johnson	574,747	Jan. 5	642	153	78	120
Doubletree	C. L. Pittman	579,522	Mar. 23	2635	601	78	1875
Doubling and twisting frame	C. H. Richardson	574,941	Jan. 12	993	229 / 231	78	205
Dough-cutting machine	J. Park	574,984	Jan. 12	954	227	78	199
Dough-sheeting machine	J. H. Mitchell	576,373	Feb. 2	526	123	78	736

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Dovetails, &c. Machine for cutting	J. R. Rickard	576,614	Feb. 9	941	217, 218	78	880
Downdraft-furnace	J. A. Baldwin	575,200	Jan. 12	1449	348	78	291
Draft-bolt	G. H. Caugherty	577,285	Feb. 16	2060	487	78	1054
Draft-equalizer	L. D. Whitten	579,248	Mar. 23	2447	578	78	1780
Draft-producing device for stacks	J. C. Raymond	577,322	Feb. 16	2110	500	78	1064
Drag. Marine	W. H. Hart	578,562	Mar. 9	1273	289	78	1521
Drag-rake for road-beds	A. Daggett	575,635	Jan. 19	2219	525	78	457
Drain. Floor-	H. P. Crane	579,136	Mar. 23	2264	533	78	1751
Drainage-fitting. Metallic	A. C. Stewart	577,703	Feb. 23	2937	695	78	1234
Draw-bench dog or gripper	R. Wootton and B. Hewitt	577,095	Feb. 16	1738	411	78	998
Draw-die	J. D. Swindell	578,078	Jan. 12	1240	299	78	250
Drawer-guide	T. Hanson	575,945	Jan. 26	2743	648	78	571
Drawer-pull	H. D. Bell	579,557	Mar. 30	3021	714	78	1911
Drawer-pull	J. L. Dawes	574,399	Jan. 5	37	9	78	9
Drawer-pull and sample-holder	G. W. Campbell	578,913	Mar. 16	1889	436	78	1063
Drawing apparatus	T. C. Hailes	574,605	Jan. 5	389	88	78	74
Drawing apparatus. Curve-	J. H. White	577,472	Feb. 23	2387	562	78	1132
Drawing-frame	W. Y. Threlfall and C. Mills	576,786	Feb. 9	1128	267	78	866
Drawing-frame	E. and S. Tweedale and J. Smalley	575,558	Jan. 19	2068	495	78	427
Drawing-roll clearer	J. Thomson, Jr	579,095	Mar. 16	2195	515, 516	78	1724
Drawing-table	S. J. Laughlin and J. Hough	575,842	Jan. 26	2507	606	78	538
Dredge-crane	W. Clifford	578,092	Mar. 2	429	100	78	1343
Dredger. Hydraulic	L. W. Bates	576,250	Feb. 2	315	75	78	697
Dredger pick attachment	H. S. Potter	575,272	Jan. 12	1565	373	78	314
Dress-shield	D. Harrison	579,825	Mar. 30	3463	890	78	1996
Drier: *See* Brick-drier. Ink-drier. Char-drier. Paper-drier. Clothes-drier.							
Drying apparatus	B. F. Ewing	575,468	Jan. 19	1908	459, 460	78	396
Drying-kiln	D. and J. S. Hill	579,709	Mar. 30	3279	781	78	1960
Drying-kiln	L. Klippert	579,398	Mar. 23	2686	636, 637	78	1829
Drying-machine	P. Dillon	576,757	Feb. 9	1164	277, 278	78	873
Drill: *See* Hand-drill. Rock-drill. Ratchet-drill.							
Drill	H. B. Keiper	577,556	Feb. 23	2550	600, 601	78	1162
Drill and tap machine	W. Williamson	575,538	Jan. 19	2088	487	78	421
Drill-bit or similar tool	T. H. Annable	578,805	Mar. 16	1691	391	78	1029
Drill-bits, &c. Machine for edging	F. G. Myers	579,363	Mar. 23	2630	621	78	1819
Drill feed device. Rotary-	W. J. Mewer	577,662	Feb. 23	2729	645	78	1195
Drill-grinding-machine attachment	J. H. Agesen	579,215	Mar. 23	2396	565	78	1777
Drill-releasing tool	R. Nettell	575,267	Jan. 12	1558	371	78	312
Drilling and tapping attachment	F. A. Errington	578,485	Mar. 9	1125	255, 256	78	1498
Drilling and tapping attachment	F. A. Errington	578,486	Mar. 9	1132	256	78	1494
Drilling and tapping machinery. Concentric	F. A. Errington	578,484	Mar. 9	1118	255	78	1492
Drilling-machines. Automatic feed-stopping mechanism for	A. H. Morton	577,110	Feb. 16	1781	420	78	1001
Drilling or similar tool	J. M. Rauhoff	575,734	Jan. 26	2392	563	78	505
Driving device. Multiple-spindled	B. S. Woodward	576,988	Feb. 9	1559	370, 371	78	948
Driving mechanism. Reversible	E. Bossert	579,559	Mar. 30	3023	714	78	1912
Drop-press lifting-wheel	J. McWilliams	576,324	Feb. 2	450	106	78	721
Dropper: *See* Corn-dropper. Phosphate-dropper. Fertilizer-dropper.							
Druggists' label-case	L. H. Britton	574,780	Jan. 5	694	166	78	130
Drum	G. W. Bemis	575,098	Jan. 12	1270	307	78	256
Drum	E. Boulanger	578,108	Mar. 2	656	149, 150	78	1385
Drum-support	H. A. Bower	579,735	Mar. 30	3316	792	78	1907
Dust arrester and collector	J. M. Case	575,824	Jan. 26	2529	596, 597	78	531
Dust-beater	S. S. Dreisbach	574,986	Jan. 12	1082	202	78	221
Dust-box. Portable	H. S. Richardson	577,452	Feb. 23	2353	552, 553	78	1126
Dust-collector	J. E. Mitchell	576,878	Feb. 9	1351	323, 324	78	909
Dust-collector funnel	F. Prokupek	575,994	Jan. 26	2726	644	78	568
Dust-extractor	G. H. Brown	577,006	Feb. 16	1592	370	78	905
Dust-pan	E. O. Mason	576,073	Jan. 26	2964	699	78	699
Dust-remover	J. J. Harvey	577,854	Mar. 2	90	9	78	1206
Dye. Black azo	C. Ris	575,904	Jan. 26	2683	.....	78	559
Dye. Blue	A. Cobenzl	578,068	Mar. 2	430	.....	78	1343
Dye. Blue trisazo	G. Steinike and F. Schmidt	576,511	Feb. 2	756	.....	78	781
Dye. Dark-blue azo	M. Ulrich and J. Bammann	578,432	Mar. 9	1037	.....	78	1476
Dye. Red-blue disazo	C. Rudolph	579,773	Mar. 30	3383	.....	78	1961
Dye. Rhodamin	C. O. Müller	576,222	Feb. 2	255	.....	78	685
Dye. Rhodamin	C. O. Müller	576,223	Feb. 2	256	.....	78	685
Dye. Rhodamin	C. O. Müller	578,578	Mar. 9	1300	.....	78	1527
Dye. Substantive cotton	F. Petersen	578,580	Mar. 9	1305	.....	78	1528
Dye-vat reversing apparatus	J. M. Booth	579,217	Mar. 23	2399	566	78	1777
Dyeing	W. J. S. Grawitz	577,205	Feb. 16	2071	.....	78	1056
Dynamometer	L. Schuler	575,176	Jan. 12	1400	337	78	282
Dynamos. Means for adjusting compound-wound	B. G. Lamme	574,914	Jan. 12	915	222	78	192
Ear-trumpet	F. E. Brockett	574,384	Jan. 5	18	5	78	6
Easel	H. Cooper	575,026	Jan. 12	1147	278	78	233
Edge-setter	C. M. Newcomb	575,531	Jan. 19	2026	484	78	419
Educational apparatus	M. A. McClelland	574,815	Jan. 5	750	180	78	141

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Educational apparatus	S. P. Moulthrop	577,196	Feb. 16	1914	453	78	1027
Educational cabinet	D. K. Thomas	577,888	Mar. 2	95	24	78	1279
Egg-beater	A. W. Davis	577,945	Mar. 2	197	48	78	1299
Egg-case	H. L. Anderson	577,502	Feb. 23	2444	576	78	1143
Egg-case machine	J. H. Batchelder	575,096	Jan. 12	1264	305, 306	78	255
Egg-preserving compound	H. Koch	574,911	Jan. 12	912	.....	78	191
Egg-separator	L. Johnson and L. Fridlund	579,646	Mar. 30	3178	754	78	1940
Egg-separator	F. H. Smith	575,811	Jan. 26	2512	592	78	538
Egg-separator	H. G. W. Carstens and H. F. Peters	576,808	Feb. 9	1245	297	78	888
Egg-tester	E. Lane	579,065	Mar. 16	2149	504	78	1715
Egg-tester	C. G. Moremen	574,854	Jan. 5	816	198	78	154
Egg-tester	H. F. Walton	577,633	Feb. 23	2683	633	78	1196
Egg-tester	H. K. Tallmage	577,083	Feb. 16	1717	407	78	989
Elbows. Portable machine for forming	S. Hammacher	578,870	Mar. 16	1813	.....	78	1650
Electric accumulators. Active mass for	F. W. Schneider	576,164	Feb. 2	161	40	78	667
Electric accumulators. Construction of cells for	F. W. Schneider	576,163	Feb. 2	160	39	78	667
Electric accumulators. Paste-carrying machine for	R. Linde	578,887	Mar. 16	1840	.....	78	1655
Electric accumulators. Paste for	C. Burgher	578,077	Mar. 2	400	98, 94	78	1338
Electric automatic systems. Testing apparatus for	H. N. Farley	578,867	Mar. 16	1808	415	78	1650
Electric battery	E. A. Sperry	577,119	Feb. 16	1791	423	78	1003
Electric brake	H. M. Neer	578,989	Mar. 16	1927	445, 446	78	1670
Electric carrier apparatus	J. S. Stone	578,275	Mar. 2	773	175	78	1408
Electric circuit	C. B. Sterling	576,383	Feb. 2	548	129	78	738
Electric circuit alarm	J. S. Stone	577,214	Feb. 16	1943	460	78	1032
Electric circuit. Resonant	G. F. C. Adam	578,182	Mar. 2	629	144	78	1381
Electric circuits. Apparatus for regulating and modifying	A. J. Wurts	574,979	Jan. 12	1068	259	78	218
Electric circuits. Device for protecting	H. C. Wirt	576,710	Feb. 9	1000	256	78	858
Electric circuits. Ventilated fuse-plug for	H. T. Richards	575,170	Jan. 12	1308	335	78	281
Electric conductor	E. A. Sperry	577,081	Feb. 16	1714	406	78	989
Electric controller	G. Valley	576,333	Feb. 2	465	109	78	724
Electric controller	E. C. Parham	578,464	Mar. 9	1087	248	78	1486
Electric-controller contact-finger	G. Valley	576,332	Feb. 2	463	108	78	724
Electric-controller locking device	C. L. Berger	575,455	Jan. 19	1888	454, 455	78	391
Electric-current meter. Deep-sea	W. Hawker	575,235	Jan. 12	1502	360	78	302
Electric-current regulator	N. Tesla	577,670	Feb. 23	2743	648	78	1198
Electric currents of high frequency. Apparatus for producing	D. B. Kinch	578,643	Mar. 9	1400	318	78	1545
Electric cut-out	J. F. McElroy	577,822	Feb. 23	2681	705	78	1243
Electric cut-out	C. C. Kritzer	576,369	Feb. 2	519	122	78	734
Electric cut-out. Automatic	J. Z. Miller	576,372	Feb. 2	525	123	78	735
Electric cut-out for magneto-bells. Automatic	J. P. Casey	577,644	Feb. 23	2706	638	78	1190
Electric elevator	S. D. Strohm	579,024	Mar. 16	2073	485, 486	78	1699
Electric elevator or hoisting-machine	R. M. Hunter	575,479	Jan. 19	1925	463	78	398
Electric furnace	J. A. Deuther	575,826	Jan. 26	2533	597, 598	78	532
Electric furnace	W. S. Hadaway, Jr	579,324	Mar. 23	2570	606, 607	78	1808
Electric furnace	J. Joyce and J. A. Deuther	575,829	Jan. 26	2540	599	78	534
Electric furnace	F. J. Patten	577,317	Feb. 16	2104	498	78	1062
Electric furnace	F. J. Patten	577,370	Feb. 16	2200	519	78	1081
Electric furnace	F. J. Patten	577,498	Feb. 23	2425	571	78	1139
Electric heater	F. A. Johnson	576,347	Feb. 2	487	114	78	729
Electric heater	J. E. Meek	574,745	Jan. 5	630	152	78	119
Electric heater	W. R. Smith	579,611	Mar. 30	3109	736	78	1927
Electric heater	G. H. Whittingham	579,459	Mar. 23	2639	669	78	1856
Electric lighting for vehicles	J. A. Ageron	576,933	Feb. 9	1449	345	78	927
Electric machine. Alternating-current dynamo-	C. P. Steinmetz	579,283	Mar. 23	2501	591	78	1795
Electric machine and electric motor. Dynamo-	C. P. Turner	578,280	Mar. 2	781	176	78	1409
Electric-machine controller. Dynamo-	C. E. Woods	579,028	Mar. 16	2082	487, 488	78	1701
Electric machine. Direct-current dynamo-	M. Hutin and M. Leblanc	575,116	Jan. 12	1299	313, 314	78	262
Electric machine. Dynamo-	G. L. Campbell	575,210	Jan. 12	1465	352	78	294
Electric machine. Dynamo-	G. A. Scheeffer	579,012	Mar. 16	2054	478	78	1695
Electric machines. Brush-carrier for dynamo-	S. S. Wheeler	575,918	Jan. 26	2706	639	78	568
Electric machines. Construction and regulation of	T. H. Hicks	579,059	Mar. 16	2134	503	78	1712
Electric machines from heat. Means for protecting	J. P. B. Fiske	579,051	Mar. 16	2126	500	78	1710
Electric meter	W. C. Fish	575,777	Jan. 26	2454	578	78	517
Electric meter	J. Harris. (Reissue)	11,588	Feb. 2	794	186	78	787
Electric meter	J. Hessberger	574,903	Jan. 12	903	219	78	190
Electric meter	G. Hookham	579,582	Mar. 30	3064	724	78	1919
Electric meter	E. Thomson	578,430	Mar. 9	1026	235	78	1474
Electric meter	J. R. Tucker and C. C. Hinckley	576,240	Feb. 2	284	69, 70	78	690
Electric meter	G. F. Packard	574,565	Jan. 5	307	71	78	60
Electric meter for alternating currents	H. A. Stock	578,069	Mar. 2	389	91	78	1335
Electric motor	D. N. Osyor	575,615	Jan. 19	2174	516	78	449
Electric motor and device for conducting currents thereto	W. S. Horry	579,062	Mar. 16	2139	503	78	1713
Electric motor and dynamo	H. P. Davis	574,885	Jan. 12	873	212, 213	78	184
Electric-motor controller	F. R. Bacon	578,707	Mar. 16	1522	351	78	1597
Electric-motor controlling mechanism	R. M. Hunter	579,063	Mar. 16	2145	504	78	1714
Electric-motor regulator	J. F. McLaughlin	575,490	Jan. 19	1947	467	78	403
Electric motors. Means for operating	E. M. Bentley	575,454	Jan. 19	1886	454	78	391
Electric motors. Series-multiple controller for	B. W. Child and M. A. Replogle	579,738	Mar. 30	3319	793	78	1968
Electric phenomena in goods, &c. Overcoming	L. H. Nash	576,145	Feb. 2	130	33	78	661
Electric propulsion. Method of and apparatus for	A. H. Armen	575,047	Jan. 12	1183	288	78	239
Electric quick-break switch	R. Skeen	574,954	Jan. 12	1011	244, 245	78	209
Electric signal	W. W. Alexander and M. C. Gillham	577,635	Feb. 23	2686	634	78	1187
Electric signal for highway-crossings	W. W. Doty and J. A. MacKnight	578,139	Mar. 2	528	120	78	1363
Electric switch							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electric switch	C. D. Jenney	577,037	Feb. 16	1640	390	78	973
Electric switch	M. Schalscha	576,621	Feb. 9	951	221	78	832
Electric transformer	L. Gutmann	577,480	Feb. 23	2399	564	78	1134
Electric transformer	L. Gutmann	577,742	Feb. 23	2964	679	78	1220
Electrical battery	E. Burnet	577,282	Feb. 16	3056	486	78	1053
Electrical condenser	J. C. Lee, W. R. Westcott, and E. C. Robes.	575,653	Jan. 19	2252	532	78	464
Electrical condensers, coils, &c. Manufacture of	N. Tesla	577,671	Feb. 23	2745	648	78	1196
Electrical controller	W. H. Morgan	575,366	Jan. 19	1734	413 / 414	78	864
Electrical controlling apparatus	O. H. and A. F. Pieper	575,573	Jan. 19	2098	500	78	433
Electrical controlling apparatus	B. C. Van Emon	578,954	Mar. 16	1966	458	78	1677
Electrical distribution. Multiple-series system of	F. B. Badt	579,556	Mar. 30	3019	714	78	1911
Electrical generator	S. V. Essick	579,707	Mar. 30	3272	778	78	1959
Electrical knife-switch. Overhead	J. Menchen	574,986	Jan. 12	937	228	78	196
Electrical regulating device	J. F. Kelly	576,732	Feb. 9	1124	265	78	865
Electrical resistances containing electromotive forces. Apparatus for determining	O. Frölich	575,767	Jan. 26	2438	575	78	513
Electrical transformer	F. H. Jeannin	579,306	Mar. 23	2683	636	78	1829
Electrically-operated signal or semaphore	J. N. Newsom	579,170	Mar. 23	2827	547	78	1709
Electricity. Coin-freed apparatus for administering	K. Rudolph	578,596	Mar. 9	1211	273	78	1509
Electricity-meter	A. Raps	579,079	Mar. 16	2172	509 / 510	78	1720
Electrode	A. E. Woolf	578,070	Mar. 2	300	91	78	1335
Electrode for storage or other batteries	T. A. Willard	576,177	Feb. 2	194	49	78	673
Electrodes for secondary batteries. Manufacturing	L. Epstein	579,361	Mar. 23	2626	------	78	1819
Electrolytical apparatus	C. P. Turner	578,171	Mar. 2	613	139	78	1378
Electromechanical movement	E. D. Chaplin and H. G. Halloran	575,699	Jan. 26	2333	550 / 551	78	493
Electroplating-hook	J. Bossard	579,124	Mar. 23	2245	528 / 529	78	1747
Electropneumatic brake	F. Chapsal	577,526	Feb. 23	2492	587	78	1151
Electrotype-plate and making same	G. H. Benedict	575,321	Jan. 19	1651	394	78	348
Electrotypes. Backing-up press for	F. W. Baum	579,733	Mar. 30	3313	792	78	1967
Elevating mechanism	J. M. Dodge	575,636	Jan. 19	2220	525	78	458
Elevator: *See* Bucket elevator. Cotton-elevator. Electric elevator. Ice-elevator. Tobacco-elevator. Water-elevator.							
Elevator	F. A. Bates and W. J. Greenhough	579,672	Mar. 30	3215	763 / 764	78	1948
Elevator	W. M. Frisbie	576,568	Feb. 9	866	201	78	816
Elevator	I. C. Gray	579,707	Mar. 30	3421	819	78	1967
Elevator	E. L. and G. Hall	579,480	Mar. 23	2735	649 / 650	78	1837
Elevator	J. S. Mucklé	579,071	Mar. 16	2160	507	78	1717
Elevator	E. L. Parker	575,758	Jan. 26	2425	572	78	511
Elevator	W. A. and H. W. Placier	579,076	Mar. 16	2169	508	78	1719
Elevator	M. C. Sigmund	579,410	Mar. 23	2704	643	78	1833
Elevator	C. L. Wright	579,661	Mar. 30	3198	759 / 760	78	1945
Elevator-door-closing mechanism	W. J. Knight	579,153	Mar. 23	2297	540	78	1757
Elevator drive-wheel	G. S. Fouts	576,990	Feb. 9	1489	353	78	984
Elevator gate-controller	E. Carlson	575,753	Jan. 26	2418	570	78	510
Elevator mechanism	J. S. Mucklé	579,072	Mar. 16	2162	507	78	1717
Elevator or hoist	T. Mason	579,400	Mar. 23	2688	637 / 638	78	1830
Elevator-platform	A. E. Pelham	578,156	Mar. 2	552	125 / 126	78	1367
Elevator safety device	W. Ehrhardt	577,649	Feb. 23	2712	640	78	1192
Elevator-shaft doors and safety devices. Operating mechanism for	L. N. Reed	575,385	Jan. 26	2727	645	78	508
Elevator valve. Hydraulic	W. H. Hultgren	577,958	Mar. 2	221	53	78	1304
Elevators. Base chamber or seat for hydraulic	G. H. Evans. (Reissue)	11,582	Jan. 5	850	200	78	160
Elevators. Device for automatically locking	J. C. McMahon	576,144	Feb. 2	128	32	78	661
Embroidering-machine	R. Albers	577,366	Feb. 16	2235	530	78	1090
Embroidering-machine	E. and R. Cornely	575,027	Jan. 12	1148	278 / 279	78	233
End-gate step. Wagon	W. Heaton	578,332	Mar. 9	882	200	78	1446
Engine: *See* Beer-engine. Compressing or blowing engine. Dental engine. Direct-acting engine. Explosive-engine. Gas-engine. Gas or oil engine. Gravity-engine. Hot-air engine. Hydrocarbon-engine. Oil-engine. Oil, gas, or like engine. Oscillating engine. Rotary engine. Steam-engine. Traction-engine. Vapor-engine.							
Engine	T. R. Hill	576,191	Feb. 2	213	53	78	676
Engine	C. M. C. Prentice	577,518	Feb. 23	2475	582 / 583	78	1148
Engine	N. Shannon	574,457	Jan. 5	133	30, 31	78	27
Engine-cylinders. Apparatus for conveying heat to	A. Marichal	577,996	Mar. 2	264	62	78	1311
Engine exhaust and draft device. Steam	L. A. Blubaugh and W. C. Simpson	578,689	Mar. 9	1481	340	78	1561
Engine handle. Direct-acting	T. R. Hill	578,603	Mar. 9	1334	303	78	1533
Engine-indicator	J. J. Waldner	574,964	Jan. 12	1097	251	78	213
Engine indicator. Steam	C. H. Bedell	575,322	Jan. 12	1452	349	78	291
Engine-stop	C. E. Edgar	575,827	Jan. 26	2536	598	78	582
Engine stop device	T. D. Millea	578,650	Mar. 9	1413	321	78	1547
Engine-stopping apparatus	G. W. Brown	575,144	Jan. 12	1355	326	78	273
Engine-stopping apparatus	G. W. Brown	578,514	Feb. 2	763	179	78	781
Engines. Electric igniter for explosive	W. F. Davis	577,158	Feb. 16	1850	437	78	1015
Engines. Igniting device for internal-combustion	G. L. Woodworth	579,921	Mar. 30	3617	865 / 866	78	2024

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Engineer's or surveyor's instrument	C. L. Berger	578,052	Mar. 2	358	85, 86	78	1330
Envelop	W. D. Bradstreet	577,571	Feb. 23	2579	608	78	1167
Envelop	F. Fischer	577,129	Feb. 16	1808	426	78	1006
Envelop	J. Price	579,077	Mar. 16	2170	509	78	1719
Envelop	C. A. Snow	578,299	Mar. 2	813	188	78	1415
Envelop	F. S. Wheeler	576,388	Feb. 2	558	131	78	740
Envelop	T. J. Gorman	576,783	Feb. 9	1197	286	78	879
Envelop. Clasp	O. A. Logan. (Reissue)	11,585	Jan. 19	2304	543	78	474
Envelop-fastener	J. Vines	578,684	Mar. 9	1469	338	78	1559
Envelop making and printing machine	J. Ball	577,096	Feb. 16	1743	412	78	994
Envelop-manufacturing machine	W. Nelson and R. F. Kerr	574,563	Jan. 5	305	70	78	60
Envelop-opener	W. M. Brevard	579,467	Mar. 23	2859	672	78	1860
Envelop. Safety	E. L. Calahan	575,775	Jan. 26	2451	578	78	517
Envelops, &c. Fastener for	W. A. Barr	578,190	Mar. 2	646	147	78	1384
Eraser	A. C. Ekholm	578,289	Mar. 2	797	180	78	1411
Eraser	T. Wasserbach	576,638	Feb. 9	981	229	78	837
Eraser	W. Büsche	575,024	Jan. 12	1137	276	78	231
Espalier-wall	P. Fritzsche	575,640	Jan. 19	2226	527	78	458
Ether. Obtaining	F. W., F. W., Jr., and E. G. Scott	575,854	Jan. 26	2589	611	78	542
Evaporator. Brine	W. and W. Lord	575,780	Jan. 26	2458	579 / 580	78	518
Evening mechanism for openers and scutchers	G. W. King	576,857	Feb. 9	1319	315 / 316	78	903
Excavating mineral-bearing earths	D. I. Calhoun	575,874	Jan. 26	2629	621	78	549
Excavating-scoop	G. W. King	578,751	Mar. 16	1599	369 / 370	78	1612
Excavator	J. M. Carroll	574,661	Jan. 5	494	113 / 114	78	92
Excavator. Horizontal	J. M. Carroll	574,660	Jan. 5	491	112 / 113	78	91
Excavator. Vertical	L. P. King	574,613	Jan. 5	405	93, 94	78	76
Excelsior-machine	G. A. Anderson	574,369	Jan. 5	1	1	78	3
Exhaust mechanism	T. E. Lewis	575,897	Jan. 26	2674	630	78	558
Exhibiting attachment for boxes. Sample	D. E. Ross	577,328	Feb. 16	2111	500	78	1064
Expansible wheel	H. Boyd	577,351	Feb. 16	2163	------	78	1073
Explosive	F. Burger	576,430	Feb. 2	618	147	78	753
Explosive-engine	F. C. Southwell	575,812	Jan. 26	2512	592 / 593	78	528
Explosive-engine	J. Walrath	577,898	Mar. 2	110	28	78	1282
Explosive-engine	J. Walrath	578,377	Mar. 9	939	213 / 214	78	1457
Extension-frame for window-screens, &c	E. M. Kemp	576,760	Feb. 9	1169	278	78	874
Extension-table	W. H. Mays	575,285	Jan. 12	1582	376	78	317
Extension-table. Folding	H. J. Durgin	577,014	Feb. 16	1604	381	78	967
Extract of suprarenal gland	S. Fränkel	576,781	Feb. 9	1196	------	78	879
Extractor: *See* Bolt or spike extractor. Dust-extractor. Lemon-juice extractor. Piston-rod extractor. Stopper-extractor. Stump-extractor. Tree-extractor.							
Eyeglass-case	J. G. Koenen	575,357	Jan. 19	1722	410	78	362
Eyeglass-case	H. F. Sanger	579,656	Mar. 30	3191	758	78	1948
Eyeglass-frame	C. H. Flaig	576,812	Feb. 9	1252	296	78	886
Eyeglass-frame	S. Hummel	578,821	Mar. 16	1733	398	78	1637
Eyeglasses	J. S. Spencer	575,997	Jan. 26	2832	669	78	587
Eyeglasses. Galvanic attachment for	A. Mayer	575,658	Jan. 19	2259	534	78	465
Eyeglasses or spectacles	H. Abbott	579,121	Mar. 23	2241	528	78	1747
Eyelet	A. Latham	577,435	Feb. 23	2827	546	78	1120
Eyelets. Device for making covered	A. C. Estabrook	576,044	Jan. 26	2919	688	78	601
Eyelets. Device for making covered	F. N. Look	575,963	Jan. 26	2769	654	78	576
Eyelets. Die for applying plastic coverings on	A. Latham	579,275	Mar. 23	2490	588	78	1793
Eye-wire-supporting plate	G. W. Meigs	579,762	Mar. 30	3366	804	78	1977
Fabric: *See* Bullet-proof fabric. Knit fabric. Needlework fabric. Ornamental fabric. Pile fabric. Woven fabric. Woven multiple-ply fabric.							
Fabrics. Means for napping	N. H. Grosselin	577,602	Feb. 23	2639	623	78	1178
Fabrics. Renovating	C. F. Broadbent	575,591	Jan. 19	2138	------	78	442
Fan	H. D. Jones	578,518	Mar. 9	1195	270	78	1506
Fan	J. J. Phillips and C. E. Thomas	578,360	Mar. 9	917	209	78	1453
Fan. Exhaust	S. Rembert	579,081	Mar. 16	2177	510	78	1720
Fan. Fly	W. F. Andrews	576,088	Feb. 2	7	2	78	639
Fan. Fly	J. H. Gorman	577,132	Feb. 16	1811	427	78	1007
Fan for baby-carriages	C. Dold	575,637	Jan. 19	2221	525 / 526	78	458
Fan. Rotary	J. M. Seymour	575,620	Jan. 19	2186	518 / 519	78	451
Fanning-mill	J. and L. Albrecht	575,452	Jan. 19	1882	453 / 454	78	390
Fanning-mill	J. S. Constant	579,258	Mar. 23	2462	581	78	1788
Fanning-mill sieve	C. Hintz	575,710	Jan. 26	2368	557	78	500
Fare-register	J. J. Kennelly	576,786	Feb. 9	1201	286 / 287	78	880
Farm-gate	D. C. Denis	579,819	Mar. 23	2562	605	78	1806
Farm-gate	J. F. Klinglesmith	578,604	Mar. 9	1336	308	78	1534
Farm-gate	G. W. and J. E. Lilly	579,066	Mar. 16	2150	504	78	1715
Farm-gate	C. E. McDaniel	579,981	Mar. 30	3633	870	78	2028
Farm-gate	M. H. Reed	577,537	Feb. 23	2515	593	78	1155
Farm-gate	A. W. Terpening	575,442	Jan. 19	1868	449 / 450	78	388
Fastener	J. M. Scurr	579,899	Mar. 30	3588	858 / 859	78	2019
Fastening	G. A. Holmes	574,904	Jan. 12	904	219	78	190
Fastening attachment	J. Hobbs	576,066	Jan. 26	2054	697	78	607

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fastening device	A. F. Wainewright	579,600	Mar. 30	3244	770	78	1954
Faucet	G. T. Kenly	575,840	Jan. 26	2565	605	78	587
Faucet	G. S. Murphy	575,552	Jan. 19	2000	498	78	426
Faucet	P. K. O'Lally	576,068	Jan. 26	2638	698	78	608
Faucet and filler. Oil-can	F. Wagner	579,416	Mar. 23	2712	644	78	1884
Faucet. Automatic measuring, registering, and recording	M. Buford	578,718	Mar. 16	1546	358	78	1601
Faucet. Filtering	J. Chase	578,263	Mar. 2	751	170	78	1404
Faucet. Measuring	W. W. Newcomb	576,685	Feb. 9	1055	247	78	851
Faucet-register	C. W. Kelly and G. H. Vore	577,756	Feb. 23	2885	683	78	1224
Faucet. Self-closing basin	W. G. Cornell	576,035	Jan. 26	2004	686	78	599
Feathers. Machine for quilling	H. Horster	577,807	Feb. 23	2957	699	78	1238
Feed-cutter	W. R. Harrison	577,363	Feb. 16	2183	516	78	1077
Feed-cutter carrier	J. M. Cook and J. E. Mateer	575,508	Jan. 19	2140	507	78	442
Feed cutter. Manually-operated stock	W. J. Mallard	579,884	Mar. 30	3564	853	78	2015
Feed-grinder	D. W. Bovee	575,588	Jan. 19	2123	506	78	438
Feed-trough	A. Stacy	577,631	Feb. 23	2681	633	78	1186
Feed-water heater	C. H. Hutchinson	574,488	Jan. 5	175	41	78	34
Feed-water heater	W. L. Shepard	578,904	Mar. 16	1867	429	78	1660
Feed-water heater. Boiler	J. Lothes	577,925	Mar. 2	172	40	78	1294
Feed-water-heating apparatus	C. J. Brown	575,207	Jan. 12	1450	350	78	266
Feed-water purifier	W. L. Shepard	578,903	Mar. 16	1865	428	78	1660
Feed-water regulator. Automatic	A. E. Burrows and W. E. Clark	574,861	Jan. 5	835	204	78	157
Feeder. Automatic boiler	O. J. Scott	577,392	Feb. 16	2239	526	78	1067
Feeder. Boiler	O. J. Scott	577,325	Feb. 16	2114	501	78	1064
Feeder. Stock	C. H. Terry	579,245	Mar. 23	2441	577	78	1784
Fence	C. J. Asmus	579,914	Mar. 30	3609	863	78	2023
Fence	H. H. Brandes and F. W. Hironimus.	575,541	Jan. 19	2043	489	78	423
Fence	C. L. Chapman	579,736	Mar. 30	3317	793	78	1967
Fence	F. E. Foor	579,477	Mar. 23	2874	675	78	1863
Fence	F. Johnson	574,428	Jan. 5	85	18	78	18
Fence	J. R. Newlin	579,364	Mar. 23	2631	622	78	1820
Fence	W. R. White	577,093	Feb. 16	1733	410	78	992
Fence. Barbed-wire	S. Dent	578,447	Mar. 9	1062	242	78	1480
Fence-brace	J. Bond	578,594	Mar. 9	1321	299	78	1531
Fence fastener. Wire	L. Clark	577,357	Feb. 16	2173	514	78	1075
Fence lock. Wire	D. R. Littlefield	579,238	Mar. 23	2431	575	78	1783
Fence-machine	H. H. Feldman	576,048	Jan. 26	2028	690	78	602
Fence-machine	E. C. Mathews	578,252	Mar. 2	734	166 167	78	1400
Fence machine. Hand	M. F. Connett, Jr	576,033	Jan. 26	2002	685	78	598
Fence machine. Picket	N. E. Morris, Jr	574,814	Jan. 5	746	179	78	140
Fence machine. Wire	A. J. Bates	577,639	Feb. 23	2692	635 636	78	1188
Fence machine. Wire	M. Cahill	578,284	Mar. 2	789	179	78	1410
Fence-making appliance	J. C. Wilkes	578,617	Mar. 9	1358	309	78	1538
Fence-making machine. Picket	C. L. Horras	574,995	Jan. 12	1005	266	78	223
Fence. Portable	M. Steffee	577,460	Feb. 23	2371	558	78	1129
Fence-post	R. E. Jennings and J. Winn	579,645	Mar. 30	3177	754	78	1940
Fence-post	A. Marble	575,035	Jan. 12	1102	283	78	236
Fence-post	C. J. Miller	577,193	Feb. 16	1907	451	78	1026
Fence-post	J. M. Moore	576,465	Feb. 2	669	160	78	764
Fence-post	W. L. Reck	575,374	Jan. 19	1752	420	78	368
Fence-post	A. W. Smith	575,073	Jan. 12	1220	298	78	248
Fence-stay	J. M. Moore	575,259	Jan. 12	1543	370	78	310
Fence stay. Wire	G. H. Brown	578,076	Mar. 2	399	98	78	1338
Fence tool. Combination wire	L. Rubarth	577,785	Feb. 23	2925	692	78	1232
Fence. Wire	W. A. Corkle	579,791	Mar. 30	3413	818	78	1986
Fence. Wire	S. C. Davis	579,918	Mar. 30	3614	864	78	2024
Fence. Wire	J. W. Griswold	575,345	Jan. 19	1705	406	78	359
Fence. Wire	W. Hagaman and E. D. Cary	575,234	Jan. 12	1501	360	78	302
Fence. Wire	M. E. Kershner	575,959	Jan. 26	2768	652	78	574
Fence. Wire	H. D. Miller	576,215	Feb. 2	246	61	78	683
Fence. Wire	P. Novesky	578,654	Mar. 9	1419	323	78	1549
Fence. Wire	J. C. Perry	576,009	Jan. 26	2959	698	78	608
Fence-wire	D. C. Smith	578,082	Mar. 2	332	79	78	1325
Fence-wire clamp	W. M. and R. P. Jones	576,348	Feb. 2	489	114	78	729
Fence-wire reel	J. W. Gibbons and J. L. McDonald	579,056	Mar. 16	2132	502	78	1712
Fences. Automatic tension device for wire	C. B. McDaniel	578,086	Mar. 2	418	97	78	1341
Fences. Spring-tension ratchet for wire	G. W. Field	576,958	Feb. 9	1486	352	78	983
Fences. Tool for erecting wire	N. D. Wintersteen	576,900	Feb. 9	1443	343 344	78	925
Fender: *See* Car-fender. Car safety-fender.							
Ferrule-slotting machine	C. T. Pratt	575,732	Jan. 26	2389	562 563	78	504
Fertilizer	P. Huff	576,848	Feb. 9	1306	------	78	900
Fertilizer-distributer and seed-planter	L. M. Crissey	576,076	Jan. 26	2972	701	78	610
Fertilizer-dropper. Hand	F. J. France	576,497	Feb. 2	728	173	78	775
Fertilizers from garbage. Apparatus for making	L. Manuell and P. Catucci	577,769	Feb. 23	2904	687	78	1228
Fertilizers. Process of and apparatus for making	H. A. Hogel	578,512	Mar. 9	1183	268	78	1504
Fiber to fiber-treating machines. Device for feeding	J. M. Blaisdell	576,208	Feb. 2	397	93, 94	78	712
Fibers. Making chemically-prepared peat	C. Geige	579,572	Mar. 30	3046	------	78	1916
Fibrous material. Manufacturing articles from	P. H. Holmes	577,135	Feb. 16	1815	------	78	1008
Fifth-wheel	W. H. Bradshaw	579,857	Mar. 30	3522	842	78	2007
Fifth-wheel	J. D. Dort	577,978	Mar. 2	251	59	78	1309
Fifth-wheel	W. L. Hawes	575,112	Jan. 12	1204	312	78	261
Fifth-wheel	A. W. Johnson	575,242	Jan. 12	1513	364	78	304
Fifth-wheel	H. E. Morrill	578,576	Mar. 9	1298	293	78	1525
Fifth-wheel	C. Nielson	578,022	Mar. 2	318	75	78	1322
Fifth-wheel	H. C. Swan	575,437	Jan. 19	1857	447	78	386
Fifth-wheel. Vehicle	A. W. Smith	576,167	Feb. 2	165	41	78	668
File	F. E. Thompson	575,079	Jan. 12	1241	300	78	251
File-box	A. C. Mills, Jr	576,217	Feb. 2	248	62	78	684

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
File. Cabinet	A. J. Wells	578,796	Mar. 16	1674	387	78	1626
File-case and cigar-receptacle. Combined	E. W. Swisher and C. G. Ginter	576,358	Feb. 2	495	116	78	730
File clasp. Paper	V. Munger	578,849	Mar. 9	902	204	78	1450
File for holding papers	G. O. Farber	578,918	Mar. 16	1897	439	78	1665
File. Letter	C. H. Wiley	574,974	Jan. 12	1061	257	78	217
File. Newspaper	W. Whitney	576,928	Feb. 9	1441	343	78	925
File. Paper	S. B. Tily	578,787	Mar. 16	1659	384	78	1623
Files or rasps. Machine for cutting	A. Weed	578,379	Mar. 9	946	215	78	1458
Filling device	F. Rossbach-Rousset	575,172	Jan. 12	1395	335	78	281
Filter	L. Brandeis	574,779	Jan. 5	693	165 166	78	130
Filter	E. A. Brashear	579,039	Mar. 16	2110	495 496	78	1707
Filter	J. Davis	577,238	Feb. 16	1977	467	78	1039
Filter	C. Haefner	575,478	Jan. 19	1923	462	78	398
Filter	J. M. Harris	579,282	Mar. 23	2422	573	78	1781
Filter	W. M. Jewell	577,686	Feb. 23	2765	654	78	1202
Filter	K. Kiefer	579,586	Mar. 30	3070	725	78	1920
Filter	A. S. Krotz	579,154	Mar. 23	2298	540	78	1757
Filter	C. H. Loew	578,574	Mar. 9	1290	292	78	1525
Filter	E. P. Lynn	576,209	Feb. 2	237	59	78	682
Filter	E. Wolford	578,179	Mar. 2	626	143	78	1281
Filter and cooler. Water	A. Major	577,965	Mar. 2	234	55	78	1306
Filter and filter-valve	W. D. Robinson	576,378	Feb. 2	539	126 127	78	737
Filter. Automatic	J. Wilson	574,511	Jan. 5	216	51	78	42
Filter-cleaning apparatus	W. M. Jewell	577,755	Feb. 23	2879	683	78	1223
Filter. Faucet	W. H. Vance	574,644	Jan. 5	462	106	78	87
Filter. Folding surface	F. Pich	579,769	Mar. 30	3374	807	78	1979
Filter material. Machine for washing	S. T. Wiedenbeck, A. L. Neubert, and M. J. Sietz.	576,389	Feb. 2	560	132	78	741
Filter. Oil	D. C. Hunt	575,508	Jan. 19	1984	475	78	412
Filter-press plate	H. P. Chamberlain	575,875	Jan. 26	2031	621	78	549
Filter. Water	J. H. Brady	579,254	Mar. 23	2456	580	78	1787
Filter. Water	L. Eschner	574,792	Jan. 5	711	170	78	134
Filter. Water	J. W. Hart	576,452	Feb. 2	653	156	78	760
Filter. Water	J. L. Welshans	574,858	Jan. 5	827	201	78	156
Finger-ring	E. P. Hendrickson	575,604	Jan. 19	2159	512	78	446
Fire alarm and extinguisher	I. S. Bunker and A. W. Kenney	576,026	Jan. 26	2877	681	78	595
Firearm. Breakdown	A. Fyrberg	574,409	Jan. 5	54	12, 13	78	12
Firearm. Magazine	J. M. Browning	577,281	Feb. 16	2048	485 486	78	1052
Firearm. Magazine	G. P. Hastings	576,964	Feb. 9	1497	355	78	935
Firearm. Magazine	S. N. McClean	575,265	Jan. 12	1551	371	78	311
Firearm. Magazine	D. S. Seymour	576,744	Feb. 9	1140	270 271 272	78	868
Firearm shooting-rest	F. E. Heinrich	577,026	Feb. 16	1628	385	78	970
Firearms. Slide and hook for sling-straps of	W. C. Perkins and T. C. Johnson	575,164	Jan. 12	1384	333	78	278
Fireback. Adjustable	E. H. Headford	578,331	Mar. 9	881	199	78	1446
Fire-door apparatus. Thermostatic	O. H. Kingsland	576,733	Feb. 9	1126	265	78	865
Fire-escape	J. H. Higgins	579,060	Mar. 16	2136	508	78	1712
Fire-escape	R. Williams	576,390	Feb. 2	562	132	78	741
Fire-escape and water-tower	M. W. Hennessey	578,989	Mar. 16	2019	470	78	1688
Fire-escape ladder	T. F. Mason and G. W. Shearer	578,460	Mar. 9	1063	247	78	1485
Fire-escape. Portable	W. F. Evans	576,780	Feb. 9	1194	285	78	879
Fire-escape. Portable	H. T. Forbes and J. F. Weldon	579,823	Mar. 30	3461	829	78	1995
Fire-extinguisher	V. E. Campbell	578,905	Mar. 16	1982	462	78	1680
Fire-extinguisher	H. L. Fisher and J. McKercher	578,324	Mar. 9	869	197	78	1444
Fire-extinguisher	W. Graham	579,808	Mar. 30	3541	846	78	2011
Fire-extinguisher	E. M. Parker and W. H. Coulson	578,706	Mar. 9	1515	349	78	1567
Fire-extinguisher	E. Schaefer	576,415	Feb. 2	596	141	78	748
Fire-extinguisher	E. F. Steck	579,686	Mar. 30	3239	768 769	78	1952
Fire-extinguisher	D. White	578,434	Mar. 9	1040	237	78	1476
Fire-extinguisher. Automatic	E. Livingston	575,253	Jan. 12	1531	367 368	78	307
Fire-extinguishers. Chemically-charged nozzle for	W. C. Stock and H. W. Tufts	577,121	Feb. 16	1798	424	78	1004
Fire-extinguishers. Sprinkler-head for automatic	V. Lapham	575,121	Jan. 12	1312	316	78	264
Fire-extinguishing apparatus	H. L. Lufkin	578,606	Mar. 9	1338	304	78	1534
Fire-extinguishing apparatus	H. F. Maxim	577,307	Feb. 16	2089	494	78	1059
Fire-extinguishing compound	J. Herb	579,234	Mar. 23	2425	------	78	1782
Fire-hose support	J. O. Charbonneau	575,700	Jan. 26	2358	551	78	494
Fire-hose. Telegraph	J. Buchtel	578,716	Mar. 16	1543	358	78	1601
Fire-hydrant	C. E. Loetzer	575,254	Jan. 12	1533	368	78	307
Fire-kindler	E. Cook	577,722	Feb. 23	2823	668	78	1213
Fireman's mask	A. Miller	577,926	Mar. 2	173	40	78	1295
Fireplace	M. I. Cohen	576,775	Feb. 9	1187	283	78	877
Fireplace	F. E. Humphreys	578,240	Mar. 2	717	162	78	1397
Fireplace-furnace	D. McDonald	575,847	Jan. 26	2576	606	78	540
Fireproof blind	W. R. Kinnear	576,586	Feb. 9	807	208	78	822
Fireproof-building construction	T. Bailey	576,712	Feb. 9	1003	257	78	858
Fireproof-building construction	T. Bailey	576,713	Feb. 9	1095	257 258	78	858
Fireproof-building construction	J. W. Rapp	576,692	Feb. 9	1006	250	78	853
Fireproof construction	A. R. Fordyce	577,598	Feb. 23	2633	621	78	1177
Fireproof floor and ceiling	C. A. Balph	579,375	Mar. 23	2651	626	78	1828
Fireproof flooring and ceiling	F. B. Abbott	576,770	Feb. 9	1180	281	78	876
Fireproof flue-stopper. Automatic	R. W. Drinker	577,013	Feb. 16	1603	381	78	967
Fireproof partition for buildings	S. E. Rabbitt	579,838	Mar. 30	3492	834 835	78	2000
Fireproof partition for buildings	S. E. Rabbitt	579,839	Mar. 30	3493	835	78	2000
Fireproof pipe-sleeve	R. Scott	576,899	Feb. 9	1400	333	78	918
Fire protection for cities	S. White	576,797	Feb. 9	1222	292	78	884
Fire-shield	P. L. Holcomb	575,951	Jan. 26	2749	649	78	572

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fish-cleaning machine	E. A. Murphy	576,879	Feb. 9	1355	324, 325	78	910
Fish-holder	L. D. Garnhart	577,576	Feb. 23	2586	610	78	1168
Fish-hook book	G. Knieriemen	578,458	Mar. 9	1080	246	78	1484
Fish-hook. Spring	B. W. Punches	575,405	Jan. 19	1805	434	78	377
Fish-plate. Sliding	J. E. Brooks	576,024	Jan. 26	2875	681	78	595
Fish. Process of and apparatus for smoking	C. Waldemann	577,672	Feb. 23	2746	648	78	1196
Fish scaler and cleaner	A. H. Pascoe	578,043	Mar. 2	347	83	78	1328
Fish-trap net	D. L. Glaflin, E. R. Edson, and J. B. Jessop.	576,844	Feb. 9	1300	310	78	899
Fishing apparatus	D. M. Kittle	576,680	Feb. 9	1045	245	78	849
Fishing apparatus	J. W. Layne	578,248	Mar. 2	728	165	78	1399
Fishing apparatus	J. B. McMullin	574,561	Jan. 5	303	70	78	59
Fishing apparatus	L. J. Mell	578,085	Mar. 2	417	97	78	1341
Fishing-line attachment	L. H. McMahon	578,762	Mar. 16	1618	374	78	1615
Fishing-net-controlling device	T. Lindsay	575,360	Jan. 19	1725	411	78	363
Fishing-reel	C. F. Wilson	575,820	Jan. 26	2524	595	78	530
Fishing-reel. Ball-bearing	A. F. and W. Meisselbach	578,608	Mar. 9	1344	306	78	1535
Flag staff or mast	W. A. Reid	578,524	Mar. 9	1206	272	78	1508
Flax or hemp. Retting or steeping	G. Loppens and H. Deswarte	576,807	Feb. 9	1333	318	78	906
Float. Phantom	L. S. Hinckley	574,998	Jan. 12	1089	264	78	223
Floor-clamp	L. Bunnell	577,975	Mar. 2	247	58	78	1308
Flooring	W. McPherson	579,348	Mar. 23	2607	615	78	1815
Flour-mill purifier, grader, and dust-collector	G. W. T. Seifert	575,998	Jan. 26	2825	667, 668	78	586
Flour or meal bin	S. O. Callahan	577,354	Feb. 16	2166	513	78	1074
Flower-pot	H. Delzell	579,295	Mar. 23	2519	595	78	1798
Flower-pot	H. Iken	576,850	Feb. 9	1308	312	78	901
Flower-pot holder	H. Waterer	577,800	Feb. 23	2046	497	78	1236
Flower-pot or dish handle	W. C. Krick	578,152	Mar. 2	547	124	78	1366
Flower-stand. Collapsible	L. G. Beers and H. Eberhardt	574,859	Jan. 5	829	201, 202	78	157
Flower-stand. Fountain	C. C. Boyd	577,230	Feb. 16	1965	465	78	1036
Flue-cleaner	J. J. Brennan	575,280	Jan. 12	1574	375	78	316
Flue-cleaner	L. J. Wolf	576,931	Feb. 9	1446	344	78	926
Flue-cover	E. H. Huenefeld	578,748	Mar. 16	1595	369	78	1611
Flue-stopper	W. G. Rau	577,882	Mar. 2	82	22	78	1277
Flues and flue-pipes. Device for cleaning	C. Comstock	577,647	Feb. 23	2710	639	78	1191
Fluid-meter	W. A. G. Schönheyder	575,991	Jan. 26	2821	665, 666	78	585
Fluid-pressure brake	J. G. A. Kitchen	579,272	Mar. 23	2486	587	78	1793
Fluid-pressure compound motor and brake	J. McIntyre	575,527	Jan. 19	2018	481, 482	78	417
Fluid-pressure machine. Automatic	A. W. Cole	575,702	Jan. 26	2341	552	78	494
Fluid-pressure machine. Automatic	R. Lo Forte	575,722	Jan. 26	2376	559	78	501
Fluid-pressure motor and brake	J. McIntyre	575,525	Jan. 19	2015	481	78	417
Fluid-pressure regulator	W. C. Downward	577,289	Feb. 16	2064	488	78	1055
Fluid-pressure regulator	E. H. Freeman	574,846	Jan. 5	804	193, 194	78	151
Fluid-pressure regulator	C. C. Wright	579,551	Mar. 23	3001	710	78	1887
Flush-tank	C. A. Blessing	578,506	Mar. 9	1176	266	78	1503
Flushing apparatus	D. S. Wallace	577,899	Mar. 2	114	29	78	1282
Flushing-tank	W. Groszmann	577,021	Feb. 16	1613	383	78	969
Flushing-tank for water-closets, &c. Automatic	J. Clifford	579,315	Mar. 23	2552	603	78	1804
Flushing-tank for water-closets, urinals, &c. Automatic	J. Holleran	578,927	Mar. 16	1908	442	78	1667
Fluxing-machine	M. J. Hawkins	578,452	Mar. 9	1070	244	78	1482
Fly-paper. Sticky	F. V. Wightman, R. W. Birdsell, and T. D. Nostrand.	575,019	Jan. 12	1132	274	78	230
Fly-trap	M. L. Carpenter	574,785	Jan. 5	708	168	78	132
Fly-trap	D. L. Hays	577,855	Mar. 2	31	9, 10	78	1266
Fly-wheel	S. N. Stewart	575,741	Jan. 26	2402	566	78	507
Fly-wheel. Differential	B. C. Pole	577,065	Feb. 16	1686	399	78	983
Fodder-shredder	W. Gutenkunst	578,234	Mar. 2	708	161	78	1395
Fodder-shredder	L. Holland-Letz	578,250	Mar. 2	732	166	78	1400
Folding chair or settee	W. E. Kidder	577,106	Feb. 16	1770	418	78	999
Folding-machine	A. G. Brewer	579,419	Mar. 23	2715	645	78	1834
Folding rack. Portable	E. Marks	577,399	Feb. 16	2258	530, 531	78	1090
Folding seat	J. Hearttagen	577,955	Mar. 2	216	51, 52	78	1308
Folding table	S. Bloomer	574,473	Jan. 5	160	38	78	31
Folding table	R. Kaiser	575,957	Jan. 26	2760	651	78	574
Food product	J. Simmons	577,629	Feb. 23	2679	———	78	1185
Foot. Artificial	P. A. Haberl	577,133	Feb. 16	1813	427	78	1007
Foot. Artificial	W. L. Richen	579,009	Mar. 16	2050	478	78	1694
Foothold	C. J. Bailey	574,373	Jan. 5	5	2	78	4
Foot-scraper or boot-cleaner	R. J. Trumbull	574,590	Jan. 5	364	82	78	69
Forge	W. Ross	576,794	Feb. 9	1218	290	78	883
Forging-machine	J. R. Blakeslee	579,814	Mar. 30	3445	826	78	1992
Forging-machine	C. D. Rice	575,700	Jan. 26	2471	582, 583, 584	78	520
Forging toe-calks. Machine for	J. T. Varney	574,504	Jan. 5	202	47, 48	78	40
Form. Breast-	G. M. McCleary	577,311	Feb. 16	2097	496	78	1061
Fountain: *See* Soda-water fountain.							
Fracture apparatus. Portable	C. S. Pace	577,778	Feb. 23	2917	690	78	1230
Frame: *See* Curtain-drying frame. Extension-frame. Picture-frame. Quilting-frame. Storm and screen frame.							
Frame joint. Tubular	T. B. Jeffery	575,353	Jan. 19	1718	409	78	361
Frame-joint. Tubular	T. B. Jeffery	578,403	Mar. 9	988	223, 224	78	1466
Frame-lock	C. Petersen	579,722	Mar. 30	3301	788	78	1964

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fruit-grader	W. Brown	577,358	Feb. 16	2165	512, 513	78	1074
Fruit-grader	S. McGarvin	578,067	Mar. 2	384	90	78	1334
Fruit-holder	W. C. S. Coy	574,476	Jan. 5	163	38	78	32
Fruit-jar	S. S. Black	577,225	Feb. 16	1959	464	78	1085
Fruit-jar and fastening therefor	J. Miracle	575,967	Jan. 26	2776	655	78	577
Fruit-picker	B. F. Thompson	576,690	Feb. 9	970	226	78	835
Fruit-pitter	P. M. Trask	578,790	Mar. 16	1663	385	78	1624
Fruit pitting and spreading machine	J. Harrison	575,886	Jan. 26	2653	627	78	554
Frying-pan cover	H. O. Hatch	575,349	Jan. 19	1712	407	78	360
Fumigator	C. F. Lauber	577,867	Mar. 2	52	15	78	1270
Funnel	A. F. Borland	578,540	Mar. 9	1231	278	78	1513
Funnel	R. Luckenbach	579,649	Mar. 30	3181	755	78	1941
Funnel for filtering liquids	H. Krocker	575,608	Jan. 19	2163	513	78	447
Furnace: *See* Bagasse-furnace. Boiler-furnace. Dental furnace. Destructor-furnace. Downdraft-furnace. Electric furnace. Fireplace-furnace. Garbage-furnace. Glass-furnace. Hot-air furnace. Incinerating-furnace. Metallurgic furnace. Metallurgical furnace. Ore-reducing furnace. Roasting-furnace. Smelting-furnace. Smoke-consuming furnace. Smokeless furnace. Tinner's furnace.							
Furnace	E. Benedict	576,650	Feb. 9	1003	235	78	841
Furnace	F. G. Girtanner	575,421	Jan. 19	1832	440	78	381
Furnace	F. Meyer and G. Harms	576,135	Feb. 2	113	29	78	658
Furnace	A. Orelup	577,113	Feb. 16	1785	421	78	1002
Furnace	J. B. Sweet	576,970	Feb. 9	1511	359	78	988
Furnace and heater	E. Fales	574,845	Jan. 5	801	193	78	151
Furnace blast apparatus	J. W. Nesmith	575,974	Jan. 26	2796	659	78	580
Furnace bosh-plate	E. M. Peters	579,406	Mar. 23	2699	642	78	1832
Furnace charging and drawing apparatus	P. T. Berg and A. C. Dinkey	577,712	Feb. 23	2801	662, 663	78	1209
Furnace-charging apparatus	N. McConnell and W. C. Burns	577,776	Feb. 23	2913	689	78	1230
Furnace-charging apparatus. Blast-	M. A. Neeland	577,112	Feb. 16	1783	421	78	1002
Furnace-door frame	B. G. Ross and J. T. Johnson	578,363	Mar. 9	922	210	78	1454
Furnace for burning bagasse, sawdust, &c.	W. P. Abell	578,531	Mar. 9	1217	275	78	1510
Furnace for burning coal-dust	G. Unger	577,995	Mar. 2	278	65	78	1314
Furnace for generation of heat or power	G. White	576,176	Feb. 2	192	48	78	673
Furnace for heating metal rods	D. H. Redmond	576,152	Feb. 2	140	35	78	668
Furnace for heating metal sheets	T. R. Ludford, S. R. and R. Davies.	576,734	Feb. 9	1126	266	78	865
Furnace for smokeless combustion	M. M. Armstrong	577,637	Feb. 23	2690	634	78	1187
Furnace-front	F. R. Tibbitts and C. J. Allen	576,919	Feb. 9	1429	339, 340	78	923
Furnace-fronts. Metallic arch for	W. M. Mathisen	576,872	Feb. 9	1341	321	78	907
Furnace-grate	A. Jay	576,368	Feb. 2	518	121	78	734
Furnace-grate	H. E. Longwell	577,190	Feb. 16	1901	449, 450	78	1024
Furnace-grate	H. F. Weinland	576,927	Feb. 9	1440	342, 343	78	925
Furnace-grate bar	C. J. Allen and F. R. Tibbitts	575,092	Jan. 12	1259	304	78	254
Furnace hoisting and charging apparatus. Blast-	W. Rotthoff and M. A. Neeland	579,011	Mar. 16	2051	478, 479	78	1694
Furnace or kiln	W. Egle	574,479	Jan. 5	169	39	78	33
Furnace or stove door	F. Meyer and G. Harms	576,597	Feb. 9	916	212	78	825
Furnaces. Apparatus for controlling admission of air to	C. C. Parker	575,849	Jan. 26	2581	609, 610	78	541
Furnaces. Hoisting and charging apparatus for blast-	J. Kennedy	578,405	Mar. 9	989	225, 226	78	1467
Furnaces. Hot-water heating attachment for	C. Smith	577,695	Feb. 23	2776	656	78	1204
Furniture	E. Redgate	576,694	Feb. 9	1070	251	78	854
Furniture	L. A. Williams	578,530	Mar. 9	1216	274	78	1510
Furniture. Adjustable school	W. F. Spieth	574,829	Jan. 5	774	185	78	145
Furniture. Adjustable support for school	J. H. Butler	577,594	Feb. 23	2937	620	78	1176
Furniture. Adjustable support for school	L. B. Cobb	577,720	Feb. 23	2819	667	78	1212
Furniture attachment	E. A. Garvey	575,806	Jan. 26	2501	589	78	526
Furniture-brace	J. A. Fretwell	574,794	Jan. 5	713	171	78	134
Furrow-opener. Disk	F. R. Packham	578,941	Mar. 16	1934	447	78	1671
Furrow-splitter	A. W. Legg	576,864	Feb. 9	1330	317	78	905
Fuse. Blasting-	M. Bielefeldt	579,786	Mar. 30	3405	———	78	1984
Fuse-holder	W. W. Dean	576,040	Jan. 26	2914	687	78	601
Fuse. Shell-	A. Nobel	575,163	Jan. 12	1382	333	78	278
Gage: *See* Bevel-gage. Saw-gage. Sewing-gage. Track-gage.							
Gage-bar-tightening device	N. Nelson	578,764	Mar. 16	1630	374	78	1616
Galvanic battery	H. J. Brewer	576,720	Feb. 9	1106	261	78	861
Game apparatus	A. J. Chamberlain	579,502	Mar. 30	3028	716	78	1913
Game apparatus	A. Hess	575,950	Jan. 26	2748	649	78	572
Game apparatus	J. G. Kiah	575,247	Jan. 12	1519	365	78	305
Game apparatus	I. Kitsee	574,909	Jan. 12	911	221	78	191
Game apparatus	J. B. Ladd	578,492	Mar. 9	1149	258, 259	78	1498
Game apparatus	W. H. Reiff	579,080	Mar. 16	2176	510	78	1720
Game-board	R. D. Beman	575,097	Jan. 12	1269	307	78	256
Game-board. Lawn, floor, or table	A. Vick	579,198	Mar. 23	2369	558	78	1772
Game-counter	R. G. Zierfuss	576,017	Jan. 26	2805	678	78	503
Game counter. Pool	F. B. Wood	578,906	Mar. 16	1874	431	78	1661
Garbage-box	D. Crimmans	576,952	Feb. 9	1475	351	78	981
Garbage-burner	W. G. Parr	575,981	Jan. 26	2805	661, 662	78	582
Garbage-can	G. W. Walker	578,957	Mar. 16	1972	459	78	1678
Garbage-furnace	E. de la Chapelle and J. Pearce	577,184	Feb. 16	1889	446, 447	78	1022

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Garbage-receiver. Sanitary	D. D. Toal	579,907	Mar. 30	3601	861	78	2021
Garbage-receptacle	H. Engel and S. Herrman	579,641	Mar. 30	3171	752	78	1939
Garment. Bicycle-	F. Hooper	575,647	Jan. 19	2243	530	78	462
Garment-hanger	S. H. Tolman	576,829	Feb. 9	1277	305	78	804
Garment-hook	C. C. Blossom	575,822	Jan. 26	2526	596	78	531
Garment-supporter	F. Kern	577,757	Feb. 23	2887	684	78	1225
Garment-supporter loop	E. S. Smith	574,459	Jan. 5	137	31	78	27
Gas apparatus	G. F. Ransom	576,499	Feb. 2	730	174	78	775
Gas apparatus. Carbureted-water-	W. R. Addicks	575,560	Jan. 19	2070	495	78	428
Gas. Apparatus for increasing candle-power of	R. S. Lawrence	577,702	Feb. 23	2893	685	78	1226
Gas. Apparatus for producing acetylene	M. C. A. Fourchotte	575,884	Jan. 26	2649	626	78	553
Gas. Apparatus for producing acetylene	M. C. A. Fourchotte	575,885	Jan. 26	2650	626	78	553
Gas-burner	J. F. Barker	575,318	Jan. 19	1647	393	78	347
Gas-burner	S. Bernheim	578,071	Mar. 2	391	91	78	1336
Gas-burner	E. and F. W. Heymann	576,811	Feb. 2	422	99	78	717
Gas-burner	W. H. Paine	576,819	Feb. 9	1260	300	78	801
Gas burner. Acetylene-	M. Levy	576,682	Feb. 9	1047	246	78	850
Gas-burner and means for admitting gas and air thereto.	J. E. Dane	579,318	Mar. 23	2560	604	78	1805
Gas-burner tip	I. Gloo	576,608	Feb. 9	1028	241	78	847
Gas-burners. By-pass valve for Welsbach or other incandescent	G. S. Barrows	578,711	Mar. 16	1528	353	78	1598
Gas-burners. Mantle-protector for incandescent	L. Teichmann	577,696	Feb. 23	2777	656	78	1204
Gas-burners. Manufacture of mantles for incandescent	L. Hartman	577,187	Feb. 16	1898	448	78	1024
Gas. Device for charging liquids with	N. Stow and W. E. Dobbins	574,500	Jan. 5	197	46	78	39
Gas. Device for regulating quality of	E. J. Frost and B. Middleditch	577,739	Feb. 23	2844	673	78	1216
Gas-engine	L. Bénier	579,378	Mar. 23	2655	627, 628	78	1824
Gas-engine	H. S. Bristol	575,326	Jan. 19	1667	398	78	351
Gas-engine	F. W. Coen	575,878	Jan. 26	2637	623	78	550
Gas-engine	P. T. Coffield	579,789	Mar. 30	3408	817	78	1985
Gas-engine	O. Colborne	579,860	Mar. 30	3525	843	78	2007
Gas-engine	W. L. Crouch	574,670	Jan. 5	520	120, 121	78	95
Gas-engine	W. L. Crouch	575,502	Jan. 19	1971	472	78	409
Gas-engine	C. L. Grohmann	574,535	Jan. 5	248	58, 59	78	49
Gas-engine	G. Joranson	574,610	Jan. 5	400	92	78	75
Gas-engine	J. Ledent	575,720	Jan. 26	2373	558, 559	78	501
Gas-engine	L. H. Nash	576,604	Feb. 9	926	214	78	827
Gas-engine	L. H. Nash	578,112	Mar. 2	460	106, 107	78	1349
Gas-engine	L. H. Wattles	577,567	Feb. 23	2570	606	78	1166
Gas-engine attachment	G. W. Lamos	574,614	Jan. 5	408	94	78	77
Gas-engine. Rotary	J. D. Blagden	575,517	Jan. 19	1995	477	78	414
Gas-fixture	E. A. C. Kaysel	574,907	Jan. 12	909	220	78	191
Gas-generating apparatus. Acetylene-	L. S. Buffington	575,281	Jan. 12	1575	375	78	316
Gas-generating apparatus. Acetylene-	M. W. Kidder	576,585	Feb. 9	896	207	78	822
Gas-generating apparatus. Acetylene-	J. A. Vincent	579,689	Mar. 30	3243	770	78	1954
Gas-generating machine	F. L. Mitchell	578,347	Mar. 9	900	208	78	1450
Gas generator. Acetylene-	G. S. Archer and C. F. Burrington	577,706	Feb. 23	2790	659	78	1207
Gas generator. Acetylene-	J. H. Couper	578,972	Mar. 16	1998	464	78	1683
Gas generator. Acetylene-	H. F. Fuller	575,474	Jan. 19	1917	461	78	397
Gas generator. Acetylene-	H. F. Fuller	578,055	Mar. 2	365	86	78	1331
Gas generator. Acetylene-	C. Matthews, Jr	577,051	Feb. 16	1064	395	78	978
Gas generator. Acetylene-	D. J. Reynolds	576,893	Feb. 9	1388	331, 332	78	916
Gas generator. Acetylene-	H. C. Sergeant	576,826	Feb. 9	1273	304	78	893
Gas generator. Acetylene-	E. P. Voisard	576,386	Feb. 2	556	130	78	740
Gas generator. Acetylene-	C. H. Wilcox	578,847	Mar. 16	1768	407	78	1643
Gas generator. Oil-	W. A. Smith	576,282	Feb. 2	368	86	78	706
Gas-governor	C. A. Switzer	577,992	Mar. 2	274	64	78	1313
Gas-heater. Fireplace	M. I. Cohen	576,774	Feb. 9	1185	282, 283	78	877
Gas-heater. Fireplace	M. I. Cohen	579,740	Mar. 30	3322	793, 794	78	1968
Gas holder. Acetylene-	H. C. Sergeant	576,827	Feb. 9	1275	304	78	893
Gas-incandescent	R. Moscheles	575,261	Jan. 12	1546	------	78	310
Gas-incandescent	R. Moscheles	575,262	Jan. 12	1547	------	78	310
Gas-incandescent	R. Moscheles	575,263	Jan. 12	1548	------	78	310
Gas-incandescent mantles. Making	R. Alexander, G. F. Payne, and C. H. Mann.	575,194	Jan. 12	1436	345	78	288
Gas innocuous. Apparatus for rendering sewer-	H. Perry	577,206	Feb. 16	1926	456	78	1029
Gas-lamp lighting apparatus	W. Ritter	576,227	Feb. 2	262	65	78	696
Gas-light burner. Incandescent-	R. Violet	575,188	Jan. 12	1414	340	78	284
Gas-lighter. Electric	J. T. Armstrong and A. Orling	577,279	Feb. 16	2045	484	78	1051
Gas-lighter. Electric	F. N. Pike	578,420	Mar. 9	1011	232	78	1472
Gas-lighting	J. B. de Léry	578,934	Mar. 16	1921	444	78	1669
Gas-lighting apparatus	T. Rowan	577,884	Mar. 2	85	22	78	1277
Gas machine. Gasolene-	W. McKnight	575,001	Jan. 26	2679	632	78	559
Gas. Manufacture of carbureted-air	J. Van Norman	579,415	Mar. 23	2710	------	78	1854
Gas-manufacturing apparatus	W. R. Addicks	576,529	Feb. 9	803	188	78	805
Gas-manufacturing apparatus	W. H. Harris	579,110	Mar. 16	2221	523, 524	78	1728
Gas-manufacturing apparatus	J. L. Janeway	575,955	Jan. 26	2755	650, 651	78	573
Gas-manufacturing apparatus	J. L. Stewart	576,170	Feb. 2	167	41, 42	78	668
Gas. Means or apparatus for burning illuminating-	T. Birnbaum	577,677	Feb. 23	2752	650	78	1190
Gas-meter	E. B. De La Matyr	578,863	Mar. 16	1790	413	78	1647
Gas-meter	E. B. De La Matyr	578,864	Mar. 16	1794	413	78	1647
Gas-meter	E. B. De La Matyr	578,865	Mar. 16	1800	414	78	1648
Gas-meter coin-controlled mechanism	G. R. French	576,961	Feb. 9	1490	354	78	984
Gas-meter. Prepayment	J. Hawkyard	579,871	Mar. 30	3546	847, 848	78	2012
Gas. Method of and apparatus for generating	J. A. Deuther	576,955	Feb. 9	1481	352	78	982

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Gas. Method of and apparatus for generating acetylene	H. F. Fuller	575,677	Jan. 19	2295	541	78	472
Gas. Method of and apparatus for producing water-	W. R. Addicks	575,625	Jan. 19	2195	520, 521	78	452
Gas-mixer	L. J. Rice	579,408	Mar. 23	2701	642	78	1882
Gas-motor	E. W. Blum	579,554	Mar. 23	3005	711, 712	78	1888
Gas-motor	W. Donaldson	577,160	Feb. 16	1853	438	78	1015
Gas or liquid vending machine. Coin-controlled	W. Webber	577,215	Feb. 16	1946	461	78	1033
Gas or oil engine	E. Fessard	574,723	Jan. 5	609	145	78	113
Gas or oil engine	W. F. Trotter	575,661	Jan. 19	2266	535	78	467
Gas-pressure regulator	C. E. Belt	578,621	Mar. 9	1364	311	78	1539
Gas. Process of and apparatus for manufacturing	F. G. Bates	576,801	Feb. 9	1228	293, 294	78	885
Gas-producer	R. L. Morgan	575,305	Jan. 12	1622	387	78	324
Gas-producers. Production of steam for use in	L. Mond	577,606	Feb. 23	2646	624, 625	78	1179
Gas. Producing and consuming hydrocarbon	T. L. Willson	577,803	Feb. 23	2951	------	78	1237
Gas-producing apparatus. Acetylene-	E. N. Dickerson	579,702	Mar. 30	3261	776	78	1957
Gas-regulator for Welsbach burners	O. R. Cline	578,212	Mar. 2	676	154	78	1389
Gas-retort lid	T. B. Tinney	577,697	Feb. 23	2778	657	78	1205
Gas tip or nozzle	J. H. Diamond	576,259	Feb. 2	328	78	78	699
Gas-vending machine. Coin-controlled	W. Webber	577,216	Feb. 16	1948	461	78	1033
Gas-washing apparatus	P. F. Holmes	574,683	Jan. 5	540	125	78	99
Gases. Apparatus for treating blast-furnace	B. H. Thwaite	576,005	Jan. 26	2845	672, 673	78	589
Gasolene-burner	I. Culver	575,503	Jan. 19	1975	472	78	410
Gate: *See* Adjustable gate. Cattle-gate. Farm-gate. Railway-gate. Road-gate. Roadway-gate. Self opening and closing gate. Sliding gate. Swinging gate. Tilting gate. Water-gate.							
Gate	J. A. Anthony	577,940	Mar. 2	192	46	78	1208
Gate	R. K. Ball	578,709	Mar. 16	1525	352	78	1598
Gate	G. Barton	577,223	Feb. 16	1956	463	78	1035
Gate	A. W. Chilcott	575,942	Jan. 26	2739	647	78	570
Gate	R. Garrard	575,229	Jan. 12	1495	358	78	300
Gate	A. A. Hansman	574,991	Jan. 12	1087	264	78	222
Gate	C. Ilgen, Jr	576,581	Feb. 9	891	206	78	821
Gate	A. J. Kinnaird	578,245	Mar. 2	724	164	78	1399
Gate	G. G. Lewis	576,460	Feb. 2	663	158	78	762
Gate	F. W. Mase	577,484	Feb. 23	2403	565	78	1135
Gate	A. W. McCurdy	579,891	Mar. 30	3576	856	78	2017
Gate	J. W. Reames	579,606	Mar. 30	3105	734, 735	78	1927
Gate	T. B. Ricketts	576,156	Feb. 2	150	37	78	665
Gate	T. Sawyer	578,947	Mar. 16	1955	455	78	1675
Gate	J. F. Thomas	576,290	Feb. 2	386	90	78	710
Gate	J. D. Thompson	578,277	Mar. 2	778	176	78	1408
Gate	W. L. Throckmorton	576,004	Jan. 26	2843	672	78	589
Gate	W. R. White	574,649	Jan. 5	472	108	78	88
Gate	W. R. White	577,092	Feb. 16	1731	410	78	992
Gate or door	E. R. Chase	577,126	Feb. 16	1804	425, 659, 660, 661	78	1006
Gear-cutting machine	J. Barker	577,707	Feb. 23	2791	659, 660, 661	78	1207
Gear-cutting machine with safety-stop	U. H. E., and F. L. Eberhardt	575,303	Jan. 19	1785	429	78	373
Gear. Differential	R. Eickemeyer	575,890	Jan. 26	2642	624	78	551
Gear for screw-cutting or other machines. Reversing-	C. Wagner	577,334	Feb. 16	2137	507	78	1068
Gear-shaping machine	E. R. Fellows	579,708	Mar. 30	3274	778, 779, 780	78	1959
Gear-shaping machines. Cutter and cutter-head for	E. R. Fellows	579,570	Mar. 30	3043	719	78	1915
Gear-wheel and driving-chain	A. Kotin	579,237	Mar. 23	2429	574, 575	78	1782
Gear-wheel and mechanism for making same. Wrought-metal	U. and F. L. Eberhardt	578,731	Mar. 16	1570	363	78	16 6
Generator: *See* Electrical generator. Static generator. Gas-generator. Steam-generator. Power and heat generator.							
Germ incinerator. Contagious-	H. S. Whitton	575,940	Jan. 26	2736	646	78	570
Glass: *See* Object-glass.							
Glass-annealing kiln	E. Walsh, Jr	577,542	Feb. 23	2529	596	78	1158
Glass-beveling machine. Plate-	R. A. Schlegel	575,575	Jan. 19	2101	501	78	433
Glass-blowing machine	M. J. Owens and H. J. Colburn	576,074	Jan. 26	2665	699, 700	78	609
Glass-furnace	S. Bissell	578,441	Mar. 9	1052	240	78	1479
Glass grinding and polishing machine	P. Semmer	578,779	Mar. 16	1641	380	78	1619
Glass. Machine for embedding wire in	F. Shuman	574,458	Jan. 5	136	31	78	27
Glass. Means for decoloring	M. Hirsch	576,312	Feb. 2	424	------	78	717
Glass or tile. Framing window-	W. H. Winslow	574,770	Jan. 5	677	161	78	127
Glass-polishing machine	A. D. Busam	579,127	Mar. 23	2252	530	78	1749
Glass tank and blowing furnace	E. Gobbe	578,058	Mar. 2	368	87	78	1332
Glass. Tank for manufacturing window-	P. Henri	578,563	Mar. 9	1274	289	78	1522
Glass tiles into a body. Electrolytically uniting	W. H. Winslow	574,843	Jan. 5	797	192	78	150
Glassware. Tool for shaping	J. E. Miller	575,125	Jan. 12	1319	318	78	266
Globe or shade holder	E. P. Gleason	575,003	Jan. 12	1215	295	78	246
Glove	W. H. Tyler	576,922	Feb. 9	1434	341	78	924
Glove	E. B. Whitney	577,938	Mar. 2	190	46	78	1208
Glove-fastener	J. P. and S. L. Luther	575,362	Jan. 19	1728	411	78	363

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Glove-fourchettes. Punch for cutting out	E. J. Lucas	577,766	Feb. 23	2809	686	78	1227
Glove-lacings. String-ball for	W. F. Foster	578,228	Mar. 2	701	159	78	1394
Glove-stretcher	M. G. Wustum	576,181	Feb. 2	202	50	78	674
Glucose or sugar. Manufacture of	L. P. Bauer	576,906	Feb. 16	1579	376	78	903
Gluing ledges or moldings to cupboards or wardrobes. Arrangement for	J. Schuler and M. Wuzel	575,909	Jan. 26	2008	636	78	561
Gold and silver from ores. Extracting	J. F. Webb	578,089	Mar. 2	423	99	78	1342
Gold and silver from sea-water. Means for extracting	W. F. Heathman	576,118	Feb. 2	66	17	78	650
Gold-extracting apparatus	W. H. Hyatt	576,580	Feb. 9	800	206	78	821
Gold from ores. Extracting	H. R. Cassel	578,720	Mar. 16	1552	359	78	1602
Gold from ores. Extracting	H. R. Cassel	578,721	Mar. 16	1554	360	78	1603
Gold from ores. Process of and apparatus for extracting	B. C. Hinman	578,746	Mar. 16	1590	368	78	1610
Gold ores. Apparatus for simultaneously concentrating, classifying, and amalgamating	J. Garnier	575,755	Jan. 26	2421	571	78	510
Gold-saving device	J. and D. V. Snowgoose	574,689	Jan. 5	453	104	78	85
Gold-separator	A. M. Rouse	575,377	Jan. 19	1760	422	78	369
Gold-separator. Hydraulic	J. H. Barr and J. F. Johnson	578,807	Mar. 16	1693	391	78	1630
Gold-washer	C. J. Schmitt and J. A. Hansen	574,951	Jan. 12	1006	242, 243	78	208
Governor	A. O. Haney	578,298	Mar. 2	714	162	78	1397
Governor for marine engines. Electrical	G. A. Tower	579,780	Mar. 30	3395	813	78	1982
Governor. Marine-engine	A. Wilson	579,204	Mar. 23	2378	561	78	1773
Governor. Steam-	W. R. Carmichael	574,710	Jan. 5	583	135	78	108
Governor. Steam-engine	A. Chandler	578,315	Mar. 9	855	194	78	1442
Grain cleaning and scalping	B. G. Royal	577,588	Feb. 23	2517	593, 594	78	1156
Grain-dislodging attachment	M. P. Kneifl	578,754	Mar. 16	1606	371	78	1613
Grain. Method of and apparatus for hulling	R. Danvin and R. Gibory	579,862	Mar. 30	3532	843, 844	78	2009
Grain-reducing machinery	J. B. Allfree	578,534	Mar. 9	1222	276, 277	78	1511
Grain. Rotating cylinder for germinating and drying	J. A. Tilden	578,845	Mar. 16	1766	406	78	1643
Grain separator and grader	S. Barnes	576,990	Feb. 9	1563	371, 372	78	949
Grain-shocker	A. Calhoun	575,328	Jan. 19	1671	399	78	352
Grain washing and stoning apparatus	J. Senior	574,683	Jan. 5	443	101	78	83
Grain. Washing, scouring, and drying	M. T. Gibbs	576,401	Feb. 2	576	135	78	744
Grape-shears	V. W. Kelly	579,066	Mar. 16	2190	514	78	1723
Graphophone	T. H. Macdonald	579,595	Mar. 30	3066	730	78	1923
Grapple	W. Coulter	578,215	Mar. 2	681	155	78	1390
Grate	C. H. Gadey	576,363	Feb. 2	510	120	78	732
Grate	R. A. May	575,487	Jan. 19	1941	465, 466	78	402
Grate	J. Steiner	575,436	Jan. 19	1855	446, 447	78	385
Grate-bar. Link	C. J. Allen	575,091	Jan. 12	1258	308	78	254
Grate for parlors, &c. Gas-	P. I. Miller	576,216	Feb. 2	247	61	78	684
Gravity-engine. Rotating	H. L. Lightner	578,062	Mar. 2	376	88	78	1338
Grease-separator	W. J. Baldwin	578,708	Mar. 16	1524	351	78	1597
Griddle-greaser	G. C. Martin	576,211	Feb. 2	240	60	78	682
Grinder. Cutter and reamer	H. G. Barr	575,319	Jan. 19	1648	393, 394	78	348
Grinding and scouring apparatus	S. D. Coates	578,969	Mar. 16	1990	463	78	1682
Grinding apparatus	C. F. Roper and C. E. Nutting	576,313	Jan. 12	1634	390	78	327
Grinding cutter-bar knives. Machine for	A. S. Robinson	575,737	Jan. 26	2397	564, 565	78	506
Grinding-lathe	F. P. and C. M. Kuhn	575,250	Jan. 12	1325	366, 367	78	306
Grinding-machine	J. M. Crumm, Jr.	578,596	Mar. 9	1324	299	78	1531
Grinding-machine	D. A. Danforth	575,706	Jan. 26	2353	554	78	497
Grinding-machine	H. P. Lutton	577,440	Feb. 23	2335	547, 548	78	1122
Grinding machine. Automatic cutter-	U. and F. L. Eberhardt	575,057	Jan. 12	1201	291, 292	78	243
Grinding machine. Cutlery-	B. Block	575,562	Jan. 19	2077	496, 497	78	429
Grinding-mill	J. Pfeiffer	577,319	Feb. 16	2107	498, 499	78	1063
Grinding spherical or other curved surfaces. Machine for	R. Conrader. (Reissue)	11,593	Mar. 23	3014	712	78	1890
Grinding spherical or other curved surfaces. Machine for	R. Conrader. (Reissue)	11,594	Mar. 23	3016	712, 713	78	1891
Grinding-wheel	G. E. Vance	579,414	Mar. 23	2710	643	78	1884
Guitar, &c.	C. Prince	577,030	Mar. 2	180	43	78	1296
Guitar string-adjuster	R. Schuster	577,627	Feb. 23	2673	631	78	1185
Gun. Animal-trap	J. R. Booth	575,204	Jan. 12	1455	350	78	292
Gun. Automatic gas-operated	H. S. Maxim	577,485	Feb. 23	2405	565, 566, 567	78	1136
Gun-barrel with blued or browned bore	J. Singer	578,030	Mar. 2	330	78	78	1324
Gun-carriage	E. W. Very	575,773	Jan. 26	2447	577	78	516
Gun. Magazine air-	T. Hornhauer	578,820	Mar. 16	1731	398	78	1637
Gunpowder. Manufacture of	G. G. André	575,765	Jan. 26	2495	------	78	513
Gunpowder. Manufacture of	G. G. André	576,582	Feb. 9	810	------	78	806
Gun. Recoil-operated	H. S. Maxim	579,401	Mar. 23	2690	638, 639, 640	78	1830
Guns. Combined bolt-stop and cartridge-ejector for bolt-	W. P. Laraway	579,096	Mar. 16	2196	516	78	1724
Guns. Safety locking device for lever-	T. C. Johnson	579,436	Mar. 23	2749	652	78	1840
Gutta-percha. Extracting and purifying	H. E. Sérullas and F. E. Hourant	575,739	Jan. 26	2400	------	78	507
Gyratory crusher	K. H. Ternstedt	575,014	Jan. 12	1125	273	78	225
Gyratory crusher	K. H. Ternstedt and J. H. Templin	575,015	Jan. 12	1126	273	78	229

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hack or scraper	W. P. Wylly	579,287	Mar. 23	2508	592	78	1796
Hair-pin	E. W. Creecy	577,724	Feb. 23	2824	669	78	1213
Hair structure	J. Y. Borden	576,498	Feb. 2	616	146	78	752
Hair switch	J. Y. Borden	578,623	Mar. 9	1370	312	78	1539
Hair-tonic	M. J. Fleming	578,632	Mar. 9	1381	------	78	1542
Half-rounds. Apparatus for making	J. W. Hussey	578,877	Mar. 16	1825	419, 420	78	1652
Halter. Rope	T. Doble. (Reissue)	11,586	Jan. 26	2086	704	78	613
Hames	P. McAulay	578,653	Mar. 9	1417	322, 323	78	1548
Hammer. Drop-	C. T. Fletcher	575,472	Jan. 19	1913	461	78	396
Hammer. Drop-	F. Lombard	576,273	Feb. 2	351	83	78	703
Hammer. Drop-	F. Lombard	577,581	Feb. 23	2500	589, 590	78	1153
Hammer. Drop-	E. H. Whitlock	579,356	Mar. 23	2619	619	78	1817
Hammer. Pneumatic	J. Boyer	575,589	Jan. 19	2124	506	78	438
Hammer. Pneumatic	J. Manning	574,924	Jan. 12	982	227	78	195
Hammer. Power-	F. Raymond	575,784	Jan. 26	2463	581	78	519
Hammer. Power-	J. G. Roseman	576,616	Feb. 9	943	218, 219	78	830
Hammock seat attachment	I. E. Palmer	577,208	Feb. 16	1923	455	78	1029
Hammock-support	A. Hoffman	575,838	Jan. 26	2563	604	78	537
Hand-drill	J. Pickel and W. Schmale	575,371	Jan. 19	1742	416	78	367
Hand-grip	W. M. Morse	578,021	Mar. 2	316	75	78	1322
Hand-grip	A. R. Wiens and G. J. Brands	578,959	Mar. 16	1974	460	78	1678
Hand-shield	S. F. Barke	578,852	Mar. 16	1775	409	78	1645
Handle: *See* Bag-handle. Bicycle-handle. Broom-handle. Flower-pot or dish handle. Opera-glass handle. Pneumatic-tool handle. Shovel-handle. Tool-handle.							
Handle-bar. Adjustable	F. K. Dunn	575,879	Jan. 26	2640	623	78	551
Handle-bar. Adjustable	J. R. Gould	576,573	Feb. 9	880	203	78	819
Handle-bar. Adjustable	O. A. Wheeler	575,746	Jan. 26	2409	567	78	508
Hanger: *See* Garment-hanger. Shade-hanger. Shade-roller hanger. Trousers-hanger.							
Hanging. Ornamental	C. W. Jackson	578,878	Mar. 16	1829	420	78	1653
Harmonica	H. Paris	574,625	Jan. 5	430	98	78	81
Harmonica	C. Weiss, Jr	577,219	Feb. 16	1953	462	78	1084
Harness and saddle	E. Vogtsberger	578,173	Mar. 2	616	140	78	1379
Harness attachment	C. E. Stowell	574,580	Jan. 5	358	81	78	68
Harness oil-dressing	C. E. House	578,060	Mar. 2	372	------	78	1332
Harness-tool	D. Pierce	578,419	Mar. 9	1010	232	78	1471
Harp	R. Dolge	575,638	Jan. 19	2223	526	78	458
Harp-cithern	F. Menzenhauer	574,746	Jan. 5	641	152	78	119
Harrow	M. L. Akers	577,476	Feb. 23	2393	563	78	1133
Harrow	A. W. and F. D. England	578,224	Mar. 2	696	158	78	1393
Harrow	L. H. Giffin	575,642	Jan. 19	2231	528	78	459
Harrow	S. Johnson	577,038	Feb. 16	1641	390	78	973
Harrow	J. L. Keel	577,431	Feb. 23	2321	545	78	1119
Harrow	W. Stralt	578,371	Mar. 9	982	212	78	1456
Harrow	W. Stralt	579,191	Mar. 23	2361	556	78	1770
Harrow	M. J. Todd	575,579	Jan. 19	2107	503	78	435
Harrow	E. E. Whipple	579,622	Mar. 30	3131	743, 744	78	1931
Harrow. Disk	A. Lindgren	576,407	Feb. 2	584	137	78	745
Harrow. Disk	J. M. W. Long	579,487	Mar. 23	2885	678	78	1865
Harrow or cultivator. Disk	A. and D. Bramer	578,302	Mar. 2	661	151	78	1386
Harrow. Rotary	L. Spangler	576,061	Jan. 26	2949	695	78	606
Harrow. Side	U. H. Brown	575,632	Jan. 19	2209	523	78	455
Harrow-spring-tooth fastening	G. B. Davison	576,362	Feb. 2	509	119	78	732
Harvester and husker. Corn	W. H. Smith	575,860	Jan. 26	2598	613, 614	78	544
Harvester and shocker. Corn	H. Lanius	577,041	Feb. 16	1645	391	78	974
Harvester and thresher. Combined	A. M. Smith	575,184	Jan. 12	1339	322, 323	78	270
Harvester-binder	L. Melvin-Jones, W. F. Johnston, and W. J. Clokey.	579,585	Mar. 30	3068	725	78	1920
Harvester. Cabbage-	D. M. Reed	576,326	Feb. 2	452	106	78	722
Harvester. Corn-	J. I. Ashbaugh	576,647	Feb. 9	996	233, 234	78	841
Harvester. Corn-	J. H. Becker	574,471	Jan. 5	155	36, 37	78	31
Harvester. Corn-	H. Boese	575,871	Jan. 26	2622	619, 620	78	548
Harvester. Corn-	T. J. Brockway	577,414	Feb. 23	2289	537, 538	78	1113
Harvester. Corn-	E. T. Death	575,504	Jan. 19	1976	473	78	410
Harvester. Corn-	M. F. Myers and W. C. Choate	575,524	Jan. 19	2006	479, 480	78	416
Harvester. Corn-	P. F. Ricker and A. Plack	578,657	Mar. 9	1422	324	78	1549
Harvester cutter-bar	W. E. Ball and A. C. Bailey	576,534	Feb. 9	813	189	78	806
Harvester. Grain-	H. J. Case	579,638	Mar. 30	3166	751, 752	78	1938
Harvester grain-shield	R. C. Livesay and H. F. Crandall	578,700	Mar. 9	1507	348	78	1566
Harvester head-board	J. Macphail	574,812	Jan. 5	743	178	78	140
Harvester. Motor-driven	C. A. Kullberg	576,588	Feb. 9	900	208, 209	78	823
Harvester. Prune-	A. B. Enns	578,290	Mar. 2	798	180	78	1412
Harvester-swather	L. Fritts	579,322	Mar. 23	2567	605, 606	78	1897
Harvesting-machinery motor	G. H. Ellis and J. F. Steward	577,105	Feb. 16	1768	417	78	999
Hasp-fastener	C. C. Richmond	575,493	Jan. 19	1952	468	78	404
Hat	M. C. Padgett	579,608	Mar. 30	3095	732	78	1925

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hat	G. Wildman	574,697	Jan. 5	561	130, 131	78	104
Hat and edge binding therefor	T. W. Bracher	576,973	Feb. 9	1526	361	78	941
Hat blocking and pressing machine	D. E. Foley	576,567	Feb. 9	864	201	78	816
Hat-brim-curling machine	C. Eickemeyer	579,744	Mar. 30	3380	795, 796	78	1970
Hat-brim-heating machine	C. Eickemeyer	577,650	Feb. 23	2714	641	78	1192
Hat-brims. Mold for curling	T. C. Search	579,368	Mar. 23	2638	623	78	1821
Hat-clip	E. S. Shower	576,701	Feb. 9	1078	253	78	855
Hat-forming machines. Fur-feeding attachment for	F. F. Poole	576,984	Feb. 9	1350	368, 369	78	946
Hat-packing ring	F. P. Ferry	574,804	Jan. 12	889	215	78	187
Hat-pin	J. D. Bliss	576,715	Feb. 9	1008	259	78	859
Hat-pin protector	J. J. Bennett	579,558	Mar. 30	3022	714	78	1912
Hat-pin retainer or guide	E. Q. A. McNutt	577,491	Feb. 23	2420	569	78	1138
Hat-stretching machine	C. Eickemeyer	576,099	Feb. 2	31	9, 10	78	644
Hat-stretching machine	R. Eickemeyer	576,100	Feb. 2	38	10, 11	78	645
Hat sweat-band	U. G. Iles	579,394	Mar. 23	2682	636	78	1829
Hats. Manufacture of felt	R. Stalker, G. Baty, and J. Johnston.	578,508	Mar. 9	1171	264, 265	78	1502
Hatchet and wire-tightener. Combined	E. A. Keck	574,611	Jan. 5	408	92	78	76
Hay-cutter feeder	G. W. Bischof	576,426	Feb. 2	612	145, 146	78	751
Hay-loader	C. C. Alkman	578,533	Mar. 9	1219	276	78	1511
Hay-rack	J. R. Carpentér	574,600	Jan. 5	382	86, 87	78	72
Hay rake and loader	L. Avery	575,021	Jan. 12	1134	275	78	280
Hay rake and loader combined	W. S. Loomis and S. O. Pike	577,166	Feb. 16	1866	441	78	1018
Hay-sling	H. L. Fell	579,642	Mar. 30	3172	753	78	1939
Hay-sling	O. E. Jensen	574,997	Jan. 12	1097	266	78	224
Hay-tedder	E. D. and O. B. Reynolds	578,500	Mar. 9	1163	262	78	1500
Headlight	T. C. Milien	576,875	Feb. 9	1347	322	78	908
Headlight. Locomotive	E. A. Edwards	579,568	Mar. 30	3039	718	78	1914
Heat for incubators, &c. Composition for and method of producing	E. Turck	579,727	Mar. 30	3306	789	78	1965
Heat-regulator	W. J. Robinson	578,026	Mar. 2	324	77	78	1323
Heater: *See* Air-heater. Milk-heater. Electric heater. Portable heater. Feed-water heater. Sad-iron heater. Gas-heater. Water-heater. Hot-water heater. Water and air heater.							
Heater	H. M. Hughs	574,684	Jan. 5	541	126	78	99
Heater	T. Wheatley	574,967	Jan. 12	1043	252, 253	78	215
Heater and illuminator	E. Dummer	576,434	Feb. 2	627	149	78	754
Heater and ventilator	J. W. Johnson and W. W. Ensign	578,963	Mar. 16	2025	472	78	1689
Heater attachment	I. Brooke	578,808	Mar. 16	1997	392	78	1630
Heater for water and air. Gas-fired domestic	H. Pettibone and B. Loomis, Jr	574,447	Jan. 5	120	27, 28	78	24
Heating and cooling coil	J. E. Koester	576,859	Feb. 9	1323	316	78	904
Heating and drying apparatus	J. C. Cousins	577,359	Feb. 16	2178	515	78	1076
Heating and ventilating system	W. D. Dickson	579,703	Mar. 30	3263	776	78	1957
Heating apparatus. Electric	A. Robertson	576,766	Feb. 9	1176	280	78	875
Heating system	H. K. Ernsberger	578,482	Mar. 9	1113	254	78	1491
Heating utensil	J. H. Walker	577,896	Mar. 2	105	27	78	1281
Heating water by waste sources of heat. System and apparatus for	H. M. Robinson	578,467	Mar. 9	1092	249	78	1487
Hedge-laying machine	J. V. Lattner	578,408	Mar. 9	994	227, 228	78	1468
Heel-cutting die	J. Heckel	574,902	Jan. 12	902	219	78	189
Heel-lift-cutting apparatus	W. P. Bosworth	576,023	Jan. 26	2874	580	78	594
Heel-making machine	E. H. Taylor	575,440	Jan. 19	1859	448, 449	78	386
Heel-plate	H. P. Andresen	575,662	Jan. 19	2268	535	78	467
Heel. Shoe	H. Meves	576,520	Feb. 2	777	182	78	783
Heel-trimming machine	B. F. Mayo	574,618	Jan. 5	415	95, 96	78	78
Hide and leather working machine	G. W. Baker	578,309	Mar. 9	840	190, 191	78	1439
High or low water alarm	J. N. Brownlee	579,513	Mar. 23	2925	688	78	1873
Hinge	J. F. Glilland	577,652	Feb. 23	2716	641	78	1193
Hinge	F. J. McMenamin	576,737	Feb. 9	1130	267	78	866
Hinge	A. Tisch	574,463	Jan. 5	143	33	78	28
Hinge. Awning-blind	A. Schroeder	579,609	Mar. 30	3108	735	78	1927
Hinge. Box	L. L. Pletcher	579,178	Mar. 23	2340	549	78	1766
Hinge. Carriage-door	E. L. Hoffmann	577,983	Mar. 2	261	62	78	1310
Hinge for cooking utensils, &c	E. W. Pratt	576,887	Feb. 9	1381	330	78	914
Hinge. Gate	M. Depew	577,012	Feb. 16	1602	381	78	967
Hinge. Seat	A. D. Linn	576,204	Feb. 2	282	57	78	681
Hinge. Spring	G. S. and H. D. Bronson	577,506	Feb. 23	2626	619	78	1176
Hinge. Spring	G. Koennemann	576,131	Feb. 2	106	27	78	657
Hinge. Transom	A. Slack	574,630	Jan. 5	448	102	78	84
Hinge. Window-shutter	A. H. Weeks	574,508	Jan. 5	211	50	78	41
Hitching device	J. E. Dalbey	579,533	Mar. 23	2953	697	78	1879
Hitching device	S. F. Ettinger	579,297	Mar. 23	2521	595	78	1708
Hitching device. Horse	T. Agnew	577,675	Feb. 23	2750	649	78	1199
Hoe	G. W. Thomas and S. Branch	578,664	Mar. 9	1432	327	78	1551
Hoist. Air	C. Weatherson	577,901	Mar. 2	119	29, 30	78	1283
Hoists. Frictional controlling device for screw	H. R. Towne	575,016	Jan. 12	1129	274	78	230
Hoisting and conveying apparatus	P. Rasch	575,373	Jan. 19	1750	420	78	367
Hoisting and conveying bundles. Apparatus for	G. D. Foster	578,397	Mar. 9	974	221	78	1464
Hoisting apparatus	W. F. Murray	579,719	Mar. 30	3296	757	78	1964
Hoisting apparatus	H. A. Pedrick	577,779	Feb. 23	2918	690	78	1230
Hoisting apparatus	J. G. Speidel	577,330	Feb. 16	2128	503, 504	78	1066
Hoisting device	R. L. Ettenger and G. Rupley	576,779	Feb. 9	1193	284, 285	78	879

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hoisting machinery	C. W. Hunt	576,316	Feb. 2	431	100	78	718
Holdback. Vehicle-thill	L. M. Mays	578,018	Mar. 2	311	74	78	1321
Hollow bodies. Safety-guard for	J. McIntyre	575,526	Jan. 19	2017	481	78	417
Hoof-pad	C. H. Dix	576,559	Feb. 9	851	197	78	814
Hoof-pad	N. G. Mooney	576,320	Feb. 2	442	103	78	720
Hook: *See* Check-hook. Ladder-hook. Checkrein-hook. Locking-hook. Electroplating-hook. Painter's pot-hook. Safety-hook. Fish-hook. Trace-hook. Garment-hook. Whiffletree-hook. Lacing-hook.							
Hook and eye	R. T. Palmer, Jr., and F. W. Mercer	577,316	Feb. 16	2103	497	78	1062
Hook and eye	W. S. Seymour	574,634	Jan. 5	445	101	78	84
Hook attachment	K. Leonhardt	576,865	Feb. 9	1331	318	78	905
Hooks, &c. Device for placing or removing picture or similar	M. W. Glover	579,675	Mar. 30	3219	764	78	1949
Hopple	M. Robinson	579,723	Mar. 30	3302	788	78	1965
Horse-awning	W. R. Franklin	579,585	Mar. 23	2955	698	78	1879
Horse-blankets, &c. Fastening device for	G. V. Cornell	576,553	Feb. 9	841	195	78	812
Horse check. Runaway	A. Gruenberg	575,664	Jan. 19	2270	536	78	467
Horse-detacher	H. H. Bernards	578,598	Mar. 9	1320	299	78	1530
Horse-detacher	J. H. Dunnington	578,979	Mar. 16	2005	466	78	1685
Horse-detacher	J. H. Nichols	577,315	Feb. 16	2102	497	78	1062
Horse-detacher	J. F. Turner	577,935	Mar. 2	186	45	78	1297
Horse foot-pad	F. Thomas	576,522	Feb. 2	779	182	78	783
Horse releasing device. Draft	J. Marquardt	576,594	Feb. 9	912	211	78	824
Horses. Electric appliance for	L. A. Gray	576,053	Jan. 26	2035	092	78	604
Horseshoe	E. Krantz	577,866	Mar. 2	50	15	78	1270
Horseshoe	J. MacDougall	574,553	Jan. 5	286	67	78	56
Horseshoe	T. H. Parker	575,980	Jan. 26	2803	661	78	582
Horseshoe	D. B. Van Horn	579,782	Mar. 30	3398	813	78	1983
Horseshoe attachment	J. Malken	577,661	Feb. 23	2728	645	78	1195
Horseshoe calk attachment	R. G. Paine	577,535	Feb. 23	2513	593	78	1155
Horseshoe. Hoof-spreading	A. Pearsall	579,303	Mar. 23	2534	598	78	1801
Horseshoe-nail-blank machine	O. R. Hanson	579,869	Mar. 30	3542	846	78	2011
Horseshoe. Nailless	C. W. Crannell	577,009	Feb. 16	1596	380	78	966
Horseshoe-pad	L. H. Bellamy	579,313	Mar. 23	2551	603	78	1808
Horseshoe-pad. Antislipping	J. H. Punchard	577,321	Feb. 16	2109	499	78	1063
Horseshoe-roughing attachment	F. Heppner	576,816	Feb. 9	1256	299	78	890
Horseshoe. Spring-tread	L. Petersen	574,820	Jan. 5	760	181	78	143
Hose and garment supporter	W. H. Cornell	576,659	Feb. 9	1013	237	78	844
Hose-bridge	R. G. Dunwody	575,220	Jan. 12	1482	356	78	297
Hose-bridge	T. D. Wallace	577,393	Feb. 16	2241	527	78	1088
Hose-bridge. Railway	C. A. and C. J. Grimes	579,090	Mar. 16	2187	513	78	1722
Hose. Combined coupling and running support for	H. C. Sergeant	579,777	Mar. 30	3389	811	78	1982
Hose-coupling	N. S. Bray	577,413	Feb. 23	2288	537	78	1113
Hose-coupling	J. H. Hess	576,119	Feb. 2	67	17	78	650
Hose-coupling	J. Kerns	578,150	Mar. 2	545	124	78	1365
Hose-coupling	F. Munson	577,774	Feb. 23	2911	688	78	1229
Hose-coupling	G. W. Owings	579,804	Mar. 30	3431	822	78	1989
Hose-coupling for air-brakes, &c	H. W. Cadett and C. C. Crewson	579,291	Mar. 23	2513	594	78	1797
Hose-couplings. Machine for inserting	P. Eshman	577,015	Feb. 16	1606	382	78	968
Hose holder. Garden	C. Nelson	579,493	Mar. 23	2896	680	78	1867
Hose-nozzle	E. L. Day	577,616	Feb. 23	2660	628	78	1182
Hose-nozzle	S. Ettlinger	577,362	Feb. 16	2182	516	78	1077
Hose-nozzle	F. E. Johnson	578,517	Mar. 9	1194	269	78	1506
Hose-nozzle	P. B. Montrois	575,036	Jan. 12	1163	283	78	236
Hose-nozzle	F. W. Robertshaw	579,409	Mar. 23	2702	642	78	1832
Hose-nozzle	F. W. Stevens	574,585	Jan. 5	357	81	78	67
Hose-nozzle. Fireman's	J. Busha	577,717	Feb. 23	2815	666	78	1211
Hose-reel	F. E. Hartzell	574,419	Jan. 5	72	15	78	15
Hose-reel	R. Voelker	576,009	Jan. 26	2854	676	78	591
Hose-reel. Sprinkling	C. Kessler	578,489	Mar. 9	1143	257	78	1496
Hose-strap and spanner	T. Haley	579,748	Mar. 30	3339	799	78	1972
Hose-support	O. Bagley	578,851	Mar. 16	1775	409	78	1645
Hose-supporter	A. S. Smith	579,901	Mar. 30	3592	859	78	2020
Hot-air engine	C. A. Anderson and E. A. Ericksson	579,670	Mar. 30	3212	763	78	1948
Hot-air engine	P. Roediger	579,654	Mar. 30	3188	757	78	1943
Hot-air furnace	G. O. Bergstrom	575,766	Jan. 26	2496	575	78	513
Hot-air register-box	F. E. Cooper	574,475	Jan. 5	163	38	78	32
Hot-water heater	W. M. Barber	576,297	Feb. 2	396	93	78	712
Hot-water heater	J. P. Wensing	574,593	Jan. 5	367	83	78	69
House: *See* Summer-house.							
Hub	G. Millen	578,255	Mar. 2	740	168	78	1402
Hub-attaching device	C. H. W. Relyea	576,892	Feb. 9	1387	331	78	916
Hub-attaching device	J. F. Spencer	579,188	Mar. 23	2358	555	78	1769
Hub attachment. Vehicle	M. V. Howe	575,649	Jan. 19	2245	531	78	463
Hub-drilling device. Wheel	H. Gruner	575,895	Jan. 26	2557	603	78	596
Hub. Pneumatic	H. R. Collins	575,634	Jan. 19	2218	524	78	457
Hub. Vehicle	J. C. Chilcote and R. I. Bigley	577,508	Feb. 23	2455	578	78	1145
Hub. Wagon	W. G. Howard and A. Roland	578,083	Mar. 2	414	97	78	1340
Hub. Wheel	G. E. Strauss and E. Klahn	576,000	Jan. 26	2837	670	78	588
Huller: *See* Seed-huller.							
Hydrant	N. Malmqvist	574,744	Jan. 5	638	152	78	119
Hydrant	J. O. Sterner	577,461	Feb. 23	2372	558	78	1129
Hydraulic apparatus	F. H. Richards	576,154	Feb. 2	142	36	78	663
Hydraulic brake	F. L. Clark	574,663	Jan. 5	498	115, 116	78	92
Hydraulic motor or reversing-gear	A. Bain	577,342	Feb. 16	2151	509	78	1071
Hydrocarbon-burner	A. J. Blackford. (Reissue)	11,592	Mar. 2	832	189	78	1418
Hydrocarbon-burner	J. E. Larson	576,272	Feb. 2	348	82	78	702
Hydrocarbon-burner	E. G. Mummery	575,659	Jan. 19	2260	534	78	466
Hydrocarbon-burner	H. Ruppel	576,229	Feb. 2	264	65	78	687

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hydrocarbon-burner	V. H. Slinack	579,657	Mar. 30	3192	738	78	1943
Hydrocarbon-engine	E. Merry	579,068	Mar. 16	2154	505 506	78	1716
Hydrocarbon-engine. Portable	W. Maybach	577,167	Feb. 16	1867	441	78	1018
Ice-cream freezer	H. H. Atwater	576,084	Feb. 2	8	2,3	78	640
Ice-cream freezer	G. S. W. Brown	579,040	Mar. 16	2113	496	78	1707
Ice-cream freezer	C. Everts	577,733	Feb. 23	2836	672	78	1215
Ice-cream freezer	C. H. Keeney	577,514	Feb. 23	2467	581	78	1147
Ice-cream mold	M. H. Adams	575,290	Jan. 12	1588	378	78	318
Ice-cream mold	C. Meincke	578,889	Mar. 16	1845	424	78	1656
Ice-cream mold and disher	A. L. Cralle	576,395	Feb. 2	568	133	78	742
Ice-elevator	J. E. Dell	578,600	Mar. 9	1329	301	78	1532
Ice from molds. Apparatus for thawing blocks of manufactured	R. R. Reynolds and B. M. Kirker	577,175	Feb. 16	1877	443 444	78	1020
Ice-machine water-purifier	T. Shipley	576,416	Feb. 2	598	141	78	749
Ice-making-machine can	O. Hammond, Jr	576,672	Feb. 9	1084	242	78	847
Ice-pick	H. J. Kingsley	579,325	Mar. 23	2571	607	78	1808
Ice-planer	J. Pepin	574,567	Jan. 5	311	72	78	61
Ice-saw	G. A. Foster	576,724	Feb. 9	1110	262	78	802
Ice-tongs	W. Louden	576,461	Feb. 2	664	158	78	762
Igniting device	A. Czarnikow	578,004	Mar. 2	292	68	78	1316
Impregnating and filtering apparatus	W. Raydt	576,792	Feb. 9	1214	289	78	883
Incandescence. Process of and burner for producing	G. Van Deth	575,137	Jan. 12	1343	323 324	78	271
Incandescent burner	O. Kern	574,805	Jan. 5	730	175	78	138
Incandescent burner. Petroleum	G. Washington	576,523	Feb. 2	780	183	78	783
Incandescent-light fixture for railway-cars, &c	S. E. Farraday	578,735	Mar. 16	1576	364	78	1607
Incandescent lighting. Petroleum	G. Washington	576,524	Feb. 2	783	183	78	784
Incandescent mantles. Process of and apparatus for hemming ends of	E. Skriwan	578,841	Mar. 16	1762	405	78	1642
Incinerating-furnace	W. B. Wright	575,088	Jan. 12	1254	302 303	78	258
Inclinometer. Spirit-	W. M. Morton	577,772	Feb. 23	2008	688	78	1229
Incubator	A. L., C. M., and W. G. Brooks	579,094	Mar. 30	3247	771	78	1955
Incubator egg-turner	R. A. Morse	578,009	Mar. 9	1346	306	78	1536
Index	C. J. Watts and F. J. Wragg	576,295	Feb. 2	393	92	78	711
Index-making apparatus	W. W. Le Seur	578,935	Mar. 16	1922	444	78	1669
Indexing-machine	S. N. Webb	579,202	Mar. 23	2374	560 561	78	1773
Indicator: *See* Boiler-indicator. Schedule-indicator. Bottle-indicator. Speed-indicator. Cash-indicator. Station-indicator. Engine-indicator. Street and station indicator. Medicine-indicator. Medicine-time indicator. Time-indicator. Office-indicator. Water-indicator.							
Ingot-manipulator	G. W. McClure	578,415	Mar. 9	1004	230	78	1470
Inhaler	V. W. Blanchard	579,815	Mar. 30	3447	827	78	1992
Inhaler	C. Denison	576,041	Jan. 26	2015	687	78	601
Inhaler	H. M. Dunlap	577,681	Feb. 23	2758	652	78	1200
Inhaler	A. Henderson	577,956	Mar. 2	217	52	78	1308
Inhaler	T. B. Wilcox	577,674	Feb. 23	2749	649	78	1199
Injector	J. Desmond	574,985	Jan. 12	1070	262	78	220
Injector	W. B. Mack	575,303	Jan. 19	1730	412	78	363
Injector	E. J. Young	579,212	Mar. 23	2392	561	78	1776
Ink-drier	A. Uhlmann	579,850	Mar. 30	3512	839	78	2004
Ink-fountain and ink distribution	H. Johnson	575,892	Jan. 26	2098	620	78	556
Ink, &c. Fountain for	S. E. Wharton	576,014	Jan. 26	2402	678	78	592
Ink-ribbon mechanism	D. E. Felt	578,919	Mar. 16	1898	430	78	1665
Inkstand	A. J. Bluntach	579,466	Mar. 23	2857	672	78	1860
Inkstand	C. S. King	577,759	Feb. 23	2889	684	78	1225
Inkstand	W. G. Lamb	579,591	Mar. 30	3080	728	78	1922
Inkstand	J. Thomson	579,906	Mar. 30	3600	861	78	2021
Inkstand. Fountain-	L. N. Thomas	579,285	Mar. 23	2506	592	78	1706
Ink-well	S. G. Baldwin	578,189	Mar. 2	645	147	78	1384
Ink-well. Dust-proof	R. G. Dorrance	575,708	Jan. 26	2356	555	78	498
Ink-well for desks	T. G. Tritt	574,897	Jan. 5	787	188	78	140
Ink-well holder	L. C. Ferrell	578,322	Mar. 9	867	196	78	1444
Inker	F. G. Jahn	575,301	Jan. 12	1613	384 385	78	322
Inseam-trimming machine	E. S. Harris	579,751	Mar. 30	3342	799 800	78	1973
Insect-destroyer	J. J. McMillen	578,352	Mar. 9	904	204	78	1451
Insect-destroyer	R. Morrill and F. Morley	575,260	Jan. 12	1544	370	78	310
Insect-destroyer	C. C. and P. J. Schild	574,454	Jan. 5	130	30	78	26
Insect-exterminator	J. S. Allen	579,374	Mar. 23	2650	626	78	1823
Insecticide	A. H. Danforth	578,802	Mar. 16	1789	.....	78	1647
Insecticide-distributer	J. Gohm	574,798	Jan. 5	717	172	78	135
Insole	E. M. Cole	575,460	Jan. 19	1900	457	78	394
Insole. Removable	A. Slomka	576,232	Feb. 2	269	66	78	688
Instep-arch support for feet	T. Holland	579,874	Mar. 30	3552	849	78	2012
Insufflator	F. M. Elliott	576,437	Feb. 2	631	150	78	756
Insulator	H. E. Billings	576,392	Feb. 2	564	133	78	741
Insulator	F. Hoover	575,952	Jan. 26	2750	650	78	573
Insulator	H. H. Luscomb and W. F. D. Crane	578,825	Mar. 16	1739	399 400	78	1638
Insulator	B. D. B. Smock	574,828	Jan. 5	773	184	78	145
Insulator and holder for electric railways	W. C. Keithly	579,725	Mar. 30	3303	789	78	1965
Insulator. Electrical	T. W. Young	577,704	Feb. 23	2787	658	78	1206
Iodoform substitute	A. Schuftan	575,173	Jan. 12	1309	.....	78	282
Iron: *See* Breast-strap iron. Soldering-iron. Curling-iron. Yoke-iron. Sad-iron.							
Iron. Producing malleable cast-	T. Doherty	575,518	Jan. 19	1998	477	78	414

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ironing-board, bench, and ladder. Combined	W. G. Rodgers and C. E. Kuhn	577,698	Feb. 23	2774	656	78	1204
Ironing-machine	A. R. Selden	577,401	Feb. 16	2262	531	78	1091
Ironing-machine	E. G. Smith	575,859	Jan. 26	2595	613	78	543
Ironing-machine	H. Rupert	579,842	Mar. 30	3501	837	78	2002
Ironing-table	B. R. Seifert	575,070	Jan. 12	1226	.....	78	248
Isohomovanillin							
Jack: *See* Lifting-jack. Spring-jack. Shoe-machine jack. Telephone spring-jack. Shoe-repairing jack. Wagon-jack.							
Jack	W. L. Walker	579,935	Mar. 30	3642	872	78	2080
Jack for removing journal bearings or brasses from axle-boxes	A. B. Bly	577,226	Feb. 16	1961	464	78	1036
Jack for seating tie-plates	P. Haley	578,909	Mar. 16	1811	415	78	1650
Jacket-can	D. Farrell, Jr	574,987	Jan. 12	1083	263	78	221
Jacquard-mechanism comber-board	A. Brauch	574,382	Jan. 5	16	4	78	6
Jail-bar	G. Kinsey	574,488	Jan. 5	182	42	78	36
Jar: *See* Fruit-jar.							
Jars, cans, &c. Holder for	O. A. Burnes	575,694	Jan. 26	2327	548	78	492
Jig for mineral or ore washing	C. J. Hodge	575,236	Jan. 12	1503	361	78	302
Jig for mineral or ore washing	C. J. Hodge	575,646	Jan. 19	2242	530	78	462
Jig-plungers. Device for operating	A. L. Heaston	578,988	Mar. 16	2017	470	78	1688
Joint: *See* Bedstead rail-joint. Rail-joint. Cycle handle-bar joint. Railway-rail joint. Frame-joint. Stovepipe-joint. Non-friction joint. Wheel-rim joint.							
Joint-fastener	L. Gohlke	576,572	Feb. 9	879	203	78	819
Joint for adjustable parts of machinery	W. B. Lord and C. C. Griswold	577,277	Mar. 23	2494	588	78	1794
Journal-bearing	C. B. von Bliedenfeld	576,252	Feb. 2	319	76	78	697
Journal-bearing	J. B. Christopher	579,041	Mar. 16	2114	496	78	1708
Journal-bearing	D. T. Roots and E. D. Johnston	575,312	Jan. 12	1633	390	78	326
Journal-bearing	W. J. Tripp	575,396	Jan. 19	1772	425	78	371
Journal-bearing	R. Ingram and W. R. Coulbourn	575,426	Jan. 19	1840	442	78	388
Journal-bearing. Antifriction	S. G. Down	579,565	Mar. 30	3034	717	78	1914
Journal-bearing covering	J. H. Earl	579,567	Mar. 30	3036	718	78	1914
Journal-box	E. H. Spencer	574,958	Jan. 12	1023	248	78	211
Journal-box	J. T. Wilkin	579,508	Mar. 23	2917	686 687	78	1872
Journal-box	O. Pound	575,278	Jan. 12	1566	373	78	314
Journal-box for engine-trucks	J. T. Richards	575,171	Jan. 12	1394	335	78	281
Journal. Lubricating axle-	H. Stiles	578,870	Mar. 9	981	211	78	1456
Jug	A. J. Weeks	578,176	Mar. 2	619	140	78	1379
Jug	M. Cronin	575,332	Jan. 19	1683	402	78	355
Jugglery apparatus. Electrically-illuminated	G. C. Deake and G. N. Moore	579,864	Mar. 30	3535	844	78	2010
Junction-box. Subway	R. C. Menzies	578,800	Mar. 16	1846	424	78	1656
Jute. Machine for defiberizing compacted	G. P. Combs and E. L. Wetz	579,134	Mar. 23	2202	532	78	1751
Key	J. J. Murphy	577,927	Mar. 2	174	41	78	1295
Key	J. E. Pitrat	575,965	Jan. 26	2811	663	78	583
Keyboard. Movable	W. F. Blanchet	577,504	Feb. 23	2446	576	78	1143
Key-fastener	B. F. Smith	575,433	Jan. 19	1849	444	78	864
Key-fastener	J. M. Pflieger	577,890	Mar. 2	80	21	78	1276
Key-locking wrench							
Kiln: *See* Annealing-kiln. Continuous kiln. Brick-kiln. Drying-kiln. Capsule-drying kiln. Glass-annealing kiln.							
Kitchen-cabinet	W. H. Haire	577,919	Mar. 2	160	37	78	1292
Kneading-machine	G. M. and F. J. Ball	576,296	Feb. 2	395	92	78	712
Knife: *See* Orange-knife. Pocket-knife. Peeling-knife. Surgeon's knife.							
Knife-cleaning apparatus	K. A. Windahl	577,181	Feb. 16	1885	446	78	1022
Knife-cylinder	E. W. Saiberlich	577,069	Feb. 16	1695	402	78	985
Knit fabric	T. J. Woodcock	577,702	Feb. 23	2785	658	78	1206
Knitted garment	F. H. Moon	575,726	Jan. 26	2381	560 561	78	503
Knitting frame. Circular-	F. Wever	579,621	Mar. 30	3129	743	78	1981
Knitting hydraulic hose, &c. Machine for	W. Esty	576,304	Feb. 2	406	96	78	714
Knitting-machine	J. L. Eck	578,005	Mar. 2	293	69	78	1316
Knitting-machine	J. Schmitt	575,760	Jan. 26	2428	572	78	512
Knitting-machine	H. Stoll	579,411	Mar. 23	2706	643	78	1833
Knitting-machine narrowing apparatus	F. H. Gränz	575,395	Jan. 19	1792	430	78	374
Knitting-machine needle	E. H. Sturtevant	576,172	Feb. 2	174	43	78	669
Knitting-machine needle. Right-and-left	G. F. Sturgess	578,428	Mar. 9	1020	234	78	1473
Knitting-machine pattern-producing mechanism	A. T. L. Davis	575,336	Jan. 19	1689	408	78	355
Knitting-machine picker-operating mechanism	L. N. D. Williams	575,191	Jan. 12	1427	343 344	78	287
Knitting-machine presser-stand	D. Hurley	577,620	Feb. 23	2666	629	78	1183
Knitting machine. Rib-	R. W. Scott	577,788	Feb. 23	2929	693 694	78	1233
Knitting machine. Rib-	R. W. Scott	577,789	Feb. 23	2931	693 694	78	1233
Knitting-machine stitch-former	W. T. Barratt	577,610	Feb. 23	2651	626	78	1180
Knitting-machine stop-motion	W. W. Burson	576,544	Feb. 9	828	193	78	809
Knitting-machine stop-motion. Circular-	D. F. Sullivan and A. White	576,987	Feb. 9	1558	370	78	948
Knitting machine. Straight-	J. Nelson	576,881	Feb. 9	1362	325 326 327 328	78	911
Knitting machine. Straight-	F. Raven	576,376	Feb. 2	534	124 125 126	78	736
Knitting machine. Straight-	C. E. Wakeman	579,199	Mar. 23	2370	558 559	78	1772
Knitting-machine web-needle	G. F. Sturgess	575,012	Jan. 12	1122	272	78	228
Knitting-machines. Quarter-saver mechanism for	J. L. Wentworth and J. Dempster	577,276	Feb. 16	2038	482	78	1050

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Knob attachment	E. S. Winchester	578,381	Mar. 9	948	215, 216	78	1459
Knob fastener. Door-	H. Flanders	575,471	Jan. 19	1912	460	78	396
Knob-spindle fastener	J. S. Randall	579,078	Mar. 16	2171	509	78	1719
Label-defacing device. Coupon-	R. A. Wittemann	577,804	Feb. 23	2063	698	78	1237
Label-holder	W. W. Dodge	574,789	Jan. 5	708	169	78	133
Label-lock	C. H. R. Godfrey	576,571	Feb. 9	878	208	78	819
Lace fastener. Shoe-	S. J. Adams	575,682	Jan. 26	2307	544	78	489
Lace fastener. Shoe-	M. E. Johnson	574,484	Jan. 5	175	41	78	35
Lace fastener. Shoe-	F. W. Loder	576,761	Feb. 9	1171	279	78	874
Lacer and lacing. Shoe	W. W. Munsell	578,066	Mar. 2	382	89	78	1334
Lacing	E. Kempshall	576,056	Jan. 26	2042	603	78	605
Lacing. Boot-	E. Kempshall	579,943	Mar. 30	3667	877	78	2084
Lacing-fastener for boots or shoes	W. C. O'Brien	577,265	Feb. 16	2019	478	78	1047
Lacing for articles of wearing-apparel	H. M. Nichols	574,686	Jan. 5	545	127	78	100
Lacing-hook	C. E. Fosburgh	577,599	Feb. 23	2636	622	78	1178
Lacing-hooks with plastic material. Device for covering	E. Kempshall	579,112	Mar. 16	2227	524	78	1729
Lacing-hooks with plastic material. Device for covering	A. C. Estabrook	576,045	Jan. 26	2021	689	78	602
Lacing-strip for shoes, &c	A. C. Estabrook	576,046	Jan. 26	2024	689	78	602
Ladder	M. H. Bortree	575,387	Jan. 19	1773	425	78	371
Ladder	A. G. Perkins	575,759	Jan. 26	2427	572	78	511
Ladder	W. Wildprett	575,806	Jan. 26	2610	616	78	546
Ladder and hose-tower. Extension-	C. F. Ekman	575,222	Jan. 12	1484	356, 357	78	298
Ladder and table. Combined step-	E. C. McConnell	579,328	Mar. 23	2574	608	78	1809
Ladder and window-jack. Extension-	J. M. Pugh	575,574	Jan. 19	2100	500, 501	78	432
Ladder. Combination-	S. L. Knisell	579,437	Mar. 23	2751	652	78	1840
Ladder. Extension-	J. C. Ferris	578,323	Mar. 9	868	197	78	1444
Ladder. Extension step-	L. Ferguson	579,263	Mar. 23	2473	584	78	1790
Ladder. Fire-	M. A. Walker	577,807	Mar. 2	106	27, 28	78	1282
Ladder. Flexible	T. W. Kelthley	575,246	Jan. 12	1518	365	78	305
Ladder. Foldable	R. W. Hilliker	575,397	Jan. 19	1795	431	78	374
Ladder-hook	O. O. Dinsmore	579,359	Mar. 23	2623	620	78	1818
Ladder. Step-	S. A. Cohen	577,645	Feb. 23	2707	638, 639	78	1191
Ladder-truck	W. Wright	575,193	Jan. 12	1434	344	78	288
Ladder, washbench, &c. Combined step-	W. P. Coulter, J. N. Horn, F. C. Reiter, A. W. Lyda, J. Freidhoff, Jr., H. Davis, and H. B. Barnes.	574,397	Jan. 5	34	8	78	9
Ladles. Detachable handle for smelting-	J. Ides	576,367	Feb. 2	517	121	78	734
Lamp	E. Boesch	576,716	Feb. 9	1099	259	78	859
Lamp	R. M. Dixon	575,055	Jan. 12	1199	200, 201	78	248
Lamp	R. M. Dixon	575,056	Jan. 12	1200	201	78	243
Lamp	W. H. Kincaid	578,995	Mar. 16	2028	472, 473	78	1690
Lamp	H. Lucas	579,503	Mar. 30	3062	729	78	1923
Lamp	R. Marsh	579,156	Mar. 23	2300	541	78	1758
Lamp	A. H. J. Schülke	577,989	Mar. 2	269	63	78	1312
Lamp	M. P. Stevens	575,813	Jan. 26	2515	593	78	528
Lamp. Acetylene-gas-generating	H. E. Casgrain	574,601	Jan. 5	385	87	78	72
Lamp. Alternating-current arc-	E. R. Knowles	577,864	Mar. 2	43	13	78	1209
Lamp attachment	M. W. Beaton	577,943	Mar. 2	195	47	78	1299
Lamp attachment	A. A. Freeman	577,600	Feb. 23	2636	622	78	1178
Lamp attachment	C. B. Webster	575,795	Jan. 26	2482	586	78	522
Lamp attachment. Bicycle-	C. Koebel	575,119	Jan. 12	1309	315	78	263
Lamp. Bicycle-	J. W. Bragger	577,155	Feb. 16	1844	436	78	1014
Lamp. Bicycle-	G. Havell and A. H. Meyer	578,451	Mar. 9	1067	243, 244	78	1481
Lamp. Bicycle-	D. R. Reynolds	577,907	Mar. 2	235	56	78	1306
Lamp. Boulevard-	A. P. Storrs	574,640	Jan. 5	455	104	78	85
Lamp-bracket	E. W. Hancock and L. Bailey	577,023	Feb. 16	1618	384	78	970
Lamp-bracket	W. C. Homan	575,717	Jan. 26	2369	558	78	500
Lamp-bracket	W. C. Homan	575,779	Jan. 26	2456	579	78	517
Lamp-bracket	W. C. Homan	577,429	Feb. 23	2319	544	78	1119
Lamp-bracket	W. C. Homan	578,014	Mar. 2	307	73	78	1320
Lamp-burner	F. T. Williams	576,769	Feb. 9	1179	281	78	876
Lamp-burner	F. P. Boland	577,612	Feb. 23	2654	627	78	1181
Lamp-burner	W. Bourke	578,090	Mar. 2	425	99	78	1342
Lamp-burner	G. T. Brown	576,025	Jan. 26	2378	681	78	595
Lamp-burner	J. Collinge	578,036	Mar. 2	339	81	78	1326
Lamp-burner	J. B. Daudelin	575,462	Jan. 19	1902	458	78	394
Lamp-burner	F. V. Davis	577,840	Mar. 2	12	5	78	1263
Lamp-burner	F. Dietz	575,776	Jan. 26	2452	578	78	517
Lamp-burner	J. H. Goss	579,796	Mar. 30	3419	819	78	1967
Lamp-burner	S. A. Hoover and A. Lougheed	578,875	Mar. 16	1818	417	78	1651
Lamp-burner	A. H. Jones	575,606	Jan. 19	2161	512	78	447
Lamp-burner	W. W. Smith and J. M. Isgrig	579,018	Mar. 16	2002	482	78	1697
Lamp-burner	J. A. Tatro	574,690	Jan. 5	553	128	78	102
Lamp burner and wick	T. McGowan	575,900	Jan. 26	2078	631	78	550
Lamp-burner attachment	M. A. Volkenrath	577,808	Mar. 2	101	26	78	1280
Lamp burner. Vapor-	S. Marcus	579,399	Mar. 23	2087	637	78	1830
Lamp-burners. Insect-guard for	R. P. Robinson	576,895	Feb. 9	1393	332	78	917
Lamp-carrier for miners' caps	L. P. Elsenbeis and G. B. Simmons	575,221	Jan. 12	1483	356	78	297
Lamp-chimney and holder therefor	C. L. Holland	579,270	Mar. 23	2485	586	78	1792
Lamp clutch. Arc-	E. Finkbeiner	575,341	Jan. 19	1700	405	78	358
Lamp. Convertible signal-	C. H. Dressel	578,079	Mar. 2	409	95	78	1339
Lamp. Electric	M. M. Kohn	578,107	Mar. 2	452	105	78	1348
Lamp. Electric-arc	T. E. Adams	579,082	Mar. 16	2092	490, 491	78	1703
Lamp. Electric-arc	H. Bäurlin	576,802	Feb. 9	1236	294, 295	78	886
Lamp. Electric-arc	P. H. Fielding	576,108	Feb. 2	46	12	78	646

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lamp. Electric-arc	A. Guendel	578,233	Mar. 2	707	160	78	1305
Lamp. Electric-arc	R. O. Hood	574,905	Jan. 12	905	220	78	190
Lamp. Electric-arc	G. M. Lane	577,760	Feb. 23	2891	684, 685	78	1225
Lamp. Electric-arc	J. A. Mosher	579,161	Mar. 23	2908	543	78	1759
Lamp. Electric-arc	D. A. Shesler	576,475	Feb. 2	690	164	78	768
Lamp. Electric incandescent	F. L. Fowler	579,227	Mar. 23	2413	570	78	1780
Lamp filament. Electric-	J. H. Douglas-Willan and F. E. W. Bowen.	577,499	Feb. 23	2439	.....	78	1142
Lamp-filling device	W. L. Upson	577,813	Feb. 23	2967	701	78	1240
Lamp for removing paint, &c. Oil-	J. Macdonald	576,274	Feb. 2	352	83, 84	78	704
Lamp. Gas-	A. P. Storrs	575,914	Jan. 26	2608	638	78	562
Lamp-guard. Wire	P. R. Wagor	575,794	Jan. 26	2481	585	78	522
Lamp. Hanging	B. Porter	575,769	Jan. 26	2442	576	78	514
Lamp. Incandescent electric	C. S. Dolley, R. Hawkins, and T. M. Lightfoot.	577,159	Feb. 16	1852	437	78	1015
Lamp. Incandescent gas-	J. Moeller	577,828	Feb. 23	2991	708	78	1245
Lamp lid. Alcohol-	W. A. Penfield	576,413	Feb. 2	593	140	78	747
Lamp lighter. Time-	C. H. Bigby	578,282	Mar. 2	785	178	78	1409
Lamp. Miner's	M. Raker	574,821	Jan. 5	761	182	78	143
Lamp. Miner's safety-	W. Patterson	575,903	Jan. 26	2682	633	78	559
Lamp or burner. Incandescent gas	H. Tee	575,441	Jan. 19	1867	449	78	388
Lamp or lighter. Pocket	W. Trabue	577,609	Feb. 23	2650	626	78	1180
Lamp or oil-stove burners. Extinguisher for	W. Brandon	576,944	Feb. 9	1464	348	78	929
Lamp post. Electric-	J. Buckner	578,595	Mar. 9	1323	299	78	1531
Lamp. Safety-	F. A. E. Wenzel	577,090	Feb. 16	1729	409	78	991
Lamp socket. Incandescent-	R. B. Benjamin	575,322	Jan. 19	1652	394, 395	78	348
Lamp. Suspended	A. Zempliner	574,512	Jan. 5	218	52	78	43
Lamp. Tubular	W. S. Hamm	577,746	Feb. 23	2869	680	78	1221
Lamp. Velocipede-	J. M. Herman	578,564	Mar. 9	1275	290	78	1522
Lamps. Bracket with spring-jaw for supporting bicycle-	G. Havell and A. G. Williams	579,678	Mar. 30	3226	766	78	1950
Lamps. Chimney-lift for central-draft	F. Rhind	577,583	Feb. 23	2596	612	78	1171
Lamps. Illuminant for incandescent	A. de Lodyguine	575,002	Jan. 12	1105	269	78	225
Lamps. Illuminant for incandescent	A. de Lodyguine	575,668	Jan. 19	2278	538	78	469
Lamps. Manipulating device for incandescent	J. J. Dunn and J. W. Regan	578,394	Mar. 9	970	220	78	1463
Lamps. Mantle or hood for incandescent gas-	G. van Deth	574,802	Jan. 5	837	.....	78	158
Lamps. Manufacture of incandescent electric	T. B. Atterbury	574,870	Jan. 5	2	1	78	3
Lamps. Spring-bracket for bicycle-	G. Havell	579,677	Mar. 30	3223	765, 766	78	1950
Lamps. Wick-adjuster for central-draft	J. C. Miller	576,876	Feb. 9	1348	323	78	908
Lantern	G. S. Brown and E. C. Fowler	578,859	Mar. 16	1784	411	78	1646
Lantern	G. W. Lynch	579,883	Mar. 30	3563	852	78	2014
Lantern attachment	D. E. Davidson	575,333	Jan. 19	1684	402	78	355
Lantern attachment. Signal-	H. G. Rust and E. S. Lynn	577,786	Feb. 23	2926	692	78	1232
Lantern. Bicycle headlight-	C. M. Bump	575,327	Jan. 19	1670	399	78	352
Lantern-bracket	S. L. Sly	575,857	Jan. 26	2592	612	78	543
Lantern-holder	F. T. Williams	577,974	Mar. 2	246	58	78	1308
Lantern. Railway-	E. M. Barteau	578,909	Mar. 16	1883	435	78	1662
Lantern. Signal-	H. K. Ruby	578,267	Mar. 2	757	171, 172	78	1405
Lash-rounding machine	F. and H. C. Stamm	578,047	Mar. 2	351	84	78	1328
Last-heels. Machine for shaping	A. G. Fitz	574,604	Jan. 5	387	88	78	73
Lasting device	T. K. Keith	574,612	Jan. 5	404	93	78	76
Lasting-machine	J. and G. Ferguson	575,029	Jan. 12	1152	280, 281	78	234
Lasting-machine	T. K. Keith and H. G. Farr	579,928	Mar. 30	3628	869	78	2027
Latch	W. Cronk	577,818	Feb. 23	2975	703	78	1242
Latch	F. H. Richards	576,155	Feb. 2	146	36	78	664
Latch	H. G. Voight	574,645	Jan. 5	465	106	78	87
Latch	H. G. Voight	576,242	Feb. 2	293	70	78	698
Latch	J. H. Wahl	579,852	Mar. 30	3515	840	78	2005
Latch and lock. Bag	C. A. Johnson	578,880	Mar. 16	1831	420	78	1653
Latch. Gate-	J. S. Berry	574,517	Jan. 5	224	53	78	44
Latch. Gate-	J. S. Berry	574,518	Jan. 5	224	53	78	44
Latch. Gate-	J. M. Schneider	576,280	Feb. 2	366	85	78	705
Lathe	J. Weber	579,620	Mar. 30	3128	742	78	1930
Lathe. Automatic chucking-	J. W. Brown, Jr	579,357	Mar. 23	2620	619	78	1817
Lathe. Turret-	G. C. Bardons, J. G. Oliver, and G. W. Drake.	575,094	Jan. 12	1261	304	78	255
Laundry polish	J. F. Gilmore	578,057	Mar. 2	368	.....	78	1332
Lawn-sprinkler	C. F. Hitchcock and F. H. Edwards	579,873	Mar. 30	3551	848	78	2012
Lawn-sprinkler	J. F. Main	575,966	Jan. 26	2774	655	78	576
Lead pigment, &c. Producing white-	A. Macdonald	575,844	Jan. 26	2572	.....	78	539
Lead. Production of basic carbonate of	O. Hamilton	576,670	Feb. 9	1032	.....	78	847
Leaf-turning device	W. O. Campbell	574,659	Jan. 5	489	112	78	91
Leaf-turning device	W. O. Campbell	576,656	Feb. 9	1008	236, 237	78	843
Leather articles. Machine for manufacturing seamless	F. J. Bringham	579,468	Mar. 23	2859	672	78	1860
Leather-dressing	M. T. Maguire	578,413	Mar. 9	1001	.....	78	1469
Leather for boots or shoes. Crimping	J. D. Bacon	579,915	Mar. 30	3610	863	78	2023
Leather-scrubbing machine	H. Bright	577,402	Feb. 16	2263	531, 532	78	1091
Leather-washing machine	J. McKenzie and C. O. Shaw	578,257	Mar. 2	744	168, 169	78	1402
Leaves in magazines, books, &c. Means for severing uncut edges of	W. S. Abbot	578,687	Mar. 9	1479	339, 340	78	1561
Leer-pan	J. H. Calhoon and A. D. Brittain	574,389	Jan. 5	23	7	78	7
Leg attachment. Artificial-	W. Monaghan	577,054	Feb. 16	1668	396	78	979
Lemon-juice extractor	C. B. Carter	577,976	Mar. 2	249	59	78	1308
Lemon-juice extractor	F. W. Wright	578,477	Mar. 9	1108	252	78	1490
Lemon slicer and squeezer	F. W. Graves	574,413	Jan. 5	60	14	78	13
Lemon-squeezer	A. J. Fales	577,291	Feb. 16	2067	489	78	1055
Lemon-squeezer	F. R. Miner	576,138	Feb. 2	118	30	78	659

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lemon-squeezer	E. Walker	576,706	Feb. 9	1084	255	78	857
Lens	E. W. Barker	578,620	Mar. 9	1302	310	78	1538
Lens-grinding apparatus	C. W. Ayres and J. G. Dunton	575,584	Jan. 19	2115	504	78	436
Lens-measure	G. Goff	579,573	Mar. 30	3047	719	78	1916
Let-off. Automatic	A. and S. Widmer	579,788	Mar. 30	3399	813	78	1968
Letter-box	H. Benham	575,048	Jan. 12	1185	288; 289	78	240
Letter-box	D. C. McCarroll and R. M. Seibel	577,368	Feb. 16	2192	518	78	1079
Letter. Sign-	R. M. Pearson and W. Letzig	576,885	Feb. 9	1379	329	78	914
Level. Plumb-	S. S. Munson	577,386	Feb. 16	2232	525	78	1086
Leveling-rod	G. H. Collins	579,555	Mar. 23	3013	712	78	1800
Leveling-rod	C. F. Wilson	577,905	Mar. 2	125	31	78	1284
Life-lines. Projectile for carrying	W. P. Shaw	576,625	Feb. 9	961	224	78	834
Life-preserver	T. R. Bell and D. A. Carson	576,649	Feb. 9	1001	235	78	841
Life-preserver support for vessels	J. T. Copithorn	576,303	Feb. 2	407	96	78	714
Life-raft	W. S. Palmer	577,061	Feb. 16	1678	398	78	981
Life-saving apparatus	J. Reeb	579,772	Mar. 30	3382	809	78	1980
Lifter: *See* Clothes-lifter. Transom-lifter. Dish-lifter.							
Lifting-jack	T. B. Ault	574,371	Jan. 5	3	1	78	3
Lifting machinery. Hydraulic	R. Carey	575,698	Jan. 26	2382	549; 550	78	492
Lifting, moving, and carrying heavy bodies. Device for	D. Broderick	578,479	Mar. 9	1110	253	78	1490
Light: *See* Night-light. Vehicle-light.							
Light effects. Device for controlling	H. V. Arnold	577,816	Feb. 23	2072	702; 708	78	1241
Lighting device	P. J. Carmien	578,914	Mar. 16	1890	436	78	1663
Lightning-arrester	W. K. Freeman	578,981	Mar. 16	3008	467	78	1686
Lightning protection for electric circuits. System of	A. Wurts	574,978	Jan. 12	1066	259	78	218
Limb. Artificial	R. Bowman	579,787	Mar. 30	3406	816	78	1984
Limb. Artificial	M. B. Donaldson and W. Kespohl	578,222	Mar. 2	694	157	78	1393
Line-fastening sinker	A. W. Woodward	575,674	Jan. 19	2291	540	78	471
Line-feeding device	G. Race	577,664	Feb. 23	2784	646	78	1196
Line-grip	J. P. Fegan	577,735	Feb. 23	2889	672	78	1216
Linotype-machine	P. T. Dodge	576,397	Feb. 2	571	134	78	743
Linotype-machine	J. MacKirdy	576,409	Feb. 2	587	138	78	746
Linotype-machine molding mechanism	J. Place	576,414	Feb. 2	594	140; 141	78	748
Linotype-machine trimming attachment	H. F. Meistrell	578,065	Mar. 2	381	89	78	1334
Linotype-trimmer	T. H. Keller	576,584	Feb. 9	895	207	78	822
Liquid-dispensing apparatus	F. H. Trumbull	575,446	Jan. 19	1872	451	78	388
Liquid-distributing machine. Automatic	J. J. Riegel and E. B. Lundy	578,025	Mar. 2	322	76	78	1322
Liquid-elevating apparatus. Automatic	W. M. Kiddie	575,355	Jan. 19	1720	410	78	362
Liquid-heaters. Automatic regulator for	L. L. Rowe	575,042	Jan. 12	1172	295; 296	78	237
Liquid-mixing apparatus	A. Gates	579,055	Mar. 16	2131	501; 502	78	1711
Liquid-seal trap	C. Perkes	578,024	Mar. 2	321	76	78	1322
Liquid-separator. Centrifugal	M. L. Hoyt	574,607	Jan. 5	392	89	78	74
Liquid-separator. Centrifugal	C. J. Lundstrom	579,301	Mar. 23	2531	597	78	1801
Liquids. Apparatus for expressing, straining, and purifying	C. L. Petersen	577,448	Feb. 23	2348	551	78	1124
Liquids containing carbonic acid. Apparatus for drawing off	A. Kremper	578,884	Mar. 16	1836	422	78	1654
Liquids. Device for opening or closing vessels containing	J. T. Stewart	577,462	Feb. 23	2373	558	78	1129
Liquids. Process of and apparatus for purifying and filtering	S. Gelston	575,778	Jan. 26	2455	578; 579	78	517
Lithographic stone	F. J. Kallenbach	579,680	Mar. 30	3230	766	78	1951
Load-binder	H. M. Bradley	578,855	Mar. 16	1778	410	78	1645
Loader. Box-car	H. B. Dierdorff	575,028	Jan. 12	1149	278; 279; 280	78	232
Loading and screening apparatus	W. O. Shadbolt	577,179	Feb. 16	1883	445	78	1021
Loading, carrying, and distributing manure, &c. Machine for	H. Mullen	579,163	Mar. 23	2311	543	78	1760
Locations of distant objects. Device for determining	W. C. Rafferty	578,117	Mar. 2	479	110	78	1353
Lock: *See* Air-lock. Bicycle-lock. Bottle-lock. Combination-lock. Label-lock. Mortise-lock. Nut-lock. Permutation-lock. Sash-lock. Screw-lock. Seal-lock. Stovepipe-lock. Switch-lock. Trunk-lock. Vehicle-seat lock.							
Lock	I. Anderson	576,531	Feb. 9	808	188	78	805
Lock	T. Churchill	576,028	Jan. 26	2380	682	78	595
Lock	A. Fleischmann	579,396	Mar. 23	2969	633	78	1830
Lock	J. J. Link	577,962	Mar. 2	228	54, 55	78	1305
Lock	W. S. Nash	578,763	Mar. 16	1619	374	78	1615
Lock	W. C. Owings and E. Carter	576,609	Feb. 9	934	215; 216	78	828
Lock	H. W. Teal	575,556	Jan. 19	2065	494	78	427
Lock	C. C. Twiss	579,781	Mar. 30	3397	813	78	1983
Lock	H. G. Voight	574,506	Jan. 5	209	49	78	41
Lock	T. D. Wallace	575,186	Jan. 12	1345	324	78	271
Lock	A. J. Wolff	575,539	Jan. 19	2040	488	78	422
Lock and latch	J. E. Wells	575,448	Jan. 19	1874	452	78	390
Lock safety-guard. Spring-	M. B. Guenther	576,449	Feb. 2	649	155	78	759
Locking-hook. Automatic	J. McFarlane	577,144	Feb. 16	1824	430	78	1010

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Locomotive	D. W. McCallum	575,969	Jan. 26	2785	656; 657; 221	78	579
Locomotive and railway system therefor. Electric	M. Schalscha	576,622	Feb. 9	958	222; 223	78	882
Locomotive ash-pan	S. F. Cummings	578,546	Mar. 9	1238	260	78	1514
Locomotive-boiler	J. T. Connelly	579,741	Mar. 30	3324	794	78	1960
Locomotive-boiler	C. Stroomann	578,682	Mar. 9	1467	337	78	1558
Locomotive draft-regulator	J. Frew	579,389	Mar. 23	2671	693; 694	78	1827
Locomotive drive-wheel	P. Z. Davis	578,598	Mar. 9	1327	300	78	1582
Locomotive driving-wheel	P. Z. Davis	578,599	Mar. 9	1328	301	78	1582
Locomotive. Electric	W. L. Silvey	575,314	Jan. 12	1696	390; 391	78	327
Locomotive. Electropneumatic	G. Westinghouse, Jr	579,526	Mar. 23	2944	694; 695	78	1877
Locomotive-frame	C. J. O'Reilly	579,602	Mar. 30	3094	732	78	1925
Locomotive or other boiler	E. Ingraham	578,674	Mar. 9	1449	331	78	1554
Locomotive-pilot	G. R. Joughins	579,346	Mar. 23	2605	615	78	1814
Locomotive trap-door	F. L. Horspool	576,269	Feb. 2	344	81	78	702
Locomotives. Device for adjusting counterbalance-springs of	W. J. A. Makibbin	575,123	Jan. 12	1315	317	78	265
Log-carrier	R. E. L. and A. J. Daggs	578,218	Mar. 2	687	156	78	1391
Log-cart	R. G. Moon	576,464	Feb. 2	668	159	78	763
Log-hoist for log-carts	T. E. Spotswood	575,383	Jan. 19	1769	424	78	370
Log-turner	C. E. Clark	578,723	Mar. 16	1556	360	78	1608
Log-turner and nigger. Steam	E. E. Thomas	579,779	Mar. 30	3393	812	78	1962
Log-turner. Steam	J. Evered	576,565	Feb. 9	861	200	78	815
Log-turner. Steam	J. Evered	576,663	Feb. 9	1019	239	78	845
Logging apparatus	J. H. Dickinson	579,140	Mar. 23	2270	535	78	1752
Loom	J. H. Northrop	576,508	Feb. 2	747	177; 178	78	779
Loom	A. K. Pratt	577,692	Feb. 23	2773	655	78	1204
Loom	W. Weaver	576,174	Feb. 2	176	43; 44; 45; 46; 48	78	670
Loom	W. Weaver	576,175	Feb. 2	187	47	78	672
Loom batten. Weaving-	J. Poyser	579,896	Mar. 30	3583	857	78	2018
Loom brake mechanism	J. T. Meats	578,155	Mar. 2	550	125	78	1367
Loom buffer device	L. C. Werner	574,510	Jan. 5	213	51	78	42
Loom for carpet-weaving. Hand-	C. W. Evilsizor	578,225	Mar. 2	698	158	78	1393
Loom for cross-weaving	J. Buckler	576,300	Feb. 2	401	94, 95	78	713
Loom harness shifter and adjuster	J. D. Ulrich	577,994	Mar. 2	277	65	78	1313
Loom jacquard mechanism	T. Halton	577,744	Feb. 23	2866	680	78	1220
Loom jacquard mechanism	A. R. Patten	578,068	Mar. 2	396	90	78	1335
Loom let-off mechanism	J. A. Gilfillan	577,981	Mar. 2	254	60, 61	78	1310
Loom loose-reed motion	G. F. Hutchins and J. Nightingale	576,366	Feb. 2	516	121	78	733
Loom multiplier mechanism	W. Wattie	575,833	Jan. 26	2552	602; 603; 594; 595	78	536
Loom. Pile-fabric	A. Webb	575,818	Jan. 26	2519		78	530
Loom shed-forming mechanism	J. Railton and G. O. Draper	575,309	Jan. 12	1628	389	78	325
Loom shedding mechanism	G. O. Draper and J. H. Northrop	576,506	Feb. 2	744	176; 177	78	778
Loom-shuttle	W. F. Draper	574,864	Jan. 5	839	204	78	158
Loom-shuttle	W. Todd	577,934	Mar. 2	185	44	78	1297
Loom-shuttle	O. B. Truesdell	576,921	Feb. 9	1432	340	78	923
Loom shuttle-check	J. H. Northrop	575,308	Jan. 12	1627	389	78	325
Loom shuttle-motion	C. H. Heindel	575,927	Jan. 26	2716	642	78	565
Loom-shuttle threader	J. E. Dolber	576,343	Feb. 2	483	112	78	728
Loom stop-motion	J. H. Northrop	575,307	Jan. 12	1626	388	78	324
Loom take-up mechanism	E. W. Davenport	575,297	Jan. 12	1607	383	78	321
Loom warp stop-motion	G. O. Draper	576,504	Feb. 2	739	175; 176	78	777
Loom warp stop-motion	G. O. Draper	576,505	Feb. 2	741	176	78	778
Loom warp stop-motion	J. H. Northrop	576,882	Feb. 9	1374	328	78	913
Loom warp stop-motion	C. F. Roper	576,509	Feb. 2	751	178	78	780
Loom weft-controlling mechanism	J. E. Martin	577,441	Feb. 23	2336	548	78	1122
Looms. Electrical warp stop-motion for	A. C. Shuttleworth	577,077	Feb. 16	1706	405	78	987
Looms. False reed for	T. Albinson	577,125	Feb. 16	1803	425	78	1005
Lubricant	C. S. Gilbert and J. F. Thompson	576,307	Feb. 2	415		78	715
Lubricating device	A. G. Allen	575,141	Jan. 12	1351	325	78	272
Lubricating device	W. A. Clay	577,679	Feb. 23	2753	650; 651	78	1200
Lubricating device	A. Reimann	576,613	Feb. 9	940	217	78	829
Lubricator	D. F. Babcock and J. Kelley	577,374	Feb. 16	2210	521	78	1082
Lubricator	J. C. Bauer	578,193	Mar. 2	650	148	78	1384
Lubricator	G. L. Brisbin	577,004	Feb. 16	1590	378	78	965
Lubricator	V. A. Emond	576,778	Feb. 9	1192	284	78	878
Lubricator	F. D. Forney	575,080	Jan. 12	1156	282	78	234
Lubricator	G. A. Hofmeyer	577,658	Feb. 23	2725	644	78	1195
Lubricator	L. C. Kinsey	574,542	Jan. 5	270	64	78	53
Lubricator	E. McCorkindale	578,758	Mar. 16	1610	372	78	1614
Lubricator	L. C. Pond	579,008	Mar. 16	2047	477; 478	78	1694
Lubricator	J. R. Stine	577,180	Feb. 16	1884	445	78	1021
Lubricator	M. E. Stover	574,688	Jan. 5	549	127; 128	78	101
Lumber-driers. Steam feed-pipe for platen	F. W. Mallett	578,110	Mar. 2	457	106	78	1349
Lumber-handling device	J. B. Pope	578,832	Mar. 16	1750	402	78	1640
Lunch-box. Bicycle	E. N. Lomas	575,655	Jan. 19	2235	533	78	465
Lunch-box. Folding	J. McFadyen	577,198	Feb. 16	1918	453	78	1028
Lunch-counter	H. Knudsen	577,688	Feb. 23	2768	654	78	1202
Magazine-case	C. H. Hastings	574,482	Jan. 5	173	40	78	34

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Magazine. Firearm-	E. G. Parkhurst	579,097	Mar. 16	2198	516	78	1725
Magnet discharges. Means for preventing destructive field-	F. Mackintosh	577,141	Feb. 16	1821	429	78	1009
Magnetic apparatus	A. Boetcher	578,673	Mar. 9	1448	331	78	1554
Magnetizing-box	C. A. Hussey	575,679	Jan. 19	2300	541	78	473
Mail-bag	G. A. Pile	575,429	Jan. 19	1843	443	78	388
Mail-box. Combined stamp-canceling, postmarking, and recording	W. McLean	575,004	Jan. 12	1110	269, 270	78	226
Mail-cars. Reversible receiver and deliverer for	J. C. Stone	574,687	Jan. 5	546	127	78	100
Mail-catcher. Automatic	M. J. Grosz and C. Elison	576,112	Feb. 2	56	15	78	648
Mail-marking-machine letter-feeding attachment	J. S. Hansen	576,116	Feb. 2	63	16	78	649
Mailing-machine	G. A. Spooner	579,902	Mar. 30	3593	860	78	2020
Mains or pipes. Appliance for scraping interiors of water	H. J. I. Bilton and T. Timmins	576,425	Feb. 2	611	144	78	651
Malt turning and stirring machine	J. F. Dornfeld	578,053	Mar. 2	361	86	78	1331
Malt-turning machine	W. H. Prinz	579,771	Mar. 30	3376	807, 808, 809	78	1979
Malting-machine	J. A. Tilden	576,631	Feb. 9	971	227	78	836
Mandolin, guitar, or banjo	E. Simon	575,071	Jan. 12	1227	297	78	248
Mangle	C. Jensen	575,665	Jan. 19	2272	536, 537, 538	78	468
Mangle	R. Lentzkow	578,017	Mar. 2	310	74	78	1321
Manhole-cover	C. F. Bingham	576,253	Feb. 2	320	76	78	607
Manhole-cover seating	H. F. Fuller	575,475	Jan. 19	1919	462	78	397
Manifolding attachment for books	E. D. McKenna	579,835	Mar. 30	3483	833	78	1998
Manifolding attachment for books or pads	E. D. McKenna	579,834	Mar. 30	3481	833	78	1998
Manure-carrier	D. B. Cherry	578,722	Mar. 16	1555	360	78	1603
Marine safe-float	J. B. Anderson	578,308	Mar. 9	888	190	78	1439
Marker for seeders and planters	W. L. Minzey	576,139	Feb. 2	119	30	78	659
Mast-arm and attachment thereto	O. P. Philbrick	576,058	Jan. 26	2046	694	78	605
Mat: *See* Bath-tub mat. Wire mat.							
Match-box	Z. D. Morrow	575,489	Jan. 19	1946	467	78	408
Match-cabinet	S. Green	578,818	Mar. 16	1728	397	78	1839
Match case and lighter	H. L. Buxton	574,981	Jan. 12	1071	260	78	219
Match, cigarette, and cigar holder. Combined	F. S. Bowlby	576,653	Feb. 9	1006	236	78	842
Match-dipping machine	W. E. Williams	574,976	Jan. 12	1063	258	78	217
Match-making machine	C. J. Donnelly. (Reissue)	11,589	Feb. 2	796	187	78	787
Match-making machine	J. C. Donnelly	578,727	Mar. 16	1502	361, 362	78	1604
Match-receptacle	W. C. Bower	577,350	Feb. 16	2162	512	78	1073
Match-safe	H. H. Brown	575,690	Jan. 26	2320	547	78	491
Match-safe	C. Ebersold	578,552	Mar. 9	1253	284	78	1518
Match-striking composition	H. Allday	579,913	Mar. 30	3606	.....	78	2023
Matrix	L. C. Timroth	578,278	Mar. 2	779	176	78	1408
Matrix bar or plate	A. S. Capehart	579,202	Mar. 23	2513	594	78	1797
Matrix-cleaning machine	W. E. Taylor	576,971	Feb. 9	1513	359, 360	78	989
Mattress-making machine	H. C. Riefe	578,466	Mar. 9	1090	248	78	1487
Mattress. Steel-wire	T. V. Svane	578,473	Mar. 9	1101	250, 251	78	1489
Measure. Convertible	H. E. Atteberry	575,020	Jan. 12	1133	274	78	230
Measure drain. Liquid-	S. J. Wisdom	578,671	Mar. 9	1444	330	78	1554
Measure. Rotary	C. R. Stedman	579,244	Mar. 23	2430	576	78	1784
Measure. Tape-	W. H. Brown and W. H. De Long	578,205	Mar. 2	665	152	78	1387
Measuring and indicating apparatus. Electrical	J. F. Kelly	574,739	Jan. 5	631	150, 151	78	117
Measuring device	A. D. Besson	579,252	Mar. 23	2454	579	78	1787
Measuring-glass and holder. Self-leveling graduating	J. F. Lehmann	575,033	Jan. 12	1160	282	78	235
Measuring instrument	H. Scott	576,900	Feb. 9	1401	333, 334	78	918
Measuring instrument. Electrical	E. J. Houston and A. E. Kennelly	579,344	Mar. 23	2602	614	78	1814
Measuring machine. Cloth-	A. Edwards and J. C. Garten	577,161	Feb. 16	1855	488	78	1016
Measuring quantities of solid material. Slide device for	L. Schiff	575,174	Jan. 12	1398	396	78	281
Measuring vessel. Hydrostatic	J. D. R. Lamson	577,434	Feb. 23	2226	545	78	1120
Meat-cutter	W. Koenen	575,895	Jan. 26	2072	530	78	557
Meat-cutter. Rotary	F. H. Pierpont	578,942	Mar. 16	1936	448	78	1672
Meat-pounder	A. B. Schofield	576,281	Feb. 2	367	86	78	706
Meat-safe for butchers, &c	P. Hammond	578,923	Mar. 16	1903	440, 441	78	1666
Mechanical movement	C. F. Lufkin and A. W. Gordon	579,327	Mar. 23	2573	607	78	1808
Mechanical movement	W. Parfrey	579,494	Mar. 23	2807	680	78	1867
Medical compound	G. L. Schaefer	579,808	Mar. 30	3587	.....	78	2019
Medicated vapor-baths. Apparatus for administering	P. J. Holm	579,580	Mar. 30	3061	722	78	1910
Medicine-indicator	J. S. De Barry	579,474	Mar. 23	2871	675	78	1862
Medicine-time indicator for bottles	B. A. Chapman	576,853	Feb. 9	1281	306	78	895
Medicine-time indicator for glasses	B. A. Chapman	576,854	Feb. 9	1282	306, 307	78	895
Menthol compound	A. Weller and A. Jensen	574,966	Jan. 12	1042	.....	78	215
Merry-go-round. Marine	A. R. Newton and J. C. Bell	578,354	Mar. 9	907	205	78	1451
Metal. Apparatus for electrically heating	G. D. Burton	576,545	Feb. 9	831	195	78	810
Metal. Apparatus for heating blooms or other articles of	A. J. Moxham	579,597	Mar. 30	3088	731	78	1924
Metal. Apparatus for producing feather or shot	D. Broderick	576,773	Feb. 9	1184	282	78	877
Metal-coloring	J. A. Garde and A. B. Brunell	575,678	Jan. 19	2297	.....	78	473
Metal planing or cutting machine	J. A. Costello	575,708	Jan. 26	2343	552	78	495
Metal reducing, separating, and refining apparatus	J. A. Mays	574,439	Jan. 5	102	21, 22	78	21
Metal surfaces. Ornamenting	J. F. A. Niepraschk	578,417	Mar. 9	1007	.....	78	1471
Metal. Toughening or strengthening	R. S. Lovelace	577,809	Mar. 2	55	.....	78	1271
Metal wheel	F. J. Cooper	577,423	Feb. 23	2308	542	78	1117
Metal-working machine. Compound	H. F. Last	579,592	Mar. 30	3081	728	78	1922

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Metal-working tool. Compound	N. E. Smith	575,381	Jan. 19	1766	423	78	370
Metals and alloys. Producing	H. Goldschmidt	578,868	Mar. 16	1810	.....	78	1650
Metals and metallic compounds from ores, &c. Separation of	G. Robson	575,669	Jan. 19	2280	539	78	469
Metallic strap	N. G. Ross and J. J. Wolf	574,452	Jan. 5	127	29	78	25
Metallic-vessel bottom	T. D. Brown	577,944	Mar. 2	196	47	78	1299
Metallurgical furnace	W. S. McKenna	576,328	Feb. 2	448	105	78	721
Metallurgical furnace	W. Rotthoff	579,807	Mar. 30	3435	823, 824	78	1989
Metallurgical furnace	W. J. Thomas	578,665	Mar. 9	1483	327	78	1551
Meter: *See* Electric meter. Fluid-meter. Electric-current meter. Gas-meter. Water-meter. Electricity-meter.							
Meter prepayment attachment	H. W. Williams	575,672	Jan. 19	2285	540	78	470
Meter-register	L. H. Nash	577,387	Feb. 16	2233	525	78	1086
Meter-seal	H. Ringness	578,775	Mar. 16	1631	377	78	1617
Micrometer for testing-machines. Compression-	E. Kidwell	575,651	Jan. 19	2247	531	78	463
Microphone	A. W. S. Davis	579,699	Mar. 30	3255	775	78	1956
Microphone	P. Hardegen	575,887	Jan. 26	2056	627	78	555
Microscope	E. Bausch	577,344	Feb. 16	2153	509	78	1071
Milk-cooler	J. F. Hubbard	577,579	Feb. 23	2589	610, 611	78	1169
Milk, cream, &c. Apparatus for sterilizing	A. T. Pfeiff	578,899	Mar. 16	1859	427	78	1658
Milk-heater	J. Andersen	575,499	Jan. 19	1967	471	78	408
Milk-skimming device	J. B. Newkirk	578,259	Mar. 2	747	169	78	1403
Milking-machine	C. B. Stróyberg	579,847	Mar. 30	3508	838	78	2004
Milking machine. Cow-	M. J. Cushman	579,339	Mar. 23	2594	613	78	1812
Mill: *See* Coffee-mill. Pulverizing-mill. Fanning-mill. Windmill. Grinding-mill.							
Milling	G. T. Smith	577,456	Feb. 23	2360	554, 555	78	1127
Milling-machine	C. E. Van Norman	578,588	Mar. 9	1313	297	78	1530
Milling-machine	T. Webster and J. Howarth	579,355	Mar. 23	2617	618, 619	78	1817
Milling-machine. Automatic	J. Gregory	576,979	Feb. 9	1534	363, 364, 365, 366	78	943
Mine-shaft skip	W. A. Gipson and C. B. White	576,667	Feb. 9	1027	241	78	846
Mining, &c. Apparatus for placer-	C. D. Galvin	578,816	Mar. 16	1723	395, 396, 397	78	1635
Mining-caisson	J. M. Thorp	576,008	Jan. 26	2841	671	78	588
Mining-machine	H. B. Dierdorff	574,402	Jan. 5	41	9, 10	78	9
Mining-machine	H. F. Doris and J. J. McCloskey	574,790	Jan. 5	709	169, 170	78	133
Mining-machine	R. Stanley	577,331	Feb. 16	2131	505	78	1067
Mining machine. Coal-	E. P. Rauscher	574,822	Jan. 5	761	182	78	143
Mineral-separator	W. and J. A. Snee	577,630	Feb. 23	2680	632	78	1186
Minerals, metals, &c. Apparatus for washing and separating	P. Bunau-Varilla	578,206	Mar. 2	667	152	78	1387
Mirror or brush. Hand-	E. A. Reinhardt	578,362	Mar. 9	921	209	78	1454
Miter-box	T. Bolig	577,227	Feb. 16	1962	464	78	1036
Miter-cutting machine	J. W. Oliver	577,777	Feb. 23	2915	690	78	1230
Mitten. Catcher's	A. Slomka	578,842	Mar. 16	1762	406	78	1642
Mitten or like fabric	I. W. Lamb	578,153	Mar. 2	548	124	78	1366
Mixer: *See* Air and gas mixer. Paint-mixer.							
Mixing and heating apparatus	A. S. Cooper	578,628	Mar. 9	1376	314	78	1541
Moistener. Stamp and envelop	G. Linde	575,486	Jan. 19	1940	465	78	402
Moistening and sealing envelops, &c. Device for	A. W. Eddy	574,892	Jan. 12	884	214	78	186
Mold: *See* Bottle-stopper mold. Shingle-mold. Confectioner's mold. Type-mold. Ice-cream mold.							
Mold	W. S. Parker	576,277	Feb. 2	361	85	78	705
Mold	H. A. Pike	577,781	Feb. 23	2921	691	78	1231
Mold-clamp	A. Kenworthy	576,678	Feb. 9	1042	244	78	849
Mold for forming articles from bituminous compositions.	F. A. Redmon	574,450	Jan. 5	126	29	78	25
Mold gas-vent	W. Streetman	576,482	Feb. 2	699	167	78	709
Molds. Apparatus for forming sand	S. J. Adams	574,650	Jan. 5	474	109	78	89
Molds. Method of and apparatus for forming sand	S. J. Adams	576,246	Feb. 2	298	71	78	694
Molder's apparatus	H. V. Moore	575,304	Jan. 12	1621	387	78	323
Molding apparatus. Portable	W. H. Hooper	575,891	Jan. 26	2065	628	78	556
Molding-machine	H. Beeg	575,022	Jan. 12	1135	275	78	221
Molding-machine	F. Kepp	576,679	Feb. 9	1044	245	78	849
Molten material. Pneumatic apparatus for lifting and discharging	J. H. Croskey and J. Locke	575,214	Jan. 12	1471	353	78	295
Money wrapper and counter	C. B. Lawlor	574,546	Jan. 5	275	65	78	54
Monkey-wrench	W. B. Bartram	576,996	Feb. 16	1577	375	78	992
Monkey-wrench	W. B. Kelly and H. Bowman	576,855	Feb. 9	1316	314	78	902
Monkey-wrench	C. E. Thompson	577,632	Feb. 23	2682	633	78	1186
Mop or clothes wringer	W. R. Ramey	575,510	Jan. 19	1988	475	78	412
Mop-wringer	J. A. Higgins	577,030	Feb. 16	1628	387	78	971
Mop-wringer	G. B. Johnson	574,804	Jan. 5	729	174, 175	78	138
Mop-wringer	W. E. Struble and L. Ireland	577,968	Mar. 2	237	56	78	1306
Mortise-and-tenon machine	A. P. and C. F. Sundberg	576,062	Jan. 26	2050	695	78	606
Mortise-lock	A. Wildern	575,763	Jan. 26	2431	573, 574	78	512

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mortises for hinges in doors and door-jambs. Machine for cutting	T. H. Lewis	577,868	Mar. 2	58	15, 16	78	1270
Motion to movable bodies. Device for imparting	A. L. Sjoberg	576,906	Feb. 9	1409	335	78	919
Motor: *See* Car-motor. Current-motor. Electric motor. Fluid-pressure motor. Fluid-pressure compound motor. Gas-motor. Harvesting-machinery motor. Hydraulic motor. Railway-motor. Spring-motor. Vehicle-motor. Wave-motor.							
Motor	J. M. Hess	577,029	Feb. 16	1627	386	78	971
Motor system	M. E. Clark	575,681	Jan. 19	2301	542 / 543	78	473
Mouthpiece for wind instruments	H. F. Keyes	578,567	Mar. 9	1279	200	78	1523
Mower	E. A. Johnston and B. R. Benjamin	578,404	Mar. 9	985	224 / 225	78	1466
Mower	N. Wetzel	577,091	Feb. 16	1730	410	78	992
Mower grass-catcher. Lawn-	T. J. Lowell	576,787	Feb. 9	1206	287	78	881
Mower. Lawn-	J. W. Thornburg	578,666	Mar. 9	1434	328	78	1551
Mowing and reaping machine	H. E. Olson	578,766	Mar. 16	1622	375	78	1616
Mowing and reaping machines. Cutting apparatus for	W. L. Brobst	577,614	Feb. 23	2657	627	78	1181
Mowing-machine	M. M. Hazzard	577,512	Feb. 23	2460	580 / 581	78	1145
Mowing-machine	J. H. Jones	579,926	Mar. 30	3625	868	78	2026
Mowing-machine	H. E. Pridmore	578,704	Mar. 9	1516	350	78	1567
Mowing-machine	J. P. Ritchie	578,087	Mar. 2	419	98	78	1341
Mowing-machine	H. Stromsmo	576,914	Feb. 9	1419	337 / 338	78	921
Mowing-machine	F. N. Violet and C. H. Shaw	574,505	Jan. 5	206	49	78	41
Mowing-machine divider	F. J. J. Schuett	577,116	Feb. 16	1788	422	78	1002
Mowing-machine guard-finger	F. A. Kelley	577,482	Feb. 23	2402	564	78	1135
Muffler. Exhaust-	R. B. Hain	577,852	Mar. 2	27	8	78	1265
Multitubular boiler	J. Scott	576,901	Feb. 9	1402	334	78	918
Music, &c. Apparatus for turning over leaves of	W. J. Moffatt and E. A. Knapp	577,143	Feb. 16	1823	430	78	1009
Music-book holder	R. Alden	574,869	Jan. 12	855	208	78	181
Music-box	J. Paoli	574,758	Jan. 5	659	156	78	123
Music-box damping device	P. Ehrlich	579,896	Mar. 23	2667	632	78	1926
Music-boxes. Star-wheel standard for	G. A. Brachhausen	577,835	Mar. 2	6	2	78	1262
Music-leaf turner	J. B. Tracy	579,659	Mar. 30	3195	758 / 759	78	1944
Music-rack. Folding	J. Rockwell	576,327	Feb. 2	453	107	78	722
Music-recording apparatus	E. K. Adams	576,245	Feb. 2	297	71	78	694
Music-stand	O. A. Bronson	578,809	Mar. 16	1699	392	78	1631
Music-turning device	J. F. Blasauf	576,086	Feb. 2	11	3	78	640
Musical instrument	J. C. Graham, Jr	576,402	Feb. 2	578	135	78	744
Musical instrument	W. P. Kistler	578,040	Mar. 2	342	82	78	1326
Musical instrument	S. Schott	578,501	Mar. 9	1166	263	78	1501
Musical instrument	A. Vernaz	576,208	Feb. 2	391	91	78	711
Musical instrument	E. Wheaton	578,797	Mar. 16	1670	388	78	1626
Musical instrument	P. Zintzsch	579,031	Mar. 16	2090	480	78	1708
Musical instrument. Electrically-operated	G. H. Davis	576,342	Feb. 2	480	112	78	727
Musical-instrument keyboard-operating apparatus	F. A. Wallace	579,201	Mar. 23	2373	560	78	1772
Musical instrument. Mechanical	E. Welte	578,127	Mar. 2	508	115 / 116	78	1359
Musical instrument. Pneumatic	M. Clark	576,032	Jan. 26	2895	684 / 685	78	597
Musical instrument. Pneumatically-operated	M. Clark	576,030	Jan. 26	2885	683 / 684	78	596
Musical instrument. Self-playing stringed	T. G. Hoster	574,426	Jan. 5	82	17	78	17
Musical instrument. Stringed	C. Henlein	578,872	Mar. 16	1814	416	78	1651
Musical instruments. Apparatus for perfecting tones of	B. N. Pierce	579,605	Mar. 30	3103	734	78	1936
Musical instruments. Note-plate for mechanical	E. L. Cuendet and F. J. Bernard	577,809	Mar. 2	11	5	78	1263
Musical instruments. Tailpiece and guard for stringed	C. W. Hutchins	575,425	Jan. 19	1838	442	78	382
Nail assorting and distributing apparatus	A. D. Elliott and C. W. Glidden	577,241	Feb. 16	1982	469 / 470	78	1040
Nail-feeding chuck	B. S. Atwood	575,198	Jan. 12	1445	347	78	290
Nail-forming die	G. T. Anderson	575,316	Jan. 19	1643	392	78	347
Nail-machine	W. B. Bennett	577,909	Mar. 2	133	32	78	1285
Nail-manufacturing machine	G. D. Bartlett	578,385	Mar. 9	956	217	78	1460
Nail or tack driving implement	T. J. Langston	579,880	Mar. 30	3558	851	78	2013
Nail-puller	F. B. Johnson	579,150	Mar. 23	2204	539	78	1757
Nail selecting and distributing machine	C. C. Small	577,212	Feb. 16	1984	458 / 459	78	1081
Nail selecting and distributing machine	C. C. Small	577,213	Feb. 16	1989	459 / 460	78	1082
Nailing-machine foot	G. N. Gordon	579,390	Mar. 23	2072	634	78	1827
Name-plate. Bicycle	G. E. Wheelhouse	576,642	Feb. 9	986	231	78	838
Nasal expander	G. B. Farmer	576,441	Feb. 2	637	152	78	757
Needle. Embroidery-	S. G. Lewis	577,763	Feb. 23	2896	686	78	1227
Needle-pointing machine	P. M. Beers	575,870	Jan. 26	2617	618 / 619	78	547
Needle. Seine-	W. J. May	579,157	Mar. 23	2302	541	78	1758
Needle-threader	J. Barlow	574,514	Jan. 5	221	52	78	44
Needlework fabric	J. Vialon	578,798	Mar. 16	1669	386	78	1625
Negative-slide and film-illuminator and camera obscura.	W. A. Eddy	576,435	Feb. 2	629	150	78	755
Nest. Poultry-	J. F. Pool	579,407	Mar. 23	2700	642	78	1832
Net. Landing-	A. Holmes	577,684	Feb. 23	2762	653	78	1201
Nickel from copper in ore or matte. Separating	N. V. Hybinette	579,111	Mar. 16	2225	------	78	1729
Night-light	A. F. Baumer	574,376	Jan. 5	9	3	78	4

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nipple	G. H. Neidlinger	577,199	Feb. 16	1919	454	78	1028
Non-conducting hood	J. Wilkerson	575,680	Jan. 19	2301	542	78	473
Non-friction joint	N. Moore	576,221	Feb. 2	258	63	78	695
Nozzle	D. B. Adams	578,706	Mar. 16	1521	351	78	1597
Nozzle	C. V. Pollock	574,570	Jan. 5	315	73	78	61
Nozzle and sprayer	W. C. Oberwalder	579,173	Mar. 23	2333	548	78	1764
Nozzle cut-off	W. W. Stewart	577,120	Feb. 16	1796	423	78	1004
Nozzle. Hydraulic	F. M. Bookwalter	579,418	Mar. 23	2714	644	78	1834
Nozzle. Oil-can	D. True	576,702	Feb. 9	1079	253	78	856
Nozzle. Spray-	P. J. Doyle	575,596	Jan. 19	2146	509	78	443
Nozzle. Spraying-	C. P. Gilmore	578,400	Mar. 9	978	222	78	1465
Nozzle. Spraying-	J. A. Watson	579,371	Mar. 23	2642	625	78	1821
Nut-lock	W. C. Althen	578,591	Mar. 9	1318	208	78	1530
Nut-lock	J. H. Banser	578,194	Mar. 2	651	148	78	1385
Nut-lock	W. J. Bridges	578,208	Mar. 2	668	151	78	1387
Nut-lock	P. E. Budlong	578,717	Mar. 16	1545	358	78	1601
Nut-lock	P. Burns	575,695	Jan. 26	2528	549	78	492
Nut-lock	C. C. Cuyler	576,087	Jan. 26	2906	686	78	599
Nut-lock	M. Froehlich	576,399	Feb. 2	573	134	78	743
Nut-lock	J. E. Hines	577,751	Feb. 23	2875	682	78	1222
Nut-lock	J. B. Kearney	579,151	Mar. 23	2296	539	78	1757
Nut-lock	F. G. Kollenberg	575,358	Jan. 19	1723	410	78	368
Nut-lock	V. A. and P. F. Laue	575,251	Jan. 12	1528	367	78	307
Nut-lock	D. S. Leger	579,648	Mar. 30	3180	755	78	1941
Nut-lock	F. P. Lewis, E. N. and A. Stapp	574,548	Jan. 5	278	65	78	55
Nut-lock	E. W. Lynch	578,063	Mar. 2	377	88	78	1333
Nut-lock	P. McHugh	576,466	Feb. 2	670	160	78	764
Nut-lock	E. G. Nicodemus and C. C. Guisinger.	575,268	Jan. 12	1558	372	78	313
Nut-lock	M. Nittle	577,517	Feb. 23	2475	582	78	1148
Nut-lock	J. Pearson	576,148	Feb. 2	135	34	78	662
Nut-lock	G. W. Perry	579,547	Mar. 23	2994	709	78	1886
Nut-lock	G. Reilly	577,174	Feb. 16	1875	443	78	1020
Nut-lock	H. R. Schurter	577,210	Feb. 16	1932	458	78	1080
Nut-lock	A. D. Smith	574,582	Jan. 5	354	80	78	67
Nut-lock	J. D. Sowers and J. W. Gentry	579,665	Mar. 30	3206	761	78	1946
Nut-lock	W. H. Starr	578,369	Mar. 9	930	211	78	1456
Nut-lock	G. E. Strauss and E. Klahn	578,276	Mar. 2	777	175	78	1408
Nut-lock	F. Thompson	579,848	Mar. 30	3510	839	78	2004
Nut-lock	H. A. Williams	577,123	Feb. 16	1801	424	78	1005
Nut. Lock-	R. L. Lunsford	578,412	Mar. 9	1000	229	78	1469
Nut-locking bolt	E. Stancliff	577,521	Feb. 23	2482	585	78	1150
Nut-locking device	J. P. Brown	575,414	Jan. 19	1819	437	78	379
Nut-locking device. Axle-	I. F. Bassford	579,553	Mar. 23	3003	711	78	1888
Nut. Wagon-	G. Zellstra	575,751	Jan. 26	2416	569	78	509
Nut-wrench	C. W. Cutter	576,093	Feb. 2	23	7	78	642
Nut-wrench	R. F. Olden	574,622	Jan. 5	425	97	78	80
Object-glass	P. Rudolph	576,896	Feb. 9	1394	332	78	917
Office-indicator	E. Dundon	575,597	Jan. 19	2147	509	78	444
Oil-burner	H. C. Hornish	579,435	Mar. 23	2747	652	78	1839
Oil-burner	E. R. Weston	576,641	Feb. 9	984	231	78	838
Oil-can	W. C. Wilson	579,626	Mar. 30	3186	745	78	1932
Oil-can and liquid storage and delivery device	S. I. Merrill	579,888	Mar. 30	3570	854	78	2016
Oil can. Lubricating-	B. A. Gaskins and A. H. Brown	576,841	Feb. 9	1262	309	78	897
Oil-cup plug	J. M. W. Long	579,326	Mar. 23	2572	607	78	1808
Oil-distributer for calming waves	D. Knowles	578,568	Mar. 9	1280	290	78	1523
Oil-engine	A. Peugeot	577,536	Feb. 23	2514	593	78	1155
Oil fabrics. Making	A. N. Ford	574,798	Jan. 5	712	------	78	134
Oil, gas, or like engine	W. Rowbotham	574,762	Jan. 5	665	158 / 159	78	124
Oil, gas, or like engine	W. Rowbotham	578,266	Mar. 2	755	171	78	1405
Oil or gasolene can	C. W. and R. E. Proctor	577,784	Feb. 23	2924	692	78	1232
Oil-press box and plate	A. Fredrickson	578,229	Mar. 2	701	159	78	1394
Oil. Refining cocoanut-	M. C. A. Ruffin	576,278	Feb. 2	363	------	78	705
Oil-tanks. Automatic cut-off for	G. W. Hess	578,744	Mar. 16	1588	367	78	1610
Oil thereon. Apparatus for calming seas by distributing	A. J. Van Beek	575,208	Jan. 12	1453	349	78	292
Oils. Manufacture of	W. D. Field	574,408	Jan. 5	51	------	78	12
Oils. Refining vegetable-	G. Mitchell	575,756	Jan. 26	2422	571	78	511
Oiler	W. C. Wilson	579,627	Mar. 30	3138	745	78	1932
Oiler. Pocket-	J. H. Goss	579,795	Mar. 30	3418	819	78	1967
Oiling device	A. T. Ballantine	578,961	Mar. 16	1976	460 / 461	78	1678
Opera-glass handle	J. W. Patterson	576,687	Feb. 9	1061	249	78	852
Operating-table	C. Lamkin and J. T. Shipley	574,999	Jan. 12	1099	267	78	224
Optical instrument	F. M. Clark	579,182	Mar. 23	2360	532	78	1750
Optical instrument for testing diamonds	T. Thorp	574,588	Jan. 5	361	82	78	68
Orange-knife	A. E. Drew	579,088	Mar. 16	2185	512	78	1722
Ordnance. Breech-loading	D. Vickers	578,172	Mar. 2	614	139	78	1378
Ordnance. High-explosive-throwing	C. A. Thomas	576,917	Feb. 9	1428	339	78	922
Ore-concentrator	H. T. Benson	577,711	Feb. 23	2799	662	78	1208
Ore-concentrator	A. M. Rouse	576,618	Feb. 9	946	219 / 220	78	831
Ore-feeding machine	M. Dillenburg	574,798	Jan. 5	707	169	78	139
Ore-reducing furnace	E. A. F. Schultze	578,271	Mar. 2	766	174	78	1406
Ore-separator	E. P. McDonald	577,874	Mar. 2	65	18	78	1273
Ore separator and concentrator	J. O. Anderson	577,705	Feb. 23	2788	650	78	1206
Ore-treating apparatus	J. H. McCoy	577,825	Feb. 23	2984	706	78	1244
Ores. Reducing	H. L. Bridgman	578,912	Mar. 16	1887	436	78	1663
Ores. Treating auriferous and argentiferous	J. H. Haycraft	579,872	Mar. 30	3549	848	78	2012
Ores. Treating complex sulfid	F. Ellershausen	575,467	Jan. 19	1908	------	78	395
Organ-action. Electropneumatic	F. H. Hastings and F. J. Flaherty	578,925	Mar. 16	1905	441	78	1666
Organ-fan and case	M. Clark	578,860	Mar. 16	1785	412	78	1646
Organ. Pneumatic	M. Clark	576,029	Jan. 26	2881	682 / 683	78	596

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Organ. Reed-	M. Clark	576,031	Jan. 26	2891	684	78	597
Ornamental fabric	J. Lancaster and C. Witteck	578,570	Mar. 9	1284	291	78	1523
Orthopedical appliance	W. Autenrieth	575,199	Jan. 12	1446	348	78	290
Oscillating engine	J. McCartney	579,599	Mar. 30	3091	731	78	1924
Outlet-box	J. J. J. De Rycke	576,810	Feb. 9	1248	297	78	889
Oven. Automatically-controlled electric	W. S. Hadaway, Jr	574,537	Jan. 5	257	60, 61	78	51
Oven. Bake-	A. Rauber	578,833	Mar. 16	1751	408	78	1640
Oven. Baker's	G. F. Smith	575,911	Jan. 26	2695	636, 637	78	561
Overalls	S. W. Boone	579,314	Mar. 23	2552	603	78	1804
Overshoe	C. J. Bailey	574,372	Jan. 5	4	1	78	3
Overshot or undershot wheel for propelling machinery	J. H. Highsmith	578,745	Mar. 16	1590	368	78	1610
Oxygen. Apparatus for making	A. Sweetser	576,915	Feb. 9	1424	338, 339	78	922
Oyster or clam rake	W. H. Watts	578,175	Mar. 2	618	140	78	1379
Oyster-tongs	S. T. Richardson	579,082	Mar. 16	2178	510	78	1721
Ozone and by-products. Manufacturing	G. J. Andersson and J. C. Dittrich	577,523	Feb. 23	2488	596	78	1151
Ozone. Apparatus for producing	E. Andreoli	577,636	Feb. 23	2688	634	78	1165
Package for mustard, &c	C. Gulden, Jr	578,920	Mar. 16	1900	439	78	1667
Package-holding device for bicycles, &c	R. A. Mayo	579,761	Mar. 30	3365	804	78	1977
Package. Sealed	O. S. Fellows	575,060	Jan. 12	1209	293	78	245
Packer	D. W. Black	578,388	Mar. 9	963	218, 219	78	1461
Packing for air-brakes. Rod-	F. D. Toucey	579,616	Mar. 30	3122	741	78	1929
Packing for piston-rods. Metallic	M. P. McLaughlin	575,491	Jan. 19	1950	467	78	403
Packing. Metallic	A. C. Packer	576,527	Feb. 2	788	184	78	785
Packing or boxing machine	E. G. Tremaine	579,688	Mar. 30	3242	769, 770	78	1953
Packing. Pump-plunger	B. F. Williston	577,570	Feb. 23	2578	608	78	1167
Pad: *See* Collar-pad. Horseshoe-pad. Hoof-pad. Saddle-pad. Horse foot-pad.							
Paddle-wheel	C. W. Kellogg	574,848	Jan. 5	808	196	78	152
Paddle-wheel	R. Mitchell	575,845	Jan. 26	2573	607	78	539
Paddle-wheel. Feathering	M. A. Davis	574,398	Jan. 5	36	9	78	9
Padlock	T. Grabowski and K. Jurkowski	577,246	Feb. 16	1908	472	78	1042
Padlock	W. F. Troast	574,961	Jan. 12	1028	249	78	211
Padlock	W. F. Troast and J. B. Amwake	578,791	Mar. 16	1664	385	78	1624
Pail. Oyster-	J. W. Knight	577,863	Mar. 2	42	13	78	1268
Paint	H. L. Bates	577,832	Mar. 2	4	.....	78	1261
Paint for ships' bottoms	G. L. Burnham	575,800	Jan. 26	2488	.....	78	523
Paint-mixer	J. P. J. Saxer	575,905	Jan. 26	2684	633	78	559
Paint-mixture compound	L. L. Coleman	579,861	Mar. 30	3531	.....	78	2009
Paint-removing compound	A. Ernst	576,957	Feb. 9	1485	.....	78	933
Painter's pot-hook and putty-knife	A. L. Higgins	577,856	Mar. 2	33	10	78	1267
Painting apparatus. Pneumatic	R. Wallwork and A. C. Wells	577,496	Feb. 23	2432	572	78	1140
Painting apparatus. Pneumatic	R. Wallwork and A. C. Wells	577,497	Feb. 23	2433	573	78	1141
Painting apparatus. Pneumatic	R. Wallwork and A. C. Wells	577,522	Feb. 23	2483	585	78	1150
Painting machine. Cloth-	R. E. Menzie	579,067	Mar. 16	2151	505	78	1715
Pan: *See* Leer-pan.							
Pantaloons-protector	L. B. Potter	577,066	Feb. 16	1687	400	78	983
Pants-guard. Bicycle	F. A. McGinnis	576,411	Feb. 2	590	139	78	747
Pants-leg guard	H. J. Glasser	579,924	Mar. 30	3623	867	78	2026
Paper-bag machine	E. E. Claussen	574,666	Jan. 5	510	118, 119	78	94
Paper-bag machine	C. E. Dulin	578,550	Mar. 9	1246	282, 283, 284	78	1516
Paper-bag machine	A. C. Getten	575,062	Jan. 12	1212	294, 295	78	246
Paper-bag machine	S. T. Murchie	579,765	Mar. 30	3370	805	78	1978
Paper-bag machine	W. B. Purvis	578,861	Mar. 9	918	209	78	1453
Paper box	R. P. Brown	579,105	Mar. 16	2214	520	78	1727
Paper box	W. A. Cooke, Jr	575,461	Jan. 19	1901	457, 458	78	394
Paper box	F. Knobeloch	579,590	Mar. 30	3079	727, 728	78	1922
Paper box	A. D. Stern	575,913	Jan. 26	2697	637, 638	78	561
Paper-box and printing machine. Combined	G. A. Huèwe and W. T. Emmes	575,239	Jan. 12	1508	361, 362	78	308
Paper box. Folding	I. Tahl	575,384	Jan. 19	1770	425	78	370
Paper-box machine	G. E. Grimm	576,980	Feb. 9	1544	367	78	945
Paper-box shucks. Machine for making	W. H. Wussow, Sr	579,029	Mar. 16	2080	488	78	1702
Paper-cutter	G. H. Edwards	575,466	Jan. 19	1907	459	78	395
Paper-cutter	M. F. Tytler	575,447	Jan. 19	1873	451	78	389
Paper-cutting machine	E. J. Armstrong	575,291	Jan. 12	1589	378, 379	78	319
Paper-cutting machine	H. I. Koegel	577,985	Mar. 2	263	62	78	1311
Paper-cutting-machine rolling gage	F. Wilkening	576,643	Feb. 9	986	231, 232	78	889
Paper. Device for displaying wall-	T. C. Wright	576,645	Feb. 9	992	232, 233	78	840
Paper-drier	A. A. Hunting	577,034	Feb. 16	1636	389	78	973
Paper-drier lath-feeder	W. H. Waldron	574,092	Jan. 5	555	129	78	102
Paper-feeding machine	E. Dummer	576,776	Feb. 9	1188	283	78	877
Paper-feeding machine	C. G. Harris	579,362	Mar. 23	2627	621	78	1819
Paper-feeding machine	W. G. Trevette	575,744	Jan. 26	2405	566	78	507
Paper-feeding machine	F. H. Hoberg	577,256	Feb. 16	2007	475	78	1044
Paper fixture. Toilet-	H. F. Haviland	575,568	Jan. 19	2087	498	78	431
Paper-holder	J. T. Hoyt	579,092	Mar. 16	2189	513	78	1723
Paper-holder	H. A. Moses	574,559	Jan. 5	296	69	78	58
Paper-making machine	H. Sandham	577,070	Feb. 16	1606	408	78	985
Paper-marbling machine	J. M. Reed	578,677	Mar. 9	1455	333, 334	78	1555
Paper or other tubes. Apparatus for making	F. W. Oliver	578,355	Mar. 9	909	205, 206	78	1451
Paper-pulp strainer	J. W. Smith	574,638	Jan. 5	451	103, 104	78	85
Paper-rack	W. M. Brightman	575,590	Jan. 19	2137	506	78	441
Paper-registering machine	T. C. Dexter	578,549	Mar. 9	1242	281, 282	78	1515
Paper-registering mechanism	T. C. Dexter	575,150	Jan. 12	1366	329	78	275
Paraffin from articles. Device for removing	J. S. Beeman	574,516	Jan. 5	223	53	78	44
Paraphenetidin compound	H. Baum	574,874	Jan. 12	859	.....	78	181
Partition. Sliding	J. B. Peace	574,566	Jan. 5	309	71, 72	78	60
Passe-partout	J. A. and P. P. Bartoszewicz	577,676	Feb. 23	2751	649	78	1199
Pattern. Adjustable garment	A. Meas	579,491	Mar. 23	2890	679, 680	78	1866
Pattern and core box. Combined	H. V. Moore	574,748	Jan. 5	644	153	78	120
Peanuts. Process of and apparatus for treating	W. E. Weatherly	574,647	Jan. 5	467	107, 108	78	87
Pedal balance attachment	J. R. Bliven	574,658	Jan. 5	488	112	78	91
Pedal-bar	J. A. Spooner	577,791	Feb. 23	2034	694	78	1234
Peeling knife. Potato-	H. G. Loeffler	577,384	Feb. 16	2225	524	78	1086
Pen	J. S. Bard	576,800	Feb. 9	1227	293	78	885
Pen	W. T. Keefer	579,152	Mar. 23	2297	540	78	1757
Pen	R. W. Robinson	578,834	Mar. 16	1753	408	78	1641
Pen. Drawing-	F. A. Alteneder	575,408	Jan. 19	1807	434	78	377
Pen-ejector	F. Dobson	574,963	Jan. 5	839	204	78	158
Pen. Fountain-	H. J. Cowger	576,555	Feb. 9	843	196	78	812
Pen. Fountain-	W. I. Ferris	578,054	Mar. 2	363	86	78	1331
Pen. Fountain-	G. A. Spies	577,932	Mar. 2	181	43	78	1296
Pen. Fountain marking-	C. D. Marsh	576,590	Feb. 9	914	211	78	825
Pen. Fountain shading-	F. van Gerpen	578,955	Mar. 16	1970	459	78	1677
Penholder	C. M. Dunbar and J. Roecker, Jr	574,406	Jan. 5	48	12	78	11
Penholder	H. E. Jarvis	578,505	Mar. 9	1277	290	78	1522
Penholder	M. W. Lansing	574,545	Jan. 5	274	64	78	54
Penholder	S. M. Rhone	578,773	Mar. 16	1629	377	78	1617
Penholder	W. Thomas	575,385	Jan. 19	1771	425	78	371
Penholder	W. H. Walker	577,335	Feb. 16	2139	507	78	1069
Penholder	G. C. Ward	576,012	Jan. 26	2860	677	78	592
Penholder for writing roundhand	P. Neumann	577,875	Mar. 2	66	18	78	1274
Pen-reservoir	H. J. Hope and F. Dobson	577,137	Feb. 16	1817	428	78	1008
Pen-rest	F. C. Canfield	575,458	Jan. 19	1895	456	78	393
Pen. Shading-	E. S. Hengst	577,188	Feb. 16	1898	449	78	1024
Pen. Shading-	A. O. Hooton	576,315	Feb. 2	430	100	78	718
Pencil-case	C. E. Mathiesen	579,596	Mar. 30	3067	730	78	1924
Pencil-holder	E. Sharp	576,903	Feb. 9	1405	334	78	918
Pencil-sharpener	J. R. Balsley	574,374	Jan. 5	6	2	78	4
Pencil-sharpener	G. D. Hart	575,947	Jan. 26	2746	648	78	571
Pencil-sharpener	W. M. Moseley	574,558	Jan. 5	295	68	78	58
Pencil-sharpener and eraser-cleaner. Combined	P. L. Lord	575,964	Jan. 26	2770	654	78	576
Pencil-sharpener, ink-eraser, and burnisher. Combined	H. I. Talley	576,501	Feb. 2	784	175	78	776
Pencil sharpener Lead-	W. M. Moseley	578,577	Mar. 9	1295	294	78	1526
Pendulum-escapement	A. Dardenne	574,984	Jan. 12	1077	261, 262	78	220
Percarbonates. Manufacturing	E. J. Constam and A. von Hansen	579,317	Mar. 23	2559	604	78	1805
Percolator-stand	P. J. Brown	577,829	Feb. 23	2092	708	78	1246
Percussion-wheel	F. M. F. Cazin	578,813	Mar. 16	1713	394	78	1633
Perforating-machine	E. H. Ruffner	575,853	Jan. 26	2588	611	78	542
Perforator	E. R. Storm	575,497	Jan. 19	1957	469, 470	78	405
Permutation-lock	W. Angle	577,341	Feb. 16	2148	509	78	1070
Permutation-lock	H. Clarke	577,380	Feb. 16	2218	522	78	1084
Permutation-lock	F. J. Heacock	577,301	Feb. 16	2080	492	78	1058
Pessary	N. E. Charlton	578,210	Mar. 2	673	153	78	1349
Pessary	H. M. Ryman	574,943	Jan. 12	997	240	78	206
Petroleum. Metallic casing for shipment of	C. N. Leroy	575,084	Jan. 12	1161	283	78	295
Pew	R. W. Irwin and J. Stiles	576,198	Feb. 2	215	54	78	677
Pew-backs. Attachment for extension of	I. H. Webb	579,027	Mar. 16	2080	487	78	1701
Phenols. Obtaining aqueous solutions of	L. O. Helmers	574,421	Jan. 5	75	.....	78	15
Phonograph	L. W. Briggs and D. E. Boswell	576,081	Jan. 26	2983	703, 704	78	613
Phonograph	T. A. Edison	575,151	Jan. 12	1369	330	78	275
Phosphate-dropper	A. L. Bozard	577,613	Feb. 23	2056	627	78	1181
Photographic apparatus. Aerial	W. A. Eddy	578,980	Mar. 16	2006	467	78	1686
Photographic lens	H. H. Turner	577,891	Mar. 2	98	25	78	1279
Photographic mounts. Die for manufacturing cards for	P. J. Stuparich	575,814	Jan. 26	2516	598	78	529
Photographic-plate dipper	H. L. Chenery	574,879	Jan. 12	866	210	78	182
Photographic-printing frame	W. H. Lewis	576,208	Feb. 2	231	57	78	680
Photographic shutter	R. Kroedel	574,435	Jan. 5	94	20	78	19
Photographic shutter	D. P. O'Leary and S. B. Kull	574,756	Jan. 5	654	155	78	122
Photographs. Embossing	G. R. A. Weimann	576,640	Feb. 9	983	230	78	838
Photographs in relief. Producing	H. C. Fairchild	576,047	Jan. 26	2926	690	78	602
Photographs. Reproducing	N. S. Amstutz	577,373	Feb. 16	2207	521	78	1082
Photography. Screen-shutter for color	F. J. Harrison	578,147	Mar. 2	540	123	78	1365
Piano	J. F. Conover	574,711	Jan. 5	584	136	78	108
Piano-action	T. T. Fischer	575,470	Jan. 19	1910	460	78	396
Piano-actions. Mechanism for varying the touch of	F. Lindholm and C. Picard	579,801	Mar. 30	3427	821	78	1988
Piano attachment. Electrically-operated	E. J. Simpkins	578,072	Jan. 12	1228	296	78	248
Piano. Automatic combination-	E. H. White and W. D. Parker	579,623	Mar. 30	3132	744	78	1931
Pianoforte	F. Hoerr	577,752	Feb. 23	2876	682	78	1222
Pianoforte or pianette	J. Strong	578,782	Mar. 16	1644	381	78	1620
Piano mandolin attachment	A. H. Stuart	578,048	Mar. 2	352	84	78	1329

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Piano pedal-board	R. Schulze	577,271	Feb. 16	2030	480, 481	78	1049
Piano resonating support	H. R. Schreiber	579,498	Mar. 23	2904	683	78	1869
Picker: *See* Bean-picker. Fruit-picker.							
Pickling apparatus	G. G. McMurtry	575,404	Jan. 19	1804	433	78	376
Picks, &c. Fixing working points or ends of	J. Barlow	576,535	Feb. 9	813	189	78	807
Picks, &c. Making	W. R. Jenkins	578,242	Mar. 2	720	163	78	1398
Picture-cord fastening	E. D. Austin	579,552	Mar 23	3002	711	78	1888
Picture-exhibitor	G. W. Brown	576,542	Feb. 9	825	192	78	809
Picture-frame	J. A. Bower	578,300	Mar. 2	659	150	78	1386
Picture-frame	C. I. C. Lee	577,530	Feb. 23	2409	589	78	1152
Picture-frame	R. Liebmann	577,660	Feb. 23	2728	644	78	1195
Picture-frame	R. O. Schulze	579,248	Mar. 23	2438	576	78	1784
Picture-frame and album. Combined	C. Wiedliger	574,973	Jan. 12	1058	257	78	217
Picture-frame. Metallic	R. Liebmann	578,986	Mar. 16	1924	444	78	1669
Picture-hanging device	O. L. Smith	579,333	Mar. 23	2584	611	78	1810
Pictures. Means for exhibiting consecutive	H. W. Short	575,761	Jan. 26	2429	573	78	512
Pigment	R. Alberti	578,388	Mar. 9	954	.....	78	1460
Pile-driving mechanism	R. H. F. Sewall	579,900	Mar. 30	3589	859	78	2019
Pile fabric	M. Drolet	578,917	Mar. 16	1896	438	78	1664
Pile fabric. Woven	W. Brimfield	577,886	Mar. 2	7	3, 4	78	1202
Pile. Sheet-	E. R. Beardsley	577,942	Mar. 2	194	47	78	1209
Pillow	R. Kelso	574,807	Jan. 5	846	205	78	158
Pin: *See* Belt-pin. Hair-pin. Clevis-pin. Hat-pin. Curtain-stretcher pin. Safety-pin. Upholstering-pin							
Pinking-machine	H. F. Blake	575,821	Jan. 26	2524	596	78	530
Pipe: *See* Bath-tub supply-pipe. Sheet-metal pipe. Tobacco-pipe.							
Pipe	H. B. Hilgeman	578,333	Mar. 9	883	200	78	1447
Pipe and nut wrench. Combined	C. H. Driver	575,594	Jan. 19	2081	497	78	429
Pipe attachment	C. B. Brenneman	576,945	Feb. 9	1465	349	78	920
Pipe-cleaner	J. J. Snyder	574,956	Jan. 12	1017	246	78	210
Pipe-cleaning apparatus. Waste-	W. A. McClelland	576,507	Feb. 2	746	177	78	779
Pipe-cleaning device	J. Fierz	578,142	Mar. 2	533	121	78	1363
Pipe-cleaning device. Waste-	E. Honeywell	579,483	Mar. 23	2881	677	78	1804
Pipe-coupling	D. N. Gleason	579,643	Mar. 30	3173	753	78	1940
Pipe-coupling	F. A. Grundy	577,251	Feb. 16	2001	473	78	1043
Pipe-coupling	G. R. Thacker	579,284	Mar. 23	2505	592	78	1796
Pipe-coupling	J. Thompson and F. A. Phillips	578,474	Mar. 9	1102	251	78	1489
Pipe coupling and fitting. Long-screw	W. H. Le Chard and J. A. Best	578,933	Mar. 16	1920	443	78	1669
Pipe-coupling for water-closet bowls, &c	J. Atkinson and C. F. Plunkett	575,583	Jan. 19	2114	504	78	436
Pipe-cutter	A. E. Brockett	575,688	Jan. 26	2317	546	78	490
Pipe. Draw-bench for manufacturing	P. Boyd	575,389	Jan. 19	1775	426, 427	78	371
Pipe-header and automatic air-valve	A. Elder	579,865	Mar. 30	3536	844	78	2010
Pipe-jointer	G. Richardson	578,422	Mar. 9	1013	232	78	1472
Pipe-jointing holder	E. Newman	575,286	Jan. 12	1583	377	78	317
Pipe-threading device	J. W. Craddock	579,222	Mar. 23	2408	568	78	1779
Pipe-tool. Combination	A. E. Brockett	575,685	Jan. 26	2313	545	78	490
Pipe without welded joints. Manufacturing	C. G. P. de Laval	574,740	Jan. 5	632	151	78	118
Pipe-wrench	W. H. Furbee and T. Barrett	579,053	Mar. 16	2128	500	78	1711
Pipe-wrench	C. Grogan	577,250	Feb. 16	2000	473	78	1043
Pipes. Balanced expansion-joint for pressure-	S. N. Smith	575,577	Jan. 19	2104	502	78	434
Pipes in column apparatus. Apparatus for cleaning overflow-	H. Hirzel	579,391	Mar. 23	2674	634	78	1837
Pipes or flues. Machine for swaging or tapering	S. Adams	579,214	Mar. 23	2395	565	78	1776
Piping for heat distribution in buildings	J. H. Mills	579,070	Mar. 16	2158	506	78	1717
Piping or tubing for drawing off beer	J. L. Fort and G. E. Hoey	578,144	Mar. 2	536	121	78	1364
Piston and valve-gear. Combined working	F. Lamplough	574,915	Jan. 12	917	223, 224	78	193
Piston-rod extractor	C. E. Nichols	579,803	Mar. 30	3430	822	78	1989
Pitcher	S. G. Vogeley	578,529	Mar. 9	1215	274	78	1510
Pitman	T. Regan	575,008	Jan. 12	1116	271	78	227
Placket-fastener	F. A. Jaberg	575,889	Jan. 26	2564	605	78	537
Placket-fastener	J. R. Rueckert	578,946	Mar. 16	1964	455	78	1675
Placket fastener. Skirt-	C. W. Burridge	579,381	Mar. 23	2660	630	78	1825
Plane-lubricating apparatus	J. Witzell	579,911	Mar. 30	3607	862	78	2022
Planer for woodcuts and electroplates	M. P. Kenna	574,908	Jan. 12	910	220	78	191
Planetarium	A. Laing	578,108	Mar. 2	453	105	78	1348
Planetarium	L. Reese	575,735	Jan. 26	2394	563	78	505
Planimeter	B. E. Cholliar	575,105	Jan. 12	1284	310	78	259
Planing-machine	L. L. Bartlett	578,712	Mar. 16	1530	358	78	1599
Planter	M. D. Breen and W. H. Brace	575,101	Jan. 12	1274	308, 309	78	257
Planter	J. W. Romine	579,688	Mar. 30	3294	767	78	1951
Planter	C. P. Taylor and G. W. Oglesby	577,795	Feb. 23	2940	695	78	1235
Planter and digger. Potato	F. D. Bell	577,710	Feb. 23	2797	661	78	1208
Planter and fertilizer-distributer. Combined	J. H. Bailey	578,188	Mar. 2	644	146	78	1384
Planter and fertilizer-distributer. Combined cotton-	J. C. Wadsworth	579,617	Mar. 30	3123	741	78	1990
Planter and fertilizer-distributer. Seed-	J. A. and F. M. Harmon	576,575	Feb. 9	883	204	78	819
Planter attachment	S. W. Myers	578,757	Mar. 16	1609	371	78	1614
Planter check-row attachment. Seed-	J. F. Winchell	575,289	Jan. 12	1587	378	78	318
Planter. Check-row corn-	F. Gunther	579,266	Mar. 23	2476	585	78	1790
Planter. Corn-	A. F. Brown and C. W. Michael	578,074	Mar. 2	395	92	78	1337
Planter. Corn-	A. F. Brown and C. W. Michael	578,075	Mar. 2	397	92, 93	78	1337
Planter. Corn-	W. T. M. Brunnemer	579,106	Mar. 16	2215	521	78	1727
Planter. Corn-	L. C. Evans	577,200	Feb. 16	2005	488	78	1055
Planter. Corn-	W. S. Eyster	576,065	Jan. 26	2953	696	78	607
Planter. Corn-	E. M. Heylman	574,539	Jan. 5	261	61, 62	78	51

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Planter. Corn-	N. V. Moore	578,256	Mar. 2	741	168	78	1402
Planter. Corn-	M. and A. Sattley and M. Heineke	574,578	Jan. 5	846	78	78	65
Planter. Corn-	J. Selby	576,624	Feb. 9	959	223, 224	78	833
Planter. Corn-	C. Stadtfeld	579,189	Mar. 23	2359	555	78	1769
Planter. Corn-	J. W. Svoboda	576,483	Feb. 2	701	167, 168	78	770
Planter. Potato-	A. J. Colburn	578,508	Mar. 9	1178	266, 267	78	1503
Planter. Potato-	A. I. Mereness	575,258	Jan. 12	1542	369, 370	78	309
Planter. Potato-	B. F. Stickler and F. D. Bell	577,810	Feb. 23	2062	700	78	1239
Planter. Seed-	M. Mannewitz	574,554	Jan. 5	287	67	78	57
Planter. Seed-	J. A. Mengel	577,486	Feb. 23	2413	568	78	1137
Planter. Seed-	R. M. Phillips	574,987	Jan. 12	986	237, 238	78	204
Planting machine. Seed-	J. C. McCormick	579,165	Mar. 23	2314	544	78	1761
Pliers cutting attachment	A. H. Hesterhagen	578,088	Mar. 2	341	81	78	1326
Pliers. Wire crimping and fastening	J. S. Williams	576,503	Feb. 2	737	175	78	777
Plow	W. Easley	578,730	Mar. 16	1568	363	78	1606
Plow	R. E. Suchotz	577,092	Feb. 16	1716	406	78	989
Plow	M. M. Wroten	578,181	Mar. 2	628	143	78	1381
Plow attachment	P. E. Graham	578,849	Mar. 16	1771	408	78	1644
Plow attachment	H. Wanzer	575,233	Jan. 12	1500	360	78	301
Plow. Corn or cotton turn-	D. C. Hayslip	578,174	Mar. 2	617	140	78	1379
Plow. Cultivator-	C. L. Flora	575,507	Jan. 19	1963	474	78	412
Plow. Ditching-	R. A. Ray	577,947	Mar. 2	200	48	78	1300
Plow or cultivator	C. La Dow	575,169	Jan. 12	1392	335	78	280
Plow-point	J. E. Swanström	575,666	Jan. 19	2275	538	78	468
Plow. Rotary spade-	C. La Dow	577,373	Feb. 16	2032	481	78	1049
Plow share and point	T. M. Moore and A. Rawley	575,667	Jan. 19	2277	538	78	468
Plowshare-blank	H. G. Sawyer and E. A. Hendricks	576,817	Feb. 9	1257	300	78	890
Plowshare-blanks. Die for cutting out	J. H. Griffin	578,119	Mar. 2	482	111	78	1354
Plumber's clamp	L. Moses	576,758	Feb. 9	1167	278	78	873
Plumbing, &c. Testing	H. A. Hamlin and D. Hunter	577,560	Feb. 23	2556	602	78	1163
Pneumatic-despatch system	C. F. Pike	578,237	Mar. 2	711	161, 162	78	1396
Pneumatic-despatch tube and carrier therefor	C. F. Pike	574,988	Jan. 12	989	238	78	204
Pneumatic-despatch-tube systems. Switch-rail for	C. F. Pike	578,943	Mar. 16	1938	448, 449	78	1672
Pneumatic-despatch tubes. Electric controlling apparatus for	E. A. Fordyce	575,883	Jan. 26	2646	625, 626	78	552
Pneumatic spring-seat	E. F. Spaulding	576,328	Feb. 2	454	107	78	722
Pneumatic-tired wheel	W. Merton	575,613	Jan. 19	2170	515	78	448
Pneumatic tool	J. G. Carlinet	574,784	Jan. 5	700	169	78	131
Pneumatic-tool handle	W. M. Morse	578,020	Mar. 2	314	75	78	1321
Pocket	H. Kaufman	575,427	Jan. 19	1841	442	78	383
Pocket-book	C. Piers, Jr	578,498	Mar. 9	1159	261	78	1500
Pocket-book safety-holder	J. Ekengren	574,720	Jan. 5	606	144	78	112
Pocket guard. Watch-	W. N. Offutt	575,126	Jan. 12	1320	318	78	266
Pocket-knife	J. M. Livingston	575,361	Jan. 19	1727	411	78	368
Pocket protector or guard	J. N. Hammer	579,749	Mar. 30	3340	790	78	1972
Pocket rack. Garment-	D. B. Kirschner	577,483	Feb. 23	2403	565	78	1135
Pole attachment. Wagon-	E. Hoxie	577,578	Feb. 23	2588	610	78	1169
Pole connection for harvesters	J. W. Latimer and J. A. Graham	576,406	Feb. 2	583	136	78	745
Polishing and abrading material	E. P. Lorch	576,370	Feb. 2	523	.....	78	735
Polishing and abrasive material	A. F. Pritschau	574,449	Jan. 5	125	28	78	25
Polishing-wheels. Means for supplying water to	W. J. Lee and L. Rouault	577,045	Feb. 16	1652	392	78	975
Poncho, blanket, knapsack, and shelter-tent. Combined	H. I. Conant	578,691	Mar. 9	1489	343	78	1562
Portable heater	W. A. Shepard	578,470	Mar. 9	1097	250	78	1488
Porte-monnaie	J. Langfeld	575,522	Jan. 19	2003	478	78	416
Portfolio	E. Chevalérias	579,470	Mar. 23	2864	673	78	1861
Post: *See* Clothes-line post. Lamp-post. Fence-post.							
Post	H. D. Streator	574,641	Jan. 5	457	104	78	85
Post-hole borer. Horse-power	C. Doughman	579,923	Mar. 30	3622	867	78	2025
Post-setter	G. W. Swiger	575,798	Jan. 26	2480	585	78	522
Postal card. Folding	J. A. Cook	576,552	Feb. 9	840	195	78	812
Pot: *See* Coffee-pot. Flower-pot. Coffee or tea pot.							
Potato cutter. Seed-	D. W. Eddy and C. A. Carlton	577,846	Mar. 2	18	7	78	1264
Potato cutter. Seed-	C. Hardgrave	574,416	Jan. 5	65	15	78	14
Potato-digger	P. Brown	575,691	Jan. 26	2321	547	78	491
Potato-digger	F. O. Clapp	579,131	Mar. 23	2259	531	78	1750
Potato-digger	C. D. Hershey	578,635	Mar. 9	1888	316	78	1543
Potato-digger	W. B. Myers	576,322	Feb. 2	446	104, 105	78	721
Potato sorter and sacker	D. C. Weatherhead	574,592	Jan. 5	366	83	78	69
Pottery-machine	J. F. and G. C. Burson	578,207	Mar. 2	609	152	78	1388
Powder-box	E. H. Lyon	577,767	Feb. 23	2900	687	78	1227
Power: *See* Pumping-power.							
Power and heat generator	G. White	575,819	Jan. 26	2522	595	78	530
Power at variable speeds. Mechanism for transmitting	P. Auriol	578,536	Mar. 9	1225	277	78	1512
Power-converter	A. G. Newman, J. A. Johnson, J. H. Swedlund, and C. Williams.	577,445	Feb. 23	2342	550	78	1123
Power, heating, and ventilating apparatus for buildings.	R. P. Bolton	576,718	Feb. 9	1108	260	78	860
Power. Means for transmitting	J. Flindall	576,105	Feb. 2	48	13	78	646
Power. Means for transmitting	J. Flindall	578,556	Mar. 9	1262	286, 287	78	1519

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Power-shears	F. M. Leavitt	577,107	Feb. 16	1771	418, 419	78	999
Precious metals from cyanid solutions containing them. Recovering	W. A. Koneman	578,341	Mar. 9	891	202	78	1448
Precious metals from ores. Means for abstracting	J. P. Schmitz	577,787	Feb. 23	2028	692	78	1232
Precious metals from slimes, &c. Process of and apparatus for extracting	D. White and T. M. Simpson	578,178	Mar. 2	623	143	78	1380
Precious metals from their ores. Extracting	W. A. Koneman	578,340	Mar. 9	889	.....	78	1448
Precious metals from their solutions. Precipitating	H. L. Sulman	576,173	Feb. 2	175	43	78	669
Preserving foods	E. H. L. Ostermann	575,978	Jan. 26	2801	.....	78	581
Press: *See* Baling-press. Cotton-press. Cheese-press. Printing-press. Cigar-packer's press.							
Press	G. Baumann	579,336	Mar. 23	2590	612	78	1811
Press	F. F. Raymond, 2d, and C. H. Fogg	575,040	Jan. 12	1169	285	78	237
Press	O. Smith	579,019	Mar. 16	2064	483, 484	78	1697
Pressure-reservoir and heater. Combined	F. L. Rice and A. D. Langworthy	577,390	Feb. 16	2237	526	78	1087
Printer. Stock-	F. A. Graham	579,676	Mar. 30	3220	765	78	1949
Printer's leader	J. J. Mosher	577,773	Feb. 23	2909	688	78	1229
Printer's rule-case	J. W. Faxlanger	578,321	Mar. 9	866	196	78	1443
Printing and dyeing fabrics	F. Schreurs	576,023	Feb. 9	957	223	78	883
Printing apparatus	J. B. Mockridge and J. G. Hocke	575,968	Jan. 26	2777	655, 656	78	577
Printing attachment for paper-holders	J. E. Marsden	579,155	Mar. 23	2299	540, 541	78	1757
Printing attachment for roll-paper holders	W. B. Rust	579,549	Mar. 23	2997	710	78	1887
Printing-machine	C. G. Harris and J. F. McNutt	577,405	Feb. 16	2267	532, 533, 534	78	1092
Printing-machine	W. M. Rockstroh	577,584	Feb. 23	2508	613, 614	78	1171
Printing-machine	W. Scott	578,778	Mar. 16	1639	379	78	1619
Printing machine. Fabric-	S. H. Sharp	579,016	Mar. 16	2059	481	78	1697
Printing machine. Multicolor-	J. W. Osborne	576,276	Feb. 2	356	84	78	704
Printing machine. Multiple web-	C. Potter	574,498	Jan. 5	189	43	78	37
Printing-machine paper-feed	D. Carlaw	579,561	Mar. 30	3026	715, 716	78	1912
Printing machine. Stencil-	A. B. Dick	578,726	Mar. 16	1560	361	78	1604
Printing on sidewalks. Device for	D. J. Ely	575,599	Jan. 19	2150	510	78	444
Printing patterns. Cliché for	E. Quennoy	576,889	Feb. 9	1384	330	78	915
Printing-press	H. H. Cummings	577,100	Feb. 16	1747	413, 414, 415	78	995
Printing-press	E. Curnutt	577,011	Feb. 16	1599	380, 381	78	966
Printing-press	D. I. Eckerson	578,553	Mar. 9	1253	285	78	1518
Printing-press	A. Gaines	577,848	Mar. 2	21	7, 8	78	1265
Printing-press	C. G. Harris	577,300	Feb. 16	2079	492	78	1058
Printing-press	C. G. Harris	577,381	Feb. 16	2221	523	78	1085
Printing-press	C. G. Harris	578,739	Mar. 16	1580	365	78	1608
Printing-press for planographic printing-plates. Rotary	J. Krayer	579,832	Mar. 30	3476	831, 832	78	1998
Printing-press operating mechanism	G. P. Fenner	576,442	Feb. 2	637	152	78	757
Printing-press punching attachment	W. C. Dillingham	578,219	Mar. 2	689	156	78	1392
Printing-press registering mechanism	W. S. Huson	577,554	Feb. 23	2546	600	78	1161
Printing-press registering mechanism	W. S. Huson	577,555	Feb. 23	2548	600	78	1162
Printing-press sheet-delivery mechanism	R. W. Jamieson	575,643	Jan. 19	2232	528, 529	78	460
Printing-presses. Apparatus for feeding paper to	C. G. Harris	577,209	Feb. 16	2076	491	78	1057
Prisons, &c. Safety appliance for	A. Jackson and J. C. Brigleb	576,127	Feb. 2	99	26	78	656
Projectile	W. H. Bell	579,035	Mar. 16	2099	492	78	1705
Projectile	H. Borchardt	577,183	Feb. 16	1887	446	78	1022
Projectile. High-explosive	H. J. W. Dam	576,088	Jan. 26	2907	686	78	599
Projector	J. MacHaffie and E. F. G. H. Faure	576,684	Feb. 9	1051	246, 247	78	851
Projectors. Controlling mechanism for	J. MacHaffie and E. F. G. H. Faure	576,683	Feb. 9	1049	246	78	850
Propeller	H. Miller	579,889	Mar. 30	3572	854	78	2016
Propeller for life-boats. Screw-	J. Huebner	575,158	Jan. 12	1377	331, 332	78	277
Propeller for vessels. Reciprocating	H. Compton	577,421	Feb. 23	2306	541	78	1117
Propeller. Screw-	P. D. Stead	576,169	Feb. 2	166	41	78	668
Propelling apparatus. Boat-	N. Therien	576,768	Feb. 9	1178	280	78	876
Propelling means for boats	R. Fryer	578,815	Mar. 16	1721	395	78	1635
Propelling mechanism. Vessel-	J. Hays	578,987	Mar. 16	2017	469	78	1688
Propulsion of vessels	J. L. Helmolt	577,750	Feb. 23	2873	681	78	1222
Propulsion of vessels	F. O. Slanker	575,178	Jan. 12	1402	337, 338	78	282
Pruning-shears	A. Barling	576,989	Feb. 9	1562	371	78	948
Pruning-shears	C. E. Perry	576,688	Feb. 9	1062	249	78	852
Pruning-tool. Reversible	D. C. Searles	579,083	Mar. 16	2179	511	78	1721
Puddling-tool	L. J. Morgan	577,109	Feb. 16	1779	420	78	1001
Puller: *See* Cable-puller. Spike-puller. Nail-puller. Spike and bolt puller.							
Pulley	T. Corscaden	575,106	Jan. 12	1285	310, 311	78	259
Pulley. Grooved	J. P. Serve	574,580	Jan. 5	351	79	78	66
Pulley. Sheet-metal	T. Corscaden	575,107	Jan. 12	1287	311	78	260
Pulleys or fly-wheels. Machine for finishing peripheries of	J. Tangye and W. H. Bailey	577,332	Feb. 16	2134	506	78	1068
Pulp-grinding mechanism. Wood-	W. R. Farnsworth and P. Farwell	575,600	Jan. 19	2151	510	78	444
Pulp-strainer	R. G. Hutchison	578,515	Mar. 9	1190	269	78	1505
Pulverizer and land-marker. Combined	C. Whitford	574,468	Jan. 5	150	35, 36	78	30

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pulverizer. Gyral	A. M. Rouse	575,495	Jan. 19	1954	469	78	404
Pulverizing-mill. Centrifugal	G. R. King and A. Raymond	579,588	Mar. 30	3072	726	78	1921
Pulverizing-mill. Duplex	G. R. King and A. Raymond	579,587	Mar. 30	3071	735, 736	78	1920
Pump	C. D. Bennett and W. M. Daly	574,702	Jan. 5	569	133	78	105
Pump	F. L. Clark	574,664	Jan. 5	504	116, 117	78	93
Pump	B. J. Douds	579,296	Mar. 23	2519	595	78	1798
Pump	P. A. Myers	574,441	Jan. 5	107	23	78	22
Pump	T. J. Peters	576,689	Feb. 9	1063	249	78	853
Pump	E. G. Staple	576,521	Feb. 2	778	182	78	783
Pump	J. Stumpf	578,950	Mar. 16	1958	456, 457	78	1676
Pump	A. W. Thierkoff	576,916	Feb. 9	1427	339	78	922
Pump	J. D. Wilcox	576,929	Feb. 9	1442	343	78	925
Pump	J. P. Wintz	579,855	Mar. 30	3519	841	78	2006
Pump	W. J. Wright	575,496	Jan. 19	1966	471	78	408
Pump-actuating mechanism	M. Herrmann	575,299	Jan. 12	1610	384	78	329
Pump. Air-	R. R. Harris	575,946	Jan. 26	2744	648	78	571
Pump. Air force-	W. E. Karns	575,117	Jan. 12	1303	314, 315	78	262
Pump. Air-lift	W. Miller and E. O. Thompson	579,069	Mar. 16	2157	506	78	1716
Pump balancing apparatus	E. E. Clark	578,002	Mar. 2	289	68	78	1316
Pump for wells or cisterns. Force-	L. Myers	577,058	Feb. 16	1673	397	78	980
Pump governor. Air-	G. F. Wentz	574,648	Jan. 5	470	108	78	88
Pump. Hydraulic air-	A. G. Noack	575,614	Jan. 19	2172	515, 516	78	448
Pump. Irrigating-	C. H. Seaman	576,699	Feb. 9	1075	252	78	855
Pump. Oil-measuring	A. H. Herron	577,957	Mar. 2	219	52	78	1304
Pump. Pneumatic	F. A. Halsey	578,330	Mar. 9	879	199	78	1446
Pump-rod coupling	J. and J. Amstutz, Jr	577,880	Mar. 2	1	1	78	1261
Pump-rod elevator	O. W. King	578,339	Mar. 9	888	201	78	1448
Pump. Rotary	J. S. Attenhofer	578,132	Mar. 2	515	117	78	1361
Pump. Rotary	F. Marburg, Jr	578,938	Mar. 16	1926	445	78	1670
Pump. Rotary	E. J. Verrue	577,986	Mar. 2	187	45	78	1297
Pump. Single or connected helico-centrifugal	A. Maginot	576,870	Feb. 9	1338	319, 320, 321	78	907
Pump. Steam-	W. W. Corey, Jr	578,317	Mar. 9	860	194, 195	78	1442
Pump. Submerged double-acting force-	H. D. B. Williams	577,545	Feb. 23	2584	597	78	1159
Pumping-machine. Spring	T. E. Hanks and F. C. Purdy	576,963	Feb. 9	1495	355	78	935
Pumping power. Well-	G. W. Grimes	579,480	Mar. 23	2877	676	78	1803
Pumping-rigging. Oil-well	J. N. Maher	575,122	Jan. 12	1314	316, 317	78	264
Punch. Center	I. Beck	578,196	Mar. 2	653	149	78	1385
Punch or heading device	W. G. Allen	578,437	Mar. 9	1044	238	78	1477
Punch. Self-registering check-	C. T. Painter	575,616	Jan. 19	2179	517	78	450
Punching machine. Metal-	R. A. Brine	576,338	Feb. 2	474	111	78	726
Punitive chair	S. J. Baker	575,941	Jan. 26	2738	647	78	570
Purifier. Mechanical	H. B. Wright	578,686	Mar. 9	1477	339	78	1560
Purifying or disinfecting apparatus	E. Hermite	575,645	Jan. 19	2238	529, 530	78	461
Purse	J. W. Myers	577,057	Feb. 16	1672	397	78	980
Purse	H. W. Pitz	579,653	Mar. 30	3187	756	78	1942
Purse	J. Ritter	576,894	Feb. 9	1362	332	78	917
Purse. Coin-	B. Keith	578,243	Mar. 2	721	163	78	1398
Push-button	C. O. Mailloux	575,523	Jan. 19	2004	479	78	416
Puzzle	M. F. Collis	574,304	Jan. 5	29	8	78	8
Puzzle	J. C. Dando, Jr	579,045	Mar. 16	2118	498	78	1709
Puzzle	R. Forwood	577,292	Feb. 16	2068	489	78	1055
Puzzle	W. F. Matthews	576,212	Feb. 2	241	60	78	682
Puzzle	C. H. Robinson	575,276	Jan. 12	1570	374	78	315
Puzzle and toy. Combined	F. A. Jensen	579,485	Mar. 23	2883	678	78	1805
Puzzle or game	E. B. Parker	577,146	Feb. 16	1826	431	78	1010
Pyrazolon compound and making same	F. Stolz	579,412	Mar. 23	2708	.....	78	1833
Quilting-frame	W. H. Crawford	579,472	Mar. 23	2867	674	78	1861
Quilting-frame	M. Jenson, now by marriage M. Butterfield.	577,366	Feb. 16	2190	517, 518	78	1079
Quilting-machine	L. A. Casgrain	577,235	Feb. 16	1971	466, 467	78	1037
Quilting-machine feeding mechanism	A. Steward and G. H. Dimond	579,614	Mar. 30	3115	737, 738, 739, 740	78	1928
Race-tracks. Starter's gate for	J. Schmidt	575,130	Jan. 12	1327	320	78	267
Race-tracks. Starting-gate for	P. McGinnis	575,961	Jan. 26	2721	643	78	596
Rack: *See* Bicycle-rack. Music-rack. Book-rack. Paper-rack. Clothes and hat rack. Pocket-rack. Stamp-rack. Display-rack. Stock-rack. Folding rack. Whip-rack. Hay-rack.							
Rack and mirror. Combined	E. Cundey	577,010	Feb. 16	1597	380	78	966
Rack and stand. Combination	R. Blake	576,651	Feb. 9	1004	235	78	842
Radiating attachment. Stovepipe	J. H. Hoover	578,102	Mar. 2	443	103	78	1346
Radiator	F. Bason	575,515	Jan. 19	1903	477	78	414
Radiator	W. M. Lynn	576,869	Feb. 9	1337	319	78	906
Radiator. Steam-	T. F. Dexter	577,287	Feb. 16	2062	487	78	1054
Radiators. Pipe-fitting for hot-water	L. S. Bunker	574,782	Jan. 5	699	166, 167	78	131
Raft. Timber-	A. J. Burcham	576,515	Feb. 2	765	179	78	782
Rail bond and connection	M. K. Bowen	575,388	Jan. 19	1774	426	78	371
Rail-bond. Electric	W. Jens	575,354	Jan. 19	1719	409	78	362

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rail-bond. Electric	B. J. Jones	578,304	Mar. 2	823	186	78	1417
Rail for preventing derailment. Safety-	H. Biermann	578,854	Mar. 16	1777	410	78	1645
Rail-joint	A. Bonzano	576,943	Feb. 9	1463	348	78	929
Rail-joint	J. Downs	579,427	Mar. 23	2730	648	78	1837
Rail-joint	W. H. Fitch	577,018	Feb. 16	1610	382	78	968
Rail-joint	W. Robinson	574,942	Jan. 12	994	239 240	78	205
Rail-joint	W. Robinson	576,708	Feb. 9	1215	290	78	883
Rail-joint	W. M. Robinson	576,228	Feb. 2	263	65	78	687
Rail-joint	H. Vellenoweth	574,466	Jan. 5	147	35	78	29
Rail-support	W. B. Potter	575,782	Jan. 26	2462	580	78	518
Rails. Contact-box for depressible conductor-	W. Grunow, Jr	576,268	Feb. 2	342	81	78	701
Railway	J. I. Newburg	578,896	Mar. 16	1855	426	78	1657
Railway and railway-switch	G. B. Barron	576,424	Feb. 2	600	144	78	751
Railway-brake	C. L. Harryman	577,655	Feb. 23	2721	642	78	1194
Railway. Closed-conduit electric	E. W. Rice, Jr	575,785	Jan. 26	2465	581	78	519
Railway-crossing signal	C. Selden	578,840	Mar. 16	1759	405	78	1642
Railway-crossings. Arrangement for closing or opening bars at	H. Biermann	578,853	Mar. 16	1777	410	78	1645
Railway. Electric	S. G. Brosius, W. B. Upton, and J. Colvin.	577,912	Mar. 2	138	33, 34	78	1286
Railway. Electric	L. Dion	575,053	Jan. 12	1195	290	78	242
Railway. Electric	W. Grunow, Jr	575,346	Jan. 19	1706	406	78	359
Railway. Electric	E. Lachmann	579,300	Mar. 23	2526	596 597	78	1799
Railway. Electric	G. W. C. Lomb	575,303	Jan. 12	1618	385 386	78	323
Railway. Electric	F. Mansfield	579,759	Mar. 30	3355	802 803	78	1975
Railway. Electric	F. Mansfield	579,760	Mar. 30	3361	803 804	78	1976
Railway. Electric	W. M. Schlesinger	574,632	Jan. 5	439	100 101	78	83
Railway. Electric	C. Skinner	577,885	Mar. 2	87	23	78	1277
Railway. Electric and gravity pleasure-	J. A. Griffiths	577,550	Feb. 23	2541	599	78	1160
Railway. Elevated	G. A. Lancaster	574,807	Jan. 5	736	176 177	78	139
Railway flag-signal	P. W. Sawyer and C. J Perley	579,685	Mar. 30	3237	768	78	1952
Railway-frog	P. H. Kane	579,647	Mar. 30	3179	754 755	78	1941
Railway-gate	J. J. Flippin	576,959	Feb. 9	1487	352 353	78	933
Railway-gate	M. B. Mills	577,489	Feb. 23	2417	569	78	1137
Railway-gate. Automatic	G. G. Lewis	576,459	Feb. 2	662	158	78	762
Railway-gates. Electrical circuit for operating automatic	J. S. Biggar	576,493	Feb. 2	719	171 172	78	773
Railway-gates. Means for operating	F. Newell	576,789	Feb. 9	1208	288	78	882
Railway. Gravity and cable pleasure-	J. A. Griffiths	577,549	Feb. 23	2540	598	78	1160
Railway. Inclined cable-	T. E. Brown	579,469	Mar. 23	2861	673	78	1861
Railway-motor. Electric	A. Schmid	577,071	Feb. 16	1699	408	78	985
Railway. Pleasure-	D. Urch	576,704	Feb. 9	1081	254	78	856
Railway. Pneumatic	H. Haupt	576,975	Feb. 9	1528	361	78	942
Railway-rail	W. C. Ferguson	579,464	Mar. 23	2474	584	78	1790
Railway rail-bond. Electric-	T. J. McTighe and S. W. Childs	578,829	Mar 16	1747	402	78	1640
Railway-rail joint	L. W. Kennedy	578,882	Mar 16	1834	421	78	1654
Railway-rail joint	J. D. Trammell	578,789	Mar. 16	1661	384	78	1623
Railway-rail joint or coupling	A. W. Clemo	575,149	Jan. 12	1365	328	78	274
Railway-rails. Portable drill for	M. T. Hurley	577,605	Feb. 23	2644	624	78	1179
Railway-signal	W. F. French	575,601	Jan. 19	2152	510	78	445
Railway-signal	W. P. Hall	578,236	Mar. 2	709	161	78	1396
Railway-signal. Electrically-controlled	F. McBrien	579,929	Mar. 30	3629	809	78	2027
Railway-signal or whistle-blowing attachment for locomotives.	J. Pilaud	579,281	Mar. 23	2499	590	78	1795
Railway-signals, &c. Spring-actuated lever mechanism for compensating devices for	J. W. and J. R. Jones	574,431	Jan. 5	88	19	78	18
Railway signals, switches, &c. Compensating device for	J. W. and J. R. Jones	578,298	Mar. 2	802	181	78	1413
Railway signaling system	N. Henquin	575,065	Jan. 12	1216	296	78	246
Railway-spike	J. K. Knudsen	578,151	Mar. 2	546	124	78	1366
Railway stock-guard	Z. Wiggs	579,507	Mar. 23	2916	686	78	1871
Railway. Suspension-	D. M. Harman	579,147	Mar. 23	2286	538	78	1755
Railway-switch	D. F. Carver	578,966	Mar. 16	1988	462	78	1680
Railway-switch	J. F. E. Feltner	577,242	Feb. 16	1987	470 471	78	1041
Railway-switch	F. Flanagan	574,897	Jan. 12	895	217	78	188
Railway-switch	S. M. Harris and M. Breisch	576,845	Feb. 9	1301	310 311	78	899
Railway-switch	R. C. Hart and R. S. Field	578,924	Mar. 16	1904	441	78	1666
Railway-switch	H. Hartwell	574,481	Jan. 5	172	40	78	34
Railway-switch	W. H. Jackson	578,641	Mar. 9	1398	318	78	1544
Railway-switch	E. Q. Norton	574,738	Jan. 5	650	155	78	121
Railway-switch	H. Schneider	577,150	Feb. 16	1837	433	78	1012
Railway-switch	E. Schüler	579,015	Mar. 16	2058	481	78	1696
Railway-switch	H. P. Spaln	575,740	Jan. 26	2401	565	78	507
Railway-switch. Automatic	W. A. Newton	576,605	Feb. 9	930	214	78	828
Railway-switch. Automatic	C. Rudolf	579,332	Mar. 23	2582	610	78	1810
Railway switch-mate	E. B. Entwisle	576,564	Feb. 9	860	199	78	815
Railway switch. Street-	C. E. Groves	579,575	Mar. 30	3052	720	78	1917
Railway switch. Street-	A. Schmackers	577,454	Feb. 23	2356	553 554	78	1126
Railway system. Electric-	C. F. de Redon	577,450	Feb. 23	2350	551 552	78	1125
Railway system. Electric-	G. Westinghouse, Jr	579,527	Mar. 23	2946	695	78	1877
Railway-terminal	D. F. Carver and J. C. Brackenridge	578,626	Mar. 9	1374	318	78	1540
Railway-tie	B. Bradley, Sr	577,714	Feb. 23	2806	664	78	1210
Railway-tie	R. P. McRae	579,520	Mar. 23	2982	690	78	1875

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Railway-tie	J. M. Romberger	577,176	Feb. 16	1878	444	78	1020
Railway-tie plate	H. W. Avery	574,773	Jan. 5	668	163	78	128
Railway-tie plate	B. Wolhaupter	579,509	Mar. 23	2920	667	78	1872
Railway-track	W. Jens	574,737	Jan. 5	628	149	78	117
Railway-track cleaner	M. Power	576,612	Feb. 9	939	217	78	829
Railway-track rails. Combined nut-lock and joint-plate for	J. Rutherford	579,456	Mar. 23	2883	668	78	1855
Railway-tracks. Metallic sleeper for	T. D. West and G. H. Boyd	578,476	Mar. 9	1106	252	78	1490
Railway traction system	W. M. Caldwell and J. Bewsher	574,599	Jan. 5	381	86	78	72
Railway-turnout	C. F. Parker	577,268	Feb. 16	2024	479	78	1048
Railway-vehicles. Current-collecting device for	G. Westinghouse	579,506	Mar. 23	2914	685 686	78	1871
Railways. System of circuits and apparatus for electric	G. Westinghouse, Jr	579,525	Mar. 23	2942	693 694	78	1877
Raisin-puncturing machine	E. D. Averell	574,470	Jan. 5	153	36	78	30
Raisin-seeding machine	C. L. Spencer	575,762	Jan. 26	2429	573	78	512
Raisin-seeding machine	E. Sutherland	575,181	Jan. 12	1410	339	78	284
Rake: *See* Drag-rake. Oyster or clam rake. Hay-rake.							
Range gas-burner attachment	L. Stockstrom	576,795	Feb. 9	1219	291	78	884
Range or stove. Cooking	R. J. and J. A. Brockmeyer	578,690	Mar. 9	1488	343	78	1562
Ratan-treating apparatus	J. G. A. Suhl	576,237	Feb. 2	279	68	78	689
Ratchet-drill	E. H. Atkins	576,753	Feb. 9	1159	276	78	872
Razor	J. P. Lebold	576,862	Feb. 9	1326	317	78	905
Razor-back. Removable	S. H. Barrett, W. Groves, and J. C. Brown.	575,514	Jan. 19	1902	476	78	413
Razor. Safety-	A. L. Silberstein	576,476	Feb. 2	691	165	78	768
Razor. Safety-	F. Voos	575,511	Jan. 19	1989	476	78	413
Razor. Safety-	A. R. Weisz	576,489	Feb. 2	712	170	78	772
Reamer. Expansible	B. D. Whitney	577,904	Mar. 2	124	31	78	1284
Reaper and mower cutter-bar	M. Jarvis	574,736	Jan. 5	626	149	78	116
Reaper reel-rake	W. Butterfield	578,719	Mar. 16	1548	359	78	1601
Reclining-chair	J. S. and D. H. Shapira	579,499	Mar. 23	2905	683 684	78	1869
Recoil-pad	J. R. Winters	575,673	Jan. 19	2290	540	78	471
Recorder: *See* Sales-recorder.							
Recording apparatus	W. L. Bundy	578,288	Mar. 2	787	178 179	78	1410
Recording instrument. Message-	B. J. Noyes	578,113	Mar. 2	462	107	78	1350
Reel: *See* Clothes-line reel. Hose-reel. Fence-wire reel. Rope-reel. Fishing-reel.							
Reel and support	C. S. Lord	579,488	Mar. 23	2887	679	78	1865
Reel-carrier	W. E. Gesler	578,449	Mar. 9	1065	243	78	1481
Reeling and severing device	H. A. Péraut	575,730	Jan. 26	2386	502	78	504
Reflector	H. F. Fuller	575,473	Jan. 19	1915	461	78	397
Reflector for focusing cathode-rays	R. M. Russell	579,808	Mar. 30	3436	824	78	1990
Refrigerating apparatus	J. H. Cooley and H. A. Goebel	575,594	Jan. 19	2142	508	78	442
Refrigerating apparatus	W. F. Singer	577,328	Feb. 16	2122	502	78	1066
Refrigerating apparatus. Car-	W. F. Singer	577,327	Feb. 16	2121	502	78	1065
Refrigerating-machine compressor	F. O. Pierson	578,499	Mar. 9	1160	261 262	78	1500
Refrigerating-machine expansion-regulator	E. L. Sharpneck and G. F. Knox	578,297	Mar. 2	810	183	78	1414
Refrigerator	J. Bell	575,516	Jan. 19	1994	477	78	414
Refrigerator	L. H. Frink	577,293	Feb. 16	2069	489	78	1056
Refrigerator	F. H. Lindsey and C. L. Simonds	579,715	Mar. 30	3292	785 786	78	1963
Refrigerator	G. A. Muenchinger	576,141	Feb. 2	123	31	78	660
Refrigerator	J. J. Schneider	578,469	Mar. 9	1095	249	78	1488
Refrigerator	G. Wilkinson	574,975	Jan. 12	1062	258	78	217
Refrigerator-car	C. S. Hardy	577,748	Feb. 23	2871	681	78	1221
Refrigerator-car ventilator-screen	G. F. Brown, Jr	579,087	Mar. 16	2183	512	78	1722
Refrigerator-shelf	W. B. Keyser and J. A. Bush	577,758	Feb. 23	2888	684	78	1225
Regenerative burner	W. R. Swift and T. Gordon	579,687	Mar. 30	3241	769	78	1953
Register: *See* Autographic register. Telegraphic register. Telephone-call register. Cash-register. Time-register. Faucet-register. Wall-register. Meter-register.							
Regulator: *See* Damper-regulator. Gas-regulator. Electric-current regulator. Gas-pressure regulator. Heat-regulator. Fluid-pressure regulator. Speed-regulator Windmill-regulator.							
Rein-guard attachment for shafts	A. B. Rue	578,901	Mar. 16	1862	428	78	1659
Rein-holder	F. W. Cain	578,208	Mar. 2	671	153	78	1388
Rein-holder	G. Laube	576,681	Feb. 9	1046	245	78	850
Rein holder and guide. Combined	D. G. Webster	579,247	Mar. 23	2446	577	78	1785
Rein or strap guide	M. A. Lowry	577,191	Feb. 16	1905	450	78	1025
Releasing device. Animal-	S. J. Ecker	577,479	Feb. 23	2398	564	78	1134
Releasing device. Animal-	J. T. Lally	579,113	Mar. 16	2228	525	78	1729
Rendering and pressing apparatus	E. Holthaus	576,314	Feb. 2	426	99 100	78	717
Repeater	W. M. Chapman	575,025	Jan. 12	1139	277	78	231
Repeater	C. W. Leiser	578,997	Mar. 16	2031	473	78	1690
Revolvers. Cutting attachment for muzzles of	J. Hernandez	575,949	Jan. 26	2747	649	78	572
Rheostat	H. W. Leonard	576,202	Feb. 2	226	57	78	679
Rheostat and reversing-switch. Combined	J. P. B. Fiske and C. P. Smith	574,896	Jan. 12	891	215 216 217	78	187
Rice. Bleaching	G. A. Lanaux	576,860	Feb. 9	1824		78	904

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Invention	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ring: *See* Curtain-pole ring. Hat-packing ring. Finger-ring.							
Ring and knife. Combination	W. H. Saladee and J. Cather	579,655	Mar. 30	3190	757	78	1943
Ring-traveler	J. Booth	577,228	Feb. 16	1968	465	78	1086
Rivet-feeding mechanism	J. Temler	575,136	Jan. 12	1342	323	78	270
Rivet-heading machine	F. Philips	578,359	Mar. 9	915	208	78	1453
Rivet-setting machine	H. S. Crombie	577,615	Feb. 23	2038	627 628	78	1181
Rivets, thumb-tacks, &c. Machine for making	W. G. Allen	578,850	Mar. 16	1772	408 409	78	1644
Riveting-machine	O. W. Davis	576,556	Feb. 9	846	196	78	813
Riveting-machine	H. Fuchs	579,478	Mar. 23	2875	676	78	1863
Riveting-machine	A. Parfitt	579,441	Mar. 23	2757	654	78	1841
Riveting-machines. Self-feeding arrangement for	J. Temler	575,135	Jan. 12	1341	323	78	270
Road-gate	W. Wilson	576,709	Feb. 9	1068	256	78	857
Road-machines. Means for raising and lowering forward ends of draw-bars in	B. Poulson	576,498	Feb. 2	729	173 174	78	775
Roadway	G. F. Brott	574,521	Jan. 5	227	54	78	45
Roadway-gate	F. H. Nichols	576,738	Feb. 9	1131	267	78	867
Roaster: *See* Coffee-roaster.							
Roasting-furnace	J. E. Gaylord, W. G. Cole, and H. A. Keller.	579,536	Mar. 23	2955	698 699	78	1879
Roasting-furnace	H. A. Keller, W. G. Cole, and J. E. Gaylord.	579,711	Mar. 30	3281	781 782 783	78	1960
Rock-drill	F. and W. F. Cramer	576,660	Feb. 9	1014	238	78	844
Rock-drill	J. McCulloch	575,970	Jan. 26	2789	657 658	78	579
Rocker. Spring	A. White	574,504	Jan. 5	370	84	78	70
Rocking-chair	S. S. Eccleston	576,344	Feb. 2	483	113	78	728
Rocking-chair	G. H. Harris	574,801	Jan. 5	723	173	78	136
Roentgen-ray tube	E. Thomson	575,772	Jan. 26	2445	576	78	515
Roller	J. W. Michael	576,136	Feb. 2	115	29	78	659
Rolling fantail axles. Mill for	G. E. Rhoads	576,741	Feb. 9	1135	268 269	78	868
Rolling machine. Metal-tube	A. Pilkington	576,822	Feb. 9	1266	302	78	892
Rolling-mill rolls. Tool for cutting irregular grooves in	J. G. Walter	578,088	Mar. 2	421	98, 99	78	1312
Rolling-mill weighing device	M. M. Suppes	576,627	Feb. 9	963	224 225	78	834
Roofing and siding. Board	G. A. Gemmer	576,569	Feb. 9	870	202	78	817
Rope-clamp	W. Hegel	575,064	Jan. 12	1215	285	78	246
Rope-coiling machine	J. Garsed	579,054	Mar. 16	2129	501	78	1711
Rope-driving apparatus	J. H. Hoadley	576,674	Feb. 9	1036	243	78	848
Rope-drum apparatus	W. F. Coursen	576,554	Feb. 9	842	196	78	812
Rope-reel	J. B. Crowder	574,718	Jan. 5	602	143	78	111
Rotary cutter	J. O. Collins	577,420	Feb. 23	2305	541	78	1116
Rotary cutter	M. T. Denne	579,701	Mar. 30	3260	776	78	1957
Rotary engine	S. S. Blevins	578,197	Mar. 2	654	149	78	1385
Rotary engine	R. S. Case	576,090	Feb. 2	17	5, 6	78	641
Rotary engine	H. R. June	577,304	Feb. 16	2084	492	78	1058
Rotary engine	M. Matson	575,124	Jan. 12	1317	317 318	78	265
Rotary engine	J. F. McElroy	578,750	Mar. 16	1611	372	78	1614
Rotary engine	N. J. Verret and T. H. Mooney	579,851	Mar. 30	3513	809 810	78	2005
Roving-clamp	A. E. Rhoades	575,310	Jan. 12	1630	389	78	325
Rowing mechanism	J. Nordwall	577,200	Feb. 16	1020	454	78	1028
Rubber-dam clamp	D. Murfiess	576,142	Feb. 2	124	31	78	660
Rubber footwear	J. M. King	579,397	Mar. 23	2685	636	78	1829
Rubber-tubing machine	H. A. Cushman	579,658	Mar. 30	3647	873	78	2081
Rule, spirit-level, and inclinometer. Combined pocket-	M. H. Beddow	577,709	Feb. 23	2706	661	78	1208
Rule. Telescopic measuring-	G. W. Watts and J. B. Smith	575,671	Jan. 19	2285	539	78	470
Ruler and time-computing device	M. Isaacs	578,149	Mar. 2	544	123	78	1365
Ruler. Parallel-	J. D. Barrie	577,708	Feb. 23	2703	661	78	1207
Ruler. Slate-	O. Schaller	579,183	Mar. 23	2347	551	78	1767
Ruling-machine	C. Stoll	578,109	Mar. 2	611	138	78	1378
Saccharine solutions. Apparatus for clarifying	L. F. Haubtman	574,732	Jan. 5	621	148	78	115
Sack-support	A. R. Nicholas	575,902	Jan. 26	2681	632	78	559
Sad-iron	C. M. Coats and C. E. Corlett	577,099	Feb. 16	1744	412 413	78	994
Sad-iron	P. A. Hulwick	574,685	Jan. 5	543	126	78	100
Sad-iron. Electrically-heated	W. S. Hadaway, Jr	574,536	Jan. 5	255	60	78	50
Sad-iron heater	S. Arleth	575,196	Jan. 12	1443	347	78	289
Sad-iron. Reversible	E. Preston	576,888	Feb. 9	1383	330	78	915
Saddle	H. Brigg	578,204	Mar. 2	664	151	78	1387
Saddle	H. W. Lester	578,409	Mar. 9	906	228	78	1468
Saddle. Harness	J. C. Smith	578,426	Mar. 9	1017	233	78	1473
Saddle-pad	J. Mealey	576,213	Feb. 2	242	60	78	688
Saddle-pad. Harness	W. Vogler	578,124	Mar. 2	502	114	78	1358
Safe	W. Mathis	578,575	Mar. 9	1292	292 293	78	1525
Safe	M. Mosler	575,306	Jan. 12	1624	387 388	78	324
Safe or vault closure	G. L. Damon	575,705	Jan. 26	2351	553 554	78	497
Safety-hook	L. King	577,040	Feb. 16	1644	391	78	974
Safety-pin	A. H. Chilton	579,358	Mar. 23	2598	612	78	1812
Safety-pin	W. E. Colbath	578,390	Mar. 9	905	219	78	1432
Sail rig. Self-reefing sprit	L. A. Kimball	577,923	Mar. 2	167	39, 40	78	1295
Sales-recorder	C. T. Sleeper	576,079	Jan. 26	2977	702 703	78	611
Salicyl paraphenetidin	I. Roos	576,379	Feb. 2	543		78	738

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Salt-box	W. E. Simonds	577,588	Feb. 23	2619	618	78	1175
Salt-box	T. Tellefsen	578,952	Mar. 16	1964	457	78	1676
Salt-manufacturing apparatus	H. J. Demuth, E. N. Perkins, and J. T. Dade.	575,838	Jan. 19	1695	404	78	357
Sample-holder	W. D. Smith	578,843	Mar. 16	1763	406	78	1642
Sand-box	J. Gonorovsky	575,834	Jan. 26	2557	603	78	536
Sanding-machine	L. Welker	575,187	Jan. 12	1420	341	78	285
Sandpapering and buffing machine	T. E. Keavy	578,214	Mar. 2	679	154	78	1390
Sanitary appliance	A. O'Brien	576,790	Feb. 9	1211	289	78	882
Sanitary closet	H. H. Kendrick	577,305	Feb. 16	2085	493 494	78	1059
Sanitary receptacle and distributer	W. E. Van Ame	576,241	Feb. 2	291	70	78	608
Sanitary trap	M. F. Moran	578,827	Mar. 16	1743	401	78	1639
Saponaceous products from petroleum. Manufacture of	C. Weygang	575,189	Jan. 12	1423	.....	78	286
Sash-balance	R. A. Grant	575,926	Jan. 26	2715	642	78	565
Sash-cord fastener	C. H. Ocumpaugh	579,440	Mar. 23	2756	653	78	1841
Sash-fastener	C. C. A. Bauercamper	579,529	Mar. 23	2949	696	78	1878
Sash-fastener	J. Blasius	574,876	Jan. 12	803	209	78	182
Sash-fastener	J. W. Cole	575,415	Jan. 19	1820	438	78	379
Sash-fastener	S. Dinsmore	576,558	Feb. 9	850	197	78	814
Sash-fastener	A. M. Frasier	574,727	Jan. 5	615	146	78	114
Sash-fastener	J. H. Johnson	576,582	Feb. 9	892	200	78	821
Sash-fastener	L. C. Miller	577,385	Feb. 16	2227	524	78	1066
Sash-fastener	W. W. Smith and J. M. Isgrig	575,791	Jan. 26	2477	585	78	521
Sash-fastener	J. Struben	574,831	Jan. 5	777	186	78	146
Sash-fastener. Automatic	J. Wallenstein and H. C. Oettinger.	579,246	Mar. 23	2444	577	78	1785
Sash-holder	J. B. English	579,478	Mar. 23	2873	675	78	1862
Sash-holder. Automatically-locking	R. K. Brown	577,157	Feb. 16	1848	436 437	78	1014
Sash-lock	J. B. Morgan	574,020	Jan. 5	422	97	78	79
Sash lock and lifter	F. Carson and J. B. Paterson	576,526	Feb. 2	787	184	78	785
Sash-weight	C. R. Mullen	577,561	Feb. 23	2557	602	78	1164
Sash-weights. Molding	W. Mann	576,871	Feb. 9	1340	321	78	907
Sash. Window-	A. D. Nelson	575,808	Jan. 26	2507	590	78	527
Sausage-filling apparatus	W. F. Schönland	577,586	Feb. 23	2604	615	78	1172
Sausage-stuffing machine	C. H. Schoenland	577,494	Feb. 23	2427	571	78	1140
Saw. Band-	C. H. Weston	578,050	Mar. 2	355	85	78	1329
Saw-filing device	M. J. Wilson	575,192	Jan. 12	1432	344	78	288
Saw-filing machine	J. C. Ballew	579,103	Mar. 16	2309	519 520	78	1726
Saw-frame	H. L. Morrell	579,492	Mar. 23	2894	680	78	1867
Saw-gage	G. W. Drew	575,709	Jan. 26	2357	555	78	498
Saw-guide	J. Connell	575,416	Jan. 19	1822	438	78	379
Saw. Hack-	L. S. Starrett	576,626	Feb. 9	962	224	78	834
Saw. Insertible-tooth	J. Coyle	579,383	Mar. 23	2662	631	78	1825
Saw-jointer	R. E. Poindexter	577,388	Feb. 16	2234	525	78	1086
Sawmill-carriage	G. H. Patullo	576,820	Feb. 9	1260	300 301	78	891
Sawmill-dog	F. A. J. Smart	575,432	Jan. 19	1848	444	78	384
Sawmill gage-roll	H. J. Thomas	577,889	Mar. 2	96	24	78	1279
Sawmill set-gear	J. B. Hart	575,521	Jan. 19	2002	478	78	415
Saw-mill tension device. Band-	T. A. and N. Coleman	579,382	Mar. 23	2661	630 631	78	1825
Sawmills. Combined set-works and index mechanism for	R. D. Inman	578,928	Mar. 16	1909	442	78	1667
Saw. Portable drag-	J. Birrell	578,072	Mar. 2	398	92	78	1336
Saw-set	J. D. Bannerman	576,940	Feb. 9	1459	347	78	928
Saw-set	W. H. Chellieu	579,220	Mar. 23	2404	567	78	1778
Saw-set anvil	C. Morrill	577,559	Feb. 23	2555	602	78	1163
Saw-sharpening machine	F. Parsons	579,837	Mar. 30	3487	834	78	1999
Saw-sharpening machine	H. P. Schofield	574,855	Jan. 5	817	199	78	154
Saw. Surface-	W. H. Bendere	579,417	Mar. 23	2713	644	78	1834
Saw-swage	A. Carrier	579,129	Mar. 23	2256	531	78	1750
Sawing-machine	A. C. Calkins	578,625	Mar. 9	1373	313	78	1540
Sawing-machine	B. G. Luther	578,828	Mar. 16	1741	400	78	1639
Sawing-machine feeding attachment	D. J. Taft	575,989	Jan. 26	2735	646	78	569
Sawing-machine. Multiple	W. M. Barry	579,463	Mar. 23	2844	670	78	1857
Scaffold-bracket. Corner	S. F. Wray	577,222	Feb. 16	1956	463	78	1084
Scaffolding. Iron	F. G. Knopfe and H. A. Röder	576,858	Feb. 9	1322	316	78	904
Scale	J. C. Dixon	578,220	Mar. 2	691	157	78	1392
Scale attachment. Weighing-	M. W. Gilmartin	576,962	Feb. 9	1492	354 355	78	994
Scale. Computing-	B. F. Brough	575,143	Jan. 12	1354	326	78	272
Scale. Computing-	O. O. Ozias	576,468	Feb. 2	672	160	78	764
Scale. Computing-	H. E. Swift	579,550	Mar. 23	2998	710	78	1887
Scale. Computing-	J. H. Swihart	575,076	Jan. 12	1233	298 299	78	249
Scale. Computing-	J. H. Swihart	578,784	Mar. 16	1649	382	78	1621
Scale dial. Computing-	J. H. Swihart	579,193	Mar. 23	2368	556	78	1770
Scale. Liquid-	G. Eiserer	579,745	Mar. 30	3332	796	78	1971
Scale-loop	C. G. Strubier	579,192	Mar. 23	2362	556	78	1770
Scale. Price and weighing	J. H. Swihart	578,077	Jan. 12	1237	299	78	250
Scale. Weighing-	F. E. Mellinger	577,516	Feb. 23	2472	582	78	1147
Scarf-pin securer	I. H. Johannes	578,822	Mar. 16	1734	399	78	1637
Scenoscope	W. A. Foster and W. H. Daniels	575,153	Jan. 12	1371	330	78	276
Schedule-indicator	I. A. McCormack and A. H. Walker.	579,990	Mar. 30	3631	870	78	2028
School-seat	W. C. Hood	574,425	Jan. 5	81	17	78	16
Scissors or shears	B. F. Ford	576,050	Jan. 26	2632	691	78	608
Scissors or shears	B. Wesselmann	579,085	Mar. 16	2182	511	78	1721
Scrap chute and bundler	P. Berres	577,611	Feb. 23	2652	626	78	1181
Scraper	W. G. Fuller and G. Winner	578,558	Mar. 9	1265	287	78	1520
Scraper	W. Owsley	574,757	Jan. 5	657	156	78	128
Scraper	G. B. Wilder	578,960	Mar. 16	1975	460	78	1678
Scraper and leveler. Road	J. N. Michaels, D. H. and J. Gittinger.	579,404	Mar. 23	2697	641	78	1881
Scraper. Steam-	J. Austin	576,422	Feb. 2	606	143	78	750

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Screen: *See* Window-screen. Window dust-screen.							
Screw-blank-heading machine	H. K. Jones	574,609	Jan. 5	395	90, 91, 92	78	75
Screw-lock	G. W. Kammerer	575,718	Jan. 26	2370	558	78	500
Screw-machine	F. Schulze	578,777	Mar. 16	1633	378, 379	78	1618
Screw-thread-cutting device	P. M. Wiebe	575,085	Jan. 12	1247	301	78	352
Screw. Trap-	N. Barry, Jr	577,343	Feb. 16	2151	509	78	1071
Screws. Guard for revolving set-	G. W. Wright and A. E. Fielden	576,334	Feb. 2	467	109	78	725
Scriber. Curve-	W. S. Mallard	576,349	Feb. 2	499	114	78	729
Seal	F. W. Wood	575,512	Jan. 19	1990	476	78	413
Seal attachment. Bottle	H. Bokelmann	577,640	Feb. 23	2700	637	78	1189
Seal-bolt	G. S. Tiffany	578,786	Mar. 16	1657	383	78	1622
Seal. Bottle-	C. W. Davison	574,672	Jan. 5	525	122	78	96
Seal for bottles or flasks	G. W. Snyder	575,011	Jan. 12	1121	273	78	228
Seal-lock	F. H. Haley	576,309	Feb. 2	418	98	78	716
Seal-lock	T. S. Wheelwright and G. S. Tiffany	578,798	Mar. 16	1677	388	78	1626
Sealing device. Bottle-	H. L. Ferris	579,515	Mar. 23	2927	680	78	1874
Sealing-wax holder	C. M. Garrison	576,725	Feb. 9	1111	262	78	862
Seat: *See* Adjustable seat. School-seat. Folding seat. Vehicle-seat. Pneumatic spring-seat.							
Secondary battery	H. G. Morris	577,771	Feb. 23	2907	698	78	1229
Secondary battery and forming same	G. W. Harris and R. J. Holland	574,417	Jan. 5	66	15	78	14
Seed crusher and distributer. Cotton-	J. W. Cooper	574,892	Jan. 12	870	211	78	183
Seed-dropping mechanism	A. Lindgren	577,047	Feb. 16	1657	398	78	976
Seed huller and separator. Cotton-	C. Young	577,394	Feb. 16	2244	527, 528	78	1088
Seeder	I. F. Studebaker	575,863	Jan. 26	2605	615	78	545
Seeder. Broadcast	G. W. Eltzroth	579,049	Mar. 16	2124	499	78	1710
Seeder. Broadcast	A. Stansel	579,908	Mar. 30	3595	860	78	2020
Seeding-machine	A. Lindgren	577,437	Feb. 23	2330	546, 547	78	1120
Seeding-machine check-wire reel	A. Lindgren	576,408	Feb. 2	586	136	78	746
Self-generating burner	H. F. Smith	576,478	Feb. 2	698	165	78	768
Self opening and closing gate	T. R. Cook	574,667	Jan. 5	512	119	78	94
Separating-machine. Centrifugal	O. Ohlsson	575,727	Jan. 26	2383	561	78	503
Separator: *See* Coal-separator. Grease-separator. Coin-separator. Liquid-separator. Cream-separator. Mineral-separator. Egg-separator. Ore-separator. Gold-separator. Steam-separator. Grain-separator.							
Separator	J. B. Allfree	576,646	Feb. 9	994	233	78	840
Separator	E. E. Ditch	579,708	Mar. 30	3416	818	78	1986
Separator	R. W. Jessup	576,195	Feb. 2	218	54	78	677
Sewing and welt-beveling mechanism. Shoe-	J. B. Hadaway	579,146	Mar. 23	2284	537, 538	78	1754
Sewing apparatus. Carpet-	P. Diehl and E. H. Bennett, Jr	575,392	Jan. 19	1788	428	78	373
Sewing gage. Belt-	J. Gregory	575,943	Jan. 26	2741	647	78	570
Sewing looped fabrics. Machine for	E. C. Holland	577,365	Feb. 16	2186	517	78	1078
Sewing looped fabrics. Machine for	L. Muther	577,197	Feb. 16	1916	453	78	1027
Sewing-machine	E. B. Allen	575,315	Jan. 19	1641	392	78	347
Sewing-machine	G. A. Close	577,595	Feb. 23	2628	620	78	1176
Sewing-machine	P. A. Coupal	579,426	Mar. 23	2726	647, 648	78	1886
Sewing-machine	P. A. Coupal	579,922	Mar. 30	3619	866, 867	78	2025
Sewing-machine	W. F. Dial and G. H. Dimond	578,136	Mar. 2	522	118	78	1302
Sewing-machine	W. F. Dial and G. H. Dimond	578,137	Mar. 2	525	119	78	1302
Sewing-machine	P. Diehl and W. R. Houghton	579,223	Mar. 23	2409	568, 569	78	1779
Sewing-machine	L. Onderdonk	577,878	Mar. 2	69	20, 21	78	1274
Sewing-machine	F. H. Richards	574,573	Jan. 5	321	74, 75, 76	78	62
Sewing-machine	F. H. Richards	574,574	Jan. 5	337	76, 77	78	64
Sewing-machine	J. Vannette	575,580	Jan. 19	2108	503	78	435
Sewing-machine	E. A. Webster	577,217	Feb. 16	1950	461	78	1033
Sewing-machine	C. W. Weston and A. Legg	576,708	Feb. 9	1086	255, 256	78	857
Sewing-machine attachment	L. Moyer	574,920	Jan. 12	944	229	78	198
Sewing-machine attachment for making dress-facing.	S. J. Schnorenberg and G. Simpson	579,014	Mar. 16	2057	480	78	1696
Sewing-machine binder	E. Bukies	576,947	Feb. 9	1468	349	78	980
Sewing-machine binding attachment	U. Gütling	578,561	Mar. 9	1272	288	78	1521
Sewing-machine. Electrically-operated	J. S. Biggar	579,511	Mar. 23	2923	688	78	1873
Sewing-machine extension-table	J. G. Greene	575,344	Jan. 19	1704	406	78	359
Sewing-machine eyelet-hole attachment	H. T. Reutermann	574,451	Jan. 5	127	29	78	25
Sewing-machine fan attachment	W. H. Drayton	578,509	Mar. 9	1180	267	78	1501
Sewing-machine fan attachment	H. P. Watts	577,338	Feb. 16	2143	508	78	1070
Sewing-machine fan attachment	P. O. Wiedemann	578,846	Mar. 16	1767	407	78	1643
Sewing-machine feeding device	R. Pierpont	575,984	Jan. 26	2810	663	78	588
Sewing-machine feeding mechanism	P. Diehl	575,389	Jan. 19	1697	404	78	357
Sewing-machine feeding mechanism	L. Onderdonk	577,877	Mar. 2	67	19	78	1274
Sewing-machine hemmer	M. R. K. Fowlkes and M. E. J. Bennett.	579,052	Mar. 16	2127	500	78	1710
Sewing-machine loop-former	J. B. Dobyne	576,723	Feb. 9	1110	262	78	862
Sewing-machine loop-taker	W. F. Dial and G. H. Dimond	578,138	Mar. 2	527	119	78	1302
Sewing-machine quilting attachment	E. Wilson	575,764	Jan. 26	2433	574	78	512
Sewing-machine reflector	A. Shelverton	576,165	Feb. 2	162	40	78	667
Sewing machine. Shoe-	P. A. Coupal	579,697	Mar. 30	3252	773, 774	78	1955

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sewing machine. Shoe-	L. Goddu	578,559	Mar. 9	1265	287, 288	78	1520
Sewing machine. Shoe-	E. P. Richardson	577,397	Feb. 16	2253	529	78	1068
Sewing-machine thread-cutting mechanism	A. H. Kinder	575,841	Jan. 26	2567	605	78	588
Sewing-machine thread-feeding device	G. Frame	578,097	Mar. 2	435	101, 102	78	1344
Sewing-machine trimmer	E. B. Allen	579,632	Mar. 30	3150	746	78	1985
Sewing machine. Tuck-	W. Bowden	578,911	Mar. 16	1886	435, 436	78	1662
Sewing-machine tuck or plait forming attachment	C. H. Foster	575,342	Jan. 19	1702	405	78	356
Sewing-machine. Vibrating-shuttle	E. B. Allen	577,406	Feb. 23	2277	535	78	1111
Sewing-machines. Automatic bobbin-winder for	S. Borton	575,587	Jan. 19	2121	505, 506	78	437
Sewing-machines. Thread-gripping device for wax-thread	F. W. Merrick	575,530	Jan. 19	2024	488	78	419
Shackle	A. L. Nilson	574,564	Jan. 5	306	70	78	60
Shackle. Hog-	N. Mandel	577,048	Feb. 16	1638	394	78	977
Shackle. Lock-pin	L. King	577,089	Feb. 16	1642	391	78	974
Shade adjuster. Window-	H. M. Sturgis	576,001	Jan. 26	2838	671	78	588
Shade attachment. Window-	N. J. Felix	576,839	Feb. 9	1290	308	78	807
Shade attachment. Window-	N. J. Felix	576,840	Feb. 9	1291	309	78	807
Shade-hanger. Extensible	E. H. Bottenberg	576,540	Feb. 9	822	191	78	808
Shade-holder. Folding	E. S. Coggins	577,286	Feb. 16	2061	487	78	1054
Shade-holding mechanism	H. H. Forsyth	577,244	Feb. 16	1969	471	78	1041
Shade or globe	J. G. Pennycuick	579,350	Mar. 23	2699	616	78	1815
Shade roller and bracket therefor. Window-	G. M. Parsons	575,572	Jan. 19	2096	500	78	433
Shade-roller hanger	J. W. Crigler	576,951	Feb. 9	1474	351	78	931
Shade roller. Window-	H. M. Sturgis	576,080	Jan. 26	2982	708	78	612
Shade-supporter	J. P. Baumgartner	574,518	Jan. 5	222	52	78	44
Shaft. Flexible	G. H. Coates	578,724	Mar. 16	1557	360	78	1604
Shaft-holder	T. F. Phillips	577,320	Feb. 16	2108	499	78	1063
Shaft-loop	H. A. Bierley	577,833	Mar. 2	4	2	78	1261
Shafting-hanger	B. Lobee	577,089	Feb. 23	2770	655	78	1203
Shaping-machine	J. R. Scott	575,619	Jan. 19	2184	518	78	450
Sharpener. Knife-	E. Beaudin	578,440	Mar. 9	1051	240	78	1478
Sharpener. Knife-	M. H. P. Cox	577,127	Feb. 16	1806	425	78	1006
Sharpener. Knife or shears	I. J. Ide, R. B. Gilmour, and E. Richard.	577,922	Mar. 2	166	39	78	1208
Sharpener. Lawn-mower	G. R. Davidson	575,335	Jan. 19	1687	403	78	355
Sharpener. Lawn-mower	L. H. Slaght	579,500	Mar. 23	2907	684	78	1809
Sharpener. Shears or scissors	O. L. Stadig	576,479	Feb. 2	694	166	78	769
Sharpening device	G. T. Hetzel	575,351	Jan. 19	1714	408	78	361
Sharpening device. Scissors-	N. J. St. Hilaire	579,726	Mar. 30	3304	789	78	1965
Sharpening-tool	P. W. Strong	577,991	Mar. 2	271	64	78	1312
Shears: *See* Animal-shears. Power-shears. Grape-shears. Pruning-shears.							
Shears	D. H. Hollingsworth	578,453	Mar. 9	1073	245	78	1488
Shears	E. A. Sanders	578,118	Mar. 2	480	110	78	1354
Shears or scissors	E. Bailey	576,987	Feb. 9	1456	346	78	928
Shears or scissors	E. Bailey	576,988	Feb. 9	1457	347	78	928
Sheep-shearing machine	J. D. Scouler	576,902	Feb. 9	1404	334	78	918
Sheet-metal bending and forming machine	L. Coburn and W. J. Sumner	575,701	Jan. 26	2389	551	78	494
Sheet-metal blanks. Machine for cutting and delivering	R. D. Hume	576,124	Feb. 2	93	25	78	655
Sheet-metal can	J. W. Hill and R. P. McKay	577,552	Feb. 23	2543	599	78	1161
Sheet-metal can. Automatic-sealing	E. Norton	579,341	Mar. 23	2435	576	78	1784
Sheet-metal elbow	C. and A. Lindemann	578,343	Mar. 9	894	202	78	1448
Sheet metal. Expansible drum for coiling	A. Kenworthy	576,677	Feb. 9	1041	244	78	849
Sheet metal. Manufacture of	J. F. Budke	574,781	Jan. 5	698		78	131
Sheet-metal pipe	C. S. Hamlin	576,671	Feb. 9	1033	242	78	847
Sheet metal. Pressure-dies for corrugating	C. J. Colling	577,597	Feb. 23	2632	621	78	1177
Sheet-metal tank	L. W. Noyes	575,369	Jan. 19	1740	416	78	366
Sheet-metal top-opening can	J. Zimmerman	579,462	Mar. 23	2842	670	78	1857
Sheet-metal tube	F. A. Wilmot	578,799	Mar. 16	1679	388	78	1627
Sheet-metal tube	F. A. Wilmot	578,800	Mar. 16	1680	389	78	1627
Sheet-metal tube	F. A. Wilmot	578,801	Mar. 16	1681	389	78	1627
Sheet-metal tubing. Making	D. C. Stover	575,862	Jan. 26	2604	614	78	545
Sheets. Means for delivering and packing folded	W. Scott	575,555	Jan. 19	2064	494	78	427
Shelf-bracket	T. Corscaden	577,723	Feb. 23	2823	668, 669	78	1213
Shelf-bracket	N. B. Hurd	577,430	Feb. 23	2320	544	78	1119
Shelf-bracket. Adjustable	J. Baines	576,939	Feb. 9	1458	347	78	928
Shelf-bracket. Sheet-metal	T. Corscaden	577,977	Mar. 2	250	59	78	1309
Shelving. Adjustable	W. O. Whitney	575,747	Jan. 26	2410	568	78	508
Shell. Shot-carrying	B. F. Williams	579,853	Mar. 30	3516	840	78	2005
Sheller: *See* Corn-sheller.							
Shields. Composition material for	E. C. Gerstenberger	574,728	Jan. 5	616	146	78	114
Shingle-mold	H. E. Dawson and W. H. Noye	579,939	Mar. 30	3649	873	78	2031
Shingle-sawing machine	W. H. Myers	575,899	Jan. 26	2676	631	78	558
Ships' hulls. Apparatus for closing breaks in	J. Proft	577,067	Feb. 16	1688	400, 401, 402	78	983
Ship's log. Electrically-operated	W. S. Alexander	577,501	Feb. 23	2441	575, 576	78	1142
Shirt	E. K. Edwards	577,648	Feb. 23	2711	640	78	1192
Shirt-protector	W. Lloyd	574,921	Jan. 12	926	226	78	194
Shirt-shield	G. Cann	578,480	Mar. 9	1111	253	78	1491
Shoe	J. S. Wallner	575,559	Jan. 19	2069	495	78	427
Shoe channeling and grooving machine	E. M. White	577,498	Feb. 23	2438	573, 574	78	1142
Shoe channeling and grooving machine	E. M. White	577,544	Feb. 23	2532	597	78	1158
Shoe-channeling machine	E. M. White	577,543	Feb. 23	2531	596	78	1158
Shoe-channeling machine	E. M. White	577,569	Feb. 23	2576	607, 608	78	1166

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shoe-channeling machine	E. M. White and J. M. Sprow, Jr	577,814	Feb. 23	2908	701	78	1241
Shoe-fastening	T. D. Gaddie	577,020	Feb. 16	1612	383	78	969
Shoe-machine jack	E. E. Winkley	579,305	Mar. 23	2380	562	78	1774
Shoe or boot flexible support	H. J. Doughty	577,843	Mar. 2	15	6	78	1264
Shoe-polisher	J. F. Brougher	577,005	Feb. 16	1591	379	78	965
Shoe-polishing frame and foot-rest	C. W. Baldwin	579,671	Mar. 30	3214	763	78	1948
Shoe-repairing jack	W. Bayhouse	579,251	Mar. 23	2453	579	78	1786
Shoe scraper. Plowman's	W. C. De Graffenried and J. P. Redding, Jr.	577,727	Feb. 23	2828	670	78	1213
Shoestring-fastener	J. M. Bloom	575,412	Jan. 19	1816	436	78	378
Shoe. Turn-	G. E. Milner	579,159	Mar. 23	2305	542	78	1758
Shoe-turning machine	G. H. Gifford	578,231	Mar. 2	704	160	78	1304
Shoes. Composition for preventing squeak in	A. L. Thompson	576,918	Feb. 9	1429	.....	78	923
Shot-distributing wad	R. S. Elliott	579,429	Mar. 23	2733	649	78	1837
Shot. Muzzle attachment for scattering	C. J. Staberg	579,502	Mar. 23	2909	684	78	1870
Shovel: *See* Steam-shovel.							
Shovel and tongs. Combined	H. P. and C. N. Lenhart	577,108	Feb. 16	1777	420	78	1000
Shovel-handle	W. H. Johnson	575,243	Jan. 12	1515	364	78	304
Shovels or dredges. Latch-operating device for steam	J. C. Houck	574,808	Jan. 5	727	174	78	137
Show-case. Knockdown	F. E. Mistrot	578,019	Mar. 2	312	74	78	1321
Show-case. Revolving	B. C. Bradley	574,380	Jan. 5	14	4	78	5
Show-stand	H. Klein	576,457	Feb. 2	659	157	78	761
Shutter and screen for shop-windows, &c. Safety	A. E. Schmidt	579,282	Mar. 23	2500	591	78	1795
Shutter-fastener	G. W. Davies	579,294	Mar. 23	2518	595	78	1798
Shutter-fastener	M. F. Gano	574,795	Jan. 5	715	171	78	135
Shutter-worker	J. W. Cole	575,329	Jan. 19	1672	399	78	352
Shutters, &c. Means for operating	L. F. Rice	575,736	Jan. 26	2395	564	78	505
Shuttle-box mechanism	A. Luscomb	578,607	Mar. 9	1340	304 305 306	78	1534
Shuttle. Self-threading	J. B. Daudelin	579,046	Mar. 16	2119	498	78	1709
Sideboard and extension-table. Combined	W. H. Pickett	574,759	Jan. 5	660	156 157	78	124
Sieves. Brush-motion for gyratory	W. J. Stewart	577,463	Feb. 23	2375	558 559	78	1129
Sieving apparatus	J. A. Lefferts	575,302	Jan. 12	1617	385	78	323
Sifter. Ash-	R. L. Riley	575,494	Jan. 19	1953	468	78	404
Sifter for ashes, &c	W. H. Whiting	574,696	Jan. 5	560	130	78	103
Sifting coal-ashes. Device for	J. Clench	579,358	Mar. 23	2622	620	78	1818
Sign	G. H. Staten	574,584	Jan. 5	356	80	78	67
Sign	R. F. Timmons	578,613	Mar. 9	1352	308	78	1537
Sign-board. Metal	F. V. Eavenson	576,602	Feb. 9	1018	238	78	845
Sign. Glass	V. A. Fernhough	577,017	Feb. 16	1609	382	78	968
Sign. Illuminated	C. P. Gates	579,343	Mar. 23	2601	614	78	1813
Sign. Illuminated	C. Holland	577,033	Feb. 16	1635	388	78	972
Sign. Sheet-metal	W. Pathie	578,044	Mar. 2	348	83	78	1328
Signal: *See* Car-signal. Railway-signal. Danger-signal. Railway-crossing signal. Electric signal. Railway flag-signal. Electrically-operated signal.							
Signal	P. G. Feuerstein	577,128	Feb. 16	1807	426	78	1006
Signal-handle guard	G. M. French	579,342	Mar. 23	2600	614	78	1813
Signal-operating device	S. S. Bogart	578,442	Mar. 9	1056	241	78	1479
Signal-recording mechanism	A. E. Colgate	579,221	Mar. 23	2406	567 568	78	1778
Signal system. Electrical	P. Freeman and R. E. Slater	575,805	Jan. 26	2496	588	78	525
Signal system. Electrical	R. Skeen	574,953	Jan. 12	1008	243 244	78	208
Signaling	J. G. Schreuder and J. P. Coleman	579,933	Mar. 30	3639	871	78	2029
Signaling apparatus. Electric	B. J. Noyes	578,114	Mar. 2	465	108	78	1350
Signaling apparatus. Electric	B. J. Noyes	578,115	Mar. 2	469	108 109	78	1351
Signaling apparatus. Marine	J. H. Walker	577,088	Feb. 16	1726	408 409	78	991
Signaling system. Electric	W. M. Ramsey	575,736	Jan. 26	2391	563	78	504
Silk. Crinkling	C. and P. Depoully	574,401	Jan. 5	40	.....	78	9
Singletree	J. W. York	574,469	Jan. 5	152	36	78	80
Singletrees or doubletrees. Lap-link for	J. C. Finnell	578,226	Mar. 2	699	158	78	1304
Sink-cleaner	H. R. Atwater and C. P. Eichler	574,572	Jan. 12	857	208	78	181
Siphon	J. B. Smith and A. L. Julienne	579,501	Mar. 23	2908	694	78	1870
Siphon-receptacle	J. Nagelklinger	575,032	Jan. 26	2723	644	78	567
Siphon-tank	G. T. Tilden	576,006	Jan. 26	2848	674	78	590
Skate	F. Frankenberg and F. Ostendorff	576,106	Feb. 2	50	13	78	647
Skate	H. Heinze	577,027	Feb. 16	1624	385	78	971
Skate	J. E. Martin	578,004	Mar. 2	379	89	78	1333
Skate	J. Stutz-Müller	576,747	Feb. 9	1148	273	78	869
Skate attachment	L. W. Kenny	579,830	Mar. 30	3473	831	78	1997
Skate or shoe. Water	B. Carmina-Morreale	579,695	Mar. 30	3249	772	78	1955
Skate. Roller-	R. L. Edman	579,640	Mar. 30	3170	752	78	1939
Skate. Roller-	F. I. Gibbs and W. Wright	578,081	Mar. 2	412	95, 96	78	1340
Skate. Roller-	F. I. Gibbs and W. Wright	578,082	Mar. 2	414	96	78	1340
Skate. Roller-	J. A. Segerberg	577,628	Feb. 23	2077	492	78	1185
Skeins of silk. Support for	P. G. Turner, (now by remarriage P. G. Gardner.)	579,523	Mar. 23	2936	691	78	1875
Skins into horny material. Conversion of	C. Marter	579,000	Mar. 16	2034	.....	78	1691
Skins. Machine for treating	R. N. Dunn	579,141	Mar. 23	2272	535	78	1753
Skirt	C. Cohn	575,501	Jan. 19	1969	471	78	409
Skirt attachment	S. W. Bodine	578,312	Mar. 9	849	192	78	1440
Skirt. Bicycle-	A. M. Grean	579,145	Mar. 23	2283	537	78	1754
Skirt. Bicycle-	W. E. Smith	575,912	Jan. 26	2606	637	78	561
Skirt. Cycling-	C. G. Childe	579,471	Mar. 23	2866	674	78	1861
Skirt. Cycling-	L. L. Hirsh	579,061	Mar. 16	2138	503	78	1713
Skirt. Dress-	H. M. Foote	577,819	Feb. 23	2976	703	78	1242

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Skirt fastener. Bicycle-	S. C. Clagett	578,444	Mar. 9	1060	241	78	1480
Skirt-holder	L. Brélaz and B. B. Naudé	575,279	Jan. 12	1573	374	78	316
Skirt-support	M. P. Kyle	575,483	Jan. 19	1936	464	78	401
Skirt-supporter	A. A. Watts	579,505	Mar. 23	2914	685	78	1871
Skiving-machine	E. F. Davenport	578,547	Mar. 9	1239	280 281	78	1515
Slag. Treating blast-furnace	A. D. Elbers	579,820	Mar. 30	3455	.....	78	1994
Slat holder and adjuster	J. C. Byxbe	579,530	Mar. 23	2951	697	78	1878
Slate-picker	W. M. Jermyn	579,583	Mar. 30	3066	724	78	1920
Sleigh	J. H. Caffrey	579,917	Mar. 30	3612	864	78	2023
Sleigh and carriage. Combined power	J. M. Trull	578,667	Mar. 9	1436	328 329	78	1552
Sleigh attachment. Bicycle	P. F. Tucker	576,512	Feb. 2	760	178	78	781
Sleigh attachment for vehicles	C. Lusted, Sr	575,657	Jan. 19	2257	533 534	78	465
Sleigh-brake	C. E. Jensen and J. Hansen	575,956	Jan. 26	2759	651	78	574
Slicer and grater. Combined	H. Perk	576,886	Feb. 9	1380	329	78	914
Slicer. Fruit-	H. Delzell	574,891	Jan. 12	883	214	78	186
Slicer. Fruit-	M. Welsh	577,275	Feb. 16	2036	482	78	1050
Slicer. Vegetable	W. T. Whyte	574,971	Jan. 12	1057	257	78	216
Slide-box	S. M. Blevens	577,412	Feb. 23	2287	536	78	1118
Slide-carrier	L. M. Halsey	577,022	Feb. 16	1615	384	78	969
Sliding gate	J. Allen	577,908	Mar. 2	130	32	78	1285
Slot-machine	C. F. Neubert	577,691	Feb. 23	2772	655	78	1203
Sluice-box	C. A. Christensen	577,356	Feb. 16	2172	514	78	1075
Smelting. Electric	T. L. Willson	575,788	Jan. 26	2468	.....	78	520
Smelting-furnace	C. Bishop	578,963	Mar. 16	1978	461	78	1679
Smelting-furnace	J. Douglas	579,705	Mar. 30	3266	777	78	1958
Smoke and gas returning apparatus	D. Goff	579,644	Mar. 30	3174	753 754	78	1940
Smoke. Apparatus for removing impurities from	E. E. Dulier	576,888	Feb. 9	1290	308	78	897
Smoke-consumer	C. C. Bruckner	575,873	Jan. 26	2627	621	78	549
Smoke-consumer	W. E. Elbers	577,915	Mar. 2	150	34, 35	78	1290
Smoke-consumer	J. H. Schmahl and O. E. Westphal	575,990	Jan. 26	2818	665	78	585
Smoke-consumer	F. W. Smith	577,372	Feb. 16	2204	520	78	1082
Smoke-consuming furnace	G. Y. Allaire	574,651	Jan. 5	477	109	78	89
Smoke-consuming furnace	R. Deissler	577,424	Feb. 23	2309	542	78	1117
Smoke-consuming furnace	W. C. Wetmore	575,537	Jan. 19	2035	486 487	78	421
Smoke-consuming furnace. Self-feeding	C. Groll	578,146	Mar. 2	537	122 123	78	1864
Smoke nuisances. Means for overcoming	C. I. Bush	576,432	Feb. 2	622	148	78	753
Smoke or gas purifying apparatus	H. R. Chubb	575,877	Jan. 26	2633	622	78	550
Smoke. Purifying	C. E. Parks	575,370	Jan. 19	1741	416	78	366
Smokeless furnace	H. A. Wheeler	579,910	Mar. 30	3605	862	78	2022
Smoothing and finishing die	M. J. Glavin	577,577	Feb. 23	2587	610	78	1169
Snap-switch. Double-pole reversing	H. A. Gorn	577,950	Mar. 2	205	50	78	1301
Snow-plow	E. C. Collins	579,424	Mar. 23	2724	646	78	1836
Snow-plow	A. Nutting	579,544	Mar. 23	2971	702	78	1882
Snow-plow for street-railways	W. R. Billings and E. C. Collins	574,875	Jan. 12	861	209	78	181
Soap-holder and brush	G. W. Johnson	575,159	Jan. 12	1378	332	78	277
Soap-stock. Apparatus for barreling	W. C. Ahrenbeck	576,984	Feb. 9	1453	346	78	927
Soap treating and drying apparatus	F. S. Rutschman	576,159	Feb. 2	155	38	78	666
Soda-water apparatus	L. W. Puffer	577,881	Mar. 2	81	21	78	1276
Soda-water fountain	R. M. and R. M. Green, Jr	578,098	Mar. 2	437	102	78	1344
Solar and transit instrument	J. B. Davis	575,215	Jan. 12	1473	353 354	78	296
Soldering-iron, brazier, &c. Combined	P. V. Berghe	577,971	Mar. 2	241	57	78	1307
Soldering-iron. Self-heating	J. Wickstrom	574,596	Jan. 5	373	84	78	70
Soldering-machine	O. S. Fellows	575,061	Jan. 12	1211	293 294	78	245
Soldering machine. Can-	A. Johnson	575,807	Jan. 26	2502	589 590	78	526
Soldering-pliers	W. S. Elliott	574,529	Jan. 5	237	57	78	47
Soldering tin cans. Machine for	O. Asche	575,582	Jan. 19	2112	504	78	436
Sole channeling and trimming machine	H. H. Arnold	575,867	Jan. 26	2611	617 618	78	546
Sole laying-machine form	E. E. Winkley	579,206	Mar. 23	2381	562	78	1774
Sole-machine	G. H. Gifford	579,144	Mar. 23	2275	536 537	78	1738
Sole-machine die or former	E. E. Winkley	579,207	Mar. 23	2383	562	78	1774
Sole. Shoe-	C. H. Krippendorf	579,518	Mar. 23	2931	689	78	1874
Sole-trimming machine	F. J. Freese	577,738	Feb. 23	2842	673	78	1216
Sorting-table	E. F. B. Bourne	578,199	Mar. 2	658	150	78	1336
Sounding apparatus	A. M. Lozier	576,208	Feb. 2	236	59	78	681
Sounding apparatus. Automatic electric marine	J. F. Babcock	575,093	Jan. 12	1260	304	78	254
Sounding-board	J. C. Livingston	578,154	Mar. 2	549	125	78	1366
Sounds audible. Apparatus for rendering small	E. Bazzi and A. Bianchi	575,320	Jan. 19	1650	394	78	348
Sowing-machine	E. Croll	574,883	Jan. 12	871	211	78	183
Sowing-wheel for drilling-machines. Adjustable	A. Kern	576,856	Feb. 9	1317	314 315	78	902
Spark-arrester	J. T. Thompson	577,796	Feb. 23	2941	696	78	1235
Spark-arrester	H. H. Warner	579,729	Mar. 30	3308	790	78	1966
Speaking-tube attachment	E. C. Hess	578,101	Mar. 2	442	103	78	1346
Spectacle-case	J. H. Caruss	574,523	Jan. 5	230	55	78	45
Spectacle-frame	F. A. Stevens	579,069	Mar. 16	2203	517	78	1726
Spectacle-frame	S. N. Stone	576,330	Feb. 2	460	108	78	724
Spectacle-temples. Machine for turning	A. E. Johnson	576,067	Jan. 26	2455	697	78	607
Spectacles	G. Bausch	576,251	Feb. 2	318	75	78	697
Speculum	E. Willbrandt	579,625	Mar. 30	3136	744	78	1932
Speed and stop mechanism. Automatic variable-	D. F. Hartford	579,870	Mar. 30	3544	847	78	2011
Speed frictional gear. Variable-	N. Leidgen	579,663	Mar. 30	3292	761	78	1946
Speed-indicator. Centrifugal	H. Herden	579,826	Mar. 30	3464	830	78	1996
Speed-regulator. Centrifugal	L. H. Nash	578,111	Mar. 2	459	106	78	1349
Spelter or zinc. Treating inferior grades of	R. W. Booth	575,630	Jan. 19	2207	.....	78	455
Spike and bolt puller	P. J. Furlong	575,226	Jan. 12	1491	358	78	299

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spike and drift-bolt puller	L. C. Lounsberry and A. Campbell	576,462	Feb. 2	605	159	78	763
Spike for railway or other purposes	A. M. Smith, Jr.	579,610	Mar. 30	3109	736	78	1927
Spike-machine	G. Barr	576,536	Feb. 9	815	189 190	78	807
Spike-making machine	J. C. Cromwell and O. Sundt	577,680	Feb. 23	2755	651 652	78	1200
Spike-puller	L. C. Powell	577,783	Feb. 23	2923	691	78	1232
Spindle:							
See Spinning-spindle.							
Spindle	A. Gartner	574,900	Jan. 12	899	218	78	189
Spindle	J. W. Lovatt	579,833	Mar. 30	3480	832	78	1998
Spindle	A. Scheid	574,945	Jan. 12	1001	241	78	206
Spindle	A. Scheid	574,946	Jan. 12	1002	241	78	207
Spindle	A. Scheid	574,947	Jan. 12	1003	241	78	207
Spindle	A. Scheid	574,948	Jan. 12	1004	242	78	207
Spindle	A. Scheid	574,949	Jan. 12	1005	242	78	207
Spindle	A. Scheid	574,950	Jan. 12	1005	242	78	208
Spindle	A. Scheid	576,059	Jan. 26	2948	694	78	606
Spindle	A. Scheid	576,060	Jan. 26	2948	694	78	606
Spindle and bearing	L. J. Murray	579,118	Mar. 16	2236	526	78	1731
Spindle thread-holder	O. C. Burr	578,810	Mar. 16	1701	393	78	1631
Spinning and twisting machine. Silk	H. W. Morgan	577,195	Feb. 16	1910	452	78	1020
Spinning and twisting machinery	J. and R. S. Dawson	575,463	Jan. 19	1908	458	78	395
Spinning, doubling, and twisting machine	F. Seymour	578,678	Mar. 9	1458	334 335	78	1550
Spinning-jenny	G. H. Marsh	578,494	Mar. 9	1152	259	78	1498
Spinning-machine	W. E. Allen	578,051	Mar. 2	356	85	78	1330
Spinning-machine flier	E. E. Bradley	578,856	Mar. 16	1779	410	78	1646
Spinning-mule	S. Jackson	576,730	Feb. 9	1120	264	78	864
Spinning-mule	S. Jackson	578,001	Mar. 2	372	88	78	1333
Spinning-spindle	W. G. Morrison	577,056	Feb. 16	1671	397	78	980
Spittoon	J. P. Kane and S. Dinsmore	576,589	Feb. 9	905	209	78	823
Spittoon-cleaner	H. Ellenbecker and C. Thomas	574,407	Jan. 5	50	12	78	12
Spittoon. Fountain-	J. C. Blair	575,029	Jan. 19	2206	522	78	454
Spool-heads. Machine for making	G. W. Cary	577,355	Feb. 16	2168	513 514	78	1074
Spool-holder	W. E. A. Innes	577,258	Feb. 16	2009	476	78	1045
Spool. Jack-	J. E. Dingman and S. Klingin	578,977	Mar. 16	2068	466	78	1685
Spooler-guide	H. Lawrence	578,247	Mar. 2	727	165	78	1390
Spooling-machine	W. F. Draper and A. E. Rhoades	578,140	Mar. 2	531	120	78	1303
Spooling-machine	C. S. Lord	579,489	Mar. 23	2888	679	78	1806
Spooling-machine stop-motion	G. P. Bosworth	575,663	Jan. 19	2269	535 536	78	467
Spouted can	R. W. Gillespie	576,051	Jan. 26	2963	691	78	608
Sprayer. Lawn-	J. Auble and A. D. Weiss. (Reissue.)	11,583	Jan. 5	852	207	78	161
Spraying apparatus	W. J. McGraw	576,818	Feb. 9	1258	300	78	891
Spraying-machine	J. H. Potter	576,225	Feb. 2	258	64	78	686
Spraying-machine and plunger therefor	A. H. Ruggles	578,902	Mar. 16	1863	428	78	1659
Spreading liquids over sheets of paper, &c. Machine for	J. Heim	577,683	Feb. 23	2760	652	78	1201
Spring:							
See Bicycle-seat spring. Door-spring. Buggy-spring. Vehicle-spring. Cultivator lifting-spring. Wagon-spring.							
Spring	G. W. N. Yost	575,451	Jan. 19	1879	453	78	390
Spring head. Vehicle-	G. H. Hawes	577,428	Feb. 23	2318	544	78	1119
Spring-jack	W. S. Paca	576,375	Feb. 2	533	124	78	736
Spring-motor	F. A. Burrows	575,050	Jan. 12	1192	280	78	241
Sprinkler:							
See Automatic sprinkler. Lawn-sprinkler.							
Sprinkler	D. Goff and J. T. Higbee	577,131	Feb. 16	1810	426	78	1007
Sprinkling-rose	H. Schaffstädtt	578,948	Mar. 16	1956	456	78	1675
Sprocket wheel and chain	J. C. Cottle and C. J. Marks	579,742	Mar. 30	3326	794	78	1969
Square. Folding	E. G. Stoy	579,023	Mar. 16	2072	485	78	1699
Squares. Making	F. B. Bradley	574,708	Jan. 5	580	135	78	108
Stacker. Pneumatic	G. A. Raasch and H. Fahrmeier	576,149	Feb. 2	136	34	78	602
Stacker. Pneumatic straw-	L. Blumstein	574,776	Jan. 5	688	164 165	78	129
Stacker. Pneumatic straw-	A. E. Price	576,740	Feb. 9	1133	268	78	867
Stacker. Pneumatic straw-	W. Seburn	577,117	Feb. 16	1780	422 423	78	1003
Stage. Self-supporting	H. Cummings	578,217	Mar. 2	685	156	78	1391
Stairway	B. J. Danielson	579,137	Mar. 23	2265	533 534	78	1751
Stalk-cutter	G. W. Evridge	577,734	Feb. 23	2837	672	78	1215
Stalk or fodder cutting machine	J. D. Tracy and J. F. Platt	576,485	Feb. 2	700	168	78	771
Stall. Cattle-	F. Jarrett	579,484	Mar. 23	2882	677	78	1804
Stamp. Automatic time-	J. C. Wilson	576,644	Feb. 9	980	232	78	889
Stamp. Hand-	L. H. Richardson	578,423	Mar. 9	1015	233	78	1472
Stamp holder. Hand-	C. L. Benedict	576,396	Feb. 2	471	110	78	726
Stamp. Ore-	A. M. Rouse	576,619	Feb. 9	948	220	78	831
Stamp-rack	D. S. Haines	576,450	Feb. 2	650	155	78	759
Stamp shoe and die and making same	H. D. Hibbard	575,548	Jan. 19	2055	492	78	425
Stamp. Steam ore-	C. W. Tremain	574,589	Jan. 5	369	82	78	68
Stamp. Ticket-	L. E. Paddack	574,623	Jan. 5	425	97, 98	78	80
Stamps. Device for adjusting type in hand-	J. C. Ward	577,336	Feb. 16	2140	507	78	1009
Stamping and embossing machine. Die	J. Carson and A. Shedlock	575,633	Jan. 19	2210	523 524	78	455
Stanchion	G. L. Brent and E. S. Wheeler	576,541	Feb. 9	823	192	78	808
Stand:							
See Combination-stand. Percolator-stand. Cooking-stand. Show-stand. Display-stand. Washstand. Flower-stand. Washtub-stand. Music-stand.							
Staple. Fence-	F. Johnson	576,455	Feb. 2	657	157	78	761

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Staple making and driving machine	P. A. Coupal	575,296	Jan. 12	1600	381 382 383	78	320
Staple making and driving machine	T. K. Keith	579,927	Mar. 30	3626	868 869	78	2027
Staple-setting implement	J. P. Hasty	579,538	Mar. 23	2962	700	78	1881
Staple-setting machine	G. Hay	579,148	Mar. 23	2288	538 539	78	1755
Starch. Treating	J. Kantorowicz	578,566	Mar. 9	1278		78	1522
Starching-machine	J. E. Bright	579,662	Mar. 30	3200	760	78	1946
Starching-machine	F. Hofmeister	577,032	Feb. 16	1631	387 388	78	972
Starting and stopping mechanism	C. D. Rice	575,810	Jan. 26	2509	590 591	78	527
Static generator	A. J. Gawne	575,231	Jan. 12	1497	359	78	300
Station-indicator	W. M. Baker	575,585	Jan. 19	2116	504 505	78	436
Station-indicator	W. H. Holloway	578,454	Mar. 9	1074	245	78	1483
Station-indicator	J. D. Keen and J. J. Roberts	576,854	Feb. 9	1313	313 314	78	901
Station-indicator	J. H. Morse	579,802	Mar. 30	3428	821	78	1988
Stationary boiler	L. Baker	579,784	Mar. 30	3400	814	78	1988
Statuary-duplicating machine	R. Morgeneier	576,321	Feb. 2	443	103 104	78	720
Stave-planing machine	C. S. Algren	576,935	Feb. 9	1454	346	78	927
Staves for casks. Apparatus for gathering or setting up	A. Dunbar	578,601	Mar. 9	1330	301	78	1532
Stay. Dress-	B. T. Durfee	575,598	Jan. 19	2149	509	78	444
Steam-boiler	D. P. F. Cardozo	575,881	Jan. 26	2644	624	78	532
Steam-boiler	G. Engel	577,916	Mar. 2	151	35, 36	78	1291
Steam-boiler	J. J. Hogan	578,747	Mar. 16	1598	368	78	1611
Steam-boiler	R. Joy	574,738	Jan. 5	629	149 150	78	117
Steam-boiler	R. Joy	576,197	Feb. 2	220	55	78	678
Steam-boiler	R. D. Kinney	575,118	Jan. 12	1307	315	78	268
Steam-boiler	V. O. Strobel	576,828	Feb. 9	1276	305	78	894
Steam-boiler	S. Turner	575,081	Jan. 12	1243	300	78	251
Steam-boiler	J. R. Vance	575,786	Jan. 26	2466	581	78	519
Steam-boiler. Marine	O. Kling	578,753	Mar. 16	1606	370	78	1613
Steam boiler or generator	J. Milne	577,142	Feb. 16	1822	429	78	1009
Steam-conduit. Flexible	M. P. McLaughlin	575,831	Jan. 26	2548	601	78	535
Steam-engine	G. A. Anderson	576,751	Feb. 9	1155	275	78	871
Steam-engine	J. F. Bermingham	578,478	Mar. 9	1109	253	78	1490
Steam-engine	H. L. Dickson	576,433	Feb. 2	625	148 149	78	754
Steam-engine	W. A. Haughn and S. Bufkin	576,576	Feb. 9	885	204	78	820
Steam-engine	N. G. Herreshoff	578,697	Mar. 9	1501	346	78	1565
Steam-engine	J. C. Slaughter	575,576	Jan. 19	2103	501	78	434
Steam-exhaust head	R. Bingham	575,561	Jan. 19	2076	496	78	428
Steam-gage alarm attachment	W. J. and H. C. Browning	579,219	Mar. 23	2403	567	78	1778
Steam-generator	R. W. Mewes	576,874	Feb. 9	1344	322	78	908
Steam-generator	J. Sampson	579,497	Mar. 23	2901	682 683	78	1868
Steam-generator	G. H. Stout	579,615	Mar. 30	3121	740	78	1929
Steam-separator	H. H. Bates	578,192	Mar. 2	648	147	78	1384
Steam-separator	C. M. Baum	579,377	Mar. 23	2654	627	78	1823
Steam shovel or excavator	G. W. King	579,589	Mar. 30	3074	727	78	1921
Steam-trap	E. Z. Hermansader and W. H. Blandy.	578,873	Mar. 16	1815	417	78	1651
Steam-trap	N. Nilson	577,623	Feb. 23	2670	690	78	1184
Steam-trap. Automatic	J. H. Blessing	578,310	Mar. 9	843	191 192	78	1440
Steam-trap. Automatic	J. H. Blessing	578,311	Mar. 9	847	192	78	1440
Steam-trap. Expansion	J. E. Chafer	575,920	Jan. 26	2708	640	78	564
Steam-trap. Return	E. P. Waggoner	576,488	Feb. 2	710	169 170	78	772
Steamer for canning fruits and vegetables	T. H. Raney	576,226	Feb. 2	261	64	78	686
Steamer. Wheat-	W. L. Mathews	575,550	Jan. 19	2057	492	78	425
Steamer. Wheat-	F. F. Quitzo	578,523	Mar. 9	1204	271	78	1508
Steaming apparatus. Fabric-	C. J. Gadd	578,008	Mar. 2	296	70	78	1317
Steel for armor-plates. Making carbonized	W. E. Corey and F. L. Slocum	574,668	Jan. 5	514	119	78	95
Steel for armor-plates. Making carbonized	F. L. Slocum and W. E. Corey	574,687	Jan. 5	449	102 103	78	84
Steel. Manufacture of	C. M. Hall	575,110	Jan. 12	1291		78	260
Steering apparatus	J. Johannsen	578,879	Mar. 16	1890	420	78	1653
Steering apparatus. Ship's	C. H. Richardson	577,981	Mar. 2	181	43	78	1296
Steering-gear	W. Tuttle	577,797	Feb. 23	2042	696	78	1235
Steering-gear. Steam	F. F. Schofield	576,231	Feb. 2	267	66	78	687
Stereopticon. Automatic	W. L. Veley	577,469	Feb. 23	2382	561	78	1131
Stereopticon. Self-acting	L. H. Hart	578,511	Mar. 9	1182	268	78	1504
Stereoscope	L. Jeffery	578,837	Mar. 9	886	201	78	1447
Stereotype-making machine	B. F. Curtis and D. E. Titsworth	579,044	Mar. 16	2116	497	78	1708
Sterilizer	J. W. Wallace	578,876	Mar. 9	988	213	78	1457
Stirrer. Barrel-	L. C. Strong	579,025	Mar. 16	2077	486	78	1700
Stirrup	G. G. Vann	578,956	Mar. 16	1971	459	78	1672
Stirrup-detaching device	P. Wagemann	577,541	Feb. 23	2528	596	78	1157
Stitch-separating and indenting machine	J. B. Hadaway. (Reissue)	11,587	Feb. 2	791	185 186	78	786
Stitch separating and indenting machine	J. B. Hadaway	579,231	Mar. 23	2420	571 572 674 675	78	1781
Stitching machine. Bag-	T. B. Fuller	577,740	Feb. 23	2845	676 677 678	78	1217
Stock-rack	W. W. Stevens	579,612	Mar. 30	3111	736 737	78	1928

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Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stocking-oxidizing apparatus	O. Duckworth	578,866	Mar. 16	1807	414	78	1649
Stoker. Mechanical	J. Hodgkinson	574,423	Jan. 5	78	16	78	16
Stoking apparatus. Mechanical	J. A. Erickson	578,630	Mar. 9	1378	314	78	1541
Stone-borer	H. Schwartzenhauer	575,738	Jan. 26	2399	505	78	506
Stone-cutting machine	C. W. Theil	578,429	Mar. 9	1022	234 235	78	1474
Stone-dressing machine	J. Spencer	575,435	Jan. 19	1851	445 446	78	385
Stone-dressing planer	J. Gilmour	575,154	Jan. 12	1372	390	78	276
Stone for buildings, &c. Machine for molding and dressing	G. M. Bowser	577,008	Feb. 16	1589	378	78	964
Stone. Manufacture of artificial	W. Owen	577,060	Feb. 16	1676	398	78	981
Stone-sawing machine	J. Peckover	578,116	Mar. 2	474	109 110	78	1352
Stone-sawing-machine saw-blade	J. Peckover	579,721	Mar. 30	3299	788	78	1964
Stool and bicycle-saddle. Combined	G. Voelker	575,184	Jan. 12	1415	340	78	284
Stool and cane	C. V. Gordon	576,345	Feb. 2	485	113	78	728
Stool. Camp-	W. A. Urbanus	576,636	Feb. 9	978	229	78	837
Stool. Counter-	A. A. Lind	575,721	Jan. 26	2375	559	78	501
Stool. Extensible and adjustable music-	A. J. Gautrau	578,056	Mar. 2	366	87	78	1332
Stool. Folding	J. L. Chapman	576,657	Feb. 9	1011	237	78	843
Stop mechanism	R. L. Lyons	579,594	Mar. 30	3083	729	78	1923
Stopper: *See* Bottle-stopper. Fireproof flue-stopper. Can-stopper. Flue-stopper.							
Stopper-extractor	E. Walker	579,200	Mar. 23	2372	559	78	1772
Stopper for jars, bottles, cans, &c.	E. A. Matthias and W. H. Harrison	579,887	Mar. 30	3508	853 864	78	2016
Storage battery	C. T. Barrett	578,710	Mar. 16	1526	352 353	78	1598
Storm and screen frame	B. J. Danielson	579,138	Mar. 23	2267	534	78	1752
Stove	J. Rothlisberger and H. Graichen	575,041	Jan. 12	1171	285	78	237
Stove	M. and W. N. Stehle	575,179	Jan. 12	1405	338	78	283
Stove	O. H. Van Gilder	575,816	Jan. 26	2518	594	78	529
Stove attachment. Vapor-burning-	W. A. Way	575,017	Jan. 12	1130	274	78	230
Stove-bands. Mechanism for forming	D. M. Ireland	576,126	Feb. 2	98	26	78	656
Stove burner. Gas-	A. E. Detwiler	575,051	Jan. 12	1193	289	78	241
Stove burner. Gas-	A. E. Detwiler	575,052	Jan. 12	1194	290	78	242
Stove. Camp or army	O. D. Hunt	577,619	Feb. 23	2064	629	78	1183
Stove, &c. Combined heating and cooking	F. W. G. Boettcher	578,622	Mar. 9	1367	311 312	78	1539
Stove. Cooking-	J. H. Fizer	578,143	Mar. 2	535	121	78	1364
Stove. Cooking-	J. J. Graves	574,799	Jan. 5	720	172	78	136
Stove-door and hinge therefor	J. H. Spohn	579,810	Mar. 30	3437	824	78	1990
Stove. Double-drum sectional heating-	J. Fleming	576,049	Jan. 26	2930	690 691	78	603
Stove. Gas-	L. Kahn	577,513	Feb. 23	2465	581	78	1146
Stove. Gas-	H. M. Munk	576,350	Feb. 2	492	115	78	729
Stove-grate	W. Thompson	577,467	Feb. 23	2380	560	78	1131
Stove. Heating-	H. H. Brown, A. S. Glascock, R. S. Quinn, and J. W. Brown.	576,299	Feb. 2	400	94	78	713
Stove. Heating-	G. W. Cope	576,694	Jan. 26	2908	685	78	598
Stove. Hot-blast	J. Kennedy	579,271	Mar. 23	2485	586	78	1792
Stove or furnace grate	S. Smyth	577,666	Feb. 23	2737	646	78	1197
Stove or range	M. M. Koch	577,557	Feb. 23	2551	601	78	1162
Stove or range	C. A. Pettersen	579,280	Mar. 23	2497	589 590	78	1794
Stove-oven door	G. F. Filley	574,895	Jan. 12	890	215	78	187
Stove. Petroleum-	C. Östlund and A. E. Malmström	575,979	Jan. 26	2802	660 661	78	581
Stovepipe-coupling	T. Holland	578,688	Mar. 9	1308	316	78	1544
Stovepipe-joint	R. Sword	576,484	Feb. 2	705	168	78	770
Stovepipe-lock	D. C. Phillips and J. M. McCown	574,627	Jan. 5	432	99	78	81
Stovepipe-thimble	P. J. Haas	578,737	Mar. 16	1578	365	78	1608
Stove. Sheet-metal heating-	F. L. Beymer	579,379	Mar. 23	2657	628	78	1824
Stove. Vapor-burning	B. S. Koll	578,005	Mar. 9	1337	304	78	1534
Stove. Wood-burning	C. V. Roberts	575,617	Jan. 19	2182	517	78	450
Stoves. Combination rack and support attachment for	H. L. Kress	574,806	Jan. 5	735	175	78	138
Stoves, ranges, &c. Oven attachment for	H. Weber	575,185	Jan. 12	1416	340	78	285
Strainer	W. C. Baldwin	576,708	Feb. 9	1225	292	78	885
Strainer. Water-	J. H. Seed	575,177	Jan. 12	1402	337	78	282
Strap: *See* Hose-strap. Metallic strap.							
Street-cleaner	J. B. Tilton and M. G. Bunnell	577,970	Mar. 2	288	56, 57	78	1306
Street or station indicator and advertising medium. Automatic	M. B. Leece and A. R. Bullock	576,201	Feb. 2	225	56, 57	78	679
Street-sweeper	M. Carrier	574,850	Jan. 5	811	197	78	153
Street-sweeper	C. Christoph	576,091	Feb. 2	20	6, 7	78	642
Street-sweepings. Receptacle for	L. Waring	577,089	Feb. 16	1728	409	78	991
Stump-extractor	B. Eddy and D. Phillips	574,406	Jan. 5	49	12	78	11
Stump-extractor	J. C. Sharp	575,132	Jan. 12	1332	321 322	78	268
Sucker-rod socket	B. Masseth and D. W. Black	578,344	Mar. 9	895	202	78	1449
Suction creating or exhausting devices. Regulator for	M. Leitch	577,263	Feb. 16	2016	478	78	1046
Sugar. Apparatus for separating liquid from crystalline	J. V. Smale	579,098	Mar. 16	2200	517	78	1725
Sugar. Refining	E. Langen	576,861	Feb. 9	1325	------	78	904
Sugar, &c. Treating	W. D. Horne	579,754	Mar. 30	3348	------	78	1974
Sulky	C. H. Peardon	579,176	Mar. 23	2338	549	78	1765
Sulky	G. L. Wells	577,339	Feb. 16	2145	508	78	1070
Sulky. Trotting-	J. J. Haywood and H. Marquedant	579,149	Mar. 23	2293	539	78	1756
Summer-house. Folding	J. W. Boughton	574,519	Jan. 5	225	53, 54	78	44
Sunshade	F. E. Lashells	578,572	Mar. 9	1286	302	78	1524
Superheater	W. Schmidt	576,698	Feb. 9	1074	252	78	855
Surgeon's knife	W. Autenrieth	576,648	Feb. 9	1000	234	78	841

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Surgical chair	E. J. Wells	576,490	Feb. 2	713	170 171	78	772
Swaging-machine feeding mechanism	A. J. Langelier	576,057	Jan. 26	2943	693	78	605
Swimming appliance	W. Luce	579,758	Mar. 30	3353	802	78	1975
Swinging gate	W. H. Jones, J. L. Riter, and J. T. Chenoweth.	579,919	Mar. 30	3615	865	78	2024
Switch: *See* Automatic switch. Electrical knife-switch. Car-switch. Railway-switch. Electric switch. Snap-switch. Electric quick-break switch.							
Switch	W. McCullough	574,749	Jan. 5	646	153	78	121
Switch and distant-signal stand. Combined	G. S. Pflasterer	577,171	Feb. 16	1871	442	78	1019
Switch and signal apparatus	J. G. Schreuder	575,908	Jan. 26	2088	634 635 636	78	560
Switch and signal apparatus. Interlocking mechanism for	G. Koenig	575,120	Jan. 12	1310	315 316	78	264
Switch-box for flush switches	J. W. Poole	579,894	Mar. 30	3581	857	78	2018
Switch device	G. A. Owen and G. A. Bates	579,329	Mar. 23	2576	608 609	78	1809
Switch-lock	A. B. Schrantz	574,455	Jan. 5	131	30	78	26
Switch-operating device	W. A. Clapp	578,968	Mar. 16	1988	463	78	1681
Switch-plug	W. S. Paca	576,409	Feb. 2	674	161	78	764
Switches. Turn-button for electrical	J. S. Gibbs	578,695	Mar. 9	1499	345	78	1564
Swivel. Chain-	J. L. Fittz	577,243	Feb. 16	1989	477	78	1041
Swivel for chains or pulleys	J. A. Guinn	576,574	Feb. 9	882	204	78	819
Swivel leader-holder	G. F. and F. Breitstein	575,205	Jan. 12	1456	350	78	292
Syringe	W. C. Bunce	576,654	Feb. 9	1008	236	78	843
Syringe	F. Eissner	577,682	Feb. 23	2759	652	78	1201
Syringe. Electrotherapeutic	J. D. Rively	578,611	Mar. 9	1349	307	78	1536
Syringe-nozzle	H. H. Bennett	577,524	Feb. 23	2490	586	78	1151
Syrup. Apparatus for reclaiming crystallized	E. D. Smythe	579,021	Mar. 16	2069	484 485	78	1699
Syrup-drawing device	E. S. Palmbla	579,006	Mar. 16	2048	476 477	78	1693
Table: *See* Billiard-table. Ironing-table. Drawing-table. Operating-table. Extension-table. Sorting-table. Folding table. Whist-table.							
Table	G. Köhler and K. Schuchardt	578,407	Mar. 9	994	227	78	1468
Table and checker-board. Combined	F. Horovitz	577,984	Mar. 2	202	62	78	1311
Table and foot-rest. Combined	A. G. Hubbard	577,138	Feb. 16	1818	428	78	1008
Table and music-pulpit. Combined	T. J. Palmer	577,202	Feb. 16	1822	454	78	1028
Table-leg fastening	W. Bosch	577,229	Feb. 16	1903	465	78	1036
Tableau-curtain	E. Lytton	574,552	Jan. 5	284	67	78	56
Tablet. Sales-indicating	H. H. Freer and C. MacCallum	578,557	Mar. 9	1263	287 302	78	1520
Tacking-tool. Hand	A. F. Preston	576,823	Feb. 9	1268	303	78	892
Tag for rolled goods. Marking-	W. D. Smith	576,234	Feb. 2	271	67	78	688
Tailor's chalk and holder	C. Ress	575,275	Jan. 12	1569	374	78	315
Tailpiece for string instruments	D. C. Sasseman	577,177	Feb. 16	1880	444	78	1021
Tank: *See* Flush-tank. Siphon-tank. Flushing-tank. Water-tank. Glass-tank. Watering-tank. Sheet-metal tank.							
Tank	J. W. Abrahams	576,993	Feb. 16	1569	373	78	961
Tank	J. W. Abrahams	577,097	Feb. 16	1740	411 412	78	998
Tank	R. E. L. Rice	578,265	Mar. 2	754	171	78	1404
Tank, vented float, outlet-valve, and pipe system. Combination	G. E. Montague	576,601	Feb. 9	922	213	78	826
Tanks. Machine for manufacturing	W. H. Bullock	574,598	Jan. 5	379	85, 86	78	71
Tannin extract. Making	M. Honig	578,334	Mar. 9	884	------	78	1447
Tap. Barrel-	I. Wasserstrom	579,354	Mar. 23	2616	618	78	1816
Tap. Beer-	D. E. Springer and J. M. Hadesty	574,588	Jan. 5	355	80	78	67
Tapping apparatus. Beer-	E. Haenig	576,189	Feb. 2	210	52	78	676
Tapping attachment	F. A. Errington	578,487	Mar. 9	1137	256 257	78	1495
Tapping attachment. Automatic friction	F. A. Errington	578,488	Mar. 9	1115	254 255	78	1491
Tapping-machine	W. S. Payne	578,418	Mar. 9	1008	231	78	1471
Tapping-machine. Automatic	H. Hubbell	576,404	Feb. 2	580	136	78	745
Teaching melodies. Apparatus for	F. N. Steffens	577,667	Feb. 23	2738	646 647	78	1197
Teakettle	G. and C. W. Burket	574,783	Jan. 5	699	169	78	131
Teakettle	T. E. Carlin	576,806	Feb. 9	1244	296	78	888
Teakettle and still. Combined	L. L. Painter	577,267	Feb. 16	2023	479	78	1047
Telegraph-battery jar	A. L. Werner	575,449	Jan. 19	1877	452	78	389
Telegraph call-bell	J. N. Newsom	579,169	Mar. 23	2320	545 546	78	1762
Telegraph. Printing-	C. L. Buckingham and E. Germann	579,634	Mar. 30	3153	748 749	78	1936
Telegraph. Printing-	C. L. Buckingham and E. Germann	579,635	Mar. 30	3158	749 750	78	1937
Telegraph. Printing-	C. L. Buckingham and E. Germann	579,636	Mar. 30	3160	750 751	78	1937
Telegraph. Printing-	B. Hoffmann	574,994	Jan. 12	1090	264 265 266	78	223
Telegraph. Printing-	O. L. Kleber	575,890	Jan. 26	2542	600 601	78	534

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Telegraph-transmitter	C. L. Buckingham and J. Gardam	579,633	Mar. 30	3152	747	78	1936
Telegraph-transmitter	H. A. Taylor	577,540	Feb. 23	2523	595	78	1157
Telegraphic register	C. E. Beach	578,386	Mar. 9	959	217 218	78	1461
Telegraphing. Contact apparatus for	C. Vreede	576,243	Feb. 2	294	70, 71	78	693
Telegraphy	P. B. Delany	575,419	Jan. 19	1826	439	78	380
Telegraphy	R. H. Weiny	578,126	Mar. 2	505	114 115	78	1359
Telegraphy. Submarine	A. Muirhead	577,534	Feb. 23	2507	591 592	78	1154
Telephone	C. C. Gould	574,901	Jan. 12	900	218 219	78	189
Telephone	J. Weigel	578,670	Mar. 9	1442	330	78	1553
Telephone and annunciator system. Combined	J. R. Strong	578,122	Mar. 2	497	113	78	1357
Telephone apparatus	C. E. Buell	576,804	Feb. 9	1239	296	78	887
Telephone apparatus. Table-	L. M. Ericsson	578,006	Mar. 2	204	69	78	1317
Telephone-call device. Automatic	E. P. Boland	577,911	Mar. 2	136	33	78	1296
Telephone-call register	W. A. Heckard and D. Ogden	577,920	Mar. 2	161	38	78	1292
Telephone call-ringer	J. A. Williams and S. Abbott	578,380	Mar. 9	947	215	78	1459
Telephone-exchange system	J. E. Keelyn and K. B. Miller	579,299	Mar. 23	2523	596	78	1709
Telephone-exchange system. Automatic	L. G. Bowman	574,707	Jan. 5	576	134 135	78	107
Telephone-line annunciators. Circuit for	C. E. Scribner and F. R. McBerty	574,579	Jan. 5	349	78	78	66
Telephone. Magneto-	S. D. Field	575,394	Jan. 19	1789	430	78	374
Telephone-mouthpiece	C. L. Cohn and M. Martin	579,790	Mar. 30	3412	817	78	1985
Telephone-receiver	R. S. Barnum	574,654	Jan. 5	483	111	78	90
Telephone signal-transmitter	E. C. Robes	576,472	Feb. 2	681	162	78	766
Telephone spring-jack	W. O. Meissner	579,239	Mar. 23	2432	575	78	1783
Telephone-switchboard	H. J. Swarts	574,642	Jan. 5	458	105	78	86
Telephone-switchboard plug	F. E. Bossong	579,086	Mar. 16	2101	492	78	1705
Telephone-switchboards. Signaling appliance for	C. E. Scribner	575,131	Jan. 12	1331	320	78	268
Telephone system	W. W. Dean	577,101	Feb. 16	1760	416	78	997
Telephone system	A. S. Hibbard	576,577	Feb. 9	896	205	78	820
Telephone system	J. H. Weckel	575,186	Jan. 12	1417	341	78	285
Telephone system. Party-line	W. W. Dean	577,102	Feb. 16	1762	416	78	997
Telephone-transmitter	R. S. Barnum	575,869	Jan. 26	2615	618	78	547
Telephone-transmitter	M. E. and E. C. Clark	576,551	Feb. 9	839	195	78	812
Telephone-transmitter	J. F. Gilliland	576,813	Feb. 9	1253	299	78	890
Telephone-transmitter	N. Lombard	578,520	Mar. 9	1197	270	78	1506
Telephone-transmitter	W. J. Moore	579,008	Mar. 16	2096	475	78	1692
Telephone-transmitters. Agitator for	S. B. Rawson	574,761	Jan. 5	664	158	78	124
Telephones. Cut-out and agitator for dust-transmitters for	S. B. Rawson	578,771	Mar. 16	1627	376	78	1617
Telephonic messenger service	J. D. Hobbs	579,482	Mar. 23	2880	677	78	1864
Telephonic transmitter	M. Kotyra	575,896	Jan. 26	2673	630	78	558
Telephony	W. L. Bradshaw	577,231	Feb. 16	1966	465	78	1037
Telephony. Multiplex	S. W. Holman	578,992	Mar. 16	2022	471	78	1689
Temperature and density tester. Liquid	J. Barry	576,537	Feb. 9	817	190	78	807
Temperature-controlling apparatus	S. Green	578,084	Mar. 16	2012	468 469	78	1687
Tender-coupling	F. J. Curtis	574,608	Jan. 5	386	87	78	73
Tenpin-ball	F. C. Rockwell	575,128	Jan. 12	1322	319	78	266
Tension-buffer	D. Stretch	577,272	Feb. 16	2031	481	78	1049
Tension device	S. W. Wardwell, Jr	577,337	Feb. 16	2142	507	78	1069
Tent	J. M. Wolbrecht	579,373	Mar 23	2648	626	78	1822
Terpene alcohol	A. Hesse	577,302	Feb. 16	2082	.....	78	1058
Thermocauter	F. Drumm	574,719	Jan. 5	604	143	78	112
Thermocouples. Apparatus for generating and applying heat to	H. C. Reagan, Jr	577,270	Feb. 16	2027	480	78	1048
Thermometer-guard	B. T. Fairchild	577,016	Feb. 16	1608	382	78	908
Thermoscope	W. G. Looser	577,439	Feb. 23	2334	547	78	1121
Thill-coupling	D. Bradley	579,290	Mar. 23	2511	593	78	1707
Thill-coupling	E. Brush	579,200	Mar. 23	2512	593	78	1707
Thill-coupling	J. W. Buchanan	577,417	Feb. 23	2297	539	78	1114
Thill-coupling	H. W. and H. F. Connell	575,212	Jan. 12	1466	353	78	296
Thill-coupling	C. O. Hill and P. W. Bly	575,352	Jan. 19	1715	409	78	361
Thill-coupling	E. B. Lewis	574,547	Jan. 5	277	65	78	55
Thill-coupling	E. T. Martin	578,306	Mar. 2	827	188	78	1417
Thill-coupling	J. U. Tabor	577,274	Feb. 16	2034	481	78	1050
Thill-coupling	B. J. Yeager	576,182	Feb. 2	203	50	78	675
Thill-coupling. Antirattling	W. M. Buchnau	577,232	Feb. 16	1967	466	78	1037
Thill-coupling bolt	G. N. Polhemus	574,569	Jan. 5	314	72	78	61
Thill-couplings. Antirattler for	J. W. Willard	574,709	Jan. 5	676	161	78	127
Thill-couplings. Antirattler for	J. W. Willard	574,840	Jan. 5	791	189	78	149
Thill-support	G. L. and R. Bowman	578,201	Mar. 2	660	151	78	1386
Thill-support	M. L. and J. D. Rice	578,774	Mar. 16	1630	377	78	1617
Thread-cutter	G. E. Witherell	578,802	Mar. 16	1683	389	78	1627
Thread-cutting device	F. N. Lawton	579,920	Mar. 30	3617	865	78	2024
Thread-cutting implement	C. Elterich	574,721	Jan. 5	607	144	78	112
Thread-twister. Bobbin	E. C. Gerstenberger	576,444	Feb. 2	639	153	78	757
Thresher and separator. Grain	S. R. Rogers	577,608	Feb. 23	2647	625 626	78	1180
Thresher attachment. Clover-	J. W. Davis	579,259	Mar. 23	2464	582	78	1788
Thresher band-cutter and feeder	J. R. Hall and J. J. Gaynor	575,567	Jan. 19	2086	498	78	430
Threshing-machine	E. G. Clymans	576,755	Feb. 9	1102	277	78	872
Threshing-machine	E. Huber	576,270	Feb. 2	345	82	78	702
Threshing-machine band-cutter and distributing-feeder.	A. W. Eddy and H. P. Jones	577,731	Feb. 23	2633	671	78	1215
Threshing-machine band-cutter and feeder	R. Johnson	574,485	Jan. 5	176	41	78	35
Threshing-machine band-cutter and feeder	H. Wappalhorst	576,011	Jan. 26	2857	677	78	502
Threshing-machine band-cutter and feeder	G. F. Weiss	578,795	Mar. 16	1671	386 387	78	1625
Threshing-machine feeder and band-cutter	J. M. Sailer	575,129	Jan. 12	1324	319	78	266
Threshing-machine sieve	W. Bartelt	575,095	Jan. 12	1262	304 305	78	255

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Threshing-machine spreader and regulator combined.	J. R. Nunamaker and M. J. Williams.	578,898	Mar. 16	1858	427	78	1658
Ticket and baggage-check combined. Railway passenger-	E. J. Bonham	575,413	Jan. 19	1817	437	78	379
Ticket. Divisible passenger-receipt and auditor-coupon railway-	H. P. Mussen	577,622	Feb. 23	2669	680	78	1184
Ticket-holder	J. L. Draper	576,495	Feb. 2	725	172	78	774
Ticket-holder	W. S. Lodge	574,550	Jan. 5	281	66	78	55
Ticket holder. Roll-	J. L. Kirk	577,862	Mar. 2	41	12	78	1268
Tie: *See* Bale-tie. Wall-tie. Railway-tie.							
Tie-plate	M. M. Moore	579,764	Mar. 30	3369	805	78	1978
Tile. Cornice-	C. J. Bogert	576,942	Feb. 9	1462	348	78	929
Tile. Roofing and sheathing	C. T. Harris	579,481	Mar. 23	2879	677	78	1864
Tilting case or crate	G. W. Banker	577,409	Feb. 23	2281	535	78	1112
Tilting gate	L. C. Fisher and A. C. Bayliss	576,104	Feb. 2	47	12, 13	78	646
Time-alarm	J. G. Hallas	578,059	Mar. 2	370	88	78	1332
Time check and recorder. Electric	A. Davidson and C. G. Armstrong	579,473	Mar. 23	2868	674	78	1862
Time-detector	I. A. Hermann	574,802	Jan. 5	725	173 174	78	137
Time-indicator	J. W. Nunamaker	576,275	Feb. 2	354	84	78	704
Time-register. Watchman's	S. Bower	575,790	Jan. 26	2486	587	78	523
Tinner's furnace	J. C. Dupee	579,743	Mar. 30	3328	795	78	1970
Tire. Bicycle-	H. Bingham	575,586	Jan. 19	2119	505	78	437
Tire. Bicycle-	J. A. Burton	578,184	Mar. 2	519	117	78	1361
Tire. Bicycle-	J. F. Dolles	575,218	Jan. 12	1479	355	78	297
Tire. Bicycle-	W. P. Fogarty and A. C. Krueger	578,227	Mar. 2	699	159	78	1394
Tire. Bicycle-	J. Jenkins	576,194	Feb. 2	216	54	78	677
Tire. Bicycle-	R. B. Lamb	579,879	Mar. 30	3557	851	78	2013
Tire. Bicycle-	E. Nelson	578,258	Mar. 2	746	169	78	1403
Tire. Bicycle-	J. Parker	579,521	Mar. 23	2383	690	78	1875
Tire. Bicycle-	M. A. Sancho	577,694	Feb. 23	2775	656	78	1204
Tire. Bicycle-	T. Smith	576,168	Feb. 2	165	41	78	668
Tire. Bicycle-	P. G. Stormer	576,171	Feb. 2	173	42	78	669
Tire-bolt-removing device	J. F. Hertzler and F. Rogers	578,636	Mar. 9	1389	316	78	1543
Tire-bolt wrench	E. A. Rich	577,451	Feb. 23	2352	552	78	1125
Tire. Elastic	C. K. Welch	575,797	Jan. 26	2483	586	78	522
Tire for bicycles. Elastic	R. Routh, W. J. Dwyer, and O. R. Routh.	576,697	Feb. 9	1073	252	78	855
Tire for bicycles. Removable ice-	J. L. Atkinson and L. Branchaud	576,420	Feb. 2	604	143	78	750
Tire for vehicle-wheels. Elastic	W. H. Holden	574,682	Jan. 5	538	125	78	99
Tire for wheels. Elastic	P. A. de Sparre	576,952	Feb. 2	494	115	78	730
Tire inflater. Pneumatic-	J. Savoie	575,430	Jan. 19	1845	443	78	384
Tire-patching device. Pneumatic-	J. Savoie	574,453	Jan. 5	129	29	78	26
Tire. Pneumatic	E. W. Balding	579,122	Mar. 23	2342	528	78	1747
Tire. Pneumatic	E. C. Bartlett and W. A. Murbach	578,191	Mar. 2	647	147	78	1384
Tire. Pneumatic	E. Lyon	574,488	Jan. 5	101	21	78	21
Tire. Pneumatic	L. J. Miller	574,440	Jan. 5	104	22	78	22
Tire. Pneumatic	G. C. Moore	575,551	Jan. 19	2059	493	78	426
Tire. Pneumatic	G. W. Rowe and W. G. Heys	577,400	Feb. 16	2260	531	78	1091
Tire. Pneumatic	W. L. Stewart	579,846	Mar. 30	3506	888	78	2003
Tire. Pneumatic bicycle-	B. A. Bidle	576,772	Feb. 9	1183	282	78	877
Tire protector. Vehicle-	M. A. Andrews	574,772	Jan. 5	681	162	78	128
Tire-removing machine	H. H. Smith	579,352	Mar. 23	2613	617	78	1816
Tire repairer. Pneumatic-	R. Wehl	578,433	Mar. 9	1089	237	78	1476
Tire. Rubber	E. L. Toy and A. T. Holt	575,445	Jan. 19	1871	451	78	388
Tire. Spring-	P. C. Hewitt	576,365	Feb. 2	514	120	78	733
Tire-tightener	W. Dobrowolski and H. Wise	579,260	Mar. 23	2468	582	78	1789
Tire-tightener	R. N. Garrett	575,230	Jan. 12	1496	359	78	300
Tire-tightener	G. J. Grandpre	574,412	Jan. 5	58	13	78	13
Tire-tightener	H. Rembert	578,525	Mar. 9	1210	273	78	1509
Tire. Tubular wheel-	J. Lyall	576,371	Feb. 2	524	122	78	735
Tire valve. Pneumatic-	L. Held	574,992	Jan. 12	1088	264	78	222
Tire valve. Pneumatic-	D. E. Walker	577,698	Feb. 23	2780	657	78	1205
Tire valve. Velocipede-	F. Veith	575,817	Jan. 26	2519	594	78	529
Tire. Vehicle-	G. N. Chase	574,390	Jan. 5	25	7	78	7
Tire. Vehicle-	R. W. Churchill	576,809	Feb. 9	1247	297	78	889
Tire. Vehicle-	C. E. Duryea	578,551	Mar. 9	1251	284	78	1517
Tire. Vehicle-wheel	S. E. Barnes	579,216	Mar. 23	2397	565	78	1777
Tire. Vehicle-wheel	E. Humbrecht	576,072	Jan. 26	2464	699	78	609
Tire. Wheel-	A. M. Howard	577,257	Feb. 16	2009	476	78	1045
Tire. Wheel-	J. H. Northrop	574,446	Jan. 5	119	27	78	24
Tire. Wheel-	E. E. Quimby	575,783	Jan. 26	2462	580	78	519
Tire. Wheel-	F. W. Huestis	575,398	Jan. 19	1797	431	78	375
Tire-winding apparatus	E. S. Feltch and C. E. Stone	576,305	Feb. 2	411	96, 97	78	715
Tires and fellies of wheels. Machine for drilling	C. C. Hines and J. A. Willard	575,889	Jan. 26	2659	628	78	555
Tires. Apparatus for repairing pneumatic	C. S. Howe and J. W. Langley	575,648	Jan. 19	2244	531	78	402
Tires. Composition for repairing leaks in pneumatic	F. B. Jencks	574,608	Jan. 5	394	90	78	75
Tires. Device for mending	J. Schwartz	579,984	Mar. 30	3641	871	78	2030
Tires. Inflation-valve and coupling for pneumatic	J. H. Calkins	574,709	Jan. 5	582	135	78	108
Tires. Means for repairing pneumatic	C. E. Green	577,601	Feb. 23	2637	622	78	1178
Tires. Method of and implement for patching pneumatic	S. Porter and L. A. Carpenter	576,690	Feb. 9	1063	250	78	853
Tires. Repair-tool for bicycle-	A. H. Culley	576,836	Feb. 9	1287	307 308	78	896
Tires to rims. Means for securing	J. Oettinger and M. A. Schutt	576,607	Feb. 9	982	215	78	828
Tires. Tool for mending punctures in bicycle-	A. Fairgrieve	579,050	Mar. 16	2125	499	78	1710
Toaster	N. P. Perkins	579,305	Mar. 23	2586	598 599	78	1802
Tobacco-cutting machine	N. P. Perkins	579,306	Mar. 23	2588	599 600	78	1802
Tobacco cutting or slicing machine	J. H. Hubbell	575,953	Jan. 26	2751	650	78	578
Tobacco-elevator	A. J. Luther	576,735	Feb. 9	1128	266	78	866

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tobacco feeding and dressing mechanism	J. F. Hartigan	578,740	Mar. 16	1582	365 366	78	1608
Tobacco. Method of and apparatus for disentangling cut	O. W. and C. Allison	575,774	Jan. 26	2450	577	78	516
Tobacco-pipe	G. R. Davidson	575,334	Jan. 19	1685	402	78	355
Tobacco-pipe	G. C. Rickly	574,495	Jan. 5	192	44	78	38
Tobacco-pipe	C. S. Rodgers	576,157	Feb. 2	151	37	78	605
Tobacco-pipe	J. Townsend	578,788	Mar. 16	1660	384	78	1623
Tobacco-pipe	P. O. Vettermann	576,923	Feb. 9	1435	341	78	924
Tobacco-pipes. Draft appliance for	F. J. Kaldenberg	578,881	Mar. 16	1832	421	78	1654
Toe stiffener. Box-	C. S. Pierce	574,448	Jan. 5	124	28	78	25
Toilet appliance	M. Rhine	579,120	Mar. 16	2239	527	78	1731
Toilet. Child's traveling	N. F. Boniface	579,337	Mar. 23	2502	612	78	1812
Tongs. Pipe-drawing	J. Wood	576,179	Feb. 2	198	49	78	673
Tongue-and-groove machine	W. S. Sherman	577,076	Feb. 16	1704	404	78	986
Tongue-support	G. W. Fletcher	577,847	Mar. 2	20	7	78	1264
Tongue-support	G. Thomas	574,587	Jan. 5	360	81	78	68
Tool	C. Ford and F. Mahler	577,948	Mar. 2	201	49	78	1300
Tool. Combination-	S. M. Cole	576,756	Feb. 9	1163	277	78	873
Tool. Combination-	F. Elliott	576,593	Feb. 9	858	199	78	815
Tool. Combination-	M. D. Letteer	578,249	Mar. 2	780	165	78	1400
Tool. Combination-	C. A. Salzman	574,764	Jan. 5	668	159	78	125
Tool-handle	F. H. Whitney	574,889	Jan. 5	790	189	78	149
Tool-handles. Shield and brace for	R. C. Doenitz and J. Fiereckel	578,319	Mar. 9	864	196	78	1443
Tool-holder	C. W. Justus	579,064	Mar. 16	2148	504	78	1715
Tool-holder	W. S. Sherman	577,075	Feb. 16	1702	404	78	986
Tool-post	W. K. Jagger	576,128	Feb. 2	102	26	78	656
Toothpick	G. B. Deardorff	579,139	Mar. 23	2270	534	78	1732
Toothpick	H. T. Tissington	577,468	Feb. 23	2381	561	78	1131
Tooth-powder receptacle	P. S. Malcolm	575,610	Jan. 19	2166	514	78	447
Top	C. W. Long	576,982	Feb. 9	1548	368	78	945
Top holder. Spinning-	W. A. Palmer	579,174	Mar. 23	2334	548	78	1764
Top roll	L. W. Campbell	578,705	Mar. 9	1519	350	78	1508
Top-roll saddle and weight-stirrup	E. Dixon	575,464	Jan. 19	1904	458	78	395
Top rollers. Mounting	E. Tweedale	575,557	Jan. 19	2067	494 495	78	427
Top. Spinning-	G. B. Allen	575,278	Jan. 12	1572	374	78	315
Torch	J. H. Green	576,111	Feb. 2	55	14	78	648
Torpedoes. Apparatus for operating submarine	W. F. Brewster	576,088	Feb. 2	18	4	78	641
Toy	L. A. Eberhardt	577,730	Feb. 23	2833	671	78	1215
Toy	J. E. H. Hyde	578,749	Mar. 16	1596	369	78	1611
Toy	D. Knowles	578,491	Mar. 9	1148	258	78	1497
Toy	W. H. Reiff	576,891	Feb. 9	1386	331	78	915
Toy	E. Zimmerman and J. A. Reed	579,630	Mar. 30	3147	746	78	1684
Toy card	N. M. Russell	578,029	Mar. 2	328	78	78	1324
Toy house	W. H. Ferguson	579,225	Mar. 23	2411	569	78	1779
Toy. Mechanical	E. G. Moersch	574,557	Jan. 5	294	68	78	58
Toy piano	T. Giddings	574,677	Jan. 5	532	123	78	97
Toy savings-bank	C. G. Glover	579,058	Mar. 16	2133	502	78	1712
Trace-carrier	E. A. Cotham and G. Wells	578,971	Mar. 16	1992	464	78	1682
Trace-fastener	J. Mitchell	576,600	Feb. 9	920	212	78	826
Trace-holder	G. Laube	575,859	Jan. 19	1734	411	78	363
Trace-hook	J. W. Clayton	576,339	Feb. 2	476	111	78	727
Track-gage	C. E. Irwin	577,580	Feb. 23	2591	611	78	1169
Track-sanding apparatus. Blast-controlling valve for	T. H. Curtis	578,318	Mar. 9	862	195	78	1443
Track-sanding apparatus for locomotives	T. J. Hennessey	576,055	Jan. 26	2941	668	78	605
Track-sanding device	A. J. Freeman	577,245	Feb. 16	1992	472	78	1042
Traction device. Floating	T. P. Milligan	575,488	Jan. 19	1943	466	78	403
Traction-engine	A. J. Martin	578,888	Mar. 16	1841	423 424	78	1655
Traction-engine	A. E. Price	576,764	Feb. 9	1173	279	78	875
Traction-wheel	J. A. Justice	578,982	Mar. 16	1918	443	78	1668
Train-controlling device	C. A. Shea	578,208	Mar. 2	812	185	78	1415
Train-order-holding device	C. J. Quay	576,691	Feb. 9	1065	250	78	853
Train-pipe coupling	W. F. White	574,605	Jan. 5	558	130	78	108
Trains. Device for deadening noise of	J. W. Seavolt	578,364	Mar. 9	923	210	78	1454
Transferring apparatus	F. H. Richards	579,451	Mar. 23	2808	664	78	1850
Transom-lifter	S. N. Peck	575,982	Jan. 26	2807	662	78	582
Transom lifter and lock	G. M. Parsons	577,002	Feb. 16	1679	396	78	981
Transplanter	E. P. Fox	578,308	Mar. 9	976	221	78	1464
Transplanter	A. Speidel	577,539	Feb. 23	2519	594 595	78	1156
Transplanter and weeder	W. W. Tyson	576,708	Feb. 9	1080	253	78	856
Transporting articles of merchandise. Means for	M. C. Mengis	579,158	Mar. 23	2308	541 542	78	1758
Trap: *See* Animal-trap. Sanitary trap. Fly-trap. Steam-trap. Liquid-seal trap. Waste-trap.							
Trap	L. F. Williams	575,450	Jan. 19	1877	453	78	389
Traveling-case and baby-carriage. Combined	F. S. Kratzet	577,432	Feb. 23	2823	545	78	1119
Tree extractor and carrier	J. A. Rutherford	578,836	Mar. 16	1754	404	78	1641
Tree protector. Fruit-	A. A. Kent and R. J. Miller	574,906	Jan. 12	1098	267	78	224
Tree-trimmer	E. M. Chumard	578,316	Mar. 9	857	194	78	1442
Trestle	C. A. Jones	574,496	Jan. 5	178	41	78	35
Trestle. Folding	T. A. Clarke	575,543	Jan. 19	2046	490	78	423
Trestle. Suspension-	J. Ratledge	576,608	Feb. 9	1068	250 251	78	853
Tricycle or bicycle	N. Merrill	579,002	Mar. 16	2036	474	78	1691
Trimmer: *See* Sewing-machine Tree-trimmer. trimmer.							
Tripod	A. H. Loebs	578,906	Mar. 16	2032	474	78	1691
Tripping mechanism. Differentially-actuated	S. L. G. Knox	578,560	Mar. 9	1281	291	78	1523

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Trolley	W. L. Pepper	574,819	Jan. 5	759	181	78	143
Trolley-catcher	T. Holahan	577,921	Mar. 2	165	39	78	1263
Trolley. Electric-car	G. L. Campbell	576,394	Feb. 2	566	133	78	742
Trolley. Electric-railway	E. M. Bentley	574,377	Jan. 5	11	3	78	5
Trolley. Electric-railway	H. N. Gale	577,741	Feb. 23	2863	679	78	1219
Trolley-head for electric cars	W. S. Troutwine	578,080	Jan. 12	1242	300	78	251
Trolley-pole controller	L. M. Halsey	577,853	Mar. 2	28	9	78	1266
Trolley repair-wagon	W. B. Woods	578,848	Mar. 16	1769	407	78	1644
Trolley-rope protector	H. M. Brooks	578,542	Mar. 9	1288	279	78	1513
Trolley-stand	J. E. Bishop	575,099	Jan. 12	1271	307	78	256
Trolley-support	E. Blamey	578,539	Mar. 9	1229	278	78	1512
Trolley-support for electric-railway cars	J. F. S. Branth	579,380	Mar. 23	2658	628 629 630	78	1824
Trolley system	W. G. Caffrey	576,721	Feb. 9	1107	261	78	861
Trolley system	W. H. Walker	579,728	Mar. 30	3307	790	78	1966
Trolley-track frog	W. J. Sumner	575,770	Jan. 26	2443	576	78	515
Trolley-wheel frame for trolley-cars	W. Grunow, Jr	579,576	Mar. 30	3053	720 721	78	1917
Trolley-wheel. Self-adjusting	G. W. Duryea and T. W. Thompson.	574,527	Jan. 5	235	56	78	46
Trolley-wheel. Spiral	C. A. Langford	576,405	Feb. 2	582	136	78	745
Trollocipede	P. C. Smallwood	575,528	Jan. 19	2020	482	78	418
Trough: *See* Feed-trough. Water-trough.							
Trough	J. S. and J. B. Weaver	577,699	Feb. 23	2781	657	78	1205
Trousers	S. M. Silverman	575,496	Jan. 19	1956	469	78	405
Trousers-clasp	A. Schramek	577,072	Feb. 16	1700	403	78	985
Trousers-creaser	L. Loebenberg and D. H. Morris	575,401	Jan. 19	1801	432	78	376
Trousers-hanger	J. K. Garson	578,328	Mar. 9	875	198	78	1445
Trousers-holder	R. W. Long	575,067	Jan. 12	1221	297	78	247
Truck	W. H. Ward	577,471	Feb. 23	2385	562	78	1131
Truck	G. Westinghouse, Jr	576,492	Feb. 2	718	171	78	773
Truck. Adjustable	E. Ireland	576,729	Feb. 9	1119	264	78	864
Truck and gripping mechanism for railway-cars	W. Vogt	577,152	Feb. 16	1839	434	78	1018
Truck and rack. Barrel	W. F. Cook	575,330	Jan. 19	1673	399 400	78	352
Truck and support. Combined barrel	J. P. Hoff	576,578	Feb. 9	888	205	78	821
Truck. Car-	J. W. Anderson	579,311	Mar. 23	2545	601	78	1803
Truck. Car-	H. Baines	578,305	Mar. 2	824	186 187	78	1417
Truck. Car-	E. Cliff	578,814	Mar. 16	1718	395	78	1634
Truck. Car-	J. W. Cloud	578,627	Mar. 9	1375	313	78	1540
Truck. Car-	M. G. Hubbard, Jr	577,481	Feb. 23	2401	564	78	1135
Truck. Car-	C. C. Moore	578,042	Mar. 2	945	82, 83	78	1327
Truck. Car-	B. W. Tucker	576,587	Mar. 9	1311	297	78	1529
Truck. Casket-	W. Clouser	576,256	Feb. 2	324	77	78	698
Truck for motor or cable cars	H. L. Gee	574,532	Jan. 5	241	57, 58	78	47
Truck for moving heavy bodies	J. Wilhelm	579,286	Mar. 23	2507	592	78	1796
Truck for railway-cars. Companion sectional	L. T. Pyott	575,068	Jan. 12	1222	297	78	247
Truck for street-railways. Section car-	G. E. Turner	579,195	Mar. 23	2366	557	78	1771
Truck-fork	A. J. Mehlenbeck	579,278	Mar. 23	2495	589	78	1794
Truck frame. Car-	E. Cliff	574,983	Jan. 12	1074	260 261	78	219
Truck frame. Car-	E. Cliff	577,236	Feb. 16	1973	467	78	1038
Truck gearing Car-	L. E. Walkins	574,646	Jan. 5	466	106 107	78	87
Truck. Lumber-	J. A. Ulman and V. L. Emerson	577,798	Feb. 23	2943	696	78	1236
Truck. Railway-	A. C. Mather	575,723	Jan. 26	2378	560	78	502
Truck. Railway-car	O. L. Sterner and R. W. O'Donnell	579,904	Mar. 30	3597	860	78	2021
Truck side bearing. Car-	E. Cliff	577,007	Feb. 16	1594	379	78	965
Truck. Steel railway-freight-car	F. S. Owen	578,579	Mar. 9	1302	294	78	1527
Truck. Stove-	C. E. Burnett	575,390	Jan. 19	1779	427	78	372
Truck. Undertaker's folding	J. J. Henzie	577,364	Feb. 16	2185	517	78	1078
Trucks. Center-bearing-bolster attachment for car-	E. Cliff	577,237	Feb. 16	1976	467	78	1039
Trucks. Center-bearing-bolster attachment for car-	E. Cliff	578,135	Mar. 2	820	118	78	1361
Trucks. Center bearing for car-	E. Cliff	576,255	Feb. 2	322	76, 77	78	698
Trucks. System of motor-	J. F. McElroy	578,760	Mar. 16	1618	372 373	78	1615
Trunk	M. L. Tinkcom	575,444	Jan. 19	1870	450 451	78	388
Trunk fastening or lock	R. Claughton	575,825	Jan. 26	2532	597	78	532
Trunk-handle	G. Crouch	575,922	Jan. 26	2711	641	78	564
Trunk-lock	R. T. Shelley	576,745	Feb. 9	1146	272	78	869
Trunk or valise	G. Crouch	578,545	Mar. 9	1237	290	78	1514
Trunk-trimming	D. Osterweil	576,608	Feb. 9	933	215	78	828
Truss	H. V. Appley	578,184	Mar. 2	633	145	78	1382
Truss	N. H. Davis	574,887	Jan. 12	878	213	78	185
Truss	N. Y. Hull	579,285	Mar. 23	2426	574	78	1782
Truss	W. N. Smith	576,907	Feb. 9	1409	335	78	919
Truss	E. O. Ware and J. B. Willaman	574,467	Jan. 5	148	35	78	30
Truss. Hernial	W. B. Starbuck	579,845	Mar. 30	3505	838	78	2008
Trusses. Method of and apparatus for forming	N. H. Davis	574,886	Jan. 12	877	213	78	185
Tub: *See* Bath-tub.							
Tube: *See* Pneumatic-despatch Sheet-metal tube. tube. Wick-tube Roentgen-ray tube.							
Tube-cleaner	H. F. Hall	578,922	Mar. 16	1901	440	78	1665
Tubes. Apparatus or machinery for closing and securing metal	H. Platz and S. L. Huizer	578,945	Mar. 16	1950	453 454 455	78	1674
Tubes from mandrels. Means for removing seamless	R. F. Hall, F. Warwick, and T. Smith.	577,296	Feb. 16	2073	490	78	1056
Tubes Machinery for manufacturing metal	A. Pilkington	576,739	Feb. 9	1132	268	78	867

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tubes. Machinery for manufacturing seamless steel	R. Wootton	577,907	Mar. 2	129	32	78	1285
Tubes or rods to mains, plates, &c Connecting device for securing	F. Albrecht	576,580	Feb. 9	806	188	78	805
Tubes with viscid or semifluid material. Apparatus for filling	H. Platz and S. L. Huizer	578,944	Mar. 16	1940	449, 450, 451, 452, 453	78	1672
Tubing. Device for connecting flexible	J. B. Green	578,988	Mar. 16	2012	468	78	1687
Tubing. Machine for making	W. C. Frick and T. J. Price	575,225	Jan. 12	1490	358	78	299
Tubing. Machine for manufacturing	V. Royle	574,577	Jan. 5	344	77	78	65
Tubing-machine head	W. Hill	575,868	Jan. 26	2637	627	78	555
Tubing Plant for coating and drying	M. M. Nicholls	577,876	Mar. 2	66	19	78	1274
Tubular boiler	S. Munson	577,310	Feb. 16	2095	495, 496	78	1060
Tubular bores Apparatus for dressing	C. F. Uebelacker	576,291	Feb. 2	388	91	78	711
Tubular-section coupling	W. Connelly	579,817	Mar. 30	3451	827	78	1998
Tug. Hame-	W. O. Barnett	575,628	Jan. 19	2205	522	78	454
Tug. Shaft-	J. Barry and M. L. Shaughnessy	576,714	Feb. 9	1097	259	78	859
Tumbler-washer	C. Klauberg. (Reissue)	11,581	Jan. 5	849	206	78	160
Tumbler-washer	F. H. Lippincott	575,056	Jan. 12	1219	296	78	246
Tumbler-washer	J. B. Nesbit	579,600	Mar. 30	3092	732	78	1924
Tuning-pin socket	C. W. Peck	575,850	Jan. 26	2584	610	78	541
Turbine. Centripetal	L. A. G. Malliary	575,256	Jan. 12	1538	369	78	308
Turkey caller and gobbler	H. C. Gibson	574,534	Jan. 5	247	58	78	49
Turnbuckle-cover	M. A. Williams	579,334	Mar. 23	2586	611	78	1811
Turning and drilling machine	W. W. Tucker	578,431	Mar. 9	1029	236, 237	78	1474
Turret-machine	J. L. Bogert	576,717	Feb. 9	1101	260	78	860
Tweezers. Blackhead-	J. Kloss	575,356	Jan. 19	1722	410	78	362
Twine-cutter	L. M. Bray	574,520	Jan. 5	226	54	78	45
Twine-holder	F. Bossong	577,340	Feb. 16	2161	512	78	1073
Twine tension device	C. Hanson	578,090	Mar. 2	440	102	78	1345
Twister. Thread-	C. C. E. Van Alstine	578,792	Mar. 16	1667	385	78	1625
Type and producing impressions therefrom. Machine for setting and distributing	O. M. Peterson	574,985	Jan. 12	959	232, 233, 234, 235	78	200
Type and producing impressions therefrom. Machine for setting and distributing	O. M. Peterson and C. C. Hill	574,986	Jan. 12	971	236, 237	78	201
Type-bases. Blank for making sponge-rubber	L. K. Scotford	578,527	Mar. 9	1212	273	78	1509
Type-distributing machine	P. F. Cox	578,216	Mar. 2	682	155, 156	78	1390
Type-galley	B. K. Davis	579,863	Mar. 30	3534	844	78	2009
Type-holder	J. L. McMillan	578,828	Mar. 16	1745	401	78	1639
Type-line-casting machine	A. S. Capehart	579,293	Mar. 23	2516	594	78	1797
Type. Machine for removing fin from	W. C. Chase	576,027	Jan. 26	2878	681, 682	78	295
Type-mold	W. F. Capitain, L. W. Klute, and G. F. Wells.	578,544	Mar. 9	1236	279	78	1514
Type-setting apparatus	L. K. Johnson and A. A. Low	579,541	Mar. 23	2067	701	78	1881
Type-setting appliance	L. K. Johnson and A. A. Low	576,731	Feb. 9	1122	264, 265	78	865
Type-setting machine	J. B. Bell	578,713	Mar. 16	1331	354, 355	78	1529
Type-setting machine	R. J. Moxley	578,414	Mar. 9	1001	229, 230, 874	78	1469
Type-writer	W. Fredrick, C. H. Norton, and R. J. Simpson.	579,941	Mar. 30	3654	875, 876, 877	78	2032
Type-writer attachment	W. P. Butler	576,948	Feb. 9	1469	350	78	930
Type-writer attachment for desks	J. Gramelspacher	575,602	Jan. 19	2154	510, 511	78	445
Type-writer cabinet	W. P. Yakeley	577,703	Feb. 23	2786	658	78	1206
Type-writer card or envelop holder	J. H. Dorman	577,104	Feb. 16	1766	417	78	998
Type-writer carriage	W. Fredrick	579,940	Mar. 30	3651	874	78	2032
Type-writer machines. Substitute for inking-ribbons in	L. S. Burridge and N. R. Marshman.	575,145	Jan. 12	1358	326	78	273
Type-writer. Pocket	C. P. Mars	577,049	Feb. 16	1660	394	78	977
Type-writer's chair	F. Chichester	574,602	Jan. 5	396	87	78	73
Type-writing and adding machine	J. C. Wolfe	578,308	Mar. 2	818	185, 186	78	1416
Type-writing and computing machine. Combined	H. Marshall	575,570	Jan. 19	2090	499	78	431
Type-writing cabinet	G. B. Kline	574,543	Jan. 5	271	64	78	54
Type-writing machine	N. L. Anderson	575,195	Jan. 12	1439	345, 346, 72	78	288
Type-writing machine	W. J. Barron	576,247	Feb. 2	301	73, 74	78	694
Type-writing machine	C. S. Booth	576,359	Feb. 2	505	118	78	731
Type-writing machine	W. H. Briggs	578,507	Mar. 9	1177	266	78	1508
Type-writing machine	L. S. Burridge and N. R. Marshman.	575,146	Jan. 12	1358	327	78	273
Type-writing machine	L. S. Burridge and N. R. Marshman.	575,147	Jan. 12	1360	327, 328	78	274
Type-writing machine	W. C. Farnum	574,893	Jan. 12	886	215	78	186
Type-writing machine	C. N. Fay	578,692	Mar. 9	1490	343, 344	78	1563
Type-writing machine	C. N. Fay	578,693	Mar. 9	1493	344, 345	78	1563
Type-writing machine	R. J. Fisher	578,554	Mar. 9	1258	296	78	1518
Type-writing machine	R. Hertzberg	579,433	Mar. 23	2743	651	78	1839
Type-writing machine	F. W. Hillard	577,982	Mar. 2	257	61	78	1310
Type-writing machine	H. Hochklassen	578,698	Mar. 9	1508	347	78	1565
Type-writing machine	C. S. Nickerson	576,146	Feb. 2	181	33, 34	78	602

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Type-writing machine	E. S. Shimer	576,904	Feb. 9	1406	335	78	919
Type-writing machine	Z. G. Sholes	578,679	Mar. 9	1460	335	78	1557
Type-writing machine	Z. G. Sholes	578,680	Mar. 9	1462	336	78	1557
Type-writing machine	M. W. Spencer	579,778	Mar. 30	3390	811, 812	78	1982
Type-writing machine	C. Spiro	578,121	Mar. 2	485	111, 112, 113	78	1354
Type-writing machine	B. C. Stickney	576,284	Feb. 2	370	86, 87	78	706
Type-writing machine	B. C. Stickney	576,285	Feb. 2	375	88	78	709
Type-writing machine	B. C. Stickney	576,286	Feb. 2	377	88, 89	78	706
Type-writing machine	B. C. Stickney	576,287	Feb. 2	380	89	78	709
Type-writing machine	B. C. Stickney	576,288	Feb. 2	382	89, 90	78	710
Type-writing machine	B. C. Stickney	576,329	Feb. 2	455	107	78	723
Type-writing machine	G. B. Webb	575,916	Jan. 26	2701	639	78	562
Type-writing machine	G. B. Webb	575,917	Jan. 26	2703	639	78	563
Type-writing machine	J. A. White	574,970	Jan. 12	1049	254, 255, 256	78	216
Type-writing machine	L. D. Whitson	579,208	Mar. 23	2377	561	78	1773
Type-writing machine	L. E. Wilkes	575,190	Jan. 12	1424	342, 343	78	286
Type-writing machine for the blind	A. Swindler	578,785	Mar. 16	1651	383	78	1621
Type-writing-machine type-bar	H. McDougall	578,894	Mar. 16	1853	426	78	1637
Umbrella	R. P. Knapp	577,529	Feb. 23	2498	588	78	1152
Umbrella	B. M. Shaine	579,185	Mar. 23	2353	553	78	1768
Umbrella-case	E. T. Lawrence	574,436	Jan. 5	99	21	78	21
Umbrella. Folding	D. Carpenter	577,284	Feb. 16	1909	466	78	1087
Umbrella. Folding	F. H. Généreux	579,942	Mar. 30	3664	877	78	2034
Umbrella or parasol	J. Rose	579,607	Mar. 30	3105	735	78	1927
Umbrella ribs and stretchers. Hinge connection for	A. T. Meyer	579,408	Mar. 23	2696	641	78	1831
Umbrella-support	A. Silvermann	576,477	Feb. 2	692	165	78	768
Undergarment	I. Goldberger	575,422	Jan. 19	1833	440	78	381
Unicycle	H. R. Estes	578,395	Mar. 9	972	221	78	1463
Upholstering. Means for making plaited work in	H. B. Pitner	577,800	Feb. 23	2960	699, 700	78	1289
Upholstering-pin	G. H. Howell	575,157	Jan. 12	1376	331	78	277
Urn. Compartment-	A. W. Meyer	574,927	Jan. 12	940	228	78	197
Vacuum-brake	A. M. Goodwin	578,602	Mar. 9	1331	301, 302, 303	78	1533
Valve	L. H. Brinkman	578,443	Mar. 9	1057	241	78	1479
Valve	C. H. Clark	574,392	Jan. 5	27	7	78	8
Valve	J. L. Cook	574,881	Jan. 12	808	210	78	183
Valve	H. H. Halley and R. I. McCulley	574,540	Jan. 5	265	62, 63	78	52
Valve	W. F. Harrison	579,432	Mar. 23	2741	650	78	1838
Valve	H. E. Keyes	576,130	Feb. 2	104	27	78	657
Valve	J. N. Murphy	575,768	Jan. 26	2440	575	78	514
Valve	L. W. Noyes	579,171	Mar. 23	2330	547	78	1764
Valve	J. Platt	578,831	Mar. 16	1749	402	78	1640
Valve	E. Reynolds	574,939	Jan. 12	990	238, 239	78	204
Valve	S. W. Sampson	576,474	Feb. 2	690	164	78	768
Valve	A. Sickafoose and W. E. Wyatt	579,186	Mar. 23	2354	554	78	1768
Valve	J. A. Starrett and E. F. Welsh	576,909	Feb. 9	1412	336	78	920
Valve	J. A. Starrett and E. F. Welsh	578,274	Mar. 2	770	175	78	1407
Valve. Air-	L., Sr., and C. O. Barnes	574,701	Jan. 5	568	133	78	105
Valve. Air-	G. W. Washburn	577,122	Feb. 16	1709	424	78	1005
Valve apparatus. Electric	J. V. Stout	575,045	Jan. 12	1178	287	78	238
Valve. Automatic air-	C. E. Van Auken	574,962	Jan. 12	1032	250	78	212
Valve. Balanced slide-	G. R. Herricks	575,155	Jan. 12	1374	331	78	276
Valve. Balanced slide-	I. Younger	579,691	Mar. 30	3245	770	78	1954
Valve. Explosive-engine	E. L. Teubert	577,589	Feb. 23	2619	618	78	1175
Valve. Float-	H. K. Wood	578,672	Mar. 9	1445	330	78	1554
Valve for air-hoist cylinders	R. E. Taylor	579,370	Mar. 23	2641	624	78	1821
Valve for beer-casks. Safety-	J. C. Schaefer	576,162	Feb. 2	158	39	78	667
Valve for fluid-containing vessels. Outlet-	W. C. Wilson	579,628	Mar. 30	3140	745	78	1933
Valve. Gate-	H. N. Libbey	577,924	Mar. 2	171	40	78	1294
Valve. Gate-	H. N. Libbey	579,114	Mar. 16	2229	525	78	1730
Valve-gear	J. Cochrane and W. Cameron	578,213	Mar. 2	677	154	78	1389
Valve-gear	T. Delville	574,400	Jan. 5	88	9	78	9
Valve-gear	F. Pilkington	578,656	Mar. 9	1421	323, 324, 194	78	1549
Valve-gear and adjustable cut-off	D. M. Swaln	574,847	Jan. 5	805	195, 196	78	152
Valve. Hydrant-	H. Pichler	577,519	Feb. 23	2479	583	78	1149
Valve. Indicating-	A. G. Paul	577,147	Feb. 16	1828	431	78	1010
Valve mechanism	H. K. Wood	578,808	Mar. 16	1685	390	78	1628
Valve. Nozzle-	S. Palmer	576,762	Feb. 9	1171	279	78	874
Valve-operating mechanism for syrup-jars	J. Ormerod	578,767	Mar. 16	1623	375	78	1616
Valve or shield for air-brake couplings. Automatic dust	J. A. Lawrence	575,252	Jan. 12	1529	367	78	307
Valve. Reverse-	S. Forter	577,019	Feb. 16	1611	383	78	909
Valve. Safety-	C. M. Sheldrake	578,046	Mar. 2	350	84	78	1328
Valve. Self-reversing check-	J. S. Coe	578,481	Mar. 9	1112	253	78	1491
Valve. Separating throttle-	J. C. H. Stut	579,457	Mar. 23	2434	668	78	1855
Valve. Steam-engine	L. J. Larzelere	574,808	Jan. 5	738	177	78	189
Valve. Steam or water throttle-	C. J. Gustafson	578,736	Mar. 16	1577	364	78	1607
Valve. Stop-	J. Huime	579,876	Mar. 30	3554	849	78	2013
Valve. Straightway	F. W. O'Brien	575,848	Jan. 26	2579	608	78	540
Valve. Stop-	J. Walsh, Jr	574,768	Jan. 5	675	161	78	127
Valve. Stop-	J. Walsh, Jr	574,838	Jan. 5	788	188	78	149
Valve. Three-way	F. Billings	579,465	Mar. 23	2655	671	78	1859
Valve. Well-tube	A. D. Cook	575,213	Jan. 12	1470	353	78	295

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Vapor-bath and inhaling apparatus. Combined	C. W. Draper	578,398	Mar. 9	908	220	78	1468
Vapor-burner	H. Gefrorer	577,980	Mar. 2	254	60	78	1309
Vapor-burner	B. S. Koll	578,246	Mar. 2	736	165	78	1399
Vapor-engine	G. W. Lewis	577,189	Feb. 16	1869	449	78	1024
Vaporizer	A. R. Miranda	577,443	Feb. 23	2368	548	78	1122
Vaporizer	G. E. Tregurtha	578,668	Mar. 9	1467	337	78	1558
Vaporizer for petroleum-engines	O. Bomborn	578,084	Mar. 2	336	80	78	1325
Vegetable-cutter	H. X. Buchmann	579,816	Mar. 30	3448	827	78	1998
Vegetable cutter and grater	J. Wagner	576,705	Feb. 9	1083	254	78	856
Vehicle	A. Schubert	578,270	Mar. 2	764	173 / 174	78	1406
Vehicle-body	J. Stivers	578,504	Mar. 9	1173	265	78	1502
Vehicle-body	W. H. Tomlinson	574,502	Jan. 5	199	46	78	39
Vehicle-boot	D. R. Cowan	577,898	Mar. 2	10	4	78	1292
Vehicle-brake	C. B. Fairchild	574,868	Jan. 5	847	206	78	160
Vehicle-brake	W. A. Leggo, Jr	577,383	Feb. 16	2224	524	78	1085
Vehicle-brake attachment	J. H. and W. W. Edwards	576,436	Feb. 2	630	150	78	755
Vehicle-brake. Automatic	A. F., H. C., and G. Mohrenweiser	575,008	Jan. 12	1108	269	78	226
Vehicle-brake. Automatic	O. C. Mueller and I. V. Whiteman	576,140	Feb. 2	121	30, 31	78	660
Vehicle-door construction	C. A. Warren	577,799	Feb. 23	2045	497	78	1236
Vehicle draft attachment	T. S. Bailey	579,692	Mar. 30	3246	771	78	1954
Vehicle draft connection	J. Porteous	578,581	Mar. 9	1306	294	78	1528
Vehicle. Foot-propelled	G. G. J. Millar	577,826	Feb. 23	2987	707	78	1245
Vehicle-light and governor for same	D. W. Stinson	579,190	Mar. 23	2860	555 / 556	78	1770
Vehicle. Motor-	L. Brown	577,716	Feb. 23	2812	665 / 666	78	1211
Vehicle. Motor-	E. D. Cross	577,572	Feb. 23	2580	608 / 609	78	1167
Vehicle-motor	G. W. Foye	575,639	Jan. 19	2224	526 / 527	78	458
Vehicle. Motor-propelled	H. G. Morris and P. G. Salom	578,651	Mar. 9	1415	321 / 322	78	1548
Vehicle. Motor-propelled	H. G. Morris and P. G. Salom	579,890	Mar. 30	3574	855	78	2017
Vehicle propelling device	F. Gruber	578,329	Mar. 9	876	198	78	1445
Vehicle. Road-	H. W. Clapp	577,185	Feb. 16	1892	447 / 448	78	1023
Vehicle-runner	O. O. Storie	575,742	Jan. 26	2408	566	78	507
Vehicle running-gear	A. D. Blodgett	574,704	Jan. 5	572	133 / 134	78	106
Vehicle running-gear	G. D. Pettingell	575,165	Jan. 12	1386	333	78	279
Vehicle safety-step	J. T. Cole	579,133	Mar. 23	2261	532	78	1750
Vehicle-seat	J. F. Wilmot	576,419	Feb. 2	602	142	78	749
Vehicle-seat lock	M. H. Oberholser	575,038	Jan. 12	1166	284	78	236
Vehicle. Self-propelling	R. W. Elston	576,517	Feb. 2	767	180	78	782
Vehicle splinter-bar	E. Byrnes	576,861	Feb. 2	508	119	78	732
Vehicle-spring	M. L. Senderling	578,425	Mar. 9	1016	233	78	1473
Vehicle toe-rail	H. C. Swan	575,438	Jan. 19	1858	447	78	386
Vehicle-top	J. W. Wilder	577,473	Feb. 23	2388	562	78	1132
Vehicle-washing apparatus	W. H. Phelps	579,242	Mar. 23	2437	576	78	1784
Vehicle-wheel	F. G. Atkinson	578,618	Mar. 9	1360	310	78	1538
Vehicle-wheel	C. E. Bulkley	578,035	Mar. 2	337	80	78	1325
Vehicle-wheel	J. S. Copeland	574,712	Jan. 5	586	136	78	109
Vehicle-wheel	J. S. Copeland	574,713	Jan. 5	587	137	78	109
Vehicle-wheel	P. Z. Davis	578,597	Mar. 9	1325	300	78	1532
Vehicle-wheel	H. F. Hammon	574,538	Jan. 5	259	61	78	51
Vehicle-wheel	H. J. Ney	574,752	Jan. 5	649	154	78	121
Vehicle-wheel	J. M. Rice	574,940	Jan. 12	991	239	78	205
Vehicle-wheel	C. E. Tomlinson	579,309	Mar. 23	2542	601	78	1868
Vehicle-wheel	C. Toomey	576,633	Feb. 9	975	228	78	896
Vehicle. Wheeled	E. J. Pennington	574,818	Jan. 5	757	181	78	143
Vehicles. Electric propulsion of	W. A. Butler	574,388	Jan. 5	22	6	78	7
Vehicles. Transverse seat for foot-power	G. O. Draper	574,673	Jan. 5	526	122	78	97
Velocipede	W. S. Austin	576,183	Feb. 2	204	50, 51	78	675
Velocipede	J. Bonner	574,706	Jan. 5	575	134	78	107
Velocipede	W. A. Dryden, Sr	574,674	Jan. 5	527	122	78	97
Velocipede	E. G. Latta	578,644	Mar. 9	1401	319	78	1545
Velocipede	I. W. Rubel and E. W. Naylor	579,351	Mar. 23	2612	616 / 617	78	1815
Velocipede	G. A. Skarin	579,307	Mar. 23	2540	600	78	1802
Velocipede and motor-cycle	J. E. Evered and D. G. Pappa	576,439	Feb. 2	633	151	78	756
Velocipede driving mechanism	W. S. Bate	576,997	Feb. 16	1578	376	78	903
Velocipede driving mechanism	F. J. A. Kindermann	577,021	Feb. 23	2067	630	78	1183
Velocipede handle-bar fastening	E. J. Gulick	575,100	Jan. 12	1289	312	78	260
Velocipede. Ice-	P. Bieth	579,510	Mar. 23	2921	687	78	1873
Velocipede. Ice-	M. Kolbenson	577,300	Feb. 16	2087	494	78	1059
Velocipede. Ice-	C. E. Vose	576,354	Feb. 2	496	116	78	730
Velocipede. Marine	C. A. Sulzman	575,180	Jan. 12	1407	339	78	288
Velocipede. Motor-driven	L. Rüb	576,158	Feb. 2	132	37, 38	78	666
Velocipede. Railway-	J. Donovan	575,465	Jan. 19	1905	459	78	305
Velocipede seat or saddle	F. Latulip	577,042	Feb. 16	1647	392	78	974
Velocipede-wagon	J. M. Spangler	576,746	Feb. 9	1147	272	78	809
Velocipede-wheel	E. C. Martin	579,898	Mar. 30	3567	853	78	2015
Vending apparatus. Coin-controlled	M. A. Persons	577,207	Feb. 16	1928	456	78	1030
Vending-machine. Coin-controlled	C. W. Hunt	575,284	Jan. 12	1580	376	78	317
Vending-machine. Coin-controlled	A. Jussem	578,994	Mar. 16	2027	472	78	1690
Vending-machine. Coin-controlled	J. W. Peterson	579,230	Mar. 23	2579	609 / 610	78	1809
Veneers. Manufacturing	C. Köster	579,878	Mar. 30	3556	850 / 851	78	2013
Ventilation of sewers or drain-pipes	H. N. Ruttan	576,230	Feb. 2	266	66	78	687
Ventilator: *See* Car-ventilator.							
Ventilator	J. Bonner	576,427	Feb. 2	615	146	78	732
Ventilator	D. J. Lane and J. P. Hahn	577,367	Feb. 16	2191	518	78	1079
Ventilator	A. J. F. Miller	574,619	Jan. 5	420	98	78	79

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Ventilator	J. F. O'Gara	576,791	Feb. 9	1212	289	78	882
Ventilator	S. S. Williams	577,221	Feb. 16	1954	462	78	1084
Ventilator and thimble. Combined	R. L. Underwood	576,635	Feb. 9	977	228	78	837
Venting device	G. W. Banker	577,410	Feb. 23	2282	536	78	1112
Vessel. Centerboard	S. E. Smith	577,079	Feb. 16	1711	405	78	988
Vessel. Sailing	R. Gillis	575,282	Jan. 12	1499	360	78	301
Vessel. Submarine	J. Scheubeck	575,907	Jan. 26	2686	633 / 634	78	560
Vessels. Device for raising and transporting	C. J. Schramm	579,184	Mar. 23	2348	552 / 553	78	1767
Vessels. Raising sunken	J. R. Grant	576,052	Jan. 26	2934	692	78	604
Veterinary dental file-carrier	L. Wirsching	575,407	Jan. 19	1806	434	78	377
Veterinary mouth-speculum	A. A. Walker	574,591	Jan. 5	365	82	78	69
Vinegar-concentrating apparatus	E. E. Murphy	574,930	Jan. 12	946	220	78	198
Violin attachment	A. S. Filson	578,396	Mar. 9	973	221	78	1464
Violin chin-rest	M. H. Coloney	576,950	Feb. 9	1478	350	78	931
Violin-mute	J. E. Naudain	578,895	Mar. 16	1854	426	78	1657
Violin-players. Device for regulating position of arms of	G. Weis	575,796	Jan. 26	2483	586	78	522
Violin-string clamp	J. B. Mahoney	577,964	Mar. 2	233	55	78	1305
Vise	A. Eckert	577,845	Mar. 2	17	6	78	1264
Vise	W. E. Snediker	579,022	Mar. 16	2070	485	78	1699
Vise	W. J. Wanless	579,618	Mar. 30	3125	741 / 742	78	1980
Vise and screw-cutter. Combination	W. E. Melhorn	576,873	Feb. 9	1341	321 / 322	78	907
Vise. Portable	A. E. Brockett	575,686	Jan. 26	2314	545 / 546	78	490
Vise. Portable	A. E. Brockett	575,687	Jan. 26	2316	546	78	490
Vise. Saw-	H. C. Hawkins	575,569	Jan. 19	2089	499	78	481
Vitascope	T. Armat	576,185	Mar. 2	634	145 / 146	78	1382
Voltmeter	P. Brandt	577,678	Feb. 23	2753	650	78	1200
Voting-machine	J. Blocher	575,292	Jan. 12	1592	379 / 380	78	319
Voting-machine	J. B. Clot	579,316	Mar. 23	2554	603 / 604	78	1805
Voting-machine	A. J. Gillespie	576,570	Feb. 9	871	202 / 203	78	817
Vulcanizer	H. E. Hawksworth	579,798	Mar. 30	3423	820	78	1967
Vulcanizer	F. W. Morgan, P. L. Clark, and J. E. Parker.	577,309	Feb. 16	2093	495	78	1060
Wagon-body	W. H. Boettcher	577,834	Mar. 2	5	2	78	1261
Wagon-brake	I. R. Dotson	579,475	Mar. 23	2872	675	78	1862
Wagon-brake	J. W. Hutchinson and C. B. Ritchie	579,710	Mar. 30	3281	781	78	1960
Wagon-brake	R. H. Layton	574,809	Jan. 5	740	177 / 178	78	139
Wagon-brake	W. H. Lloyd	579,757	Mar. 30	3352	801	78	1974
Wagon-brake	C. C. Long	576,207	Feb. 2	295	58	78	681
Wagon-brake	L. S. Wheeler	574,694	Jan. 5	557	129	78	103
Wagon-brake. Automatic	E. S. Chatfield	578,078	Mar. 2	407	94	78	1339
Wagon-brake. Automatic	J. S. Elliott	576,438	Feb. 2	632	151	78	756
Wagon-brake. Automatic	H. M. Flanagan	579,109	Mar. 16	2220	522 / 523	78	1728
Wagon dump-bed	H. D. Lorash and C. Hilgemeier	579,116	Mar. 16	2232	535 / 536	78	1730
Wagon. Dumping-	I. B. Chrissinger	577,913	Mar. 2	146	34	78	1290
Wagon-gear	C. E. Bostwick	574,578	Jan. 12	865	210	78	182
Wagon-jack	J. J. Adgate	578,083	Mar. 2	334	79	78	1325
Wagon-jack	S. S. Joy	578,519	Mar. 9	1195	270	78	1506
Wagon running-gear	J. Vaughan	577,892	Mar. 2	99	25	78	1290
Wagon-seat	C. E. Weedin	576,013	Jan. 26	2861	677	78	592
Wagon-spring	L. M. Fitch	577,163	Feb. 16	1861	439	78	1016
Wagon storm-shield. Delivery-	F. Frierdich	579,321	Mar. 23	2566	605	78	1807
Waistband. Detachable	J. E. Leavitt	578,294	Mar. 2	805	182	78	1413
Wall. Hollow-plate	A. Bruckner	575,209	Jan. 12	1463	351 / 352	78	294
Wall-register	C. H. Foster	574,675	Jan. 5	529	122	78	97
Wall tie or binder	G. H. Blodgett	577,002	Feb. 16	1588	377	78	964
Walls, &c. Construction of supports for building-	R. S. Gillespie	574,729	Jan. 5	617	147	78	114
Walls, &c. Construction of supports for building-	R. S. Gillespie	576,843	Feb. 9	1298	310	78	898
Walls, &c. Means for constructing supports for building-	R. S. Gillespie	576,842	Feb. 9	1298	309 / 310	78	898
Warper's beam and weaver's beam	J. Mills	577,558	Feb. 23	2554	601	78	1163
Washbasin	W. E. Trull	578,374	Mar. 9	984	212	78	1456
Washbasin-supporting device	W. Kachler	577,528	Feb. 23	2497	588	78	1152
Washboard	J. O. Reed	575,274	Jan. 12	1568	373	78	315
Washboard	J. H. Reimers	578,157	Mar. 2	554	126	78	1367
Washboard	J. T. Sargent	578,167	Mar. 2	608	137	78	1377
Washboard	J. T. Sargent and J. H. Reimers	578,296	Mar. 2	808	182 / 183	78	1414
Washbowl	F. Jones	578,103	Mar. 2	444	103	78	1346
Washbowl-fixture	T. E. Doyle	575,924	Jan. 26	2718	641	78	565
Washstand. Folding	A. Rapp	578,582	Mar. 9	1307	294 / 295	78	1528
Washtub-stand	M. Hoffman	574,424	Jan. 5	80	17	78	16
Washer: *See* Barrel-washer. Bottle-washer. Gold-washer. Tumbler-washer.							
Washing-machine	H. F. Brammer and W. H. Voss	575,540	Jan. 19	2042	488	78	422
Washing-machine	J. H. Doub	577,729	Feb. 23	2831	670 / 671	78	1214
Washing-machine	C. D. Hammon	576,190	Feb. 2	211	53	78	676
Washing-machine	J. R. Hartman	579,578	Mar. 30	3057	721	78	1918
Washing-machine	E. Kain	576,198	Feb. 2	221	56	78	676
Washing-machine	J. G. and R. R. Stevenson	574,460	Jan. 5	138	32	78	28
Washing-machine	D. F. Whiteman	576,015	Jan. 26	2863	678	78	592

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Washing machine. Cloth-	H. N. F. Schaeffer	574,944	Jan. 12	998	240, 241	78	206
Waste-trap	F. B. Meyers	576,319	Feb. 2	440	102	78	720
Watch-bow fastener	H. F. Cook	577,422	Feb. 23	2807	541	78	1117
Watch-plate	D. Kamerman	576,456	Feb. 2	668	157	78	761
Watch. Stem winding and setting	W. E. Porter	575,166	Jan. 12	1390	334	78	280
Watches. Winding-bar for stem-winding	O. Ohlson	575,728	Jan. 26	2394	561	78	503
Watchmaker's loupe	P. H. Stevens	575,075	Jan. 12	1231	298	78	249
Watchmaker's tool	A. F. Robbins	575,585	Jan. 19	2033	486	78	490
Water and air heater	B. W. Taylor	576,698	Feb. 9	964	225, 226	78	834
Water-closet	L. Brandis	576,184	Feb. 2	206	51	78	675
Water-closet	T. Grace	574,679	Jan. 5	535	124	78	98
Water-closet	M. Morell	575,980	Jan. 26	2730	643	78	566
Water-closet	D. S. Wallace	577,900	Mar. 2	116	29	78	1283
Water-closet. Automatic	J. P. Courtney	576,340	Feb. 2	477	112	78	727
Water-closet-bowl repair-coupling	P. W. Doyle	575,923	Jan. 26	2712	641	78	504
Water-cooler	J. Meltsner	575,808	Jan. 26	2674	630	78	558
Water-cooler and refrigerator	J. P. Schimmel	579,367	Mar. 23	2696	622, 623	78	1820
Water-elevator	J. McMurrin	577,314	Feb. 16	2100	497	78	1062
Water-elevator. Windlass	J. H. Kester	579,799	Mar. 30	3424	820	78	1988
Water-gage attachment	C. A. Jewett and C. B. Wood	579,345	Mar. 23	2604	614	78	1814
Water-gate for flumes, cisterns, &c	A. H. Stokes	575,998	Jan. 26	2684	670	78	587
Water-heater	F. B. Peterson	576,763	Feb. 9	1173	279	78	875
Water-heater for bath-tubs	W. Gunn	575,944	Jan. 26	2742	648	78	571
Water-indicator and alarm	G. W. Cooley and H. F. Logee	578,725	Mar. 16	1558	361	78	1604
Water-meter	G. B. Bassett	576,248	Feb. 2	313	74	78	696
Water-meter	G. B. Bassett	576,249	Feb. 2	314	74	78	696
Water-meter	L. H. Nash	574,562	Jan. 5	304	70	78	50
Water-meter	J. A. Tilden	575,743	Jan. 26	2404	566	78	507
Water-power. Mechanism for utilizing	W. H. Woodward	579,209	Mar. 23	2585	563	78	1774
Water-power. Mechanism for utilizing	W. H. Woodward	579,210	Mar. 23	2586	564	78	1775
Waterproof article and preparing it	S. Bennett	578,714	Mar. 16	1557	.....	78	1600
Waterproofed surfaces. Treating	E. M. Caffall	577,288	Feb. 16	2088	.....	78	1054
Water-purifier	J. H. Harrison	577,134	Feb. 16	1813	427	78	1008
Water. Purifying	H. B. Furness	577,806	Feb. 23	2466	606	78	1288
Water-supply apparatus for drinking-fountains	T. F. Wood	576,932	Feb. 9	1448	344	78	986
Water-supply systems. Apparatus for	W. E. Worthen and O. Darling	578,506	Mar. 9	1175	266	78	1502
Water supplying and heating apparatus	J. G. Hermes	576,846	Feb. 9	1302	311	78	899
Water tank and heater	C. N. Lippitt	574,919	Jan. 12	994	225	78	194
Water-tight hinged joint for bear-trap dams, &c	O W. Getchell	578,982	Mar. 16	2010	467, 468	78	1686
Water to tanks, cisterns, &c. Means for controlling supply of	W. S. Audsley	576,421	Feb. 2	605	143	78	750
Water-trough. Self-regulating	J. F. Elliott	579,821	Mar. 30	3456	828, 829	78	1994
Water-wheel	D. Hug	576,728	Feb. 9	1117	263	78	864
Water-wheel	D. Hug	576,849	Feb. 9	1306	312	78	900
Water-wheel. Current	A. Kruse	576,132	Feb. 2	108	28	78	667
Water-wheel. Percussion	F. M. F. Cazin	578,812	Mar. 16	1704	393, 394	78	1632
Waterer. Antifreezing stock-	J. A. Drake	574,791	Jan. 5	710	170	78	134
Watering apparatus. Stock-	E. S. Shelly	574,952	Jan. 12	1007	243	78	208
Watering-cart	R. R. Reilly	575,375	Jan. 19	1753	421	78	368
Watering device. Stock-	R. G. Fay	578,141	Mar. 2	582	121	78	1303
Watering tank. Stock-	J. S. Eltemiller	576,777	Feb. 9	1191	284	78	878
Wave-motor	D. F. Spangler	578,612	Mar. 9	1350	307	78	1536
Weaner. Calf-	G. Cooley	577,914	Mar. 2	148	34	78	1290
Weather-check for doors	F. Rogers	574,824	Jan. 5	767	188	78	145
Weather-strip	G. A. Byor and W. B. Mahan	574,522	Jan. 5	228	54	78	45
Weather-strip	A. P. Chilson	577,719	Feb. 23	2818	667	78	1212
Weather-strip	W. J. Devers	577,239	Feb. 16	1978	468	78	1039
Weather-strip	E. Koch	576,458	Feb. 2	660	158	78	761
Weather-strip	J. L. Smith	578,273	Mar. 2	769	174	78	1407
Weather-strip	G. M. White	578,616	Mar. 9	1356	309	78	1538
Weather-strip for door-sills	G. W. Krebs and D. L. Gwin	574,912	Jan. 12	913	221	78	191
Weather-strip for doors or windows	F. Fournier	575,224	Jan. 12	1389	357	78	299
Web associating and folding apparatus	G. B. Titsworth	576,007	Jan. 26	2849	674, 675	78	590
Weed-cutter and cultivator	A. Roesch	576,615	Feb. 9	942	218	78	830
Weighing apparatus. Automatic	W. E. Nickerson	574,445	Jan. 5	115	25, 26, 27	78	23
Weighing-machine	A. Aeffcke	578,532	Mar. 9	1218	275	78	1510
Weighing-machine	E. R. Jones	576,583	Feb. 9	898	206, 207	78	821
Weighing-machine	F. H. Richards	578,158	Mar. 2	555	126, 127	78	1368
Weighing-machine	F. H. Richards	578,159	Mar. 2	560	127, 128	78	1368
Weighing-machine	F. H. Richards	578,160	Mar. 2	568	129, 130	78	1370
Weighing-machine	F. H. Richards	578,161	Mar. 2	573	130, 131	78	1371
Weighing-machine	F. H. Richards	578,162	Mar. 2	579	131, 132	78	1372
Weighing-machine	F. H. Richards	578,163	Mar. 2	585	132, 133	78	1373
Weighing-machine	F. H. Richards	578,164	Mar. 2	592	134, 135	78	1374
Weighing-machine	F. H. Richards	578,165	Mar. 2	598	135, 136	78	1375
Weighing-machine	F. H. Richards	578,166	Mar. 2	603	136, 137	78	1376
Weighing-machine	F. H. Richards	579,444	Mar. 23	2764	655, 656	78	1842

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Weighing-machine	F. H. Richards	579,445	Mar. 23	2770	656, 657	78	1843
Weighing-machine	F. H. Richards	579,446	Mar. 23	2778	657, 658	78	1845
Weighing-machine	F. H. Richards	579,447	Mar. 23	2786	659, 660	78	1847
Weighing-machine	F. H. Richards	579,448	Mar. 23	2792	660, 661	78	1848
Weighing-machine	F. H. Richards	579,449	Mar. 23	2797	662	78	1848
Weighing-machine	F. H. Richards	579,450	Mar. 23	2802	663	78	1849
Weighing-machine	F. H. Richards	579,452	Mar. 23	2814	664, 665	78	1852
Weighing-machine	F. H. Richards	579,453	Mar. 23	2819	666	78	1852
Weighing-machine	F. H. Richards	579,454	Mar. 23	2823	666, 667	78	1853
Weighing-machine	F. H. Richards	579,455	Mar. 23	2828	667, 668	78	1854
Weighing machine. Automatic grain-	H. W. Mosher	579,240	Mar. 23	2434	575	78	1783
Weighing, packing, stamping, and labeling machine	R. L. Patterson	579,546	Mar. 23	2974	703, 704, 705, 706, 707, 708, 709	78	1883
Weighing-scoop	D. R. Joslyn	578,642	Mar. 9	1390	318	78	1544
Welding copper upon steel or iron	J. Burns	577,817	Feb. 23	2974	.....	78	1242
Well and device for driving same. Pipe	N. W. Davis	576,958	Feb. 9	1476	351	78	981
Well-drilling machine	M. G. Bunnell and T. G. Chapman	575,698	Jan. 26	2325	548	78	491
Well tool. Oil-	M. Blumenthal and H. Kintz	574,705	Jan. 5	574	134	78	106
Well-wall support	A. M. Kauffman	576,784	Feb. 9	1199	286	78	880
Wells. Appliance for unscrewing casings down in oil-	G. P. Tadder	577,812	Feb. 23	2965	700	78	1240
Wells. Removable plug for oil-	G. P. Tadder	577,811	Feb. 23	2964	700	78	1240
Welt-guide and gage. Combined	B. S. Bouton and S. E. Germain	575,100	Jan. 12	1272	307	78	257
Wharf structure	W. W. Harrison and J. Keers	576,451	Feb. 2	652	156	78	760
Wheel:							
See Bicycle-wheel. Car-wheel. Elevator drive-wheel. Expansible wheel. Fifth-wheel. Fly-wheel. Gear-wheel. Grinding-wheel. Locomotive drive-wheel. Metal wheel. Paddle-wheel. Percussion-wheel. Pneumatic-tired wheel. Sowing-wheel. Sprocket-wheel. Trolley-wheel. Vehicle-wheel. Velocipede-wheel. Water-wheel.							
Wheel	H. D. Hibbard	578,637	Mar. 9	1391	316	78	1543
Wheel	D. Hunt	576,579	Feb. 9	889	205	78	821
Wheel	B. F. Rittenhouse	579,180	Mar. 23	2344	550	78	1766
Wheel	H. W. Southworth	578,472	Mar. 9	1099	250	78	1489
Wheel for bicycles or other vehicles	L. B. Smyser	574,499	Jan. 5	196	45	78	39
Wheel-rim	W. A. Johnson	578,292	Mar. 2	801	181	78	1412
Wheel rim-joint. Vehicle-	E. B. Dake	579,673	Mar. 30	3217	764	78	1949
Wheel rim. Vehicle-	W. De Lany	578,392	Mar. 9	968	220	78	1462
Wheel-rims. Machine for boring	D. B. Wellvar	575,745	Jan. 26	2408	567	78	508
Wheels, &c., to shafts. Means for attaching	S. H. Farrar	576,665	Feb. 9	1023	239	78	846
Whiffletree	J. C. H. Hobbs	577,031	Feb. 16	1630	387	78	972
Whiffletree-hook	E. W. McLendon	579,768	Mar. 30	3373	806	78	1979
Whiffletree-hook	J. E. Patterson	576,884	Feb. 9	1378	329	78	914
Whiffletree-hook	M. M. Sanderson	577,453	Feb. 23	2355	553	78	1126
Whip-holder	F. O. Reeves	576,695	Feb. 9	1070	251	78	854
Whip-rack	F. Bortlik	576,254	Feb. 2	321	76	78	697
Whip-socket	A. T. Irion	578,929	Mar. 16	1912	442	78	1667
Whist table. Duplicate-	G. S. Boutwell	575,457	Jan. 19	1898	475	78	392
Wick-lifting device	C. Maschmeyer	578,251	Mar. 2	733	166	78	1400
Wick-raising device	F. P. Glazier	576,448	Feb. 2	648	155	78	759
Wick-tube	F. P. Glazier	576,447	Feb. 2	648	155	78	759
Winding and slitting machine	C. Koegel	577,865	Mar. 2	45	14	78	1269
Winding-machine	E. Dummer	574,478	Jan. 5	167	39	78	33
Winding machine. Cop-	S. W. Wardwell, Jr	576,355	Feb. 2	498	116, 117, 224, 225	78	731
Windlass. Portable	C. D. Lee	574,917	Jan. 12	990	225	78	198
Windmill	G. L. Curtis and O. E. Peterson	578,287	Mar. 2	795	180	78	1411
Windmill	T. B. Gassett	574,411	Jan. 5	57	13	78	18
Windmill	A. G. Olson and J. S. Lindquist	576,325	Feb. 2	451	106	78	722
Windmill	B. M. Totdahl	574,835	Jan. 5	782	187, 188	78	148
Windmill attachment	N. Burr	576,543	Feb. 9	826	192	78	809
Windmill-regulator	E. J. Marsh	574,813	Jan. 5	744	179	78	140
Windmill-regulator	S. A. Rouse	576,078	Jan. 26	2975	702	78	611
Windmill-regulator	J. N. Swanson	577,495	Feb. 23	2429	572	78	1140
Windmills. Automatic stopping device for	W. D. Williamson	579,854	Mar. 30	3517	841	78	2006
Window	R. Cullen	575,563	Jan. 19	2080	497	78	429
Window	J. A. Kirk	577,392	Feb. 16	2222	523	78	1085
Window	J. Ort	578,940	Mar. 16	1982	447	78	1671
Window	M. West	575,188	Jan. 12	1422	342	78	286
Window	J. M. Wheeler	574,908	Jan. 12	1046	253	78	215
Window	W. W. Wilbur	579,460	Mar. 23	2840	669	78	1856
Window. Automatic	W. W. Tidd	578,475	Mar. 9	1108	251, 252	78	1489
Window-cleaner	N. O. Starks	575,043	Jan. 12	1175	286	78	238
Window-cleaner's safety device	J. F. Girtler	578,145	Mar. 2	587	122	78	1364
Window-cleaning device	G. Ezekiel and E. E. Stone	579,108	Mar. 16	2219	522	78	1728

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Window-cleaning platform	H. G. Wilmerling	574,698	Jan. 5	562	131	78	104
Window-dressing device	E. P. Wood	576,016	Jan. 26	2864	678	78	503
Window dust-screen	H. B. Shutts	575,937	Jan. 26	2732	645	78	569
Window-fastener	W. Gardiner	575,519	Jan. 19	1999	478	78	415
Window fly-screen	J. N. Wigle	579,730	Mar. 30	3310	791	78	1966
Window-frame	C. R. Arnold and A. M. Lichtenberger.	578,187	Mar. 2	643	146	78	1393
Window frame and sash	D. W. Trotter	576,486	Feb. 2	708	169	78	771
Window-pane clasp	J. F. Bowman	576,360	Feb. 2	507	119	78	732
Window-screen	E. Larson	578,571	Mar. 9	1285	291	78	1524
Window-screen	E. E. Monroe	577,690	Feb. 23	2772	655	78	1268
Window-screen	C. I. Still	574,959	Jan. 12	1024	248	78	211
Window-slide. Metallic	W. Zuppann	579,631	Mar. 30	3148	746	78	1935
Wine. Manufacturing malt	F. Sauer	576,510	Feb. 2	754	.....	78	780
Wire, &c. Apparatus for treating	W. L. Hayes and L. W. Jernberg	578,819	Mar. 16	1730	397 398	78	1637
Wire-coupling	W. Gerard and J. H. Lawrence	575,641	Jan. 19	2229	527	78	459
Wire-cutter	J. H. Nash	578,408	Mar. 9	1087	247	78	1486
Wire-fastener	W. G. Hay	578,100	Mar. 2	440	103	78	1345
Wire-knitting machine	E. Wohlgemuth	577,906	Mar. 2	127	31	78	1284
Wire. Machine for making check-row	R. Faries	575,546	Jan. 19	2050	490 491	78	424
Wire mat	A. W. Knittel	579,517	Mar. 23	2990	689	78	1874
Wire-reeling machine. Barb-	J. Hauserman	579,752	Mar. 30	3345	800	78	1973
Wire strands. Machine for making twisted-	J. B. Cleaveland and C. Herdrich	579,563	Mar. 30	3080	716 717	78	1913
Wire-stretcher	J. C. Carpenter	574,992	Jan. 12	1073	260	78	219
Wire-stretcher	W. W. Hendricks	577,617	Feb. 23	2661	628	78	1182
Wire stretching and splicing device	G. K. Jackson	577,754	Feb. 23	2878	682	78	1223
Wire stretching and tying device	T. W. Kirby	577,861	Mar. 2	40	12	78	1268
Wire-twisting device	C. L. Chapman	579,737	Mar. 30	3318	798	78	1968
Wires. Device for picking up live	H. O. Rockwell	575,311	Jan. 12	1631	389 390	78	326
Wiring device. House-	H. R. Young	579,213	Mar. 23	2394	565	78	1776
Wood from peat or turf. Making artificial	C. Geige	579,571	Mar. 30	3045	.....	78	1916
Wood-grinding apparatus	E. F. Millard. (Reissue)	11,500	Mar. 2	828	188	78	1418
Wood. Method of and apparatus for impregnating and dyeing	P. Jaeger	578,516	Mar. 9	1192	269	78	1505
Wood-preserving compound	R. L. Valleen	579,101	Mar. 16	2205	.....	78	1726
Wood. Solidifying	J. McLachlan	575,973	Jan. 26	2794	.....	78	580
Woodworking-machine	P. Etches	579,746	Mar. 30	3333	796 797	78	1971
Woodworking-machine	J. M. Nash	577,492	Feb. 23	2421	570 571	78	1138
Wool, cotton-waste, &c., and apparatus therefor. Degreasing and cleansing	F. N. Turney	579,594	Mar. 23	2988	601 602 603	78	1876
Wool-washings. Apparatus for removing fat from	J. Holmes, H. E. Tankard, and W. Scaife.	579,581	Mar. 30	3062	723	78	1919
Work-box	A. Pherson	579,652	Mar. 30	3186	756	78	1942
Woven fabric	A. Heald	578,742	Mar. 16	1585	366	78	1609
Woven fabric	T. McAuliffe	579,164	Mar. 23	2313	544	78	1760
Woven fabric and loom for weaving same	B. Arnold	579,312	Mar. 23	2546	601 602	78	1803
Woven multiple-ply fabric	J. Buckler	574,387	Jan. 5	20	6	78	7
Wrapper	E. U. Kimbark	578,883	Mar. 16	1835	421	78	1654
Wrapper. Newspaper-	J. McConnell	574,981	Jan. 12	947	229	78	198
Wrapping and labeling machine	M. E. Brigham	575,325	Jan. 19	1658	396 397 398	78	349
Wrapping, folding, and sealing circulars. Machine for	R. A. Carter	577,418	Feb. 23	2298	540	78	1115
Wrench: *See* Chain wrench. Pipe-wrench. Monkey-wrench. Pipe and nut wrench. Nut-wrench. Tire-bolt wrench.							
Wrench	J. A. Barker	574,513	Jan. 5	220	52	78	43
Wrench	P. B. Canfield	575,592	Jan. 19	2139	507	78	442
Wrench	M. K. Flye	574,724	Jan. 5	611	145	78	113
Wrench	W. C. Gilmour	576,109	Feb. 2	53	14	78	647
Wrench	B. Herstein	577,255	Feb. 16	2006	475	78	1044
Wrench	J. H. Jenner	576,454	Feb. 2	656	157	78	761
Wrench	H. J. Kapka	574,487	Jan. 5	181	42	78	35
Wrench	J. P. Lavigne	579,438	Mar. 23	2752	653	78	1840
Wrench	G. W. Martin	577,770	Feb. 23	2906	687	78	1228
Wrench	J. A. McCawley	576,602	Feb. 9	924	213	78	826
Wrench	J. M. Palmer	574,624	Jan. 5	427	98	78	80
Wrench	E. H. Reed	578,421	Mar. 9	1013	232	78	1472
Wrench	J. J. Reinhart	575,999	Jan. 26	2817	664	78	584
Wrench	L. Seager	576,381	Feb. 2	545	128	78	738
Wrench	W. Vessey	576,487	Feb. 2	709	169	78	771
Wringer: *See* Clothes-wringer. Mop or clothes wringer. Mop-wringer.							
Wringer	I. F. Brown	574,386	Jan. 5	19	5	78	6
Writer's apparatus. Sign-	H. C. Carver	576,949	Feb. 9	1470	350	78	980
Writing fluid and making same	H. J. Lewis and S. L. Bellman	574,437	Jan. 5	100	.....	78	21
Writing-machine platens. Facing for	H. O. Canfield	579,128	Mar. 23	2255	531	78	1750
Yeast for bread-making. Preparing	L. A. Schiöttz-Christensen	579,809	Mar. 30	3437	.....	78	1990
Yeast from molasses. Manufacturing	G. Sobotka and A. Kliemetschek	578,367	Mar. 9	927	.....	78	1455
Yoke-coupling and draft-timber protector	O. L. Sterner and R. W. O'Donnell	579,905	Mar. 30	3598	861	78	2021
Yoke iron. Neck-	W. Craford and J. S. Atkinson	577,360	Feb. 16	2179	515	78	1077
Yoke retainer. Neck-	W. H. Raymond	576,377	Feb. 2	539	126	78	737
Zinc oxid. Manufacture of	W. Hampe and C. Schnabel	579,750	Mar. 30	3341	.....	78	1973

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Advertising fly-net	H. D. Gaines	26,693	Feb. 23	78	1249
Angle-iron	A. L. Slager	26,838	Mar. 30	78	2087
Antirattler	F. E. Kohler	26,652	Feb. 16	78	1099
Ash-pan	M. V. Conner	26,696	Feb. 23	78	1248
Ax	J. P. Kelly	26,513	Jan. 12	78	329
Badge	W. D. Murray and F. B. Schenck	26,625	Feb. 16	78	1094
Badge	C. S. Powell	26,624	Feb. 16	78	1094
Badge	H. S. Robbins	26,722	Mar. 9	78	1568
Badge	A. Höchster	26,840	Mar. 30	78	2088
Battery-cell	W. Mills	26,567	Jan. 26	78	615
Battery element	W. G. Ralston	26,527	Jan. 12	78	332
Bed-warmer	W. White	26,535	Jan. 12	78	333
Bedspread	W. S. Foster	26,854	Mar. 30	78	2040
Bedstead	W. S. Foster	26,855	Mar. 30	78	2040
Bedstead	J. Scott	26,597	Feb. 2	78	791
Bedstead	D. Frank	26,688	Feb. 23	78	1248
Bedstead end frame. Metal-	D. Frank	26,689	Feb. 23	78	1249
Bedstead end frame. Metal-	D. Frank	26,595	Feb. 2	78	791
Bedsteads. End frame for metal	E. C. Baynes	26,596	Feb. 2	78	791
Bedsteads. Head and foot board for metallic	W. Hess	26,716	Mar. 2	78	1422
Bedsteads. Solid spindle for	N. H. Raymond	26,796	Mar. 23	78	1893
Bell frame. Electric-	A. D. Slocomb	26,629	Feb. 16	78	1095
Bell. Table-	L. Sanders	26,758	Mar. 16	78	1732
Belt	E. Gumbinner	26,505	Jan. 12	78	328
Belt and garment hook	H. O. Nelson	26,487	Jan. 5	78	162
Bicycle-cover	C. E. Jenkins	26,520	Jan. 12	78	330
Bicycle-fork	R. M. Norton and F. A. Kershaw	26,519	Jan. 12	78	330
Bicycle-fork	C. H. Metz	26,764	Mar. 16	78	1733
Bicycle-fork crown	J. M. Andersen	26,522	Jan. 12	78	330
Bicycle-frame	F. P. Burnham	26,588	Feb. 2	78	790
Bicycle-frame	C. R. Harris	26,589	Feb. 2	78	790
Bicycle-frame	C. R. Harris	26,590	Feb. 2	78	790
Bicycle-frame	R. M. Keating	26,687	Feb. 23	78	1248
Bicycle frame. Tandem-	H. G. Piffard	26,739	Mar. 9	78	1570
Bicycle-handle	U. F. Henderson	26,542	Jan. 19	78	475
Bicycle parcel-carrier	F. Yunck	26,795	Mar. 23	78	1893
Bicycle-pump cylinder	J. Lines	26,839	Mar. 30	78	2087
Bicycle-rack	H. A. Dolge	26,765	Mar. 16	78	1733
Bicycle-saddle clamp-head	E. J. Toof	26,620	Feb. 9	78	950
Bicycle seat-clamps. Jaw for	E. P. Chalfant	26,738	Mar. 9	78	1570
Bicycle toe-clip	W. N. Beardsley	26,488	Jan. 5	78	162
Blowers. Head-plate for rotary	J. T. Wilkin	26,740	Mar. 9	78	1570
Boiler setting. Steam-	E. S. T. Kennedy	26,802	Mar. 23	78	1894
Boiler setting. Steam-	E. S. T. Kennedy	26,803	Mar. 23	78	1894
Boiler setting. Steam-	E. S. T. Kennedy	26,804	Mar. 23	78	1895
Boiler setting. Steam-	E. S. T. Kennedy	26,805	Mar. 23	78	1895
Bolt-washer	W. Heiser	26,563	Jan. 26	78	615
Bolt-washer	F. K. Wagner	26,712	Mar. 2	78	1421
Bonbon-lifter	G. Robarts	26,726	Mar. 9	78	1569
Book	H. Bristow	26,555	Jan. 26	78	614
Bottle	H. Lemmermann	26,482	Jan. 5	78	161
Bottle-holder	E. L. Jacques	26,729	Mar. 9	78	1569
Bouquet-holder	A. D. Postert	26,504	Jan. 12	78	328
Box	C. A. Morningstar	26,704	Mar. 2	78	1420
Box. Wooden	W. C. Estes	26,819	Mar. 30	78	2085
Box. Wooden vial-	W. C. Estes	26,674	Feb. 23	78	1247
Bracket	E. Bersbach	26,700	Mar. 2	78	1419
Braid	V. Schuck	26,814	Mar. 23	78	1897
Brick	M. L. Williams	26,848	Mar. 30	78	2089
Brush. Cycle-	J. T. Burnip	26,619	Feb. 9	78	950
Brush or bat. Fly-	G. R. Back	26,497	Jan. 5	78	163
Bucket. Mop-	W. J. Bell	26,849	Mar. 30	78	2089
Burial-casket	W. S. Jones	26,754	Mar. 9	78	1572
Burner-fixture	E. Lindner	26,617	Feb. 9	78	950
Button. Campaign-	W. G. Ashby	26,755	Mar. 16	78	1732
Button-hooks, &c. Handle for	W. A. Seidler	26,628	Feb. 16	78	1095
Button-hooks, &c. Handle for	W. A. Seidler	26,821	Mar. 30	78	2085
Button-setting tool	W. B. H. Dowse	26,767	Mar. 16	78	1734
Cake or cracker	W. W. Miller	26,575	Feb. 2	78	788
Calendar	H. W. Pitz	26,537	Jan. 19	78	474
Candle-shade	J. Vanderbilt	26,786	Mar. 23	78	1892
Candle-shade	J. Vanderbilt	26,787	Mar. 23	78	1892
Candle-shade	J. Vanderbilt	26,788	Mar. 23	78	1892
Cane fabric	H. M. Collester	26,548	Jan. 19	78	476
Cane fabric	H. M. Collester	26,549	Jan. 19	78	476
Cane fabric	H. M. Collester	26,550	Jan. 19	78	477
Cane fabric	H. M. Collester	26,551	Jan. 19	78	477
Cane fabric	H. M. Collester	26,552	Jan. 19	78	477
Cane fabric	H. M. Collester	26,553	Jan. 19	78	477
Cane fabric	E. Morris	26,856	Mar. 30	78	2040
Cane fabric	E. Morris	26,857	Mar. 30	78	2040
Cane fabric	E. Morris	26,858	Mar. 30	78	2041

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Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cane fabric	E. Morris	26,859	Mar. 30	78	2041
Cane fabric	E. G. Watkins	26,554	Jan. 19	78	477
Cap	J. Frank	26,533	Jan. 12	78	333
Car-bolster	T. M. Gallagher	26,516	Jan. 12	78	329
Car-bolster	T. M. Gallagher	26,517	Jan. 12	78	330
Car-bolster	T. M. Gallagher	26,518	Jan. 12	78	330
Car-bolster	J. M. Harrison	26,543	Jan. 19	78	475
Car-bolster	J. M. Harrison	26,544	Jan. 19	78	475
Car brake-beam	W. P. Bettendorf	26,489	Jan. 5	78	162
Card	F. R. Brooke	26,692	Feb. 23	78	1249
Card. Folding	J. T. Rosenheimer	26,581	Feb. 2	78	789
Card. Ornamental	W. E. Heron	26,538	Jan. 19	78	474
Carpet	A. Danby	26,781	Mar. 16	78	1736
Carpet	A. Danby	26,782	Mar. 16	78	1736
Carpet	W. M. Daintrey	26,860	Mar. 30	78	2041
Carpet	G. M. Fauser	26,608	Feb. 2	78	793
Carpet	J. W. Hill	26,610	Feb. 2	78	793
Carpet	J. W. Hill	26,611	Feb. 2	78	793
Carpet	W. L. Jacobs	26,721	Mar. 2	78	1422
Carpet	A. K. May	26,536	Jan. 12	78	333
Carpet	A. M. Rose	26,609	Feb. 2	78	793
Carpet	A. M. Rose	26,815	Mar. 23	78	1897
Carpet	A. M. Rose	26,861	Mar. 30	78	2041
Carpet	E. G. Sauer	26,816	Mar. 23	78	1897
Carpet	E. G. Sauer	26,817	Mar. 23	78	1897
Carpet	N. S. Stewart	26,603	Feb. 2	78	792
Carpet	N. S. Stewart	26,604	Feb. 2	78	792
Carpet	N. S. Stewart	26,605	Feb. 2	78	792
Carpet	N. S. Stewart	26,606	Feb. 2	78	792
Carpet	N. S. Stewart	26,607	Feb. 2	78	792
Carpet button. Stair-	D. Walker	26,710	Mar. 2	78	1421
Carpet button. Stair-	R. H. Warren	26,711	Mar. 2	78	1421
Carriage-body	W. R. Connor	26,807	Mar. 23	78	1896
Cartridge-clip. Temporary	T. C. Johnson	26,675	Feb. 23	78	1247
Cartridge-shell	J. Gardner	26,676	Feb. 23	78	1247
Cartridge-shell. Solid-head	J. Gardner	26,677	Feb. 23	78	1247
Casket-base	W. A. Sparks and L. Stein	26,660	Feb. 16	78	1100
Caster-pin	D. Nickel	26,733	Mar. 9	78	1570
Chain	P. J. Duerr	26,667	Feb. 23	78	1246
Chair	S. Kline	26,623	Feb. 9	78	951
Checkrein guide-loop	S. H. Hull	26,793	Mar. 23	78	1893
Churn-dasher	S. J. Hunter	26,598	Feb. 2	78	791
Cigar, &c.	F. E. Kaiser	26,749	Mar. 9	78	1571
Cigar-boxes. Ornamental pattern or print for	N. Witsch	26,750	Mar. 9	78	1571
Cigar-boxes. Ornamental print for	N. Witsch	26,785	Mar. 23	78	1892
Cigar-holder	C. S. Lehman	26,579	Feb. 2	78	789
Cigar-lighter, &c.	C. D. Golden	26,634	Feb. 16	78	1095
Cigar-lighter	C. D. Golden	26,672	Feb. 23	78	1247
Clasp	W. A. Johnston	26,706	Mar. 2	78	1420
Clip	J. Stivers	26,639	Feb. 16	78	1096
Clock-case	C. D. Golden	26,556	Jan. 26	78	614
Clock-case	C. D. Golden	26,557	Jan. 26	78	614
Clock-case	C. D. Golden	26,669	Feb. 23	78	1246
Clock-case	C. D. Golden	26,670	Feb. 23	78	1246
Clock-case	C. D. Golden	26,671	Feb. 23	78	1247
Clock-case	C. D. Golden	26,824	Mar. 30	78	2036
Clock-face	C. A. Cornibert	26,486	Jan. 5	78	162
Clothes-driers. Standard for	J. Eden	26,496	Jan. 5	78	163
Coat-hanger	C. M. Clinton	26,615	Feb. 9	78	950
Coin-controlled-machine case	B. J. Wertheimer	26,684	Feb. 23	78	1248
Coin-holder case	F. B. Wagner	26,637	Feb. 16	78	1096
Collar	R. C. Folger	26,534	Jan. 12	78	333
Court-plaster box	S. Lustig	26,578	Feb. 2	78	788
Crate tray. Berry-	D. E. Smith	26,685	Feb. 23	78	1248
Crumb-scraper	L. Wojdikow	26,699	Mar. 2	78	1419
Crumb-tray	L. Wojdikow	26,698	Mar. 2	78	1419
Crusher-bed	M. J. Eichhorn	26,545	Jan. 19	78	475
Cuspidor attachment	C. H. Sharp	26,511	Jan. 12	78	328
Dental tool for carrying amalgam	J. W. Ivory	26,678	Feb. 23	78	1247
Desk	J. Gramelspacher	26,811	Mar. 23	78	1896
Desk	J. Gramelspacher	26,812	Mar. 23	78	1896
Desk	J. Gramelspacher	26,813	Mar. 23	78	1896
Dish-drainer	W. O. Campbell	26,850	Mar. 30	78	2039
Display-holder	A. E. Kilner	26,498	Jan. 5	78	163
Display-rack	F. M. Harrington	26,810	Mar. 23	78	1896
Draft-lug and draw-bar follower	A. G. Steinbrenner	26,580	Feb. 2	78	789
Dress-shield	I. B. Kleinert	26,757	Mar. 16	78	1732
Electric-regulating-instrument casing	E. E. Werner	26,845	Mar. 30	78	2038
Electric-switch base	G. W. Hart	26,650	Feb. 16	78	1098
Electric-switch base	G. W. Hart	26,651	Feb. 16	78	1099
Engine-casing	J. W. Raymond	26,566	Jan. 26	78	615
Engine frame. Gas-	R. Temple	26,846	Mar. 30	78	2038
Engines. Casing for fluid-pressure	F. M. Comstock	26,621	Feb. 9	78	951
Ewer	W. H. Grindley	26,690	Feb. 16	78	1095
Ewer	W. H. Grindley	26,789	Mar. 23	78	1892
Eyeglass-lens	P. C. Claflin	26,607	Mar. 2	78	1419
Fabric	S. R. Ogg	26,694	Feb. 23	78	1249
Fabric	S. R. Ogg	26,695	Feb. 23	78	1249
Fabric	J. N. Wiggin	26,665	Feb. 16	78	1101
Fabric	J. N. Wiggin	26,666	Feb. 16	78	1101
Fan	J. M. Rector	26,626	Feb. 16	78	1094
Fastening	F. S. McKenney	26,583	Feb. 2	78	789
Fence	E. W. Buch	26,809	Mar. 23	78	1896
Fence-post base	W. T. Hawley	26,842	Mar. 30	78	2038
Flask	R. M. Wilcox	26,510	Jan. 12	78	328
Flower-holder	S. M. Griswold	26,631	Feb. 16	78	1095

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Foothold	C. J. Bailey	26,532	Jan. 12	78	333
Fork. Corn-	M. M. Donnelly	26,777	Mar. 16	78	1735
Form. Dress-	L. E. Hachereile	26,690	Feb. 23	78	1249
Fruit-holder	E. Strebeck	26,633	Feb. 16	78	1095
Frying-pan cover	C. Eagle	26,706	Mar. 2	78	1420
Furniture-pedestal	G. A. Bobrick	26,715	Mar. 2	78	1421
Game-board	D. F. Heverly	26,500	Jan. 5	78	164
Game-board	F. D. Lino	26,531	Jan. 12	78	332
Game-board	T. M. Simcoe	26,747	Mar. 9	78	1571
Game-counter	J. Wielar	26,499	Jan. 5	78	163
Gas-fixture	E. Lindner	26,559	Jan. 26	78	614
Gas-fixture	E. Lindner	26,560	Jan. 26	78	614
Glass. Plate-	W. Lender	26,718	Mar. 2	78	1422
Glass vessel or dish	T. G. Hawkes	26,730	Mar. 9	78	1569
Glass vessel or dish	T. G. Hawkes	26,731	Mar. 9	78	1569
Globe or shade	E. F. Caldwell	26,640	Feb. 16	78	1096
Globe or shade	E. F. Caldwell	26,641	Feb. 16	78	1096
Globe or shade	E. F. Caldwell	26,642	Feb. 16	78	1097
Globe or shade	E. F. Caldwell	26,643	Feb. 16	78	1097
Globe or shade	E. F. Caldwell	26,644	Feb. 16	78	1097
Globe or shade	E. F. Caldwell	26,645	Feb. 16	78	1097
Globe or shade	E. F. Caldwell	26,646	Feb. 16	78	1098
Globe or shade	E. F. Caldwell	26,647	Feb. 16	78	1098
Glove	E. Buscarlet	26,818	Mar. 30	78	2035
Grate	C. Howard	26,495	Jan. 5	78	163
Grate	A. S. Newby	26,493	Jan. 5	78	163
Grate	A. S. Newby	26,494	Jan. 5	78	163
Grate	A. S. Newby	26,658	Feb. 16	78	1099
Grate	C. W. Nason	26,525	Jan. 12	78	331
Grate-bar	H. S. Grannis	26,806	Mar. 23	78	1895
Grooving-machine frame	C. D. Golden	26,572	Jan. 26	78	616
Hall-rack	J. B. Meier	26,638	Feb. 16	78	1096
Hammer. Tapping-	S. K. Dennis	26,745	Mar. 9	78	1571
Headers. Main frame for	J. H. S. Davis and W. G. W. Evans.	26,792	Mar. 23	78	1893
Hook. Carpet-	J. C. Covert	26,540	Jan. 19	78	475
Hook-casting	J. R. Hirsh	26,791	Mar. 23	78	1893
Hook. Coat-	F. L. Faatz	26,680	Feb. 23	78	1247
Hook. Metallic spring-	F. T. Conner	26,835	Mar. 30	78	2037
Hook. Pad-	F. T. Conner	26,836	Mar. 30	78	2037
Hook. Pad-	G. W. Willard	26,837	Mar. 30	78	2037
Hook. Picture-	J. C. Covert	26,732	Mar. 9	78	1569
Hook. Snap-	J. Hirsch	26,832	Mar. 30	78	2037
Horse-boot	G. A. Singerly	26,833	Mar. 30	78	2037
Horseshoe	G. A. Singerly	26,834	Mar. 30	78	2037
Horseshoe	A. H. Rowe	26,587	Feb. 2	78	790
Horseshoe-calk	T. Shipley	26,490	Jan. 5	78	162
Ice-machine frame	E. C. Howe	26,492	Jan. 5	78	163
Incandescent-light bracket	J. C. Hirsch	26,772	Mar. 16	78	1734
Indicator-casing	A. H. Ramey, F. D. Rollins, and L. H. Rice.	26,636	Feb. 16	78	1096
Ironing-board	H. J. Hare	26,599	Feb. 2	78	791
Jar or bottle	J. Ruppert	26,790	Mar. 23	78	1893
Journal-box	T. Eubank	26,514	Jan. 12	78	329
Keeper-spring	J. C. Covert	26,541	Jan. 19	78	475
Keg guard. Beer-	A. H. Schram	26,539	Jan. 19	78	475
Kettle-scraper	M. K. Norton	26,796	Mar. 23	78	1894
Knife-handle	W. Schmachtenberg	26,723	Mar. 9	78	1568
Knitted undershirt	A. Davis	26,752	Mar. 9	78	1572
Ladder-rung. Tubular	W. A. McMechan	26,744	Mar. 9	78	1571
Lamp	E. L. Kitchell	26,509	Jan. 12	78	328
Lamp	G. R. Steinhauser	26,825	Mar. 30	78	2036
Lamp attachment	F. Foy	26,558	Jan. 26	78	614
Lamp. Bicycle-	W. S. Hamm	26,794	Mar. 23	78	1893
Lamp. Bicycle-	G. Havell and A. G. Williams	26,762	Mar. 16	78	1733
Lamp. Bicycle-	G. Havell and A. G. Williams	26,763	Mar. 16	78	1733
Lamp. Bicycle-	J. C. Miller	26,826	Mar. 30	78	2036
Lamp. Bicycle-	L. P. Whiteman	26,736	Mar. 9	78	1570
Lamp bulb. Incandescent-	L. H. Dolan	26,616	Feb. 9	78	950
Lamp bulb. Incandescent-	L. H. Dolan	26,827	Mar. 30	78	2036
Lamp frame. Arc-	J. A. Mosher	26,649	Feb. 16	78	1098
Lamp-globe	L. M. Cargo	26,648	Feb. 16	78	1098
Lamps, &c. Shade for	M. R. Littell	26,673	Feb. 23	78	1247
Lens for sidewalks	J. Magnusen	26,735	Mar. 9	78	1570
Lock-case	W. H. Taylor	26,709	Mar. 2	78	1421
Locomotive-buffers. Base-plate for	W. F. Richards	26,515	Jan. 12	78	329
Mantel	A. J. Fair	26,853	Mar. 30	78	2040
Match-safe	N. Altmyer	26,708	Mar. 2	78	1420
Match-safe	C. A. Daniell	26,576	Feb. 2	78	788
Match-safe	C. A. Daniell	26,577	Feb. 2	78	788
Mowing-machine section-knife	W. M. Brinkerhoff	26,778	Mar. 16	78	1735
Mowing-machine section-knife	W. M. Brinkerhoff	26,779	Mar. 16	78	1735
Music-box cover	G. A. Brachhausen	26,485	Jan. 5	78	161
Mustache-guard	C. Weller	26,483	Jan. 5	78	161
Mustache-guard clip	W. D. Dalgleish	26,508	Jan. 12	78	328
Necktie-holder	J. F. Berg, Jr.	26,618	Feb. 9	78	949
Necktie-retainer	W. F. Smith	26,727	Mar. 9	78	1569
Nut-lock	A. W. Spear	26,801	Mar. 23	78	1894
Overcoat	F. L. Sampson	26,753	Mar. 9	78	1572
Packing for pipes	H. P. Weale	26,512	Jan. 12	78	329
Padlock-case	J. S. Peacock	26,734	Mar. 9	78	1570
Pens and fillers. Holder for fountain-	H. M. Johnston	26,580	Feb. 2	78	789
Phonograph-frame	G. Bettini	26,701	Mar. 2	78	1419
Phonograph-motor frame	F. L. Capps	26,491	Jan. 5	78	162
Photographic mount	J. W. McCabe	26,760	Mar. 16	78	1732
Picture-frame molding, &c.	C. Bosworth	26,702	Mar. 2	78	1420

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pin. Impaling	C. F. and G. V. Green	26,507	Jan. 12	78	328
Plastic material. Tool for working	F. H. Crafts	26,820	Mar. 30	78	2036
Plate	W. H. Grindley	26,582	Feb. 2	78	799
Plate or similar article	A. Legér	26,761	Mar. 16	78	1733
Pole-holder	G. S. Webber	26,770	Mar. 16	78	1734
Portières, &c. Rope for	I. Dreyfus	26,664	Feb. 16	78	1101
Prism-block	J. R. Russel	26,826	Mar. 30	78	2036
Prismatic window-light	O. H. Basquin	26,820	Mar. 30	78	2036
Pump-frame	T. L. Murphy	26,501	Feb. 2	78	790
Purse-frame	A. Goertz	26,506	Jan. 12	78	328
Puzzle	G. L. Heugel	26,784	Mar. 23	78	1891
Puzzle-box	S. A. Cross	26,661	Feb. 16	78	1100
Puzzle-box	J. L. Donaly	26,530	Jan. 12	78	332
Puzzle-box	J. L. Hanson	26,705	Mar. 2	78	1420
Puzzle-box	C. J. Hartley	26,662	Feb. 16	78	1101
Puzzle-box	J. E. Lenhart	26,820	Mar. 30	78	2035
Puzzle-card	C. A. Way	26,529	Jan. 12	78	332
Radiator	W. and A. Castle	26,598	Feb. 2	78	790
Radiator	D. Colestock	26,592	Feb. 2	78	790
Radiator	A. W. Foote, Jr.	26,569	Jan. 26	78	616
Rail-joint chair	E. P. Caldwell	26,742	Mar. 9	78	1570
Rail-splice	W. H. Ziegler	26,844	Mar. 30	78	2038
Railway-spike	T. J. Jett	26,743	Mar. 9	78	1570
Railway-tie plate	R. Caffrey	26,843	Mar. 30	78	2038
Rake	A. W. H. Woizeski	26,650	Feb. 16	78	1100
Range. Cooking	F. A. Klaine	26,526	Jan. 12	78	332
Razor-handle	M. C. Lefferts	26,783	Mar. 23	78	1891
Rubber quarter-boot	W. B. McDonald	26,691	Feb. 23	78	1249
Rug	A. Petzold	26,719	Mar. 2	78	1422
Rug	A. Petzold	26,720	Mar. 2	78	1422
Saddle-plate	J. A. Maloney	26,831	Mar. 30	78	2037
Safe. Sleeping-car	I. Freed	26,714	Mar. 2	78	1421
Sash. Car-window	S. S. Bradshaw	26,692	Feb. 23	78	1248
Scoop	F. B. Pease	26,746	Mar. 9	78	1571
Sewing-machine frame	D. W. Goodell	26,847	Mar. 30	78	2038
Shade-roller tip	W. B. Shaw	26,561	Jan. 26	78	614
Shelf-key	A. S. Held	26,771	Mar. 16	78	1734
Shoe	A. A. Kohn	26,663	Feb. 16	78	1101
Shoestring-fastener	W. K. Webb and E. B. Andress	26,635	Feb. 16	78	1095
Silverware-border	A. Southwick	26,823	Mar. 30	78	2035
Soap or similar articles. Holder for	C. L. Wilkins	26,632	Feb. 16	78	1095
Spoon	N. Goodsell	26,724	Mar. 9	78	1568
Spoon, &c	D. A. Loeser	26,822	Mar. 30	78	2035
Spoon	G. R. Pohl	26,668	Feb. 23	78	1246
Spoon. Medicine	J. B. Wilson	26,725	Mar. 9	78	1568
Spoons, &c. Handle for	J. Clulee	26,627	Feb. 16	78	1095
Spoons, &c. Handle for	A. Miller	26,606	Mar. 2	78	1419
Stamp. Hand	J. B. Hudson	26,484	Jan. 5	78	161
Stocking-supporter	F. Kern	26,614	Feb. 9	78	950
Stove. Cooking	F. E. Lee	26,656	Feb. 16	78	1099
Stove door or panel	L. Kahn	26,594	Feb. 2	78	791
Stove. Gas	S. Boal	26,851	Mar. 30	78	2039
Stove. Heating	H. L. Mosher	26,654	Feb. 16	78	1099
Stove. Heating	H. L. Mosher	26,655	Feb. 16	78	1099
Stove or range	S. Boal	26,852	Mar. 30	78	2039
Stove or range	F. E. Lee	26,657	Feb. 16	78	1100
Stove or range	F. E. Lee	26,658	Feb. 16	78	1100
Strainer. Well	A. D. Cook	26,775	Mar. 16	78	1735
Strainer. Well	A. D. Cook	26,776	Mar. 16	78	1735
Suspender-end	W. F. Osborne	26,728	Mar. 9	78	1569
Switch contact member	M. Guett	26,564	Jan. 26	78	615
Switch-handle	G. W. Hart	26,565	Jan. 26	78	615
Tampon-carrier, &c	U. Harder	26,707	Mar. 2	78	1420
Target	I. N. Hannold and J. W. Sinnickson	26,600	Feb. 2	78	792
Thill-coupling plate	C. T. Redfield	26,584	Feb. 2	78	789
Tile. Hollow	H. A. Maurer	26,759	Mar. 16	78	1732
Tile. Roof	C. Keiser	26,717	Mar. 2	78	1422
Tire cleaner. Bicycle	M. Butler	26,521	Jan. 12	78	330
Tool. Compound	O. Aberer	26,679	Feb. 23	78	1247
Tool-handle	J. A. Traut	26,708	Mar. 16	78	1734
Tool-handle	J. A. Traut	26,709	Mar 16	78	1734
Towel-rack	C. D. Golden	26,573	Jan. 26	78	616
Toy	O. McDonald	26,528	Jan. 12	78	332
Toy	G. W. Wright	26,748	Mar. 9	78	1571
Toy chair	P. F. Pia	26,571	Jan. 26	78	616
Toy-slipper blank	H. S. Kerr	26,612	Feb. 9	78	949
Trimming	M. Loyd	26,601	Feb. 2	78	792
Trimming	M. Loyd	26,602	Feb. 2	78	792
Truck bolster. Car	E. F. Goltra	26,713	Mar. 2	78	1421
Truck. Hand	E. A. Hoefer	26,570	Jan. 26	78	616
Truck side frame. Car	W. F. Richards	26,586	Feb. 2	78	789
Truck side frame. Car	W. F. Richards	26,622	Feb. 9	78	951
Tube	C. F. Pike	26,562	Jan. 26	78	615
Tug-holder	H. Hamman	26,681	Feb. 23	78	1248
Type. Font of	H. Ihlenburg	26,751	Mar. 9	78	1572
Type. Font of printing	J. F. Cumming	26,501	Jan. 5	78	164
Undergarment	I. Goldberger	26,546	Jan. 19	78	476
Undergarment	I. Goldberger	26,547	Jan. 19	78	476
Underwaist	F. Kern	26,574	Jan. 26	78	616
Valve-casing	W. Railton and R. Campbell	26,683	Feb. 23	78	1248
Vehicle-body	H. G. Morris and P. G. Salom	26,523	Jan. 12	78	331
Vehicle-body	H. G. Morris and P. G. Salom	26,524	Jan. 12	78	331
Vehicle-wrench	E. D. Moore	26,618	Feb. 9	78	950
Waffle-iron support	M. Griswold, Jr., and J. C. Hollands	26,797	Mar. 23	78	1893
Wagon body. Delivery	Z. T. Rickards	26,808	Mar. 23	78	1895

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Watchcase	G. Palmer	26,508	Jan. 12	78	327
Water-closet cistern	E. Hammann	26,841	Mar. 30	78	2038
Water-closet cistern	E. P. Jones	26,568	Jan. 26	78	615
Water-wheel bucket	F. M. Bookwalter	26,774	Mar. 16	78	1735
Water-wheel. Hurdy-gurdy	A. D. Cook	26,799	Mar. 23	78	1894
Well-strainer	A. D. Cook	26,800	Mar. 23	78	1894
Well-strainer	O. J. Ziegler	26,773	Mar. 16	78	1734
Windmill-tower anchor	R. Lewis	26,502	Jan. 5	78	164
Woven fabric	H. W. Smith	26,780	Mar. 16	78	1735
Woven fabric	R. D. Shafer	26,766	Mar. 16	78	1734
Wrench	T. H. Burchell	26,758	Mar. 16	78	1732
Writing-shield					

ALPHABETICAL LIST OF TRADE-MARKS.

Title	Name.	No.	Date.	Official Gazette. Volume.	Page.
Agricultural machines and implements and their parts	D. M. Osborne & Company	29,719	Mar. 23	78	1898
Agricultural machines and implements and their several parts.	D. M. Osborne & Company	29,429	Jan. 5	78	167
Ale, porter, and lager-beer	Connecticut Breweries Company	29,754	Mar. 30	78	2043
Alloys and ordnance metals. Metal	C. N. Choate	29,570	Feb. 9	78	952
Antiseptic articles, compounds, and absorbents	Kutz Fibre Company	29,727	Mar. 23	78	1899
Antiseptic tablets	A. C. Liepe	29,565	Feb. 9	78	952
Aperient waters and medicinal preparations containing such salts. Salts of	E. Saxlehner	29,700	Mar. 16	78	1737
Aperient waters, their salts, and medicinal preparations containing such salts. Natural	E. Saxlehner	29,597	Feb. 23	78	1251
Asphalt-felt	T. J. Hind	29,654	Mar. 9	78	1573
Axes	J. H. Mann	29,573	Feb. 9	78	952
Baking-powder	M. Kahn	29,697	Mar. 16	78	1737
Baking-powder	Tillmann & Bendel	29,590	Feb. 23	78	1251
Bale ties. Cotton	W. W. Bierce	29,483	Jan. 5	78	168
Bath-powders	M. G. Laville	29,454	Jan. 12	78	336
Beef. Solidified	Mason-Heublein Co	29,450	Jan. 12	78	335
Beer	Acme Brewing Company	29,599	Feb. 23	78	1251
Beer	Acme Brewing Company	29,636	Mar. 2	78	1426
Beer	Acme Brewing Company	29,753	Mar. 30	78	2043
Beer	Goebel Brewing Company	29,566	Feb. 9	78	952
Beer and porter	Born & Co	29,547	Feb. 2	78	795
Beer. Lager	Estate of J. Flock	29,681	Mar. 9	78	1575
Beer. Lager	Estate of J. Flock	29,682	Mar. 9	78	1575
Beer. Lager	F. Feil	29,443	Jan. 12	78	334
Beer. Lager	F. Feil	29,737	Mar. 23	78	1900
Beer. Lager	John Eichler Brewing Company	29,482	Jan. 19	78	479
Beer. Lager	Reymann Brewing Company	29,750	Mar. 30	78	2043
Beer. Lager	G. Sedlmayr, Brauerei zum Spaten	29,755	Mar. 30	78	2043
Beer. Lager	G. Sedlmayr, Brauerei zum Spaten	29,756	Mar. 30	78	2043
Beer. Lager	G. Sedlmayr, Brauerei zum Spaten	29,757	Mar. 30	78	2043
Beer. Lager	G. Sedlmayr, Brauerei zum Spaten	29,758	Mar. 30	78	2043
Beer. Lager	A. H. Ziegler	29,600	Feb. 23	78	1252
Beer. Lager	Otto Huber Brewery	29,736	Mar. 23	78	1900
Beer, malt extracts, and similar malt and hop liquid products. Lager	W. H. Bowdlear	29,519	Jan. 26	78	619
Beeswax	G. C. Boldt	29,760	Mar. 30	78	2043
Beverages, foods, and relishes, and cigars. Certain named	Schovering, Daly & Gales	29,644	Mar. 2	78	1426
Bicycles	Schovering, Daly & Gales	29,772	Mar. 30	78	2044
Bicycles	H. J. Young	29,609	Feb. 23	78	1252
Bicycles and similar vehicles	L. G. Billings	29,695	Mar. 9	78	1576
Bicycles, tricycles, and motor-carriages	Tourist Cycle Company	29,607	Feb. 23	78	1252
Bicycles, velocipedes, their parts and attachments	Tourist Cycle Company	29,608	Feb. 23	78	1252
Bicycles, velocipedes, their parts and attachments	Hedworth Barium Company	29,554	Feb. 2	78	795
Binoxid of barium, chlorid of barium, nitrate of baryta, hydrate of baryta, peroxid of hydrogen, sulfid of barium, and sulfid of copper.	H. L. Coombs	29,548	Feb. 2	78	795
Bitters. Stomach	Read Holliday & Sons	29,764	Mar. 30	78	2043
Bleaching compounds, including bleaching-powders	C. H. Fischer & Co	29,684	Mar. 9	78	1576
Blue. Washing	Mishawaka Woolen Manufacturing Company.	29,476	Jan. 19	78	478
Boots and lumbermen's socks. Wool	N. L. Millard & Co	29,542	Feb. 2	78	794
Boots and shoes	S. Putney & Co	29,543	Feb. 2	78	794
Boots and shoes	Rice & Hutchins	29,653	Mar. 9	78	1573
Boots and shoes	A. Reed	29,498	Jan. 26	78	617
Boots and shoes having cushions upon their insoles	H. H. Mayhew Company	29,643	Mar. 2	78	1426
Boring tools. Wood and steel	Pector & Ducont, Jeune	29,525	Jan. 26	78	619
Brandy	J. W. Willard	29,508	Jan. 26	78	618
Brooms	Firm of F. Schmetz	29,472	Jan. 12	78	338
Buttons and oriental pearls. Porcelain	Fraser & Chalmers	29,666	Mar. 9	78	1574
Cams	C. Simpson	29,685	Mar. 9	78	1576
Candies, matches, disinfectants, and certain named laundry articles.	J. A. McClurg & Sons	29,635	Mar. 2	78	1425
Candy	American Molasses Candy Co	29,596	Feb. 23	78	1251
Candy. Chewing	Seufert Brothers Company	29,520	Jan. 26	78	619
Canned salmon	Seufert Brothers Company	29,521	Jan. 26	78	619
Canned salmon	Seufert Brothers Company	29,545	Feb. 2	78	794
Canned salmon	A. Dougherty	29,574	Feb. 16	78	1102
Cards. Playing	Roxbury Carpet Company	29,501	Jan. 26	78	617
Carpets. Tapestry Brussels and tapestry velvet	Middlesex Company	29,578	Feb. 23	78	1250
Cassimeres	Aultman & Taylor Machinery Company.	29,773	Mar. 30	78	2044
Castings of all descriptions. Steel	Schillinger Bros. Company and Schillinger Bros.	29,733	Mar. 23	78	1899
Cement and asphalt	Rock Plaster Company of New York and New Jersey.	29,551	Feb. 2	78	795
Cement, lime, and plaster	Towle Syrup Company	29,409	Jan. 5	78	166
Cereals, preserves, and jellies. Preparations of	McKesson & Robbins	29,729	Mar. 23	78	1896
Chemical preparations	C. Raspe	29,728	Mar. 23	78	1899
Chemical preparations	Firm of E. Merck	29,658	Mar. 9	78	1573
Chemicals having a narcotic influence	Liggett & Myers Tobacco Company	29,676	Mar. 9	78	1575
Cigarettes					

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cigars	J. M. Diaz	29,761	Mar. 30	78	2043
Clasps, buttons, and gloves	Henry M. Peyser & Company	29,746	Mar. 30	78	2042
Clinical instruments and appliances	H. Sanche	29,698	Mar. 9	78	1576
Coal-tar products, excepting dyes	Barrett Manufacturing Company	29,556	Feb. 2	78	796
Cocoa and spices	Peek Brothers & Winch	29,488	Jan. 19	78	479
Cocoa for drinking or cooking. Powdered	S. L. Bartlett	29,740	Mar. 23	78	1900
Complexion-cream	E. B. Eldridge	29,404	Jan. 5	78	165
Condiments	Papola Company	29,633	Mar. 2	78	1425
Confectionery and chocolates	H. Maillard	29,419	Jan. 5	78	167
Corsets	H. W. Lyon	29,575	Feb. 23	78	1250
Corsets	Warner Brothers Company	29,562	Feb. 9	78	952
Corsets and parts thereof	Kops Bros	29,561	Feb. 9	78	952
Cotton and mixed fabrics. Twilled	Otis Company	29,622	Mar. 2	78	1424
Cotton fabrics	Naumkeag Steam Cotton Company	29,480	Jan. 19	78	479
Cotton fabrics	Naumkeag Steam Cotton Company	29,564	Feb. 9	78	952
Cotton goods	Burton Bros. & Co	29,651	Mar. 9	78	1573
Cotton goods	Burton Bros. & Co	29,652	Mar. 9	78	1573
Cotton goods and fabrics known as bindings or fabrics used for binding or covering books.	L. Siegbert & Bro	29,441	Jan. 12	78	334
Cotton goods, especially sheetings and drillings	Tata & Co	29,625	Mar. 2	78	1424
Cotton goods, especially sheetings and drillings	Tata & Co	29,714	Mar. 23	78	1898
Cotton piece goods	Naumkeag Steam Cotton Company	29,390	Jan. 5	78	165
Cotton sheetings	Naumkeag Steam Cotton Company	29,442	Jan. 12	78	334
Crutches and parts thereof	Calley & Currier	29,505	Jan. 26	78	618
Cure for chapped hands, face, or lips	T. P. A. Kelly	29,726	Mar. 23	78	1899
Cure for pain and for general purposes of a liniment	C. A. Bowman	29,657	Mar. 9	78	1573
Cutlery, razors, and scissors. Pocket	McIlwaine, Linn & Hughes	29,572	Feb. 9	78	952
Cycles	Rover Cycle Company	29,668	Mar. 9	78	1574
Disinfectants	Hance Bros. & White	29,610	Feb. 23	78	1252
Dress-shields. Seamless stockinet	I. B. Kleinert Rubber Company	29,440	Jan. 12	78	334
Drills or drill-presses	Sibley & Ware	29,559	Feb. 2	78	796
Dyestuffs	Badische Anilin and Soda Fabrik	29,687	Mar. 9	78	1576
Dyestuffs	Badische Anilin and Soda Fabrik	29,688	Mar. 9	78	1576
Dyestuffs	Badische Anilin and Soda Fabrik	29,689	Mar. 9	78	1576
Earthworking-tools. Certain named	Collins Company	29,534	Jan. 26	78	620
Earthworking-tools. Certain named	Collins Company	29,535	Jan. 26	78	620
Earthworking-tools. Certain named	Collins Company	29,536	Jan. 26	78	620
Edge-tools. Certain named	Collins Company	29,532	Jan. 26	78	620
Edge-tools. Certain named	Collins Company	29,533	Jan. 26	78	620
Envelops	Thompson & Norris Company	29,495	Jan. 26	78	617
Extract of thyroid glands for use in obesity and cutaneous affections.	Farbenfabriken, vormals Fr. Bayer & Co.	29,406	Jan. 5	78	166
Eyeglasses and eyeglass-guards	J. King	29,401	Jan. 5	78	165
Eyeglasses and spectacles and parts thereof	Short, Nerney & Co	29,506	Jan. 26	78	618
Feed. Animal	Freeman Milling Company	29,593	Feb. 23	78	1251
Feed carriers and cutters and all agricultural implements and machinery.	W. R. Harrison & Co	29,774	Mar. 30	78	2044
Fertilizers	J. J. Turner & Co	29,734	Mar. 23	78	1900
Fertilizers. Potash	Bowker Fertilizer Company	29,601	Mar. 9	78	1576
Figs with sugar and other ingredients. Preparation of	Ervin A. Rice Company	29,702	Mar. 30	78	2043
Filters	C. T. Strauss	29,667	Mar. 9	78	1574
Fire-extinguishing apparatus	Dupalet et D'Arnoult	29,710	Mar. 16	78	1738
Fishing-rods	Montague City Rod Company	29,504	Jan. 26	78	618
Flags, bunting, and decorations	Annin & Co	29,674	Mar. 9	78	1575
Flour. Aged glutinous	E. A. Smith	29,594	Feb. 23	78	1251
Flour and cereal foods	Pillsbury-Washburn Flour Mills Company.	29,688	Mar. 9	78	1576
Flour. Wheat-	Duluth Imperial Mill Company	29,569	Feb. 9	78	952
Flour. Wheat-	Freeman Milling Company	29,591	Feb. 23	78	1251
Flour. Wheat-	Kratochwill Milling Company	29,444	Jan. 12	78	335
Flour. Wheat-	Pillsbury-Washburn Flour Mills Company.	29,445	Jan. 12	78	335
Flour. Wheat-	Pillsbury-Washburn Flour Mills Company.	29,446	Jan. 12	78	335
Flour. Wheat-	R. M. dos Santos	29,416	Jan. 5	78	166
Flour. Wheat-	R. M. dos Santos	29,417	Jan. 5	78	166
Food preparation in dry form for infants and invalids	Smith, Kline & French Company	29,408	Jan. 5	78	166
Food. Stock-	C. R. Love	29,735	Mar. 23	78	1900
Foods, beverages, and condiments. Certain named	J. F. Humphreys & Company	29,592	Feb. 23	78	1251
Fruit. Dried	Protopazzi Brothers	29,544	Feb. 2	78	794
Fruits, such as oranges, lemons, and grape fruit. Citrus	W. B. Wall	29,634	Mar. 2	78	1425
Fruits, vegetables, and sauces	Joseph Campbell Preserve Company.	29,448	Jan. 12	78	335
Game apparatus. Parlor	Parker Bros	29,612	Mar. 2	78	1423
Game apparatus. Parlor	Parker Bros	29,671	Mar. 9	78	1574
Gin	Firm of P. Hoppe	29,641	Mar. 2	78	1426
Gin and other spirituous liquors	National Distilling Company	29,640	Mar. 2	78	1426
Ginghams and other colored cotton fabrics	Lancaster Mills	29,713	Mar. 23	78	1898
Glass batch. Composition for manufacturing	J. Kempner	29,562	Feb. 2	78	795
Glove-fasteners	Foster, Paul & Company	29,743	Mar. 30	78	2042
Glove-fasteners	Foster, Paul & Company	29,744	Mar. 30	78	2042
Glove-fasteners	Foster, Paul & Company	29,745	Mar. 30	78	2042
Gloves. Kid and suede	Jordan, Marsh & Co	29,439	Jan 12	78	334
Gloves. Skin or kid	Foster, Paul & Company	29,716	Mar. 23	78	1898
Gloves. Skin or kid	Foster, Paul & Company	29,717	Mar. 23	78	1898
Gloves. Skin or kid	Foster, Paul & Company	29,741	Mar. 30	78	2042
Gloves. Skin or kid	Foster, Paul & Company	29,742	Mar. 30	78	2042
Glue. Liquid	E. J. Mills	29,601	Feb. 23	78	1252
Goring	Chadbourne & Moore	29,621	Mar. 2	78	1424
Goring	Chadbourne & Moore	29,622	Mar. 2	78	1424
Gum. Chewing-	Lauer & Suter	29,415	Jan. 5	78	166
Gunpowder, shells loaded therewith, blasting-powder, guncotton, high explosives, fuses, and electric batteries.	Laflin & Rand Powder Company	29,555	Feb. 2	78	795
Guns and pistols	I. Johnson	29,530	Jan. 26	78	620
Guns and pistols	I. Johnson	29,531	Jan. 26	78	620
Hair-crimping pins	J. Battles	29,584	Feb. 23	78	1250

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Hardware, tools, agricultural implements, scythe-stones, and slates.	Hammacher, Delius & Co	29,498	Jan. 19	78	480
Harmonicas. Mouth-	Strauss, Sachs & Co	29,402	Jan. 5	78	165
Harness-snaps	J. C. Covert	29,494	Jan. 19	78	480
Heaters, ranges, and stoves	Majestic Manufacturing Company	29,528	Jan. 26	78	620
Hoes	D. & H. Scovil	29,529	Jan. 26	78	620
Hose. Hydraulic or fire	Eureka Fire Hose Company	29,579	Feb. 23	78	1250
Hungaria natural bitter water	M. S. Blau Soehne	29,752	Mar. 30	78	2042
Inks. Indelible	A. L. Williston	29,437	Jan. 12	78	334
Inks. Marking and stenciling	Binney & Smith	29,410	Jan. 5	78	166
Ironware-polish	A. M. Dumoulin	29,571	Feb. 9	78	952
Iron. Wrought-	Phillips, Nimick & Co	29,423	Jan. 5	78	167
Iron. Wrought-	Phillips, Nimick & Co	29,424	Jan. 5	78	167
Iron. Wrought-	Phillips, Nimick & Co	29,425	Jan. 5	78	167
Lacings	Neverbreak Shoe String Company	29,563	Feb. 9	78	952
Lamps and lanterns. Railway	Railroad Signal Lamp and Lantern Company.	29,769	Mar. 30	78	2044
Lamps and lanterns. Railway	Railroad Signal Lamp and Lantern Company.	29,770	Mar. 30	78	2044
Lamps and lanterns. Railway	Railroad Signal Lamp and Lantern Company.	29,771	Mar. 30	78	2044
Lamps. Bicycle-	Cycle Danger Signal Company	29,558	Feb. 2	78	796
Lamps, burners, lamp-chimneys, and incandescent mediums for gas-lamps. Gas	Apollo Incandescent Gas Light Company.	29,768	Mar. 30	78	2044
Lawn-dressing. Certain odorless	E. Rauh & Sons	29,765	Mar. 30	78	2044
Leather	M. Straus & Sons	29,675	Mar. 9	78	1575
Leather-dressing	Restorff & Bettmann	29,413	Jan. 5	78	166
Leather dressing and polish	Goodrich Polish Manufacturing Co	29,514	Jan. 26	78	619
Leather dressing and polish	Goodrich Polish Manufacturing Co	29,515	Jan. 26	78	619
Liniment	Brandreth Company	29,507	Jan. 26	78	618
Liniment	C. Hilding	29,508	Jan. 26	78	618
Liniments or ointments	J. V. Crum	29,705	Mar. 16	78	1738
Linseed-meal	Cleveland Linseed Oil Company	29,698	Mar. 16	78	1737
Liquors. Distilled	Hiram Walker & Sons	29,664	Mar. 9	78	1574
Locks and builders' hardware	Yale & Towne Manufacturing Company.	29,470	Jan. 12	78	338
Locks, latches, and keys	Yale & Towne Manufacturing Company.	29,642	Mar. 2	78	1426
Luting, cement, or putty. Non-hardening elastic	F. O. Pierce	29,603	Feb. 23	78	1252
Lye	W. H. Priesmeyer	29,487	Jan. 19	78	479
Lye	W. H. Priesmeyer	29,631	Mar. 2	78	1425
Mackintoshes and other rubber clothing	McCord Rubber Company	29,750	Mar. 30	78	2042
Malt extract	Bernheim Brothers	29,567	Feb. 9	78	952
Malt extract	Val. Blatz Brewing Company	29,568	Feb. 9	78	952
Malt extract	Welde & Thomas Brewing Company	29,523	Jan. 26	78	619
Mandolins	Lyon & Healy	29,670	Mar. 9	78	1574
Medicament comprising menthol dissolved in menthol ether of valeric acid.	Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung.	29,457	Jan. 12	78	336
Medicinal tonic	J. H. Winkelmann	29,662	Mar. 9	78	1574
Medicine. Certain named	B. J. Lauer	29,510	Jan. 26	78	618
Medicine. Diuretic	Lamar & Rankin Drug Company	29,491	Jan. 19	78	480
Medicine for the eyes	L. Varesio	29,626	Mar. 2	78	1424
Medicine for the purification of the blood	C. Barsotti	29,763	Mar. 30	78	2043
Medicines and surgical instruments. Certain named	A. E. Burns	29,587	Feb. 23	78	1250
Medicines in liquids, pills, powders, elixirs, salves, cordials, and medicinal plasters. Patent	Home Laboratory Association	29,661	Mar. 9	78	1574
Medicines. Laxative	Tarrant & Co	29,725	Mar. 23	78	1899
Metal. Antifriction	R. B. Wilson	29,619	Mar. 2	78	1423
Metal-polishes	A. A. Fowler	29,513	Jan. 26	78	618
Mineral water	Colonial Water Company	29,751	Mar. 30	78	2042
Mineral waters. Natural	Estate of B. Doolittle	29,739	Mar. 23	78	1900
Molasses	P. Duff & Sons	29,485	Jan. 19	78	479
Mouth-wash and tooth-powder	H. Ievers	29,628	Mar. 2	78	1424
Mowers and trimmers. Lawn	Pastime Lawn Mower Company	29,645	Mar. 2	78	1426
Musical boxes and disks	Mermod Frères	29,435	Jan. 12	78	334
Nail-pullers	Maltby, Henley & Co	29,605	Feb. 23	78	1252
Nails and tacks	Fast Color Nail and Tack Company	29,665	Mar. 9	78	1574
Nails. Horse-	Northwestern Horse Nail Manufacturing Company.	29,422	Jan. 5	78	167
Needles	Excelsior Needle Company	29,585	Feb. 23	78	1250
Needles	T. Harper	29,615	Mar. 2	78	1423
Nipples for nursing-bottles	Meinecke & Company	29,722	Mar. 23	78	1899
Oats and oatmeal. Rolled	Muscatine Oat Meal Company	29,418	Jan. 5	78	167
Oats. Rolled	American Cereal Company	29,632	Mar. 2	78	1425
Oil. Refined petroleum-	Tide Water Oil Company	29,690	Mar. 9	78	1576
Oils refined from petroleum. Illuminating-	Standard Oil Company of New York.	29,486	Jan. 19	78	479
Ointments, creams, powders, and soaps. Preparations for skin diseases, including	Zomēla Co	29,511	Jan. 26	78	618
Optic glasses and instruments	A. Lévy	29,616	Mar. 2	78	1423
Packing, gaskets, and rubber compound	Peerless Rubber Manufacturing Company.	29,620	Mar. 2	78	1423
Packing. Steam and hydraulic piston	J. M. Watt's Sons	29,721	Mar. 23	78	1899
Paint, oil, varnishes, stains, and finishes. Article for removing	Harrison Brothers & Co	29,411	Jan. 5	78	166
Paint, oil, varnishes, stains, and finishes. Article for removing	Harrison Brothers & Co	29,412	Jan. 5	78	166
Paint, oil, varnishes, wood-stains, and finishes, and for cleaning surfaces. Article for removing	Harrison Brothers & Co	29,455	Jan. 12	78	336
Paints	Harrison Bros. & Co	29,602	Feb. 23	78	1252
Paints	James E. Patton Company	29,611	Feb. 23	78	1252
Paints. Ready-mixed	Harrison Bros. & Co	29,732	Mar. 23	78	1899
Paper	L. L. Brown Paper Company	29,436	Jan. 12	78	334
Paper cutters. Roll-	American Roll Paper Company	29,606	Feb. 23	78	1252

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Paper, metal roofing, and fabric roofing. Building-	Kansas City Metal Roofing and Corrugating Company.	29,720	Mar. 23	78	1806
Paper. Writing, note, and other	Whiting Paper Company	29,541	Feb. 2	78	794
Papers. Writing-	Mittineague Paper Company	29,613	Mar. 2	78	1423
Pastils	A. A. Géraudel	29,656	Mar. 9	78	1573
Pens	E. Kempshall	29,614	Mar. 2	78	1423
Pens for vertical writing	Spencerian Pen Company	29,690	Mar. 16	78	1737
Peptone of meat	Liebig's Extract of Meat Company	29,522	Jan. 26	78	619
Perfumes. Fixateur for giving permanency to the bouquet of	P. Mottet & Cie	29,456	Jan. 12	78	336
Periodicals. Fashion	Butterick Publishing Company	29,712	Mar. 23	78	1806
Photographic business. Articles, other than siderostats, relating to	P. Gautier	29,438	Jan. 12	78	334
Pianos	F. G. Smith	29,669	Mar. 9	78	1574
Pills	D. S. Fleming	29,409	Jan. 12	78	338
Pills and pellets	Brown Manufacturing Company	29,512	Jan. 26	78	618
Planters. Corn-	Union Corn Planter Co	29,471	Jan. 12	78	338
Porter	Miller Brewing Company	29,663	Mar. 9	78	1574
Porter and lager-beer	Duluth Brewing and Malting Co	29,421	Jan. 5	78	167
Pumice-stones for grinding purposes	H. Bender & Co	29,731	Mar. 23	78	1809
Ranges, stoves, and heaters	Thomas, Roberts, Stevenson Company.	29,604	Feb. 23	78	1252
Remedies for diseases of the throat and lungs	H. F. Lindeman	29,692	Mar. 9	78	1576
Remedies for headache, neuralgia, rheumatism, and dyspepsia, and essences and extracts for cooking purposes.	C. F. Stoffregen	29,490	Jan. 19	78	480
Remedies for neuralgia, rheumatism, and similar maladies.	Hardimiller Brothers	29,550	Feb. 2	78	795
Remedies for piles	J. Williams	29,407	Jan. 5	78	166
Remedies for pulmonary diseases, including pills	Lester H. Greene Co	29,587	Feb. 23	78	1251
Remedies. Hair and scalp	L. P. Elliott	29,627	Mar. 2	78	1424
Remedies. Poultry, pigeon, pet stock, and veterinary	Imperial Remedy Co	29,708	Mar. 16	78	1737
Remedy. Cough	L. R. Baridon	29,660	Mar. 9	78	1574
Remedy for diseases of the throat and lungs	R. E. Fleischer & Co	29,659	Mar. 9	78	1574
Remedy for women's diseases	G. G. Powning	29,509	Jan. 26	78	618
Ribbons. Velvet and satin	Vischer & Co	29,576	Feb. 23	78	1250
Roofing material	J. F. Chevalier	29,737	Mar. 30	78	2044
Rubber belting, hose, packing, and utensils made of rubber.	Peerless Rubber Manufacturing Company.	29,502	Jan. 26	78	618
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,458	Jan. 12	78	336
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,459	Jan. 12	78	336
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,460	Jan. 12	78	336
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,461	Jan. 12	78	337
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,462	Jan. 12	78	337
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,463	Jan. 12	78	337
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,464	Jan. 12	78	337
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,465	Jan. 12	78	337
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,466	Jan. 12	78	337
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,467	Jan. 12	78	338
Rubber, gutta-percha, and other vulcanizable gums. India-	G. A. Alden & Co	29,468	Jan. 12	78	338
Rubber or elastic heels for boots and shoes	D. A. McDonald	29,618	Mar. 2	78	1423
Rubber specialties for use by physicians and invalids	Diamond Rubber Company	29,557	Feb. 2	78	796
Saleratus, soda, and sal-soda	Church & Dwight Company	29,518	Jan. 26	78	619
Salmon and canned fruits and vegetables. Packed	J. G. Megler	29,449	Jan. 12	78	335
Salve	J. MacRae	29,700	Mar. 16	78	1738
Salves, cordials, pills, syrups, and other medicines, essences, and perfumes.	Raymond Medicine Company	29,405	Jan. 5	78	165
Scouring material	Scour Bright Co	29,553	Feb. 2	78	795
Screws. Wood-	American Screw Company	29,694	Mar. 9	78	1576
Serums	P. Yvon	29,489	Jan. 19	78	480
Sewing-machines	Wheeler & Wilson Manufacturing Company.	29,526	Jan. 26	78	619
Shears and scissors	R. H. Seymour	29,432	Jan. 5	78	168
Sheet-metal ware enameled. Stamped and pieced	American Stamping Company	29,428	Jan. 5	78	167
Sheetings. Cotton	Naumkeag Steam Cotton Company	29,479	Jan. 19	78	478
Sheetings, drilling, calico, and muslin	Abe Stein Company	29,477	Jan. 19	78	478
Sheetings, drills, and ducks	Stark Mills	29,623	Mar. 2	78	1424
Shirtings. Cotton	Naumkeag Steam Cotton Company	29,478	Jan. 19	78	478
Shirts	Corliss, Coon & Co	29,496	Jan. 26	78	617
Shoes	C. Kallman	29,617	Mar. 2	78	1423
Shoes	A. Pinsker & Son	29,747	Mar. 30	78	2042
Shoes	J. & M. Strasburger	29,748	Mar. 30	78	2042
Shoes. Bicycle-	Rice & Hutchins	29,719	Mar. 23	78	1806
Shoes, boots, hats, coats, caps, pants, vests, gloves, and similar articles of apparel.	T. F. Byrnes	29,497	Jan. 26	78	617
Shoes. Men's and boys'	Tootle, Wheeler & Motter	29,499	Jan. 26	78	617
Shoes. Women's, misses', and children's	Tootle, Wheeler & Motter	29,500	Jan. 26	78	617
Shovels and scoops	E. H. Linley	29,431	Jan. 5	78	168
Skates. Ice-	Union Hardware Company	29,711	Mar. 16	78	1738
Skirt-protectors	H. Feder	29,749	Mar. 30	78	2042
Sledges, hammers, wrenches, shoes, dies, and saws	Collins Company	29,537	Jan. 26	78	620
Sledges, hammers, wrenches, shoes, dies, and saws	Collins Company	29,538	Jan. 26	78	620
Sledges, hammers, wrenches, shoes, dies, and saws	Collins Company	29,539	Jan. 26	78	620
Soap	C. Davis & Co	29,453	Jan. 12	78	335
Soap	Petrolia Manufacturing Company	29,581	Feb. 23	78	1250
Soap	Petrolia Manufacturing Company	29,582	Feb. 23	78	1250
Soap	Petrolia Manufacturing Company	29,583	Feb. 23	78	1250
Soap	S. B. Thorp	29,414	Jan. 5	78	166
Soap	M. Werk Company	29,516	Jan. 26	78	619
Soap for cleansing and dyeing purposes	Maypole Soap Syndicate	29,517	Jan. 26	78	619
Soap for the complexion, toilet, bath, nursery, and all cutaneous affections.	C. F. Miller	29,486	Jan. 19	78	479
Soap. Toilet, bath, and laundry	Vacuum Soap Company	29,686	Mar. 9	78	1576
Soda and silicate of soda not used in connection with compounds for scalding raw wool. Caustic	Joseph Crosfield & Sons	29,630	Mar. 2	78	1424
Soldering copper	Union Hardware Company	29,560	Feb. 2	78	796
Soldering-flux	Grasselli Chemical Company	29,766	Mar. 30	78	2044

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Soups, essences of meat, and extracts of meat and vegetables.	Oxine Limited	29,451	Jan. 12	78	33
Spices	Tillmann & Bendel	29,589	Feb. 23	78	1251
Sporting goods. Certain named	Hibbard, Spencer, Bartlett & Company.	29,655	Mar. 9	78	1575
Starch. Laundry	T. Kingsford & Son	29,595	Feb. 23	78	1251
Starch. Laundry	Moseley-Horne Company	29,452	Jan. 12	78	335
Steel bar, steel plate, and articles made therefrom	Crescent Steel Company	29,426	Jan. 5	78	167
Steel bar, steel plate, and articles made therefrom	Crescent Steel Company	29,427	Jan. 5	78	167
Stethoscopes or instruments for rendering audible sounds in the human body.	M. Wallach	29,728	Mar. 23	78	1809
Stove-castings	Detroit Stove Works	29,707	Mar. 16	78	1738
Stoves and soldering apparatus. Petroleum-	B. A. Hjorth & Co	29,527	Jan. 26	78	620
Stoves. Fluid or oil	Novelty Manufacturing Company	29,709	Mar. 16	78	1738
Stoves. Heating and cooking	Detroit Stove Works	29,706	Mar. 16	78	1738
Suits. Men's sack	Kuh, Nathan & Fischer Company	29,475	Jan. 19	78	478
Surgical instruments and appliances	Kny-Scheerer Company	29,586	Feb. 23	78	1250
Surgical instruments and appliances	Kny-Scheerer Company	29,724	Mar. 23	78	1809
Syrup	Ehrhart, Conrad & Co	29,484	Jan. 19	78	479
Tapes. Stiffening-	Warren Featherbone Company	29,400	Jan. 5	78	165
Tea, coffee, cocoa, chocolate, and chicory	C. A. Ruddock	29,546	Feb. 2	78	794
Tickets. Meal-	C. M. Knudson	29,650	Mar. 9	78	1573
Tobacco and tobacco products for use in veterinary remedies, insecticides, and sheep-dip. Smoking and chewing	Tobacco Warehousing and Trading Company.	29,677	Mar. 9	78	1575
Tobacco and tobacco products for use in veterinary remedies, insecticides, and sheep-dip. Smoking and chewing	Tobacco Warehousing and Trading Company.	29,678	Mar. 9	78	1575
Tobacco and tobacco products for use in veterinary remedies, insecticides, and sheep-dip. Smoking and chewing	Tobacco Warehousing and Trading Company.	29,679	Mar. 9	78	1575
Tobacco, cigars, snuff, distilled and fermented liquors, and beverages.	G. J. Richter	29,549	Feb. 2	78	795
Toilet articles and preparations	Lazell, Dalley & Company	29,629	Mar. 2	78	1424
Toilet-waters	L. T. Piver & Cie	29,580	Feb. 23	78	1250
Tomatoes	Joseph Campbell Preserve Company.	29,447	Jan. 12	78	335
Tonics	Brown Manufacturing Company	29,701	Mar. 16	78	1737
Tonics and remedies for alcoholism and other nervous diseases.	G. L. Weed, W. W. Wilson, and B. F. Chadsey.	29,646	Mar. 2	78	1426
Tooth-powders and liquid dentifrice	W. V. Lawton	29,403	Jan. 5	78	165
Trousers	B. J. Wolf & Sons	29,673	Mar. 9	78	1575
Trousers, coats, and vests	Reinach-Ullman & Company	29,672	Mar. 9	78	1575
Tubing. Weldless steel	American Weldless Steel Tube Company.	29,492	Jan. 19	78	480
Twine. Seine-	C. E. Brownell	29,481	Jan. 19	78	479
Veterinary remedies	C. H. Lanyon	29,704	Mar. 16	78	1737
Wagons	Weber Wagon Company	29,430	Jan. 5	78	168
Watch-movements and parts thereof	American Waltham Watch Company.	29,434	Jan. 12	78	334
Watches	Mosbacher & Co	29,540	Feb. 2	78	794
Watches and watch-movements	American Waltham Watch Company.	29,473	Jan. 19	78	478
Watches, movements, and parts of watches	American Waltham Watch Company.	29,648	Mar. 9	78	1573
Watches, watch-movements, and parts of watches	American Waltham Watch Company.	29,647	Mar. 9	78	1573
Watches, watch-movements, and parts of watches	American Waltham Watch Company.	29,649	Mar. 9	78	1573
Whisky	J. Blank & Co	29,699	Mar. 16	78	1737
Whisky	W. M. Fliess & Co	29,738	Mar. 23	78	1900
Whisky	Gooderham & Worts	29,680	Mar. 9	78	1575
Whisky	John Osborn's Sons & Company	29,638	Mar. 2	78	1426
Whisky	E. Walters	29,639	Mar. 2	78	1426
Whisky	Alexr. Young Co	29,524	Jan. 26	78	619
Whisky. Rye	D. Malone	29,420	Jan. 5	78	167
Wicks. Lamp-	C. J. Schneider	29,715	Mar. 23	78	1908
Wine. Claret	J. M. Vergnole	29,508	Feb. 23	78	1251
Wine. Port	S. Streit & Co	29,637	Mar. 2	78	1426
Wood preservatives	American Wood Preserving Company.	29,730	Mar. 23	78	1809
Woolen cloth	Middlesex Company	29,577	Feb. 23	78	1250
Writing fluids and bottles, wells, and stands for same	E. Davis	29,474	Jan. 19	78	478

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Albuminized Food"	Smith, Kline & French Company	6,547	Mar. 9	78	1438
"Dr. Raub's Egg White Soap"	C. F. Miller	6,548	Mar. 30	78	1910

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Beauty and Strength." (For Trunks and the Like)	N. Drucke & Co	43	Jan. 12	78	179
"Cut No. 5670 B. V."	I. E. Palmer	44	Jan. 12	78	179
"Cut No. 567, G. V."	I. E. Palmer	45	Feb. 23	78	1110
"Don't Monkey." (For Molasses Candy)	H. L. Hildreth	42	Jan. 5	78	2

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Volume.	Page.
Advertising rack	Isaac H. Randall	380,695	Apr. 10, 1888	Mar. 10, 1897	78	1909
Process of producing and coating patterns	William P. Smith	567,694	Sept. 15, 1896	Feb. 26, 1897	78	1438
System for electroplating vessels	James H. George	565,975	Aug. 18, 1896	Mar. 10, 1897	78	1595

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